

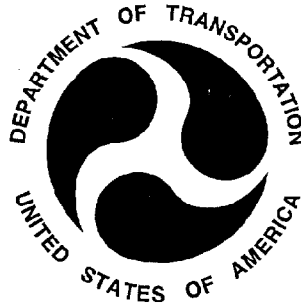
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REPORT NO.: 214-MGA-98-07
SAFETY COMPLIANCE TESTING FOR FMVSS NO. 214
"SIDE IMPACT PROTECTION -
PASSENGER CARS"

AUDI OF AMERICA, INC.
1998 AUDI A6 SEDAN
NHTSA NO: CW5800

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: January 14, 1998

Report Date: January 22, 1998

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6115 (NSA-30)
WASHINGTON, D.C. 20590

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David Winkelbauer, Deputy Facility Director

Approval Date: 2/19/98

FINAL REPORT ACCEPTED BY (OVSC):

Accepted By: J. M. Hume
Contract Technical Manager

Acceptance Date: 2/24/98

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TECHNICAL REPORT STANDARD TITLE PAGE

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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 1998 Audi A6 Sedan 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 January 14, 1998. 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 24°C. The target vehicle post test maximum crush was 291 mm at level 2. The test vehicle's performance follows: <table border="0"> <thead> <tr> <th></th> <th><u>DRIVER.</u></th> <th><u>LEFT REAR PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td>29</td> <td>23</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td>41</td> <td>30</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td>53</td> <td>33</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>47</td> <td>32</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>57</td> <td>44</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					<u>DRIVER.</u>	<u>LEFT REAR PASS.</u>	Left Upper Rib (LUR) Accel., g	29	23	Left Lower Rib (LLR) Accel., g	41	30	Lower Spine (T ₁₂) Accel., g	53	33	Thoracic Trauma Index (TTI)	47	32	Pelvis (PEV) Accel., g	57	44
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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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SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 98 FMVSS 214 Side Impact Protection Compliance Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-97-C-11033. The purpose of this test was to evaluate side impact protection of a 1998 Audi A6 Sedan.

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 1998 Audi A6 Sedan was impacted on the left 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 January 14, 1998. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in Appendix A.

Two Side Impact Dummies (SIDs) were placed in the left front and left rear 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. Left Upper Rib (LUR) uniaxial accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial accelerometer (Y-direction)

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 Left Side Impact test:

Injury Criteria	Front SID	Rear SID
TTI (g)	47	32
Pelvis (g)	57	44

TEST NOTES

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

Left Front Door on Centerline

Midrear of Left Front Door

Left Front Door Upper Centerline

Midrear of Left Rear Door

Left Rear Door Upper Centerline

Left Mid B-Pillar

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

DATA SHEET NO. 1

GENERAL VEHICLE TEST PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 VIN: WAUBA34B5WN056706

Vehicle Body Color: Black Build Date: 9/97

Engine Data: 6 Cylinders; CID; 2.8 Liter; cc

Placement ☒ Longitudinal; Lateral

Transmission: 5 speed; Manual; ☒ Automatic; ☒ Overdrive

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

Odometer Reading 103 miles

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

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

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 42 Psi FRONT

46 Psi REAR

Recommended Tire Size: P195/65R15

Tires on Test Vehicle: P195/65R15 Manufacturer: Goodyear

Vehicle Capacity Data:

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

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

Type of Front Seat Back: Fixed; ☒ Adjustable with Lever Knob ☒ Power

Vehicle Maximum Capacity Loading = 549.8 kg (A)

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

Cargo Capacity (A-B) = 209.6 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>504.4</u>	kg	Right Rear	=	<u>345.6</u>	kg
Left Front	=	<u>503.9</u>	kg	Left Rear	=	<u>359.3</u>	kg
TOTAL FRONT	=	<u>1008.3</u>	kg	TOTAL REAR	=	<u>704.9</u>	kg
% of Total Vehicle Weight	=	<u>58.9</u>	%;	% of Total Weight	=	<u>41.1</u>	%
TOTAL WEIGHT	=	<u>1713.2</u>	kg				

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	= <u>1713.2</u> kg
Cargo Carrying Capacity of Test Vehicle	= <u>209.6</u> kg
Weight of 2 Side Impact Dummies (2 x <u>80.7</u> kg.)	= <u>161.4</u> kg
TEST VEHICLE TARGET WEIGHT	= <u>2084.2</u> kg

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO: (FULLY LOADED)

Right Front	= <u>502.1</u> kg	Right Rear	= <u>496.7</u> kg
Left Front	= <u>539.3</u> kg	Left Rear	= <u>545.2</u> kg
TOTAL FRONT	= <u>1041.4</u> kg	TOTAL REAR	= <u>1041.9</u> kg
% of Total Weight	= <u>50.0</u> %	% of Total Weight	= <u>50.0</u> %
TOTAL TEST WEIGHT	= <u>2083.3</u> kg		

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 692 mm Left Front 686 mm Right Rear 689 mm Left Rear 688 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 689 mm Left Front 678 mm Right Rear 634 mm Left Rear 626 mm

TEST ATTITUDE:

Right Front 683 mm Left Front 686 mm Right Rear 637 mm Left Rear 626 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2765 mm

C.G. As Tested = 1368 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4540 mm

Centerline = 4828 mm

Left Side = 4540 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 240 mm

Test Position: 120 mm rearward (power seat)

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 15°

REAR POSITION SEAT:

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

Seat Back Adjustment Position: non-adjustable

ADJUSTABLE STEERING COLUMN POSITION: mid-position

WINDOW POSITIONS: Left Front closed Left Rear closed
Right Front open Right Rear open

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

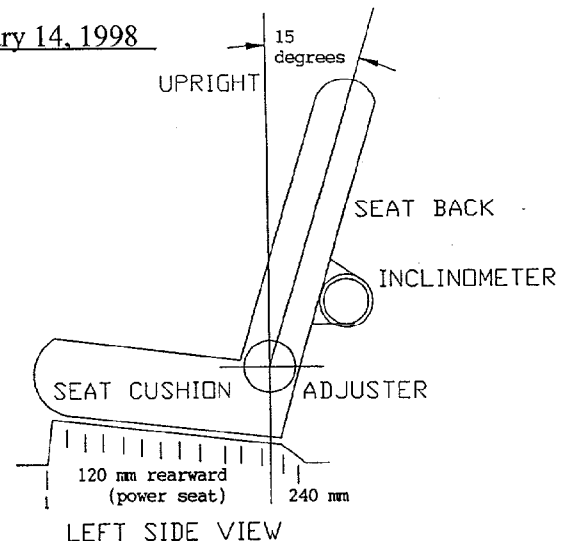
Fuel system usable capacity = 70 liters

Test Volume: 65.8 liters 94% of capacity

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

Wheelbase: = 2765 mm

Impact Point is 443 mm rearward of front axle centerline



DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door/Sedan
Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998
Overall Length = 4828 mm; Overall Width = 1790 mm

TEST WEIGHT:

Right Front = <u>520.7</u> kg	Right Rear = <u>500.3</u> kg
Left Front = <u>528.9</u> kg	Left Rear = <u>528.0</u> kg
TOTAL FRONT = <u>1049.6</u> kg	TOTAL REAR = <u>1028.3</u> kg
% of Total Weight = <u>50.5</u> %	% of Total Weight = <u>49.5</u> %
TOTAL VEHICLE WEIGHT = <u>2077.9</u> kg	
Wheelbase = <u>2765</u> mm	
Longitudinal C.G. from Center of Front Axle	= <u>1368</u> mm
Impact Angle with Respect to Impactor	= <u>90°</u> degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (344 mm above ground) = 238 mm
 2. LEVEL 2 (472 mm above ground) = 291 mm
 3. LEVEL 3 (590 mm above ground) = 276 mm
 4. LEVEL 4 (908 mm above ground) = 230 mm
 5. LEVEL 5 (1358 mm above ground) = 40 mm
- Maximum Post-Test Intrusion = 291 mm

OCCUPANTS:

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

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)

INSTRUMENTATION:

Number of Vehicle Data Channels: = 19

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: 1998/Audi/A6/4 Door

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

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

MDB WEIGHT:

Left Front	= <u>440.1 kg</u>	Left Rear	= <u>246.6 kg</u>
Right Front	= <u>338.2 kg</u>	Right Rear	= <u>331.9 kg</u>
TOTAL FRONT	= <u>778.3 kg</u>	TOTAL REAR	= <u>578.5 kg</u>
TOTAL MDB WEIGHT = <u>1356.8 kg</u>			

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

Impact Speed = Primary: 32.8 mph (52.8 kph) Secondary: 32.7 mph (52.6 kph)

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

- | | | | | |
|----|---------------------------------|---|------------|----|
| 1. | Row A Top of Stack (813 mm) | = | <u>159</u> | mm |
| 2. | Row B Mid Stack (686 mm) | = | <u>82</u> | mm |
| 3. | Row C Top of Bumper (533 mm) | = | <u>104</u> | mm |
| 4. | Row D Center of Bumper (432 mm) | = | <u>168</u> | mm |

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to left shoulder</u>	<u>to C-Post</u>
Arm	<u>to side airbag & seat</u>	<u>to side airbag & seat</u>
Pelvis	<u>to door trim panel</u>	<u>to door trim panel</u>
Left Knee	<u>to door trim panel</u>	<u>to door trim panel</u>
Right Knee	<u>to left knee</u>	<u>to left knee</u>

DOOR OPENING:

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

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 17 mm rearward Vertical: 0 mm high

ARM REST LOCATIONS:

Front: 250 mm from bottom of window

Rear: 268 mm from bottom of window

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 63 mm Front Seat Cushion: 84 mm

Left Rear Seat Back: 35 mm Rear Seat Cushion: 132 mm

GLAZING DAMAGE:

Both left side windows broke, windshield cracked

PILLAR PERFORMANCE:

None noted

SILL SEPARATION:

None noted

FRONTAL AIRBAGS:

Driver Deployed: No Passenger Deployed: No

OTHER NOTABLE IMPACT EFFECTS:

Side airbags deployed properly

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

SIDE IMPACT DUMMY (SID) INSTRUMENTATION DATA

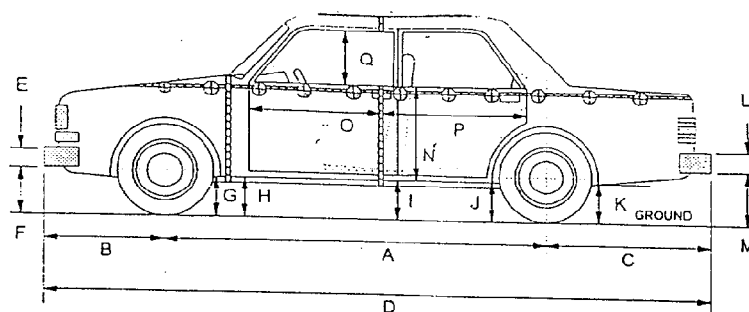
Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

	Front SID ID #048			Rear SID ID #049		
	Pos. Direct.		Neg. Direct	Pos. Direct.		Neg. Direct
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS						
Left Upper Rib (LUR) Y	29.0	25	9.3	73	23.0	46
Left Lower Rib (LLR) Y	40.8	26	12.3	89	30.3	57
SPINE ACCELERATIONS						
Lower Lateral Y	52.8	32	12.0	64	32.9	52
PELVIS ACCELERATIONS						
Lateral Y	57.1	32	15.8	71	43.8	43
					7.8	99

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

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



LEFT SIDE VIEW

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

J1 = To Pinch Weld
J2 = To Sill

ALL MEASUREMENTS IN (mm)

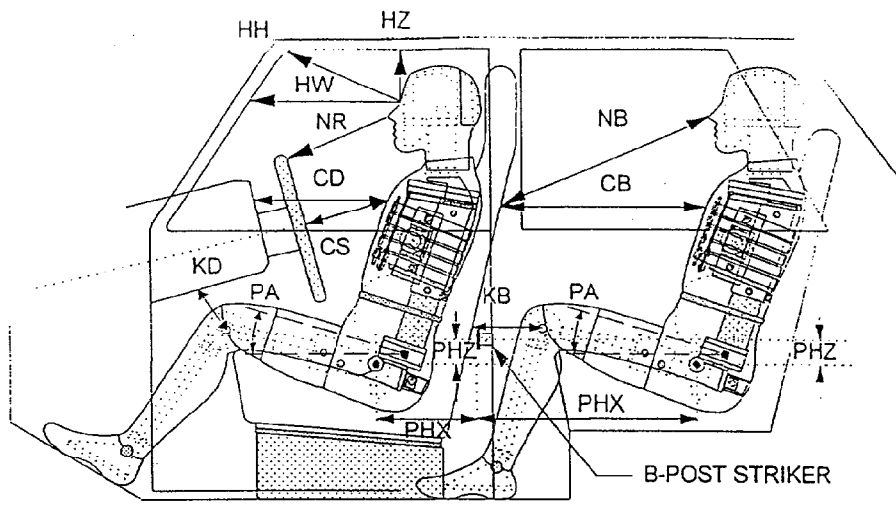
	PRE-TEST	POST-TEST	Δ CHANGE
A	2765	2737	28
B	1005	993	12
C	1058	1079	21
D	4828	4809	19
E	174	174	0
F	411	428	17
G	191	191	0
H	192	197	5
I	174	196	22
J1/J2	150/153	148/150	2/3
K	194	193	1
L	280	280	0
M	269	275	6
N	700	617	83
O	753	740	13
P	1218	983	235
Q	412	393	19
R	4540	4545	5
S	4540	4500	40
T	1790	1527	263

DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

NHTSA NO.: CW5800 Test Date: January 14, 1998



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

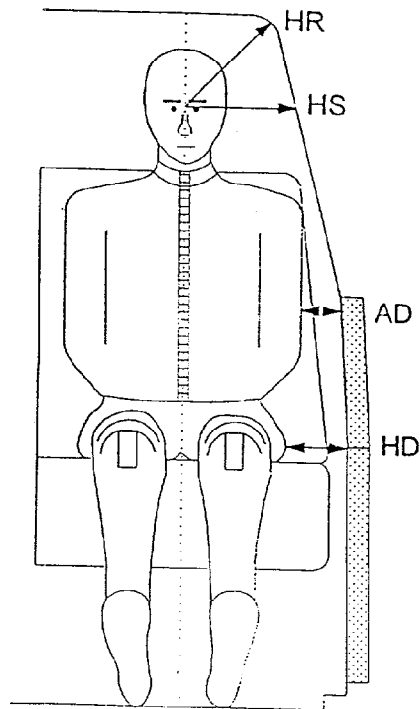
	FRONT PASSENGER ID #048		REAR PASSENGER SID ID #049
HH	333	HZ	153
HW	594	NB	655
HZ	167	CB	583
NR	394	KBL (KBA)	292 (0.0°)
CD	509	KBR (KBA)	302 (0.0°)
CS	298	PA°	23.6°
KDL (KDA°)	168 (23.4°)	PHX	217
KDR (KDA°)	171 (28.9°)	PHZ	220
PA°	23.7°		
PHX	224		
PHZ	236		

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

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

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

NHTSA NO.: CW5800 Test Date: January 14, 1998



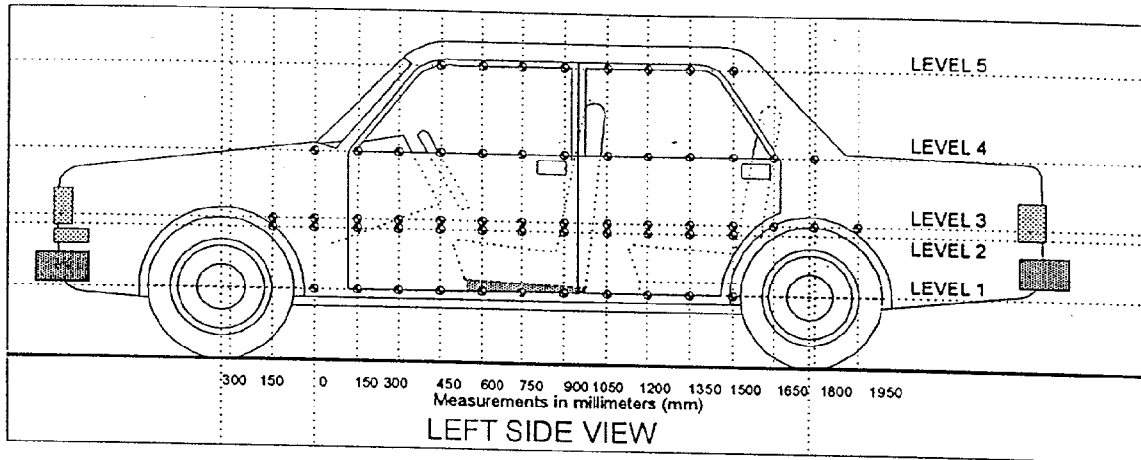
NOTE: All dimensions are in mm

	FRONT PASSENGER ID #048	REAR PASSENGER ID #049
HR	187	193
HS	322	320
AD	90	120
HD	152	168

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

NHTSA NO.: CW5800 Test Date: January 14, 1998



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

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

MEASUREMENTS ALONG THE VERTICAL 750 mm. LINE SHOWN ABOVE

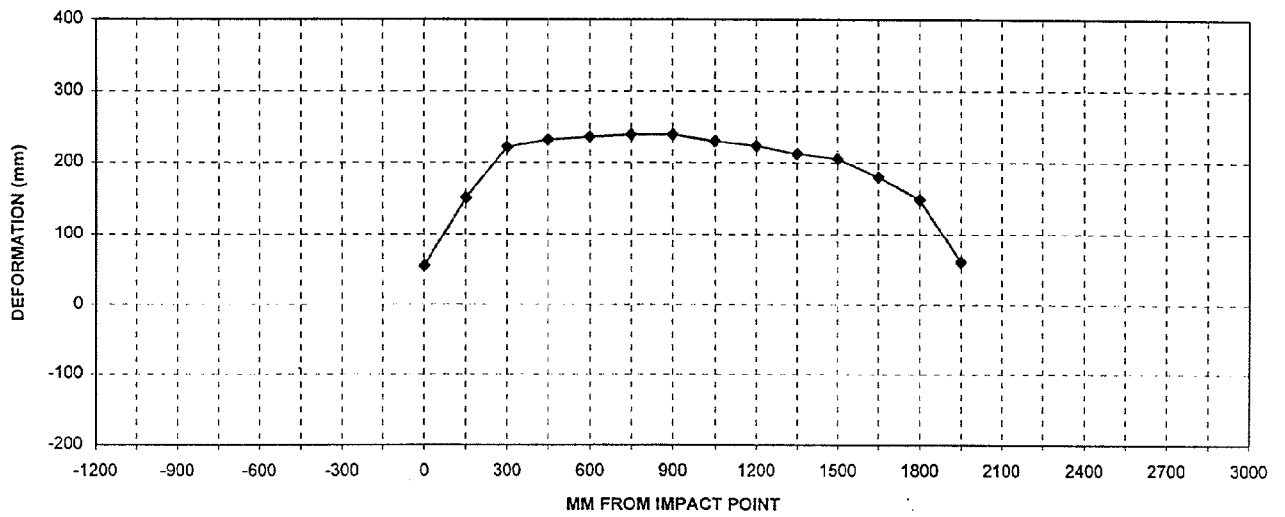
Level 1 @ Axle Centerline Height (or Sill Top Height)	= <u>344</u> mm
Level 2 @ Occupant H-Point	= <u>472</u> mm
Level 3 @ Mid Door	= <u>590</u> mm
Level 4 @ Window Sill	= <u>908</u> mm
Level 5 @ Window Top	= <u>1358</u> mm

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	704	54
150	660	811	151
300	658	879	221
450	656	887	231
600	654	889	235
750	651	889	238
900	650	888	238
1050	650	879	229
1200	652	875	223
1350	652	864	212
1500	650	855	205
1650	652	832	180
1800	655	804	149
1950	648	708	60
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)



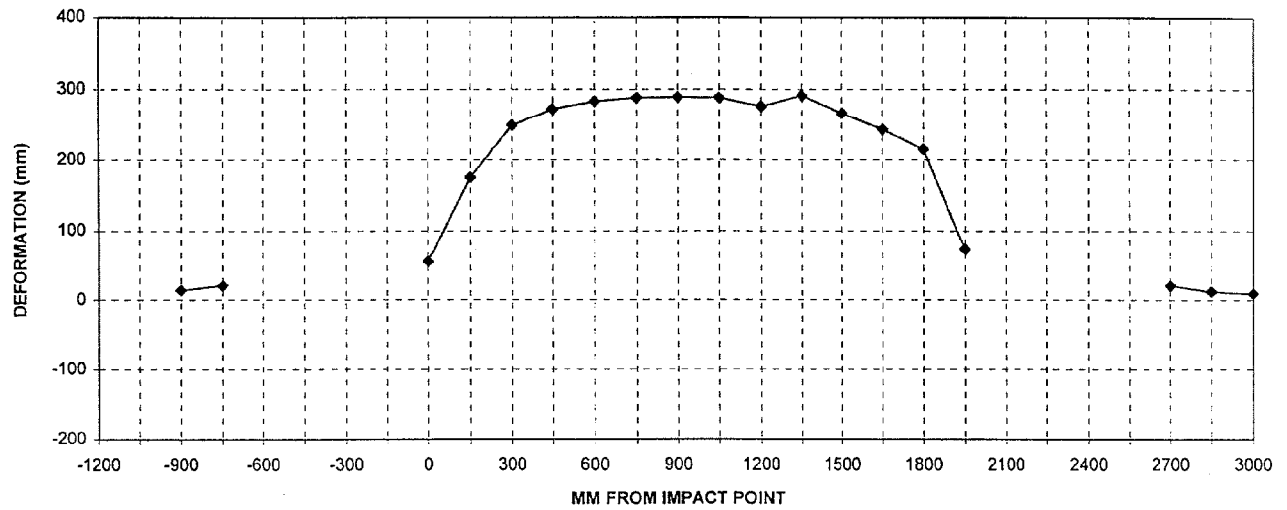
LEVEL 1 - AXLE CENTERLINE

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	694	708	14
-750	645	666	21
-600			
-450			
-300			
-150			
0 (impact point)	638	694	56
150	641	816	175
300	638	887	249
450	635	907	272
600	632	915	283
750	630	918	288
900	629	918	289
1050	628	916	288
1200	627	903	276
1350	626	917	291
1500	626	892	266
1650	628	871	243
1800	630	845	215
1950	630	703	73
2100			
2250			
2400			
2550			
2700	642	663	21
2850	675	687	12
3000	699	708	9

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



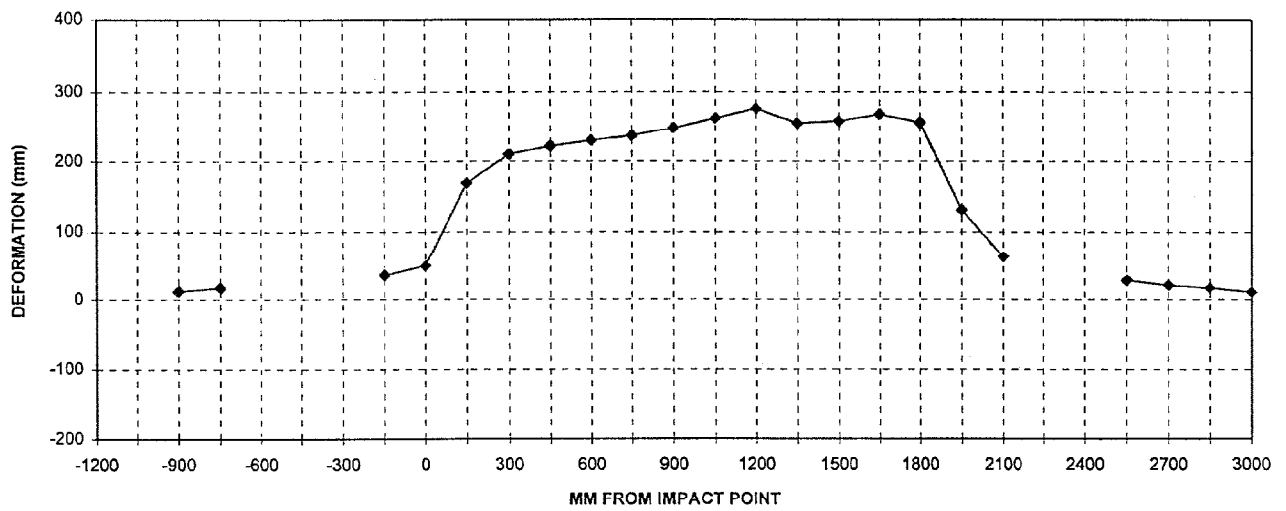
LEVEL 2 - OCCUPANT H-POINT

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

Longitudinal Distance (mm)	Level 3 - Mid Door		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900	694	706	12
-750	661	678	17
-600			
-450			
-300			
-150	623	658	35
0 (impact point)	639	688	49
150	637	806	169
300	632	842	210
450	629	851	222
600	627	857	230
750	626	863	237
900	625	873	248
1050	624	886	262
1200	623	899	276
1350	622	877	255
1500	622	880	258
1650	623	891	268
1800	627	883	256
1950	630	761	131
2100	610	673	63
2250			
2400			
2550	612	640	28
2700	652	673	21
2850	673	690	17
3000	696	707	11

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



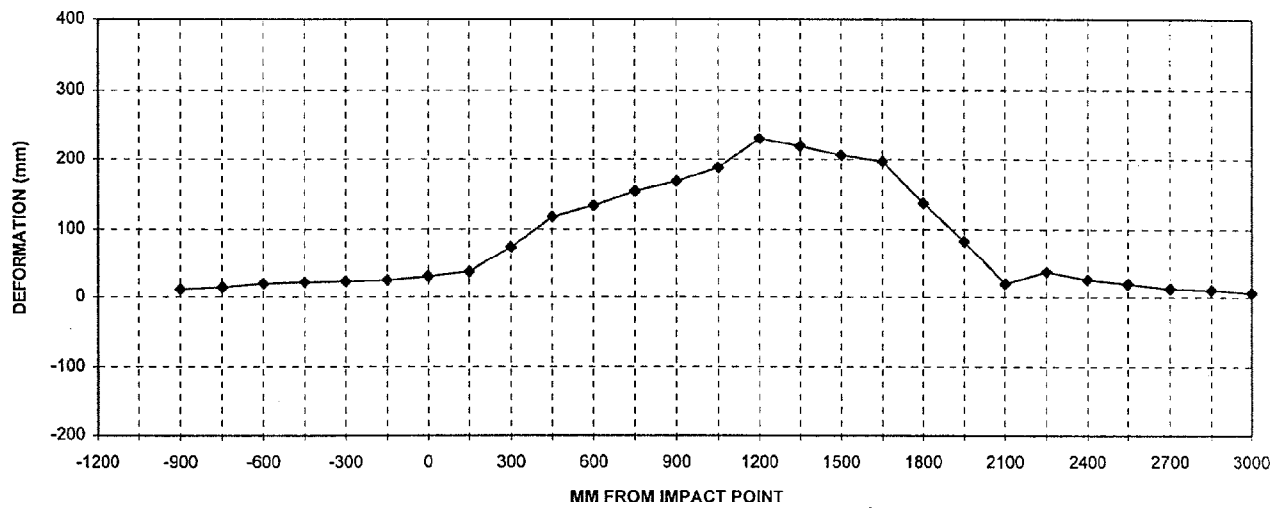
LEVEL 3 - MID DOOR

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	769	780	11
-750	754	768	14
-600	743	762	19
-450	738	759	21
-300	729	751	22
-150	722	746	24
0 (impact point)	714	743	29
150	708	744	36
300	707	781	74
450	704	822	118
600	704	838	134
750	699	854	155
900	698	867	169
1050	697	885	188
1200	699	929	230
1350	697	916	219
1500	697	903	206
1650	697	894	197
1800	701	839	138
1950	705	788	83
2100	712	731	19
2250	721	757	36
2400	727	752	25
2550	735	754	19
2700	751	763	12
2850	765	775	10
3000	784	790	6

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



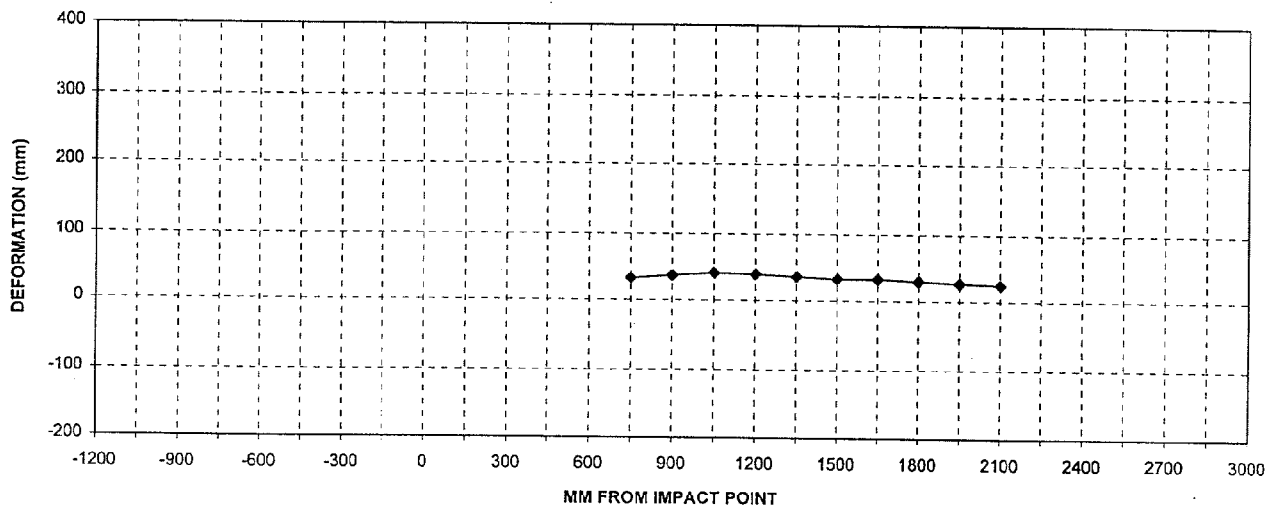
LEVEL 4 - WINDOW SILL

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

Longitudinal Distance (mm)	Level 5 - Window Top		
	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	938	970	32
900	938	974	36
1050	943	983	40
1200	942	980	38
1350	940	975	35
1500	937	969	32
1650	934	966	32
1800	936	965	29
1950	940	966	26
2100	948	972	24
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)

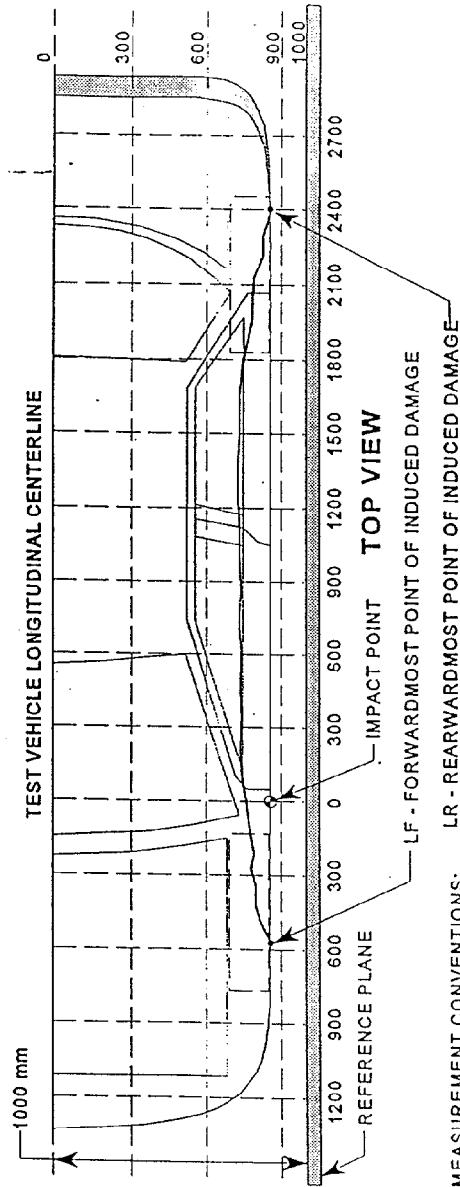


LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan
NHTSA NO.: CW5800 Test Date: January 14, 1998

NOTE: All measurements are in millimeters (mm) and should be accurate to ± 3 mm.



MEASUREMENT CONVENTIONS:
Forward of the impact point (towards front of vehicle) is considered negative (-).
Rearward of the impact point (toward rear of vehicle) is considered positive (+).

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = <u>-900</u> mm)	769	769	0
2. <u>115</u> mm	741	720	21
3. <u>640</u> mm	919	632	287
4. <u>1446</u> mm	915	626	289
5. <u>2230</u> mm	753	718	35
6. (LR = <u>3000</u> mm)	784	784	0

DATA SHEET NO. 12

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

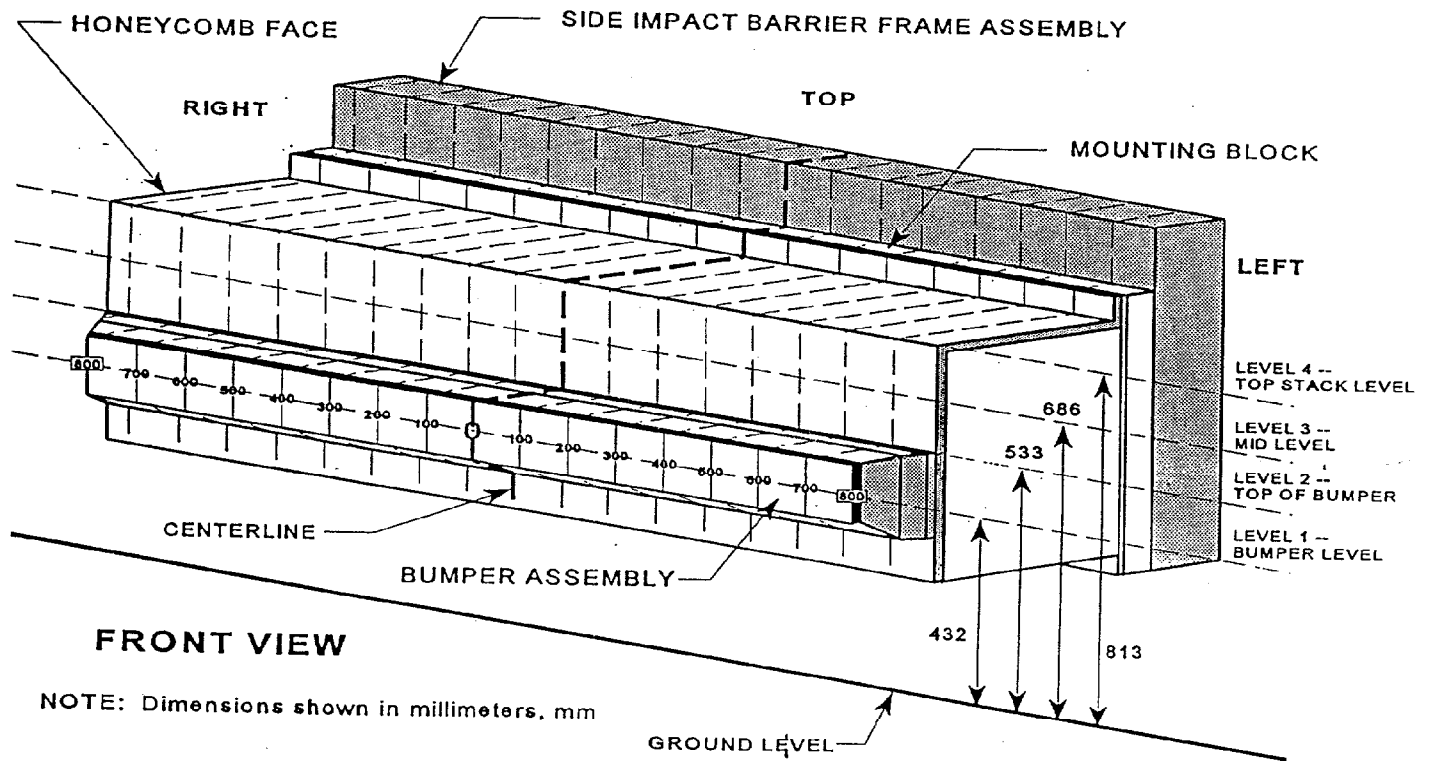
Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

		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	92	59	20	-1	3	8	10	16	17	21	27	29	33	33	65	110	159	
Mid Level Level 3	636 mm	48	20	1	2	2	3	6	17	8	8	9	12	16	20	26	43	82	
Top Bumper Level 2	533 mm	104	89	70	53	52	37	35	33	32	29	33	35	45	50	50	58	70	
Mid Bumper Level 1	432 mm	168	155	127	107	100	102	104	93	86	84	83	81	81	80	72	88	101	

See next page for Barrier Face Graphic

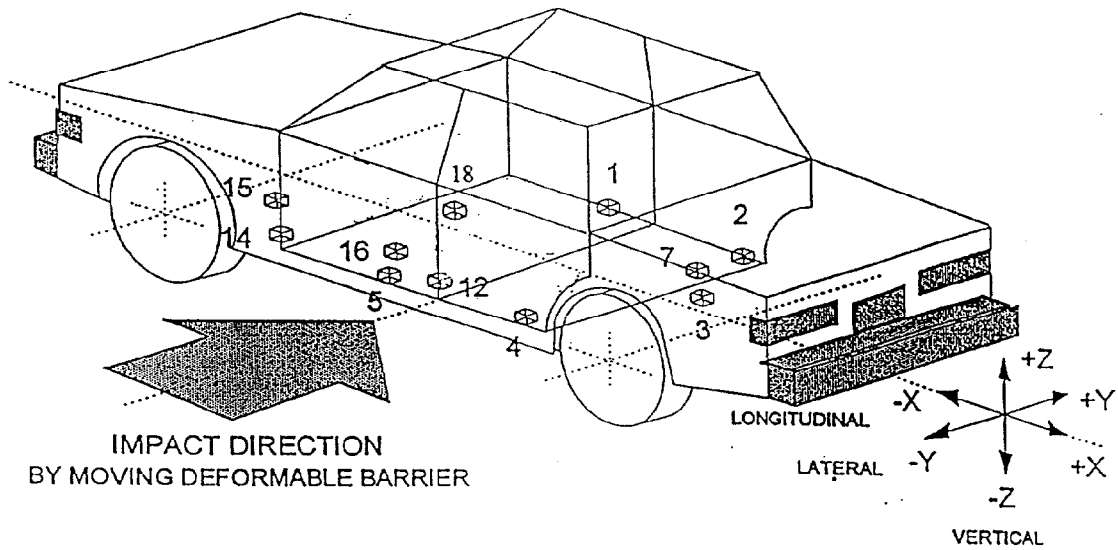
DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998



- 1 - Right Side Sill @ Front Seat
- 2 - Right Side Sill @ Rear Seat
- 3 - Rear Floorpan Above Axle
- 4 - Left Side Sill @ Rear Seat
- 5 - Left Side Sill @ Front Seat

- 7 - Right Rear Occupant Compartment
- 12 - Left Lower B-Post
- 14 - Left Lower A-Post
- 15 - Left Middle A-Post
- 16 - Front Seat Track
- 18 - Vehicle C.G.

DATA SHEET NO. 13 (Cont'd)
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

Acce l. 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	Right Side Sill @ Front Seat	2575	750	192	3.7	3.9	19.3	1.9	4.0	4.4	19.4
2	Right Side Sill @ Rear Seat	1455	750	180	2.7	5.0	20.0	2.0	4.1	4.3	20.1
3	Rear Floorpan Above Axle	965	0	395	2.3	5.3	18.3	1.4	7.4	6.7	19.2
4	Left Side Sill @ Rear Seat	1462	-728	160	---	---	22.5	2.6	---	---	---
5	Left Side Sill @ Front Seat	2575	-728	195	---	---	34.8	8.1	---	---	---
7	Right Rear Occupant Compartment	1957	348	265	---	---	15.9	2.1	---	---	---
12	Left Lower B-Post	2228	-670	350	---	---	96.8	26.6	---	---	---
14	Left Lower A-Post	3280	-655	315	---	---	31.8	12.4	---	---	---
15	Left Mid A-Post	3295	-763	860	---	---	50.0	47.9	---	---	---
16	Driver Seat Track	2438	-600	315	---	---	38.1	20.5	---	---	---
18	Vehicle CG	2502	10	383	4.1	19.2	33.5	5.8	16.5	13.1	42.0

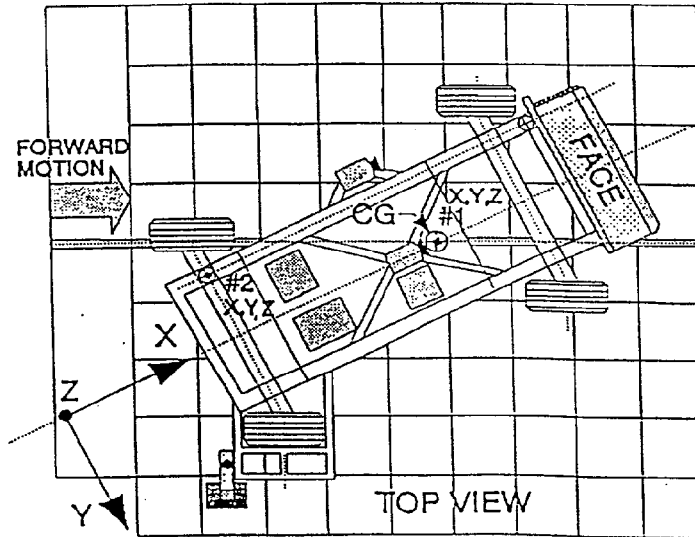
*Reference: X - Rear Bumper (+ Forward)
Y - Vehicle Centerline (+ To right)
Z - Ground Level (+ Up)

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

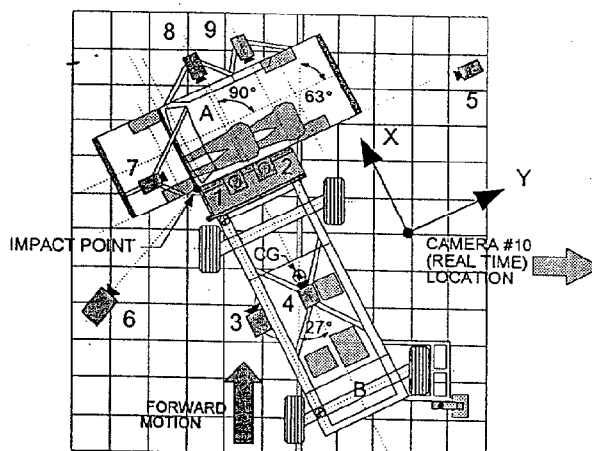


Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	1.1	179	18.8	37
	Lateral (Y)	---	---	---	1.9	61	5.6	40
	Vertical (Z)	---	---	---	14.1	32	16.7	28
	Resultant (R)	---	---	---	23.5	28	---	---
2	Rear Frame Member	-2591	625	622				
	Longitudinal (X)	---	---	---	0.7	167	16.0	41
	Lateral (Y)	---	---	---	4.6	29	3.8	64

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

DATA SHEET NO. 15
HIGH SPEED CAMERA LOCATIONS AND DATA

Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan
Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
	Real Time					13	24
6	Left Impact	-450	-2500	1630		13	935
7	Onboard Hood					13	1010
8	Onboard Front Occupant					8	957
9	Onboard Rear Occupant					8	1149
5	Right Impact	-570	10330	1690		25	990
2	Top Overall	0	1370	5000		8	1042
1	Top Impact	-280	20	5000		13	962
4	Cart Overall					13	1020
3	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: 1998/Audi/A6/4 Door Sedan
Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

TEST REQUIREMENTS:

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

TEST VEHICLE IMPACT TYPE: X Left 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

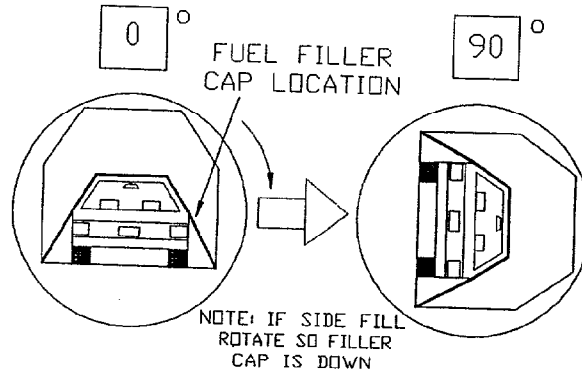
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 57 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 57 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

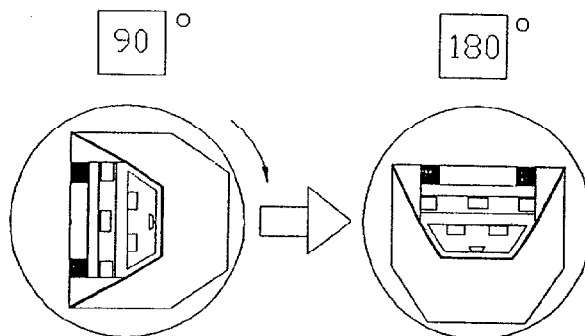
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 35 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 35 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

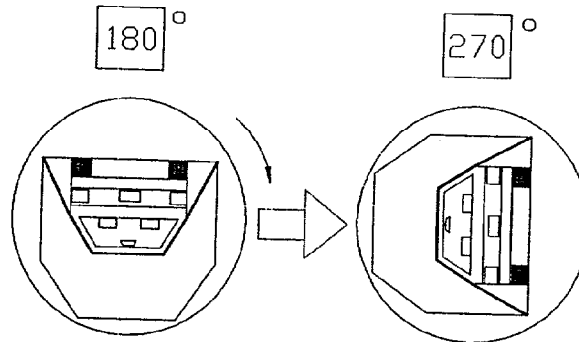
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1998/Audi/A6/4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 13 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 13 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

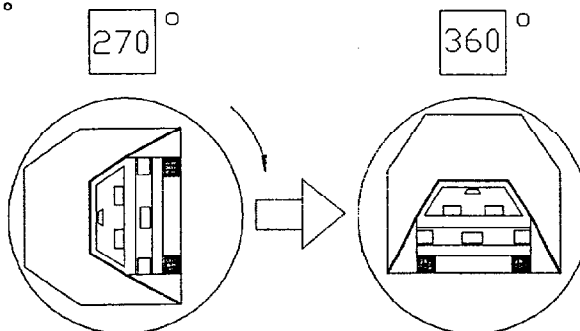
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Audi/A6 4 Door Sedan

Vehicle NHTSA No.: CW5800 Test Date: January 14, 1998

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 37 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 37 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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-49 - Left Rear Attitude Point	A-49
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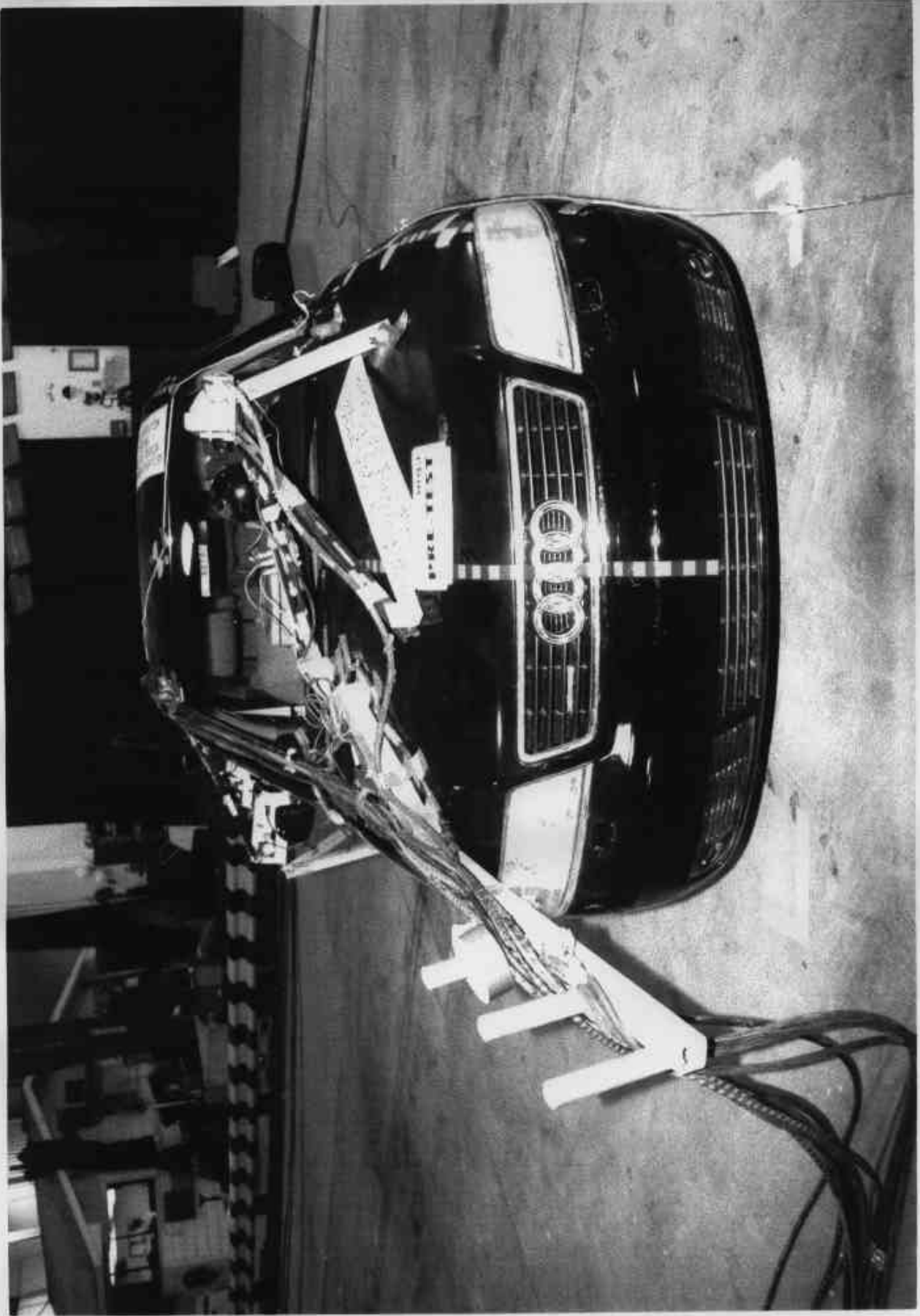


Photo No. A-1 - Pre-Test Front View of Test Vehicle

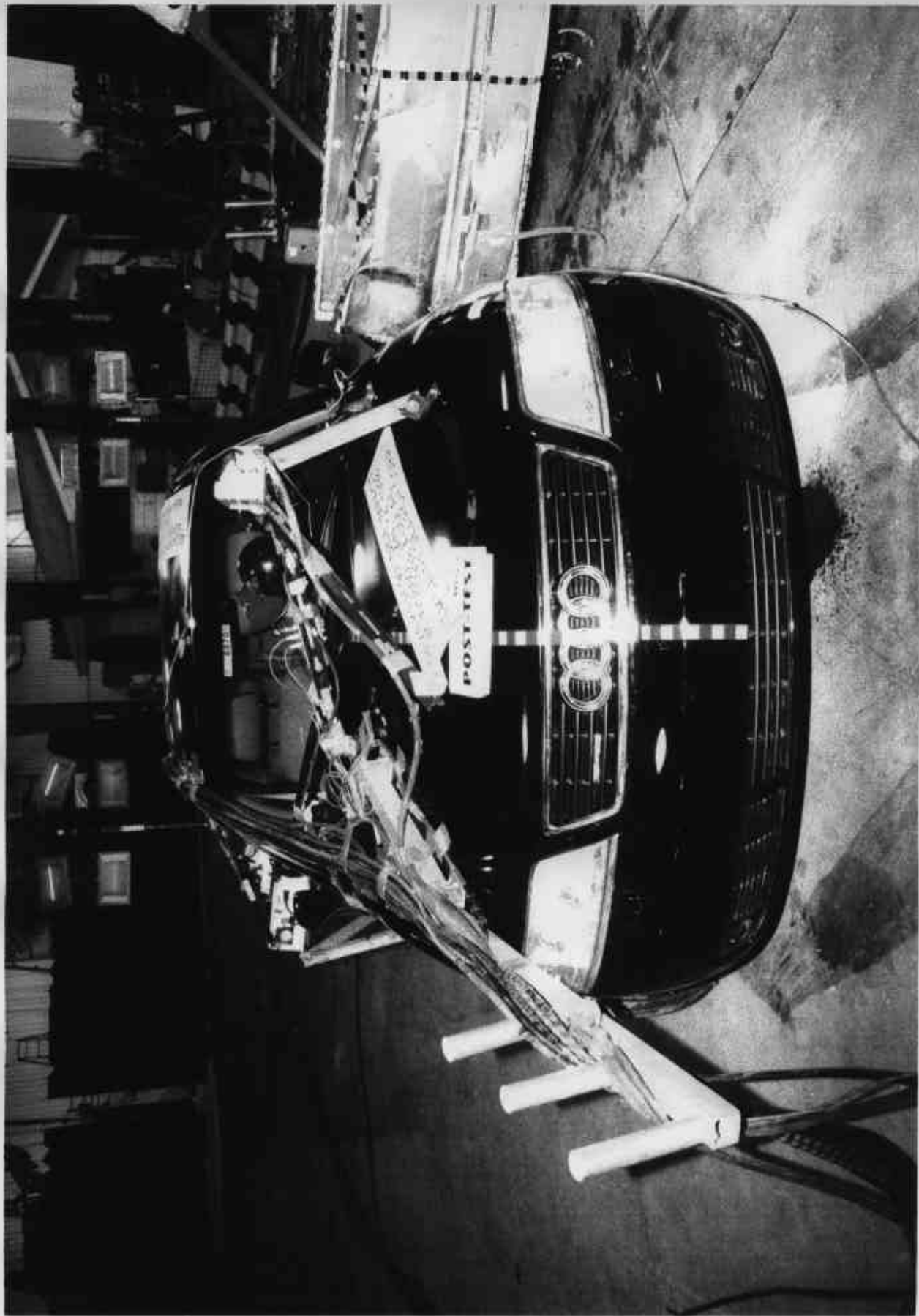


Photo No. A-2 - Post-Test Front View of Test Vehicle

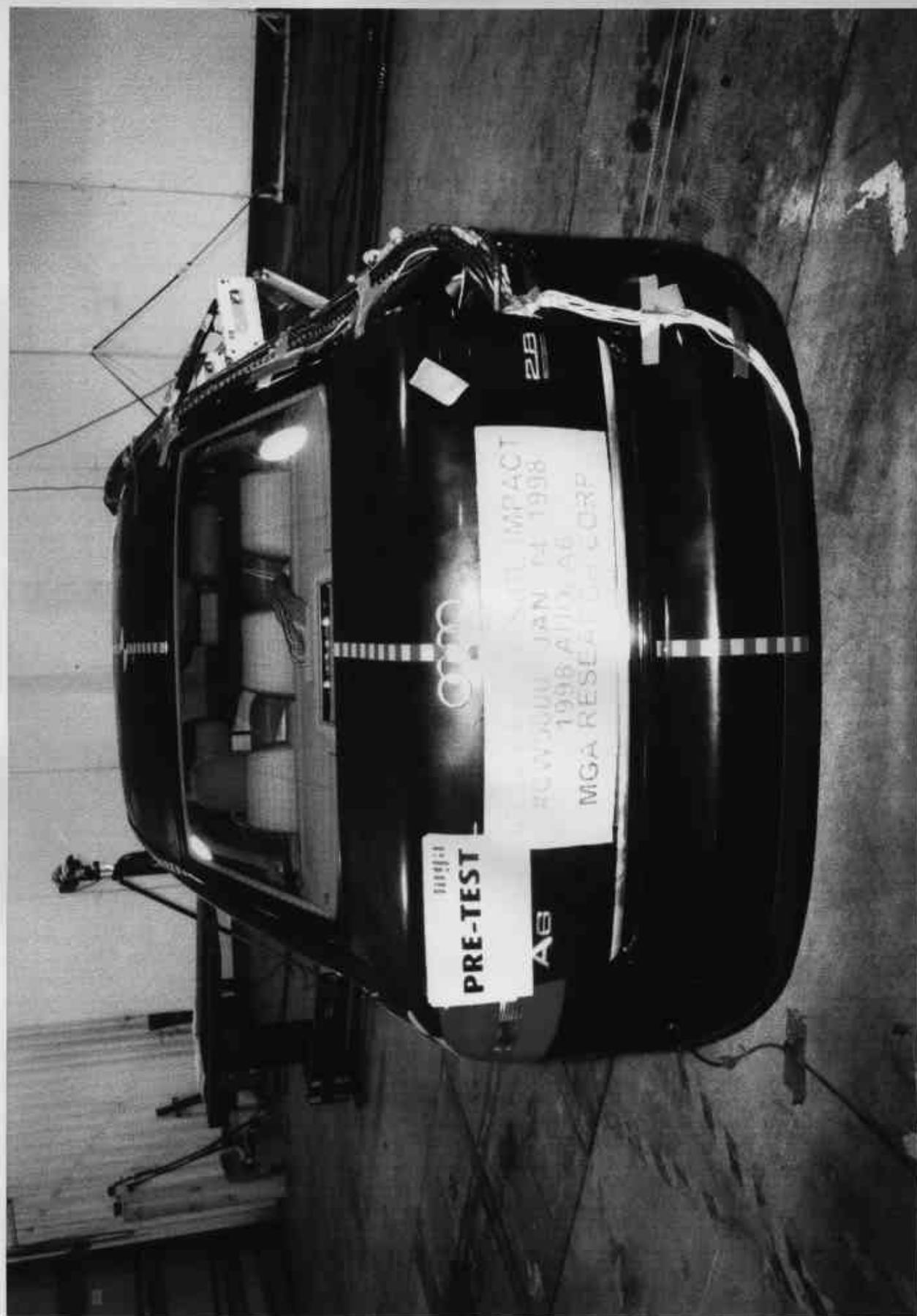


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

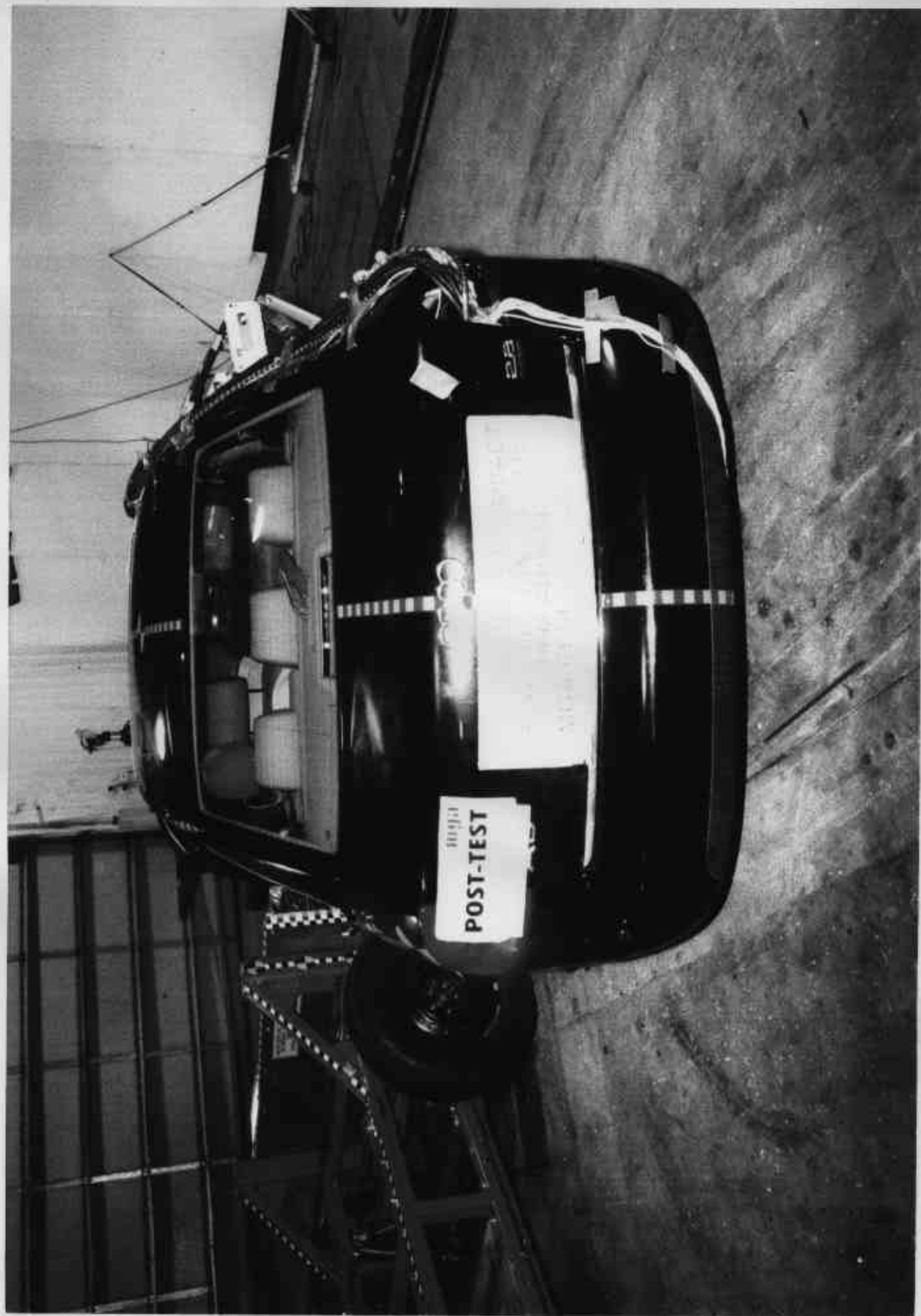


Photo No. A-4 - Post-Test Rear View of Test Vehicle

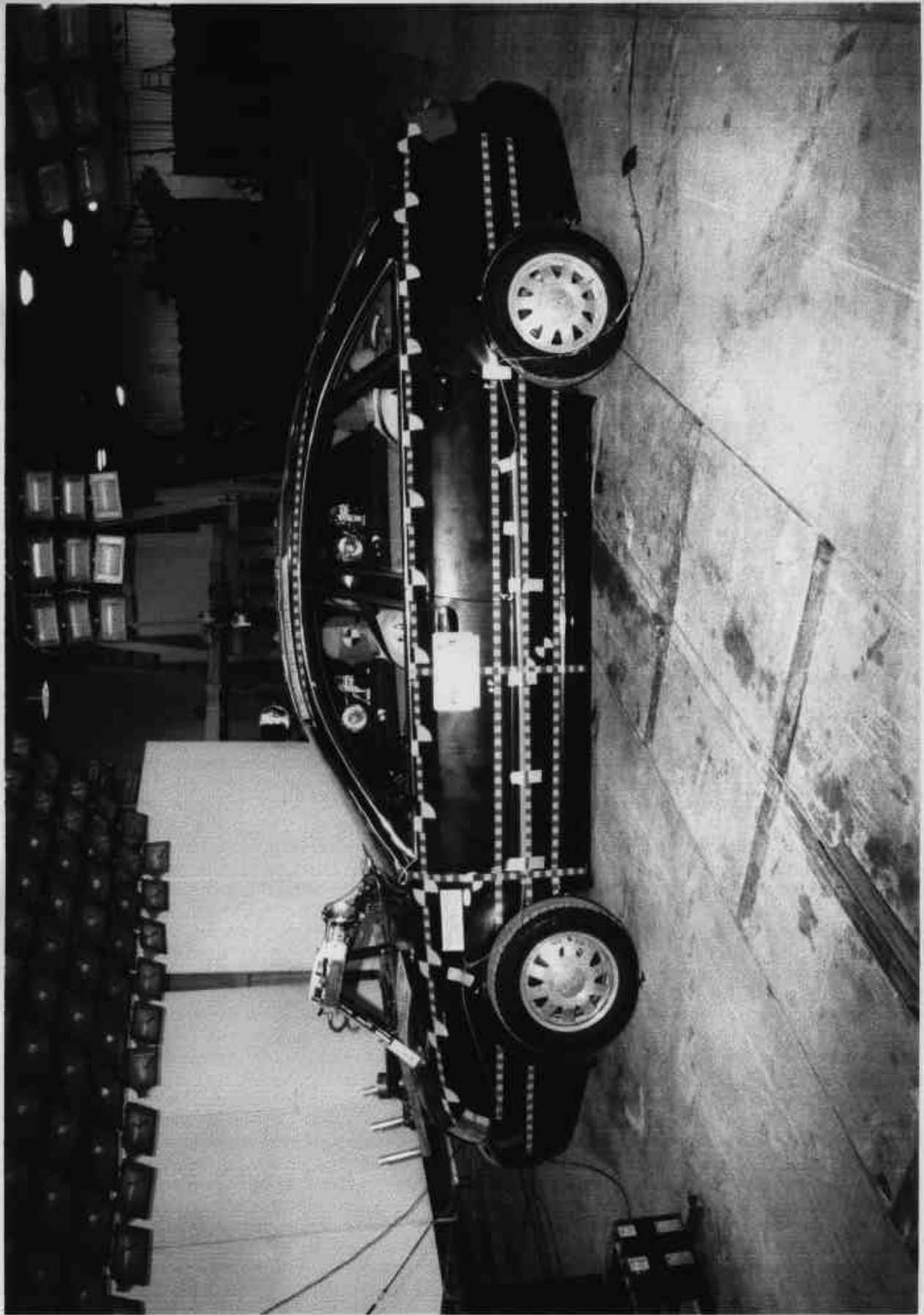


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

A-5



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

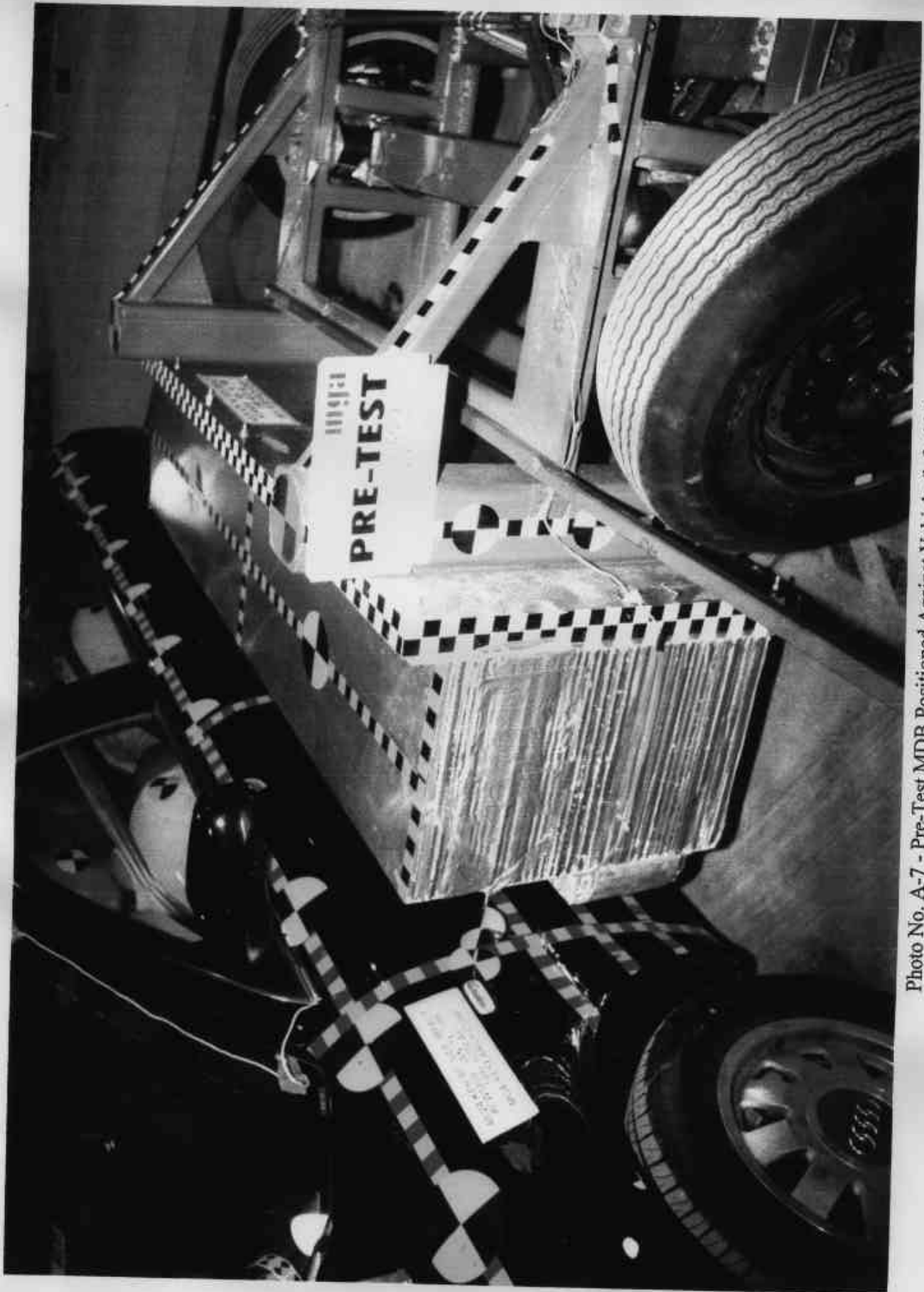


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

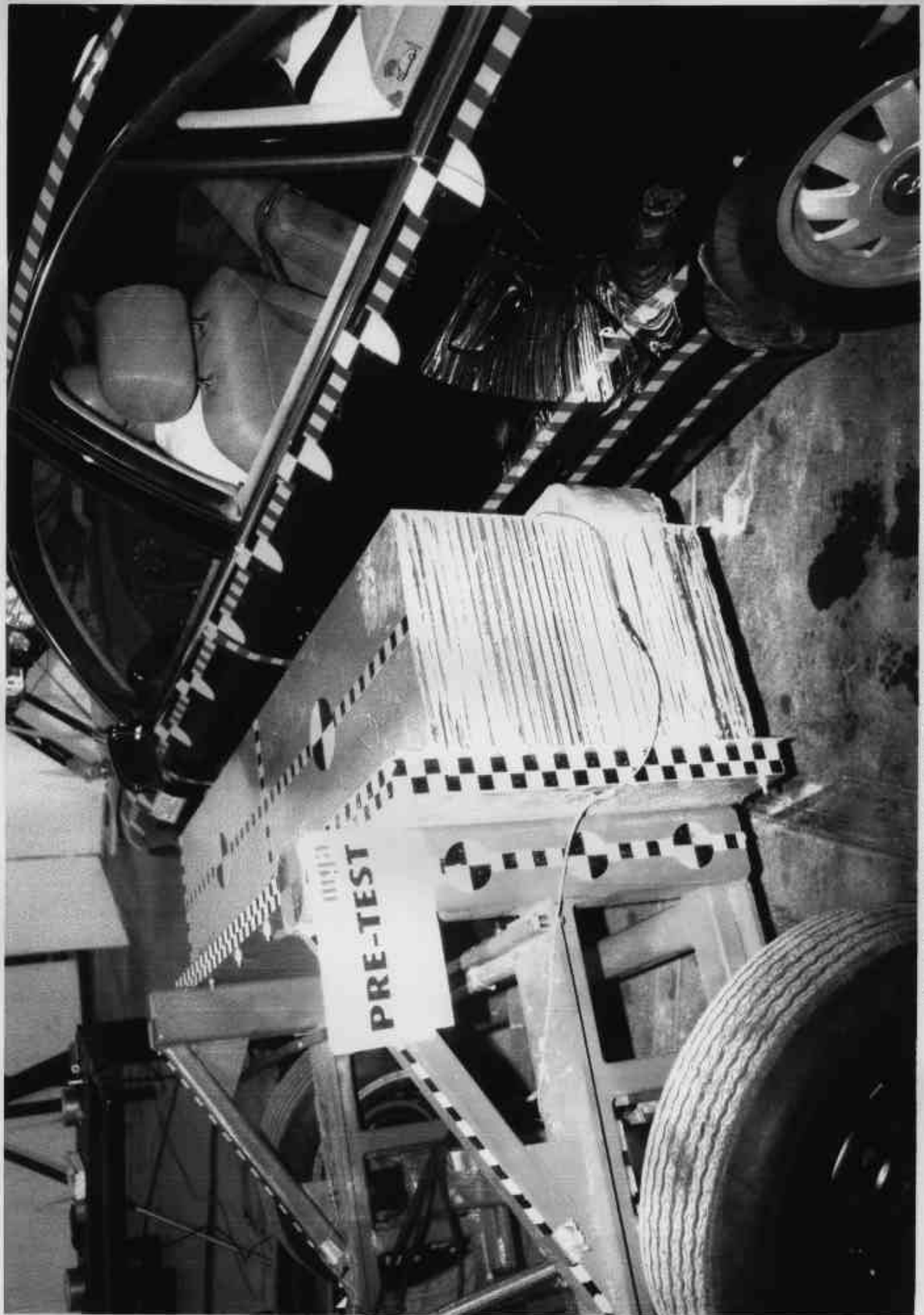


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)

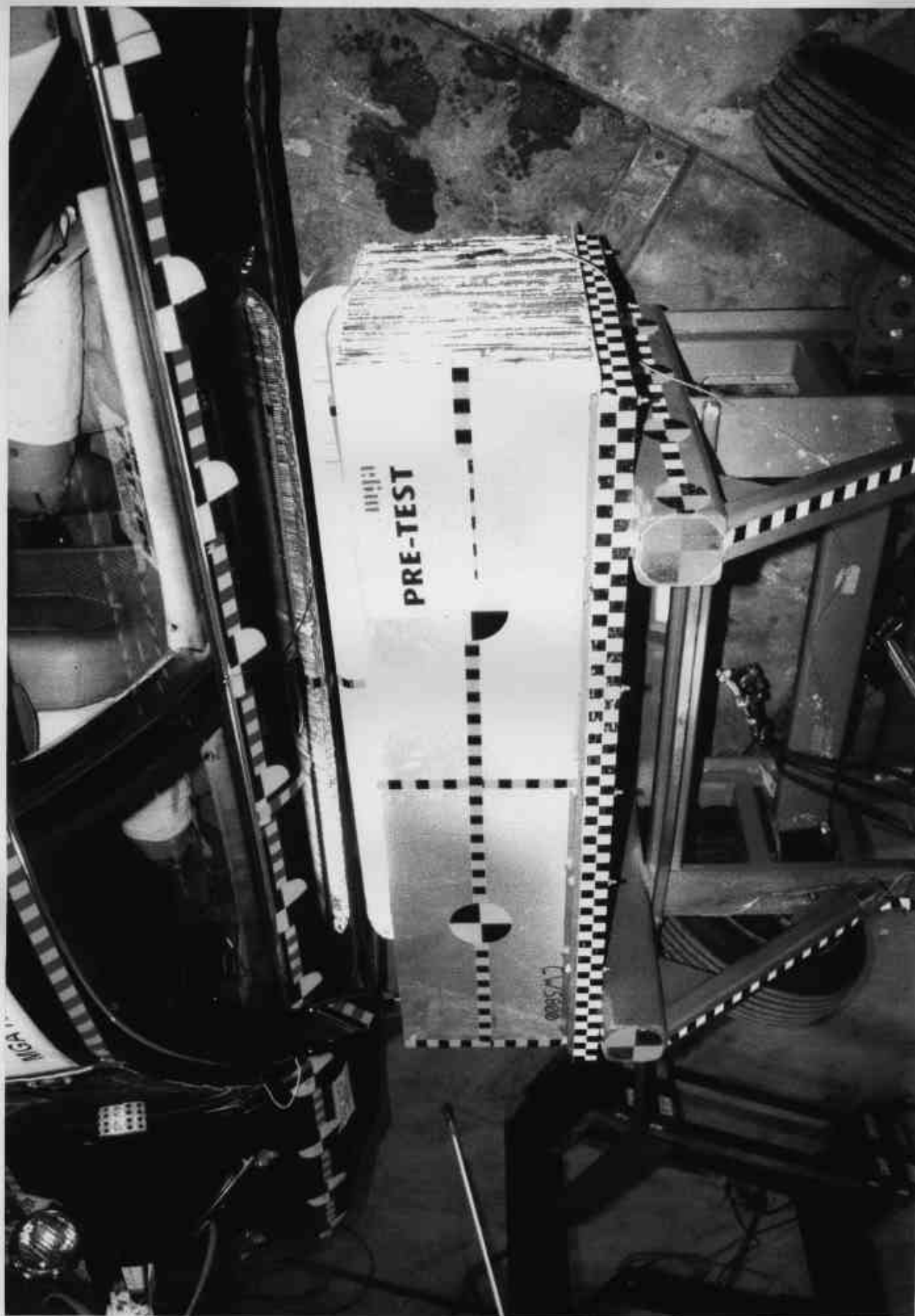


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View



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

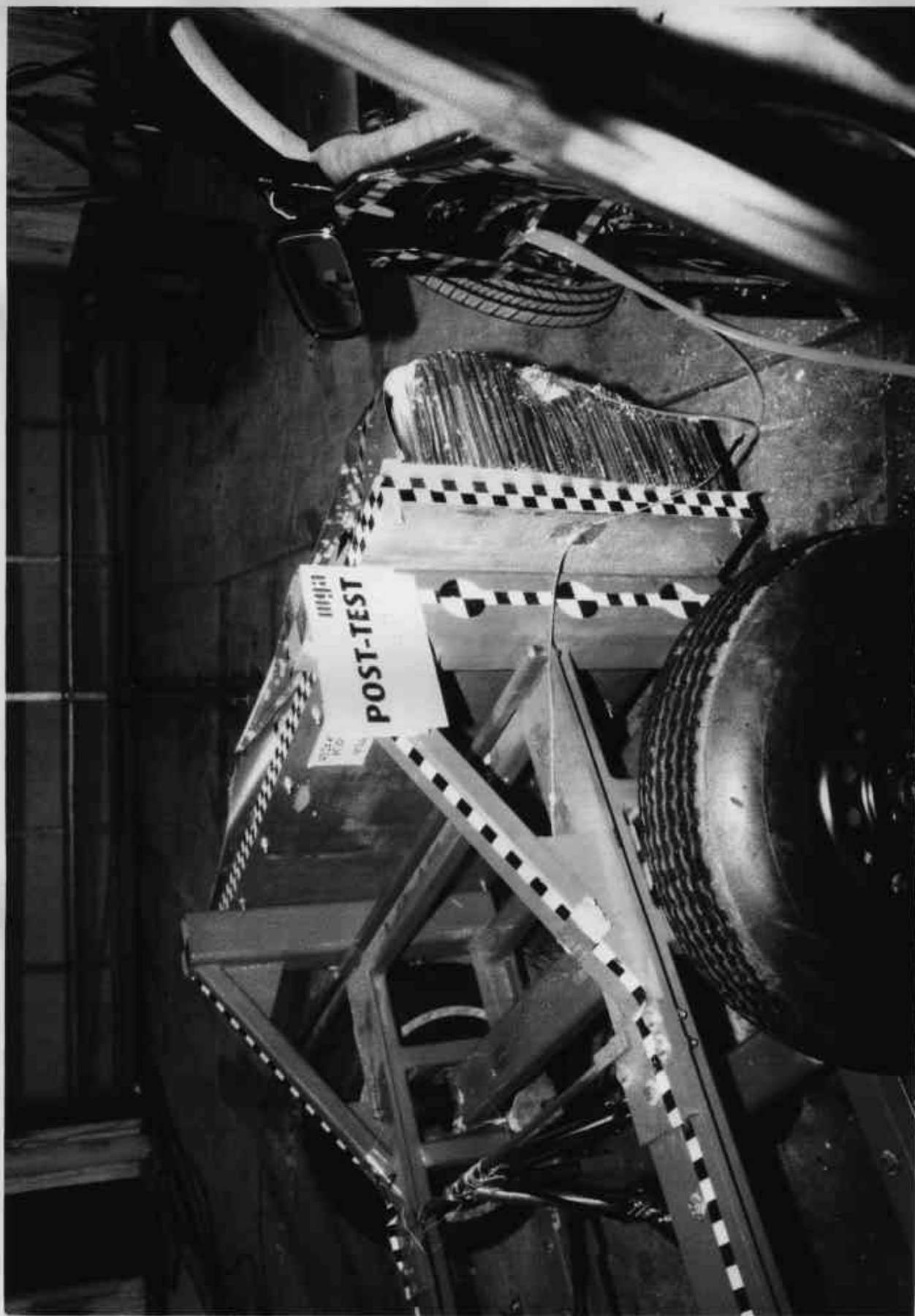


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)

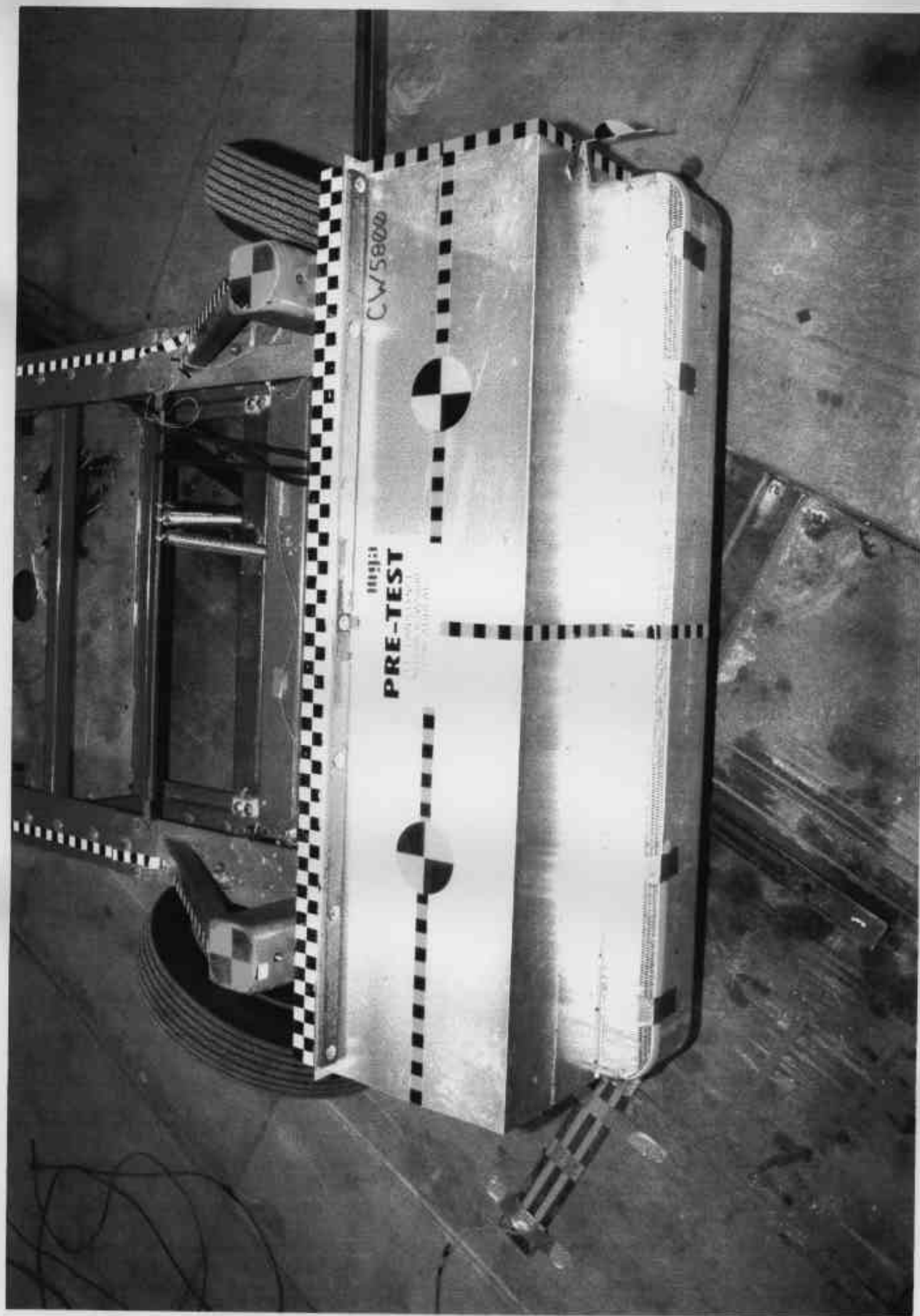


Photo No. A-13 - Pre-Test MDB Top View

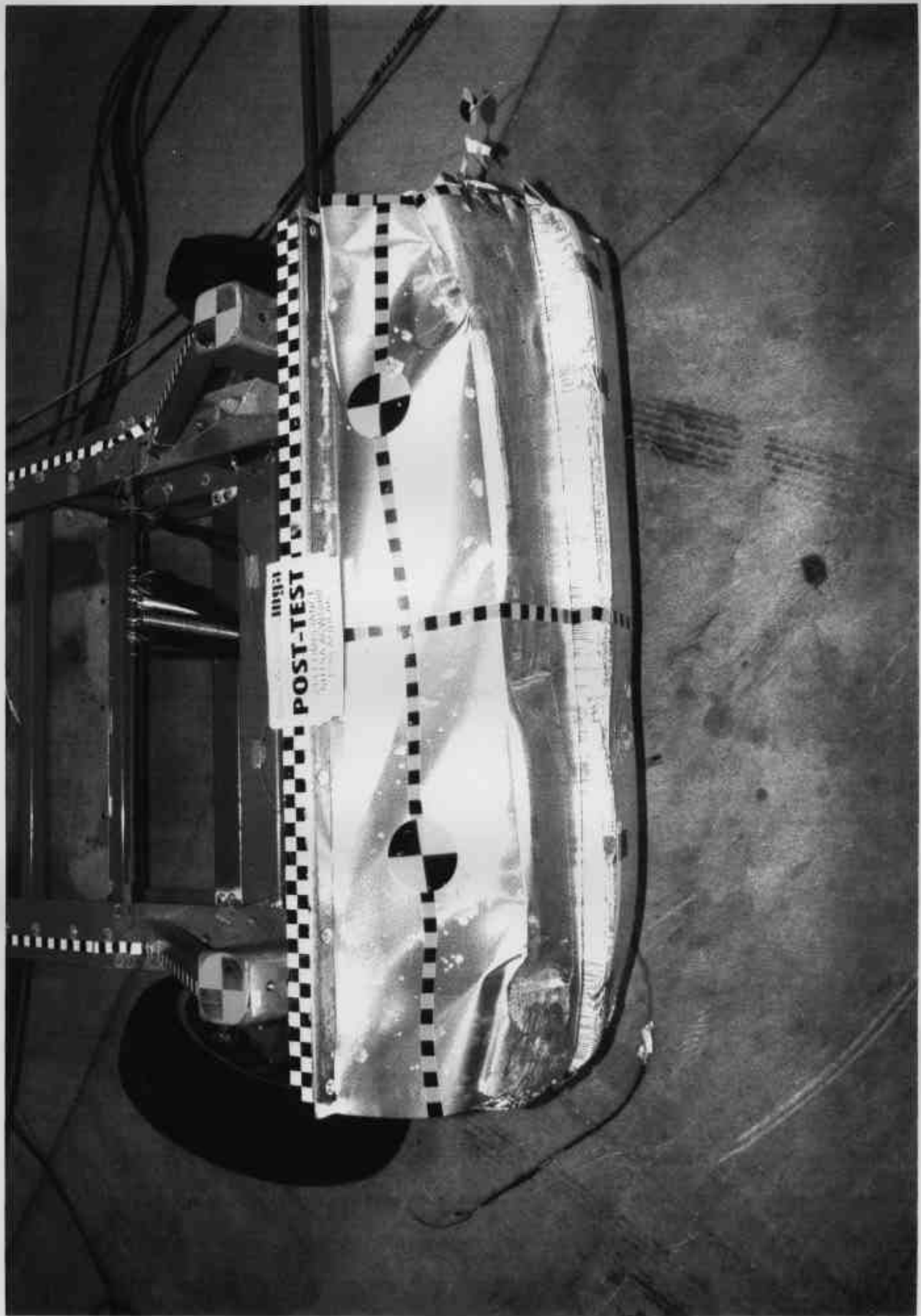


Photo No. A-14 - Post-Test MDB Top View

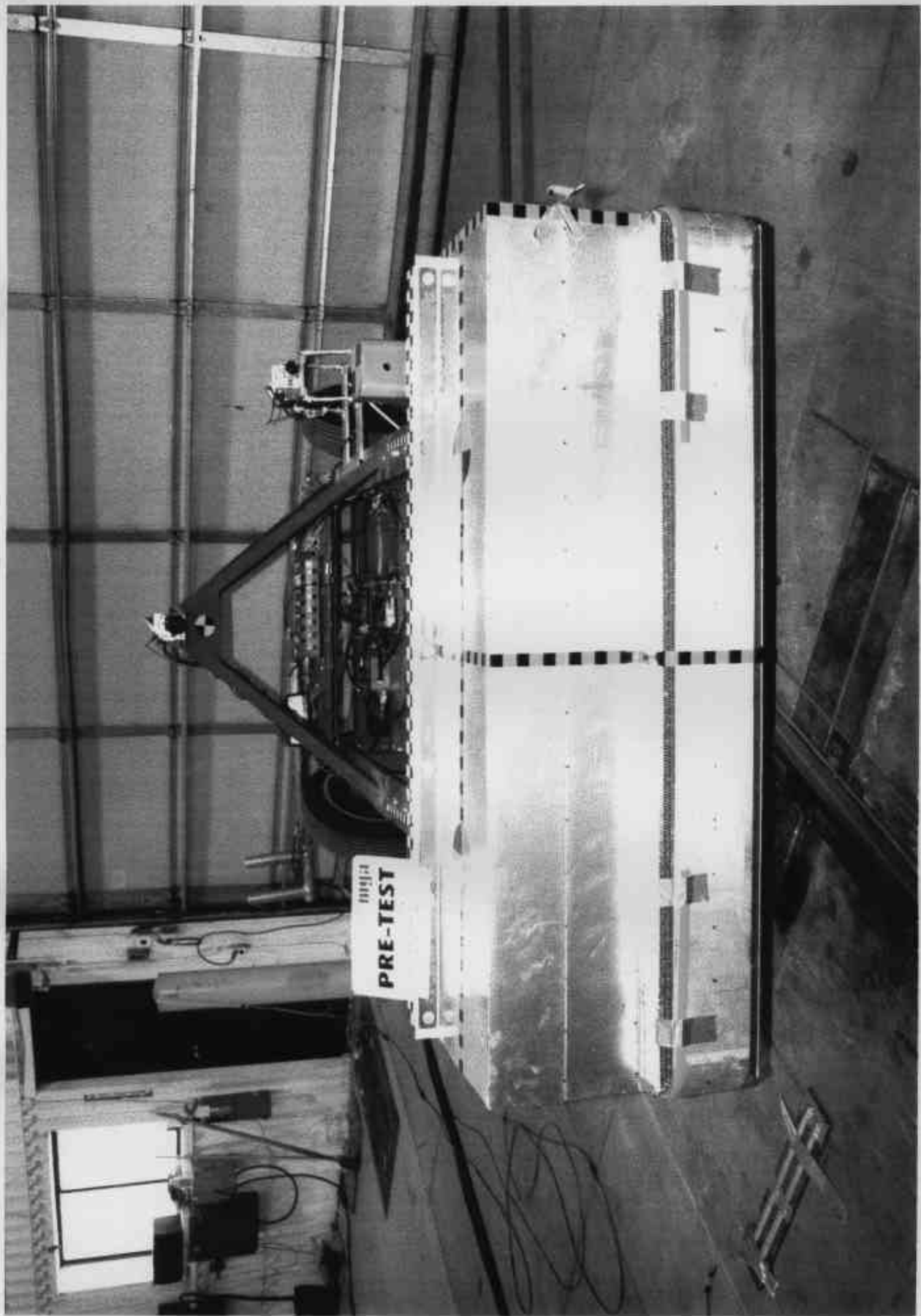


Photo No. A-15 - Pre-Test MDB Front View

A-15

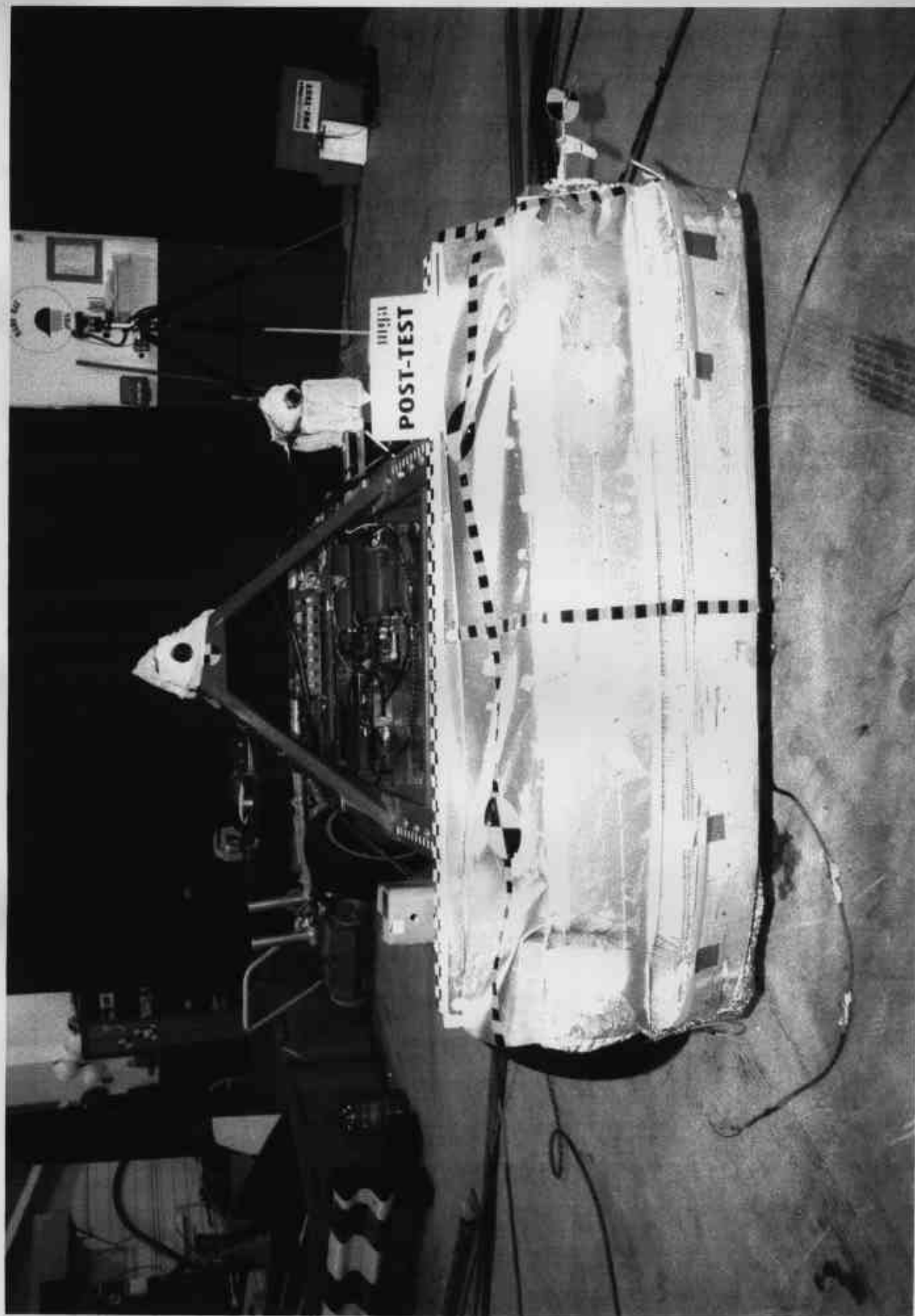


Photo No. A-16 - Post-Test MDB Front View

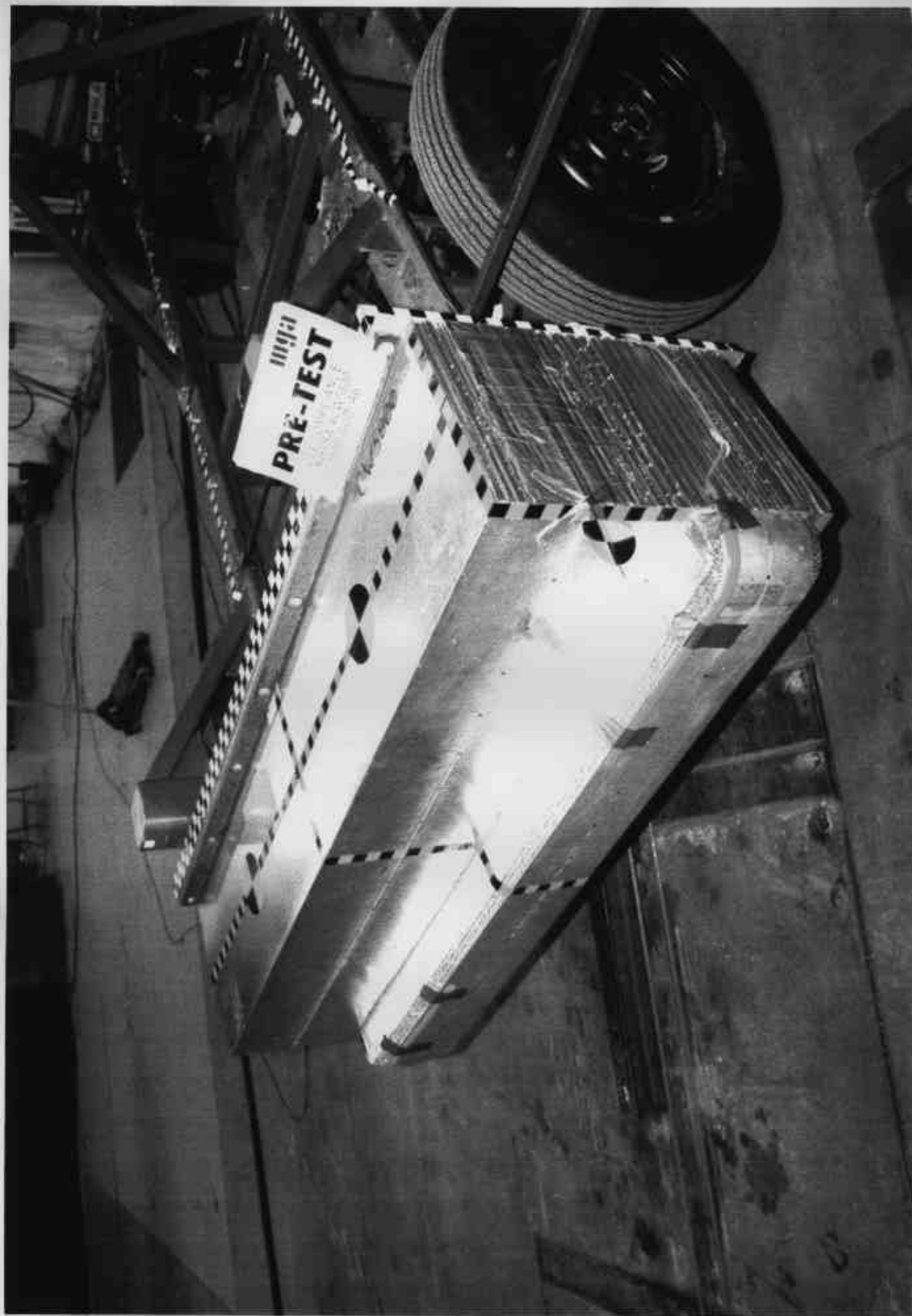


Photo No. A-17 - Pre-Test MDB Left Side View

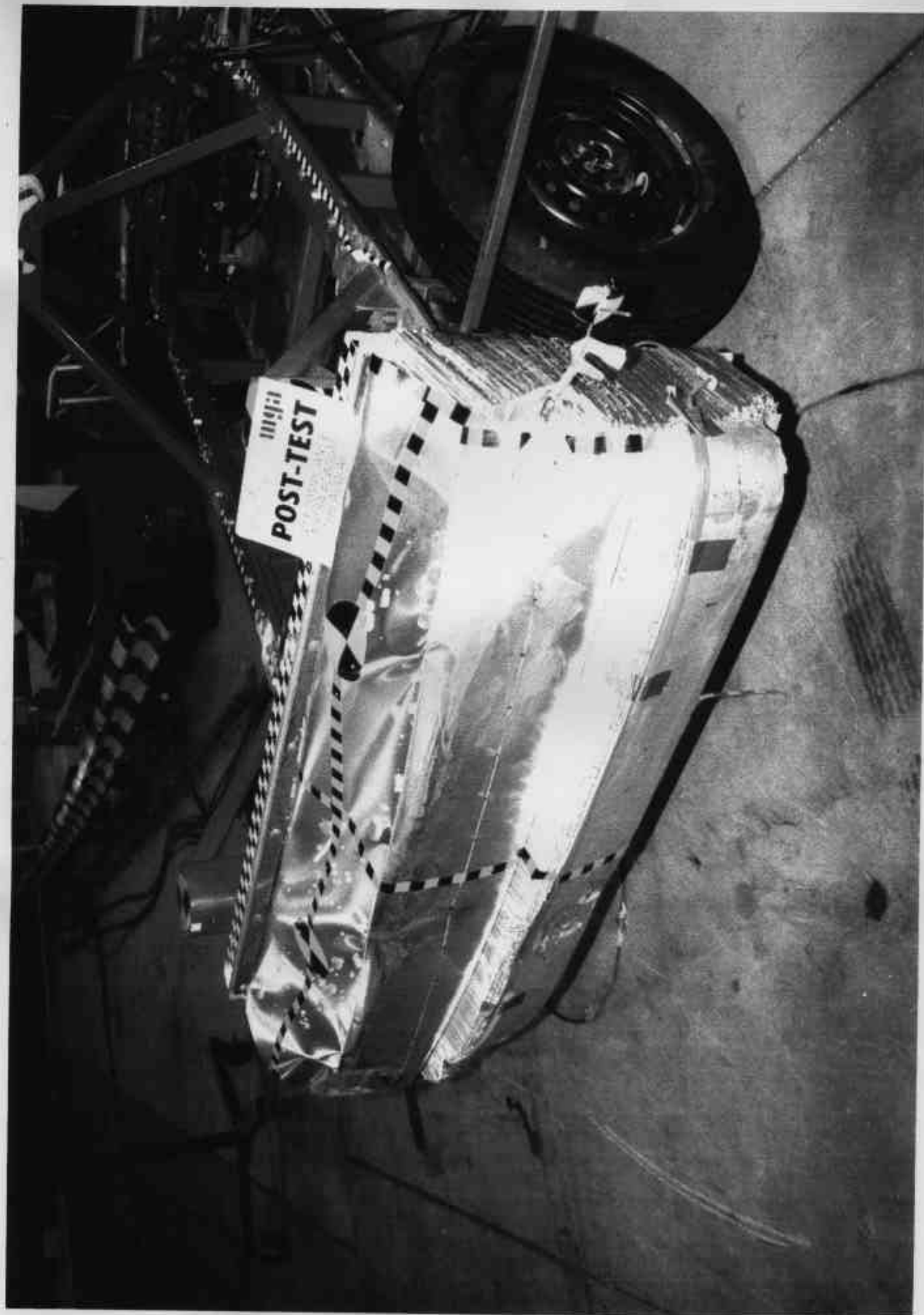


Photo No. A-18 - Post-Test MDB Left Side View

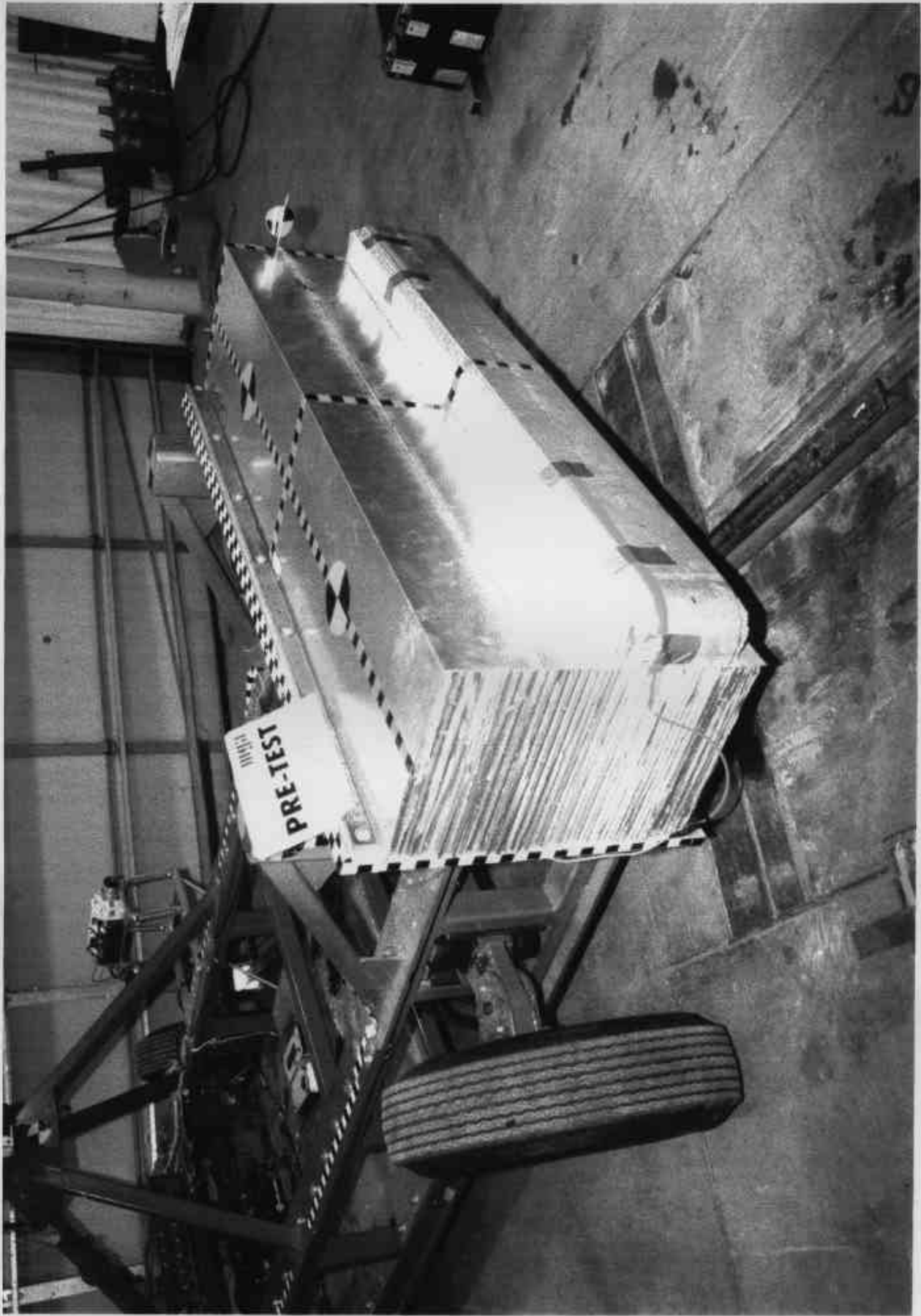


Photo No. A-19 - Pre-Test MDB Right Side View



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



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

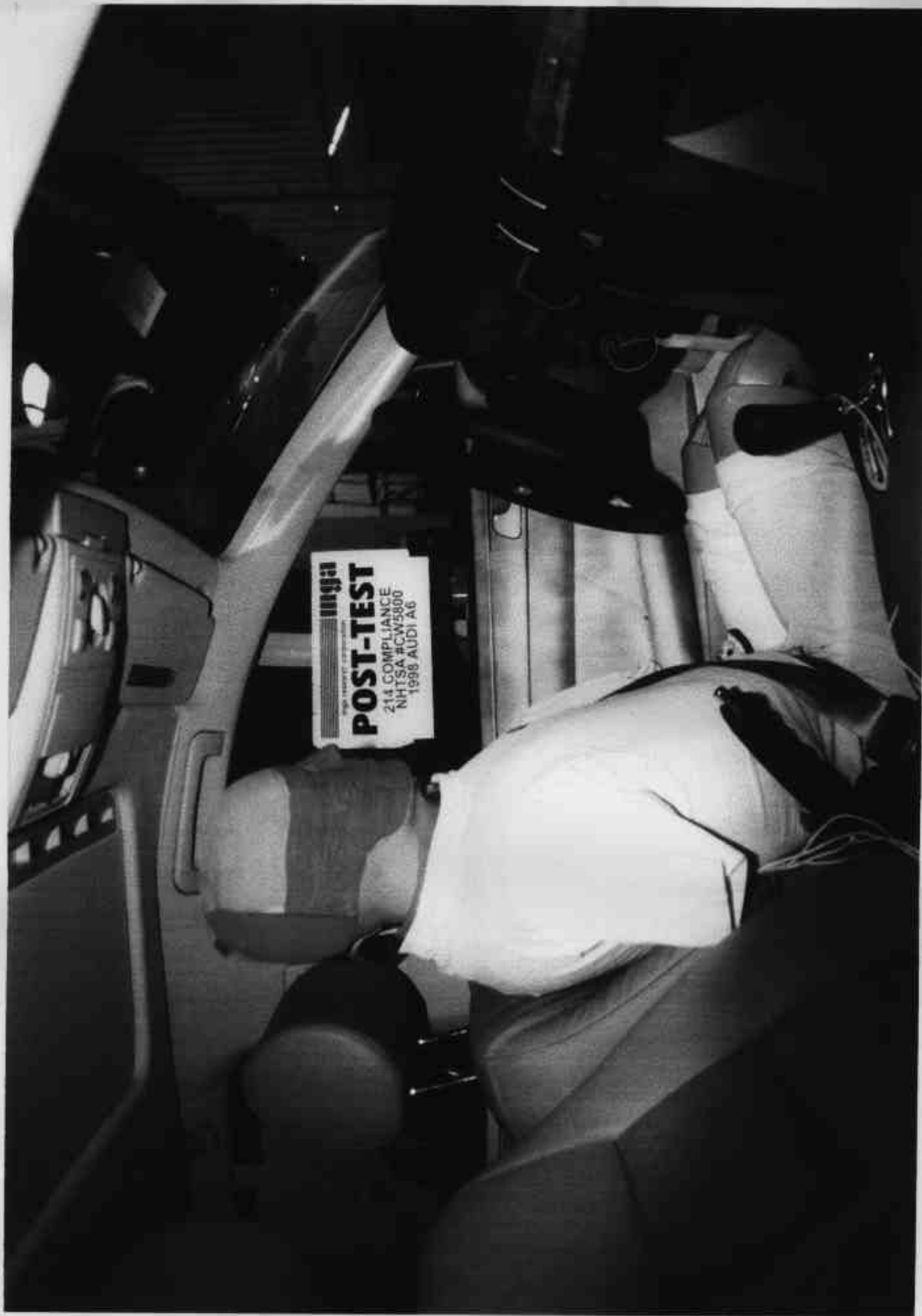


Photo No. A-22 - Post-Test Driver Dummy Right Side View

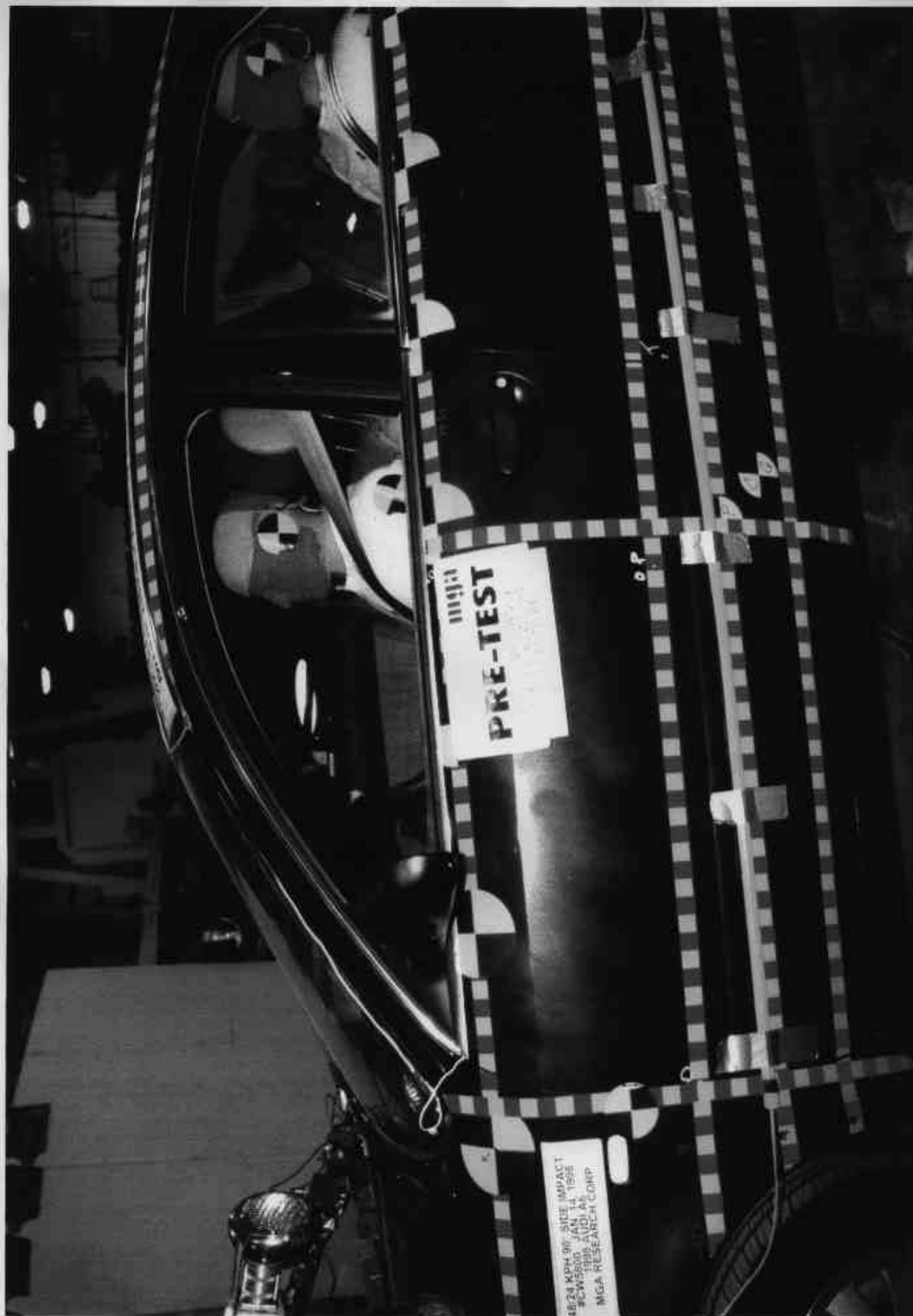


Photo No. A-23 - Pre-Test Driver Dummy Left Side View



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



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



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



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



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



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



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 - Post-Test Rear Passenger Dummy Left Side View (Door Open)



Photo No. A-34 - Pre-Test Rear Passenger Dummy Shoulder View



A-35

Photo No. A-35 - Post-Test Rear Passenger Dummy Shoulder View



Photo No. A-36 - Post-Test Rear Passenger Dummy Contact



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



Photo No. A-38 - Pre-Test Right Front Impact Point on Vehicle



Photo No. A-39 - Post-Test Right Front Impact Point on Vehicle



Photo No. A-40 - Impact

A-40

MFD BY AUDI AG

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

09/97 GVWR LBS 4916 GAWR LBS FRONT 2600/REAR 2470

WAUBA34B5WN056706

PASSENGER CAR

GERMANY, F.R.



4012409 0065 3

Photo No. A-41 - Vehicle Certification Label

UNLEADED FUEL ONLY
 PREMIUM MIN. (R+M)/2 91/87
 CARBURANT SANS PLOMB
 SUPER MIN. RON 95/91

For USA / Canada
 Vehicle capacity weight
 max 550 kg / 1212 lbs

Rollenfülldruck kalte Reifen
 Cold tire inflation pressure
 Pression des pneus froids
 Pression de pneumatiques froids

max 2 Pers. max 3 Pers. 4 5 6 7

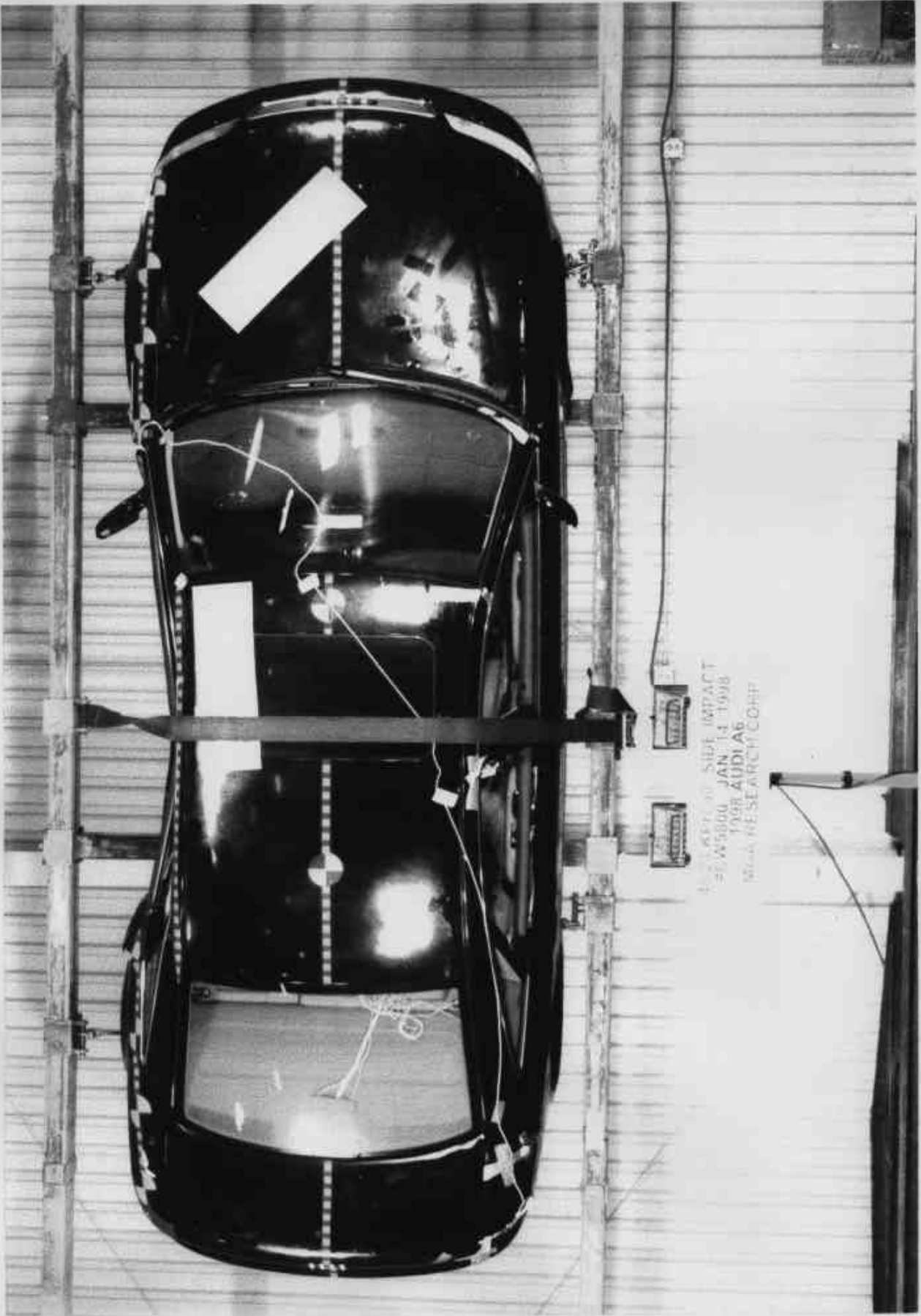
bar	kg/cm ²	psi	kPa
2,1	32	210	2,1 32 210
2,9	42	290	3,2 46 320

Reserviert
 Emergency spare wheel
 Roue de secours
 Rueda de reserva

T125/90 R15 4,2 60 420

480 010 147 L

Photo No. A-42 - Tire Placard



RESEARCH, INC. SIDE IMPACT
#W5800 JAN. 14, 1998
1998 AUDI A6
MOTOR RESEARCH CORP

Photo No. A-43 - Rollover 90°

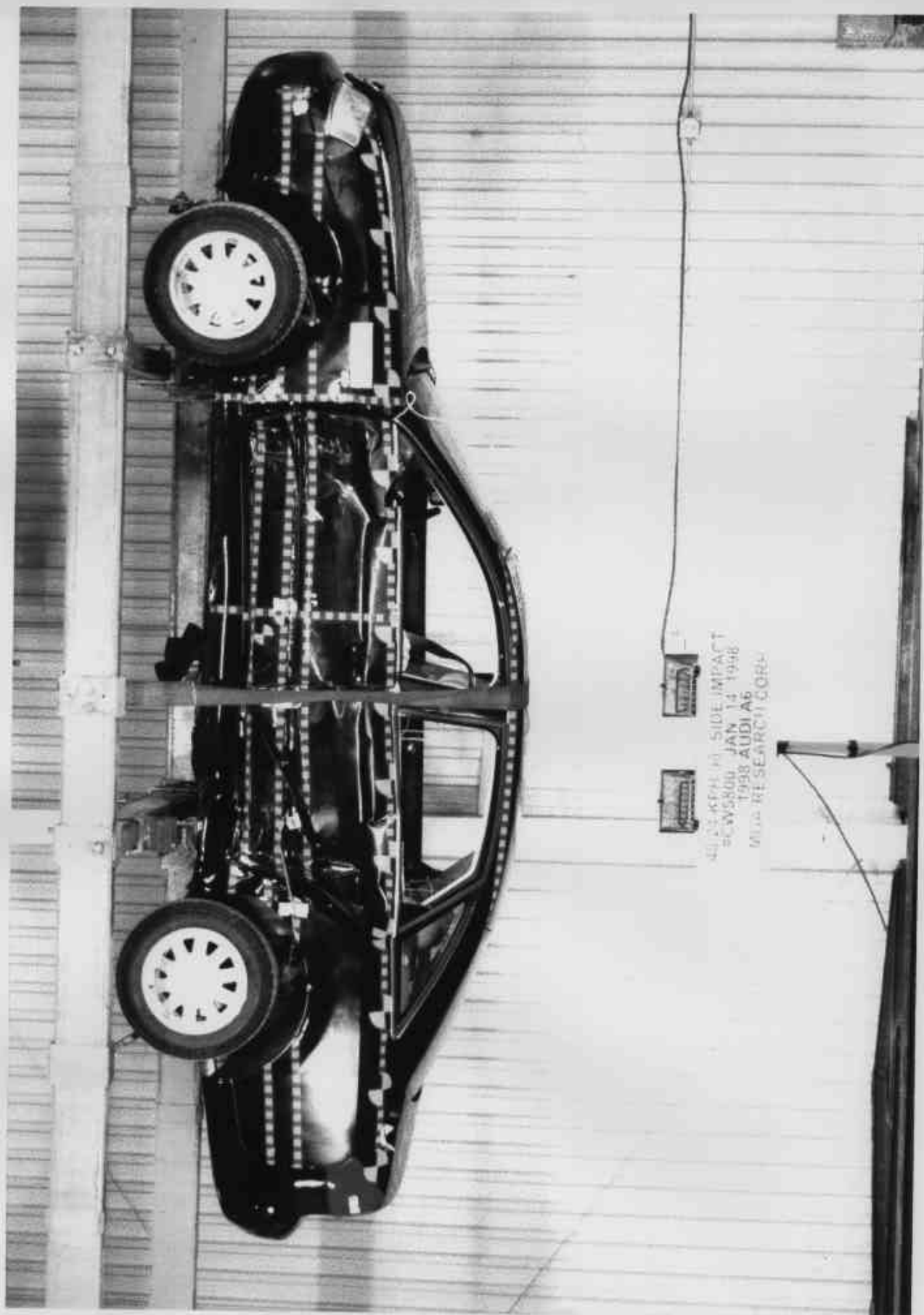
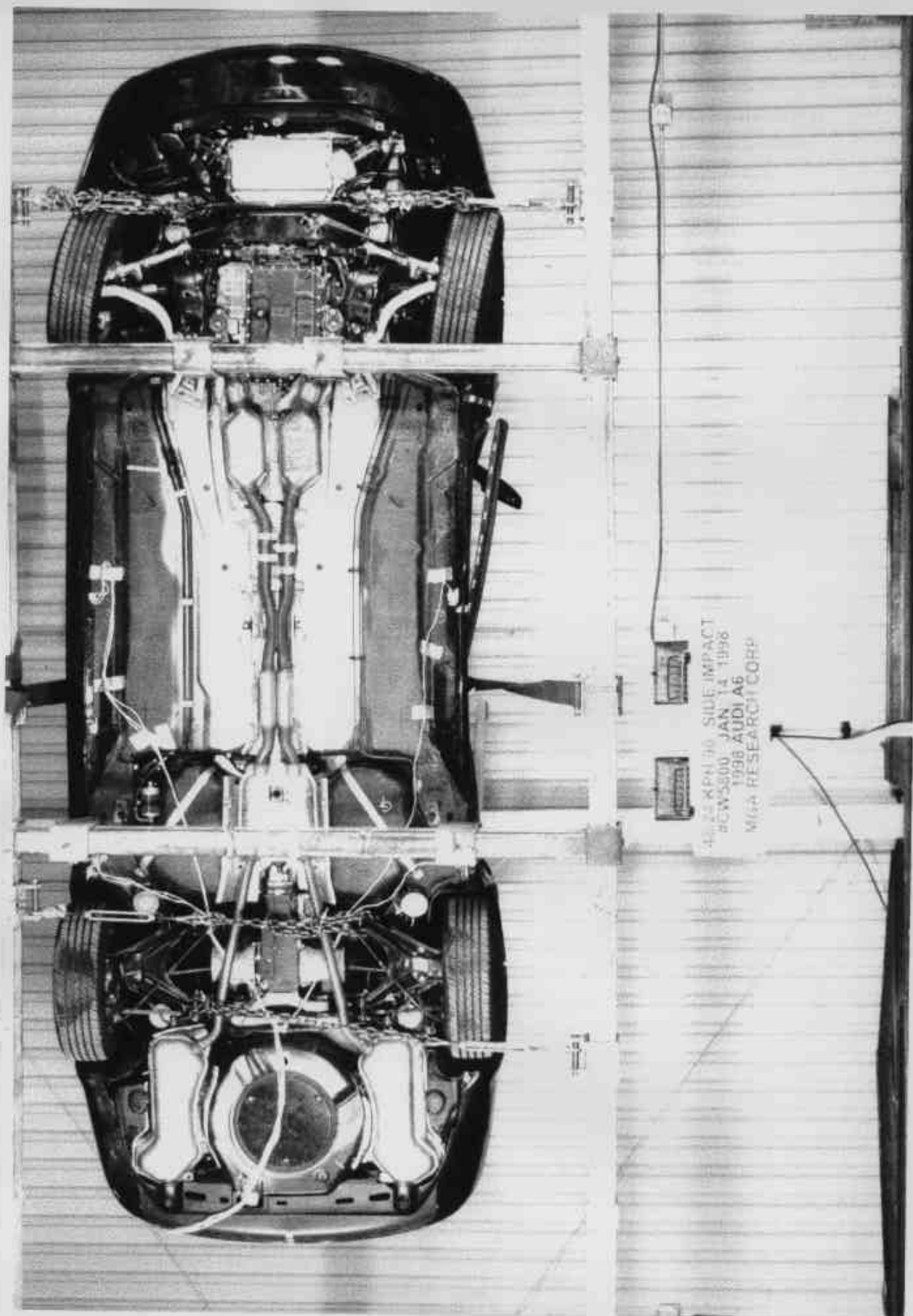
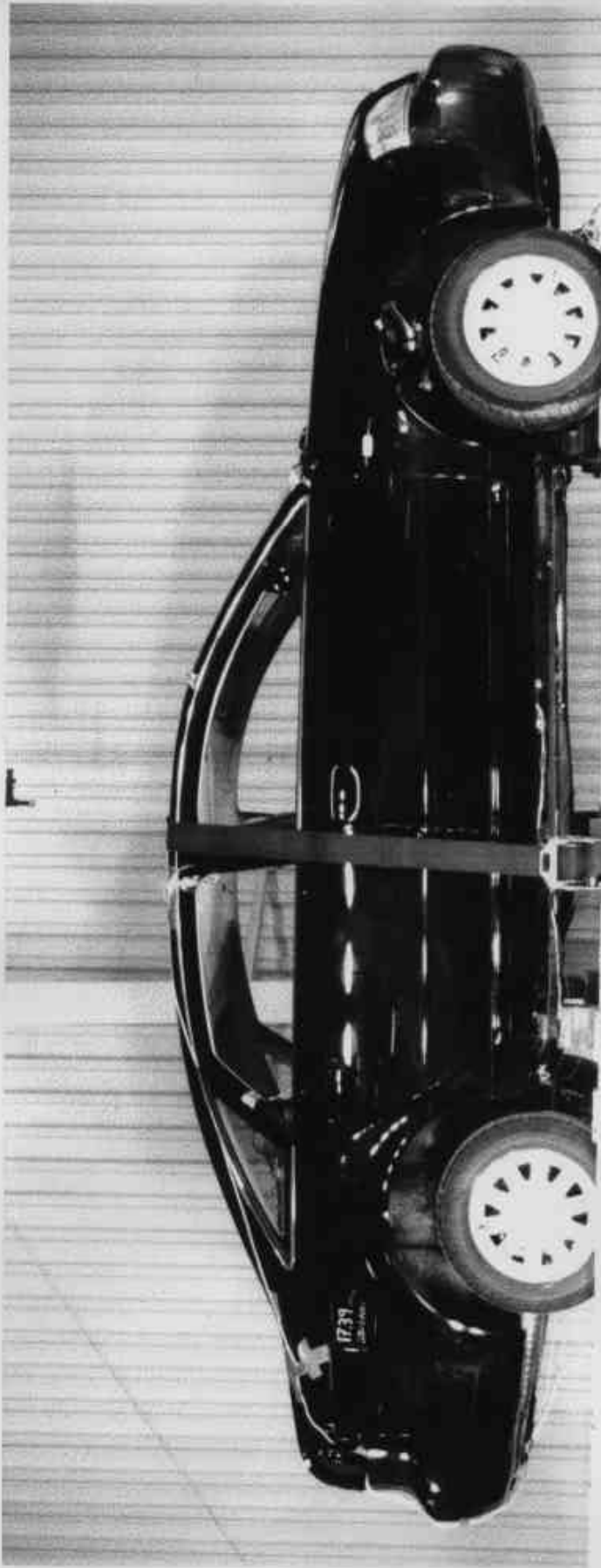


Photo No. A-44 - Rollover 180°



A-45

Photo No. A-45 - Rollover 270°



A-46

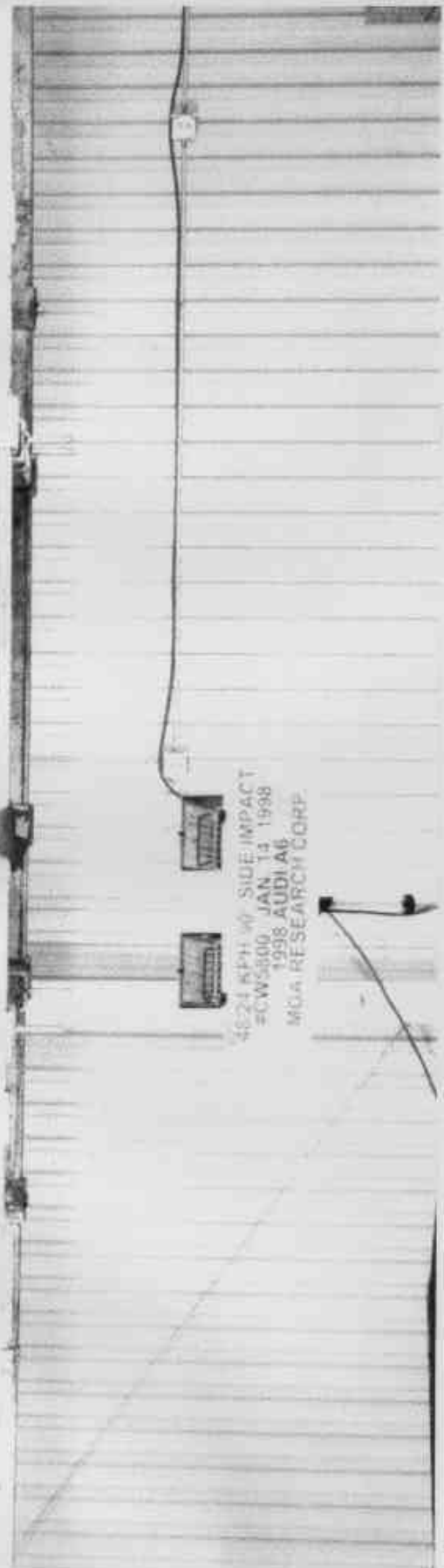


Photo No. A-46 - Rollover 360°

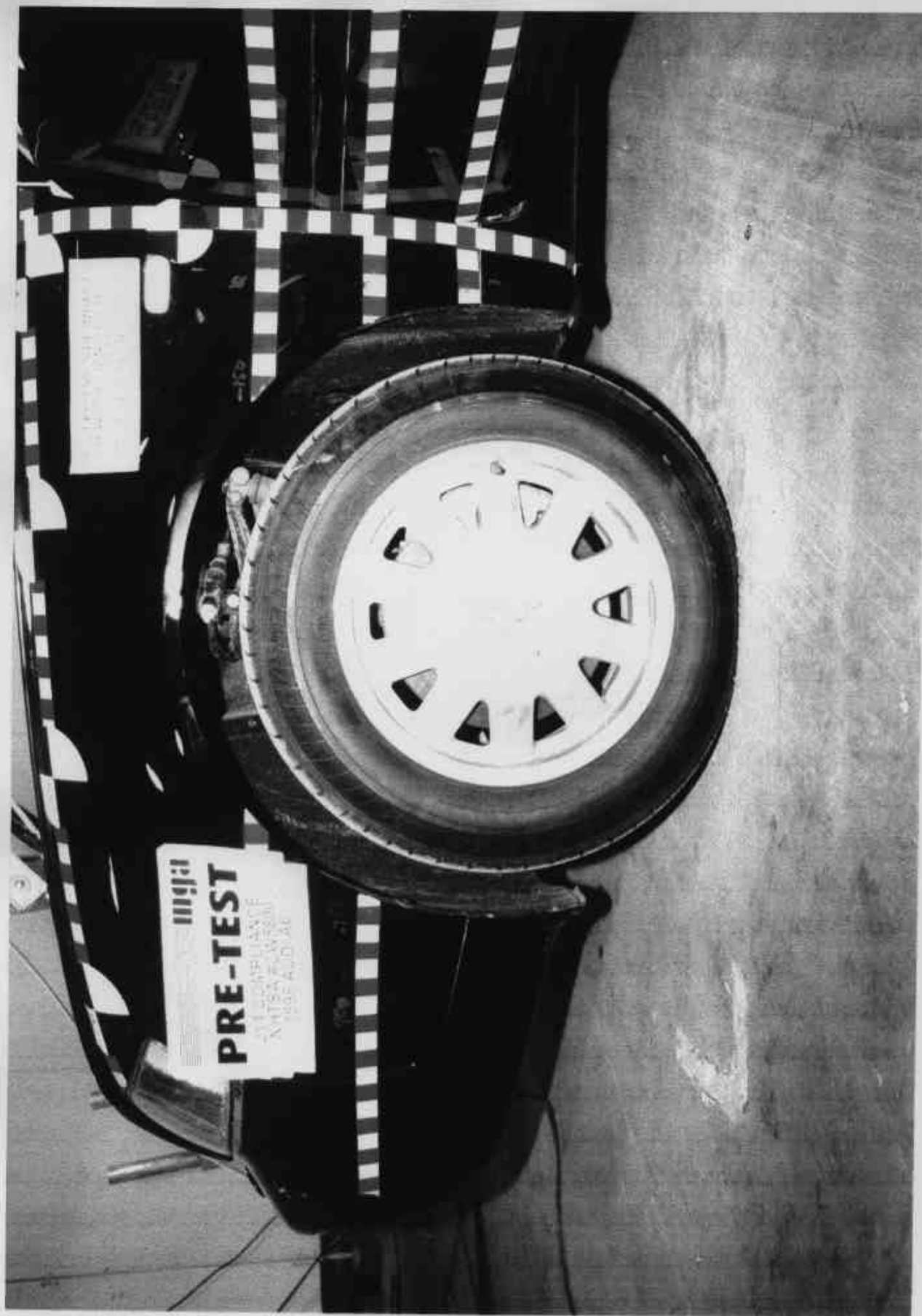


Photo No. A-47 - Left Front Attitude Point



Photo No. A-48 - Right Front Attitude Point

A-48

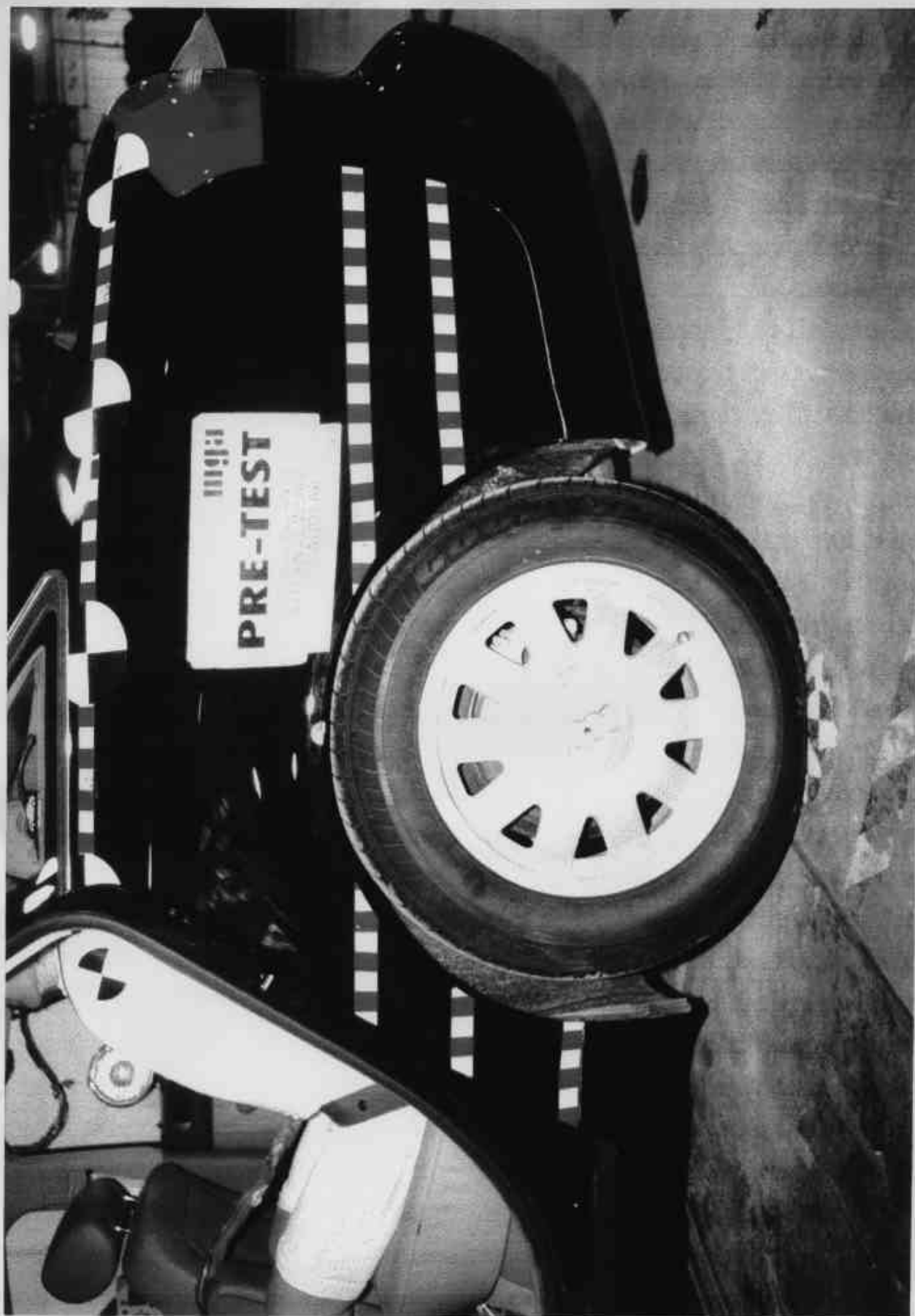


Photo No. A-49 - Left Rear Attitude Point

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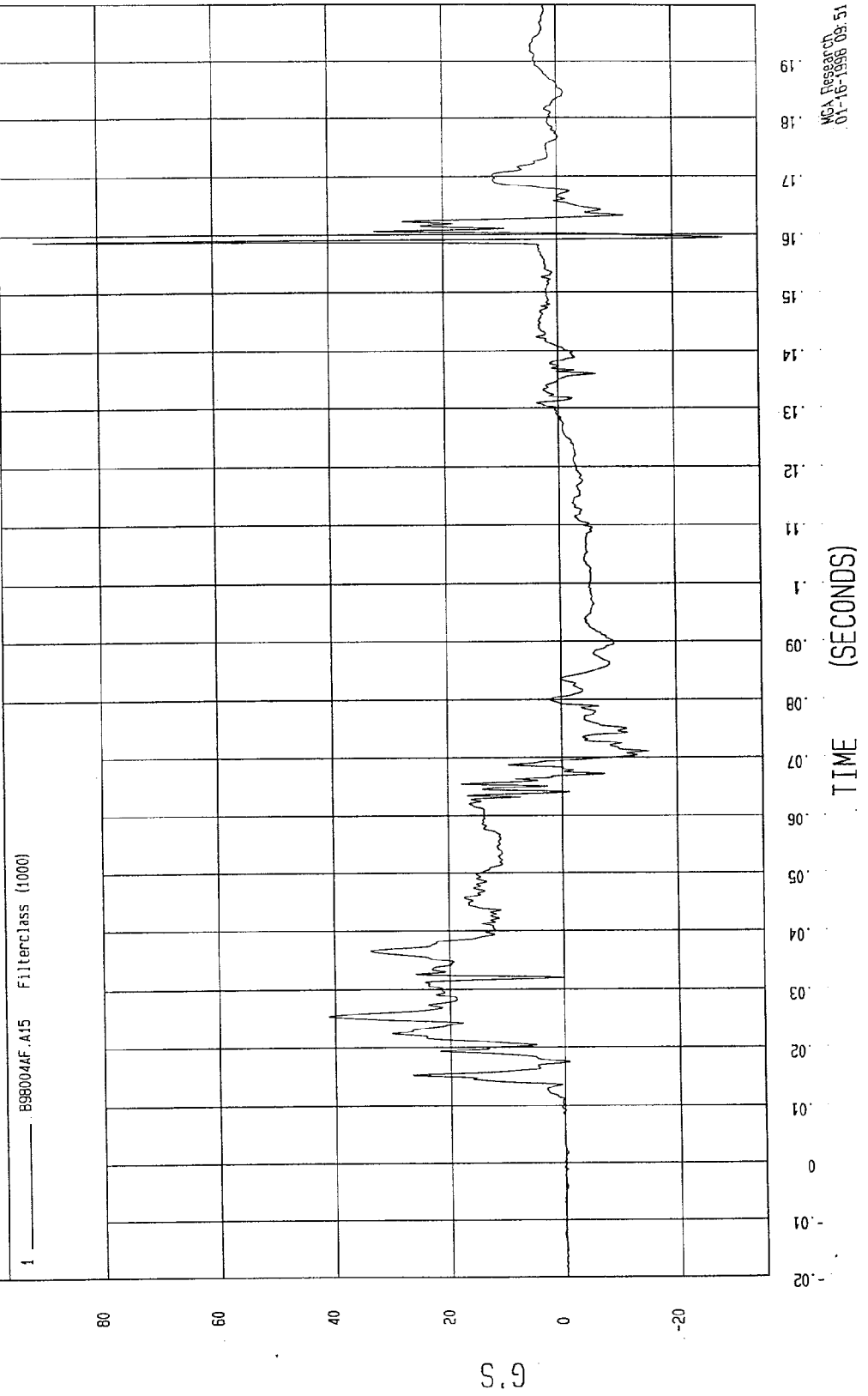
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TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH
Minimum = -28.76 G'S at 160 msec Maximum = 91.03 G'S at 159 msec

DRIVER UPPER RIB Y ACCELERATION

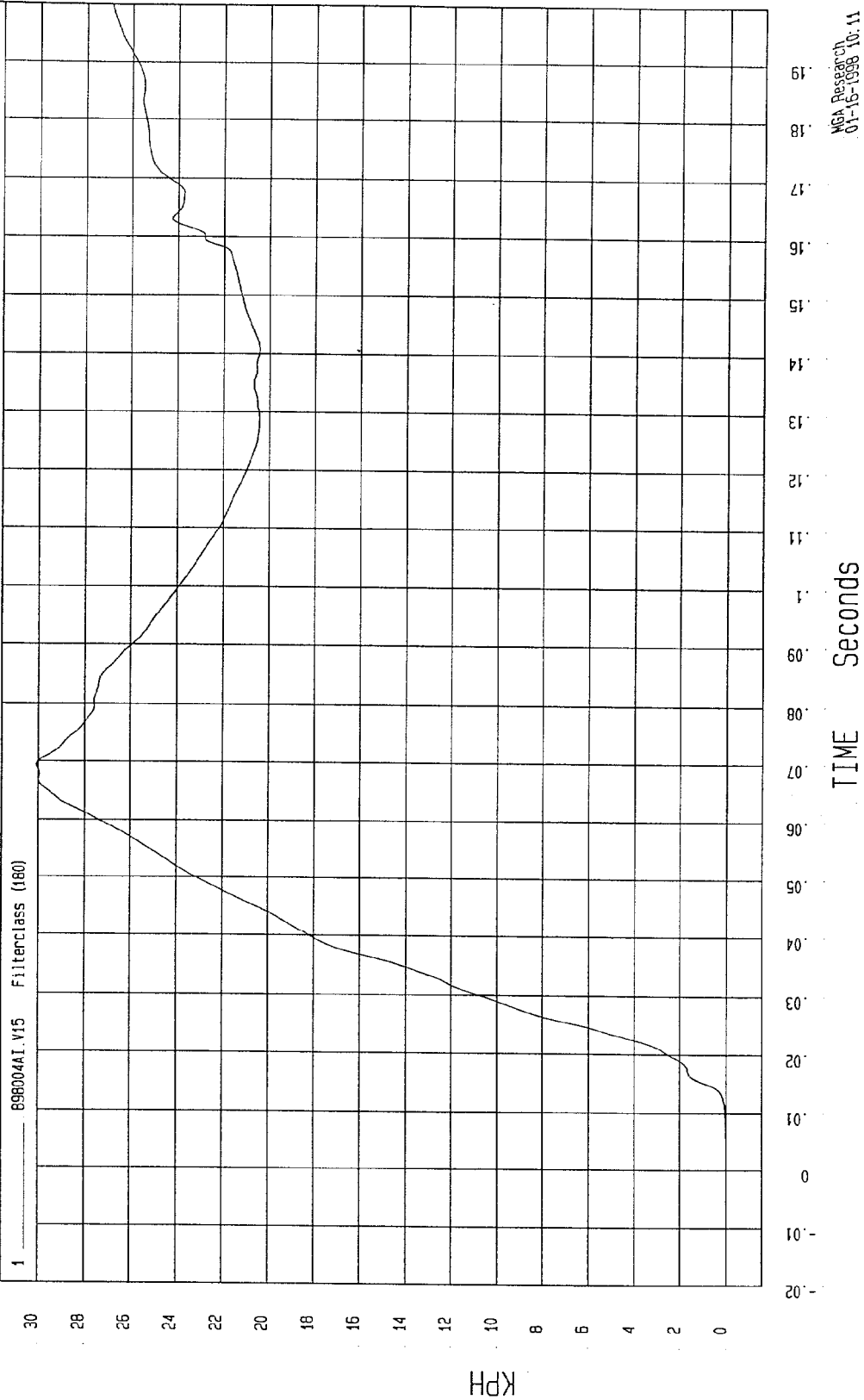


TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -6.72E-03 KPH at -14 msec Maximum = 30.08 KPH at 69 msec

DRIVER UPPER RIB Y VELOCITY



MGA Research
01-16-1998 10:11

TEST DATE: 01-14-1998

TEST: FMVSS 214D SIDE IMPACT (CW5800)

Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

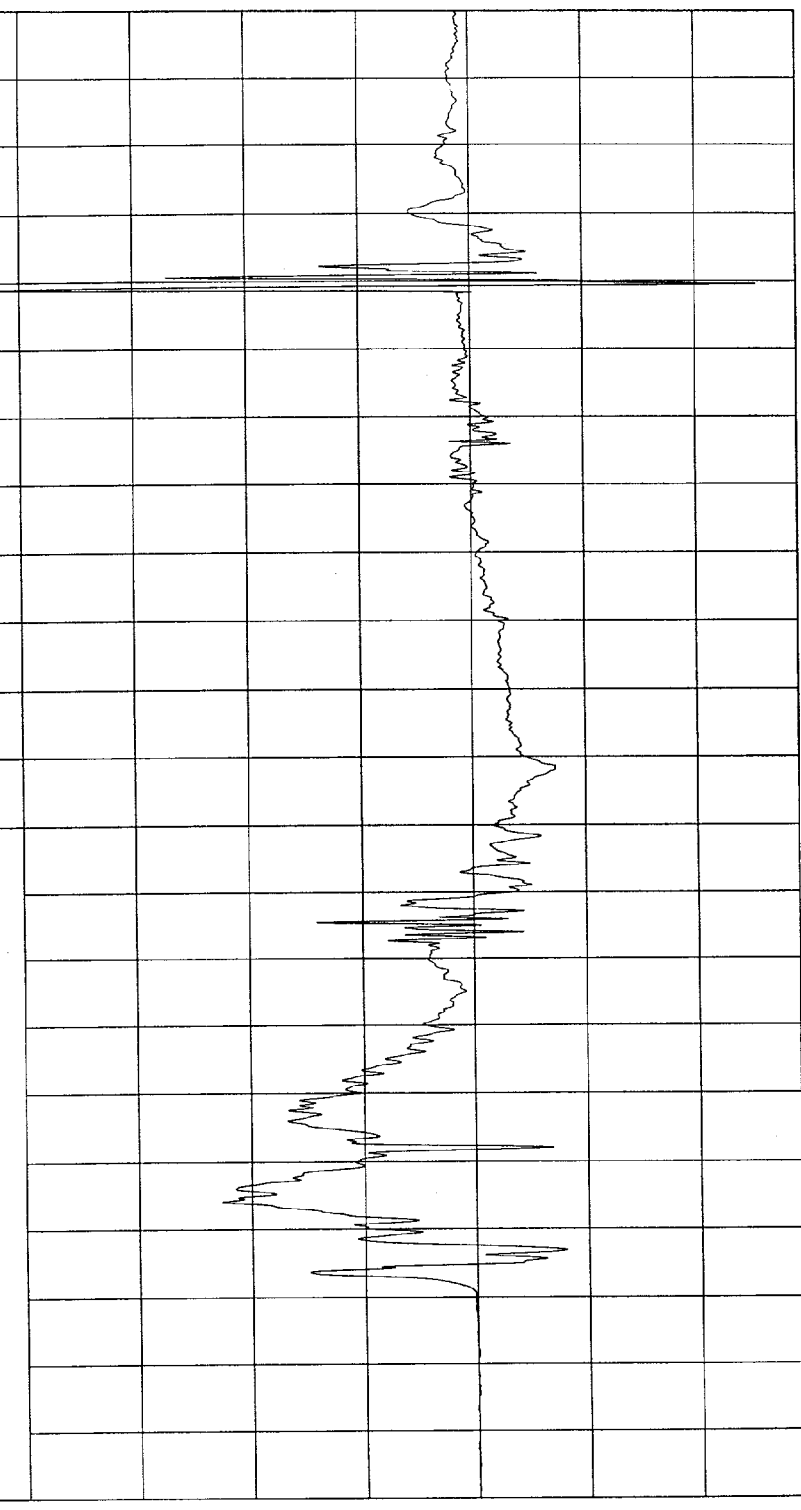
Maximum = 92.02 G'S at 159 msec

Minimum = -50.70 G'S at 160 msec

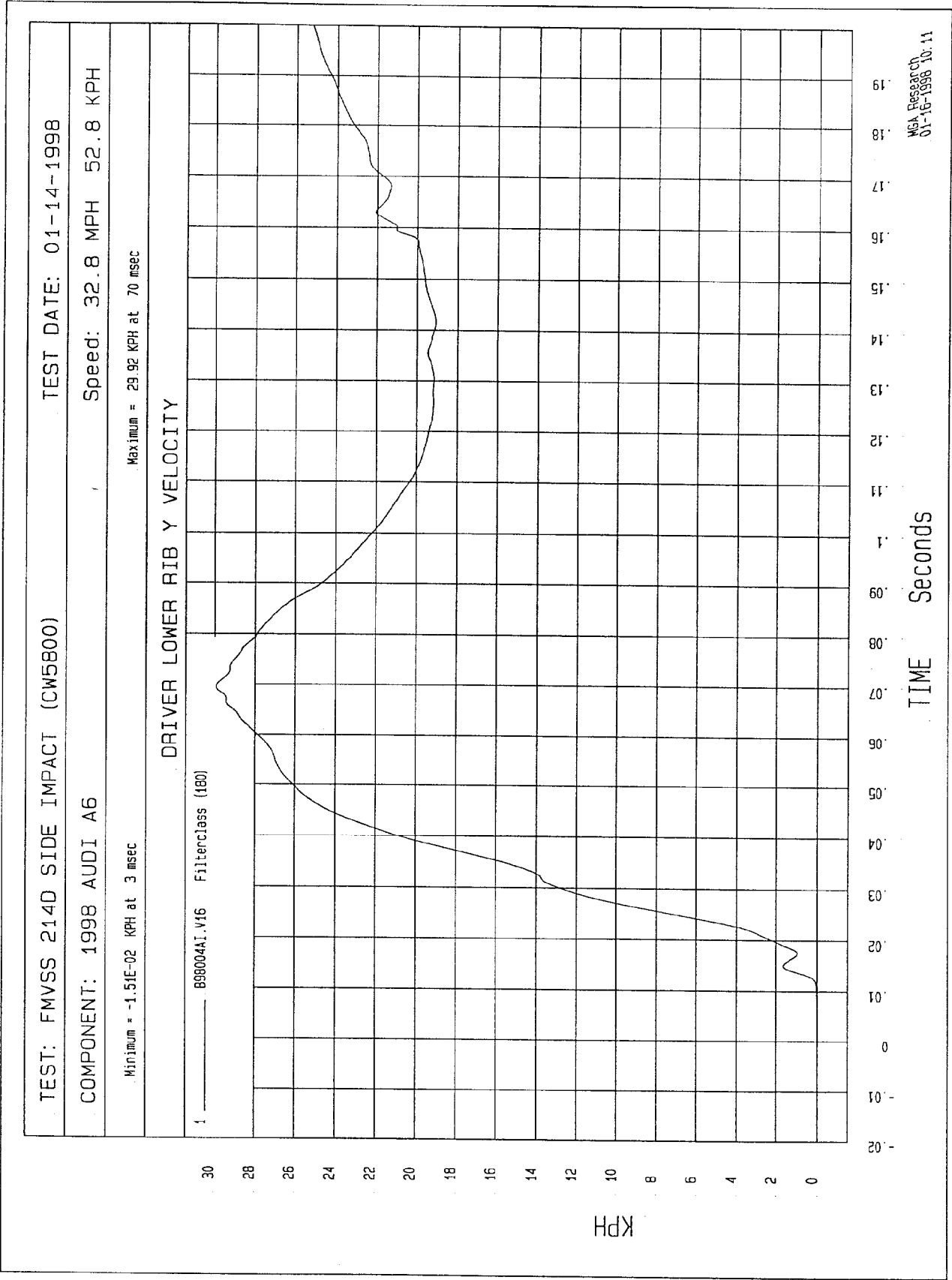
DRIVER LOWER RIB Y ACCELERATION

1 ——— B98004F.A15 Filterclass (4000)

G.S



MCA Research
01-16-1998 09:51

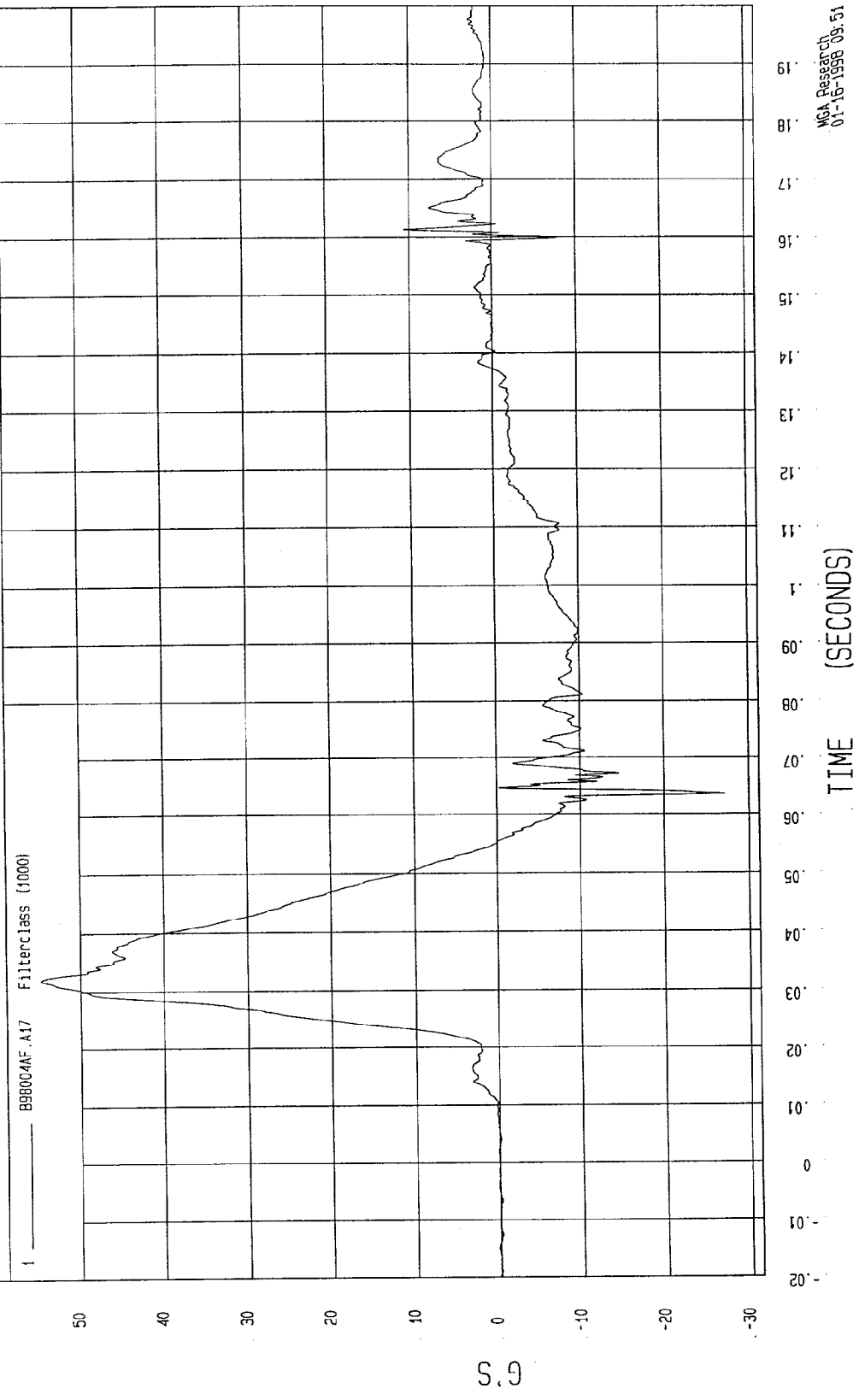


TEST: FMVSS 214D SIDE IMPACT (CW5B00) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -27.11 G'S at 64 msec Maximum = 54.74 G'S at 32 msec

DRIVER LOWER SPINE Y ACCELERATION



TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

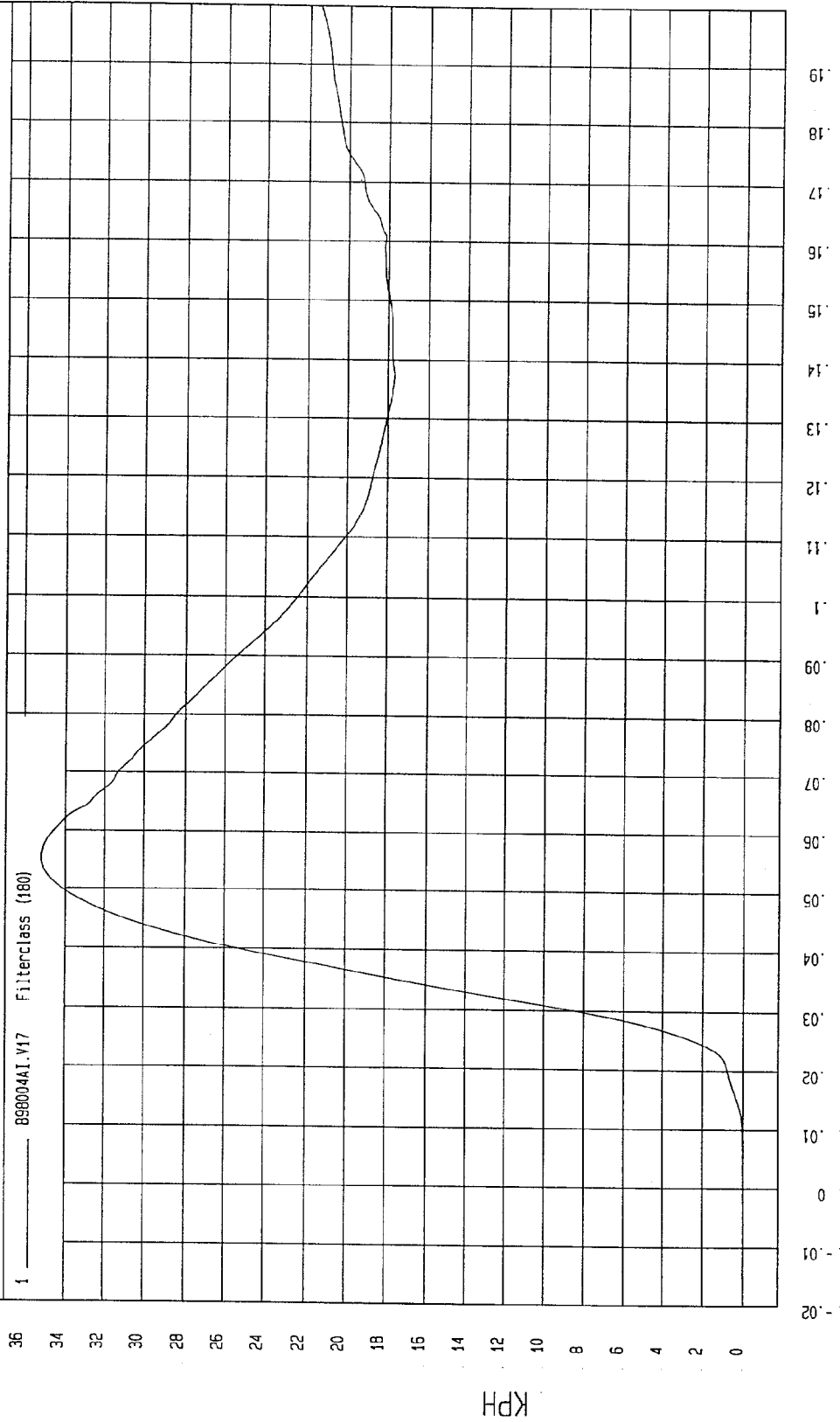
COMPONENT: 1998 AUDI A6

Speed: 32.8 MPH 52.8 KPH

Minimum = -7.32E-03 KPH at -5 msec

Maximum = 35.16 KPH at 55 msec

DRIVER LOWER SPINE Y VELOCITY



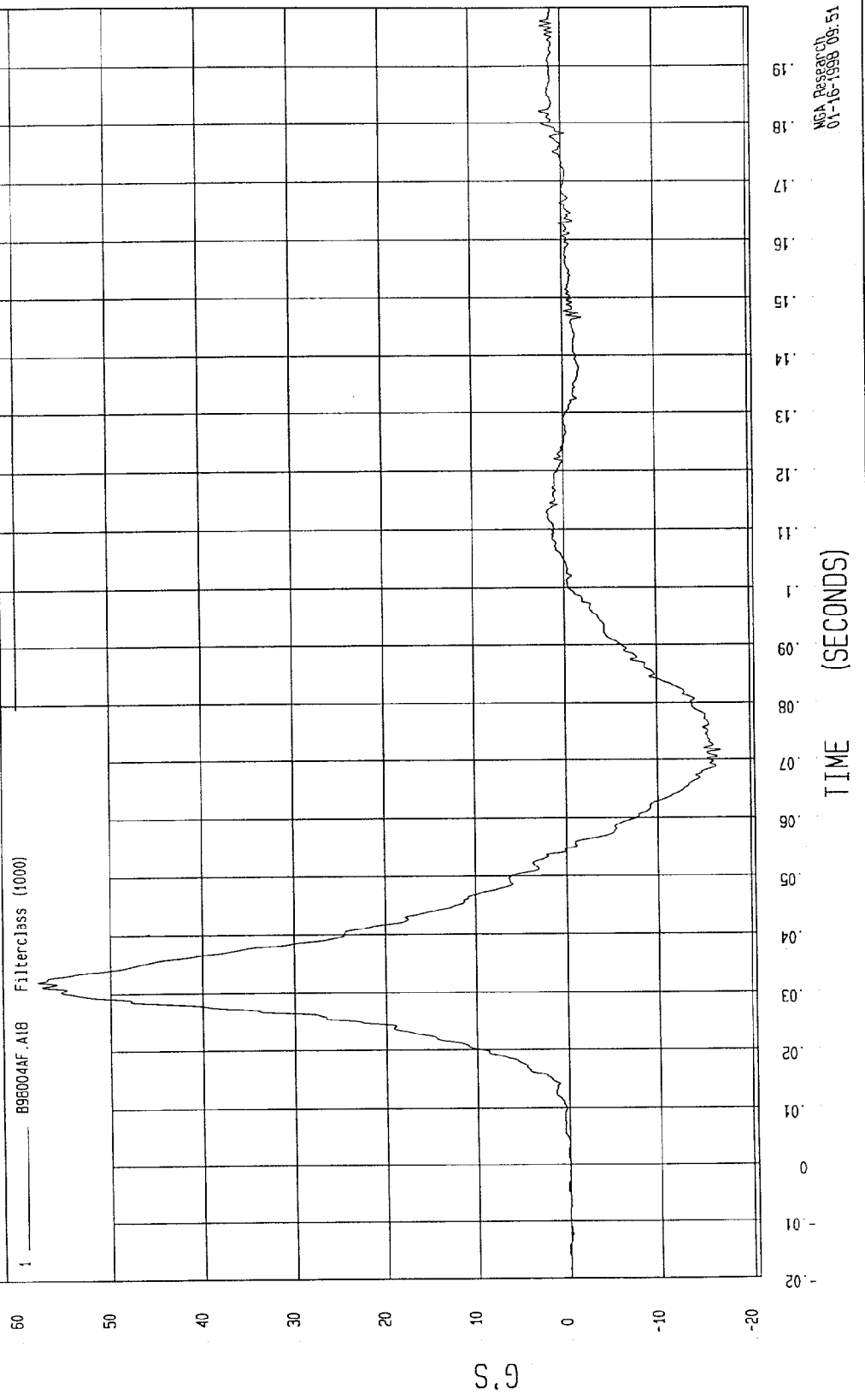
MCA Research
01-16-1998 10:11

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -16.75 G'S at 72 msec Maximum = 57.89 G'S at 32 msec

DRIVER PELVIS Y ACCELERATION



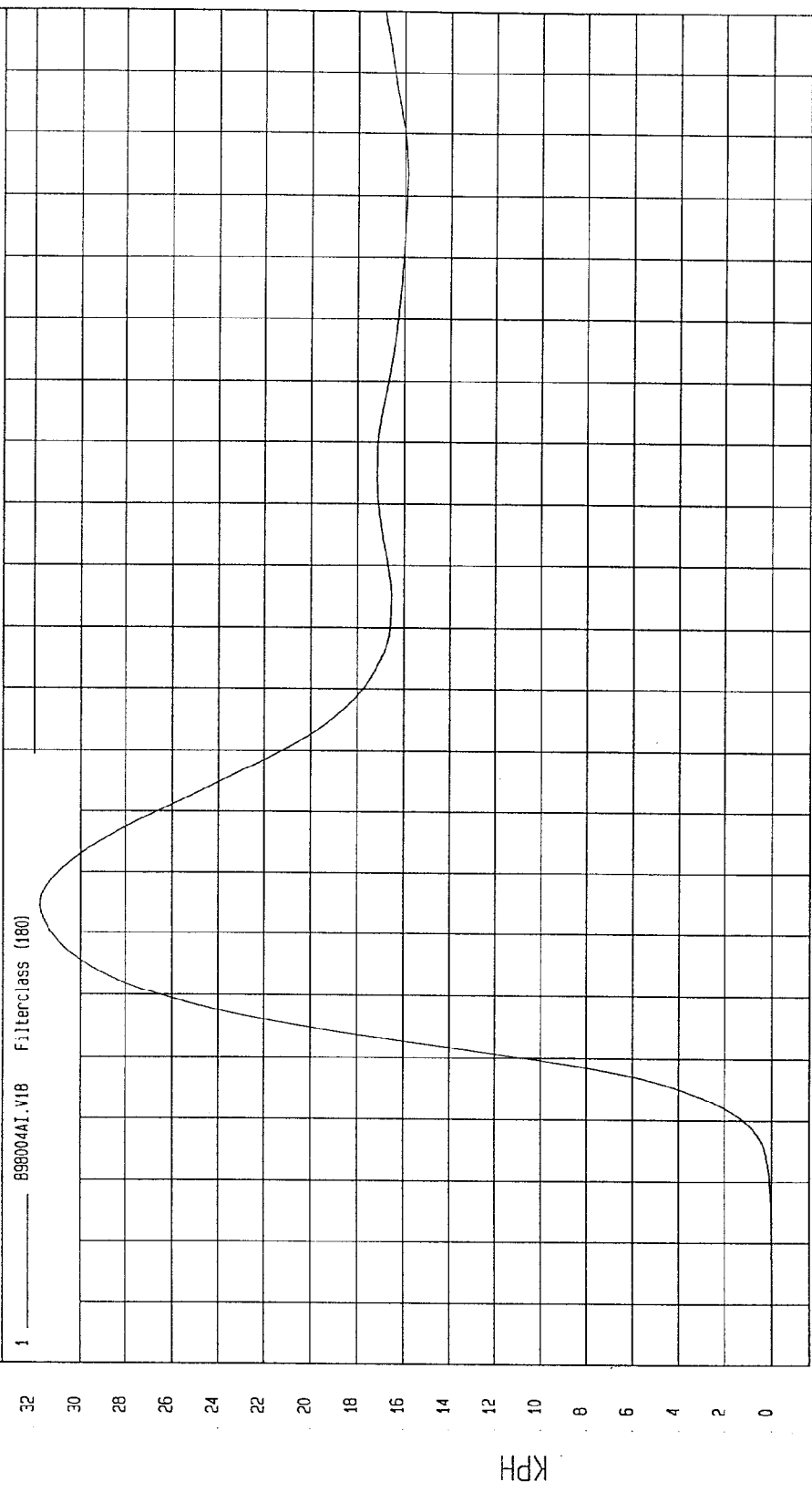
NCA Research
01-16-1998 09:51

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -3.66E-03 KPH at -5 msec Maximum = 31.73 KPH at 54 msec

DRIVER PELVIS Y VELOCITY



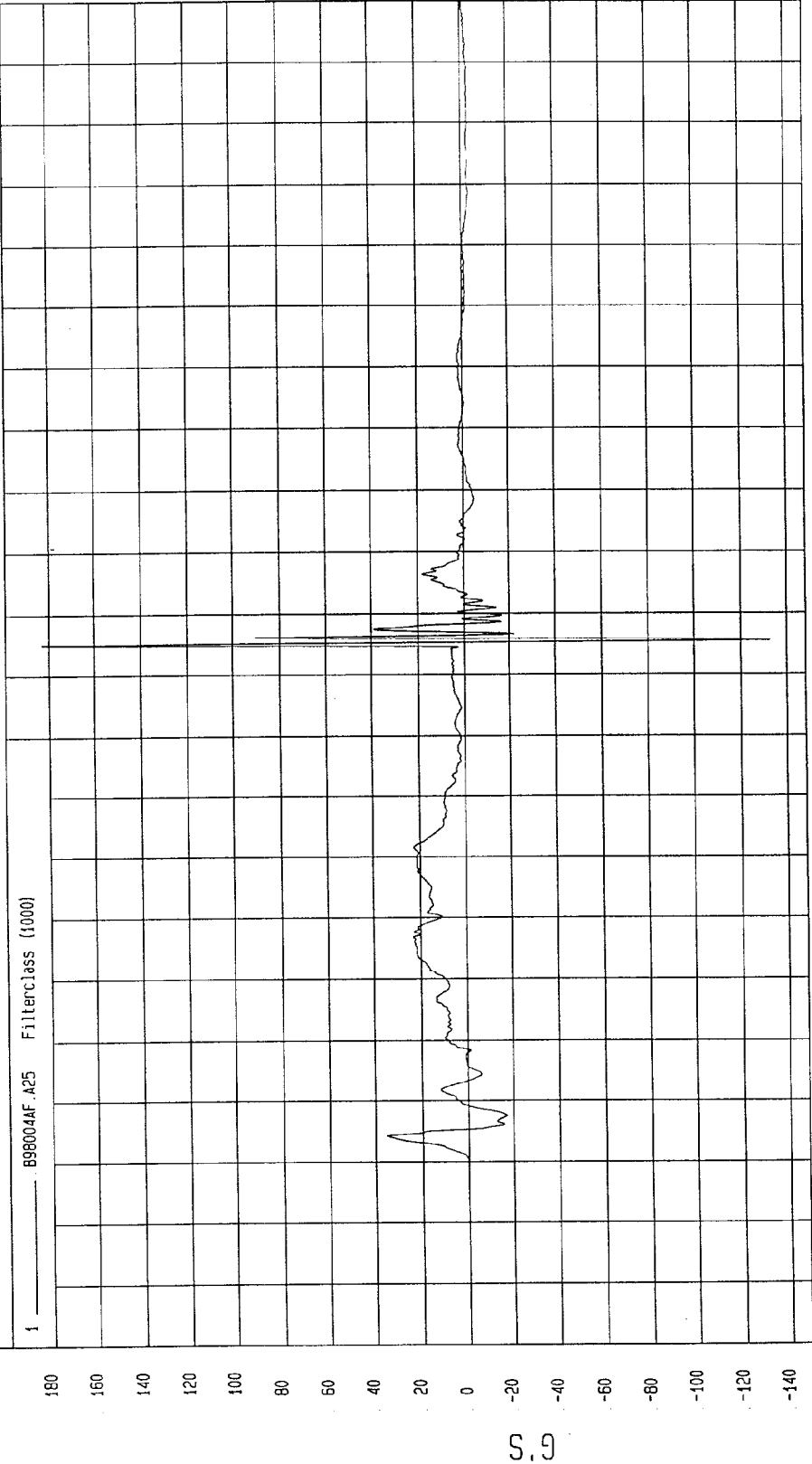
WCA Research
01-16-1998 10: 11

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -132.38 G'S at 95 msec Maximum = 182.99 G'S at 95 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

WCA Research
01-16-1998 09:52

TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

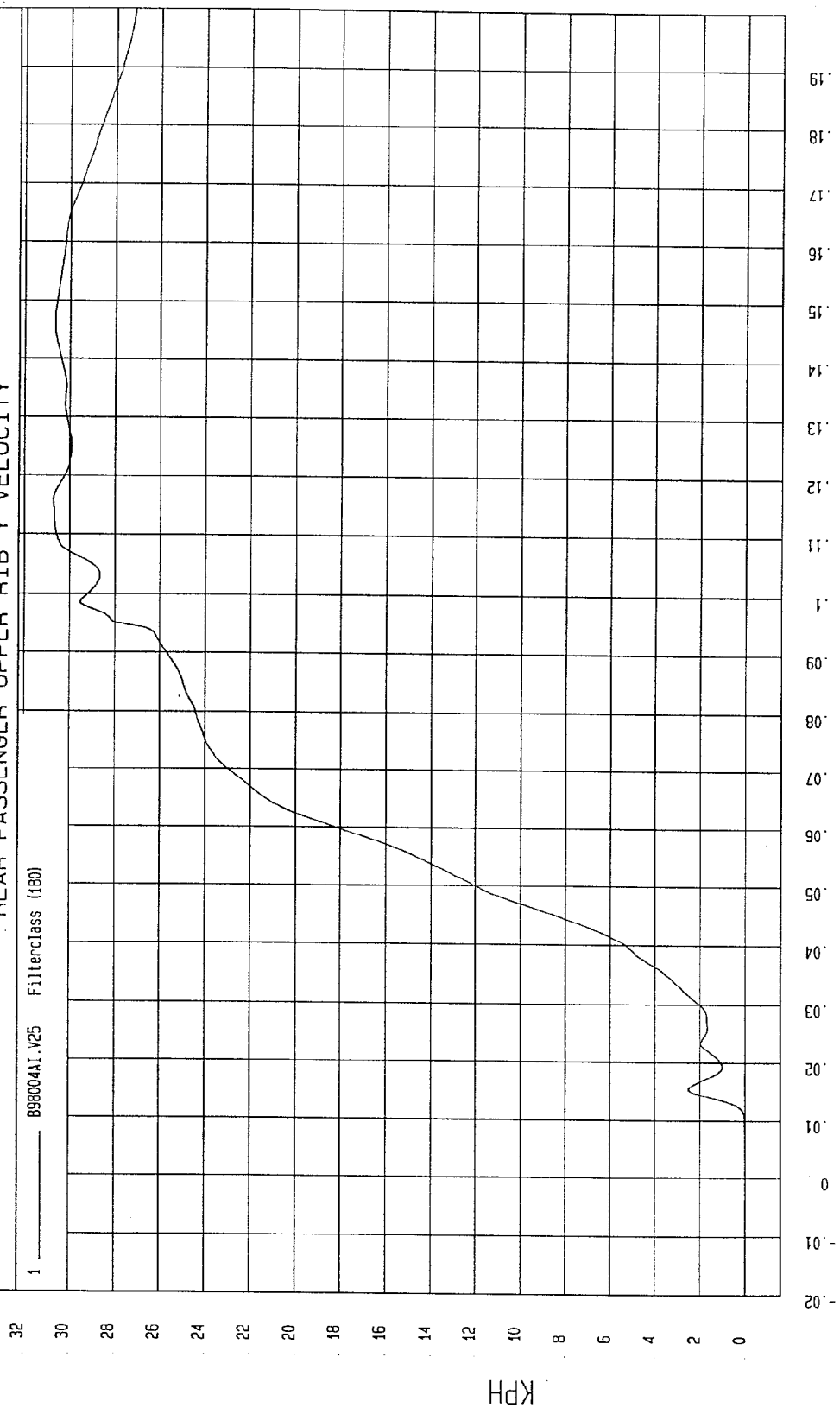
Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

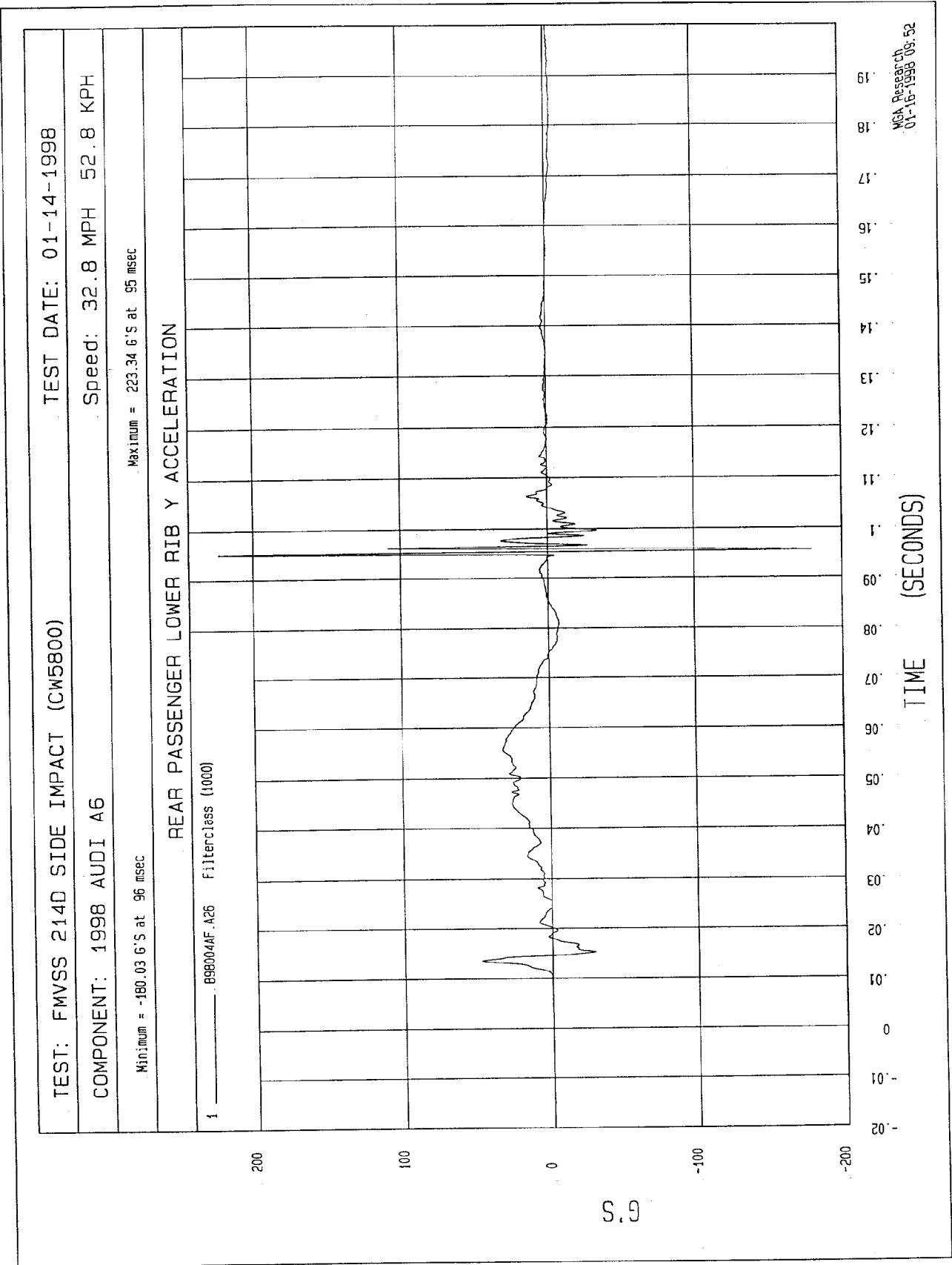
Minimum = -1.00E-02 KPH at 3 msec

Maximum = 30.72 KPH at 116 msec

REAR PASSENGER UPPER RIB Y VELOCITY



MCA Research
01-16-1998 10:11

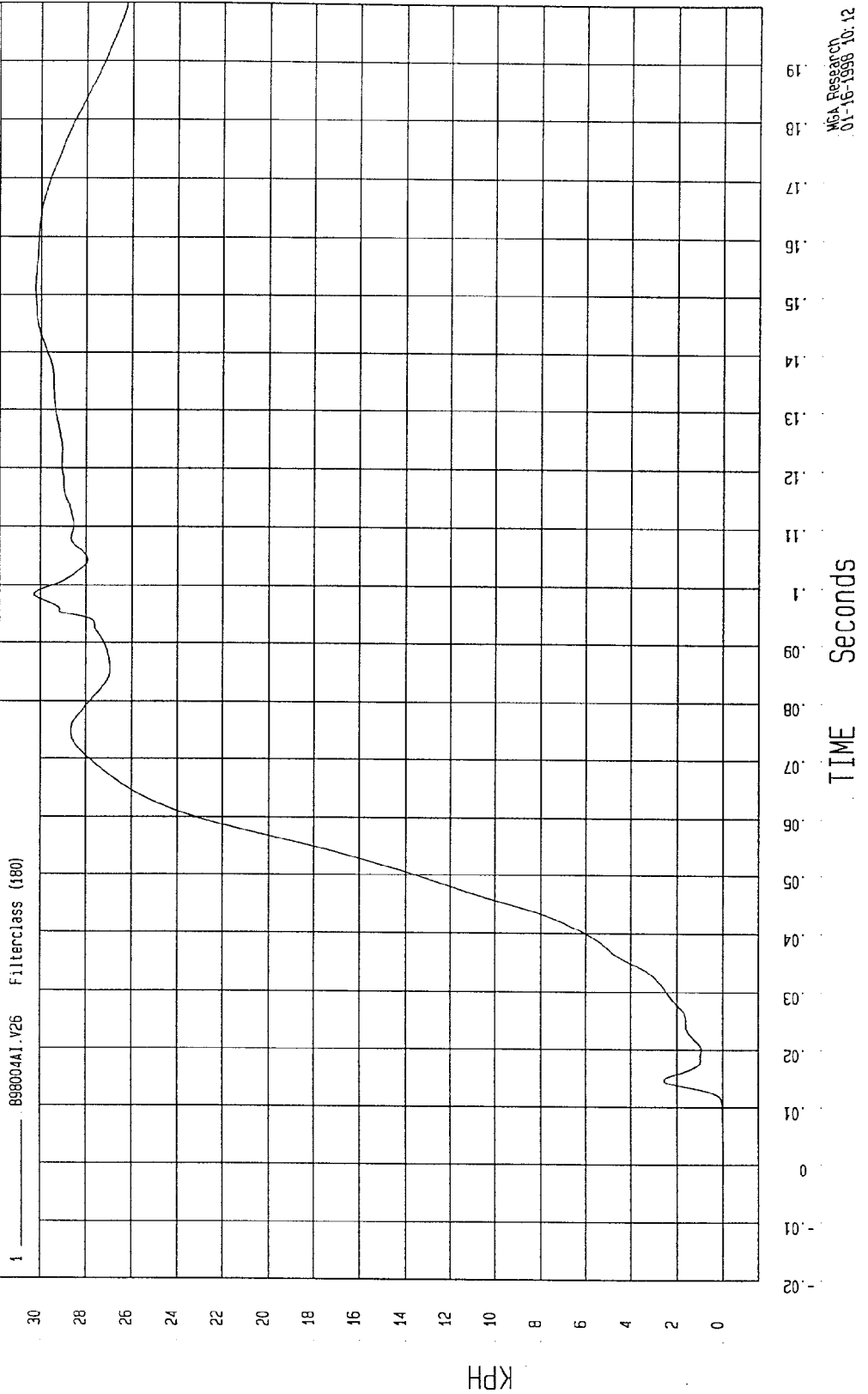


TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -.01 KPH at 2 msec Maximum = 30.30 KPH at 96 msec

REAR PASSENGER LOWER RIB Y VELOCITY

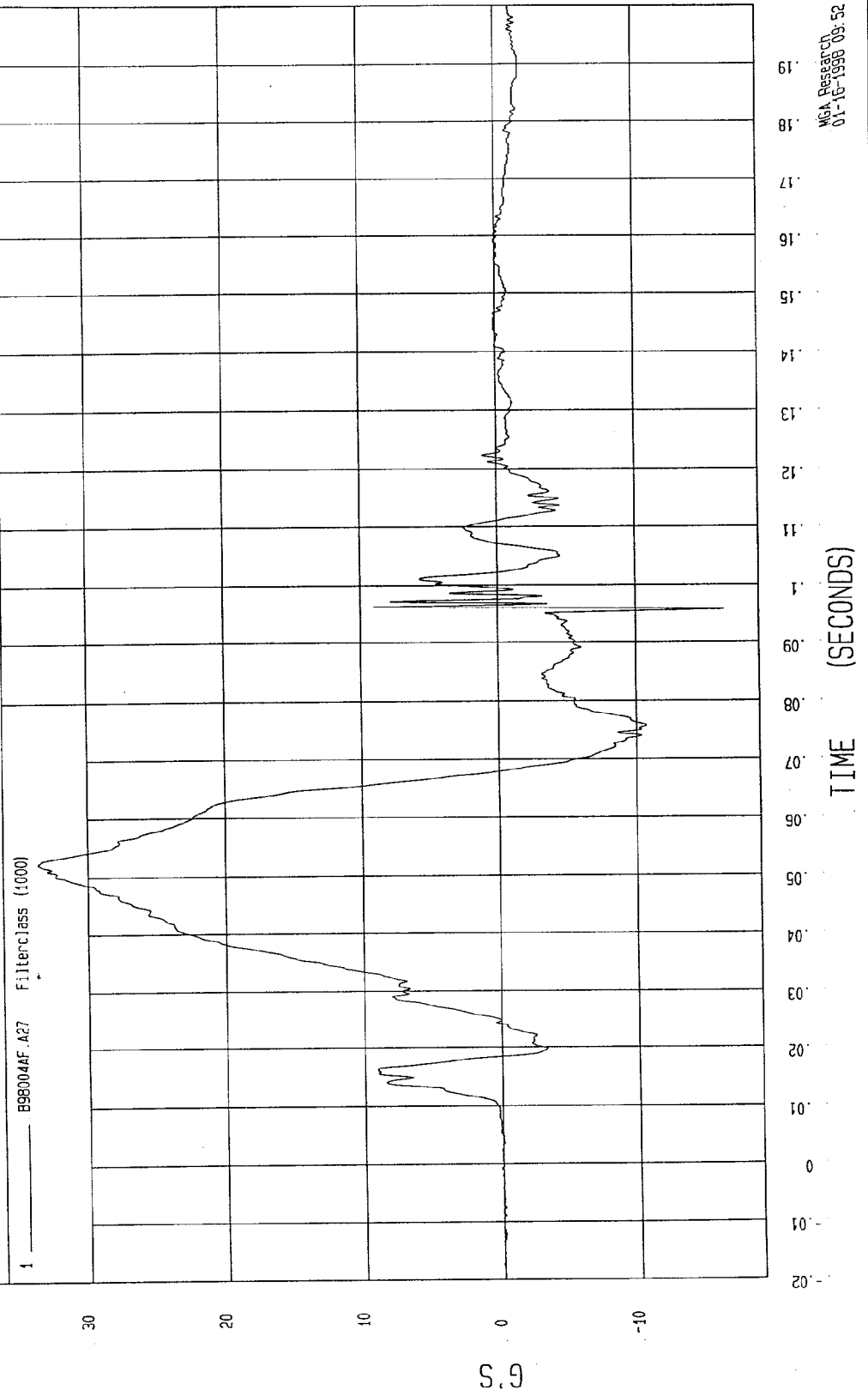


TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -16.40 G'S at 96 msec Maximum = 33.59 G'S at 52 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION



TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

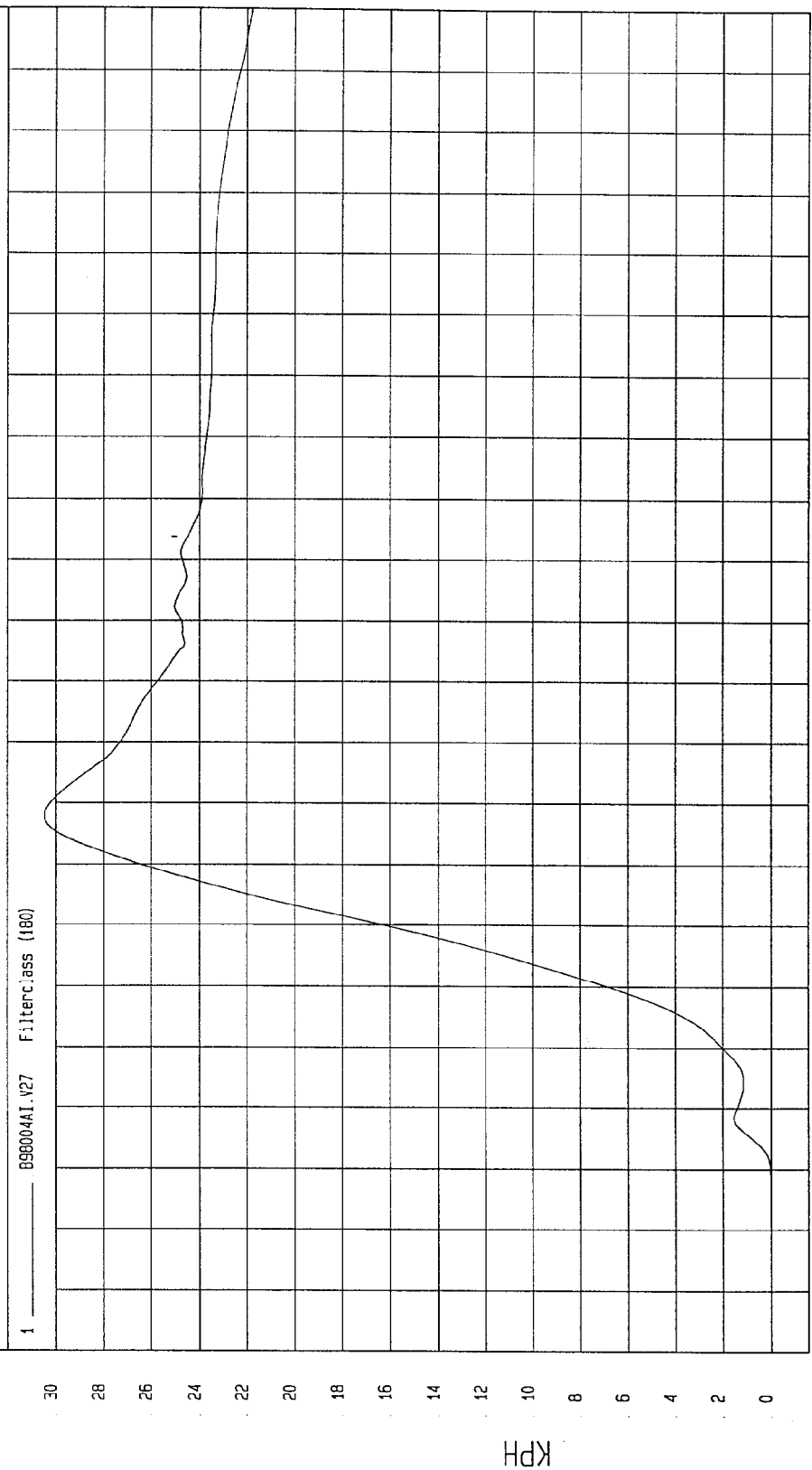
Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

Maximum = 30.47 KPH at 68 msec

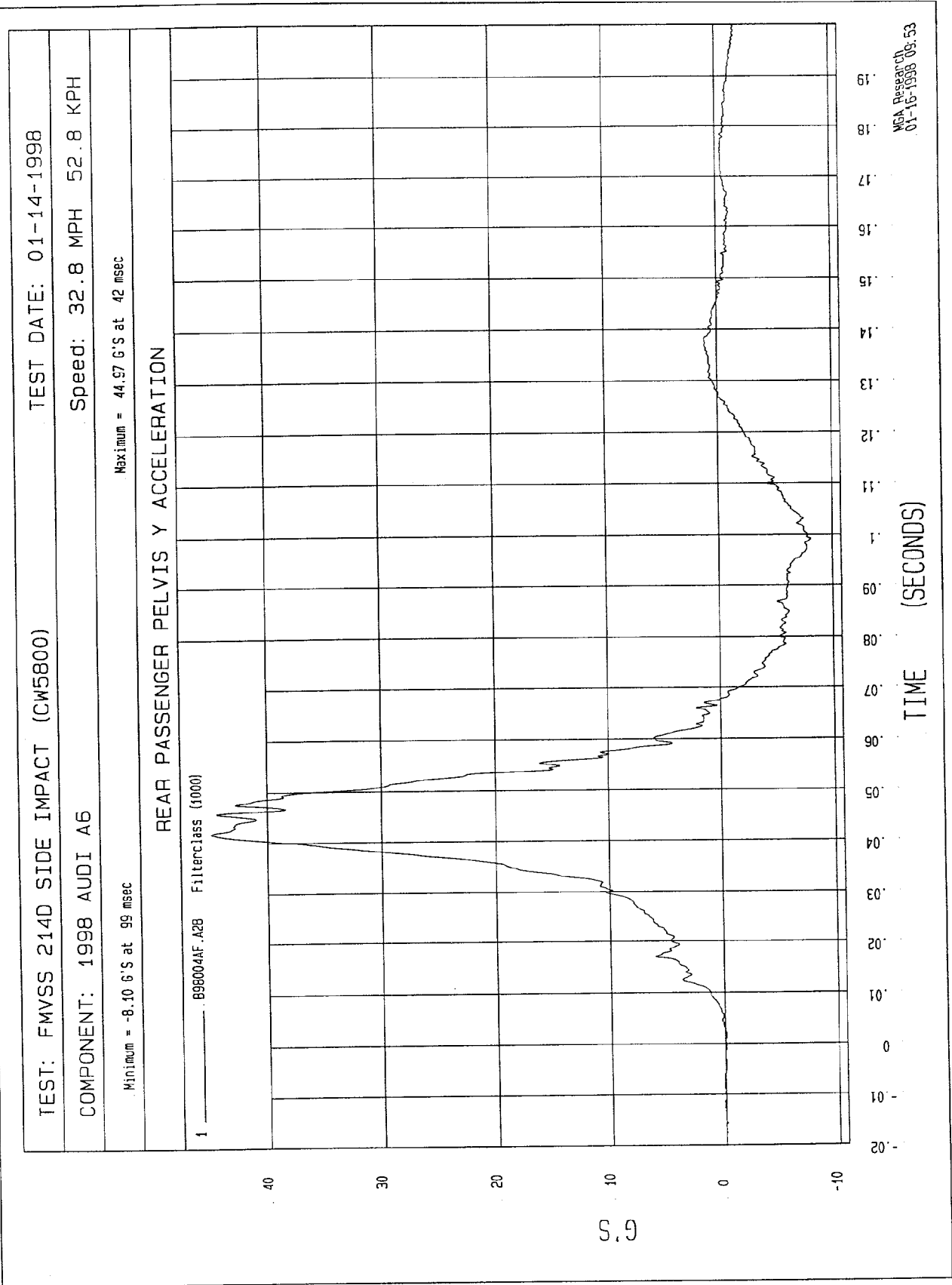
Minimum = -4.43E-03 KPH at -6 msec

REAR PASSENGER LOWER SPINE Y VELOCITY



TIME Seconds

WCA Research
01-16-1998 10:12

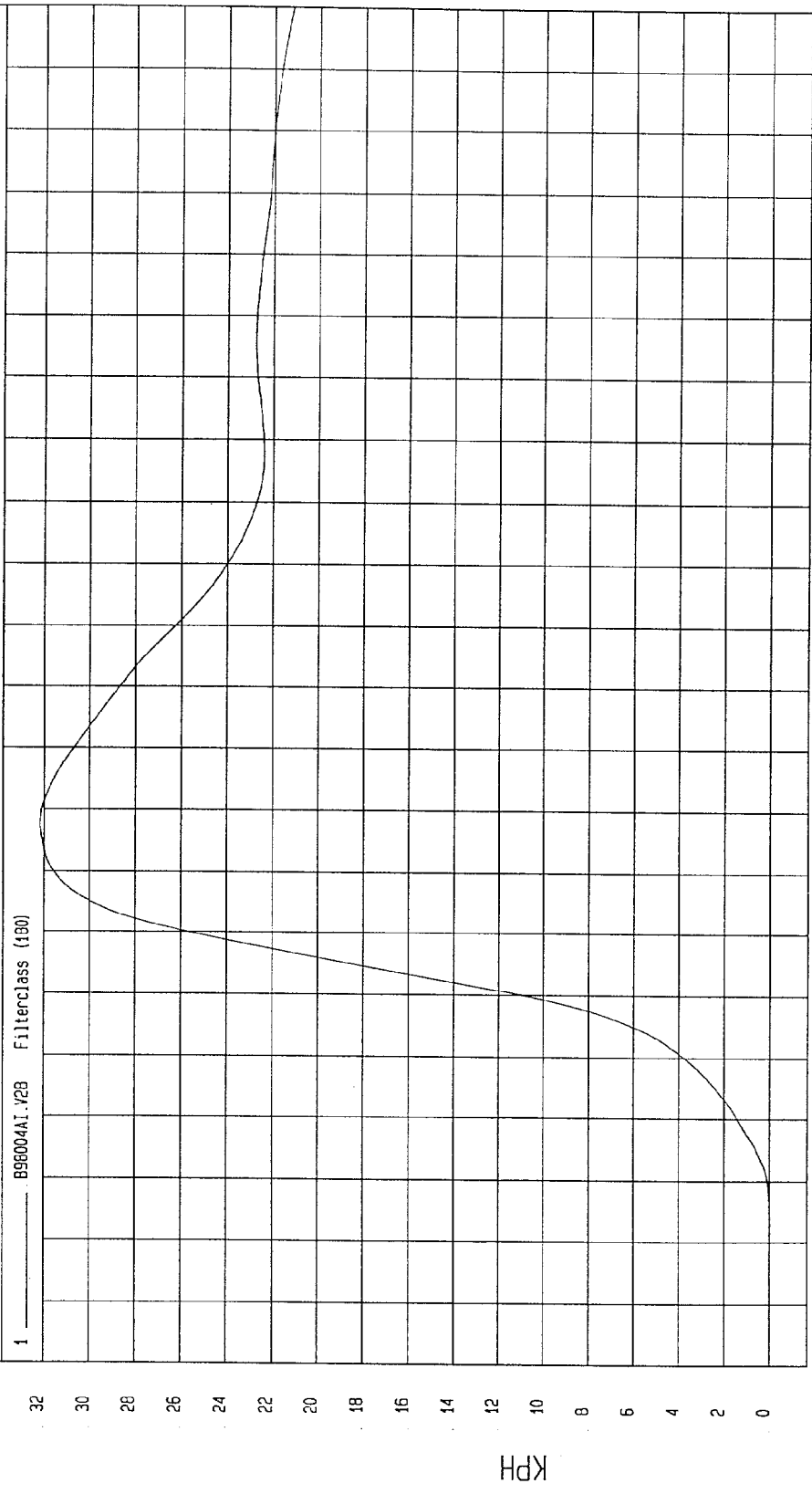


TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -1.63E-02 KPH at 3 msec Maximum = 32.17 KPH at 68 msec

REAR PASSENGER PELVIS Y VELOCITY



TIME Seconds

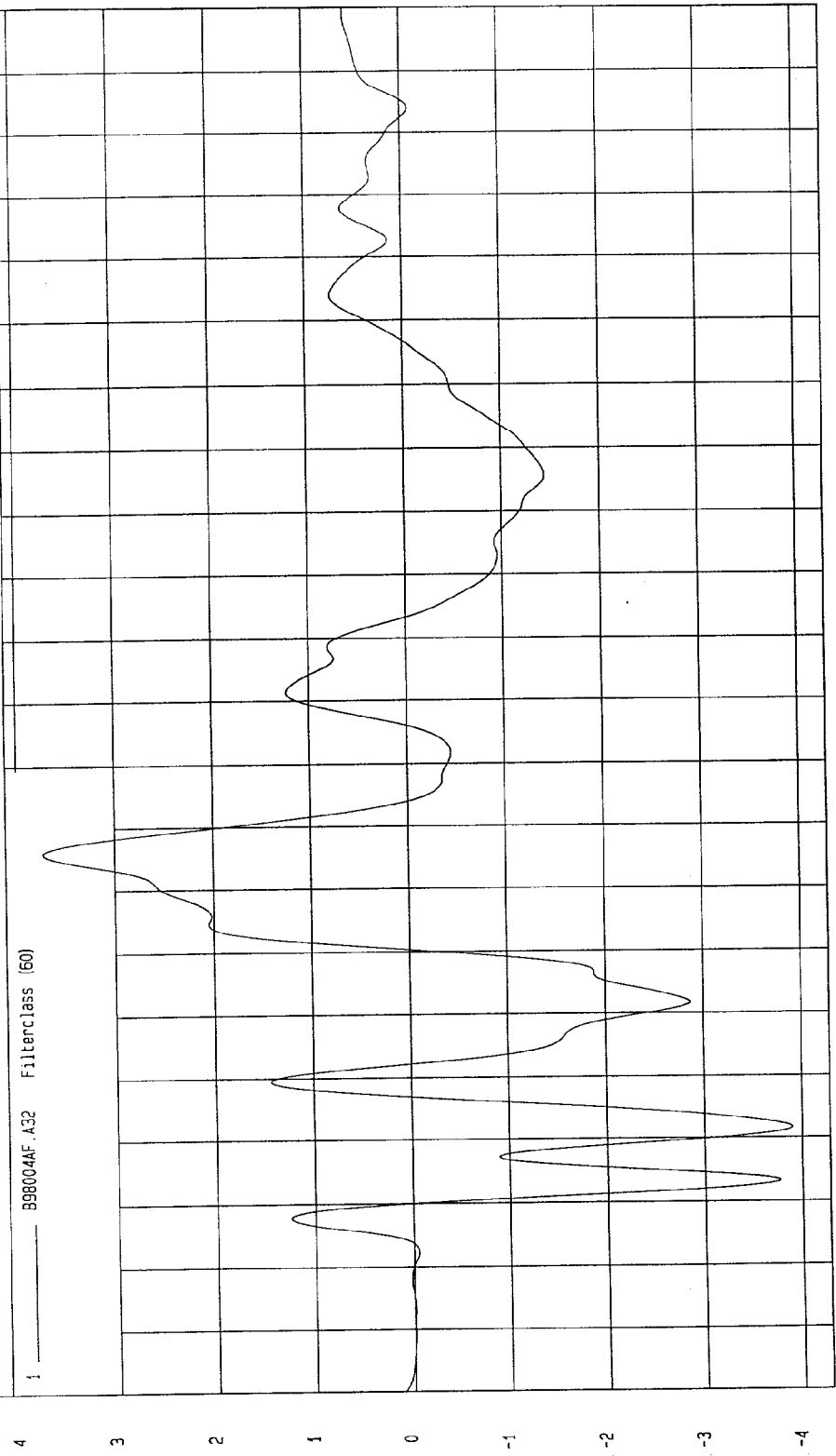
WCA Research
01-16-1998 10:12

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -3.85 G'S at 22 msec Maximum = 3.73 G'S at 66 msec

RIGHT SIDE SILL AT FRONT SEAT X ACCELERATION

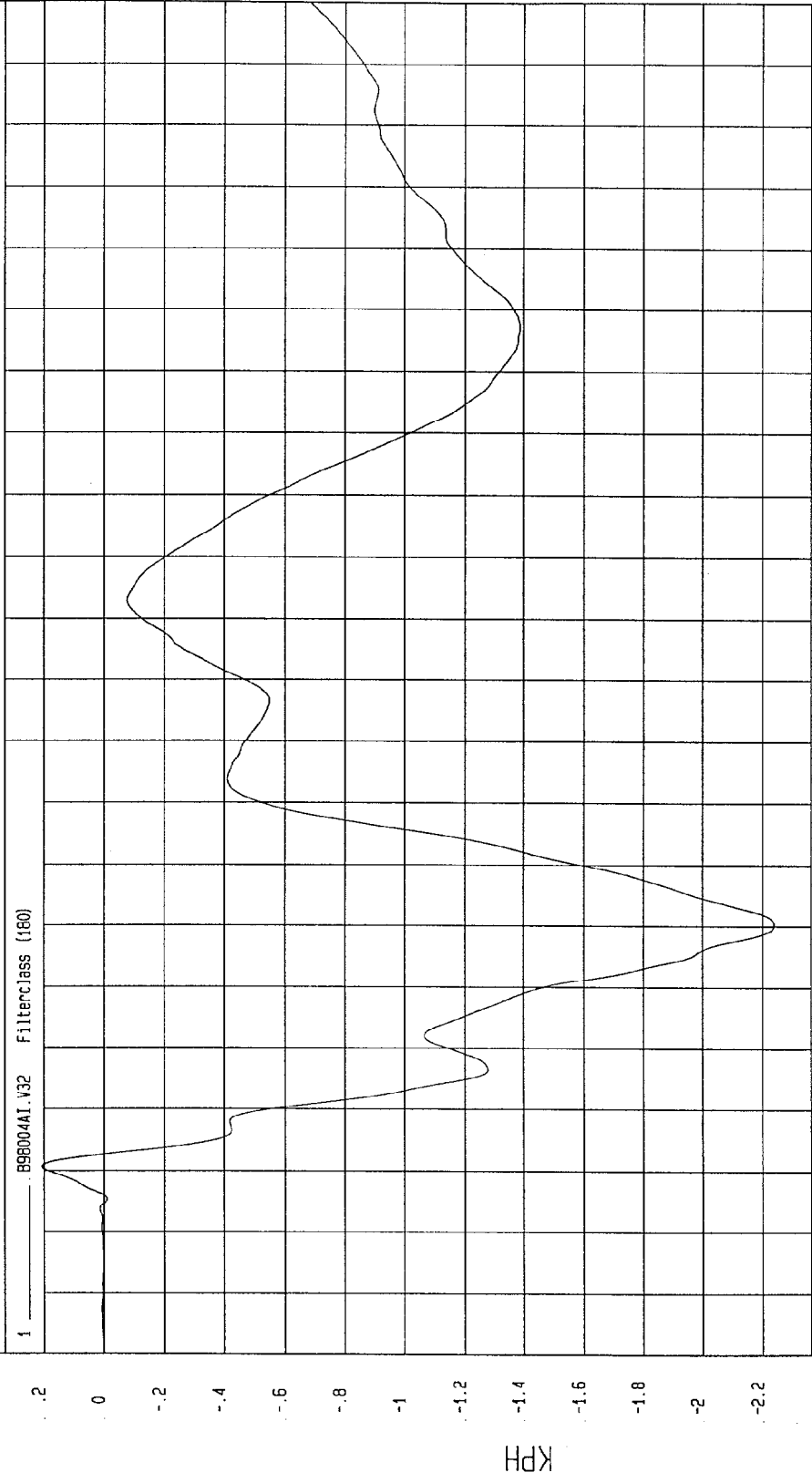


TIME (SECONDS)

WCA Research
01-16-1998 10:22

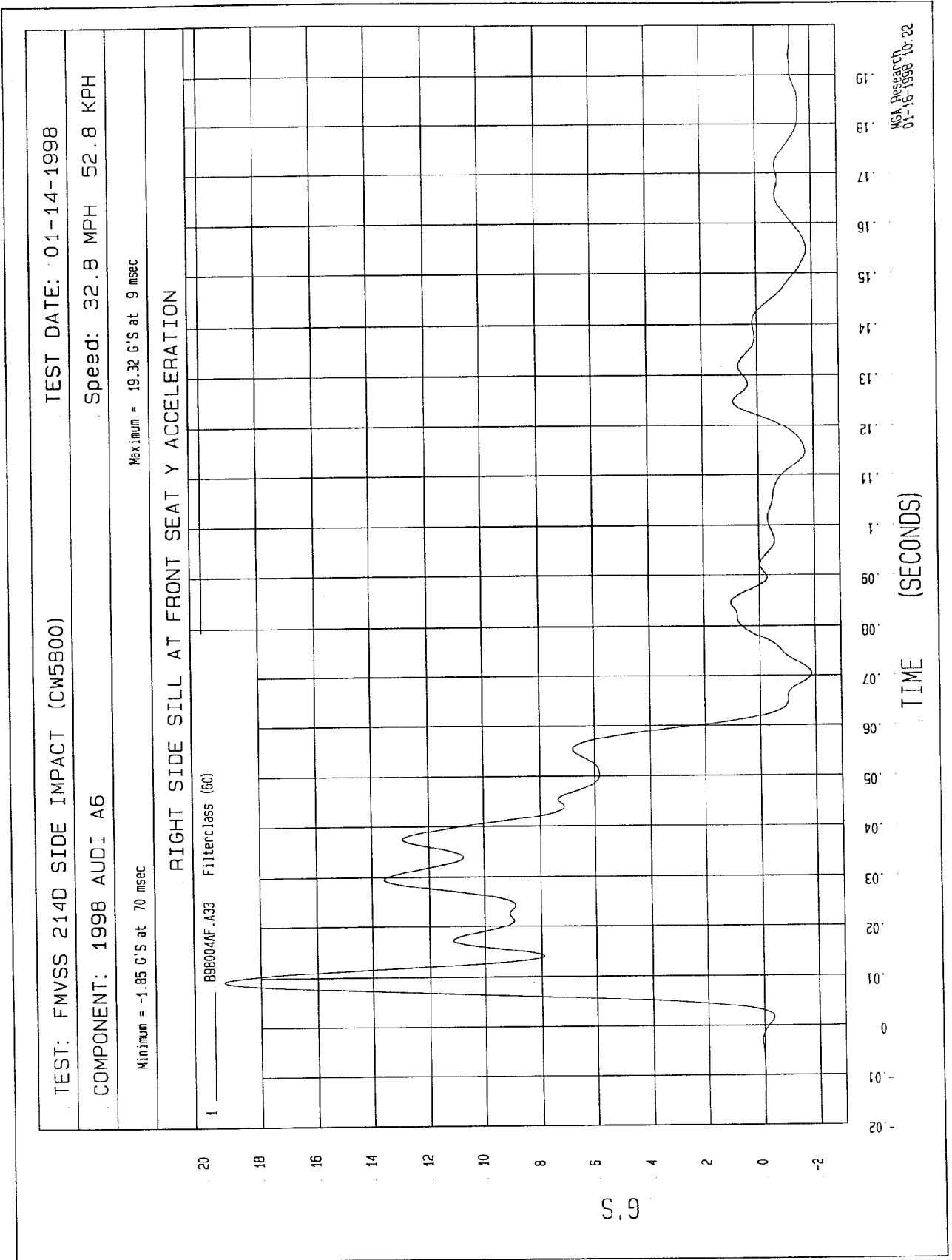
TEST: FMVSS 214D SIDE IMPACT (CW5800)	TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6	Speed: 32.8 MPH 52.8 KPH
Minimum = -2.23 KPH at 50 msec	
Maximum = .20 KPH at 11 msec	

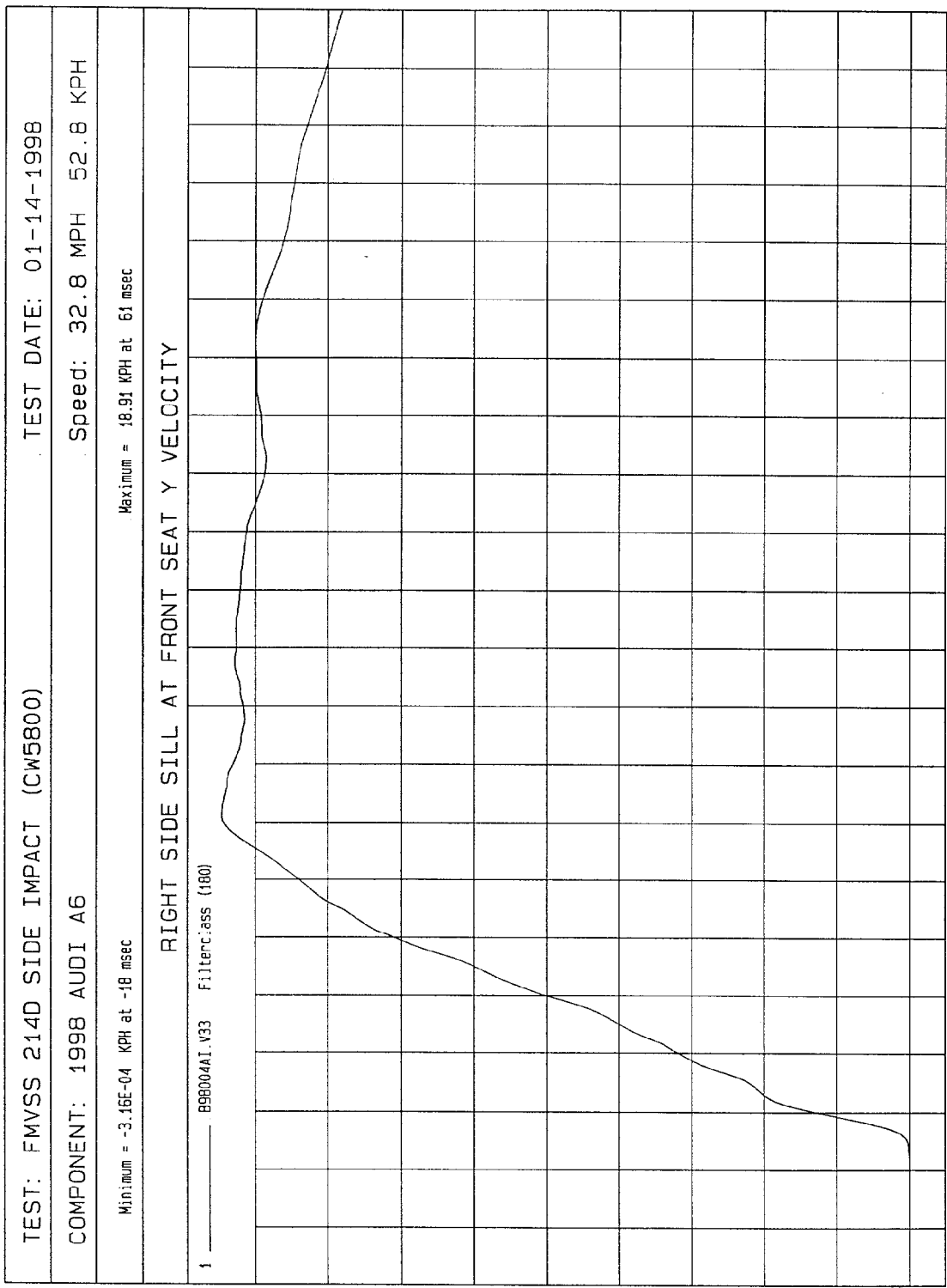
RIGHT SIDE SILL AT FRONT SEAT X VELOCITY



TIME Seconds

WCA Research
01-14-1998 17:36





TIME Seconds

WCA Research
01-14-1998 17:36

TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

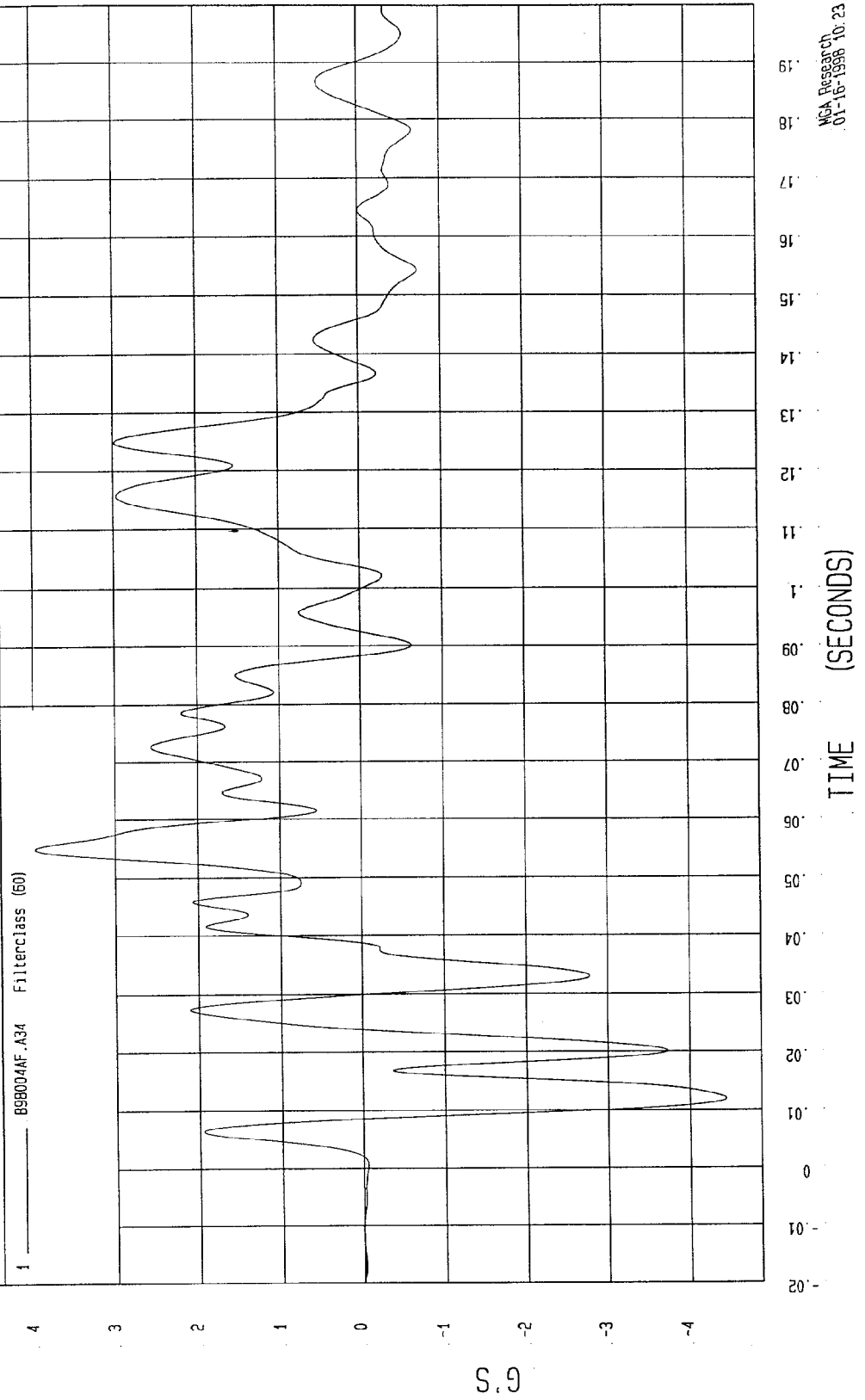
COMPONENT: 1998 AUDI A6

Speed: 32.8 MPH 52.8 KPH

Minimum = -4.44 G'S at 12 msec

Maximum = 3.98 G'S at 55 msec

RIGHT SIDE SILL AT FRONT SEAT Z ACCELERATION



TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

Speed: 32.8 MPH 52.8 KPH

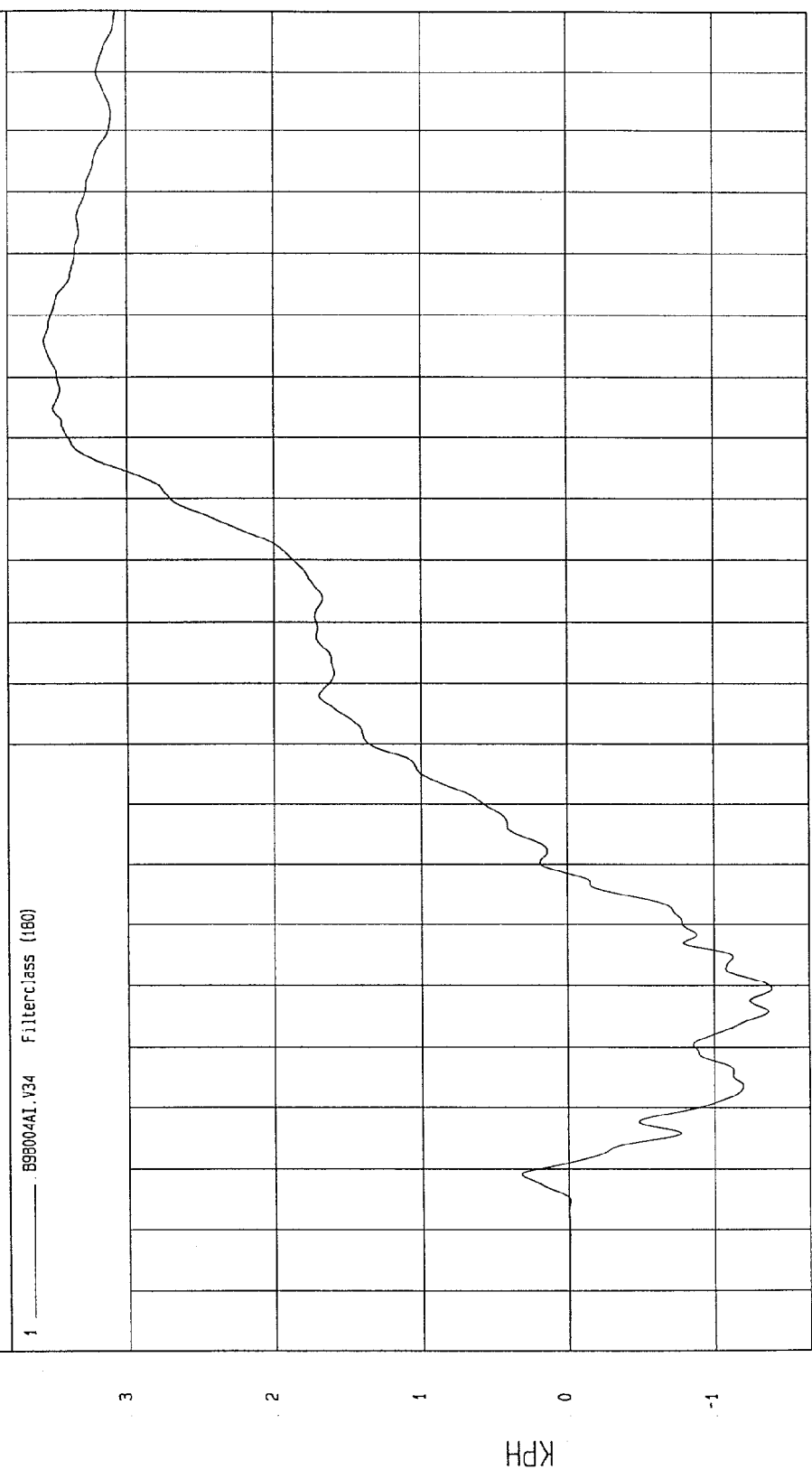
COMPONENT: 1998 AUDI A6

Maximum = 3.55 KPH at 146 msec

Minimum = -1.39 KPH at 40 msec

RIGHT SIDE SILL AT FRONT SEAT Z VELOCITY

1 B98004AI.V34 Filterclass (180)



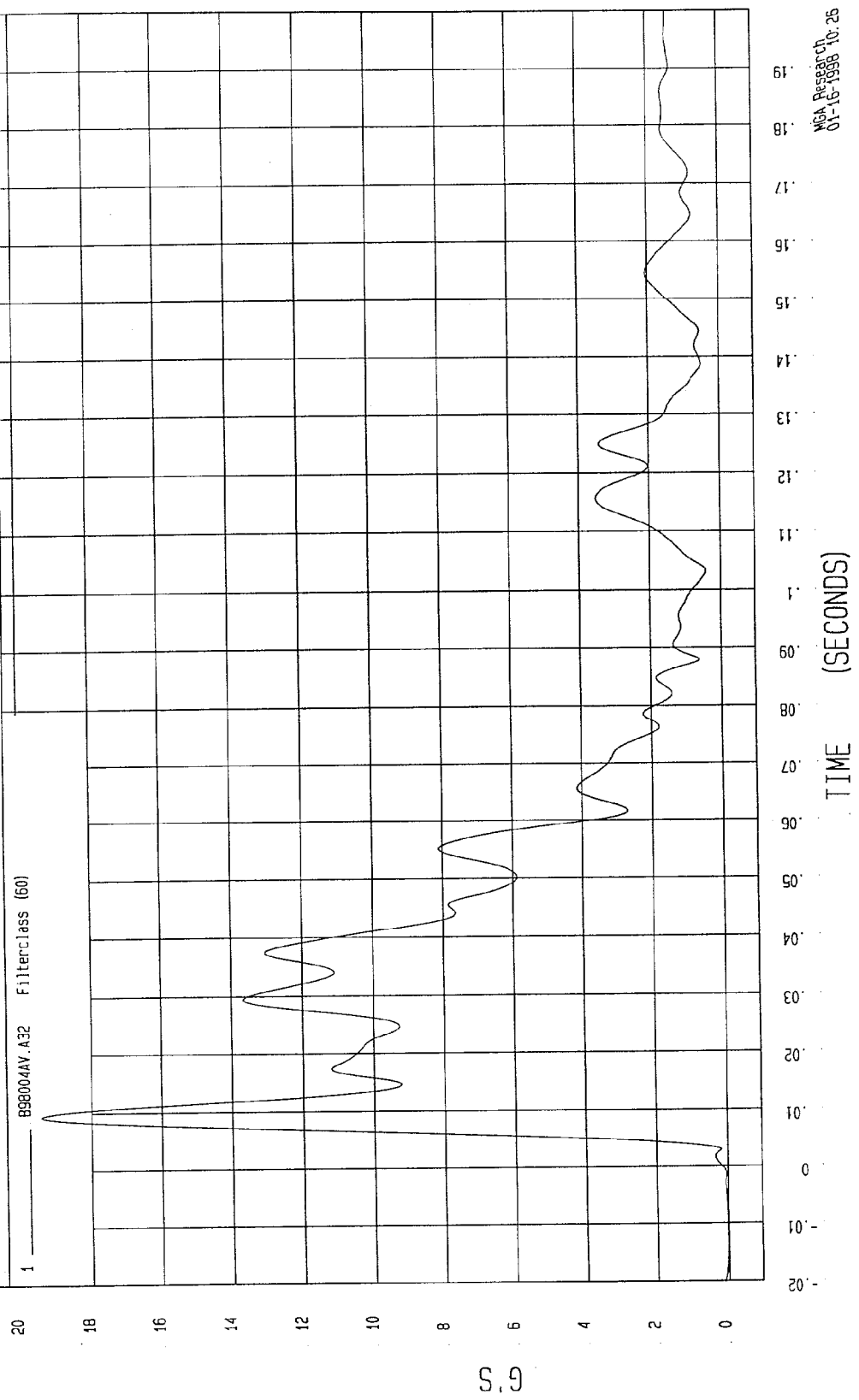
MCA Research
01-14-1998 17:36

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

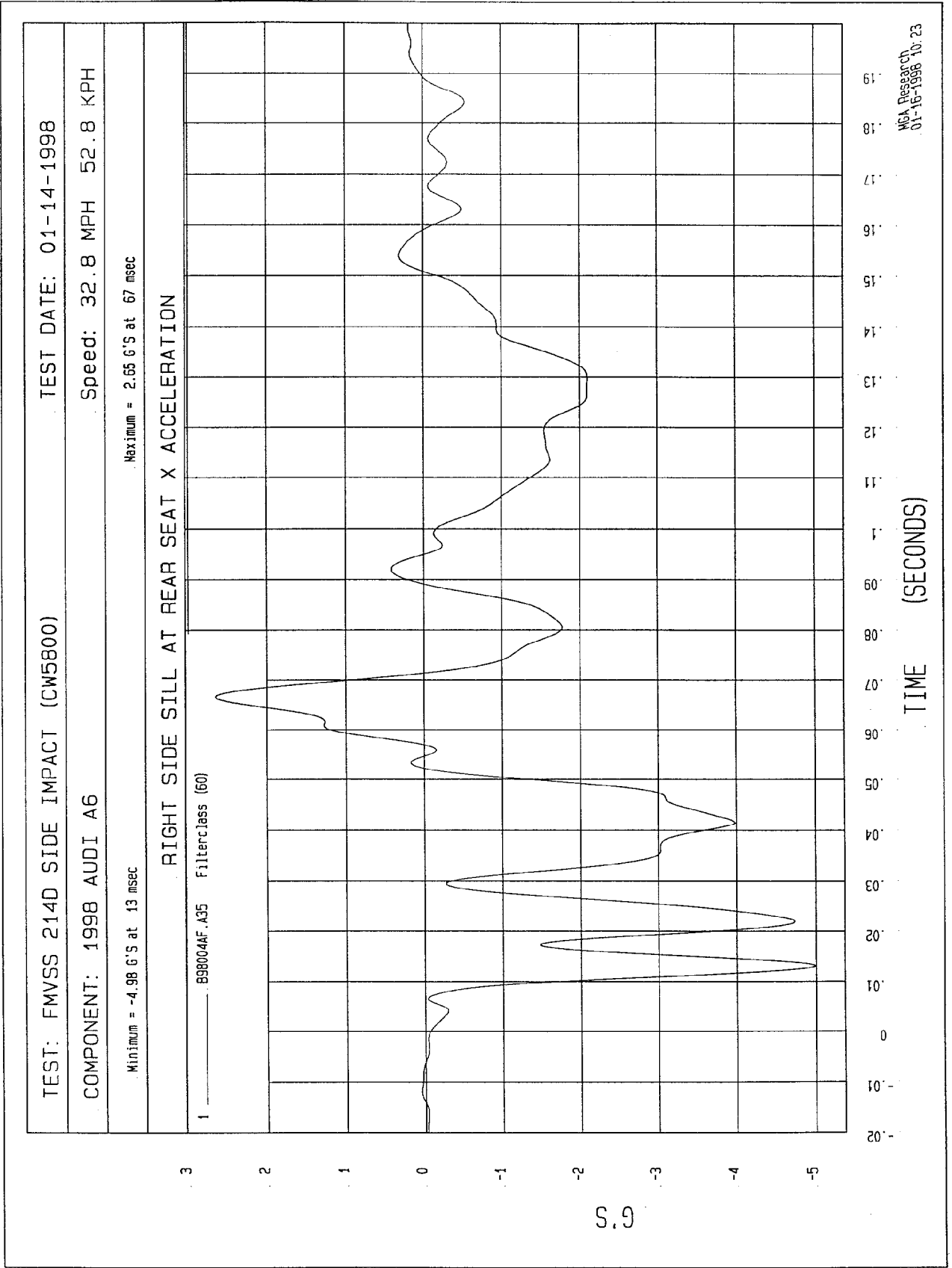
COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = 5.29E-03 G's at -13 msec Maximum = 19.40 G's at 9 msec

RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION



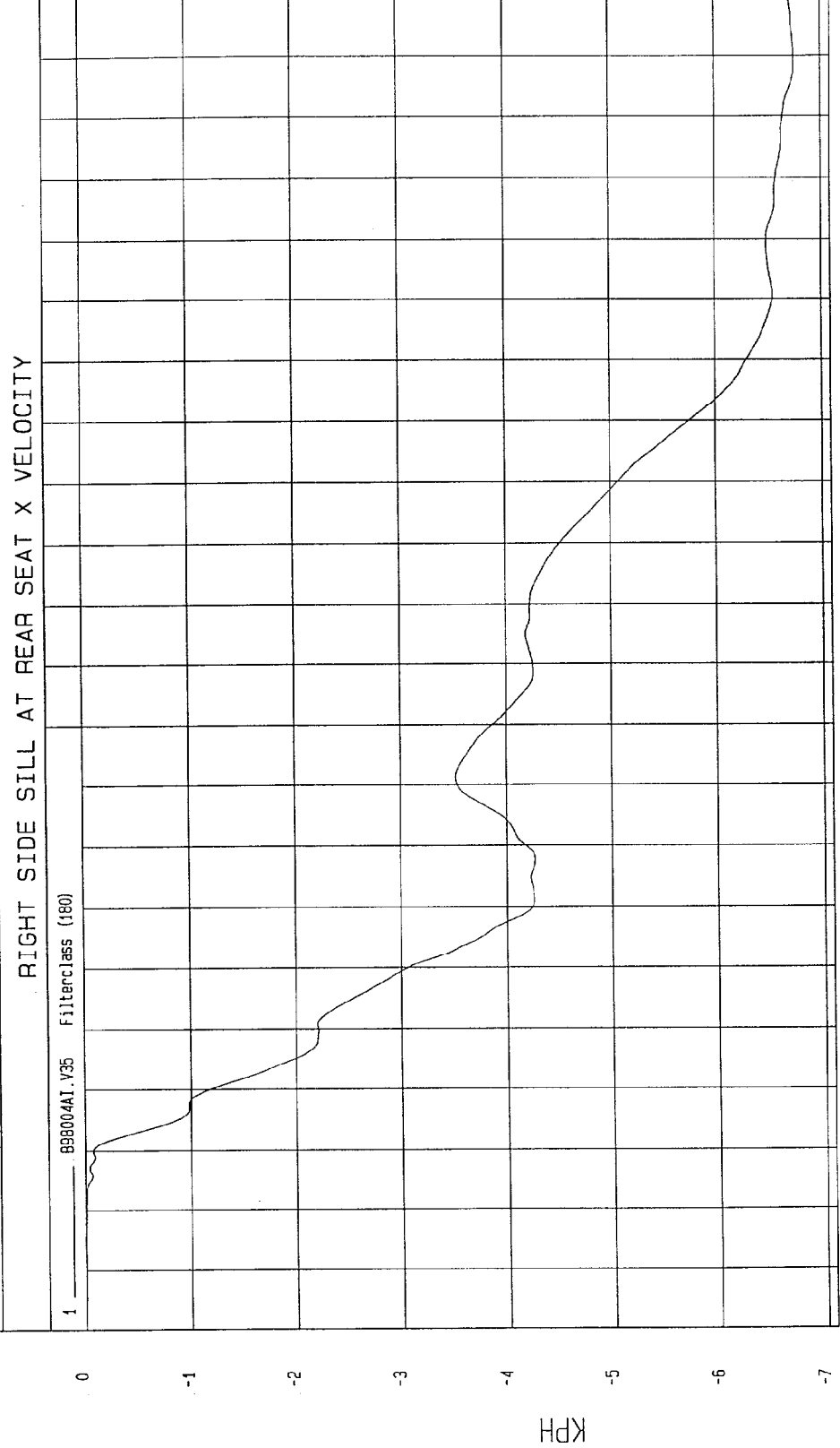
NCA Research
01-15-1998 10:25



TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -6.74 KPH at 198 msec Maximum = 4.56E-03 KPH at -5 msec



TIME Seconds

WCA Research
01-14-1998 17:35

TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

Maximum = 19.94 G's at 28 msec

Minimum = -1.97 G's at 70 msec

RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION

1 898004AF.A36 Filterclass (50)

20

18

16

14

12

10

8

6

4

2

0

-2

G

19

18

17

16

15

14

13

12

11

10

09

08

07

06

05

04

03

02

01

0

-1

-2

TIME (SECONDS)

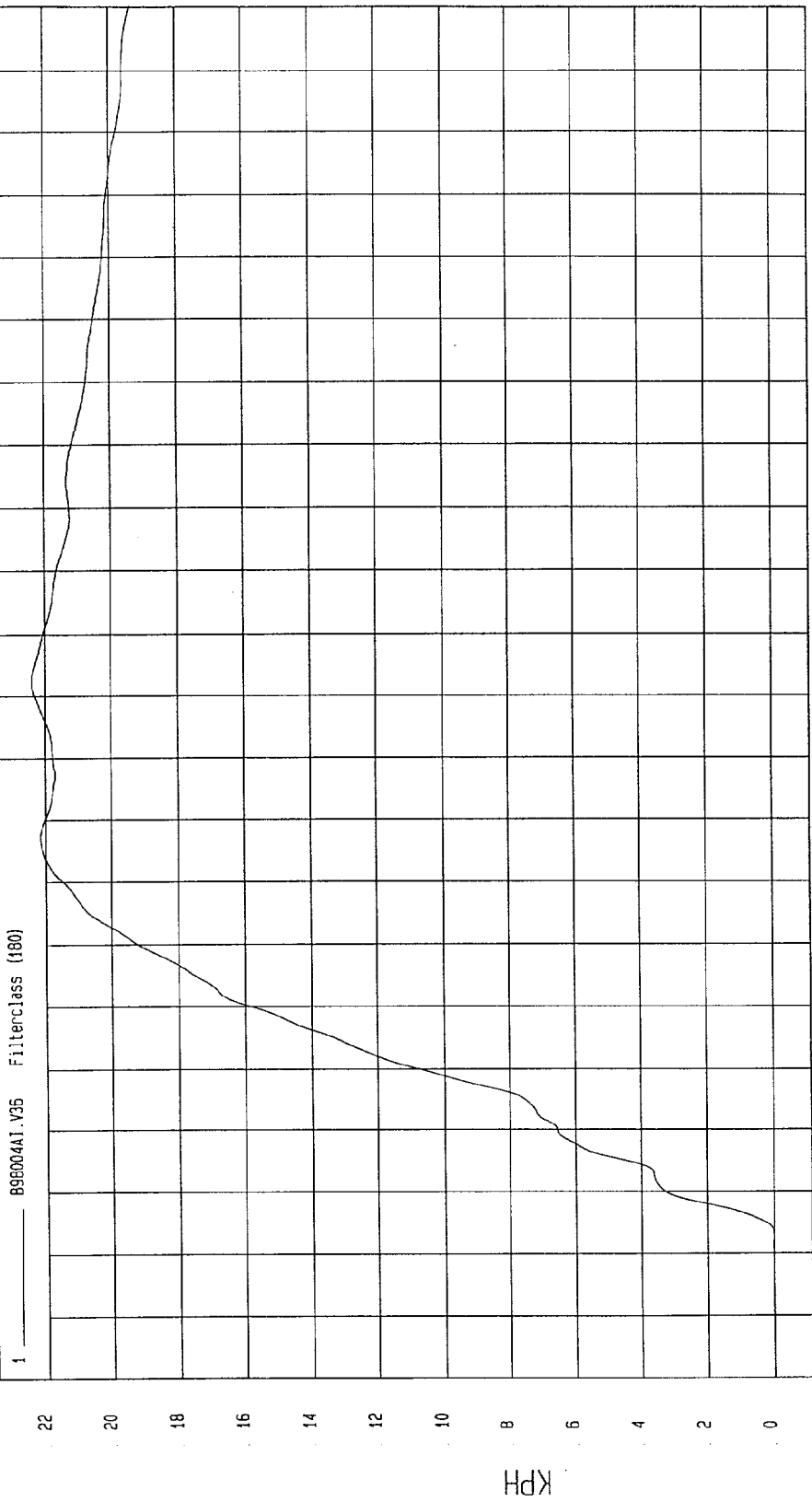
WCA Research
01-16-1998 10:23

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -4.70E-03 KPH at -14 msec Maximum = 22.40 KPH at 92 msec

RIGHT SIDE SILL AT REAR SEAT Y VELOCITY



TIME Seconds

MCA Research
01-14-1998 17:35

TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

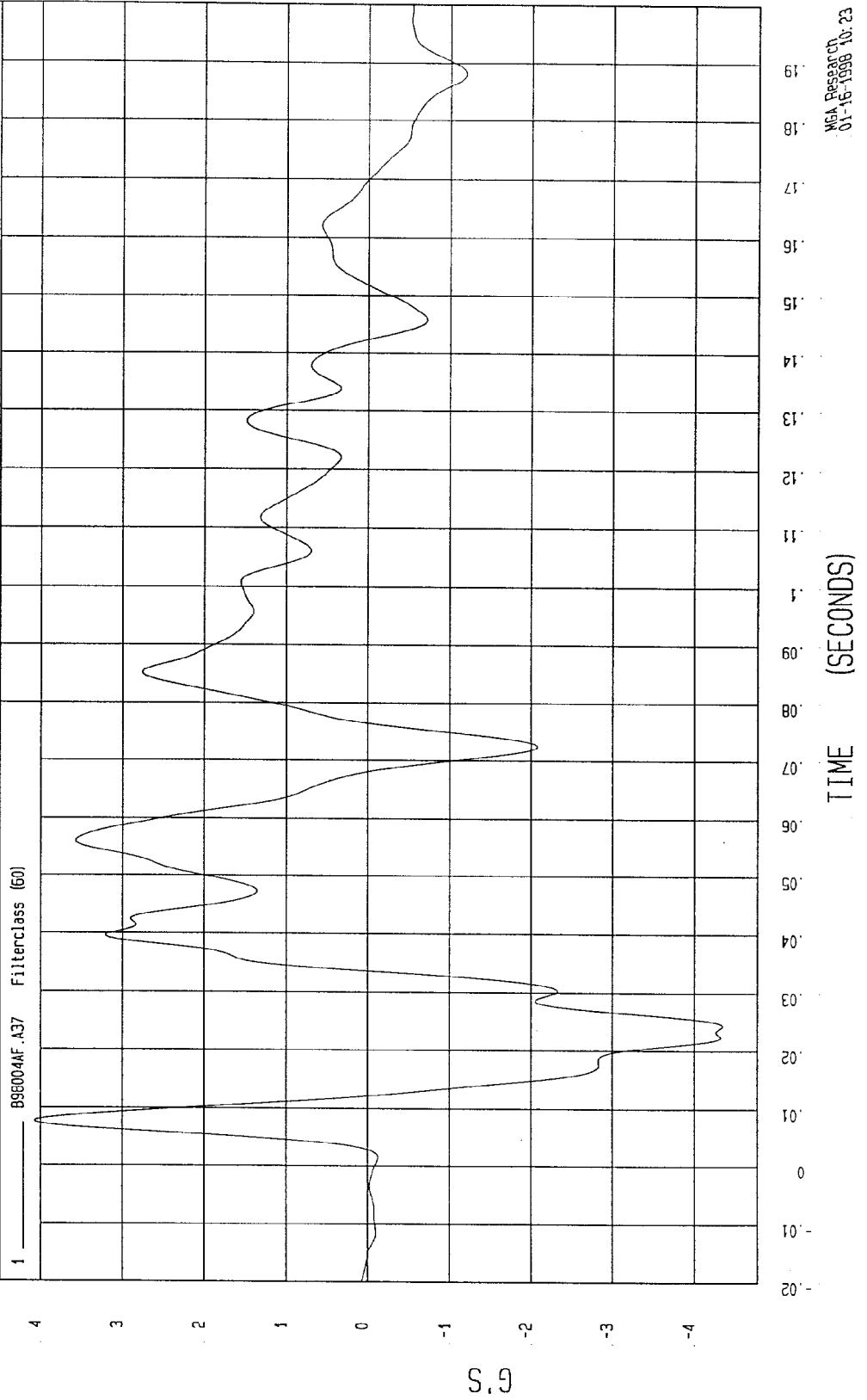
Speed: 32.8 MPH 52.8 KPH

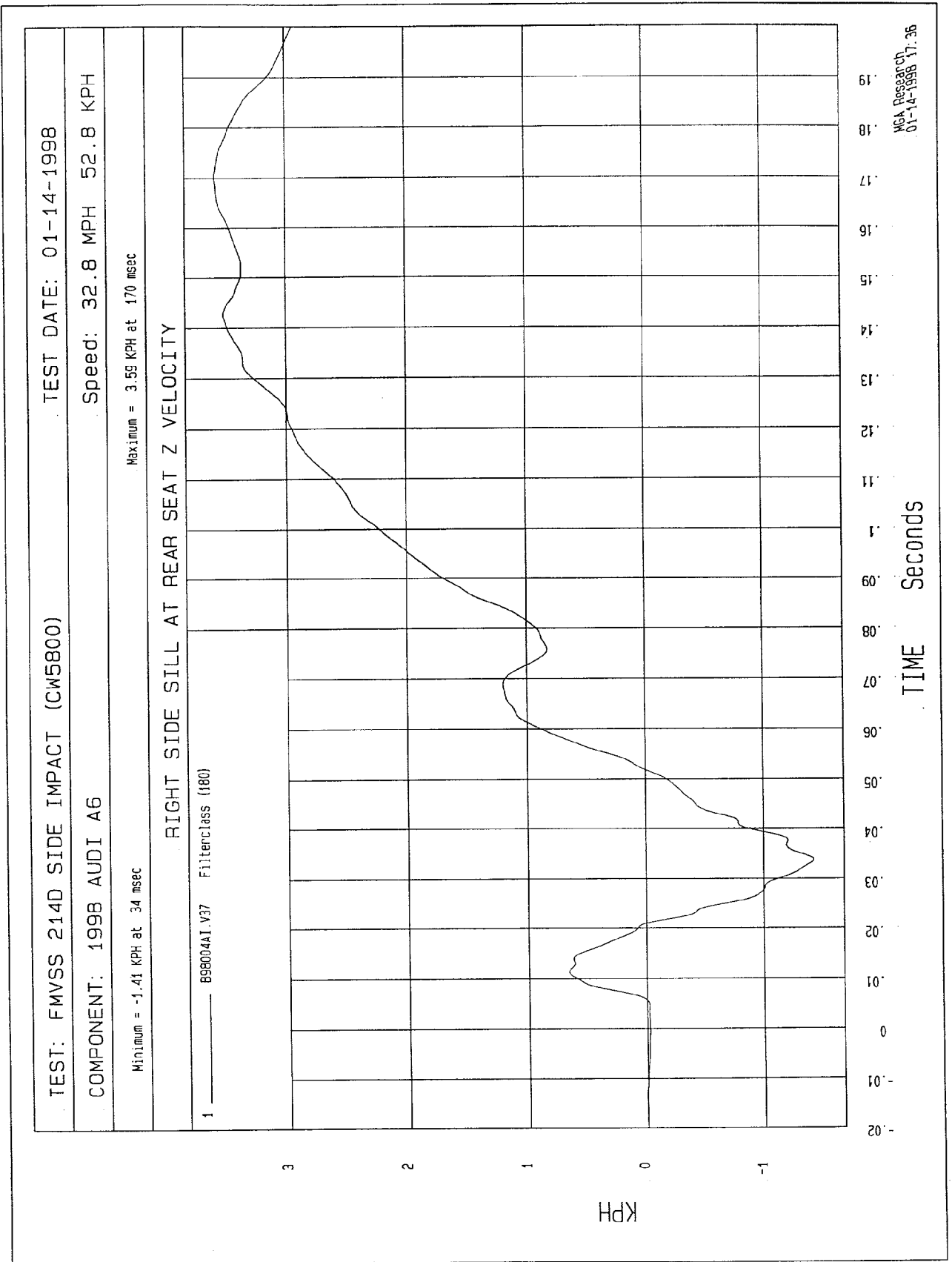
COMPONENT: 1998 AUDI A6

Maximum = 4.07 G'S at 8 msec

Minimum = -4.34 G'S at 24 msec

RIGHT SIDE SILL AT REAR SEAT Z ACCELERATION





TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

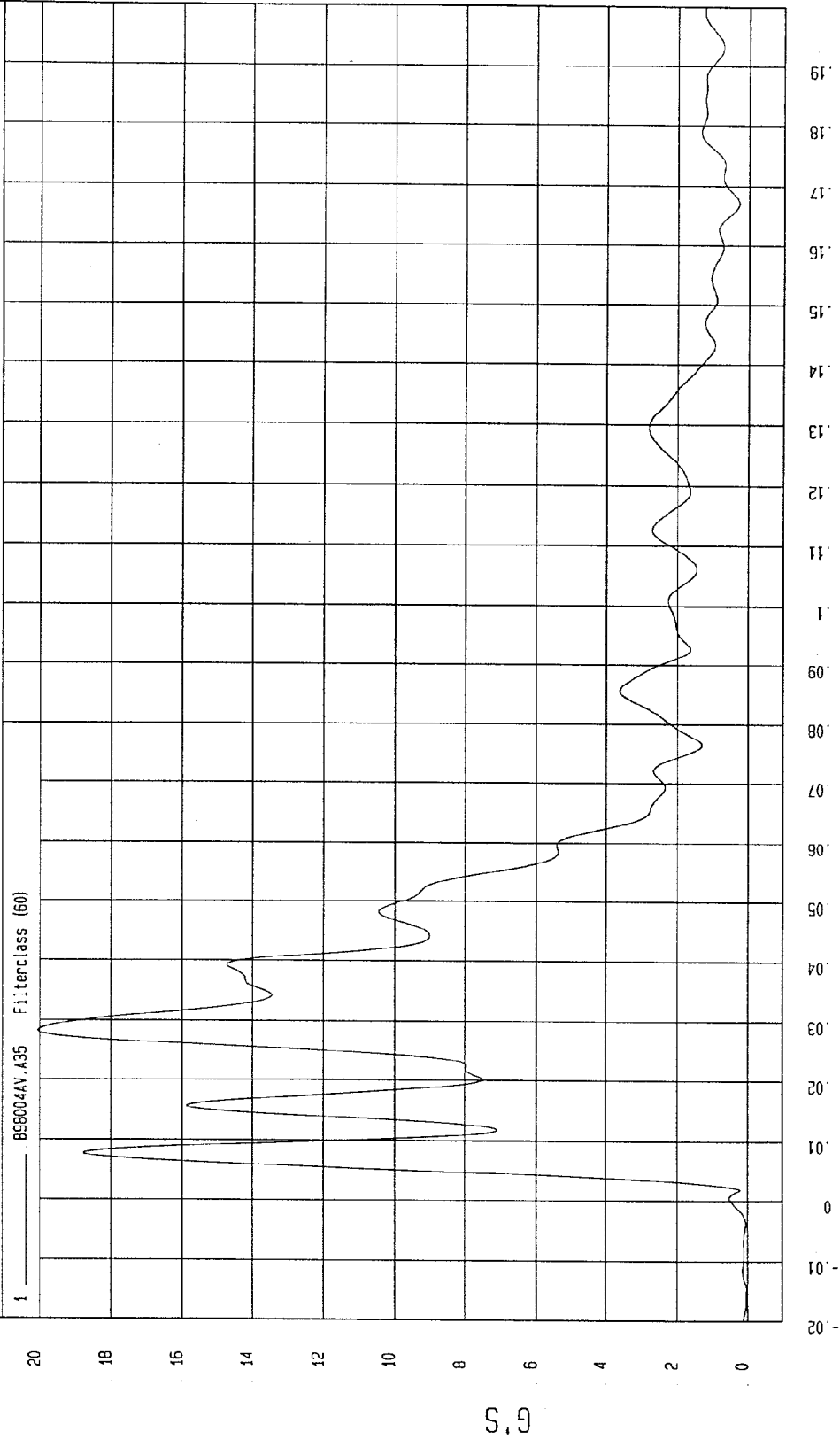
COMPONENT: 1998 AUDI A6

Speed: 32.8 MPH 52.8 KPH

Minimum = 1.94E-02 G'S at -15 msec

Maximum = 20.06 G'S at 28 msec

RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION



MCA Research
01-15-1998 10:26

TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6

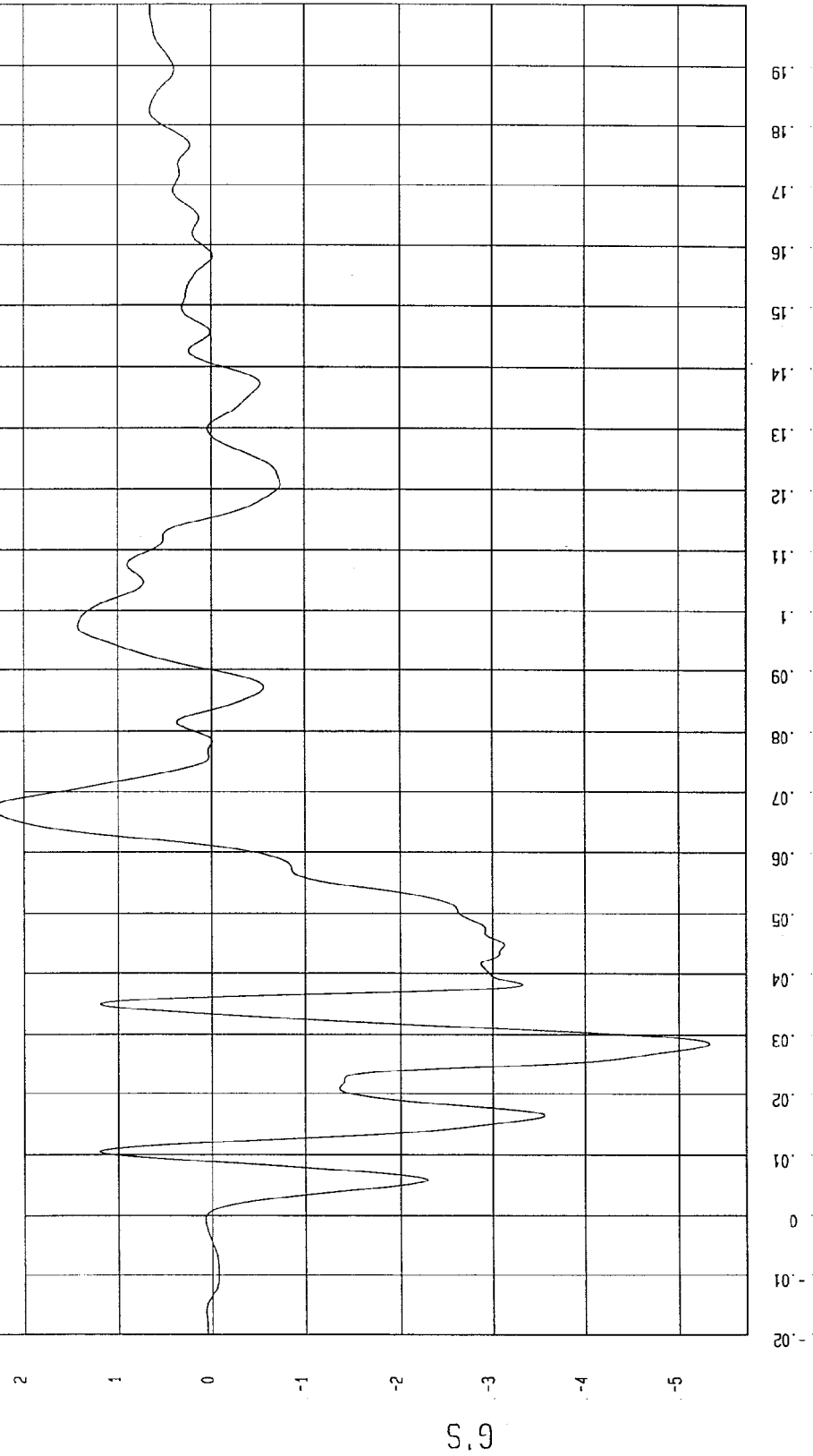
Speed: 32.8 MPH 52.8 KPH

Minimum = -5.32 G'S at 28 msec

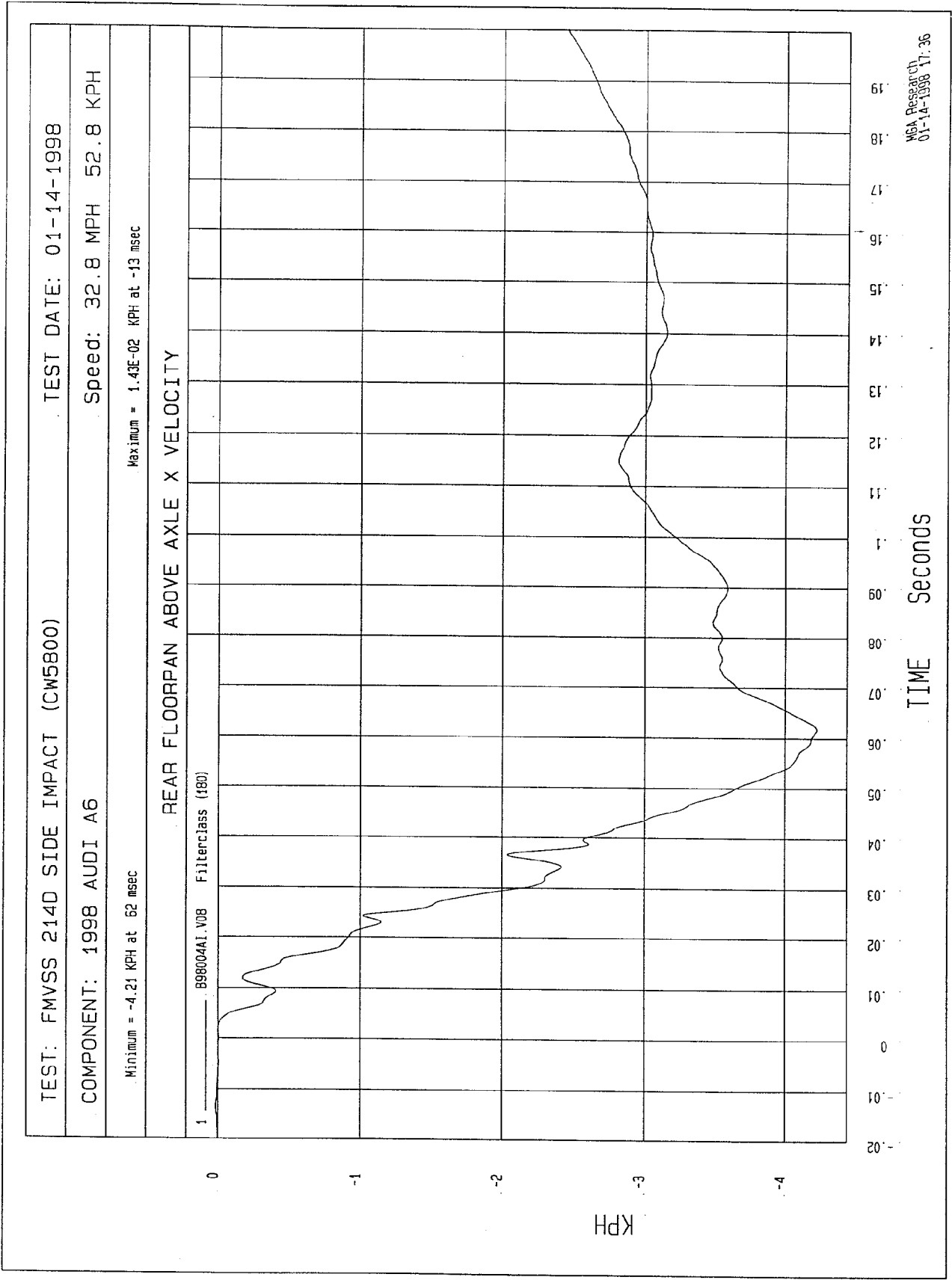
Maximum = 2.34 G'S at 67 msec

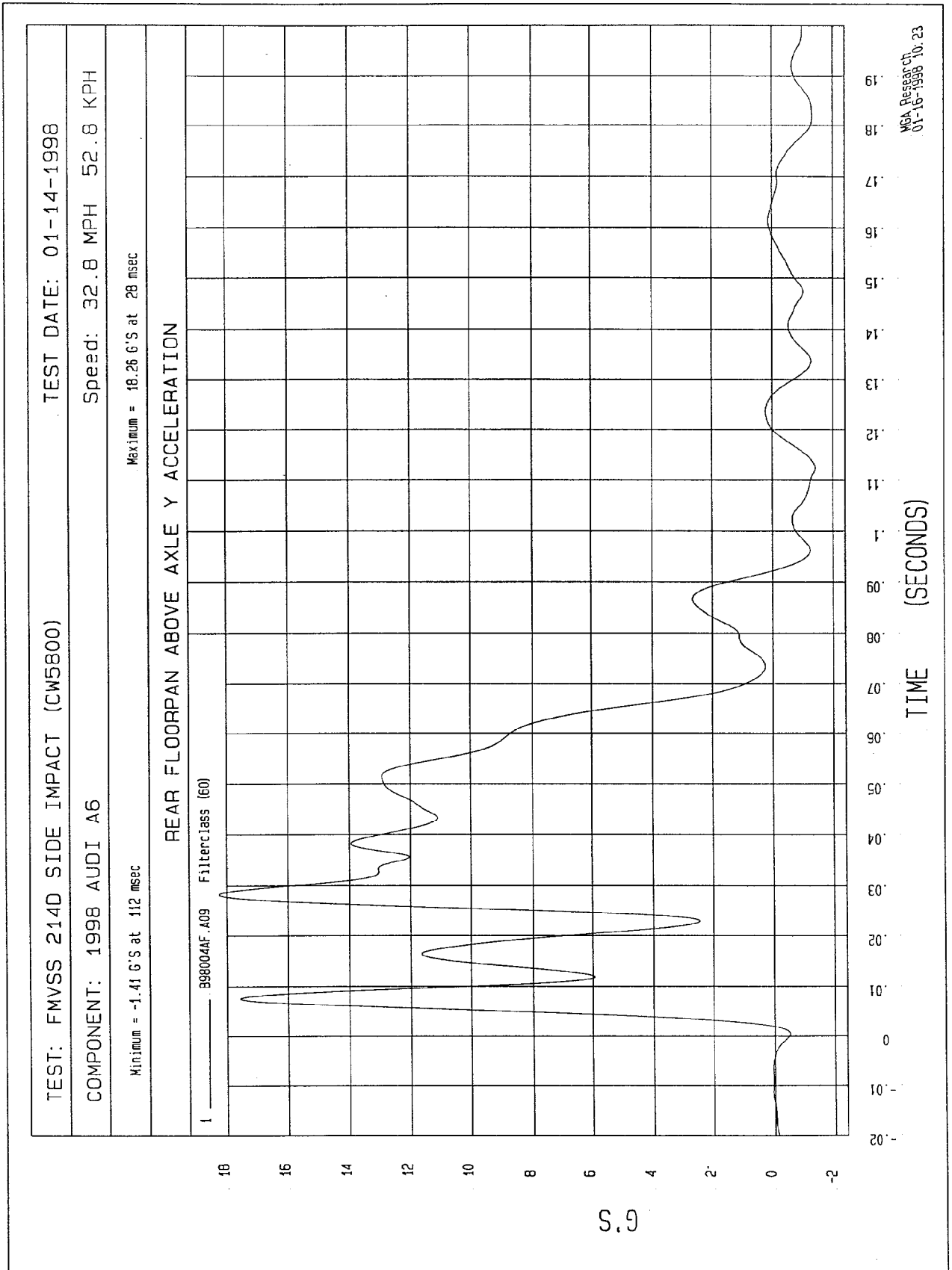
REAR FLOORPAN ABOVE AXLE X ACCELERATION

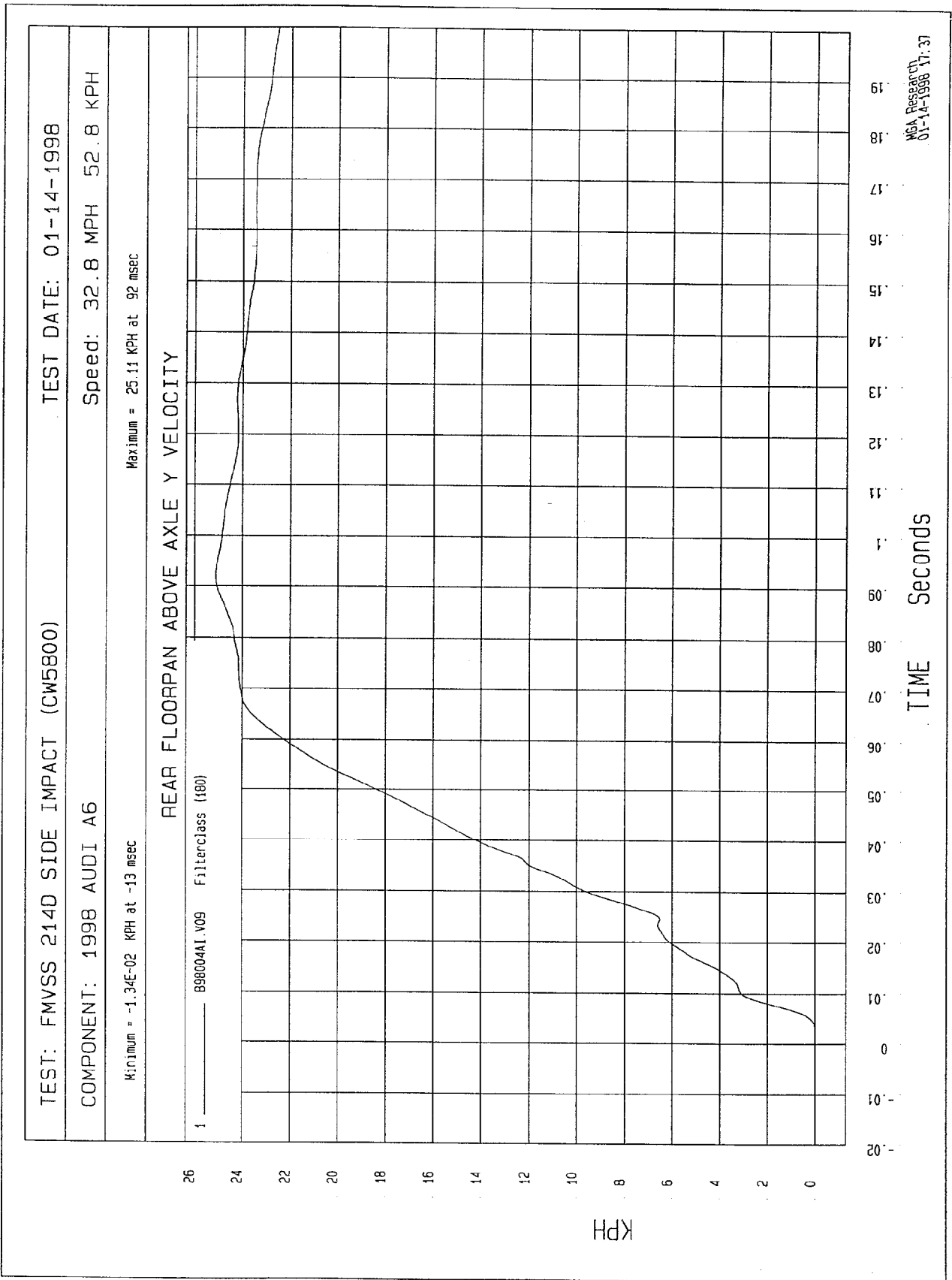
1 _____ B98004AF.A08 Filterclass (60)

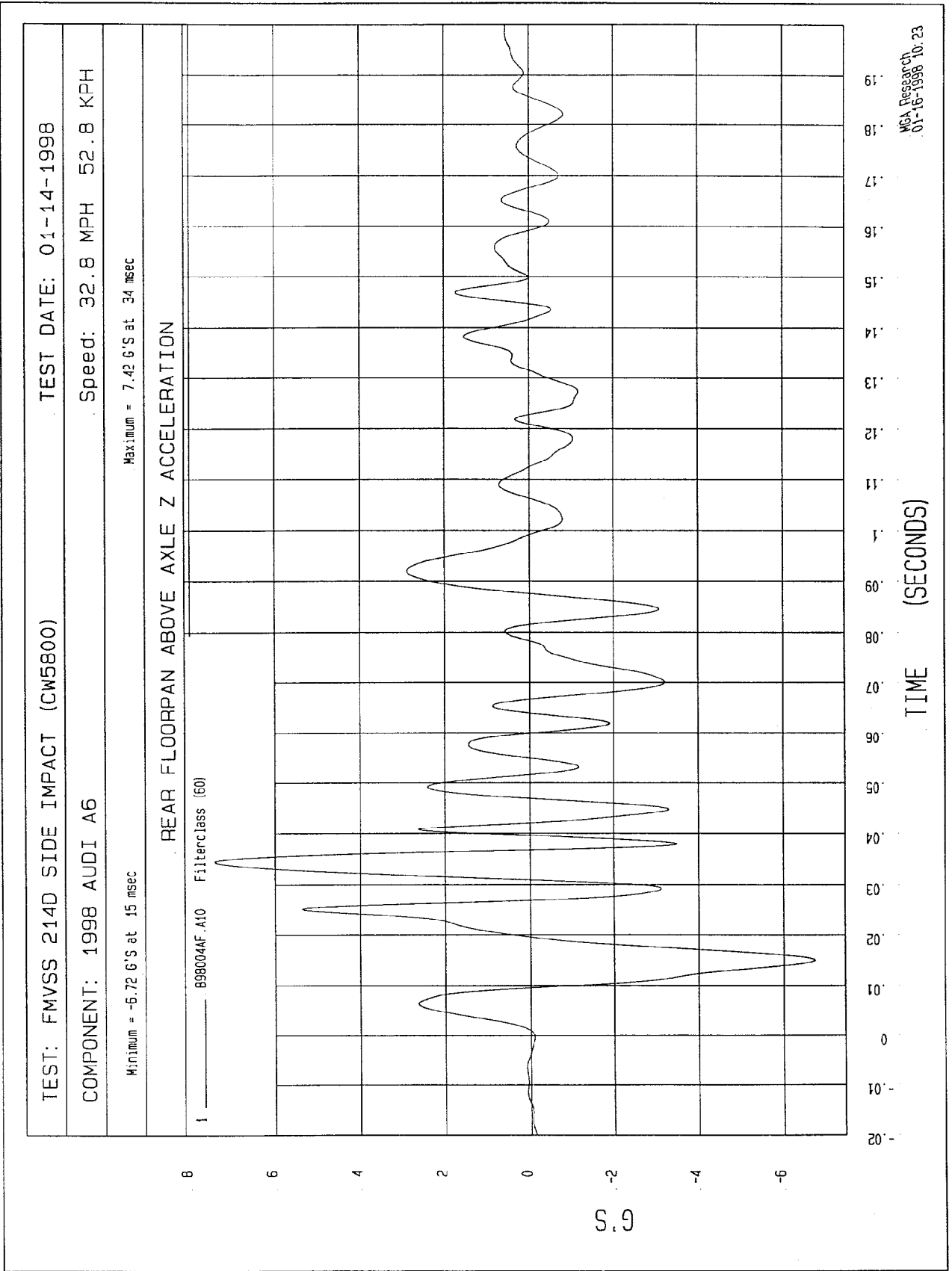


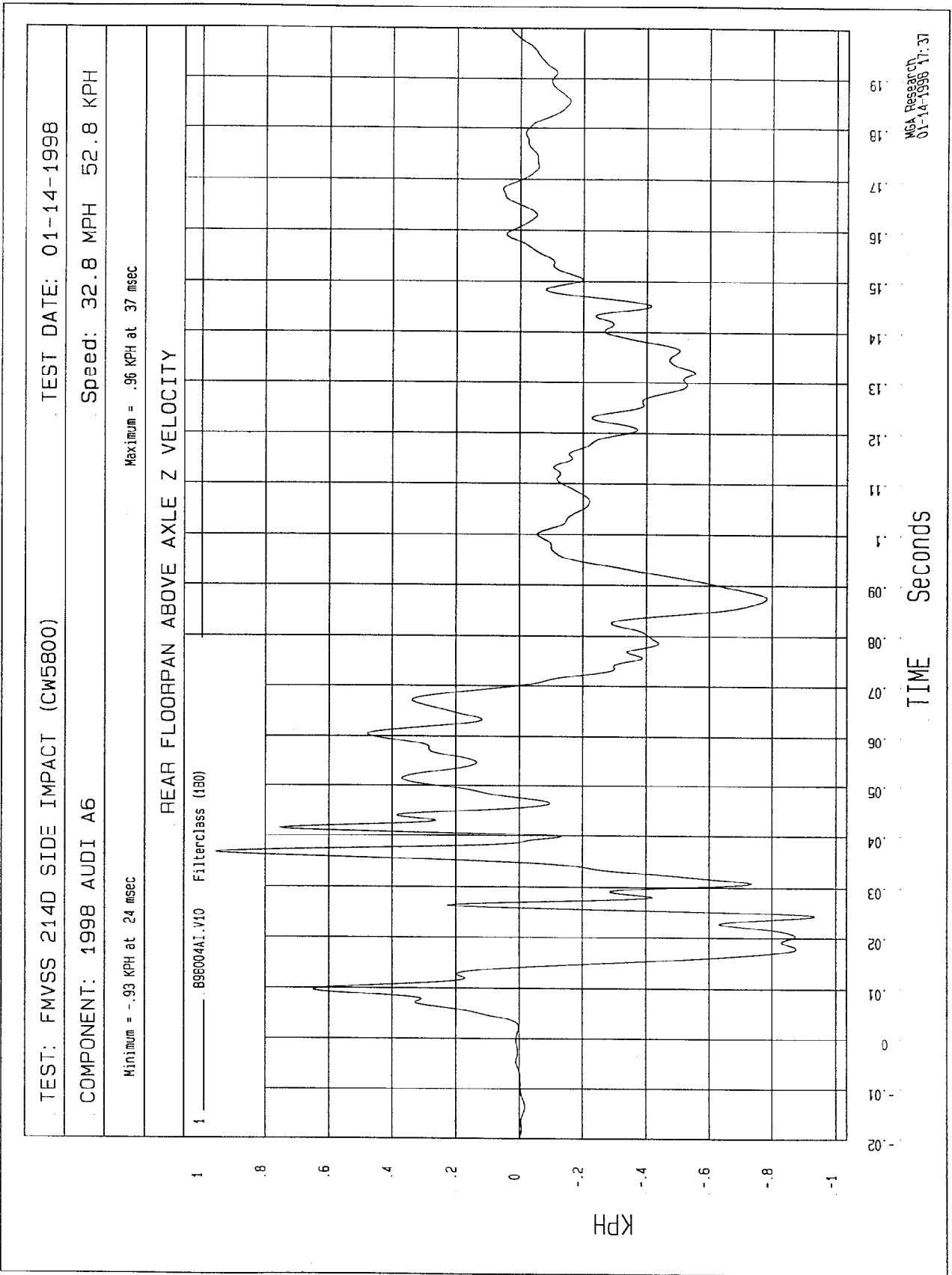
MEA Research
01-16-1998 10:23











TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

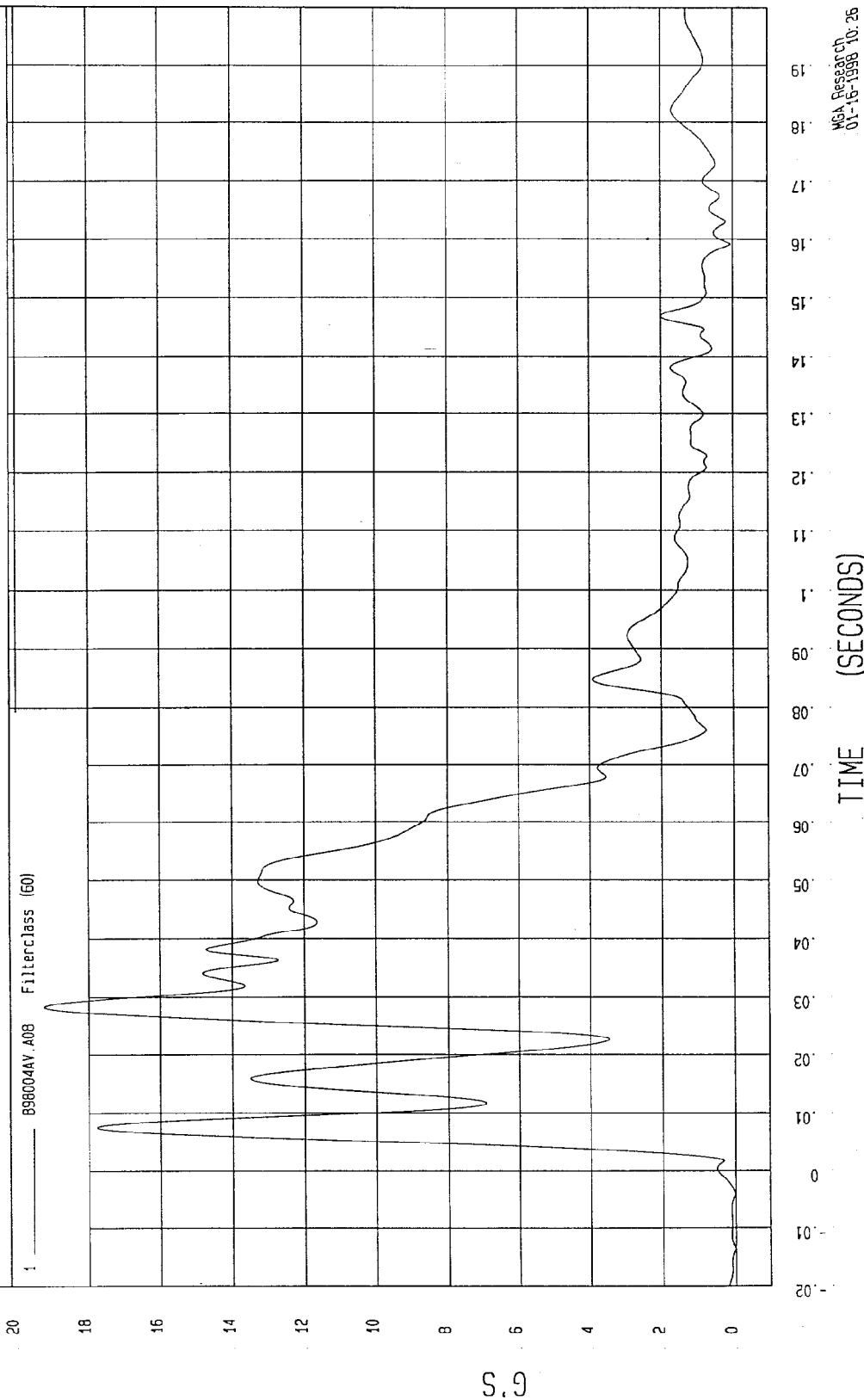
Speed: 32.8 MPH 52.8 KPH

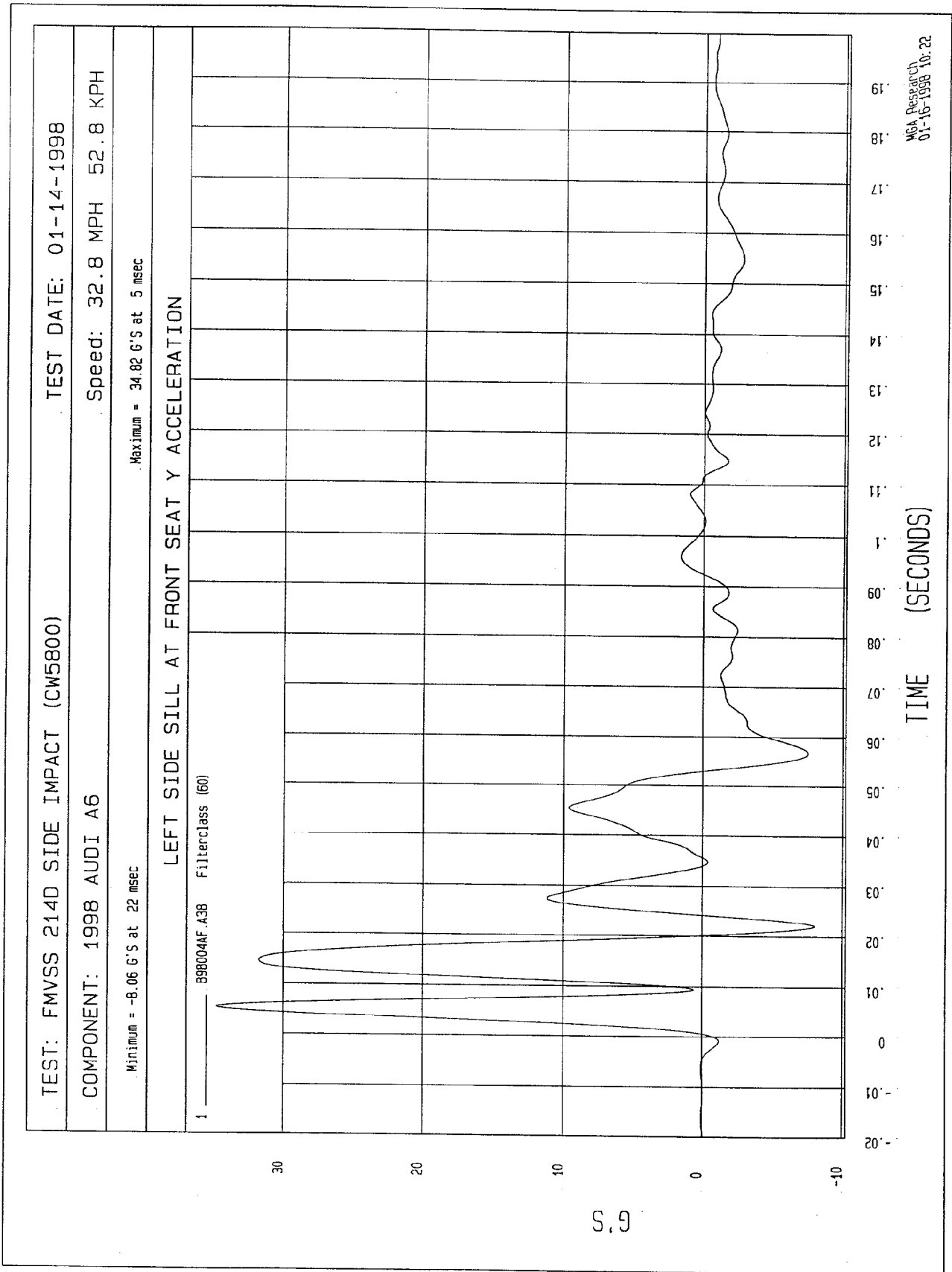
COMPONENT: 1998 AUDI A6

Maximum = 19.20 G'S at 28 msec

Minimum = 7.31E-03 G'S at -14 msec

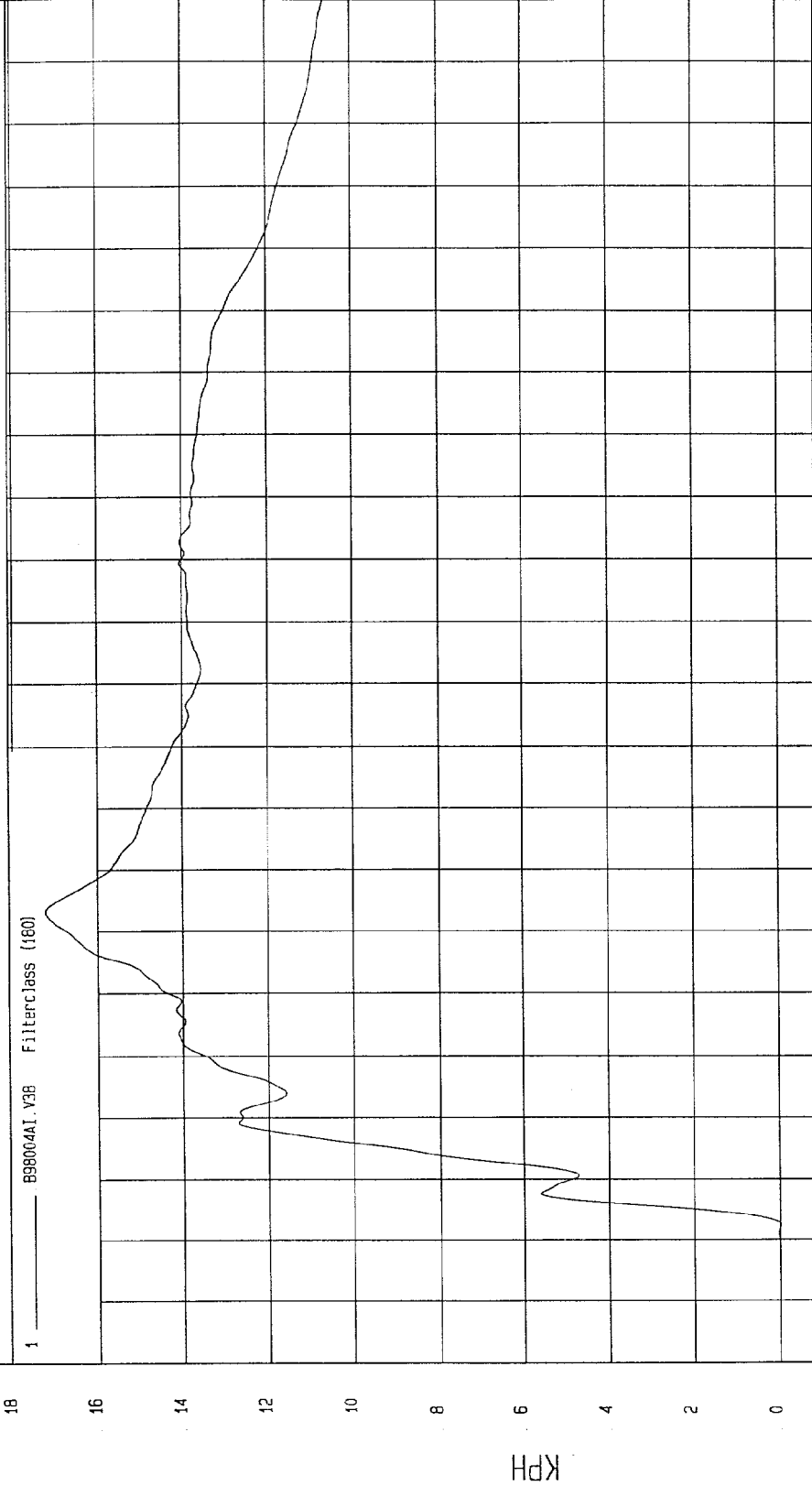
REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION





TEST: FMVSS 214D SIDE IMPACT (CW5800)	TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6	Speed: 32.8 MPH 52.8 KPH
Minimum = -1.53E-02 KPH at 2 msec	Maximum = 17.22 KPH at 53 msec

LEFT SIDE SILL AT FRONT SEAT Y VELOCITY



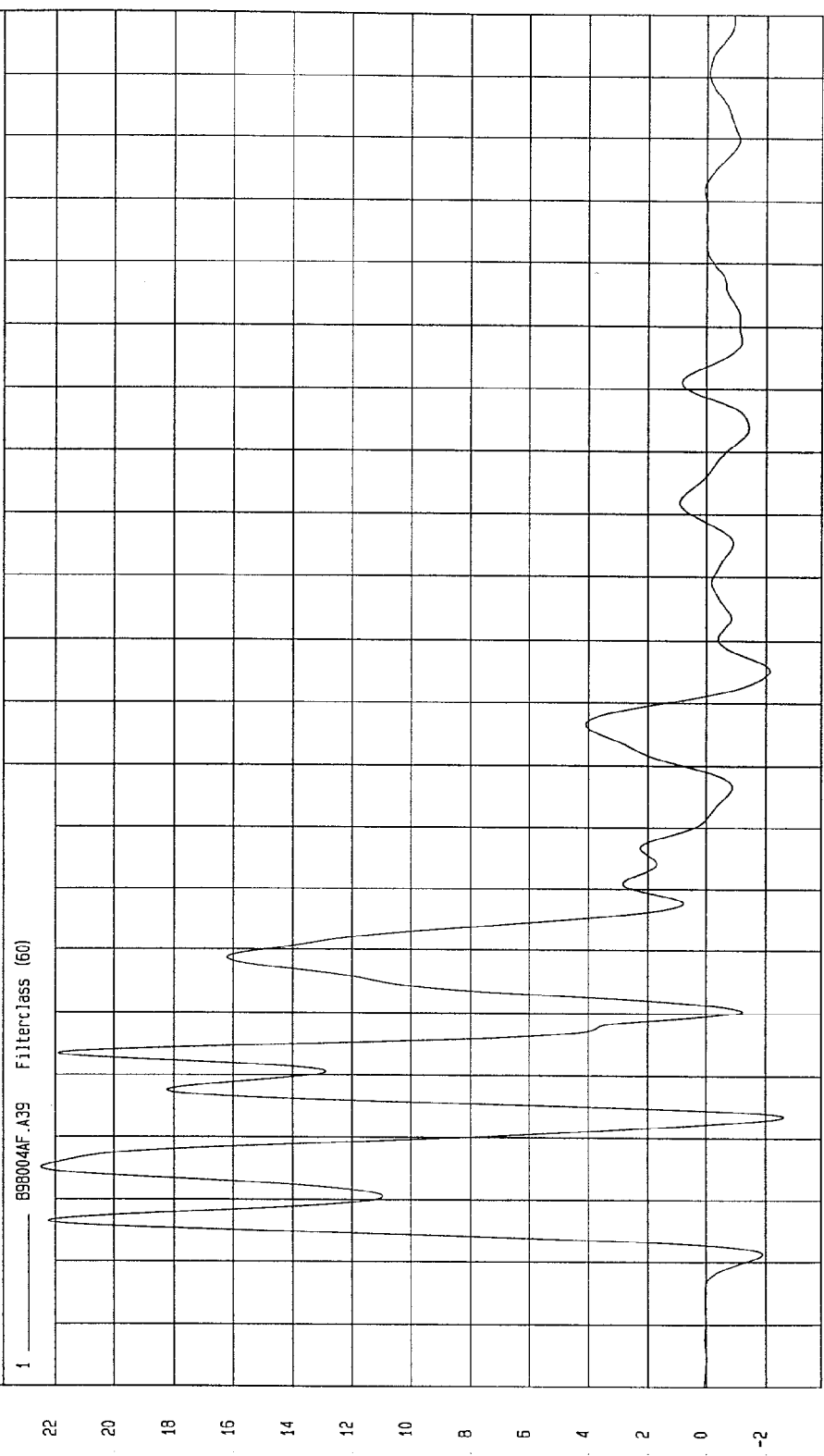
TIME Seconds

MGA Research
01-14-1998 17:36

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -2.58 G'S at 24 msec Maximum = 22.48 G'S at 15 msec

LEFT SIDE SILL AT REAR SEAT Y ACCELERATION



MCA Research
01-16-1998 10:22

TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

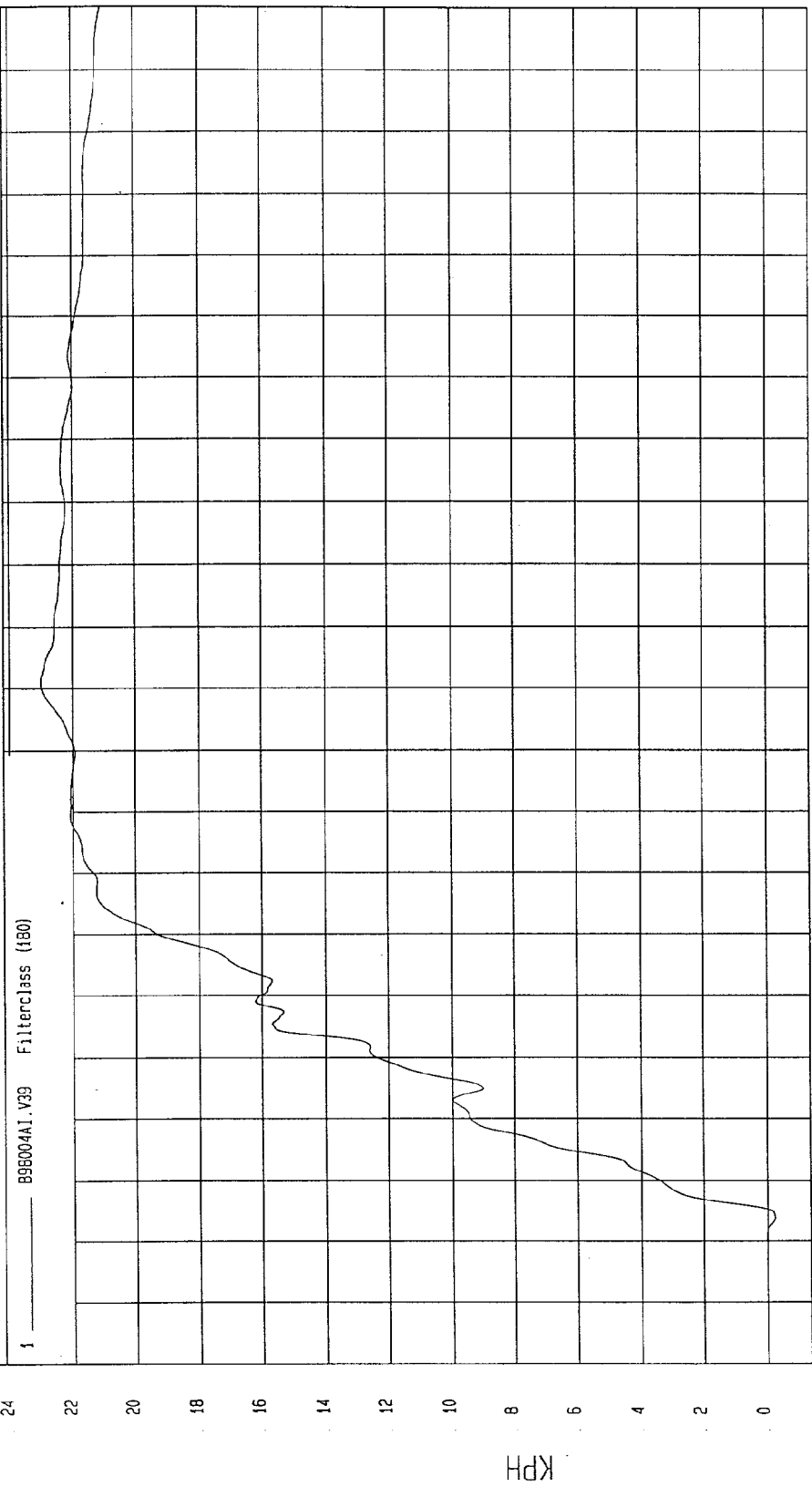
COMPONENT: 1998 AUDI A6

Speed: 32.8 MPH 52.8 KPH

Minimum = -23 KPH at 4 msec

Maximum = 23.01 KPH at 91 msec

LEFT SIDE SILL AT REAR SEAT Y VELOCITY



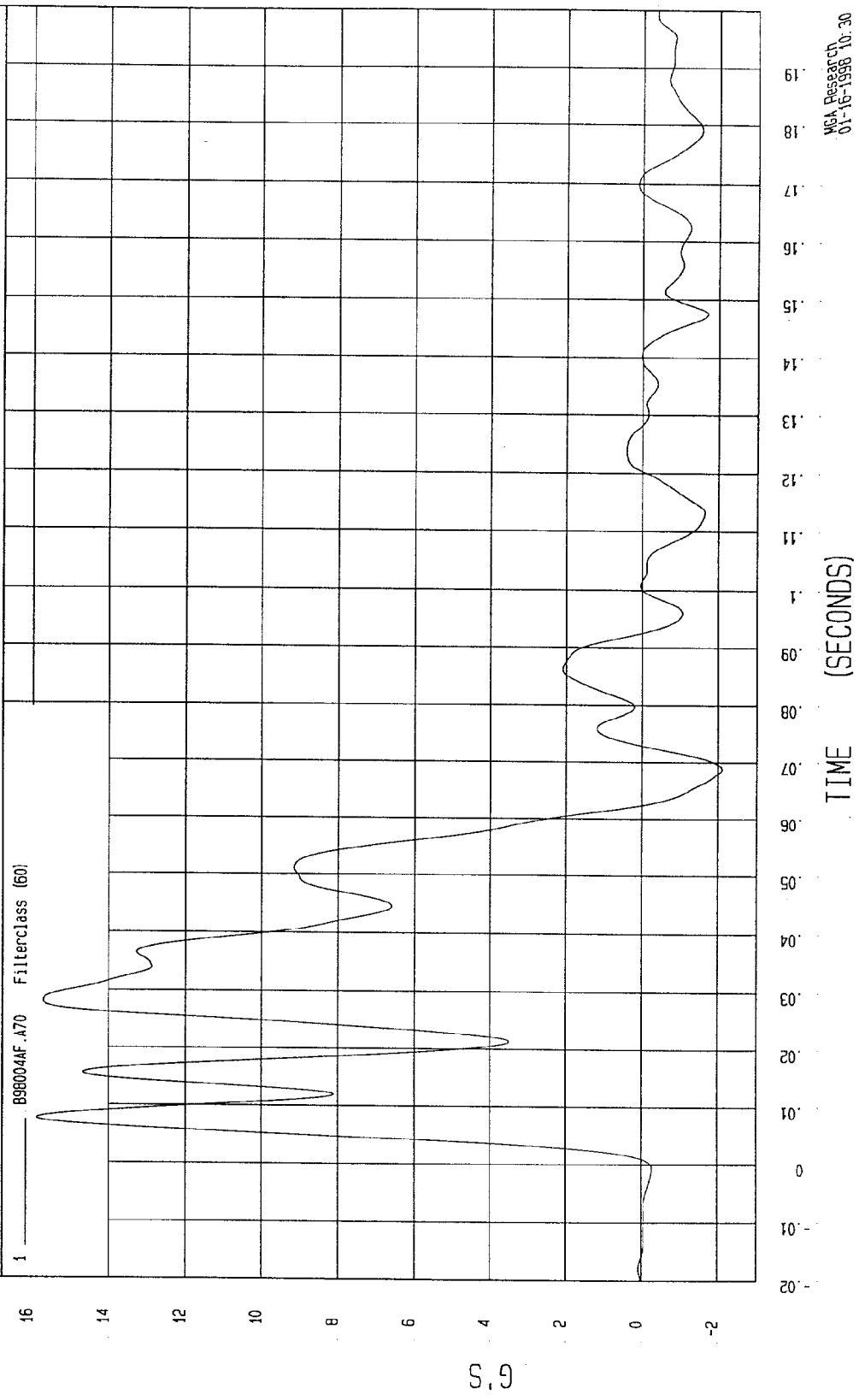
TIME Seconds

NGA Research
01-14-1998 17:36

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

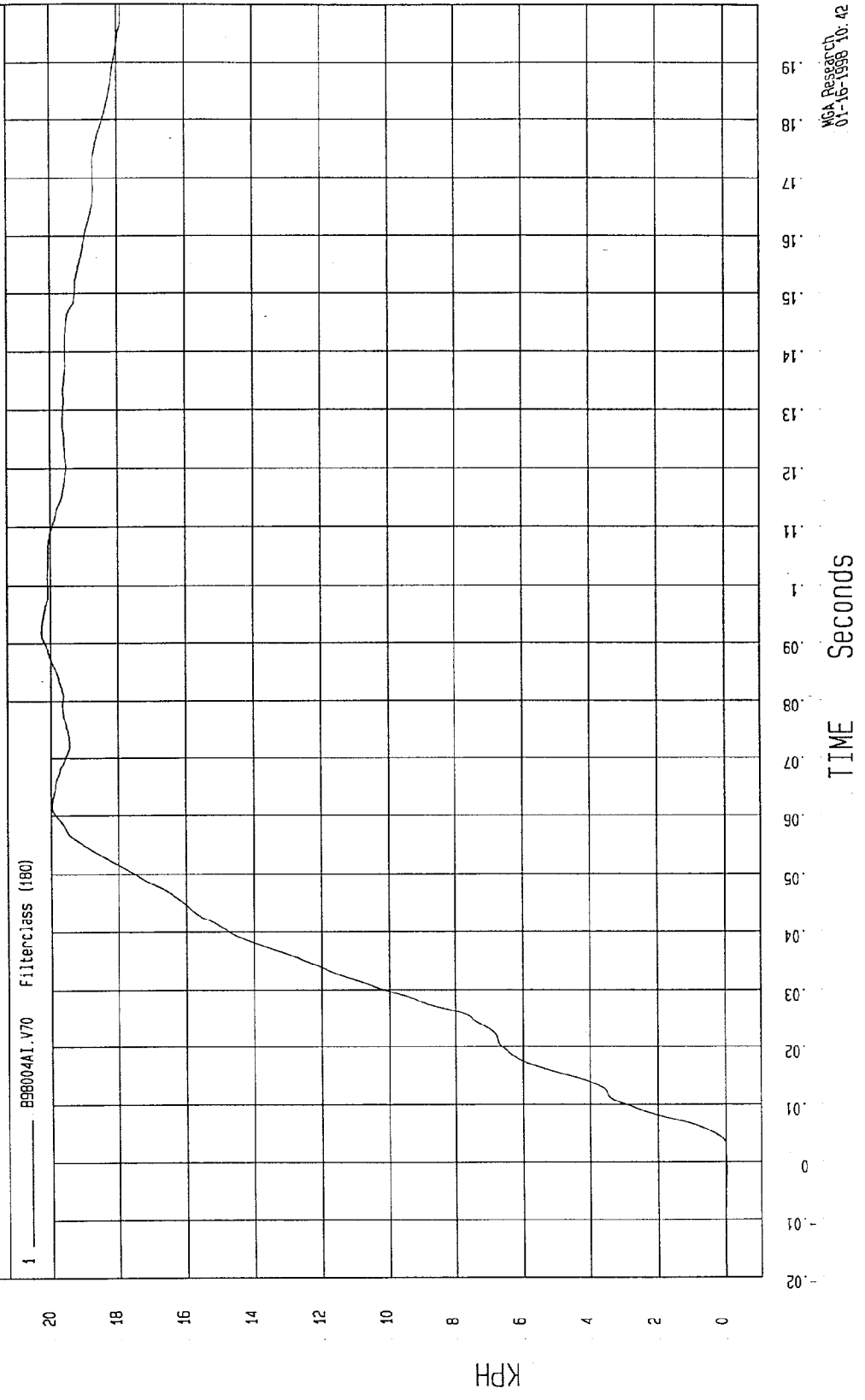
Minimum = -2.11 G'S at 69 msec Maximum = 15.88 G'S at 8 msec

RIGHT REAR OCCUPANT COMPARTMENT Y ACCELERATION

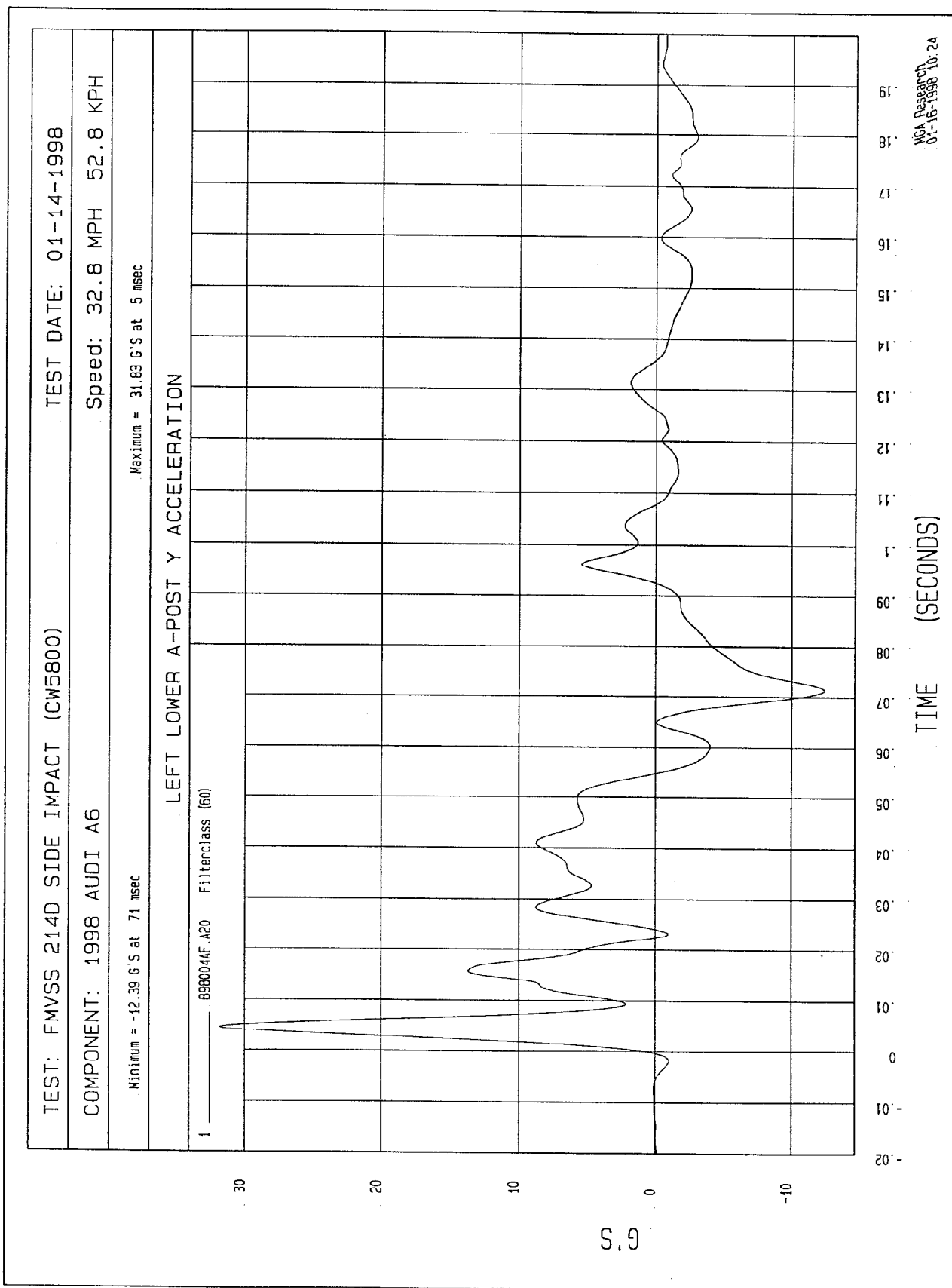


TEST: FMVSS 214D SIDE IMPACT (CW5800)	TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6	Speed: 32.8 MPH 52.8 KPH
Minimum = -3.17E-02 KPH at -1 msec	Maximum = 20.27 KPH at 92 msec

RIGHT REAR OCCUPANT COMPARTMENT Y VELOCITY



NGA Research
01-16-1998 10:42

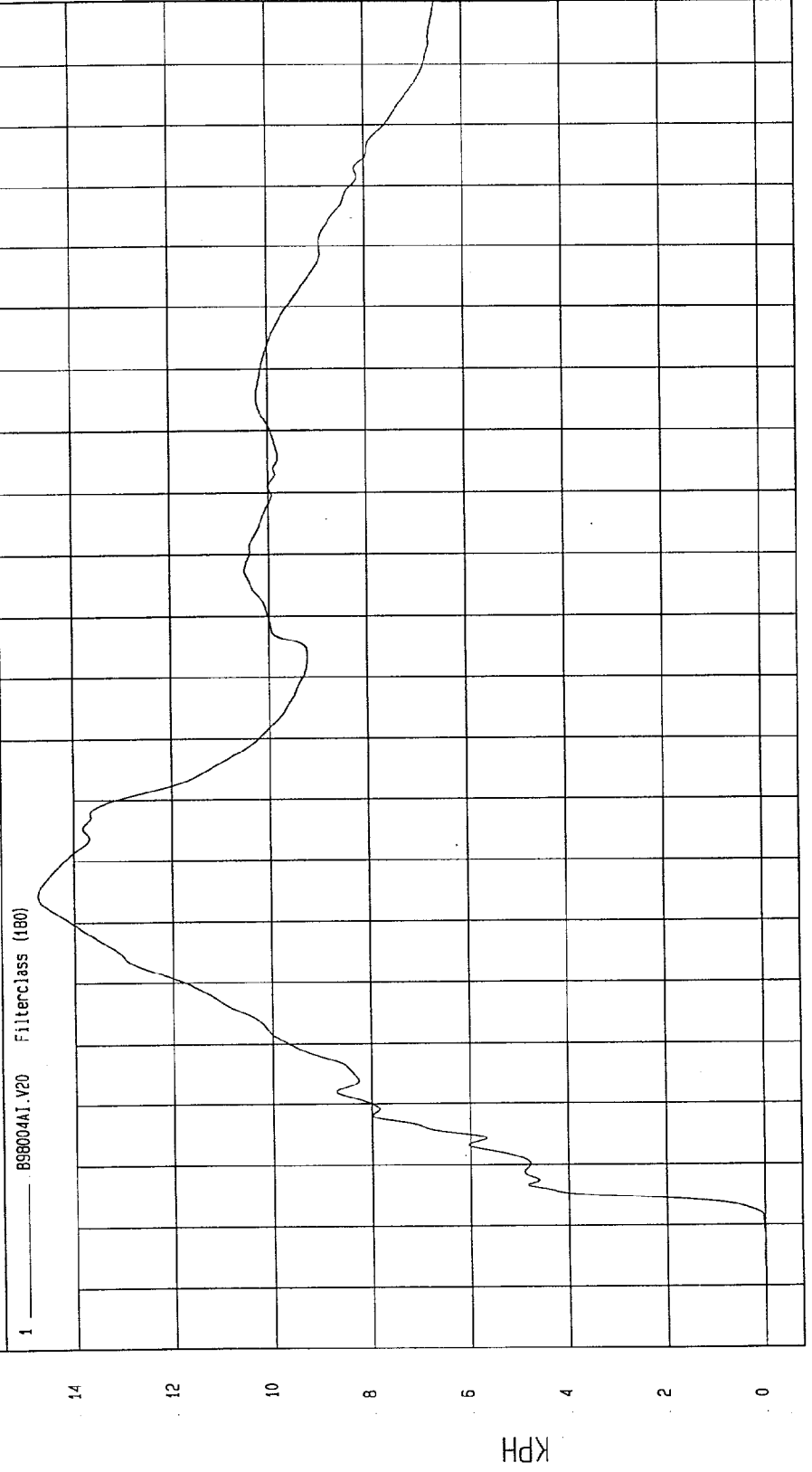


TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

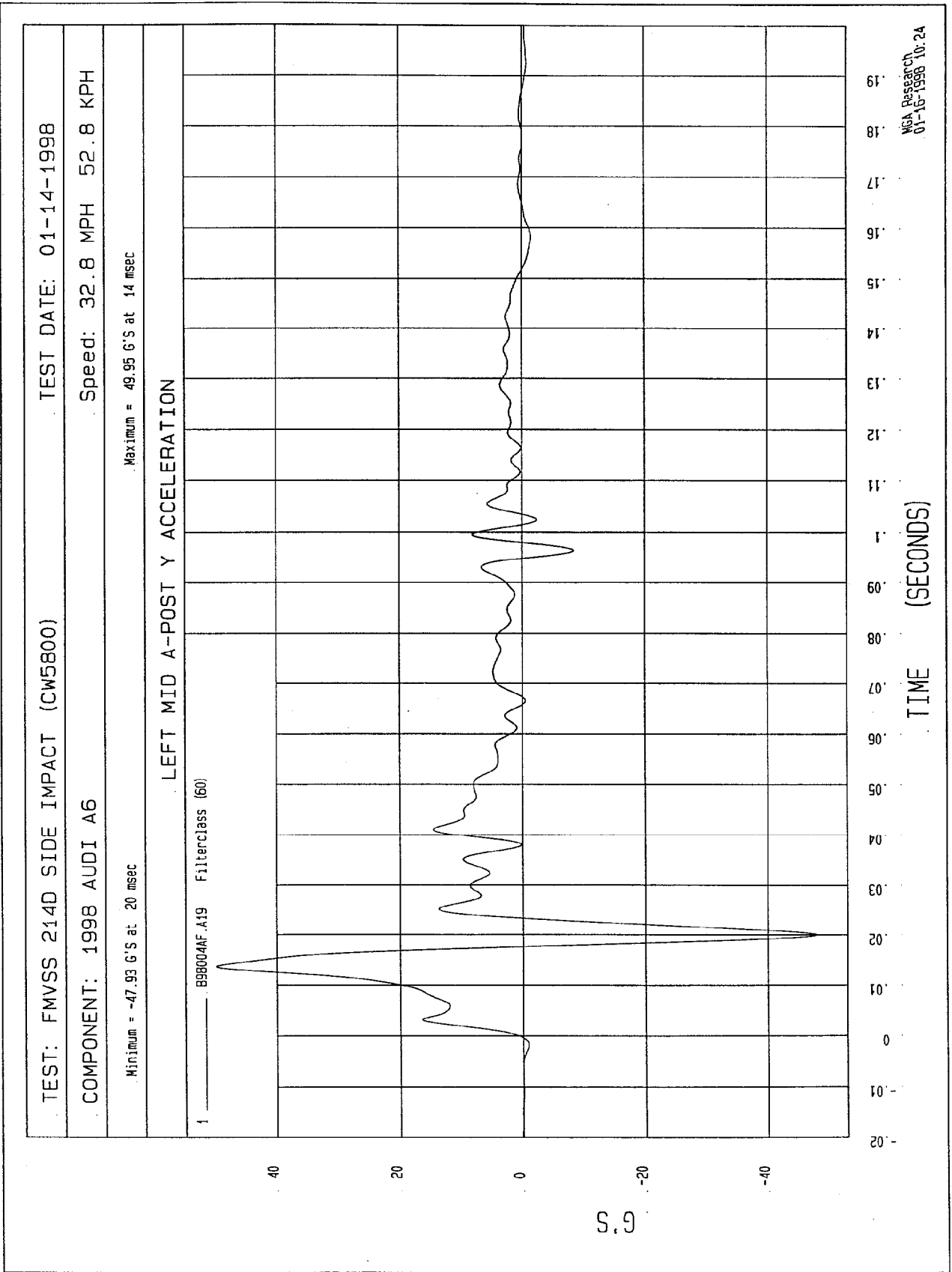
Minimum = -1.19E-02 KPH at -13 msec Maximum = 14.73 KPH at 54 msec

LEFT LOWER A-POST Y VELOCITY



TIME Seconds

NGA Research
01-14-1998 17:37

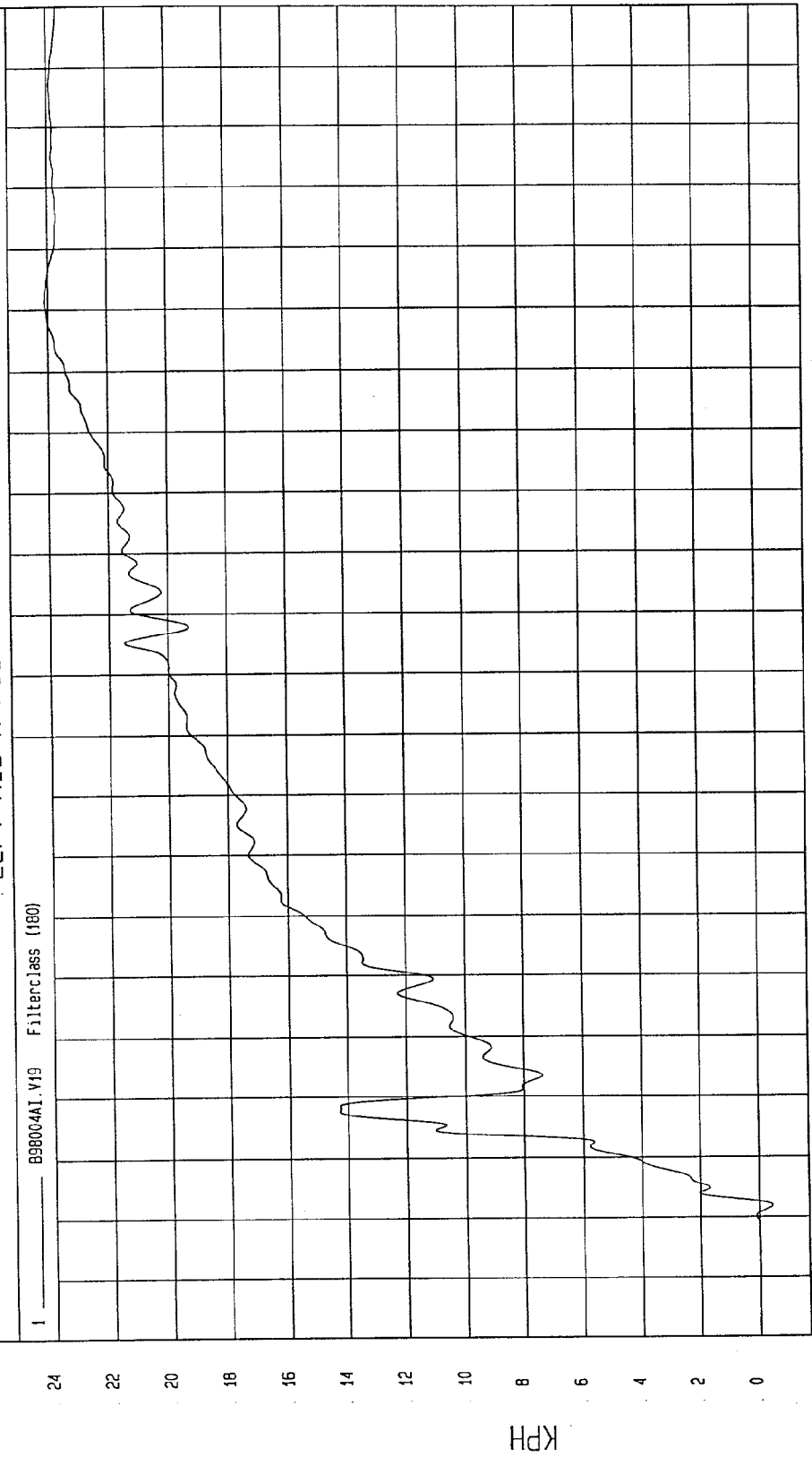


TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -.45 KPH at 2 msec Maximum = 24.12 KPH at 151 msec

LEFT MID A-POST Y VELOCITY



1 B98004A1.V19 FilterClass (180)

TIME Seconds

0.19 0.18 0.17 0.16 0.15 0.14 0.13 0.12 0.11 0.10 0.09 0.08 0.07 0.06 0.05 0.04 0.03 0.02 0.01 0 -0.01 -0.02

KPH

24 22 20 18 16 14 12 10 8 6 4 2 0

NCA Research
01-14-1998 17:37

TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

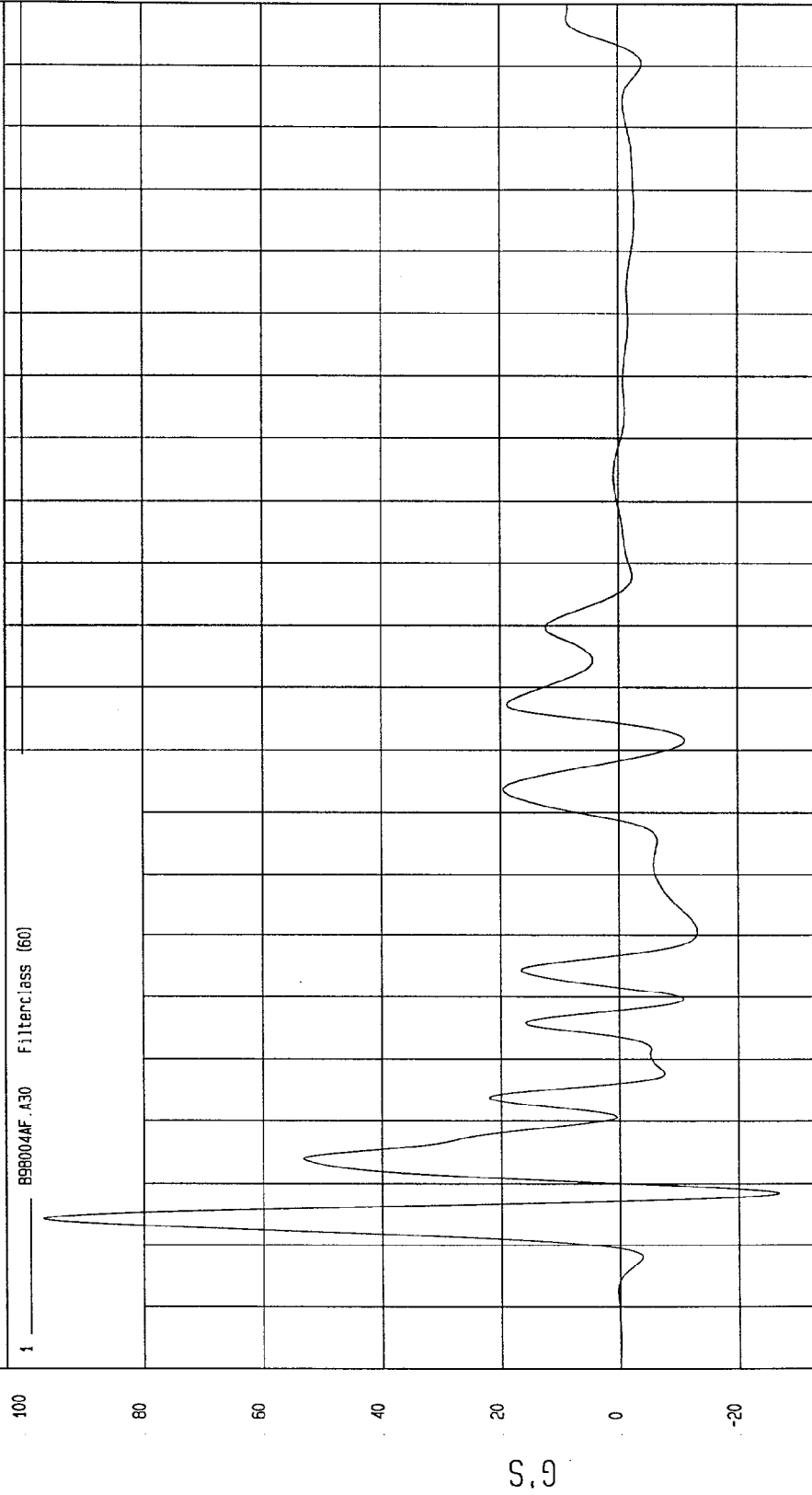
Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

Maximum = 96.75 G'S at 4 msec

Minimum = -26.56 G'S at 8 msec

LEFT LOWER B-POST Y ACCELERATION

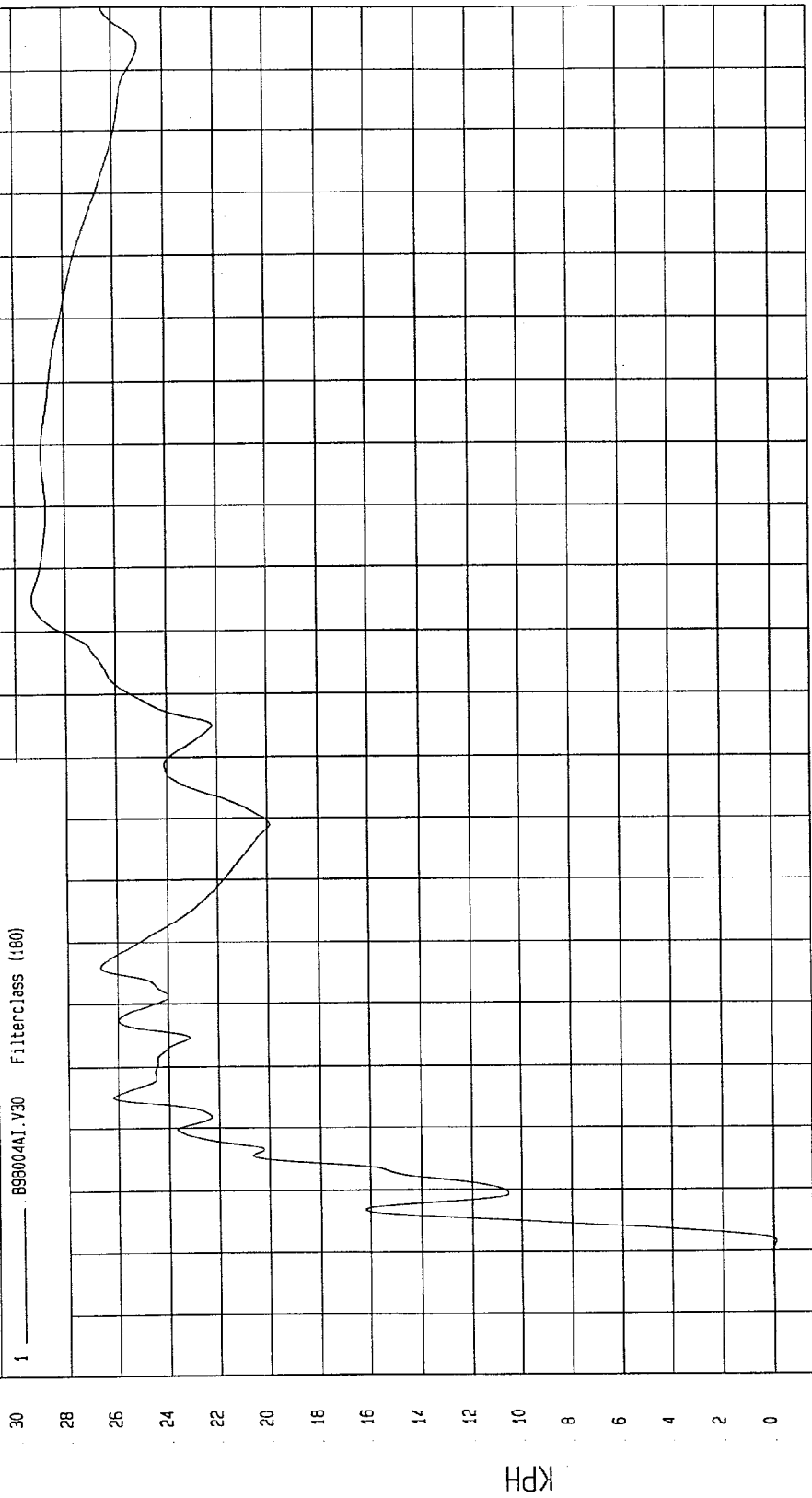


WCA Research
01-16-1998 10:24

TIME (SECONDS)

TEST: FMVSS 214D SIDE IMPACT (CW5800)	TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6	Speed: 32.8 MPH 52.8 KPH
Minimum = -.10 KPH at 2 msec	Maximum = 29.33 KPH at 105 msec

LEFT LOWER B-POST Y VELOCITY



TIME Seconds

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

WCA Research
01-14-1998 17:37

TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

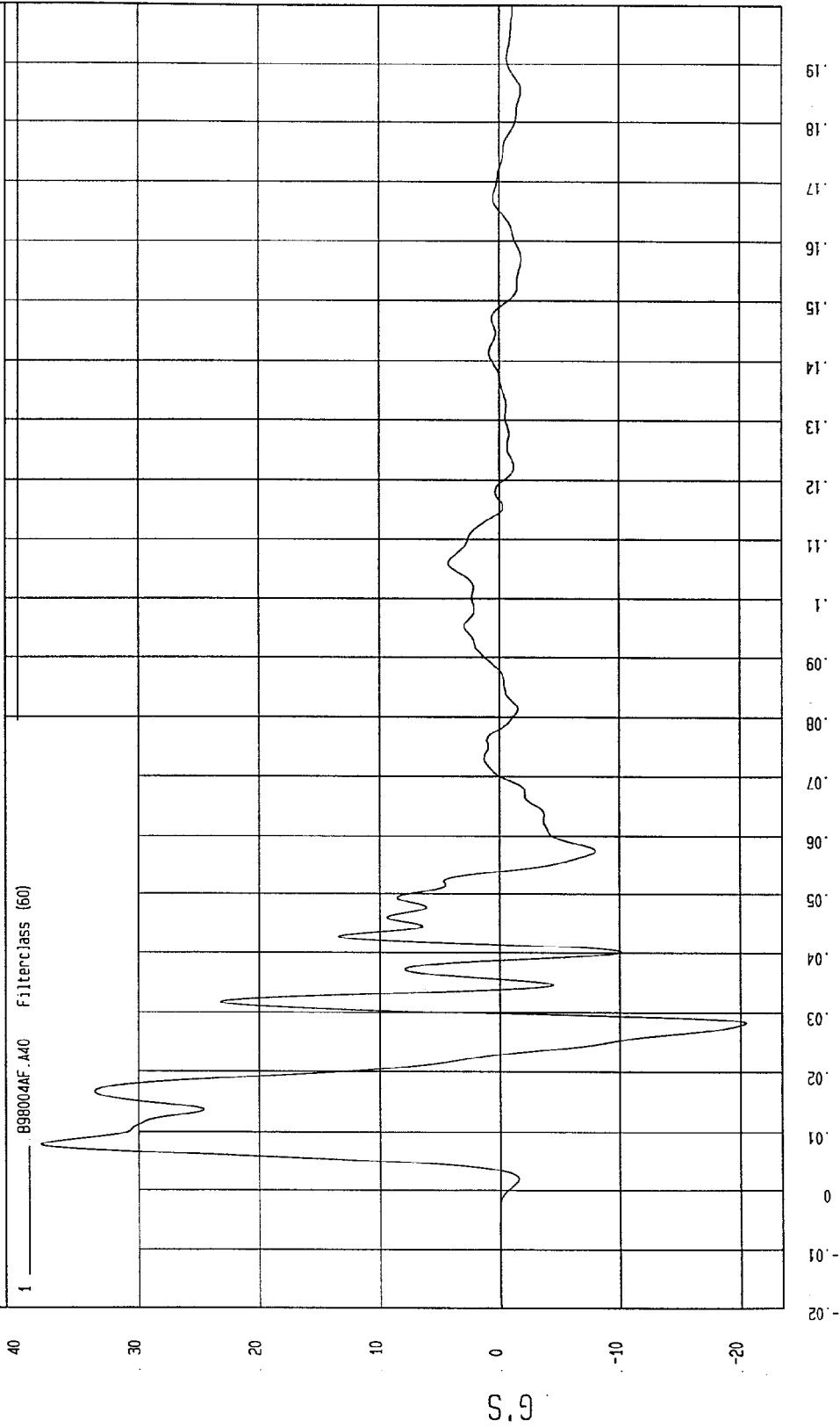
Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

Maximum = 38.10 G'S at 8 msec

Minimum = -20.49 G'S at 28 msec

LEFT FRONT SEAT TRACK Y ACCELERATION



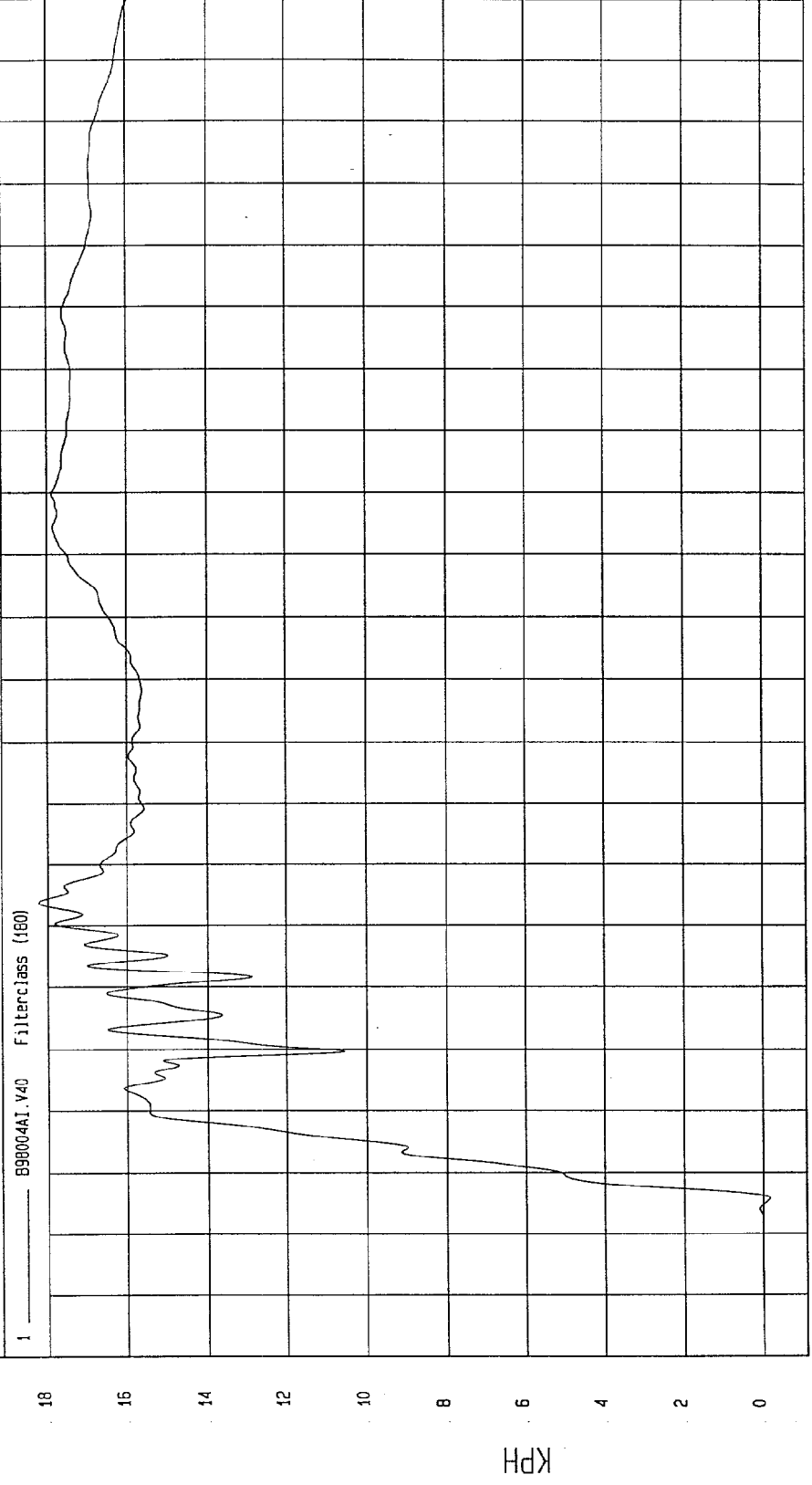
WGA Research
01-16-1998 10:23

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -16 KPH at 6 msec Maximum = 18.22 KPH at 54 msec

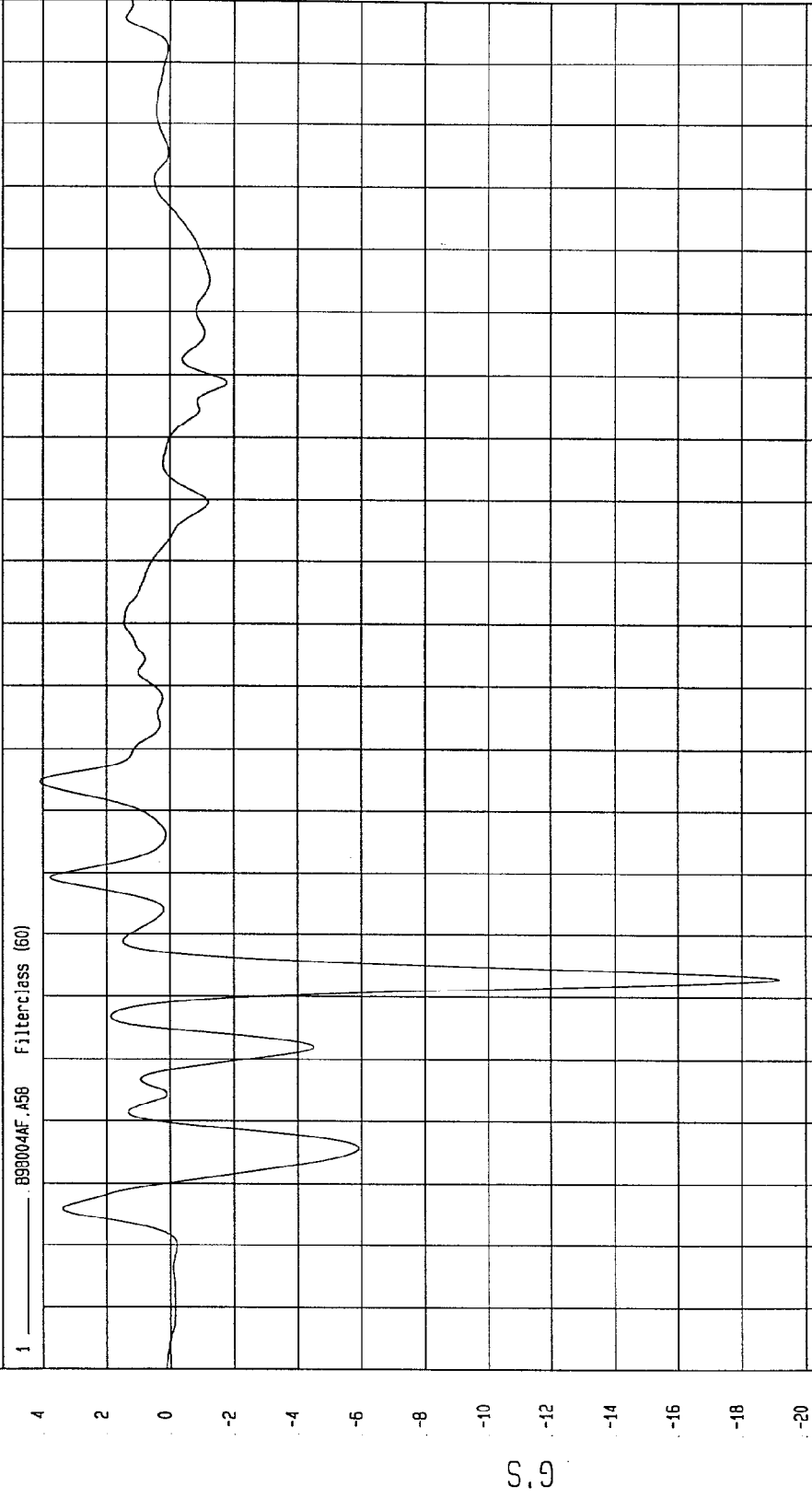
LEFT FRONT SEAT TRACK Y VELOCITY



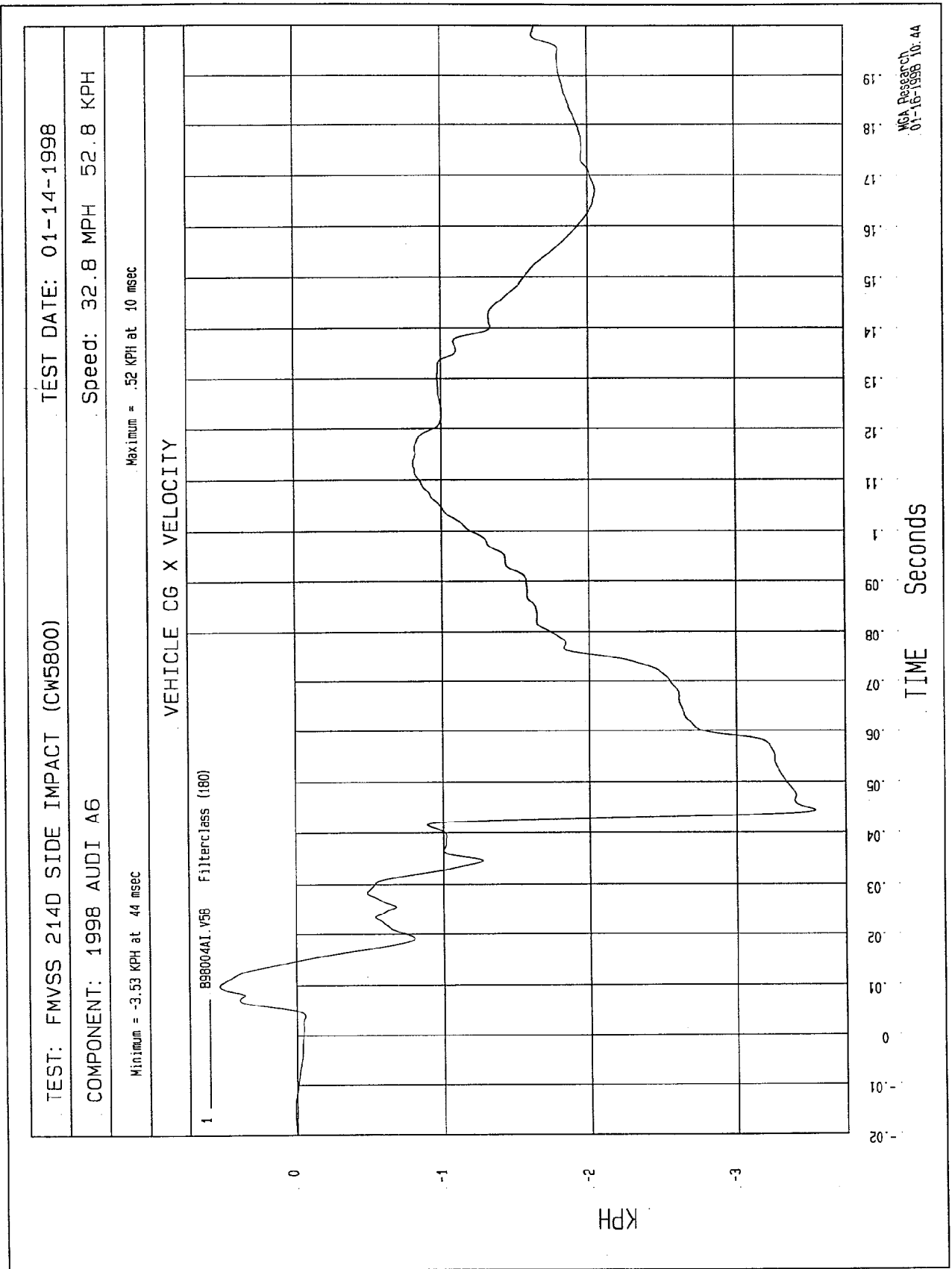
NCA Research
01-14-1998 17:36

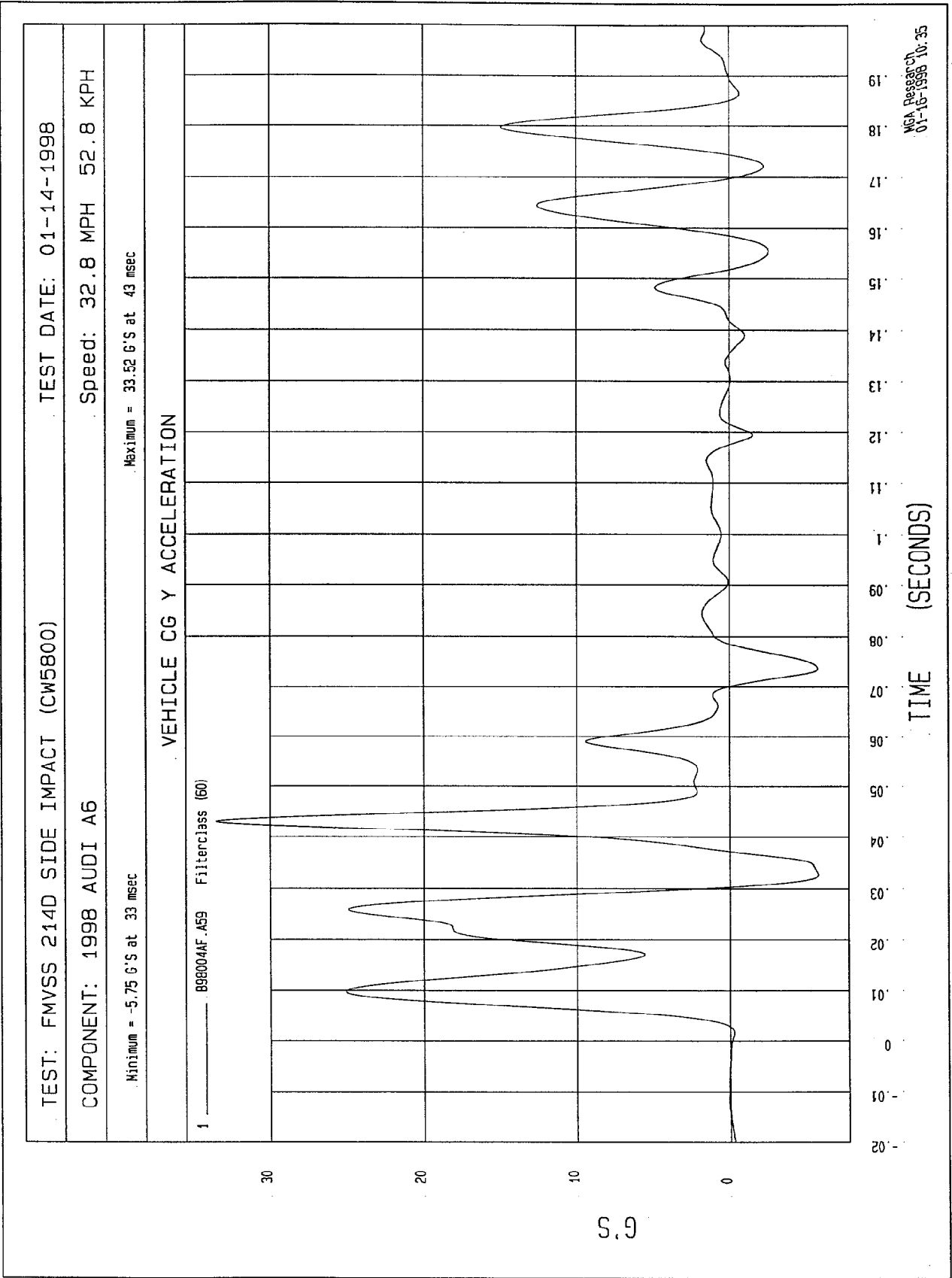
TEST: FMVSS 214D SIDE IMPACT (CW5800)	TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6	Speed: 32.8 MPH 52.8 KPH
Minimum = -19.15 G'S at 43 msec	
Maximum = 4.03 G'S at 75 msec	

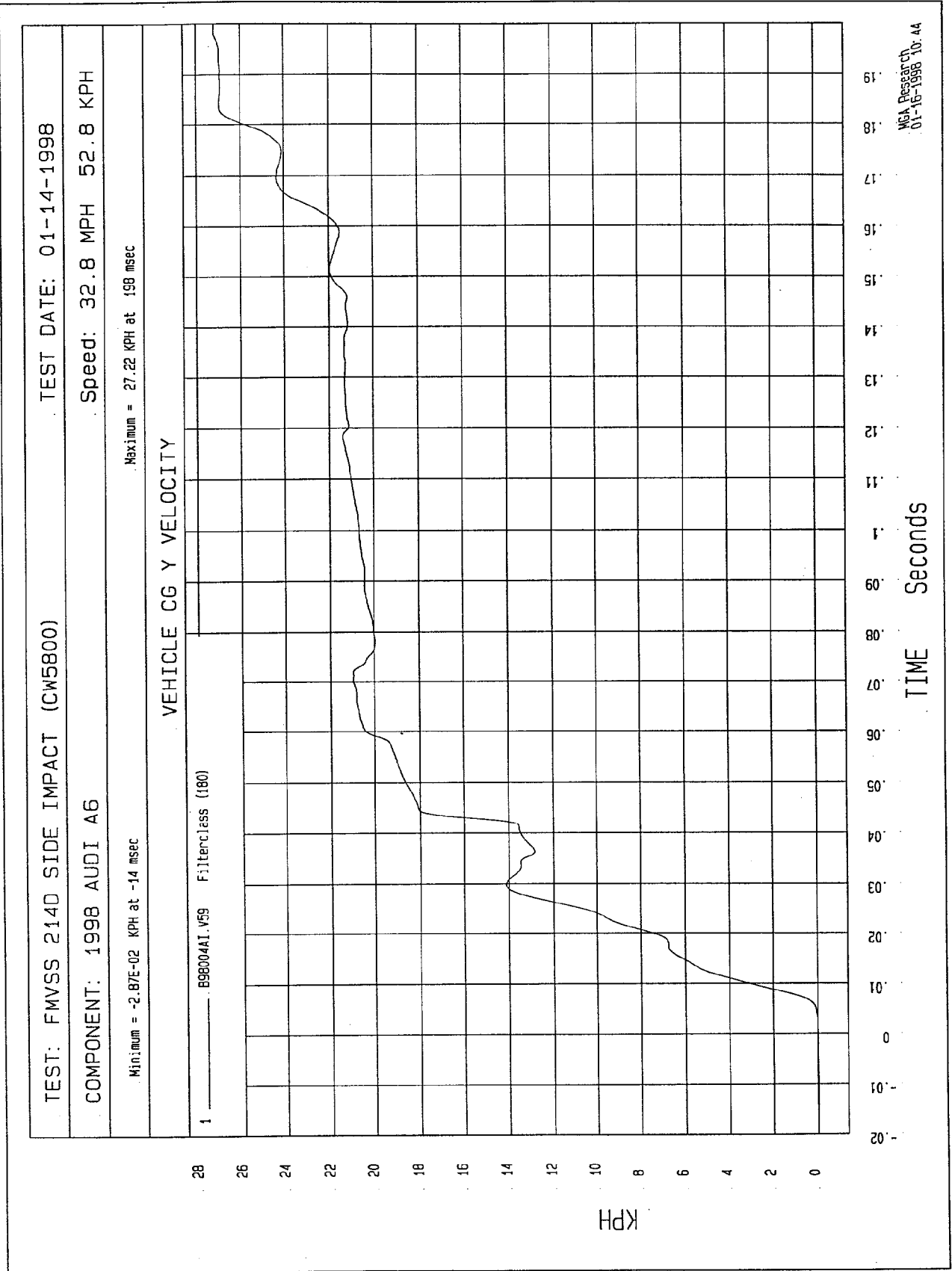
VEHICLE CG X ACCELERATION



MCA Research
01-16-1998 10:34







TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

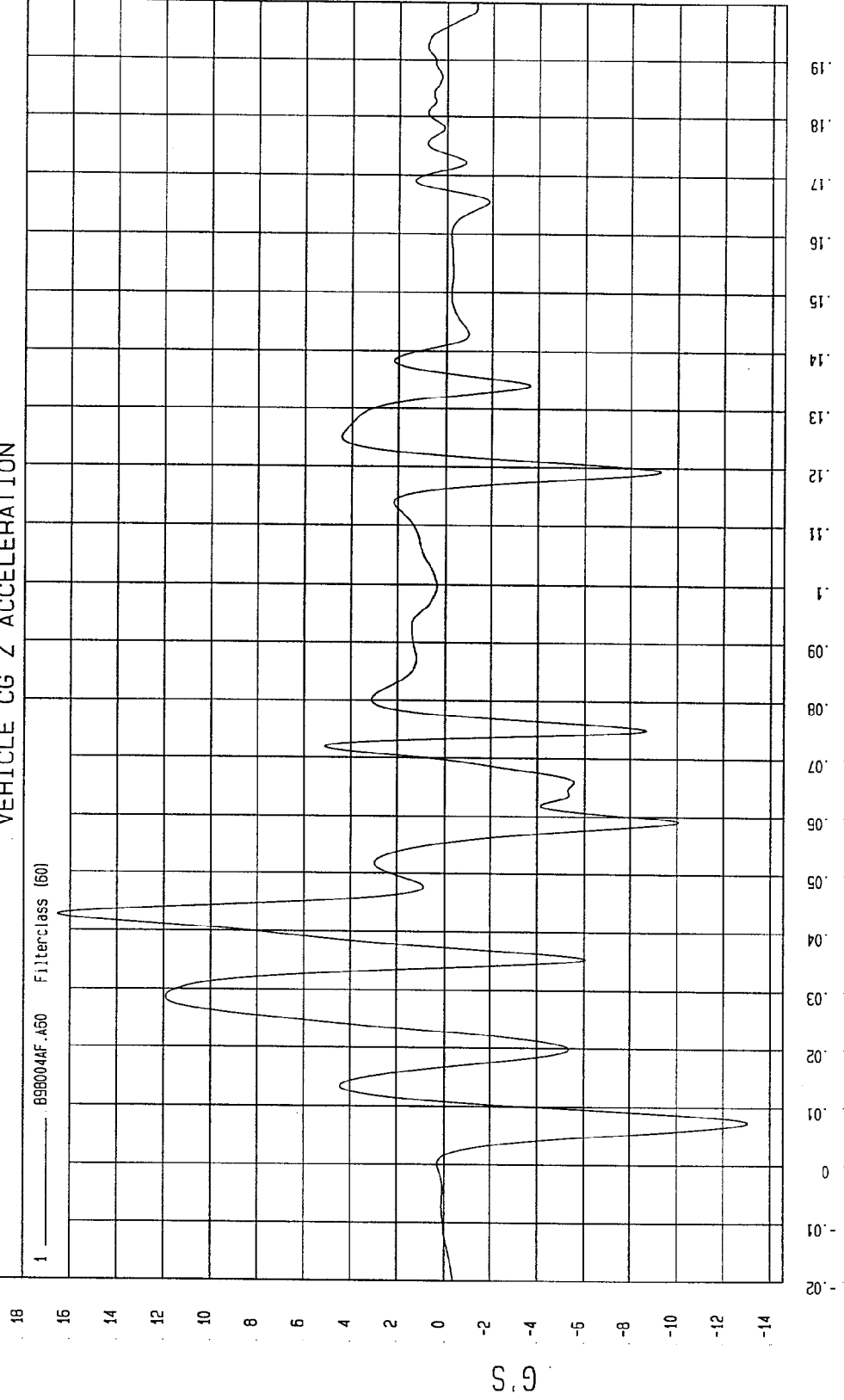
Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

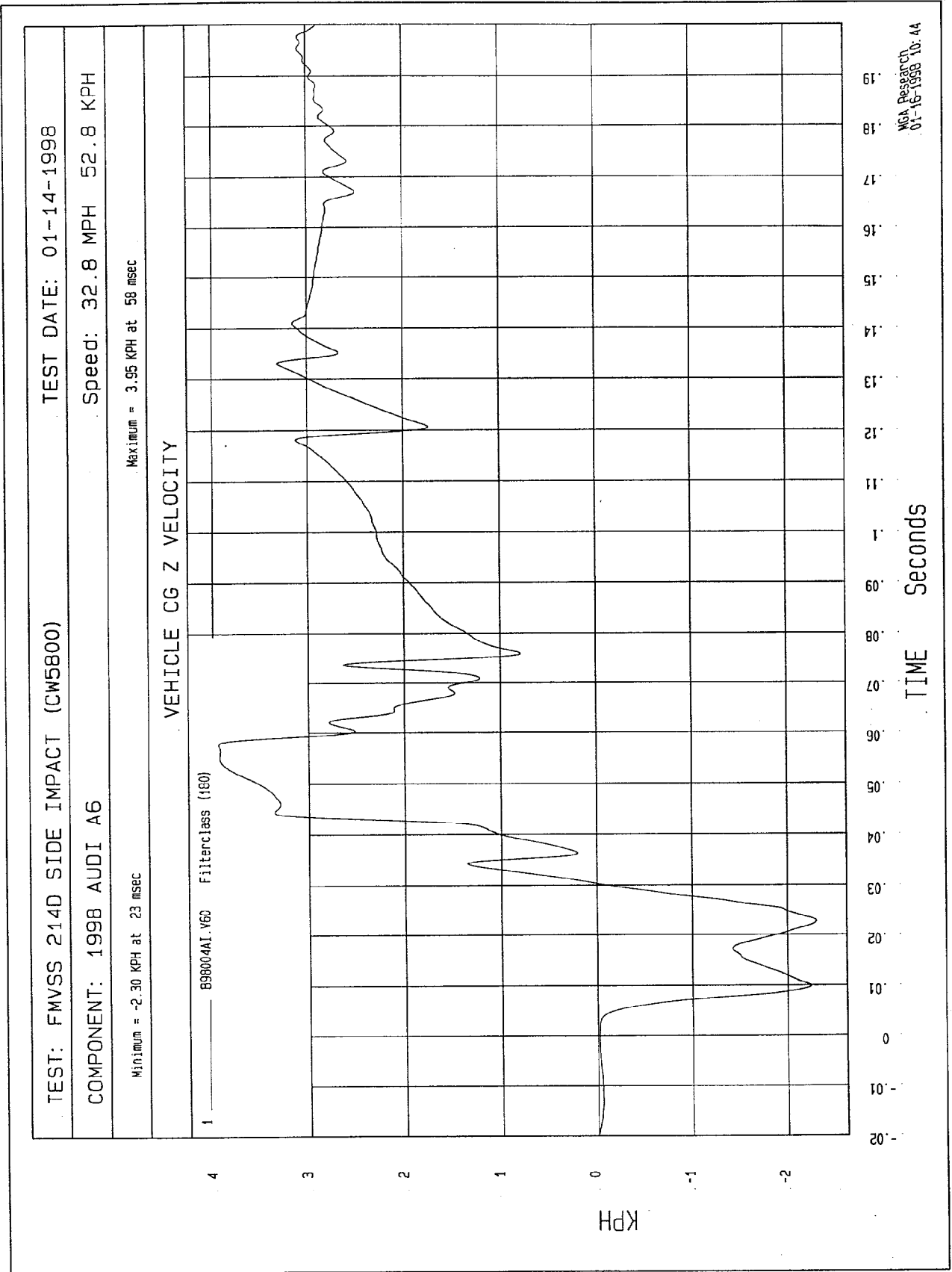
Minimum = -13.05 G'S at 7 msec

Maximum = 16.52 G'S at 43 msec

VEHICLE CG Z ACCELERATION



WCA Research
01-16-1998 10:35



TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

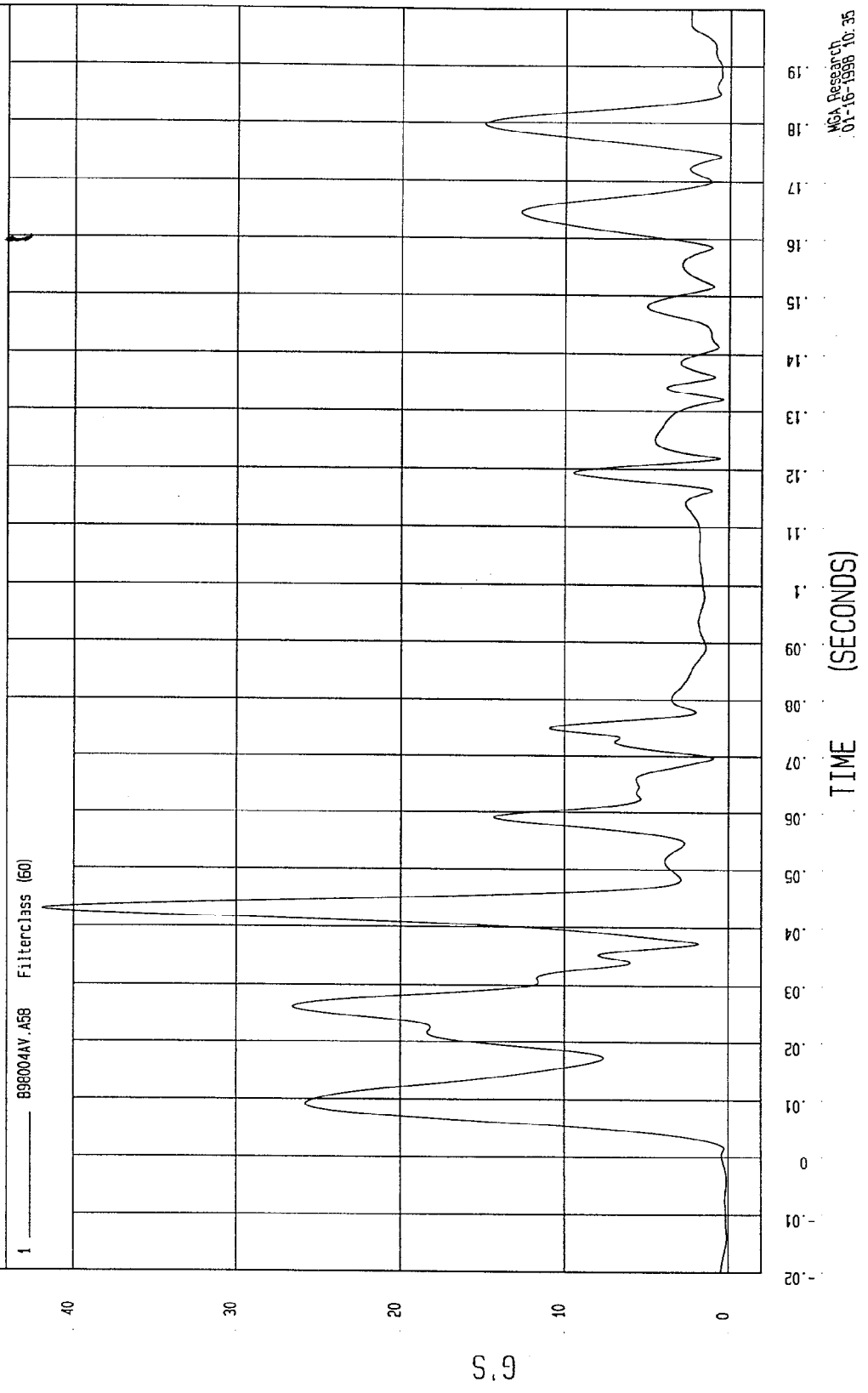
Speed: 32.8 MPH 52.8 KPH

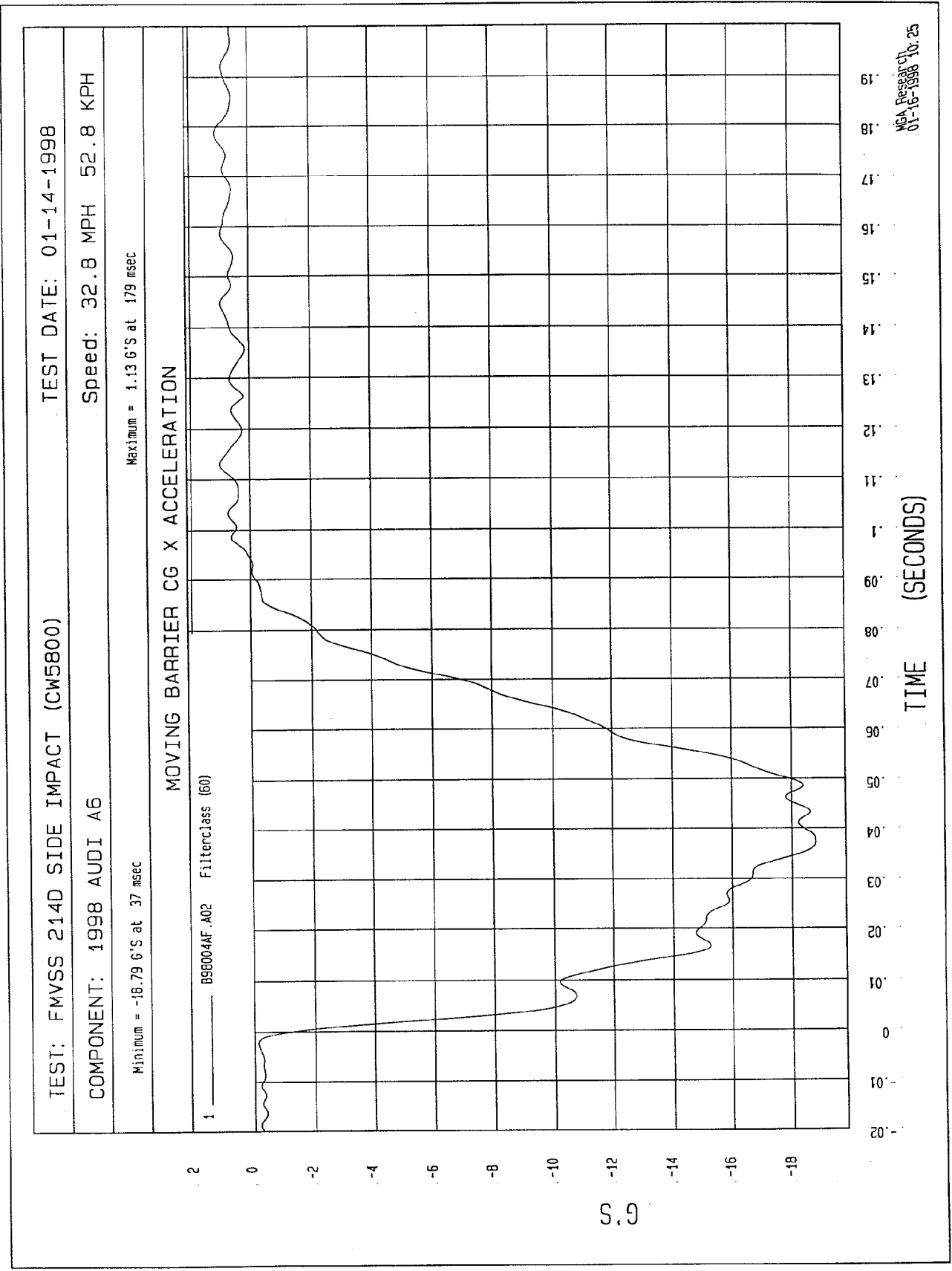
COMPONENT: 1998 AUDI A6

Minimum = .10 G'S at -14 msec

Maximum = 41.95 G'S at 43 msec

VEHICLE CG RESULTANT ACCELERATION



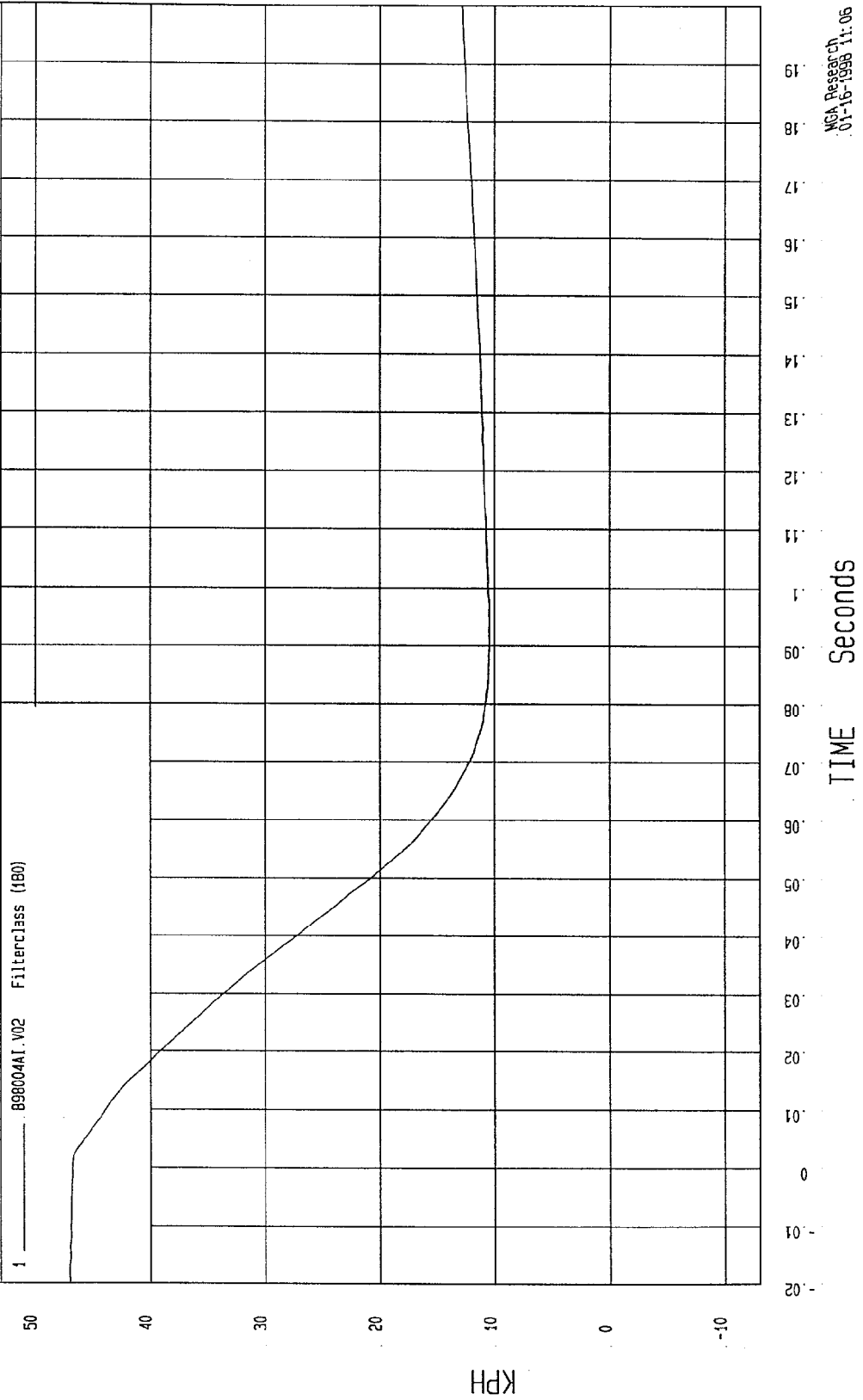


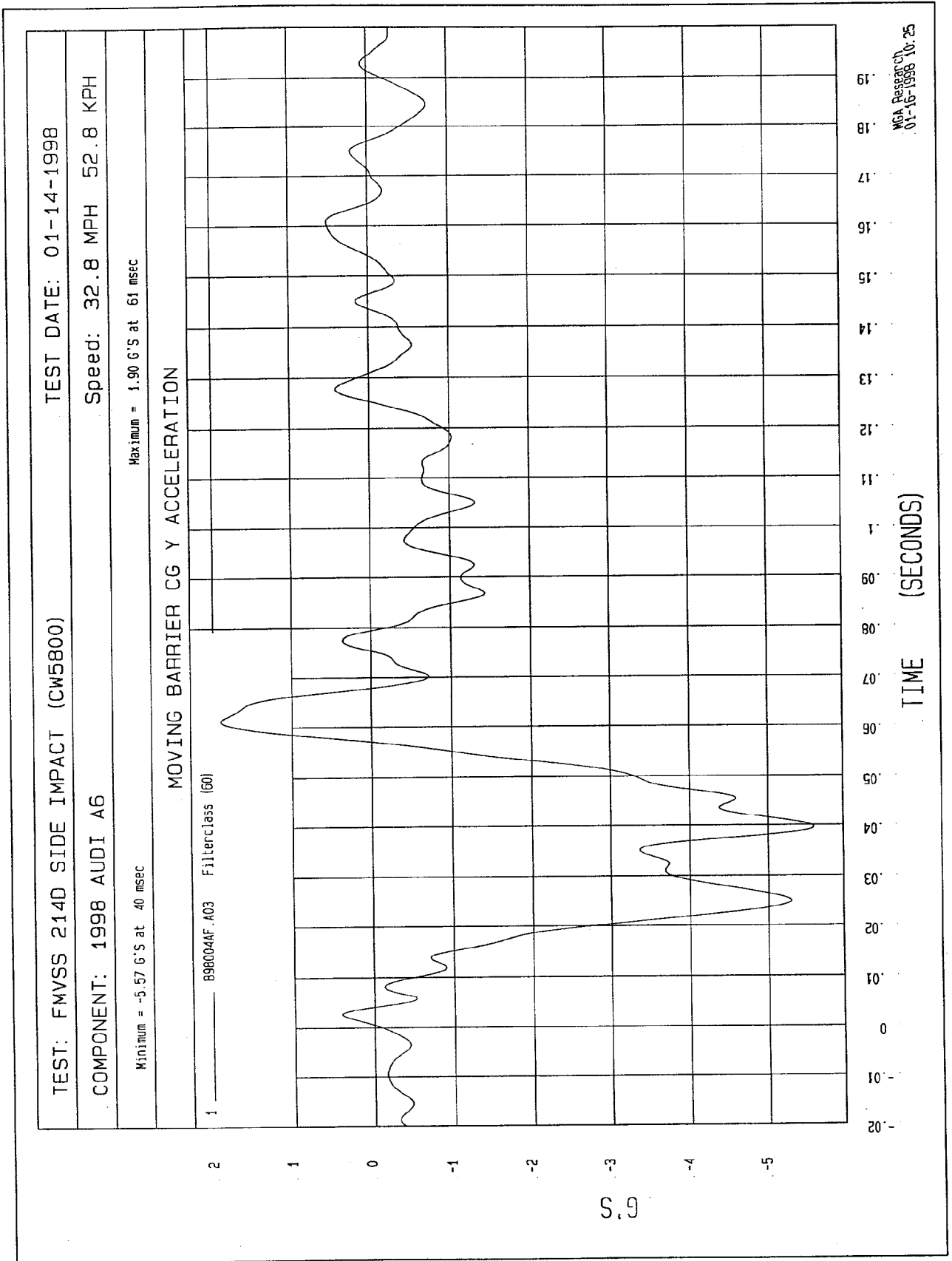
TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = 10.46 KPH at 94 msec Maximum = 47.05 KPH at -18 msec

MOVING BARRIER CG X VELOCITY





TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

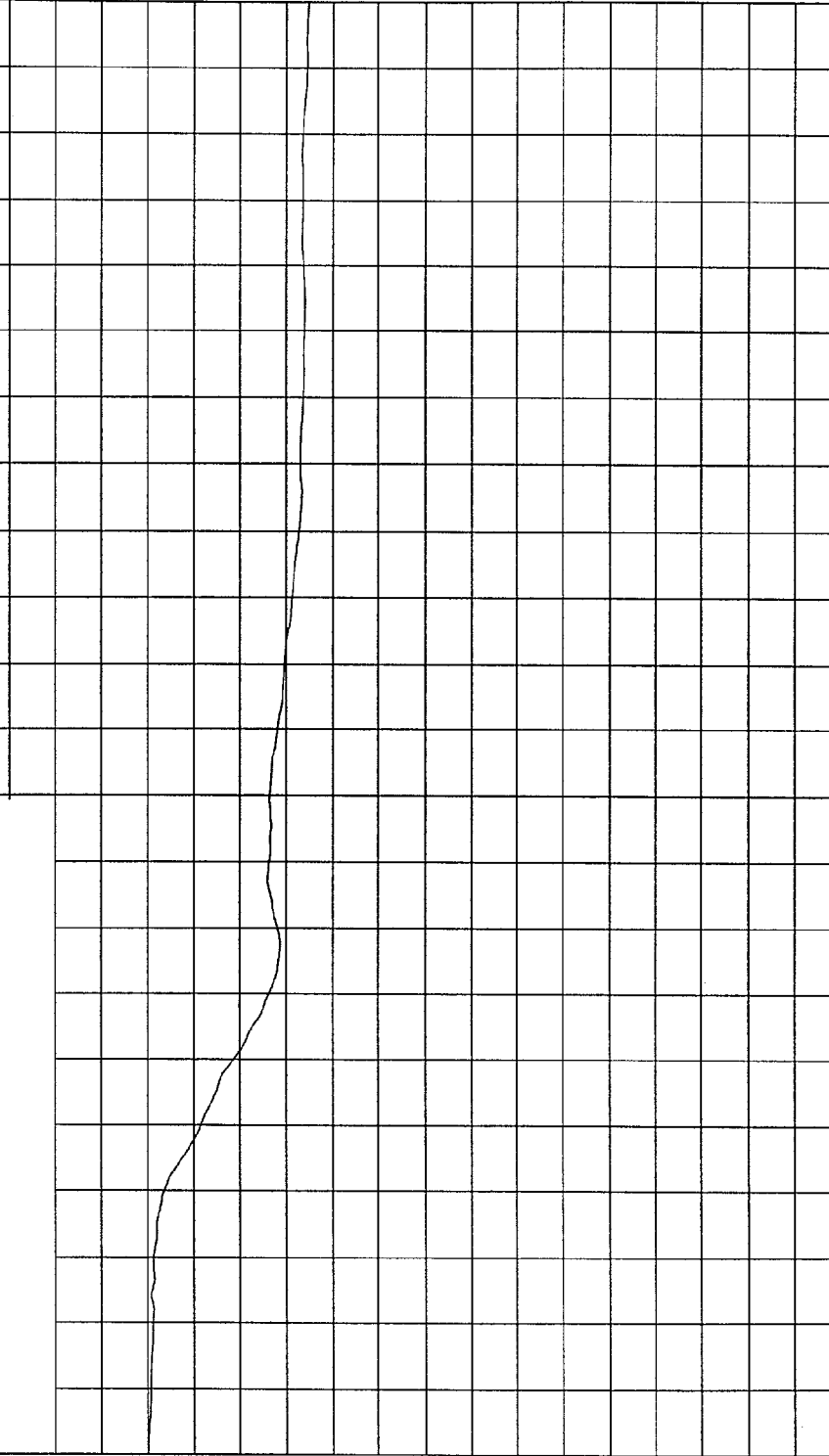
Minimum = 17.06 KPH at 200 msec Maximum = 23.97 KPH at -20 msec

MOVING BARRIER CG Y VELOCITY

1 _____ B98004A1.V03 Filterclass (180)

KPH

30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4



NCA Research
01-16-1998 11:10

TEST DATE: 01-14-1998

TEST: FMVSS 214D SIDE IMPACT (CW5800)

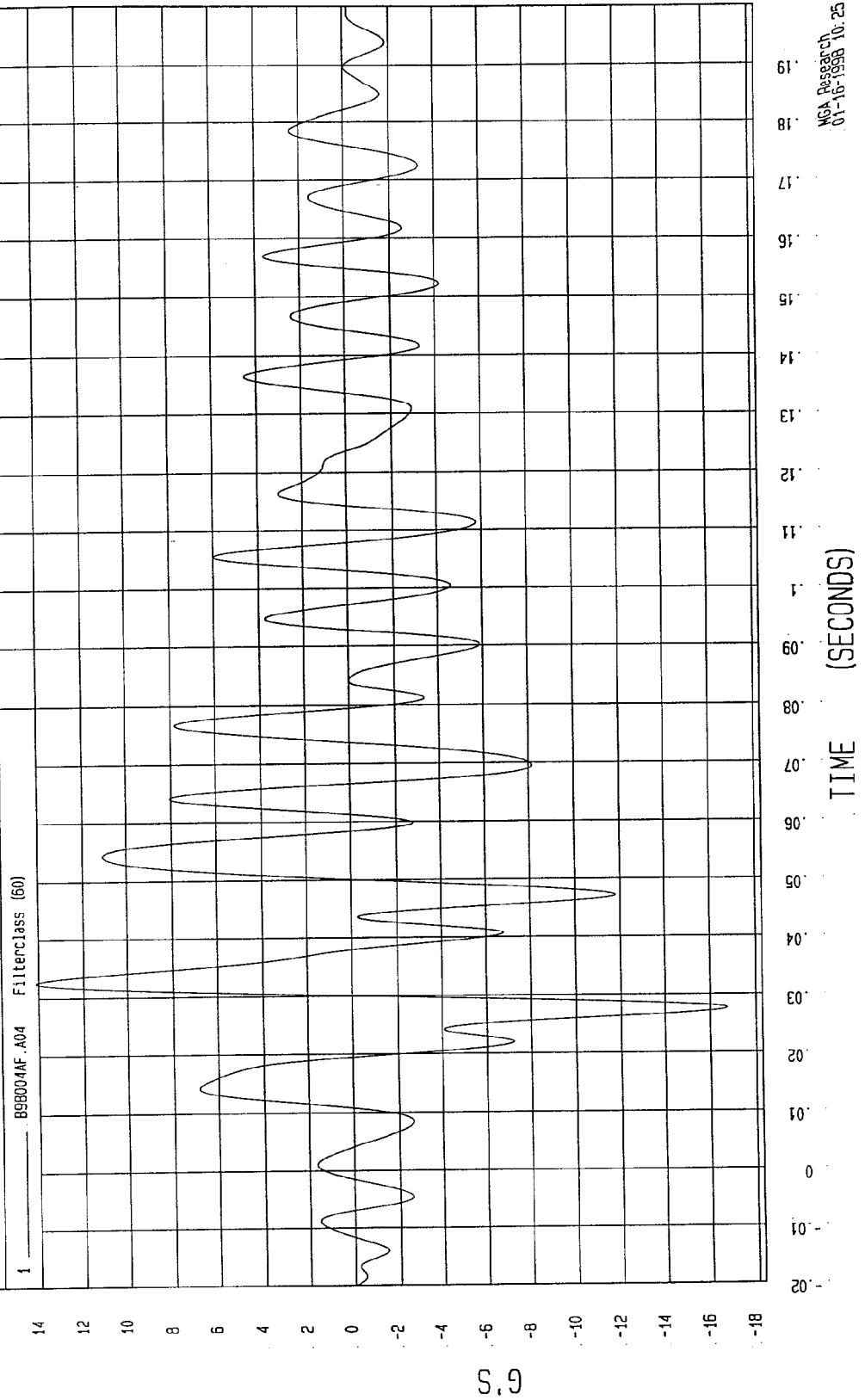
Speed: 32.8 MPH 52.8 KPH

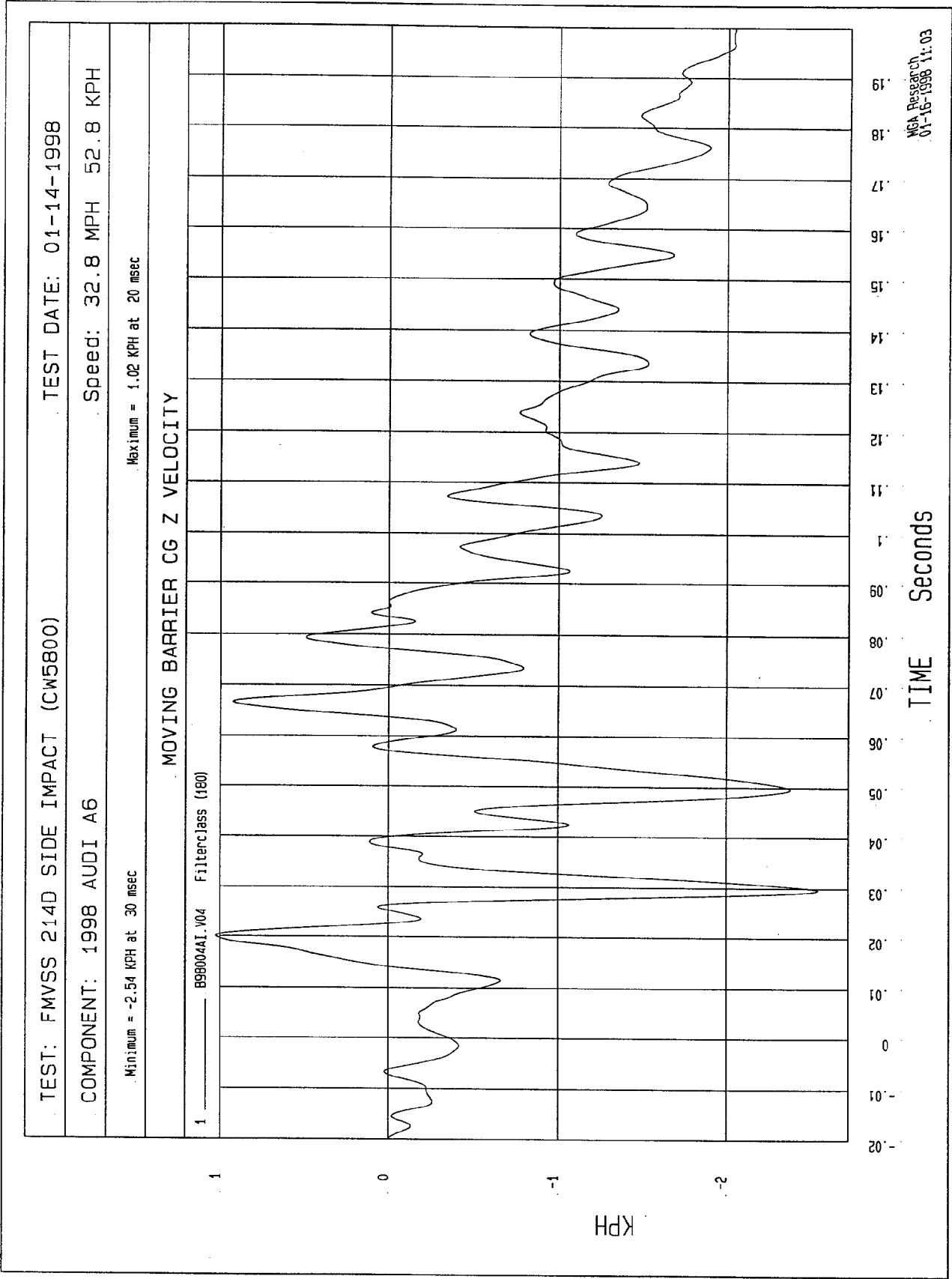
COMPONENT: 1998 AUDI A6

Maximum = 14.11 G'S at 32 msec

Minimum = -16.73 G'S at 28 msec

MOVING BARRIER CG Z ACCELERATION



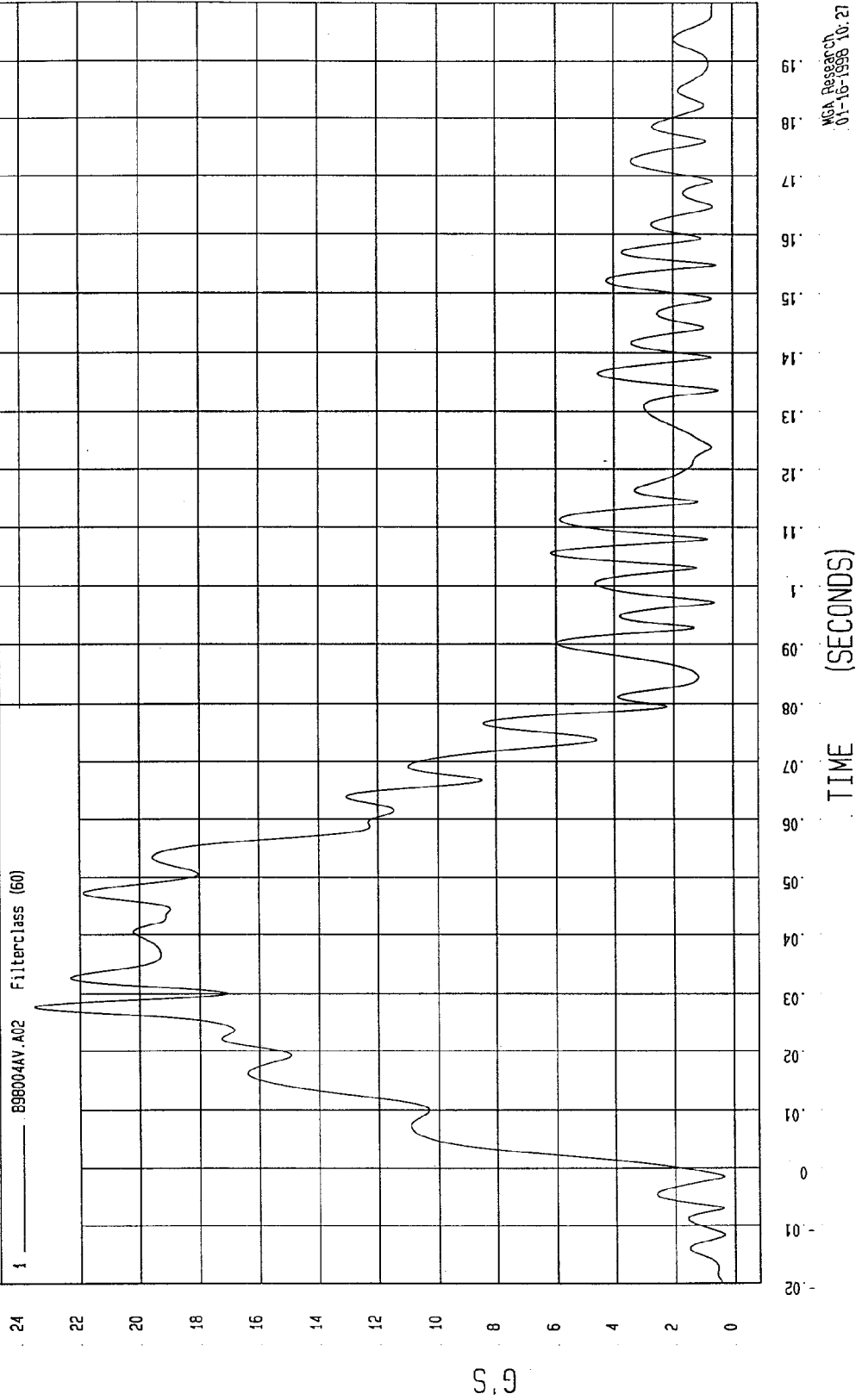


TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = .33 G's at .12 msec Maximum = 23.52 G's at 28 msec

MOVING BARRIER CG RESULTANT ACCELERATION



TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6

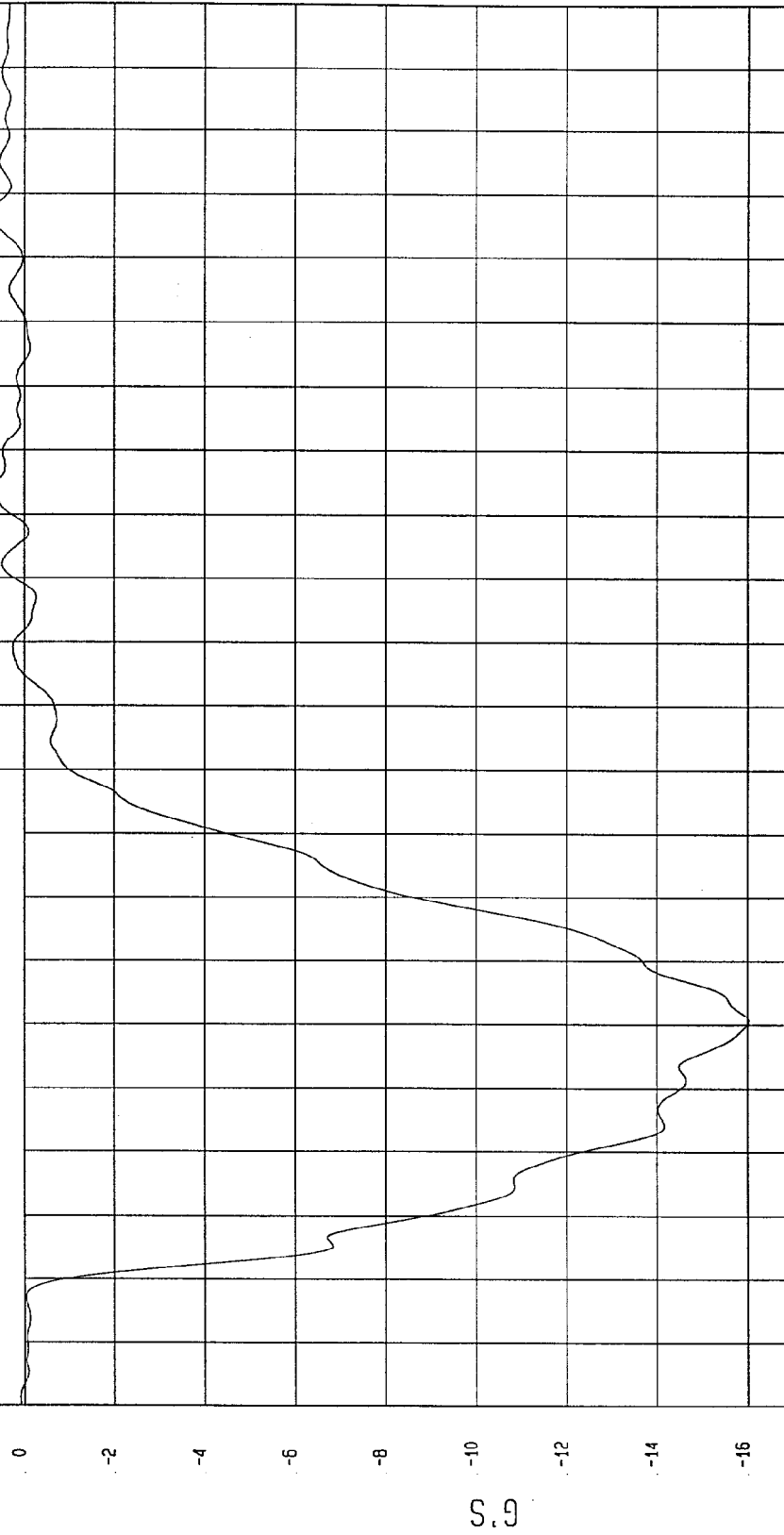
Speed: 32.8 MPH 52.8 KPH

Minimum = -16.02 G'S at 41 msec

Maximum = .70 G'S at 167 msec

MOVING BARRIER REAR AXLE X ACCELERATION

1 ——— B98004AF.A06 Filterclass (60)



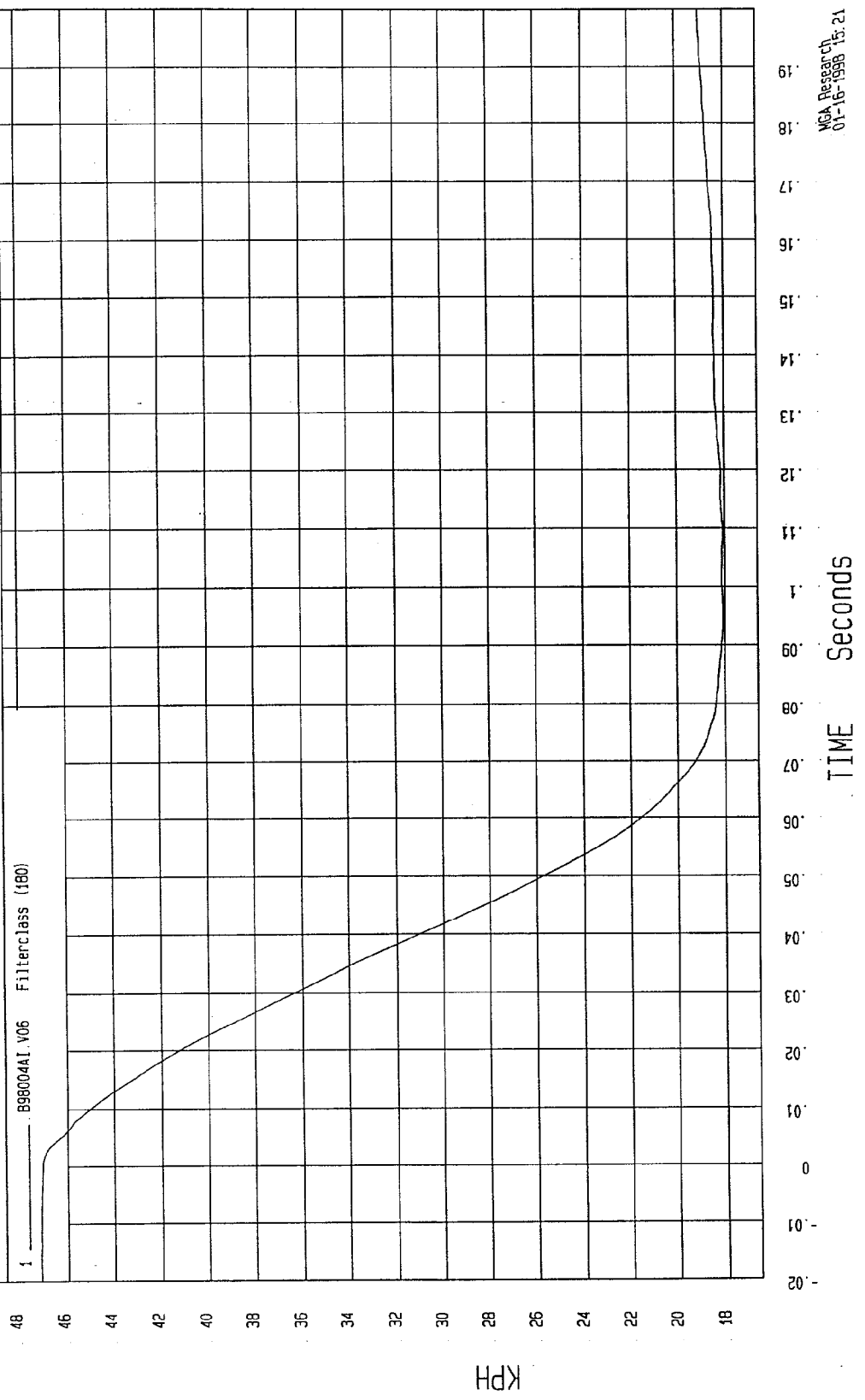
NGA Research
01-16-1998 15:21

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

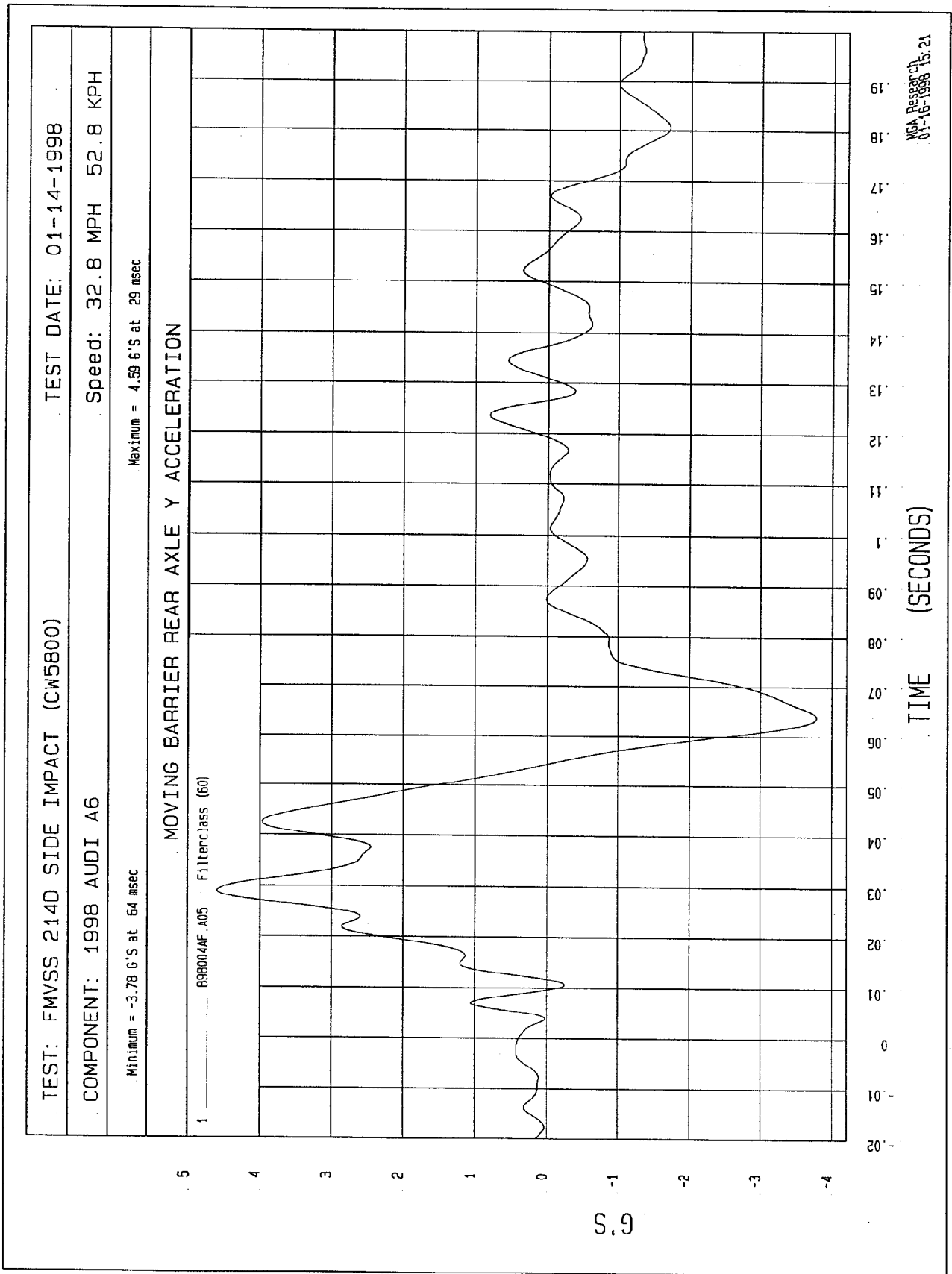
COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

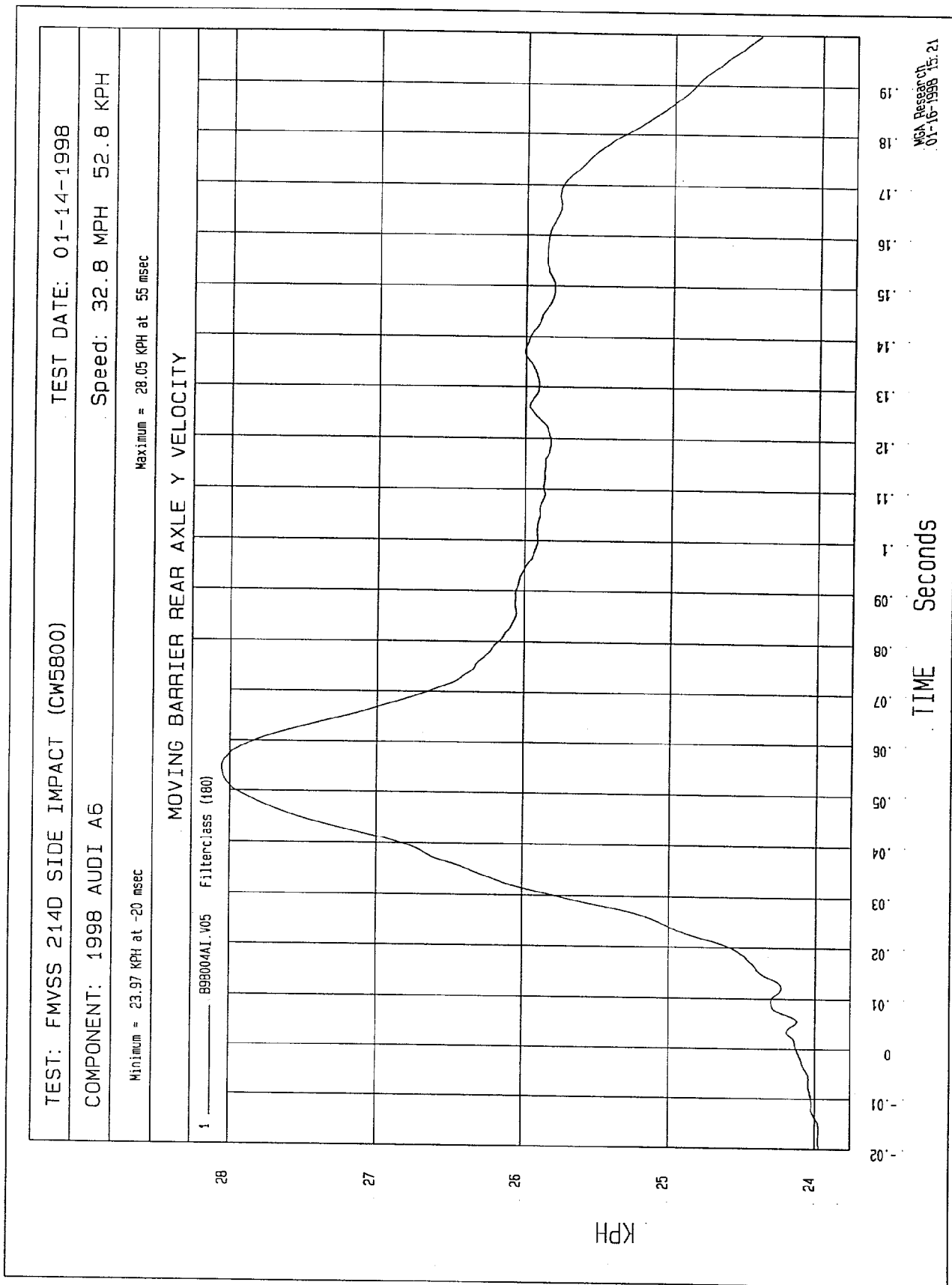
Minimum = 18.06 KPH at 109 msec Maximum = 47.14 KPH at -15 msec

MOVING BARRIER REAR AXLE X VELOCITY

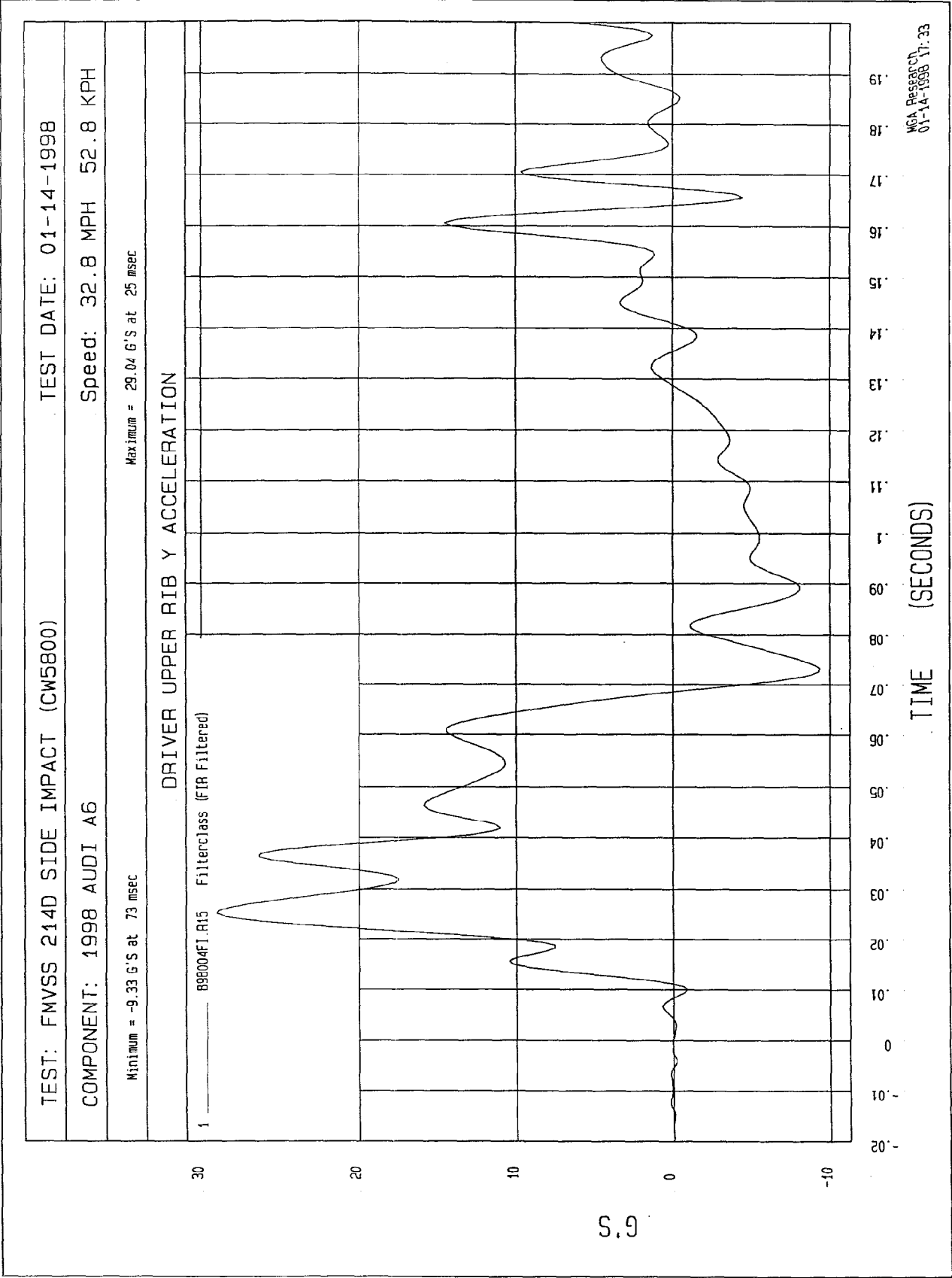


MOA Research
01-16-1998 15:21





FINITE IMPULSE RESPONSE (FIR) FILTERED DATA



TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

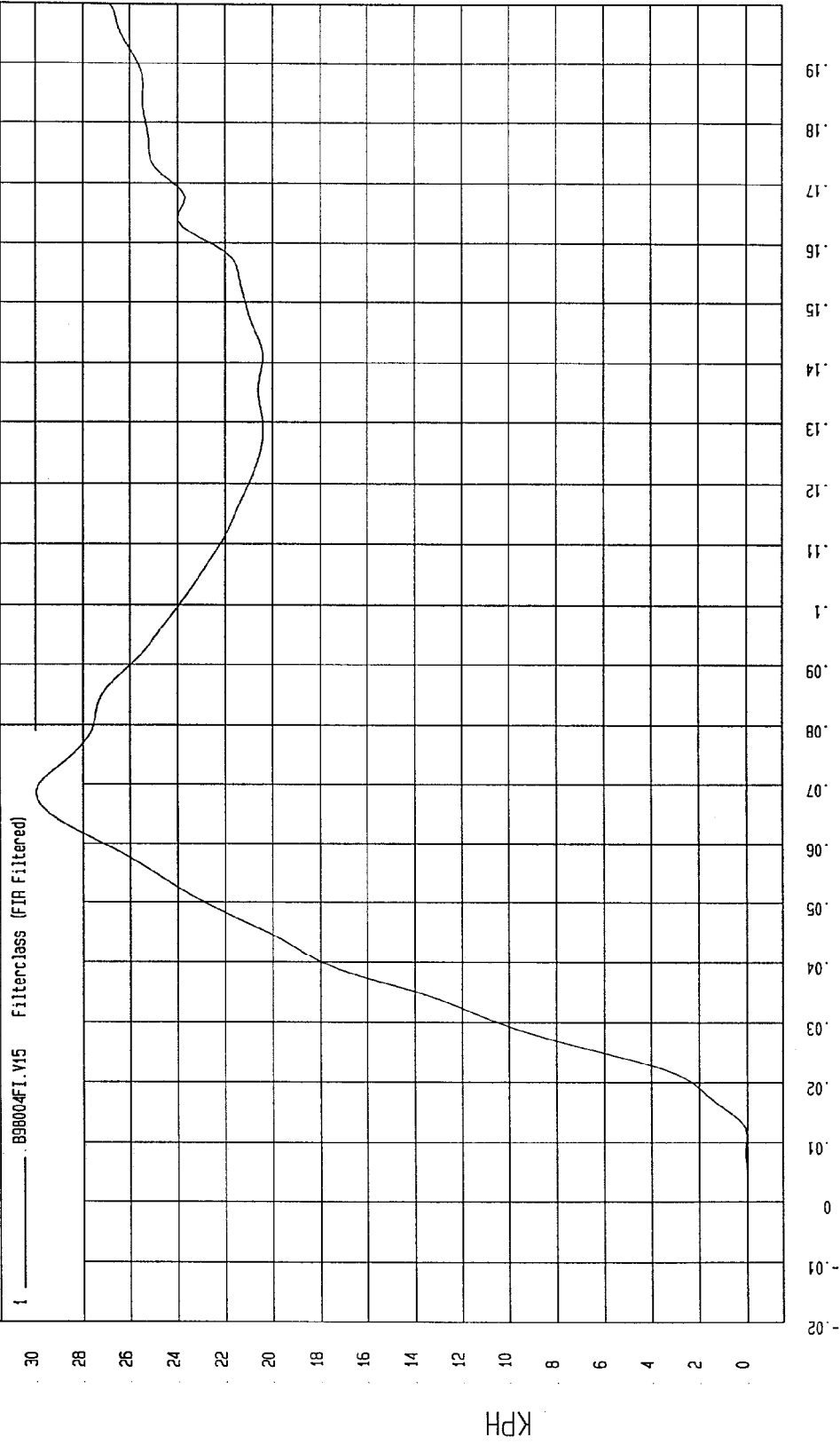
Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

Minimum = -5.96E-03 KPH at -14 msec

Maximum = 29.98 KPH at 69 msec

DRIVER UPPER RIB Y VELOCITY



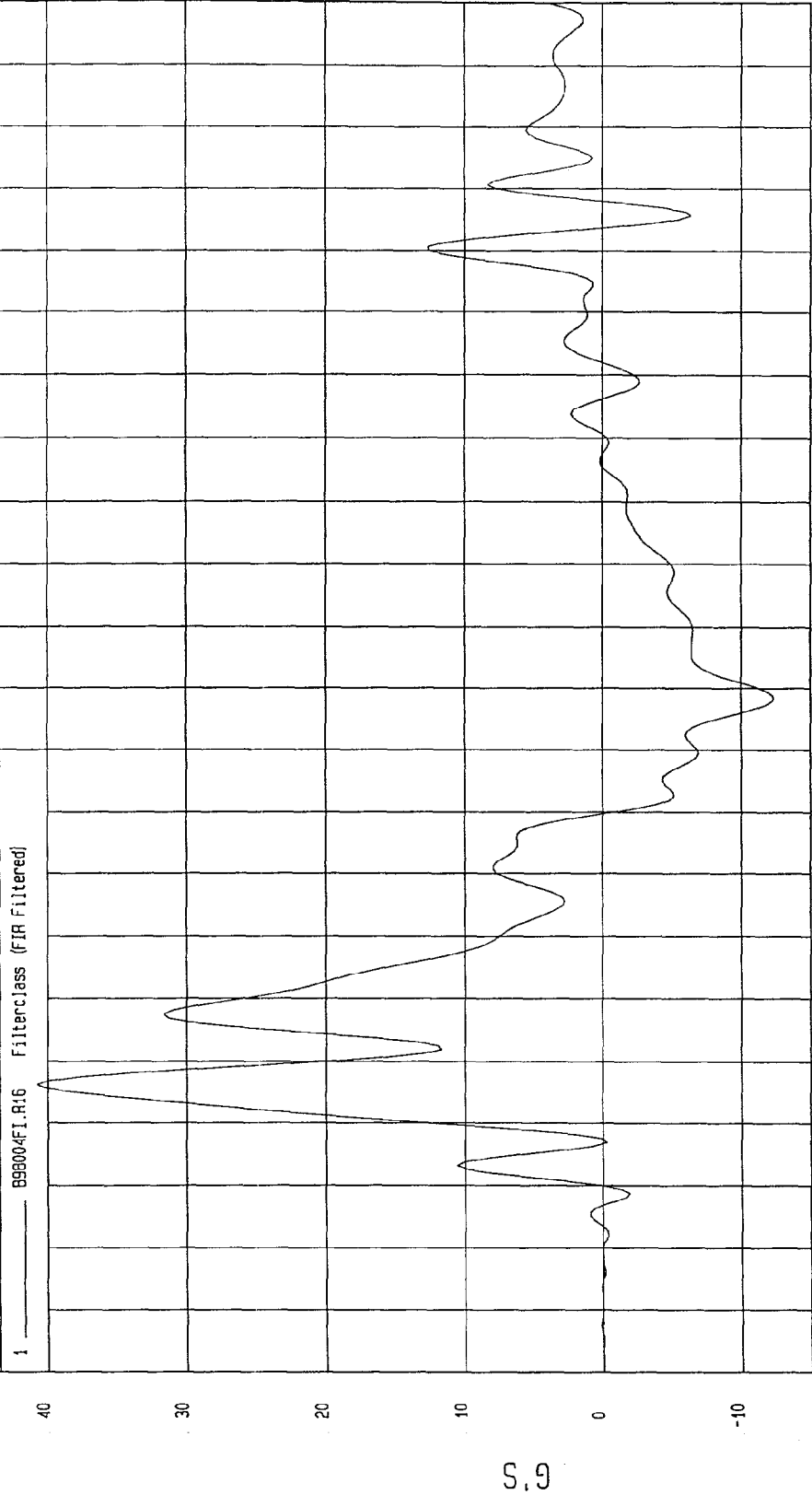
WGA Research
01-16-1998 11:23

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -12.31 G'S at 89 msec Maximum = 40.78 G'S at 26 msec

DRIVER LOWER RIB Y ACCELERATION



MCA Research
01-14-1998 17:33

TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

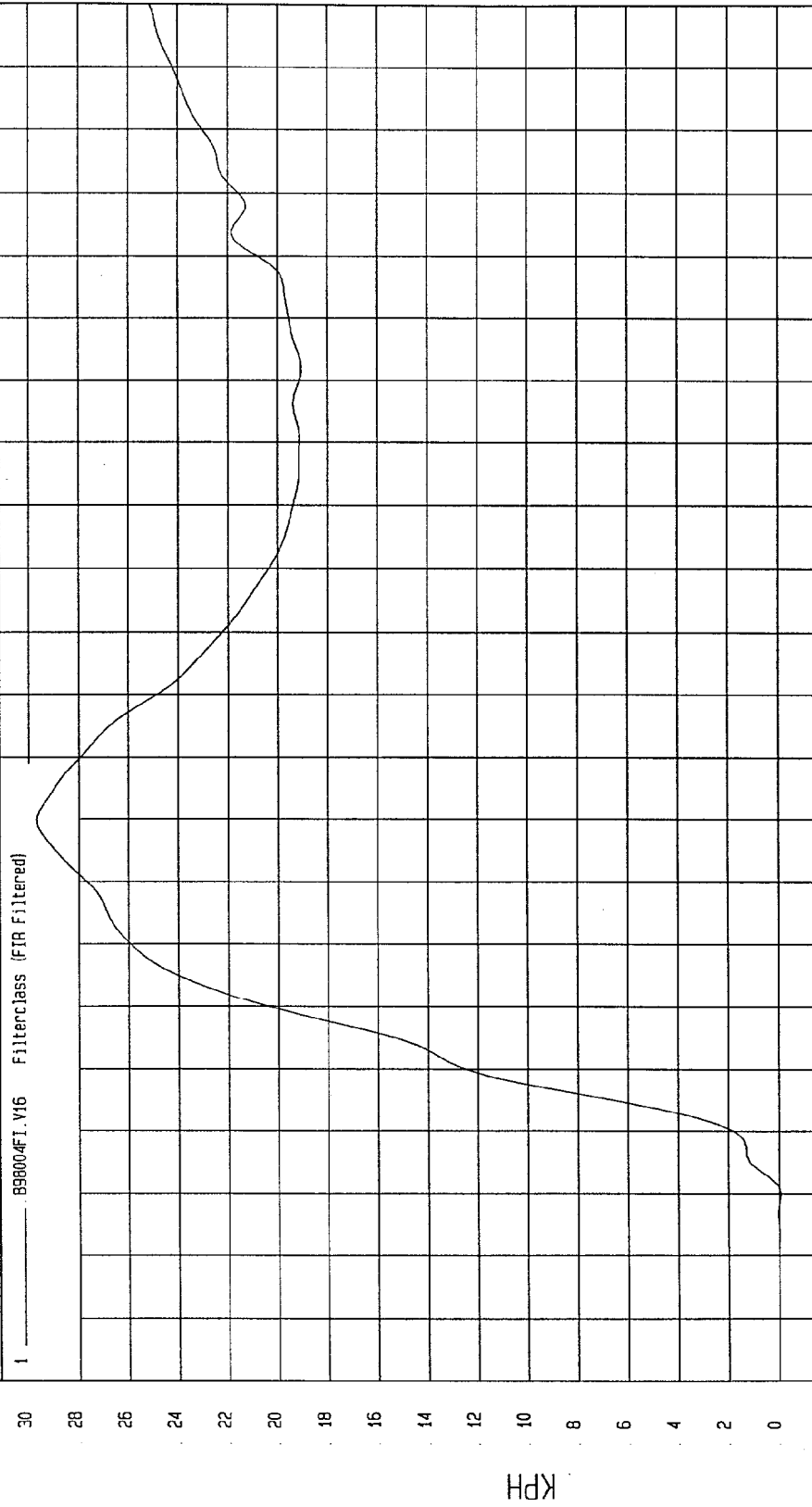
Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

Maximum = 29.68 KPH at 70 msec

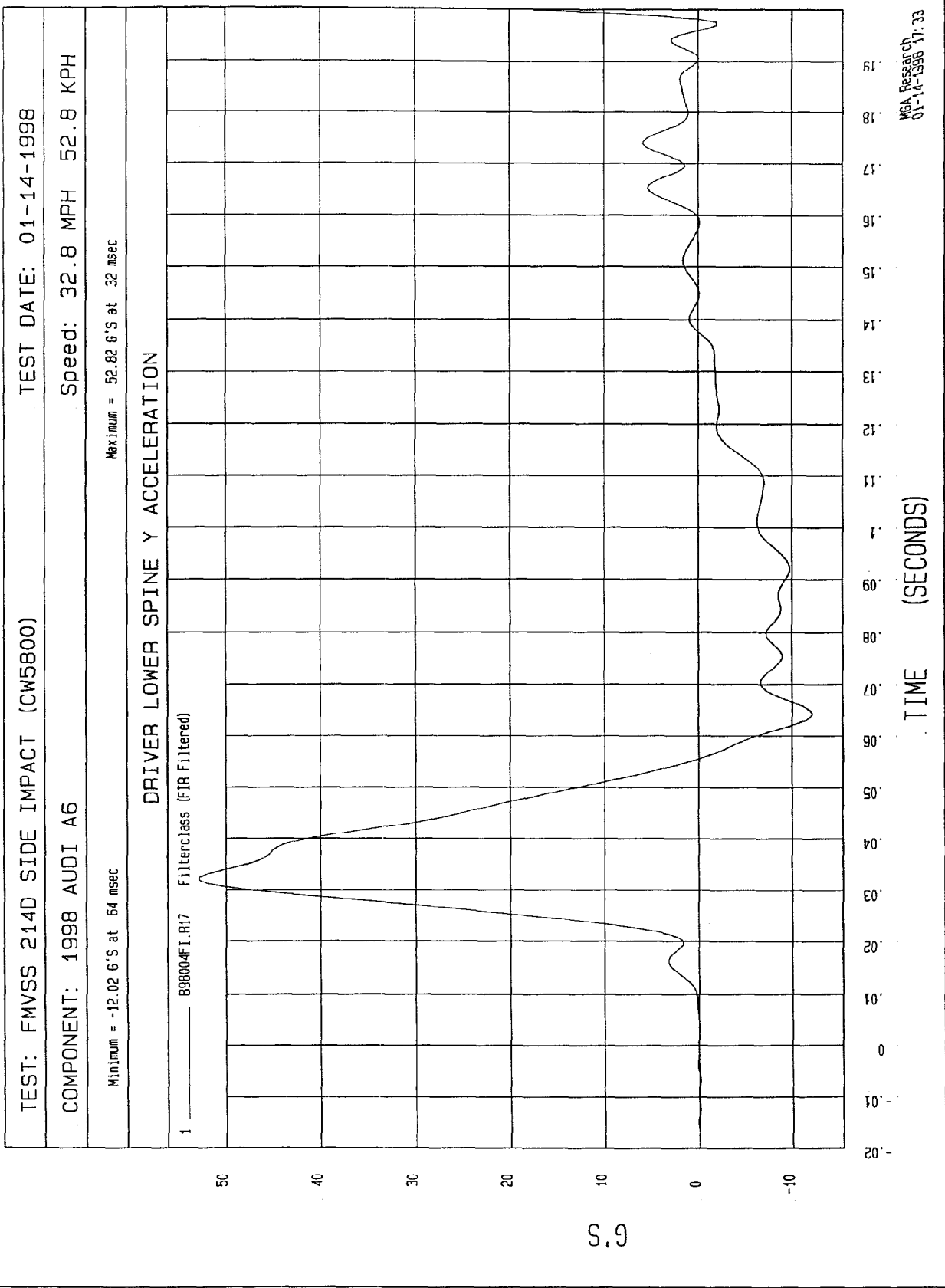
Minimum = -9.48E-02 KPH at 10 msec

DRIVER LOWER RIB Y VELOCITY



WCA Research
01-16-1998 11:23

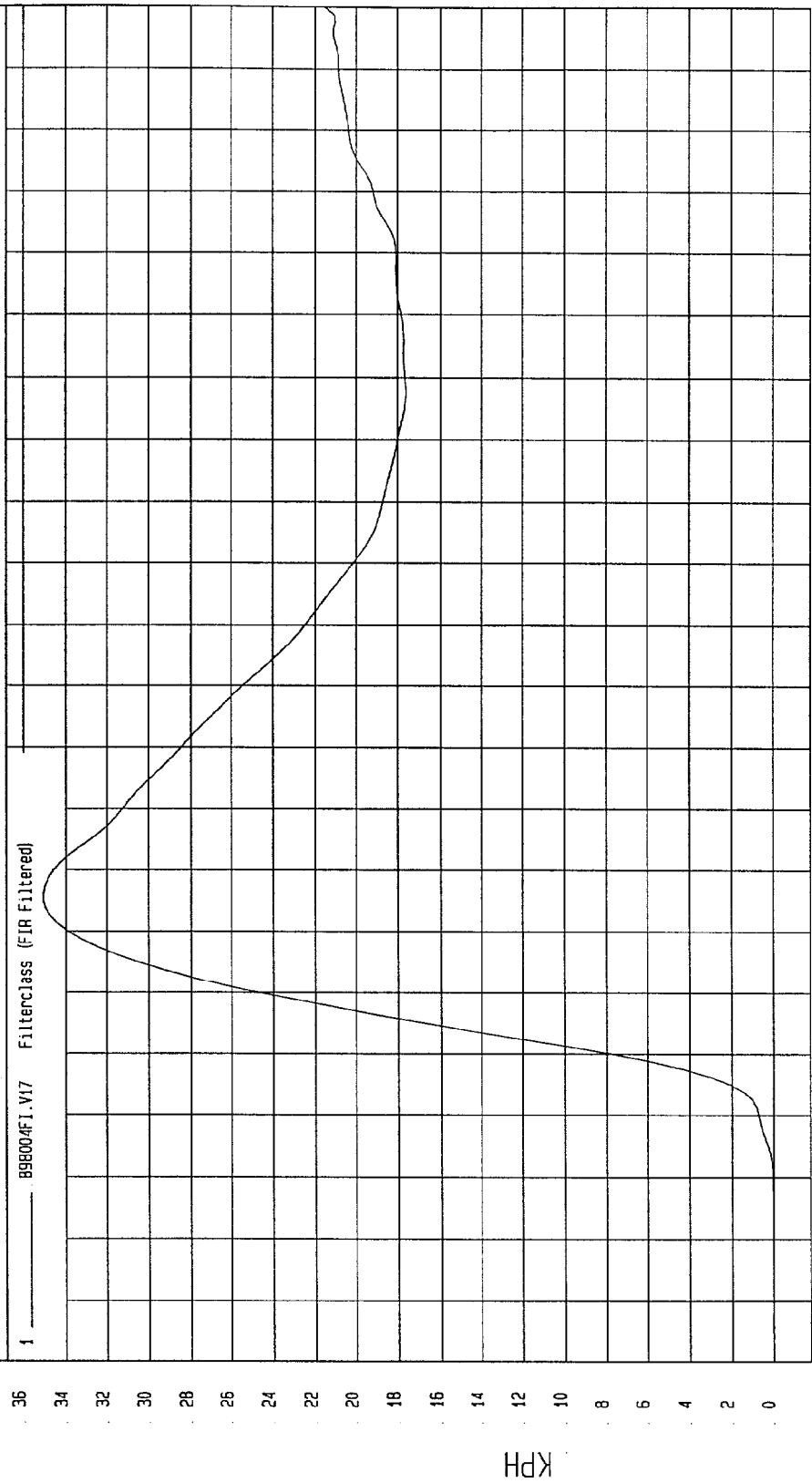
TIME Seconds



TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -7.15E-03 KPH at -6 msec Maximum = 35.07 KPH at 56 msec

DRIVER LOWER SPINE Y VELOCITY

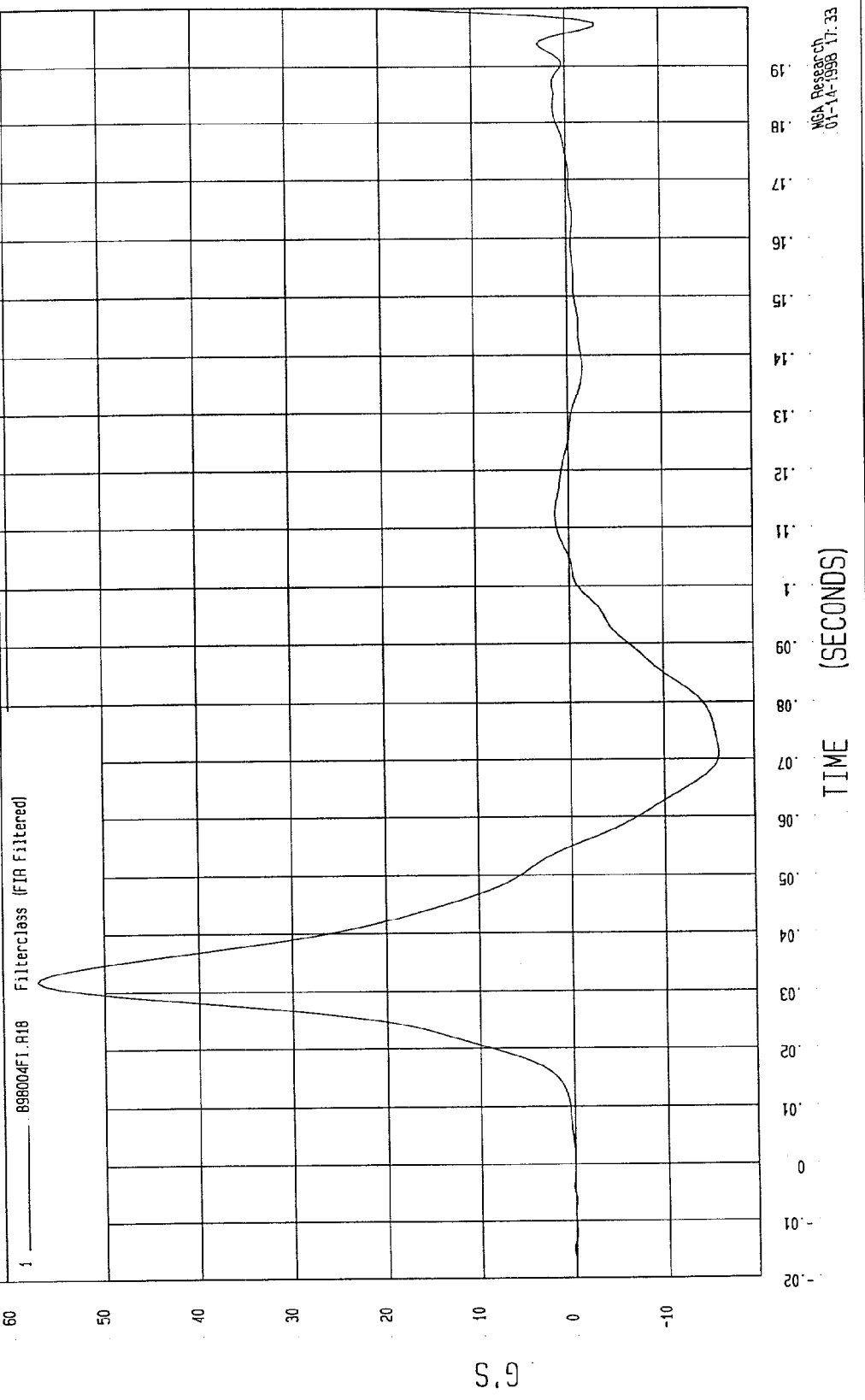


TIME Seconds

MOA Research
01-16-1998 11:24

TEST: FMVSS 214D SIDE IMPACT (CW5800)	TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6	Speed: 32.8 MPH 52.8 KPH
Minimum = -15.81 G'S at 71 msec	
Maximum = 57.10 G'S at 32 msec	

DRIVER PELVIS Y ACCELERATION



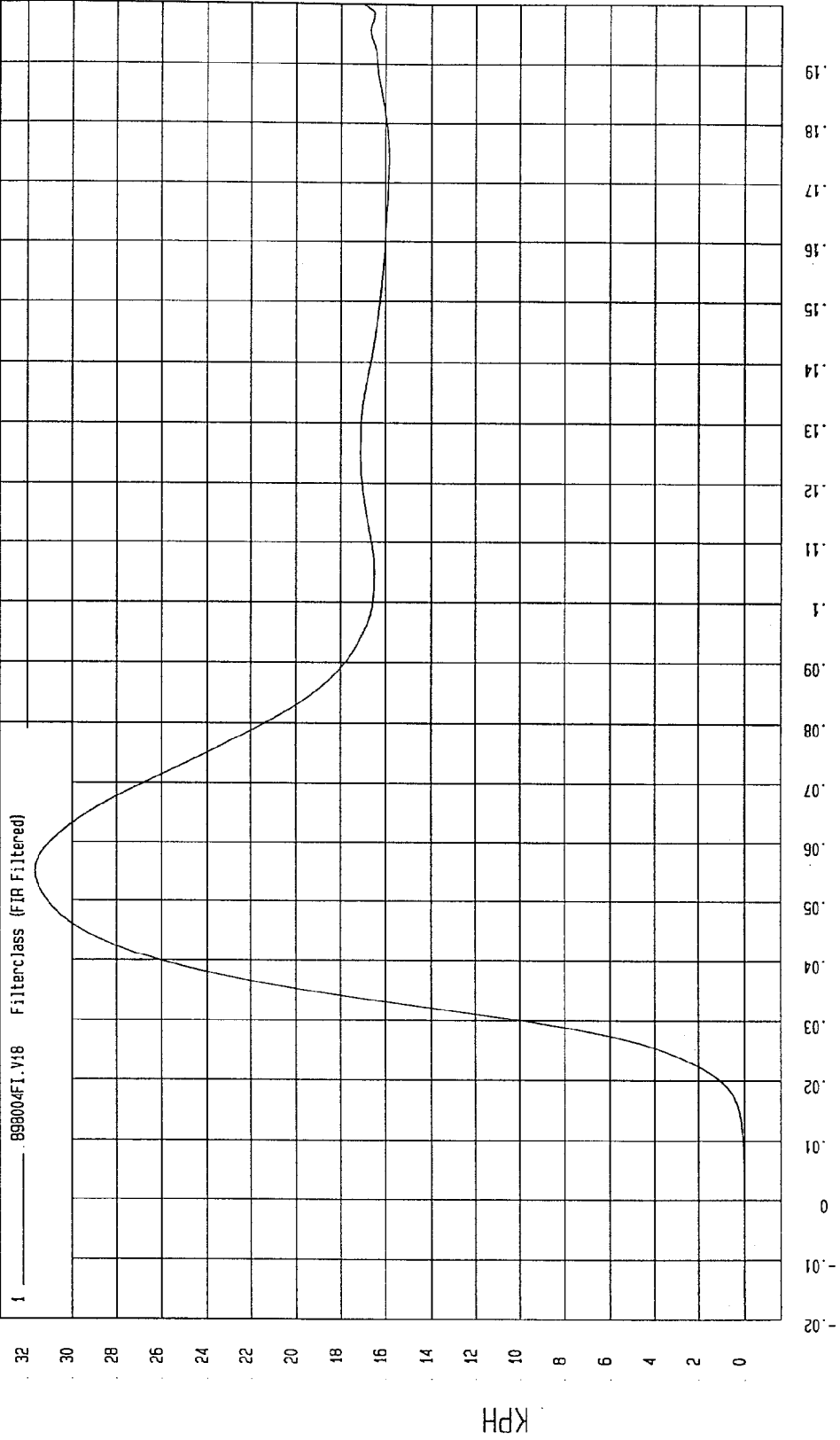
MPA Research
01-14-1998 17:33

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -4.11E-03 KPH at -5 msec Maximum = 31.65 KPH at 55 msec

DRIVER PELVIS Y VELOCITY



NCA Research
01-16-1998 11:24

TEST DATE: 01-14-1998

TEST: FMVSS 214D SIDE IMPACT (CW5800)

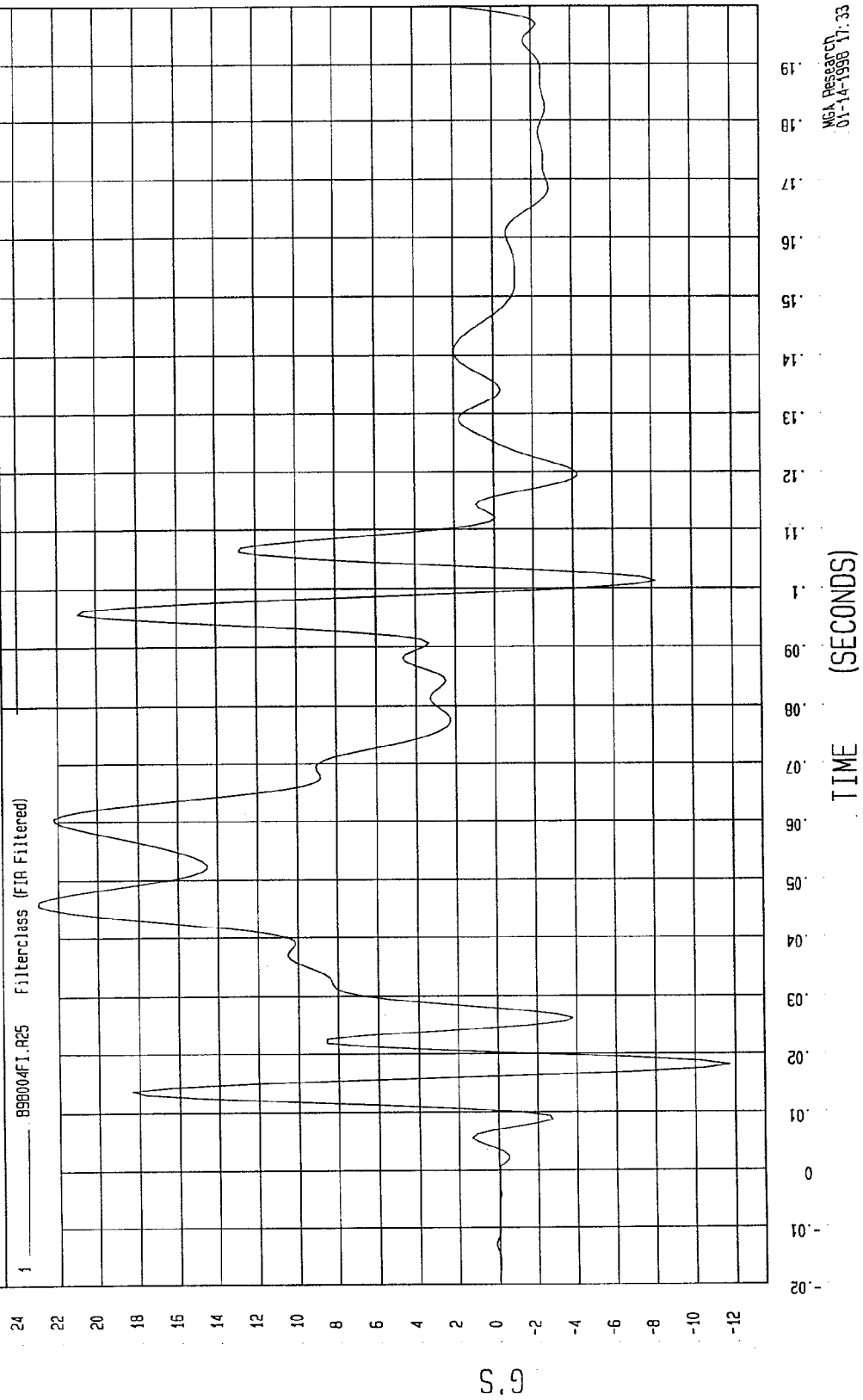
Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

Maximum = 23.04 G'S at 46 msec

Minimum = -11.71 G'S at 19 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

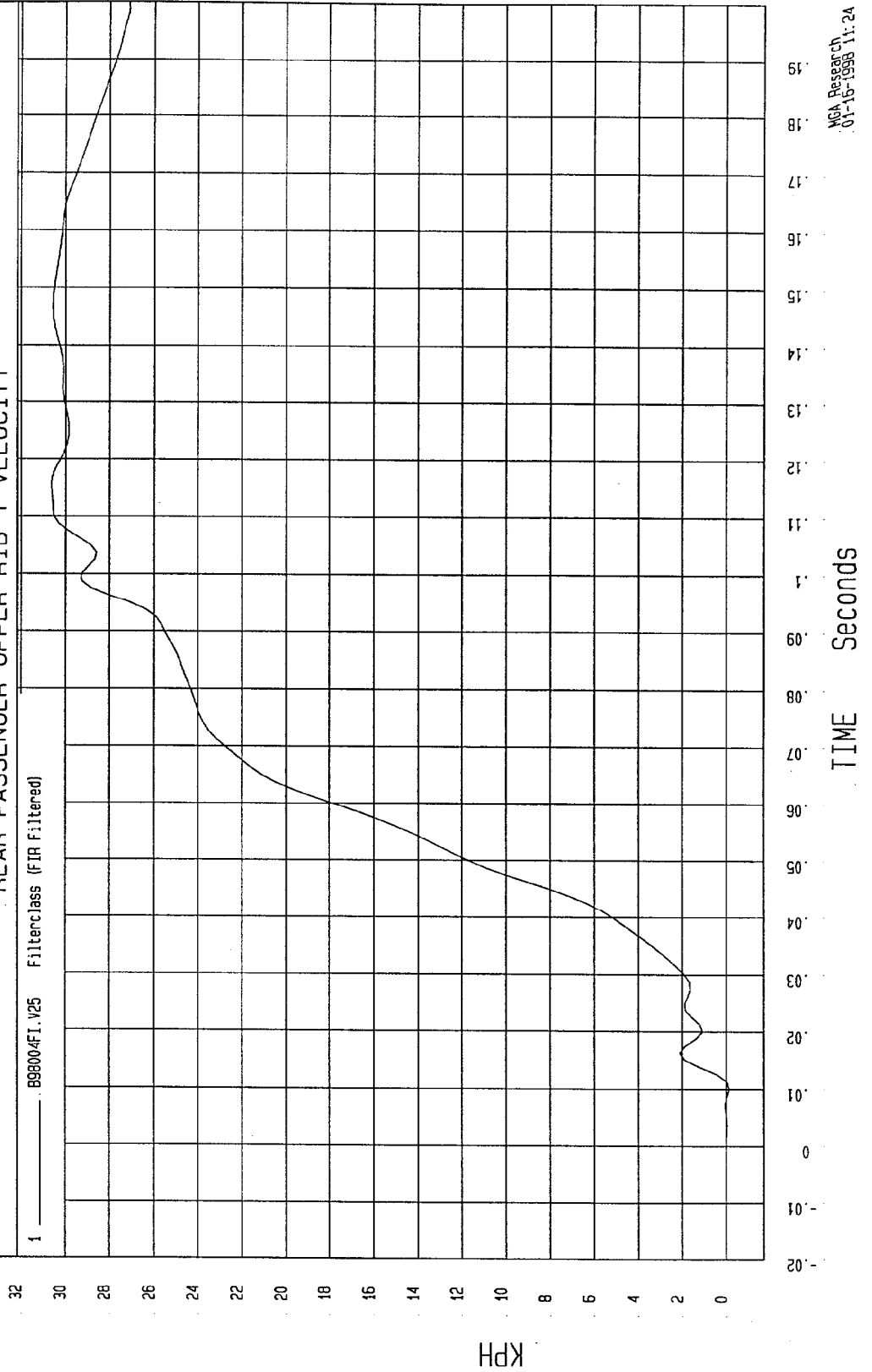


TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

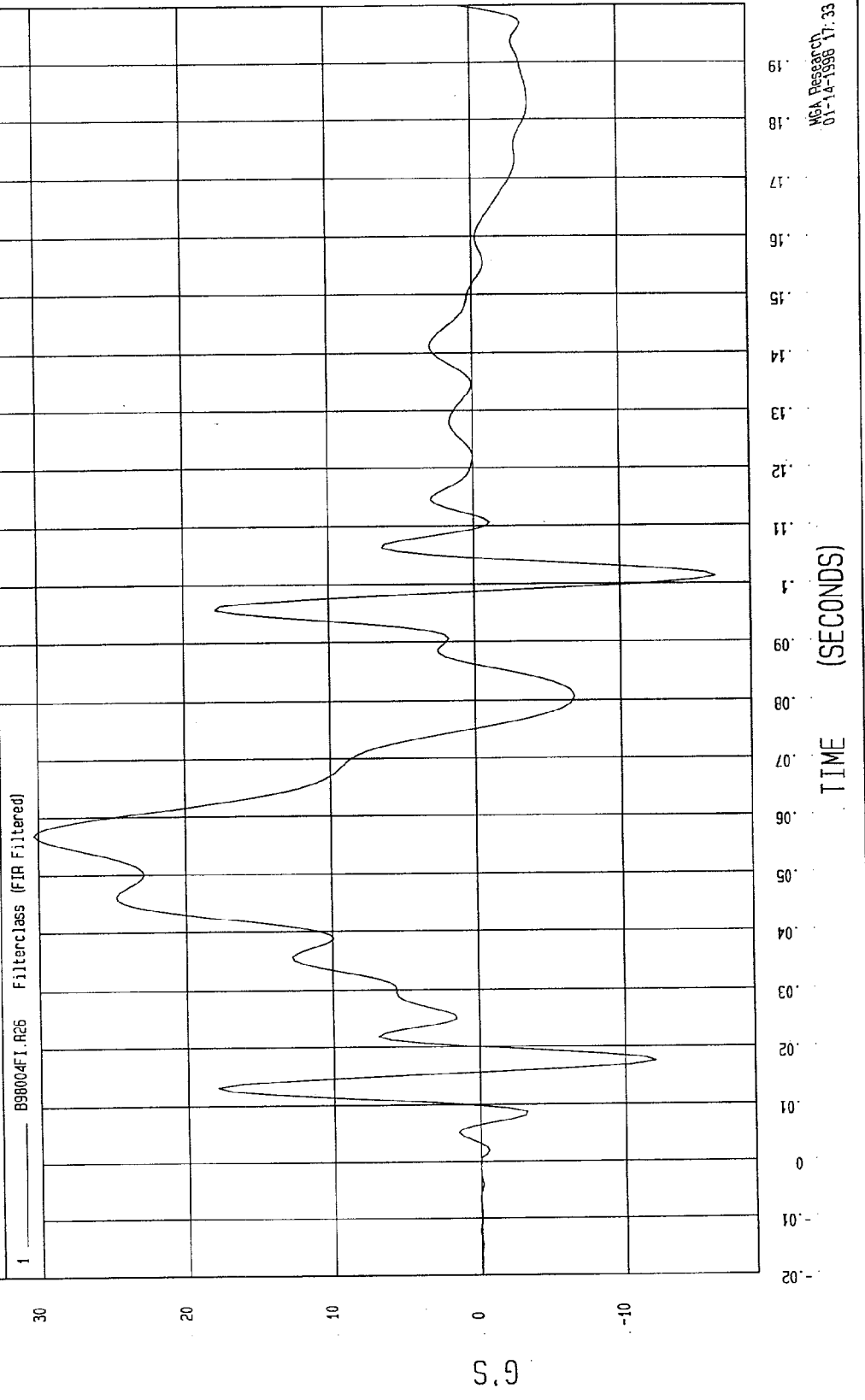
Minimum = -12 KPH at 10 msec Maximum = 30.63 KPH at 115 msec

REAR PASSENGER UPPER RIB Y VELOCITY



TEST: FMVSS 214D SIDE IMPACT (CW5800)	TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6	Speed: 32.8 MPH 52.8 KPH
Minimum = -16.55 G'S at 101 msec	
Maximum = 30.31 G'S at 57 msec	

REAR PASSENGER LOWER RIB Y ACCELERATION



TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

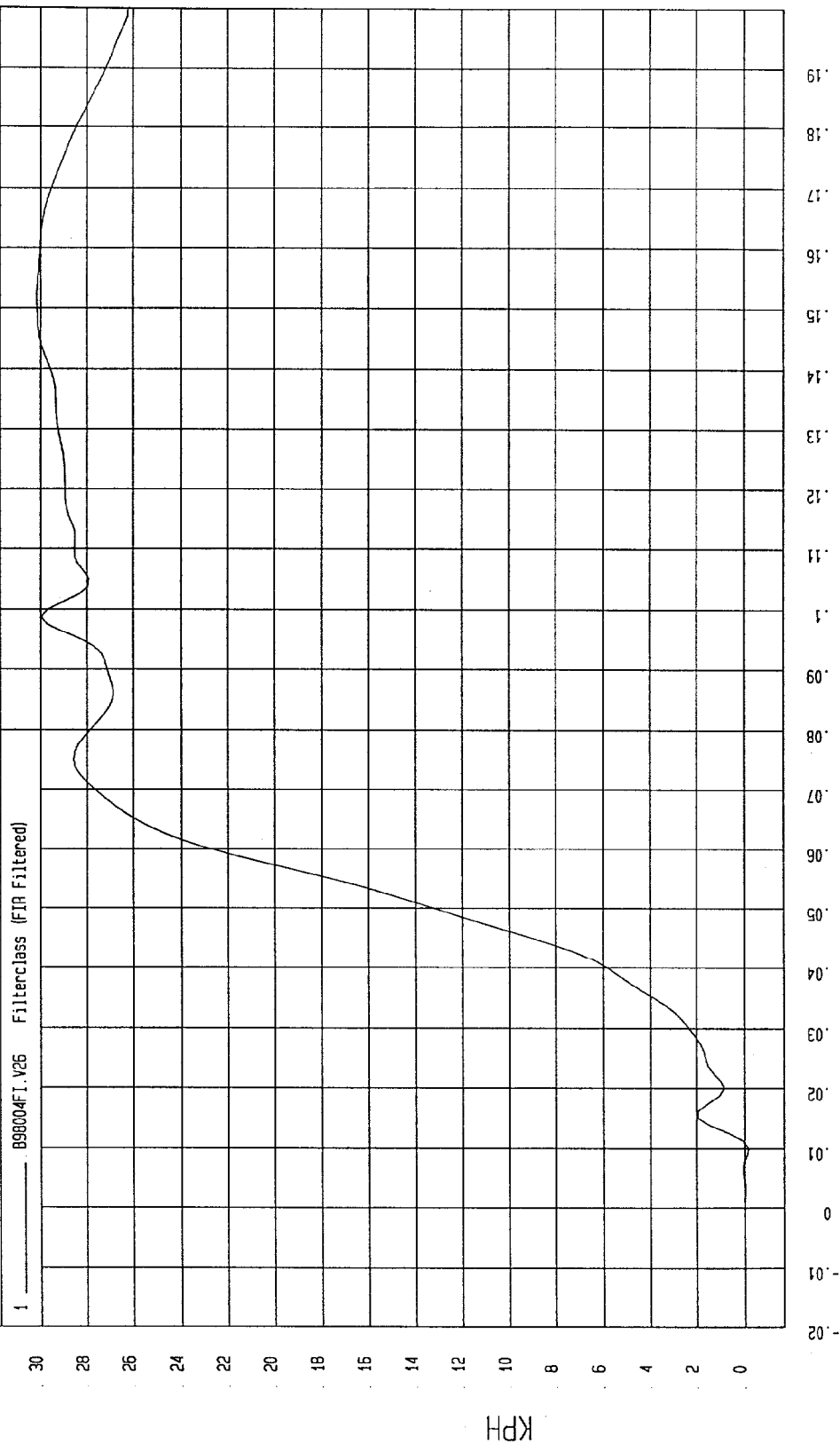
COMPONENT: 1998 AUDI A6

Speed: 32.8 MPH 52.8 KPH

Minimum = -15 KPH at 10 msec

Maximum = 30.16 KPH at 152 msec

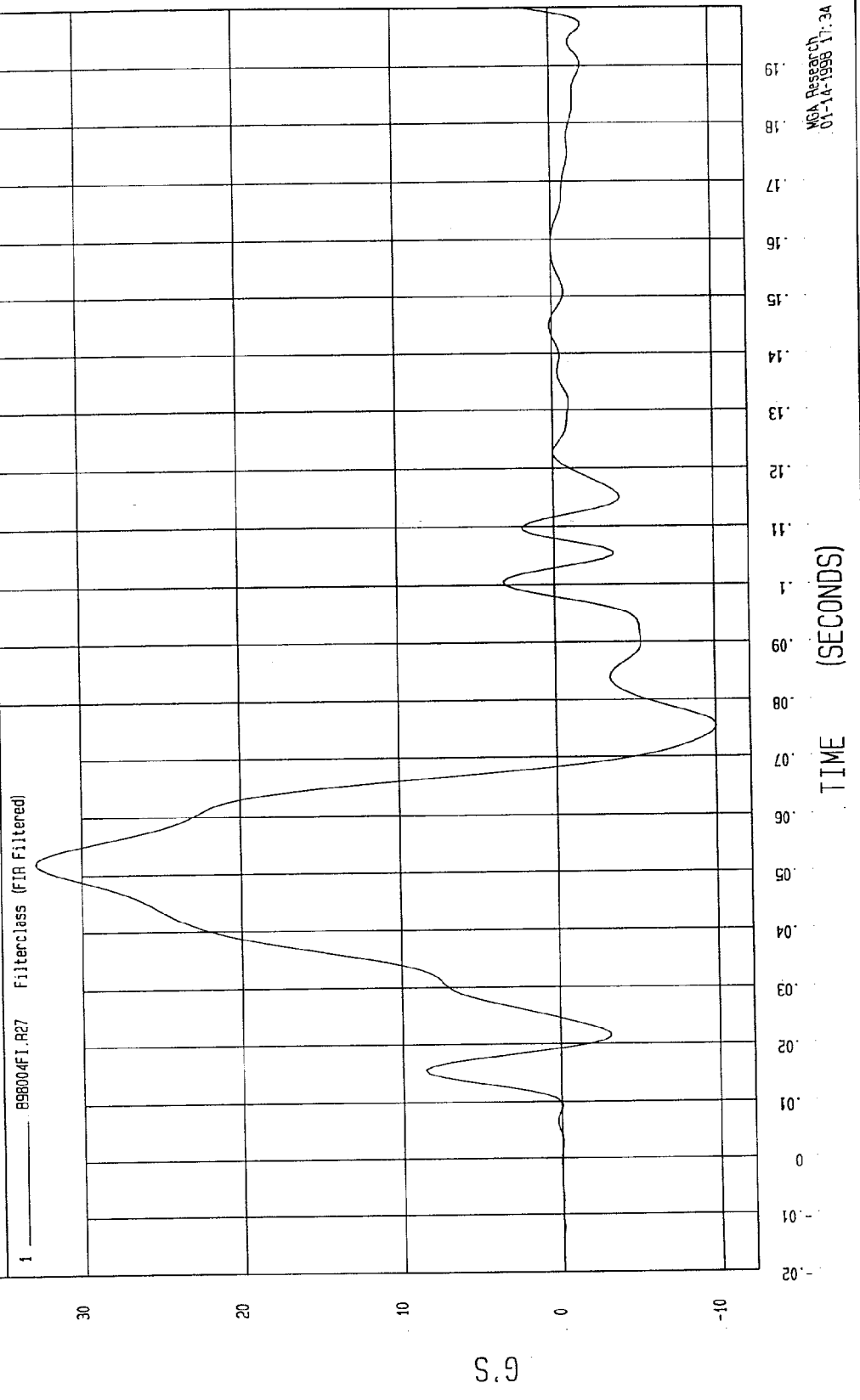
REAR PASSENGER LOWER RIB Y VELOCITY

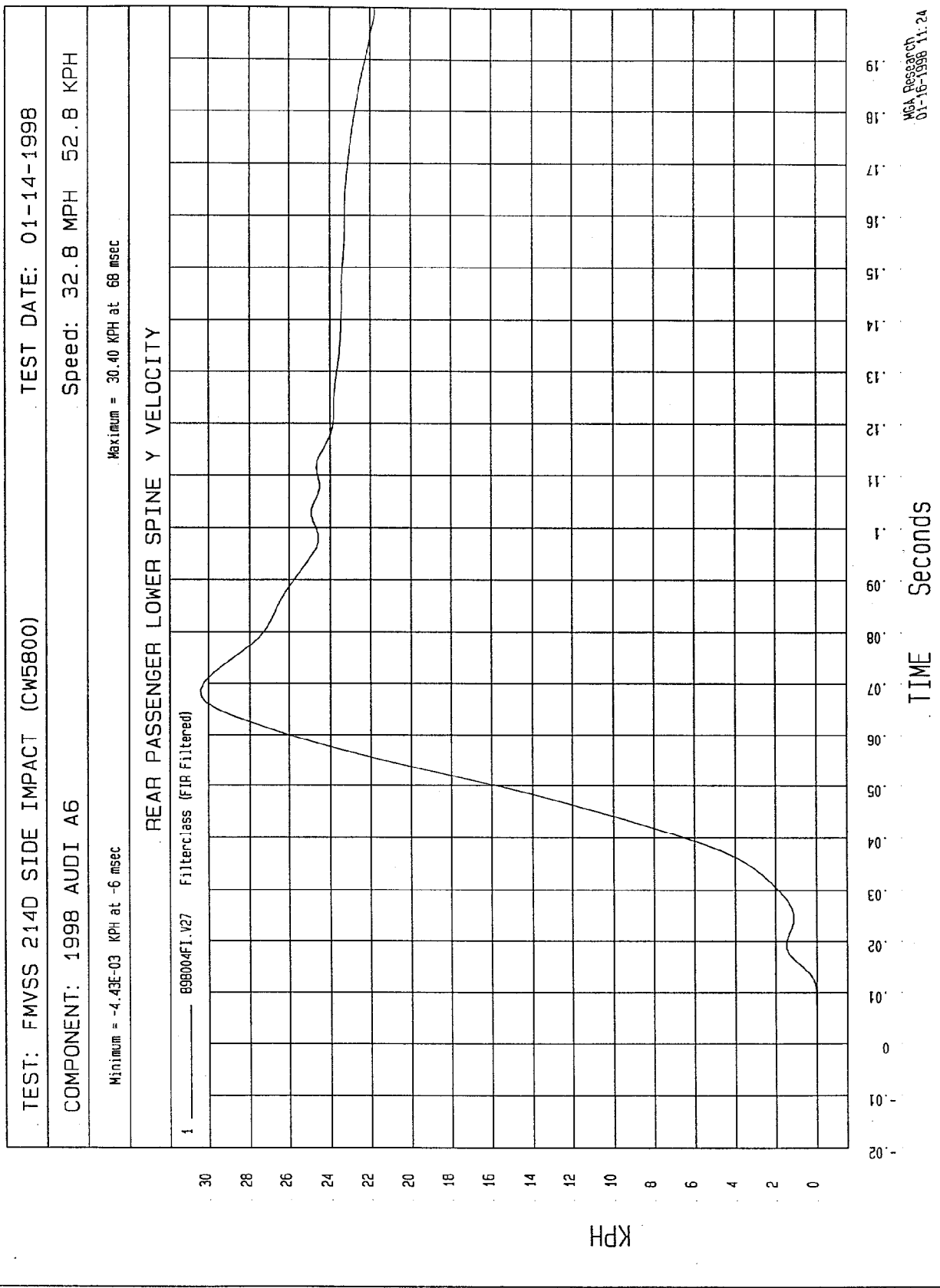


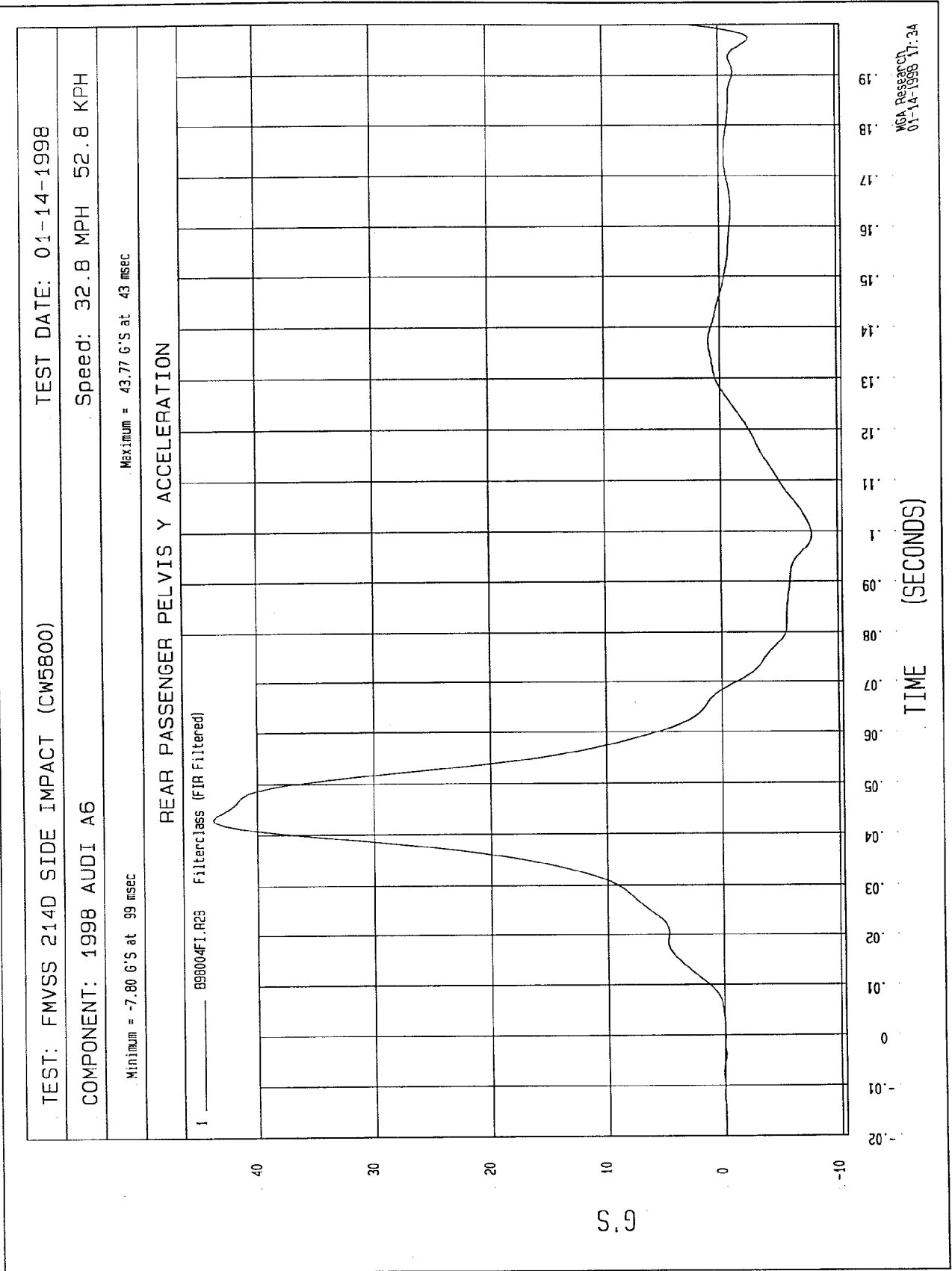
NCA Research
01-16-1998 11:24

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH
Minimum = -10.03 G'S at 76 msec Maximum = 32.88 G'S at 52 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION







TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

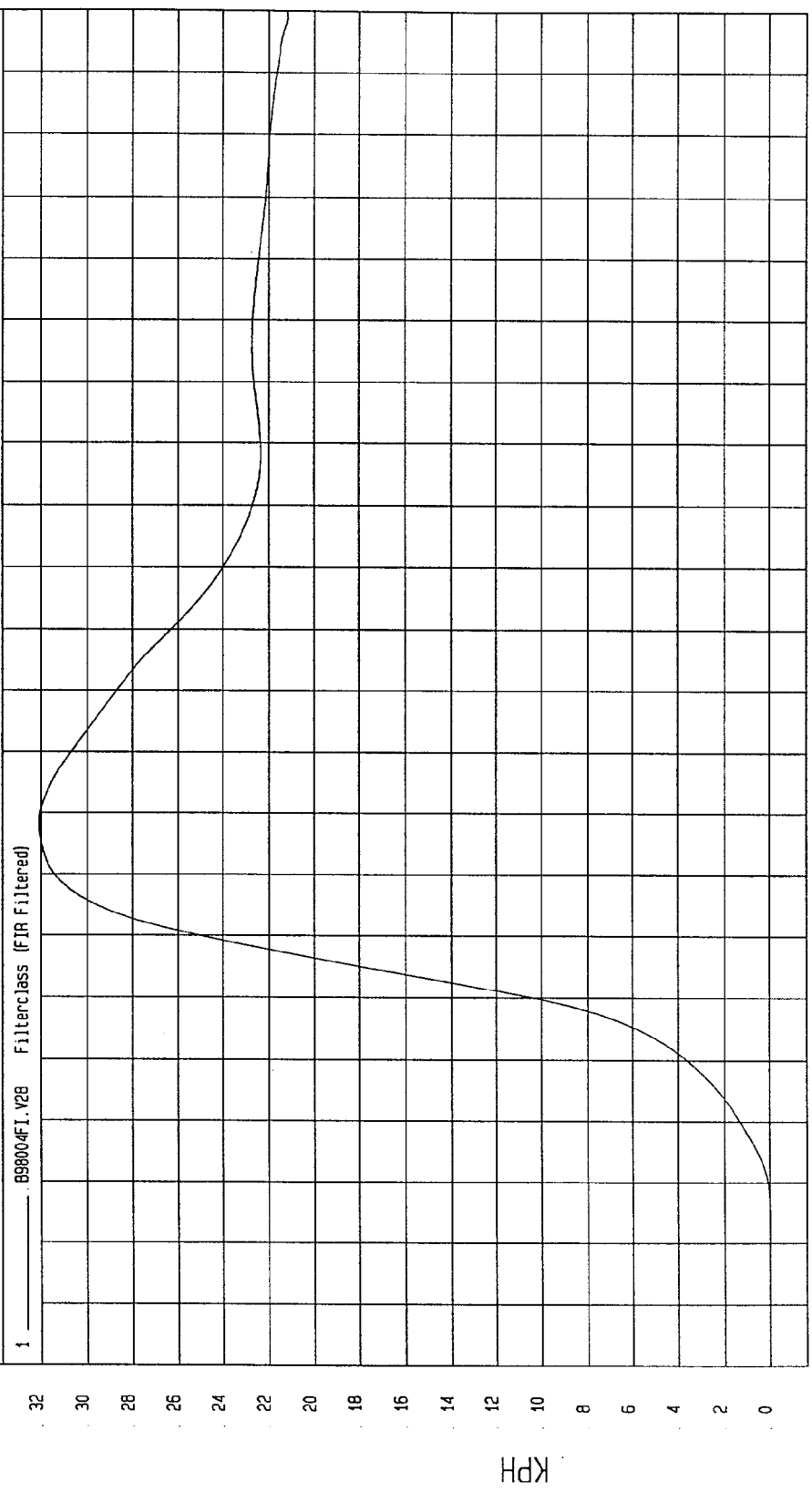
Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

Maximum = 32.08 KPH at 68 msec

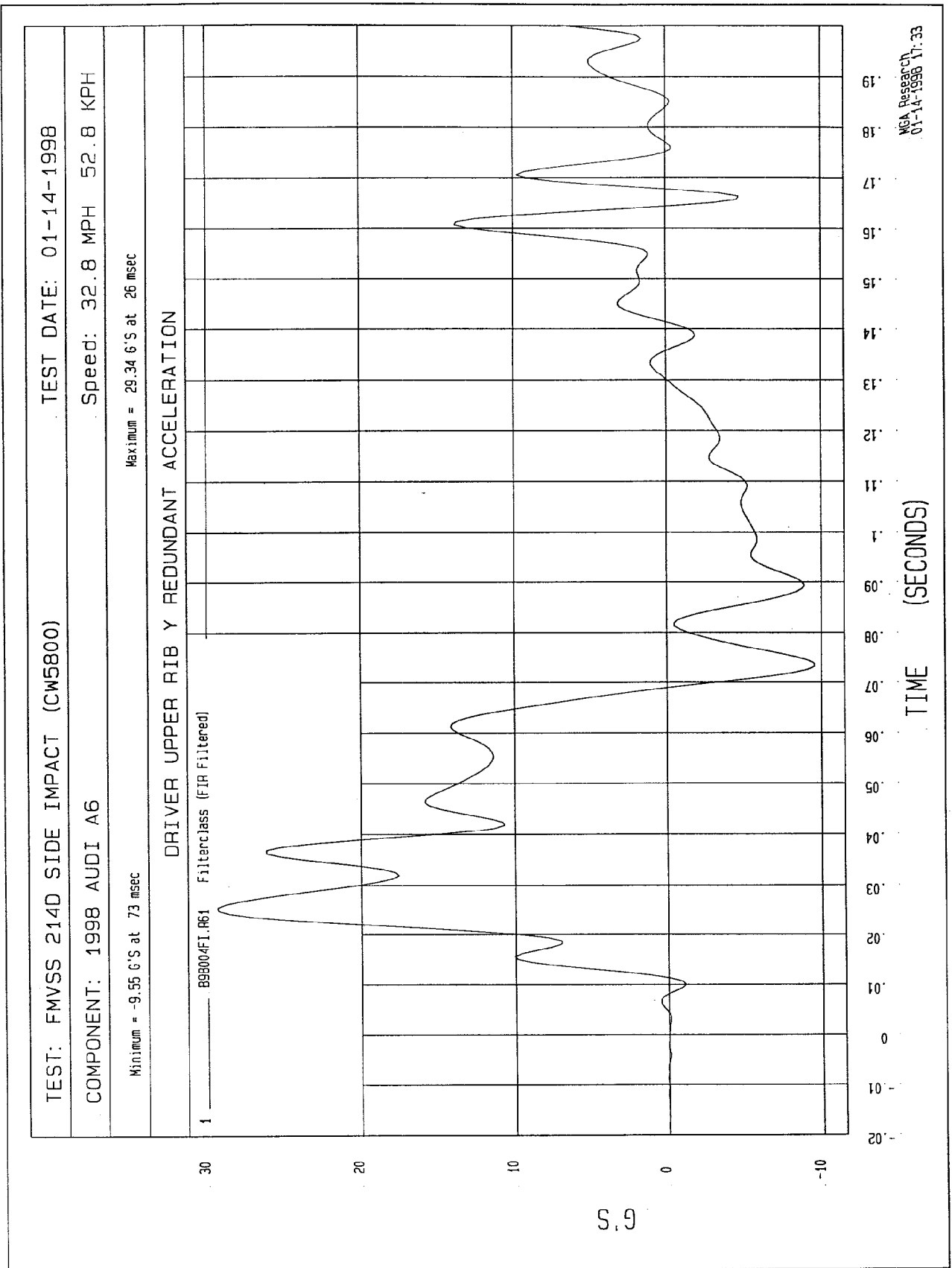
Minimum = -1.30E-02 KPH at 3 msec

REAR PASSENGER PELVIS Y VELOCITY



TIME Seconds

NGA Research
01-16-1998 11:25

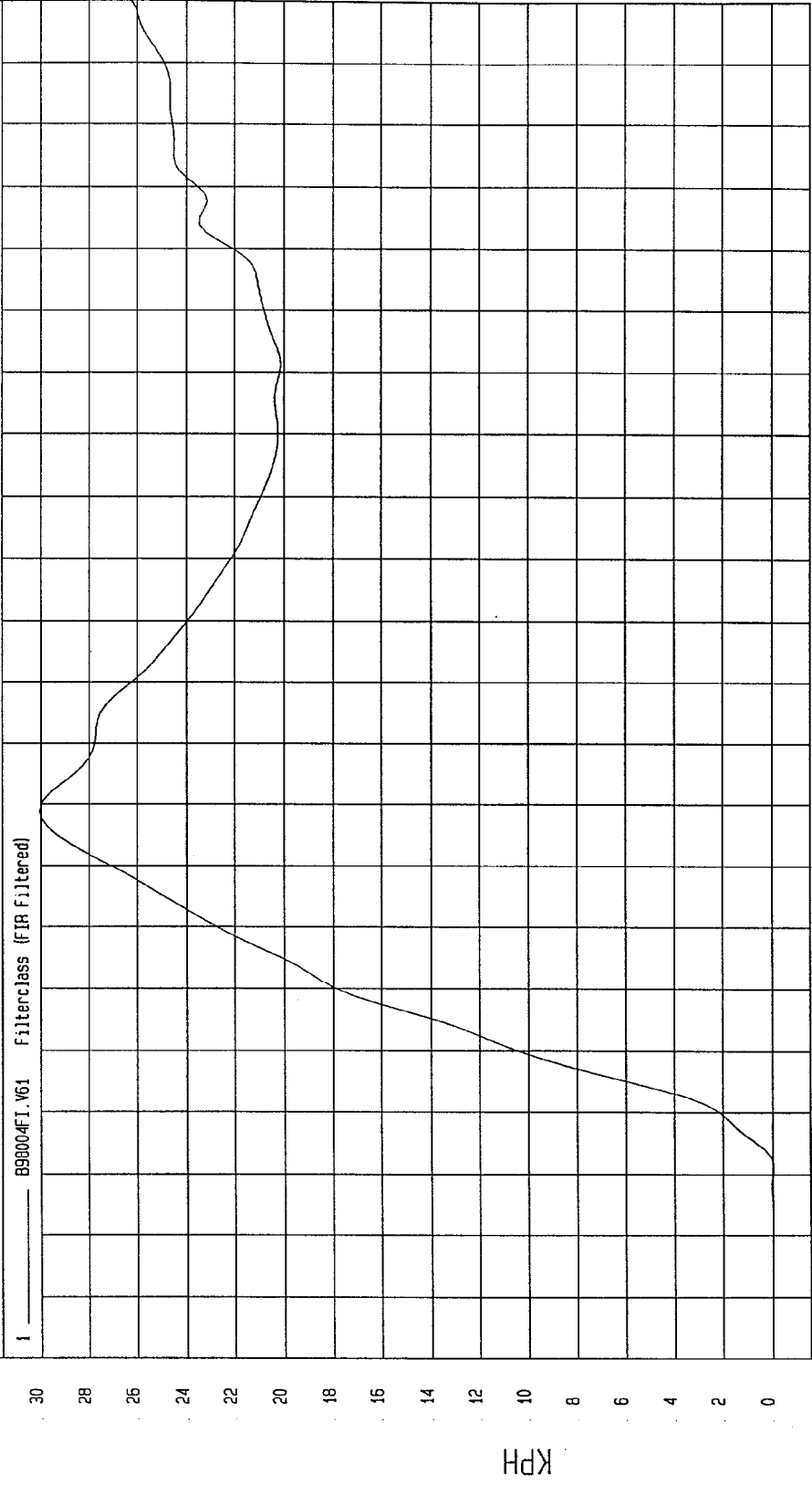


TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

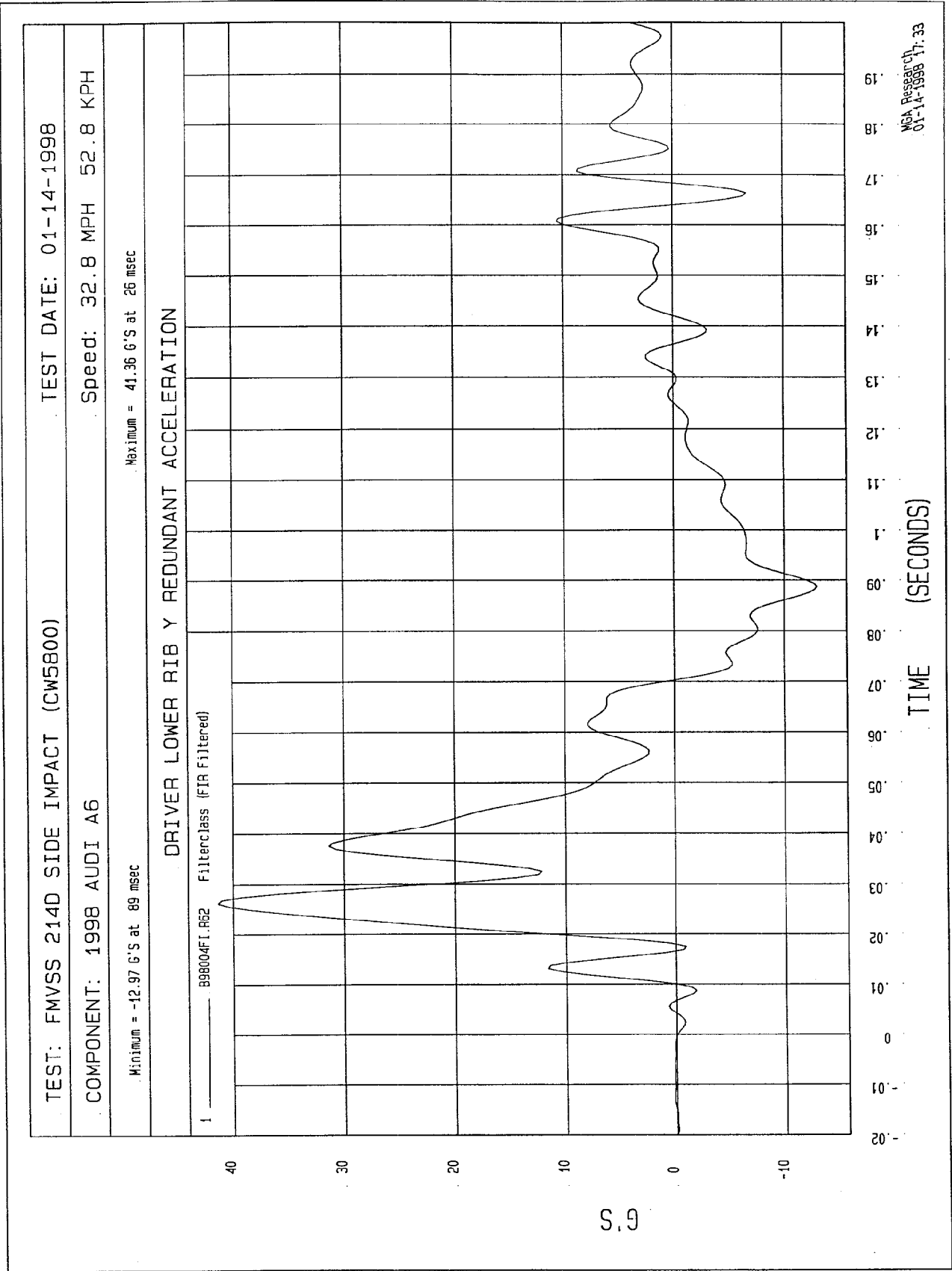
Minimum = -4.08E-02 KPH at 11 msec Maximum = 30.05 KPH at 69 msec

DRIVER UPPER RIB Y REDUNDANT VELOCITY



TIME Seconds

WCA Research
01-16-1998 11:25



TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

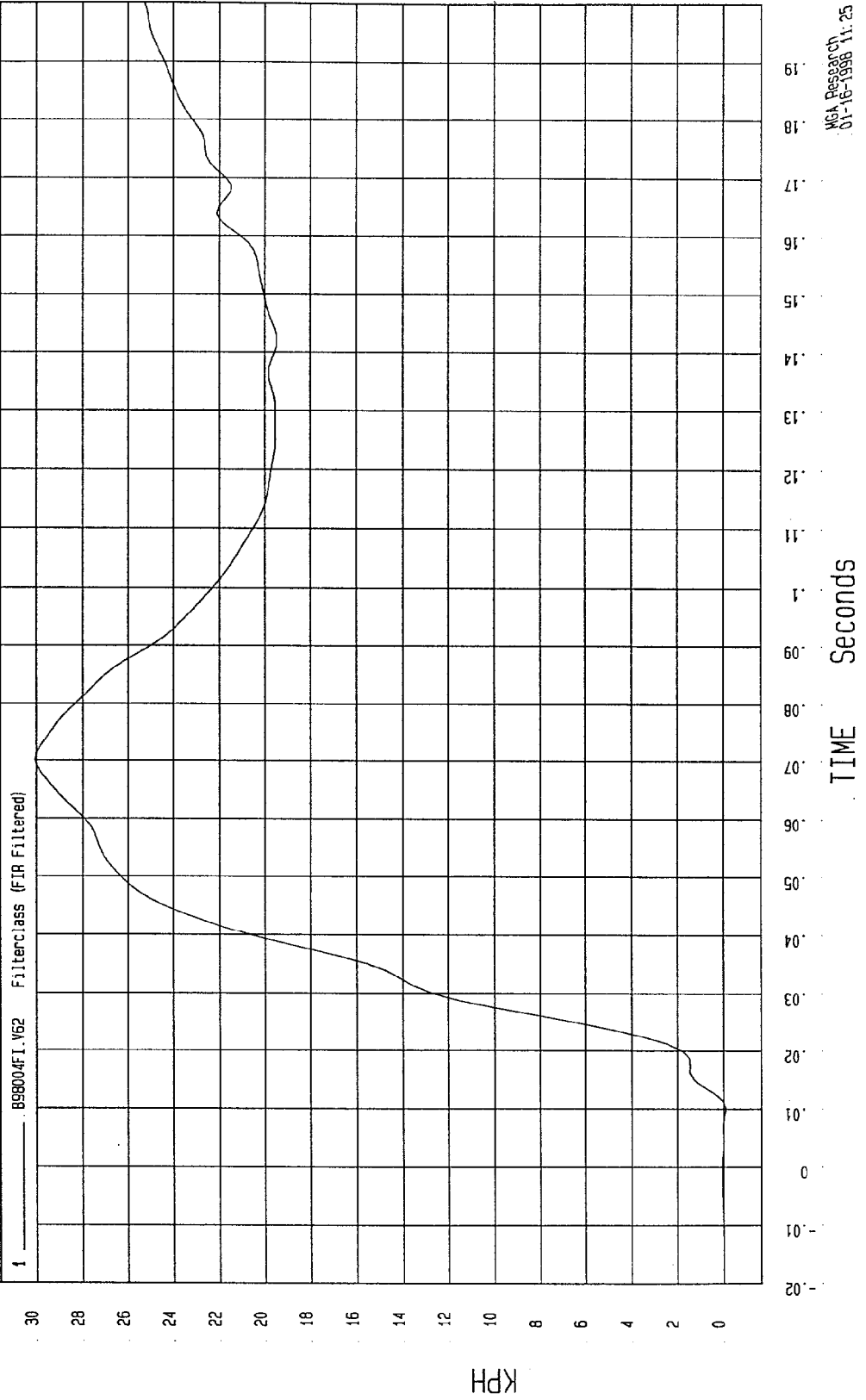
Speed: 32.8 MPH 52.8 KPH

COMPONENT: 1998 AUDI A6

Maximum = 30.05 KPH at 70 msec

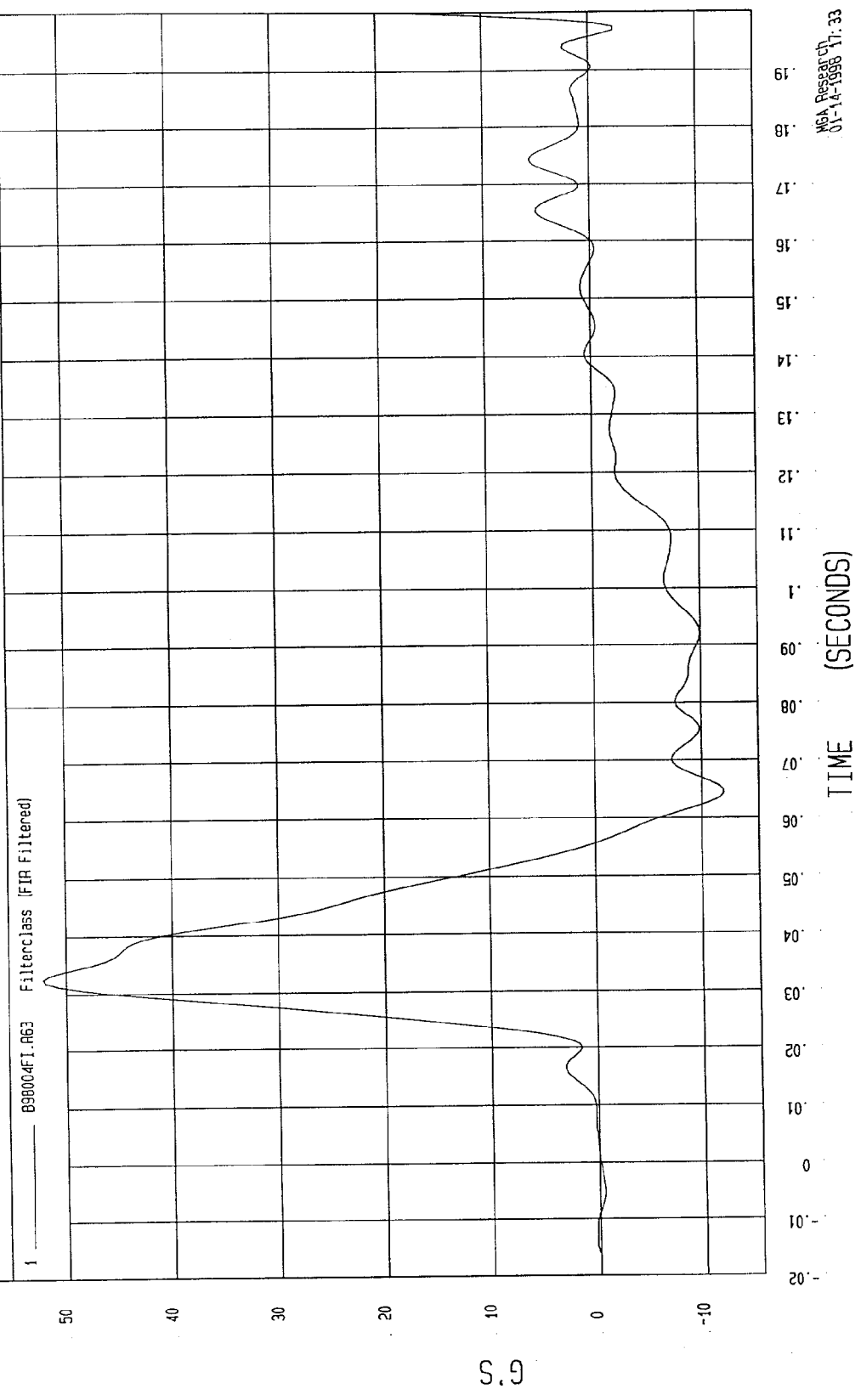
Minimum = -10 KPH at 10 msec

DRIVER LOWER RIB Y REDUNDANT VELOCITY



TEST: FNVSS 214D SIDE IMPACT (CW5800)	TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6	Speed: 32.8 MPH 52.8 KPH
Minimum = -12.07 G'S at 64 msec	
Maximum = 52.17 G'S at 32 msec	

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION



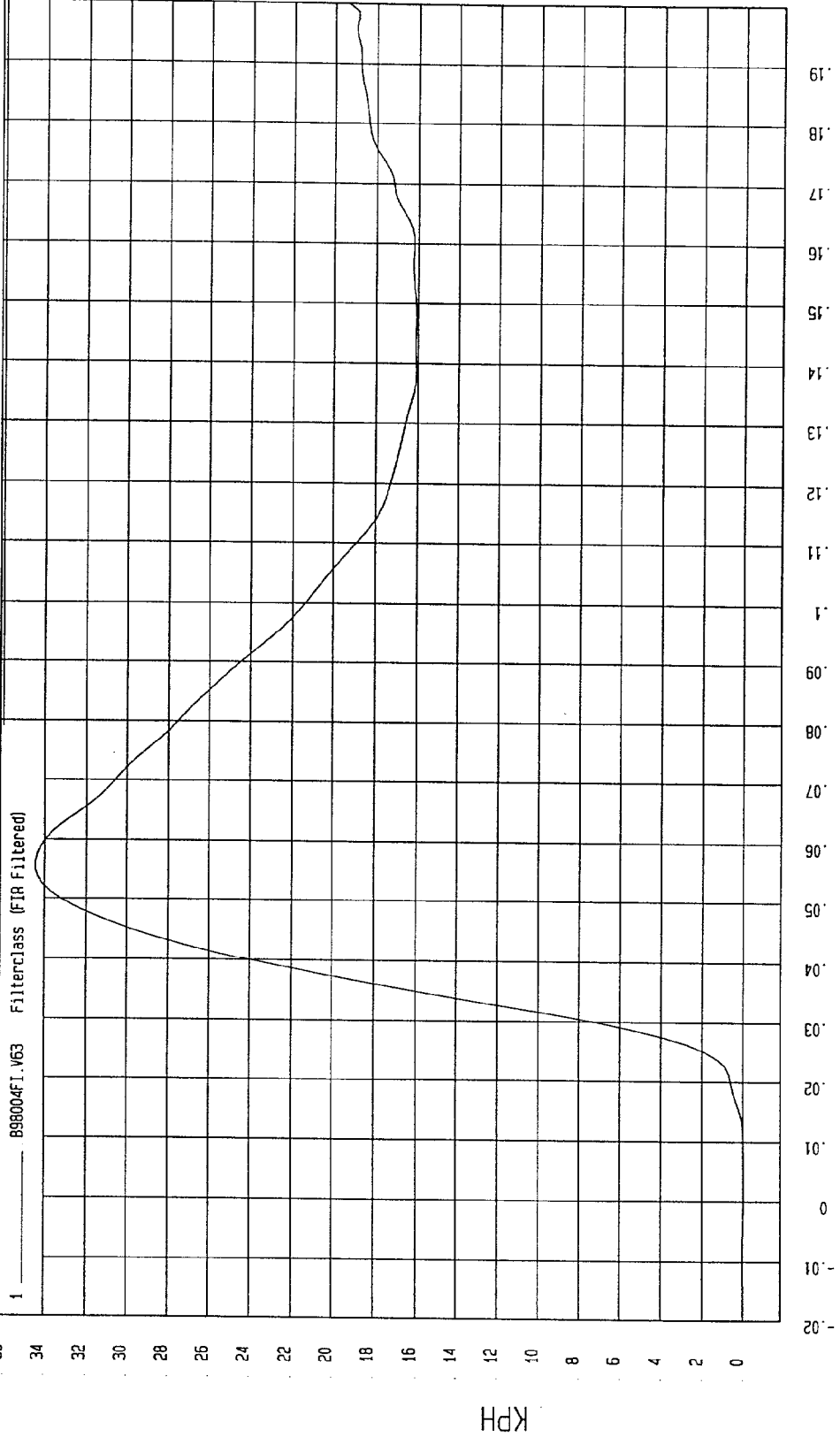
WCA Research
01-14-1998 17:33

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -6.68E-02 KPH at 1 msec Maximum = 34.44 KPH at 56 msec

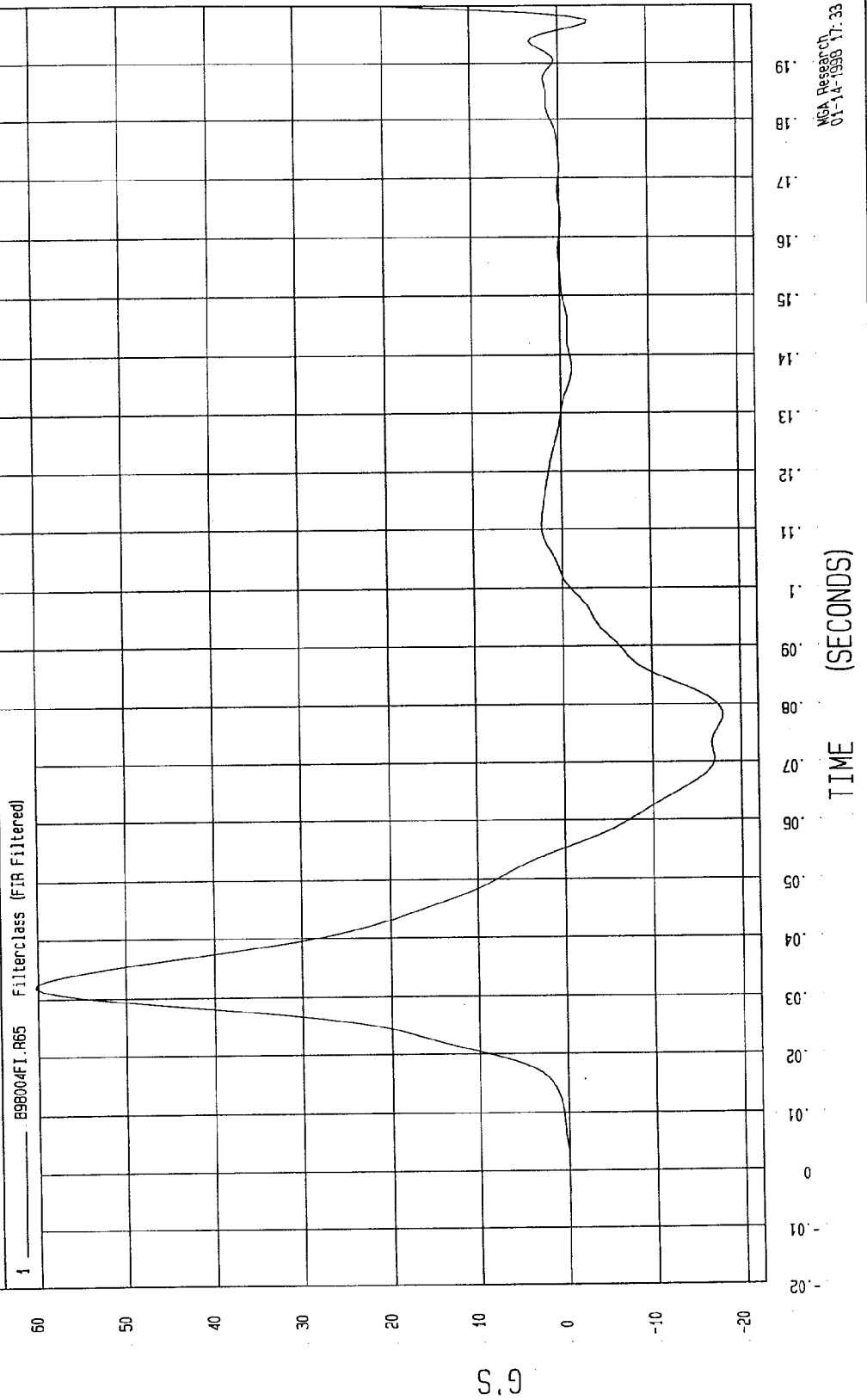
DRIVER LOWER SPINE Y REDUNDANT VELOCITY



MCA Research
01-16-1998 11:25

TEST: FMVSS 214D SIDE IMPACT (CW5800)	TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6	Speed: 32.8 MPH 52.8 KPH
Minimum = -18.00 G'S at 78 msec	
Maximum = 60.27 G'S at 32 msec	

DRIVER PELVIS Y REDUNDANT ACCELERATION



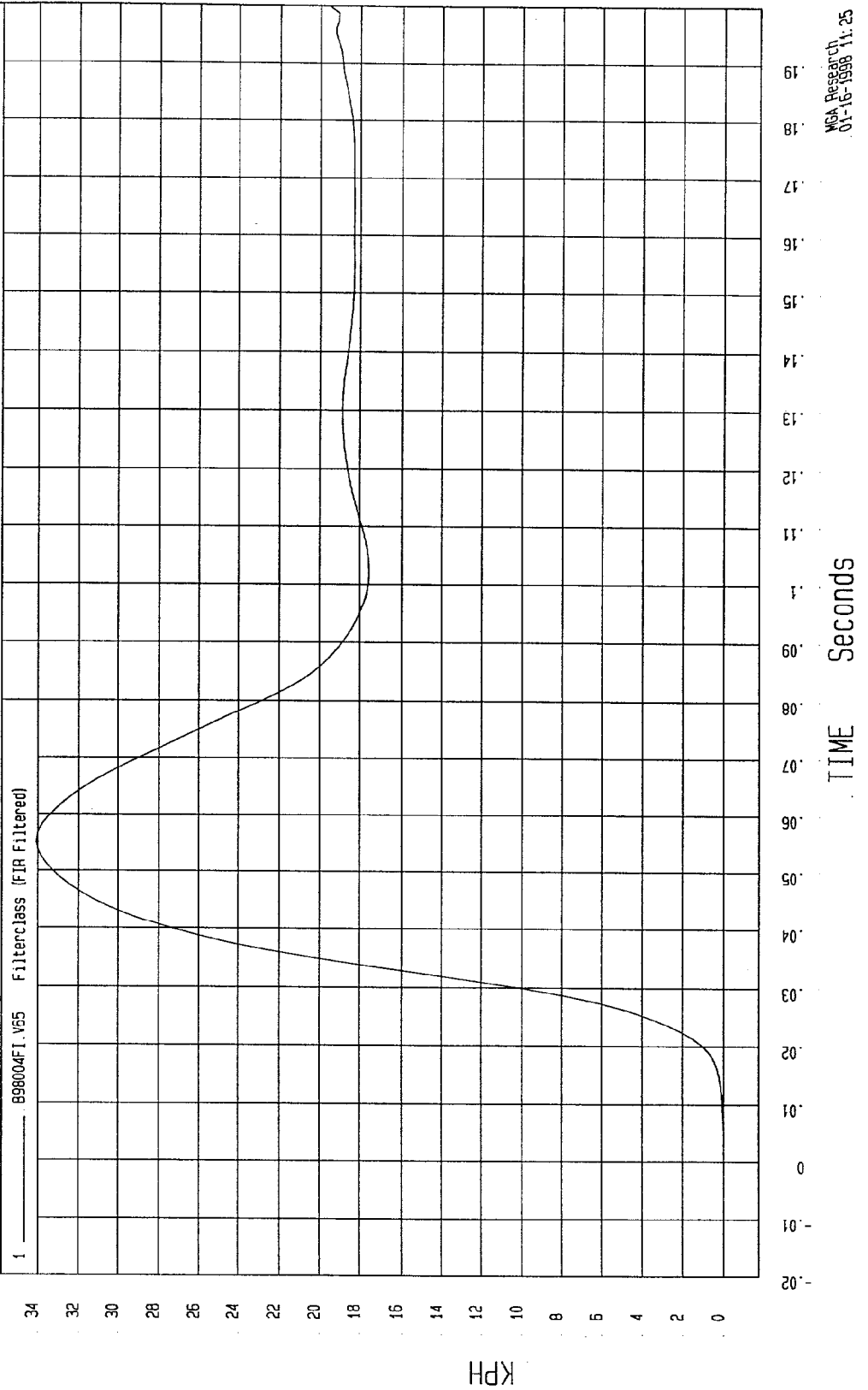
NCA Research
01-14-1998 11:33

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

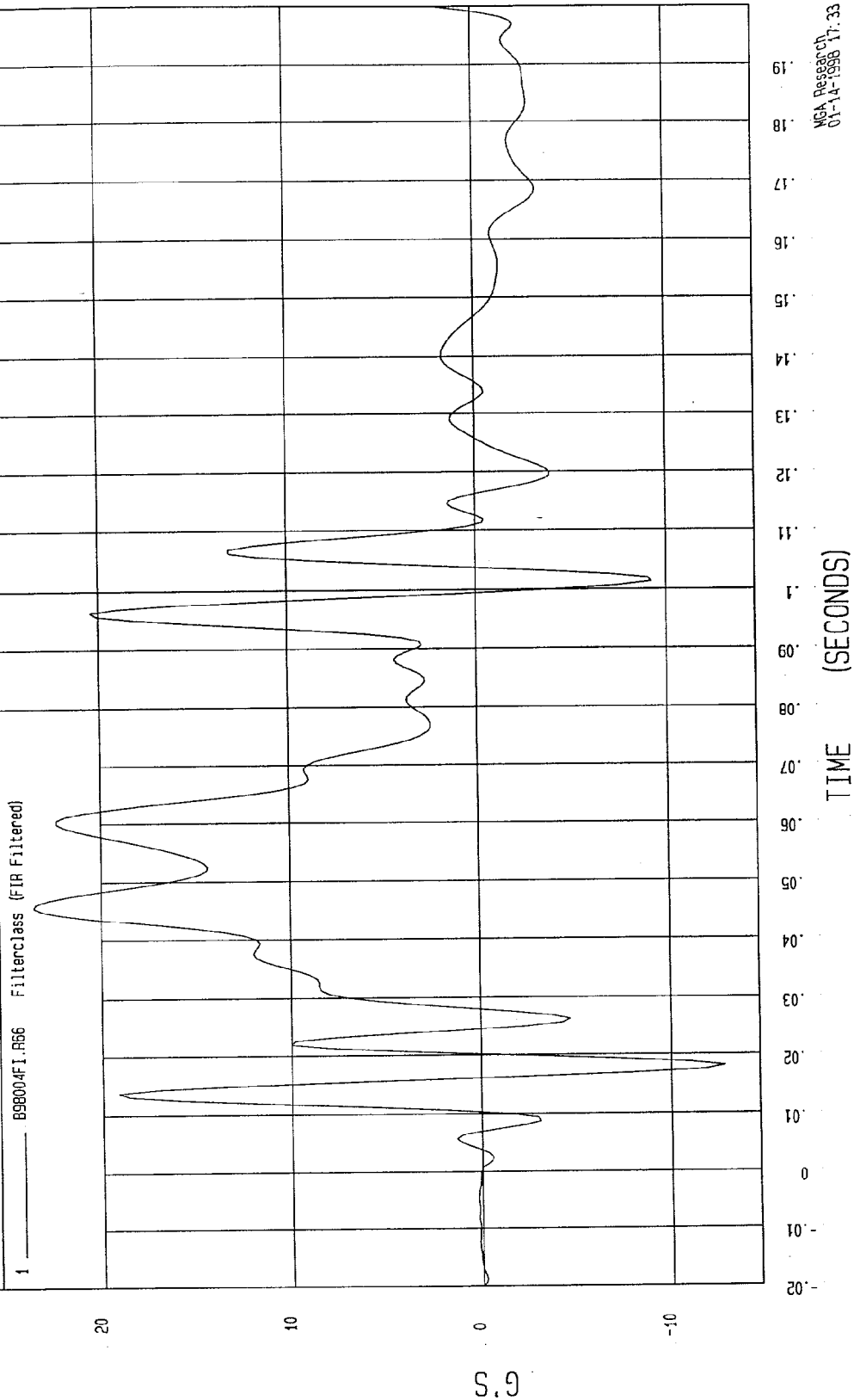
Minimum = -8.78E-03 KPH at 2 msec Maximum = 34.07 KPH at 55 msec

DRIVER PELVIS Y REDUNDANT VELOCITY



TEST: FMVSS 214D SIDE IMPACT (CW5800)	TEST DATE: 01-14-1998
COMPONENT: 1998 AUDI A6	Speed: 32.8 MPH 52.8 KPH
Minimum = -12.92 G'S at 18 msec	
Maximum = 23.56 G'S at 46 msec	

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION



MCA Research
01-14-1998 17:33

TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

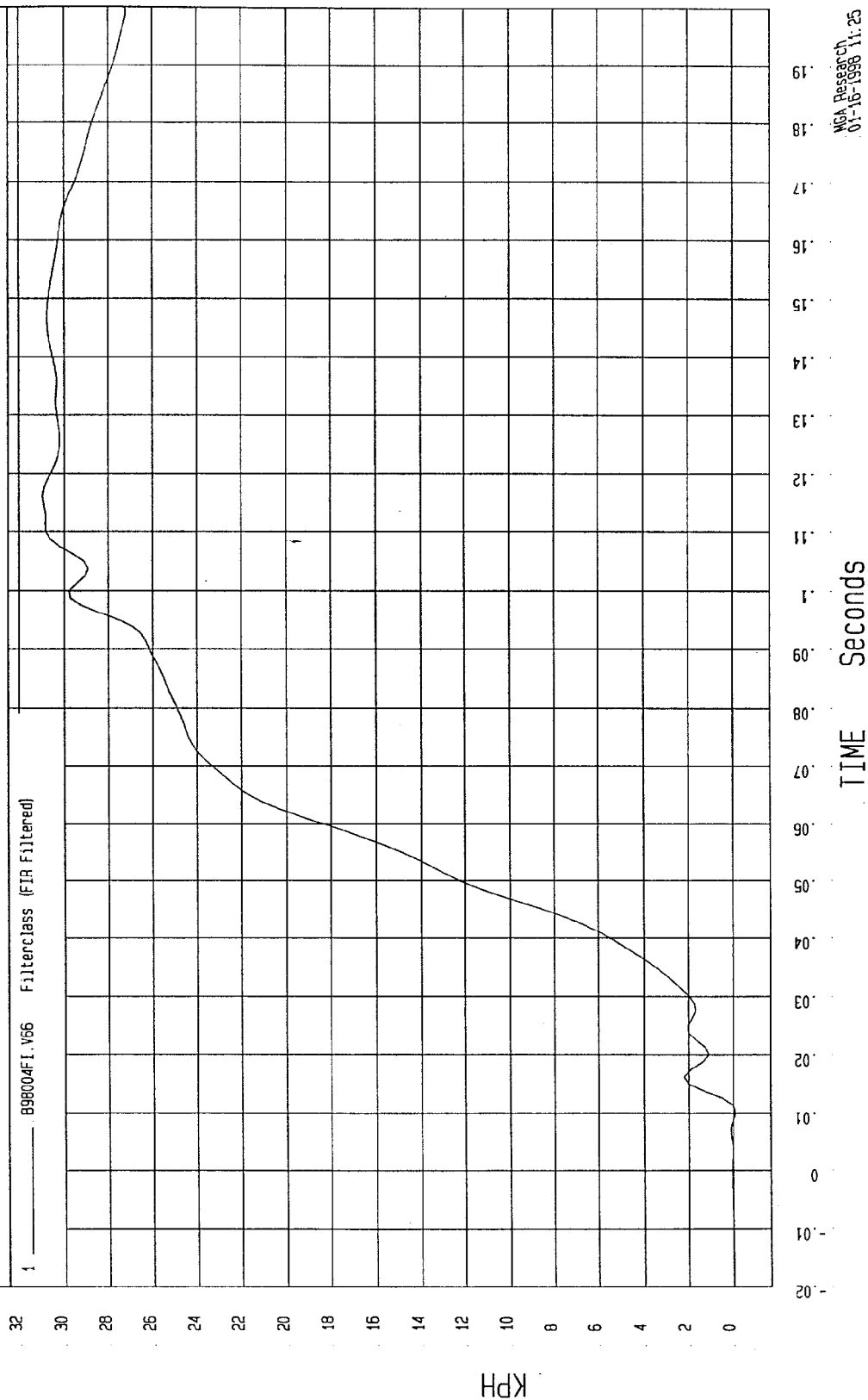
COMPONENT: 1998 AUDI A6

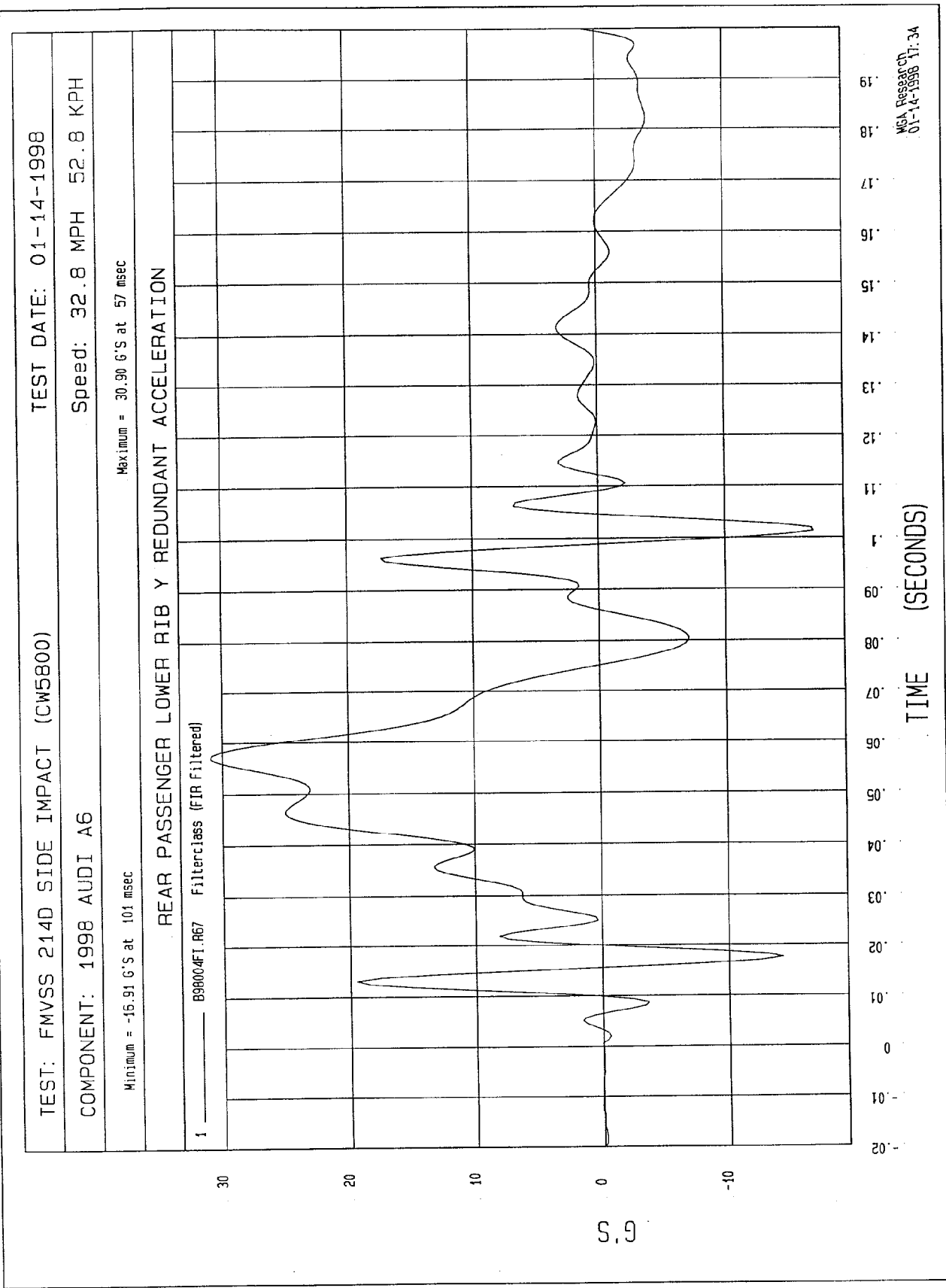
Speed: 32.8 MPH 52.8 KPH

Minimum = -9.13E-02 KPH at 10 msec

Maximum = 30.93 KPH at 116 msec

REAR PASSENGER UPPER RIB Y REDUNDANT VELOCITY



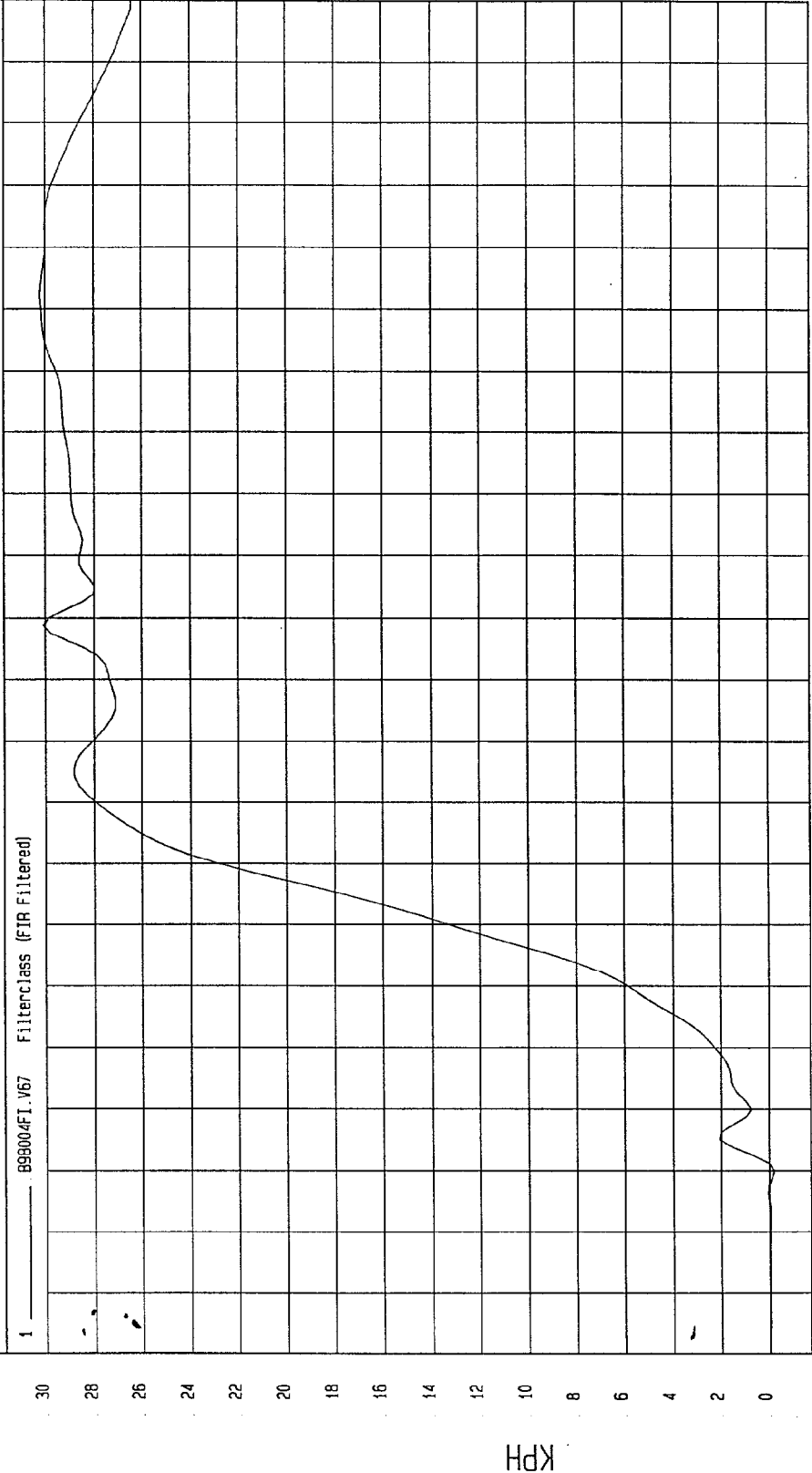


TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -.19 KPH at 10 msec Maximum = 30.19 KPH at 152 msec

REAR PASSENGER LOWER RIB Y REDUNDANT VELOCITY



TIME Seconds

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

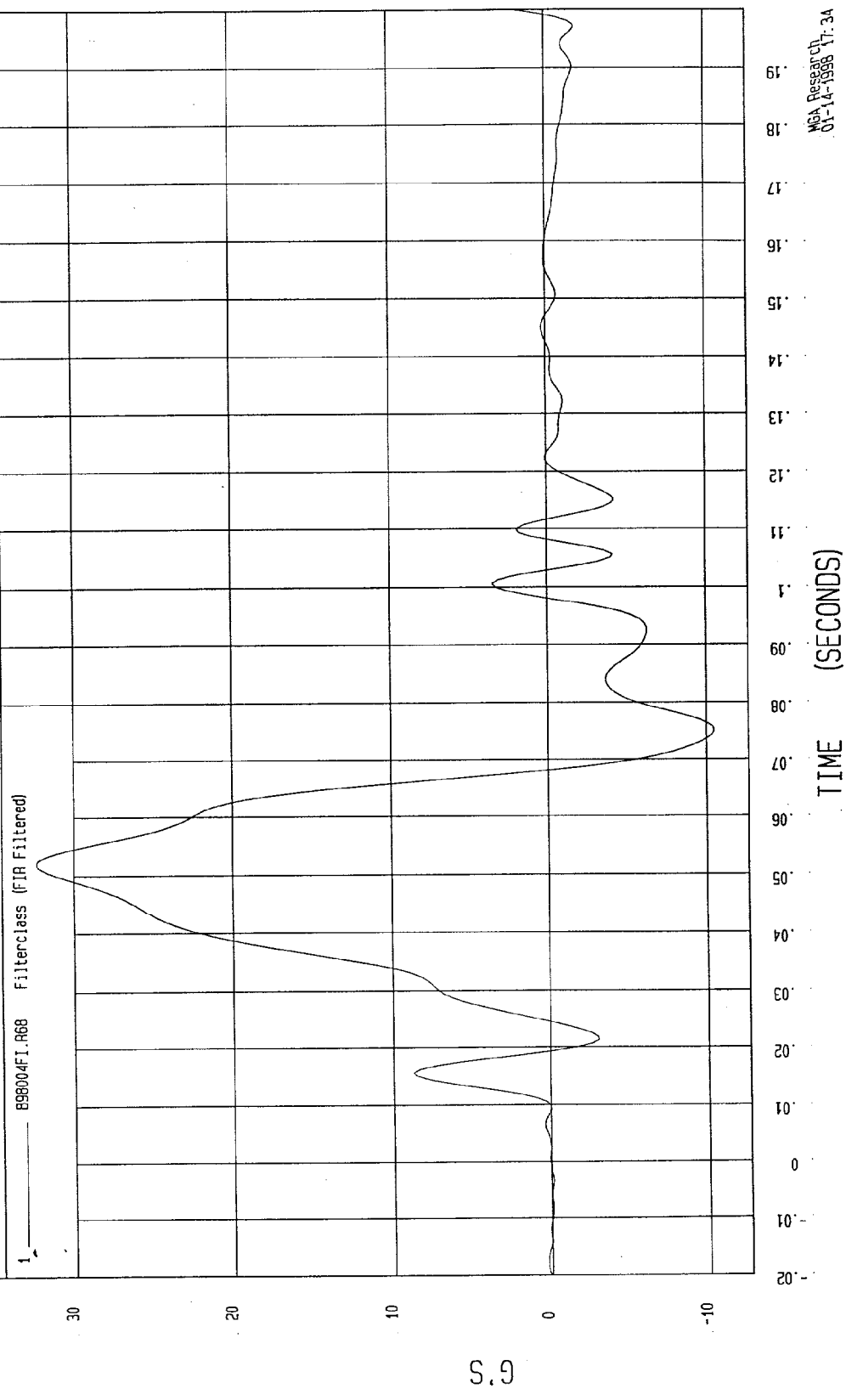
NCA Research
01-15-1998 11:26

TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = -10.49 G'S at 75 msec Maximum = 32.38 G'S at 52 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION



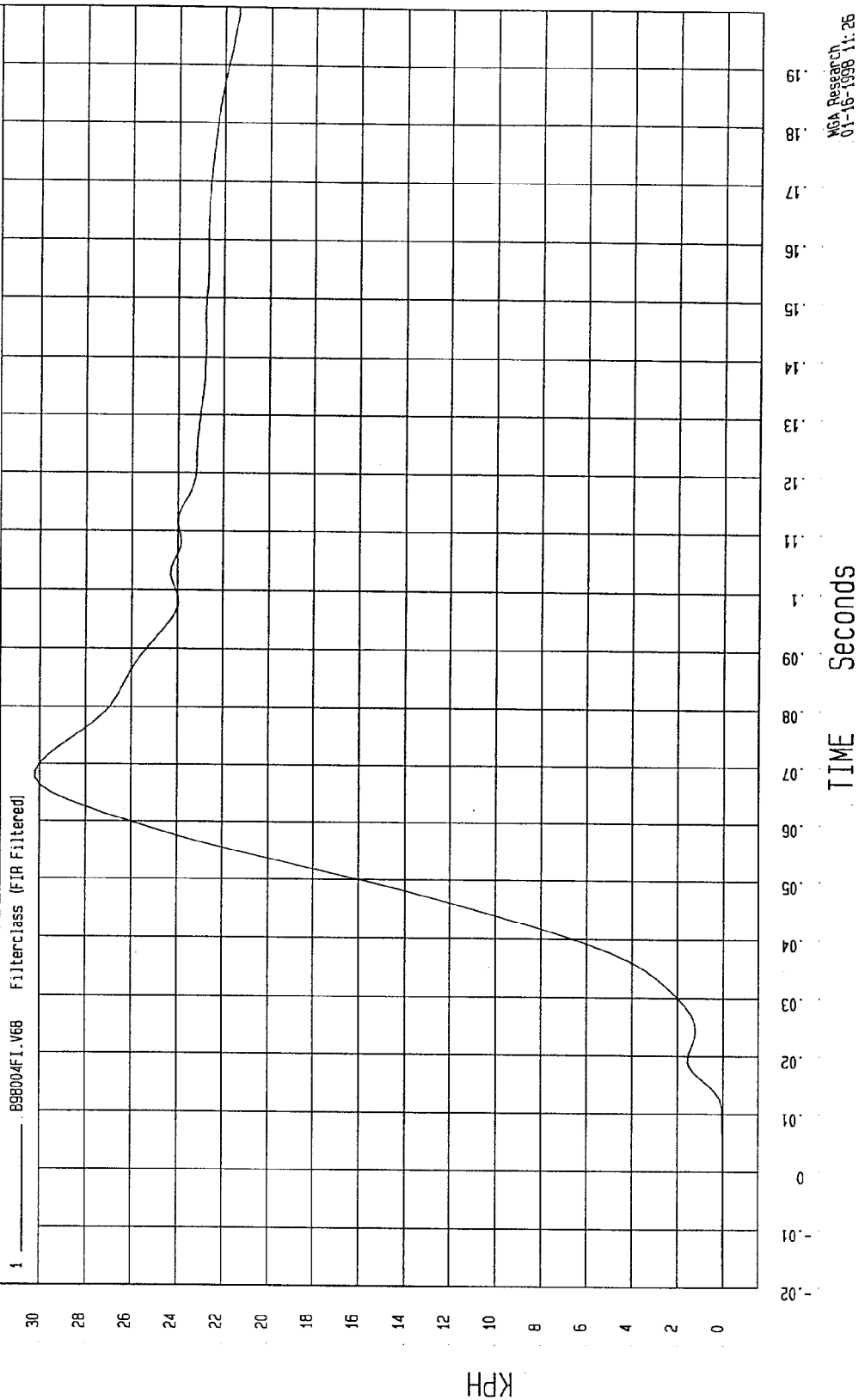
MCA Research
01-14-1998 17:34

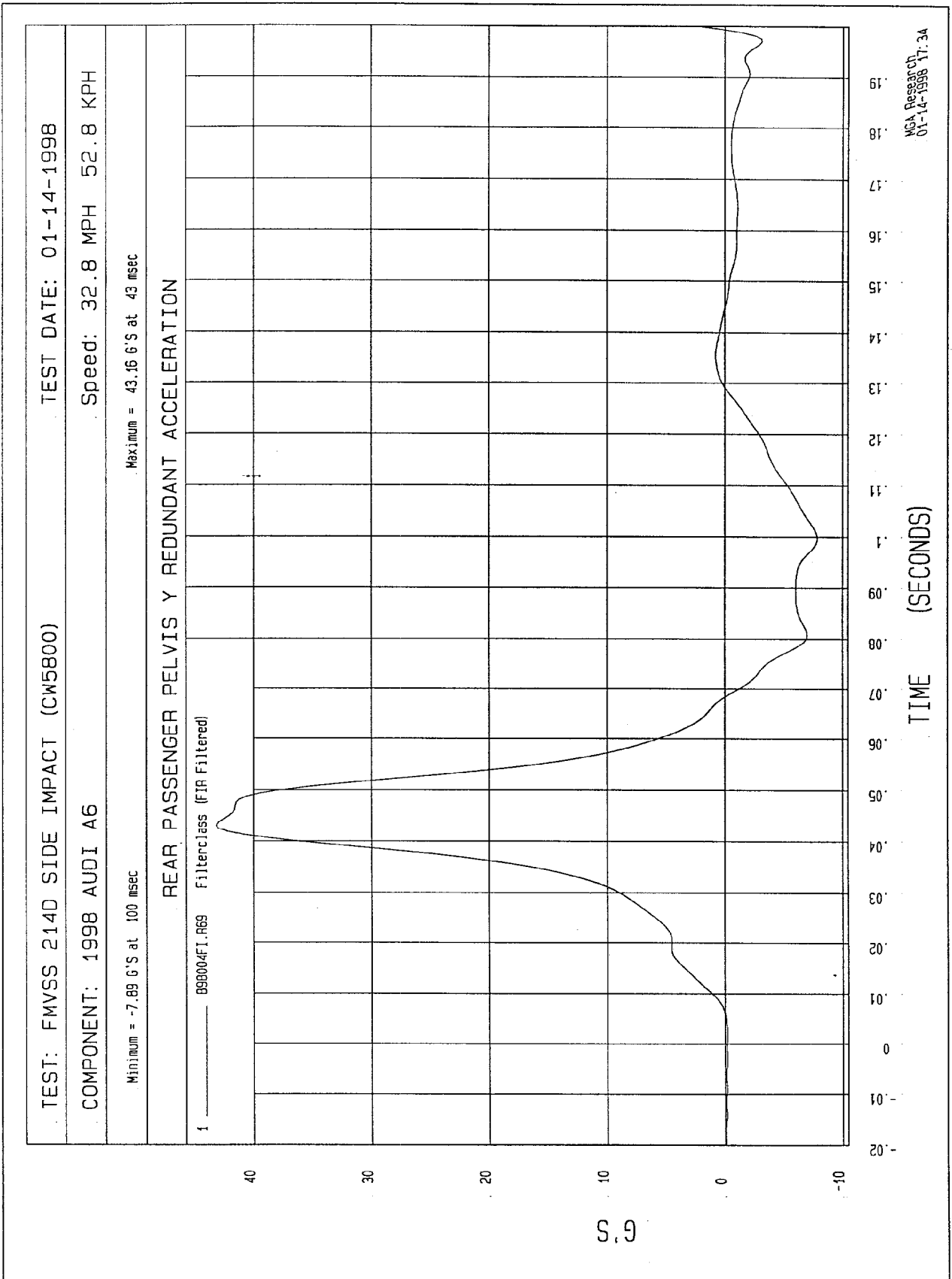
TEST: FMVSS 214D SIDE IMPACT (CW5800) TEST DATE: 01-14-1998

COMPONENT: 1998 AUDI A6 Speed: 32.8 MPH 52.8 KPH

Minimum = 0 KPH at -20 msec Maximum = 30.23 KPH at 68 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT VELOCITY





TEST: FMVSS 214D SIDE IMPACT (CW5800)

TEST DATE: 01-14-1998

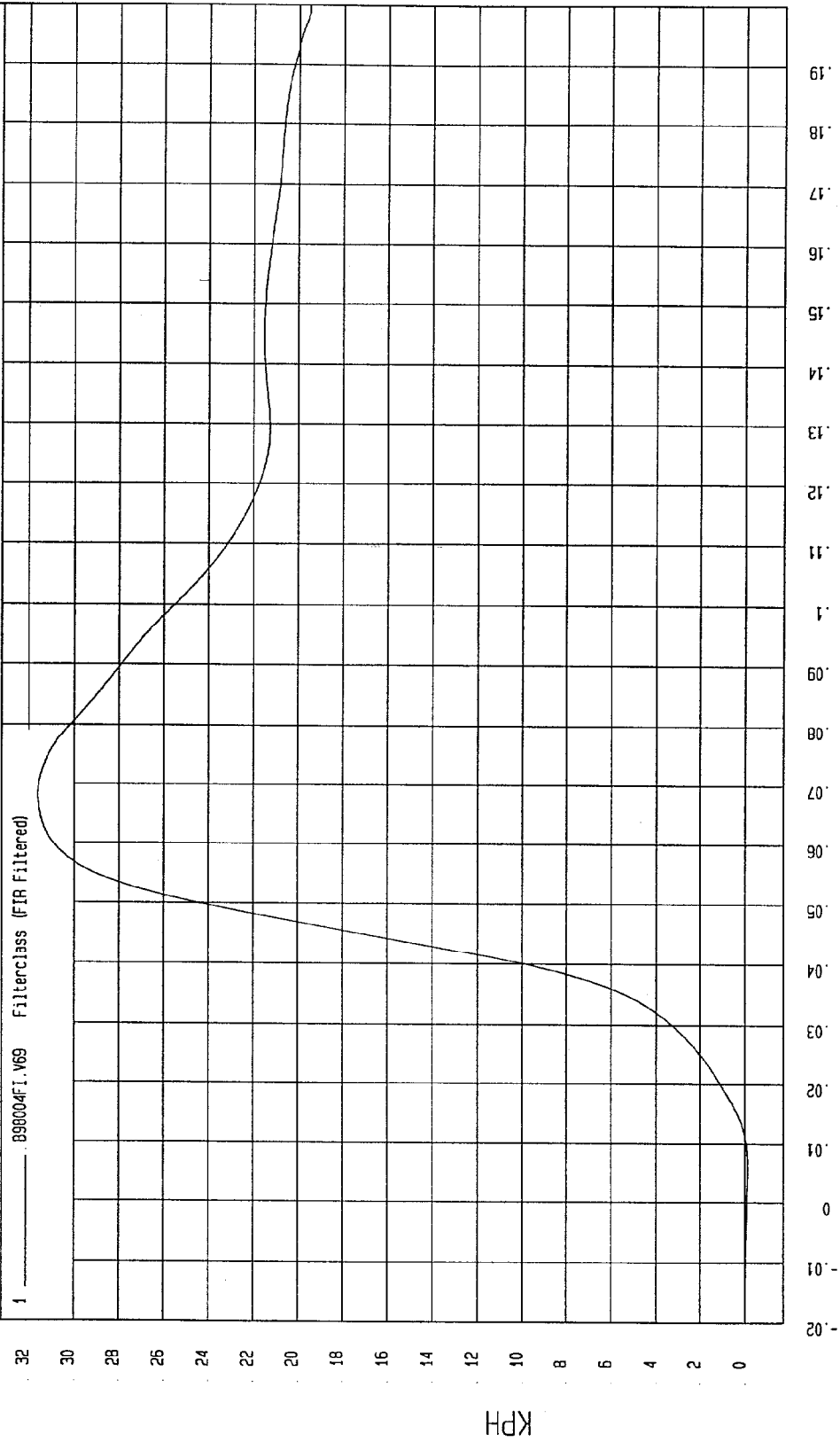
COMPONENT: 1998 AUDI A6

Speed: 32.8 MPH 52.8 KPH

Minimum = -10 KPH at 6 msec

Maximum = 31.60 KPH at 68 msec

REAR PASSENGER PELVIS Y REDUNDANT VELOCITY



MCA Research
01-16-1998 11:26

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-98-DC07

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

AUDI OF AMERICA, INC.
1998 AUDI A6 4 DOOR SEDAN
NHTSA NO. CW5800

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: January 14, 1998

Report Date: January 22, 1998

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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DUMMY S/N: 049	PRE-TEST CERTIFICATION DATA	2-1
DUMMY S/N: 048	POST-TEST CERTIFICATION DATA	3-1
DUMMY S/N: 049	POST-TEST CERTIFICATION DATA	4-1
DUMMY S/N: 048	POST-TEST INSPECTION CHECKLIST	5-1
DUMMY S/N: 049	POST-TEST INSPECTION CHECKLIST	6-1
	VEHICLE AND DUMMY TEMPERATURE	7-1

PRE-TEST CERTIFICATION DATA

Front Dummy Serial Number: 048

Calibration Test Results Summary

Dummy Serial Number: 048

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.: 048

DATE OF VERIFICATION: December 8, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
RH - Rib Height	19.75" - 20.50"	19.90
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.2
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"	14.8

MEASUREMENTS BY: Tim White

APPROVED BY: Dave Kosloski

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 5, 1997

DUMMY NUMBER: 048

TEST NUMBER: D972252

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	24%
PROBE SPEED	14.0 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	37
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN Tim White

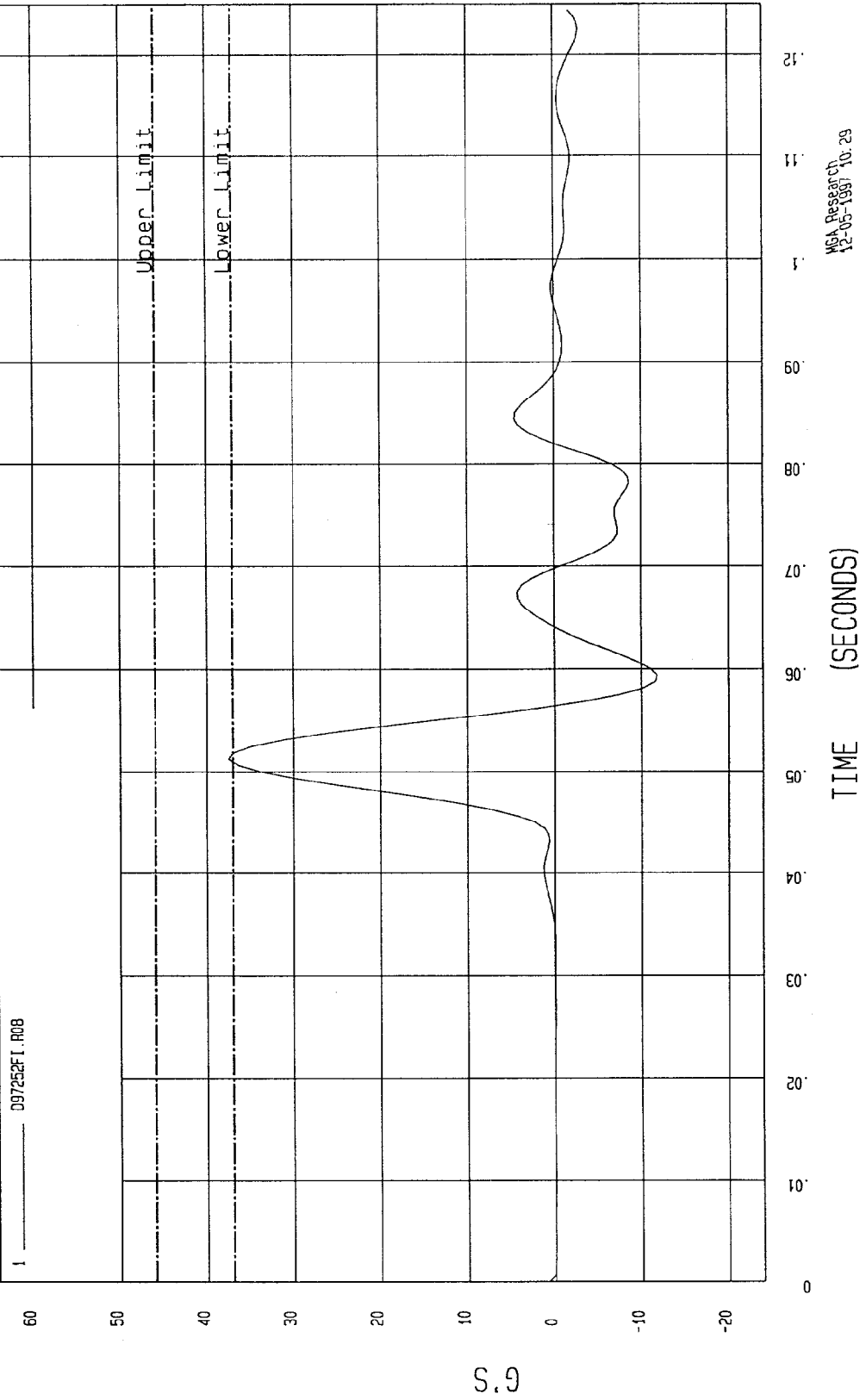
APPROVED BY Rene Kraske

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-05-1997 - 09:59

COMPONENT: DUMMY # 048 Velocity: 14.012 FT/SEC 4.27 M/SEC

Minimum = -11.84 G'S at 59.3 msec
Maximum = 37.47 G'S at 51.2 msec

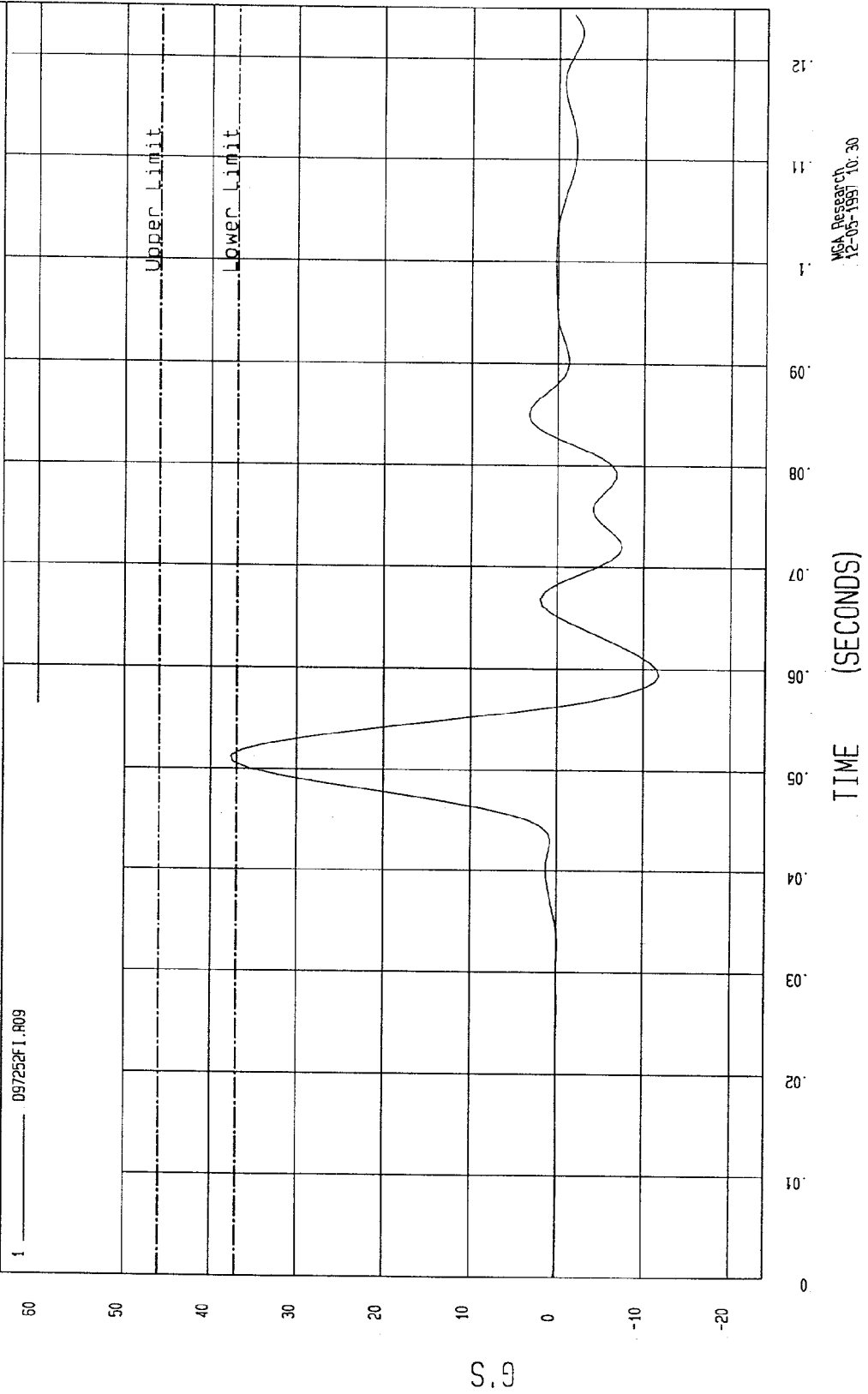
UPPER RIB ACCELERATION



TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-05-1997 - 09:59
COMPONENT: DUMMY # 048 Velocity: 14.012 FT/SEC 4.27 M/SEC

Minimum = -11.76 G'S at 59.3 msec Maximum = 37.69 G'S at 51.2 msec

LOWER RIB ACCELERATION



TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-05-1997 - 09:59

COMPONENT: DUMMY # 048 Velocity: 14.012 FT/SEC 4.27 M/SEC

Minimum = -5.65 G's at 72.5 msec

Maximum = 19.55 G's at 55.6 msec

LOWER SPINE ACCELERATION

1 _____ 097252F1.R10

30

20

10

0

-10

-20

G.S

Upper Limit

Lower Limit

12

11

10

09

08

07

06

05

04

03

02

01

0

TIME (SECONDS)

MSA Research
12-05-1997 10:30

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 5, 1997

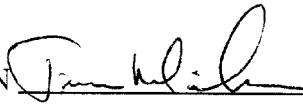
DUMMY NUMBER: 048

TEST NUMBER: D972253

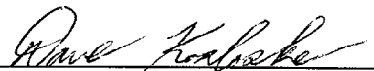
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	24%
PROBE SPEED	14.0 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	54

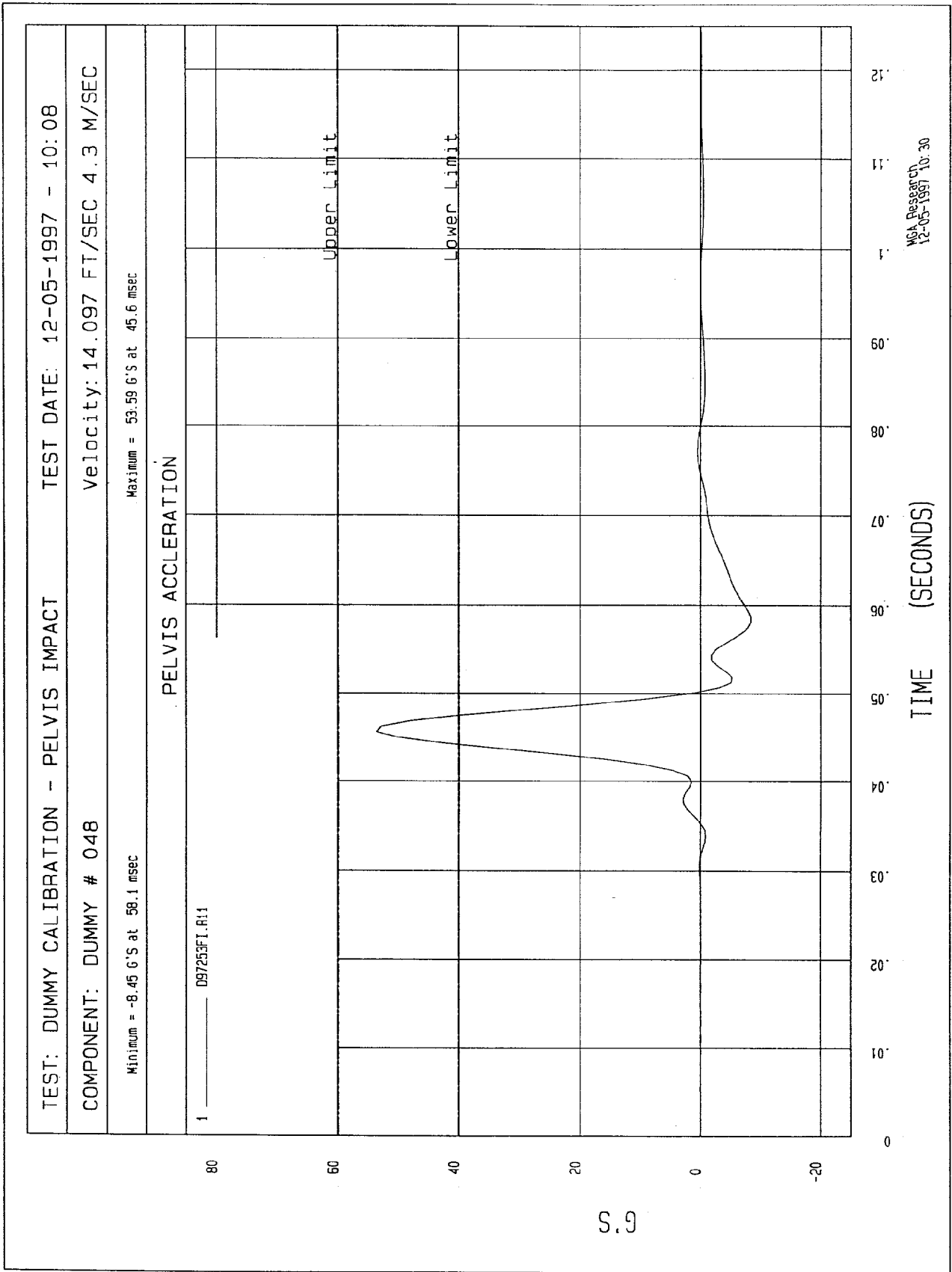
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY





MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: December 8, 1997

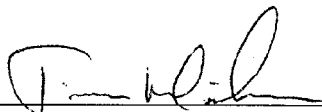
DUMMY NUMBER: 048

TEST NUMBER: D972254

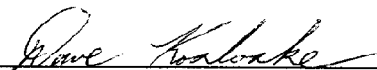
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	22%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.4
FORCE @ 0.75 in	36.7 - 49.8 lbs	42.3
FORCE @ 1.0 in	50 - 63 lbs	55
FORCE @ 1.3 in	73 - 88 lbs	74

TEST MEETS SPECIFICATIONS

TECHNICIAN



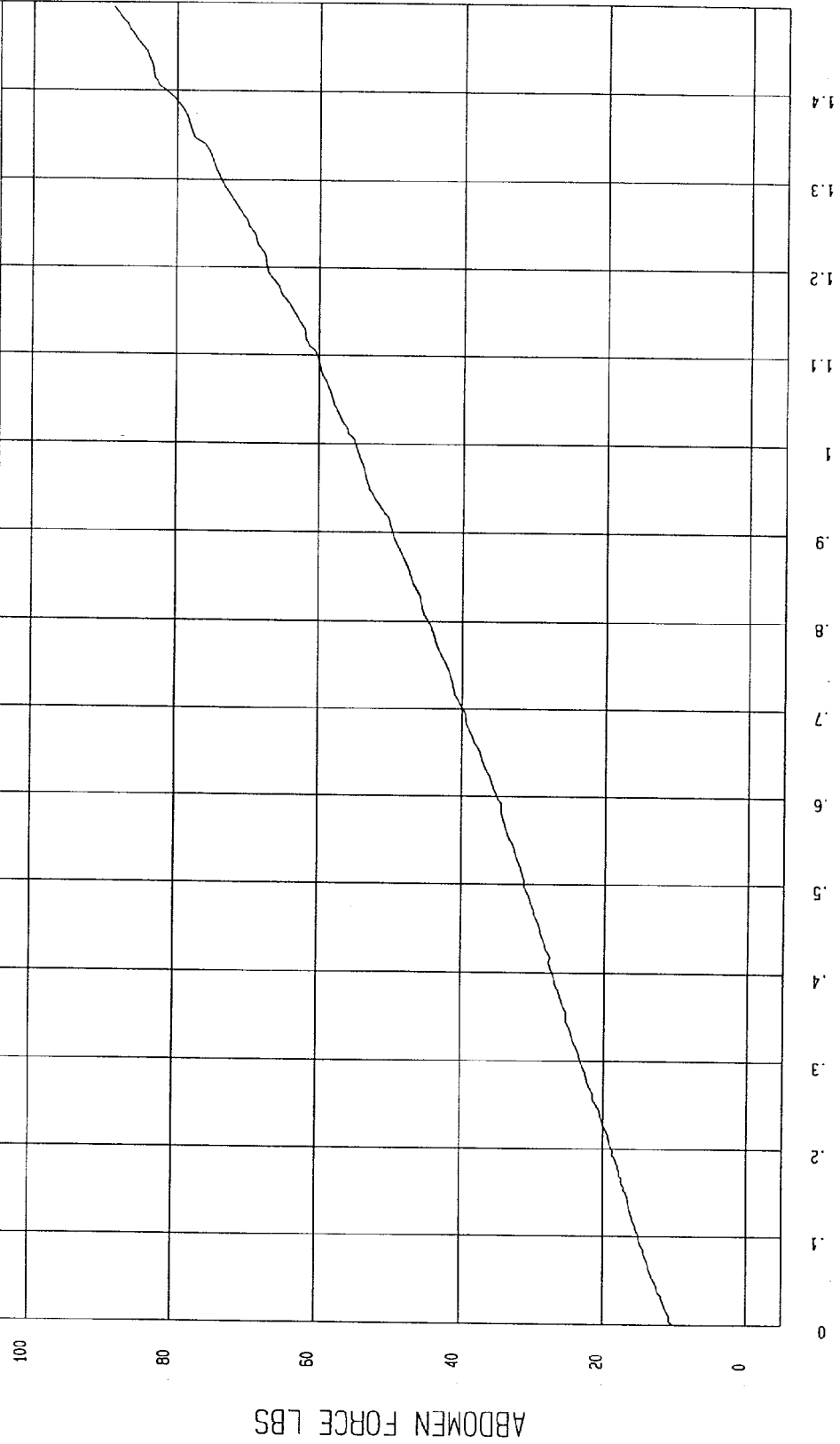
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 12-08-1997 - 10:18

COMPONENT: DUMMY # 048

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



MCA Research
12-08-1997 10:23

ABDOMEN DISPLACEMENT INCHES

ABDOMEN FORCE LBS

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: December 8, 1997

DUMMY NUMBER: 048

TEST NUMBER: D972255

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	24
FORCE @ 30°	34 - 46 lbs	36
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	6°

TEST MEETS SPECIFICATIONS

TECHNICIAN

Jim Hill

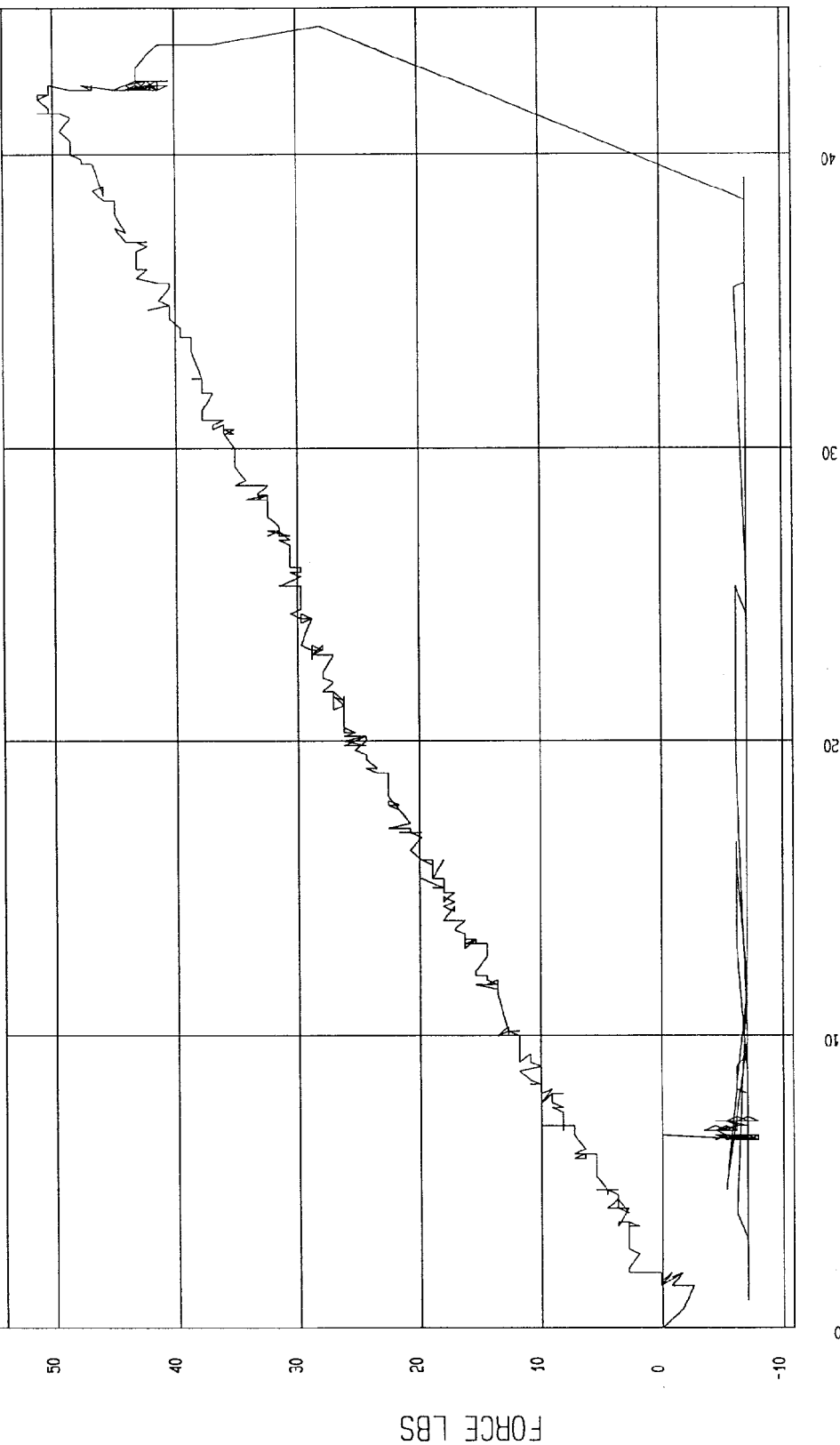
APPROVED BY

Paul Kabiske

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 12-08-1997 - 10:34

COMPONENT: DUMMY # 048

FORCE as a function of TORSO ROTATION



MSA Research
12-08-1997 11.06

PRE-TEST CERTIFICATION DATA

Rear Dummy Serial Number: 049

Calibration Test Results Summary

Dummy Serial Number: 049

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.

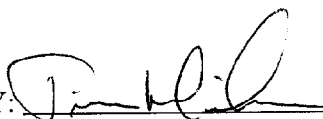
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 049

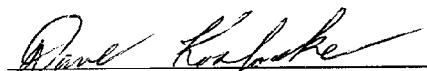
DATE OF VERIFICATION: December 8, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
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"	20.5
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	14.7

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 5, 1998

DUMMY NUMBER: 049

TEST NUMBER: D972262

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	24%
PROBE SPEED	14.0 - 14.2 fps	14.1
UPPER RIB	37 - 46 g's	37
LOWER RIB	37 - 46 g's	39
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN

Tim White

APPROVED BY

David Knapke

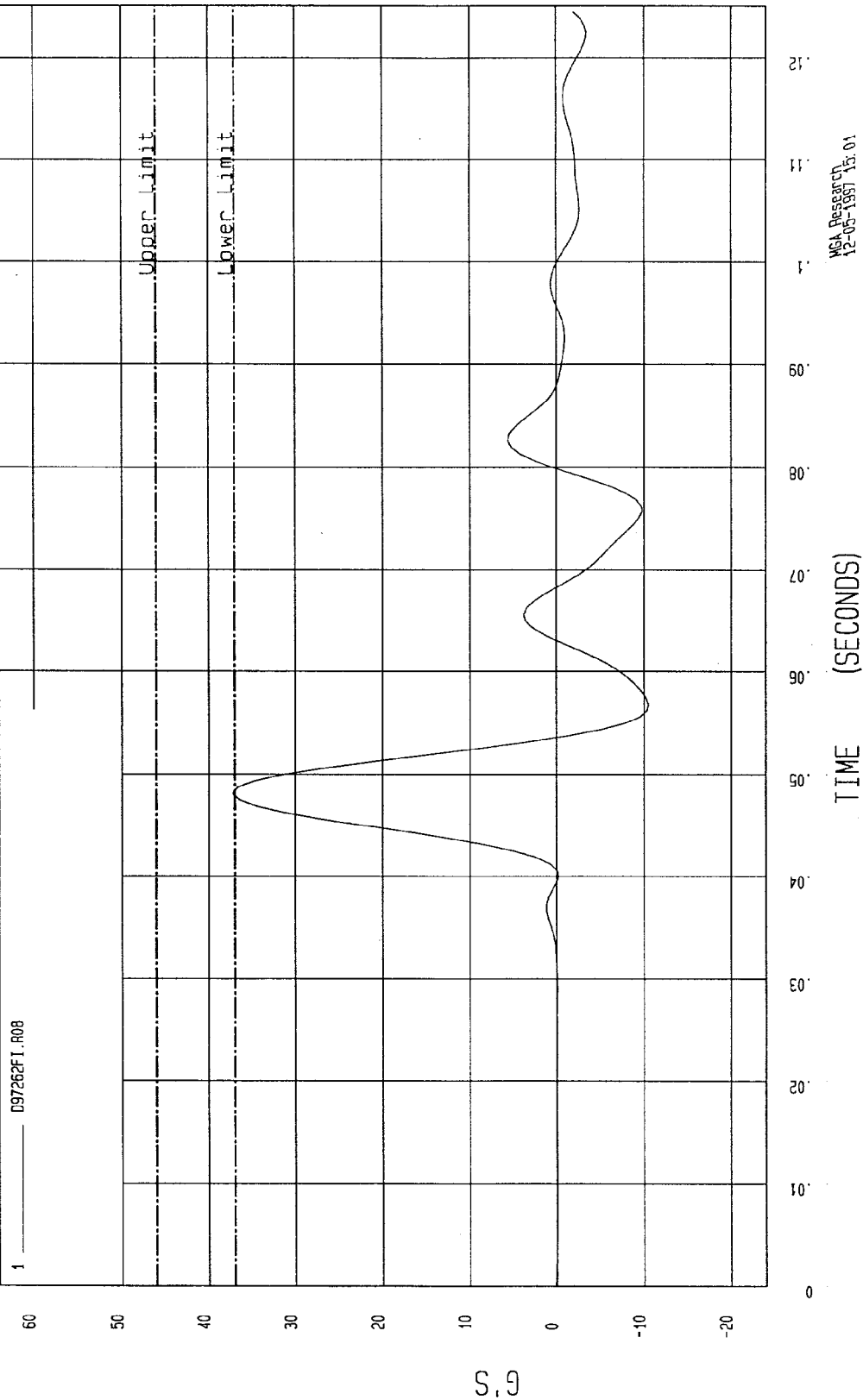
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-05-1997 - 14:42

COMPONENT: DUMMY # 049 Velocity: 14.086 FT/SEC 4.29 M/SEC

Minimum = -10.49 G'S at 55.8 msec

Maximum = 37.27 G'S at 48.1 msec

UPPER RIB ACCELERATION

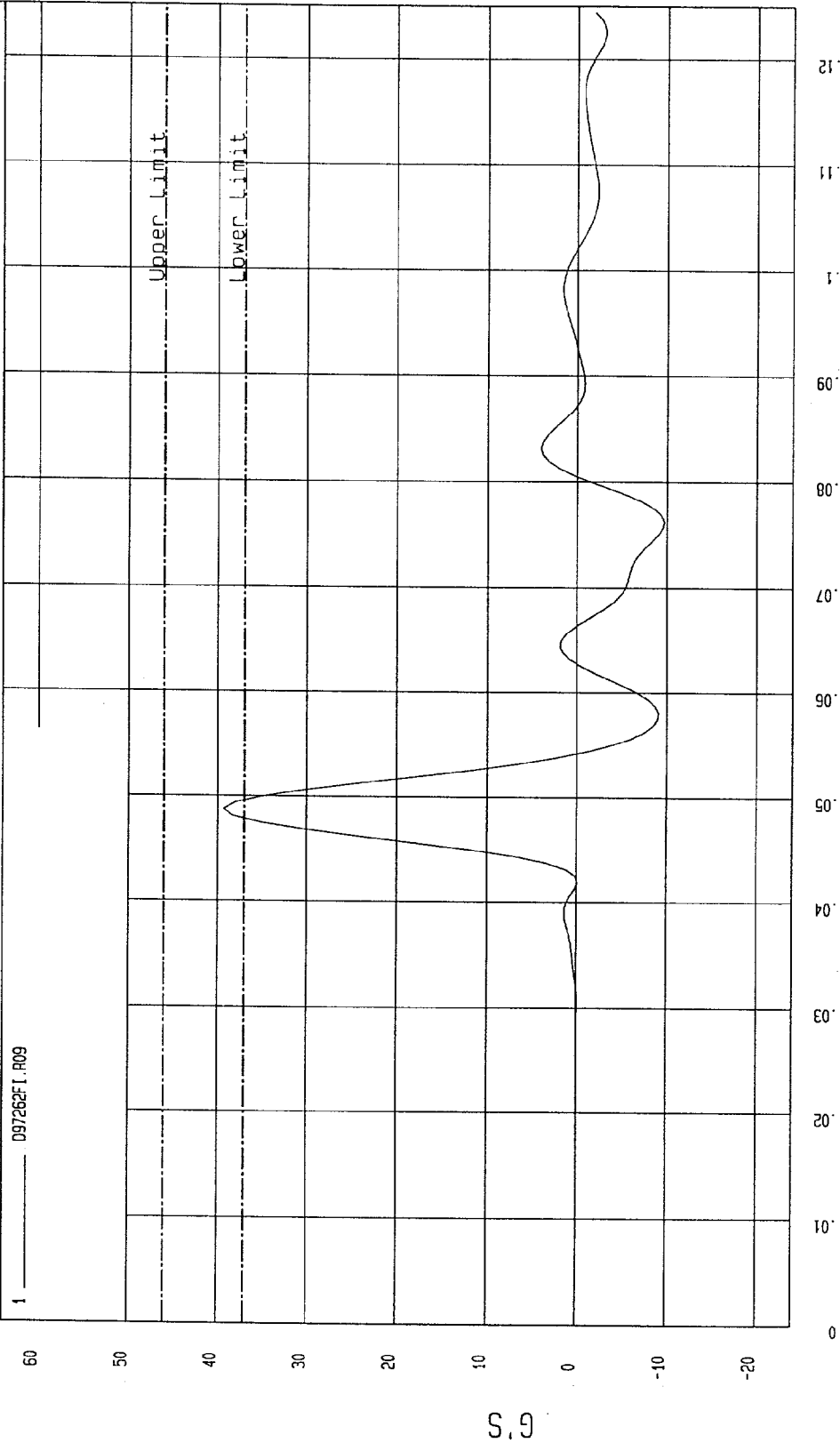


TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-05-1997 - 14:42

COMPONENT: DUMMY # 049 Velocity: 14.086 FT/SEC 4.29 M/SEC

Minimum = -9.71 G'S at 76.2 msec Maximum = 39.31 G'S at 46.7 msec

LOWER RIB ACCELERATION



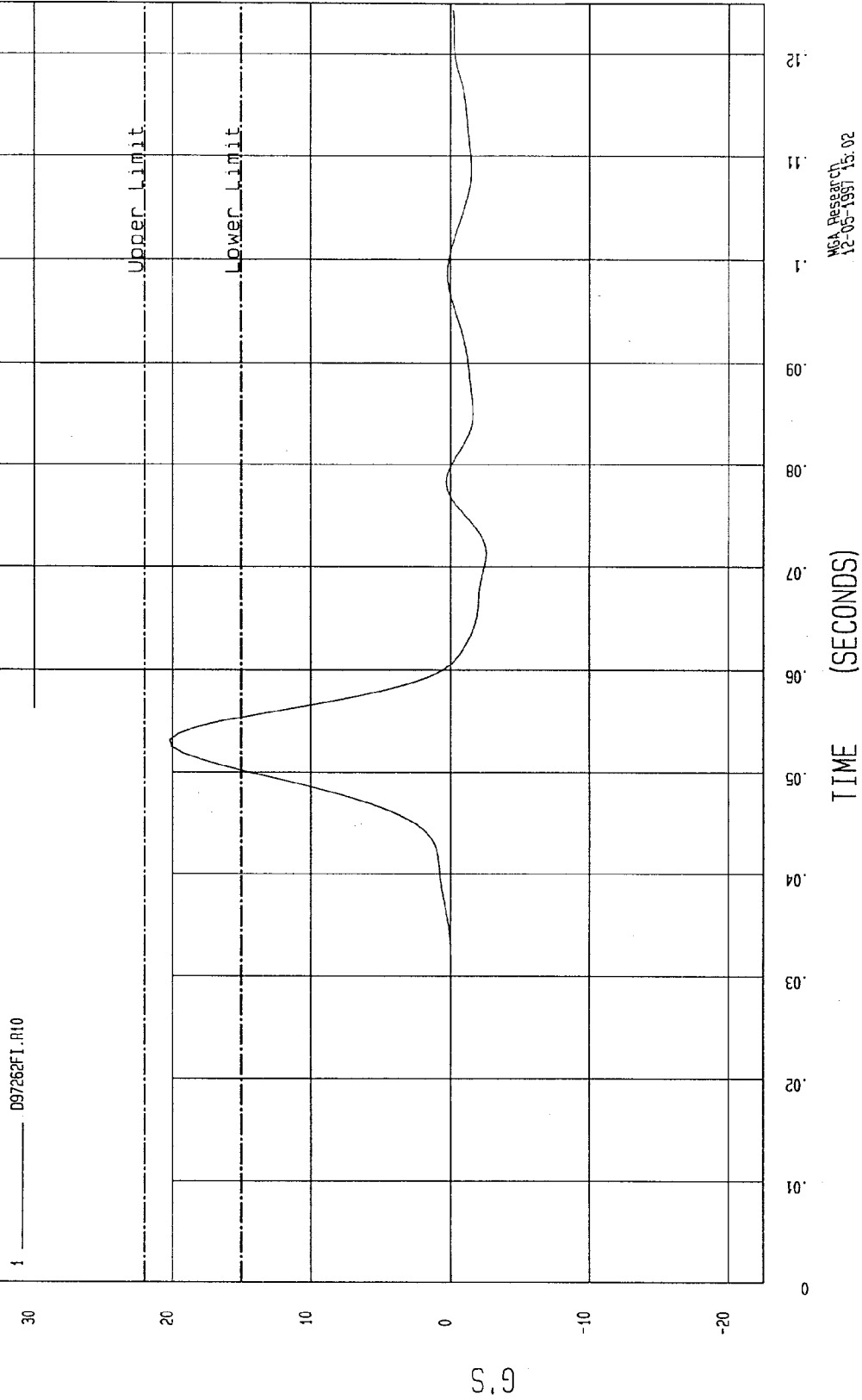
WCA Research
12-05-1997 15:01

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-05-1997 - 14:42

COMPONENT: DUMMY # 049 Velocity: 14.086 FT/SEC 4.29 M/SEC

Minimum = -2.64 G'S at 71.2 msec Maximum = 20.18 G'S at 53.1 msec

LOWER SPINE ACCELERATION



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 5, 1997

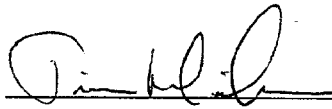
DUMMY NUMBER: 049

TEST NUMBER: D972263

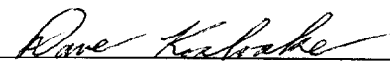
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	24%
PROBE SPEED	14.0 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	48

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY



TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 12-05-1997 - 14:59:33

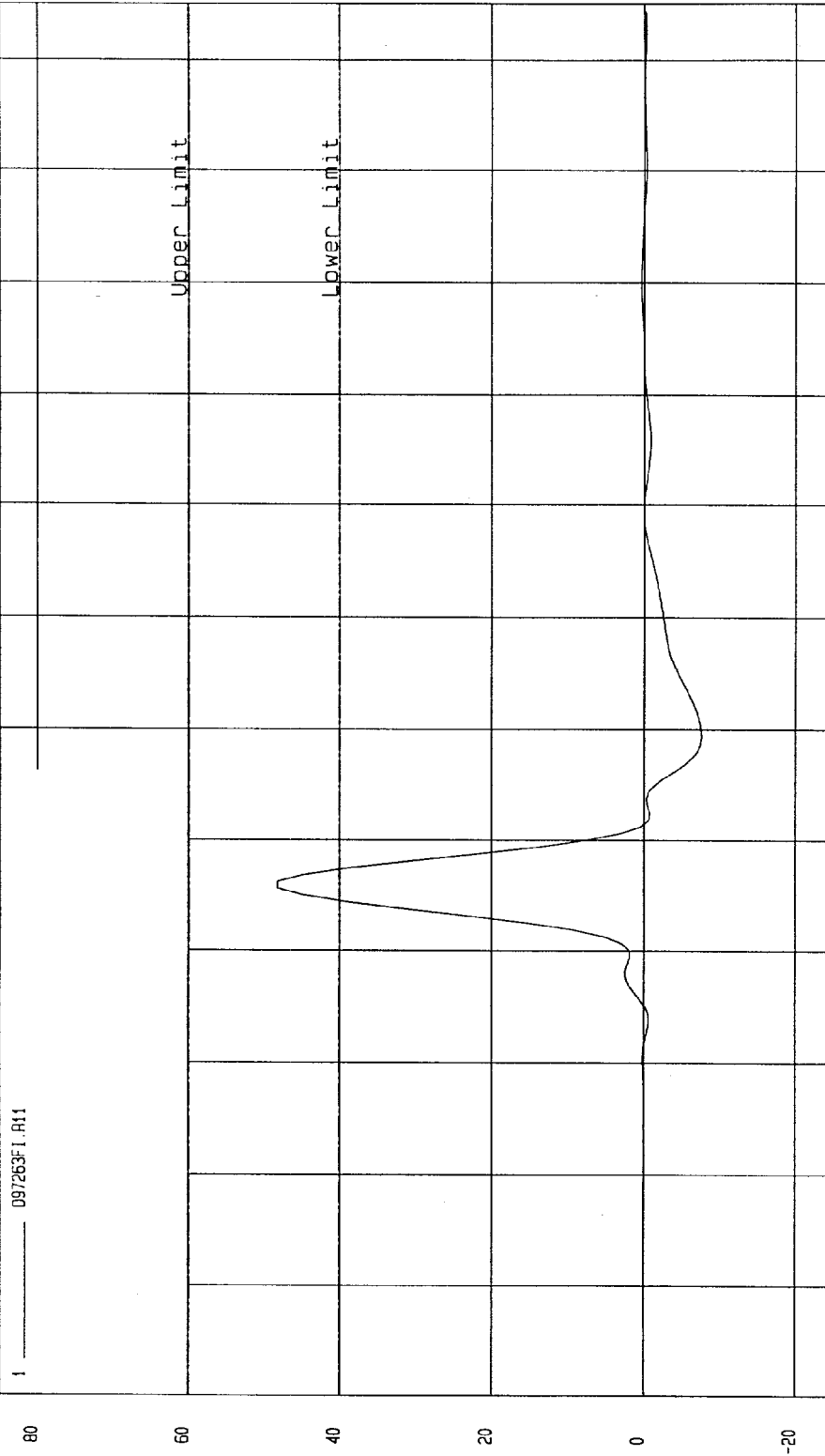
COMPONENT: DUMMY # 049 Velocity: 14.117 FT/SEC 4.3 M/SEC

Minimum = -7.64 G'S at 59.3 msec

Maximum = 48.29 G'S at 45.6 msec

PELVIS ACCELERATION

1 ——— 097263F1.RH1



MGA Research
12-05-1997 15:02

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

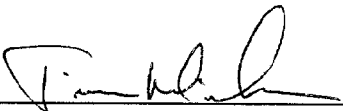
DATE: December 8, 1997

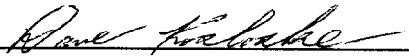
DUMMY NUMBER: 049

TEST NUMBER: D972264

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.3
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.9
FORCE @ 1.0 in	50 - 63 lbs	55
FORCE @ 1.3 in	73 - 88 lbs	76

TEST MEETS SPECIFICATIONS

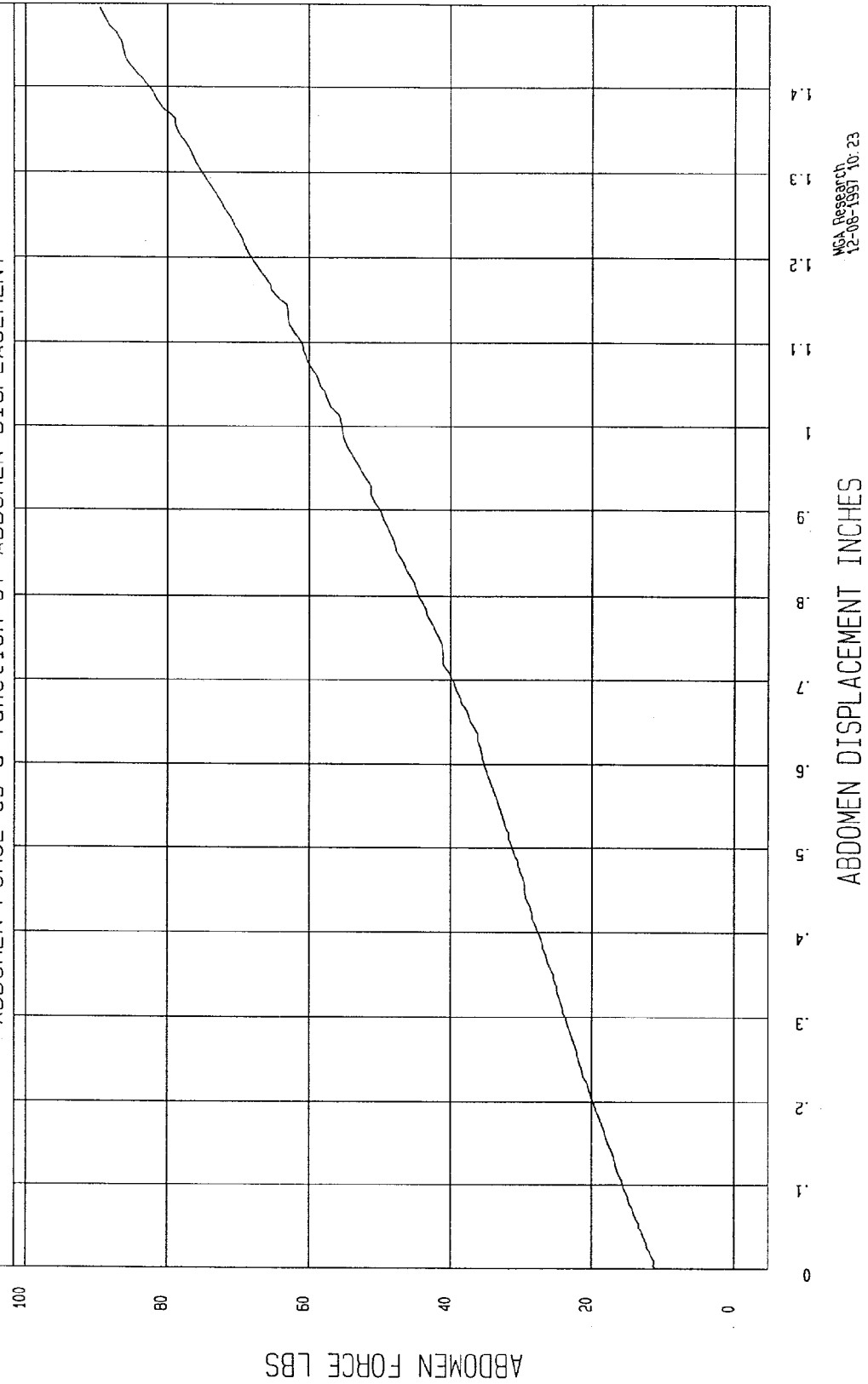
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 12-08-1997 - 10:22

COMPONENT: DUMMY # 049

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



NCI Research
12-08-1997 10:23

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

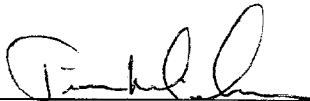
DATE: December 8, 1997

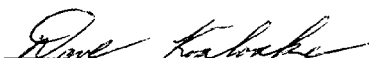
DUMMY NUMBER: 049

TEST NUMBER: D972265

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	23
FORCE @ 30°	34 - 46 lbs	37
FORCE @ 40°	46 - 58 lbs	54
RETURN ANGLE	12° maximum	3°

TEST MEETS SPECIFICATIONS

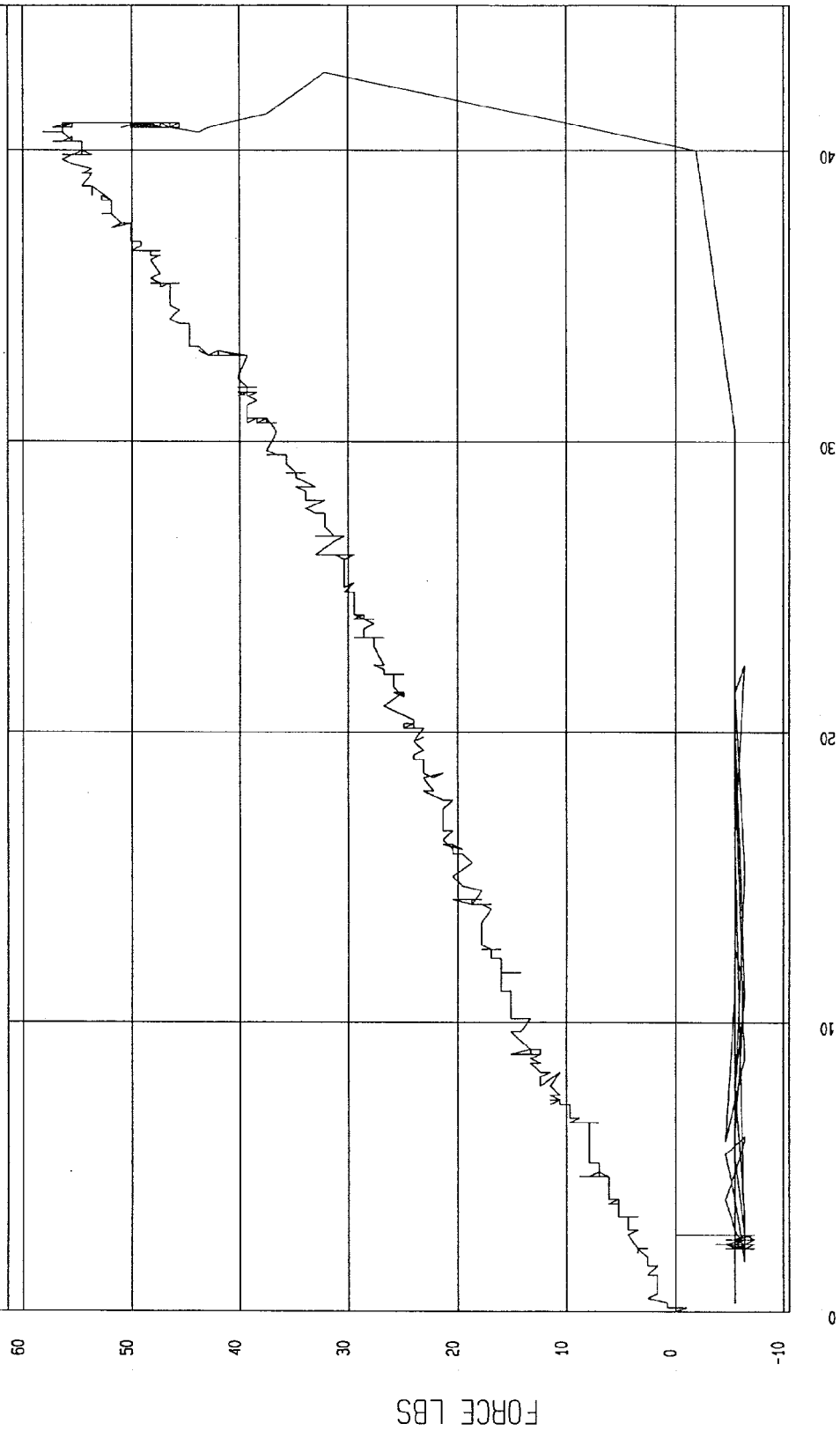
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 12-08-1997 - 10:58

COMPONENT: DUMMY # 049

FORCE as a function of TORSO ROTATION



MCA Research
12-08-1997 11:05

POST-TEST CERTIFICATION DATA

Front Dummy Serial Number: 048

Calibration Test Results Summary

Dummy Serial Number: 048

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.

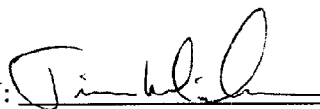
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 048

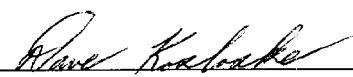
DATE OF VERIFICATION: January 28, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
RH - Rib Height	19.75" - 20.50"	19.90
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.2
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"	14.8

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 22, 1998

DUMMY NUMBER: 048

TEST NUMBER: D98132

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	21%
PROBE SPEED	14.0 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	39
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	19

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim Wilson

APPROVED BY Gene Kerkhofs

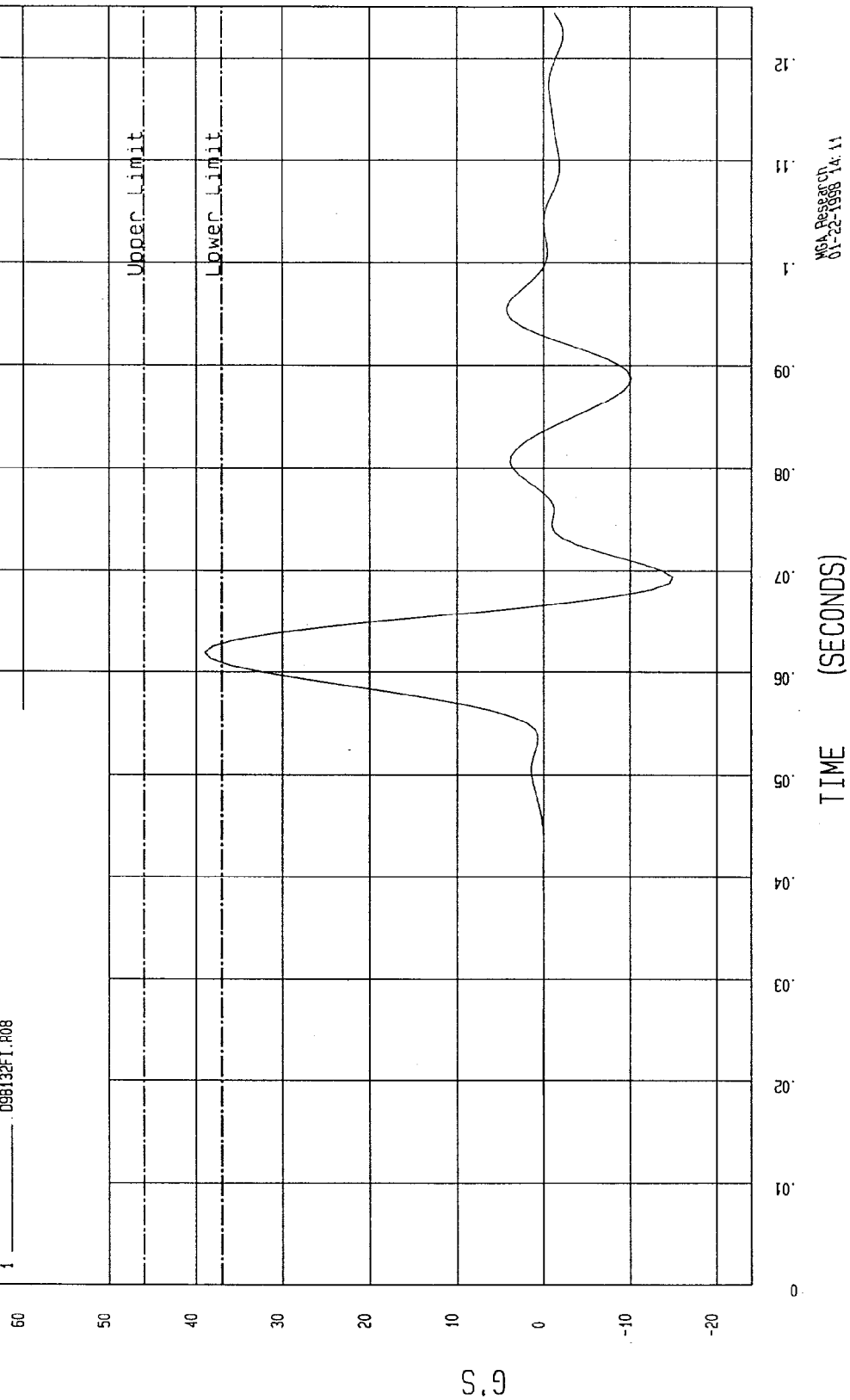
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 01-22-1998 - 14:01

COMPONENT: DUMMY # 048 Velocity: 14.045 FT/SEC 4.28 M/SEC

Minimum = -14.88 G'S at 69.3 msec Maximum = 38.99 G'S at 61.8 msec

UPPER RIB ACCELERATION

1 _____ D98132F1.R08



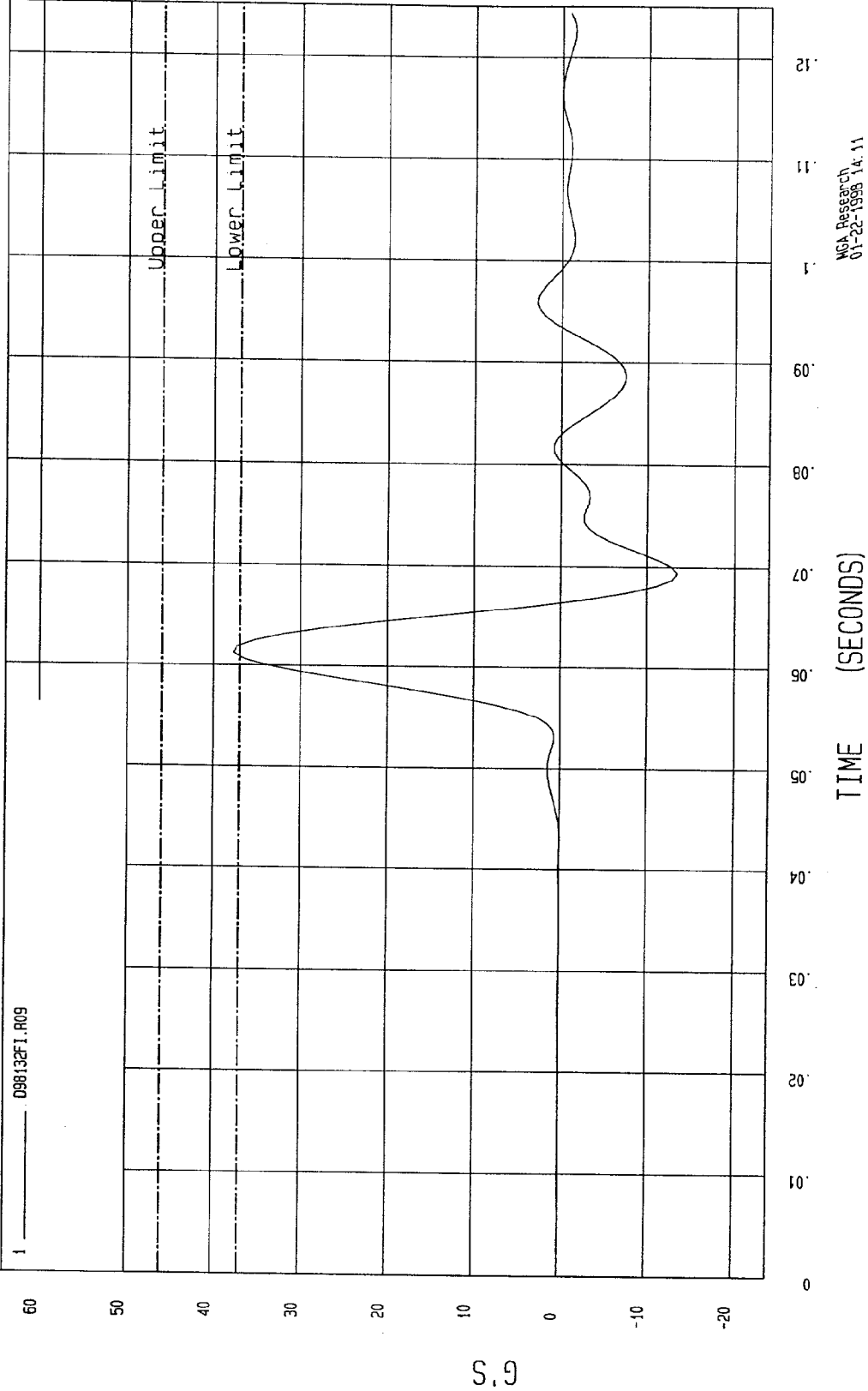
MOA Research
01-22-1998 14:11

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 01-22-1998 - 14:01

COMPONENT: DUMMY # 04B Velocity: 14.045 FT/SEC 4.28 M/SEC

Minimum = -13.44 G'S at 59.3 msec Maximum = 37.70 G'S at 61.2 msec

LOWER RIB ACCELERATION

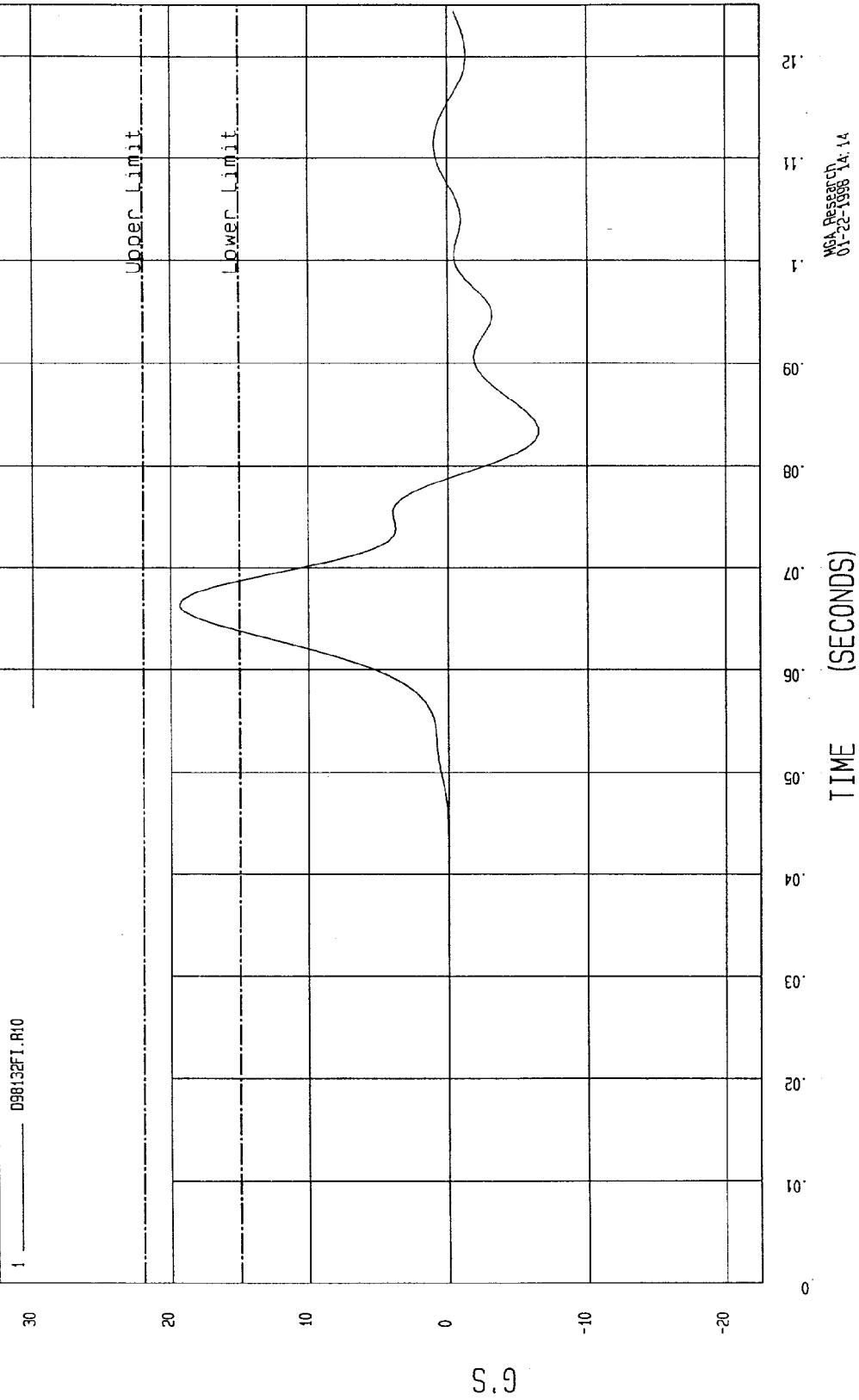


TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 01-22-1998 - 14:01

COMPONENT: DUMMY # 048 Velocity: 14.045 FT/SEC 4.28 M/SEC

Minimum = -6.58 G'S at 83.1 msec Maximum = 19.38 G'S at 66.2 msec

LOWER SPINE ACCELERATION



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

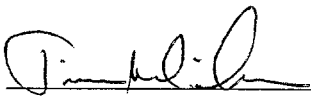
DATE: January 22, 1998

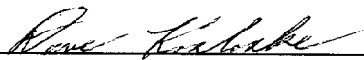
DUMMY NUMBER: 048

TEST NUMBER: D98133

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	21%
PROBE SPEED	14.0 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	49

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 01-22-1998 - 14:11

COMPONENT: DUMMY # 048 Velocity: 14.077 FT/SEC 4.29 M/SEC

Minimum = -9.54 G'S at 70.6 msec

Maximum = 48.86 G'S at 58.1 msec

PELVIS ACCELERATION

1 ——— 098133FI.RH1

Upper Limit

Lower Limit

G.S

TIME (SECONDS)

MCA Research
01-22-1998 14:15

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: January 28, 1998

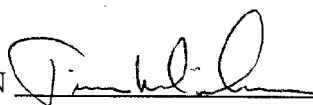
DUMMY NUMBER: 048

TEST NUMBER: D98134

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	26%
FORCE @ 0.5 in	23.3 - 36.5 lbs	32.9
FORCE @ 0.75 in	36.7 - 49.8 lbs	44.8
FORCE @ 1.0 in	50 - 63 lbs	59
FORCE @ 1.3 in	73 - 88 lbs	79

TEST MEETS SPECIFICATIONS

TECHNICIAN



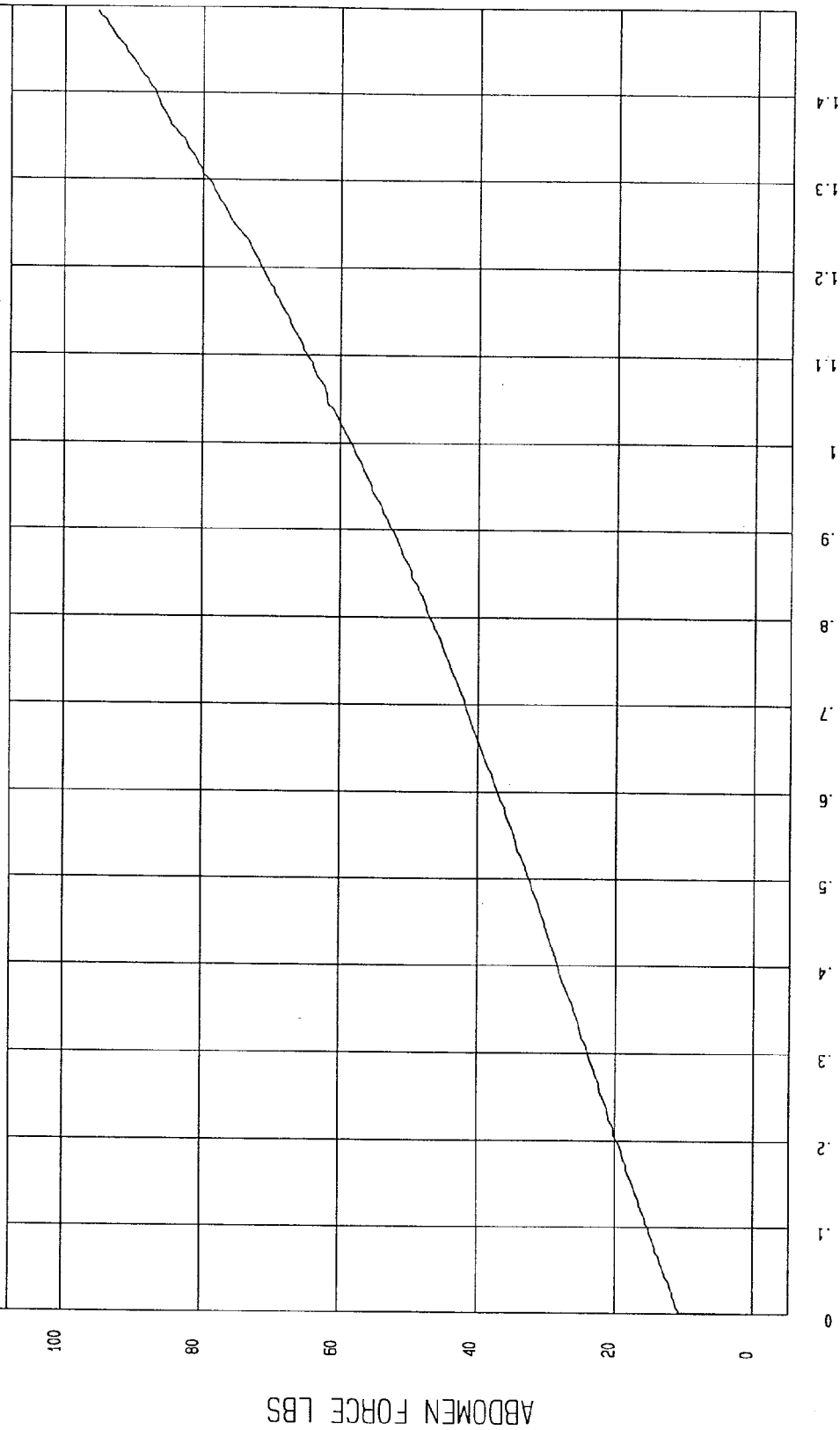
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 01-28-1998 - 10:07

COMPONENT: DUMMY # 048

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



MCA Research
01-28-1998 10:32

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: January 23, 1998

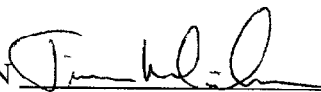
DUMMY NUMBER: 048

TEST NUMBER: D98135

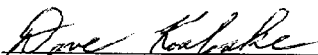
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	22%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	23
FORCE @ 30°	34 - 46 lbs	35
FORCE @ 40°	46 - 58 lbs	52
RETURN ANGLE	12° maximum	2°

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 01-23-1998 - 10:20

COMPONENT: DUMMY # 048

FORCE as a function of TORSO ROTATION



MCA Research
01-23-1998 11:12

POST-TEST CERTIFICATION DATA

Rear Dummy Serial Number: 049

Calibration Test Results Summary

Dummy Serial Number: 049

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.

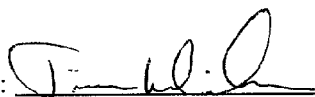
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 049

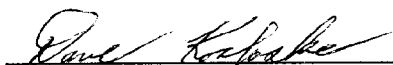
DATE OF VERIFICATION: January 28, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
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"	20.5
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	14.7

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 22, 1998

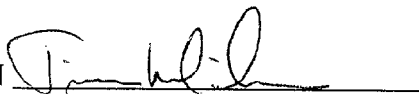
DUMMY NUMBER: 049

TEST NUMBER: D98142

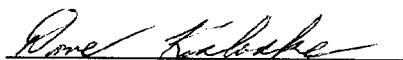
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	21%
PROBE SPEED	14.0 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	45
LOWER SPINE	15 - 22 g's	22

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

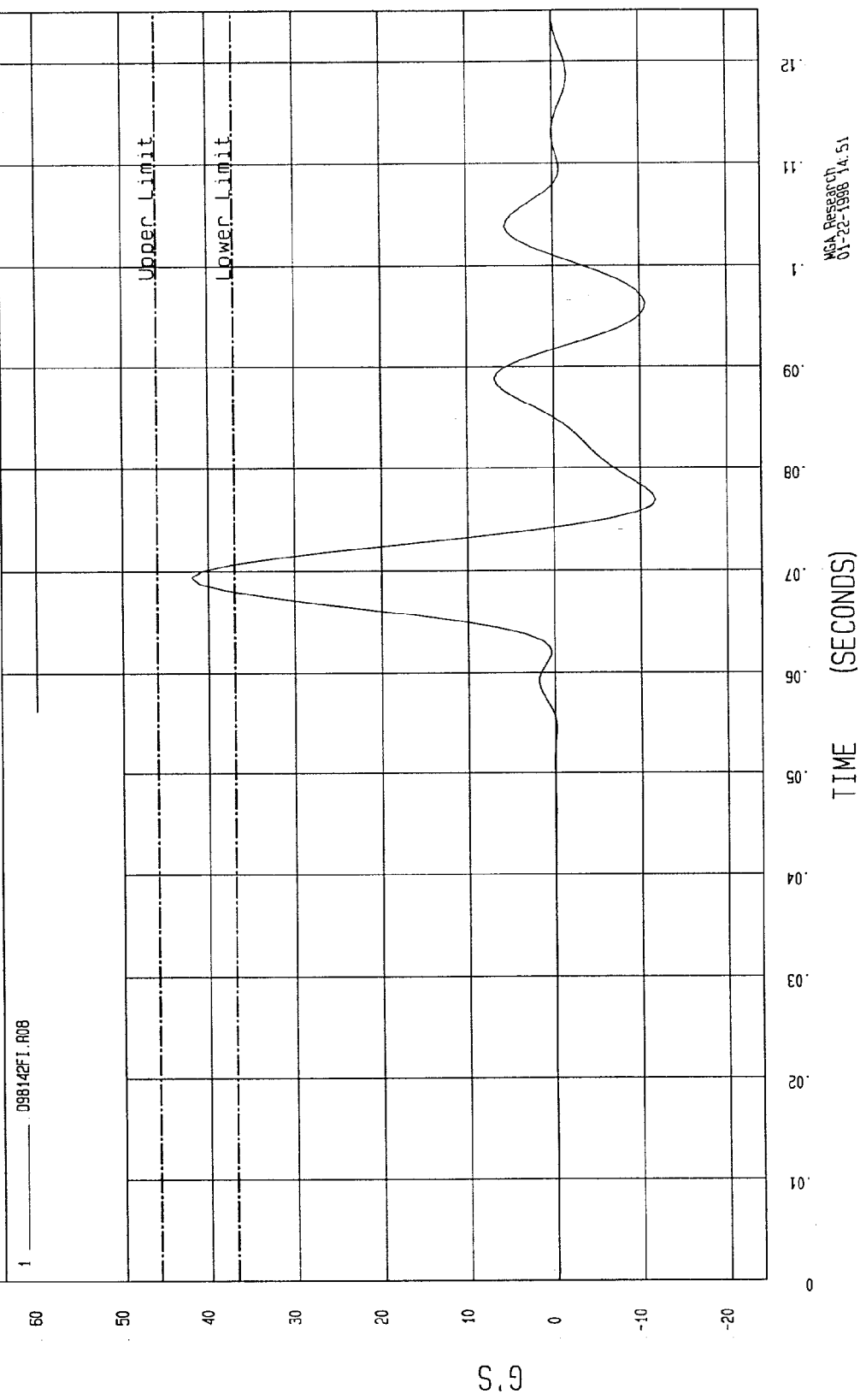


TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 01-22-1998 - 14:38

COMPONENT: DUMMY # 049 Velocity: 14.049 FT/SEC 4.28 M/SEC

Minimum = -11.72 G's at 76.8 msec Maximum = 41.94 G's at 69.3 msec

UPPER RIB ACCELERATION



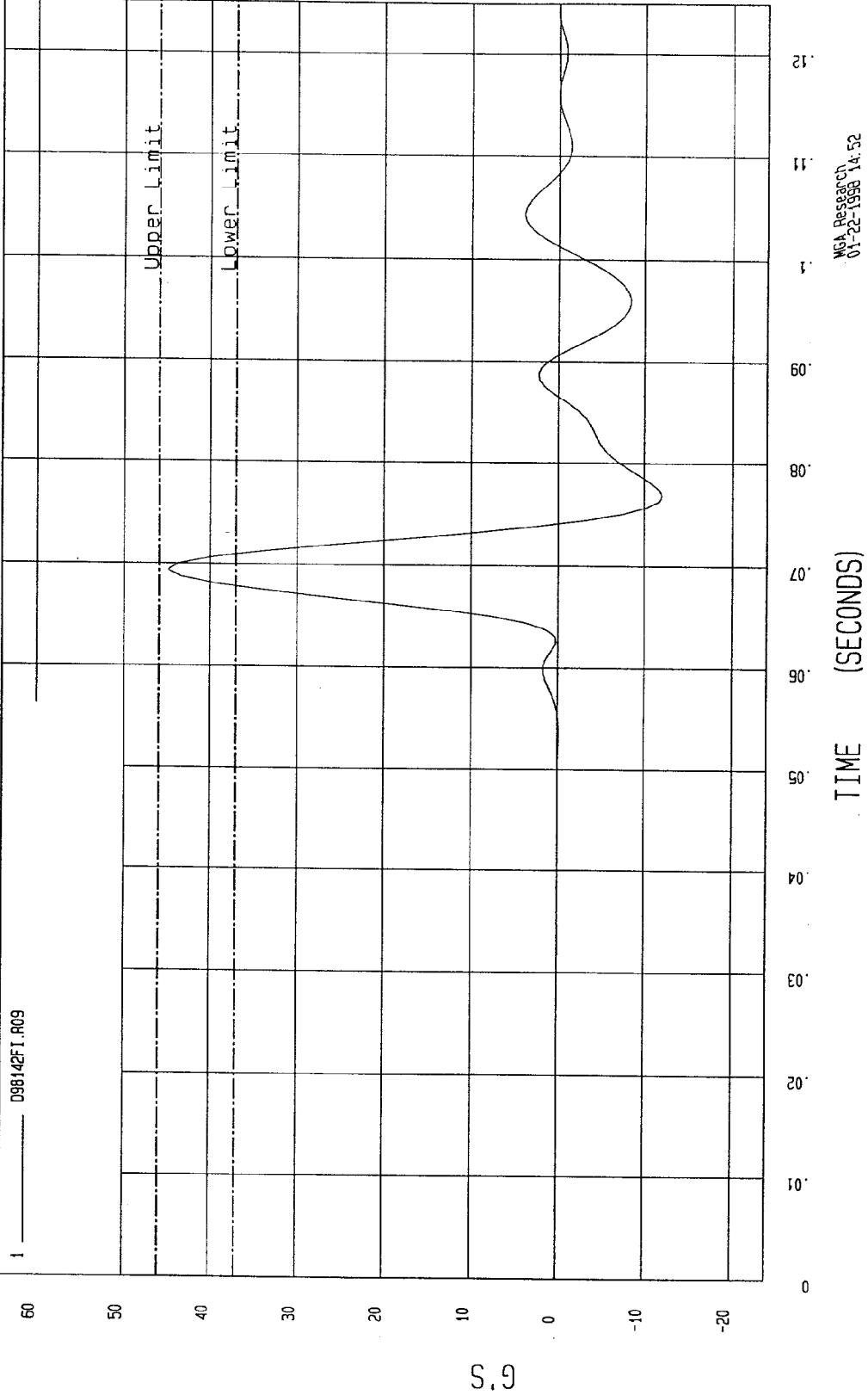
MCA Research
01-22-1998 14:51

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 01-22-1998 - 14:38

COMPONENT: DUMMY # 049 Velocity: 14.049 FT/SEC 4.28 M/SEC

Minimum = -12.01 G'S at 76.8 msec Maximum = 44.95 G'S at 69.3 msec

LOWER RIB ACCELERATION



TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 01-22-1998 - 14:38

COMPONENT: DUMMY # 049

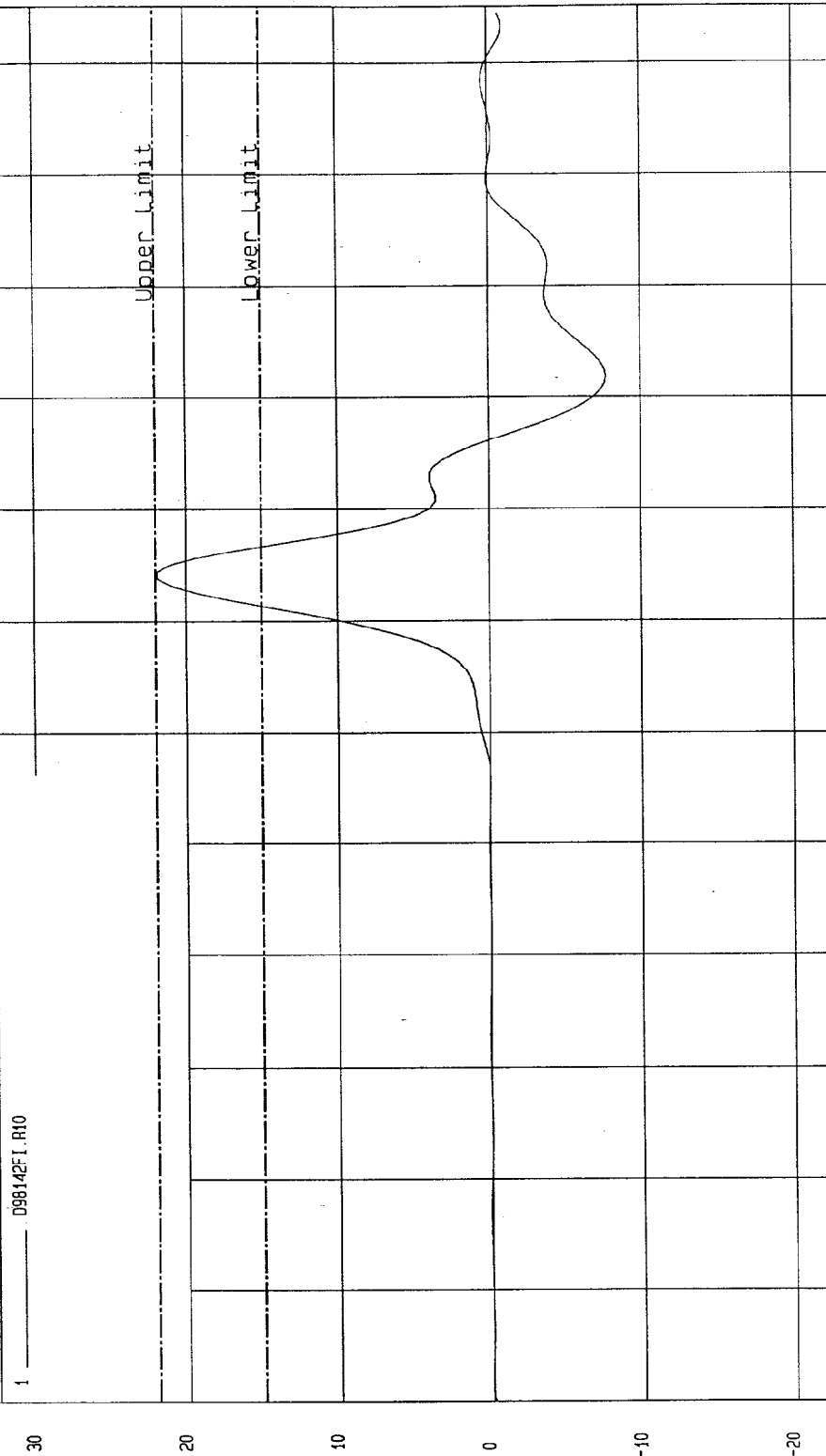
Velocity: 14.049 FT/SEC 4.28 M/SEC

Minimum = -7.77 G'S at 91.8 msec

Maximum = 21.92 G'S at 74.3 msec

LOWER SPINE ACCELERATION

1 _____ D98142FI.R10



MCA Research
01-22-1998 14:52

TIME (SECONDS)

S.9

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

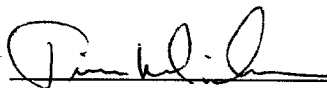
DATE: January 22, 1998

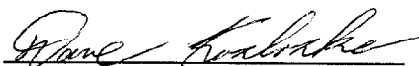
DUMMY NUMBER: 049

TEST NUMBER: D98143

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	21%
PROBE SPEED	14.0 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	50

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

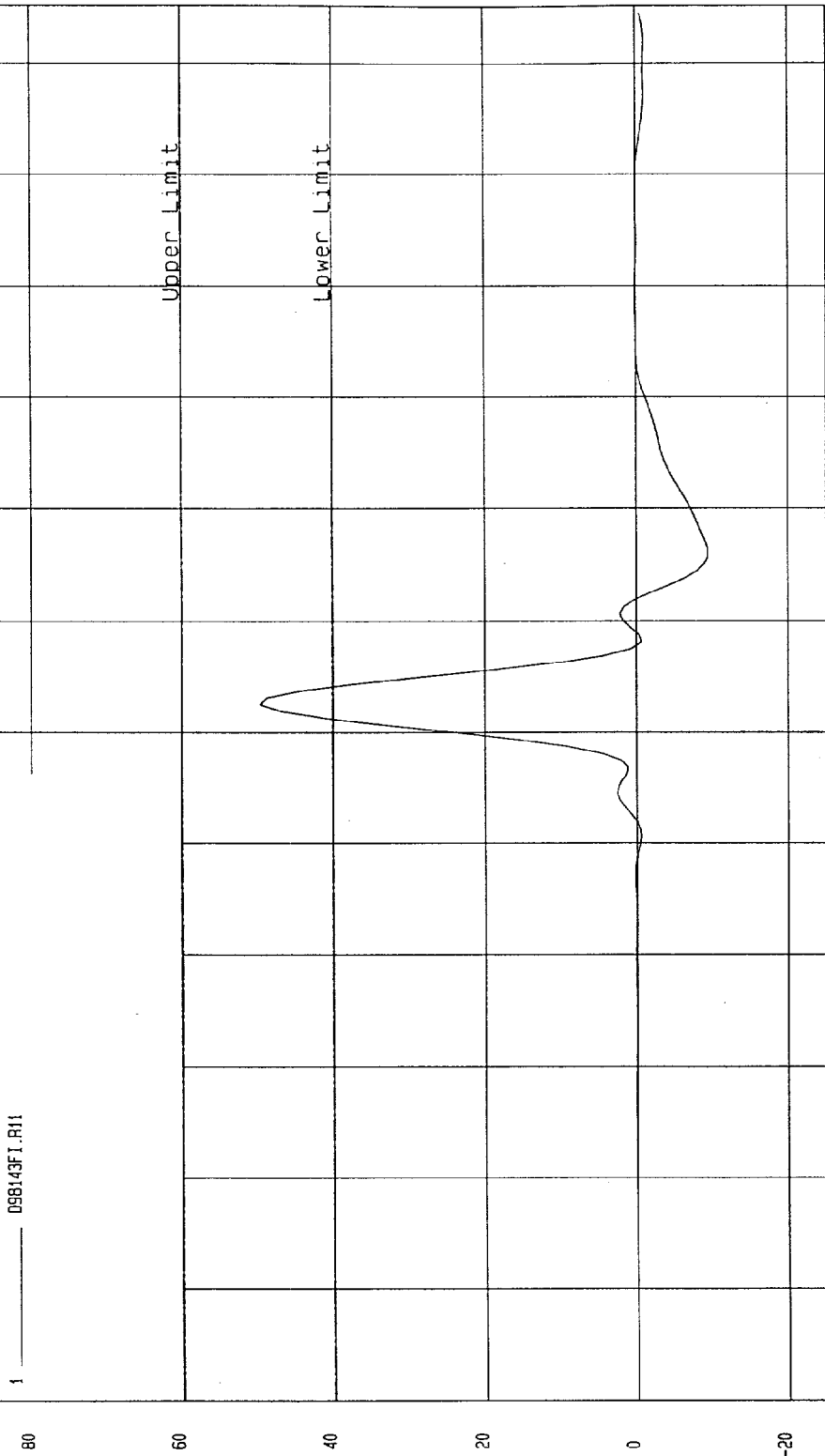
TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 01-22-1998 - 14: 49: 29

COMPONENT: DUMMY # 049 Velocity: 14.067 FT/SEC 4.29 M/SEC

Minimum = -9.41 G'S at 76.2 msec Maximum = 49.67 G'S at 62.5 msec

PELVIS ACCELERATION

1 _____ 098143F1.R11



MGA Research
01-22-1998 14:52

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: January 28, 1998

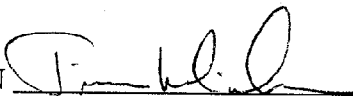
DUMMY NUMBER: 049

TEST NUMBER: D98144

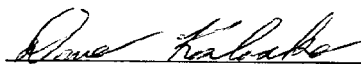
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	26%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.3
FORCE @ 0.75 in	36.7 - 49.8 lbs	43.0
FORCE @ 1.0 in	50 - 63 lbs	57
FORCE @ 1.3 in	73 - 88 lbs	77

TEST MEETS SPECIFICATIONS

TECHNICIAN



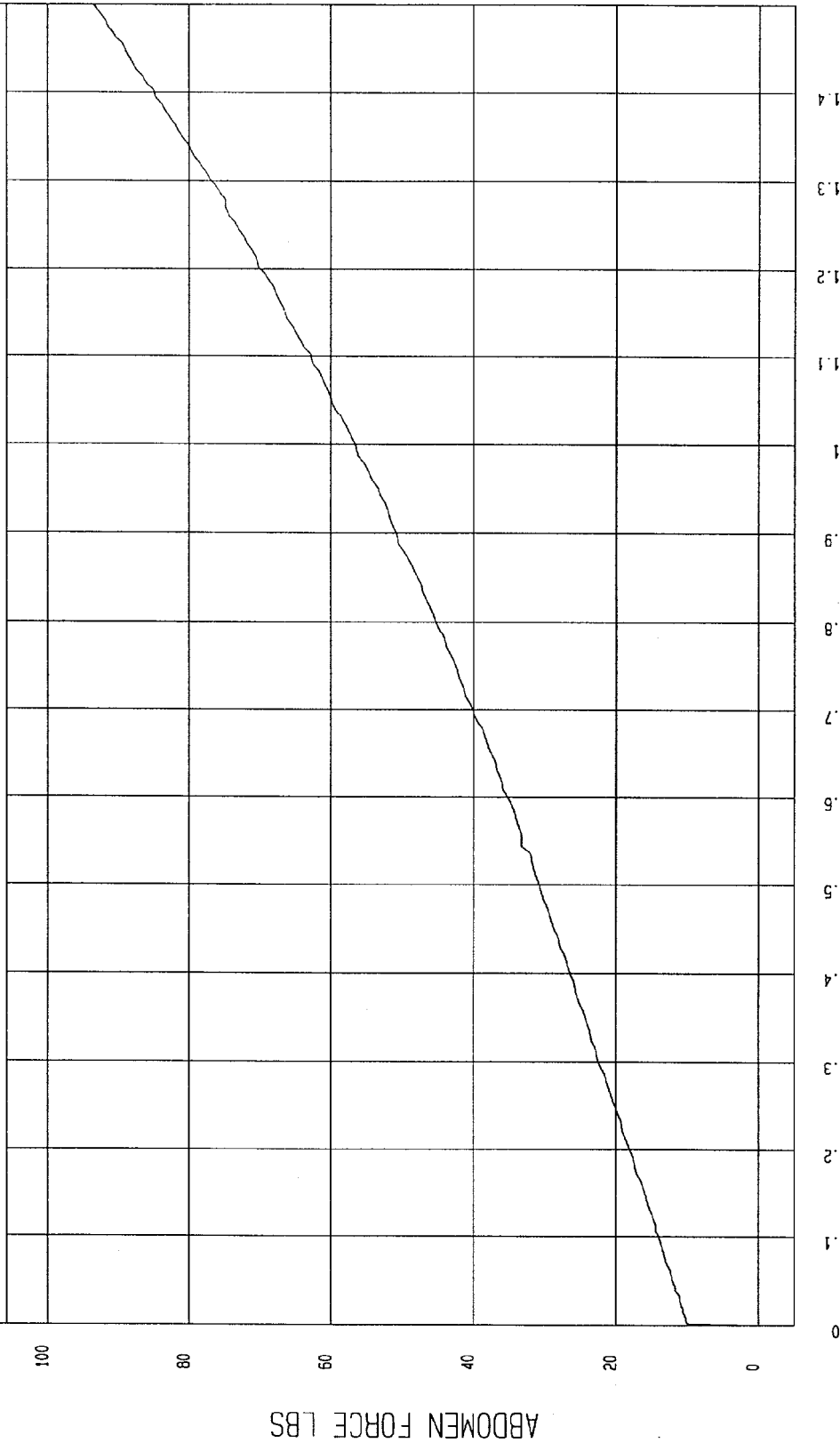
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 01-28-1998 - 10:11

COMPONENT: DUMMY # 049

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



NCA Research
01-28-1998 10:32

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: January 23, 1998

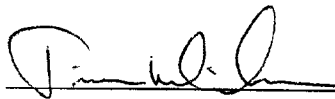
DUMMY NUMBER: 049

TEST NUMBER: D98145

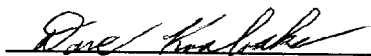
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	23%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	24
FORCE @ 30°	34 - 46 lbs	41
FORCE @ 40°	46 - 58 lbs	57
RETURN ANGLE	12° maximum	1°

TEST MEETS SPECIFICATIONS

TECHNICIAN



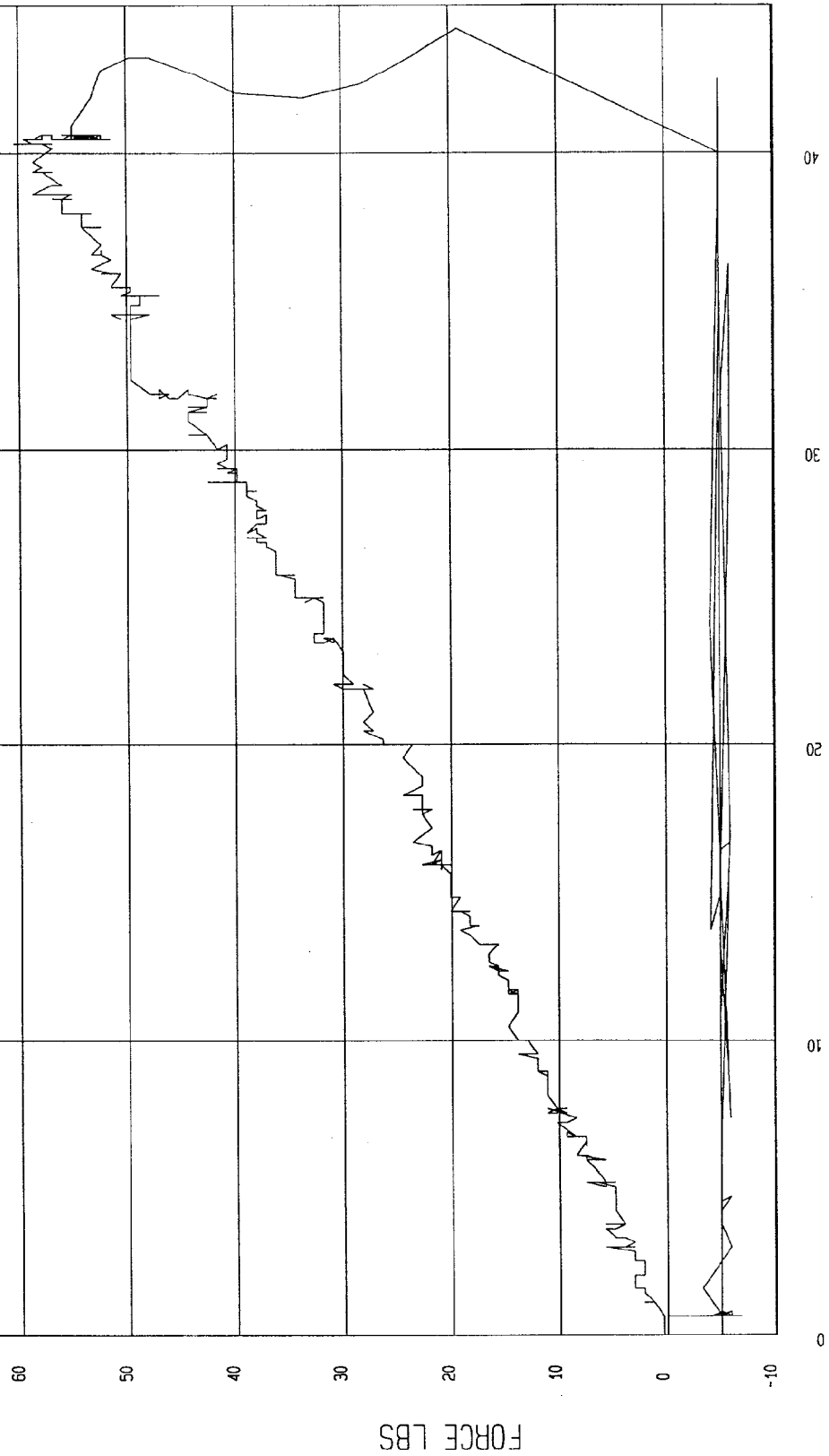
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 01-23-1998 - 11:08

COMPONENT: DUMMY # 049

FORCE as a function of TORSO ROTATION



WGA Research
01-23-1998 11:13

POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 048

Inspected By: Tim Michnay

Date: January 22, 1998

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

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

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 049

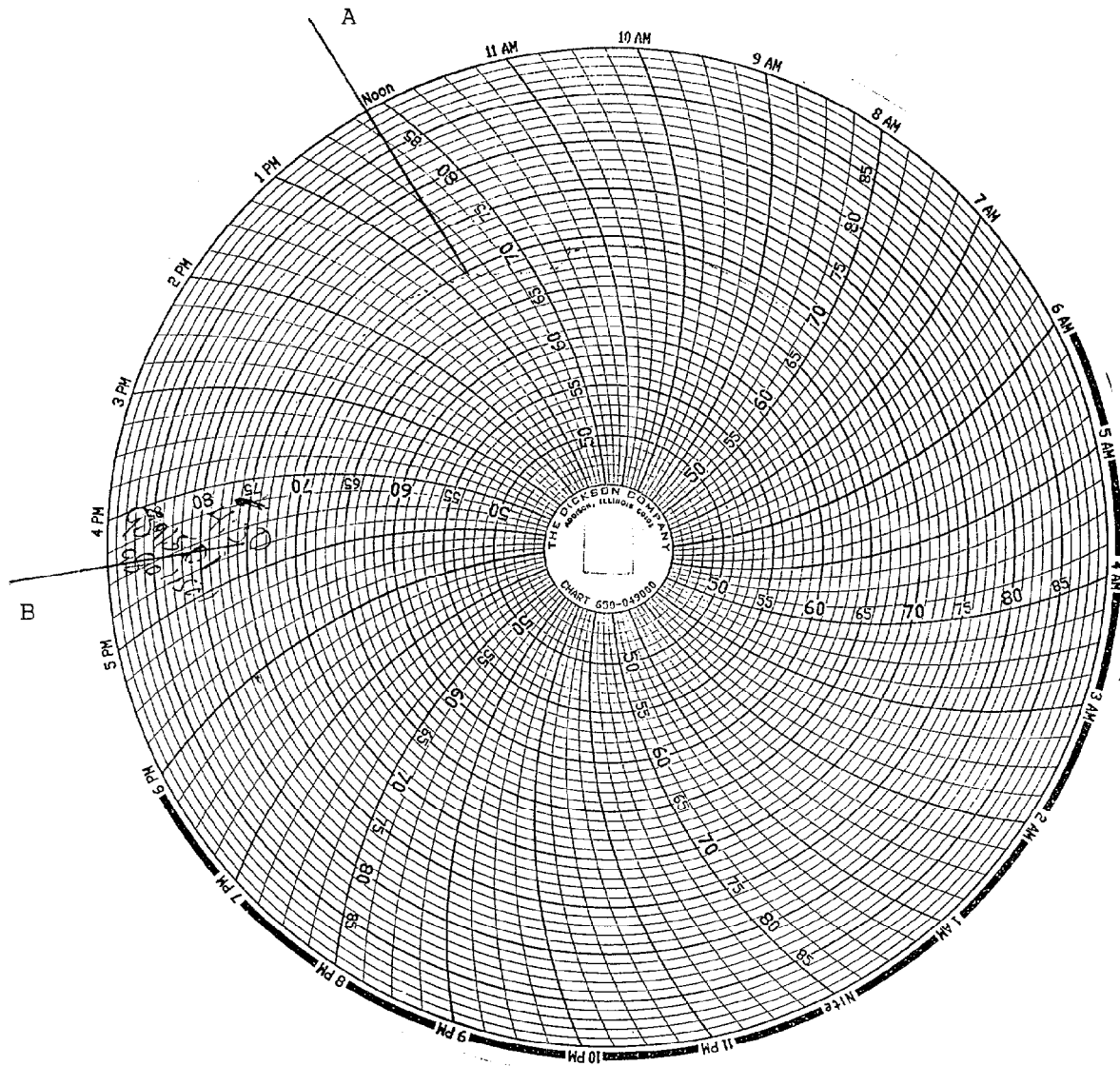
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NOTES: (include component/problem/action/reason):

VEHICLE AND DUMMY TEMPERATURE



A = Dummies installed in vehicle
B = Test conducted

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

DUMMY AND VEHICLE CALIBRATION DATA
INSTRUMENTS FOR DRIVER DUMMY NO. 048

	LEFT FRONT PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AN8L6	Endevco	August 18, 1997
Lower Rib Y	J12465	Endevco	August 18, 1997
Lower Spine Y	J12450	Endevco	August 18, 1997
Pelvis Y	AGTP7	Endevco	August 18, 1997
Upper Rib Redundant Y	APY13	Endevco	August 18, 1997
Lower Rib Redundant Y	J11361	Endevco	August 18, 1997
Lower Spine Redundant Y	J12461	Endevco	August 18, 1997
Pelvis Redundant Y	AGT04	Endevco	August 18, 1997

INSTRUMENTS FOR LEFT REAR PASSENGER DUMMY NO. 049

	LEFT REAR PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AHRP6	Endevco	August 18, 1997
Lower Rib Y	J11630	Endevco	August 18, 1997
Lower Spine Y	AHT20	Endevco	August 18, 1997
Pelvis Y	AJ417	Endevco	August 18, 1997
Upper Rib Redundant Y	AJ412	Endevco	August 18, 1997
Lower Rib Redundant Y	J11166	Endevco	August 18, 1997
Lower Spine Redundant Y	AH0N9	Endevco	August 18, 1997
Pelvis Redundant Y	AGP20	Endevco	August 18, 1997

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE AND MDB ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	J04-F10	Entran	August 7, 1997
Moving Barrier CG Y	F11-G04	Entran	August 7, 1997
Moving Barrier CG Z	J04-F12	Entran	August 7, 1997
Moving Barrier Rear Axle X	G13-B07	Entran	August 6, 1997
Moving Barrier Rear Axle Y	L14-D04	Entran	August 4, 1997
Left Mid A-Post Y	H02-J01	Entran	August 4, 1997
Left Lower A-Post Y	F18-G08	Entran	August 7, 1997
Left Lower B-Post Y	F20-G03	Entran	August 7, 1997
Rear Floorpan Above Axle X	G13-B03	Entran	January 8, 1998
Rear Floorpan Above Axle Y	F11-G07	Entran	January 8, 1998
Rear Floorpan Above Axle Z	E10-F19	Entran	January 8, 1998
Driver Seat Track Y	J13-F16	Entran	August 6, 1997
Right Side Sill at Front Seat X	J06-D22	Entran	January 12, 1998
Right Side Sill at Front Seat Y	C06-G12	Entran	January 12, 1998
Right Side Sill at Front Seat Z	B14-R13	Entran	January 12, 1998
Right Side Sill at Rear Seat X	E10-F14	Entran	January 12, 1998
Right Side Sill at Rear Seat Y	H02-J02	Entran	January 12, 1998
Right Side Sill at Rear Seat Z	G13-B14	Entran	January 12, 1998
Left Side Sill at Front Seat Y	B14-R03	Entran	August 4, 1997

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE AND MDB ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Rear Seat Y	E13-D17	Entran	December 10, 1997
Rear Occupant Compartment Y	F20-G05	Entran	August 7, 1997
Vehicle CG X	F12-G06	Entran	January 12, 1998
Vehicle CG Y	F13-B12	Entran	January 12, 1998
Vehicle CG Z	D05-R10	Entran	January 12, 1998

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