

V2538

REPORT NO.: 214-MGA-97-17
SAFETY COMPLIANCE TESTING FOR
FMVSS 214 "SIDE IMPACT PROTECTION -
PASSENGER CARS"

HONDA MOTOR CO., LTD.
1997 HONDA CIVIC 4 DOOR
NHTSA NO: CV5300

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: December 20, 1996

Report Date: January 15, 1997

FINAL REPORT

Prepared For:

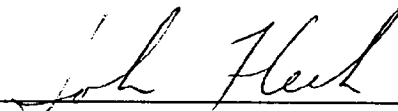
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				14. Sponsoring Agency Code NSA-30																			
15. Supplementary Notes																							
16. Abstract A 48/24 kph 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject 1997 Honda Civic 4 Door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-04 for the determination of FMVSS No. 214 Side Impact Protection compliance. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on December 20, 1996. The impact velocity of the Moving Deformable Barrier (MDB) was 52.8 kph, and the ambient temperature at the struck side of the target vehicle at the time of impact was 22°C. The target vehicle post test maximum crush was 363 mm at level 2. The test vehicle's performance follows: <table border="0"> <thead> <tr> <th></th> <th><u>RIGHT FRONT PASS.</u></th> <th><u>RIGHT REAR PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Right Upper Rib (RUR) Accel., g</td> <td>52</td> <td>47</td> </tr> <tr> <td>Right Lower Rib (RLR) Accel., g</td> <td>48</td> <td>55</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td>58</td> <td>46</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>55</td> <td>51</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>68</td> <td>74</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.							<u>RIGHT FRONT PASS.</u>	<u>RIGHT REAR PASS.</u>	Right Upper Rib (RUR) Accel., g	52	47	Right Lower Rib (RLR) Accel., g	48	55	Lower Spine (T ₁₂) Accel., g	58	46	Thoracic Trauma Index (TTI)	55	51	Pelvis (PEV) Accel., g	68	74
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17. Key Words Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID)				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5108 (NAD-52) 400 Seventh Street, S.W. Washington, D.C. 20590 Telephone No. 202-366-4946 Attn: Robert Hornickle																			
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Approved By: 
John Fleck, Facility Director

Approval Date: 1-17-97

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Accepted By: 
Contract Technical Manager

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SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 96 FMVSS 214 Side Impact Protection Compliance Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-93-C-02047. The purpose of this test was to evaluate side impact protection of a 1997 Honda Civic 4 Door.

This side impact test was conducted in accordance with the Vehicle Safety Compliance's FMVSS 214 test procedure (TP-214D-04, dated September 1, 1995).

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

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 1997 Honda Civic 4 Door was impacted on the right 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 32.8 mph (52.8 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 20, 1996. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in Appendix A.

Two Side Impact Dummies (SIDs) were placed in the right front and rear right designated seating positions according to instructions specified in the OVSC Side Impact Laboratory Test Procedure which is dated September 1, 1995. The side impact event was documented by nine high speed cameras. Camera locations and other pertinent camera information can be found in this report.

The SIDs were instrumented with the following accelerometers.

1. Right Upper Rib (RUR) uniaxial accelerometer (Y-direction)
2. Right Lower Rib (RLR) uniaxial accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial accelerometer (Y-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 FMVSS 214 Right Side Impact test:

Injury Criteria	Front SID	Rear SID
TTI (g)	55	51
Pelvis (g)	68	74

TEST NOTES

1. The following accelerometers were not used for this test:

Right Front Door on Centerline

Midrear of Right Front Door

Right Front Door Upper Centerline

Midrear of Right Rear Door

Right Rear Door Upper Centerline

Rear Seat Track

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

DATA SHEET NO. 1

GENERAL VEHICLE TEST PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 VIN: JHMEJ6527VS008364

Vehicle Body Color: Silver Build Date: 9/96

Engine Data: 4 Cylinders; CID; 1.6 Liter; cc

Placement Longitudinal; X Lateral

Transmission: 4 speed; X Manual; Automatic; Overdrive

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

Odometer Reading 74 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): 30 Psi FRONT

29 Psi REAR

Recommended Tire Size: P185/65R14 85S

Tires on Test Vehicle: P195/65R14 85S Manufacturer: Firestone

Vehicle Capacity Data:

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

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

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

Vehicle Maximum Capacity Loading = 385.6 kg (A)

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

Cargo Capacity (A-B) = 45.4 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>304.4</u> kg	Right Rear	=	<u>205.5</u> kg
Left Front	=	<u>315.2</u> kg	Left Rear	=	<u>210.5</u> kg
TOTAL FRONT	=	<u>619.6</u> kg	TOTAL REAR	=	<u>416.0</u> kg
% of Total Vehicle Weight = <u>59.8</u> %;		% of Total Weight = <u>40.2</u> %			
TOTAL WEIGHT = <u>1035.6</u> kg					

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	= <u>1035.6</u> kg
Cargo Carrying Capacity of Test Vehicle	= <u>45.4</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>1242.4</u> kg

FULLY LOADED WEIGHT OF VEHICLE:

Right Front	= <u>346.0</u> kg	Right Rear	= <u>311.2</u> kg
Left Front	= <u>329.7</u> kg	Left Rear	= <u>258.1</u> kg
TOTAL FRONT	= <u>675.7</u> kg	TOTAL REAR	= <u>569.3</u> kg
% of Total Weight	= <u>54.0</u> %	% of Total Weight	= <u>46.0</u> %
TOTAL TEST WEIGHT	= <u>1245.0</u> kg		

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 647 mm Left Front 638 mm Right Rear 661 mm Left Rear 648 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 621 mm Left Front 634 mm Right Rear 608 mm Left Rear 614 mm

TEST ATTITUDE:

Right Front 623 mm Left Front 632 mm Right Rear 614 mm Left Rear 620 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2620 mm

C.G. = 1155 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 3970 mm

Centerline = 4328 mm

Left Side = 3970 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 240 mm

Test Position: 13th position rearward out of 25 total

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 4th notch rearward of full upright

REAR POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: Fixed

Seat Back Adjustment Position: Fixed

ADJUSTABLE STEERING COLUMN POSITION: Mid position

WINDOW POSITIONS: Left Front Open Left Rear Open

Right Front Closed Right Rear Closed

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

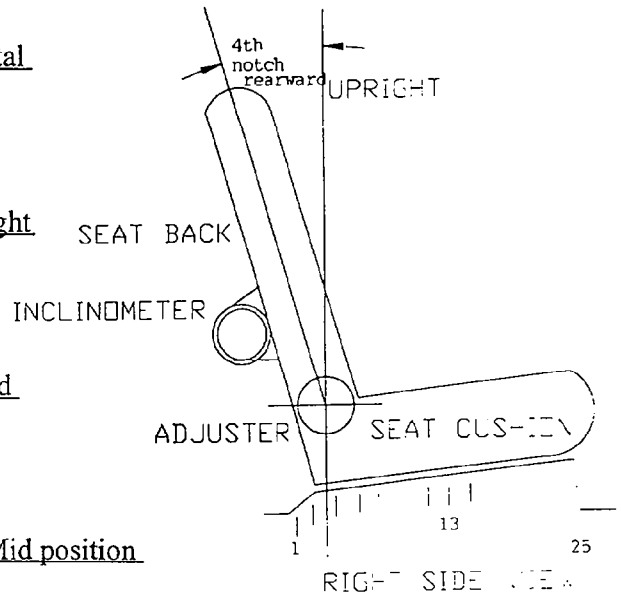
Fuel system usable capacity = 11.9 gallons

Test Volume: 11 gallons 92.4 % of capacity

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

Wheelbase: = 2620 mm

Impact Point is 370 mm rearward of front axle centerline



DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

Overall Length = 4328 mm; Overall Width = 1708 mm

TEST WEIGHT:

Right Front = 344.3 kg

Right Rear = 287.6 kg

Left Front = 347.5 kg

Left Rear = 257.6 kg

TOTAL FRONT = 691.8 kg

TOTAL REAR = 545.2 kg

% of Total Weight = 56.0 %

% of Total Weight = 44.0 %

TOTAL VEHICLE WEIGHT = 1237.0 kg

Wheelbase = 2620 mm

Longitudinal C.G. from Center of Front Axle = 1155 mm

Impact Angle with Respect to Impactor = 90° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (262 mm above ground) = 212 mm

2. LEVEL 2 (446 mm above ground) = 363 mm

3. LEVEL 3 (569 mm above ground) = 340 mm

4. LEVEL 4 (858 mm above ground) = 257 mm

5. LEVEL 5 (1287 mm above ground) = 56 mm

Maximum Post-Test Intrusion = 363 mm

OCCUPANTS:

Right Front Passenger

Right Rear Passenger

Type of Dummy

SID

SID

Restraints Used

type II belt

type II belt

with frontal airbag

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)

INSTRUMENTATION:

Number of Vehicle Data Channels: = 20

Number of Cameras: Onboard Vehicle = 3

Offboard Vehicle = 4

Deformable Barrier = 2

TOTAL = 9

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to right

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>1106 mm</u>
C.G. Location From Center Line	= <u>14.7 mm</u>
C.G. Location Above Ground Level	= <u>488 mm</u>

MDB WEIGHT:

Left Front	= <u>434.5 kg</u>	Left Rear	= <u>233.2 kg</u>
Right Front	= <u>342.9 kg</u>	Right Rear	= <u>346.0 kg</u>
TOTAL FRONT	= <u>777.4 kg</u>	TOTAL REAR	= <u>579.2 kg</u>
TOTAL MDB WEIGHT = <u>1356.6 kg</u>			

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

Impact Speed = Primary: 32.83 mph (52.8 kph) Secondary: 32.82 mph (52.8 kph)

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

- | | | | |
|----|---------------------------------|---|---------------|
| 1. | Row A Top of Stack (813 mm) | = | <u>139</u> mm |
| 2. | Row B Mid Stack (686 mm) | = | <u>110</u> mm |
| 3. | Row C Top of Bumper (533 mm) | = | <u>61</u> mm |
| 4. | Row D Center of Bumper (432 mm) | = | <u>90</u> mm |

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

VISIBLE DUMMY CONTACT POINTS:

	<u>RIGHT FRONT SID</u>	<u>RIGHT REAR SID</u>
Head	<u>to headrest and shoulder</u>	<u>to C Post</u>
Arm	<u>to door panel</u>	<u>to door panel</u>
Pelvis	<u>to door panel</u>	<u>to door panel</u>
Left Knee	<u>to right knee</u>	<u>to right knee</u>
Right Knee	<u>to door panel</u>	<u>to door panel</u>

DOOR OPENING:

	<u>LEFT SIDE</u>	<u>RIGHT SIDE</u>
Front	<u>Remained closed</u>	<u>Remained closed</u>
Rear	<u>Remained closed</u>	<u>Remained closed</u>

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 10 mm forward Vertical: 10 mm high

ARM REST LOCATIONS:

Front: 260 mm from bottom of window
Rear: 245 mm from bottom of window

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 10 mm Front Seat Cushion: 90 mm

Left Rear Seat Back: 153 mm Rear Seat Cushion: 117 mm

GLAZING DAMAGE:

Right side front and rear door glass broken, windshield cracked

PILLAR PERFORMANCE:

None noted

SILL SEPARATION:

None noted

OTHER NOTABLE IMPACT EFFECTS:

Airbags deployed

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

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

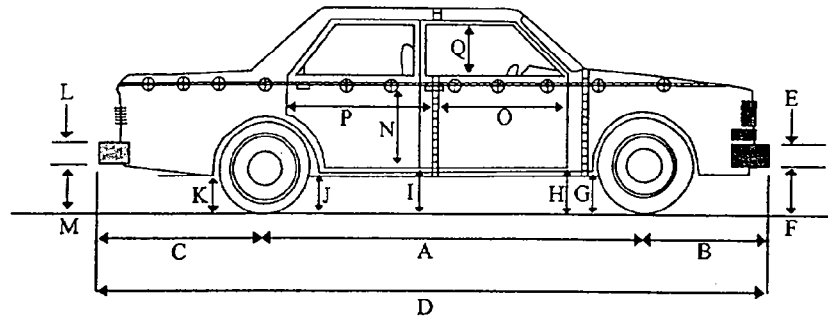
Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

	Front SID ID #269			Rear SID ID #270		
	Pos. Direct.		Neg. Direct	Pos. Direct.		Neg. Direct
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS						
Right Upper Rib (RUR) Y	11.9	84	-51.6	46	8.8	143
Right Lower Rib (RLR) Y	8.0	102	-47.7	42	14.5	76
SPINE ACCELERATIONS						
Lower Lateral Y	9.2	75	-57.9	38	13.2	81
PELVIS ACCELERATIONS						
Lateral Y	10.7	53	-68.3	32	10.6	81
					-74.4	39

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

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



D = Length at Centerline
R = Right Side Length
S = Left Side Length
T = Width at B Post
E & L = Bumper Thickness

J1 = To Pinch Weld
J2 = To Sill

ALL MEASUREMENTS IN (mm)

	PRE-TEST	POST-TEST	Δ CHANGE
A	2620	2596	24
B	868	848	20
C	840	843	3
D	4328	4287	41
E	136	136	0
F	414	402	12
G	204	202	2
H	156	182	26
I	165	218	53
J1/J2	170/162	190/162	20/0
K	365	373	8
L*	---	---	---
M	226	258	32
N	670	538	132
O	683	675	8
P	1174	1013	161
Q	427	410	17
R	3970	3925	45
S	3970	3962	8
T	1708	1556	152

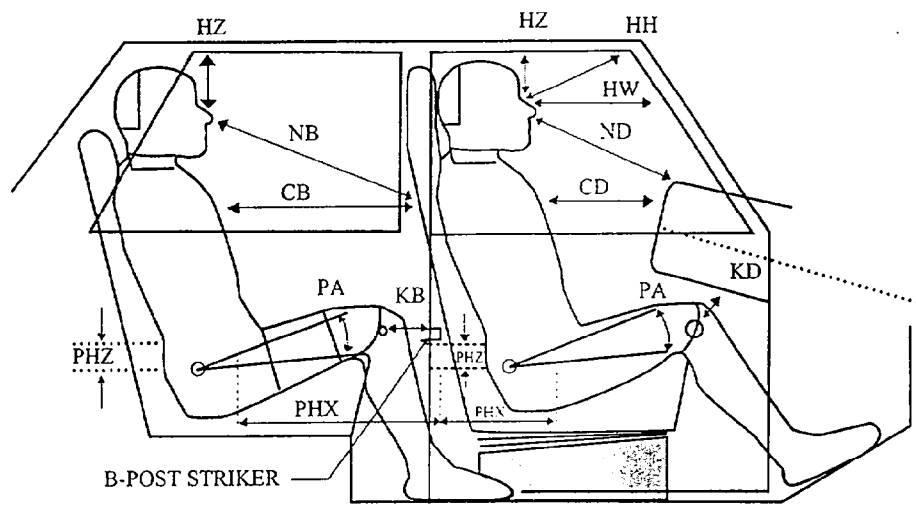
* Rear bumper removed for test

DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

NHTSA NO.: CV5300 Test Date: December 20, 1996



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

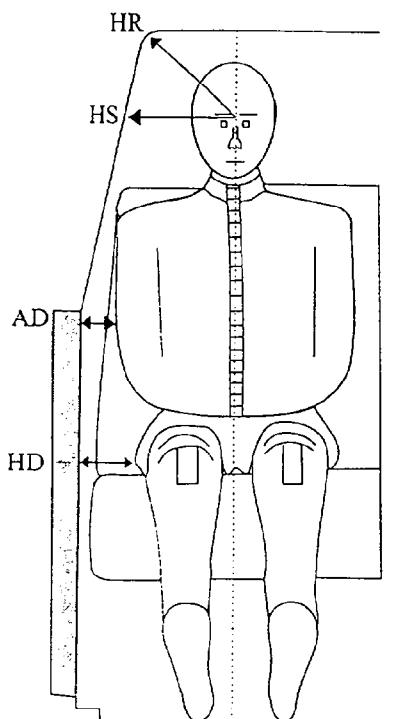
	FRONT PASSENGER ID #269		REAR PASSENGER SID ID #270
HH	354	HZ	148
HW	586	NB	619
HZ	173	CB	530
ND	644	KBL (KBA)	127 (0°)
CD	541	KBR (KBA)	134 (0°)
CS	N/A	PA°	24.5°
KDL(KDA°)	162 (29.4°)	PHX	225
KDR(KDA°)	163 (26.3°)	PHZ	294
PA°	24.4°		
PHX	194		
PHZ	151		

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

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

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

NHTSA NO.: CV5300 Test Date: December 20, 1996



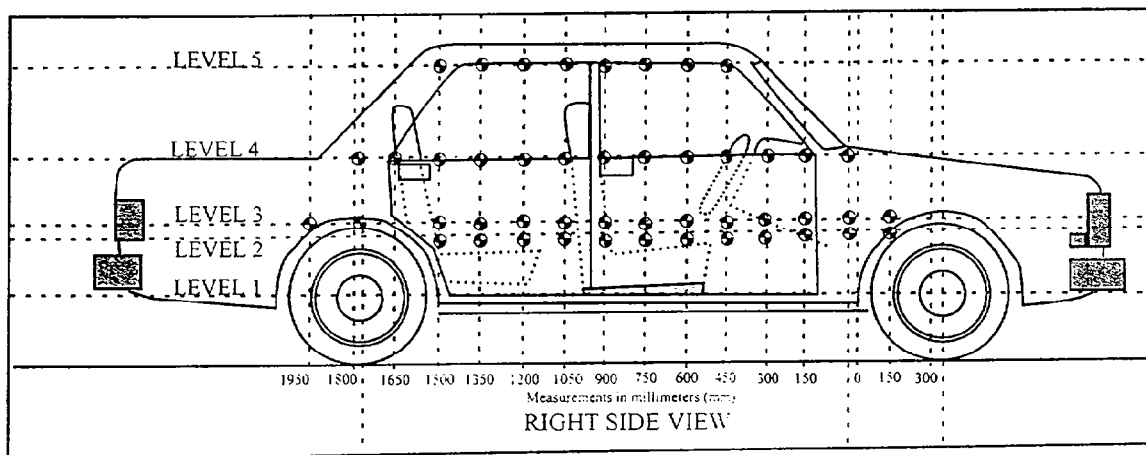
NOTE: All dimensions are in mm

	FRONT PASSENGER ID #269	REAR PASSENGER ID #270
HR	195	187
HS	302	297
AD	106	109
HD	122	134

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

NHTSA NO.: CV5300 Test Date: December 20, 1996



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

MEASUREMENTS ALONG THE VERTICAL 750 mm. LINE SHOWN ABOVE

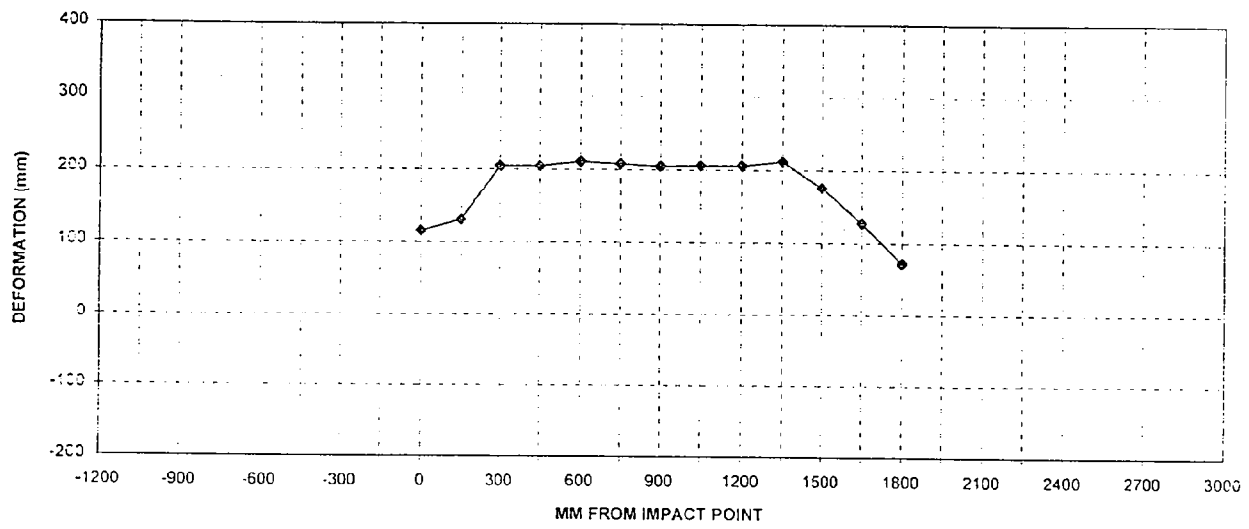
Level 1 @ Axle Centerline Height (or Sill Top Height)	= <u>262</u> mm
Level 2 @ Occupant H-Point	= <u>446</u> mm
Level 3 @ Mid Door	= <u>569</u> mm
Level 4 @ Window Sill	= <u>858</u> mm
Level 5 @ Window Top	= <u>1287</u> mm

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 1 - Axle Centerline		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)	650	765	115
150	670	800	130
300	672	877	205
450	674	879	205
600	674	885	211
750	674	882	208
900	673	878	205
1050	673	879	206
1200	676	882	206
1350	676	888	212
1500	678	854	176
1650	678	805	127
1800	680	752	72
1950			
2100			
2250			
2400			
2550			
2700			
2850			
3000			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



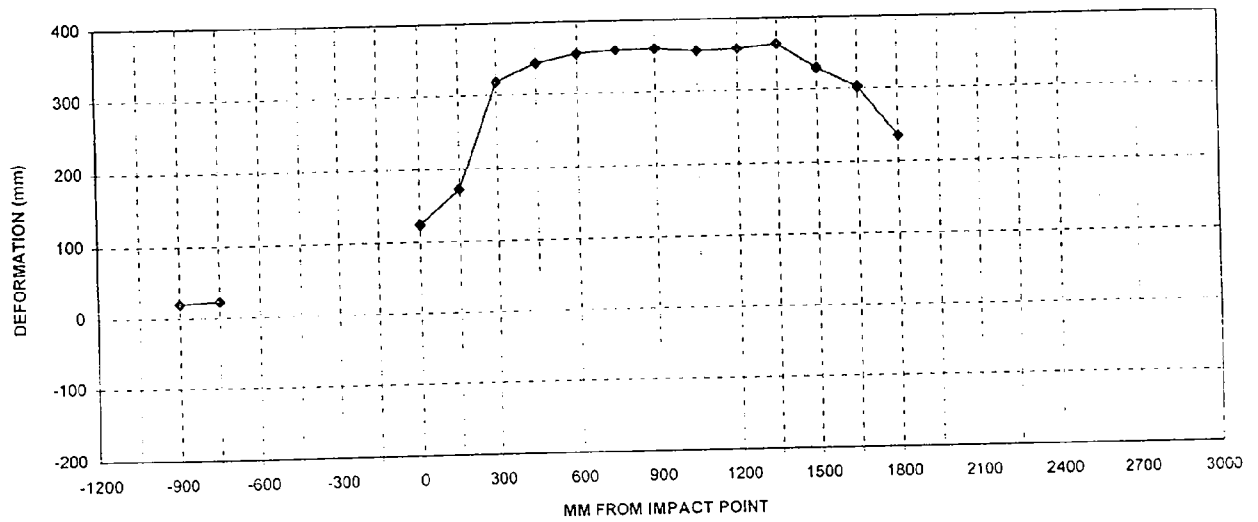
LEVEL 1 - AXLE CENTERLINE

DATA SHEET NO. 10 (Cont'd)
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 2 - Occupant H Point		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900	673	692	19
-750	648	670	22
-600			
-450			
-300			
-150			
0 (impact point)	630	724	124
150	630	802	172
300	626	944	318
450	628	970	342
600	628	982	354
750	628	986	358
900	628	987	359
1050	628	983	355
1200	629	986	357
1350	630	993	363
1500	632	960	328
1650	634	936	302
1800	635	870	235
1950			
2100			
2250			
2400			
2550			
2700			
2850			
3000			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



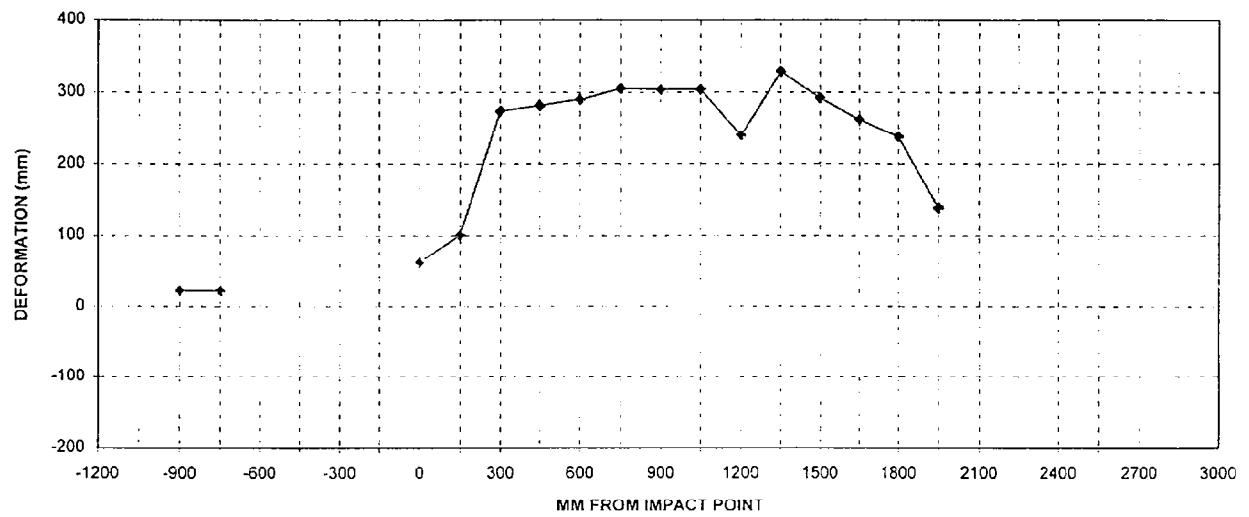
LEVEL 2 - OCCUPANT H-POINT

DATA SHEET NO. 10 (Cont'd)
VEHICLE EXTERIOR CRUSH PROFILES

	Level 3 - Mid Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900	709	731	22
-750	672	694	22
-600			
-450			
-300			
-150			
0 (impact point)	645	706	61
150	644	745	101
300	639	913	274
450	640	922	282
600	641	931	290
750	641	946	305
900	641	945	304
1050	641	945	304
1200	641	981	340
1350	642	970	328
1500	643	935	292
1650	644	906	262
1800	644	882	238
1950	642	781	139
2100			
2250			
2400			
2550			
2700			
2850			
3000			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



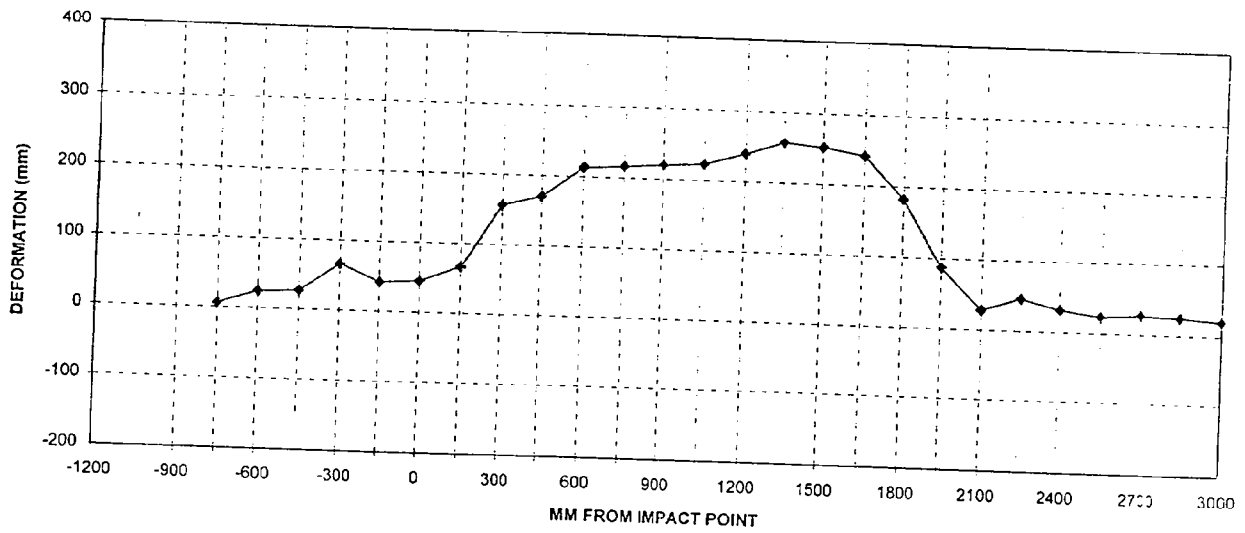
LEVEL 3 - MID DOOR

DATA SHEET NO. 10 (Cont'd)
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 4 - Window Sill		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750	759	775	6
-600	741	765	24
-450	726	752	26
-300	715	650	65
-150	704	745	41
0 (impact point)	696	740	44
150	690	755	65
300	683	839	156
450	688	858	170
600	687	900	213
750	686	902	216
900	607	907	220
1050	607	910	223
1200	607	926	239
1350	607	944	257
1500	687	939	252
1650	690	932	242
1800	693	875	182
1950	698	784	86
2100	700	728	28
2250	705	750	45
2400	715	746	31
2550	725	748	23
2700	736	762	26
2850	750	774	24
3000	774	794	20

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



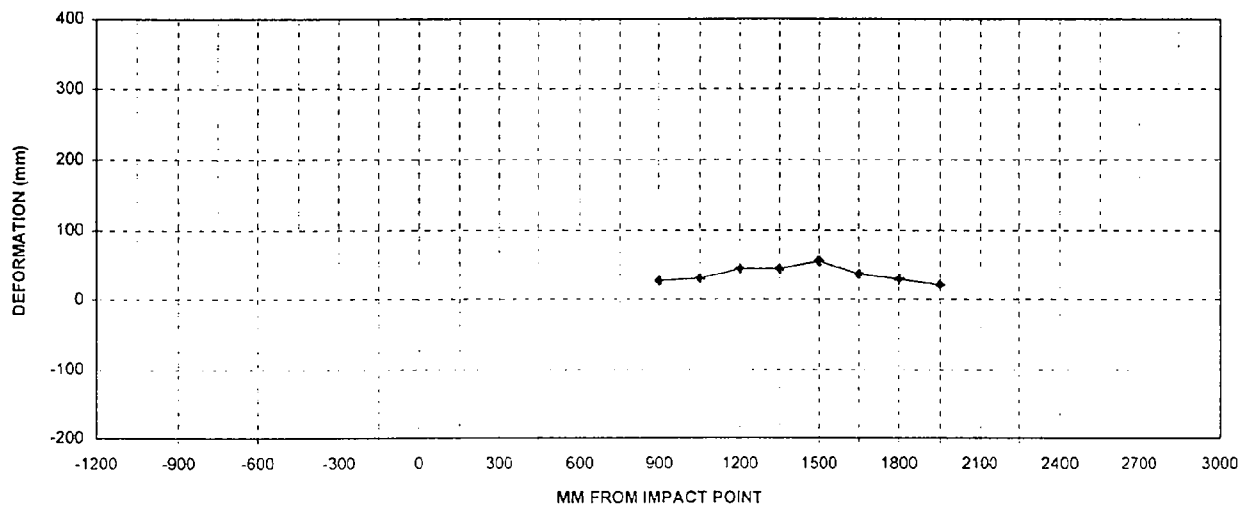
LEVEL 4 - WINDOW SILL

DATA SHEET NO. 10 (Cont'd)
VEHICLE EXTERIOR CRUSH PROFILES

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750			
900	940	967	27
1050	943	973	30
1200	944	989	45
1350	944	989	45
1500	944	1000	56
1650	945	982	37
1800	943	972	29
1950	946	967	21
2100			
2250			
2400			
2550			
2700			
2850			
3000			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)

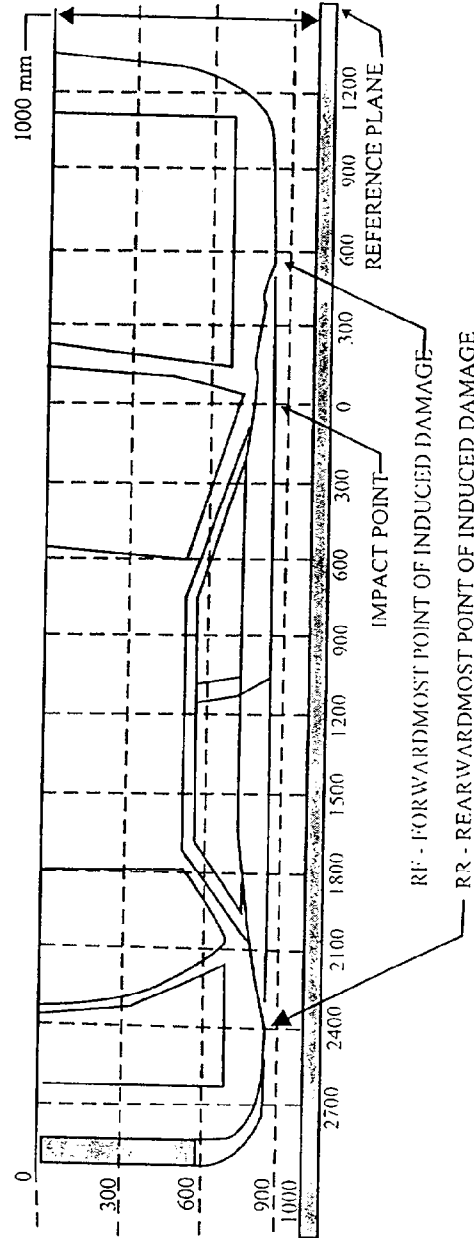


LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

NHTSA NO.: CV5300 Test Date: December 20, 1996



DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (RF = <u>735</u> mm)	785	750	35
2. (<u>-112</u> mm)	744	700	44
3. <u>482</u> mm	980	640	340
4. <u>1122</u> mm	984	641	343
5. <u>1818</u> mm	912	644	268
6. (RR = <u>2489</u> mm)	740	720	20

DATA SHEET NO. 12

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

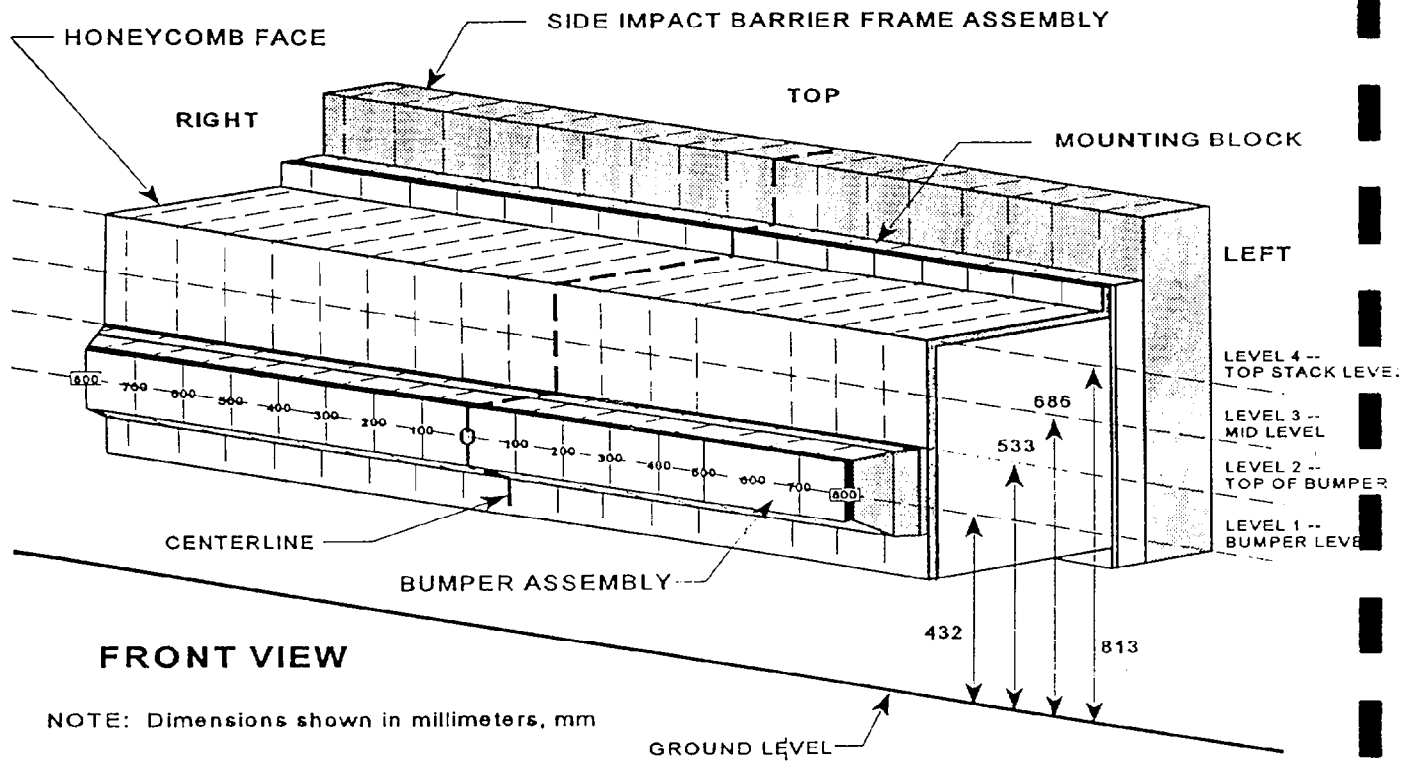
Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

		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
Location	Height at CL*																	
Top Stack Level 4	813 mm	139	113	77	54	30	12	7	6	5	1	1	0	-2	-4	-4	0	30
Mid Level Level 3	686 mm	110	67	30	11	8	7	6	5	4	2	-1	0	-1	-1	-1	-1	21
Top Bumper Level 2	533 mm	61	39	21	16	13	11	9	6	4	2	1	0	0	5	11	16	35
Mid Bumper Level 1	432 mm	90	74	49	34	30	27	24	23	21	20	16	17	17	23	31	45	61

See next page for Barrier Face Graphic

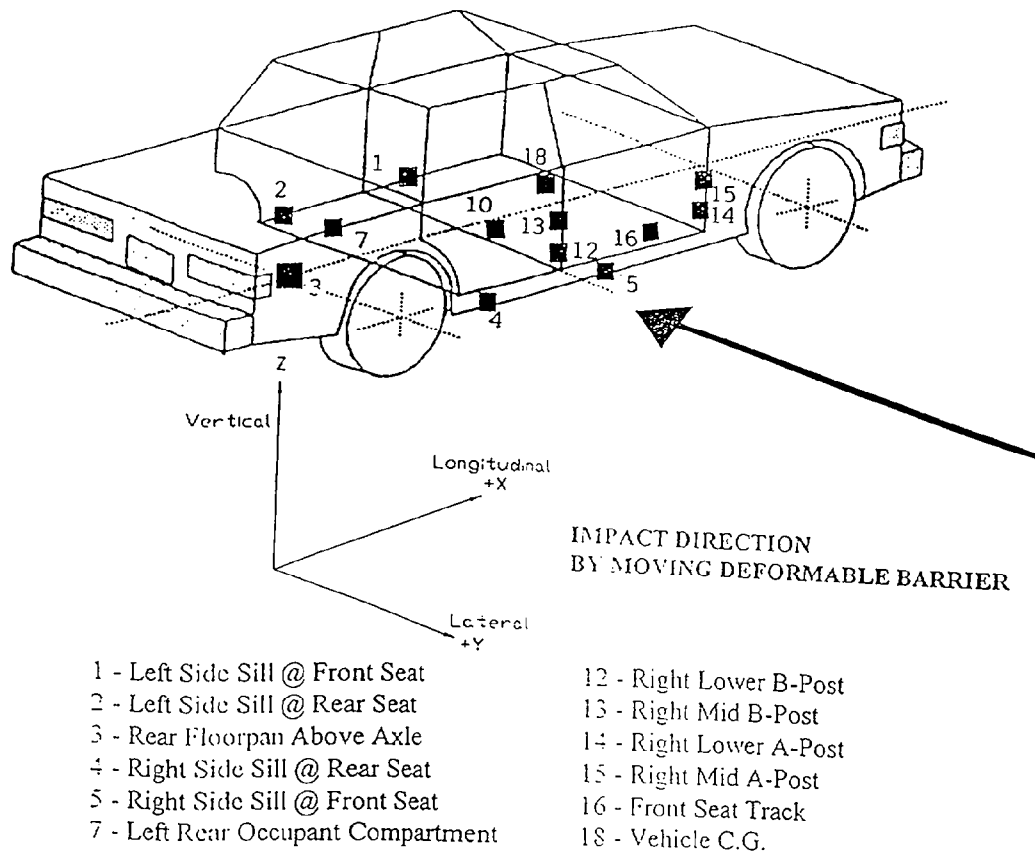
DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996



DATA SHEET NO. 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

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	Left Side Sill @ Front Seat	2364	-675	160	4.4	-3.5	3.4	-19.6	3.0	-5.3	19.8
2	Left Side Sill @ Rear Seat	1442	-653	165	1.8	-7.0	3.9	-20.7	3.8	-3.3	22.0
3	Rr. Floorpan Above Axle	845	10	325	3.6	-9.2	4.0	-23.9	4.0	-4.6	24.4
4	Right Side Sill @ Rr. Seat	2372	652	185	---	---	14.8	-42.5	---	---	---
5	Right Side Sill @ Frt. Seat	1502	675	180	---	---	9.3	-44.0	---	---	---
7	Left Rear Occupant Compartment	1645	-320	185	---	---	4.9	-21.1	---	---	---
12	Right Lower B-Post	1988	660	320	---	---	**	**	---	---	---
13	Right Mid B-Post	1882	685	830	---	---	32.2	-117.3	---	---	---
14	Right Lower A-Post	2880	647	260	---	---	16.4	-41.1	---	---	---
15	Right Mid A-Post①	2927	750	745	---	---	17.6	-41.9	---	---	---
16	Right Front Passenger Seat Track	2024	560	245	---	---	16.7	-52.0	---	---	---
18	Vehicle CG	2348	0	330	5.1	-14.5	23.7	-38.1	36.4	-26.4	42.3

*Reference: X - Rear Bumper (+ Forward)

Y - Vehicle Centerline (+ To right)

Z - Ground Level (+ Up)

** Sensor detached during impact

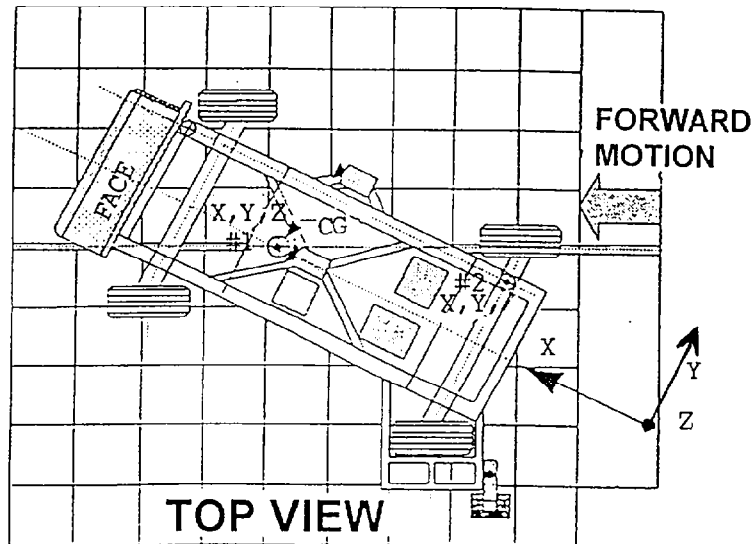
① Sensor detached approximately 10 msec. after impact

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996



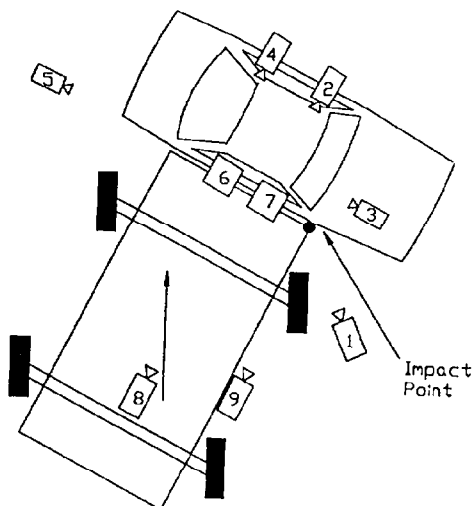
Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	1.5	168	-14.8	32
	Lateral (Y)	---	---	---	5.5	30	-.8	67
	Vertical (Z)	---	---	---	9.9	69	-13.2	27
	Resultant (R)	---	---	---	19.1	27	---	---
2	Rear Frame Member	-2591	625	622				
	Longitudinal (X)	---	---	---	2.0	152	-19.8	31
	Lateral (Y)	---	---	---	1.1	153	-5.9	23

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

DATA SHEET NO. 15
HIGH SPEED CAMERA LOCATIONS AND DATA

Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
	Real Time					13	24
1	Right Impact	910	2090	1655	90°	13	976
2	Onboard Front Passenger					8	935
3	Onboard Rear Passenger					8	985
4	Onboard Hood					13	1020
5	Left Impact	330	-8970	1895	90°	25	1015
6	Top Overall	1050	-340	5000		8	1042
7	Top Impact	-590	-130	5000		13	833
8	Cart Wide					13	1010
9	Cart Impact					35	1010

* Reference: (from impact point)

+X = Forward

+Y = To Right

+Z = Upward from floor level

DATA SHEET 16
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door
Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

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 32.8 mph (52.8 kph)

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATION(S): None

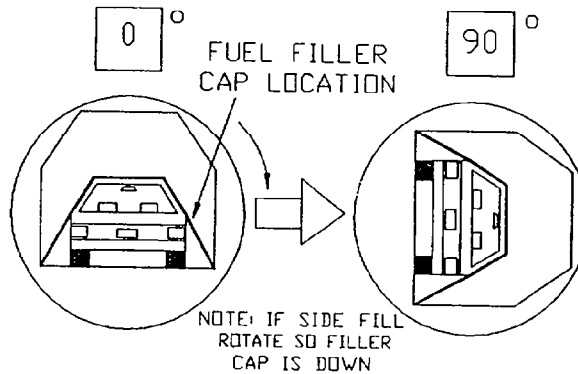
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 51 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 51 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

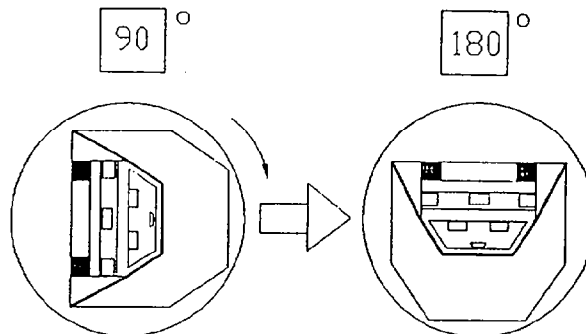
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 34 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 34 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

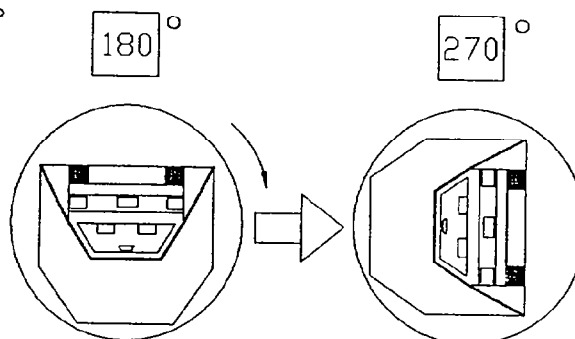
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 16 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 16 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

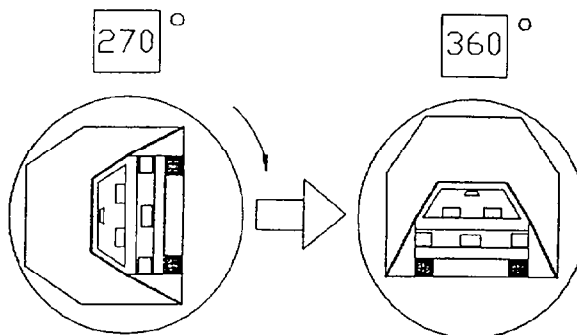
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1997/Honda/Civic/4 Door

Vehicle NHTSA No.: CV5300 Test Date: December 20, 1996

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 36 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 36 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None



APPENDIX A - PHOTOGRAPHS

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Photo No. A-51 - Right Rear Attitude Point	A-51
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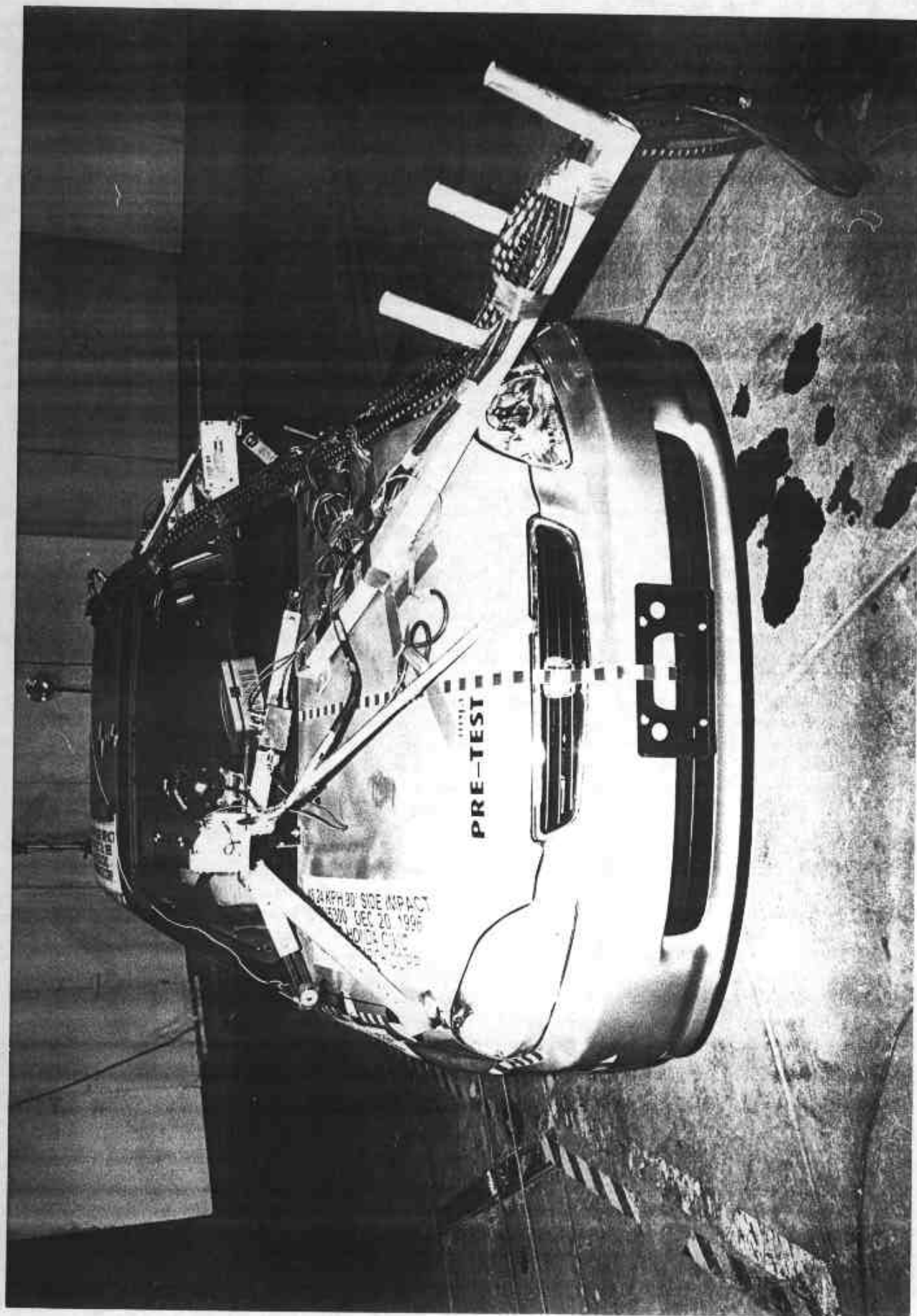


Photo No. A-1 - Pre-Test Front View of Test Vehicle



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

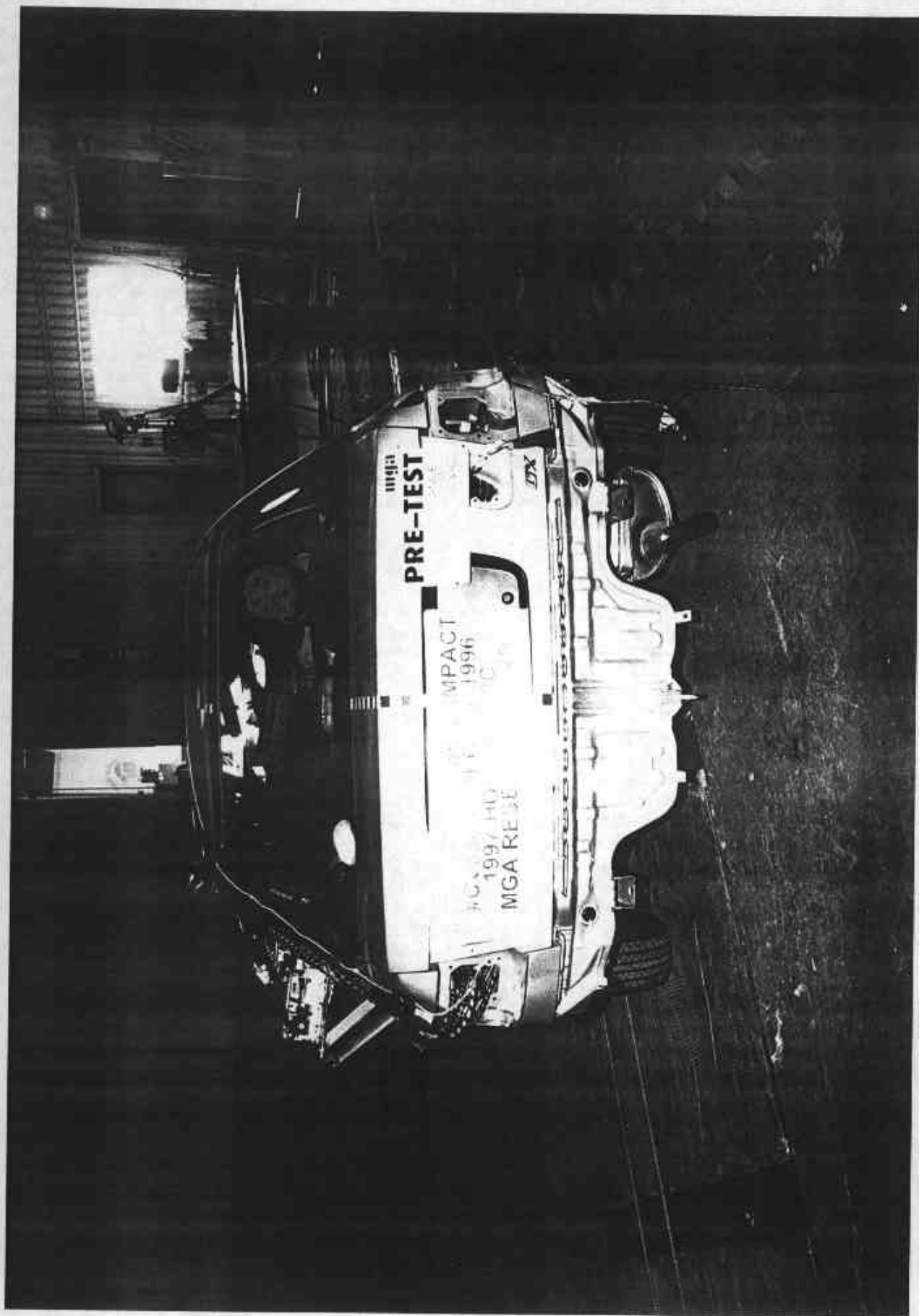


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

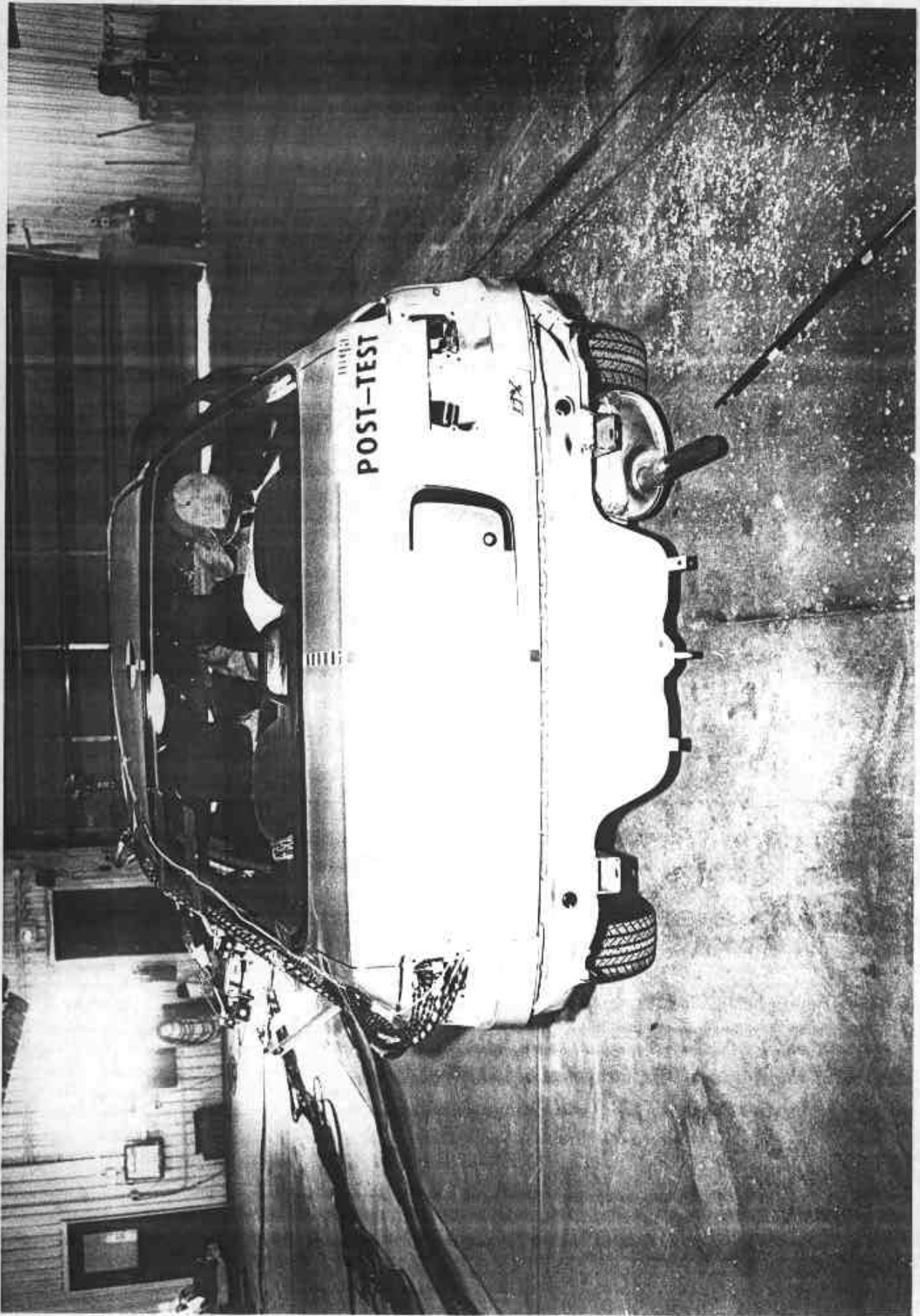


Photo No. A-4 - Post-Test Rear View of Test Vehicle

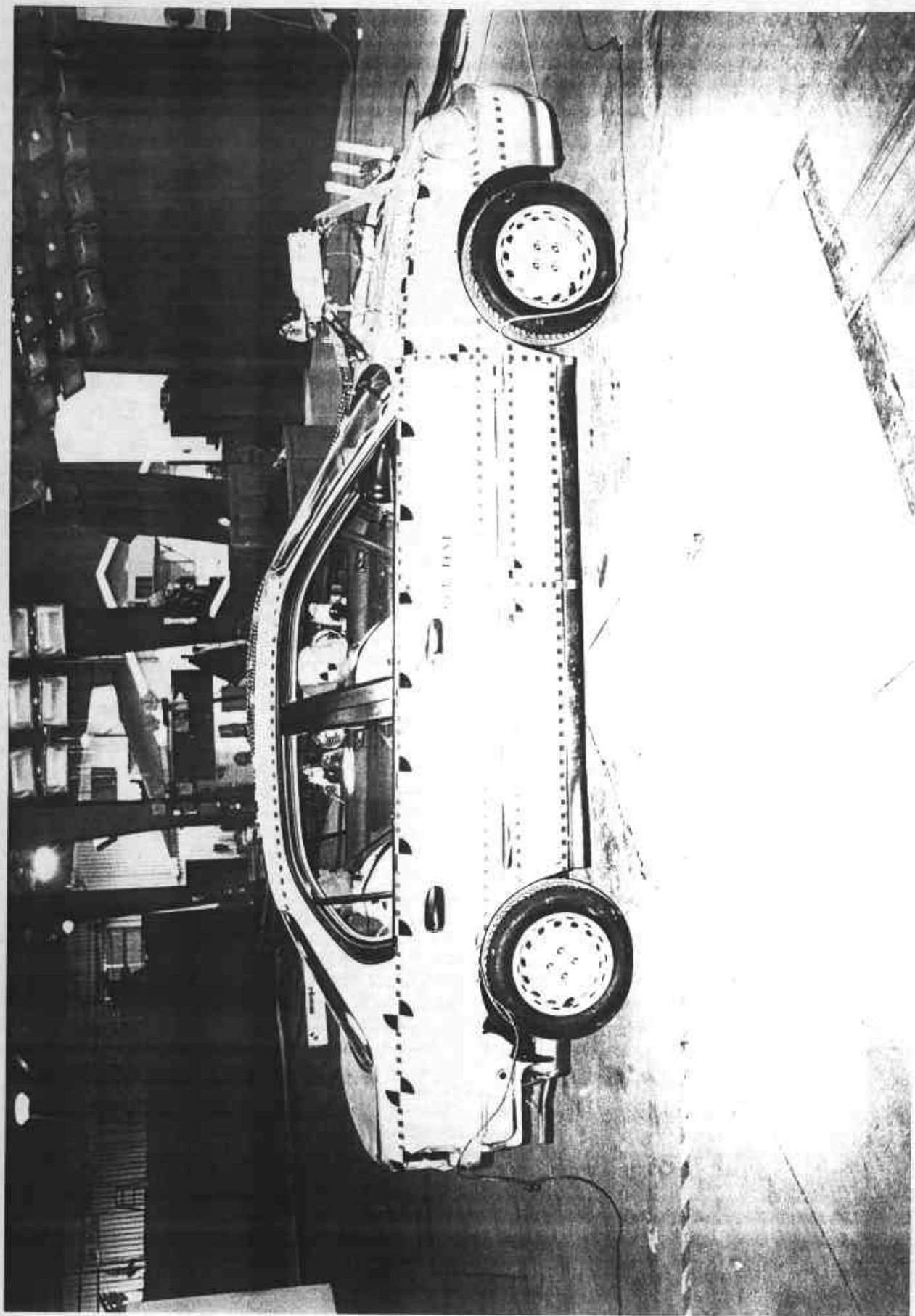


Photo No. A-5 - Pre-Test Right Side View of Test Vehicle

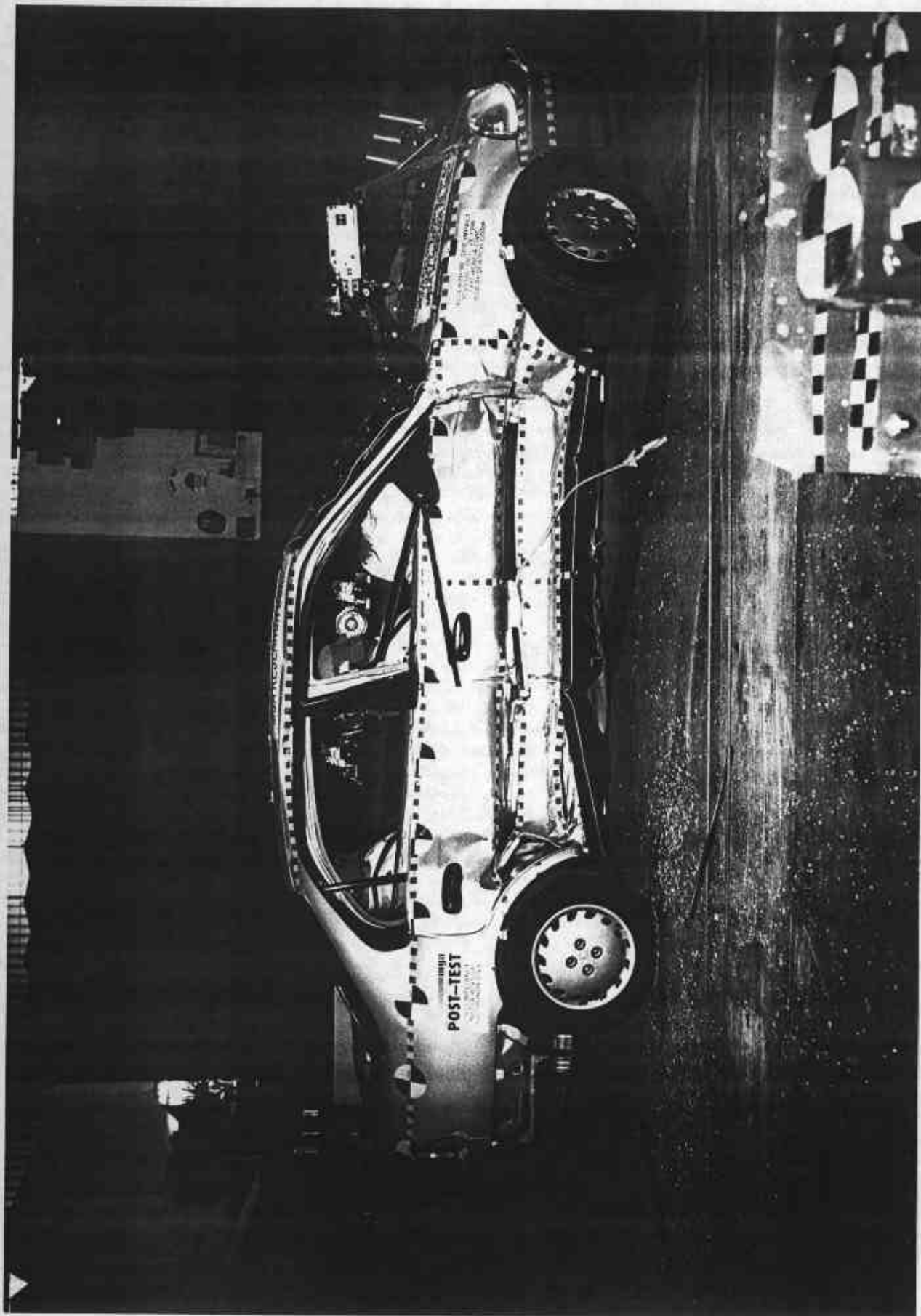


Photo No. A-6 - Post-Test Right Side View of Test Vehicle

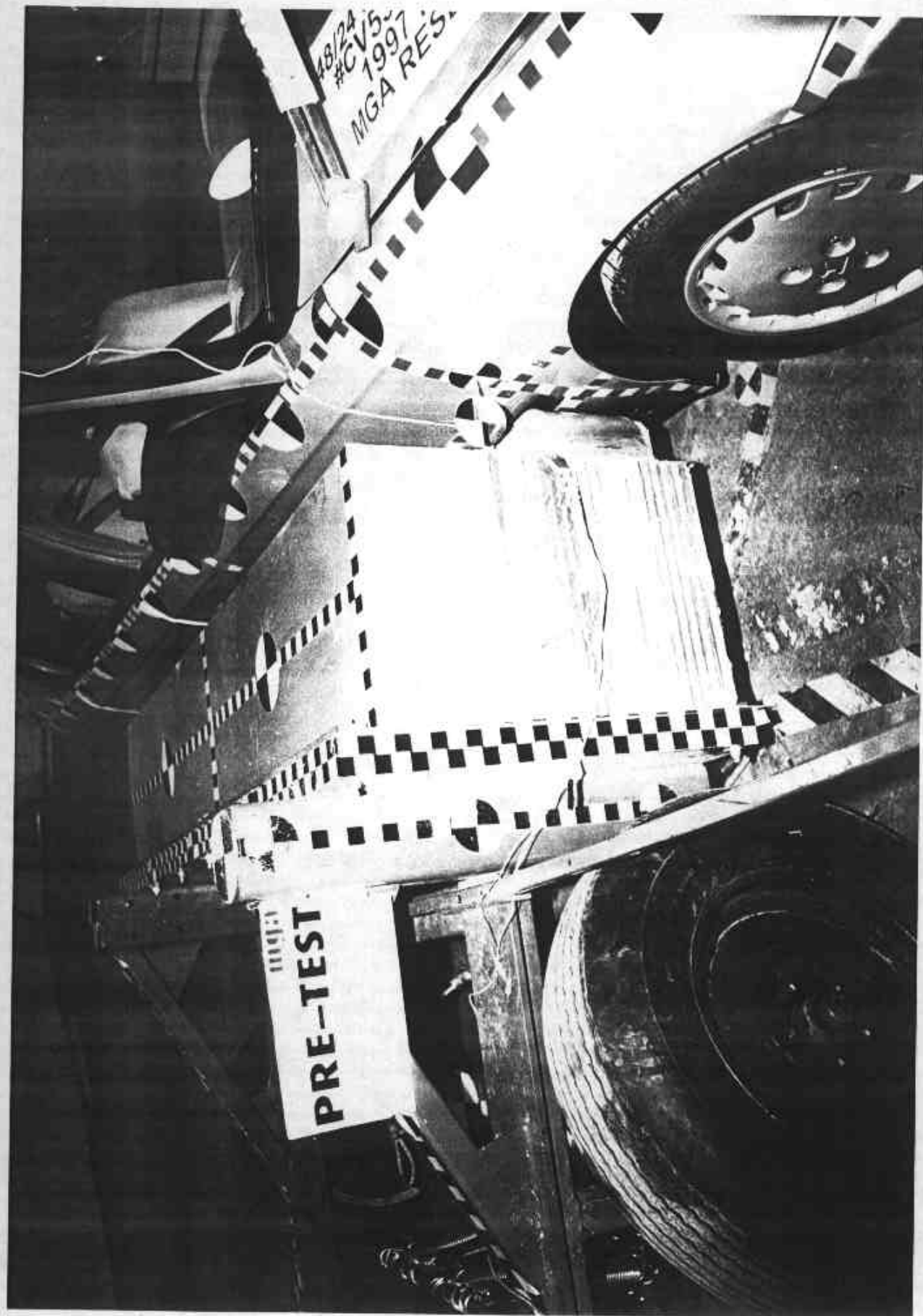


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (right side)

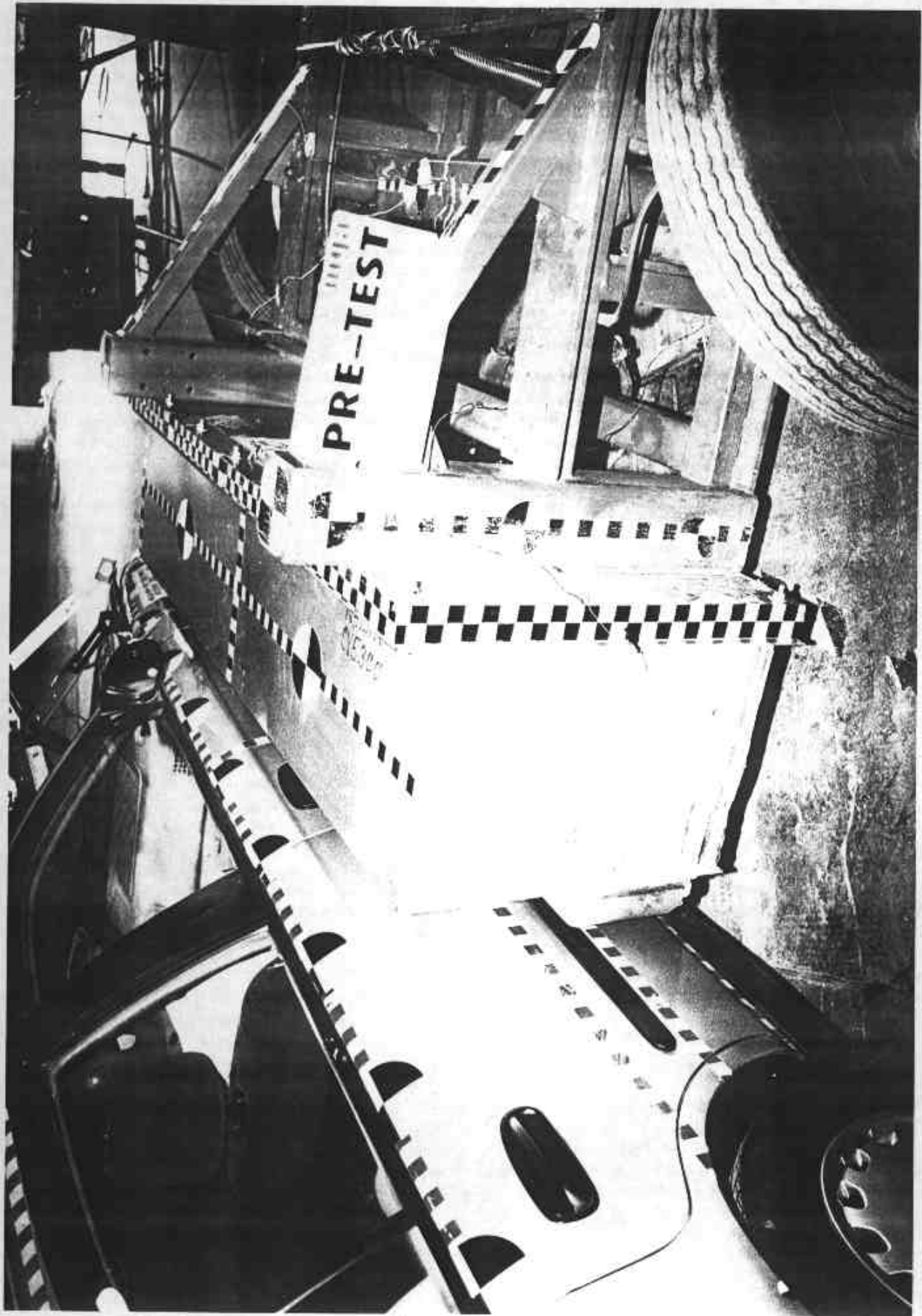


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (left side)

A-8

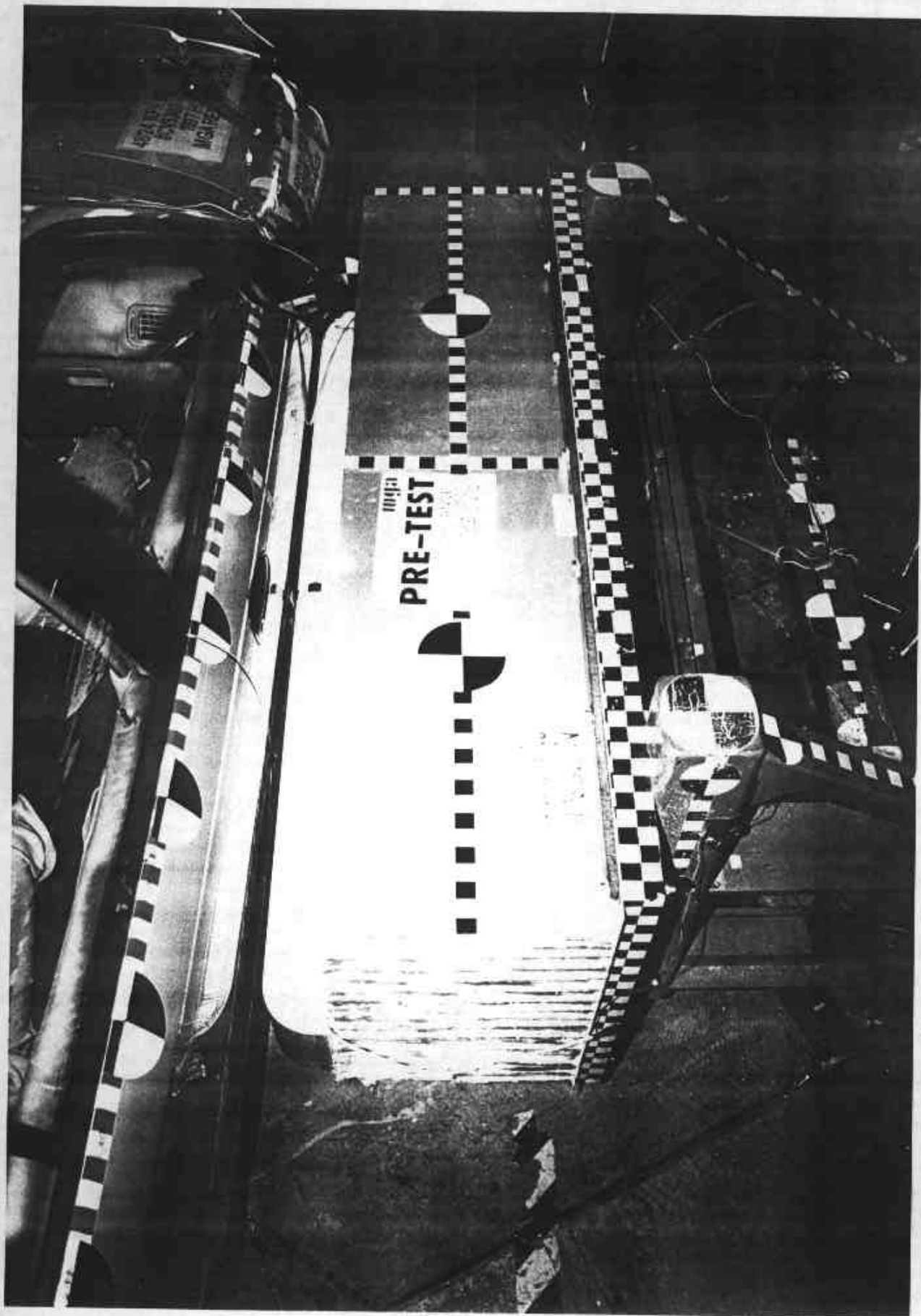


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View

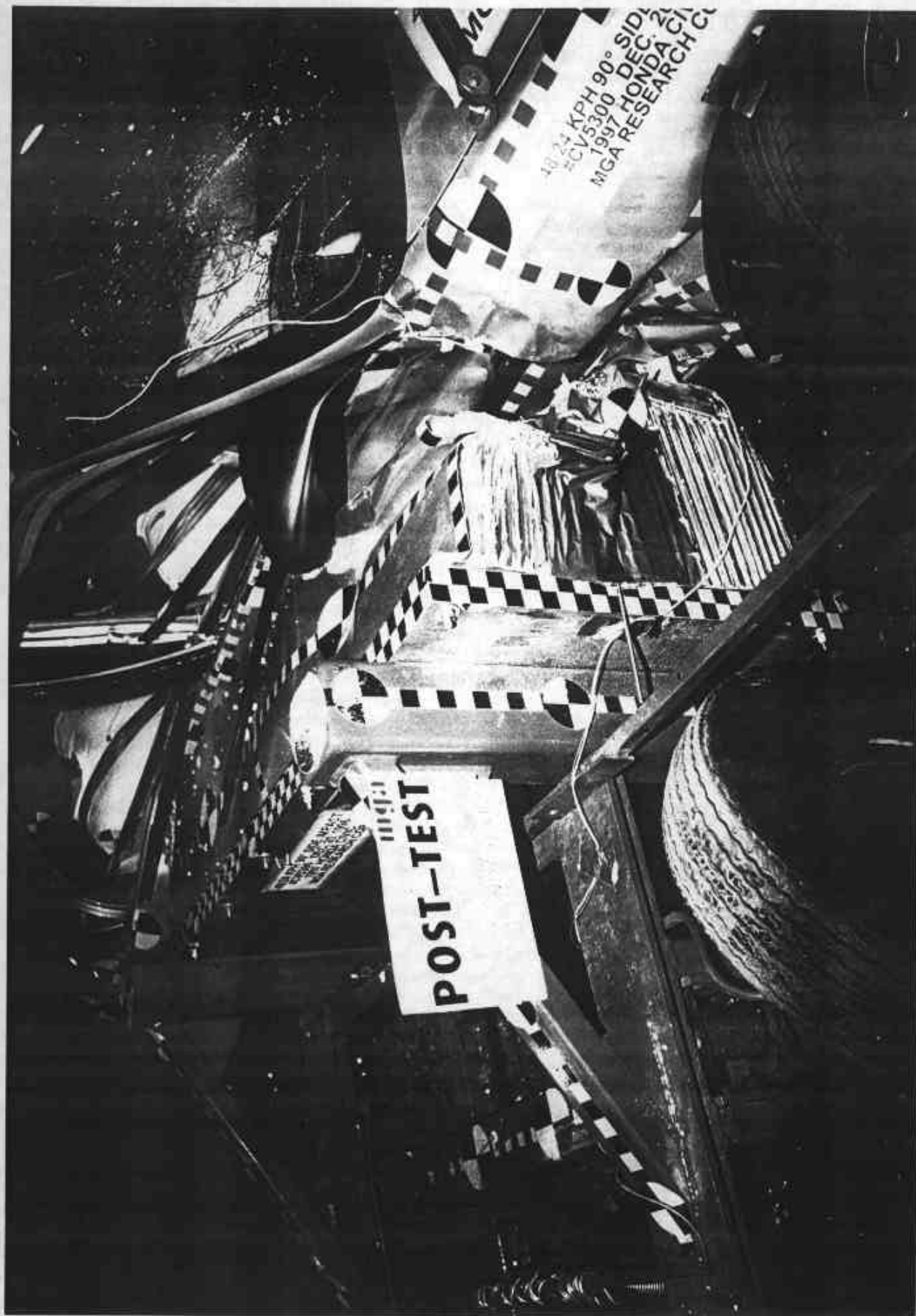


Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (right side)

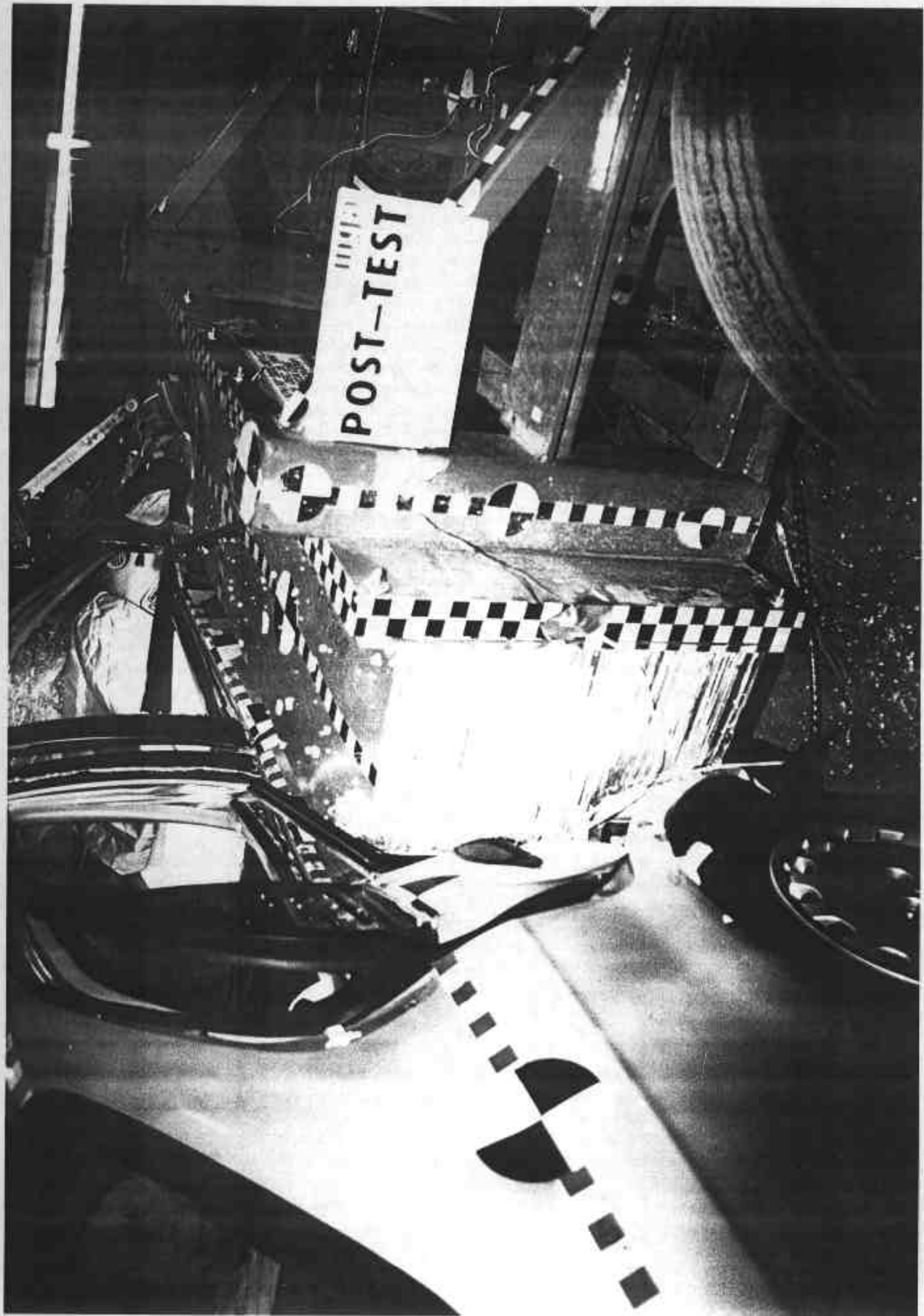
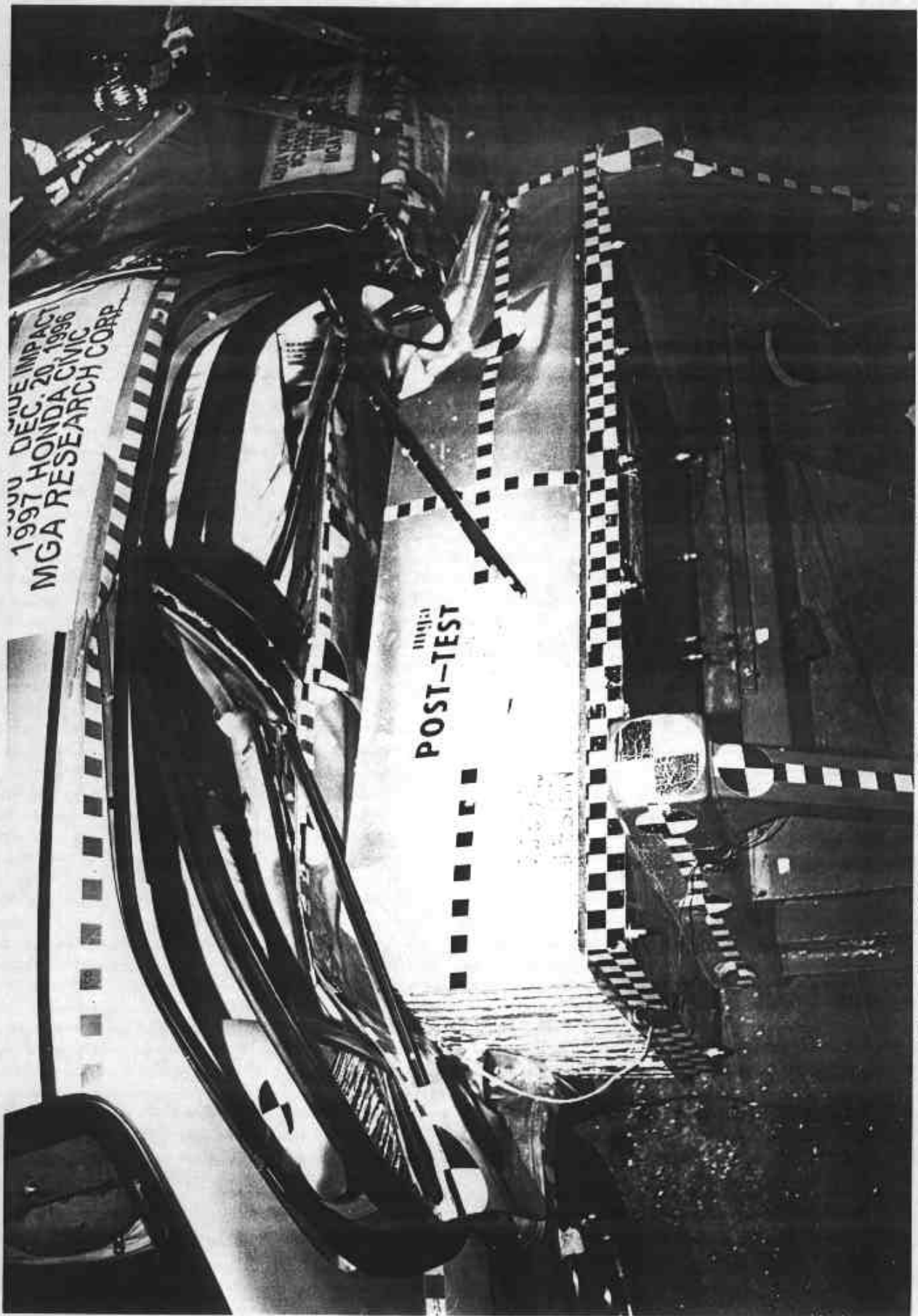


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (left side)

A-11



A-12

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

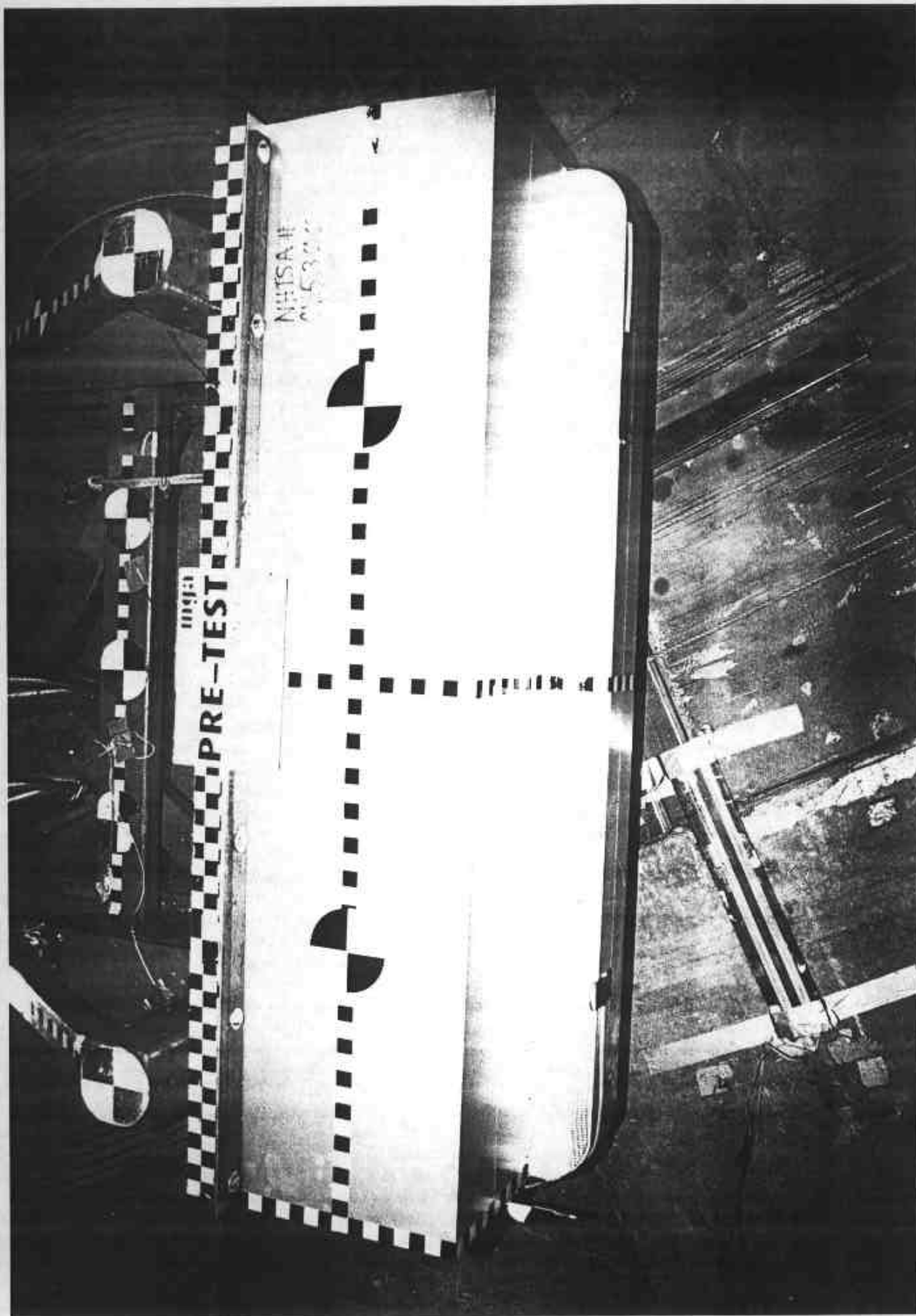


Photo No. A-13 - Pre-Test MDB Top View

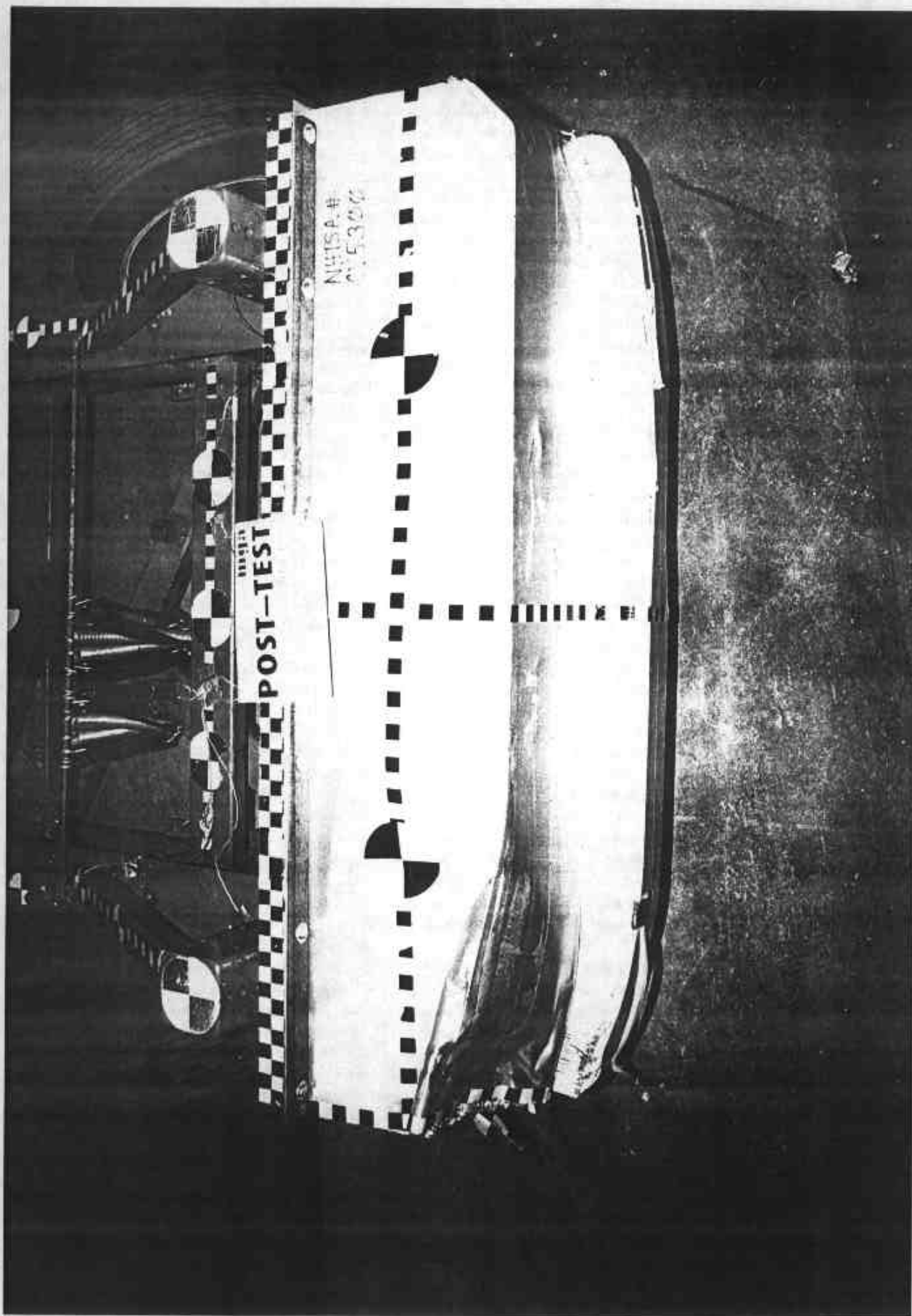


Photo No. A-14 - Post-Test MDB Top View

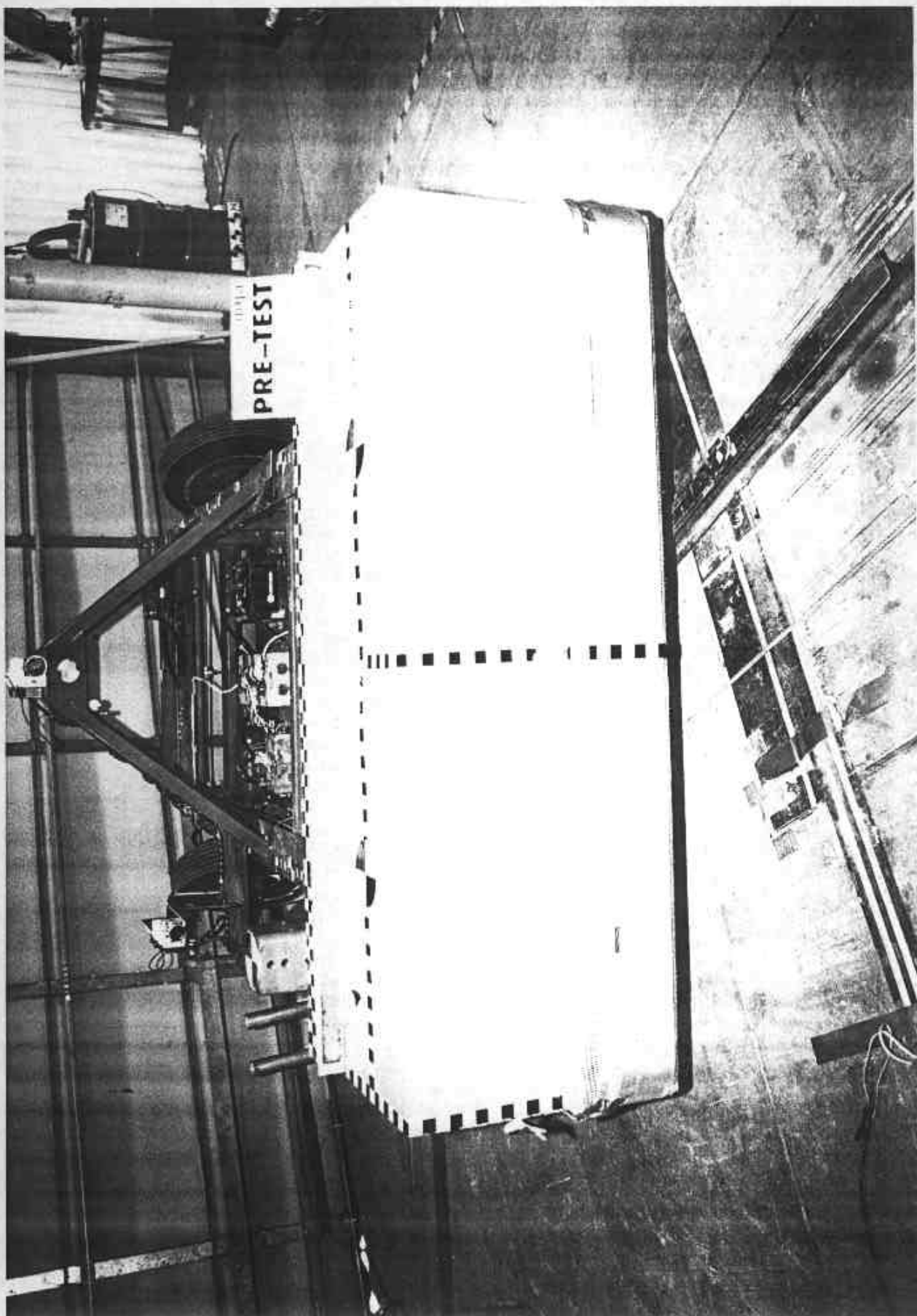


Photo No. A-15 - Pre-Test MDB Front View

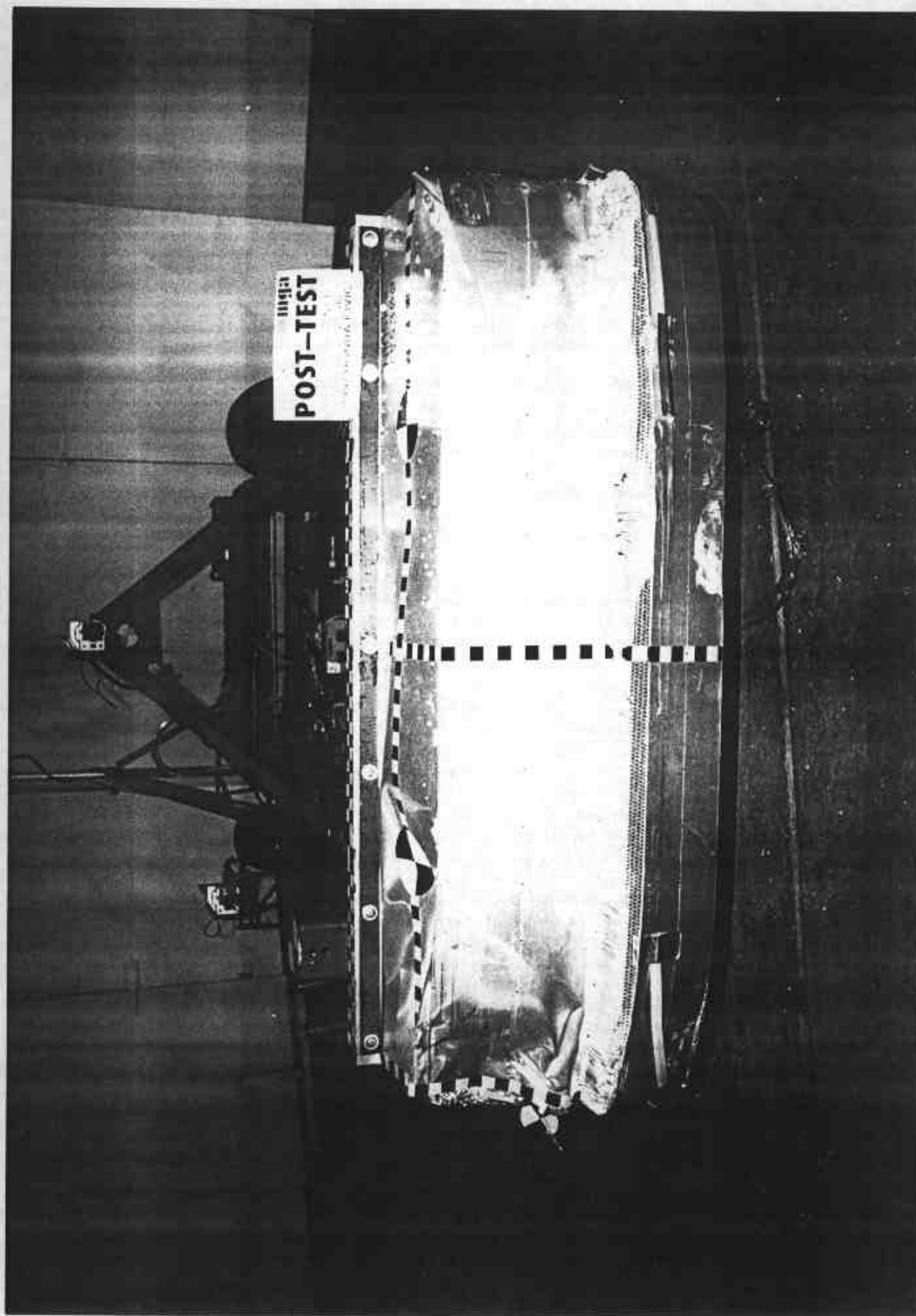


Photo No. A-16 - Post-Test MDB Front View

A-16

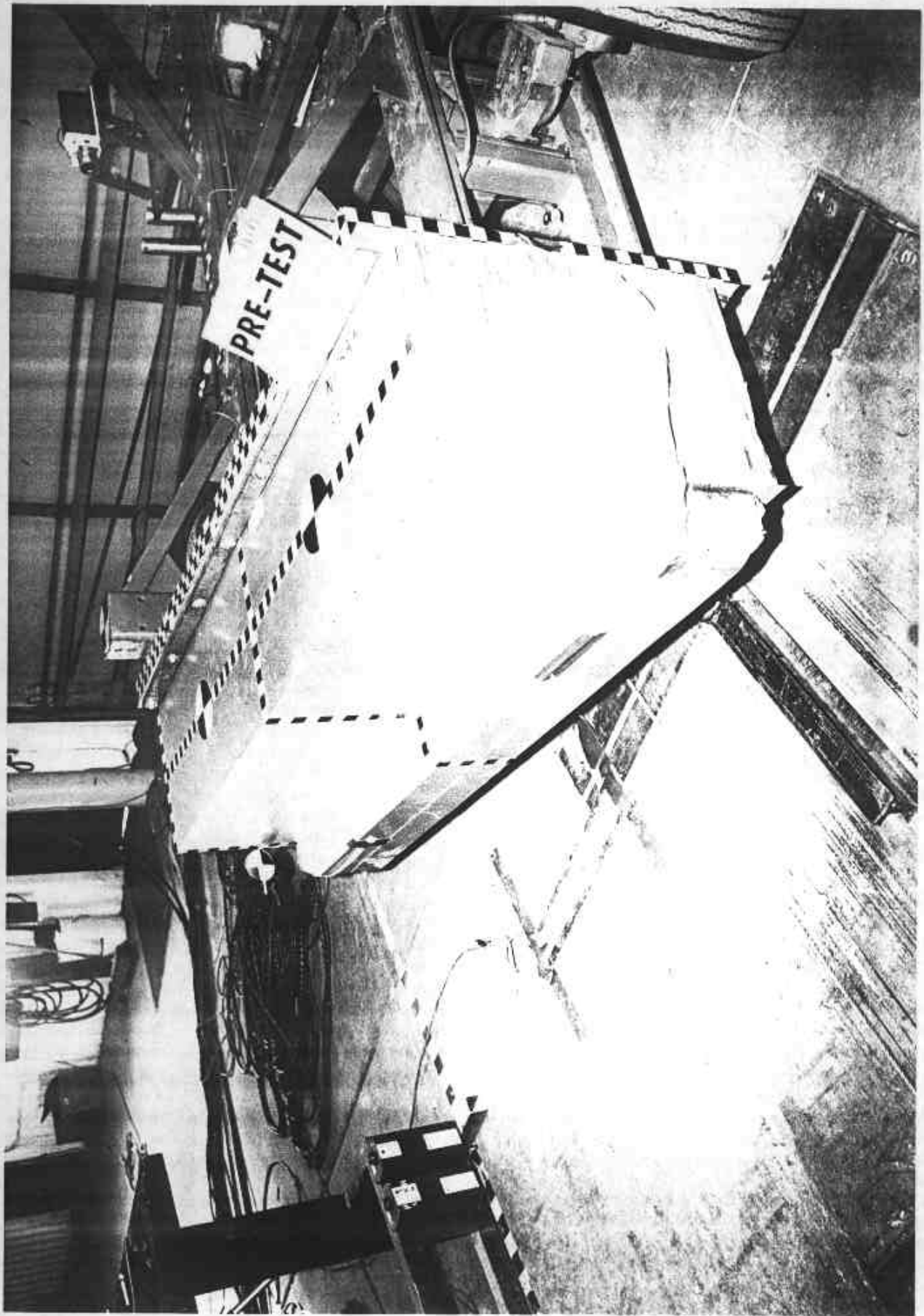


Photo No. A-17 - Pre-Test MDB Left Side View

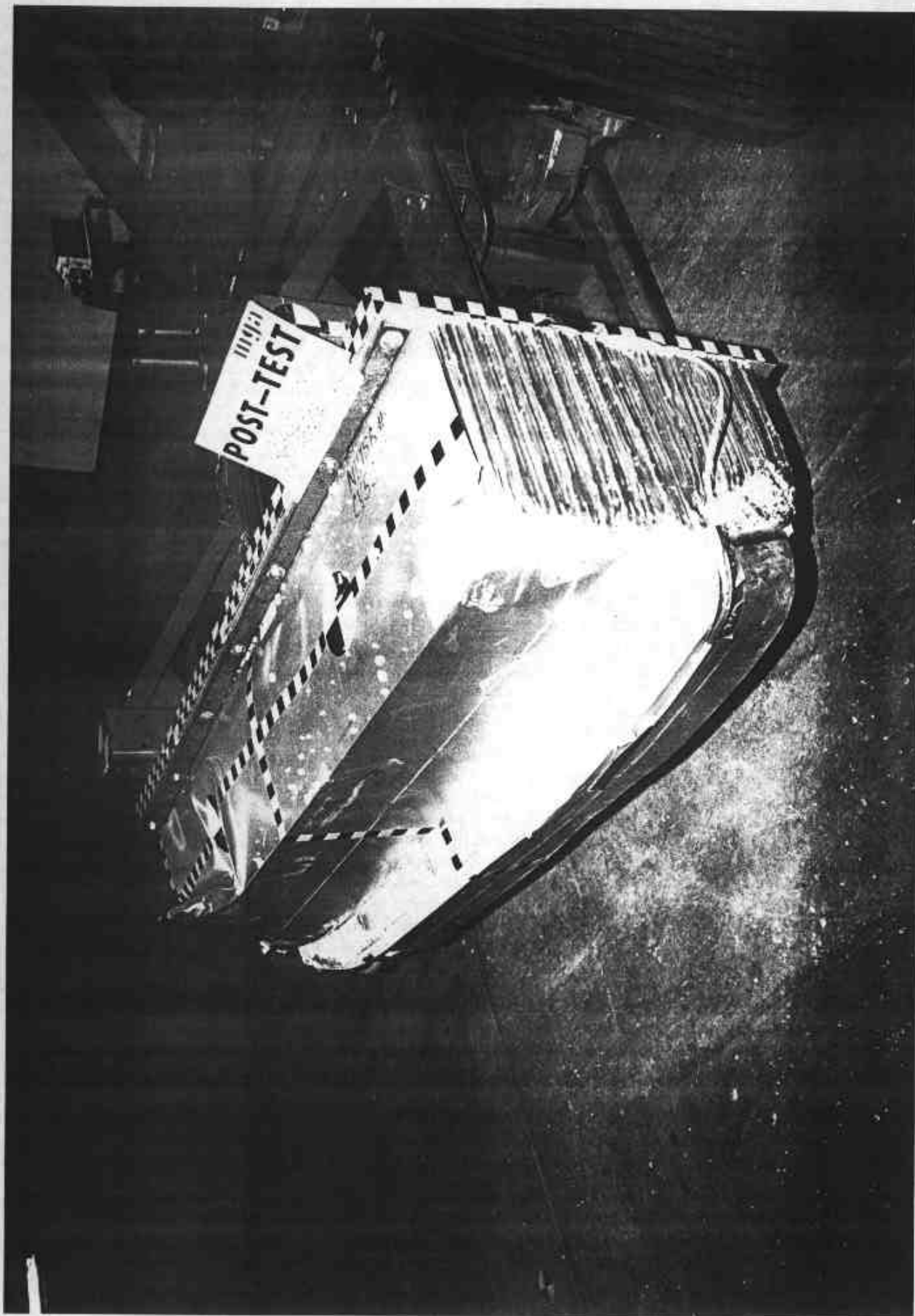


Photo No. A-18 - Post-Test MDB Left Side View

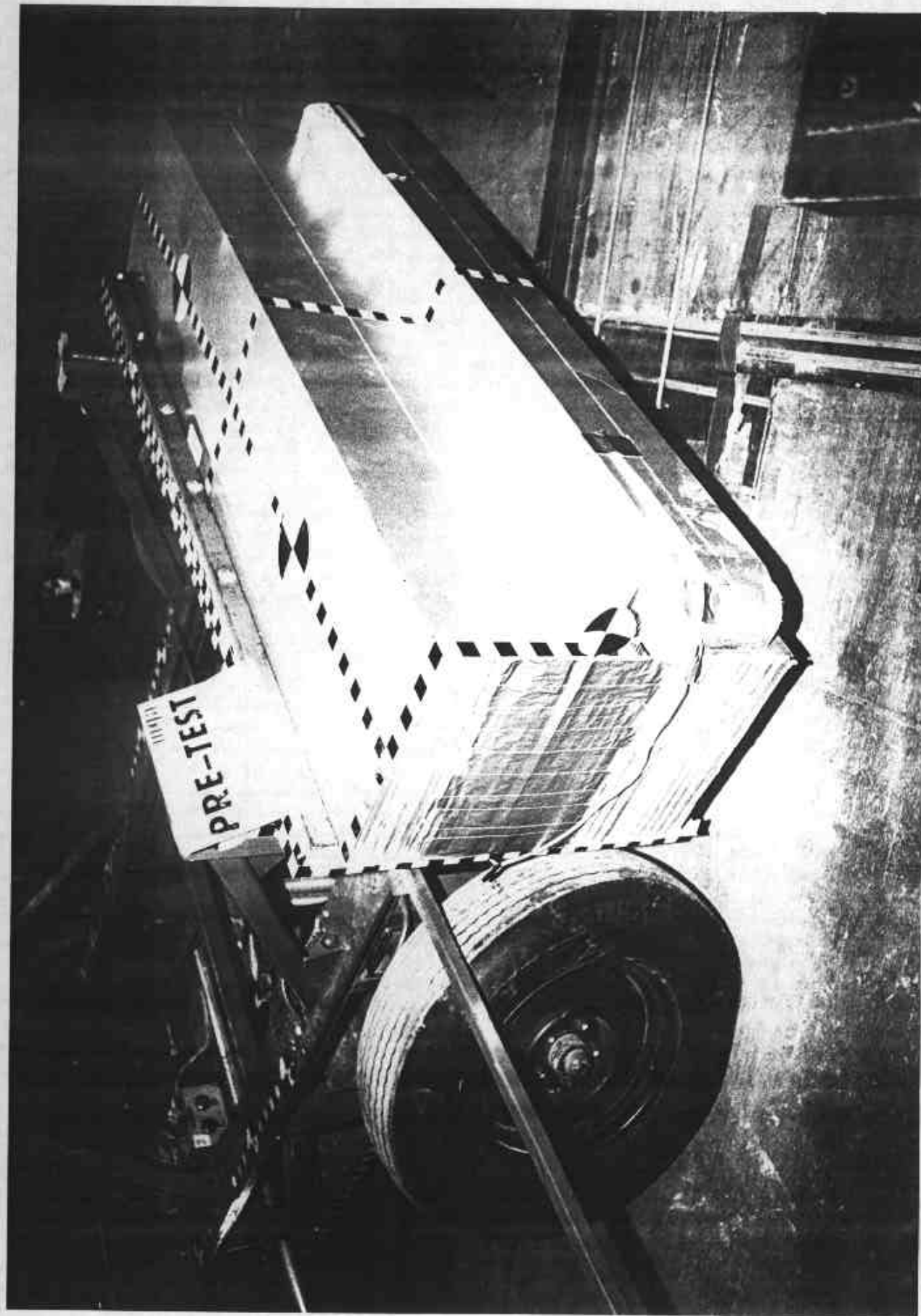


Photo No. A-19 - Pre-Test MDB Right Side View



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



PRE-TEST

214 COMPLIANCE

NHTSA #CV5300

1997 HONDA CIVIC

A-21

Photo No. A-21 - Pre-Test Right Front Seat Position View



Photo No. A-22 - Pre-Test Front Passenger Dummy Left Side View



Photo No. A-23 - Post-Test Front Passenger Dummy Left Side View

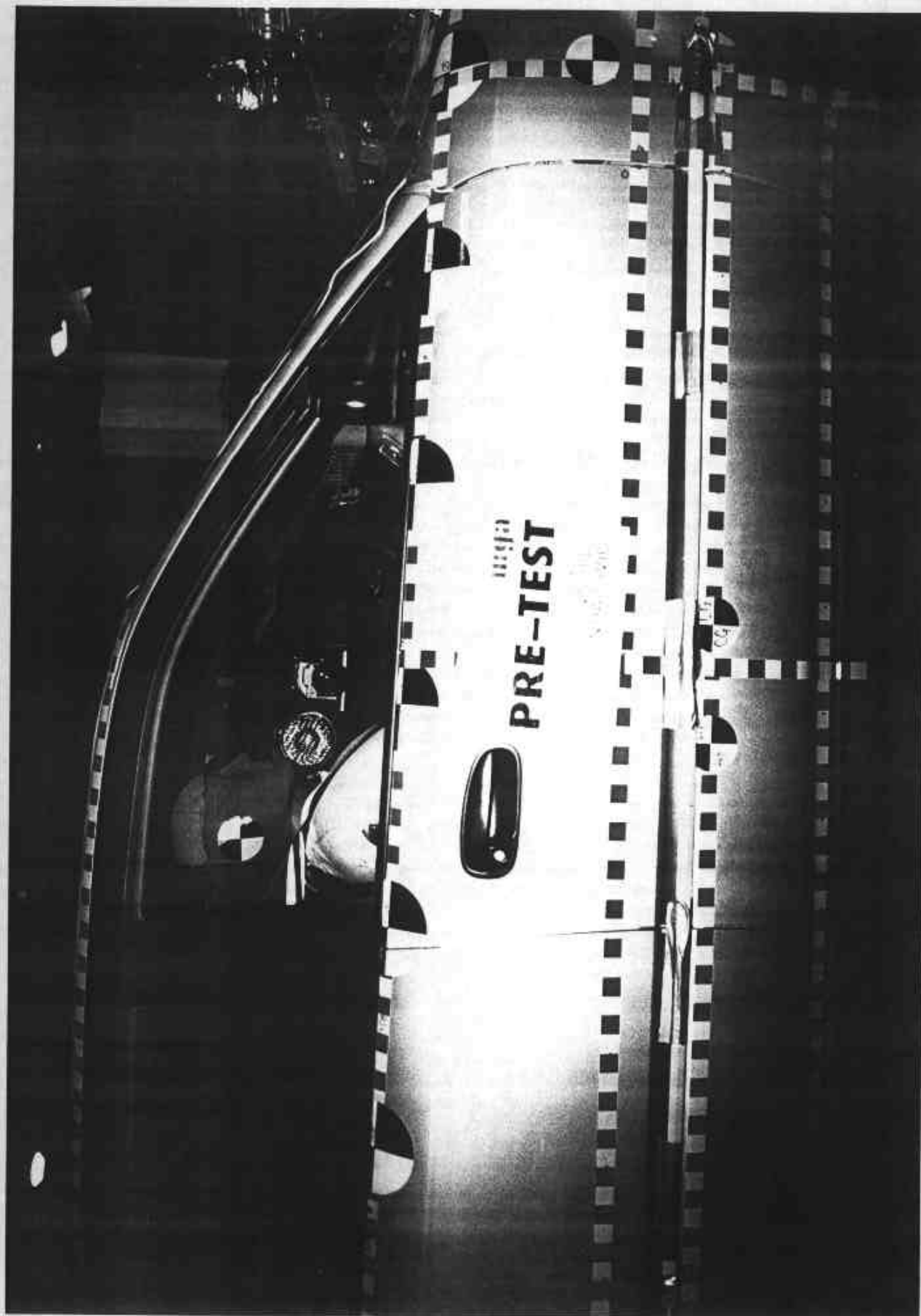


Photo No. A-24 - Pre-Test Front Passenger Dummy Right Side View

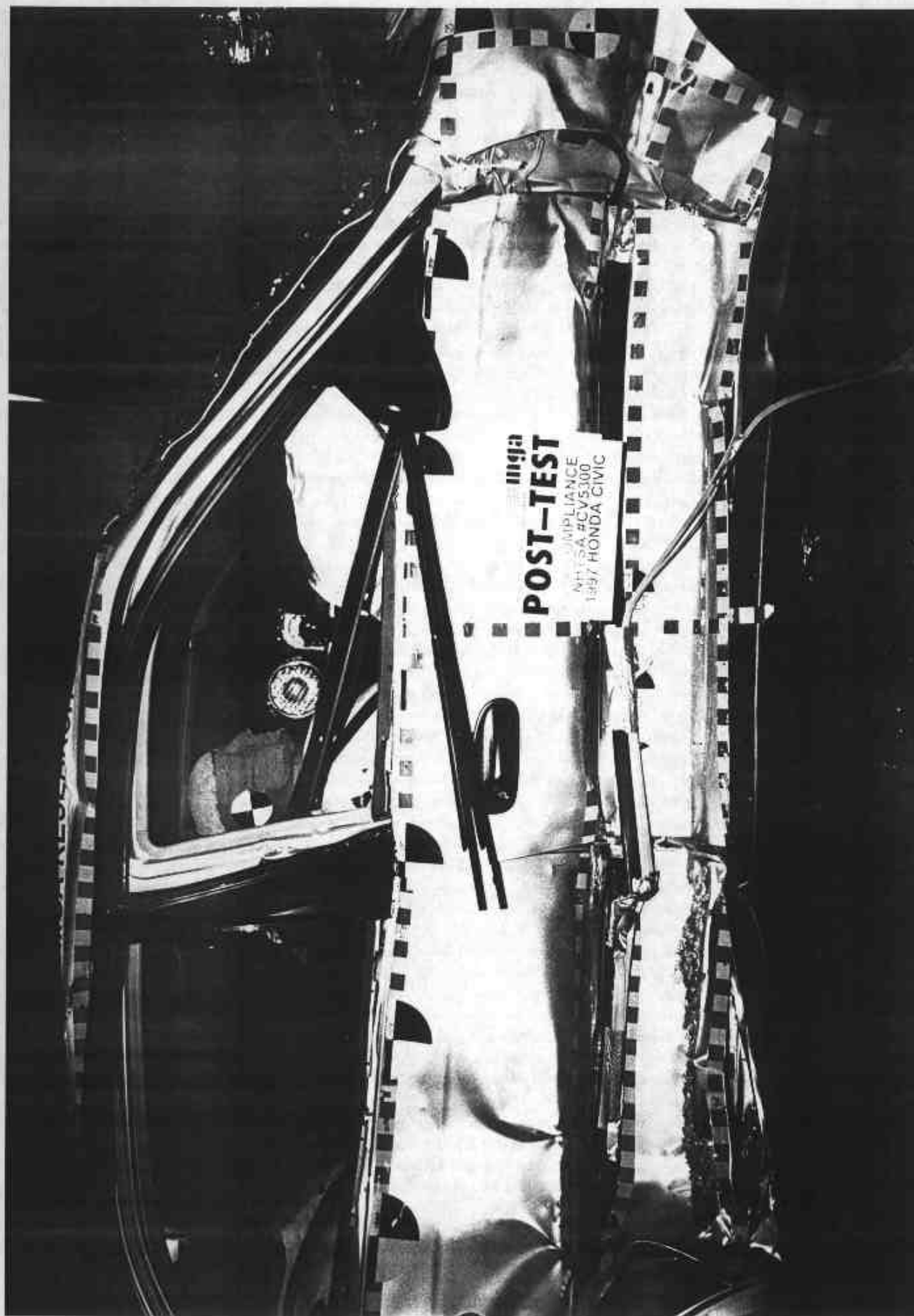


Photo No. A-25 - Post-Test Front Passenger Dummy Right Side View



Photo No. A-26 - Pre-Test Front Passenger Dummy Right Side View (Door Open)



Photo No. A-27 - Pre-Test Front Passenger Shoulder and Door Top View

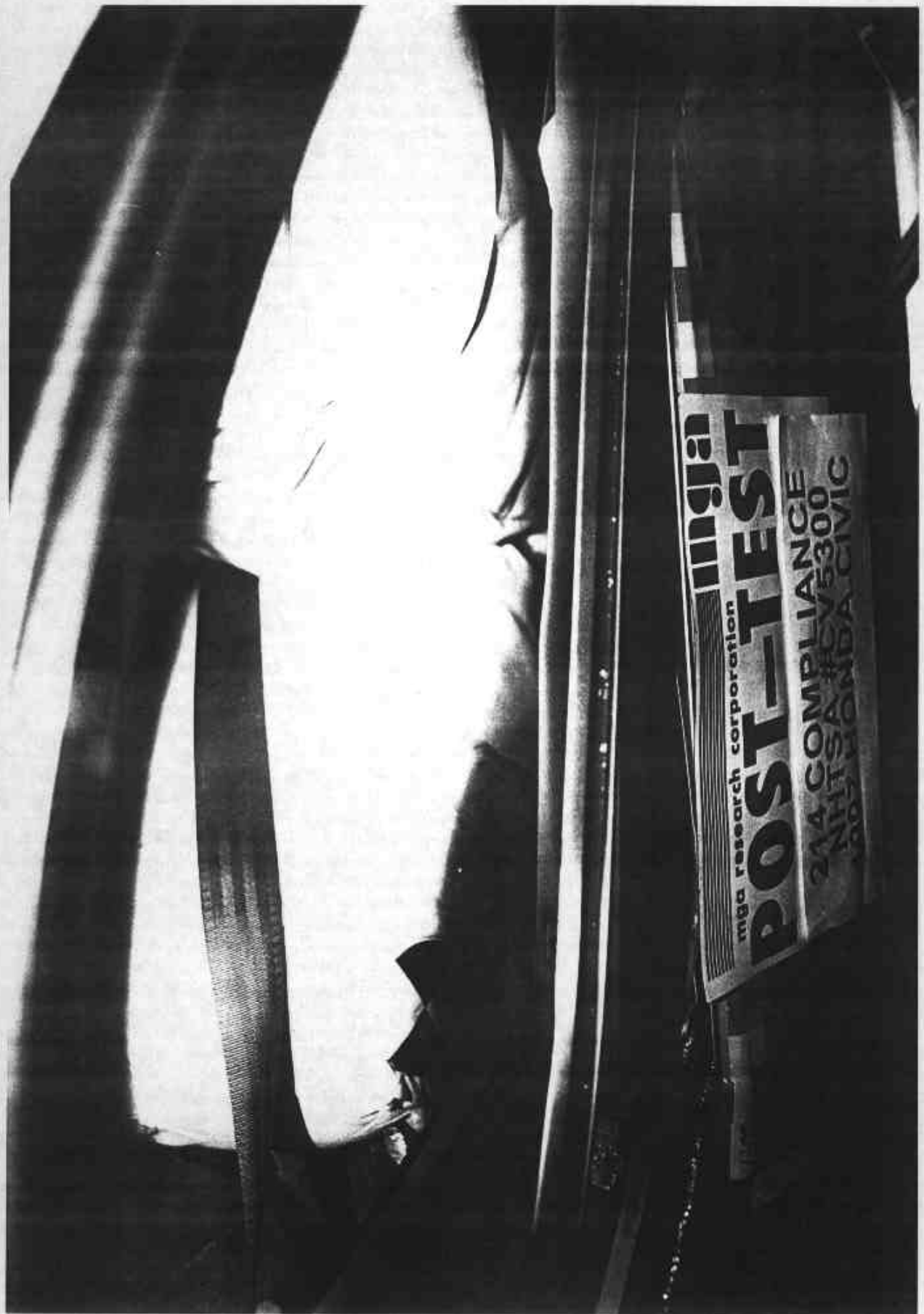


Photo No. A-28 - Post-Test Front Passenger Shoulder and Door Top View



Photo No. A-29 - Post-Test Front Passenger Dummy Contact



Photo No. A-30 - Post-Test Front Passenger Dummy Head Contact



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



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

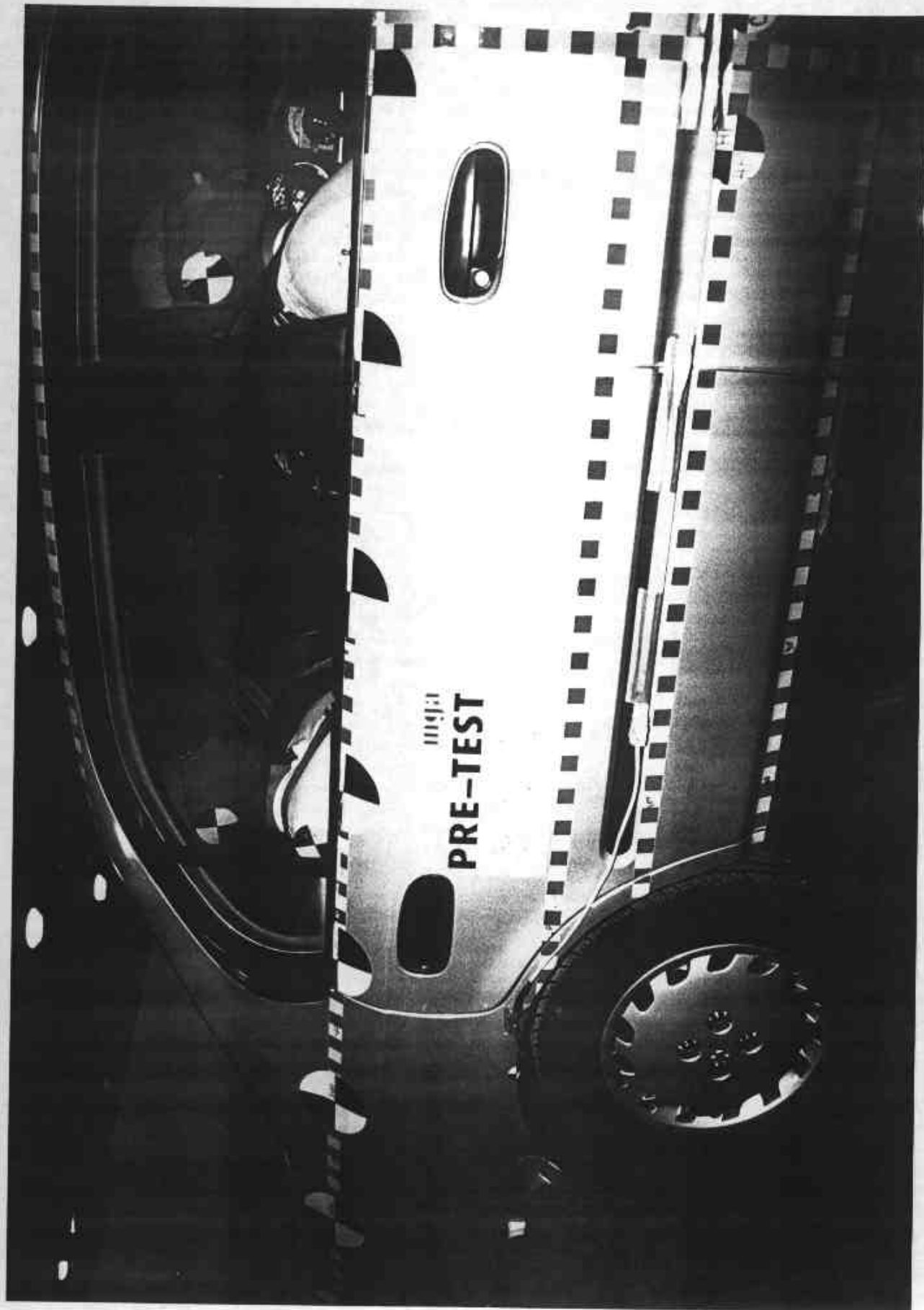


Photo No. A-33 - Pre-Test Rear Passenger Dummy Right Side View

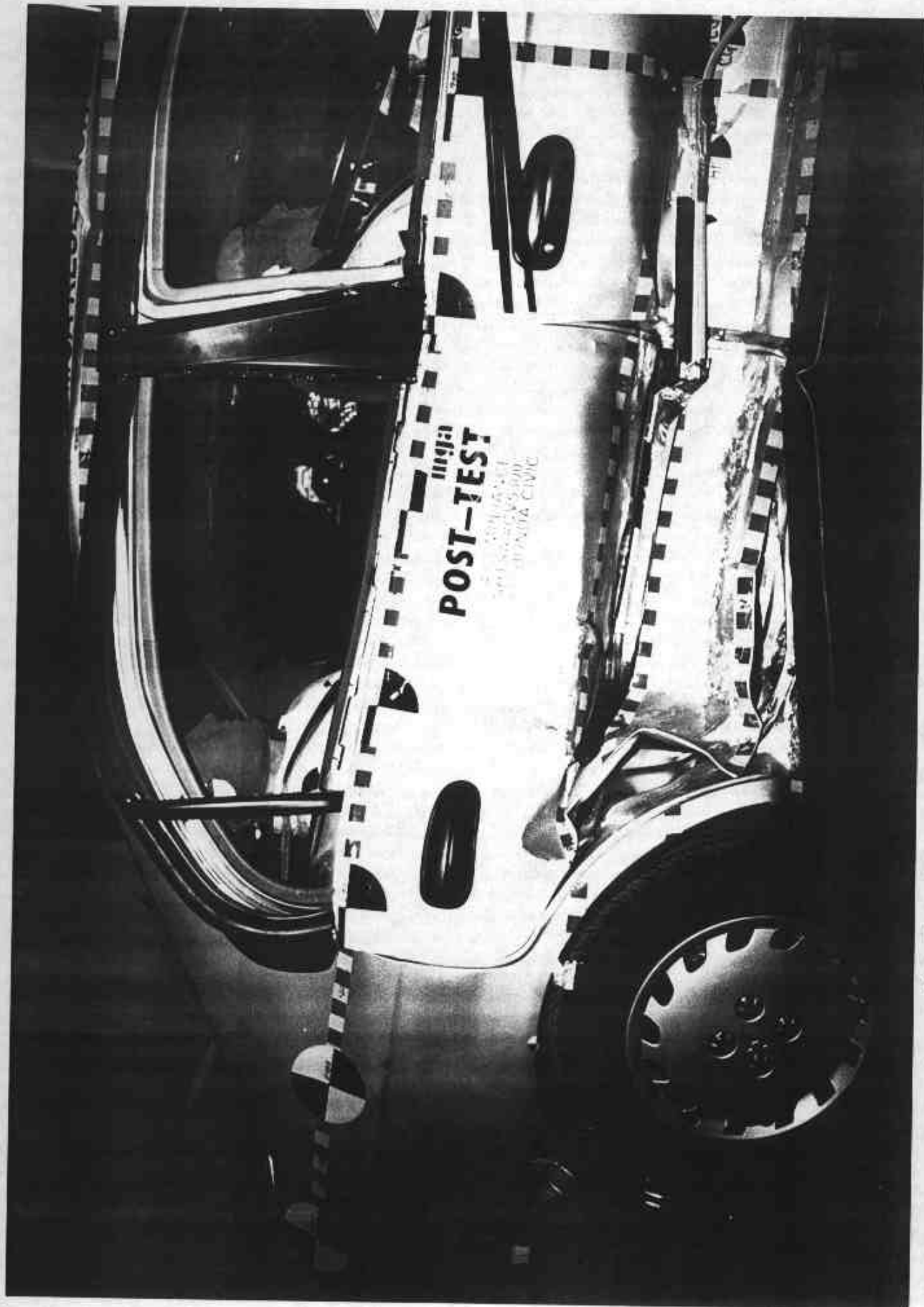


Photo No. A-34 - Post-Test Rear Passenger Dummy Right Side View

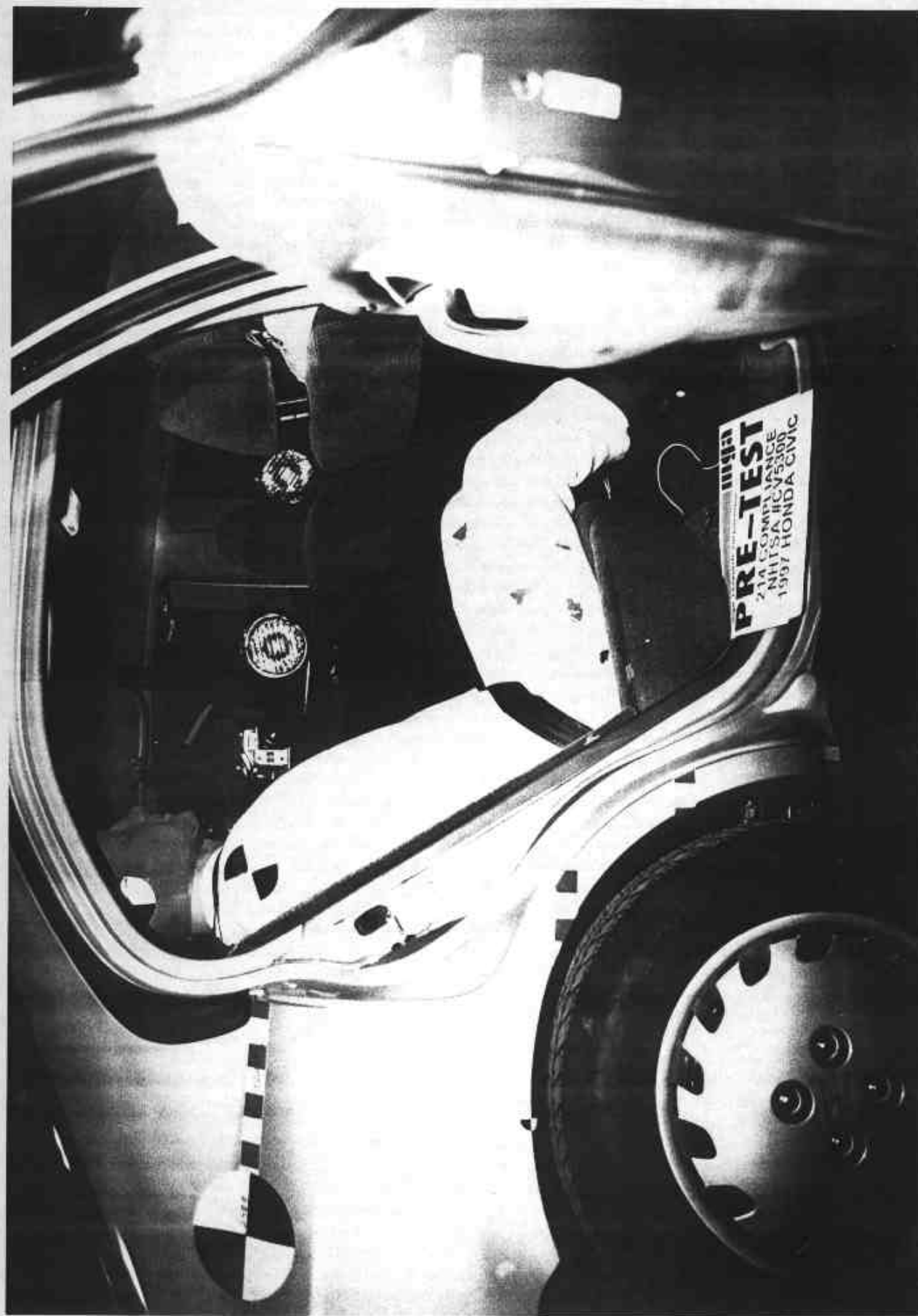


Photo No. A-35 - Pre-Test Rear Passenger Dummy Right Side View (Door Open)

A-35

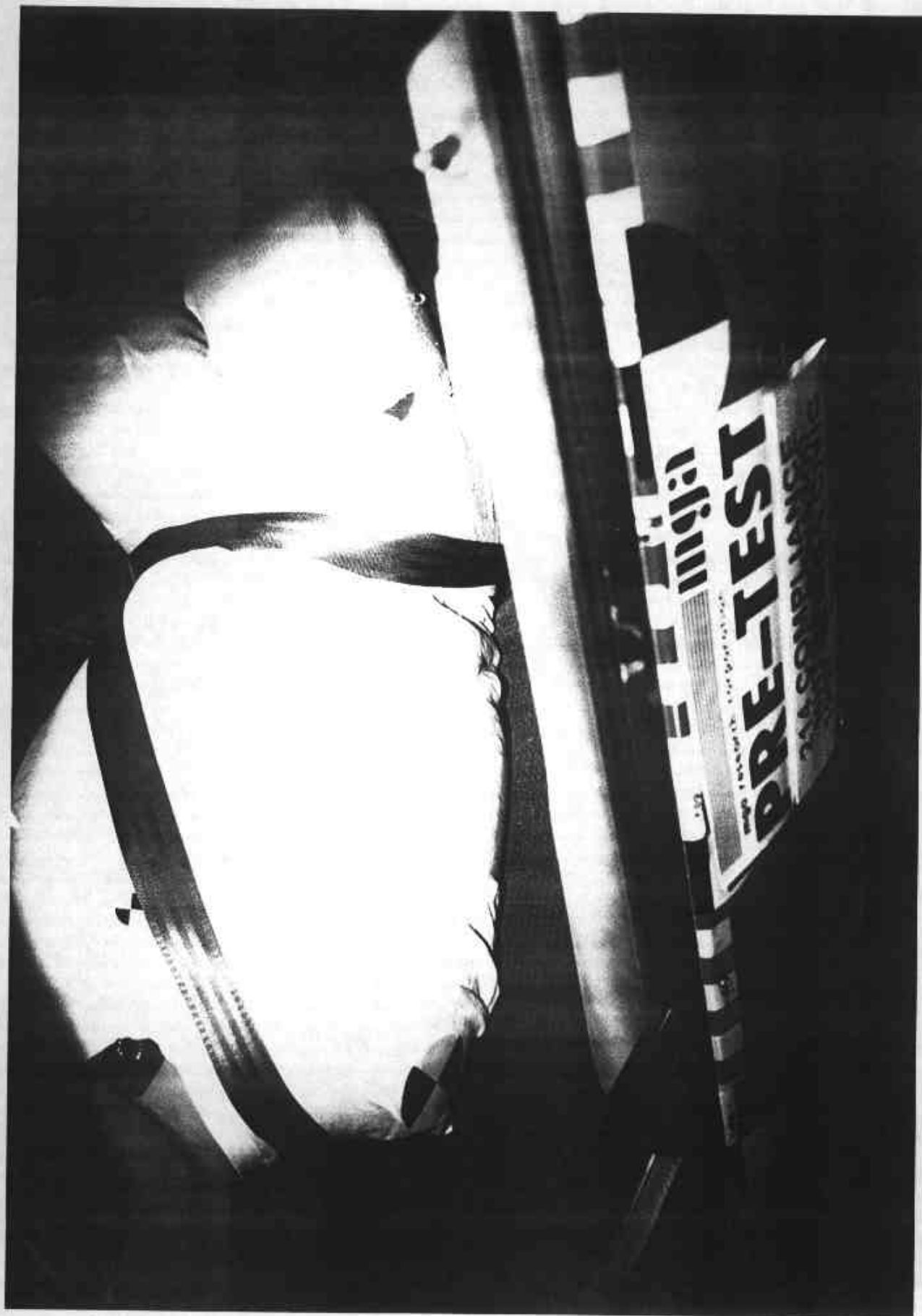
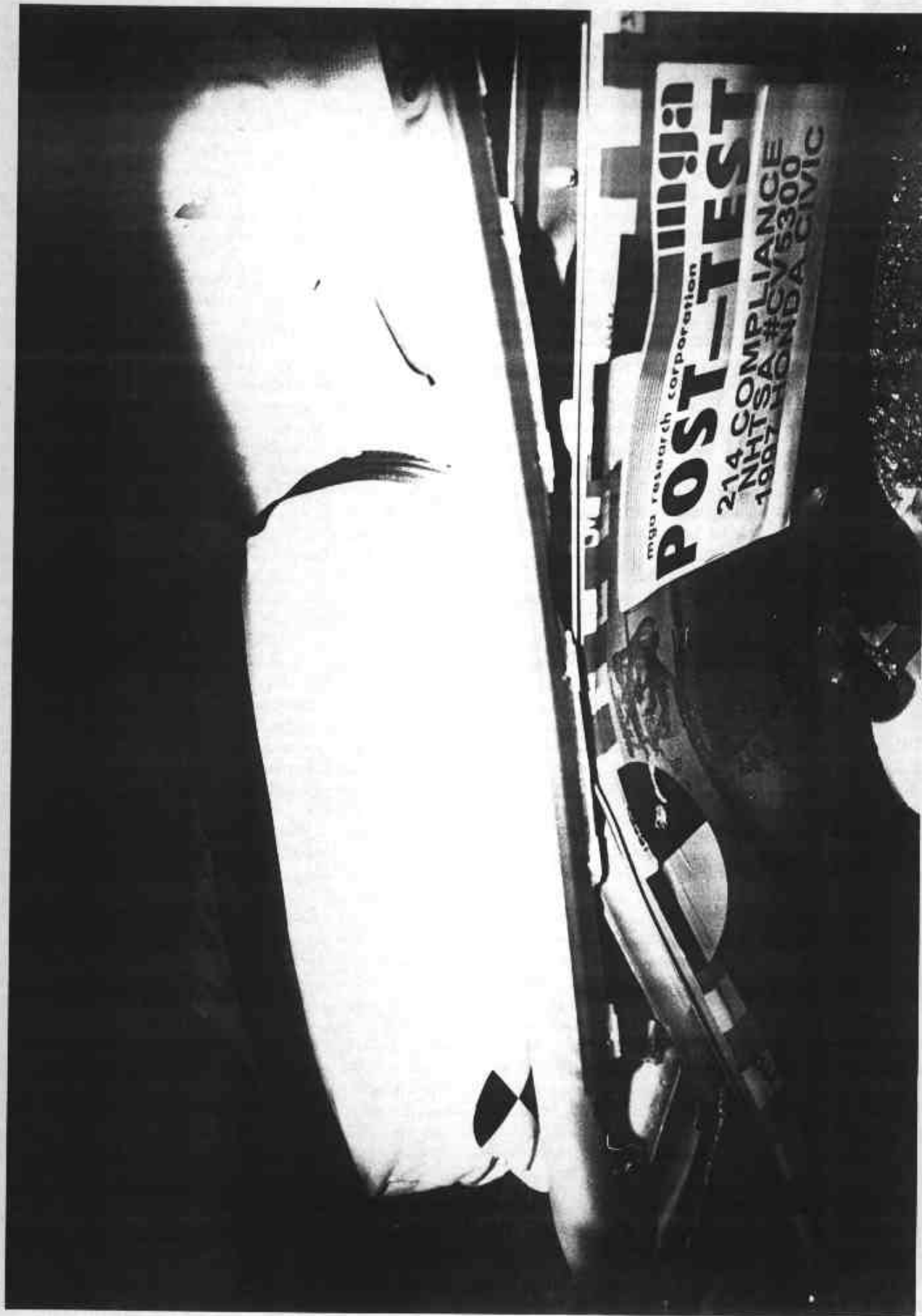


Photo No. A-36 - Pre-Test Rear Passenger Dummy Shoulder and Door Top View



A-37

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



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



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



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

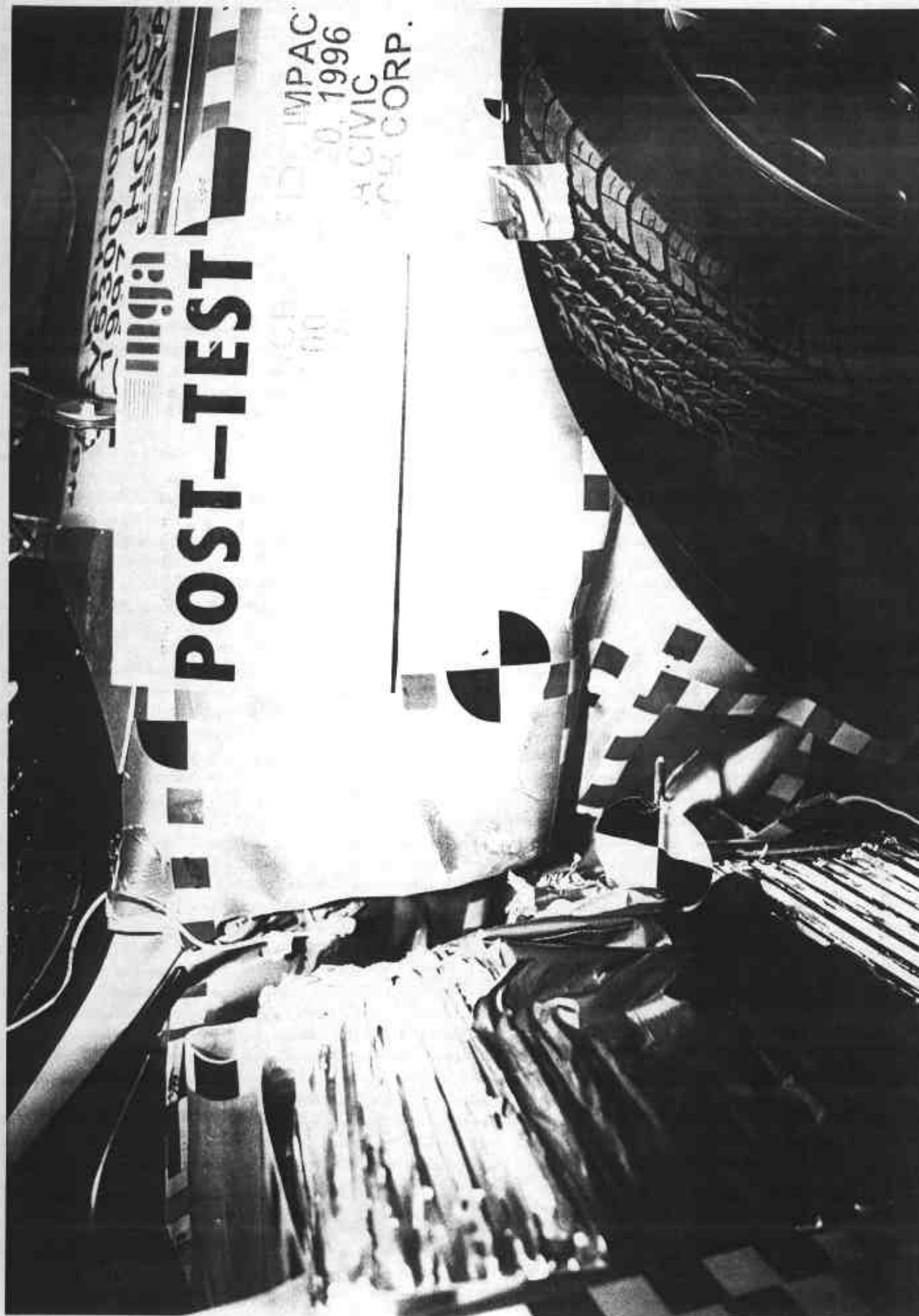


Photo No. A-41 - Post-Test Right Front Impact Point on Vehicle

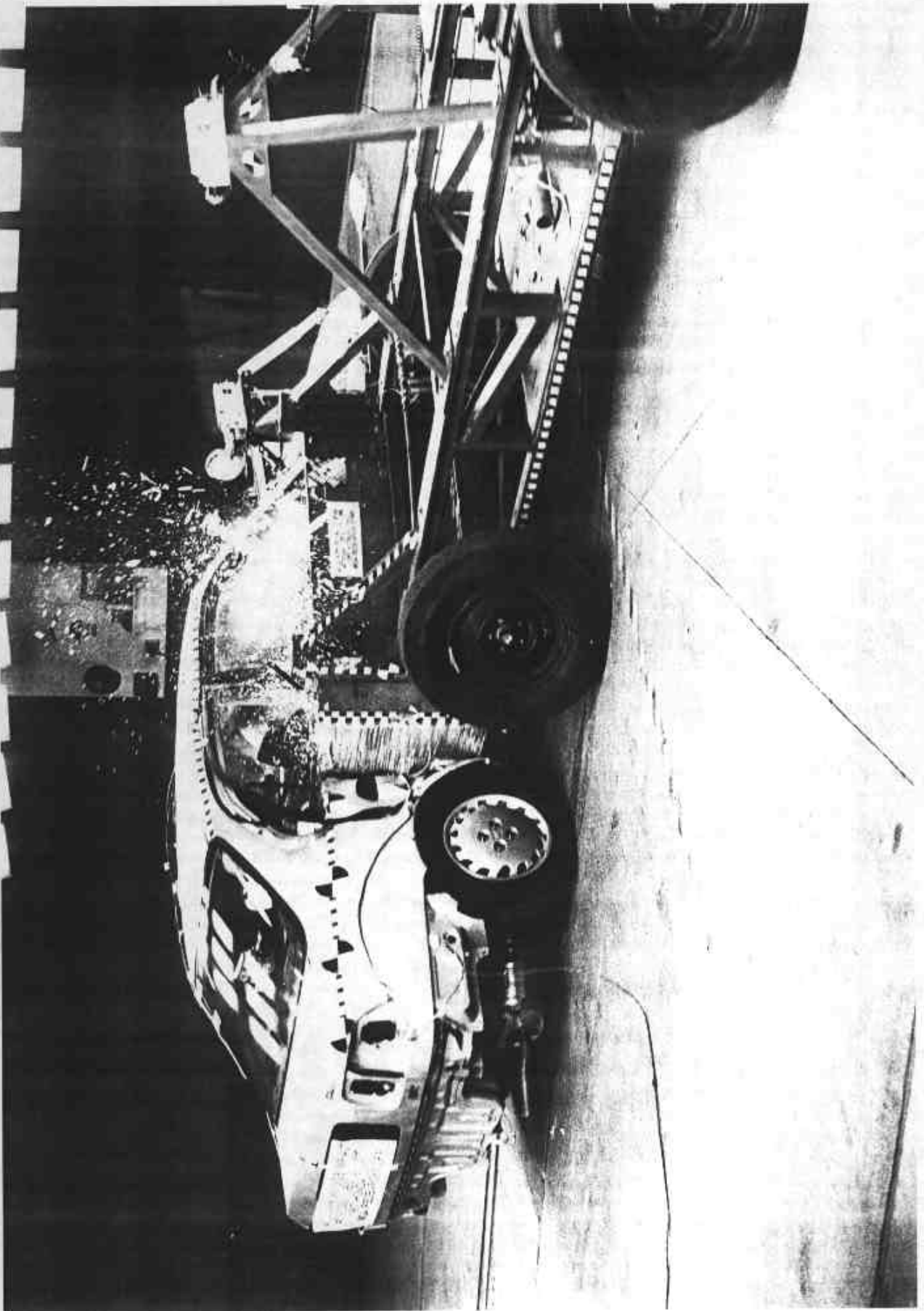


Photo No. A-42 - Impact

A-42

MPD. IN JAPAN BY HONDA MOTOR CO. LTD. 1970
GVWR 3330LBS. GAWR 1760LBS. 1970
THIS VEHICLE CONFORMS TO SAFETY STANDARDS
FEDERAL MOTOR VEHICLE SAFETY IN 1970
AND THEFT PREVENTION STANDARDS SHOWN ABOVE
ON THE DATE OF MANUFACTURE

V.I.N. JHMEJ6527VS008364



PASSENGER CAR

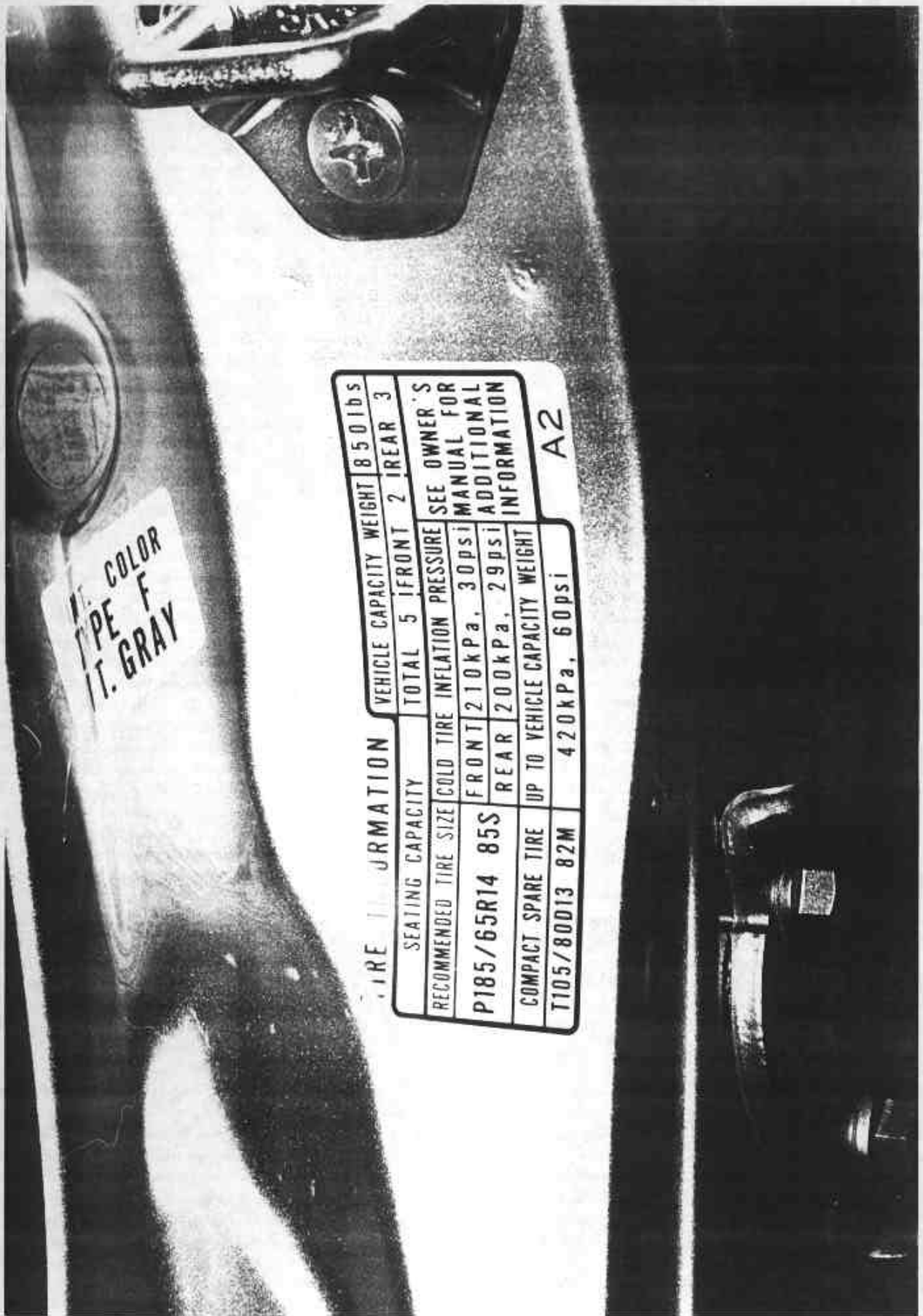


Photo No. A-44 - Tire Placard

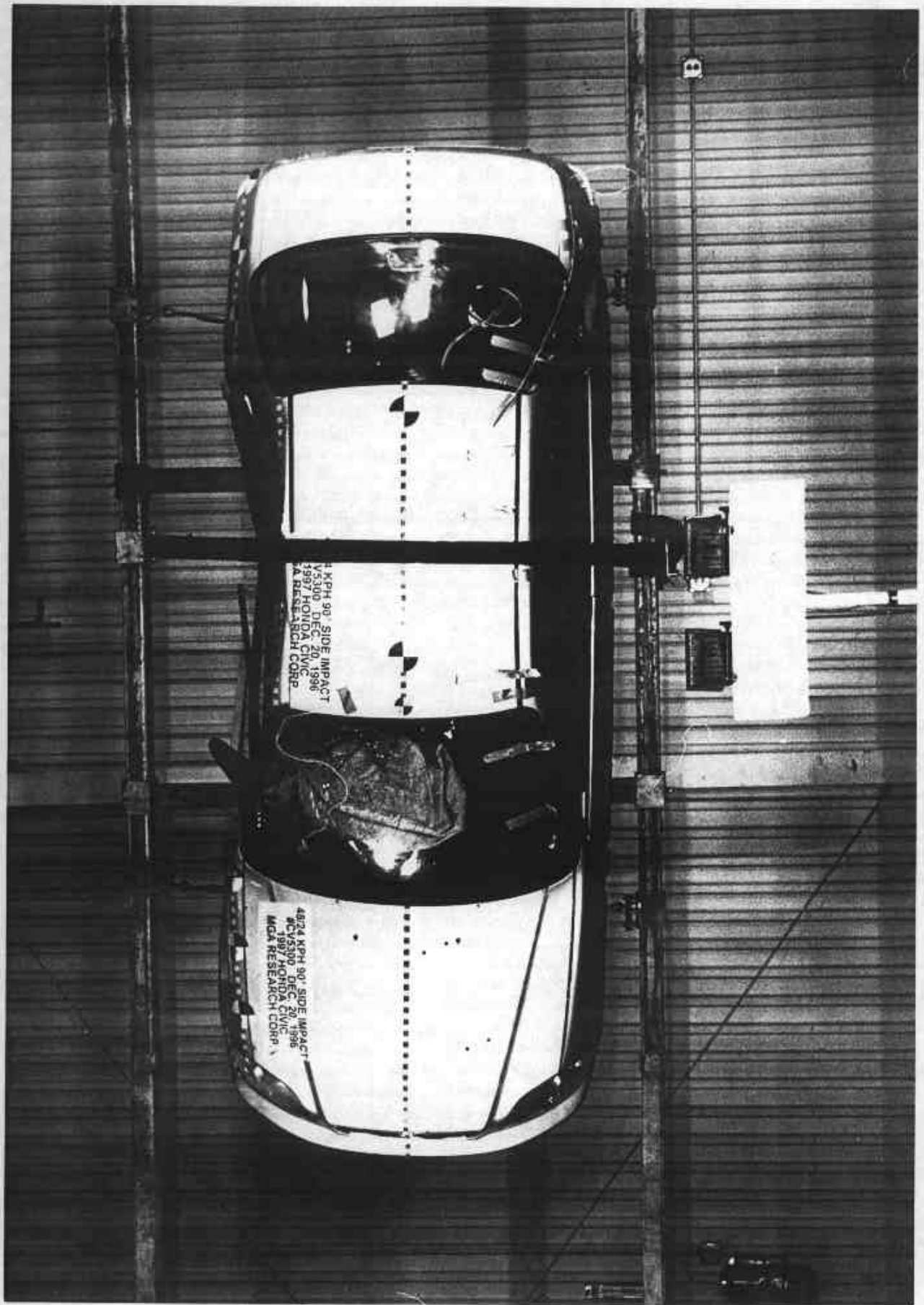


Photo No. A-45 - Rollover 90°

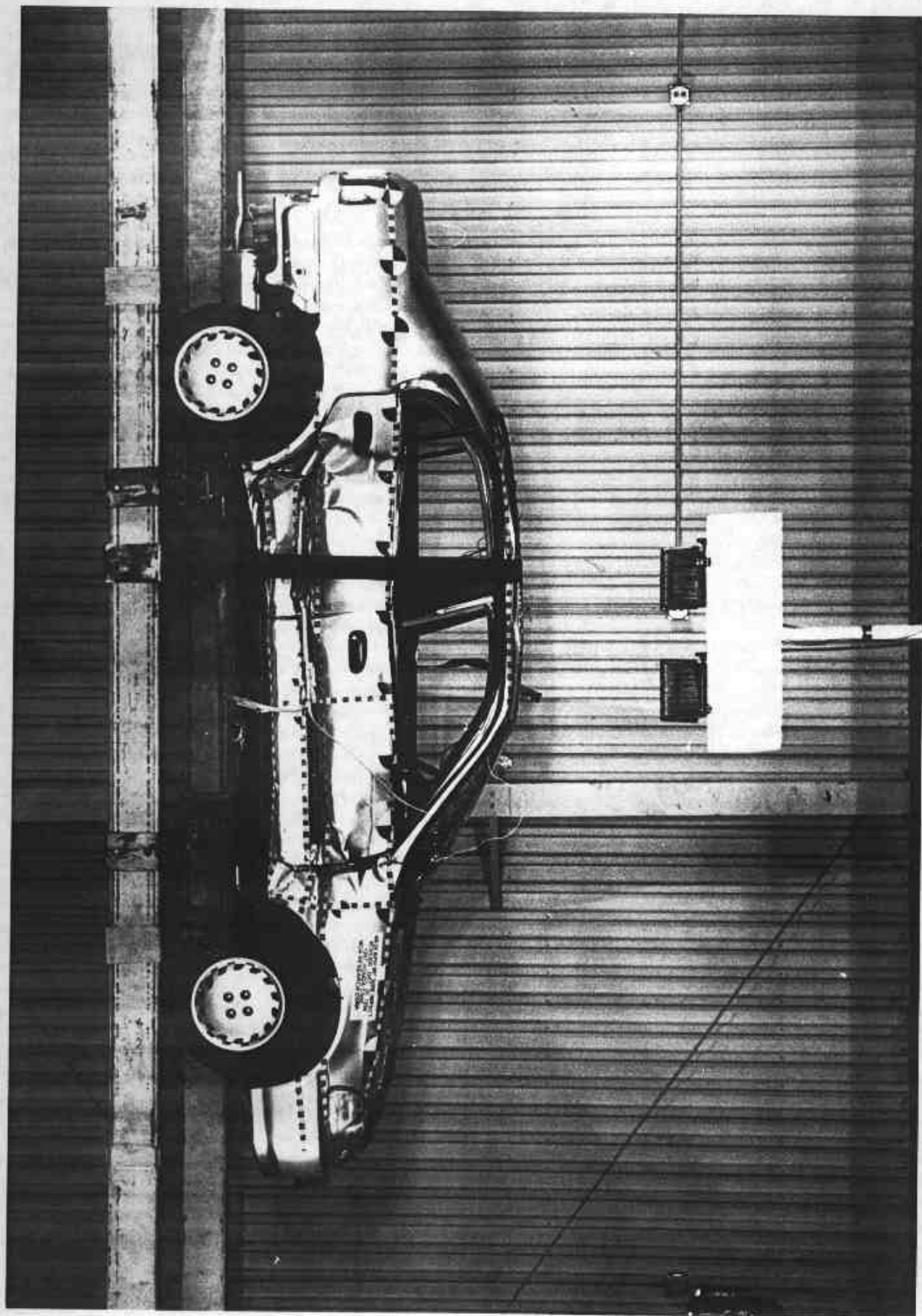


Photo No. A-46 - Rollover 180°

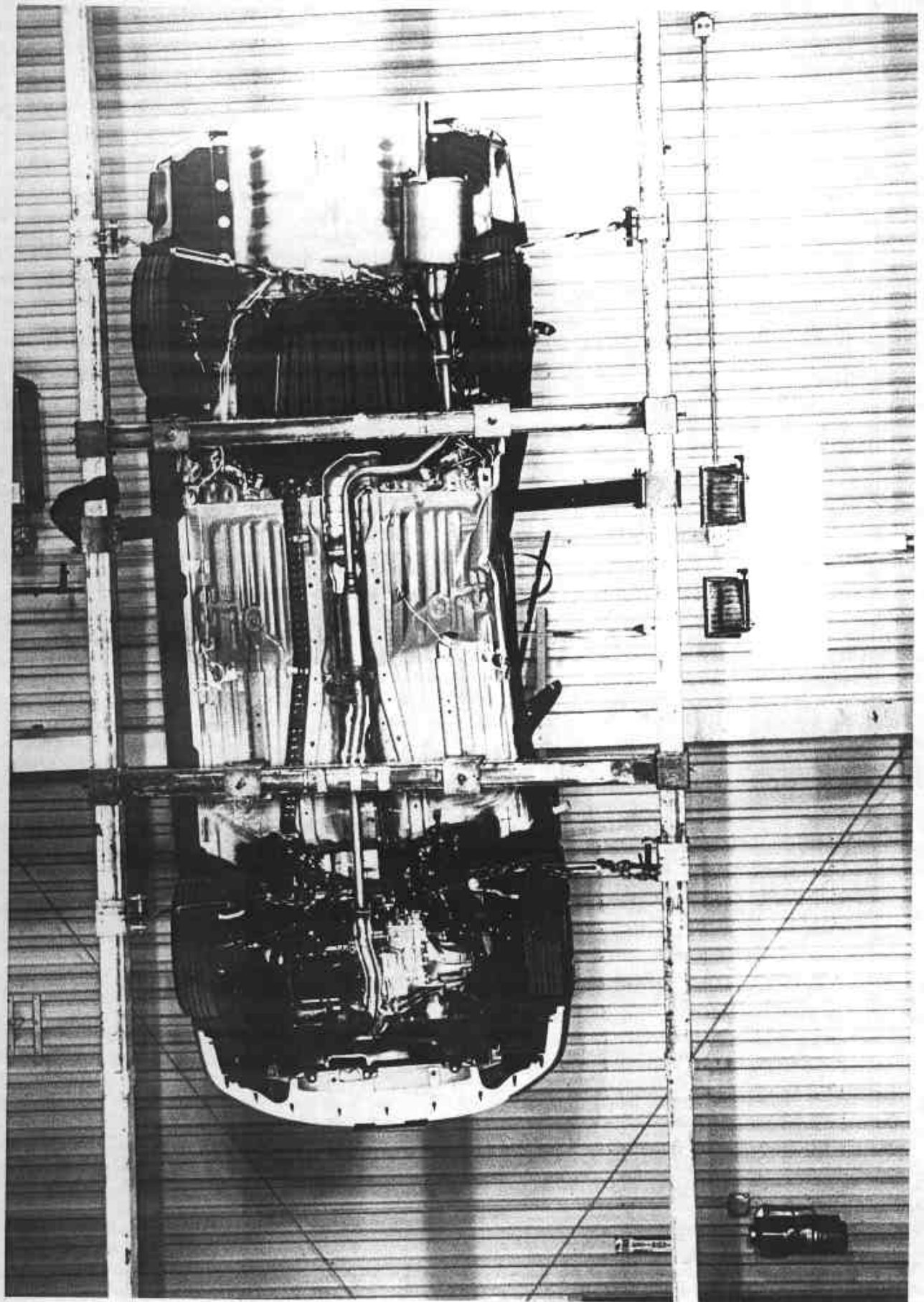


Photo No. A-47 - Rollover 270°

A-47

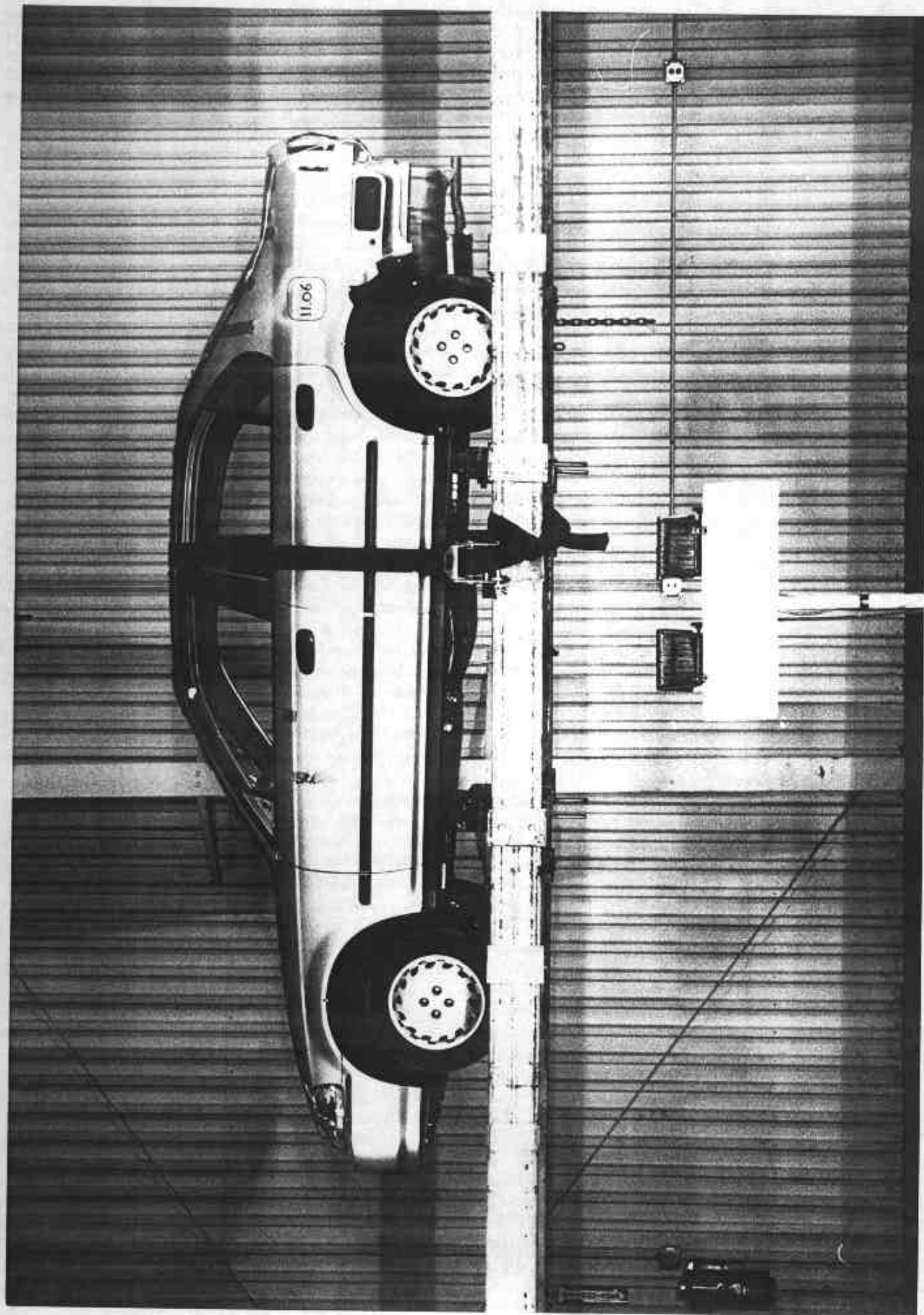


Photo No. A-48 - Rollover 360°

A-48

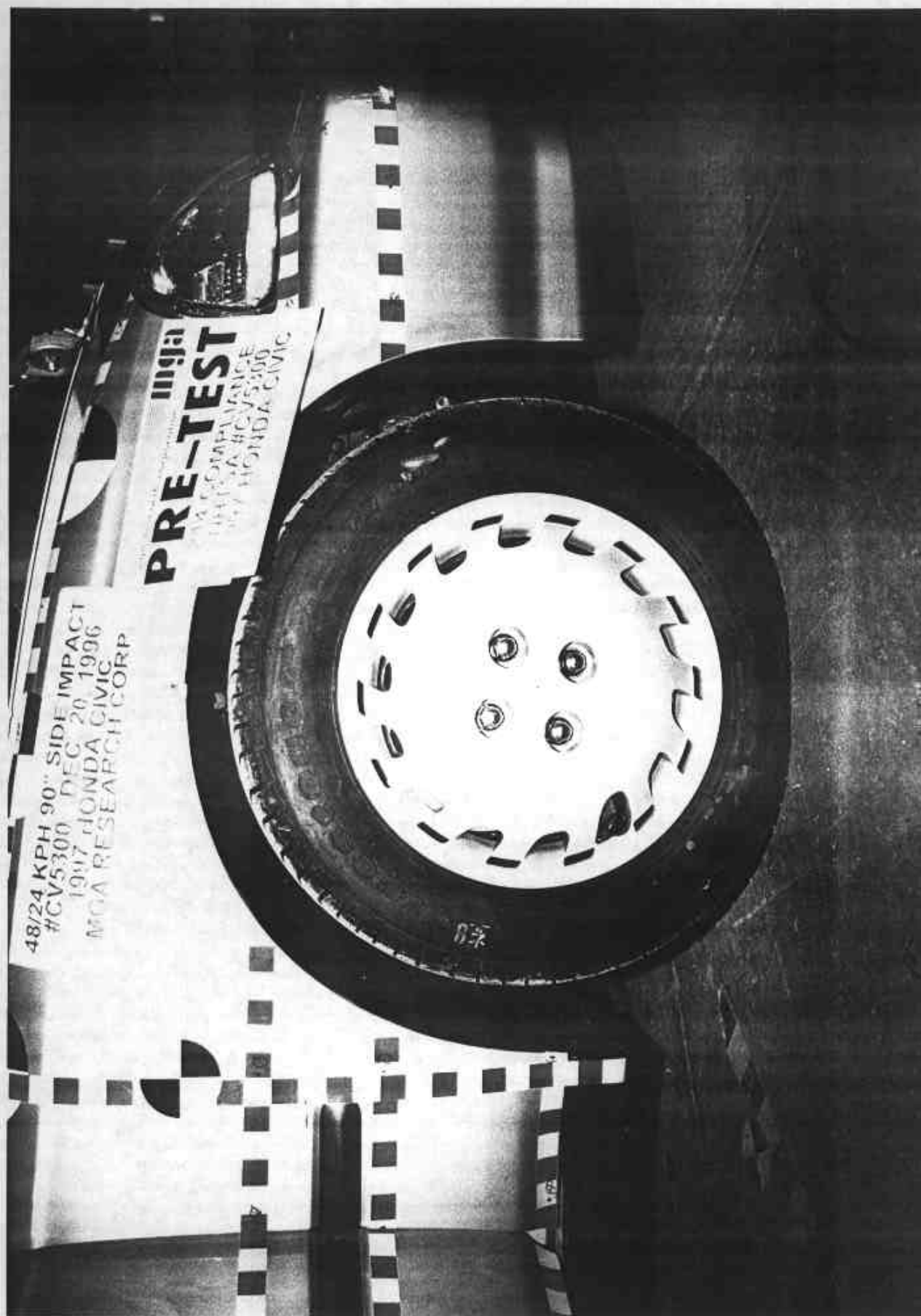


Photo No. A-49 - Right Front Attitude Point

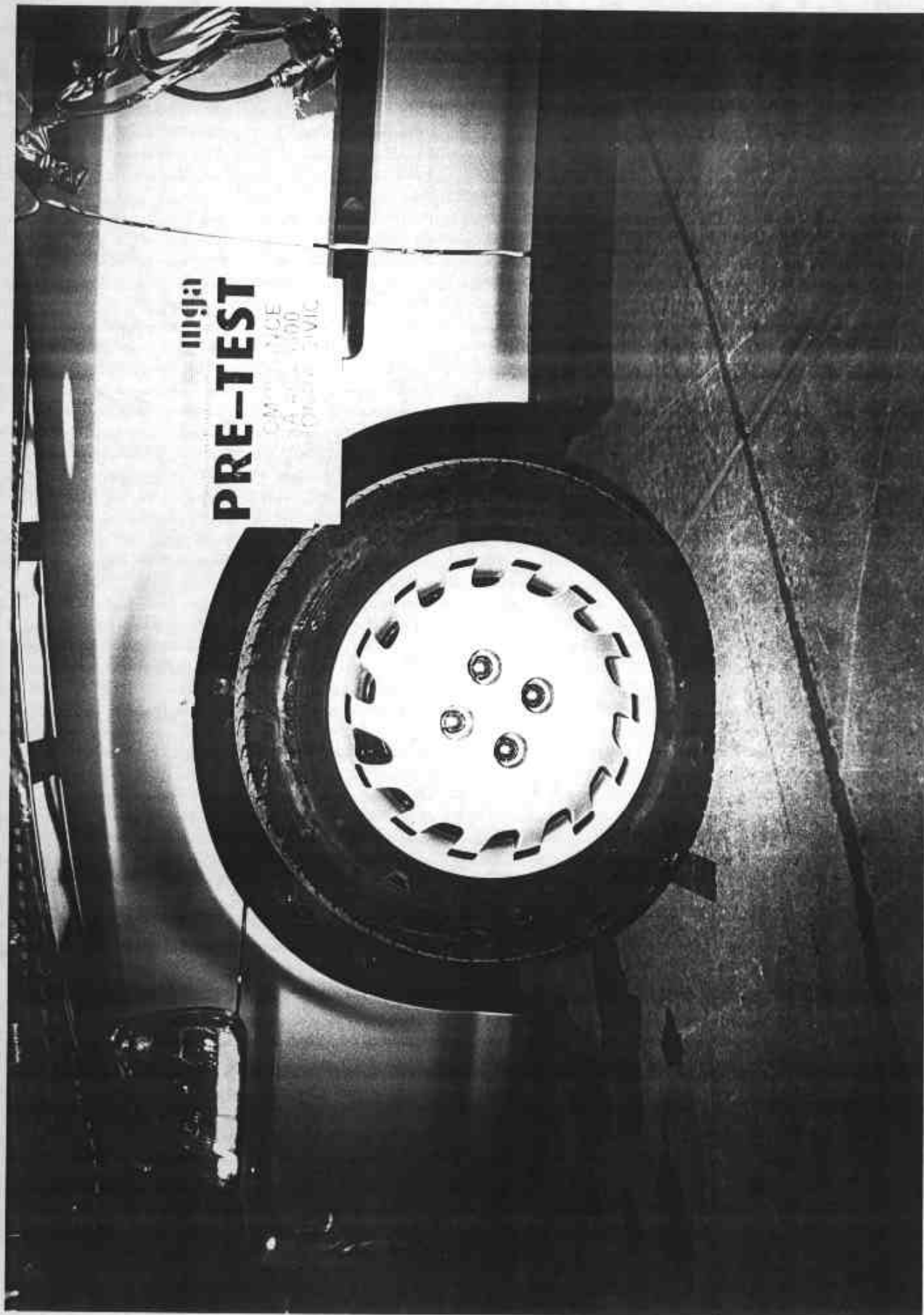


Photo No. A-50 - Left Front Attitude Point

A-50

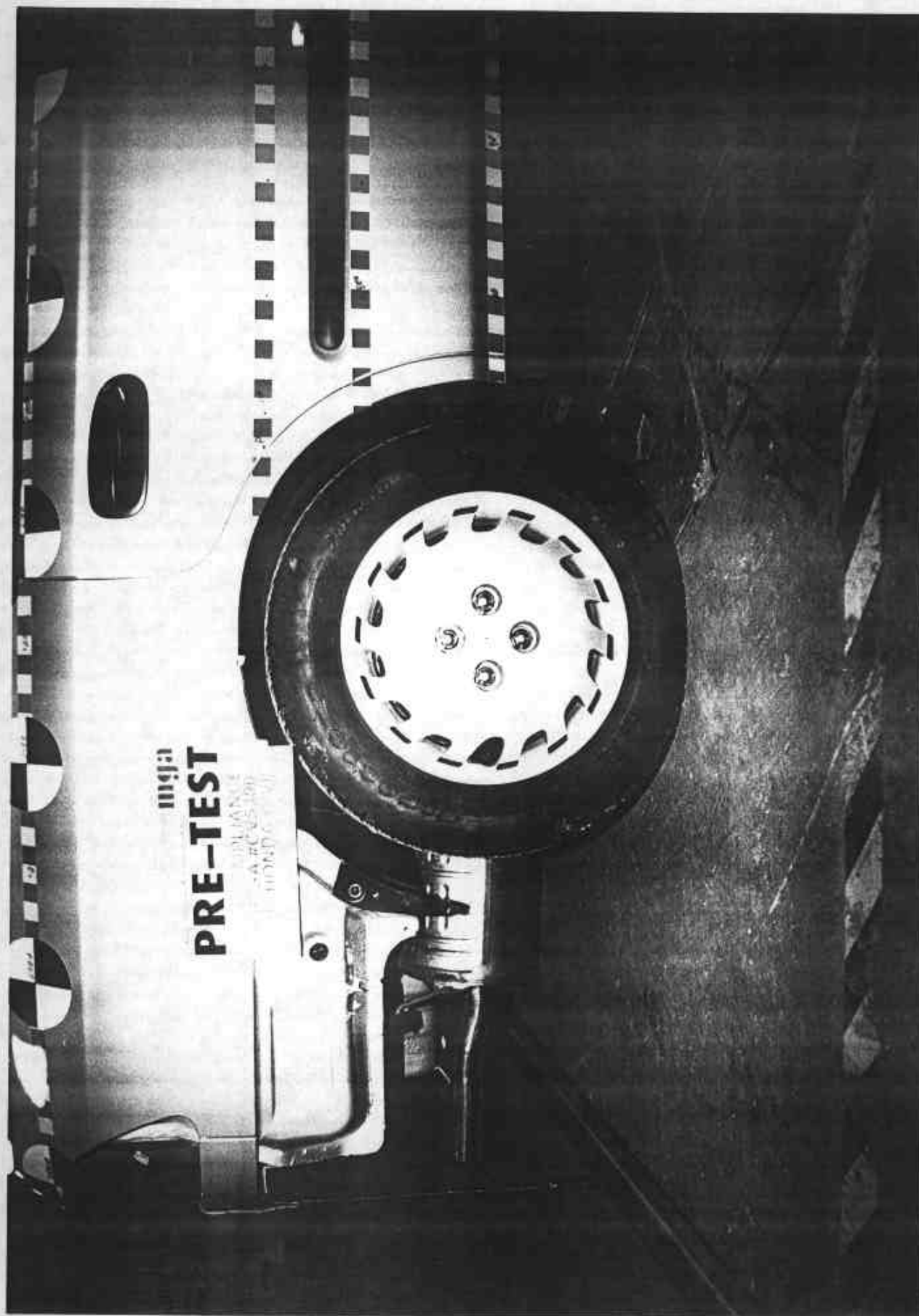


Photo No. A-51 - Right Rear Attitude Point



Photo No. A-52 - Left Rear Attitude Point

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* No valid data collected

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* No valid data collected

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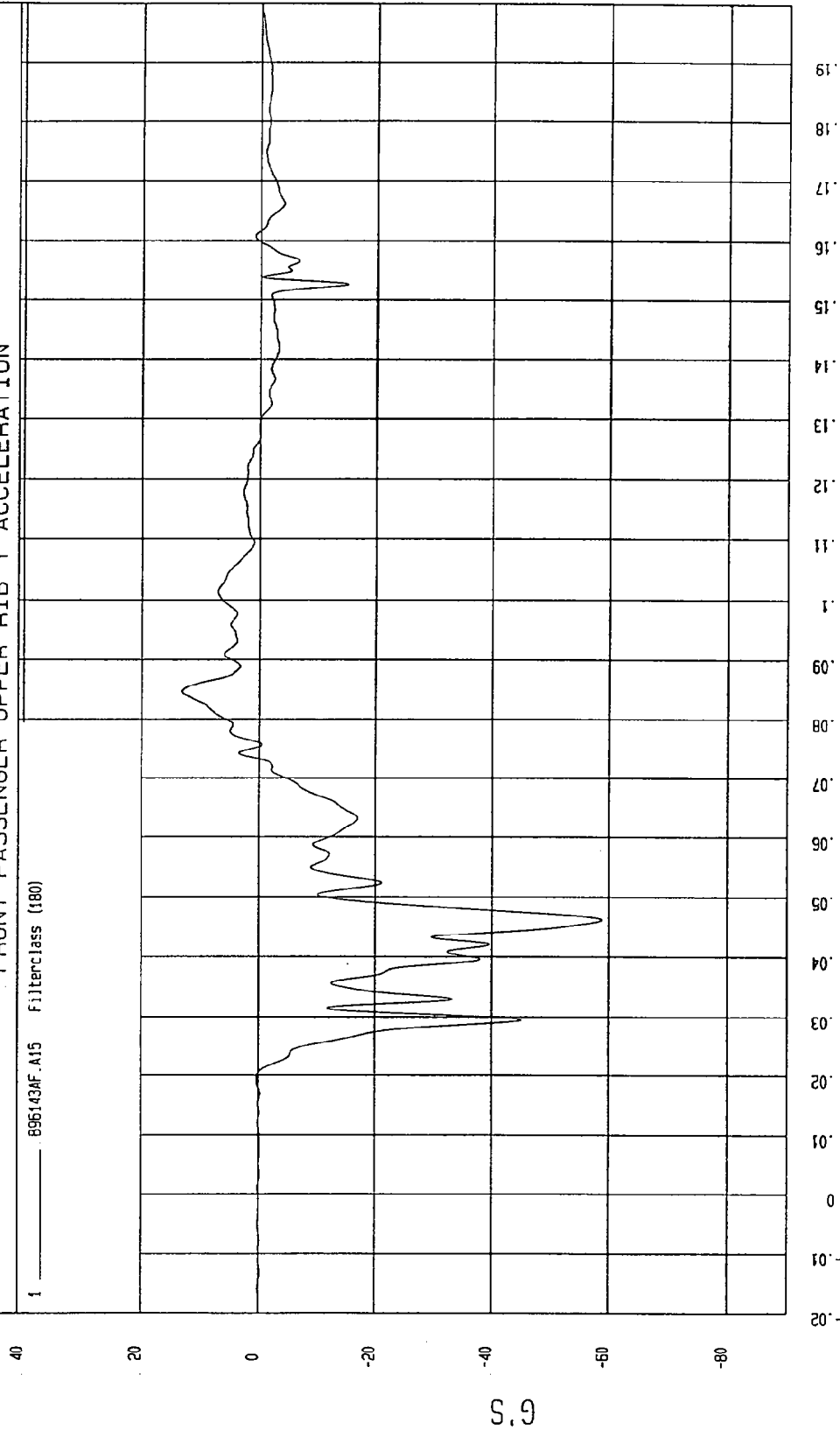
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TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum = -58.81 G'S at 46 msec Maximum = 13.15 G'S at 85 msec

FRONT PASSENGER UPPER RIB Y ACCELERATION

1 ——— 896143AF.A15 Filterclass (180)



W&A Research
12-30-1996 16:21

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

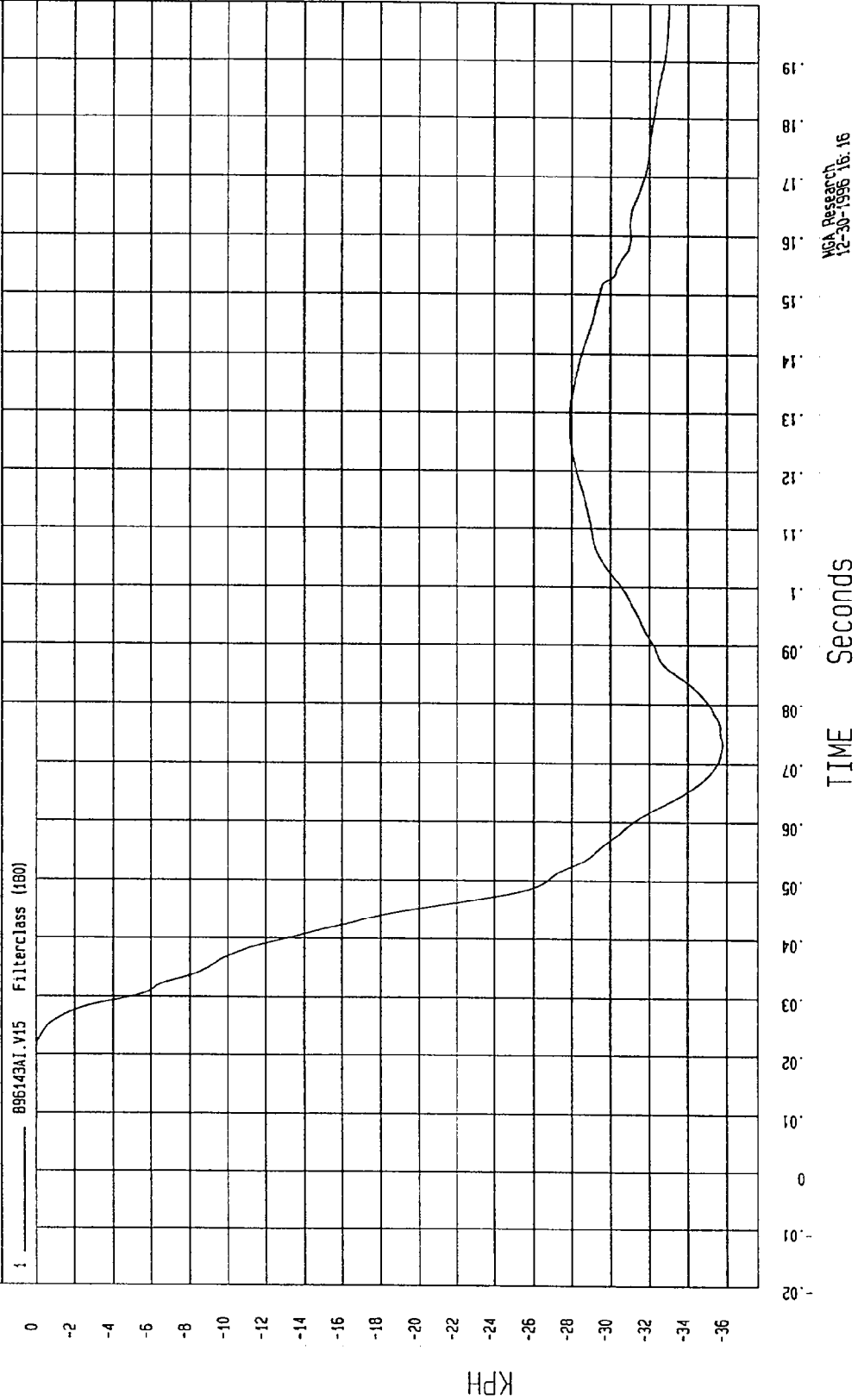
COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -35.78 KPH at 73 msec

Maximum = 1.40E-02 KPH at 2 msec

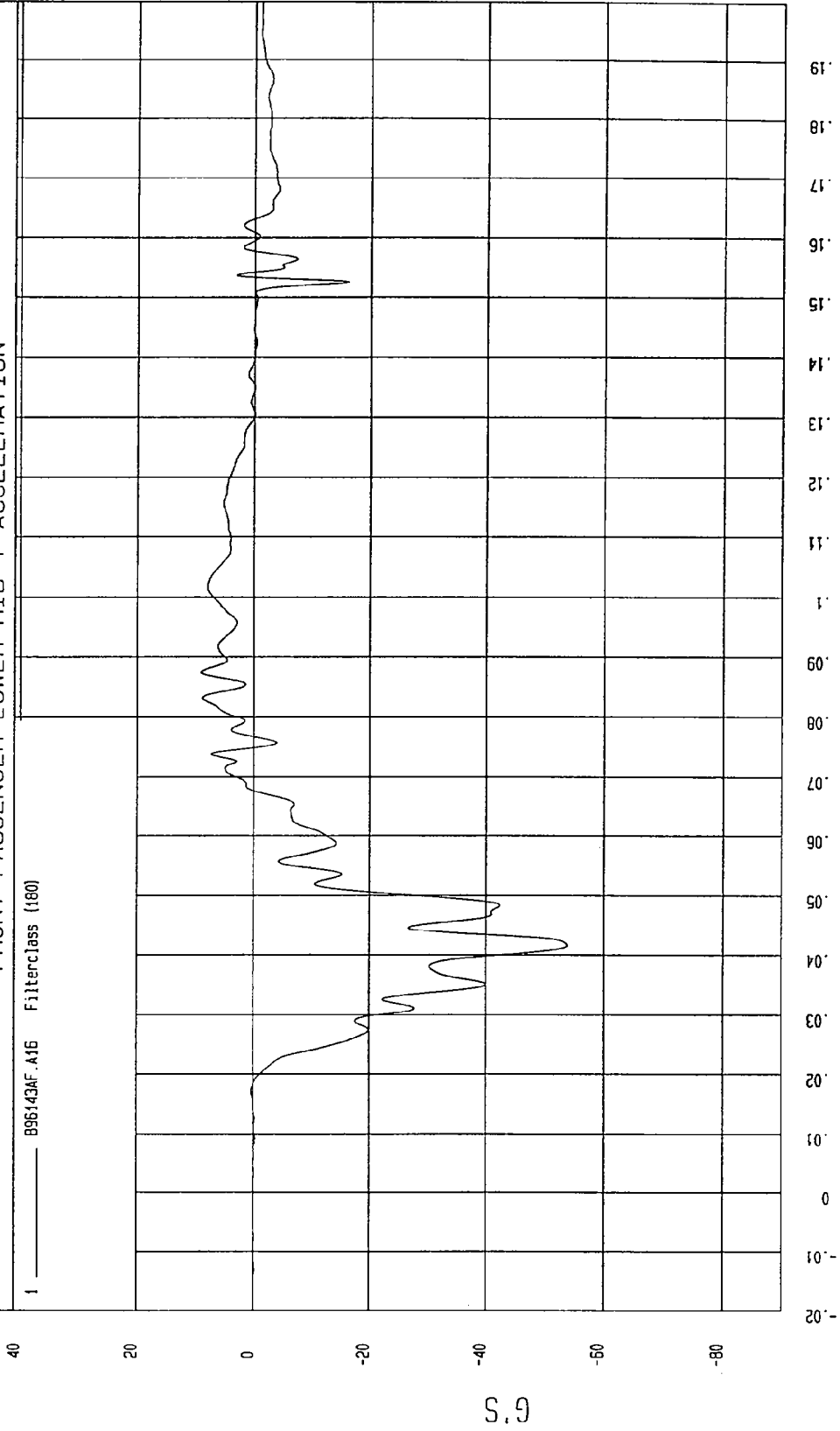
FRONT PASSENGER UPPER RIB Y VELOCITY



TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH
Minimum = -53.92 G'S at 42 msec Maximum = 9.02 G'S at 88 msec

FRONT PASSENGER LOWER RIB Y ACCELERATION

1 ——— B96143AF.A15 Filterclass (180)



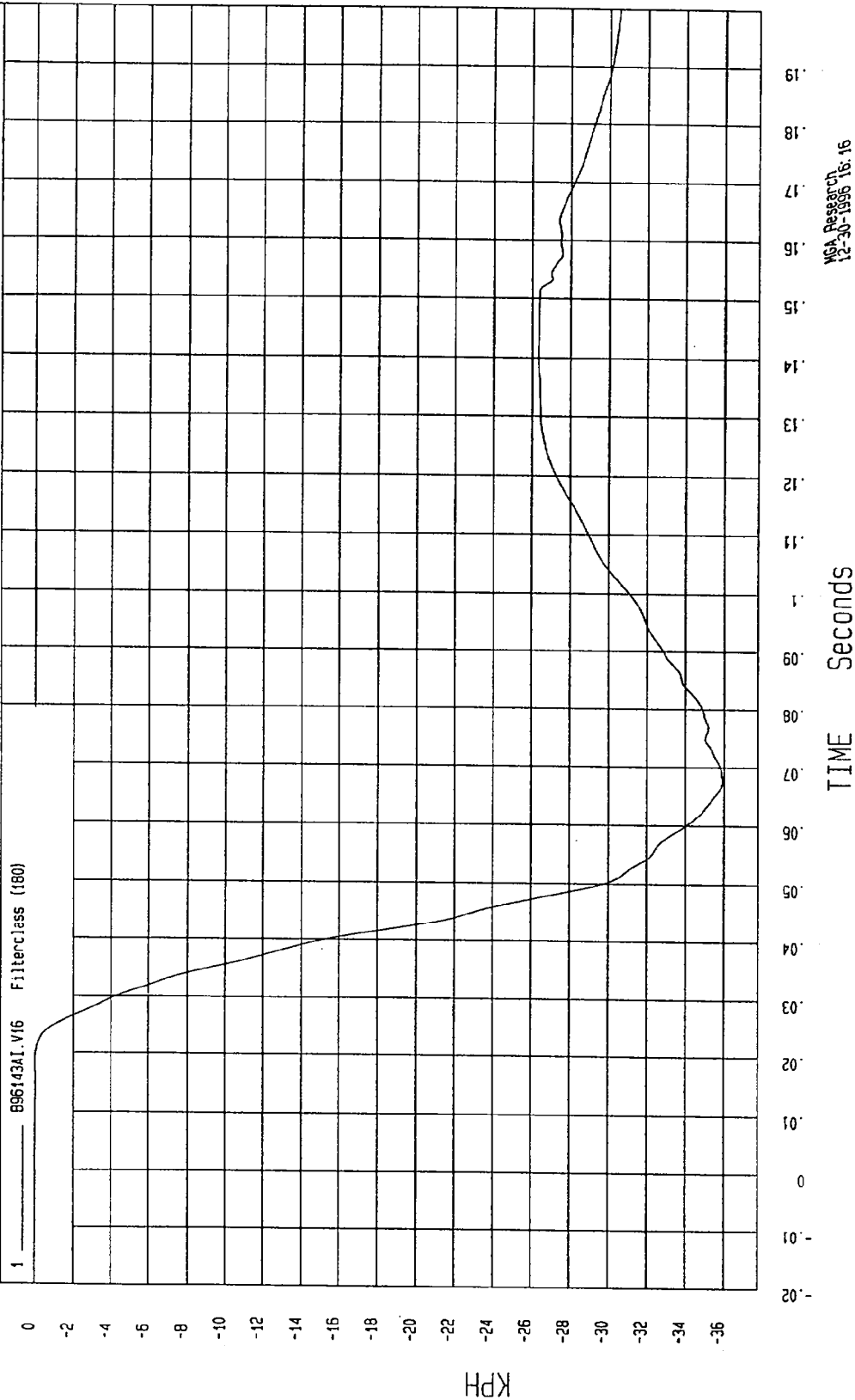
MSA Research
12-30-1996 16:22

TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

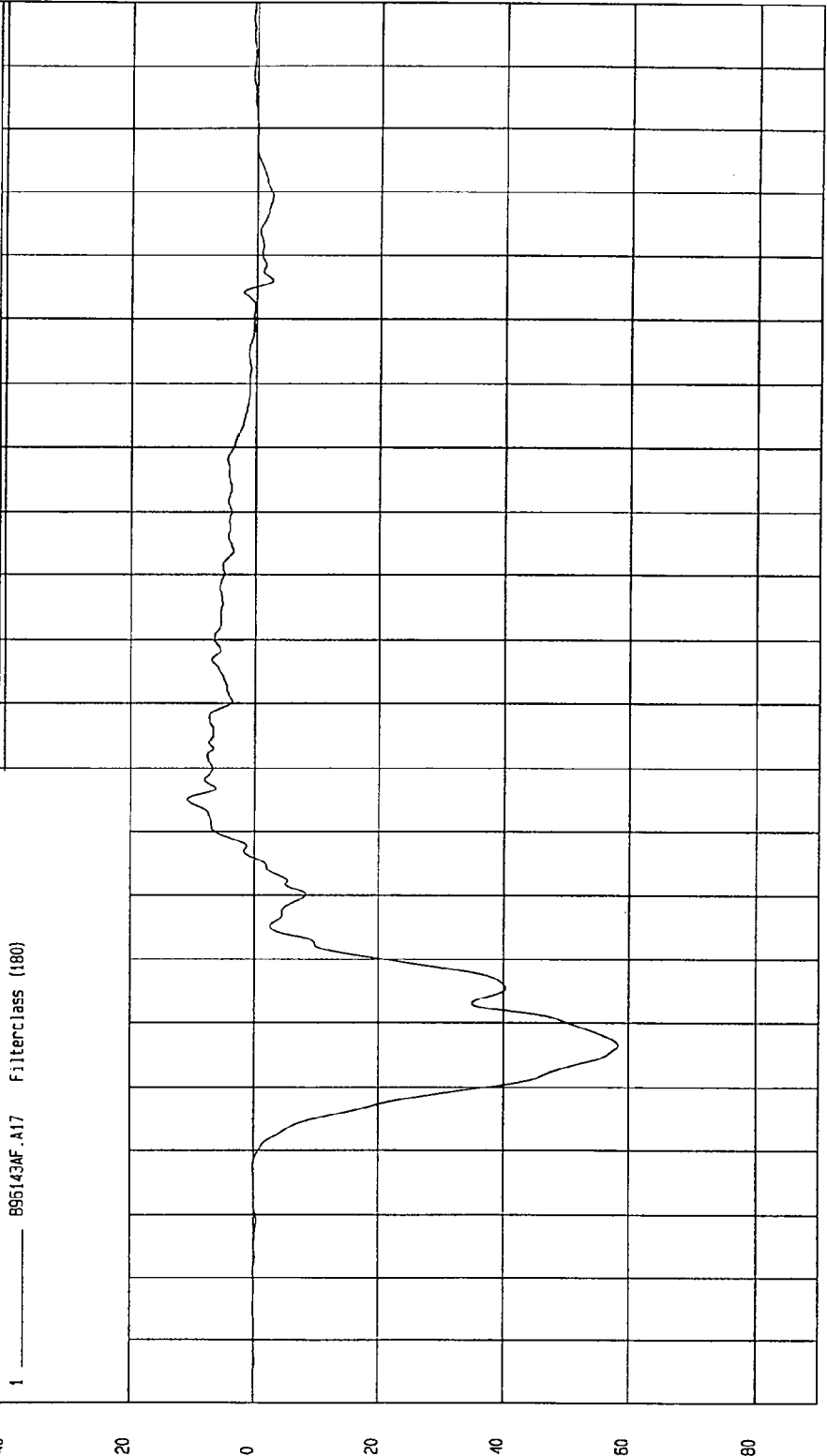
Minimum = -35.92 KPH at 68 msec Maximum = 2.65E-03 KPH at -15 msec

FRONT PASSENGER LOWER RIB Y VELOCITY



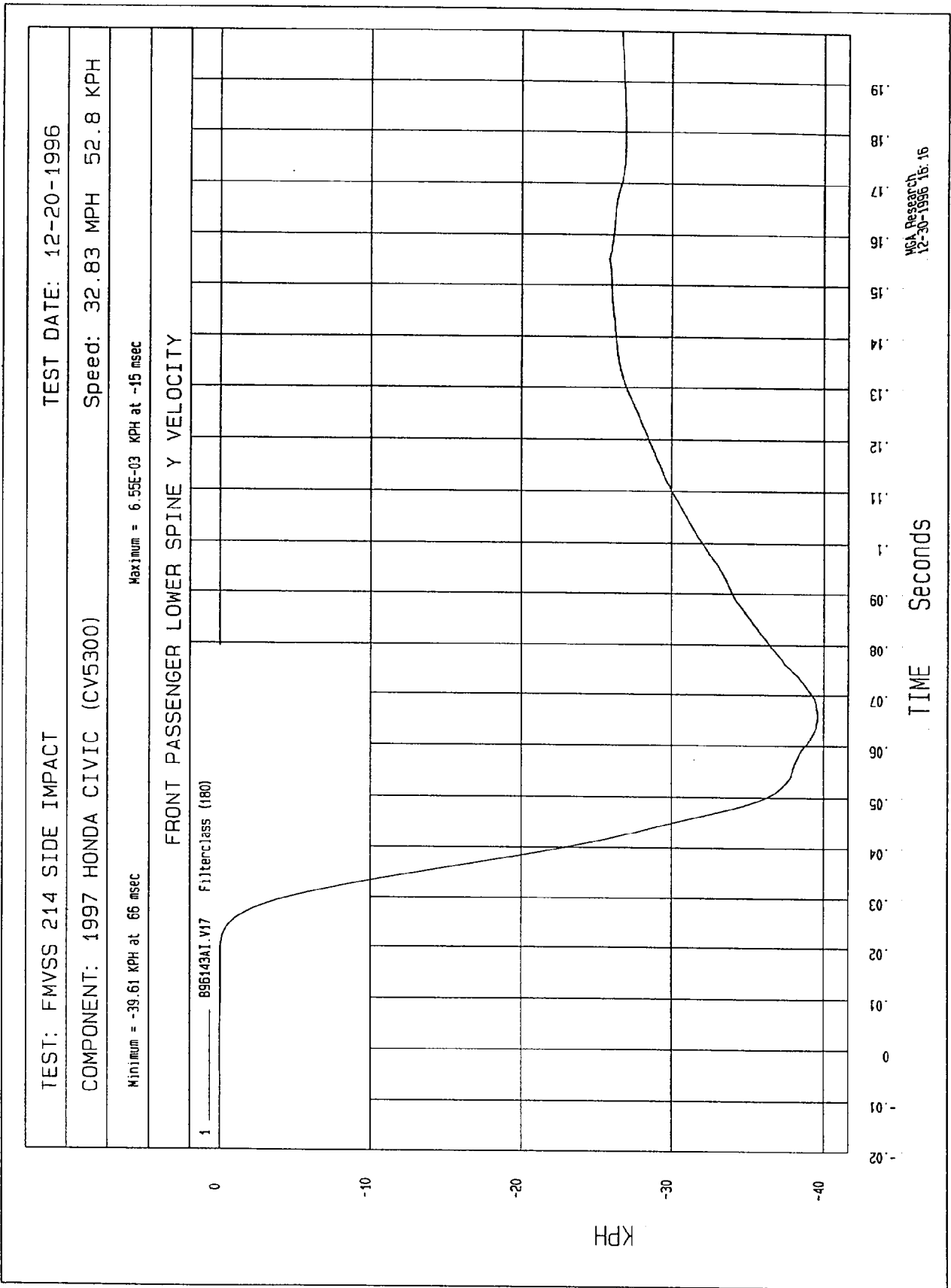
TEST: FMVSS 214 SIDE IMPACT	TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300)	Speed: 32.83 MPH 52.8 KPH
Minimum = -58.27 G'S at 36 msec	Maximum = 10.97 G'S at 75 msec

FRONT PASSENGER LOWER SPINE Y ACCELERATION



TIME (SECONDS)

NSA Research
12-30-1996 16:22

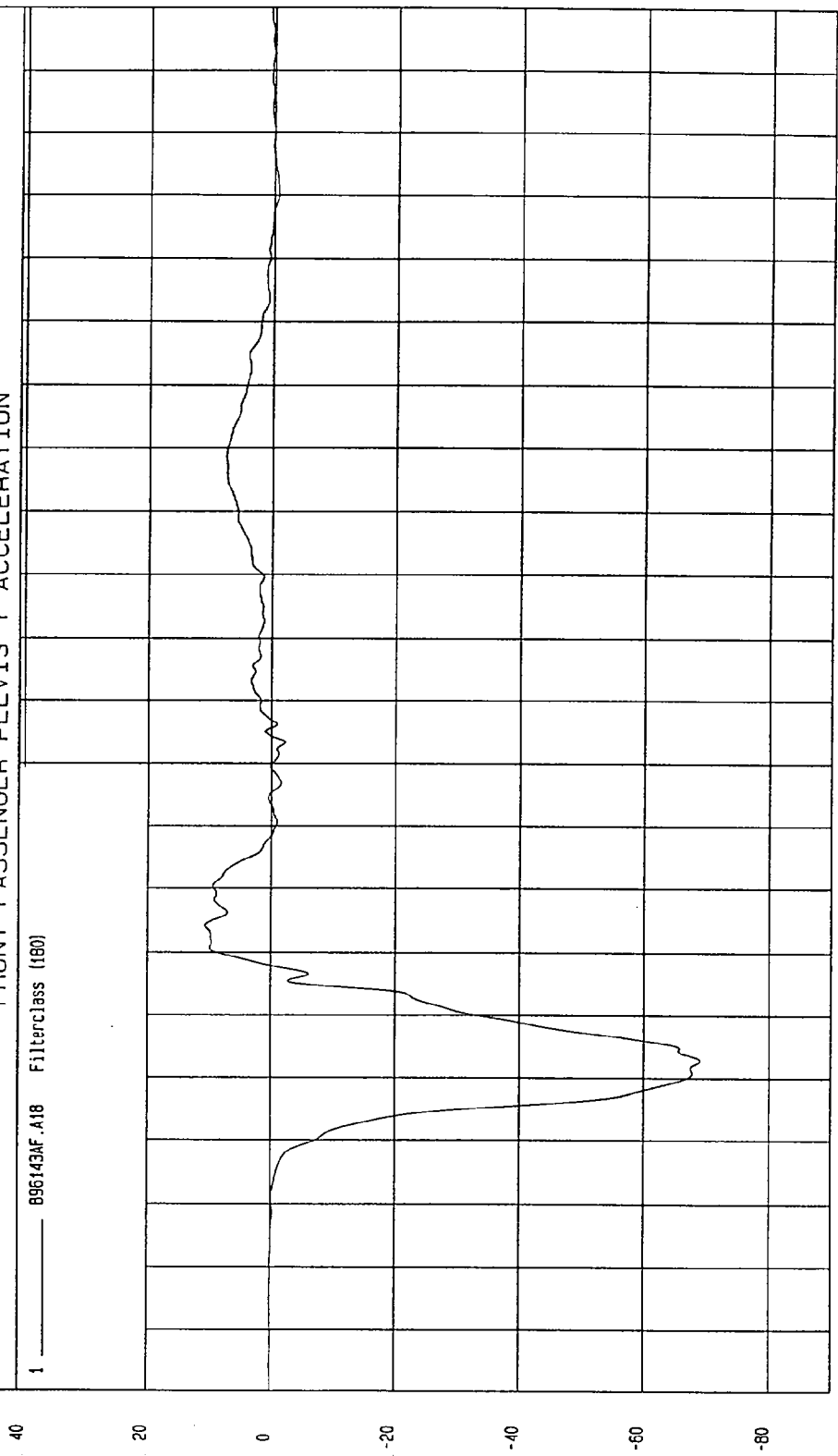


TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum = -69.10 G'S at 33 msec Maximum = 10.81 G'S at 54 msec

FRONT PASSENGER PELVIS Y ACCELERATION

1 _____ 896143NF.A18 Filterclass (180)



TIME (SECONDS) WSA Research 12-30-1996 16:22

TEST: FMVSS 214 SIDE IMPACT	TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300)	Speed: 32.83 MPH 52.8 KPH
Minimum = -37.64 KPH at 48 msec	Maximum = 8.17E-02 KPH at 2 msec

FRONT PASSENGER PELVIS Y VELOCITY



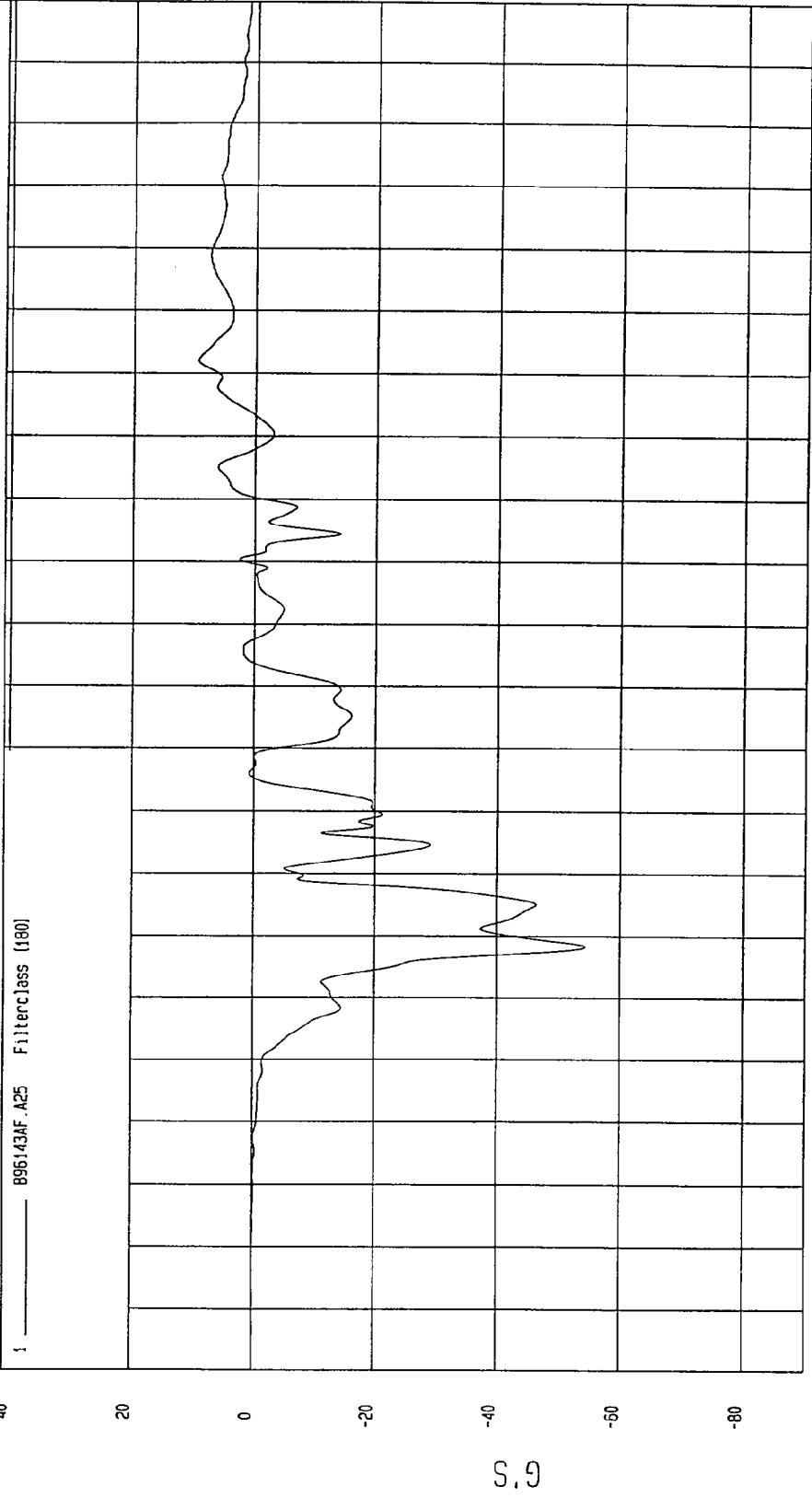
MCA Research
12-30-1996 16.16

TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum = -54.40 G'S at 48 msec Maximum = 9.57 G'S at 142 msec

REAR PASSENGER UPPER RIB Y ACCELERATION



TIME (SECONDS)

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

40
20
0
-20
-40
-60
-80

G.S

MGA Research
12-30-1996 16:22

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

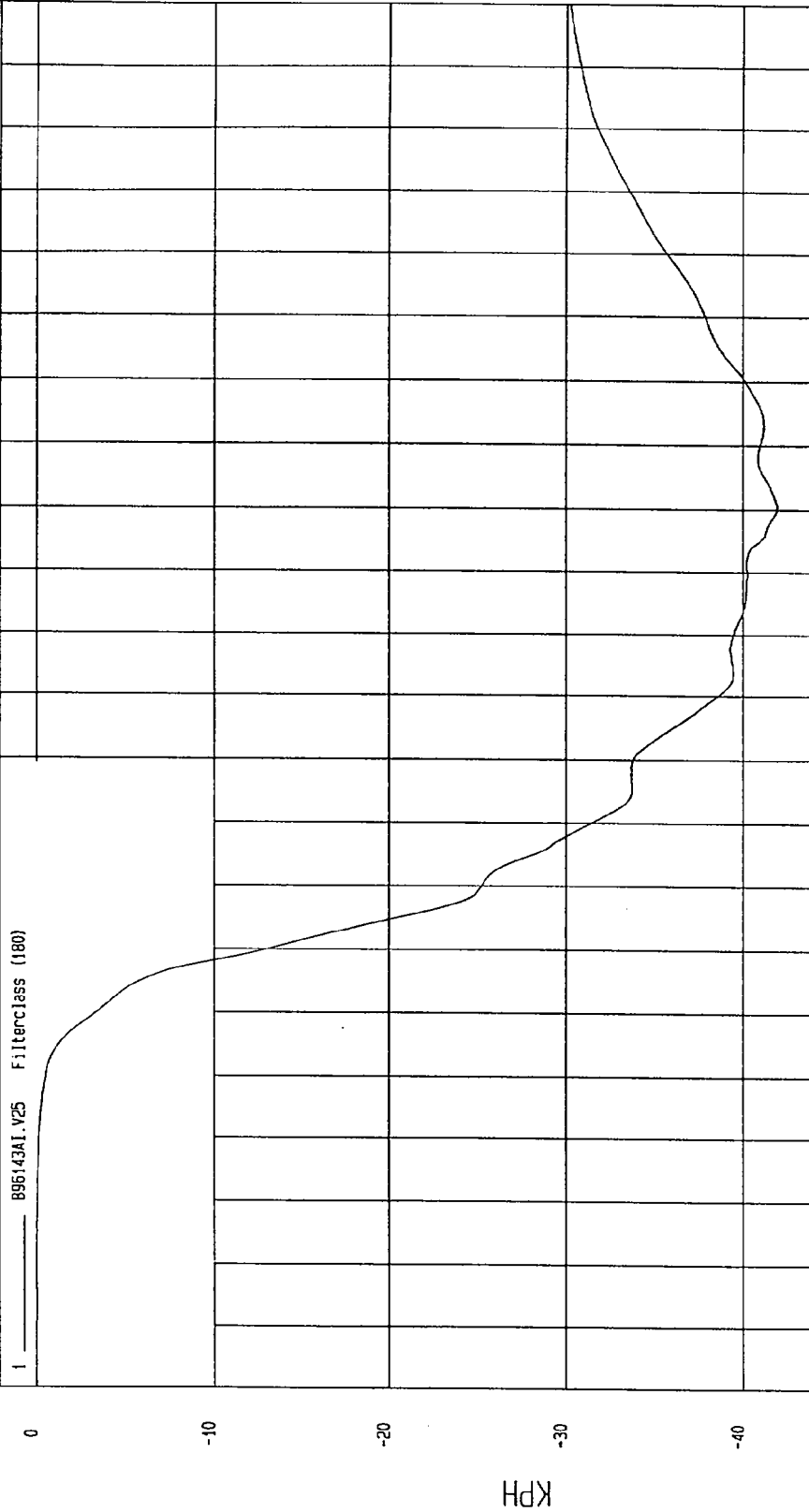
Speed: 32.83 MPH 52.8 KPH

Minimum = -41.91 KPH at 120 msec

Maximum = 6.18E-03 KPH at -15 msec

REAR PASSENGER UPPER RIB Y VELOCITY

1 ——— 896143A1.V25 Filterclass (180)



TIME Seconds
NCA Research
12-30-1996 16.16

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

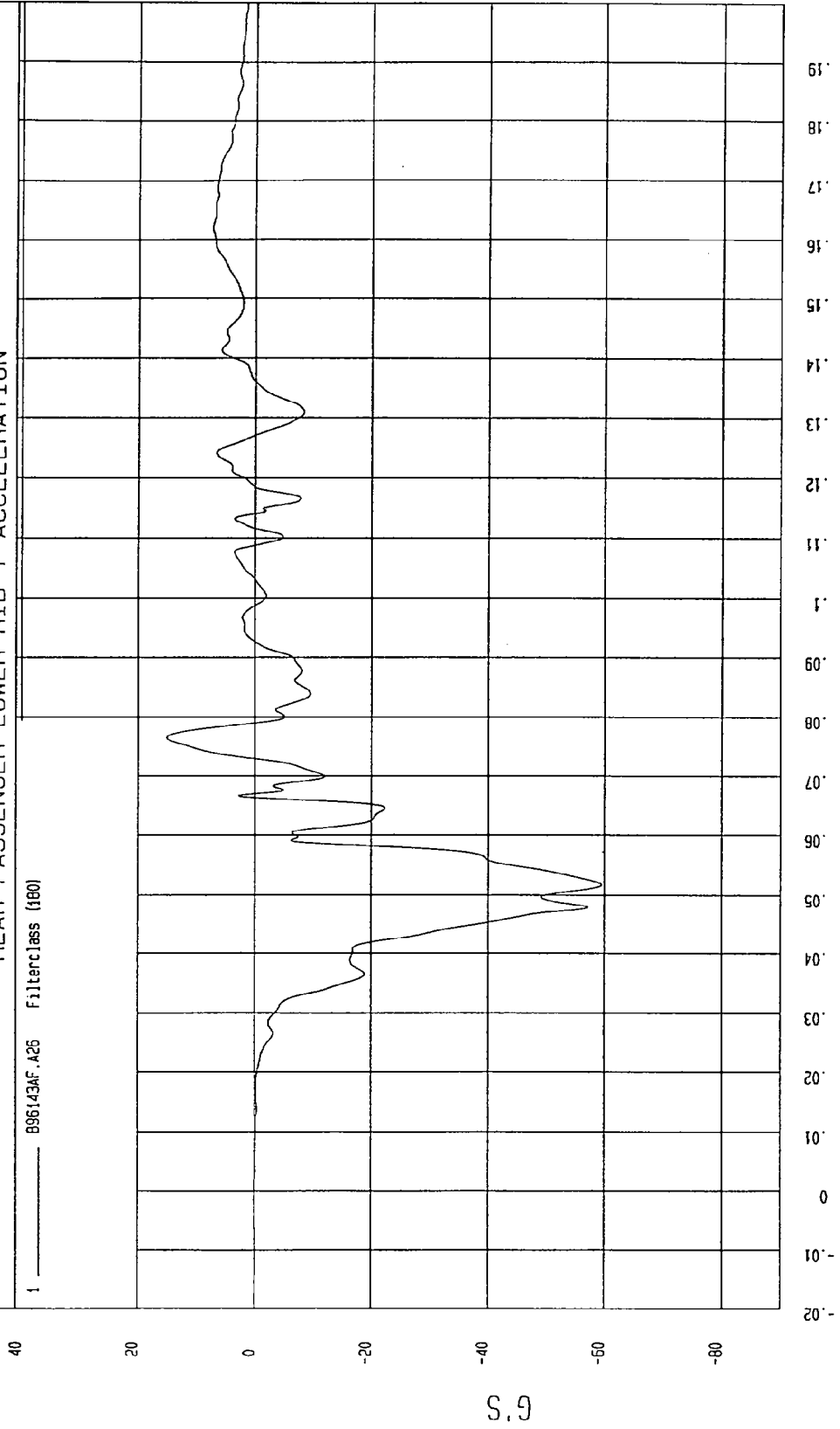
Speed: 32.83 MPH 52.8 KPH

Minimum = -59.54 G'S at 52 msec

Maximum = 15.15 G'S at 76 msec

REAR PASSENGER LOWER RIB Y ACCELERATION

1 ——— B96143AF.A25 Filterclass (180)



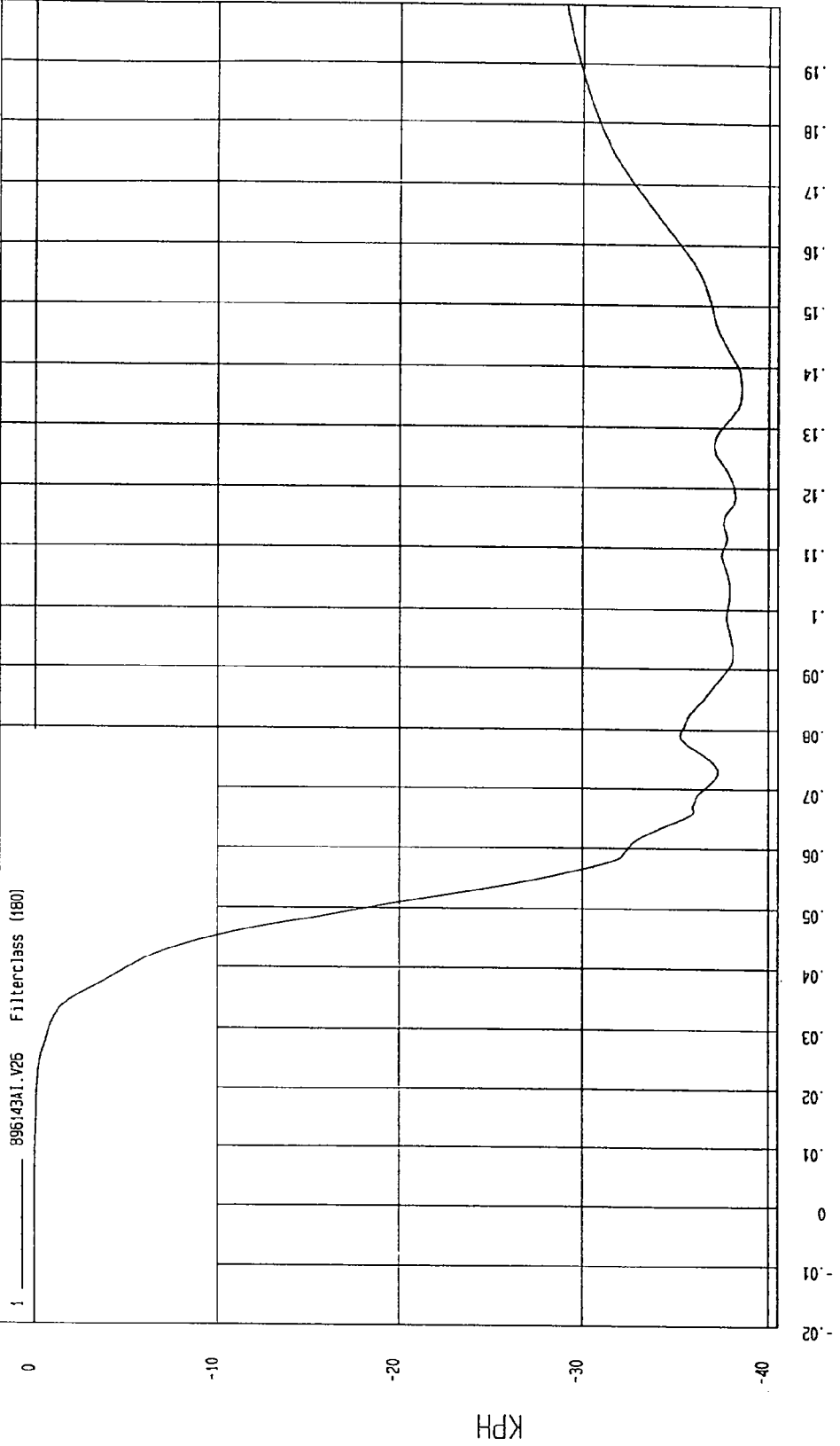
MCA Research
12-30-1996 16:22

TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum = -38.57 KPH at .136 msec Maximum = 7.32E-03 KPH at -.15 msec

REAR PASSENGER LOWER RIB Y VELOCITY



NSA Research
12-30-1996 16.16

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

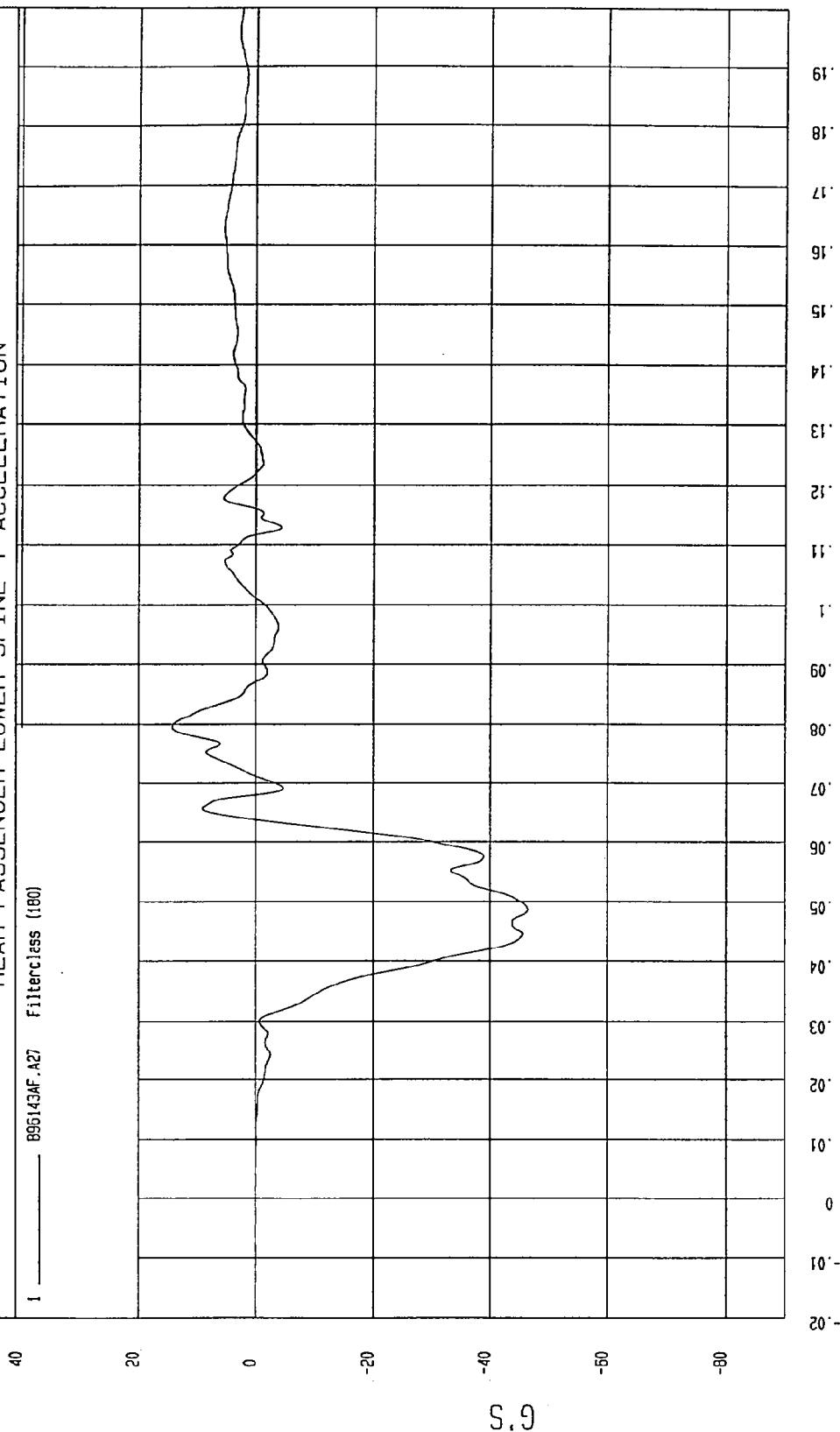
COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 14.22 G'S at 80 msec

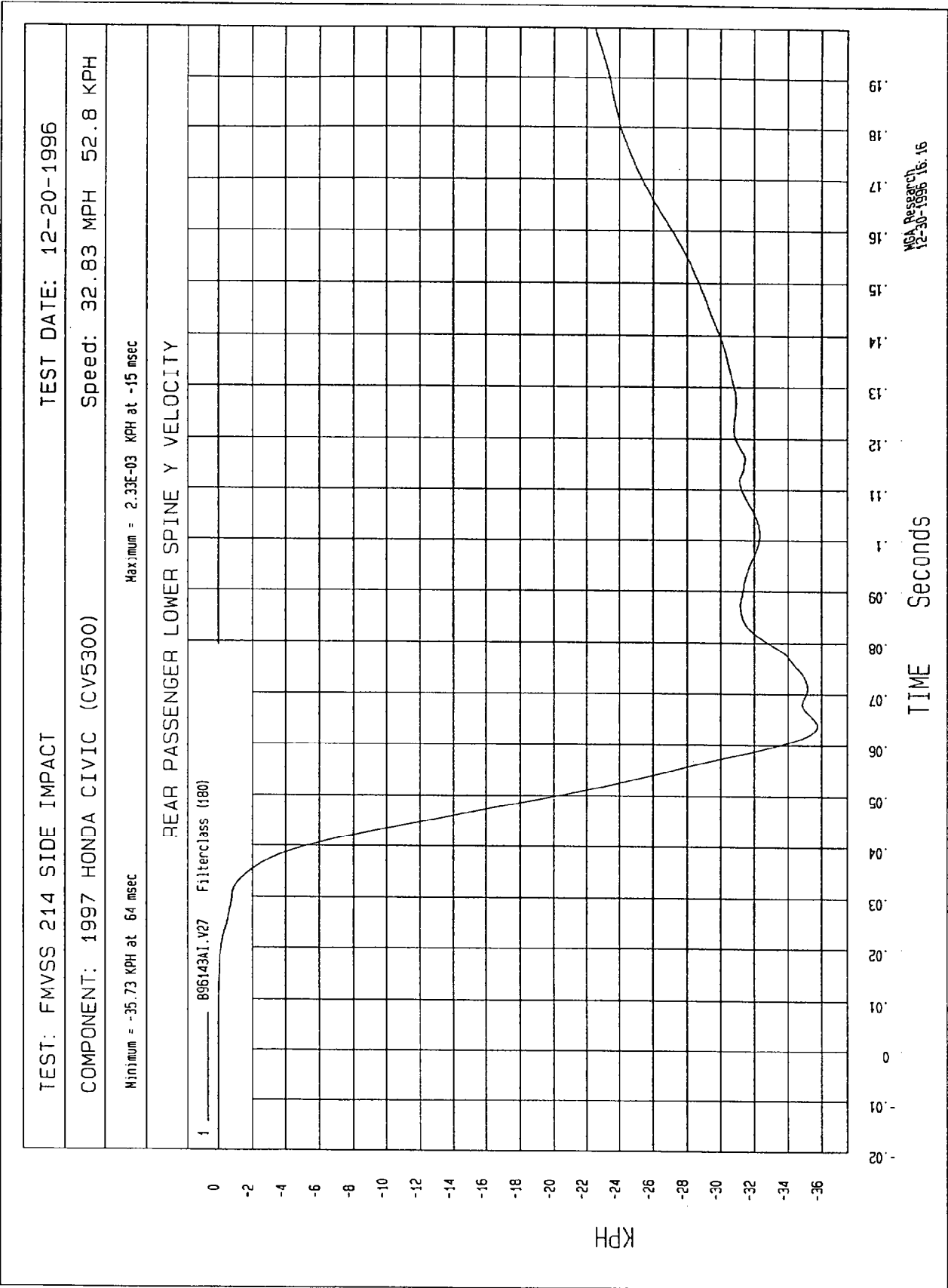
Minimum = -46.44 G'S at 49 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION

1 B95143AF.A27 Filterclass (180)

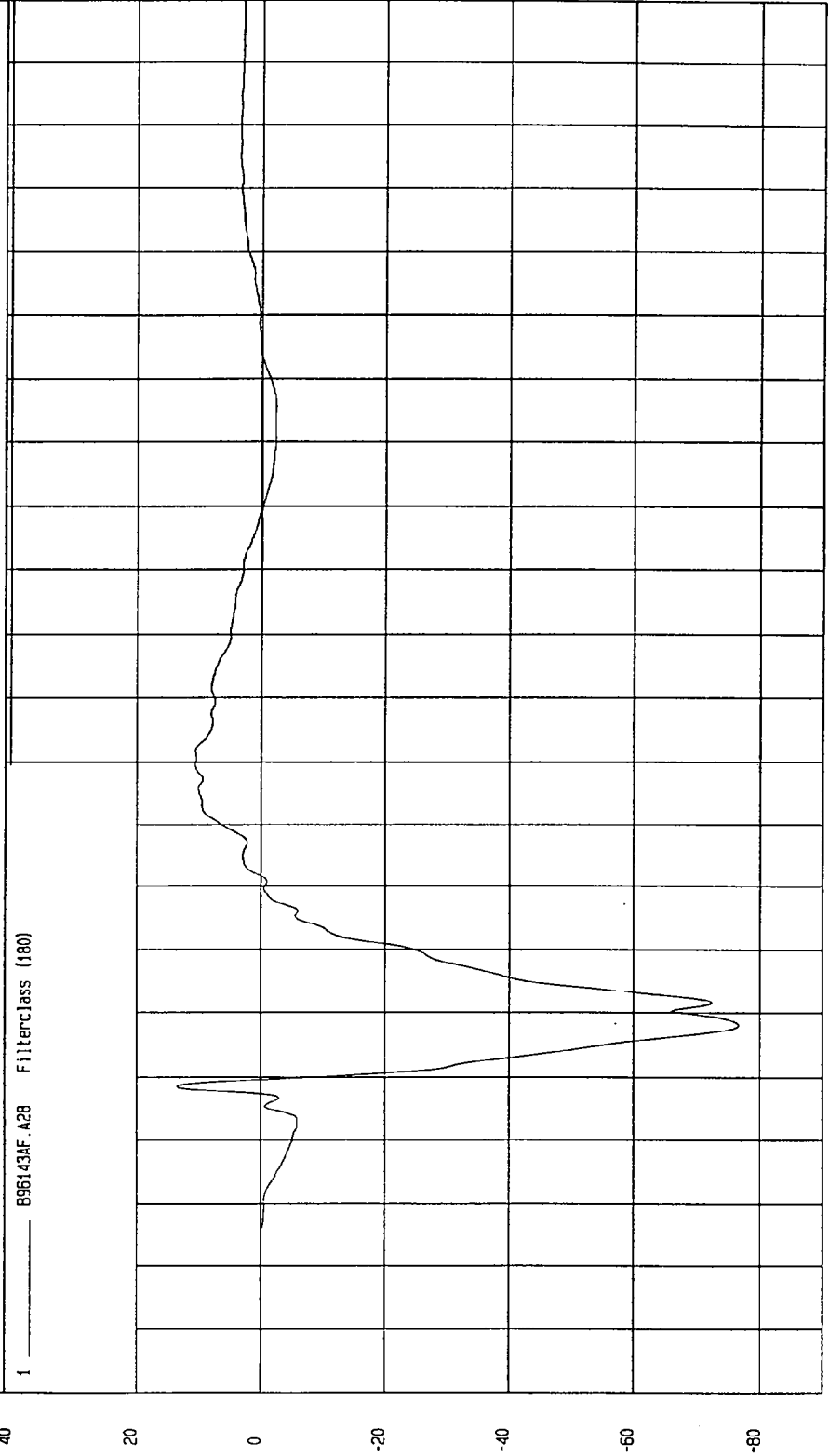


MGA Research
12-20-1996 15:22



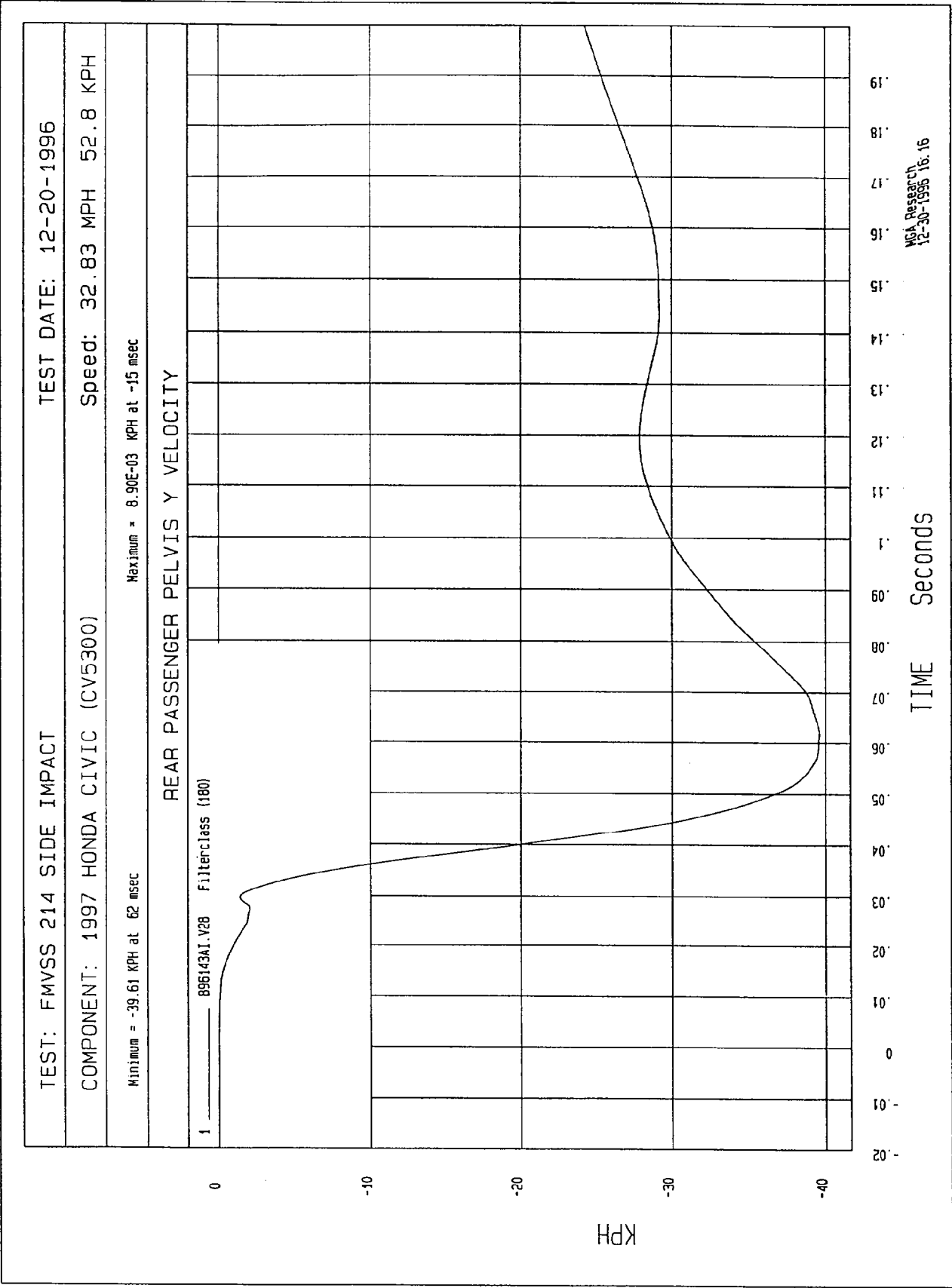
TEST: FMVSS 214 SIDE IMPACT	TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300)	Speed: 32.83 MPH 52.8 KPH
Minimum = -76.55 G'S at 30 msec	Maximum = 13.46 G'S at 28 msec

REAR PASSENGER PELVIS Y ACCELERATION



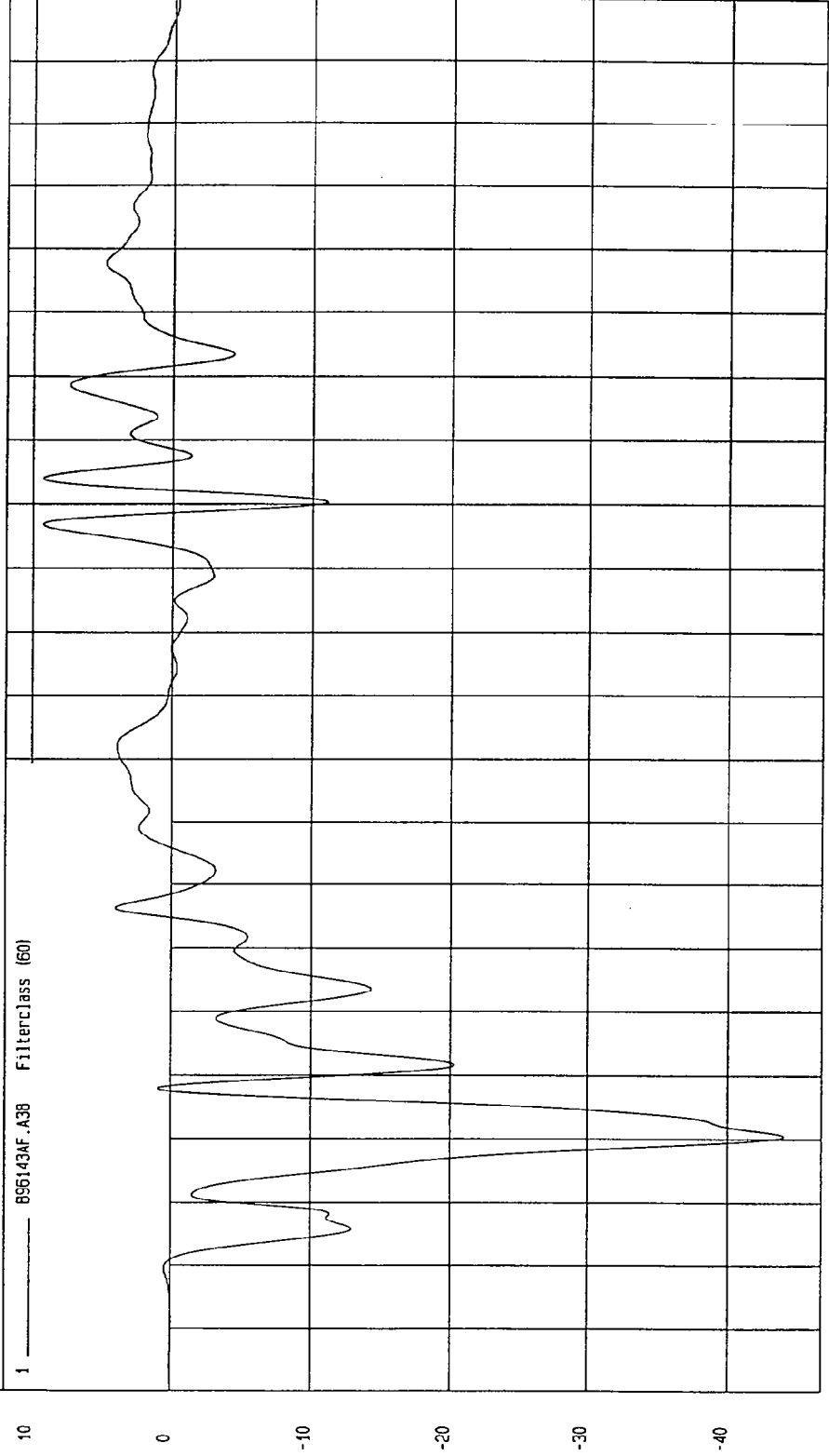
TIME (SECONDS)

NSA Research
12-30-1996 16:22



TEST: FMVSS 214 SIDE IMPACT	TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300)	Speed: 32.83 MPH 52.8 KPH
Minimum = -43.97 G'S at 20 msec	Maximum = 9.27 G'S at 124 msec

RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION



TIME (SECONDS)

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

MSA Research
12-30-1996 16.17

G.S

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

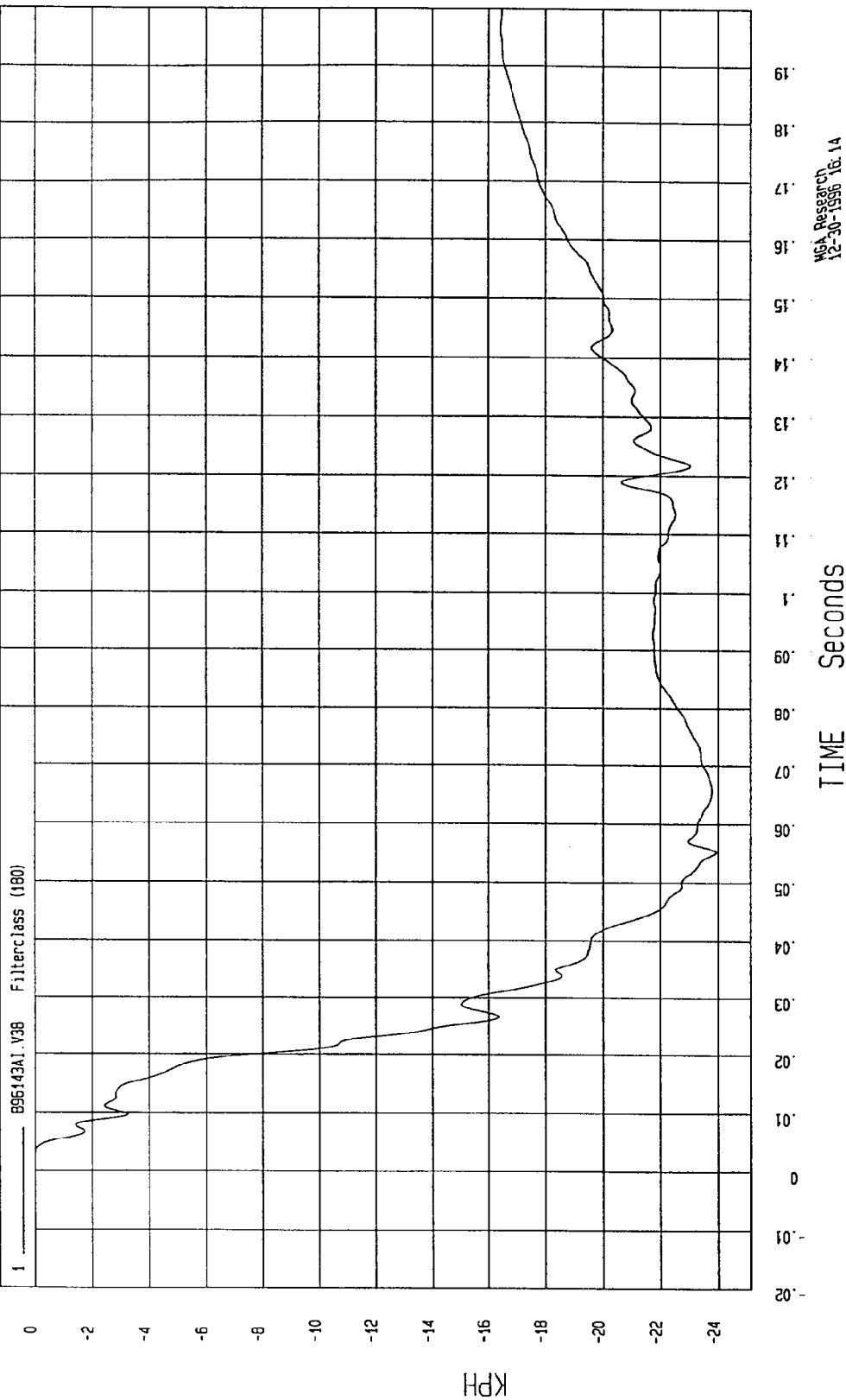
COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -23.91 KPH at 55 msec

Maximum = 1.13E-02 KPH at 2 msec

RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

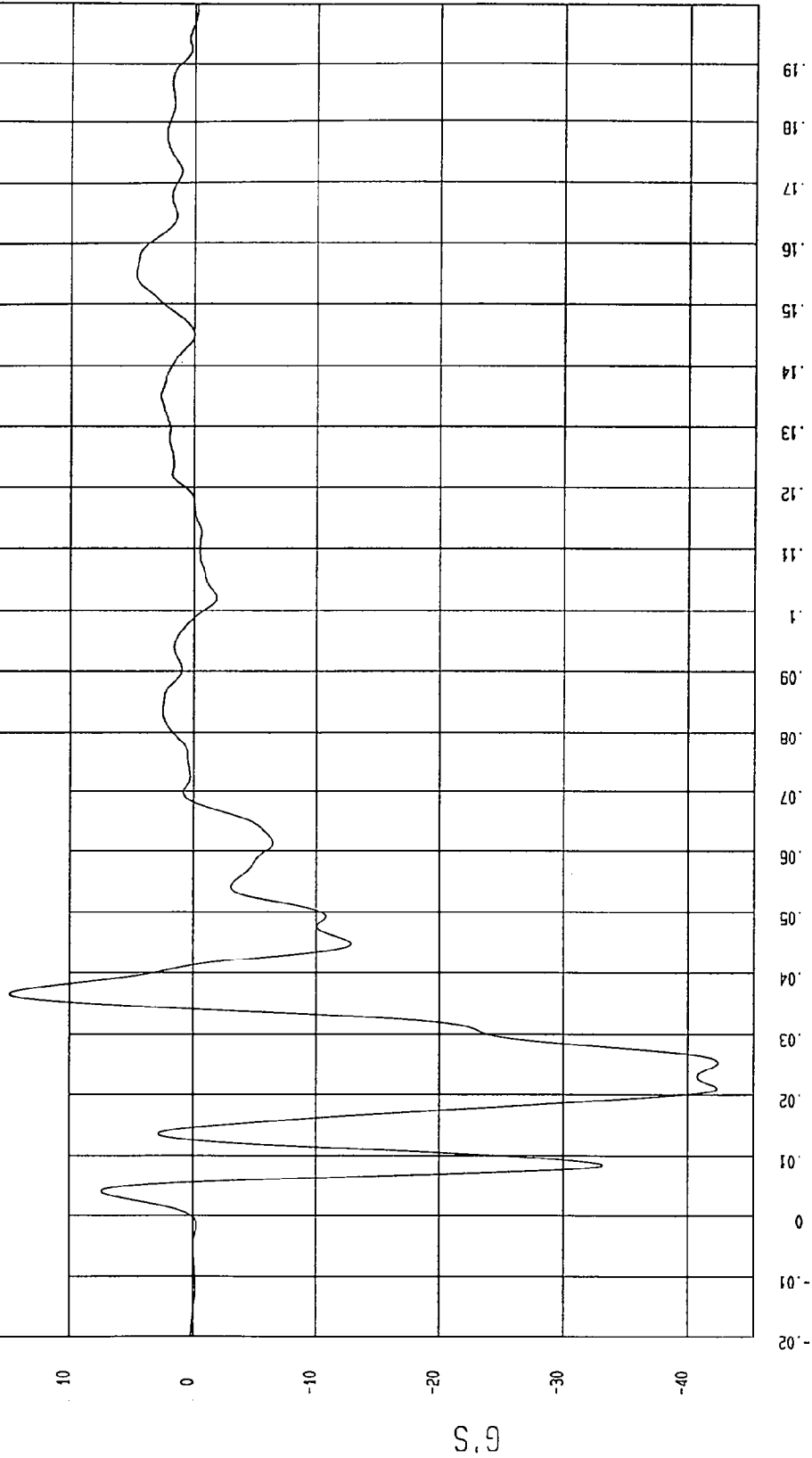
COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 14.75 G'S at 36 msec

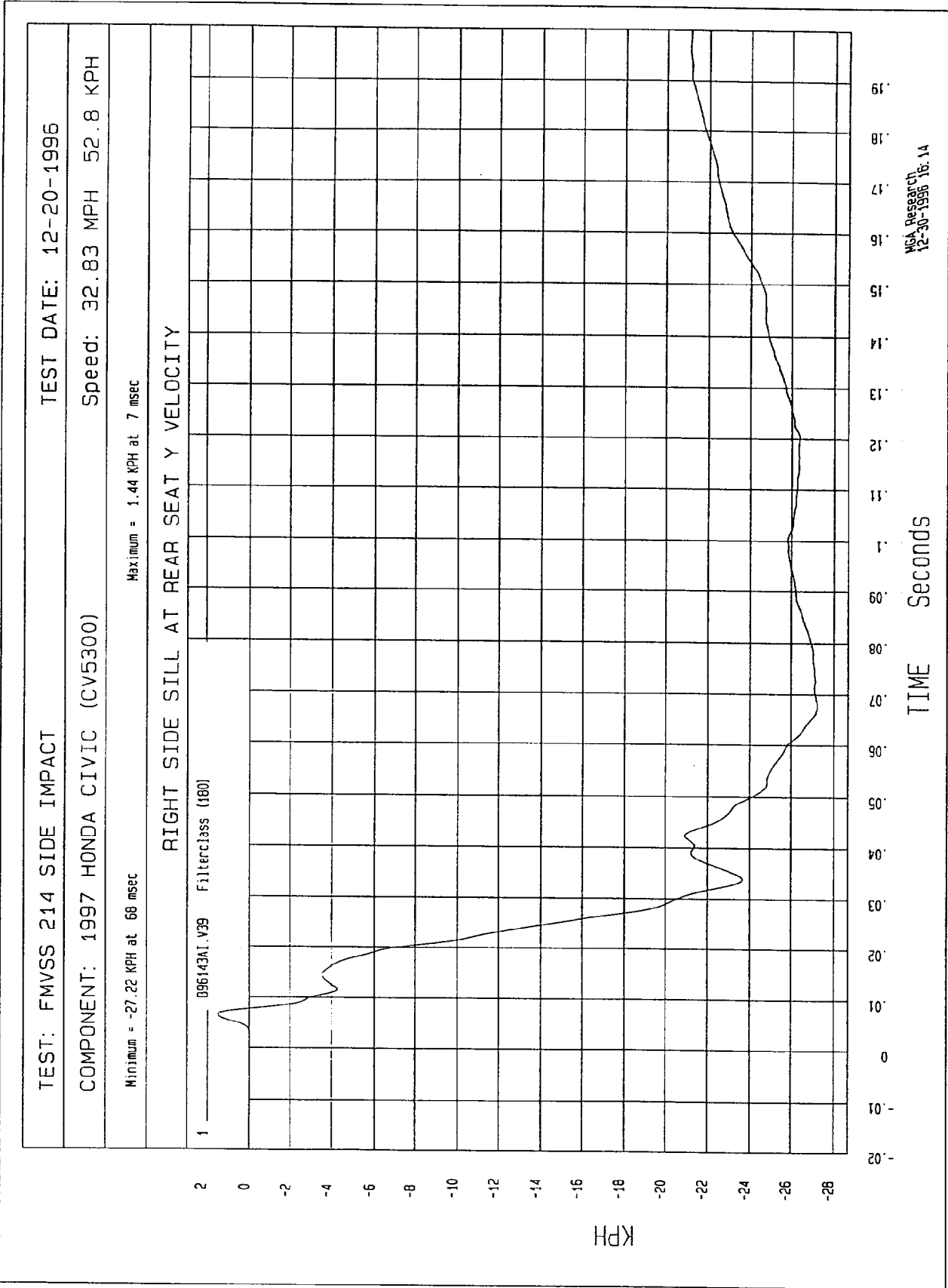
Minimum = -42.45 G'S at 25 msec

RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION

1 B06143MF.A39 Filterclass (60)



MSA Research
12-20-1996 16:17



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 4.36 G'S at 35 msec

Minimum = -3.47 G'S at 27 msec

LEFT SIDE SILL AT FRONT SEAT X ACCELERATION

1 096143AF A32 Filterclass (60)

4

3

2

1

0

G

-1

-2

-3

61

81

41

16

15

14

13

12

11

1

09

08

07

06

05

04

03

02

01

0

10

10

20

30

MOA Research
12-30-1996 16:18

TIME (SECONDS)

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

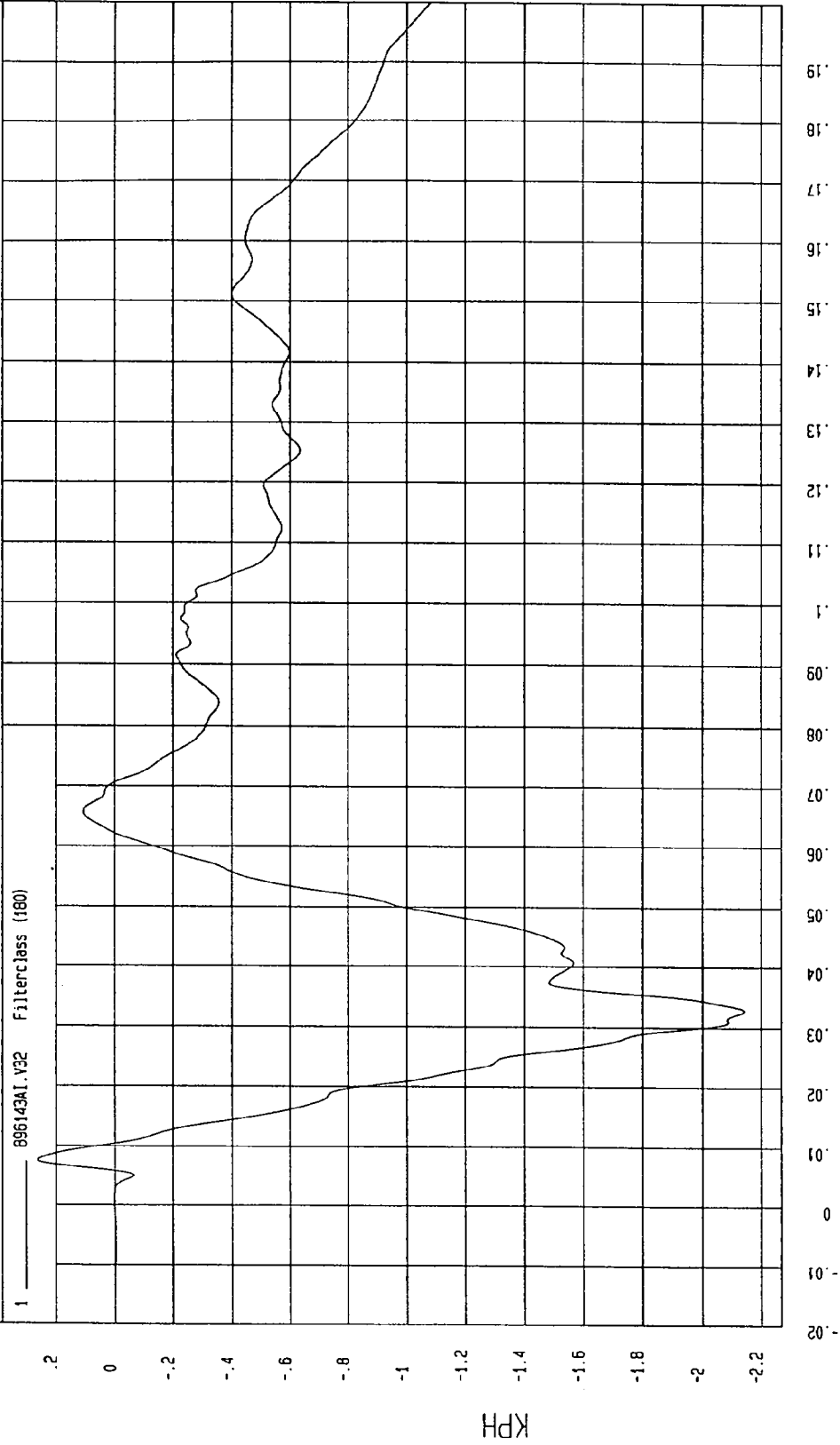
COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -2.14 KPH at 33 msec

Maximum = .26 KPH at 8 msec

LEFT SIDE SILL AT FRONT SEAT X VELOCITY



MOA Research
12-30-1996 16:13

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

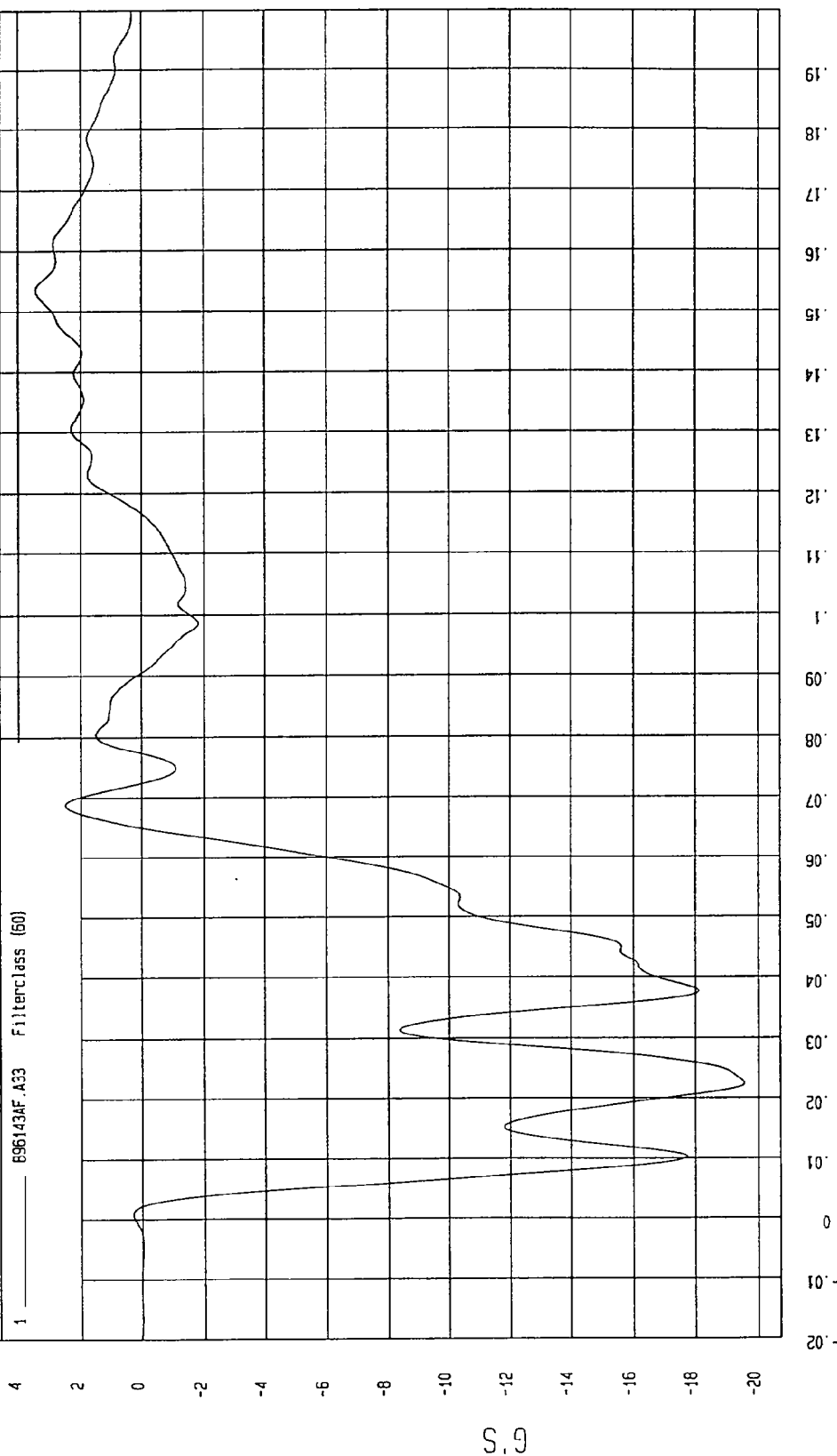
COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 3.44 G'S at 154 msec

Minimum = -19.55 G'S at 22 msec

LEFT SIDE SILL AT FRONT SEAT Y ACCELERATION

1 896143AF.A33 Filterclass (60)

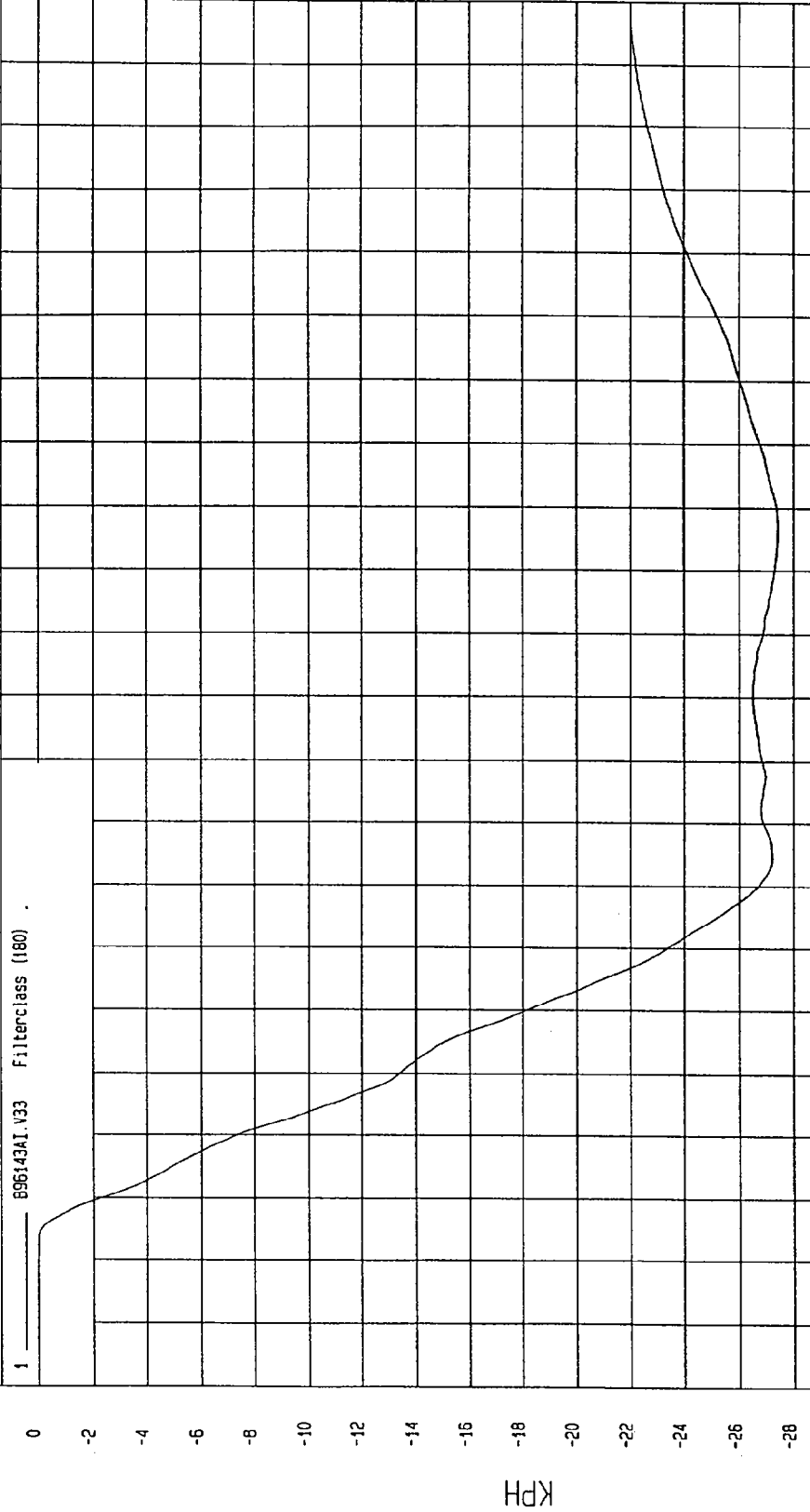


MCA Research
12-30-1996 16:18

TIME (SECONDS)

TEST: FMVSS 214 SIDE IMPACT	TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300)	Speed: 32.83 MPH 52.8 KPH
Minimum = -27.42 KPH at 117 msec	Maximum = 2.00E-03 KPH at -8 msec

LEFT SIDE SILL AT FRONT SEAT Y VELOCITY



MCA Research
12-30-1996 16:13

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

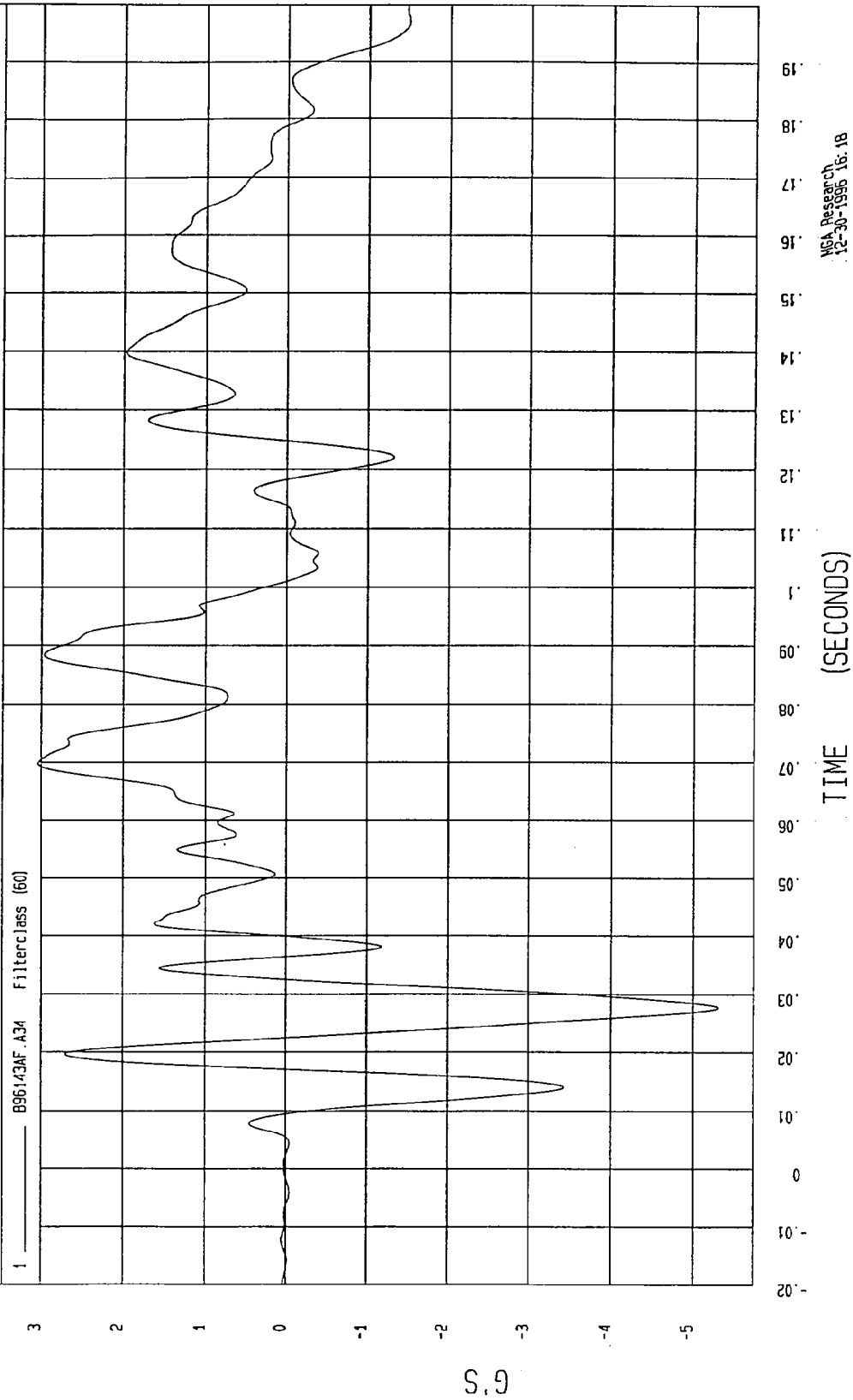
COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -5.30 G'S at 28 msec

Maximum = 3.04 G'S at 70 msec

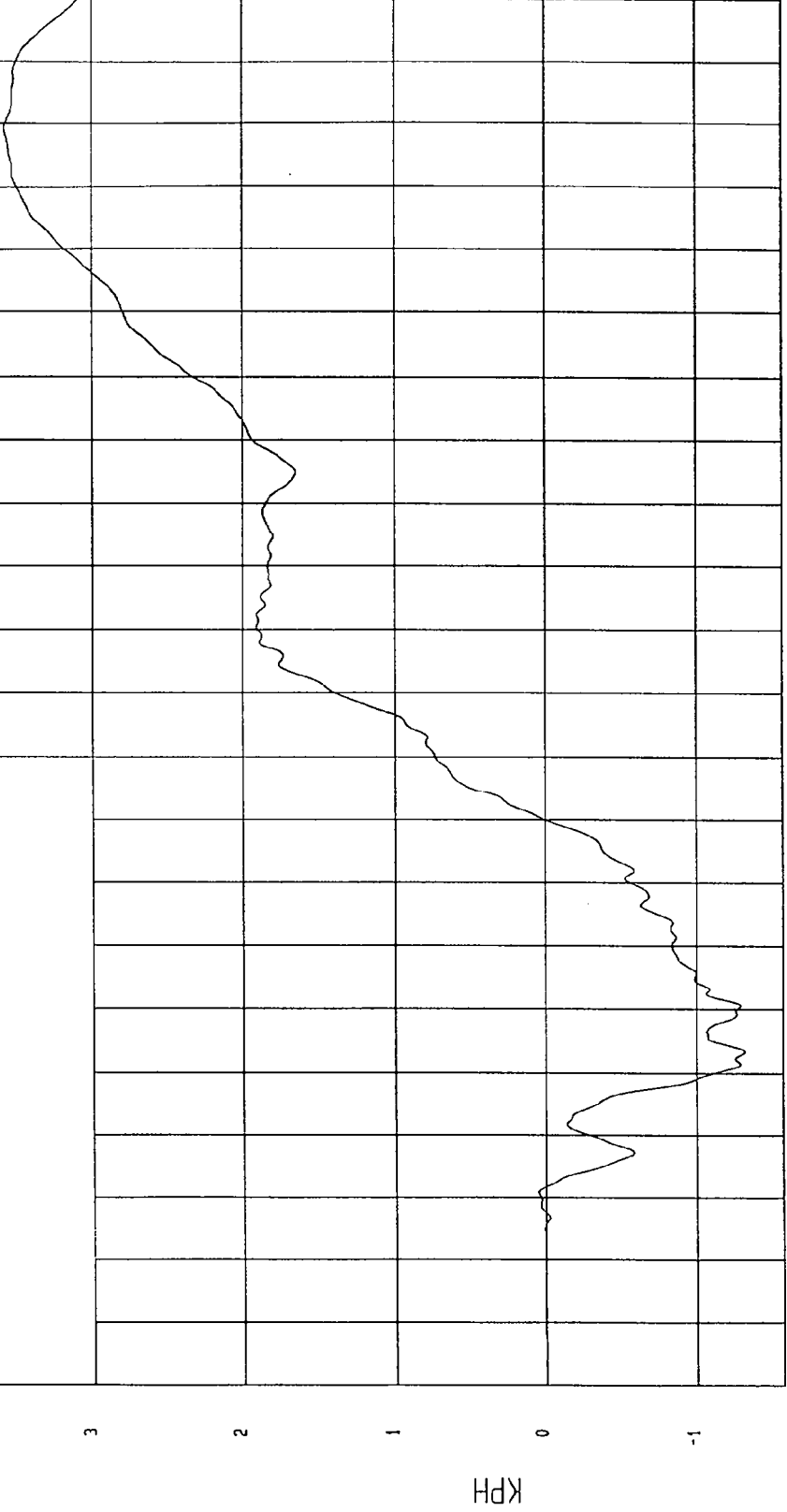
LEFT SIDE SILL AT FRONT SEAT Z ACCELERATION



TEST: FMVSS 214 SIDE IMPACT	TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300)	Speed: 32.83 MPH 52.8 KPH
Minimum = -1.31 KPH at 33 msec	Maximum = 3.58 KPH at 179 msec

LEFT SIDE SILL AT FRONT SEAT Z VELOCITY

1 ——— B96143A1.V34 Filterclass (180)



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

KPH

3
2
1
0
-1

NGA Research
12-30-1996 16.14

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

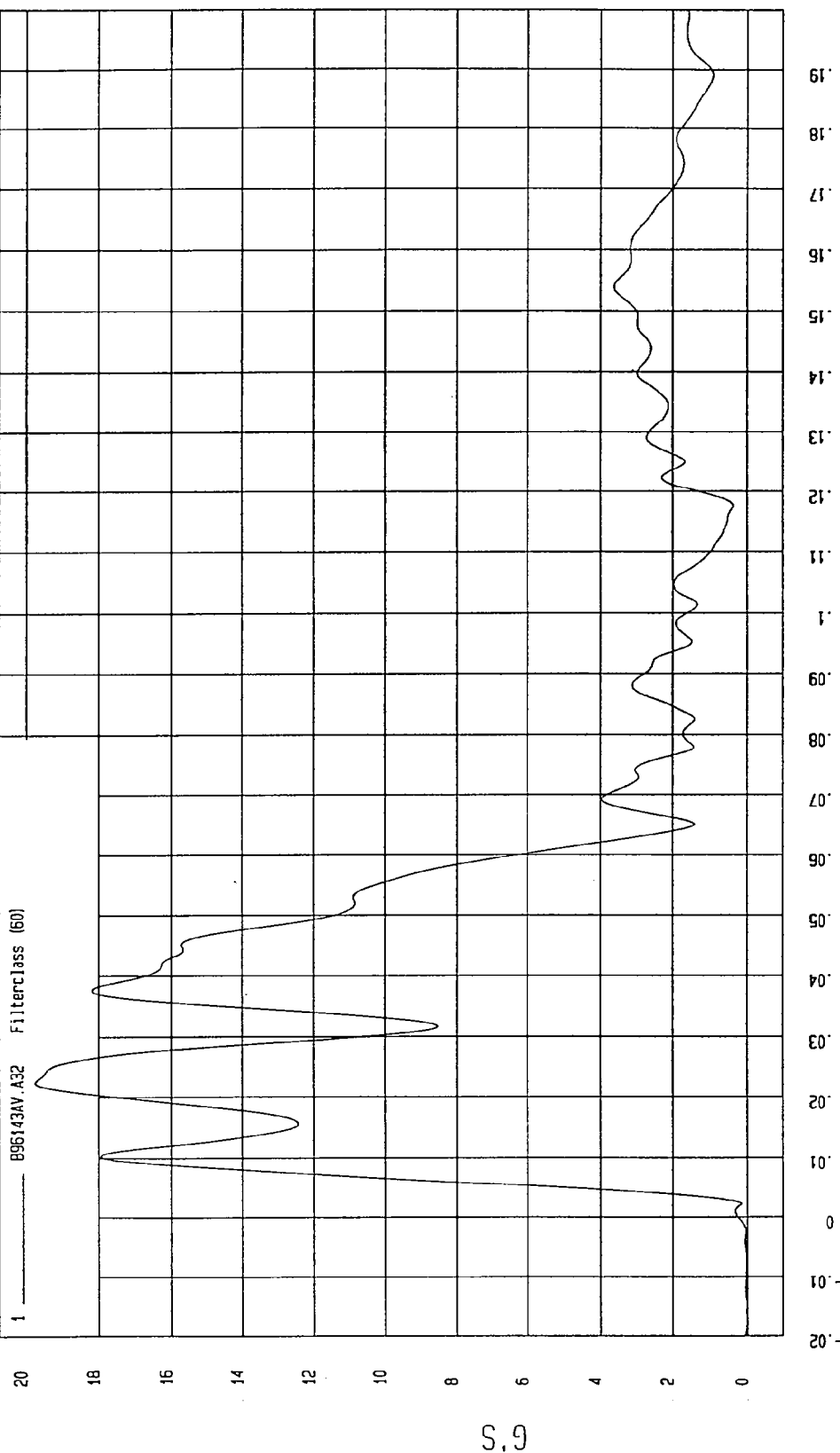
Speed: 32.83 MPH 52.8 KPH

COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 19.76 G'S at 22 msec

Minimum = 6.07E-03 G'S at -15 msec

LEFT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION



MCA Research
12-30-1996 16:21

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

COMPONENT: 1997 HONDA CIVIC (CV5300)

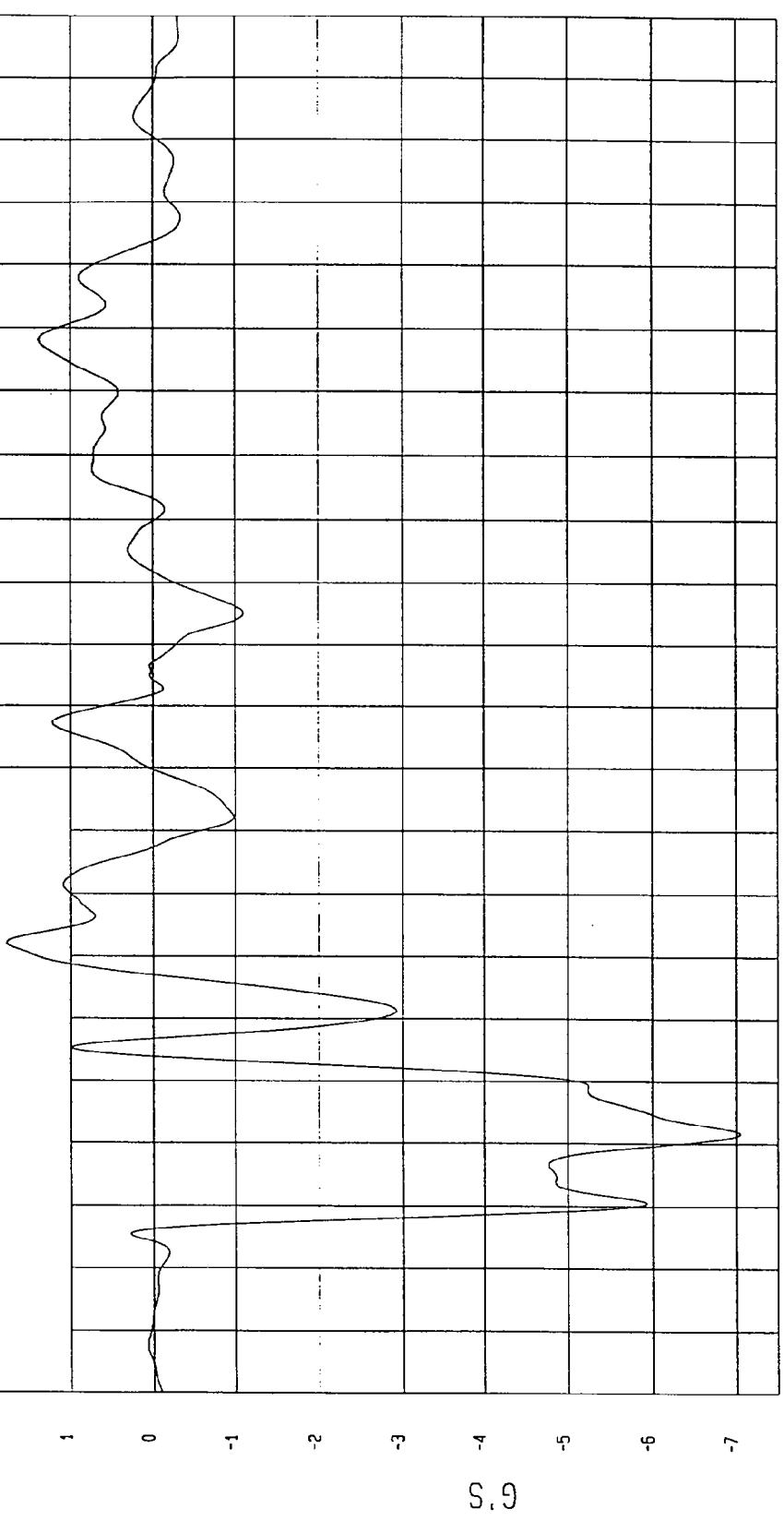
Maximum = 1.75 G'S at 52 msec

Minimum = -7.04 G'S at 22 msec

LEFT SIDE SILL AT REAR SEAT X ACCELERATION

1 896143AF.A35 Filterclass (60)

2



TIME (SECONDS)

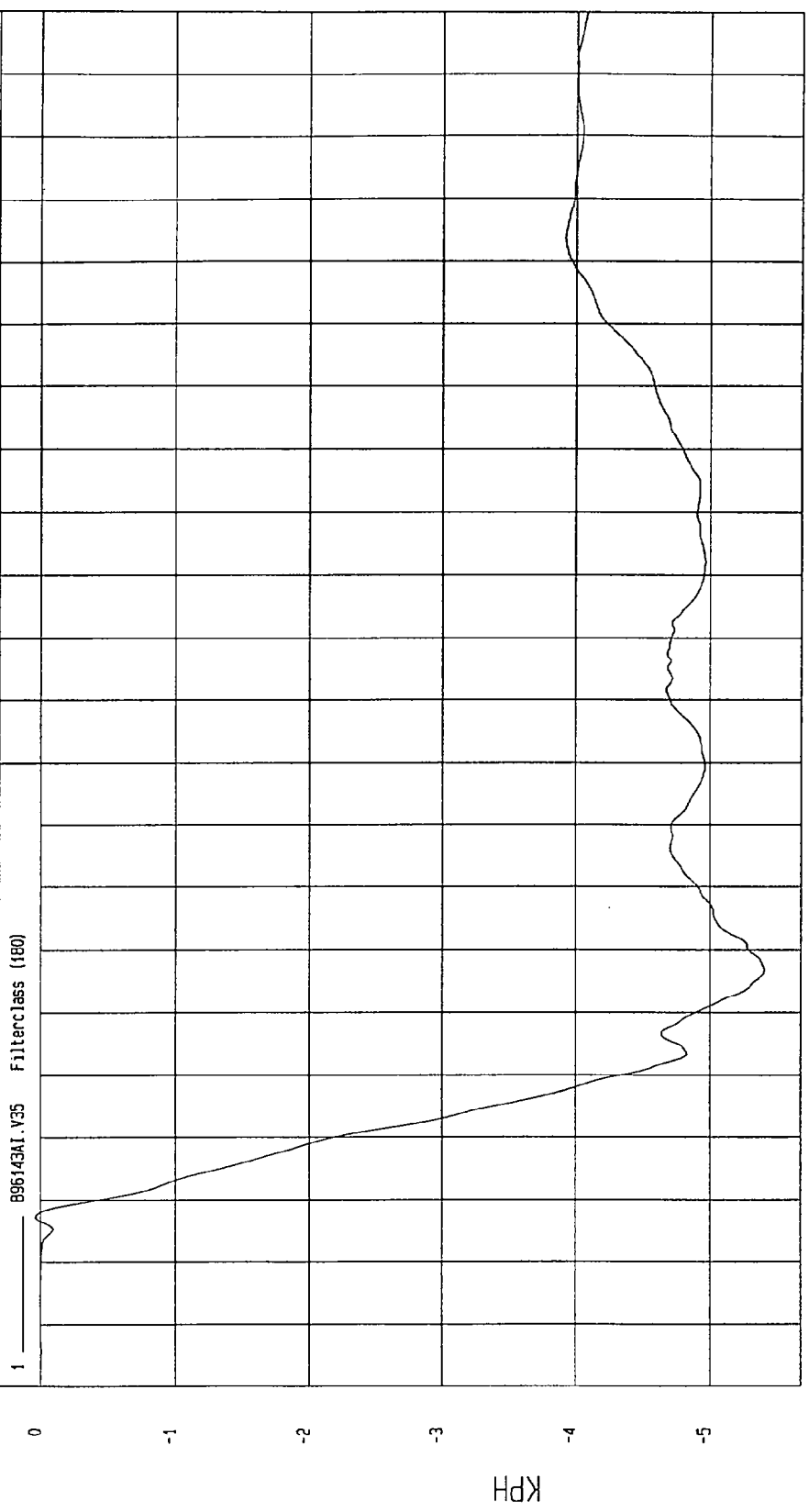
MCA Research
12-30-1996 16:18

TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

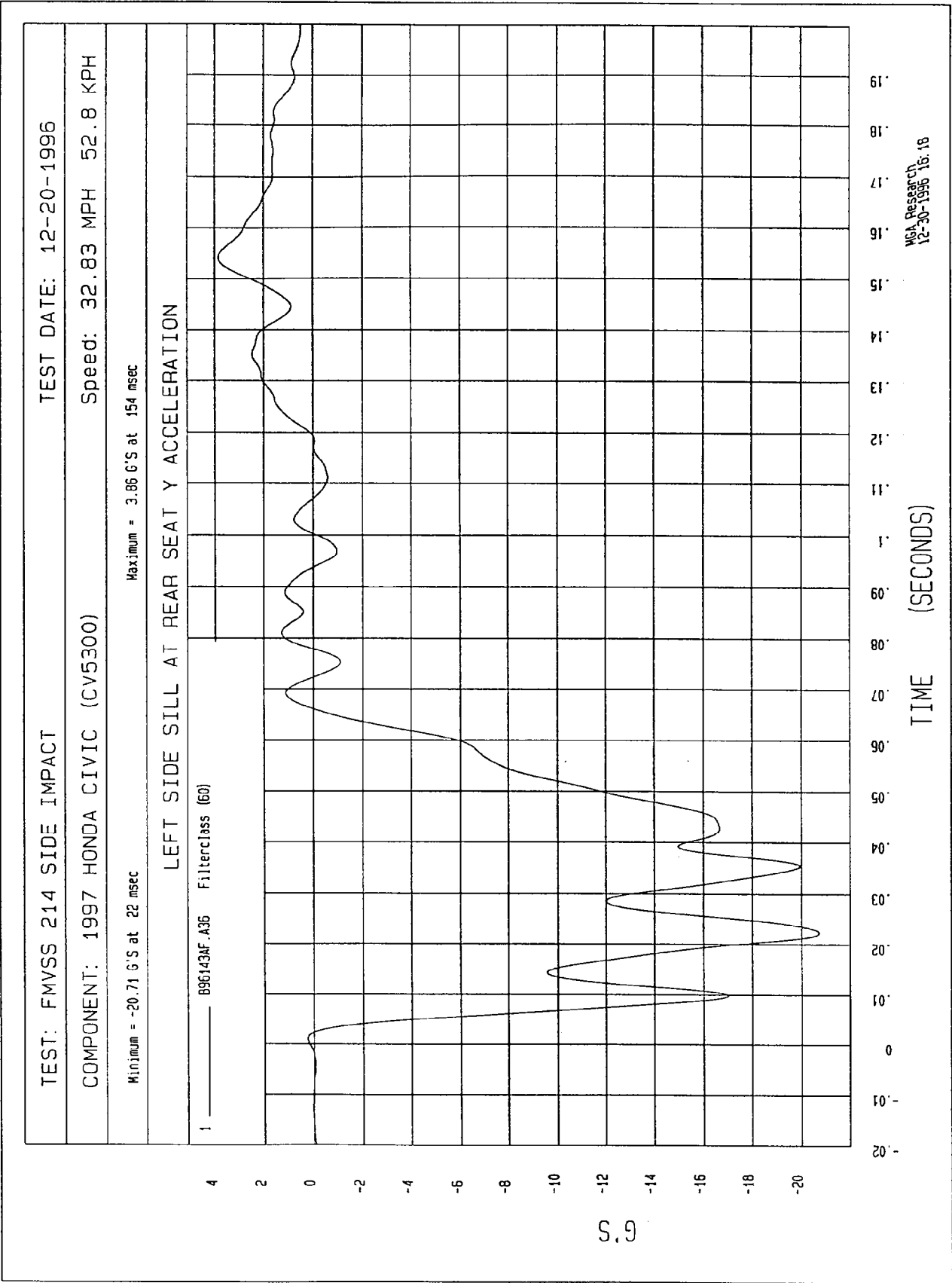
Minimum = -5.40 KPH at 47 msec Maximum = .03 KPH at 7 msec

LEFT SIDE SILL AT REAR SEAT X VELOCITY



TIME Seconds

NGA Research
12-30-1996 16:14

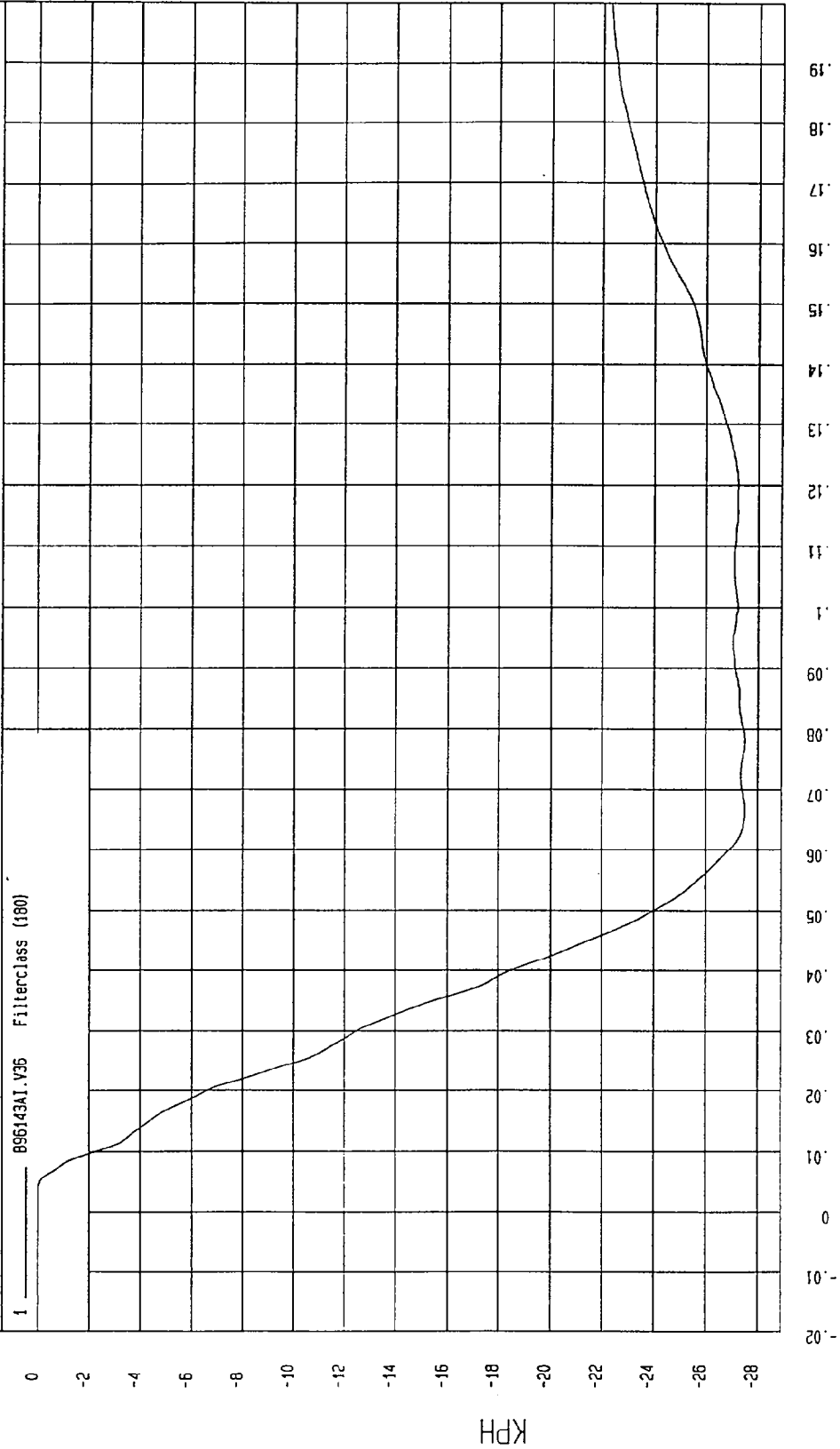


TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

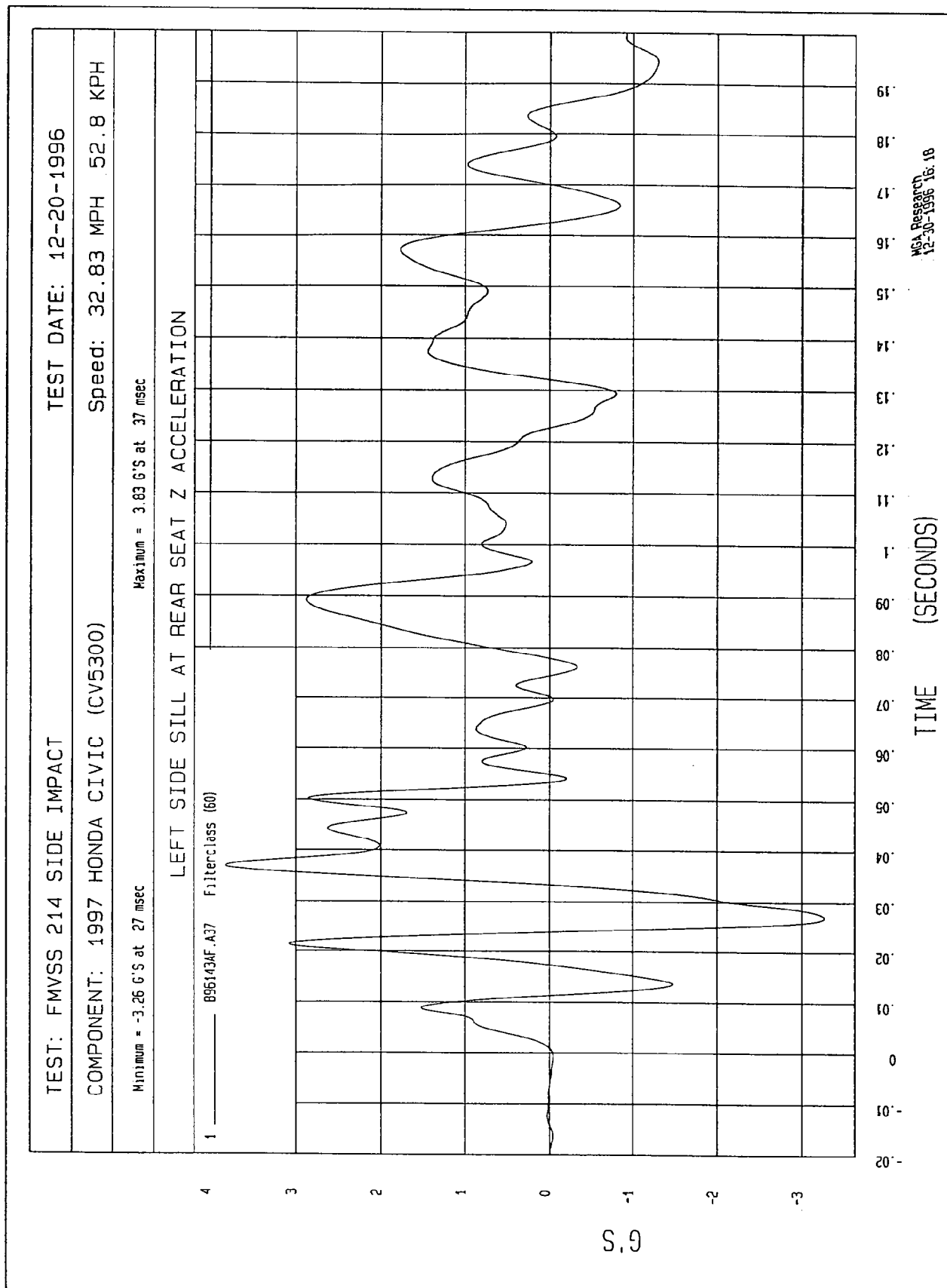
Minimum = -27.51 KPH at 78 msec Maximum = 1.87E-03 KPH at -7 msec

LEFT SIDE SILL AT REAR SEAT Y VELOCITY



MCA Research
12-30-1996 16:14

TIME Seconds



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 4.52 KPH at 186 msec

Minimum = -.25 KPH at 34 msec

LEFT SIDE SILL AT REAR SEAT Z VELOCITY

1 ——— 096143A1.V37 FilterClass (180)

4

3

2

1

0

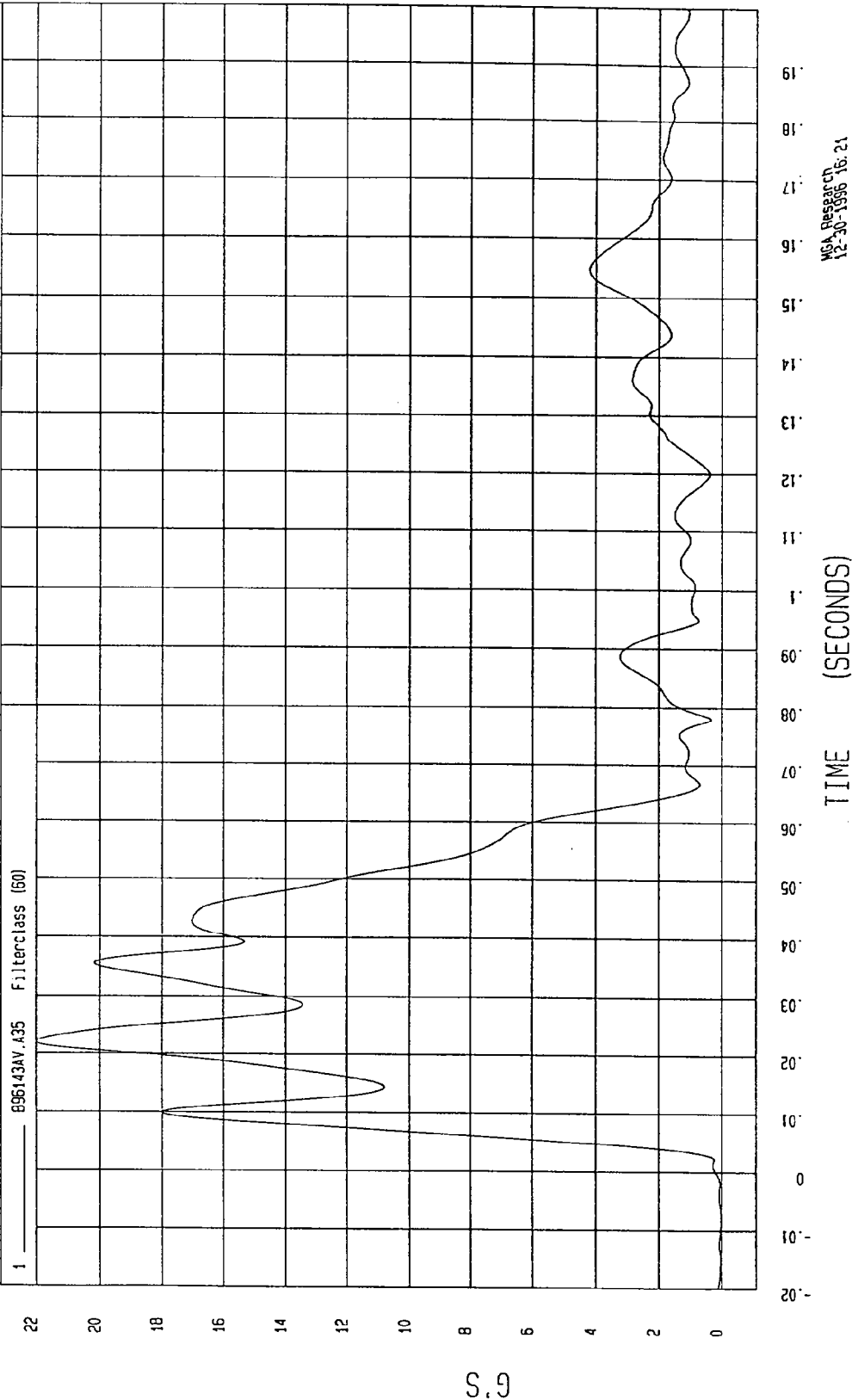
KPH

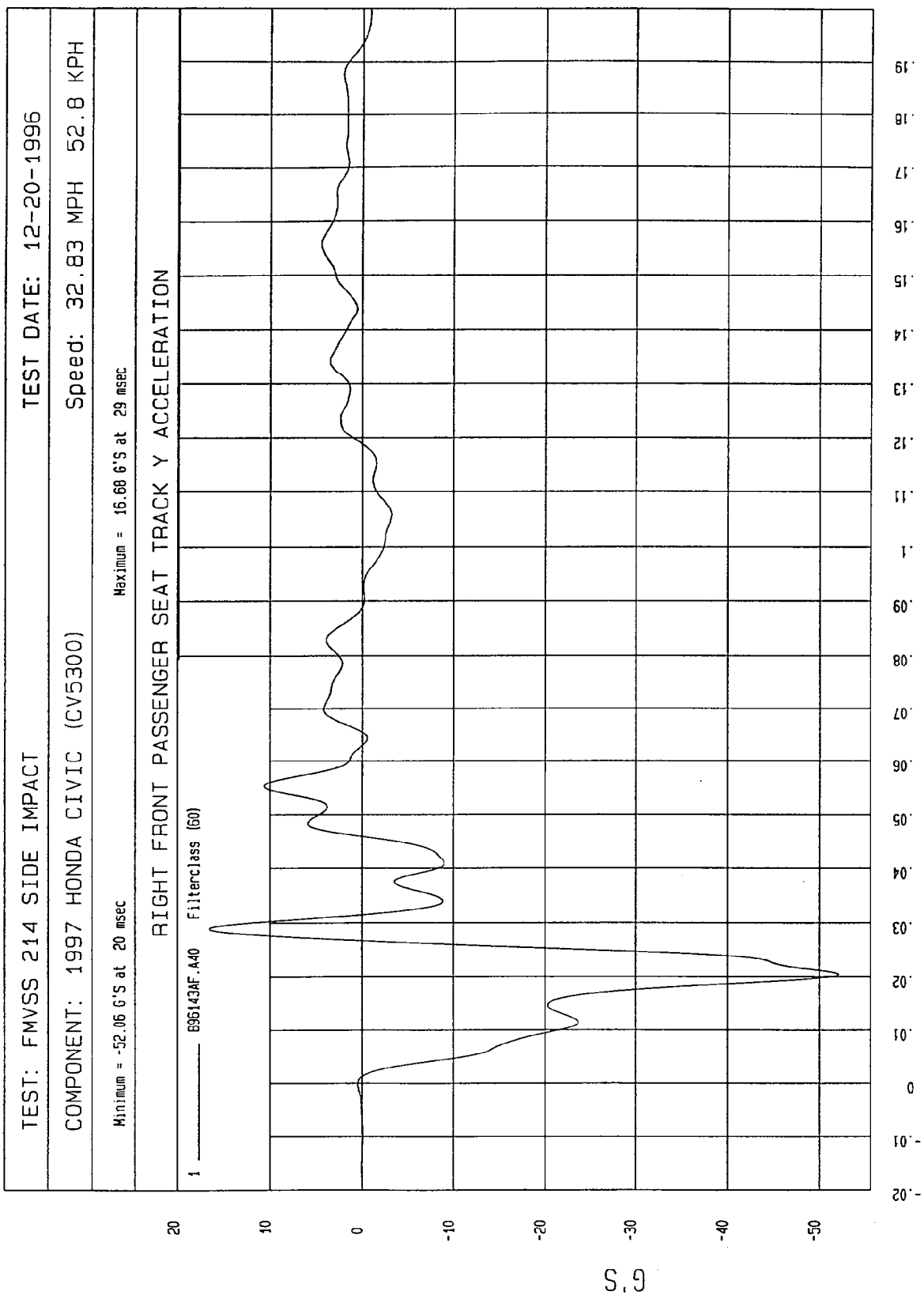
TIME Seconds

MEA Research
12-20-1996 16:14

TEST: FMVSS 214 SIDE IMPACT	TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300)	Speed: 32.83 MPH 52.8 KPH
Minimum = 1.74E-02 G'S at -8 msec	Maximum = 22.01 G'S at 22 msec

LEFT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION





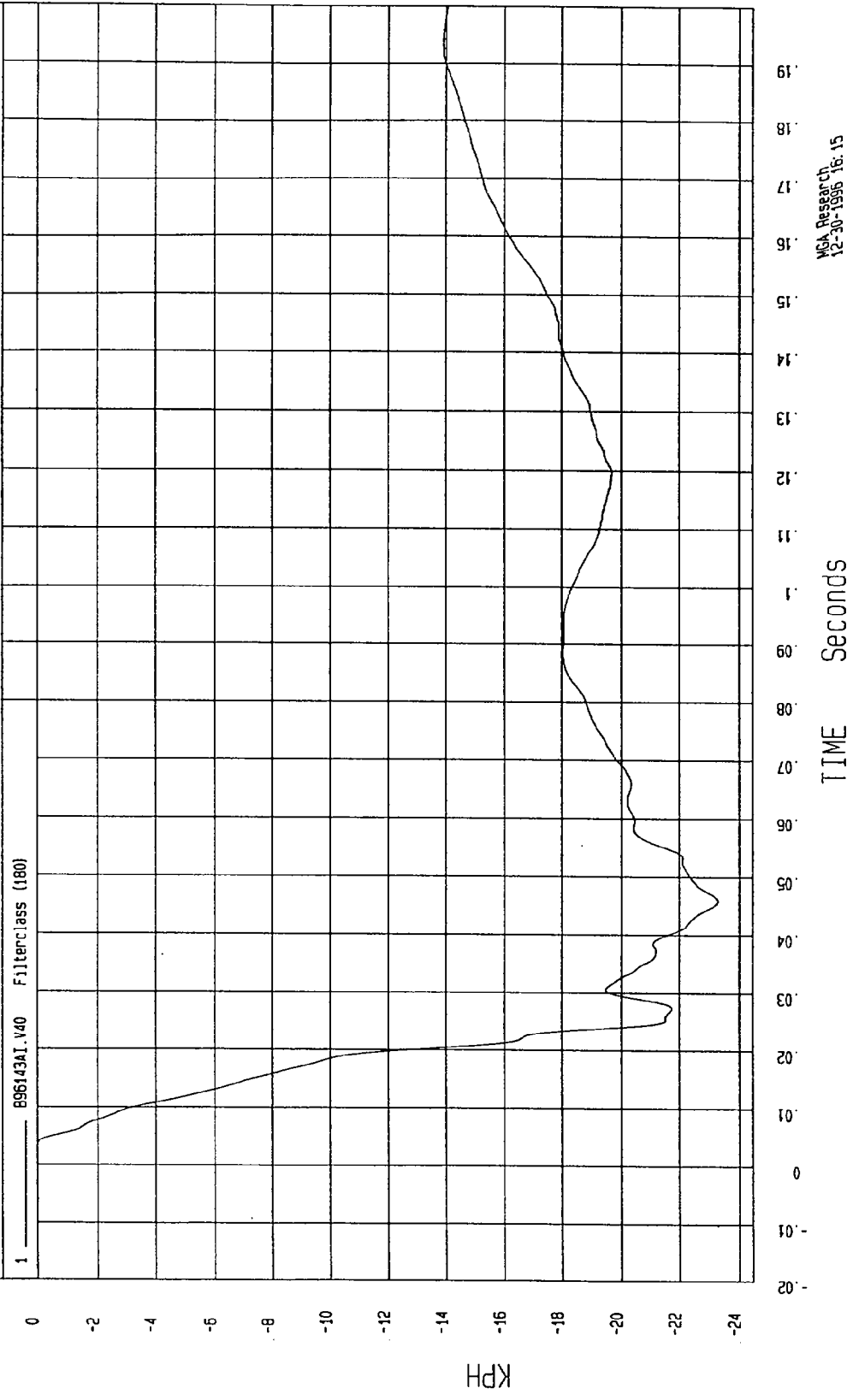
MOA Research
12-30-1996 16:18

TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum = -23.29 KPH at 46 msec Maximum = 9.04E-03 KPH at 3 msec

RIGHT FRONT PASSENGER SEAT TRACK Y VELOCITY



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

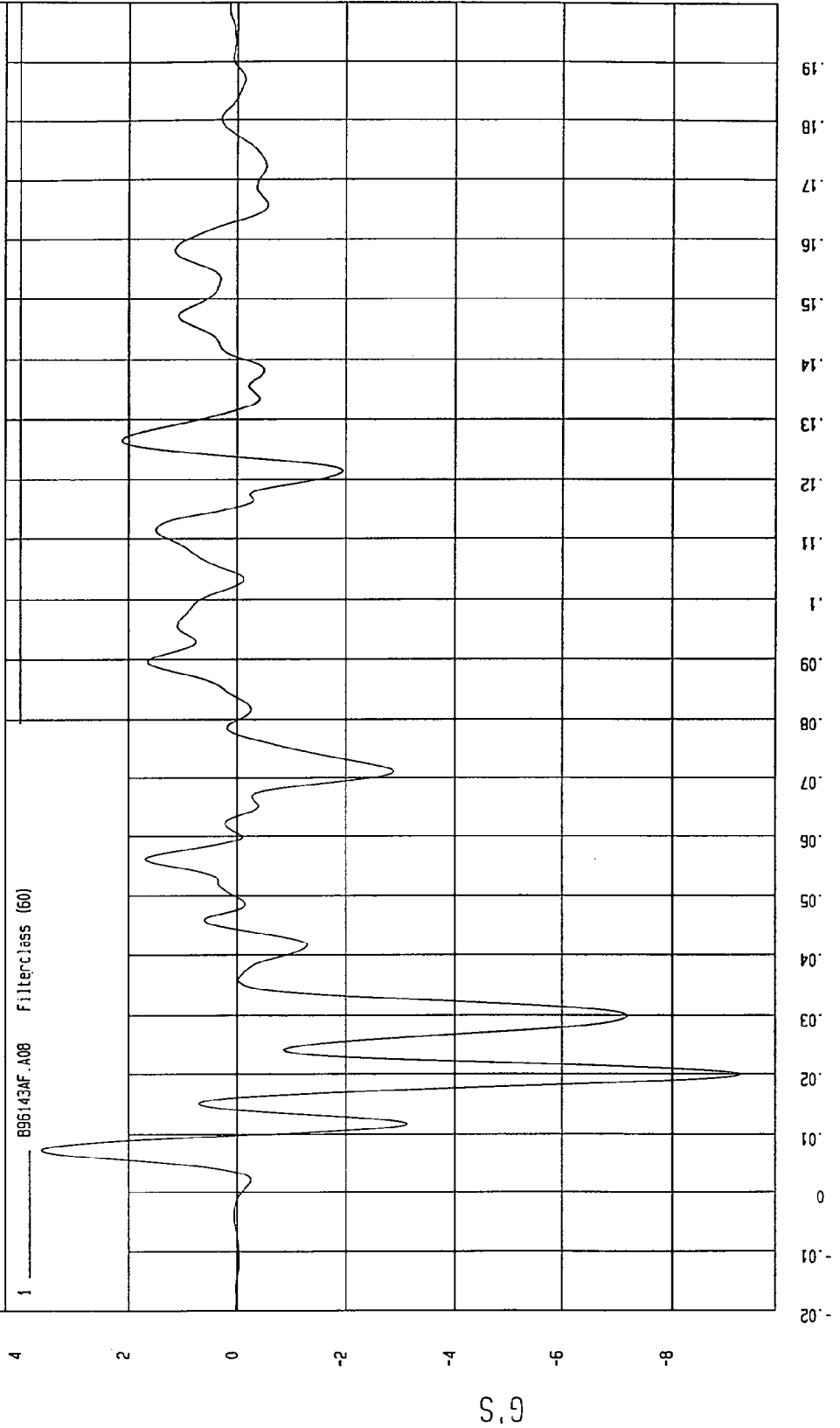
Speed: 32.83 MPH 52.8 KPH

COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 3.62 G'S at 7 msec

Minimum = -9.21 G'S at 20 msec

REAR FLOORPAN ABOVE AXLE X ACCELERATION



MSA Research
12-30-1996 16:18

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

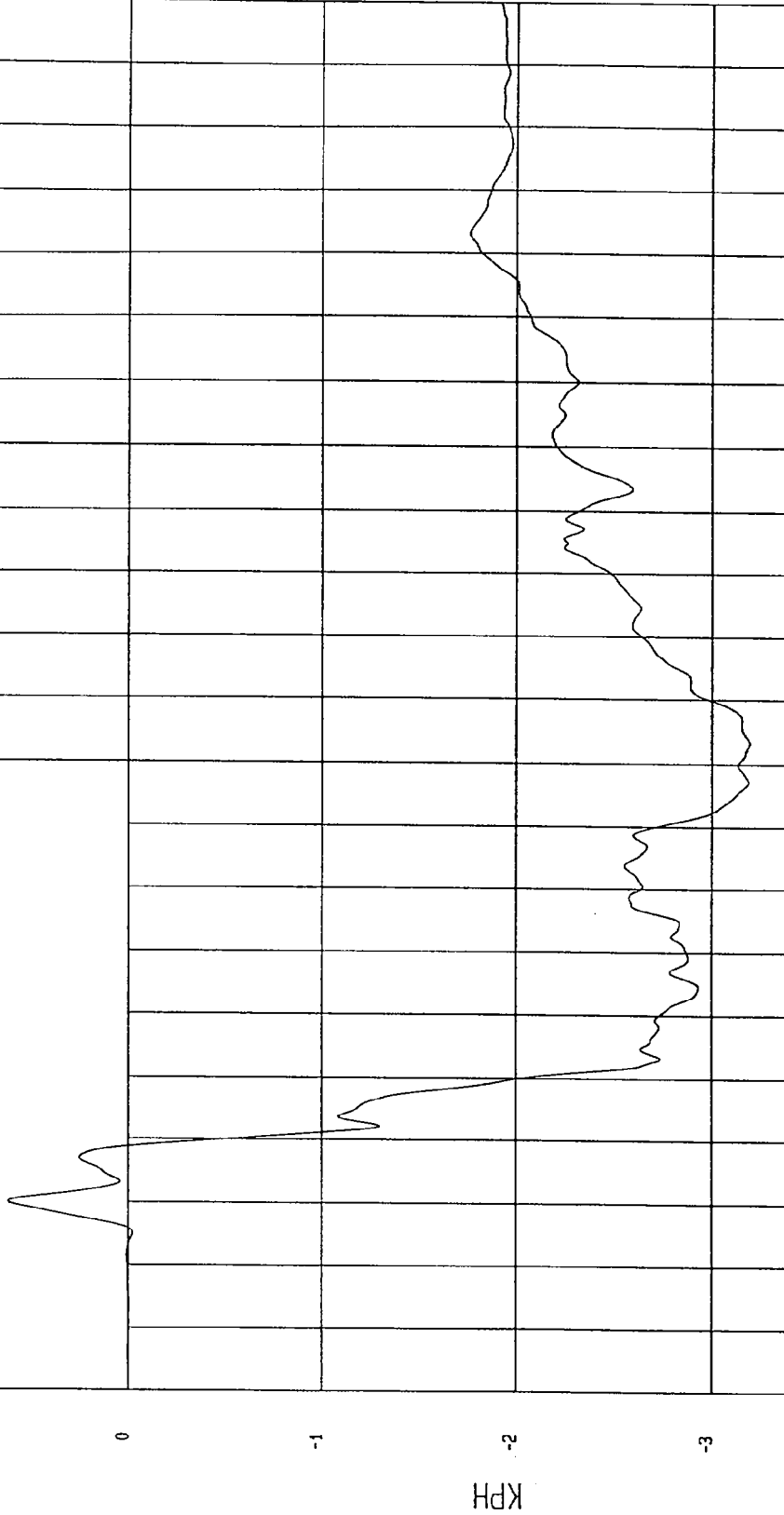
Speed: 32.83 MPH 52.8 KPH

Minimum = .01 KPH at .03 msec

Maximum = .61 KPH at 10 msec

REAR FLOORPAN ABOVE AXLE X VELOCITY

1 — 896143A1.V08 Filterclass (180)



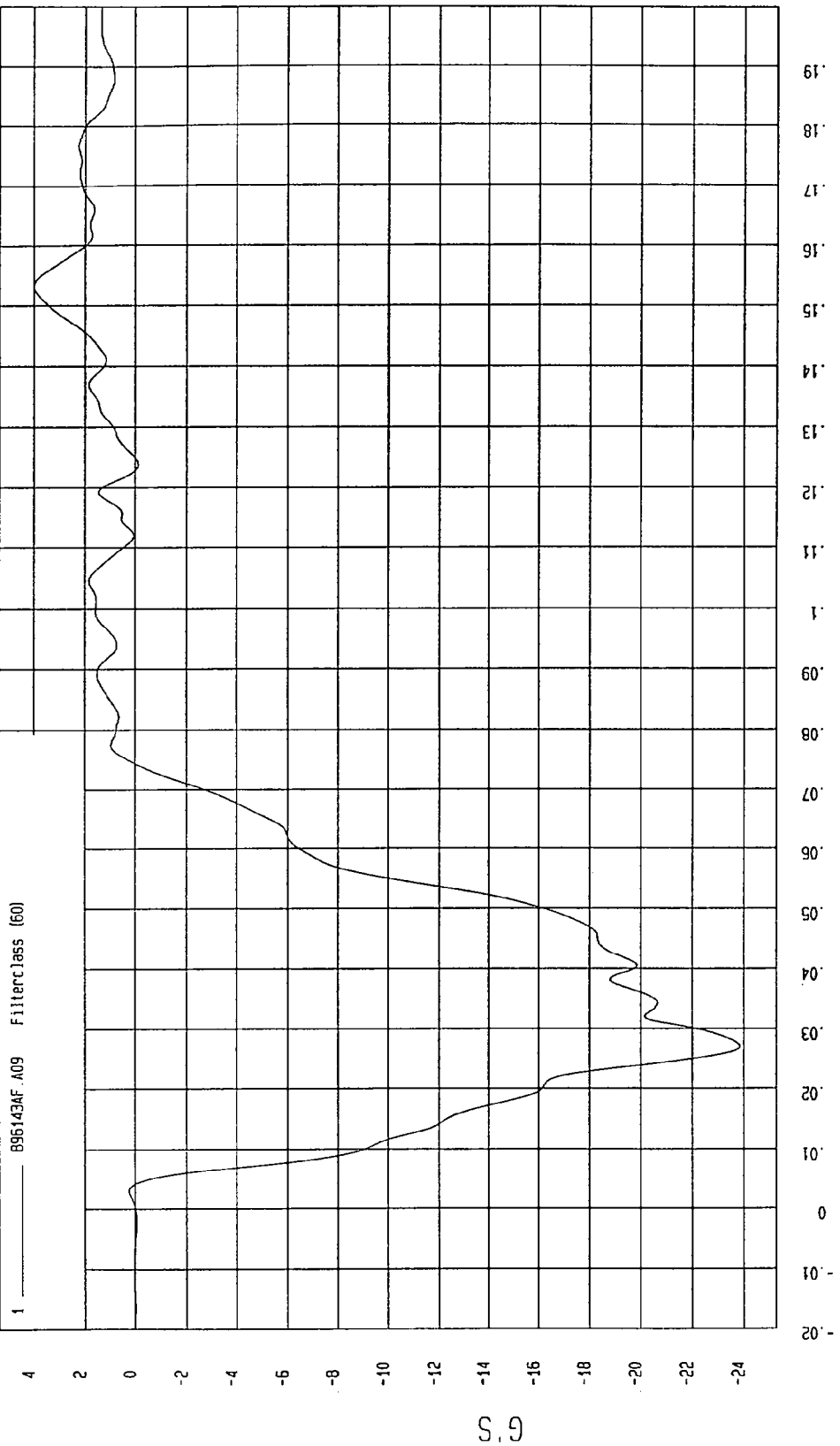
MCA Research
12-30-1996 16:14

TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum = -23.05 G'S at 27 msec Maximum = 3.98 G'S at 153 msec

REAR FLOORPAN ABOVE AXLE Y ACCELERATION



NCA Research
12-30-1996 16:19

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

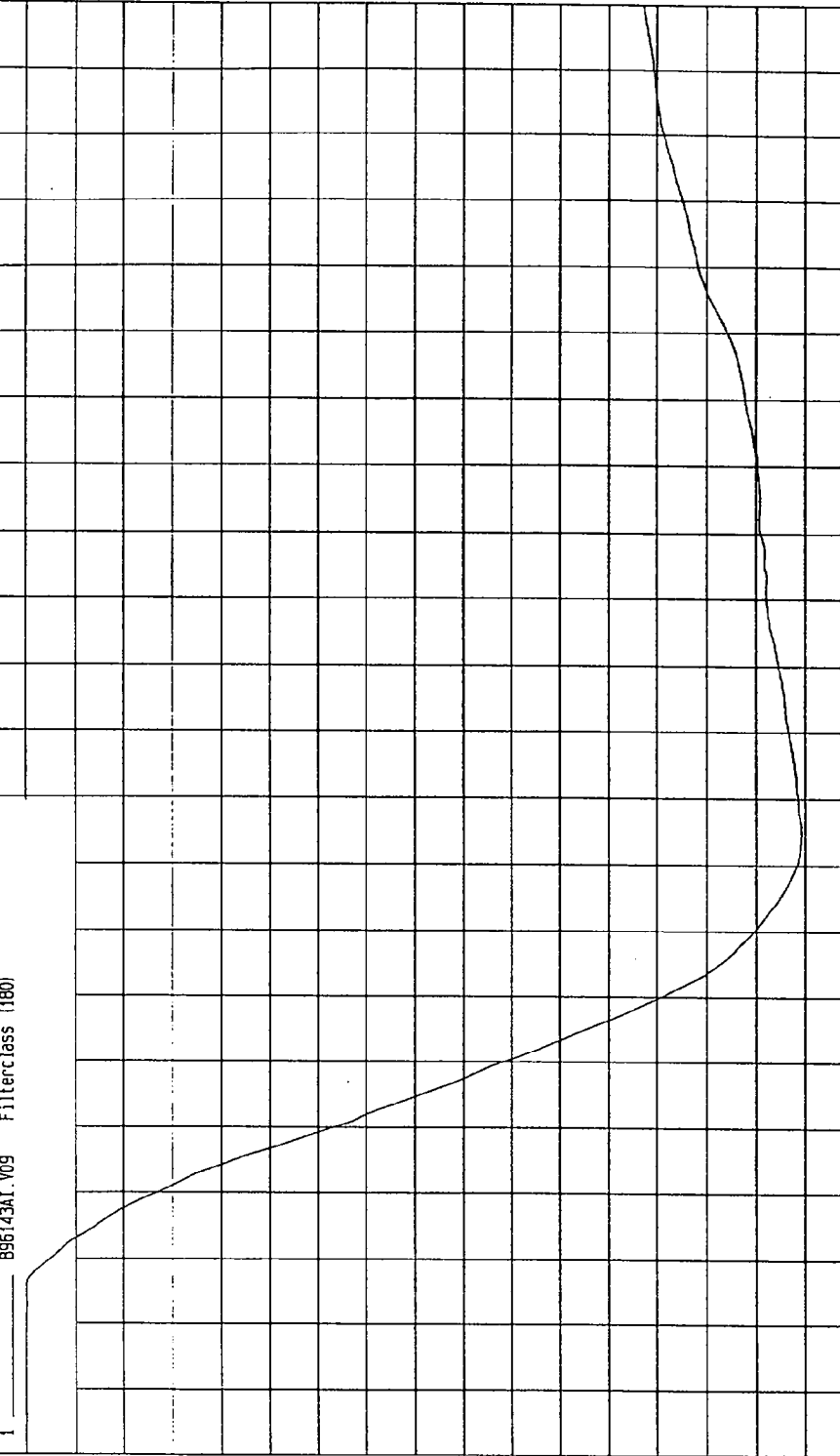
Minimum = -31.86 KPH at 75 msec

Maximum = 2.87E-03 KPH at -6 msec

REAR FLOORPAN ABOVE AXLE Y VELOCITY

1 B96143A1.V09 Filterclass (180)

KPH



61

81

101

121

141

161

181

201

221

241

261

281

301

321

341

361

381

401

421

441

461

481

501

521

541

561

581

MOA Research
12-20-1996 16:14

TIME Seconds

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

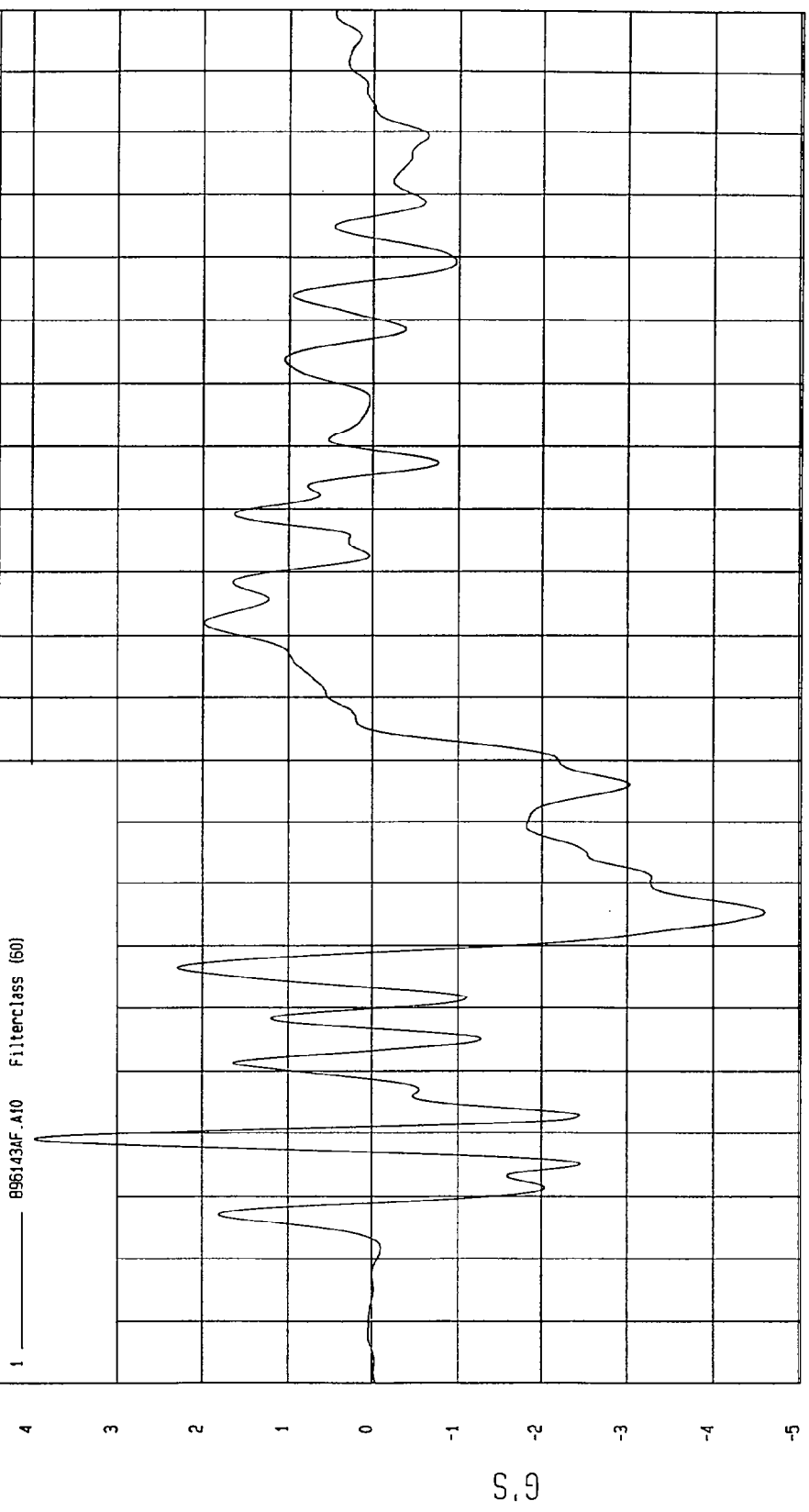
Speed: 32.83 MPH 52.8 KPH

COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 3.96 G'S at 19 msec

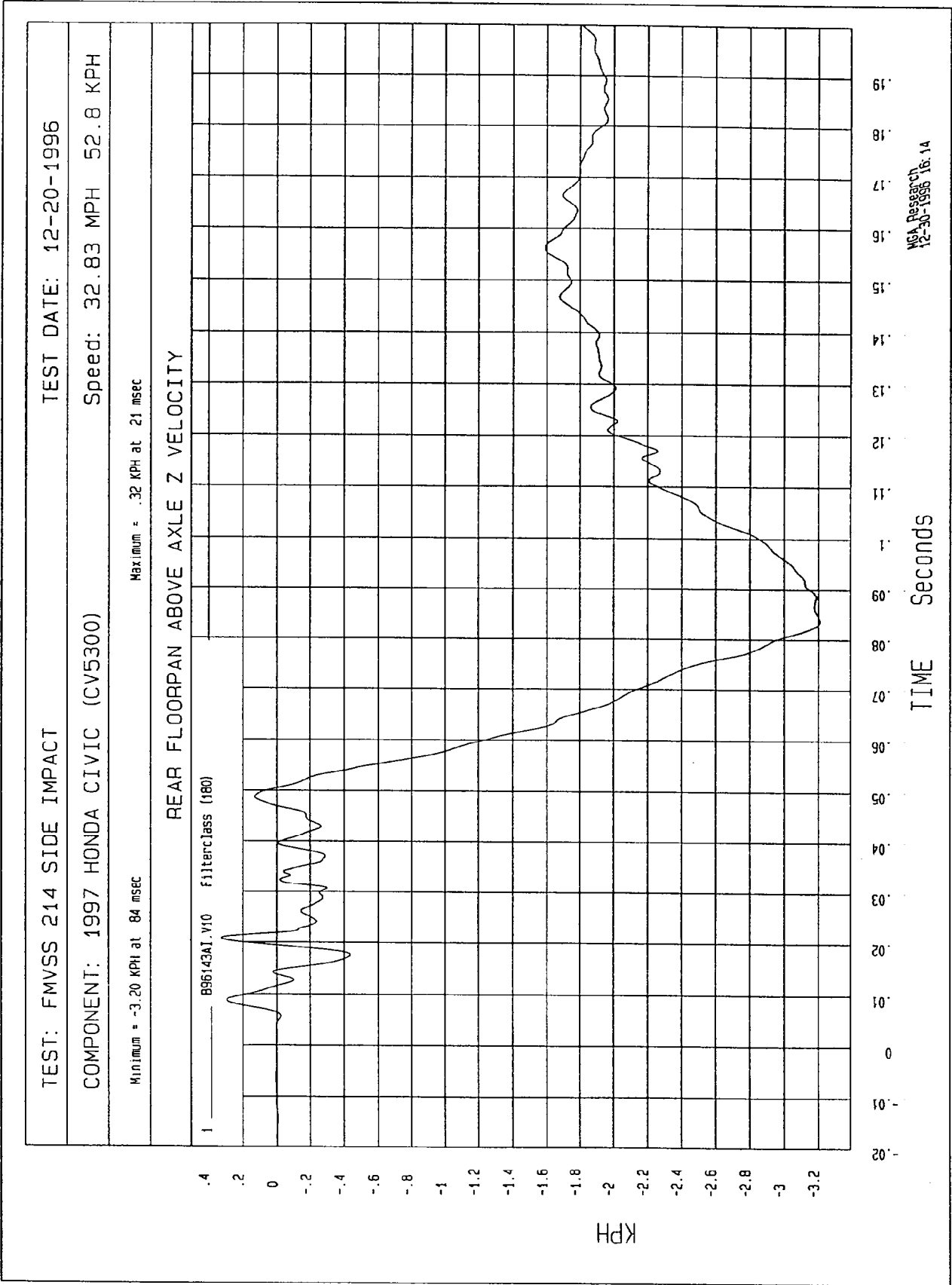
Minimum = -4.59 G'S at 55 msec

REAR FLOORPAN ABOVE AXLE Z ACCELERATION



TIME (SECONDS)

MSA Research
12-30-1996 16:19



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

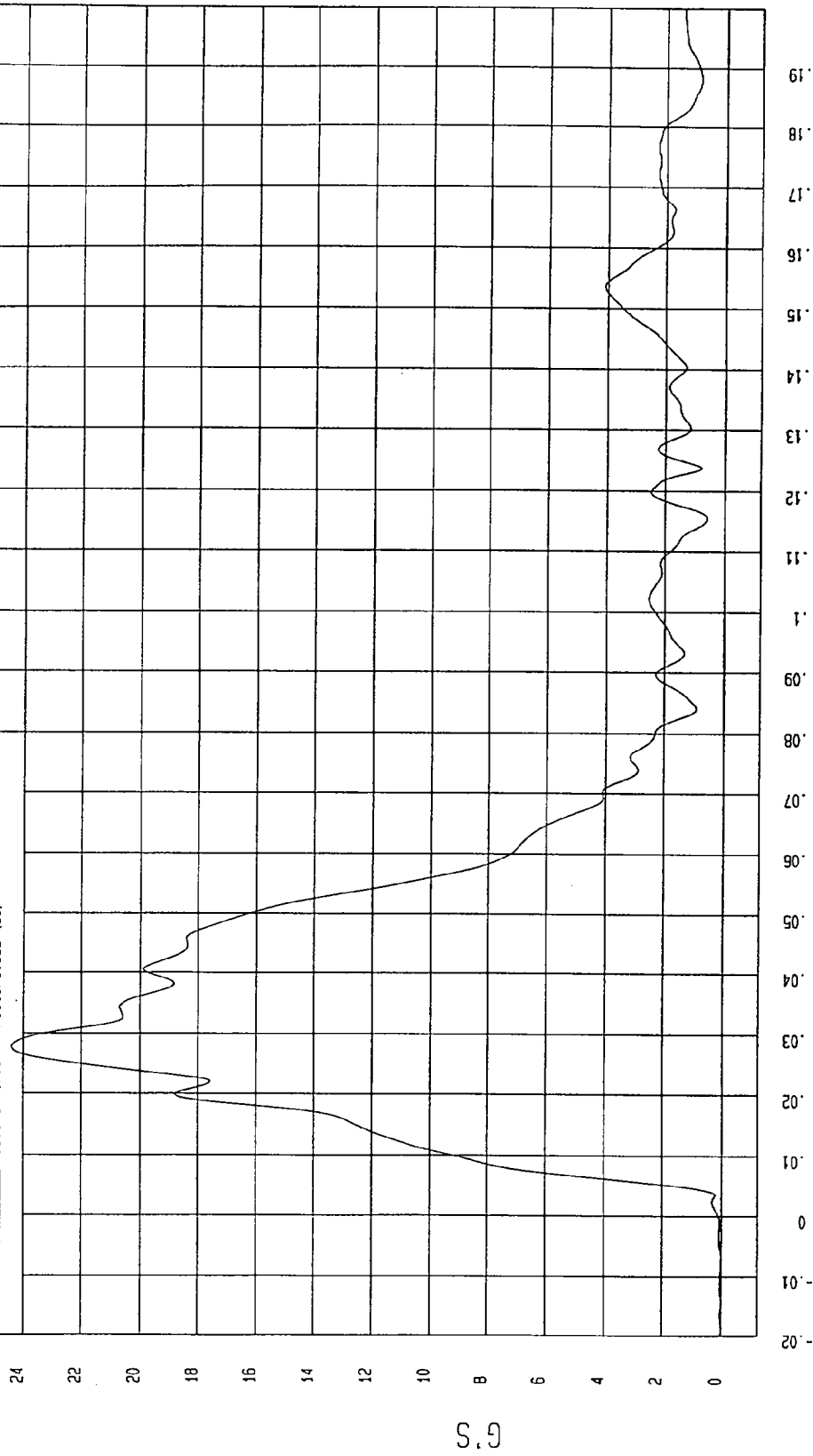
Speed: 32.83 MPH 52.8 KPH

Minimum = 9.52E-03 G'S at -14 msec

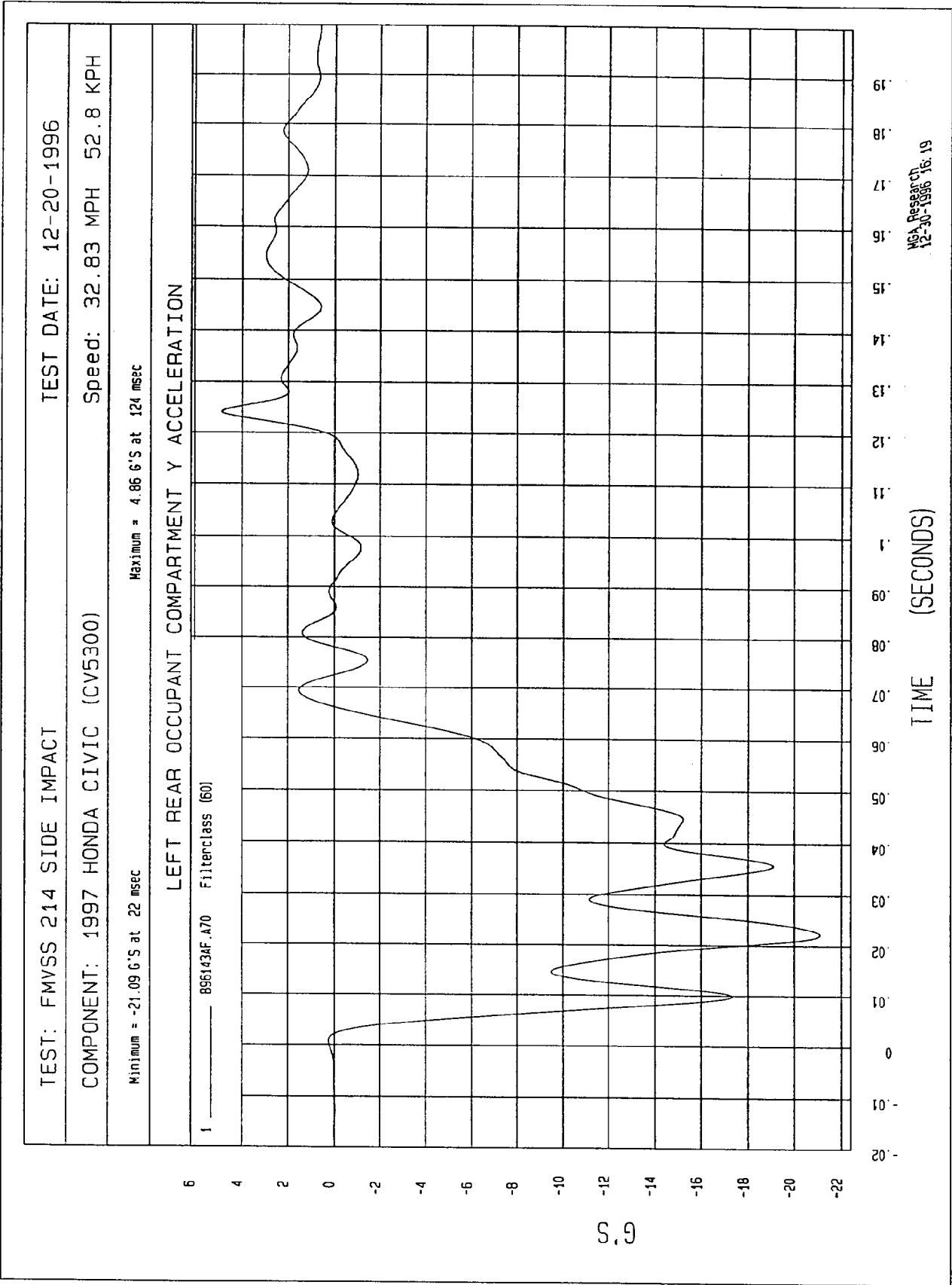
Maximum = 24.39 G'S at 28 msec

REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

1 896143AV.A08 Filterclass (60)



NSA Research
01-13-1997 07:10

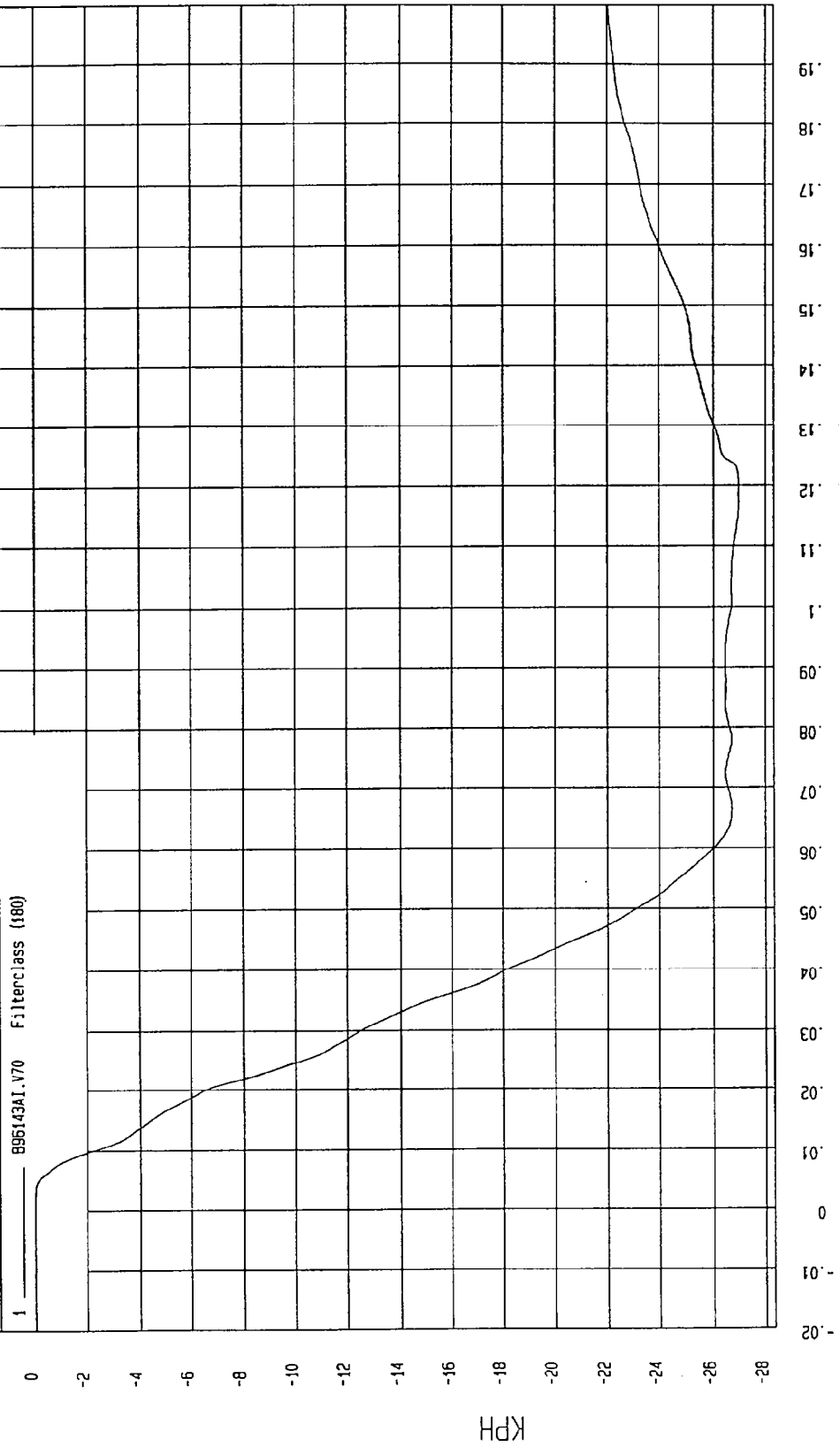


TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum = -26.97 KPH at 120 msec Maximum = 1.59E-03 KPH at -15 msec

LEFT REAR OCCUPANT COMPARTMENT Y VELOCITY



MEA Research
12-20-1996 16:15

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

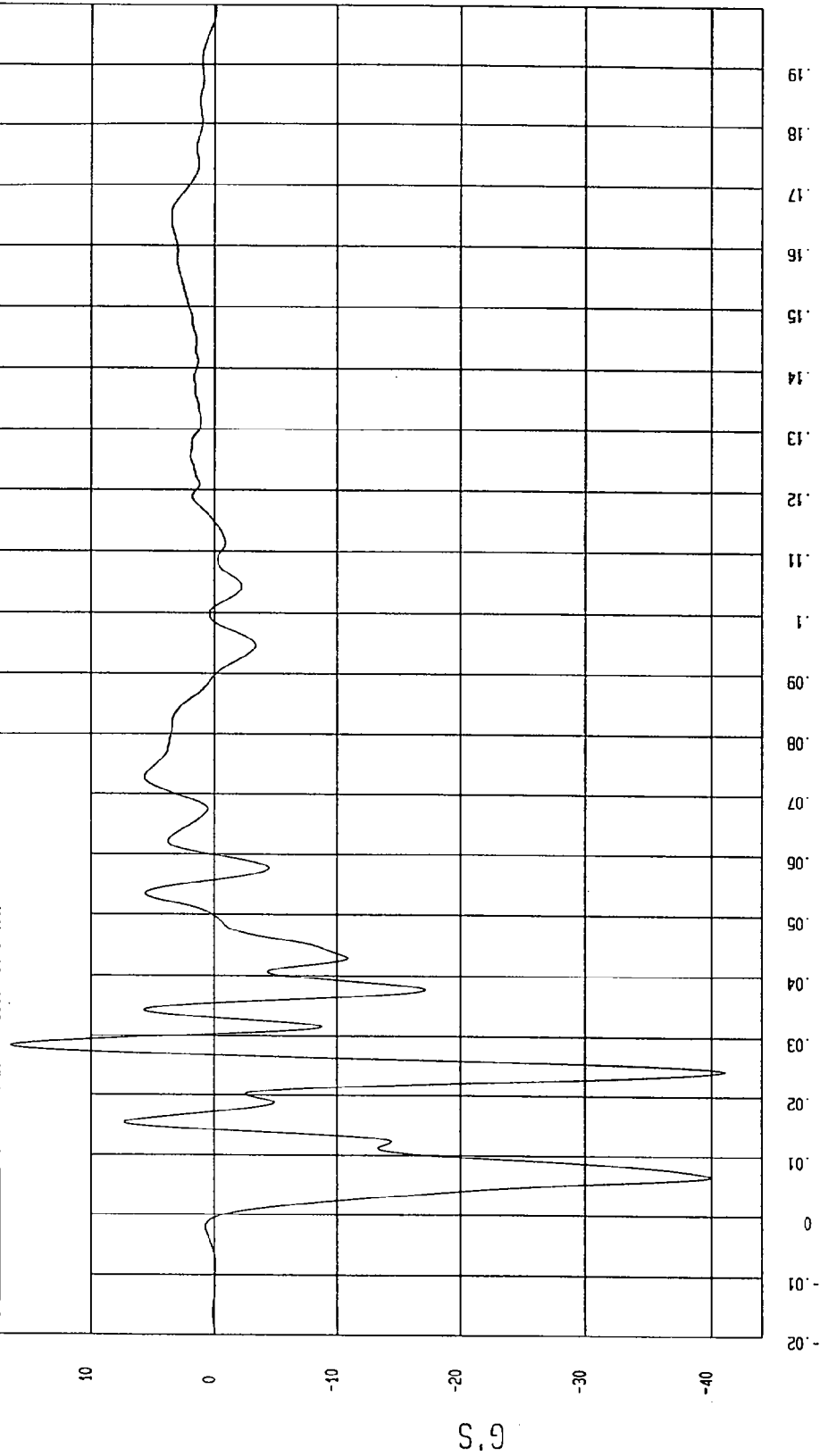
COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 16.40 G'S at 28 msec

Minimum = -41.05 G'S at 24 msec

RIGHT LOWER A-POST Y ACCELERATION

1 — 896143AF.A20 Filterclass (60)



MGA Research
12-30-1996 16:19

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

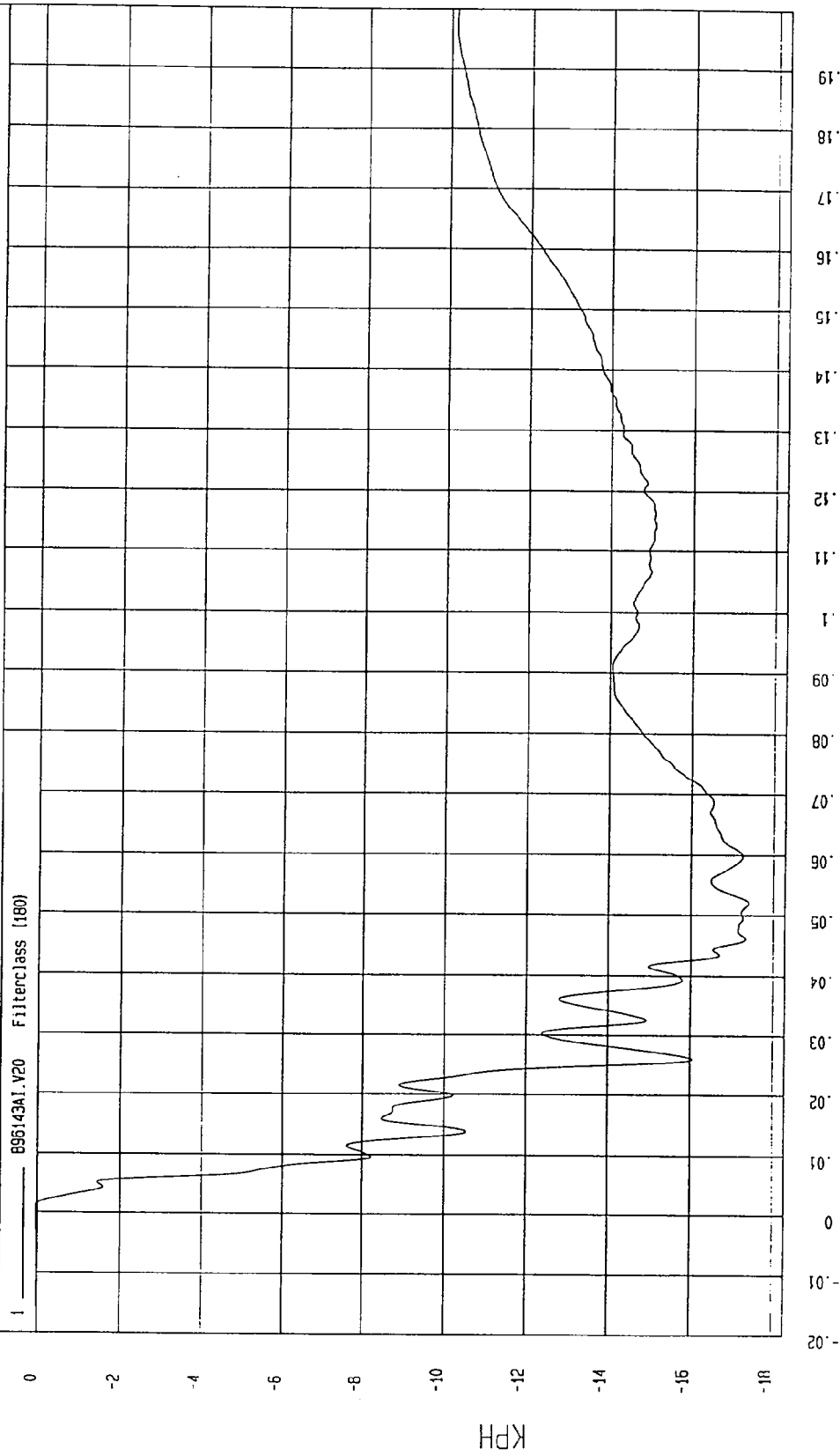
Speed: 32.83 MPH 52.8 KPH

Minimum = -17.40 KPH at 52 msec

Maximum = 5.21E-02 KPH at 1 msec

RIGHT LOWER A-POST Y VELOCITY

895143A1.V20 Filterclass (180)



MOA Research
12-30-1996 16:14

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -39.79 G'S at 4 msec

Maximum = 1.56 G'S at -2 msec

RIGHT MID A POST Y ACCELERATION

1 ——— 896143AF.A19 Filterclass (60)

60

40

20

0

-20

-40

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

TIME (SECONDS)

WCA Research
04-15-1997 07:37

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

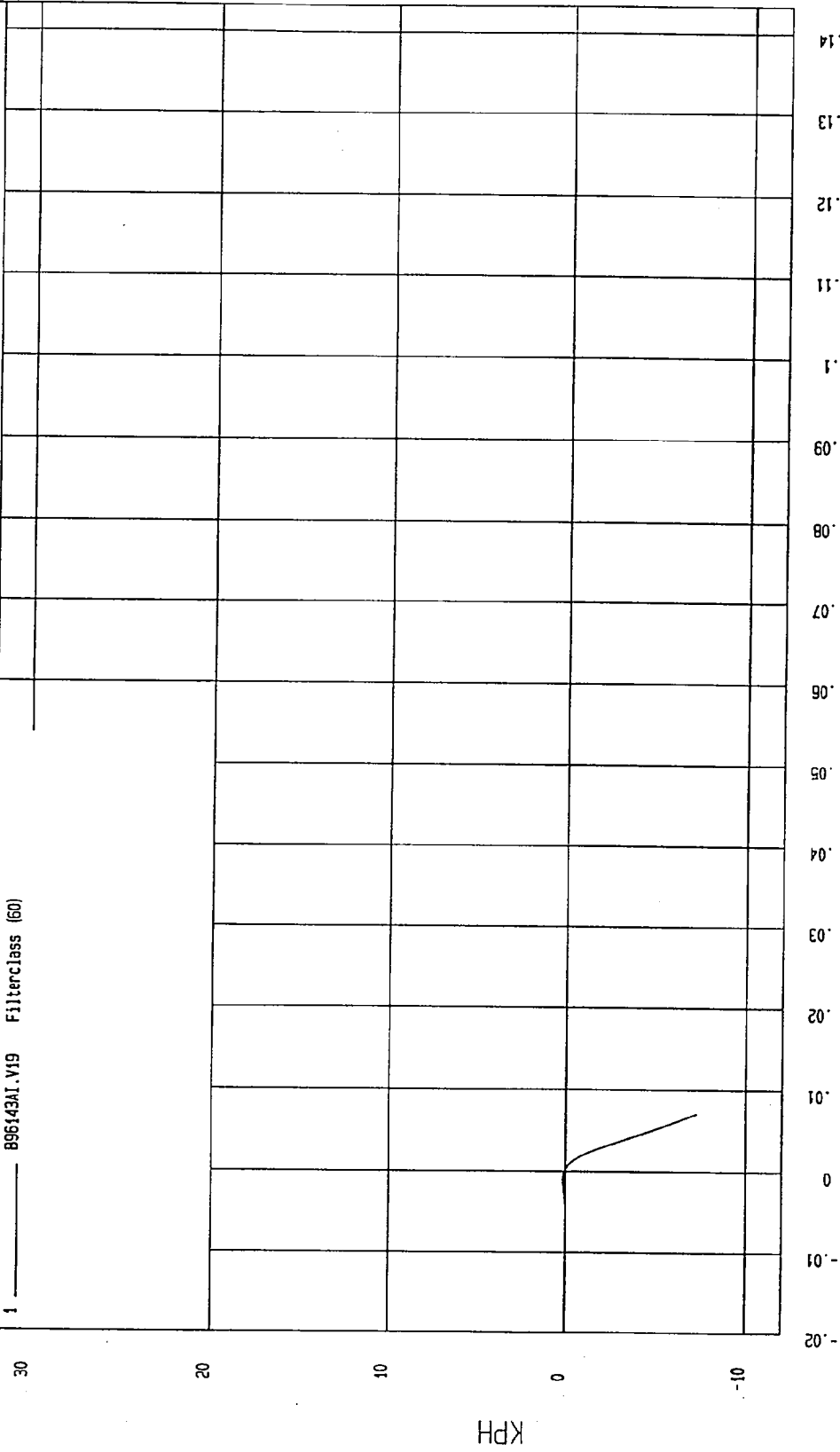
Speed: 32.83 MPH 52.8 KPH

Minimum = -7.45 KPH at 7 msec

Maximum = .13 KPH at -1 msec

RIGHT MID A POST Y VELOCITY

1 ——— B96143A1.V19 Filterclass (60)



MCA Research
04-15-1997 01:45

RIGHT LOWER B-POST Y ACCELERATION VS. TIME

NO VALID DATA COLLECTED

TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum = -117.30 G'S at 10 msec Maximum = 32.17 G'S at 18 msec

RIGHT MID B-POST Y ACCELERATION

1 B96143AF.A29 Filterclass (60)

G.S

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

TIME (SECONDS)

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

WCA Research
12-30-1996 16:19

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

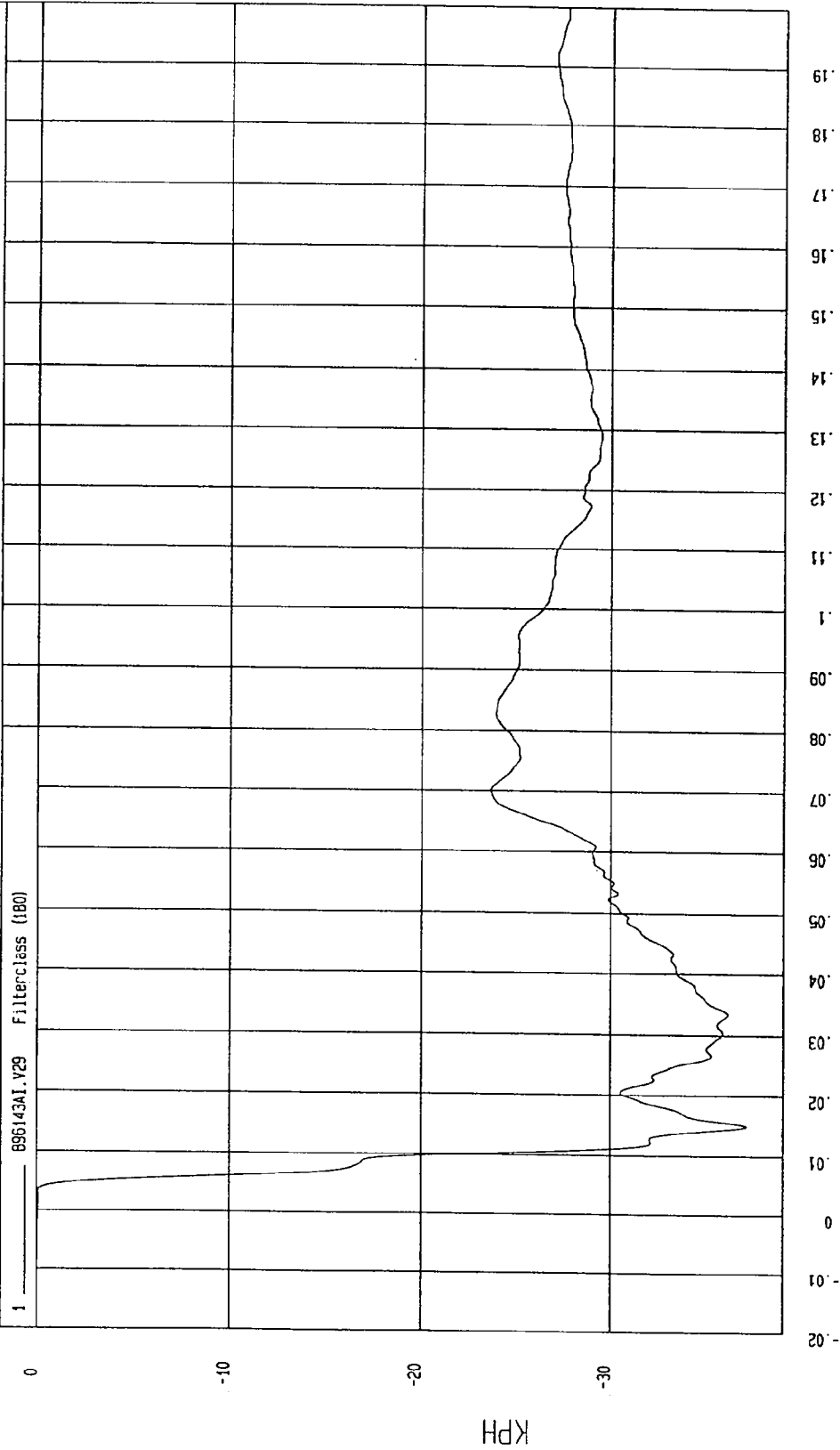
Speed: 32.83 MPH 52.8 KPH

Minimum = -37.07 KPH at 15 msec

Maximum = 2.30E-02 KPH at -14 msec

RIGHT MID B-POST Y VELOCITY

1 896143A1.V29 Filterclass (180)



WPA Research
12-30-1996 16:15

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

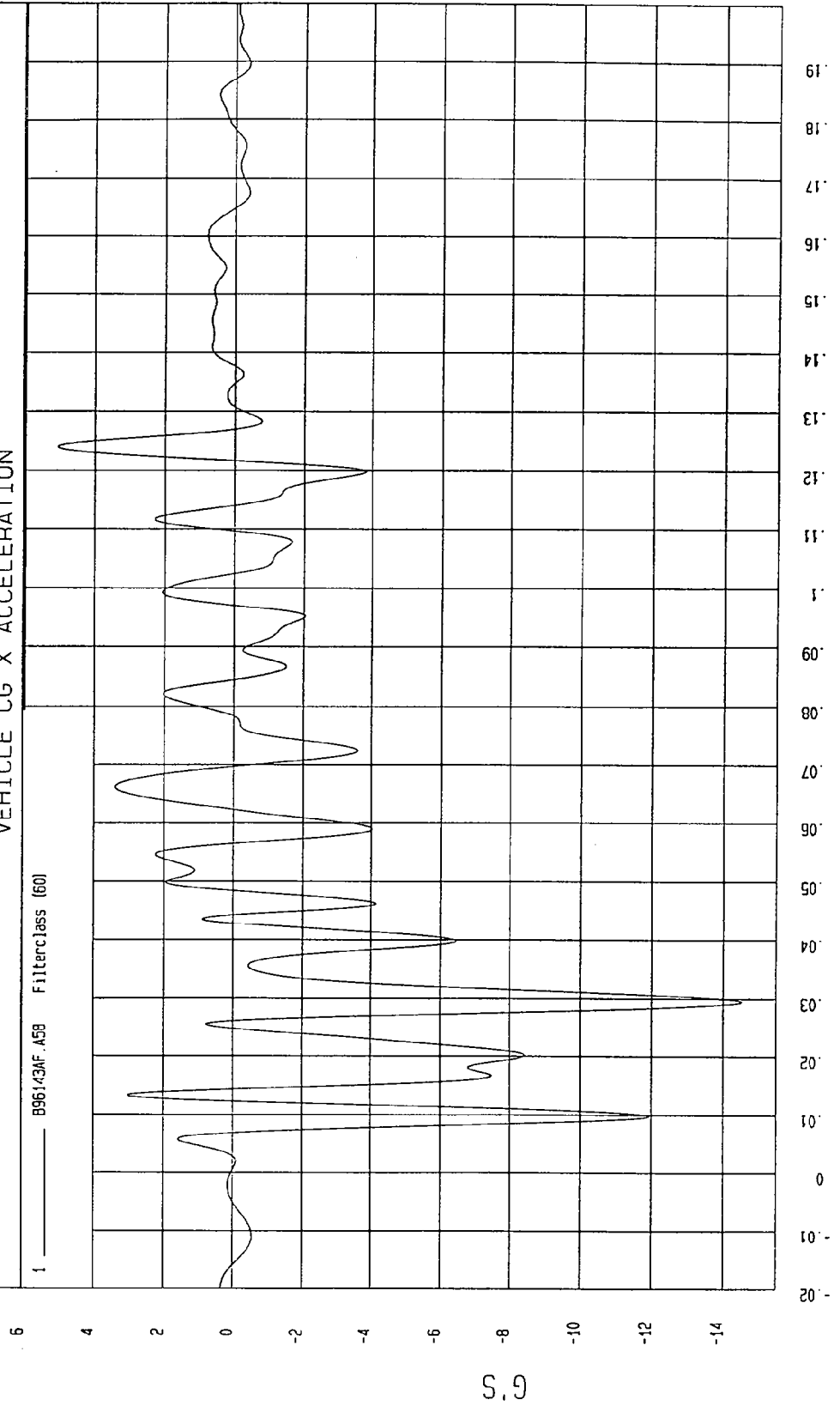
COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -14.50 G'S at 30 msec

Maximum = 5.07 G'S at 124 msec

VEHICLE CG X ACCELERATION



WCA Research
12-30-1996 16:20

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

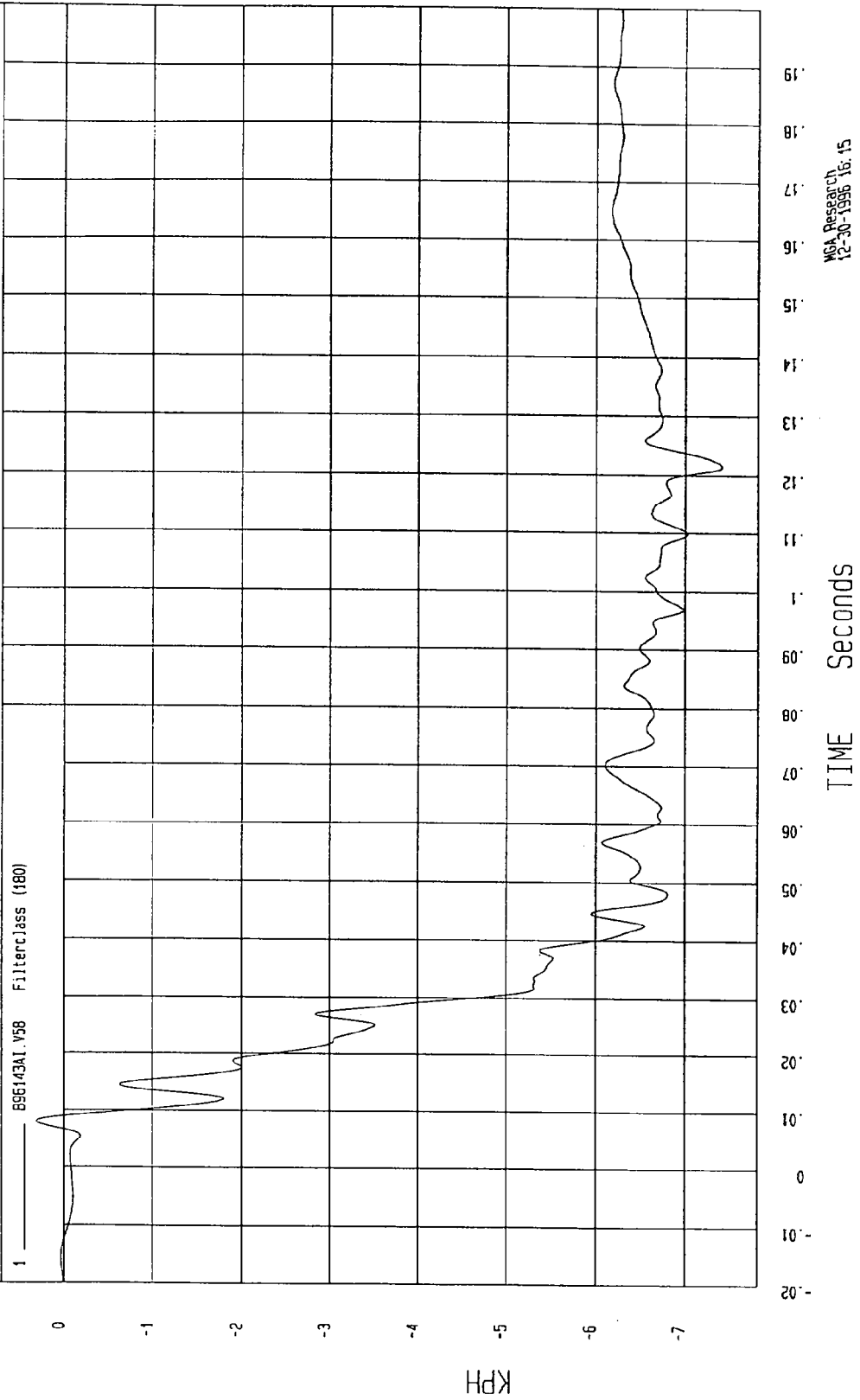
COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -7.40 KPH at 121 msec

Maximum = .30 KPH at 8 msec

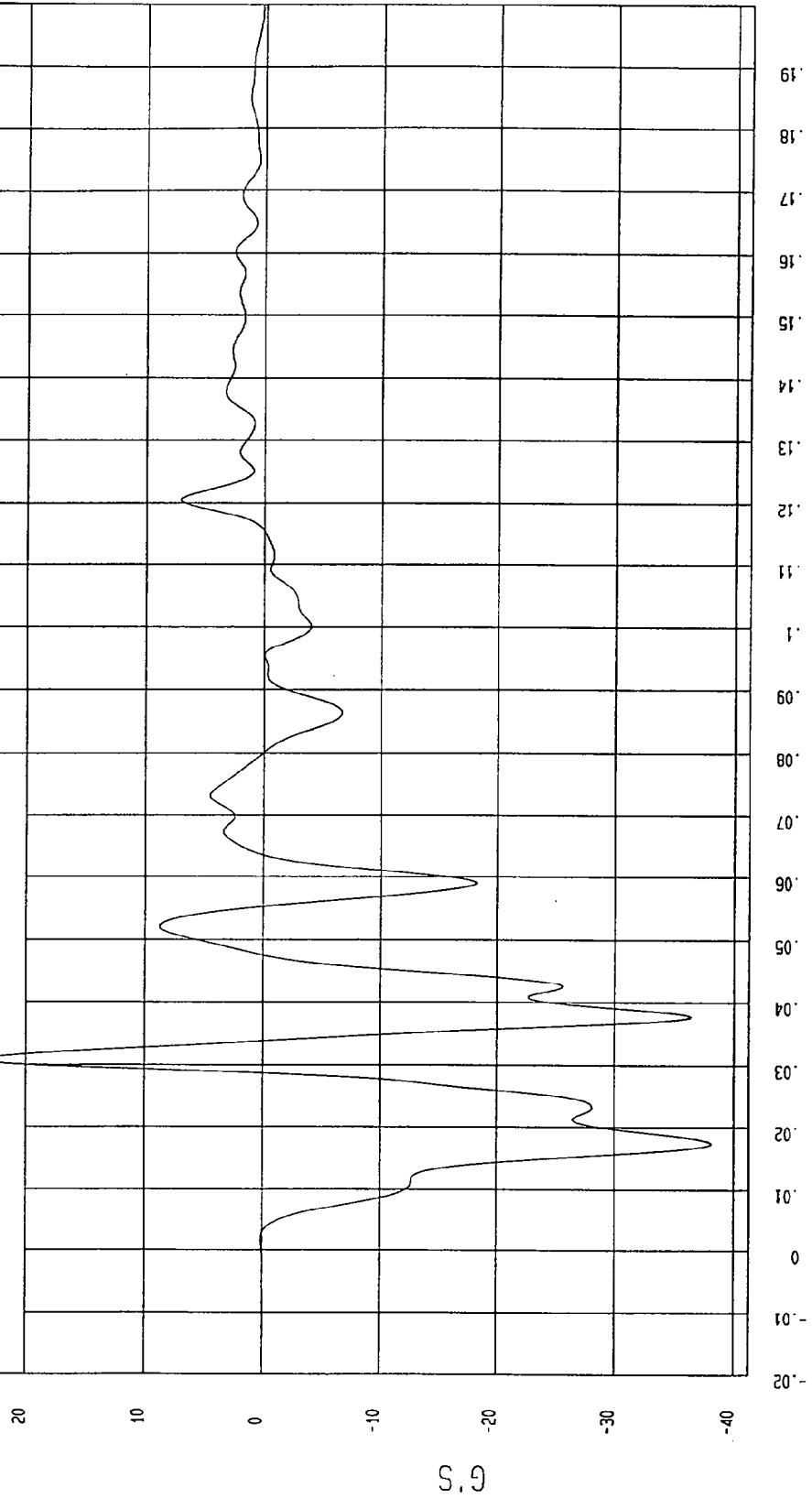
VEHICLE CG X VELOCITY



TEST: FMVSS 214 SIDE IMPACT	TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300)	Speed: 32.83 MPH 52.8 KPH
Minimum = -38.09 G'S at 17 msec	Maximum = 23.55 G'S at 31 msec

VEHICLE CG Y ACCELERATION

1 — 896143AF.A59 Filterclass (60)



MGA Research
12-30-1996 16:20

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

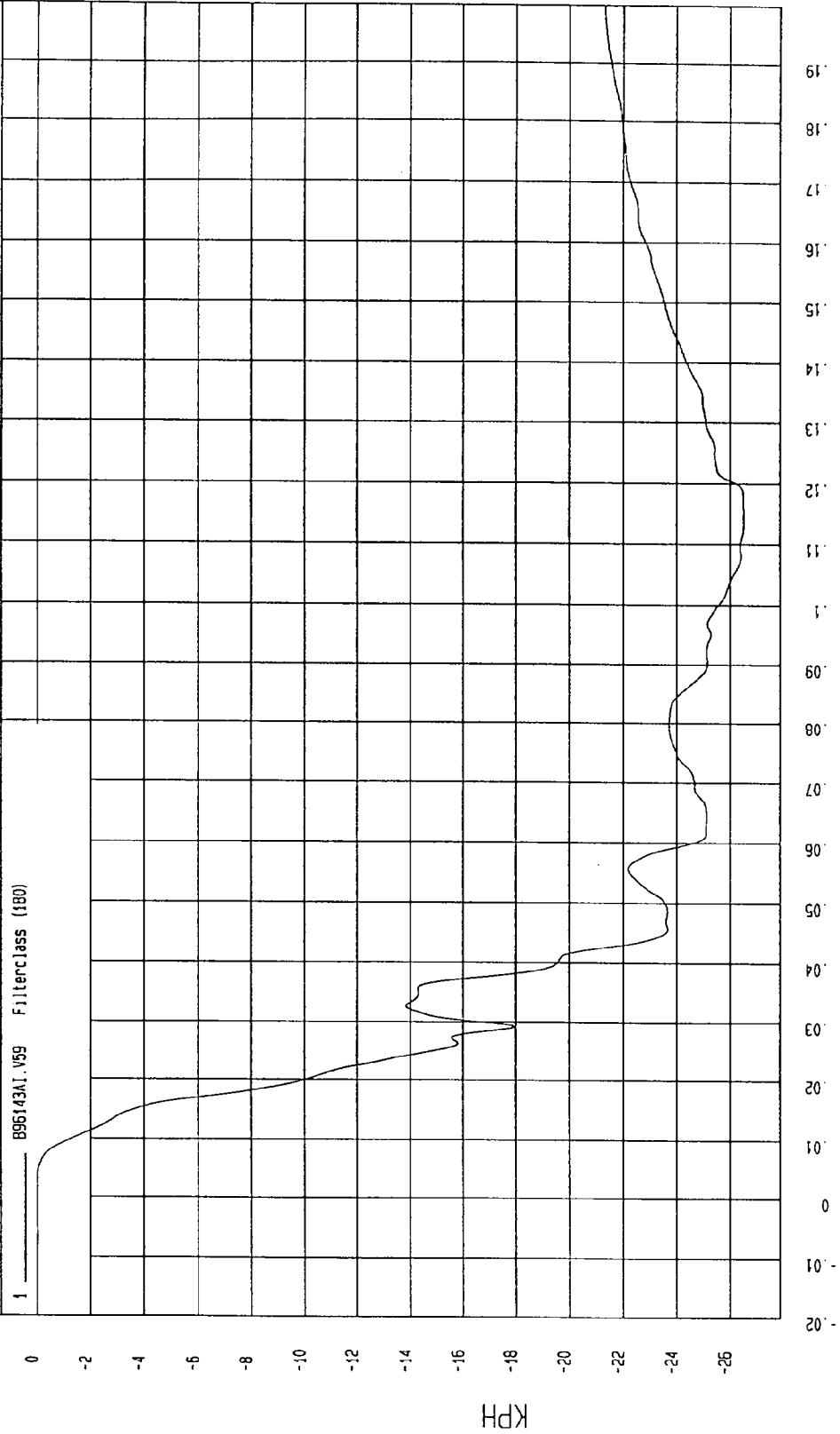
COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -25.51 KPH at 113 msec

Maximum = 2.04E-03 KPH at -15 msec

VEHICLE CG Y VELOCITY



MGA Research
12-30-1996 16:15

TIME Seconds

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

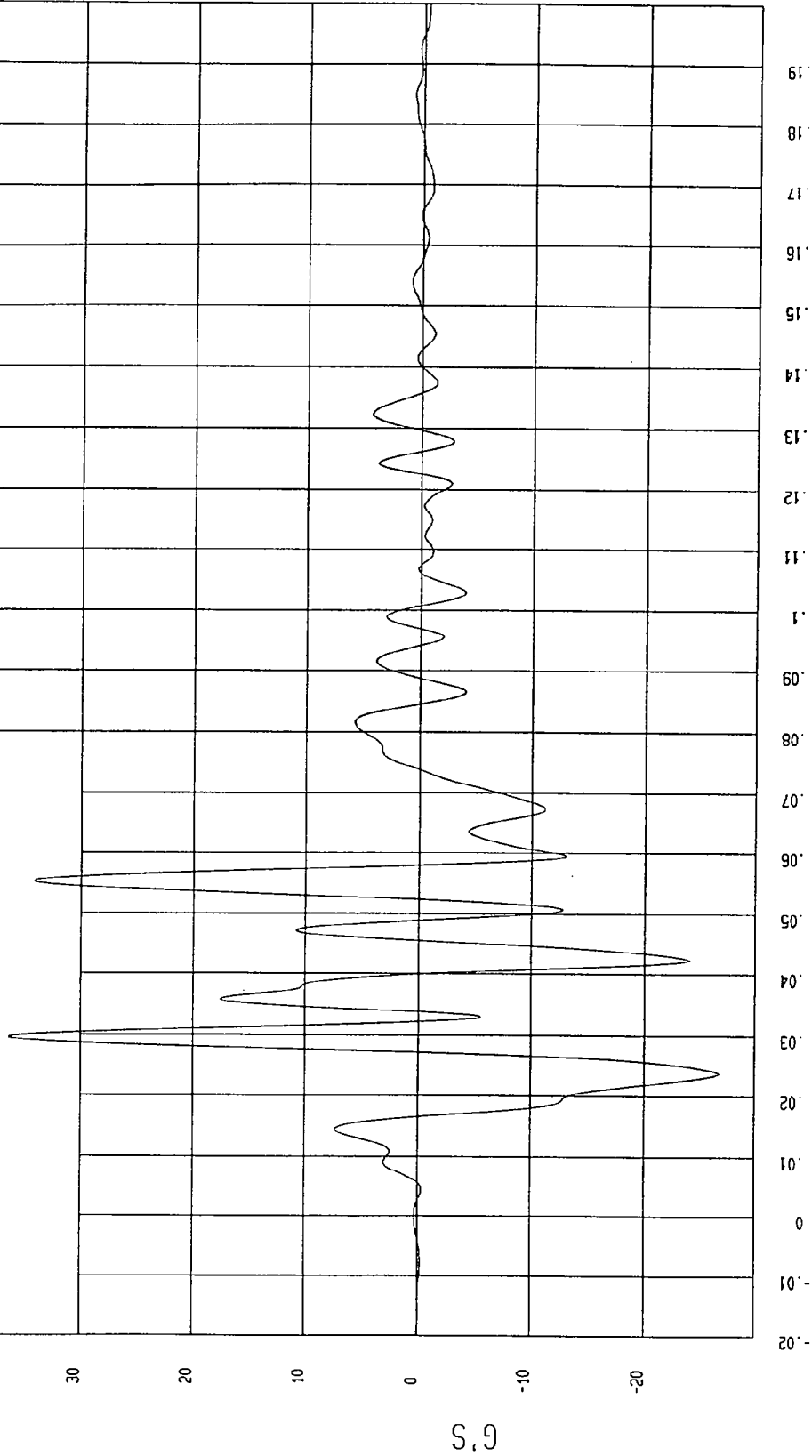
Speed: 32.83 MPH 52.8 KPH

Minimum = -26.40 G'S at 24 msec

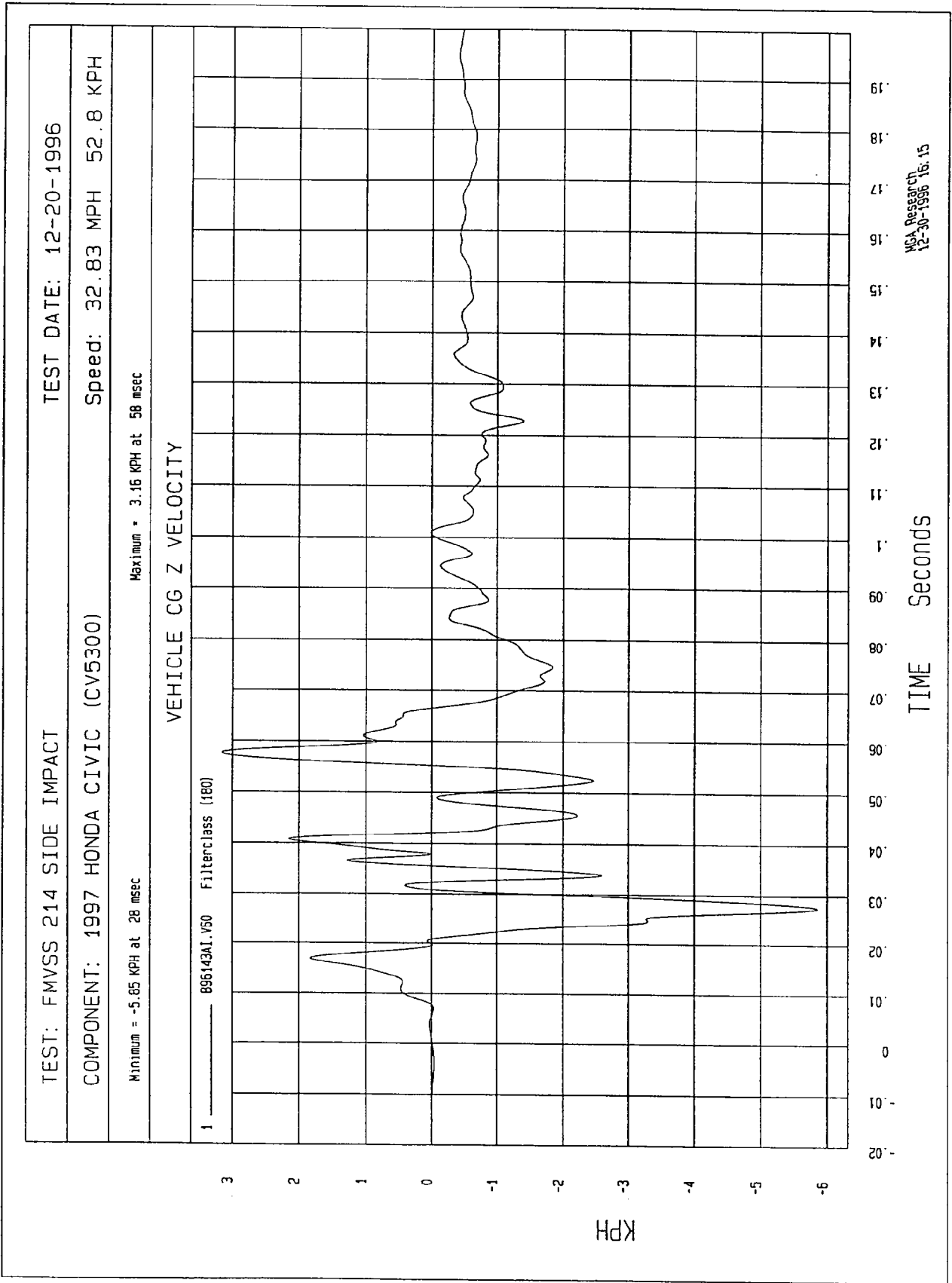
Maximum = 36.37 G'S at 30 msec

VEHICLE CG Z ACCELERATION

1 ——— B96143AF.A60 Filterclass (60)



HGA Research
12-30-1996 16:20



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

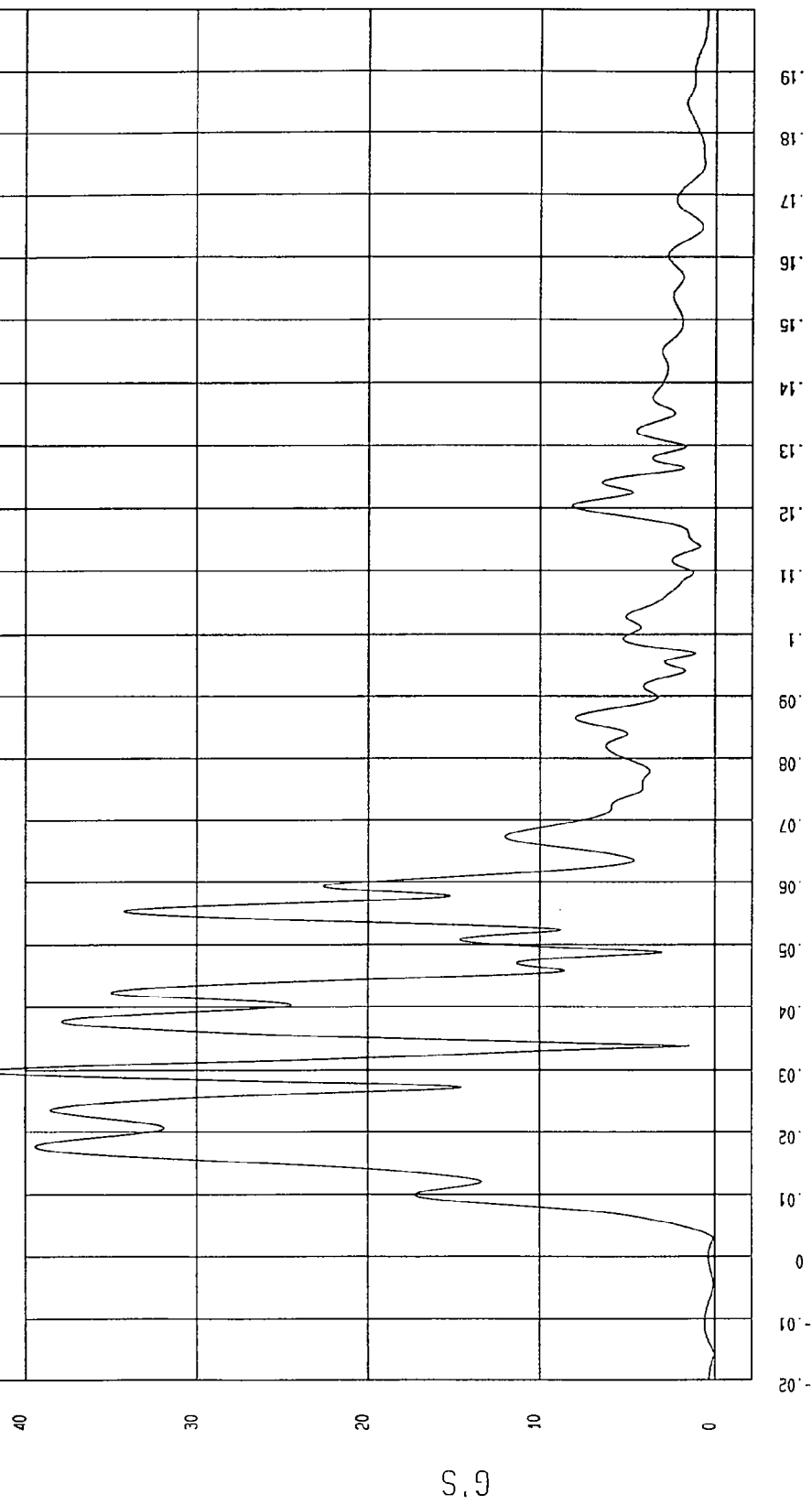
COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 42.30 G'S at 30 msec

Minimum = 9.00E-03 G'S at -16 msec

VEHICLE CG RESULTANT ACCELERATION

1 896143AV.A58 Filterclass (60)



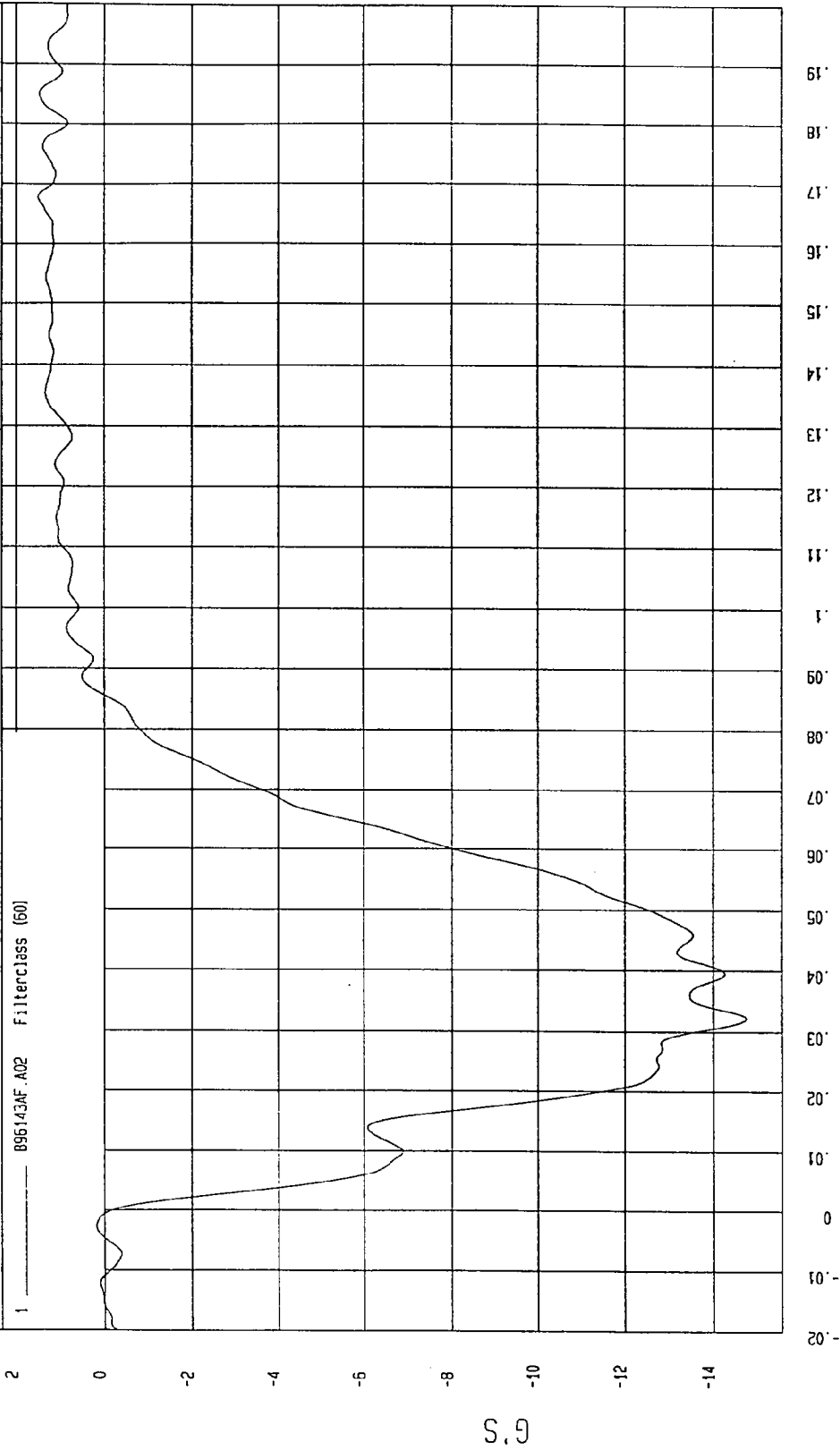
MCA Research
12-30-1996 16:21

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300)
Speed: 32.83 MPH 52.8 KPH

Minimum = -14.75 G'S at 32 msec
Maximum = 1.51 G'S at 168 msec

MOVING BARRIER CG X ACCELERATION

1 ——— B96143AF.A02 Filterclass (60)



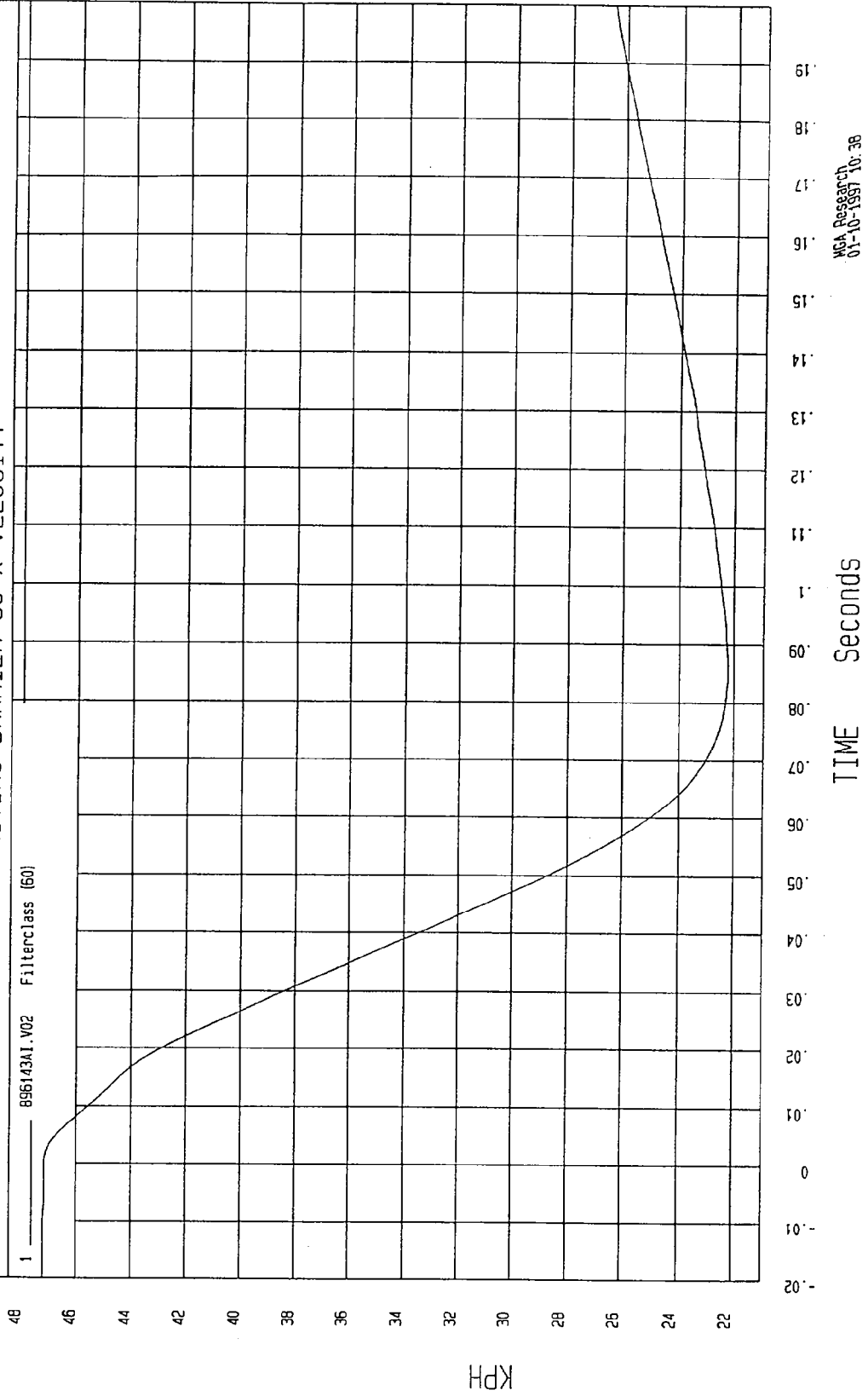
MGA Research
12-30-1996 16:20

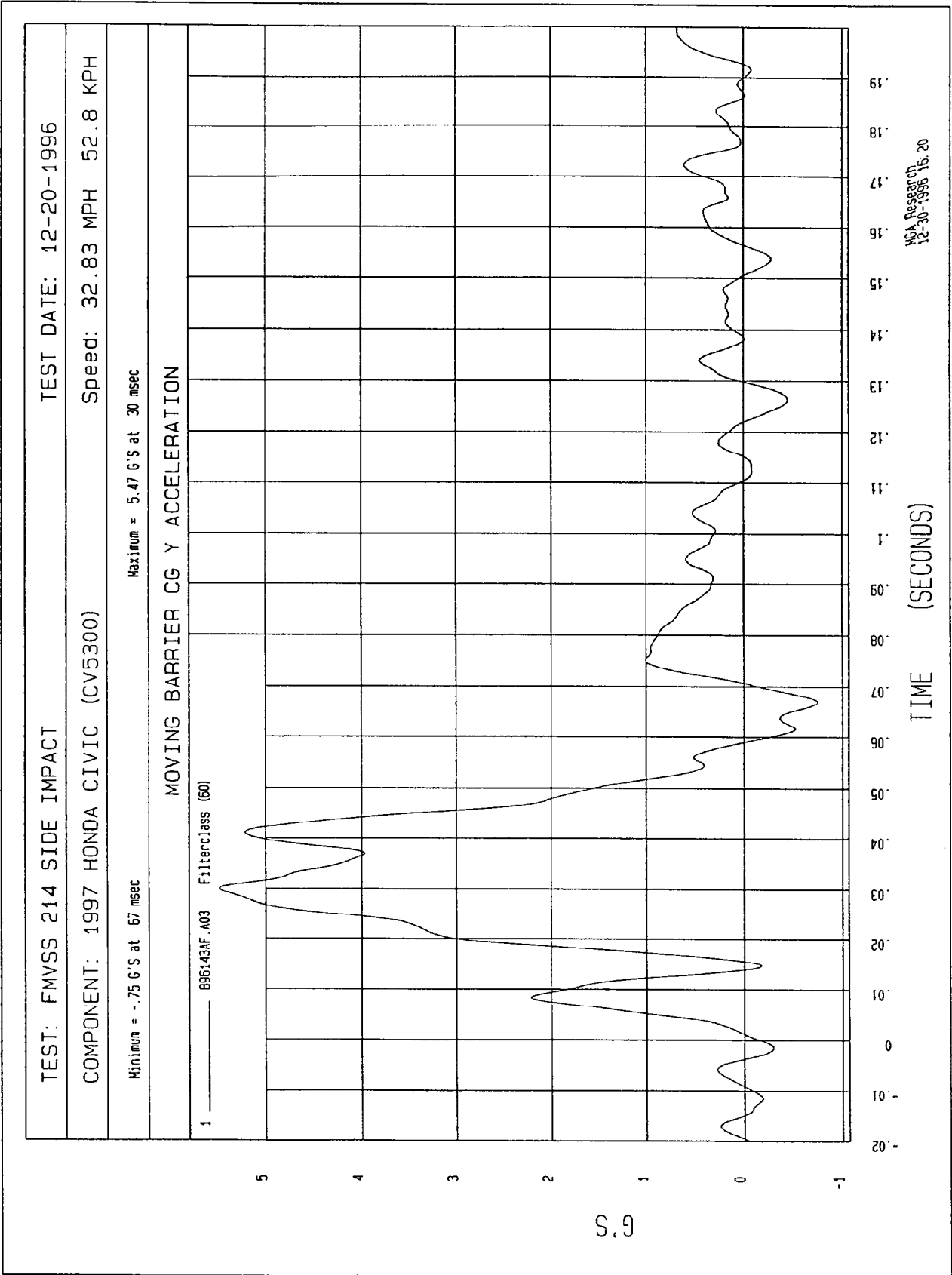
TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum : 22.20 KPH at 06 msec Maximum : 47.2 KPH at -20 msec

MOVING BARRIER CG X VELOCITY





TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

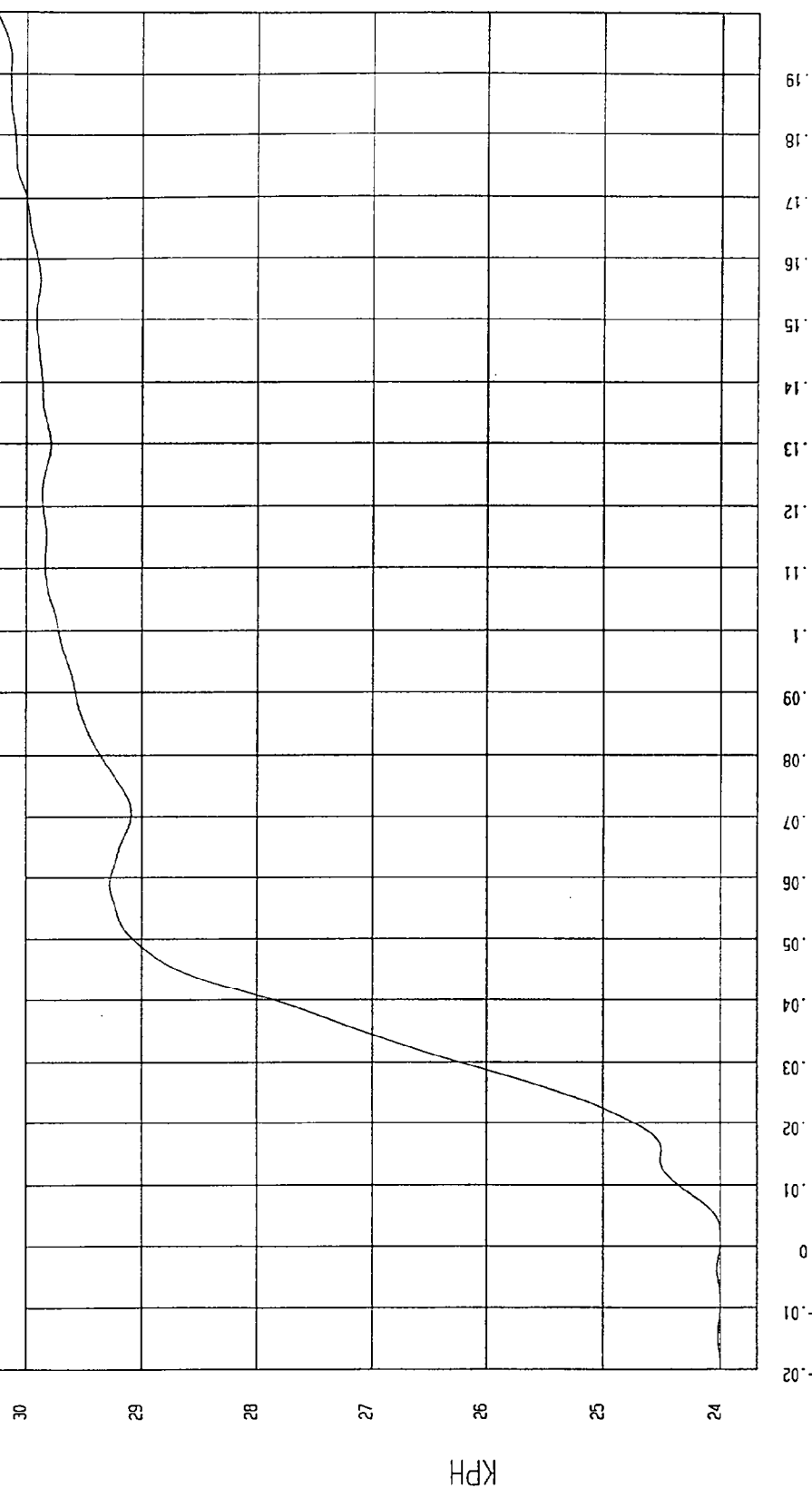
COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 30.25 KPH at 200 msec

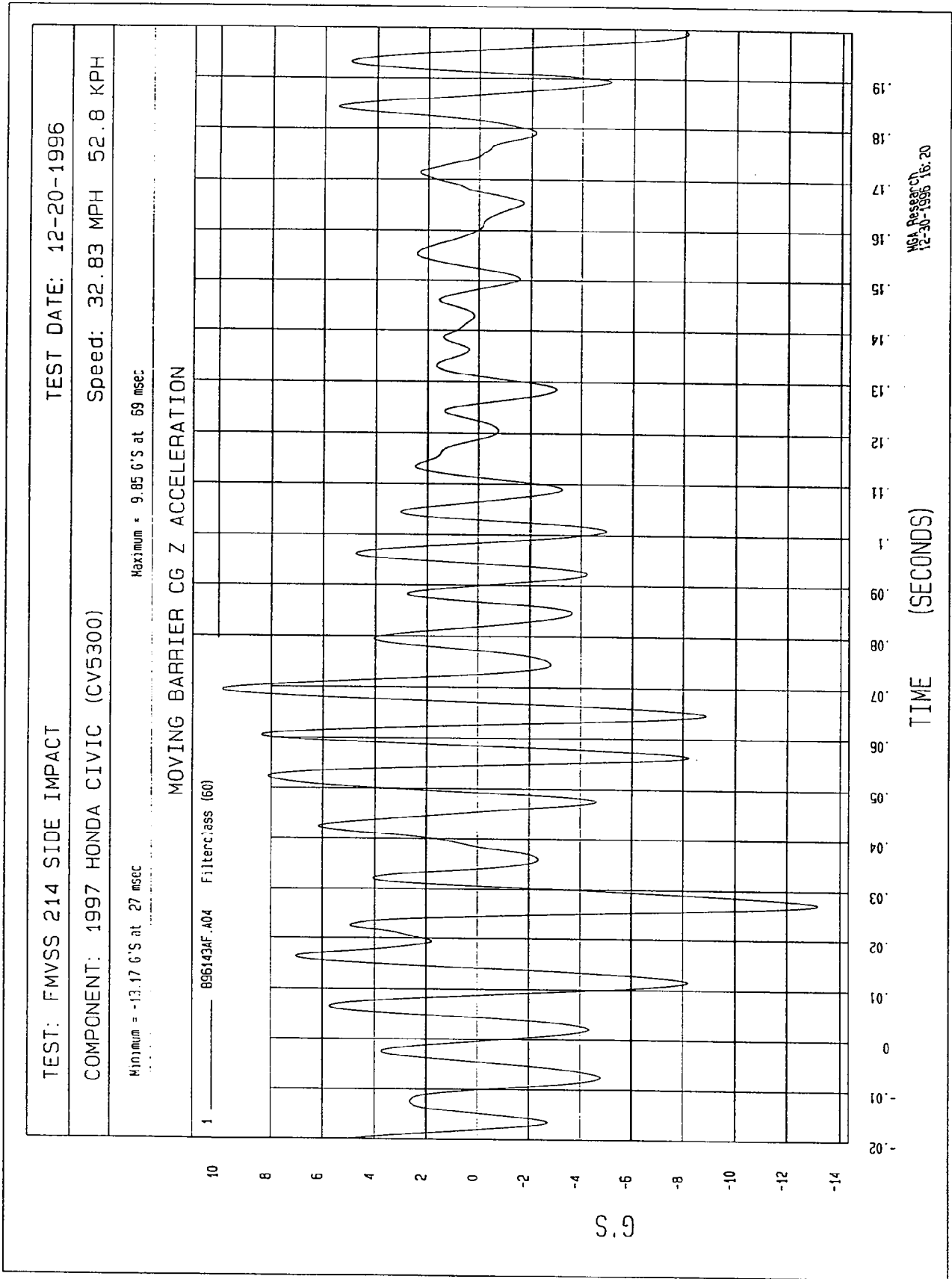
Minimum = 23.99 KPH at -20 msec

MOVING BARRIER CG Y VELOCITY

1 ——— B96143A1.V03 Filterclass (60)



MGA Research
01-10-1997 10:36



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

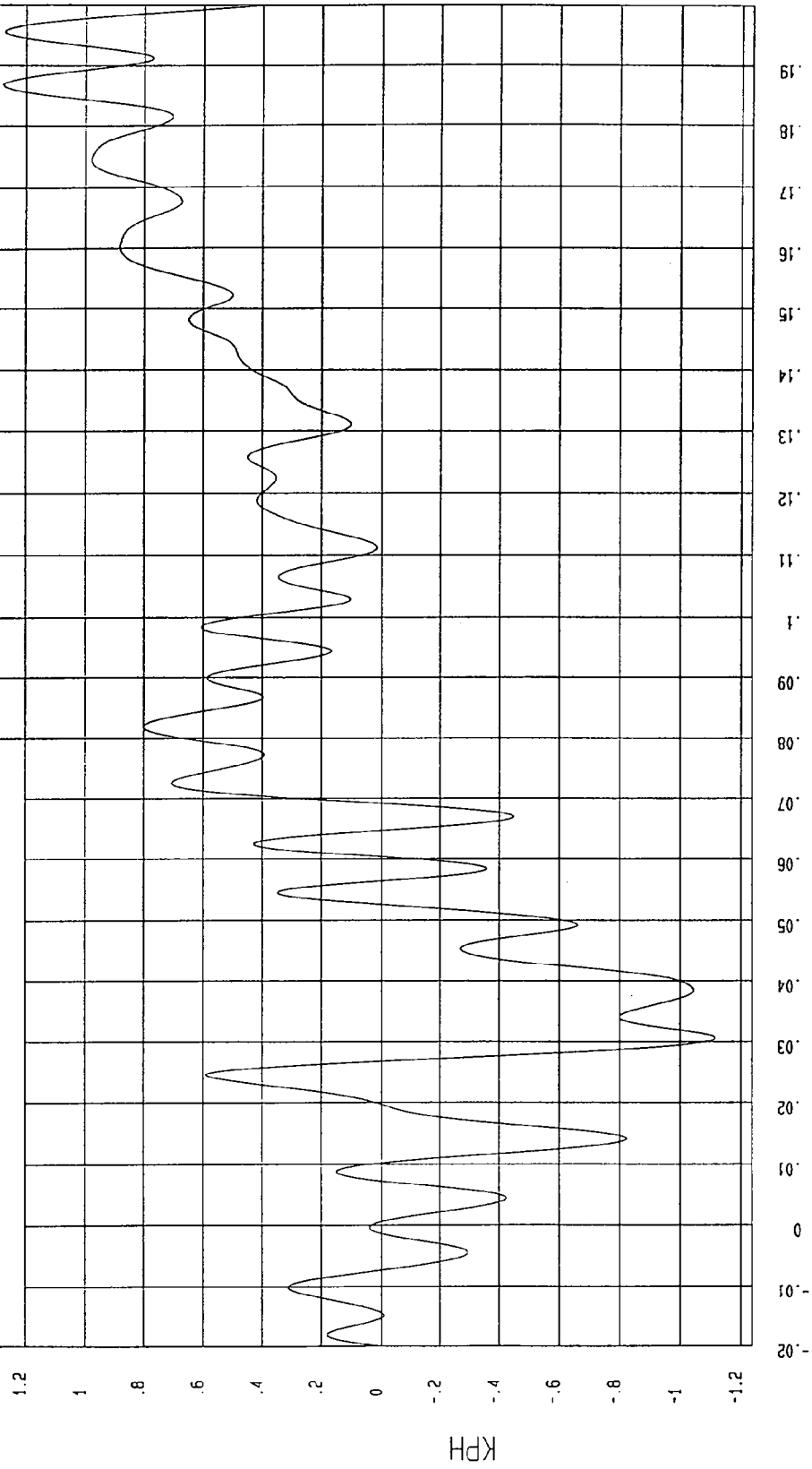
Speed: 32.83 MPH 52.8 KPH

Minimum = -1.11 KPH at 31 msec

Maximum = 1.27 KPH at 187 msec

MOVING BARRIER CG Z VELOCITY

1 — 896143A1.V04 FilterClass (60)



NCA Research
01-10-1997 10:38

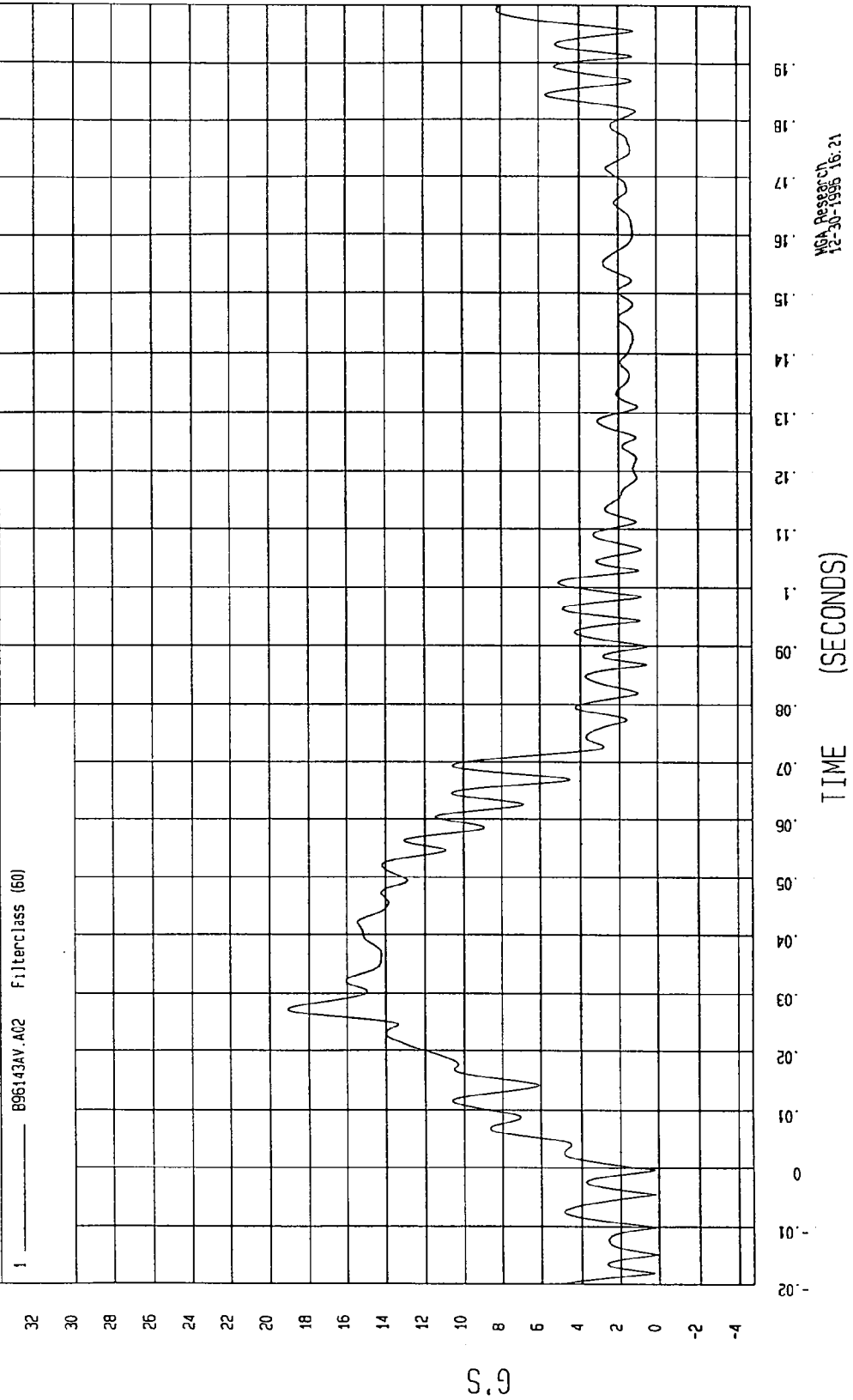
TIME Seconds

TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum = 3.45E-02 G'S at -15 msec Maximum = 19.09 G'S at 27 msec

MOVING BARRIER CG RESULTANT ACCELERATION



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

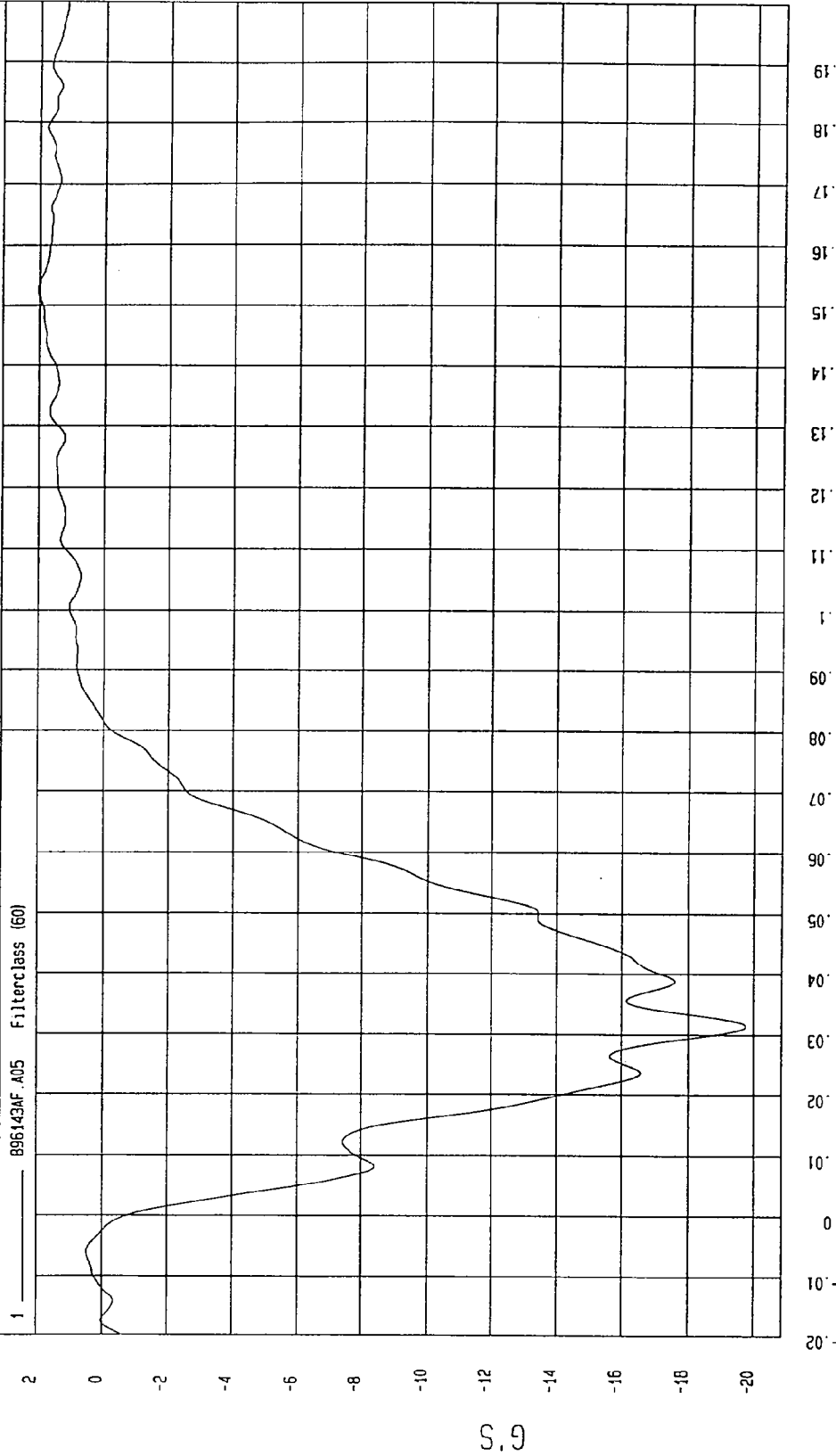
Speed: 32.83 MPH 52.8 KPH

Minimum = -19.75 G'S at 31 msec

Maximum = 2.03 G'S at 152 msec

MOVING BARRIER REAR AXLE X ACCELERATION

1 — 896143AF.A05 Filterclass (60)



MSA Research
12-20-1996 16:20

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

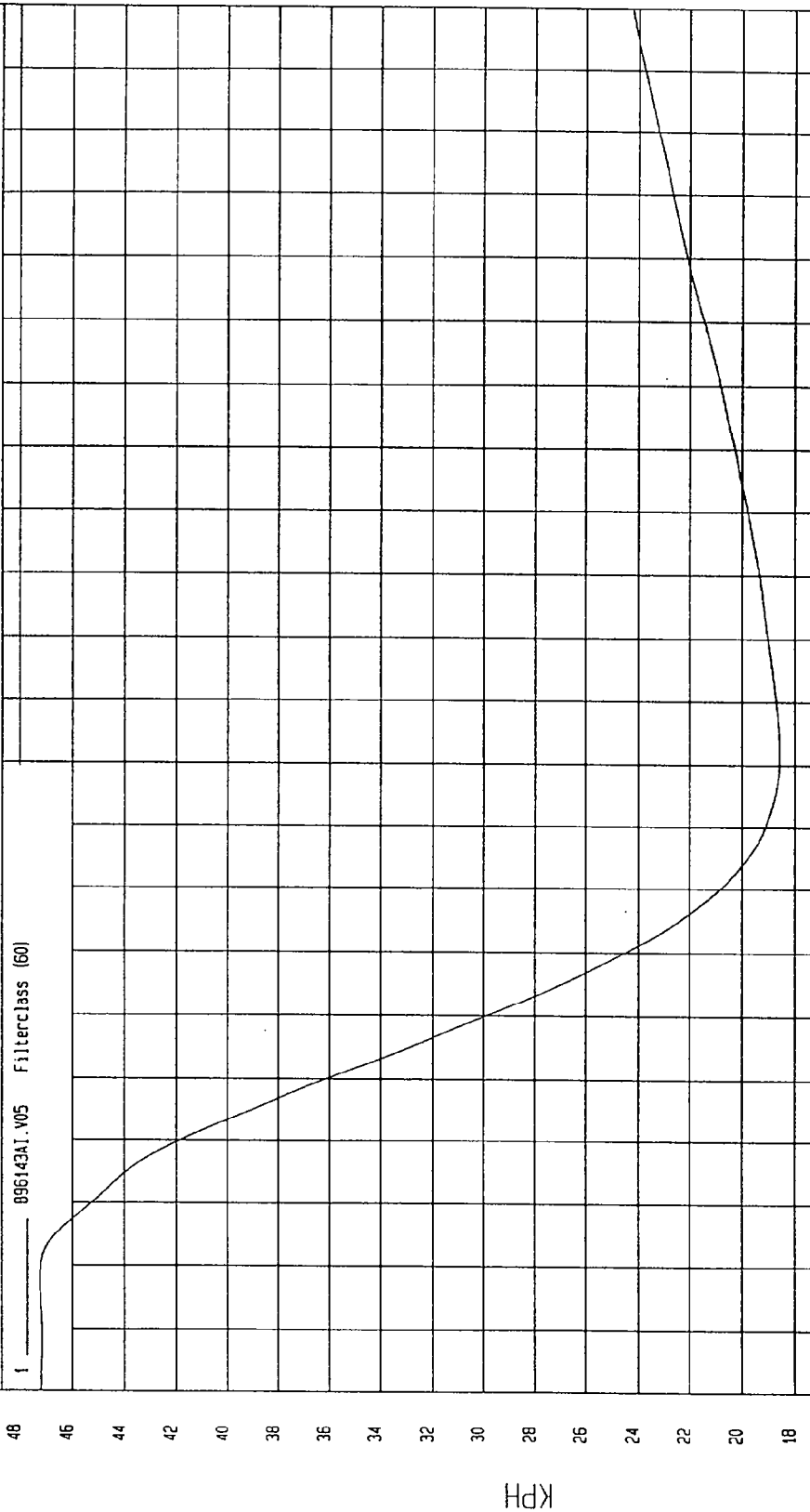
COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 47.24 KPH at -3 msec

Minimum = 18.56 KPH at 82 msec

MOVING BARRIER REAR AXLE X VELOCITY

1 096143A1.V05 Filterclass (60)



61

81

11

16

15

14

13

12

11

1

09

08

07

06

05

04

03

02

01

0

-01

-02

NCA Research
01-10-1997 10:40

TIME Seconds

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

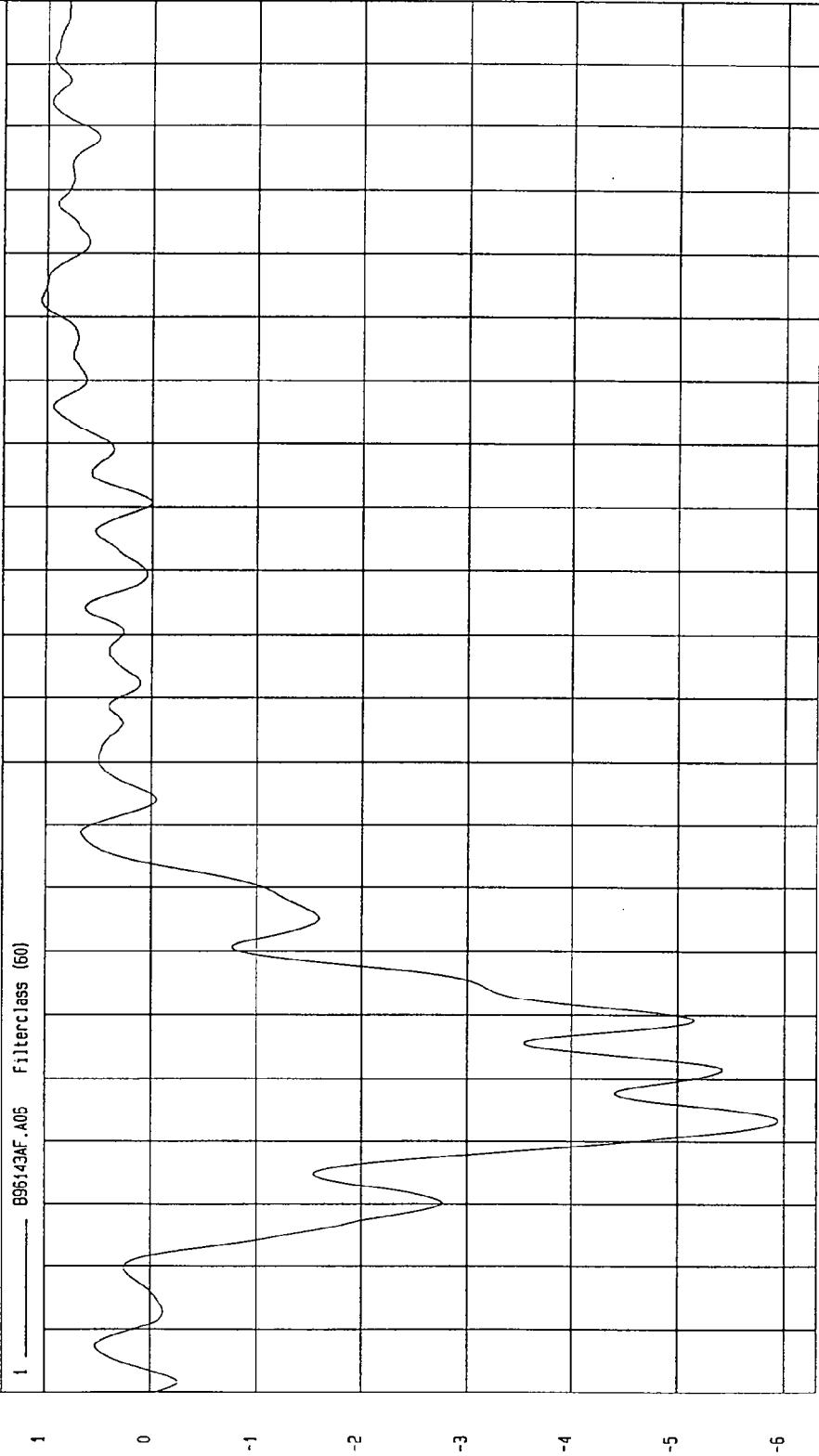
Speed: 32.83 MPH 52.8 KPH

Minimum = -5.94 G'S at 23 msec

Maximum = 1.05 G'S at 153 msec

MOVING BARRIER REAR AXLE Y ACCELERATION

1 ——— B96143AF.A05 Filterclass (60)



MGA Research
12-30-1996 16:20

TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

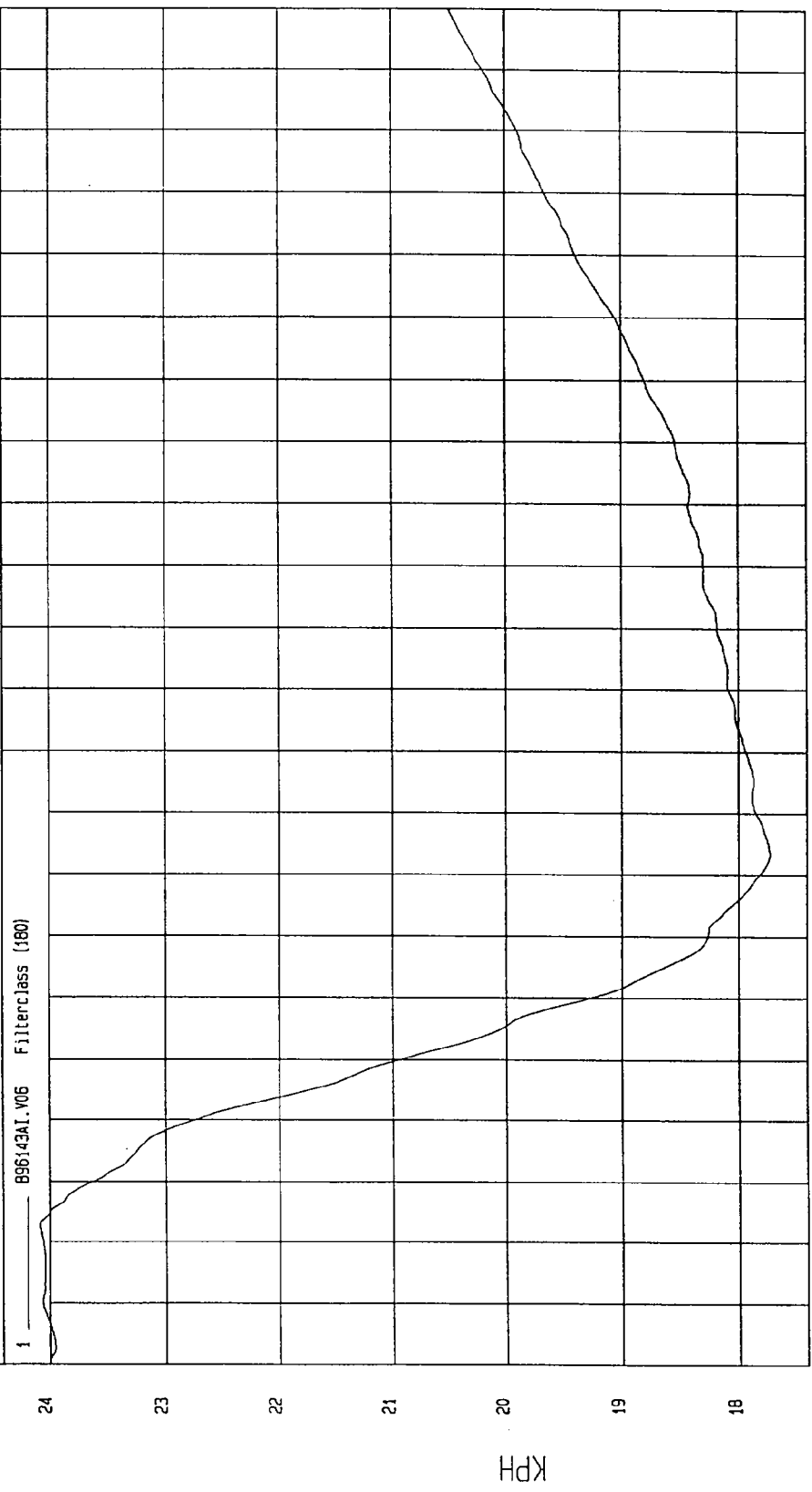
SPEED: 32.83 MPH 52.8 KPH

COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 24.08 KPH at 3 msec

Minimum = 17.73 KPH at 63 msec

MOVING BARRIER REAR AXLE Y VELOCITY

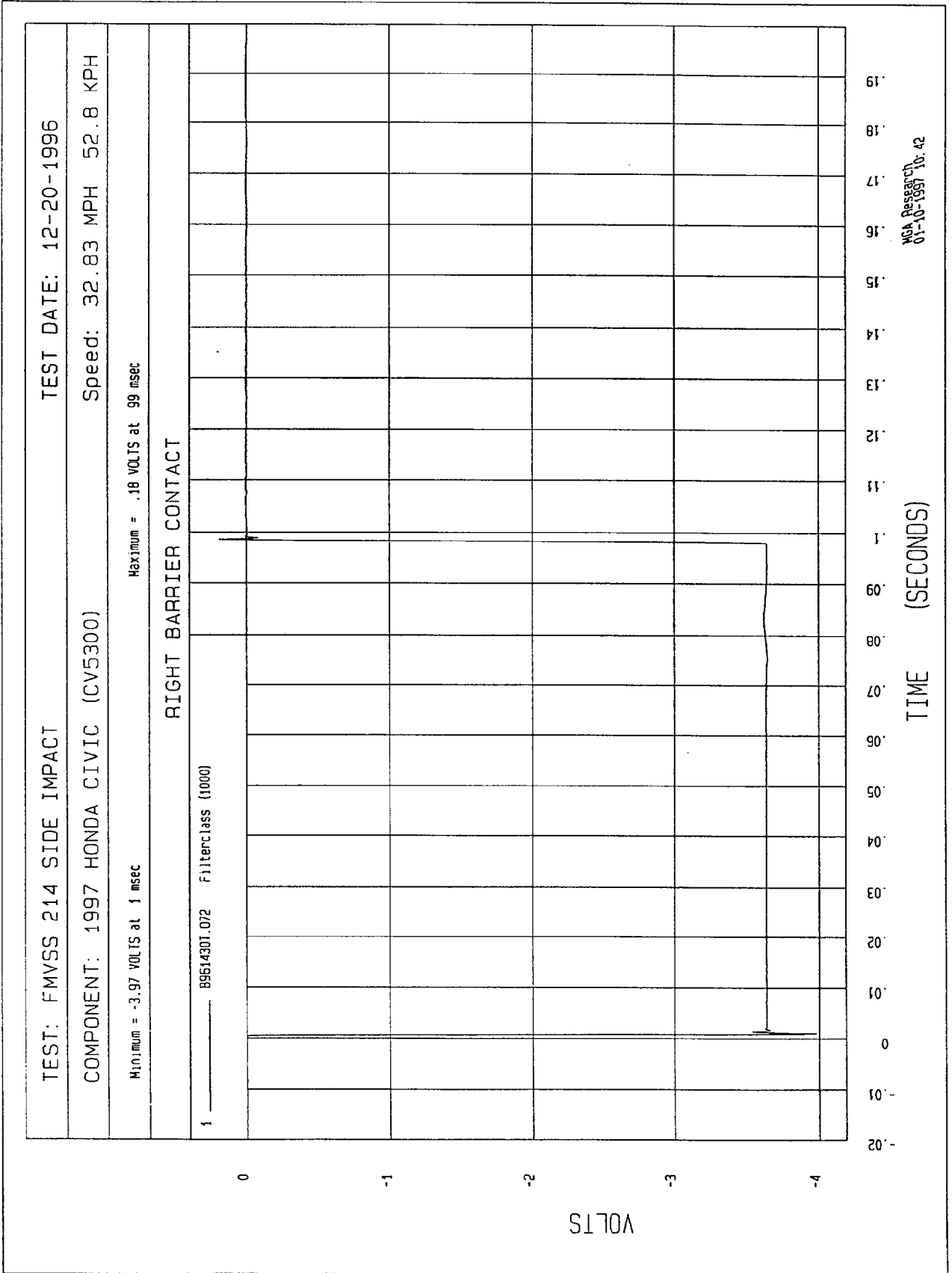


MECA Research
01-13-1997 07:04

TIME Seconds

LEFT BARRIER CONTACT

NO VALID DATA COLLECTED



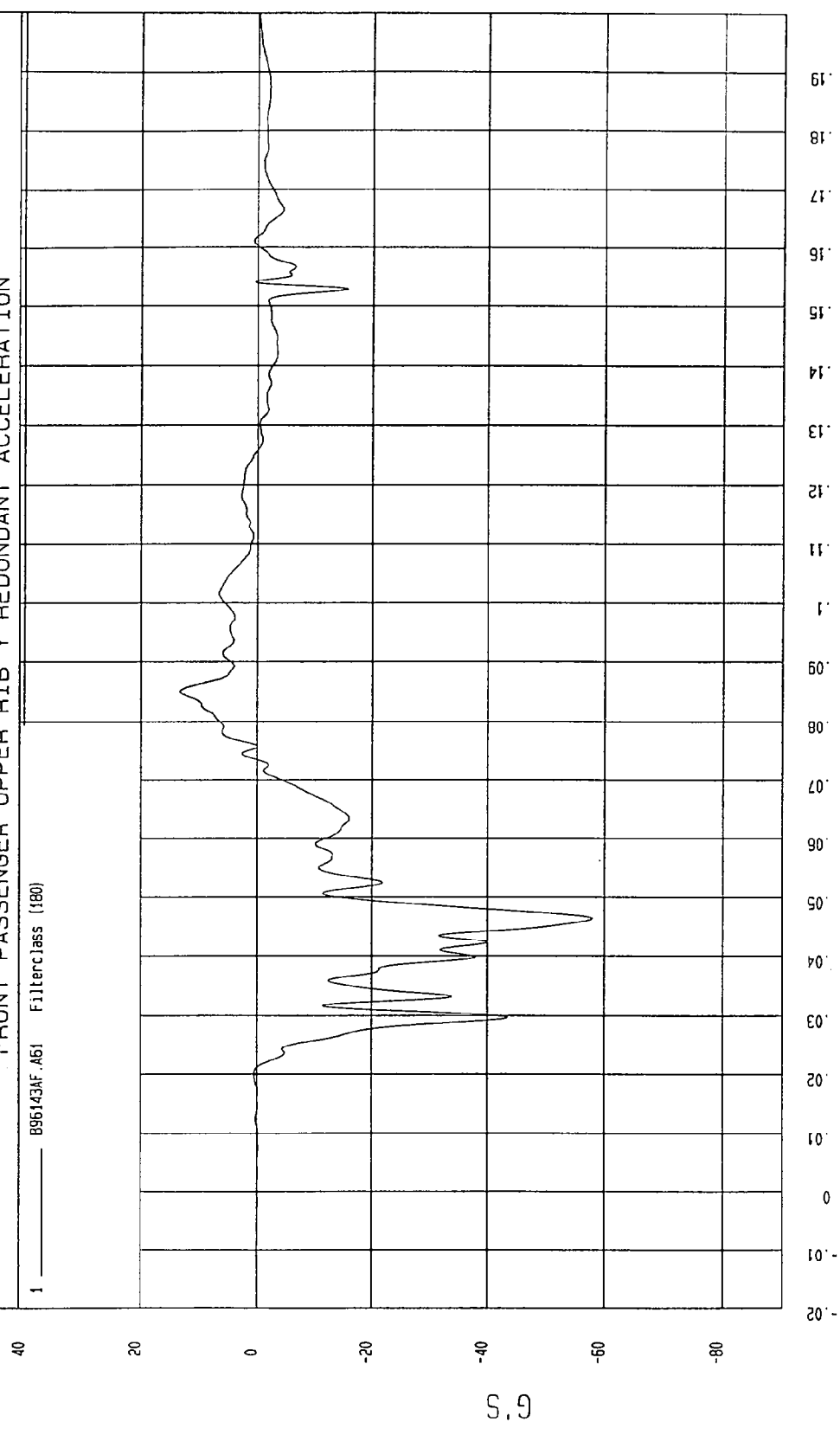
TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH

Minimum = -57.97 G'S at 46 msec Maximum = 13.35 G'S at 85 msec

FRONT PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 ——— B96143AF A61 Filterclass (180)



WEA Research
12-30-1996 16:22

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

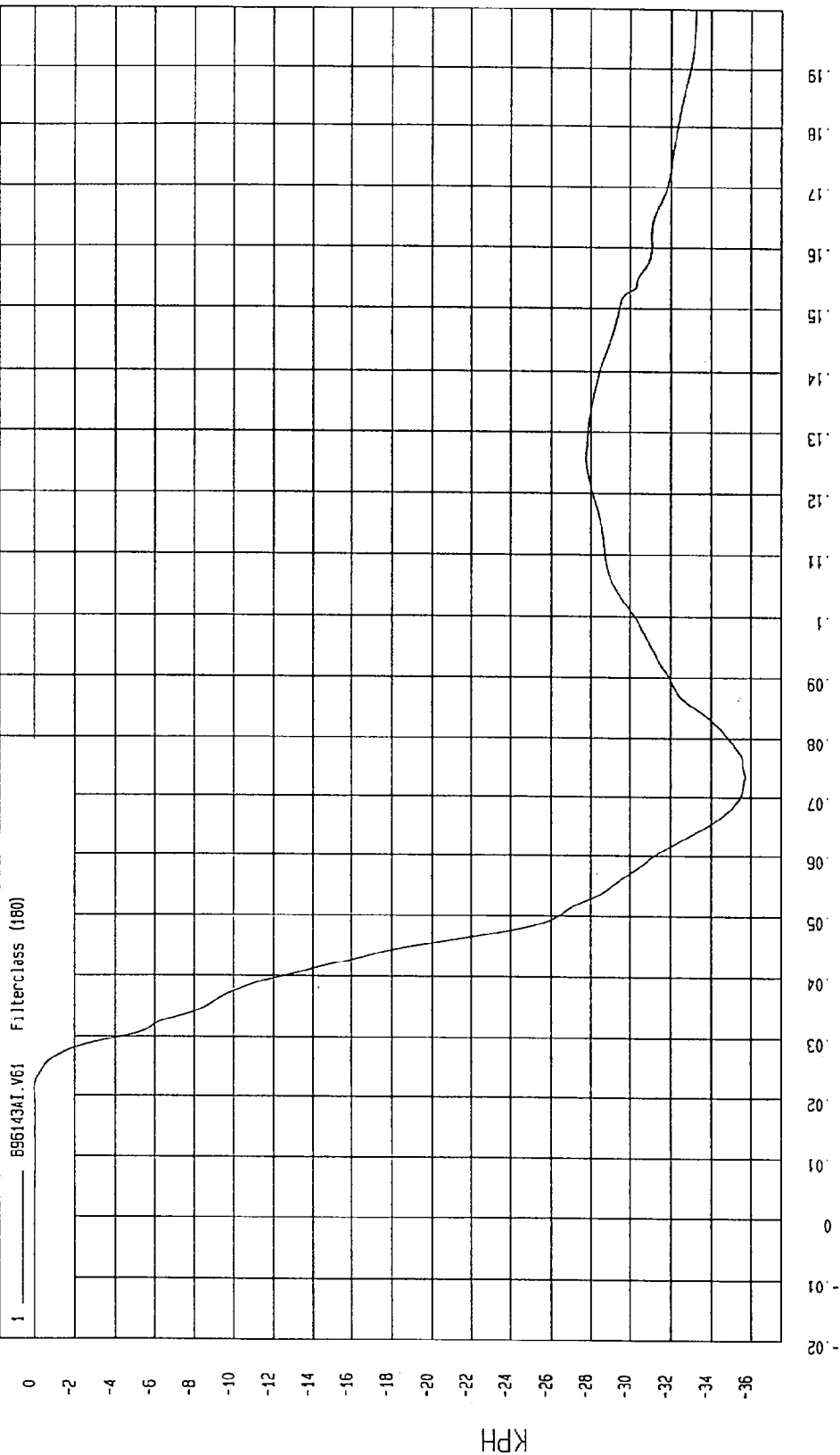
Speed: 32.83 MPH 52.8 KPH

COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 7.72E-04 KPH at -19 msec

Minimum = -35.71 KPH at 73 msec

FRONT PASSENGER UPPER RIB Y REDUNDANT VELOCITY



MGA Research
12-30-1996 16:15

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

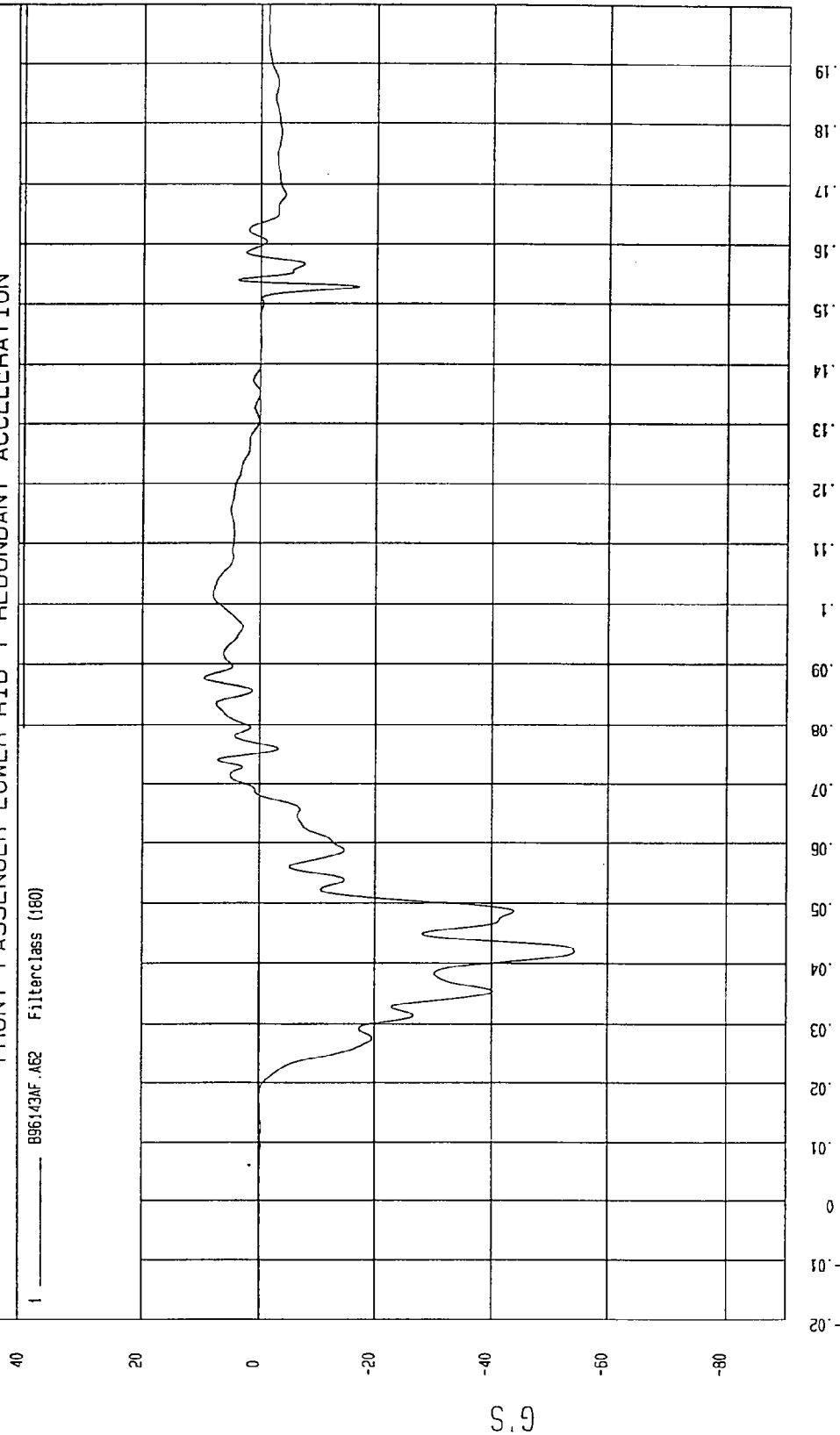
Speed: 32.83 MPH 52.8 KPH

Minimum = -54.33 G'S at 42 msec

Maximum = 9.62 G'S at 88 msec

FRONT PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

1 B96143AF.AB2 Filterclass (180)



MGA Research
12-30-1996 16:22

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

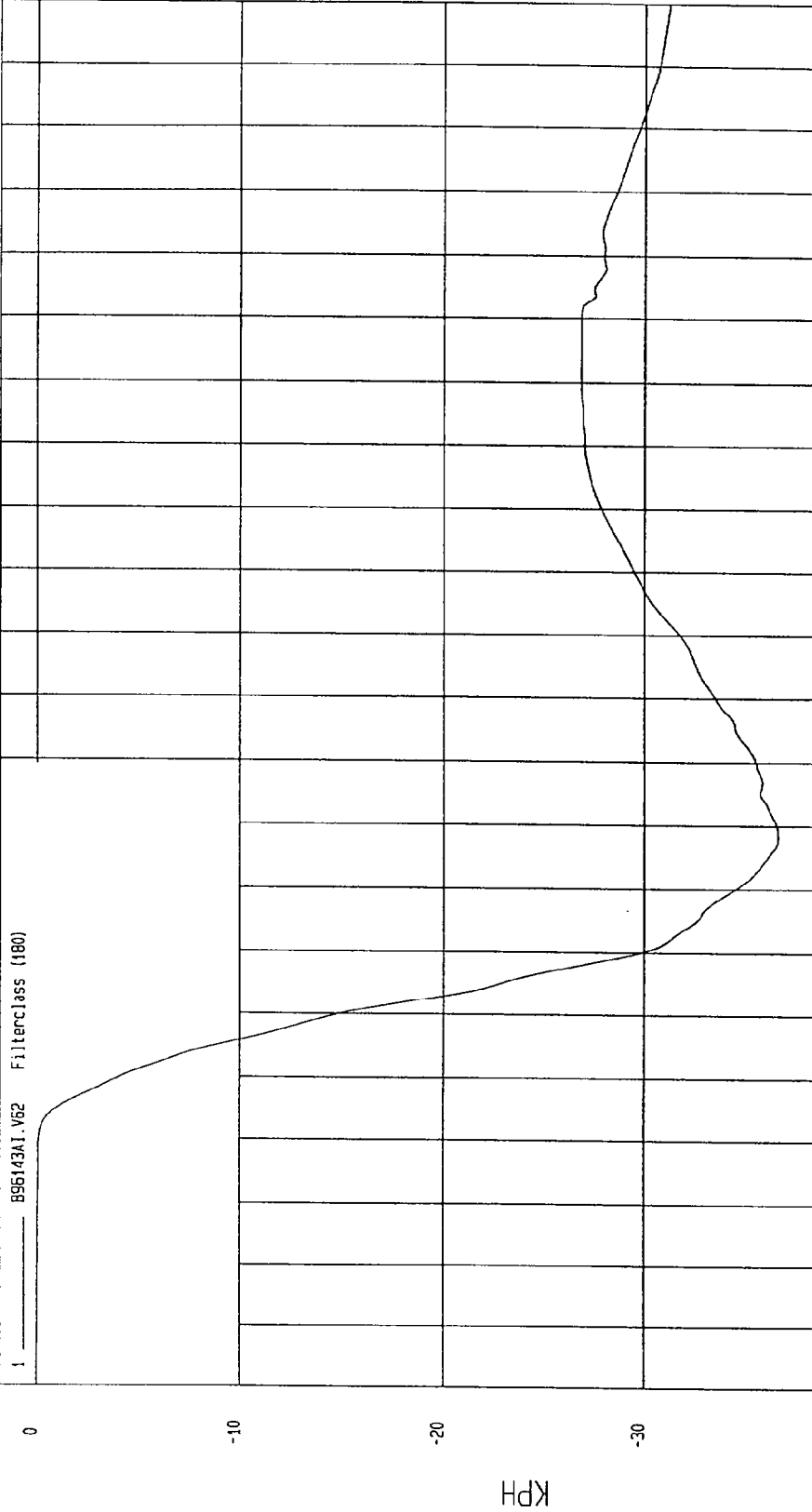
Speed: 32.83 MPH 52.8 KPH

Minimum = -36.47 KPH at 68 msec

Maximum = 0 KPH at -20 msec

FRONT PASSENGER LOWER RIB Y REDUNDANT VELOCITY

1 — B95143A1.V62 Filterclass (180)



TIME Seconds
NSI Research
12-30-1996 16:16

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -57.23 G'S at 36 msec

Maximum = 11.45 G'S at 75 msec

FRONT PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 895143AF.A63 Filterclass (180)

40

20

0

-20

-40

-60

-80

G.S

TIME (SECONDS)

MCA Research
12-30-1996 16:23

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 0 KPH at -20 msec

Minimum = -38.97 KPH at 66 msec

FRONT PASSENGER LOWER SPINE Y REDUNDANT VELOCITY

1 ——— B96143A1.V63 Filterclass (180)

0

-10

-20

-30

-40

KPH

19

18

17

16

15

14

13

12

11

10

09

08

07

06

05

04

03

02

01

0

-01

-02

NSA Research
12-30-1996 16:17

TIME Seconds

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

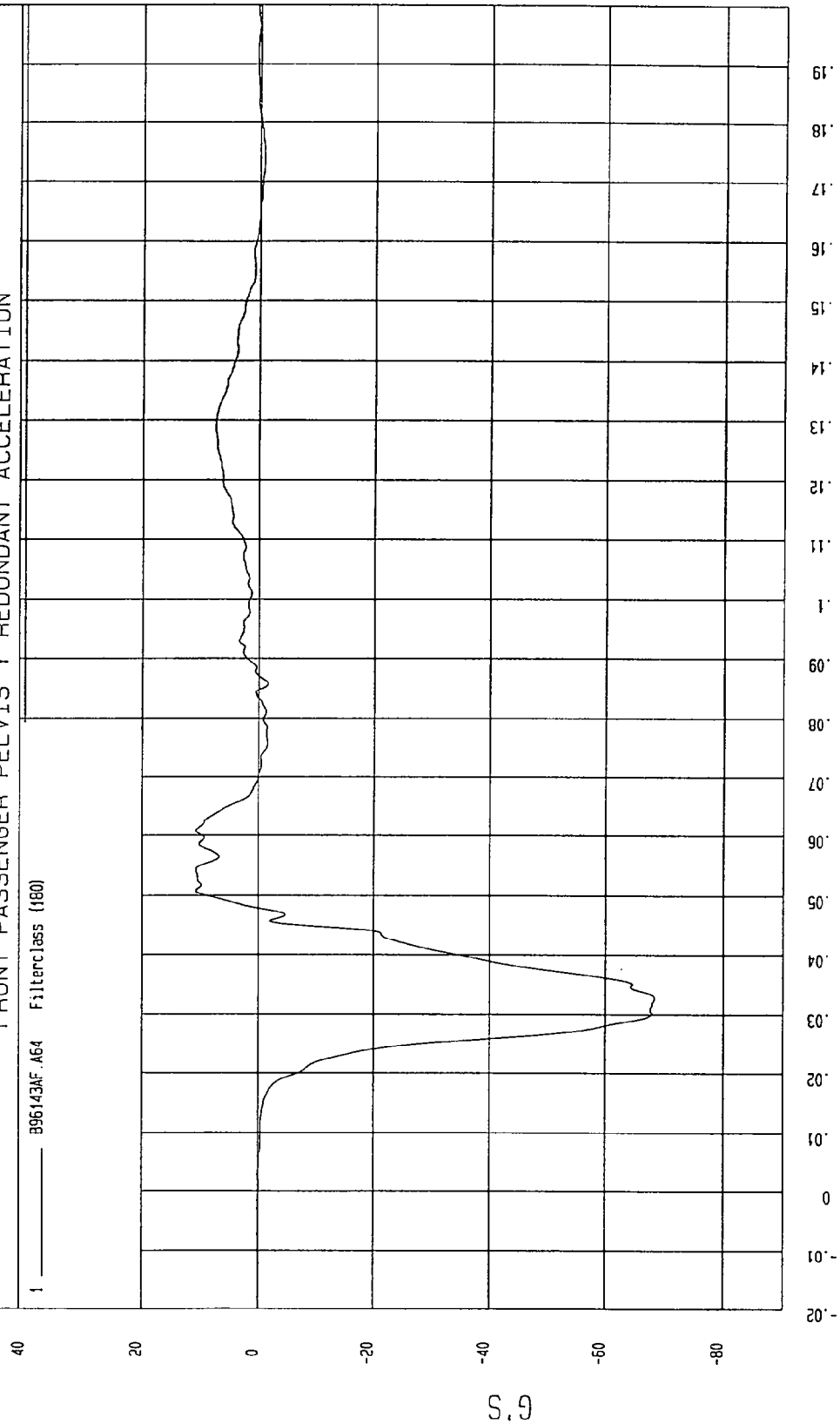
Speed: 32.83 MPH 52.8 KPH

Minimum = -60.33 G'S at 33 msec

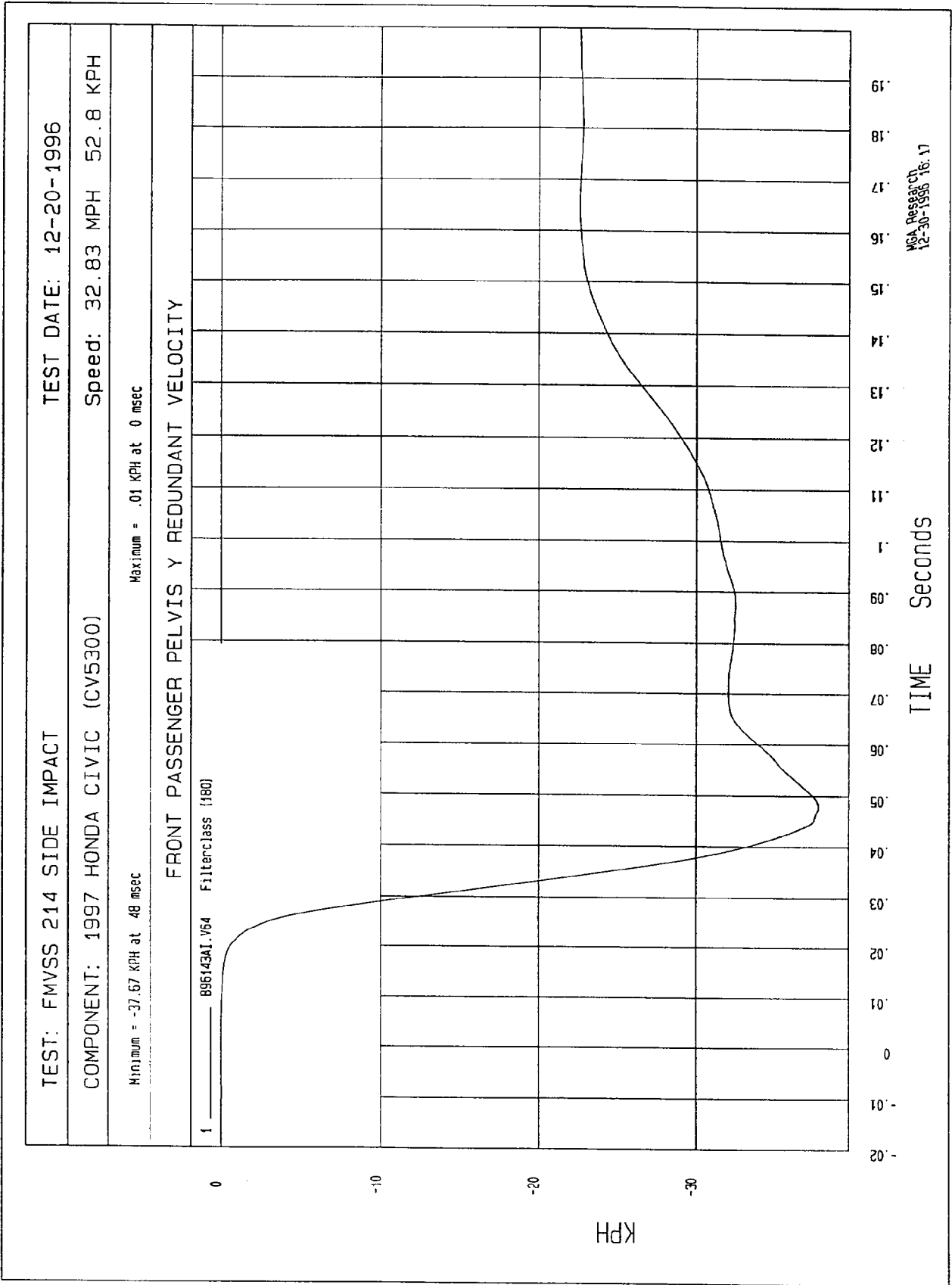
Maximum = 10.88 G'S at 61 msec

FRONT PASSENGER PELVIS Y REDUNDANT ACCELERATION

1 ——— B96143AF A64 Filterclass (180)



MGA Research
12-30-1996 16:23



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

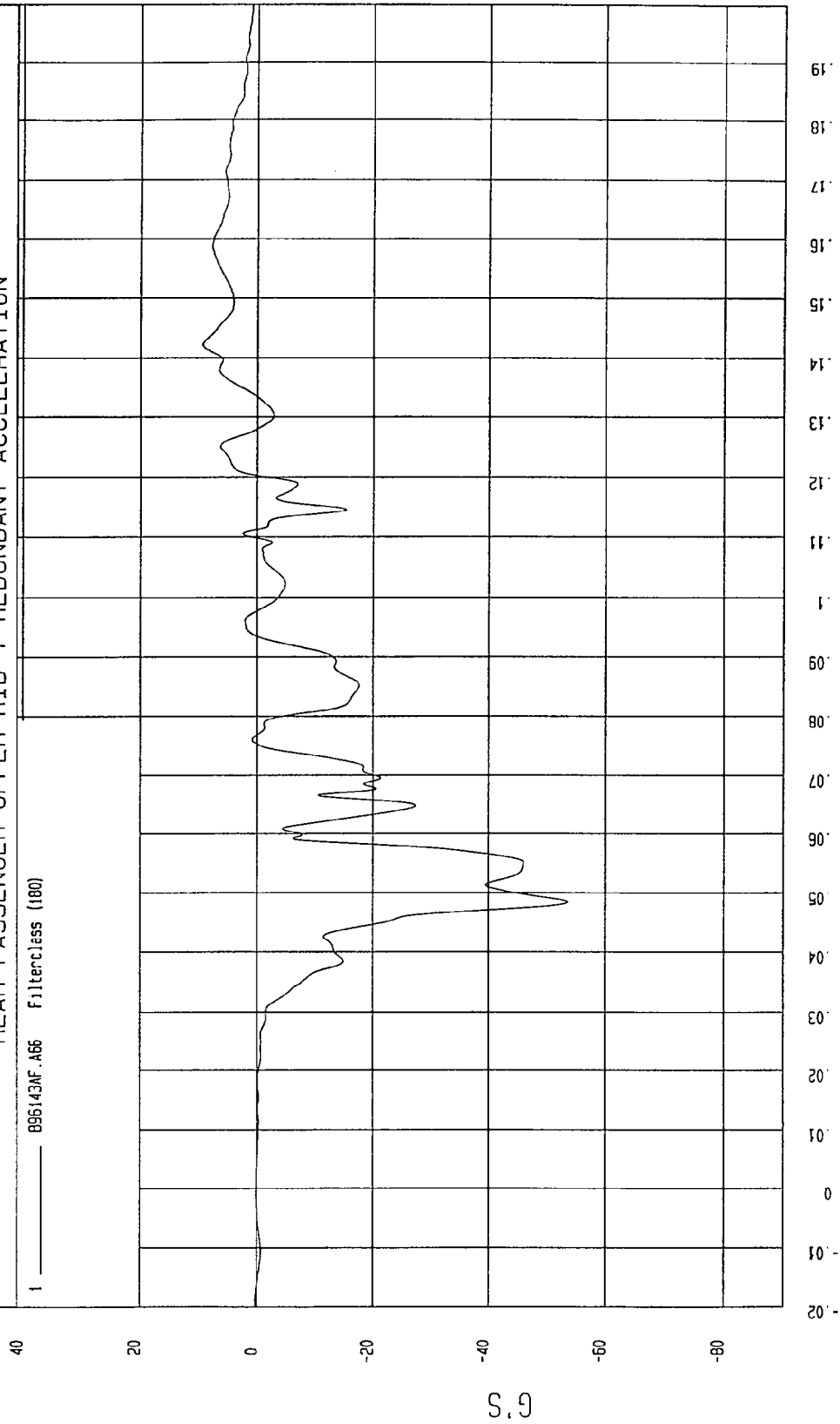
Speed: 32.83 MPH 52.8 KPH

Minimum = -53.63 G'S at 48 msec

Maximum = 9.55 G'S at 142 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 ——— 896143AF.A66 Filterclass (180)



MSA Research
12-20-1996 16:23

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 3.16E-02 KPH at -16 msec

Minimum = -42.14 KPH at 120 msec

REAR PASSENGER UPPER RIB Y REDUNDANT VELOCITY

1 B96143A1.V66 Filterclass (180)



WGA Research
12-30-1996 16.17

TIME Seconds

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

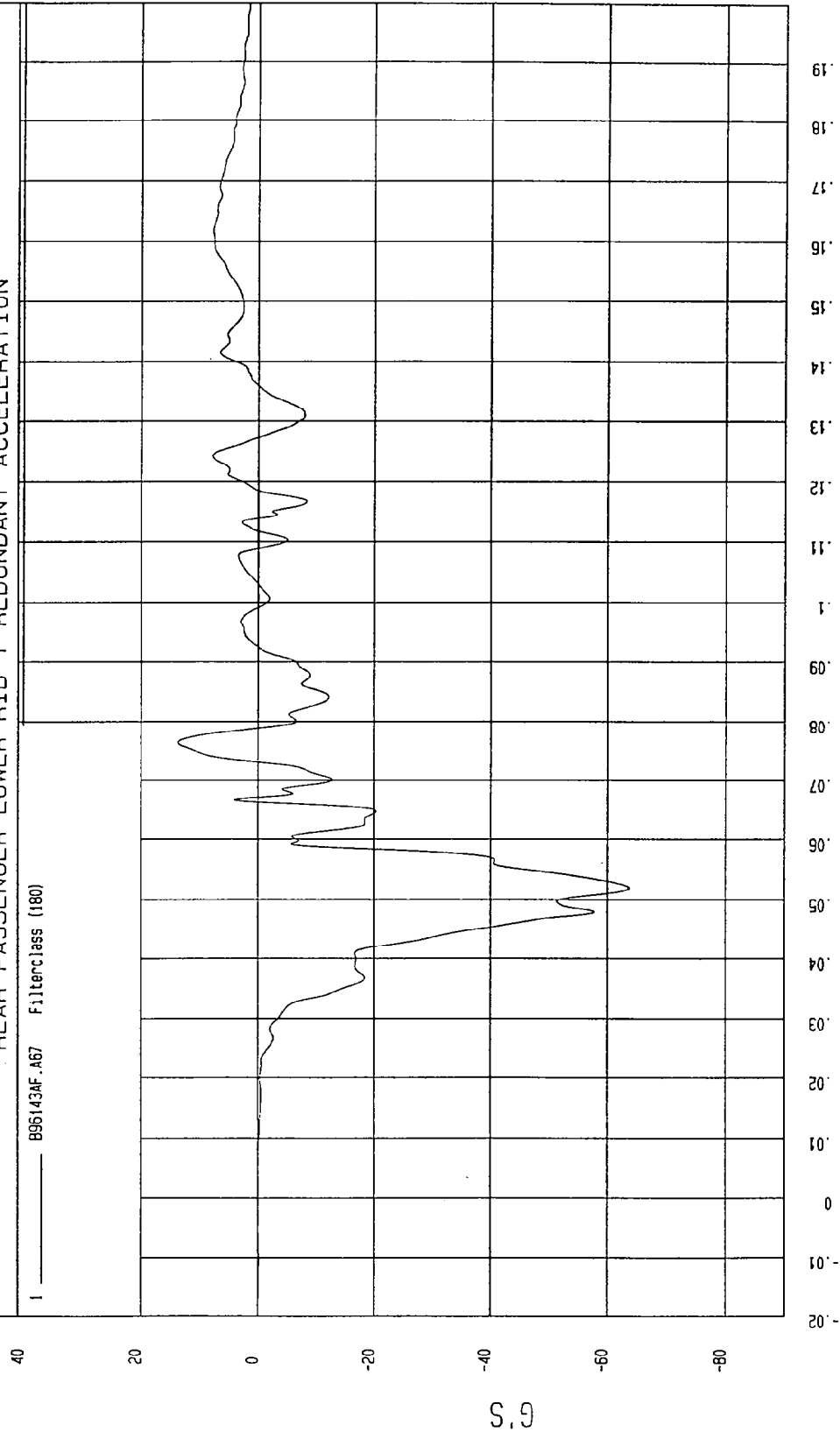
Speed: 32.83 MPH 52.8 KPH

Minimum = -63.67 G'S at 52 msec

Maximum = 13.85 G'S at 76 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

1 ——— B96143AF.A67 Filterclass (180)



MEA Research
12-30-1996 16:23

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

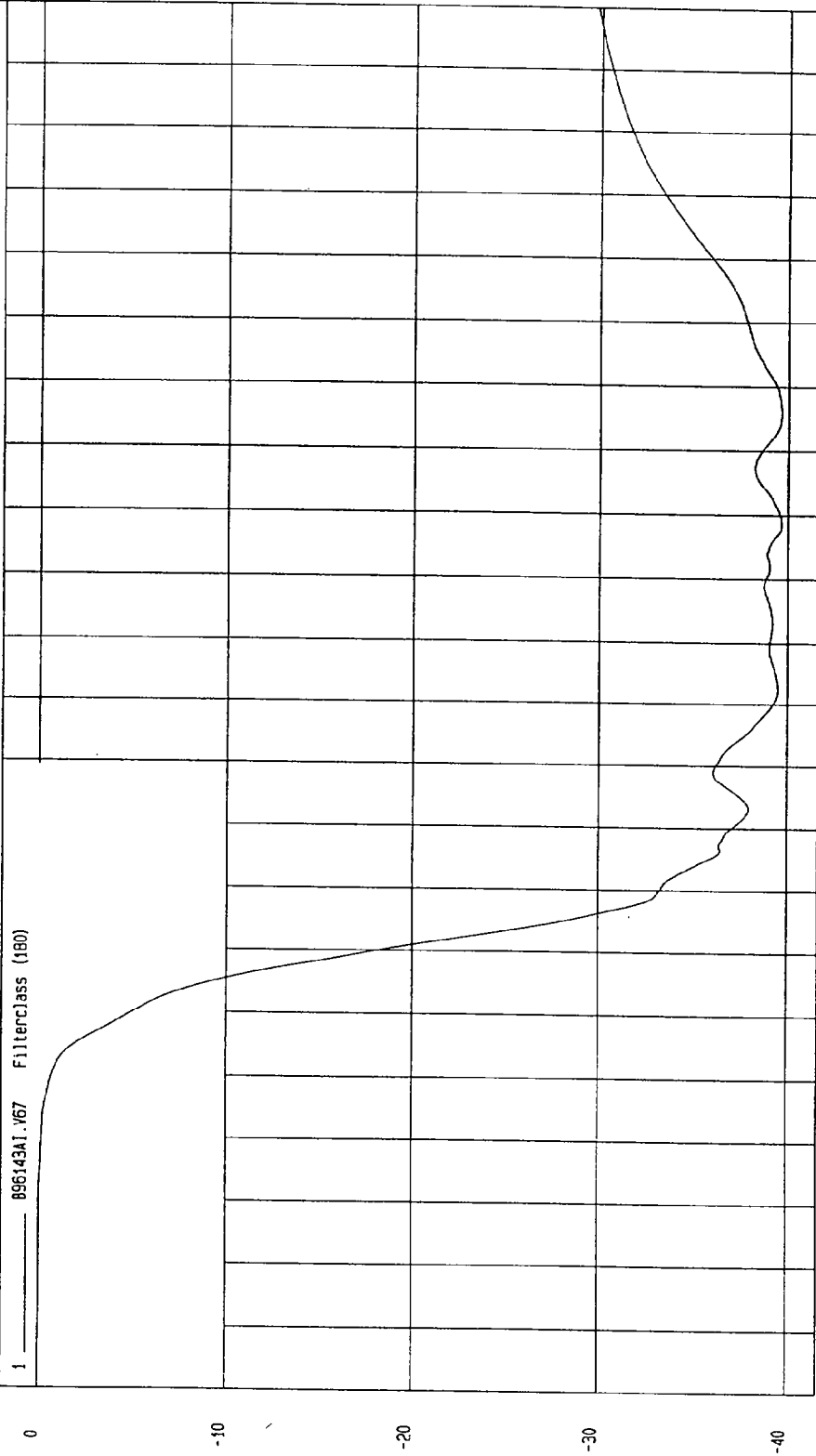
Speed: 32.83 MPH 52.8 KPH

Minimum = -39.64 KPH at 118 msec

Maximum = 1.17E-03 KPH at -18 msec

REAR PASSENGER LOWER RIB Y REDUNDANT VELOCITY

1 896143A1.V67 Filterclass (180)



TIME Seconds
NSA Research
12-30-1996 16:17

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

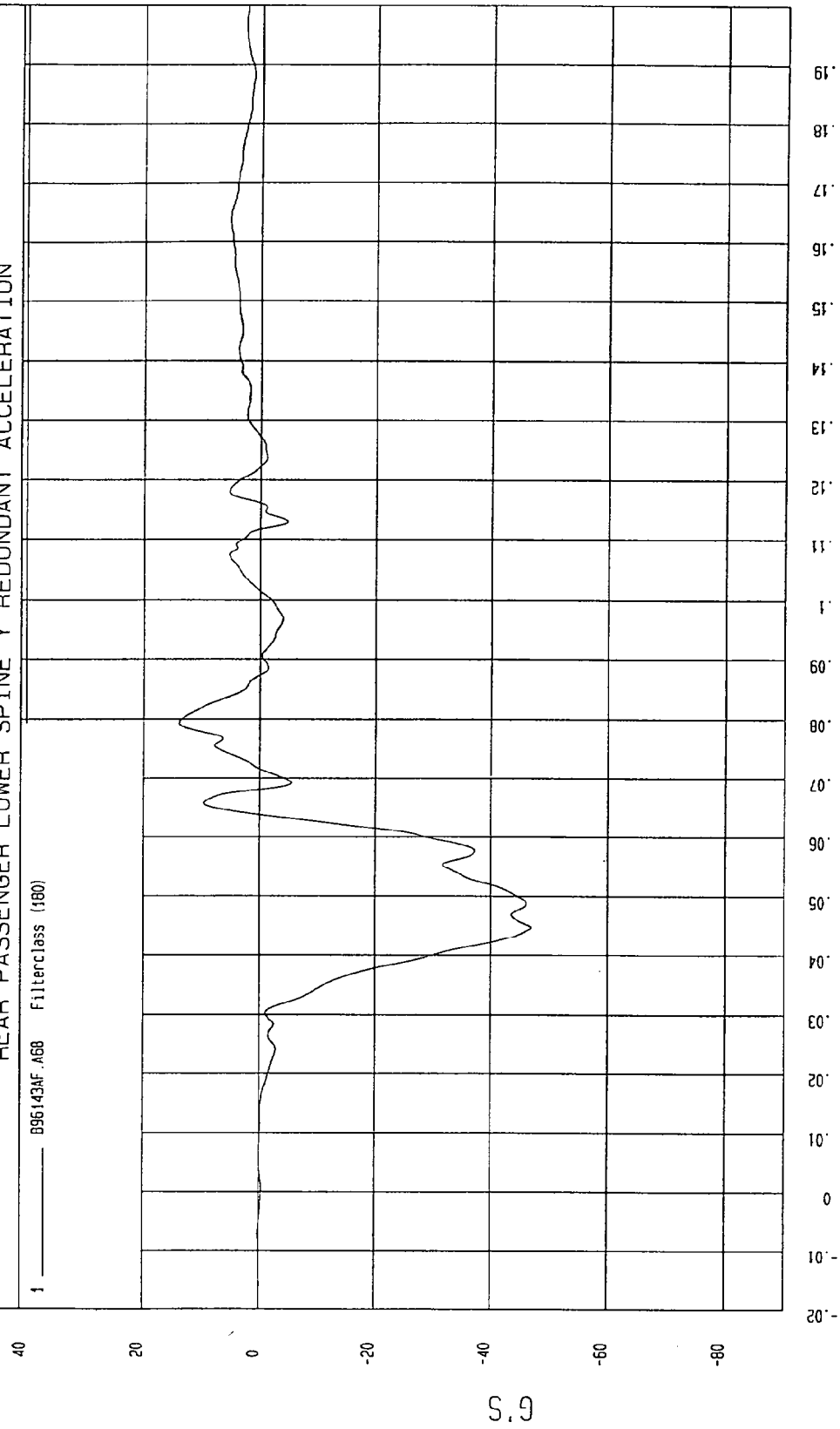
Speed: 32.83 MPH 52.8 KPH

Minimum = -46.09 G'S at 45 msec

Maximum = 13.99 G'S at 79 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 ——— B96143AF A68 Filterclass (180)



MCA Research
12-30-1996 16:23

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

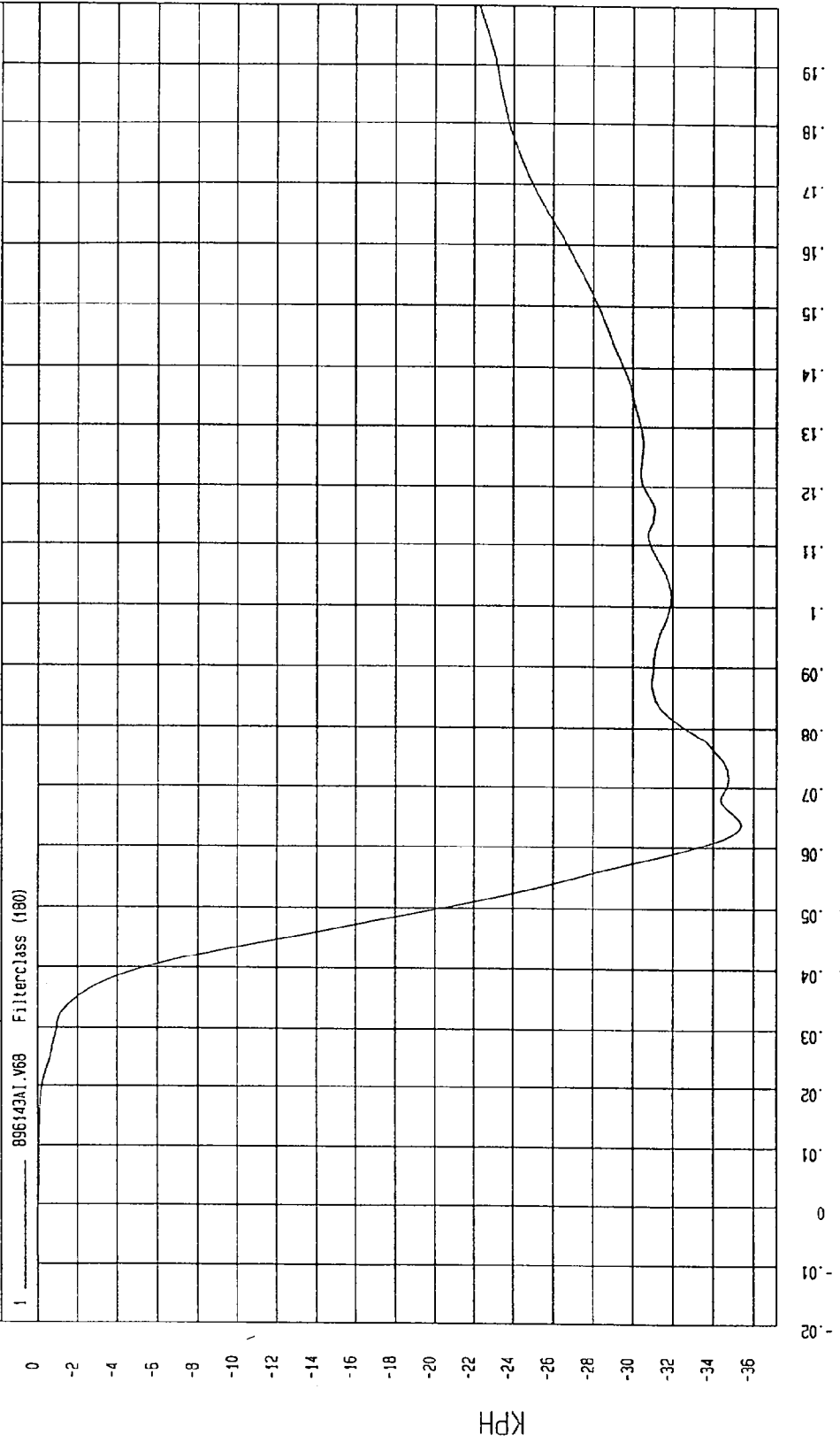
COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -35.36 KPH at 64 msec

Maximum = 3.58E-02 KPH at -5 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT VELOCITY



NCA Research
12-30-1996 16:17

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -76.04 G'S at 38 msec

Maximum = 13.32 G'S at 29 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION

1 _____ 896143AF.A69 FilterClass (180)

40

20

0

-20

-40

-60

-80

G'S

-02

-01

0

01

02

03

04

05

06

07

08

09

10

11

12

13

14

15

16

17

18

19

TIME (SECONDS)

MCA Research
12-30-1996 16:23

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -30.82 KPH at 62 msec

Maximum = 4.03E-02 KPH at 5 msec

REAR PASSENGER PELVIS Y REDUNDANT VELOCITY

1 896143A1.V69 FilterClass (180)

0

-10

-20

-30

-40

KPH

-02

-01

0

01

02

03

04

05

06

07

08

09

1

11

12

13

14

15

16

17

18

19

TIME Seconds

MCA Research
12-30-1996 16:17

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

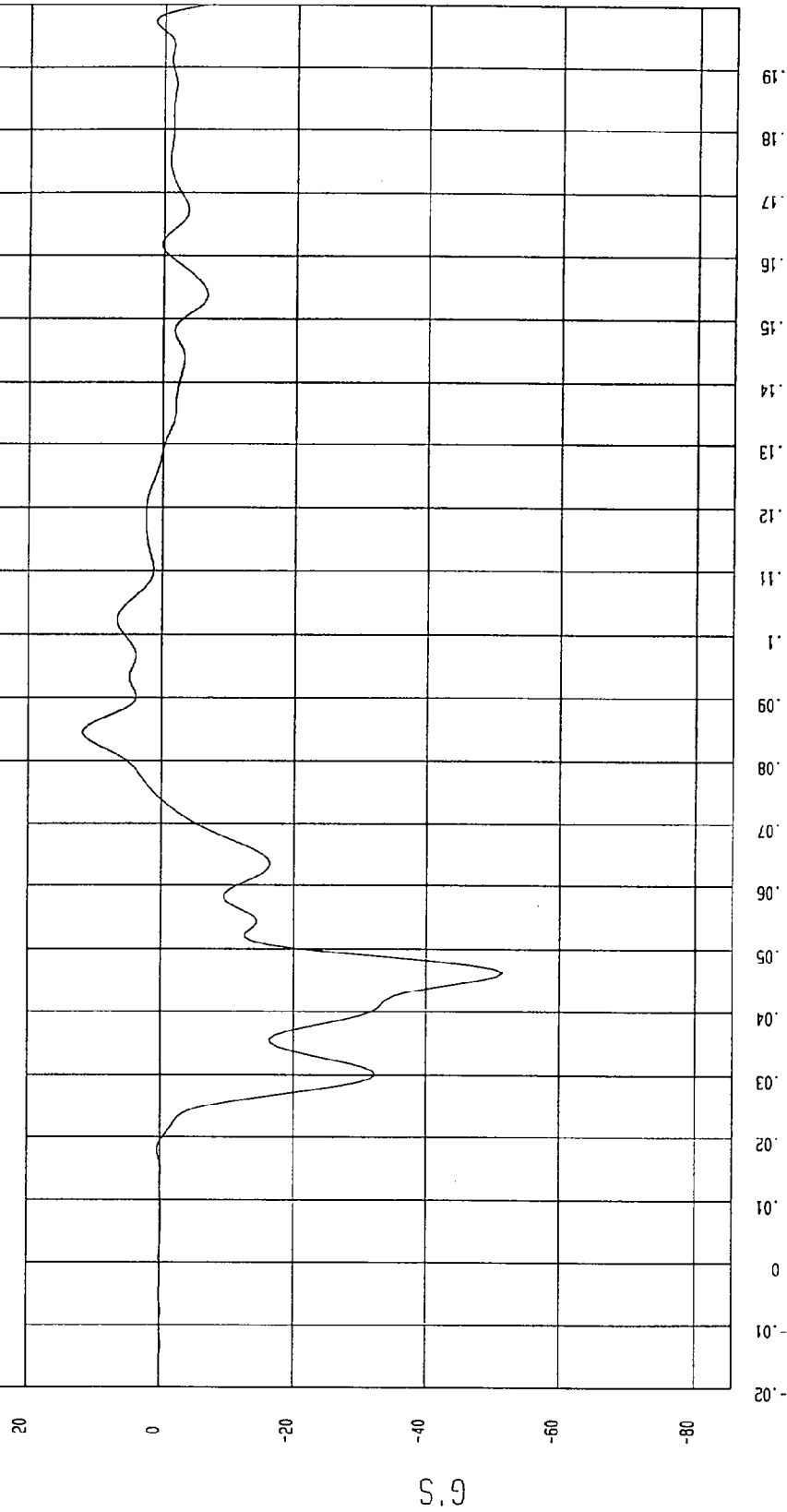
Speed: 32.83 MPH 52.8 KPH

Minimum = -51.57 G'S at 46 msec

Maximum = 11.91 G'S at 84 msec

FRONT PASSENGER UPPER RIB Y ACCELERATION

1 _____ 096143F1.R15 FilterClass (FIR Filtered)



MSA Research
12-30-1996 16:10

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

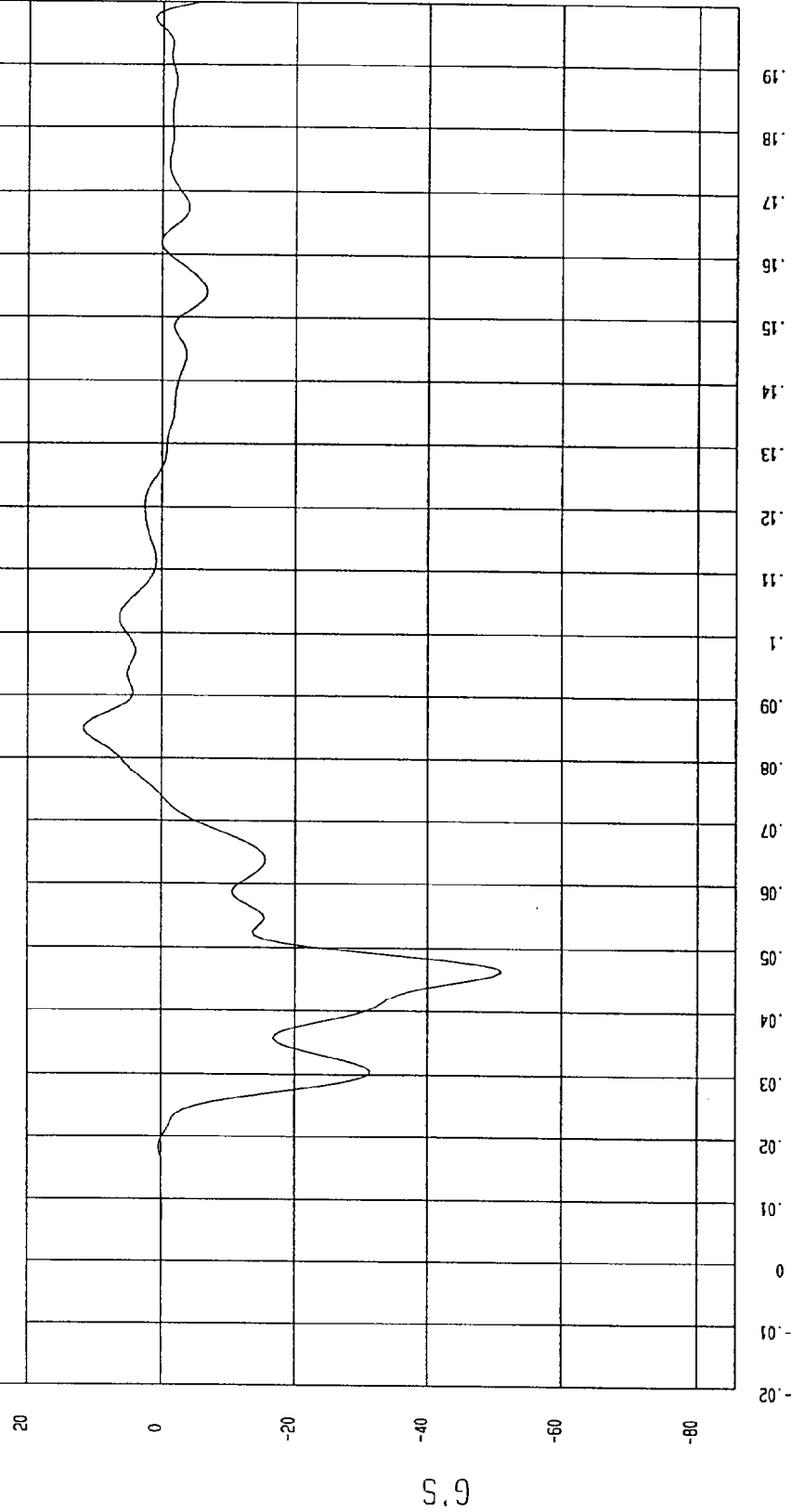
Speed: 32.83 MPH 52.8 KPH

Minimum = -51.09 G'S at 46 msec

Maximum = 11.69 G'S at 85 msec

FRONT PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

895143F1.P81 Filterclass (FIR Filtered)



NCI Research
12-30-1996 16.11

TIME (SECONDS)

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -47.71 G'S at 42 msec

Maximum = 8.01 G'S at 102 msec

FRONT PASSENGER LOWER RIB Y ACCELERATION

1 B96143FI.R16 Filterclass (FIR Filtered)

20

0

-20

-40

-60

-80

G.S

-100

-101

0

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

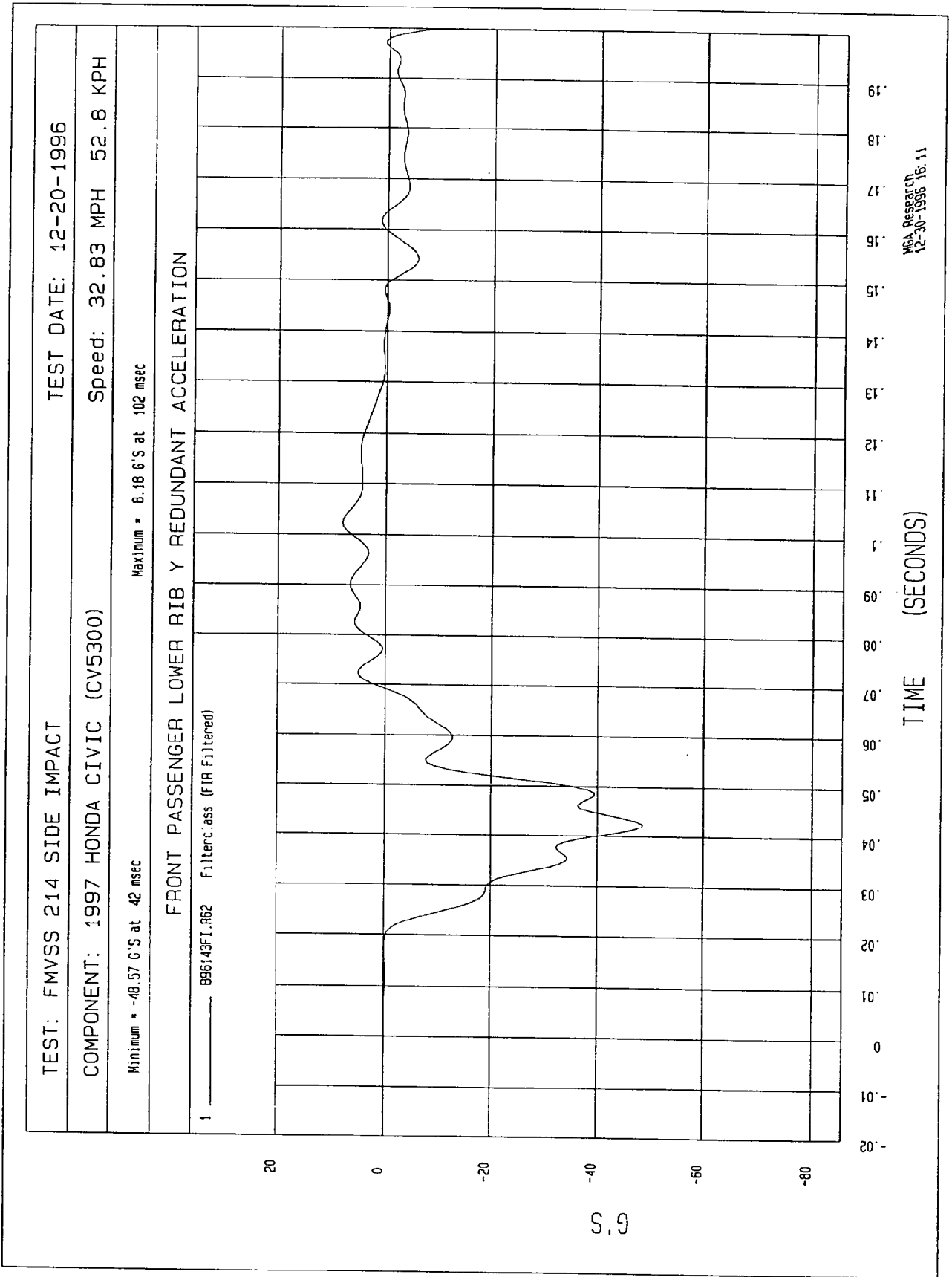
117

118

119

TIME (SECONDS)

MGA Research
12-30-1996 16:11



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

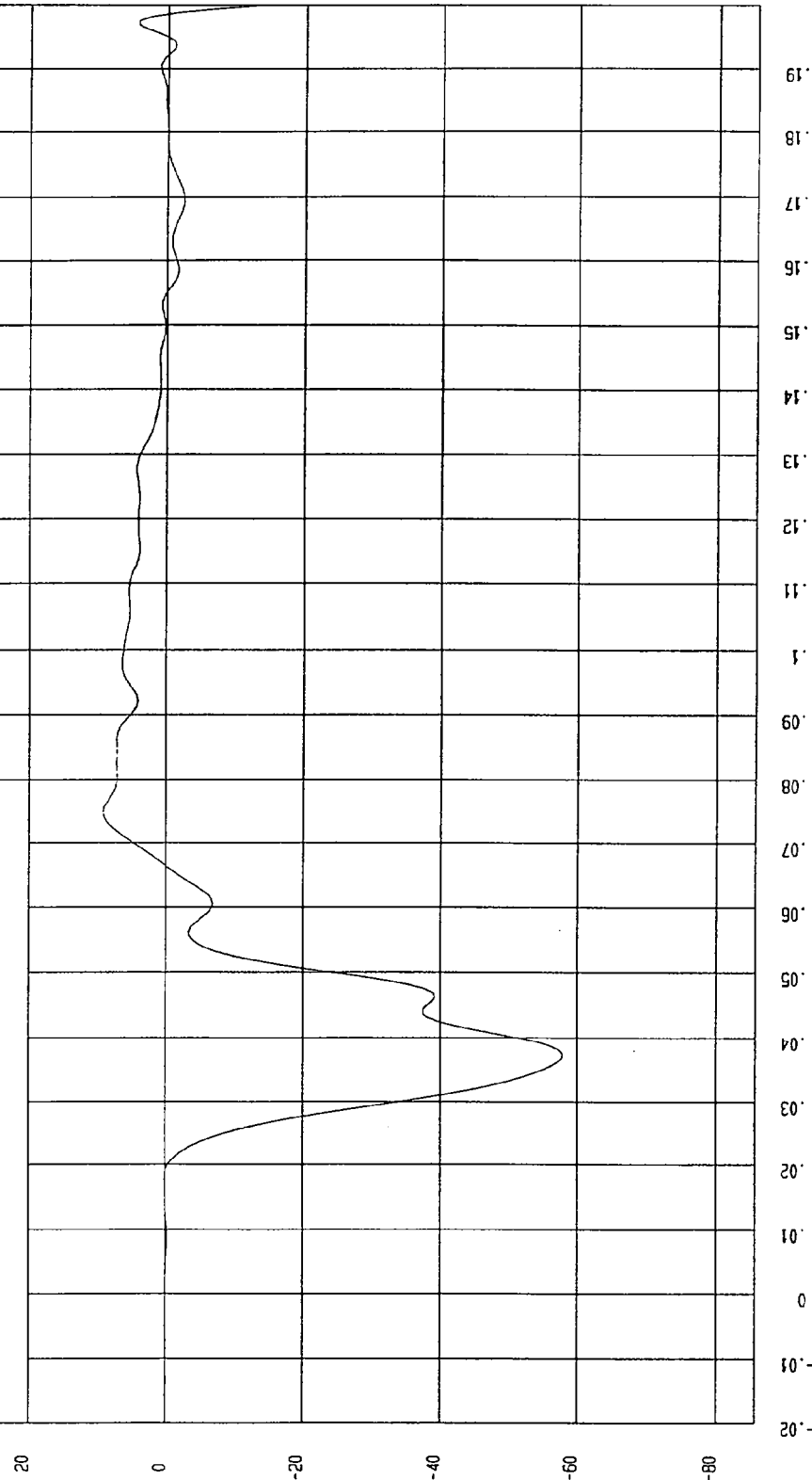
Minimum = -57.88 G'S at 38 msec

Maximum = 9.15 G'S at 75 msec

FRONT PASSENGER LOWER SPINE Y ACCELERATION

1 ——— 896143FI.R17 FilterClass (FIR Filtered)

G.S.



VGA Research
12-30-1996 16:11

TIME (SECONDS)

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -56.76 G'S at 37 msec

Maximum = 9.44 G'S at 75 msec

FRONT PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 896143F1.R63 Filterclass (FIR Filtered)

20

0

-20

-40

-60

-80

G.S

-20

-10

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

190

TIME (SECONDS)

WCA Research
12-30-1996 16:11

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -68.32 G'S at 32 msec

Maximum = 10.74 G'S at 53 msec

FRONT PASSENGER PELVIS Y ACCELERATION

1 ——— 896143FI.R18 Filterclass (FIR Filtered)

20

0

-20

-40

-60

-80

G.S

-02

-01

0

01

02

03

04

05

06

07

08

09

10

11

12

13

14

15

16

17

18

19

TIME (SECONDS)

MOA Research
12-30-1996 16:11

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

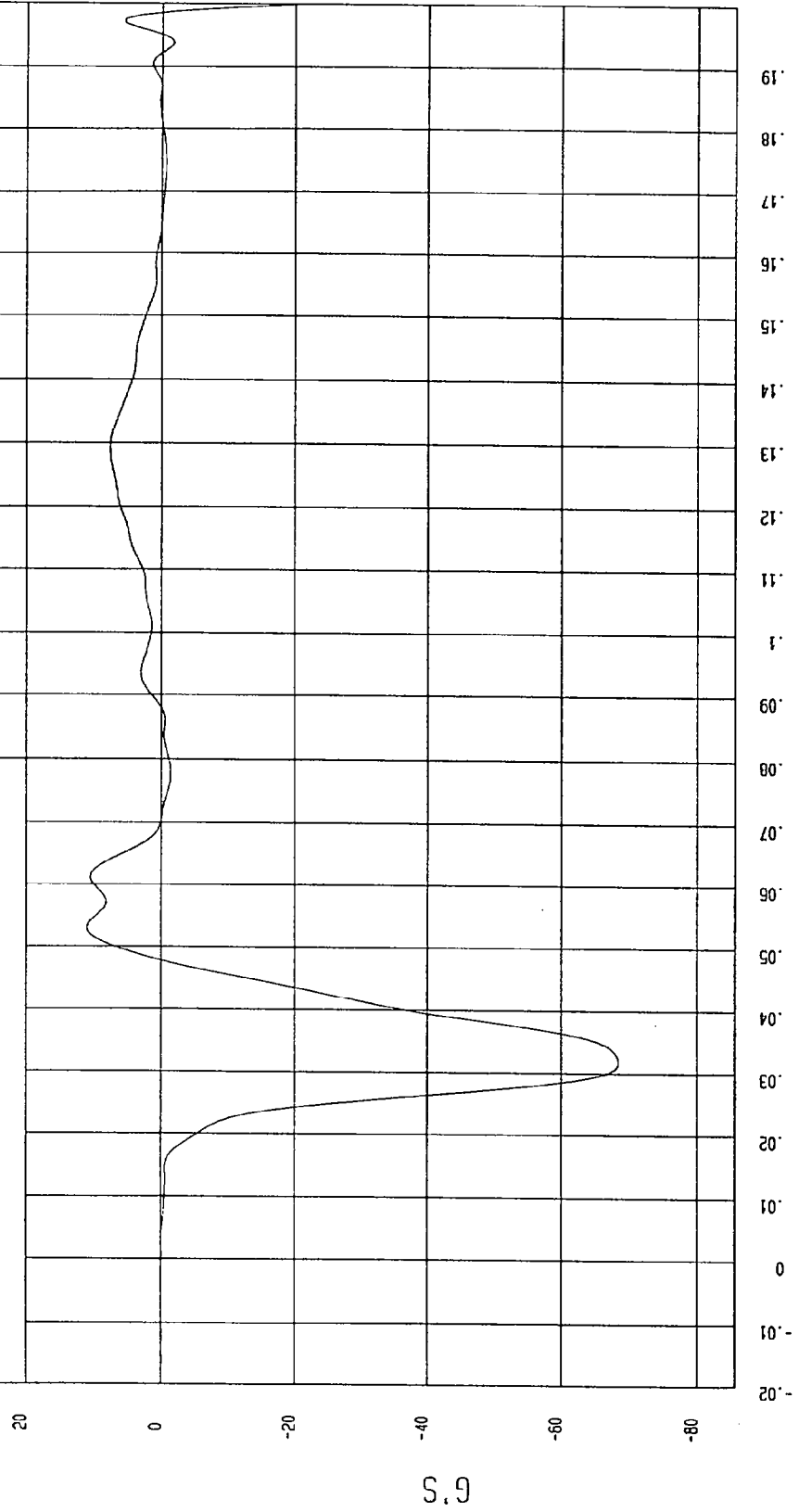
COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 11.10 G'S at 53 msec

Minimum = -50.42 G'S at 32 msec

FRONT PASSENGER PELVIS Y REDUNDANT ACCELERATION

1 ——— B96143F1.R64 Filterclass (FIR Filtered)



MCA Research
12-30-1996 16.11

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

Speed: 32.83 MPH 52.8 KPH

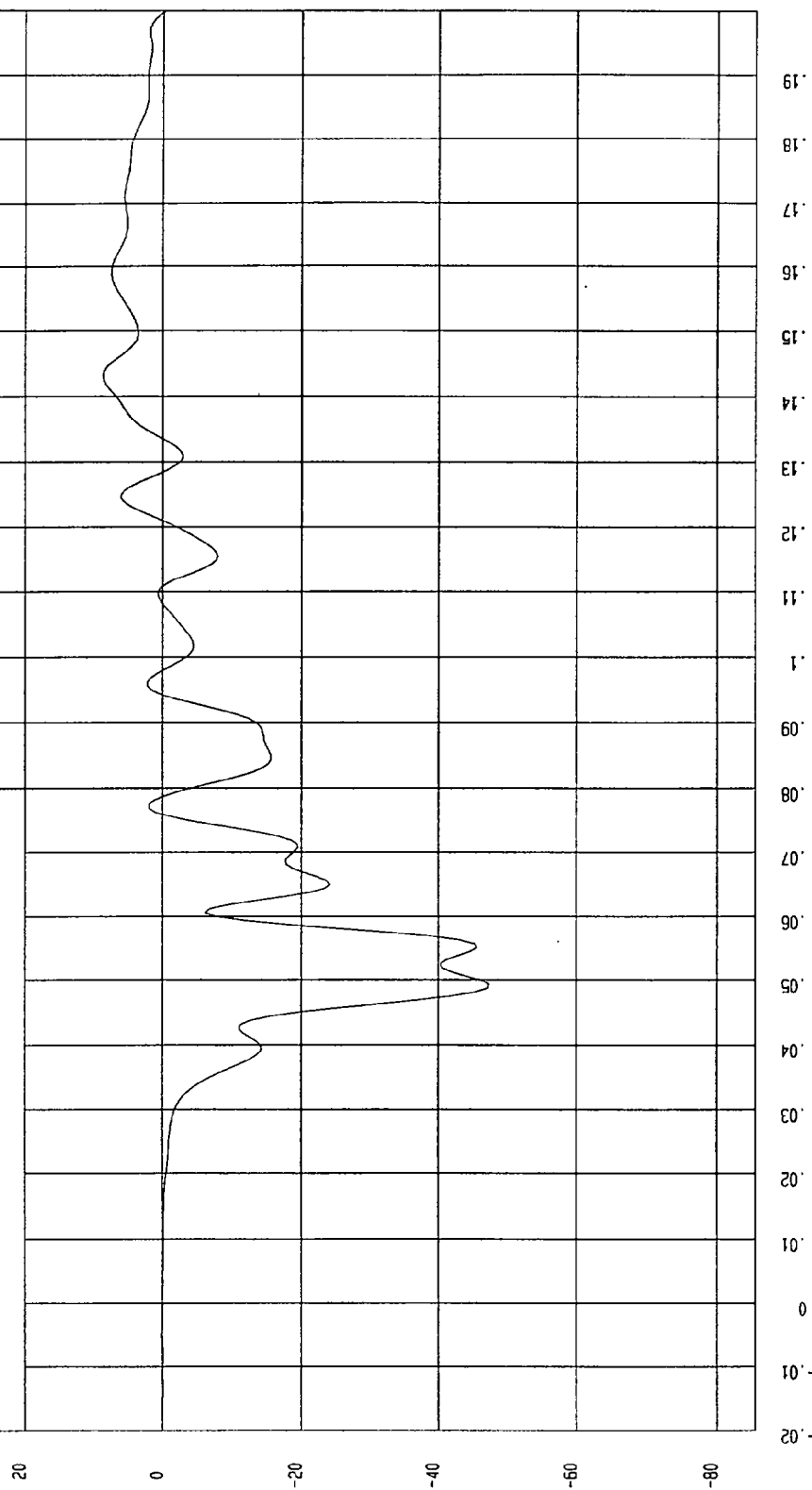
COMPONENT: 1997 HONDA CIVIC (CV5300)

Maximum = 8.80 G'S at 143 msec

Minimum = -47.39 G'S at 49 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

1 896143F1.R25 Filterclass (FIR Filtered)



NSA Research
12-30-1996 16:11

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

Speed: 32.83 MPH 52.8 KPH

Minimum = -47.70 G'S at 49 msec

Maximum = 8.69 G'S at 143 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 ——— 896143F1.R66 Filterclass (FIR Filtered)

20

0

-20

-40

-60

-80

G.S

-20

-10

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

190

TIME (SECONDS)

H&A Research
12-20-1996 16:11

TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

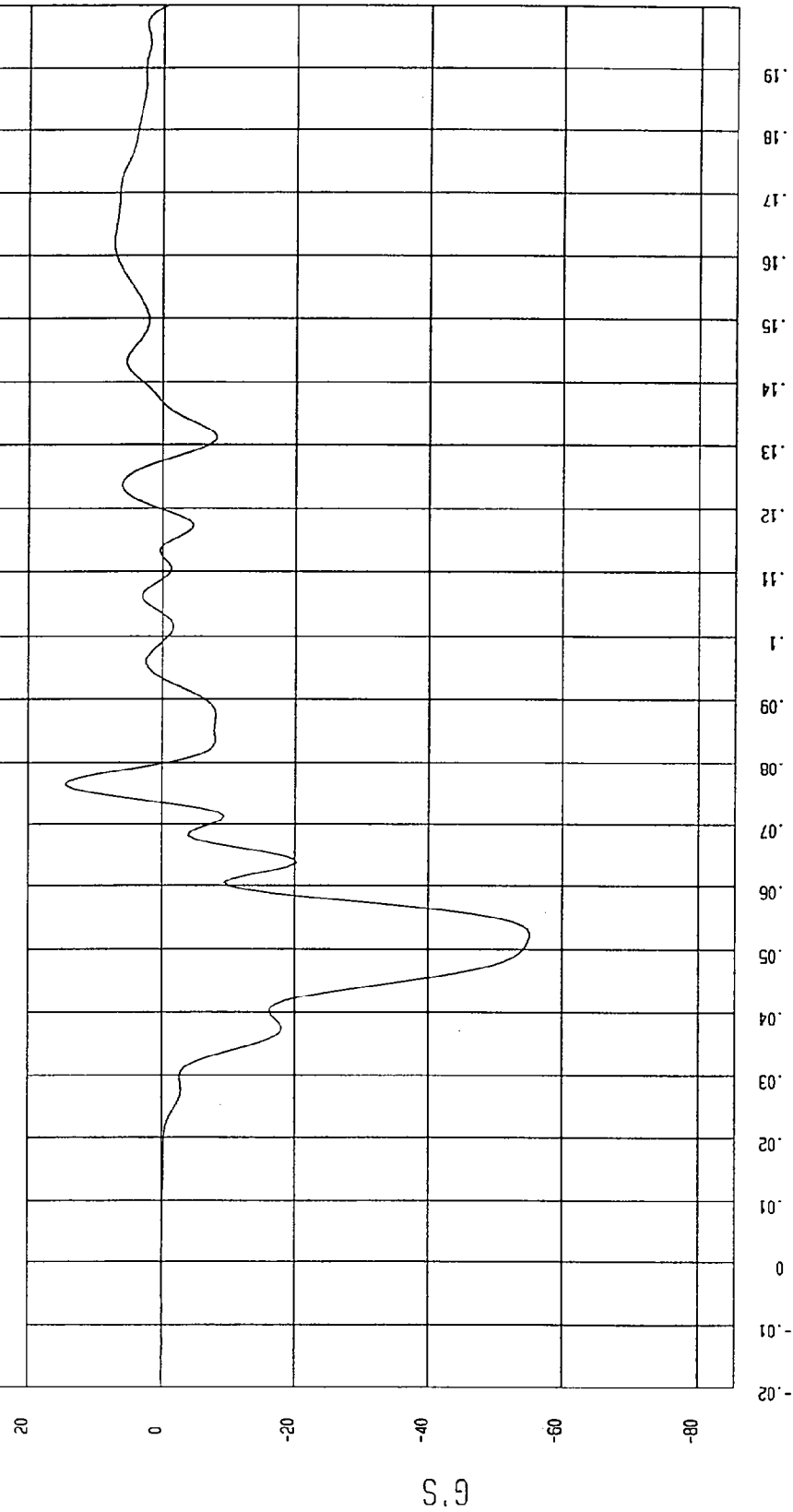
Speed: 32.83 MPH 52.8 KPH

Minimum = -55.20 G'S at 52 msec

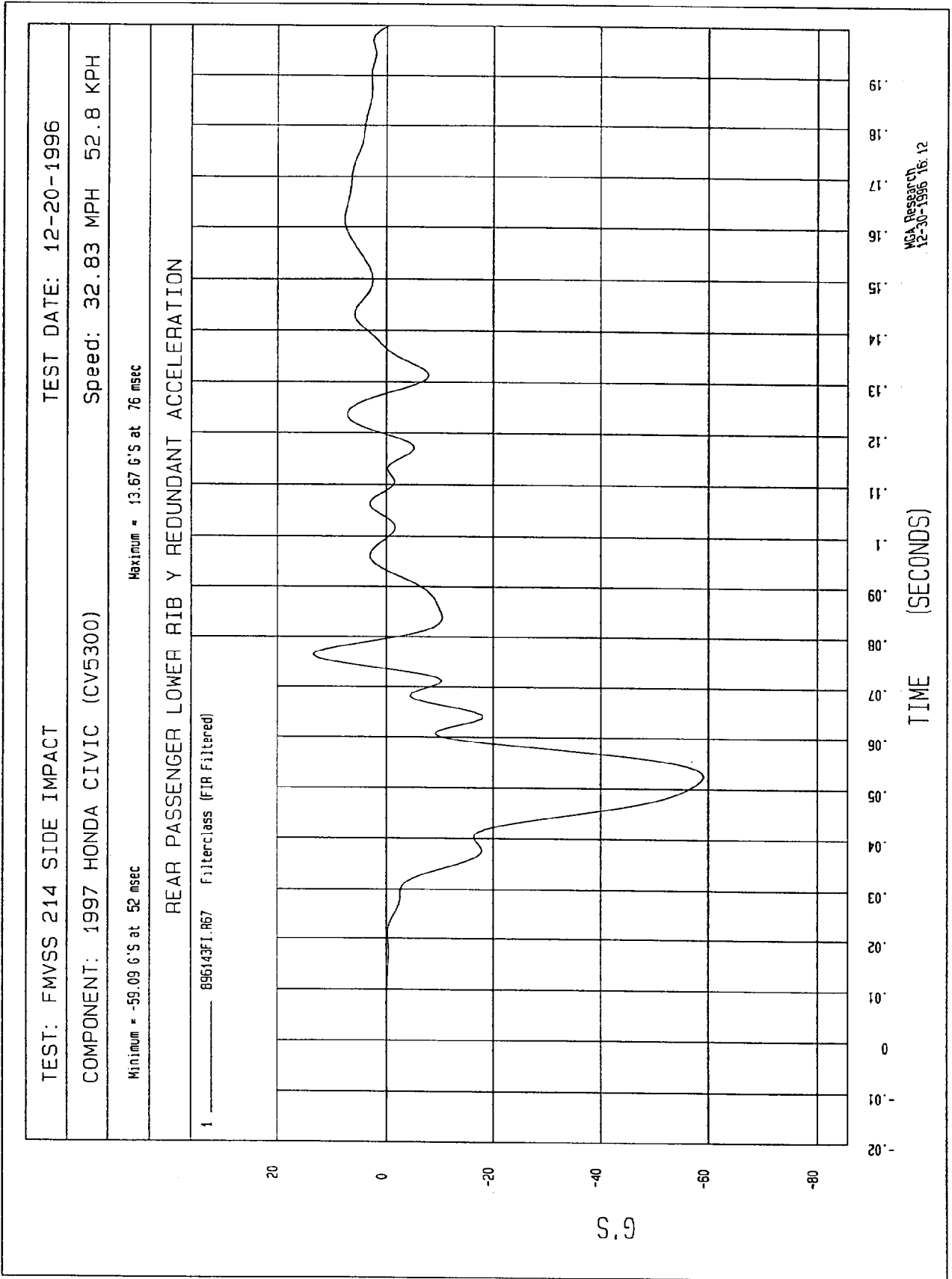
Maximum = 14.50 G'S at 76 msec

REAR PASSENGER LOWER RIB Y ACCELERATION

1 ——— 896143F1.R26 Filterclass (FIR Filtered)

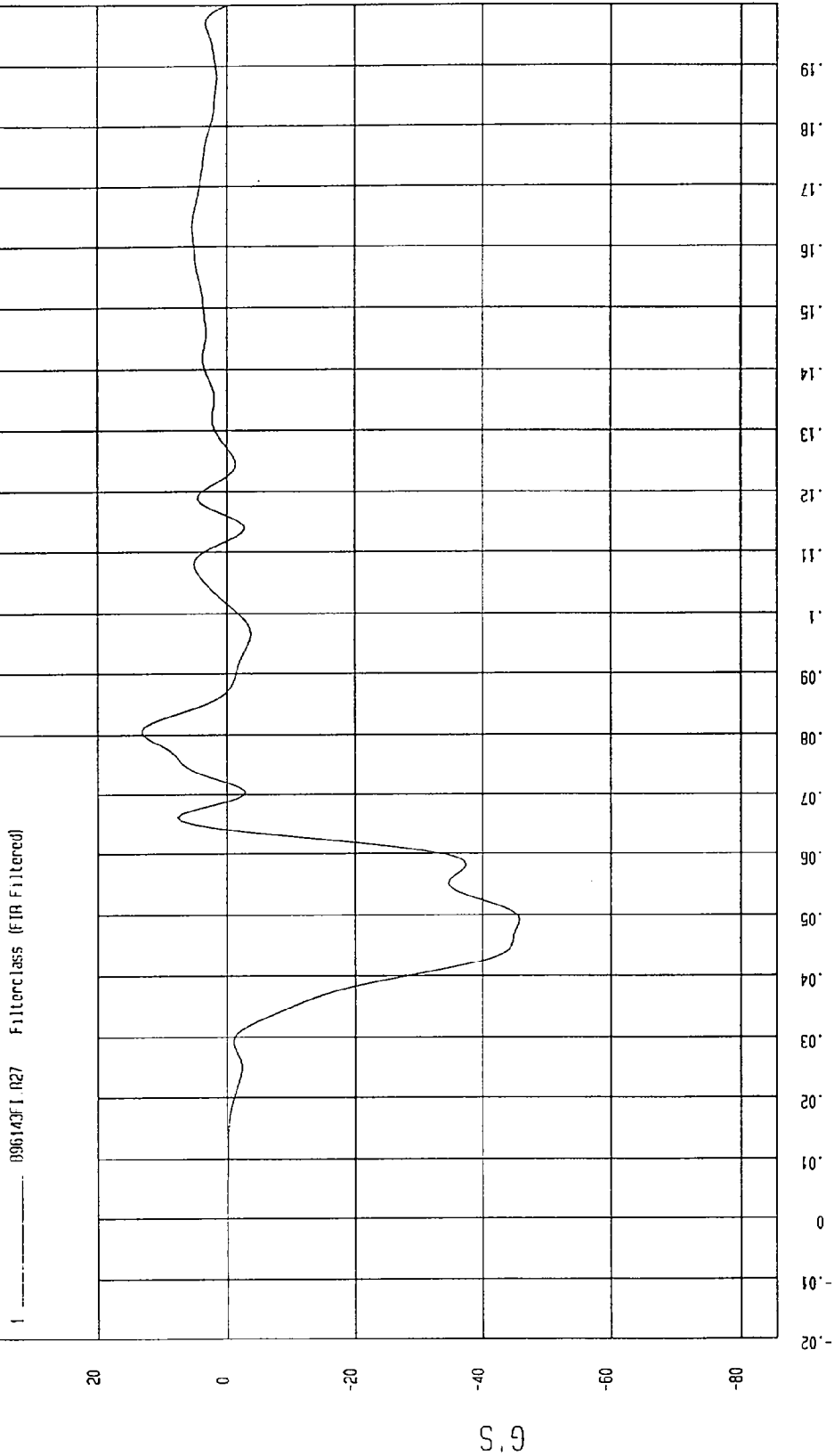


MGA Research
12-30-1996 15:11

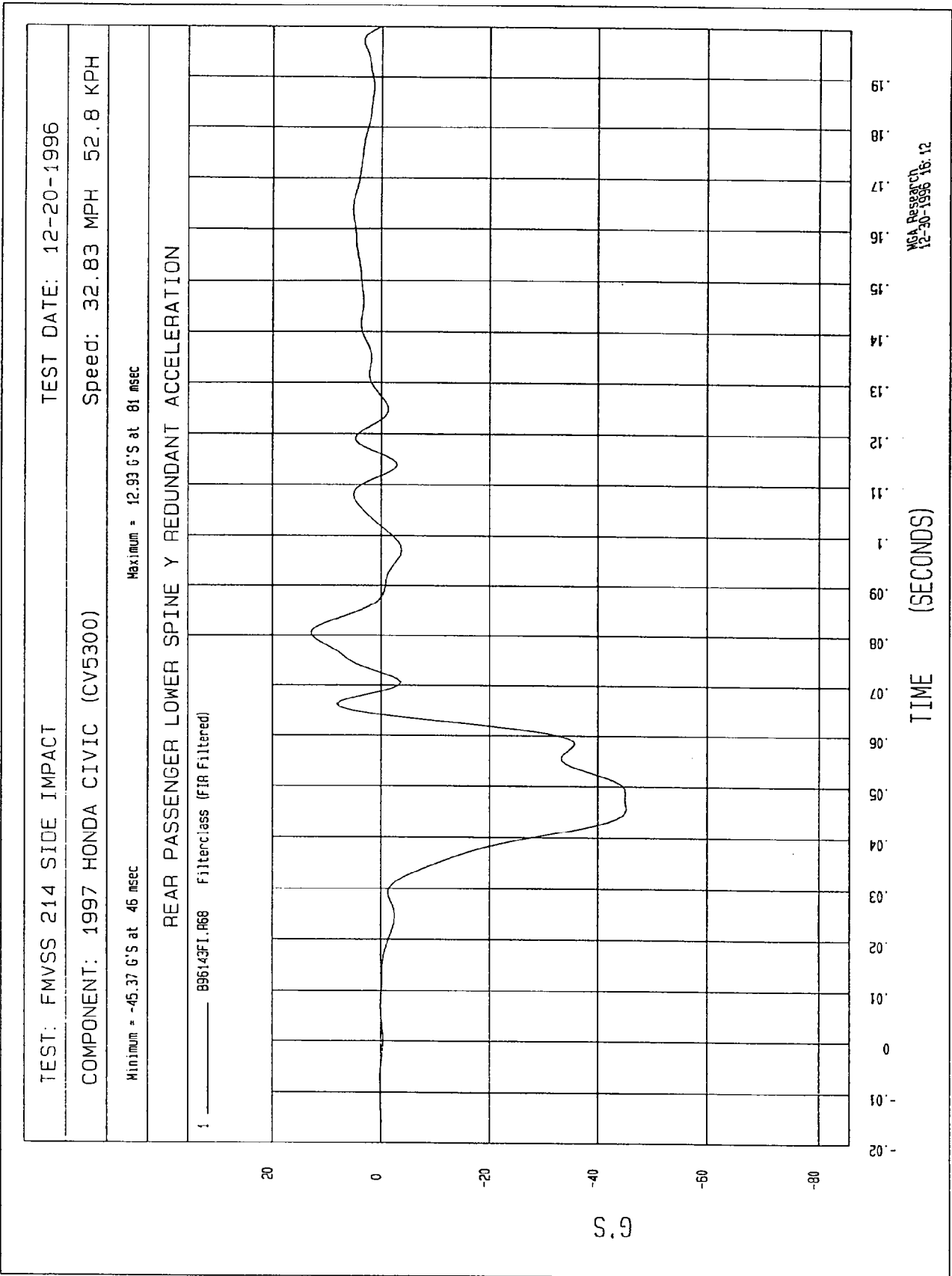


TEST: FMVSS 214 SIDE IMPACT TEST DATE: 12-20-1996
COMPONENT: 1997 HONDA CIVIC (CV5300) Speed: 32.83 MPH 52.8 KPH
Minimum = -45.70 G'S at 49 msec Maximum = 13.15 G'S at 81 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION



MCA Research
12-30-1996 16:12



TEST: FMVSS 214 SIDE IMPACT

TEST DATE: 12-20-1996

COMPONENT: 1997 HONDA CIVIC (CV5300)

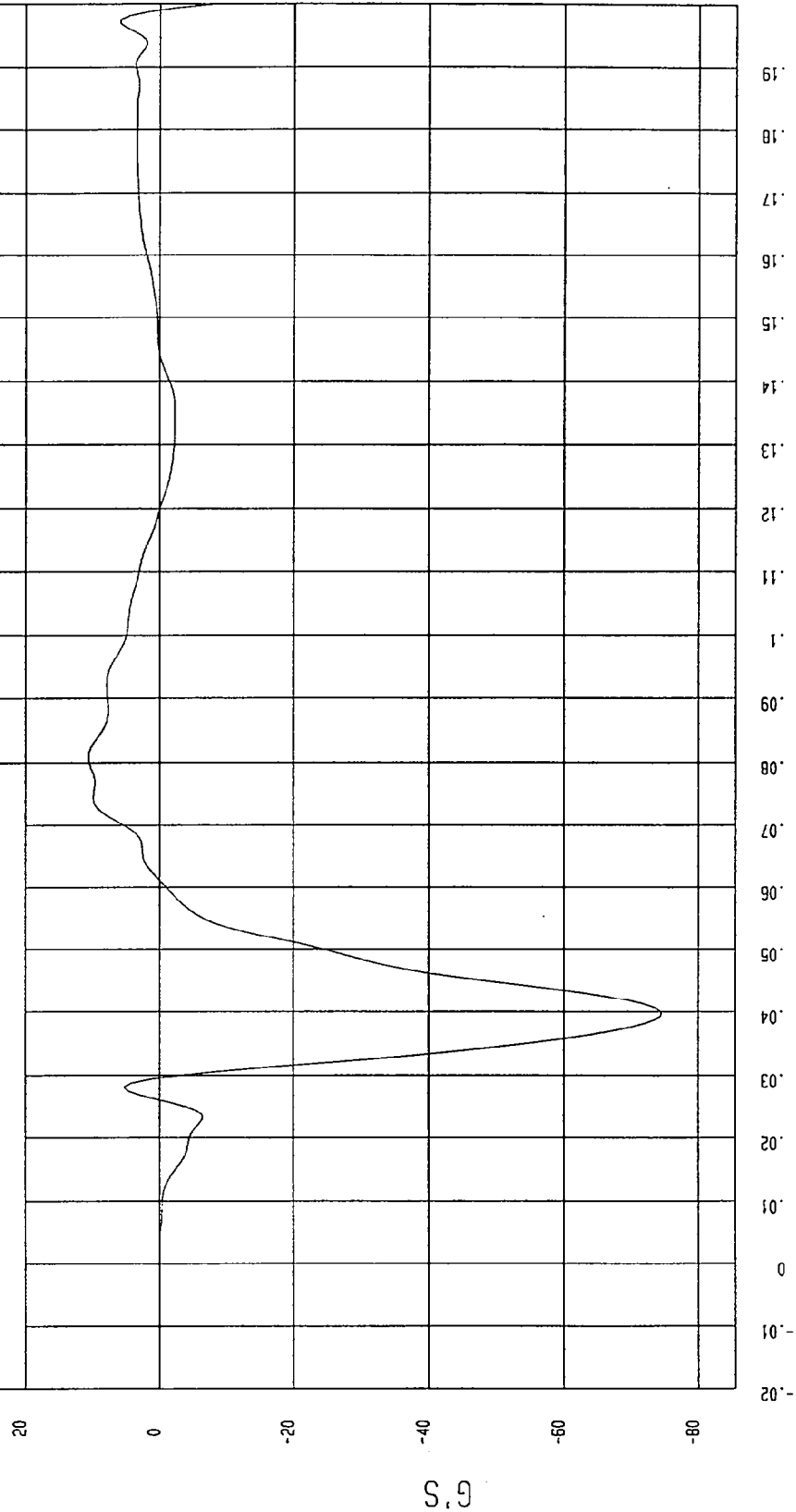
Speed: 32.83 MPH 52.8 KPH

Minimum = -74.43 G'S at 39 msec

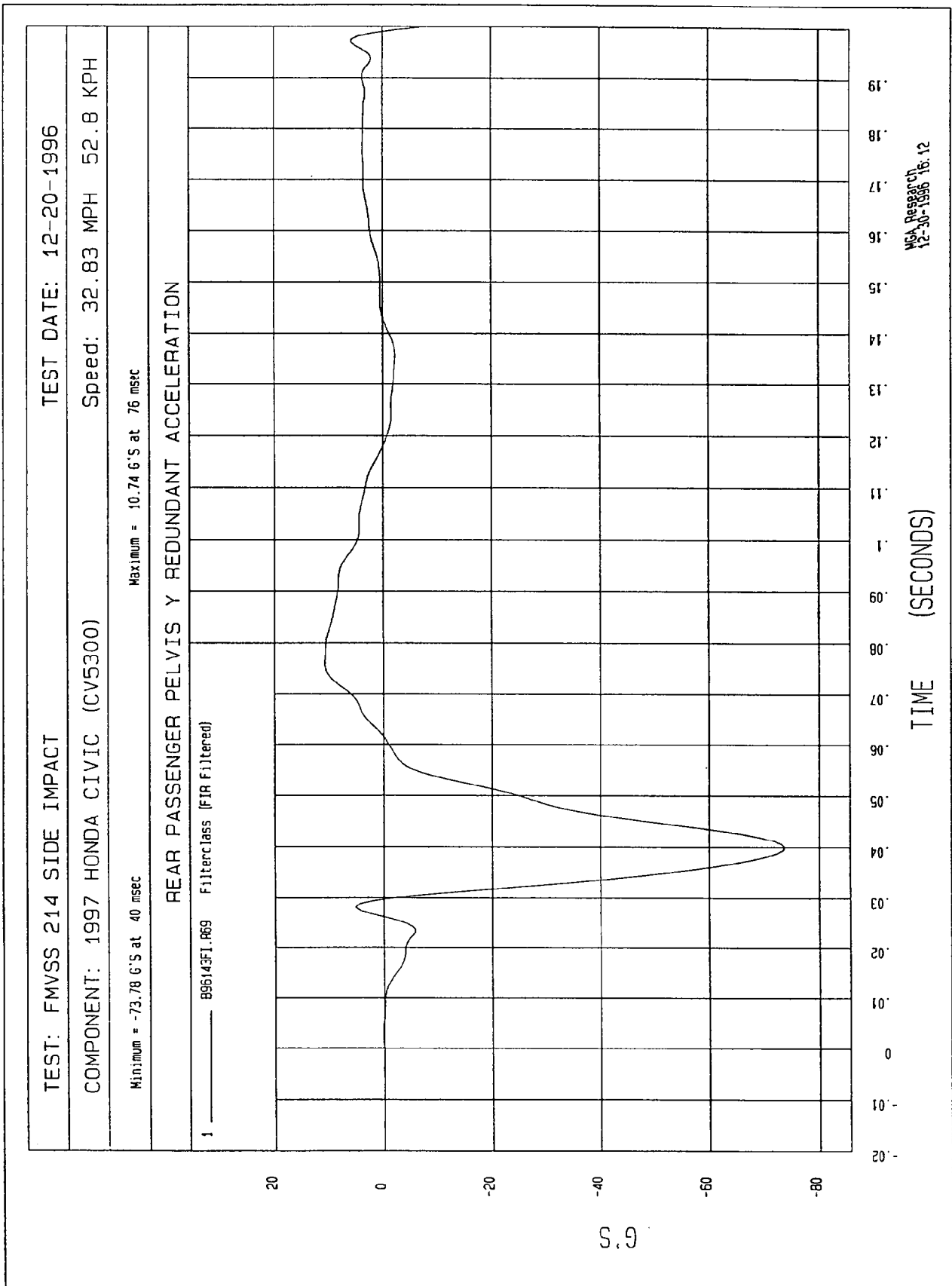
Maximum = 10.63 G'S at 81 msec

REAR PASSENGER PELVIS Y ACCELERATION

1 _____ 896143FI.R28 Filterclass (FIR Filtered)



MSA Research
12-20-1996 16:12



APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-96-DC17

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

HONDA MOTOR CO., LTD.
1997 HONDA CIVIC 4 DOOR
NHTSA NO. CV5300

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: December 20, 1996

Report Date: January 15, 1997

FINAL REPORT

Prepared For:

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
MAIL CODE: NEF-30
400 SEVENTH STREET, S.W., ROOM 6115
Washington, D.C. 20590

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		<u>Page No.</u>
DUMMY S/N: 269	PRE-TEST CERTIFICATION DATA	1-1
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DUMMY S/N: 269	POST-TEST CERTIFICATION DATA	3-1
DUMMY S/N: 270	POST-TEST CERTIFICATION DATA	4-1
DUMMY S/N: 269	POST-TEST INSPECTION CHECKLIST	5-1
DUMMY S/N: 270	POST-TEST INSPECTION CHECKLIST	6-1
	VEHICLE AND DUMMY TEMPERATURE	7-1

PRE-TEST CERTIFICATION DATA

Front Dummy Serial Number: 269

Calibration Test Results Summary

Dummy Serial Number: 269

Pre-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: December 19, 1996

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.1
RH - Rib Height	19.75" - 20.50"	20.00
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.4
HW - Hip Width	14.0" - 15.4"	15.1

MEASUREMENTS BY: Tim Hil

APPROVED BY: Rene Kabake

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 19, 1996

DUMMY NUMBER: 269

TEST NUMBER: D962262

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	46
LOWER RIB	37 - 46 g's	40
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim White

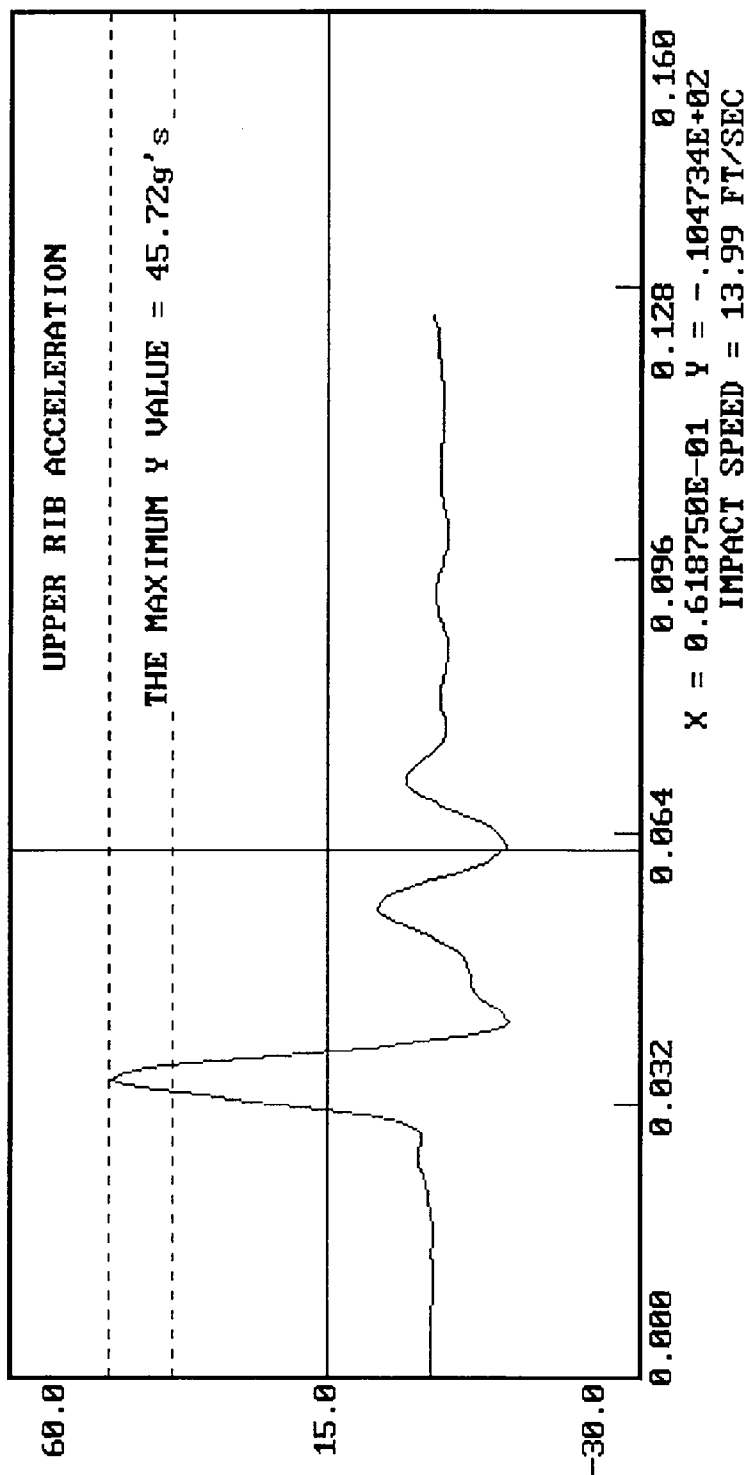
APPROVED BY Rene Kralovec

DUMMY CALIBRATION - THORAX IMPACT

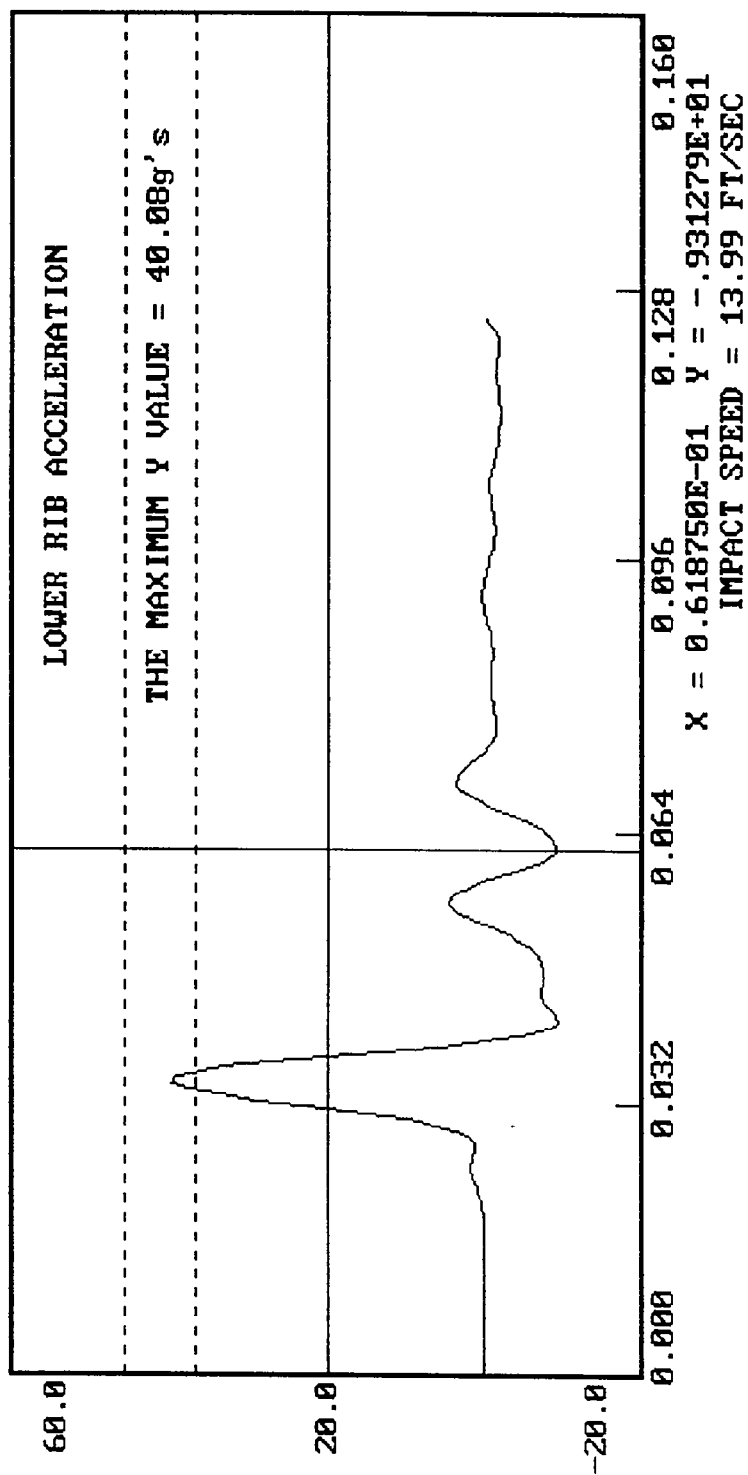
DUMMY # 269

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

12-19-1996 09:43

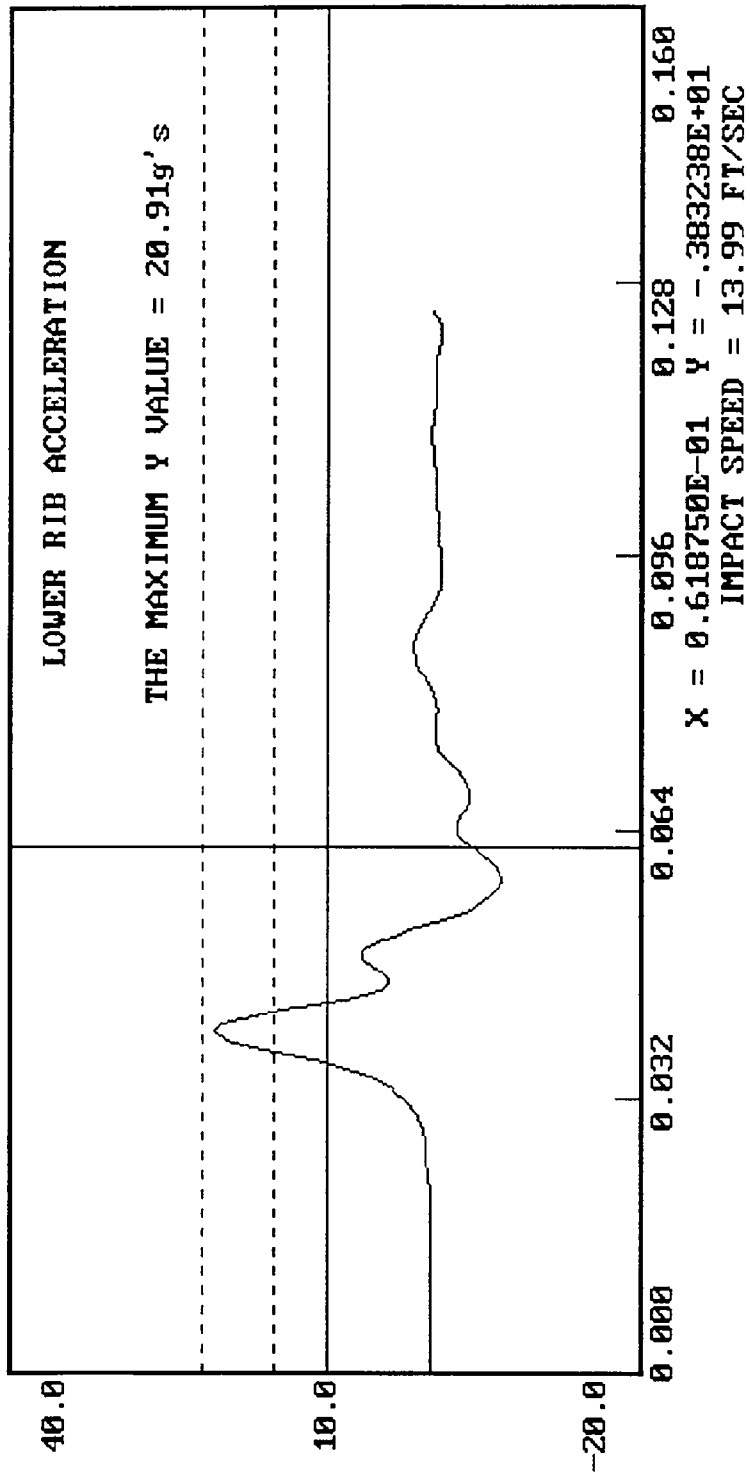


DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 269
 12-19-1996 09:43
 ACCELERATION (G'S) VS. TIME ((SECONDS))



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

12-19-1996 09:43



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 18, 1996

DUMMY NUMBER: 269

TEST NUMBER: D962263

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	18%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	49

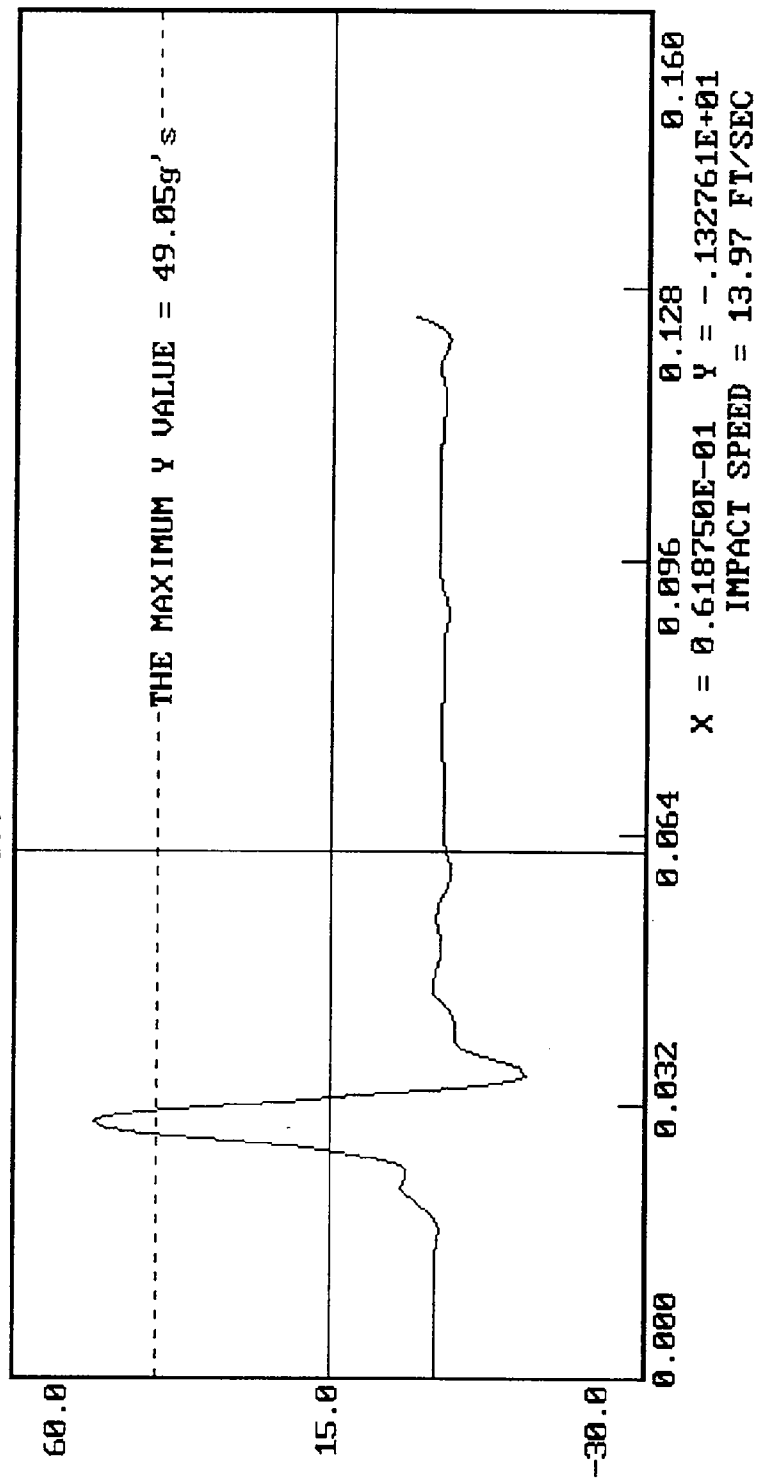
TEST MEETS SPECIFICATIONS

TECHNICIAN Tim M. L.

APPROVED BY Dave Kosloske

DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 269
12-18-1996 16:51

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



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

DATE: December 19, 1996

DUMMY NUMBER: 269

TEST NUMBER: D962264

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	18%
FORCE @ 0.5 in	23.3 - 36.5 lbs	34.1
FORCE @ 0.75 in	36.7 - 49.8 lbs	47.0
FORCE @ 1.0 in	50 - 63 lbs	62
FORCE @ 1.3 in	73 - 88 lbs	84

TEST MEETS SPECIFICATIONS

TECHNICIAN

Jim Wilkins

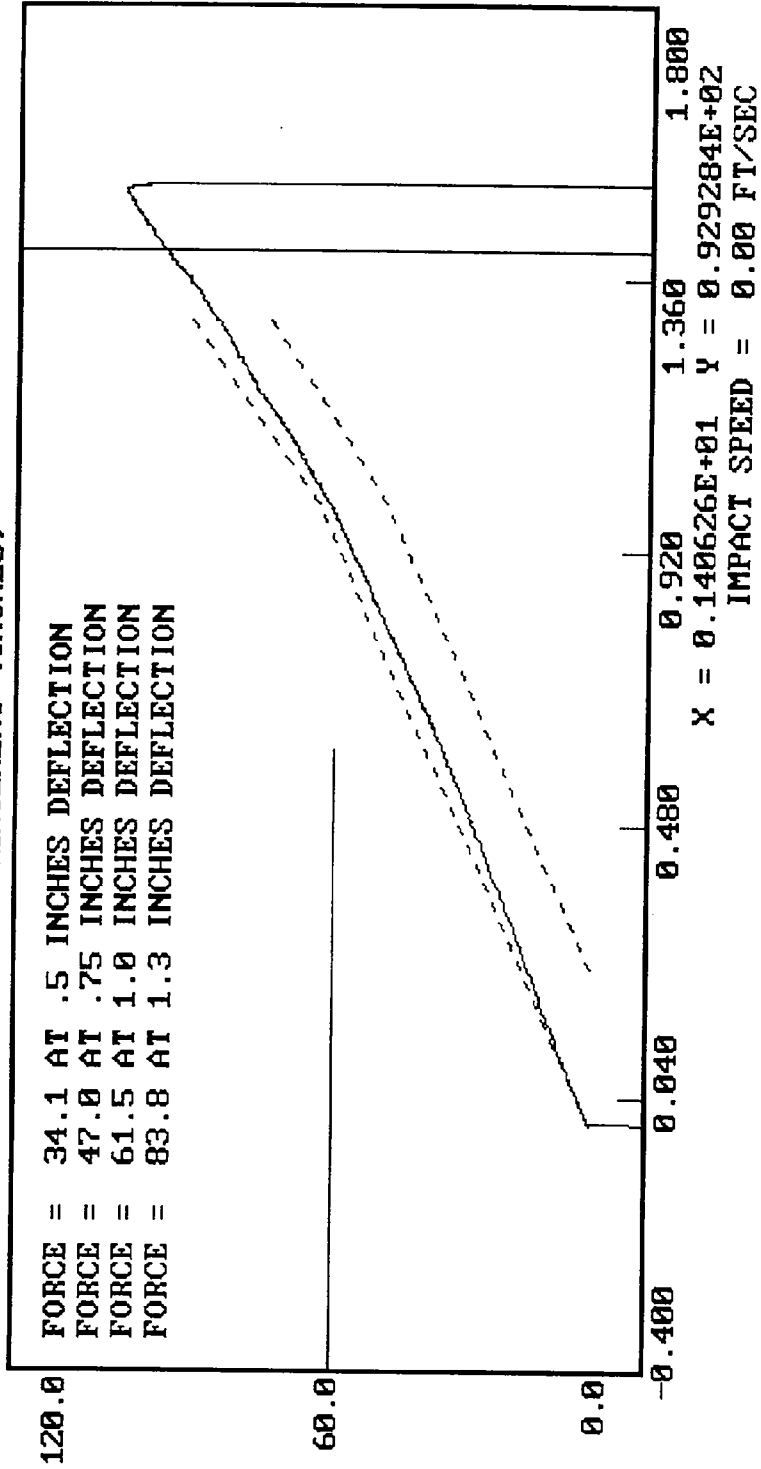
APPROVED BY

Paul Korbake

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 269

12-19-1996 15:53

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



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

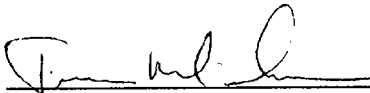
DATE: December 19, 1996

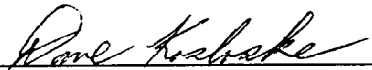
DUMMY NUMBER: 269

TEST NUMBER: D962265

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	30
FORCE @ 30°	34 - 46 lbs	39
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	4°

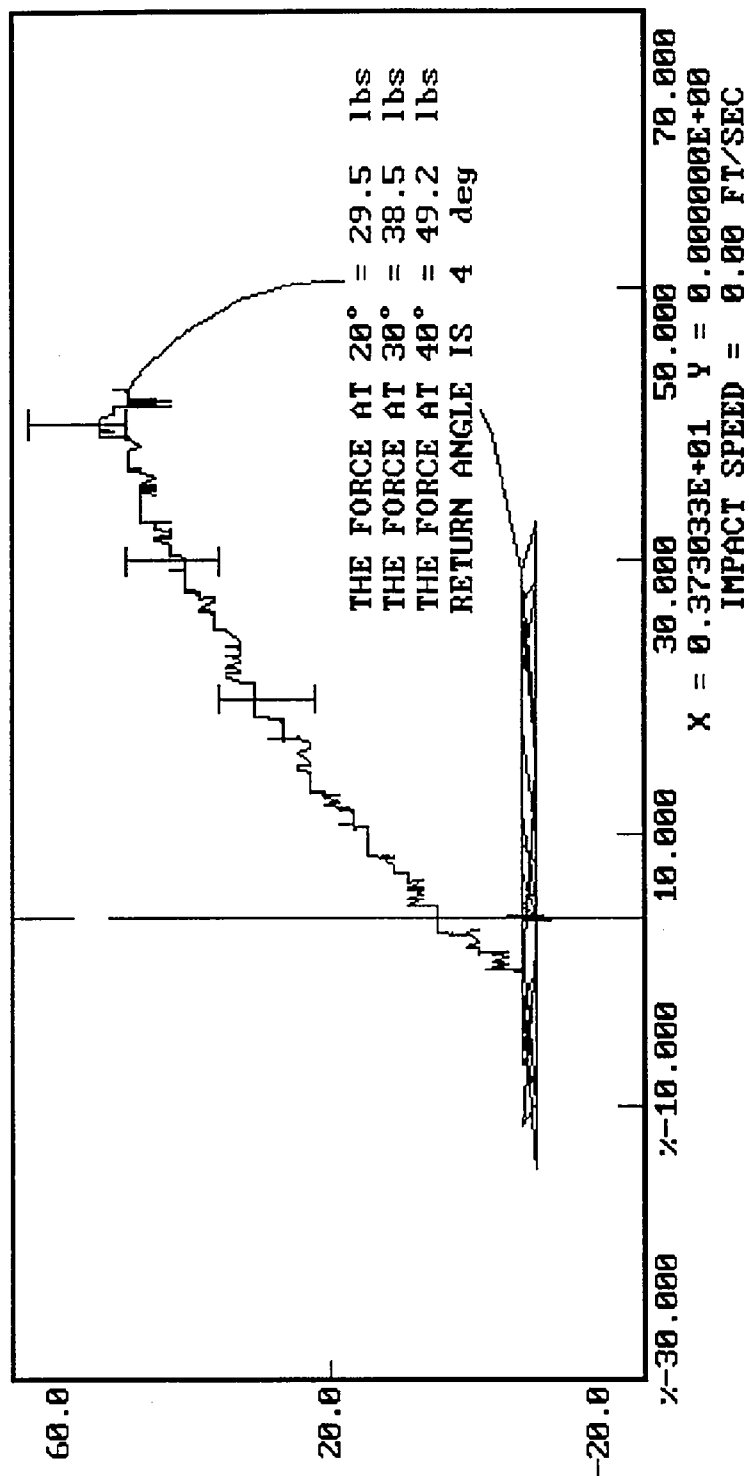
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

12-19-1996 15:01



PRE-TEST CERTIFICATION DATA

Rear Dummy Serial Number: 270

Calibration Test Results Summary

Passenger Serial Number: 270

Pre-Test Calibration

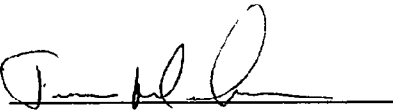
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

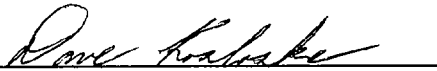
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: December 19, 1996

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
RH - Rib Height	19.75" - 20.50"	20.50
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.5
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.6
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 19, 1996

DUMMY NUMBER: 270

TEST NUMBER: D962272

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	18%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	41
LOWER RIB	37 - 46 g's	41
LOWER SPINE	15 - 22 g's	20

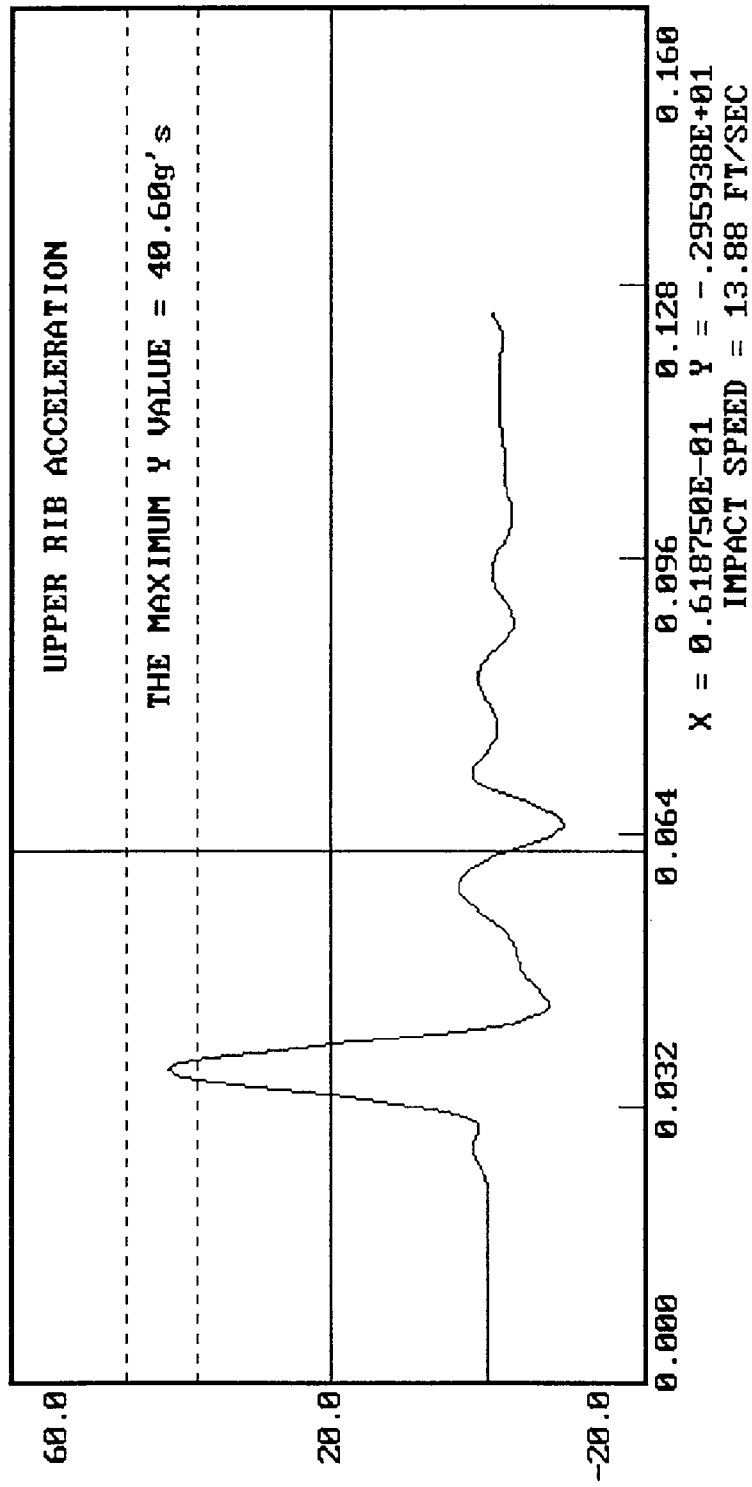
TEST MEETS SPECIFICATIONS

TECHNICIAN Tim White

APPROVED BY Paul Kabake

12-19-1996 14:35

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

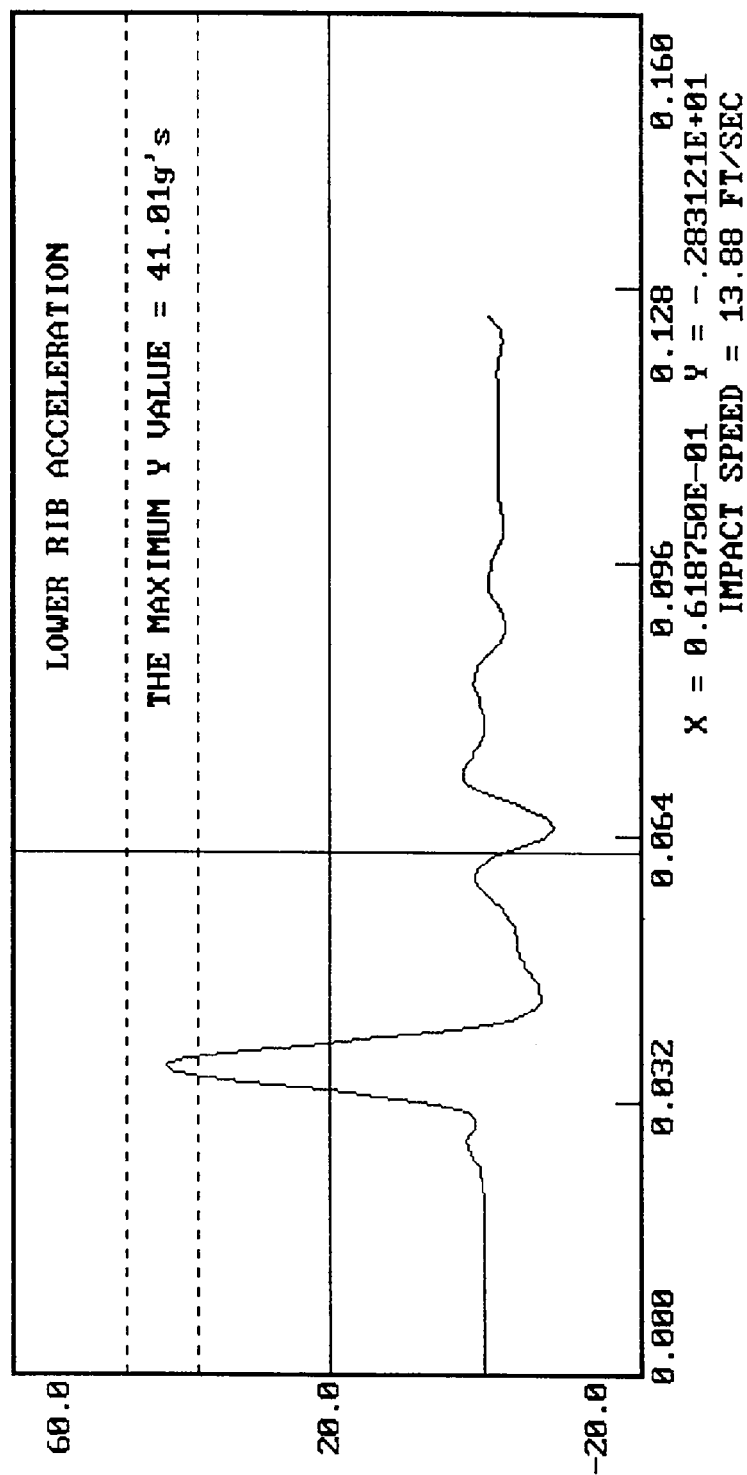


12-19-1996 14:35

DUMMY CALIBRATION - THORAX IMPACT

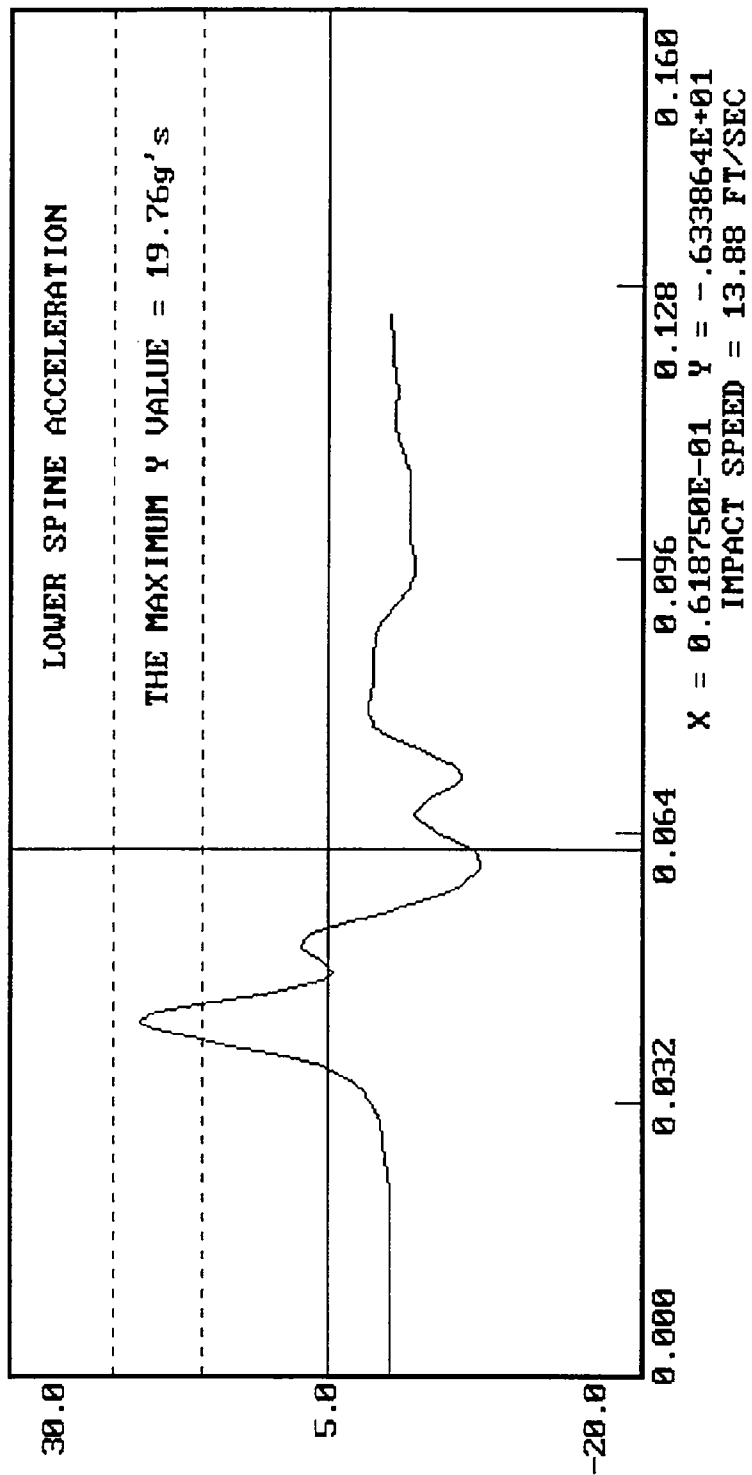
DUMMY # 270

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



12-19-1996 14:37

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 19, 1996

DUMMY NUMBER: 270

TEST NUMBER: D962273

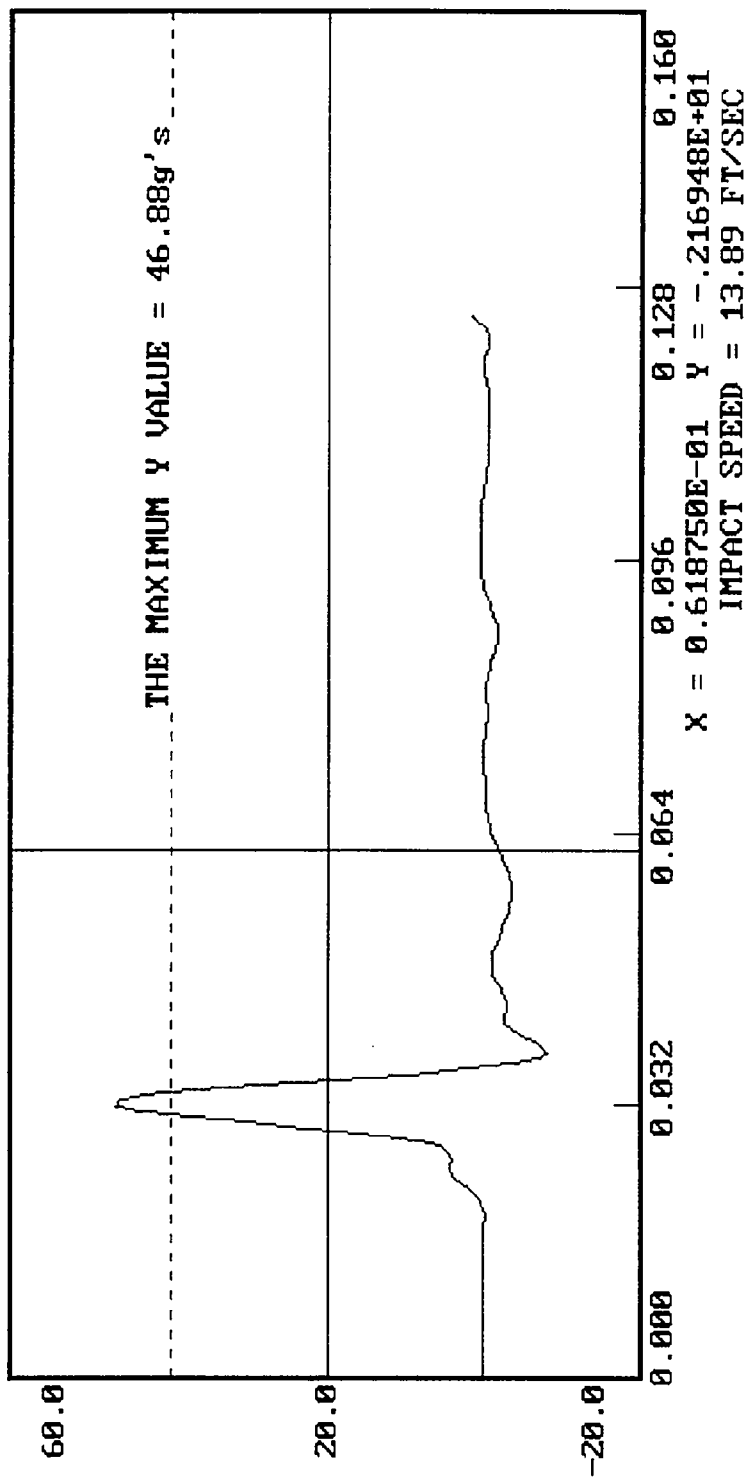
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	47

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim M. L.

APPROVED BY Dave Kalske

DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 270
12-19-1996 13:31
ACCELERATION (G'S) VS. TIME ((SECONDS))



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

DATE: December 19, 1996

DUMMY NUMBER: 270

TEST NUMBER: D962274

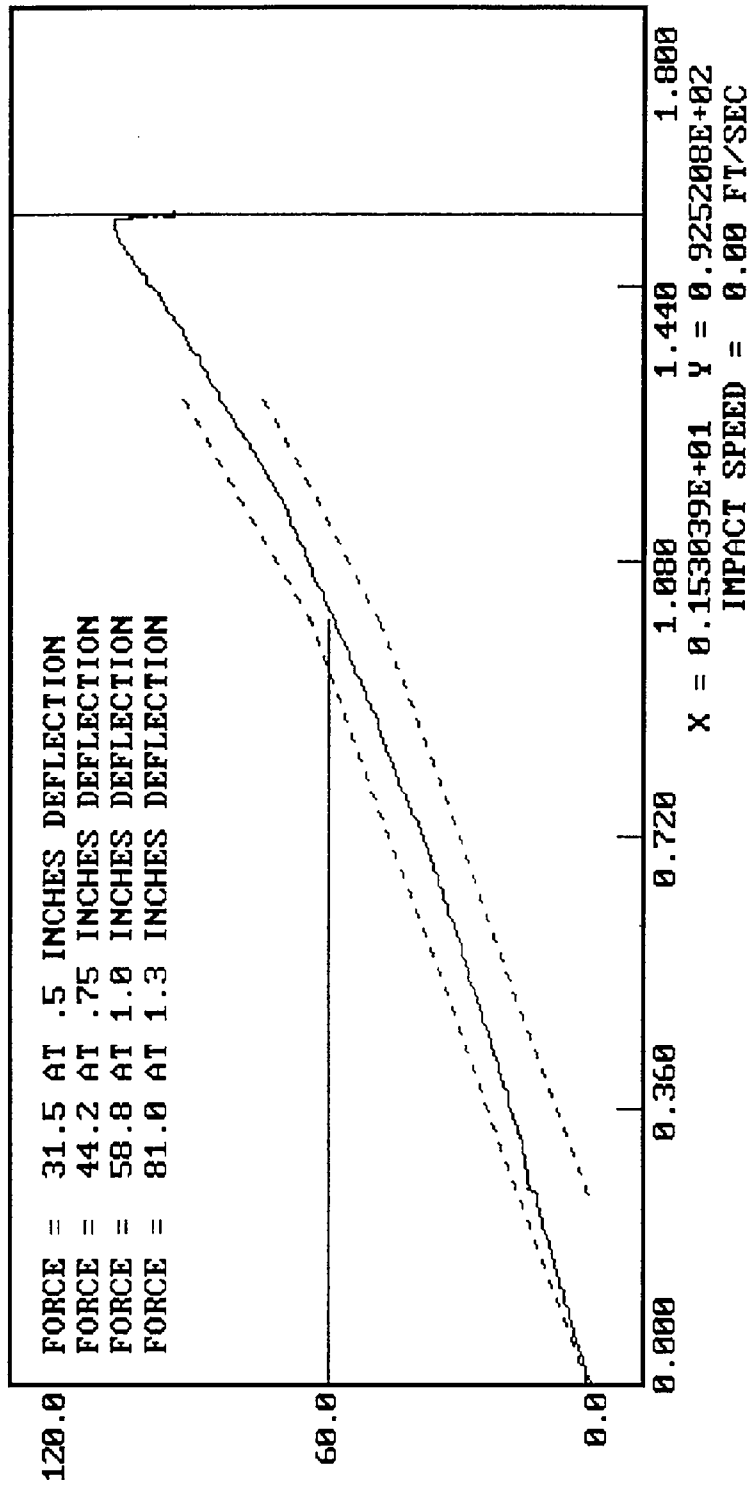
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	18%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.5
FORCE @ 0.75 in	36.7 - 49.8 lbs	44.2
FORCE @ 1.0 in	50 - 63 lbs	59
FORCE @ 1.3 in	73 - 88 lbs	81

TEST MEETS SPECIFICATIONS

TECHNICIAN Tim White

APPROVED BY Steve Kozlowski

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 270
 12-19-1996 15:46
 ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: December 19, 1996

DUMMY NUMBER: 270

TEST NUMBER: D962275

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	28
FORCE @ 30°	34 - 46 lbs	41
FORCE @ 40°	46 - 58 lbs	51
RETURN ANGLE	12° maximum	1°

TEST MEETS SPECIFICATIONS

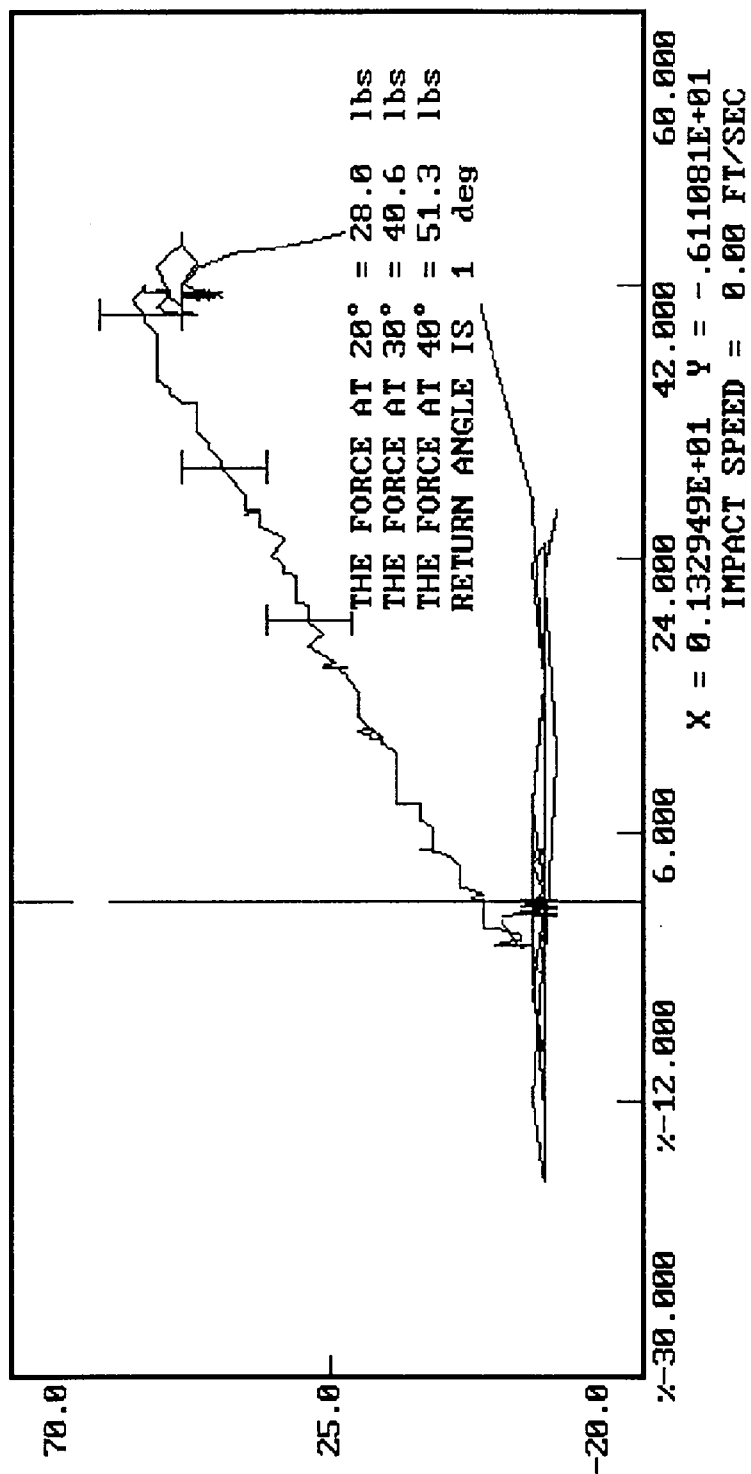
TECHNICIAN

Tim Melish

APPROVED BY

Dave Kosbake

DUMMY CALIBRATION - LUMBAR FLEXION
 DUMMY # 270
 12-19-1996 15:25
 FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST CERTIFICATION DATA

Front Dummy Serial Number: 269

Calibration Test Results Summary

Dummy Serial Number: 269

Post-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: January 08, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.1
RH - Rib Height	19.75" - 20.50"	20.00
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.4
HW - Hip Width	14.0" - 15.4"	15.1

MEASUREMENTS BY: Jim L. L.

APPROVED BY: Paul K. K.

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 08, 1996

DUMMY NUMBER: 269

TEST NUMBER: D97052

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	44
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	22

TEST MEETS SPECIFICATIONS

TECHNICIAN

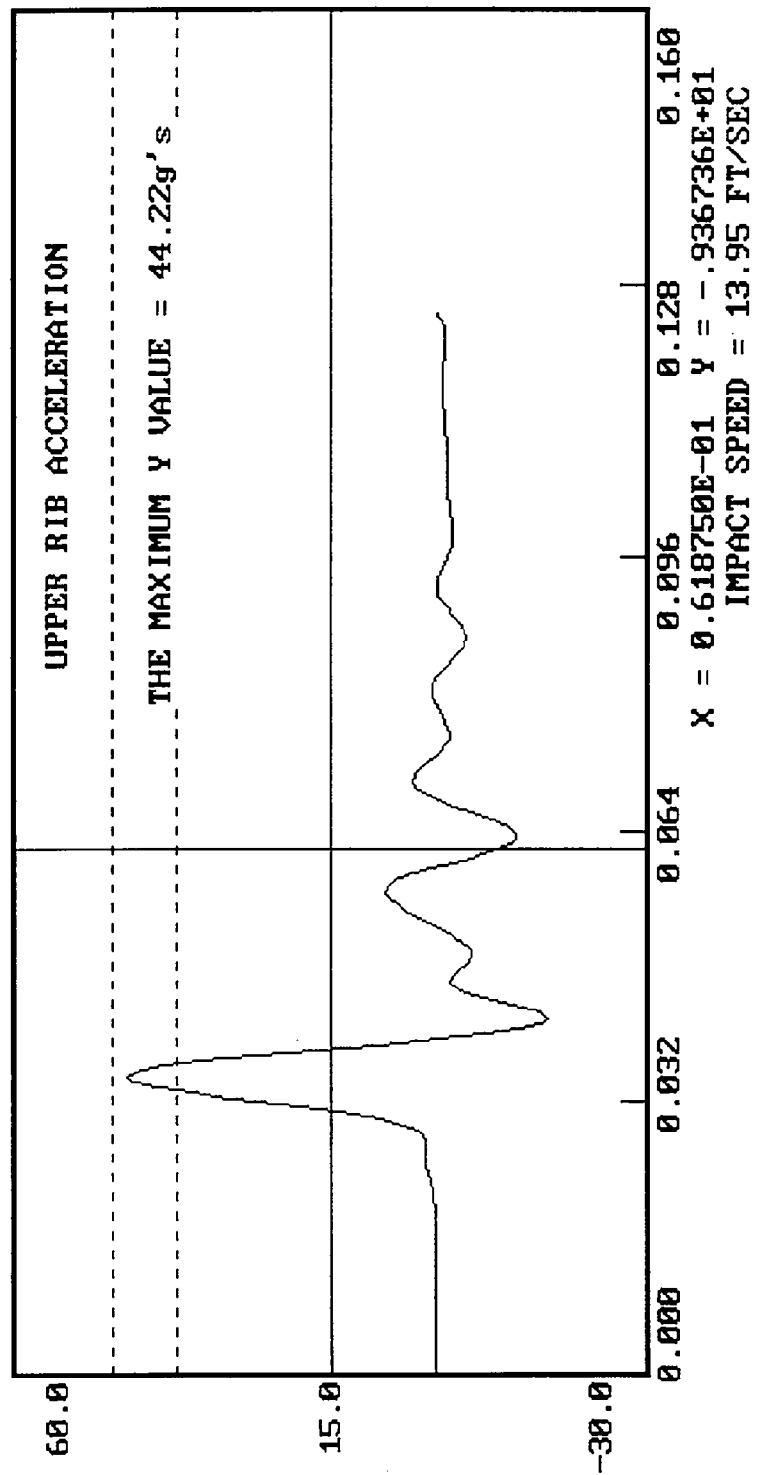
Jim H. L.

APPROVED BY

Paul Kobake

01-08-1997 14:33

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

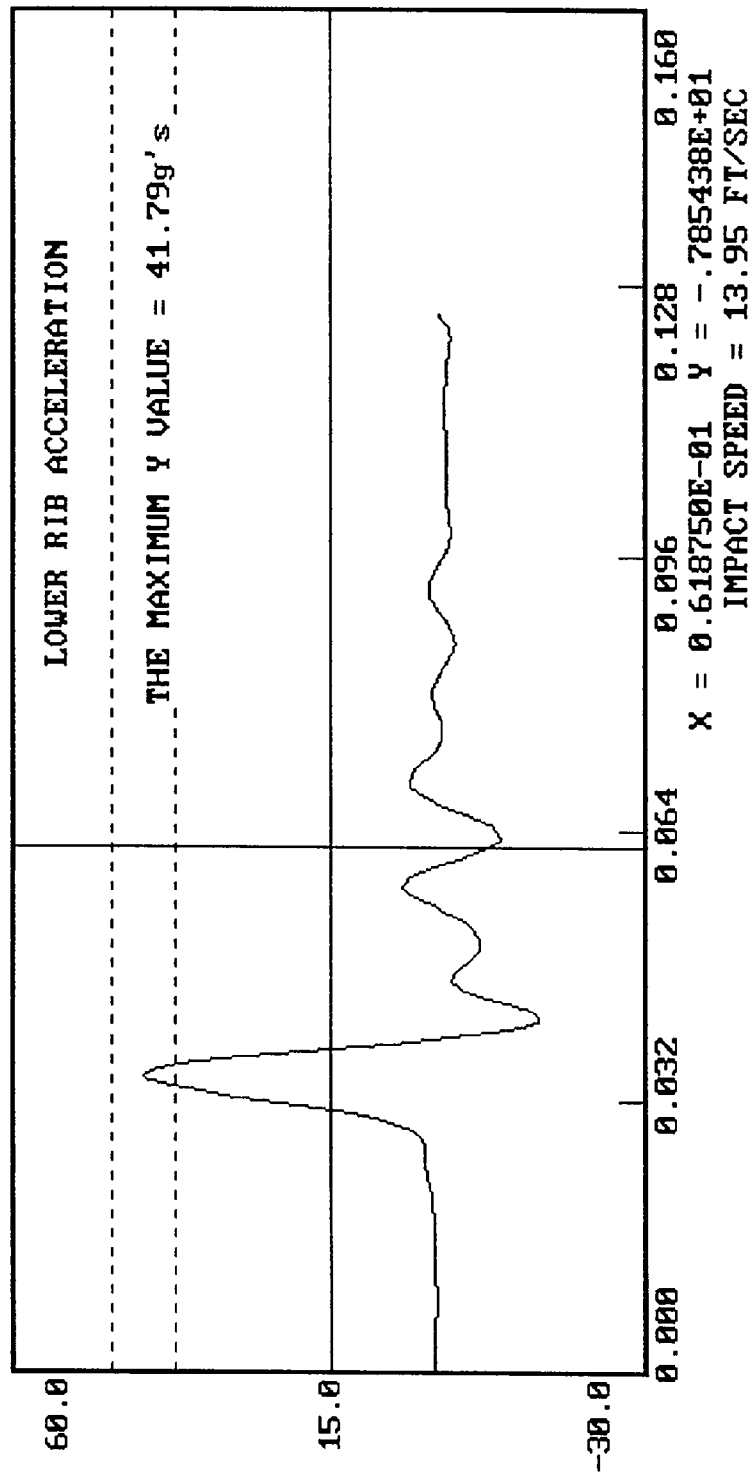


01-08-1997 14:33

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

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

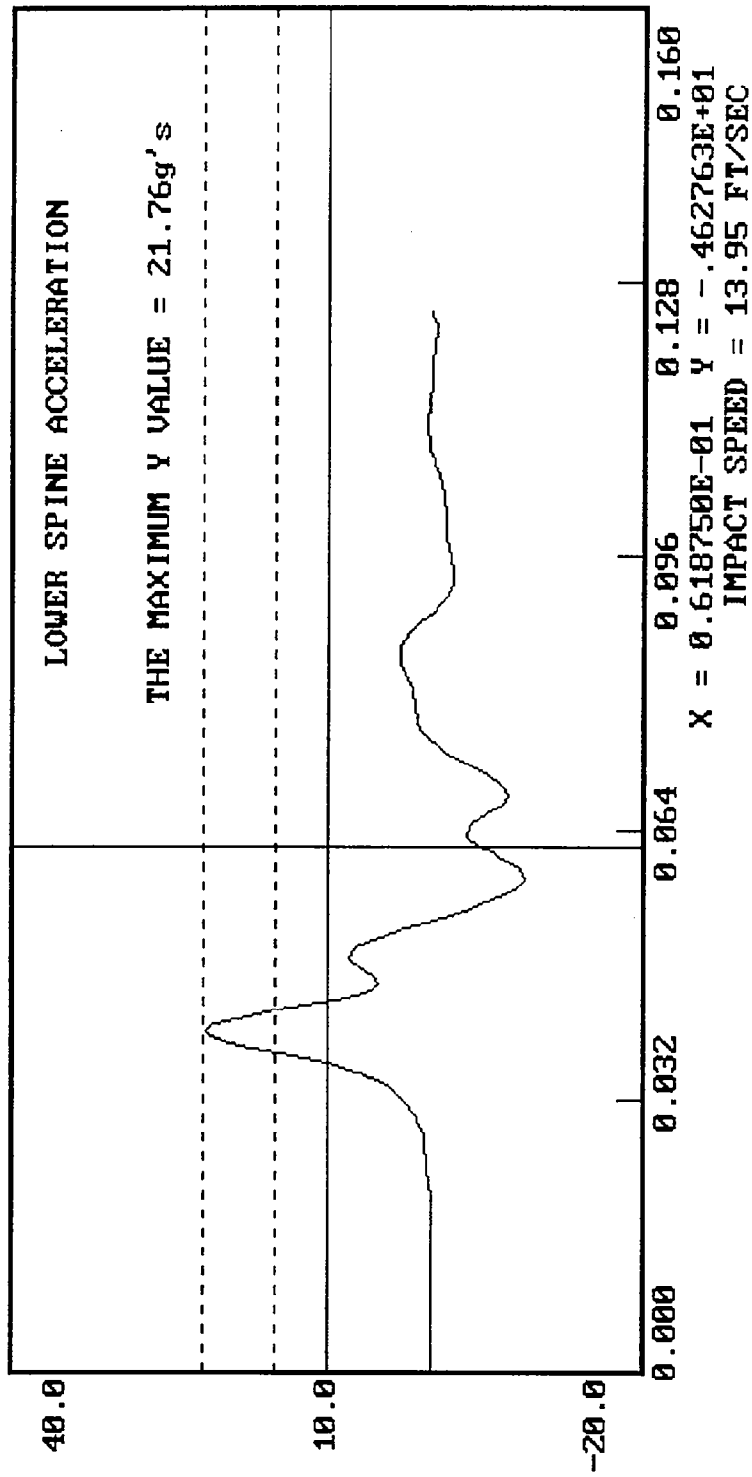


01-08-1997 14:33

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 08, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97053

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

TEST MEETS SPECIFICATIONS

TECHNICIAN

Tim Miller

APPROVED BY

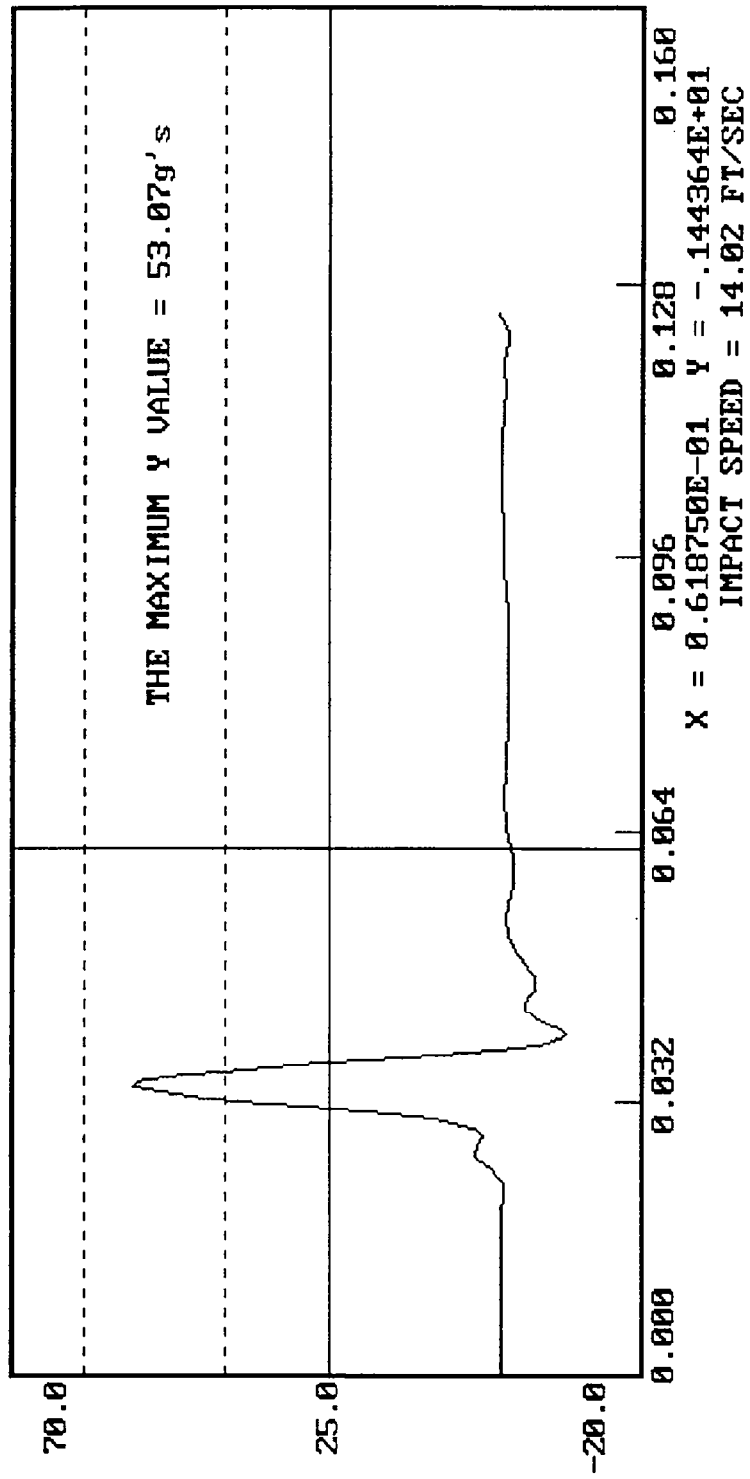
Paul Kebeke

01-08-1997 14:43

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # 269

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



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

DATE: January 08, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97054

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
FORCE @ 0.5 in	23.3 - 36.5 lbs	33.4
FORCE @ 0.75 in	36.7 - 49.8 lbs	45.9
FORCE @ 1.0 in	50 - 63 lbs	61
FORCE @ 1.3 in	73 - 88 lbs	82

TEST MEETS SPECIFICATIONS

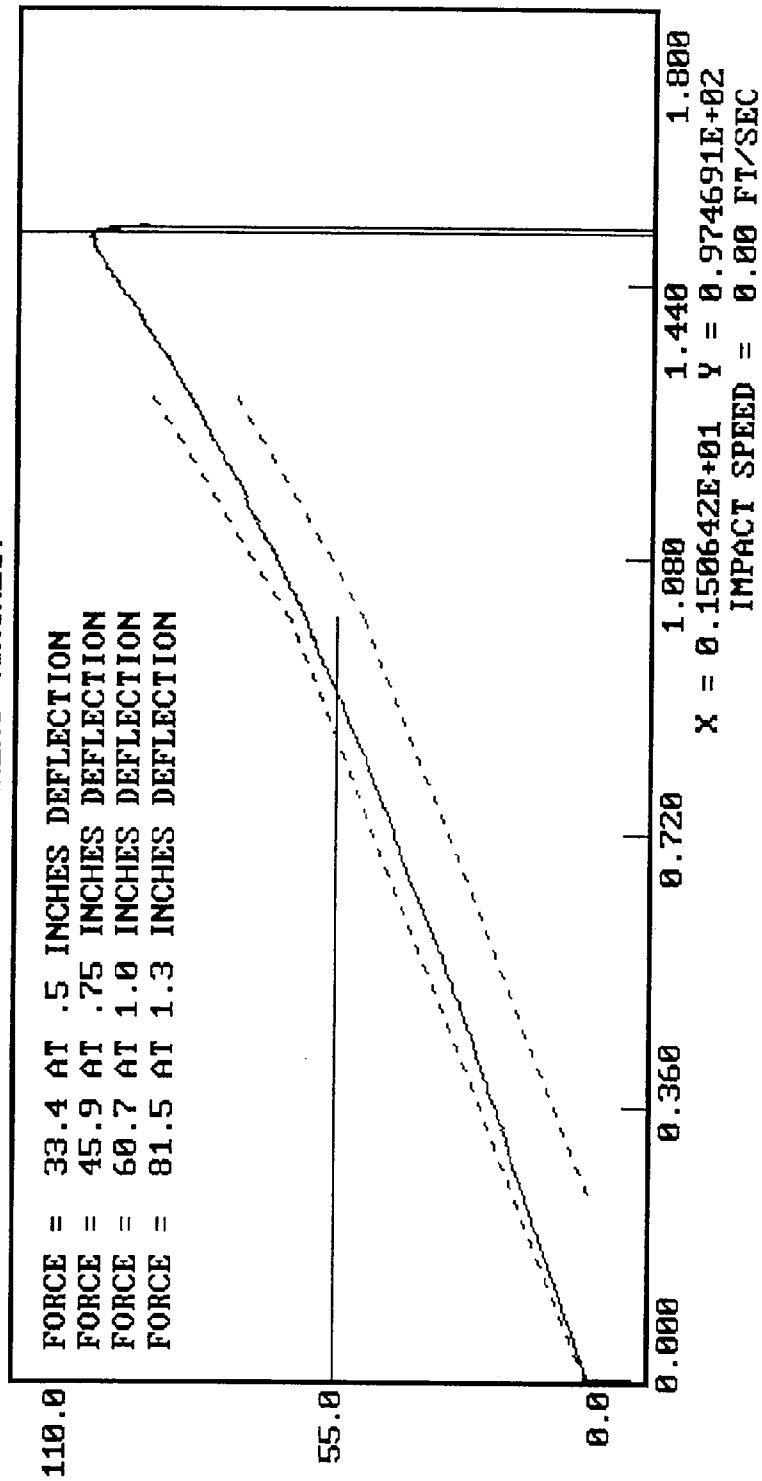
TECHNICIAN

Jim Wilson

APPROVED BY

Rene Kabeke

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 269
 01-08-1997 10:01
 ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: January 08, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97055

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	33
FORCE @ 30°	34 - 46 lbs	44
FORCE @ 40°	46 - 58 lbs	51
RETURN ANGLE	12° maximum	2°

TEST MEETS SPECIFICATIONS

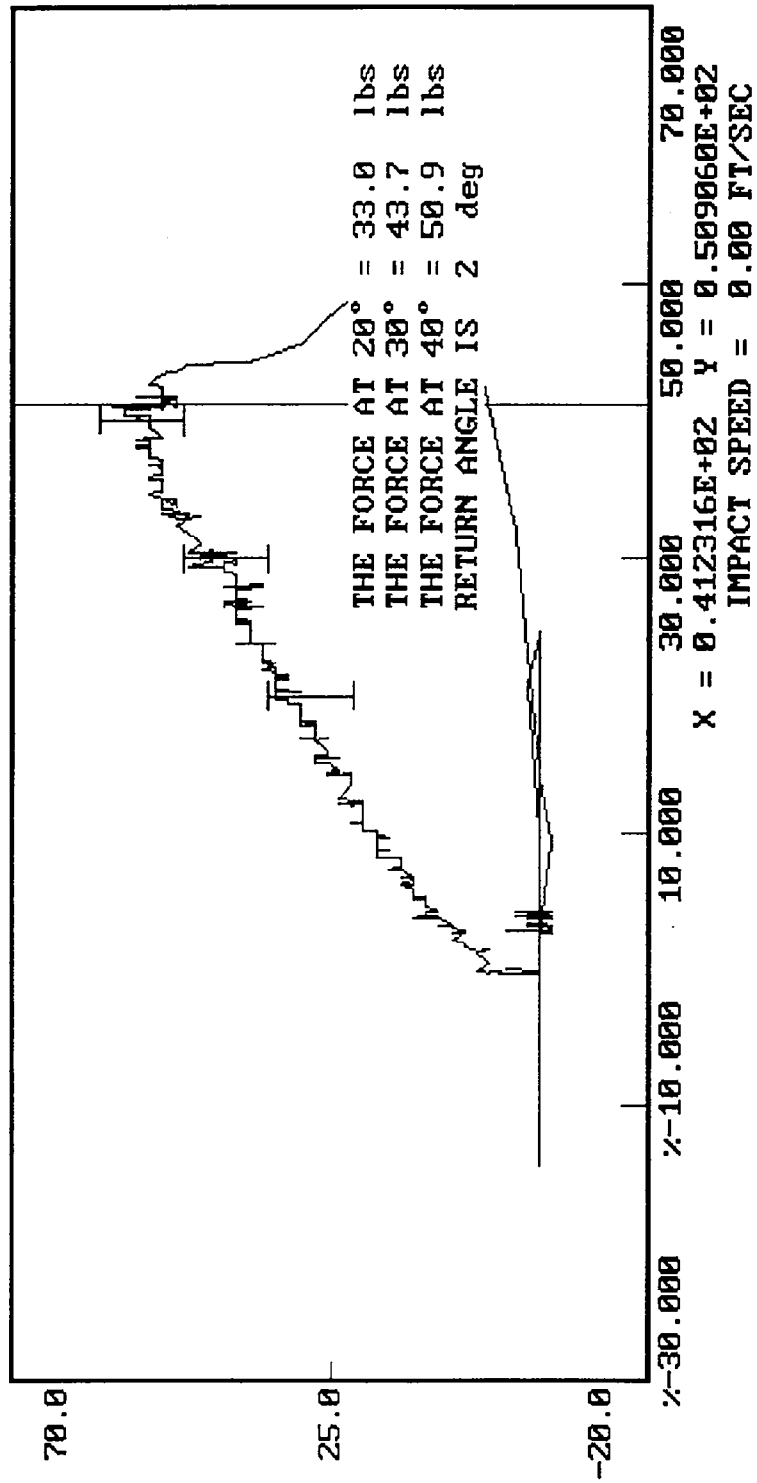
TECHNICIAN

Tim H. L.

APPROVED BY

Don K. K.

DUMMY CALIBRATION - LUMBAR FLEXION
 DUMMY # 269
 01-08-1997 11:27
 FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST CERTIFICATION DATA

Rear Dummy Serial Number: 270

Calibration Test Results Summary

Dummy Serial Number: 270

Post-Test Calibration

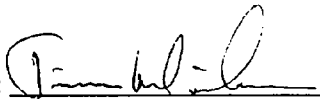
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

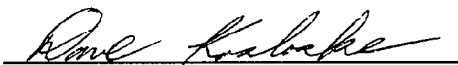
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: January 08, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
RH - Rib Height	19.75" - 20.50"	20.50
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.5
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.6
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 08, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97062

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	22%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	37
LOWER SPINE	15 - 22 g's	19

TEST MEETS SPECIFICATIONS

TECHNICIAN

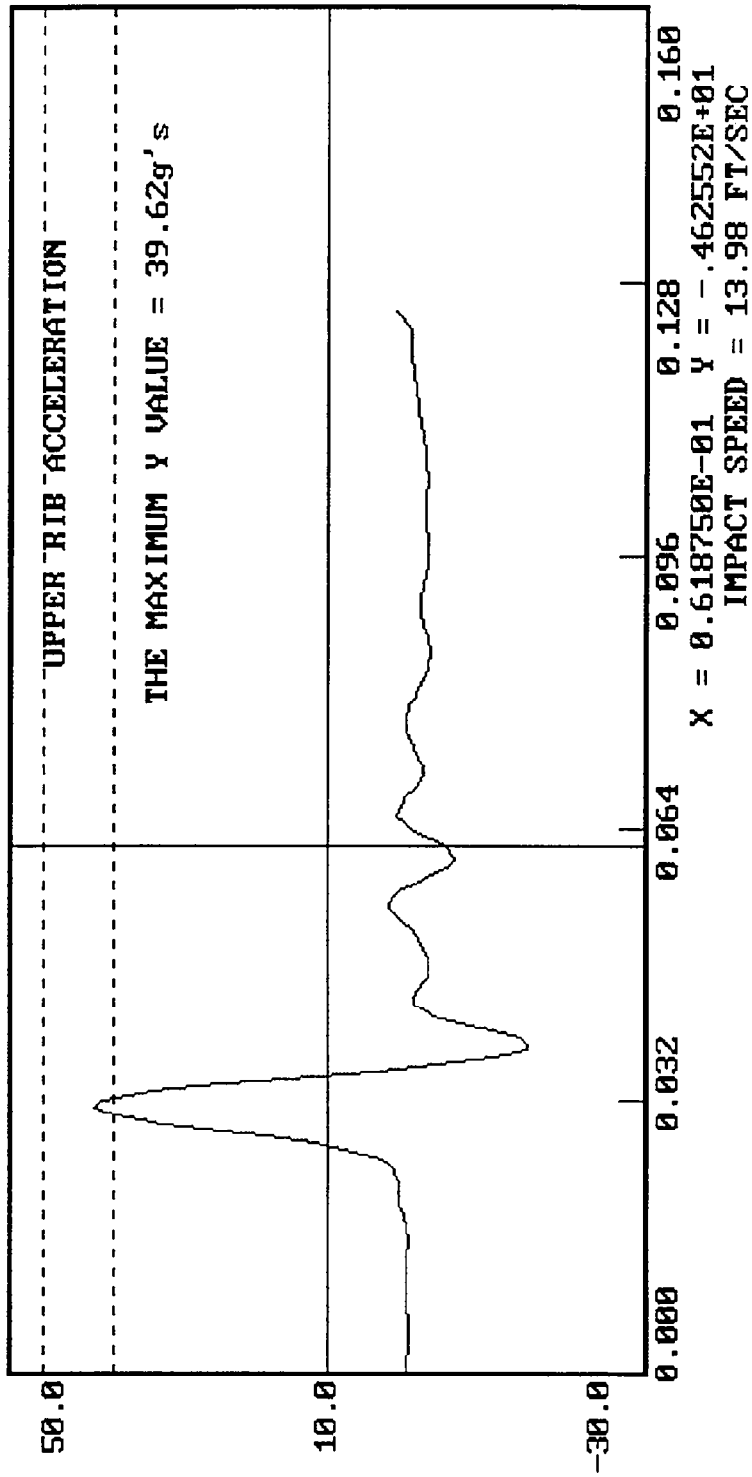
Tim W. C.

APPROVED BY

Paul H. H. H.

01-08-1997 15:02

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

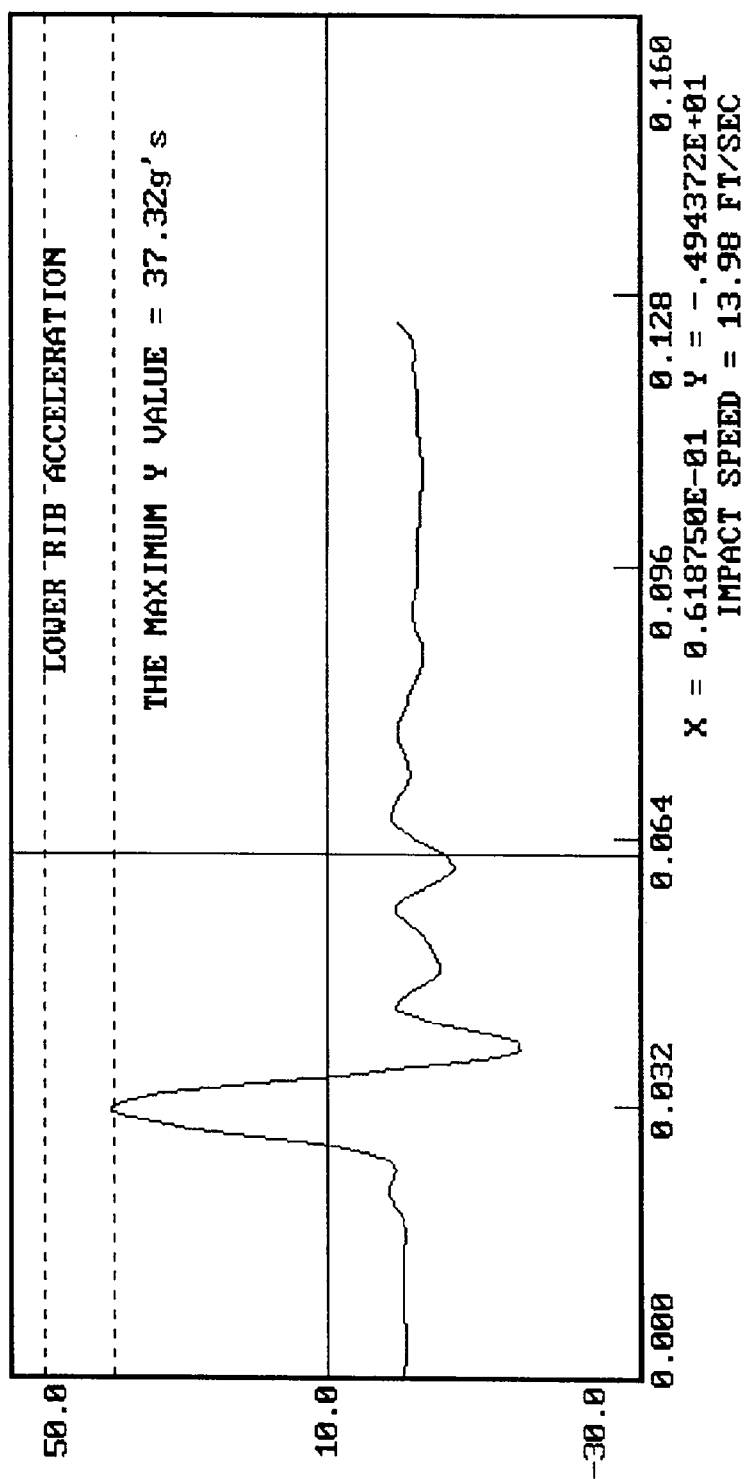


01-08-1997 15:02

DUMMY CALIBRATION - THORAX IMPACT

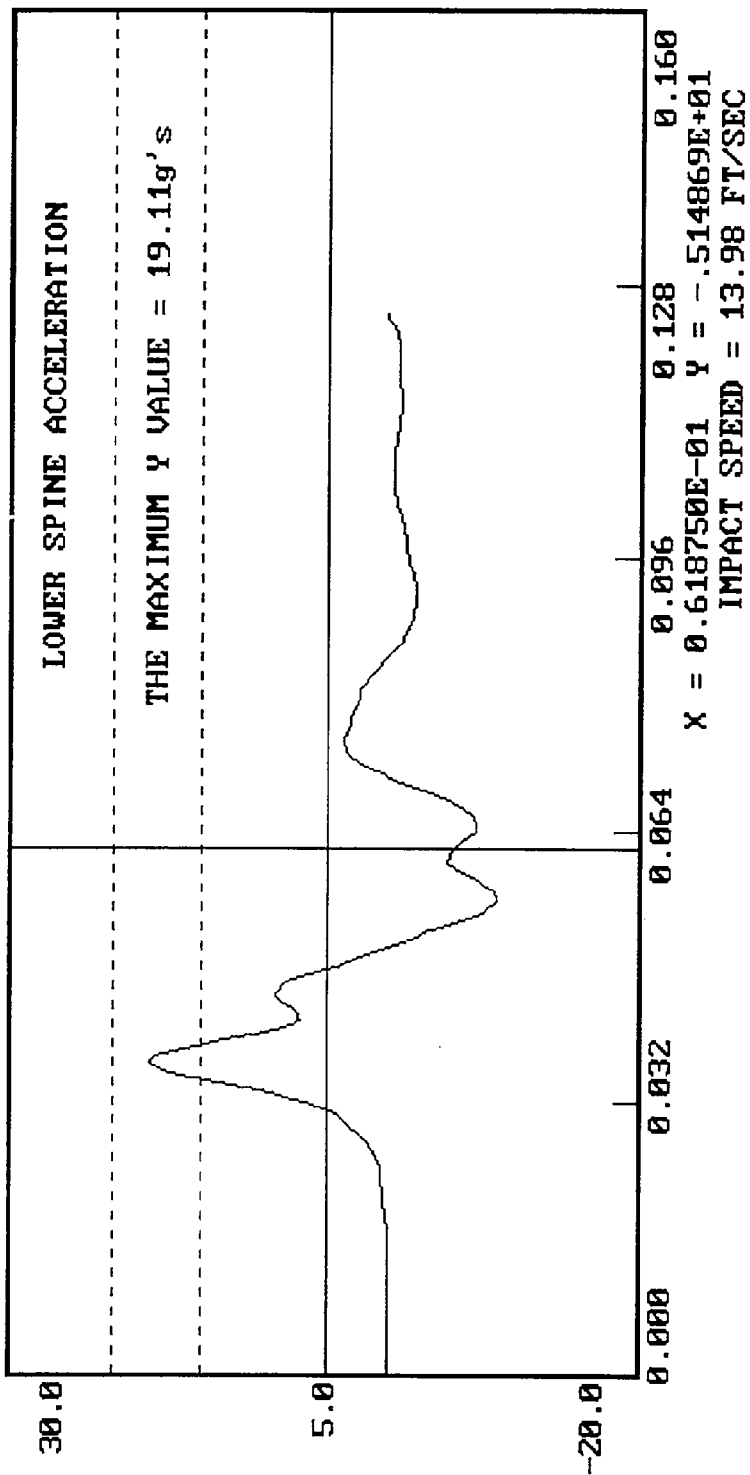
DUMMY # 270

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



01-08-1997 15:31

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 08, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97063

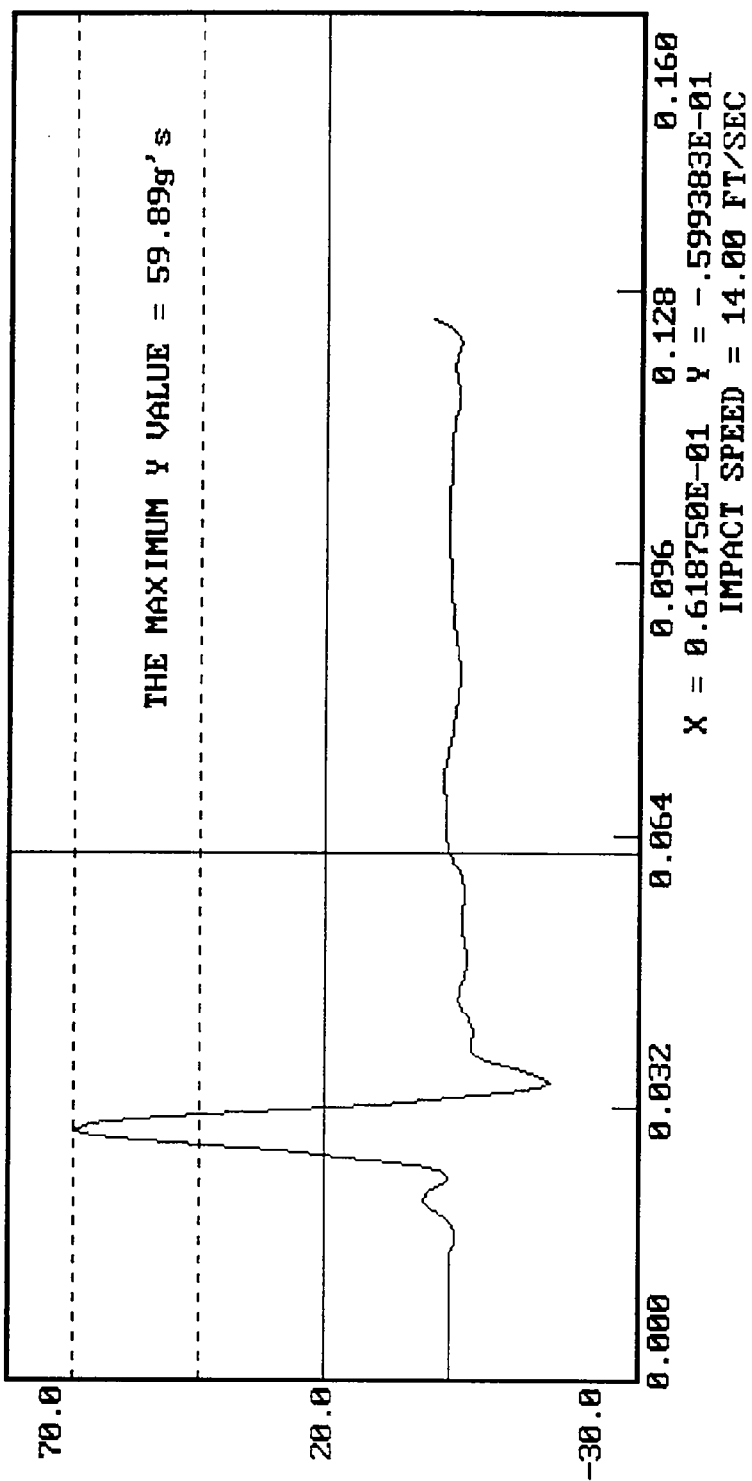
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	22%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	60

TEST MEETS SPECIFICATIONS

TECHNICIAN Tom M. L.

APPROVED BY Rene K. K.

DUMMY CALIBRATION - PELVIS IMPACT
 DUMMY # 270
 01-08-1997 15:40
 ACCELERATION (G'S) VS. TIME ((SECONDS))



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

DATE: January 08, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97064

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
FORCE @ 0.5 in	23.3 - 36.5 lbs	29.9
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.5
FORCE @ 1.0 in	50 - 63 lbs	55
FORCE @ 1.3 in	73 - 88 lbs	76

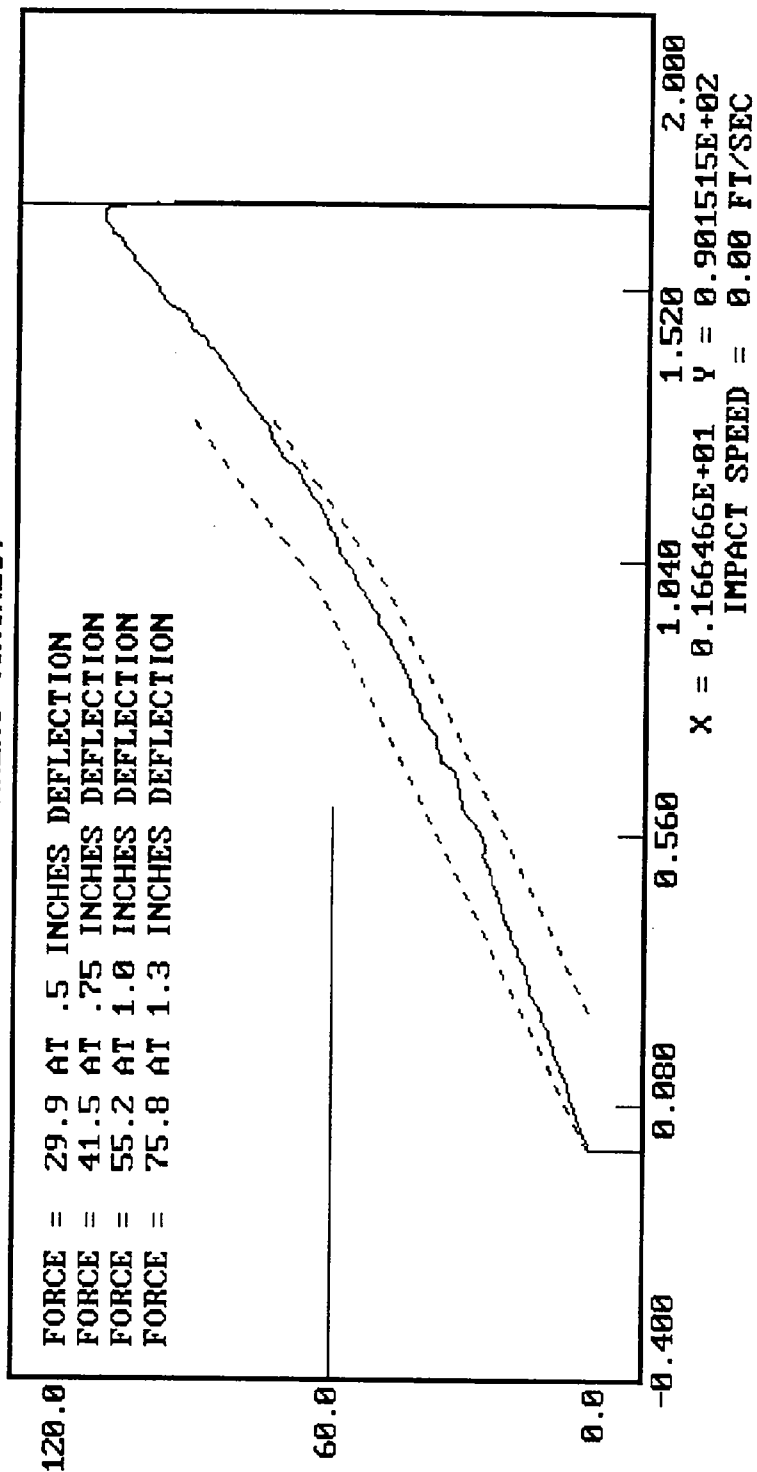
TEST MEETS SPECIFICATIONS

TECHNICIAN Tim K. L. L.

APPROVED BY Paul Koschke

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 270
 01-08-1997 10:27

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



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: January 08, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97065

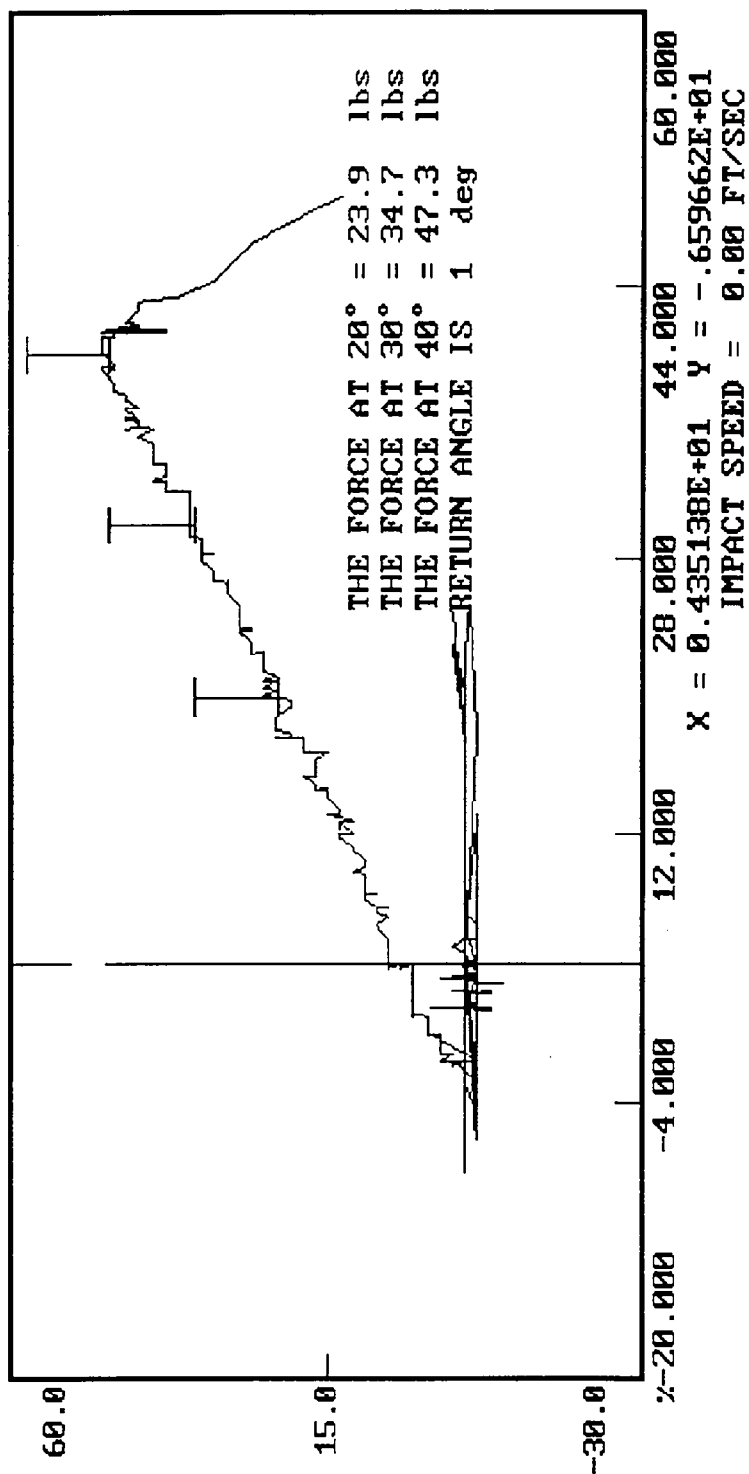
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	24
FORCE @ 30°	34 - 46 lbs	35
FORCE @ 40°	46 - 58 lbs	47
RETURN ANGLE	12° maximum	1°

TEST MEETS SPECIFICATIONS

TECHNICIAN Tim White

APPROVED BY Rene Kabahe

DUMMY CALIBRATION - LUMBAR FLEXION
 DUMMY # 270
 01-08-1997 11:13
 FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

Inspected By: Tim Michnay

Date: January 08, 1997

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

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

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 270

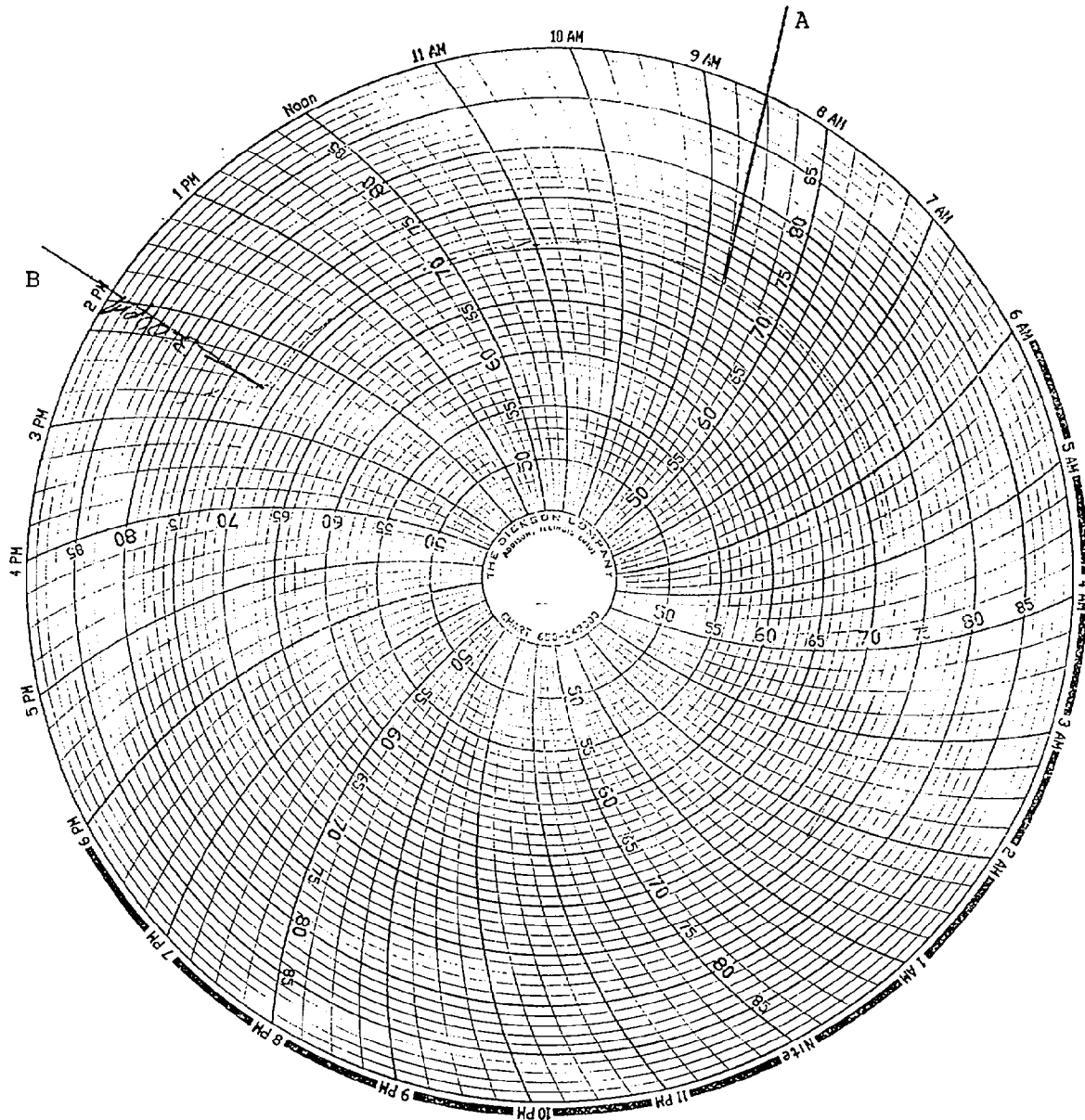
Inspected By: Tim Michnay

Date: January 08, 1997

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

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

VEHICLE AND DUMMY TEMPERATURE



A = Dummies installed in vehicle
B = Test conducted

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

DUMMY AND VEHICLE CALIBRATION DATA
INSTRUMENTS FOR RIGHT FRONT PASSENGER DUMMY NO. 262

	RIGHT FRONT PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	GTM24	Endevco	September 10, 1996
Lower Rib Y	ALEC1	Endevco	September 16, 1996
Lower Spine Y	AH1G2	Endevco	September 11, 1996
Pelvis Y	ALCN9	Endevco	September 10, 1996
Upper Rib Redundant Y	AGTB5	Endevco	September 10, 1996
Lower Rib Redundant Y	J10411	Endevco	September 16, 1996
Lower Spine Redundant Y	AM751	Endevco	September 11, 1996
Pelvis Redundant Y	AKAF3	Endevco	September 10, 1996

INSTRUMENTS FOR RIGHT REAR PASSENGER DUMMY NO. 270

RIGHT REAR PASSENGER			
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AP1H2	Endevco	September 10, 1996
Lower Rib Y	AJ9C2	Endevco	September 09, 1996
Lower Spine Y	AP2D7	Endevco	September 10, 1996
Pelvis Y	ALCH7	Endevco	September 09, 1996
Upper Rib Redundant Y	AH0B0	Endevco	September 09, 1996
Lower Rib Redundant Y	AHTT2	Endevco	September 10, 1996
Lower Spine Redundant Y	AP1T8	Endevco	September 09, 1996
Pelvis Redundant Y	AJ420	Endevco	December 03, 1996

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE AND MDB ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	C14-Z10	Entran	July 12, 1996
Moving Barrier CG Y	B14-R01	Entran	July 15, 1996
Moving Barrier CG Z	B13-z05	Entran	July 11, 1996
Moving Barrier Rear Axle X	B14-Z15	Entran	July 11, 1996
Moving Barrier Rear Axle Y	B28-B03	Entran	July 11, 1996
Right Mid A-Post Y	L22-G05	Entran	July 11, 1996
Right Lower A-Post Y	B02-G09	Entran	December 03, 1996
Right Mid B-Post Y	L14-D19	Entran	December 04, 1996
Right Lower B-Post Y	J06-D23	Entran	July 03, 1996
Rear Floorpan Above Axle X	C14-Z15	Entran	July 11, 1996
Rear Floorpan Above Axle Y	B28-B03	Entran	July 11, 1996
Rear Floorpan Above Axle Z	L22-G05	Entran	July 11, 1996
Right Front Passenger Seat Track Y	A10-G04	Entran	July 11, 1996
Left Side Sill at Front Seat X	D06-A09	Entran	July 03, 1996
Left Side Sill at Front Seat Y	C20-J10	Entran	July 11, 1996
Left Side Sill at Front Seat Z	MGA-095	Entran	July 11, 1996
Left Side Sill at Rear Seat X	J10-E03	Entran	July 10, 1996
Left Side Sill at Rear Seat Y	B02-G06	Entran	October 02, 1996
Left Side Sill at Rear Seat Z	D05-R05	Entran	July 11, 1996
Right Side Sill at Front Seat Y	D05-R14	Entran	July 11, 1996

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE AND MDB ACCELEROMETERS		
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Right Side Sill at Rear Seat Y	ALCH7	Entran	September 09, 1996
Left Rear Occupant Compartment Y	A09-G05	Entran	December 03, 1996
Vehicle CG X	C14-Z08	Entran	July 11, 1996
Vehicle CG Y	B14-R09	Entran	July 15, 1996
Vehicle CG Z	E25-G11	Entran	October 01, 1996

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