

V2715

NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TESTING
PASSENGER CARS

1998 DODGE NEON
4-DOOR SEDAN
NHTSA NO: MW0308

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: November 4, 1997

Report Date: December 18, 1997

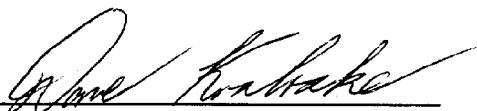
FINAL REPORT

Prepared For:

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				14. Sponsoring Agency Code NPS-10																			
15. Supplementary Notes																							
16. Abstract A 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 1998 Dodge Neon 4-Door to obtain new car assessment and research data indicant of FMVSS No. 214D performance. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on November 4, 1997. The impact velocity of the Moving Deformable Barrier (MDB) was 61.6 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 21°C. The target vehicle post test maximum crush was 338 mm at level 3. The test vehicle's performance follows: <table border="0"> <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>94</td> <td>74</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td>87</td> <td>77</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td>94</td> <td>91</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>94</td> <td>84</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>102</td> <td>104</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	94	74	Left Lower Rib (LLR) Accel., g	87	77	Lower Spine (T ₁₂) Accel., g	94	91	Thoracic Trauma Index (TTI)	94	84	Pelvis (PEV) Accel., g	102	104
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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 FY98 NCAP Side Impact Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-93-C-02047. The purpose of this test was to evaluate side impact protection of a 1998 Dodge Neon 4-Door.

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

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

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 1998 Dodge Neon 4-Door was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 38.3 mph (61.6 kph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin, on November 4, 1997. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in Appendix A.

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

The SIDs were instrumented with the following accelerometers.

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

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

The following table summarizes the results of the test:

Injury Criteria	Front SID	Rear SID
TTI (g)	94	84
Pelvis (g)	102	104

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

DATA SHEET NO. 1
GENERAL VEHICLE TEST PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan
Vehicle NHTSA No.: MW0308 VIN: 3B3ES47C8WT206753
Vehicle Body Color: Intense Blue Pearl Build Date: 7-97
Engine Data: 4 Cylinders; CID; 2.0 Liter; cc
Placement Longitudinal; X Lateral
Transmission: 3 Speed; Manual; X Automatic; Overdrive
Final Drive: Rear Wheel Drive; X Frt. Wheel Drive; Four Wheel Drive

Odometer Reading 98 miles
Options: X A/C; X Pwr. Steering; X Pwr. Brakes; Pwr. Windows;
 X Cruise Control; X Tilt Wheel; Power Door Locks;

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 32 Psi FRONT
32 Psi REAR
Recommended Tire Size: P185/65/R14
Tires on Test Vehicle: P185/65/R14 Manufacturer: Goodyear

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; 0 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 = 392.4 kg (A)
No. of Occupants x 68.04 kg. = 340.2 kg (B)
Cargo Capacity (A-B) = 52.2 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>372.0</u> kg	Right Rear	=	<u>208.7</u> kg
Left Front	=	<u>390.5</u> kg	Left Rear	=	<u>204.1</u> kg
TOTAL FRONT	=	<u>762.5</u> kg	TOTAL REAR	=	<u>412.8</u> kg
% of Total Vehicle Weight	=	<u>64.9</u> %;	% of Total Weight	=	<u>35.1</u> %
TOTAL WEIGHT	=	<u>1175.3</u> kg			

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	=	<u>1175.3</u> kg
Cargo Carrying Capacity of Test Vehicle	=	<u>52.1</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>1388.8</u> kg

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

Right Front	=	<u>381.0</u> kg	Right Rear	=	<u>263.9</u> kg
Left Front	=	<u>442.7</u> kg	Left Rear	=	<u>299.3</u> kg
TOTAL FRONT	=	<u>823.7</u> kg	TOTAL REAR	=	<u>563.3</u> kg
% of Total Weight	=	<u>59.4</u> %	% of Total Weight	=	<u>40.6</u> %
TOTAL TEST WEIGHT	=	<u>1387.0</u> kg			

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 642 mm Left Front 658 mm Right Rear 681 mm Left Rear 670 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 645 mm Left Front 635 mm Right Rear 654 mm Left Rear 626 mm

TEST ATTITUDE:

Right Front 637 mm Left Front 637 mm Right Rear 652 mm Left Rear 634 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2645 mm

C.G. = 1042 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4060 mm

Centerline = 4340 mm

Left Side = 4060 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 215 mm

Test Position: 12th notch from foremost locking position
(Total of 23)

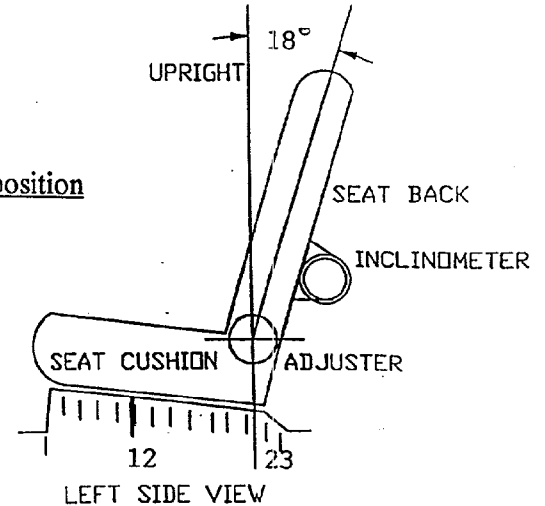
FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 18°

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: Non-adjustable



ADJUSTABLE STEERING COLUMN POSITION: Mid position (22.5%)

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 = 12.5 gallons

Test Volume: 11.6 gallons 93 % of capacity

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

Wheelbase: = 2645 mm

Impact Point is 383 mm rearward of front axle centerline

DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

Overall Length = 4340 mm; Overall Width = 1692 mm

TEST WEIGHT:

Right Front = 409.5 kg Right Rear = 254.4 kg

Left Front = 427.2 kg Left Rear = 289.3 kg

TOTAL FRONT = 836.8 kg TOTAL REAR = 543.8 kg

% of Total Weight = 60.6 % % of Total Weight = 39.4 %

TOTAL VEHICLE WEIGHT = 1380.7 kg

Wheelbase = 2645 mm

Longitudinal C.G. from Center of Front Axle = 1042 mm

Impact Angle with Respect to Impactor = 90 ° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (212 mm above ground) = 170 mm

2. LEVEL 2 (448 mm above ground) = 323 mm

3. LEVEL 3 (562 mm above ground) = 338 mm

4. LEVEL 4 (828 mm above ground) = 282 mm

5. LEVEL 5 (1290 mm above ground) = 70 mm

Maximum Post-Test Intrusion = 338 mm

OCCUPANTS:

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

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)

INSTRUMENTATION:

Number of Vehicle Data Channels:	=	<u>25</u>
Number of Cameras: Onboard Vehicle	=	<u>3</u>
Offboard Vehicle	=	<u>4</u>
Deformable Barrier	=	<u>2</u>
TOTAL	=	<u>9</u>

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

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

MDB WEIGHT:

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

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

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

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

- | | | |
|----|---------------------------------|-----------------|
| 1. | Row A Top of Stack (813 mm) | = <u>109</u> mm |
| 2. | Row B Mid Stack (686 mm) | = <u>77</u> mm |
| 3. | Row C Top of Bumper (533 mm) | = <u>87</u> mm |
| 4. | Row D Center of Bumper (432 mm) | = <u>115</u> mm |

INSTRUMENTATION:

Number of MDB Data Channels = 7

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to headrest and side window sill</u>	<u>to C-post and back window</u>
Arm	<u>rear of door panel</u>	<u>rear of door panel</u>
Pelvis	<u>lower armrest</u>	<u>armrest</u>
Left Knee	<u>mid door panel</u>	<u>mid door panel</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 rearward Vertical: 3 mm high

ARM REST LOCATIONS:

Front: 220 mm from bottom of window

Rear: 262 mm from bottom of window

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 56 mm Front Seat Cushion: 86 mm

Left Rear Seat Back: 114 mm Rear Seat Cushion: 146 mm

GLAZING DAMAGE:

Windshield cracked and both front and rear left side door windows broke.

PILLAR PERFORMANCE:

No failure noted

SILL SEPARATION:

A 52 mm long tear 490 mm forward of the rear axle and a 24 mm long tear

380 mm forward of the rear axle.

OTHER NOTABLE IMPACT EFFECTS:

Parking brake released upon impact, frontal airbags did not deploy.

No side airbag in this car.

AIRBAG DEPLOYMENT STATUS:

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

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

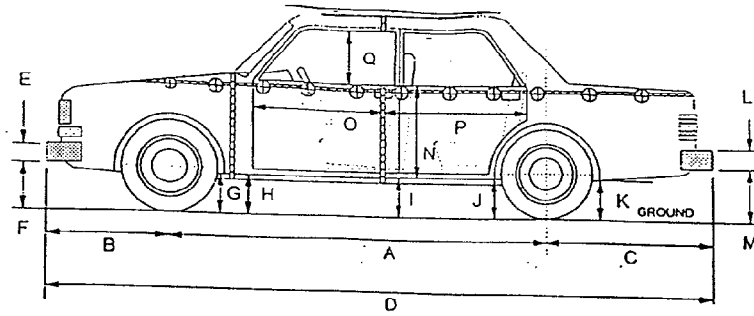
DATA SHEET NO. 5
SIDE IMPACT DUMMY (SID) INSTRUMENTATION DATA

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan
Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

	Front Dummy ID #269				Rear Dummy ID #270			
	Pos. Direct.		Neg. Direct		Pos. Direct.		Neg. Direct	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS								
Left Upper Rib (LUR) Y	93.7	33	-16.9	78	74.1	36	-8.3	119
Left Lower Rib (LLR) Y	87.0	24	-17.7	79	76.8	36	-19.7	63
SPINE ACCELERATIONS								
Lower Lateral Y	94.0	28	-31.8	60	91.0	40	-32.2	67
PELVIS ACCELERATIONS								
Lateral Y	102.0	27	-14.1	66	103.8	29	-8.3	77

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

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



LEFT SIDE VIEW

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	2645	2622	-23
B	840	824	-16
C	855	840	-15
D	4340	4286	-54
E	125	125	0
F	380	381	1
G	140	140	0
H	138	143	5
I	140	145	5
J1/J2	134/135	144/136	10/1
K	254	300	6
L	150	150	0
M	352	376	24
N	660	560	-100
O	795	738	-57
P	1150	1080	-70
Q	455	432	-23
R	4060	4068	8
S	4060	4014	-54
T	1692	1364	-328

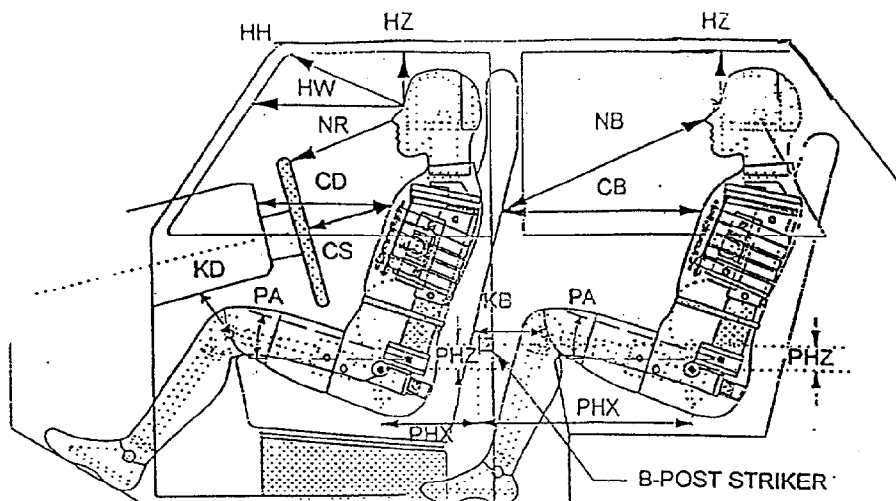
DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

NHTSA NO.: MW0308

Test Date: November 4, 1997



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

	DRIVER SID ID #269
HH	314
HW	528
HZ	168
NR	370
CD	494
CS	276
KDL(KDA°)	122 (26.0°)
KDR(KDA°)	120 (28.1°)
PA°	24.8°
PHX	208
PHZ	118

	LEFT REAR PASSENGER SID ID #270
HZ	126
NB	683
CB	604
KBL (KBA)	256 (0.0°)
KBR (KBA)	258 (0.0°)
PA°	24.5°
PHX	298
PHZ	297

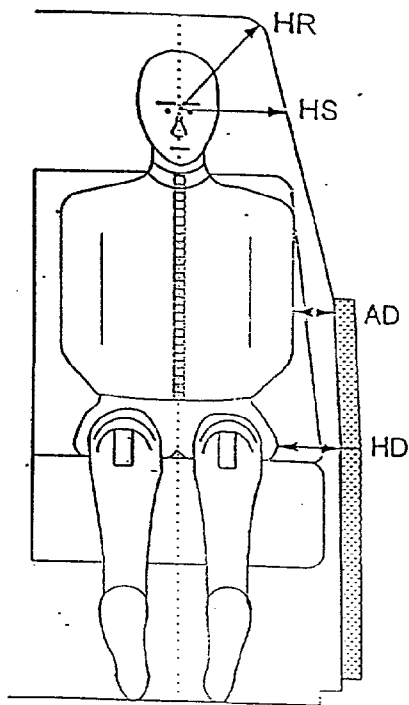
NOTE: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as reference point.

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

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

NHTSA NO.: MW0308

Test Date: November 4, 1997



NOTE: All dimensions are in mm

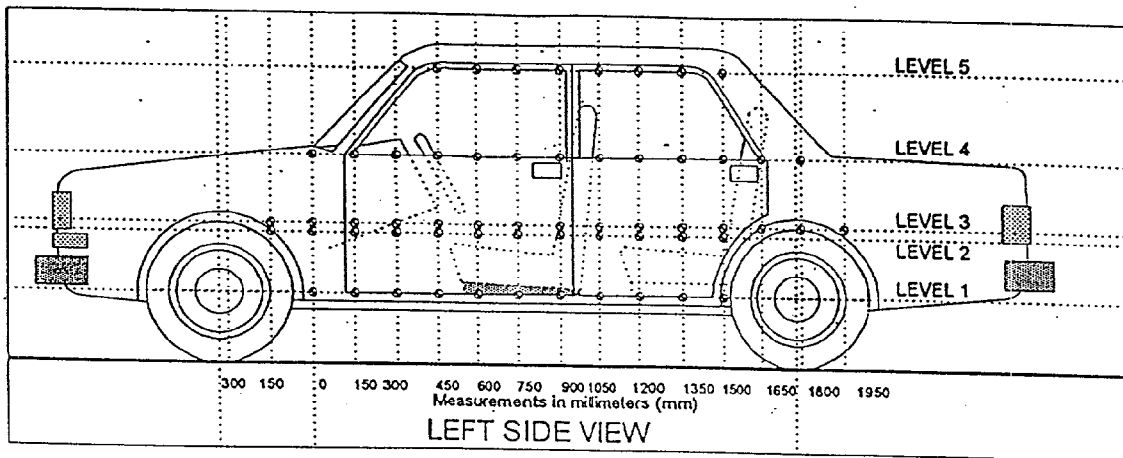
	DRIVER SID ID #269	LEFT REAR PASSENGER SID ID #270
HR	214	154
HS	300	279
AD	114	79
HD	120	127

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

NHTSA NO.: MW0308

Test Date: November 4, 1997



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

MEASUREMENTS ALONG THE VERTICAL 750 mm. LINE SHOWN ABOVE

Level 1 @ Axle Centerline Height

(or Sill Top Height)

= 212 mm

Level 2 @ Occupant H-Point

= 448 mm

Level 3 @ Mid Door

= 562 mm

Level 4 @ Window Sill

= 828 mm

Level 5 @ Window Top

= 1290 mm

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 1 - Axle Centerline		
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	626	698	72
300	622	729	107
450	620	750	130
600	618	772	154
750	617	780	163
900	615	780	165
1050	615	775	160
1200	615	785	170
1350	617	764	147
1500	617	737	120
1650	617	737	120
1800	620	704	84

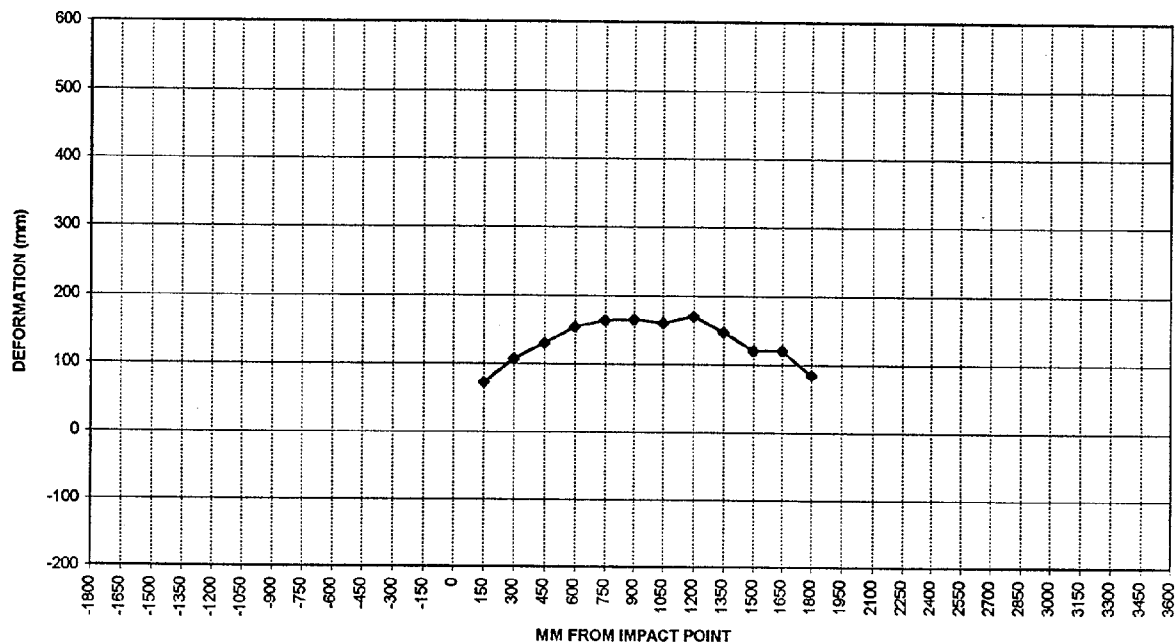
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

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	629	635	6
-750	598	607	9
-600			
-450			
-300			
-150			
0 (impact point)	572	655	83
150	570	745	175
300	567	824	257
450	563	857	294
600	563	874	311
750	561	880	319
900	559	871	312
1050	557	866	309
1200	557	880	323
1350	557	877	320
1500	557	863	306
1650	557	864	307
1800	556	814	258

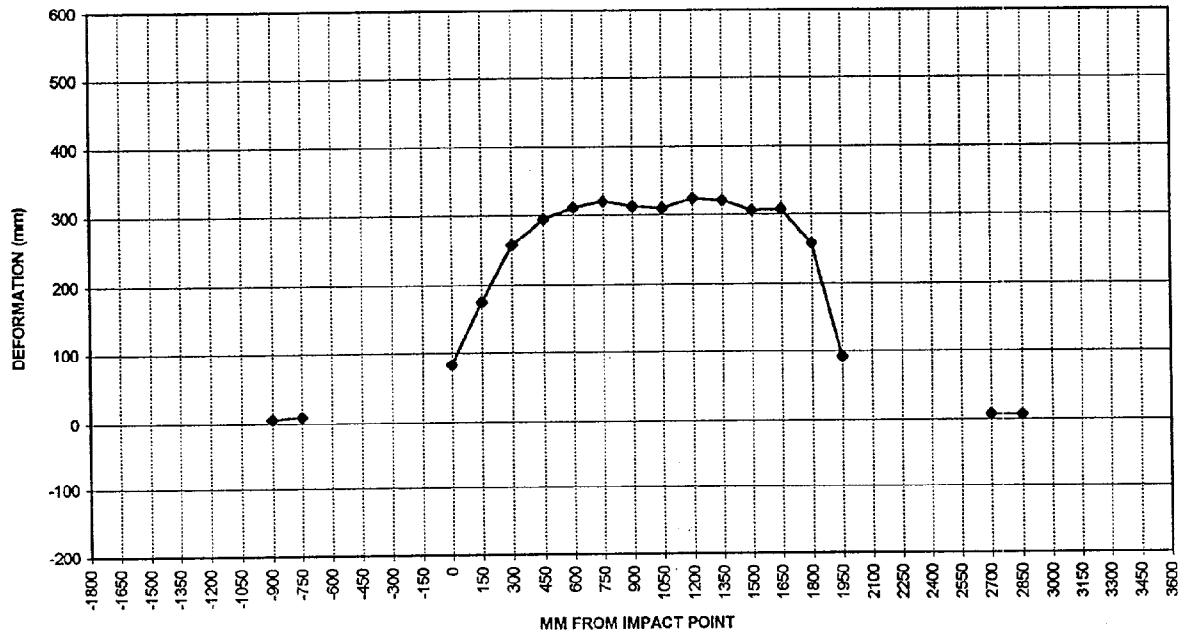
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

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	555	647	92
2100			
2250			
2400			
2550			
2700	582	590	8
2850	610	617	7
3000			
3150			
3300			
3450			
3600			

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 2 - OCCUPANT H-POINT

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 3 - Mid-Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900	634	640	6
-750	593	604	11
-600			
-450			
-300			
-150			
0 (impact point)	561	647	86
150	557	738	181
300	555	805	250
450	553	830	277
600	551	832	281
750	551	844	293
900	550	850	300
1050	547	855	308
1200	546	874	328
1350	544	882	338
1500	543	865	322
1650	543	840	297
1800	543	820	277

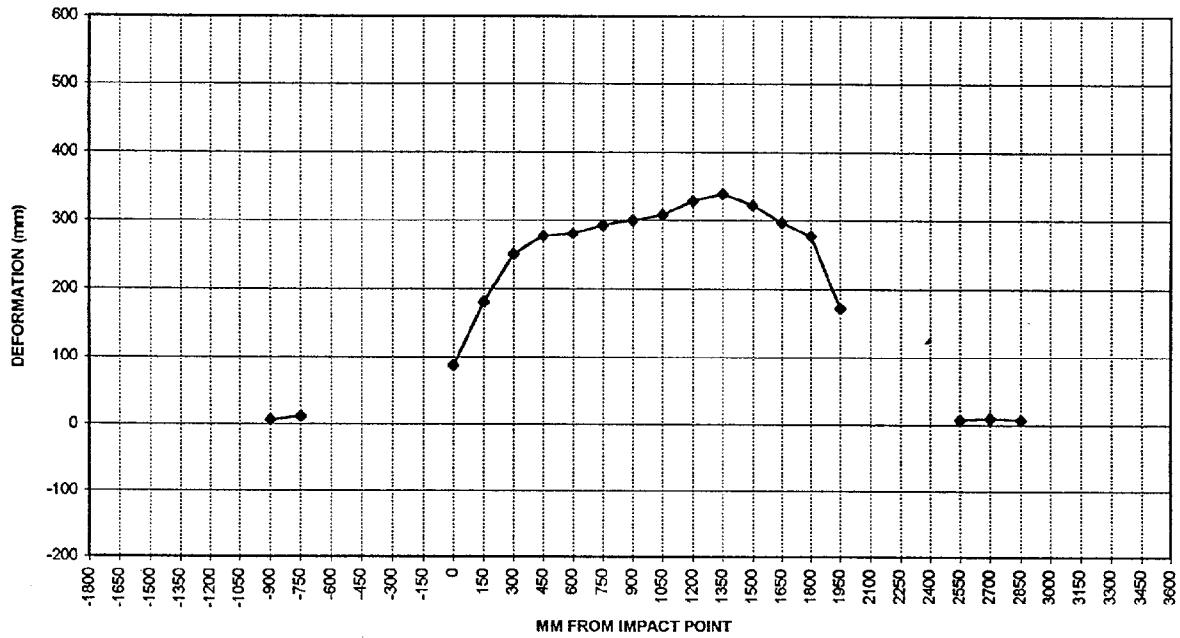
Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to car body

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	543	715	172
2100			
2250			
2400			
2550	560	567	7
2700	581	590	9
2850	617	624	7
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 3 - MID-DOOR

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900	710	710	0
-750	673	679	6
-600	651	665	14
-450	636	654	18
-300	630	654	24
-150	625	656	31
0 (impact point)	625	664	39
150	620	712	92
300	620	784	164
450	620	812	192
600	620	813	193
750	620	820	200
900	622	826	204
1050	622	841	219
1200	622	904	282
1350	617	873	256
1500	616	850	234
1650	613	822	209
1800	612	782	170

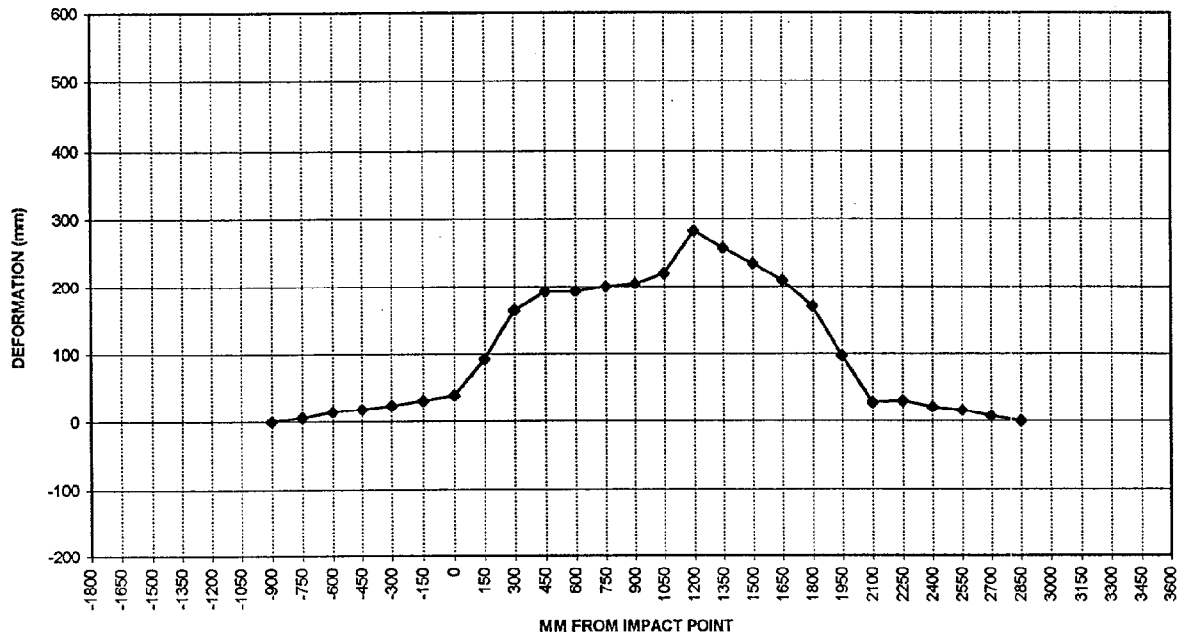
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

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	607	703	96
2100	608	636	28
2250	612	642	30
2400	620	641	21
2550	628	644	16
2700	647	654	7
2850	679	679	0
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 4 - WINDOW SILL

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750	860	898	38
900	857	899	42
1050	857	913	56
1200	860	930	70
1350	863	910	47
1500	862	904	42
1650	857	893	36
1800	862	890	28

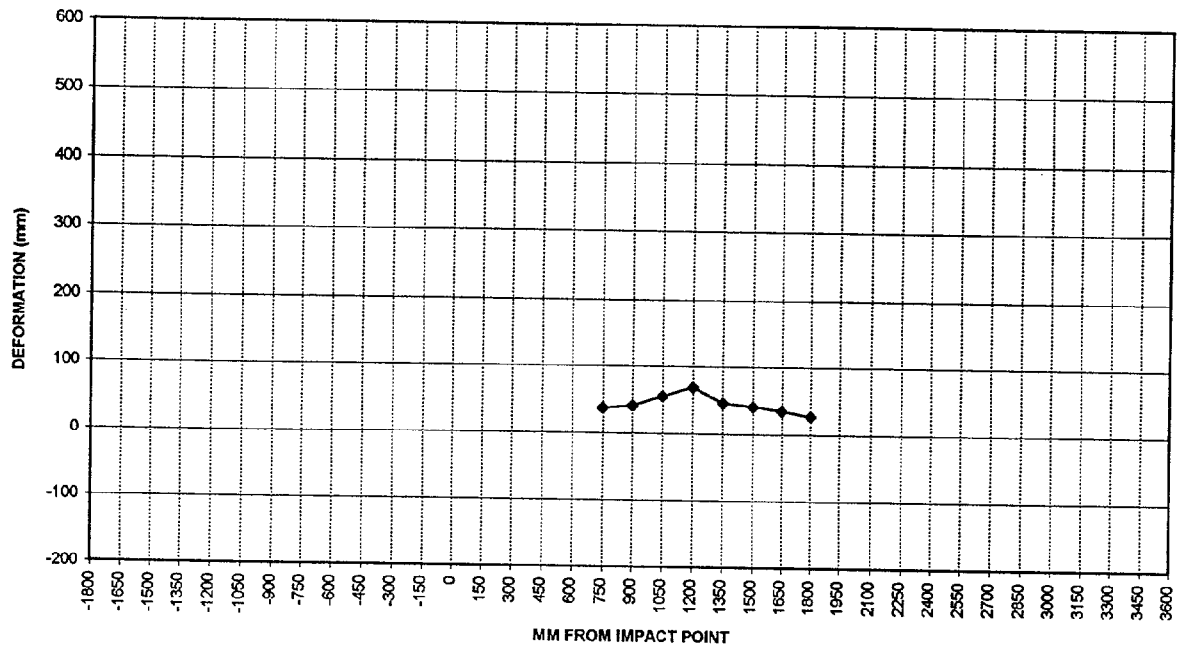
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

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			
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



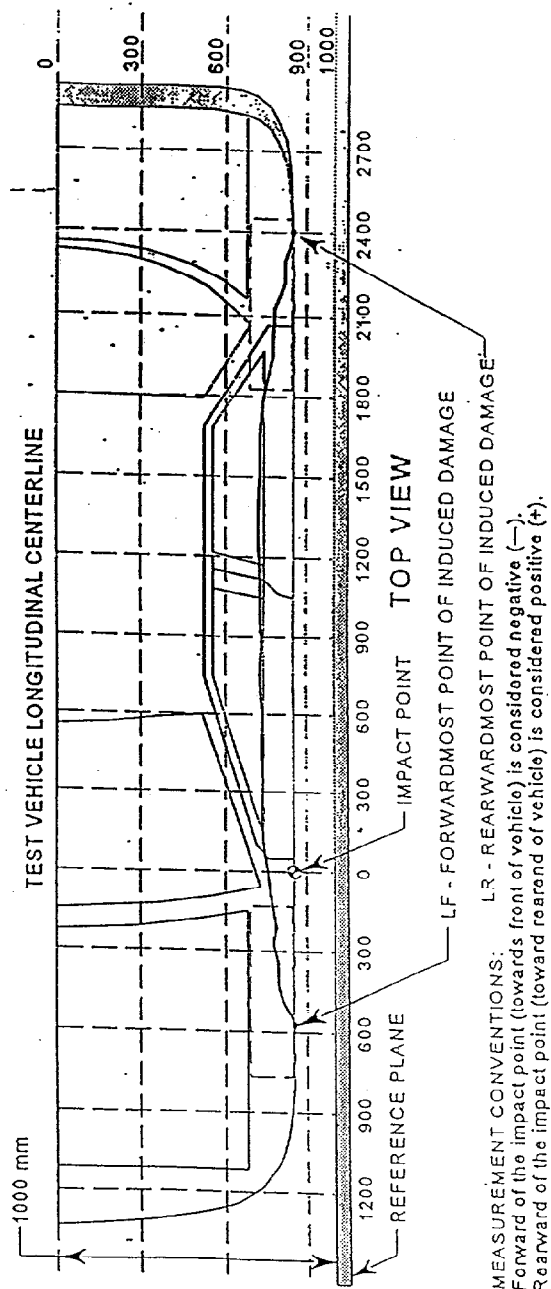
LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

NHTSA NO.: MW0308 Test Date: November 4, 1997



DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = <u>-900 mm</u>)	640	634	6
2. 0 mm	647	561	86
3. 600 mm	832	551	281
4. 1350 mm	882	544	338
5. 1950 mm	715	543	172
6. (LR = <u>2850 mm</u>)	624	617	7

DATA SHEET NO. 12

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

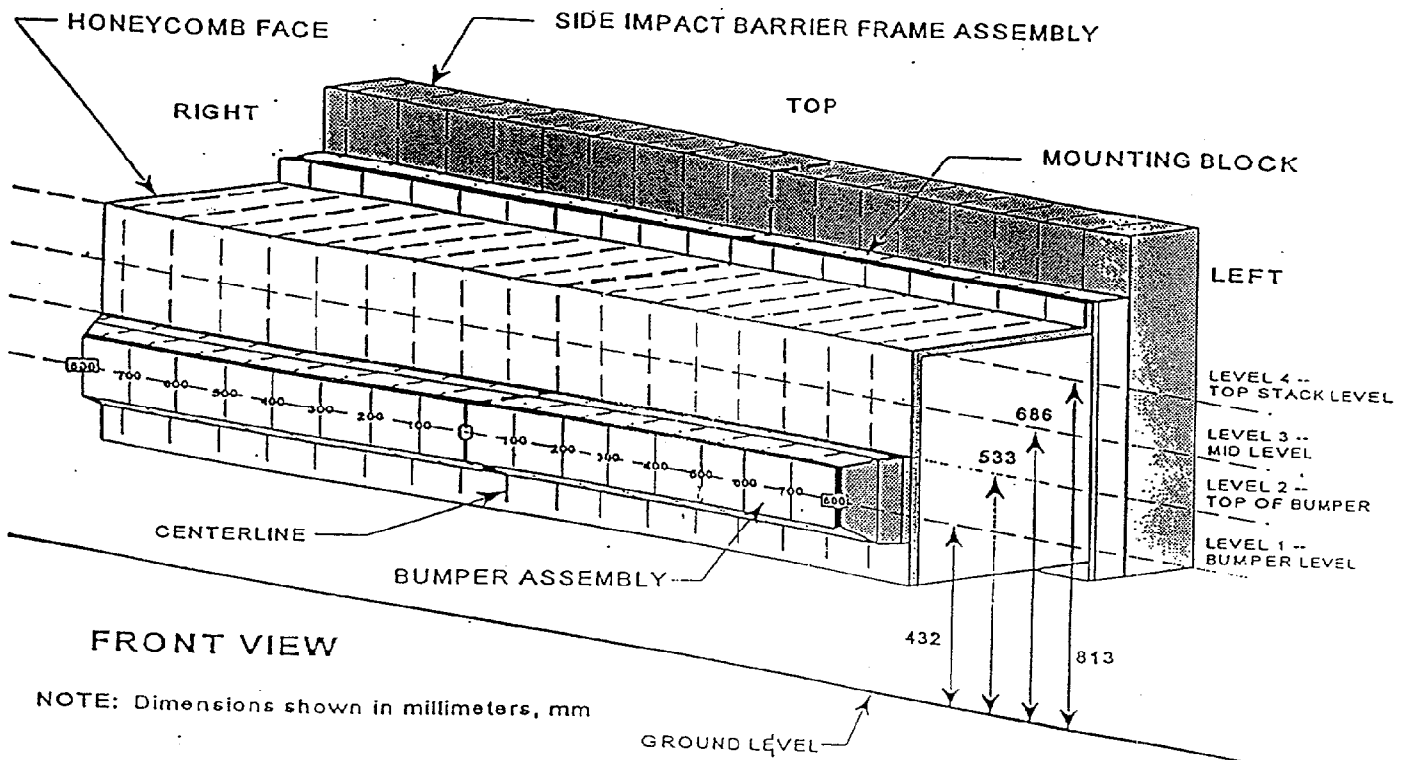
Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

		Distance Right of Center (mm)									Distance Left of Center (mm)							
Location	Height at CL	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level 4	813 mm	46	19	2	-3	0	0	1	3	5	5	8	9	11	8	14	48	109
Mid Level Level 3	686 mm	38	8	-2	-4	-4	-3	-2	-1	1	2	3	5	7	9	12	31	77
Top Bumper Level 2	533 mm	54	40	28	26	28	31	37	39	37	33	30	32	38	41	51	62	87
Mid Bumper Level 1	432 mm	67	61	50	43	45	53	55	57	60	53	44	43	47	51	61	82	115

See next page for Barrier Face Graphic

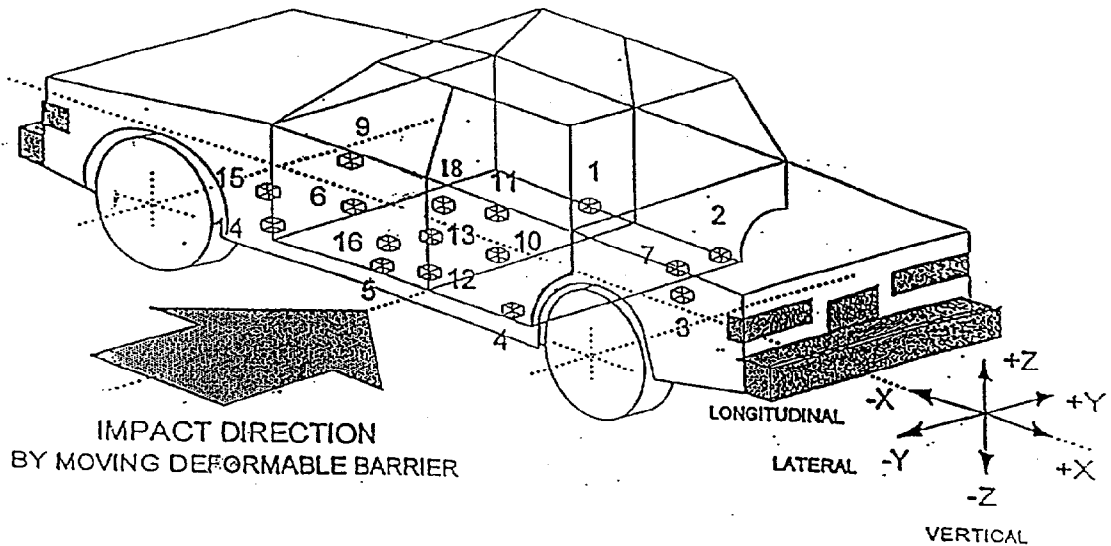
DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997



1-RT. Side Sill @ Frt Seat
 2-RT. Side Sill @ Rr. Seat
 3-Rr. Floorpan Above Axle
 4-Left Side Sill @ Rr. Seat
 5-Left Side Sill @ Frt. Seat
 6-Left Frt. Door on Centerline
 7-Rt. Rr. Occ. Compartment
 9-Left Frt. Door Upper Ctrline

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

DATA SHEET NO. 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

Accel. No.	Description	Coordinates (mm)*			Long. (X) Maximums (g's)		Lat. (Y) Maximums (g's)		Vert. (Z) Maximums (g's)		Resultant (g's)
		X	Y	Z	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
1	Rt. Side Sill @ Front Seat	2268	635	167	7.1	-4.5	41.7	-2.7	10.5	-17.0	42.1
2	Rt. Side Sill @ Rear Seat	1450	636	176	7.9	-5.3	35.1	-3.1	8.7	-13.0	36.9
3	Rr. Floorpan Above Axle	920	0	454	6.5	-7.4	32.5	-3.5	8.0	-4.9	33.3
4	Left Side Sill @ Rr. Seat	1446	-636	180	---	---	54.1	-11.4	---	---	---
5	Left Side Sill @ Frt. Seat	2277	-635	173	---	---	46.6	-20.0	---	---	---
6	Left Front Door on Centerline	2421	-700	631	---	---	226.0	-132.1	---	---	---
7	Right Rear Occupant Compartment	1597	525	243	---	---	32.3	-2.9	---	---	---
8	Midrear of Left Front Door	2151	-702	615	---	---	253.9	-125.4	---	---	---
9	Left Front Door Upper Centerline	2417	-698	832	---	---	194.0	-175.9	---	---	---
10	Midrear Left Rear Door	1494	-707	660	---	---	215.0	-148.2	---	---	---
11	Left Rear Door Upper Centerline	1378	-705	891	---	---	169.6	-95.0	---	---	---
12	Left Lower B-Post	1894	-647	311	---	---	77.6	-21.9	---	---	---
13	Left Mid B-Post	1890	-661	820	---	---	200.7	-70.7	---	---	---
14	Left Lower A-Post	2984	-668	315	---	---	70.7	-42.8	---	---	---
15	Left Mid A-Post	2973	-727	820	---	---	39.9	-4.3	---	---	---
16	Driver Left Seat Track*	2030	-499	30	---	---	53.1	-2.4	---	---	---
18	Vehicle CG	2637	0	300	9.9	-19.5	48.5	-20.9	25.2	-14.8	50.2

*Reference: X - Rear Bumper (+ Forward) * Data not valid after approximately 10 msec.

Y - Vehicle Centerline (+ To right)

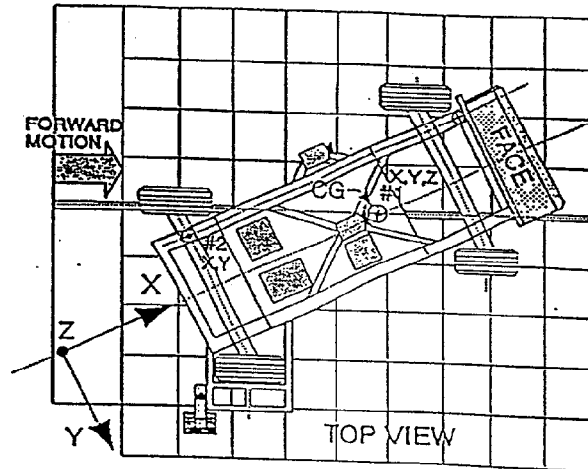
Z - Ground Level (+ Up)

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997



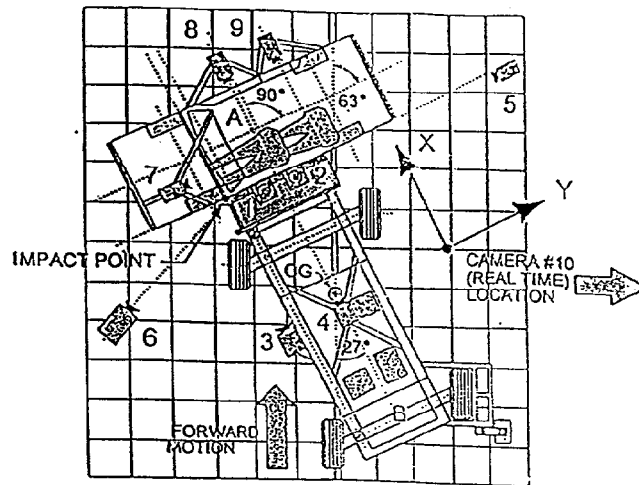
Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	1.1	115	-19.4	38
	Lateral (Y)	---	---	---	3.3	60	-5.4	44
	Vertical (Z)	---	---	---	15.2	58	-14.6	64
	Resultant (R)	---	---	---	24.5	38	---	---
2	Rear Frame Member	-2591	-625	622				
	Longitudinal (X)	---	---	---	1.8	194	-24.5	40
	Lateral (Y)	---	---	---	2.9	26	-1.3	192

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

DATA SHEET NO. 15
HIGH SPEED CAMERA LOCATIONS AND DATA

Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
	Real Time						
6	Left Impact	-530	-2280	1660		13	1000
8	Onboard Hood					13	1005
9	Onboard Front Occupant					8	939
7	Onboard Rear Occupant					8	1190
5	Right Impact	-575	10180	1730		25	1010
1	Top Overall	-20	1280	5000		8	1020
2	Top Impact	-350	-80	5000		13	917
4	Cart Overall					13	889
3	Cart Impact					35	1010

* Reference: (from point of impact)

+X = Forward

+Y = To Right

+Z = Upward

DATA SHEET 16
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

TEST REQUIREMENTS:

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

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

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATION(S): None

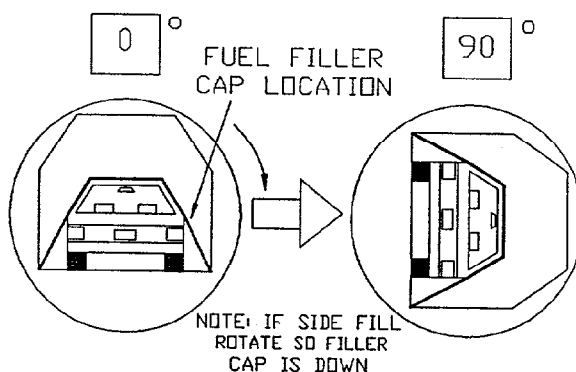
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 48 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 48 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

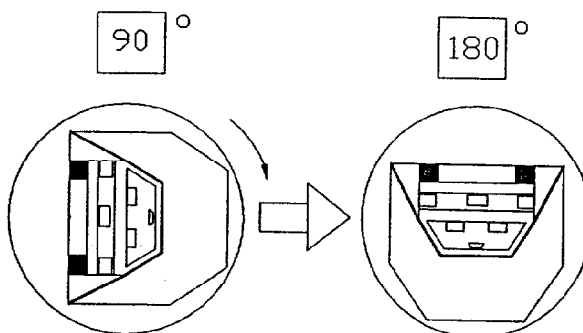
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 23 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 23 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

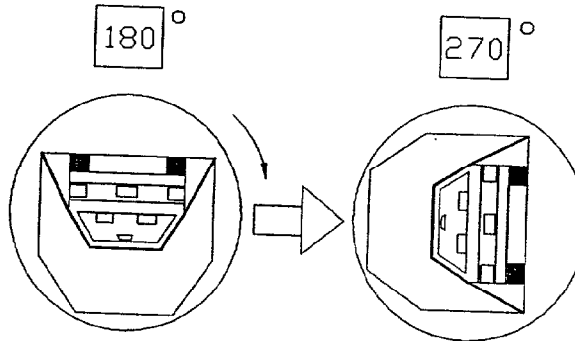
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 22 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 22 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

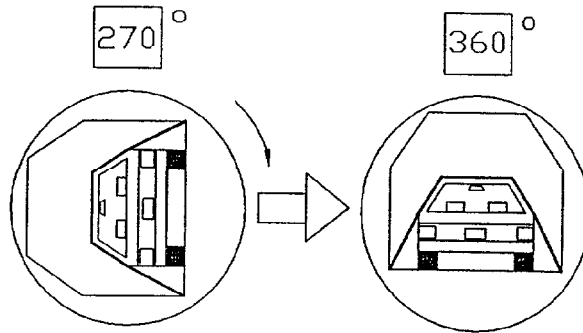
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Dodge/Neon/4-Door/Sedan

Vehicle NHTSA No.: MW0308 Test Date: November 4, 1997

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 50 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 50 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

APPENDIX A - PHOTOGRAPHS

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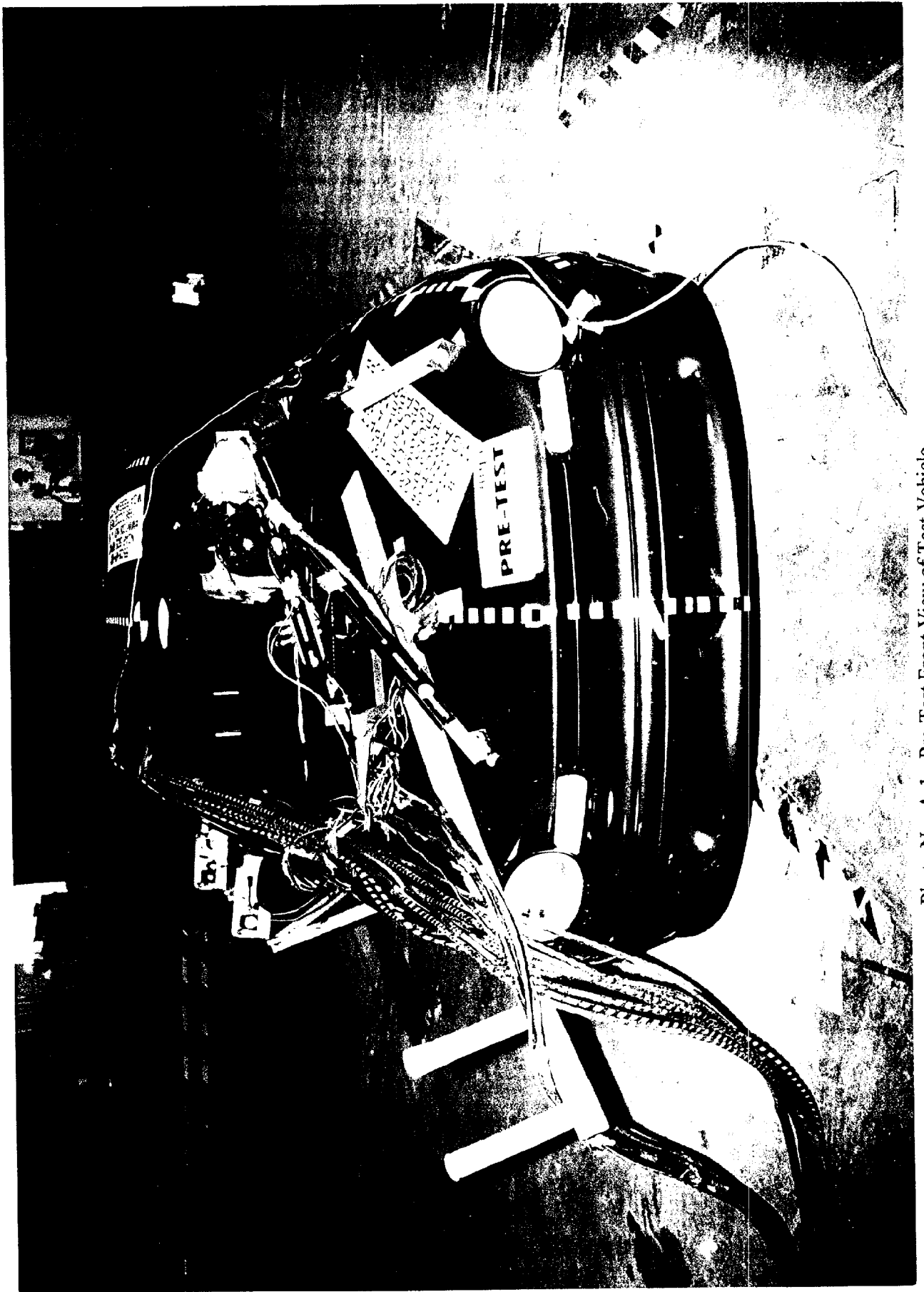


Photo No. A-1 - Pre-Test Front View of Test Vehicle

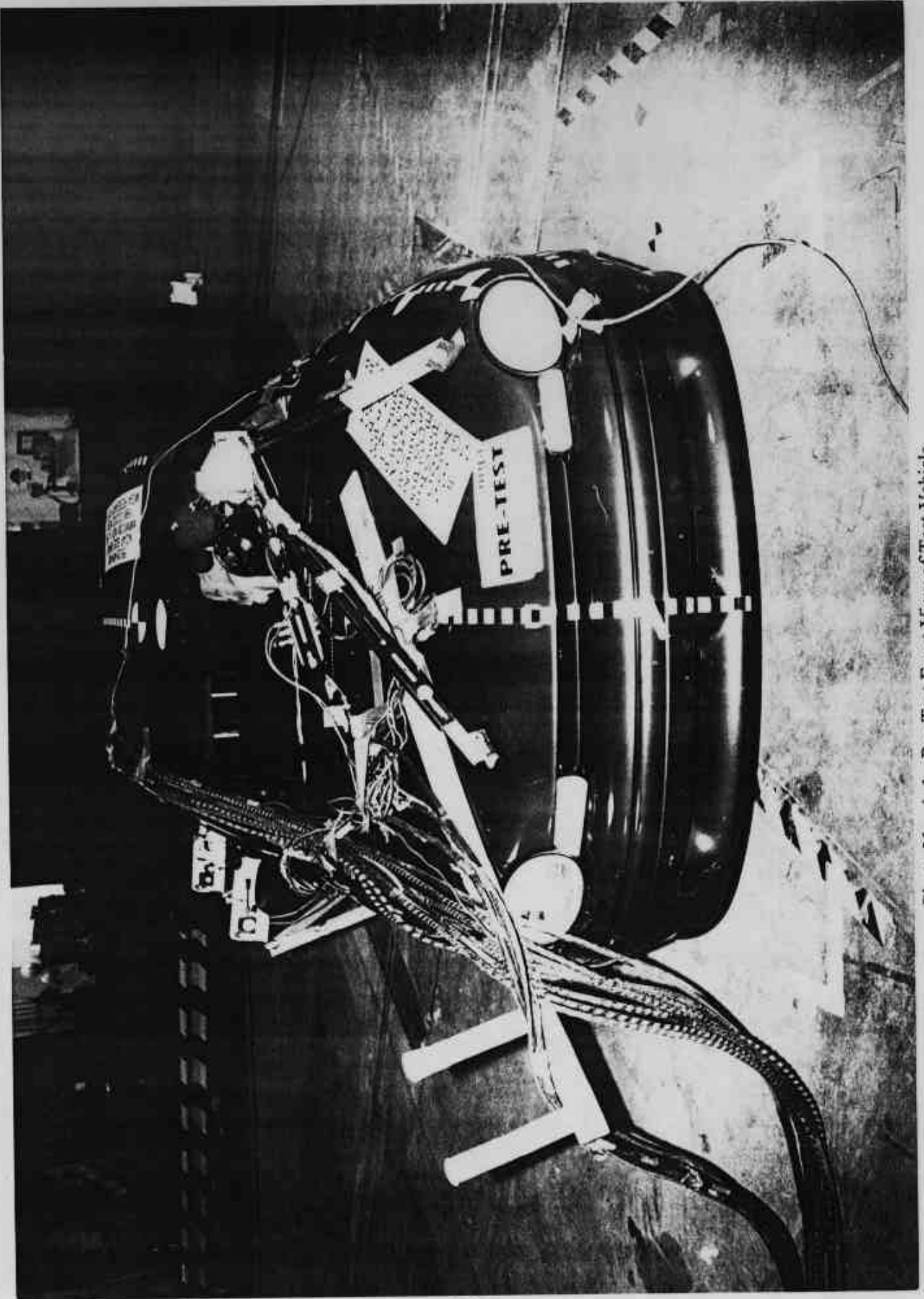


Photo No. A-1 - Pre-Test Front View of Test Vehicle

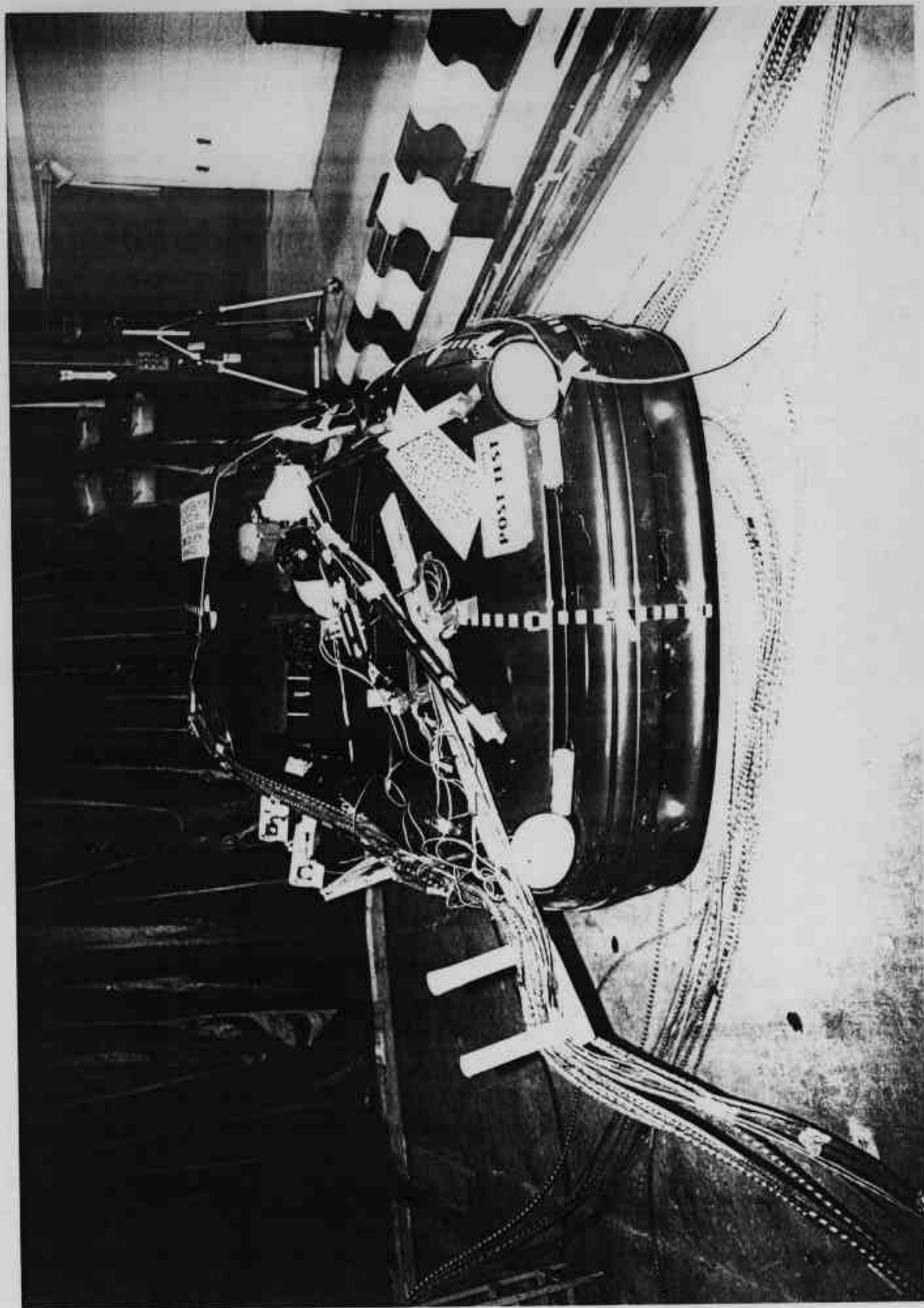


Photo No. A-2 - Post-Test Front View of Test Vehicle

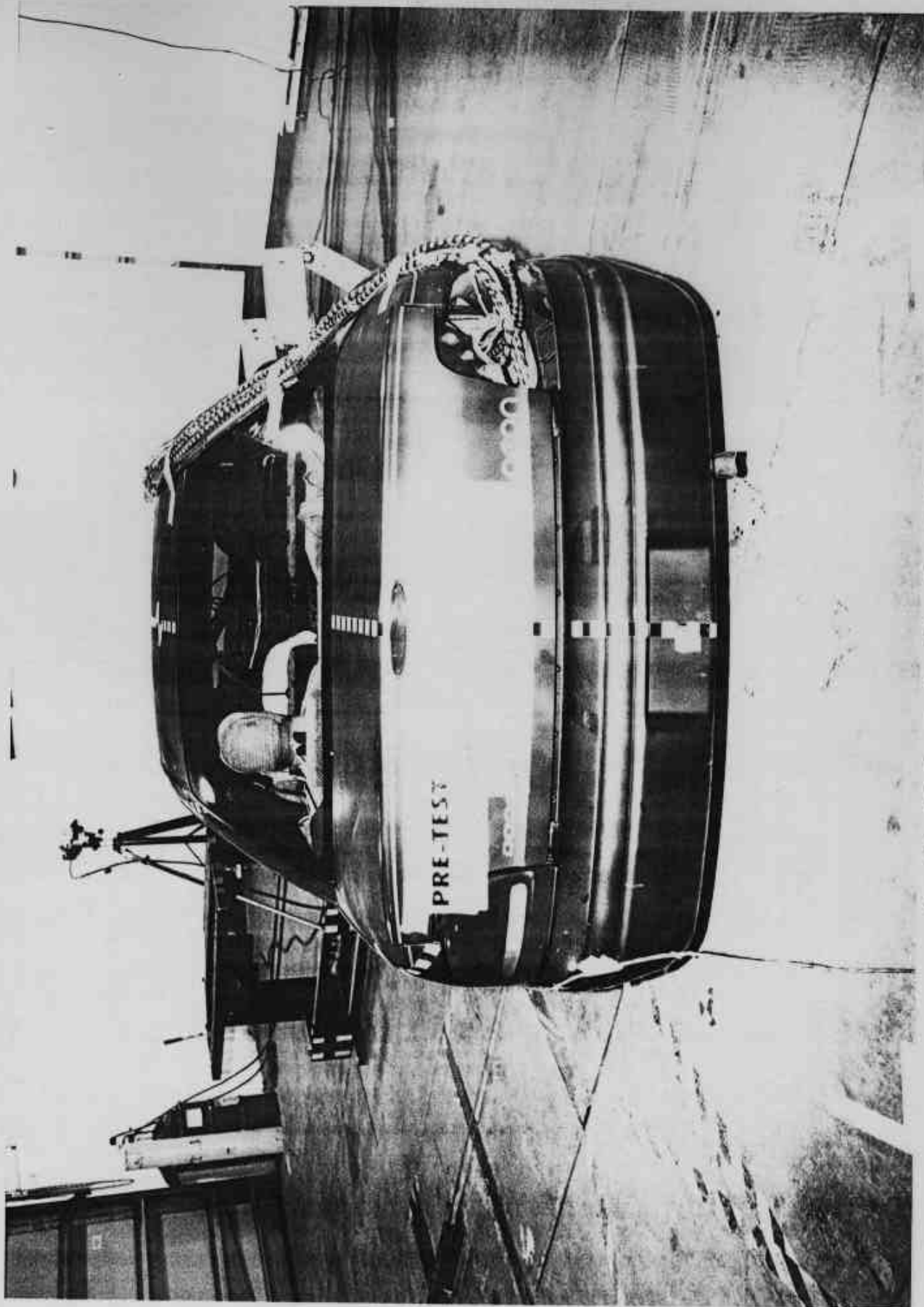


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

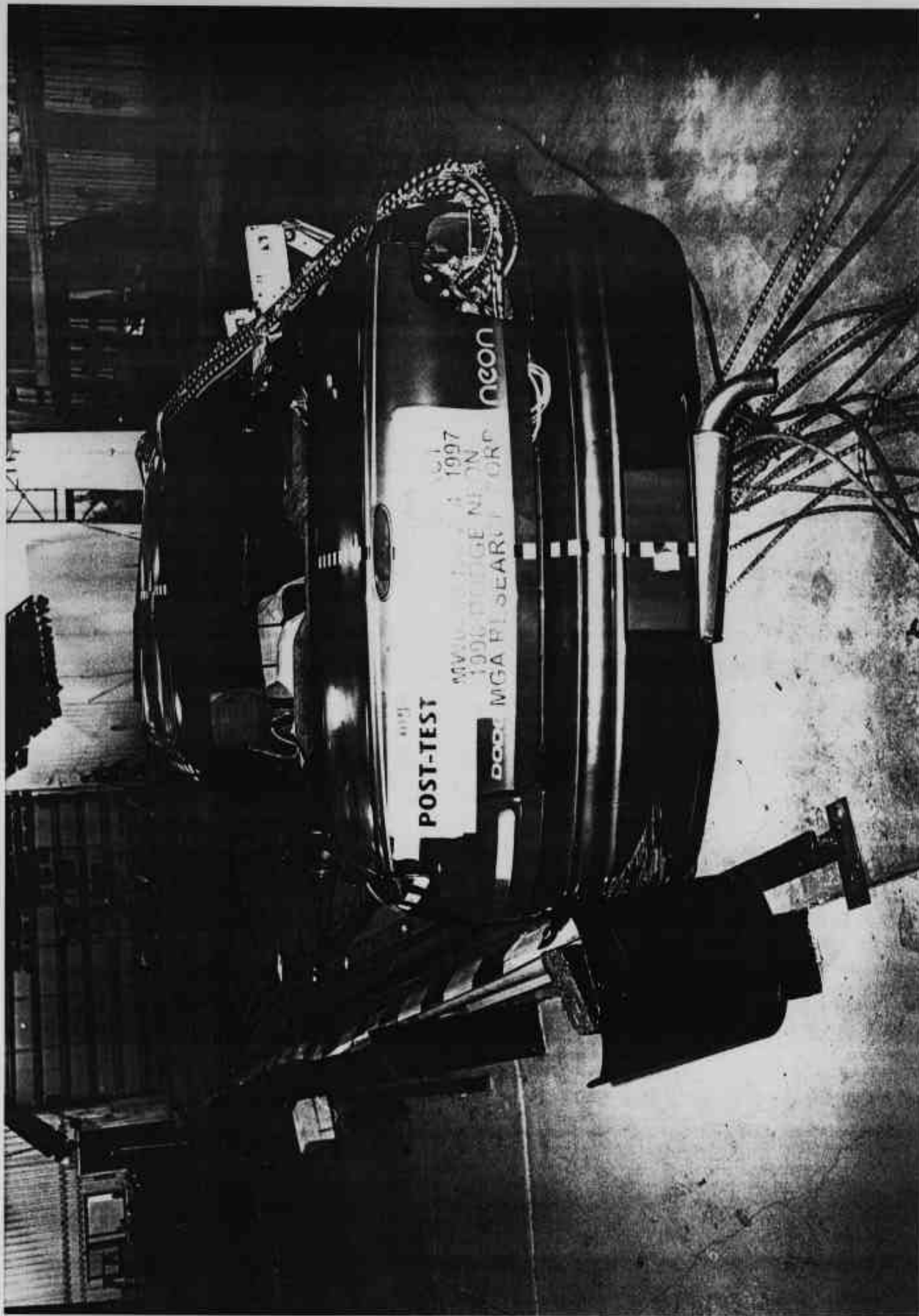


Photo No. A-4 - Post-Test Rear View of Test Vehicle

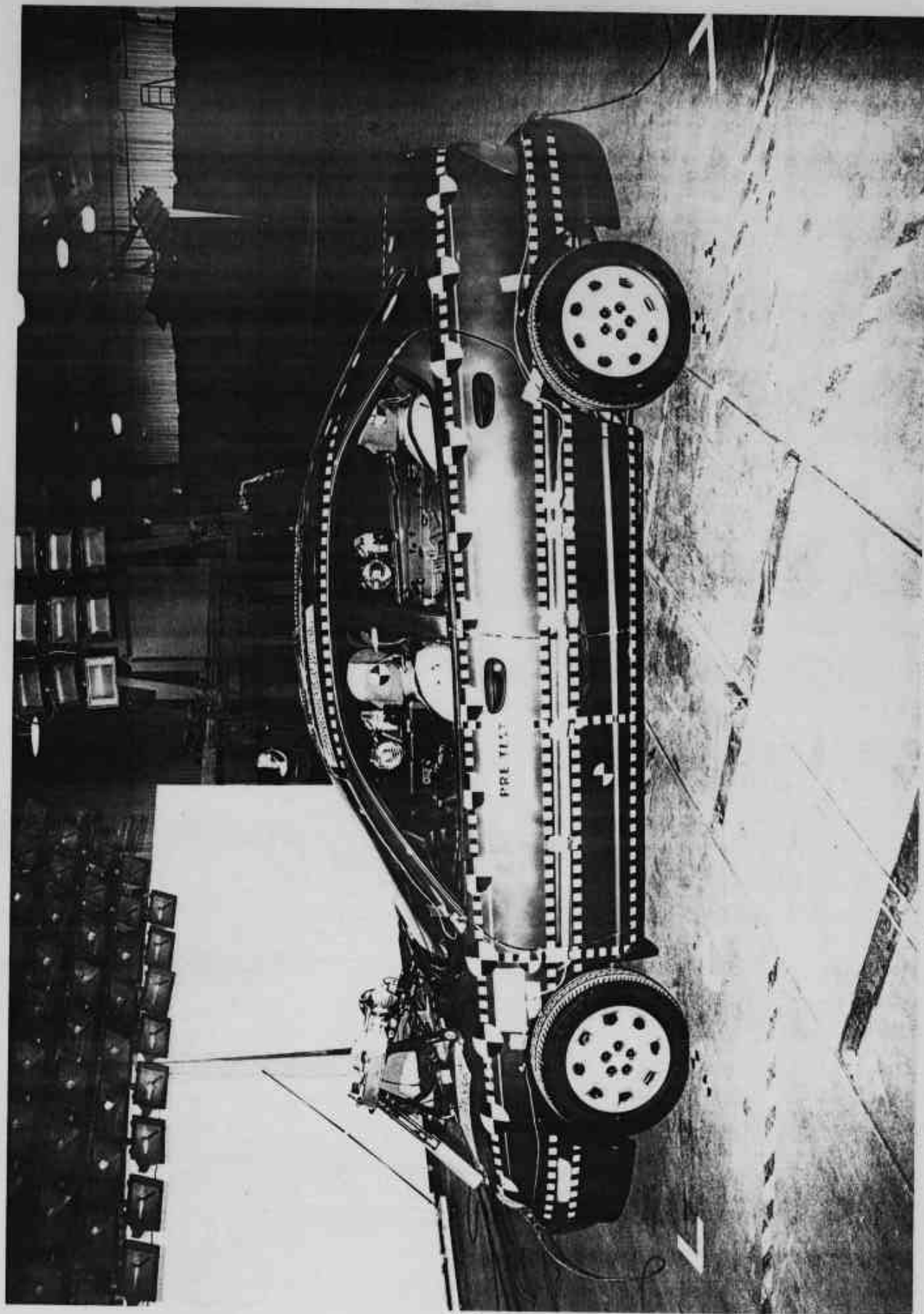


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

A-5

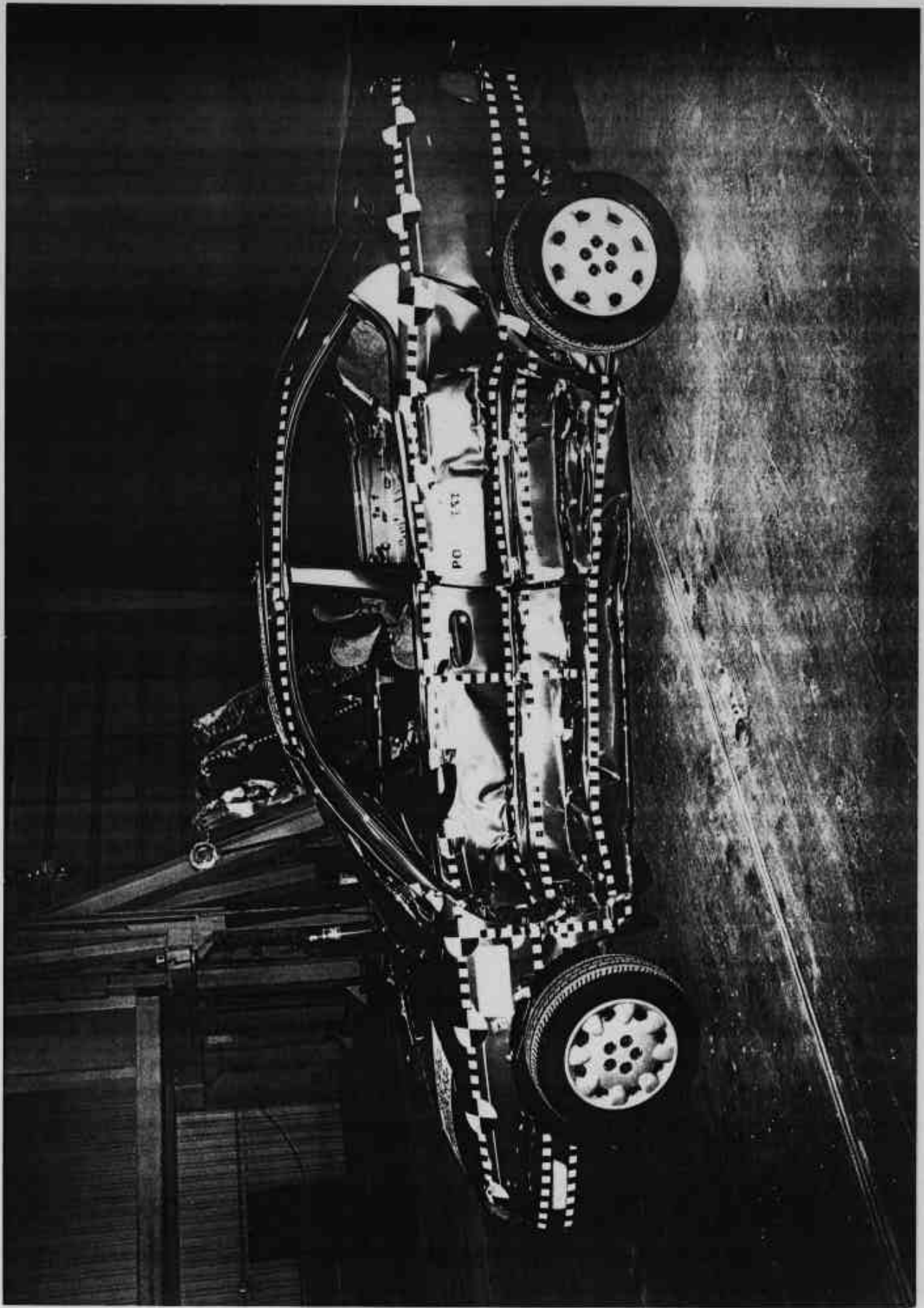


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

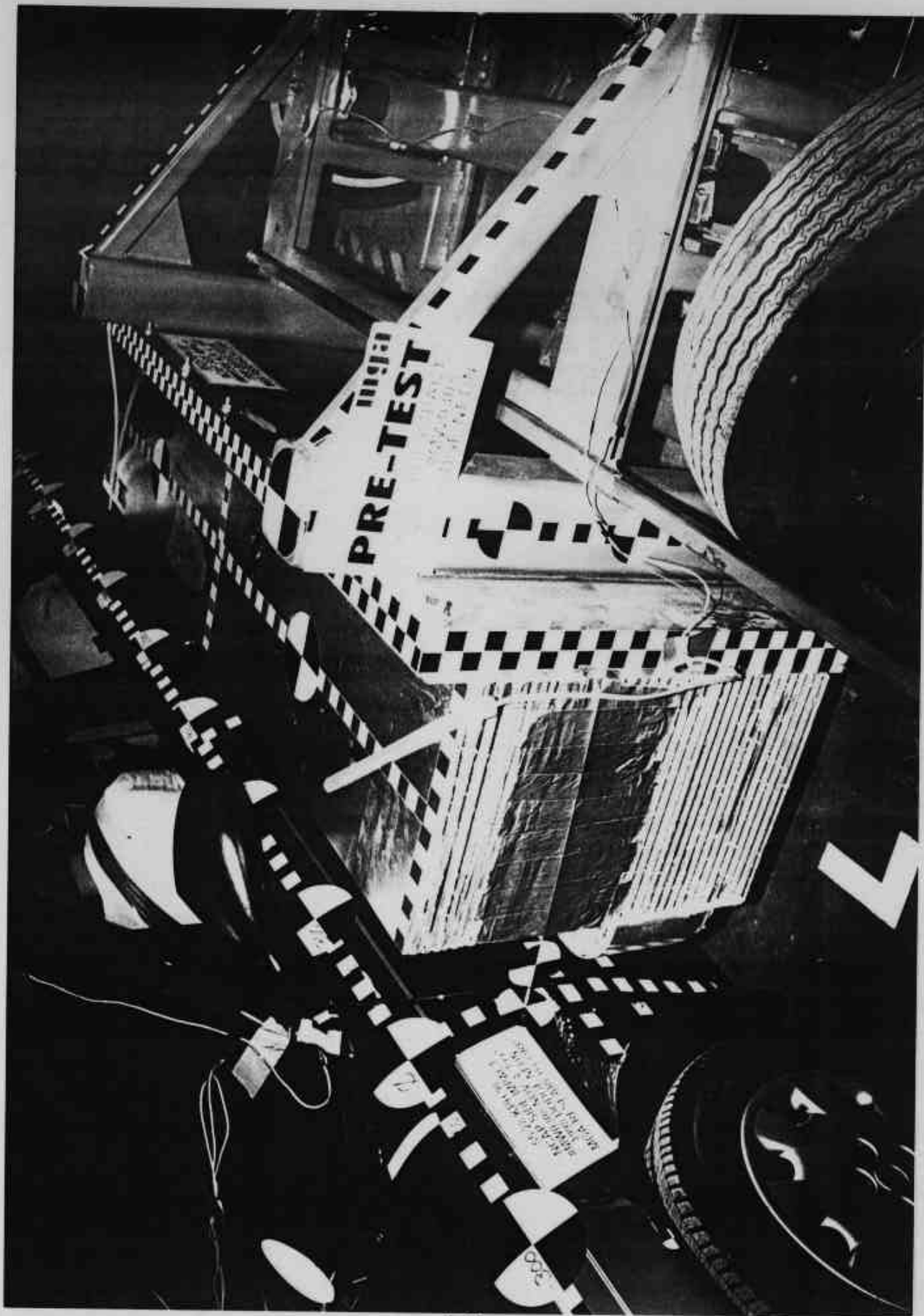


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

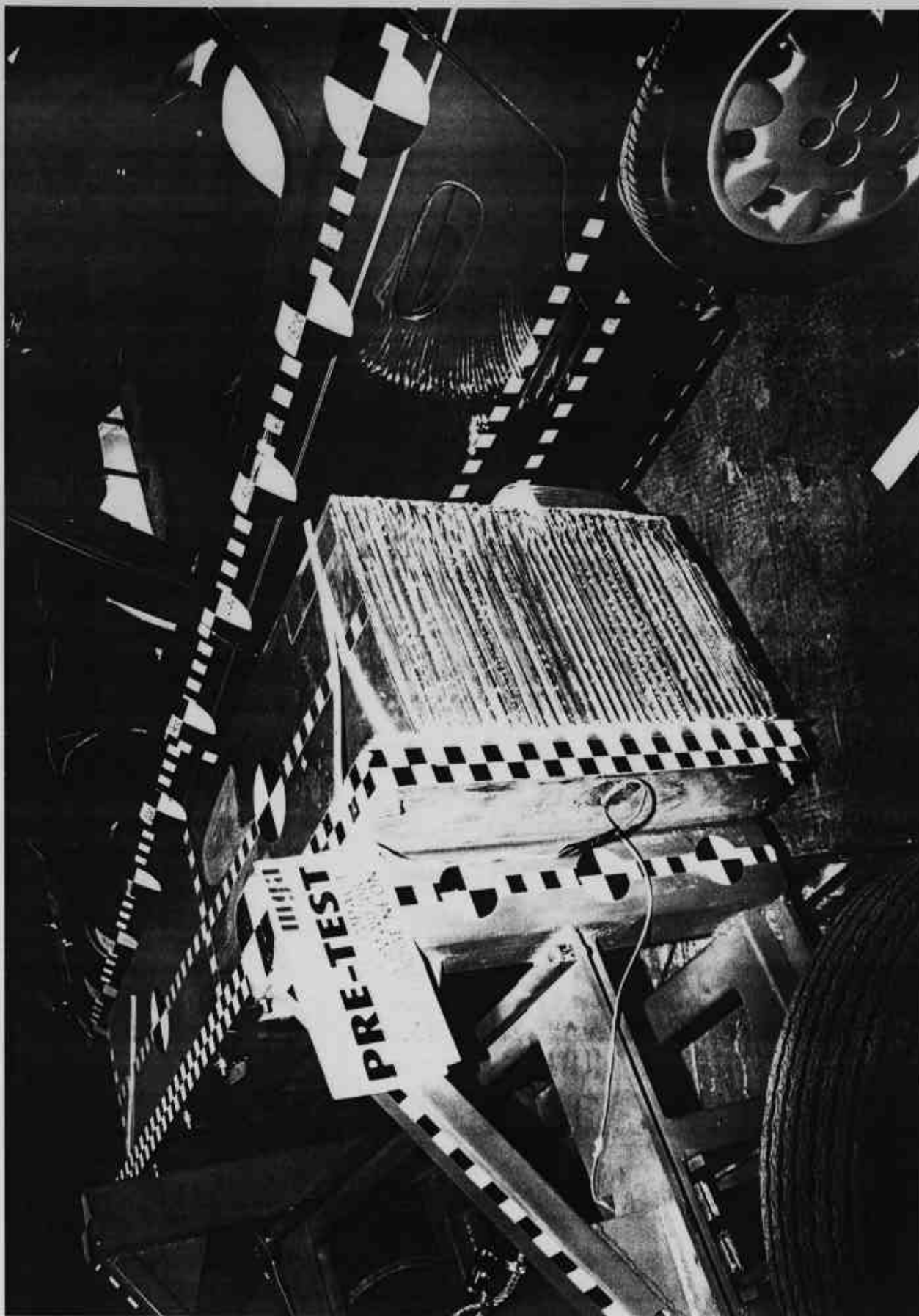


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)

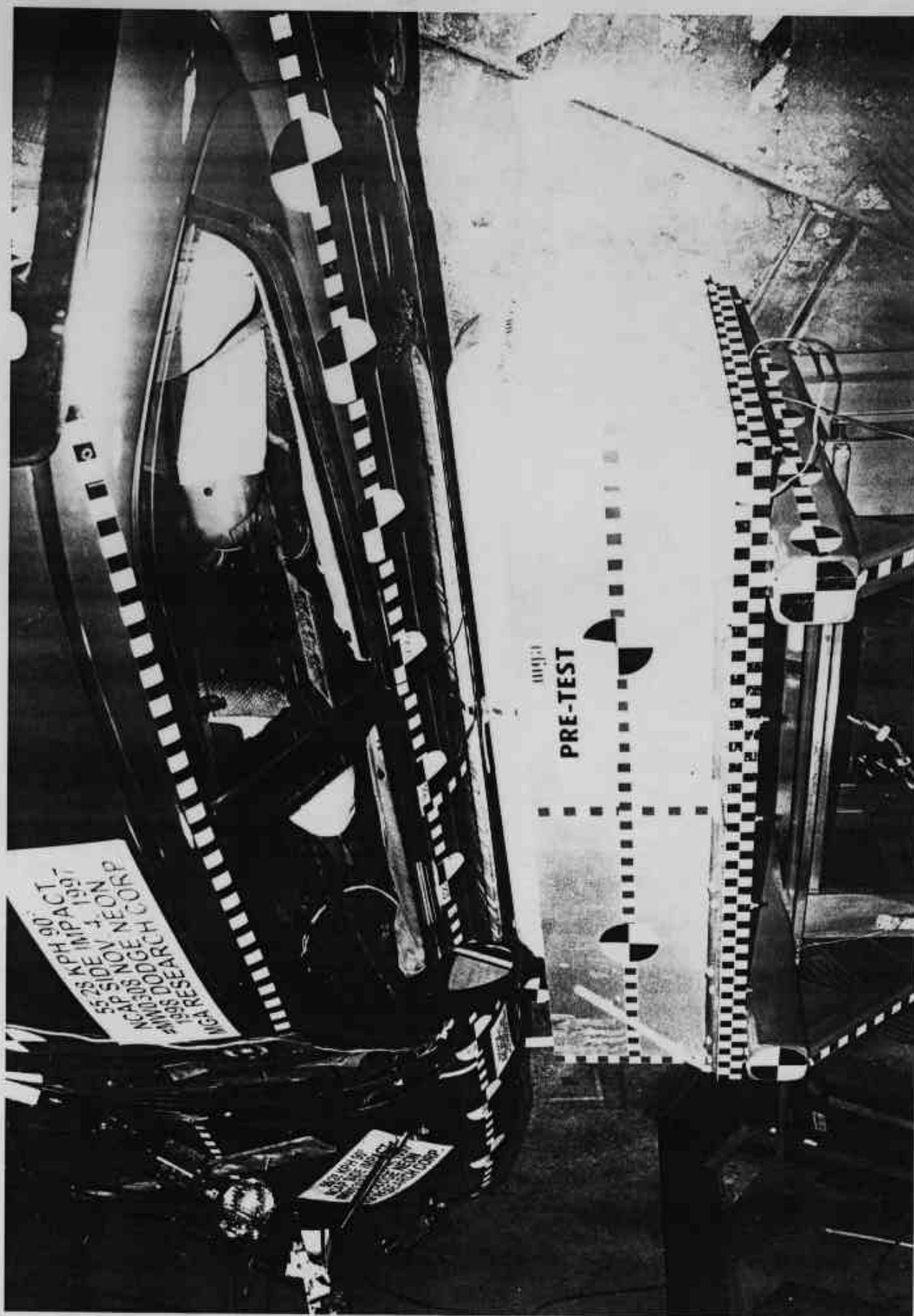
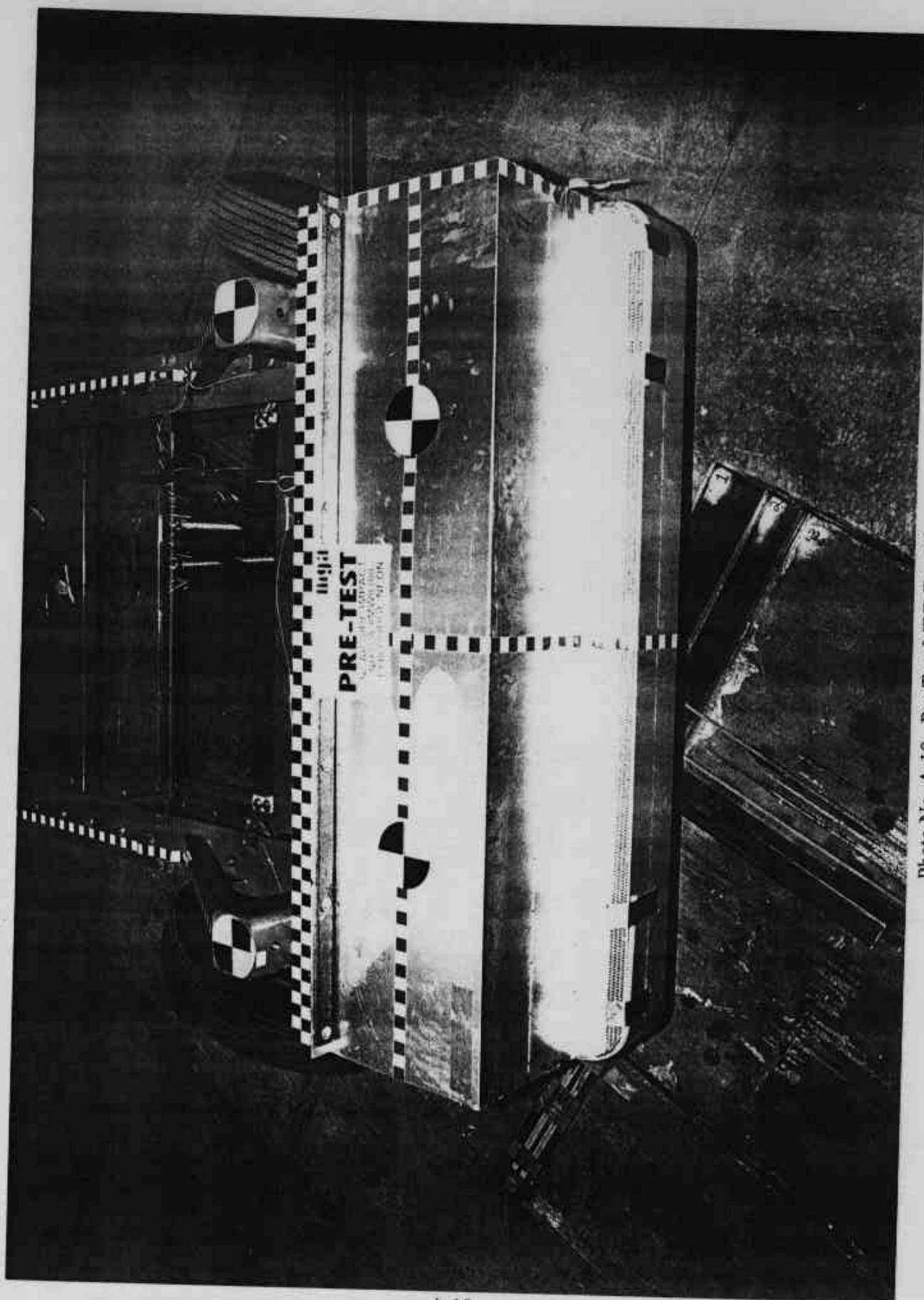


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View



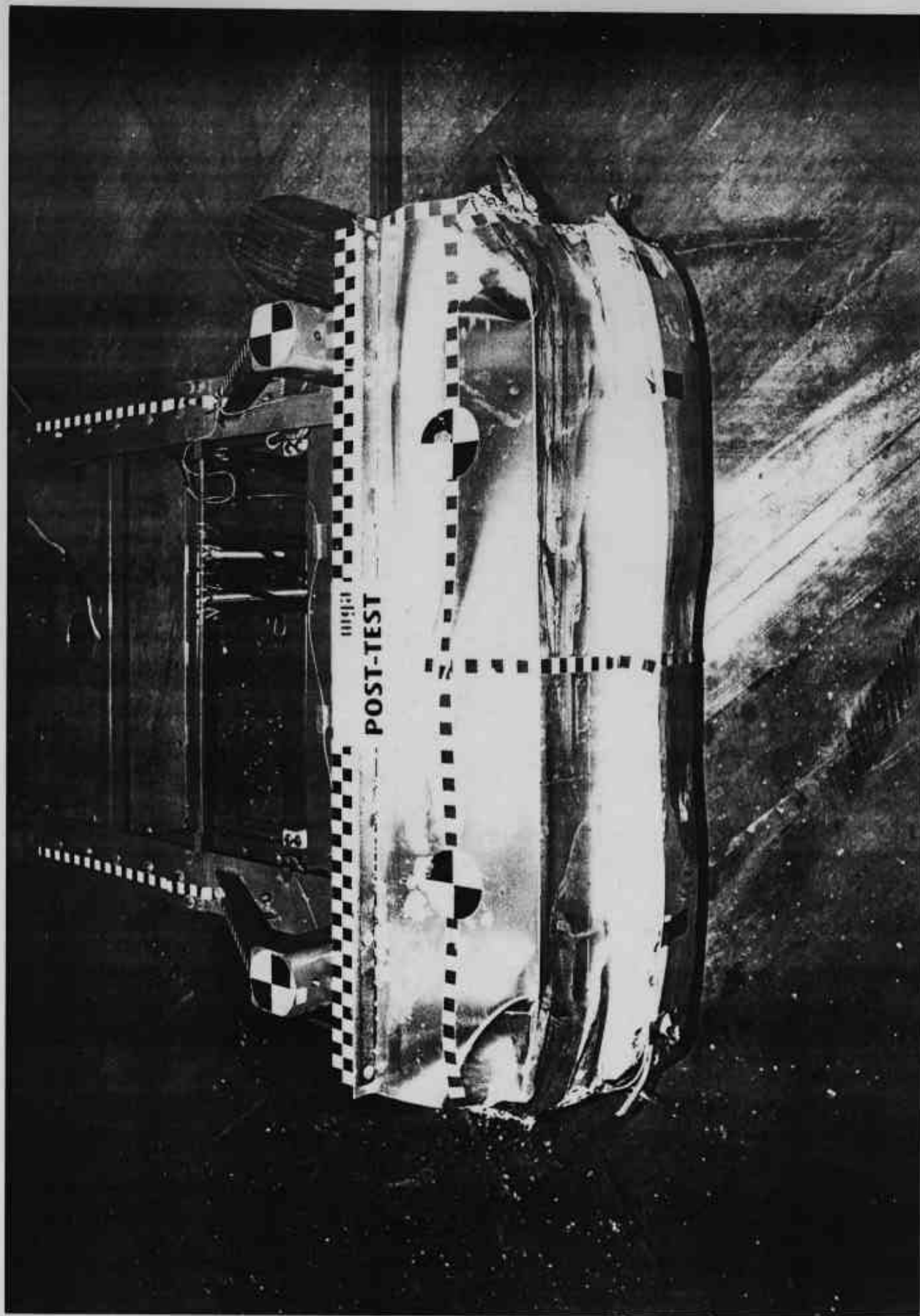


Photo No. A-11 - Post-Test MDB Top View

A-11

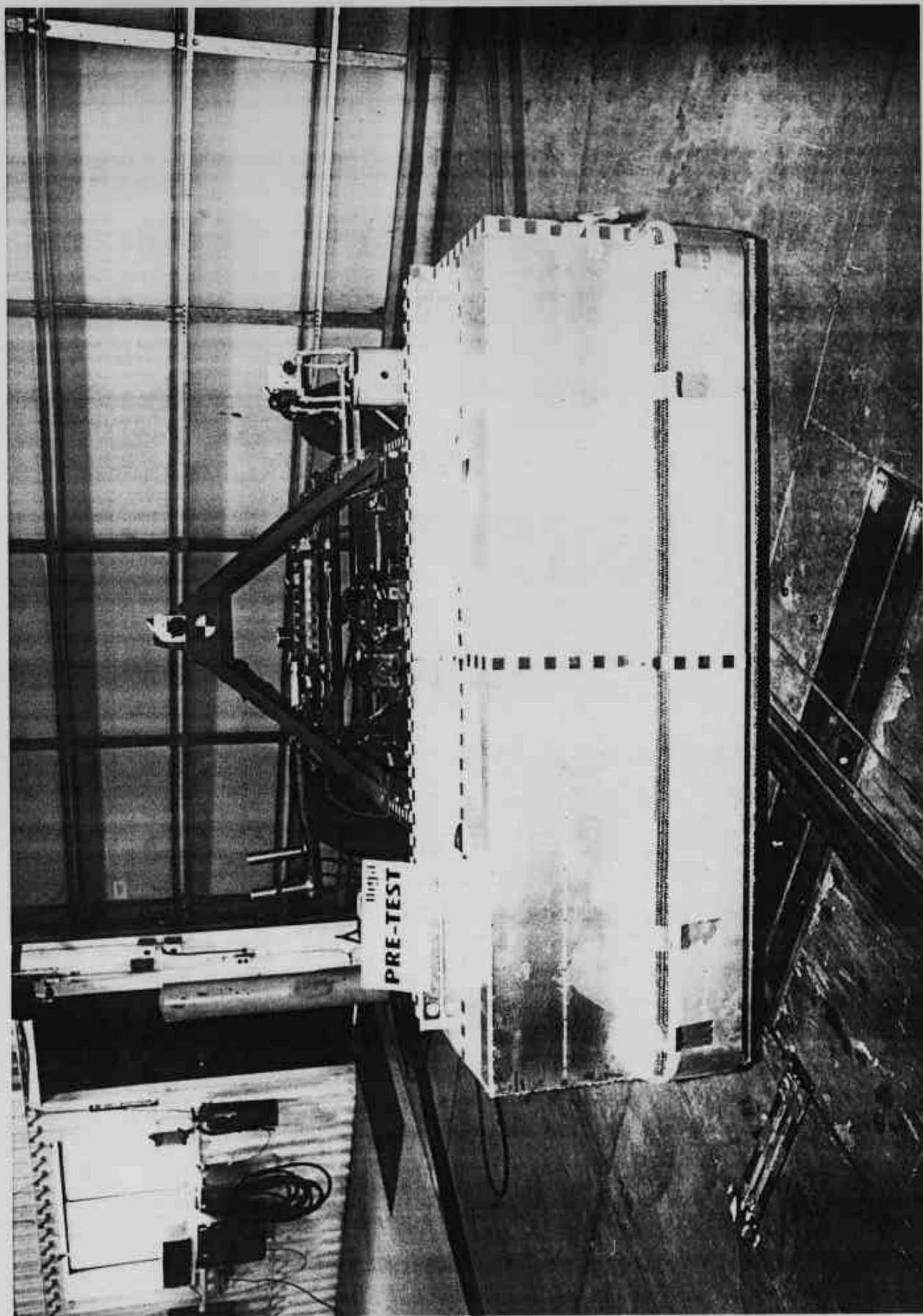


Photo No. A-12 - Pre-Test MDB Front View

A-12

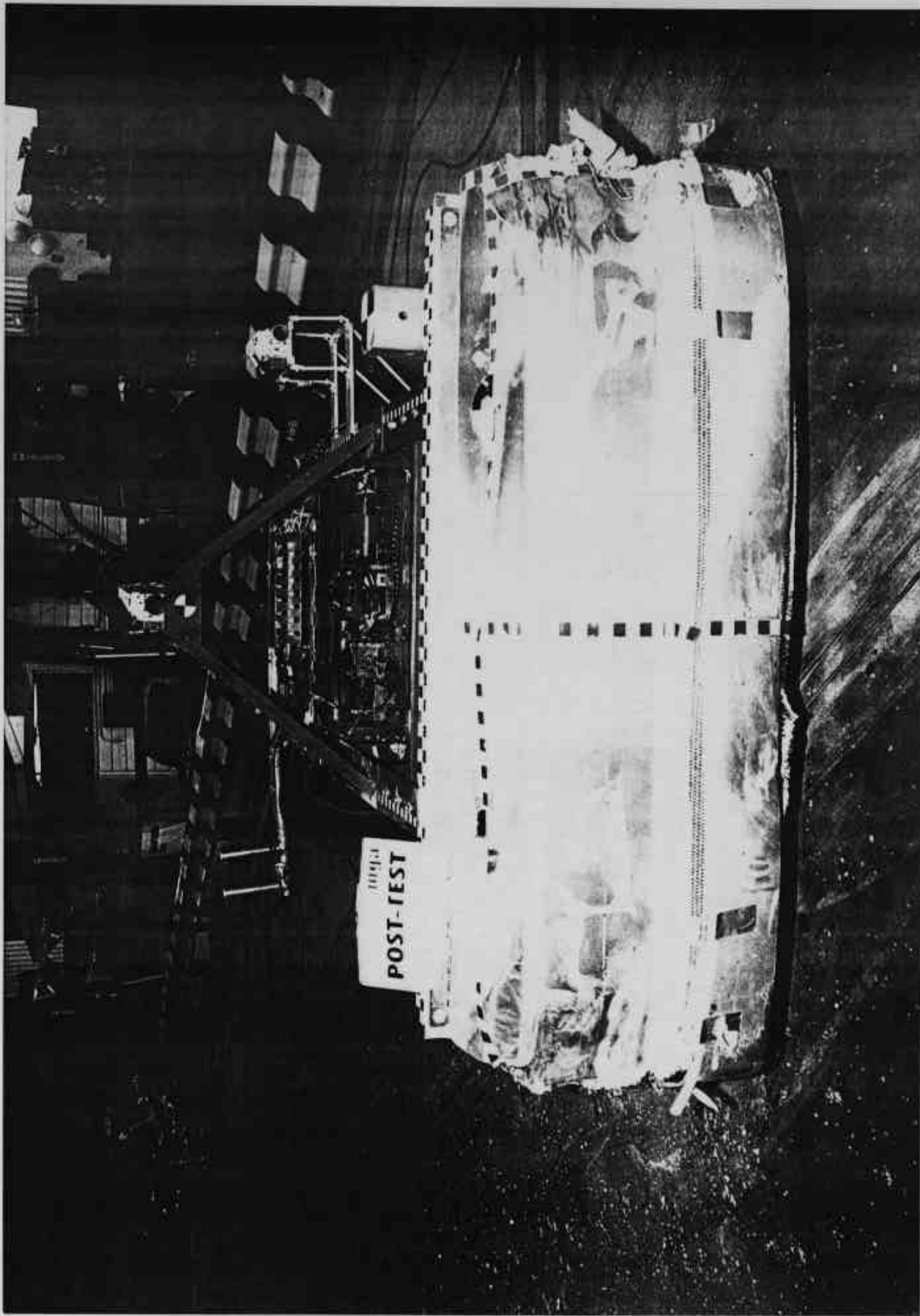


Photo No. A-13 - Post-Test MDB Front View

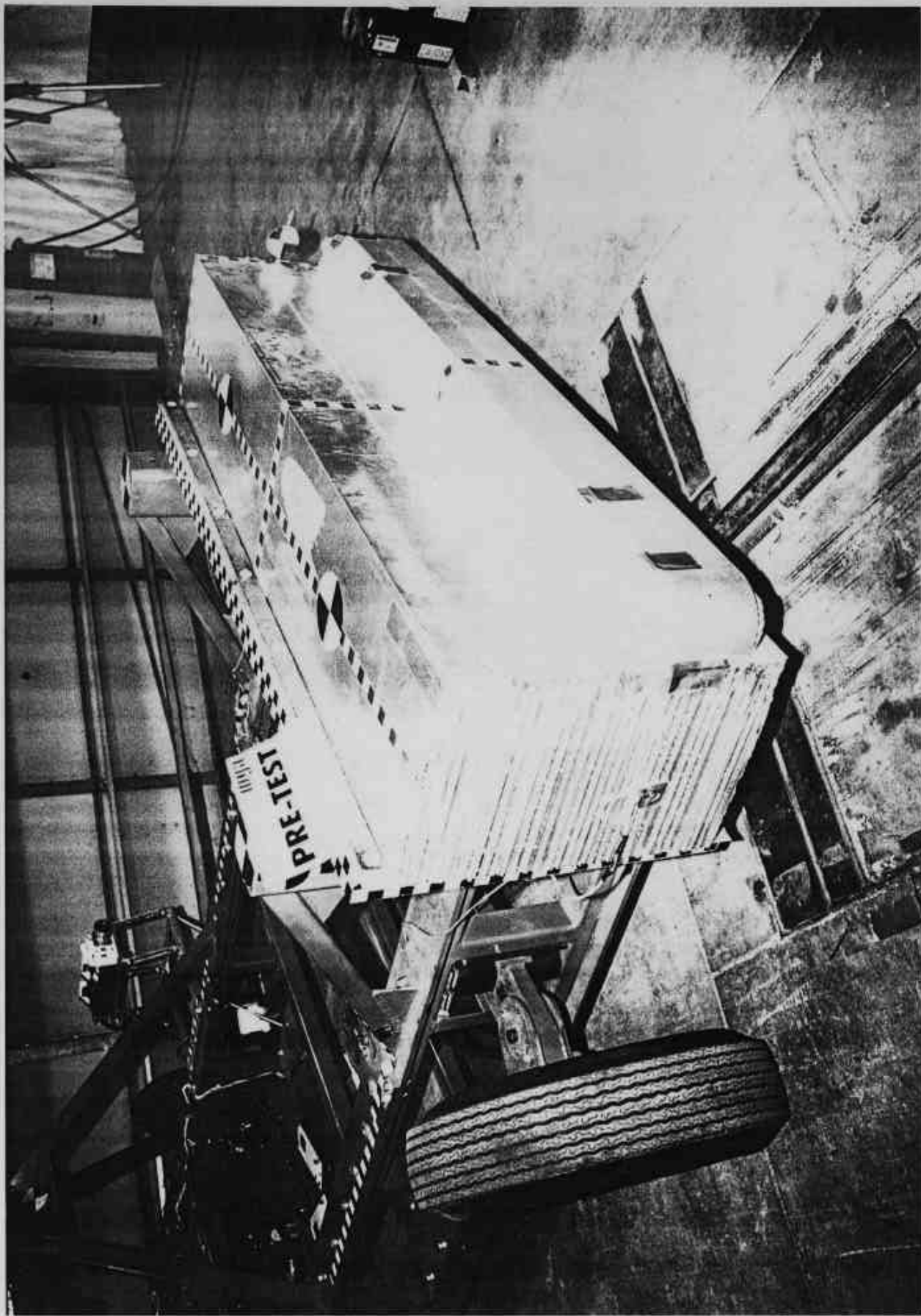


Photo No. A-14 - Pre-Test MDB Right Side View

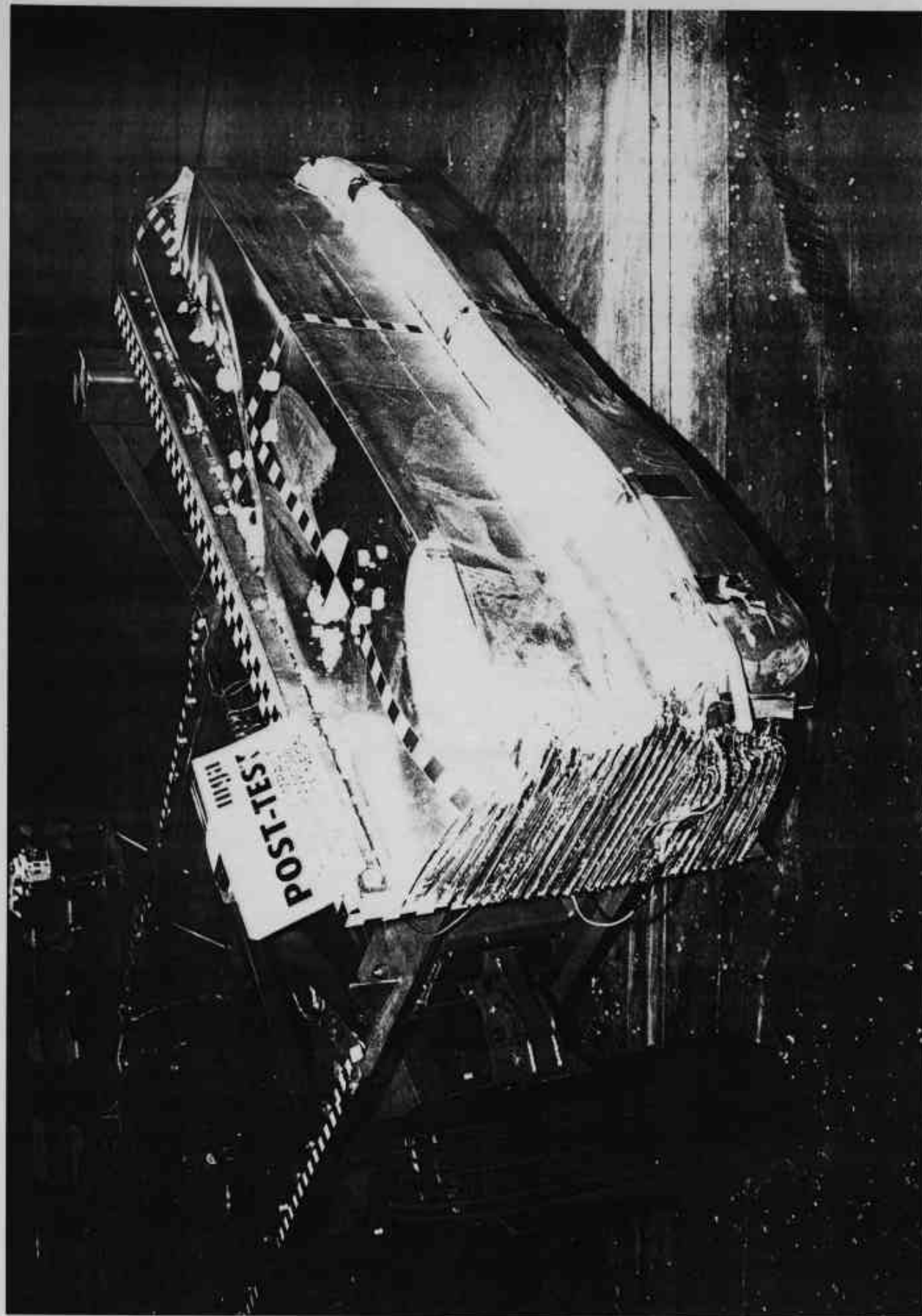


Photo No. A-15 - Post-Test MDB Right Side View

A-15

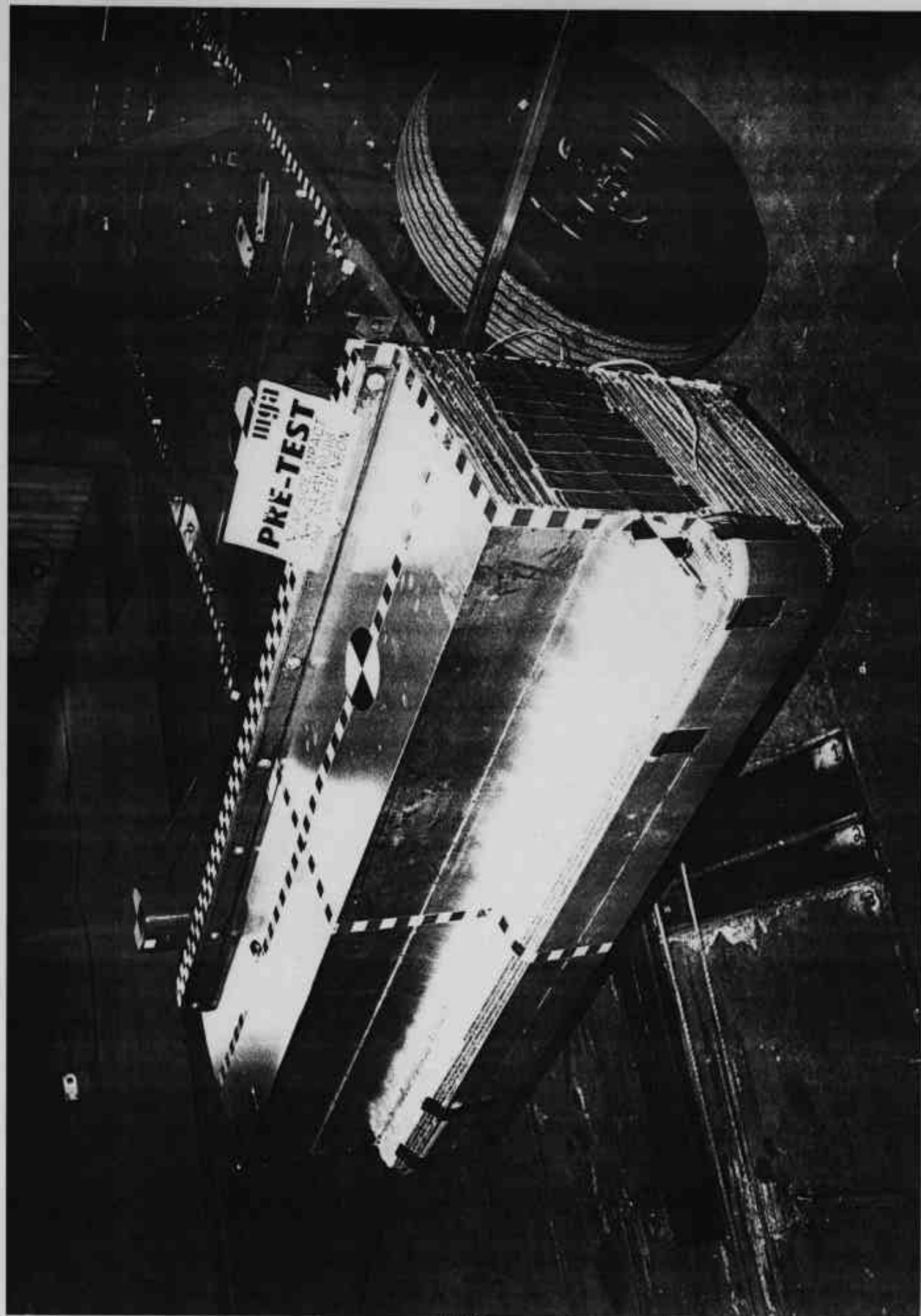


Photo No. A-16 - Pre-Test MDB Left Side View

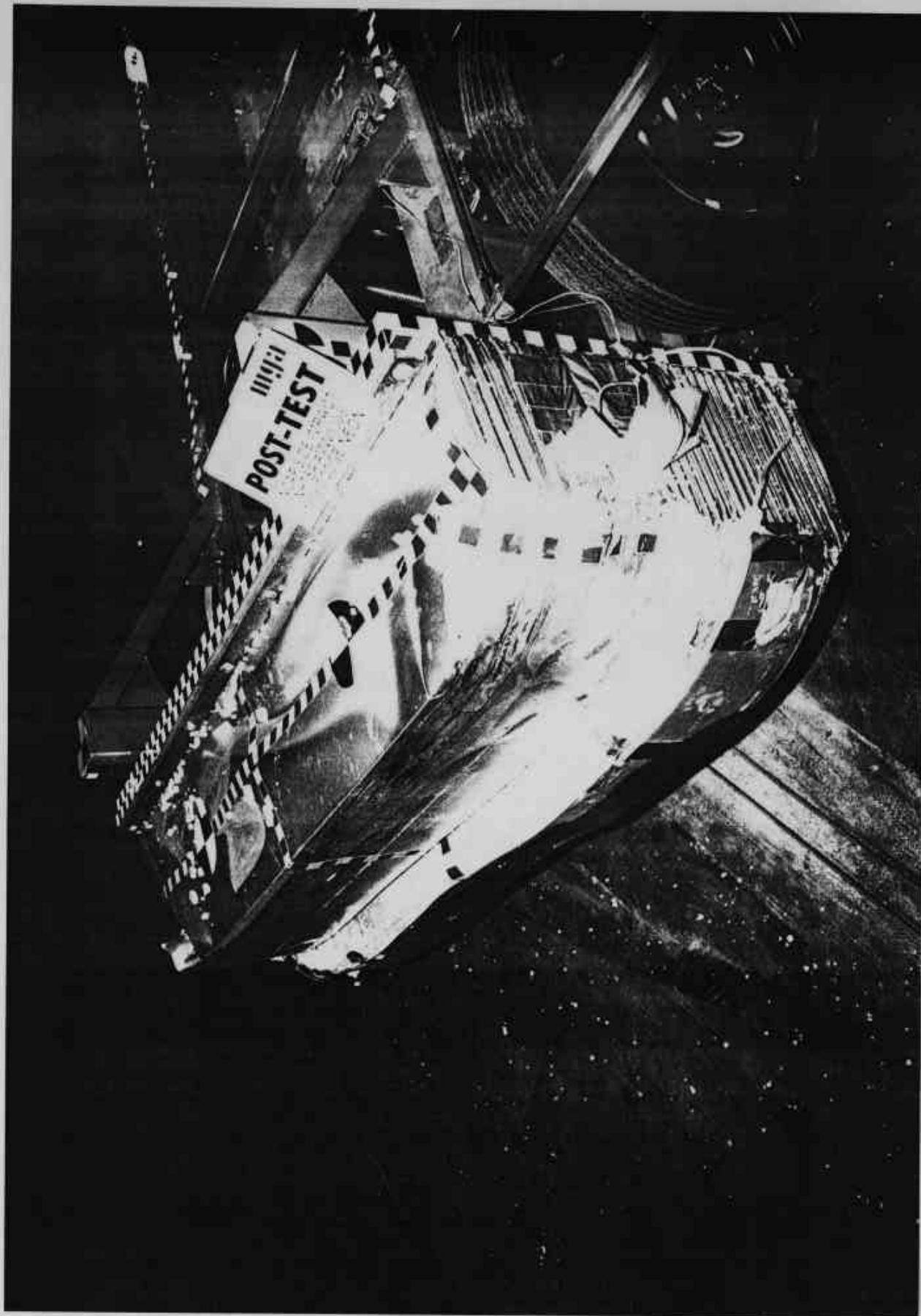


Photo No. A-17 - Post-Test MDB Left Side View

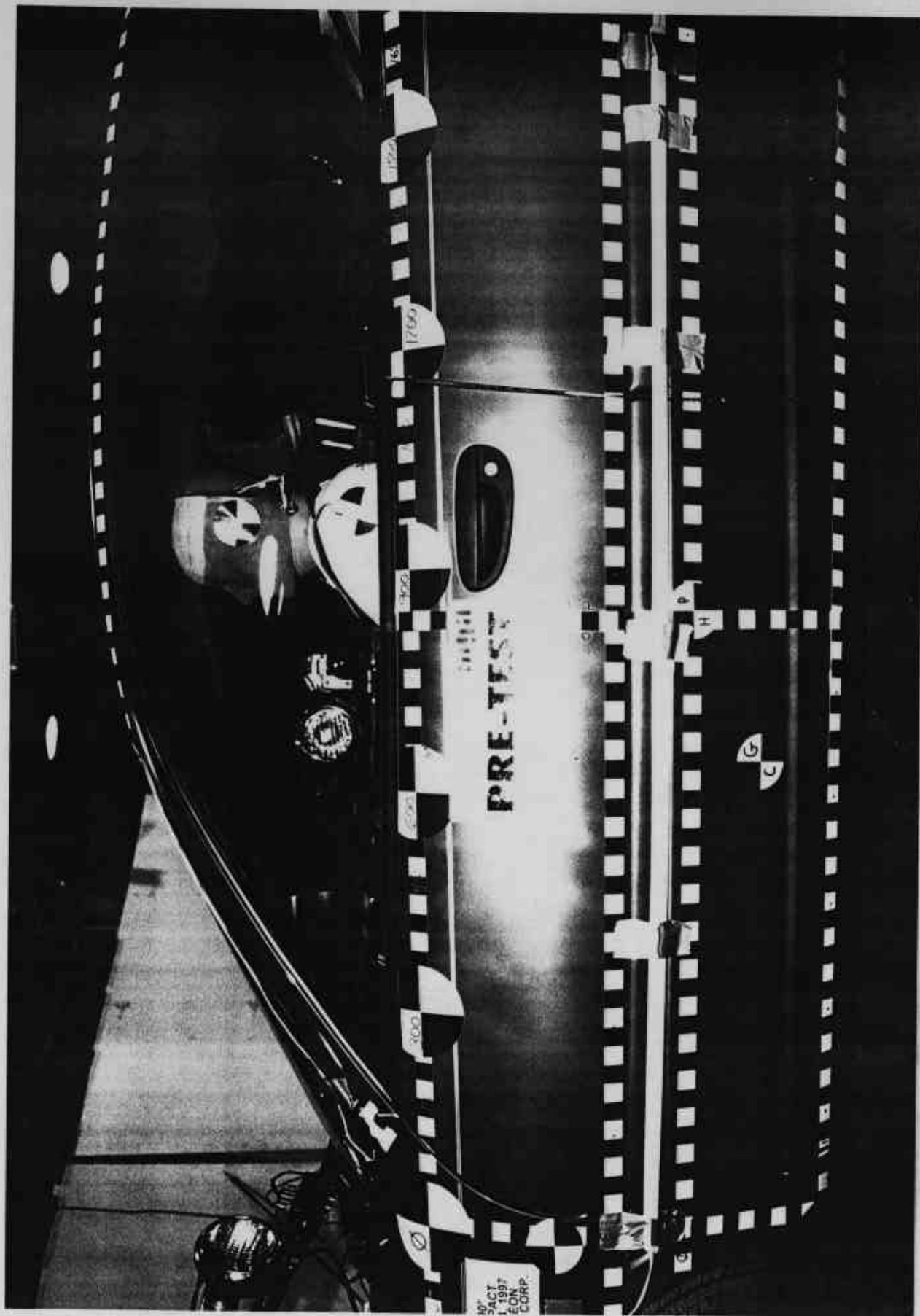
A-17



Photo No. A-18 - Pre-Test Driver Dummy Right Side View



Photo No. A-19 - Post-Test Driver Dummy Right Side View



A-20

Photo No. A-20 - Pre-Test Driver Dummy Left Side View

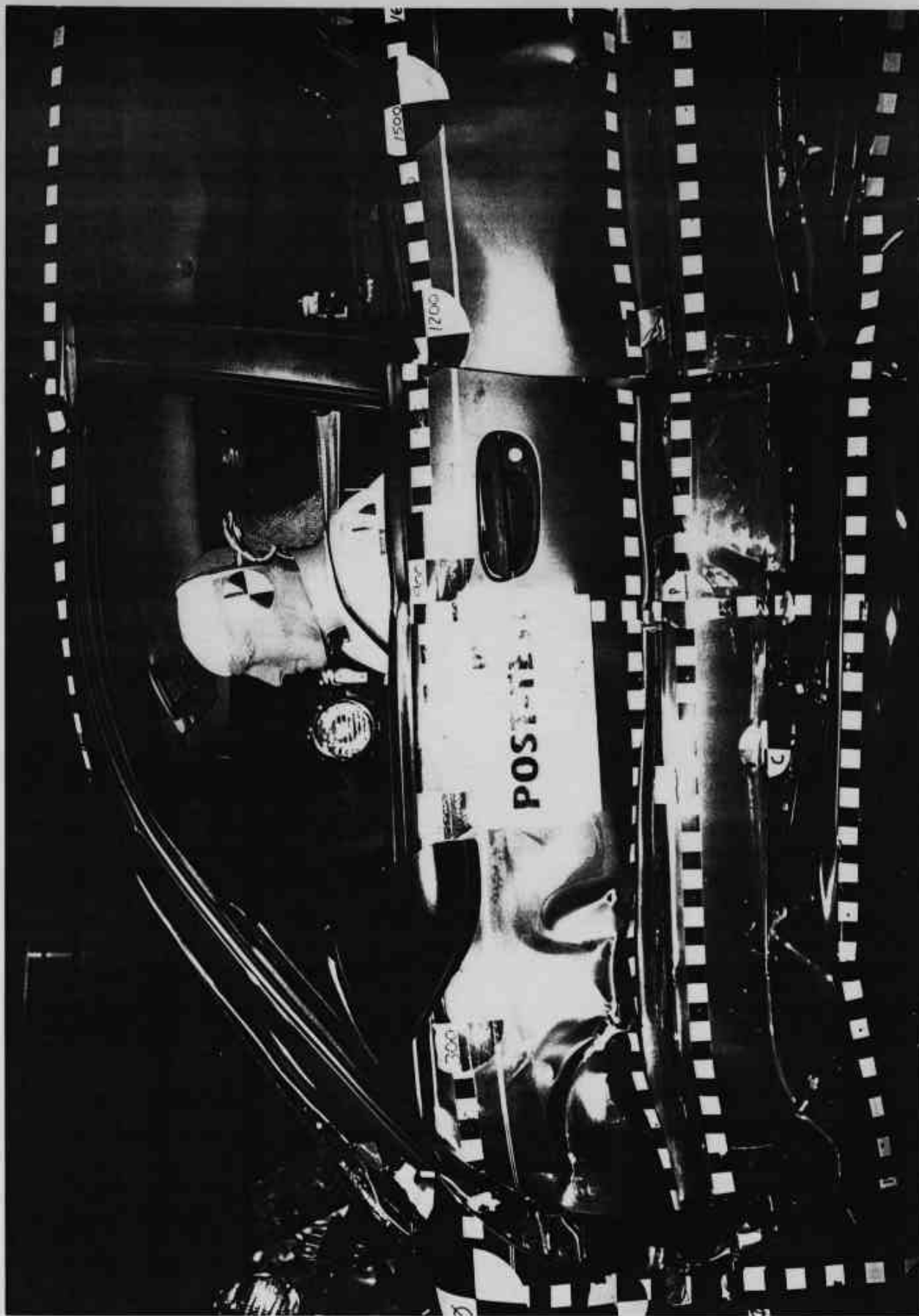


Photo No. A-21 - Post-Test Driver Dummy Left Side View

A-21

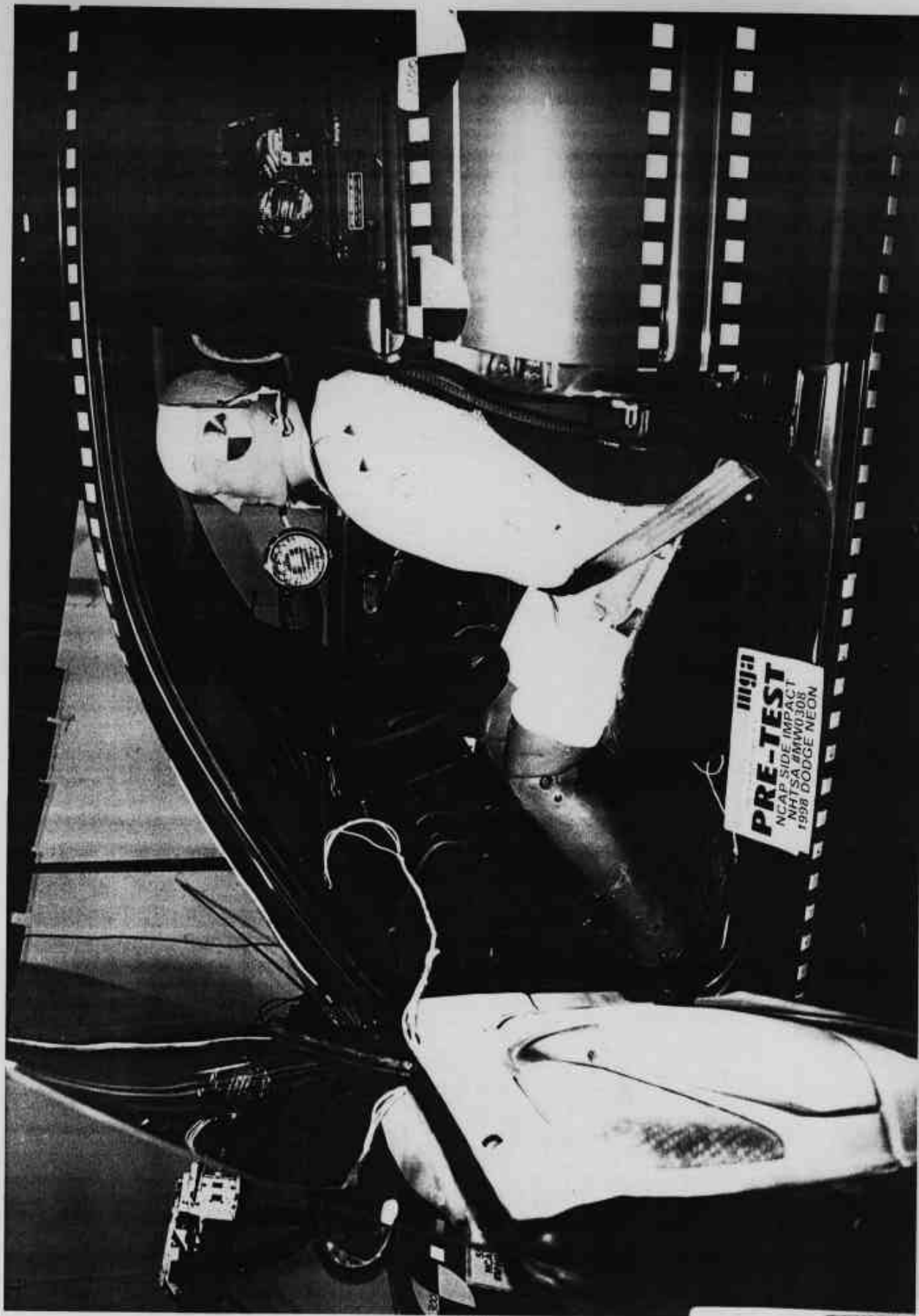


Photo No. A-22 - Pre-Test Driver Dummy Left Side View (Door Open)

A-22



Photo No. A-23 - Pre-Test Driver Dummy Shoulder and Door Top View

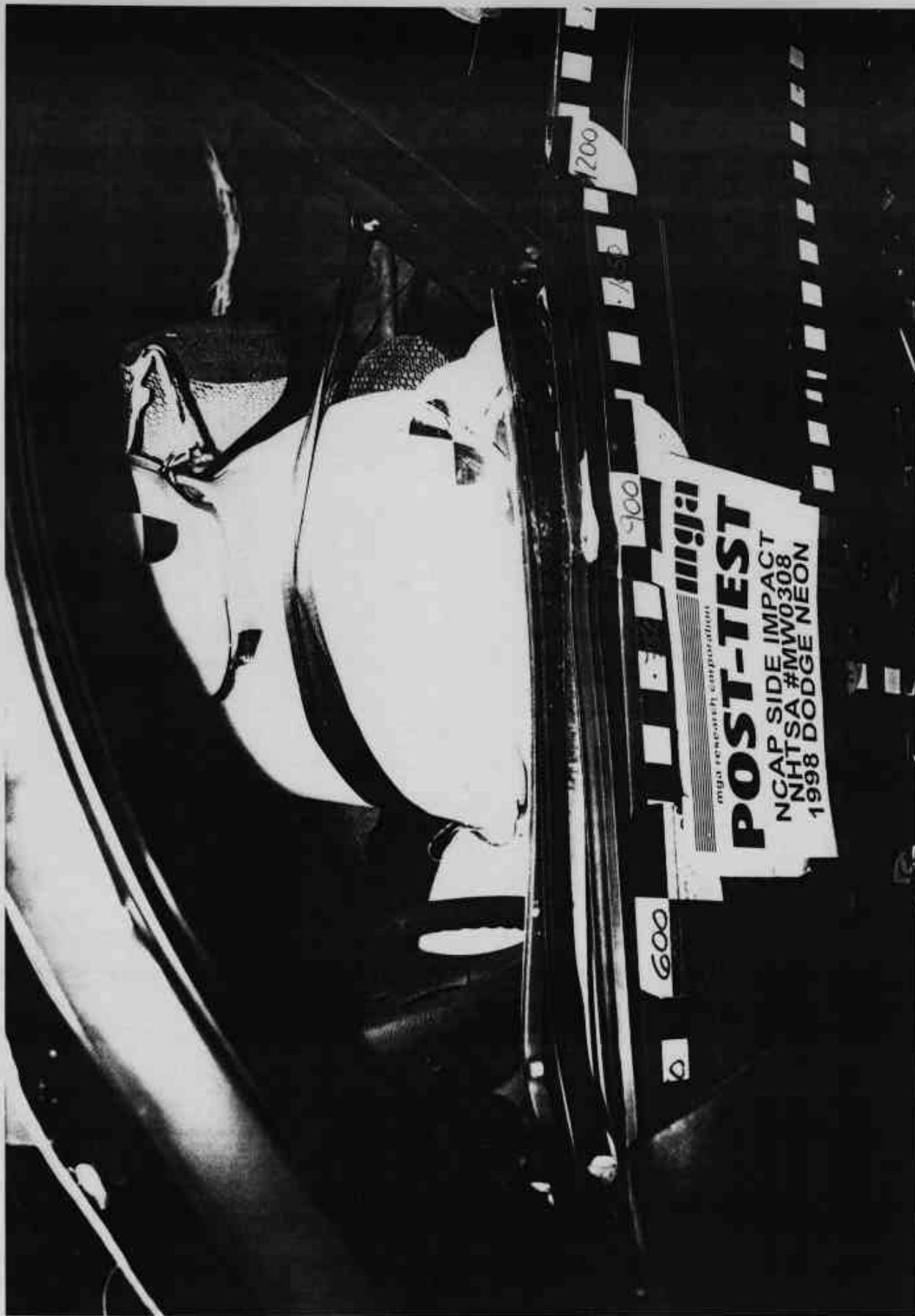


Photo No. A-24 - Post-Test Driver Dummy Shoulder and Door Top View

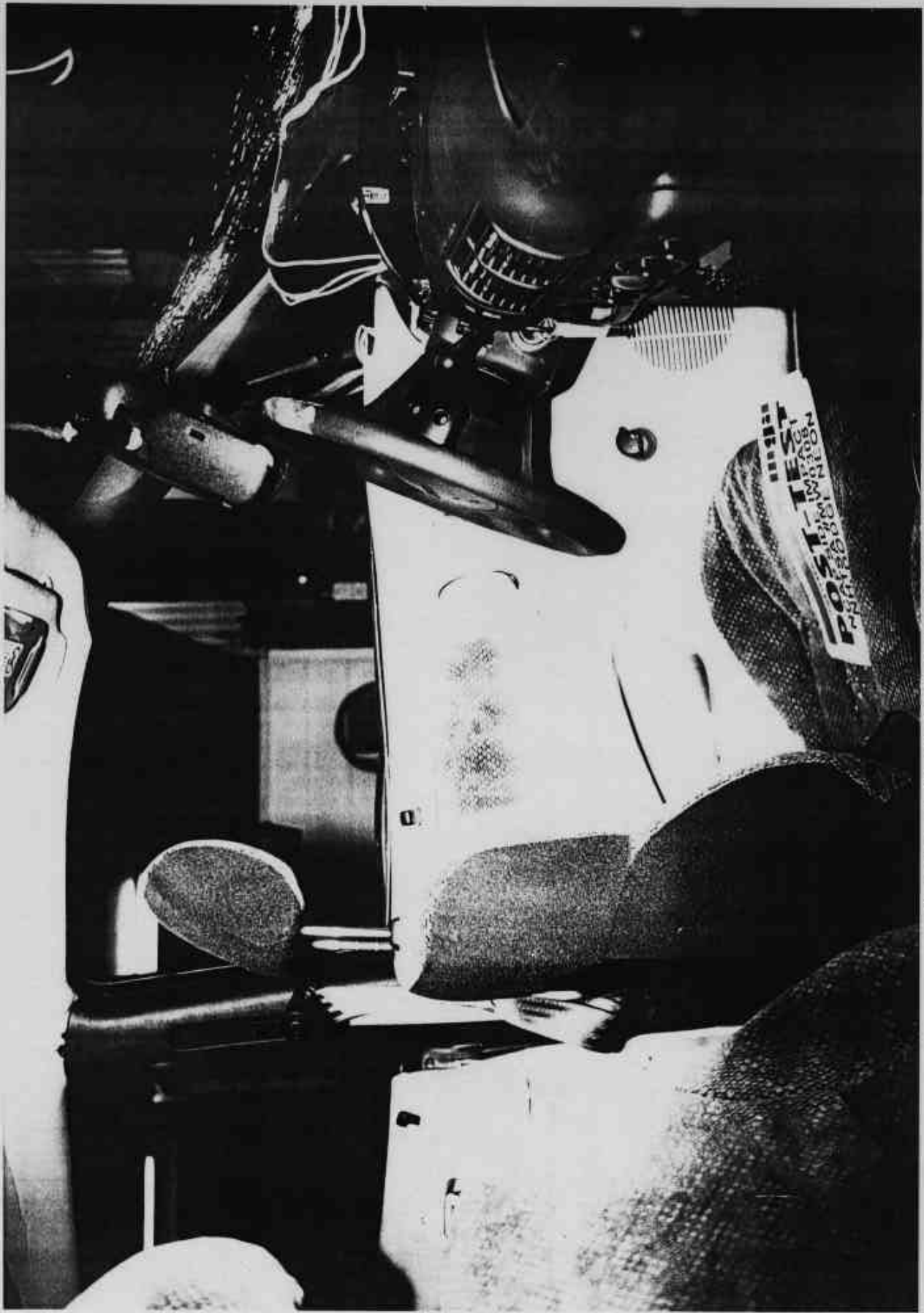


Photo No. A-25 - Post-Test Driver Dummy Contact

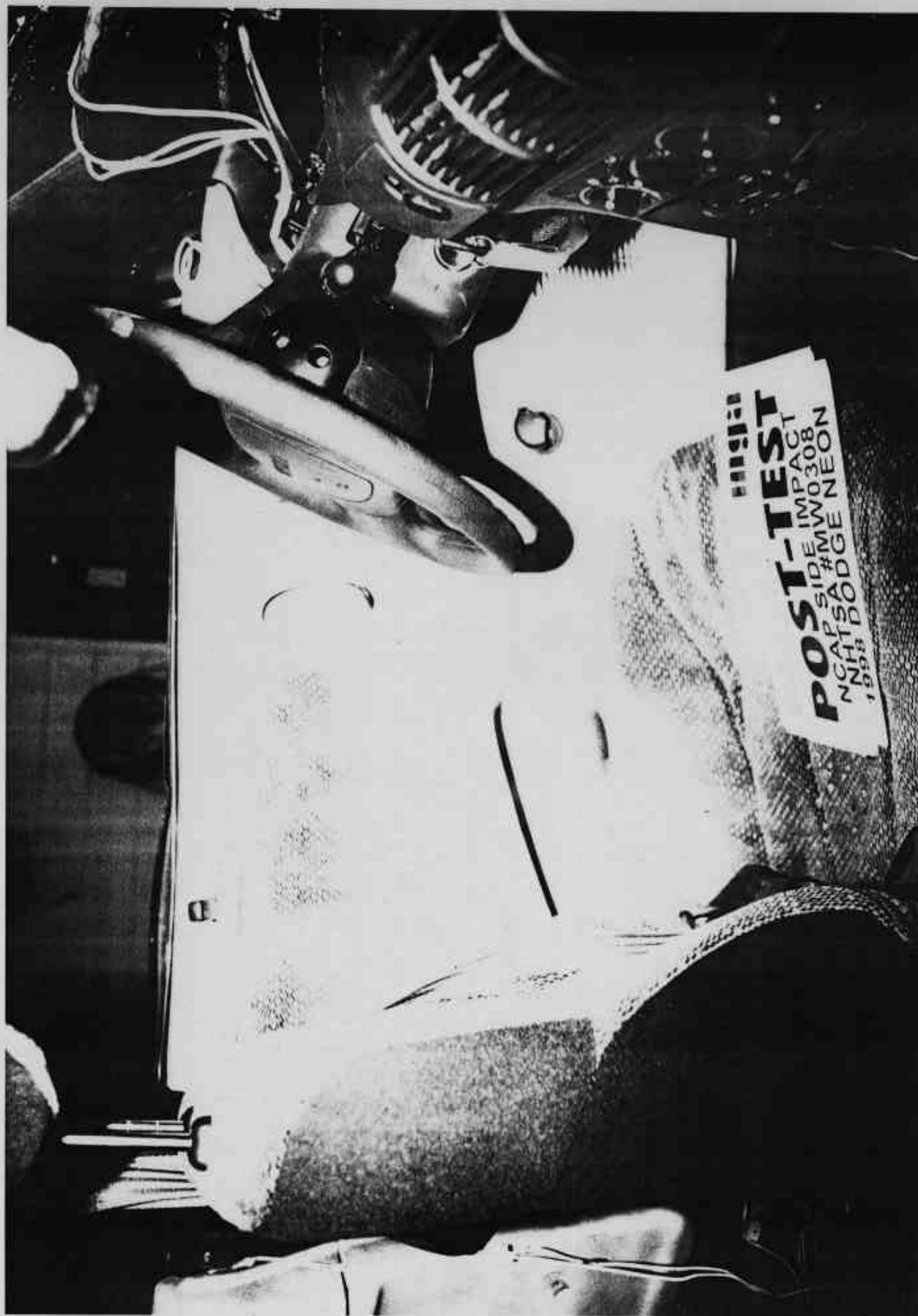


Photo No. A-26 - Post-Test Driver Dummy Contact



Photo No. A-27 - Pre-Test Passenger Dummy Right Side View



Photo No. A-28 - Post-Test Passenger Dummy Right Side View

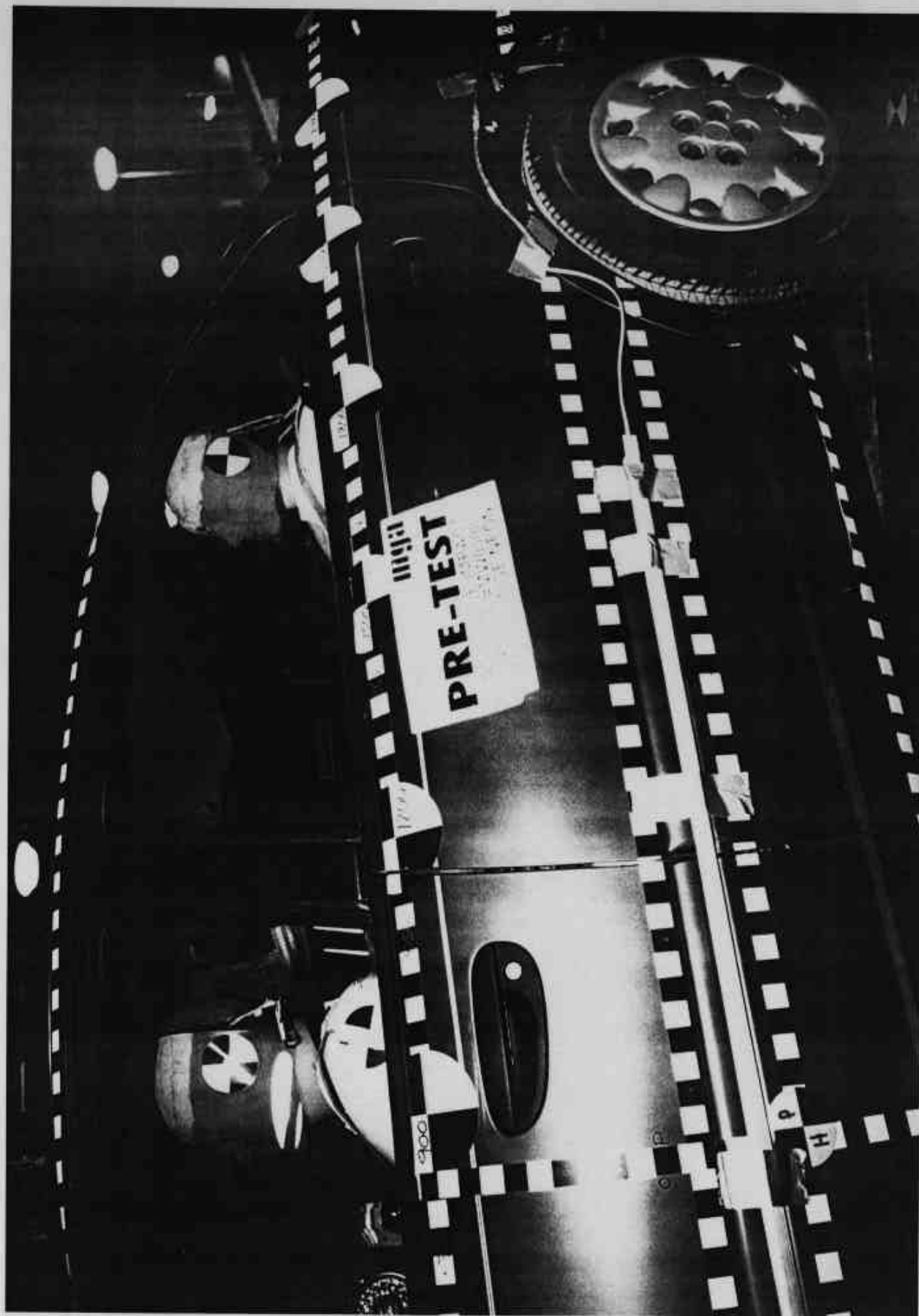


Photo No. A-29 - Pre-Test Passenger Dummy Left Side View

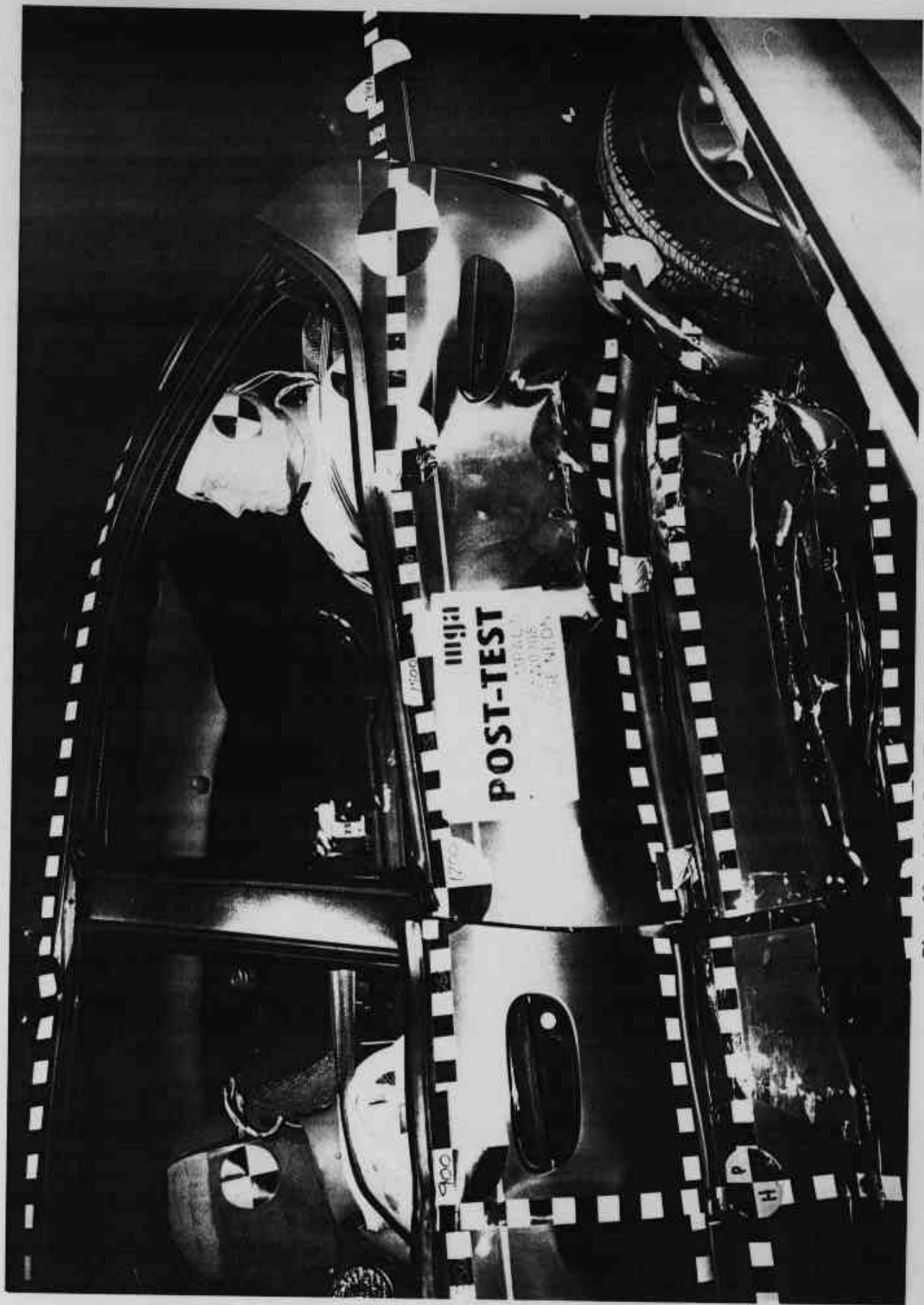


Photo No. A-30 - Post-Test Passenger Dummy Left Side View

A-30

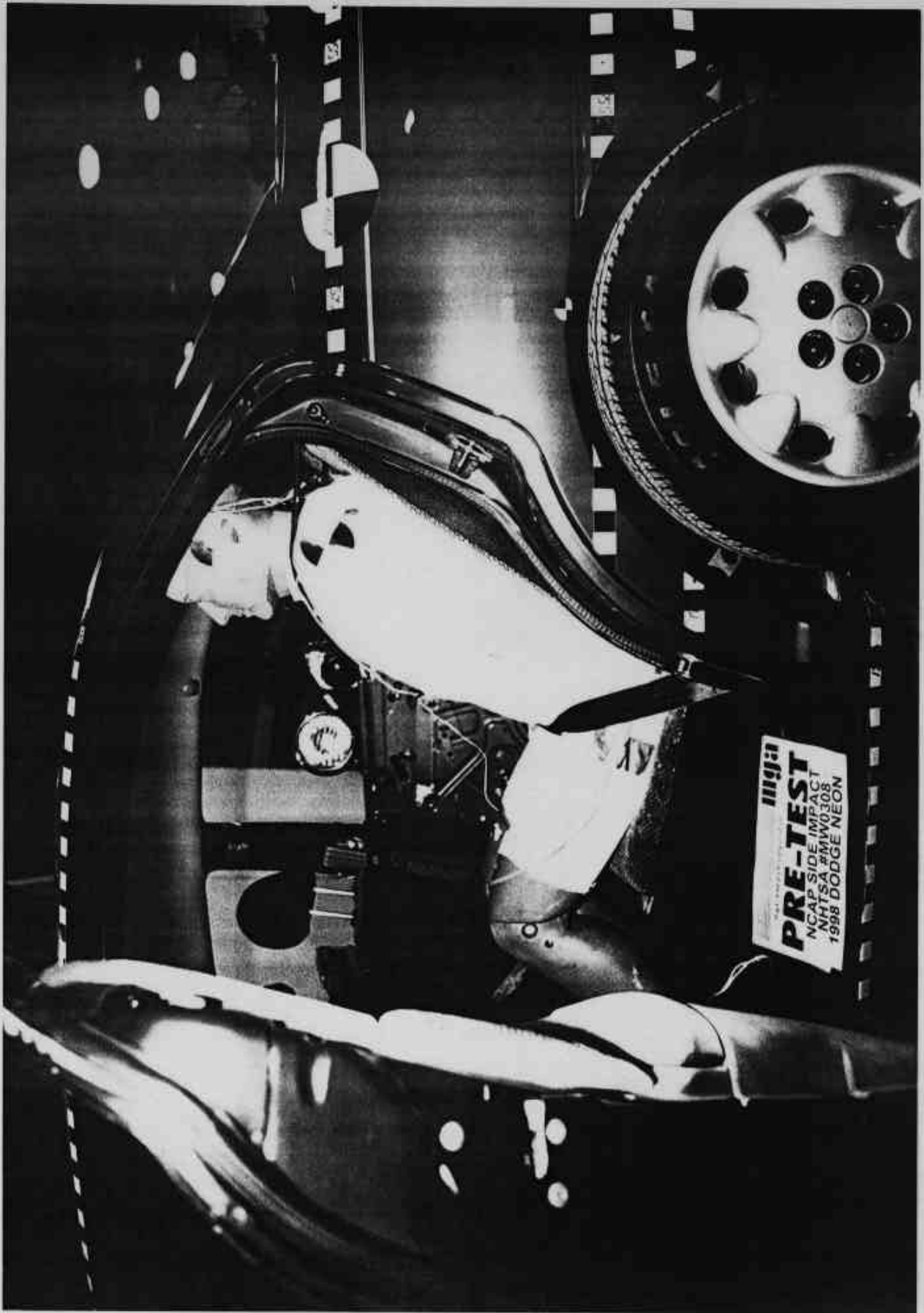
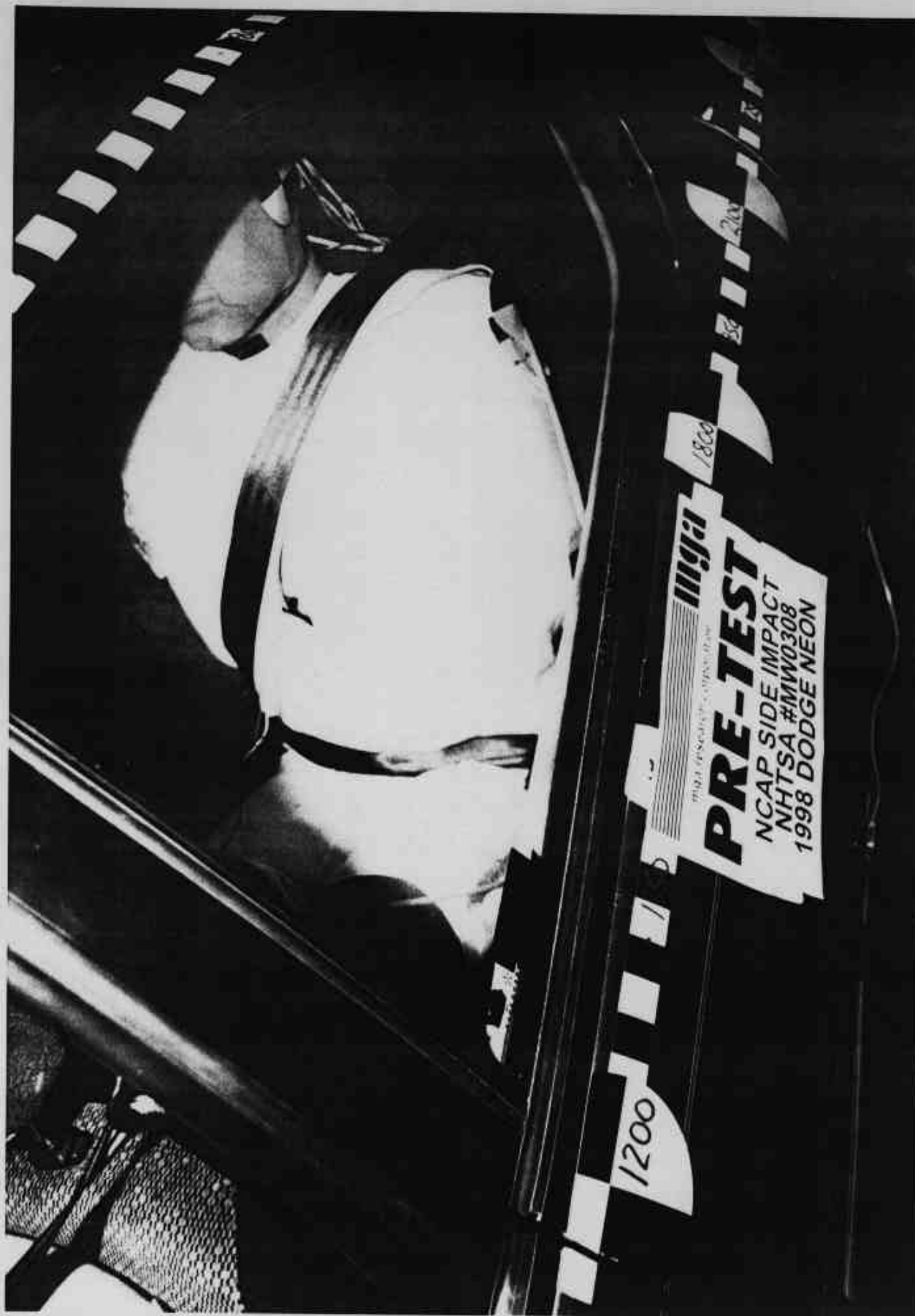
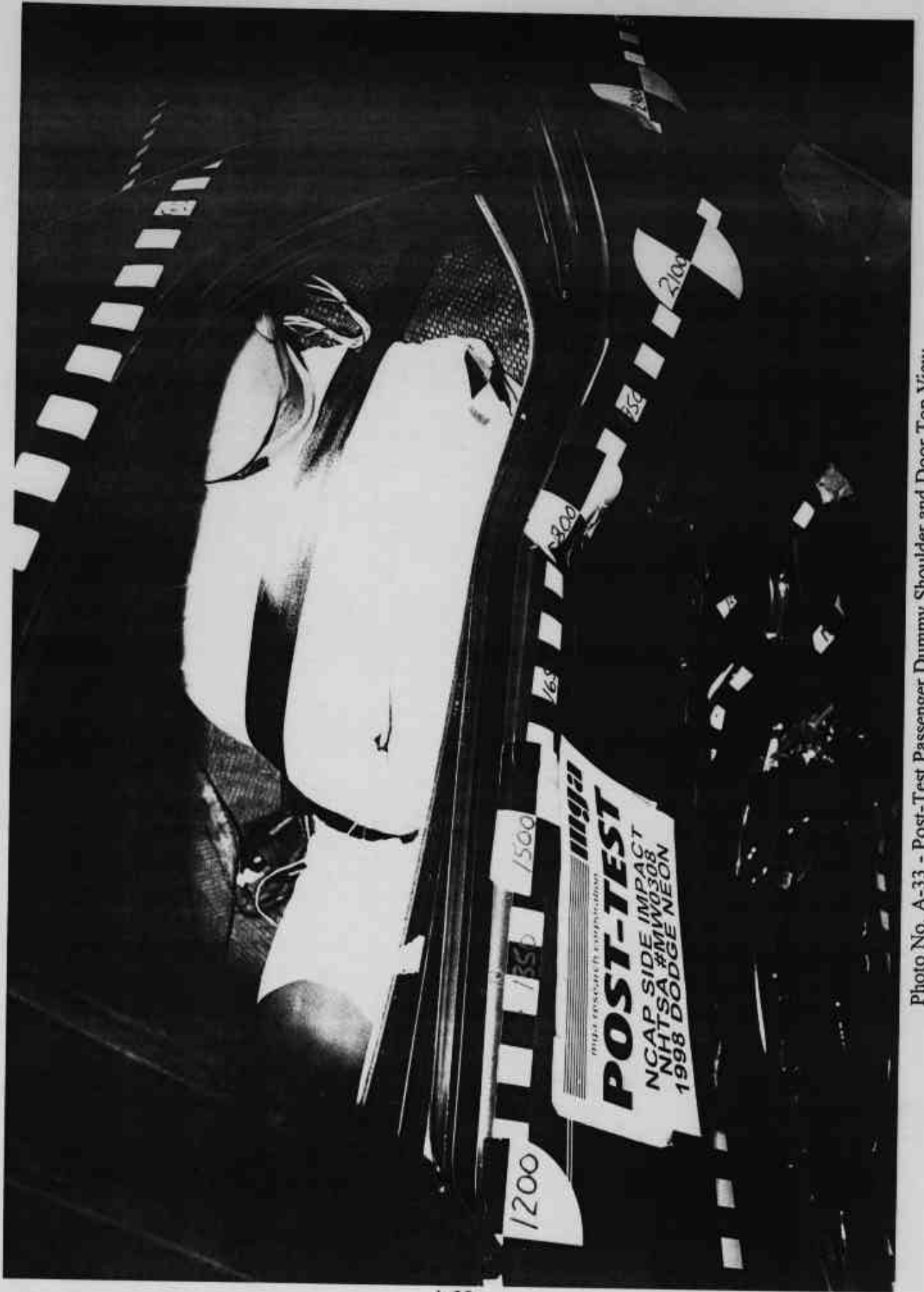


Photo No. A-31 - Pre-Test Passenger Dummy Left Side View (Door Open)



A-32

Photo No. A-32 - Pre-Test Passenger Dummy Shoulder and Door Top View



A-33

Photo No. A-33 - Post-Test Passenger Dummy Shoulder and Door Top View

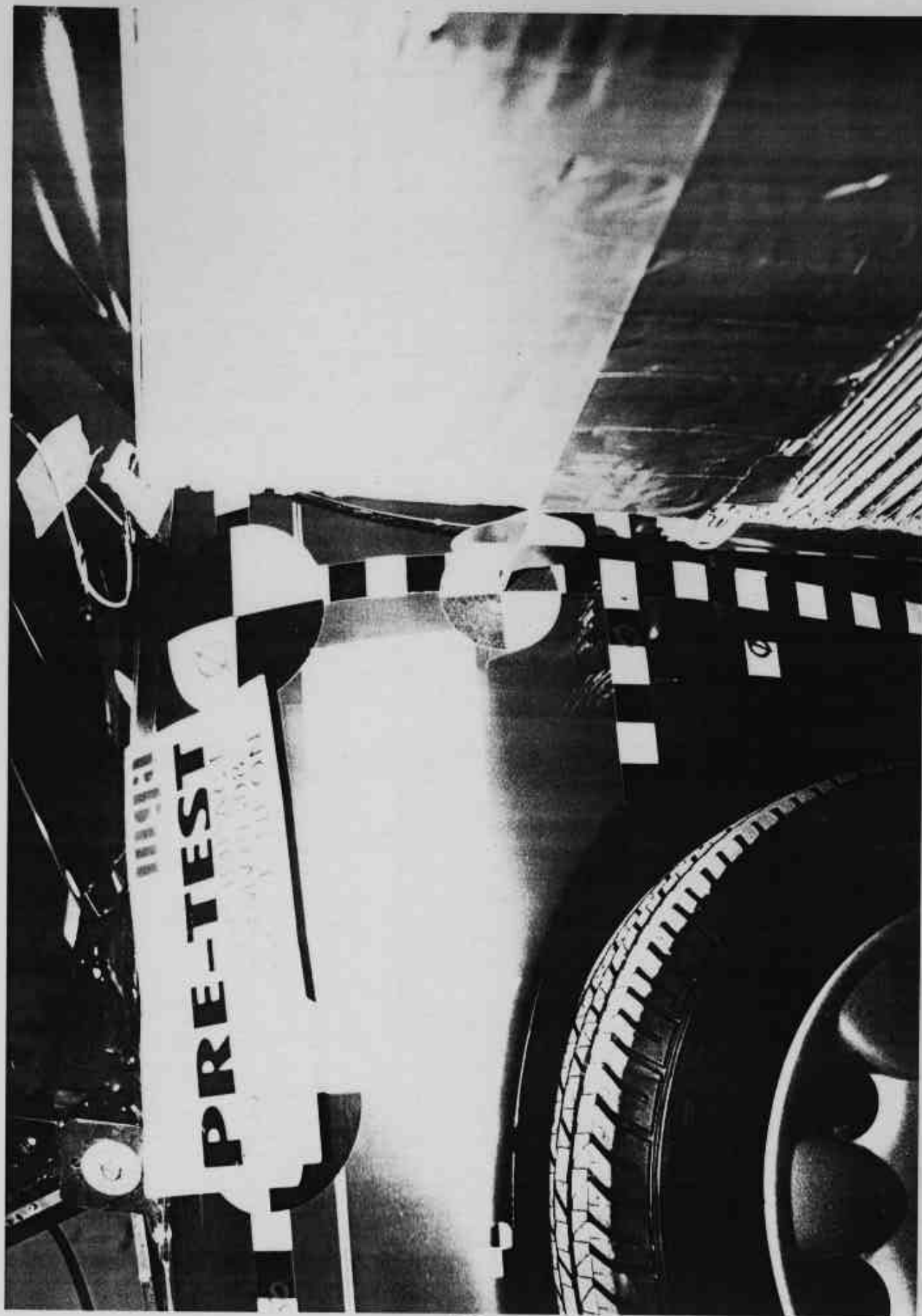


Photo No. A-34 - Post-Test Passenger Dummy Contact

A-34

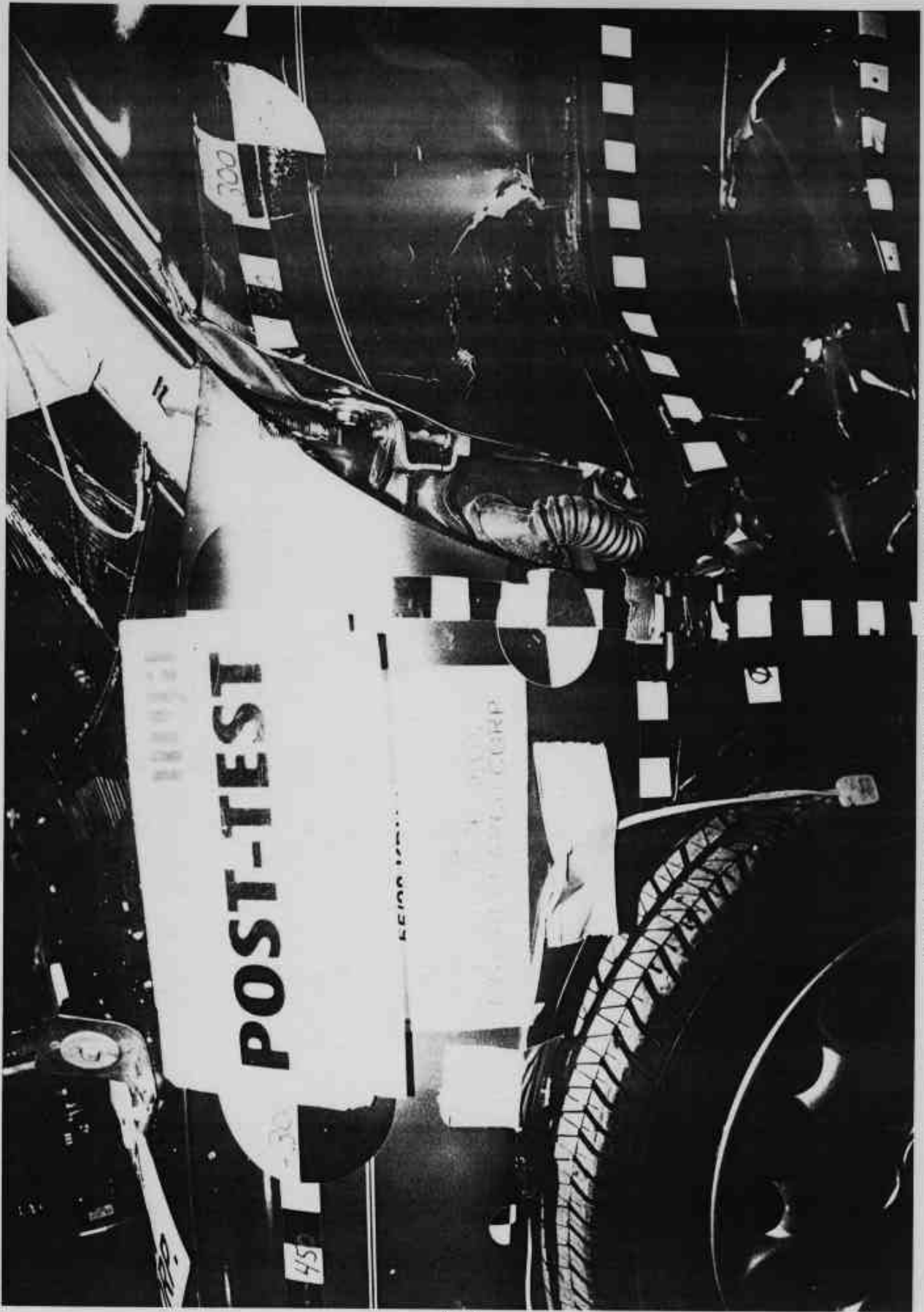


Photo No. A-35 - Post-Test Passenger Dummy Head Contact



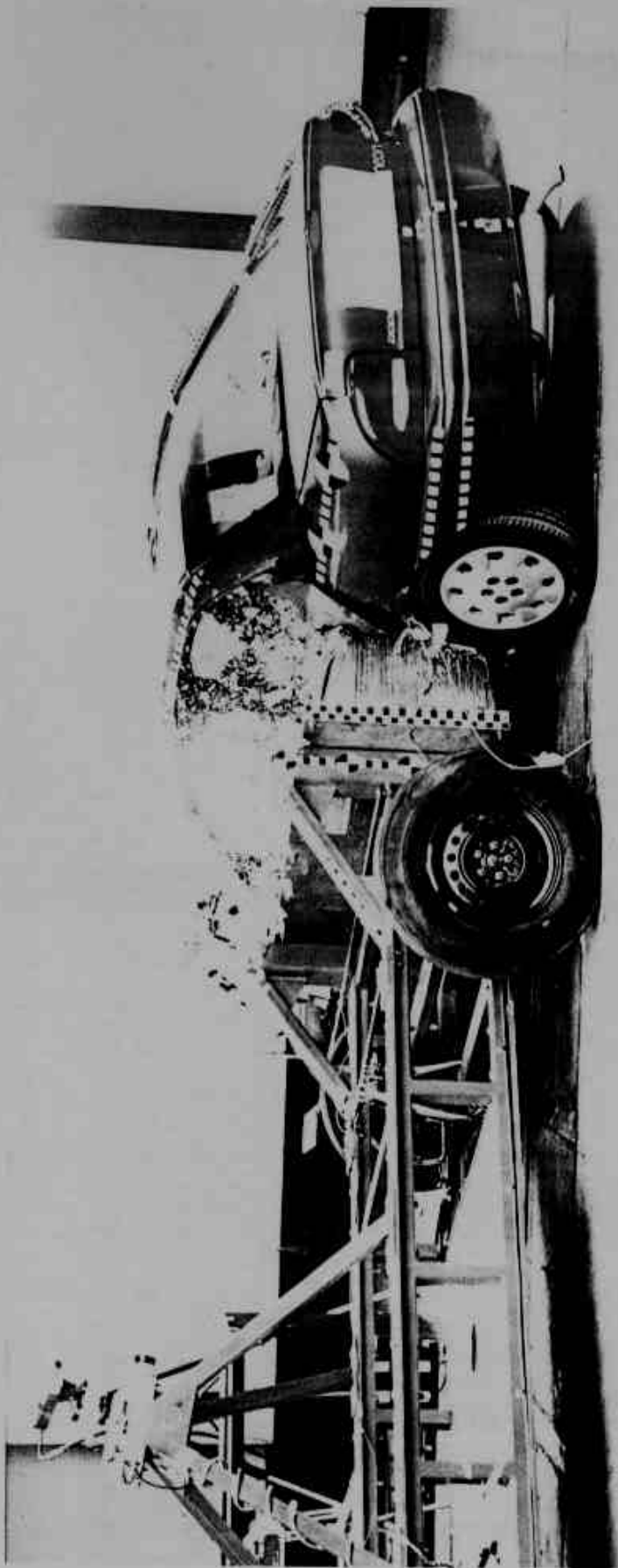
A-36

Photo No. A-36 - Pre-Test Left Front Impact Point on Vehicle



A-37

Photo No. A-37 - Post-Test Left Front Impact Point on Vehicle



A-38

Photo No. A-38 - Impact

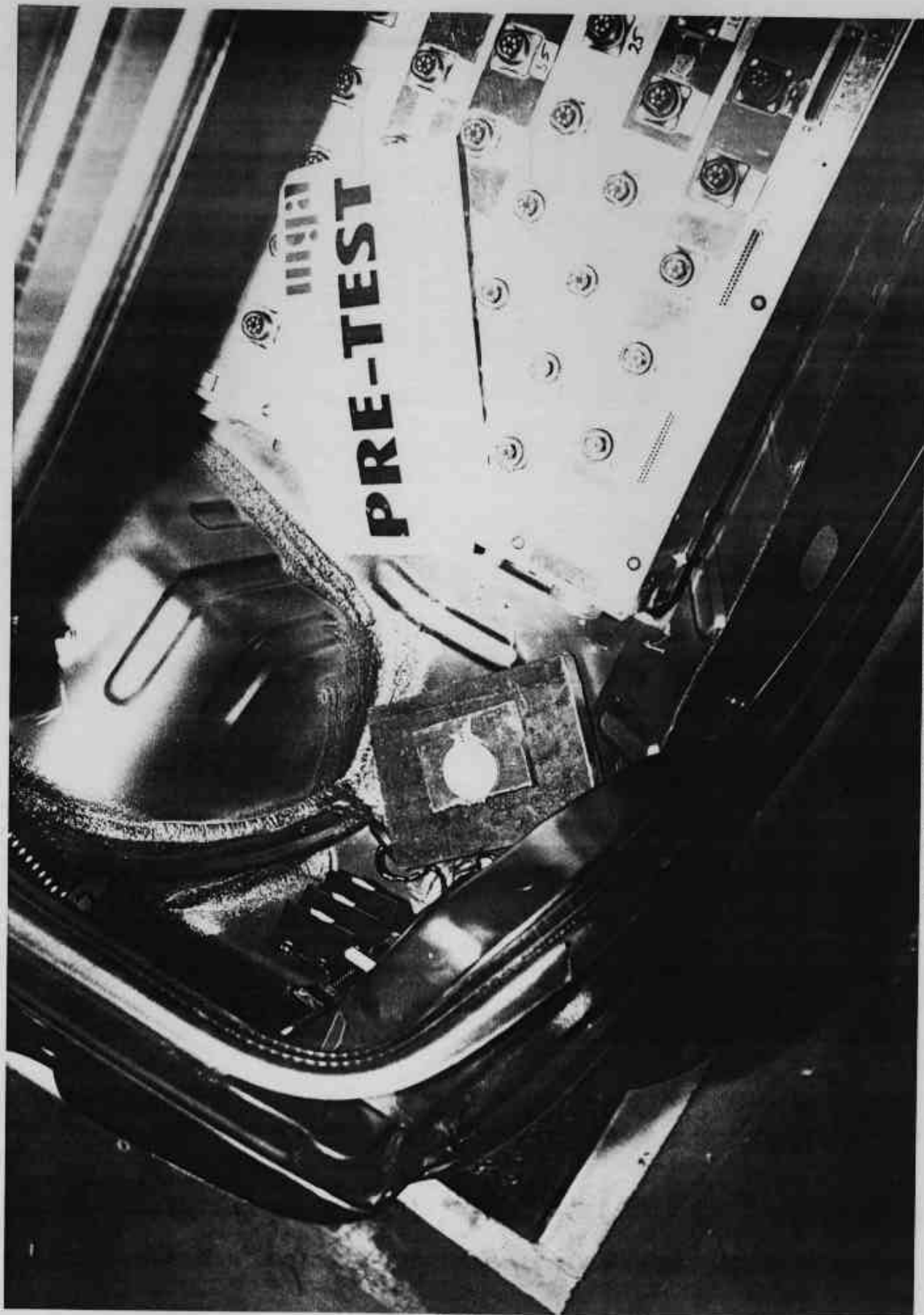


Photo No. A-39 - Added Vehicle Ballast Weight

A-39

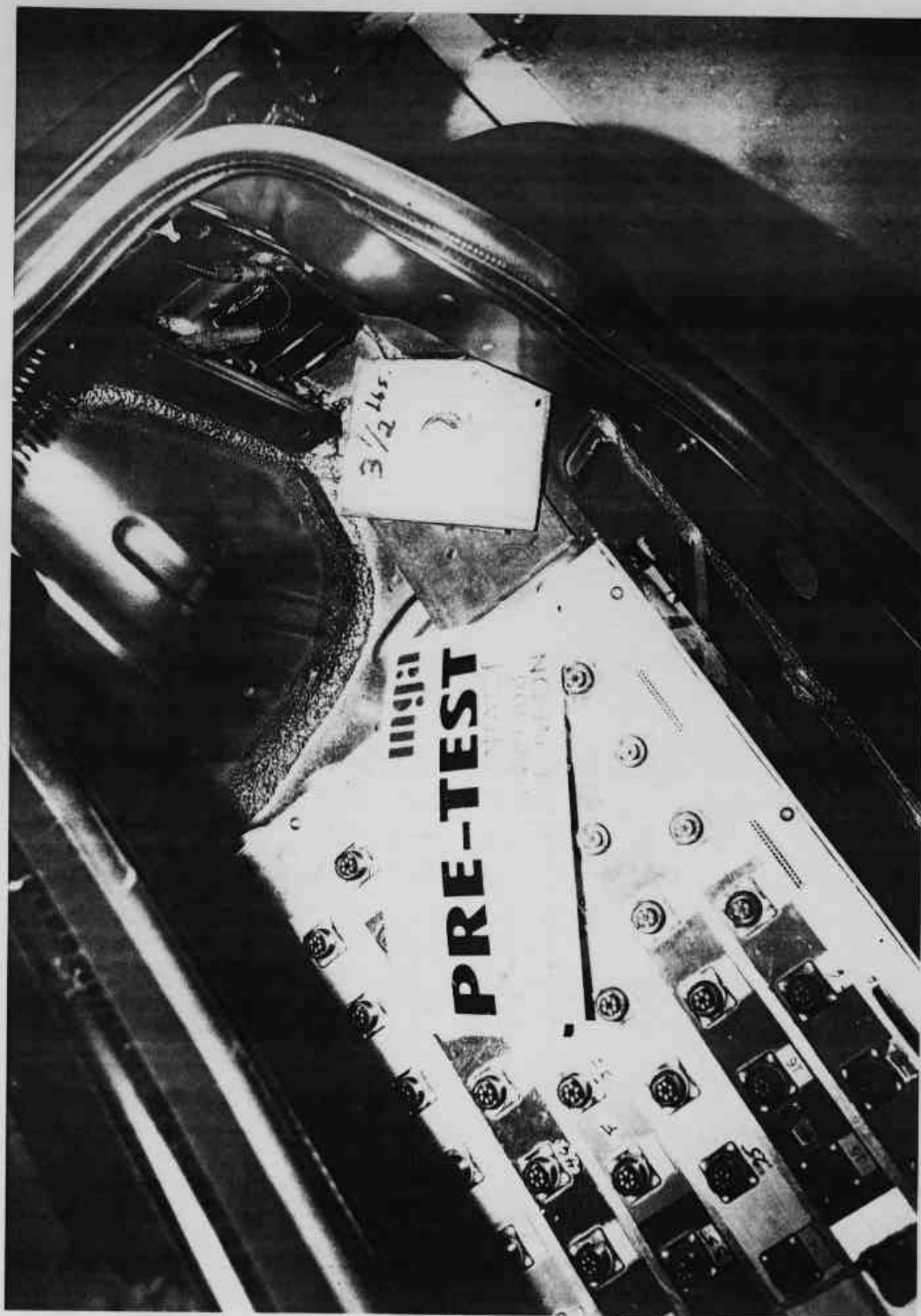
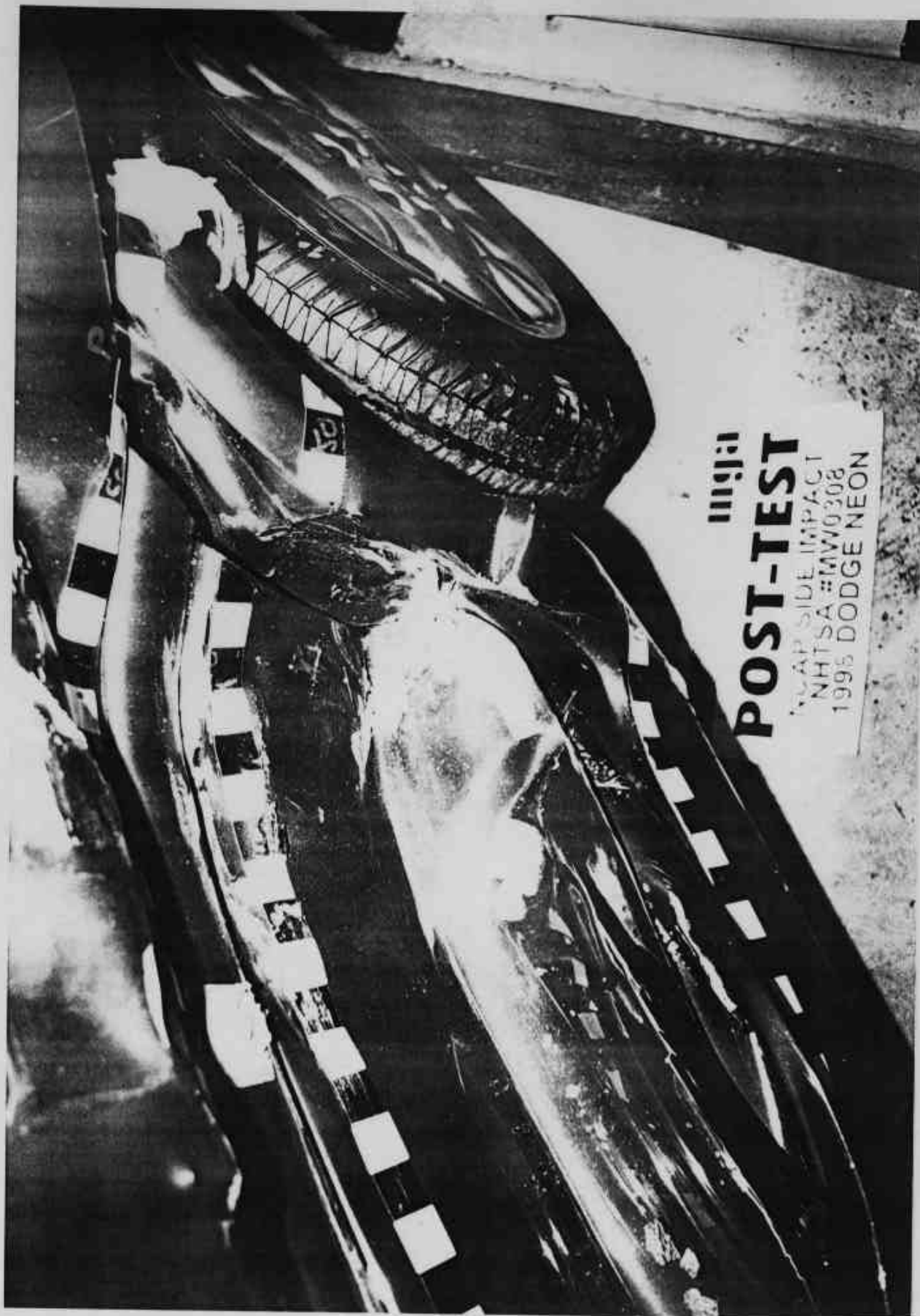


Photo No. A-40 - Added Vehicle Ballast Weight



Initial
POST-TEST
REAR SIDE IMPACT
NHTSA #MW0308
1995 DODGE NEON

Photo No. A-41 - Sill Separation Locations



ingja
POST-TEST
NCAP SIDE IMPACT
NHTSA #MW0308
1998 DODGE NEON

Photo No. A-42 - Sill Separation Locations

MFD BY CHRYSLER CORPORATION
 CUR: 1596 KG CUR: 8887 KG DATE OF MFR: 7-97
 23518 LB FRONT: 1954 LB CUR: 8733 KG
 REAR: 1614 LB
 VIN: 3B3ES47C8MT266753 TYPE: PASSENGER CAR
 TRIM: H742
 PAINT: P33
 465WHS
 THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY, BUMPER AND
 "NEFT" PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
 VEHICLE MADE IN MEXICO



A-43

Photo No. A-43 - Vehicle Certification Label

	VEHICLE CAPACITY OR LESS
1st SEAT	2 PASS
2nd SEAT	3 PASS
LUGGAGE	115 LBS-52 kg
TOTAL	5 PASS
TOTAL WEIGHT	865 LBS-392 kg
TIRE PRESSURE COLD	32 PSI 220 kPa

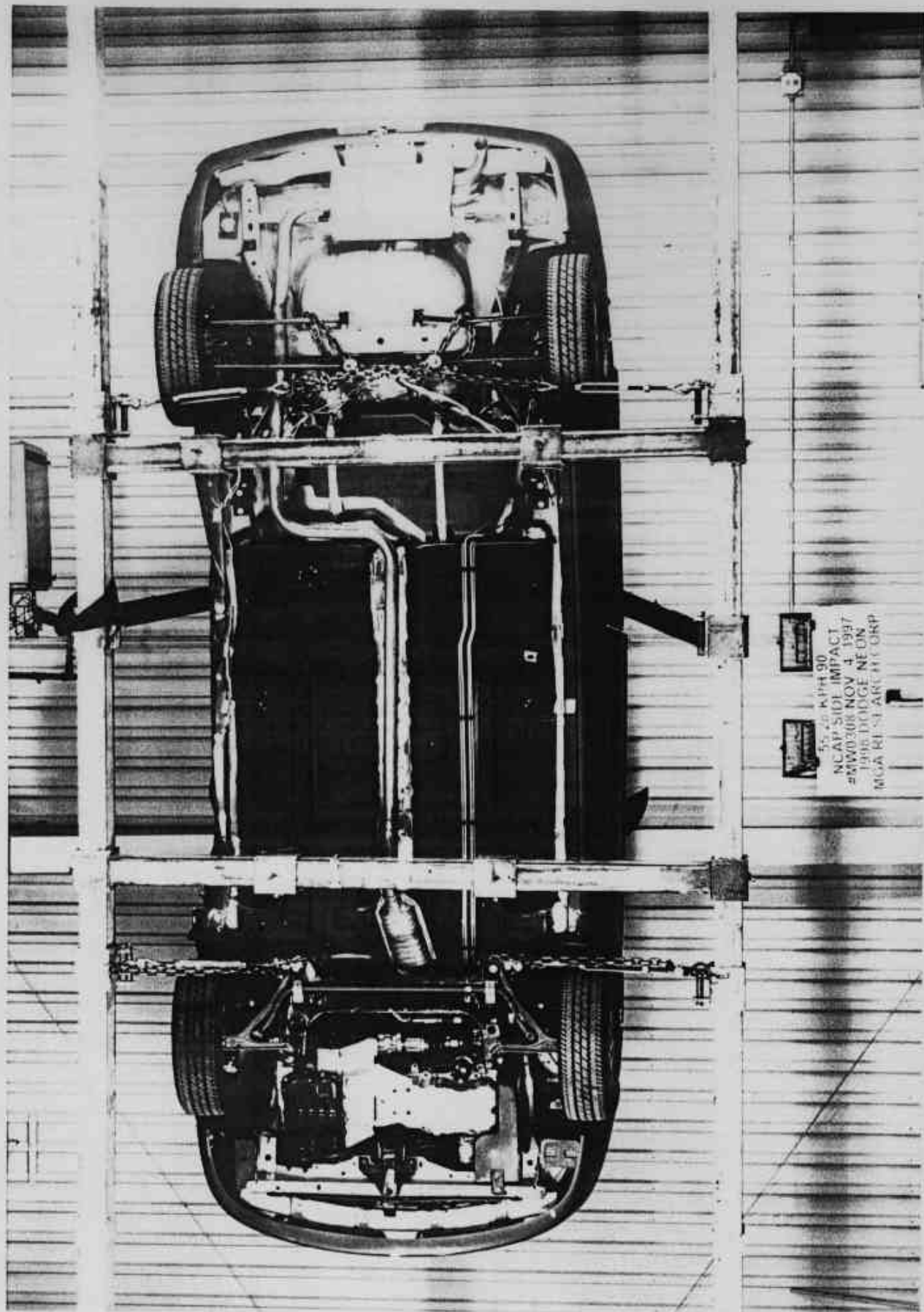
RECOMMENDED TIRE SIZES
P175/70R14 STANDARD LOAD
P185/65R14 STANDARD LOAD

SEE OWNERS MANUAL FOR
ADDITIONAL DATA

PRINTED IN U.S.A. 447 985

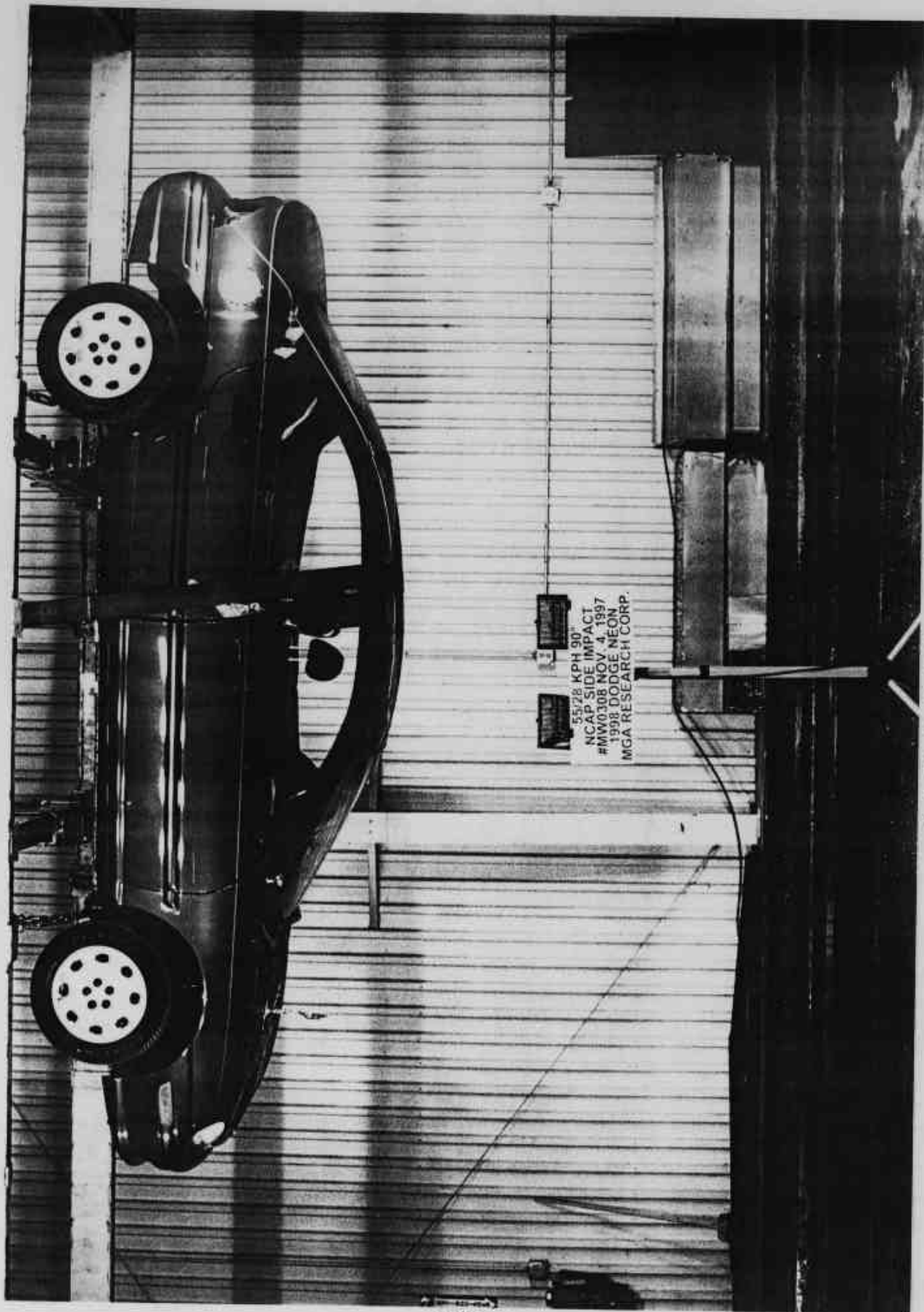


Photo No. A-44 - Tire Placard



A-45

Photo No. A-45 - Rollover 90°



A-46

Photo No. A-46 - Rollover 180°

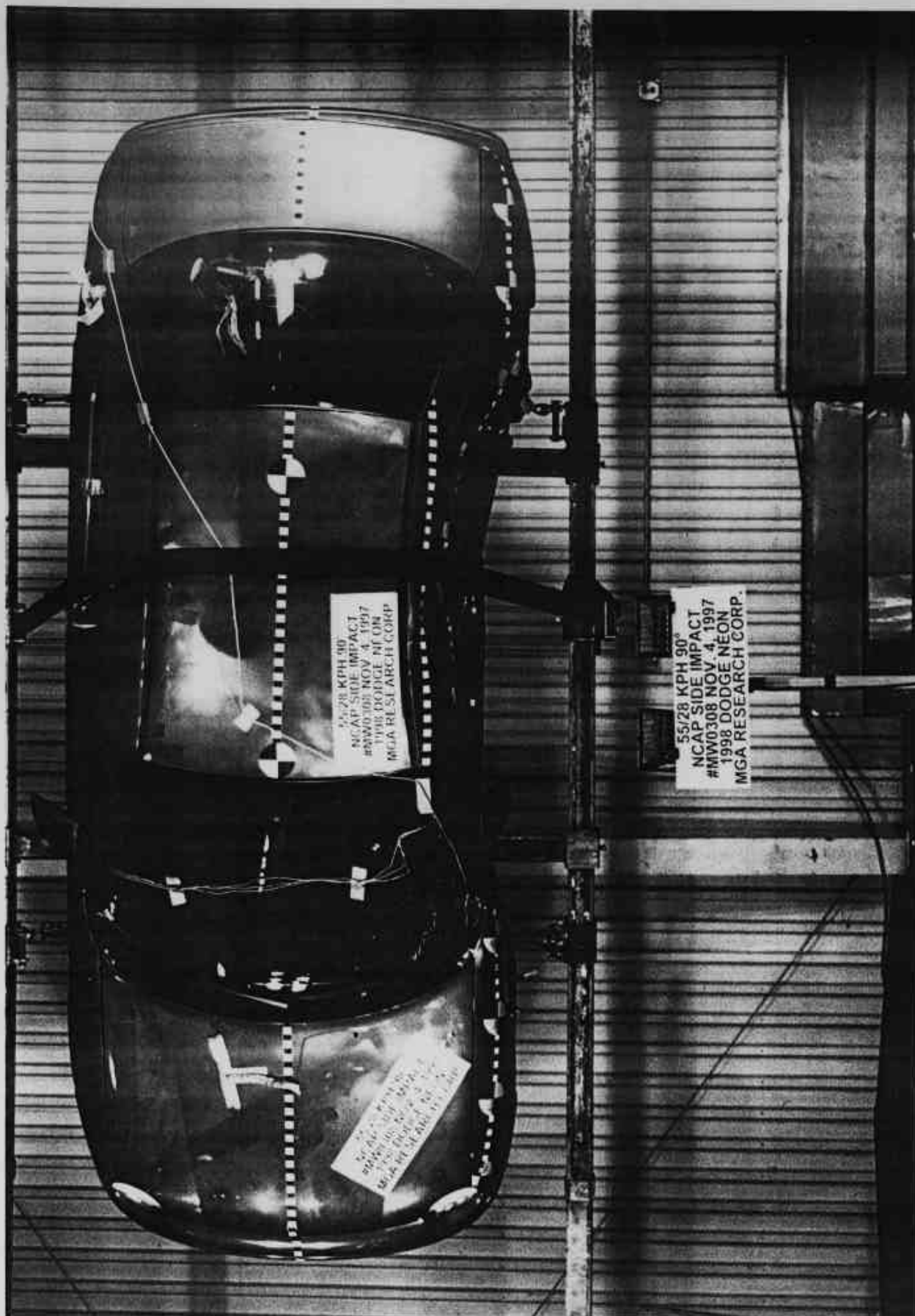
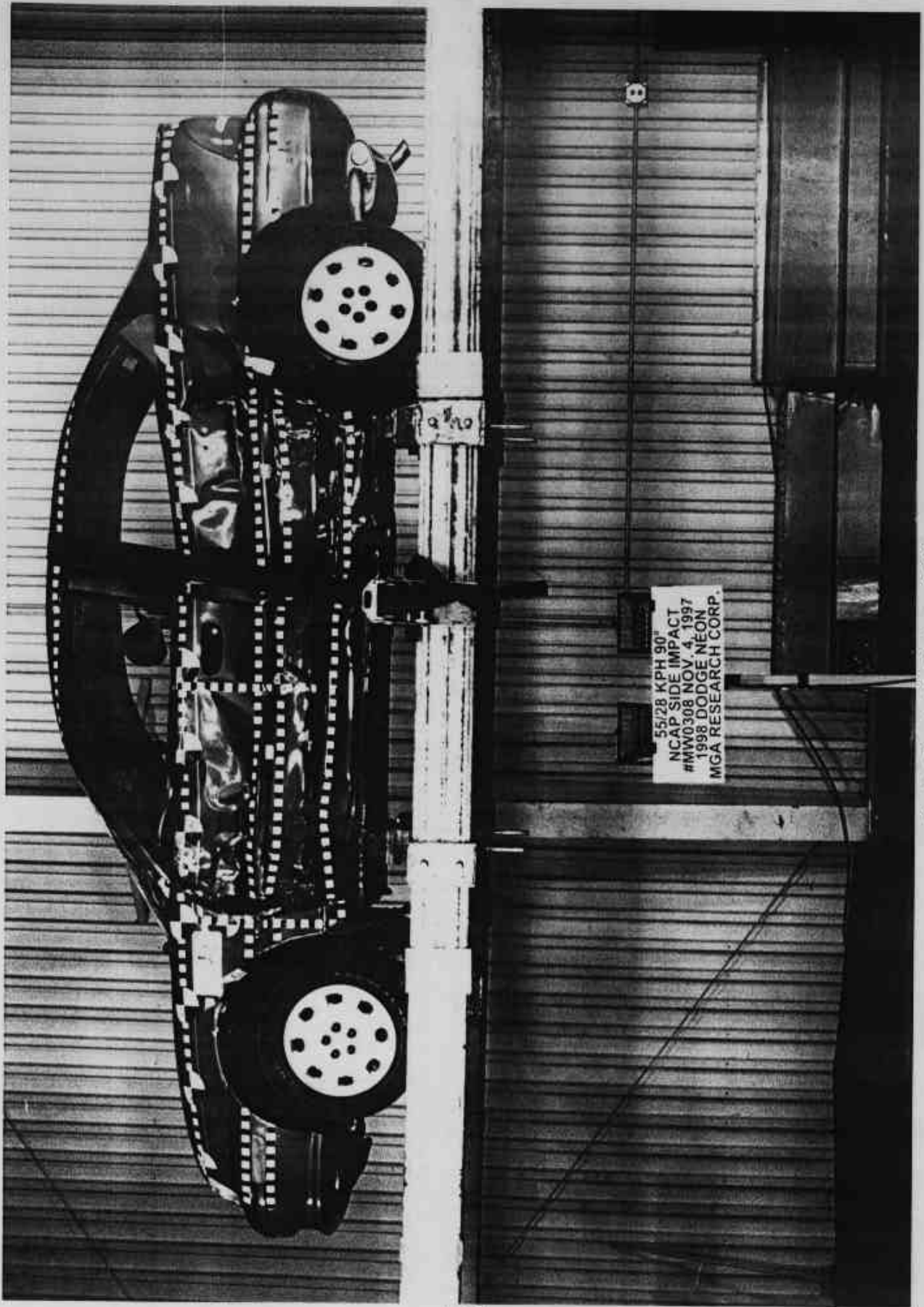
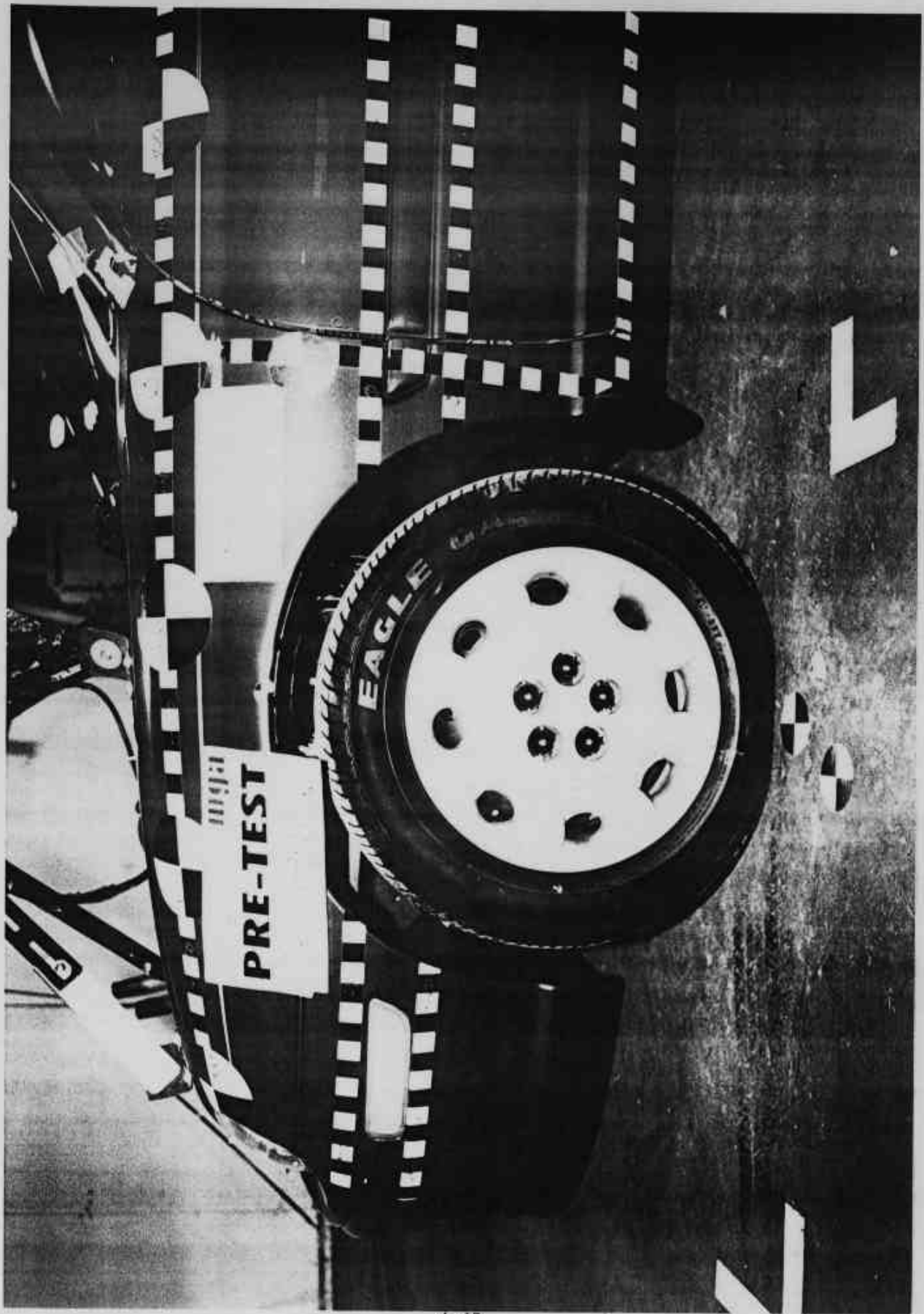


Photo No. A-47 - Rollover 270°



A-48

Photo No. A-48 - Rollover 360°



A-49

Photo No. A-49 - Left Front Attitude Point

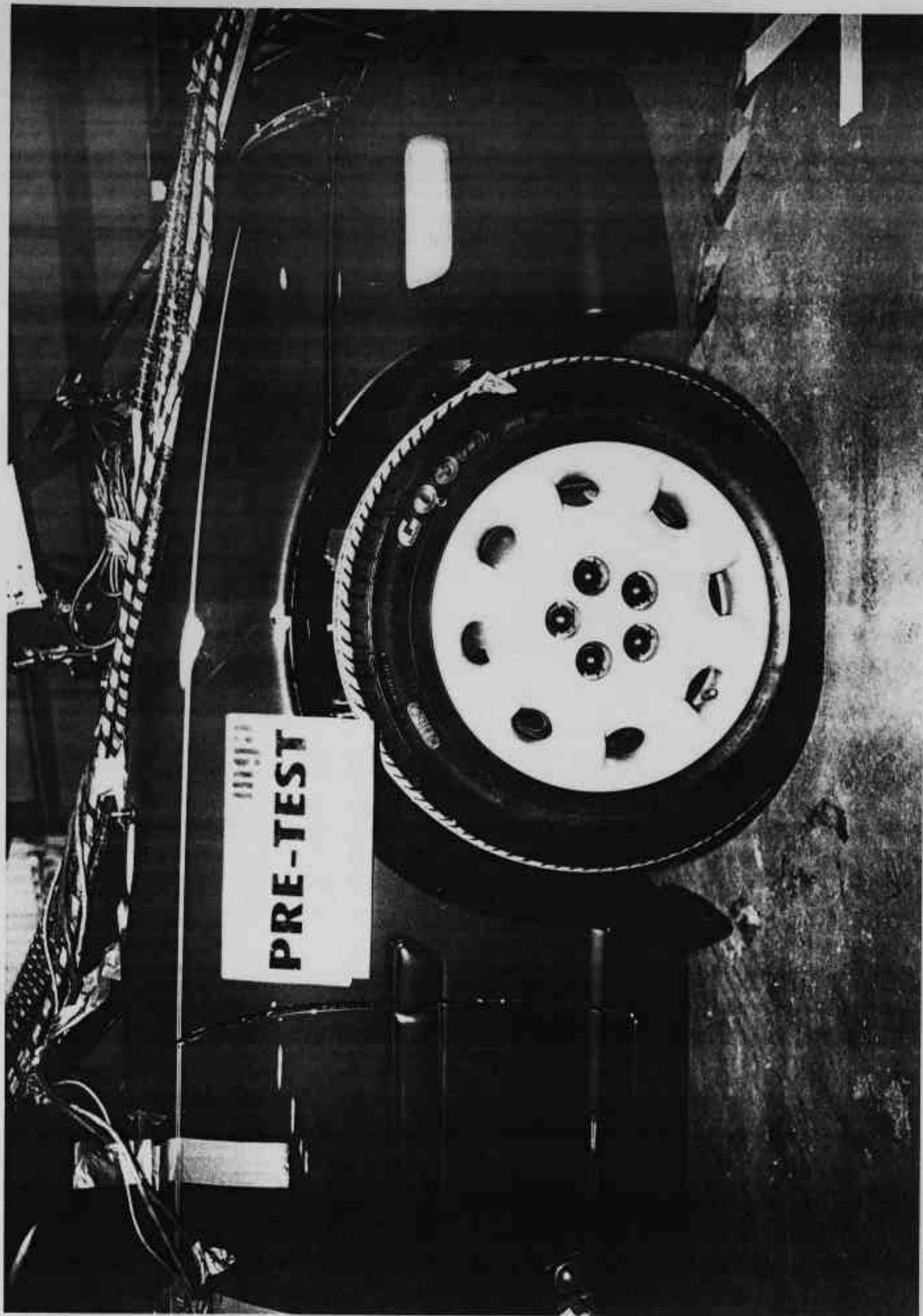
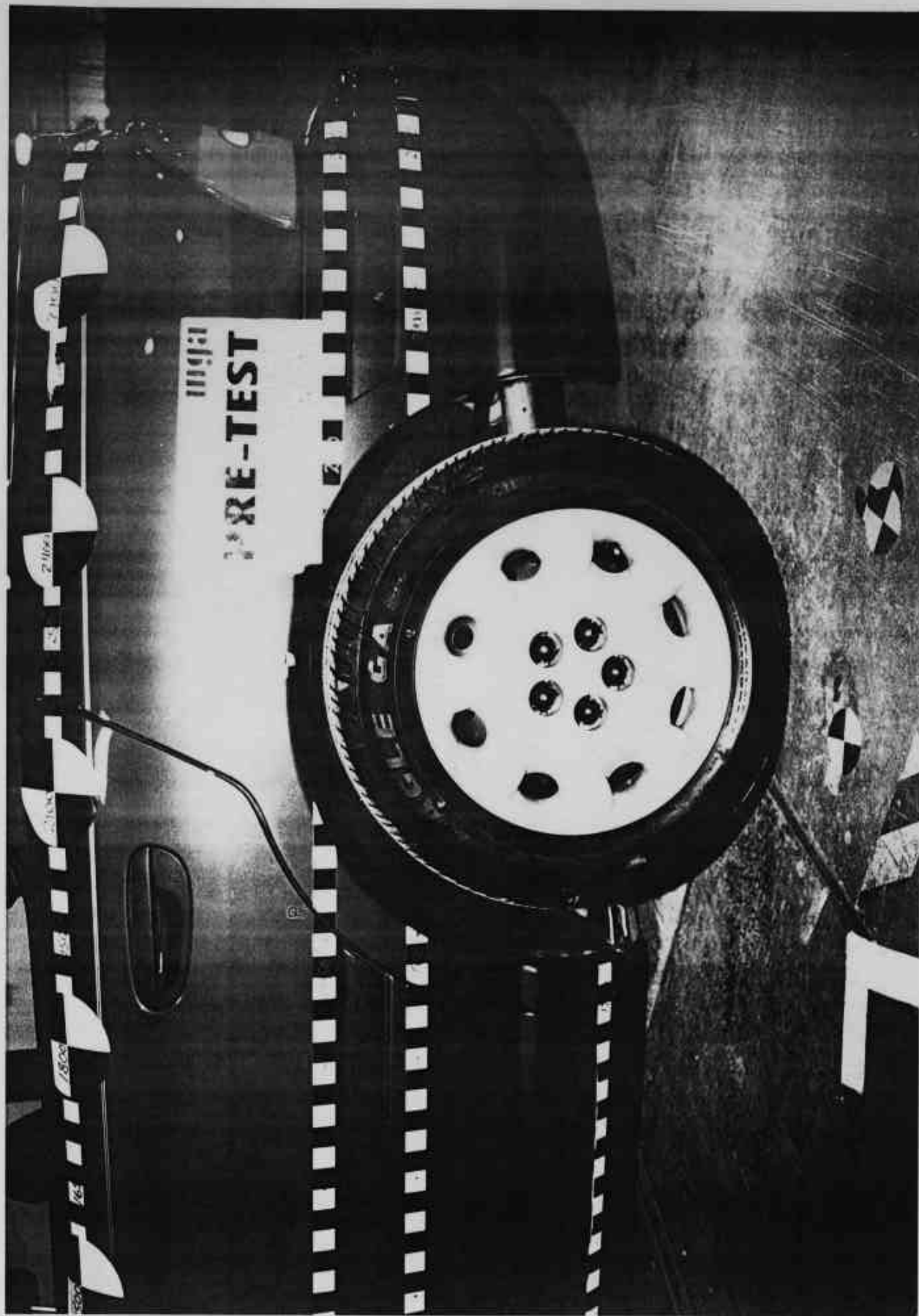


Photo No. A-50 - Right Front Attitude Point

A-50



A-51

Photo No. A-51 - Left Rear Attitude Point

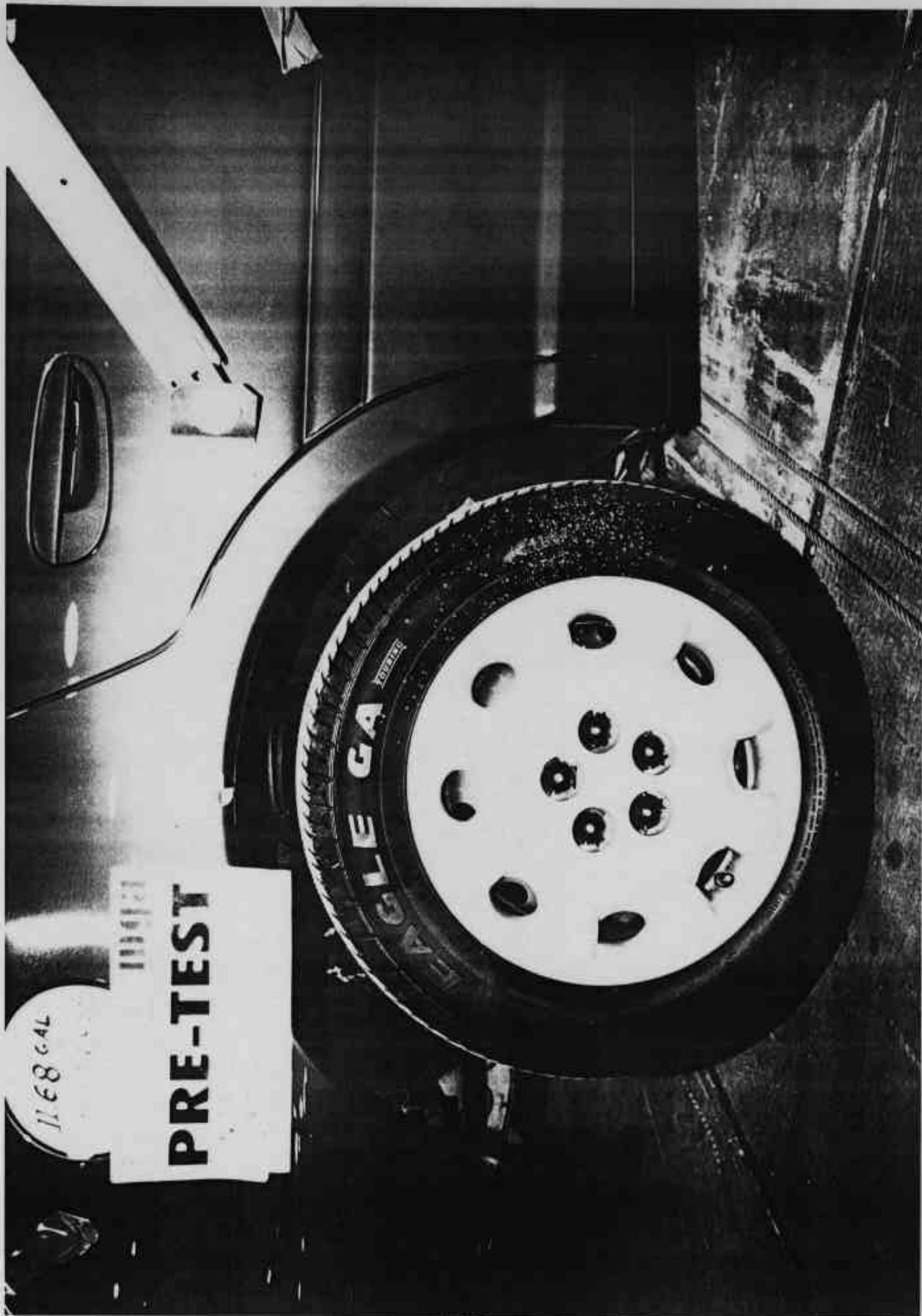


Photo No. A-52 - Right Rear Attitude Point

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* No valid data collected

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* Data not valid after approximately 10 msec.

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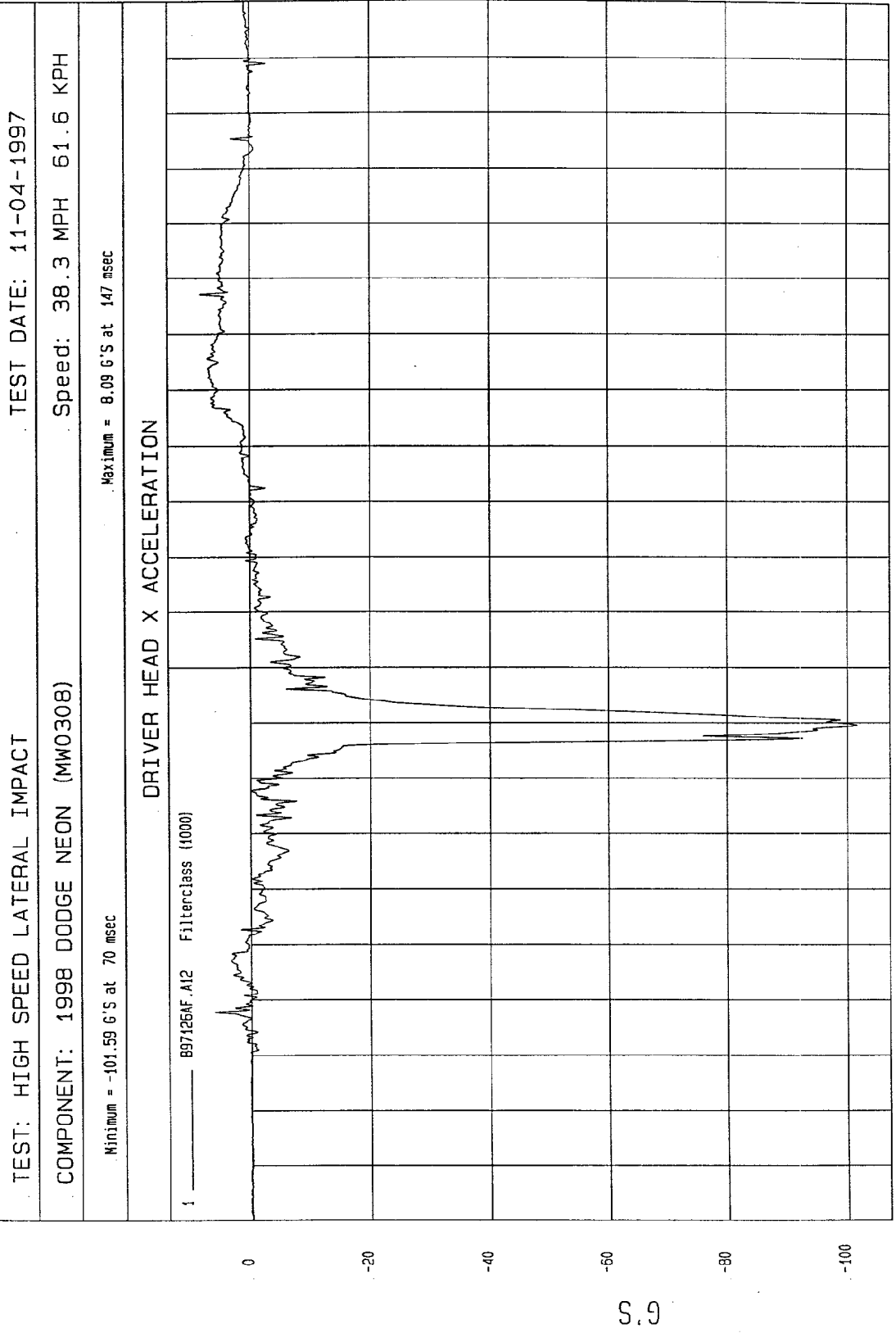
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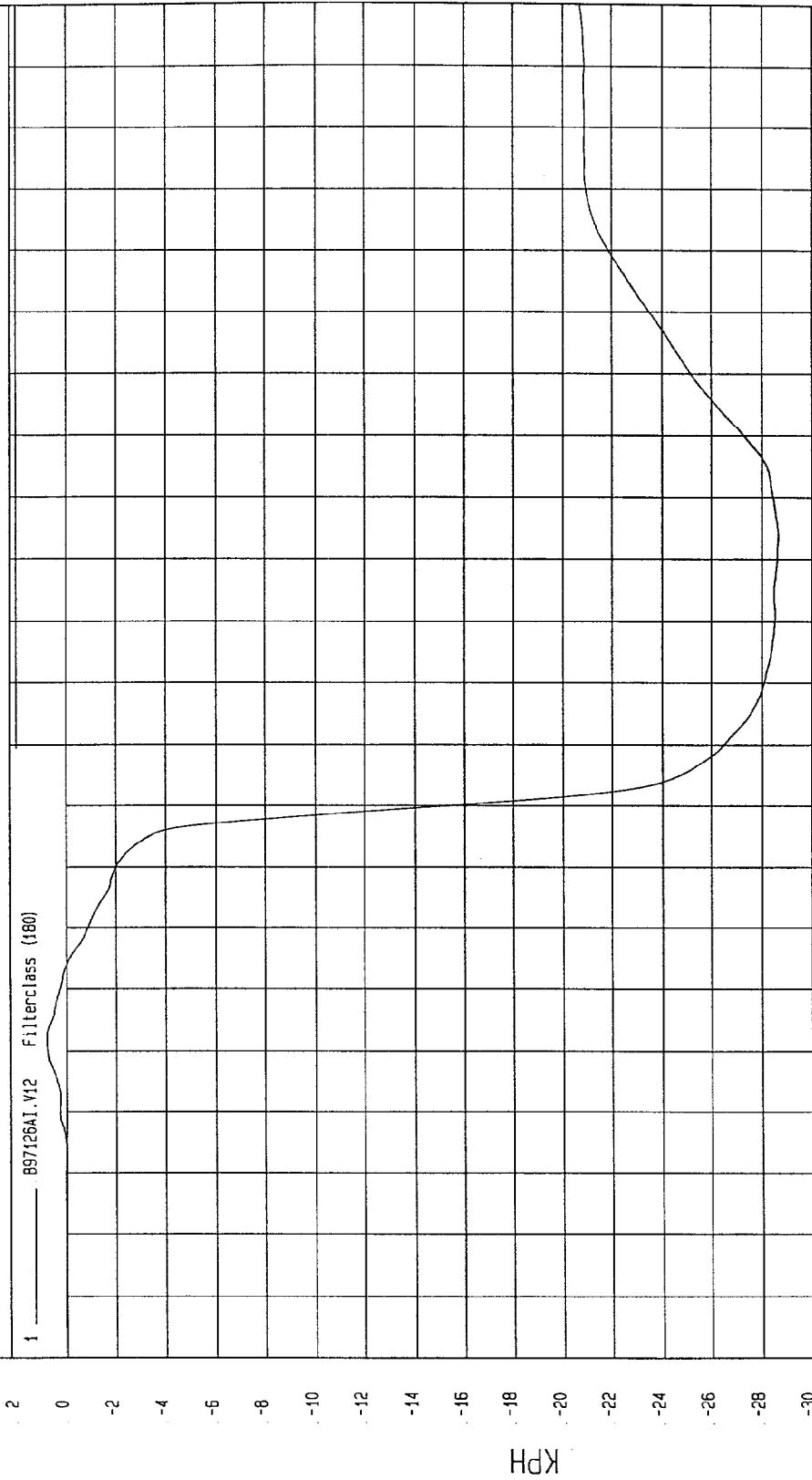
NGA Research
11-05-1997 09:26

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -28.65 KPH at 114 msec Maximum = .76 KPH at 32 msec

DRIVER HEAD X VELOCITY



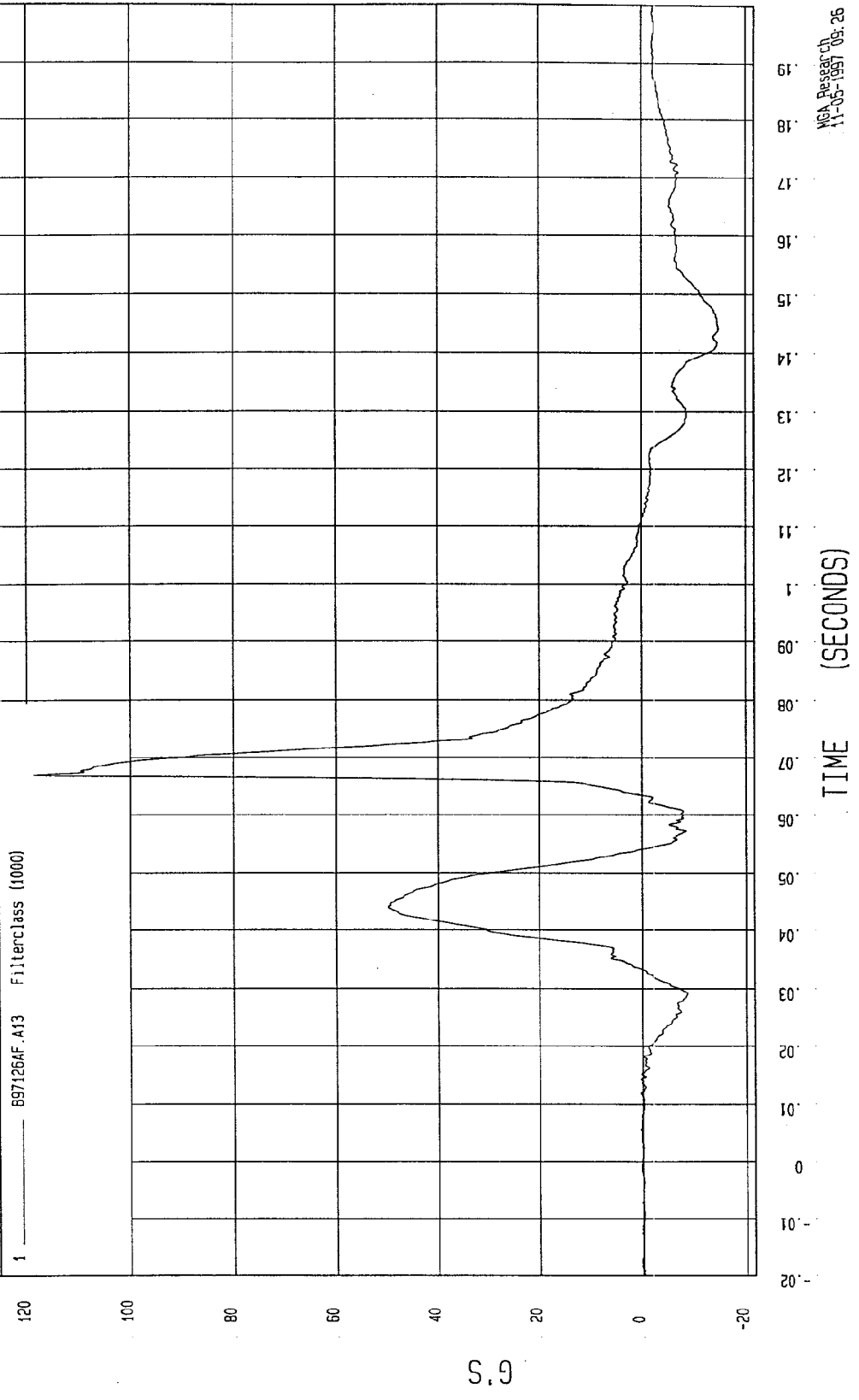
TIME Seconds

NSA Research
11-05-1997 09:35

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997
COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -14.88 G'S at 144 msec Maximum = 118.73 G'S at 67 msec

DRIVER HEAD Y ACCELERATION



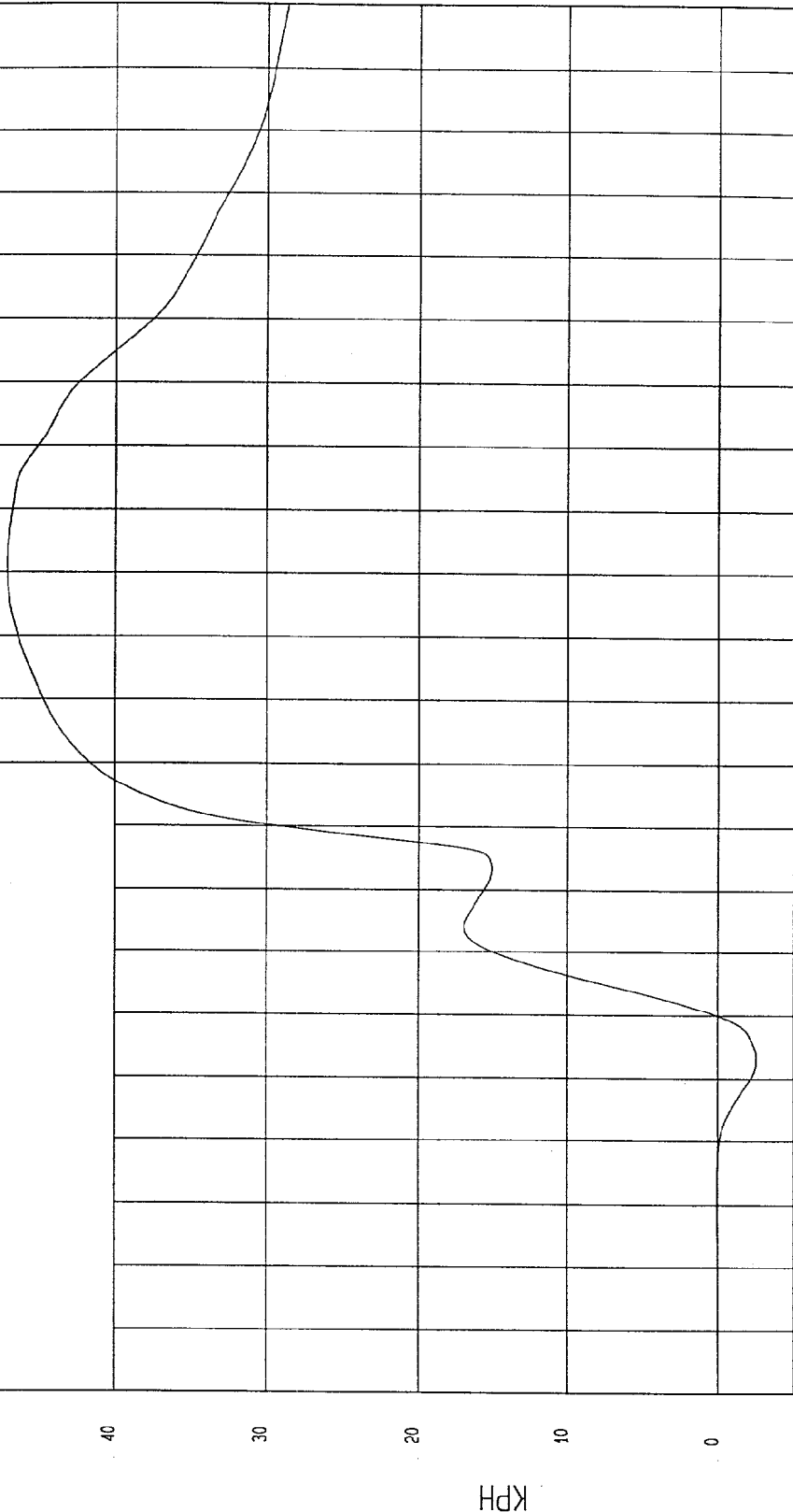
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -2.49 KPH at 33 msec Maximum = 47.21 KPH at 111 msec

DRIVER HEAD Y VELOCITY

1 897126A1.V13 Filterclass (180)



WCA Research
11-05-1997 09:35

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

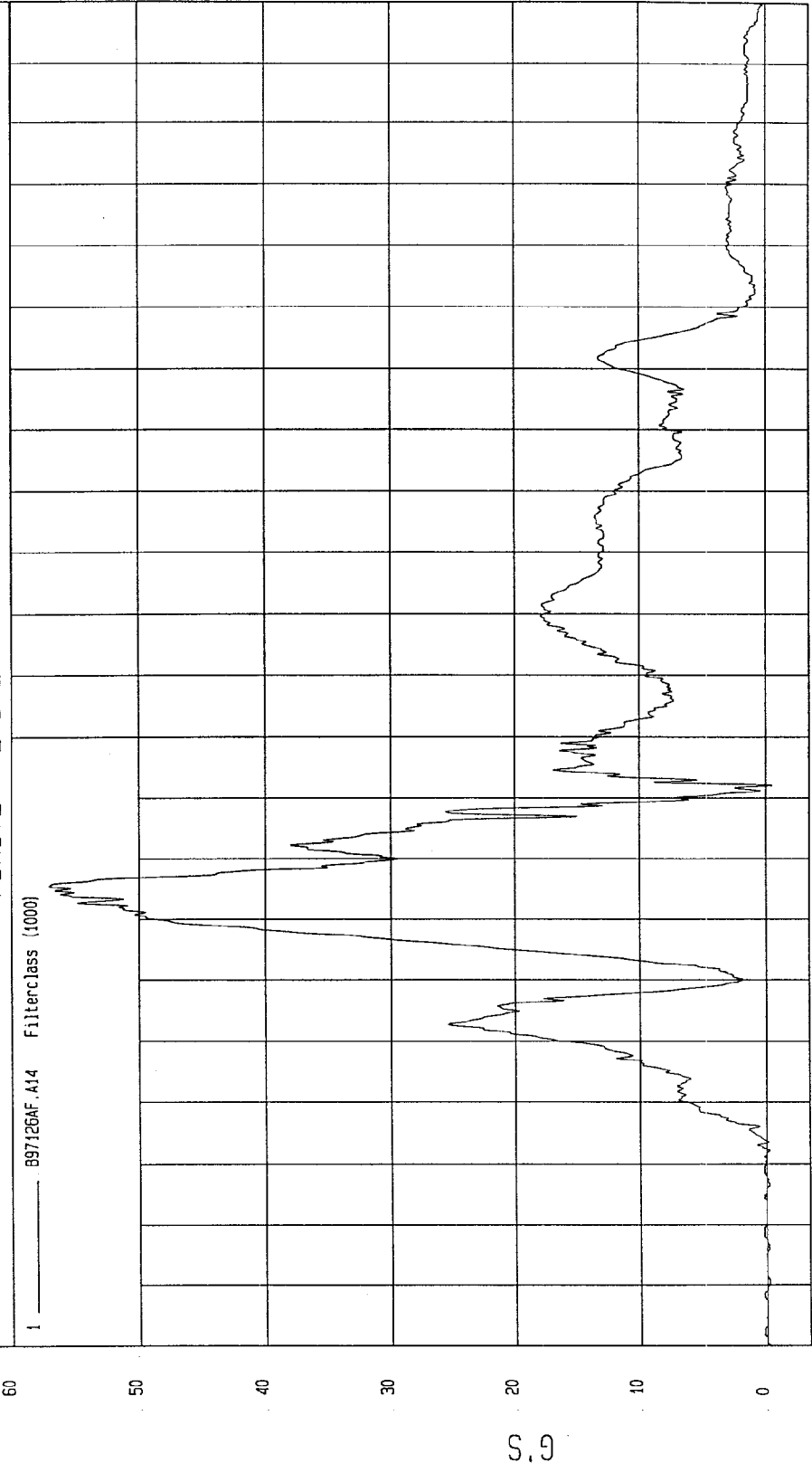
Speed: 38.3 MPH 61.6 KPH

COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 57.17 G'S at 56 msec

Minimum = -.50 G'S at 72 msec

DRIVER HEAD Z ACCELERATION



NSA Research
11-05-1997 09:26

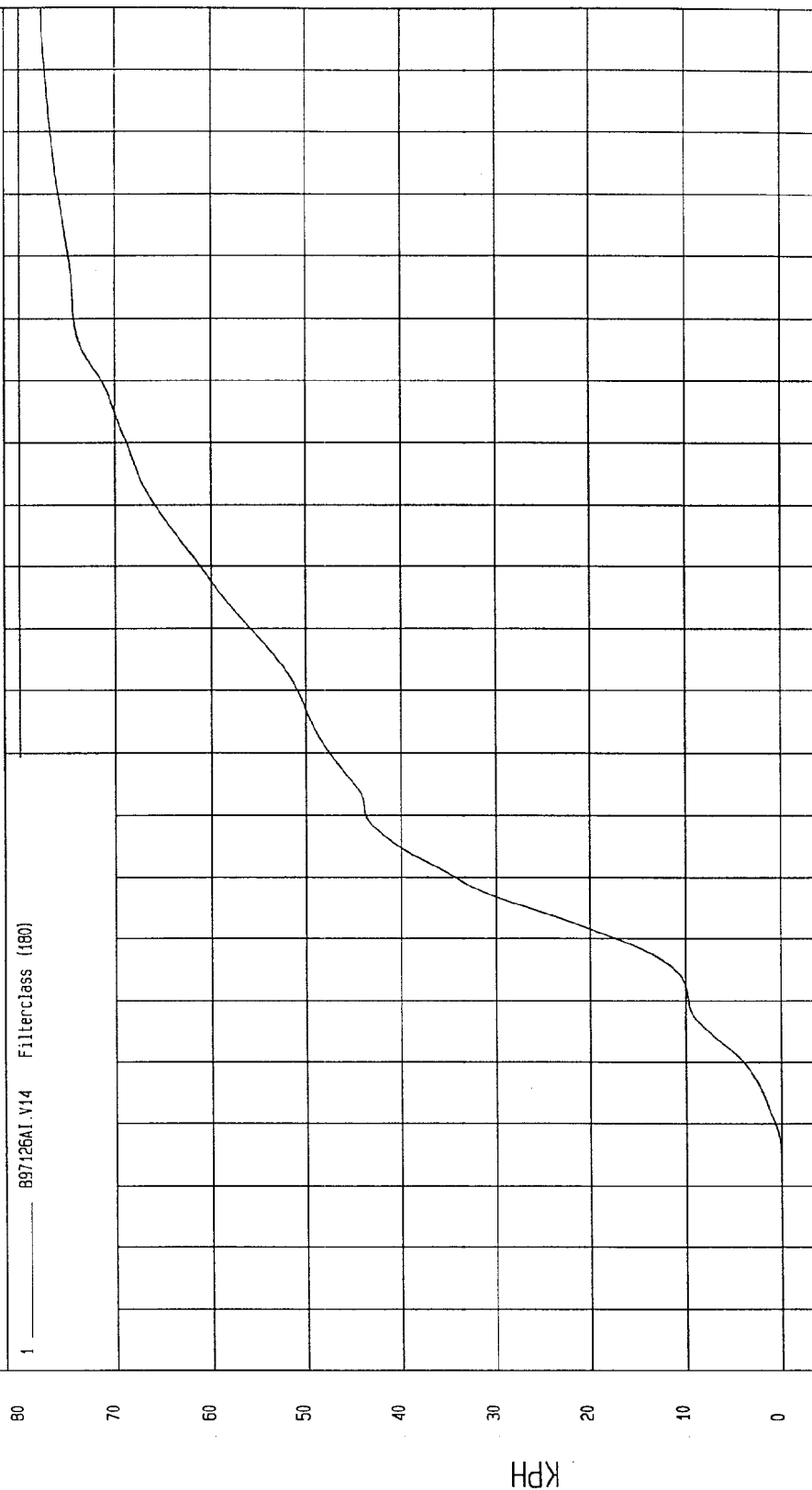
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -6.50E-03 KPH at -3 msec Maximum = 77.70 KPH at 200 msec

DRIVER HEAD Z VELOCITY

1 897126A1.V14 Filterclass (180)



NCA Research
11-05-1997 09:35

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

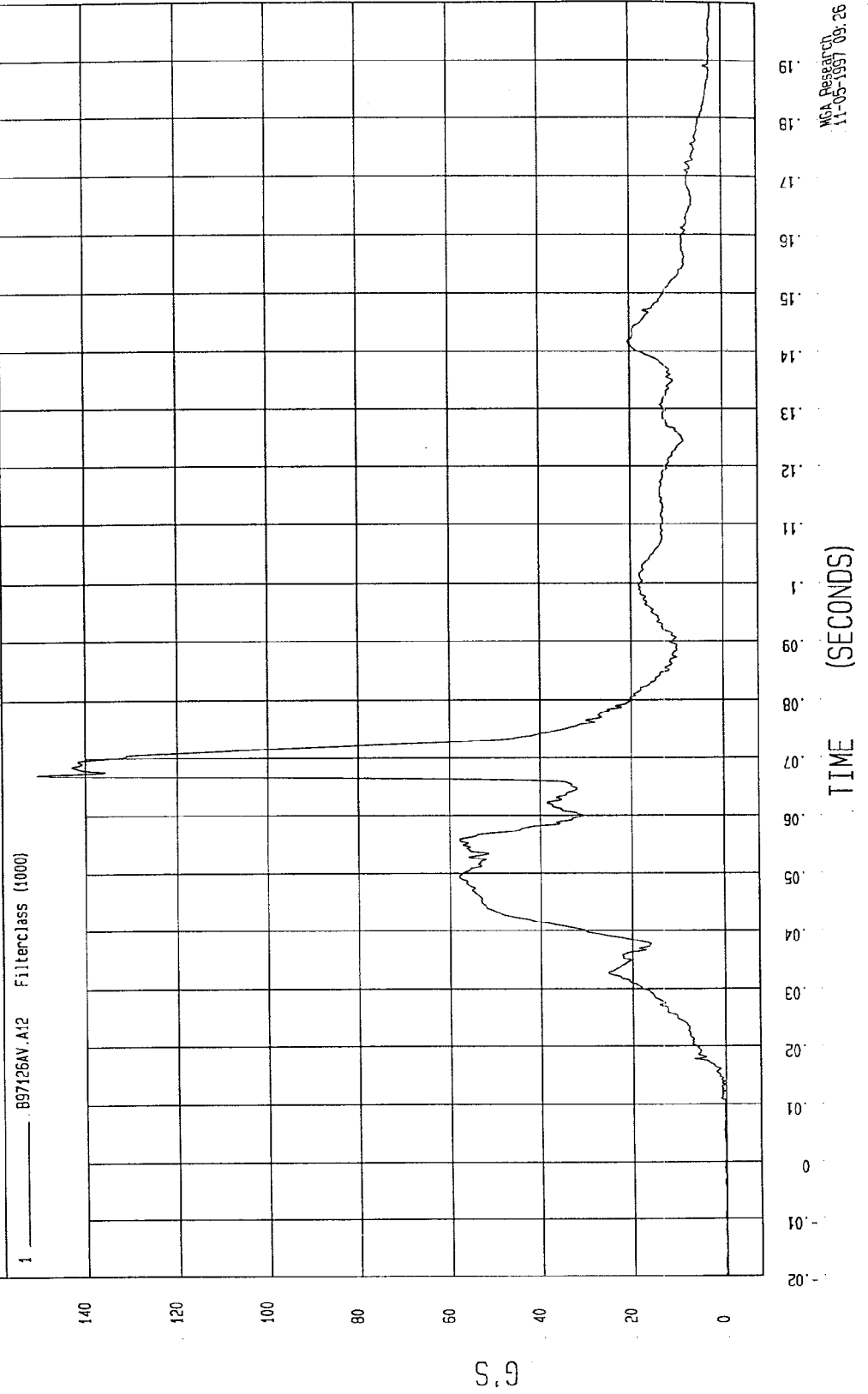
SPEED: 38.3 MPH 61.6 KPH

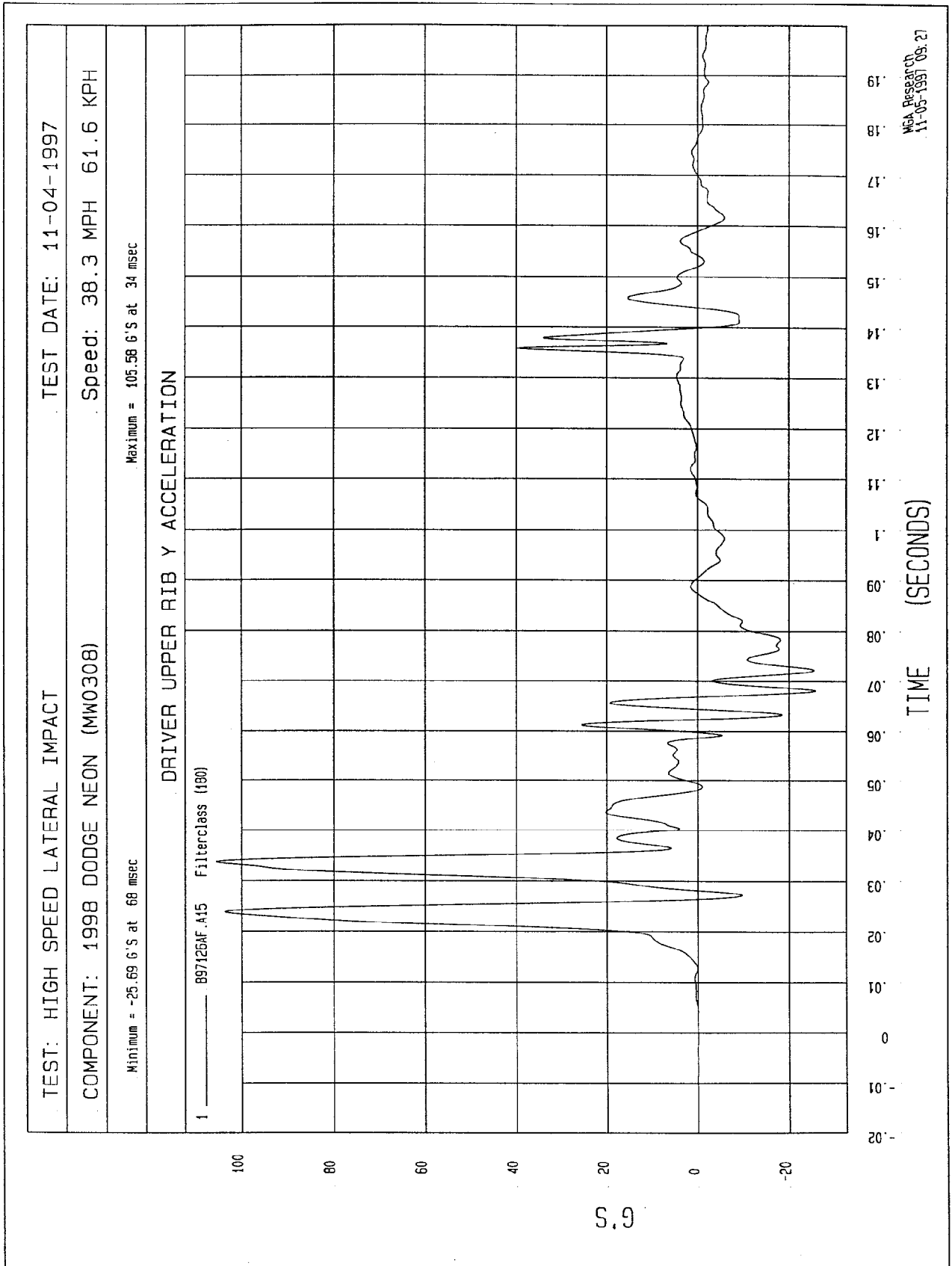
COMPONENT: 1998 DODGE NEON (MW0308)

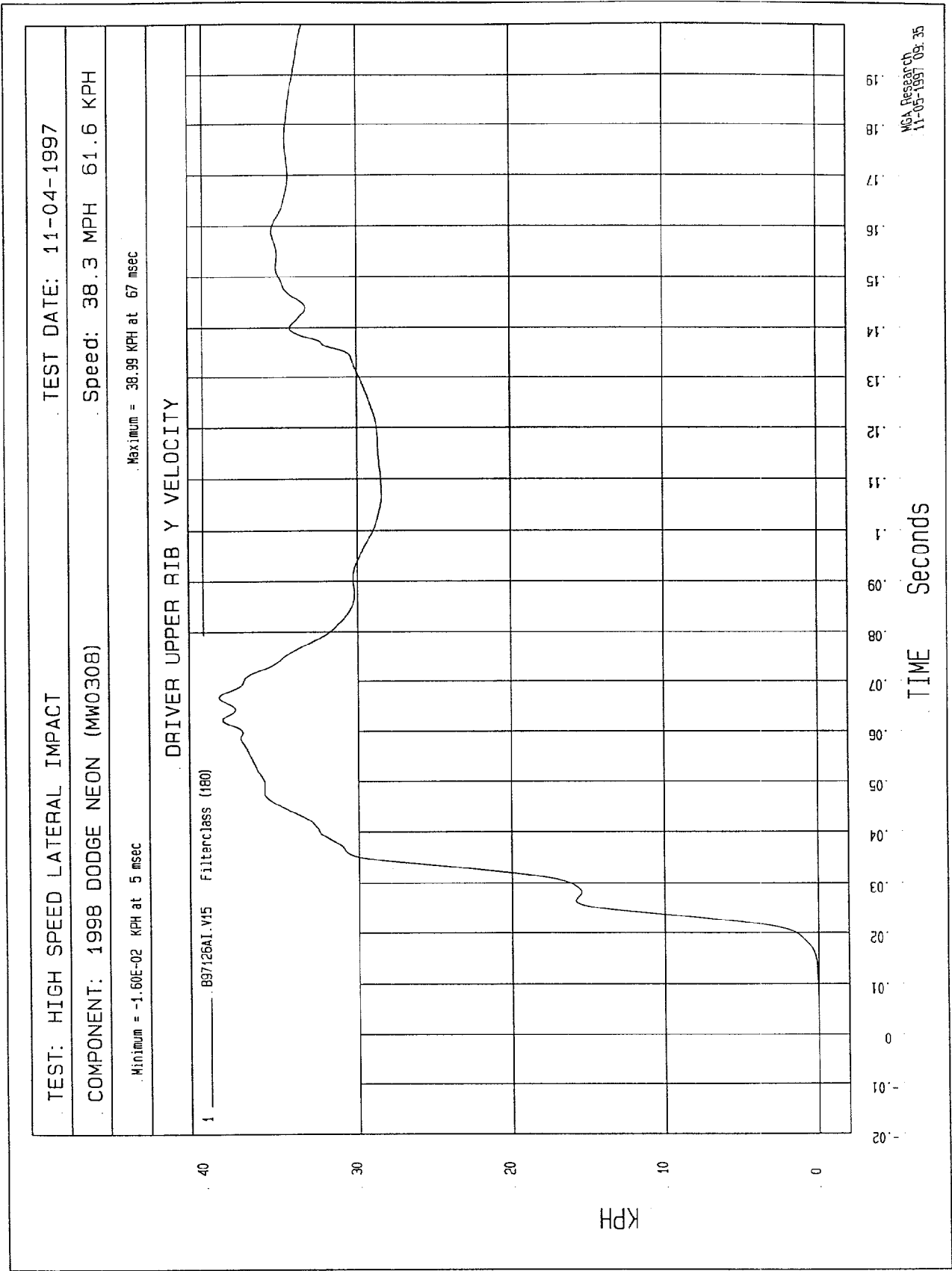
Maximum = 150.46 G'S at 67 msec

Minimum = 4.91E-03 G'S at -16 msec

DRIVER HEAD RESULTANT







TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

Speed: 38.3 MPH 61.6 KPH

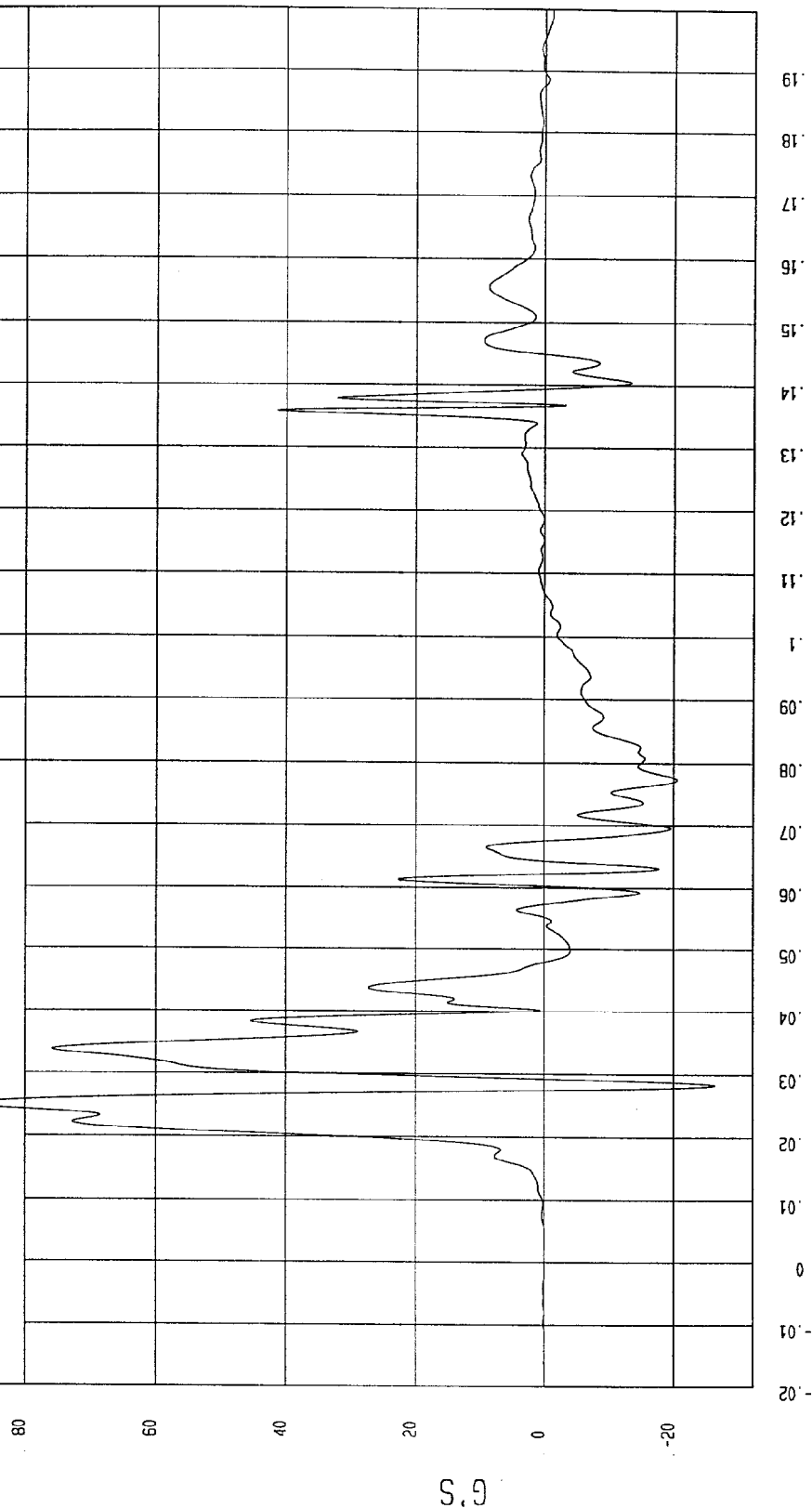
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 88.45 G'S at 25 msec

Minimum = -26.25 G'S at 28 msec

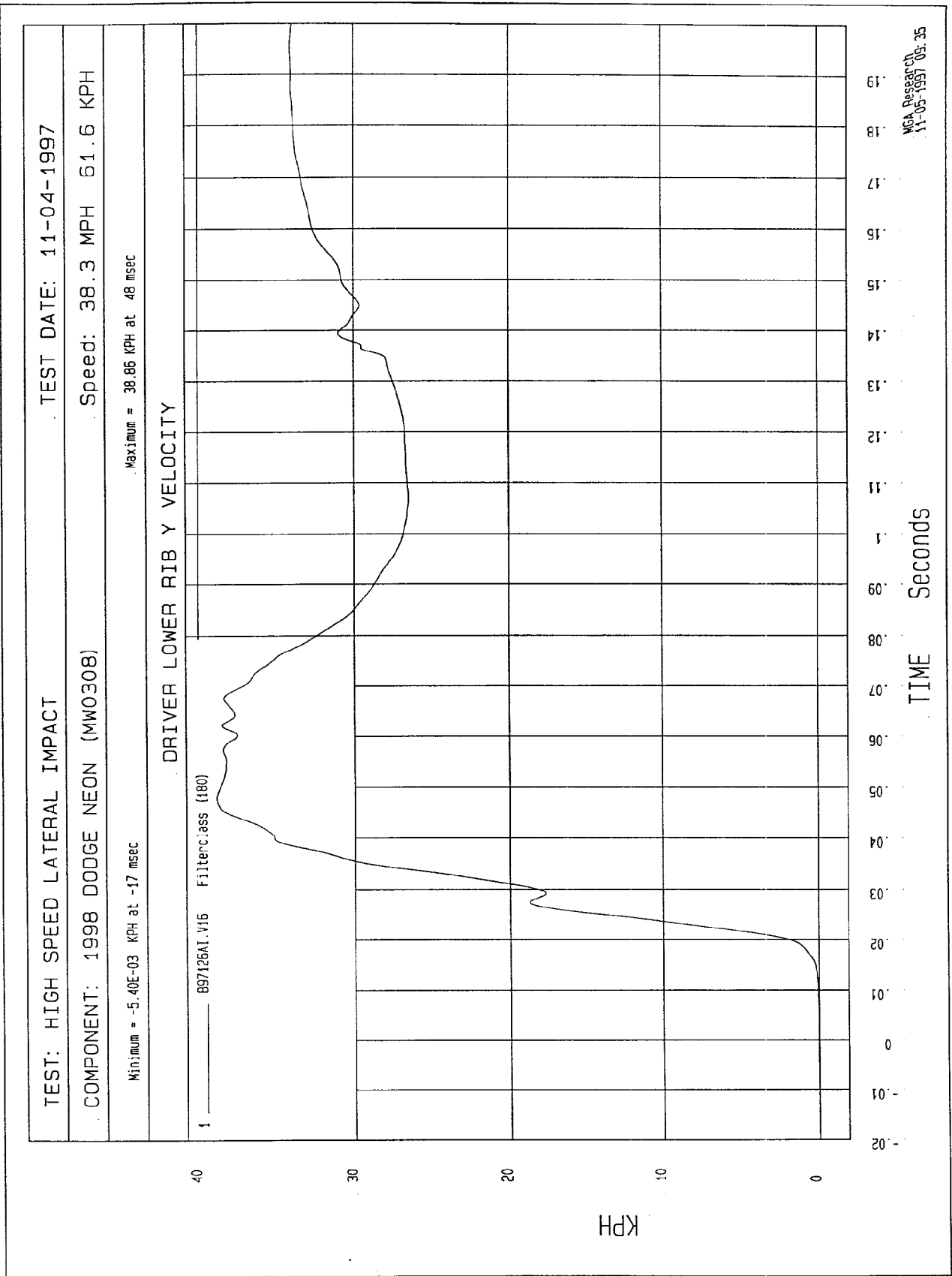
DRIVER LOWER RIB Y ACCELERATION

1 — B97126AF.A16 Filterclass (180)



NCA Research
11-05-1997 09:27

TIME (SECONDS)



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -50.95 G'S at 60 msec Maximum = 99.47 G'S at 27 msec

DRIVER LOWER SPINE Y ACCELERATION

1 897126AF.A17 Filterclass (180)

100

80

60

40

20

G'S

0

-20

-40

19

18

17

16

15

14

13

12

11

10

09

08

07

06

05

04

03

02

01

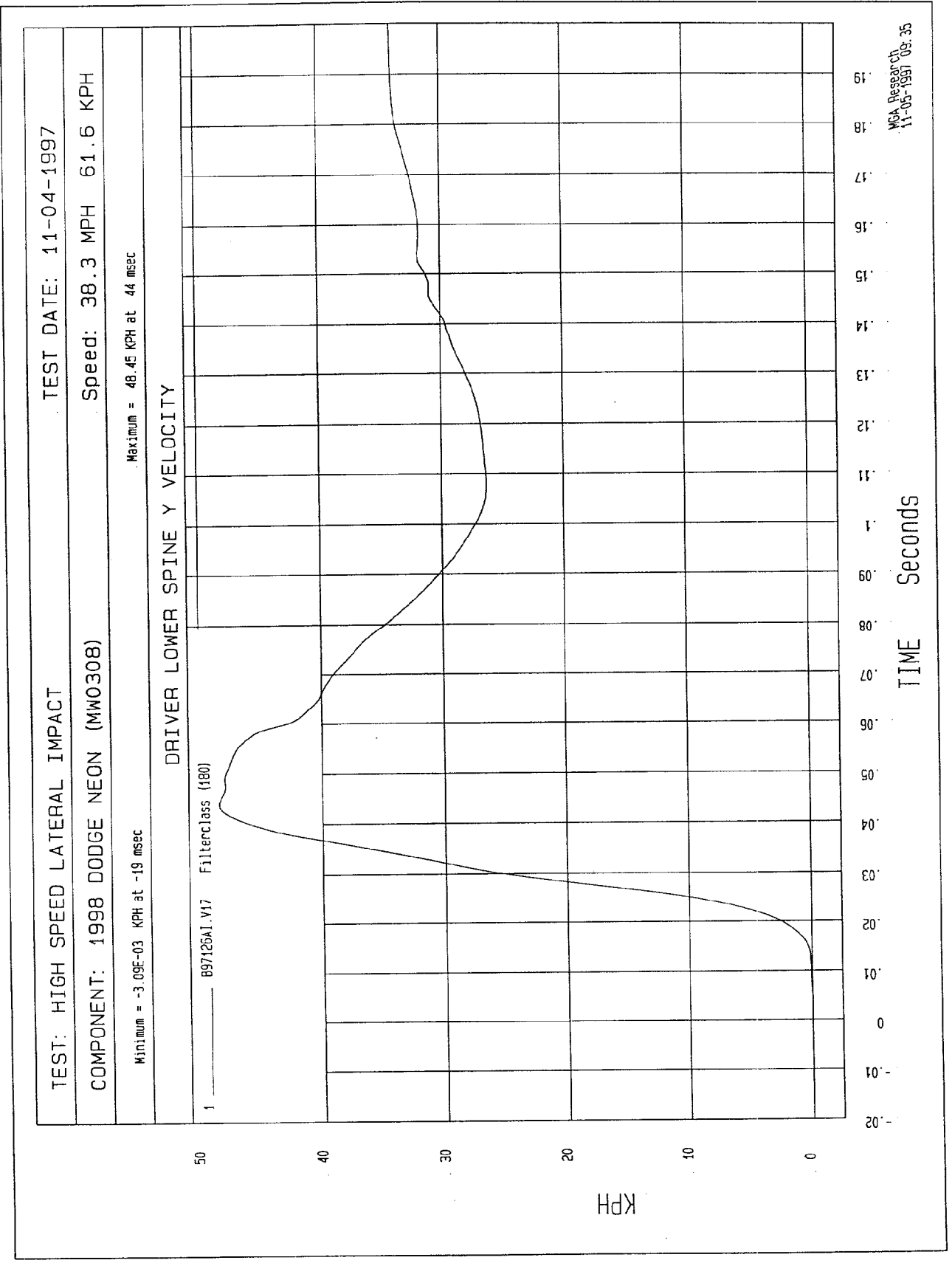
0

-01

-02

TIME (SECONDS)

NCA Research
11-05-1997 09:27



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

Speed: 38.3 MPH 61.6 KPH

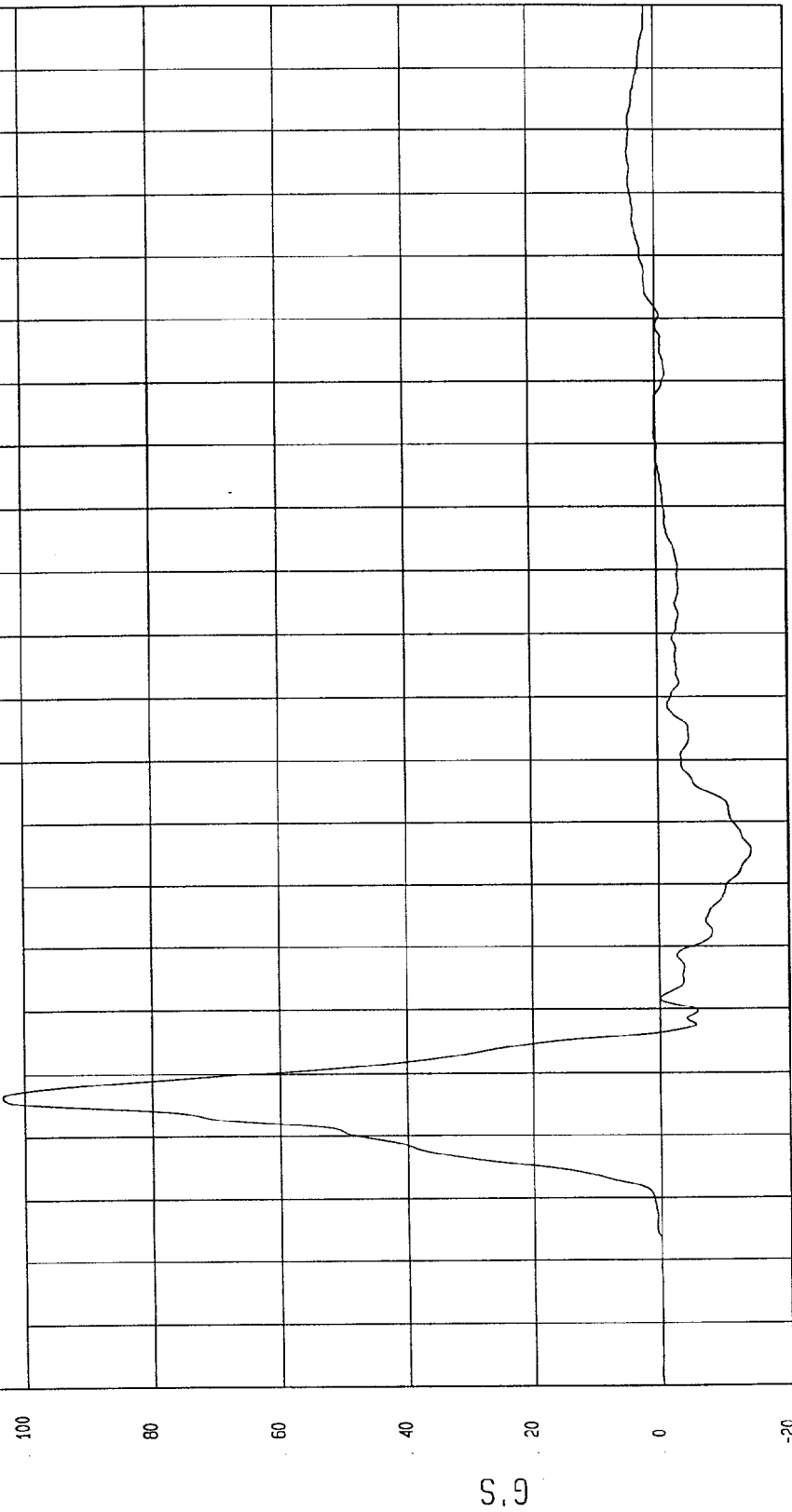
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 103.36 G'S at 26 msec

Minimum = -14.31 G'S at 66 msec

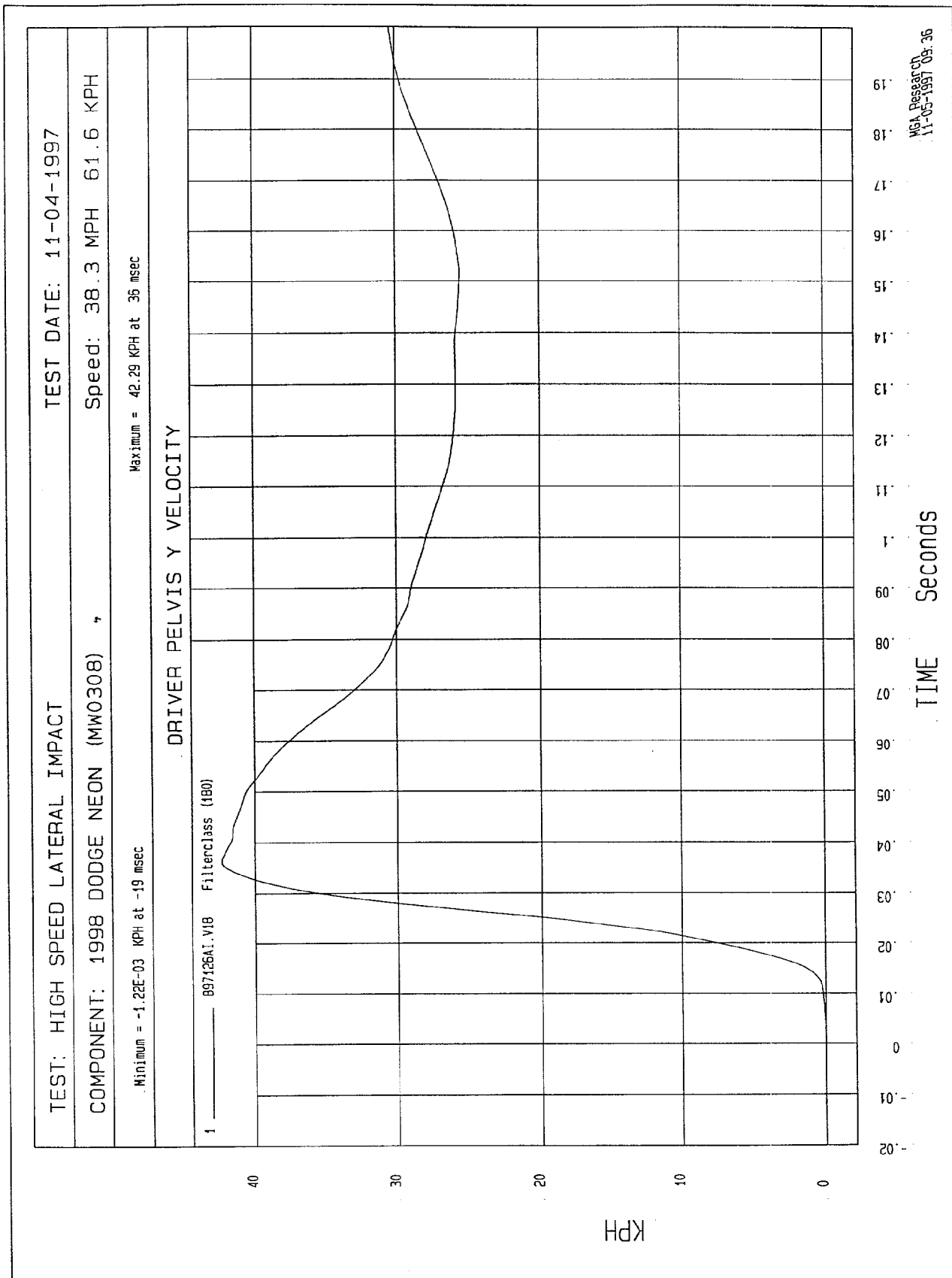
DRIVER PELVIS Y ACCELERATION

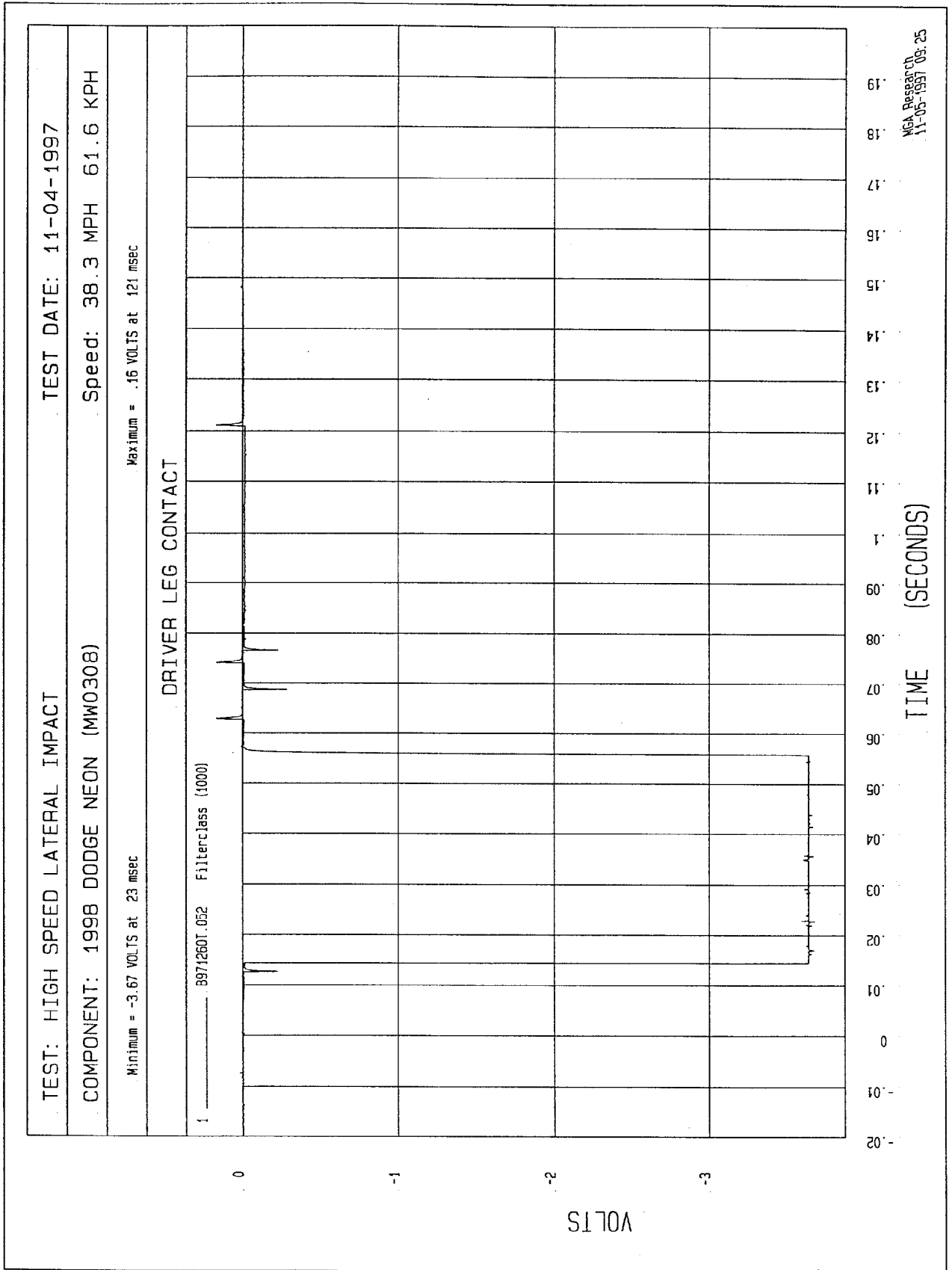
1 B97125AF.A18 Filterclass (180)



TIME (SECONDS)

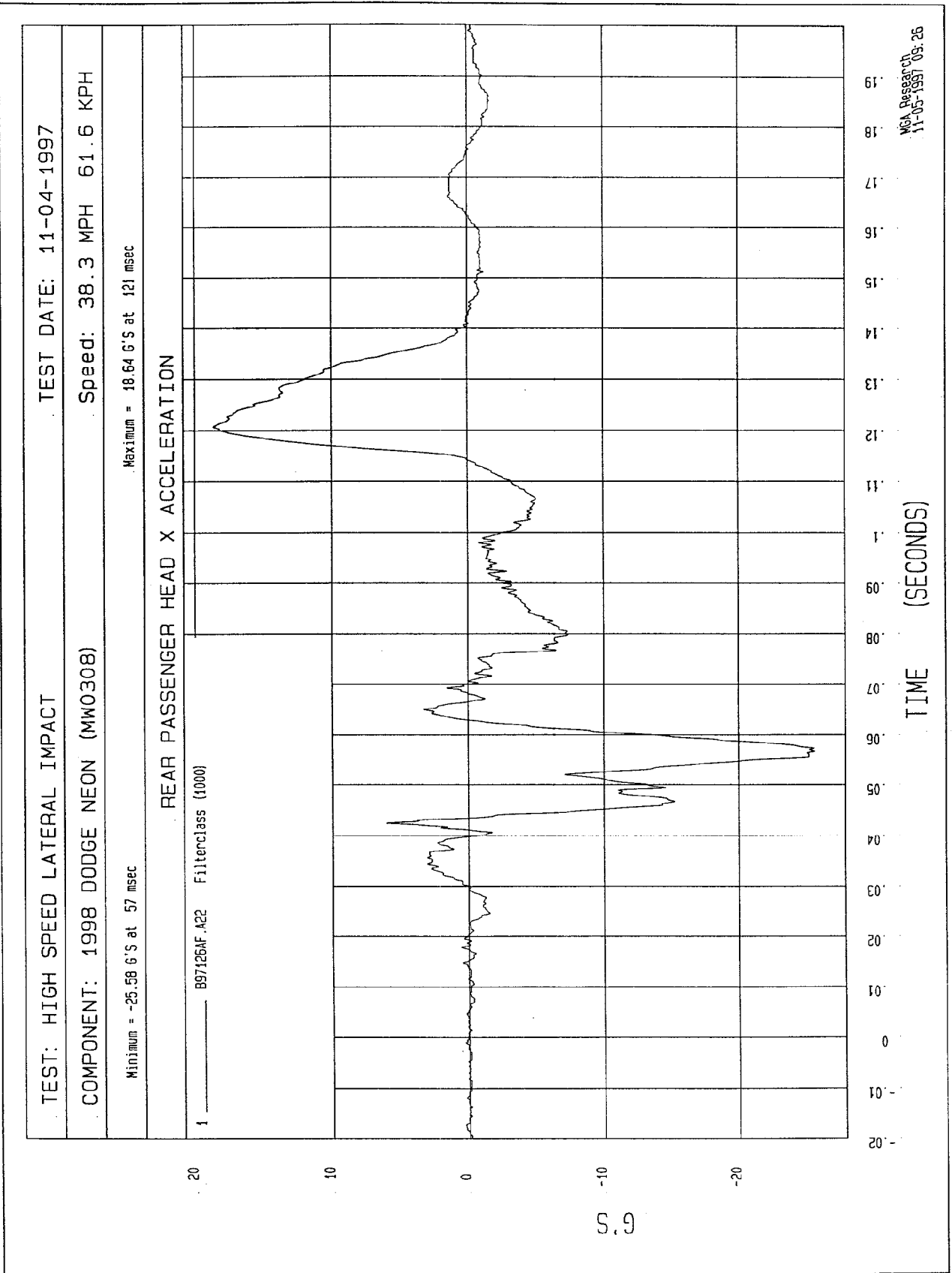
WCA Research
11-05-1997 09:27

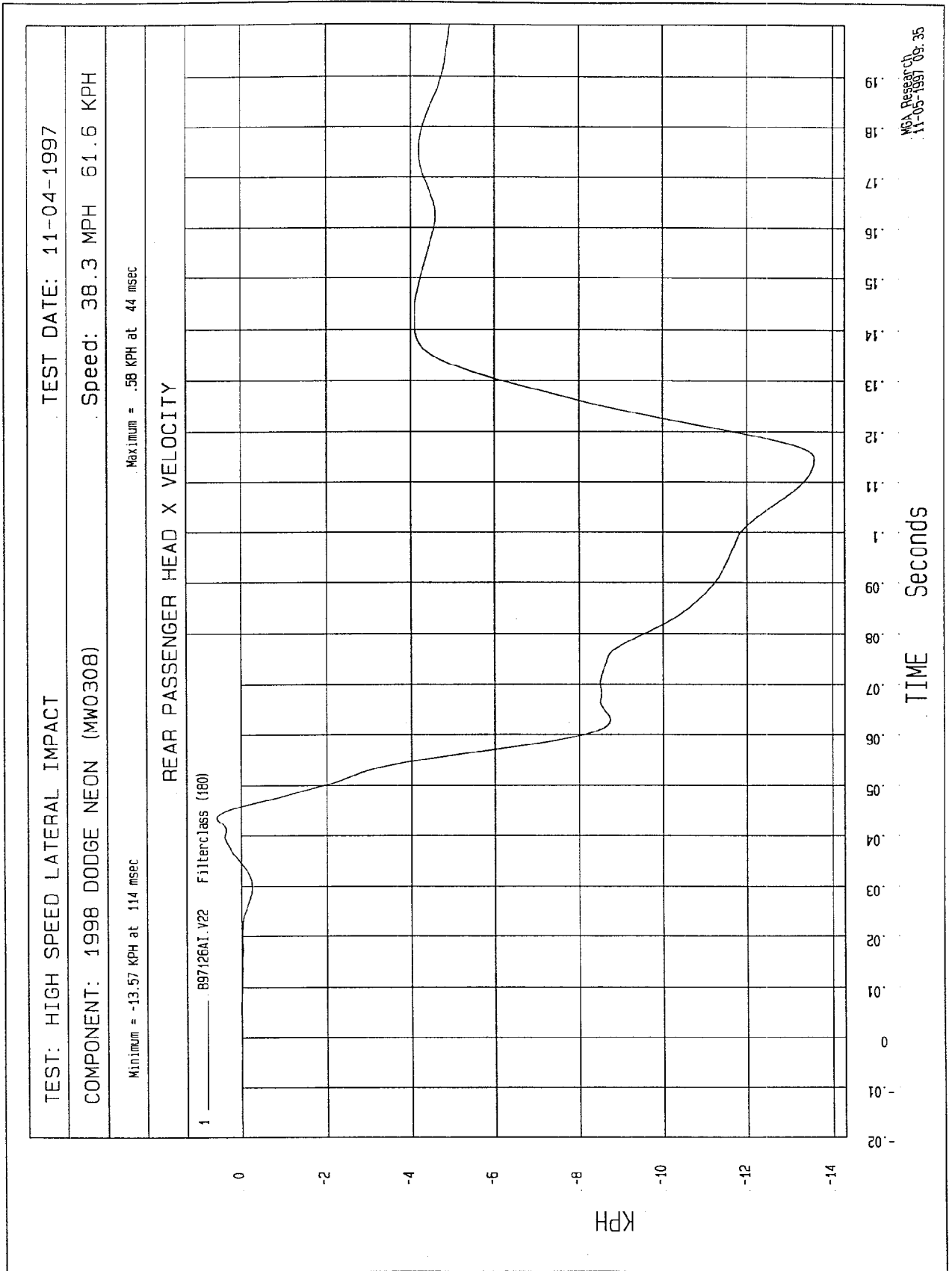


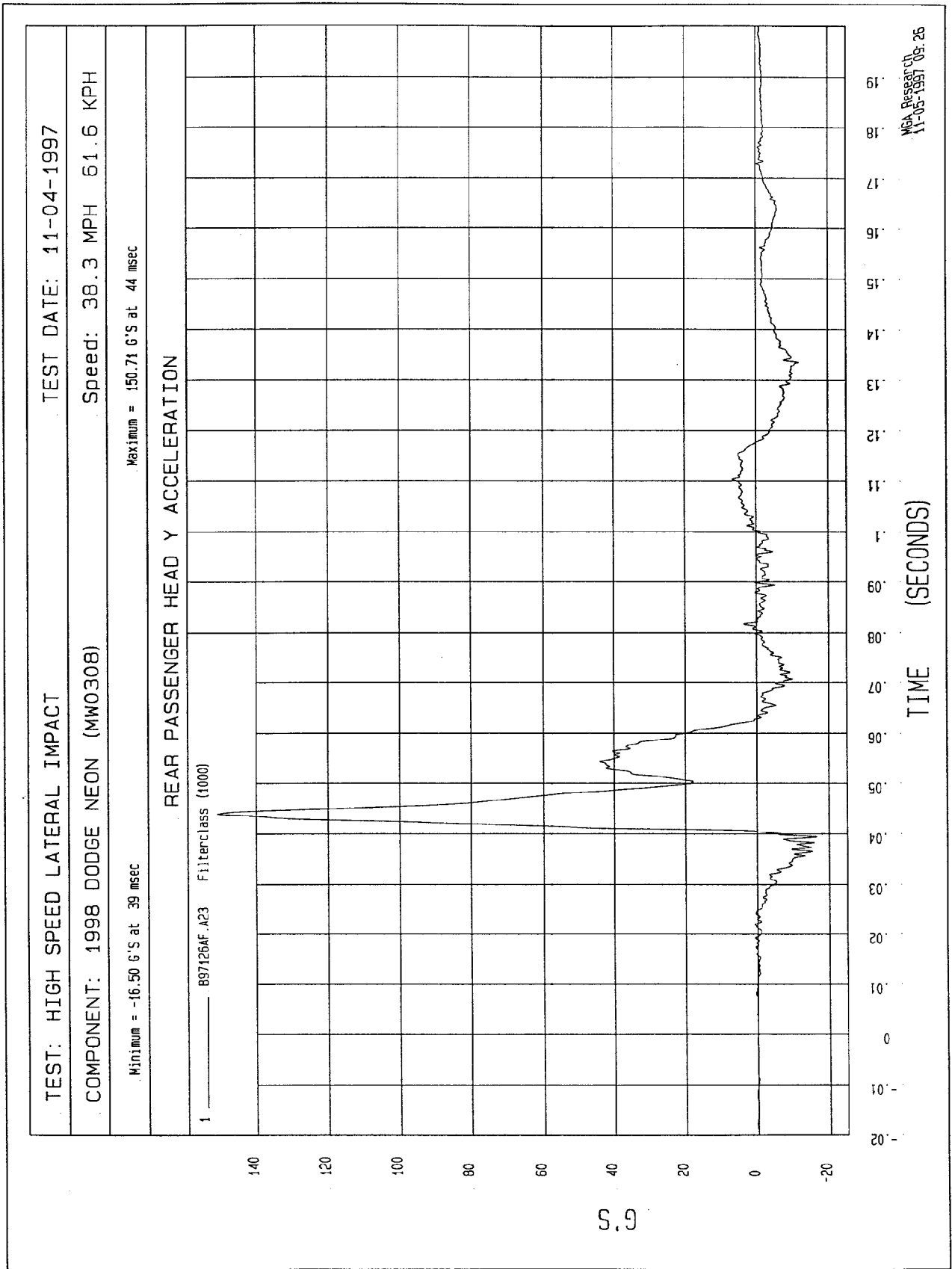


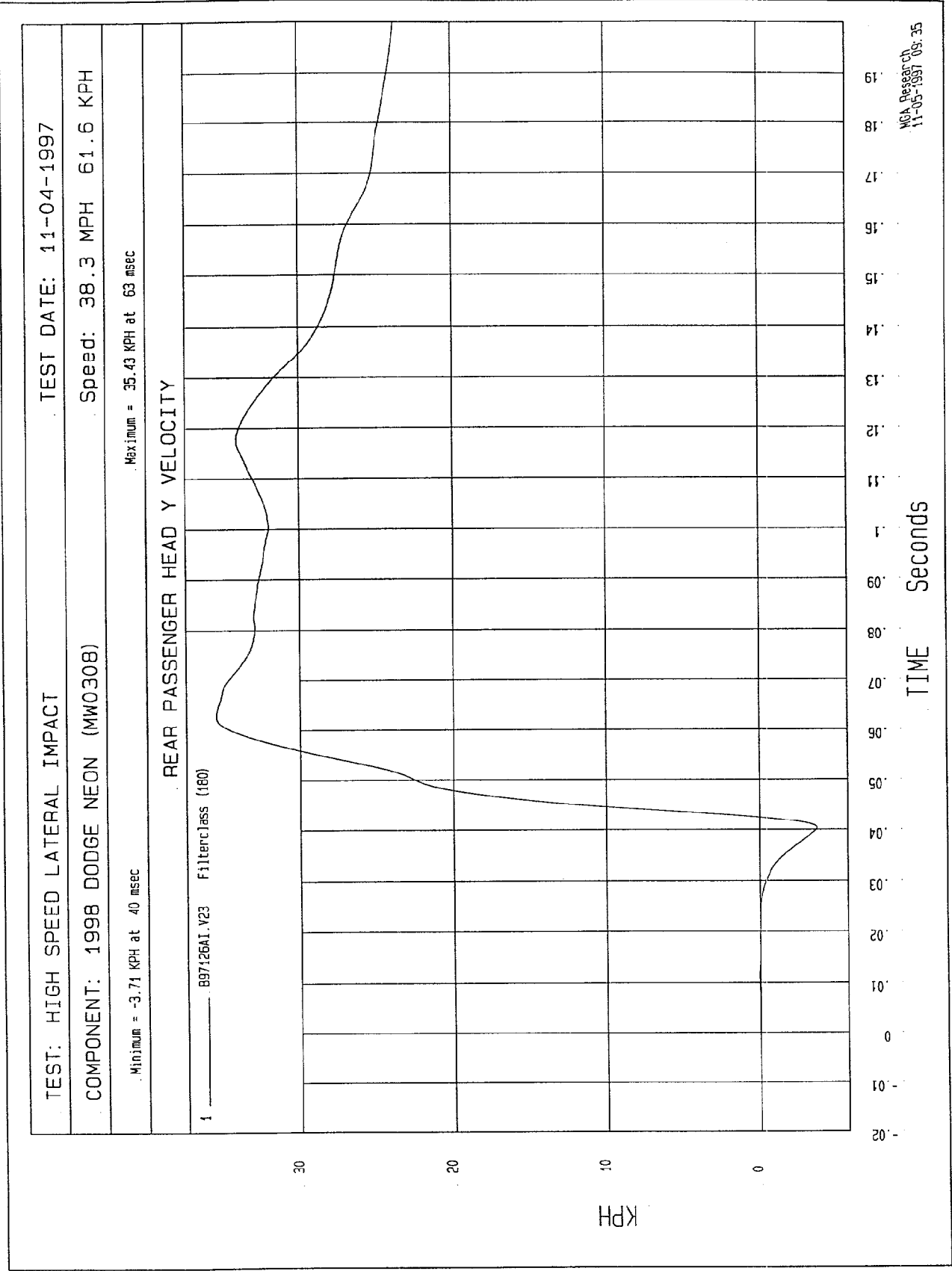
DRIVER SHOULDER CONTACT VS. TIME

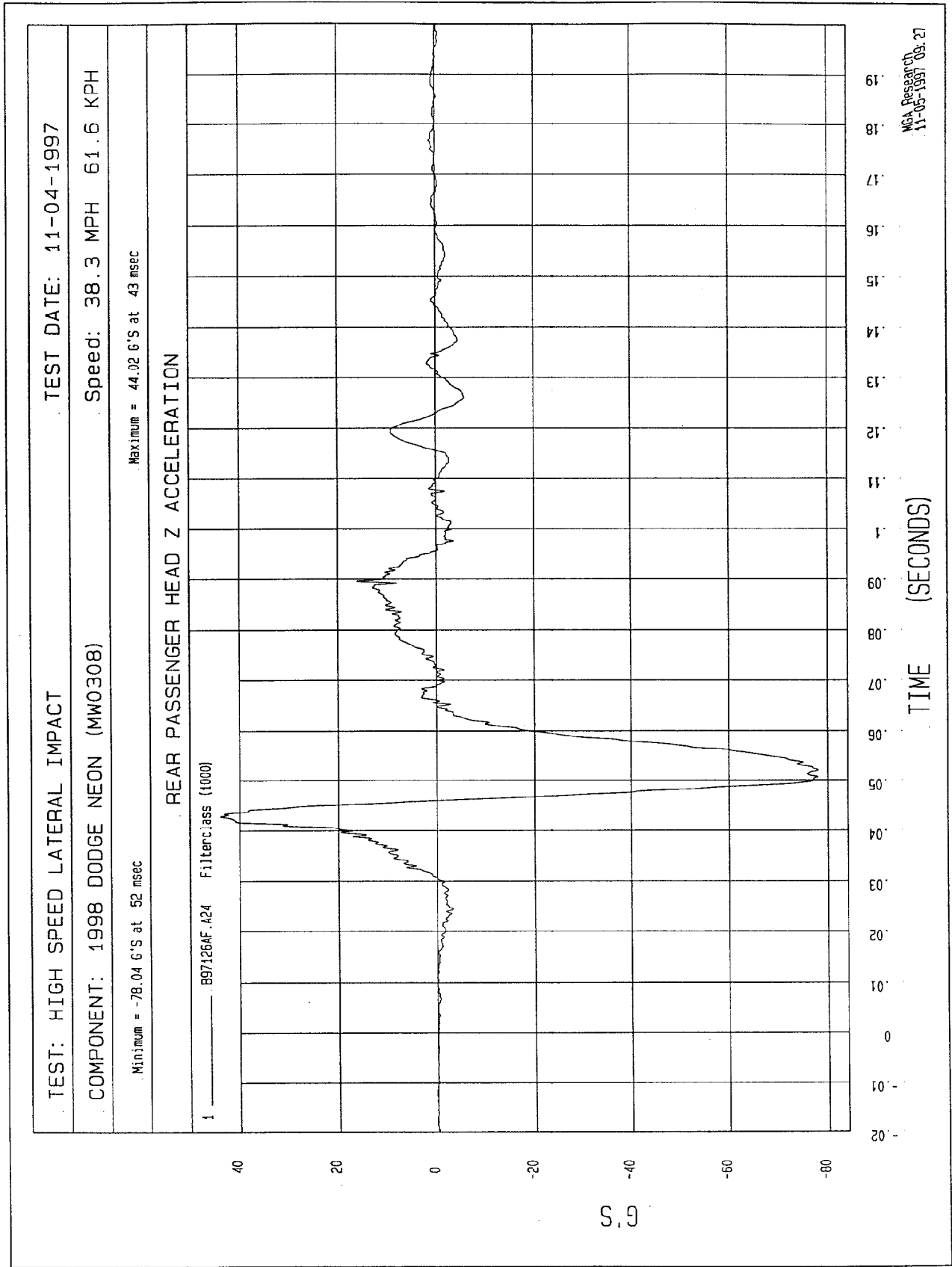
NO VALID DATA COLLECTED









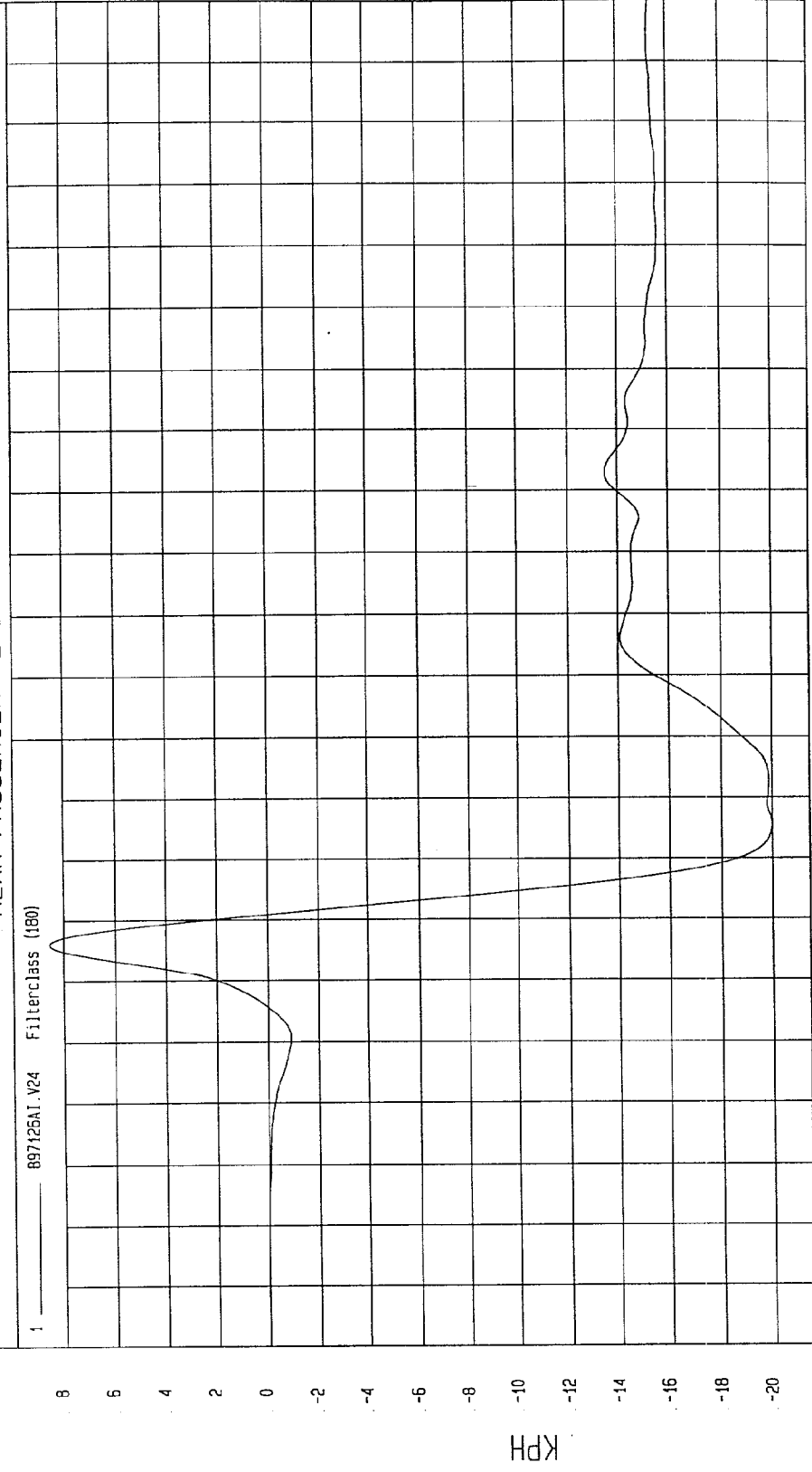


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -20.00 KPH at 66 msec Maximum = 8.56 KPH at 45 msec

REAR PASSENGER HEAD Z VELOCITY



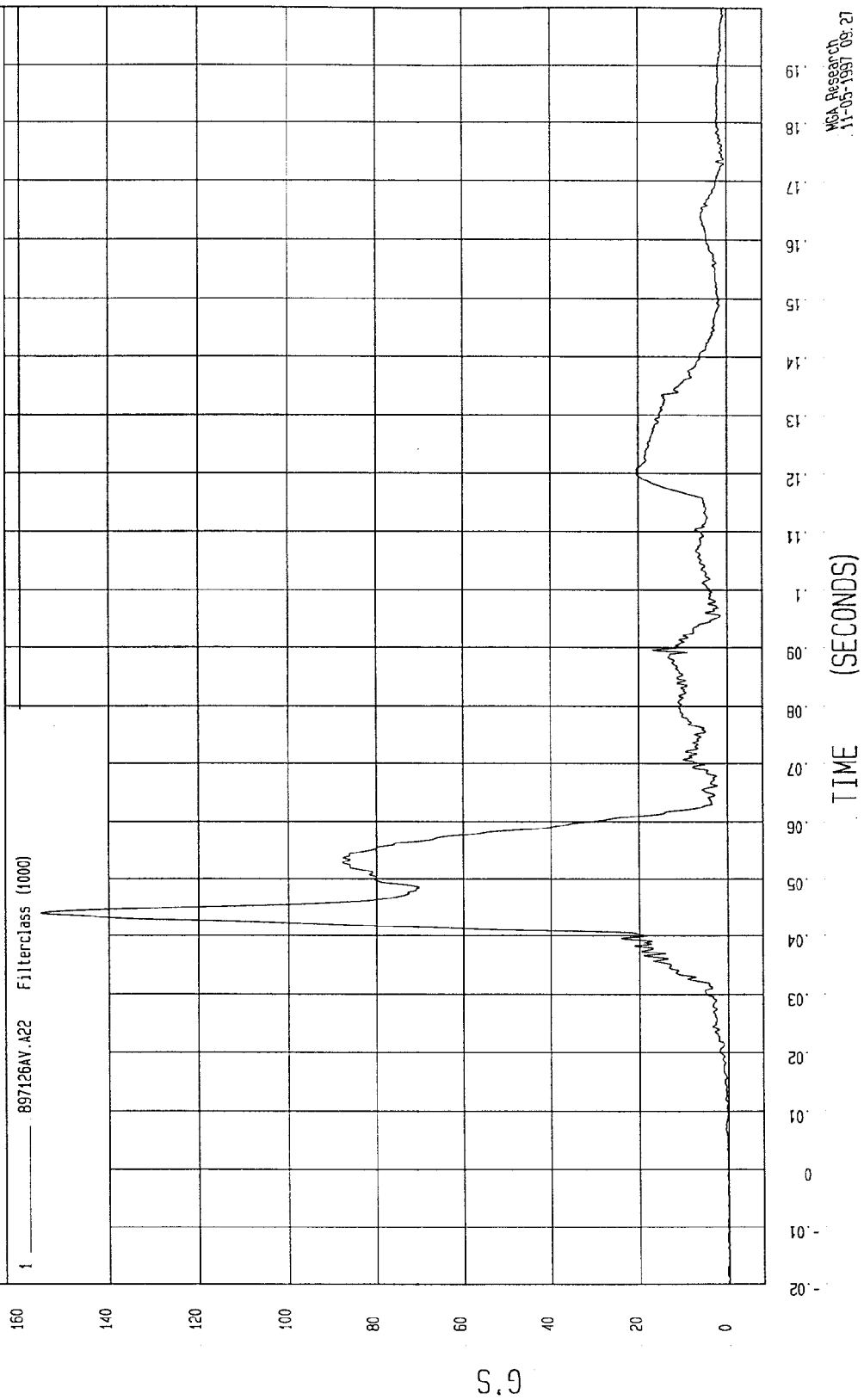
TIME Seconds

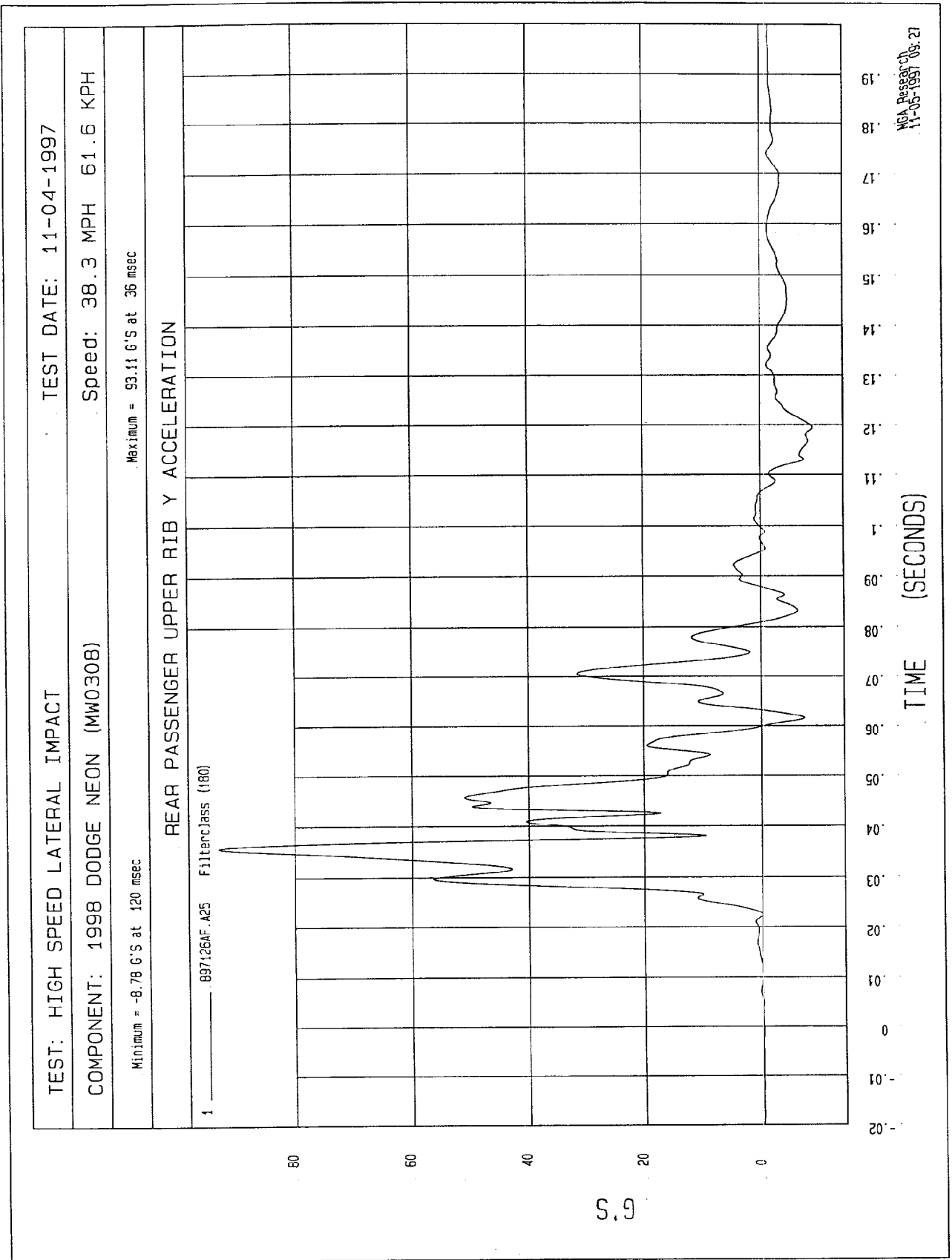
11-05-1997 09:35

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997
COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = 1.23E-02 G'S at -13 msec Maximum = 155.46 G'S at 44 msec

REAR PASSENGER HEAD RESULTANT





TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

Speed: 38.3 MPH 61.6 KPH

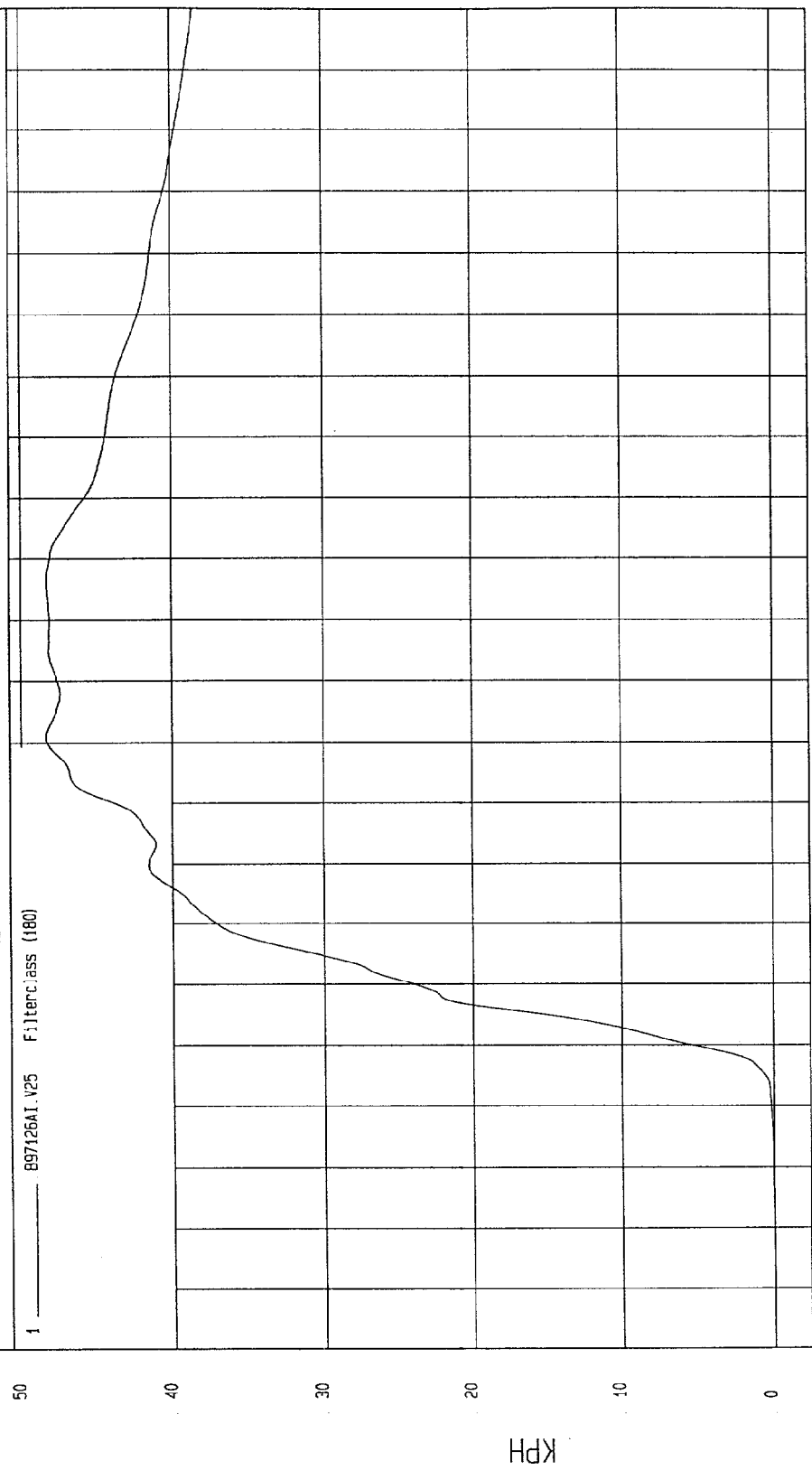
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 48.32 KPH at 81 msec

Minimum = -4.23E-03 KPH at -11 msec

REAR PASSENGER UPPER RIB Y VELOCITY

1 897126A1.V25 Filterclass (180)



TIME Seconds

MCA Research
11-05-1997 09:35

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

Speed: 38.3 MPH 61.6 KPH

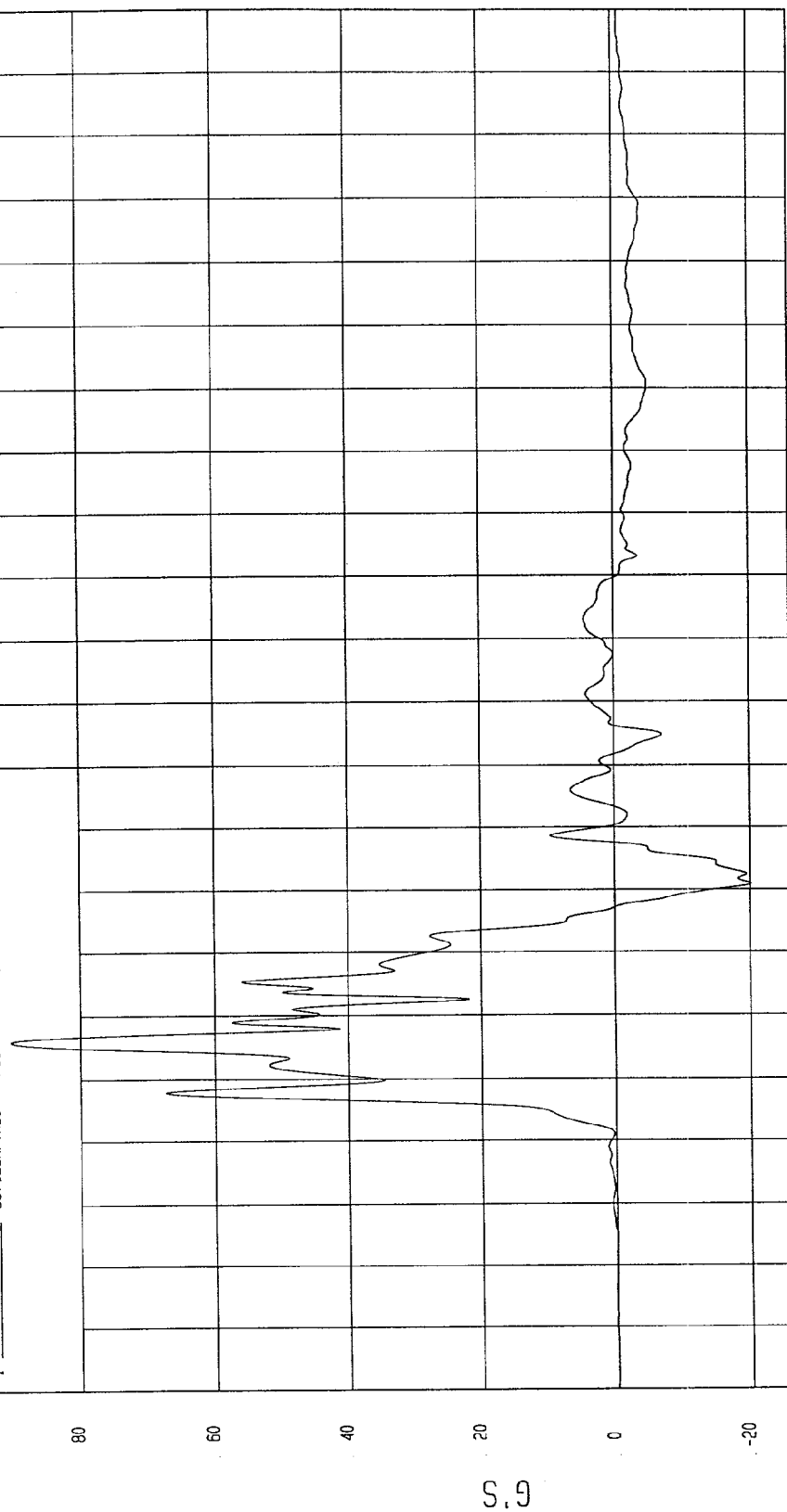
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 90.28 G'S at 36 msec

Minimum = -20.21 G'S at 61 msec

REAR PASSENGER LOWER RIB Y ACCELERATION

1 B97126AF.A26 Filterclass (180)



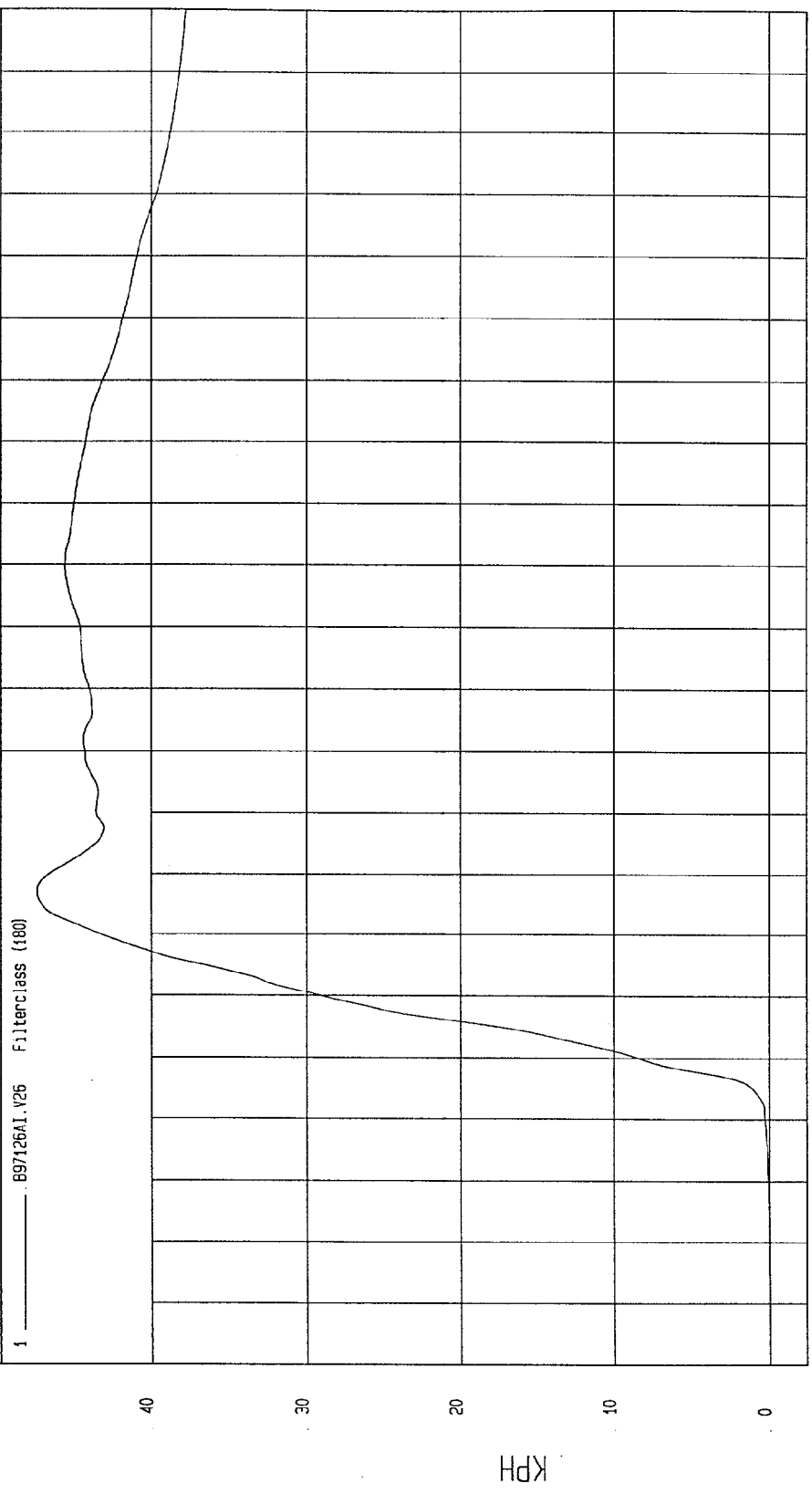
MGA Research
11-05-1997 09:27

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -1.15E-02 KPH at -11 msec Maximum = 47.33 KPH at 57 msec

REAR PASSENGER LOWER RIB Y VELOCITY



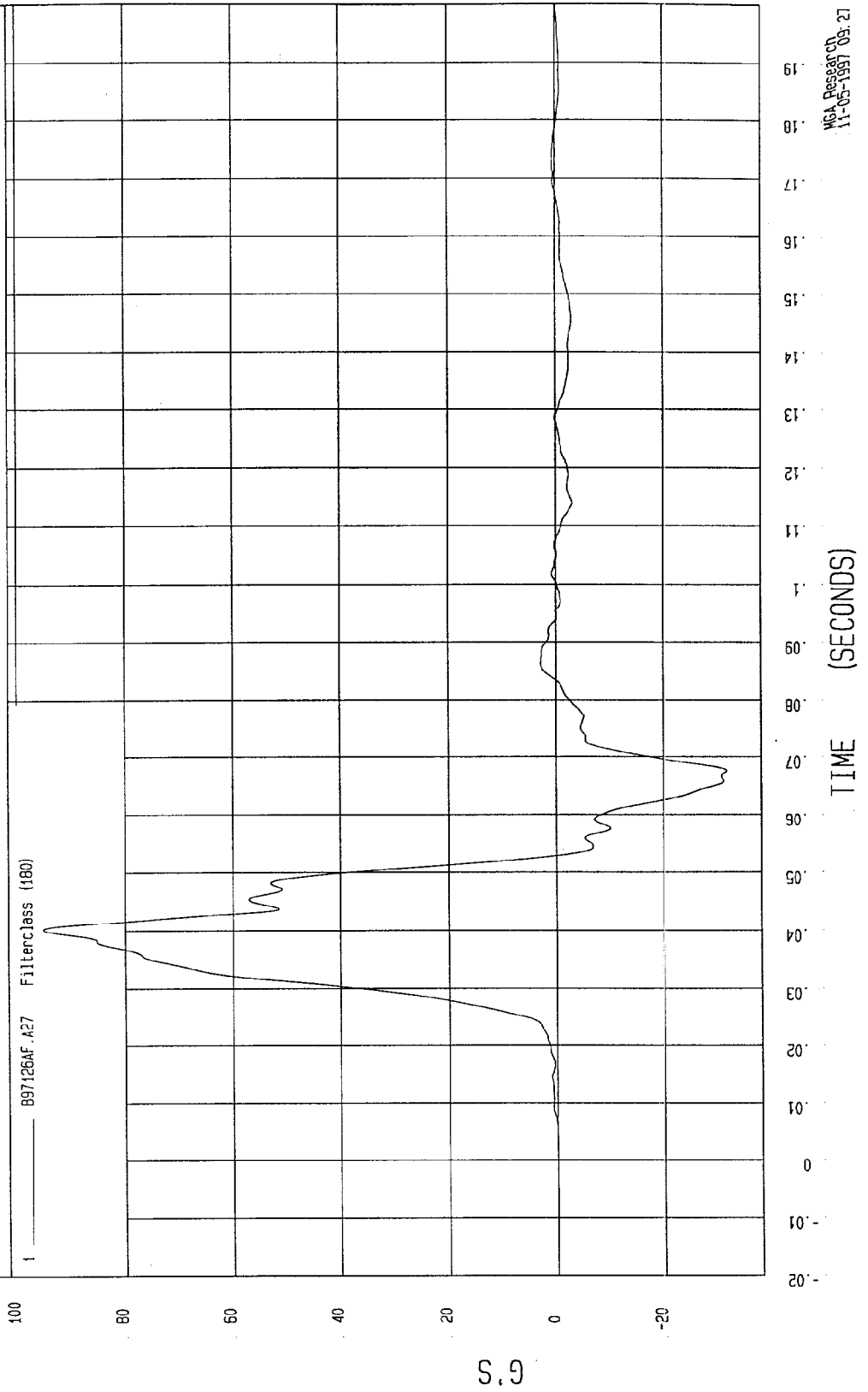
NSA Research
11-05-1997 09:36

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997
COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -31.75 G'S at 68 msec Maximum = 95.20 G'S at 40 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = 0 KPH at -20 msec Maximum = 52.68 KPH at 53 msec

REAR PASSENGER LOWER SPINE Y VELOCITY

1 897125A1.Y27 Filterclass (180)

50

40

30

20

10

0

KPH

-0.02

-0.01

0

0.01

0.02

0.03

0.04

0.05

0.06

0.07

0.08

0.09

0.1

0.11

0.12

0.13

0.14

0.15

0.16

0.17

0.18

0.19

TIME Seconds

MCA Research
11-05-1997 09:36

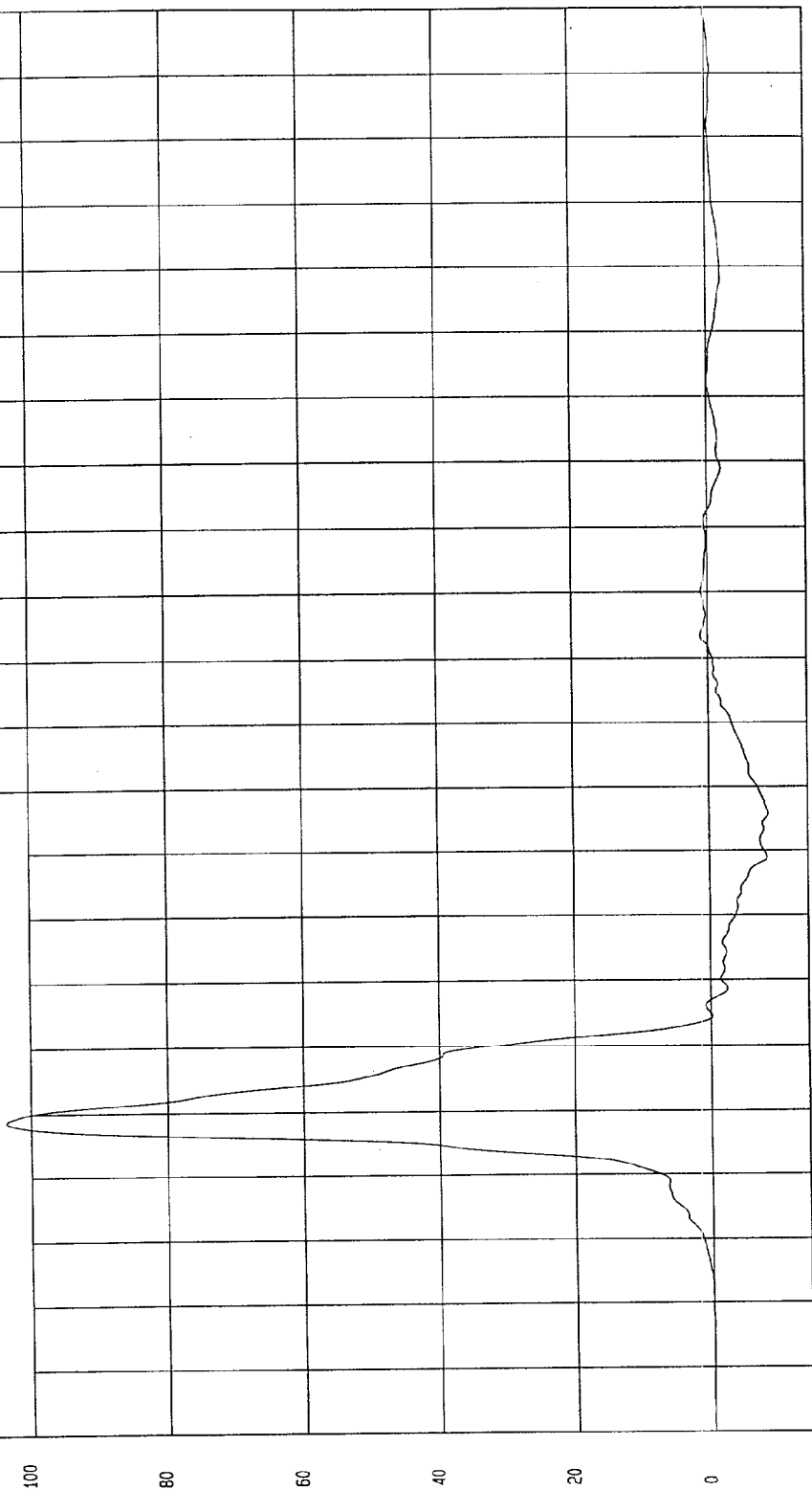
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 51.6 KPH

Minimum = -8.54 G'S at 76 msec Maximum = 103.60 G'S at 29 msec

REAR PASSENGER PELVIS Y ACCELERATION

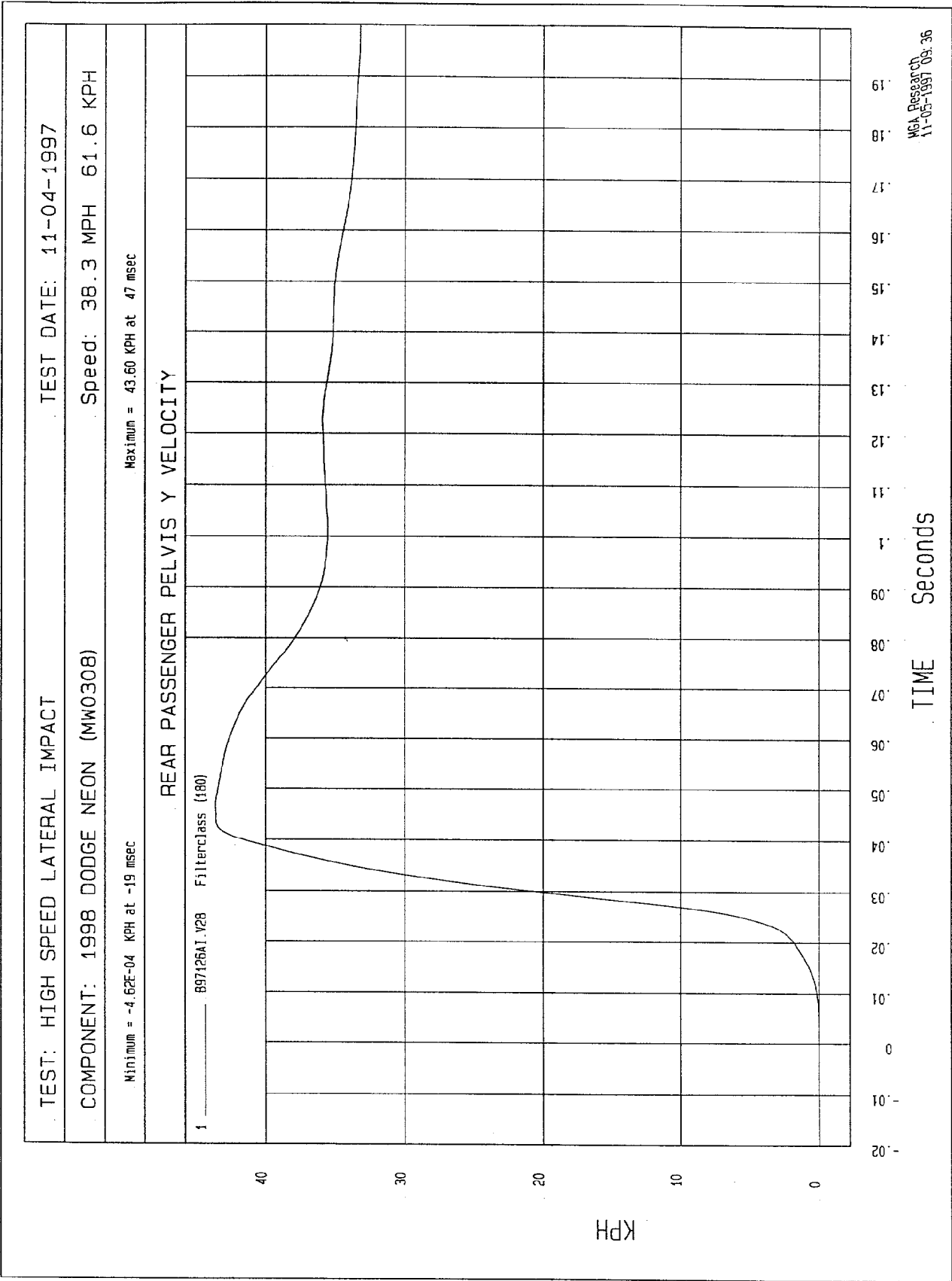
1 B97125AF.A28 Filterclass (180)

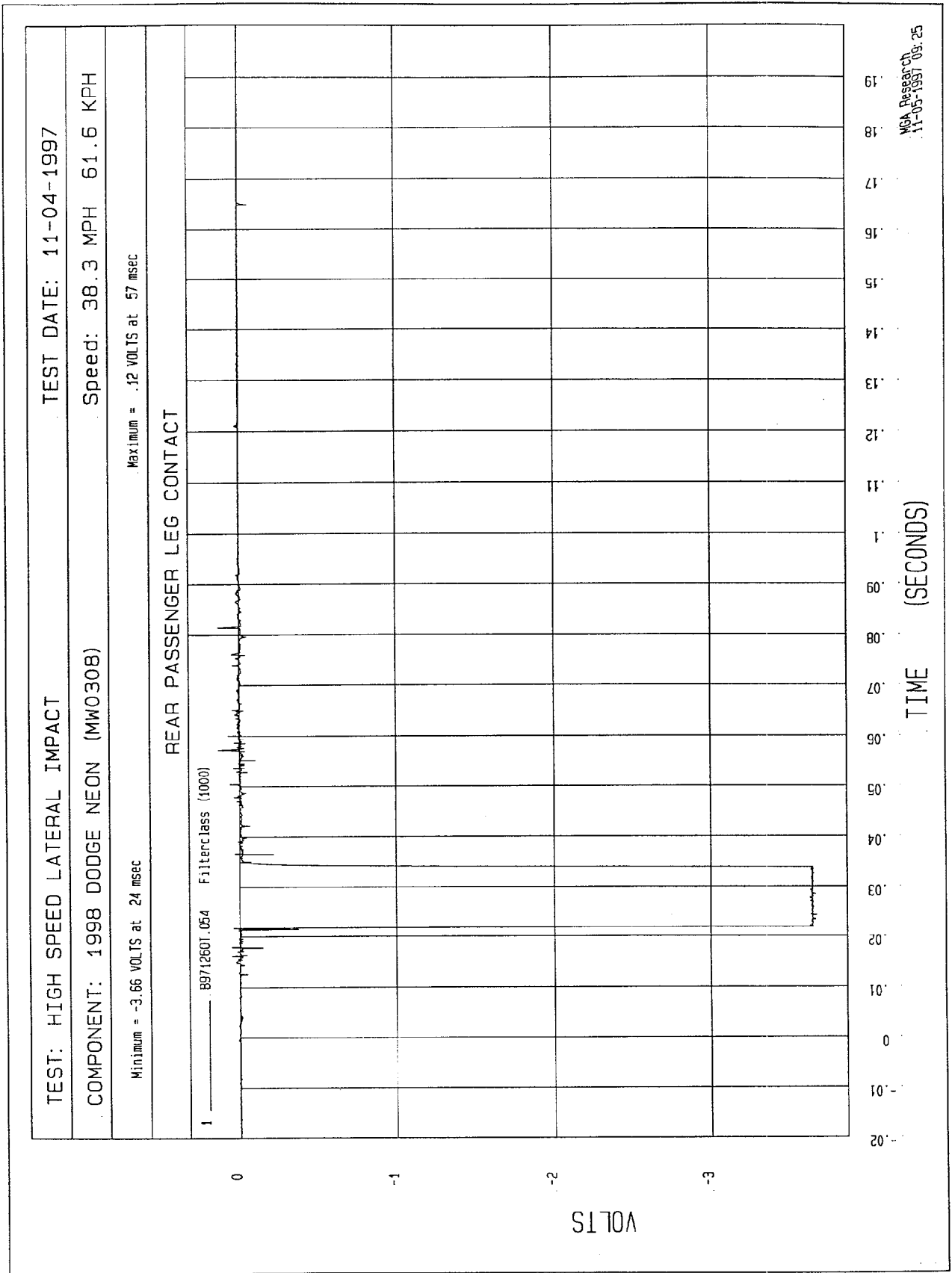


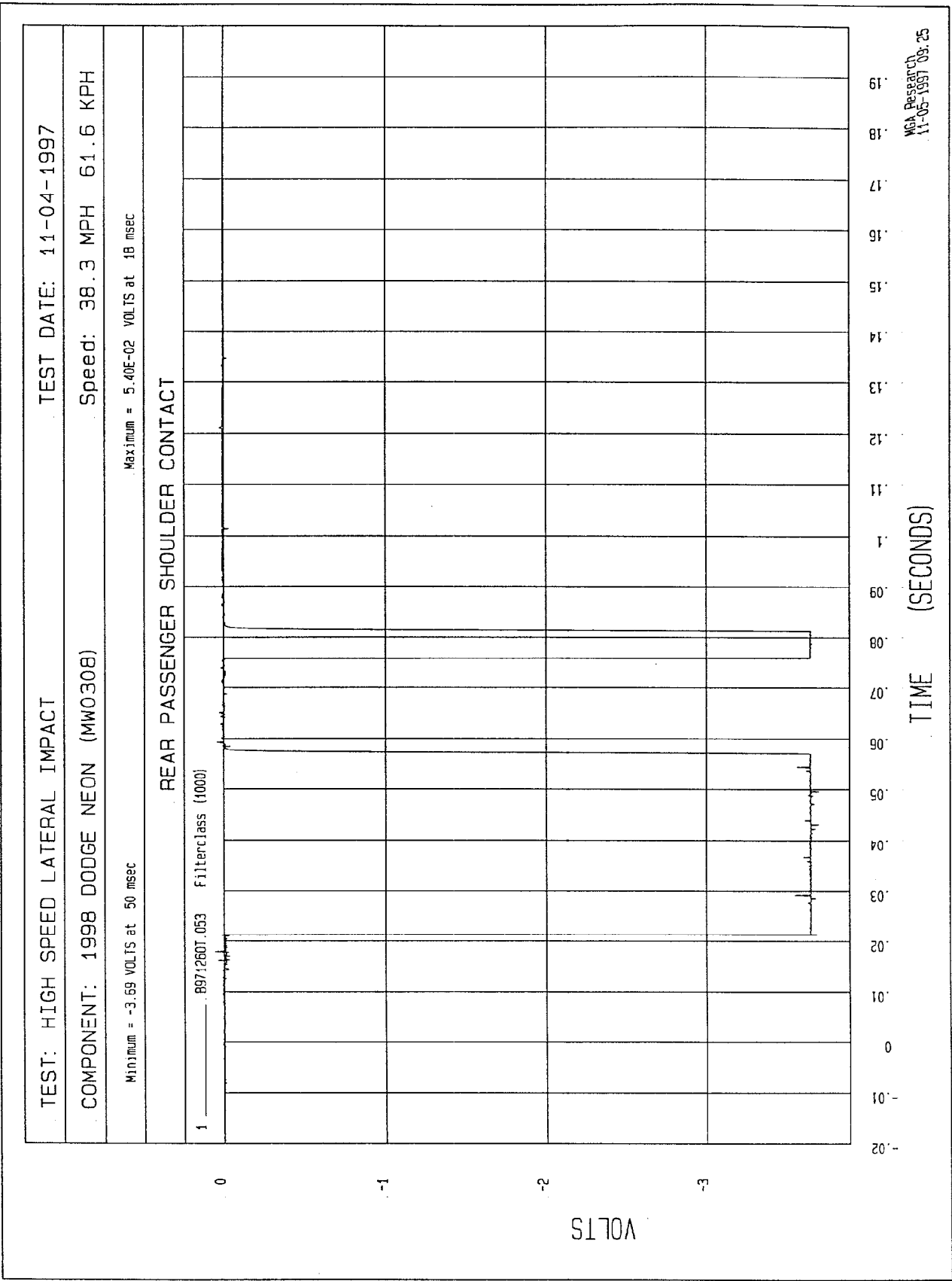
MCA Research
11-05-1997 09:28

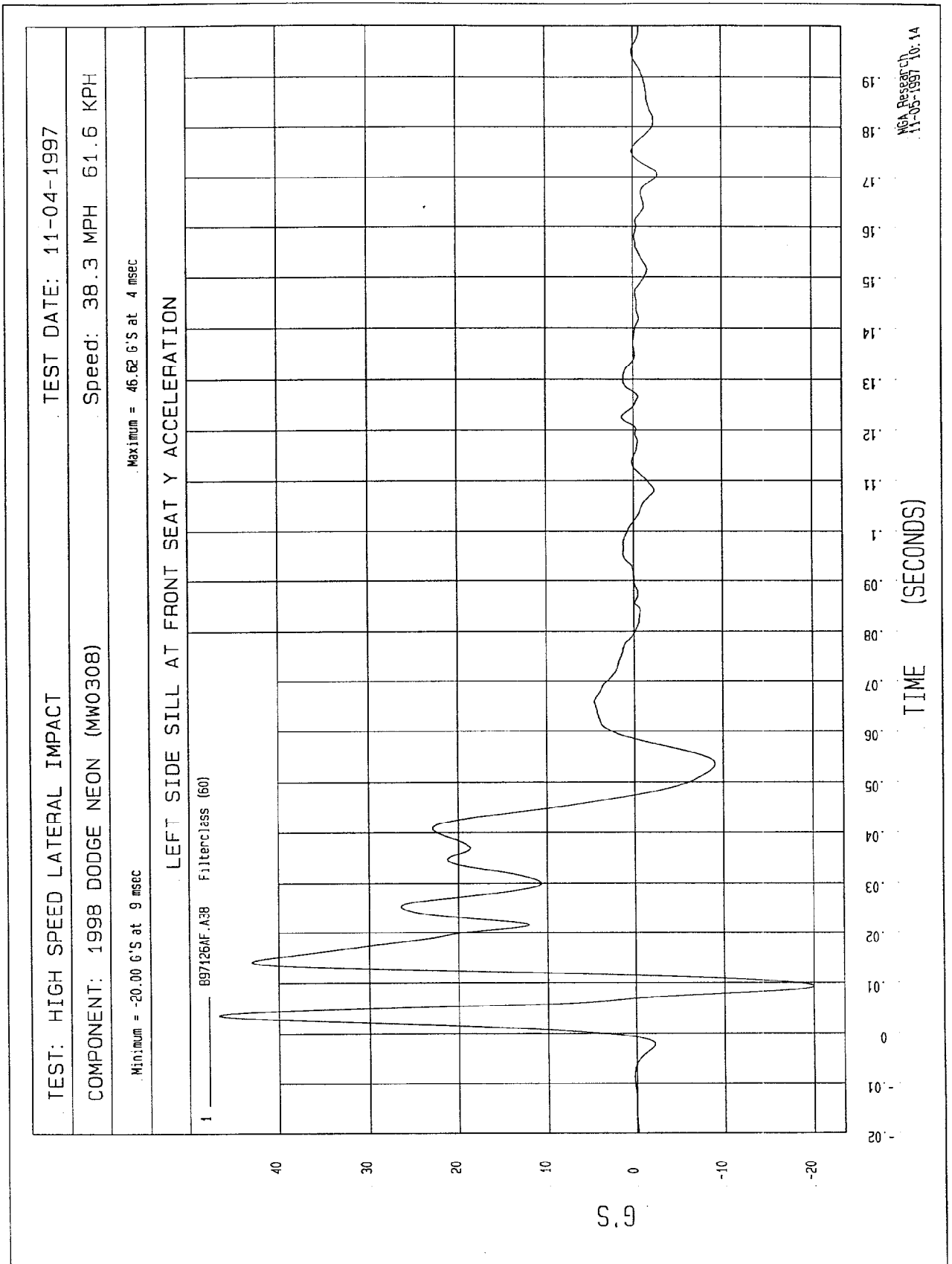
TIME (SECONDS)

G's





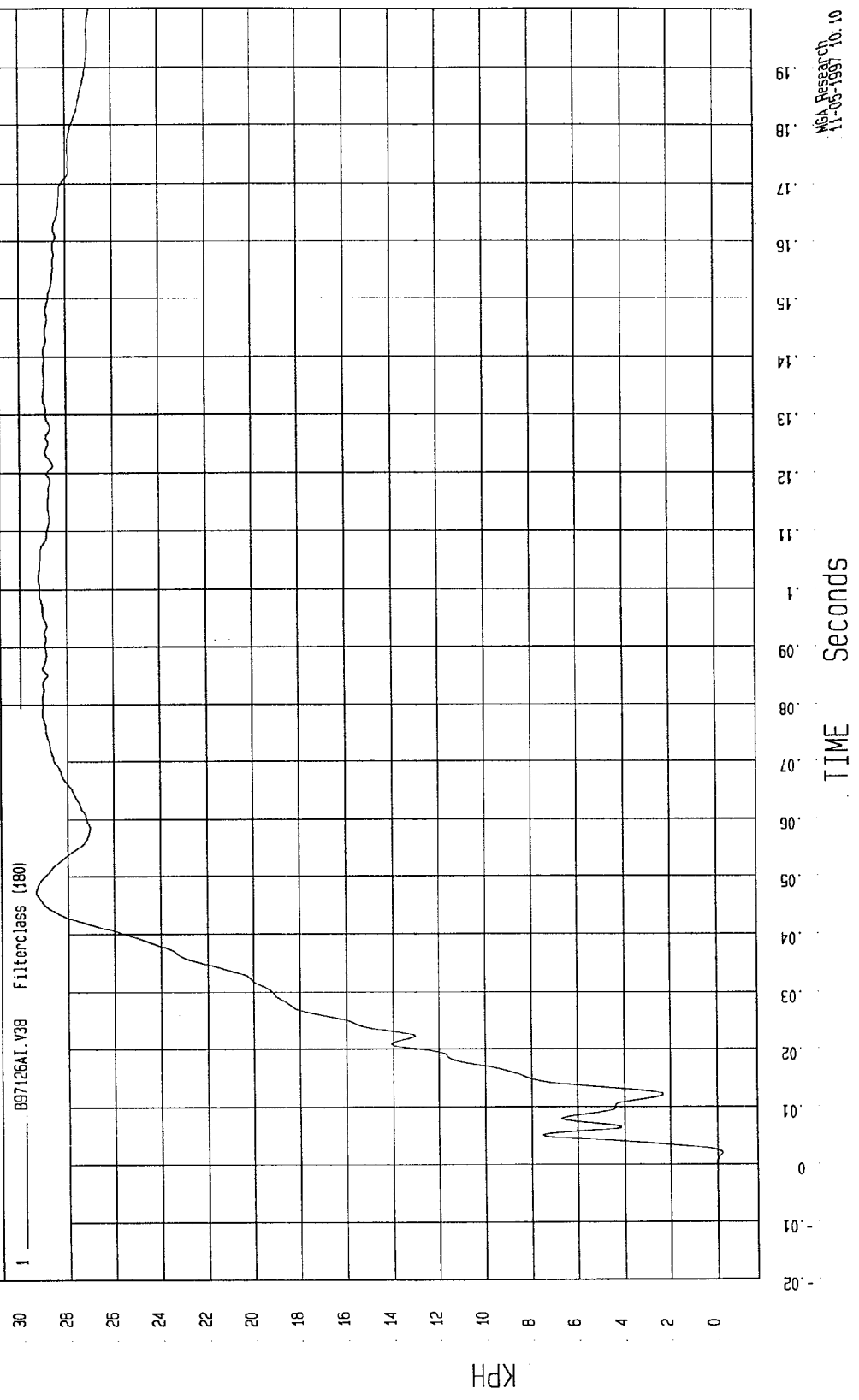




TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997
COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -.21 KPH at 2 msec Maximum = 29.37 KPH at 47 msec

LEFT SIDE SILL AT FRONT SEAT Y VELOCITY



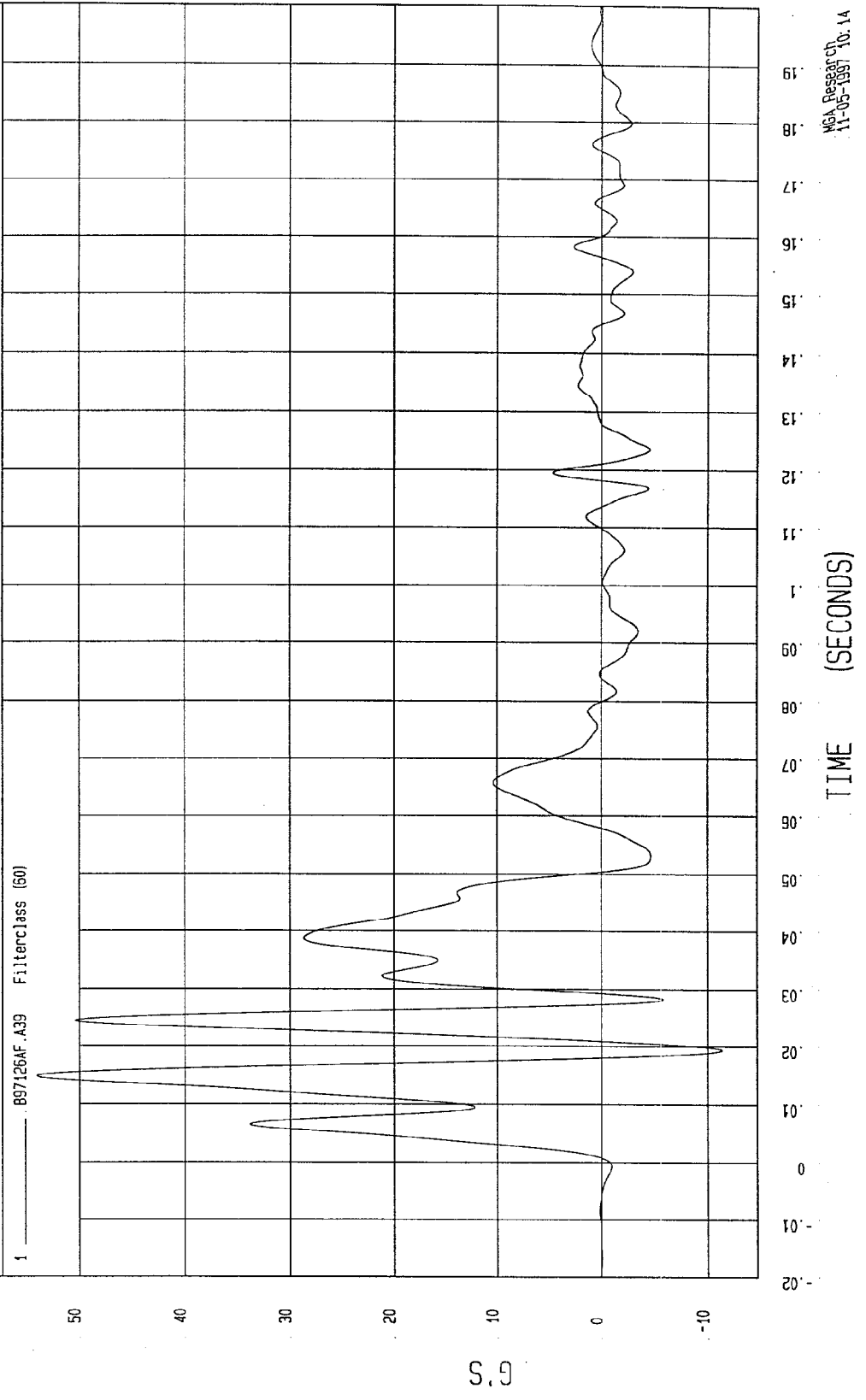
MCA Research
11-05-1997 10:10

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -11.37 G's at 19 msec Maximum = 54.05 G's at 15 msec

LEFT SIDE SILL AT REAR SEAT Y ACCELERATION



NSA Research
11-05-1997 10.14

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

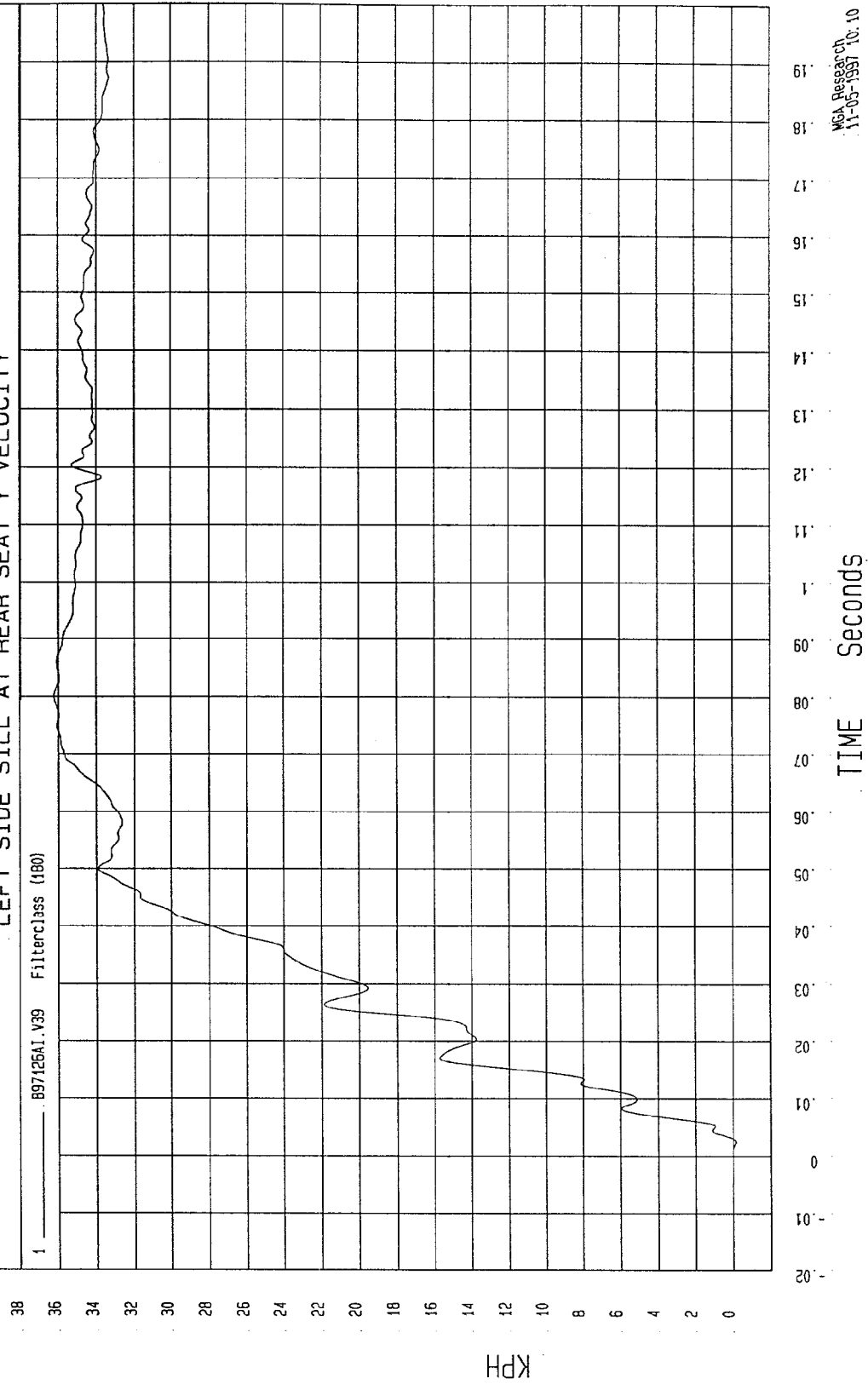
Speed: 38.3 MPH 61.6 KPH

COMPONENT: 1998 DODGE NEON (MW0308)

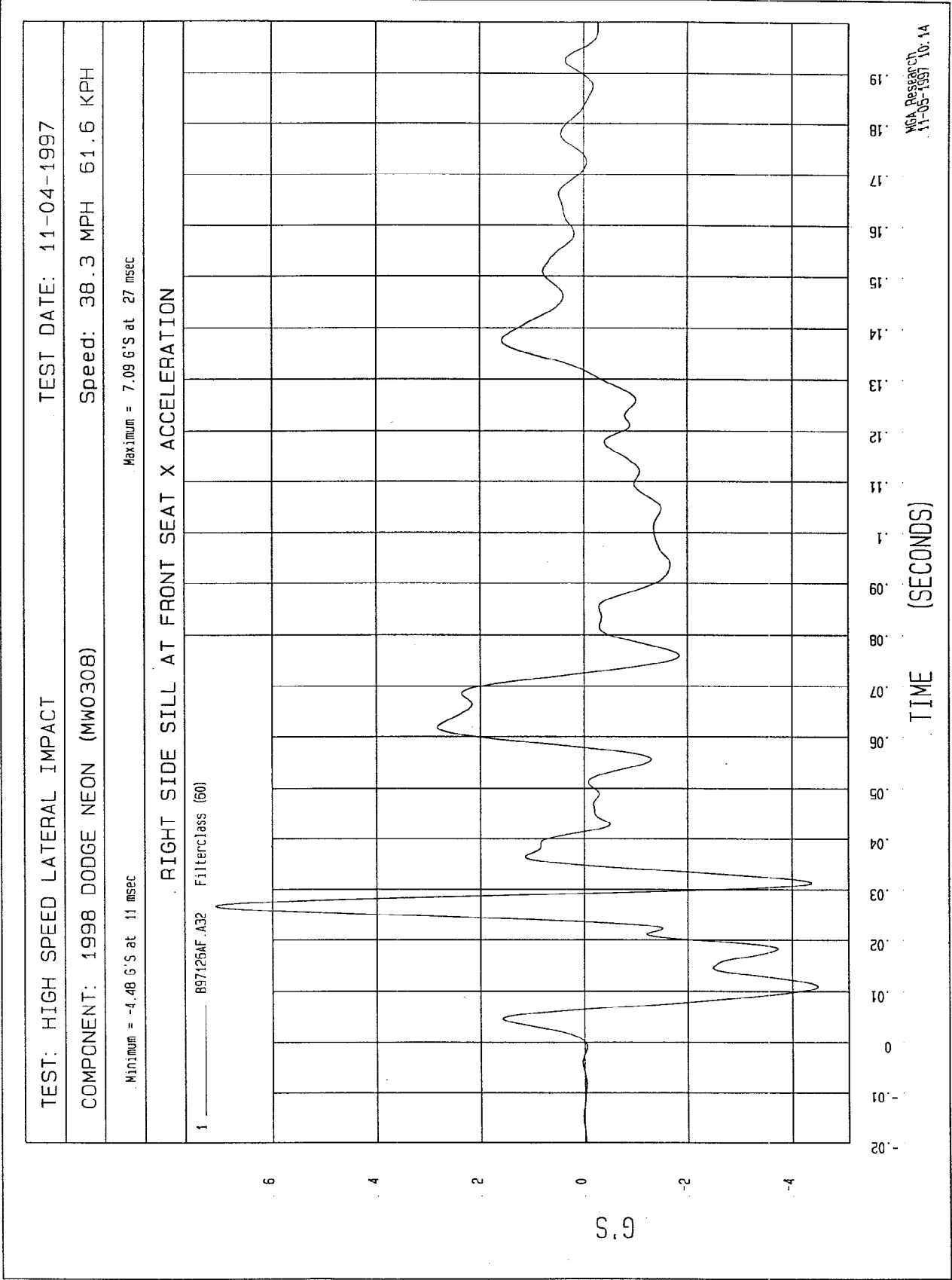
Maximum = 36.24 KPH at 80 msec

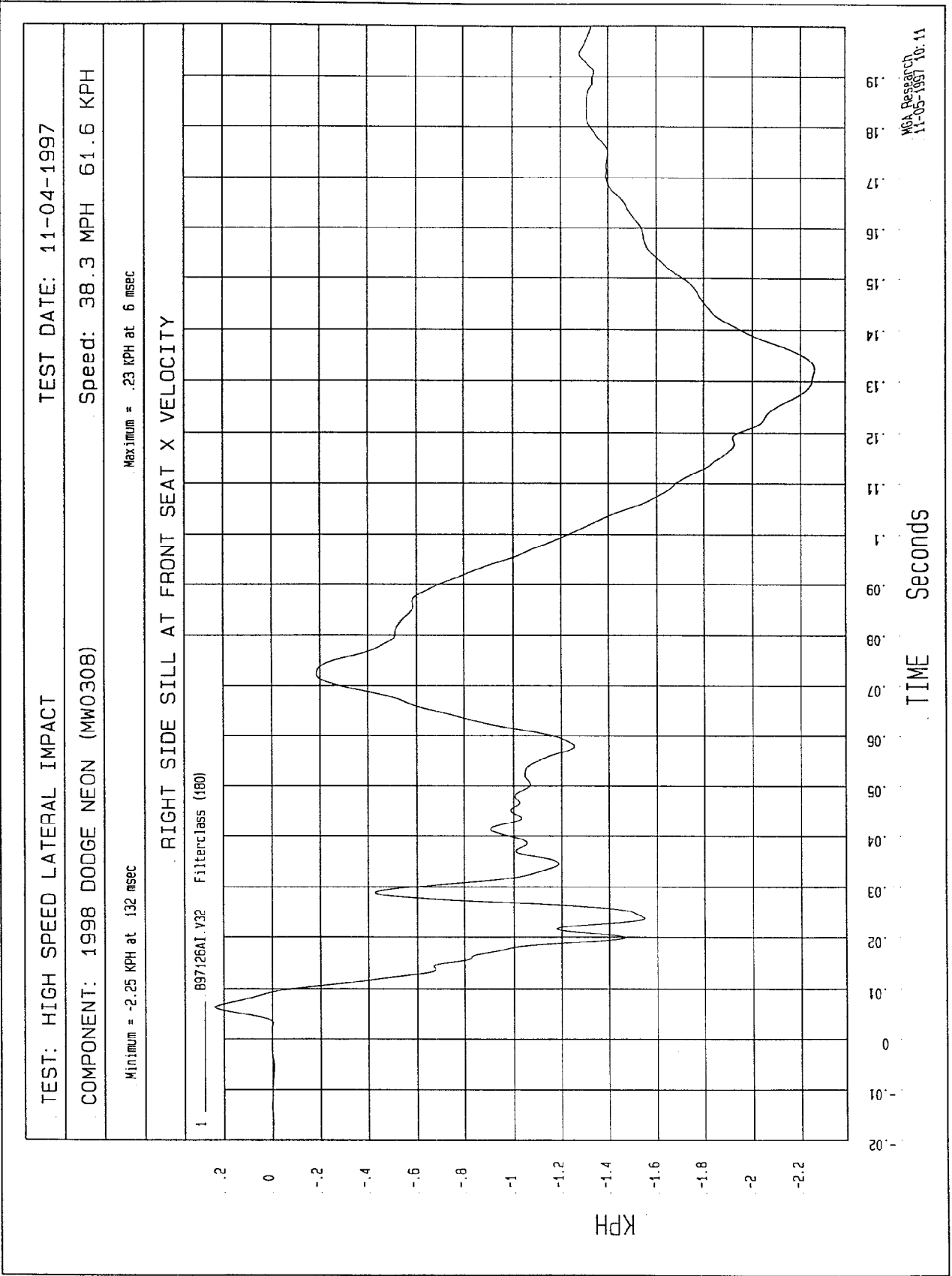
Minimum = -1.14 KPH at 2 msec

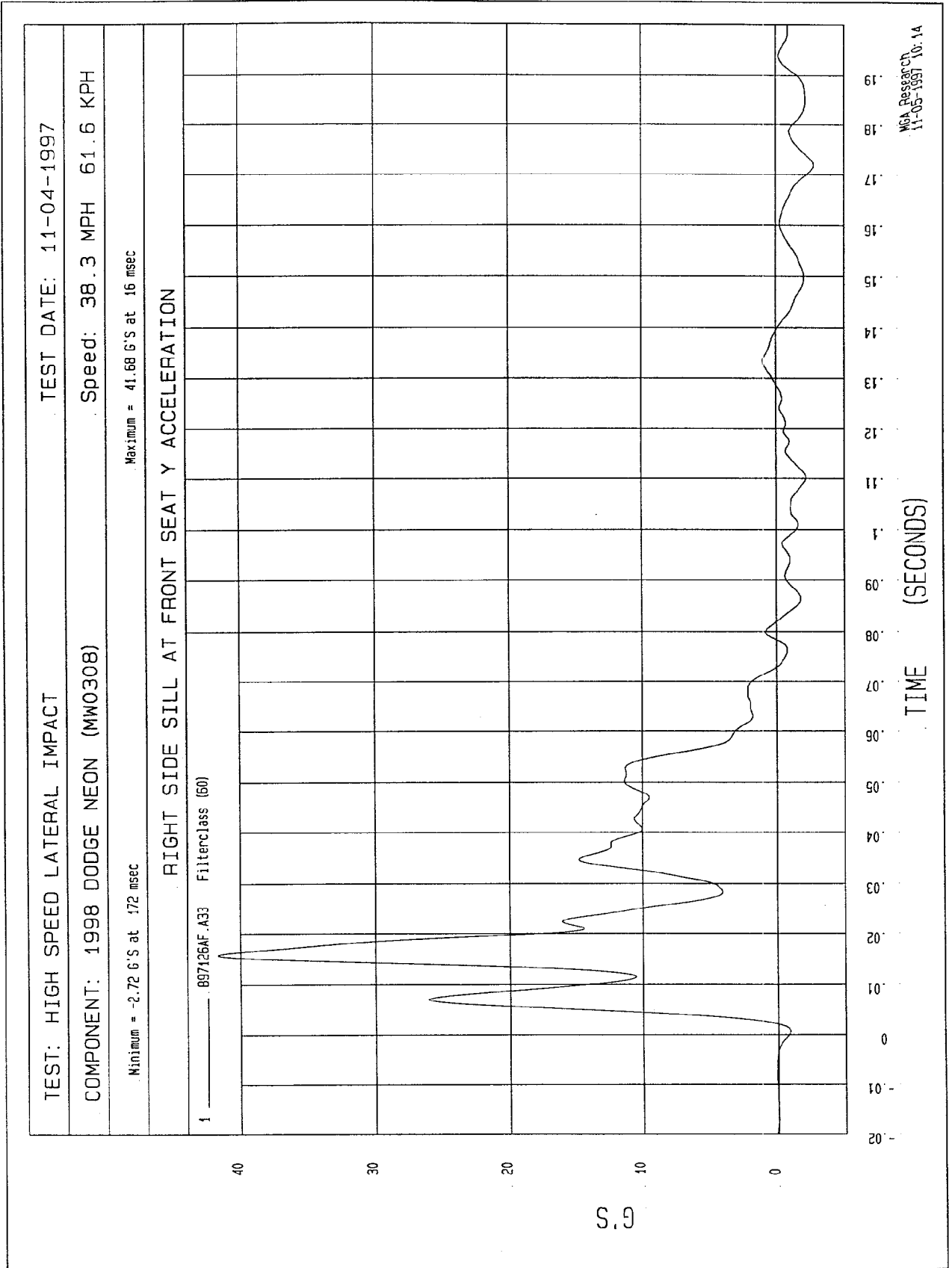
LEFT SIDE SILL AT REAR SEAT Y VELOCITY



MECA Research
11-05-1997 10:10







TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = 0 KPH at -20 msec Maximum = 28.05 KPH at 72 msec

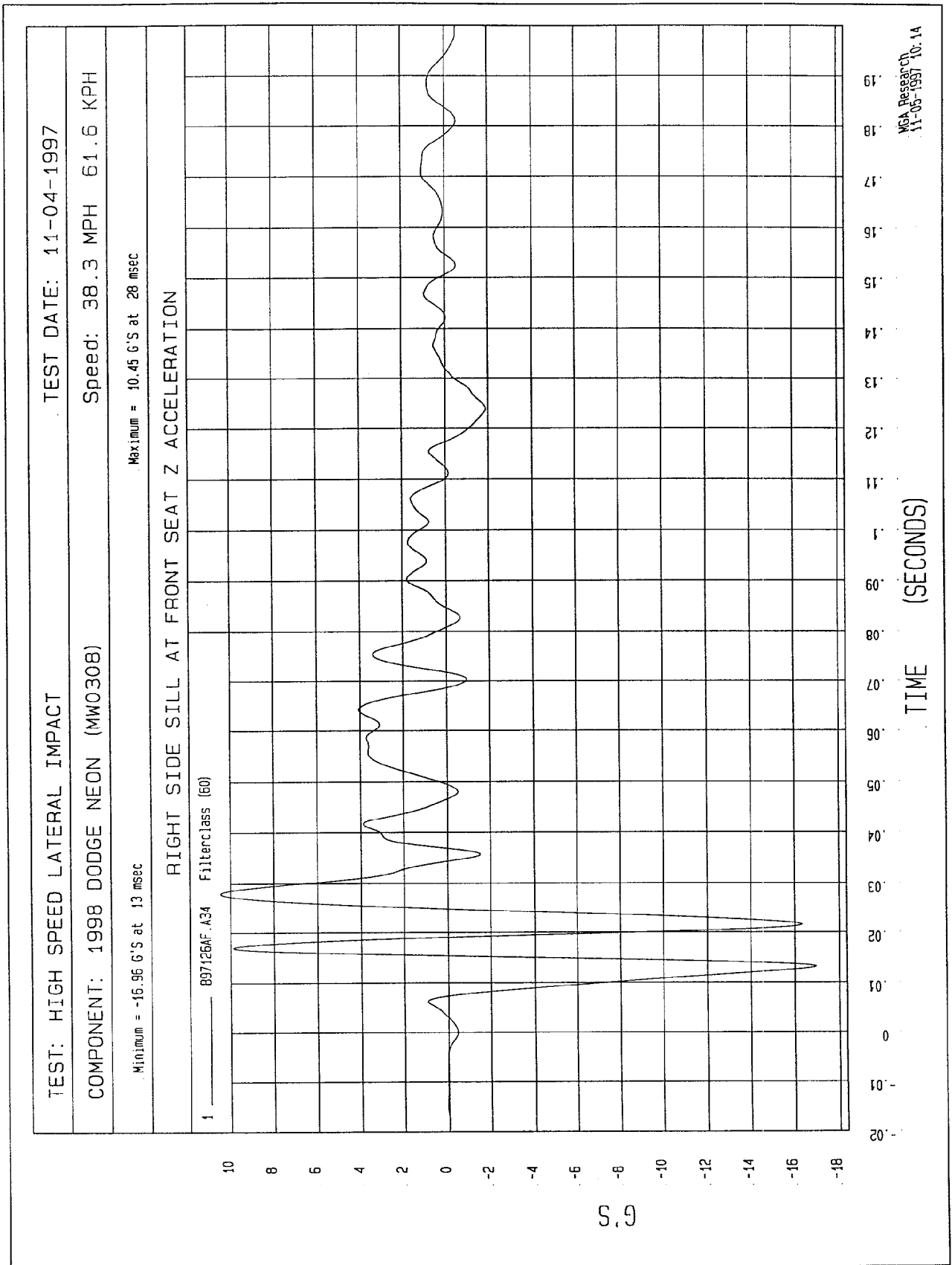
RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY



TIME Seconds

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

WCA Research
11-05-1997 10:11

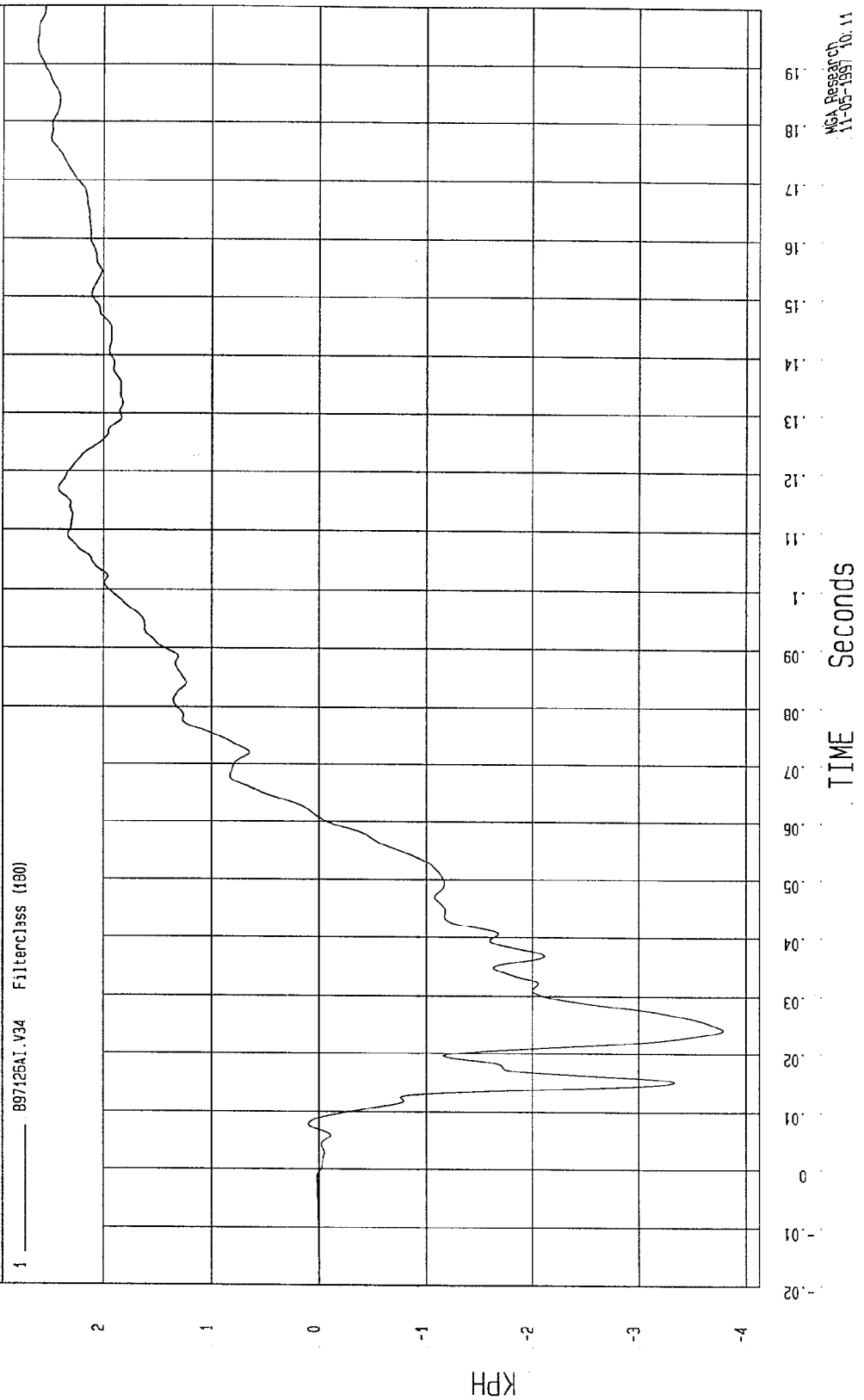


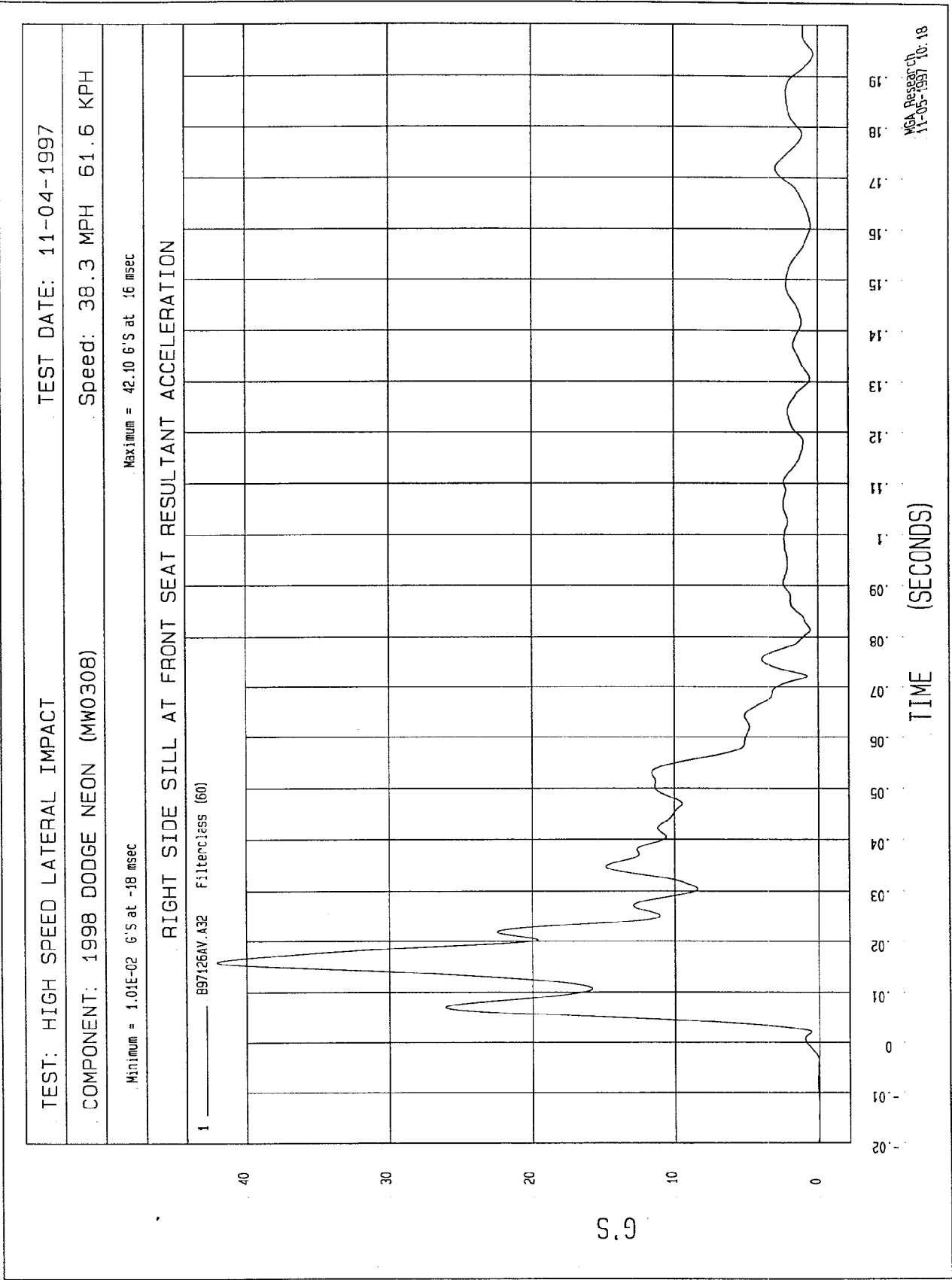
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

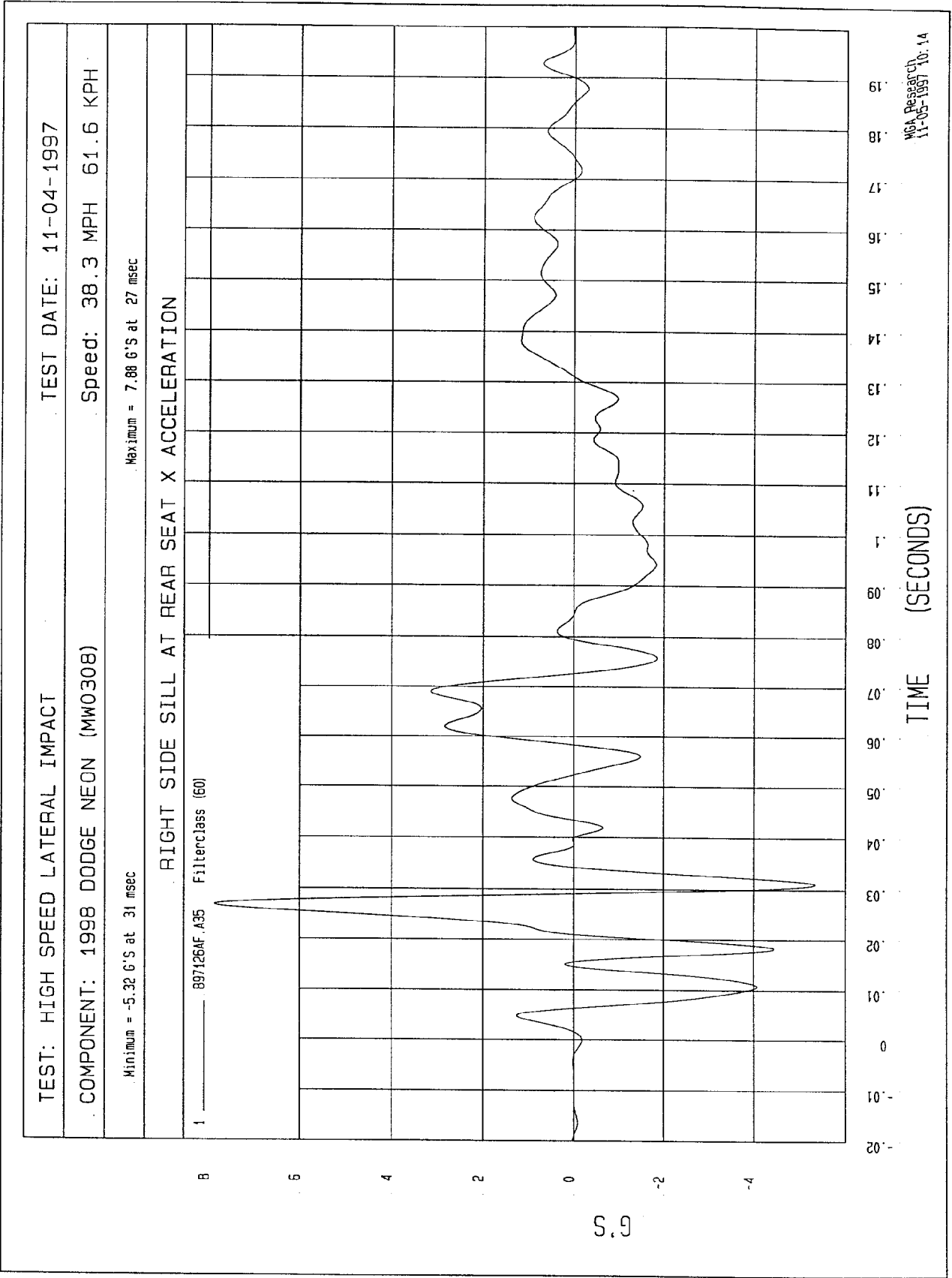
COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -3.79 KPH at 24 msec Maximum = 2.61 KPH at 194 msec

RIGHT SIDE SILL AT FRONT SEAT Z VELOCITY





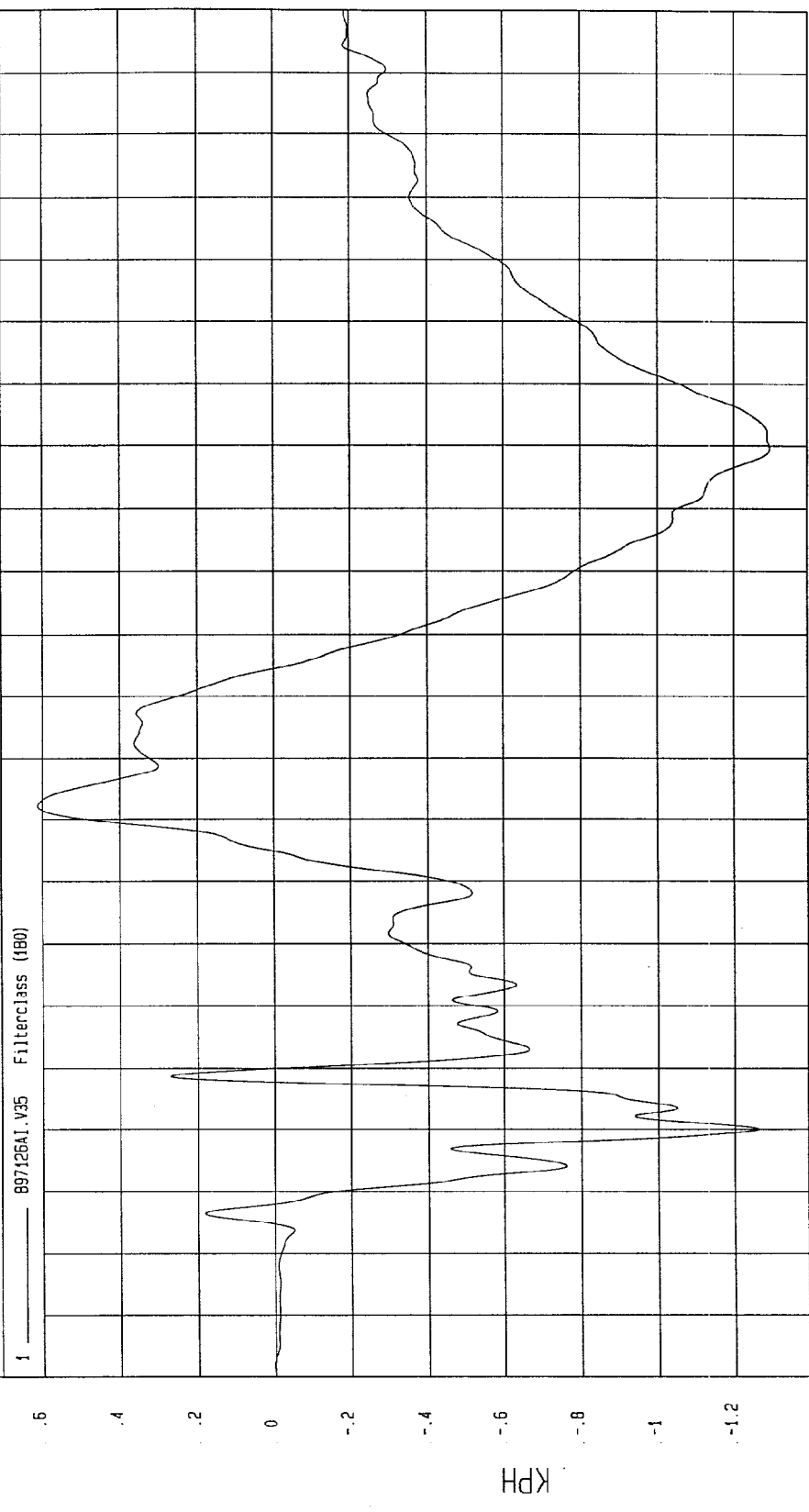


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

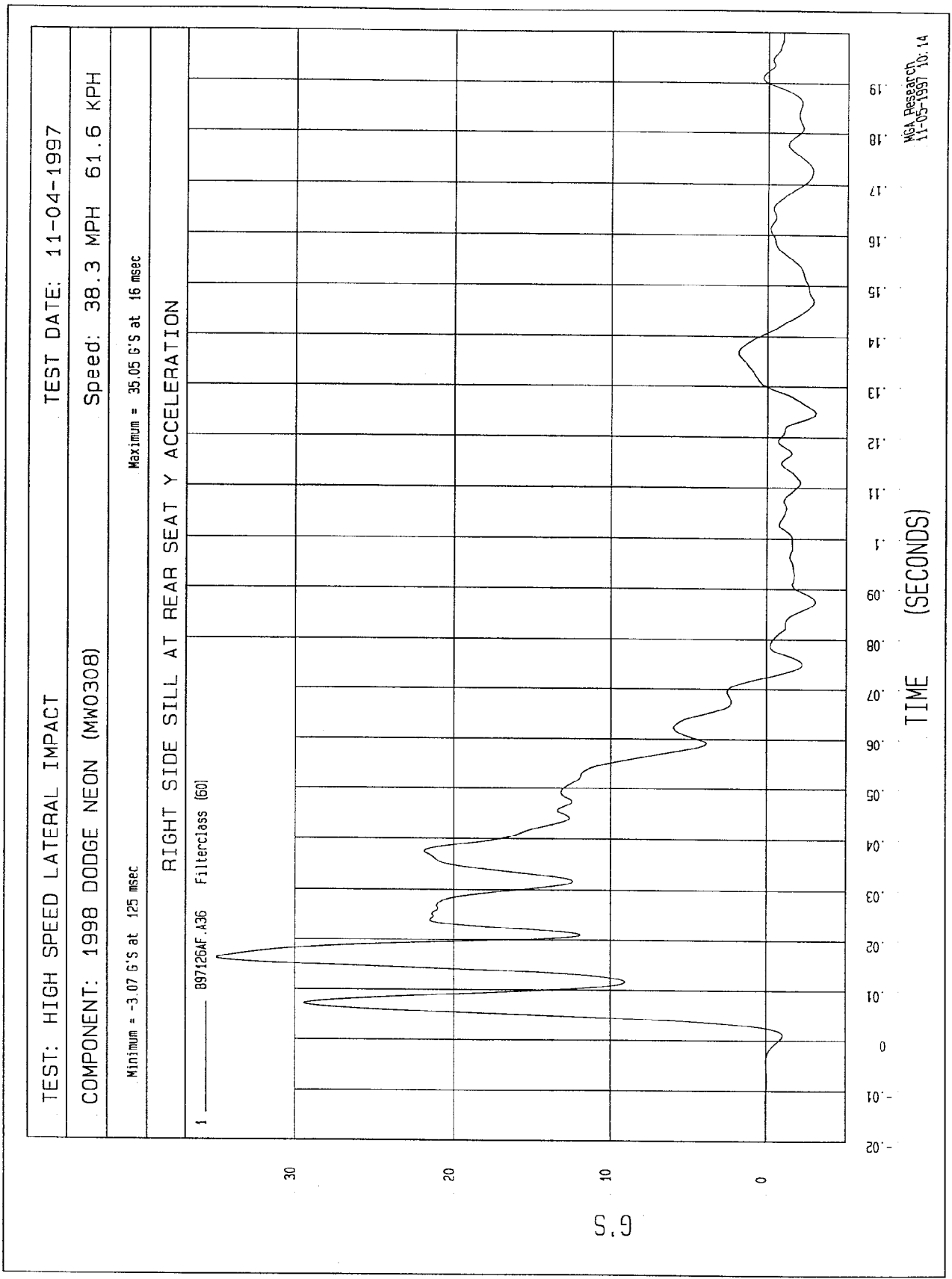
COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

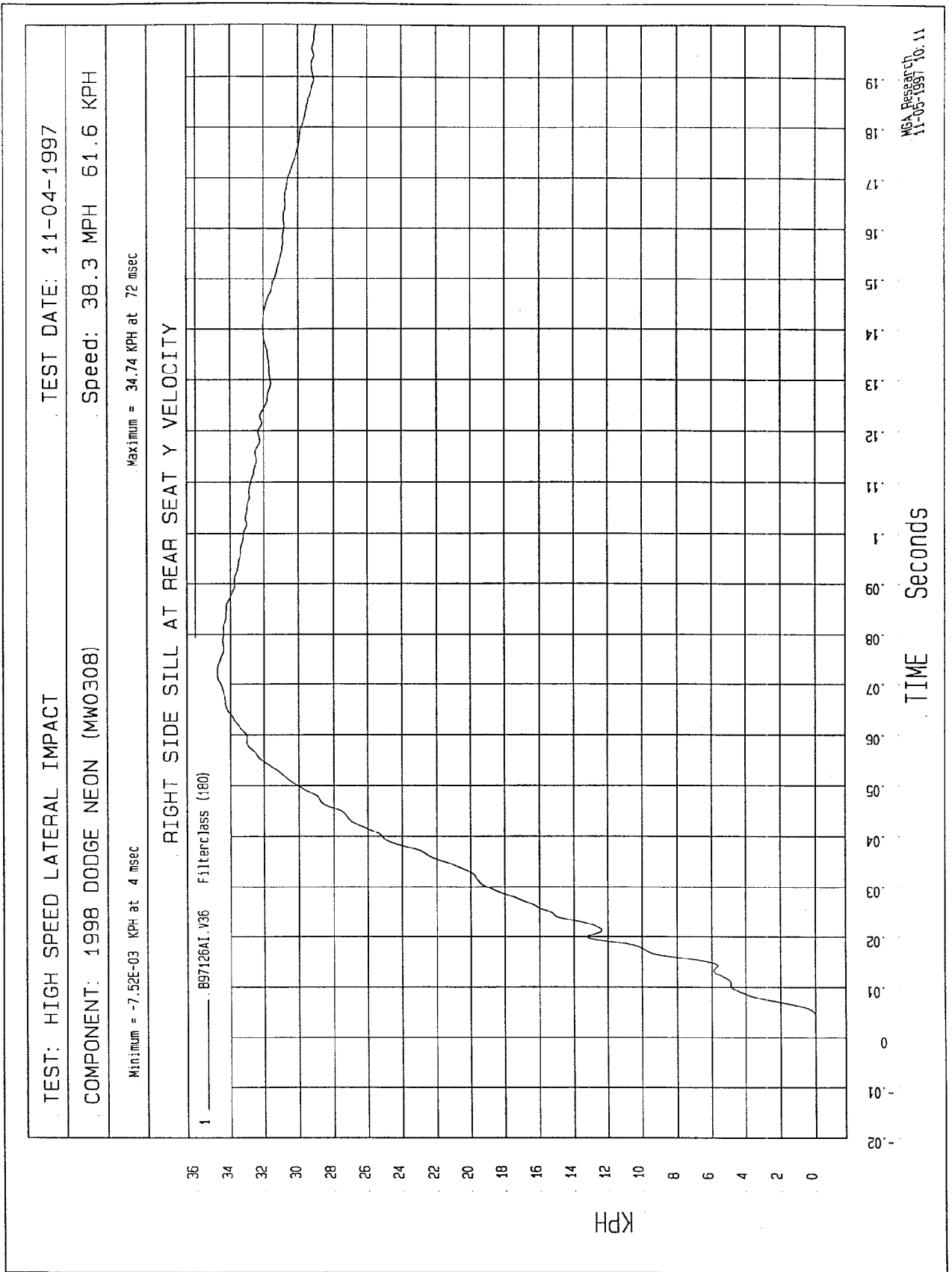
Minimum = -1.29 KPH at 130 msec Maximum = .61 KPH at 72 msec

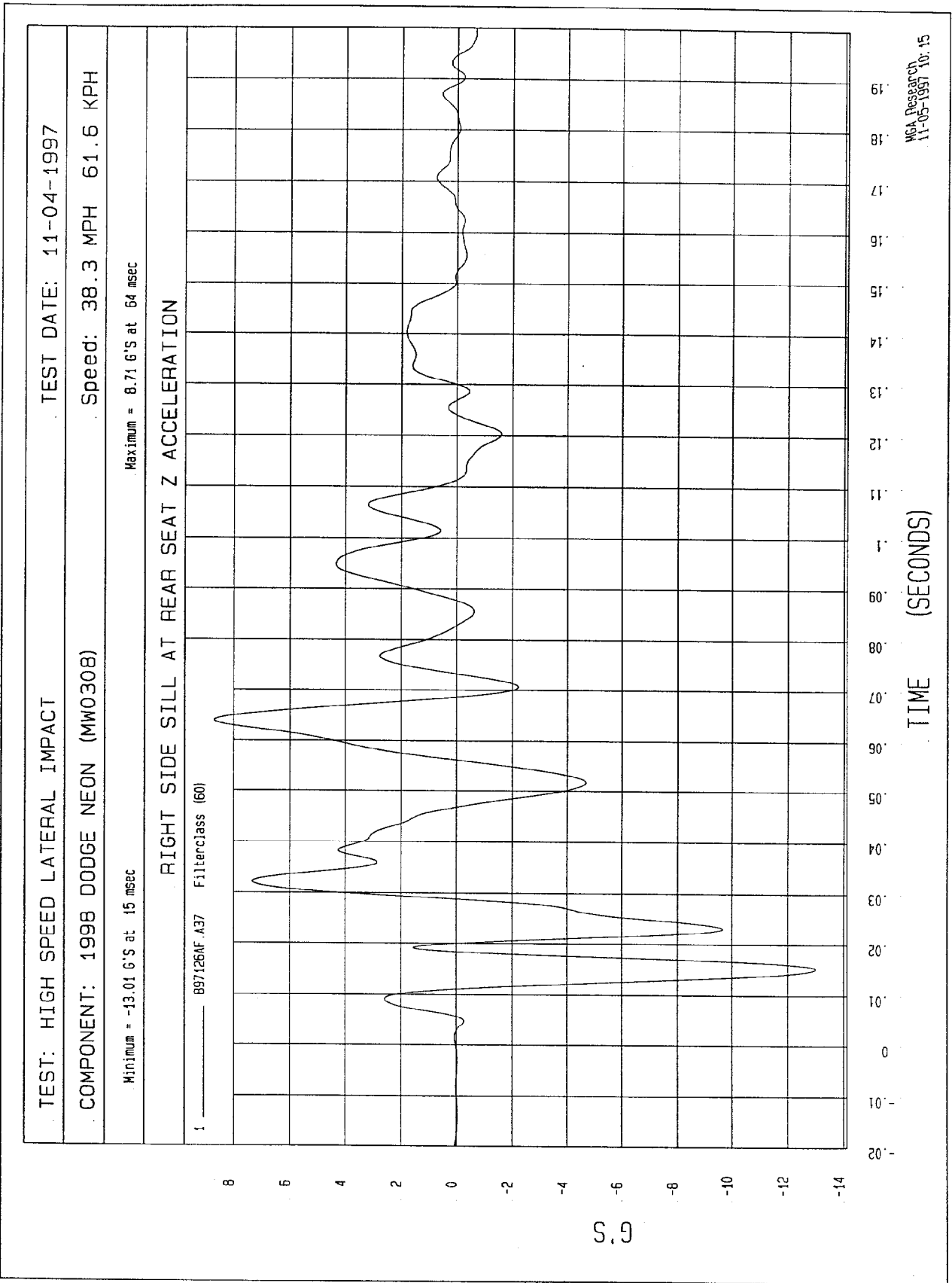
RIGHT SIDE SILL AT REAR SEAT X VELOCITY

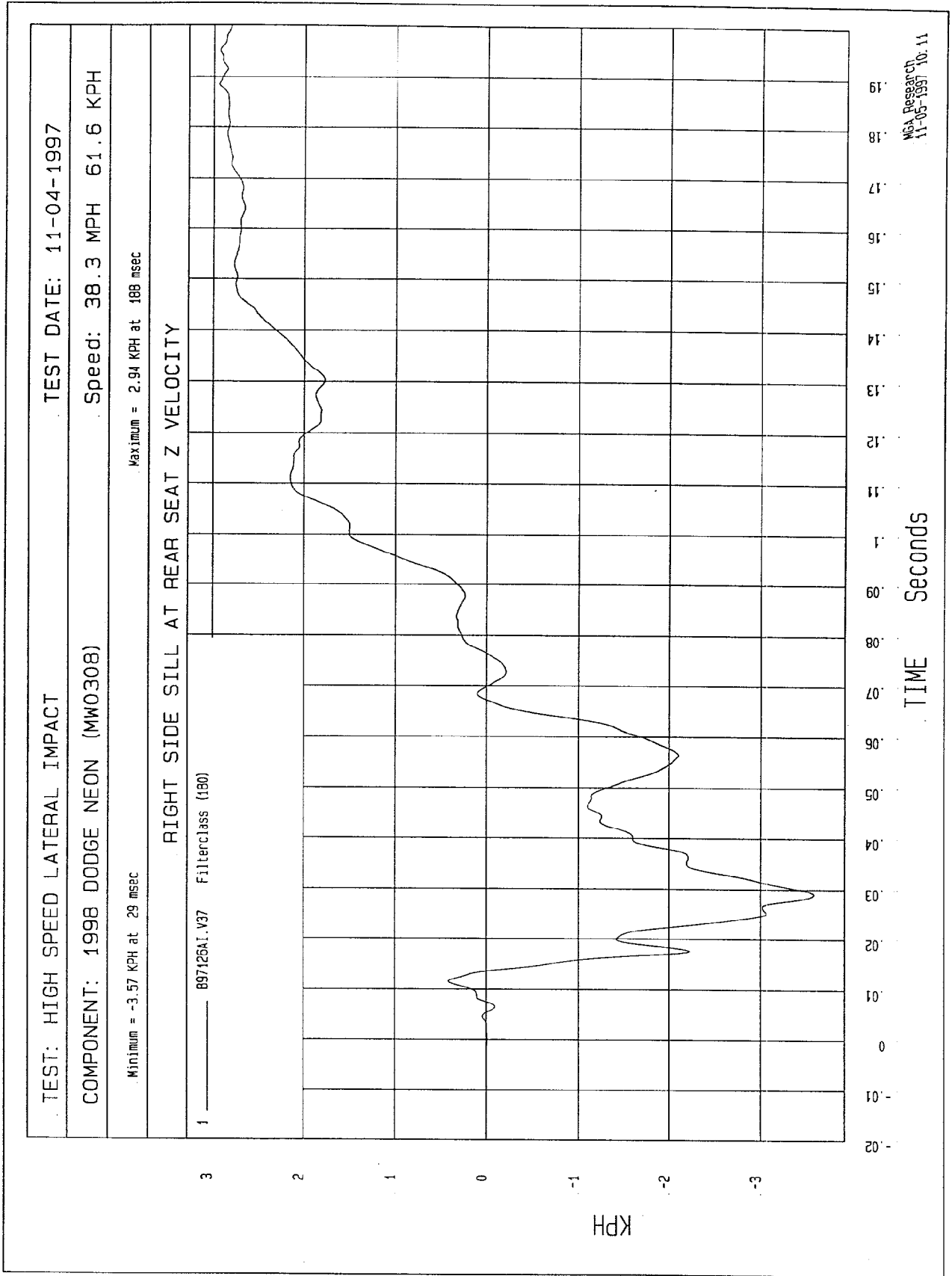


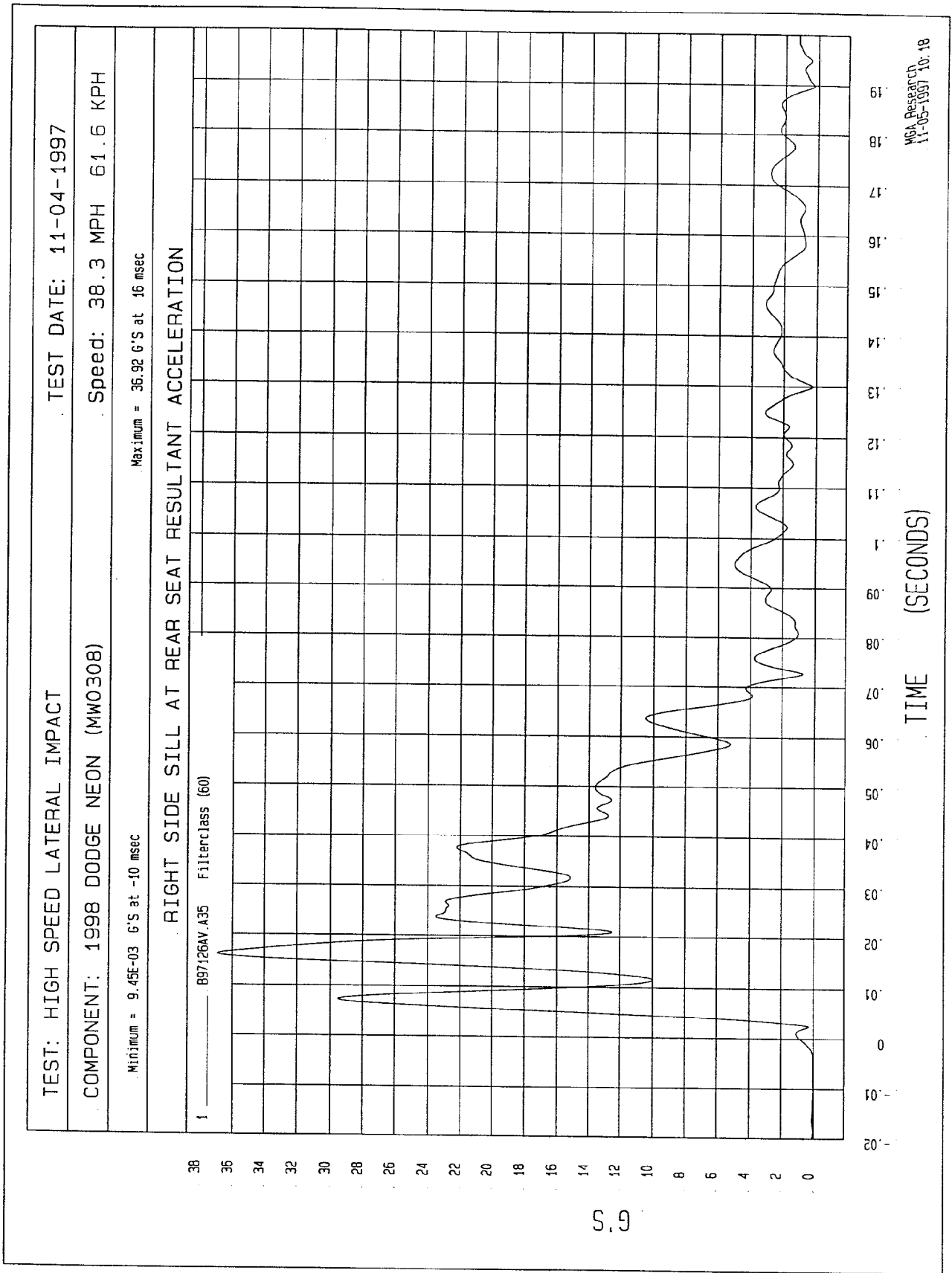
TIME Seconds
MCA Research
11-05-1997 10:11

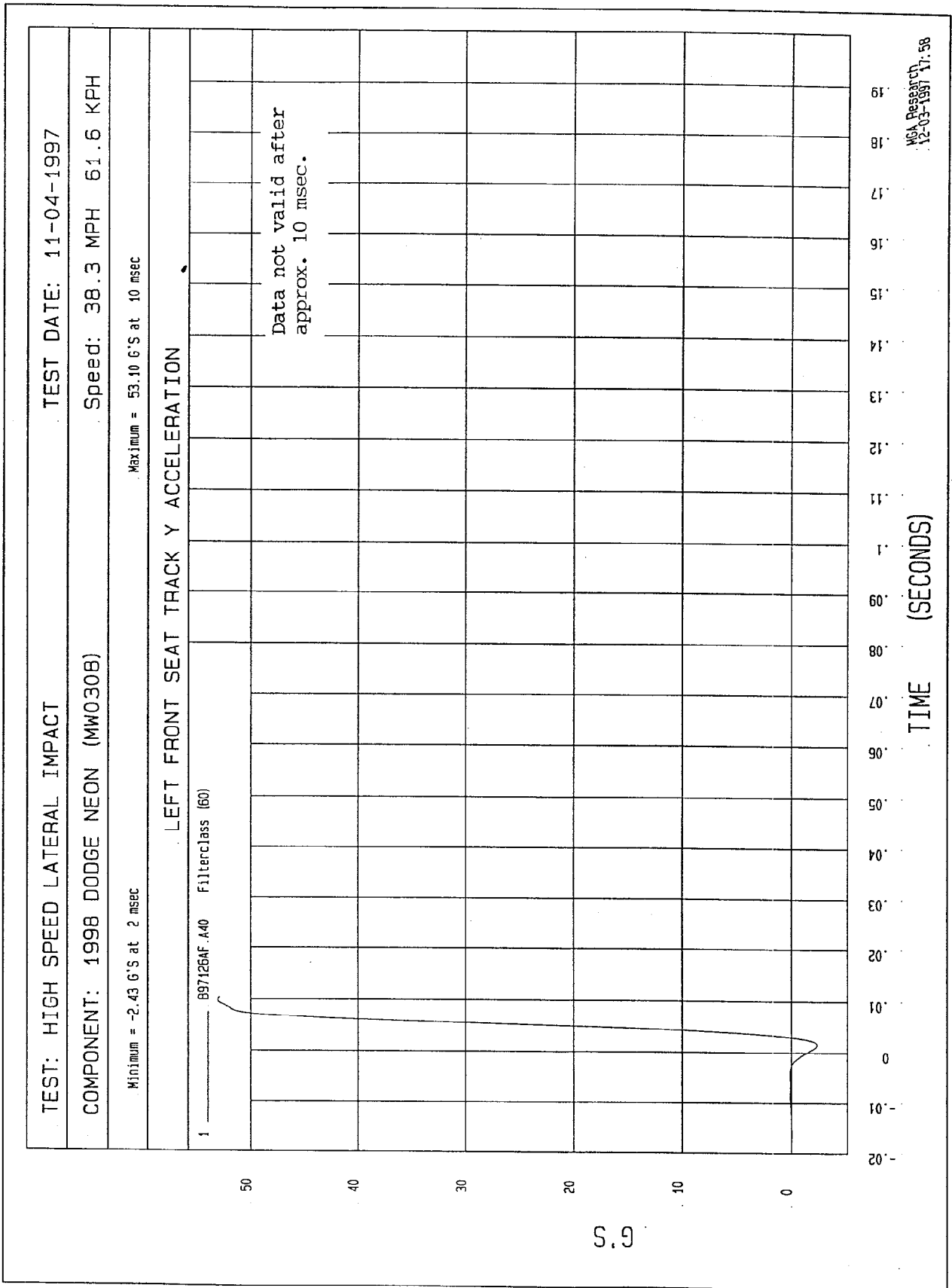












TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

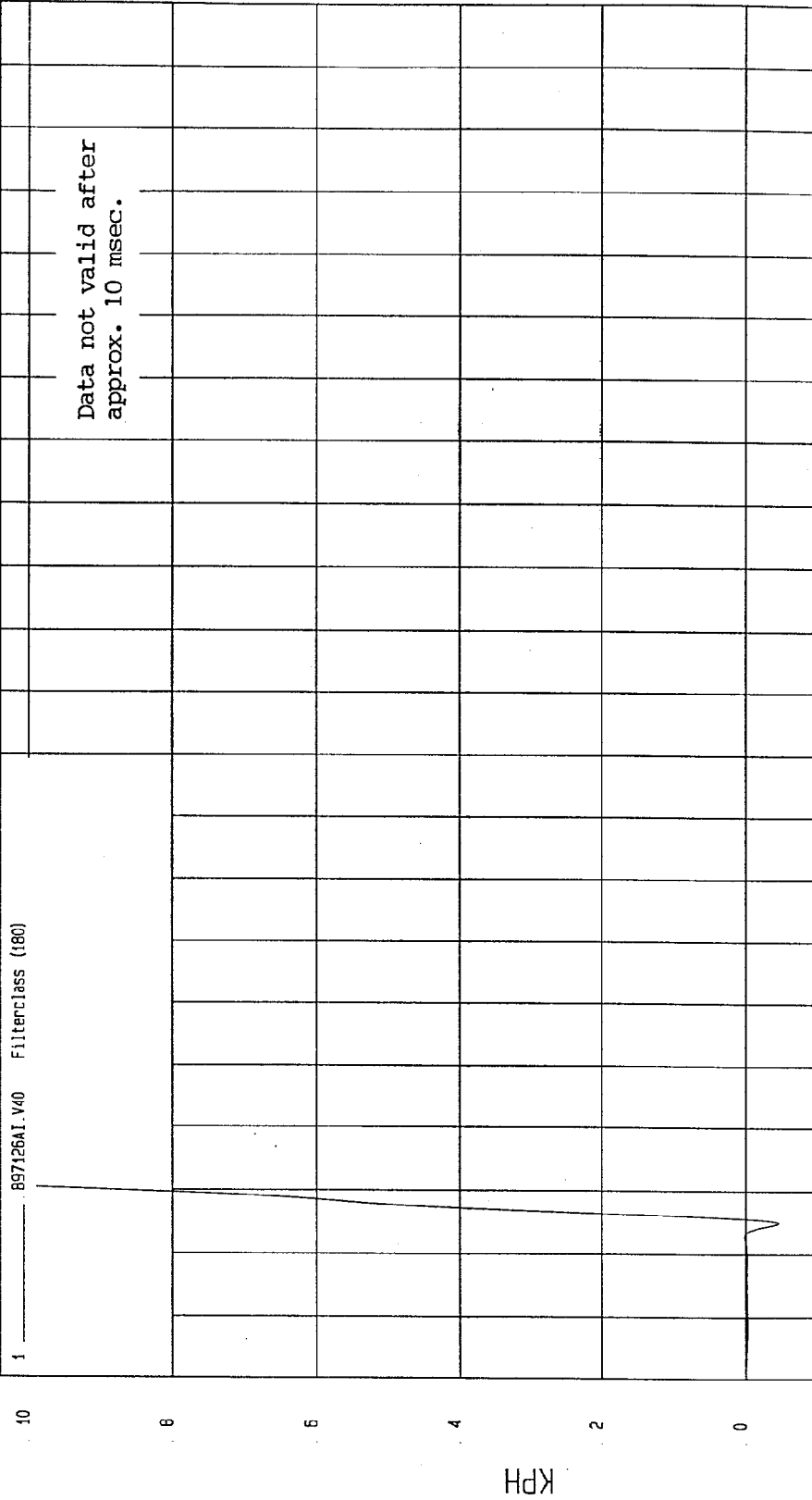
Speed: 38.3 MPH 61.6 KPH

COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 9.89 KPH at 10 msec

Minimum = -.46 KPH at 5 msec

LEFT FRONT SEAT TRACK Y VELOCITY

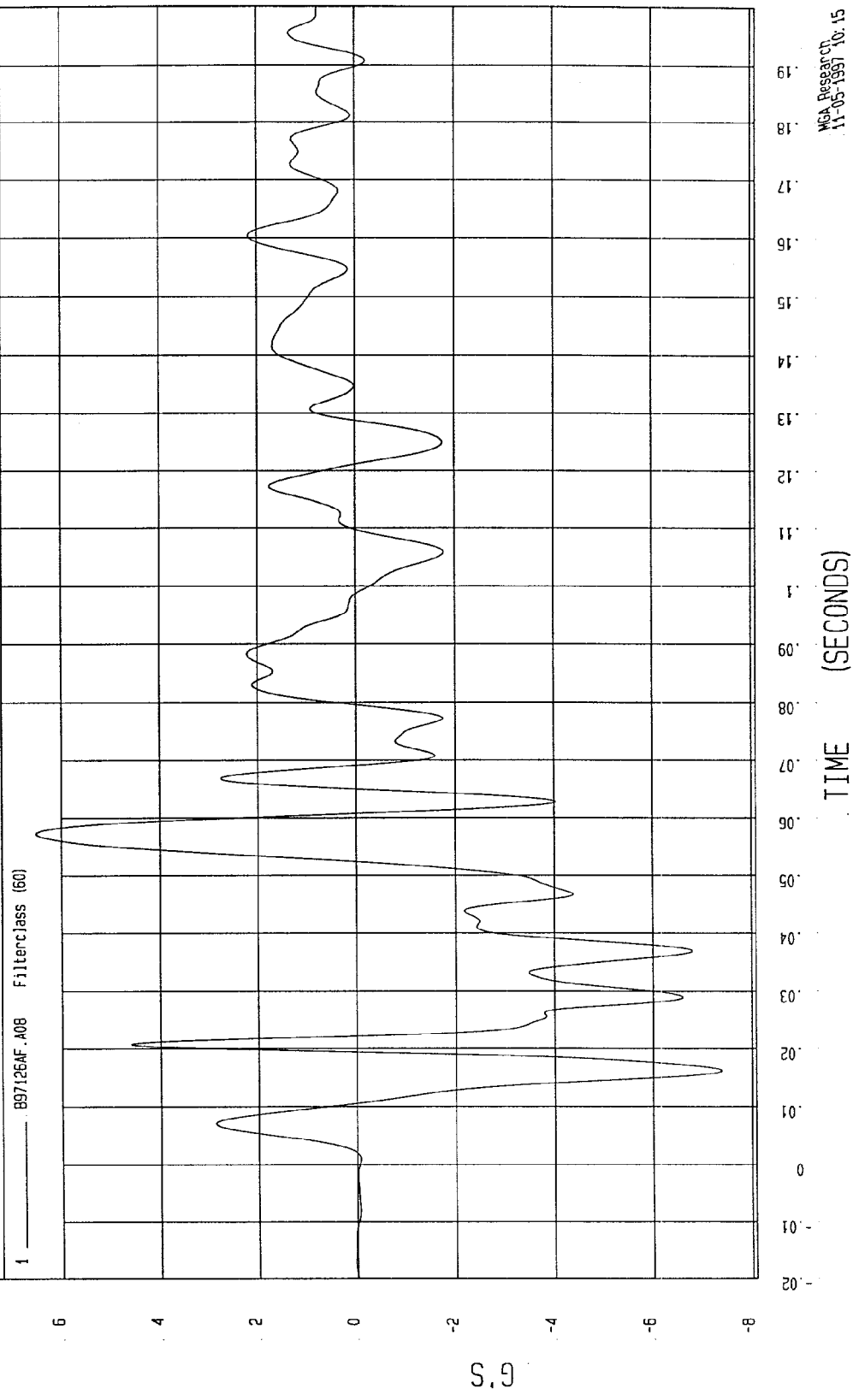


TIME Seconds

MCA Research
12-03-1997 17:58

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997
COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH
Minimum = -7.39 G'S at .16 msec Maximum = 6.52 G'S at 57 msec

REAR FLOORPAN ABOVE AXLE X ACCELERATION



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308)

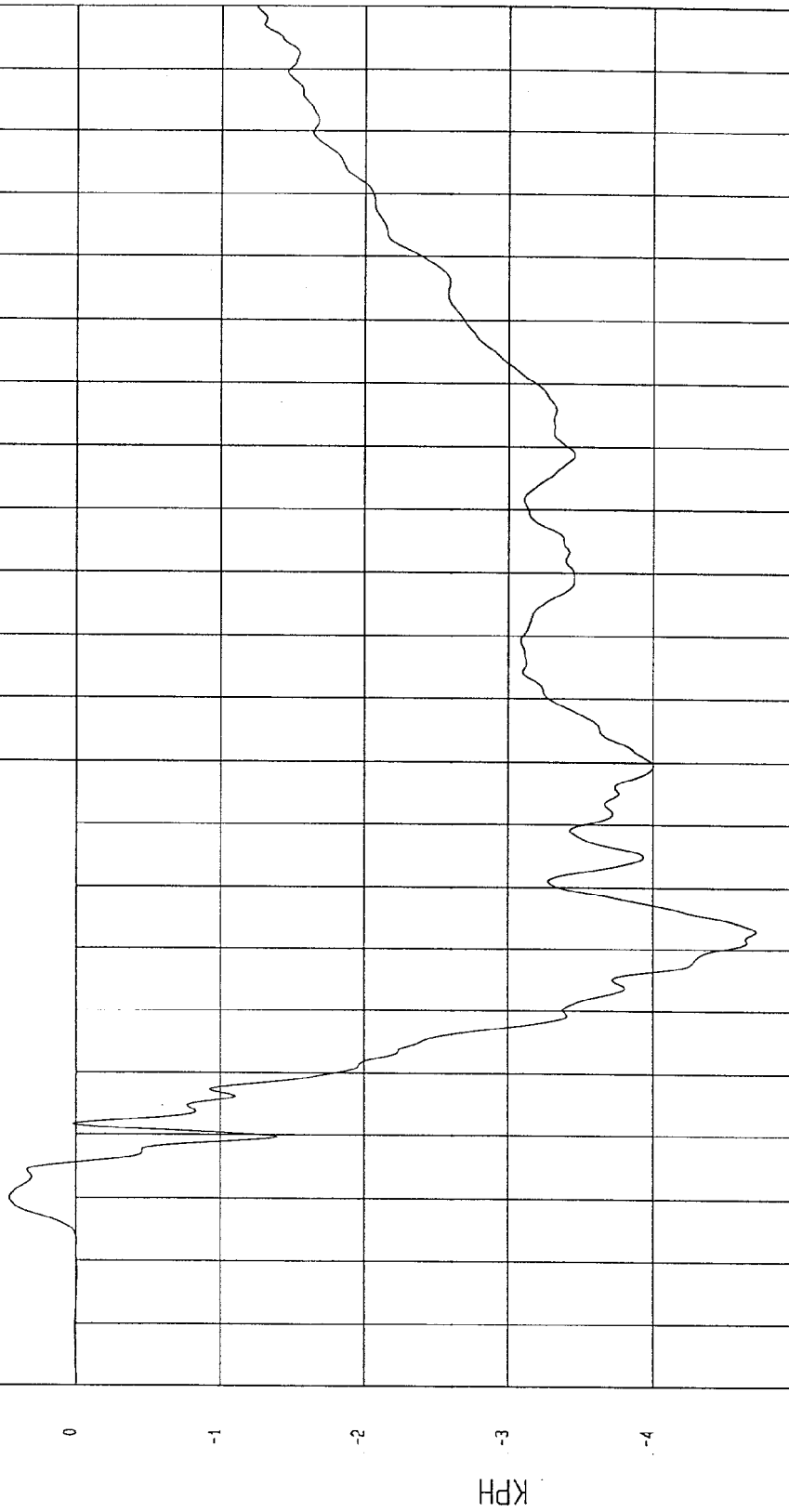
Speed: 38.3 MPH 61.6 KPH

Minimum = -4.71 KPH at 53 msec

Maximum = .46 KPH at 10 msec

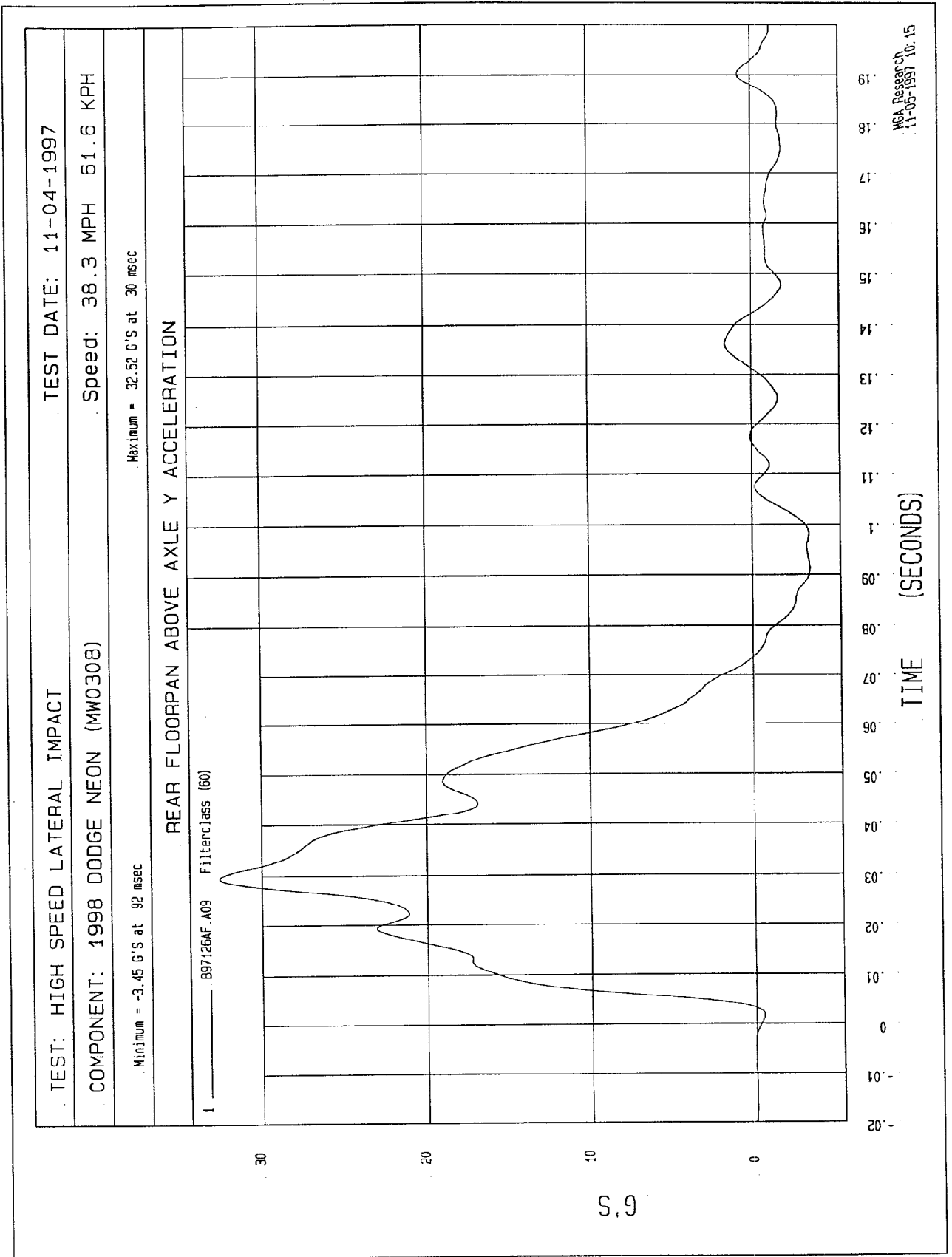
REAR FLOORPAN ABOVE AXLE X VELOCITY

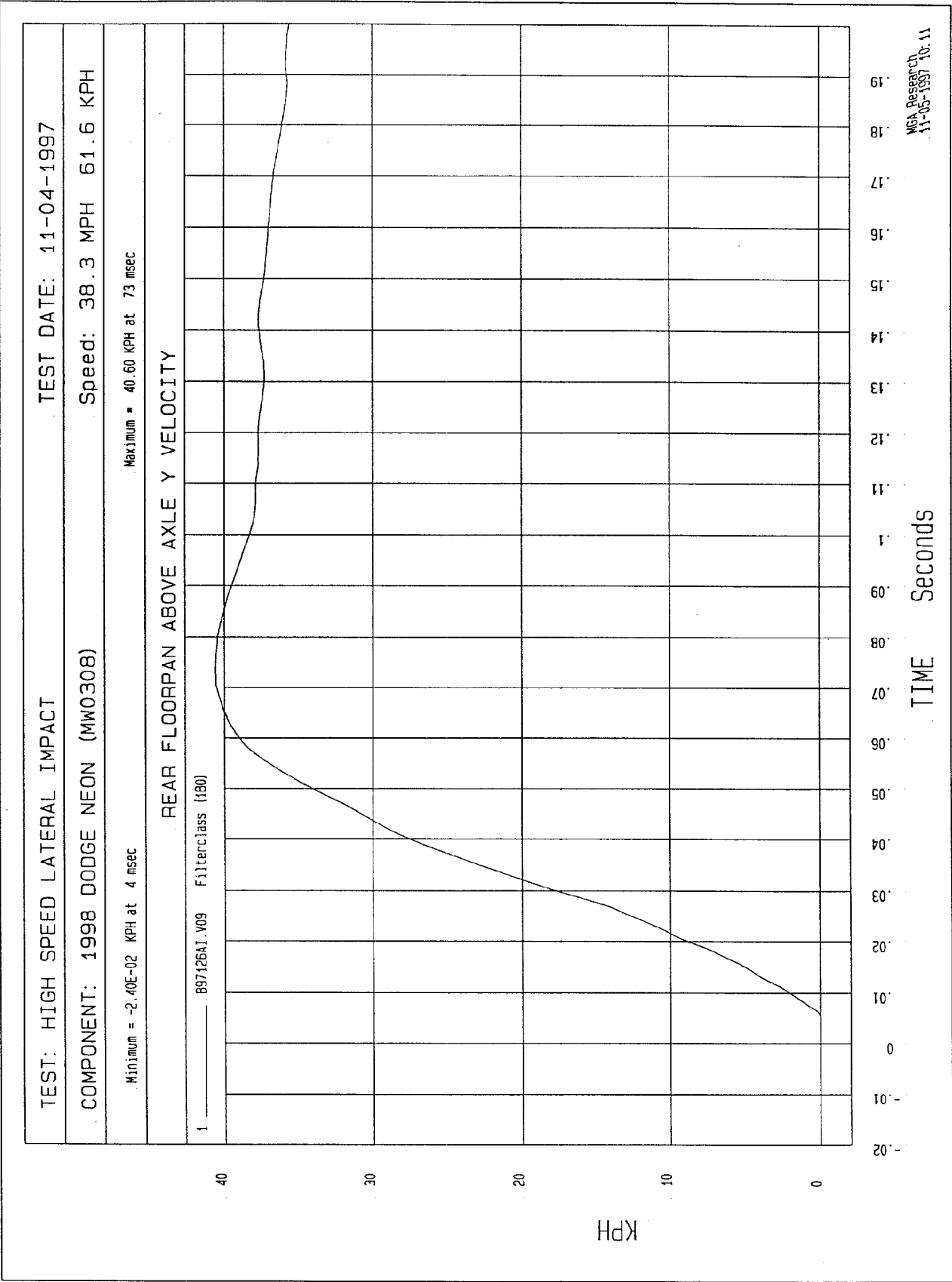
1 ——— 897126A1.V08 Filterclass (180)

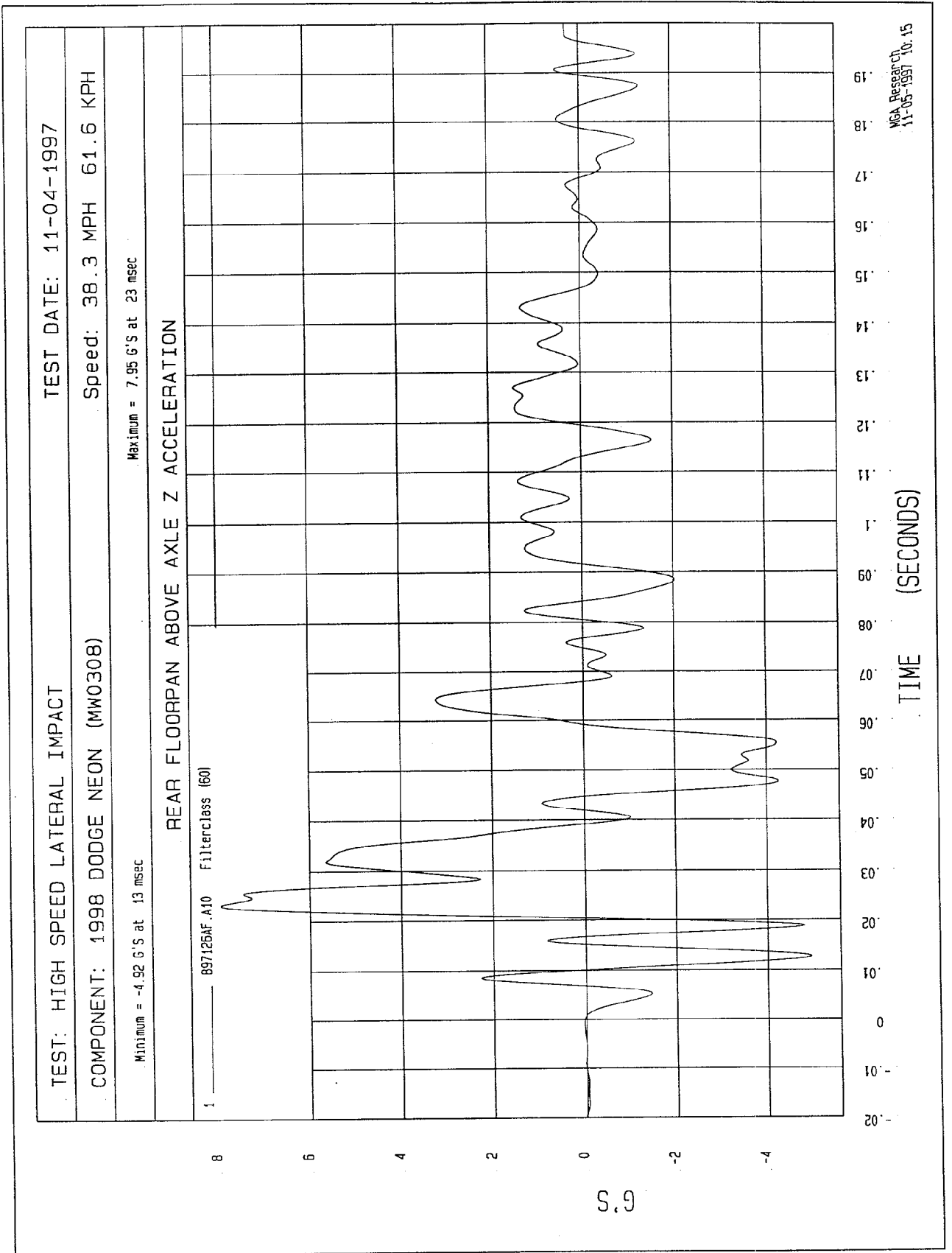


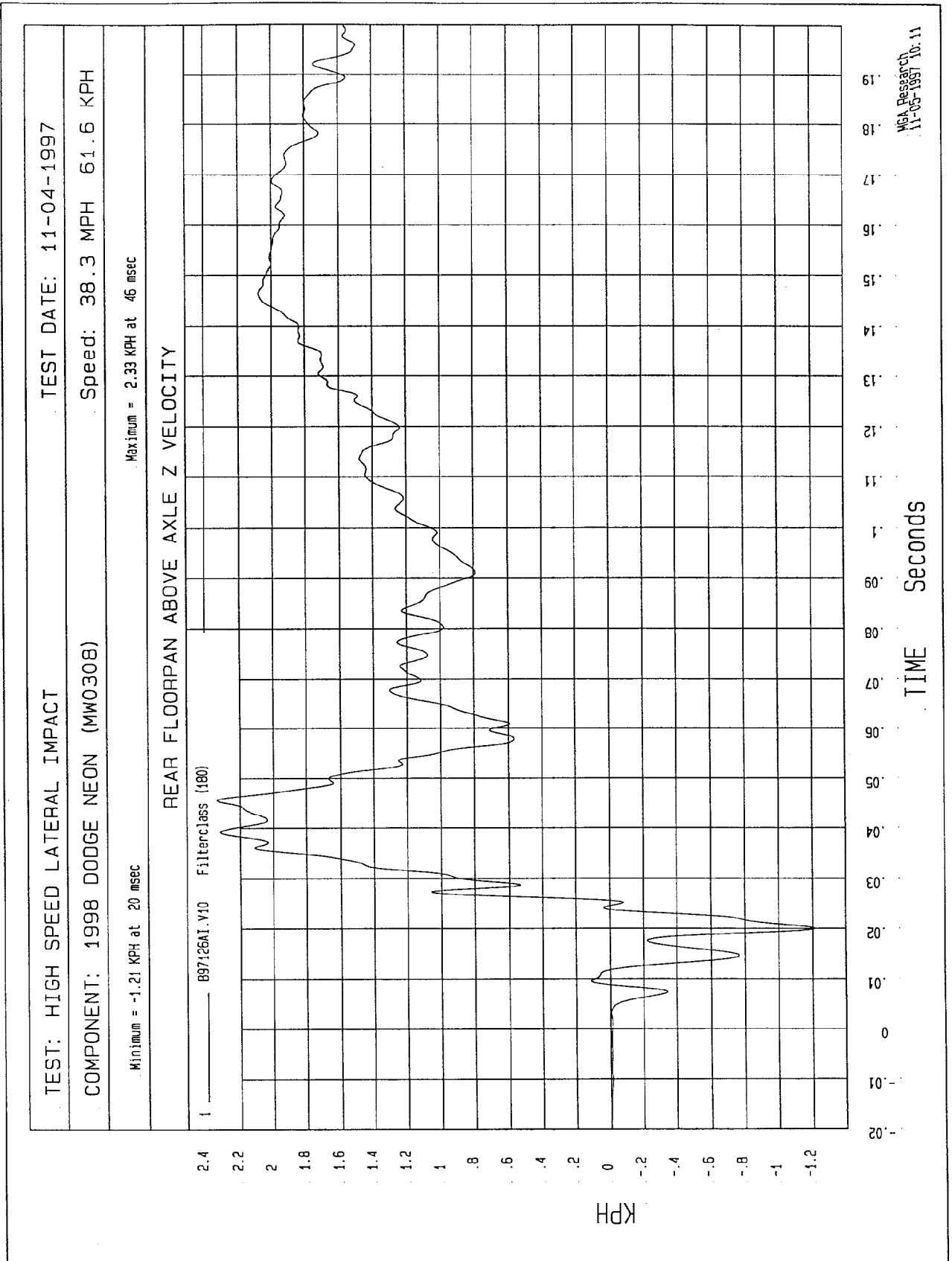
TIME Seconds

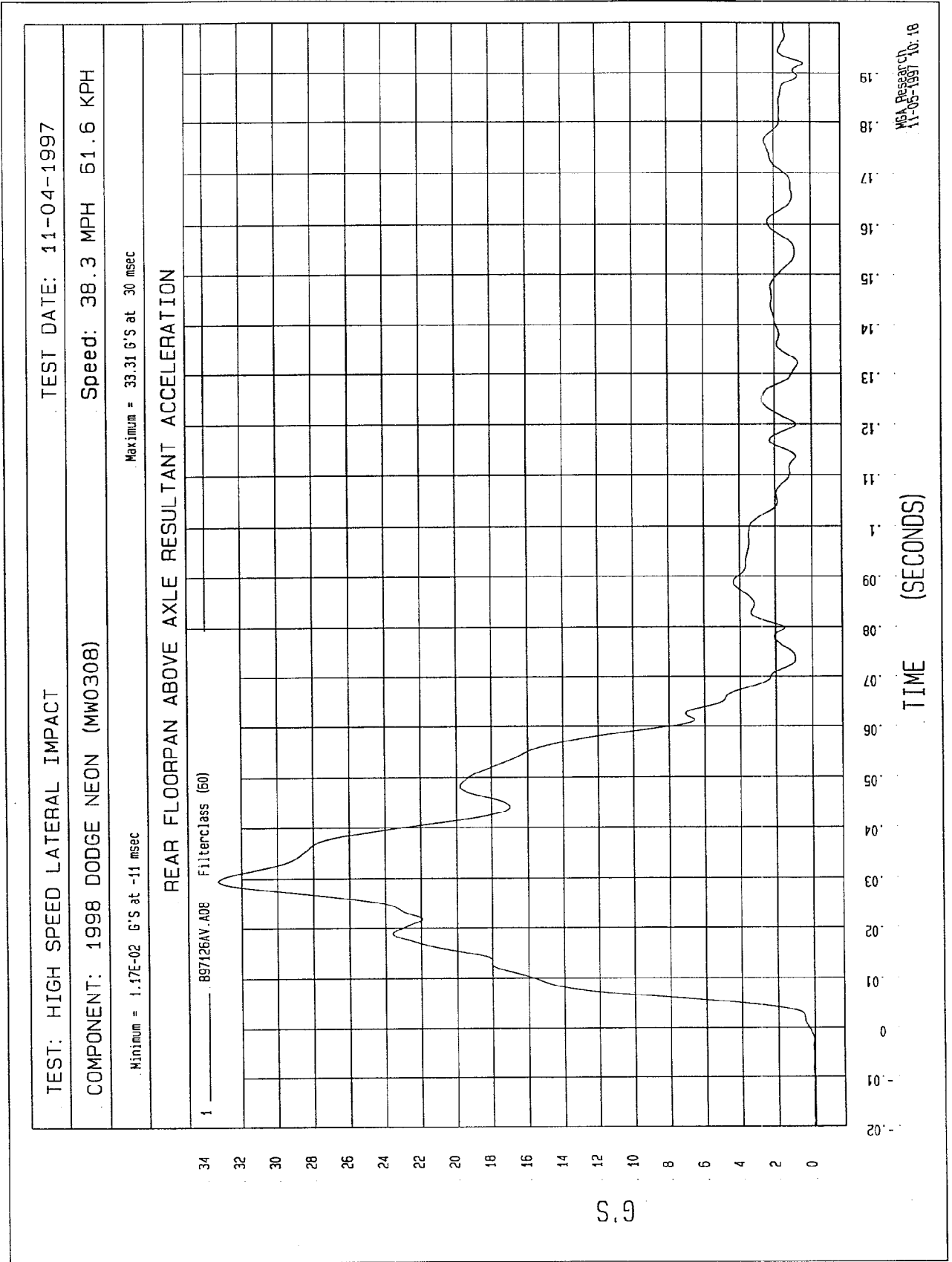
W&A Research
11-05-1997 10:11

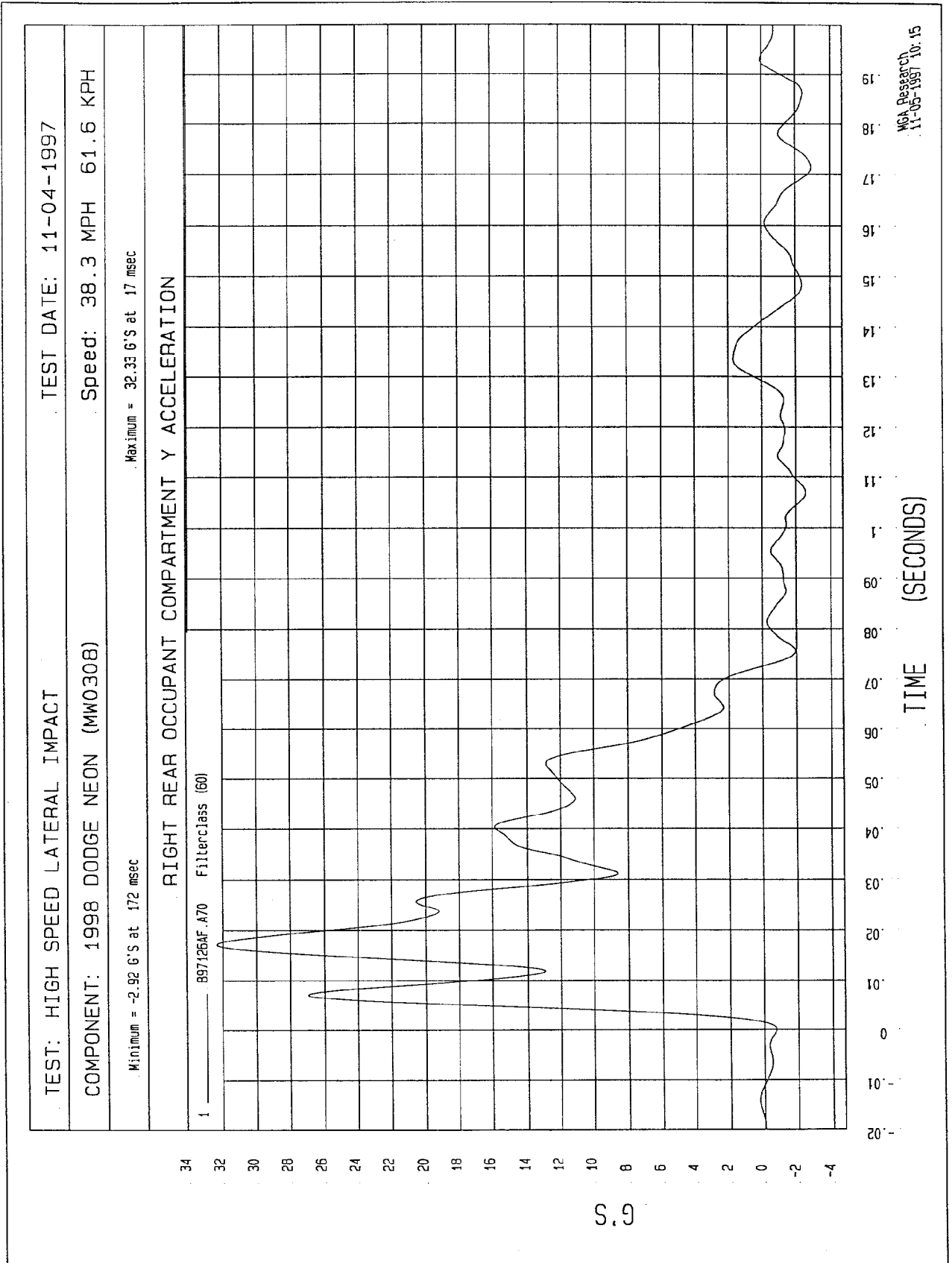










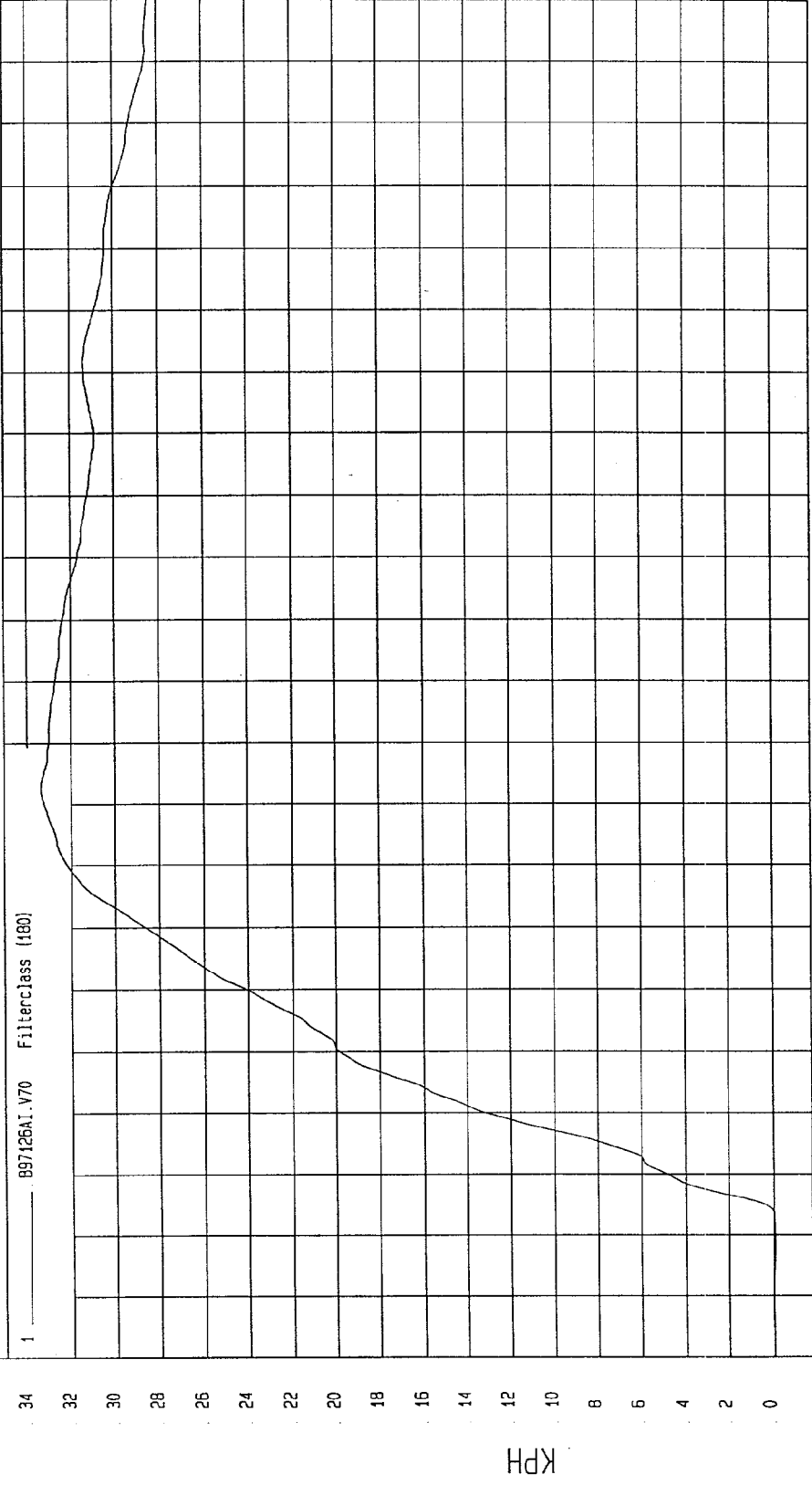


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -6.62E-02 KPH at -2 msec Maximum = 33.37 KPH at 72 msec

RIGHT REAR OCCUPANT COMPARTMENT Y VELOCITY

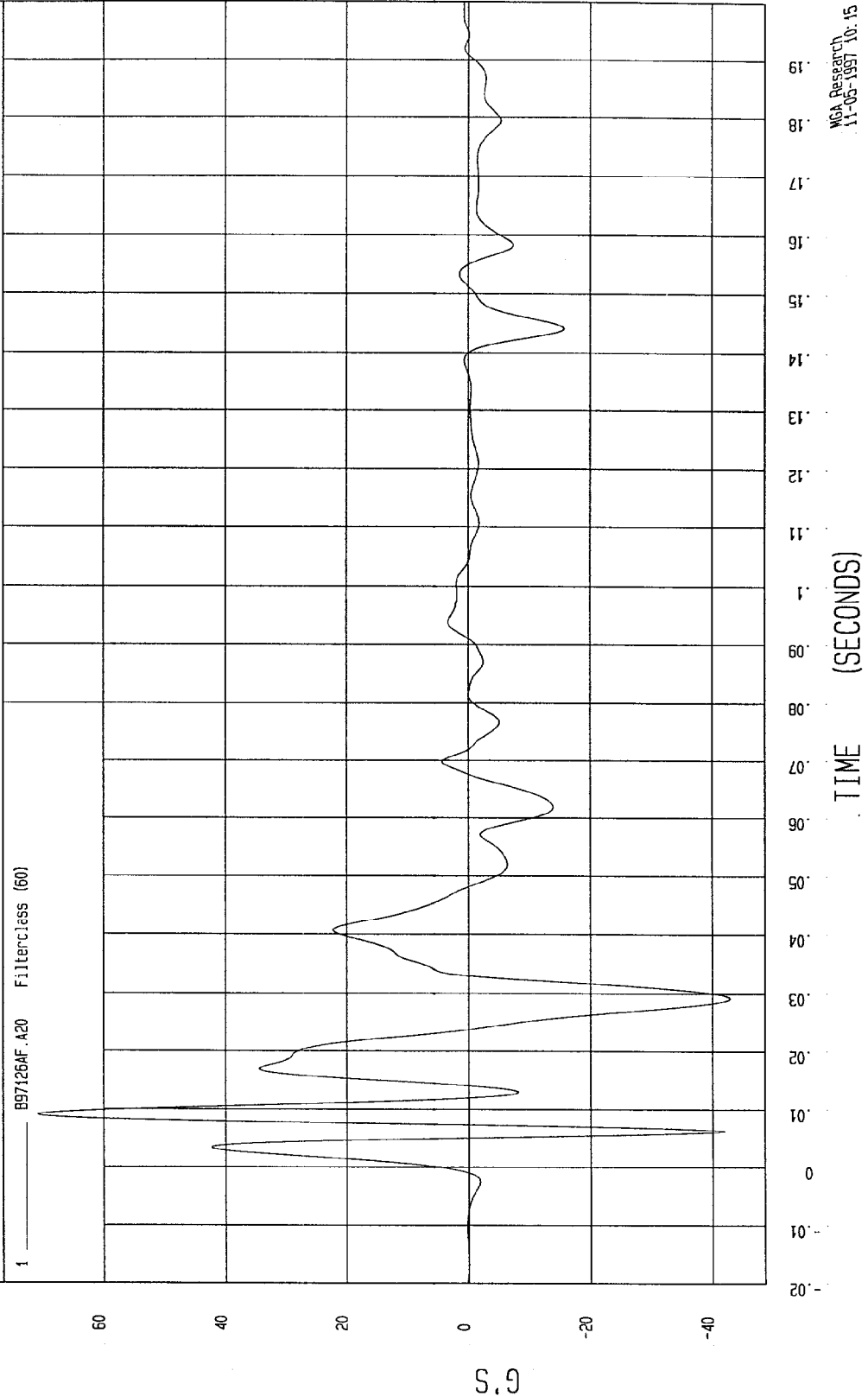


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -42.83 G'S at 29 msec Maximum = 70.73 G'S at 9 msec

LEFT LOWER A-POST Y ACCELERATION

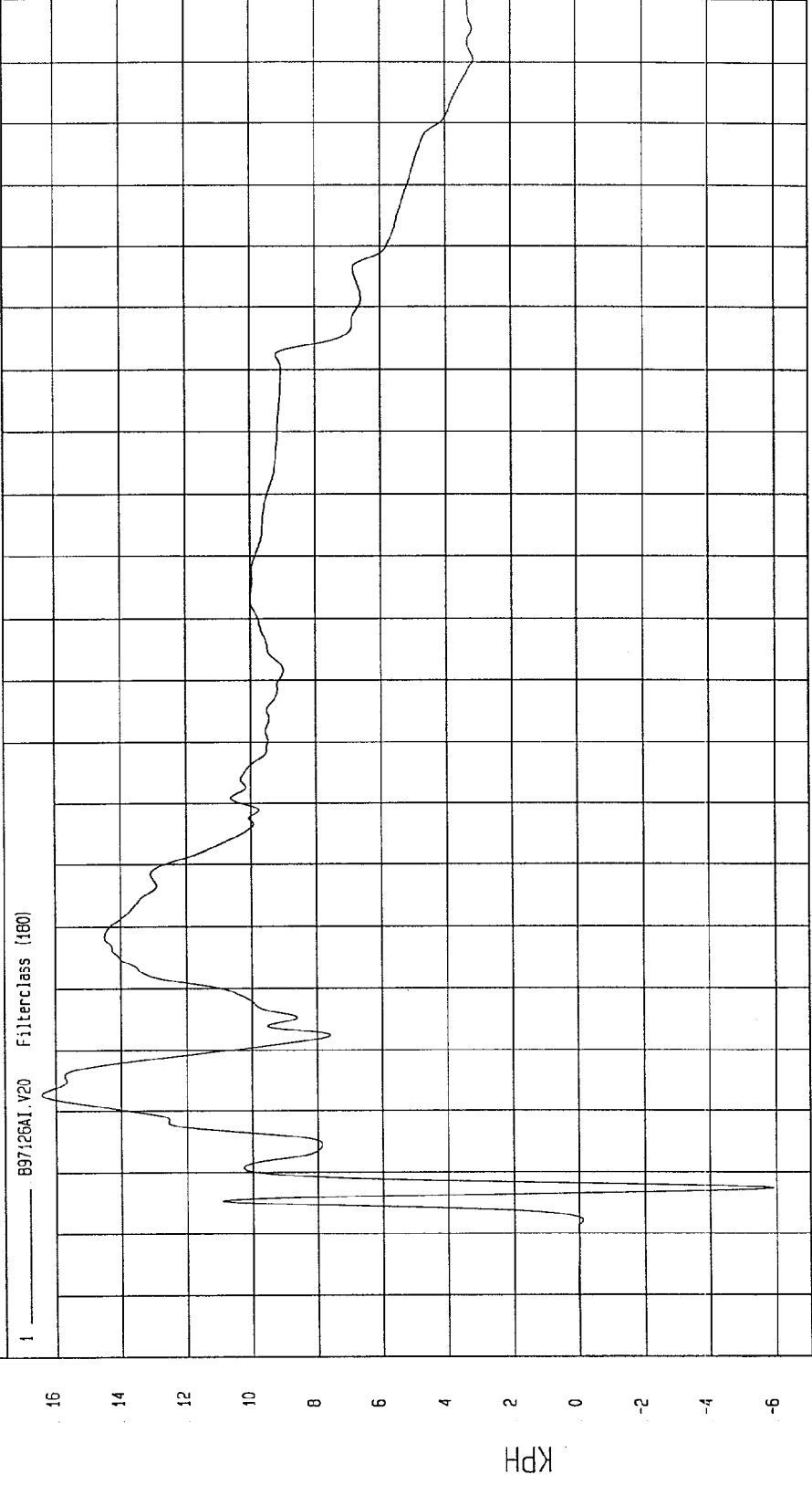


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

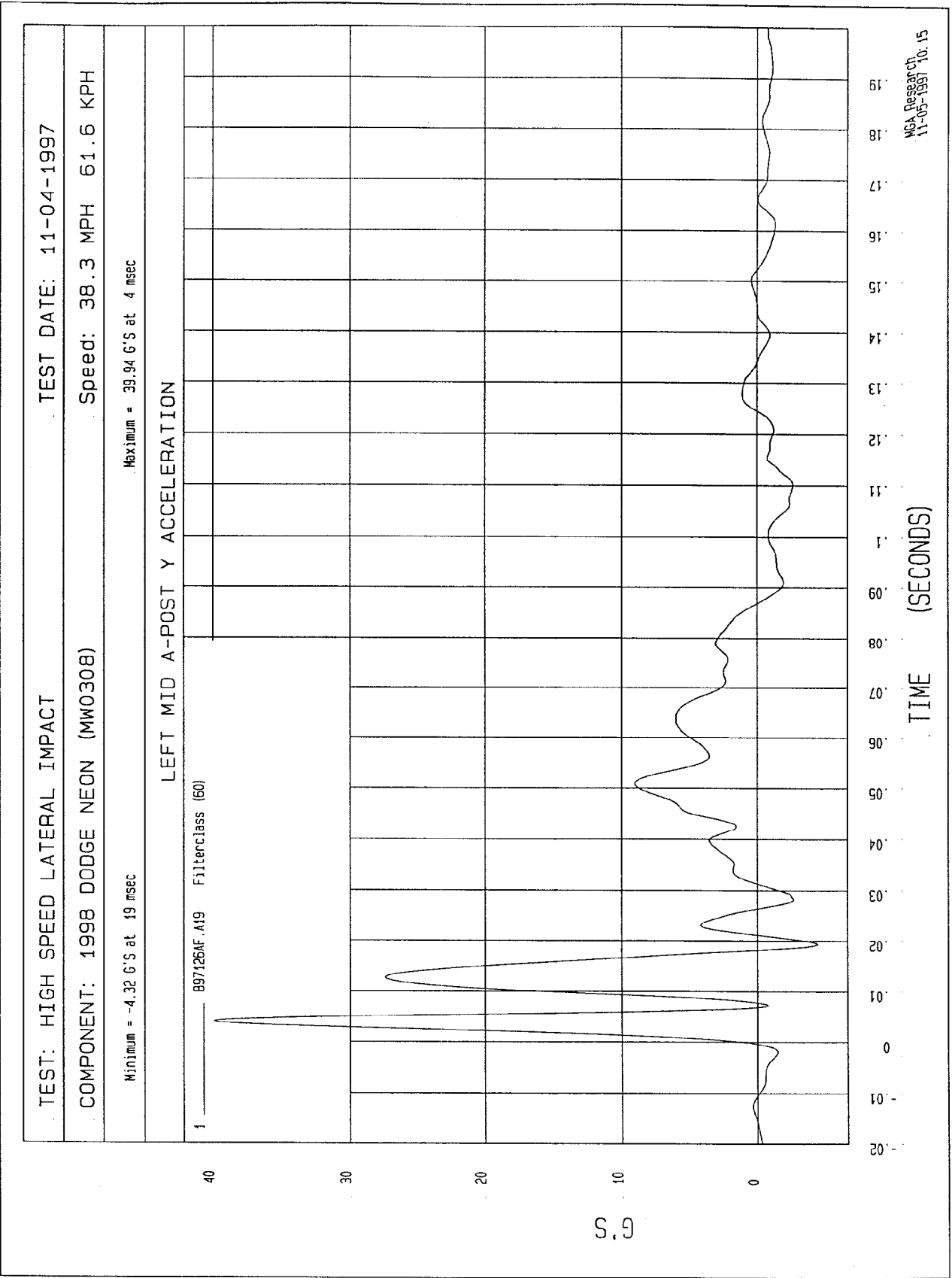
Minimum = -5.91 KPH at 7 msec Maximum = 16.43 KPH at 23 msec

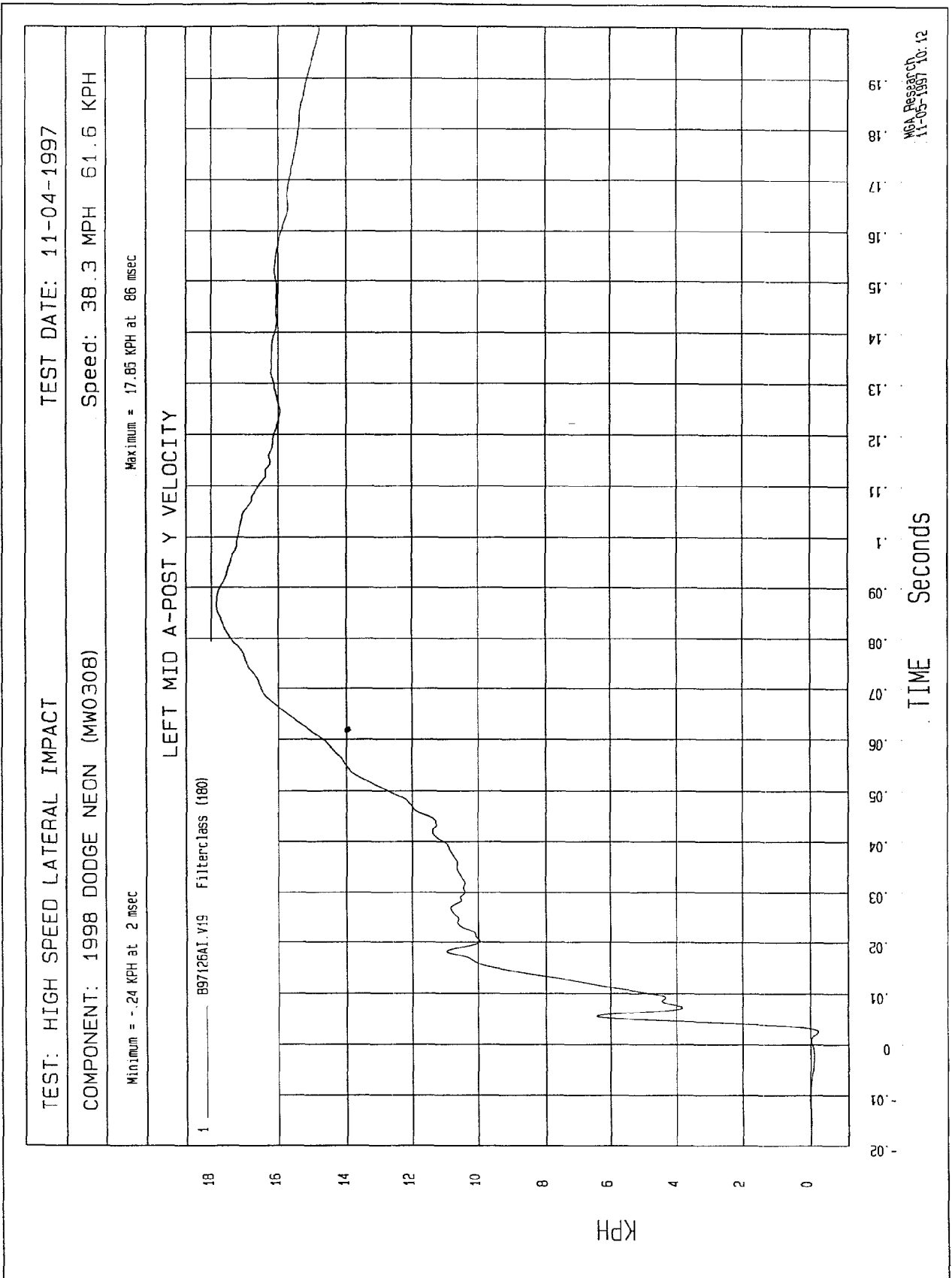
LEFT LOWER A-POST Y VELOCITY

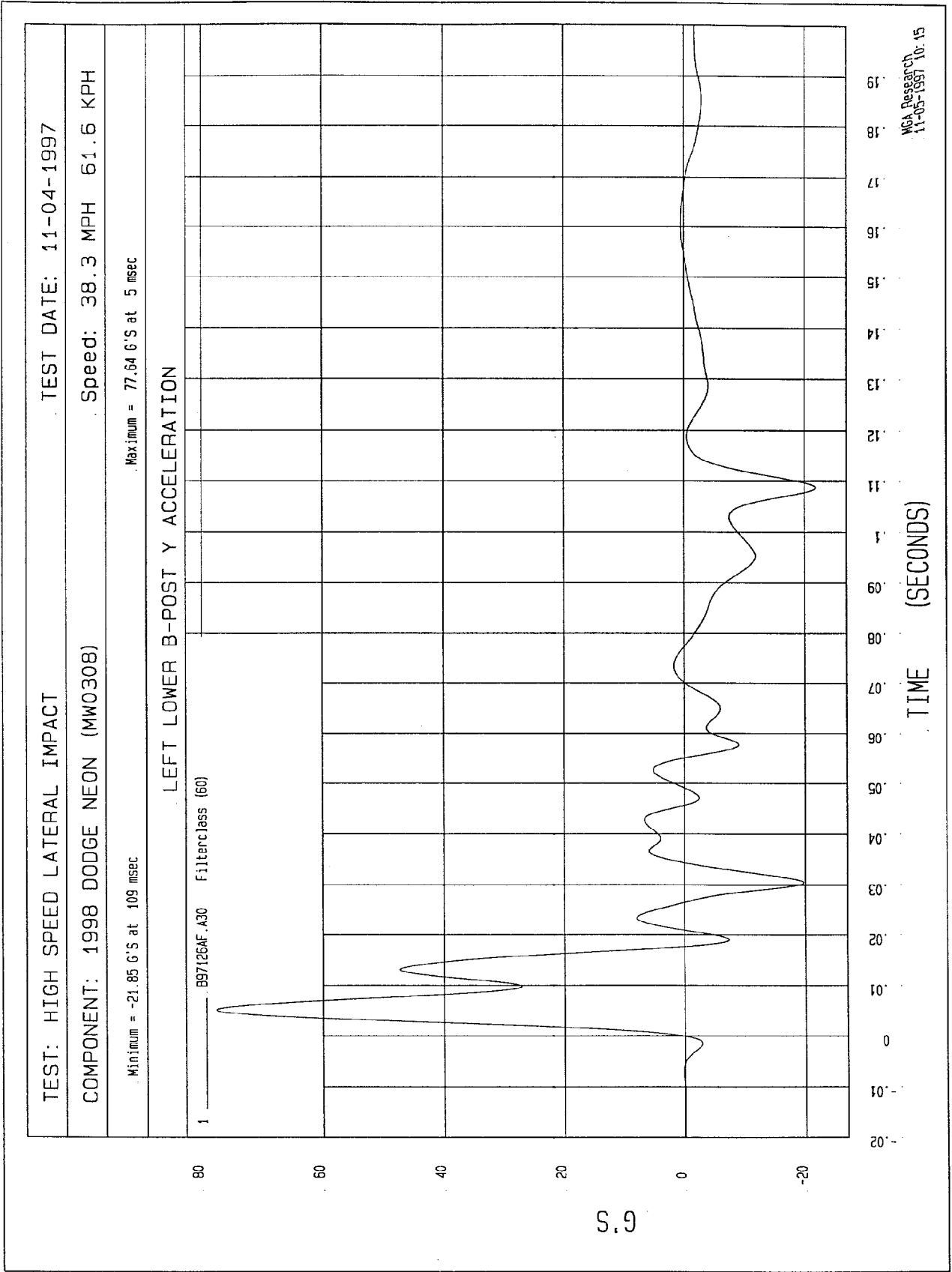


TIME Seconds

MCA Research
11-05-1997 10.12







TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

SPEED: 38.3 MPH 61.6 KPH

COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 25.35 KPH at 29 msec

Minimum = -9.44E-02 KPH at 2 msec

LEFT LOWER B-POST Y VELOCITY



TIME Seconds

NCA Research
11-05-1997 10:12

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

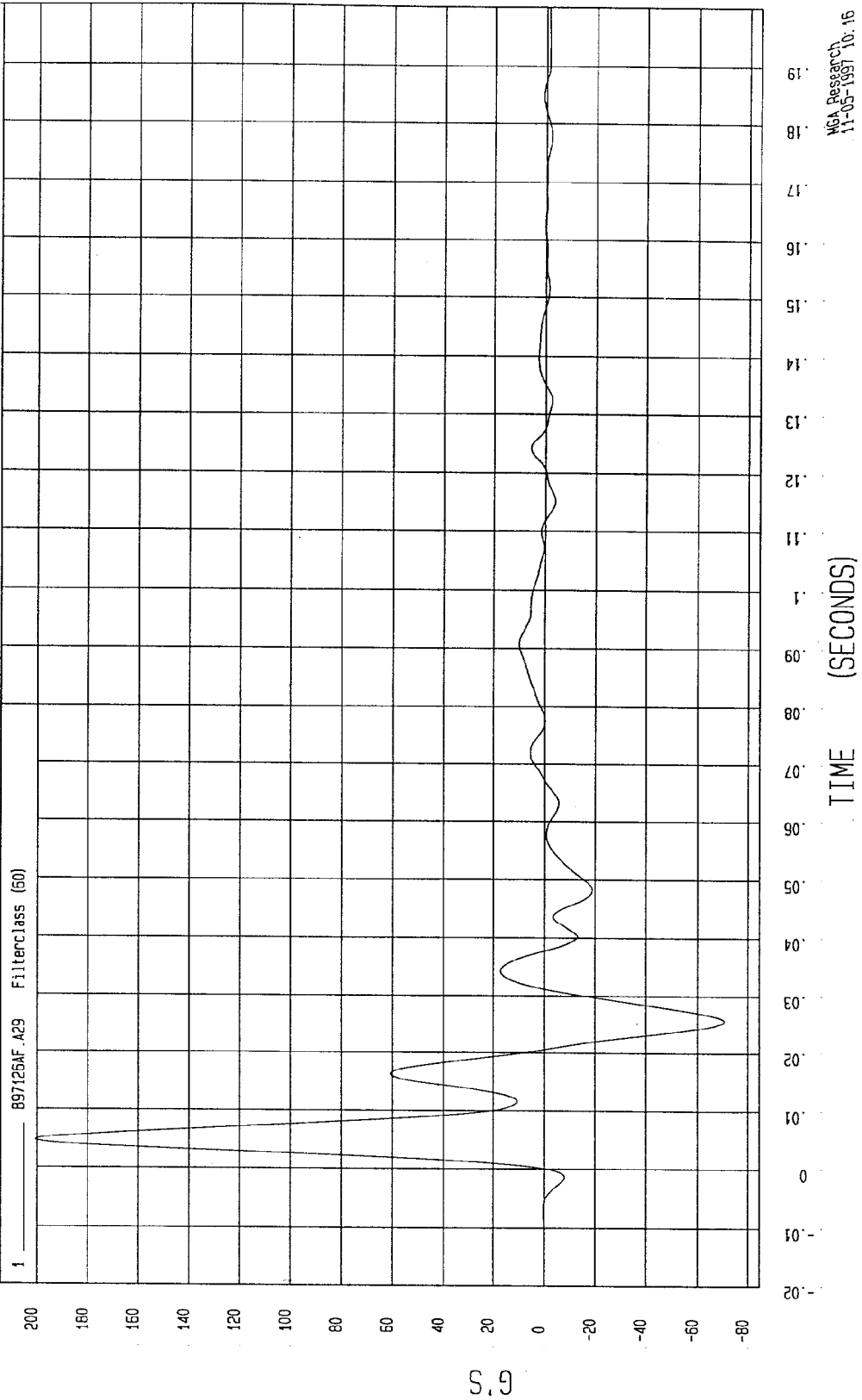
Speed: 38.3 MPH 61.6 KPH

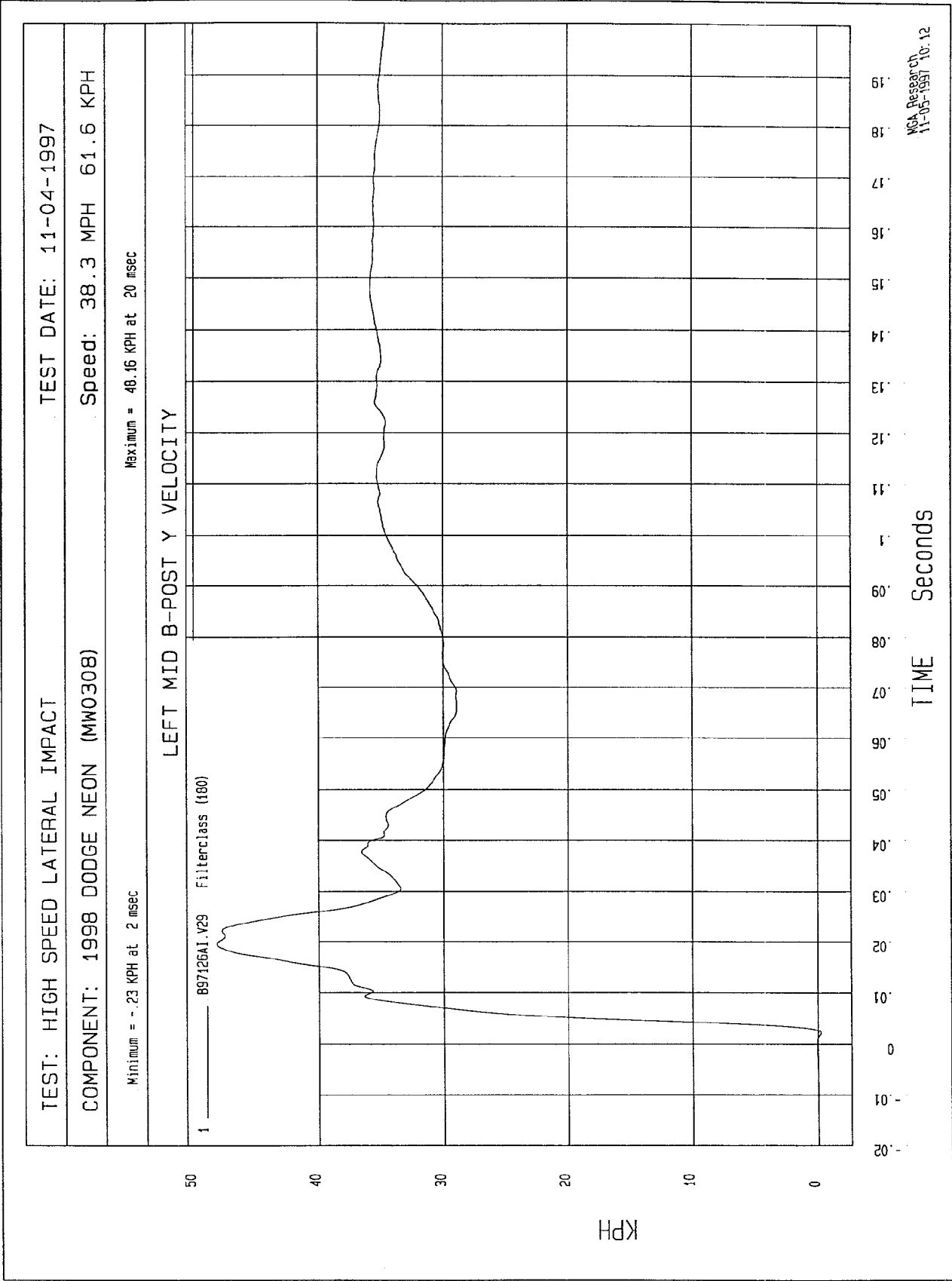
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 200.66 G'S at 5 msec

Minimum = -70.71 G'S at 26 msec

LEFT MID B-POST Y ACCELERATION





TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

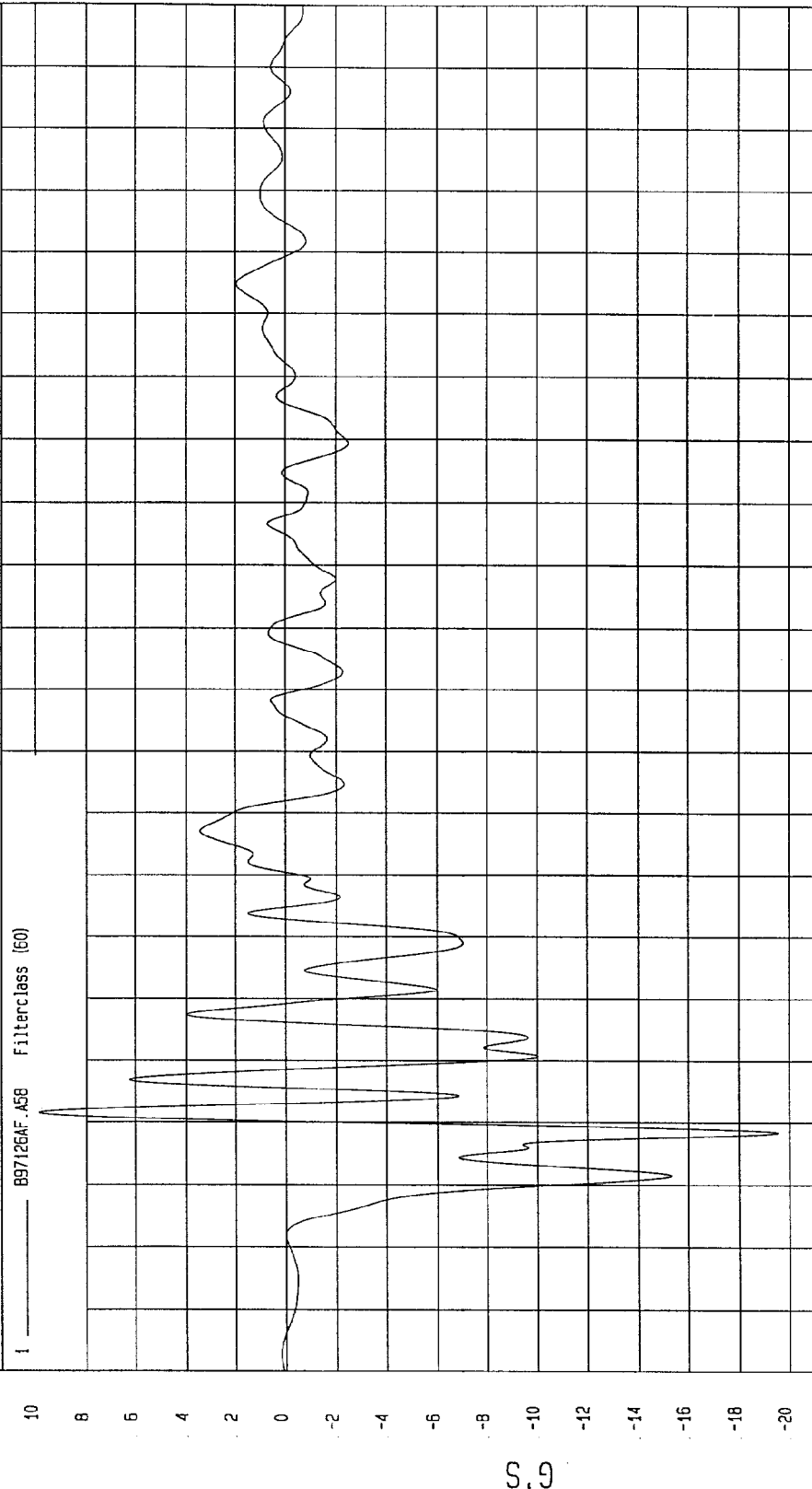
Speed: 38.3 MPH 61.6 KPH

COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 9.87 G'S at 22 msec

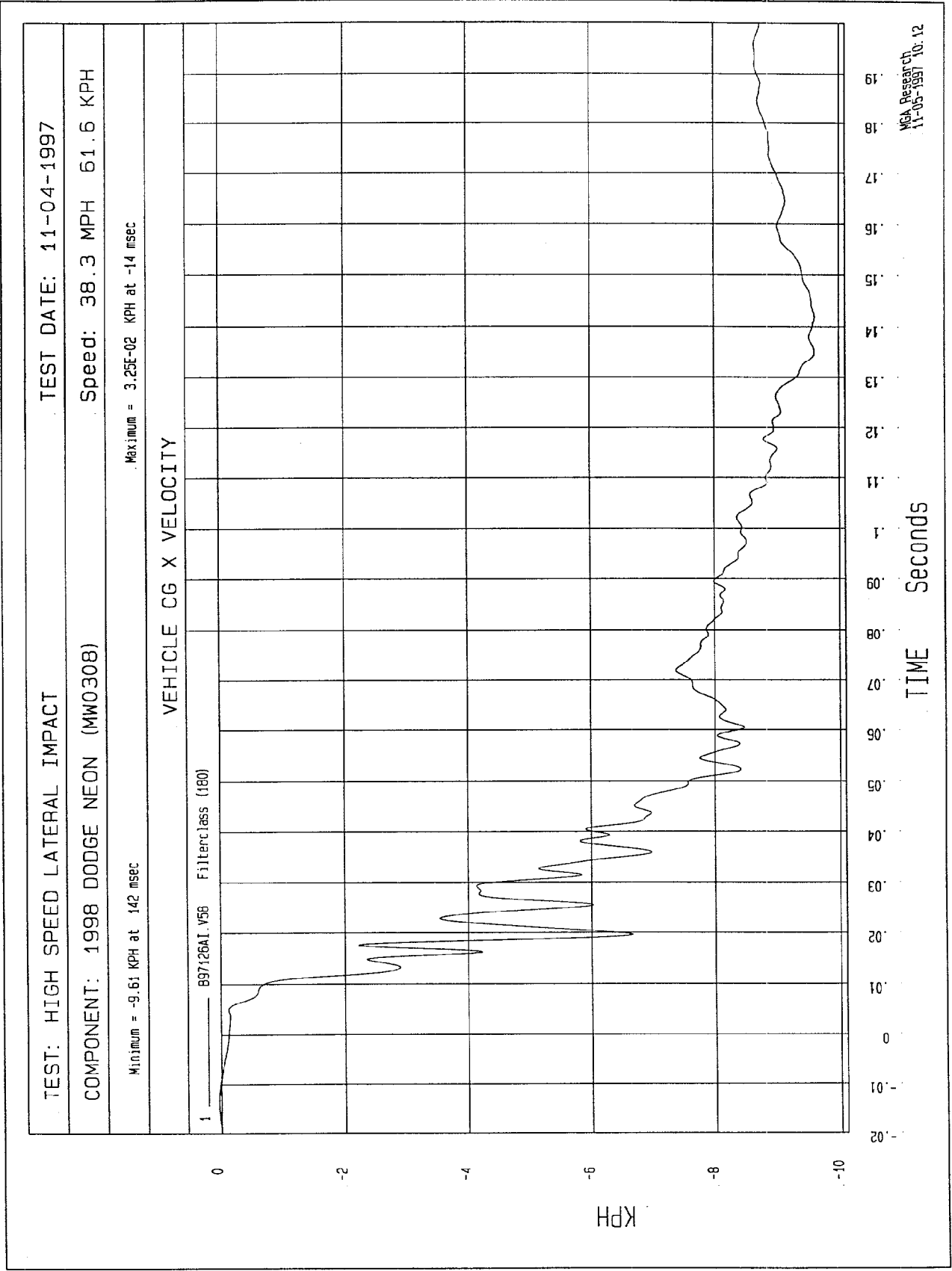
Minimum = -19.54 G'S at 18 msec

VEHICLE CG X ACCELERATION



TIME (SECONDS)

MECA Research
11-05-1997 10:16



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

Speed: 38.3 MPH 61.6 KPH

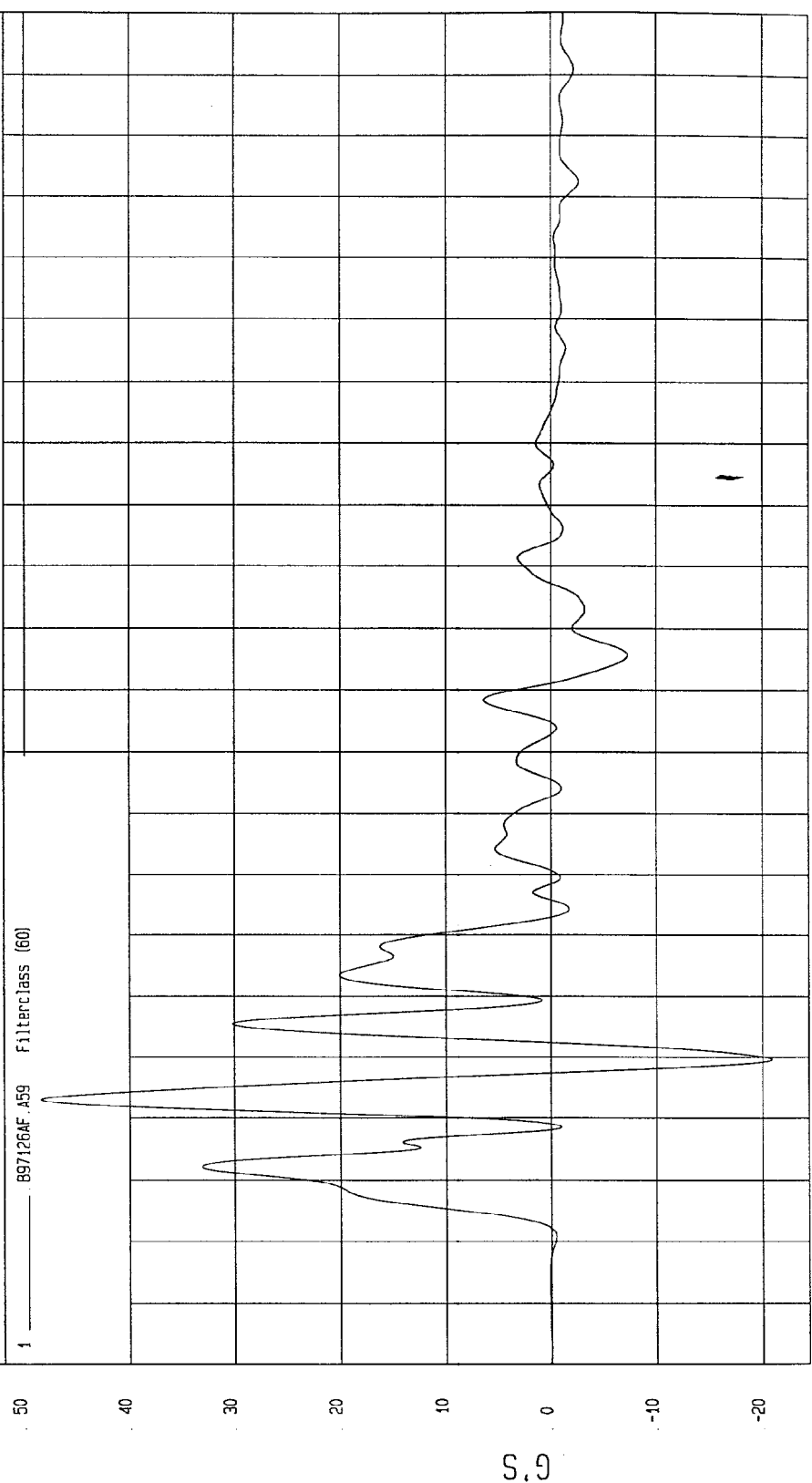
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 48.46 G'S at 23 msec

Minimum = -20.85 G'S at 30 msec

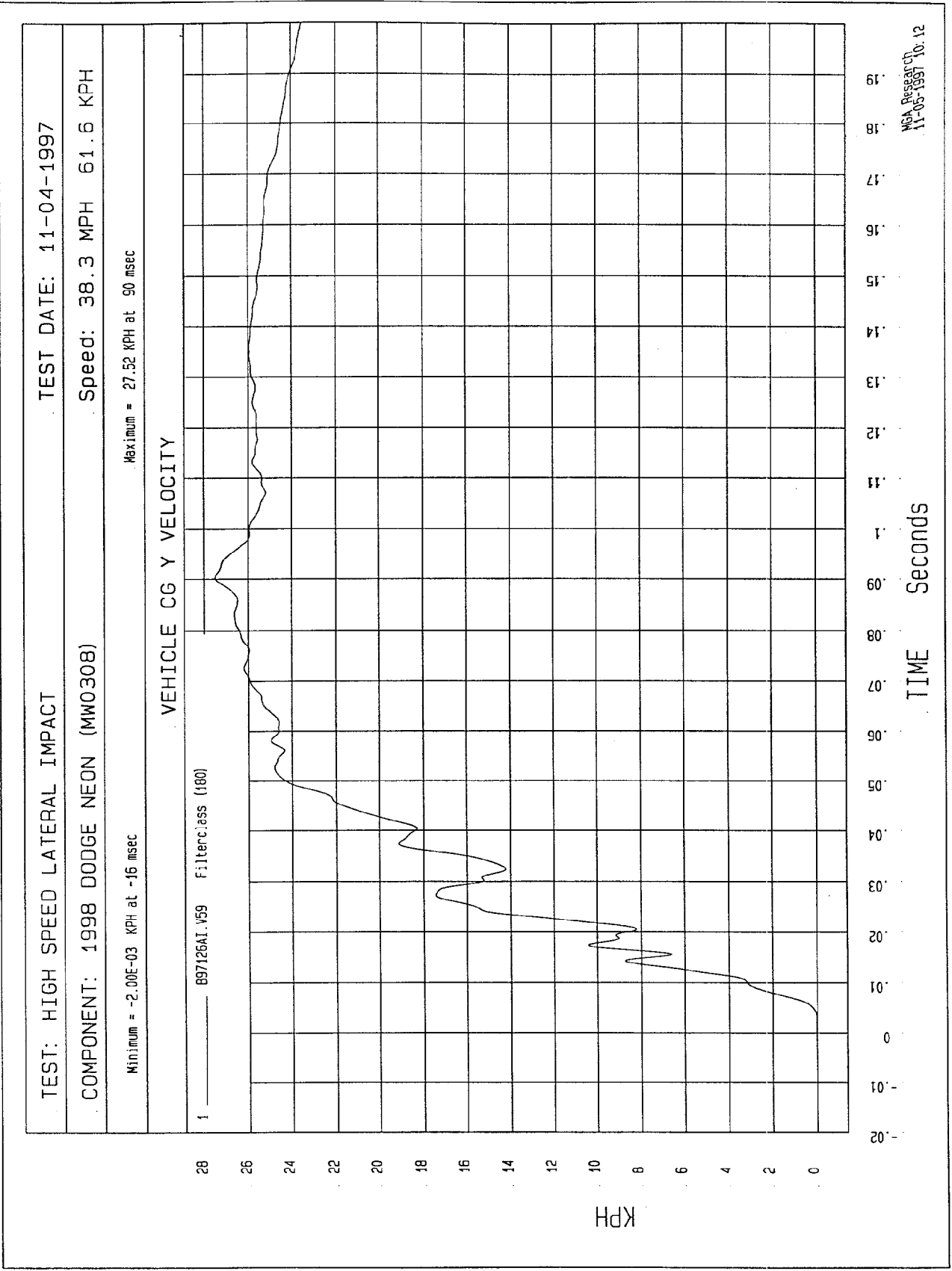
VEHICLE CG Y ACCELERATION

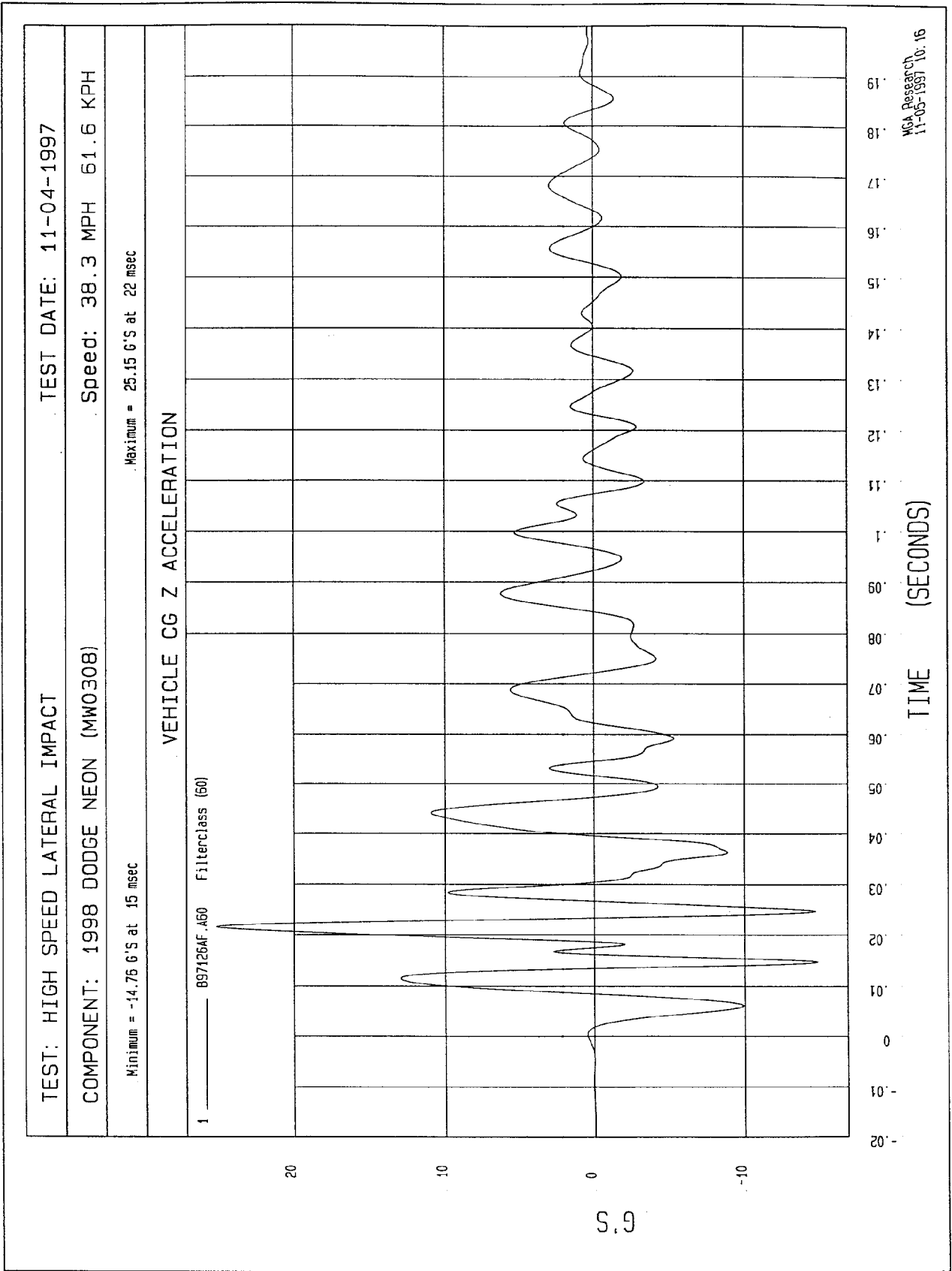
1 897126AF.A59 Filterclass (60)

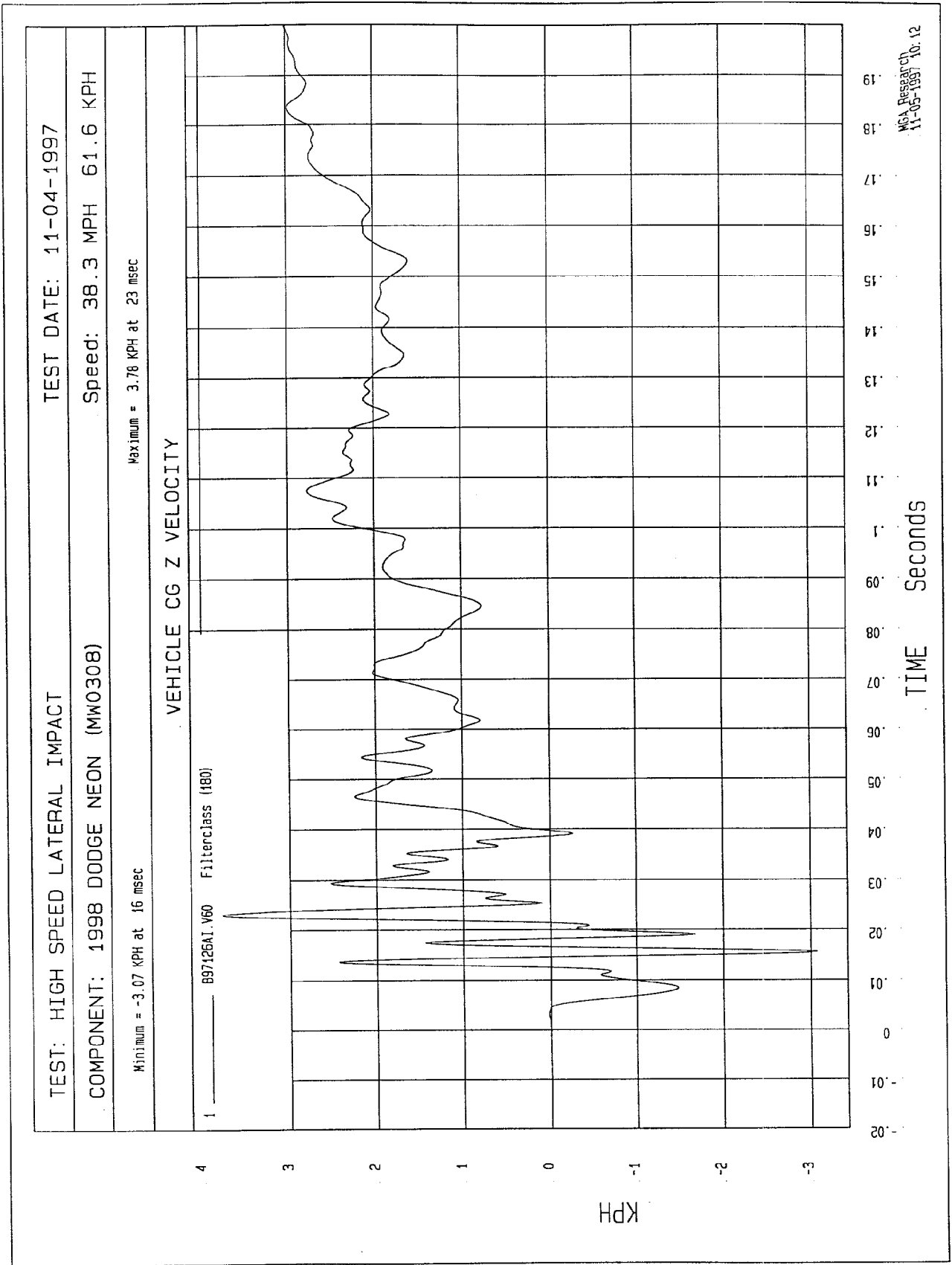


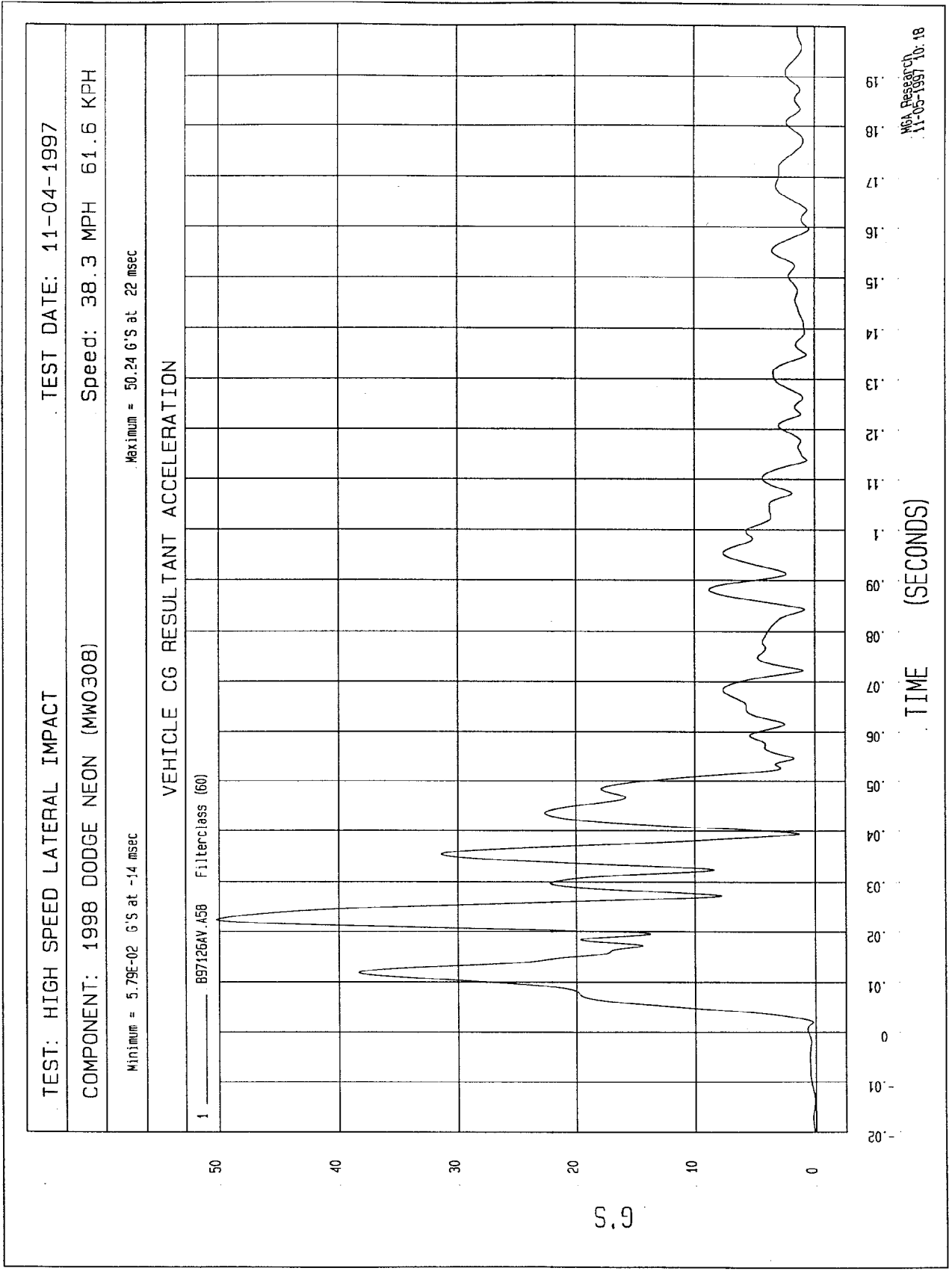
TIME (SECONDS)

NCA Research
11-05-1997 10: 15









TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

SPEED: 38.3 MPH 61.6 KPH

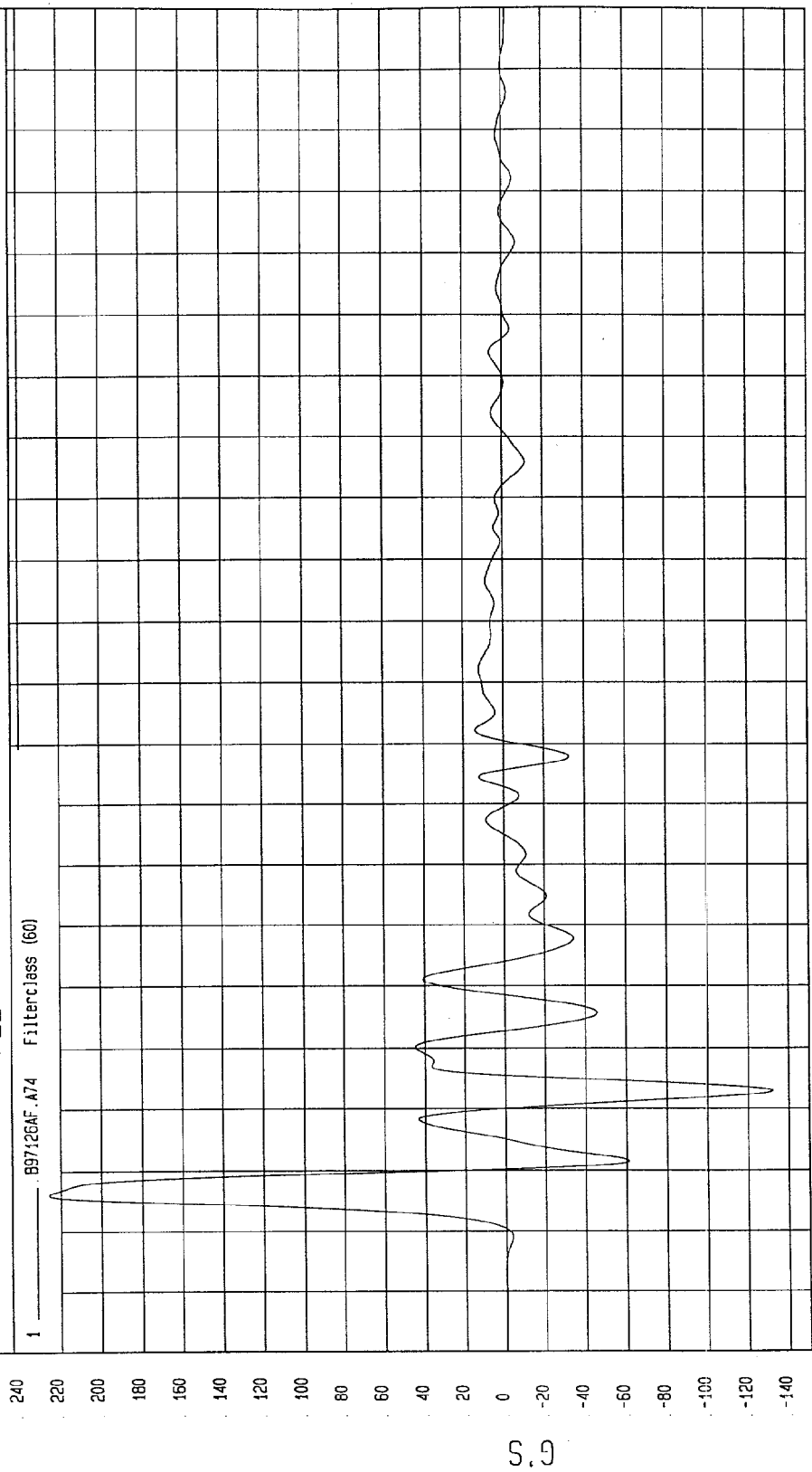
Maximum = 225.97 G'S at 5 msec

TEST: HIGH SPEED LATERAL IMPACT

COMPONENT: 1998 DODGE NEON (MW0308)

Minimum = -132.06 G'S at 23 msec

LEFT FRONT DOOR ON CENTERLINE Y ACCELERATION



MCA Research
11-05-1997 10:15

TIME (SECONDS)

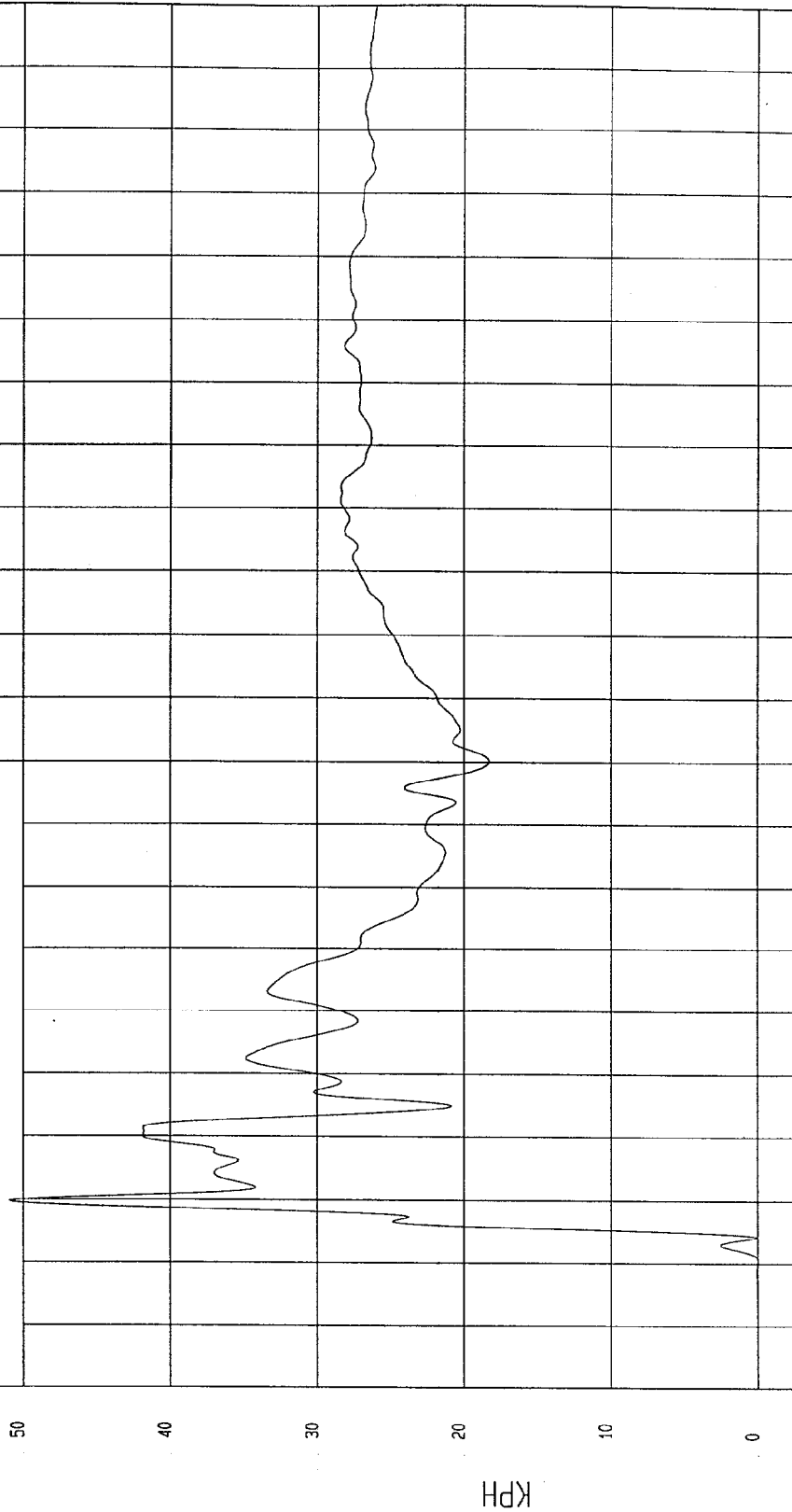
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

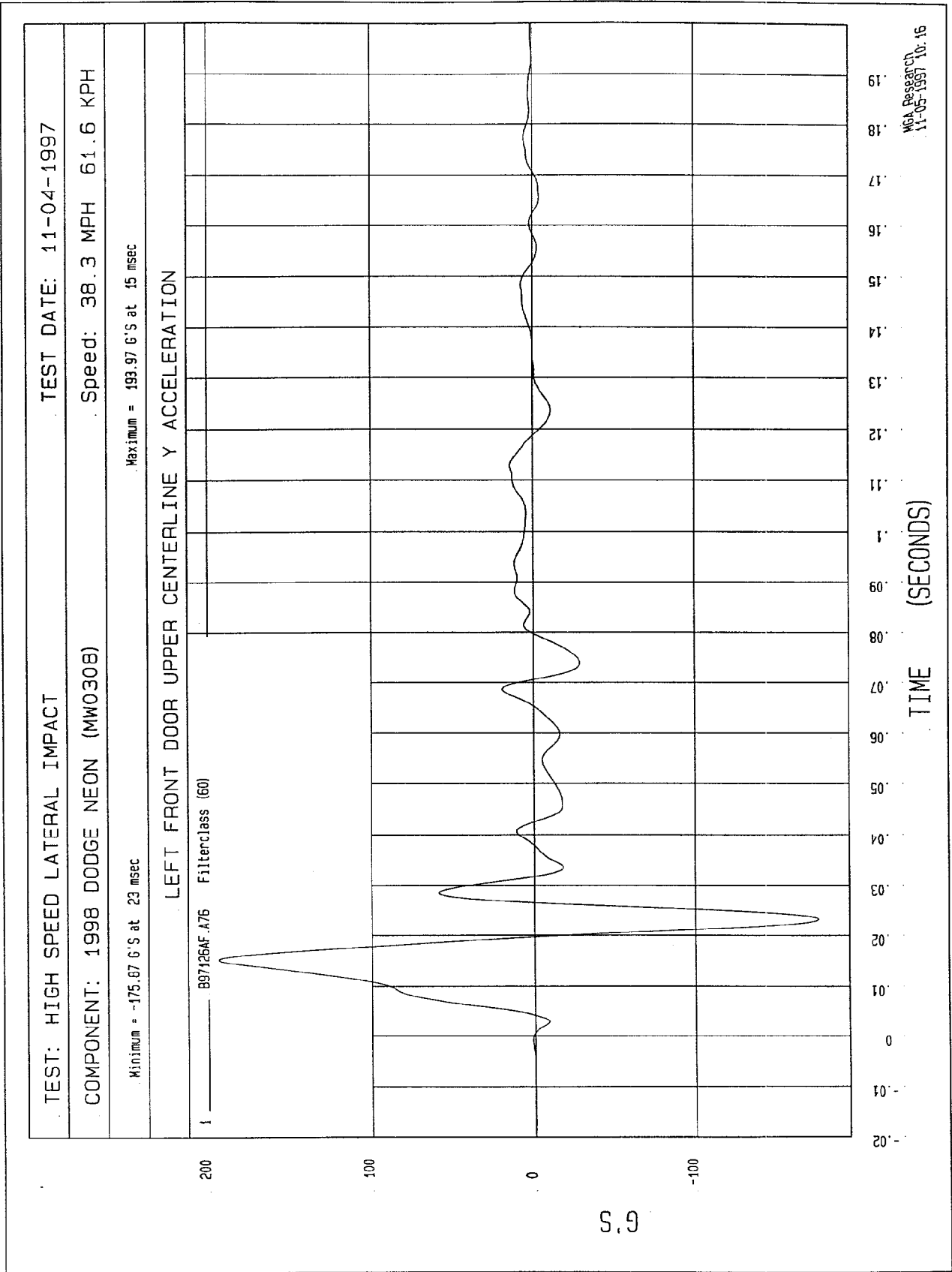
Minimum = -1.73E-02 KPH at 0 msec Maximum = 50.92 KPH at 10 msec

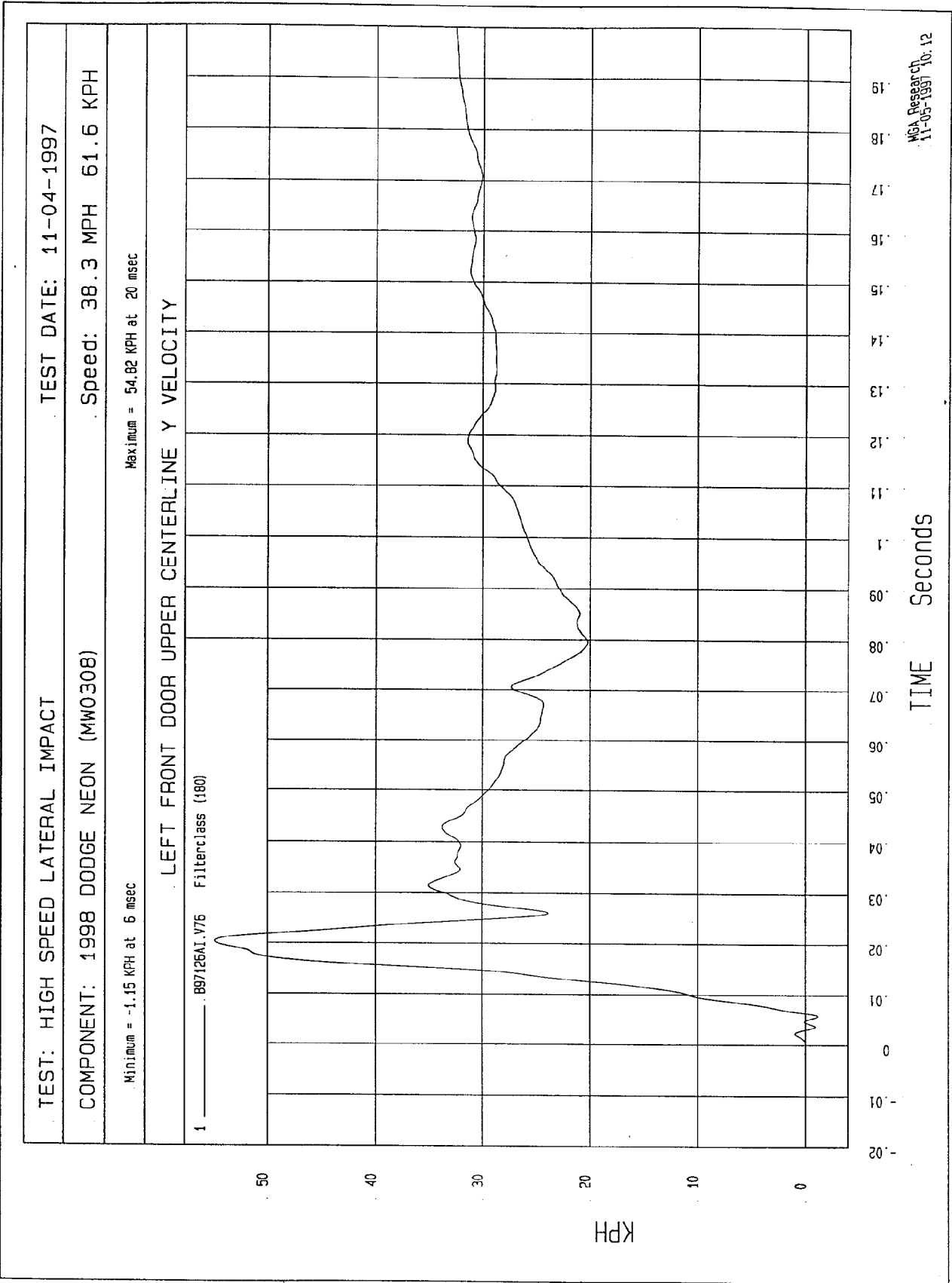
LEFT FRONT DOOR ON CENTERLINE Y VELOCITY

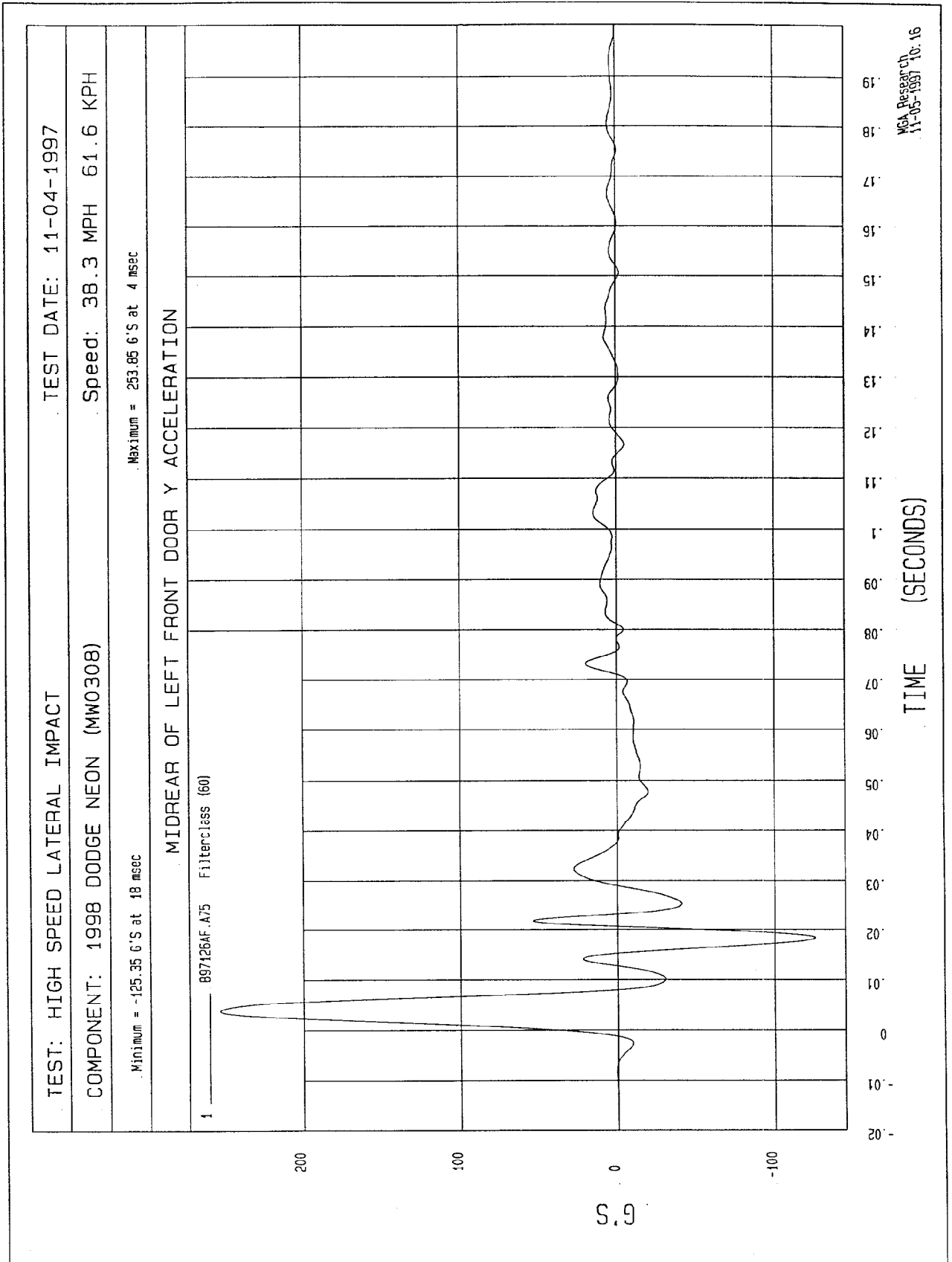
1 897126A1.V74 Filterclass (180)

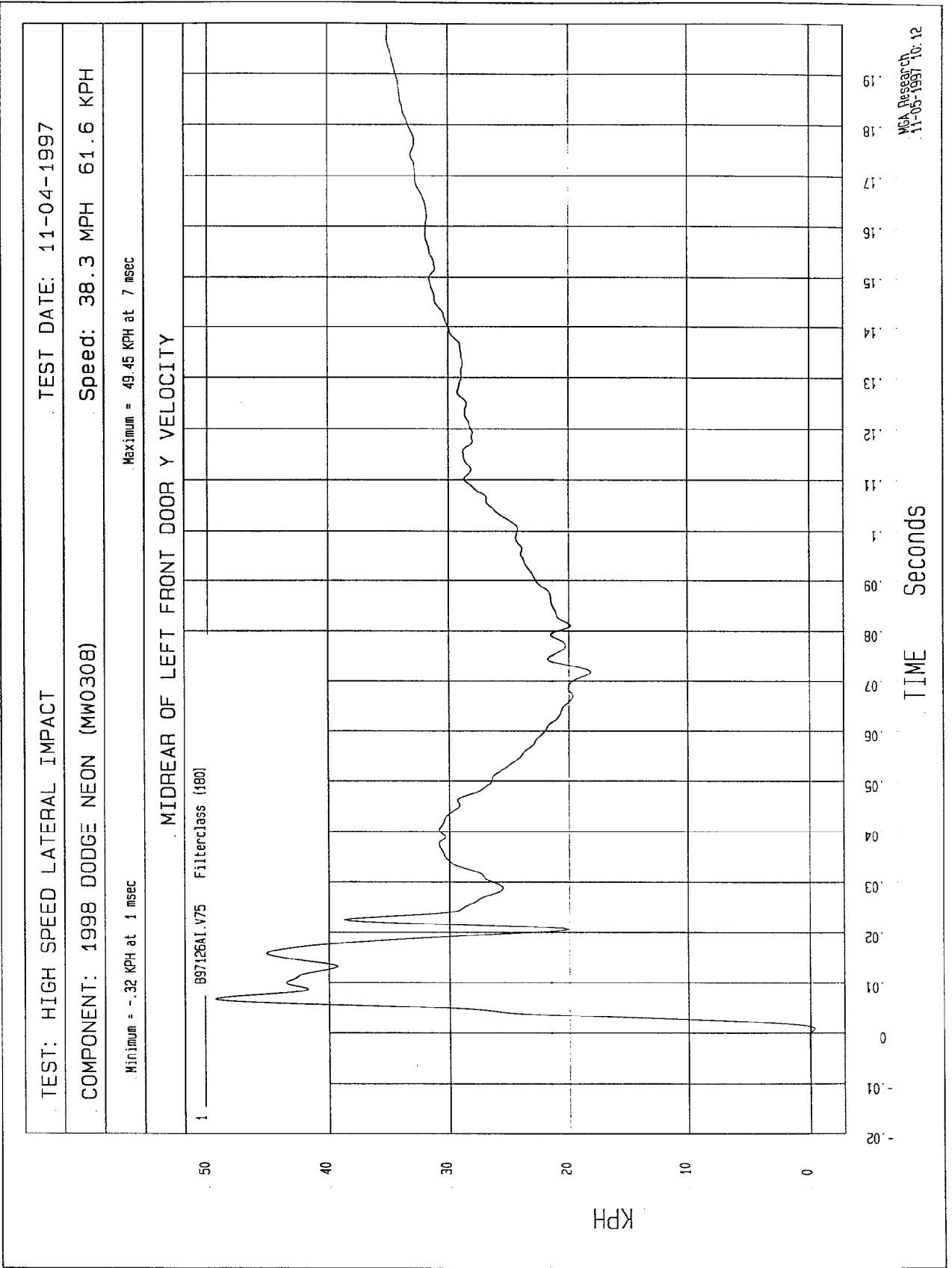


TIME Seconds
W&A Research
11-05-1997 10:12









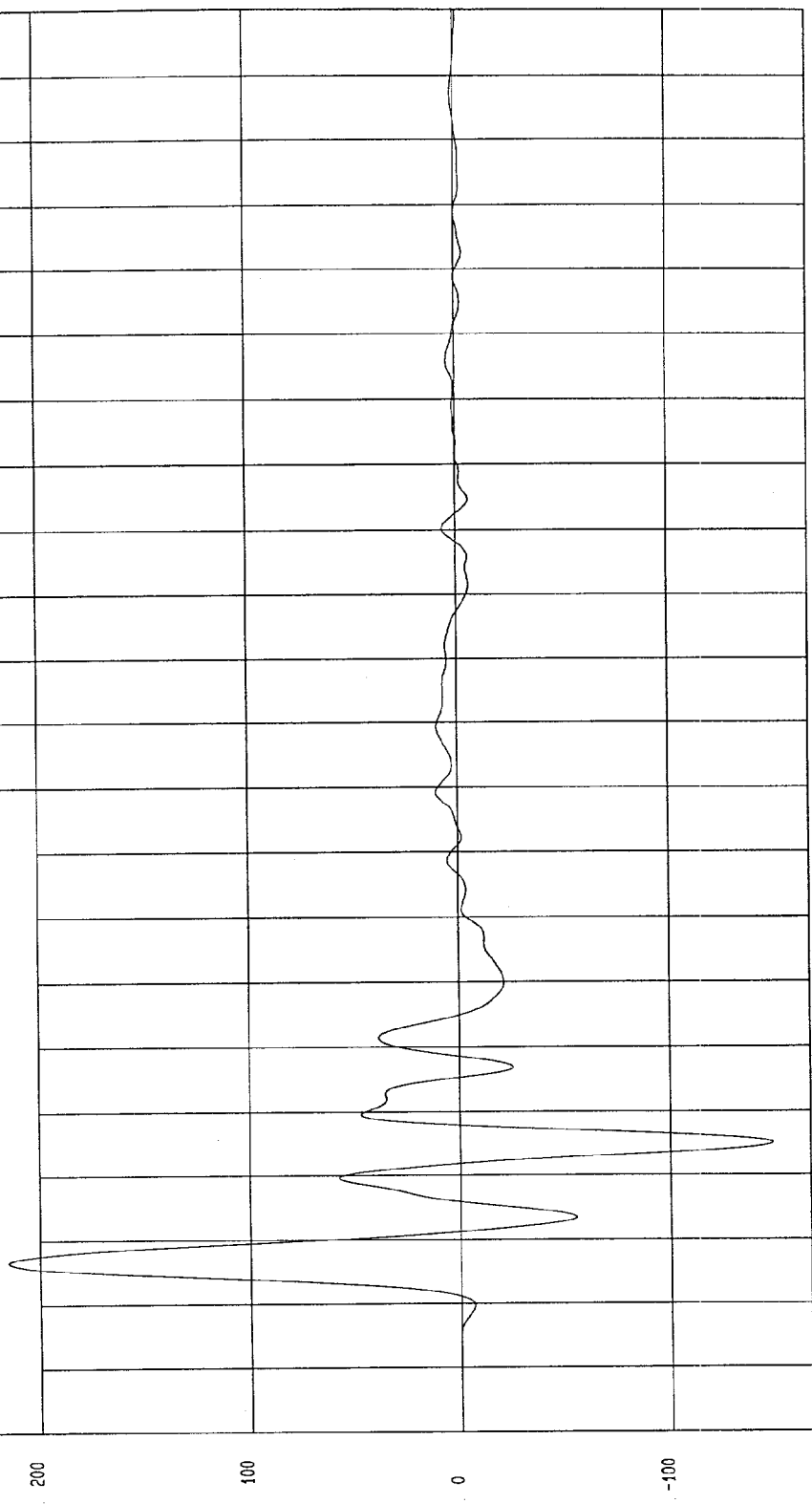
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -148.21 G'S at 25 msec Maximum = 214.95 G'S at 7 msec

MIDREAR OF LEFT REAR DOOR Y ACCELERATION

1 ——— B97126AF.A77 Filterclass (50)

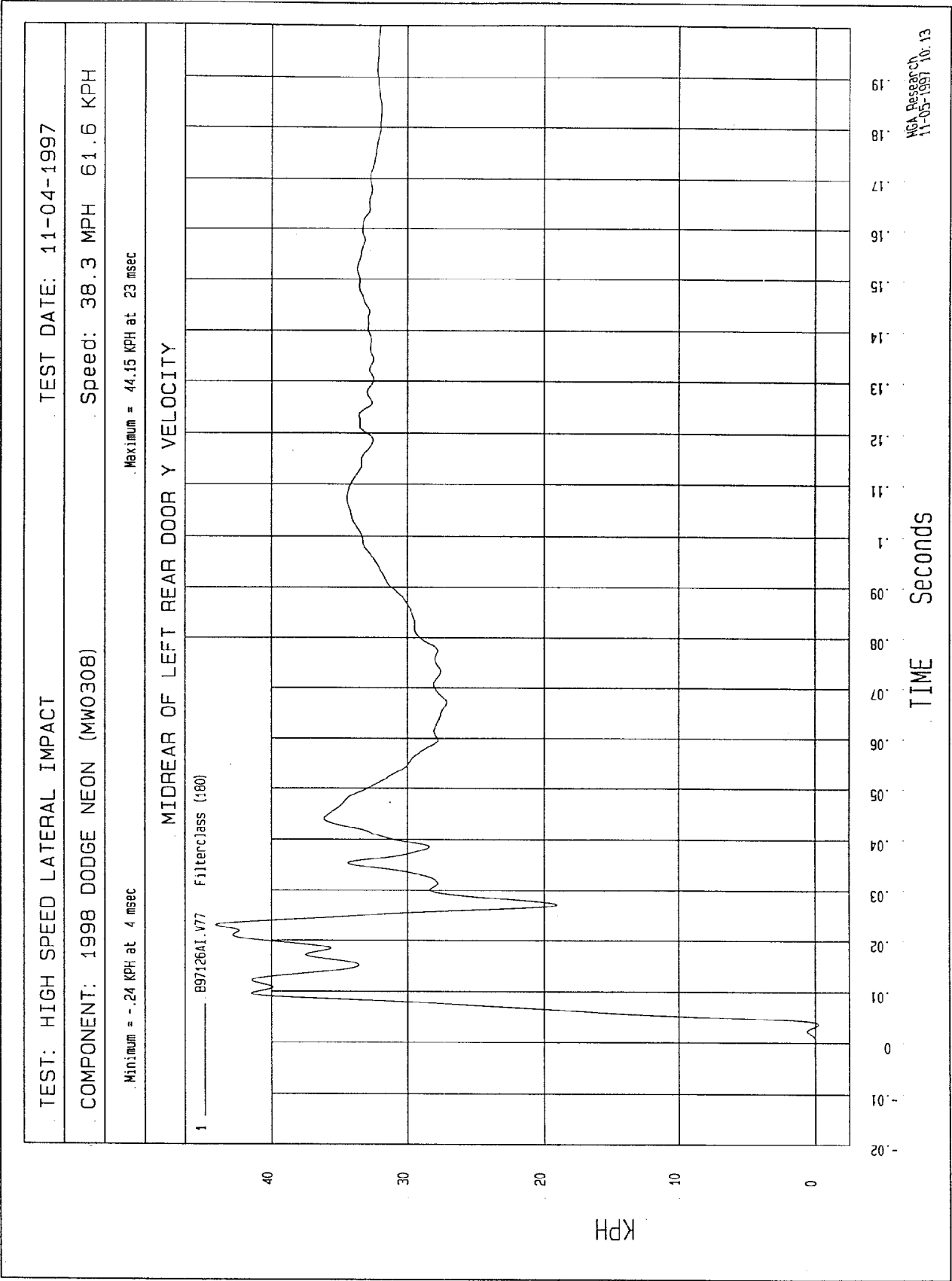


TIME (SECONDS)

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

WCA Research
11-05-1997 10:16

G's



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

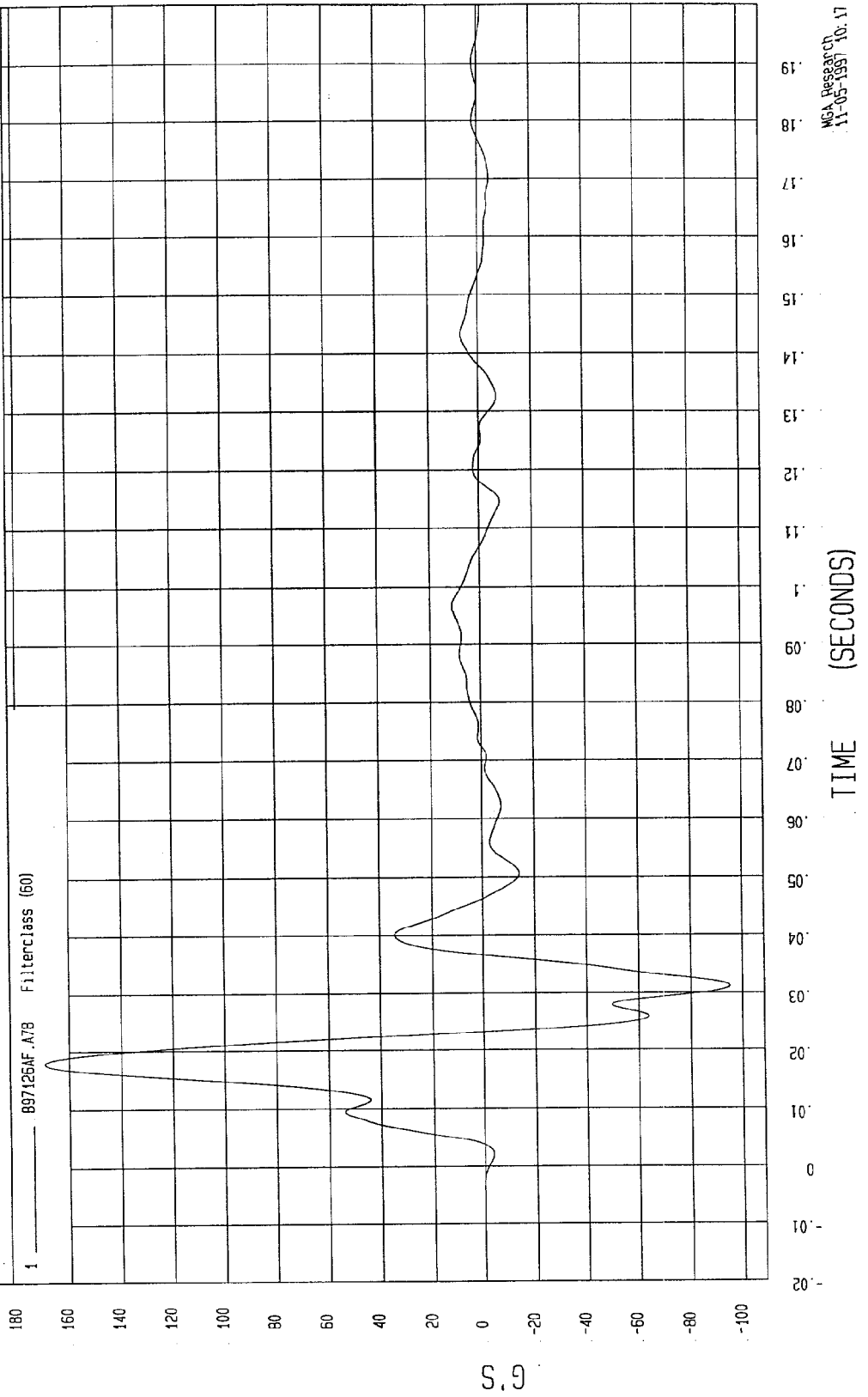
COMPONENT: 1998 DODGE NEON (MW0308)

Speed: 38.3 MPH 61.6 KPH

Minimum = -95.00 G'S at 31 msec

Maximum = 169.63 G'S at 18 msec

LEFT REAR DOOR UPPER CENTERLINE Y ACCELERATION



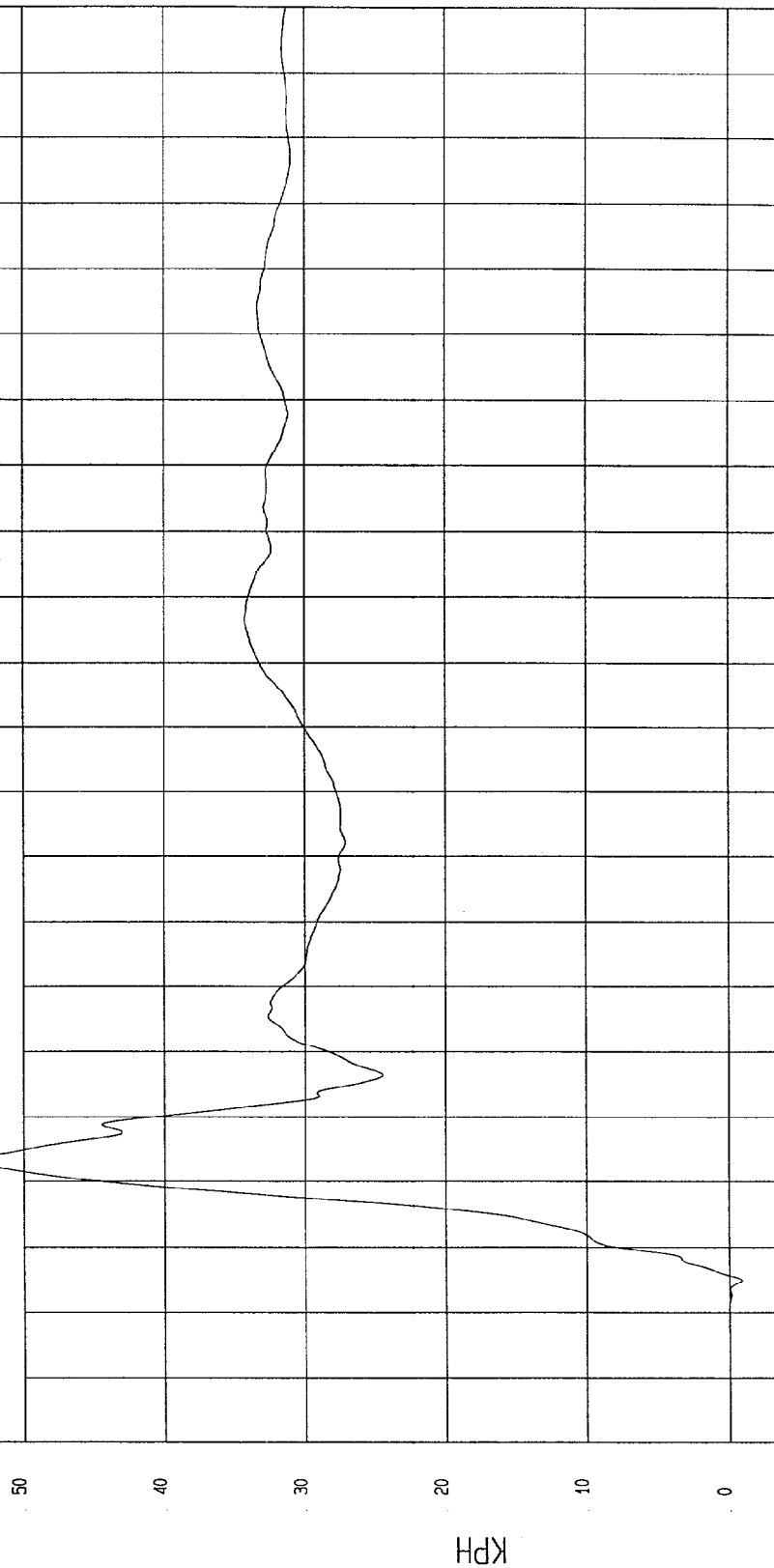
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -90 KPH at 5 msec Maximum = 53.96 KPH at 23 msec

LEFT REAR DOOR UPPER CENTERLINE Y VELOCITY

1 897126A1.V78 Filterclass (160)



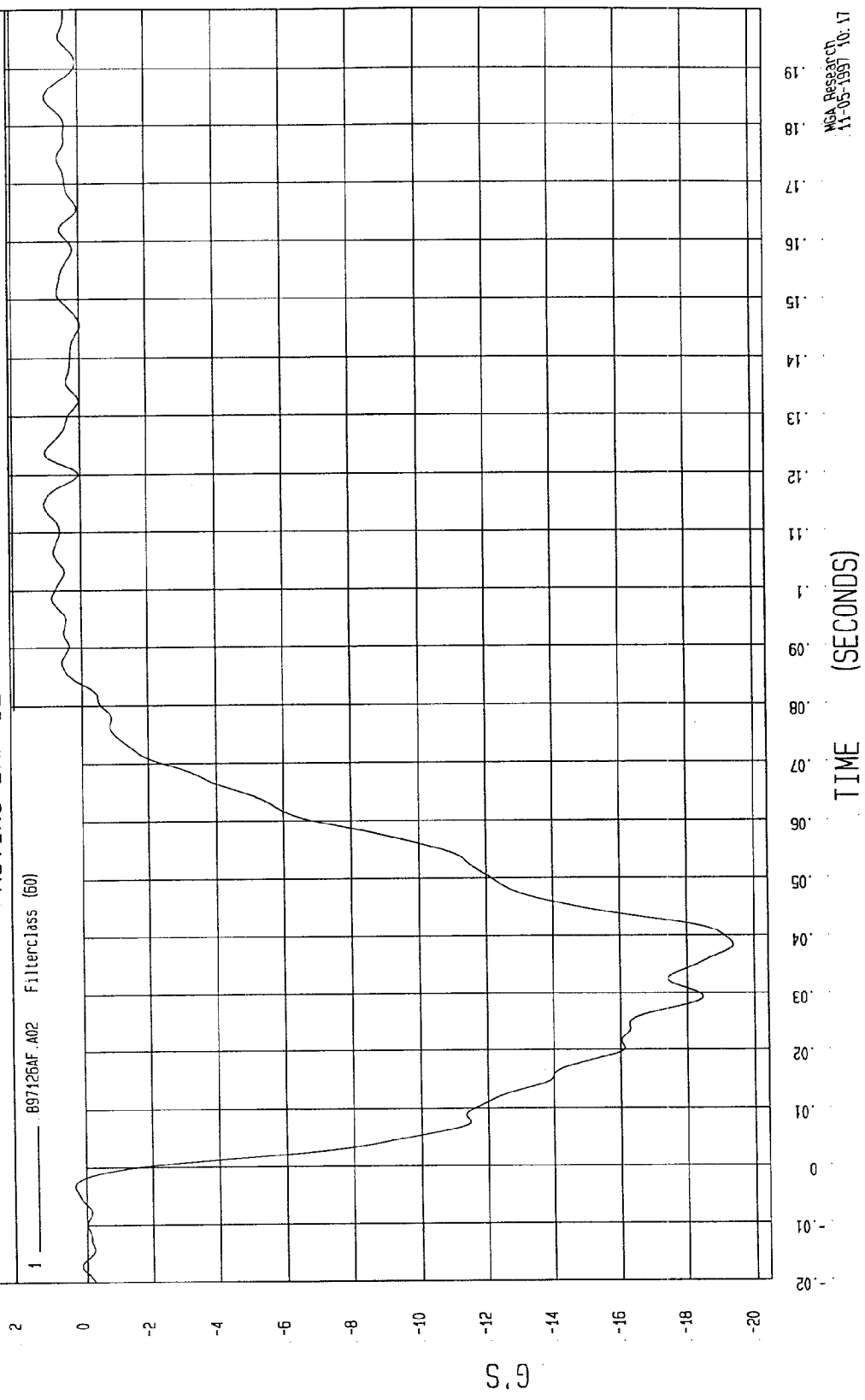
TIME Seconds
MGA Research
11-05-1997 10:13

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -19.37 G's at 38 msec Maximum = 1.07 G's at 115 msec

MOVING BARRIER CG X ACCELERATION



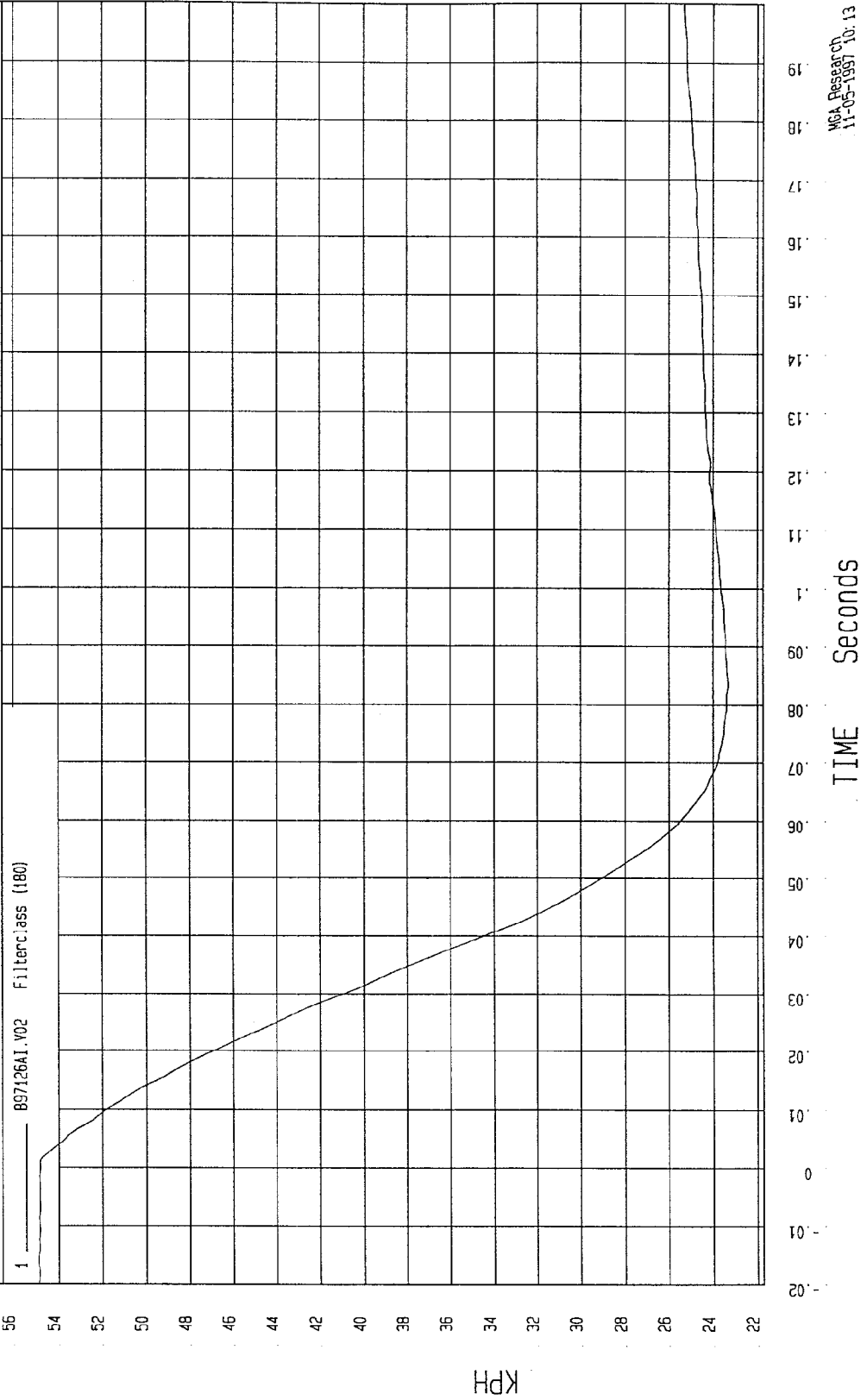
MCA Research
11-05-1997 10:17

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = 23.32 KPH at 04 msec Maximum = 54.91 KPH at -16 msec

MOVING BARRIER CG X VELOCITY

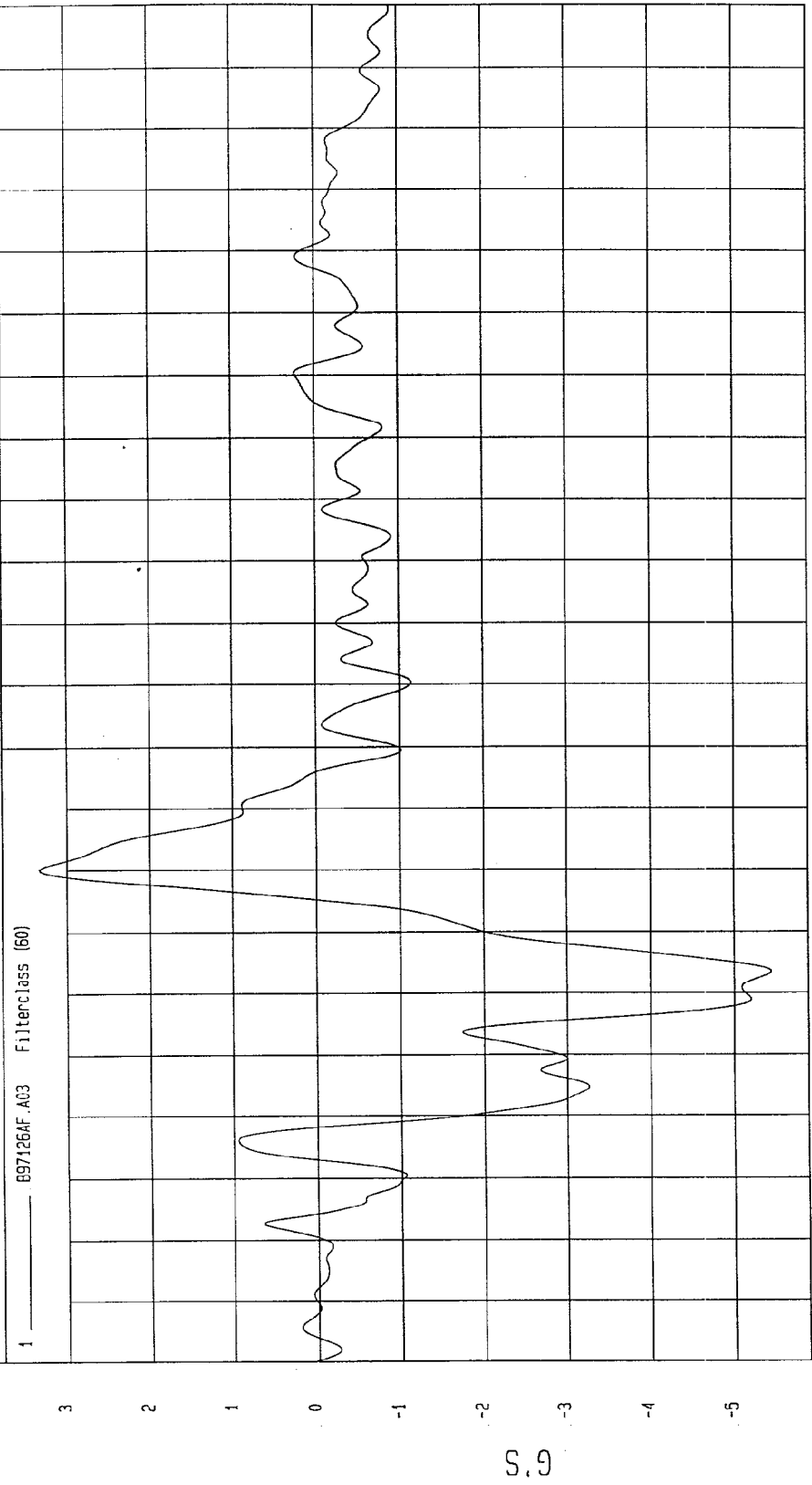


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -5.43 G'S at 44 msec Maximum = 3.32 G'S at 60 msec

MOVING BARRIER CG Y ACCELERATION



TIME (SECONDS)

19. 18. 17. 16. 15. 14. 13. 12. 11. 10. 09. 08. 07. 06. 05. 04. 03. 02. 01. 0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10 0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19

MCA Research
11-05-1997 10:17

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

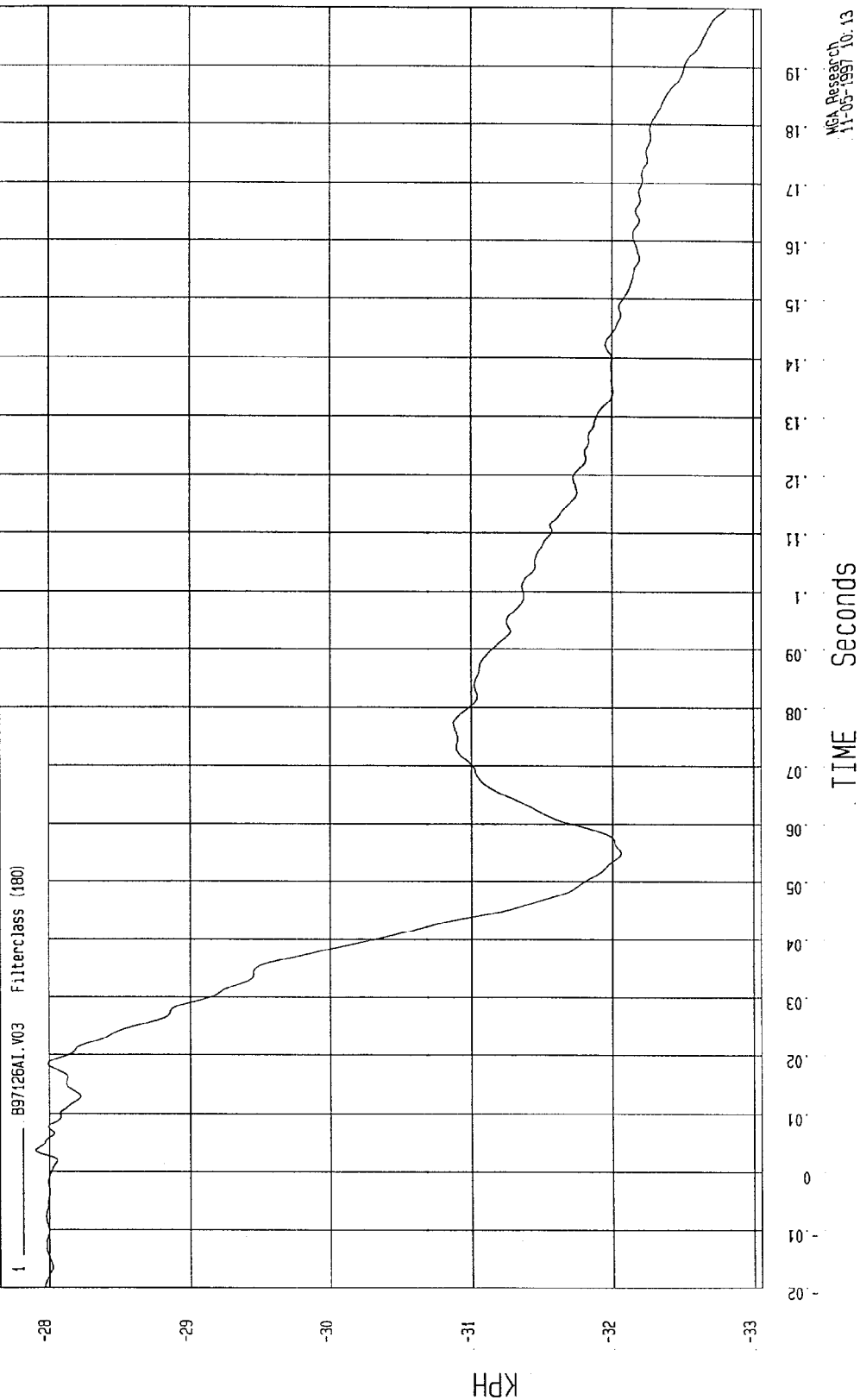
Speed: 38.3 MPH 61.6 KPH

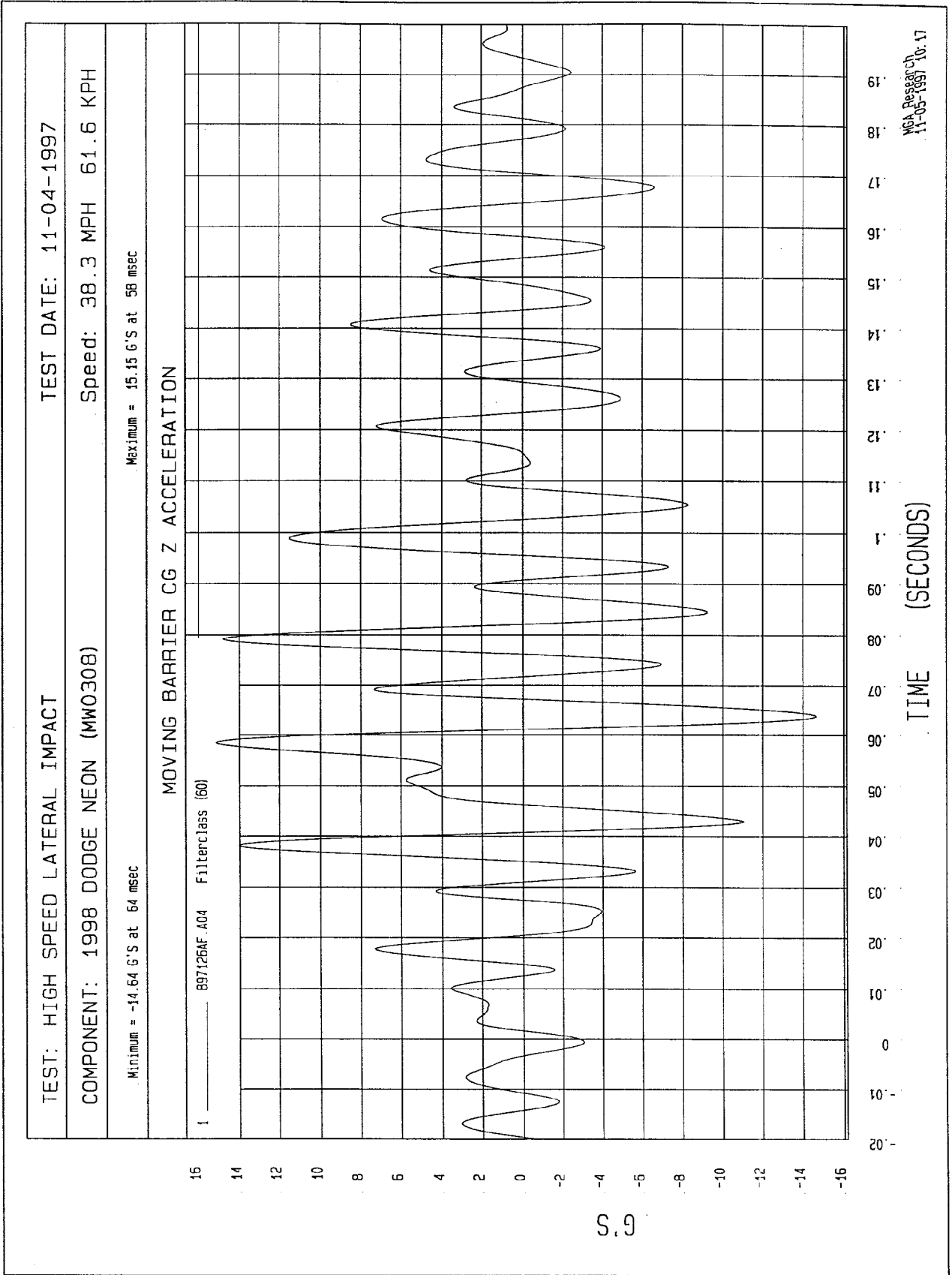
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = -27.90 KPH at 4 msec

Minimum = -32.80 KPH at 200 msec

MOVING BARRIER CG Y VELOCITY





TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

Speed: 38.3 MPH 61.6 KPH

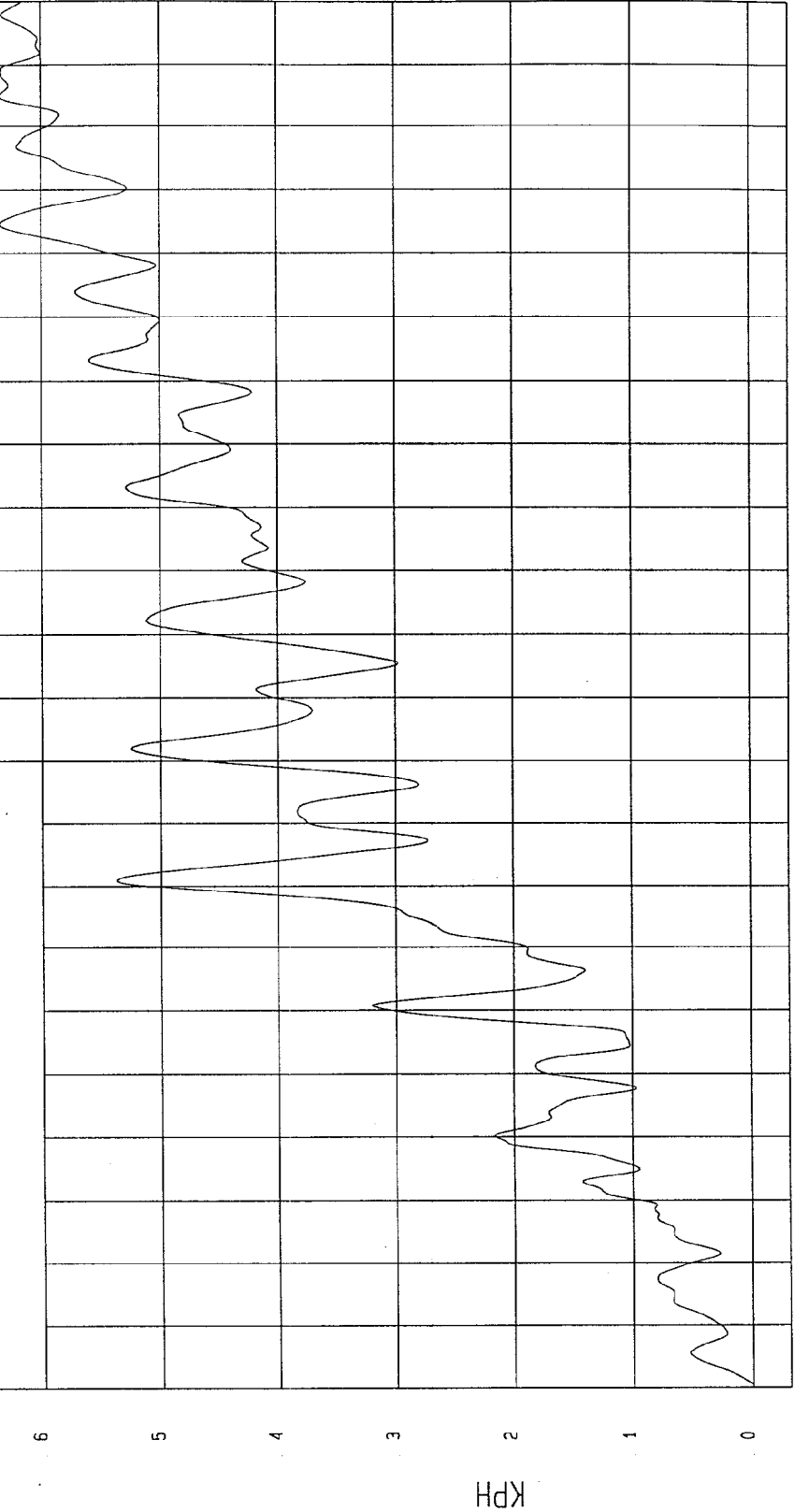
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 6.35 KPH at 185 msec

Minimum = -3.37E-03 KPH at -20 msec

MOVING BARRIER CG Z VELOCITY

1 ——— B97126AI.V04 Filterclass (180)



TIME Seconds

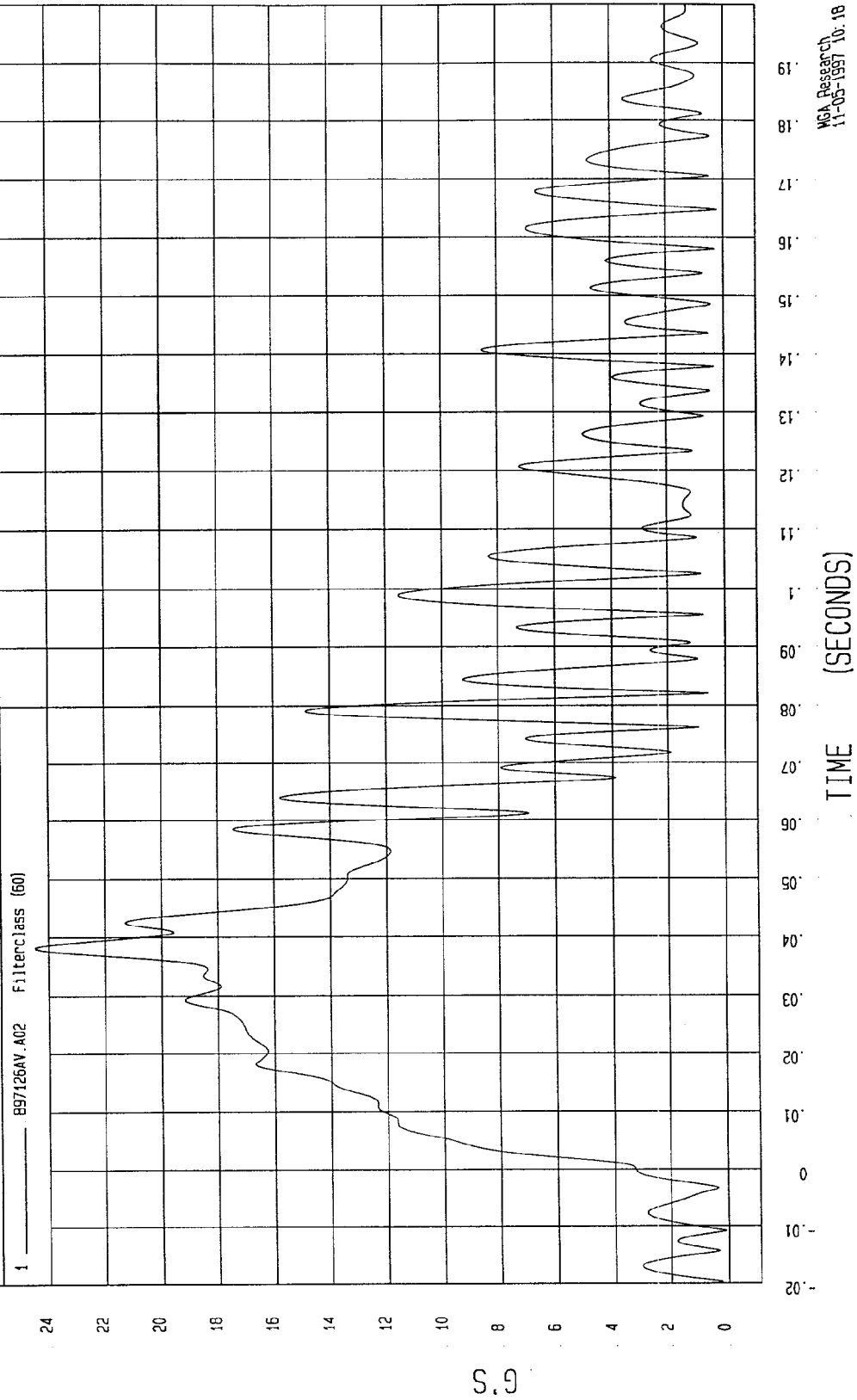
MCA Research
11-05-1997 10:13

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = 7.80E-02 G's at -11 msec Maximum = 24.46 G's at 38 msec

MOVING BARRIER CG RESULTANT ACCELERATION



WEA Research
11-05-1997 10:18

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

Speed: 38.3 MPH 61.6 KPH

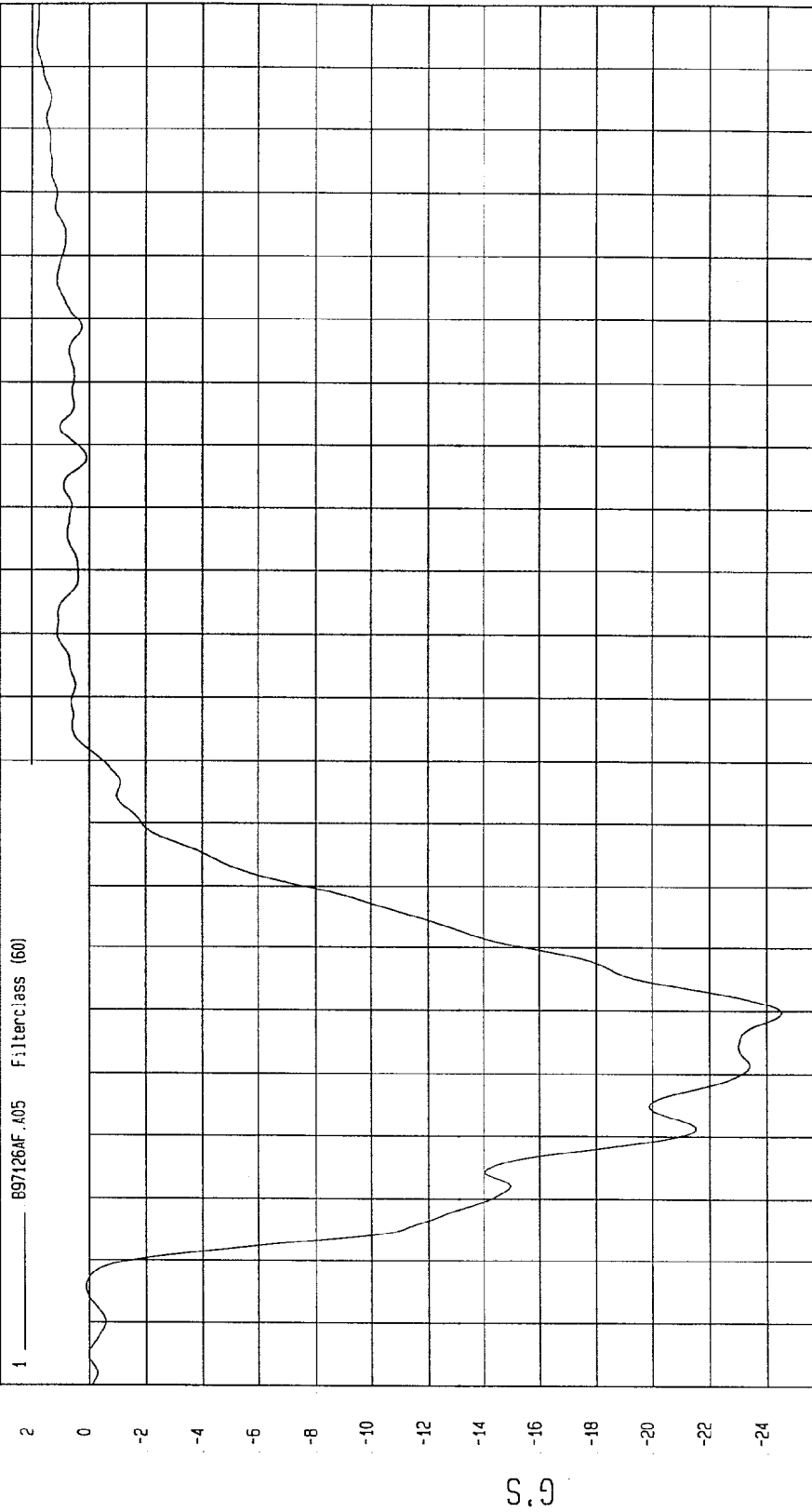
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 1.88 G's at 194 msec

Minimum = -24.52 G's at 40 msec

MOVING BARRIER REAR AXLE X ACCELERATION

1 ——— 89726AF.A05 Filterclass (60)



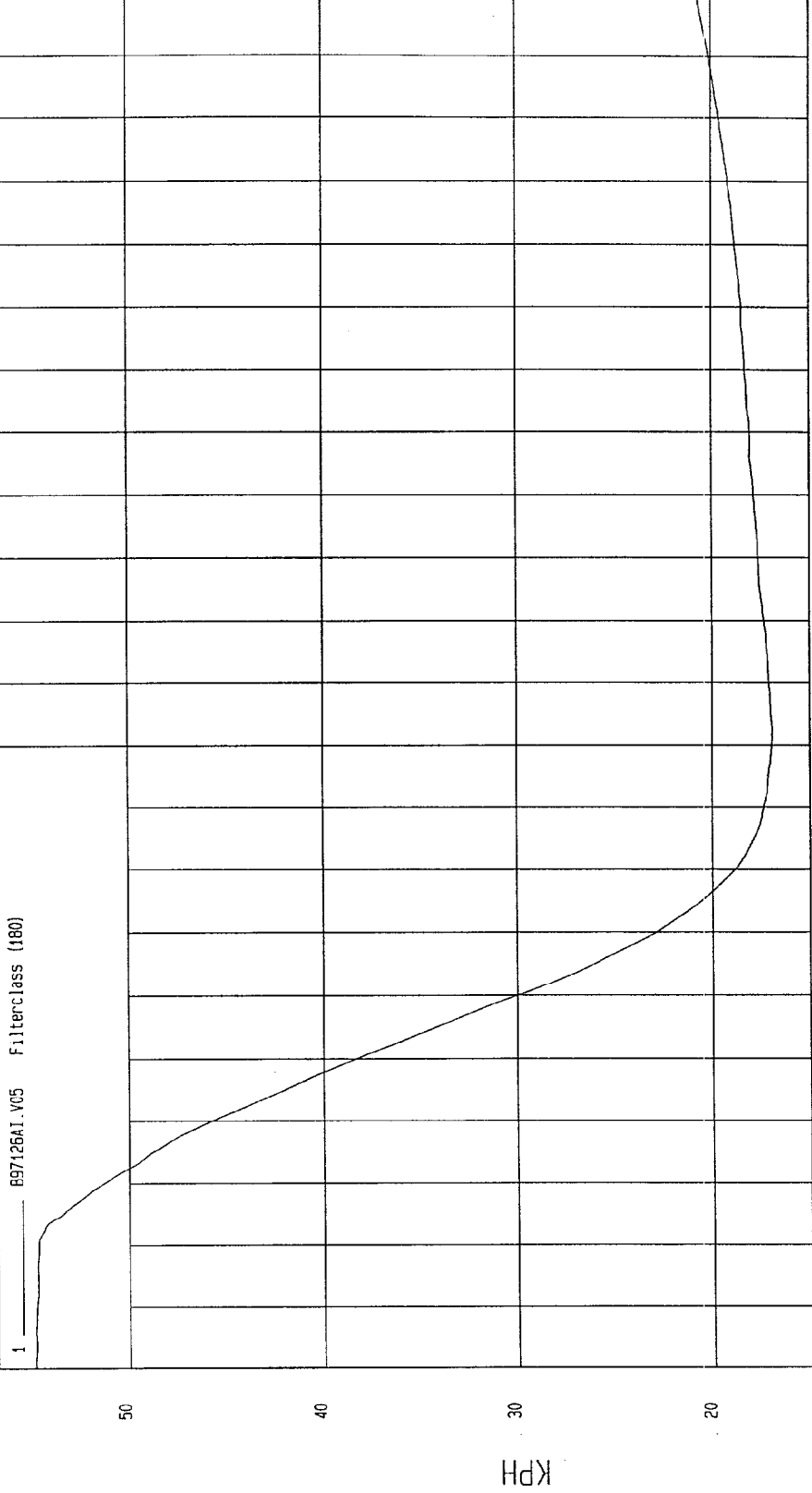
MCA Research
11-05-1997 10: 17

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

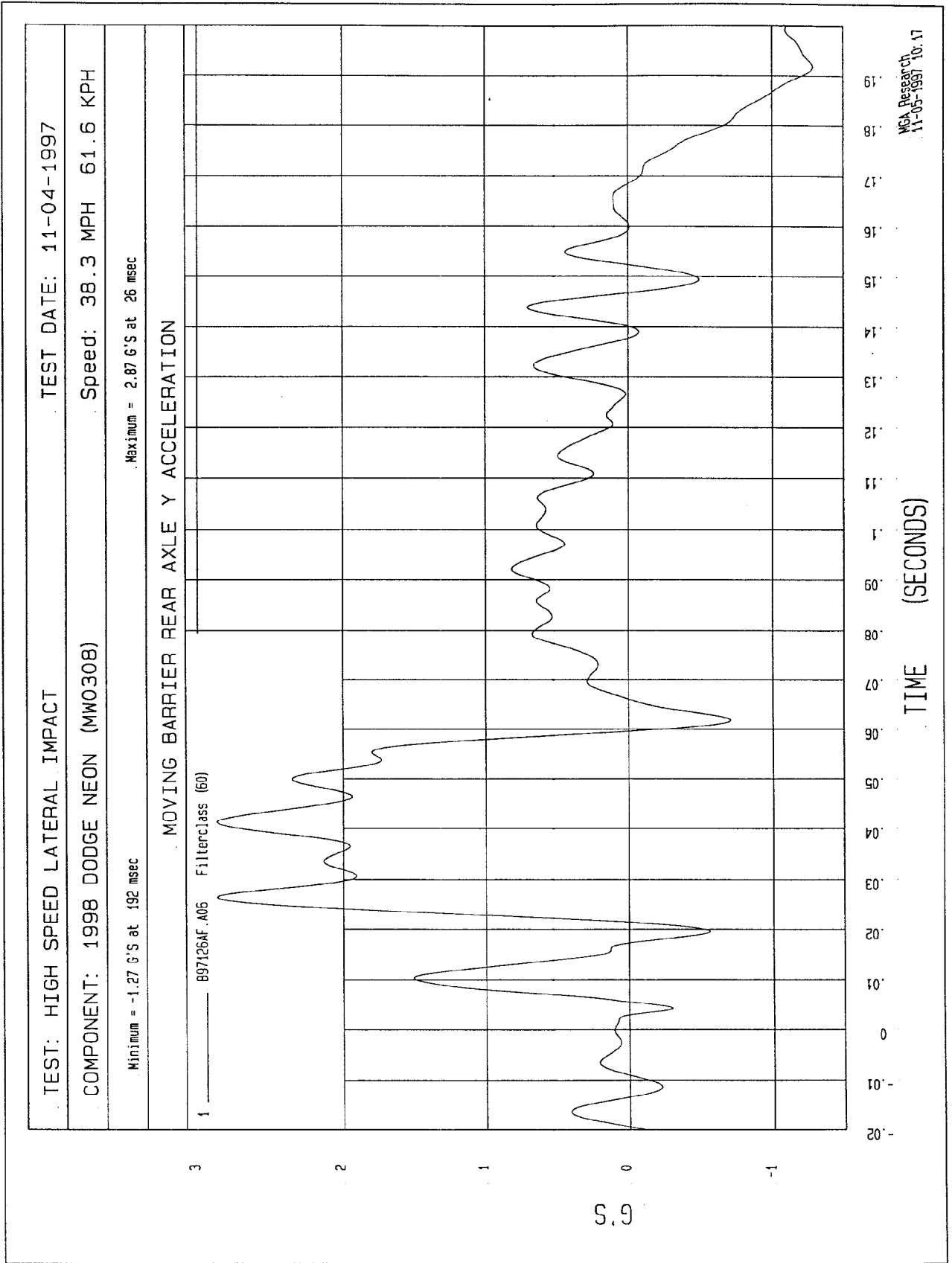
Minimum = 16.94 KPH at 62 msec Maximum = 54.69 KPH at -19 msec

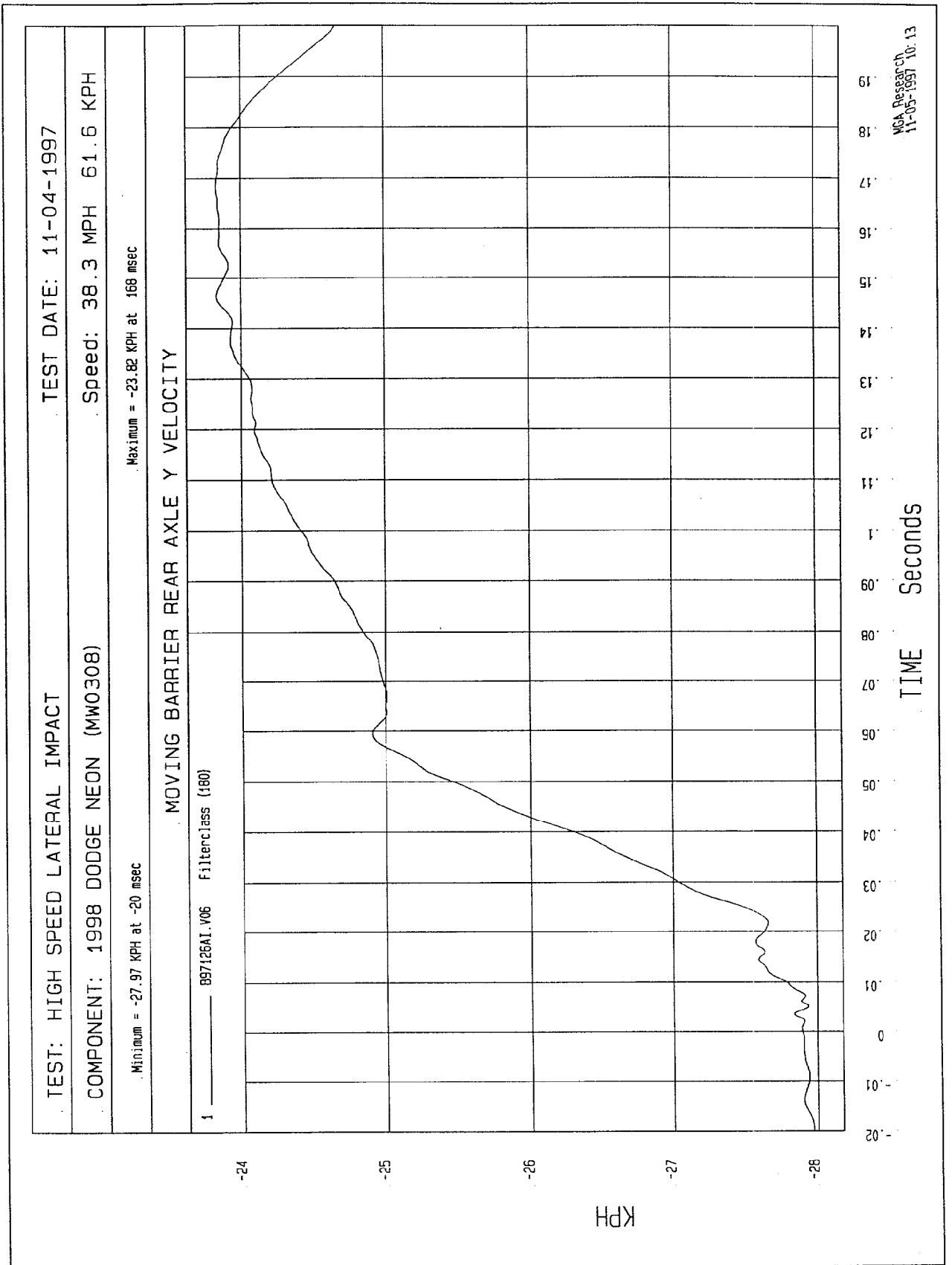
MOVING BARRIER REAR AXLE X VELOCITY

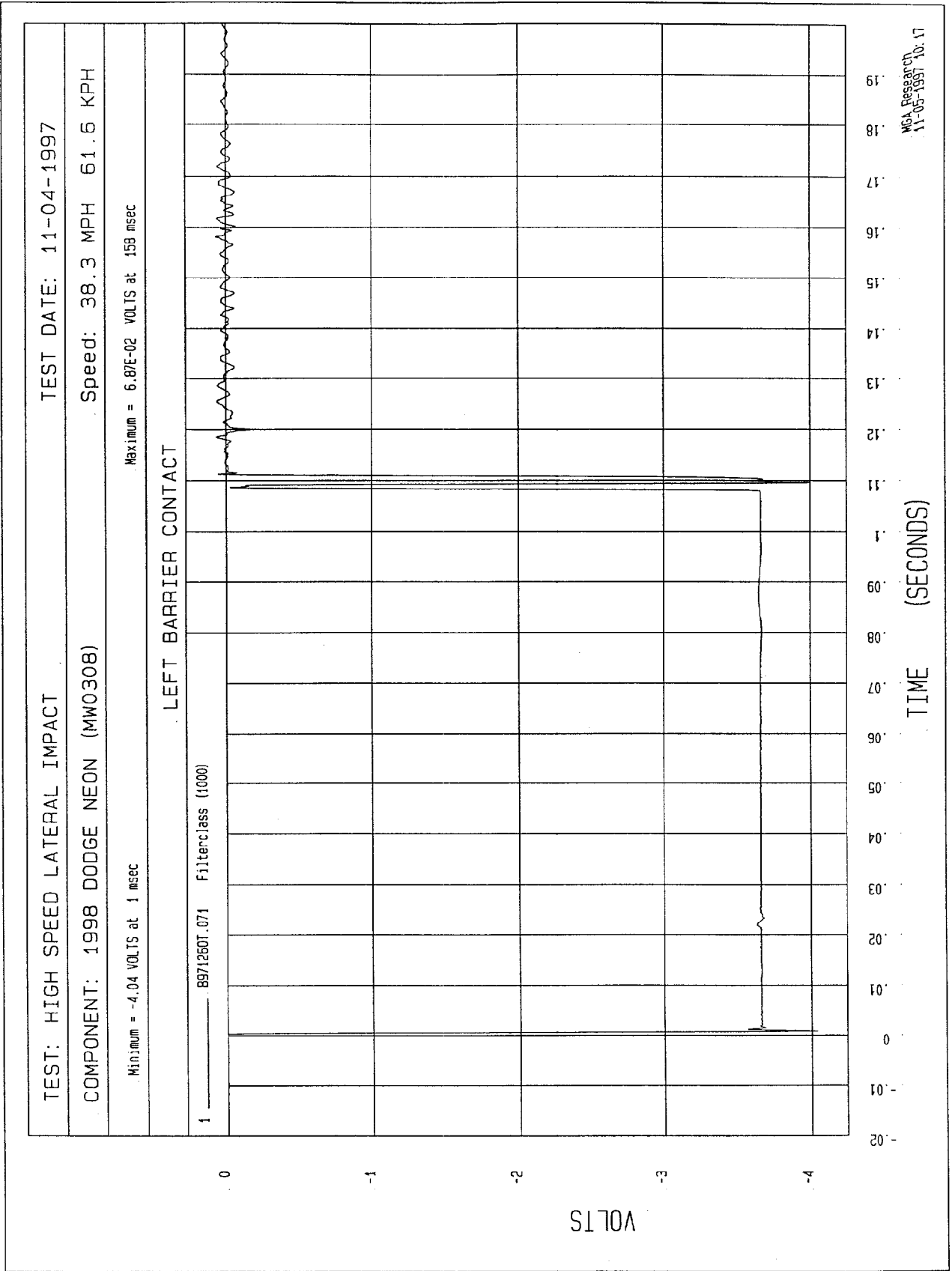


TIME Seconds

NSA Research
11-05-1997 10:13







TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308)

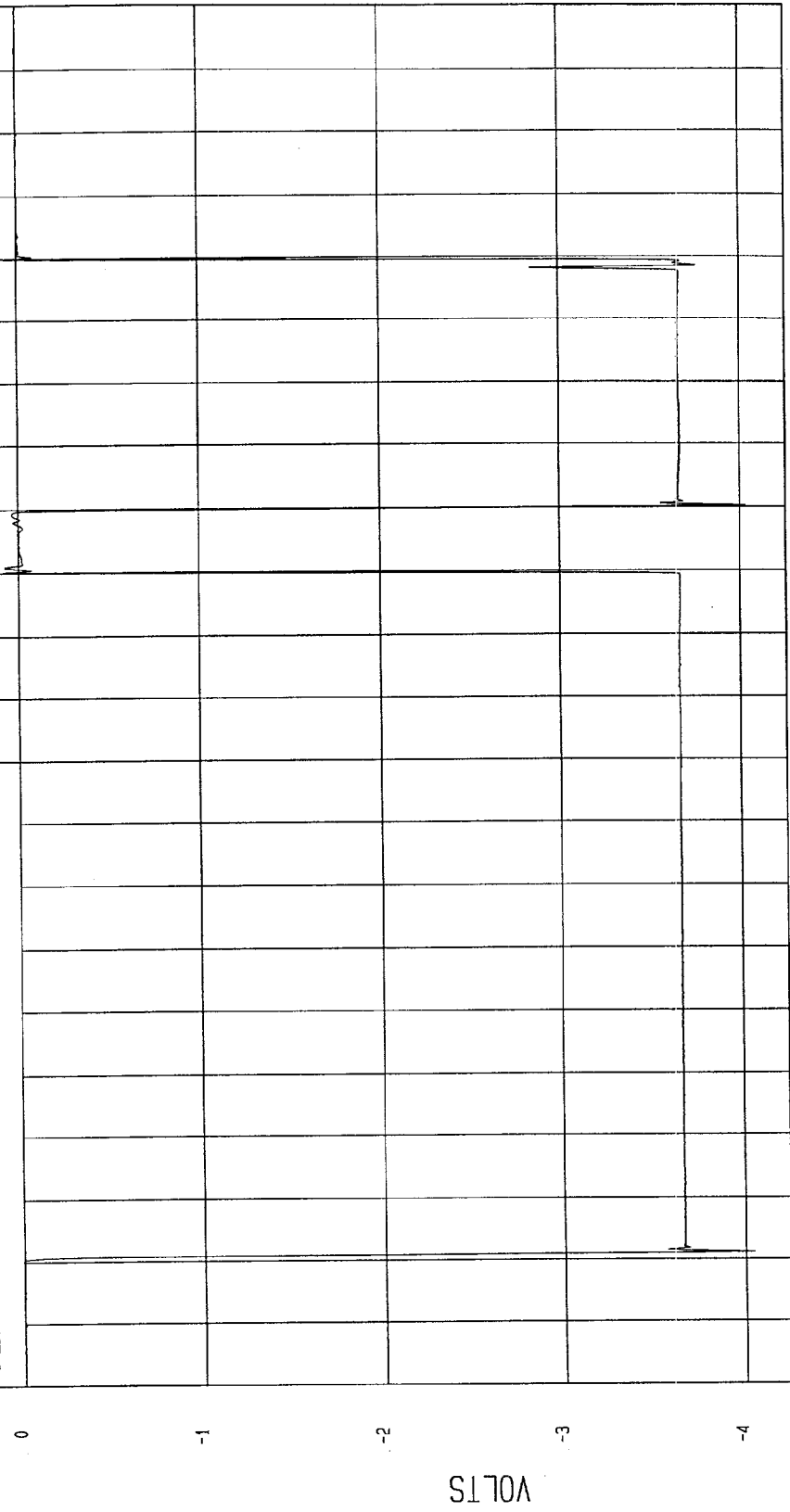
Speed: 38.3 MPH 61.6 KPH

Minimum = -4.04 VOLTS at 1 msec

Maximum = 8.23E-02 VOLTS at 110 msec

RIGHT BARRIER CONTACT

1 89712601.072 Filterclass (1000)



MSA Research
11-05-1997 10:17

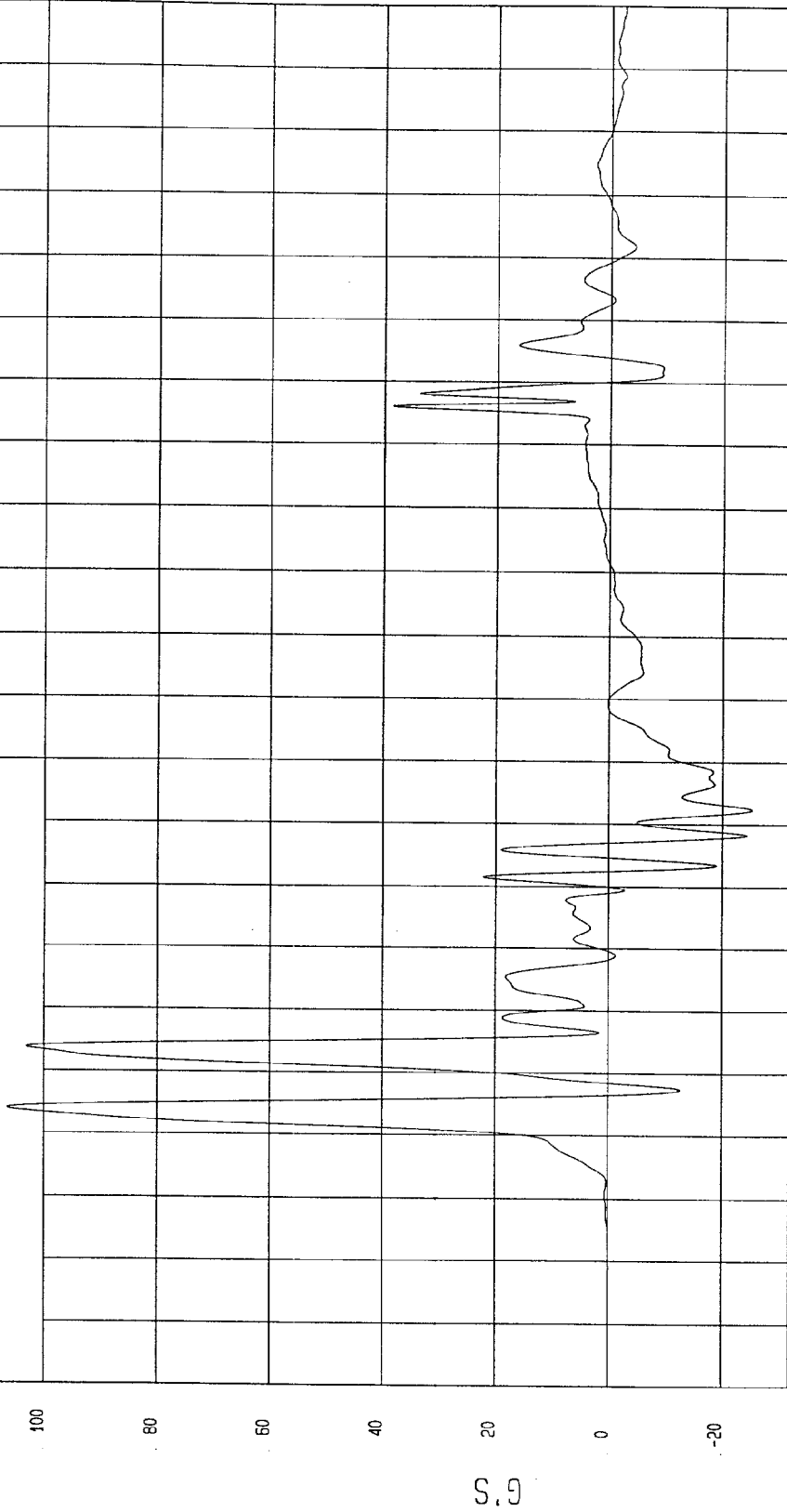
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

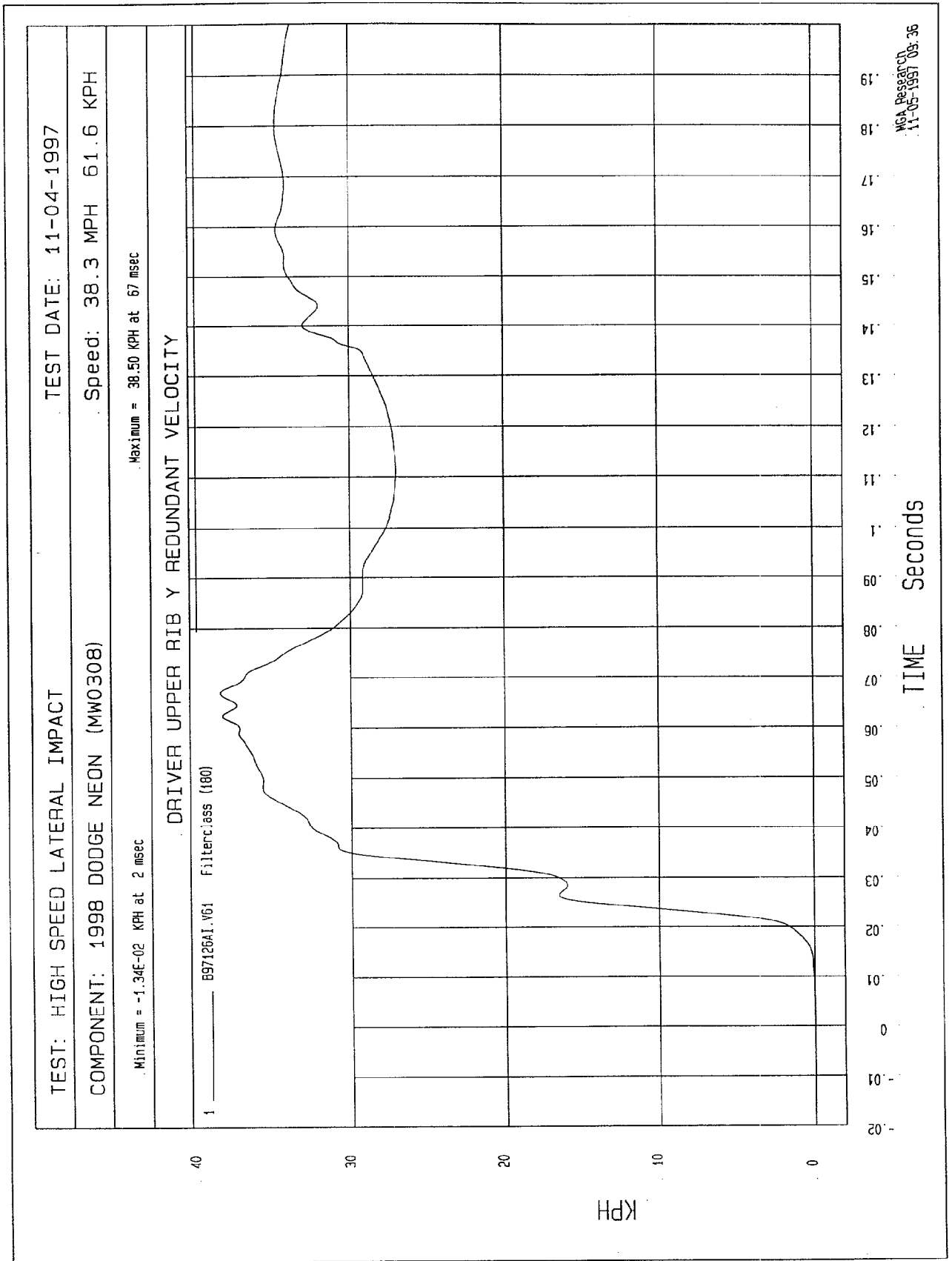
Minimum = -25.13 G'S at 72 msec
Maximum = 106.32 G'S at 24 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION

1 897126AF.A61 Filterclass (180)



MCA Research
11-05-1997 09:28



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -25.77 G'S at 20 msec
Maximum = 90.12 G'S at 25 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION

1 B97126AF.AE2 Filterclass (180)

80

50

40

20

0

-20

G'S

-02

-01

0

01

02

03

04

05

06

07

08

09

10

11

12

13

14

15

16

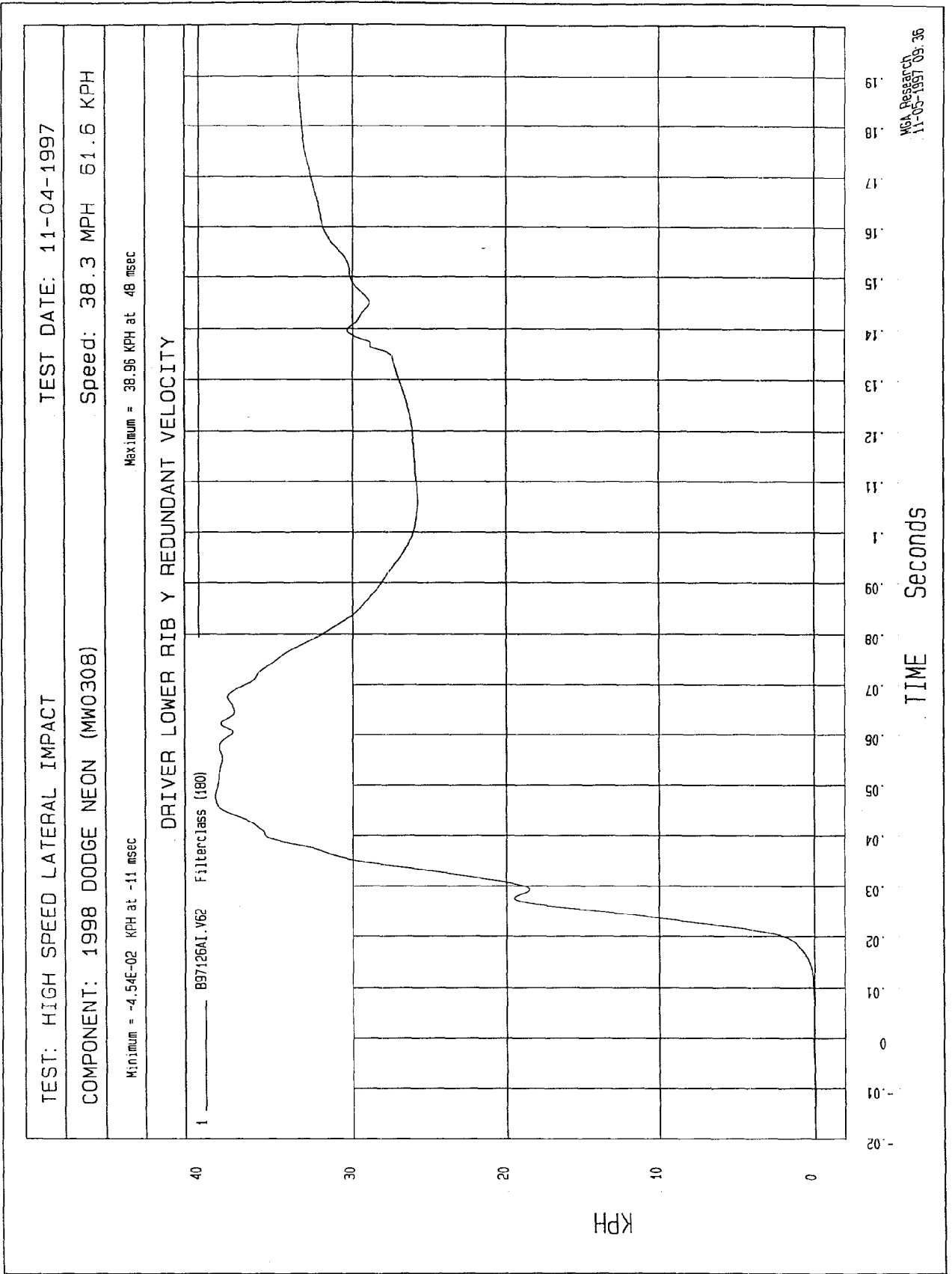
17

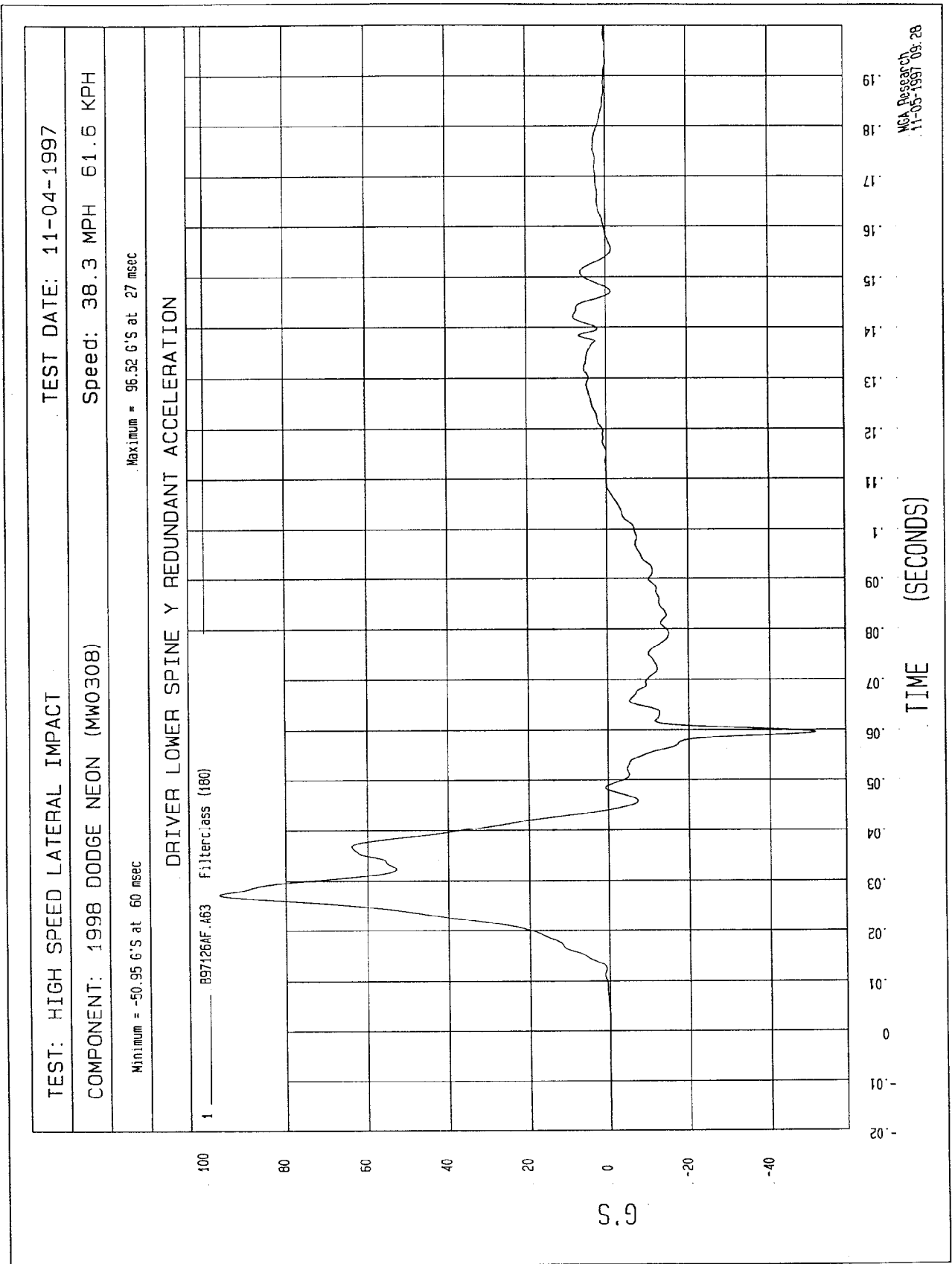
18

19

TIME (SECONDS)

MCA Research
11-05-1997 09:28



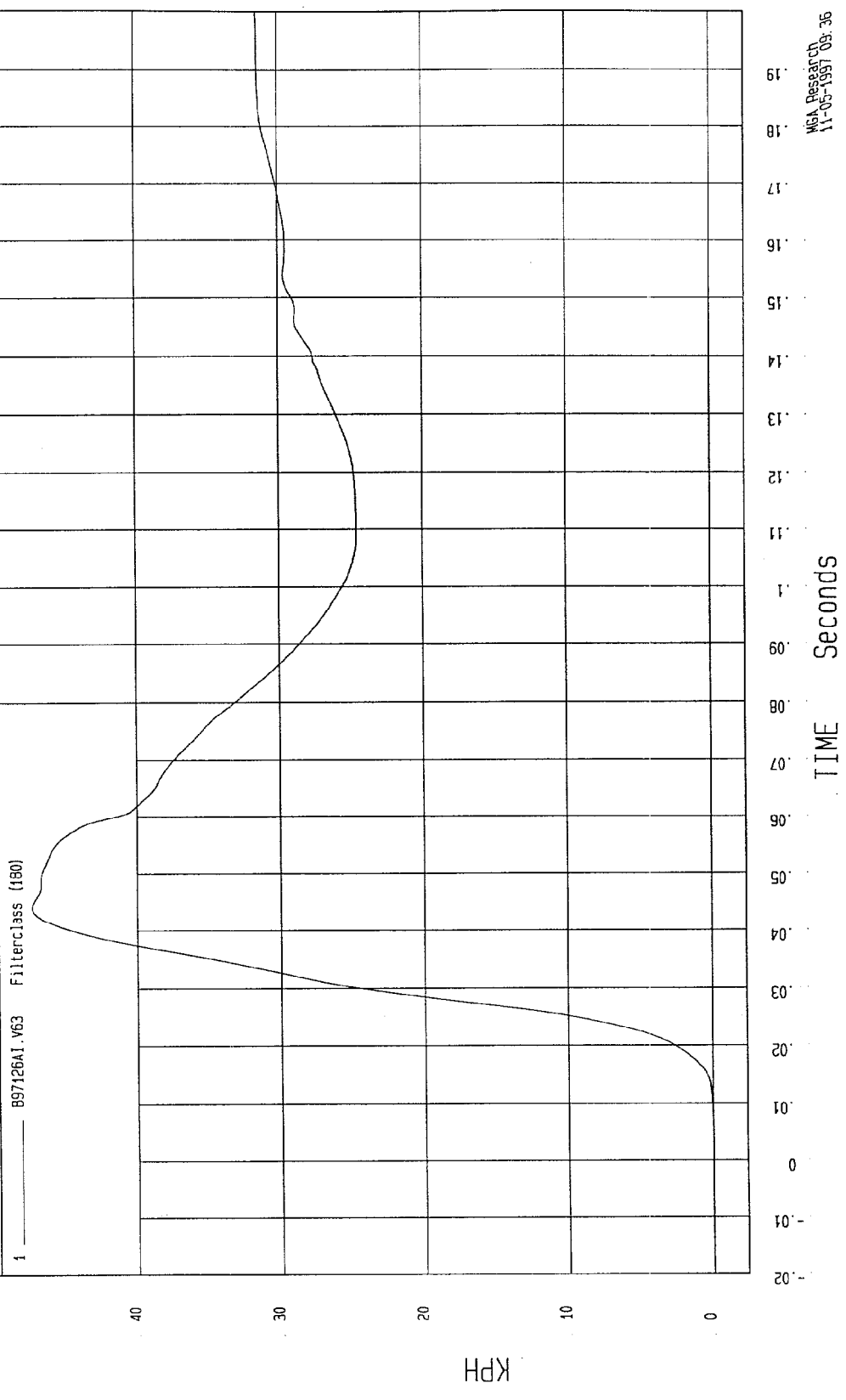


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -1.42E-02 KPH at 4 msec Maximum = 47.34 KPH at 44 msec

DRIVER LOWER SPINE Y REDUNDANT VELOCITY



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

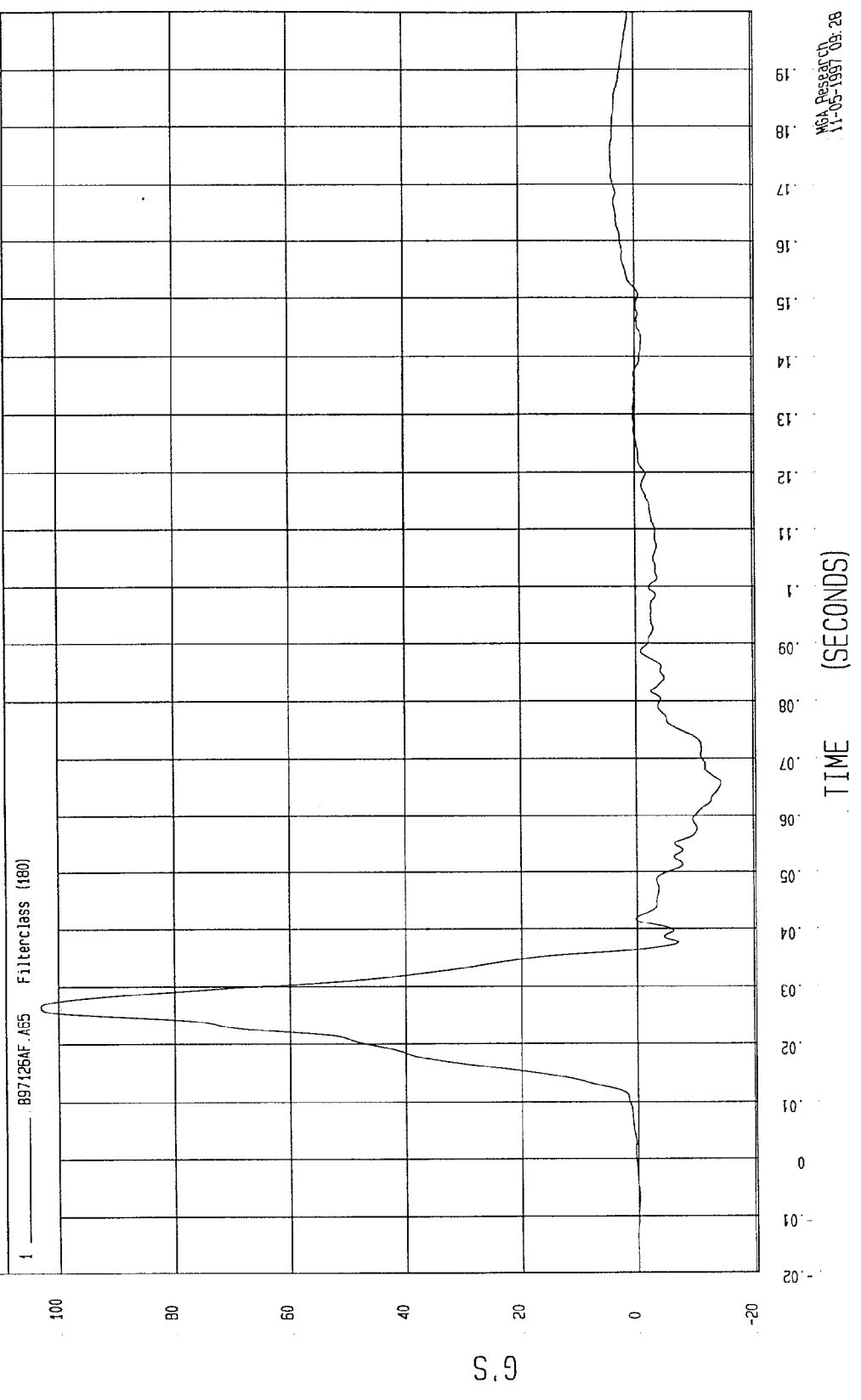
Speed: 38.3 MPH 61.6 KPH

COMPONENT: 1998 DODGE NEON (MW0308)

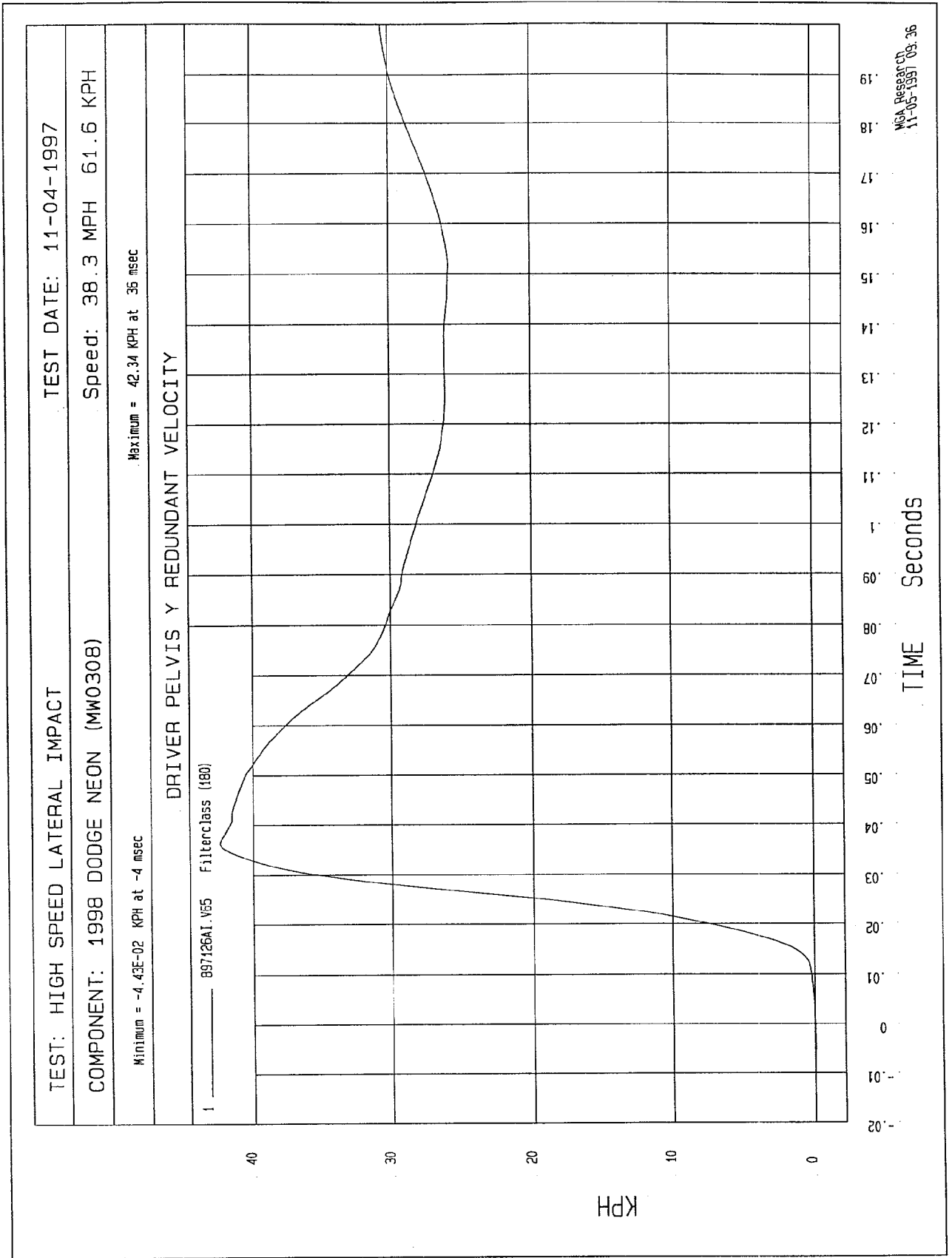
Maximum = 103.00 G'S at 27 msec

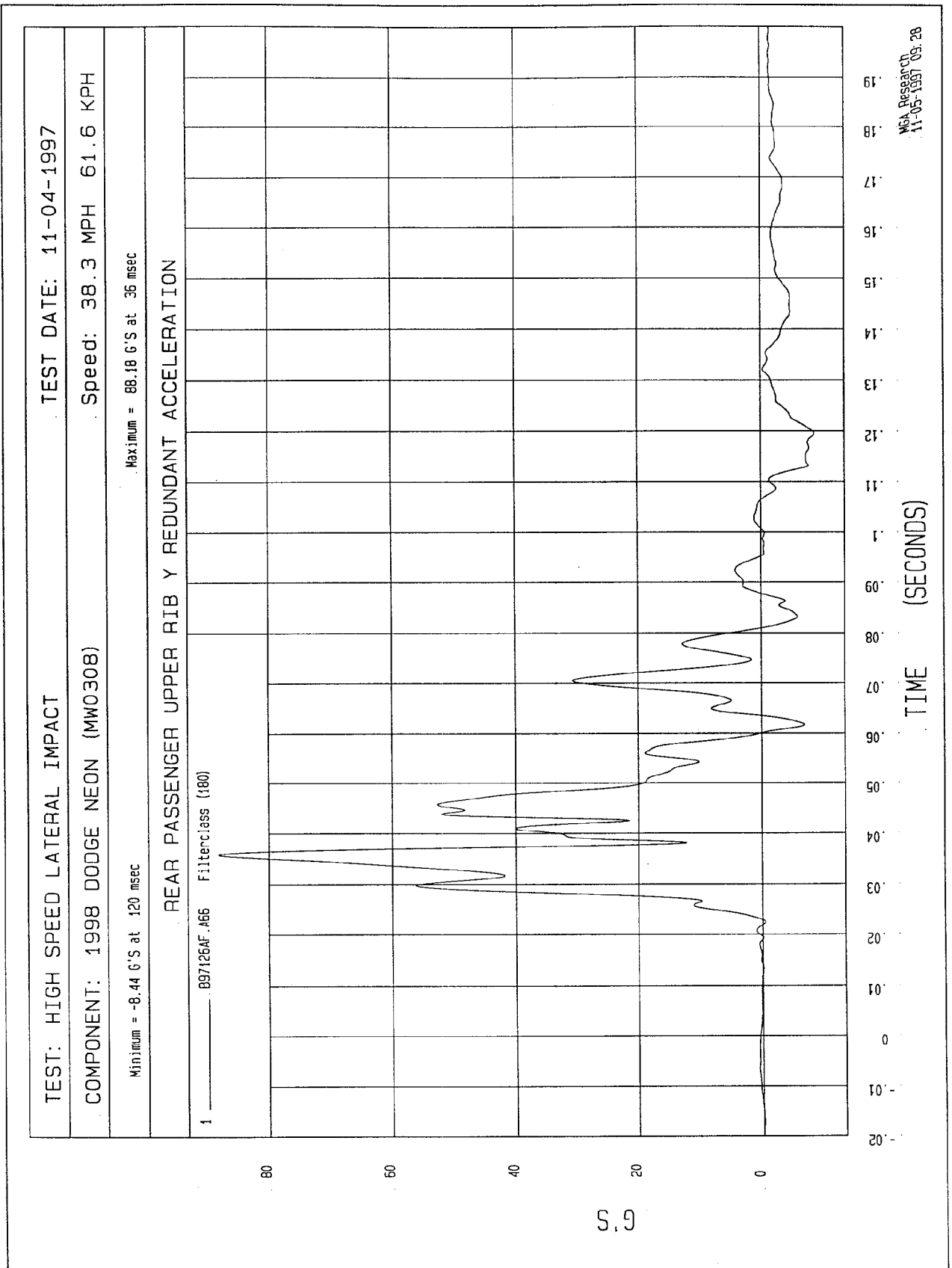
Minimum = -14.52 G'S at 66 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION



MCA Research
11-05-1997 09:28





TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

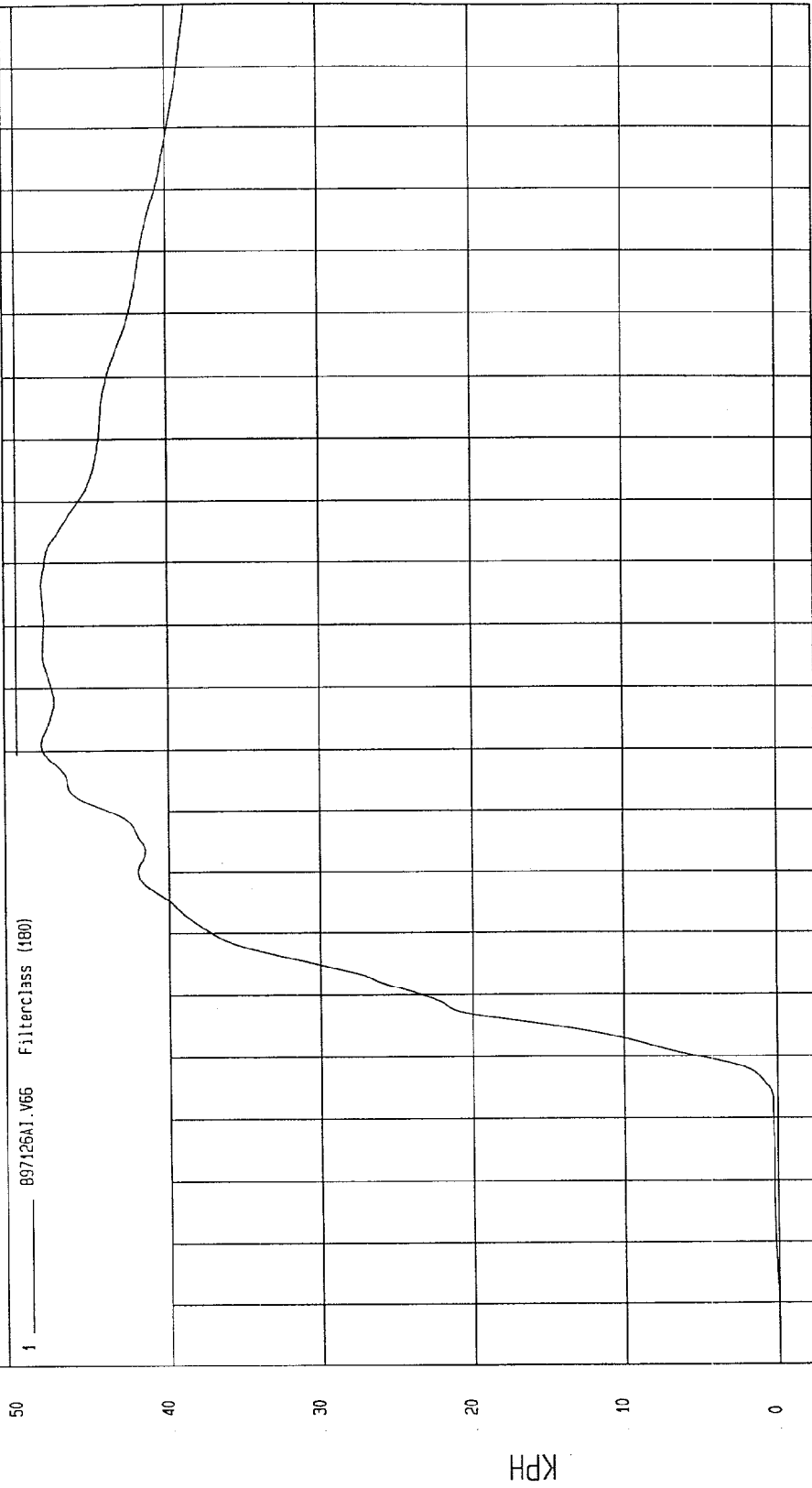
Speed: 38.3 MPH 61.6 KPH

COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 48.36 KPH at 81 msec

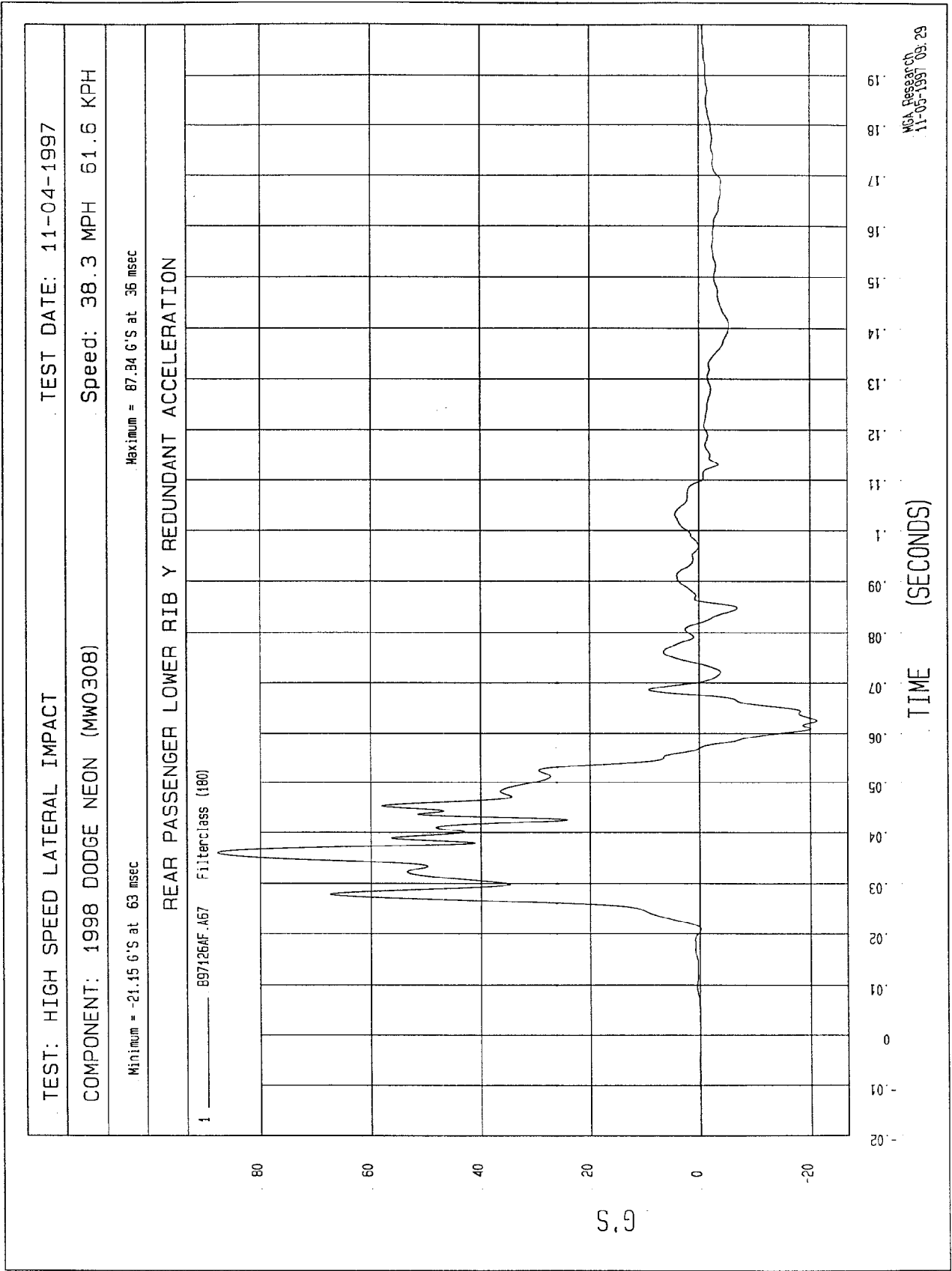
Minimum = -2.80E-02 KPH at -14 msec

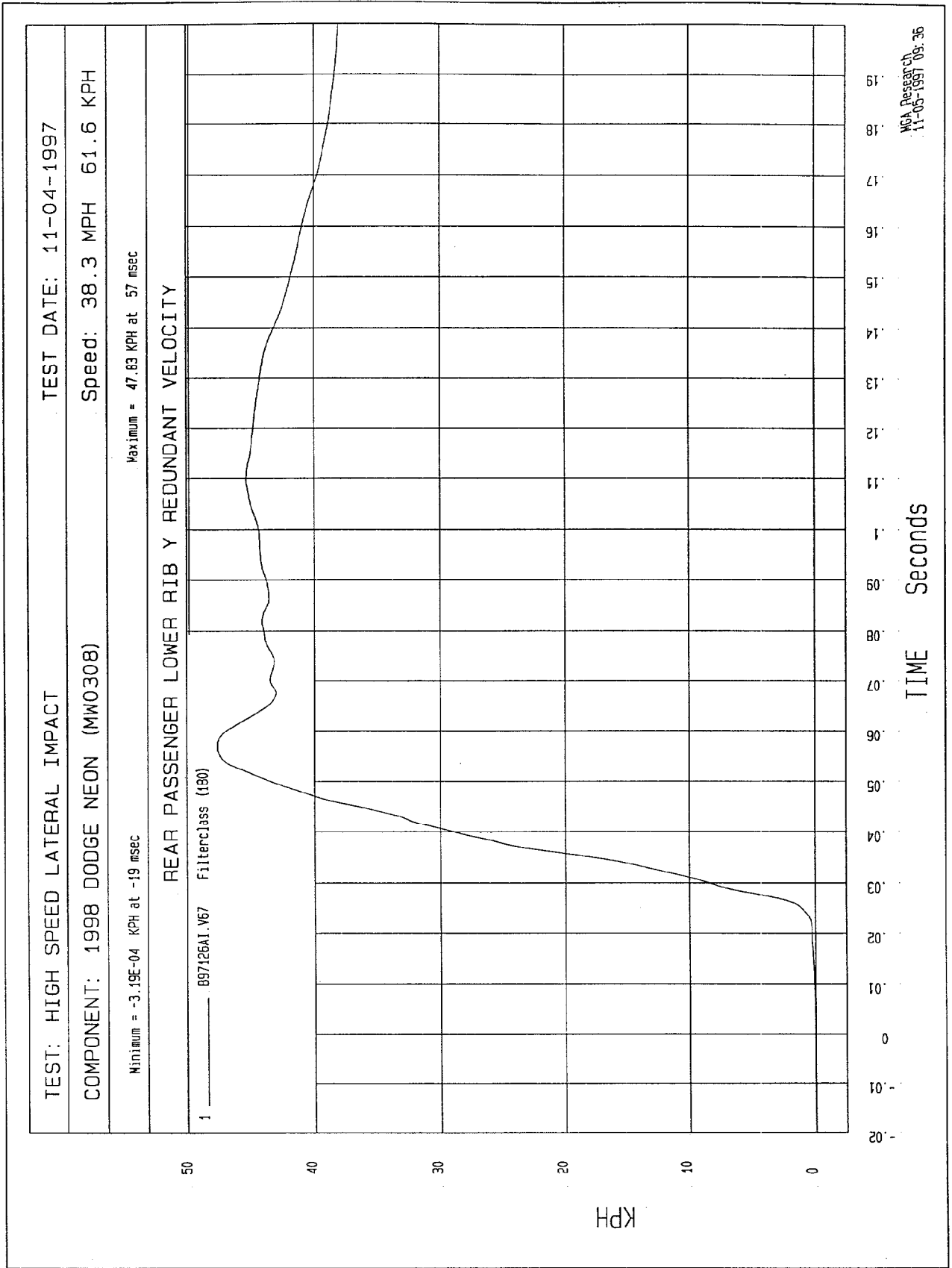
REAR PASSENGER UPPER RIB Y REDUNDANT VELOCITY

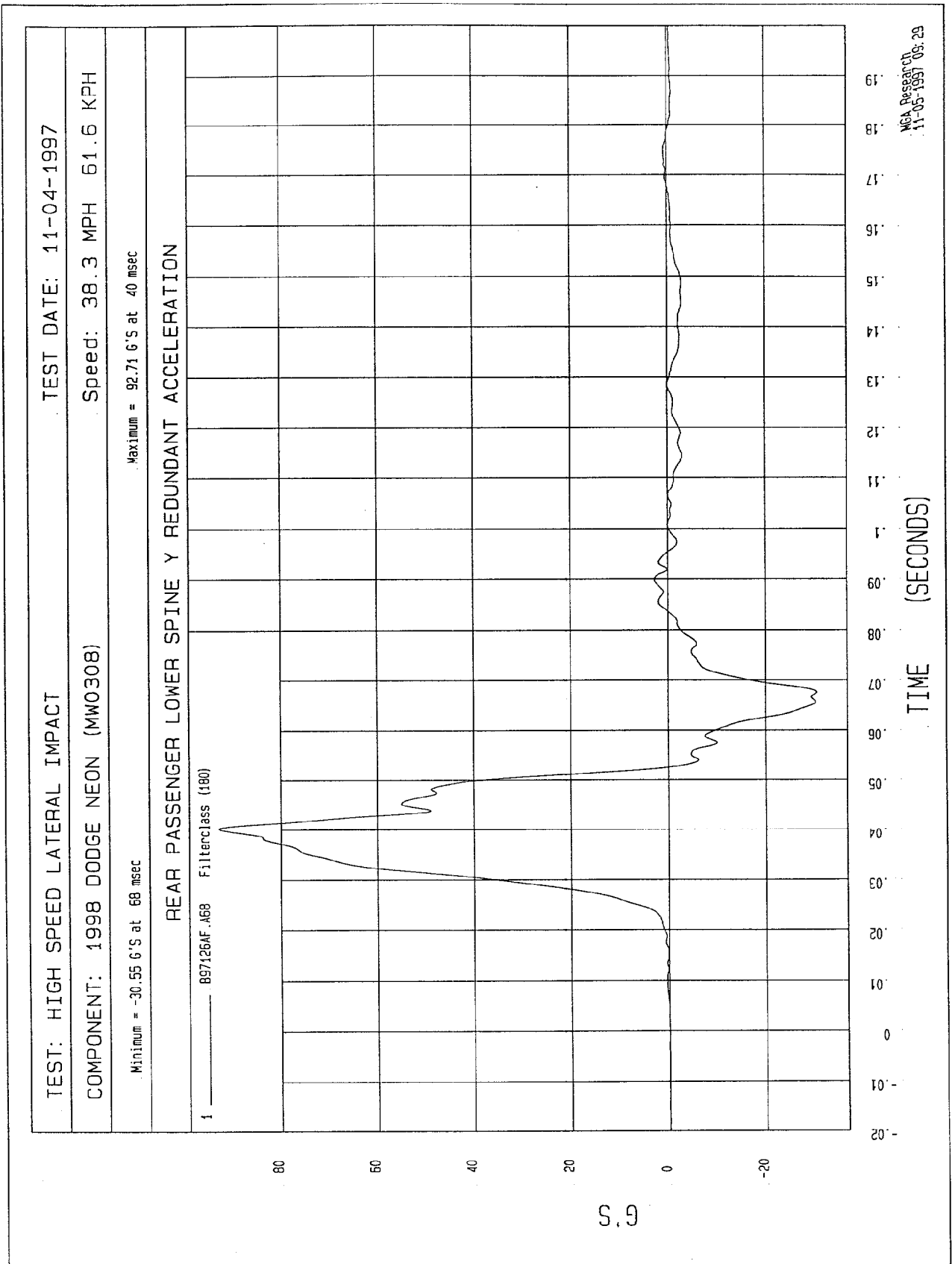


MCA Research
11-05-1997 09:36

TIME Seconds







TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

SPEED: 38.3 MPH 61.6 KPH

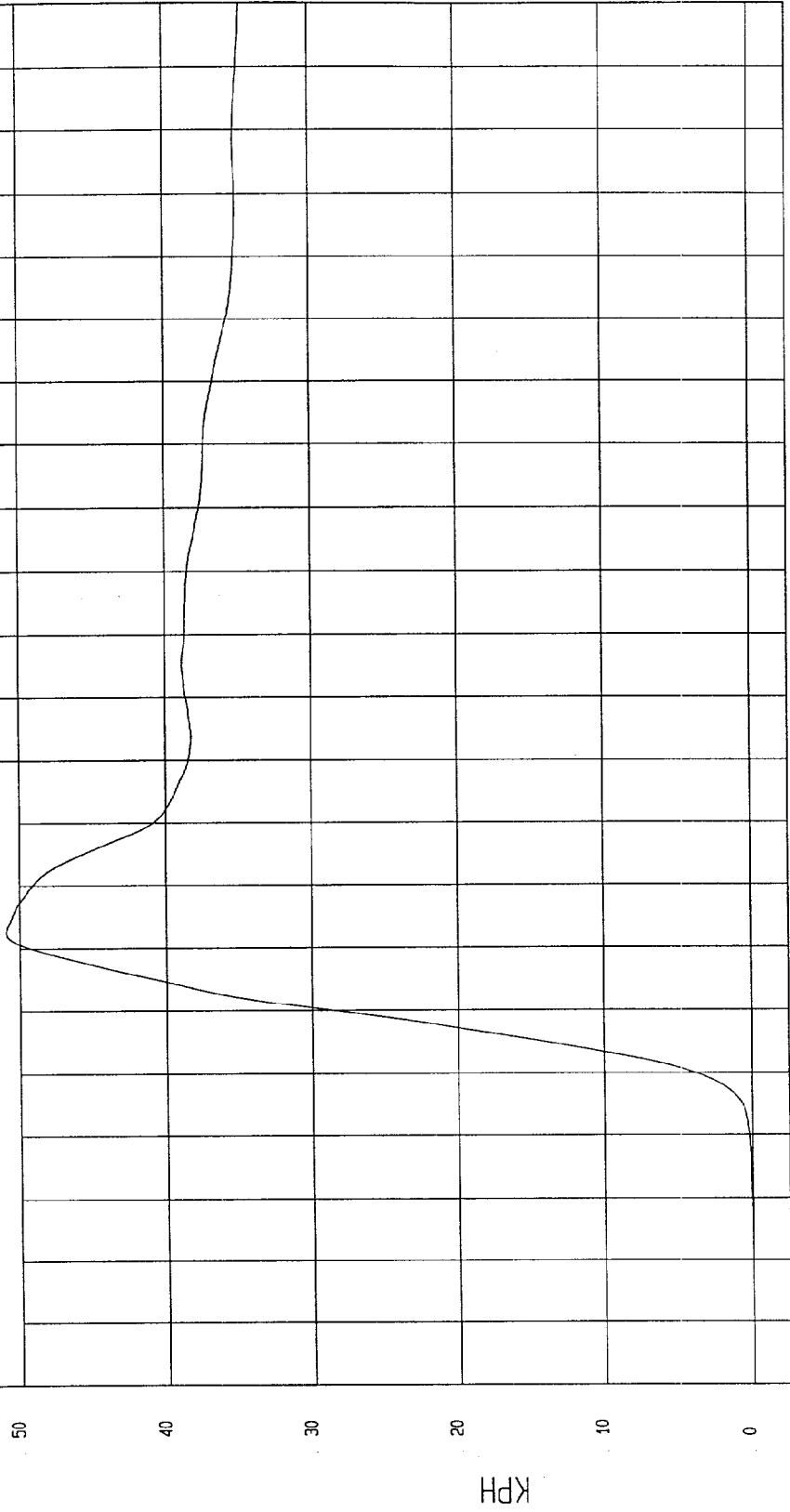
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 50.93 KPH at 52 msec

Minimum = -5.00E-03 KPH at -4 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT VELOCITY

1 897126A1.V58 Filterclass (180)



MCA Research
11-05-1997 09:37

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-04-1997

Speed: 38.3 MPH 61.6 KPH

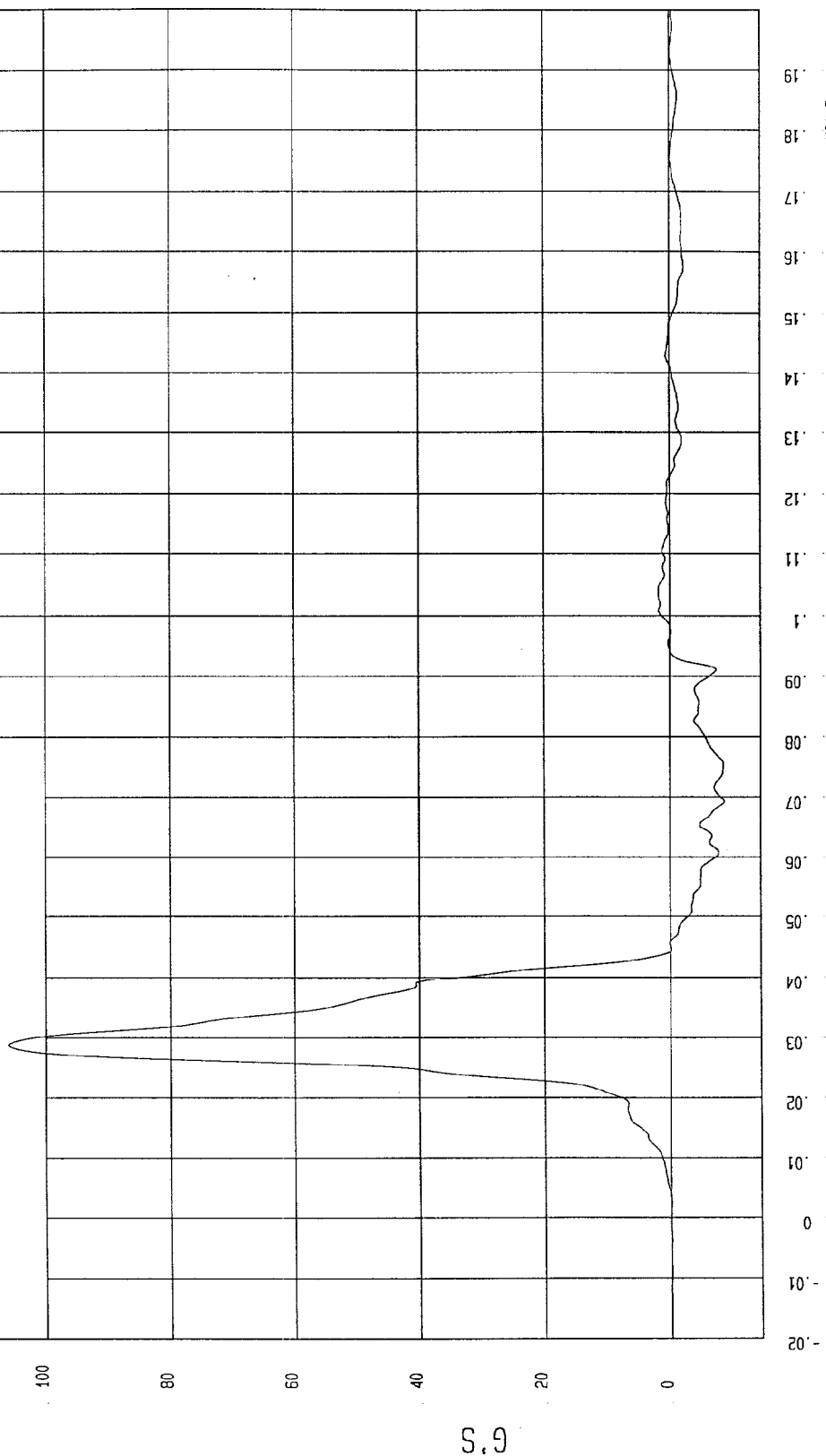
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 105.89 G'S at 29 msec

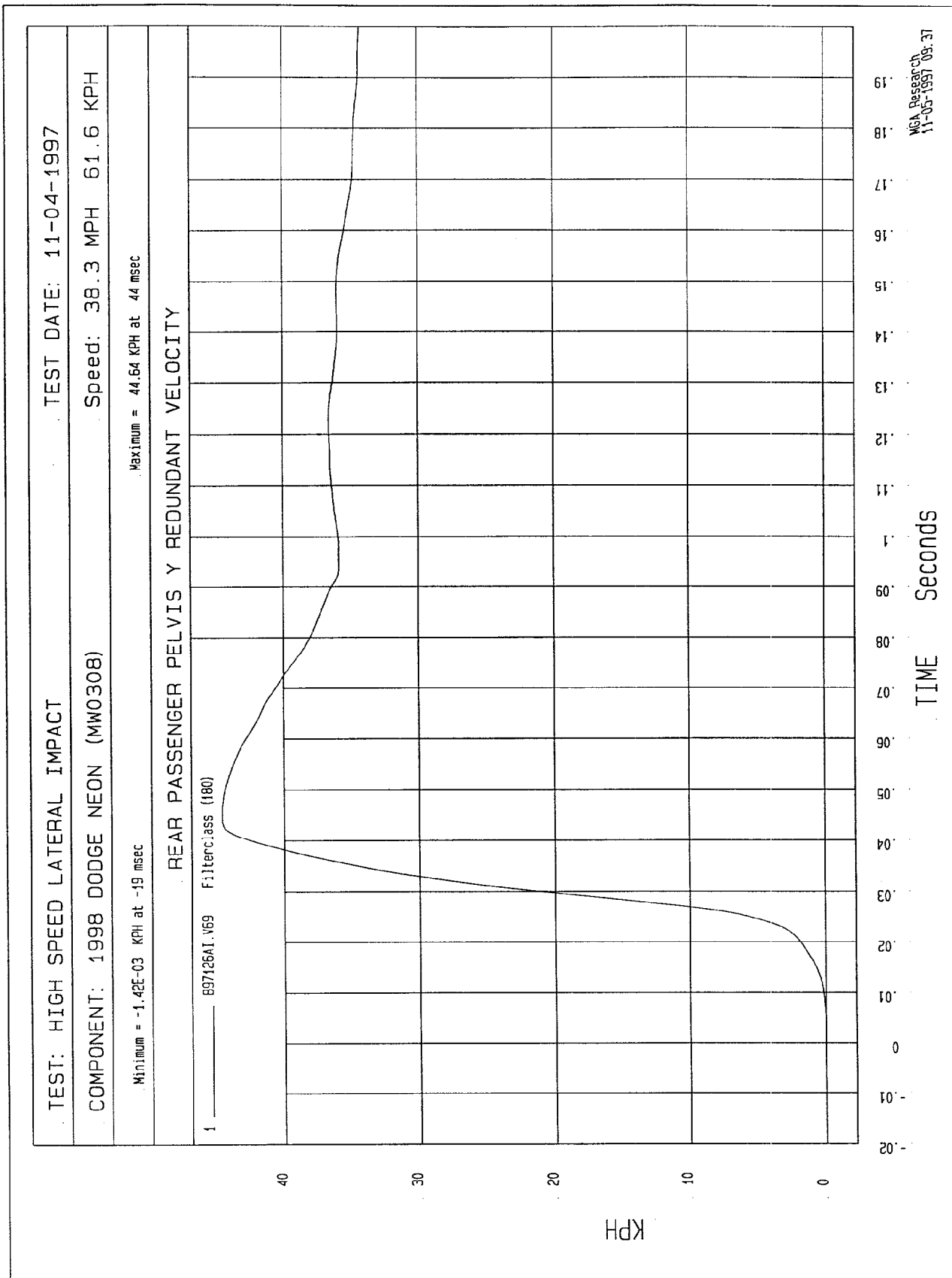
Minimum = -8.37 G'S at 69 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION

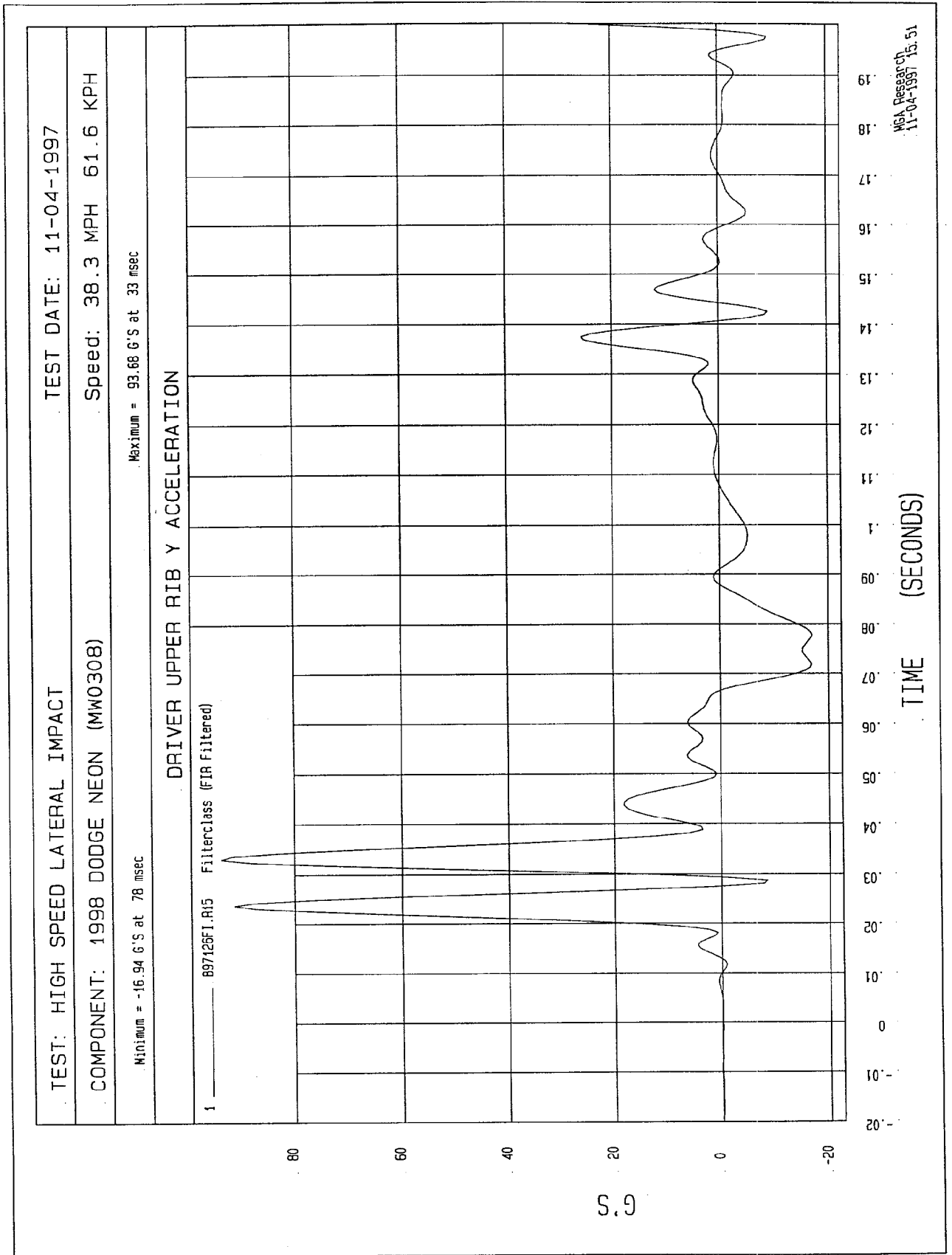
1 ——— B97126AF.A69 Filterclass (180)

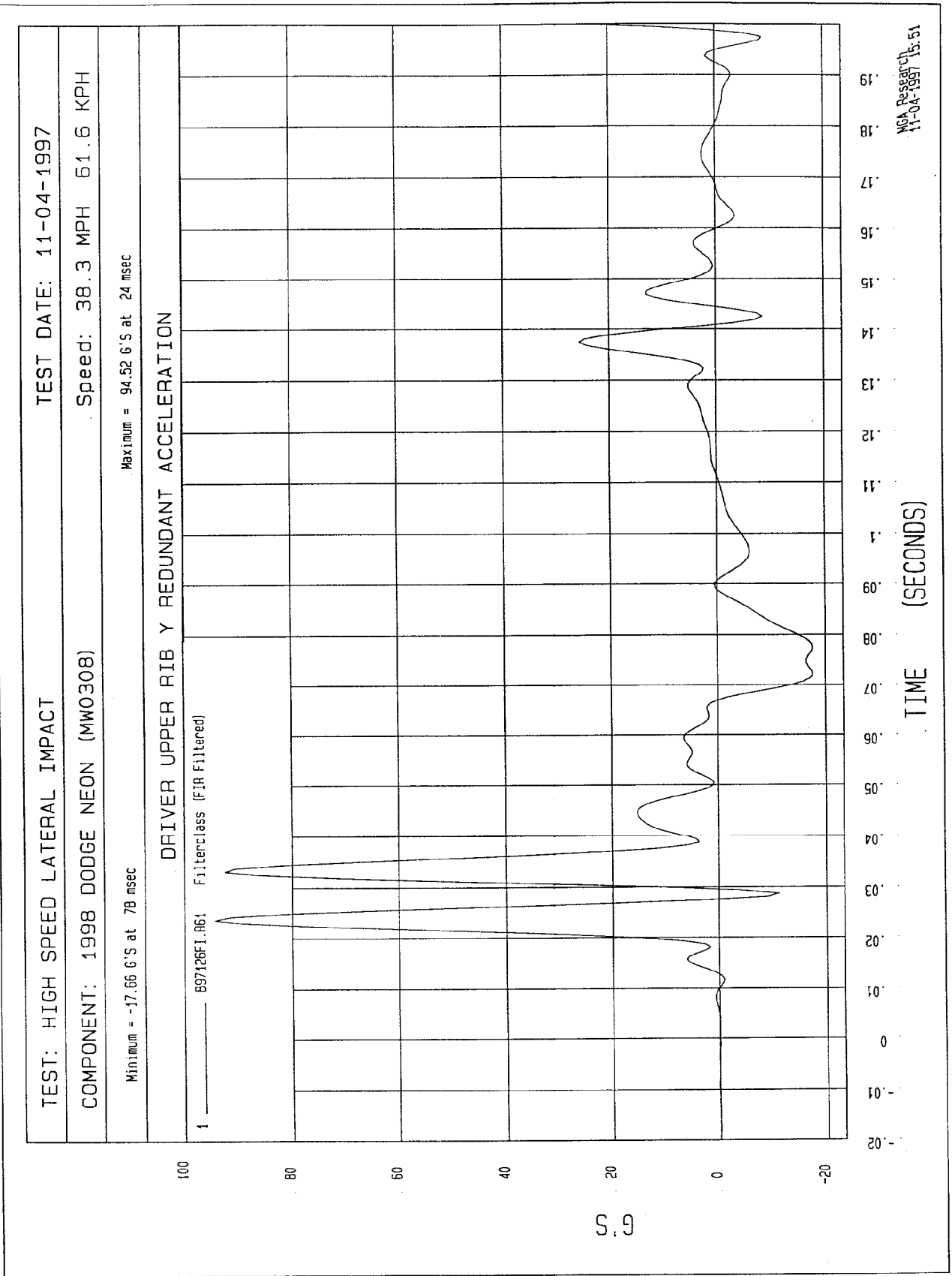


MCA Research
11-05-1997 09:29



FINITE IMPULSE RESPONSE (FIR) FILTERED DATA



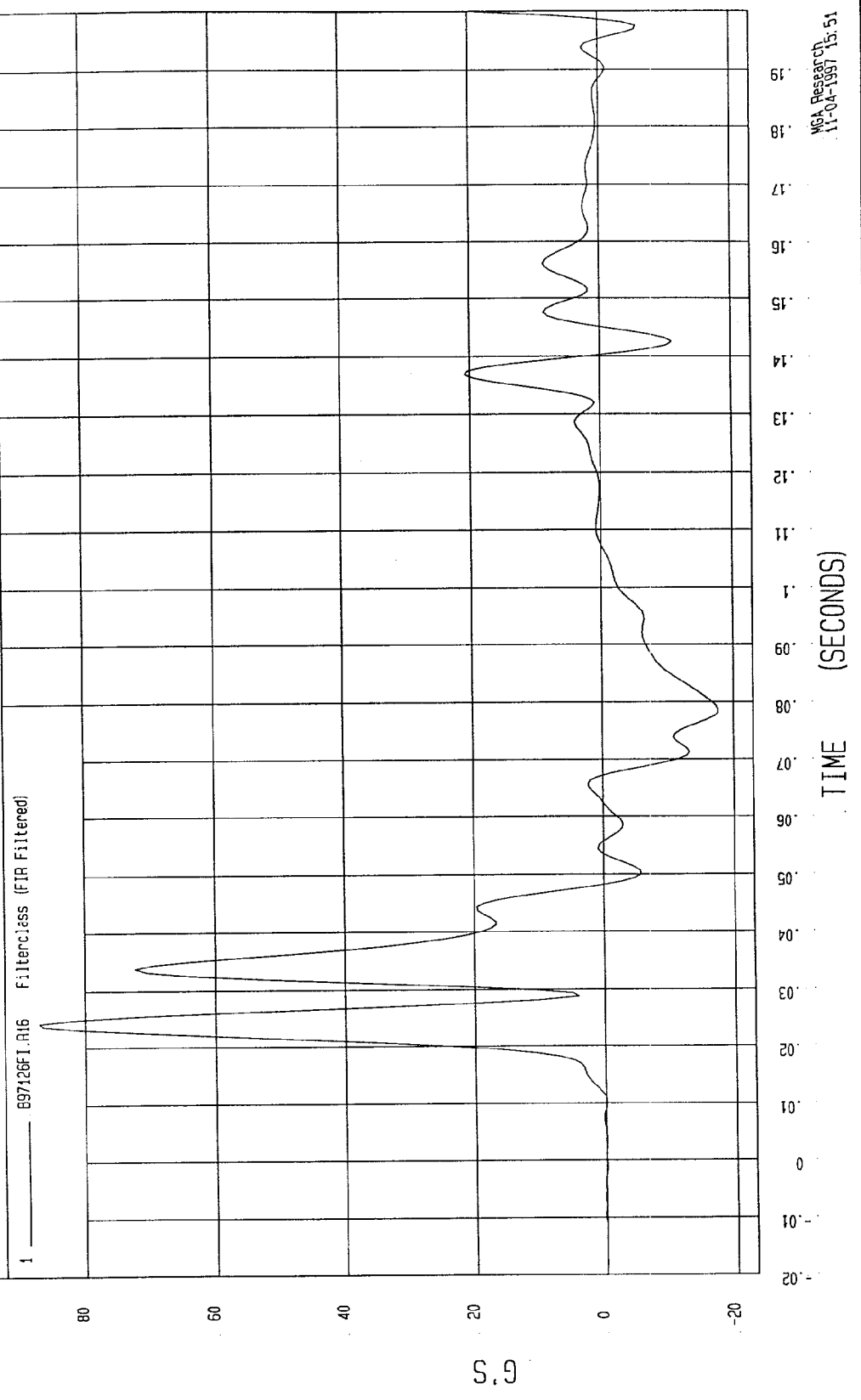


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -17.73 G'S at 79 msec Maximum = 87.04 G'S at 24 msec

DRIVER LOWER RIB Y ACCELERATION



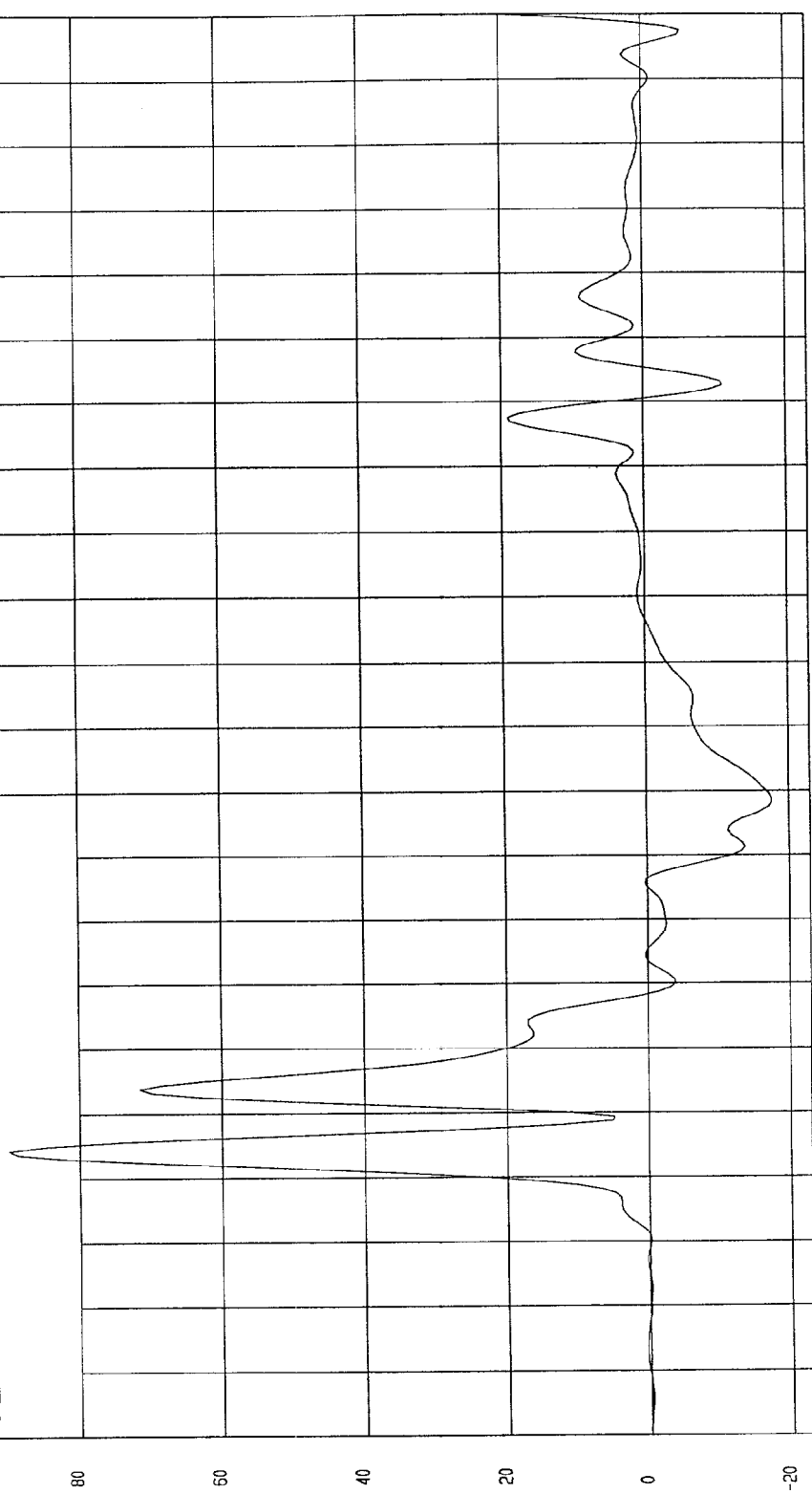
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -17.60 G'S at 79 msec Maximum = 90.01 G'S at 24 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION

1 _____ B97126F1.R62 Filterclass (FIR Filtered)



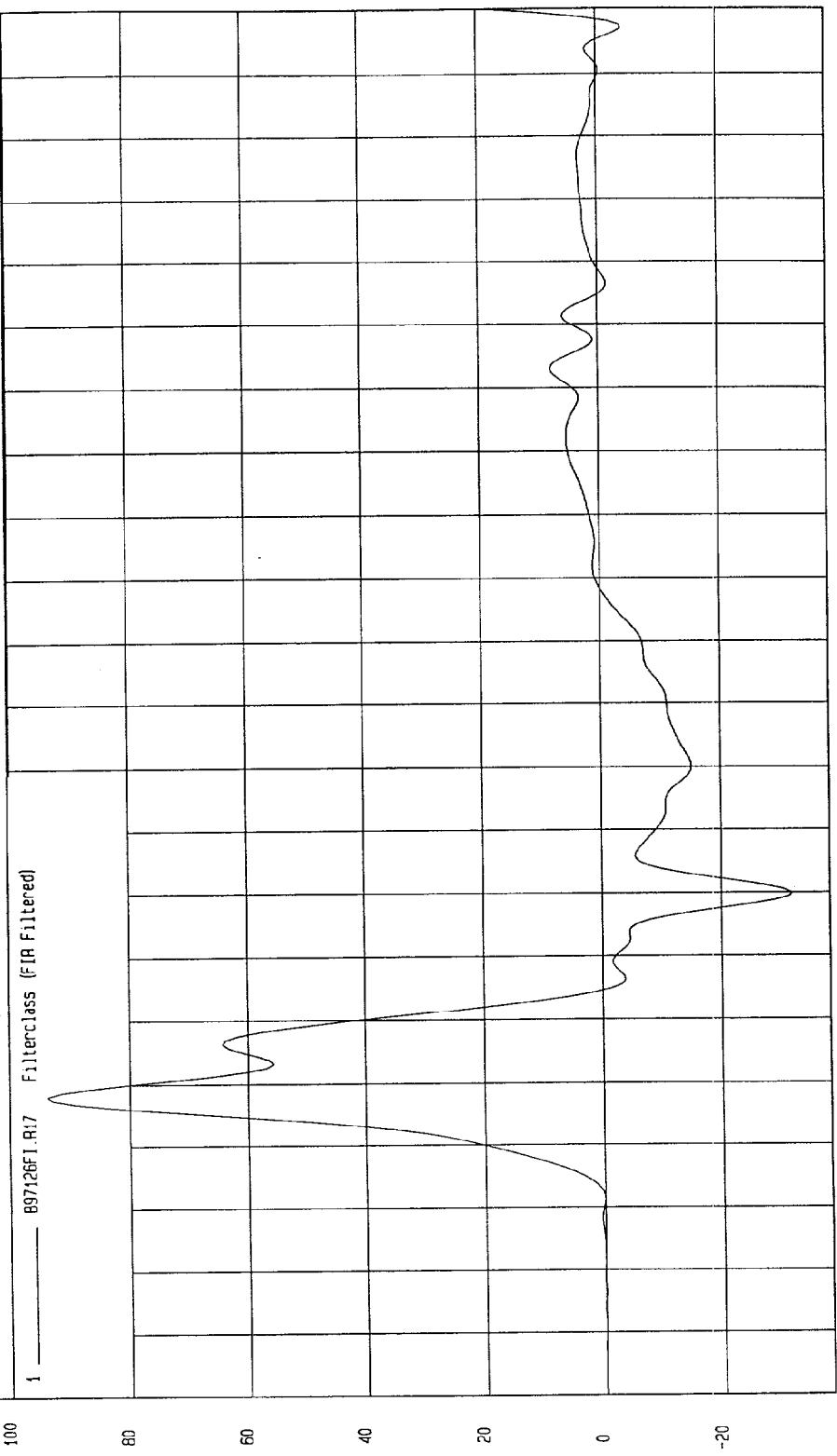
MCA Research
11-04-1997 15:51

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

Minimum = -31.81 G'S at 60 msec Maximum = 94.01 G'S at 28 msec

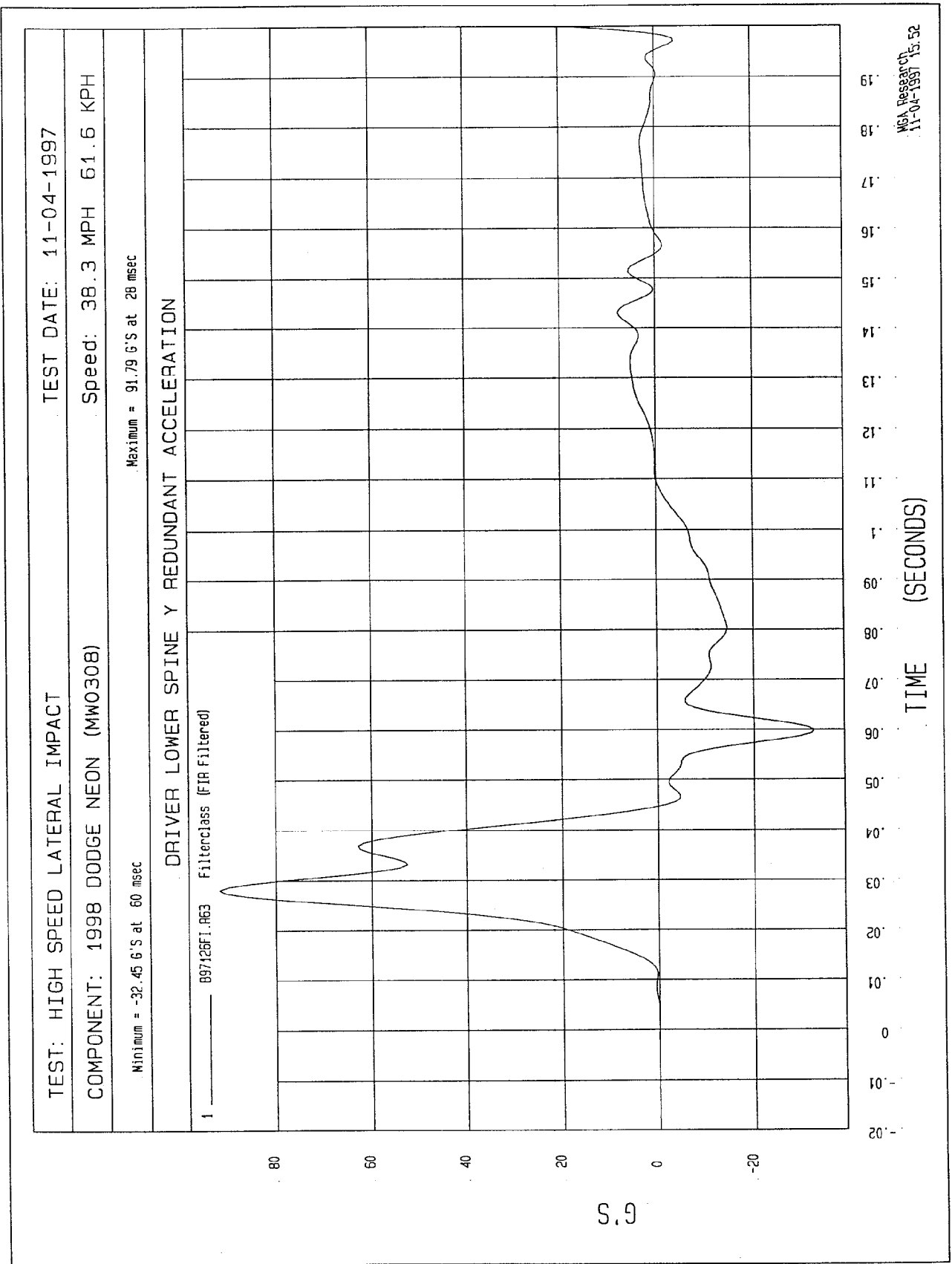
DRIVER LOWER SPINE Y ACCELERATION



TIME (SECONDS)

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

MGA Research
11-04-1997 15:51

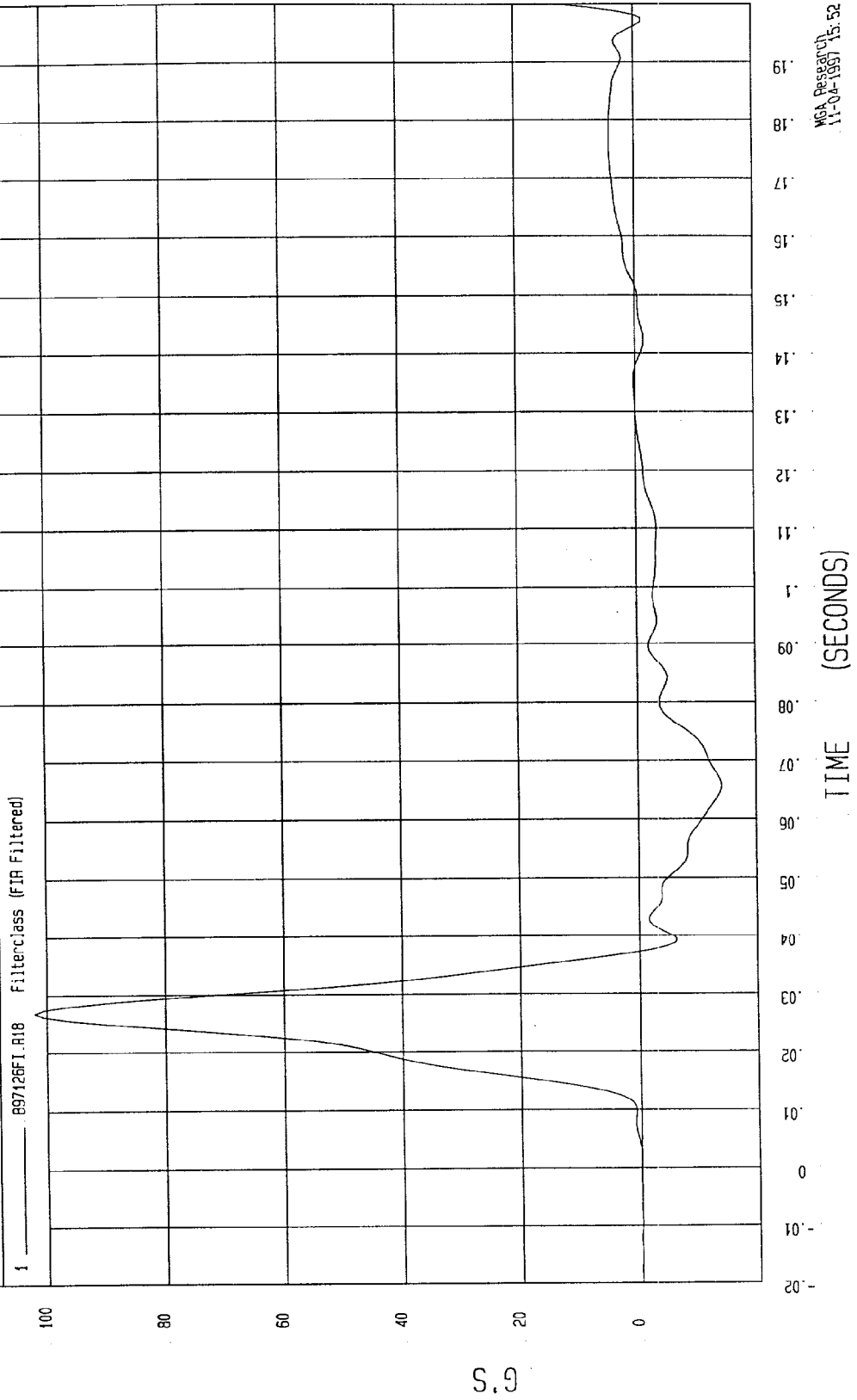


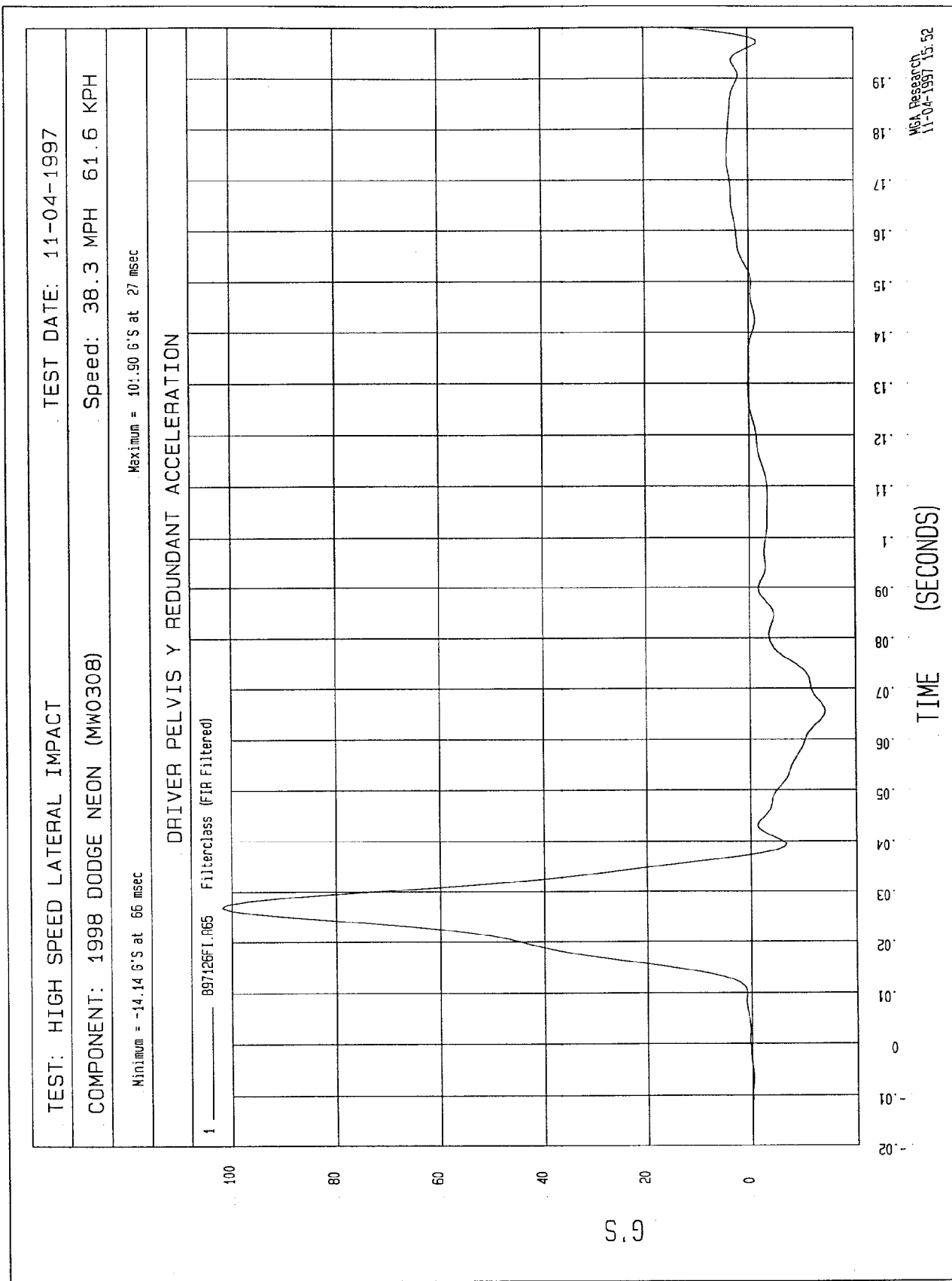
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

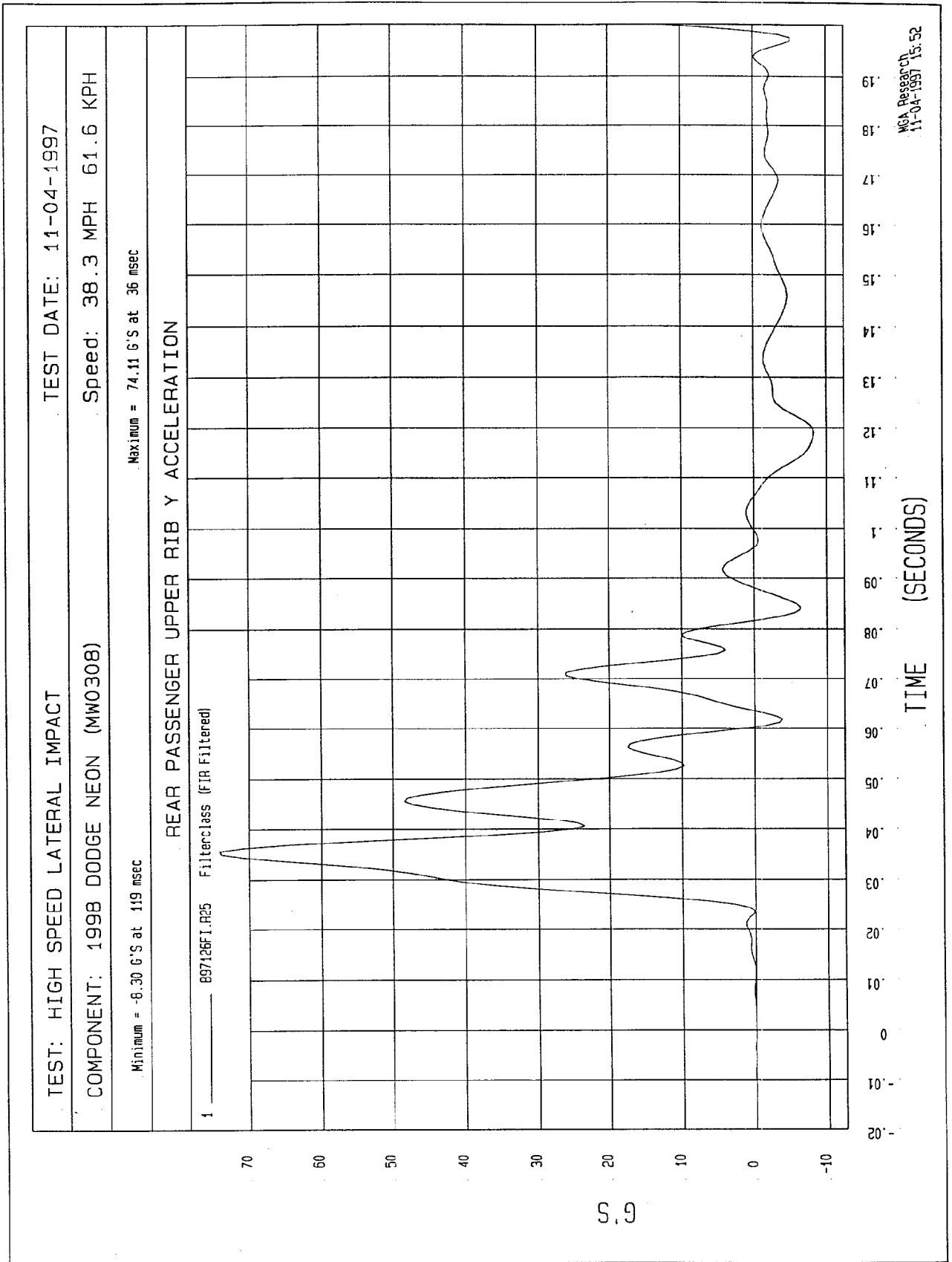
COMPONENT: 1998 DODGE NEON (MW0308) Speed: 38.3 MPH 61.6 KPH

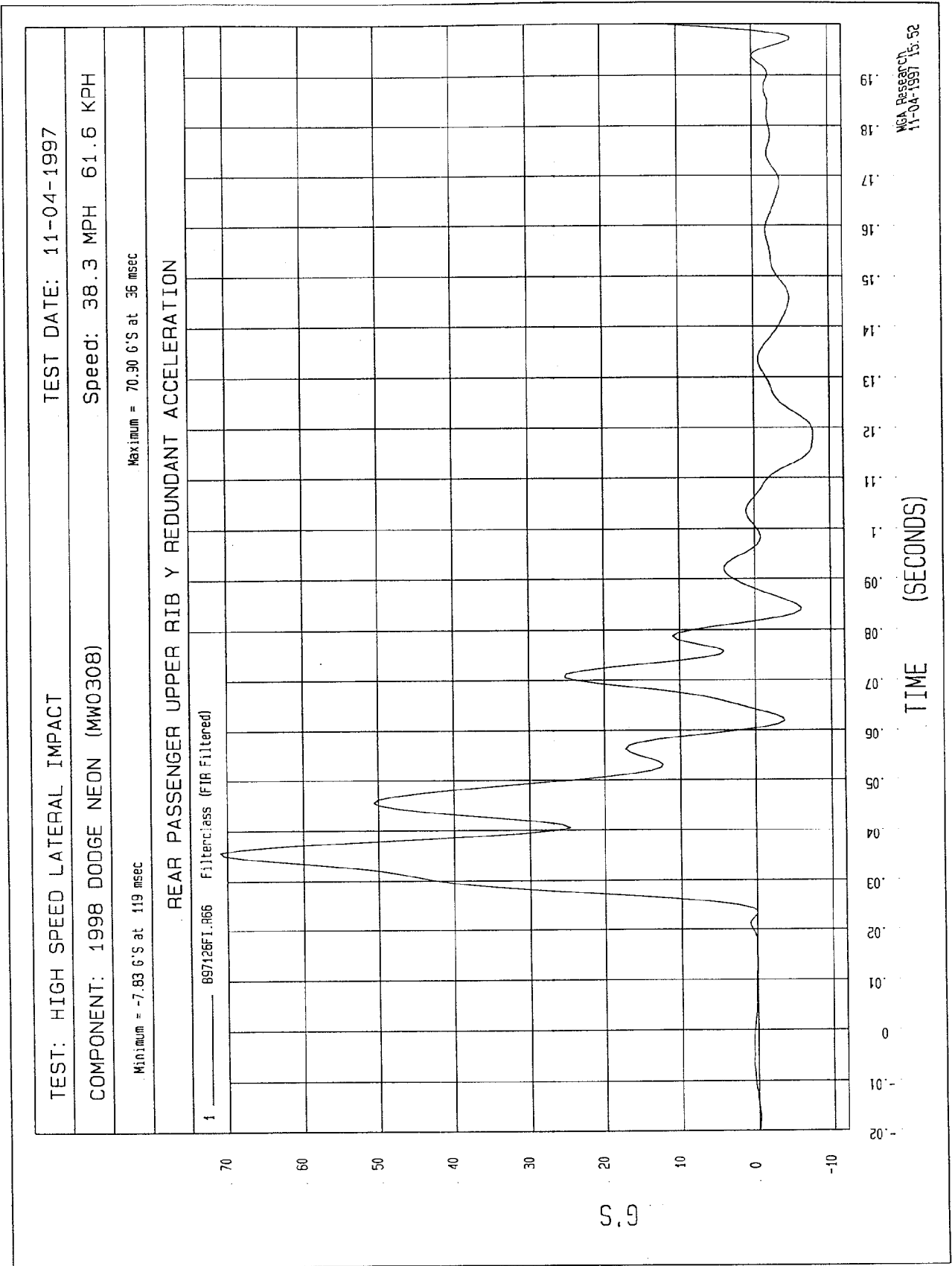
Minimum = -14.08 G'S at 66 msec Maximum = 102.03 G'S at 27 msec

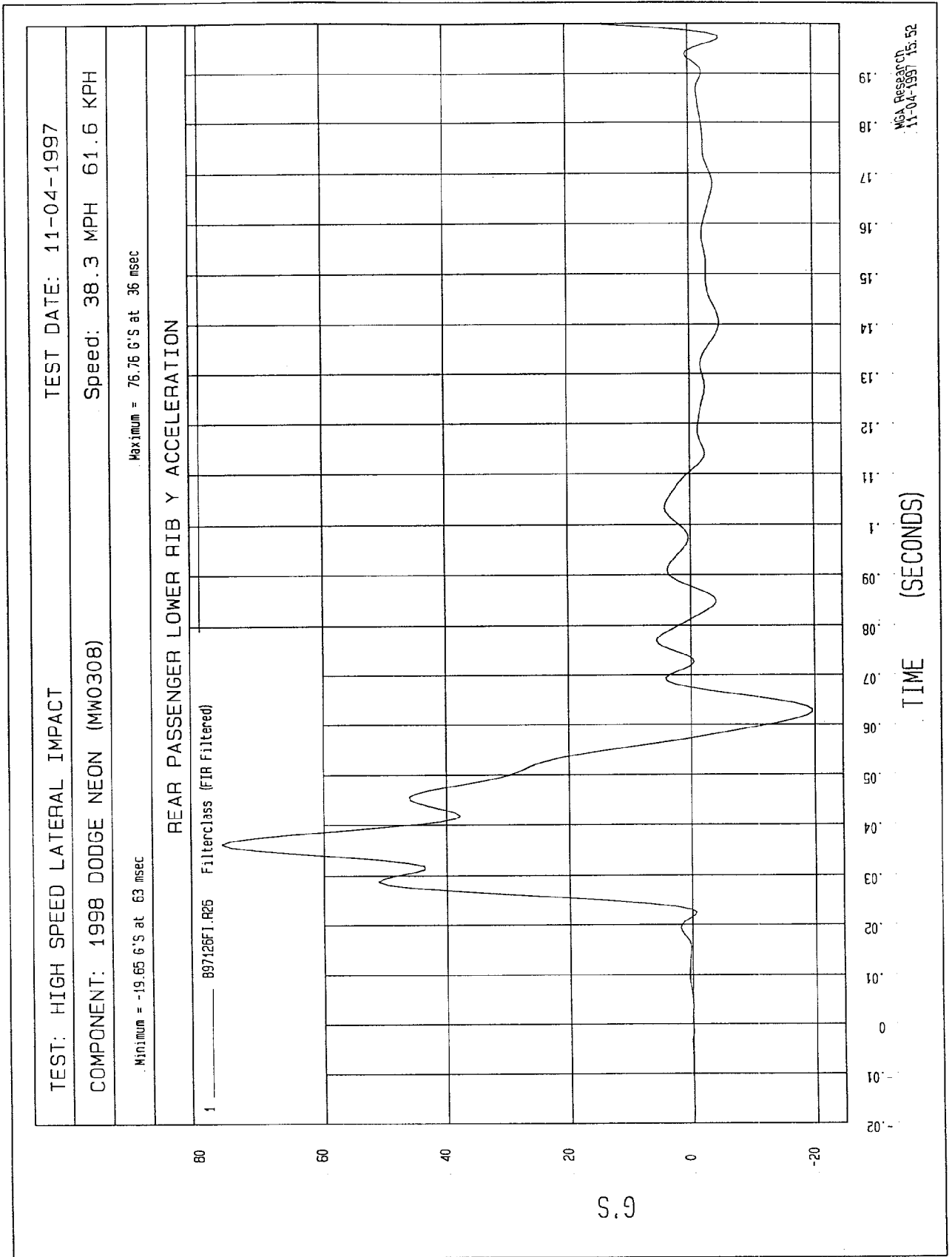
DRIVER PELVIS Y ACCELERATION

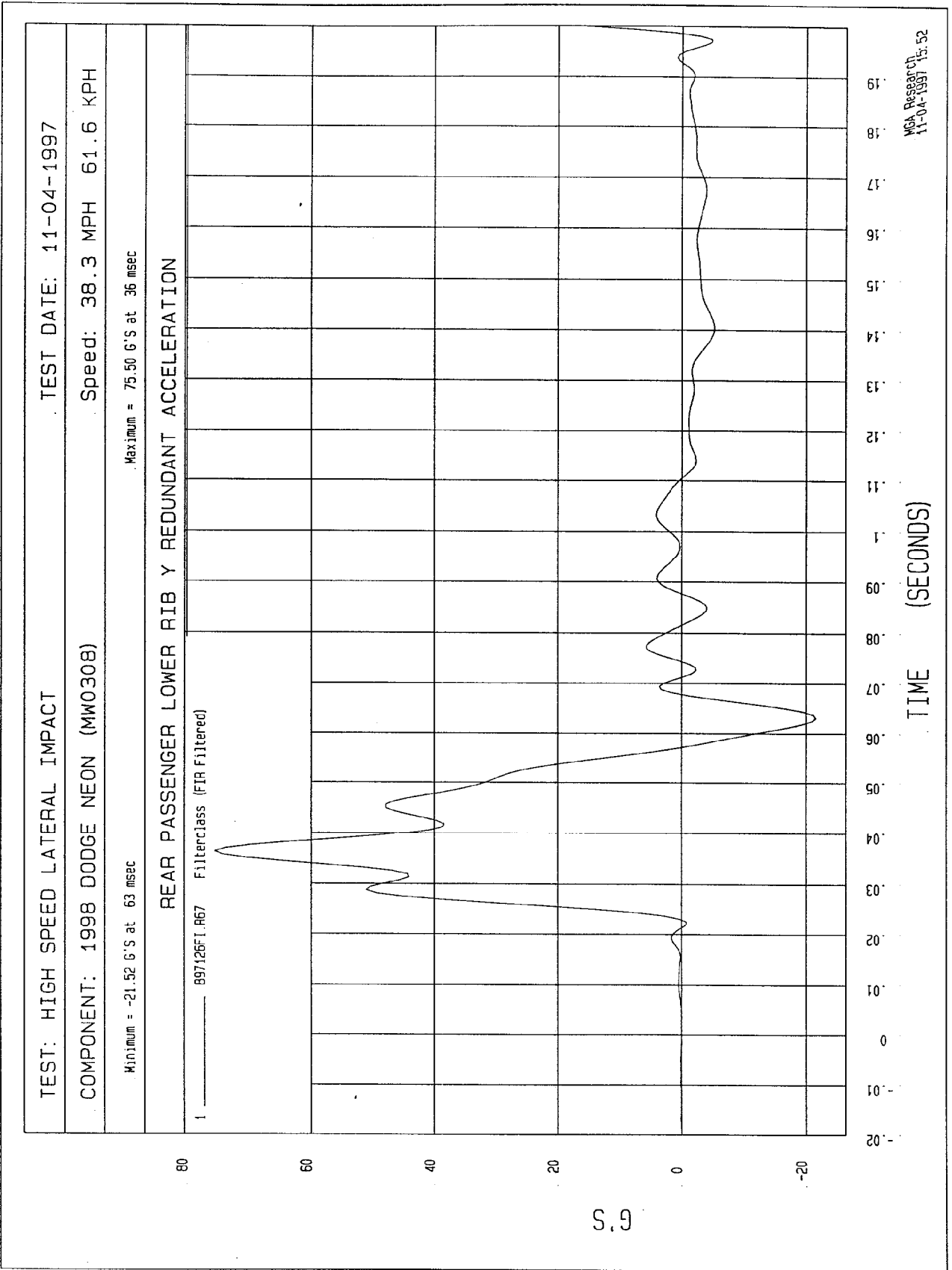


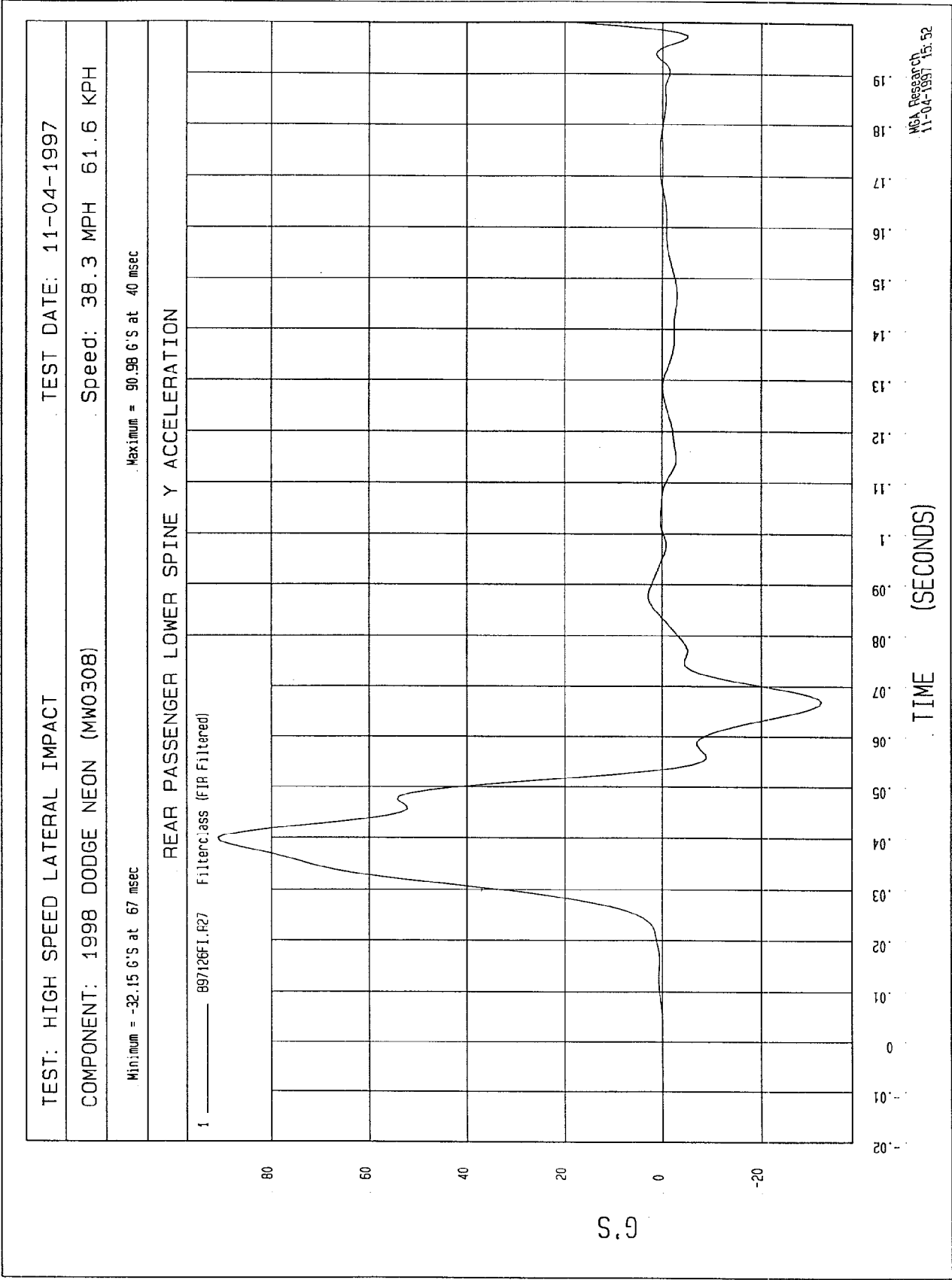


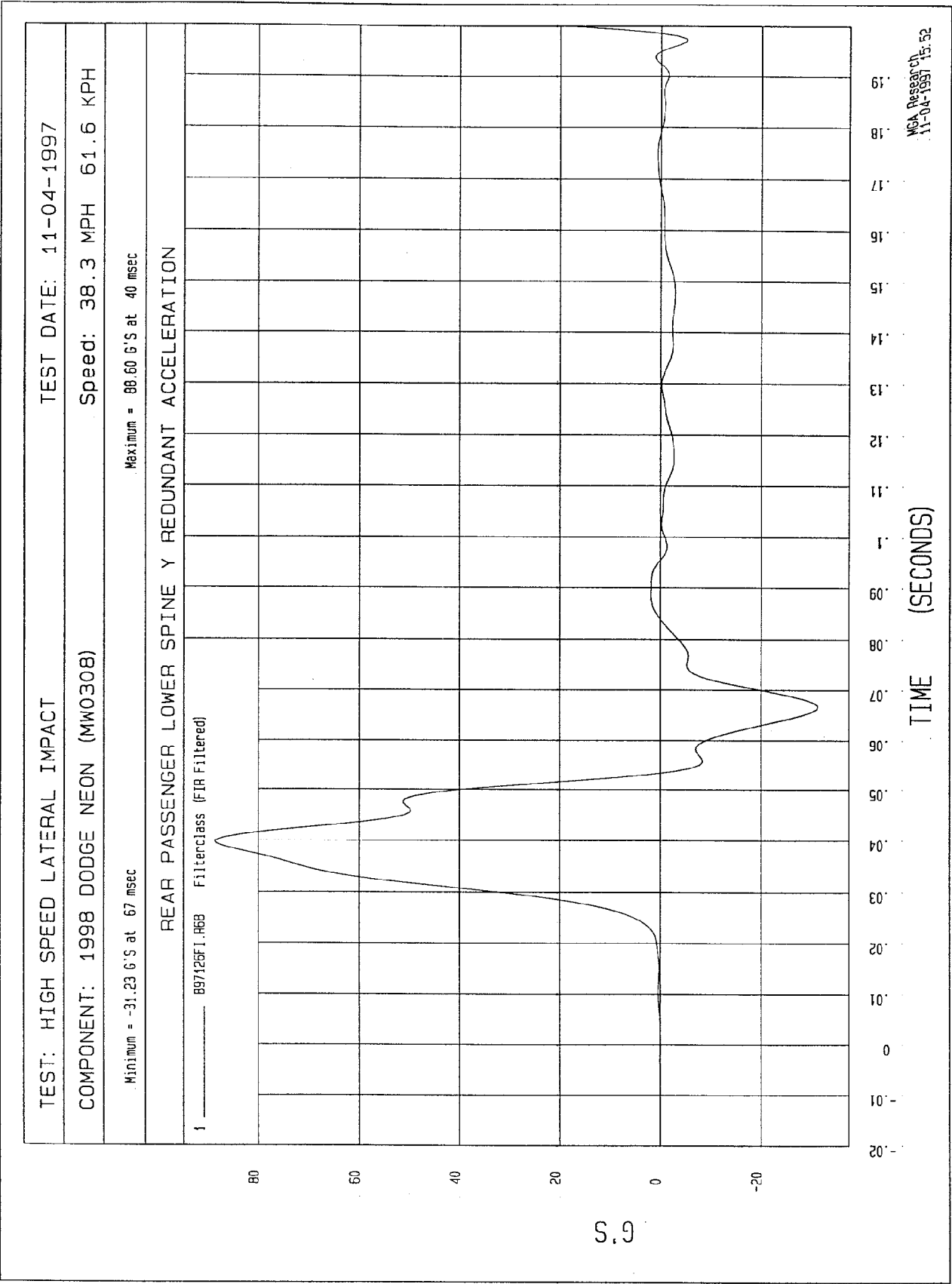


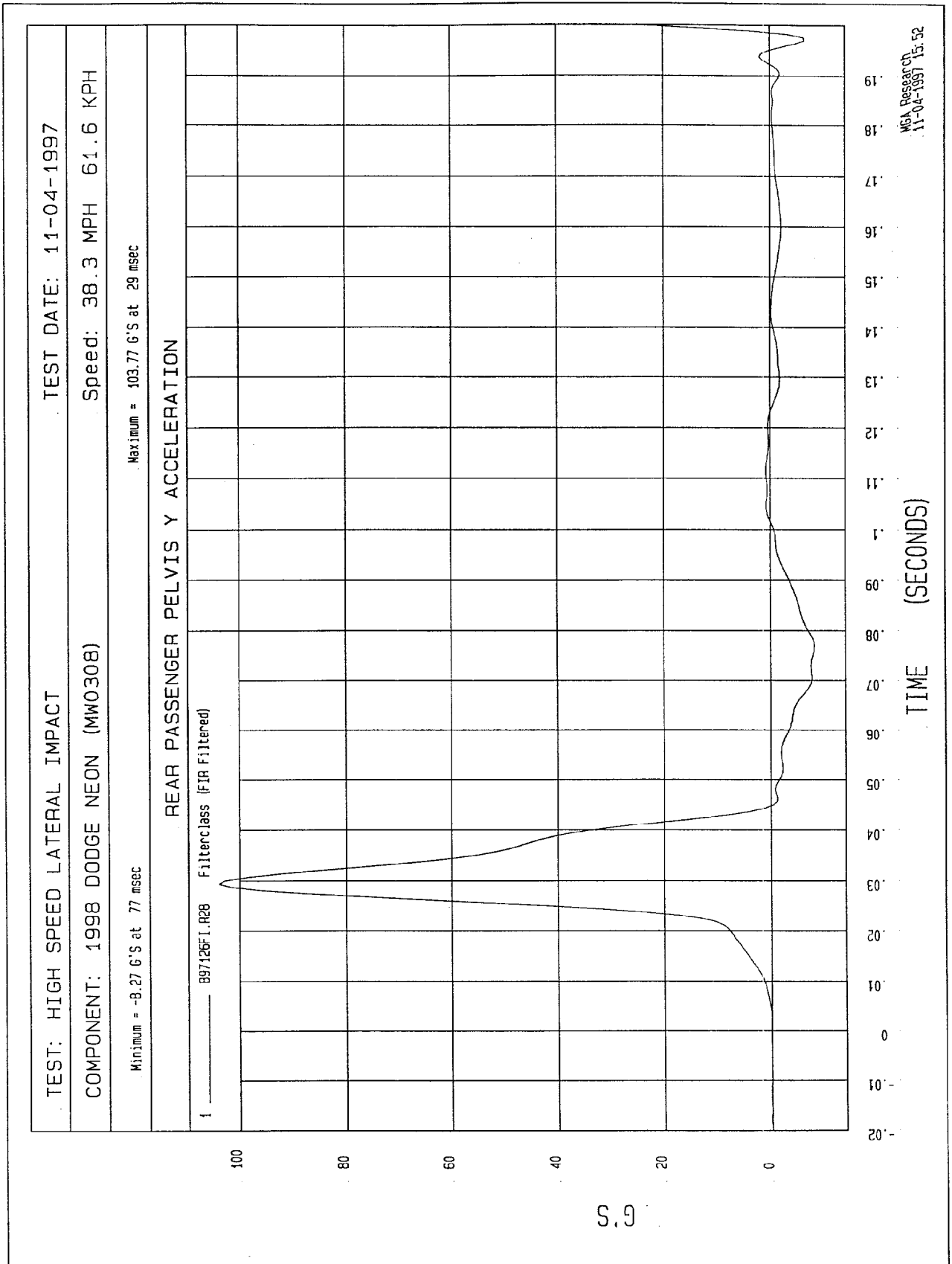












TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-04-1997

SPEED: 38.3 MPH 61.6 KPH

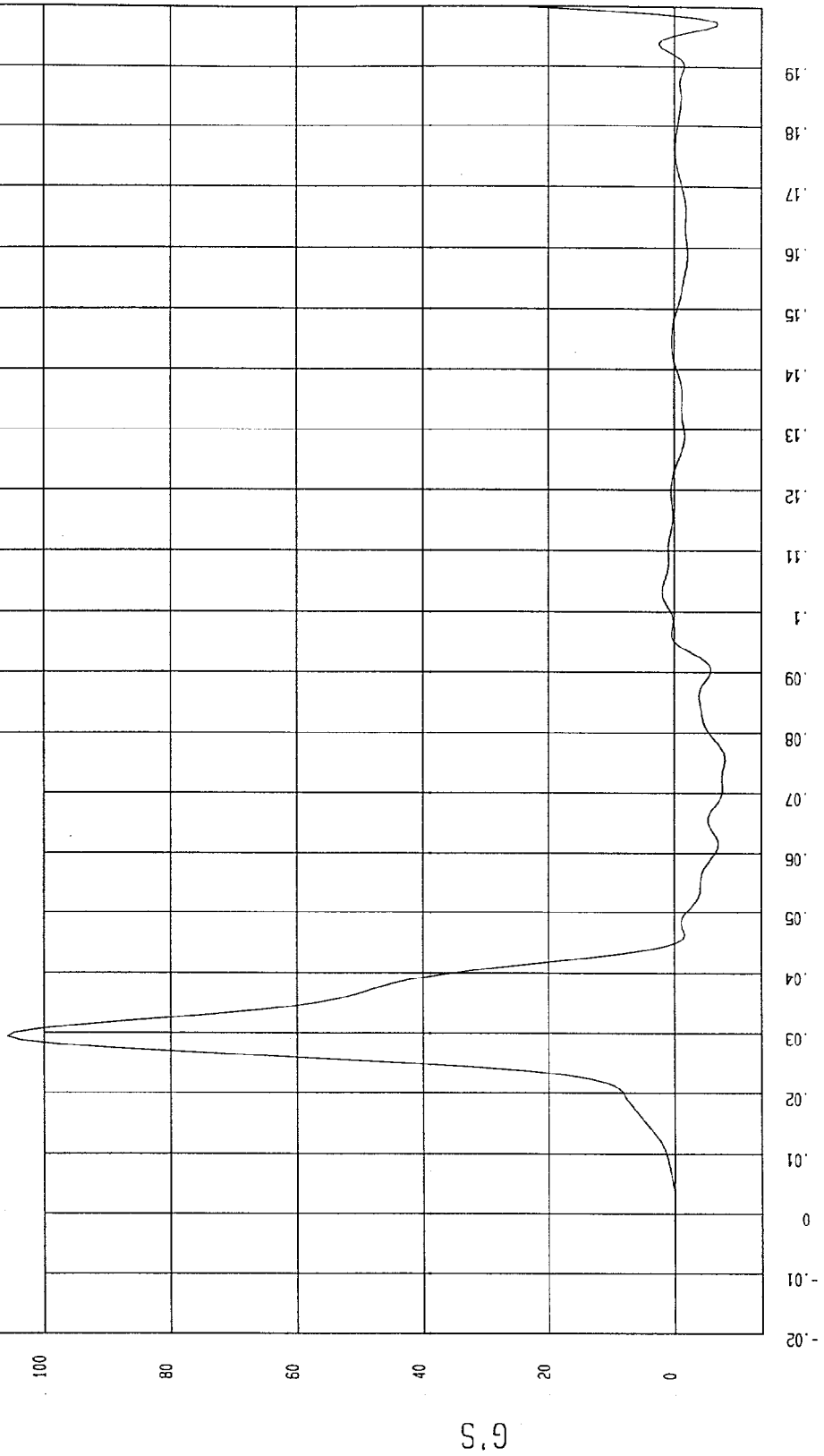
COMPONENT: 1998 DODGE NEON (MW0308)

Maximum = 105.77 G'S at 29 msec

Minimum = -7.98 G'S at 76 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION

1 897126F1.069 Filter:Class (FIR Filtered)



MOA Research
11-04-1997 13:52

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-97-DC07

DUMMY PERFORMANCE CALIBRATIONS

NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST

1998 DODGE NEON 4 DOOR
NHTSA NO. MW0308

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: November 4, 1996

Report Date: December 18, 1996

FINAL REPORT

Prepared For:

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

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

PRE-TEST CERTIFICATION DATA

Front Dummy Serial Number: 269

Calibration Test Results Summary

Dummy Serial Number: 269

Pre-Test Calibration

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

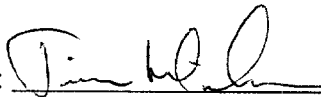
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

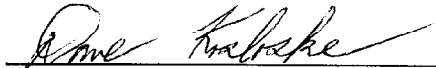
DATE OF VERIFICATION: November 3, 1997

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

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

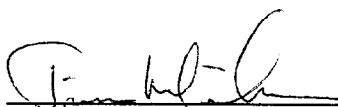
DATE: November 3, 1997

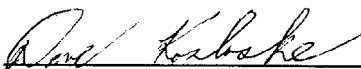
DUMMY NUMBER: 269

TEST NUMBER: D971952

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|-------------------|-----------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 22% |
| PROBE SPEED | 14.0 - 14.2 fps | 14.0 |
| UPPER RIB | 37 - 46 g's | 45 |
| LOWER RIB | 37 - 46 g's | 44 |
| LOWER SPINE | 15 - 22 g's | 22 |

TEST MEETS SPECIFICATIONS

TECHNICIAN 

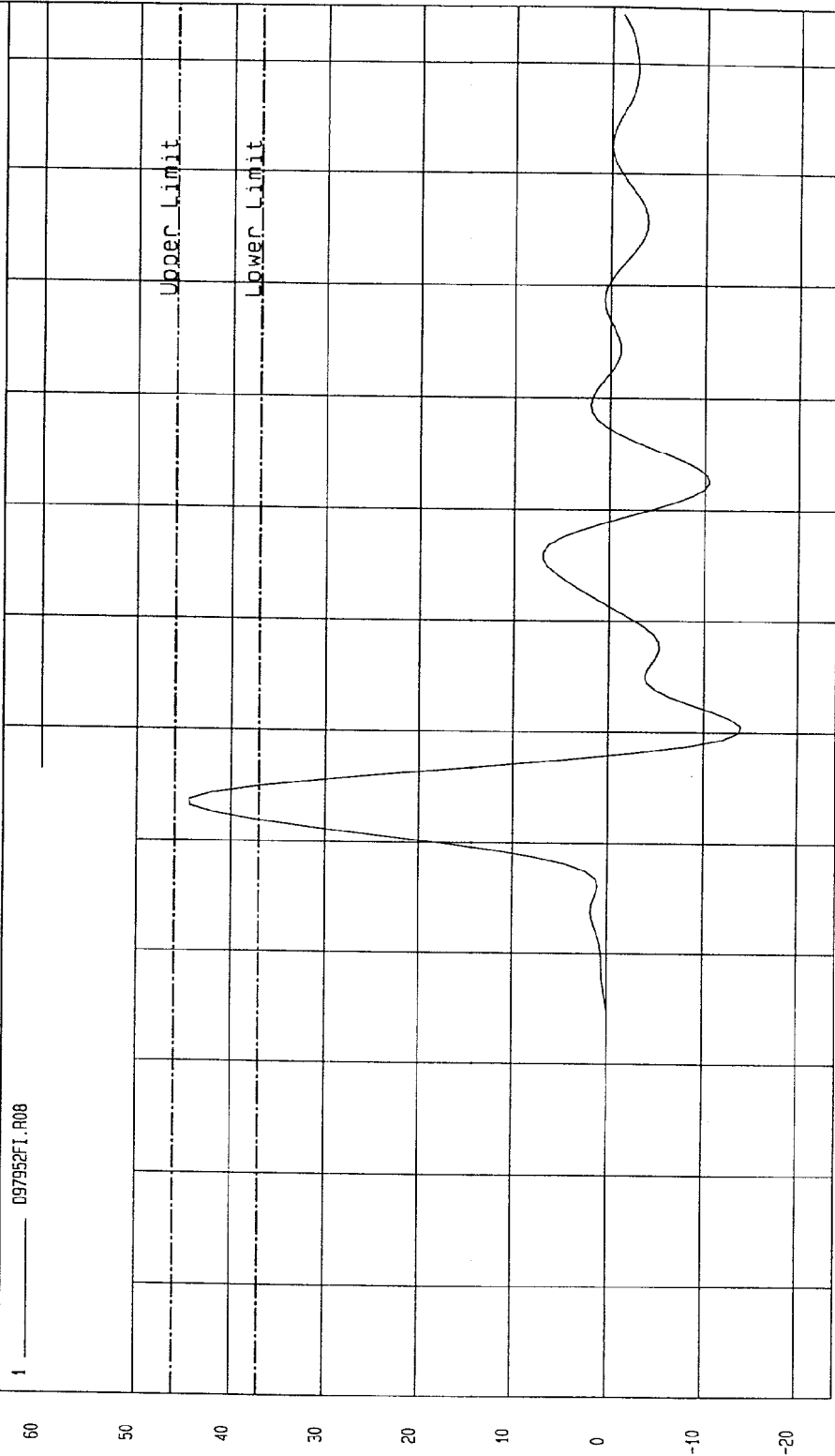
APPROVED BY 

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-03-1997 - 16:01

COMPONENT: DUMMY # 269 Velocity: 14.019 FT/SEC 4.27 M/SEC

Minimum = -13.95 G'S at 60.6 msec
Maximum = 44.54 G'S at 53.7 msec

UPPER RIB ACCELERATION

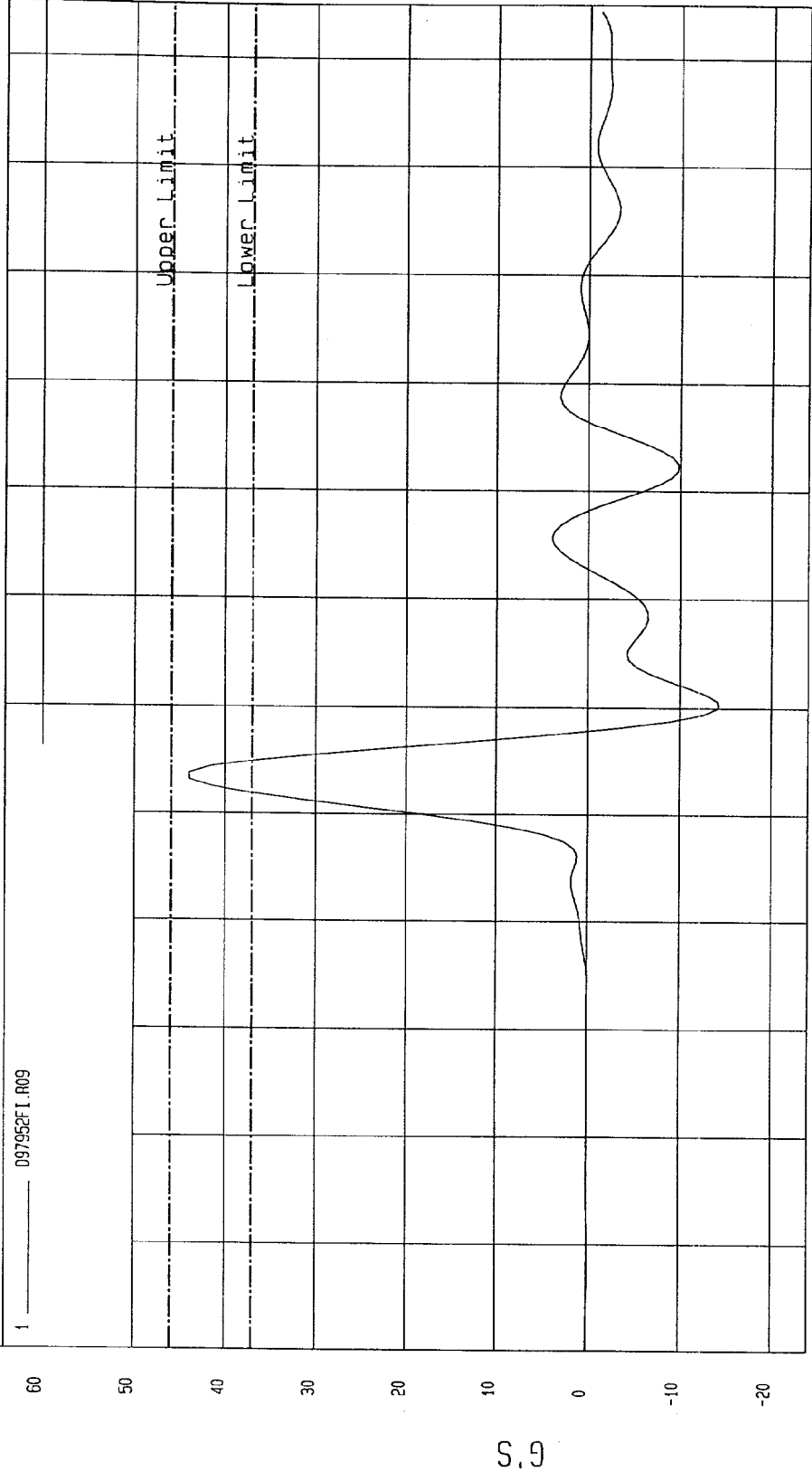


MCA Research
11-03-1997 16:47

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-03-1997 - 16:01
COMPONENT: DUMMY # 269 Velocity: 14.019 FT/SEC 4.27 M/SEC

Minimum = -14.17 G'S at 60 msec Maximum = 44.08 G'S at 53.7 msec

LOWER RIB ACCELERATION



TIME (SECONDS)

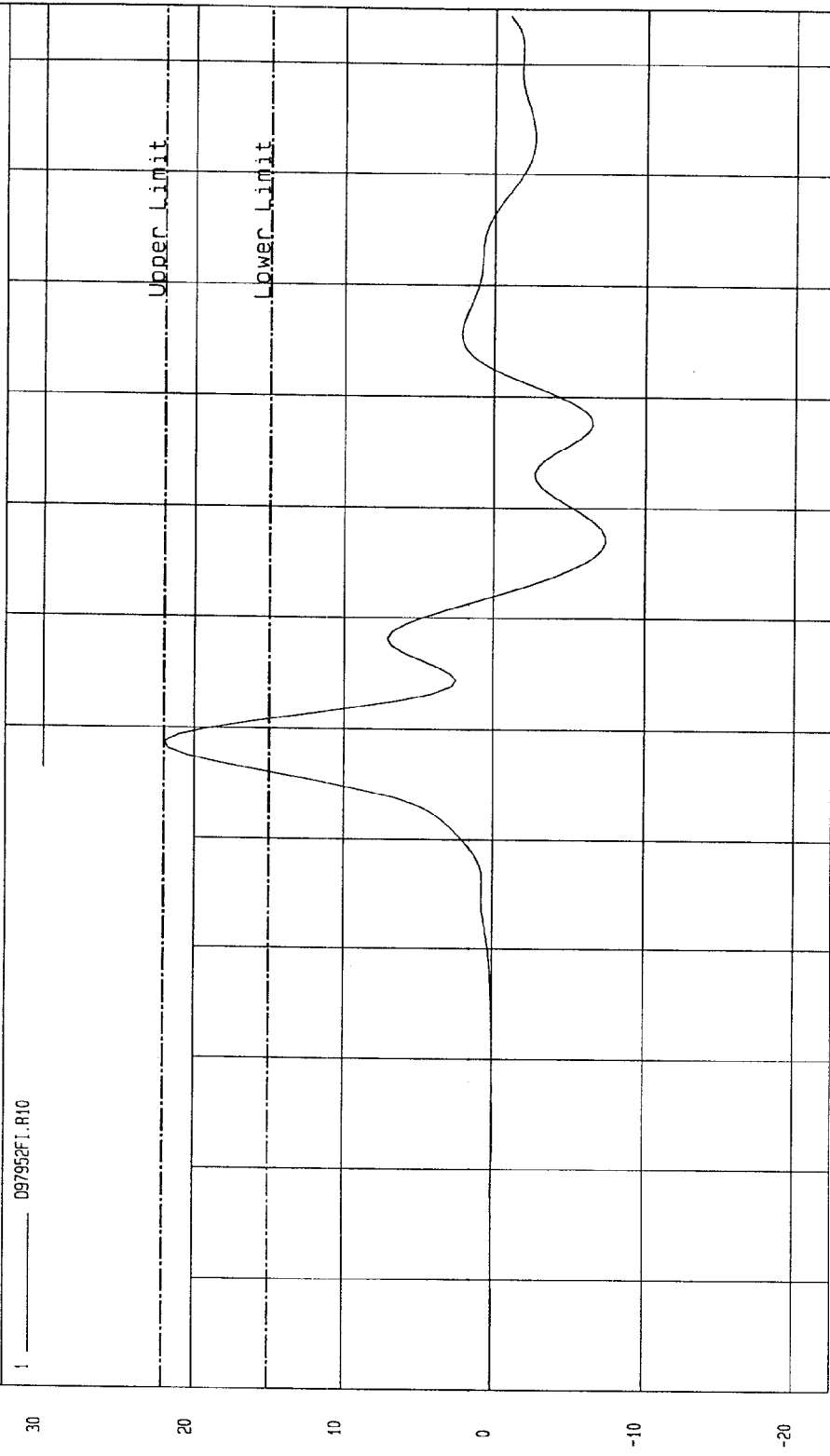
MCA Research
11-03-1997 16:48

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-03-1997 - 16:01

COMPONENT: DUMMY # 259 Velocity: 14.019 FT/SEC 4.27 M/SEC

Minimum = -7.40 G'S at 76.8 msec Maximum = 21.97 G'S at 58.7 msec

LOWER SPINE ACCELERATION



MGA Research
11-03-1997 16:48

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 3, 1997

DUMMY NUMBER: 269

TEST NUMBER: D971953

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|---------------------|-----------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 22% |
| PROBE SPEED | 14.0 - 14.2 f/s | 14.0 |
| PELVIS ACCELERATION | 40 - 60 g's | 45 |

TEST MEETS SPECIFICATIONS

TECHNICIAN

Tim Melillo

APPROVED BY

Dave Korbach

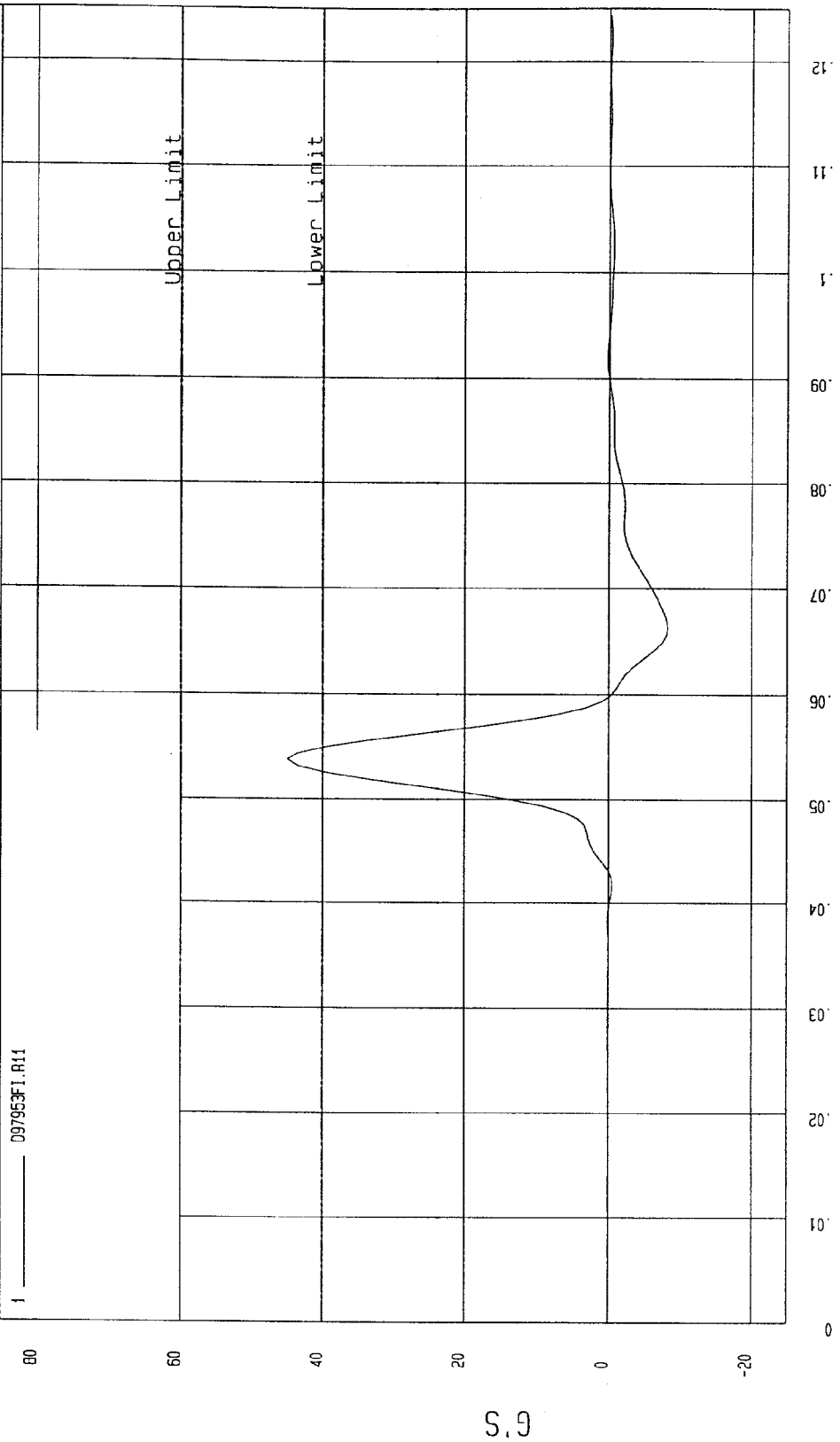
TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 11-03-1997 - 23:08:23

COMPONENT: DUMMY # 269 Velocity: 14.001 FT/SEC 4.27 M/SEC

Minimum = -8.32 G'S at 66.2 msec

Maximum = 44.99 G'S at 53.7 msec

PELVIS ACCELERATION



MGA Research
11-03-1997 23:08

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

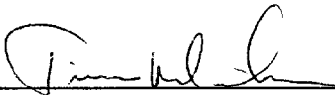
DATE: November 3, 1997

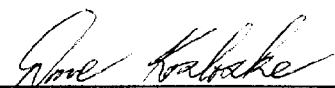
DUMMY NUMBER: 269

TEST NUMBER: D971954

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|-------------------|-----------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 26% |
| FORCE @ 0.5 in | 23.3 - 36.5 lbs | 33.7 |
| FORCE @ 0.75 in | 36.7 - 49.8 lbs | 46.3 |
| FORCE @ 1.0 in | 50 - 63 lbs | 61 |
| FORCE @ 1.3 in | 73 - 88 lbs | 83 |

TEST MEETS SPECIFICATIONS

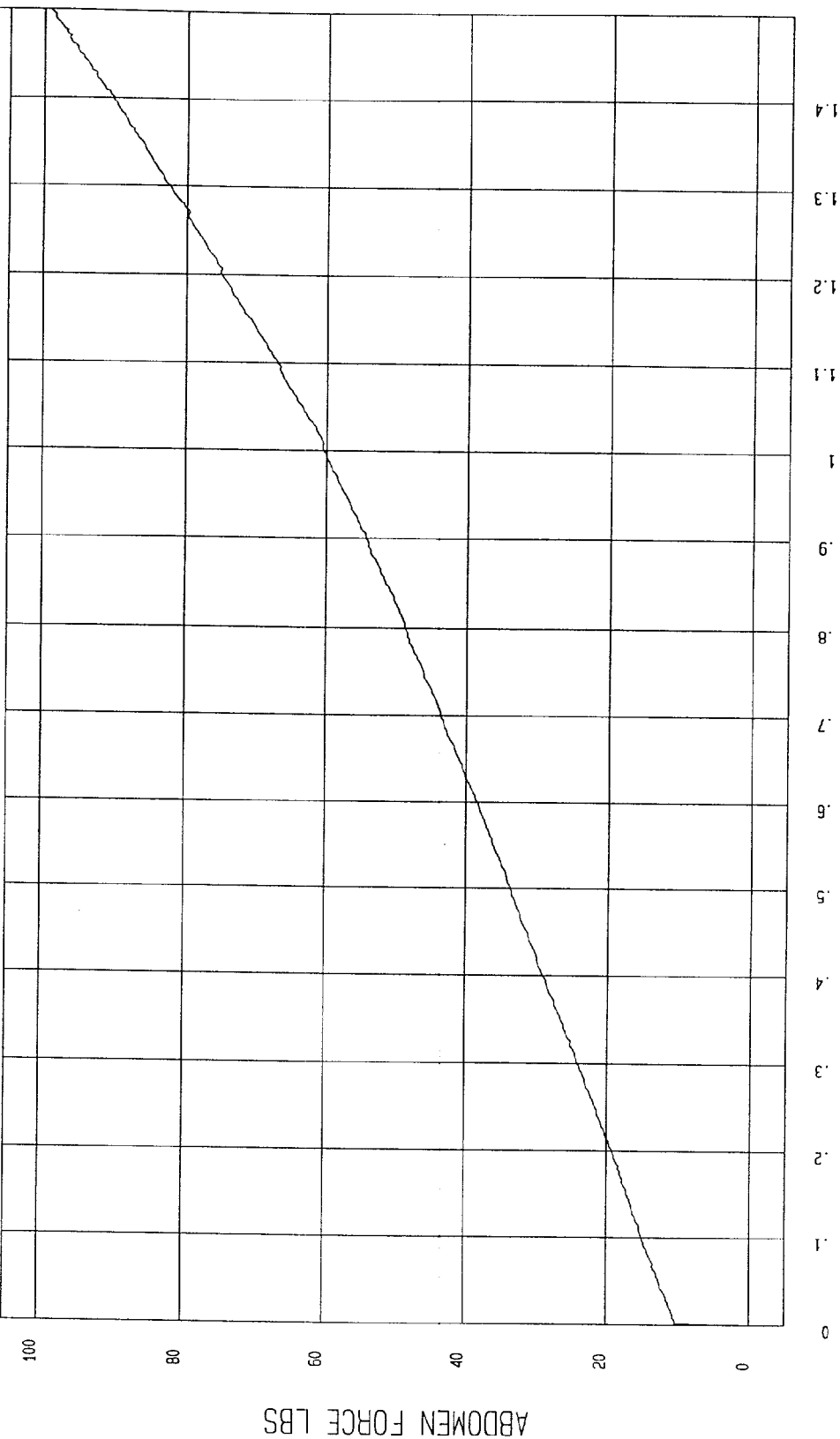
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-03-1997 - 22:35

COMPONENT: DUMMY # 269

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



NSA Research
11-03-1997 22:41

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 3, 1997

DUMMY NUMBER: 269

TEST NUMBER: D971955

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|-------------------|---------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 26% |
| FORCE @ 0° | 0 - 6 lbs | 0 |
| FORCE @ 20° | 22 - 34 lbs | 25 |
| FORCE @ 30° | 34 - 46 lbs | 45 |
| FORCE @ 40° | 46 - 58 lbs | 57 |
| RETURN ANGLE | 12° maximum | 3° |

TEST MEETS SPECIFICATIONS

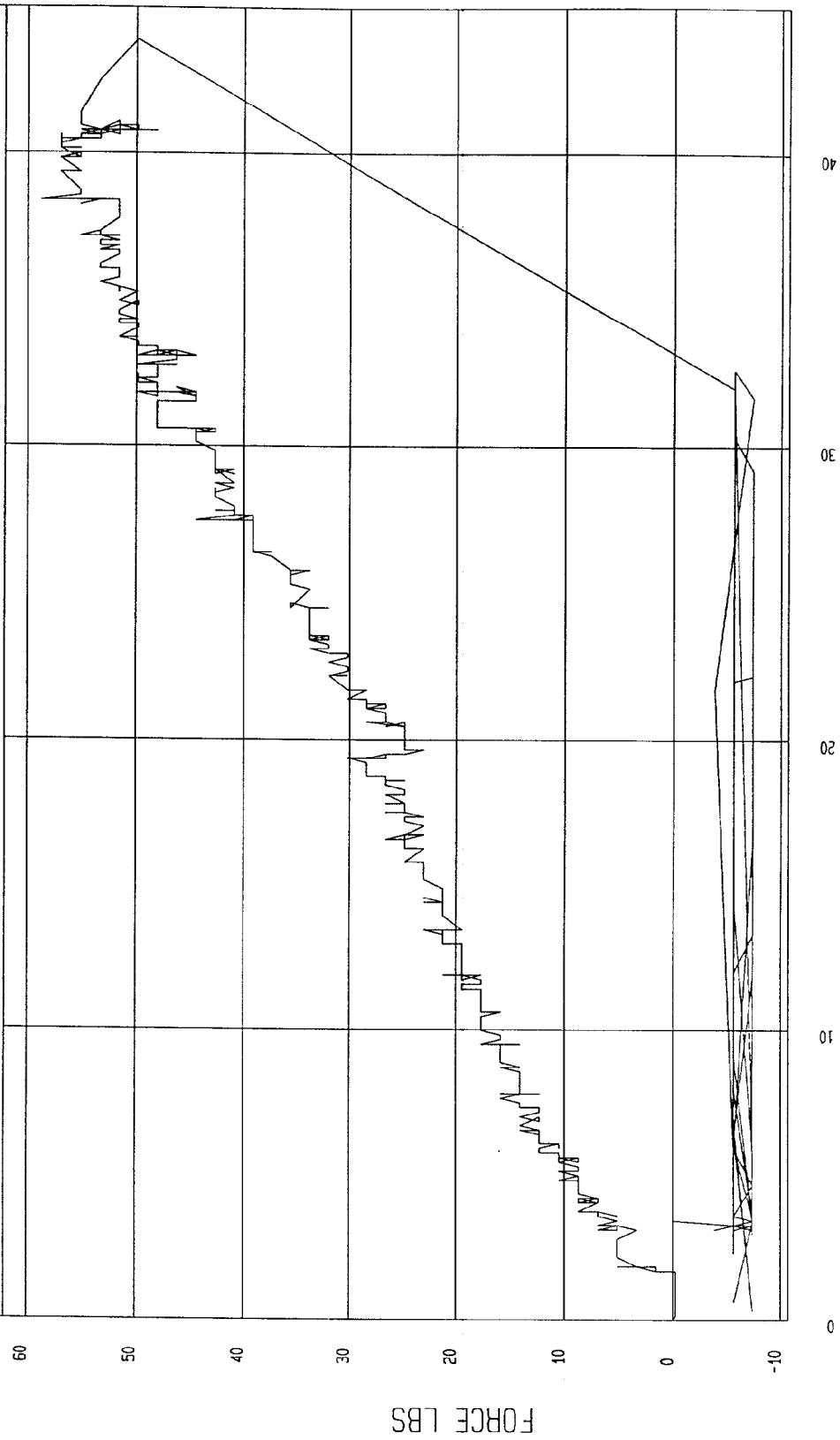
TECHNICIAN Jim Hill

APPROVED BY Steve Kibake

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-03-1997 - 22:55

COMPONENT: DUMMY # 269

FORCE as a function of TORSO ROTATION



WGA Research
11-03-1997 23:05

PRE-TEST CERTIFICATION DATA

Rear Dummy Serial Number: 270

Calibration Test Results Summary

Dummy Serial Number: 270

Pre-Test Calibration

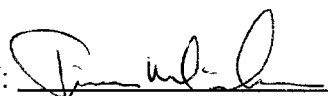
| | |
|-----------------------------|---|
| External Dimensions: | The dummy passed all external dimension requirements. |
| Thorax Impact Test: | The thorax passed all impact test requirements. |
| Pelvic Impact Test: | The pelvis passed all impact test requirements. |
| Abdominal Compression Test: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

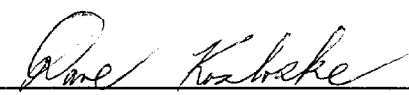
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: November 3, 1997

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

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

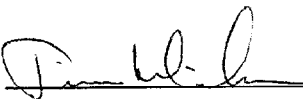
DATE: November 3, 1997

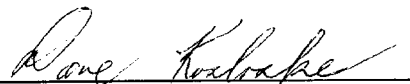
DUMMY NUMBER: 270

TEST NUMBER: D971962

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|-------------------|-----------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 22% |
| PROBE SPEED | 14.0 - 14.2 fps | 14.0 |
| UPPER RIB | 37 - 46 g's | 40 |
| LOWER RIB | 37 - 46 g's | 38 |
| LOWER SPINE | 15 - 22 g's | 20 |

TEST MEETS SPECIFICATIONS

TECHNICIAN 

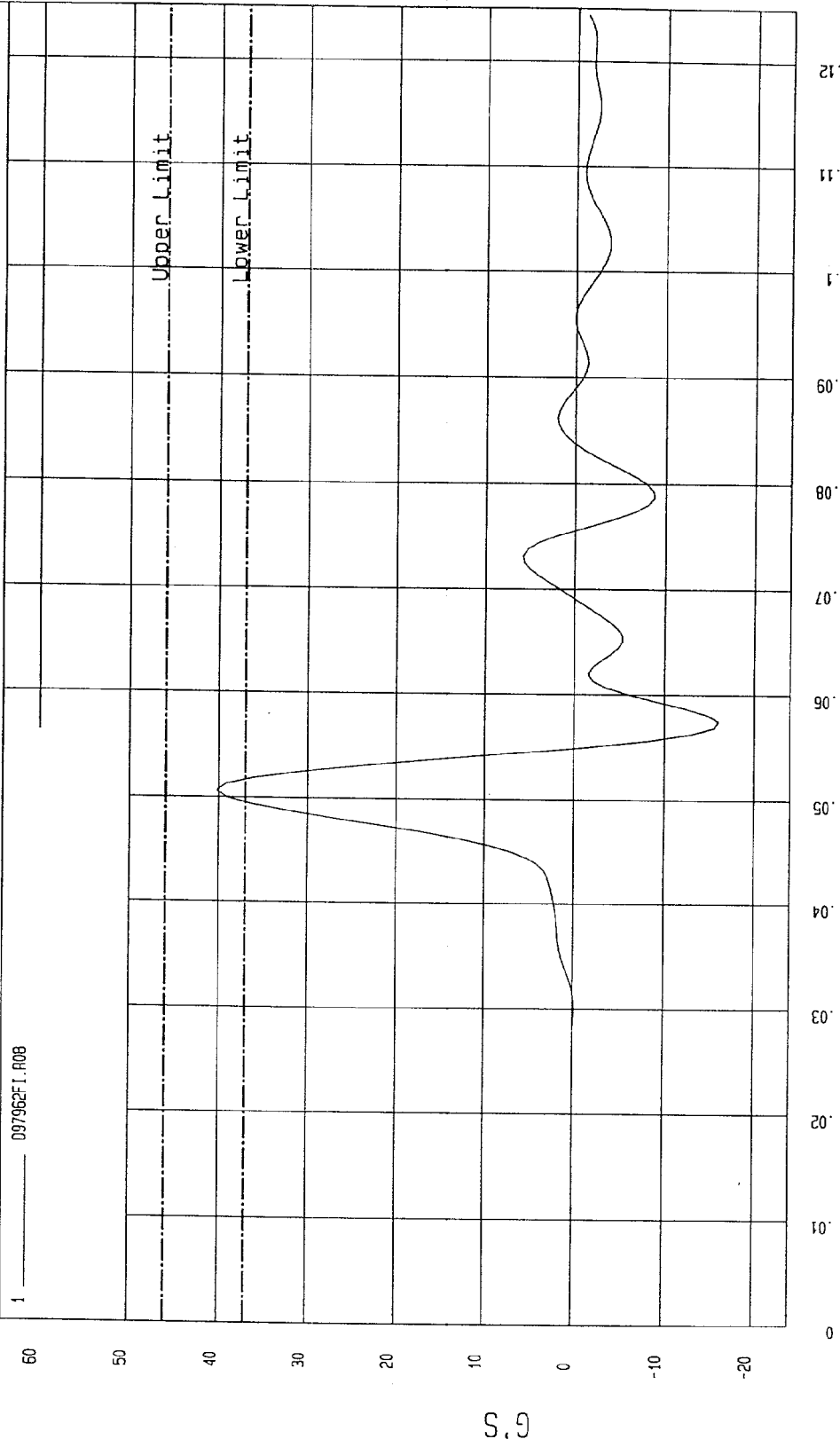
APPROVED BY 

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-03-1997 - 16:45

COMPONENT: DUMMY # 270 Velocity: 14.045 FT/SEC 4.28 M/SEC

Minimum = -15.97 G'S at 57.5 msec Maximum = 40.25 G'S at 50.6 msec

UPPER RIB ACCELERATION



WGA Research
11-03-1997 16:49

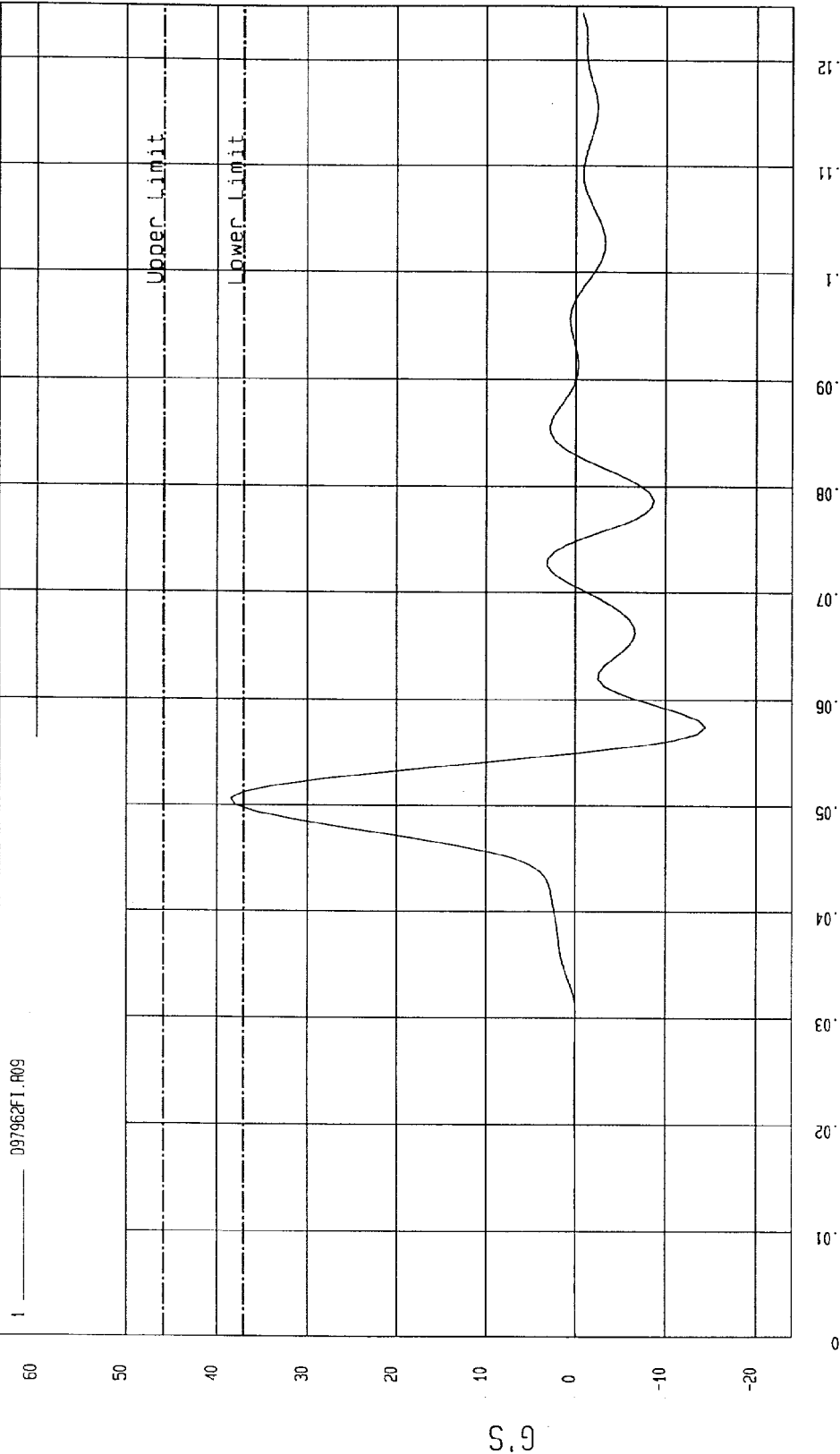
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-03-1997 - 16:45

COMPONENT: DUMMY # 270 Velocity: 14.045 FT/SEC 4.28 M/SEC

Minimum = -14.40 G's at 57.5 msec

Maximum = 38.45 G's at 50.6 msec

LOWER RIB ACCELERATION



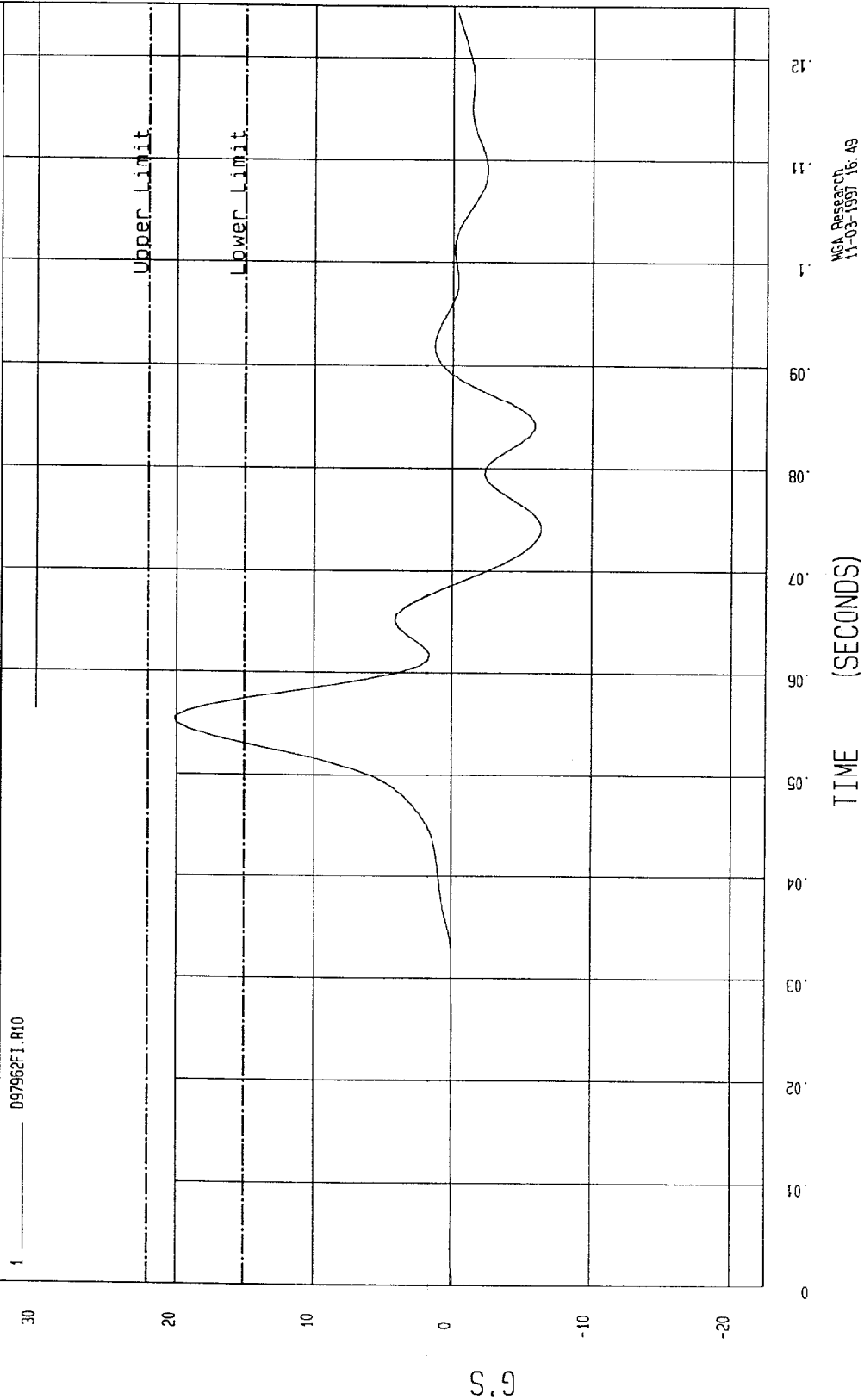
MCA Research
11-03-1997 16:49

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-03-1997 - 16:45

COMPONENT: DUMMY # 270 Velocity: 14.045 FT/SEC 4.28 M/SEC

Minimum = -6.35 G'S at 74.3 msec Maximum = 20.12 G'S at 55.6 msec

LOWER SPINE ACCELERATION



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 3, 1997

DUMMY NUMBER: 270

TEST NUMBER: D971963

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|---------------------|-----------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 22% |
| PROBE SPEED | 14.0 - 14.2 f/s | 14.0 |
| PELVIS ACCELERATION | 40 - 60 g's | 49 |

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim White

APPROVED BY Rene Kosloske

TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 11-03-1997 - 16:52

COMPONENT: DUMMY # 270 Velocity: 14.014 FT/SEC 4.27 M/SEC

Minimum = -8.70 G'S at 66.8 msec Maximum = 48.88 G'S at 55 msec

PELVIS ACCELERATION

1 _____ 097963FI.RH1

80

60

40

20

0

-20

G.S

Upper Limit

Lower Limit

0 .01 .02 .03 .04 .05 .06 .07 .08 .09 .1 .11 .12

TIME (SECONDS)

MCA Research
11-03-1997 17:09

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

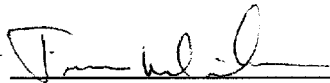
DATE: November 3, 1997

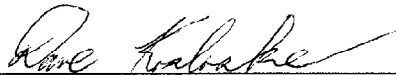
DUMMY NUMBER: 270

TEST NUMBER: D971964

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|-------------------|-----------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 26% |
| FORCE @ 0.5 in | 23.3 - 36.5 lbs | 31.6 |
| FORCE @ 0.75 in | 36.7 - 49.8 lbs | 44.2 |
| FORCE @ 1.0 in | 50 - 63 lbs | 60 |
| FORCE @ 1.3 in | 73 - 88 lbs | 84 |

TEST MEETS SPECIFICATIONS

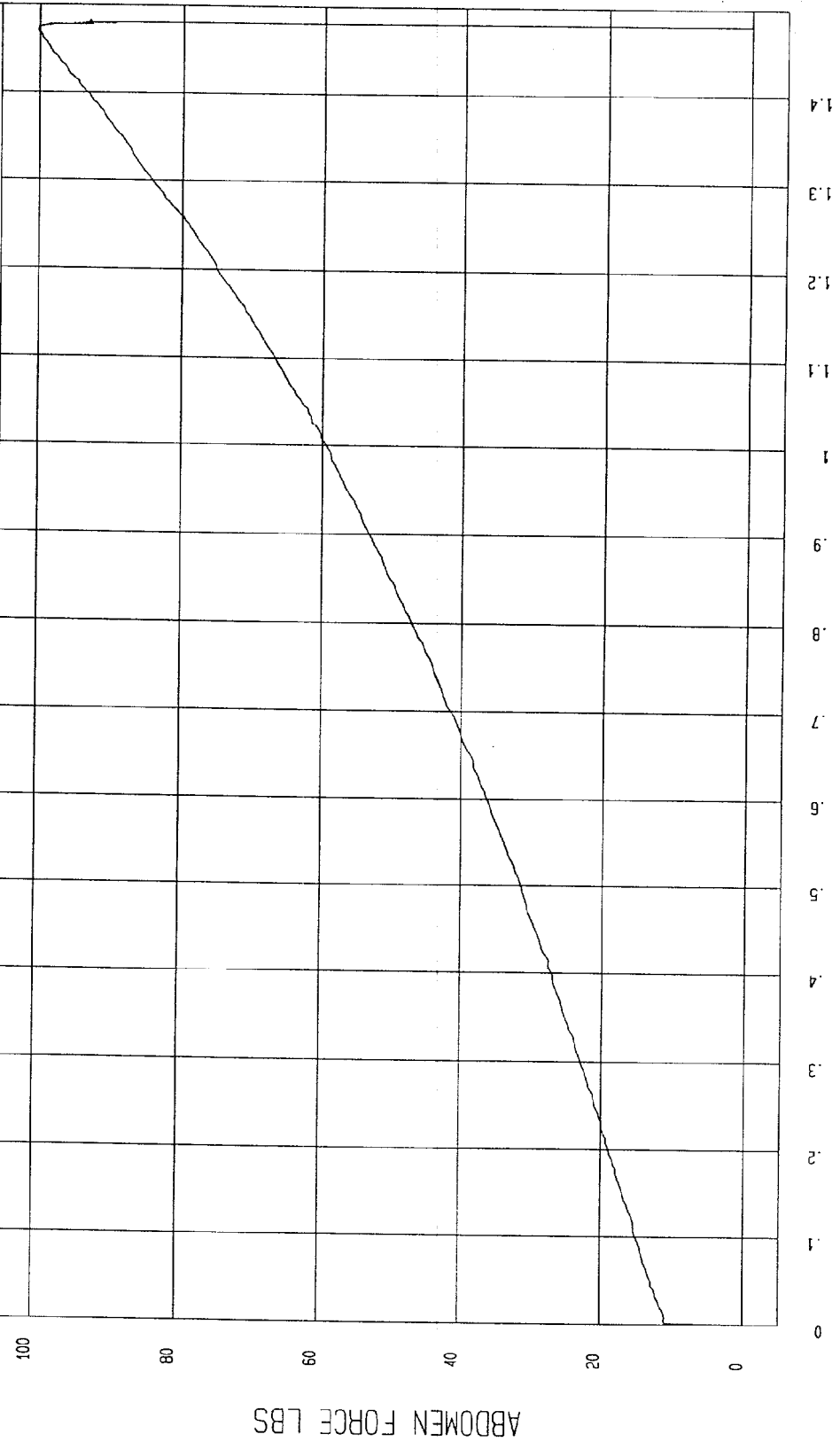
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-03-1997 - 22:38

COMPONENT: DUMMY # 270

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



MCA Research
11-03-1997 22:41

ABDOMEN DISPLACEMENT INCHES

ABDOMEN FORCE LBS

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

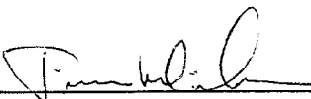
DATE: November 3, 1997

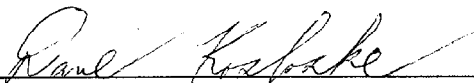
DUMMY NUMBER: 270

TEST NUMBER: D971965

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|-------------------|---------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 26% |
| FORCE @ 0° | 0 - 6 lbs | 0 |
| FORCE @ 20° | 22 - 34 lbs | 27 |
| FORCE @ 30° | 34 - 46 lbs | 40 |
| FORCE @ 40° | 46 - 58 lbs | 50 |
| RETURN ANGLE | 12° maximum | 2° |

TEST MEETS SPECIFICATIONS

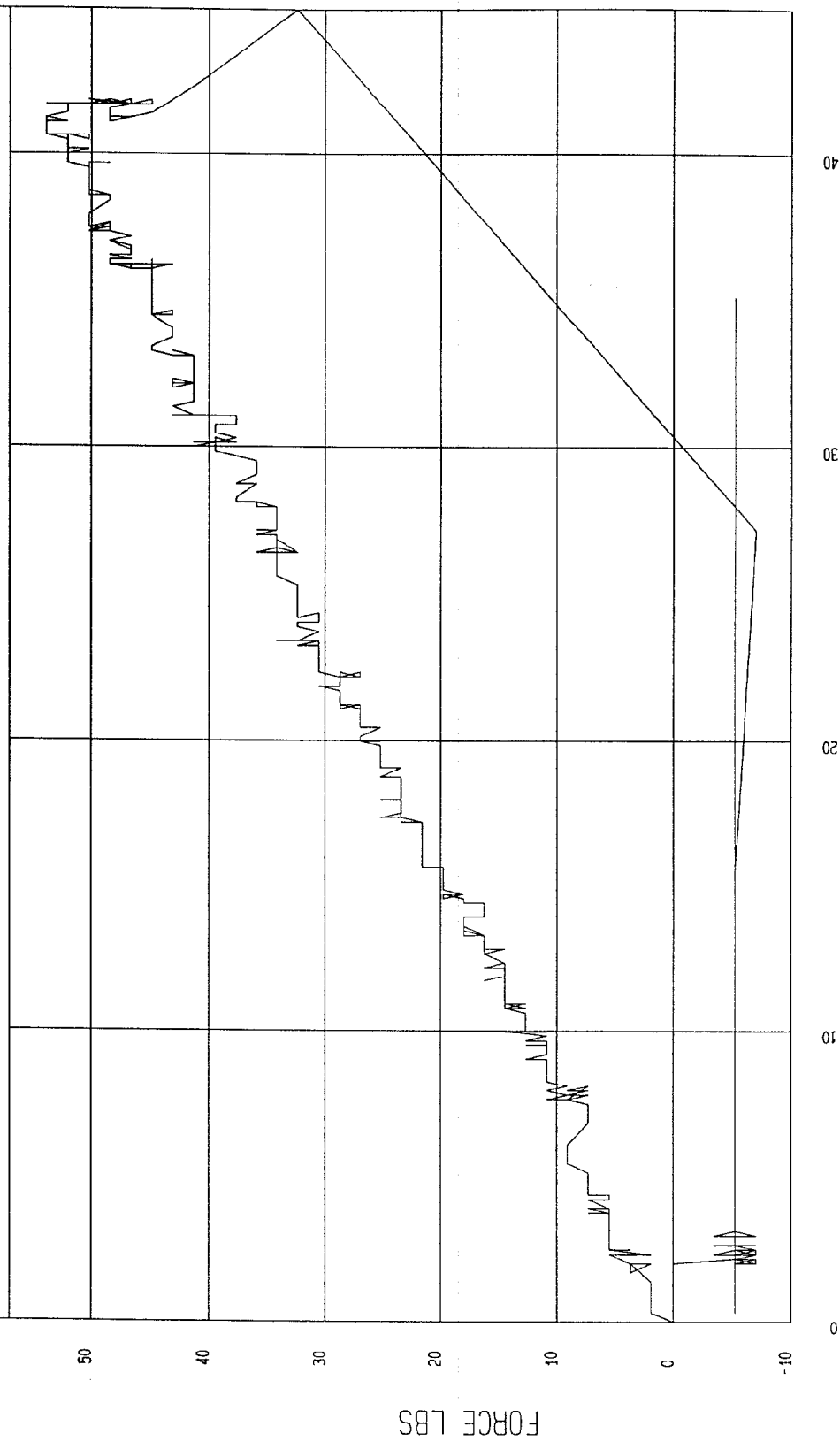
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-03-1997 - 23:04

COMPONENT: DUMMY # 270

FORCE as a function of TORSO ROTATION



MGA Research
11-03-1997 23:06

POST-TEST CERTIFICATION DATA

Front Dummy Serial Number: 269

Calibration Test Results Summary

Dummy Serial Number: 269

Post-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: November 5, 1997

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

MEASUREMENTS BY: Jim Wilk

APPROVED BY: Dave Kosbeke

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

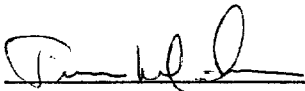
DATE: November 5, 1997

DUMMY NUMBER: 269

TEST NUMBER: D971992

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

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

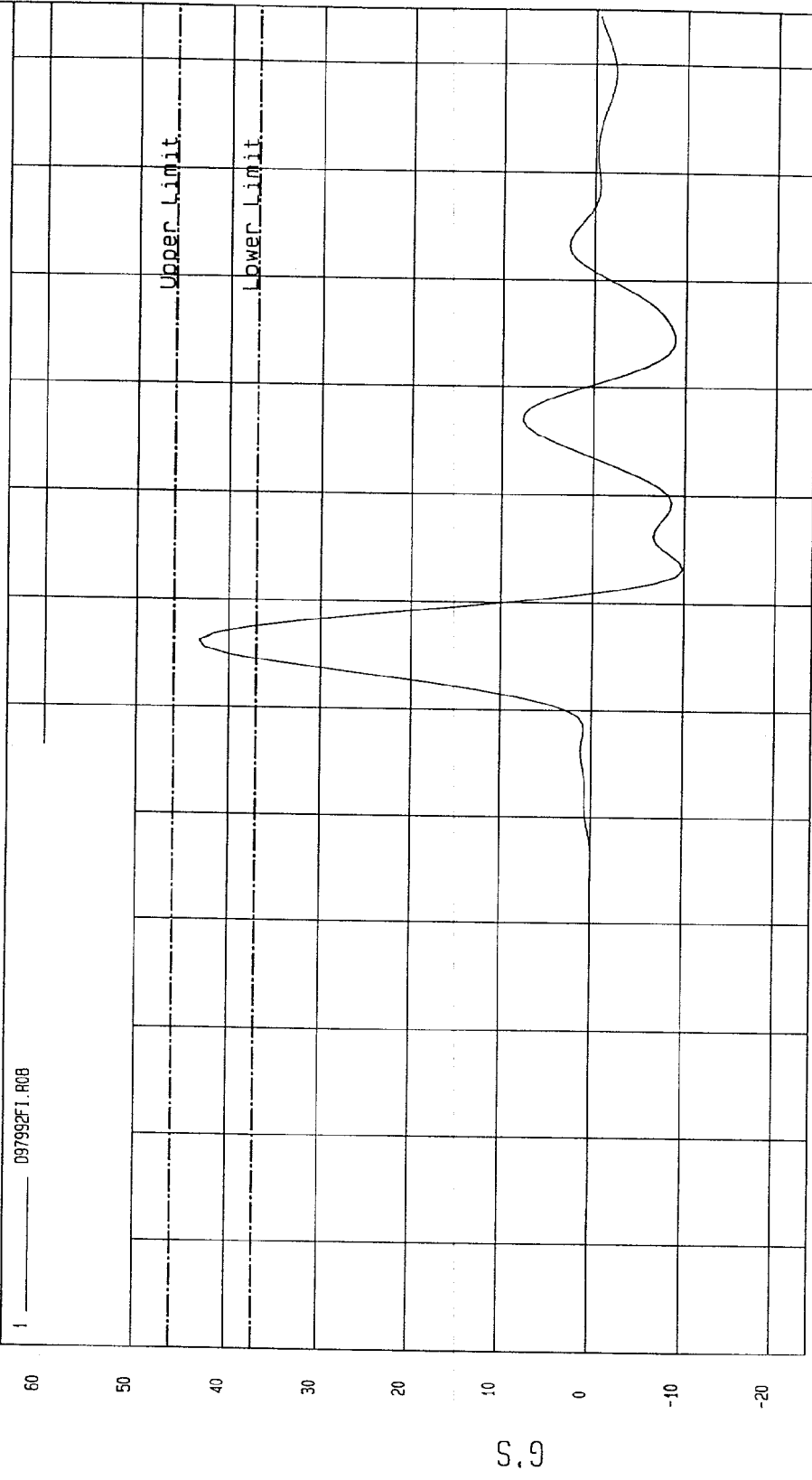
COMPONENT: DUMMY # 269 Velocity: 14.006 FT/SEC 4.27 M/SEC

Minimum = -9.83 G'S at 73.1 msec

Maximum = 43.28 G'S at 56.2 msec

UPPER RIB ACCELERATION

1 097992F1.R08

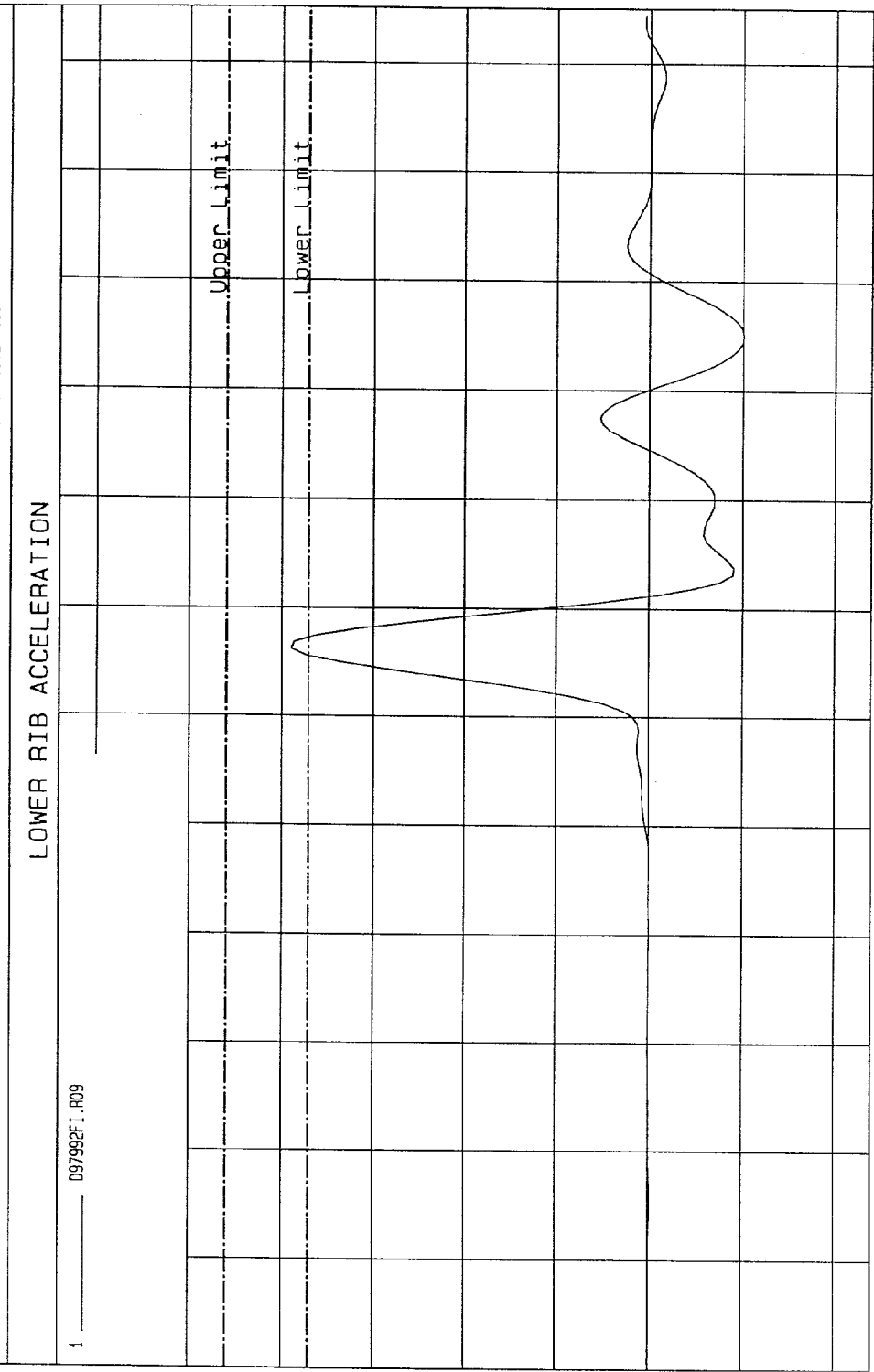


NGA Research
11-05-1997 14:24

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

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

Minimum = -10.09 G'S at 95 msec Maximum = 38.93 G'S at 66.2 msec



TIME (SECONDS)

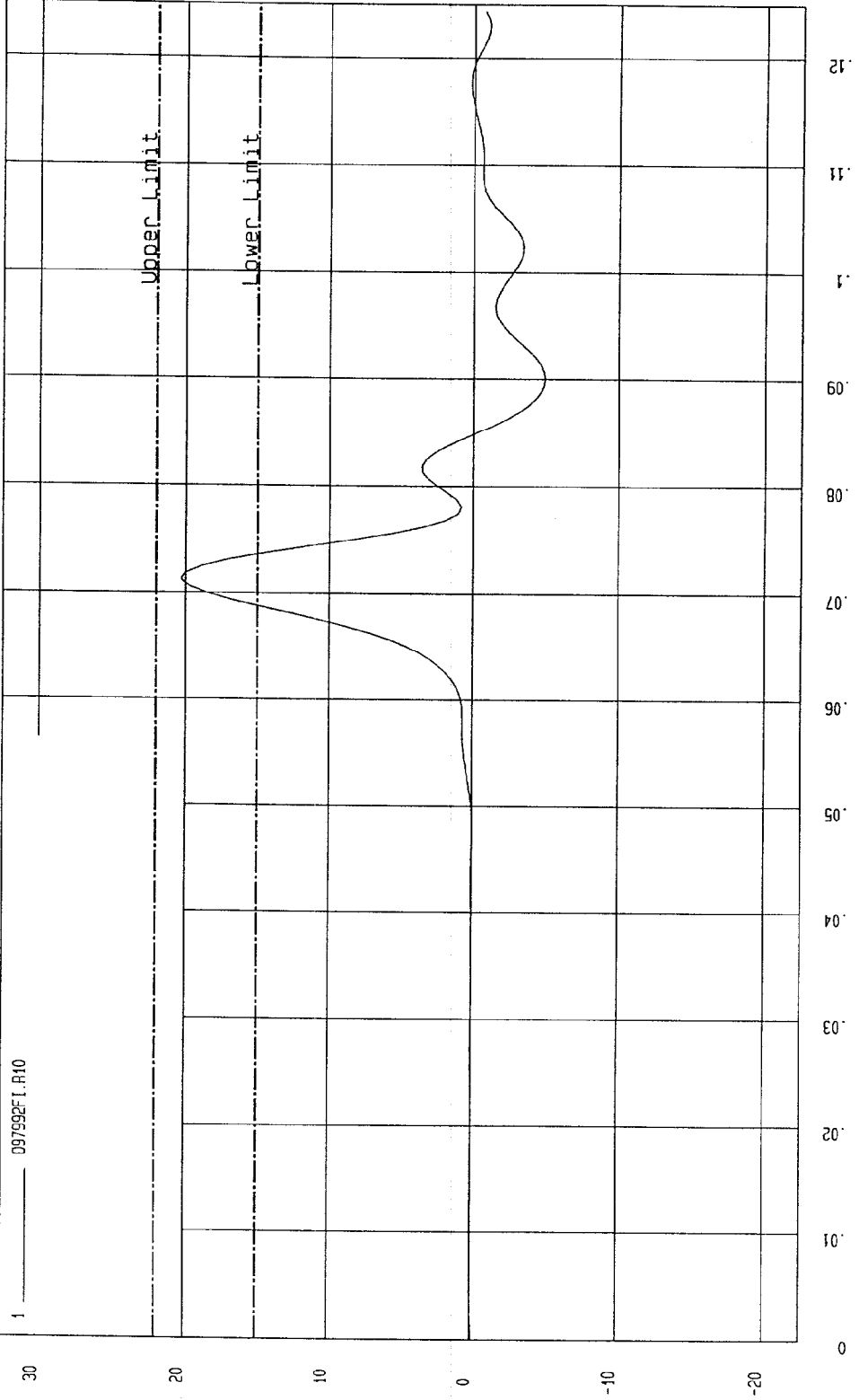
MOA Research
11-05-1997 14:28

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

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

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

LOWER SPINE ACCELERATION



MGA Research
11-05-1997 14:28

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

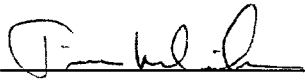
DATE: November 5, 1997

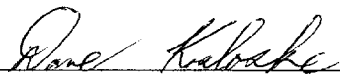
DUMMY NUMBER: 269

TEST NUMBER: D971993

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

TEST MEETS SPECIFICATIONS

TECHNICIAN 

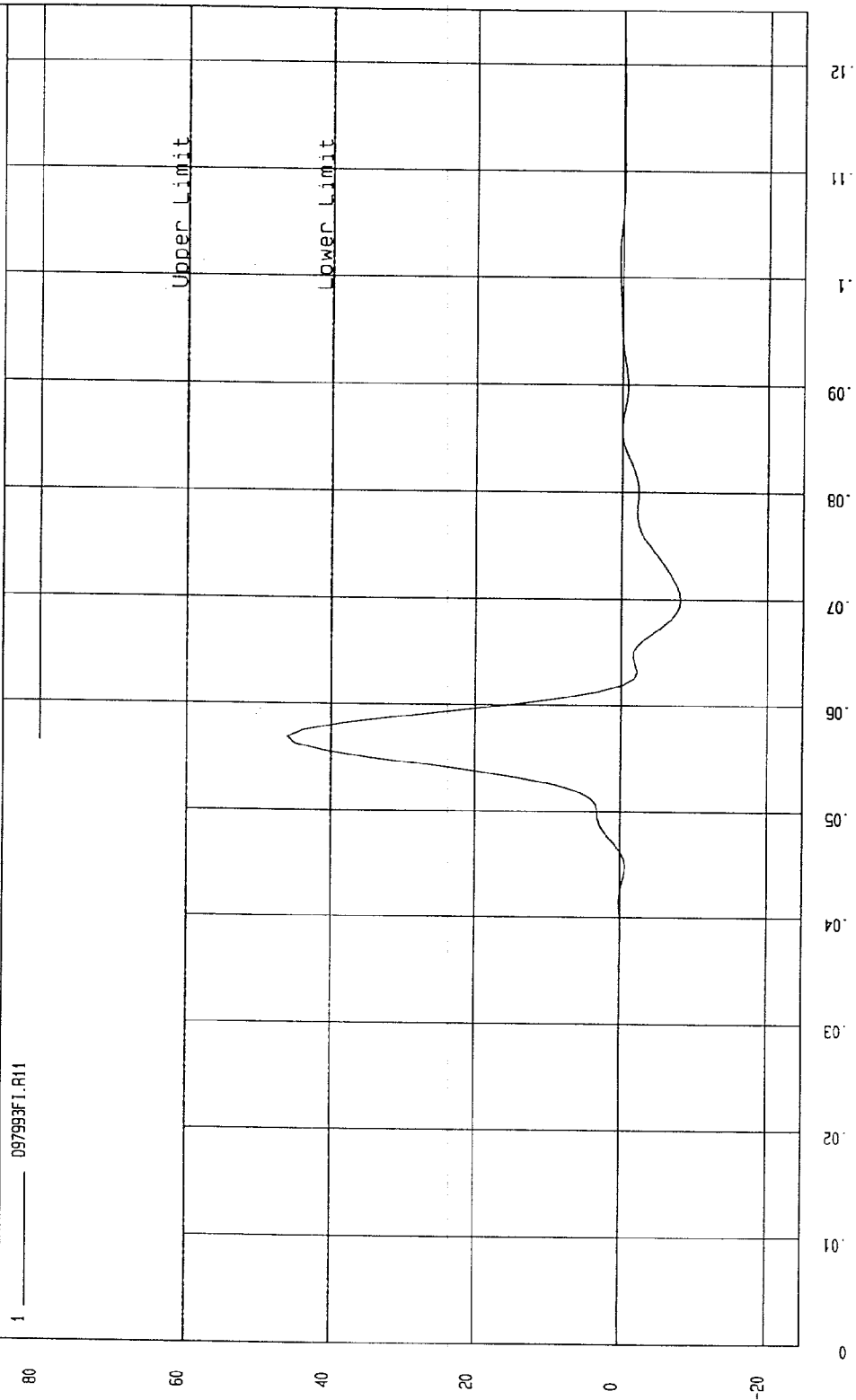
APPROVED BY 

TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 11-05-1997 - 14:24:05
COMPONENT: DUMMY # 269 Velocity: 14.036 FT/SEC 4.28 M/SEC

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

PELVIS ACCELERATION

1 ——— 097993F1.R11



MCA Research
11-05-1997 14:28

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

DATE: November 5, 1997

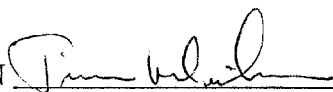
DUMMY NUMBER: 269

TEST NUMBER: D971994

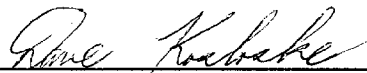
| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|-------------------|-----------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 23% |
| FORCE @ 0.5 in | 23.3 - 36.5 lbs | 31.7 |
| FORCE @ 0.75 in | 36.7 - 49.8 lbs | 44.0 |
| FORCE @ 1.0 in | 50 - 63 lbs |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

TEST MEETS SPECIFICATIONS

TECHNICIAN



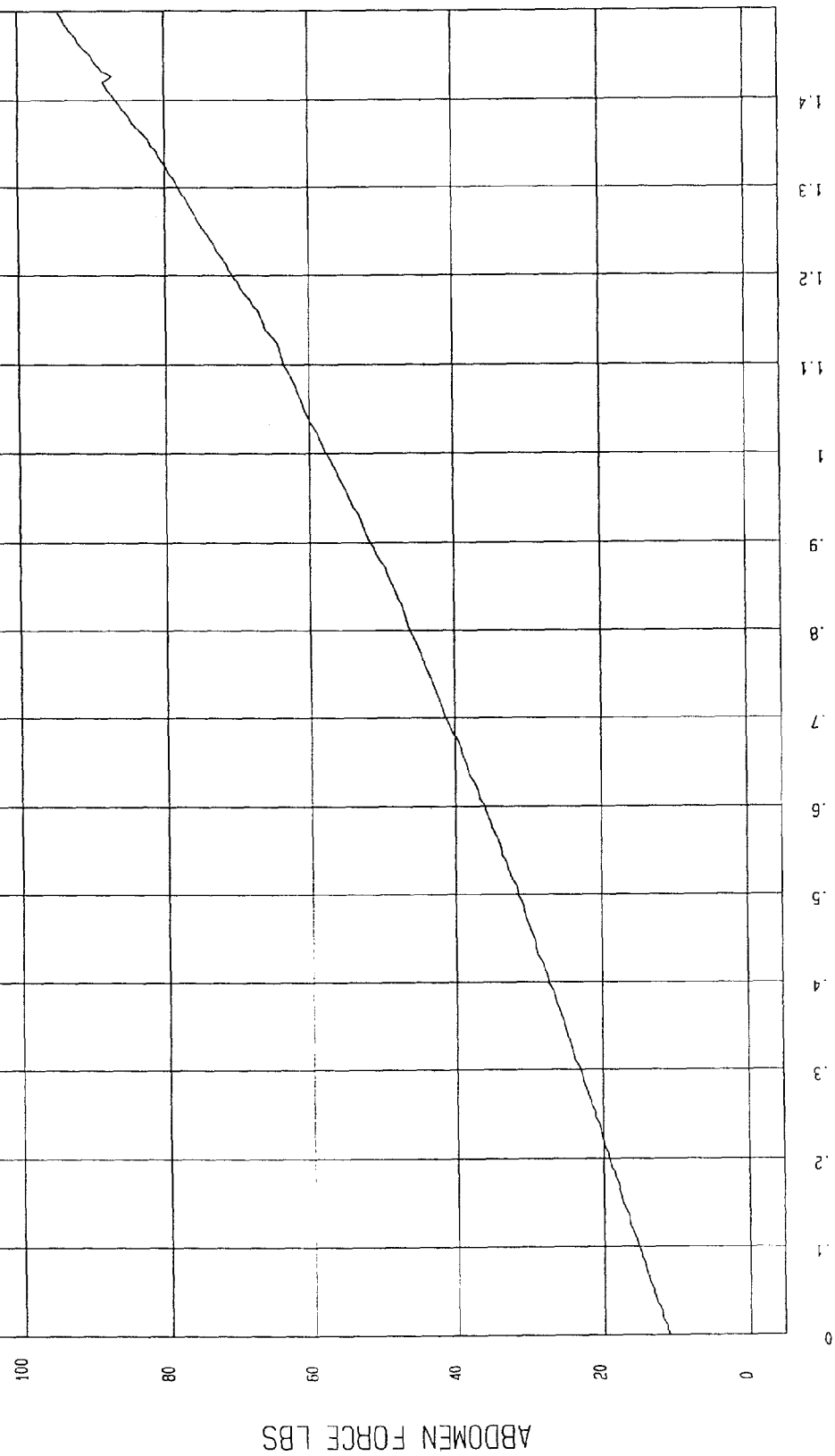
APPROVED BY



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

COMPONENT: DUMMY # 259

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



MCA Research
11-05-1997 15:41

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 5, 1997

DUMMY NUMBER: 269

TEST NUMBER: D971995

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

TEST MEETS SPECIFICATIONS

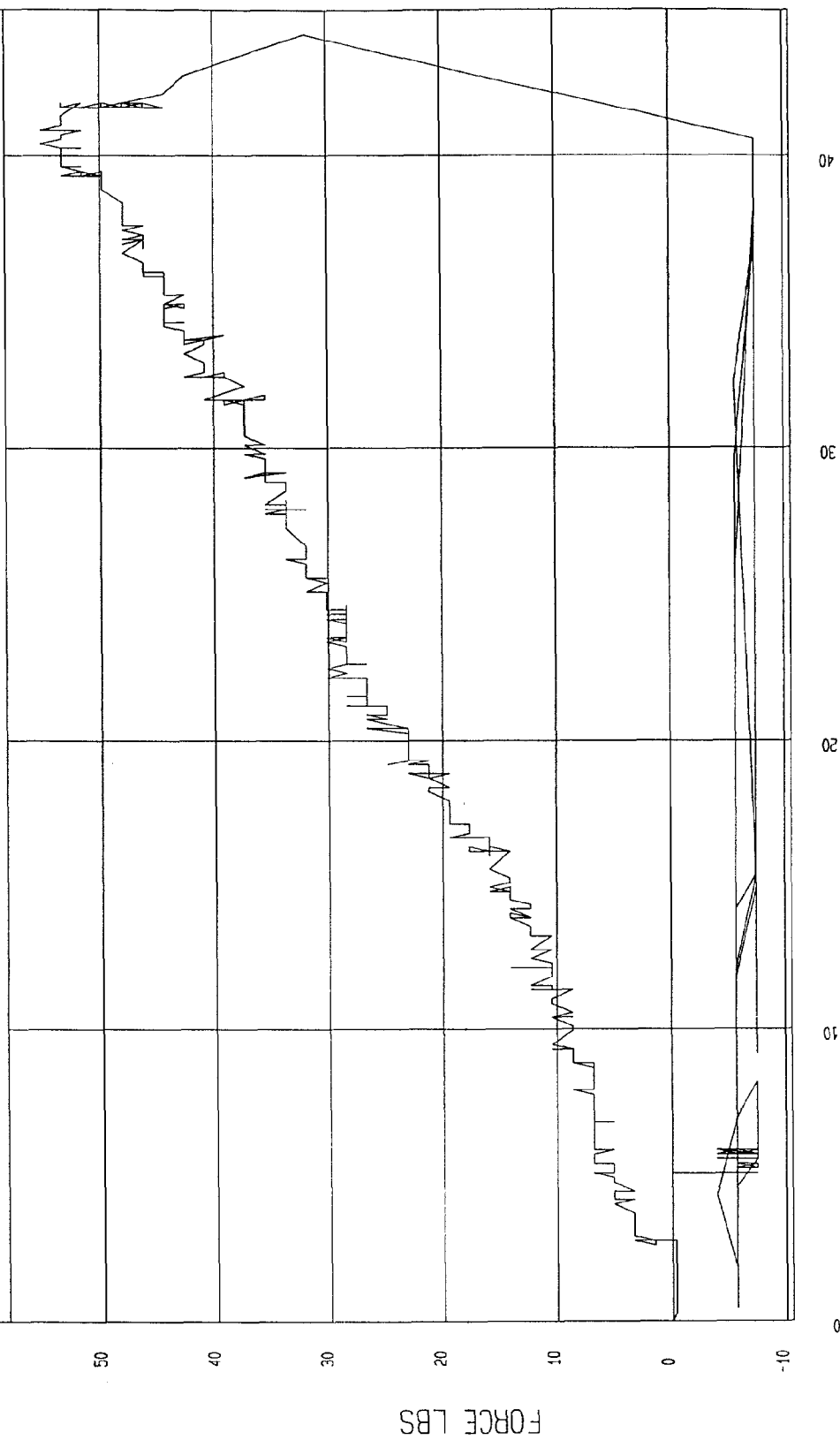
TECHNICIAN Jim White

APPROVED BY Rene Koelke

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

COMPONENT: DUMMY # 269

FORCE as a function of TORSO ROTATION



MSA Research
11-05-1997 16:19

POST-TEST CERTIFICATION DATA

Rear Dummy Serial Number: 270

Calibration Test Results Summary

Dummy Serial Number: 270

Post-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: November 5, 1997

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

MEASUREMENTS BY: Tim K. L.

APPROVED BY: Rene Krabke

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 5, 1997

DUMMY NUMBER: 270

TEST NUMBER: D972002

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

TEST MEETS SPECIFICATIONS

TECHNICIAN Tim White

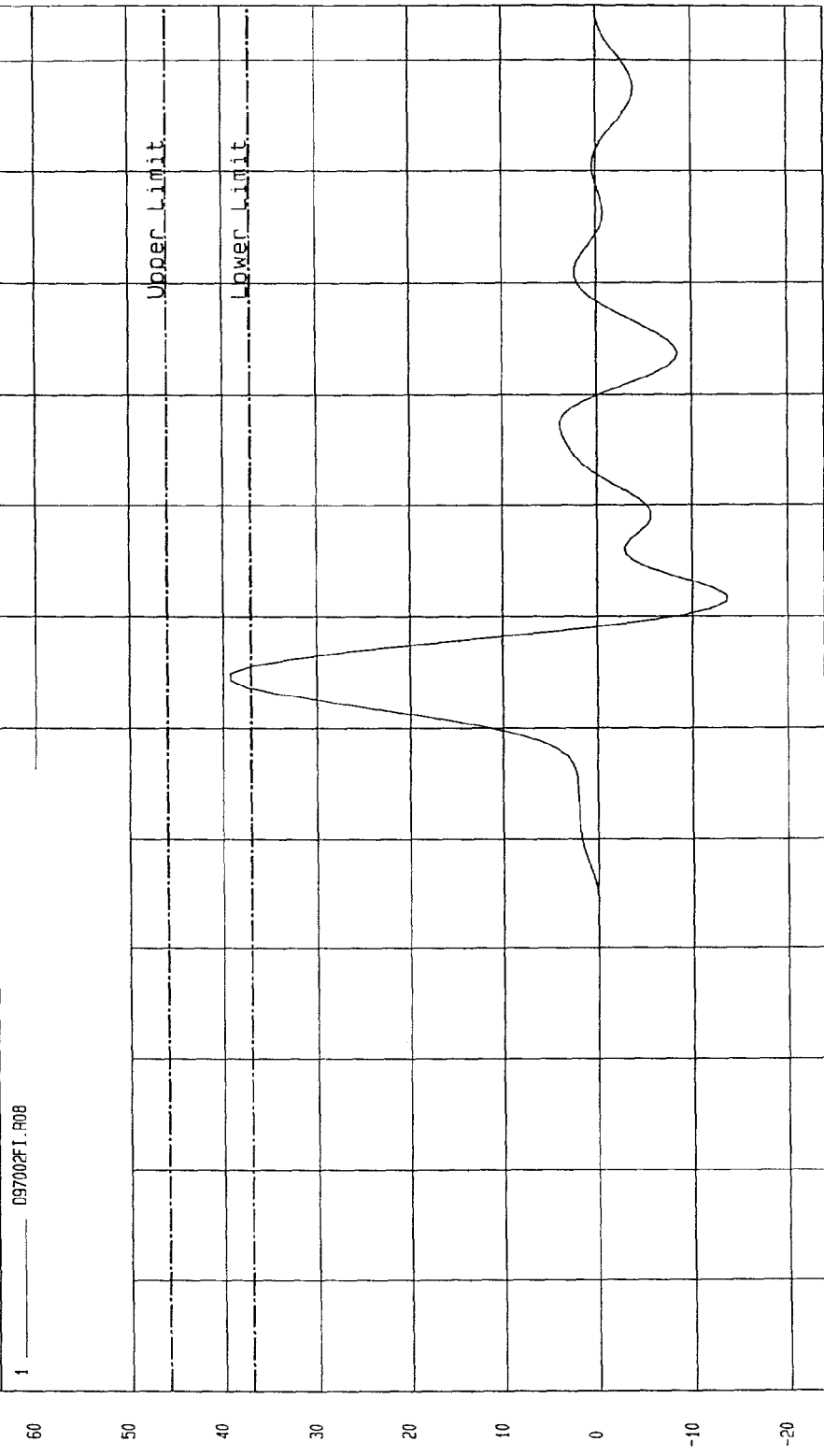
APPROVED BY Rene Kabeke

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

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

Minimum = -13.56 G'S at 71.8 msec Maximum = 39.24 G'S at 64.3 msec

UPPER RIB ACCELERATION



TIME (SECONDS)

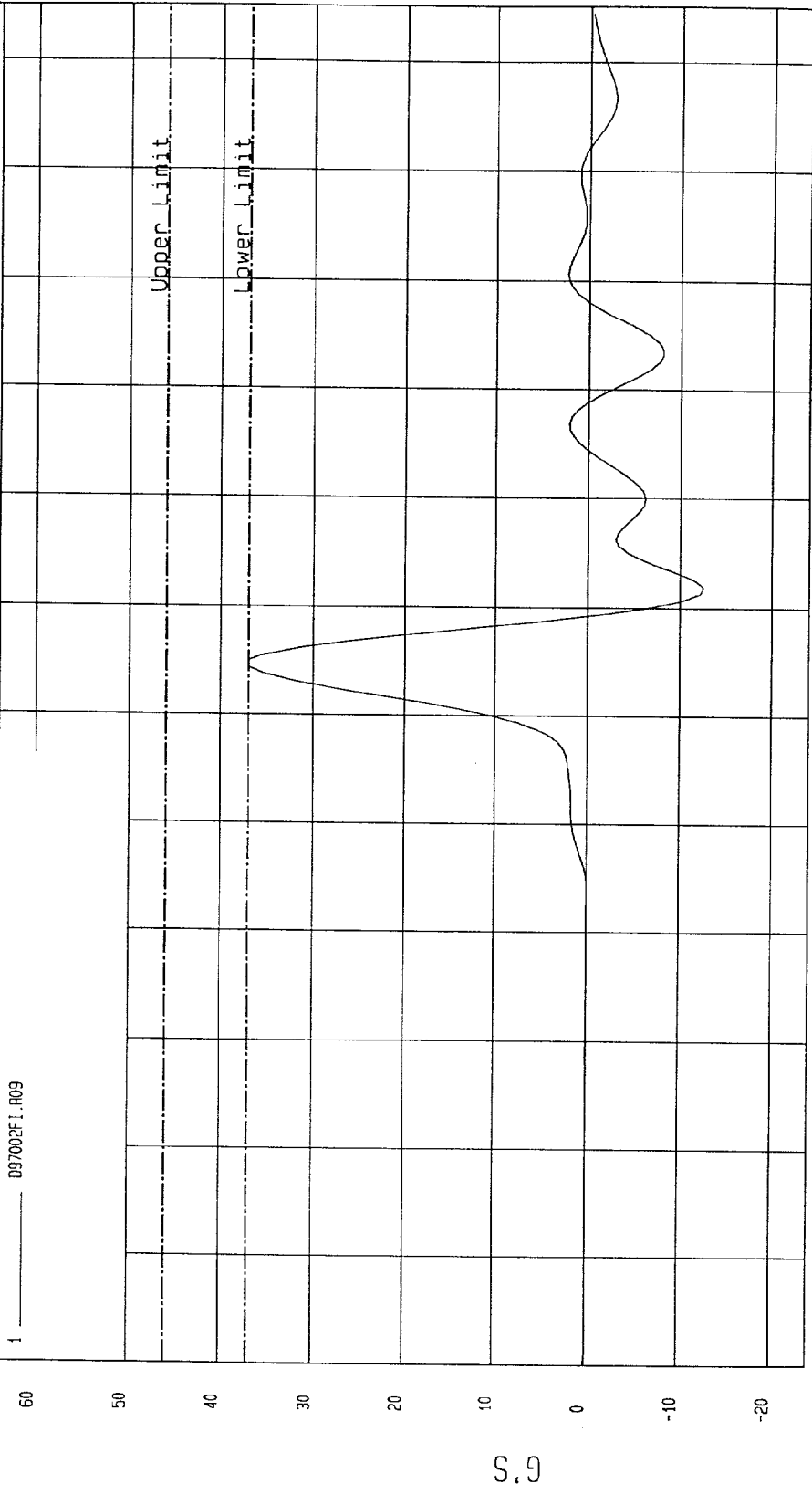
WSA Research
11-05-1997 15:19

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

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

Minimum = -12.51 G'S at 71.8 msec Maximum = 37.03 G'S at 64.3 msec

LOWER RIB ACCELERATION



MGA Research
11-05-1997 15:19

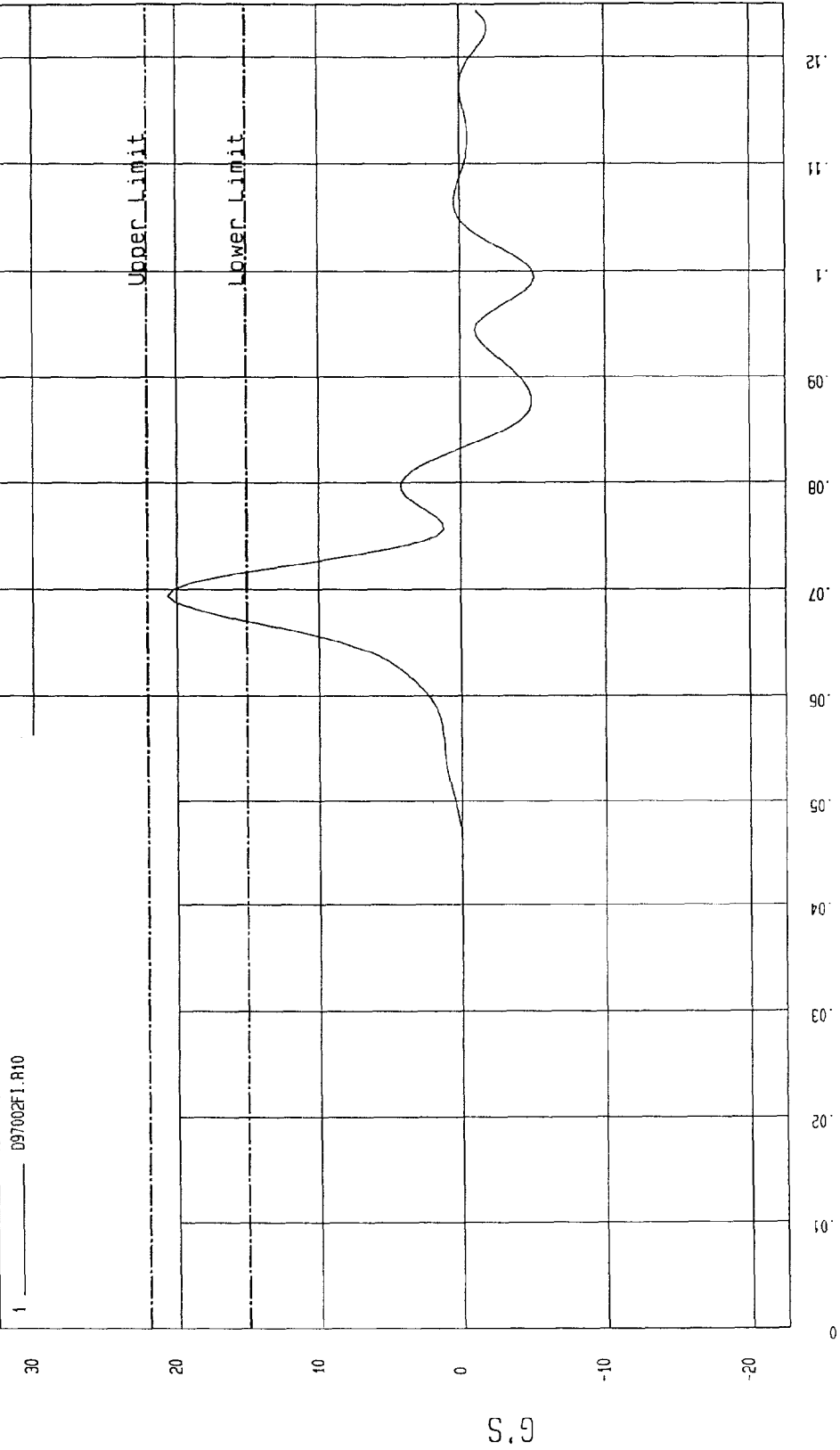
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-05-1997 - 15:11

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

Minimum = -5.16 G's at 99.3 msec

Maximum = 20.64 G's at 69.3 msec

LOWER SPINE ACCELERATION



WGA Research, Inc.
11-05-1997 15:20

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 5, 1997

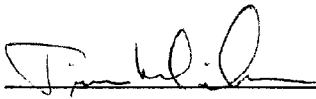
DUMMY NUMBER: 270

TEST NUMBER: D972003

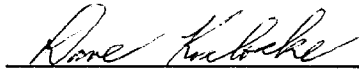
| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|---------------------|-----------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 23% |
| PROBE SPEED | 14.0 - 14.2 f/s | 14.1 |
| PELVIS ACCELERATION | 40 - 60 g's | 43 |

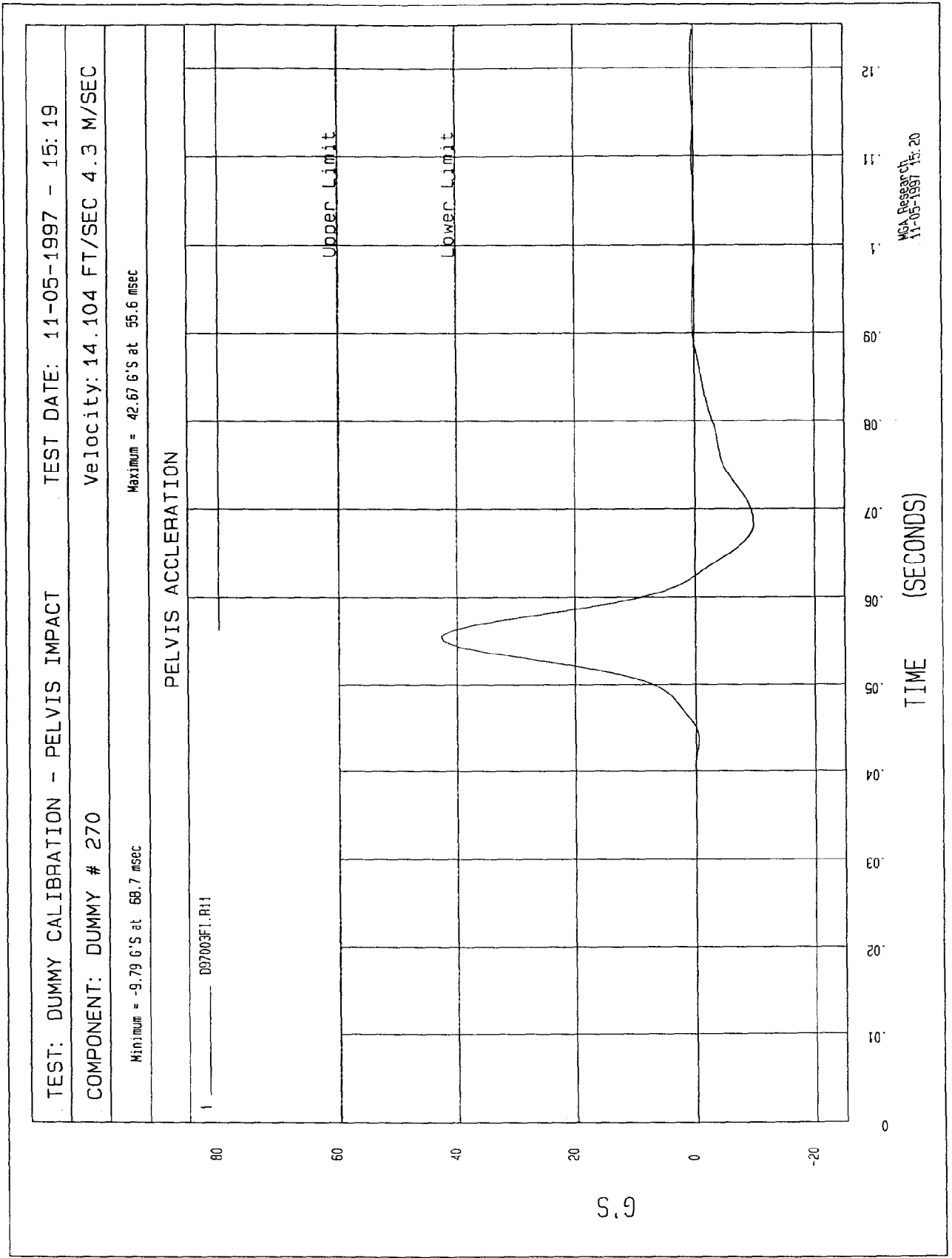
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY





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

DATE: November 5, 1997

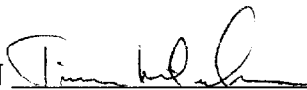
DUMMY NUMBER: 270

TEST NUMBER: D972004

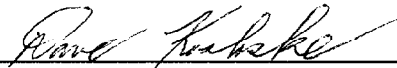
| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|-------------------|-----------------|--------------|
| TEMPERATURE | 66 - 78° F | 70° |
| RELATIVE HUMIDITY | 10 - 70% | 23% |
| FORCE @ 0.5 in | 23.3 - 36.5 lbs | 31.6 |
| FORCE @ 0.75 in | 36.7 - 49.8 lbs | 44.7 |
| FORCE @ 1.0 in | 50 - 63 lbs |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

TEST MEETS SPECIFICATIONS

TECHNICIAN



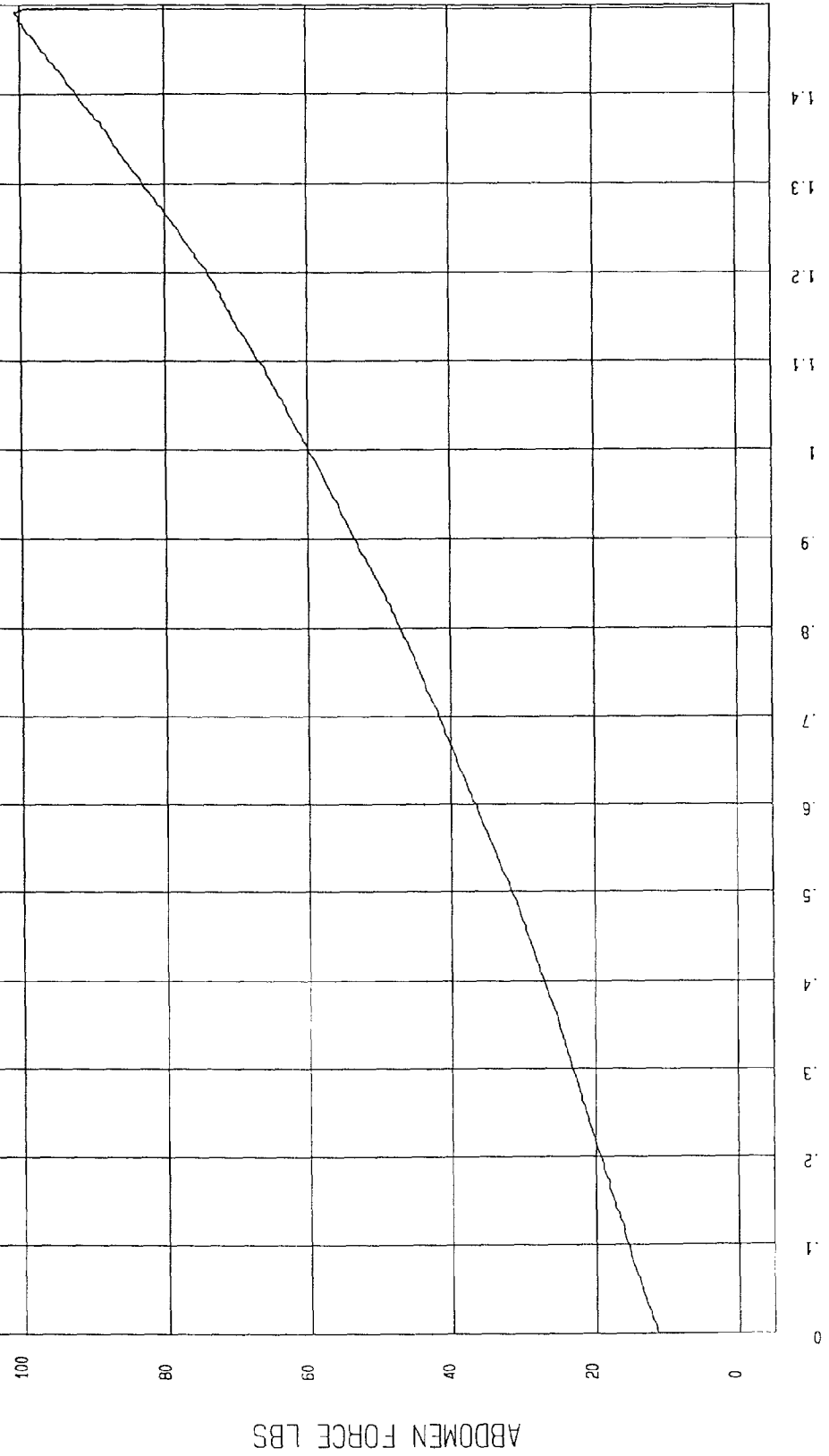
APPROVED BY



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

COMPONENT: DUMMY # 270

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



WGA Research
11-05-1997 16:18

ABDOMEN DISPLACEMENT INCHES

ABDOMEN FORCE LBS

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 5, 1997

DUMMY NUMBER: 270

TEST NUMBER: D972005

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

TEST MEETS SPECIFICATIONS

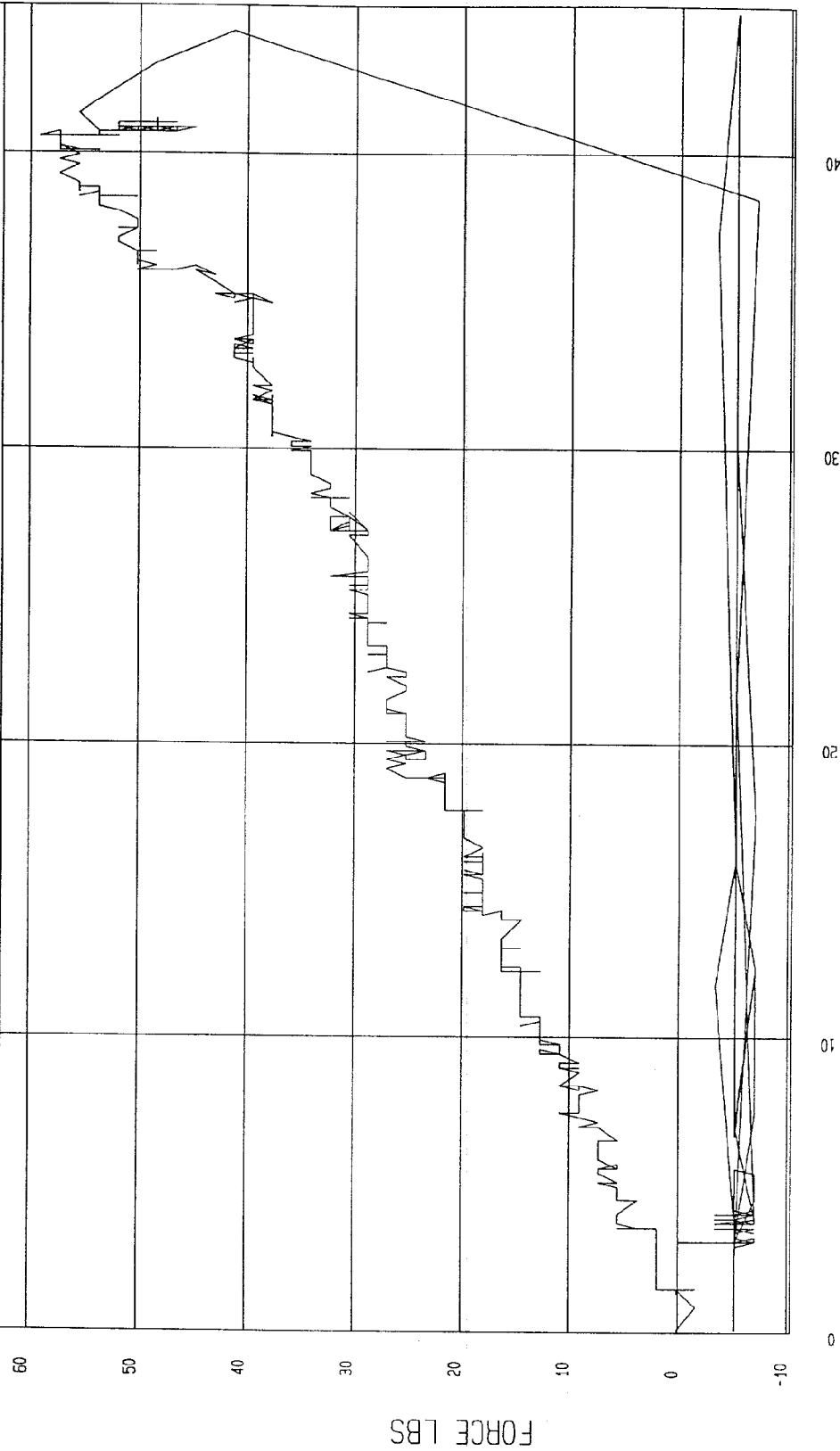
TECHNICIAN Tim White

APPROVED BY Bob Kabiske

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

COMPONENT: DUMMY # 270

FORCE as a function of TORSO ROTATION



MCA Research
11-05-1997 16:19

POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

Inspected By: Tim Michnay

Date: November 5, 1997

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

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

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 270

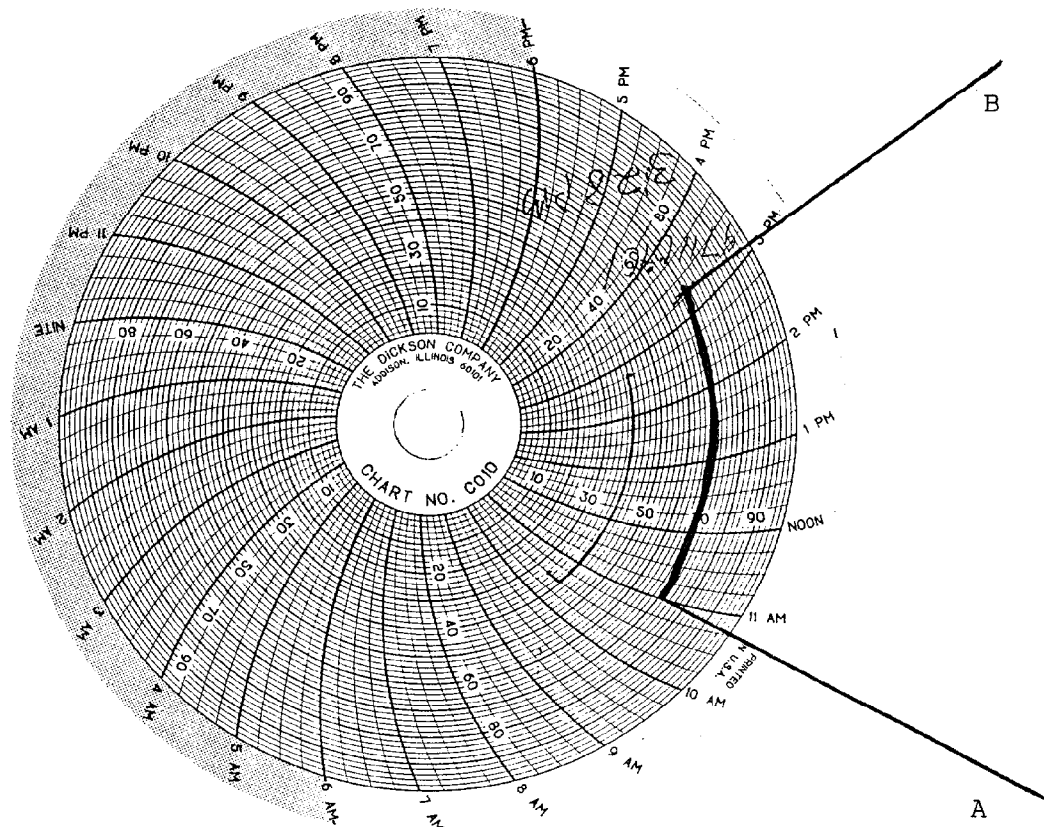
Inspected By: Tim Michnay

Date: November 5, 1997

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

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

VEHICLE AND DUMMY TEMPERATURE



APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

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

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

INSTRUMENTS FOR PASSENGER DUMMY NO. 270

| | LEFT REAR PASSENGER | | |
|--------------------------|---------------------|--------------|--------------------|
| | SERIAL NO. | MANUFACTURER | CALIBRATION DATE |
| Upper Rib Y | AKAF3 | Endevco | September 16, 1997 |
| Lower Rib Y | ALEC1 | Endevco | September 15, 1997 |
| Lower Spine Y | ALCH7 | Endevco | September 16, 1997 |
| Pelvis Y | AKAD6 | Endevco | September 11, 1997 |
| Upper Rib Redundant Y | ALCN9 | Endevco | September 16, 1997 |
| Lower Rib Redundant Y | J10411 | Endevco | September 15, 1997 |
| Lower Spine Redundant Y | AI420 | Endevco | September 16, 1997 |
| Pelvis Redundant Y | AJ9A7 | Endevco | September 11, 1997 |
| Head Center of Gravity X | AN8R0 | Endevco | September 11, 1997 |
| Head Center of Gravity Y | AN8P8 | Endevco | September 11, 1997 |
| Head Center of Gravity Z | AN8M5 | Endevco | September 11, 1997 |

VEHICLE INSTRUMENT CALIBRATION

| VEHICLE ACCELEROMETERS | | | |
|---------------------------------|------------|--------------|------------------|
| | SERIAL NO. | MANUFACTURER | CALIBRATION DATE |
| Moving Barrier CG X | JO4-F10 | Entran | August 7, 1997 |
| Moving Barrier CG Y | F11-G04 | Entran | August 7, 1997 |
| Moving Barrier CG Z | JO4-F12 | Entran | August 7, 1997 |
| Moving Barrier Rear Axle X | G13-B07 | Entran | August 6, 1997 |
| Moving Barrier Rear Axle Y | L14-D04 | Entran | August 4, 1997 |
| Left Mid A-Post Y | J23-E06 | Entran | August 1, 1997 |
| Left Lower A-Post Y | E10-F10 | Entran | August 7, 1997 |
| Left Mid B-Post Y | B14-R01 | Entran | August 1, 1997 |
| Left Lower B-Post Y | J10-E06 | Entran | August 1, 1997 |
| Rear Floorpan Above Axle X | F20-G09 | Entran | August 7, 1997 |
| Rear Floorpan Above Axle Y | I25-J16 | Entran | August 7, 1997 |
| Rear Floorpan Above Axle Z | L14-D14 | Entran | July 14, 1997 |
| Driver Seat Track Y | F20-G07 | Entran | August 7, 1997 |
| Right Side Sill at Front Seat X | J13-F17 | Entran | August 6, 1997 |
| Right Side Sill at Front Seat Y | I25-J10 | Entran | August 7, 1997 |
| Right Side Sill at Front Seat Z | G01-J14 | Entran | August 7, 1997 |
| Right Side Sill at Rear Seat X | F12-G03 | Entran | July 11, 1997 |
| Right Side Sill at Rear Seat Y | D05-R16 | Entran | July 7, 1997 |
| Right Side Sill at Rear Seat Z | D05-R20 | Entran | July 7, 1997 |
| Left Side Sill at Front Seat Y | F10-D04 | Entran | August 4, 1997 |

VEHICLE INSTRUMENT CALIBRATION

| | VEHICLE ACCELEROMETERS | | |
|-----------------------------------|------------------------|--------------|------------------|
| | SERIAL NO | MANUFACTURER | CALIBRATION DATE |
| Left Side Sill at Rear Seat Y | F13-B12 | Entran | August 7, 1997 |
| Right Rear Occupant Compartment Y | L14-D13 | Entran | August 1, 1997 |
| Vehicle CG X | I25-J09 | Entran | August 7, 1997 |
| Vehicle CG Y | H02-J02 | Entran | August 6, 1997 |
| Vehicle CG Z | F20-G05 | Entran | August 7, 1997 |
| Left Front Door on Centerline | B14-R09 | Entran | July 2, 1997 |
| Midrear of Left Front Door | D05-R10 | Entran | July 14, 1997 |
| Left Front Door Upper Centerline | F12-G06 | Entran | July 14, 1997 |
| Midrear of Left Rear Door | B14-R13 | Entran | July 2, 1997 |
| Left Rear Door Upper Centerline | B14-R03 | Entran | August 4, 1997 |

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