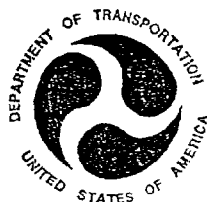


NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TESTING
PASSENGER CARS

1998 MITSUBISHI ECLIPSE
3 -DOOR HATCHBACK
NHTSA NO: MW5601

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: December 16, 1997

Report Date: January 16, 1998

FINAL REPORT

Prepared For:

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

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

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

Prepared By: Norkham Khentharong
Norkham Khentharong, Project Engineer
Approved By: John Fleck
John Fleck, Facility Director
Approval Date: February 27, 1998

FINAL REPORT ACCEPTED BY (OCWS):

Accepted By: _____
Contract Technical Manager
Acceptance Date: _____

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 214D-MGA-98-016		2. Government Accession No.		3. Recipient's Catalog No.											
4. Title and Subtitle New Car Assessment Program Side Impact Test of a 1998 Mitsubishi Eclipse 3-Door Hatchback NHTSA No. MW5601				5. Report Date January 16, 1998											
				6. Performing Organization Code MGA											
7. Author(s) Norkham Khenthavong, Project Engineer				8. Performing Organization Report No. MGA-DOT-214-016											
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105				10. Work Unit No.											
				11. Contract or Grant No. DTNH22-93-C-02047											
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards 400 Seventh St., S.W. Washington, D.C. 20590				13. Type of Report and Period Covered Final Test Report December 16, 1997 to January 16, 1998											
				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 Mitsubishi Eclipse 3-Door Hatchback new car assessment and research data indicant of FMVSS No. 214D performance. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on December 16, 1997. The impact velocity of the Moving Deformable Barrier (MDB) was 61.5 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 21 °C. The target vehicle post test maximum crush was 402 mm at level 3. The test vehicle's performance follows: <u>DRIVER</u> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td>111</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td>98</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td>132</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>122</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>109</td> </tr> </table> The door on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite door did not open during the side impact event.						Left Upper Rib (LUR) Accel., g	111	Left Lower Rib (LLR) Accel., g	98	Lower Spine (T ₁₂) Accel., g	132	Thoracic Trauma Index (TTI)	122	Pelvis (PEV) Accel., g	109
Left Upper Rib (LUR) Accel., g	111														
Left Lower Rib (LLR) Accel., g	98														
Lower Spine (T ₁₂) Accel., g	132														
Thoracic Trauma Index (TTI)	122														
Pelvis (PEV) Accel., g	109														
17. Key Words New Car Assessment Program (NCAP) FMVSS No. 214D Side Impact Dummy (SID) Occupant Side Impact Protection				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5108 (NAD-52) 400 Seventh Street, S.W. Washington, D.C. 20590											
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 234											
				22. Price											

TABLE OF CONTENTS

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

SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY98 NCAP Side Impact Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-93-C-02047. The purpose of this test was to evaluate side impact protection of a 1998 Mitsubishi Eclipse 3-Door Hatchback.

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 Mitsubishi Eclipse was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 38.2 mph (61.5 kph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin, on December 16, 1997. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummy (SID) are included in Appendix A.

One Side Impact Dummy (SID) was placed in the driver designated seating position according to instructions specified in the New Car Assessment Program Side Impact Laboratory Test Procedure which is dated October 1996. The left rear passenger dummy was omitted from the test, due to insufficient space to establish the H-point. 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 SID was 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
TTI (g)	122
Pelvis (g)	109

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/Mitsubishi/Eclipse/3-Door Hatchback
Vehicle NHTSA No.: MW5601 VIN: 4A3AK34YOWE004526
Vehicle Body Color: Red Build Date: 7/97
Engine Data: 4 Cylinders; CID; 2.0 Liter; cc
Placement Longitudinal; X Lateral
Transmission: 4 Speed; Manual; X Automatic; X Overdrive
Final Drive: Rear Wheel Drive; X Frt. Wheel Drive; Four Wheel Drive

Odometer Reading 52 miles
Options: X A/C; X Pwr. Steering; X Pwr. Brakes; Pwr. Windows;
 Cruise Control; X Tilt Wheel; Power Door Locks;

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 32 Psi FRONT
29 Psi REAR
Recommended Tire Size: P195/70R14/90H
Tires on Test Vehicle: P195/70R14/90H Manufacturer: Bridgestone

Vehicle Capacity Data:

Number of Occupants: 2 Front; 2 Rear; 3rd Seat, 4 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 = 299.8 kg (A)
No. of Occupants x 68.04 kg. = 272.2 kg (B)
Cargo Capacity (A-B) = 27.6 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>409.1</u> kg	Right Rear	=	<u>231.8</u> kg
Left Front	=	<u>413.3</u> kg	Left Rear	=	<u>239.0</u> kg
TOTAL FRONT	=	<u>822.4</u> kg	TOTAL REAR	=	<u>470.8</u> kg
% of Total Vehicle Weight	=	<u>63.4</u> %;	% of Total Weight	=	<u>36.6</u> %
TOTAL WEIGHT	=	<u>1293.2</u> kg			

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	=	<u>1293.2</u> kg
Cargo Carrying Capacity of Test Vehicle	=	<u>27.6</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>1482.2</u> kg

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

Right Front	=	<u>415.0</u> kg	Right Rear	=	<u>282.1</u> kg
Left Front	=	<u>464.1</u> kg	Left Rear	=	<u>321.2</u> kg
TOTAL FRONT	=	<u>879.1</u> kg	TOTAL REAR	=	<u>603.3</u> kg
% of Total Weight	=	<u>59.3</u> %	% of Total Weight	=	<u>40.7</u> %
TOTAL TEST WEIGHT	=	<u>1482.4</u> kg			

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 699 mm Left Front 702 mm Right Rear 709 mm Left Rear 700 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 692 mm Left Front 684 mm Right Rear 692 mm Left Rear 662 mm

TEST ATTITUDE:

Right Front 692 mm Left Front 684 mm Right Rear 694 mm Left Rear 662 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2515 mm

C.G. = 992 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4094 mm

Centerline = 4385 mm

Left Side = 4094 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 240 mm

Test Position: 6th detent of 25

FRONT SEAT BACK ADJUSTMENT POSITION:

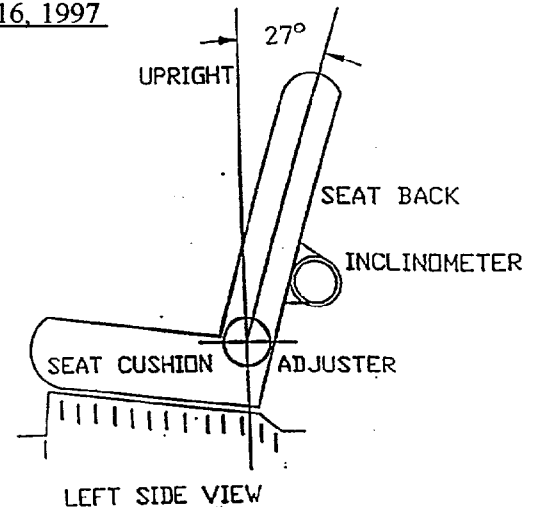
Seat Back Angle = 6th detent of 25

27°

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: Non-Adjustable



ADJUSTABLE STEERING COLUMN POSITION:

WINDOW POSITIONS: Left Front Closed Left Rear N/A

Right Front Open Right Rear N/A

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 15.9 gallons

Test Volume: 14.8 gallons 93 % of capacity

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

Wheelbase: = 2515 mm

Impact Point is 317.5 mm rearward of front axle centerline

DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997

Overall Length = 4385 mm; Overall Width = 1773 mm

TEST WEIGHT:

Right Front = 431.8 kg Right Rear = 274.4 kg

Left Front = 460.9 kg Left Rear = 307.1 kg

TOTAL FRONT = 892.7 kg TOTAL REAR = 581.5 kg

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

TOTAL VEHICLE WEIGHT = 1474.2 kg

Wheelbase = 2515 mm

Longitudinal C.G. from Center of Front Axle = 992 mm

Impact Angle with Respect to Impactor = 90 ° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (230 mm above ground) = 243 mm

2. LEVEL 2 (438 mm above ground) = 379 mm

3. LEVEL 3 (567 mm above ground) = 402 mm

4. LEVEL 4 (824 mm above ground) = 297 mm

5. LEVEL 5 (1200 mm above ground) = 69 mm

Maximum Post-Test Intrusion = 402 mm

OCCUPANTS:

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

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)

INSTRUMENTATION:

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

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

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

MDB WEIGHT:

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

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

Impact Speed = Primary: 38.2 mph (61.5 kph) Secondary: 38.2 mph (61.5 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>183</u> mm |
| 2. | Row B Mid Stack (686 mm) | = <u>162</u> mm |
| 3. | Row C Top of Bumper (533 mm) | = <u>93</u> mm |
| 4. | Row D Center of Bumper (432 mm) | = <u>122</u> mm |

INSTRUMENTATION:

Number of MDB Data Channels = 7

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SIDE</u>
Head	<u>window sill</u>
Arm	<u>door and armrest</u>
Pelvis	<u>armrest</u>
Left Knee	<u>front mid door panel</u>
Right Knee	<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>N/A</u>	<u>N/A</u>

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 12 mm forward Vertical: 2 mm high

ARM REST LOCATIONS:

Front: 300 mm from bottom of window
Rear: N/A

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 138 mm Front Seat Cushion: 160 mm
Left Rear Seat Back: 66 mm Rear Seat Cushion: 195 mm

GLAZING DAMAGE:

Driver door glass broken, left side quarter window broken

PILLAR PERFORMANCE:

No failure noted

SILL SEPARATION:

Sill separation at approximately 1 meter forward of rear axle, about 40 mm long.

OTHER NOTABLE IMPACT EFFECTS:

Mid A-post accelerometer fell off. No side airbags.

AIRBAG DEPLOYMENT STATUS:

	<u>DRIVER</u>	<u>PASSENGER</u>
Frontal	<u>Yes</u>	<u>Yes</u>
Side	<u>N/A</u>	<u>N/A</u>

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

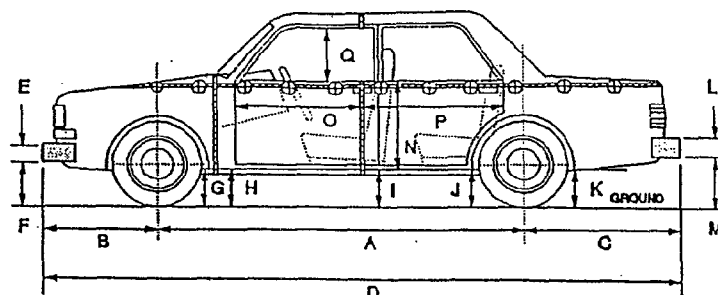
Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601

Front Dummy ID #272				
	Pos. Direct.		Neg. Direct	
	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS				
Left Upper Rib (LUR) Y	111.2	36	-37.1	71
Left Lower Rib (LLR) Y	98.3	29	-55.2	69
SPINE ACCELERATIONS				
Lower Lateral Y	132.4	32	-39.3	61
PELVIS ACCELERATIONS				
Lateral Y	108.6	29	-29.0	53

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	2515	2493	-22
B	960	965	5
C	910	882	-28
D	4385	4340	-45
E	150	150	0
F	348	370	22
G	141	200	59
H	140	175	35
I	135	142	7
J1/J2	132/134	164/158	32/24
K	220	232	12
L	405	405	0
M	285	318	33
N	691	697	6
O	666	655	-11
P	620	627	7
Q	428	422	-6
R	4094	4108	-14
S	4094	4035	-59
T	1773	1384	-389

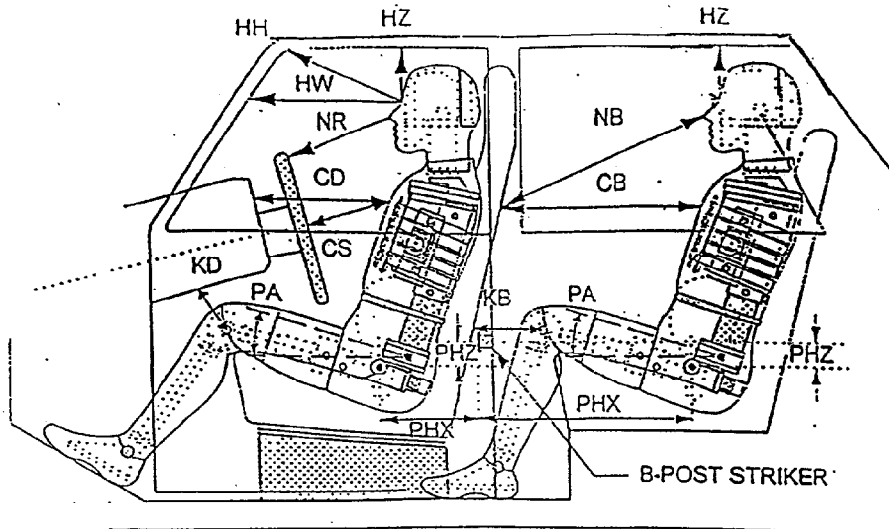
DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

NHTSA NO.: MW5601

Test Date: December 16, 1997



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

	DRIVER SID ID #272
HH	450
HW	659
HZ	148
NR	440
CD	554
CS	342
KDL(KDA°)	162 (25.4°)
KDR(KDA°)	144 (27.4°)
PA°	24°
PHX	404
PHZ	230

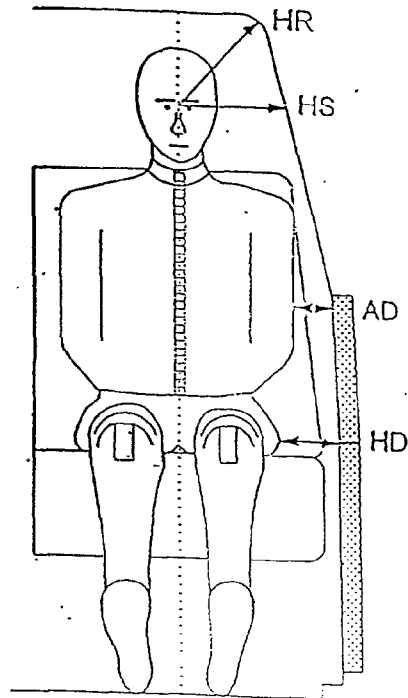
NOTE: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as reference point.

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

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

NHTSA NO.: MW5601

Test Date: December 16, 1997



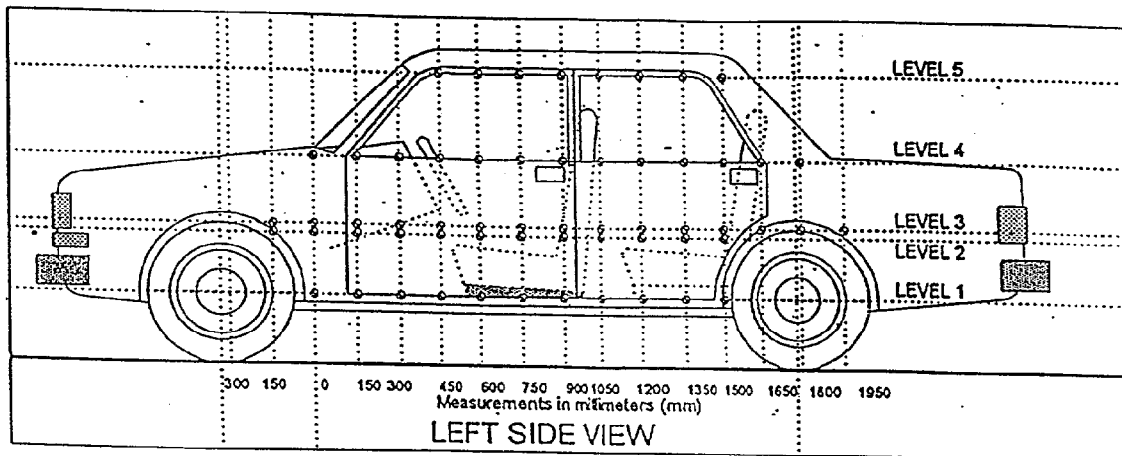
NOTE: All dimensions are in mm

DRIVER SID ID # 272	
HR	168
HS	259
AD	80
HD	142

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

NHTSA NO.: MW5601 Test Date: December 16, 1997



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

MEASUREMENTS ALONG THE VERTICAL 750 mm. LINE SHOWN ABOVE

Level 1 @ Axle Centerline Height (or Sill Top Height)	= <u>230</u> mm
Level 2 @ Occupant H-Point	= <u>438</u> mm
Level 3 @ Mid Door	= <u>567</u> mm
Level 4 @ Window Sill	= <u>824</u> mm
Level 5 @ Window Top	= <u>1200</u> 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	855	984	129
300	858	1080	222
450	862	1090	228
600	867	1091	224
750	872	1098	226
900	870	1104	234
1050	863	1110	247
1200	865	1096	231
1350	860	1080	220
1500	854	1038	184
1650	853	993	140
1800			

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

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

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

Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 1 - AXLE CENTERLINE

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 2 - Occupant H-Point		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150	815	1081	266
300	823	1160	337
450	827	1189	362
600	830	1202	372
750	831	1208	377
900	831	1208	377
1050	828	1207	379
1200	827	1204	377
1350	824	1196	372
1500	818	1190	372
1650	813	1159	346
1800	808	1117	309

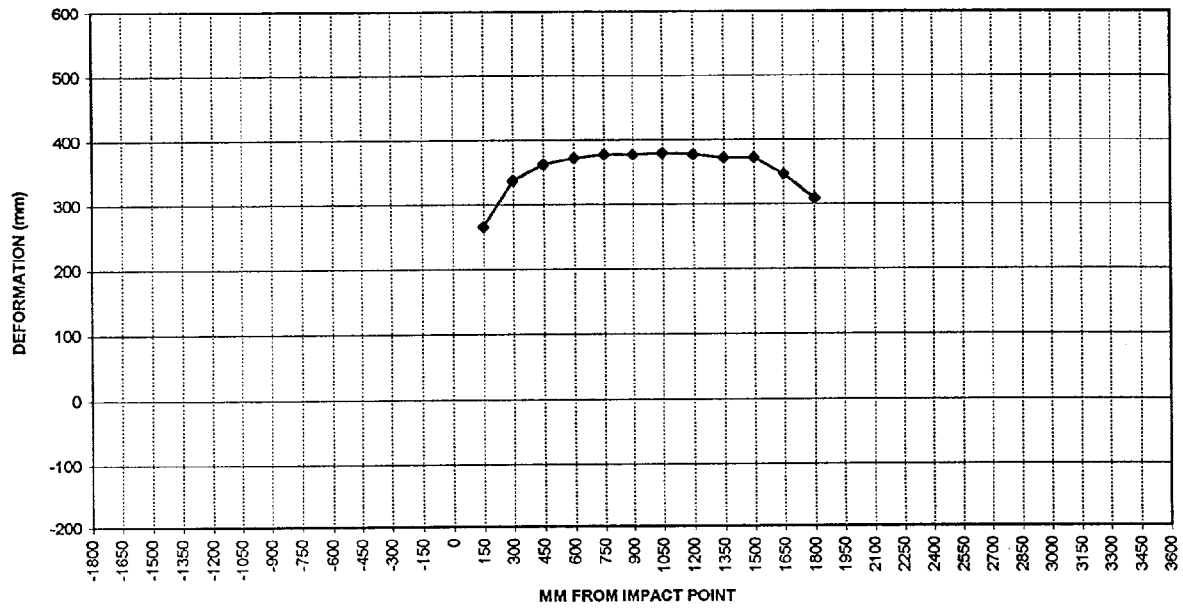
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

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

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 2 - OCCUPANT H-POINT

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 3 - Mid-Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750	820	844	24
-600			
-450			
-300			
-150			
0 (impact point)	810	996	186
150	805	1058	253
300	810	1126	316
450	810	1152	342
600	811	1160	349
750	813	1173	360
900	814	1180	366
1050	814	1187	373
1200	814	1192	378
1350	810	1200	390
1500	808	1210	402
1650	804	1191	387
1800	800	1124	324

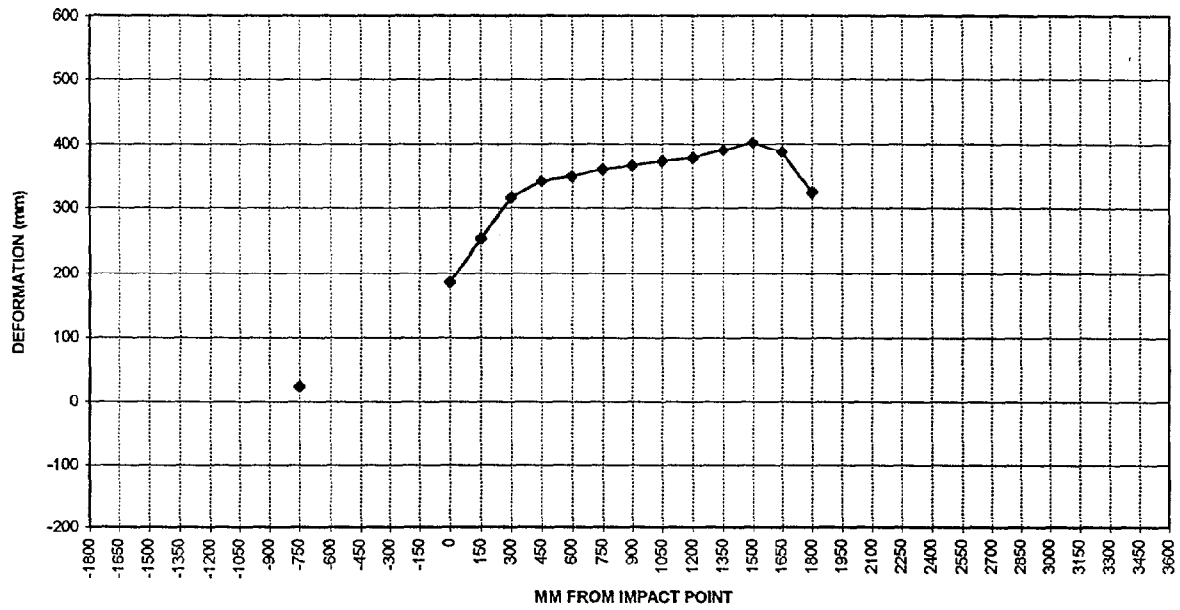
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

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			
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 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	942	950	8
-750	915	927	12
-600	894	914	20
-450	882	910	28
-300	873	911	38
-150	873	920	47
0 (impact point)	872	930	58
150	870	959	89
300	873	1035	162
450	874	1090	216
600	876	1109	233
750	880	1124	244
900	880	1130	250
1050	878	1140	262
1200	875	1146	271
1350	875	1160	285
1500	878	1175	297
1650	878	1170	292
1800	870	1090	220

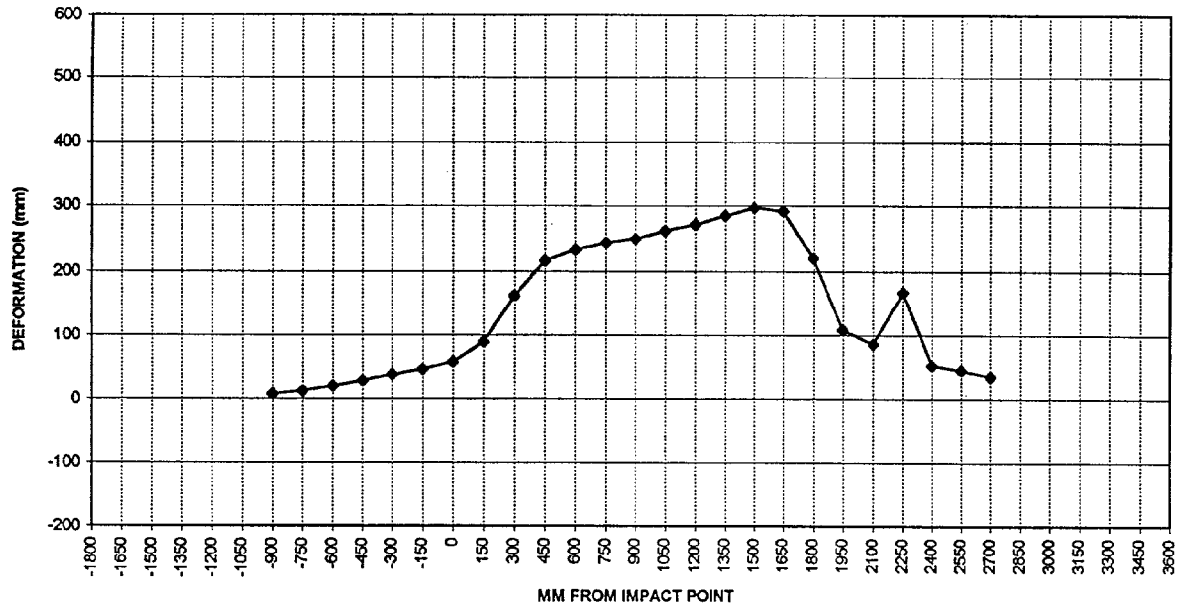
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

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	884	992	108
2100	888	974	86
2250	800	968	168
2400	914	967	53
2550	933	978	45
2700	964	999	35
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 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	1139	1195	56
750	1130	1190	60
900	1138	1192	54
1050	1135	1204	69
1200	1145	1203	58
1350	1154	1208	54
1500	1160	1209	49
1650			
1800			

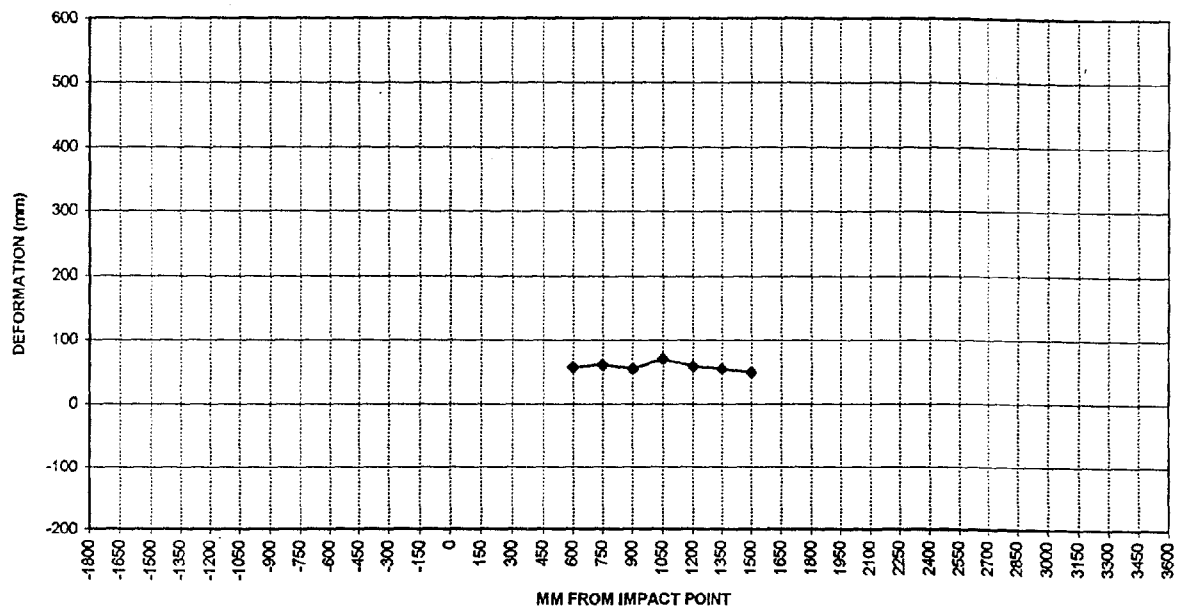
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

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



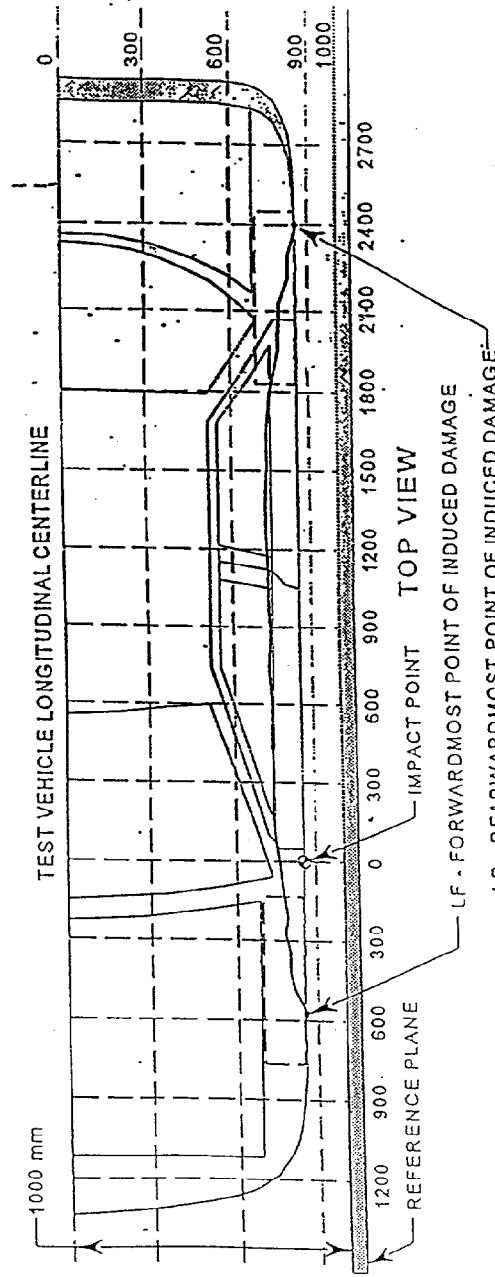
LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

NHTSA NO.: MW5601 Test Date: December 16, 1997



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

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = -900 mm)	950	942	8
2. -150 mm	920	873	47
3. 600 mm	1202	830	372
4. 1350 mm	1191	804	387
5. 1950 mm	992	884	108
6. (LR = 2700 mm)	999	964	35

DATA SHEET NO. 12

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

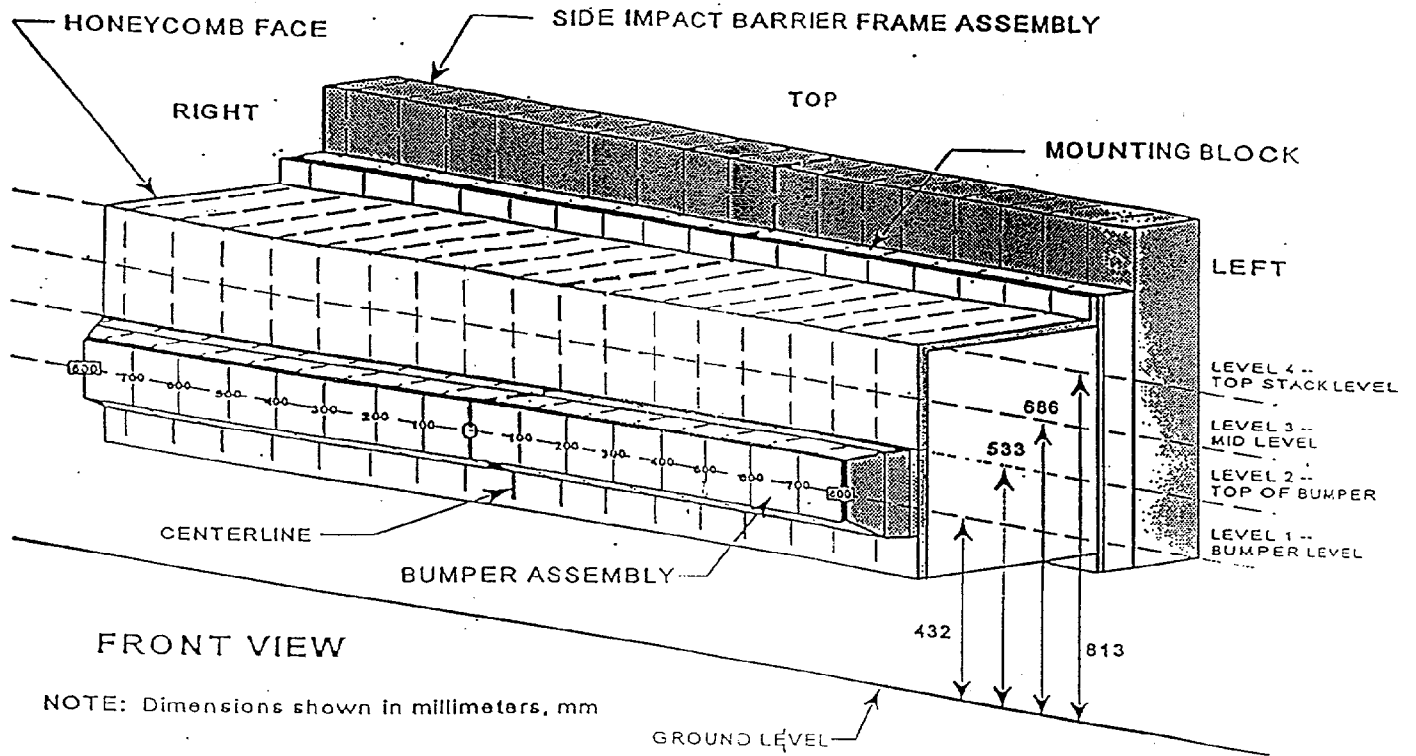
Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997

Location	Height at CL	Distance Right of Center (mm)									Distance Left of Center (mm)							
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level 4	813 mm	73	4	-4	-4	-1	1		3	5	6	11	31	56	85	128	129	182
Mid Level Level 3	686 mm	35	-3	1	6	1	-3	-1	0	2	3	4	4	8	22	51	108	162
Top Bumper Level 2	533 mm	62	42	23	5	-3	-2	2	3	4	7	0	12	17	23	37	63	93
Mid Bumper Level 1	432 mm	113	97	74	49	30	22	23	23	24	27	29	34	37	50	69	97	134

See next page for Barrier Face Graphic

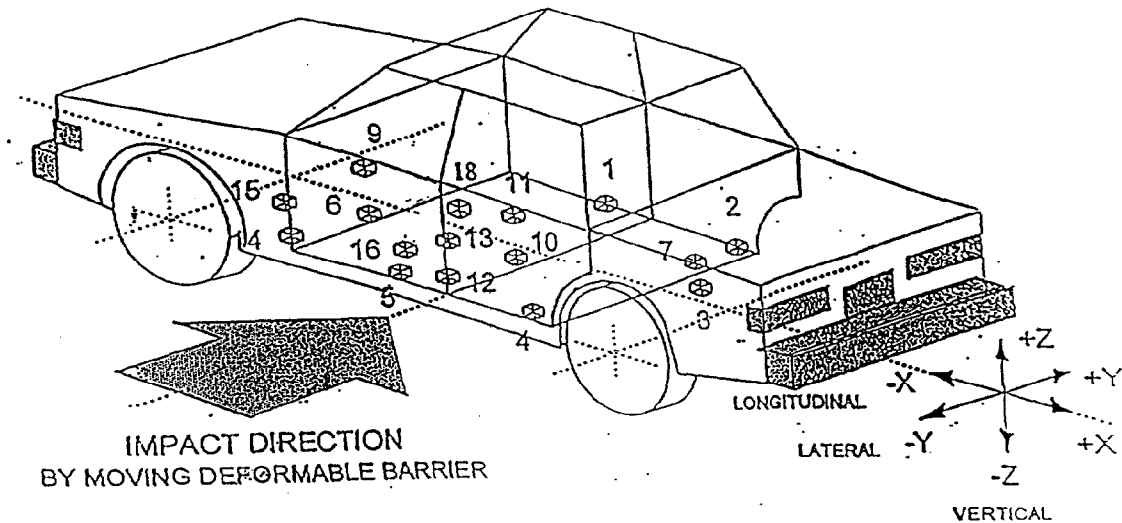
DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 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
- 8-Midrear of Left Frt. Door
- 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/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 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	2334	662	175	4.8	-6.2	20.3	-3.6	8.3	-4.8	21.0
2	Rt. Side Sill @ Rear Seat	1422	639	215	5.9	-5.3	24.2	-0.9	7.2	-6.9	24.8
3	Rr. Floorpan Above Axle	947	0	490	6.1	-14.9	22.7	-3.3	8.4	-7.0	27.2
4	Left Side Sill @ Rr. Seat	1403	-647	186	---	---	41.6	-15.9	---	---	---
5	Left Side Sill @ Frt. Seat	2342	-670	165	---	---	38.8	-16.6	---	---	---
6	Left Front Door Centerline	2145	-730	638	---	---	189.9	-128.1	---	---	---
7	Right Rear Occupant Compartment	9675	340	330	---	---	18.9	-3.0	---	---	---
8	Mid Rear of Left Front Door	1794	-727	552	---	---	231.1	-57.4	---	---	---
9	Left Front Door Upper Centerline	2211	-707	832	---	---	305.6	-93.6	---	---	---
11	Left Rear Door Upper Centerline	1516	-714	831	---	---	88.4	-88.8	---	---	---
12	Left Lower B-Post	1722	-667	264	---	---	73.3	-30.7	---	---	---
16	Driver Left Seat Track	2015	-550	220	---	---	117.8	-75.5	---	---	---
18	Vehicle CG	2165	0	418	5.1	-5.9	23.7	-2.0	9.8	-3.1	24.4

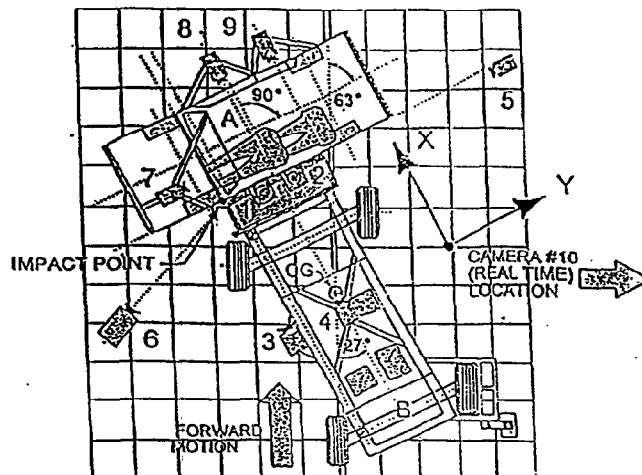
*Reference: X - Rear Bumper (+ Forward)
Y - Vehicle Centerline (+ To right)
Z - Ground Level (+ Up)

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997



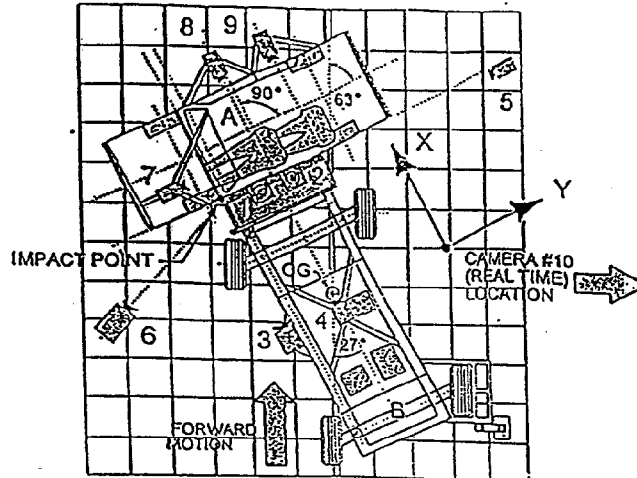
Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	1.1	112	-18.4	36
	Lateral (Y)	---	---	---	5.2	63	-4.9	46
	Vertical (Z)	---	---	---	16.0	78	-12.2	65
	Resultant (R)	---	---	---	20.6	42	---	---
2	Rear Frame Member	-2591	-625	622				
	Longitudinal (X)	---	---	---	1.6	87	-25.0	42
	Lateral (Y)	---	---	---	4.1	18	-1.97	66

*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/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
	Real Time						
6	Left Impact	-540	-2210	1650		13	935
8	Onboard Driver					8	943
7	Onboard Hood					13	1015
5	Right Impact	-790	10290	1675		25	1010
1	Top Overall	-60	1280	5000		8	990
2	Top Impact	-380	-50	5000		13	1053
4	Cart Overall					13	1020
3	Cart Pointer					35	1005

* Reference: (from point of impact)

+X = Forward

+Y = To Right

+Z = Upward

DATA SHEET 16
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 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

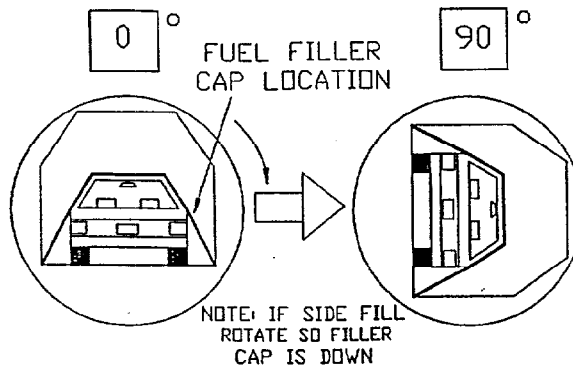
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 46 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 46 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

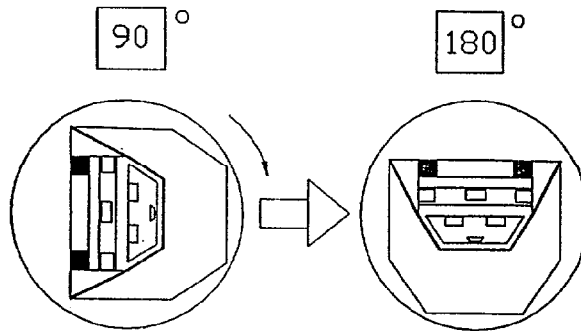
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 37 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 37 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

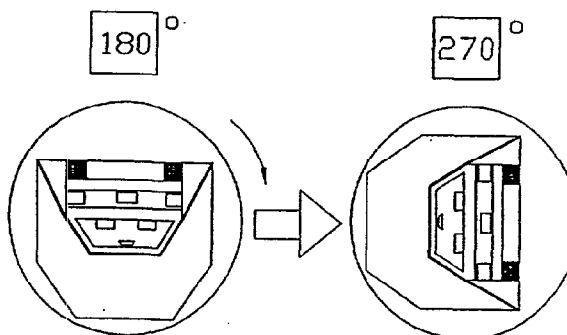
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 24 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 24 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

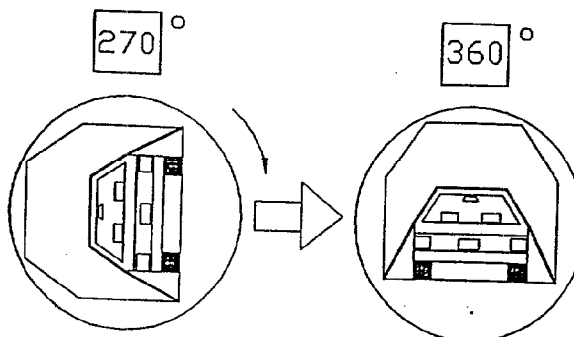
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Mitsubishi/Eclipse/3-Door Hatchback

Vehicle NHTSA No.: MW5601 Test Date: December 16, 1997

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 46 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 46 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

APPENDIX A - PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

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

TABLE OF PHOTOGRAPHS

	<u>Page No.</u>
Photo No. A-29 - Pre-Test Left Front Impact Point on Vehicle	A-29
Photo No. A-30 - Post-Test Left Front Impact Point on Vehicle	A-30
Photo No. A-31 - Impact	A-31
Photo No. A-32 - Vehicle Certification Label	A-32
Photo No. A-33 - Tire Placard	A-33
Photo No. A-34 - Rollover 90°	A-34
Photo No. A-35 - Rollover 180°	A-35
Photo No. A-36 - Rollover 270°	A-36
Photo No. A-37 - Rollover 360°	A-37
Photo No. A-38 - Left Front Attitude Point	A-38
Photo No. A-39 - Right Front Attitude Point	A-39
Photo No. A-40 - Left Rear Attitude Point	A-40
Photo No. A-41 - Right Rear Attitude Point	A-41

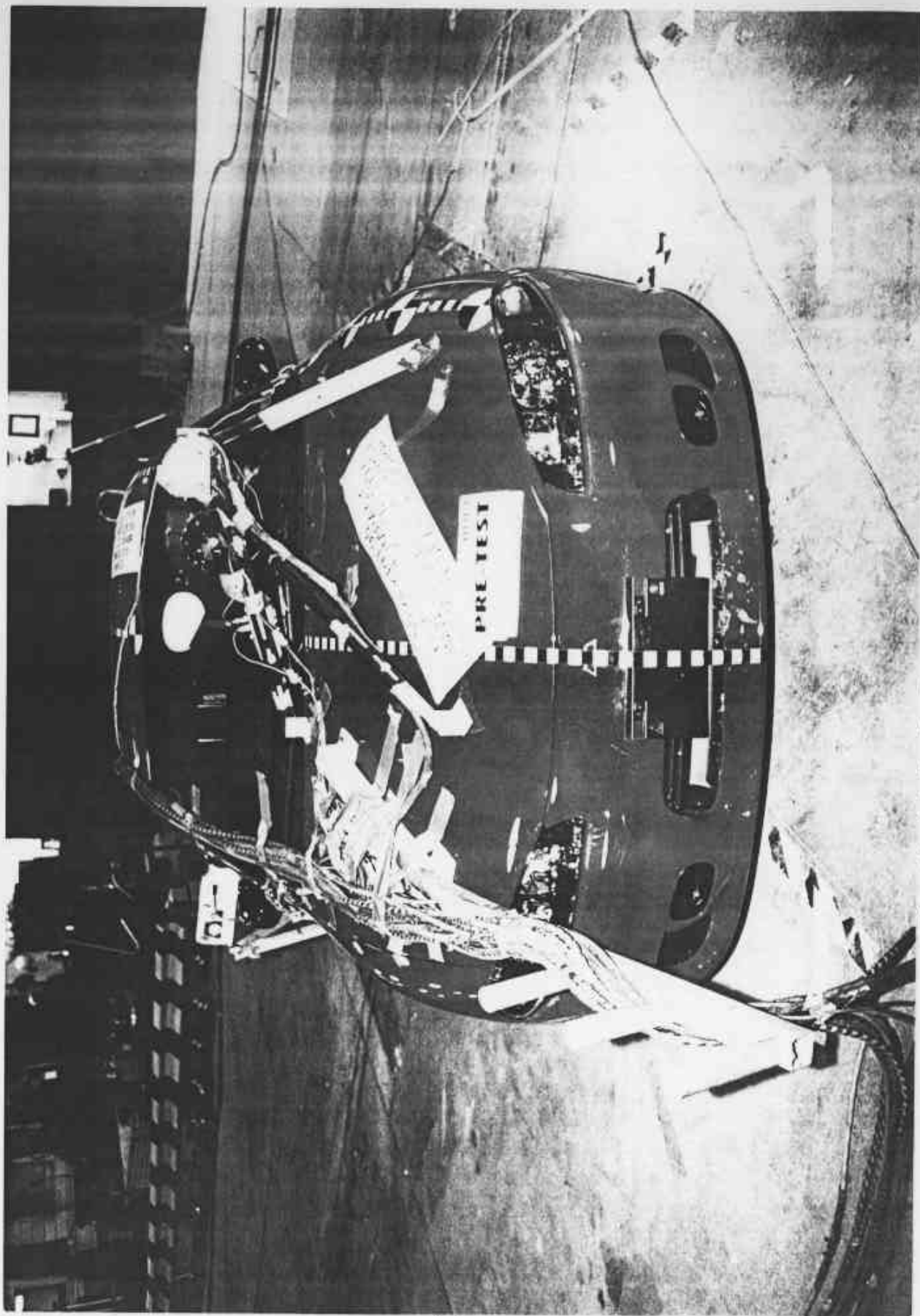


Photo No. A-1 - Pre-Test Front View of Test Vehicle

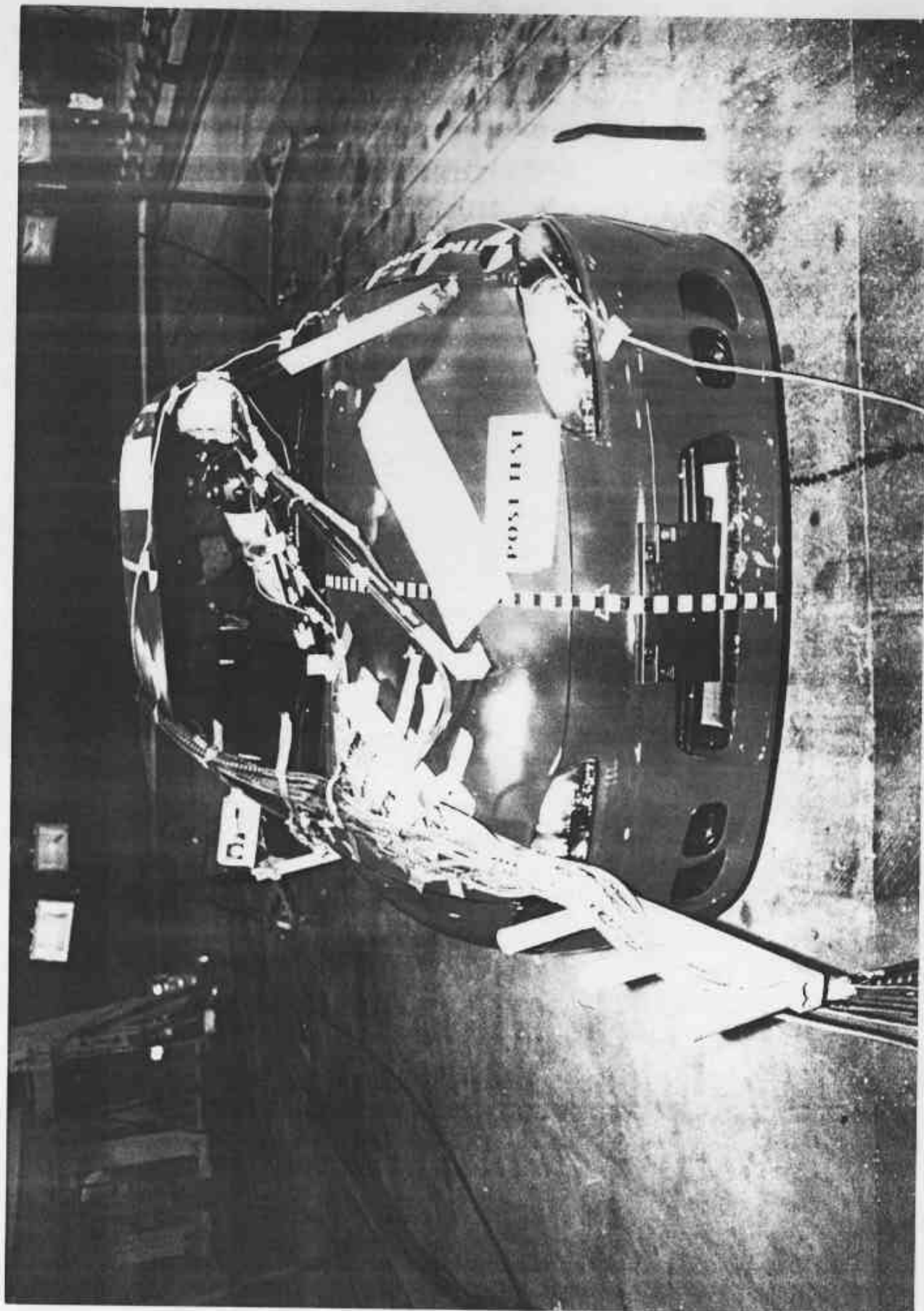


Photo No. A-2 - Post-Test Front View of Test Vehicle

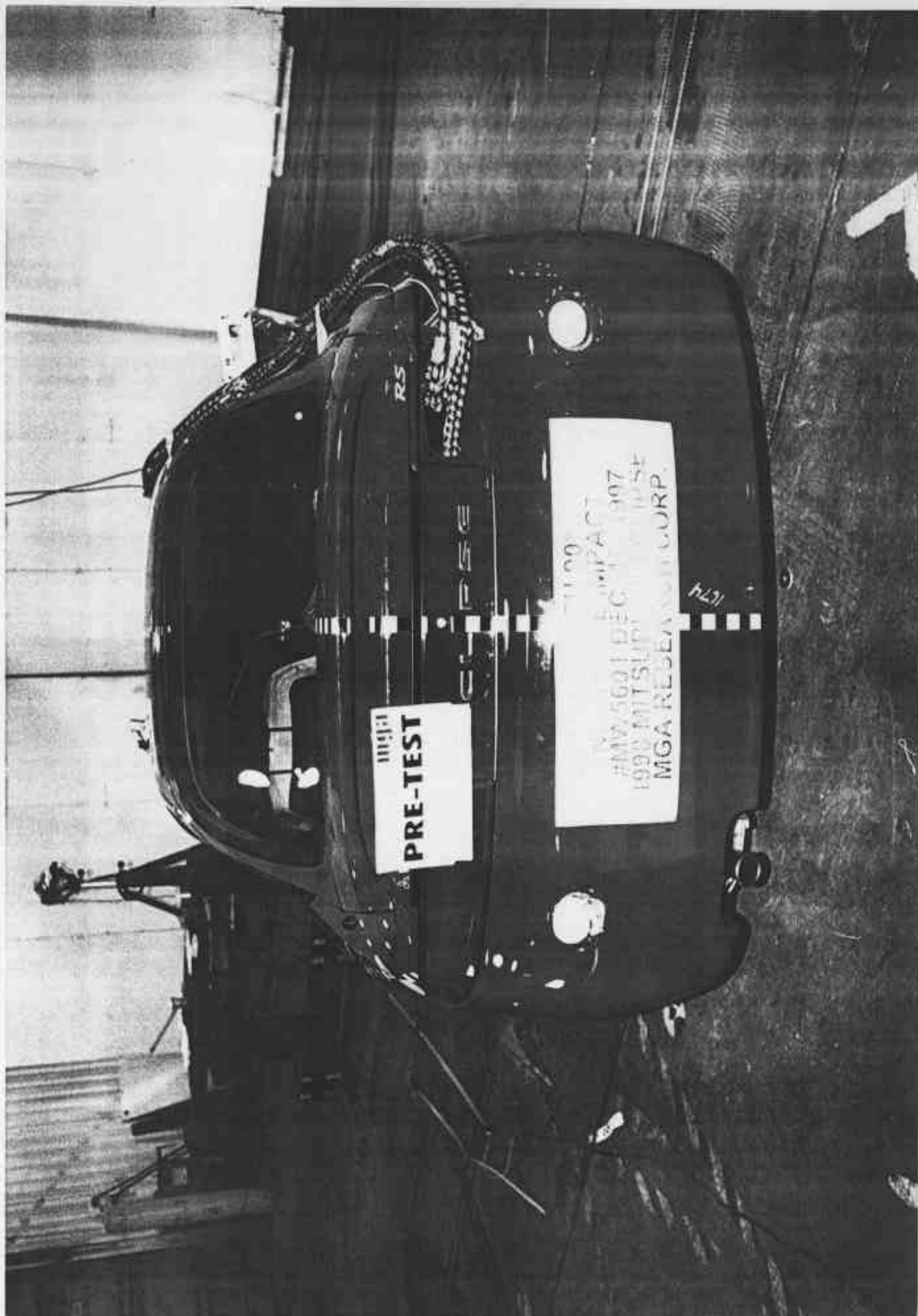


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

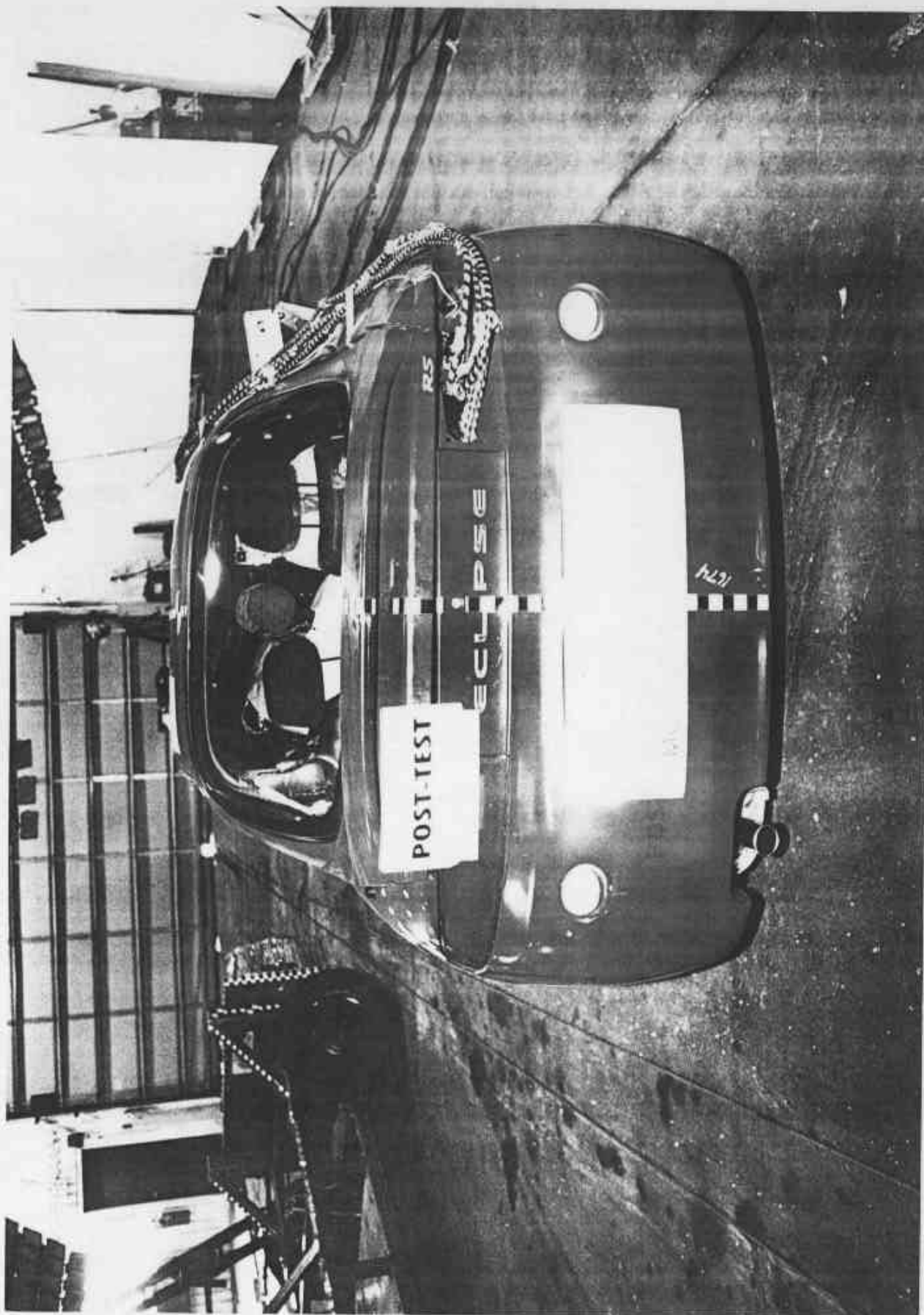


Photo No. A-4 - Post-Test Rear View of Test Vehicle

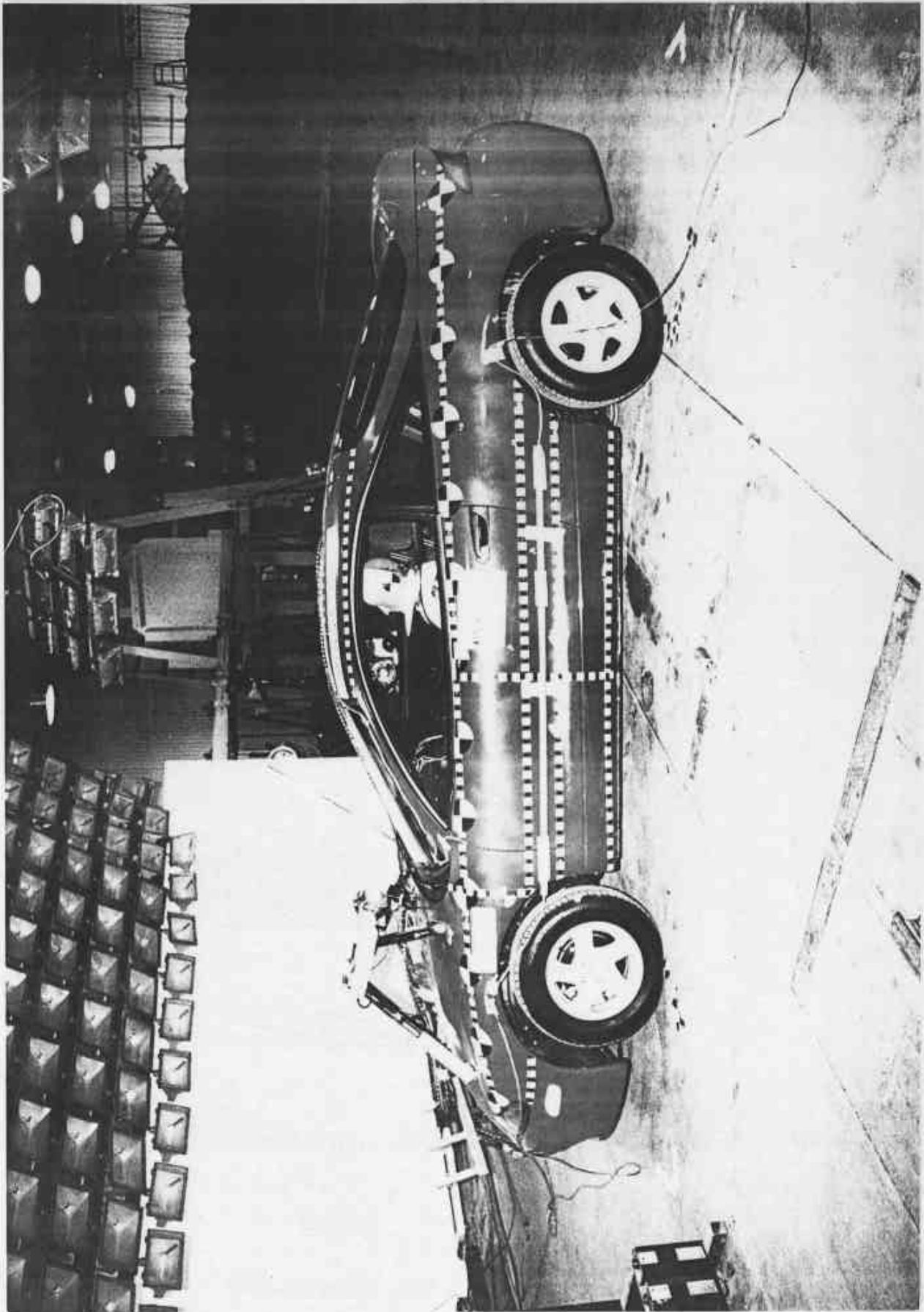


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

A-5

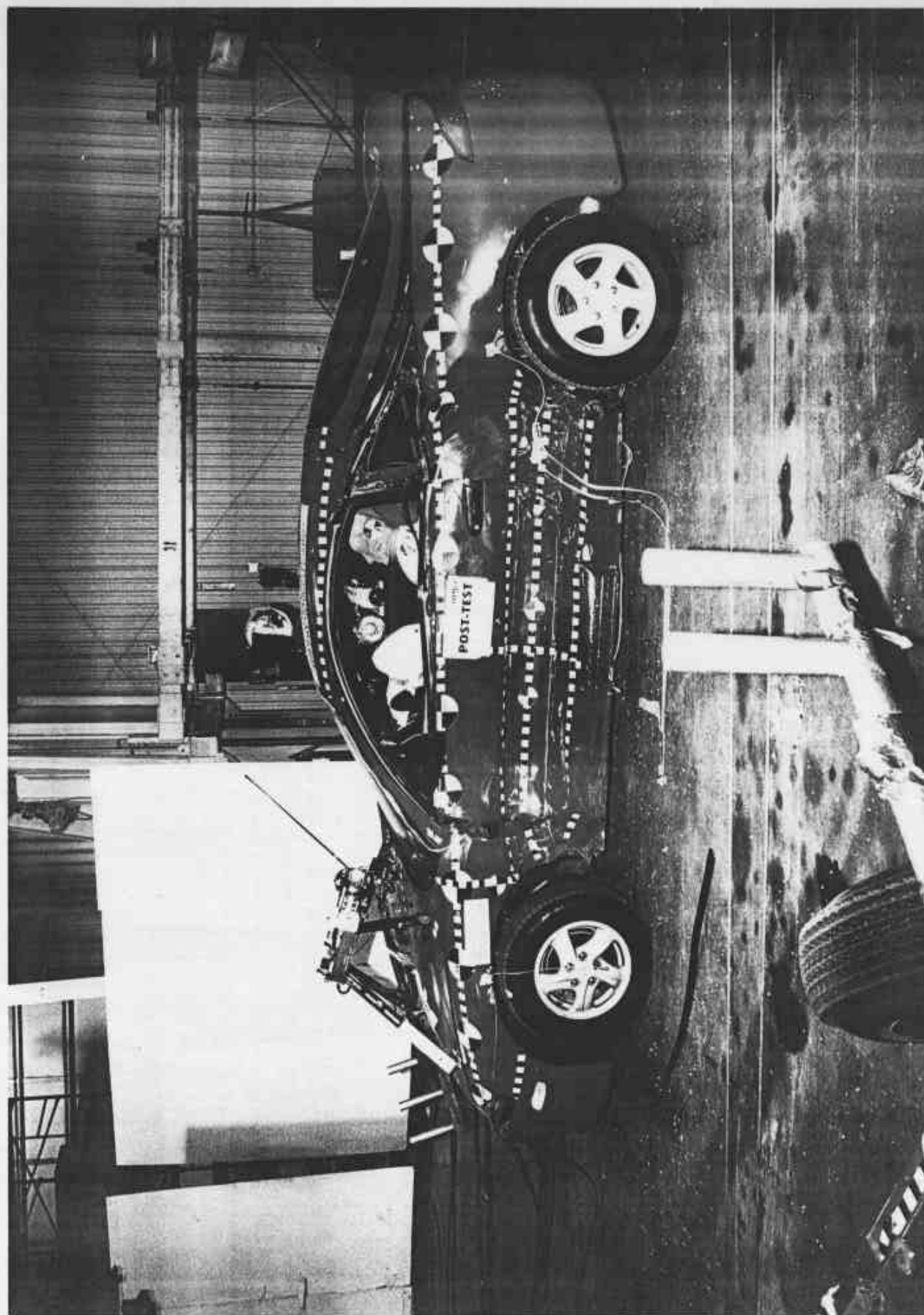


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

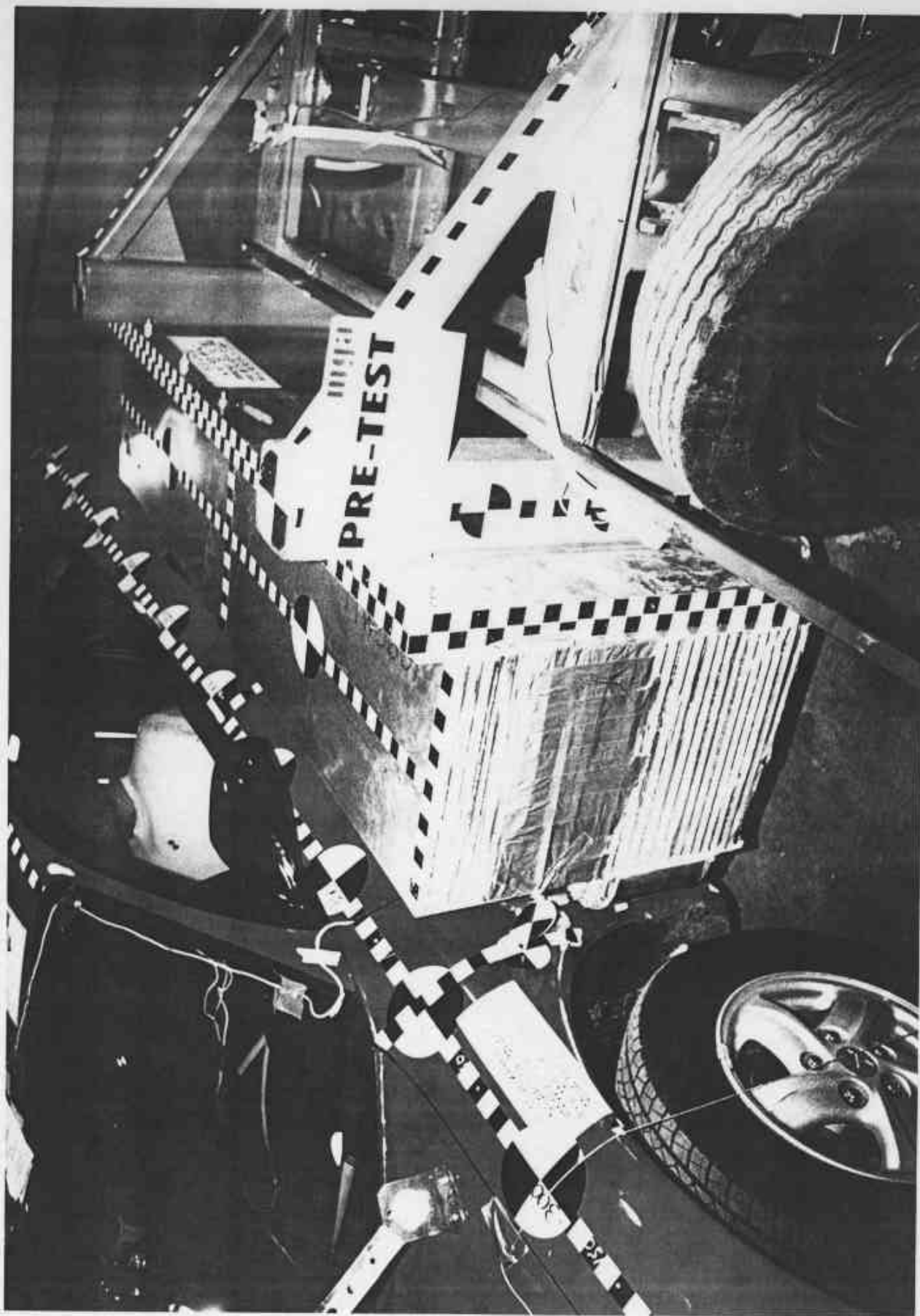


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

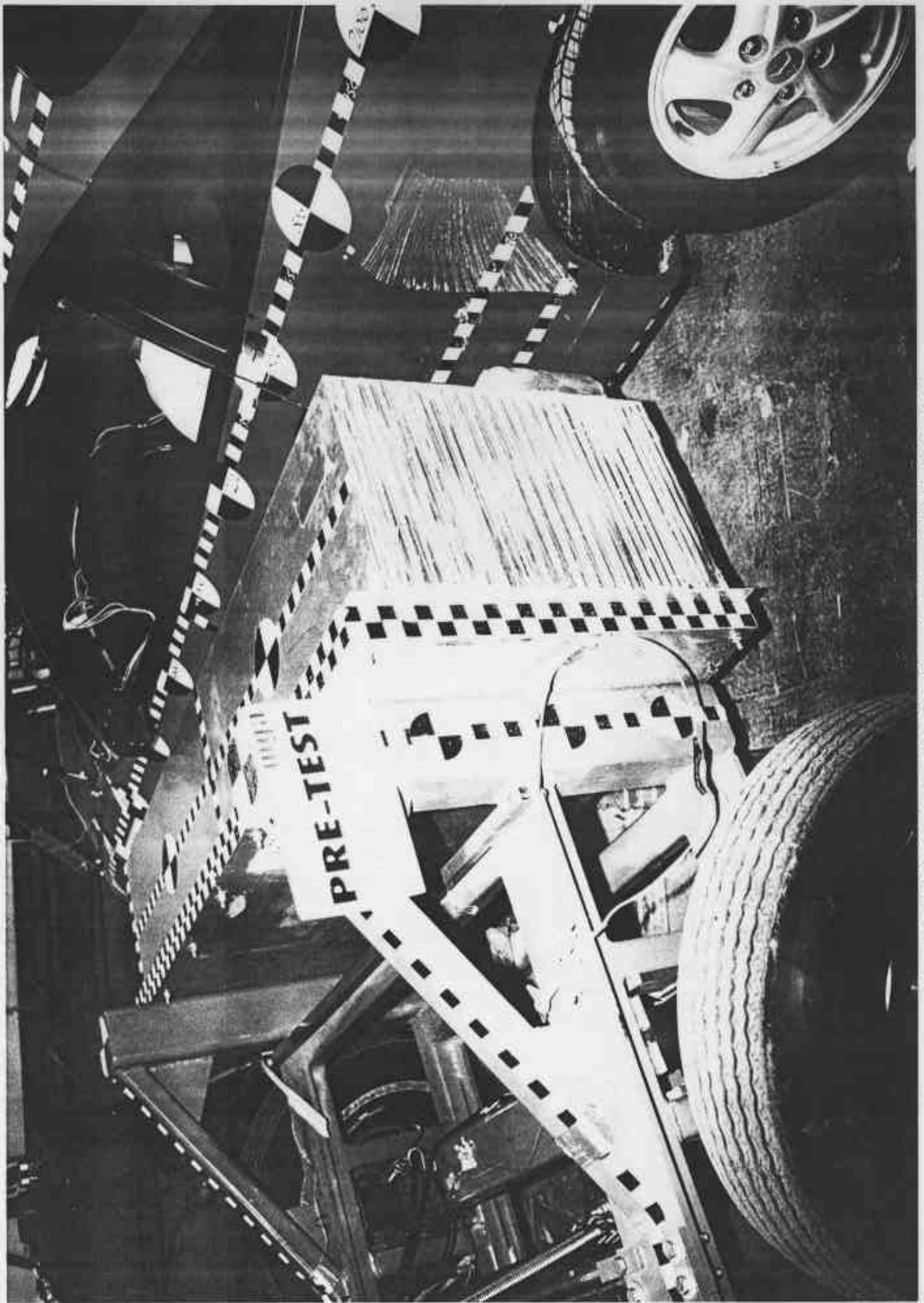


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)

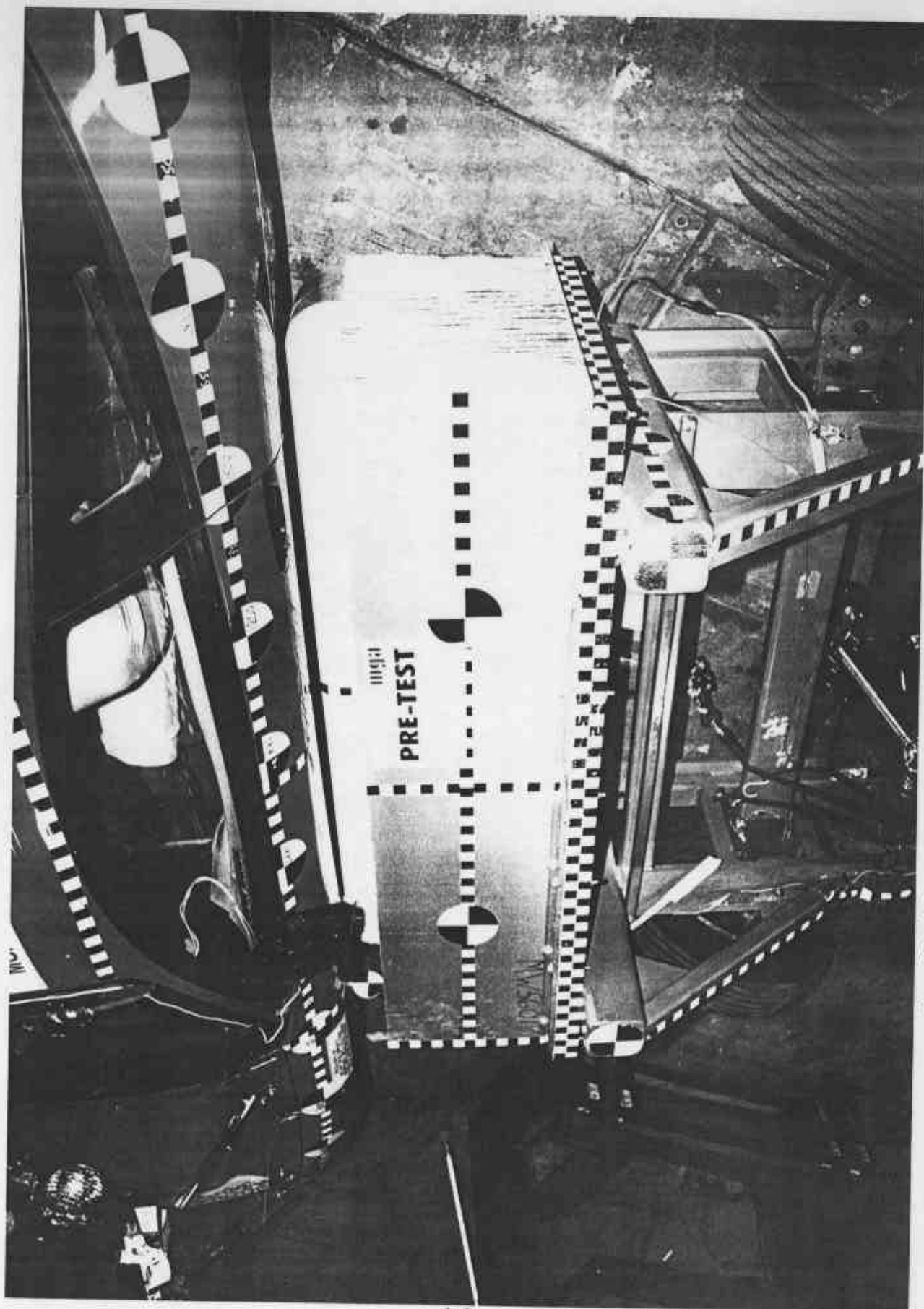


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View

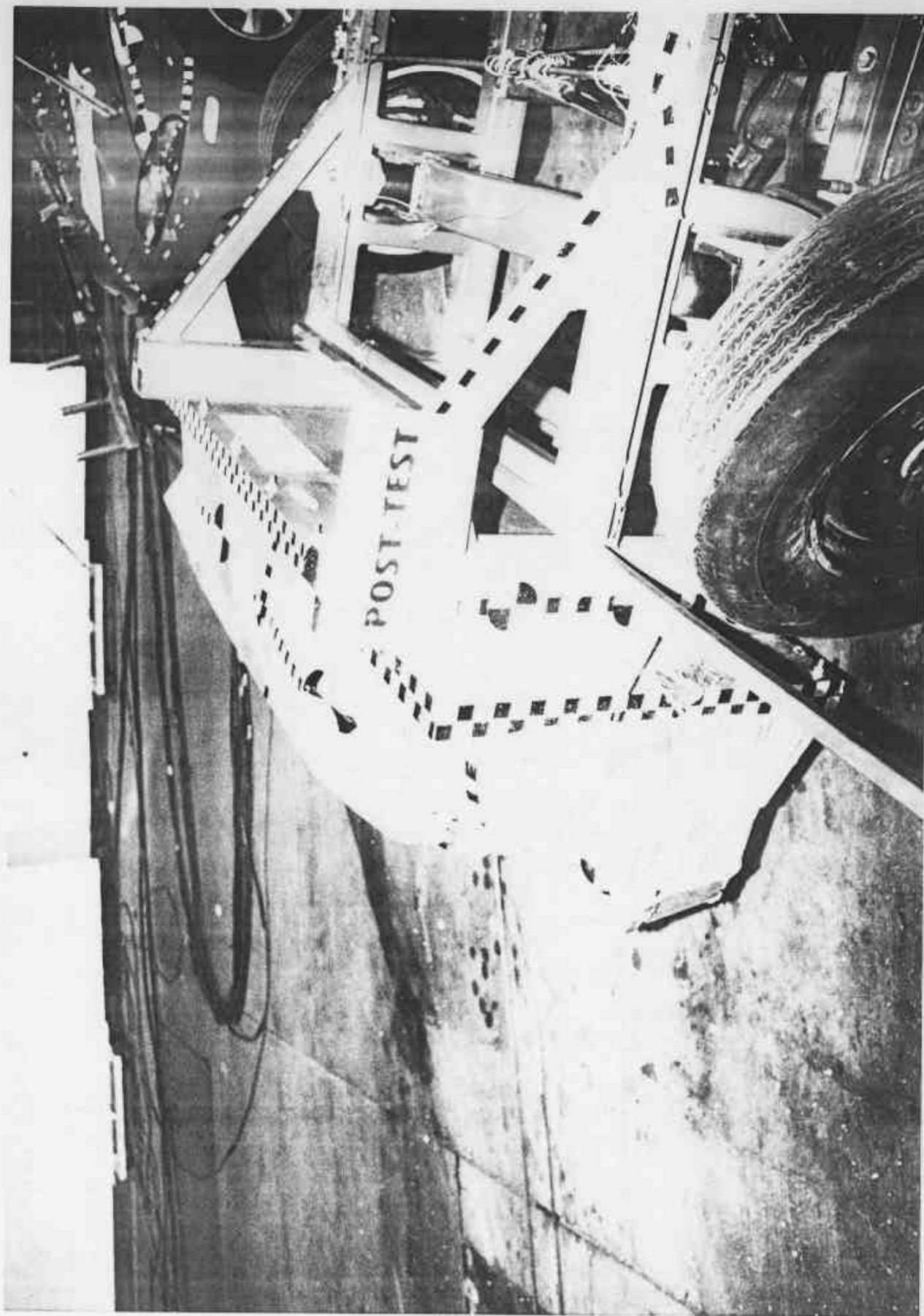


Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (left side)

A-10

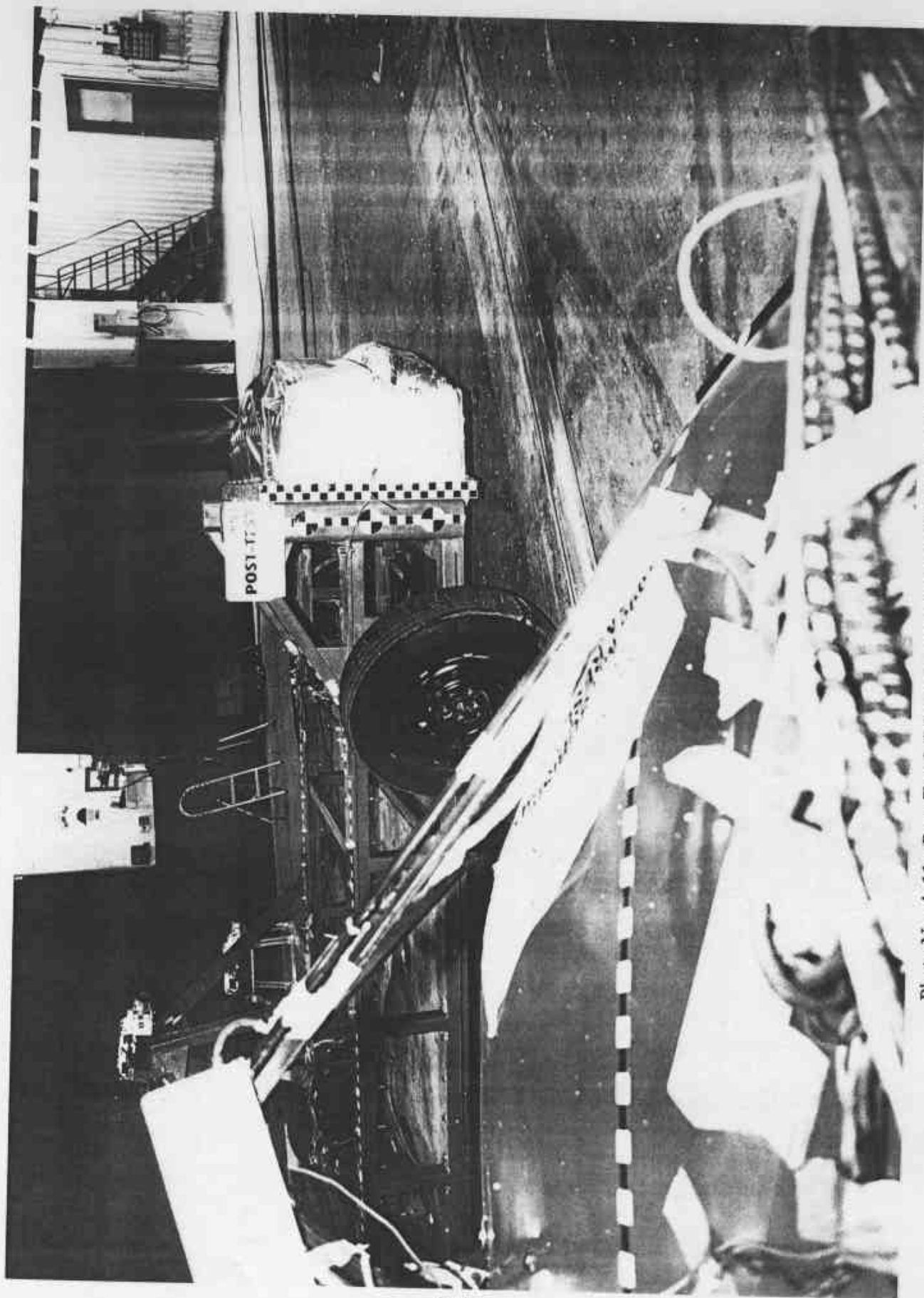


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)

A-11

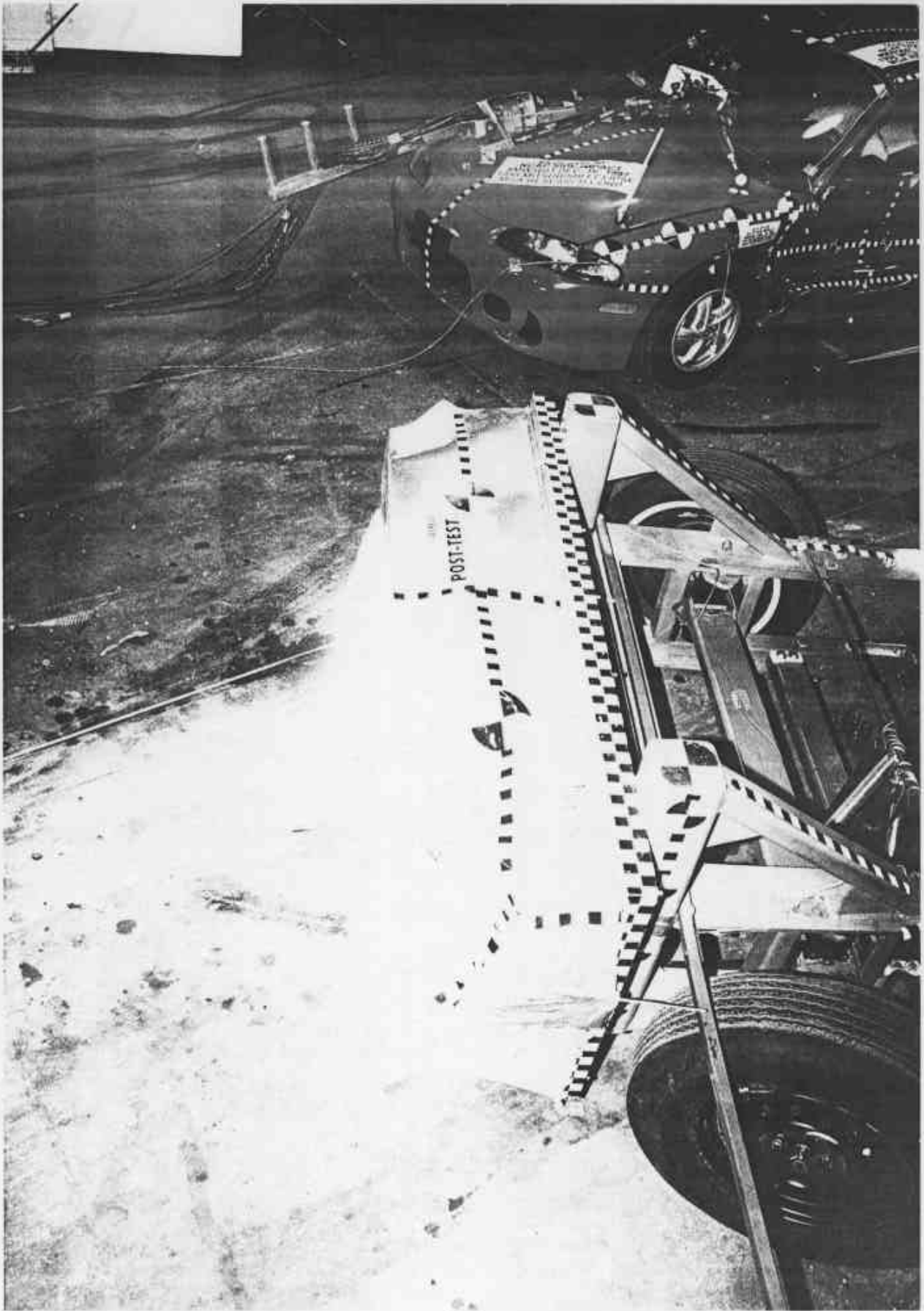


Photo No. A-12 - Post-Test MDB Positioned Against Vehicle Overhead View

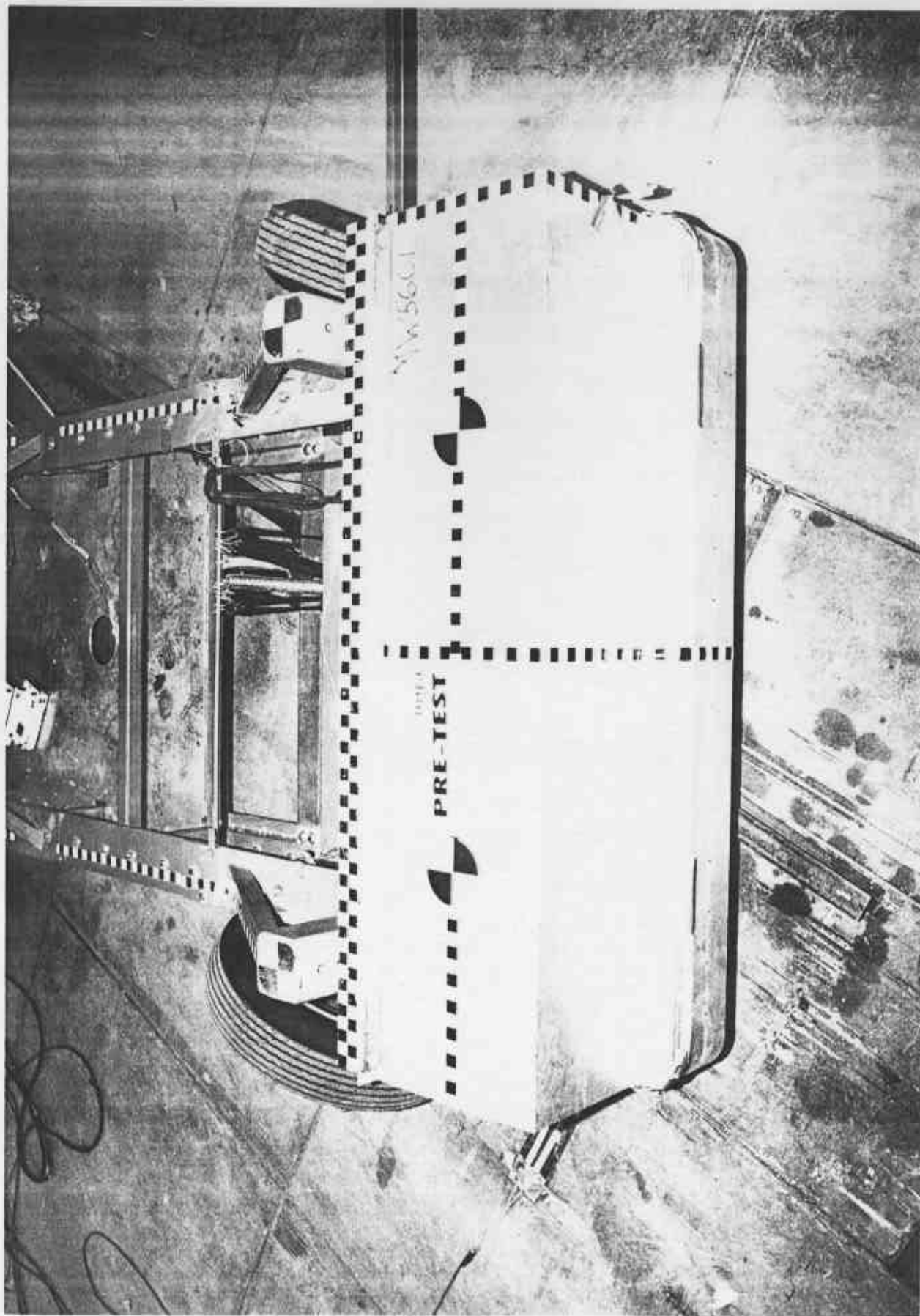


Photo No. A-13 - Pre-Test MDB Top View

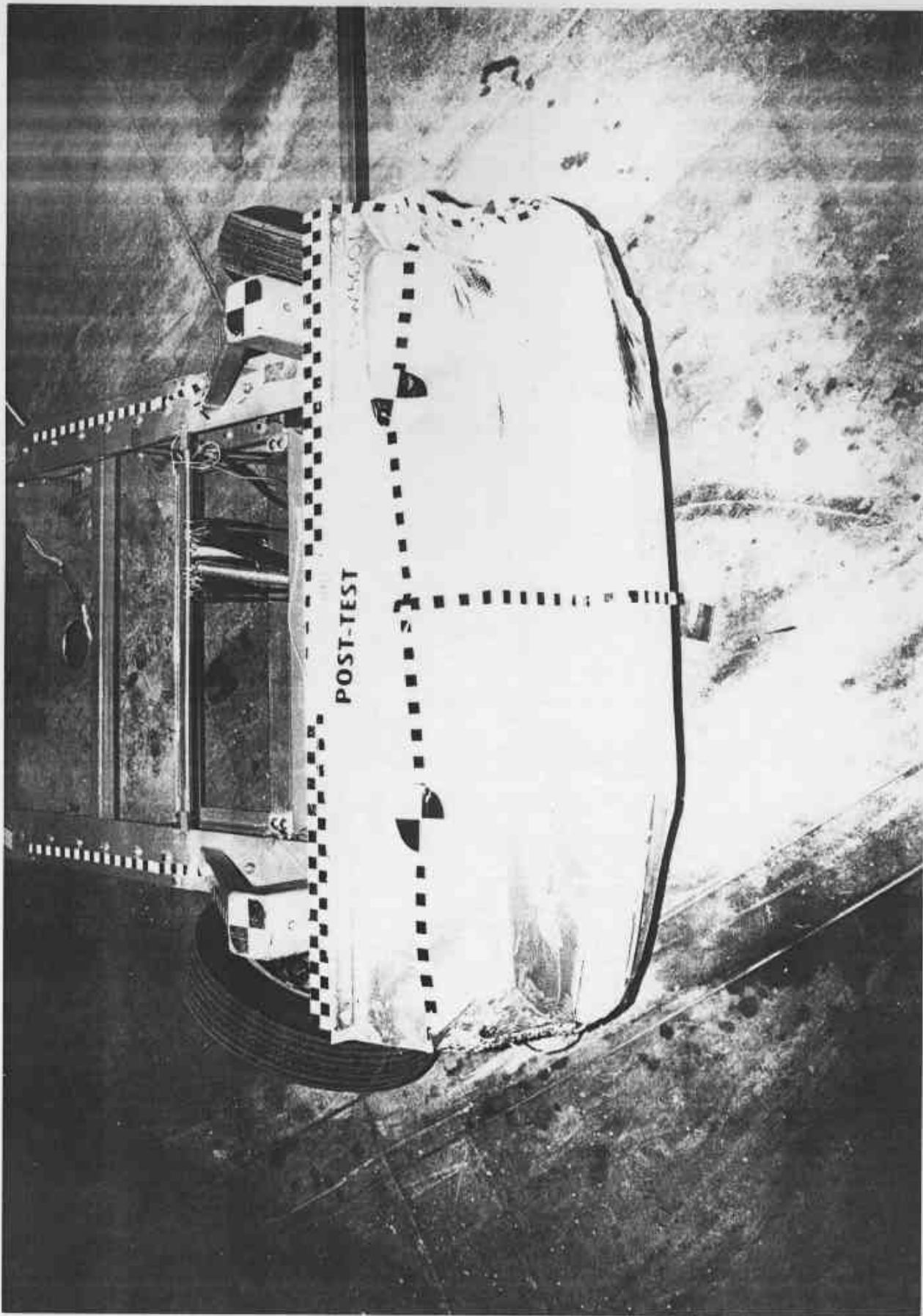
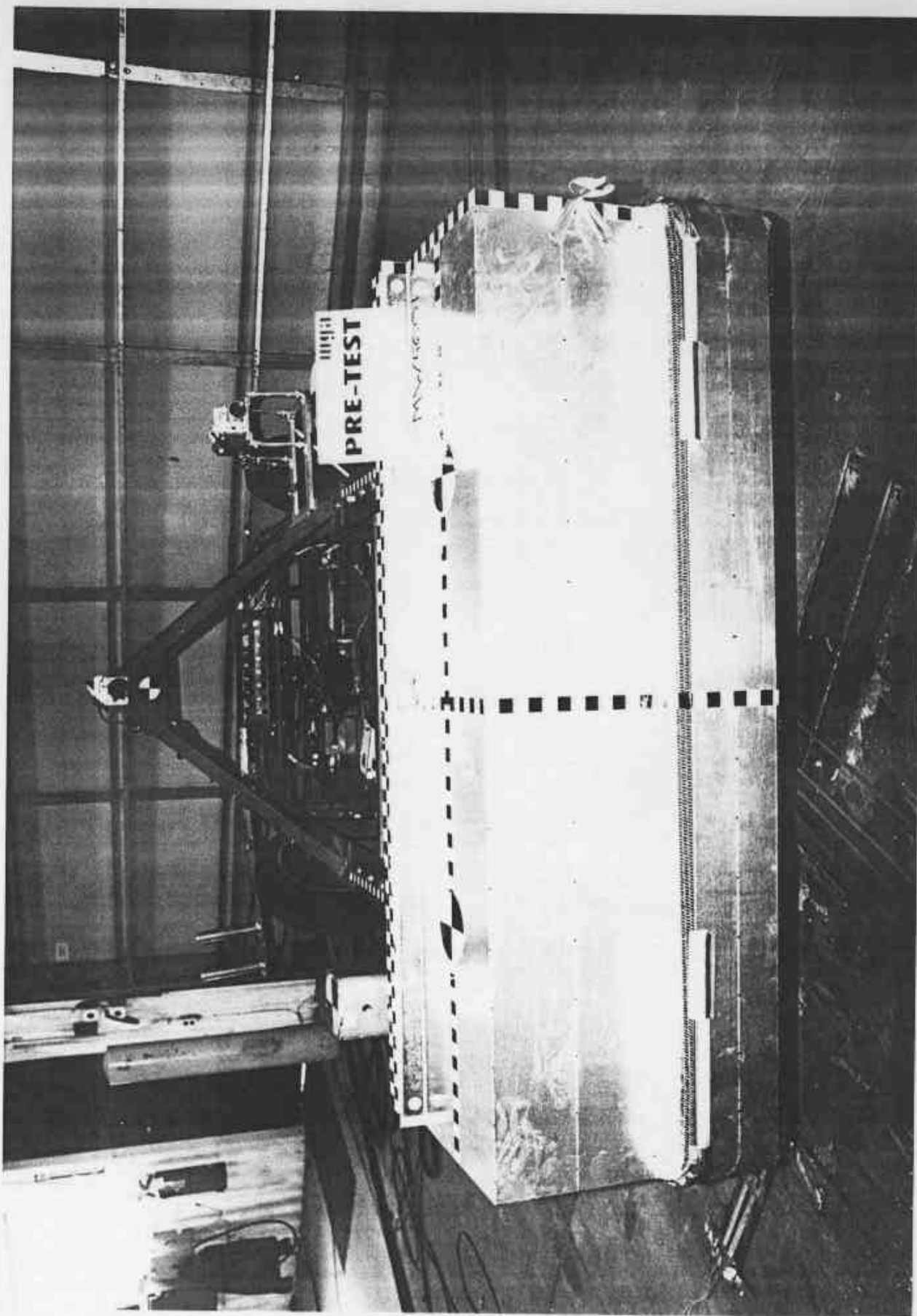


Photo No. A-14 - Post-Test MDB Top View



A-15

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

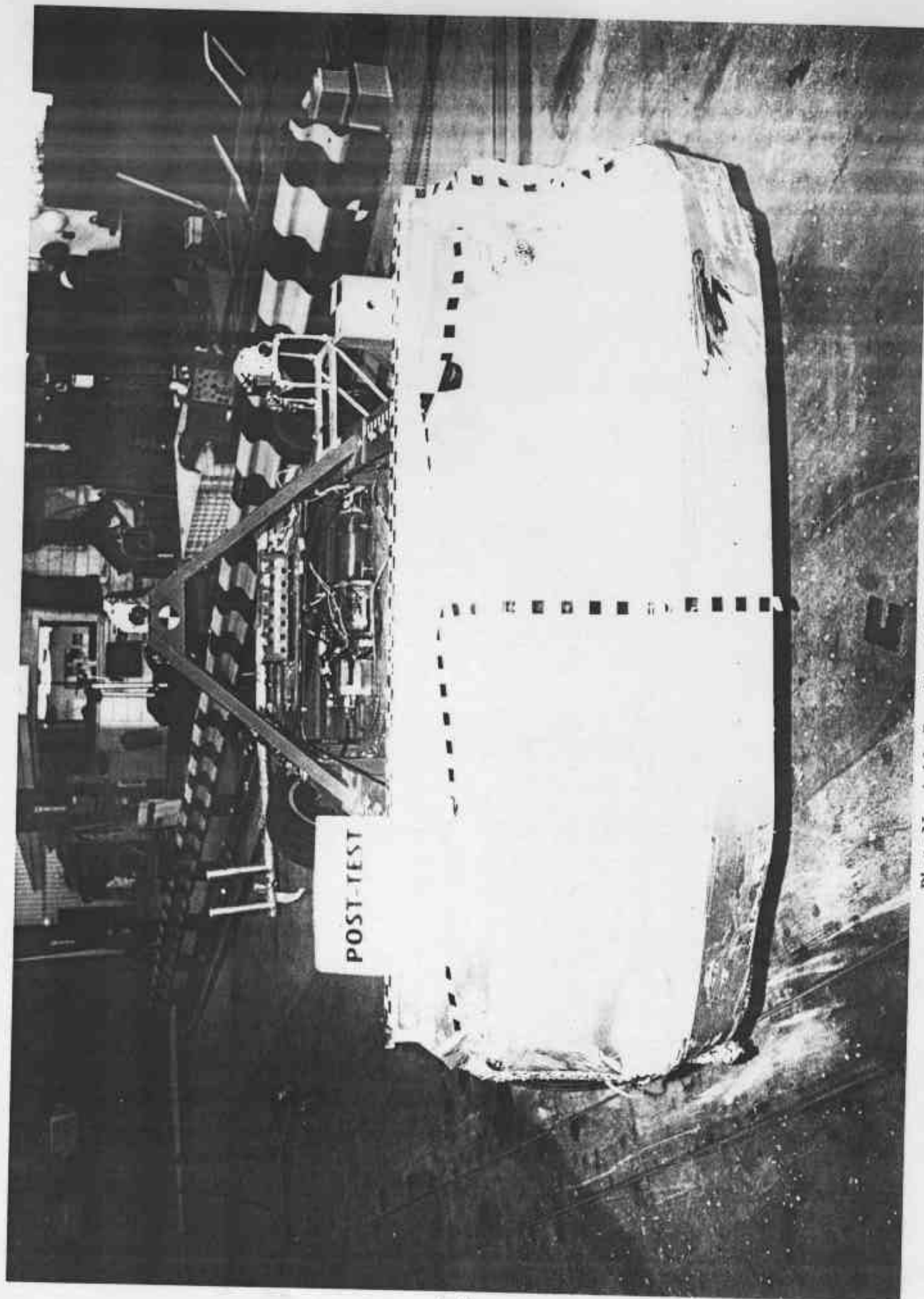


Photo No. A-16 - Post-Test MDB Front View

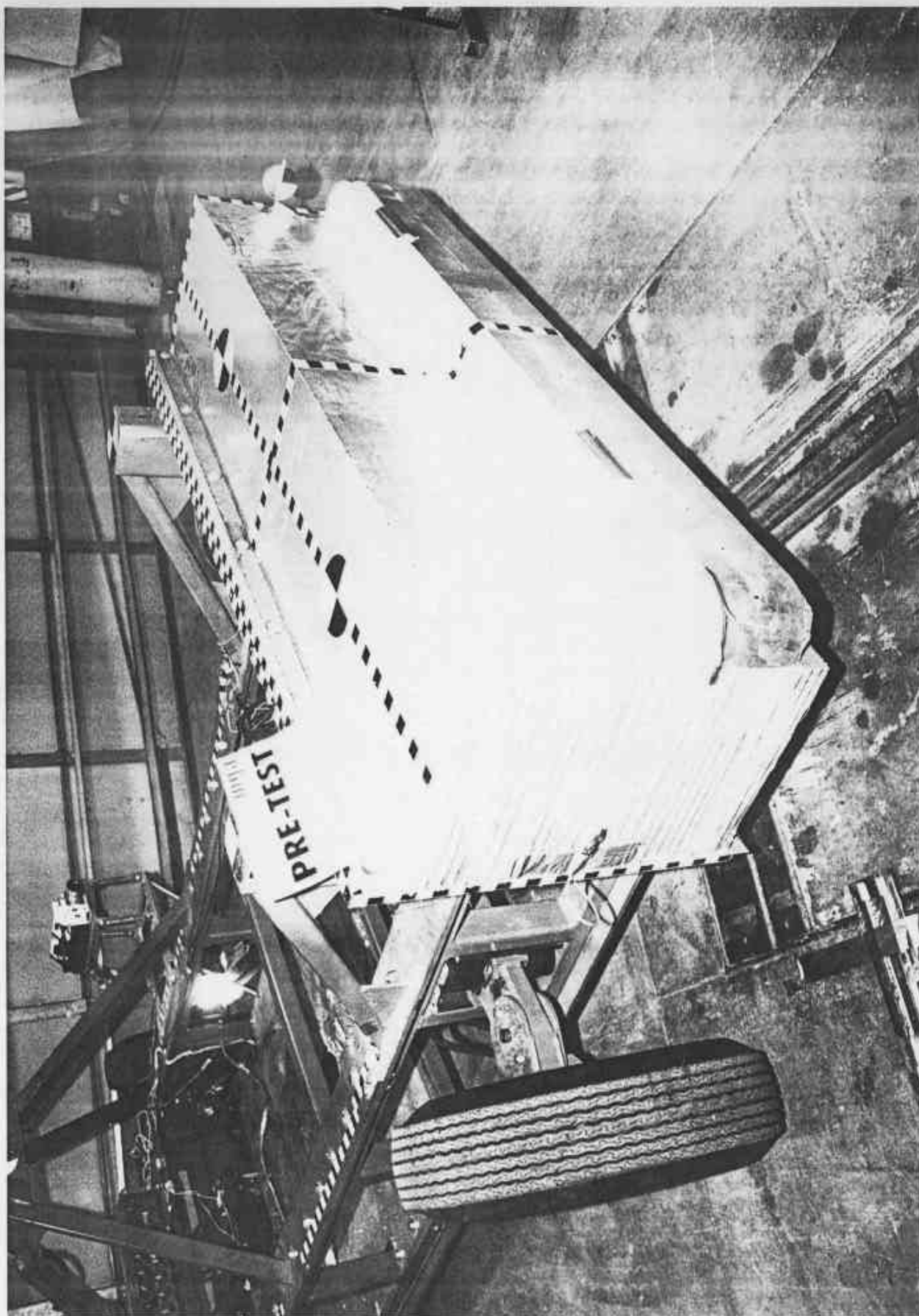
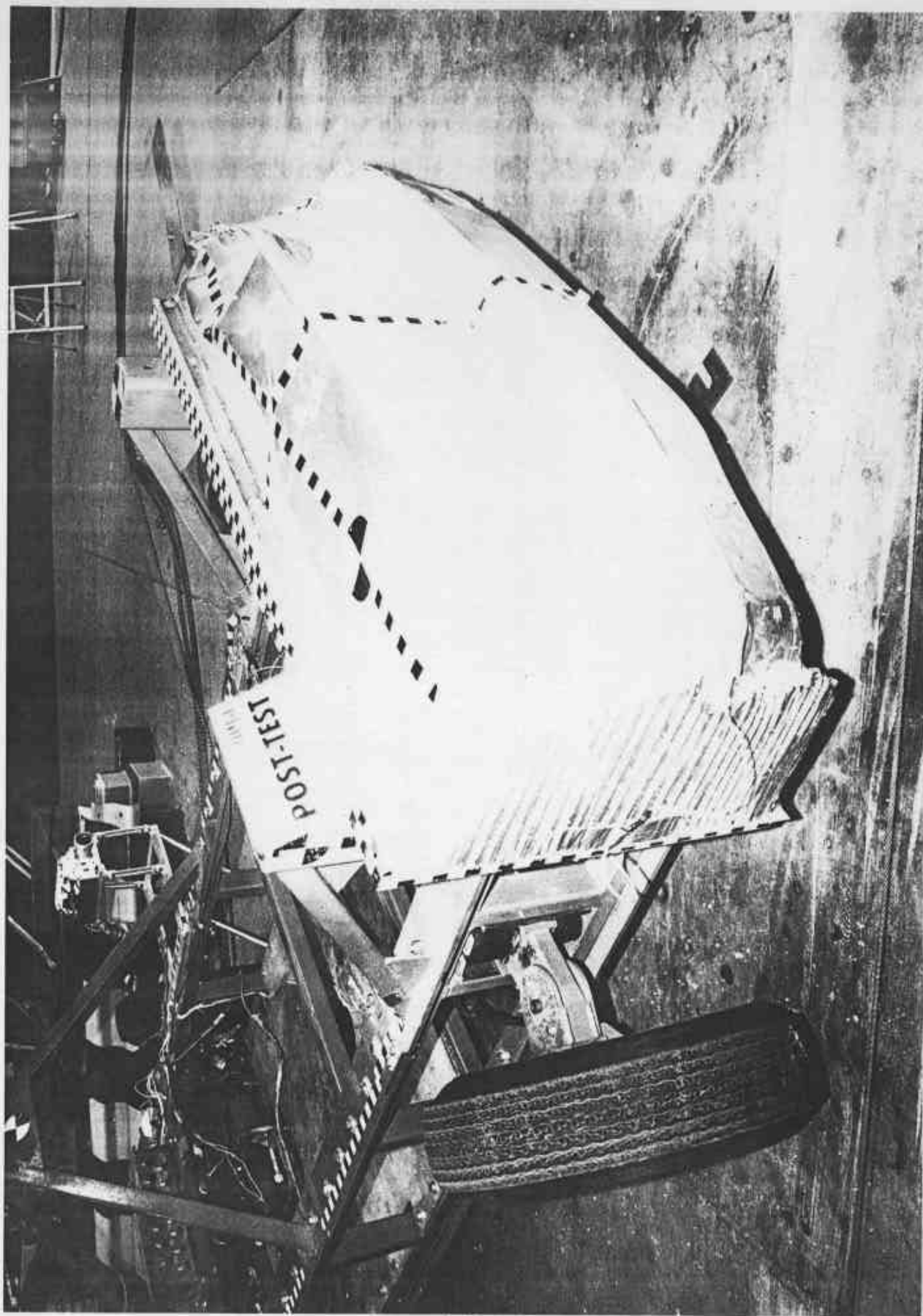


Photo No. A-17 - Pre-Test MDB Right Side View



A-18

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

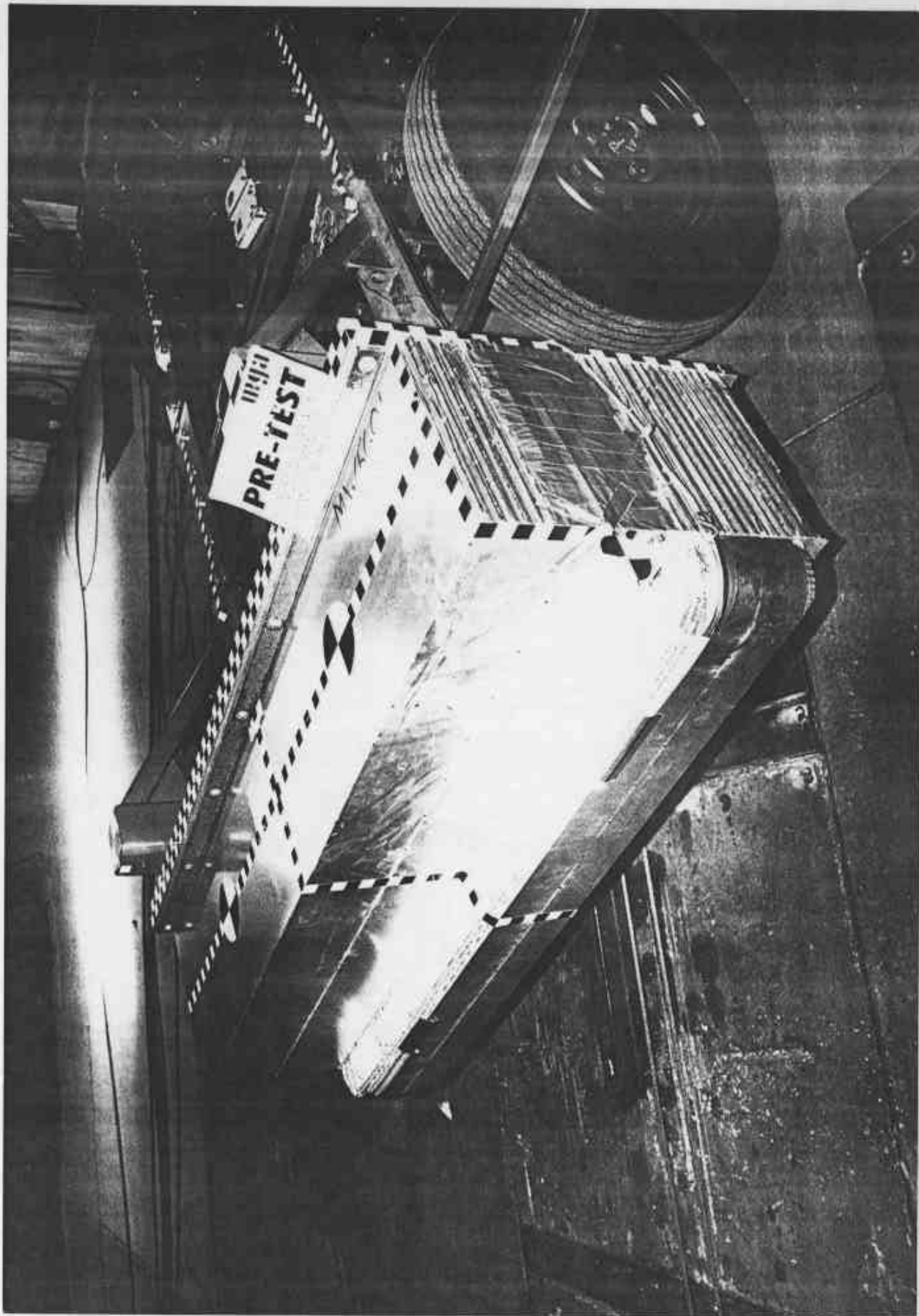


Photo No. A-19 - Pre-Test MDB Left Side View

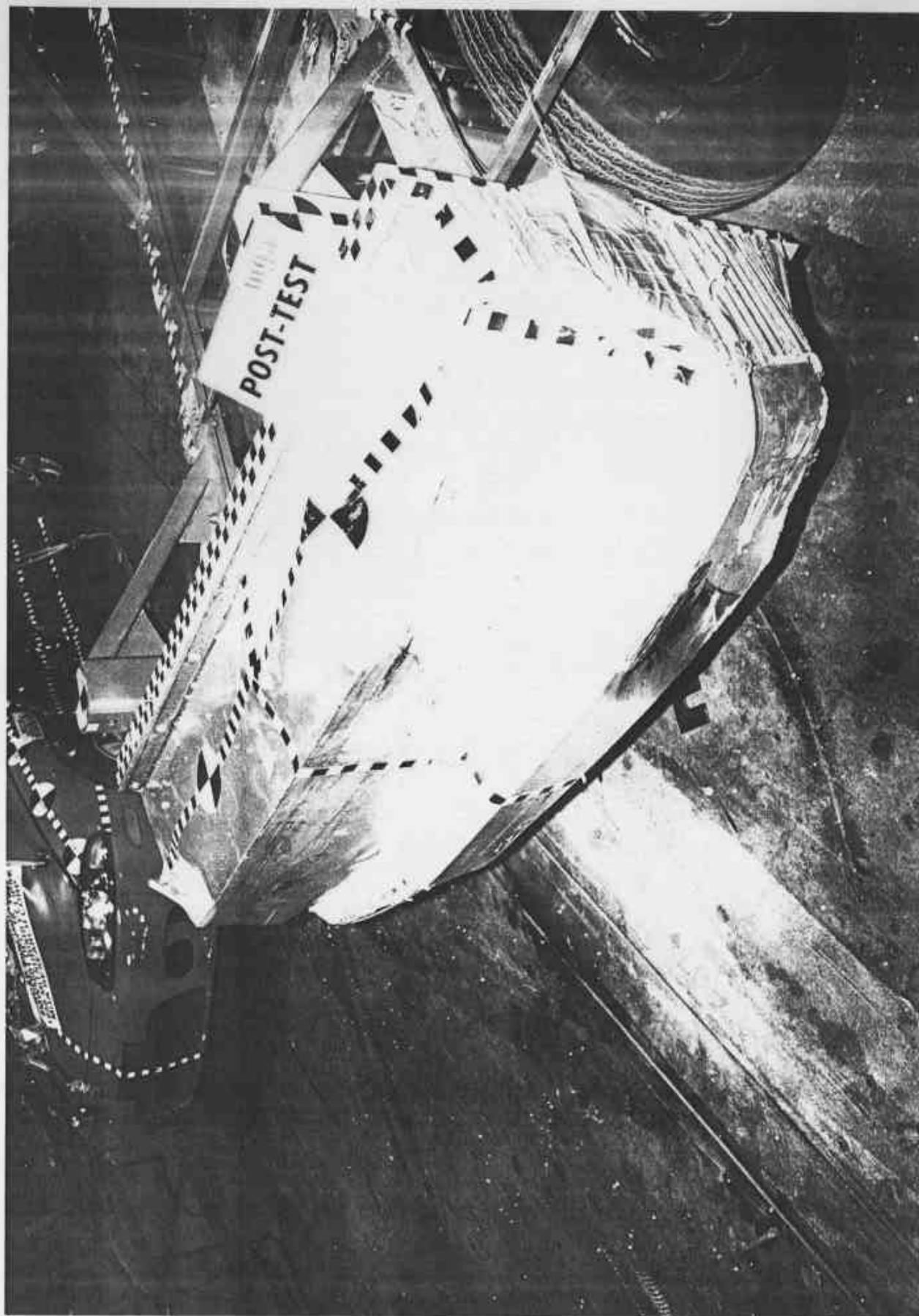


Photo No. A-20 - Post-Test MDB Left Side View

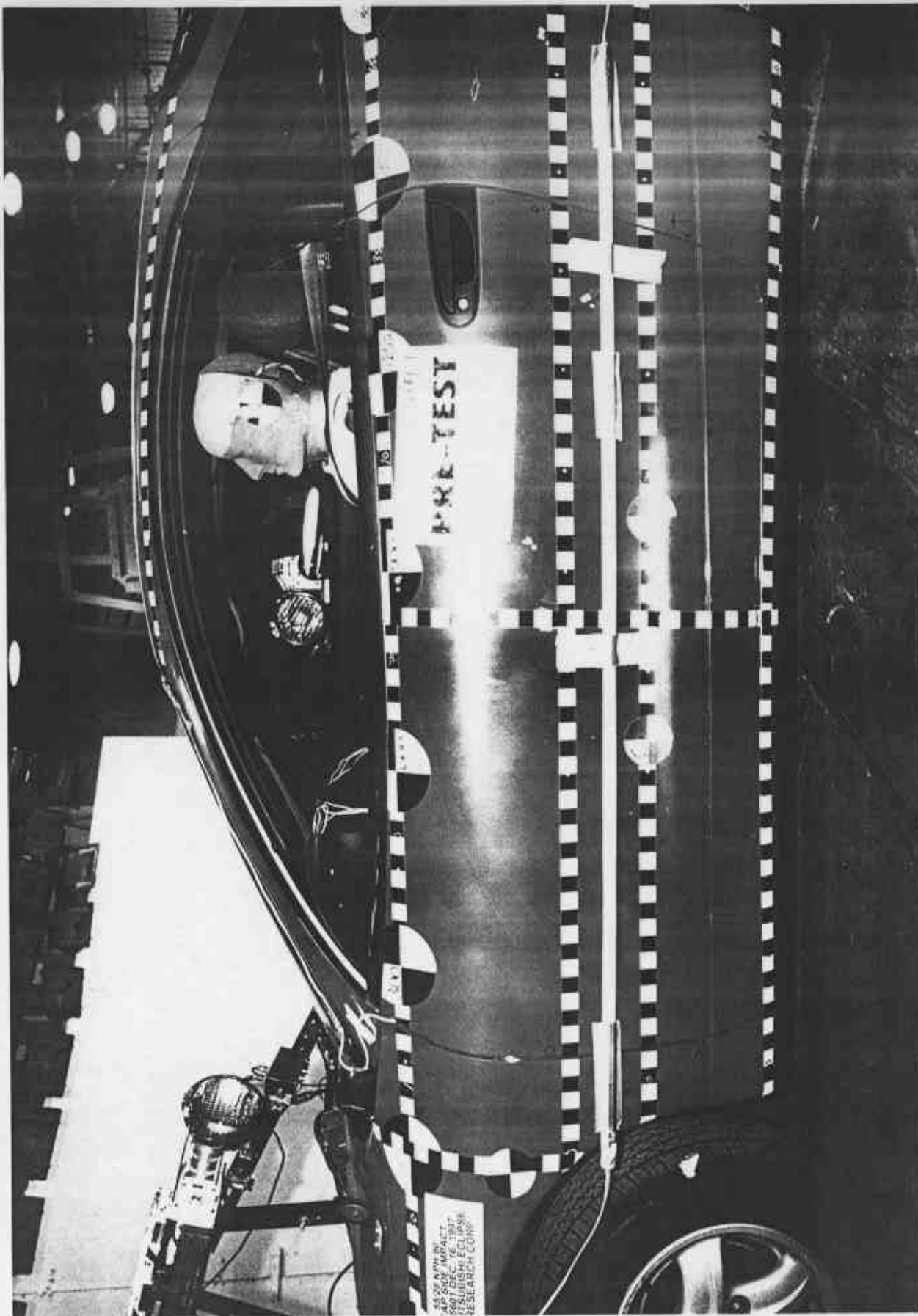


A-21

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

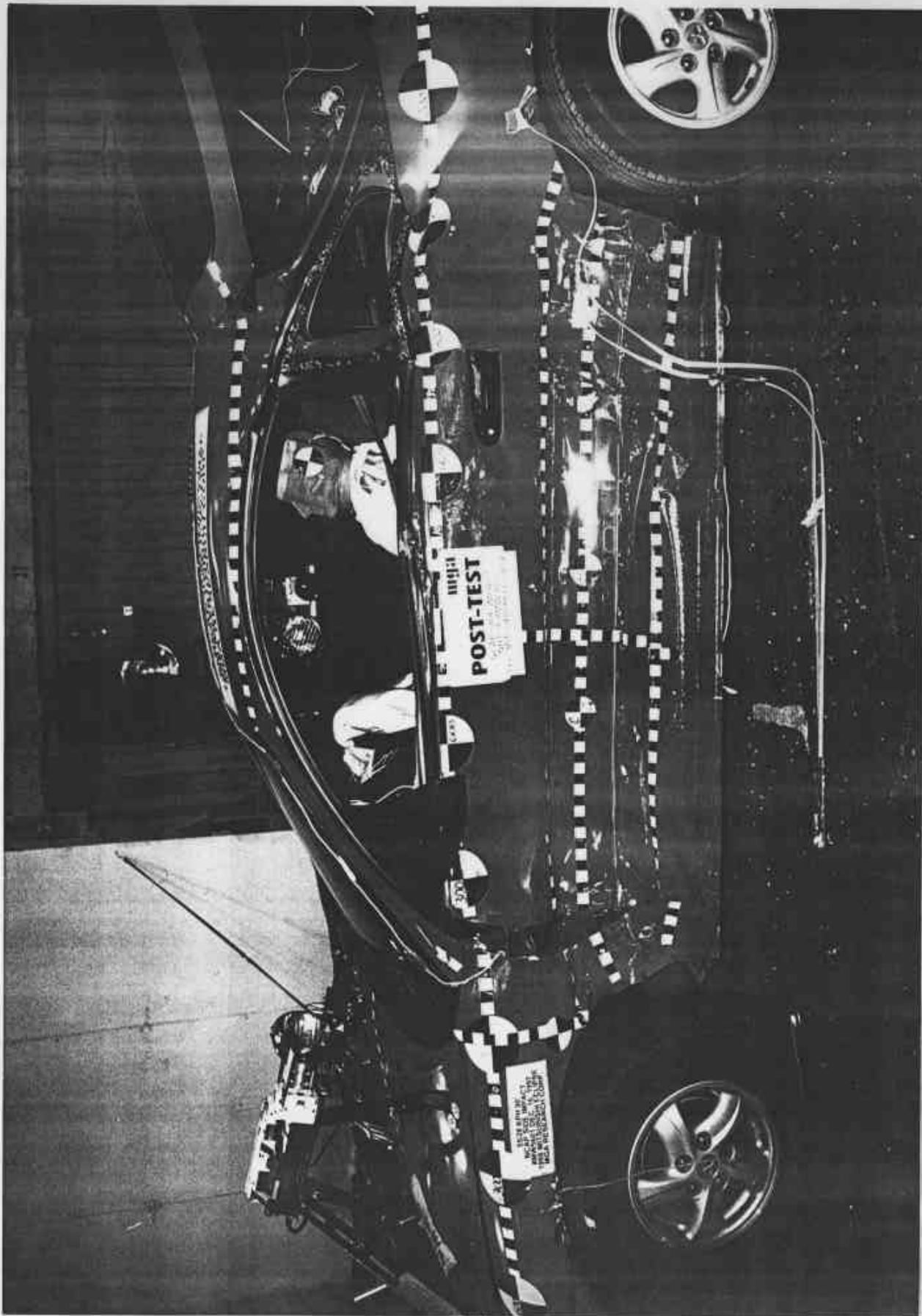


Photo No. A-22 - Post-Test Driver Dummy Right Side View



A-23

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



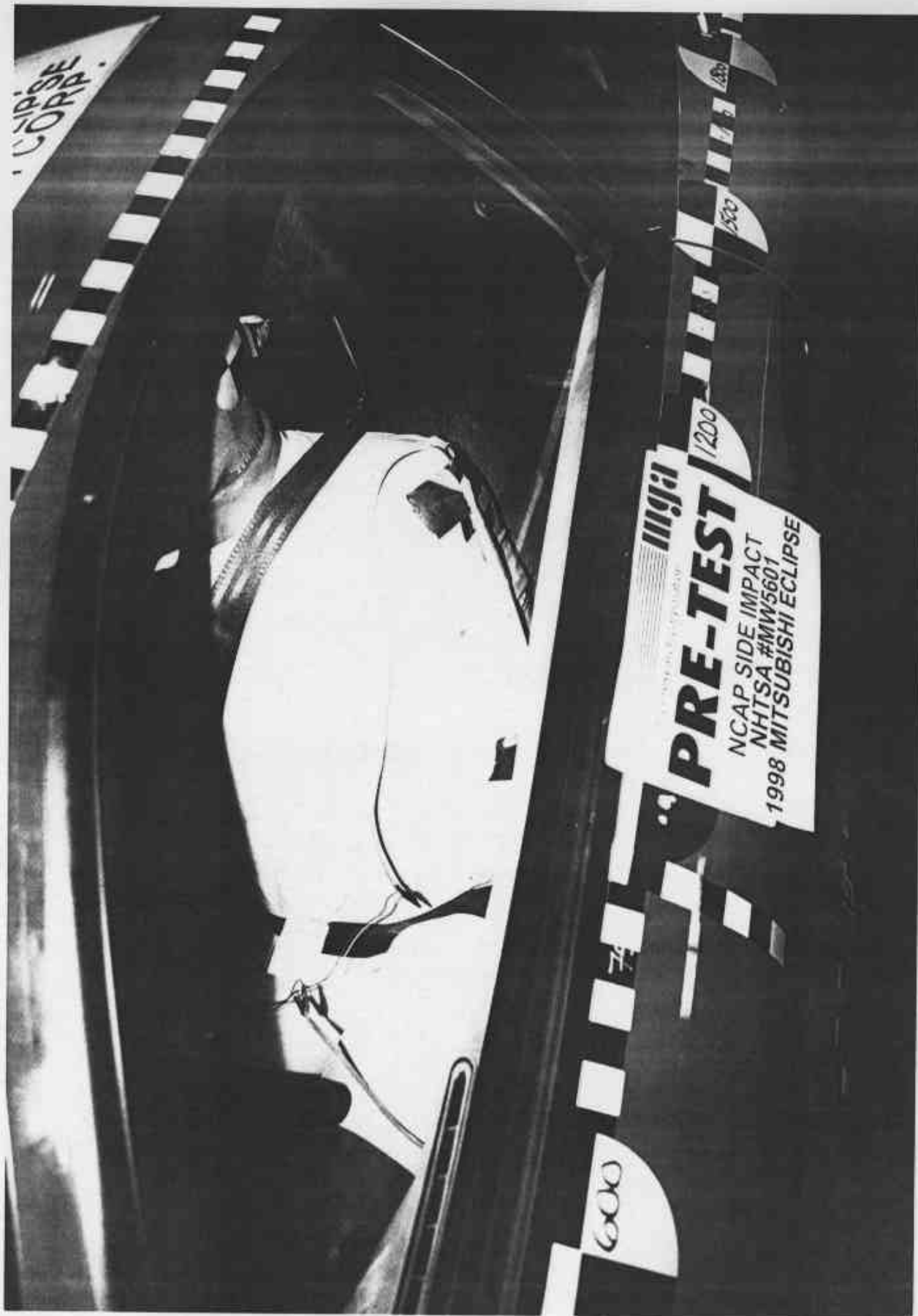
A-24

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



A-25

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



A-26

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

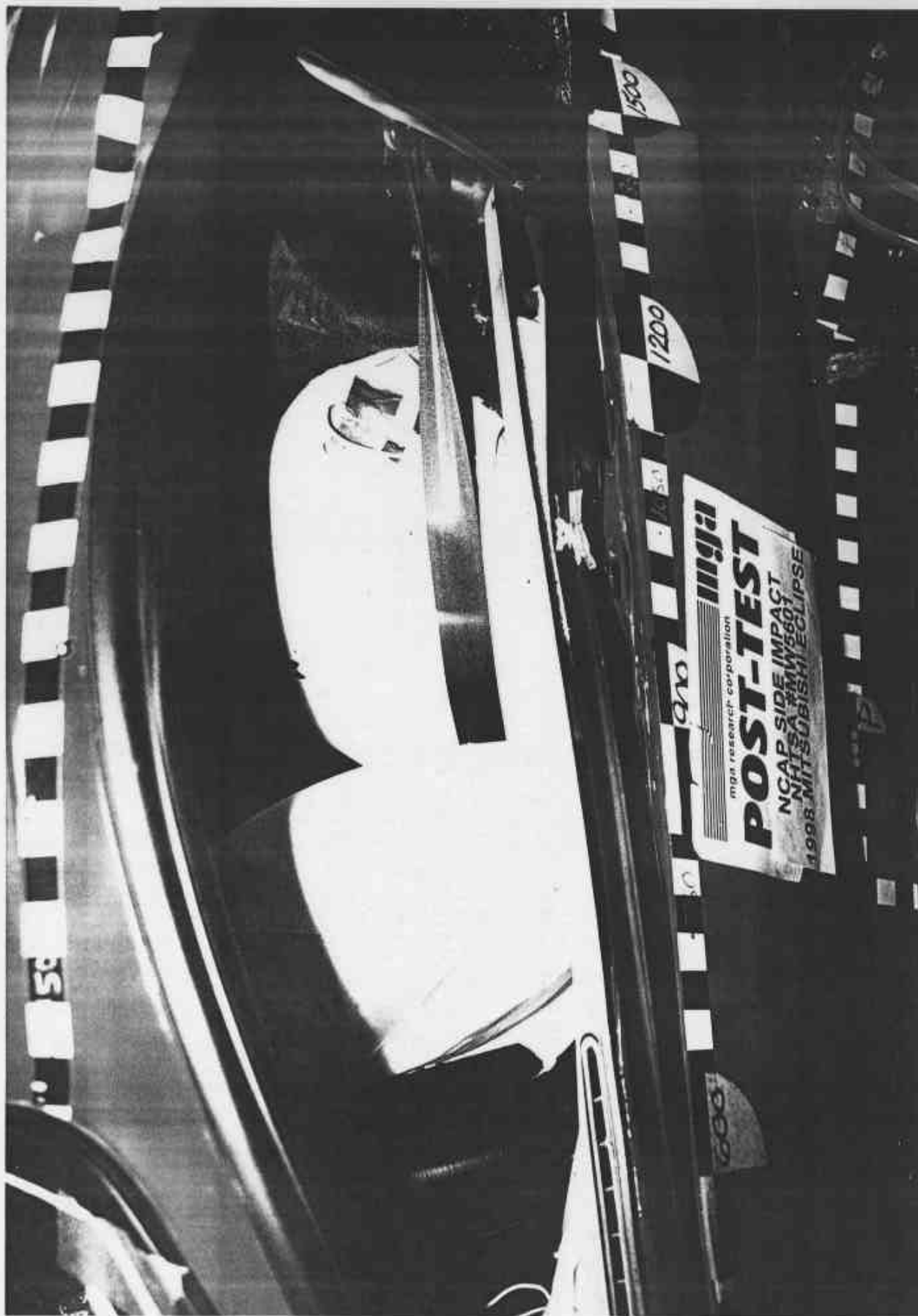
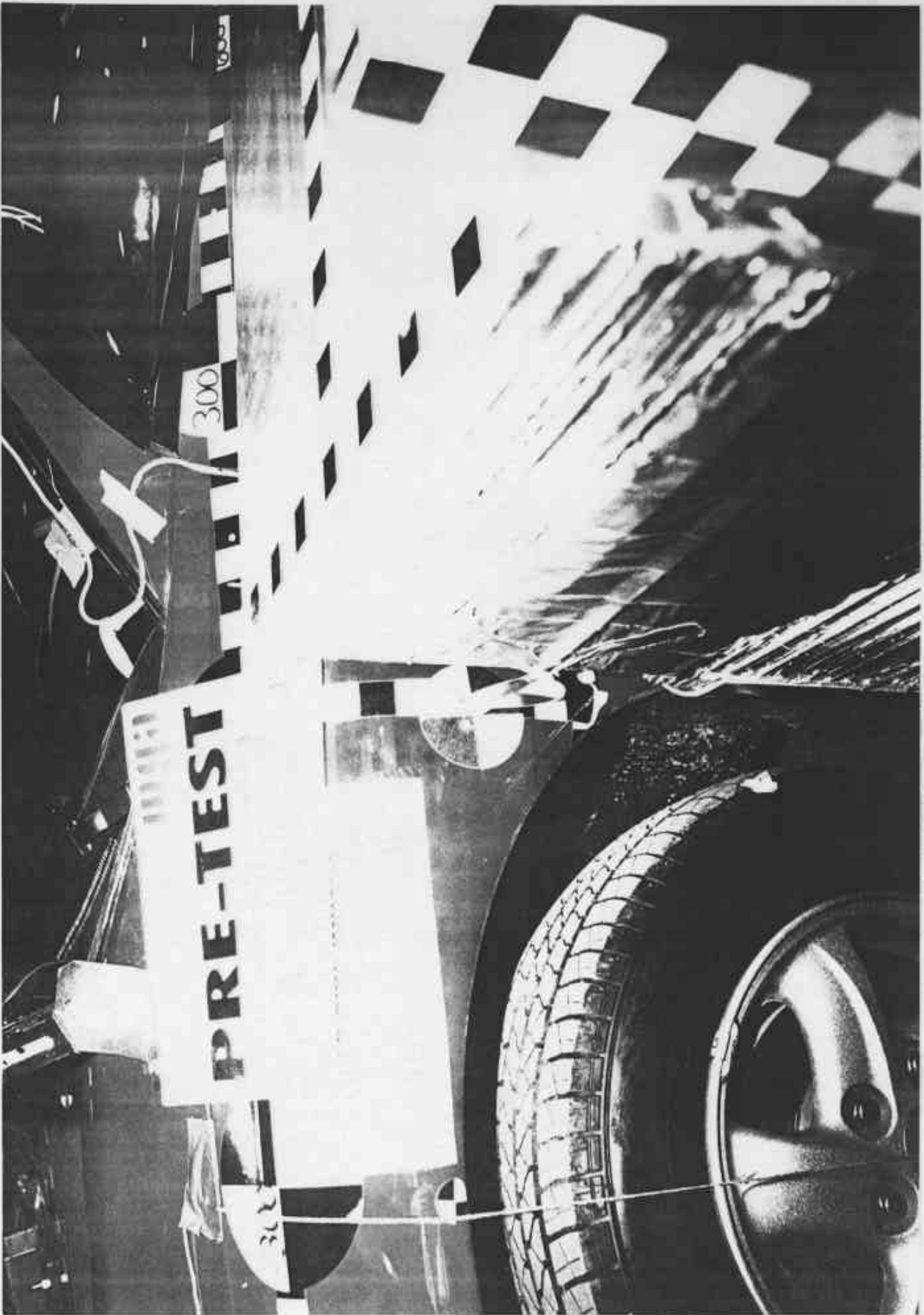


Photo No. A-27 - Post-Test Driver Dummy Shoulder and Door Top View

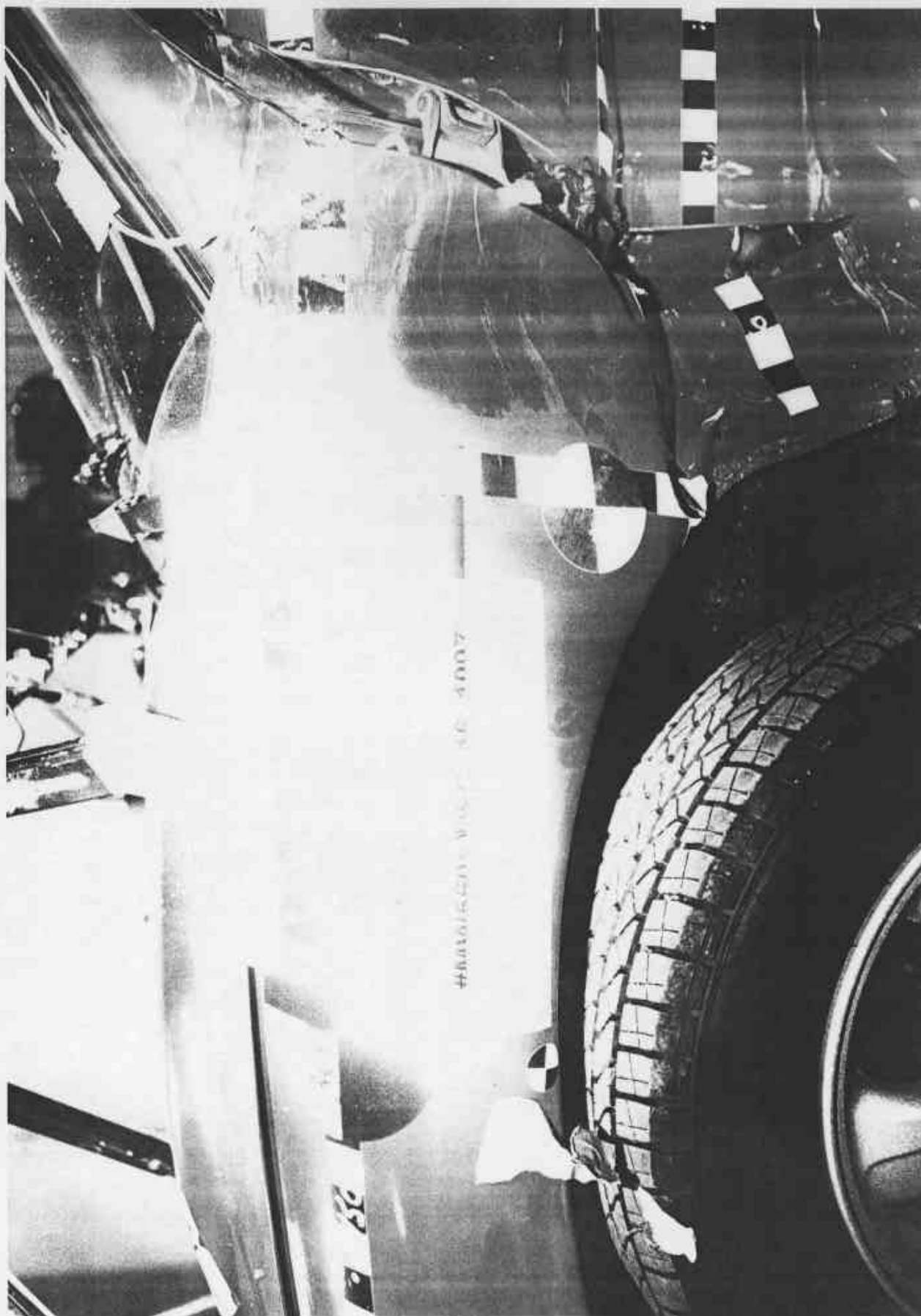


Photo No. A-28 - Post-Test Driver Dummy Contact



A-29

Photo No. A-29 - Pre-Test Left Front Impact Point on Vehicle



A-30

Photo No. A-30 - Post-Test Left Front Impact Point on Vehicle

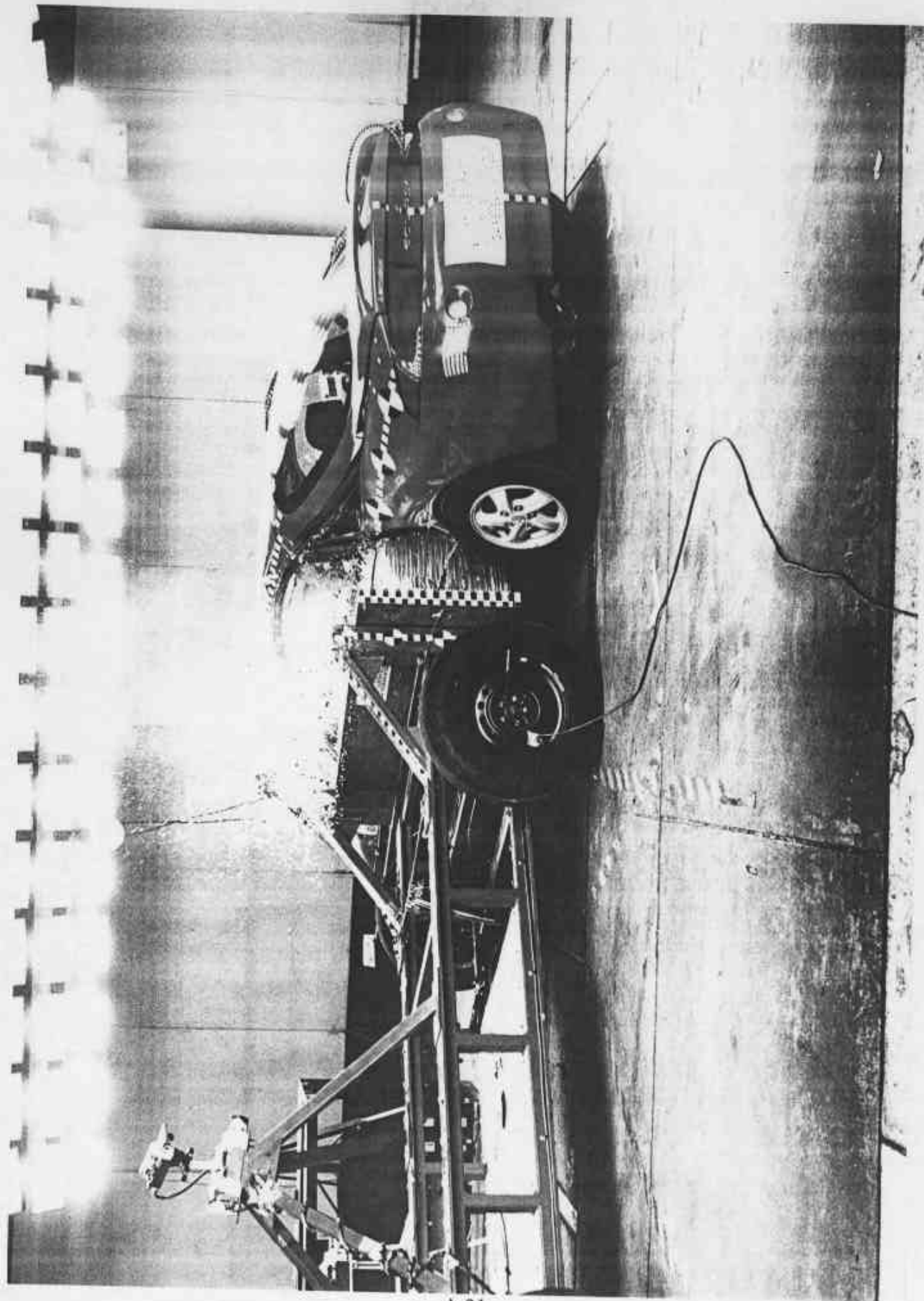


Photo No. A-31 - Impact

A-31

DATE JUL. 1997

MADE IN U.S.A.

BY MITSUBISHI MOTOR MFG. OF AMERICA, INC.

GVWR 3725 LBS GAWR 2225 LBS GAWR 1720 LBS

1650 KG FR. 1000 KG RR. 780 KG

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

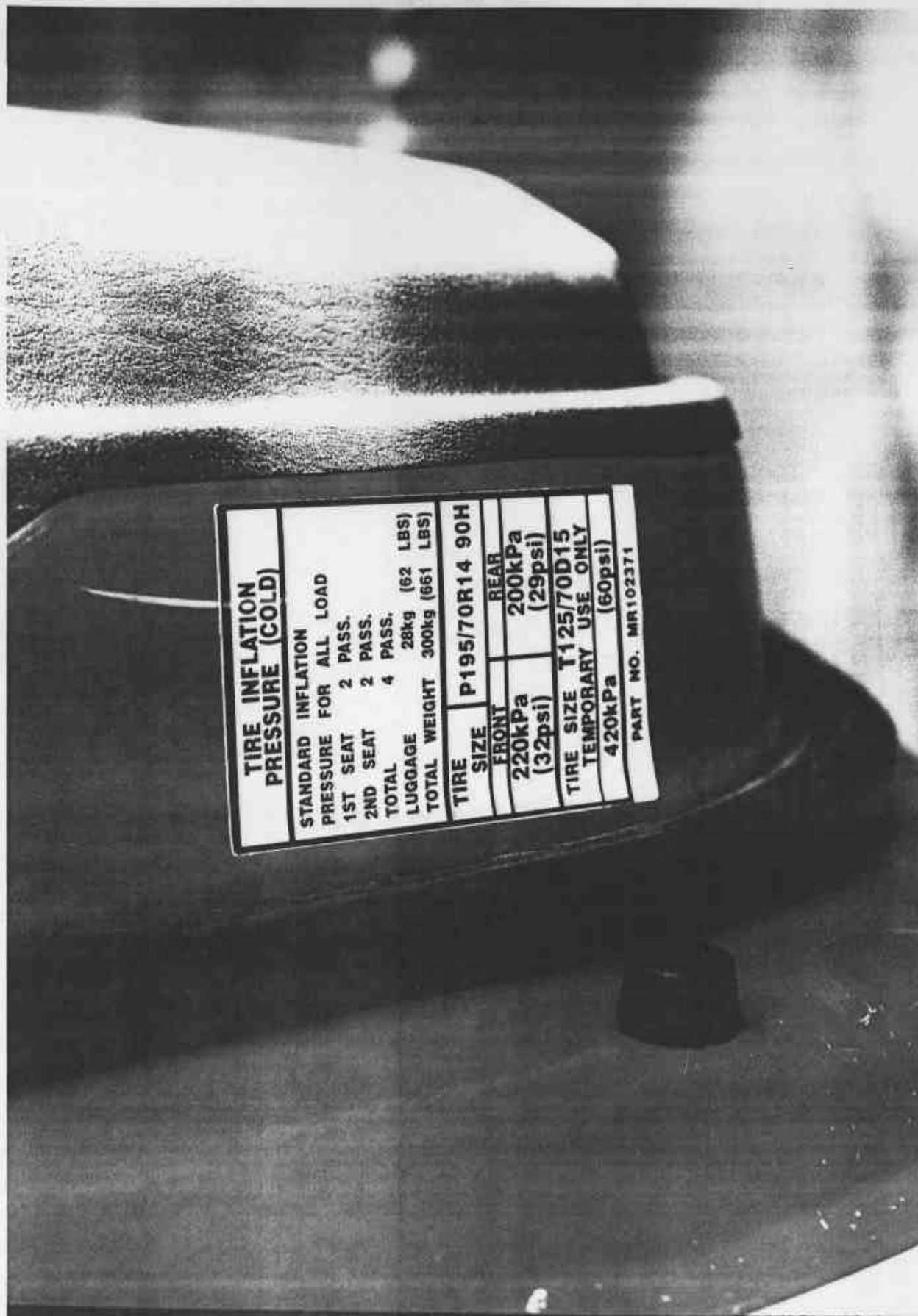
4A3AK34Y0WE004526



104 071722

VEHICLE TYPE: PASSENGER CAR M500024E

Photo No. A-32 - Vehicle Certification Label



**TIRE INFLATION
PRESSURE (COLD)**

STANDARD INFLATION

PRESSURE FOR ALL LOAD

1ST SEAT 2 PASS.

2ND SEAT 2 PASS.

TOTAL 4 PASS.

LUGGAGE 28kg (62 LBS)

TOTAL WEIGHT 300kg (661 LBS)

TIRE SIZE P195/70R14 90H

SIZE

FRONT

220kPa

(32psi)

TIRE SIZE T125/70D15

TEMPORARY USE ONLY

420kPa

(60psi)

PART NO. MR102371

REAR

200kPa

(29psi)

Photo No. A-33 - Tire Placard

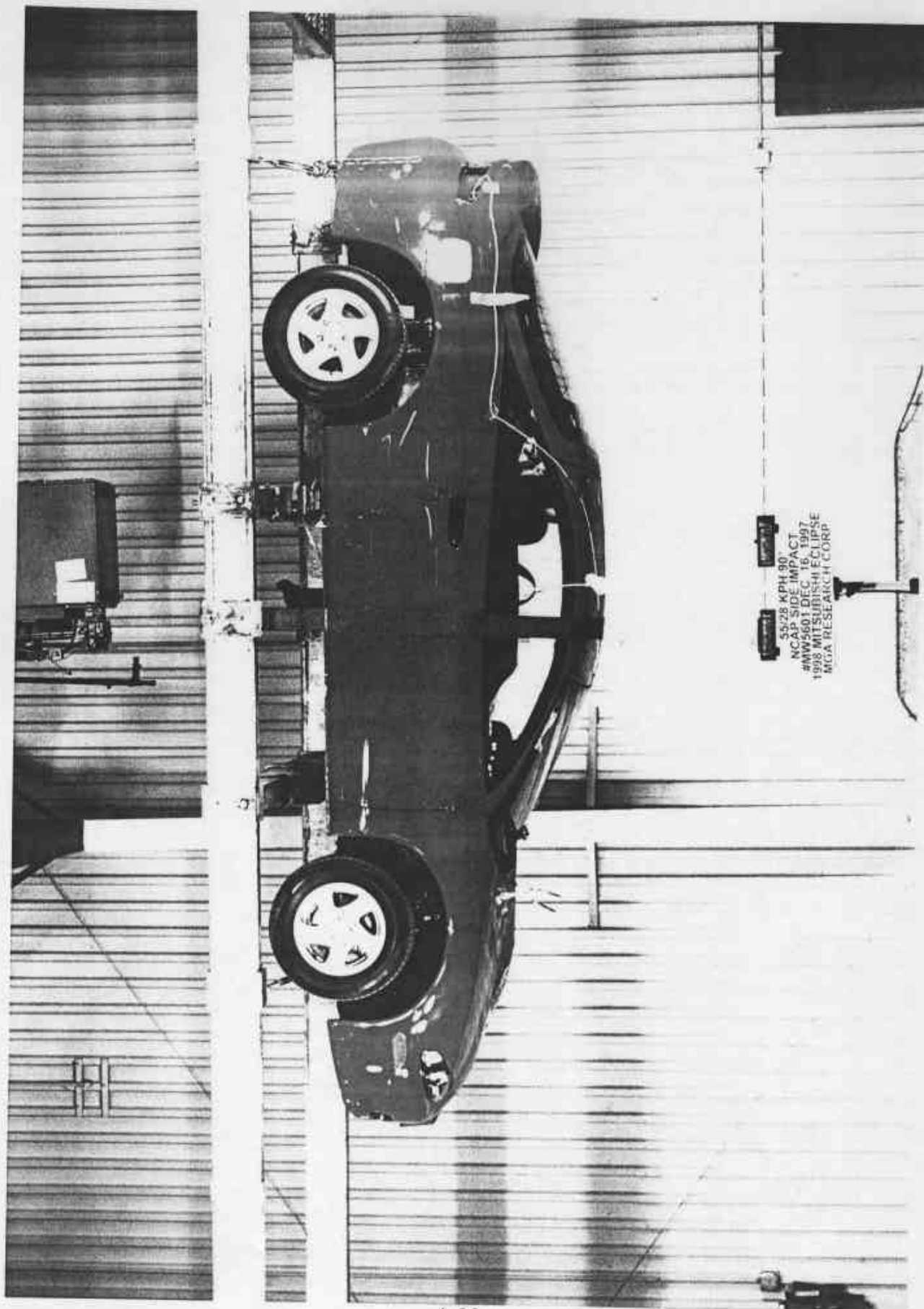
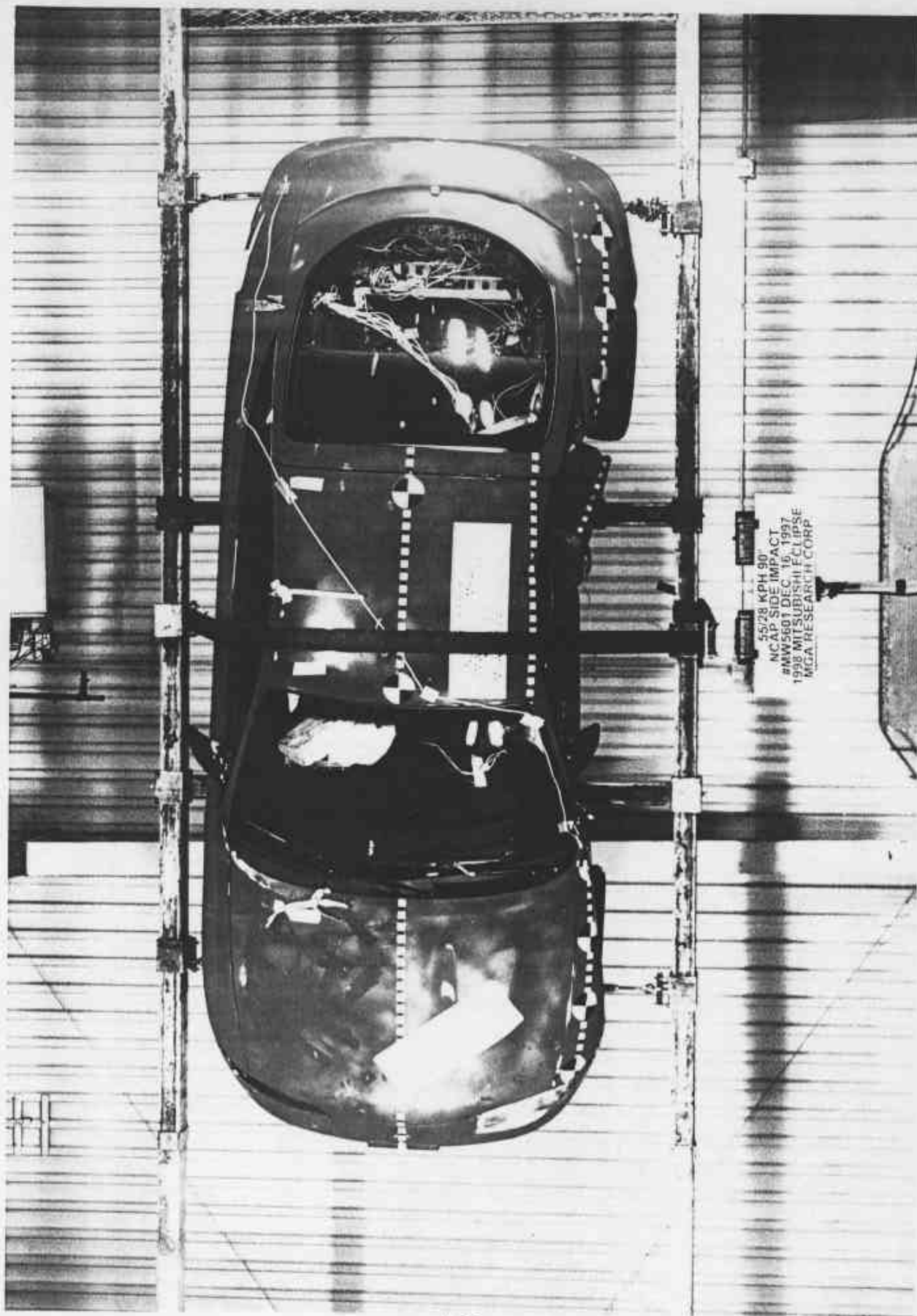


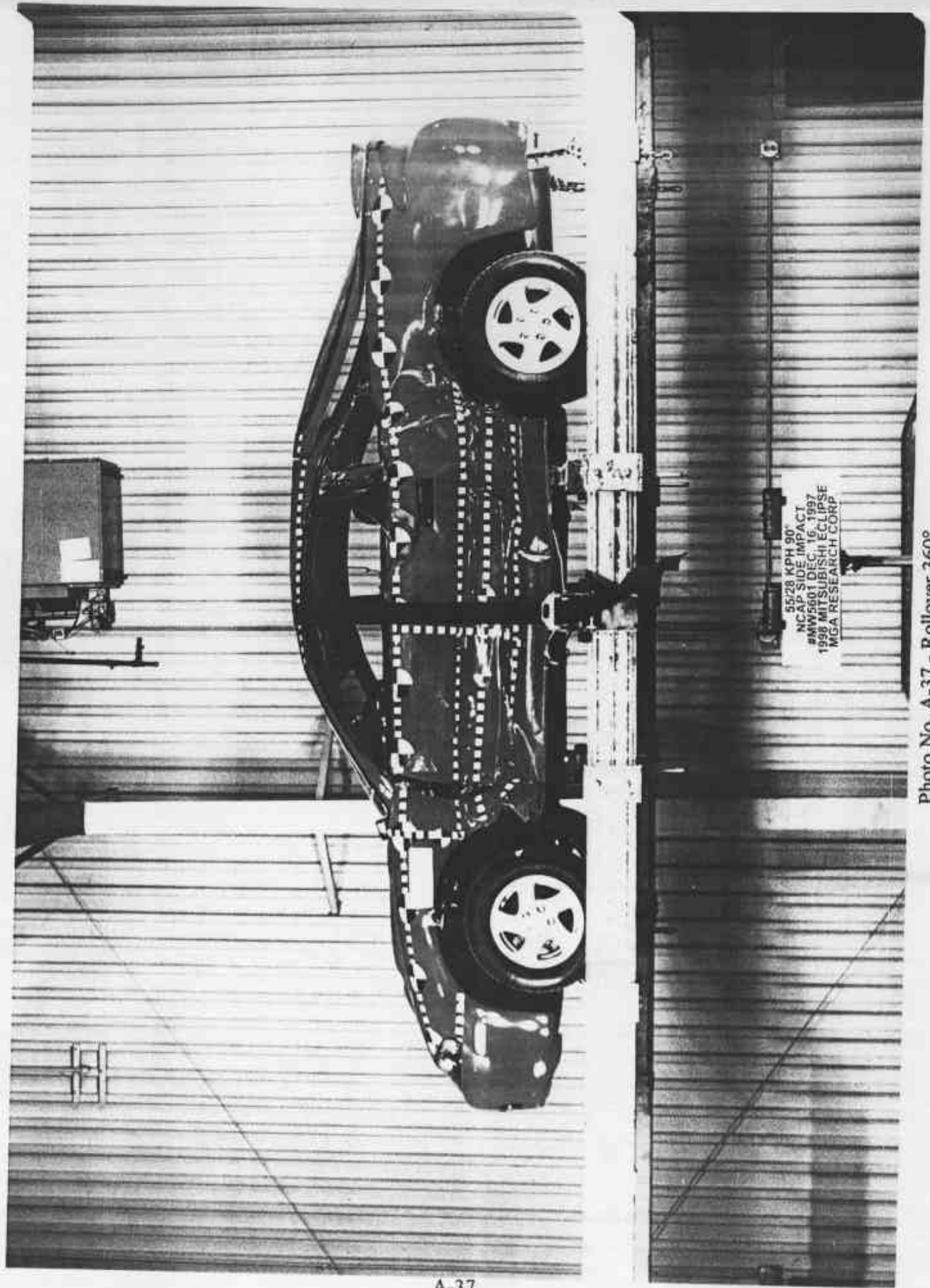
Photo No. A-35 - Rollover 180°

A-35



A-36

Photo No. A-36 - Rollover 270°



A-37

Photo No. A-37 - Rollover 360°

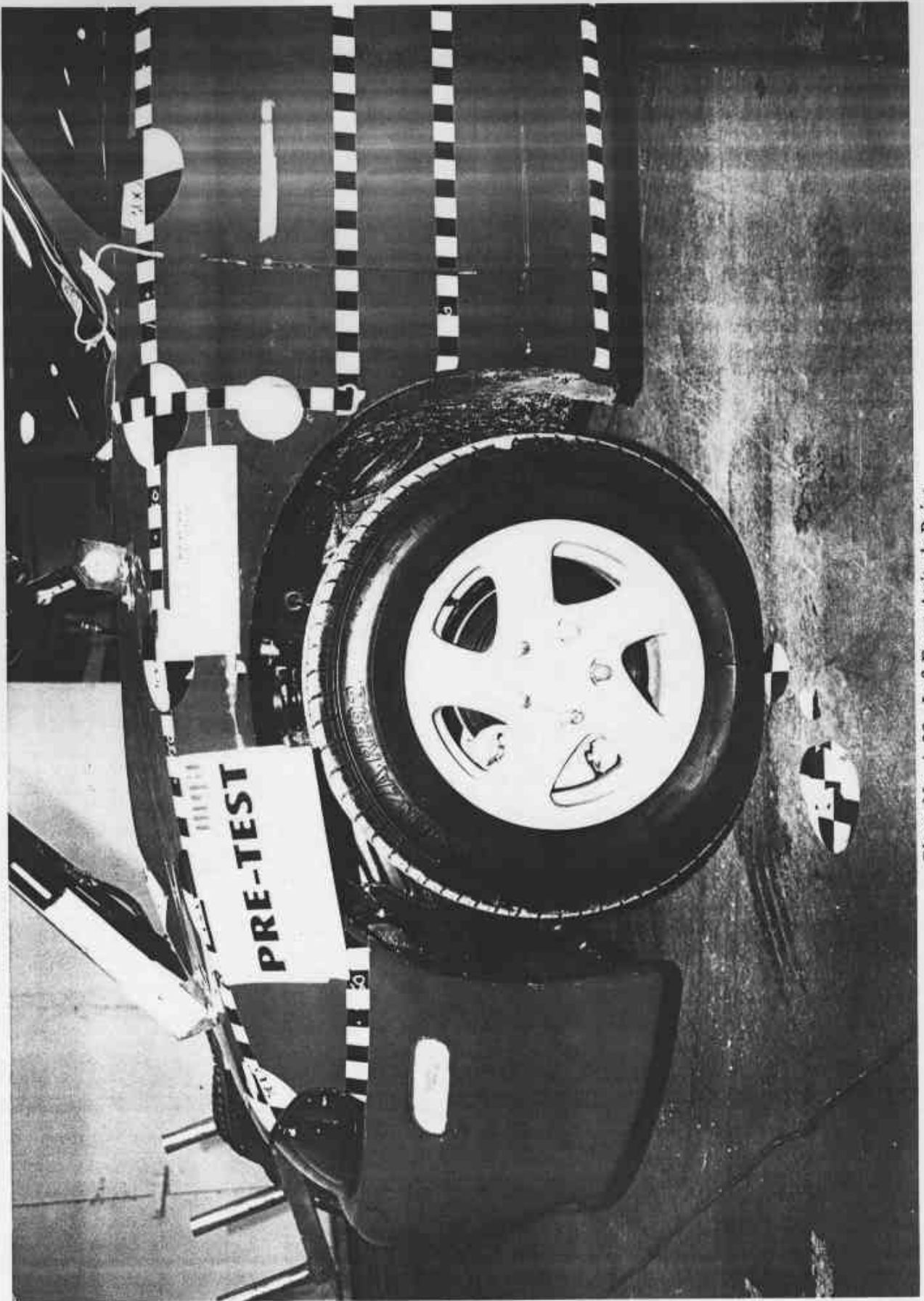


Photo No. A-38 - Left Front Attitude Point

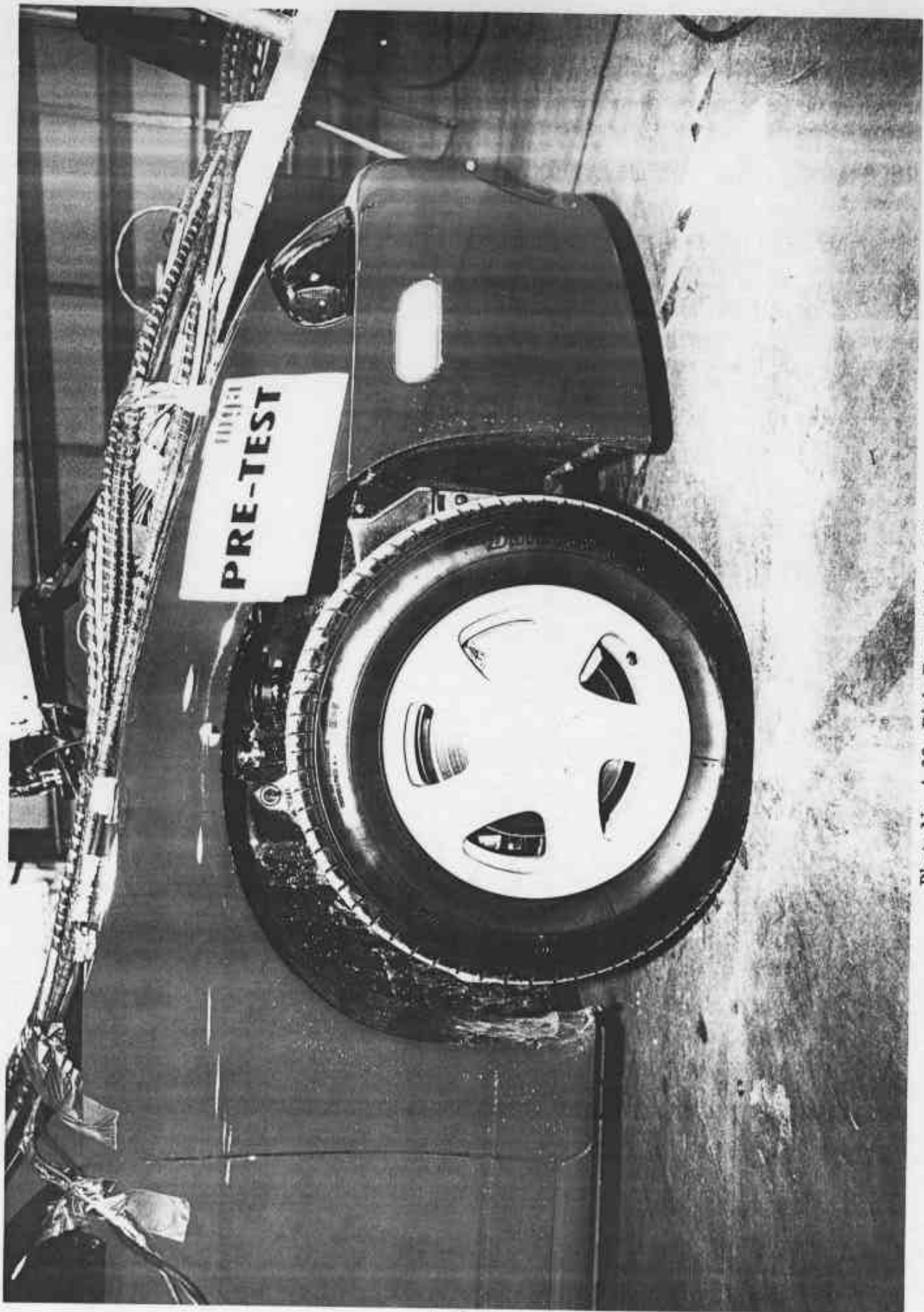


Photo No. A-39 - Right Front Attitude Point

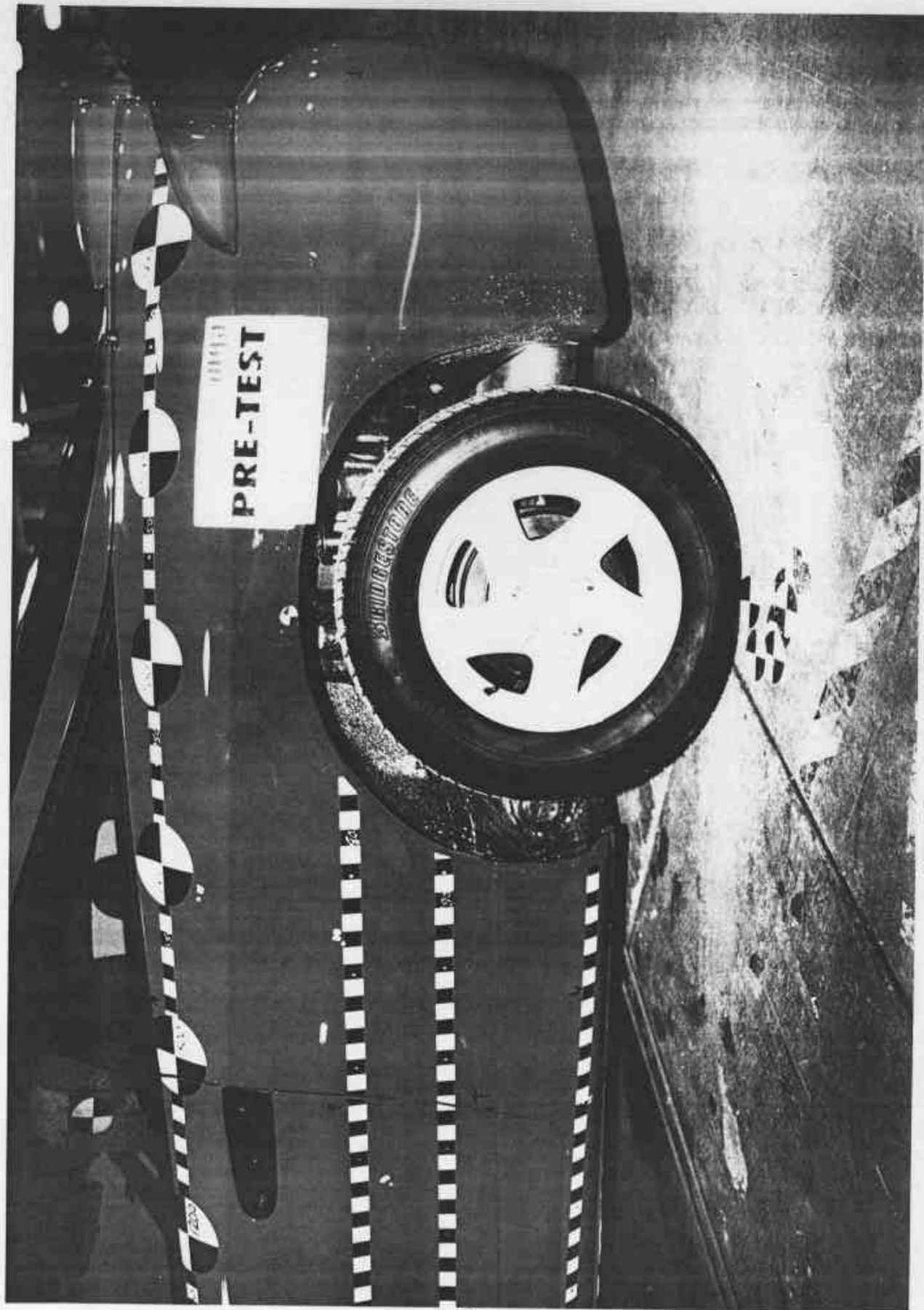


Photo No. A-40 - Left Rear Attitude Point

A-40



Photo No. A-41 - Right Rear Attitude Point

A-41

APPENDIX B - VEHICLE AND SID RESPONSE DATA

Table of Data Plots

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

Table of Data Plots

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

* No Valid Data Collected

Table of Data Plots

<u>Vehicle (Cont'd):</u>	<u>Page No</u>
Figure B-54 - Vehicle Center of Gravity Y Acceleration vs. Time	B-54
Figure B-55 - Vehicle Center of Gravity Y Velocity vs. Time	B-55
Figure B-56 - Vehicle Center of Gravity Z Acceleration vs. Time	B-56
Figure B-57 - Vehicle Center of Gravity Z Velocity vs. Time	B-57
Figure B-58 - Vehicle Center of Gravity Resultant Acceleration vs. Time	B-58
Figure B-59 - Left Front Door Midrear Y Acceleration vs. Time	B-59
Figure B-60 - Left Front Door Midrear Y Velocity vs. Time	B-60
Figure B-61 - Left Front Door Centerline Y Acceleration vs. Time	B-61
Figure B-62 - Left Front Door Centerline Y Velocity vs. Time	B-62
Figure B-63 - Left Front Door Upper Centerline Y Acceleration vs. Time	B-63
Figure B-64 - Left Front Door Upper Centerline Y Velocity vs. Time	B-64
Figure B-65 - Left Rear Door Midrear Y Acceleration vs. Time*	B-65
Figure B-66 - Left Rear Door Midrear Y Velocity vs. Time*	B-66
Figure B-67 - Left Rear Door Upper Centerline Y Acceleration vs. Time	B-67
Figure B-68 - Left Rear Door Upper Centerline Y Velocity vs. Time	B-68
 <u>Barrier:</u>	
Figure B-69 - Moving Barrier Center of Gravity X Acceleration vs. Time	B-69
Figure B-70 - Moving Barrier Center of Gravity X Velocity vs. Time	B-70
Figure B-71 - Moving Barrier Center of Gravity Y Acceleration vs. Time	B-71
Figure B-72 - Moving Barrier Center of Gravity Y Velocity vs. Time	B-72
Figure B-73 - Moving Barrier Center of Gravity Z Acceleration vs. Time	B-73
Figure B-74 - Moving Barrier Center of Gravity Z Velocity vs. Time	B-74
Figure B-75 - Moving Barrier Center of Gravity Resultant Acceleration vs. Time	B-75
Figure B-76 - Moving Barrier Rear Axle X Acceleration vs. Time	B-76
Figure B-77 - Moving Barrier Rear Axle X Velocity vs. Time	B-77
Figure B-78 - Moving Barrier Rear Axle Y Acceleration vs. Time	B-78
Figure B-79 - Moving Barrier Rear Axle Y Velocity vs. Time	B-79

Table of Data Plots

Barrier (Cont'd):

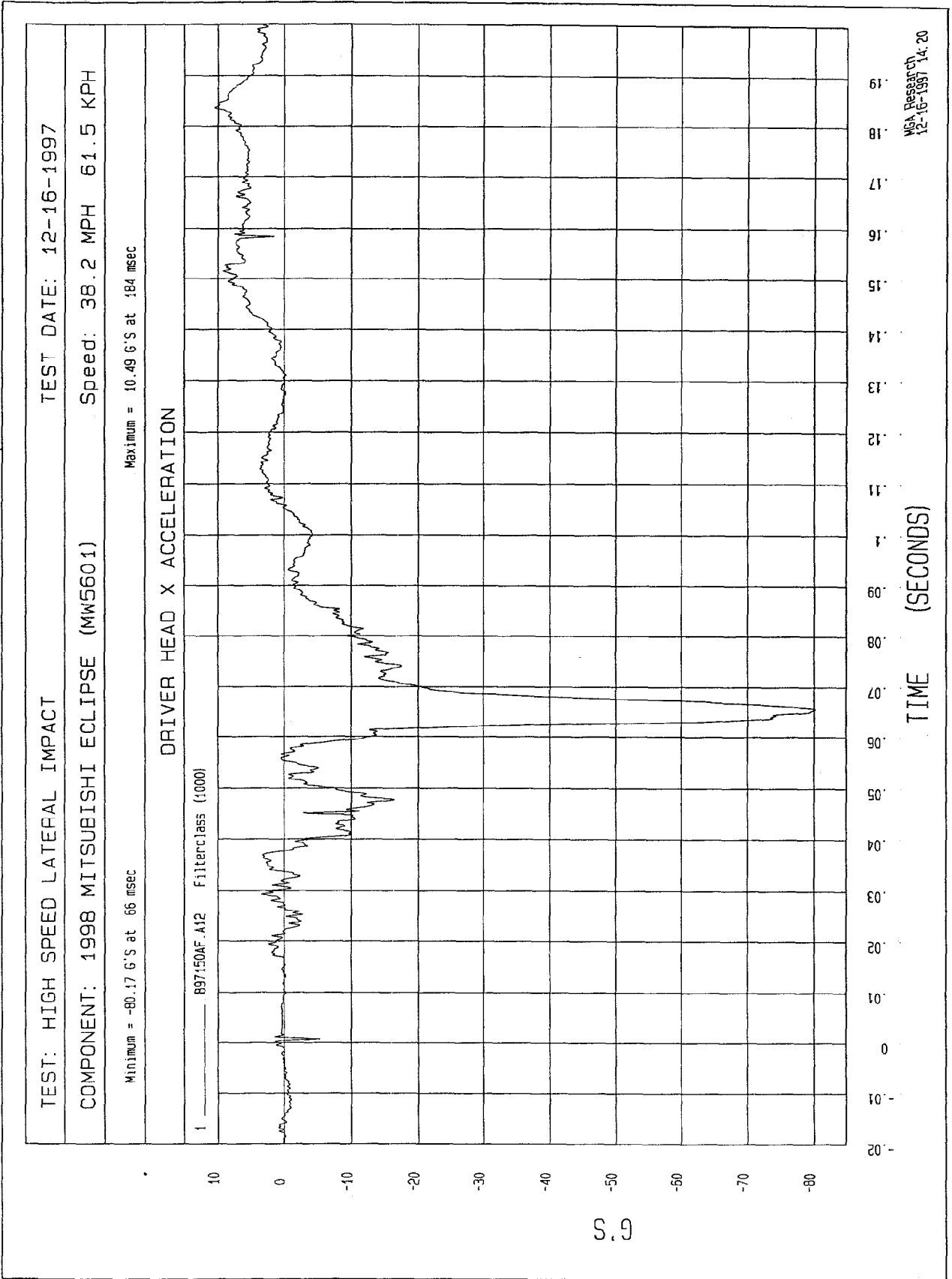
	<u>Page No</u>
Figure B-80 - Left Barrier Contact	B-80
Figure B-81 - Right Barrier Contact	B-81

Redundant:

Figure B-82 - Driver Upper Rib Y Redundant Acceleration vs. Time	B-82
Figure B-83 - Driver Upper Rib Y Redundant Velocity vs. Time	B-83
Figure B-84 - Driver Lower Rib Y Redundant Acceleration vs. Time	B-84
Figure B-85 - Driver Lower Rib Y Redundant Velocity vs. Time	B-85
Figure B-86 - Driver Lower Spine Y Redundant Acceleration vs. Time	B-86
Figure B-87 - Driver Lower Spine Y Redundant Velocity vs. Time	B-87
Figure B-88 - Driver Pelvis Y Redundant Acceleration vs. Time	B-88
Figure B-89 - Driver Pelvis Y Redundant Velocity vs. Time	B-89

FIR Filtered

Figure B-90 - Driver Upper Rib Y Acceleration vs. Time	B-90
Figure B-91 - Driver Upper Rib Y Redundant Acceleration vs. Time	B-91
Figure B-92 - Driver Lower Rib Y Acceleration vs. Time	B-92
Figure B-93 - Driver Lower Rib Y Redundant Acceleration vs. Time	B-93
Figure B-94 - Driver Lower Spine Y Acceleration vs. Time	B-94
Figure B-95 - Driver Lower Spine Y Redundant Acceleration vs. Time	B-95
Figure B-96 - Driver Pelvis Y Acceleration vs. Time	B-96
Figure B-97 - Driver Pelvis Y Redundant Acceleration vs. Time	B-97



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -11.62 G'S at 172 msec
Maximum = 119.21 G'S at 63 msec

DRIVER HEAD Y ACCELERATION

1 _____ B97150AF.A13 Filterclass (1000)

120

100

80

60

40

20

0

G'S

-0.02

-0.01

0

0.01

0.02

0.03

0.04

0.05

0.06

0.07

0.08

0.09

0.1

0.11

0.12

0.13

0.14

0.15

0.16

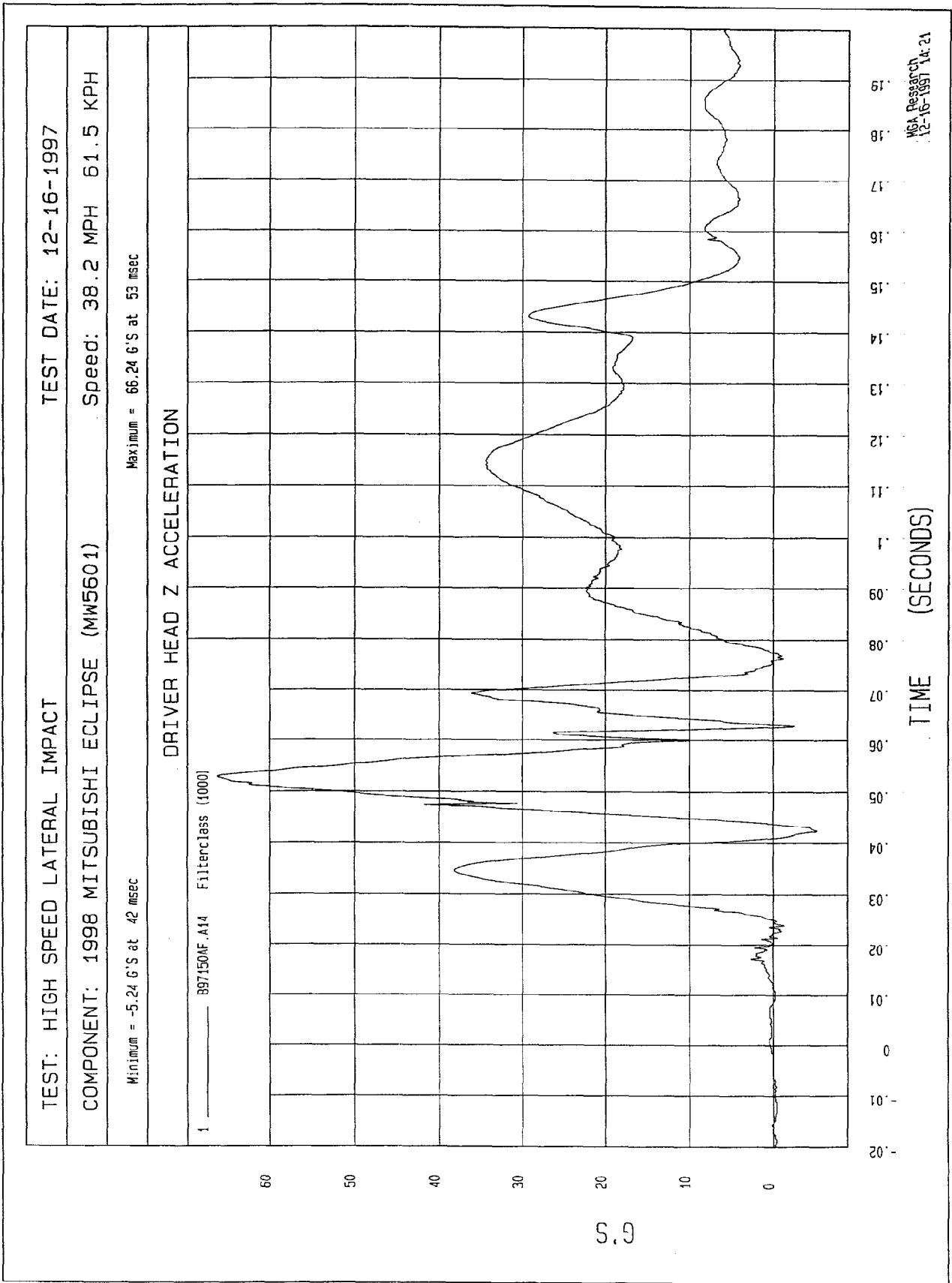
0.17

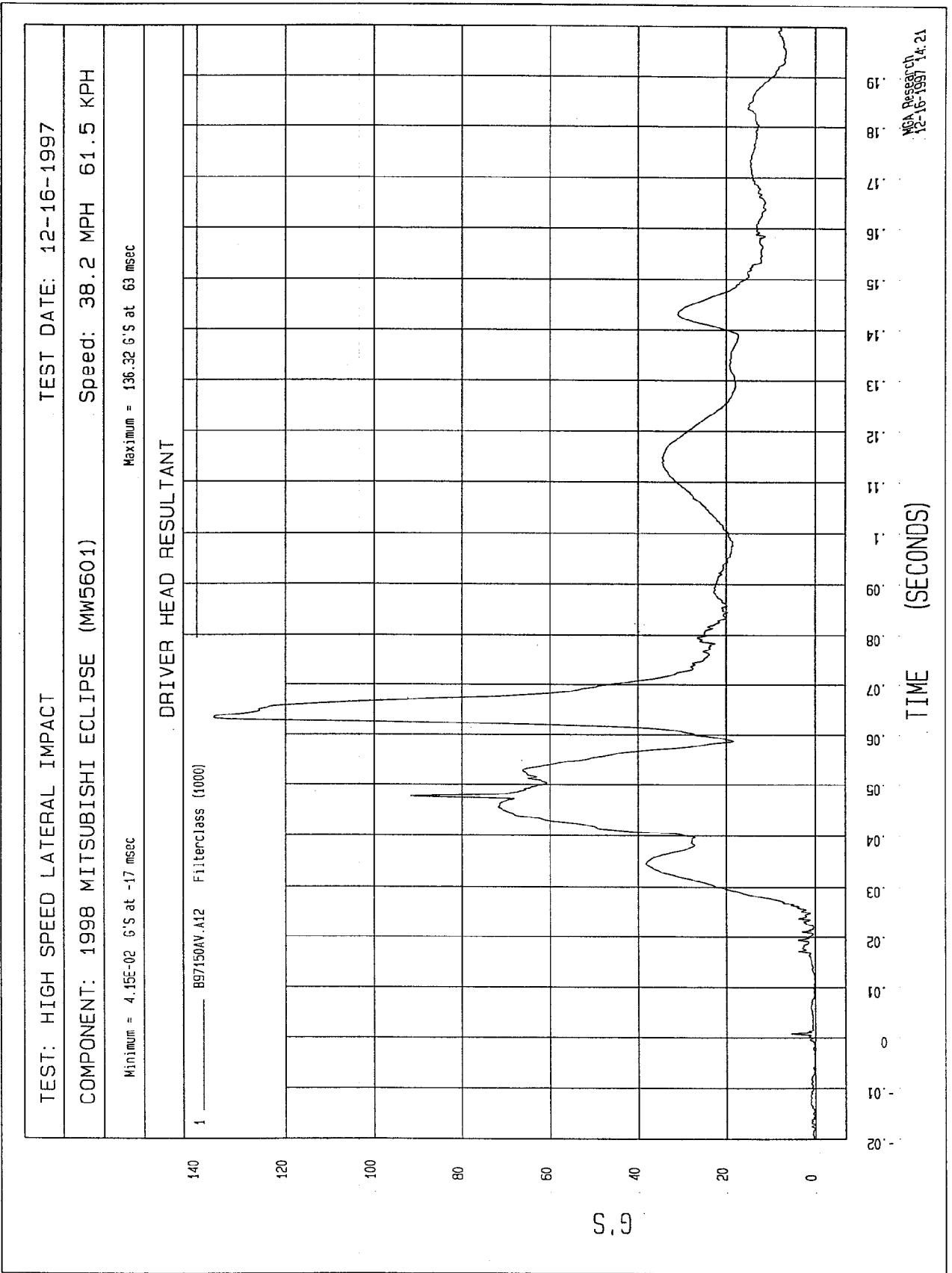
0.18

0.19

TIME (SECONDS)

NGA Research
12-16-1997 14:21



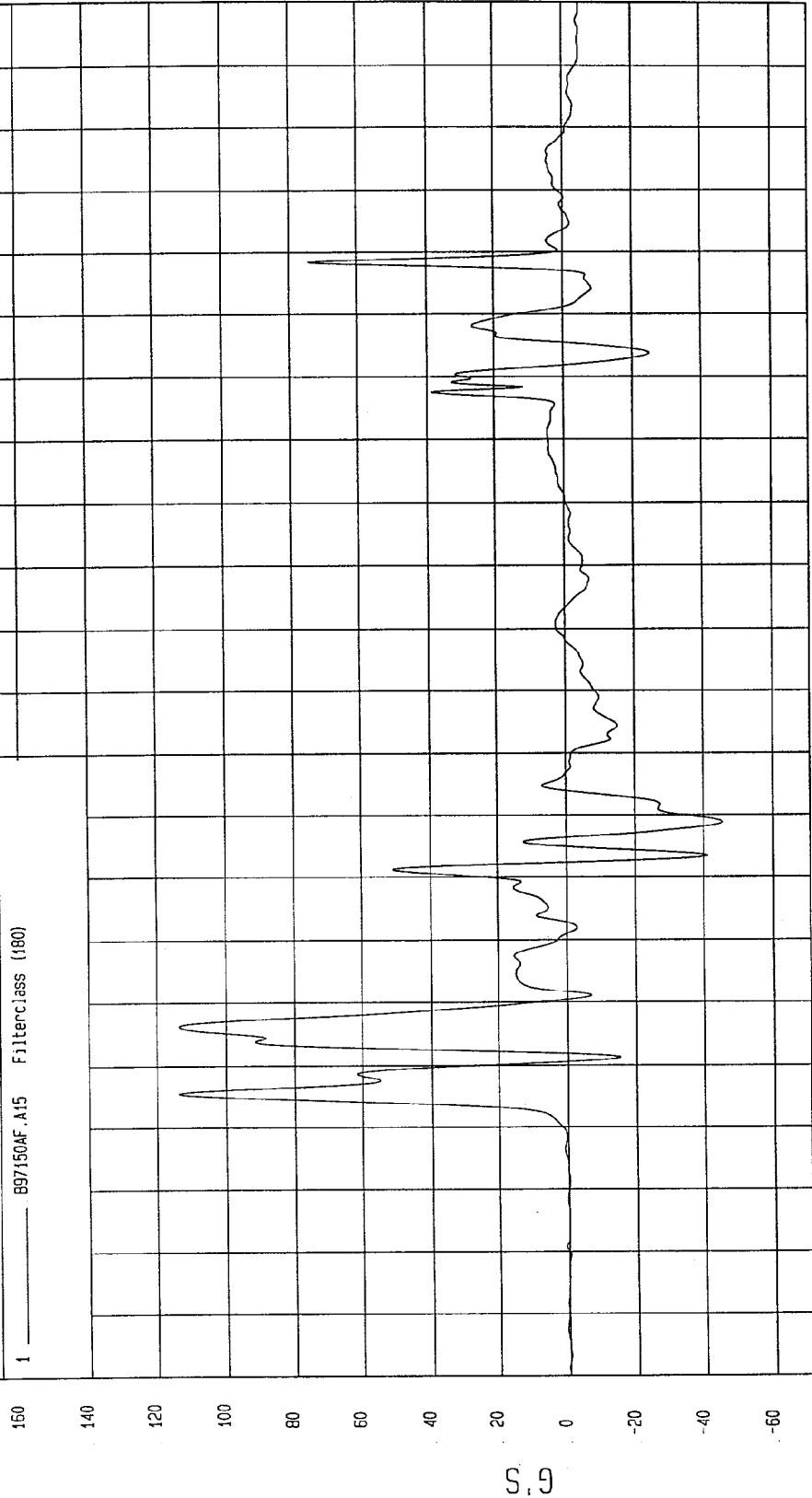


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -45.47 G's at 59 msec Maximum = 113.83 G's at 26 msec

DRIVER UPPER RIB Y ACCELERATION

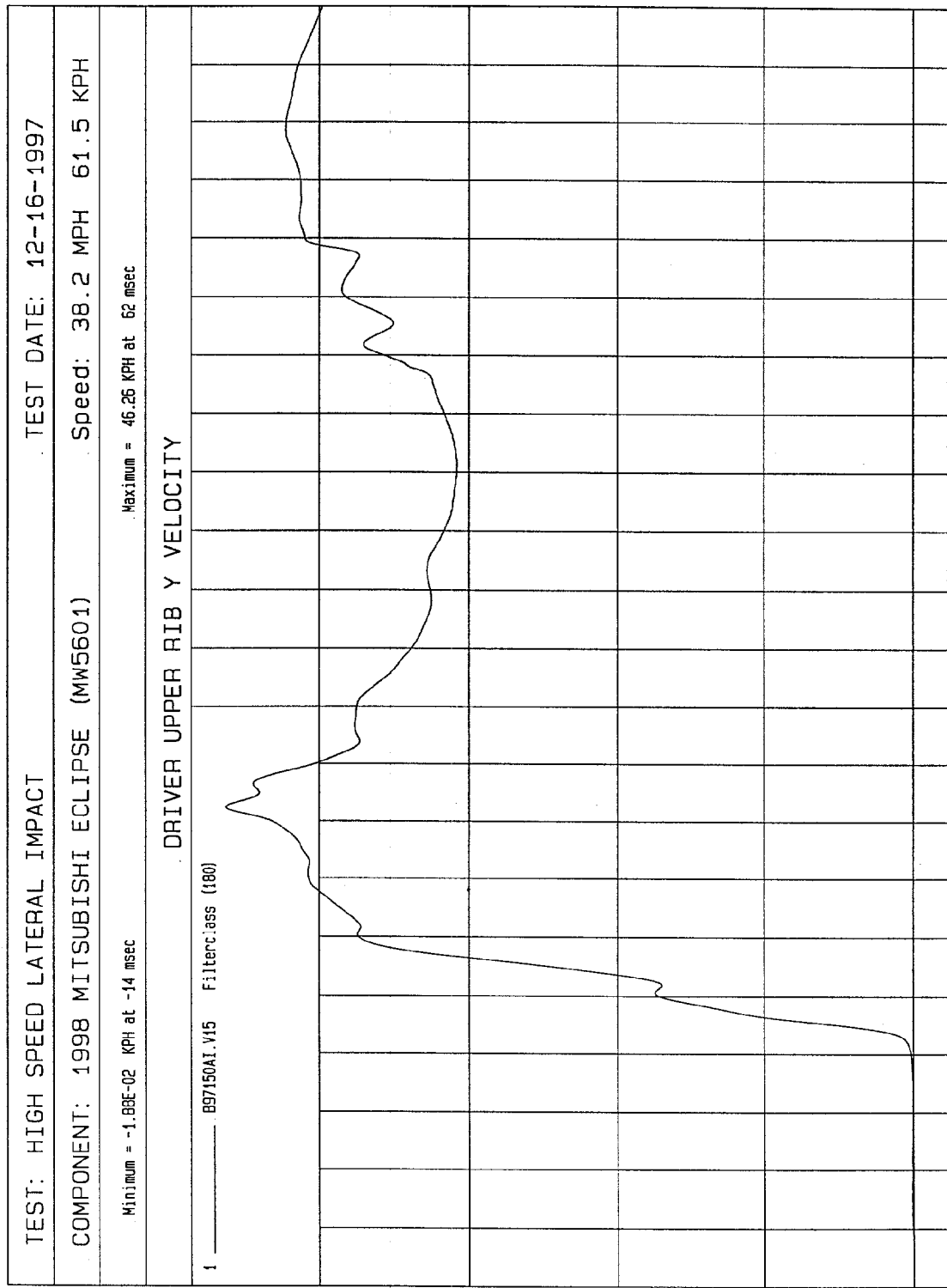


TIME (SECONDS)

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

0.00
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

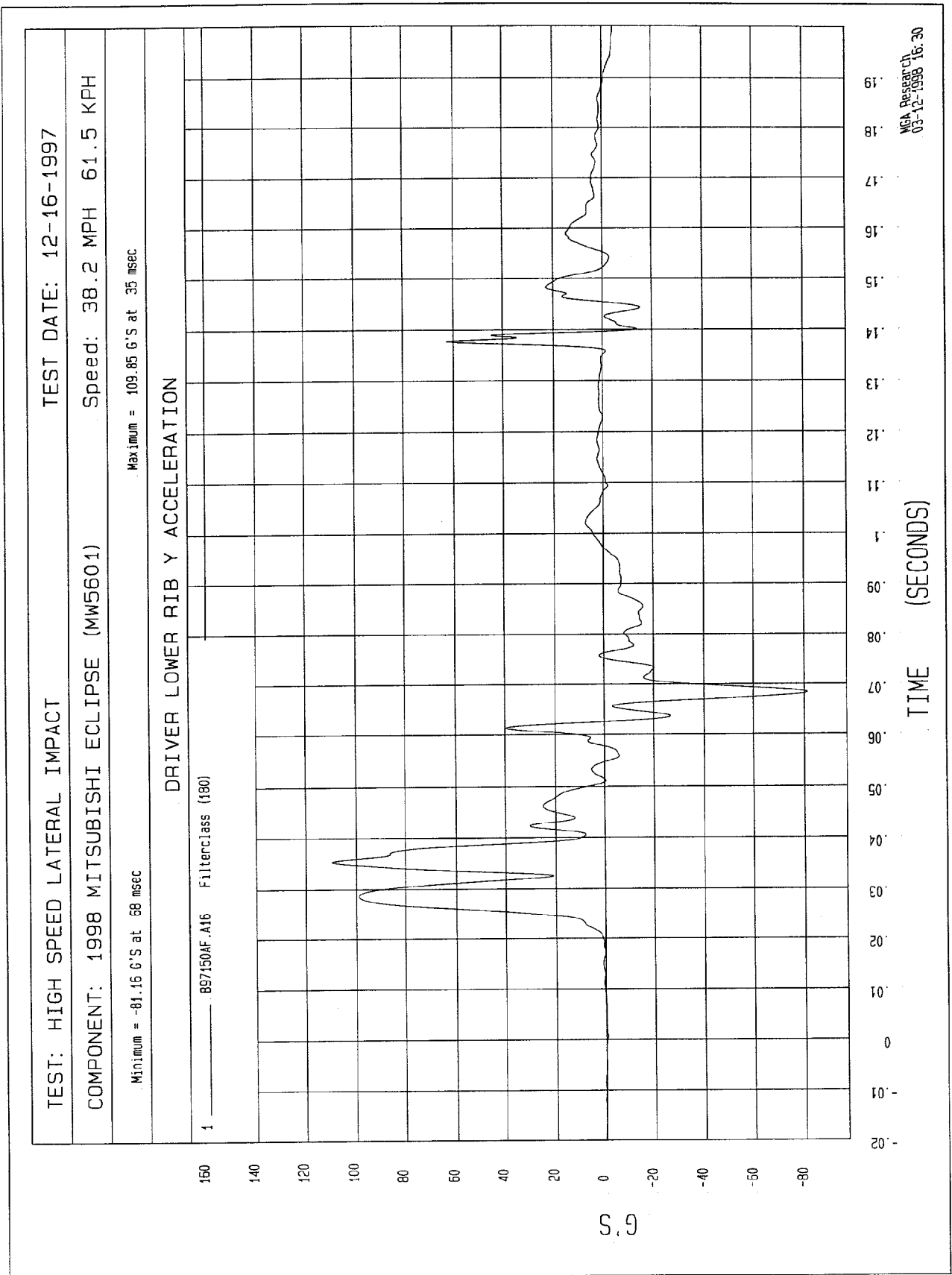
NCA Research
12-22-1997 17:05

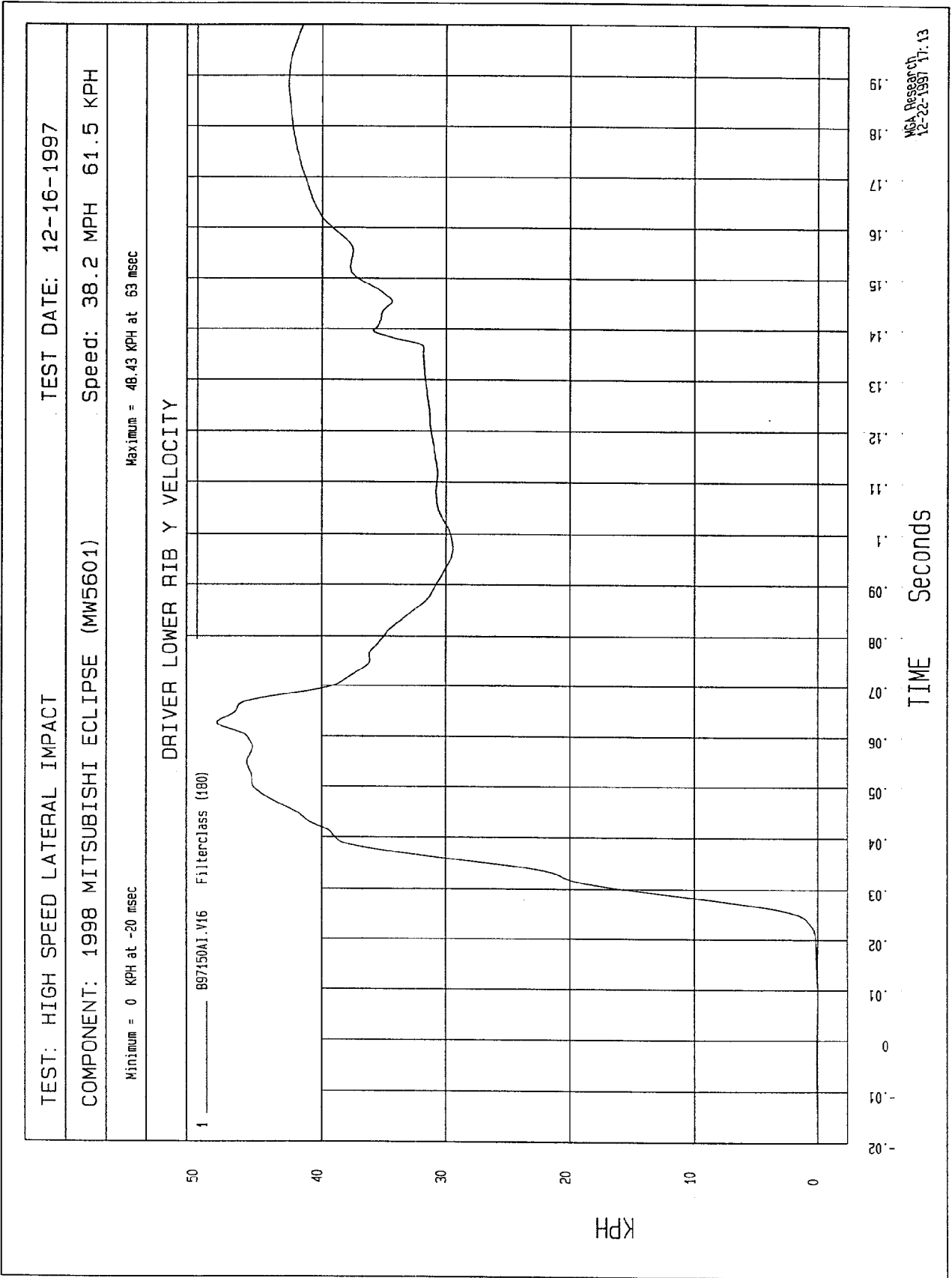


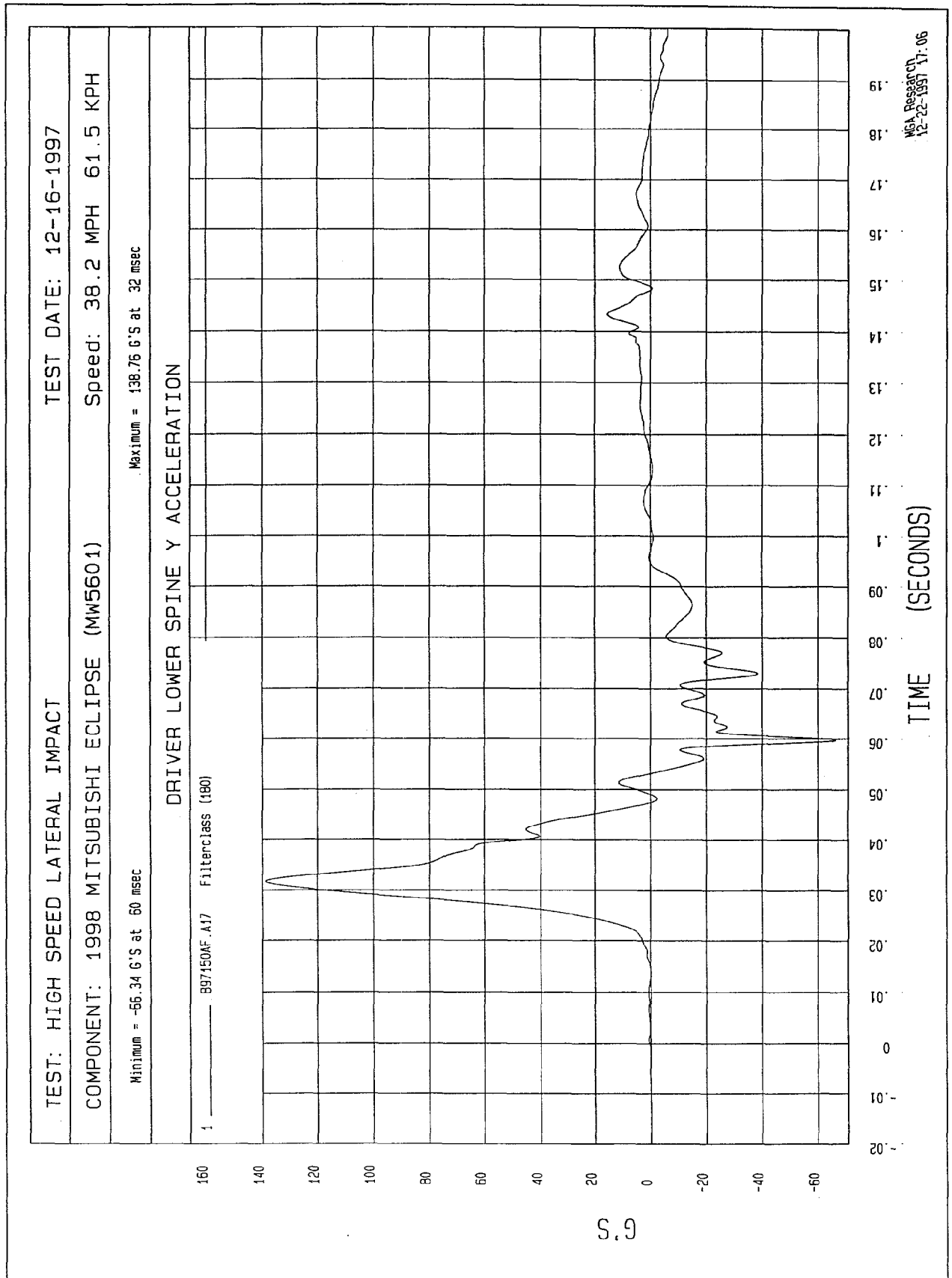
TIME Seconds

19.18.17.16.15.14.13.12.11.10.09.08.07.06.05.04.03.02.01.0

WSA Research
12-22-1997 17:12





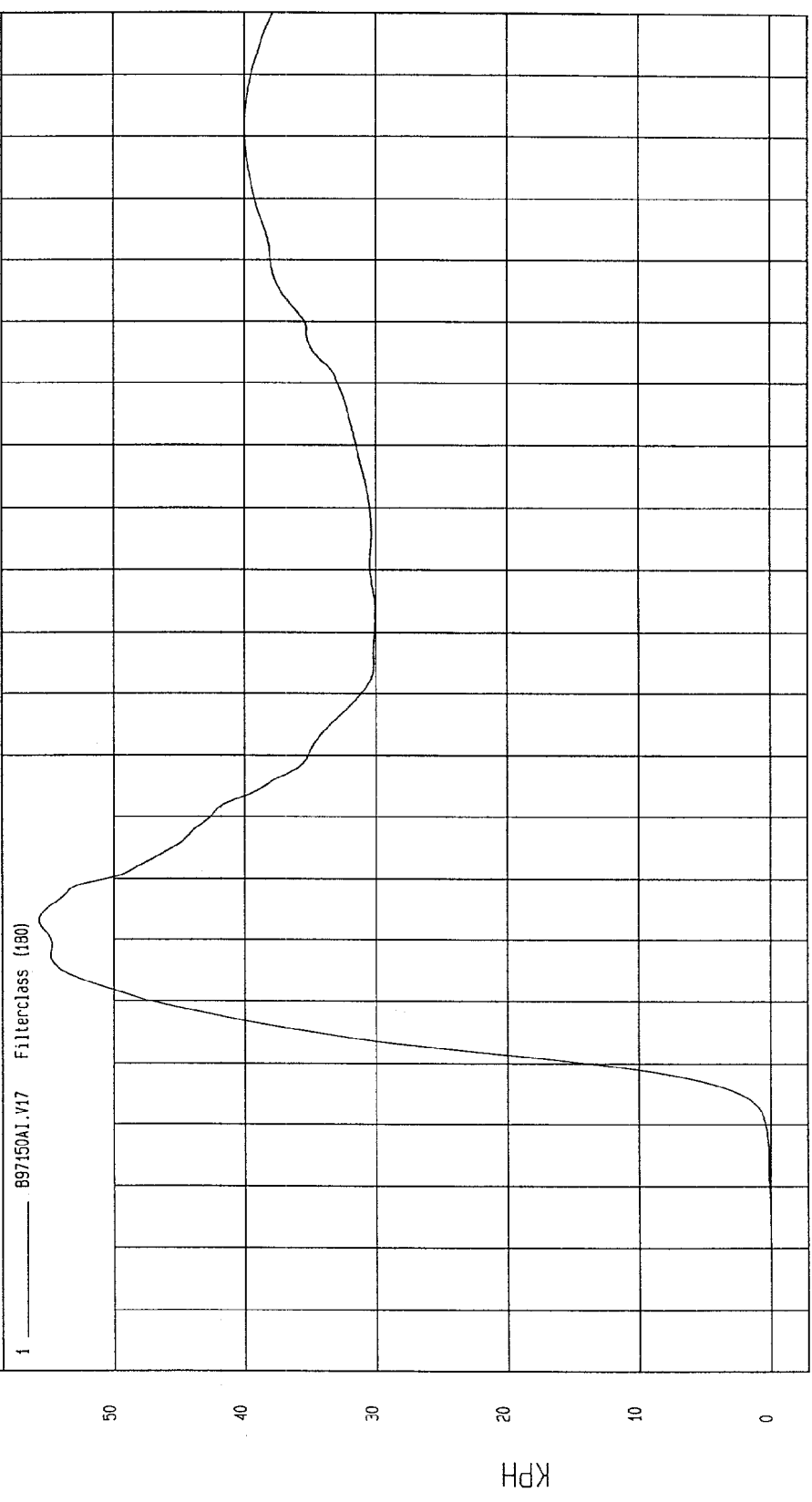


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

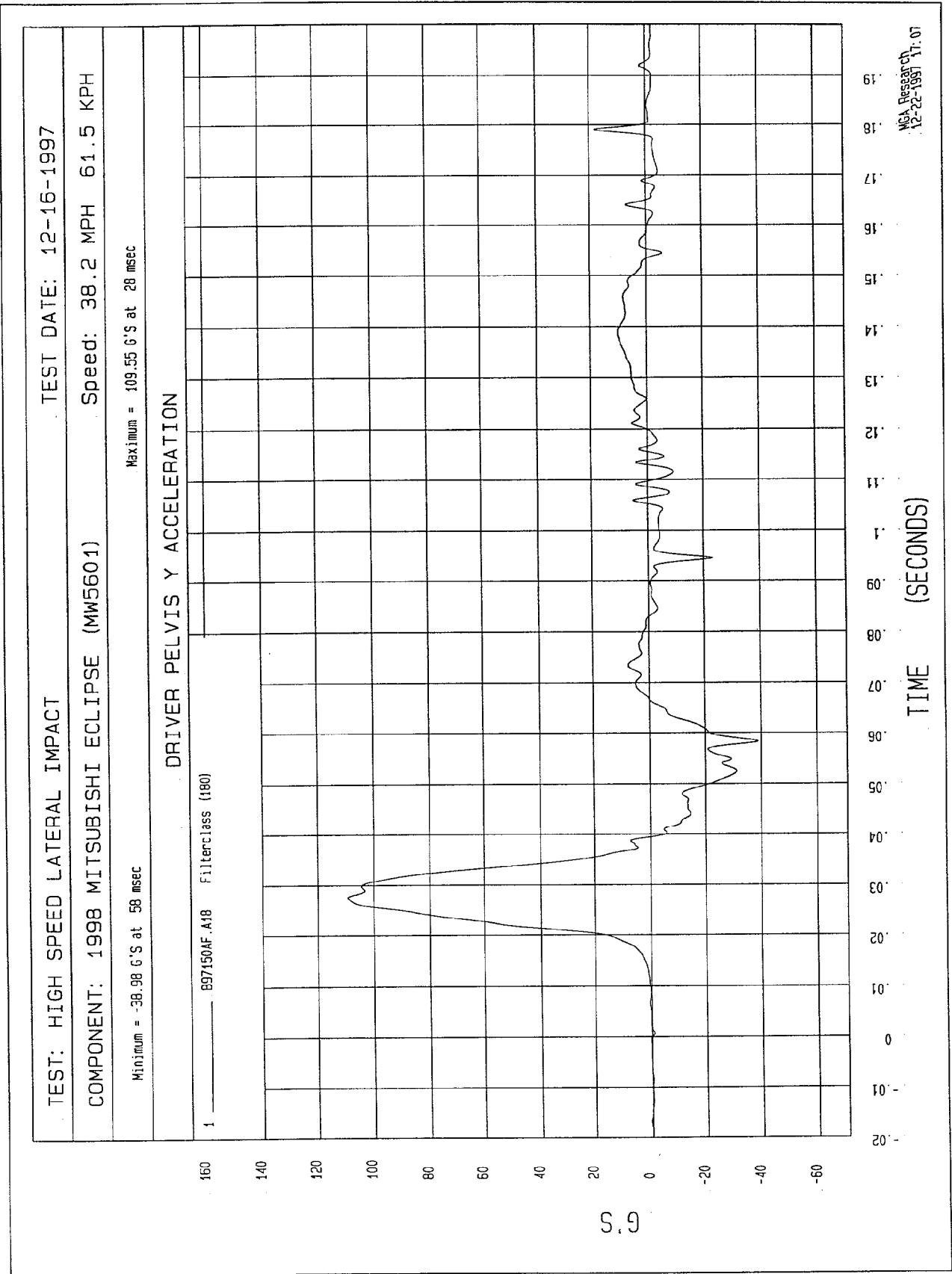
Minimum = -6.38E-02 KPH at -6 msec Maximum = 55.68 KPH at 53 msec

DRIVER LOWER SPINE Y VELOCITY



TIME Seconds

MECA Research
12-22-1997 17:13



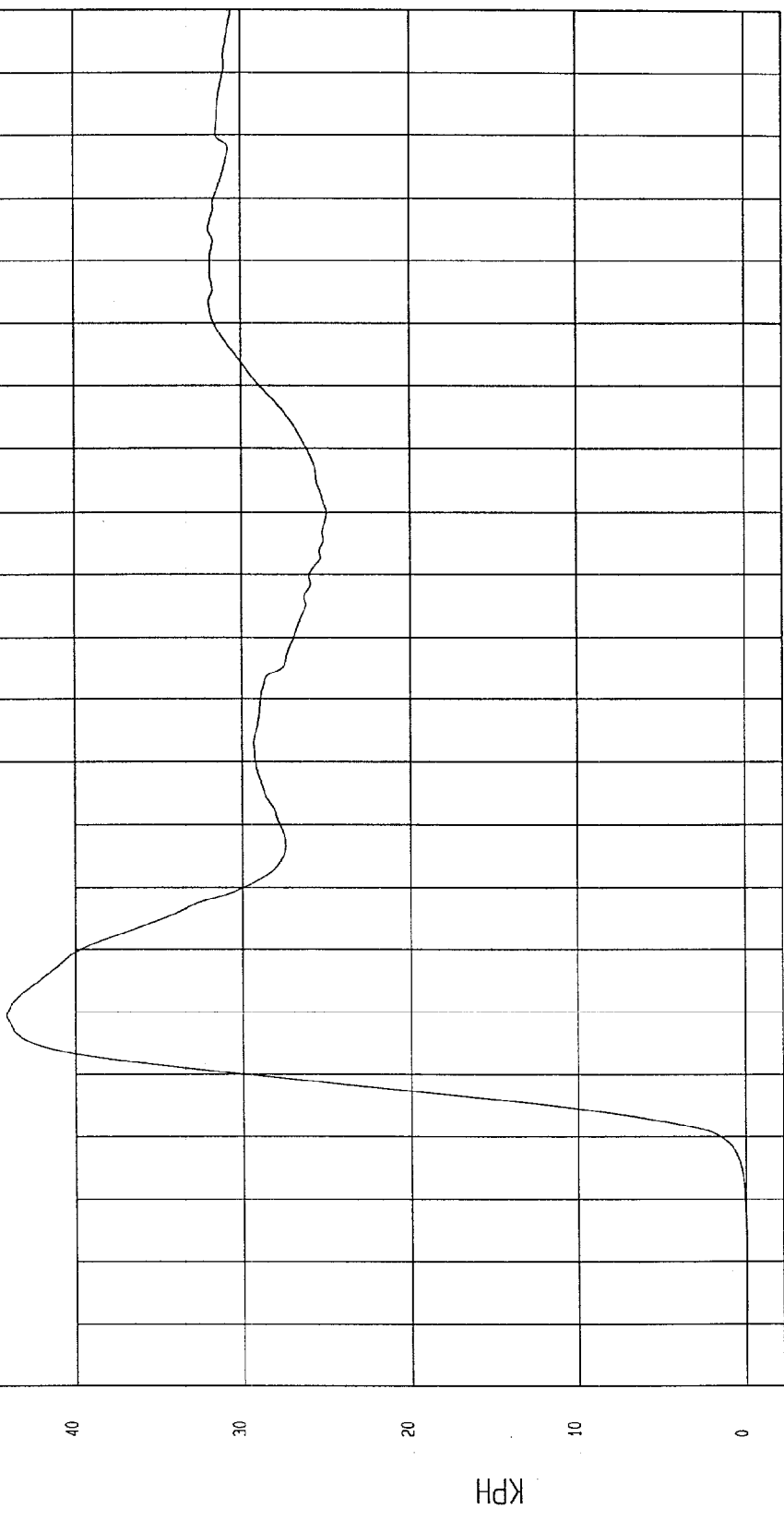
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

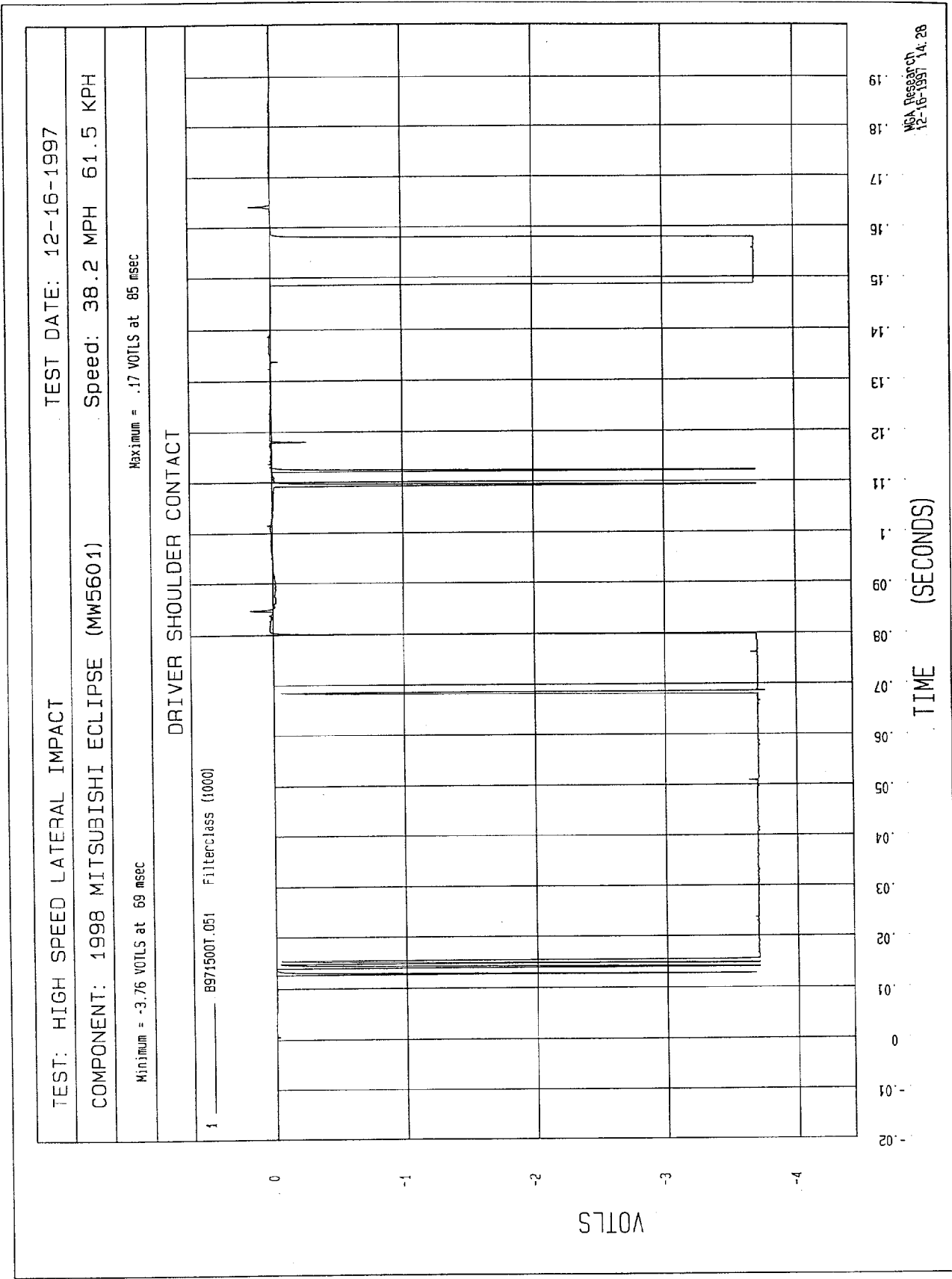
Minimum = -5.42E-02 KPH at -5 msec
Maximum = 44.12 KPH at 40 msec

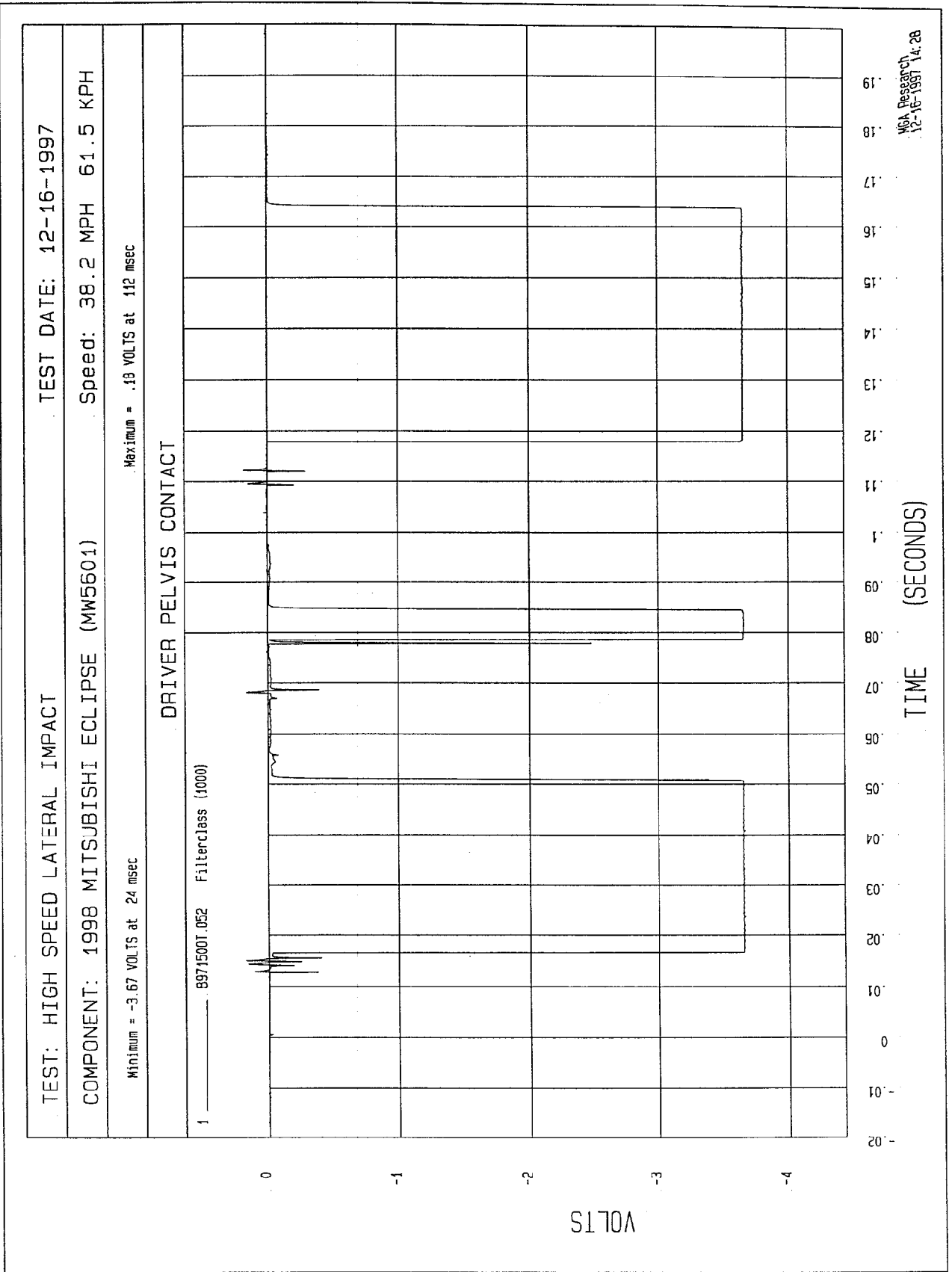
DRIVER PELVIS Y VELOCITY

1 ——— B97150A1.V18 FilterClass (180)



TIME Seconds
NPA Research
12-22-1997 17:13





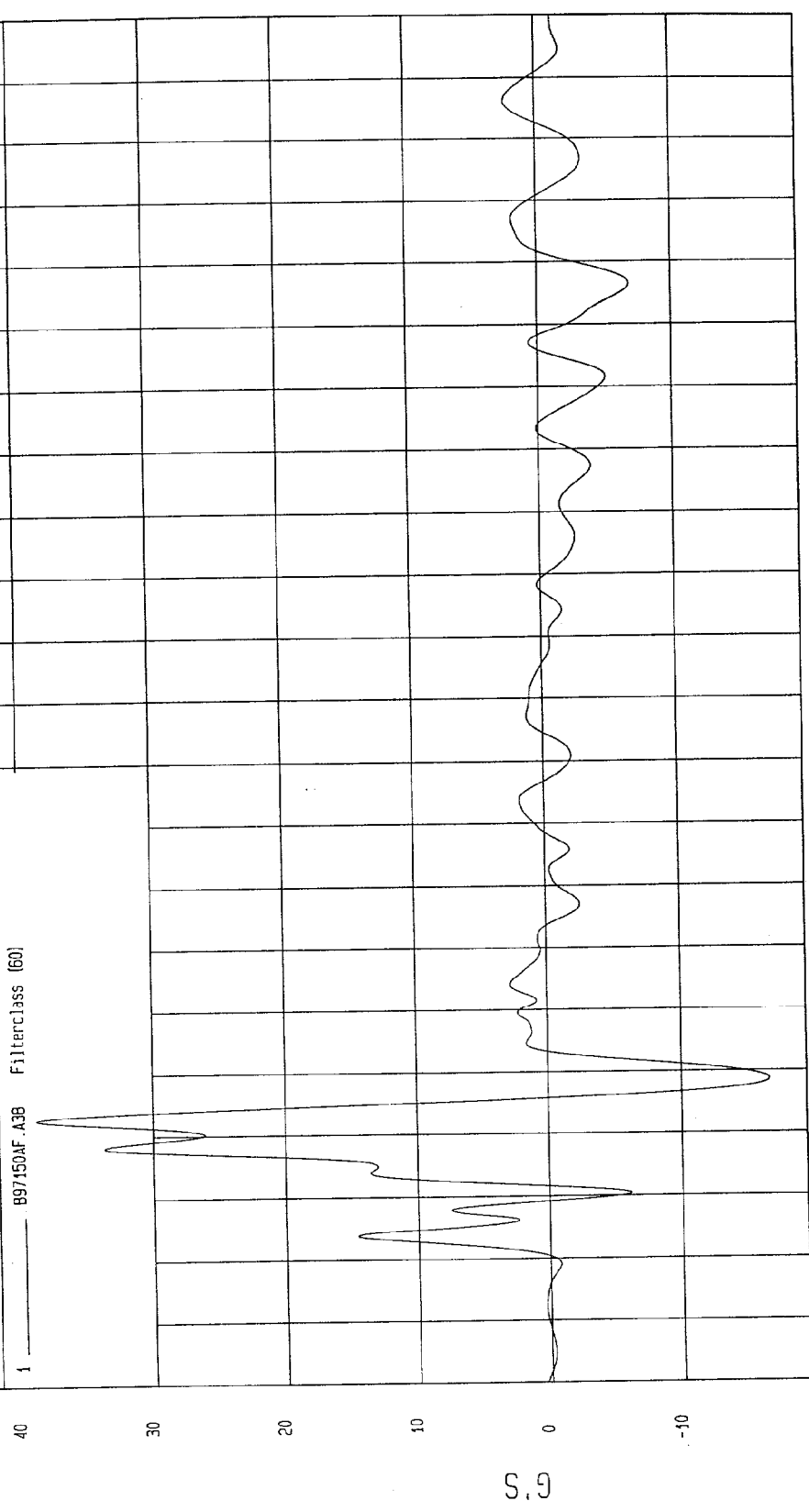
TEST: HIGH SPEED LATERAL IMPACT
TEST DATE: 12-16-1997
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601)
Speed: 38.2 MPH 61.5 KPH

Maximum = 38.82 G'S at 23 msec

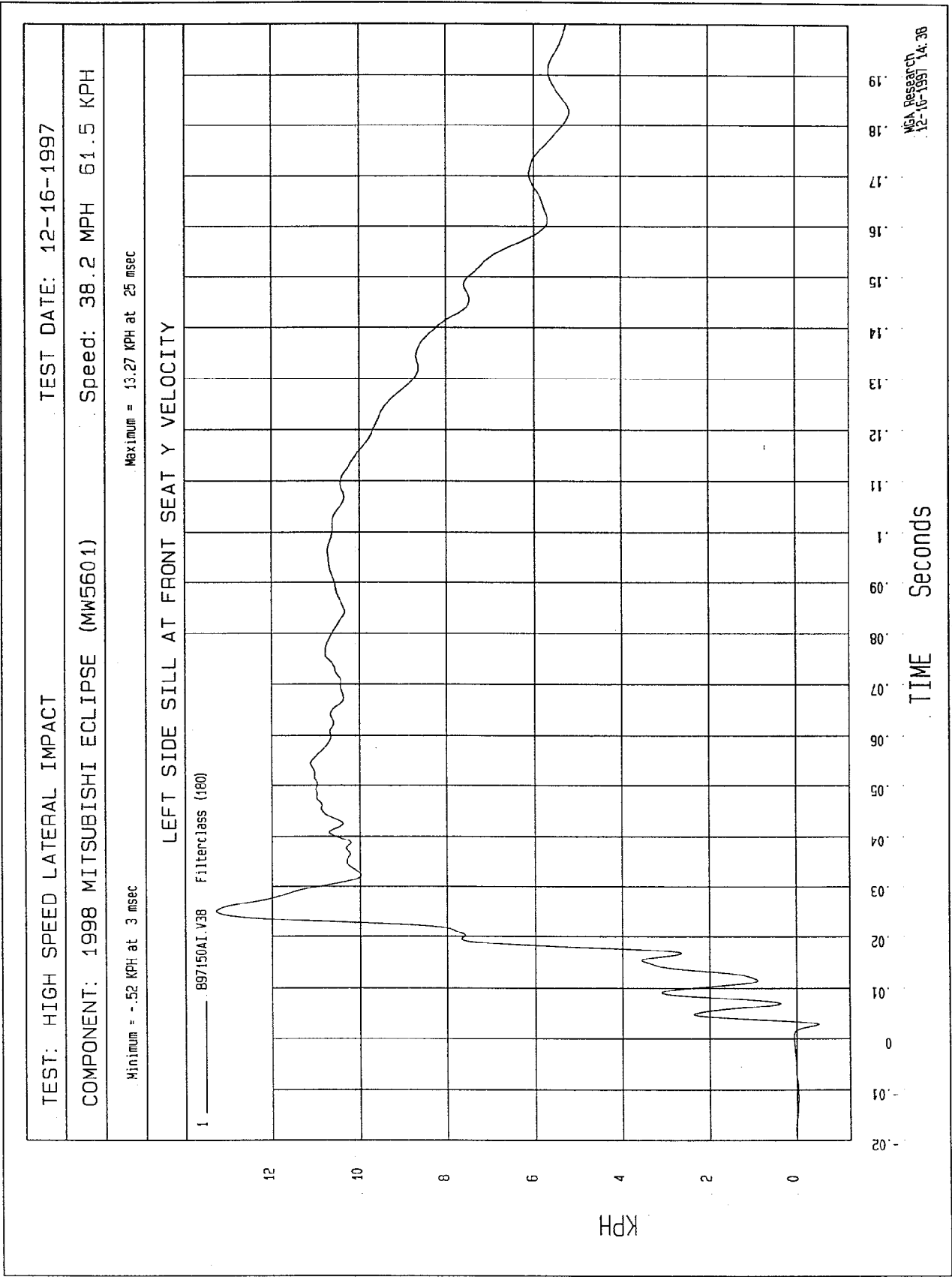
Minimum = -16.55 G'S at 29 msec

LEFT SIDE SILL AT FRONT SEAT Y ACCELERATION

1 B97150AF .A38 Filterclass (60)



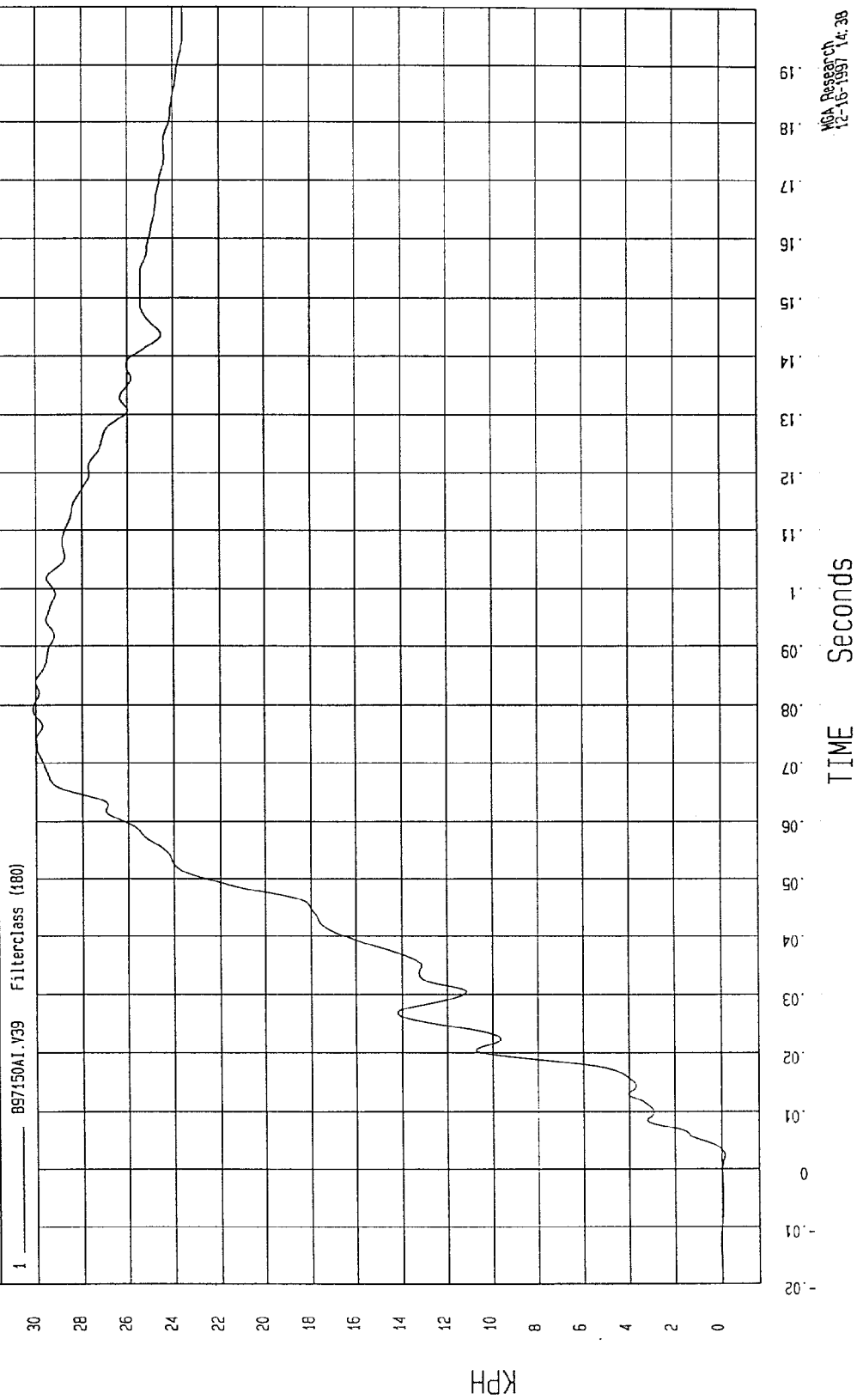
MEA Research
12-16-1997 14:28

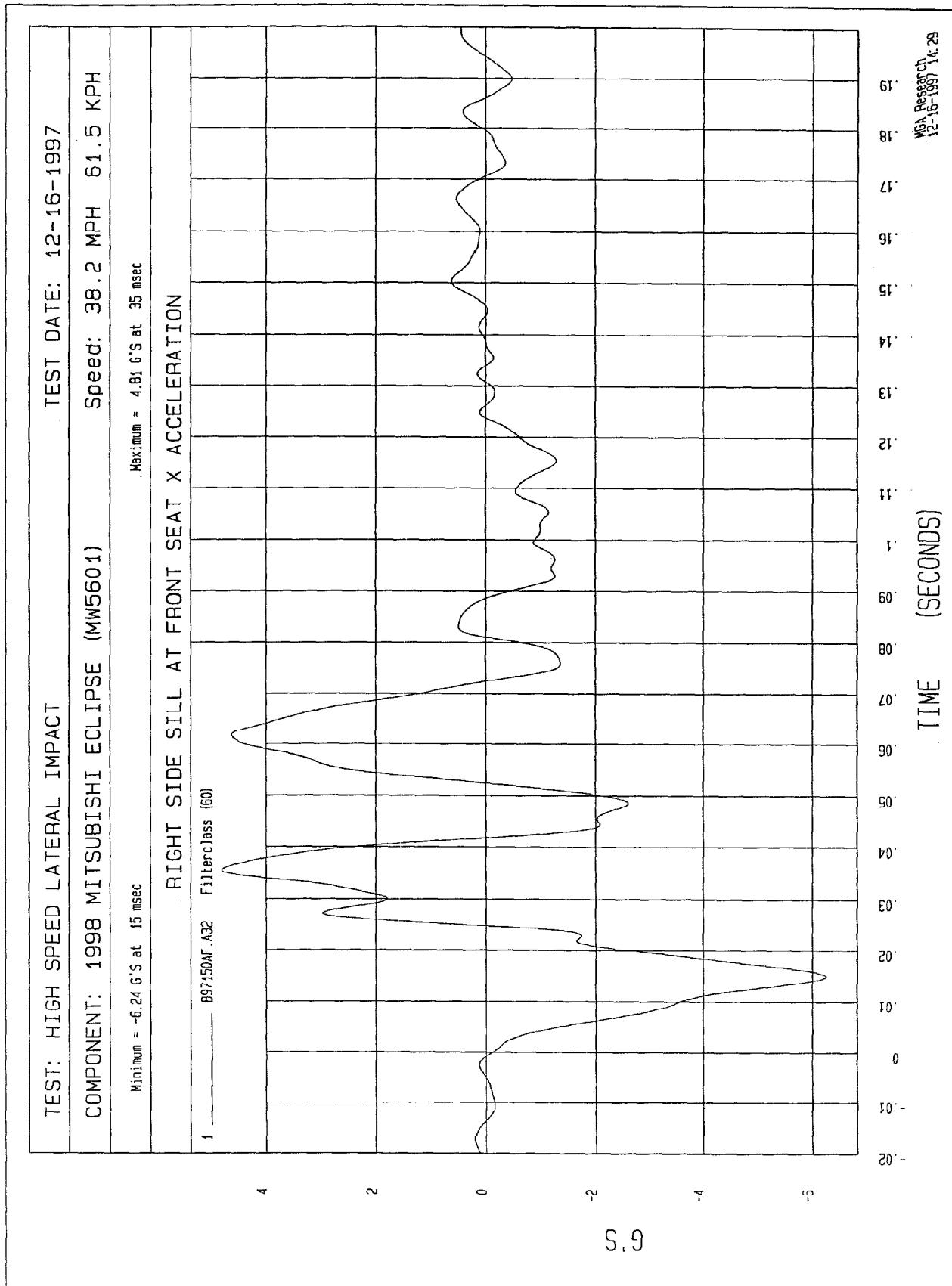


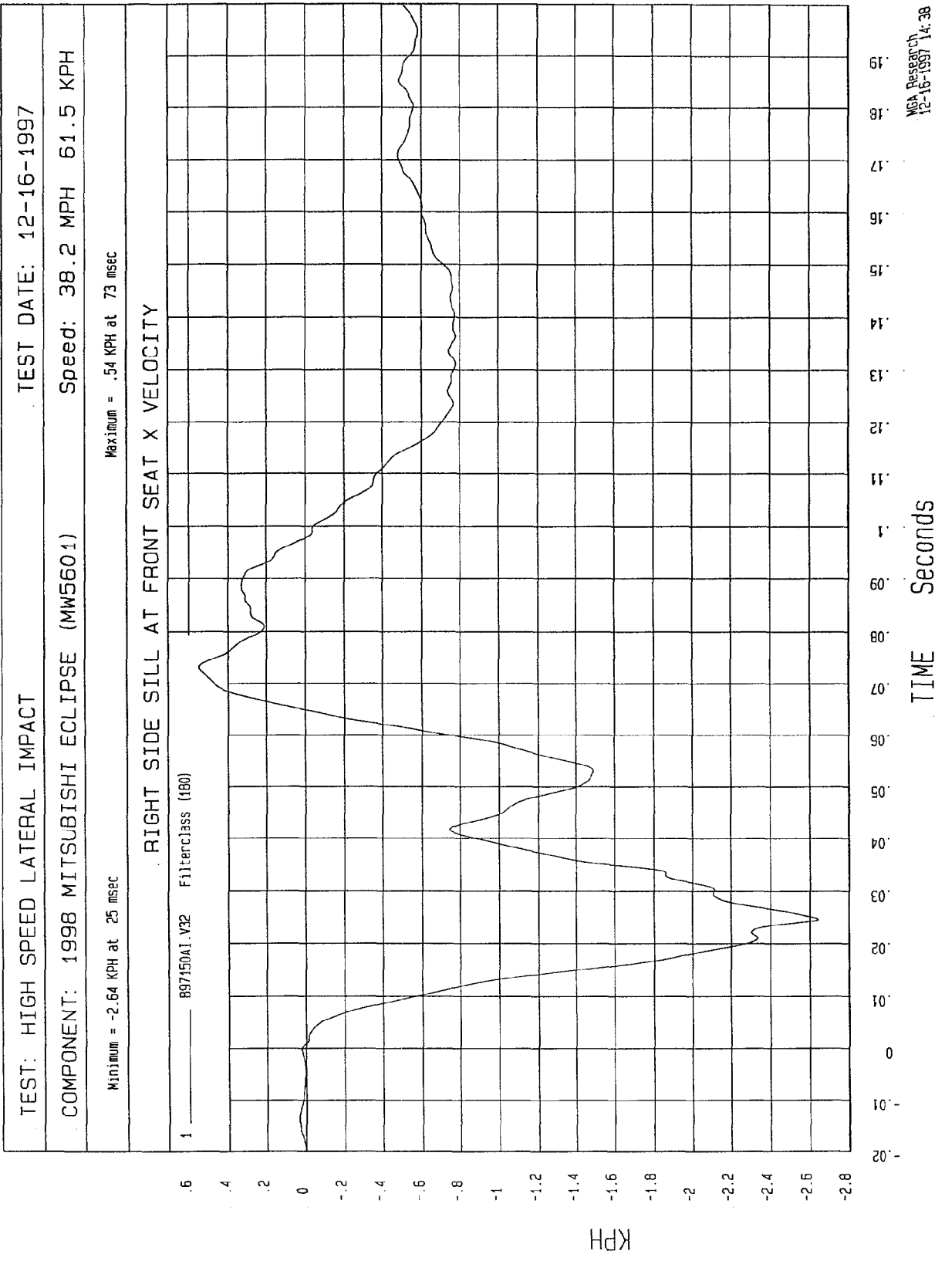
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

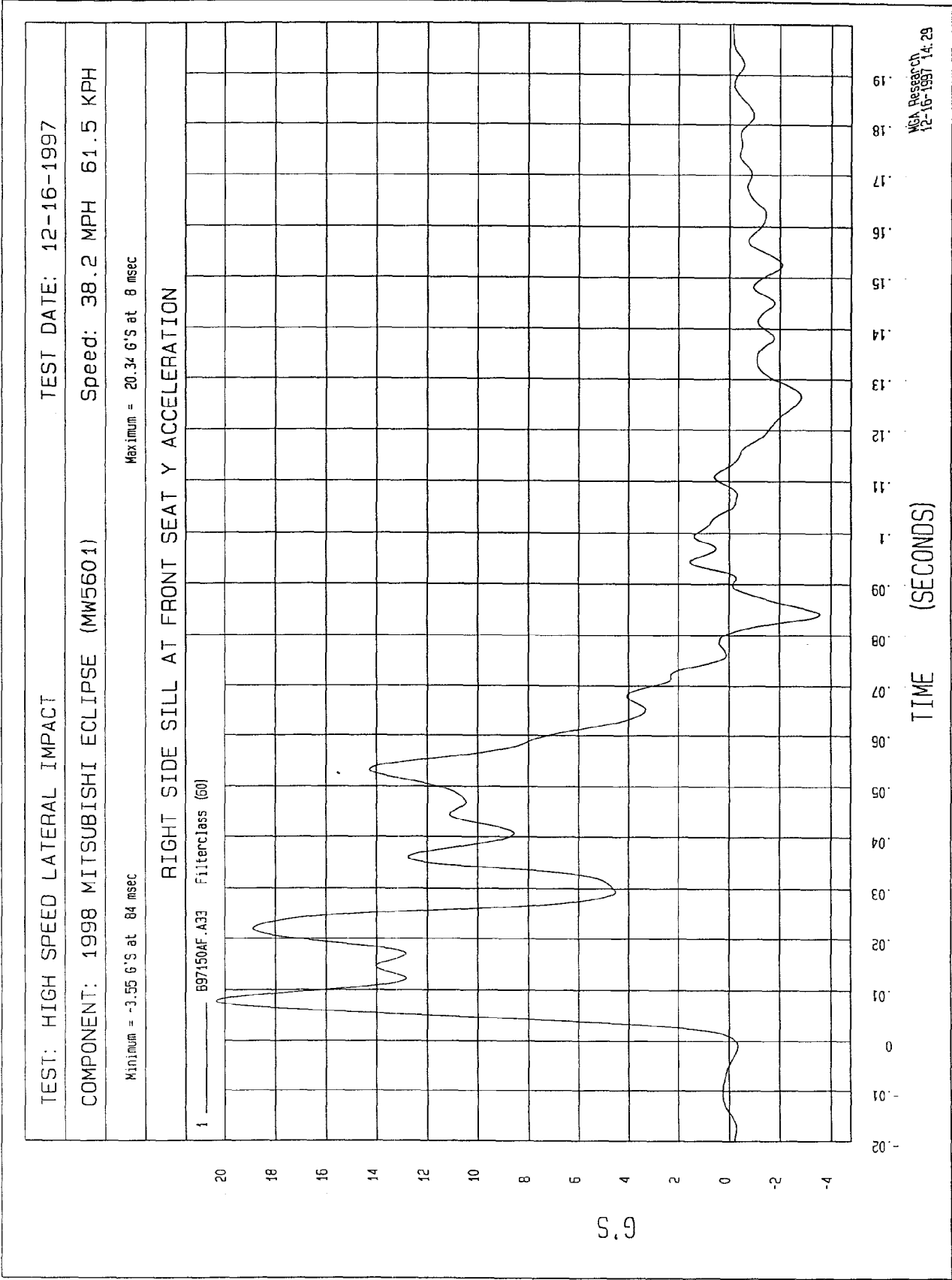
Minimum = -.12 KPH at 2 msec Maximum = 30.14 KPH at 79 msec

LEFT SIDE SILL AT REAR SEAT Y VELOCITY







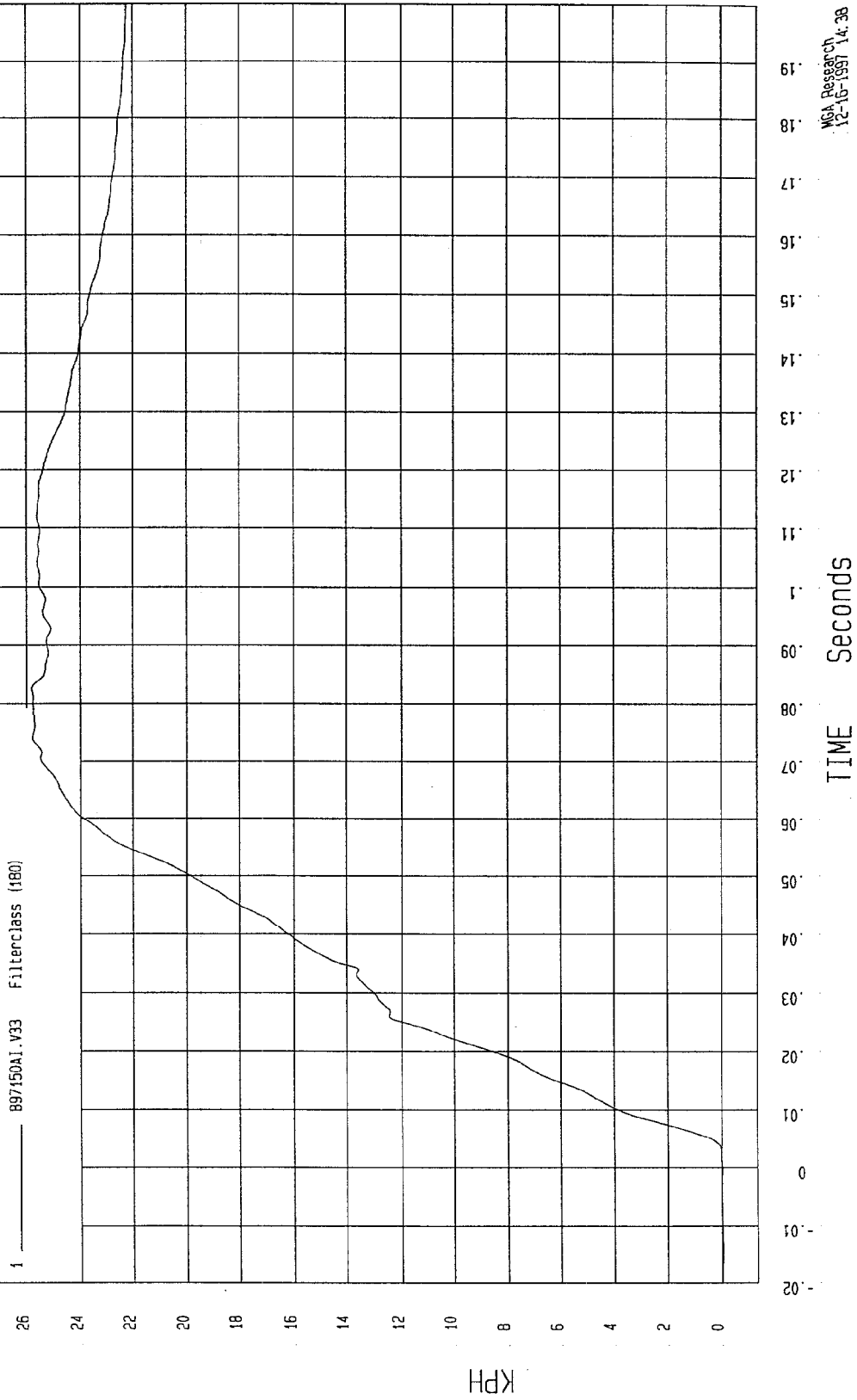


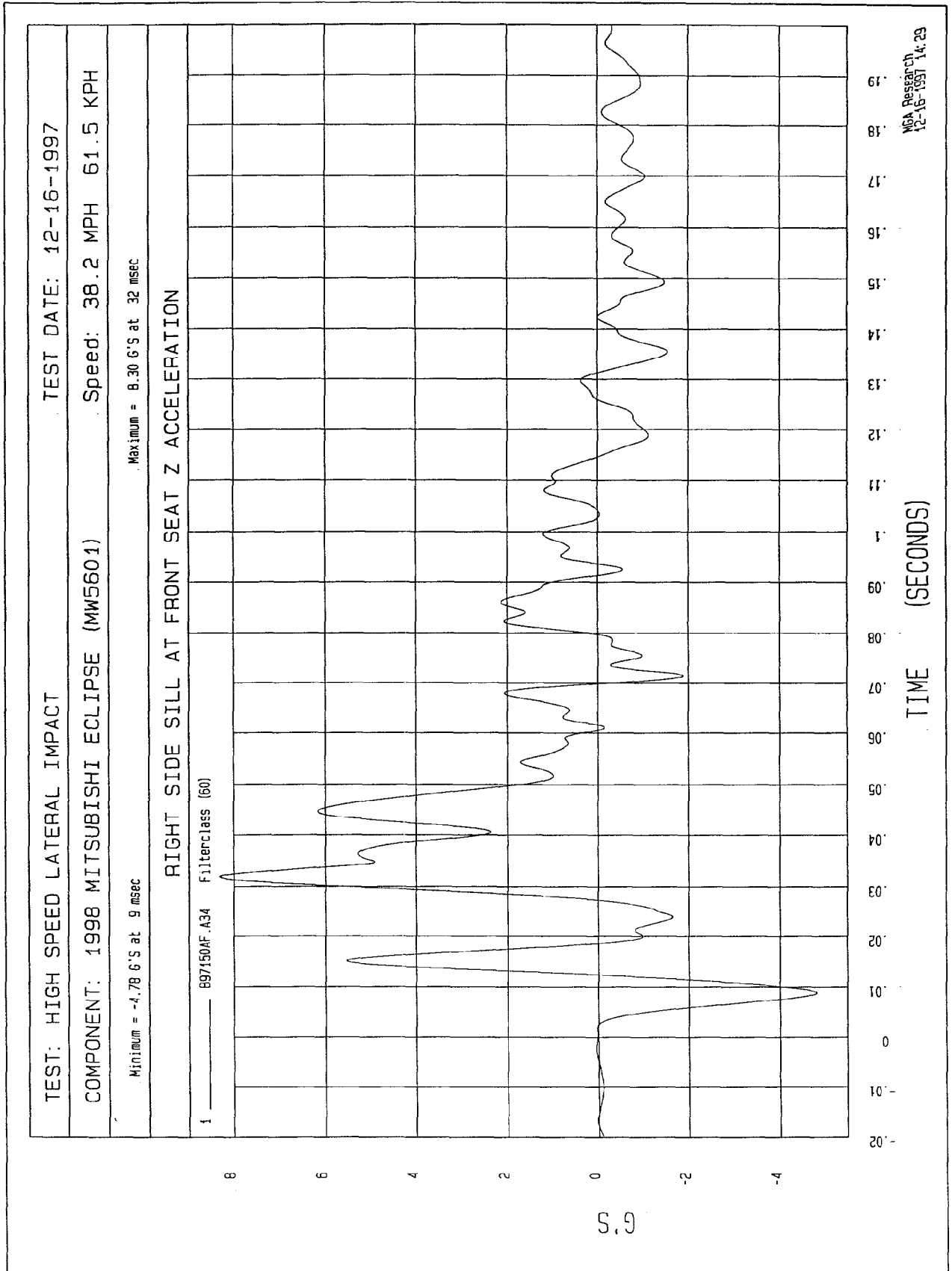
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

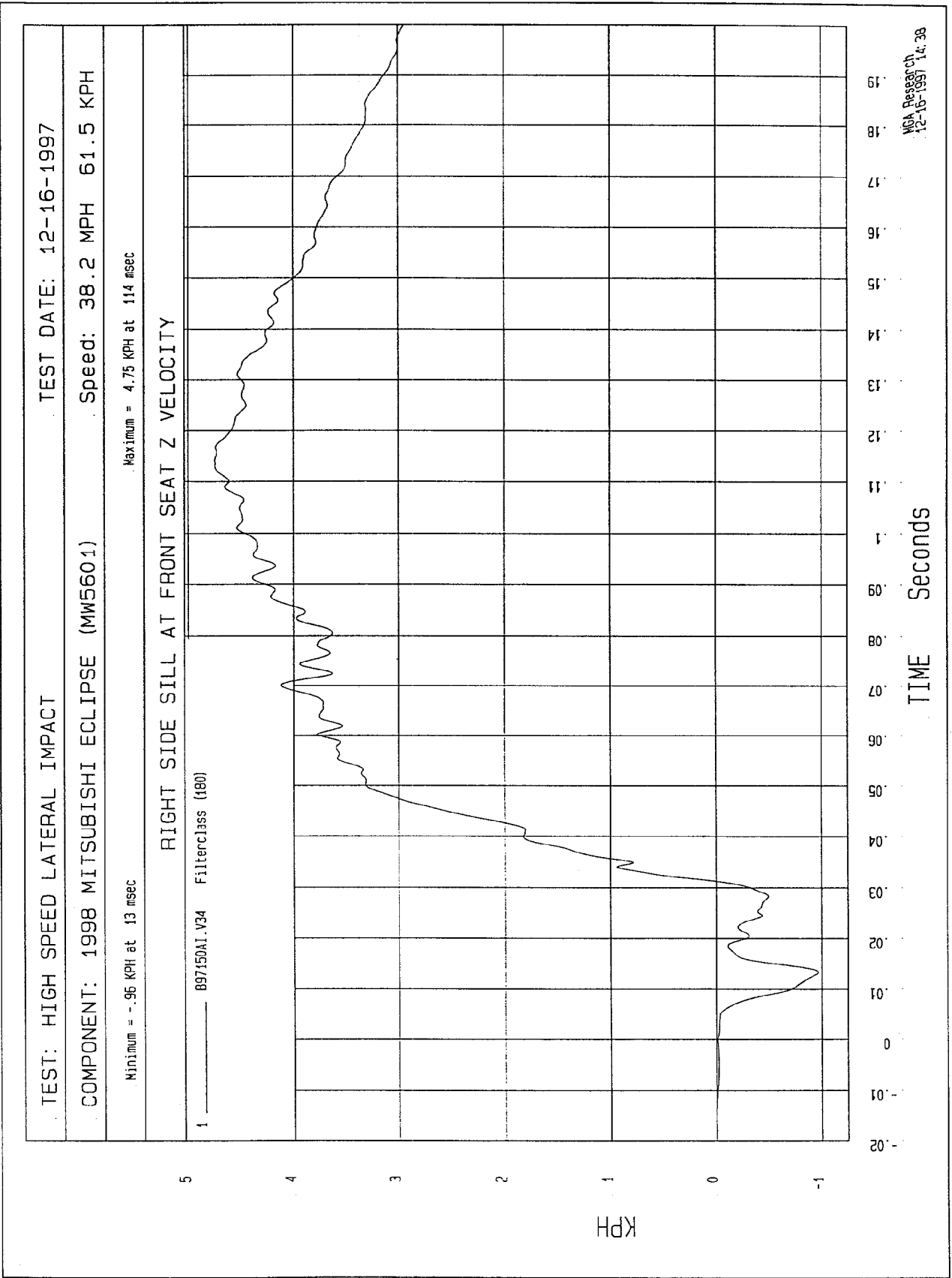
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

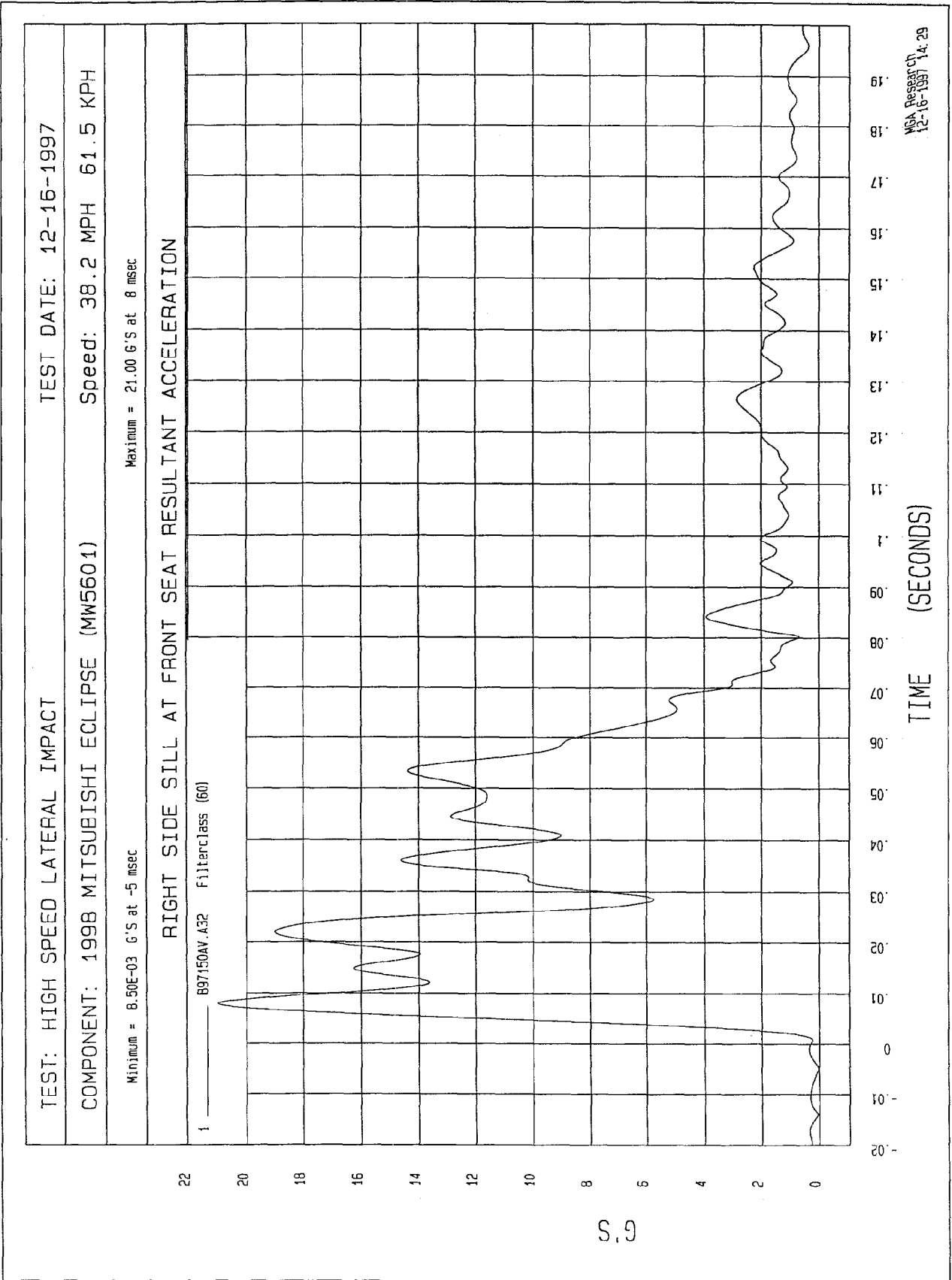
Minimum = -.04 KPH at -14 msec Maximum = 25.80 KPH at 83 msec

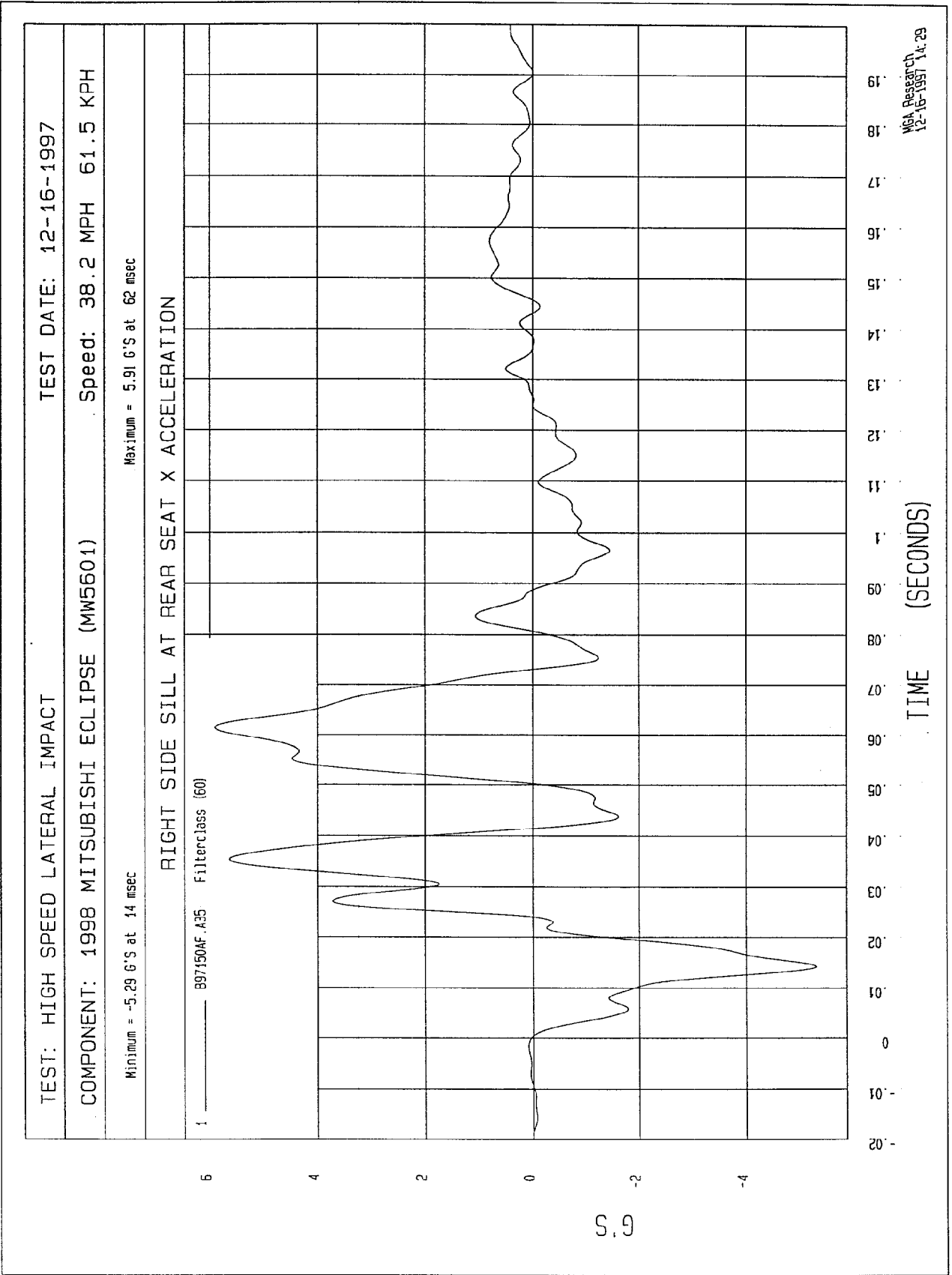
RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY

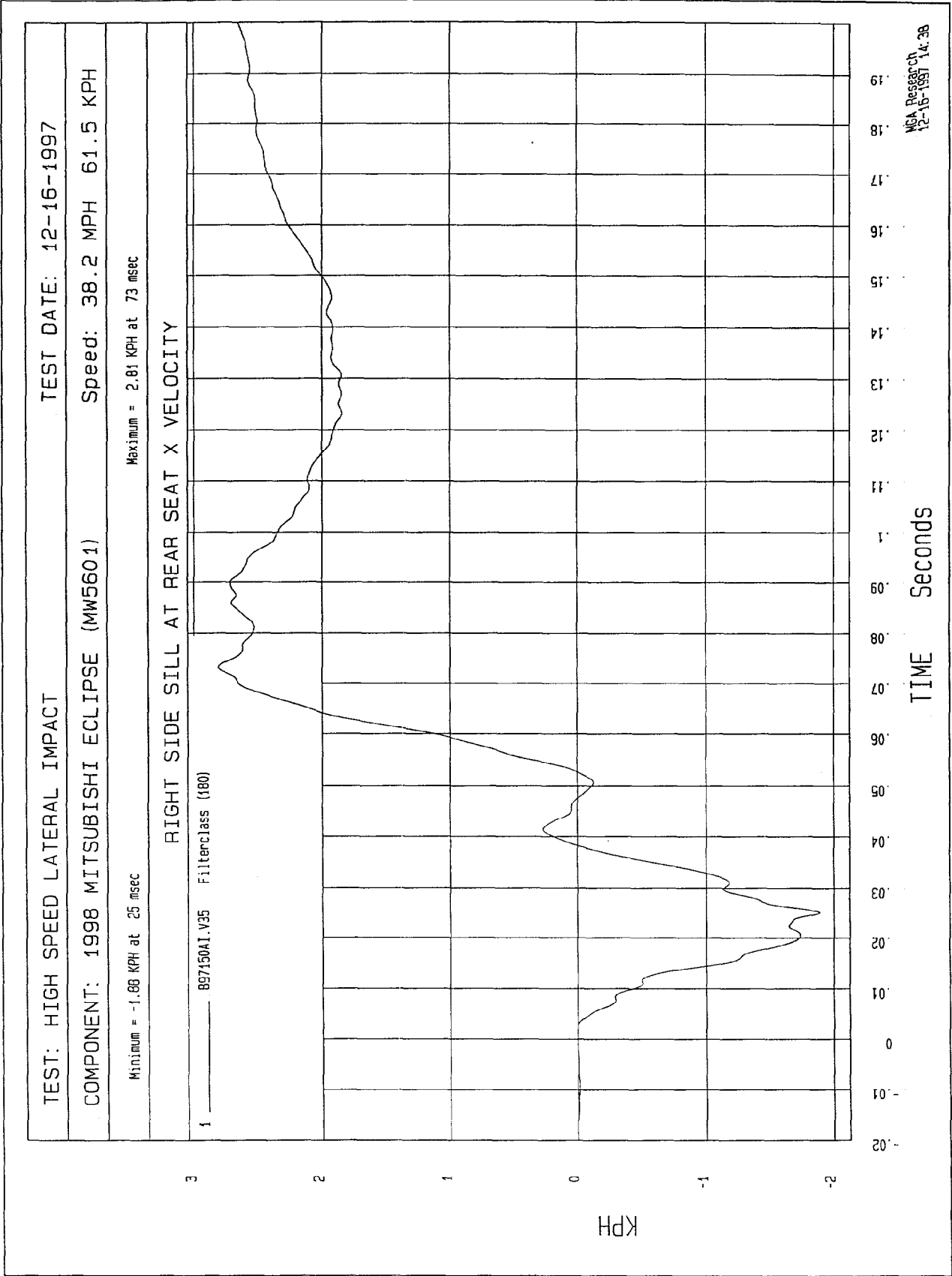


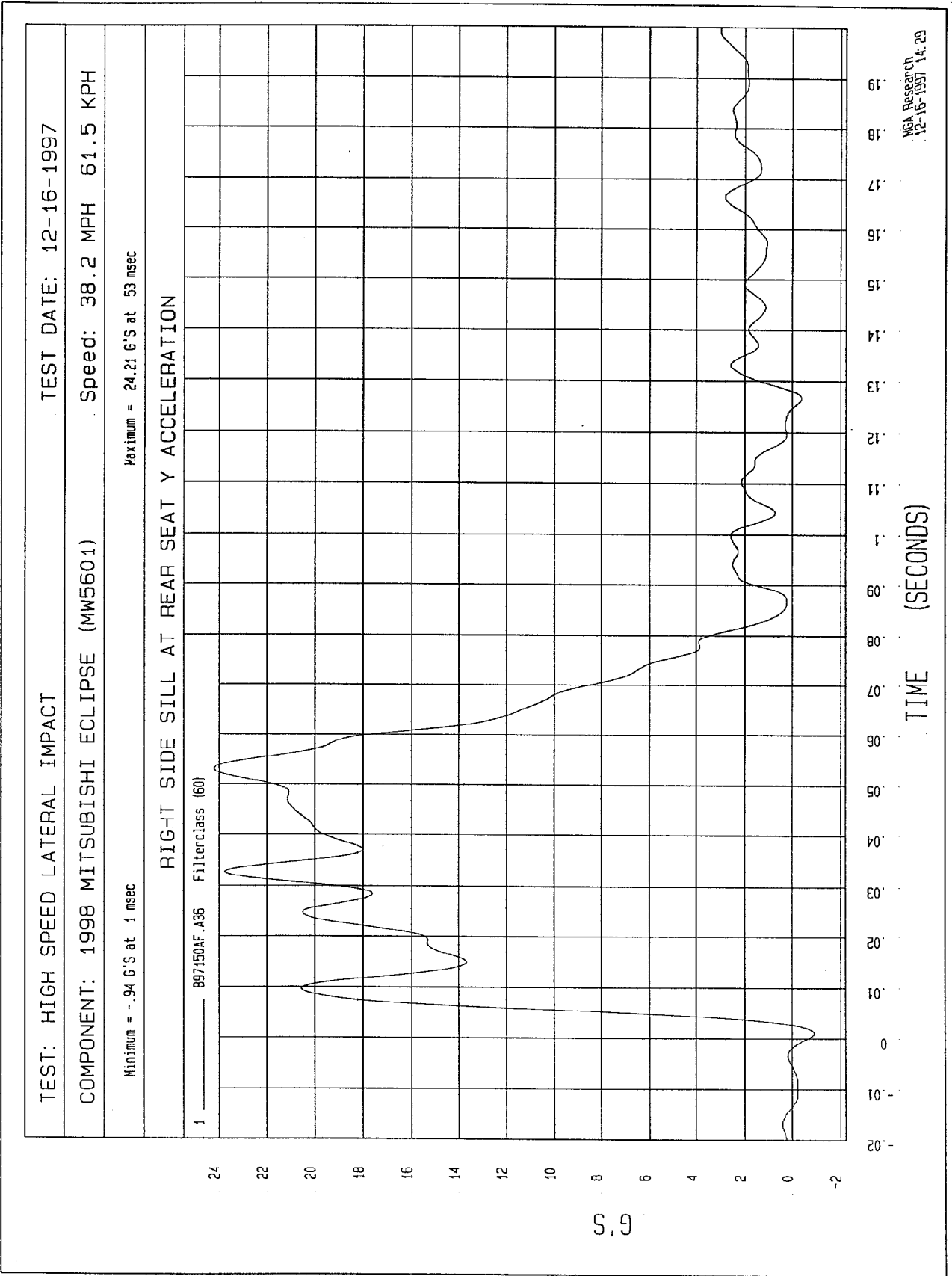


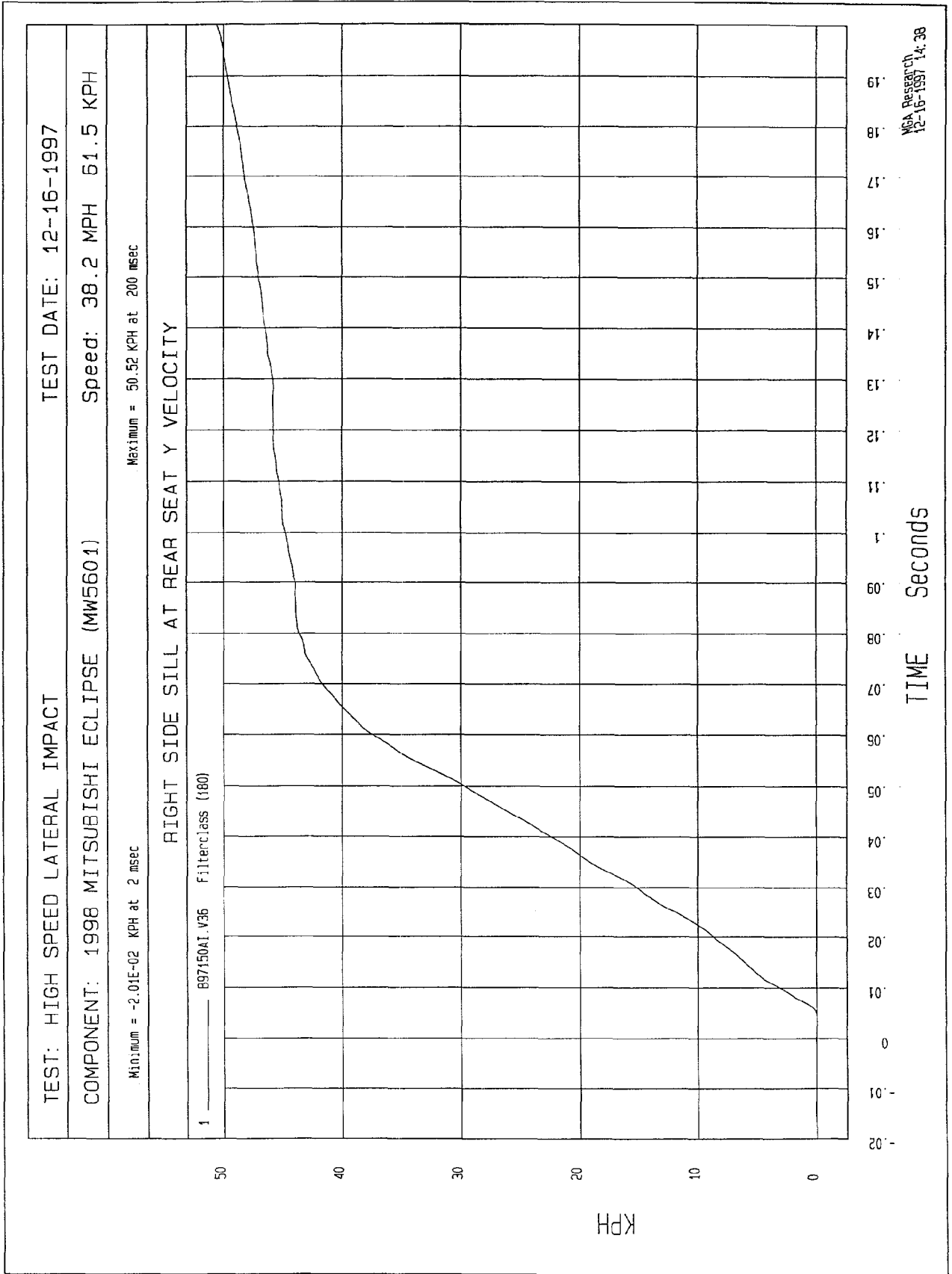


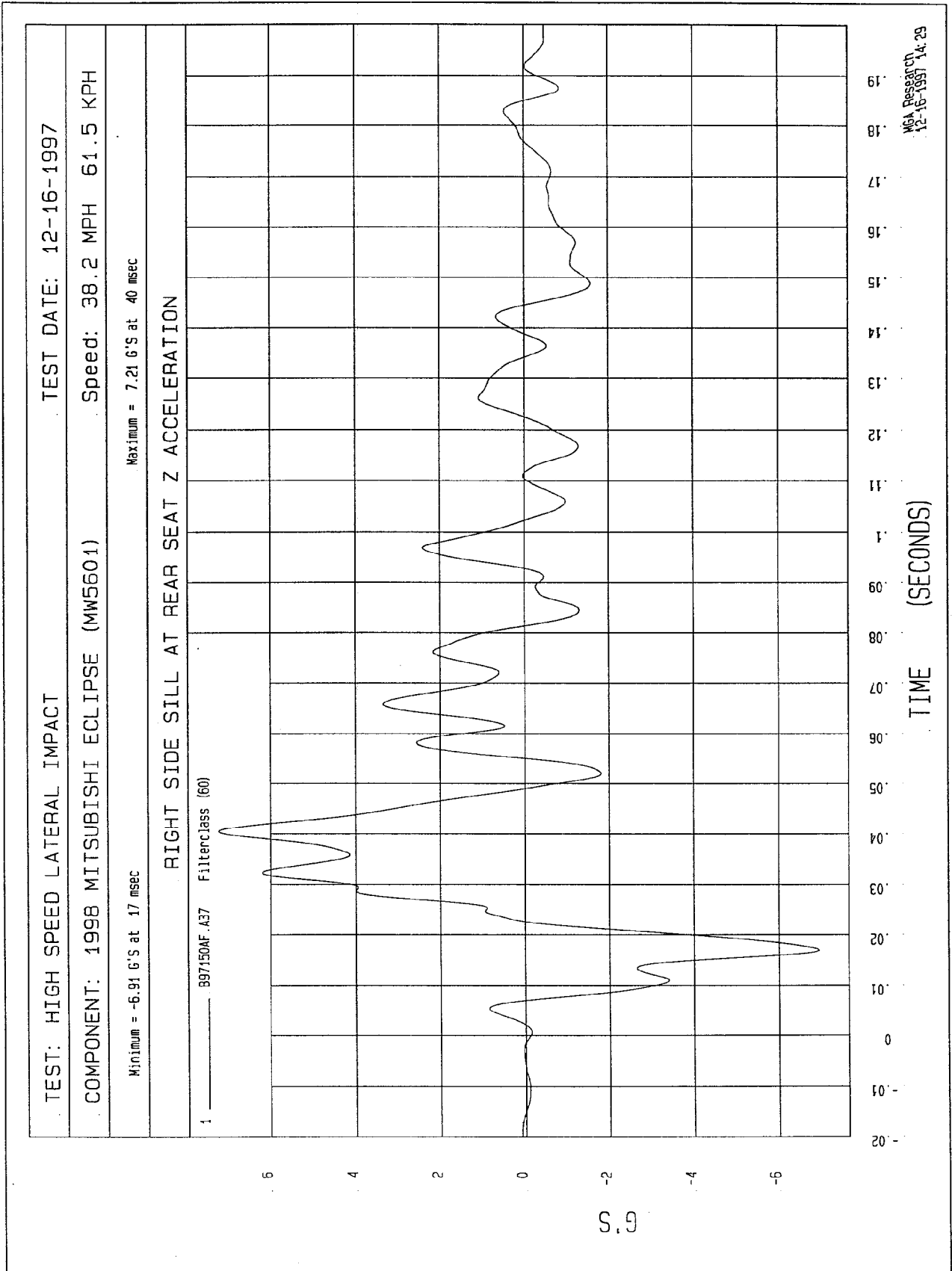


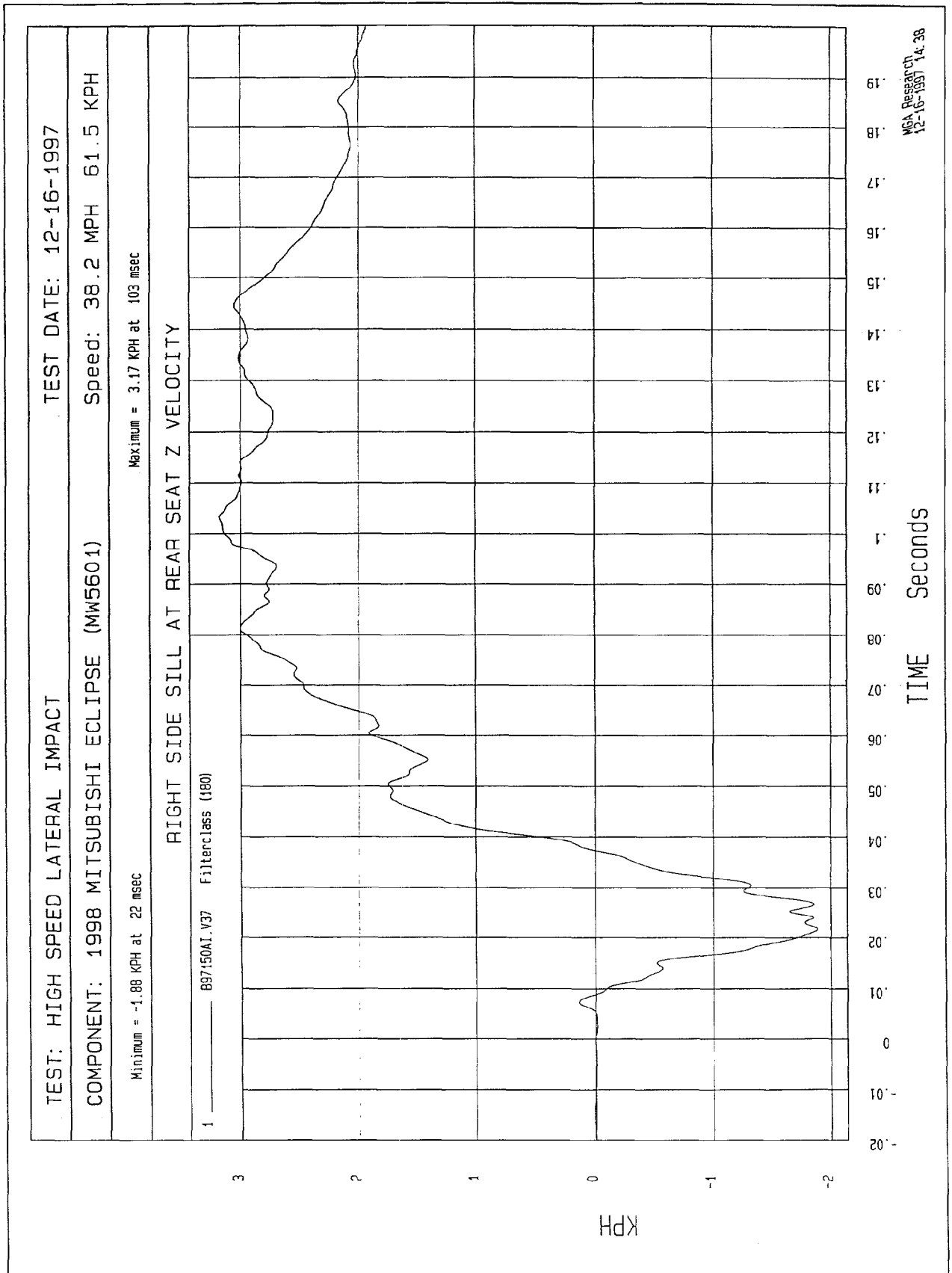


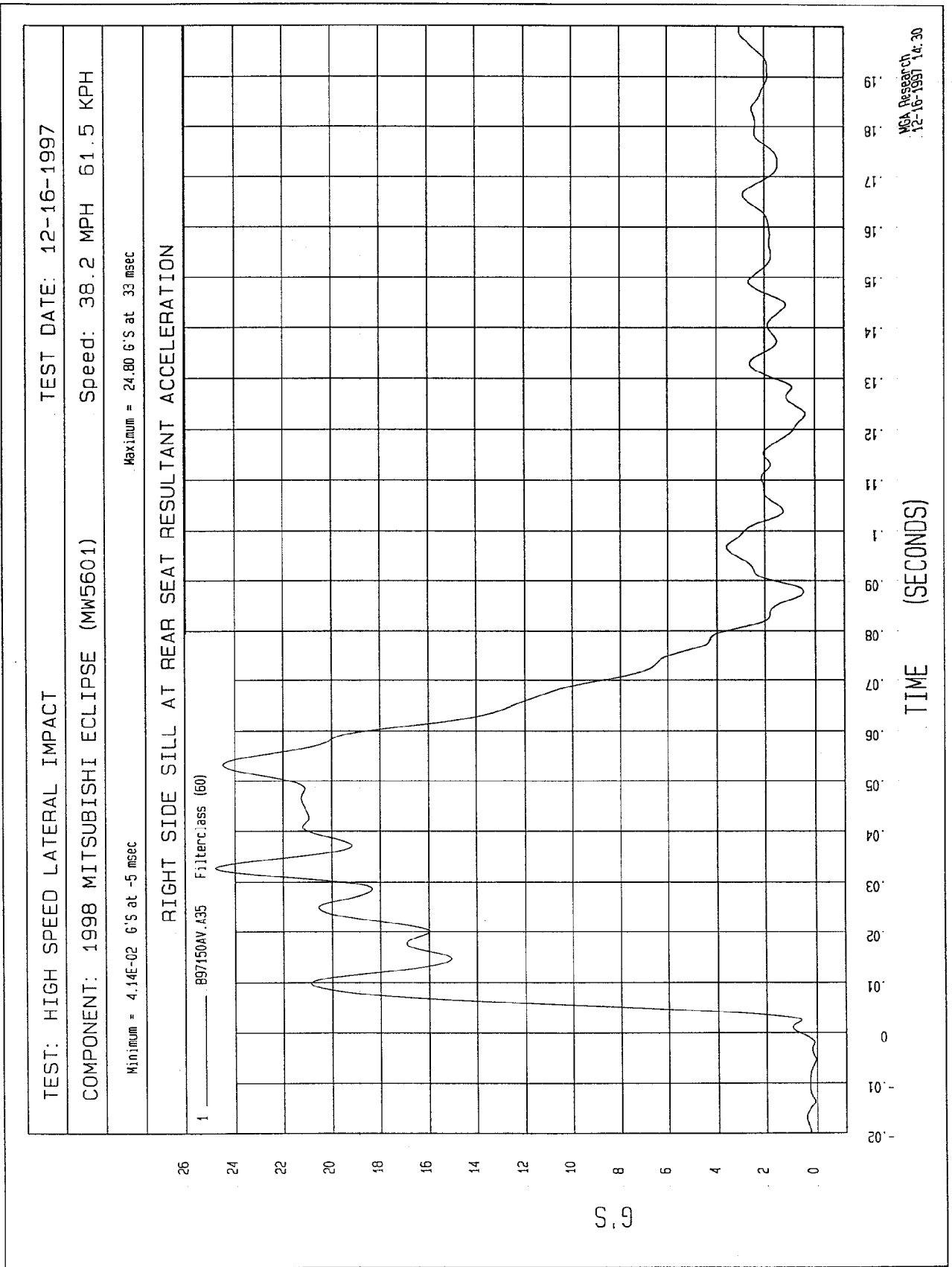






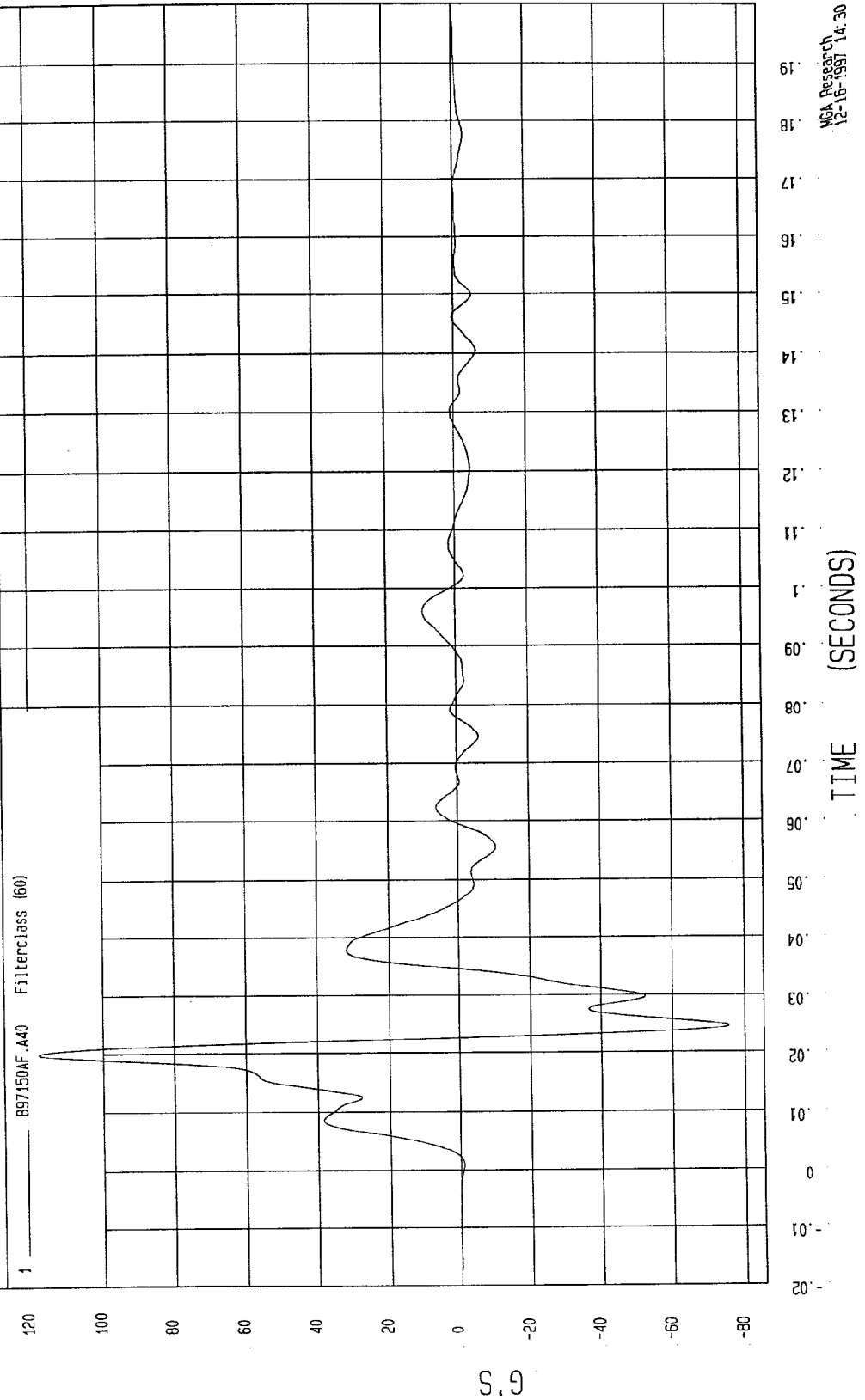






TEST: HIGH SPEED LATERAL IMPACT	TEST DATE: 12-16-1997
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601)	Speed: 38.2 MPH 61.5 KPH
Minimum = -75.54 G'S at 25 msec	
Maximum = 117.77 G'S at 20 msec	

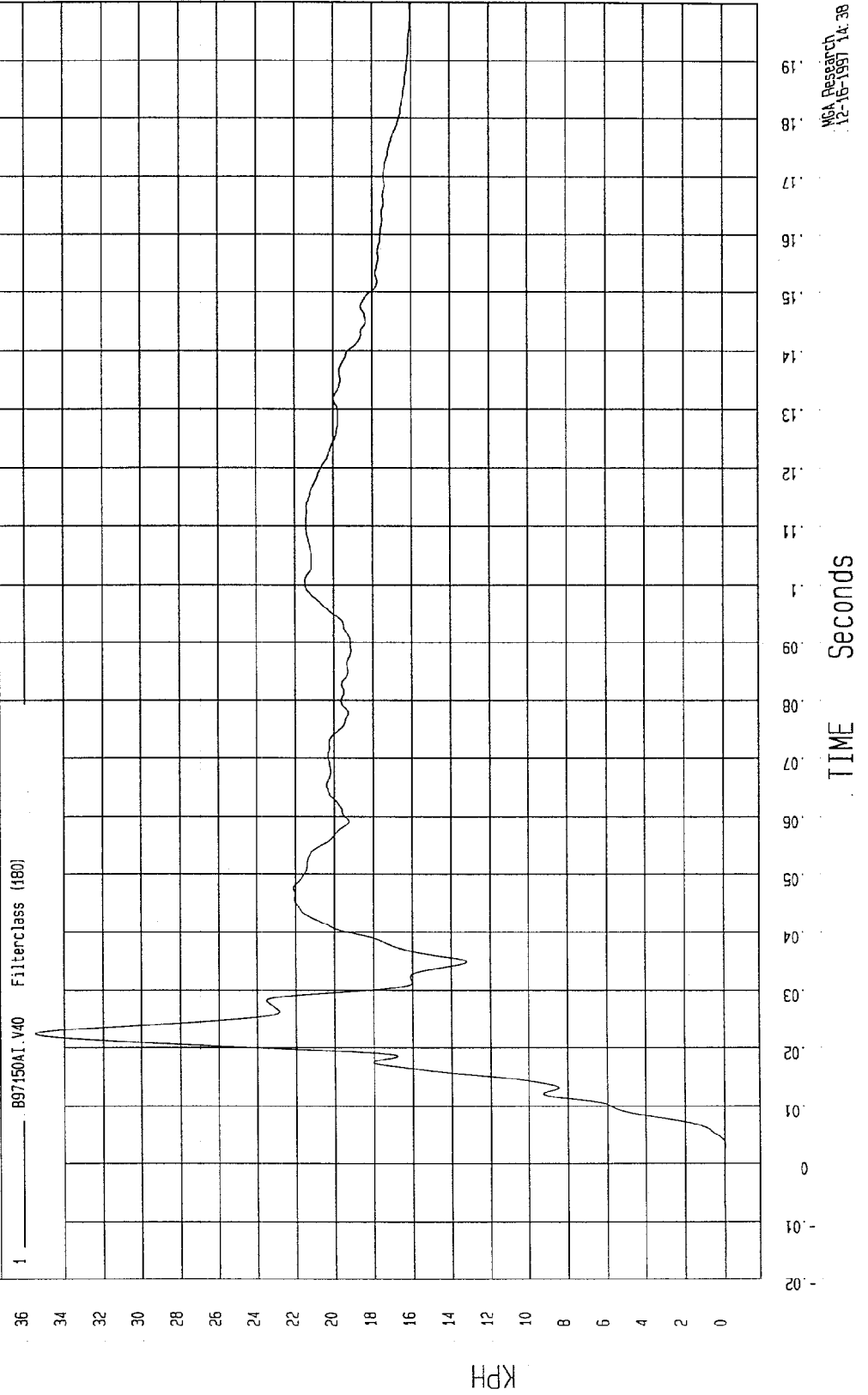
DRIVER SEAT TRACK Y ACCELERATION



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.18E-02 KPH at 3 msec Maximum = 35.50 KPH at 22 msec

DRIVER SEAT TRACK Y VELOCITY

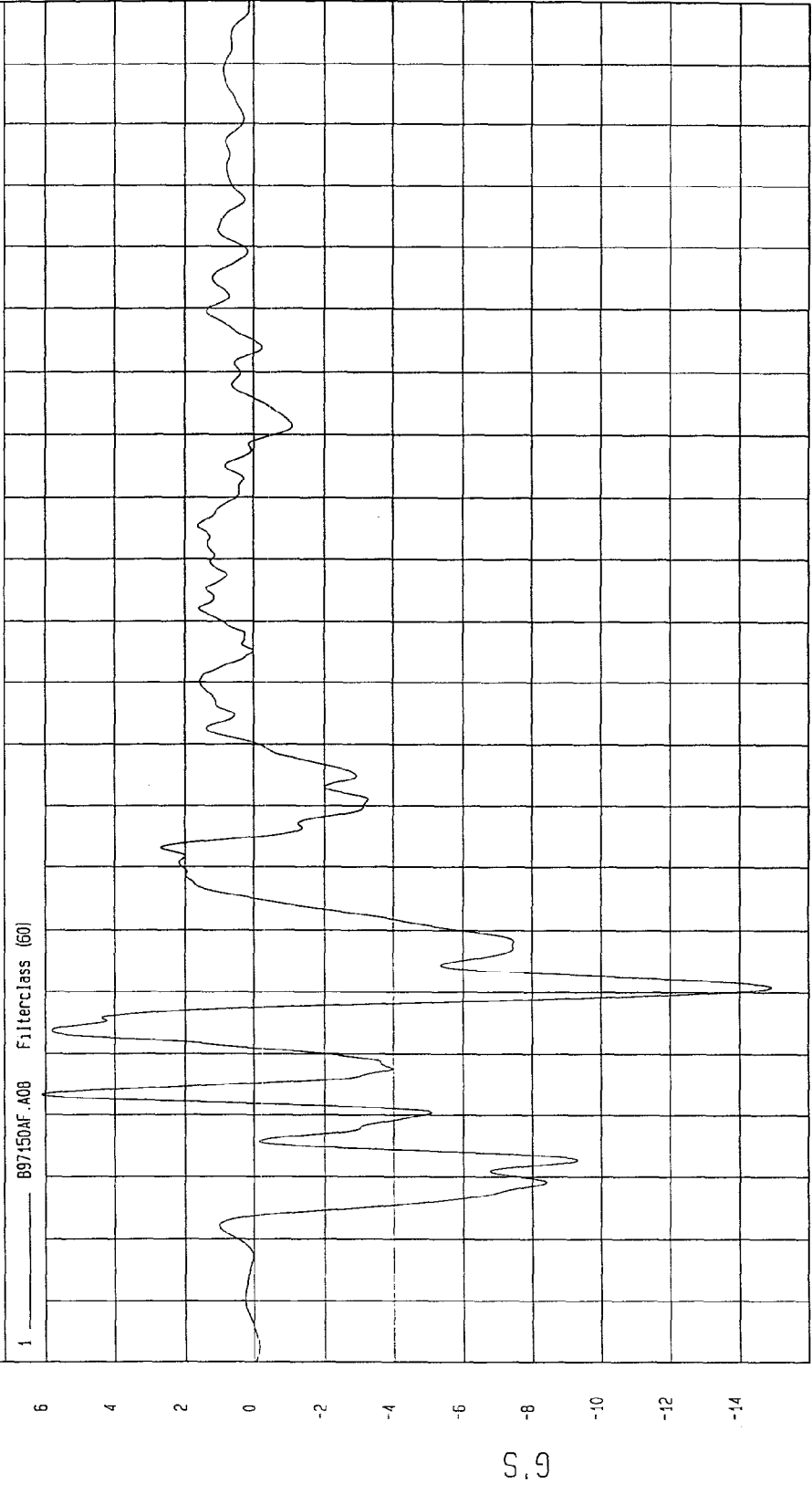


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -14.89 G'S at 41 msec Maximum = 6.11 G'S at 23 msec

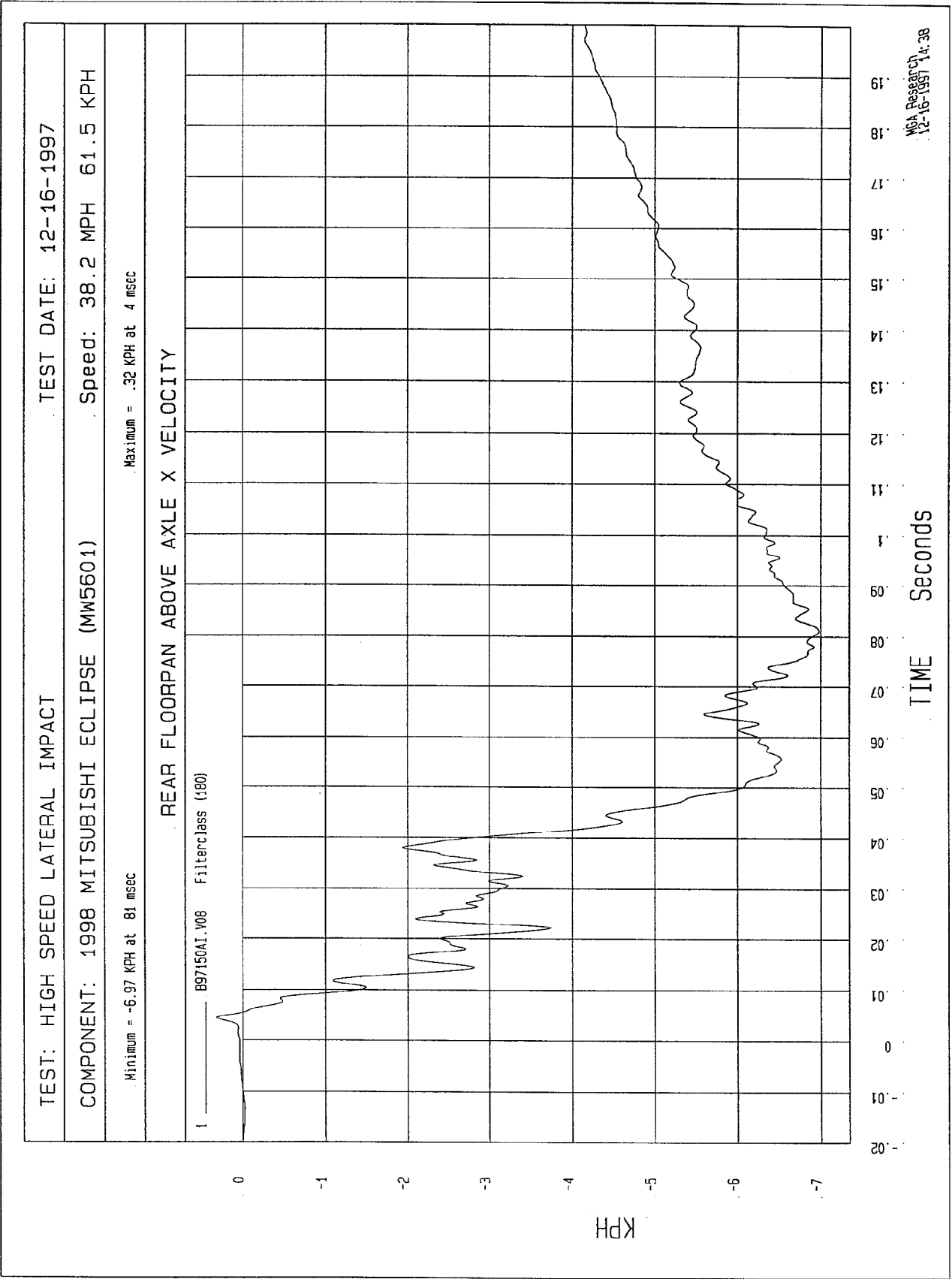
REAR FLOORPAN ABOVE AXLE X ACCELERATION

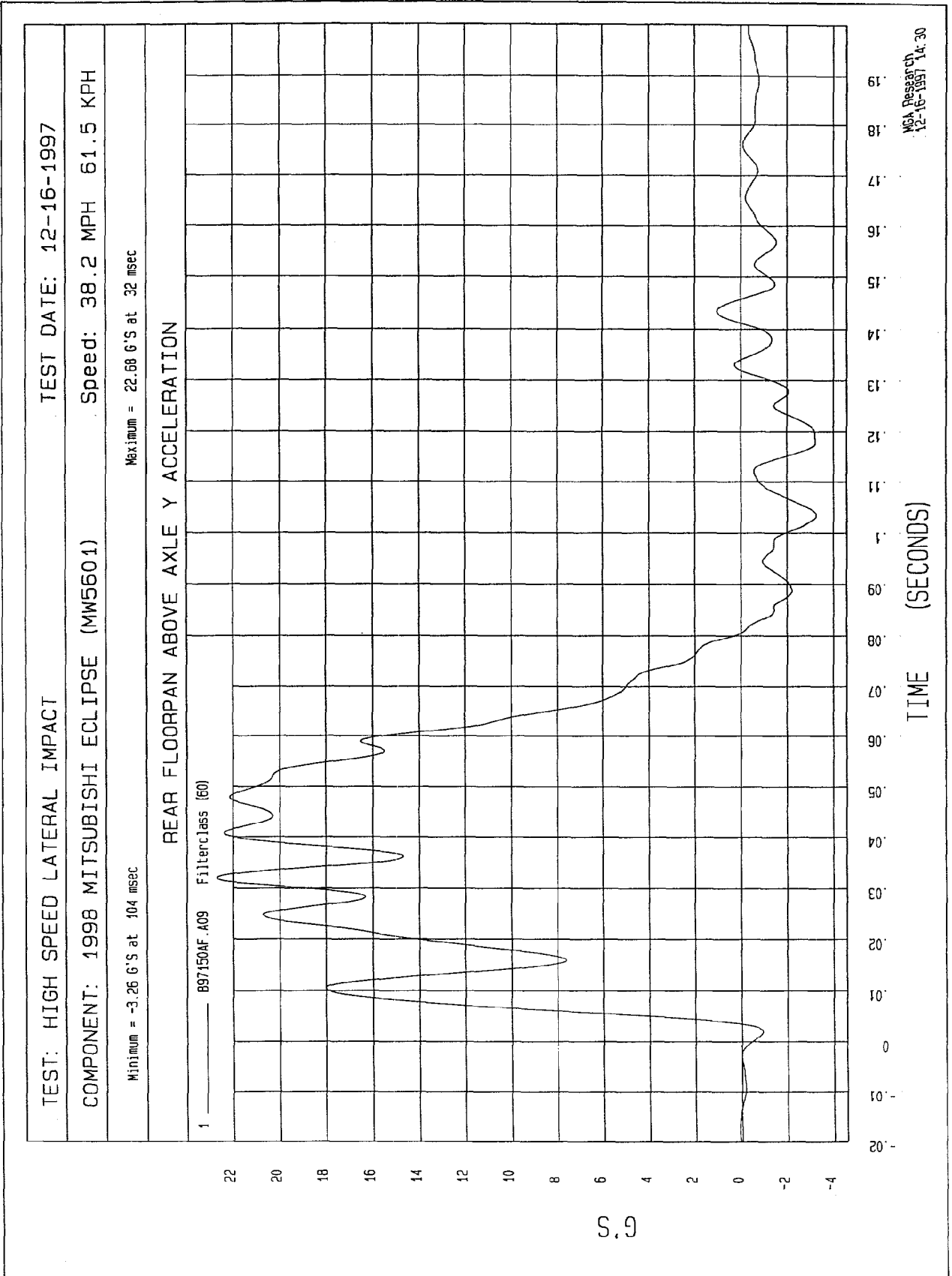


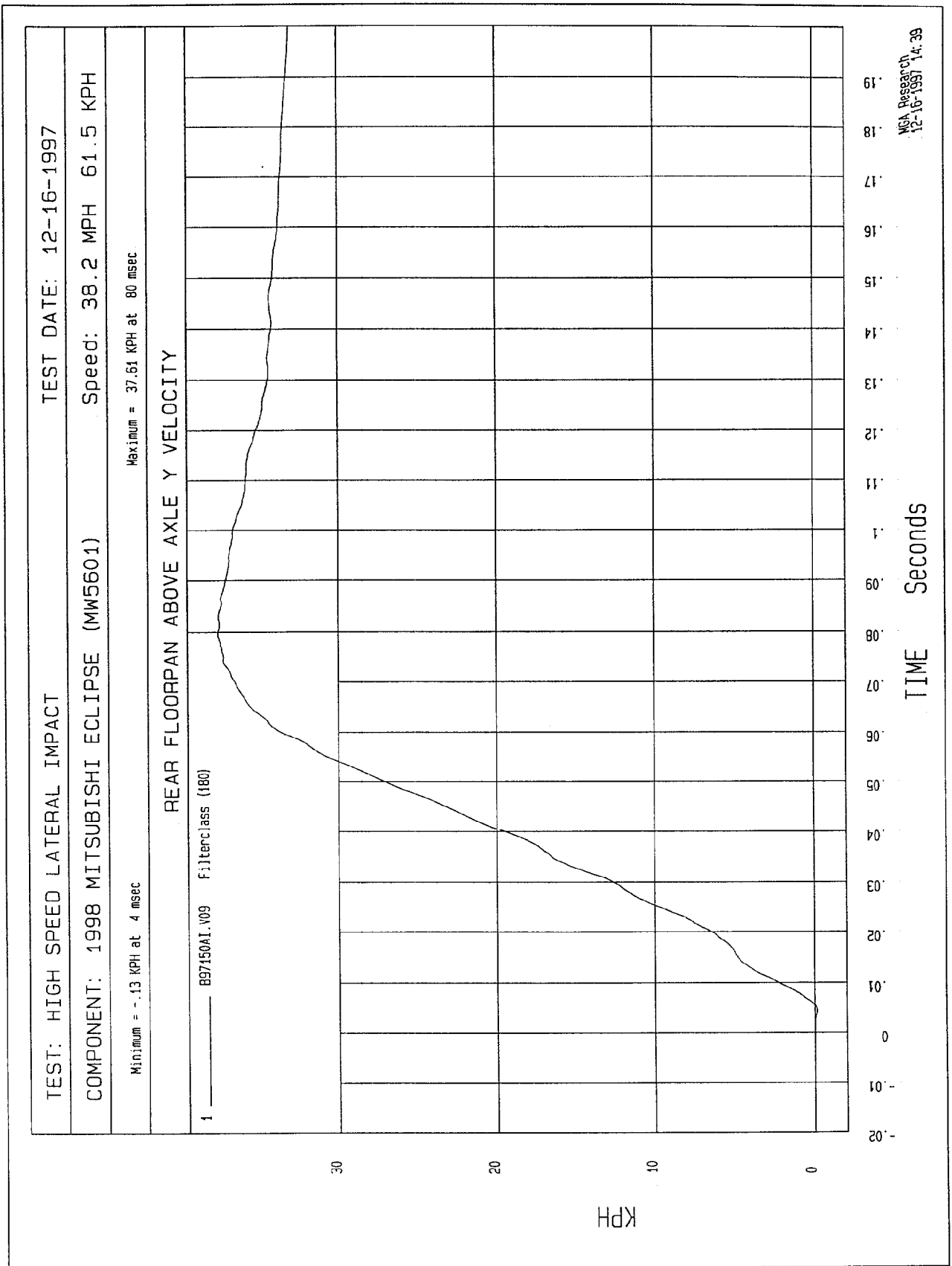
TIME (SECONDS)

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

MOA Report
12-16-1997 14:30

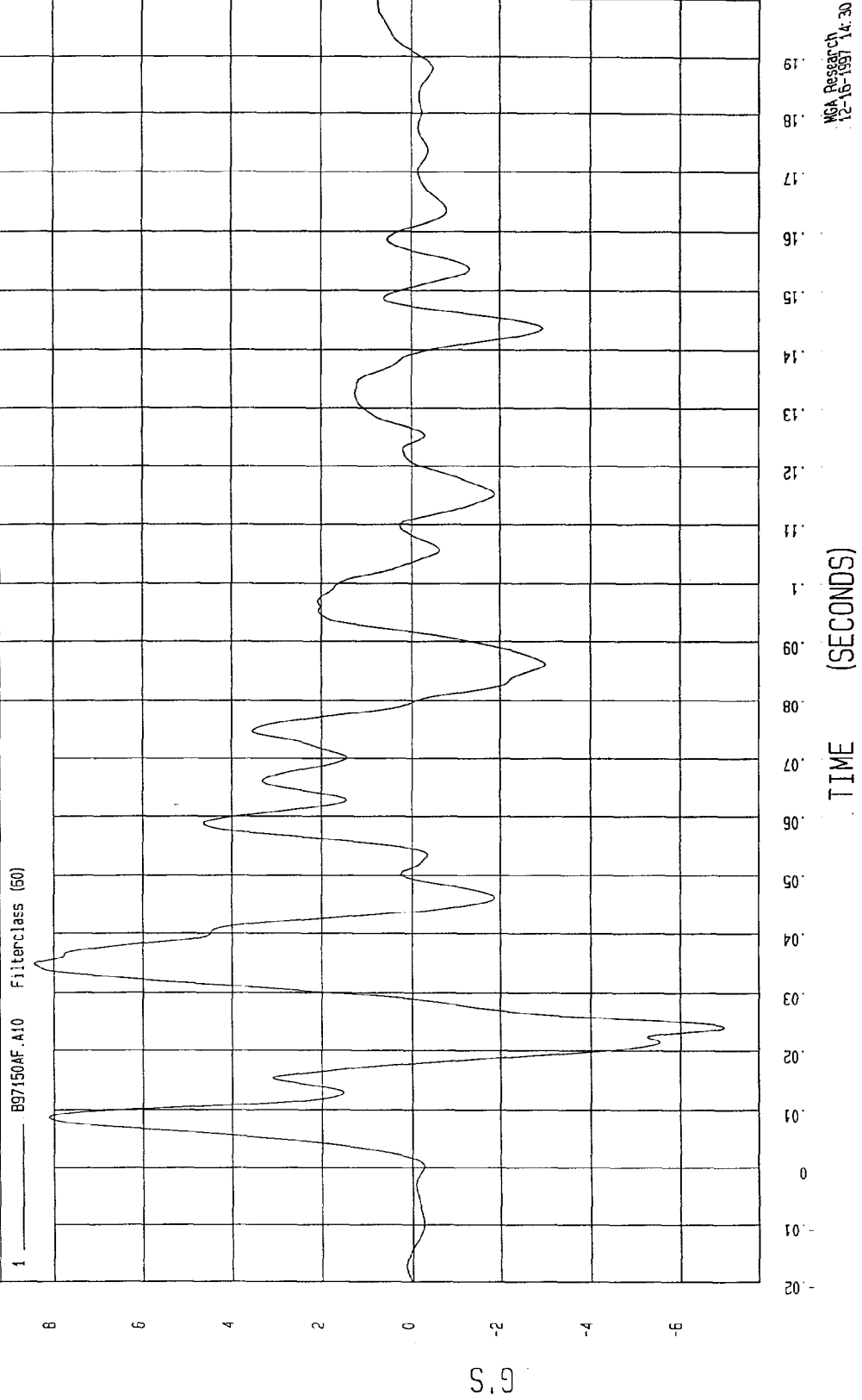






TEST: HIGH SPEED LATERAL IMPACT	TEST DATE: 12-16-1997
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601)	Speed: 38.2 MPH 61.5 KPH
Minimum = -6.96 G'S at 24 msec	
Maximum = 8.42 G'S at 35 msec	

REAR FLOORPAN ABOVE AXLE Z ACCELERATION

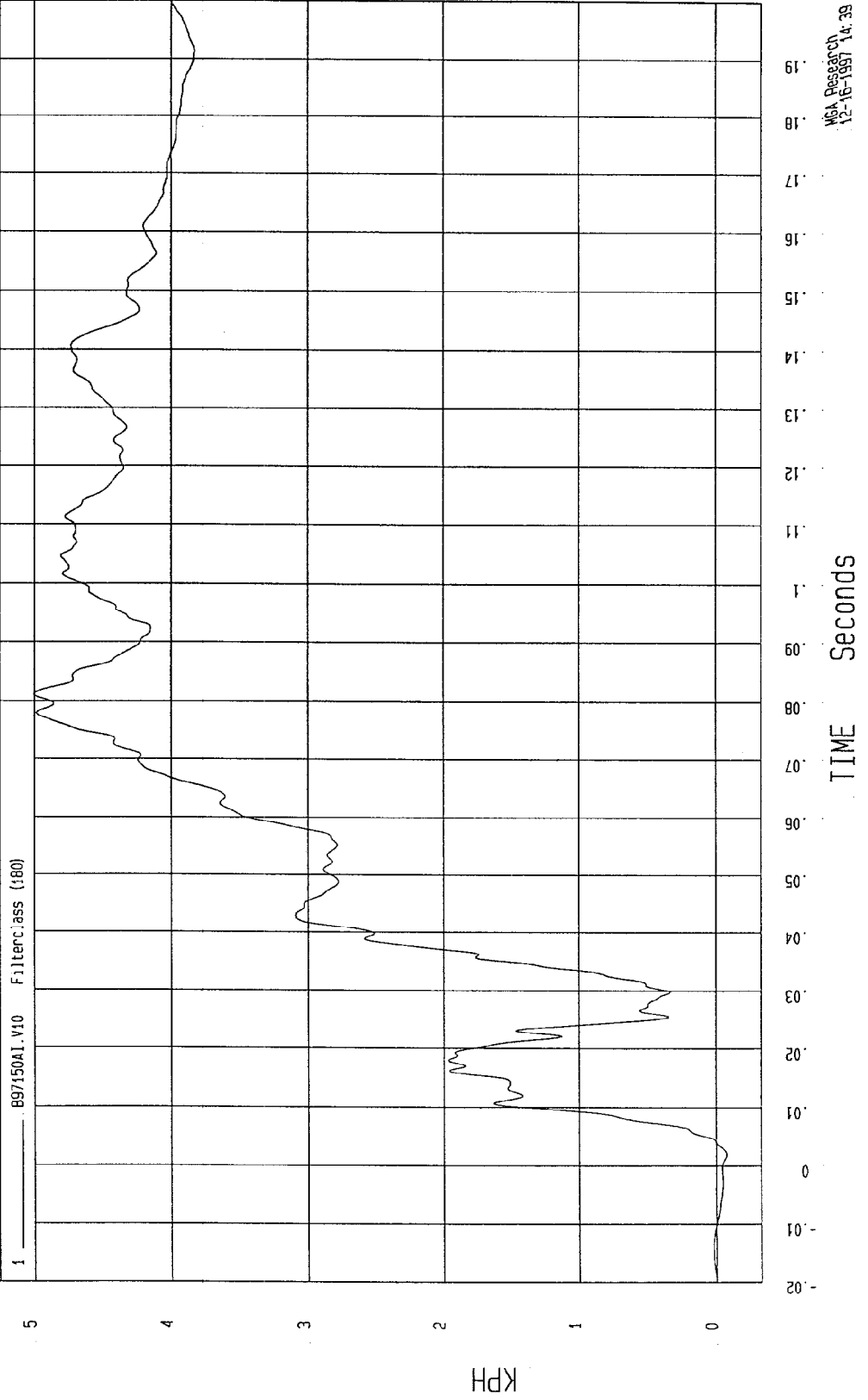


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

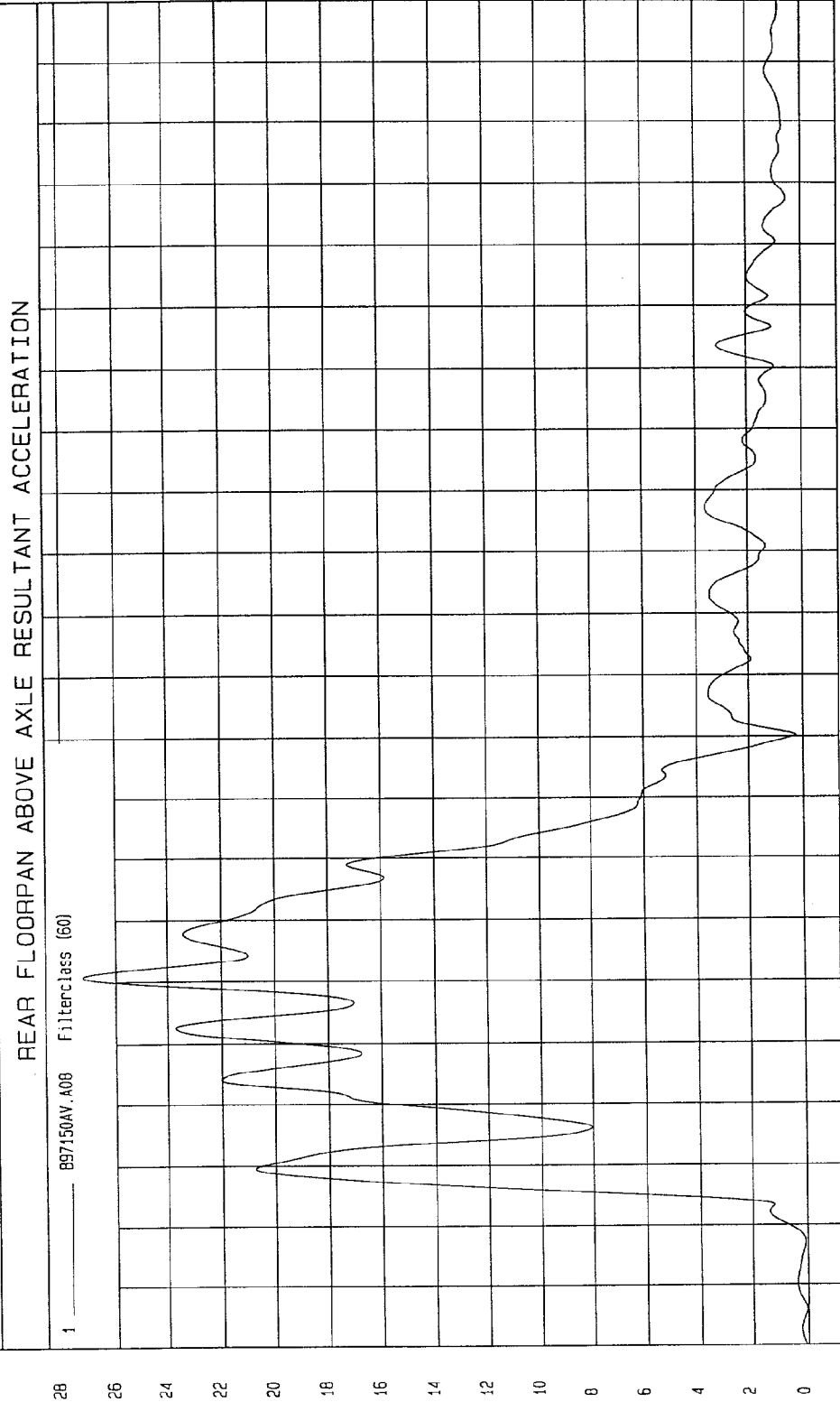
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -7.47E-02 KPH at 2 msec
Maximum = 5.00 KPH at 81 msec

REAR FLOORPAN ABOVE AXLE Z VELOCITY



TEST: HIGH SPEED LATERAL IMPACT	TEST DATE: 12-16-1997
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601)	Speed: 38.2 MPH 61.5 KPH
Minimum = 2.91E-02 G'S at -14 msec	
Maximum = 27.22 G'S at 41 msec	



TIME (SECONDS)

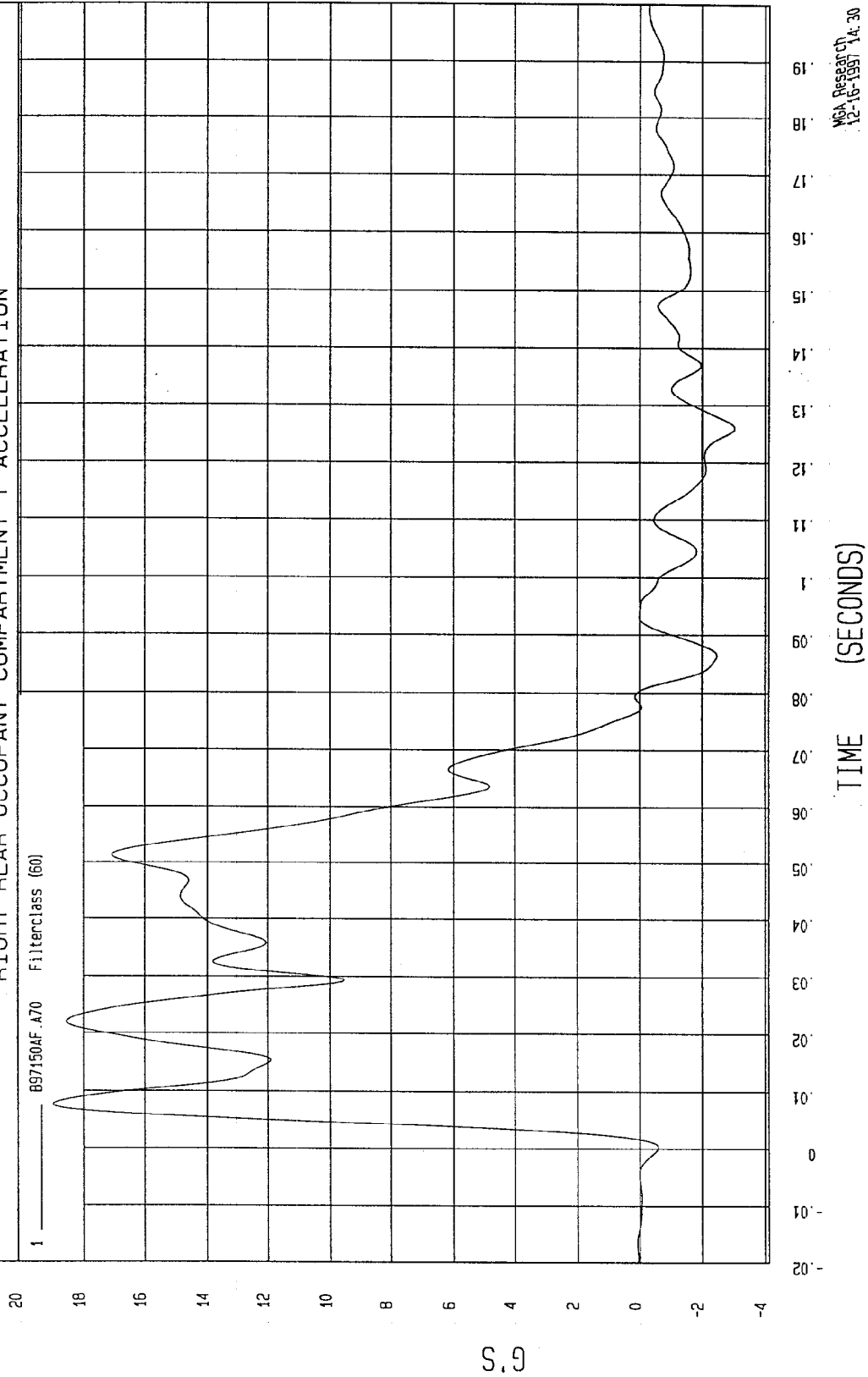
MECA Research
12-16-1997 14:30

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.02 G'S at 126 msec Maximum = 18.98 G'S at 8 msec

RIGHT REAR OCCUPANT COMPARTMENT Y ACCELERATION

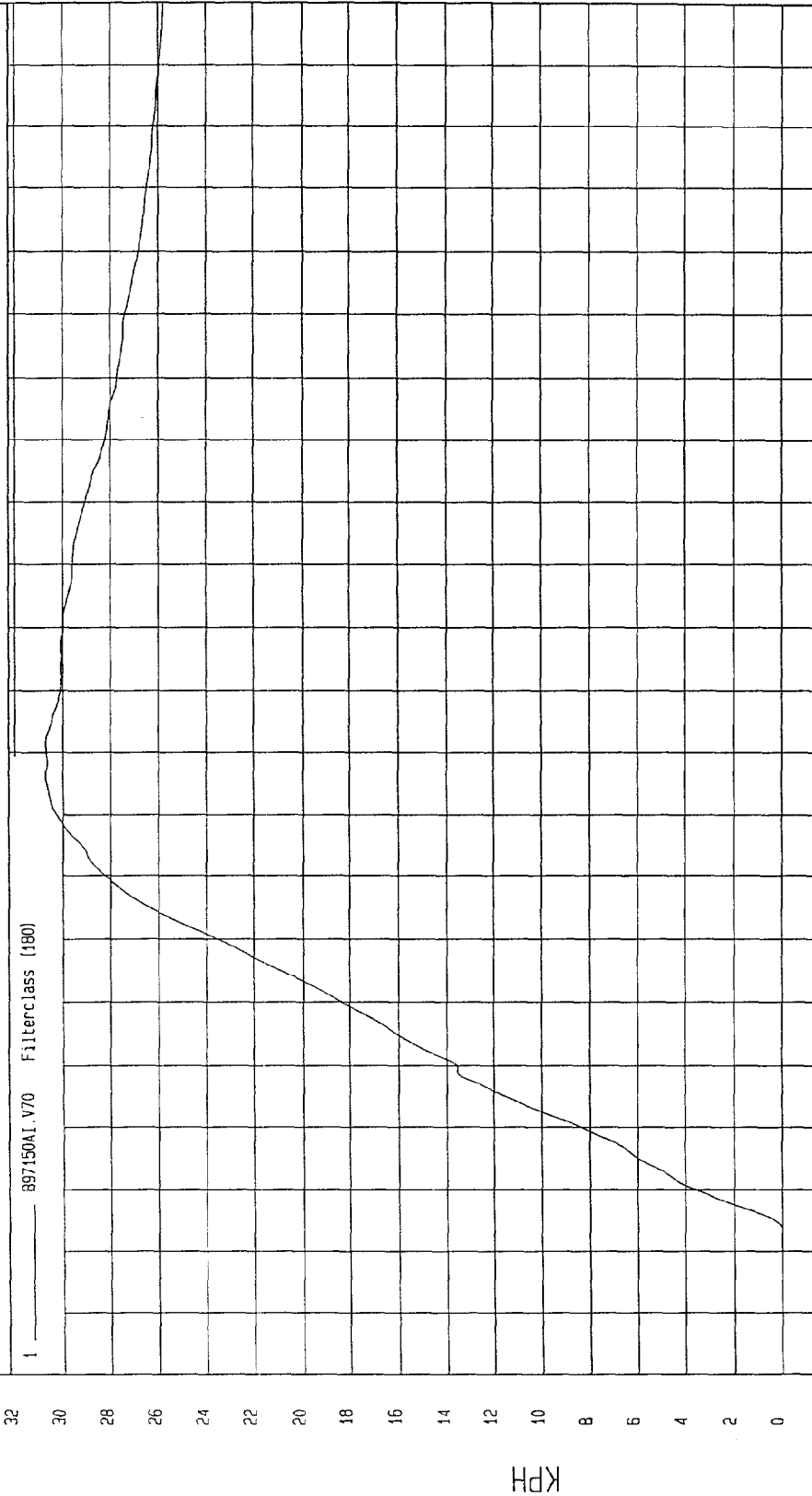


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -1.53E-02 KPH at 3 msec Maximum = 30.71 KPH at 76 msec

RIGHT REAR OCCUPANT COMPARTMENT Y VELOCITY



TIME Seconds

MSA Research
12-16-1997 14:39

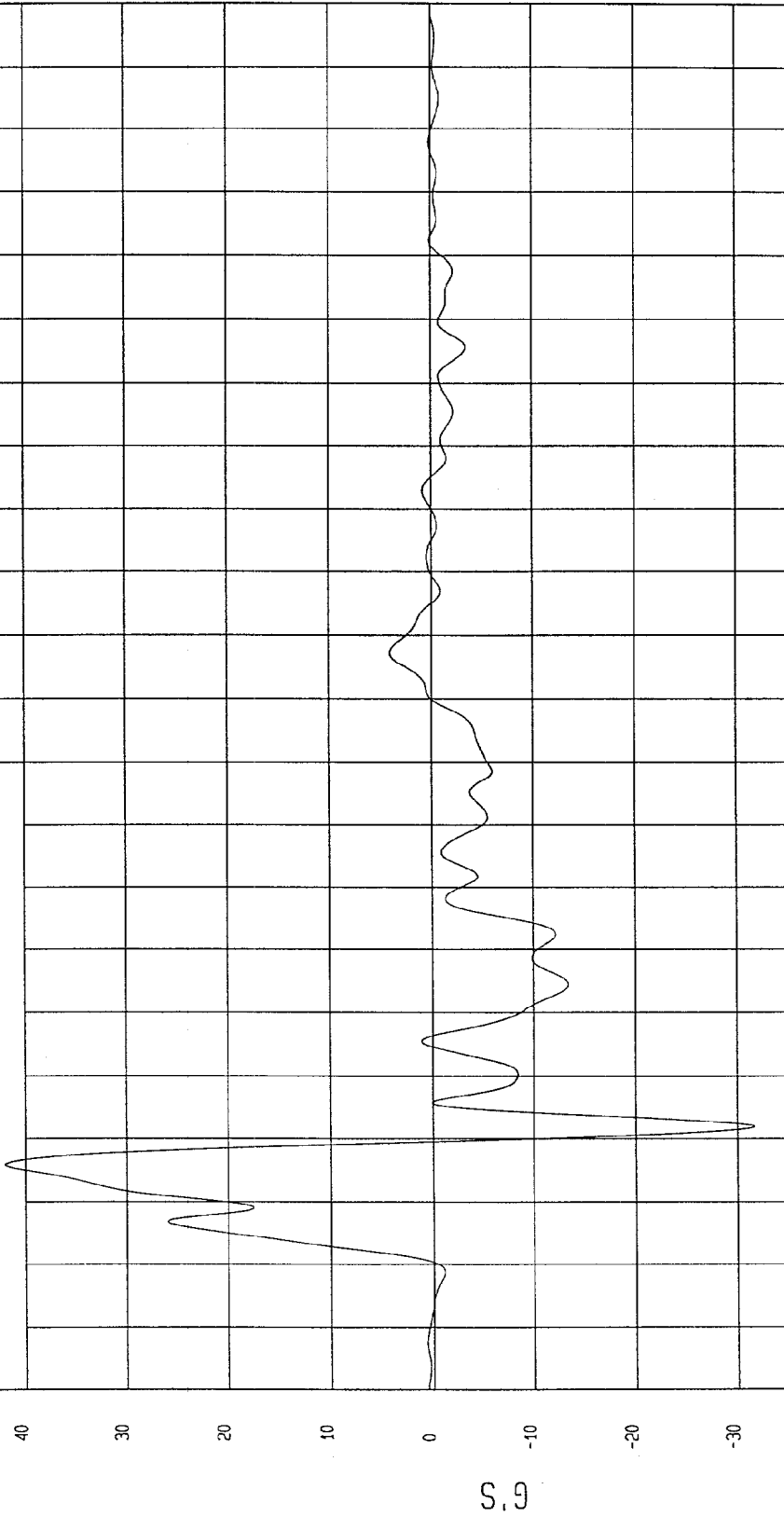
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -31.63 G'S at 22 msec Maximum = 41.98 G'S at 16 msec

LEFT LOWER A-POST Y ACCELERATION

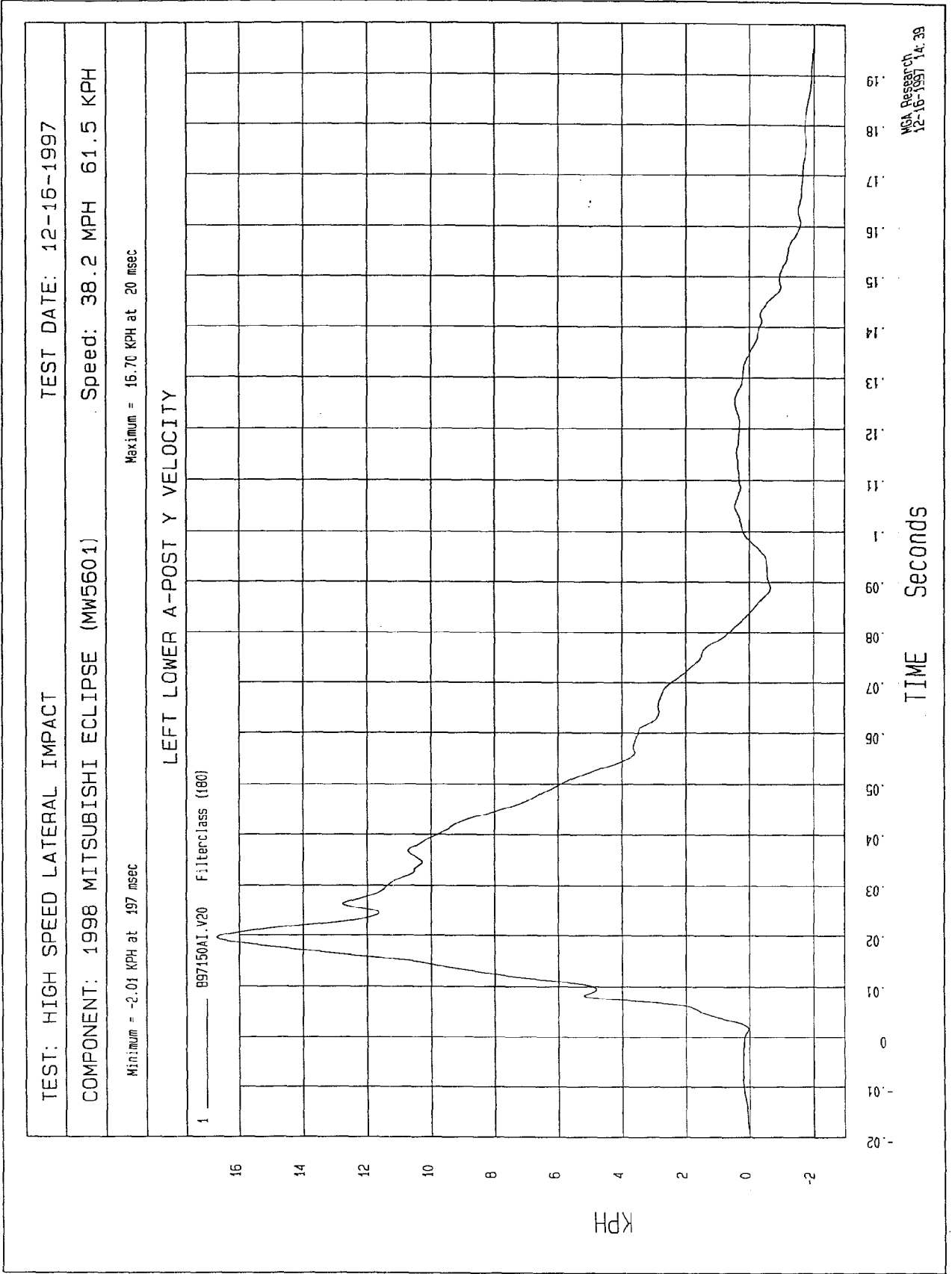
1 ——— B97150AF.A20 Filterclass (60)



TIME (SECONDS)

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

NSA Research
12-16-1997 14:30

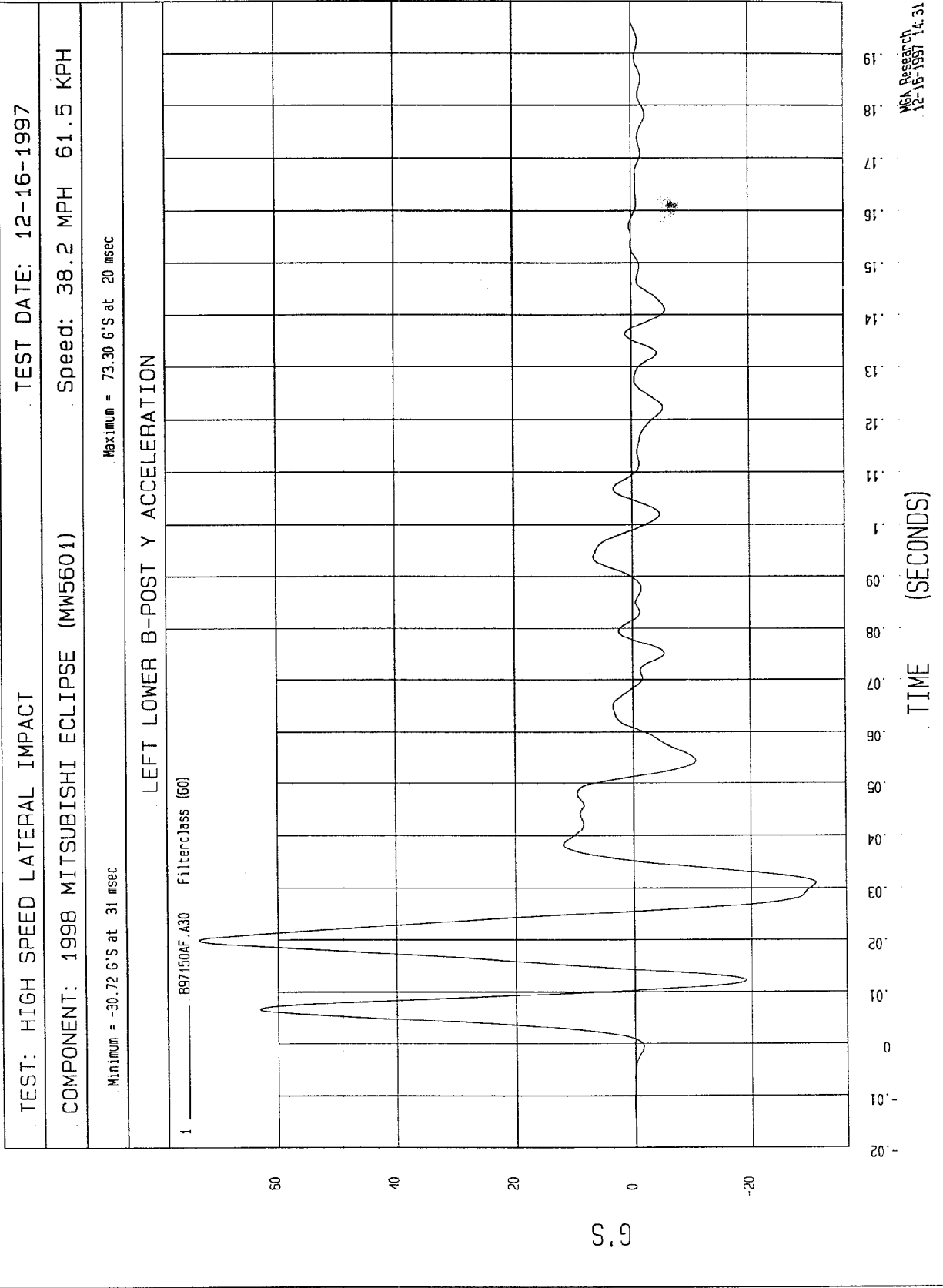


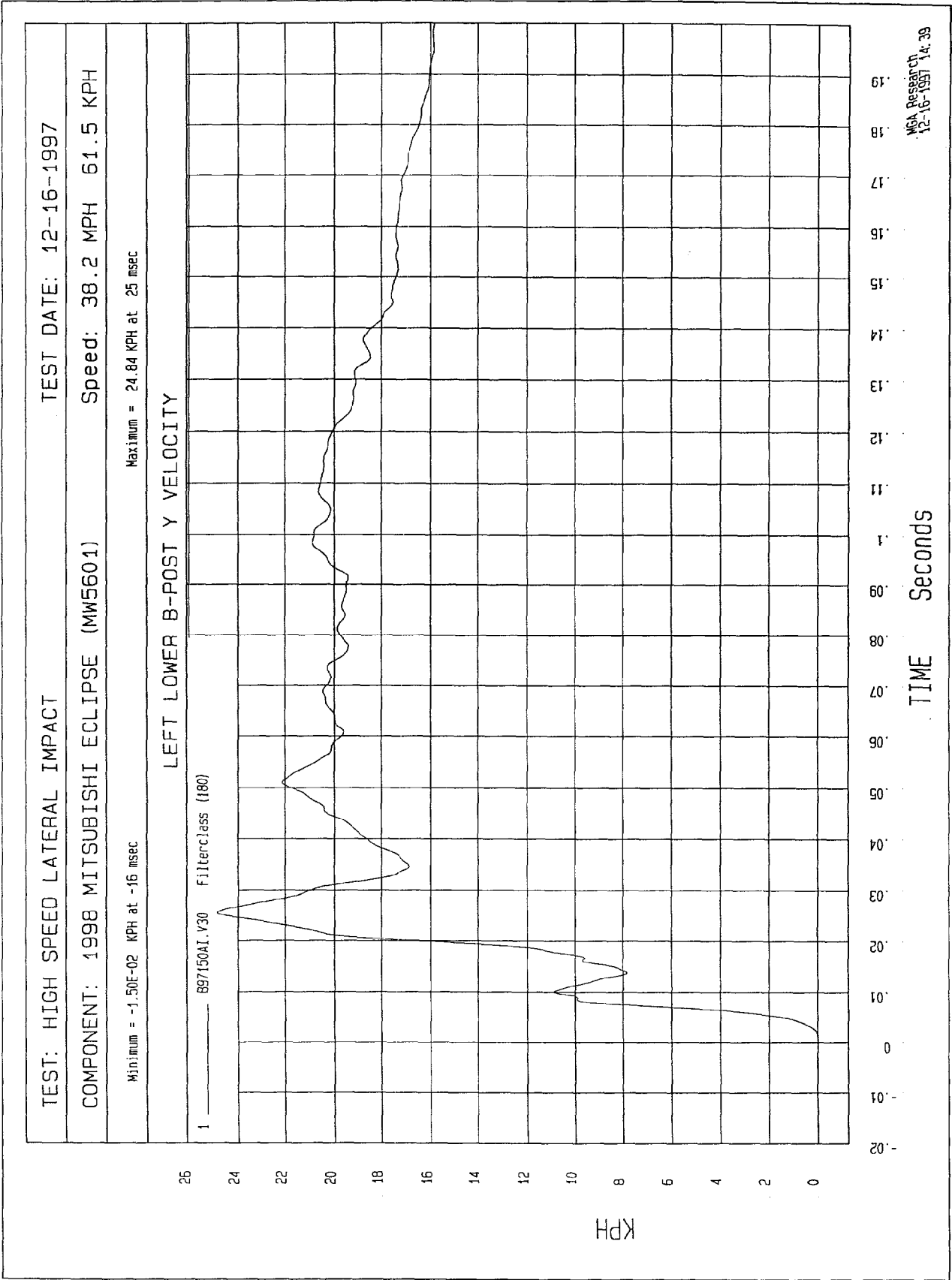
LEFT MID A-POST Y ACCELERATION VS. TIME

NO VALID DATA COLLECTED

LEFT MID A-POST Y VELOCITY VS. TIME

NO VALID DATA COLLECTED



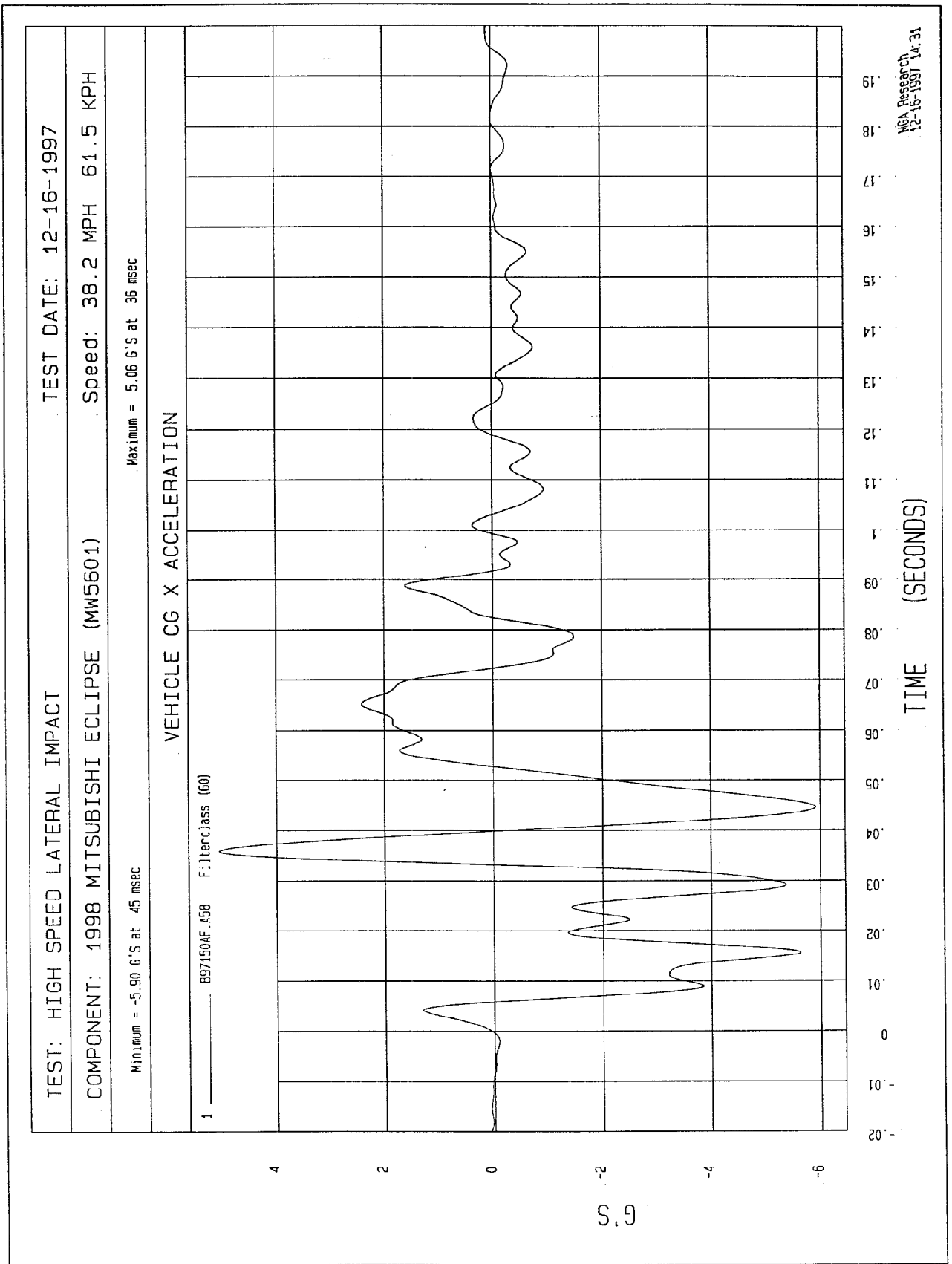


LEFT MID B-POST Y ACCELERATION VS. TIME

NO VALID DATA COLLECTED

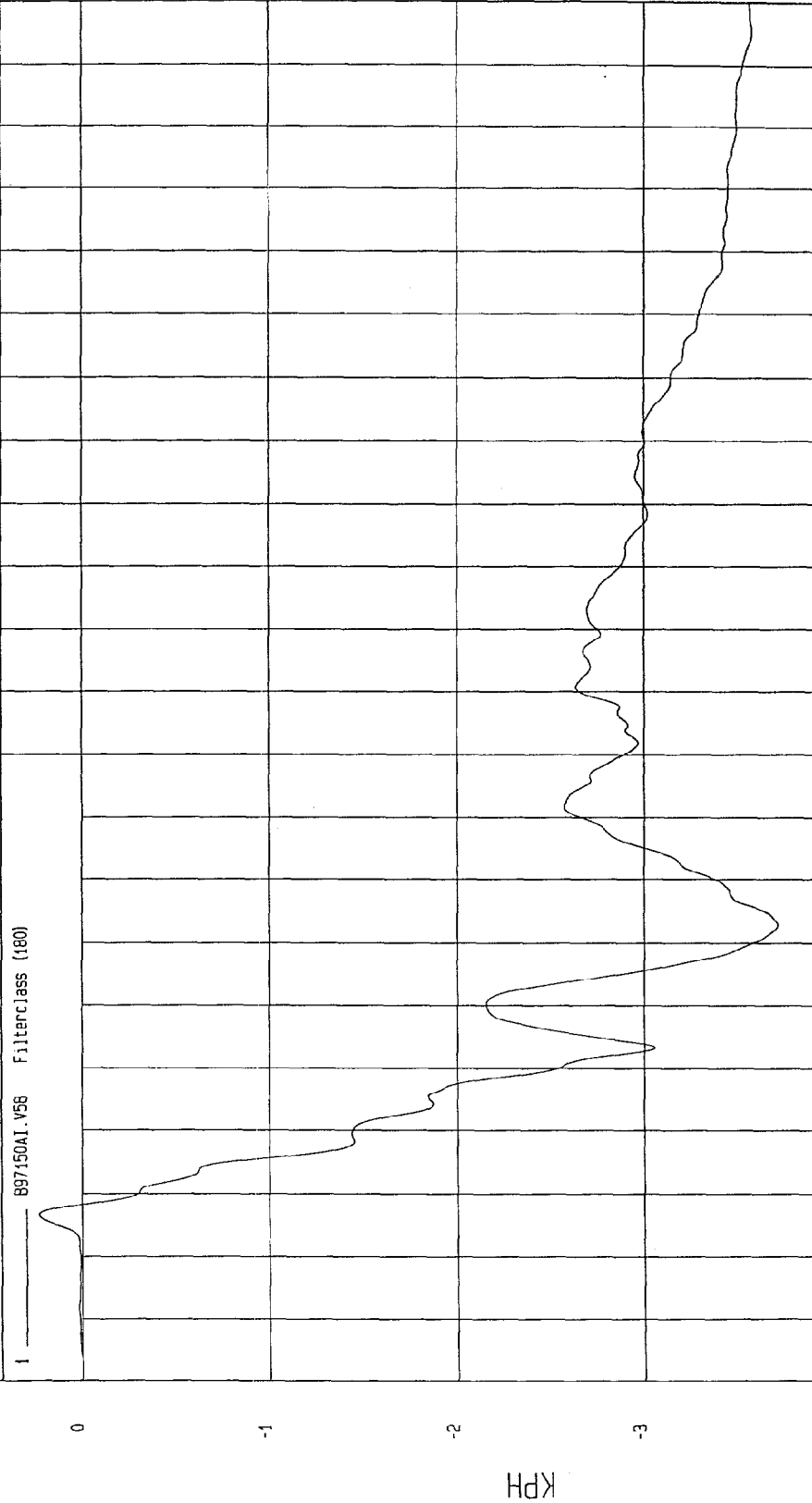
LEFT MID B-POST Y VELOCITY VS. TIME

NO VALID DATA COLLECTED



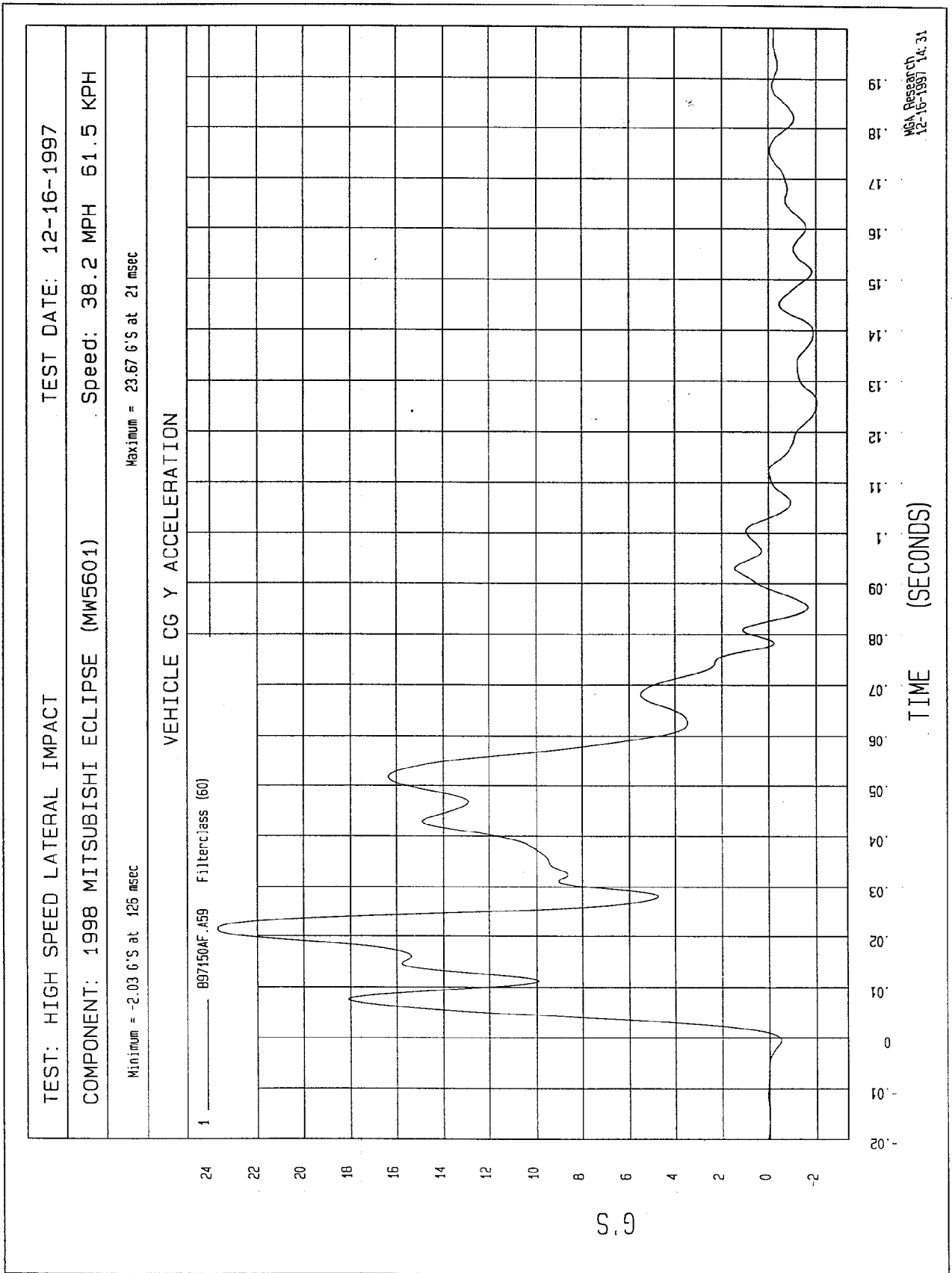
TEST: HIGH SPEED LATERAL IMPACT	TEST DATE: 12-16-1997
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601)	Speed: 38.2 MPH 61.5 KPH
Minimum = -3.71 KPH at 53 msec	Maximum = .22 KPH at 7 msec

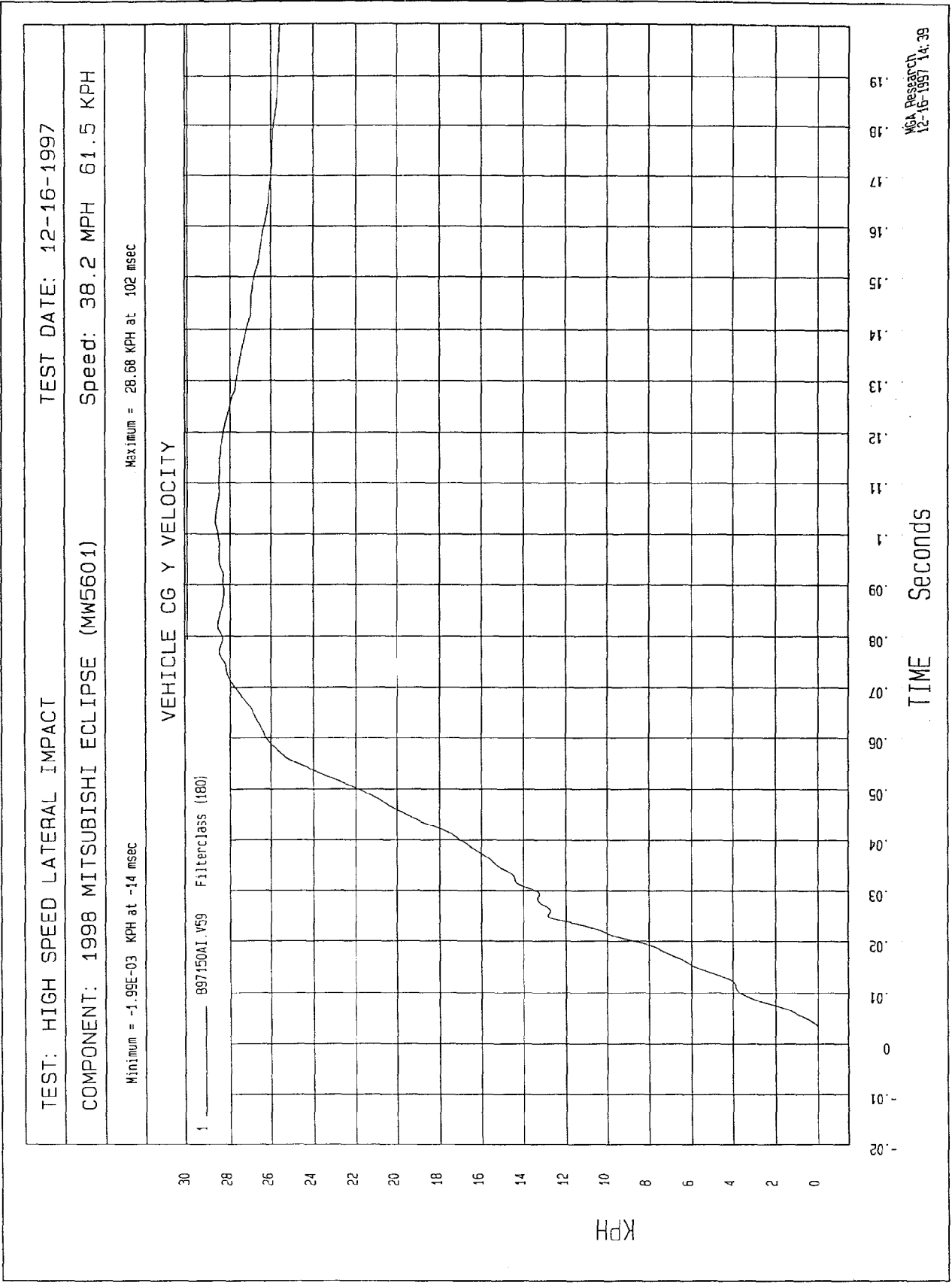
VEHICLE CG X VELOCITY



TIME Seconds

WSA Research
12-16-1997 14:39



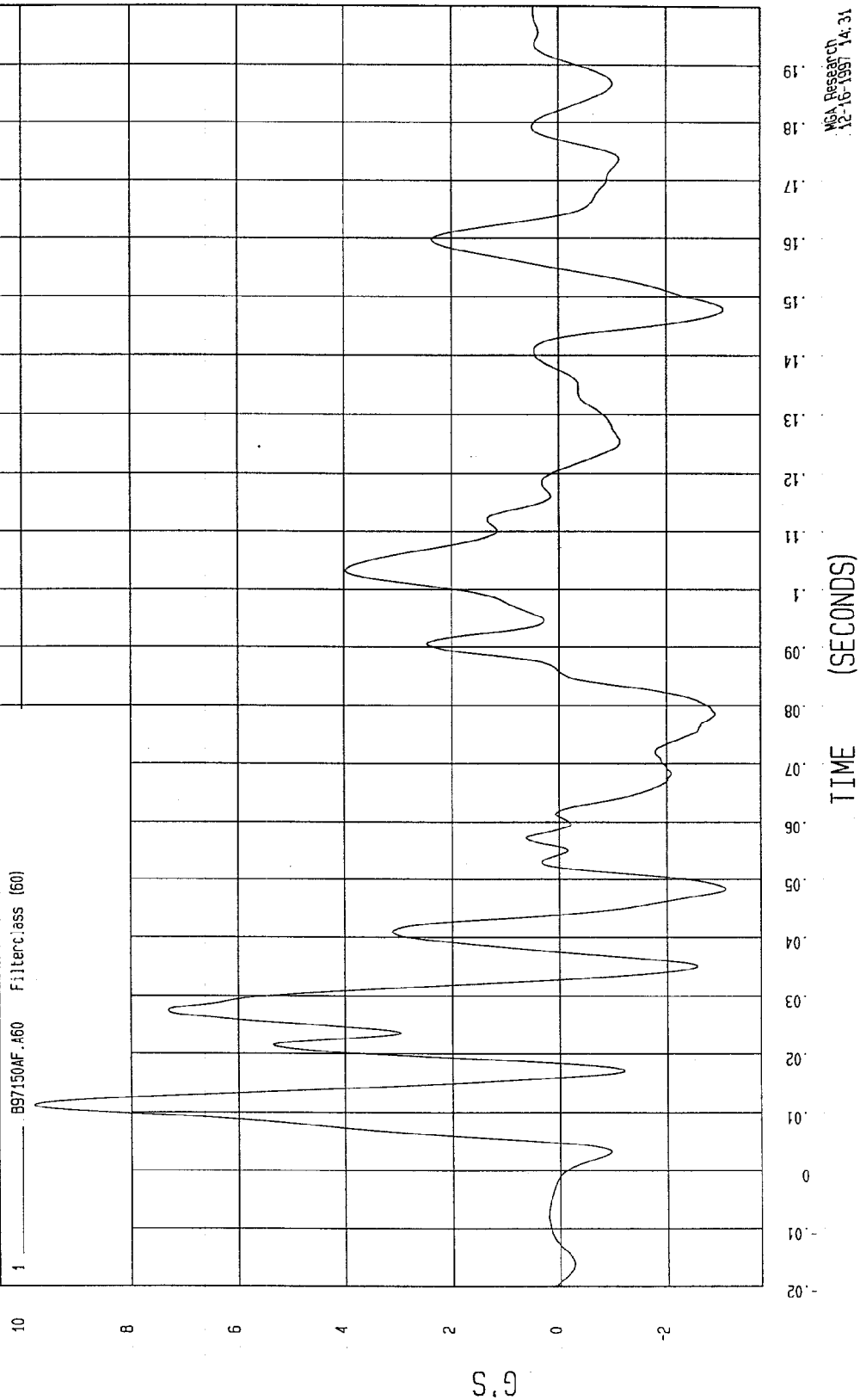


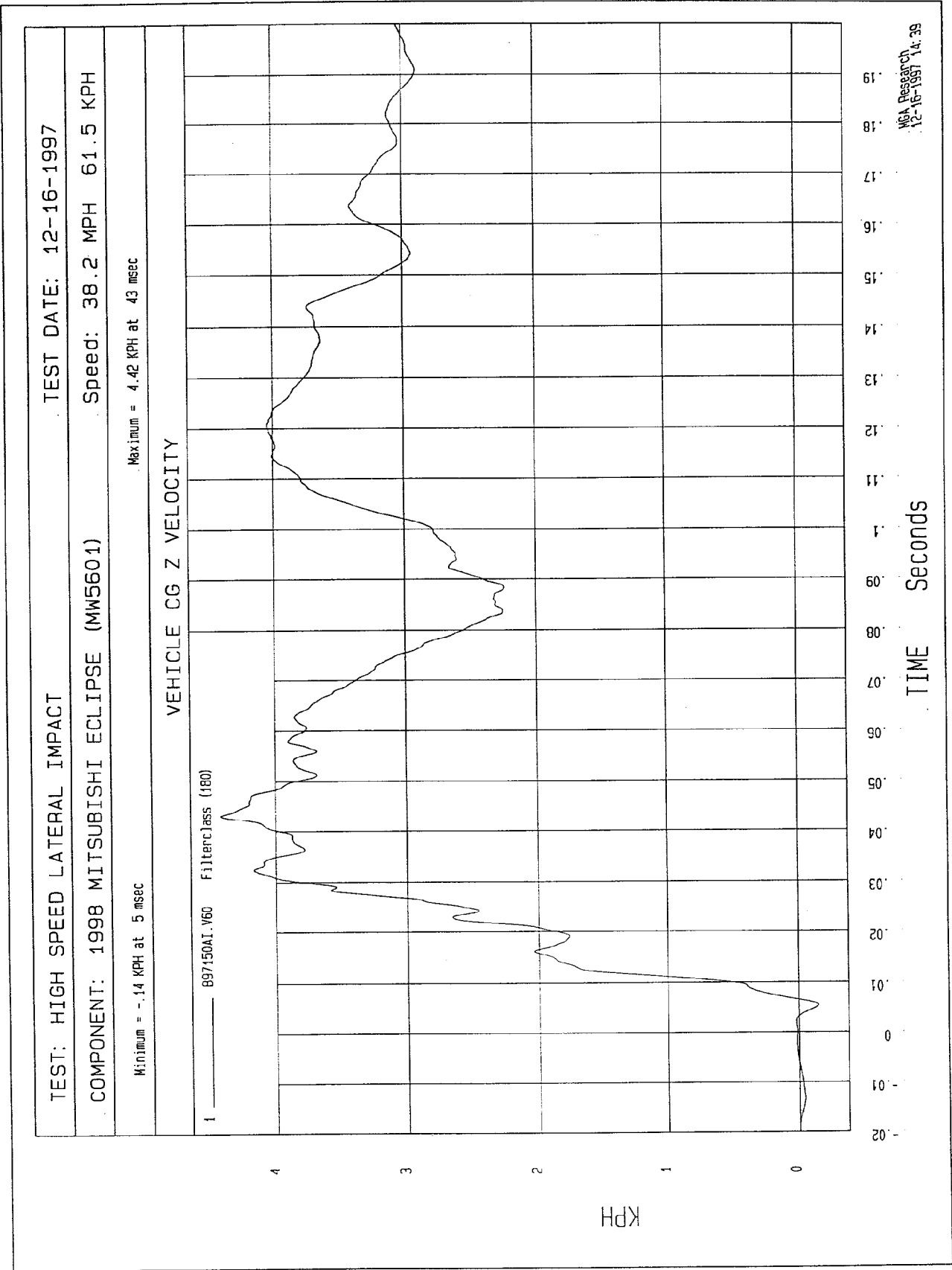
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.07 G'S at 48 msec Maximum = 9.77 G'S at 11 msec

VEHICLE CG Z ACCELERATION



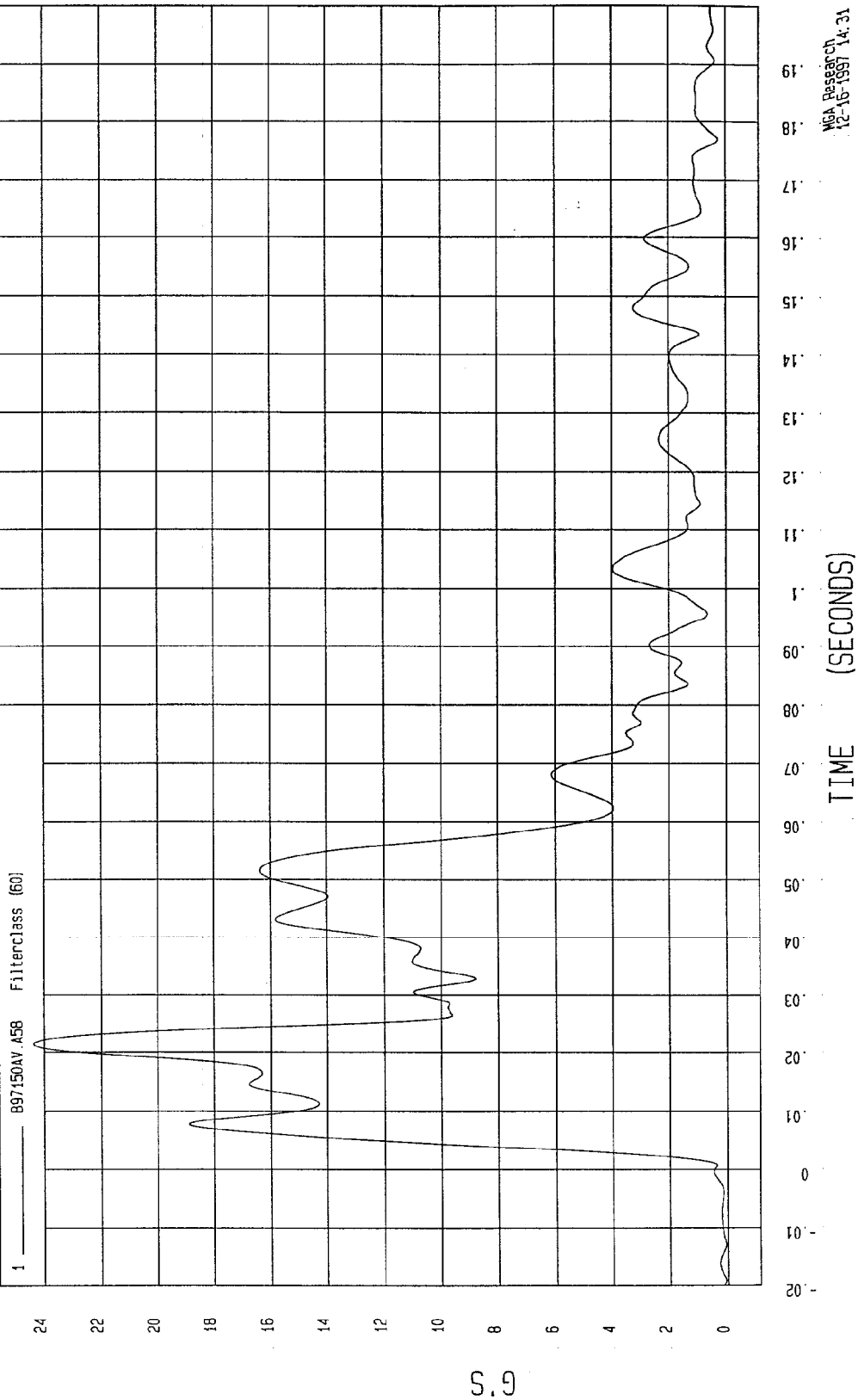


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = 5.46E-02 G'S at -13 msec Maximum = 24.37 G'S at 22 msec

VEHICLE CG RESULTANT ACCELERATION



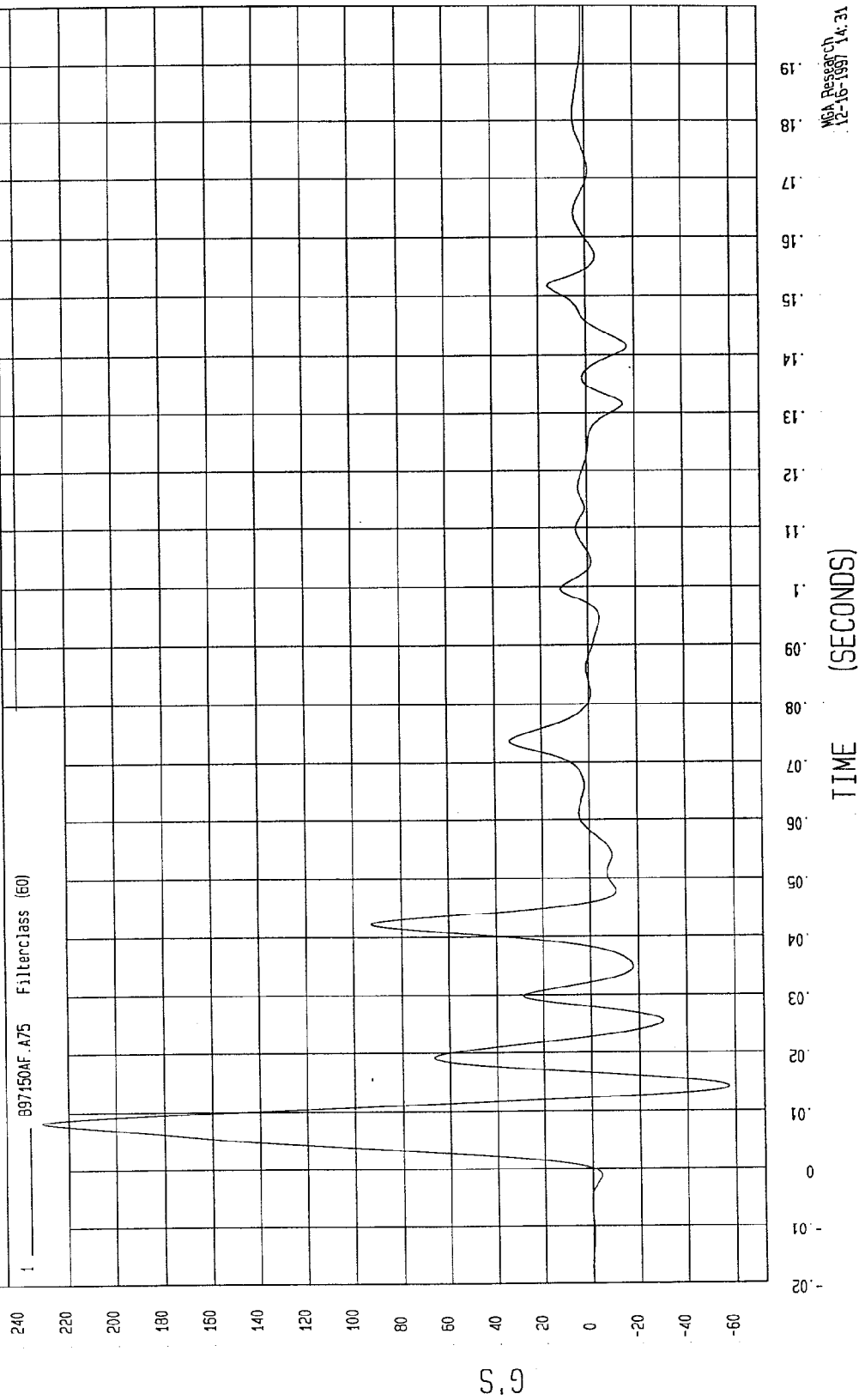
MGA Research
12-16-1997 14:31

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -57.41 G'S at 14 msec Maximum = 231.11 G'S at 8 msec

LEFT FRONT DOOR MIDREAR Y ACCELERATION

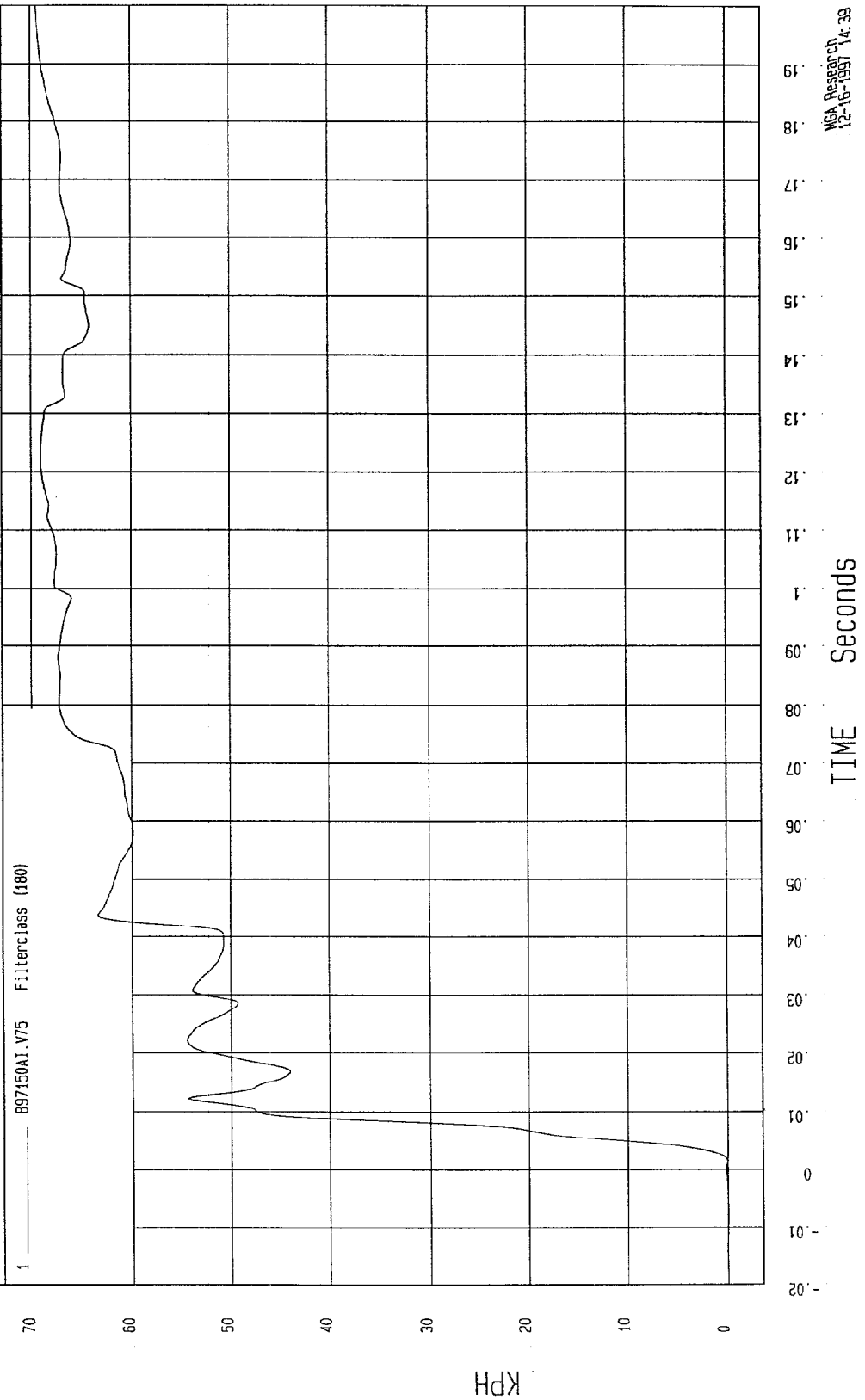


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

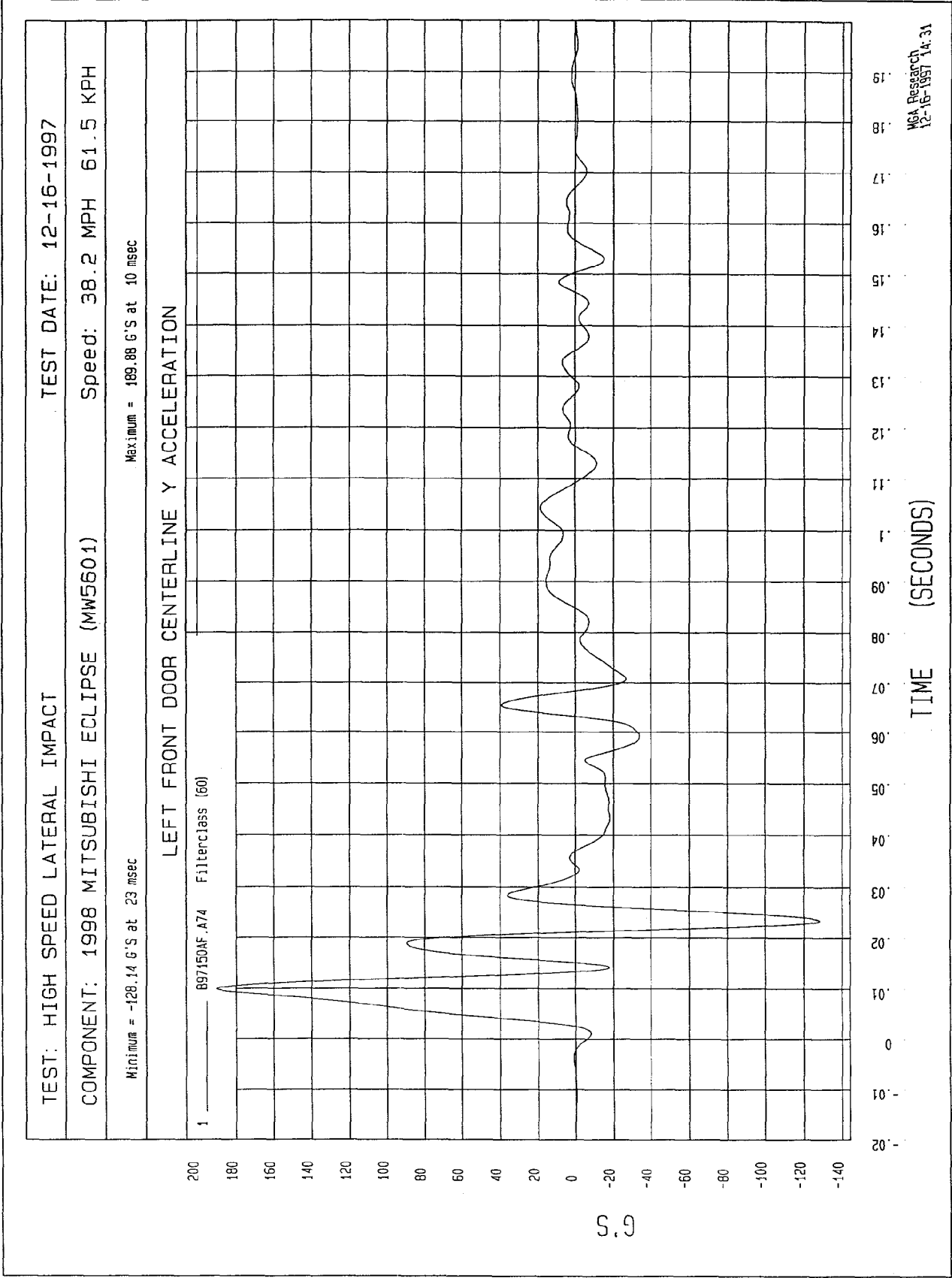
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.93E-02 KPH at -8 msec Maximum = 69.49 KPH at 200 msec

LEFT FRONT DOOR MIDREAR Y VELOCITY



MECA Research
12-16-1997 14:39



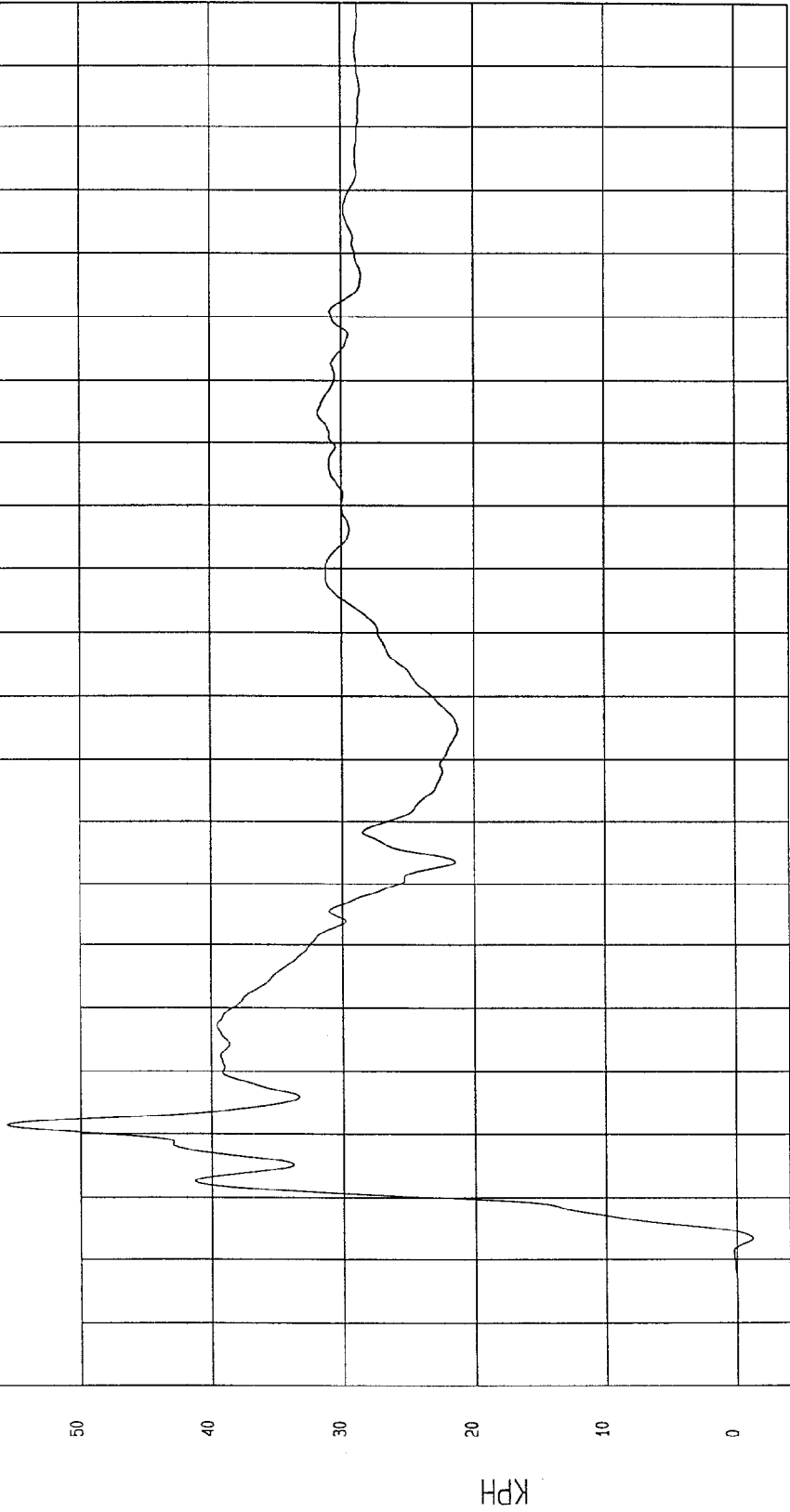
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

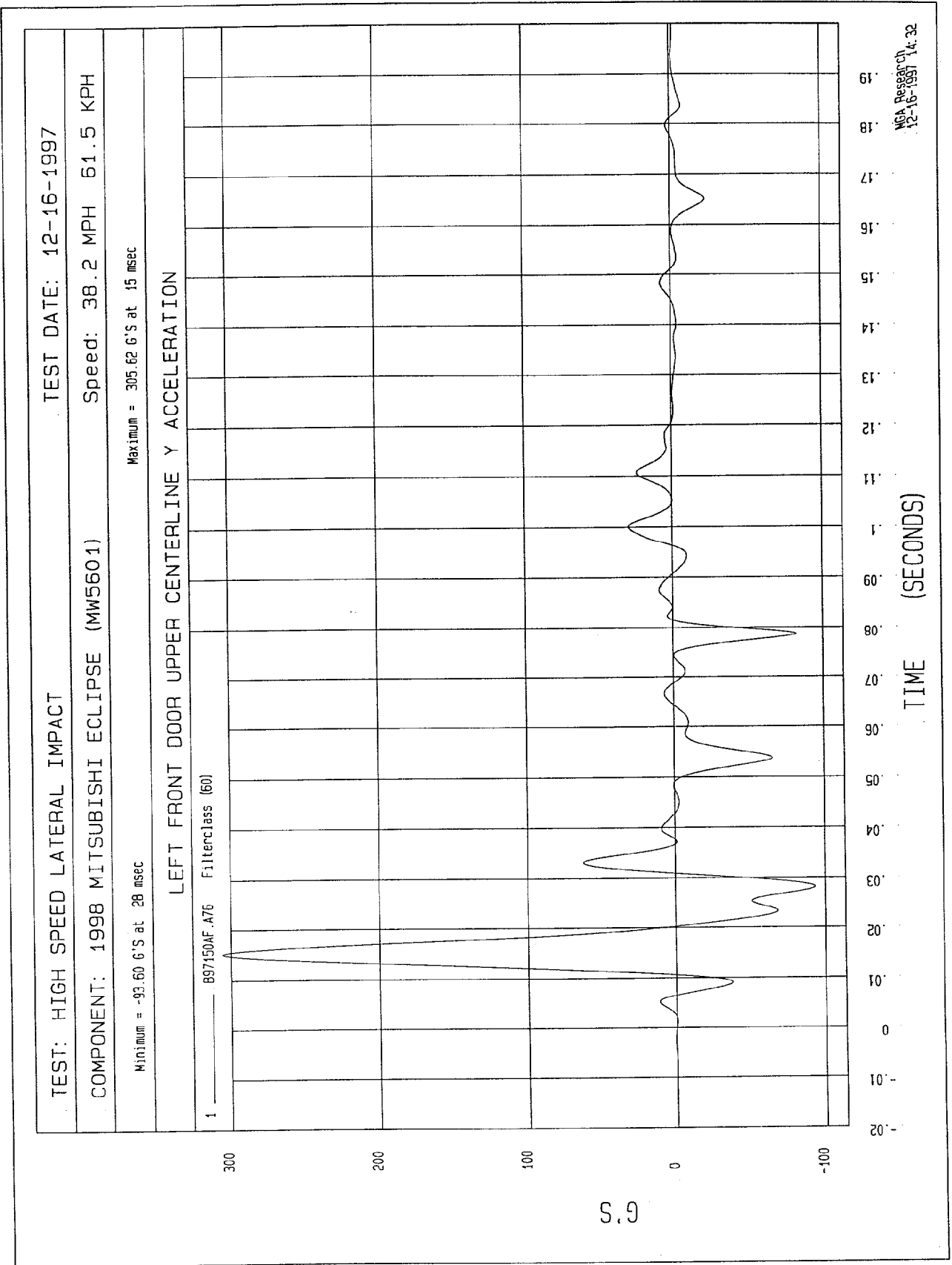
Minimum = -1.28 KPH at 3 msec Maximum = 55.73 KPH at 21 msec

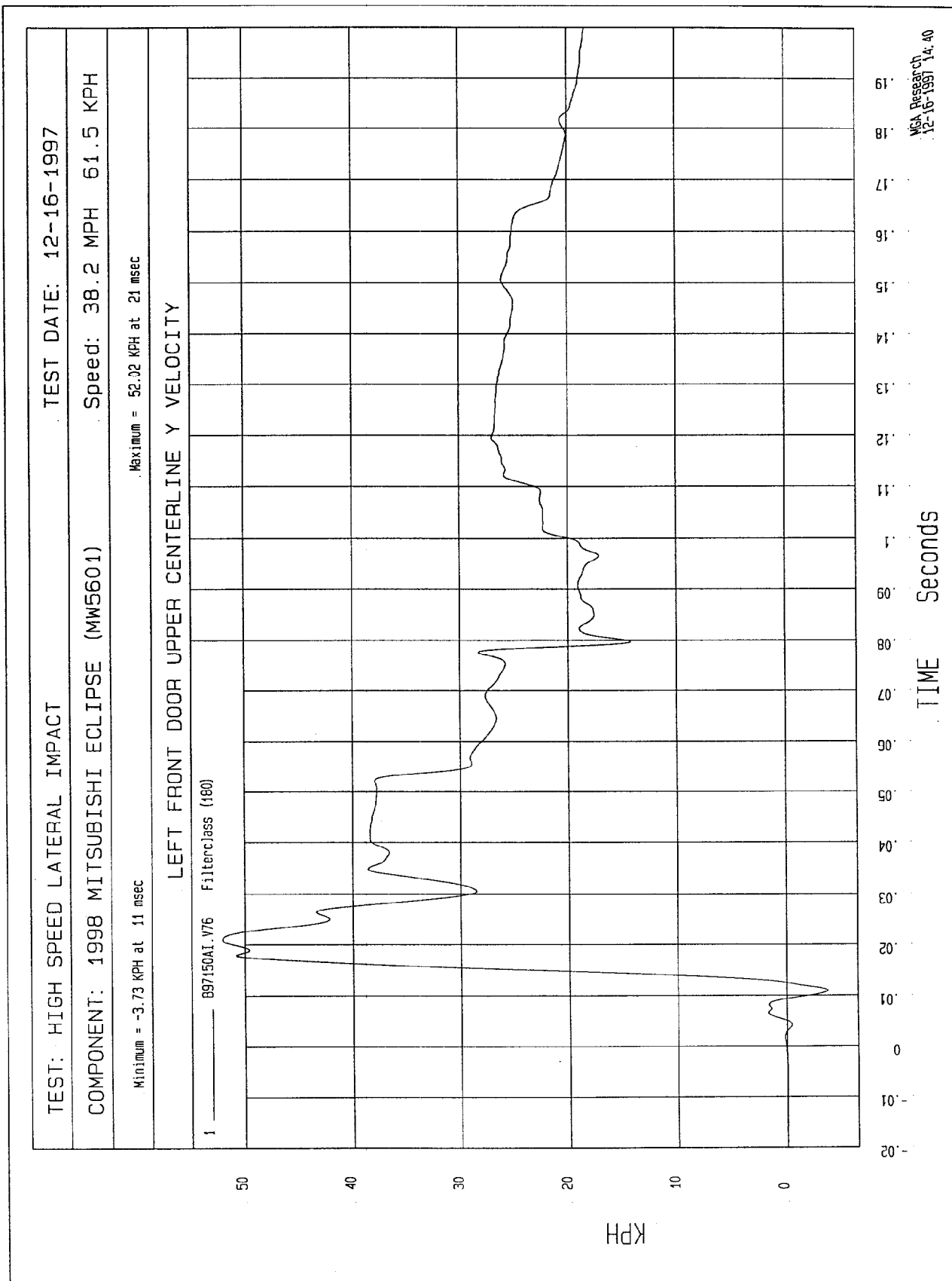
LEFT FRONT DOOR CENTERLINE Y VELOCITY

1 B97150A1.V74 Filterclass (180)



TIME Seconds
NSA Research
12-16-1997 14:40



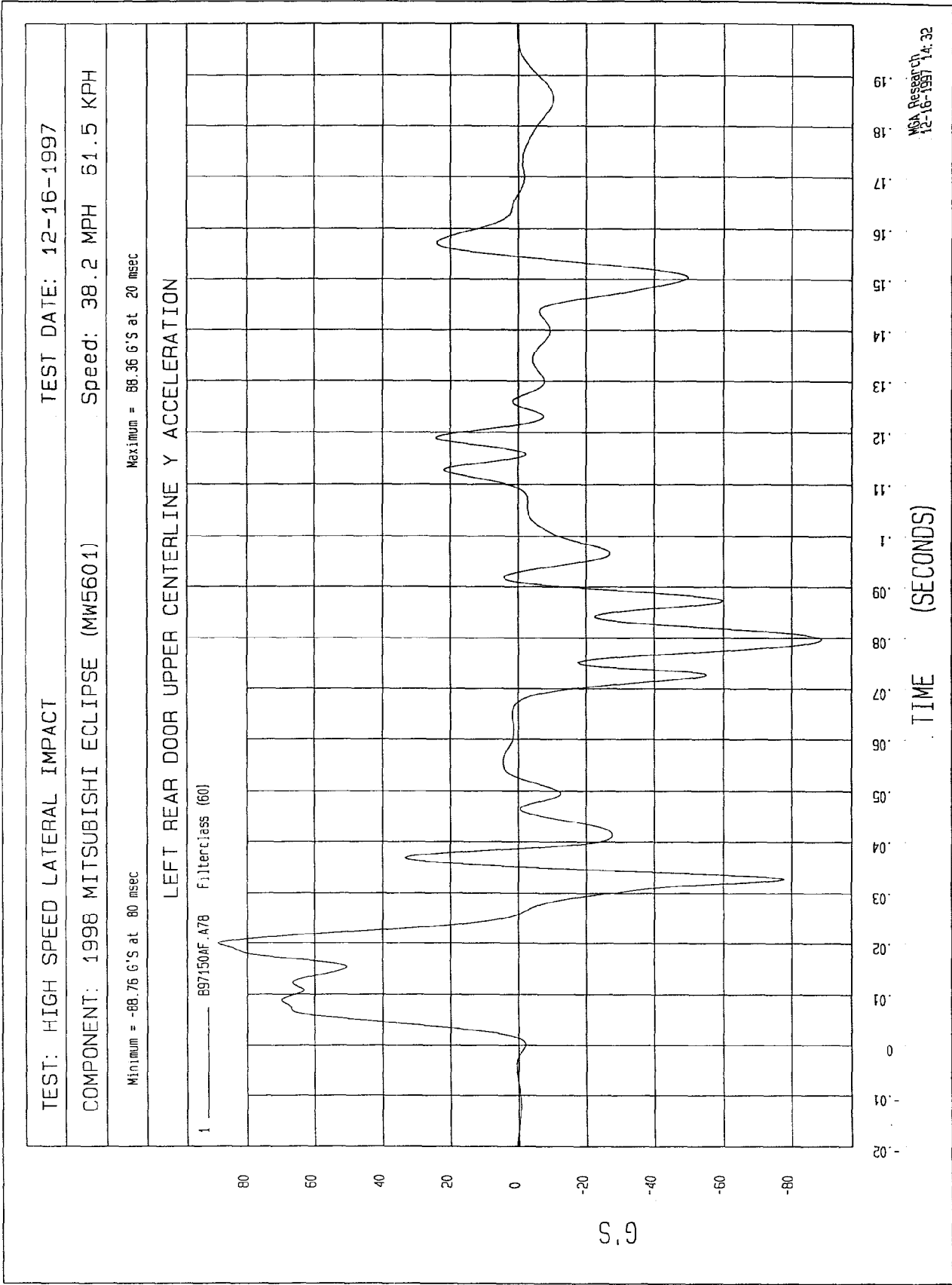


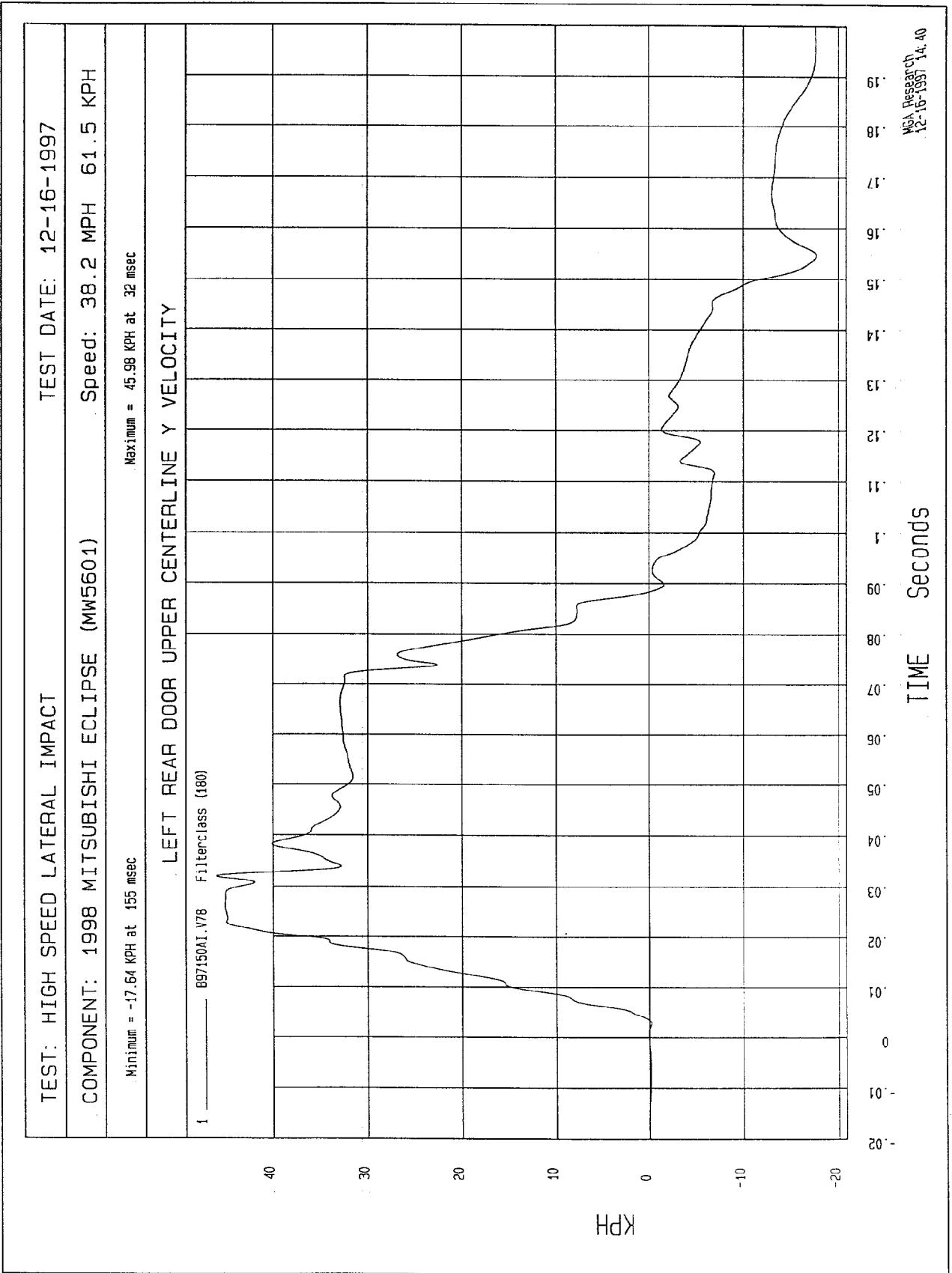
LEFT REAR DOOR MIDREAR Y ACCELERATION VS. TIME

NO VALID DATA COLLECTED

LEFT REAR DOOR MIDREAR Y VELOCITY VS. TIME

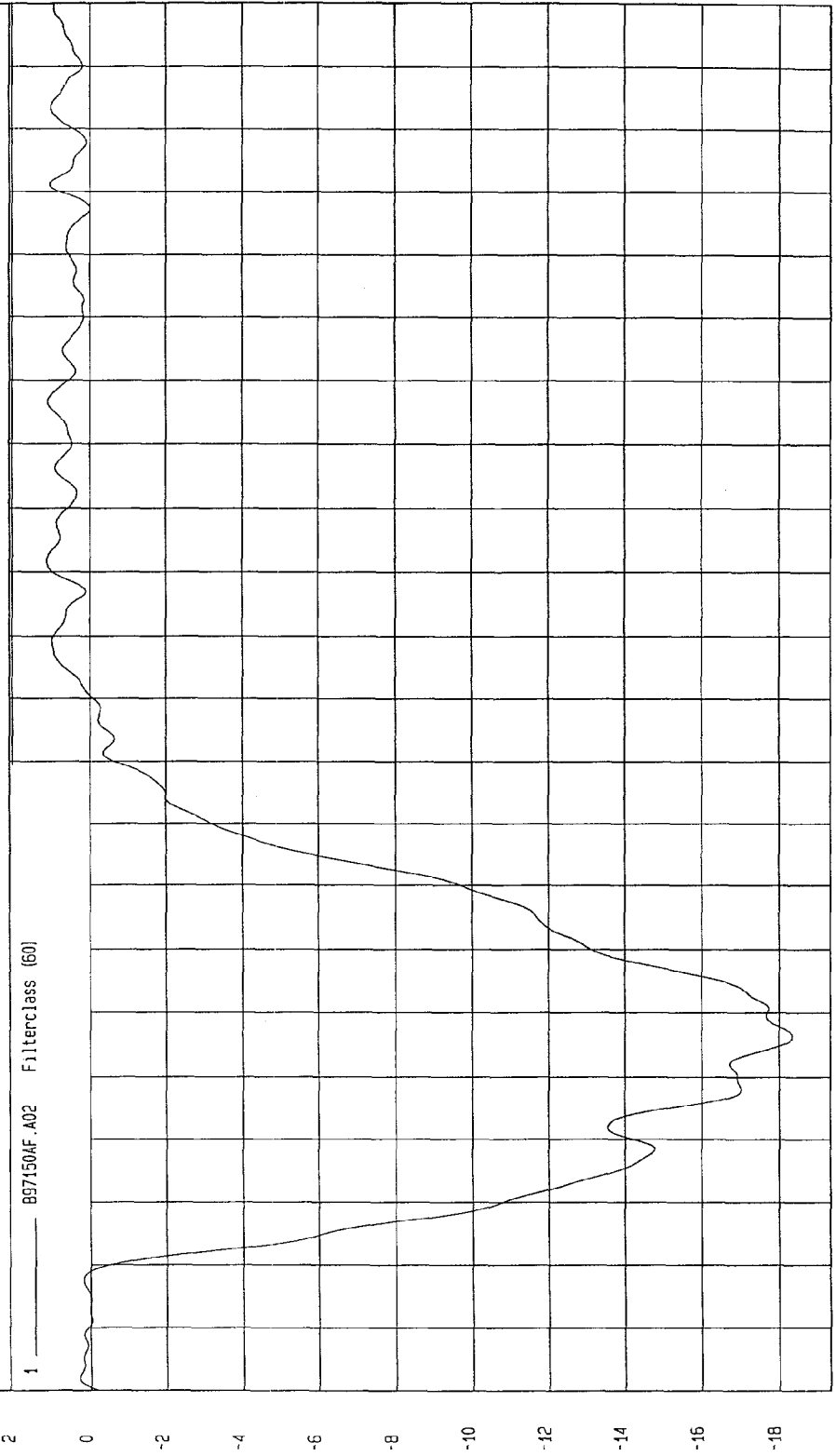
NO VALID DATA COLLECTED





TEST: HIGH SPEED LATERAL IMPACT	TEST DATE: 12-16-1997
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601)	Speed: 38.2 MPH 61.5 KPH
Minimum = -18.36 G'S at 36 msec	Maximum = 1.10 G'S at 112 msec

MOVING BARRIER CG X ACCELERATION



TIME (SECONDS)

NSA Research
12-16-1997 14:32

G.S

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 12-16-1997

Speed: 38.2 MPH 61.5 KPH

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601)

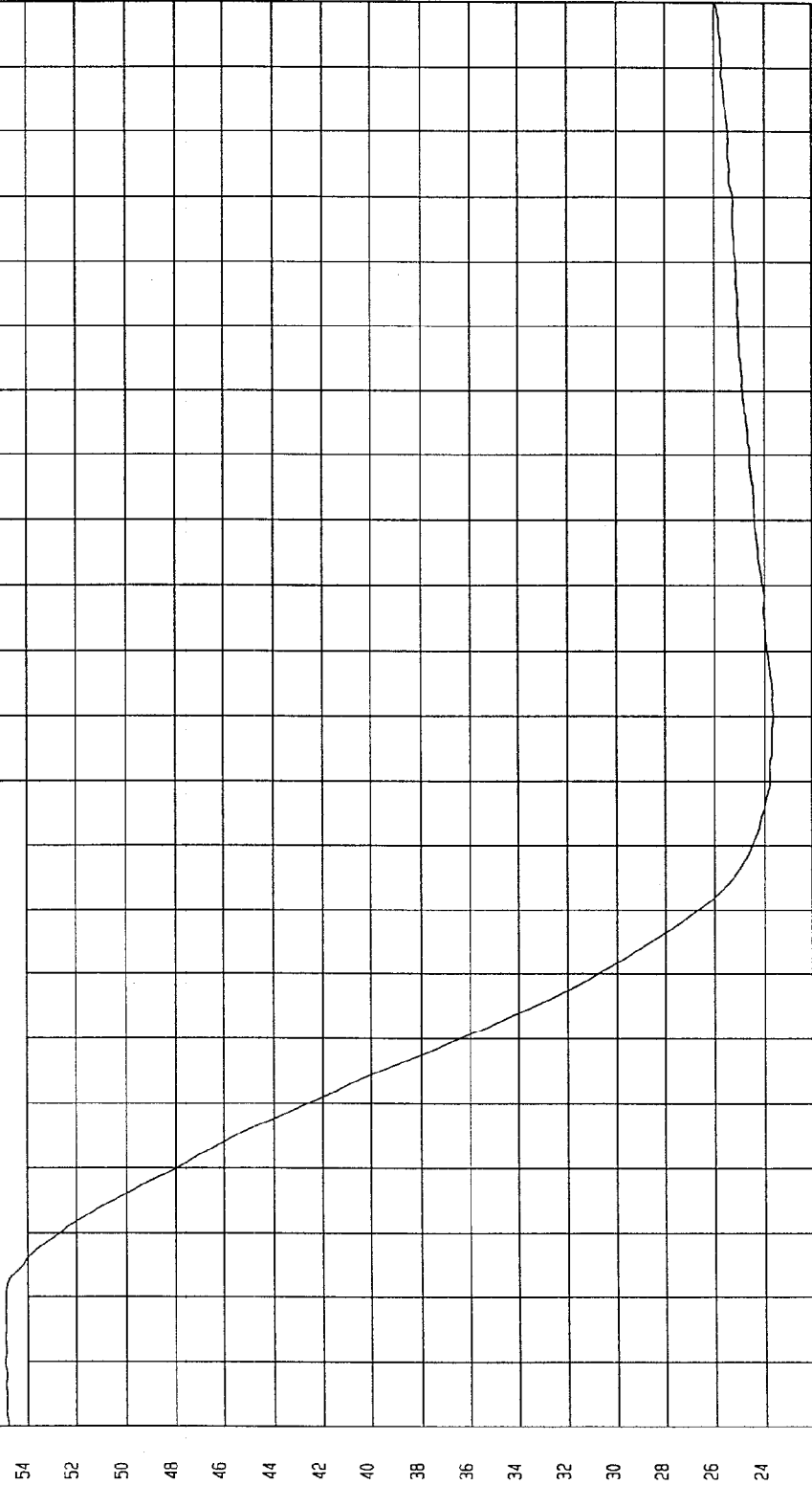
Minimum = 23.66 KPH at 90 msec

Maximum = 54.90 KPH at -10 msec

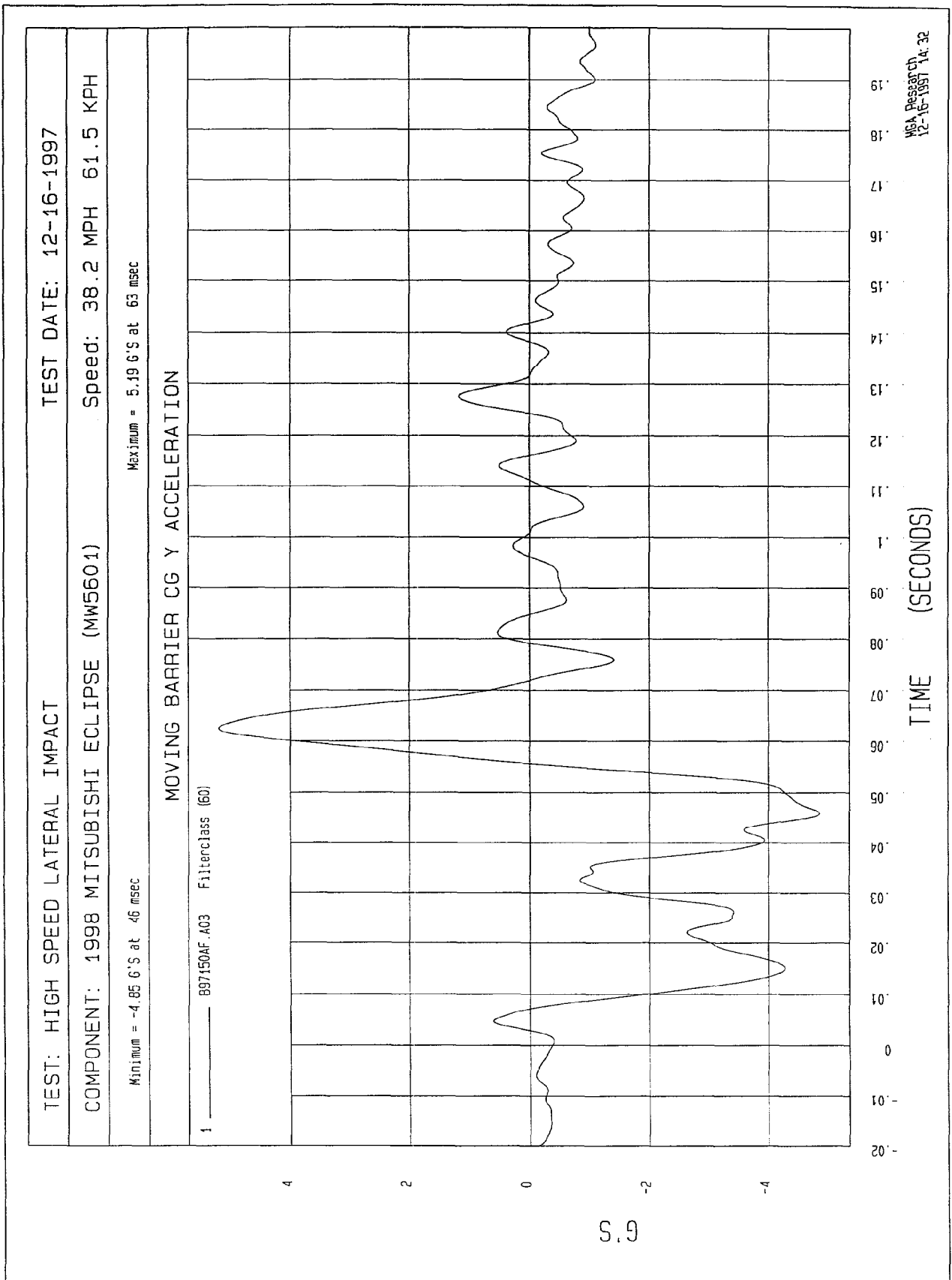
MOVING BARRIER CG X VELOCITY

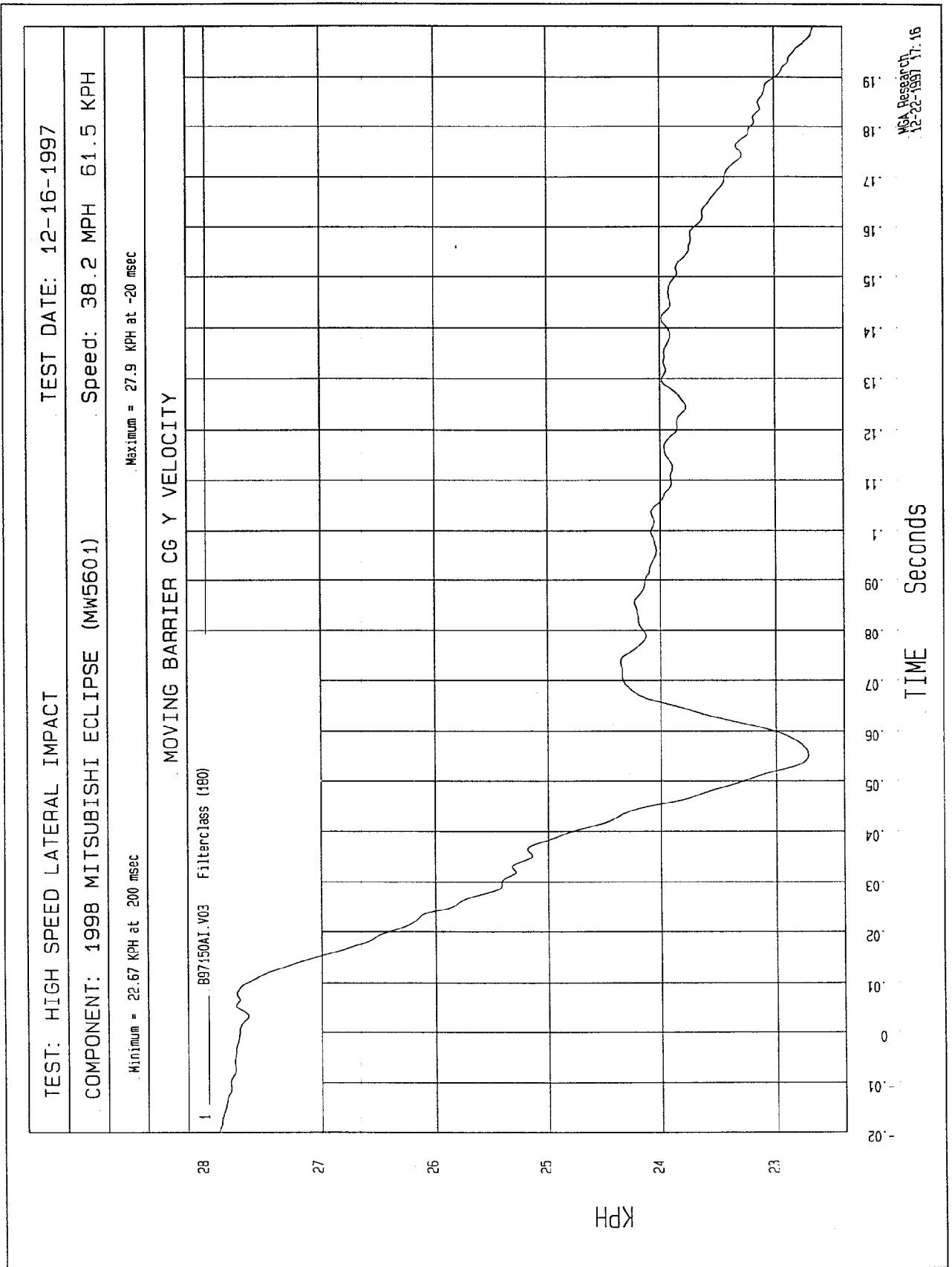
1 B97150A1.V02 Filterclass (180)

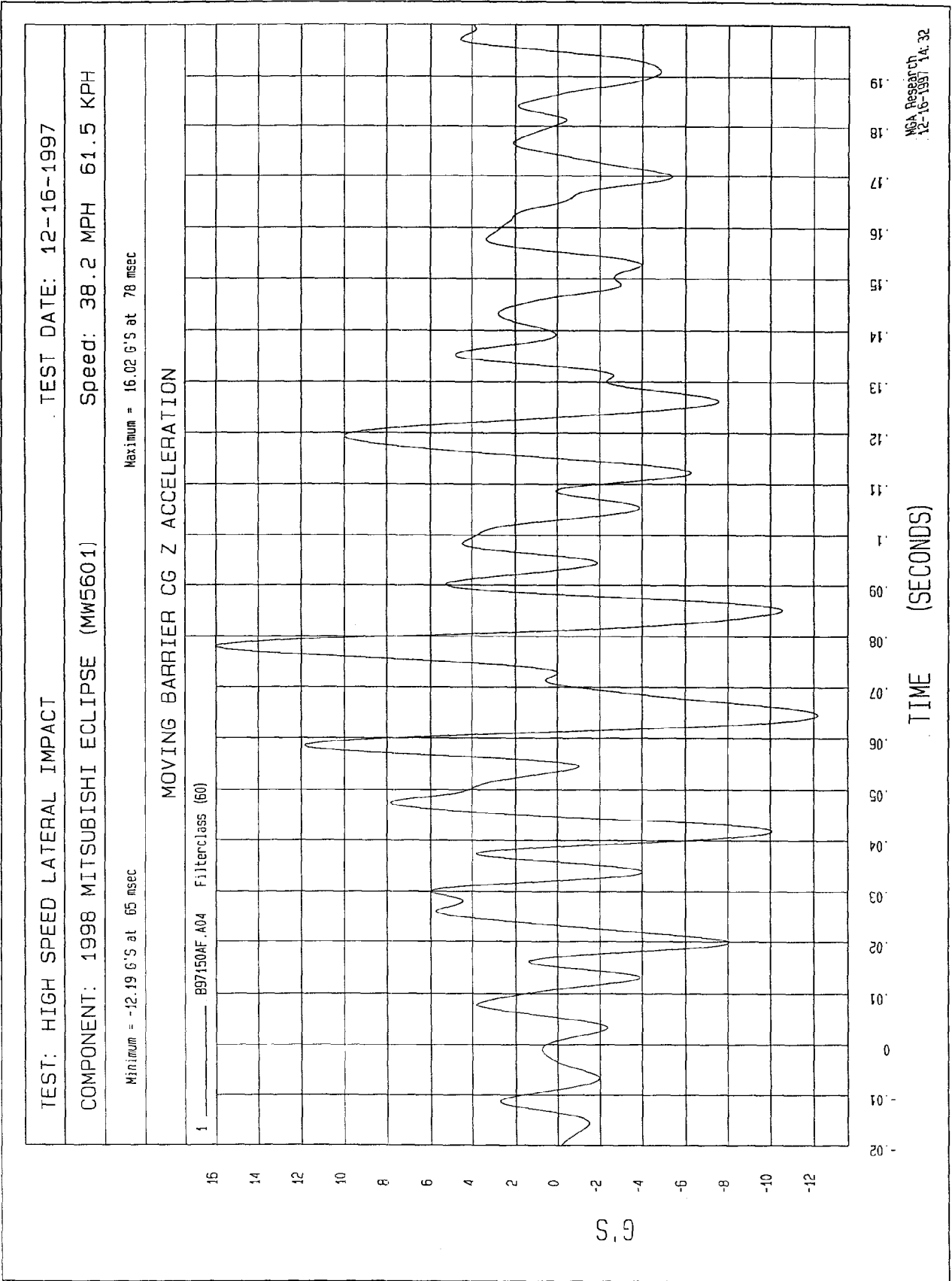
KPH



WGA Research
12-22-1997 17:15







TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 12-16-1997

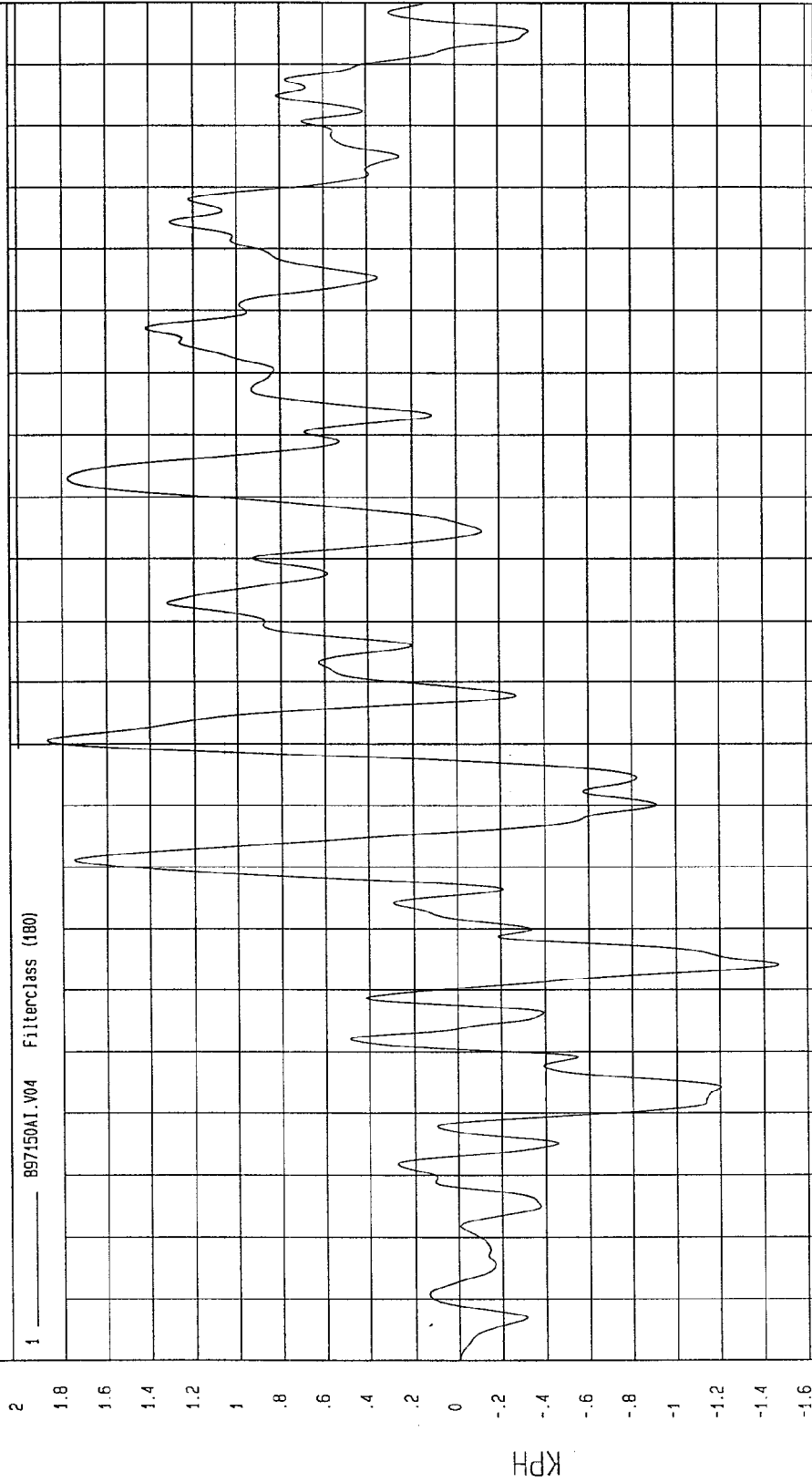
Speed: 38.2 MPH 61.5 KPH

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601)

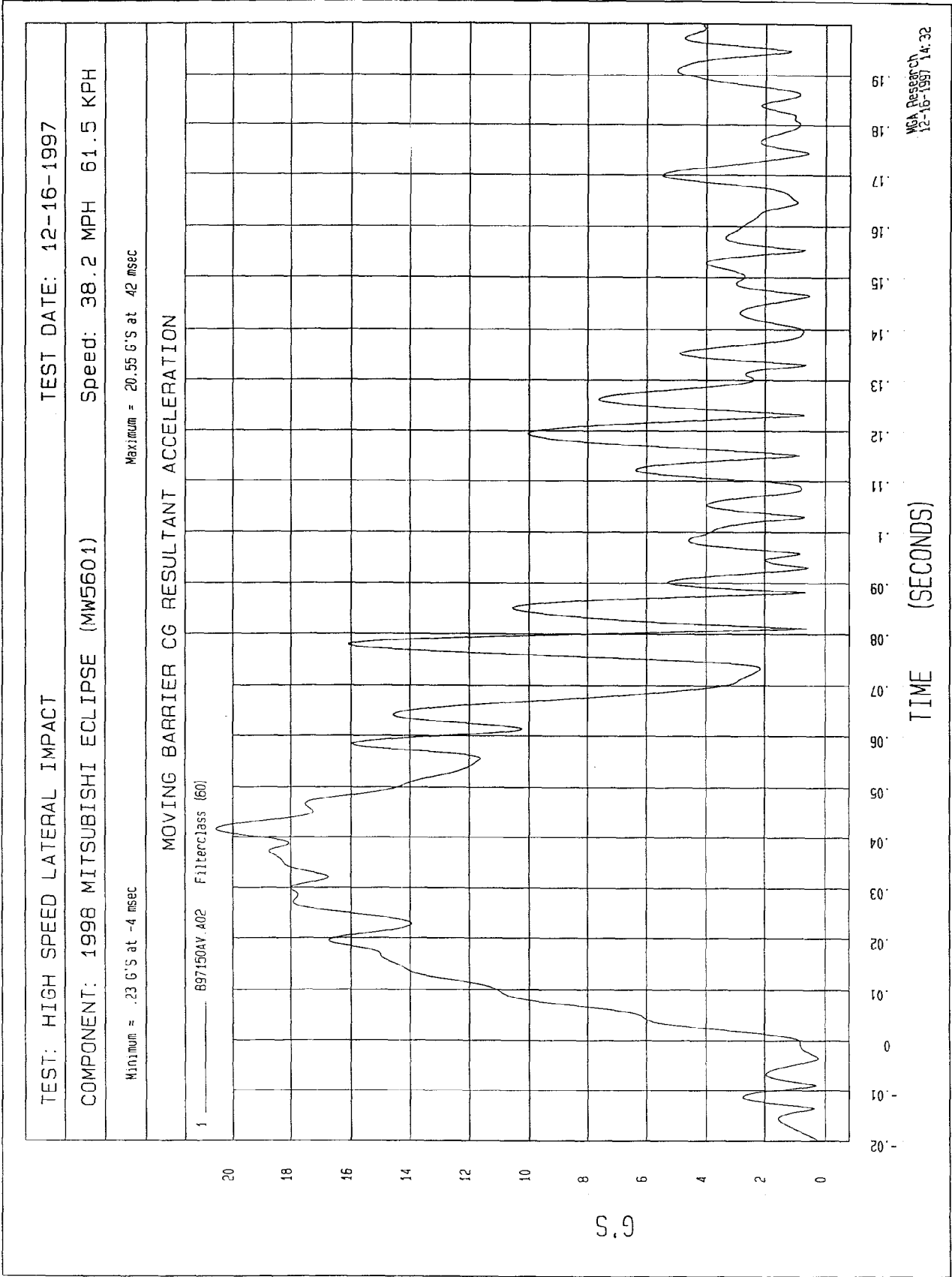
Maximum = 1.86 KPH at 81 msec

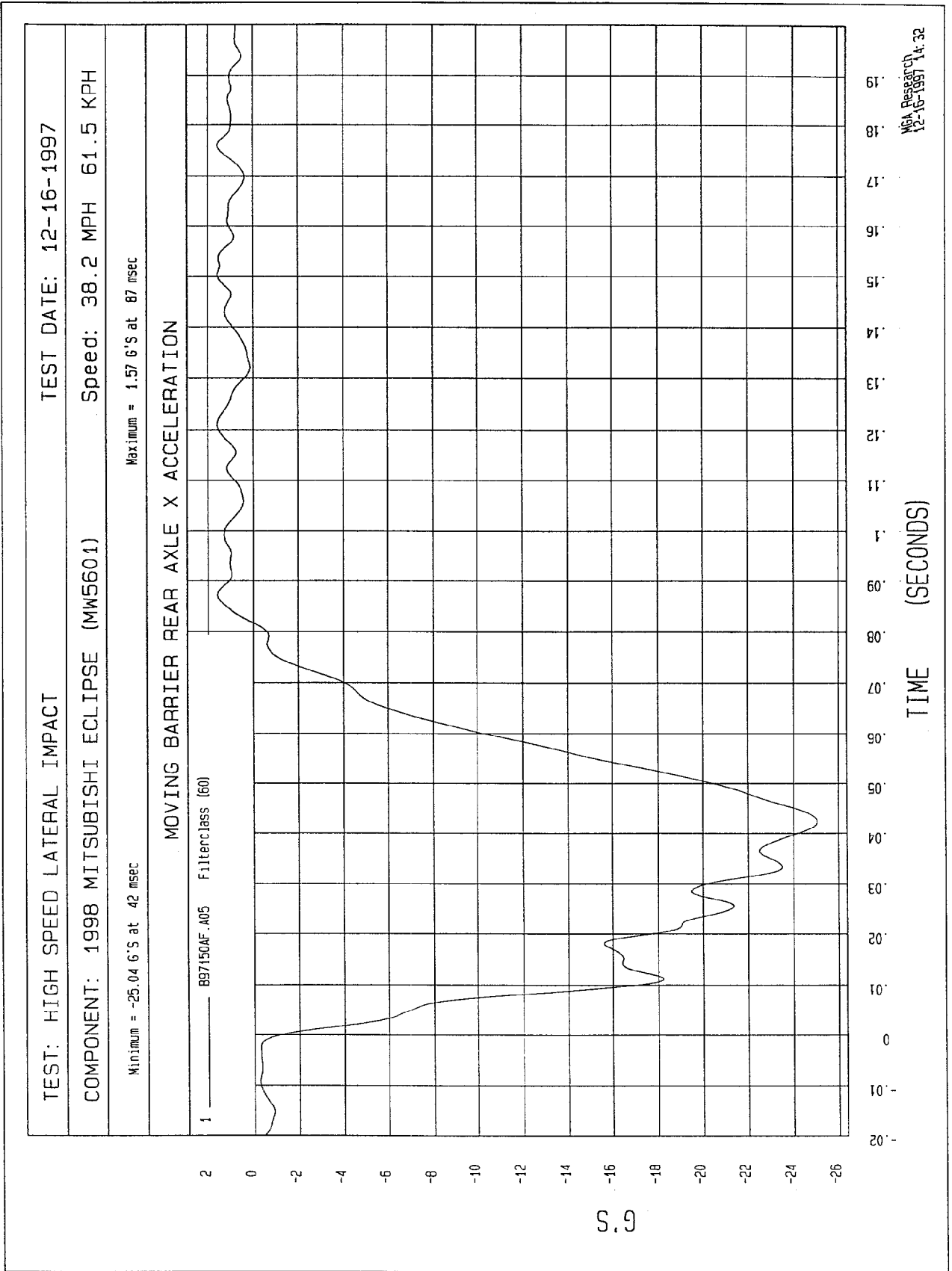
Minimum = -1.47 KPH at 44 msec

MOVING BARRIER CG Z VELOCITY



NSA Research
12-22-1997 17:16



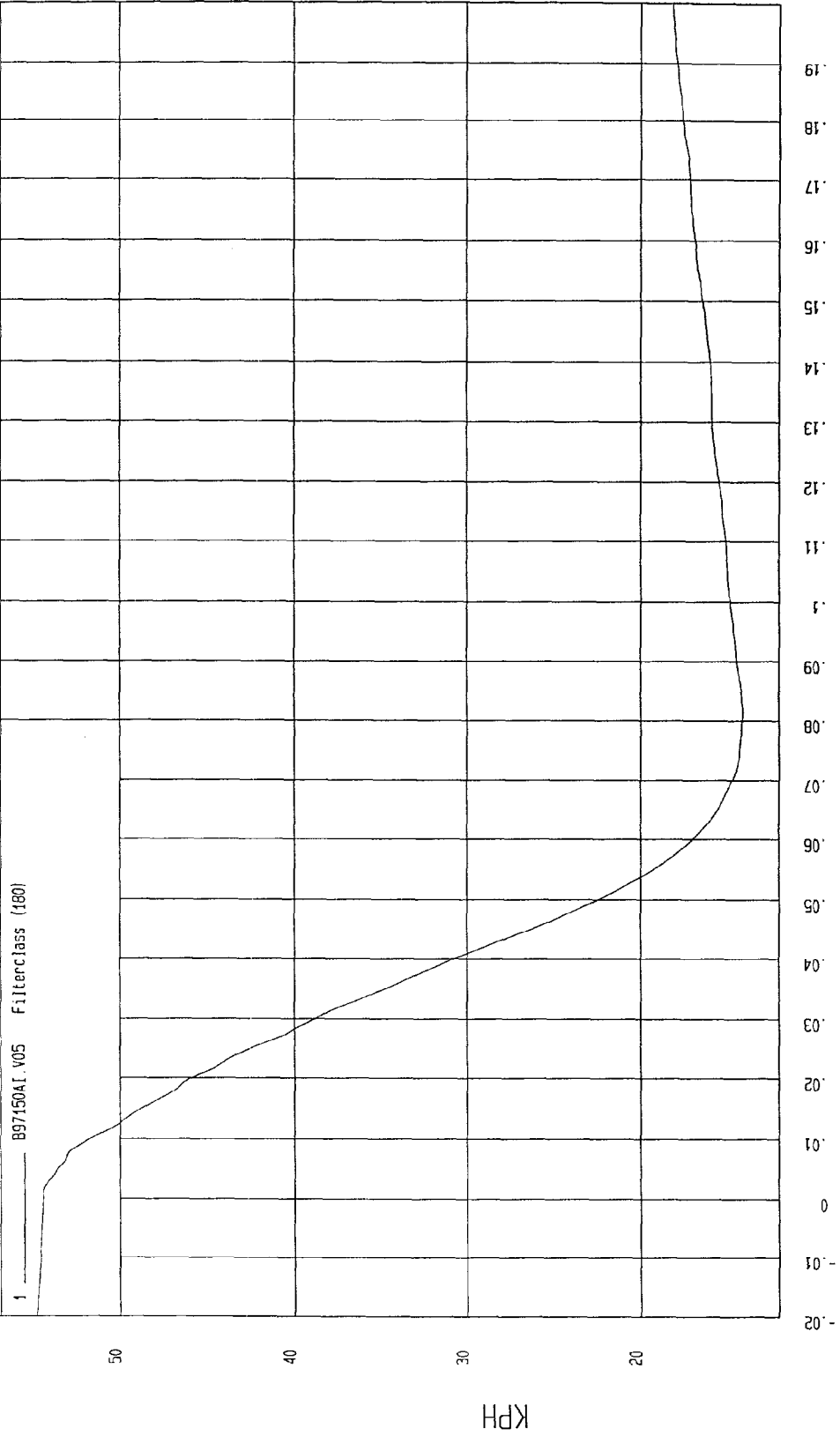


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = 14.16 KPH at 82 msec Maximum = 54.8 KPH at -20 msec

MOVING BARRIER REAR AXLE X VELOCITY



NGA Research
12-22-1997 17:16

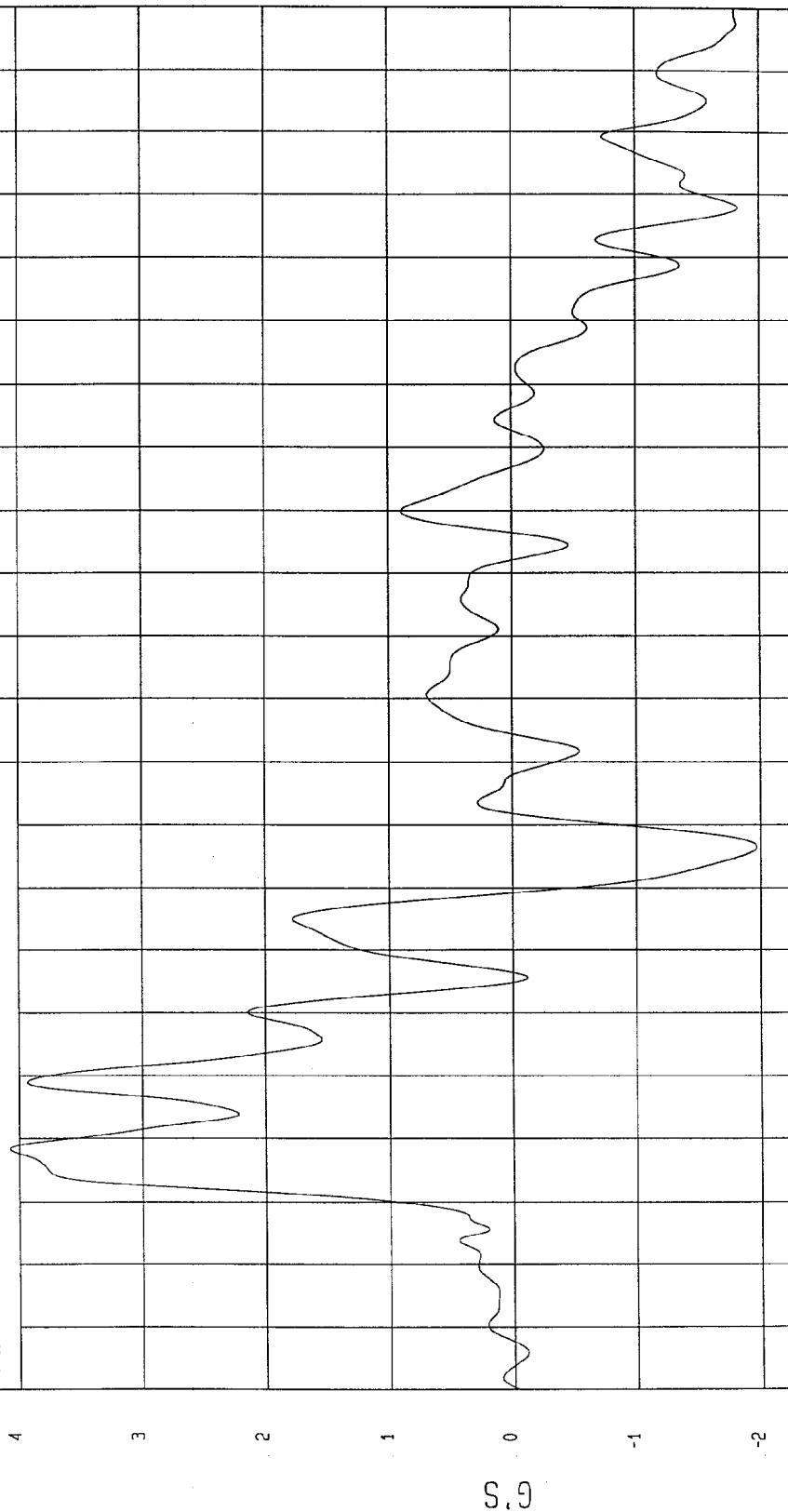
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -1.97 G'S at 66 msec Maximum = 4.07 G'S at 18 msec

MOVING BARRIER REAR AXLE Y ACCELERATION

1 ——— B97150AF.A06 Filterclass (60)



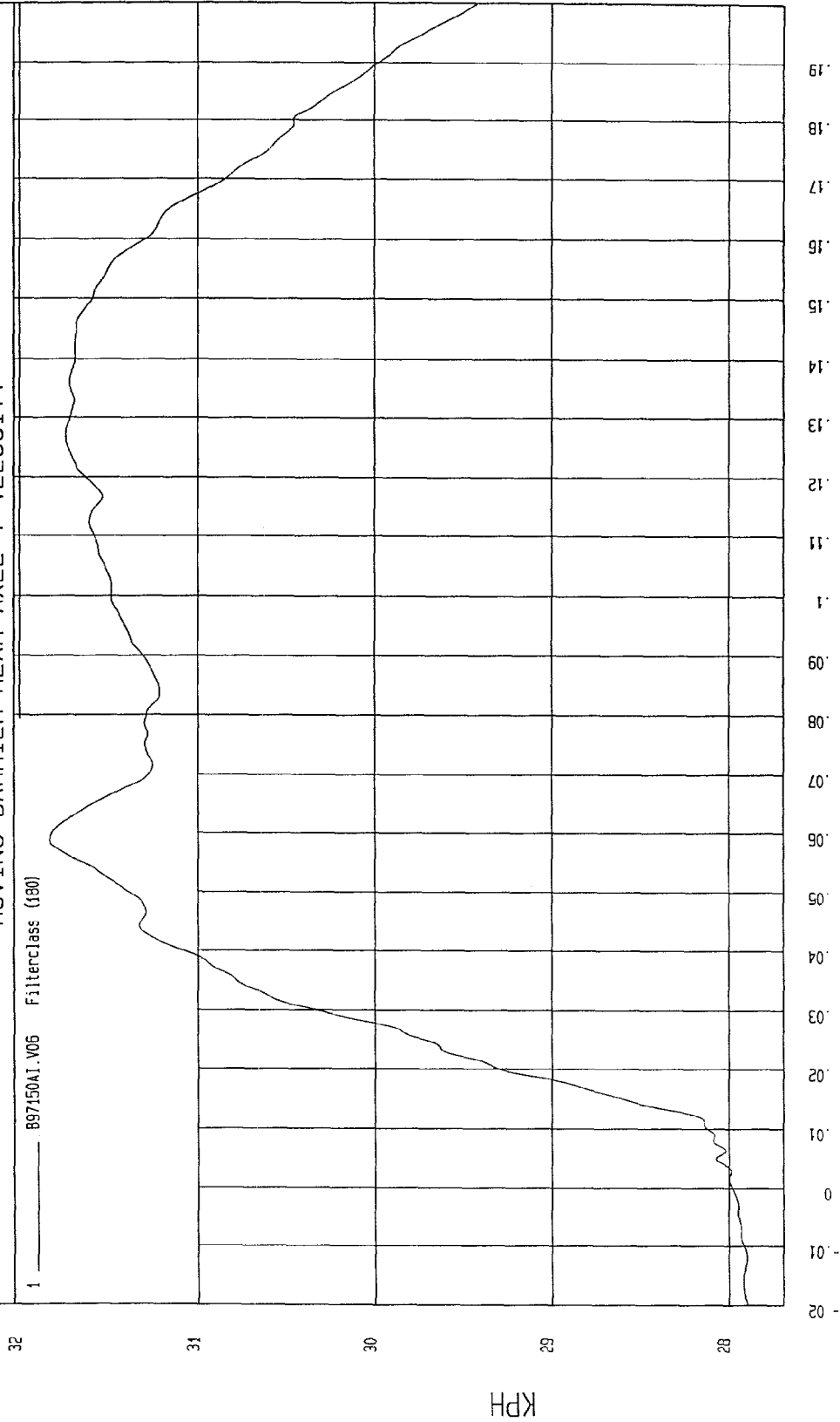
NSA Research
12-16-1997 14:33

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = 27.89 KPH at -12 msec Maximum = 31.83 KPH at 59 msec

MOVING BARRIER REAR AXLE Y VELOCITY



MOA Research
12-22-1997 11:16

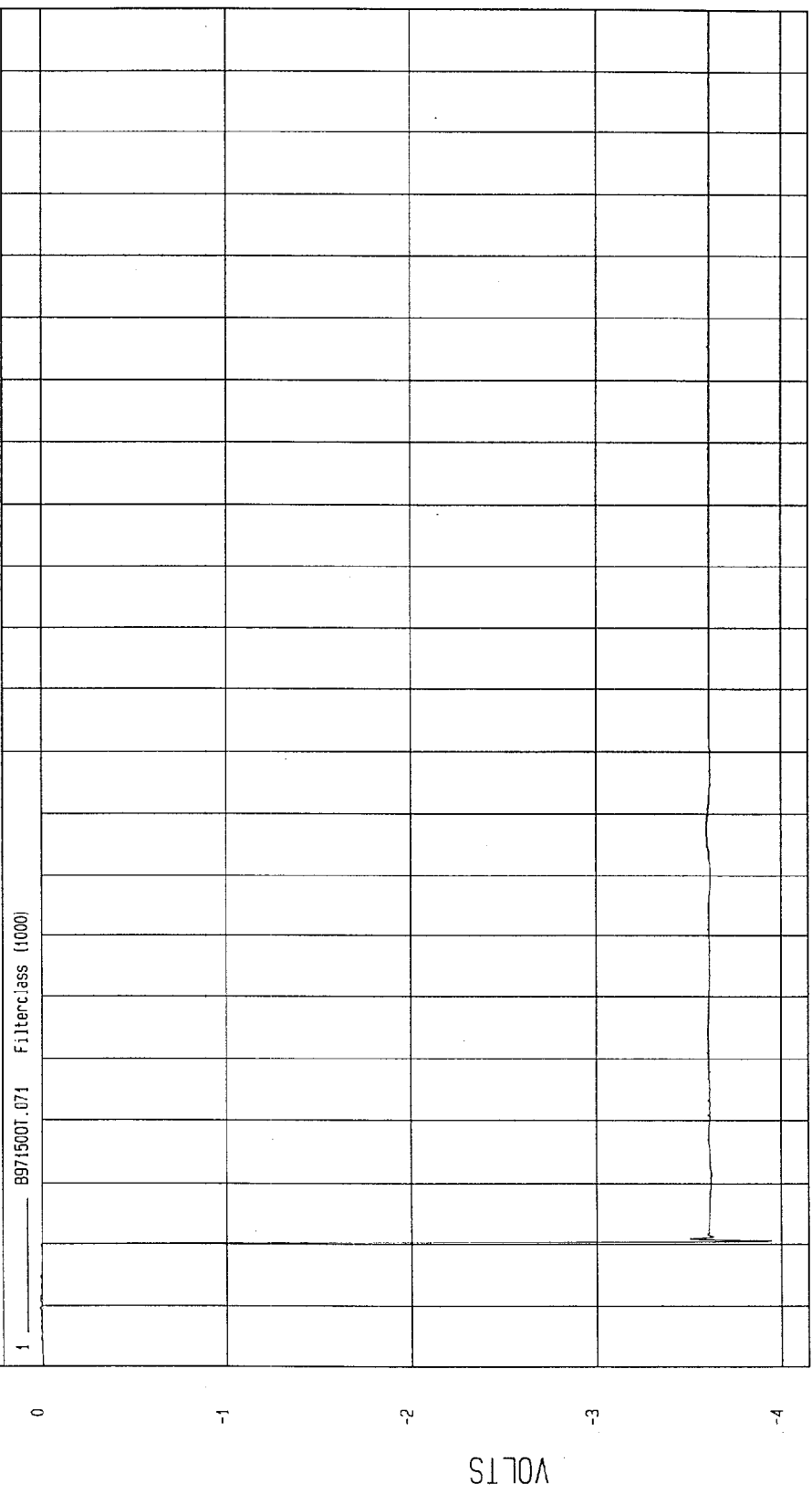
TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.94 VOLTS at 1 msec Maximum = 1.40E-02 VOLTS at -10 msec

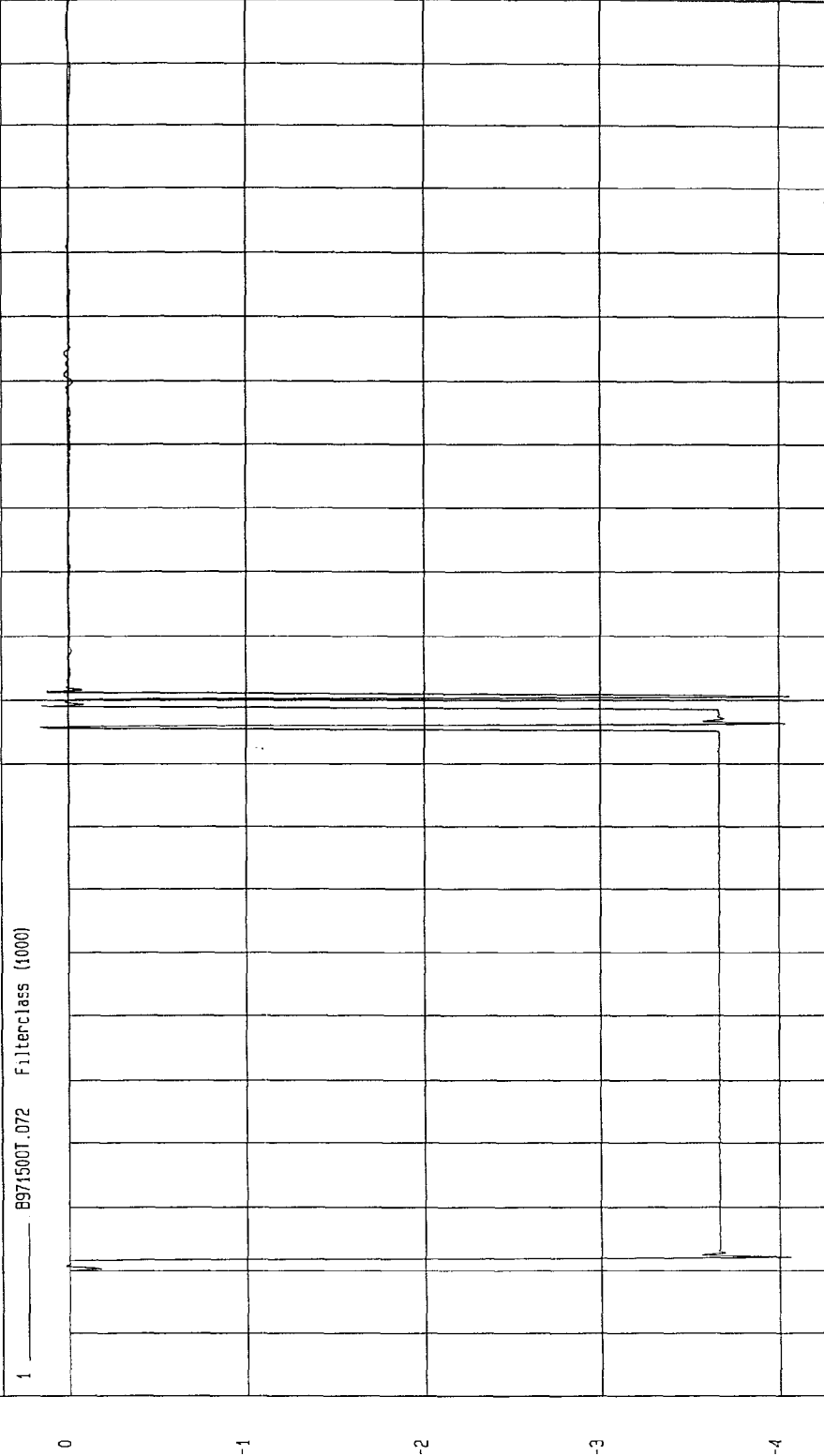
LEFT BARRIER CONTACT



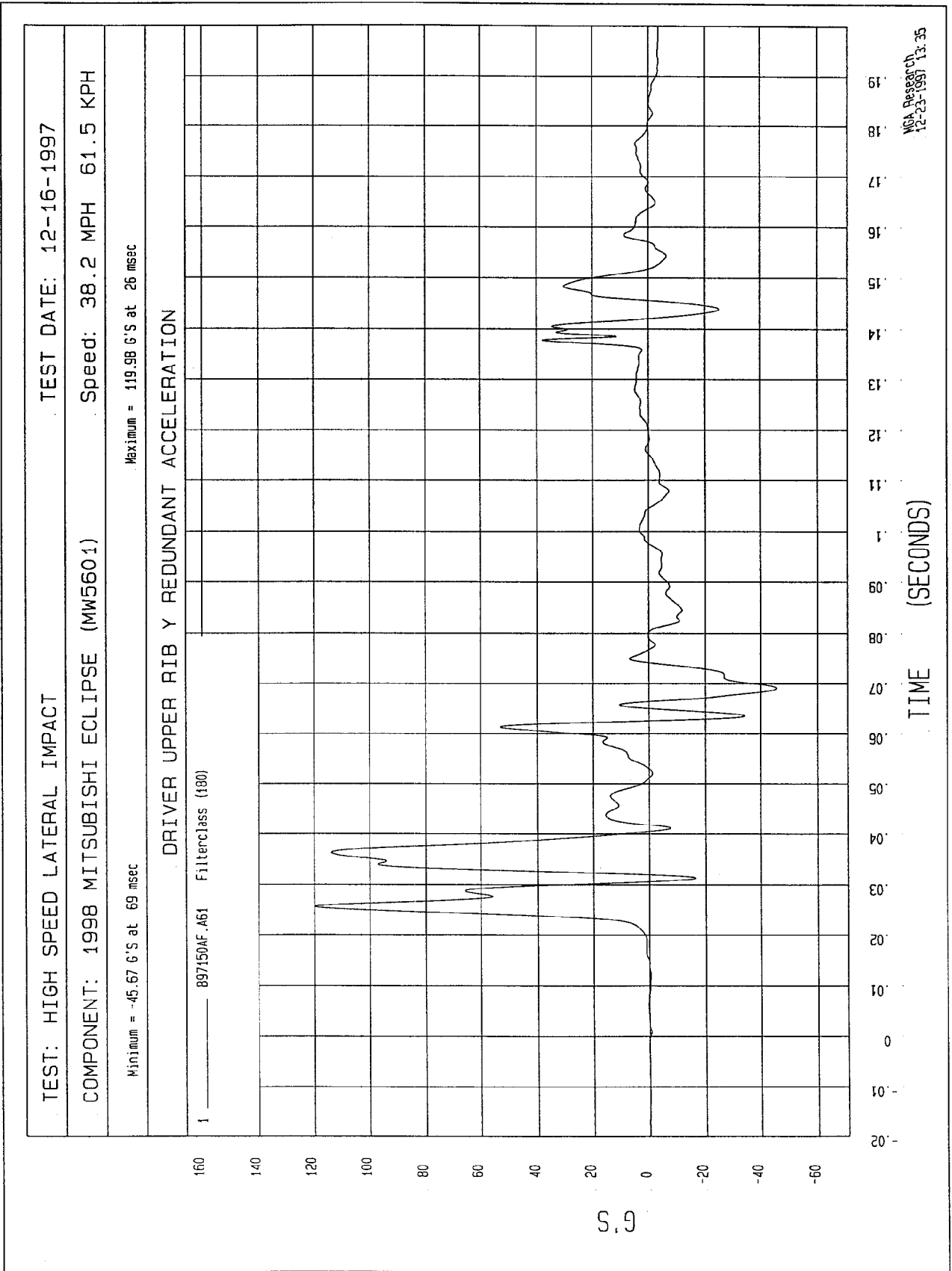
NSA Research
12-16-1997 14:40

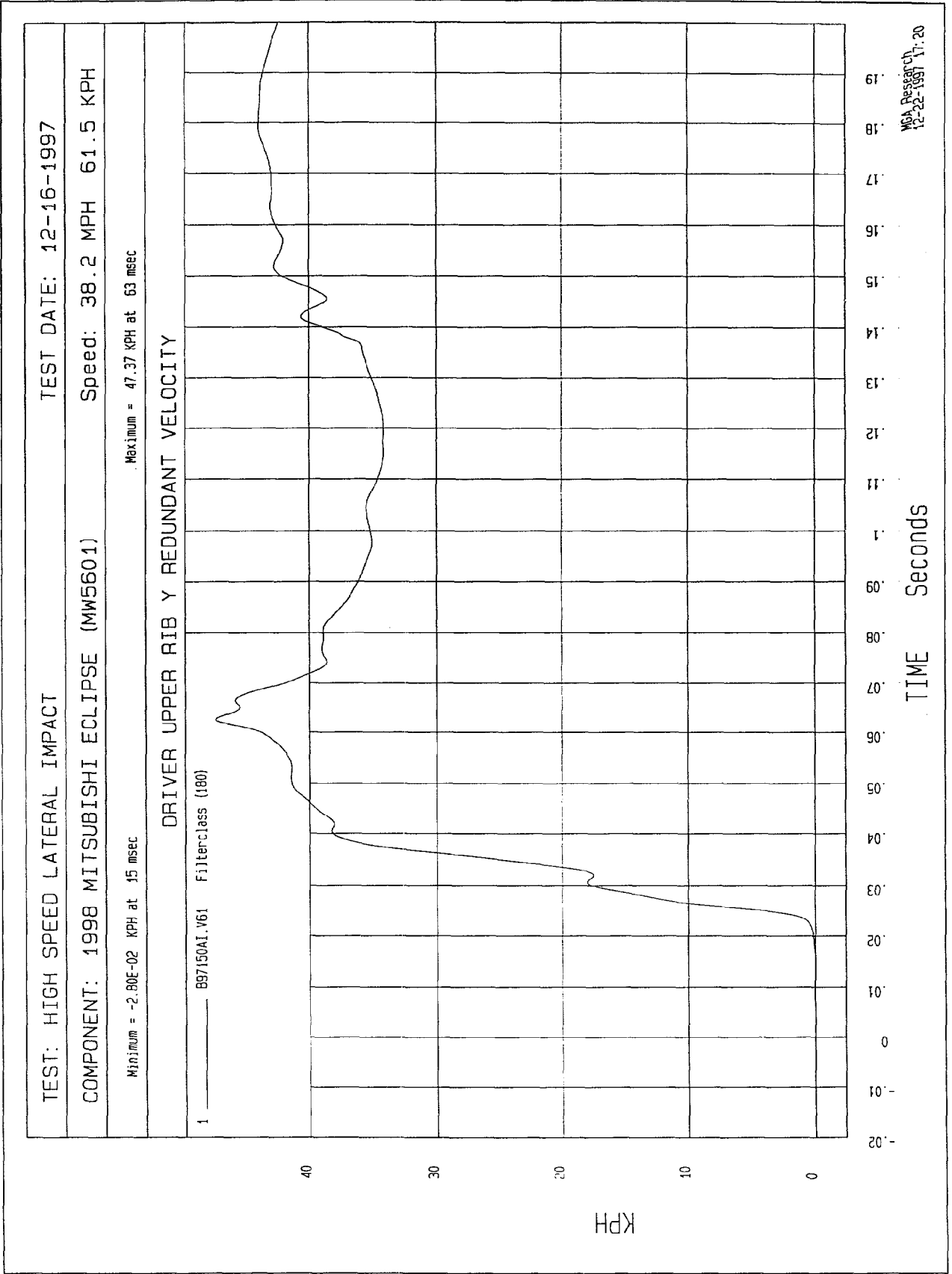
TEST: HIGH SPEED LATERAL IMPACT	TEST DATE: 12-16-1997
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601)	Speed: 38.2 MPH 61.5 KPH
Minimum = -4.06 VOLTS at 2 msec	Maximum = .15 VOLTS at 86 msec

RIGHT BARRIER CONTACT



NSA Research
12-16-1997 14:41





TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -79.90 G'S at 68 msec Maximum = 110.19 G'S at 36 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION

1 897150AF.A52 Filterclass (180)

G.S

TIME (SECONDS)

W&A Research
03-12-1998 16:31

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 12-16-1997

Speed: 38.2 MPH 51.5 KPH

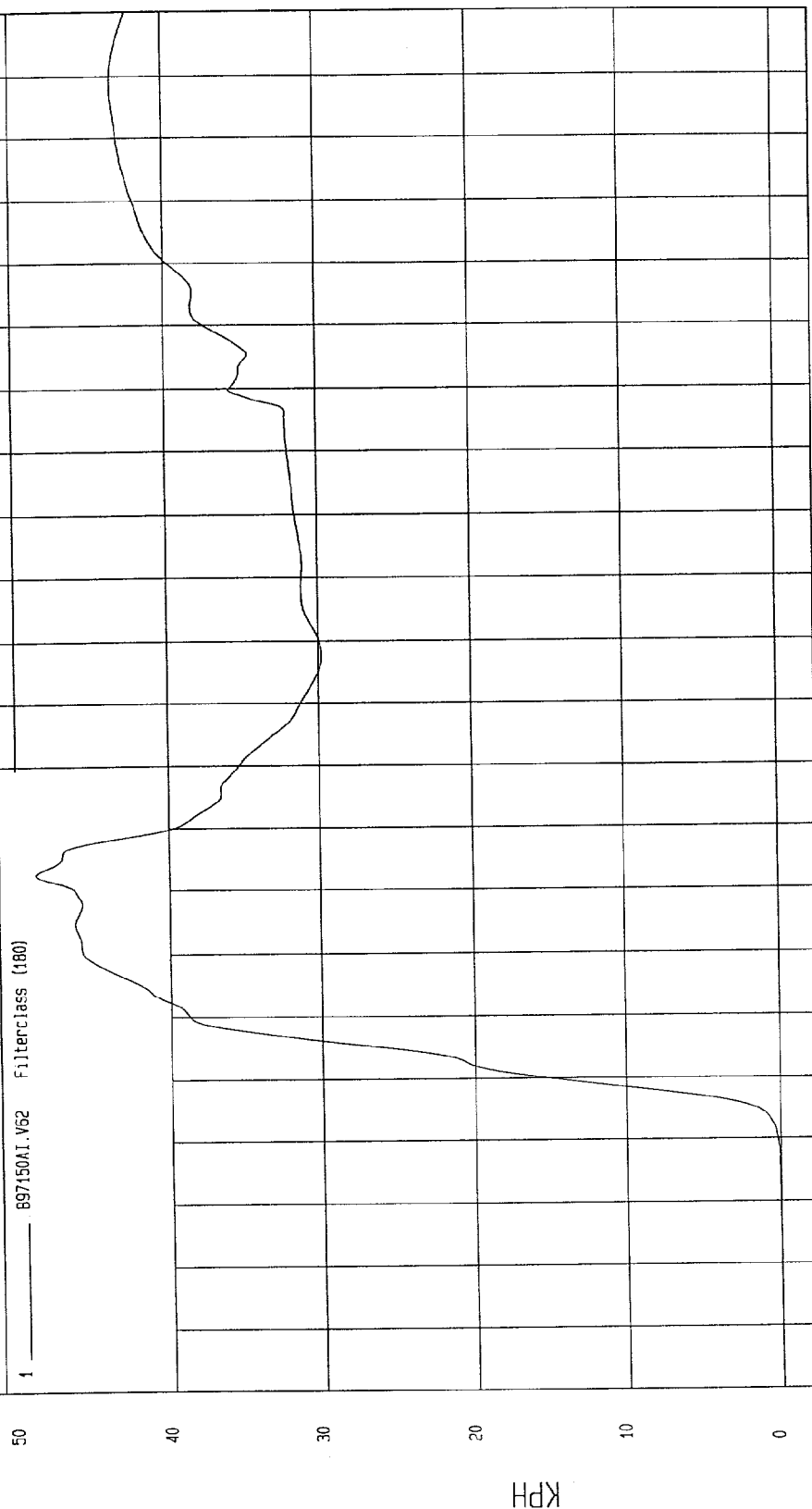
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601)

Maximum = 48.67 KPH at 63 msec

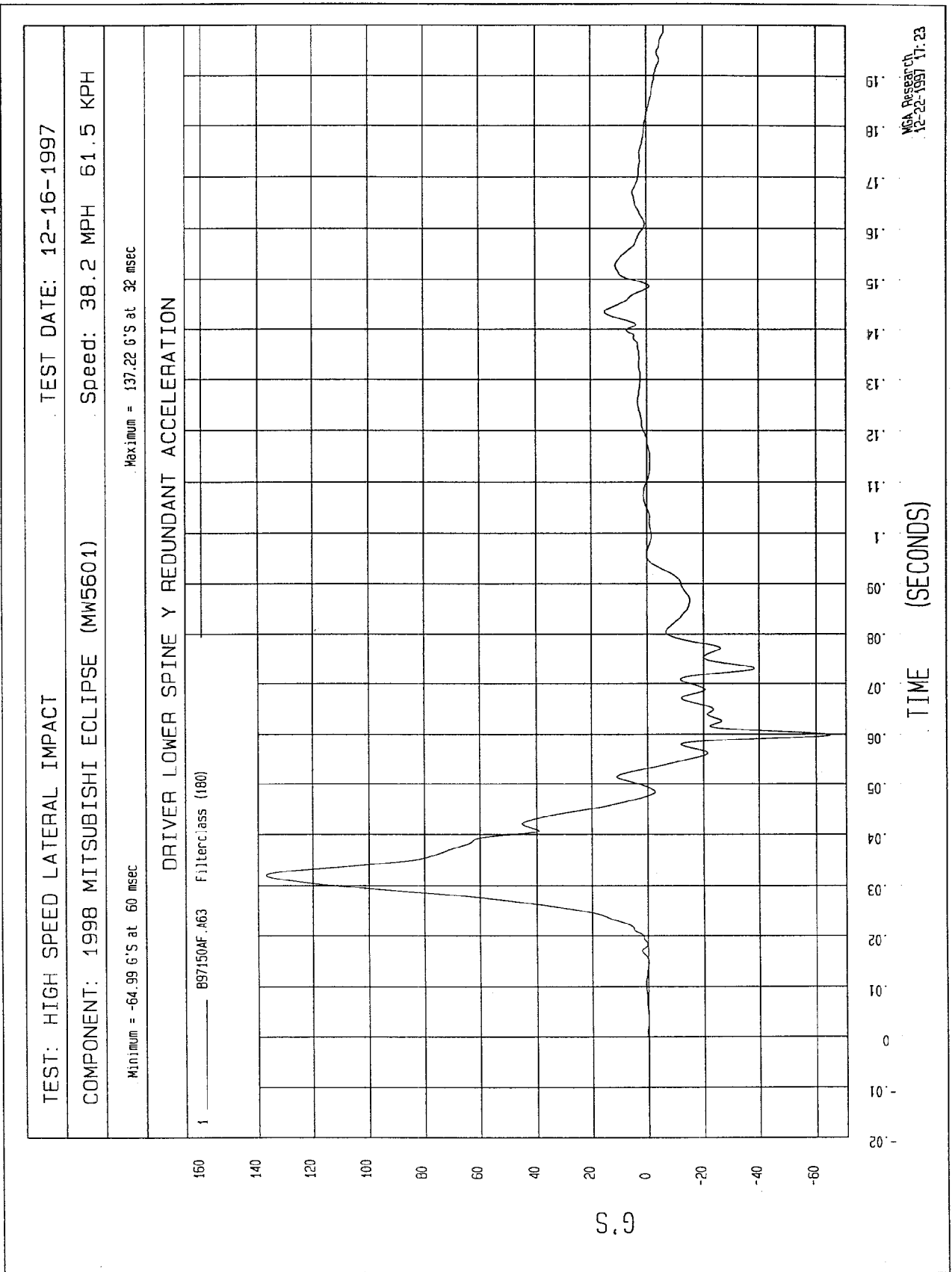
Minimum = -1.19E-02 KPH at 2 msec

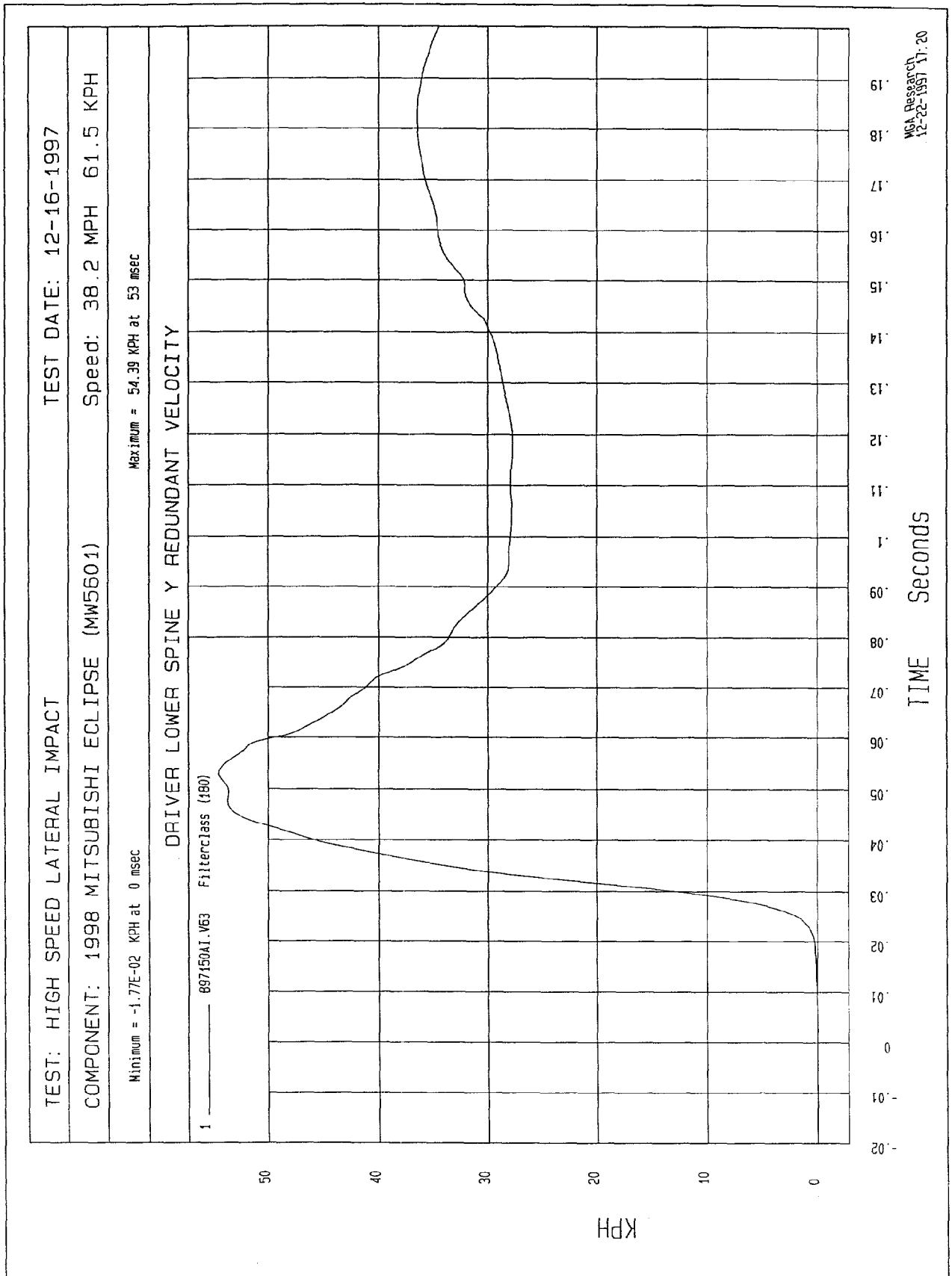
DRIVER LOWER RIB Y REDUNDANT VELOCITY

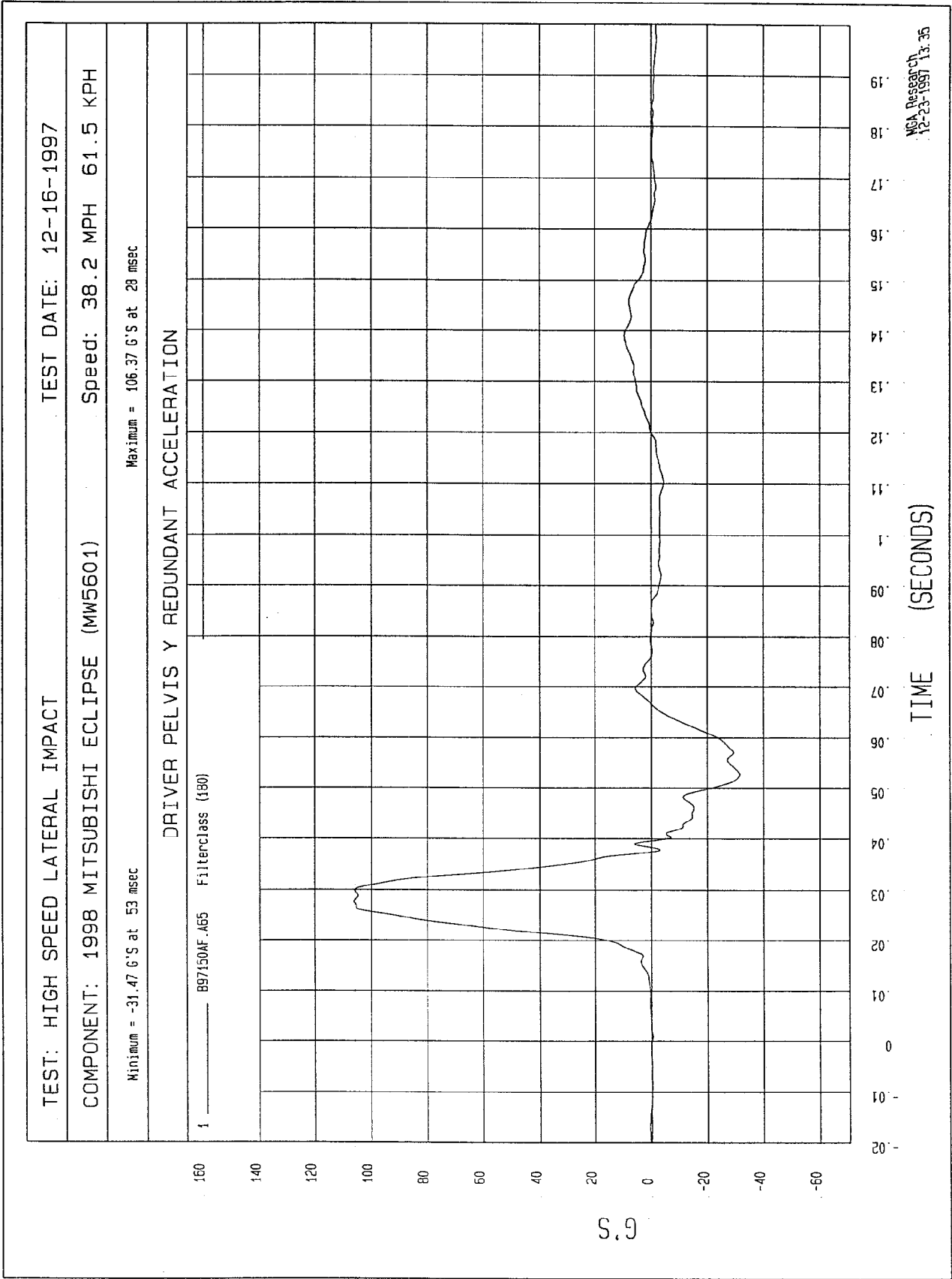
1 ——— 897150A1.V52 Filterclass (180)

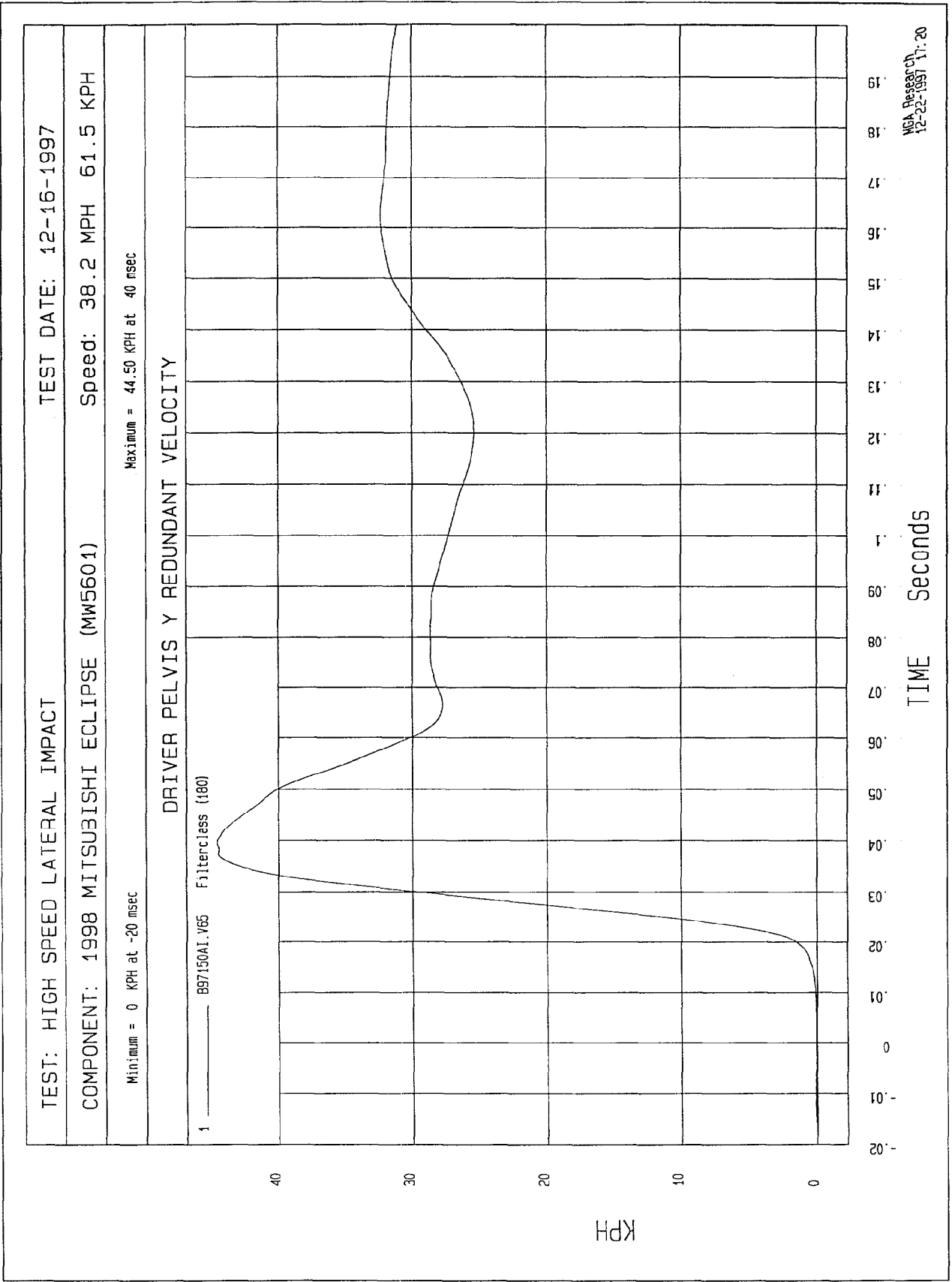


NBA Research
12-22-1997 17:20









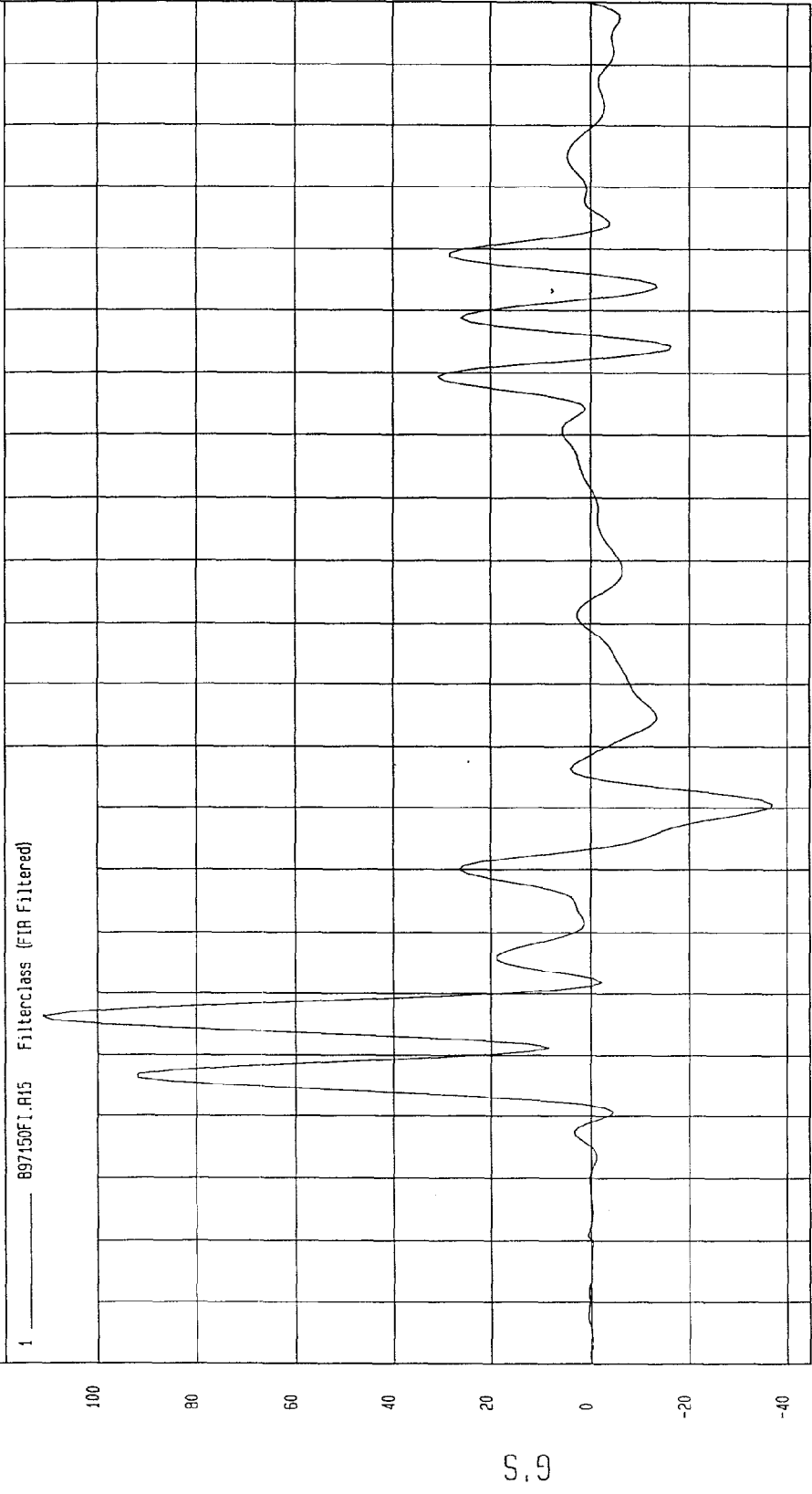
FINITE IMPULSE RESPONSE (FIR) FILTERED DATA

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -37.05 G's at 71 msec Maximum = 111.15 G's at 36 msec

DRIVER UPPER RIB Y ACCELERATION



TIME (SECONDS)

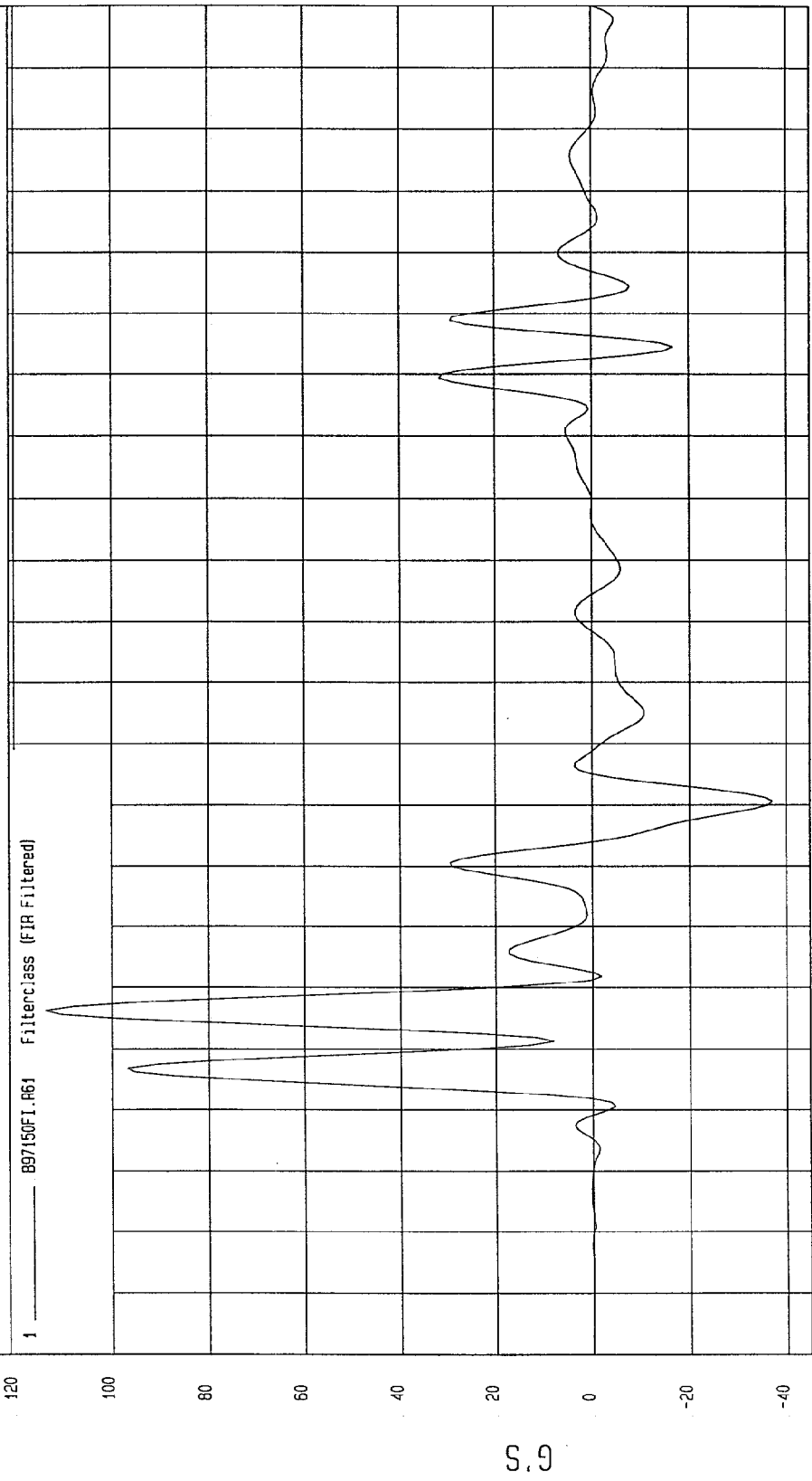
NGA Research
12-16-1997 14.04

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

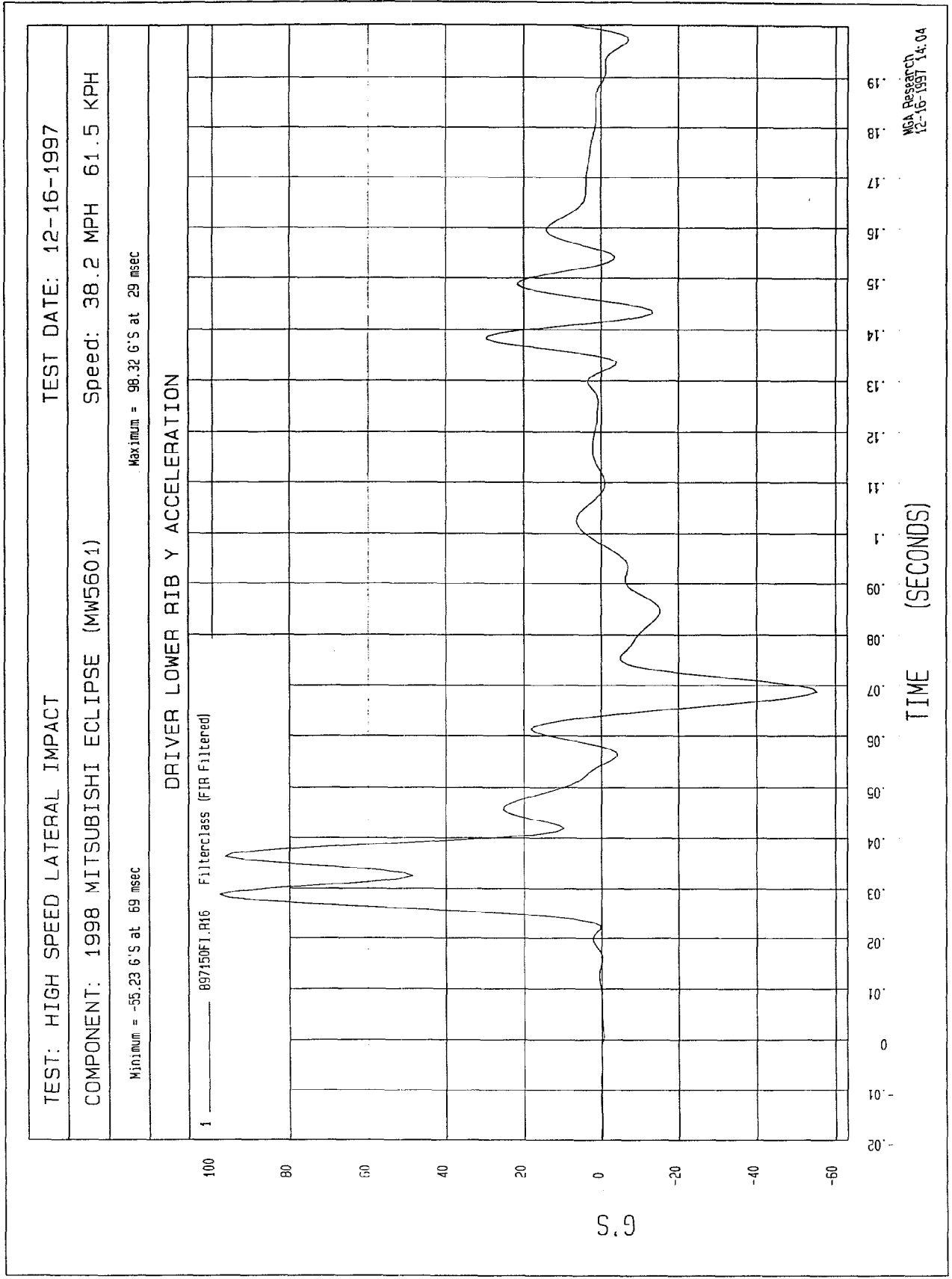
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -37.19 G'S at 71 msec Maximum = 113.55 G'S at 36 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION



MCA Research
01-16-1998 11:28

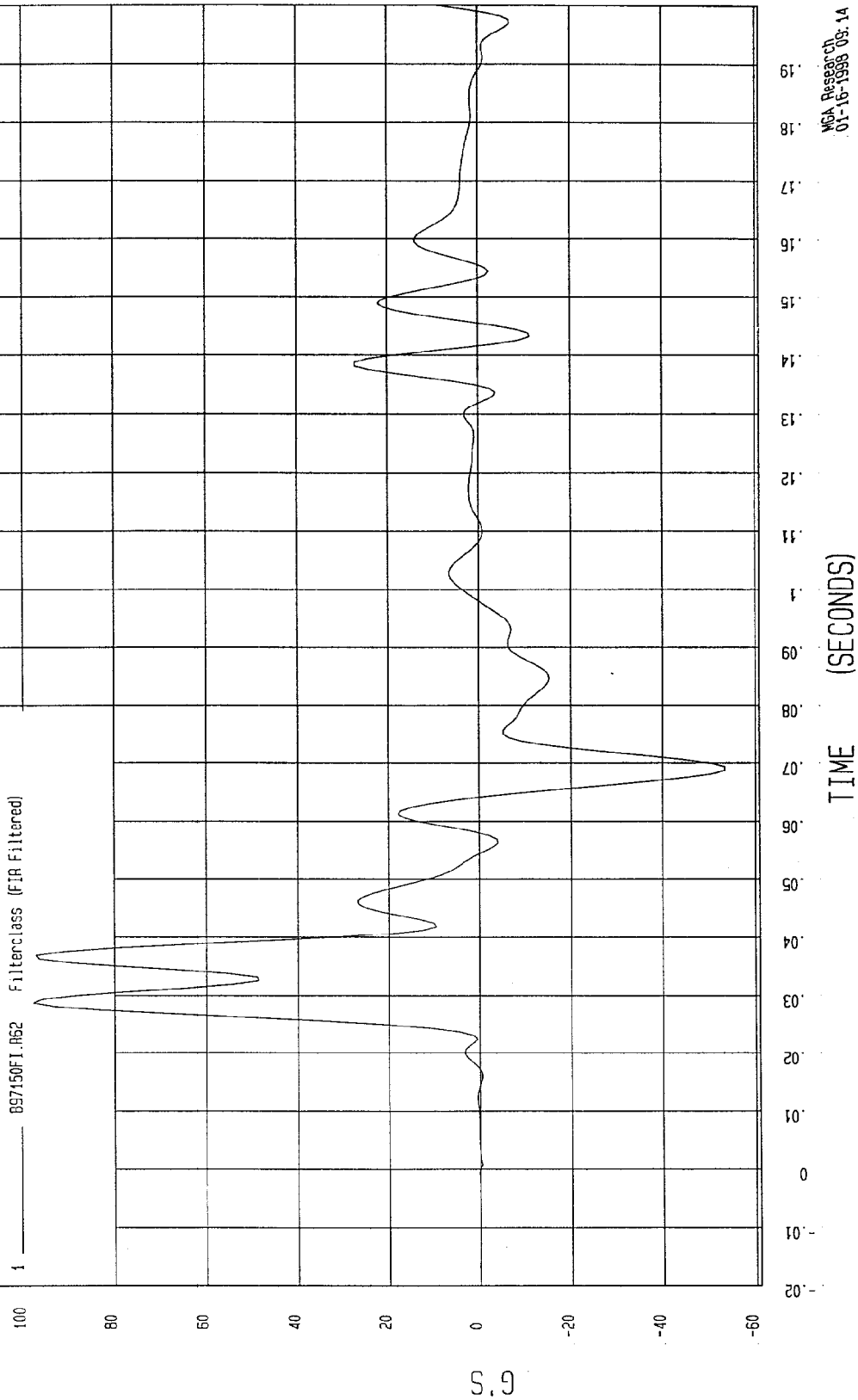


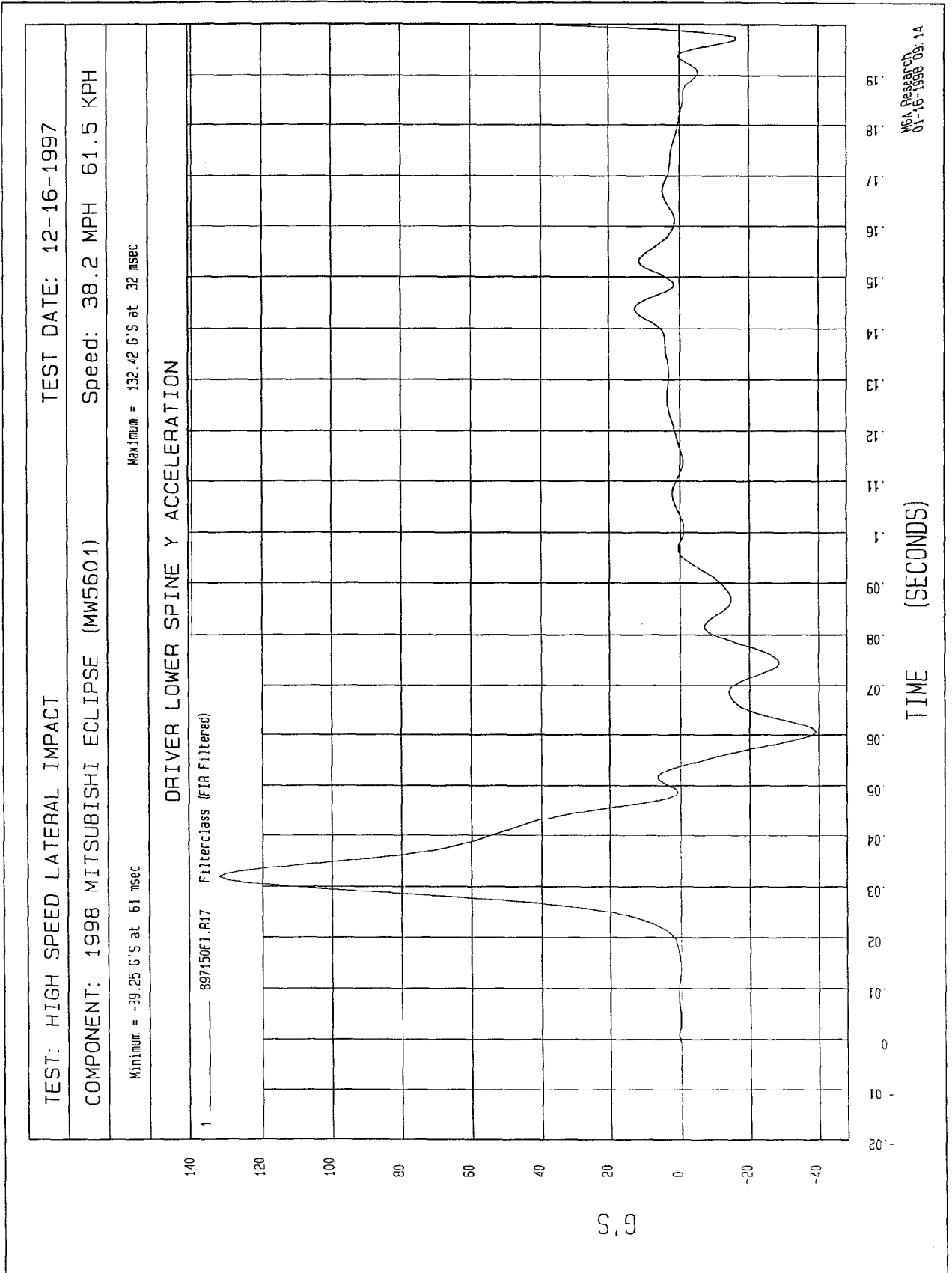
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

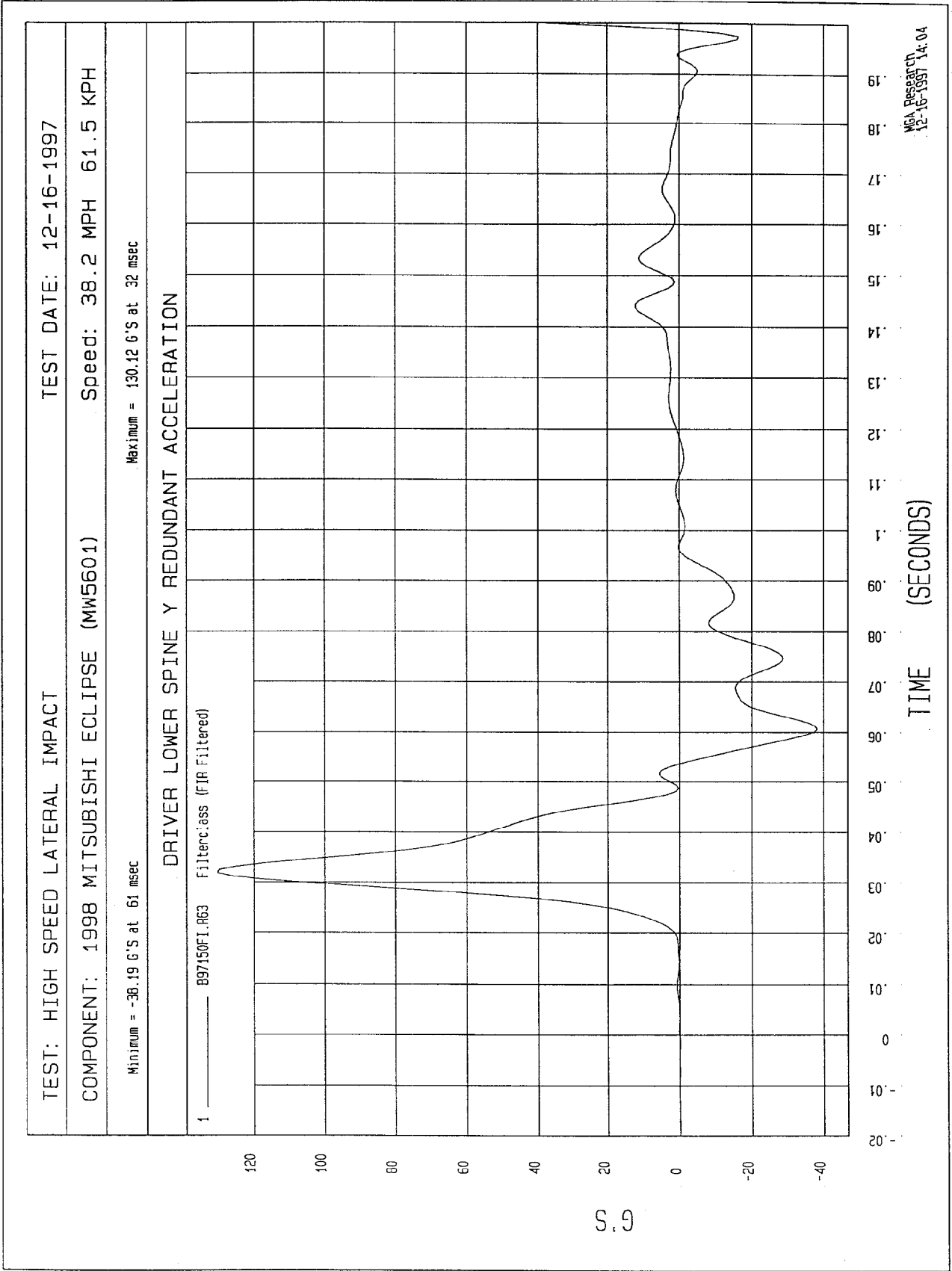
COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -53.31 G'S at 69 msec Maximum = 97.96 G'S at 29 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION





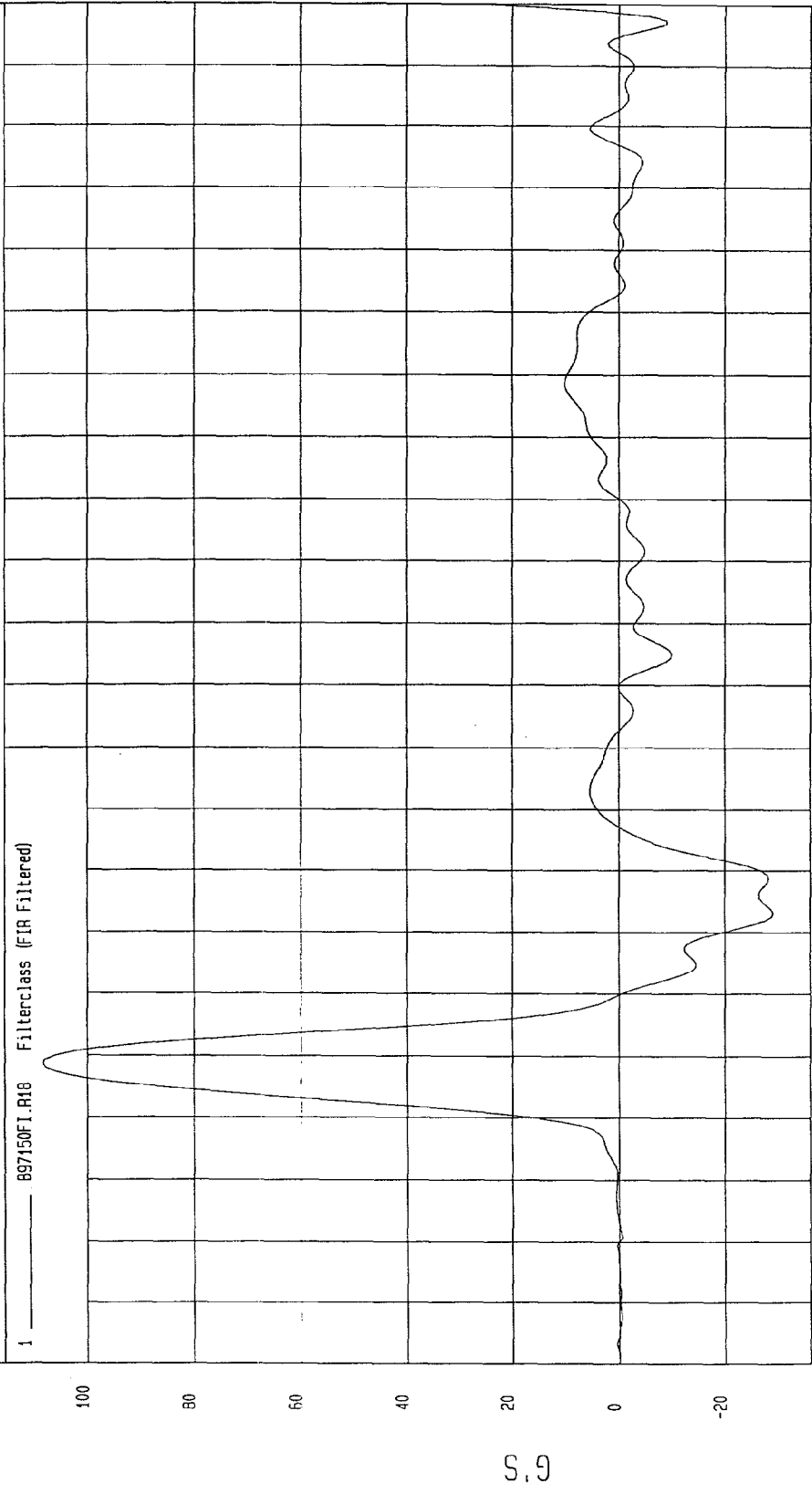


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -29.04 G'S at 53 msec Maximum = 108.57 G'S at 29 msec

DRIVER PELVIS Y ACCELERATION



TIME (SECONDS)

WGA Research
12-16-1997 14:05

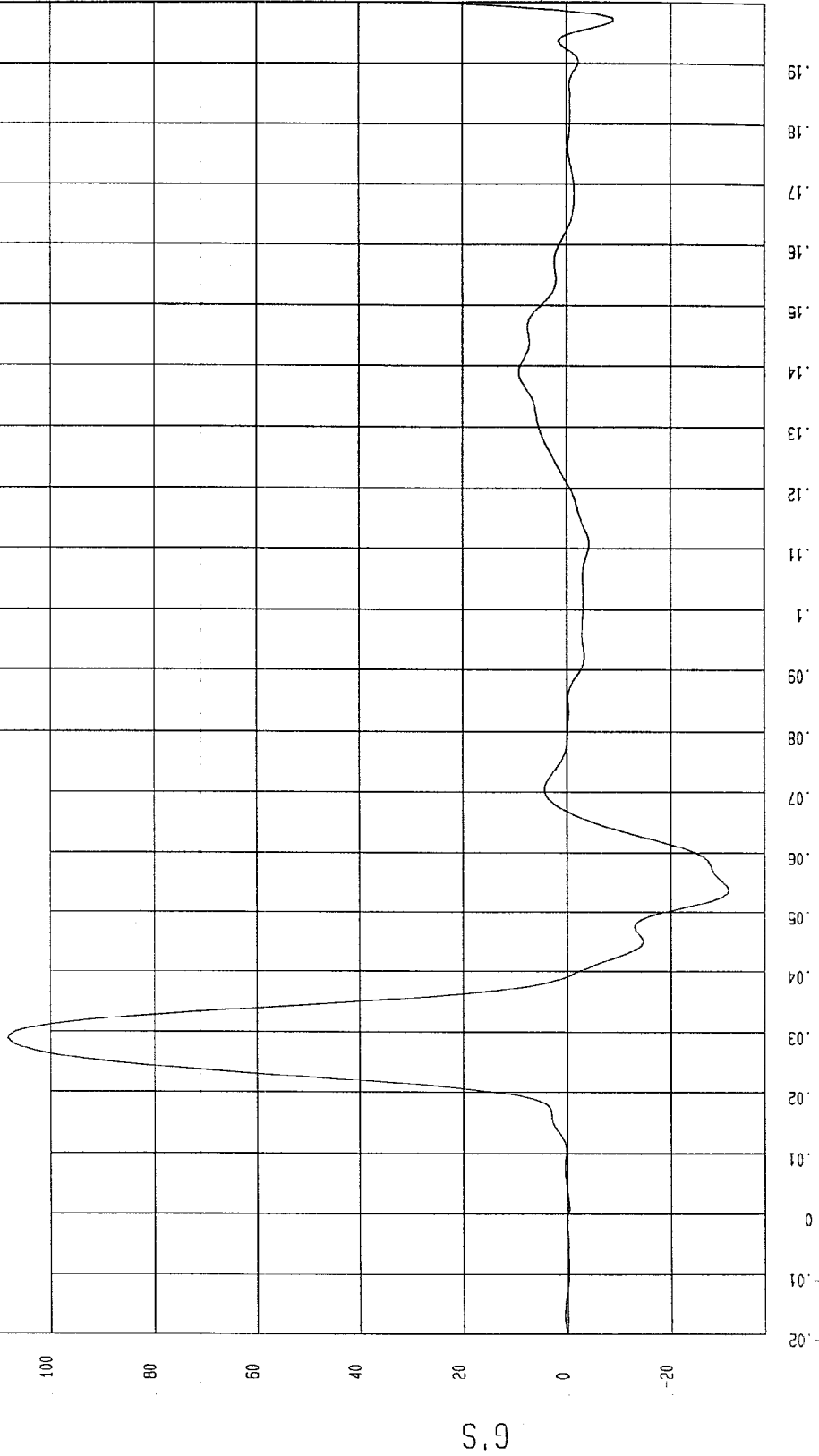
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 12-16-1997

COMPONENT: 1998 MITSUBISHI ECLIPSE (MW5601) Speed: 38.2 MPH 61.5 KPH

Minimum = -30.83 G'S at 54 msec Maximum = 108.12 G'S at 29 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION

1 ——— B97150F1.065 Filterclass (FIR Filtered)



NGA Research
12-16-1997 14.05

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-98-DC016

DUMMY PERFORMANCE CALIBRATIONS

NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST

1998 MITSUBISHI ECLIPSE
NHTSA NO. MW5601

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: December 16, 1997

Report Date: January 16, 1998

FINAL REPORT

Prepared For:

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

TABLE OF CONTENTS

		<u>Page No.</u>
DUMMY S/N: 272	PRE-TEST CERTIFICATION DATA	1-1
DUMMY S/N: 272	POST-TEST CERTIFICATION DATA	2-1
DUMMY S/N: 272	POST-TEST INSPECTION CHECKLIST	3-1
	VEHICLE AND DUMMY TEMPERATURE	4-1

PRE-TEST CERTIFICATION DATA

Front Dummy Serial Number: 272

Calibration Test Results Summary

Dummy Serial Number: 272

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.

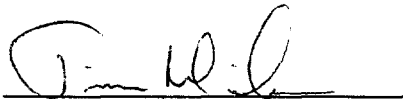
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 272

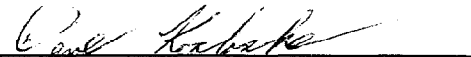
DATE OF VERIFICATION: December 15, 1997

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"	9.4
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.7
SW - Knee Pivot to Floor	19.3" - 19.9"	19.6
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

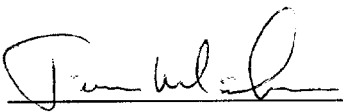
DATE: December 15, 1997

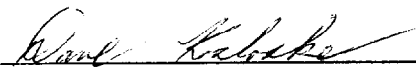
DUMMY NUMBER: 272

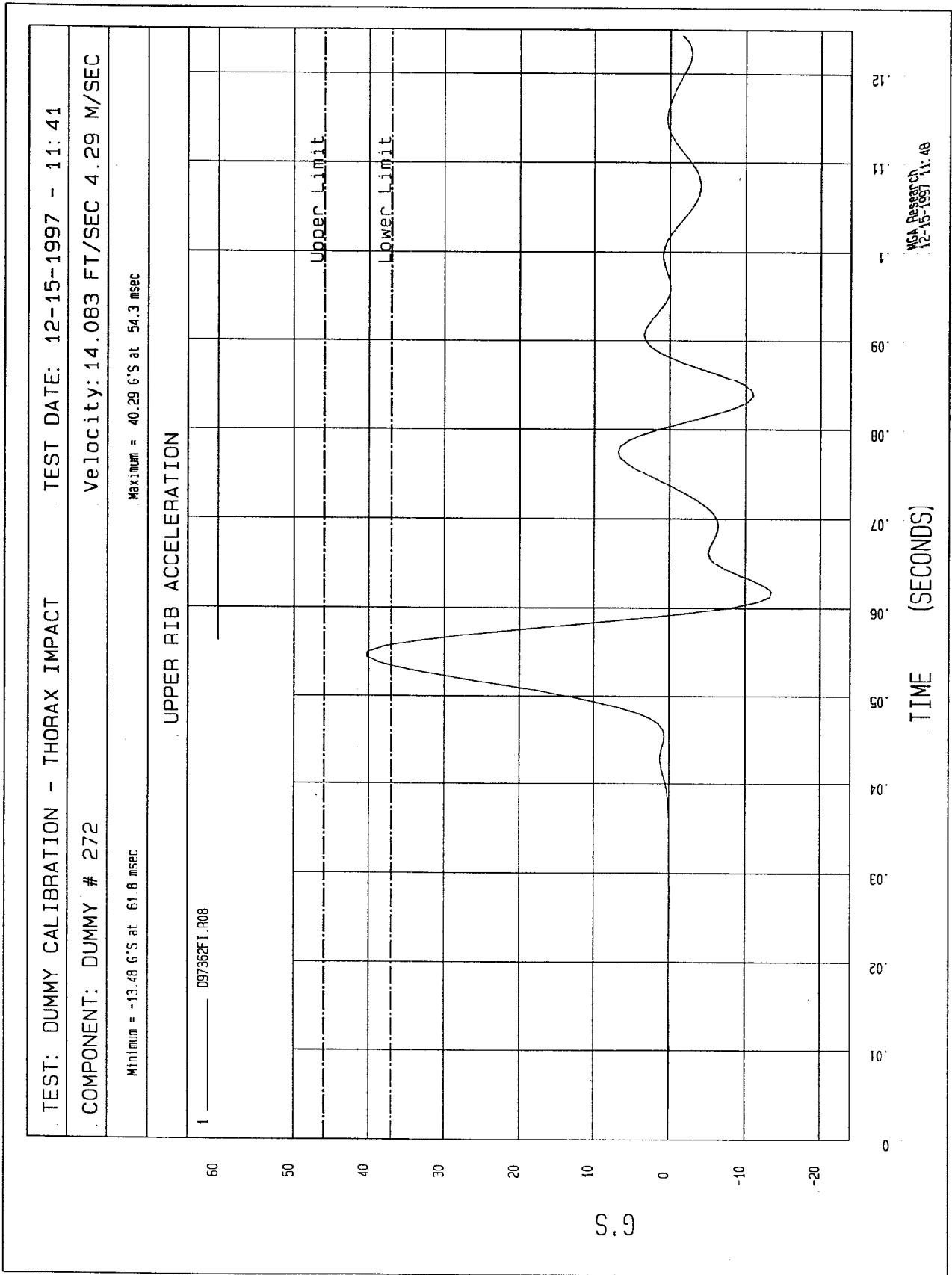
TEST NUMBER: D972362

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	17%
PROBE SPEED	14.0 - 14.2 fps	14.1
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	20

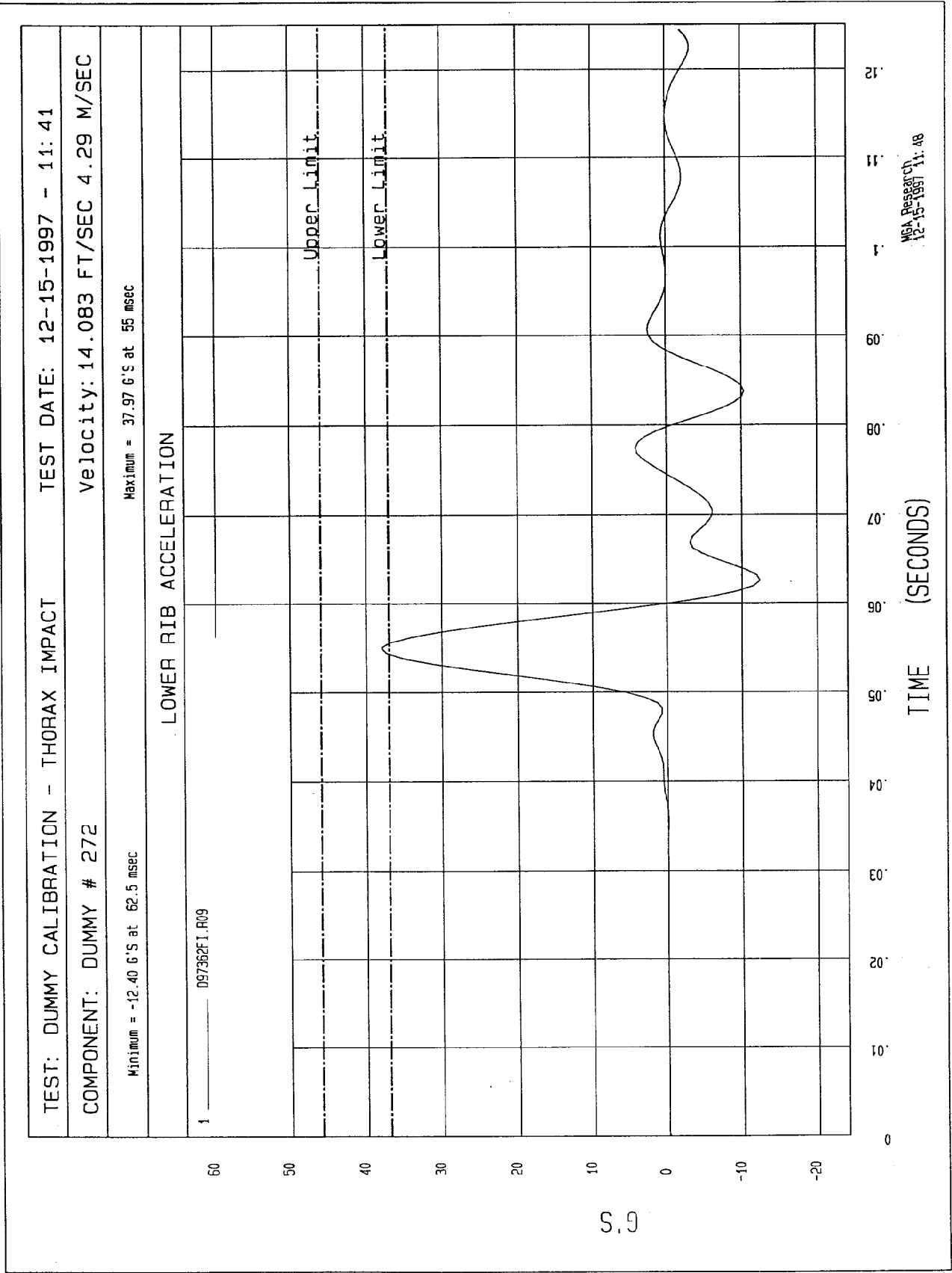
TEST MEETS SPECIFICATIONS

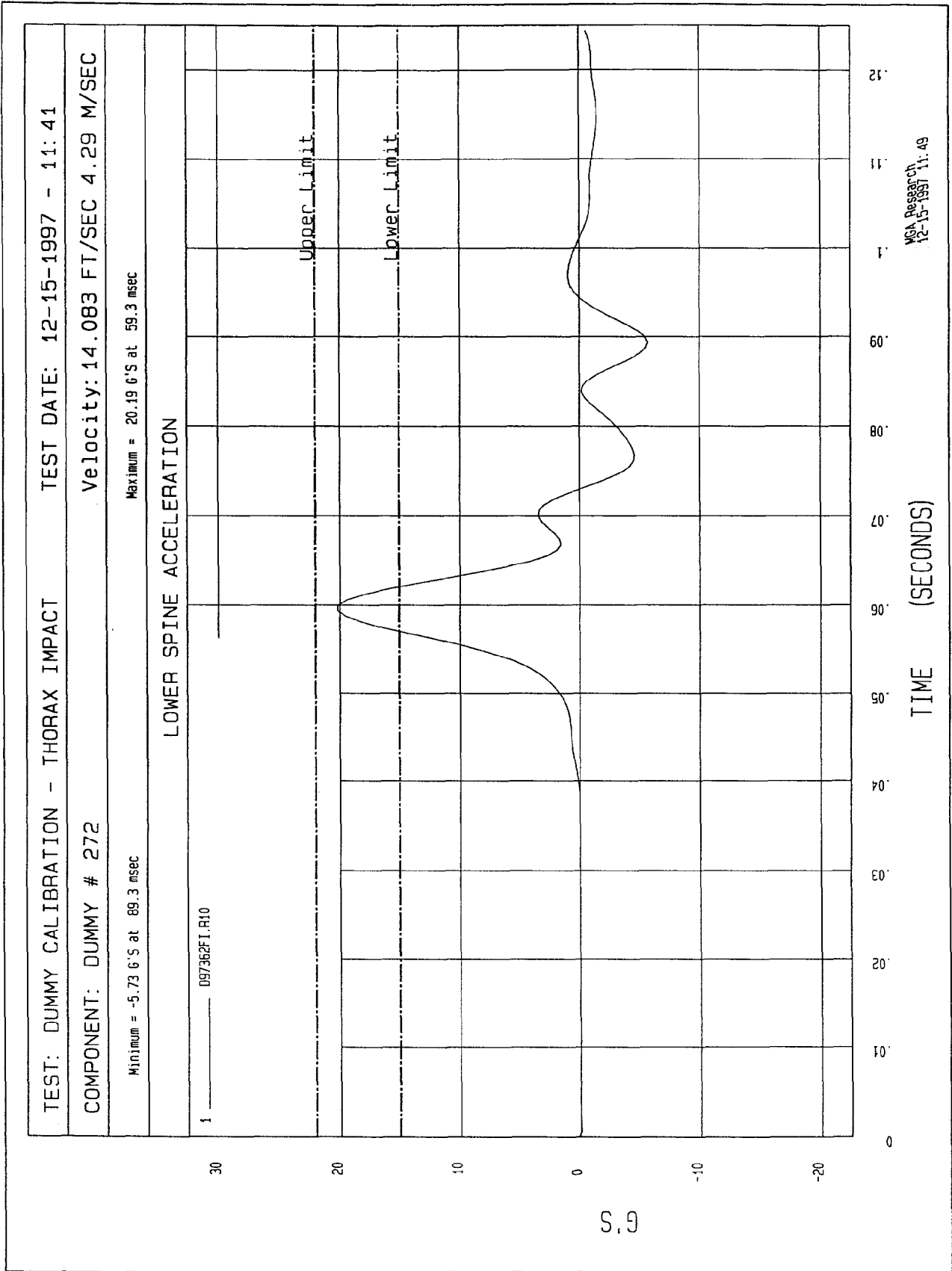
TECHNICIAN 

APPROVED BY 



NSA Research
12-15-1997 11:48





MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 15, 1997

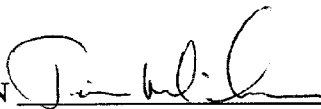
DUMMY NUMBER: 272

TEST NUMBER: D972363

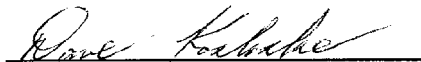
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	17%
PROBE SPEED	14.0 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	44

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

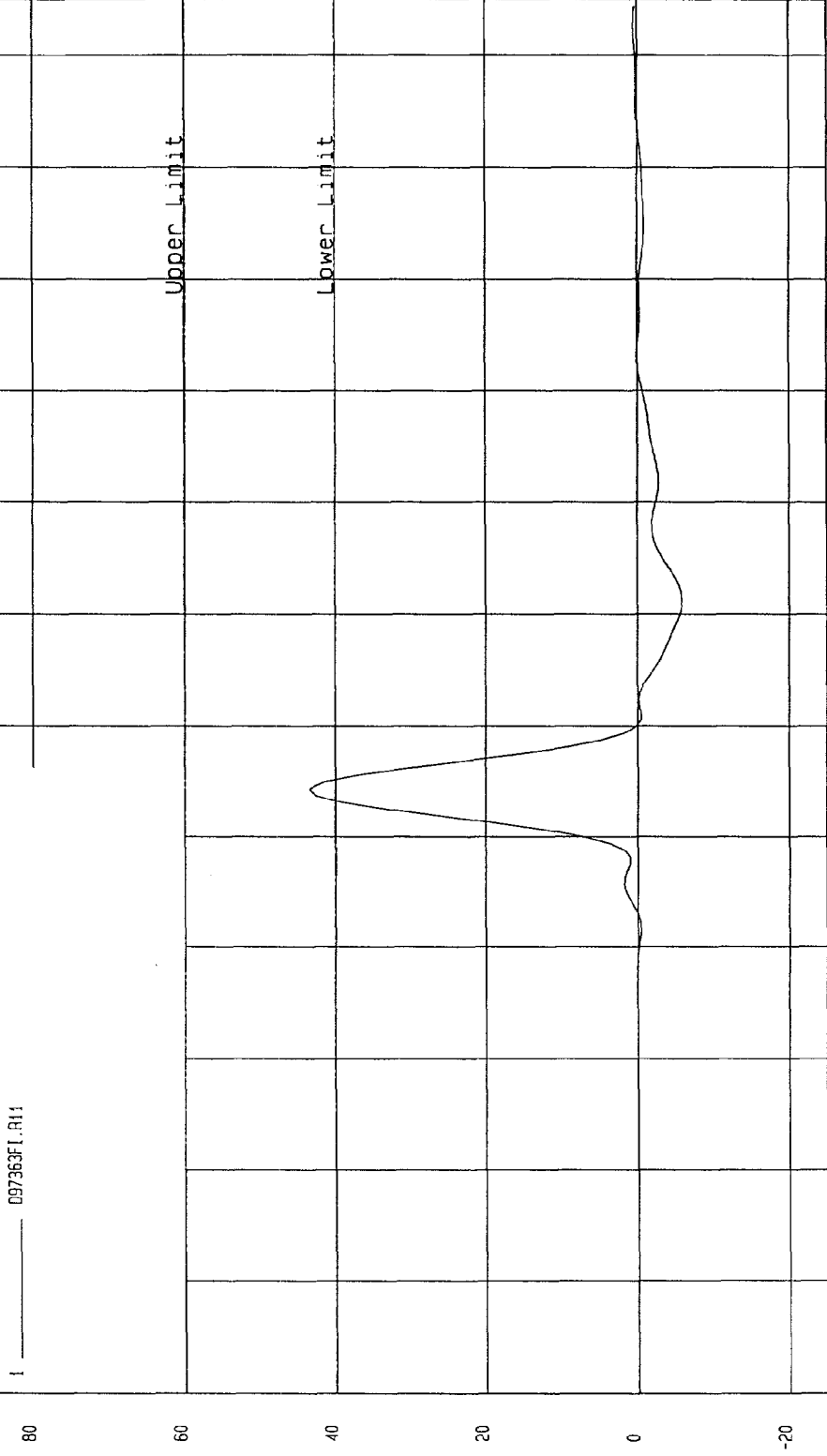


TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 12-15-1997 - 11:48:15

COMPONENT: DUMMY # 272 Velocity: 14.046 FT/SEC 4.28 M/SEC

Minimum = -5.05 G'S at 71.2 msec Maximum = 43.57 G'S at 54.3 msec

PELVIS ACCELERATION



TIME (SECONDS)

NSA Research
12-15-1997 11:51

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

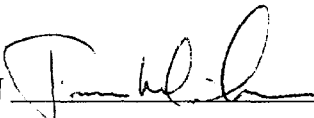
DATE: December 15, 1997

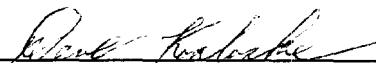
DUMMY NUMBER: 272

TEST NUMBER: D972364

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	17%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.4
FORCE @ 0.75 in	36.7 - 49.8 lbs	43.4
FORCE @ 1.0 in	50 - 63 lbs	58
FORCE @ 1.3 in	73 - 88 lbs	80

TEST MEETS SPECIFICATIONS

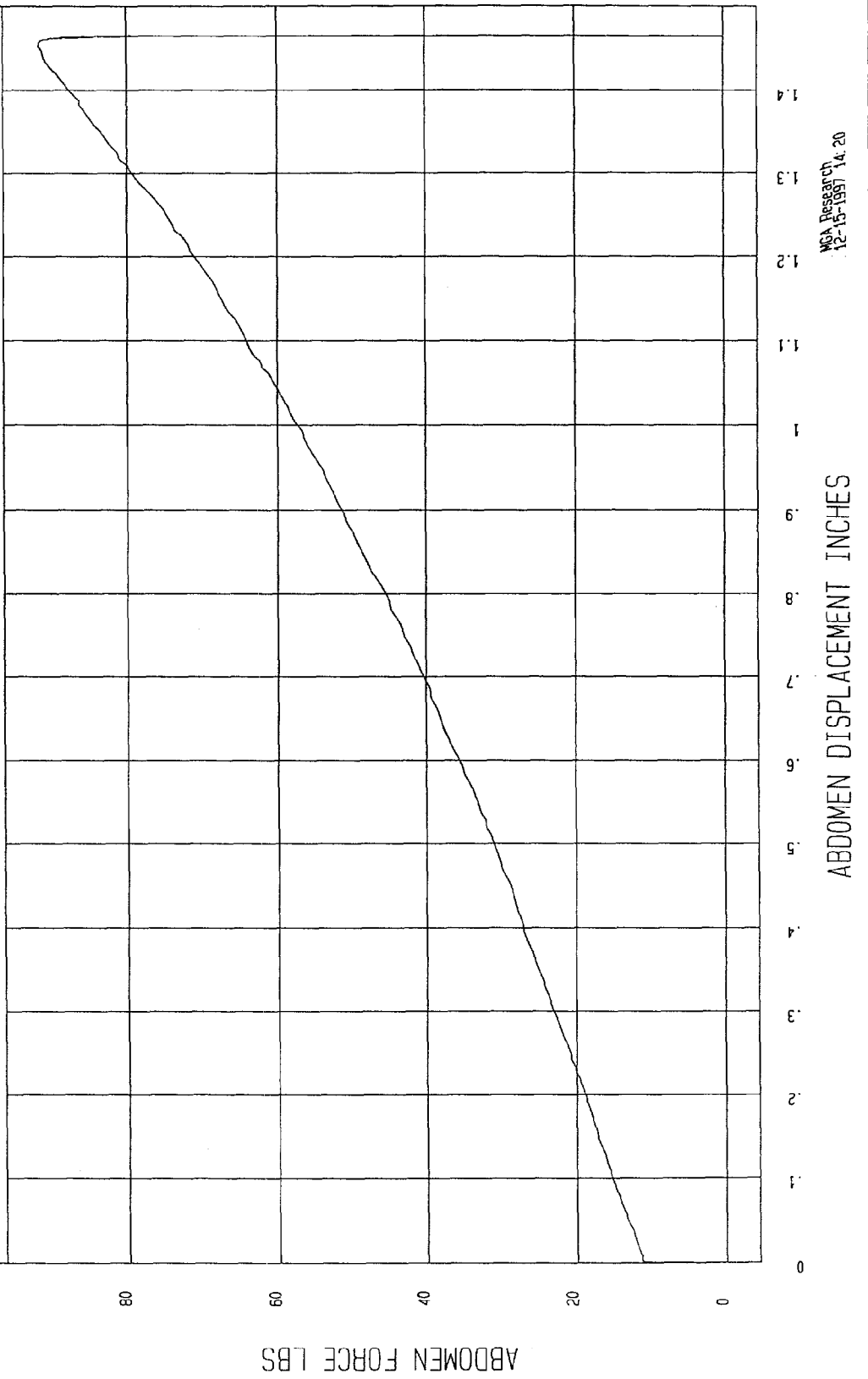
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 12-15-1997 - 13:49

COMPONENT: DUMMY # 272

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: December 15, 1997

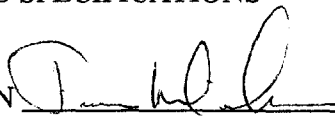
DUMMY NUMBER: 272

TEST NUMBER: D972365

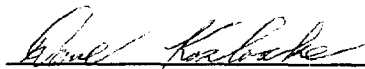
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	17%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	25
FORCE @ 30°	34 - 46 lbs	36
FORCE @ 40°	46 - 58 lbs	55
RETURN ANGLE	12° maximum	2°

TEST MEETS SPECIFICATIONS

TECHNICIAN



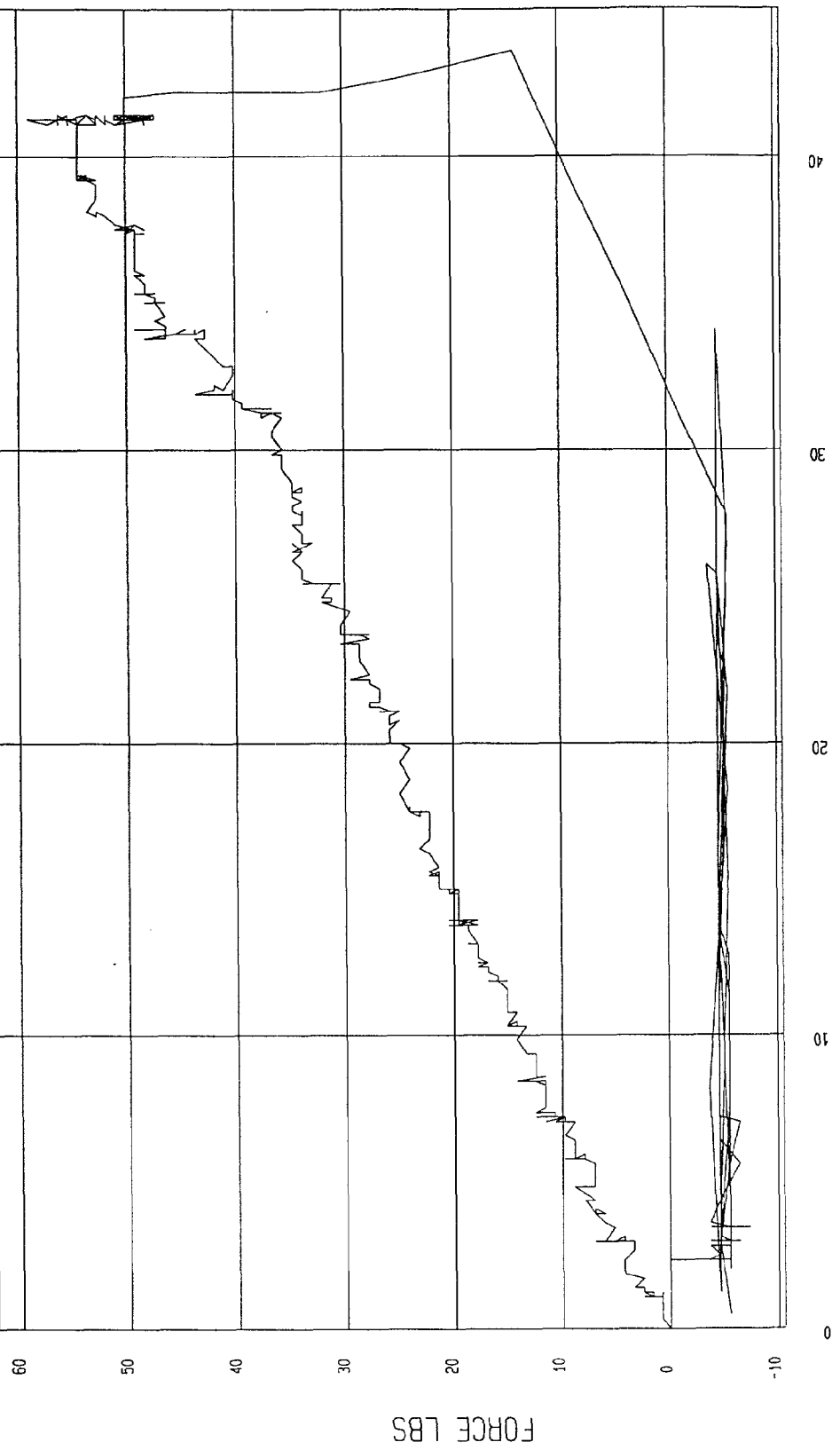
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 12-15-1997 - 14:13

COMPONENT: DUMMY # 272

FORCE as a function of TORSO ROTATION



MCA Research
12-15-1997 14:14

POST-TEST CERTIFICATION DATA

Front Dummy Serial Number: 272

Calibration Test Results Summary

Dummy Serial Number: 272

Post-Test Calibration

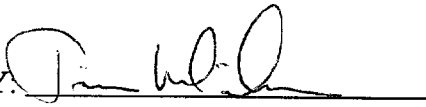
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 272

DATE OF VERIFICATION: January 21, 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"	9.4
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.7
SW - Knee Pivot to Floor	19.3" - 19.9"	19.6
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

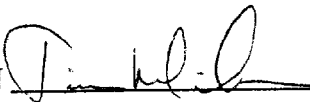
DATE: January 12, 1998

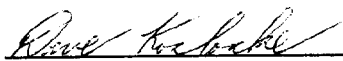
DUMMY NUMBER: 272

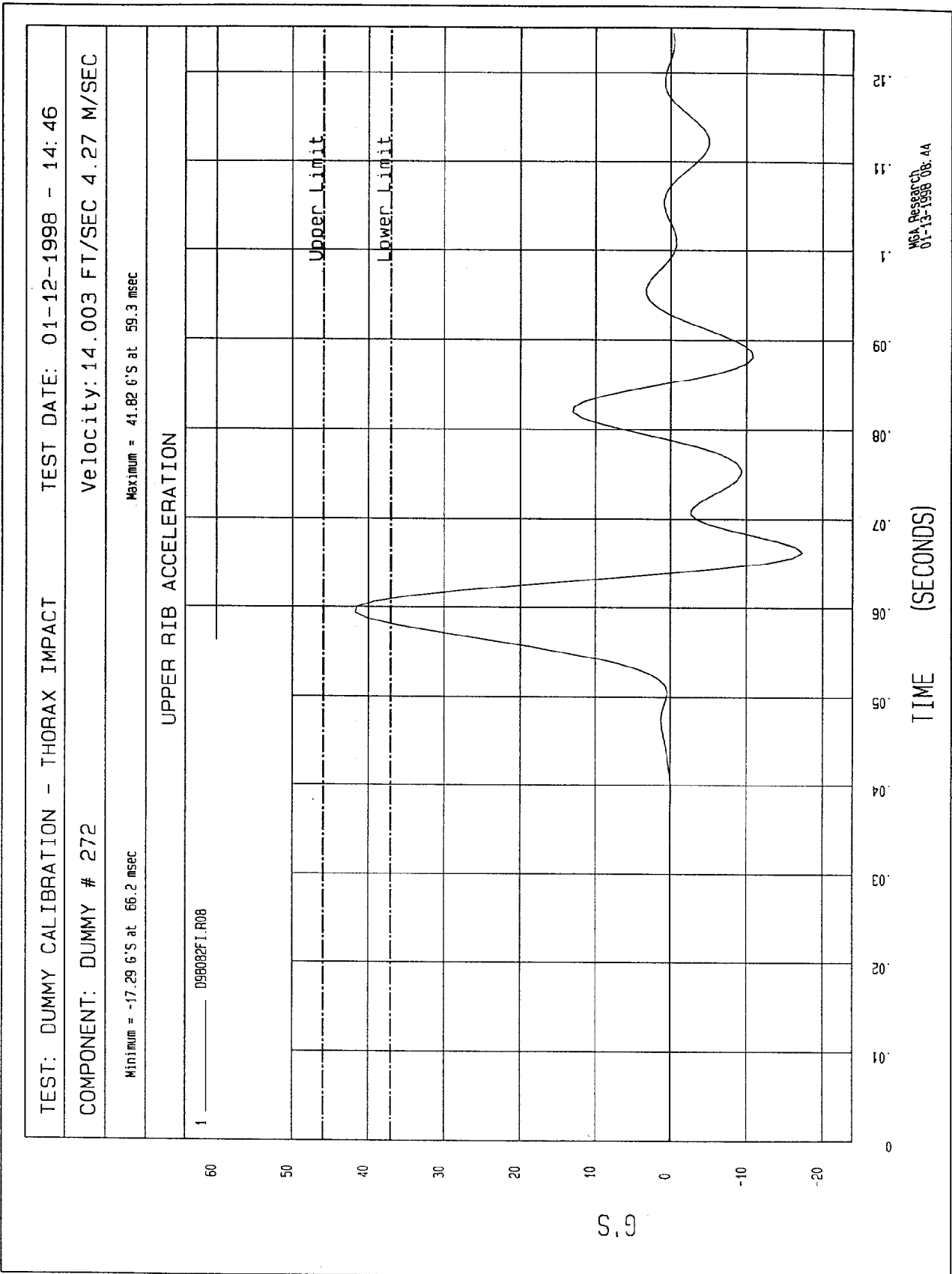
TEST NUMBER: D98082

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	11%
PROBE SPEED	14.0 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 



TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 01-12-1998 - 14: 46

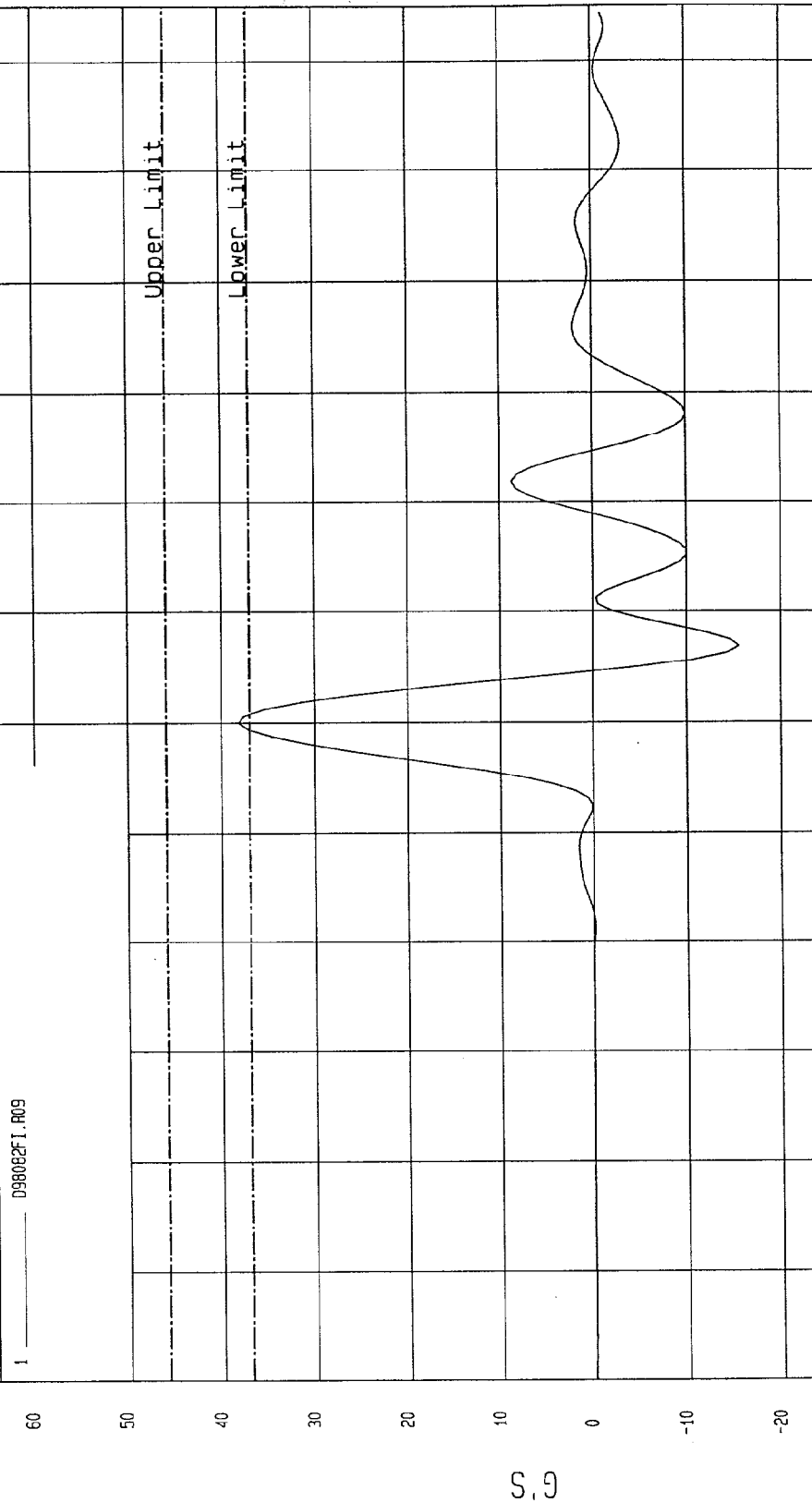
COMPONENT: DUMMY # 272

Velocity: 14.003 FT/SEC 4.27 M/SEC

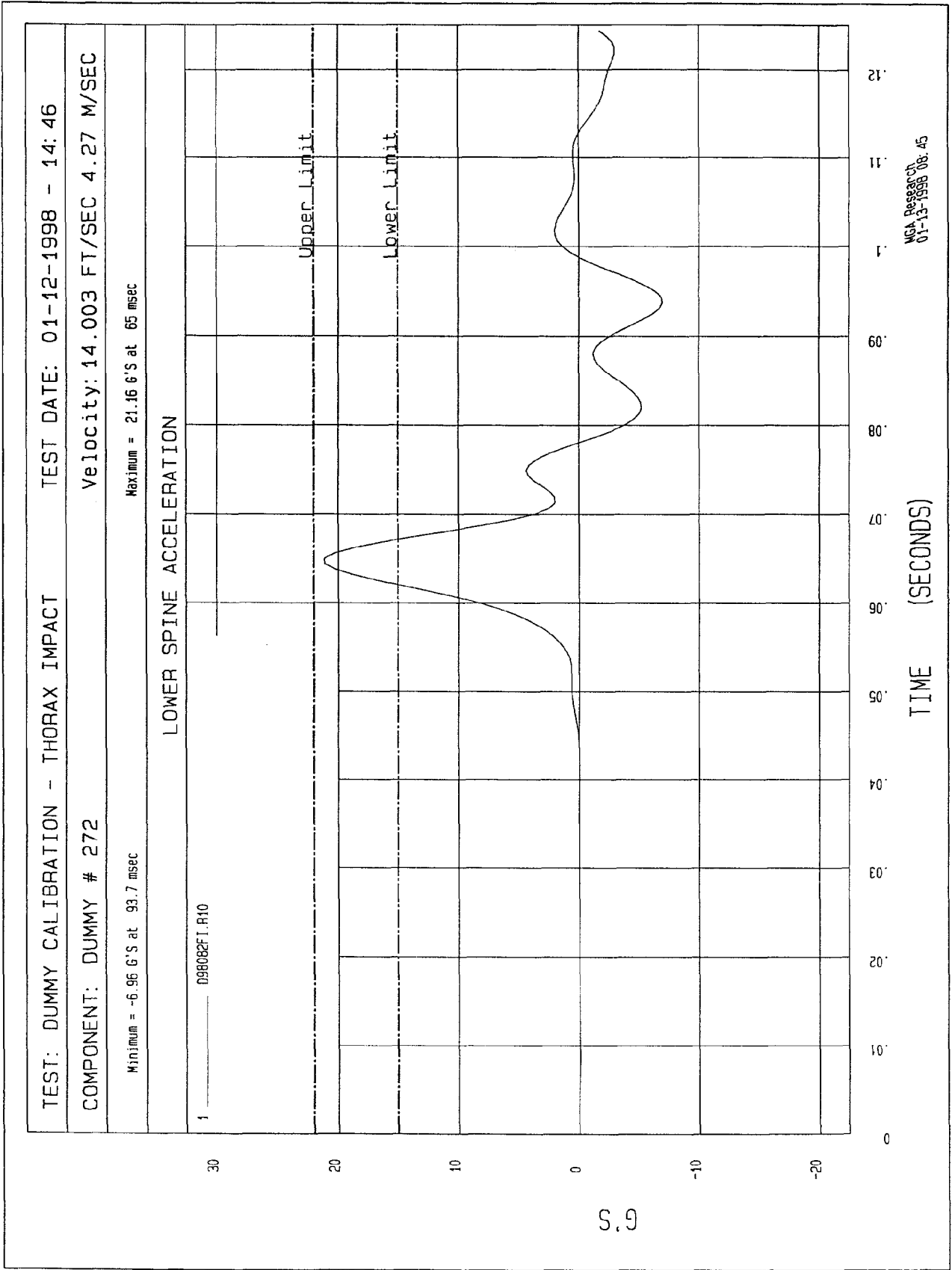
Maximum = 38.16 G'S at 60 msec

Minimum = -15.52 G'S at 66.8 msec

LOWER RIB ACCELERATION



MSA Research
01-13-1998 08:45



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 13, 1998

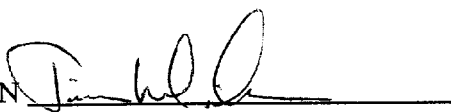
DUMMY NUMBER: 272

TEST NUMBER: D98083

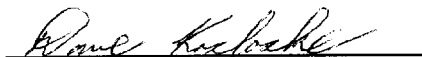
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	12%
PROBE SPEED	14.0 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	52

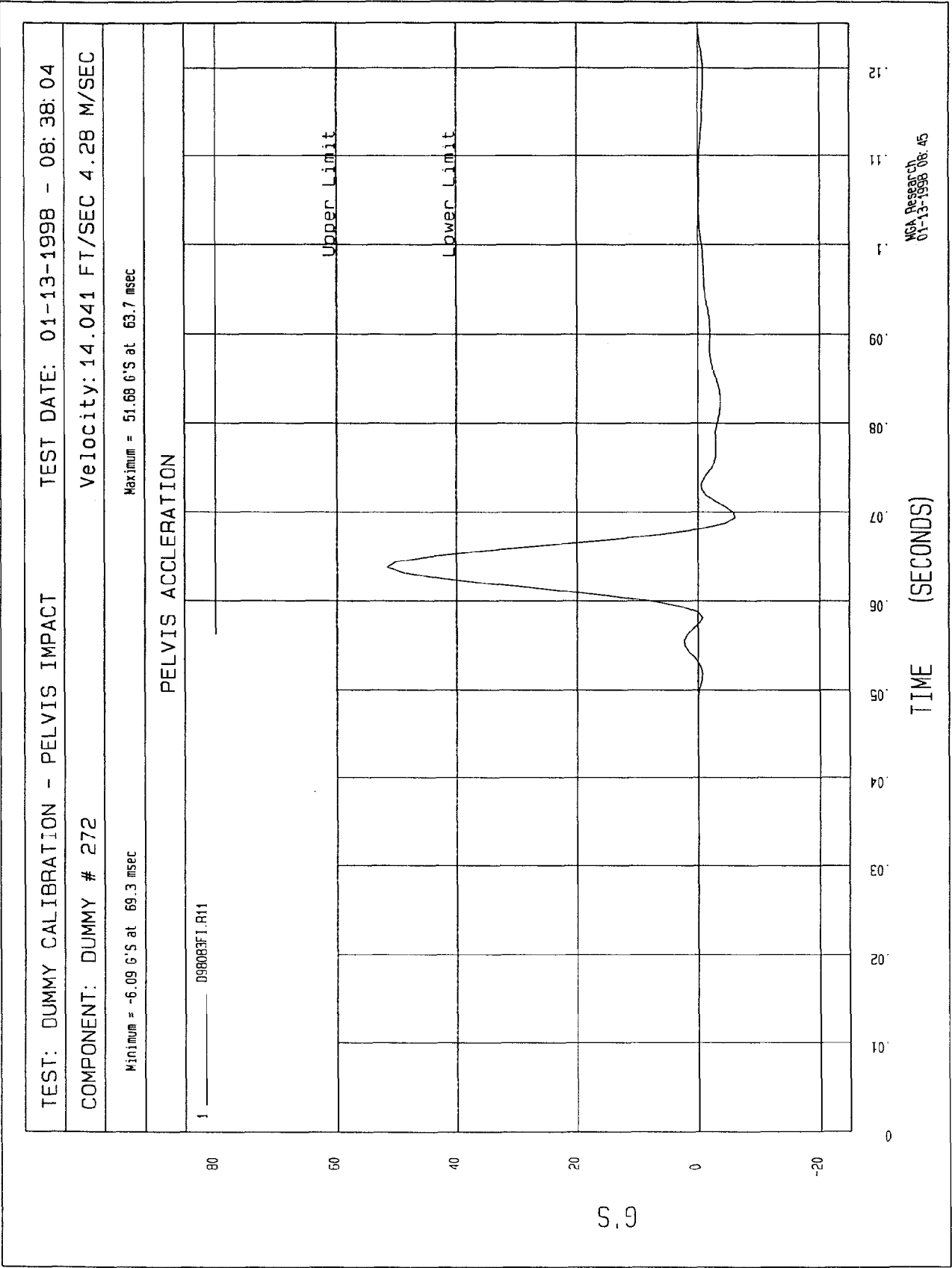
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY





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

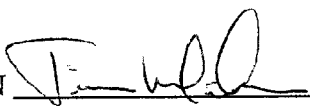
DATE: January 13, 1998

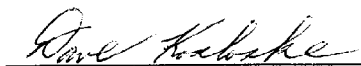
DUMMY NUMBER: 272

TEST NUMBER: D98084

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	12%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.1
FORCE @ 0.75 in	36.7 - 49.8 lbs	42.8
FORCE @ 1.0 in	50 - 63 lbs	56
FORCE @ 1.3 in	73 - 88 lbs	76

TEST MEETS SPECIFICATIONS

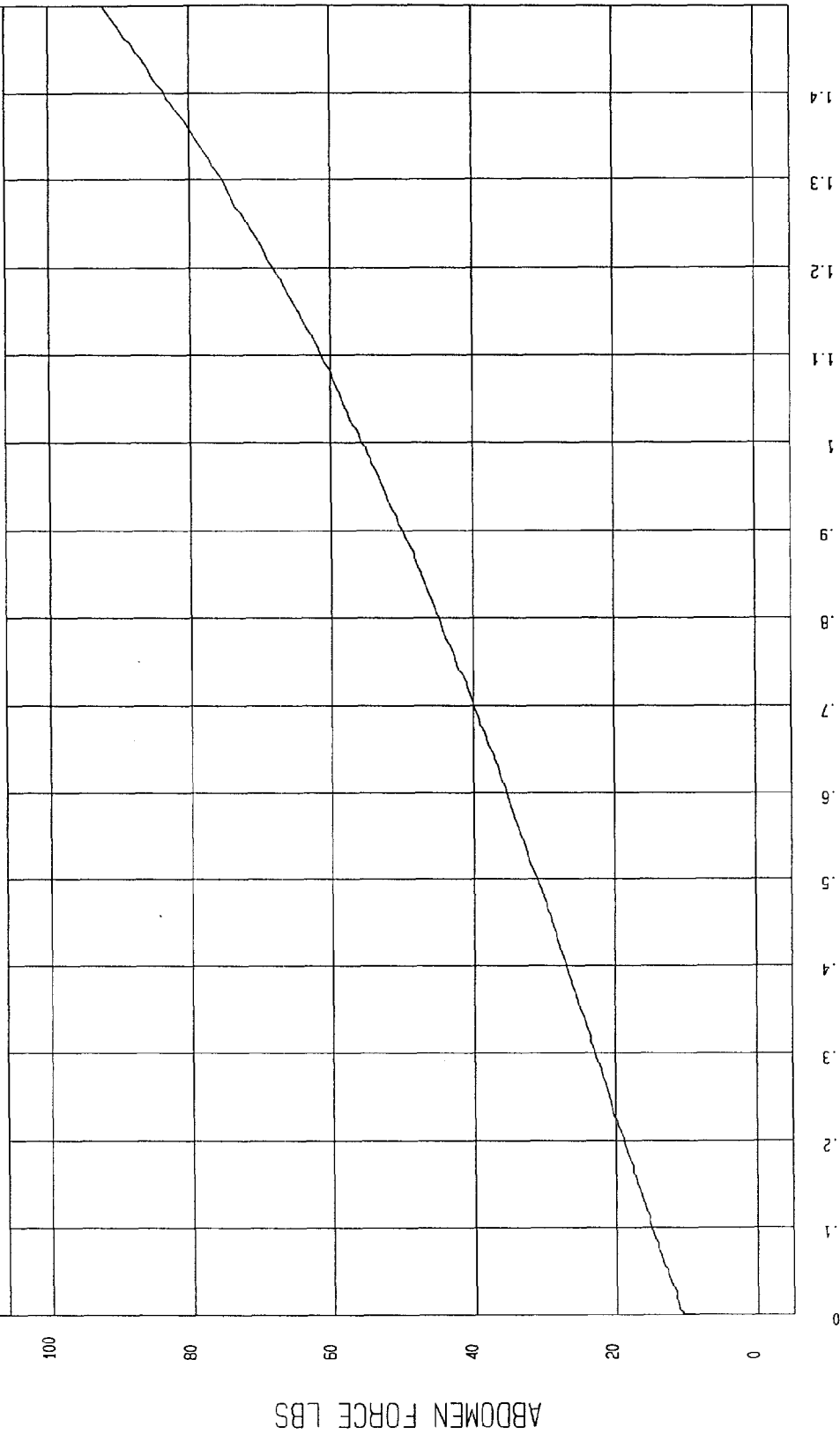
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 01-13-1998 - 17:46

COMPONENT: DUMMY # 272

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



WCA Research
01-13-1998 18:13

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

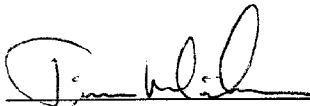
DATE: January 21, 1998

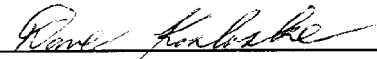
DUMMY NUMBER: 272

TEST NUMBER: D98085

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	18%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	23
FORCE @ 30°	34 - 46 lbs	34
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	6°

TEST MEETS SPECIFICATIONS

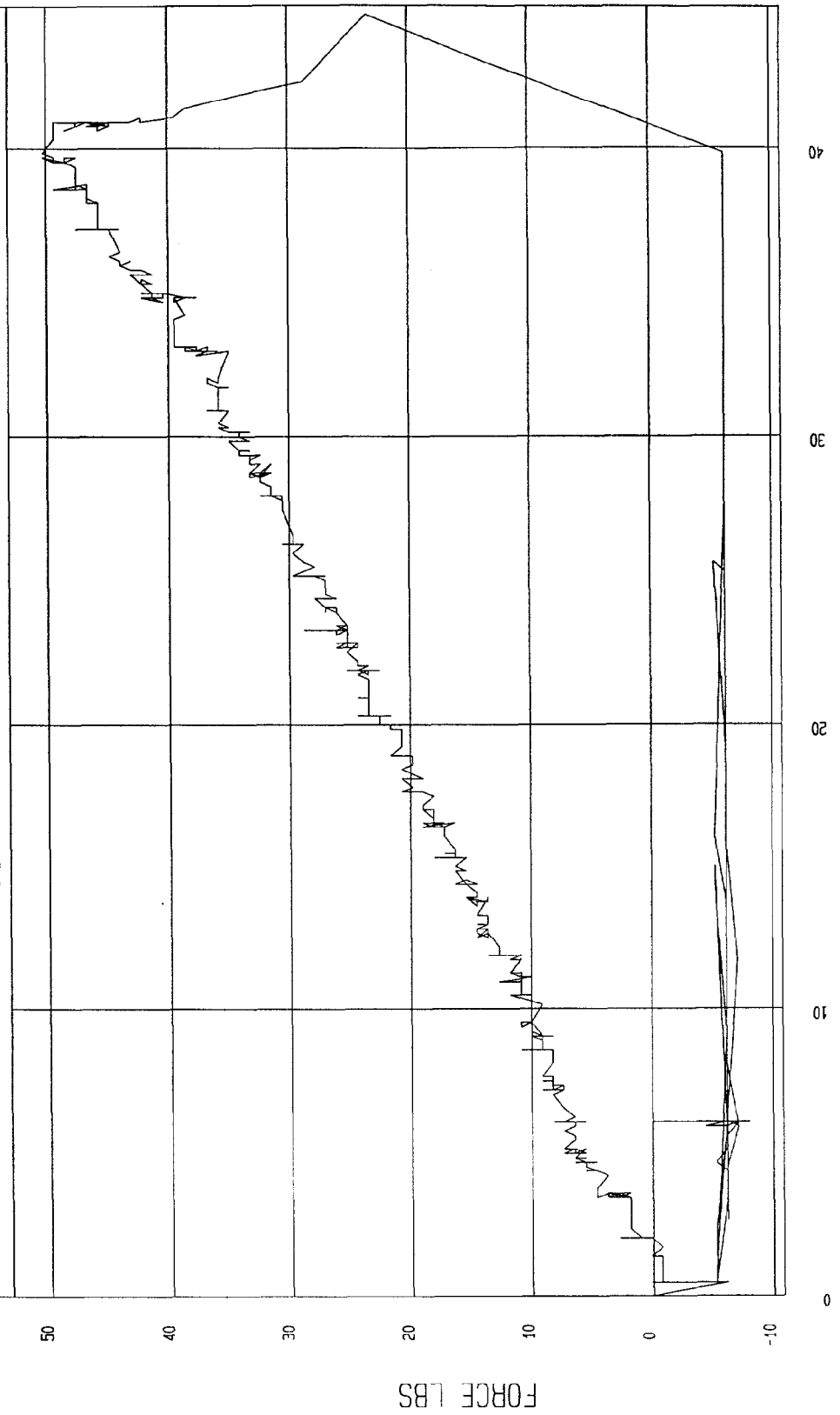
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 01-21-1998 - 11:03

COMPONENT: DUMMY # 272

FORCE as a function of TORSO ROTATION



W&A Research
01-21-1998 13:20

POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 272

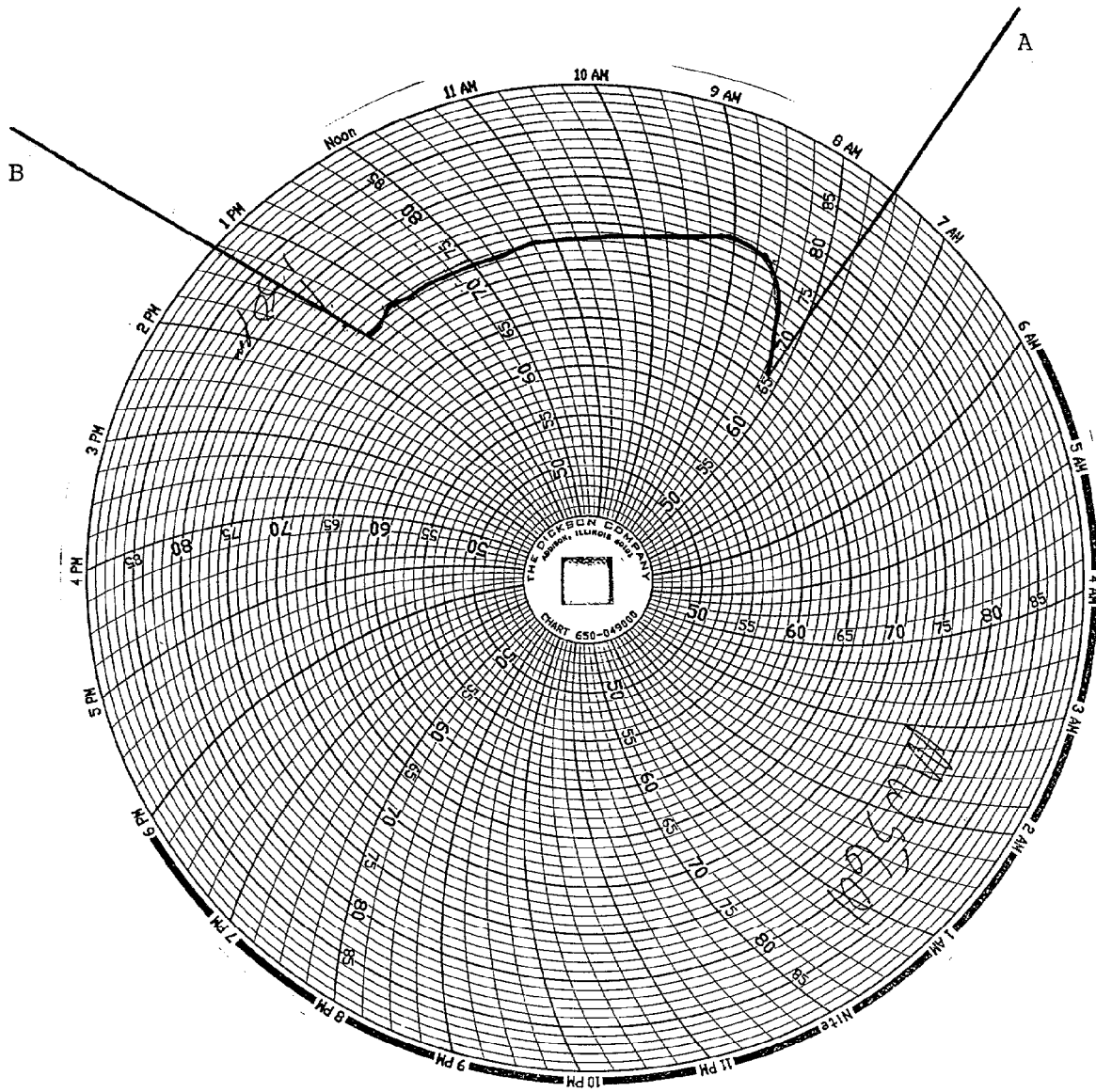
Inspected By: Tim Michnay

Date: January 21, 1998

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

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

VEHICLE AND DUMMY TEMPERATURE



A = dummies installed in vehicle
B = test conducted

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

DUMMY AND VEHICLE CALIBRATION DATA
INSTRUMENTS FOR DRIVER DUMMY NO. 272

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	ALFJ7	Endevco	September 11, 1997
Lower Rib Y	APYN0	Endevco	September 11, 1997
Lower Spine Y	APOG2	Endevco	September 11, 1997
Pelvis Y	APY15	Endevco	September 11, 1997
Upper Rib Redundant Y	ALDD6	Endevco	September 11, 1997
Lower Rib Redundant Y	APYN3	Endevco	September 11, 1997
Lower Spine Redundant Y	AP138	Endevco	September 11, 1997
Pelvis Redundant Y	APY16	Endevco	September 11, 1997
Head X	ALF9	Endevco	September 11, 1997
Head Y	AJ9N4	Endevco	September 11, 1997
Head Z	AJ8D8	Endevco	September 11, 1997

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	J04-F10	Entran	August 7, 1997
Moving Barrier CG Y	F11-G04	Entran	August 7, 1997
Moving Barrier CG Z	J04-F12	Entran	August 7, 1997
Moving Barrier Rear Axle X	G13-B07	Entran	August 7, 1997
Moving Barrier Rear Axle Y	L14-D04	Entran	August 7, 1997
Left Mid A-Post Y	A09-G04	Entran	November 5, 1997
Left Lower A-Post Y	E10-F06	Entran	August 6, 1997
Left Mid B-Post Y	F13-B12	Entran	August 7, 1997
Left Lower B-Post Y	B14-R13	Entran	July 2, 1997
Rear Floorpan Above Axle X	A09-G05	Entran	August 1, 1997
Rear Floorpan Above Axle Y	E13-D01	Entran	August 1, 1997
Rear Floorpan Above Axle Z	C14-Z08	Entran	August 1, 1997
Driver Seat Track Y	E25-G07	Entran	December 10, 1997
Right Side Sill at Front Seat X	J04-F16	Entran	August 7, 1997
Right Side Sill at Front Seat Y	F18-G03	Entran	August 7, 1997
Right Side Sill at Front Seat Z	A09-G02	Entran	July 11, 1997
Right Side Sill at Rear Seat X	F11-G05	Entran	August 7, 1997
Right Side Sill at Rear Seat Y	I26-D19	Entran	July 16, 1997
Right Side Sill at Rear Seat Z	G13-B01	Entran	August 6, 1997
Left Side Sill at Front Seat Y	J14-F17	Entran	August 6, 1997

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Rear Seat Y	J13-F16	Entran	December 10, 1997
Right Rear Occupant Compartment Y	C25-A11	Entran	August 5, 1997
Vehicle CG X	I26-D02	Entran	August 7, 1997
Vehicle CG Y	J10-E06	Entran	August 1, 1997
Vehicle CG Z	F11-G08	Entran	August 7, 1997
Left Front Door on Centerline	E10-F14	Entran	August 7, 1997
Midrear of Left Front Door	H02-J02	Entran	August 6, 1997
Left Front Door Upper Centerline	G13-B14	Entran	July 16, 1997
Midrear of Left Rear Door	D05-R10	Entran	July 14, 1997
Left Rear Door Upper Centerline	F12-G06	Entran	July 14, 1997

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