

V2433

REPORT NO.: 214-MGA-96-016  
SAFETY COMPLIANCE TESTING FOR  
FMVSS 214 "SIDE IMPACT PROTECTION -  
PASSENGER CARS"

CHRYSLER CORPORATION  
1996 DODGE AVENGER 2 DOOR COUPE  
NHTSA NO: CT0308

MGA PROVING GROUNDS  
5000 WARREN ROAD  
BURLINGTON, WI 53105



Test Date: March 19, 1996

Report Date: March 28, 1996

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
ENFORCEMENT  
OFFICE OF VEHICLE SAFETY COMPLIANCE  
MAIL CODE: NSA-30  
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WASHINGTON, D.C. 20590

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

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Approval Date: 4-22-96

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Acceptance Date: 5/2/96

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 214-MGA-96-016		2. Government Accession No.		3. Recipient's Catalog No.																			
4. Title and Subtitle  Final Report of FMVSS No.214 Compliance Side Impact Protection Testing of a 1996 Dodge Avenger 2 Door Coupe NHTSA No. CT0308				5. Report Date March 28, 1996																			
				6. Performing Organization Code MGA																			
7. Author(s) Dave Kosloske, Project Engineer				8. Performing Organization Report No. MGA-DOT-214-016																			
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105				10. Work Unit No.																			
				11. Contract or Grant No. DTNH22-93-C-02047																			
12. Sponsoring Agency Name and Address  U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (Mail Code: NSA-30) 400 Seventh St., S.W., Room 6115 Washington, D.C. 20590				13. Type of Report and Period Covered Final Test Report March 19 to March 28, 1996																			
				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 1996 Dodge Avenger 2 Door Coupe 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 March 19, 1996.  The impact velocity of the Moving Deformable Barrier (MDB) was 53.3 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 23°C. The target vehicle post test maximum crush was 346 mm at level 2. The test vehicle's performance follows:																							
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 20%; text-align: center;"><u>DRIVER</u></th> <th style="width: 20%; text-align: center;"><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td style="text-align: center;">76</td> <td style="text-align: center;">52</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">77</td> <td style="text-align: center;">57</td> </tr> <tr> <td>Lower Spine (T<sub>12</sub>) Accel., g</td> <td style="text-align: center;">87</td> <td style="text-align: center;">44</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">82</td> <td style="text-align: center;">51</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">92</td> <td style="text-align: center;">67</td> </tr> </tbody> </table>							<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	76	52	Left Lower Rib (LLR) Accel., g	77	57	Lower Spine (T <sub>12</sub> ) Accel., g	87	44	Thoracic Trauma Index (TTI)	82	51	Pelvis (PEV) Accel., g	92	67
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The door on the struck side of the vehicle did not separate from the body at the hinges or latch and the opposite door did not open during the side impact event.																							
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																			
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages	22. Price																		

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SECTION 1  
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 96 FMVSS 214 Side Impact Protection Compliance Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-93-C-02047. The purpose of this test was to evaluate side impact protection of a 1996 Dodge Avenger 2 Door Coupe.

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 1996 Dodge Avenger 2 Door Coupe was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 33.1 mph (53.3 kph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin, on March 19, 1996. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in Appendix A.

Two Side Impact Dummies (SIDs) were placed in the driver 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 (T<sub>12</sub>) 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 test:

Injury Criteria	Front SID	Rear SID
TTI (g)	82	51
Pelvis (g)	92	67

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

Rear Seat Track

2. The ATD umbilical cords interfered with the string potentiometer used to measure rear seating position intrusion.

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: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 VIN: 4B3-AU42Y3TE-338034

Vehicle Body Color: Prism Blue Build Date: 12-95

Engine Data: 4 Cylinders;    CID; 2.0 Liter;    cc

Placement    Longitudinal;   X Lateral

Transmission: 4 speed;    Manual;   X Automatic;   X Overdrive

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

Odometer Reading 288 miles

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

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

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 32 Psi FRONT

29 Psi REAR

Recommended Tire Size: P195/70R14

Tires on Test Vehicle: P195/70R14 Manufacturer: Goodyear

Vehicle Capacity Data:

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

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

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

Vehicle Maximum Capacity Loading = 375.1 kg (A)

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

Cargo Capacity (A-B) = 34.9 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>420.9</u>	kg	Right Rear	=	<u>250.4</u>	kg
Left Front	=	<u>430.0</u>	kg	Left Rear	=	<u>243.6</u>	kg
TOTAL FRONT	=	<u>850.9</u>	kg	TOTAL REAR	=	<u>494.0</u>	kg
% of Total Vehicle Weight = <u>63.3</u> %;				% of Total Weight = <u>36.7</u> %			
TOTAL WEIGHT = <u>1344.9</u> kg							

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids = 1344.9 kg  
Cargo Carrying Capacity of Test Vehicle = 34.9 kg  
Weight of 2 Side Impact Dummies (2 x 80.7 kg.) = 161.4 kg  
TEST VEHICLE TARGET WEIGHT = 1541.2 kg

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front = 437.7 kg      Right Rear = 297.1 kg  
Left Front = 467.7 kg      Left Rear = 333.4 kg  
TOTAL FRONT = 905.4 kg      TOTAL REAR = 630.5 kg  
% of Total Weight = 58.9%      % of Total Weight = 41.1%  
TOTAL TEST WEIGHT = 1535.9 kg

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 704 mm Left Front 699 mm Right Rear 709 mm Left Rear 726 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 697 mm Left Front 683 mm Right Rear 700 mm Left Rear 666 mm

TEST ATTITUDE:

Right Front 693 mm Left Front 686 mm Right Rear 694 mm Left Rear 666 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2640 mm

C.G. = 1084 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4335 mm

Centerline = 4717 mm

Left Side = 4335 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 240 mm

Test Position: 13th detent rearward out of 25 total

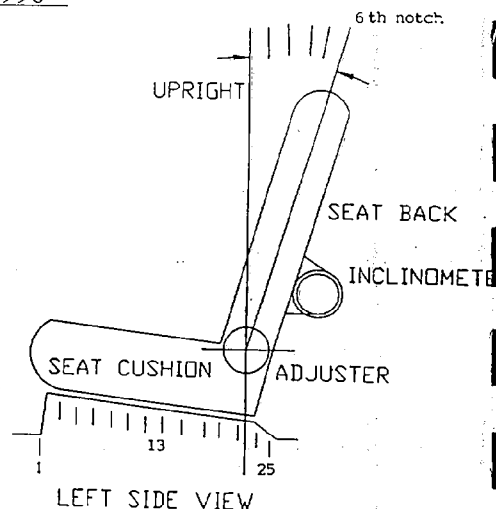
FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 6th notch back from 1st locking position

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: Non-Adjustable



ADJUSTABLE STEERING COLUMN POSITION: Mid position 16.2°

WINDOW POSITIONS: Left Front Closed Left Rear Closed-fixed

Right Front Open Right Rear Removed

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 64.0 liters

Test Volume: 59.5 liters 93 % of capacity

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

Wheelbase: = 2640 mm

Impact Point is 380 mm rearward of front axle centerline

DATA SHEET NO. 2

TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe  
Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996  
Overall Length = 4717 mm; Overall Width = 1741 mm

TEST WEIGHT:

Right Front = 437.7 kg                      Right Rear = 297.1 kg  
Left Front = 467.7 kg                      Left Rear = 333.4 kg  
TOTAL FRONT = 905.4                      TOTAL REAR = 630.5 kg  
% of Total Weight = 58.9%                      % of Total Weight = 41.1%  
TOTAL VEHICLE WEIGHT = 1535.9 kg  
Wheelbase = 2640 mm  
Longitudinal C.G. from Center of Front Axle = 1084 mm  
Impact Angle with Respect to Impactor = 90° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 ( 237 mm above ground) = 205 mm  
2. LEVEL 2 ( 417 mm above ground) = 346 mm  
3. LEVEL 3 ( 565 mm above ground) = 318 mm  
4. LEVEL 4 ( 838 mm above ground) = 258 mm  
5. LEVEL 5 ( 1230 mm above ground) = 55 mm  
Maximum Post-Test Intrusion = 346 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>type II belt</u>

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)

INSTRUMENTATION:

Number of Vehicle Data Channels:	=	<u>22</u>
Number of Cameras: Onboard Vehicle	=	<u>3</u>
Offboard Vehicle	=	<u>4</u>
Deformable Barrier	=	<u>2</u>
TOTAL	=	<u>9</u>

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 26.5° 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>1102 mm</u>
C.G. Location From Center Line	= <u>-8 mm</u>
C.G. Location Above Ground Level	= <u>488 mm</u>

MDB WEIGHT:

Left Front	= <u>496.7 kg</u>	Left Rear	= <u>187.3 kg</u>
Right Front	= <u>283.0 kg</u>	Right Rear	= <u>389.2 kg</u>
TOTAL FRONT	= <u>779.7 kg</u>	TOTAL REAR	= <u>576.5 kg</u>
TOTAL MDB WEIGHT = <u>1356.2 kg</u>			

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

Impact Speed = Primary: 33.1 mph (53.3 kph) Secondary: 33.3 mph (53.6 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>112</u> mm |
| 2. | Row B Mid Stack (686 mm)        | = <u>125</u> mm |
| 3. | Row C Top of Bumper (533 mm)    | = <u>64</u> mm  |
| 4. | Row D Center of Bumper (432 mm) | = <u>87</u> mm  |

INSTRUMENTATION:

Number of MDB Data Channels = 7

DATA SHEET NO. 4  
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to window, shoulder</u>	<u>to C Pillar, back window</u>
Arm	<u>to door panel</u>	<u>to side window, side panel</u>
Pelvis	<u>to door panel</u>	<u>to side panel</u>
Left Knee	<u>to door panel</u>	<u>to side 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>no</u>	<u>opened</u>
Rear	<u>N/A</u>	<u>N/A</u>

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 1 mm rearward      Vertical: 7 mm high

ARM REST LOCATIONS:

Front: 297 mm from bottom of window

Rear: 368 mm from bottom of window

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 80 mm Front Seat Cushion: 124 mm

Left Rear Seat Back: 99 mm Rear Seat Cushion: 167 mm

GLAZING DAMAGE:

Windshield cracked, both driver's side windows broke

PILLAR PERFORMANCE:

No failure noted

SILL SEPARATION:

No failure noted

OTHER NOTABLE IMPACT EFFECTS:

Fuel filler door opened upon impact

SECTION 4  
OCCUPANT AND VEHICLE INFORMATION

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

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

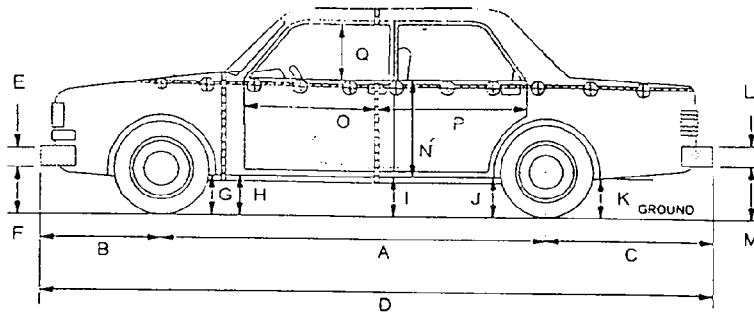
Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

	Front Dummy ID #269				Rear Dummy ID #270			
	Pos. Direct.		Neg. Direct.		Pos. Direct.		Neg. Direct.	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
<b>RIB ACCELERATIONS</b>								
Left Upper Rib (LUR) Y	76.2	40	-17.9	79	52.3	50	-6.4	78
Left Lower Rib (LLR) Y	77.1	40	-16.7	90	57.3	49	-19.8	77
<b>SPINE ACCELERATIONS</b>								
Lower Lateral Y	86.6	35	-20.1	71	44.1	46	-10.4	70
<b>PELVIS ACCELERATIONS</b>								
Lateral Y	91.6	32	-26.5	72	66.8	40	-9.0	86

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

Negative Direction - Longitudinal (X) = rearward  
 Lateral (Y) = to left  
 Vertical (Z) = up

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)

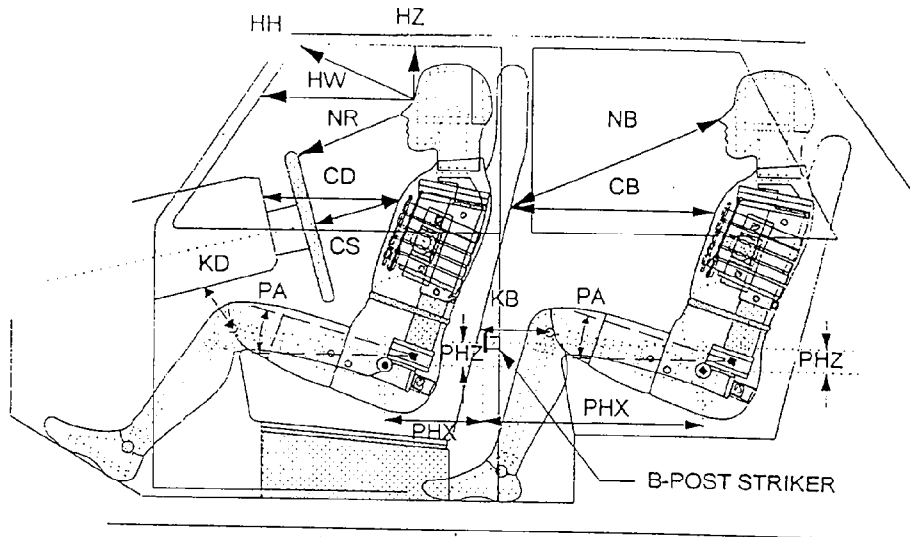
	PRE-TEST	POST-TEST	Δ CHANGE
A	2640	2602	38
B	952	996	44
C	1120	1121	1
D	4717	4719	2
E	145	145	0
F	376	395	19
G	171	192	21
H	150	181	31
I	146	166	20
J1/J2	146/146	183/177	37/31
K	172	224	52
L	260	260	0
M	356	426	70
N	600	536	64
O	837	830	7
P	448	449	1
Q	389	368	21
R	4335	4308	27
S	4335	4251	84
T	1741	1420	321

DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

NHTSA NO.: CT0308 Test Date: March 19, 1996



NOTE: All dimensions are in mm with tolerance of  $\pm 3$  mm

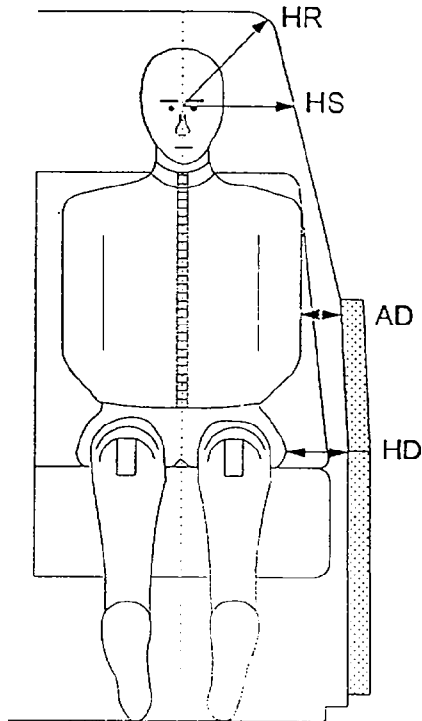
	FRONT SID ID #269		REAR PASSENGER SID ID #270
HH	417	HZ	154
HW	690	NB	616
HZ	182	CB	504
NR	450	KBL (KBA)	139 (7.9°)
CD	568	KBR (KBA)	126 (13.3°)
CS	344	PA°	24.3°
KDL(KDA°)	165 (9.6°)	PHX	478
KDR(KDA°)	152 (30.4°)	PHZ	133
PA°	24.8°		
PHX	418		
PHZ	221		

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: 1996/Dodge/Avenger/2 Door Coupe

NHTSA NO.: CT0308 Test Date: March 19, 1996



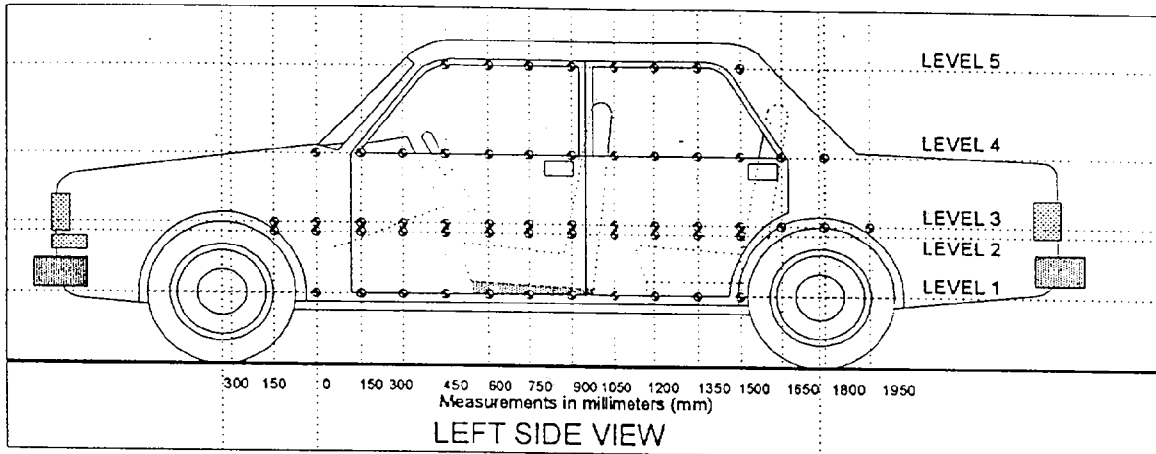
NOTE: All dimensions are in mm

	DRIVER ID #269	LEFT REAR PASSENGER ID #270
HR	201	209
HS	292	257
AD	68	133
HD	127	110

DATA SHEET NO. 9  
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

NHTSA NO.: CT0308 Test Date: March 19, 1996



- 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

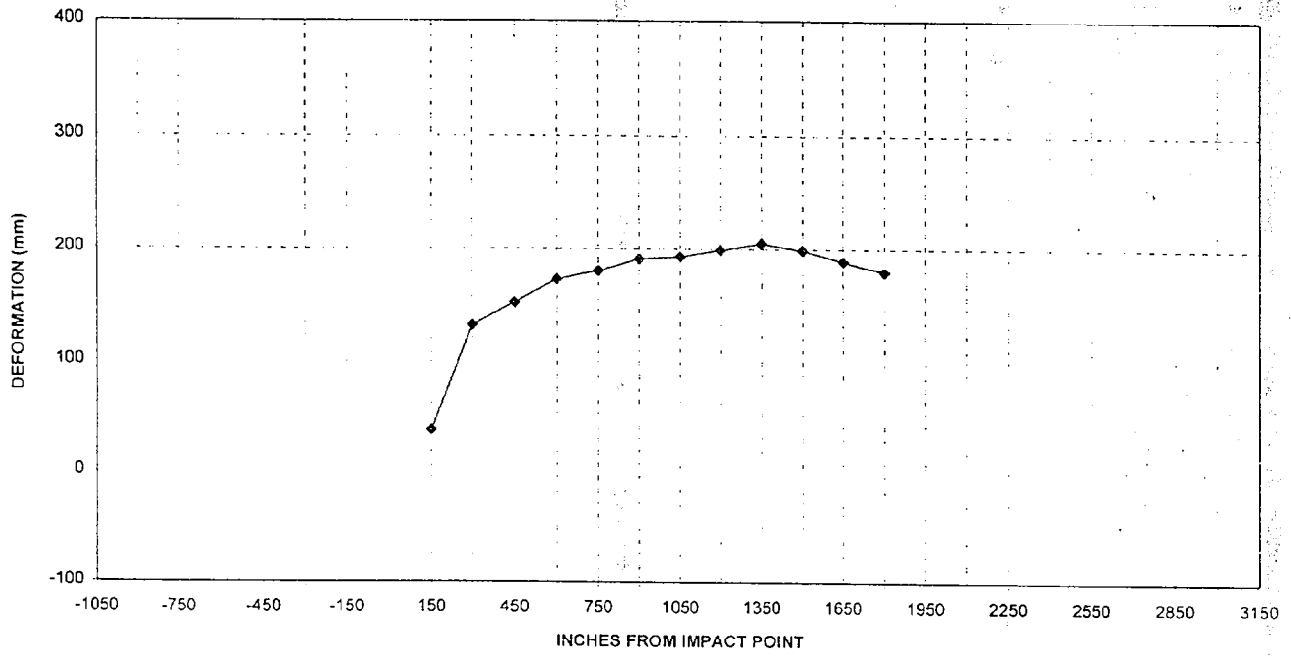
Level 5 @ Window Top	=	<u>1230</u> mm
Level 4 @ Window Sill	=	<u>838</u> mm
Level 3 @ Mid Door	=	<u>565</u> mm
Level 2 @ Occupant H-Point	=	<u>417</u> mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>237</u> mm

DATA SHEET NO. 10  
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

	Level 1 - Axle Centerline		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150	734	772	38
300	747	878	131
450	746	897	151
600	745	917	172
750	746	926	180
900	745	936	191
1050	742	935	193
1200	735	934	199
1350	728	933	205
1500	720	919	199
1650	716	905	189
1800	710	889	179
1950			
2100			
2250			
2400			
2550			
2700			
2850			
3000			
3150			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



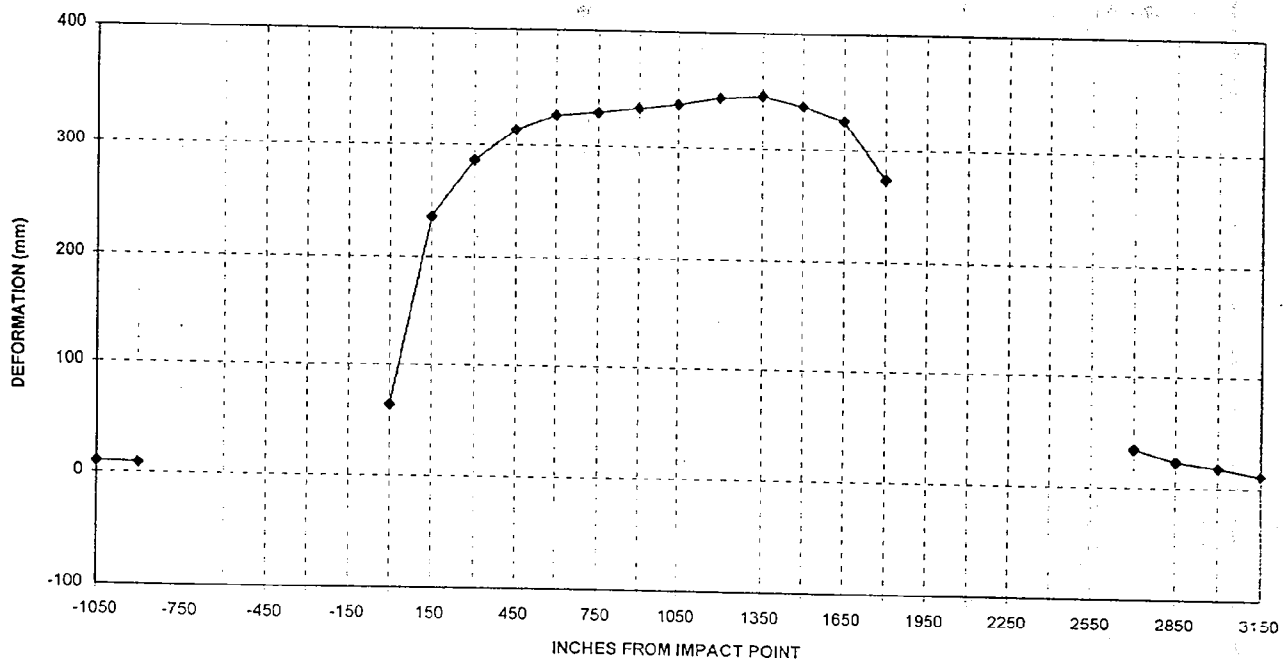
LEVEL 1 - AXLE CENTERLINE

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

Longitudinal Distance (mm)	Level 2 - Occupant H Point		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050	790	800	10
-900	741	750	9
-750			
-600			
-450			
-300			
-150			
0 (impact point)	689	752	63
150	697	933	236
300	700	986	286
450	700	1014	314
600	699	1026	327
750	700	1030	330
900	698	1032	334
1050	698	1036	338
1200	696	1040	344
1350	696	1042	346
1500	693	1031	338
1650	691	1017	326
1800	688	962	274
1950			
2100			
2250			
2400			
2550			
2700	702	736	34
2850	716	739	23
3000	738	756	18
3150	775	786	11

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



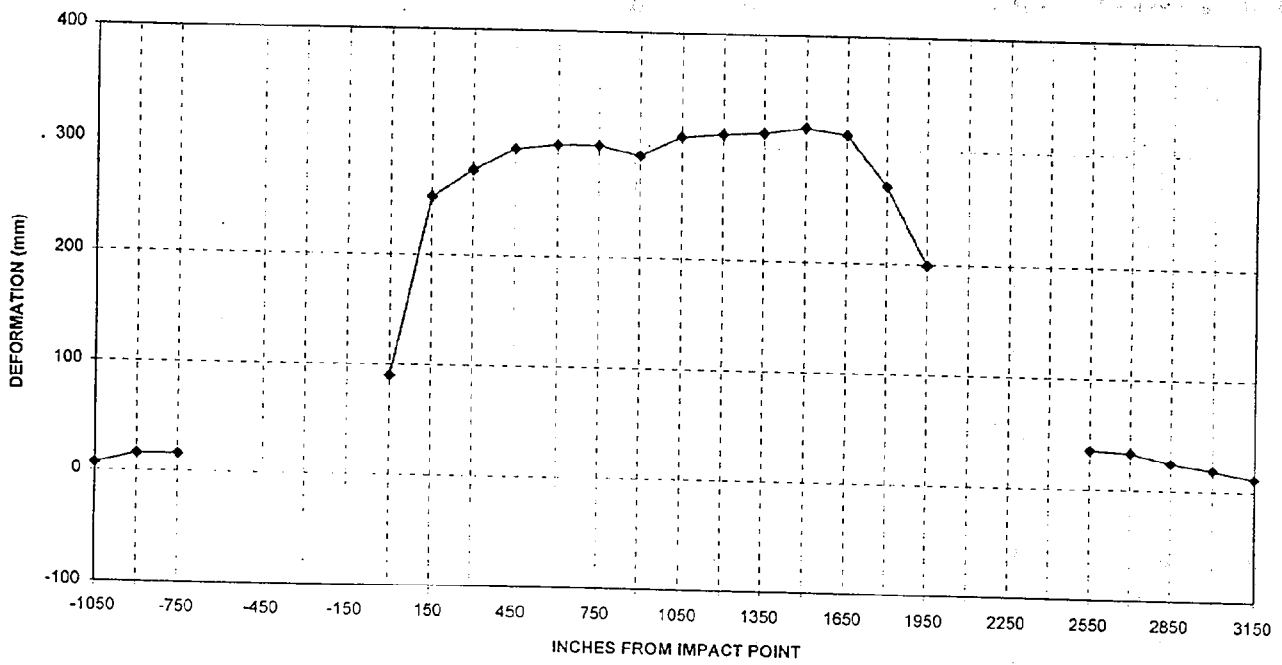
LEVEL 2 - OCCUPANT H-POINT

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

Longitudinal Distance (mm)	Level 3 - Mid Door		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050	802	809	7
-900	742	758	16
-750	697	713	16
-600			
-450			
-300			
-150			
0 (impact point)	679	769	90
150	682	934	252
300	683	959	276
450	686	981	295
600	688	987	299
750	689	988	299
900	687	978	291
1050	685	993	308
1200	683	994	311
1350	682	995	313
1500	680	998	318
1650	678	991	313
1800	676	945	269
1950	679	878	199
2100			
2250			
2400			
2550	687	722	35
2700	701	734	33
2850	719	743	24
3000	746	764	18
3150	786	797	11

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



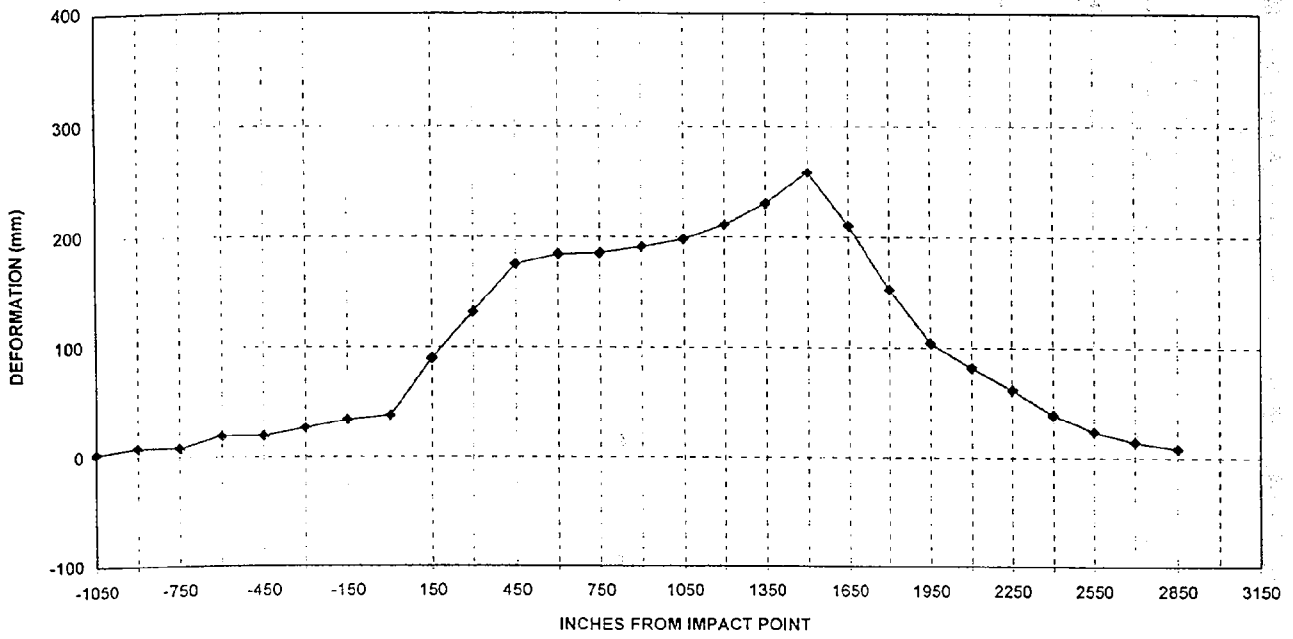
LEVEL 3 - MID DOOR

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

	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050	845	848	3
-900	816	824	8
-750	799	807	8
-600	783	802	19
-450	774	793	19
-300	769	795	26
-150	761	795	34
0 (impact point)	762	800	38
150	761	851	90
300	760	891	131
450	756	931	175
600	758	942	184
750	759	944	185
900	759	950	191
1050	759	957	198
1200	757	968	211
1350	758	988	230
1500	754	1012	258
1650	753	963	210
1800	749	901	152
1950	746	850	104
2100	744	826	82
2250	743	805	62
2400	746	785	39
2550	758	781	23
2700	772	786	14
2850	789	797	8
3000			
3150			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



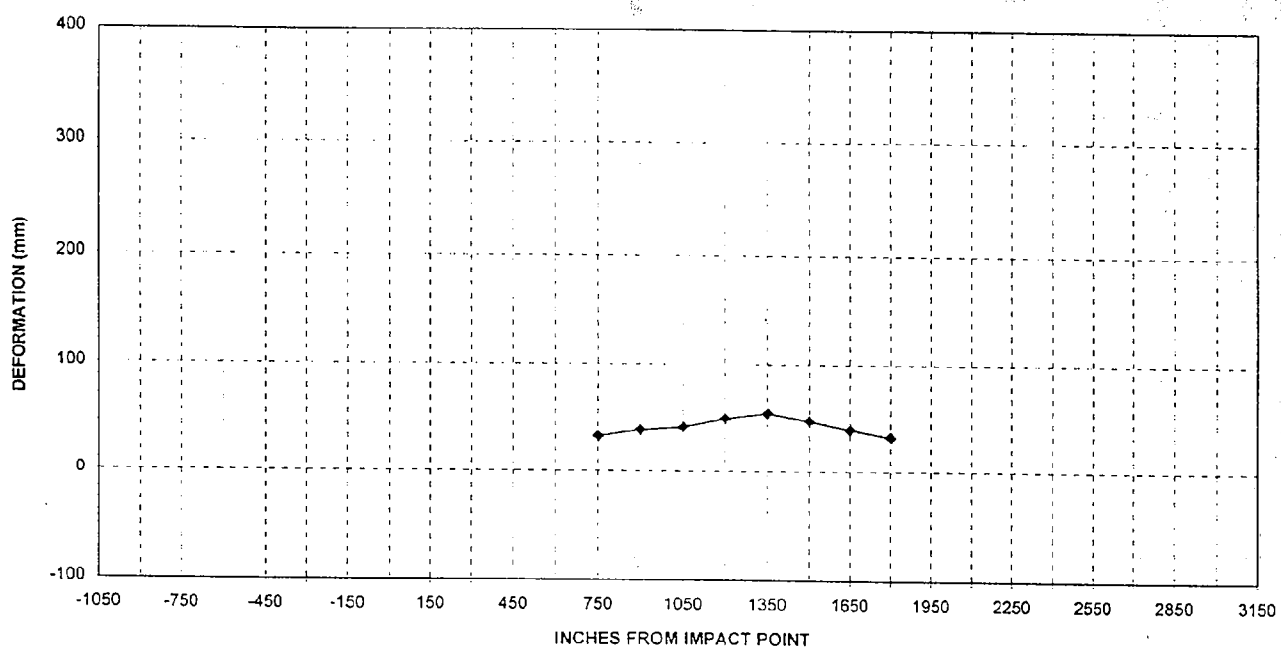
LEVEL 4 - WINDOW SILL

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

Longitudinal Distance (mm)	Level 5 - Window Top		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750	973	1006	33
900	977	1016	39
1050	983	1025	42
1200	985	1033	50
1350	985	1040	55
1500	985	1033	48
1650	986	1026	40
1800	990	1023	33
1950			
2100			
2250			
2400			
2550			
2700			
2850			
3000			
3150			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)

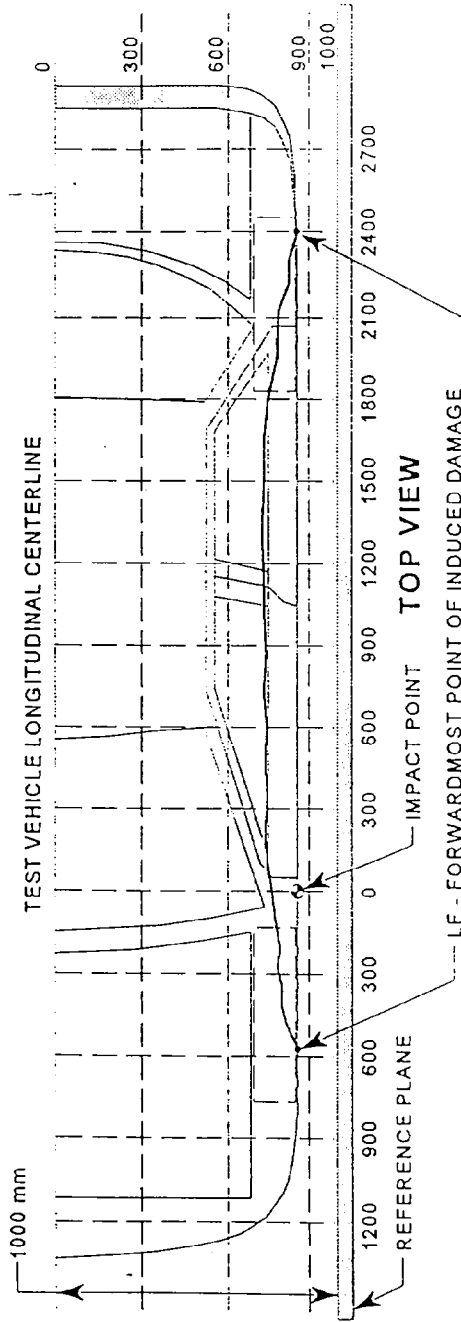


LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11  
 VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

NHTSA NO.: CT0308 Test Date: March 19, 1996



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

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = <u>1000</u> mm)	780	780	0
2. <u>-200</u> mm	795	765	30
3. <u>600</u> mm	1026	699	327
4. <u>1400</u> mm	1038	695	343
5. <u>2200</u> mm	810	743	67
6. (LR = <u>3000</u> mm)	744	744	0

DATA SHEET NO. 12

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

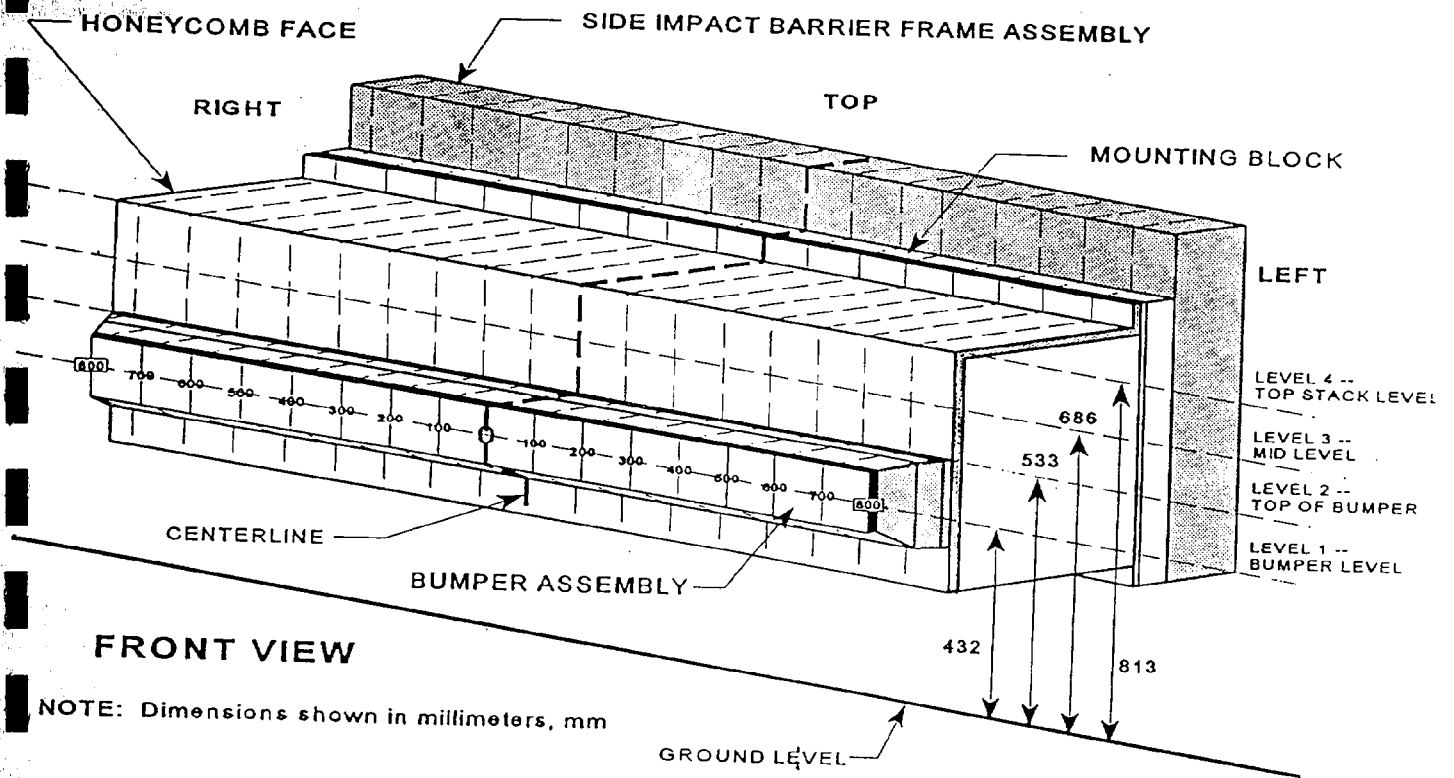
Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

Location	Height at CL*	Distance Right of Center (mm)								Distance Left of Center (mm)								
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level 4	813 mm	69	30	4	2	3	3	4	2	2	2	6	5	9	28	56	82	112
Mid Level Level 3	686 mm	15	1	1	1	5	2	1	-2	2	2	1	3	2	8	42	91	125
Top Bumper Level 2	533 mm	28	14	5	1	-1	0	3	4	5	7	8	10	16	24	42	64	
Mid Bumper Level 1	432 mm	68	47	35	28	21	19	17	19	20	23	24	27	32	48	75	87	

See next page for Barrier Face Graphic

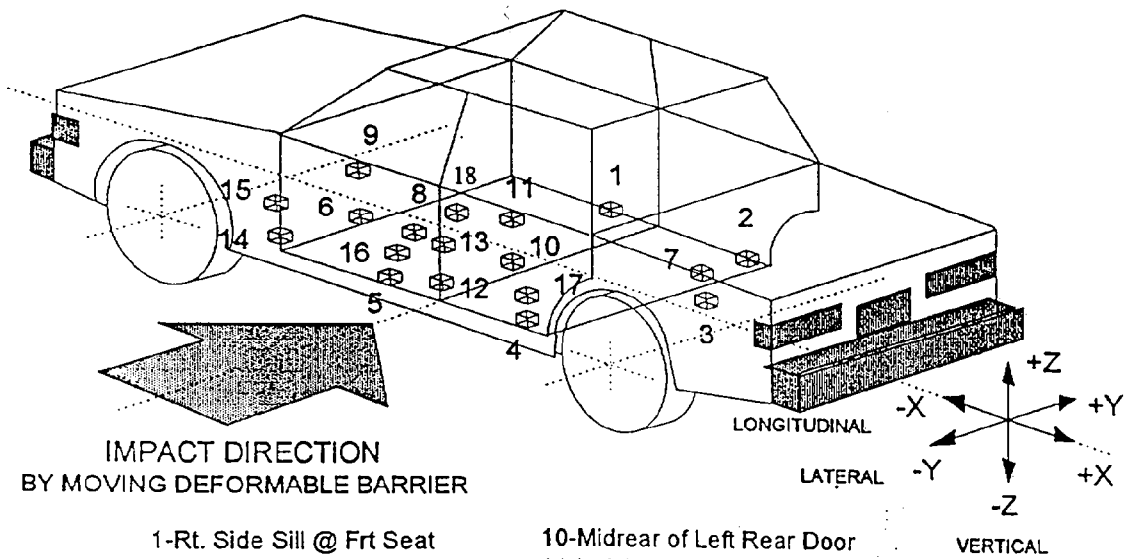
DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13  
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996



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

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

DATA SHEET NO. 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

Accel. No.	Description	Coordinates (mm)*			Long. (X) Maximums (g's)		Lat. (Y) Maximums (g's)		Vert. (Z) Maximums (g's)		Resultant (g's)
		X	Y	Z	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
1	Rt. Side Sill @ Front Seat	2320	663	205	3.5	-3.5	15.2	-3.9	7.5	-3.0	15.9
2	Rt. Side Sill @ Rear Seat	1672	635	199	3.9	-3.4	20.1	-3.6	5.3	-2.7	20.8
3	Rr. Floorpan Above Axle	1038	40	481	3.8	-9.3	31.5	-0.9	15.4	-11.7	32.4
4	Left Side Sill @ Rr. Seat	1606	-635	197	---	---	39.5	-9.0	---	---	---
5	Left Side Sill @ Frt. Seat	2297	-663	175	---	---	55.3	-29.9	---	---	---
7	Right Rear Occupant Compartment	1959	260	297	---	---	18.2	-2.6	---	---	---
12	Left Lower B-Post	2072	-665	270	---	---	182.4	-76.5	---	---	---
13	Left Mid B-Post	2008	-705	740	---	---	148.3	-24.8	---	---	---
14	Left Lower A-Post	2329	-700	450	---	---	96.4	-105.7	---	---	---
15	Left Mid A-Post	3192	-772	682	---	---	93.5	**	---	---	---
16	Driver Left Seat Track	2333	-604	227	---	---	49.8	-102.3	---	---	---
18	Vehicle CG	2552	-14	333	3.4	-4.5	23.2	-3.0	9.2	-8.6	25.1

\*Reference: X - Rear Bumper (+ Forward)

Y - Vehicle Centerline (+ To right)

Z - Ground Level (+ Up)

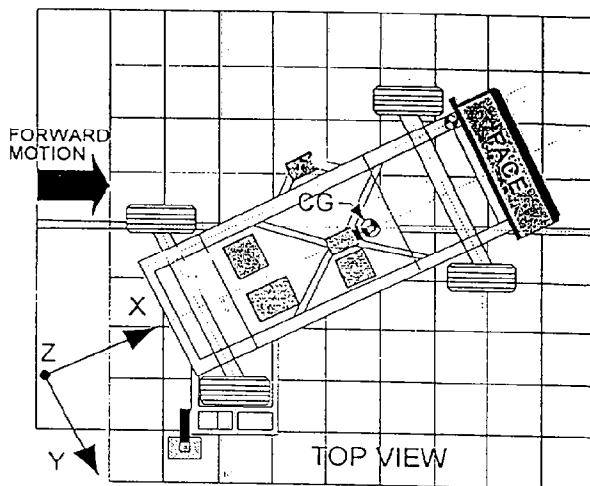
\*\* Data not valid after approximately 23.4 msec.

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996



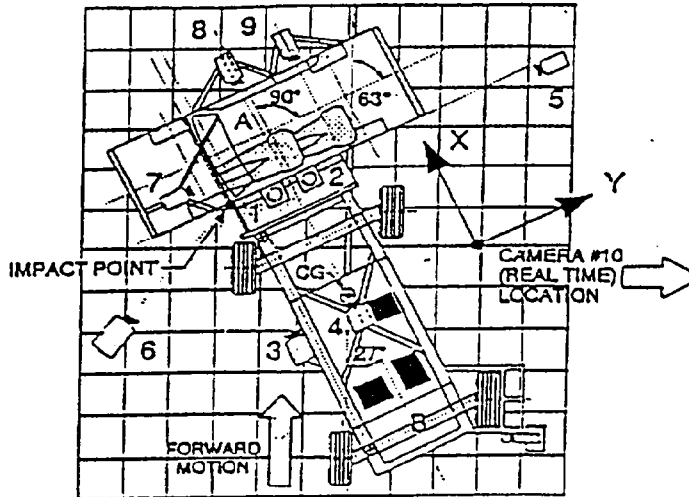
Accel. No.	Description	Coordinates (mm)*			(+ ) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	1.2	98	-15.7	33
	Lateral (Y)	---	---	---	1.1	83	-6.6	46
	Vertical (Z)	---	---	---	14.1	30	-5.8	48
	Resultant (R)	---	---	---	20.9	33	---	---
2	Rear Frame Member	-2591	-625	622				
	Longitudinal (X)	---	---	---	1.7	199	-19.3	33
	Lateral (Y)	---	---	---	4.9	35	-0.9	70

\*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: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
	Real Time					13	24
1	Top Impact	-30	-103	5400	90°	13	943
2	Top Wide	320	747	5130	90°	8	1087
3	Cart Pointer					35	NT
4	Cart					13	NT
5	Right Impact	2930	8967	1925	90°	25	1020
6	Left Overall	-3340	-1683	1935	90°	13	1087
7	Onboard Driver					8	1031
8	Onboard Hood					13	990
9	Onboard Passenger					8	902

\* Reference: (from impact point)  
 +X = Forward  
 +Y = To Right  
 +Z = Upward from floor level  
 NT = No Timing Available

DATA SHEET 16  
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

TEST REQUIREMENTS:

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

TEST VEHICLE IMPACT TYPE: X Side Impact MDB 33.1 mph (53.3 kph)

FUEL SPILLAGE MEASUREMENT:

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

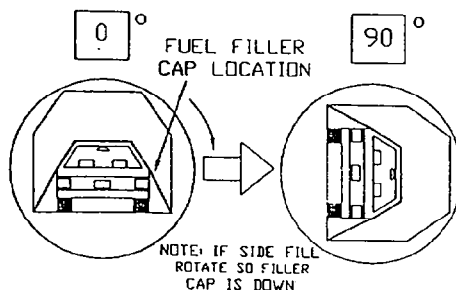
FUEL SPILLAGE LOCATION(S): None

DATA SHEET 16  
 FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes      40 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes      0 seconds

TOTAL TIME = 7 minutes      40 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

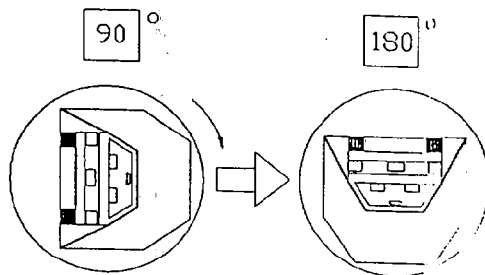
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 25 seconds  
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 25 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

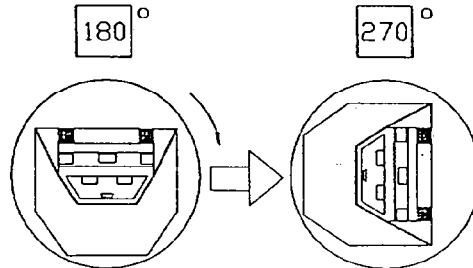
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 26 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 26 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

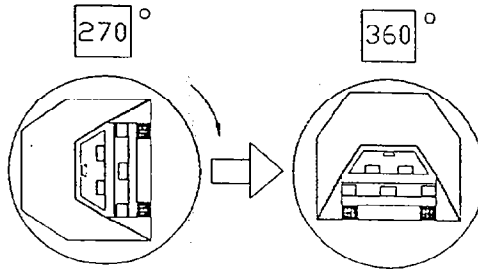
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1996/Dodge/Avenger/2 Door Coupe

Vehicle NHTSA No.: CT0308 Test Date: March 19, 1996

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 45 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 45 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

APPENDIX A - PHOTOGRAPHS

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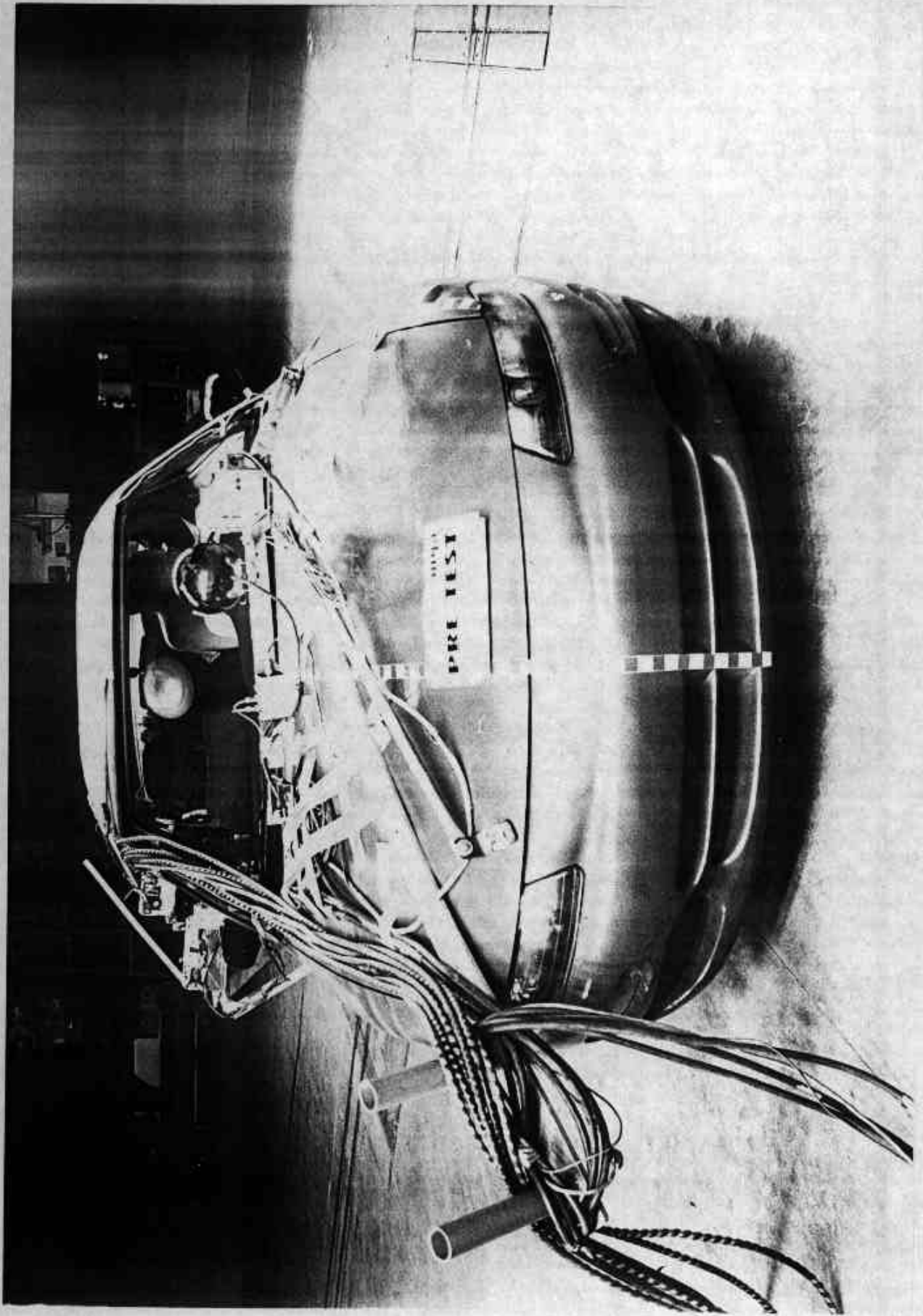


Photo No. A-1 - Pre-Test Front View of Test Vehicle

A-1

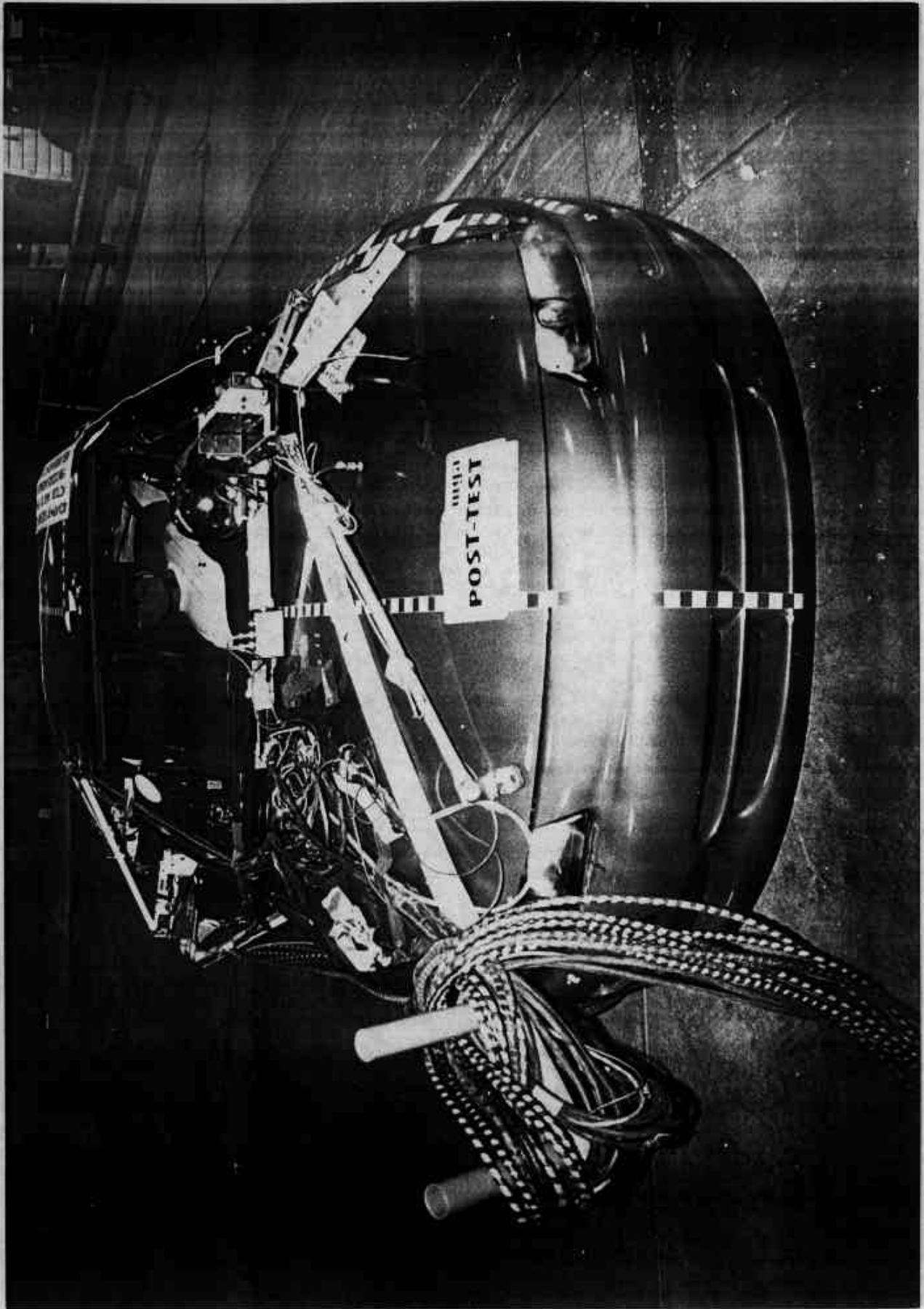


Photo No. A-2 - Post-Test Front View of Test Vehicle

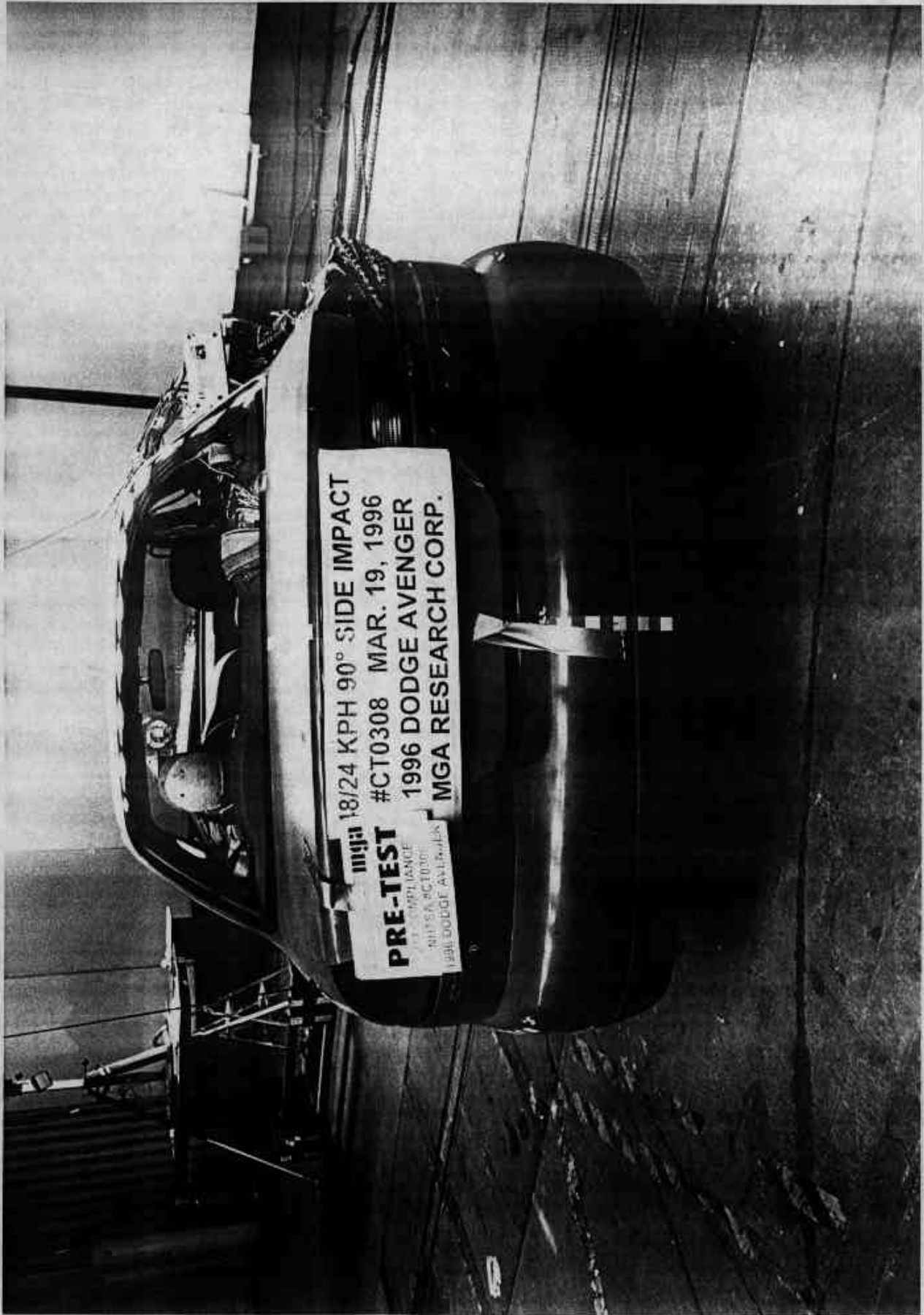


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

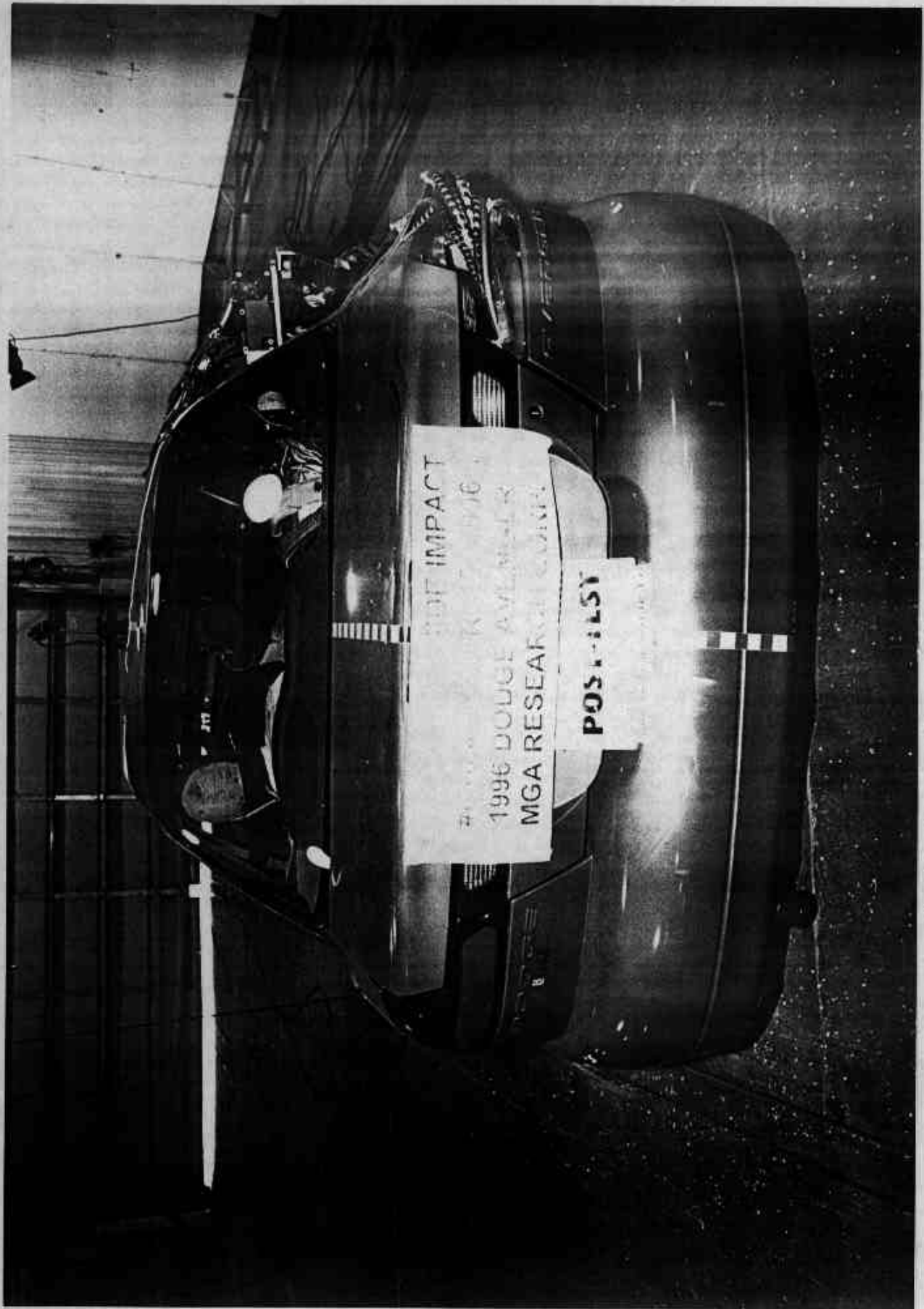


Photo No. A-4 - Post-Test Rear View of Test Vehicle

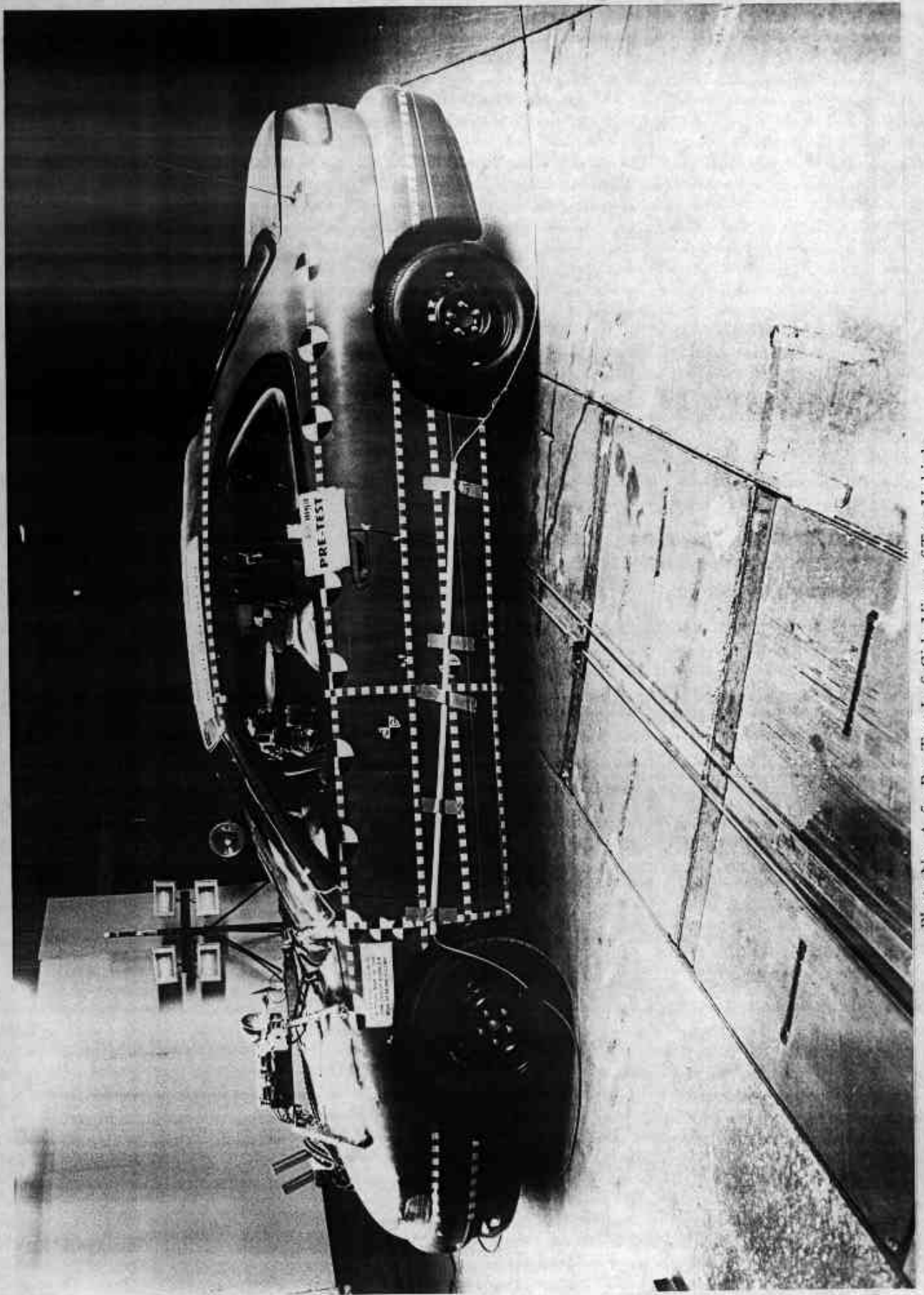


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

A-5

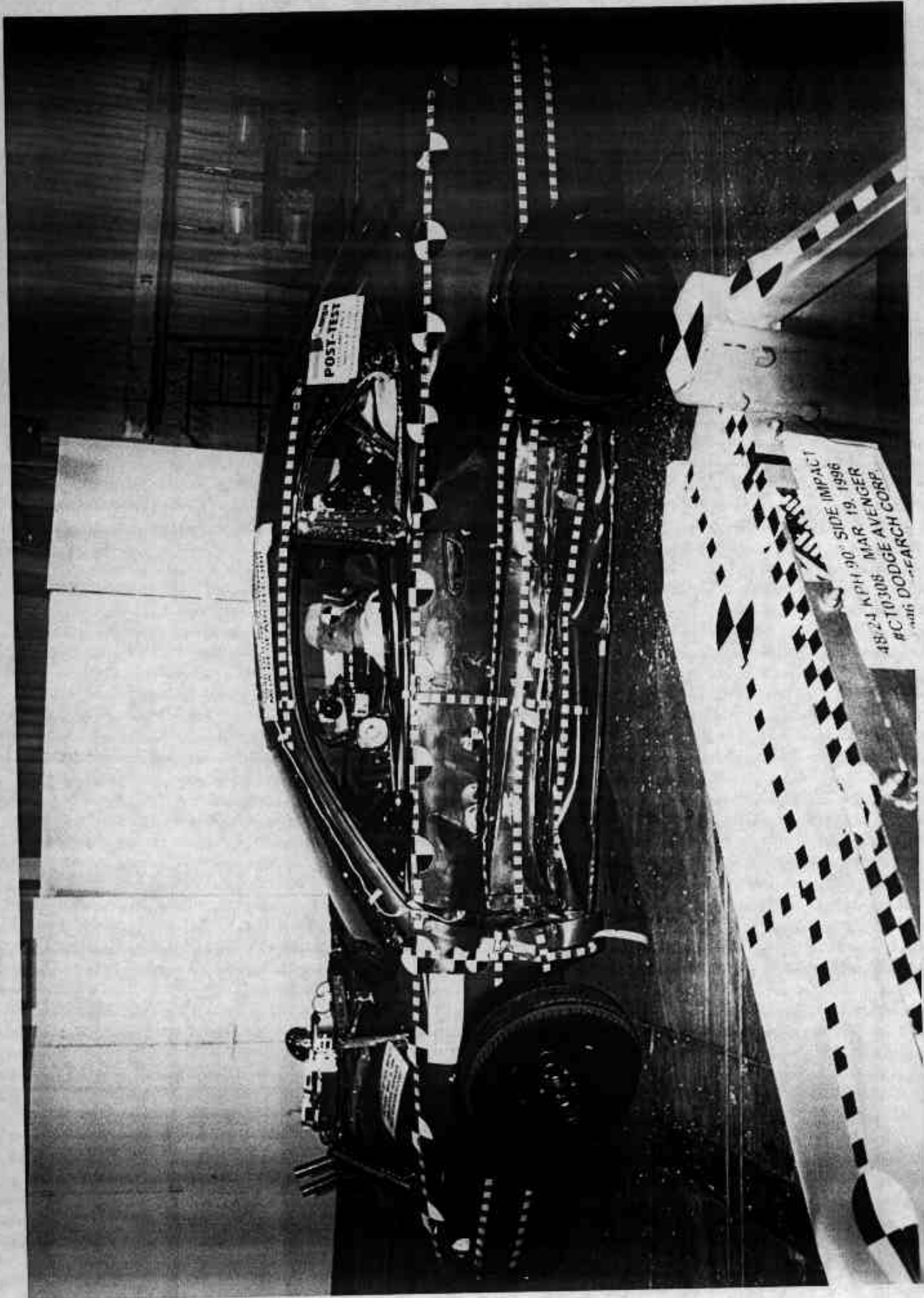


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

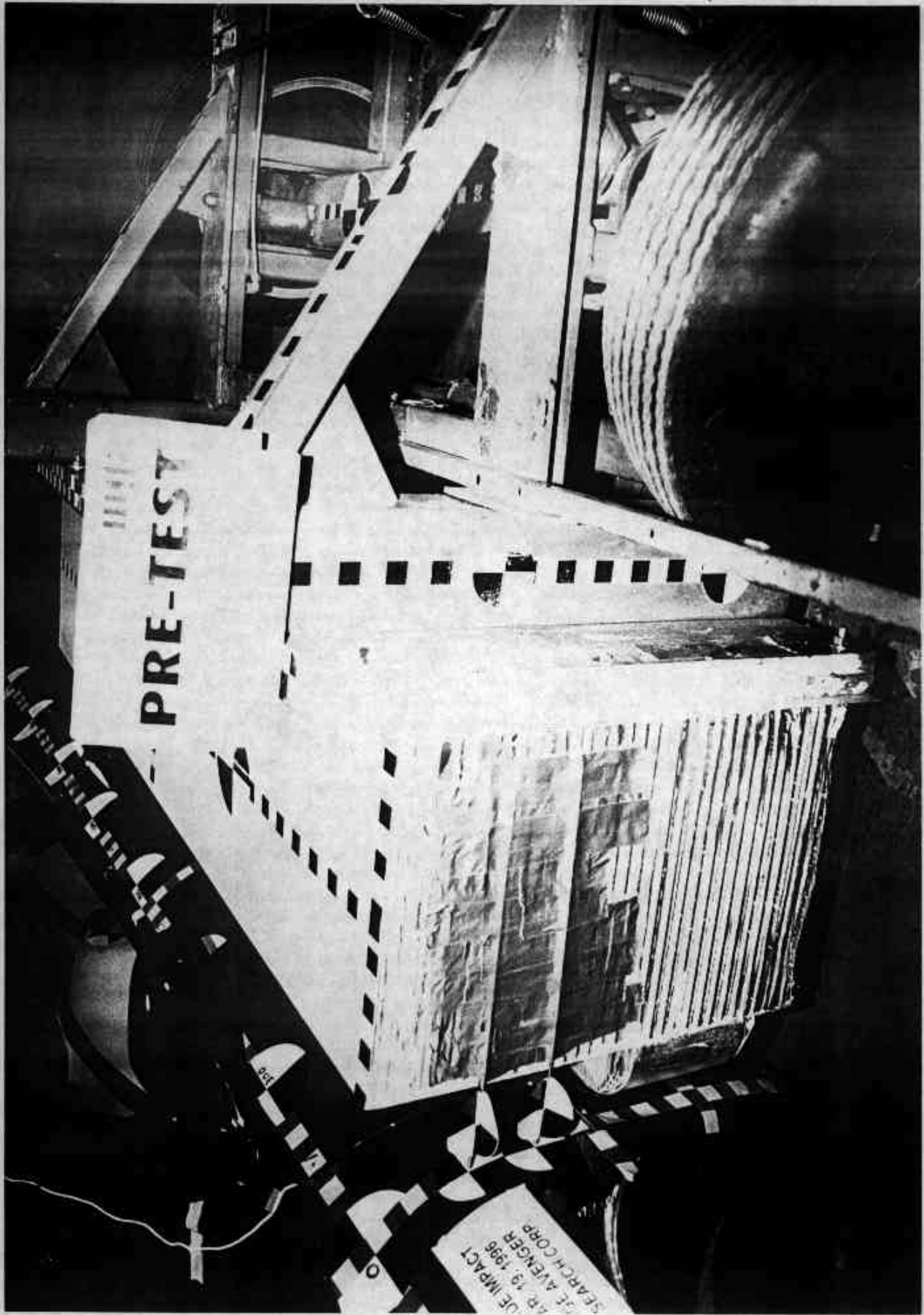


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

A-7

DE IMPACT  
19 19 1996  
SEARCH CORP  
ALINGER



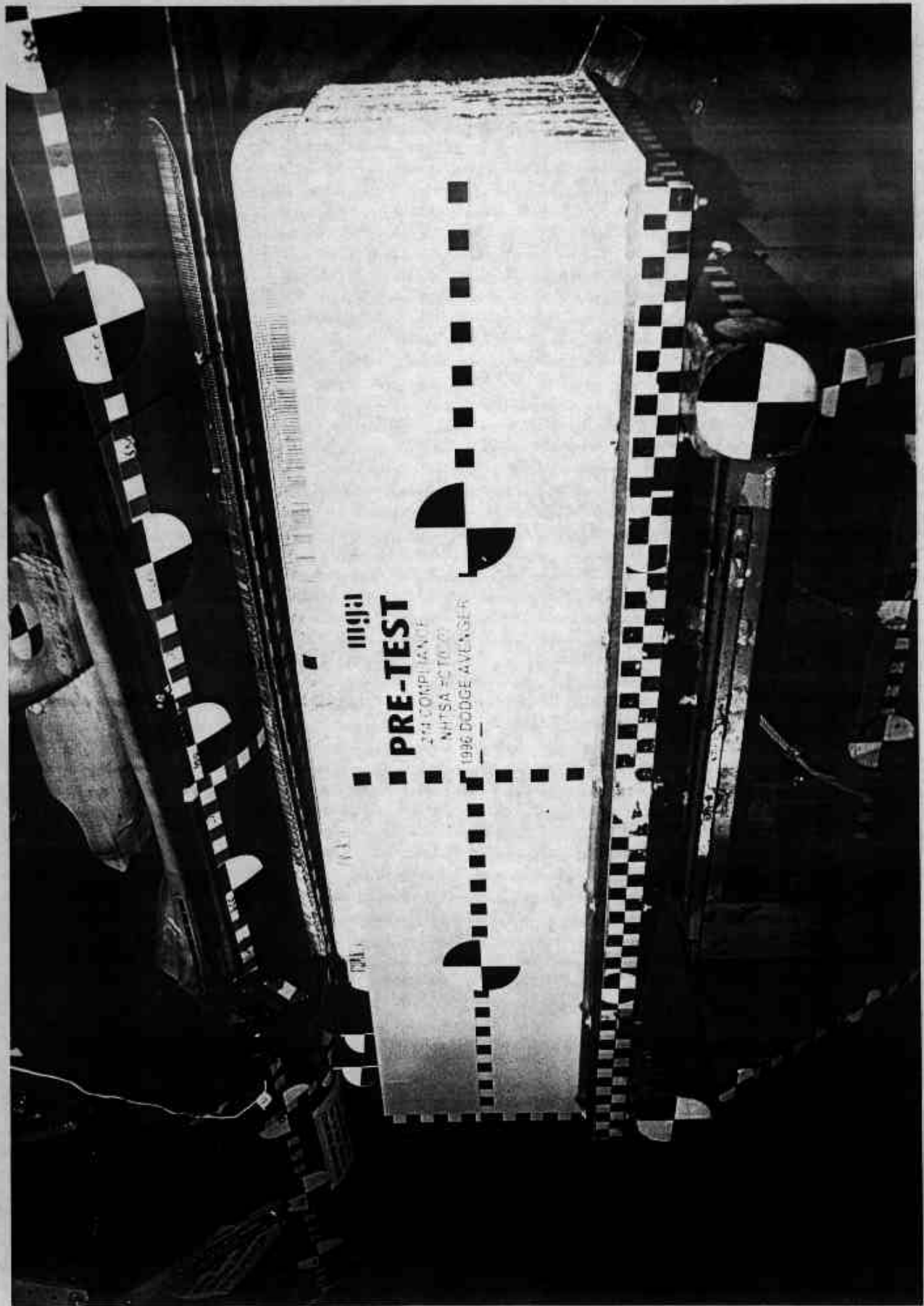


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View

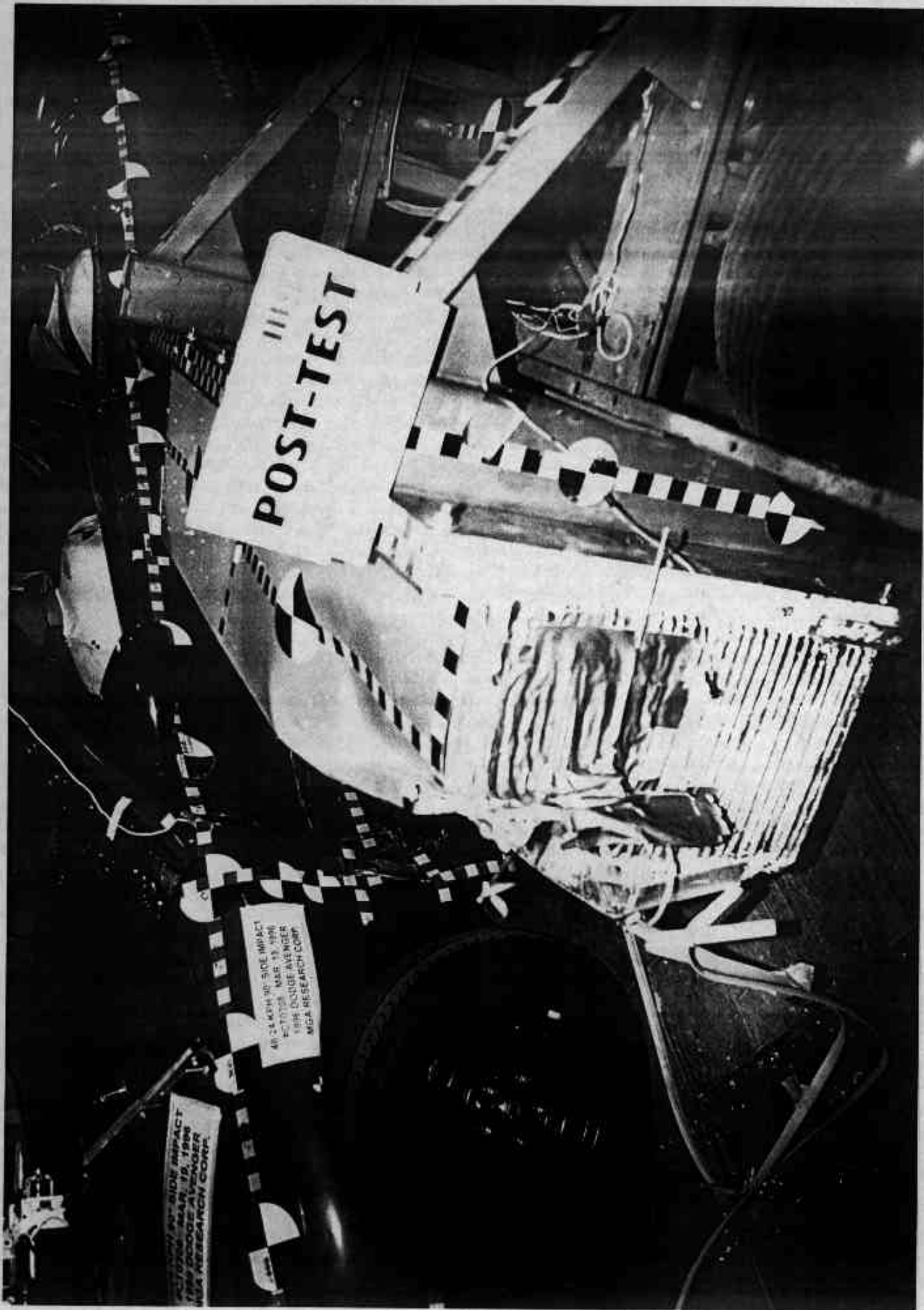


Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (left side)

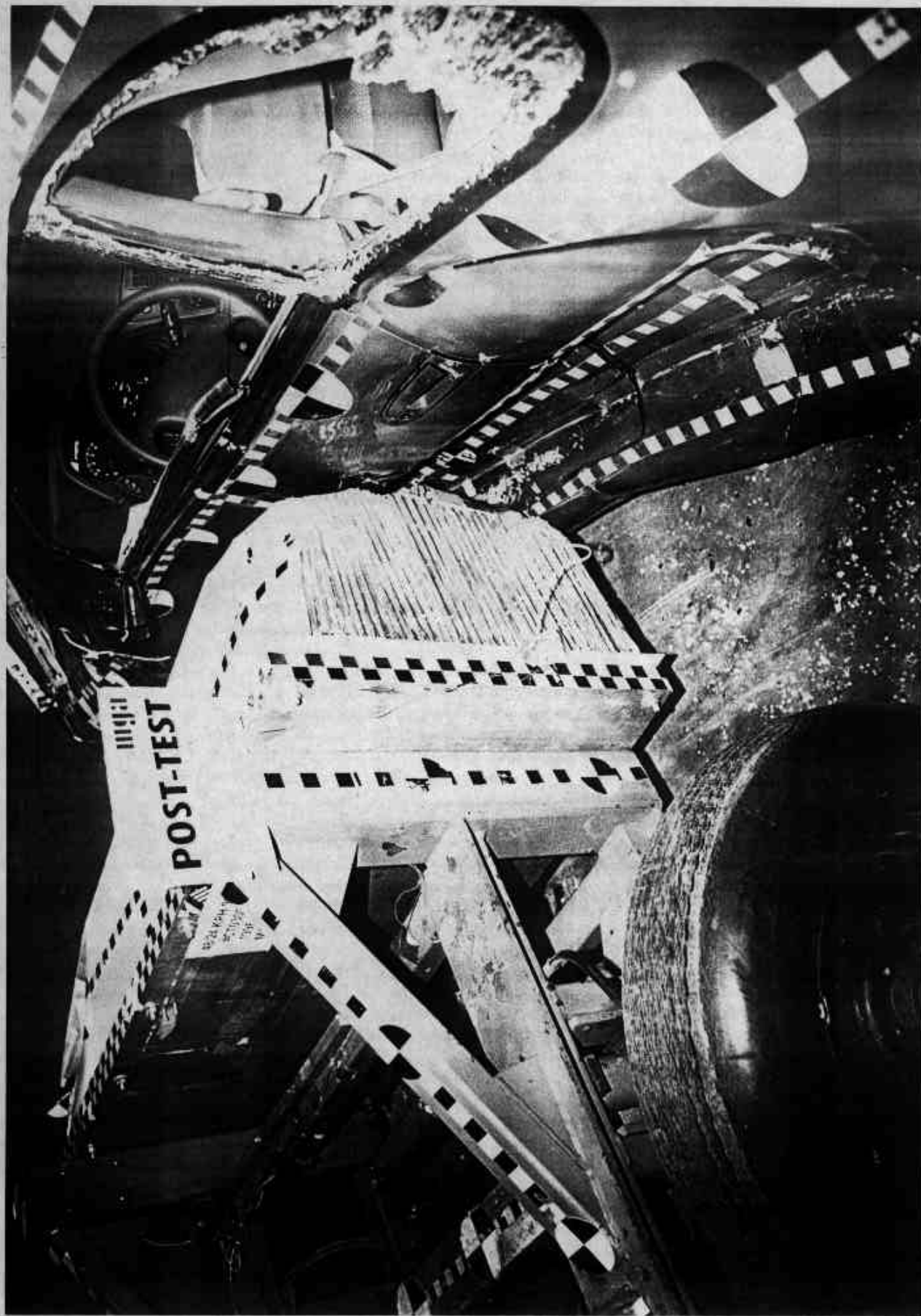
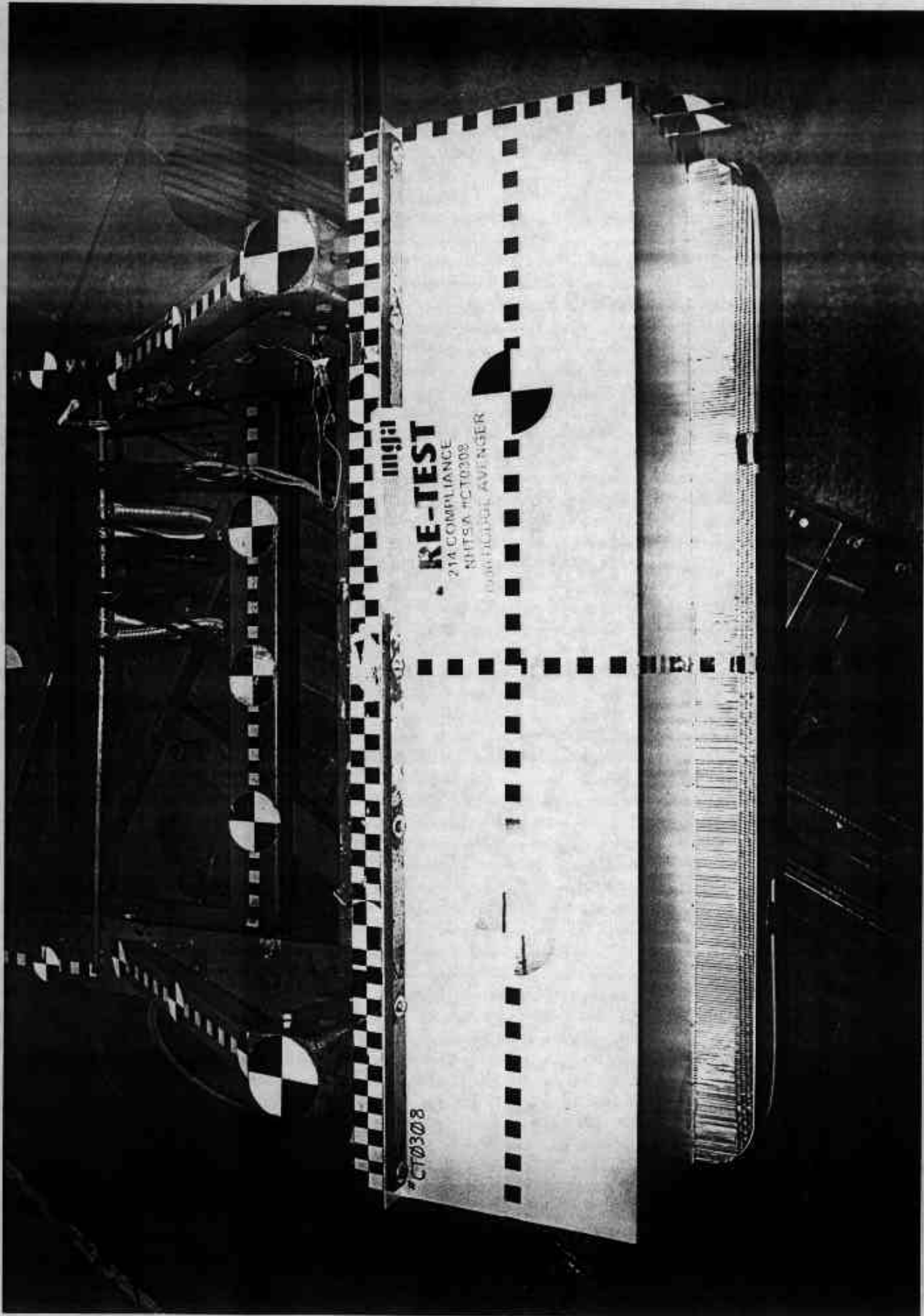


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)

A-11



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



A-13

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

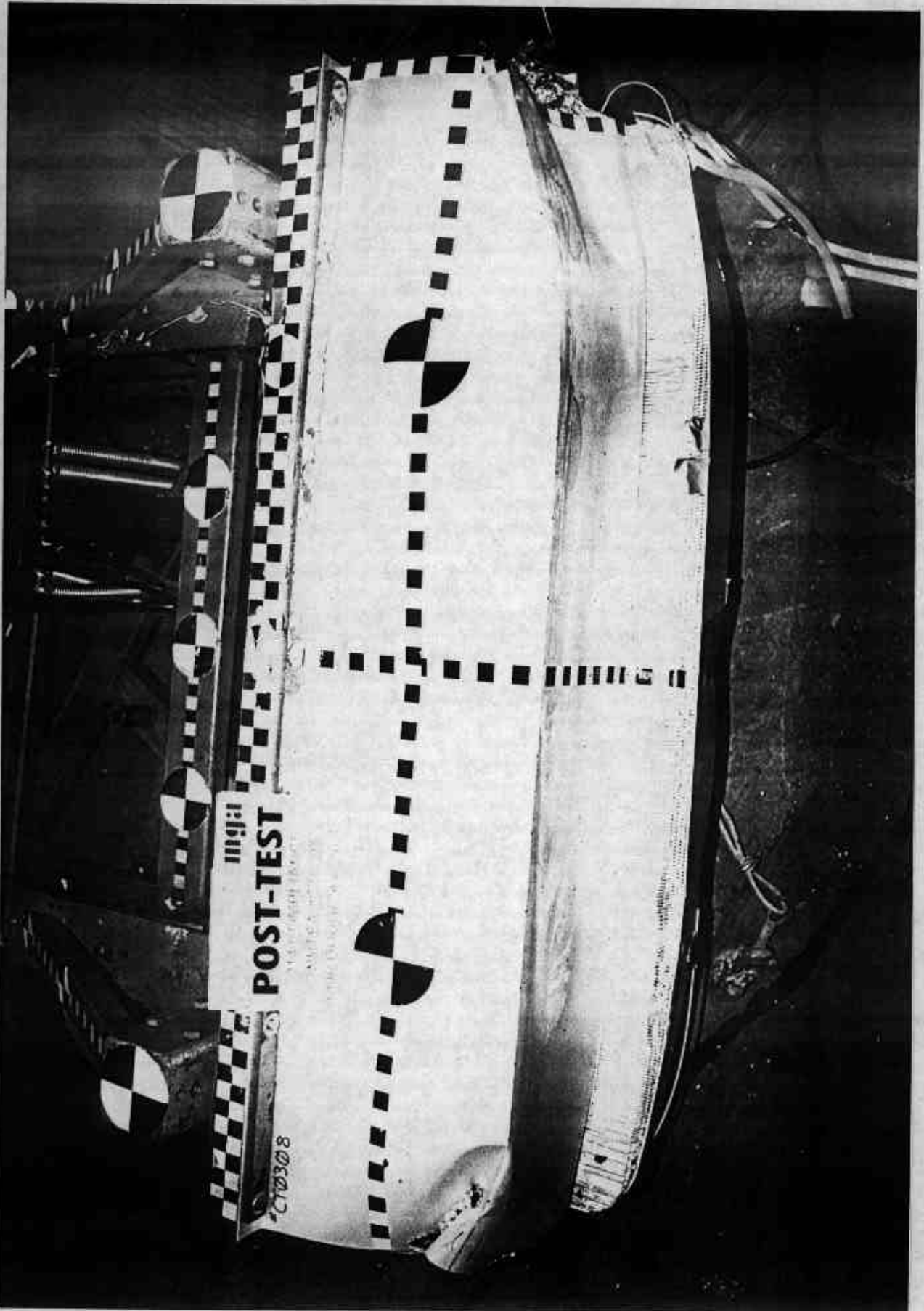
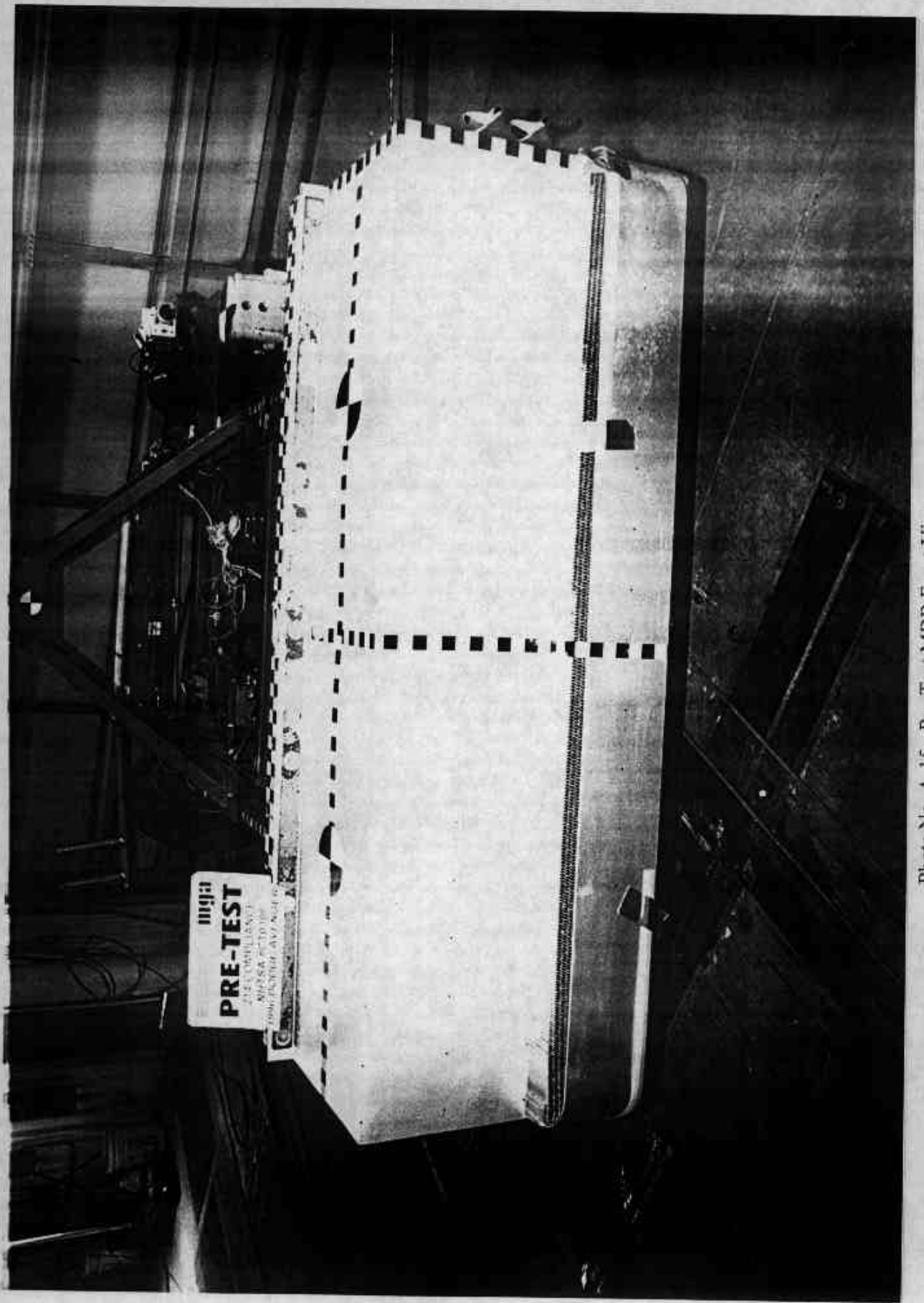


Photo No. A-14 - Post-Test MDB Top View

A-14



PRE-TEST  
212 CONSULTANT  
MPS SA PCTD 100  
1996 FACTORY AVI N-14 6

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

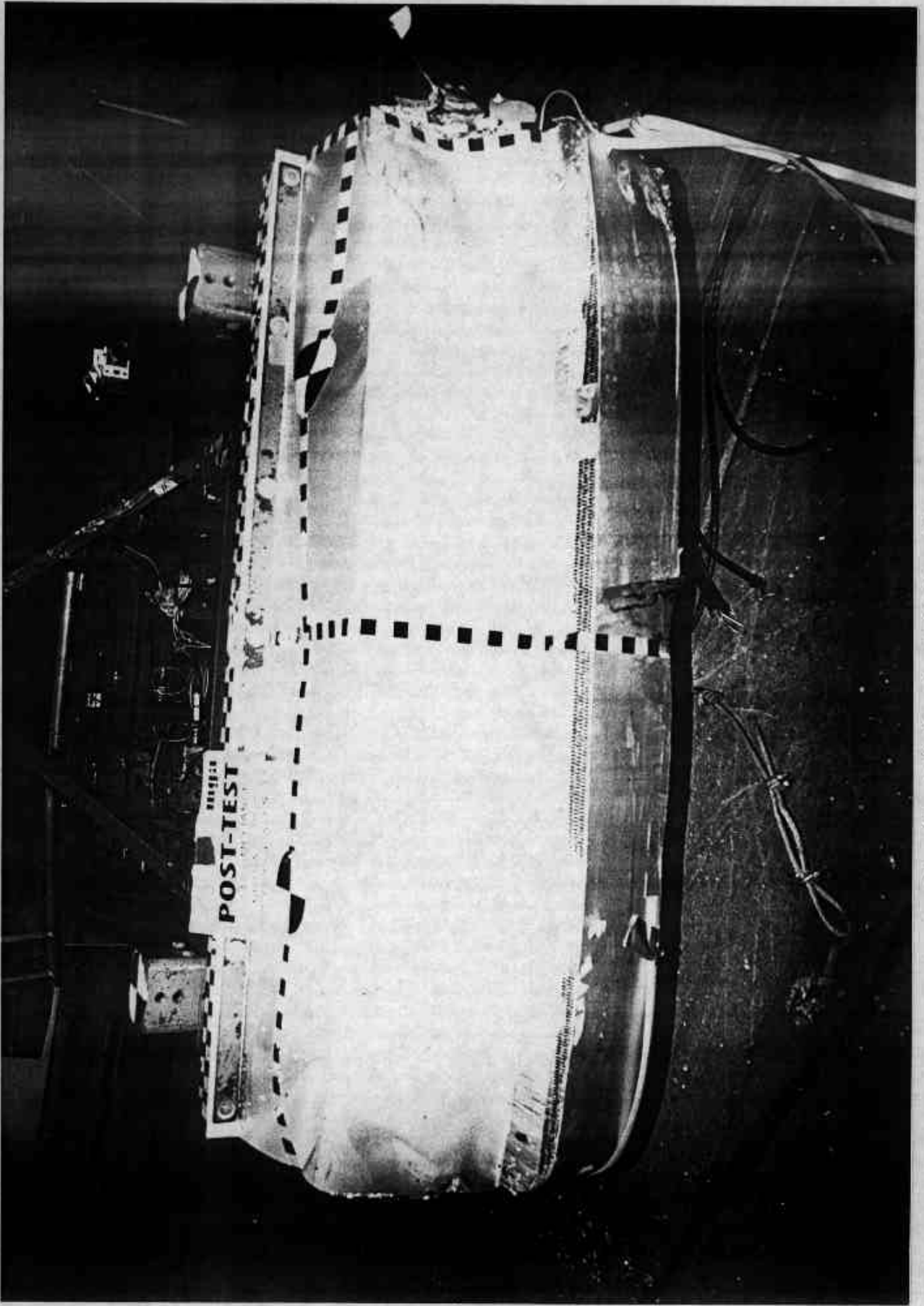


Photo No. A-16 - Post-Test MDB Front View

A-16

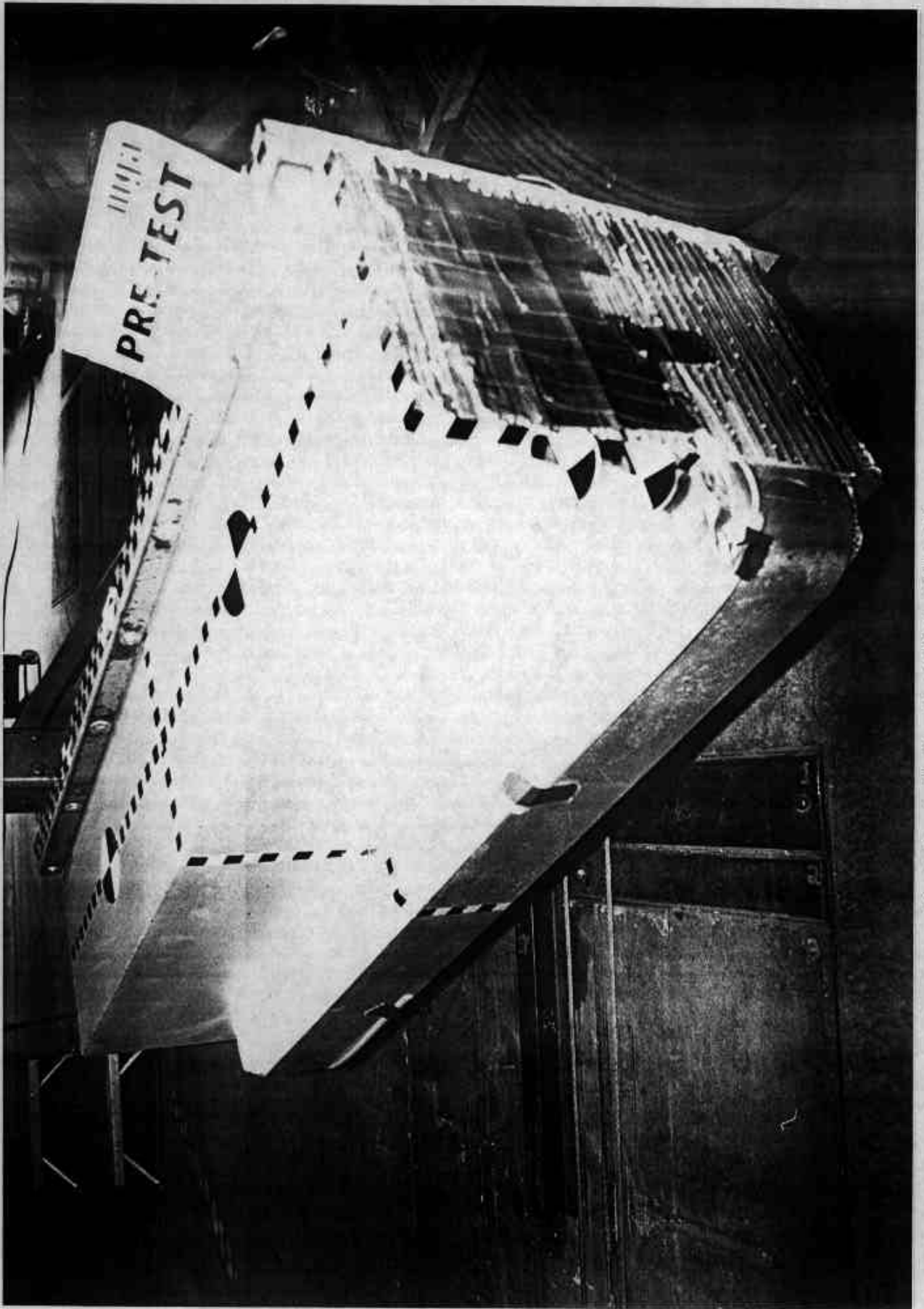


Photo No. A-17 - Pre-Test MDB Left Side View

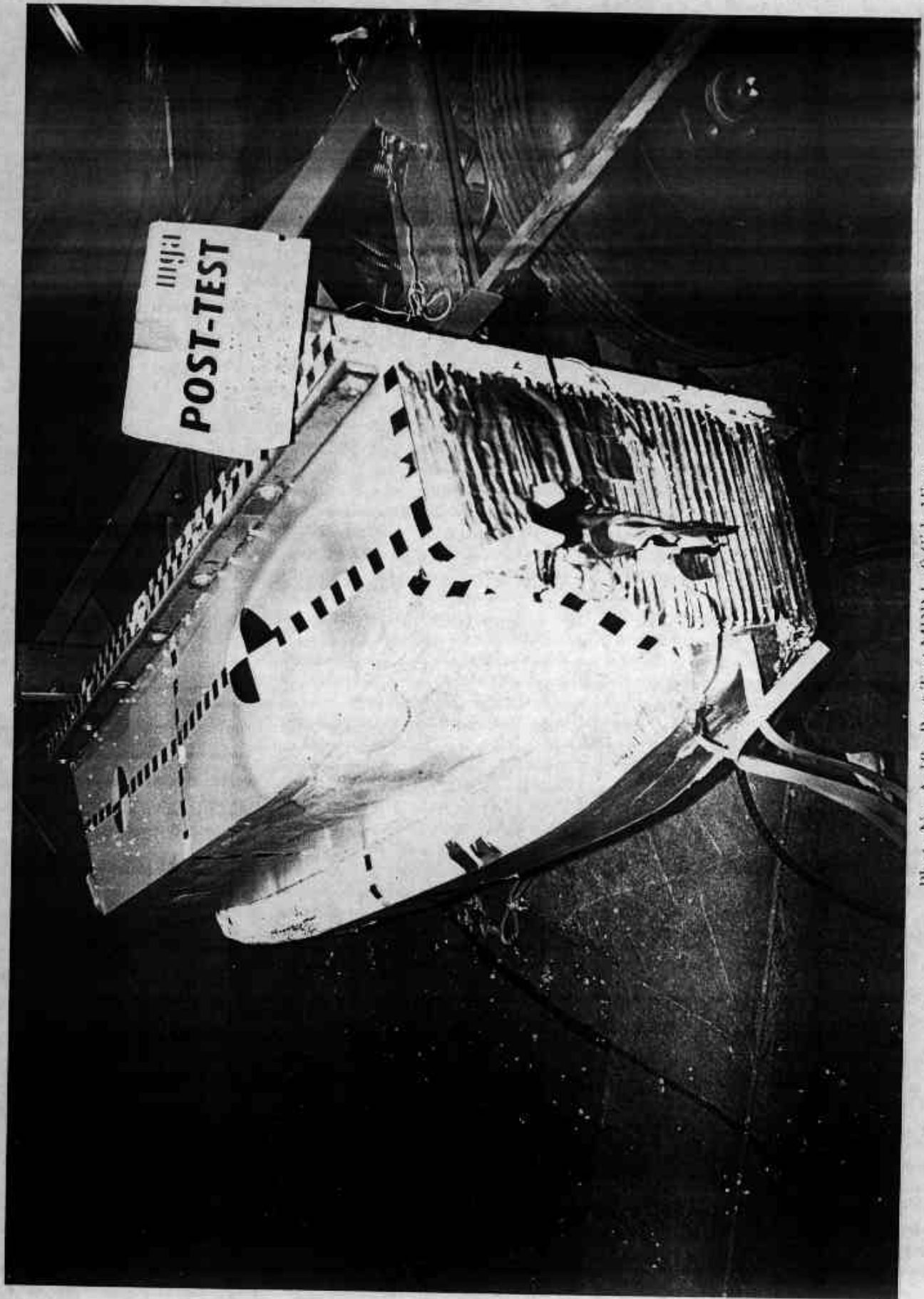


Photo No. A-18 - Post-Test MDB Left Side View

A-18

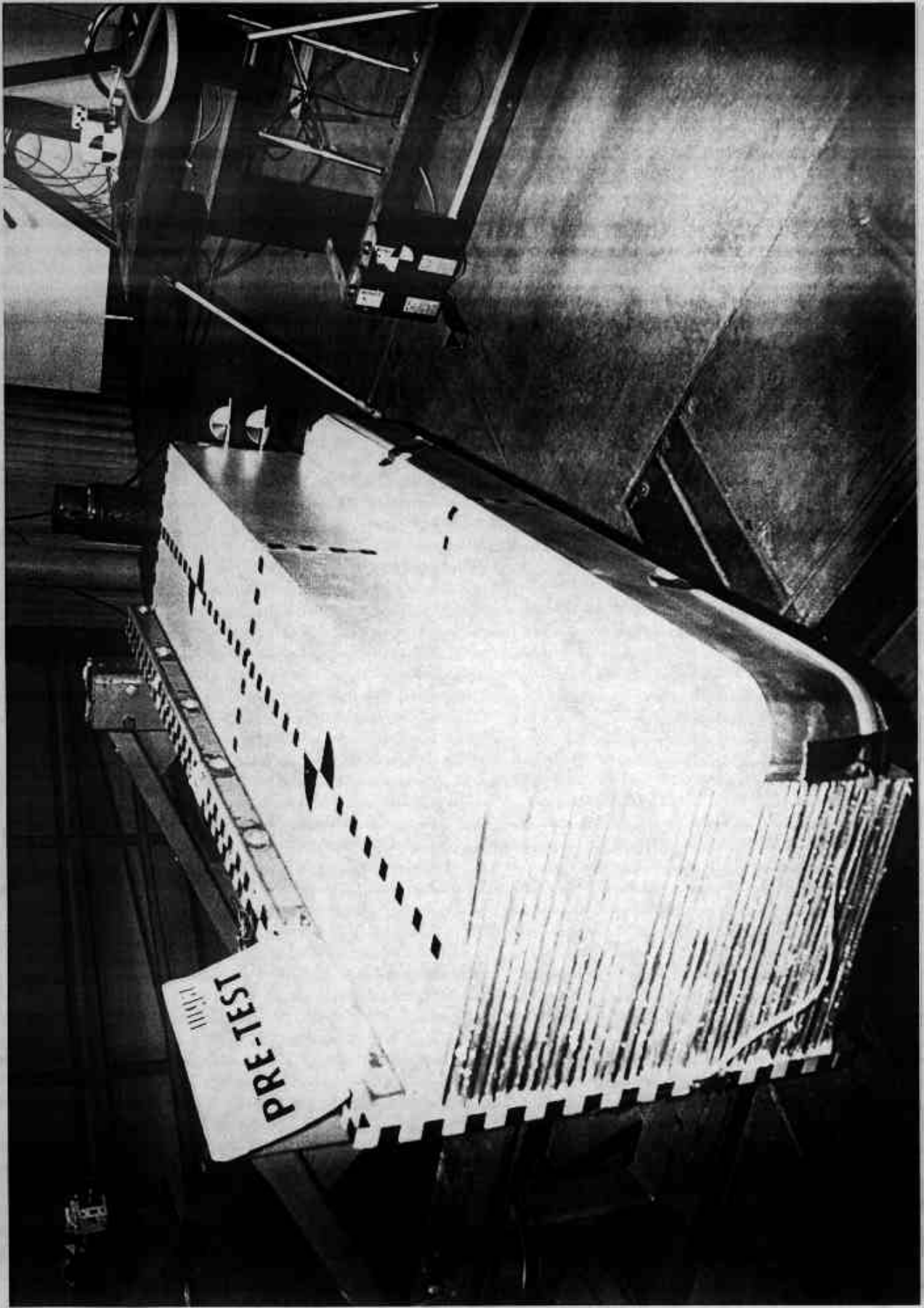


Photo No. A-19 - Pre-Test MDB Right Side View

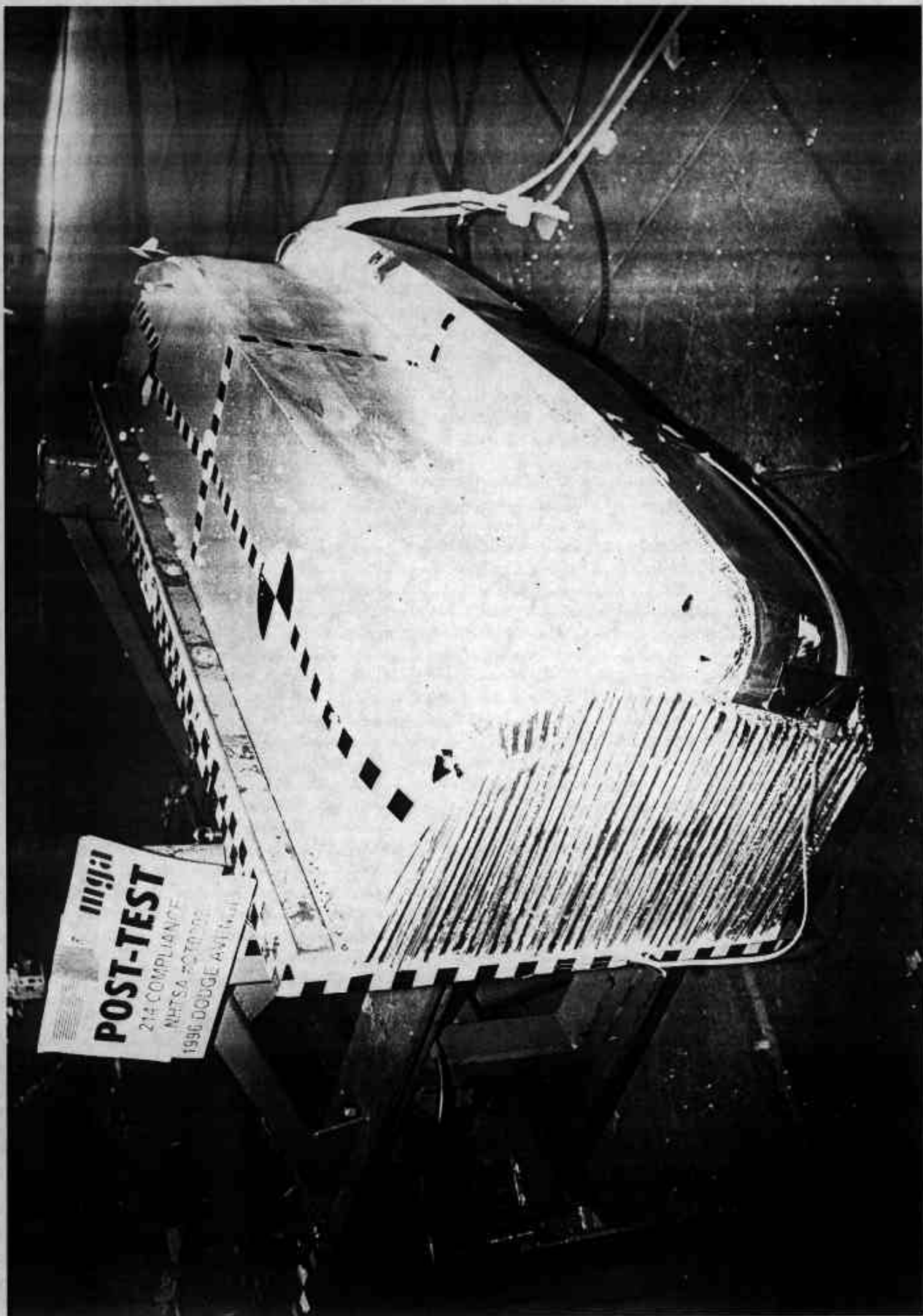


Photo No. A-20 - Post-Test MDB Right Side View

A-20



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

A-21



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

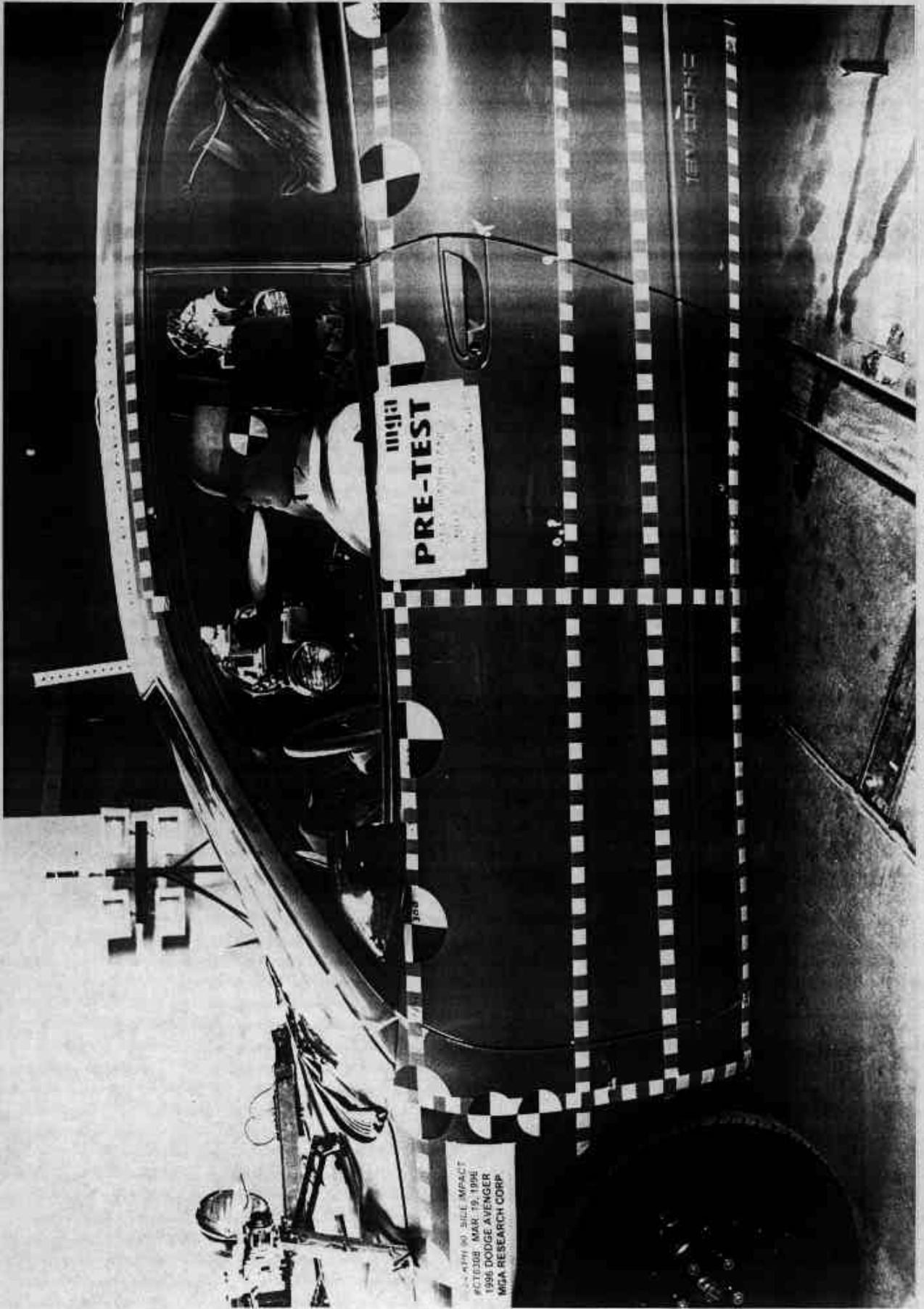


Photo No. A-23 - Pre-Test Driver Dummy Left Side View

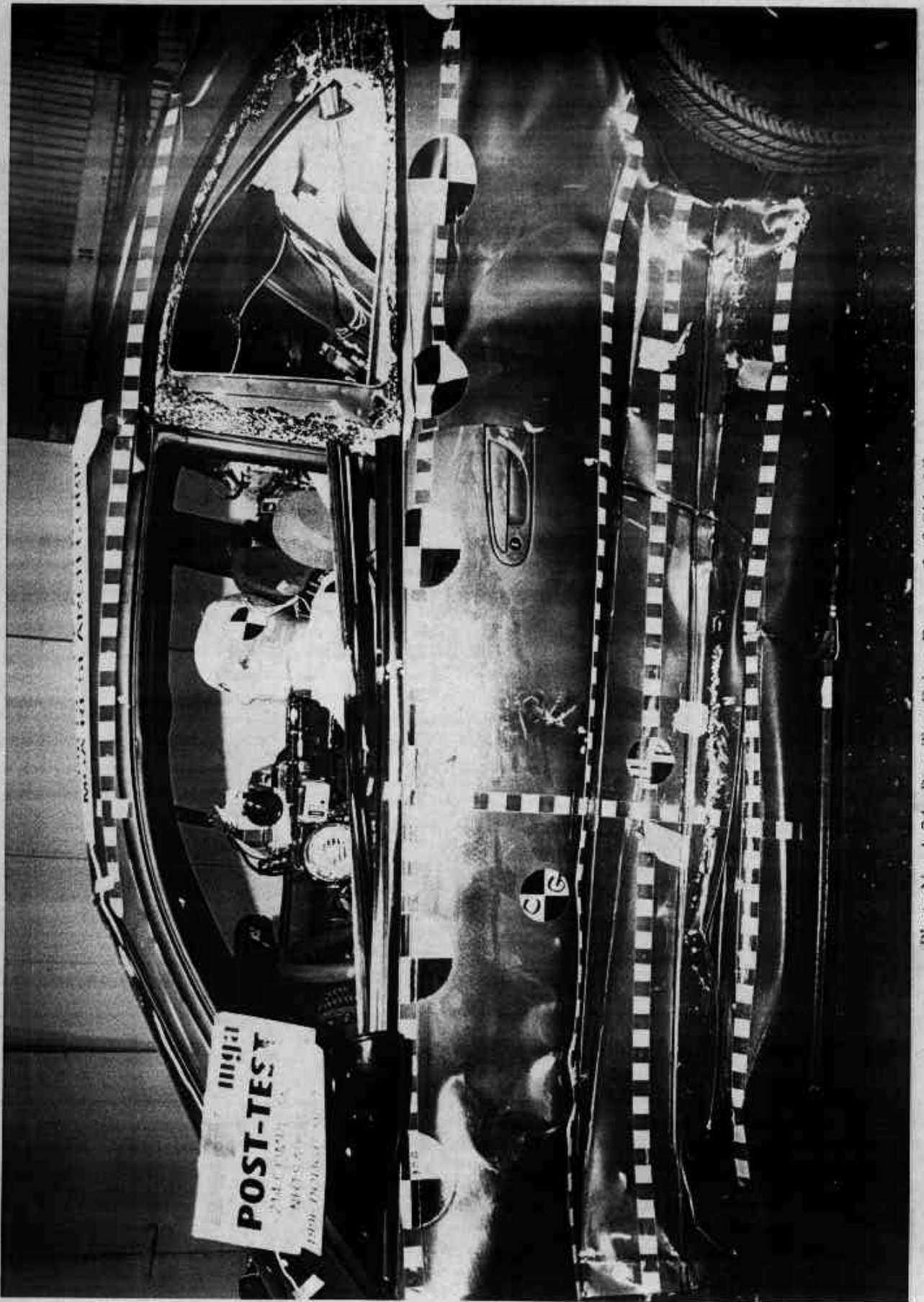


Photo No. A-24 - Post-Test Driver Dummy Left Side View

A-24



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



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



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



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



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

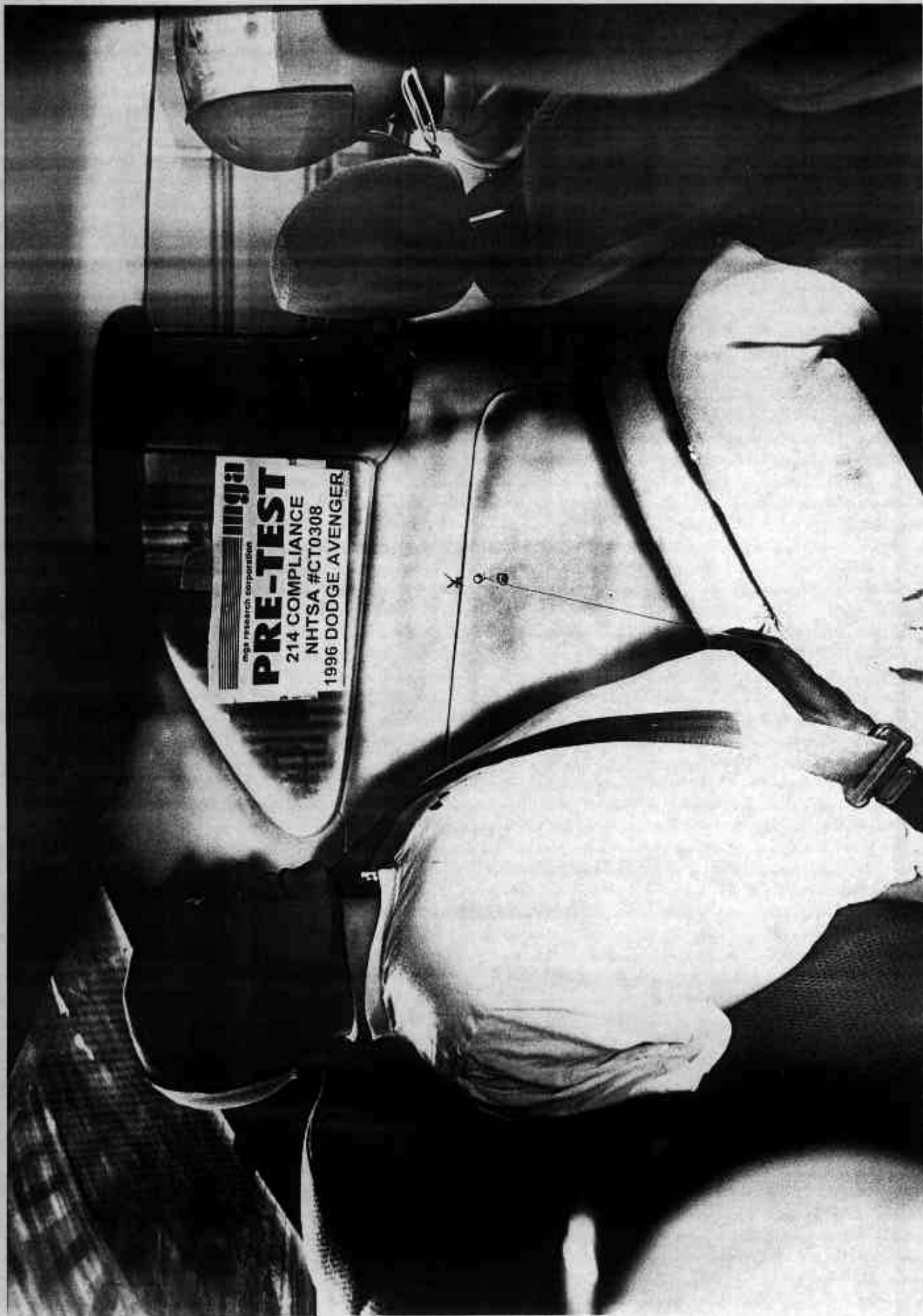


Photo No. A-30 - Pre-Test Passenger Dummy Right Side View

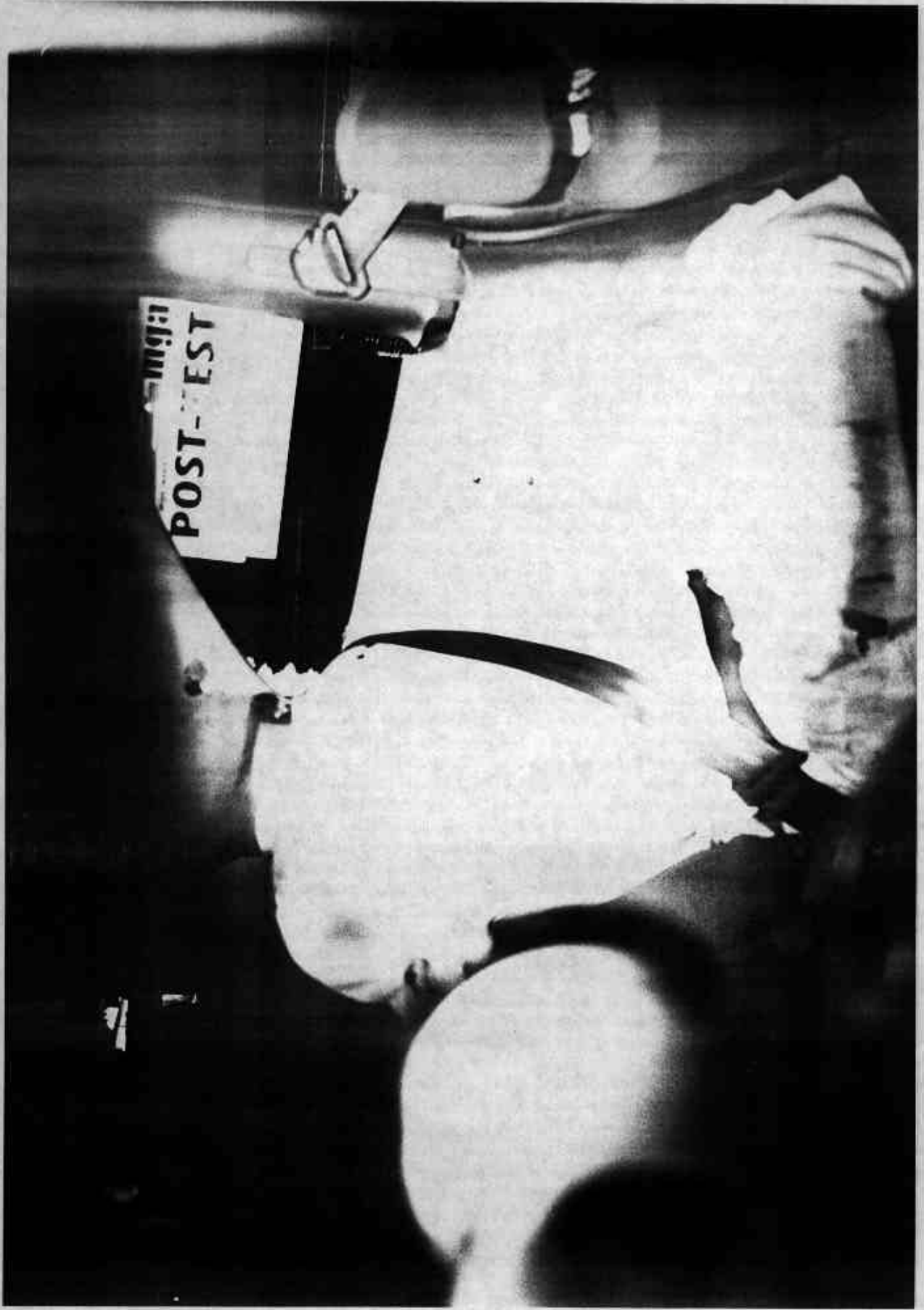
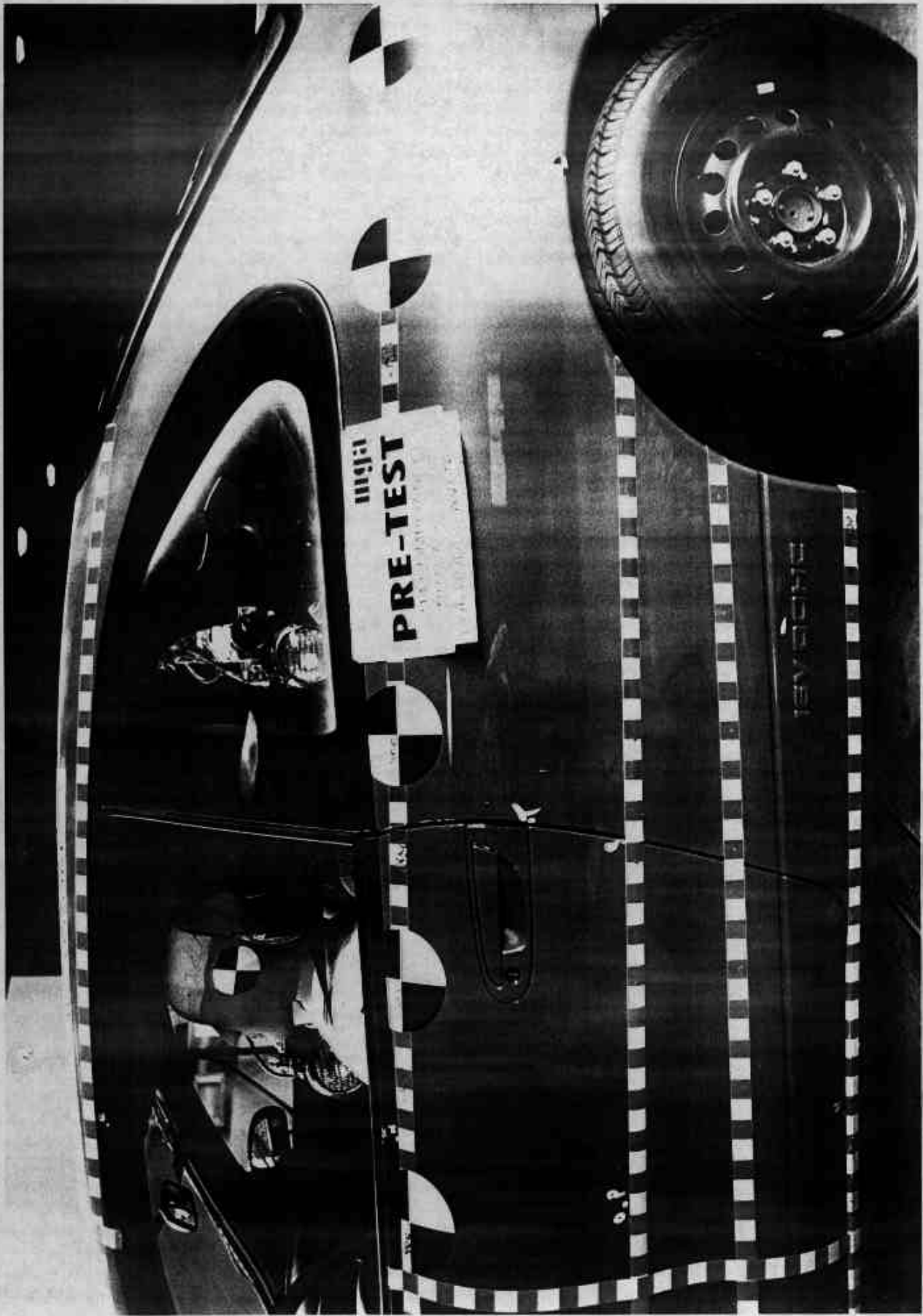


Photo No. A-31 - Post-Test Passenger Dummy Right Side View

A-31



A-32

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

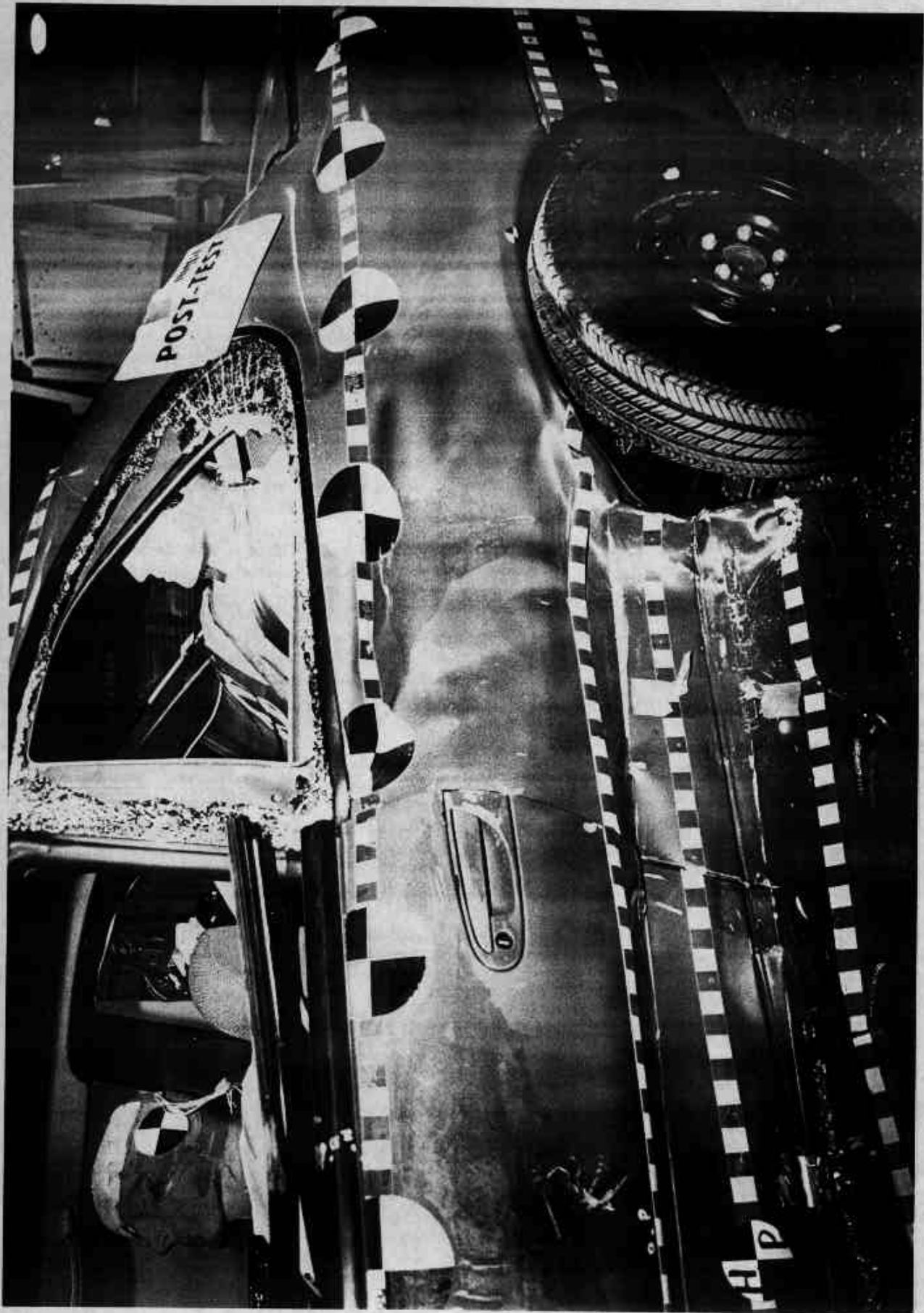


Photo No. A-33 - Post-Test Passenger Dummy Left Side View

A-33



Photo No. A-34 - Pre-Test Passenger Dummy Shoulder and Door Top View



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

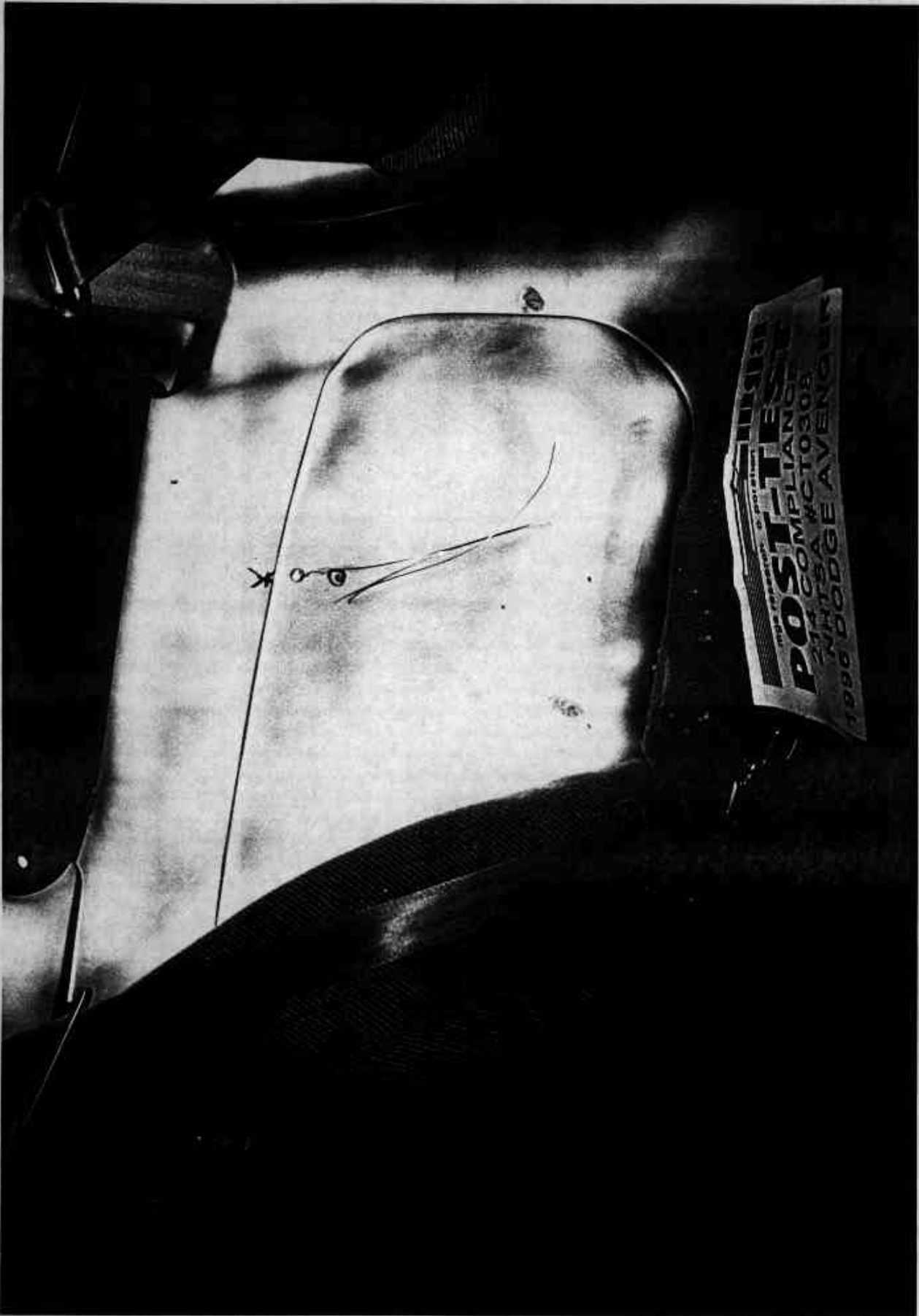


Photo No. A-36 - Post-Test Passenger Dummy Contact



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



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

WIDE IMPACT  
MAR. 19, 1996  
EDGE AVENUE  
ARCH CORP.

# POST-TEST

THE HILTI GROUP  
MGA RESEARCH CORP.



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

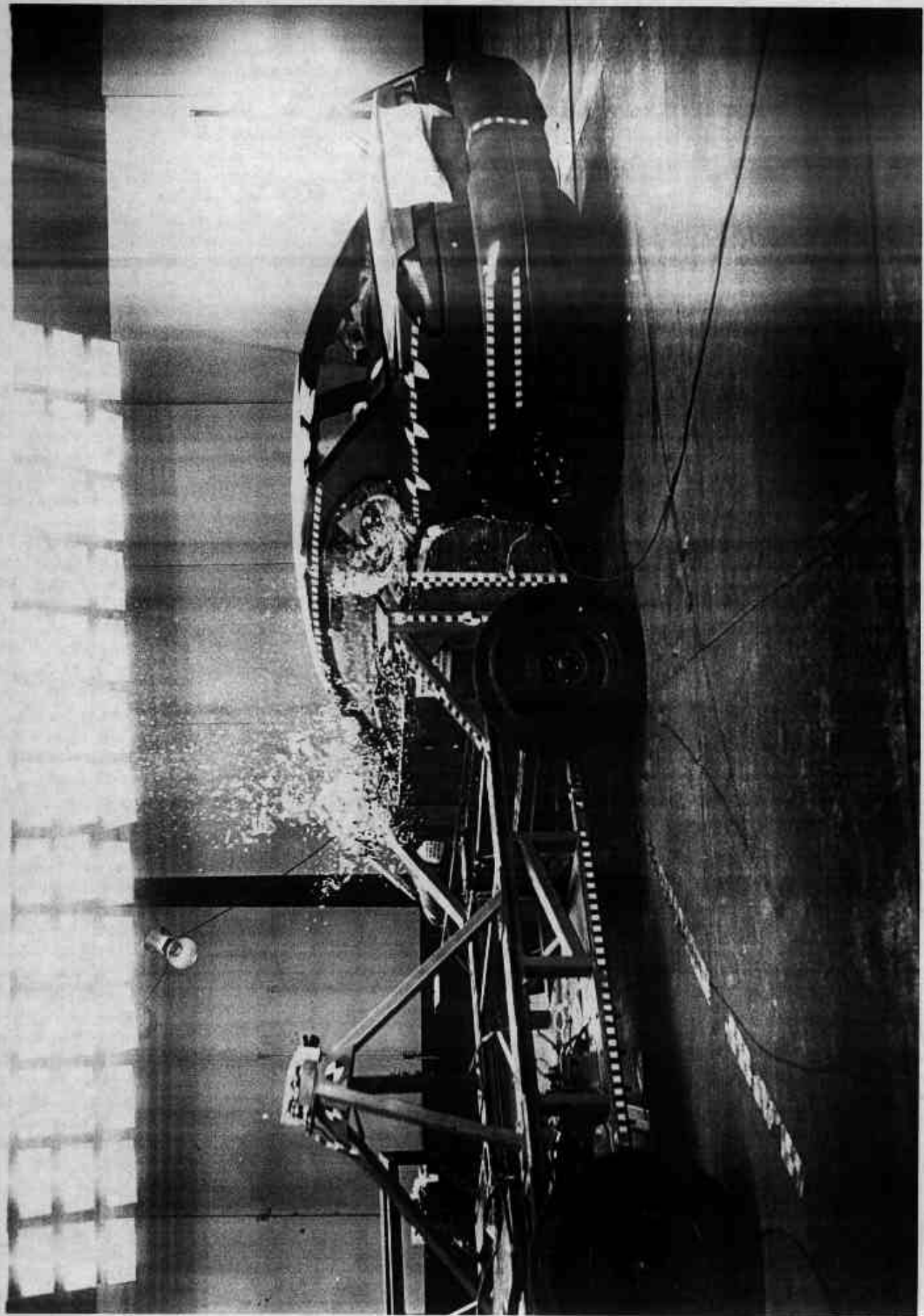


Photo No. A-40 - Impact

MADE IN U.S.A. DATE DEC. 1995  
MFD BY MITSUBISHI MOTOR MFG. OF AMERICA, INC.  
GVWR 4000 LBS GVWR 1814 LBS  
1814 KG FR. 1000 KG RR. 870 KG

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

483A42Y3E3B034



M1H 1200A

VEHICLE TYPE: PASSENGER CAR M1900243

**GENSLINE**  
Y3TE338034  
1997  
MITSUBISHI

A-41

Photo No. A-41 - Vehicle Certification Label

**TIRE INFLATION  
PRESSURE (COLD)**

**STANDARD INFLATION  
PRESSURE FOR ALL LOAD**

**1ST SEAT 2 PASS.**

**2ND SEAT 3 PASS.**

**TOTAL 5 PASS.**

**LUGGAGE 35kg (77 lbs)**

**TOTAL WEIGHT 375kg (827 lbs)**

**TIRE SIZE P195/70R14 90H**

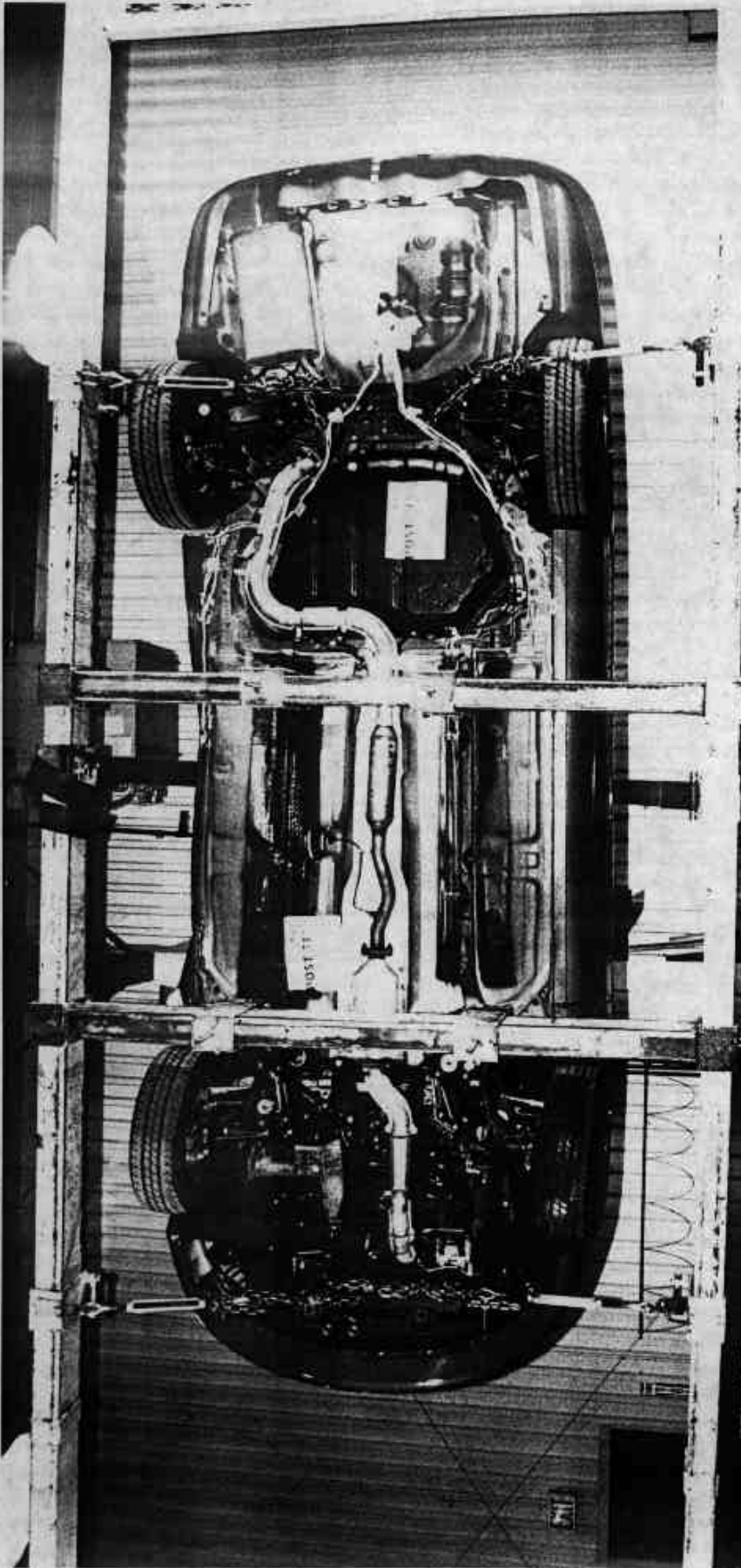
**FRONT  
220kPa  
(32psi)**

**REAR  
200kPa  
(29psi)**

**TIRE SIZE T125/70D15  
TEMPORARY USE ONLY  
420kPa (60psi)**

**PART NO. MR130711**

Photo No. A-42 - Tire Placard



A-43

Photo No. A-43 - Rollover 90°

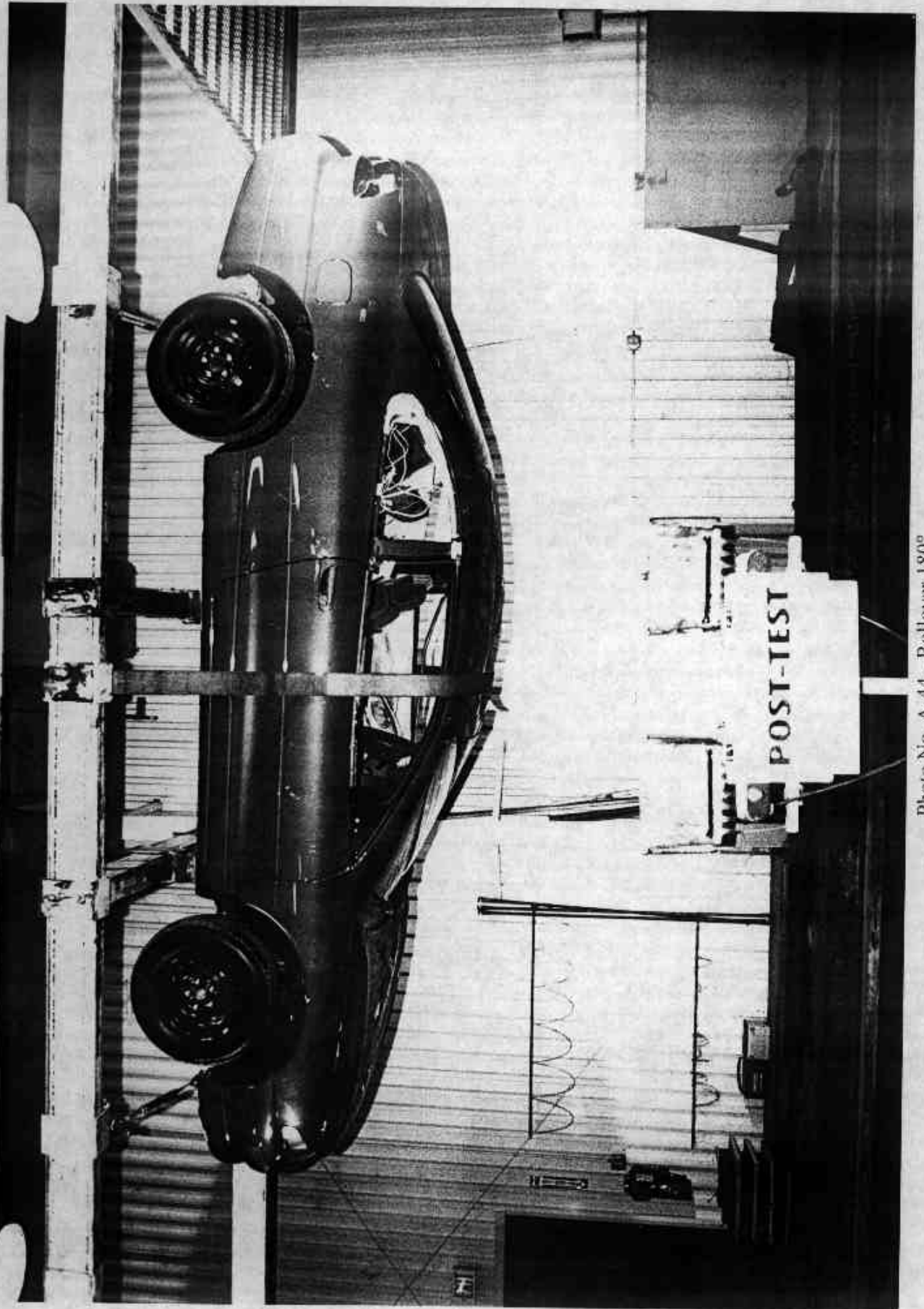


Photo No. A-44 - Rollover 180°

A-44

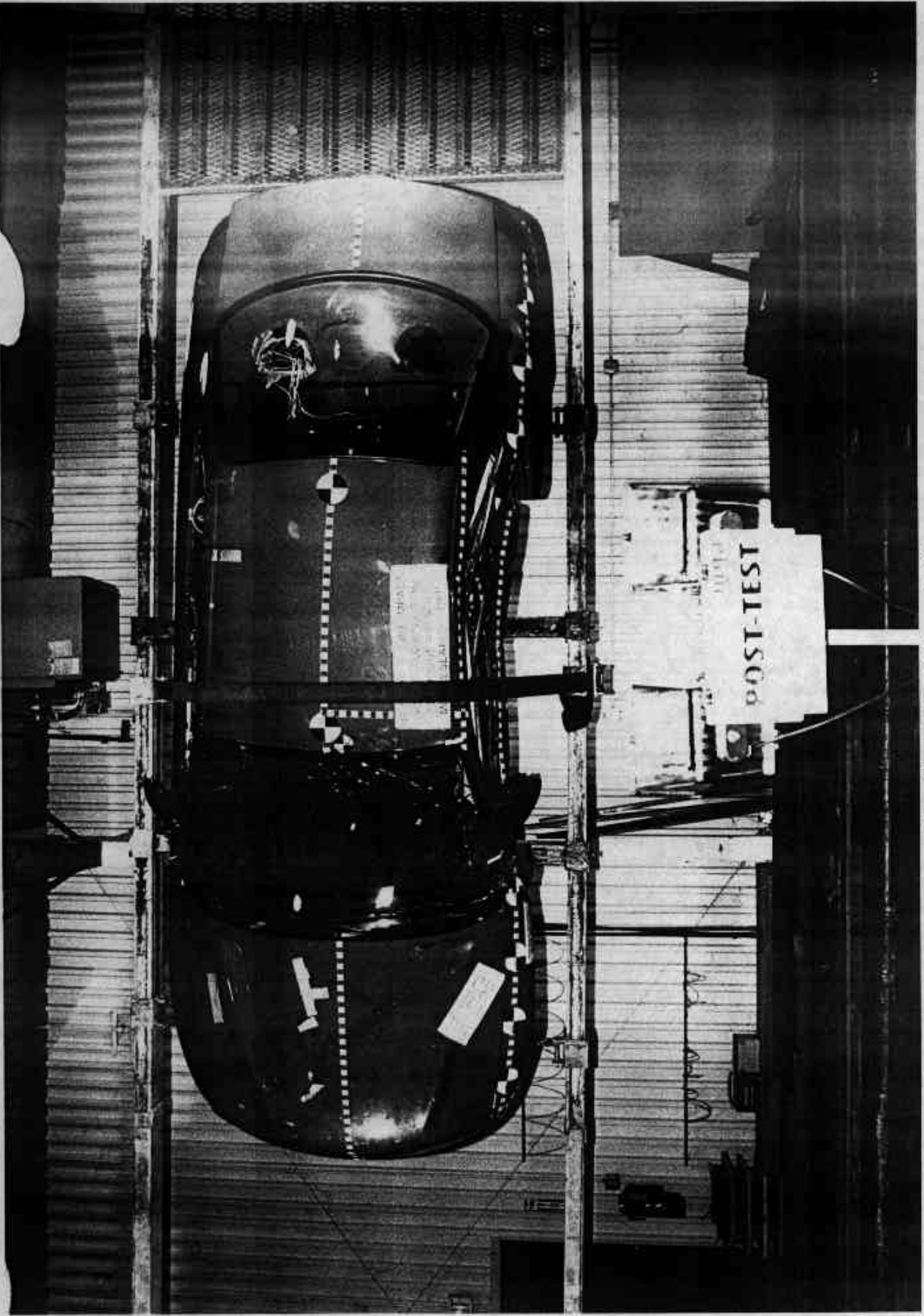
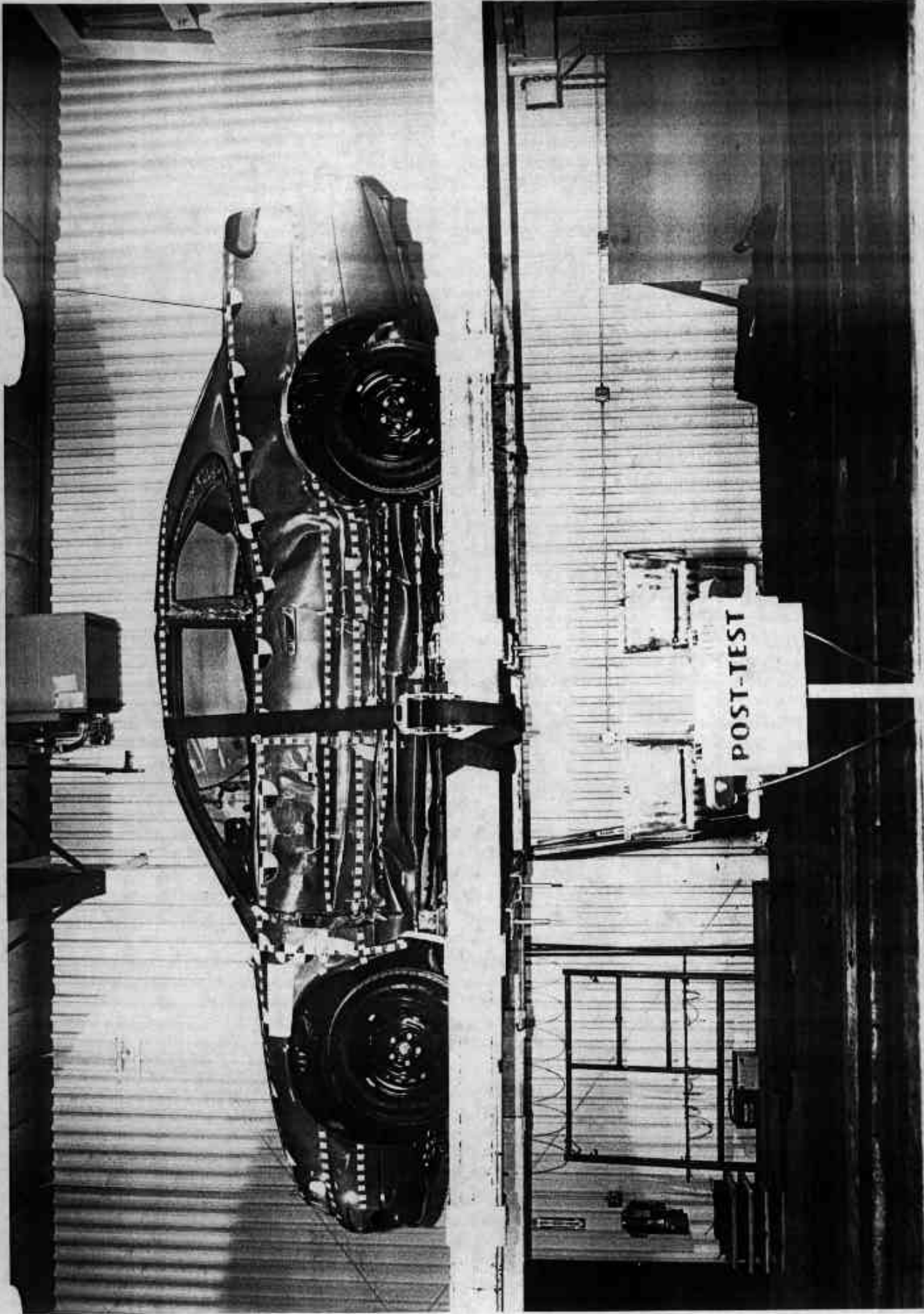


Photo No. A-45 - Rollover 270°

A-45



A-46

Photo No. A-46 - Rollover 360°

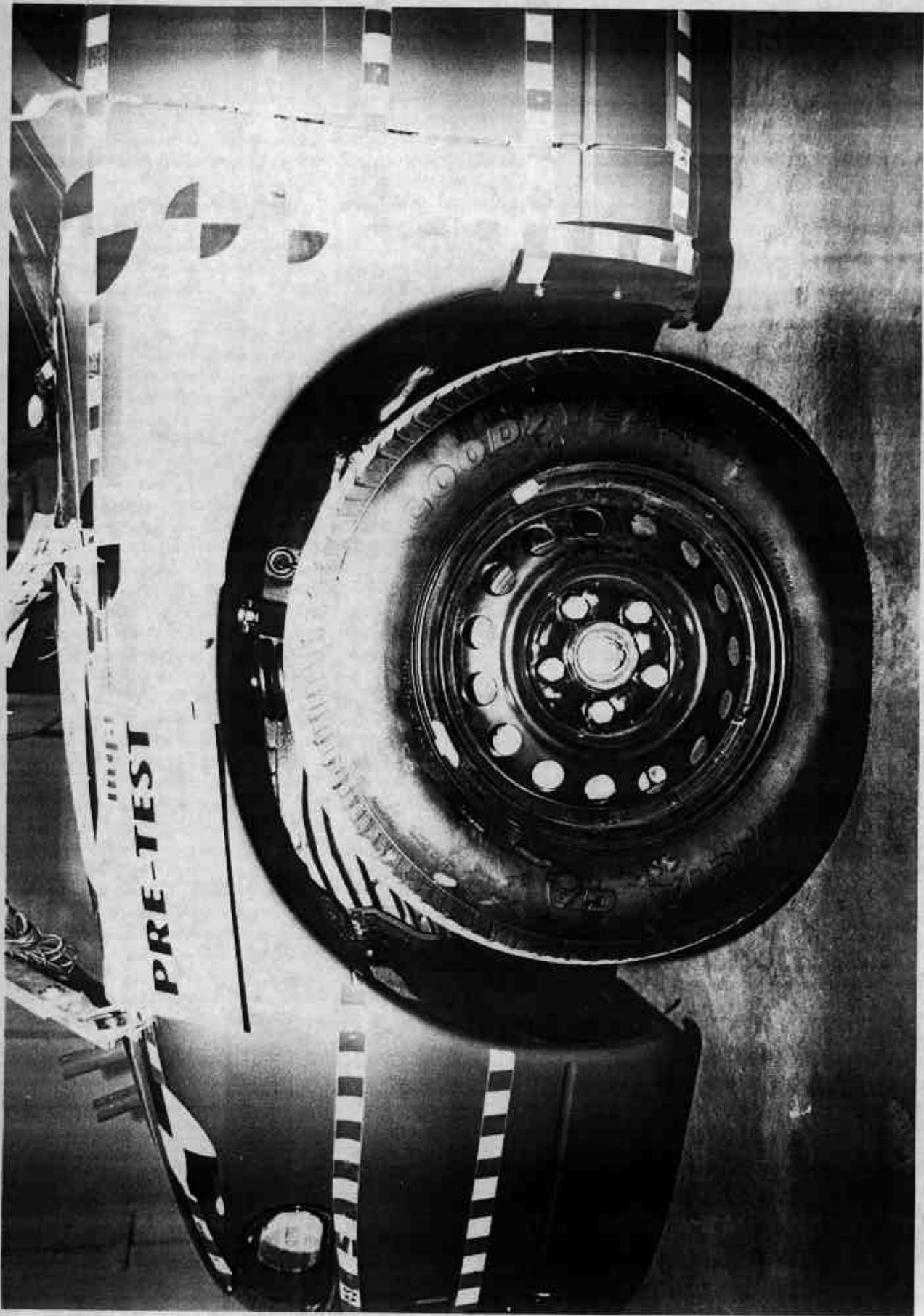


Photo No. A-47 - Left Front Altitude Point

A-47

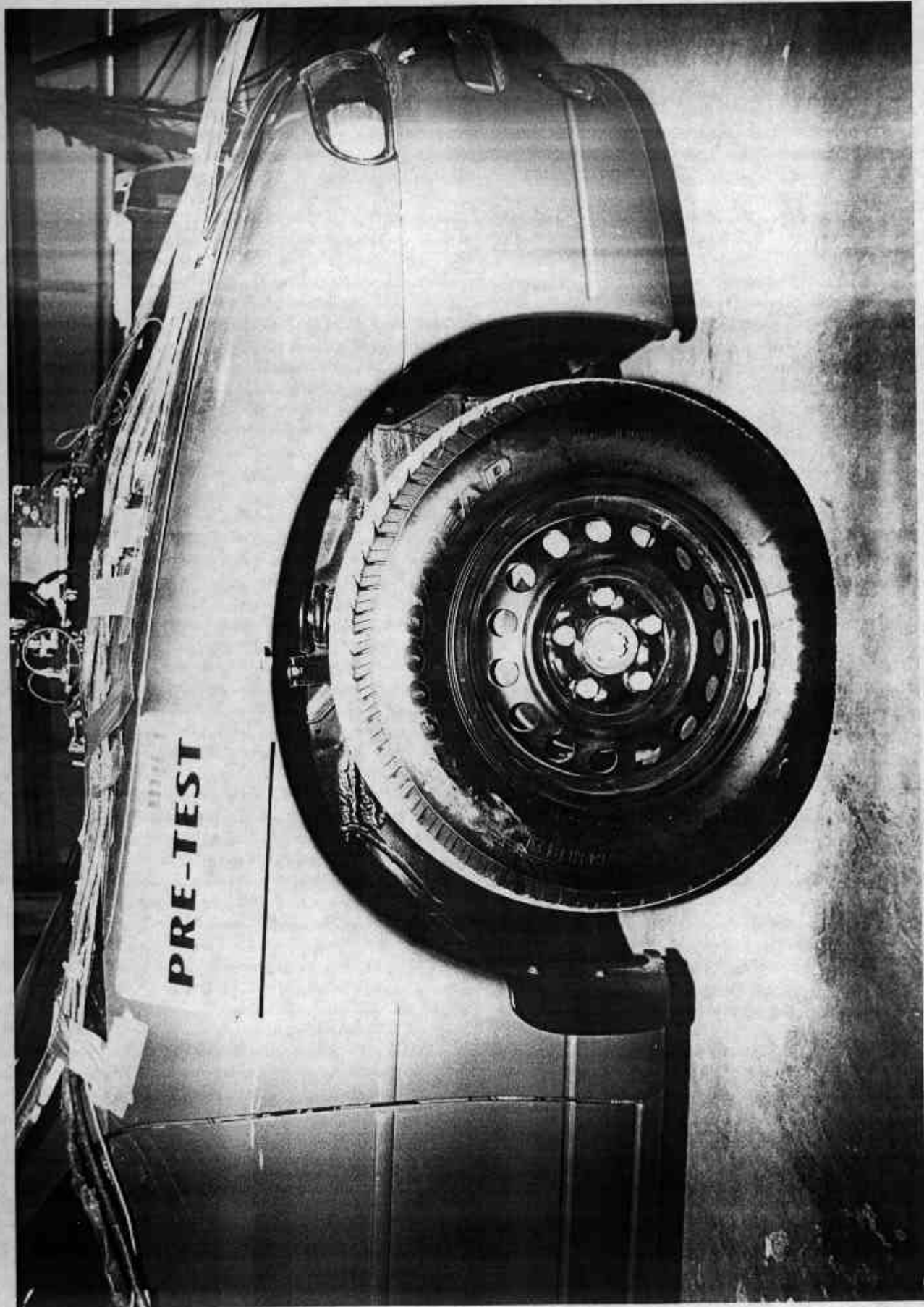


Photo No. A-48 - Right Front Attitude Point

A-48

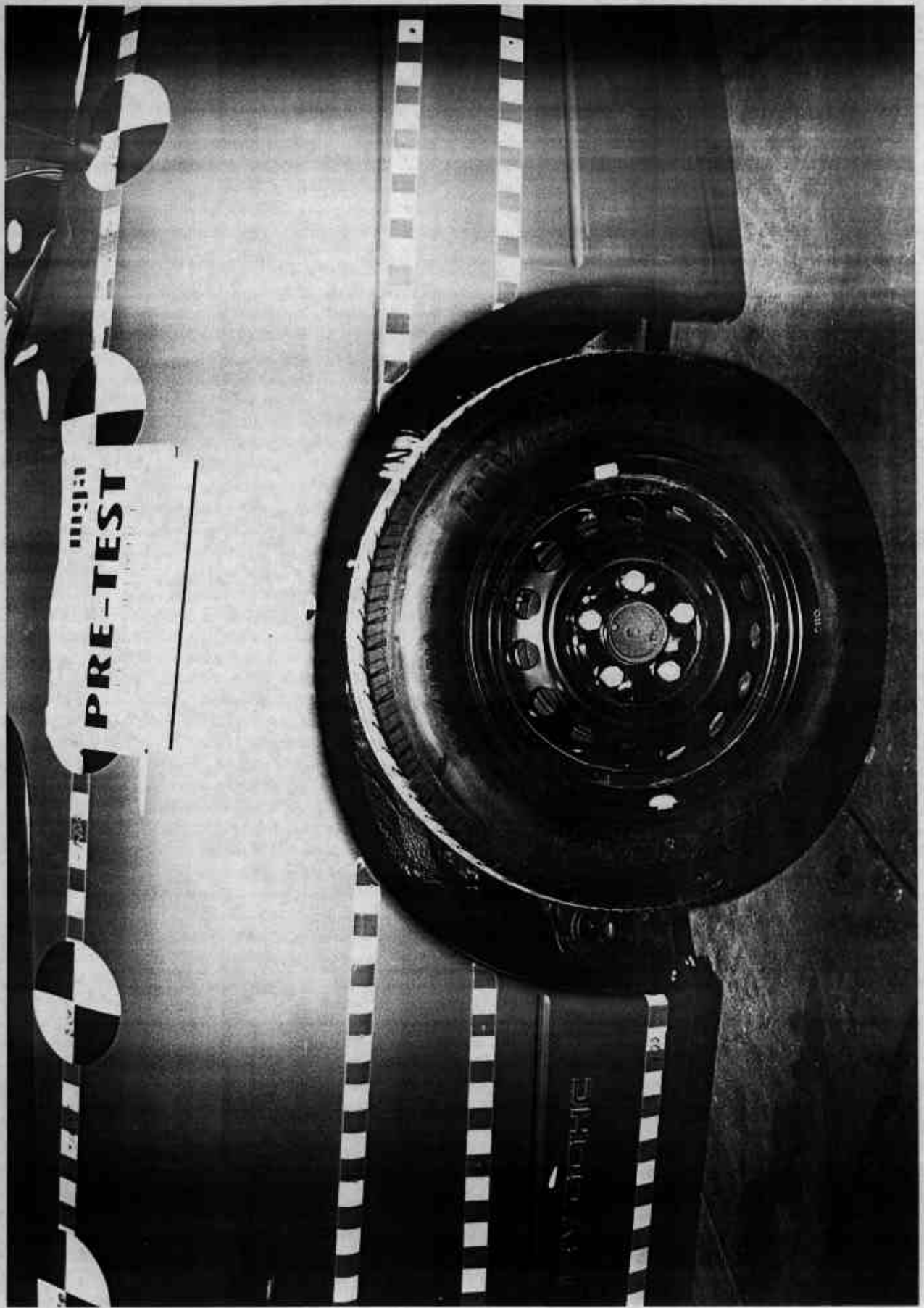
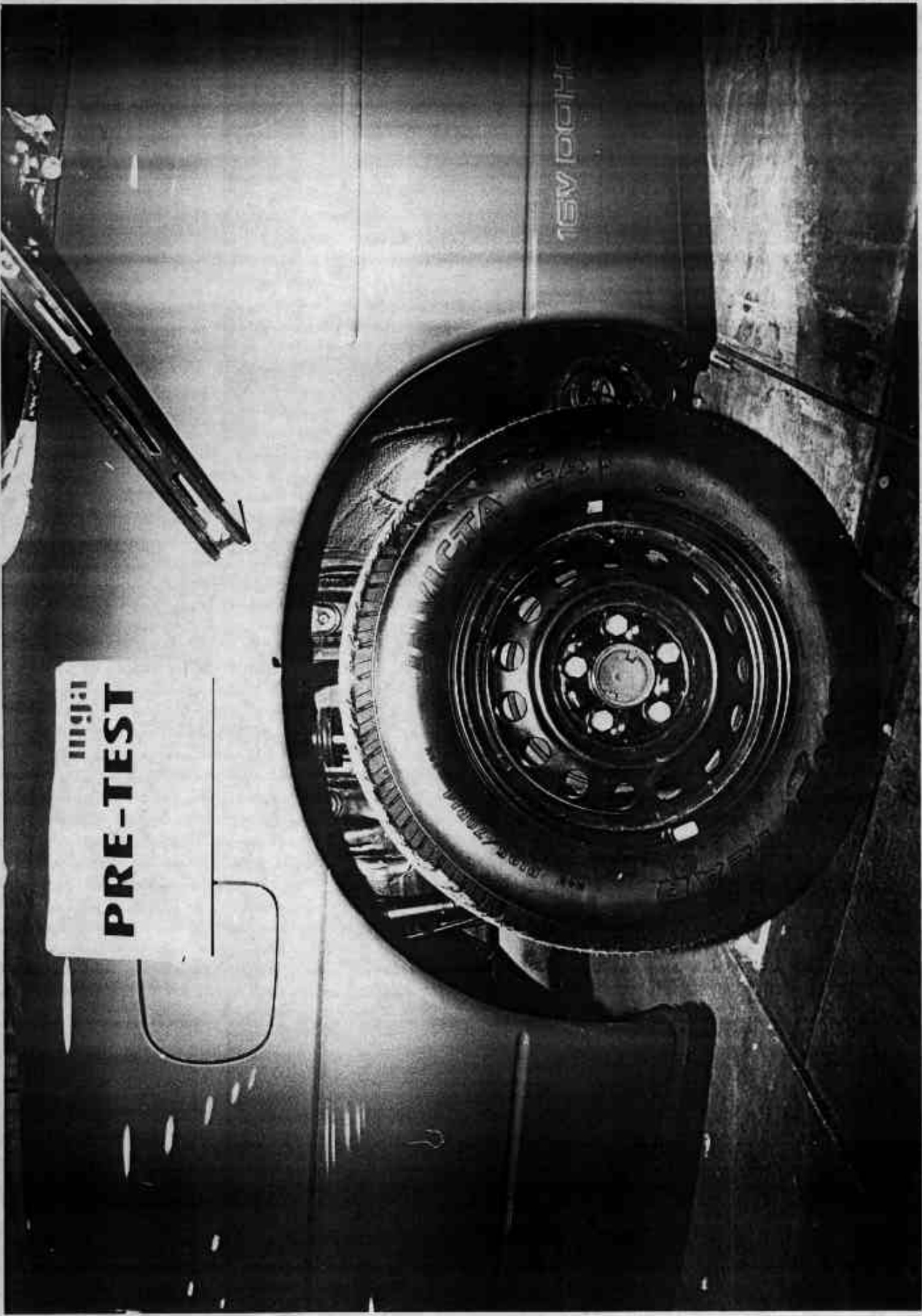


Photo No. A-49 - Left Rear Attitude Point



ingai  
**PRE-TEST**

Photo No. A-50 - Right Rear Attitude Point

A-50

APPENDIX B - VEHICLE AND SID RESPONSE DATA

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\*Data not valid after approximately 23.4 msec.

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### Barrier:

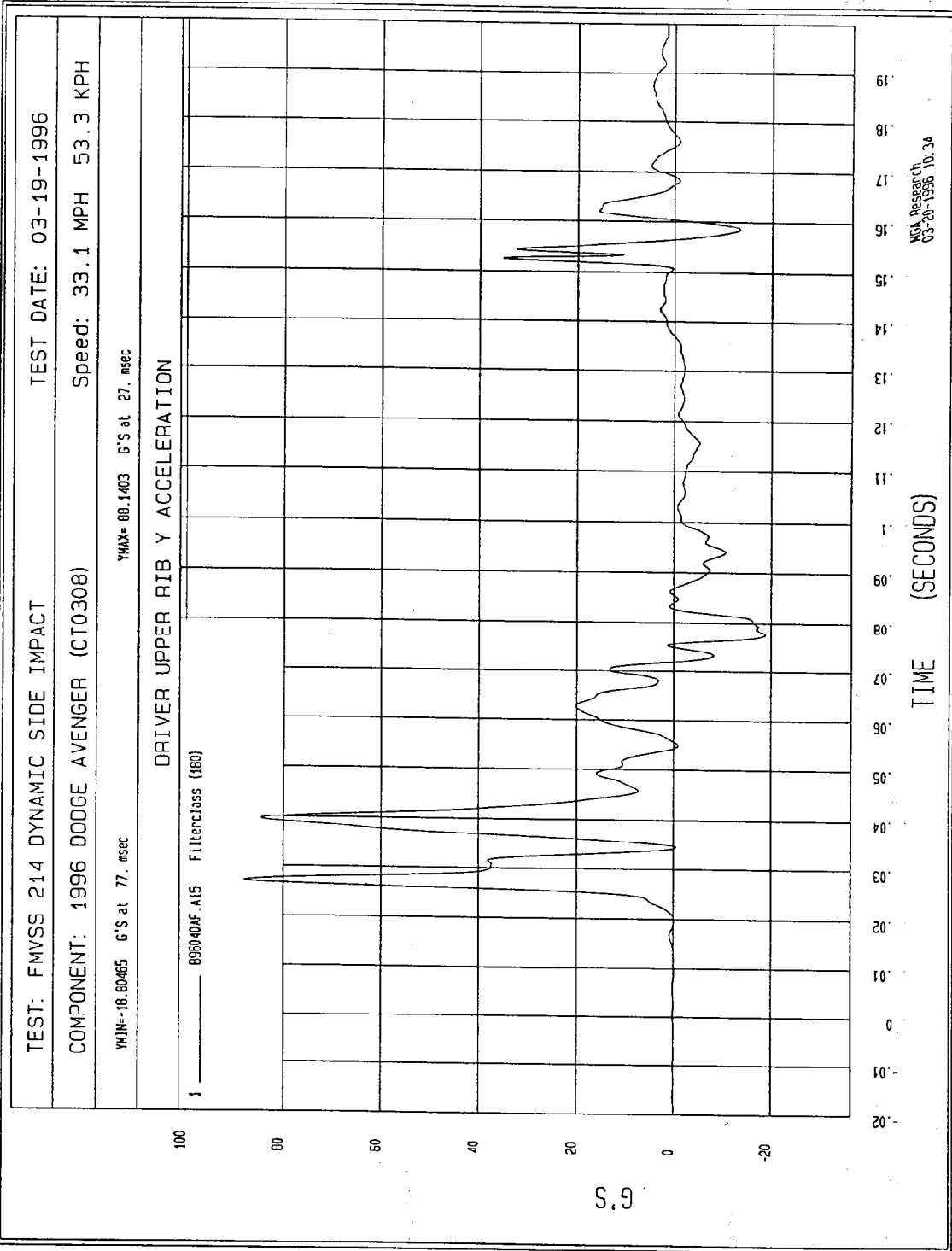
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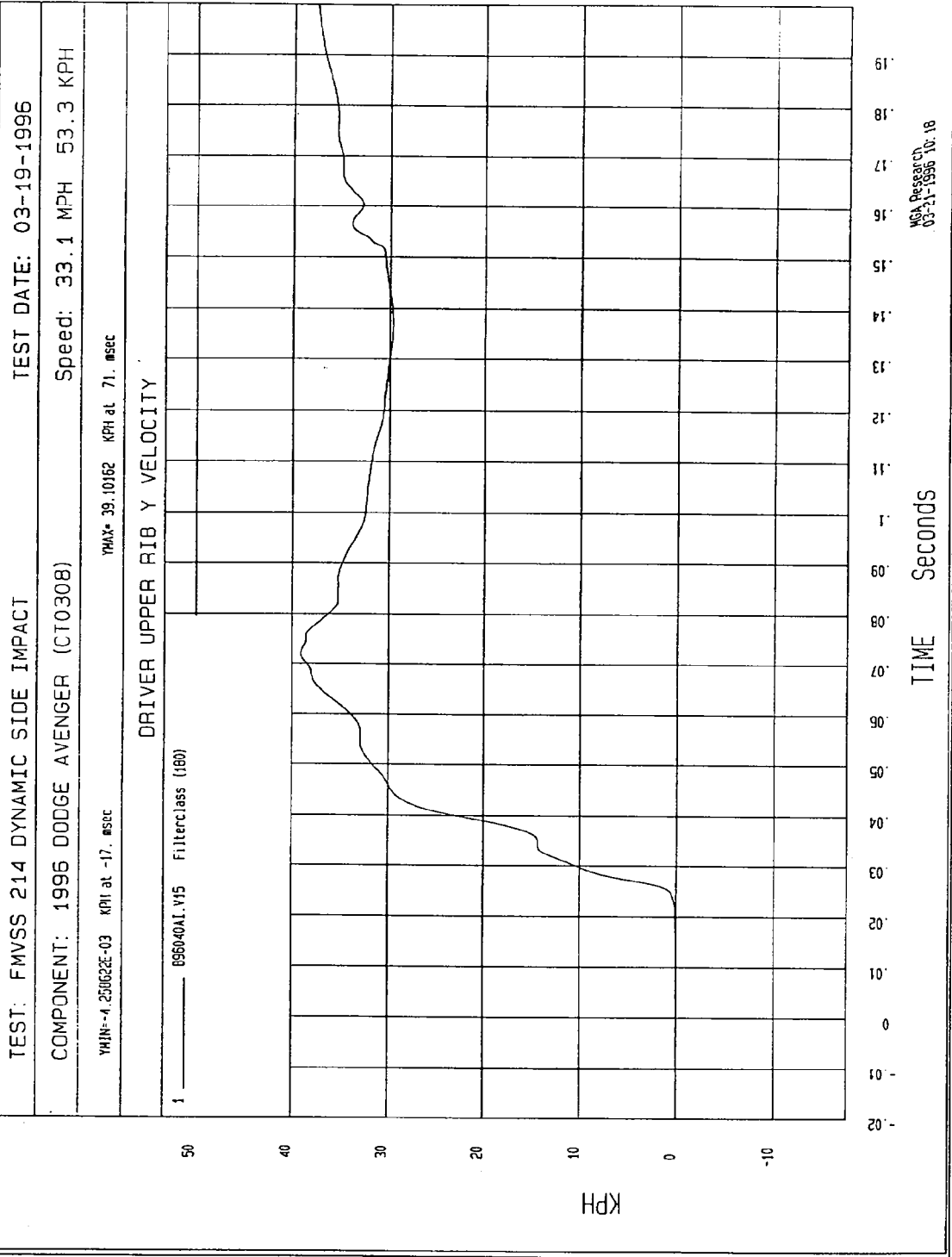
### Redundant:

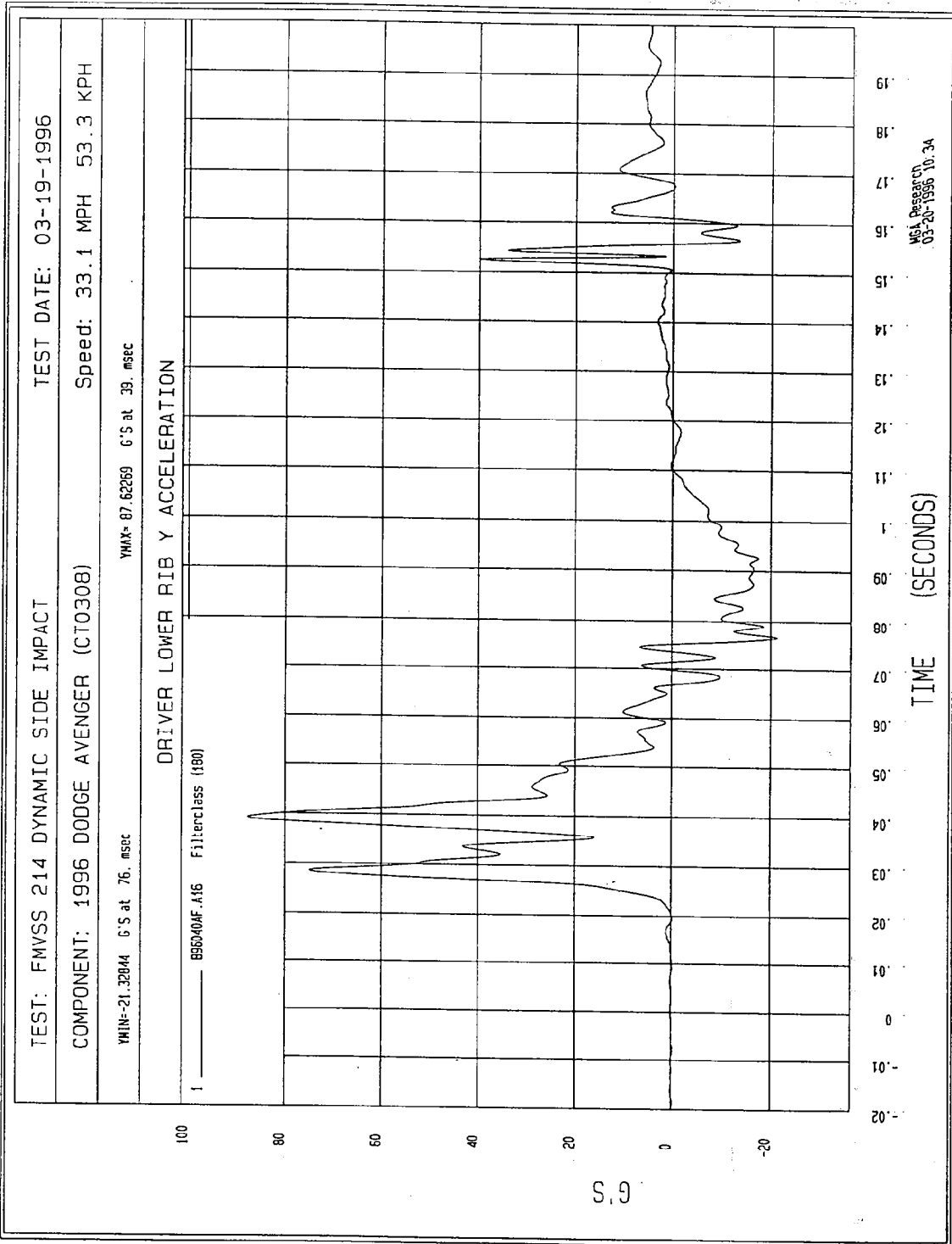
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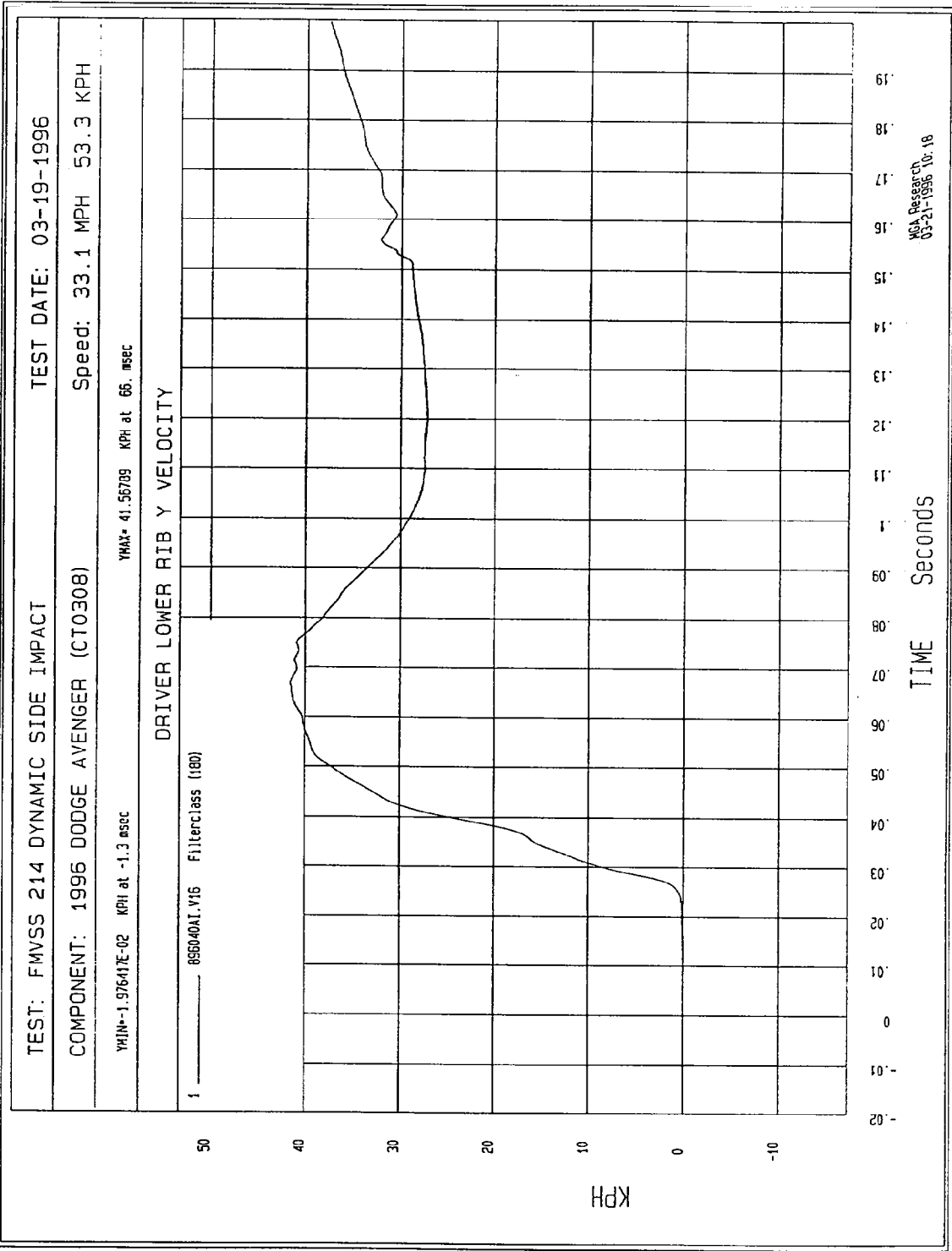
## Table of Data Plots

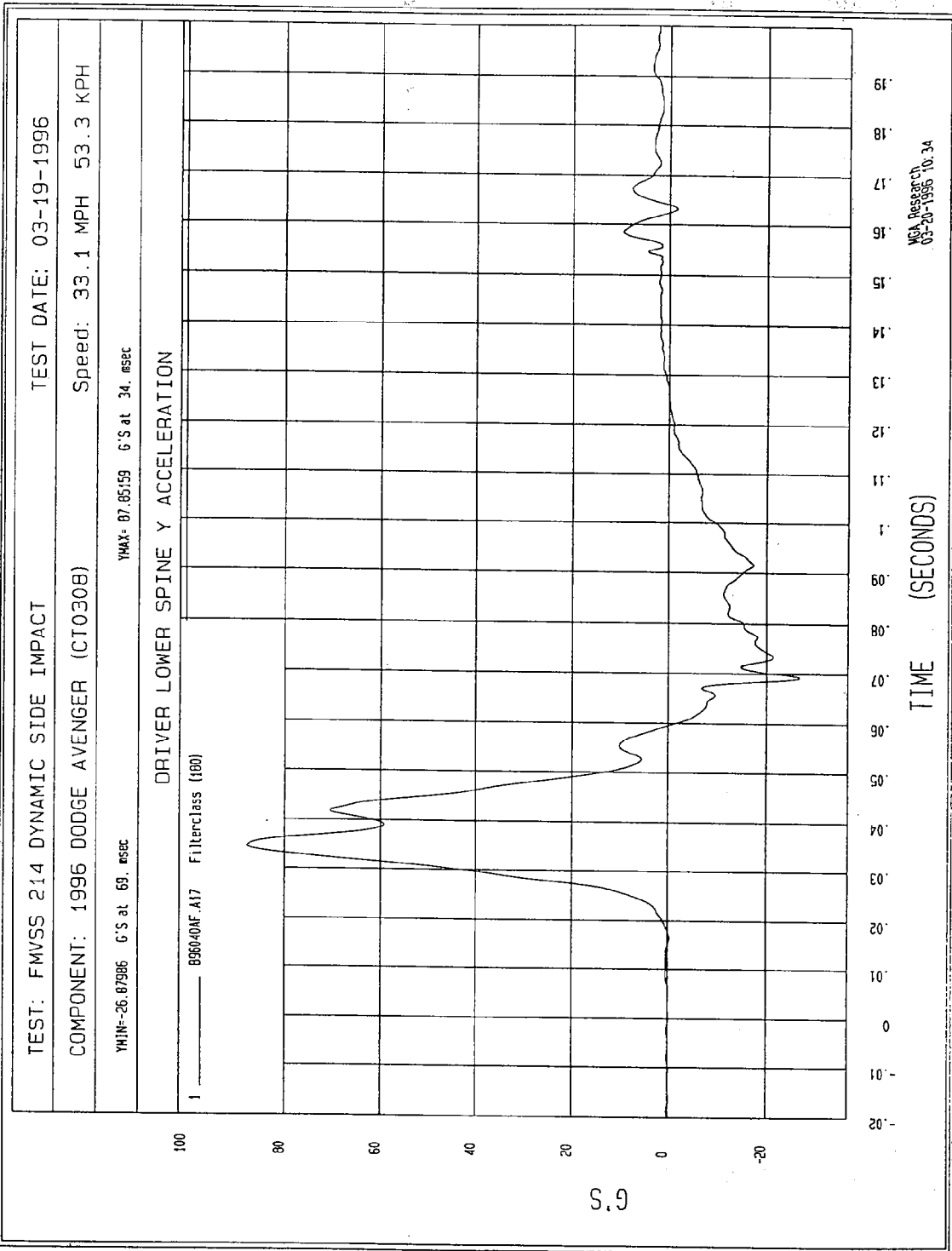
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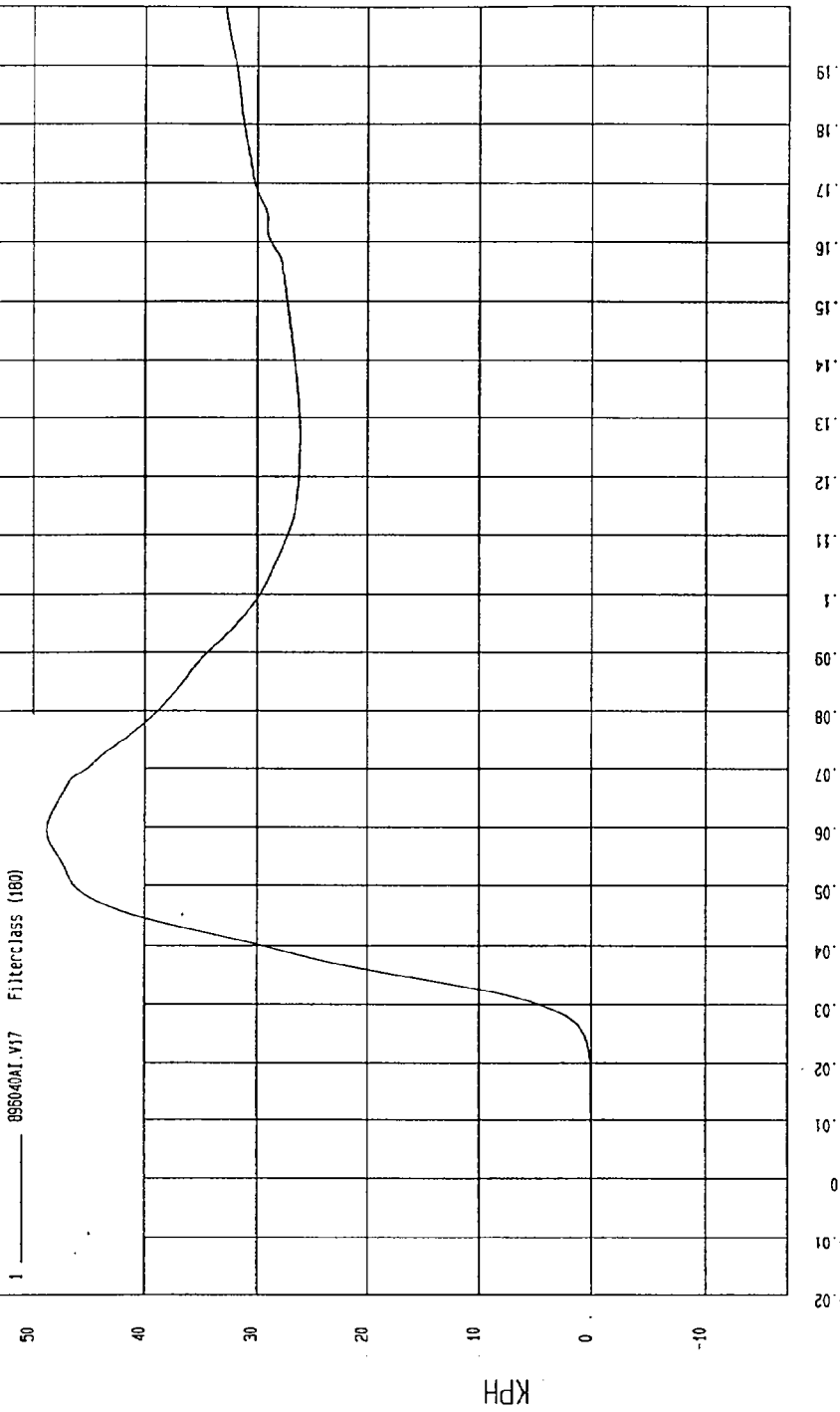
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-9.82877E-03 KPH at -9.3 msec

YMAX=48.81102 KPH at 59. msec

DRIVER LOWER SPINE Y VELOCITY



MSA Research  
03-21-1996 10:18

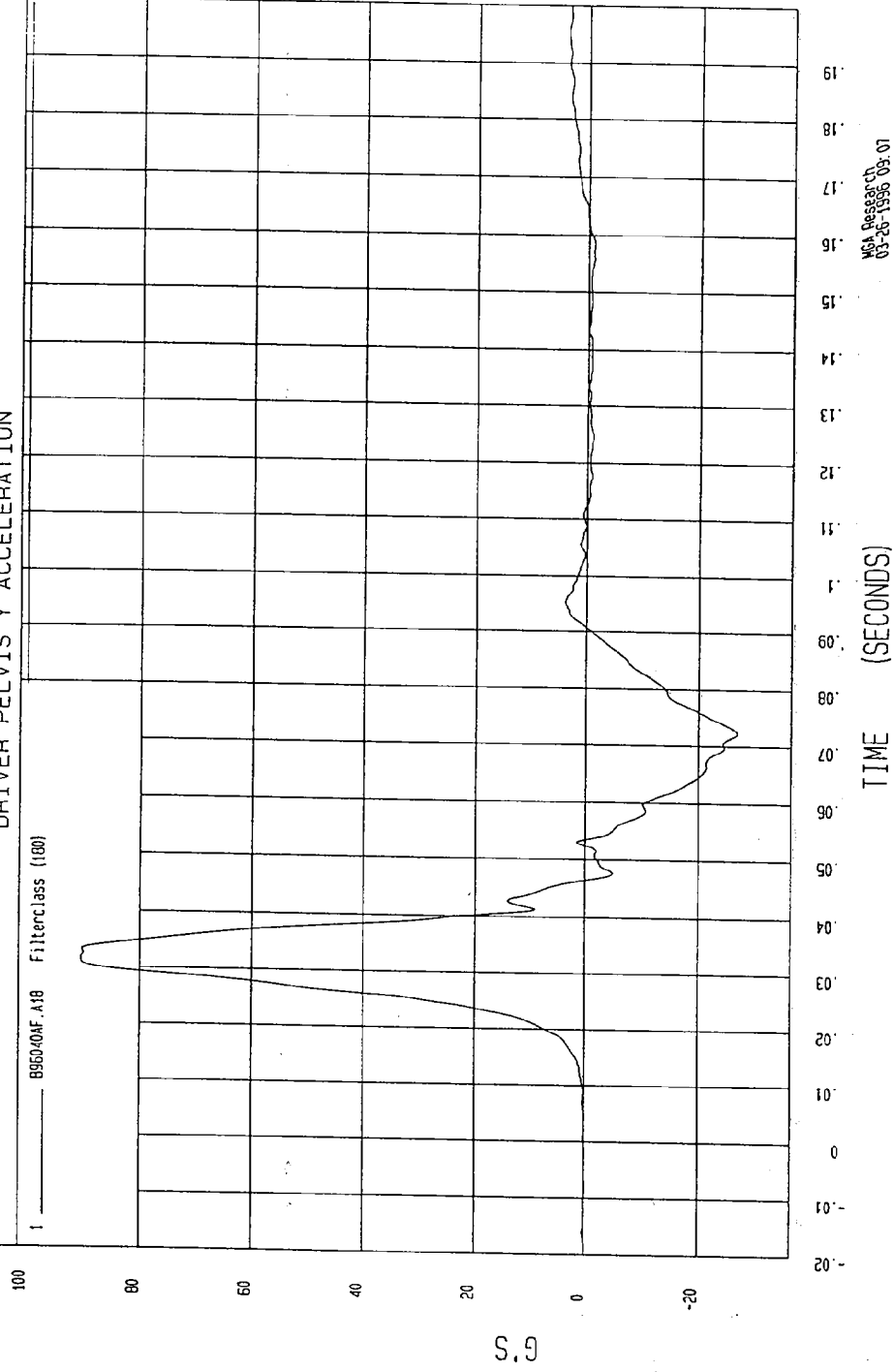
TIME Seconds

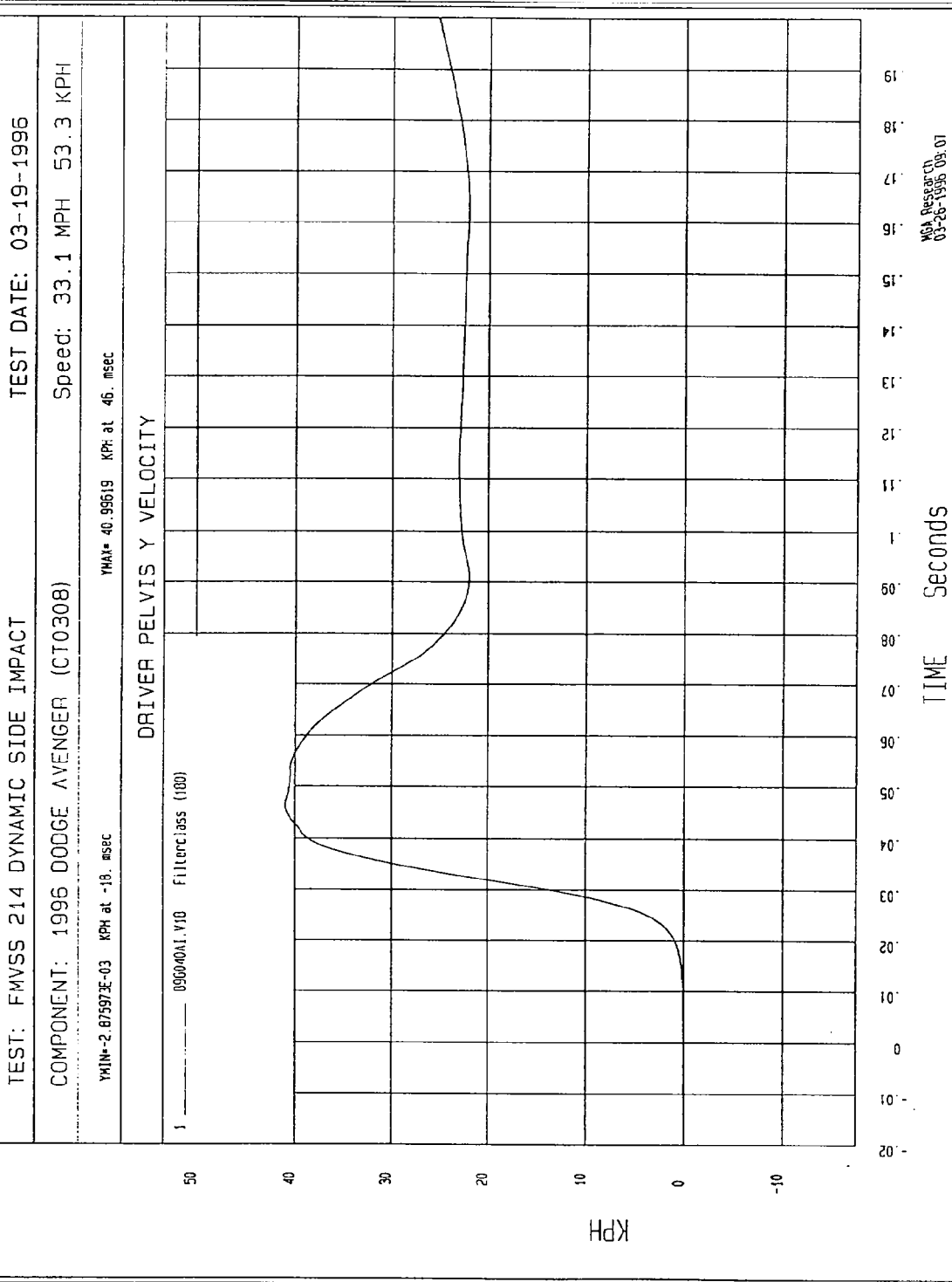
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COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

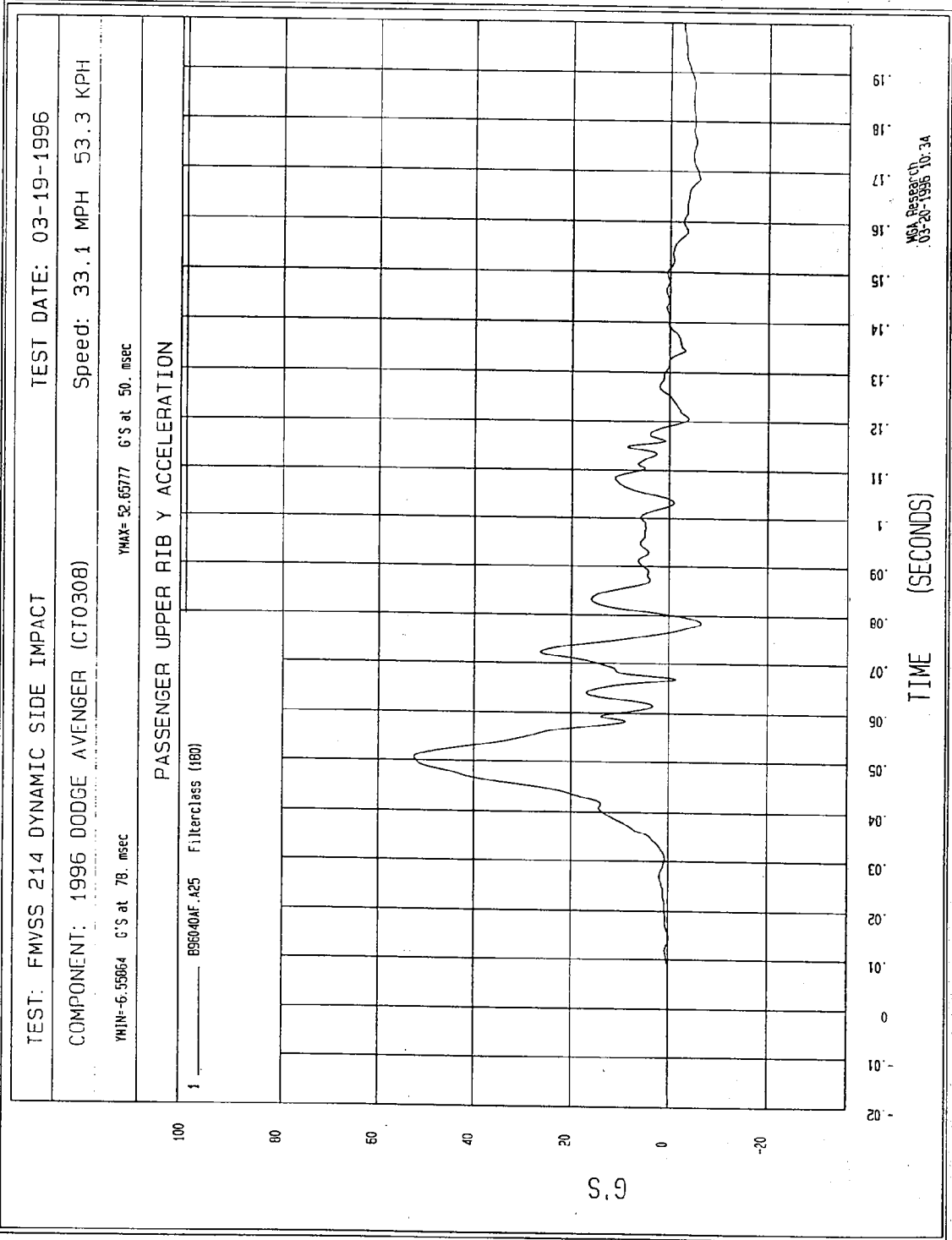
YMIN\*-26.97574 G'S at 72. msec YMAX\* 90.57768 G'S at 31. msec

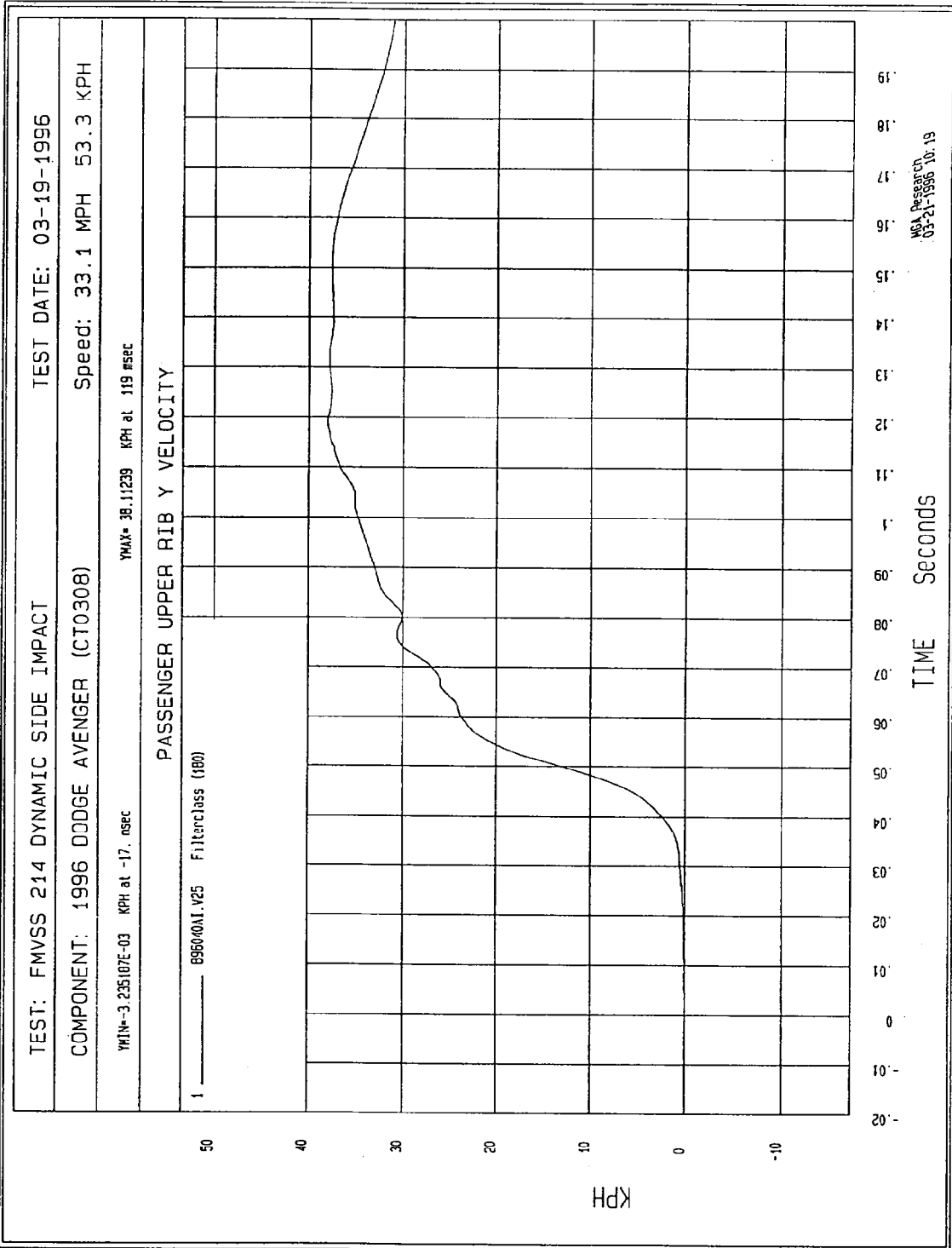
DRIVER PELVIS Y ACCELERATION





MCA Research  
03-26-1996 09:07





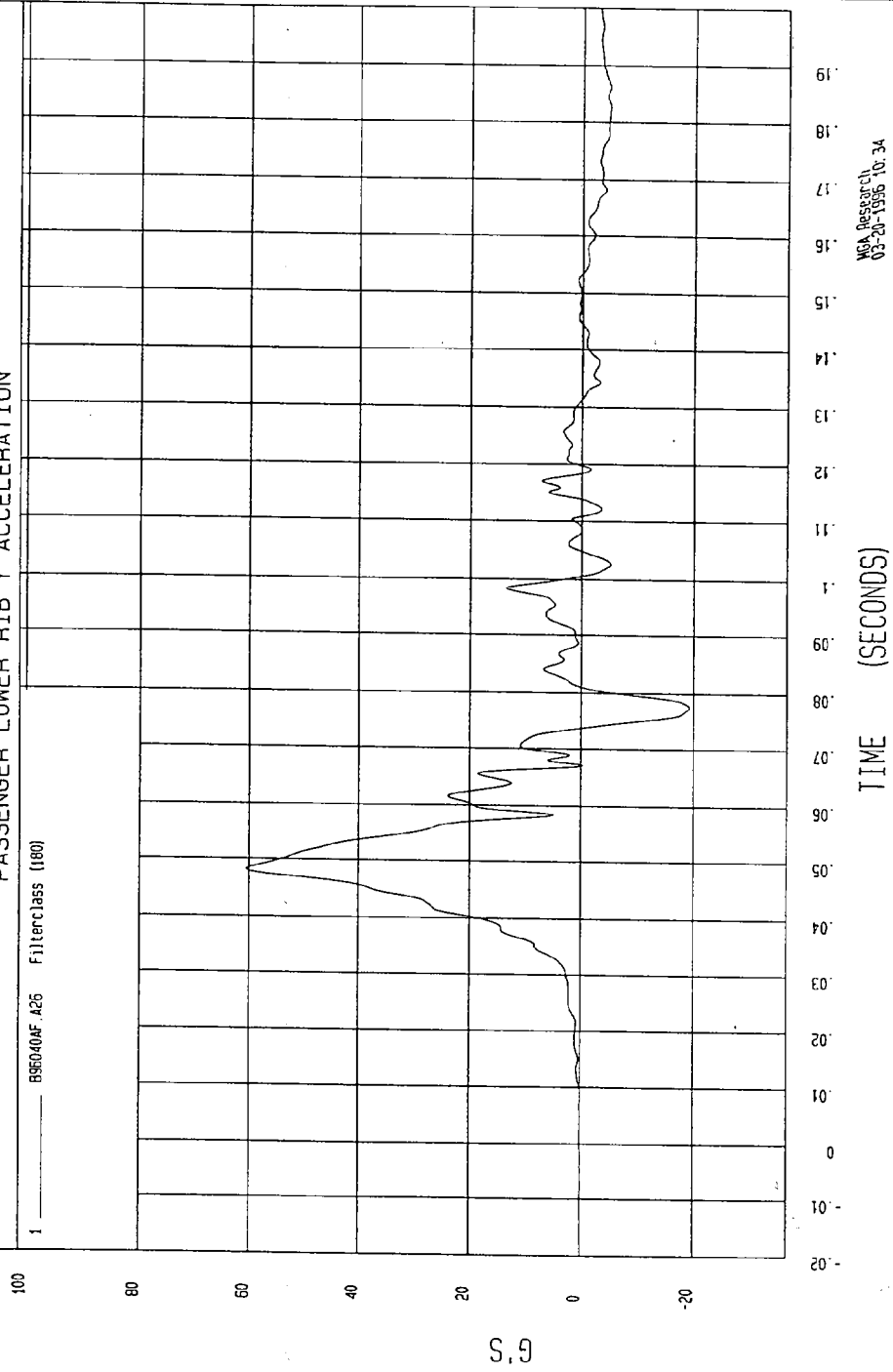
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT10308) Speed: 33.1 MPH 53.3 KPH

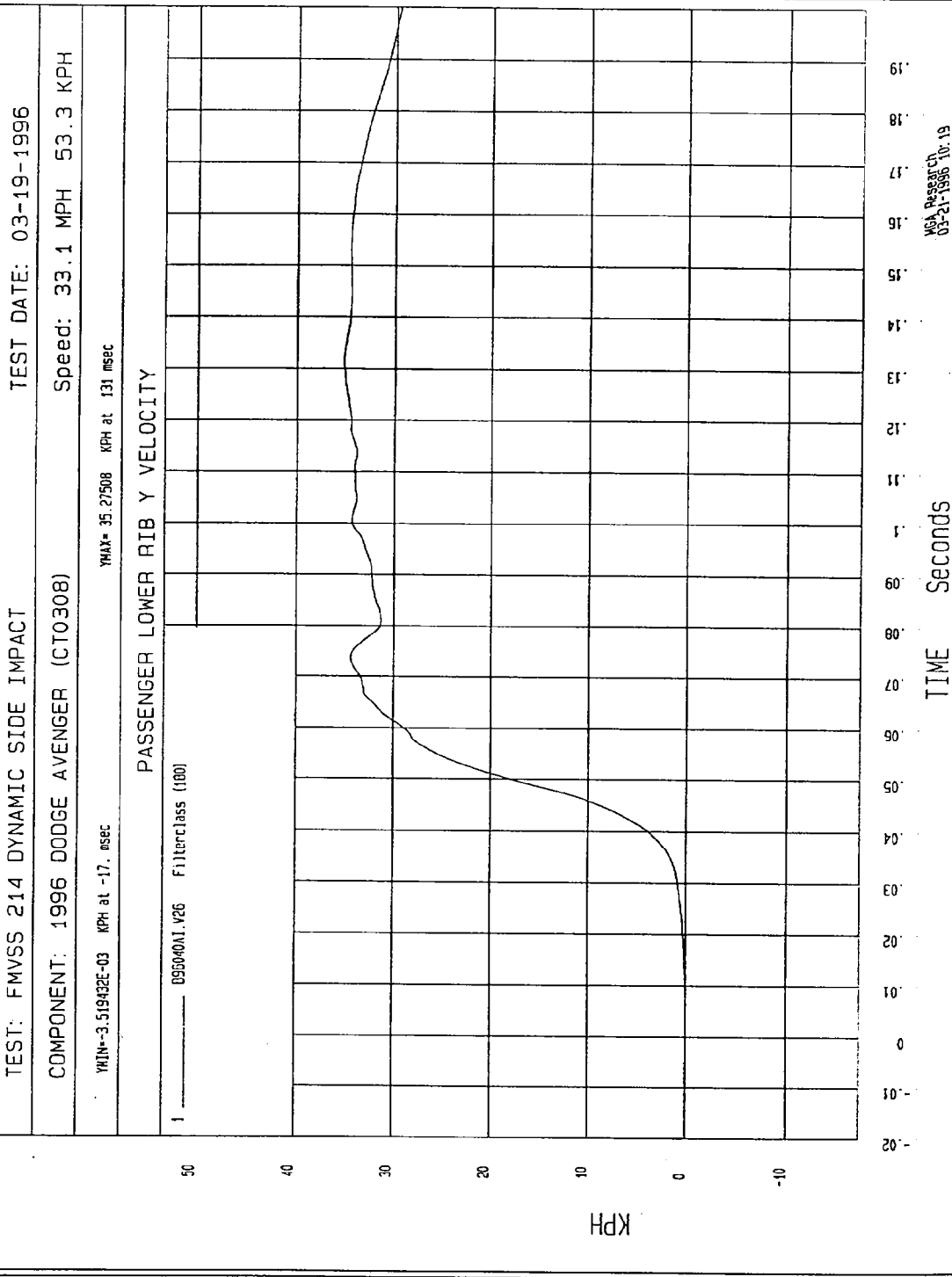
YMIN=-19.2004 G'S at 77. msec YMAX= 60.48001 G'S at 40. msec

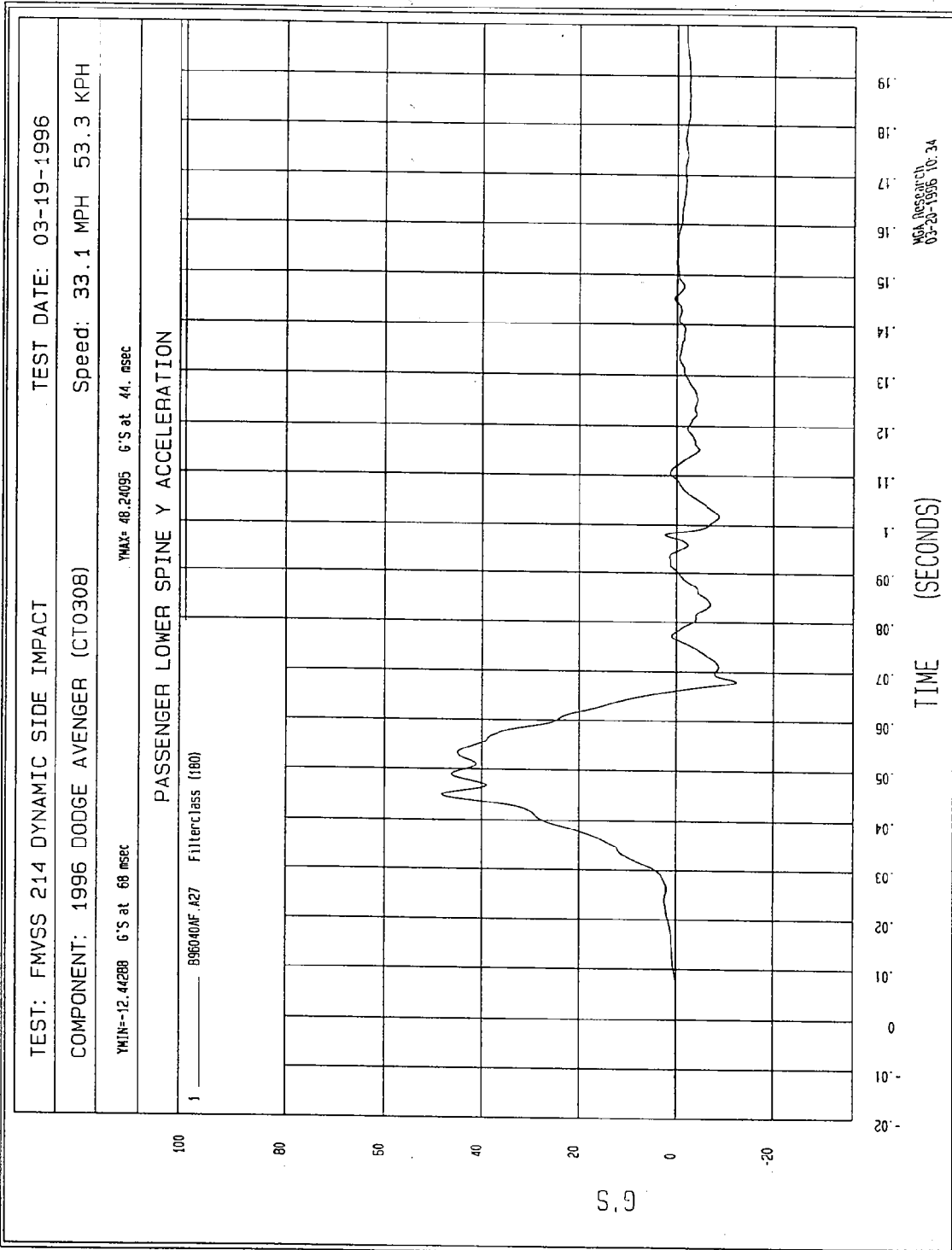
PASSENGER LOWER RIB Y ACCELERATION

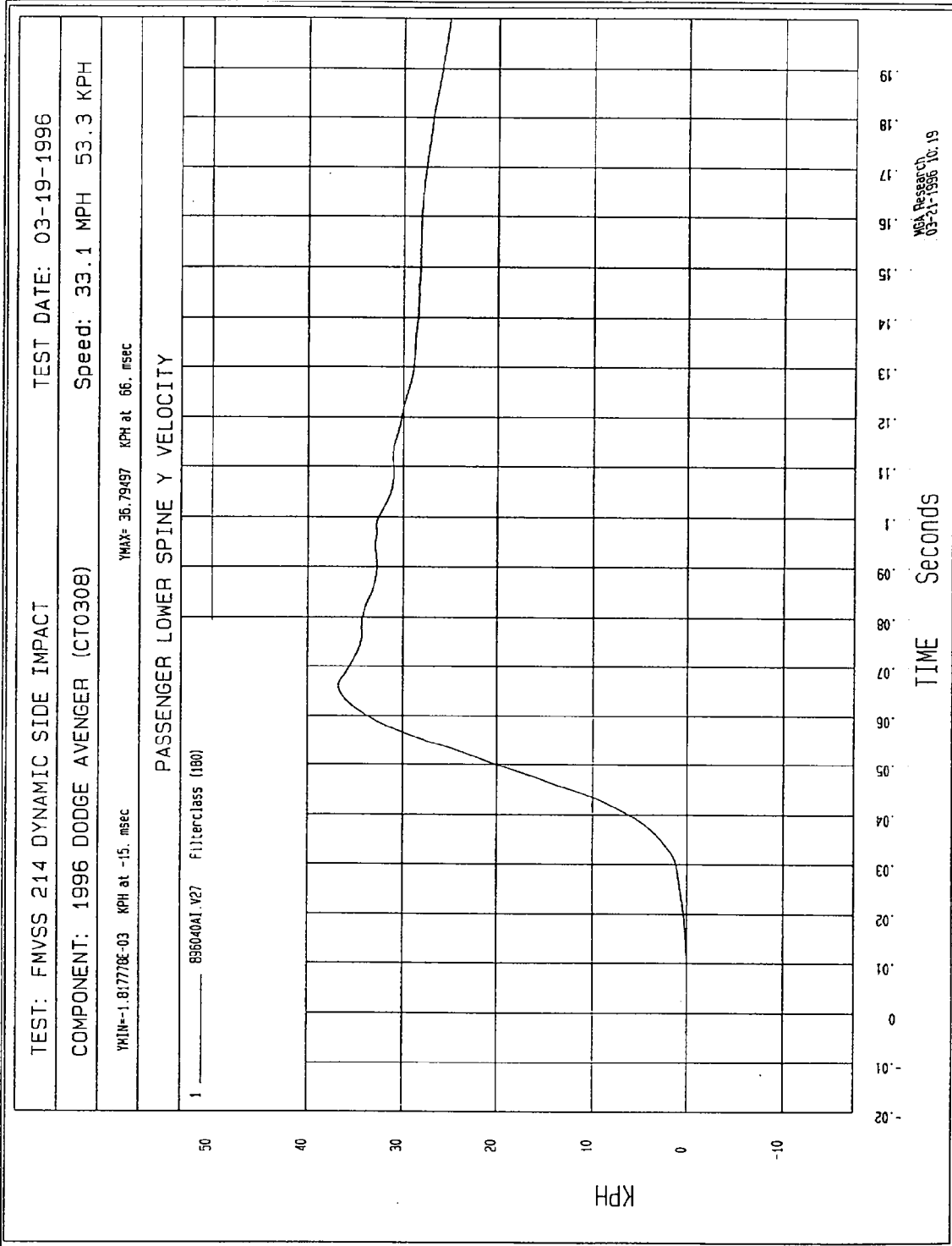
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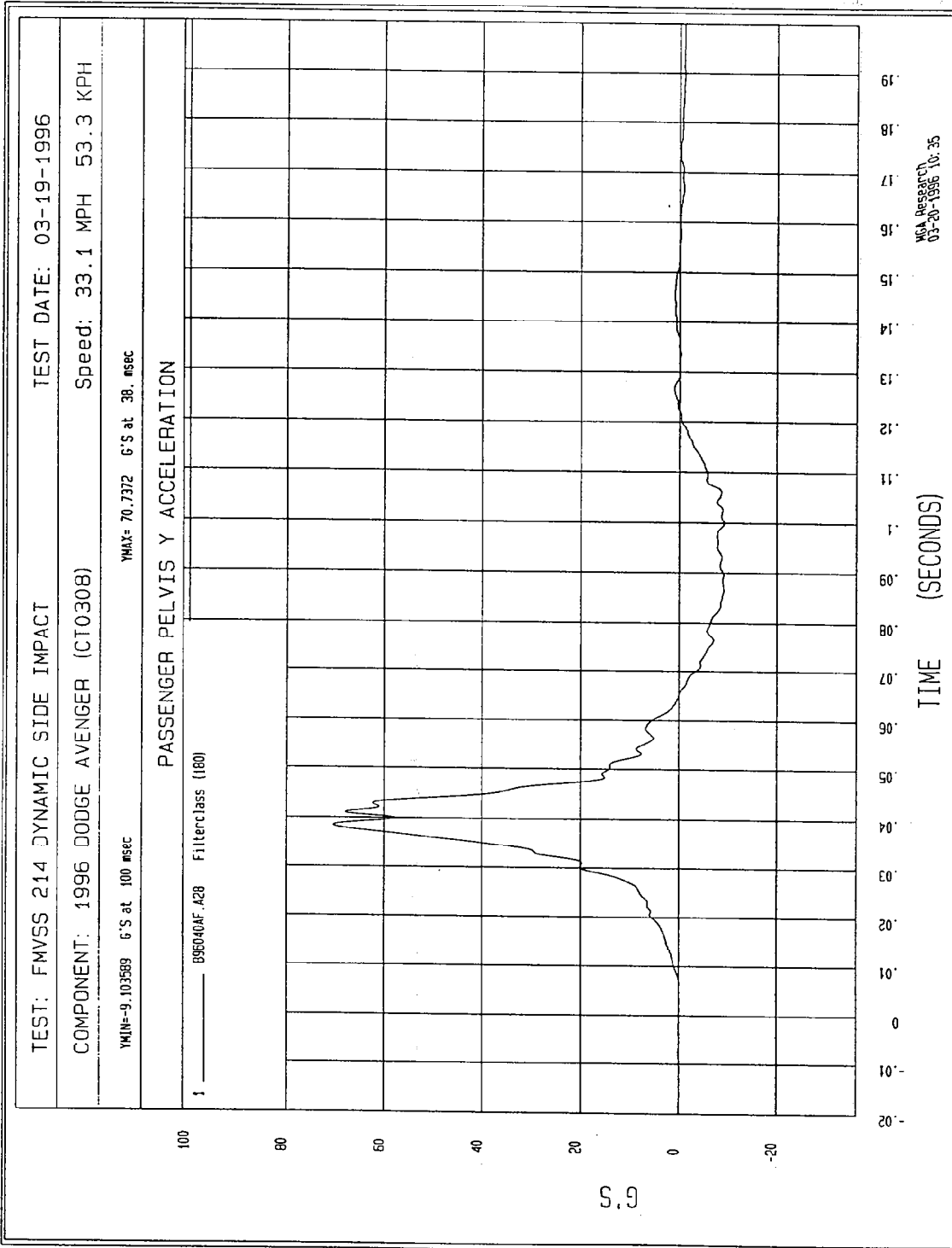
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03-20-1996 10:34







MVA Research  
03-21-1996 10:19



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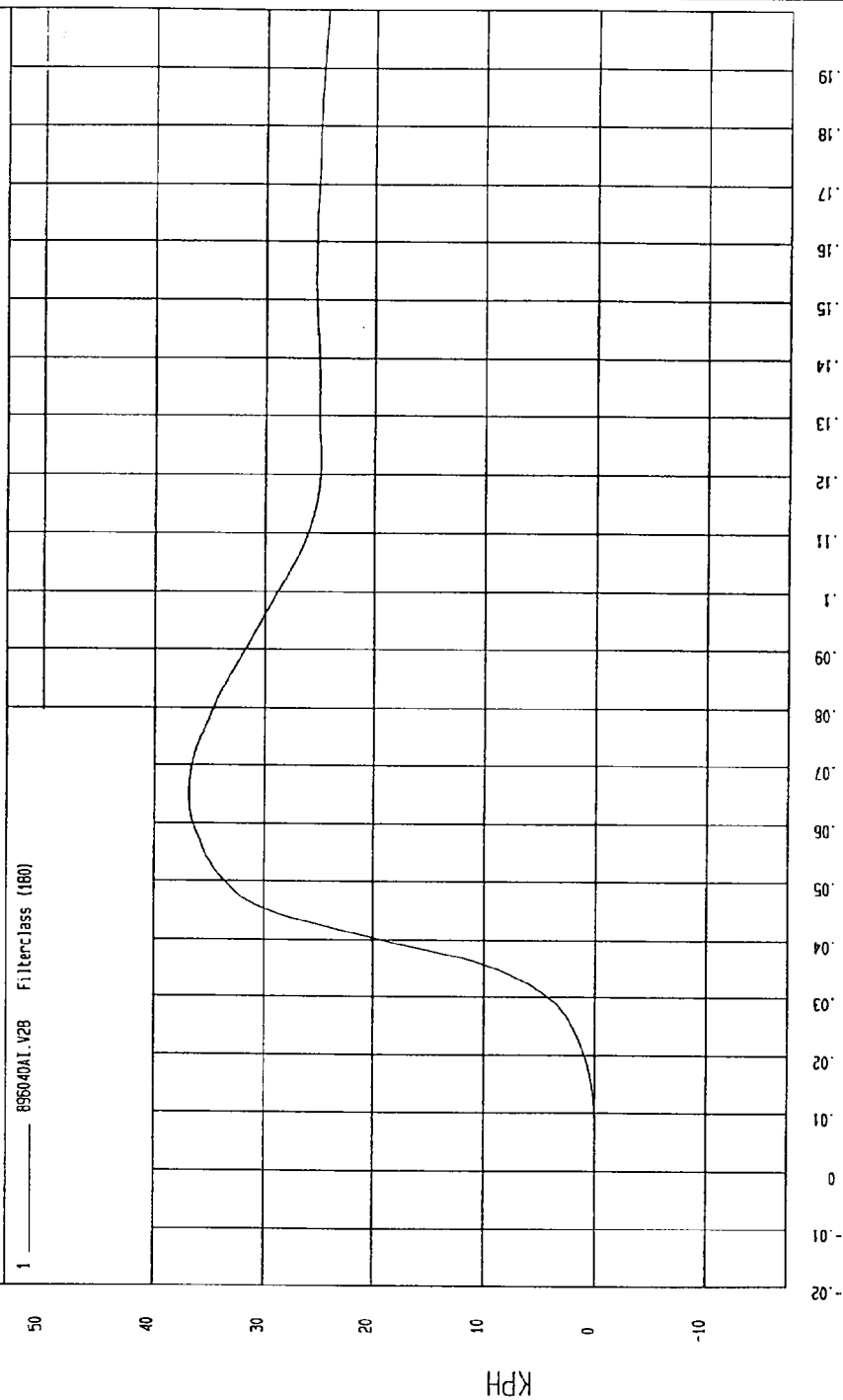
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YMIN=-6.359607E-03 KPH at -9.4 msec

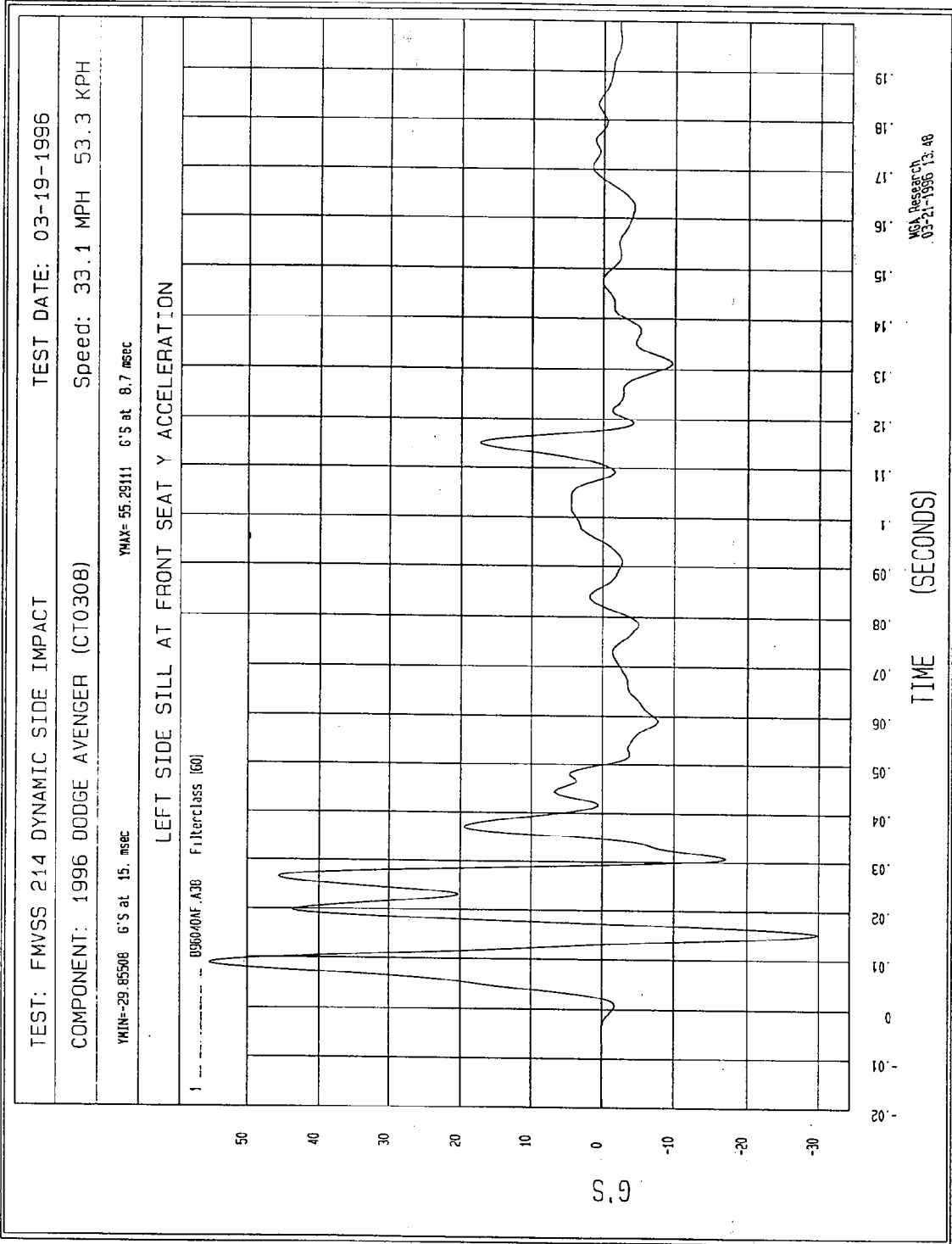
YMAX= 36.9218 KPH at 65. msec

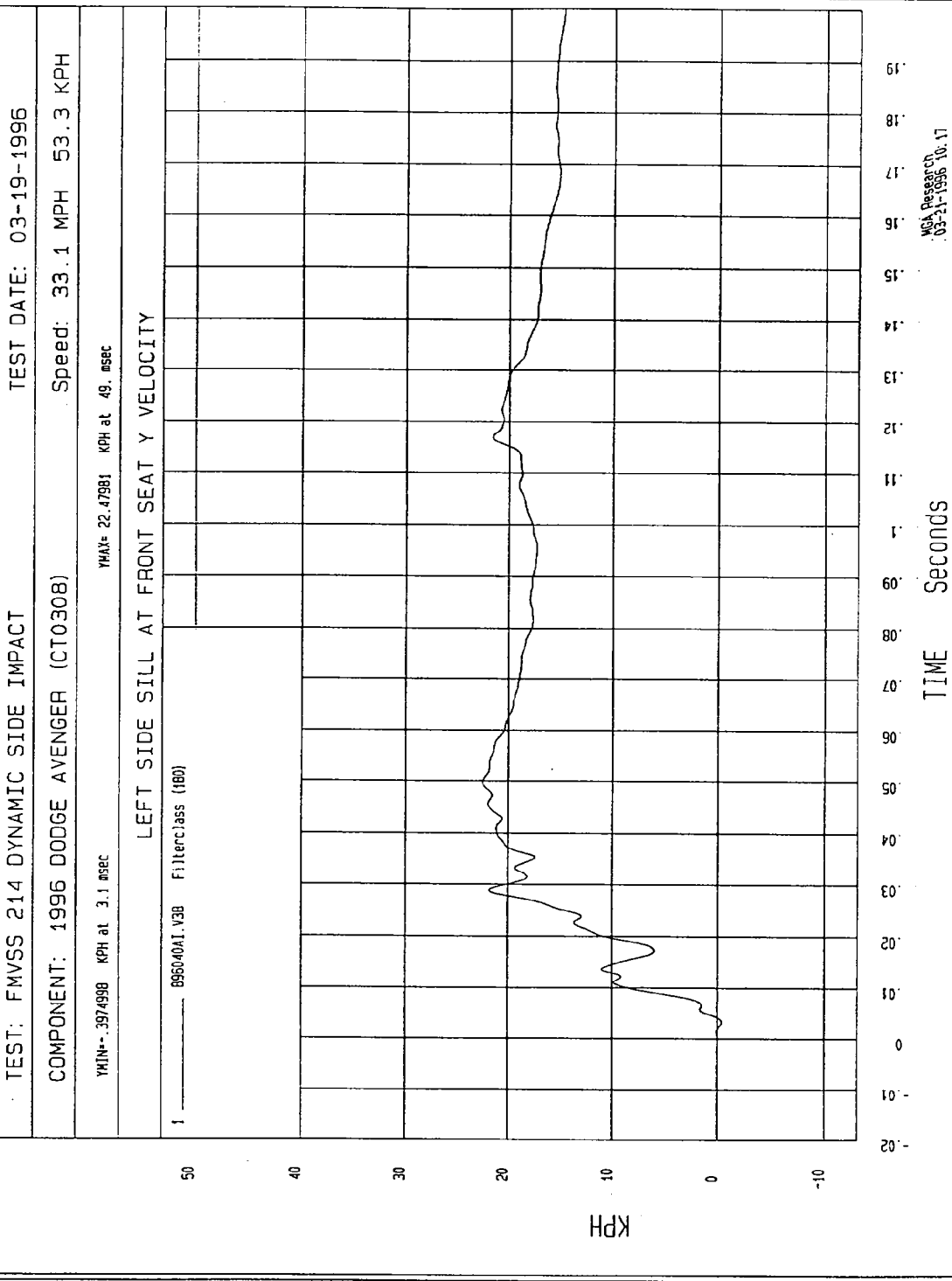
PASSENGER PELVIS Y VELOCITY

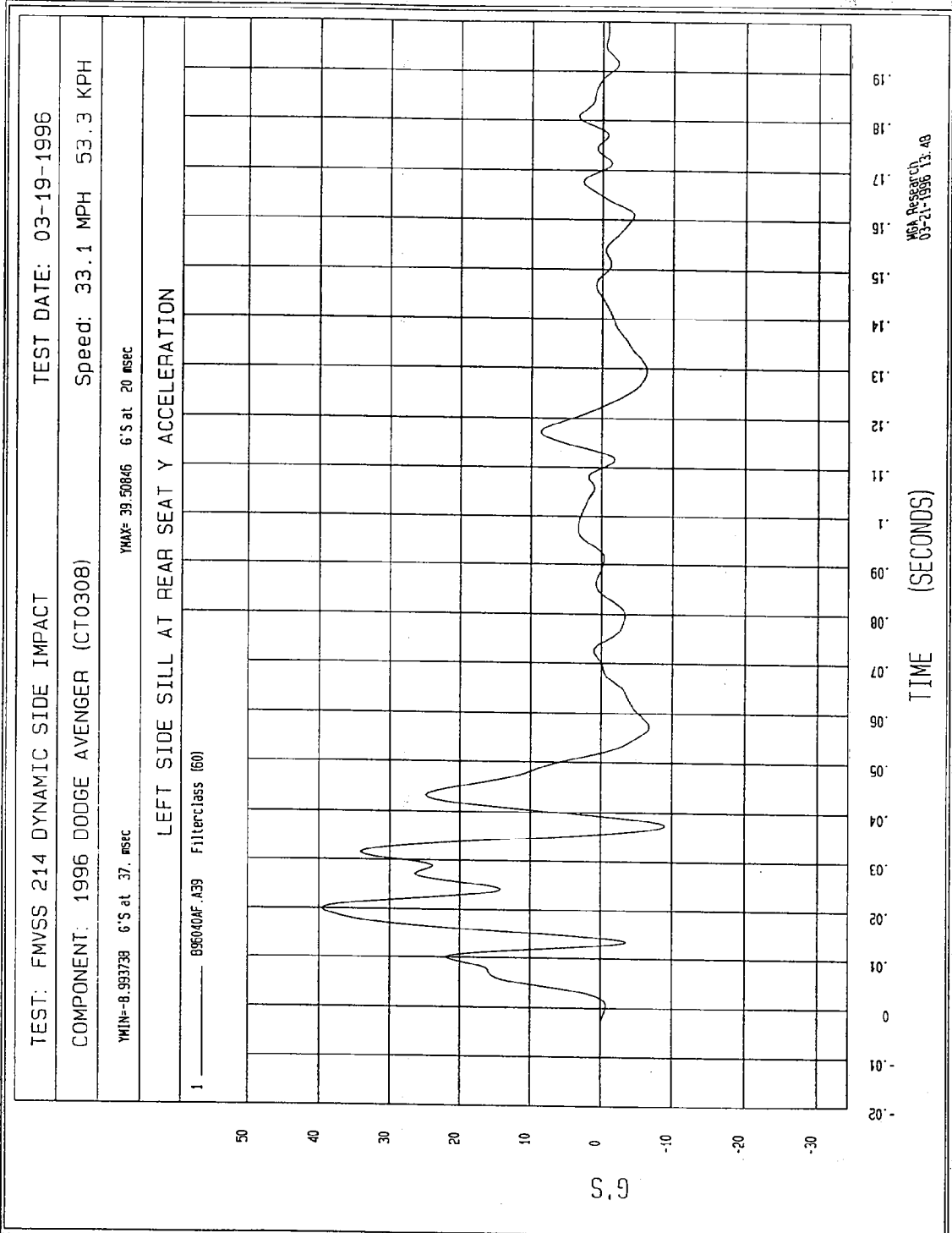
1 856040A1.V2B FilterClass (160)

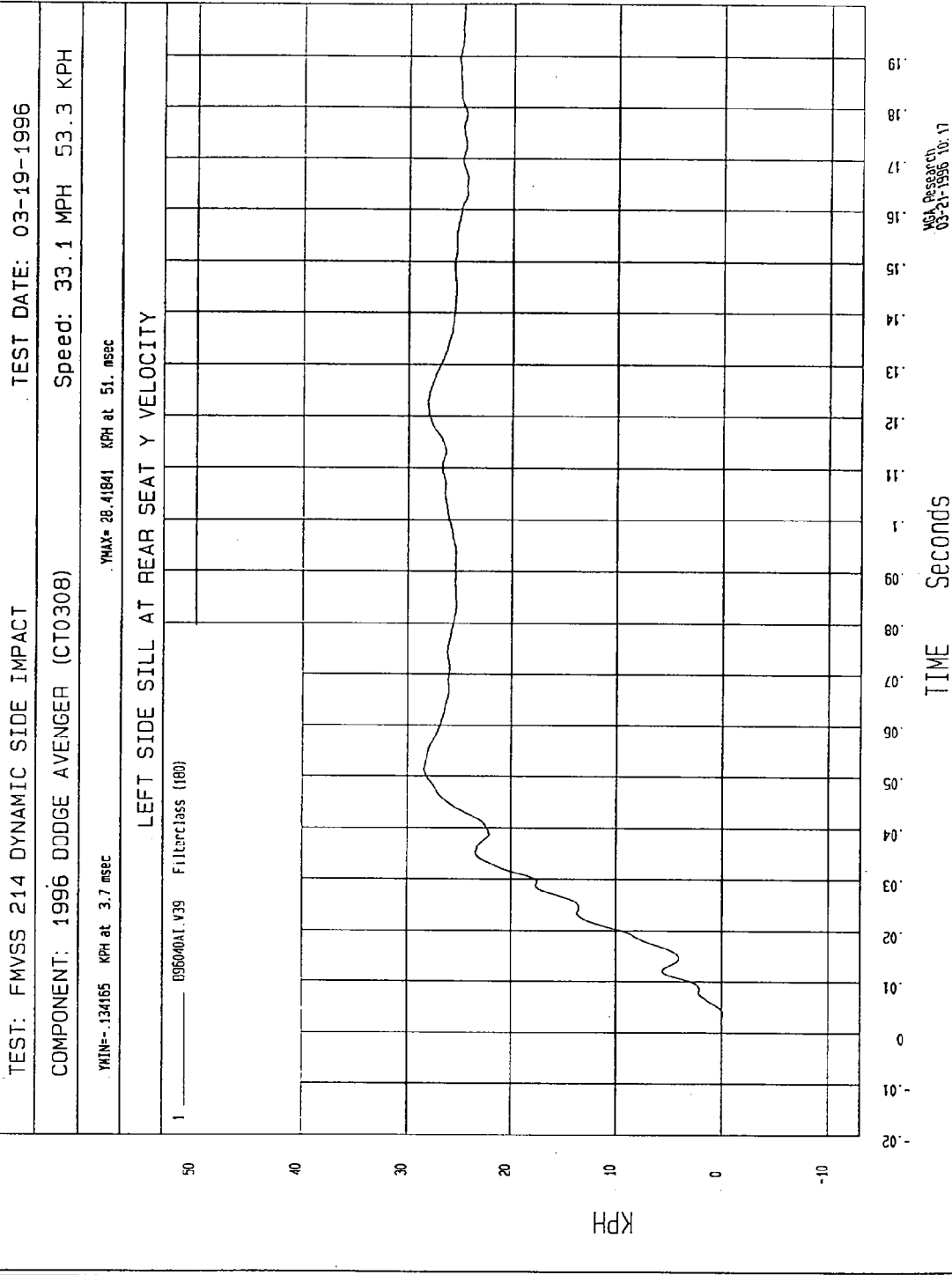


MCA Research  
03-21-1996 10:19









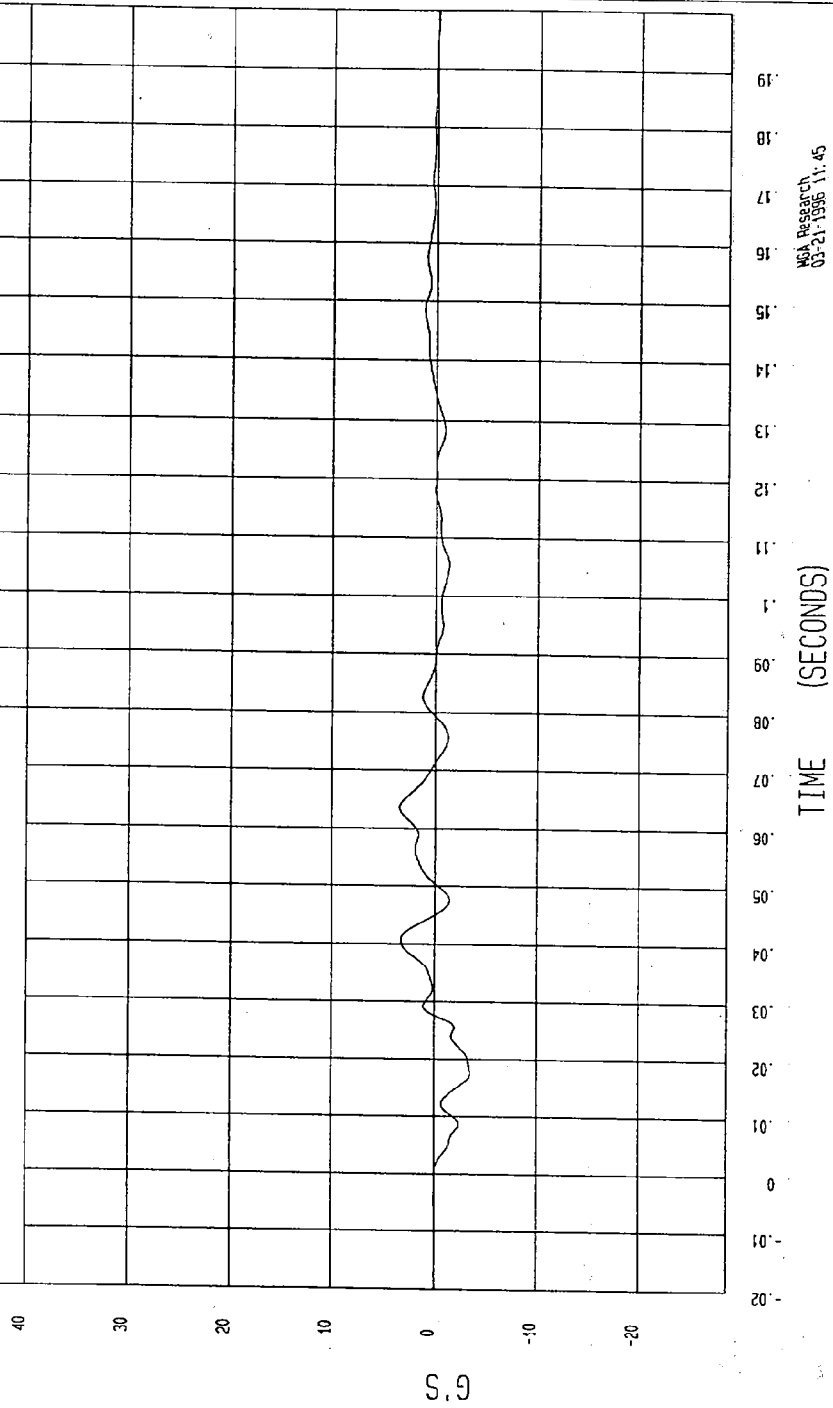
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN = -3.513174 G'S at 17. msec YMAX = 3.404756 G'S at 63. msec

RIGHT SIDE SILL AT FRONT SEAT X ACCELERATION

1 B96040AF.A32 Fil:erclass (60)



MGA Research  
03-21-1996 11:45

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

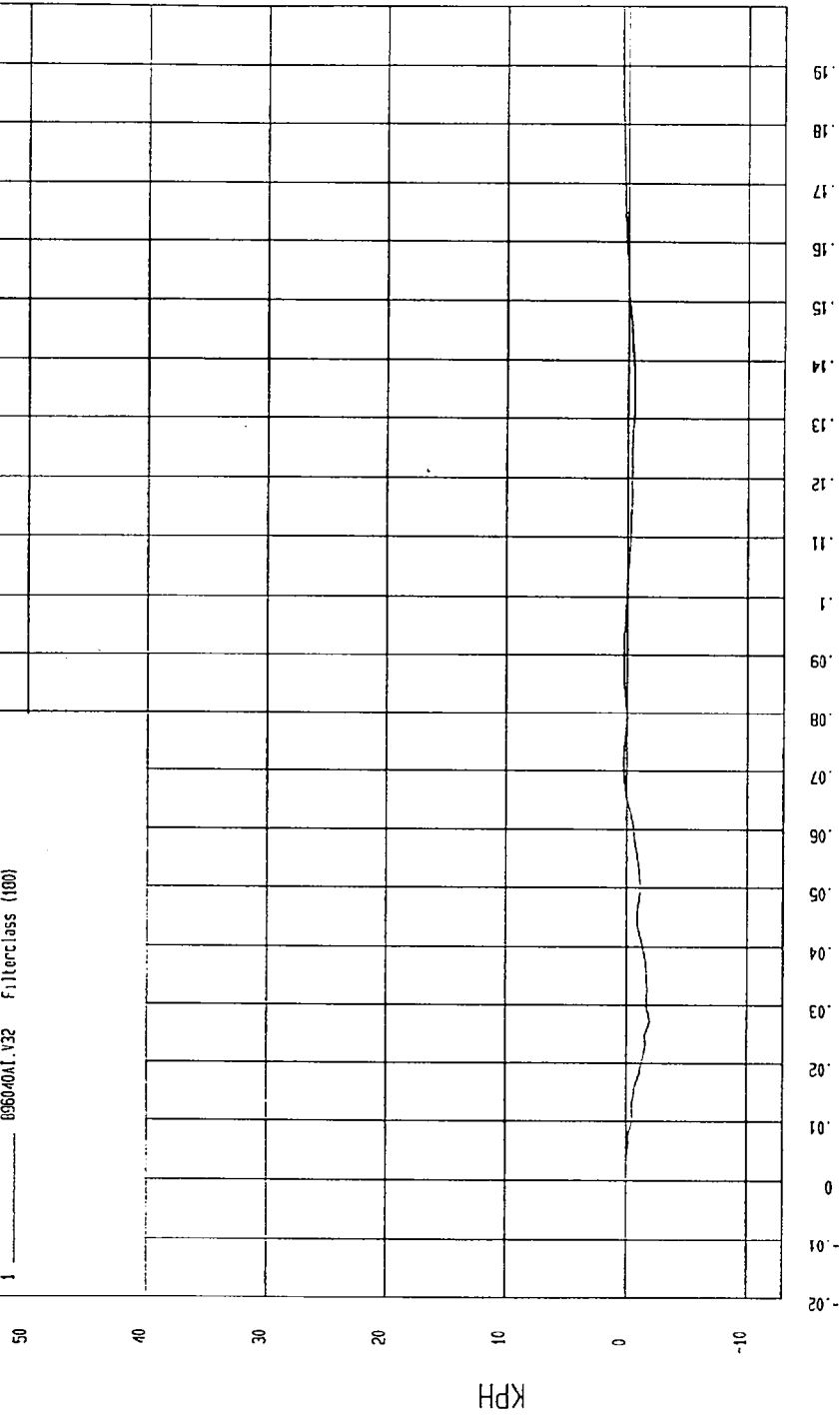
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-1.83303 KPH at 27. msec

YMAX= 47.15004 KPH at 195 msec

RIGHT SIDE SILL AT FRONT SEAT X VELOCITY

1 \_\_\_\_\_ 036040A1.V32 Filterclass (100)



MEA Research  
03-21-1996 10:16

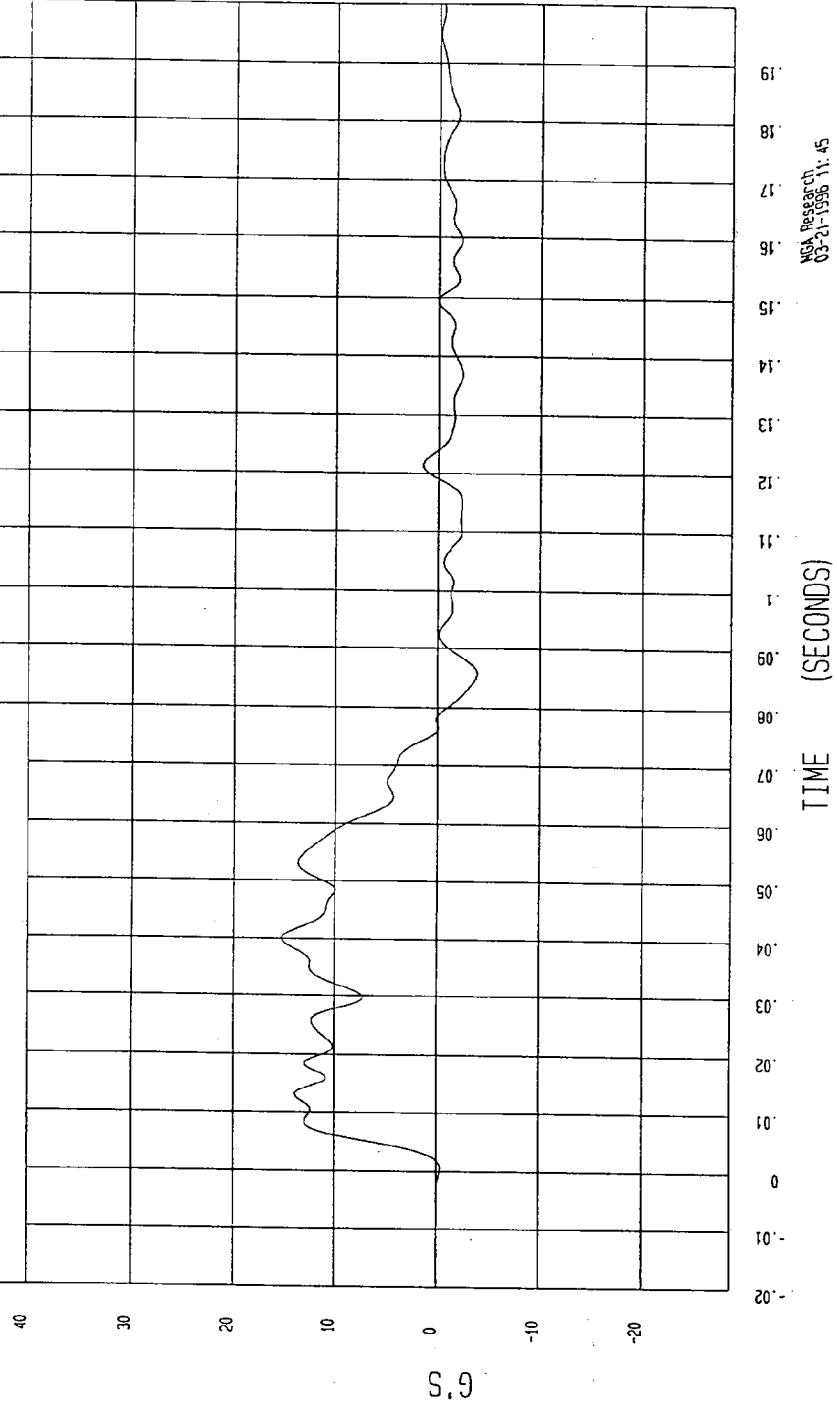
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

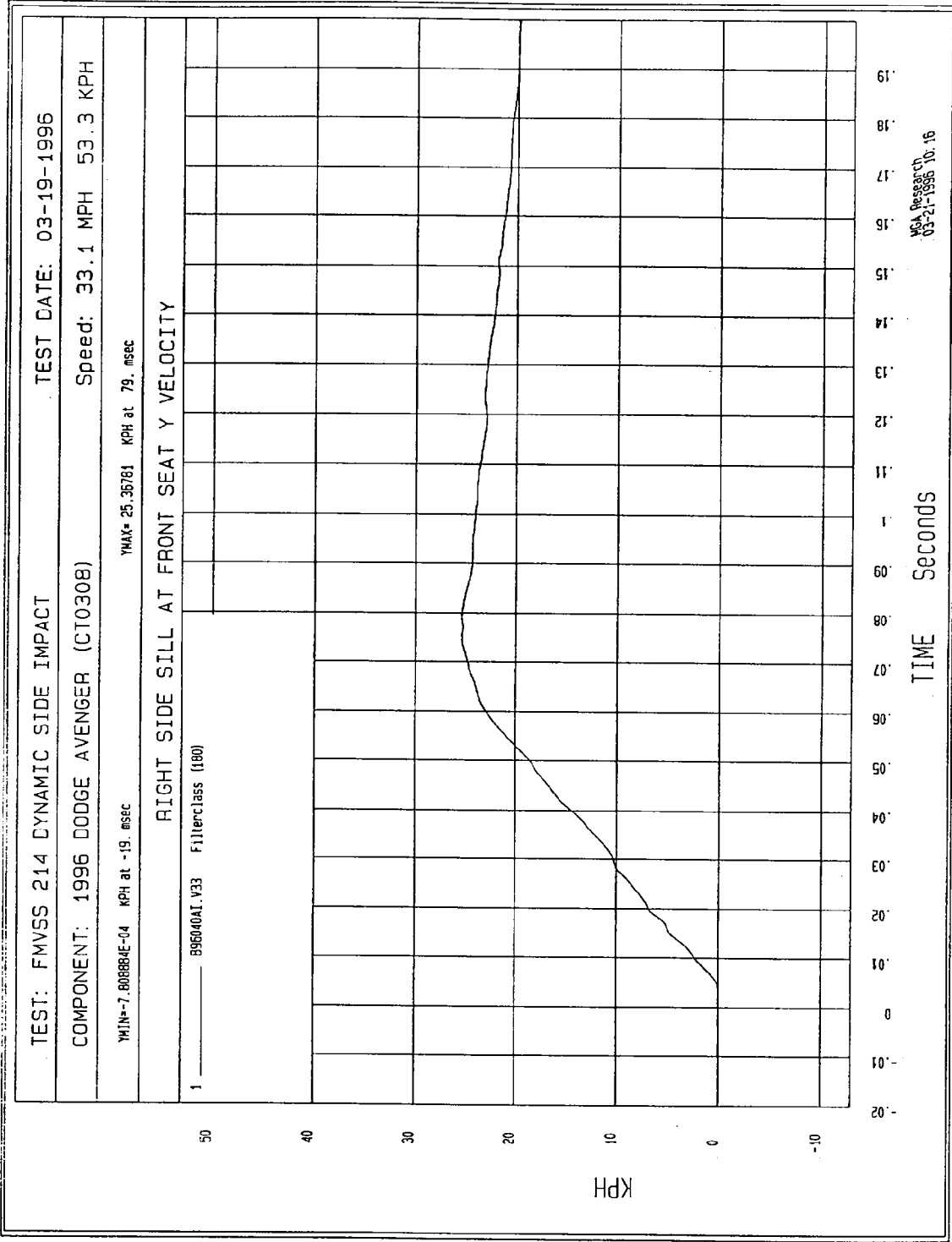
YMIN=-3.665464 G'S at .85. nsec YMAX= 15.23325 G'S at .40 nsec

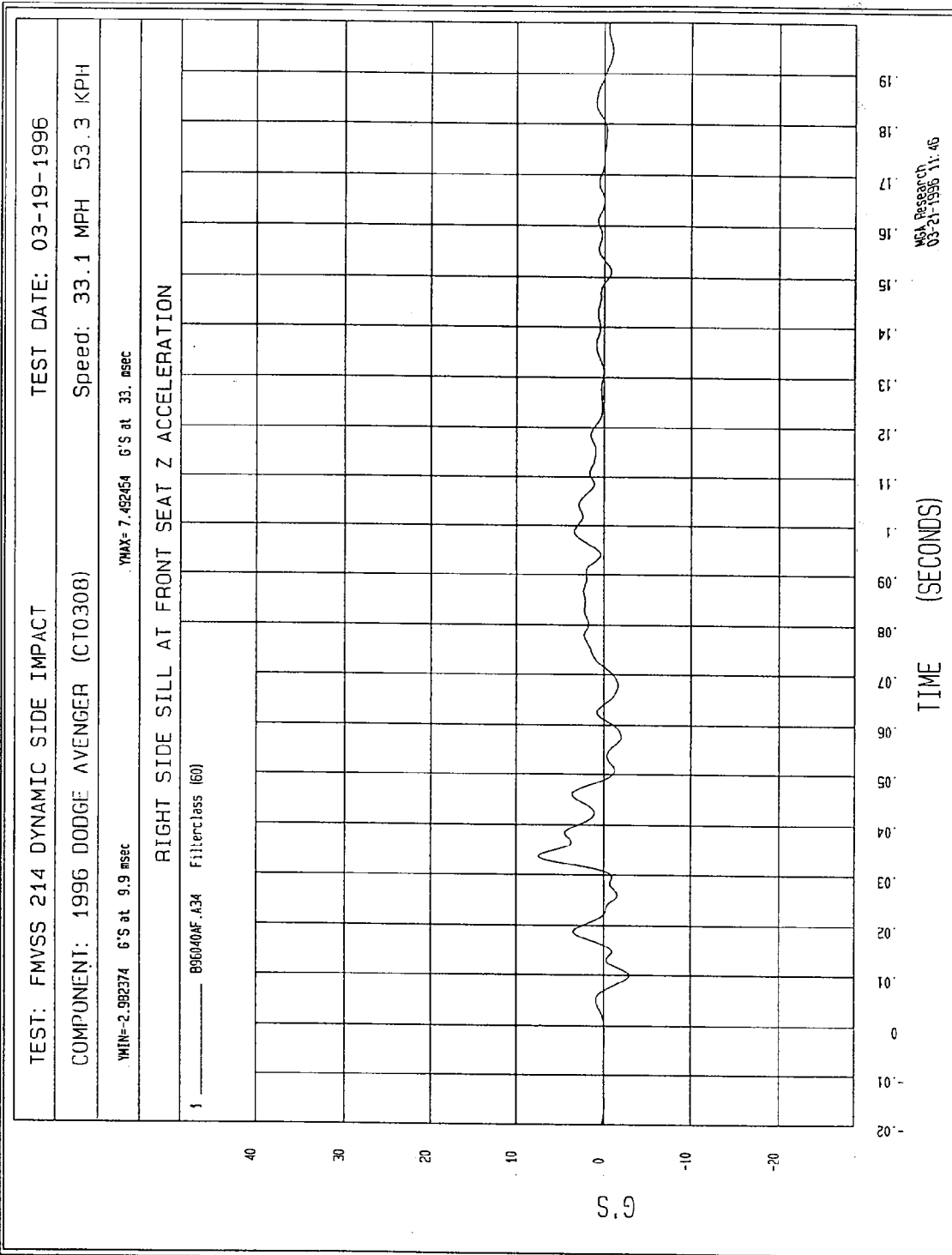
RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION

1 \_\_\_\_\_ BS6040AF.A33 Filterclass (60)



NSA Research  
03-21-1996 11:45





MSA Research  
 03-21-1996 11:45

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

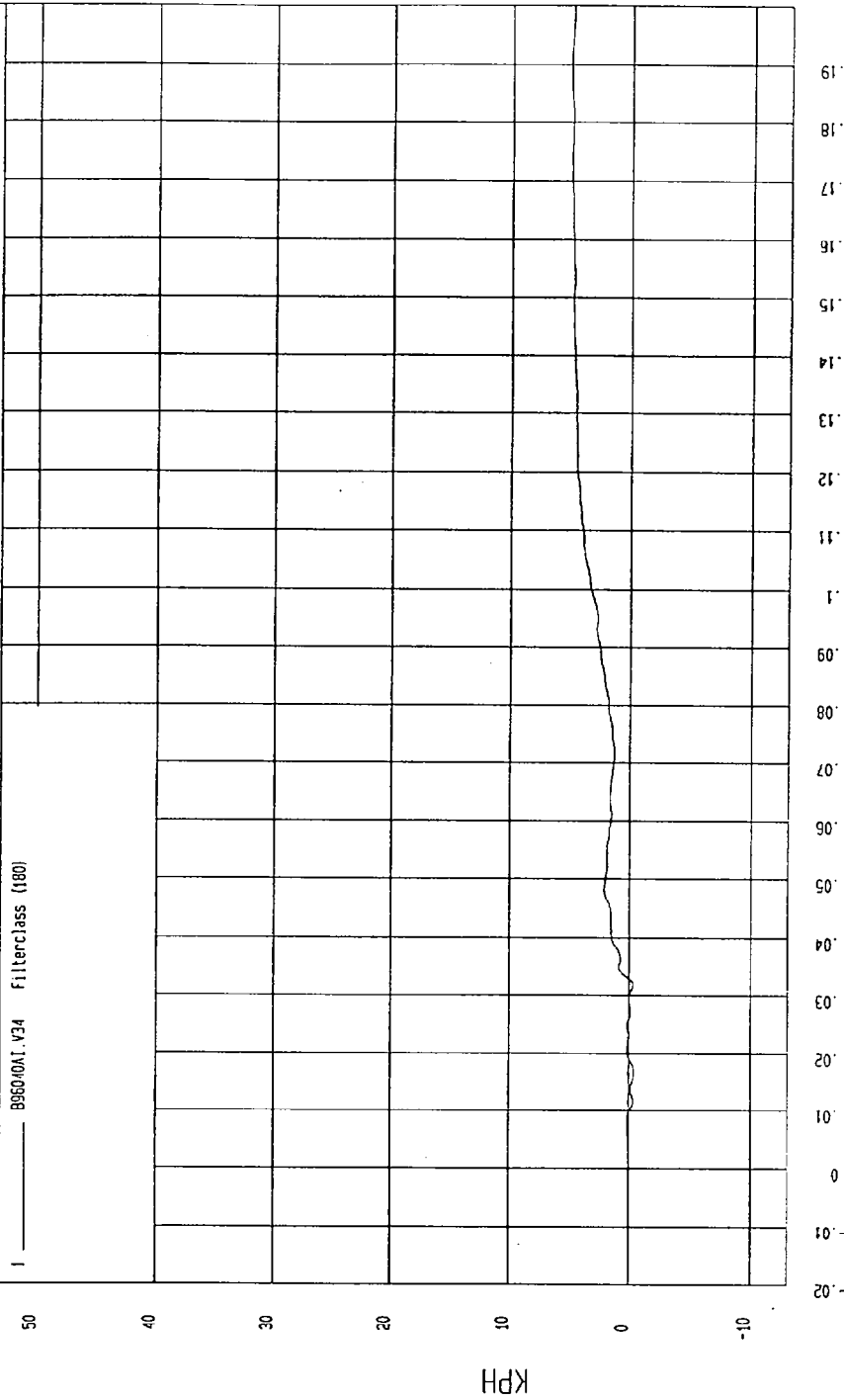
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-.4025101 MPH at .16. msec

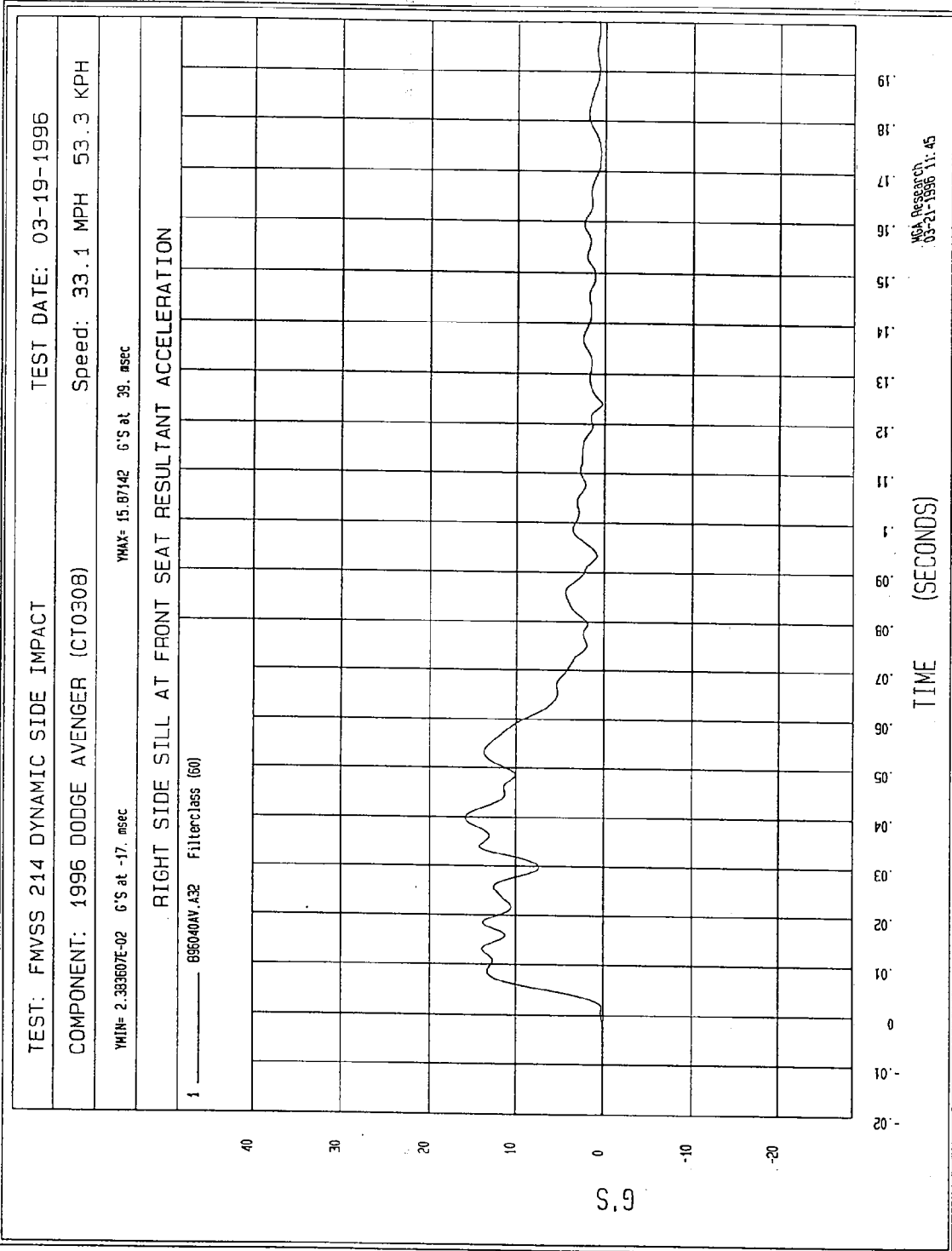
YMAX= 5.111147 MPH at .188 msec

RIGHT SIDE SILL AT FRONT SEAT Z VELOCITY

1 896040AT.V34 filterClass (180)



WCA Research  
03-21-1996 10:16



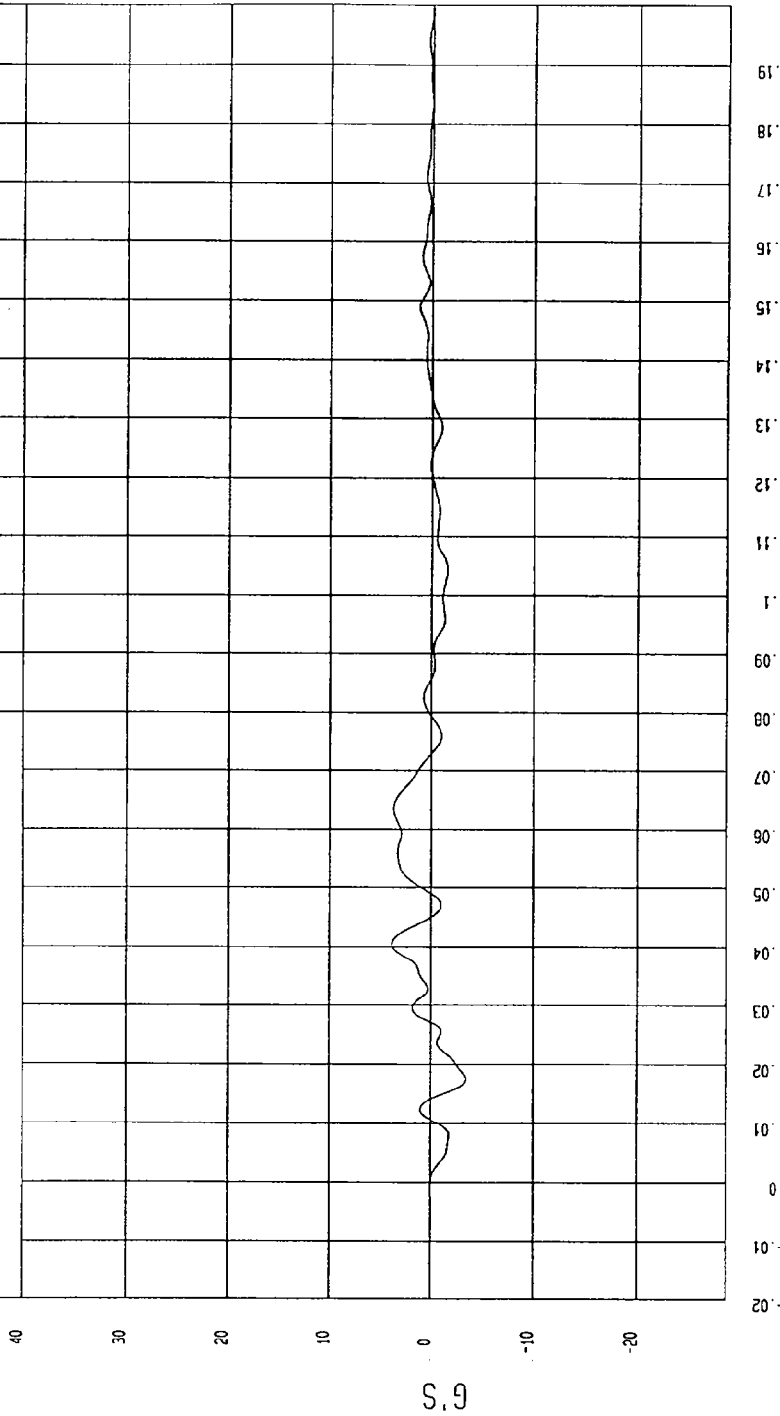
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (C10308) Speed: 33.1 MPH 53.3 KPH

YMIN=-3.437039 G'S at 17. msec YMAX= 3.678068 G'S at 40. msec

RIGHT SIDE SILL AT REAR SEAT X ACCELERATION

1 \_\_\_\_\_ 8950/0AF .A35 Filterclass (60)



MCA Research  
03-21-1996 11:46

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

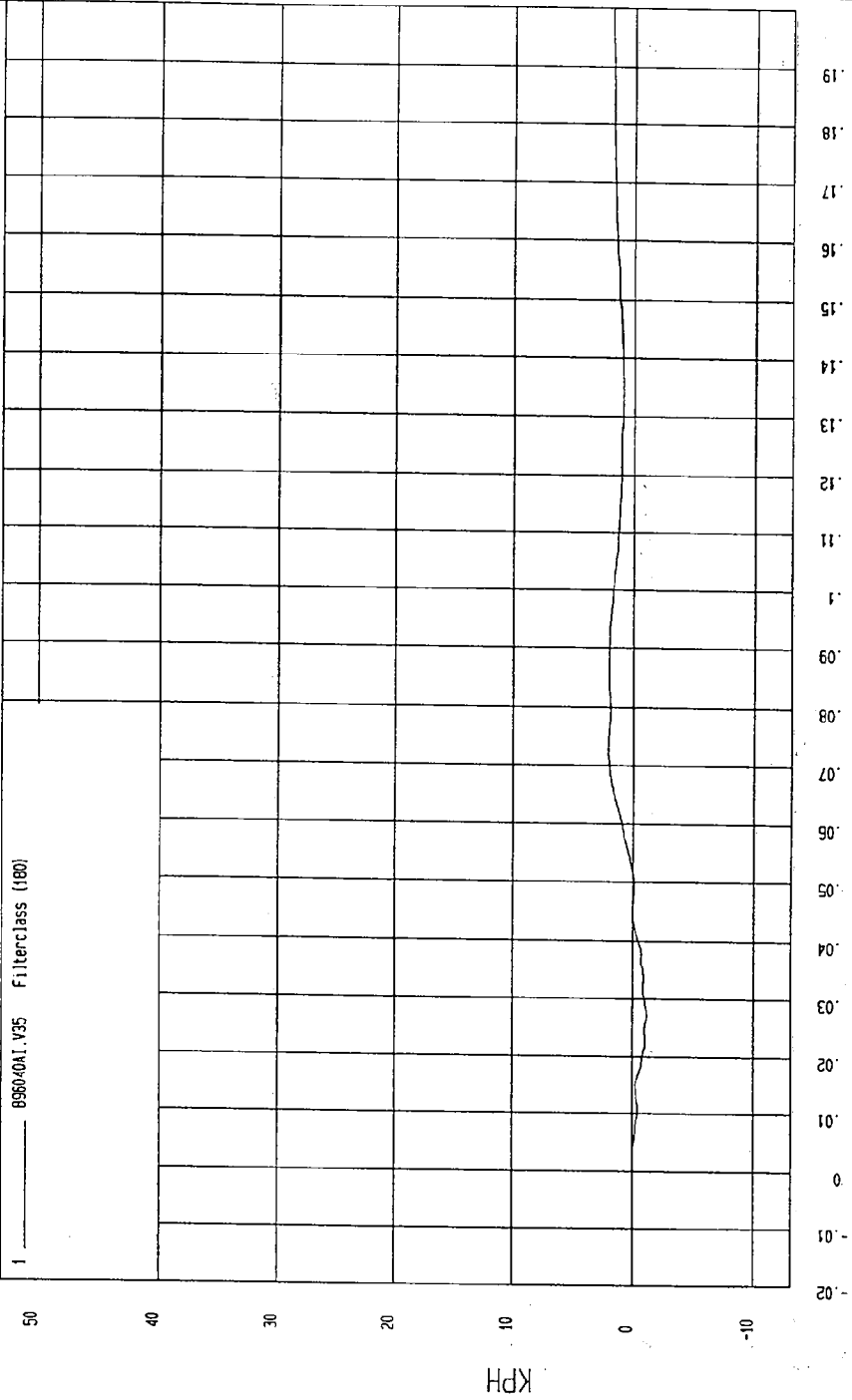
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-1.202845 KPH at 27. msec

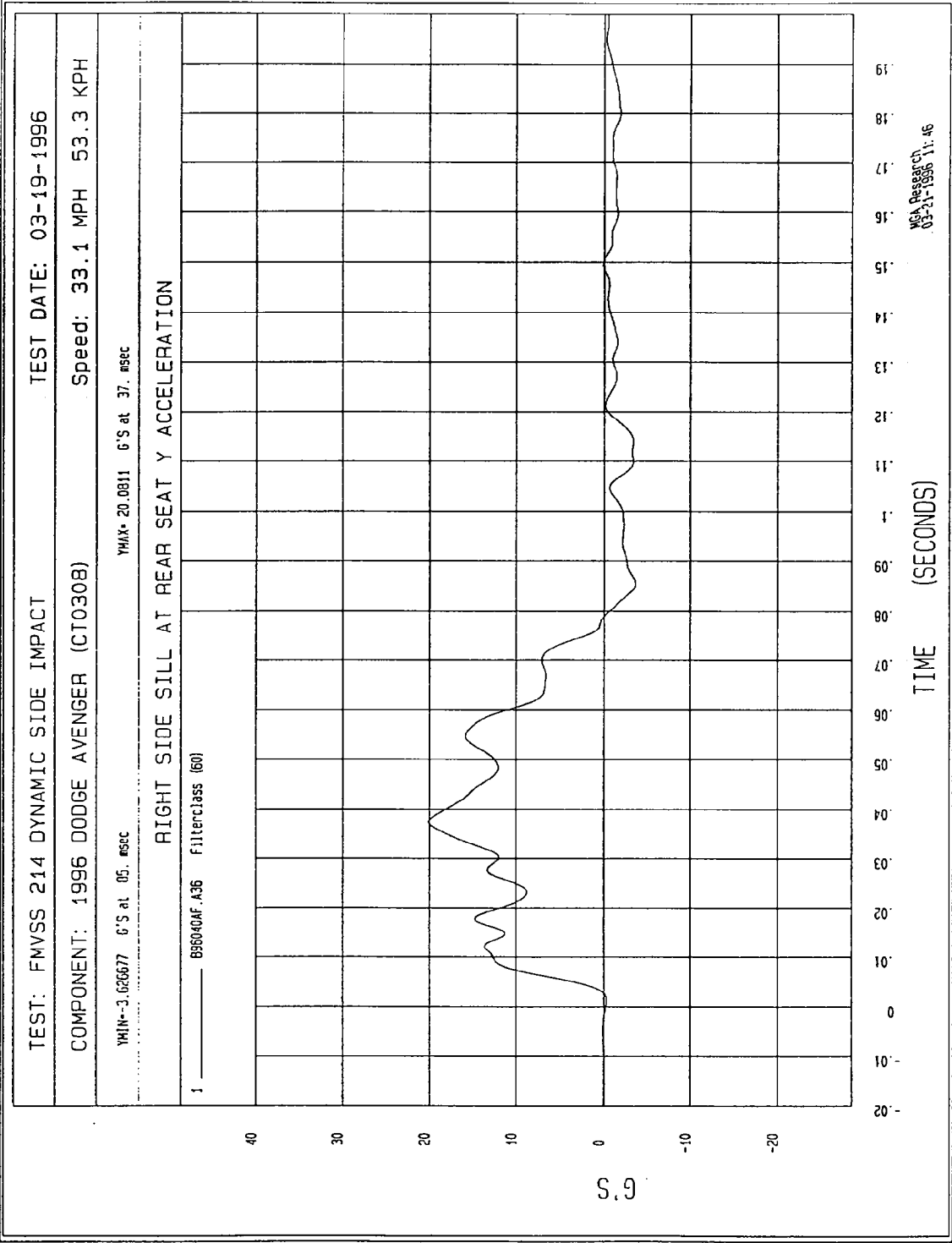
YMAX= 2.029936 KPH at 72. msec

RIGHT SIDE SILL AT REAR SEAT X VELOCITY

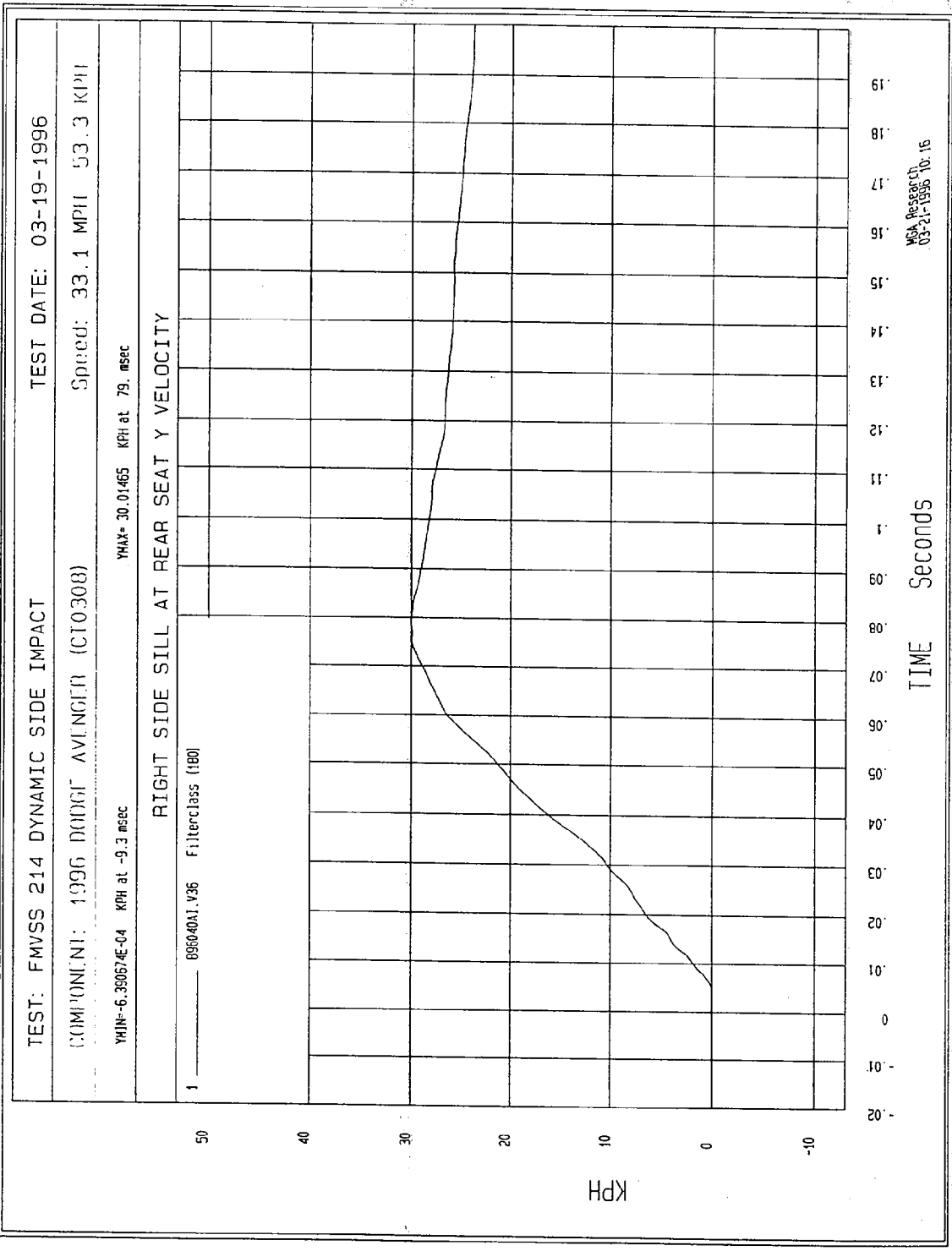
1 ——— 8960/001.V95 Filterclass (180)



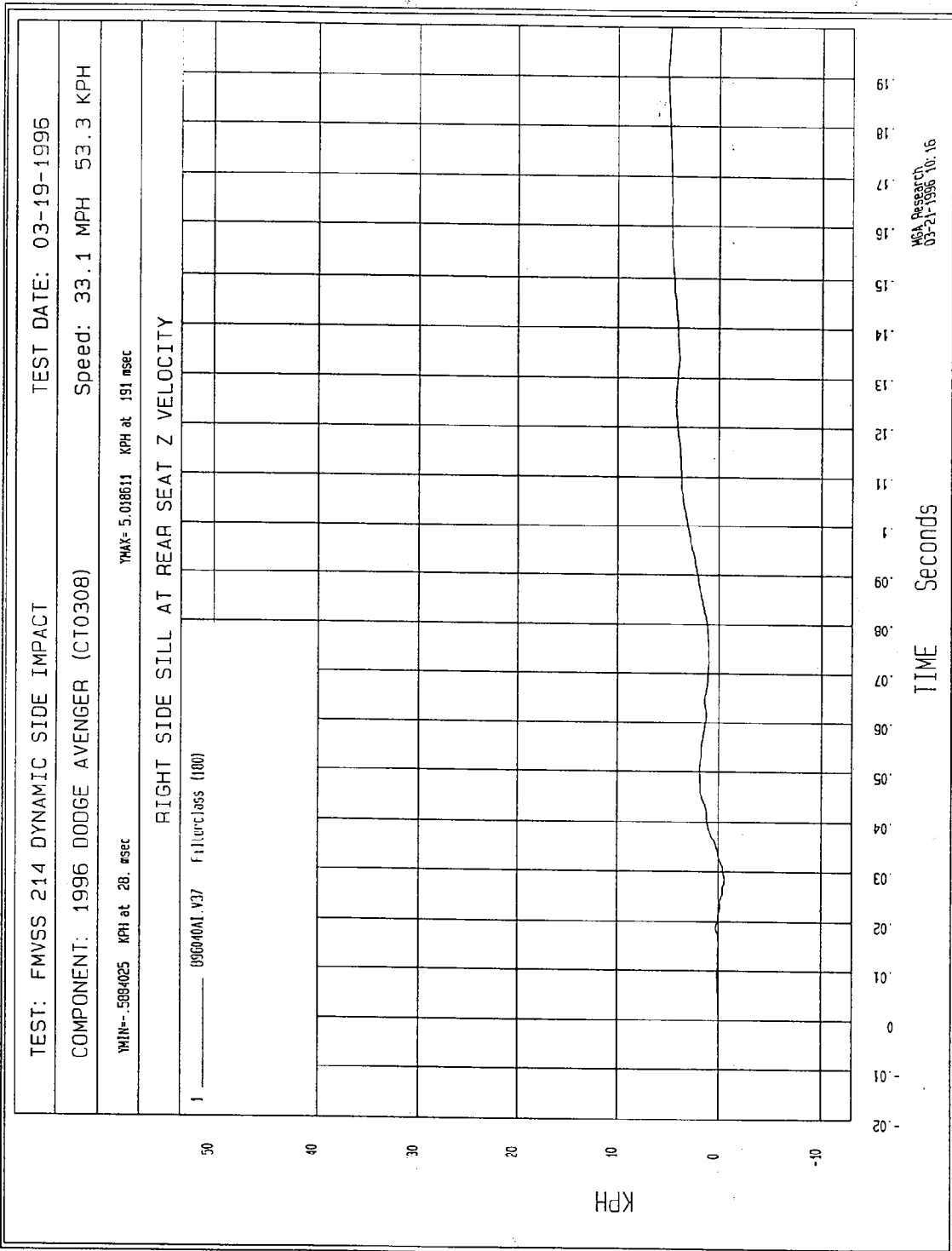
MOA, Research  
03-21-1996 10:16



MSA Research  
03-21-1996 11:46







TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

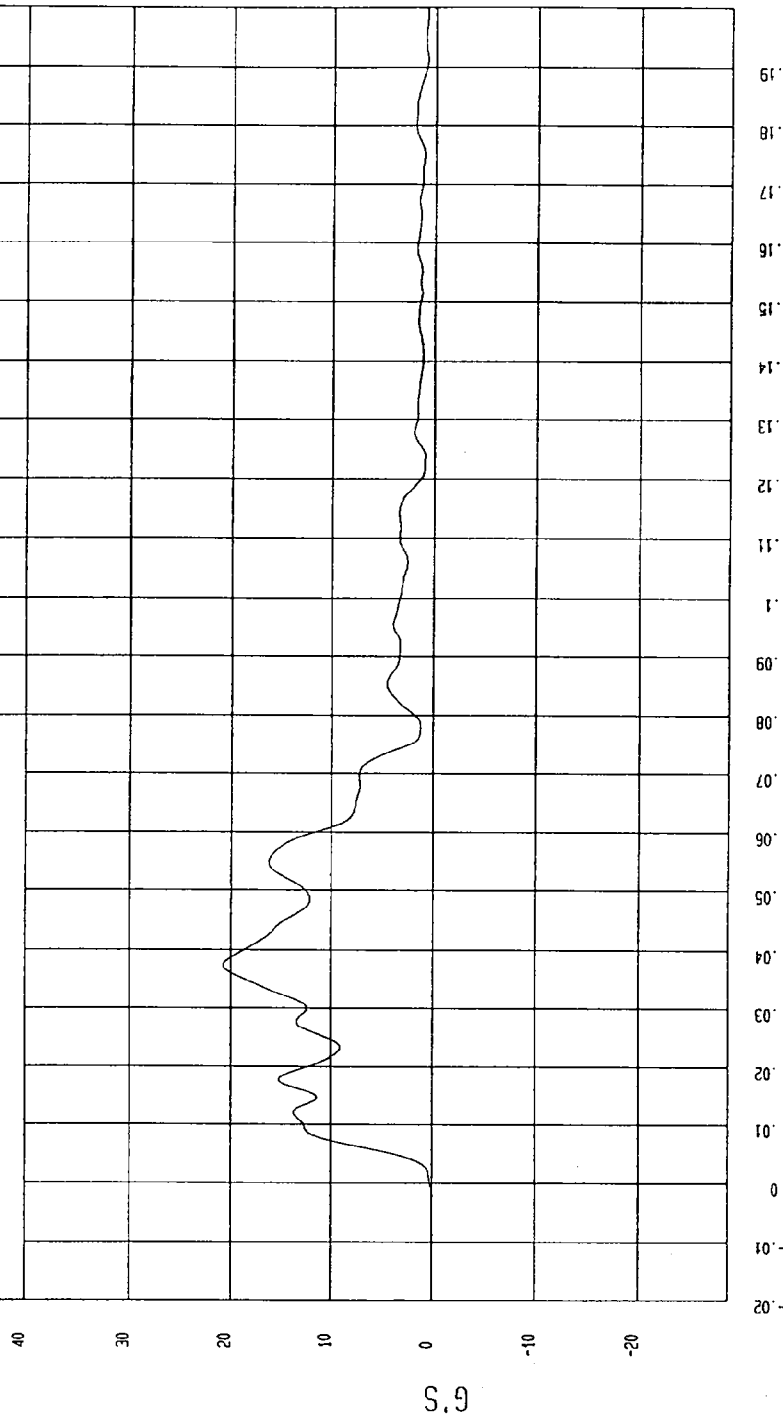
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN= 1.53662E-02 G'S at -9.3 msec

YMAX= 20.7621 G'S at 37. msec

RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION

1 ——— 895040V.A35 Filterclass (60)



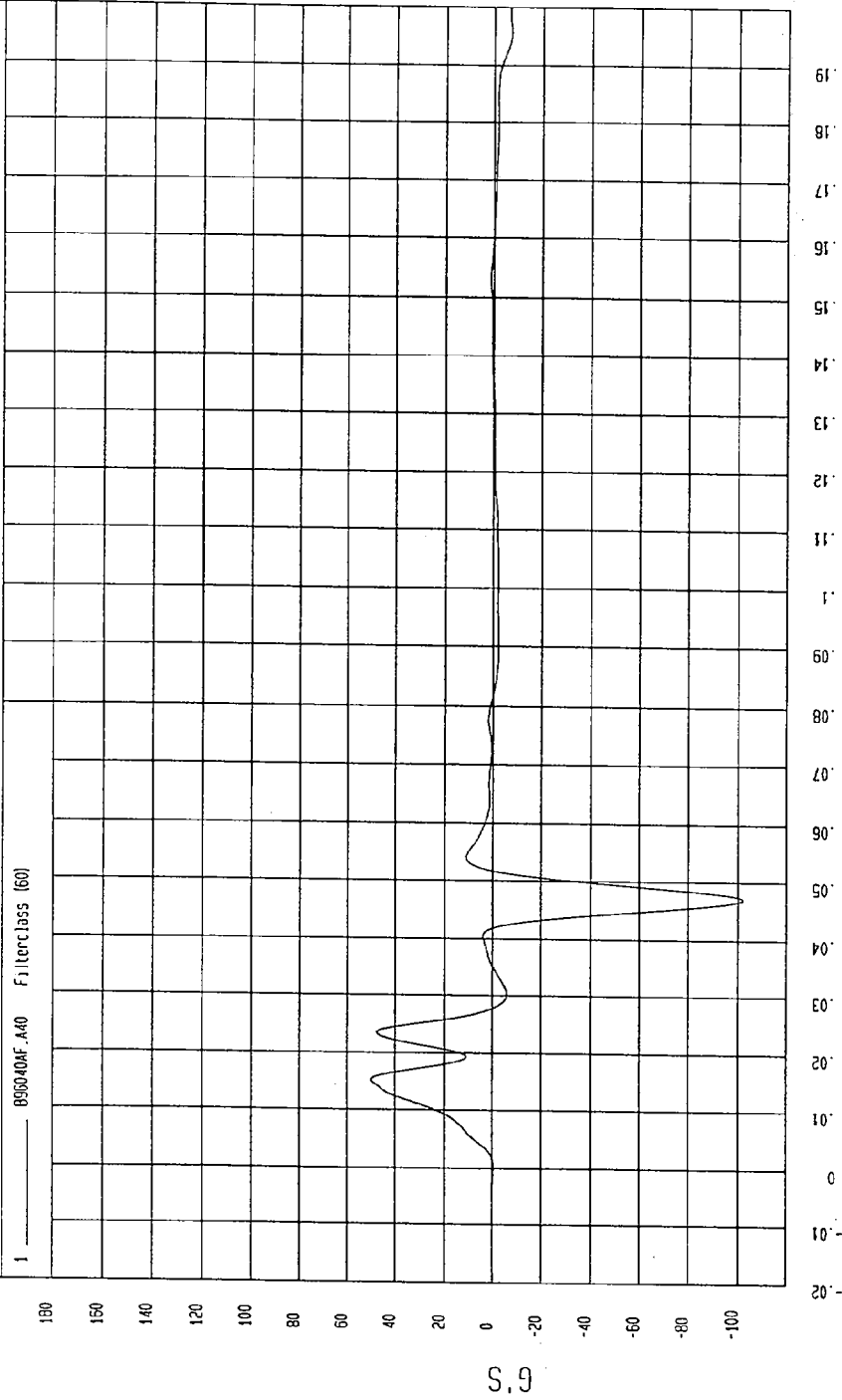
MCA Research  
03-21-1996 11:45

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

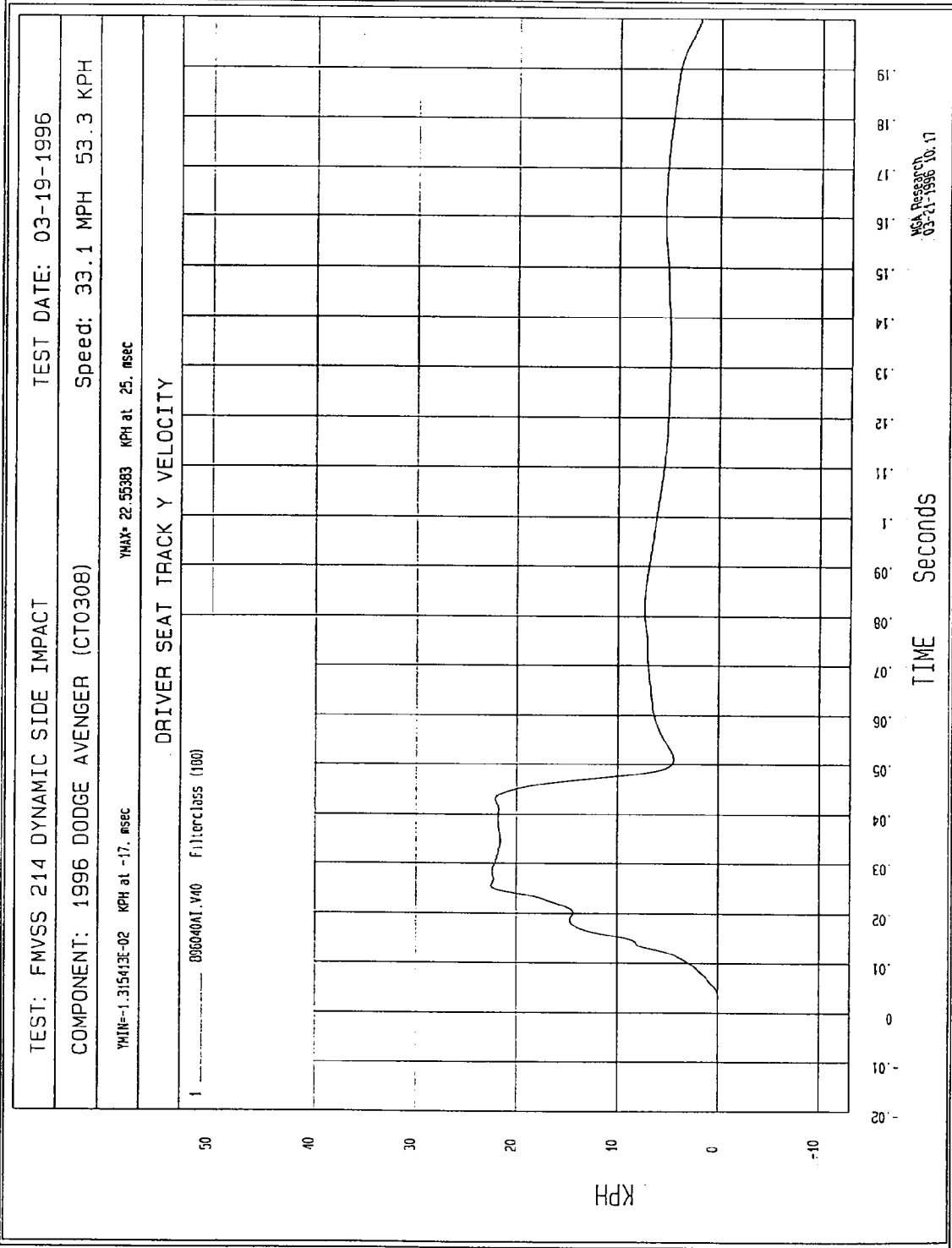
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-102.3121 G'S at 47. msec YMAX= 49.78873 G'S at 15. msec

DRIVER SEAT TRACK Y ACCELERATION



MCA Research  
03-21-1996 13:55



MGA Research  
03-21-1996 10:17

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

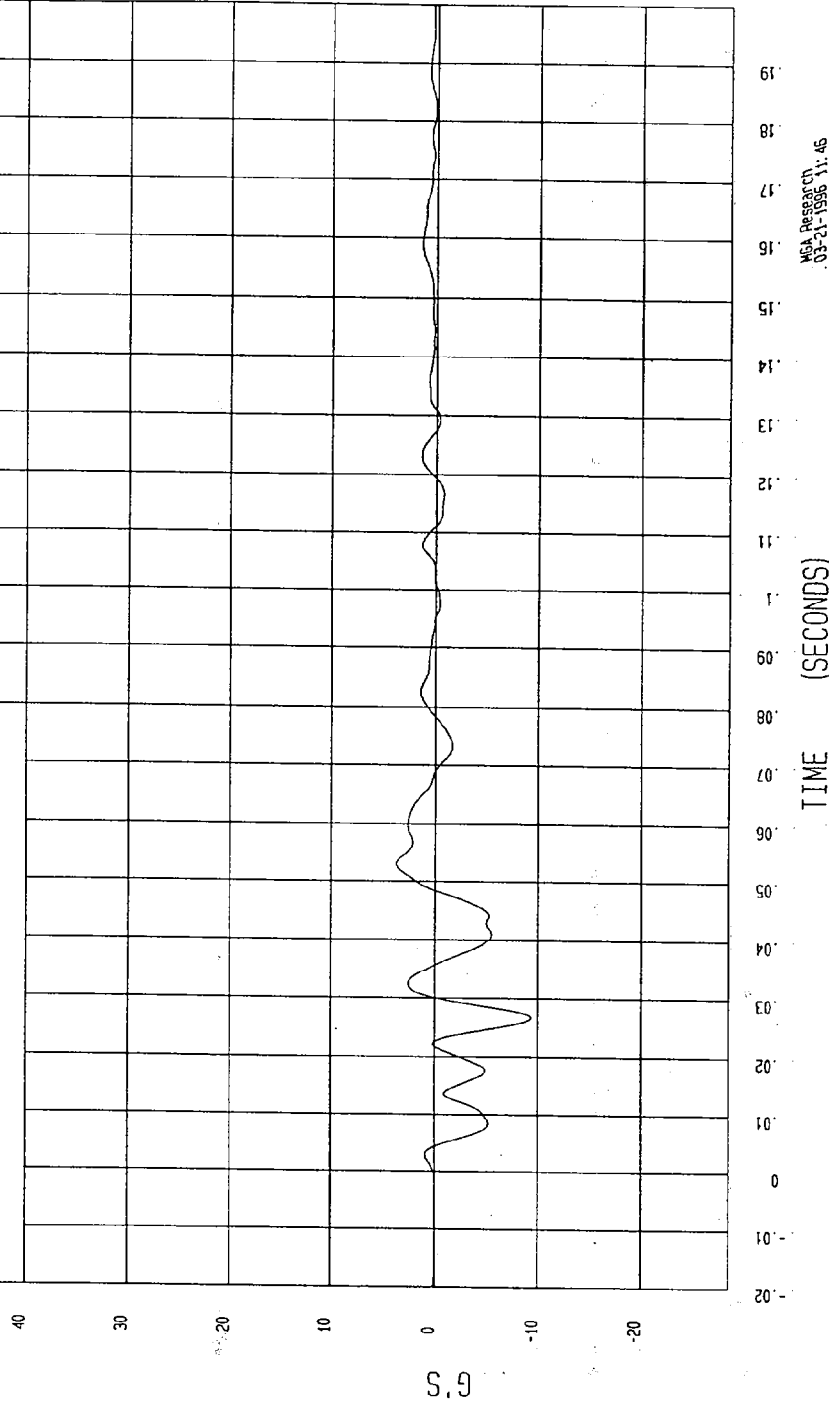
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-9.339002 G'S at 26. msec

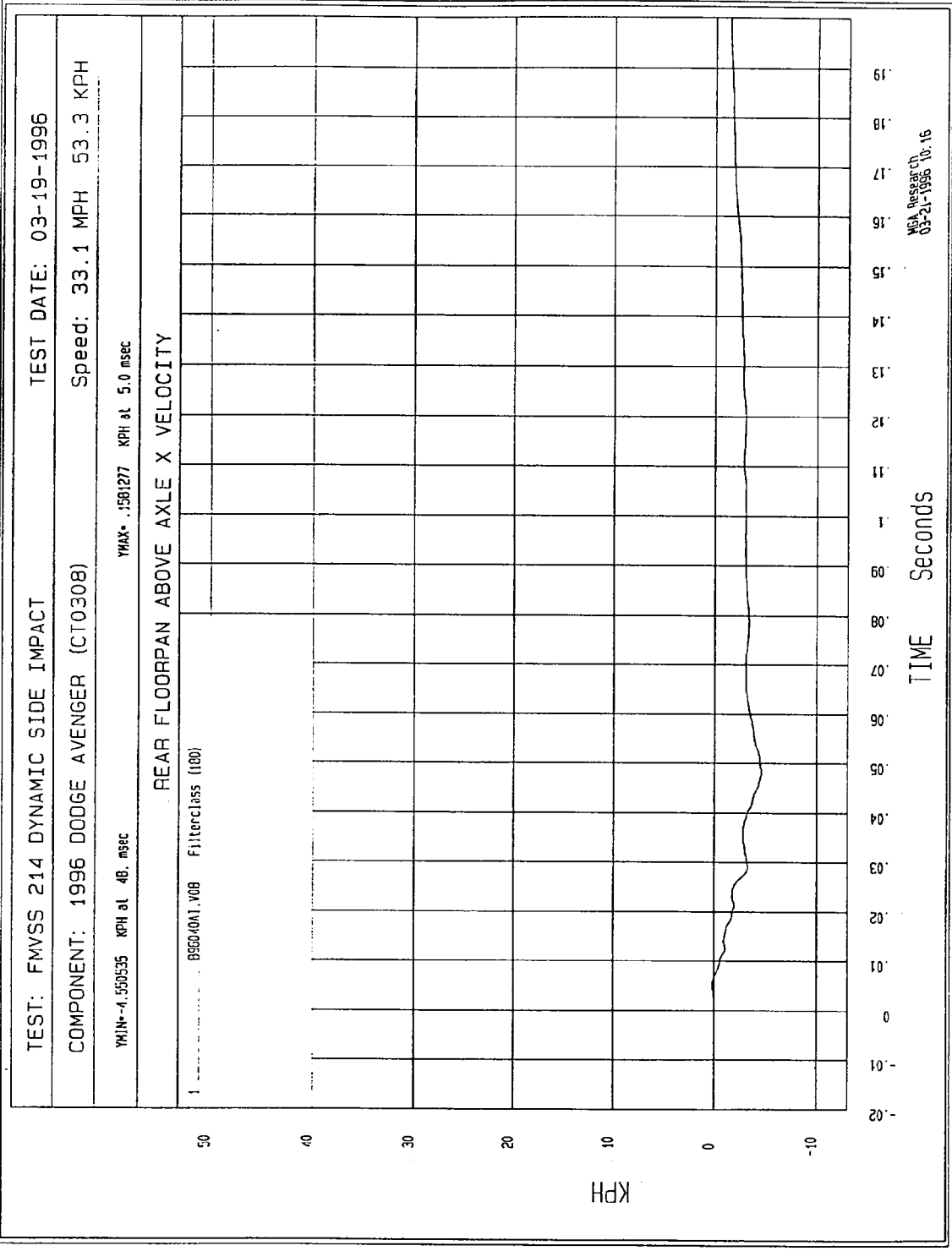
YMAX= 3.767581 G'S at 53 msec

REAR FLOORPAN ABOVE AXLE X ACCELERATION

1 090040AF.A08 FiltercLoss (60)



MCA Research  
03-21-1996 11:46



MGA Research  
 03-21-1996 10:16

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

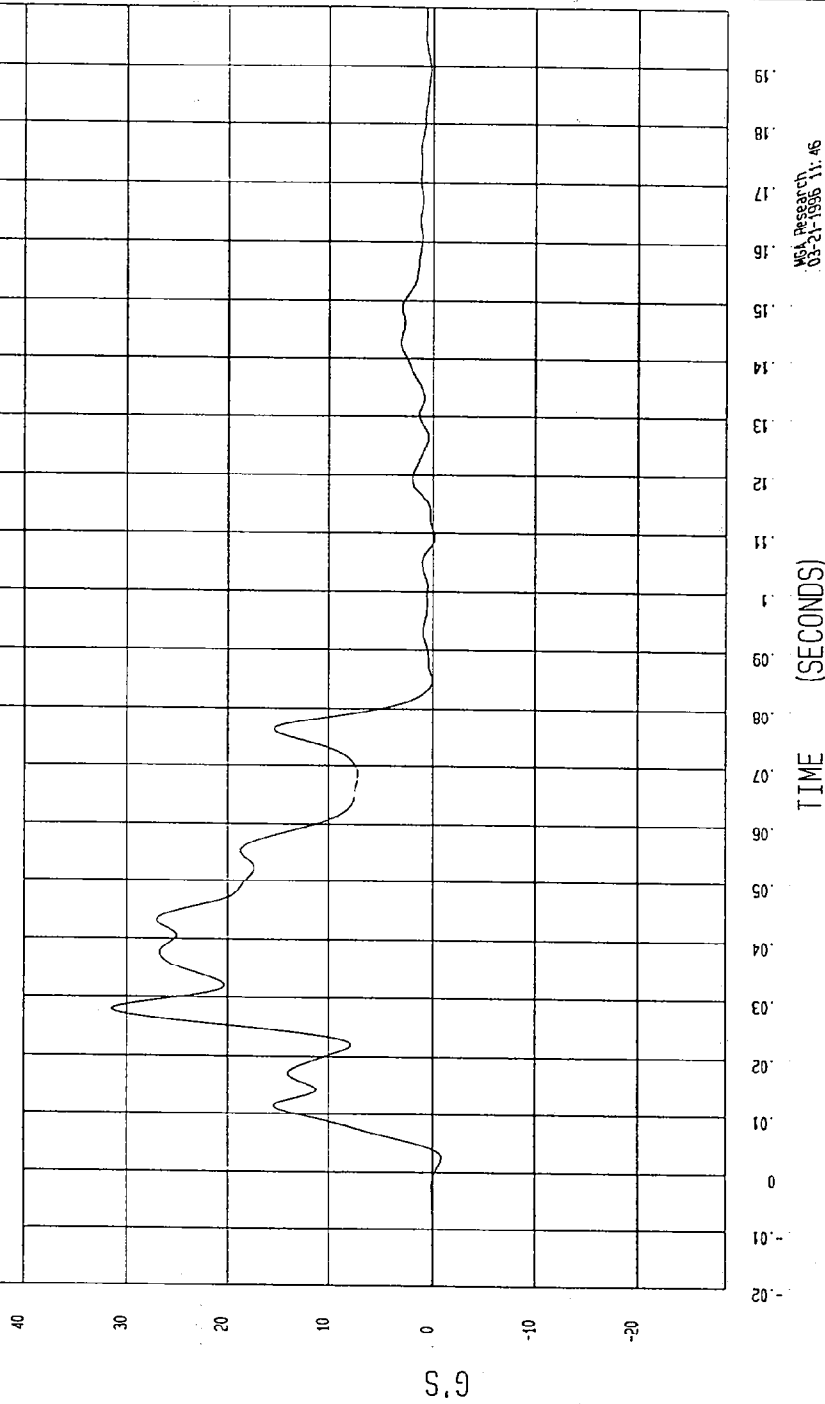
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-.0731591 G'S at 2.5 msec

YMAX= 31.40062 G'S at 27. msec

REAR FLOORPAN ABOVE AXLE Y ACCELERATION

1 \_\_\_\_\_ B86240AF.A09 Filterclass (60)



MSA Research  
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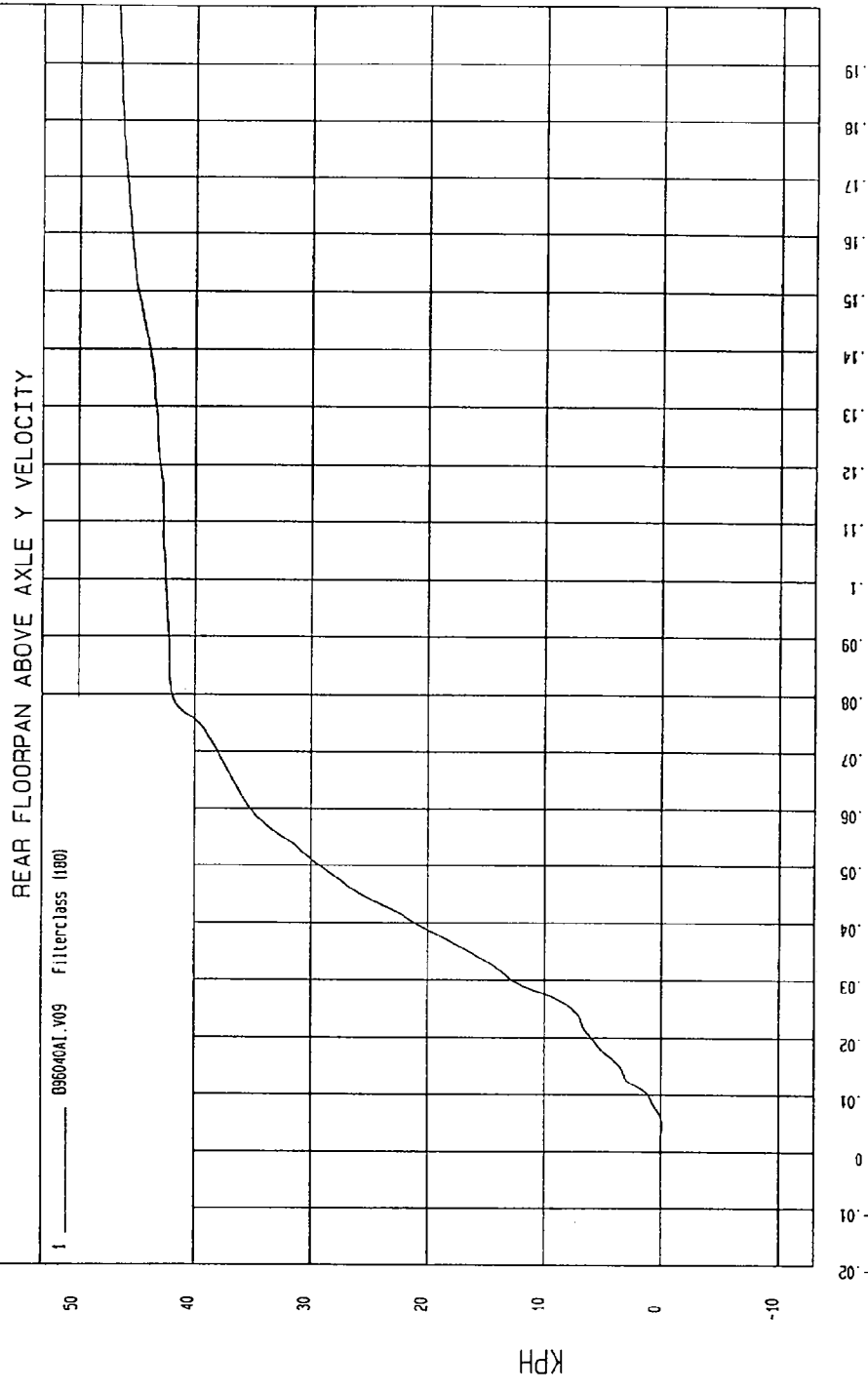
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-.1001159 KPH at 4.5 msec YMAX= 46.766 KPH at 199 msec

REAR FLOORPAN ABOVE AXLE Y VELOCITY

1 \_\_\_\_\_ B960401.V09 Filterclass (180)



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03-21-1996 10.16

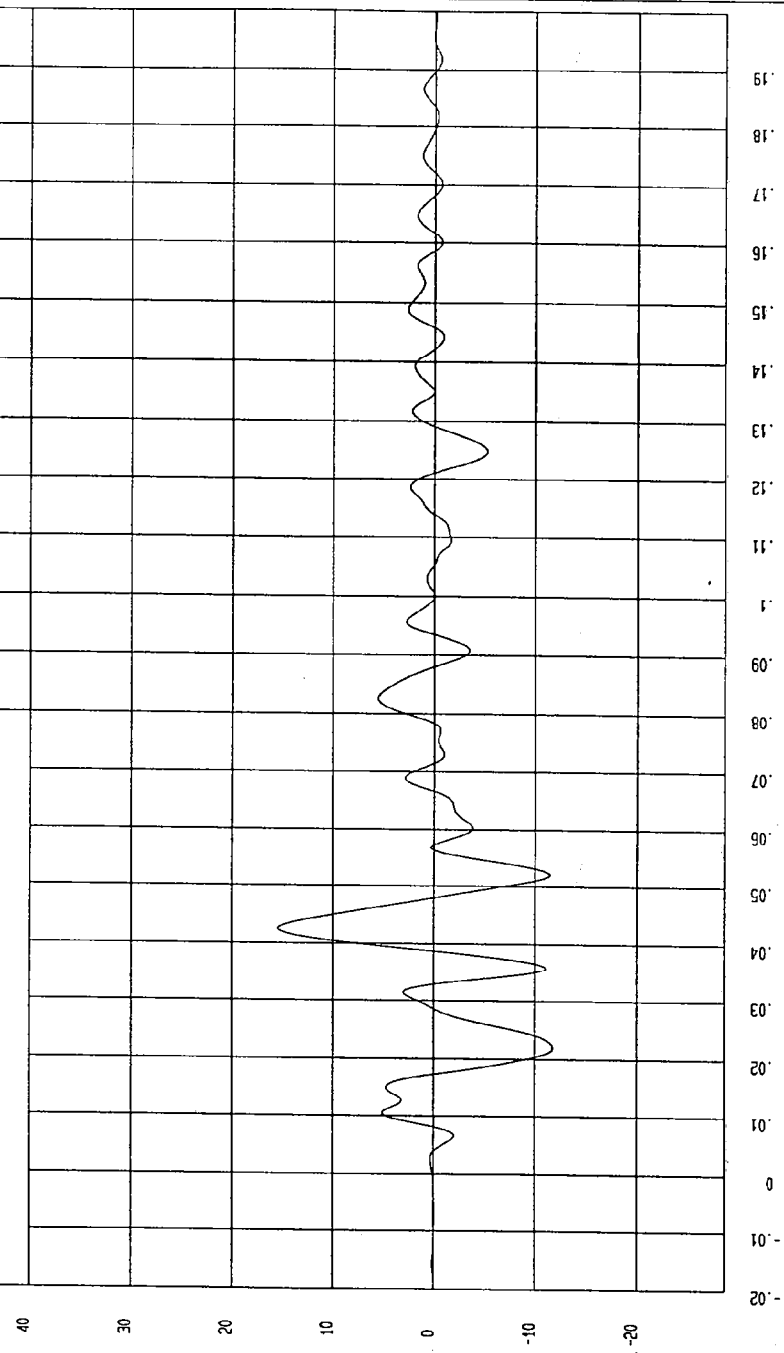
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

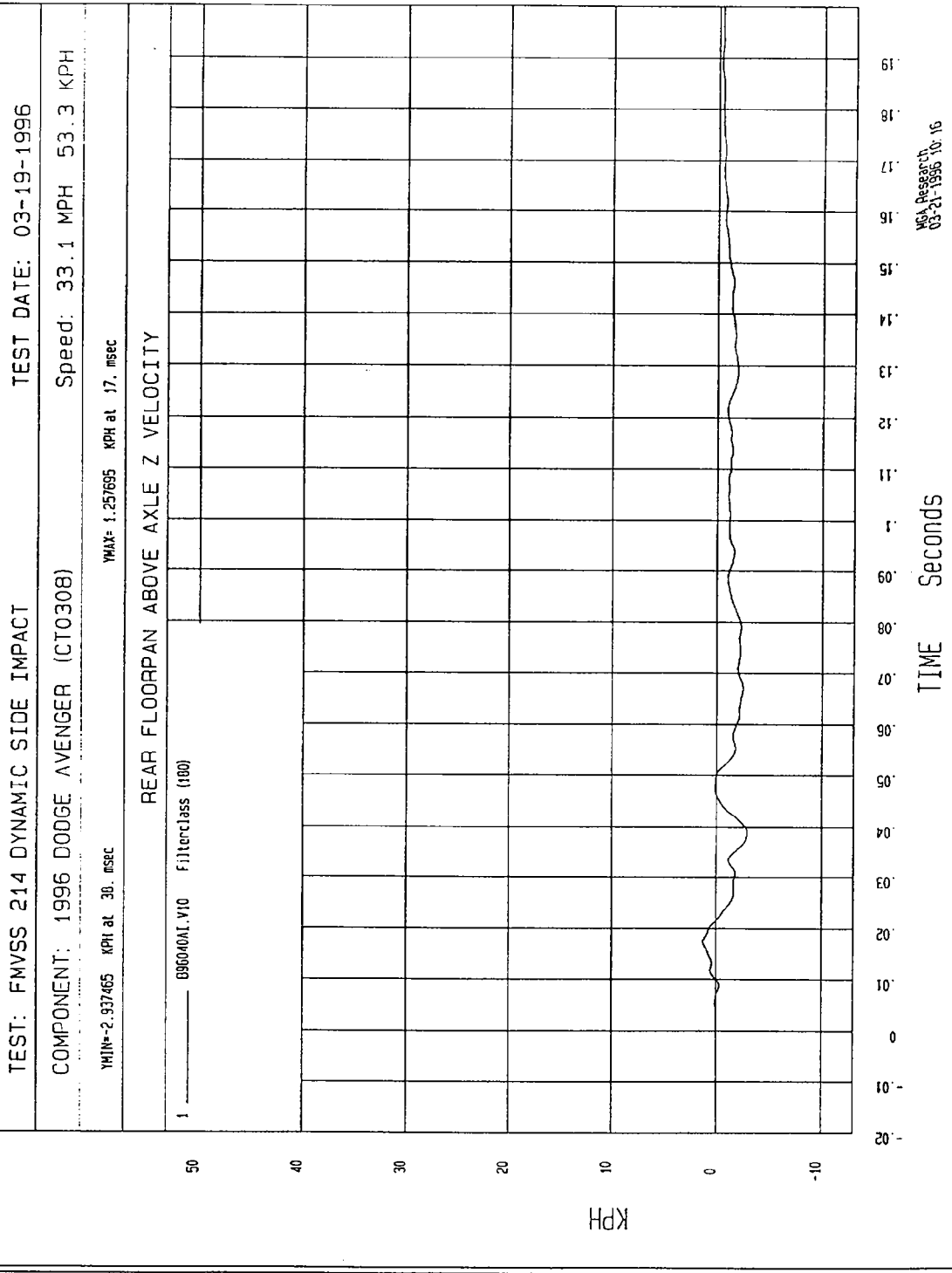
YMIN=-11.72865 G'S at 22 msec YMAX= 15.43893 G'S at 42. msec

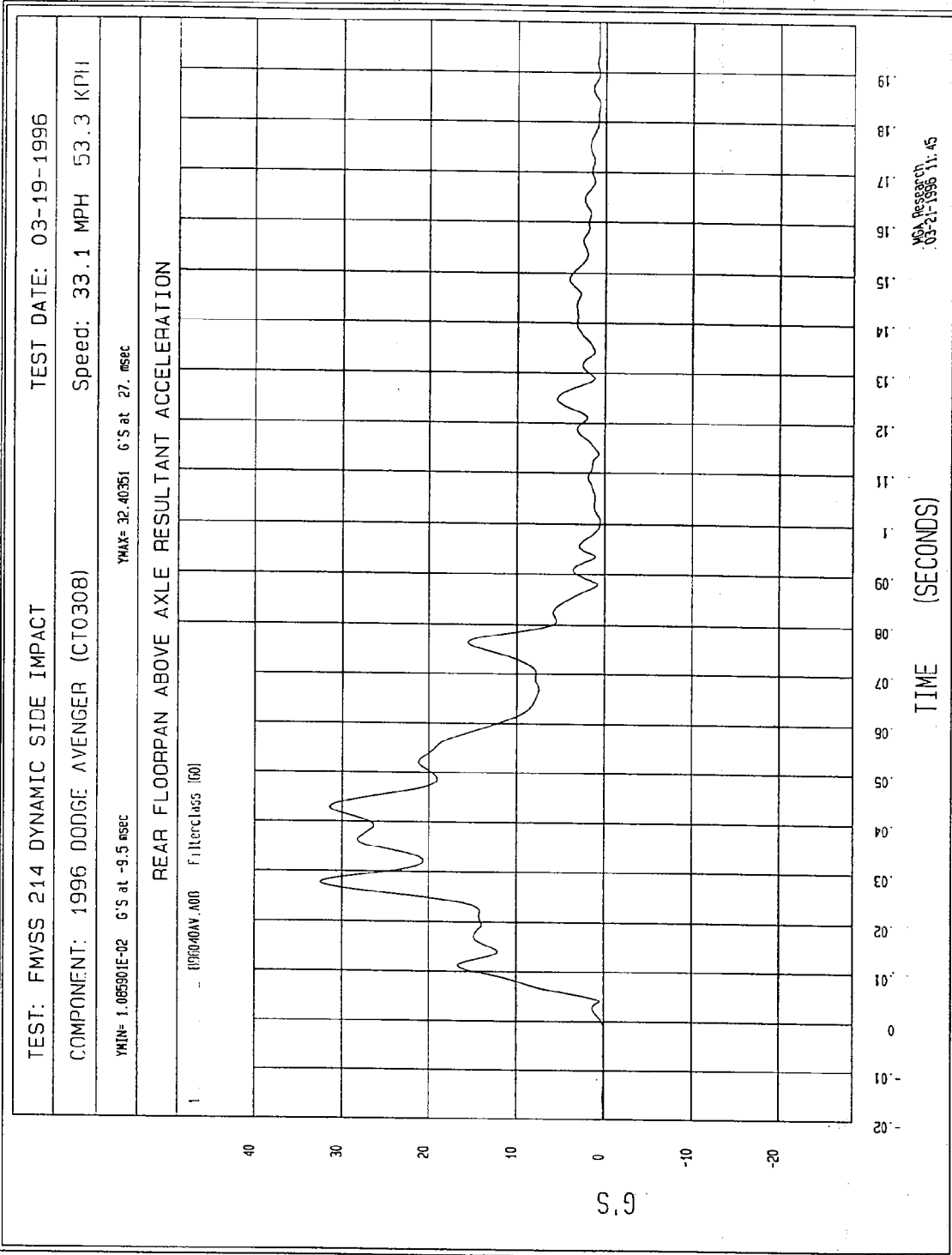
REAR FLOORPAN ABOVE AXLE Z ACCELERATION

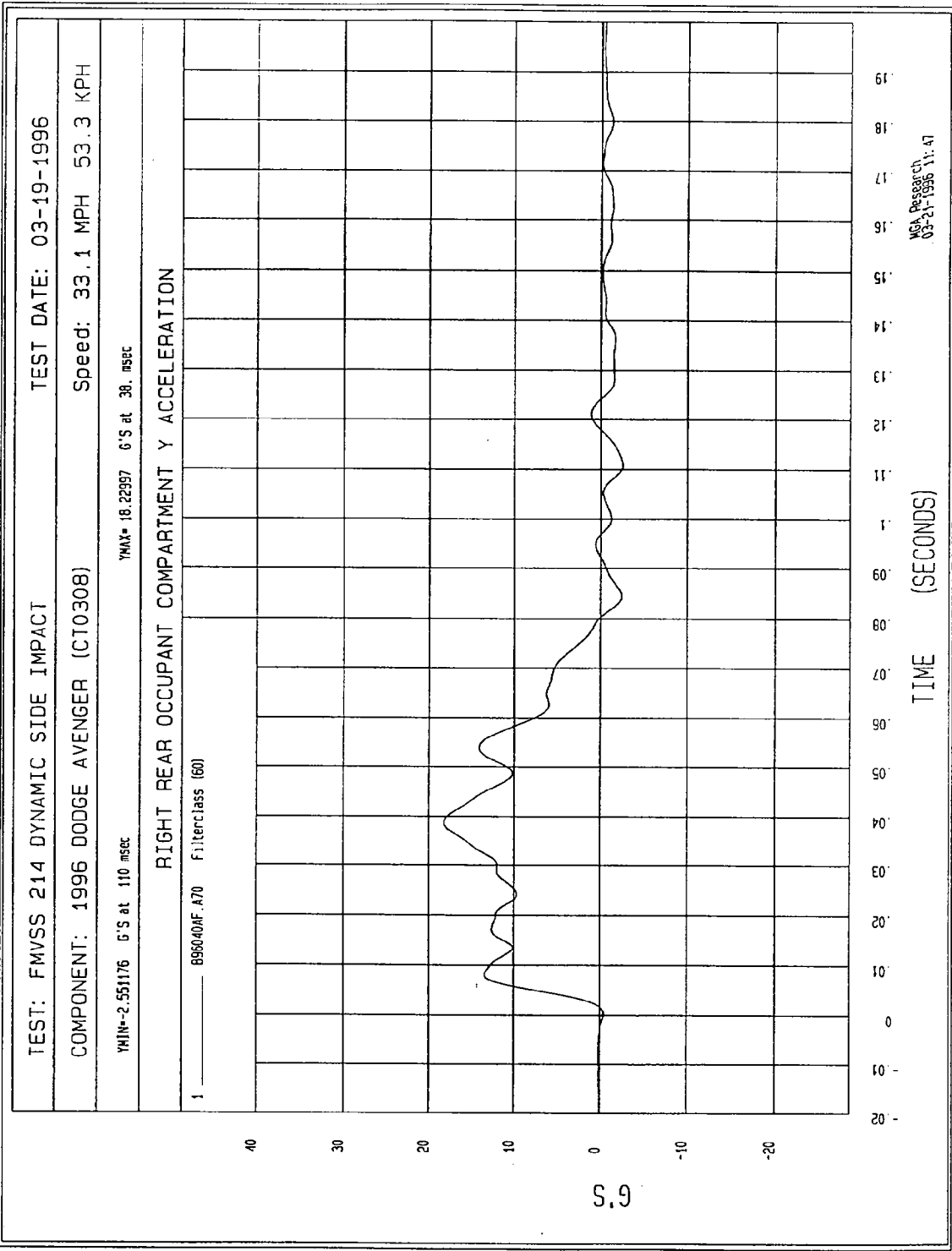
1 ——— 896040F.A10 Filterclass (60)



MSC Research  
03-21-1996 11:46







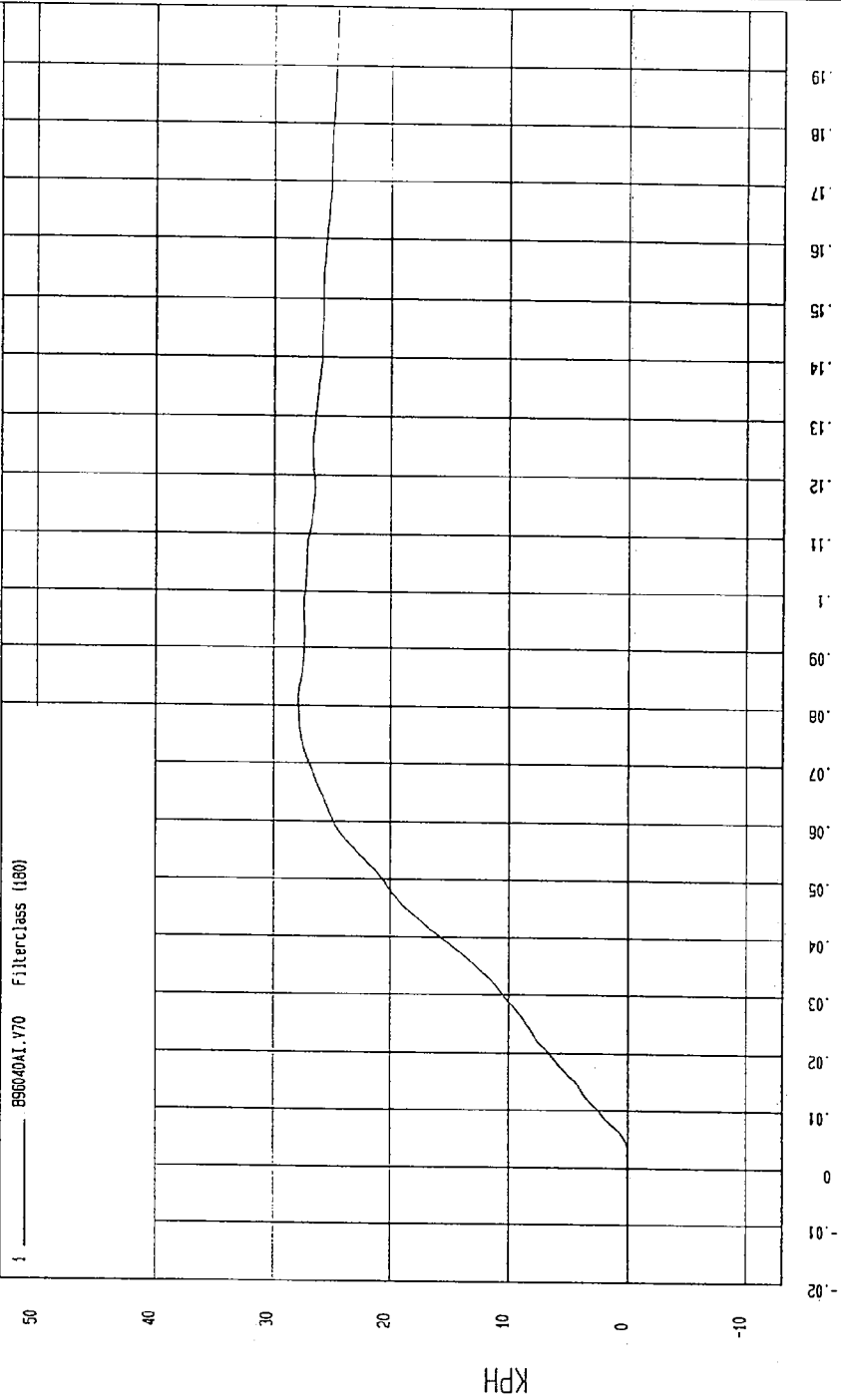
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

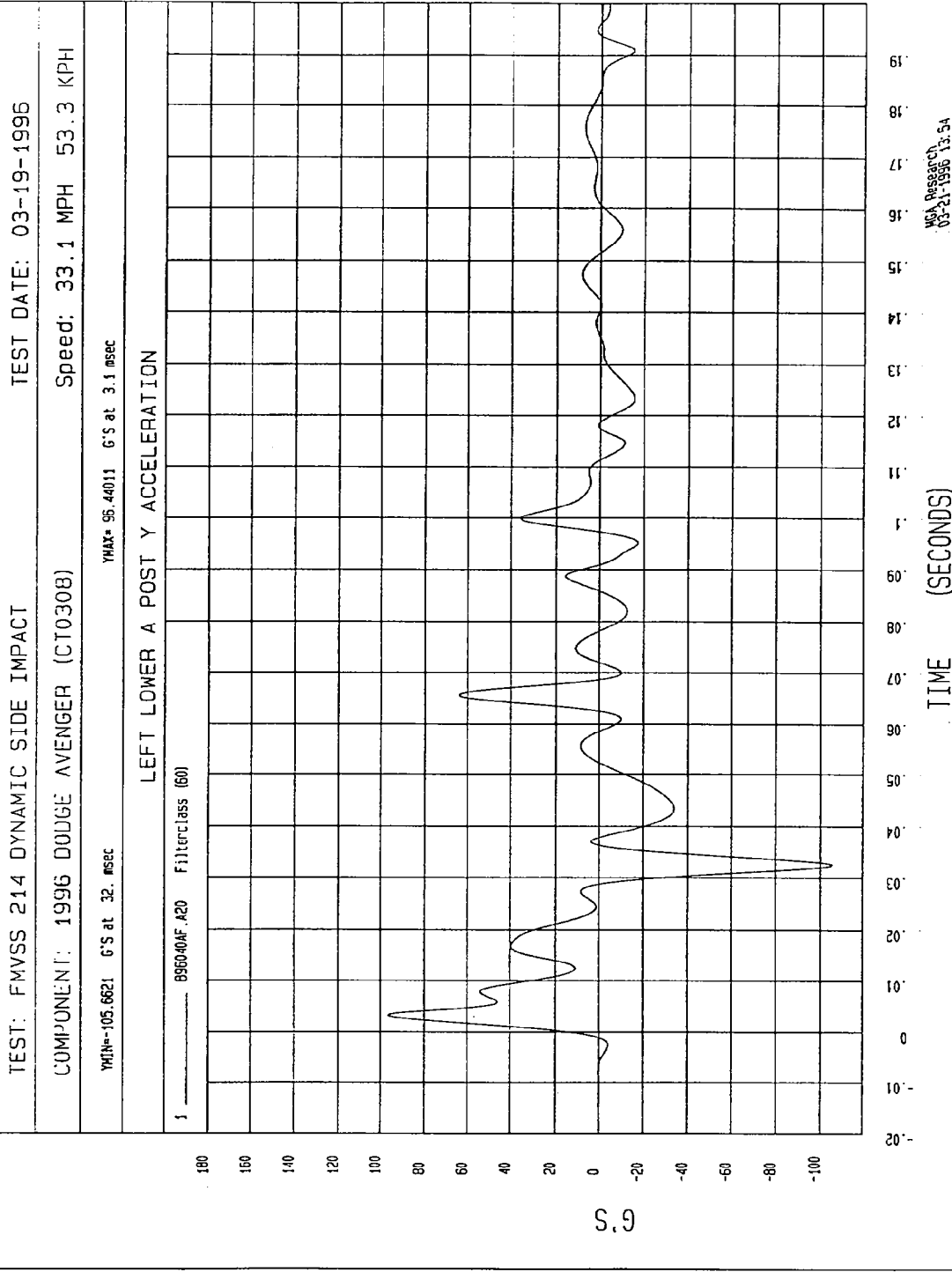
YMIN= 0 KPH at -20 msec YMAX= 28.00069 KPH at 80. msec

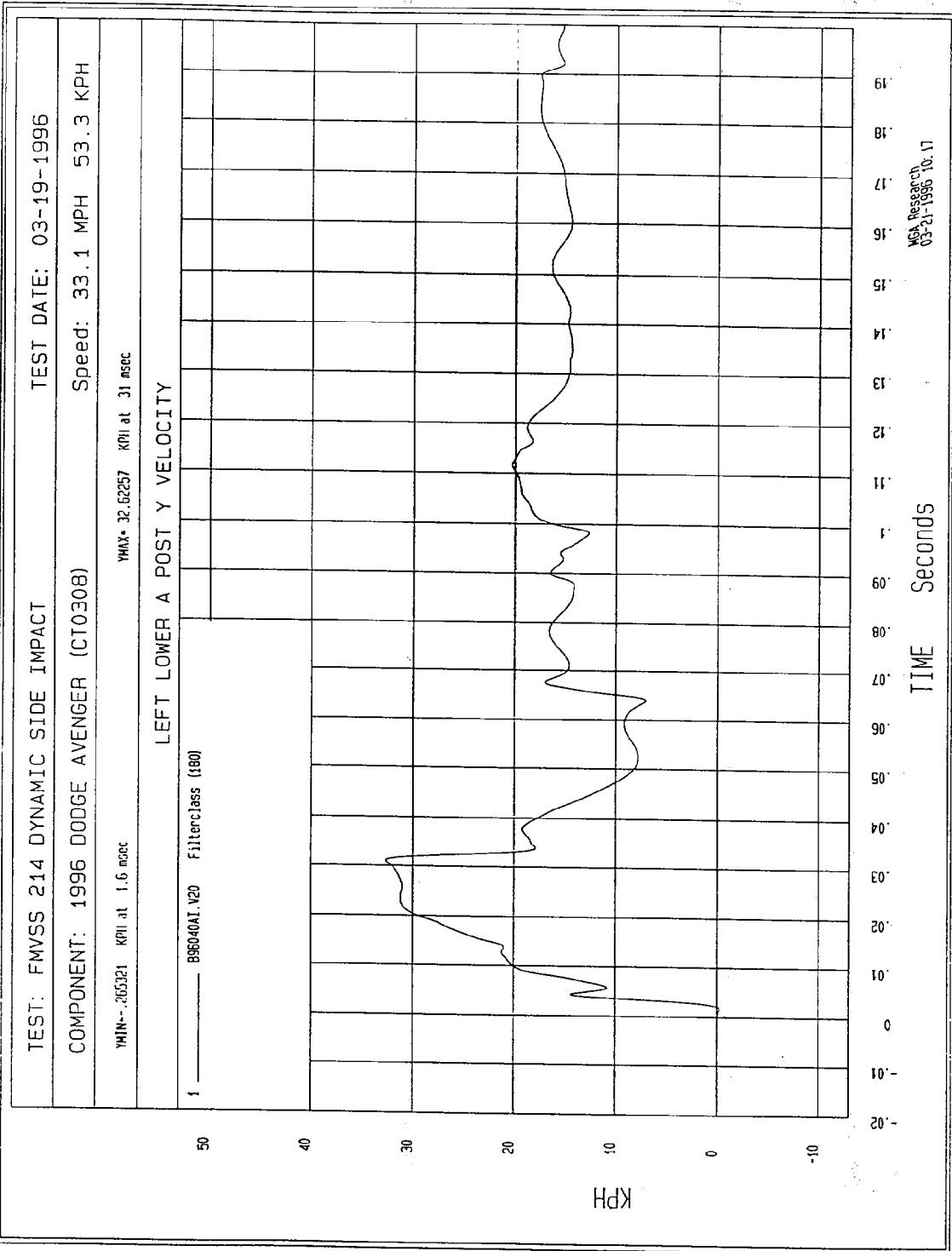
RIGHT REAR OCCUPANT COMPARTMENT Y VELOCITY

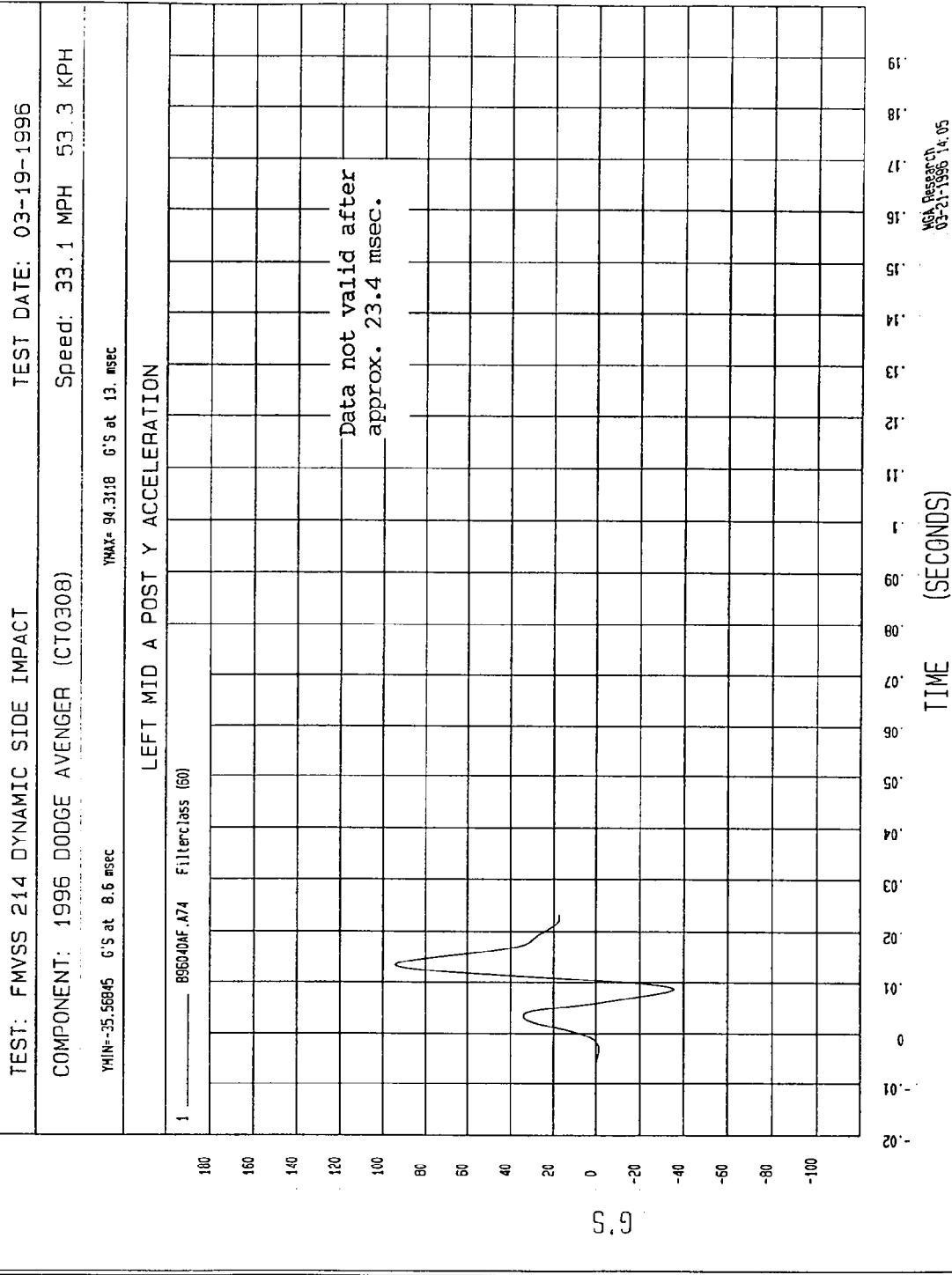
1 ——— B96040A1.V70 Filterclass (180)

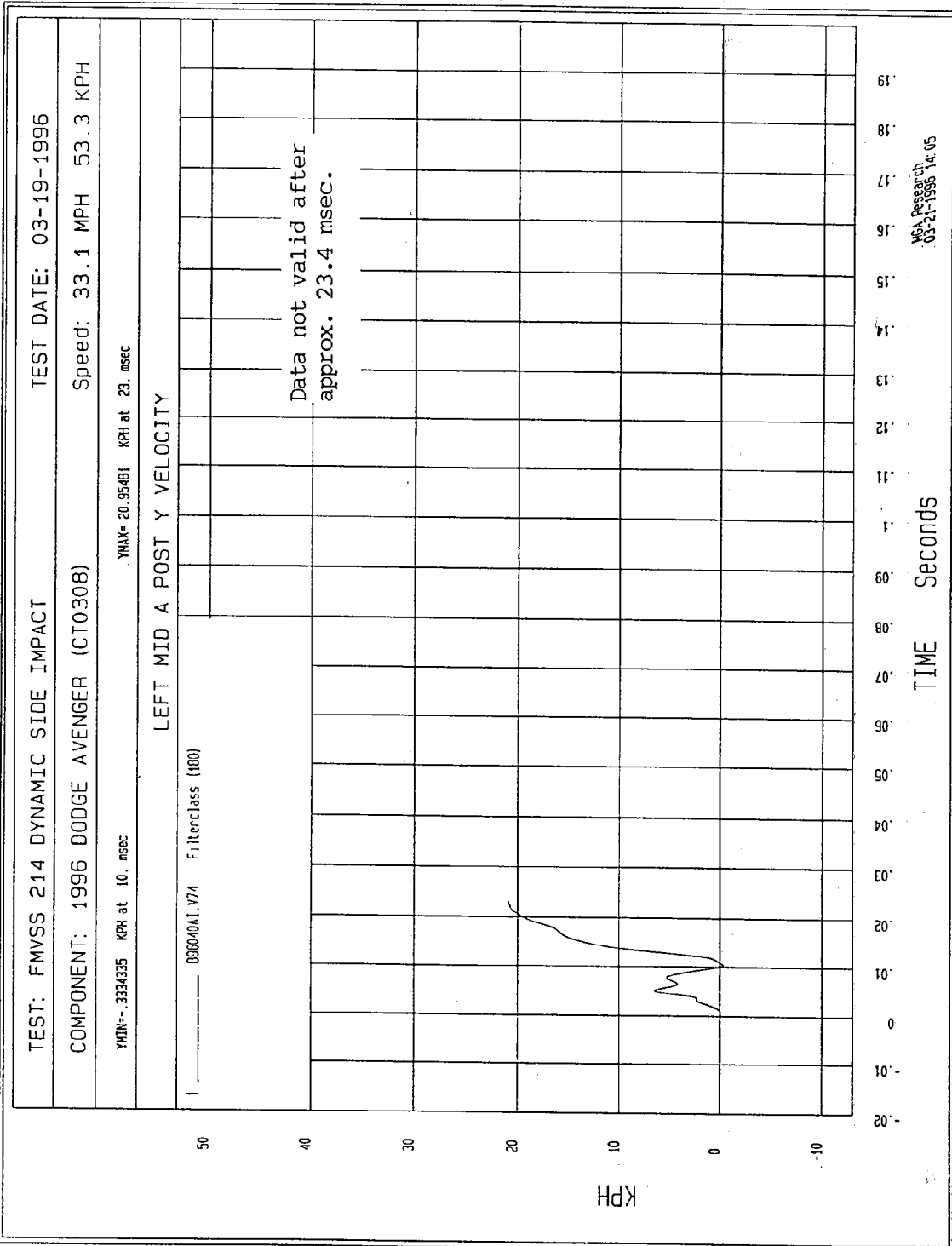


MSA Research  
03-21-1996 10:17









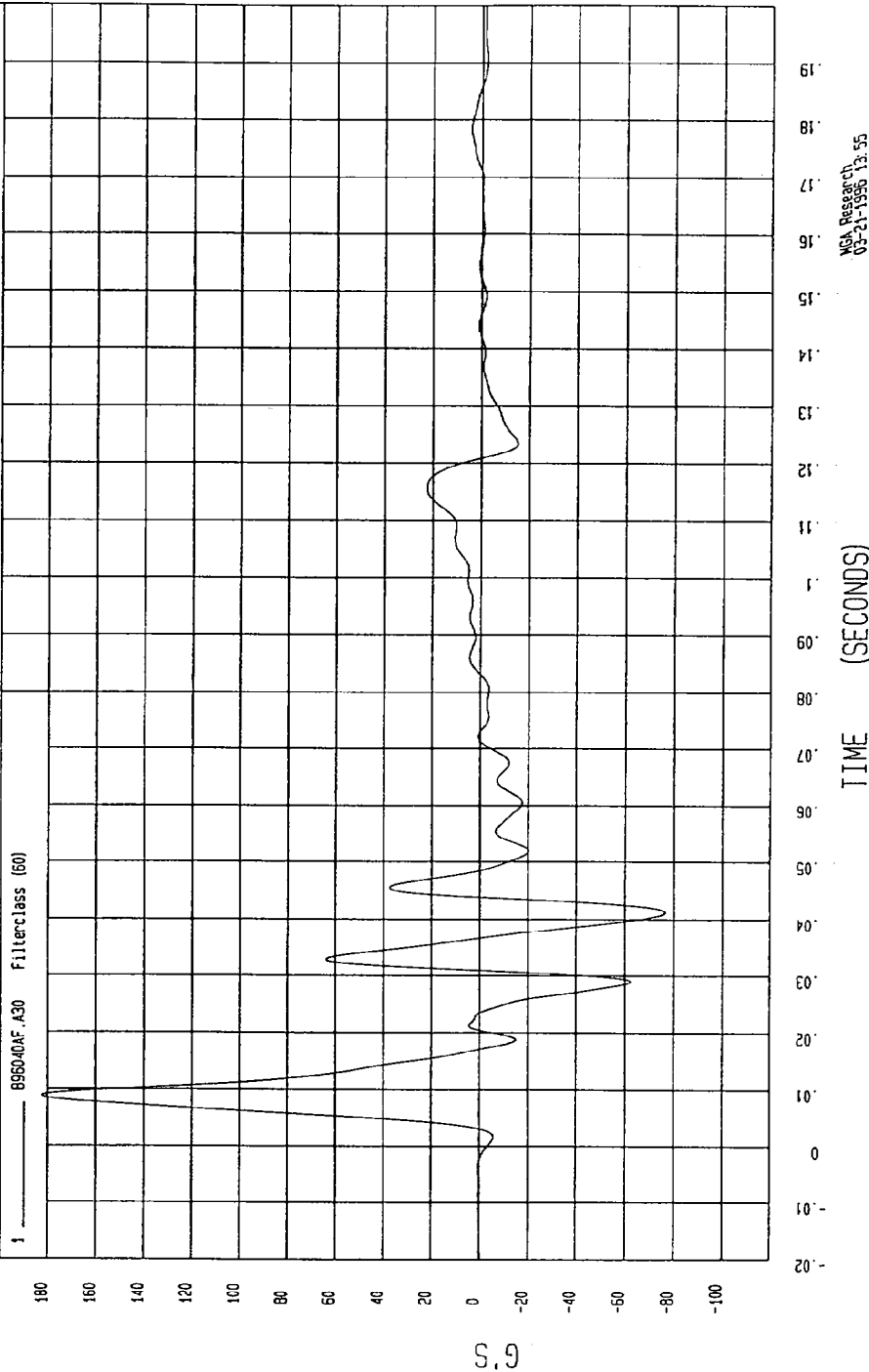
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-76.53703 G'S at 41. msec

YMAX= 182.4336 G'S at 8.9 msec

LEFT LOWER B POST Y ACCELERATION



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03-21-1996 13:55

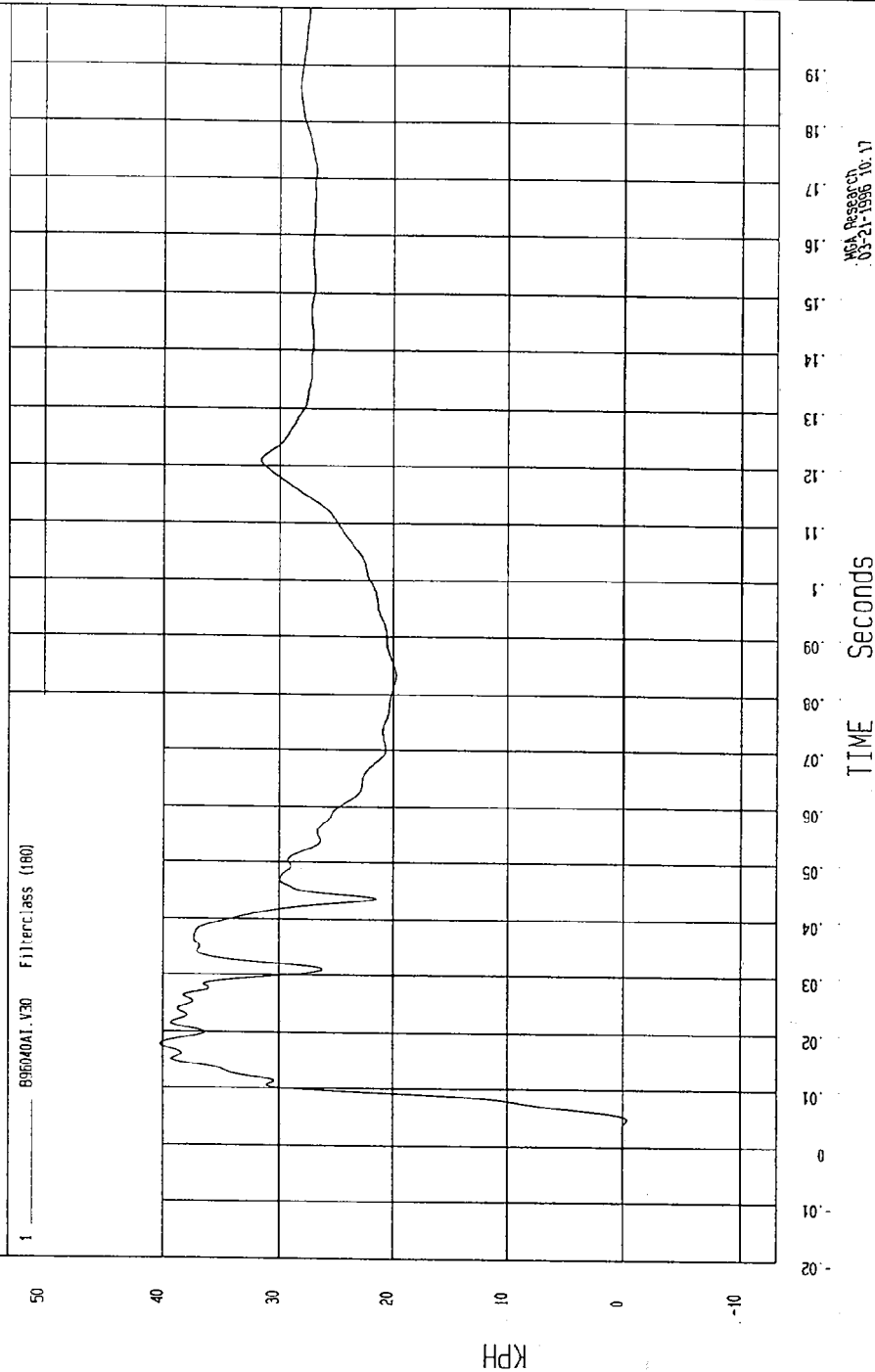
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

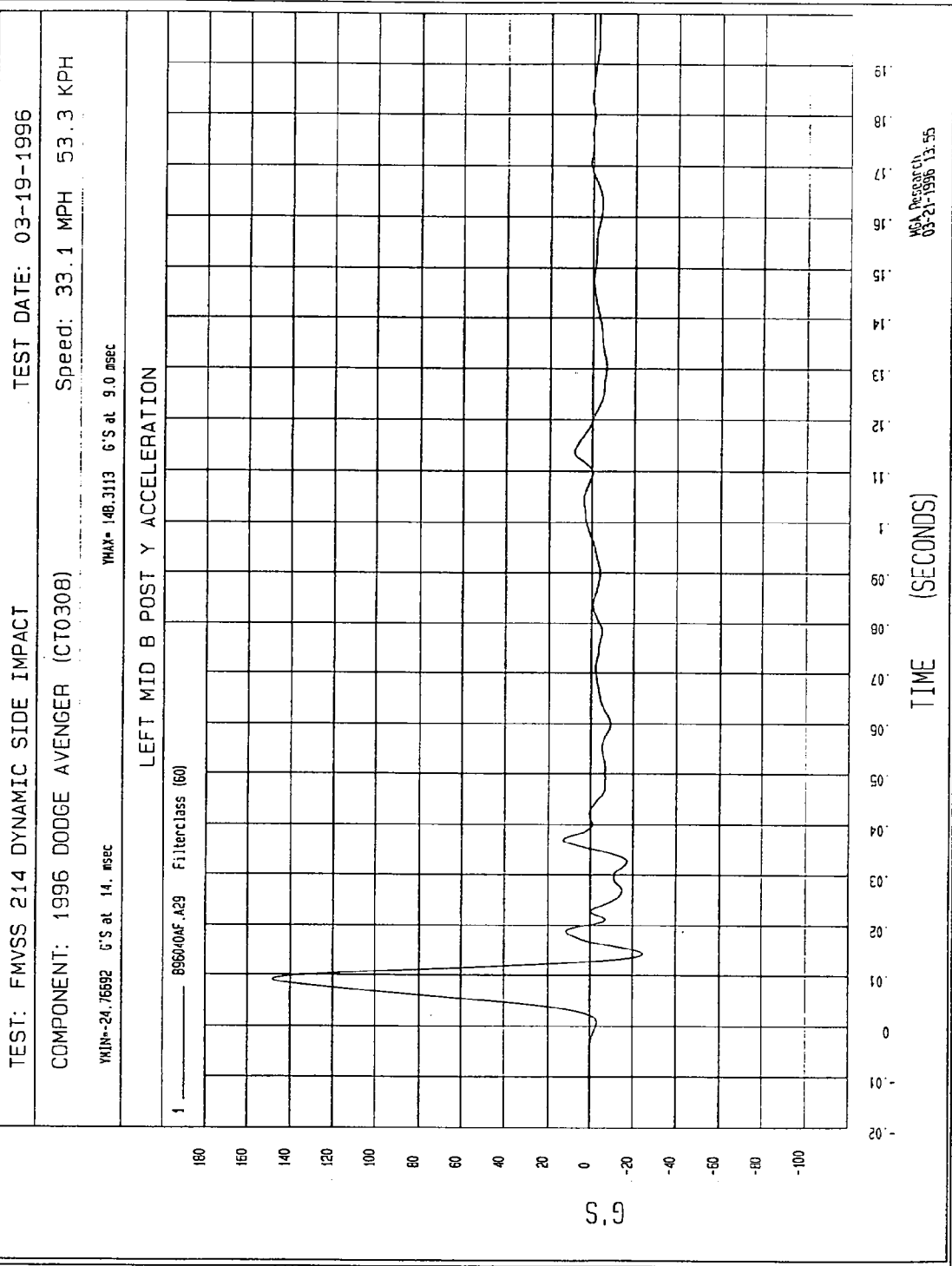
YMIN=-.3352122 KPH at 4.7 msec YMAX= 40.25295 KPH at 17. msec

LEFT LOWER B POST Y VELOCITY

1 896040A1.V30 Filter: class (180)



MOA Research  
03-21-1996 10: 17



TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

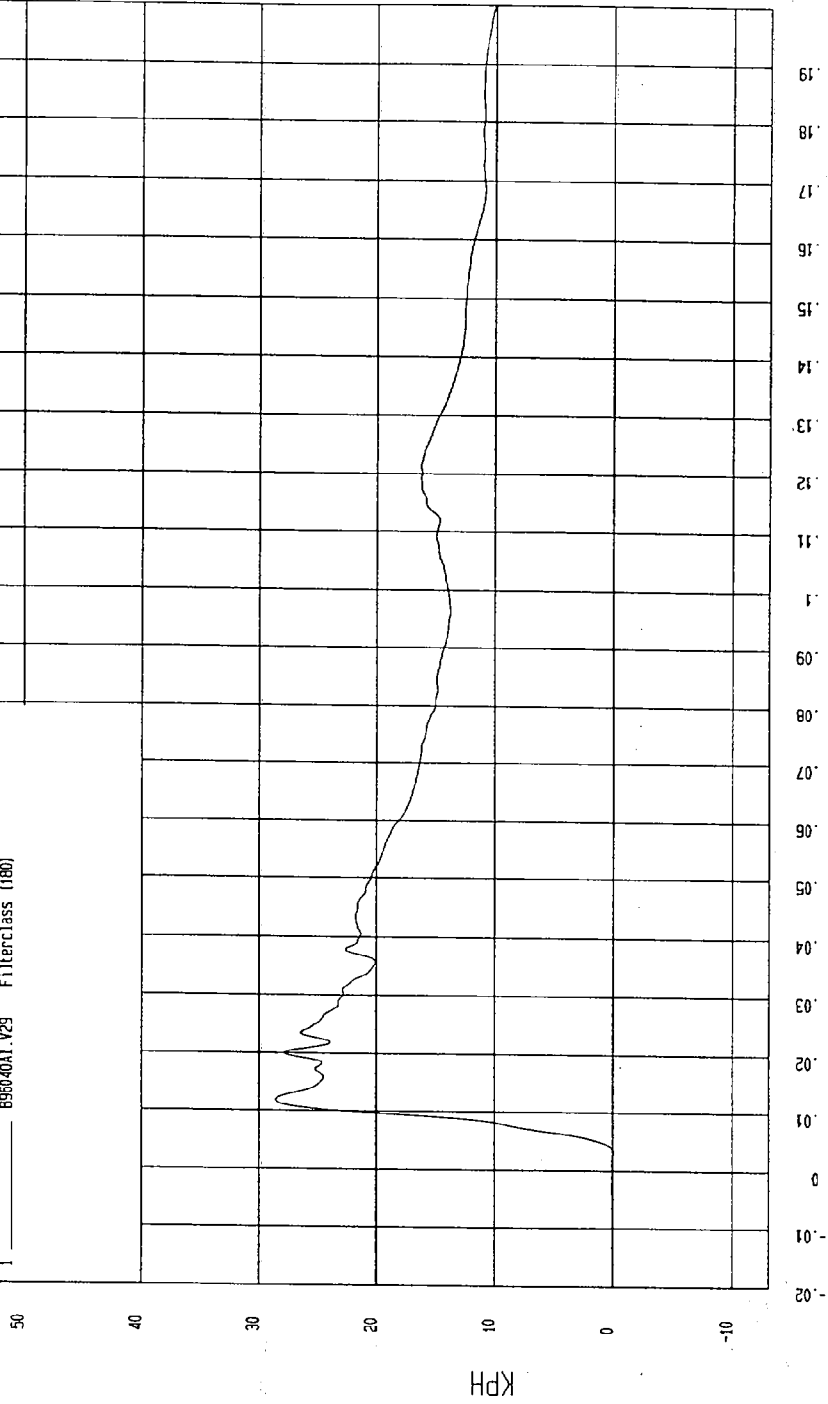
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-2.865196E-02 KPH at 3.0 msec

YMAX=28.61569 KPH at 11. msec

LEFT MID B POST Y VELOCITY

1 896040A1.V29 FilterClass (180)



NSI Research  
03-21-1996 10:17

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

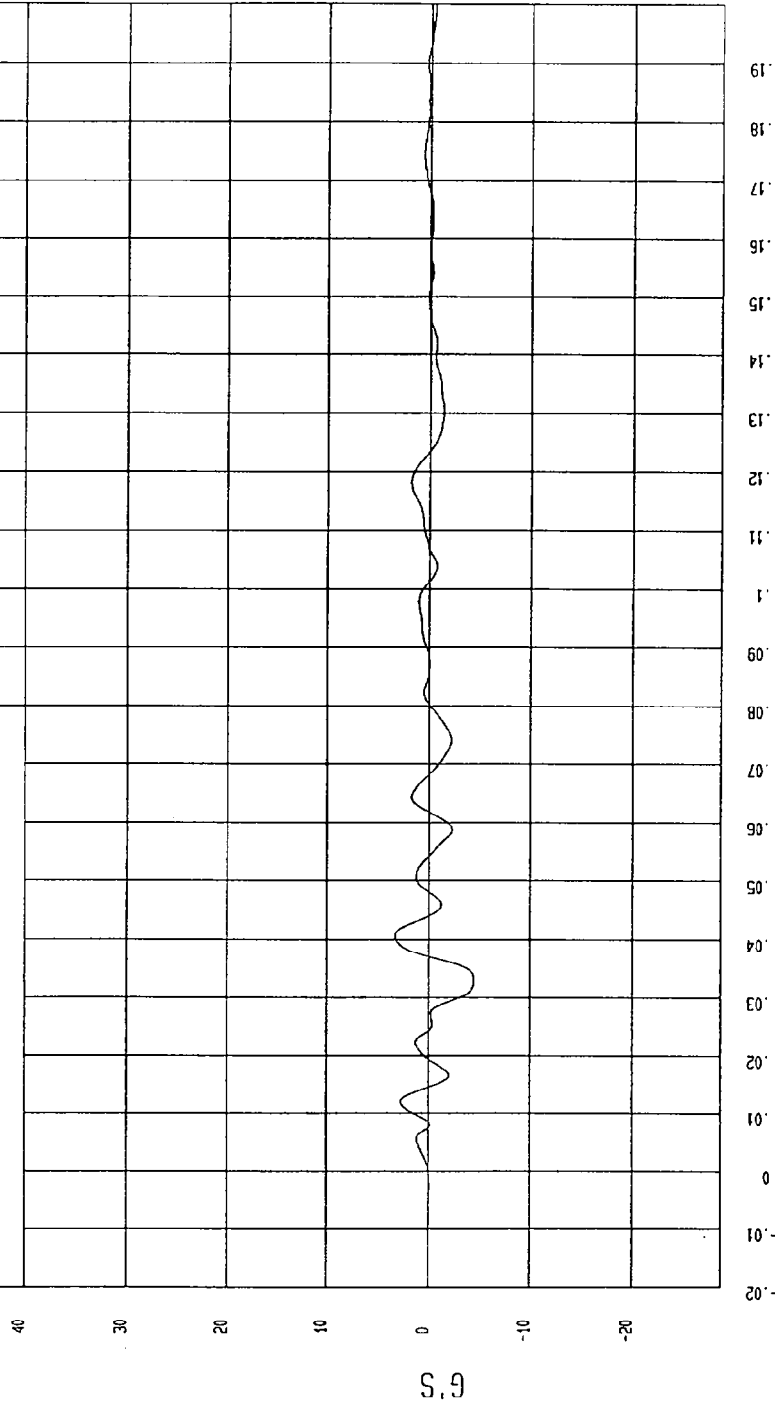
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-4.527062 G'S at 32. msec

YMAX= 3.364478 G'S at 40. msec

VEHICLE CG X ACCELERATION

1 BSE040AF.A58 Filter: class (60)



NCA Product  
03-21-1996 11:47

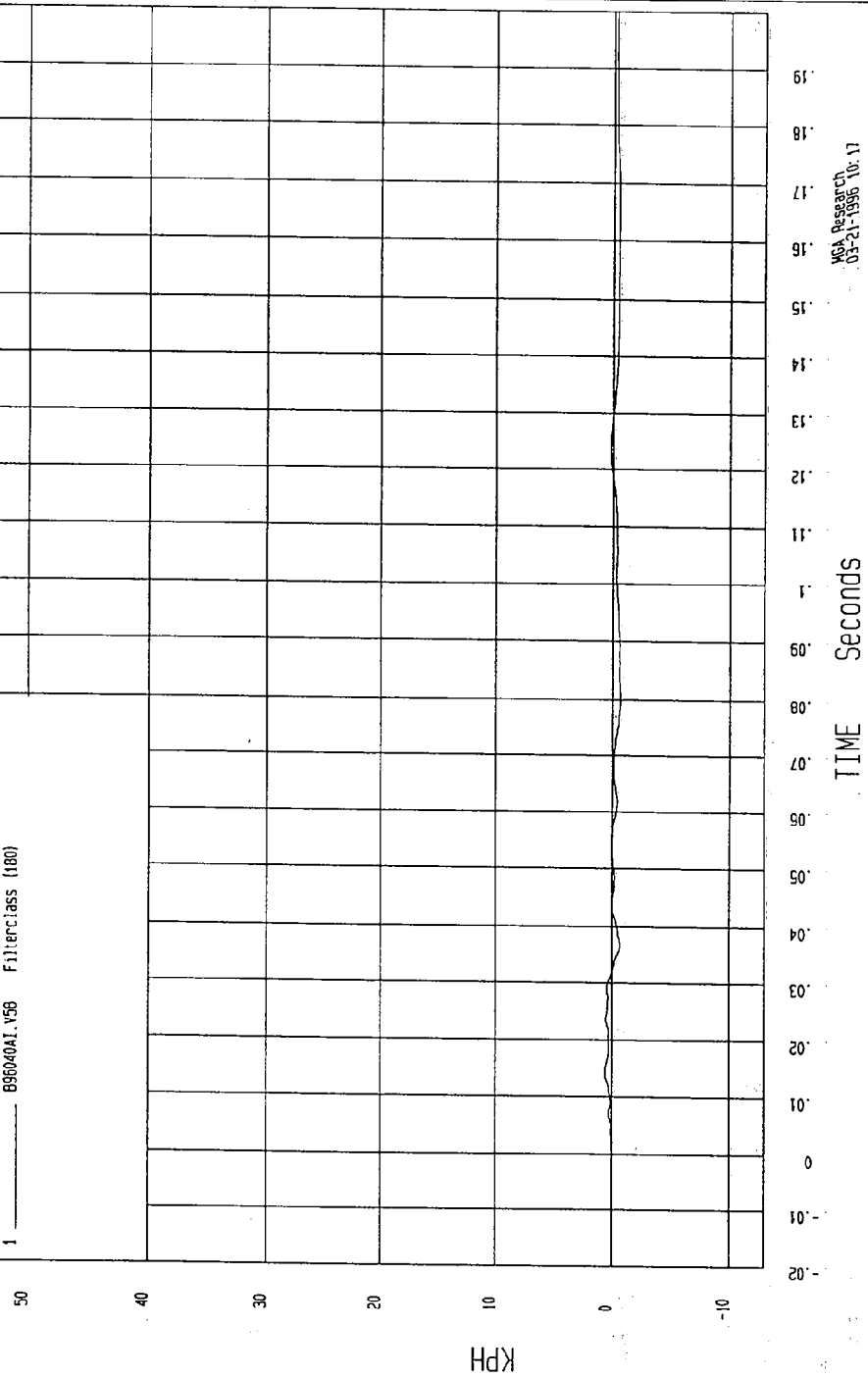
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

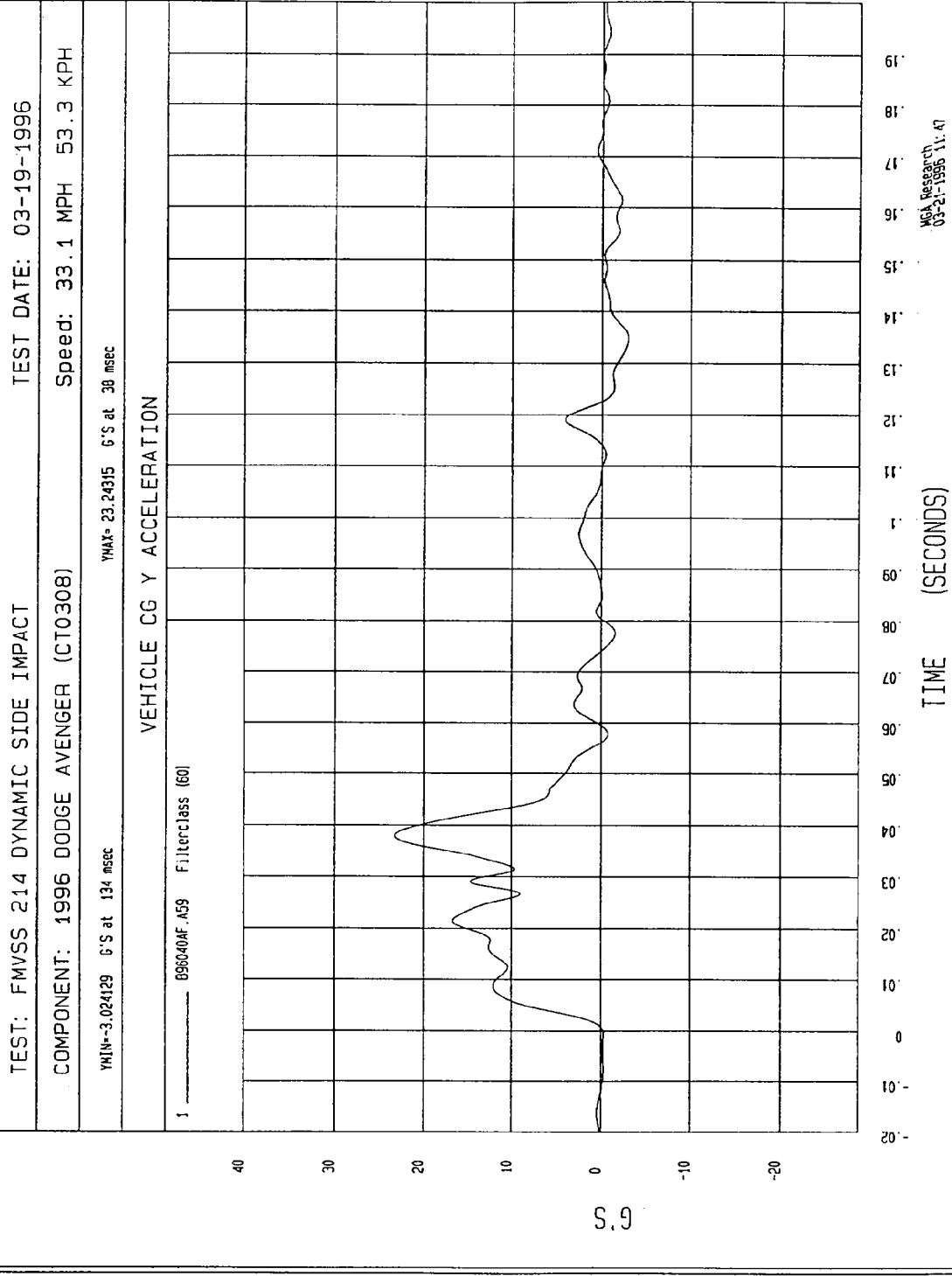
YMIN=-.7050436 KPH at 36. msec YMAX=.6159565 KPH at 14. msec

VEHICLE CG X VELOCITY

1 \_\_\_\_\_ B96040A1.V56 Filterclass (180)



MCI Research  
05-21-1996 10: 17



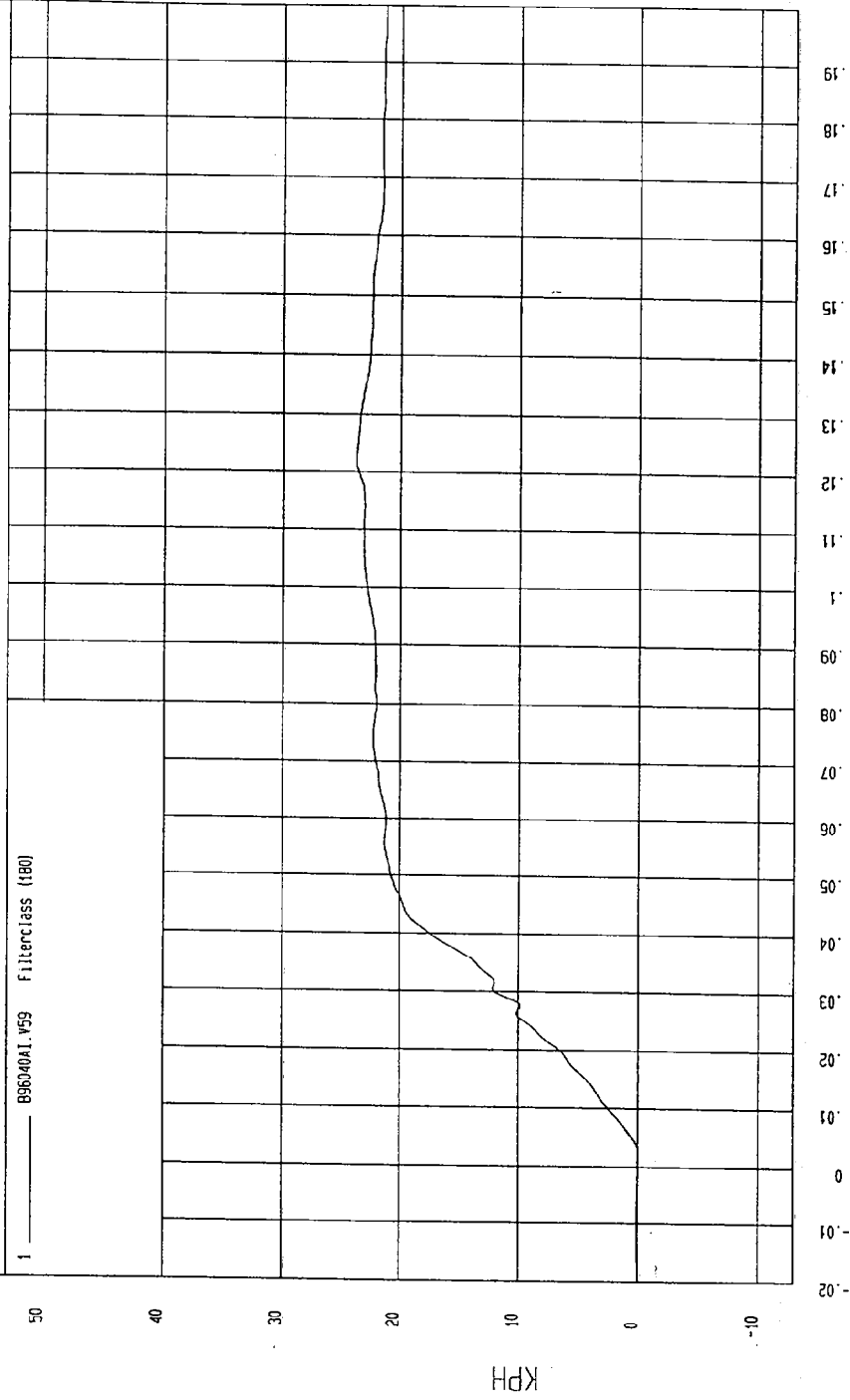
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN= 0 KPH at -20 msec YMAX= 23.75262 KPH at 122 msec

VEHICLE CG Y VELOCITY

1 \_\_\_\_\_ B96040A1.V59 Filterclass (180)



MCA Research  
03-21-1996 10: 17

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

SPEED: 33.1 MPH 53.3 KPH

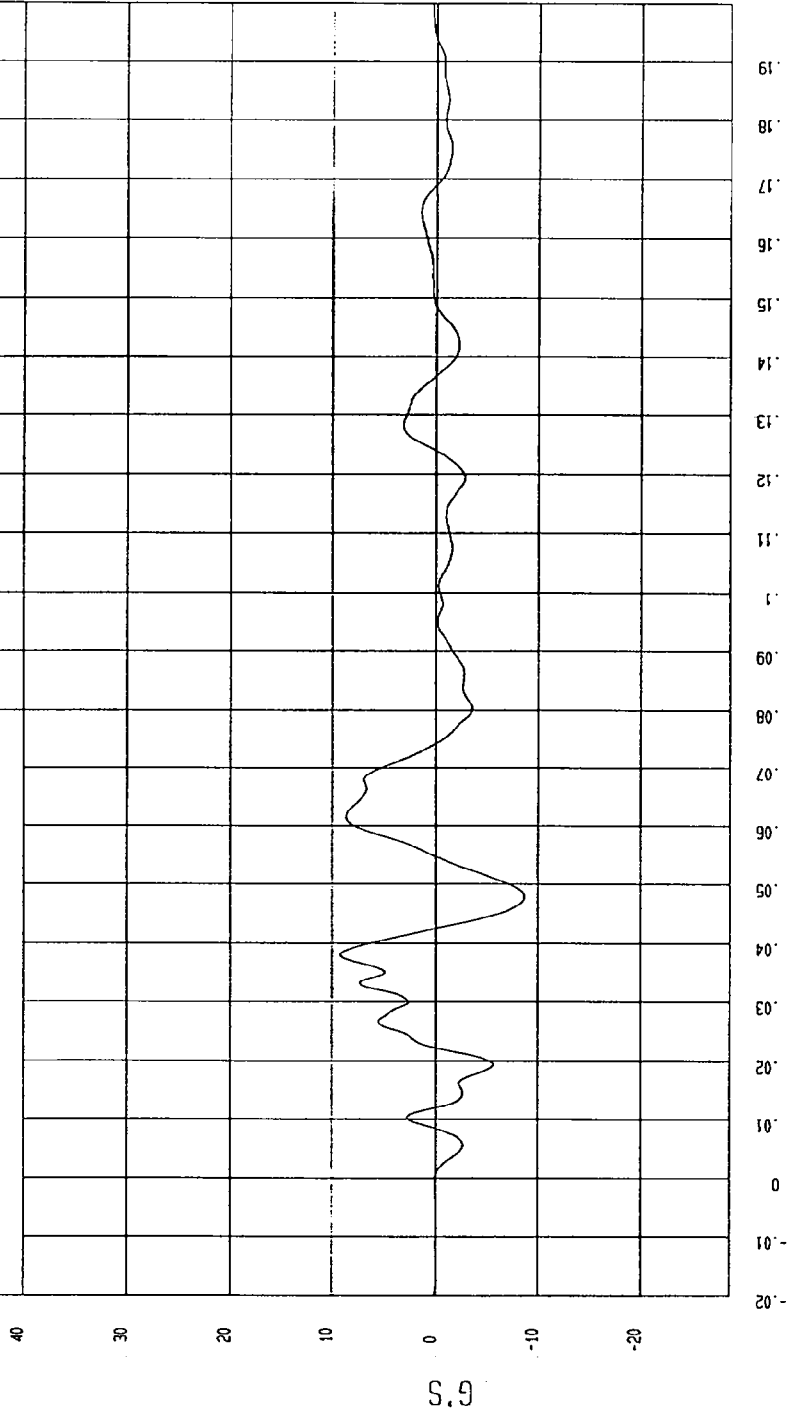
COMPONENT: 1996 DODGE AVENGER (CT0308)

YMIN=-0.641755 G'S at 47. msec

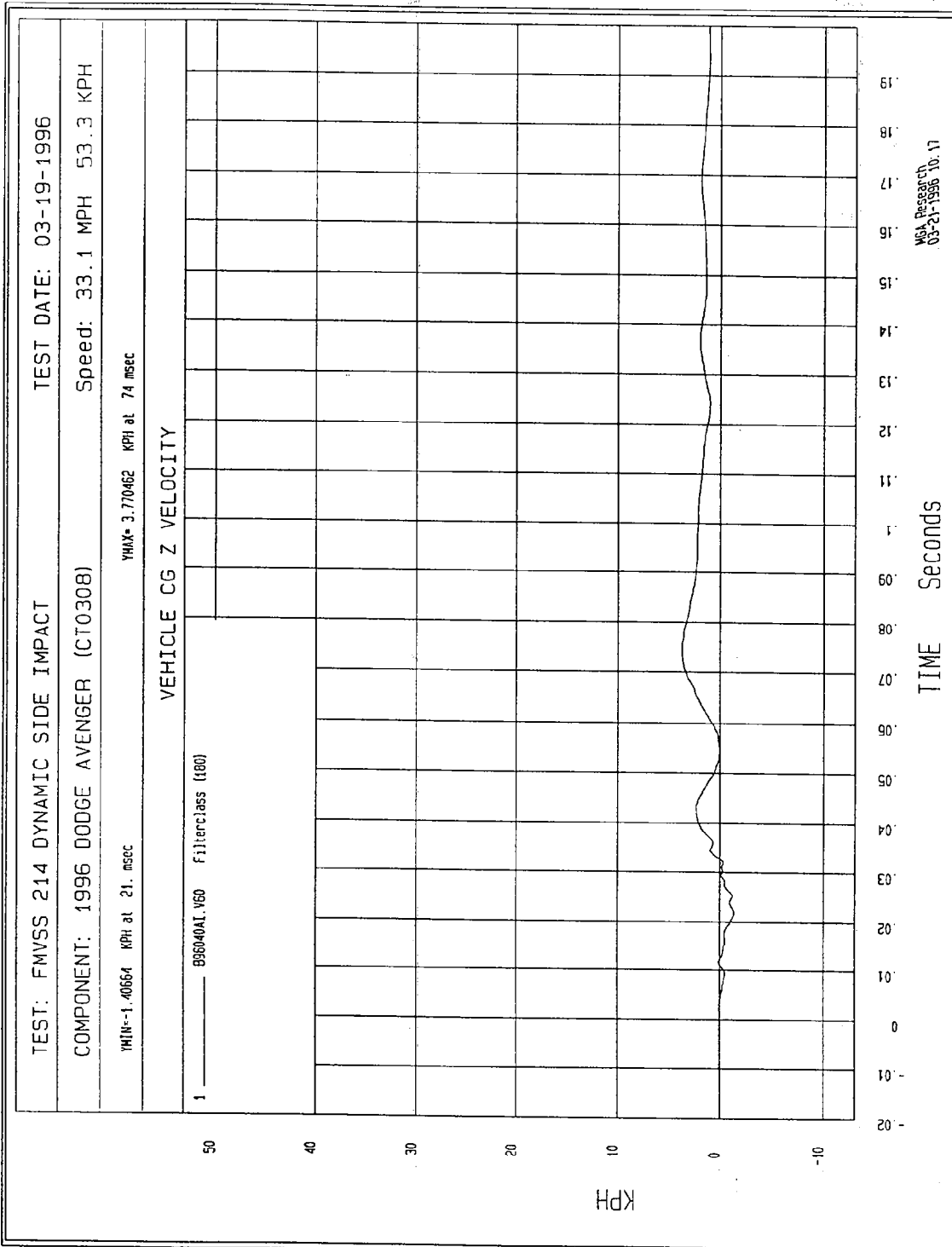
YMAX= 9.248235 G'S at 38. msec

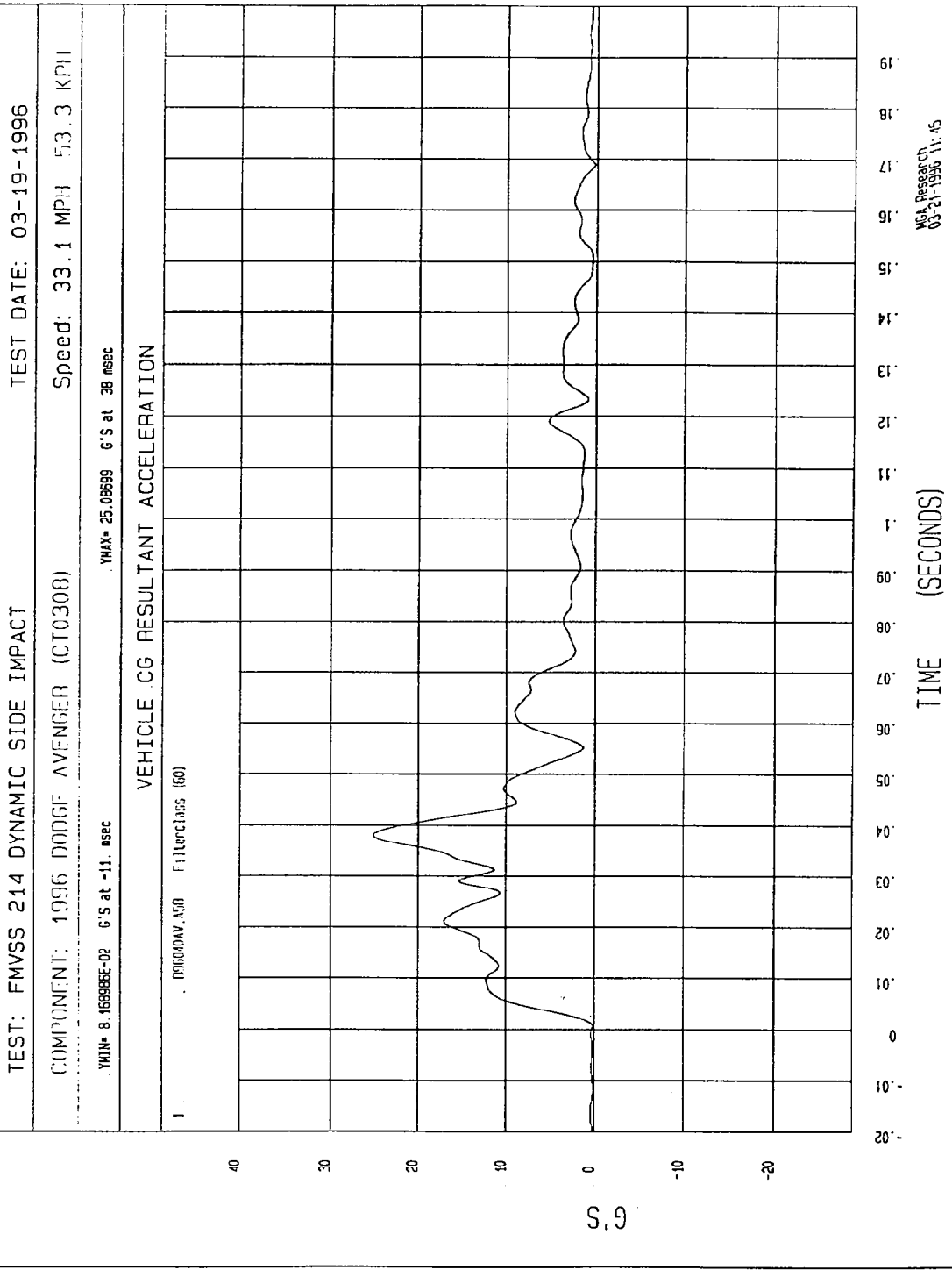
VEHICLE CG Z ACCELERATION

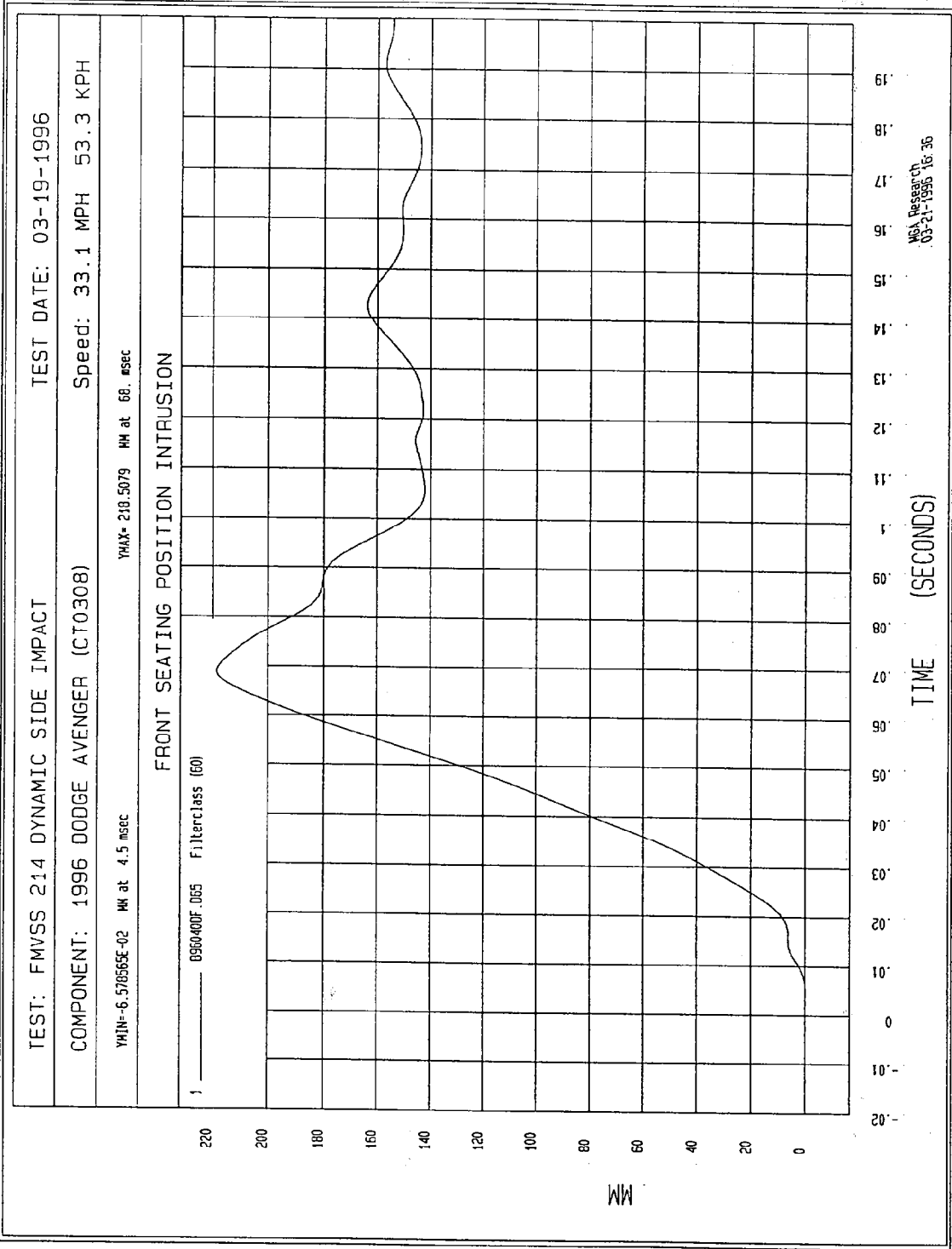
1 B95040AF.A60 FilterClass (60)



MCA Research  
03-21-1996 11:48







MVA Research  
 03-21-1996 16:35

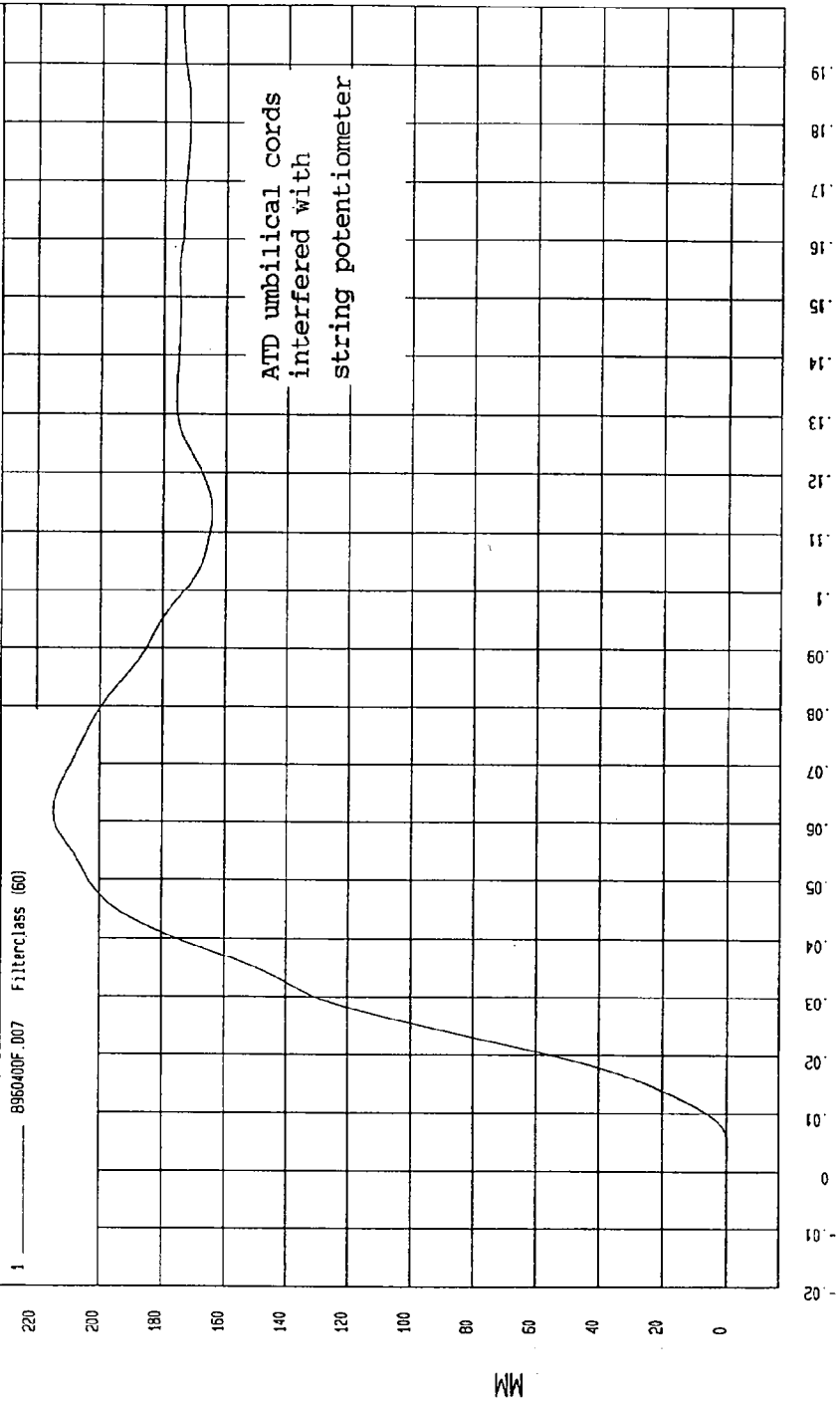
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

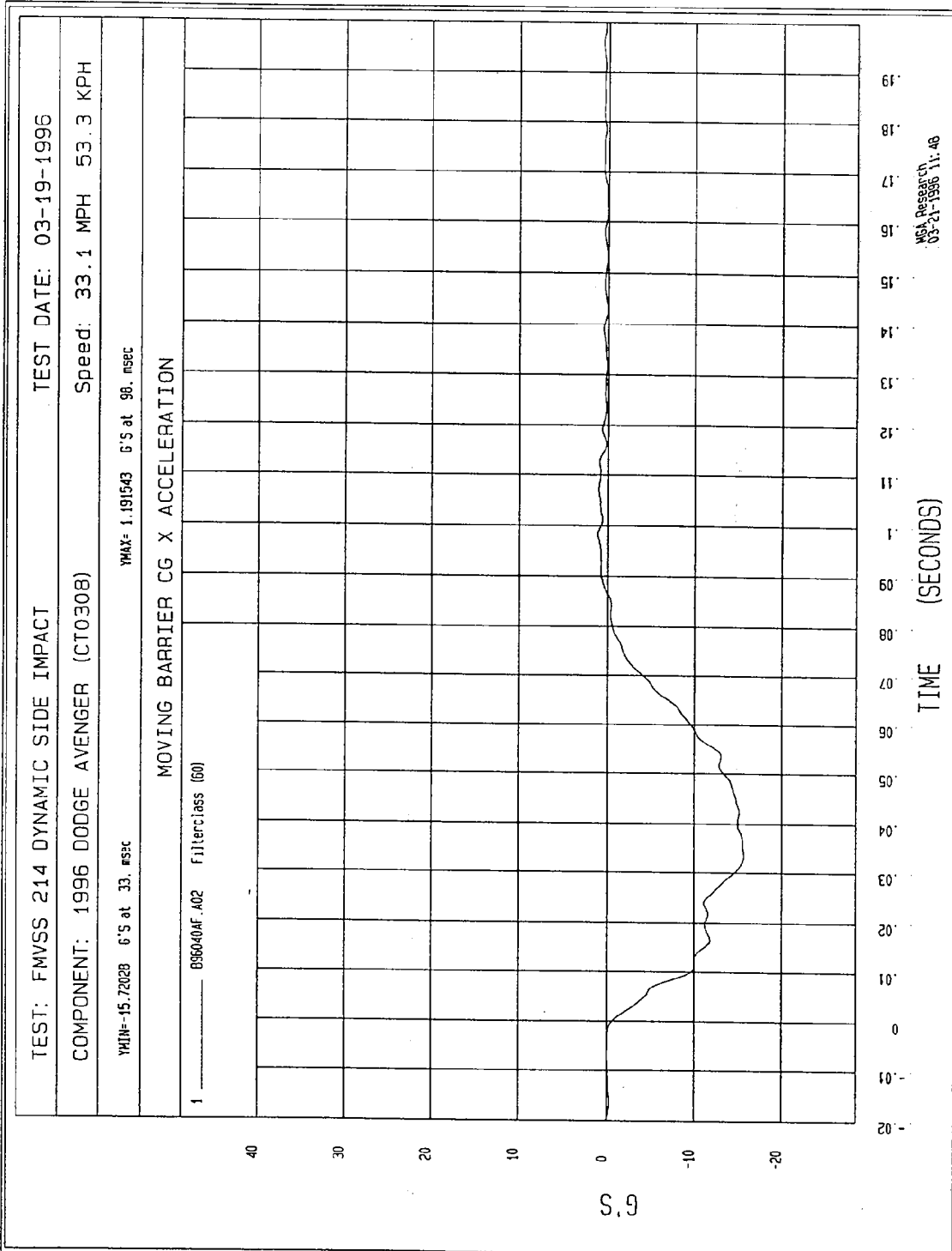
YMIN = .1724006 MM at 4.5 msec

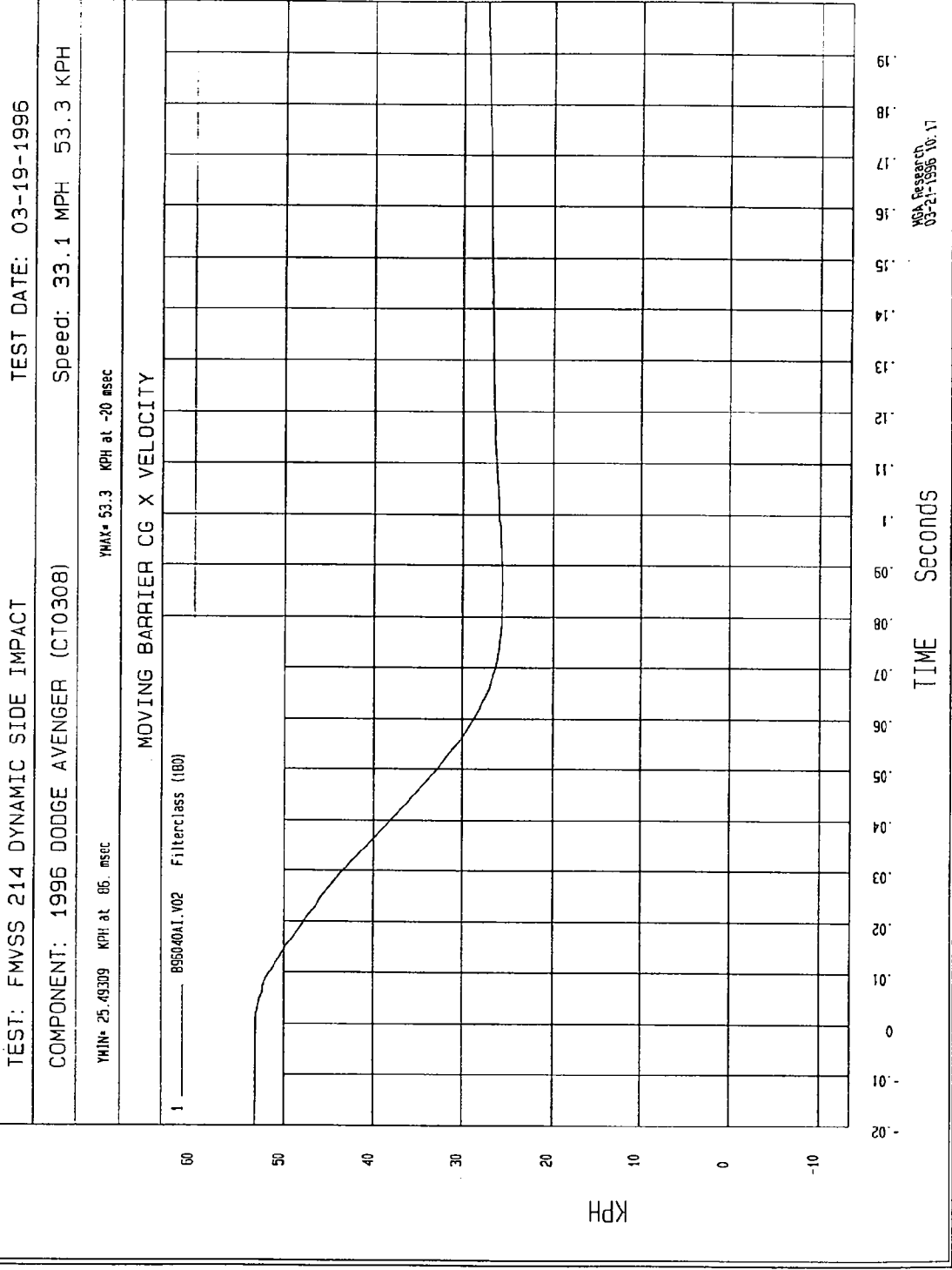
YMAX = 214.8649 MM at 61. msec

REAR SEATING POSITION INTRUSION



MPA Research  
03-21-1996 16:36





TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

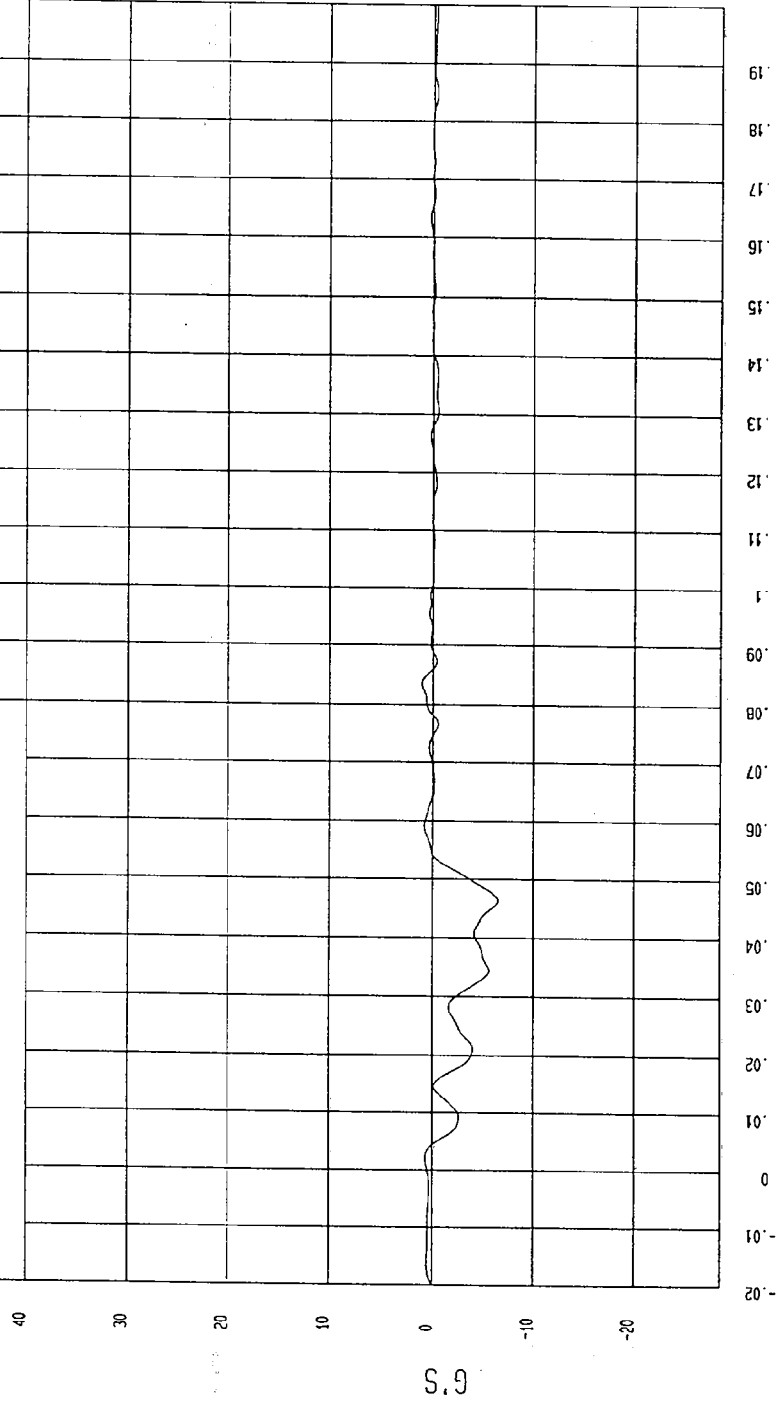
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-6.56947 G'S at 46. msec

YMAX= 1.139787 G'S at 83. msec

MOVING BARRIER CG Y ACCELERATION

1 \_\_\_\_\_ B95040AF.A03 Filter:cr1ass (60)



TIME (SECONDS)

MSA Research  
03-21-1996 11:48

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

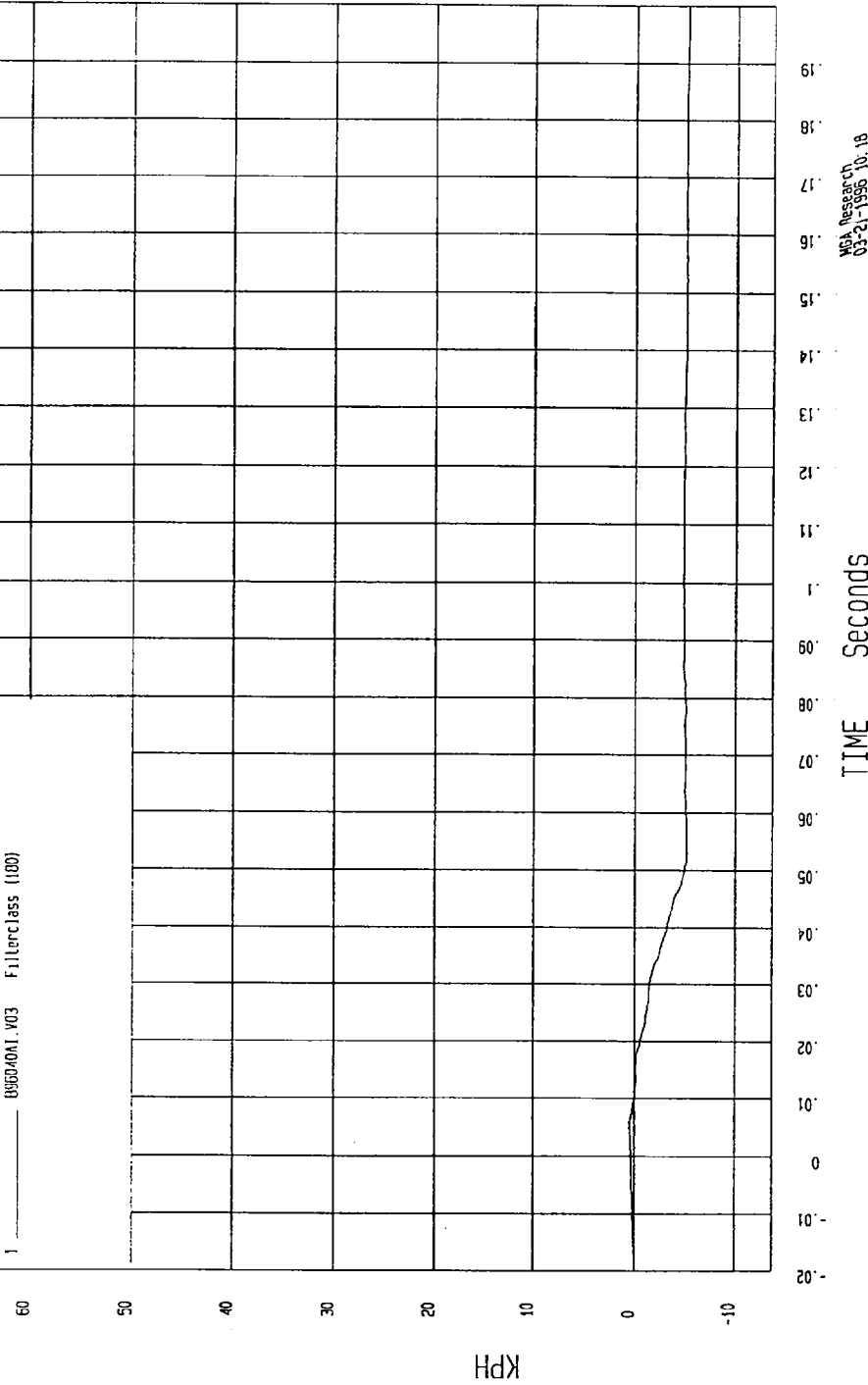
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-5.268691 KPH at 52. msec

YMAX= .4517397 KPH at 5.4 msec

MOVING BARRIER CG Y VELOCITY

1 \_\_\_\_\_ BUC640A1.V03 FillterClass (100)



MCA Research  
03-21-1996 10.18

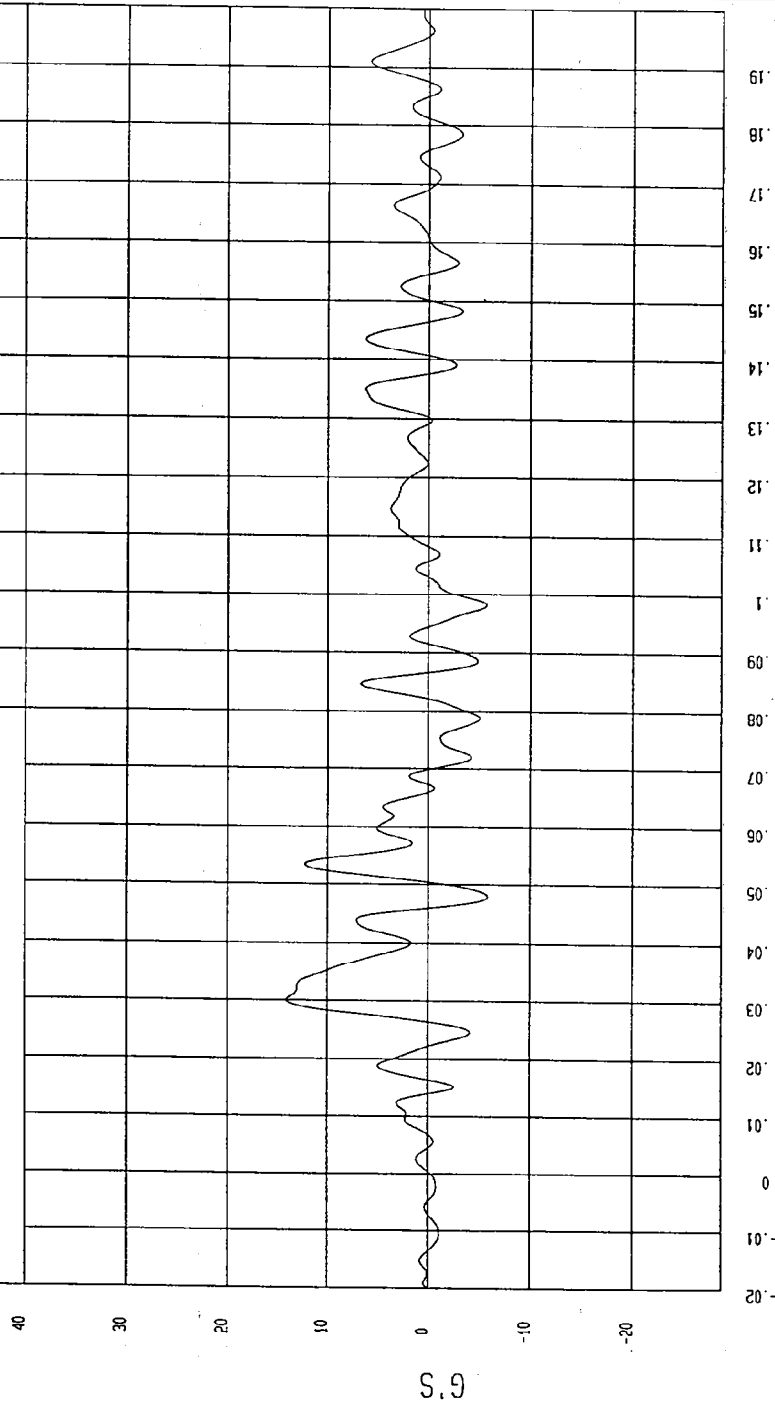
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (C10308) Speed: 33.1 MPH 53.3 KPH

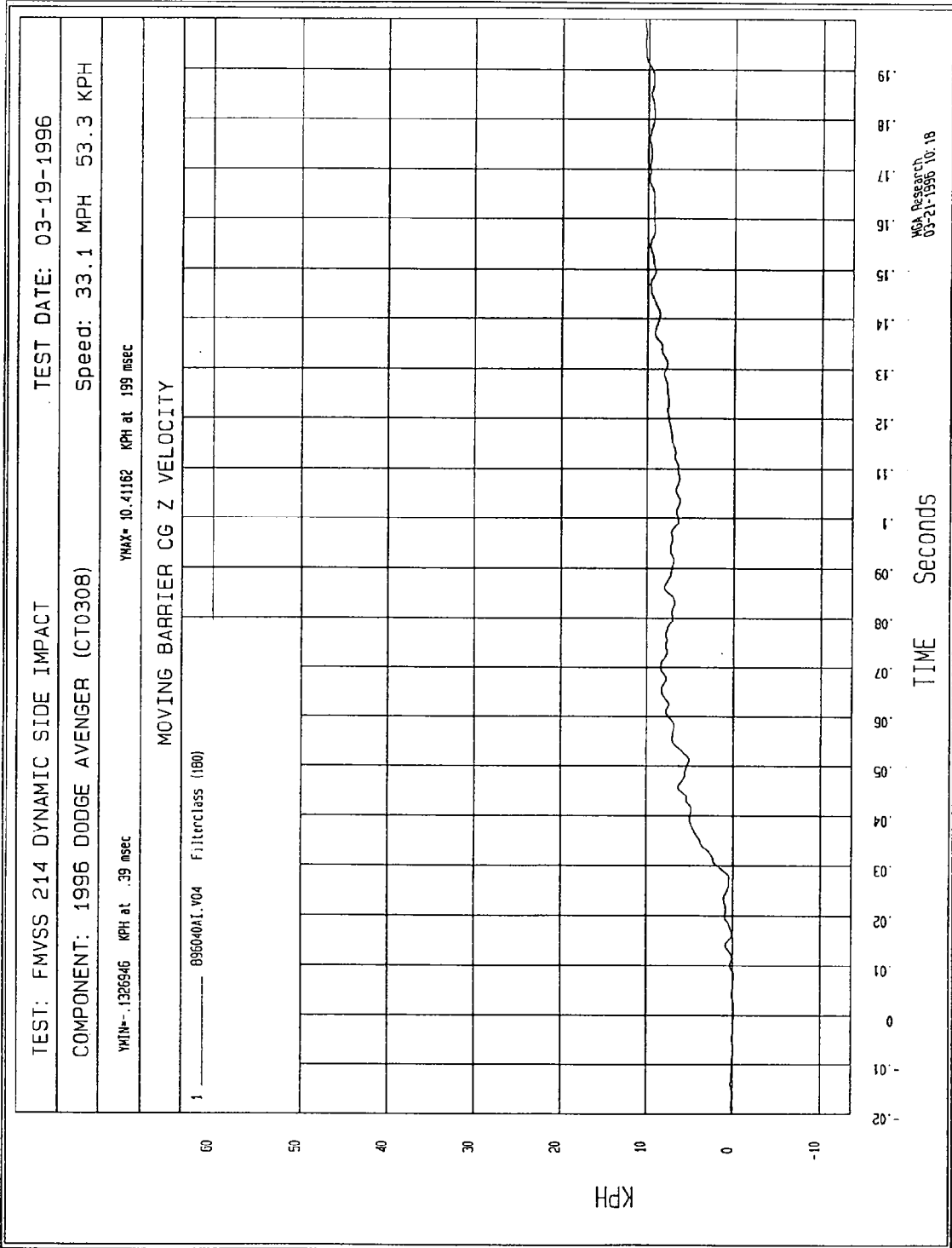
YMIN=-5.835657 G'S at 48 msec YMAX= 14.05778 G'S at 30 msec

MOVING BARRIER CG Z ACCELERATION

1 ——— 895040AF A04 Filterclass (60)



MCA Research  
03-21-1996 11:40



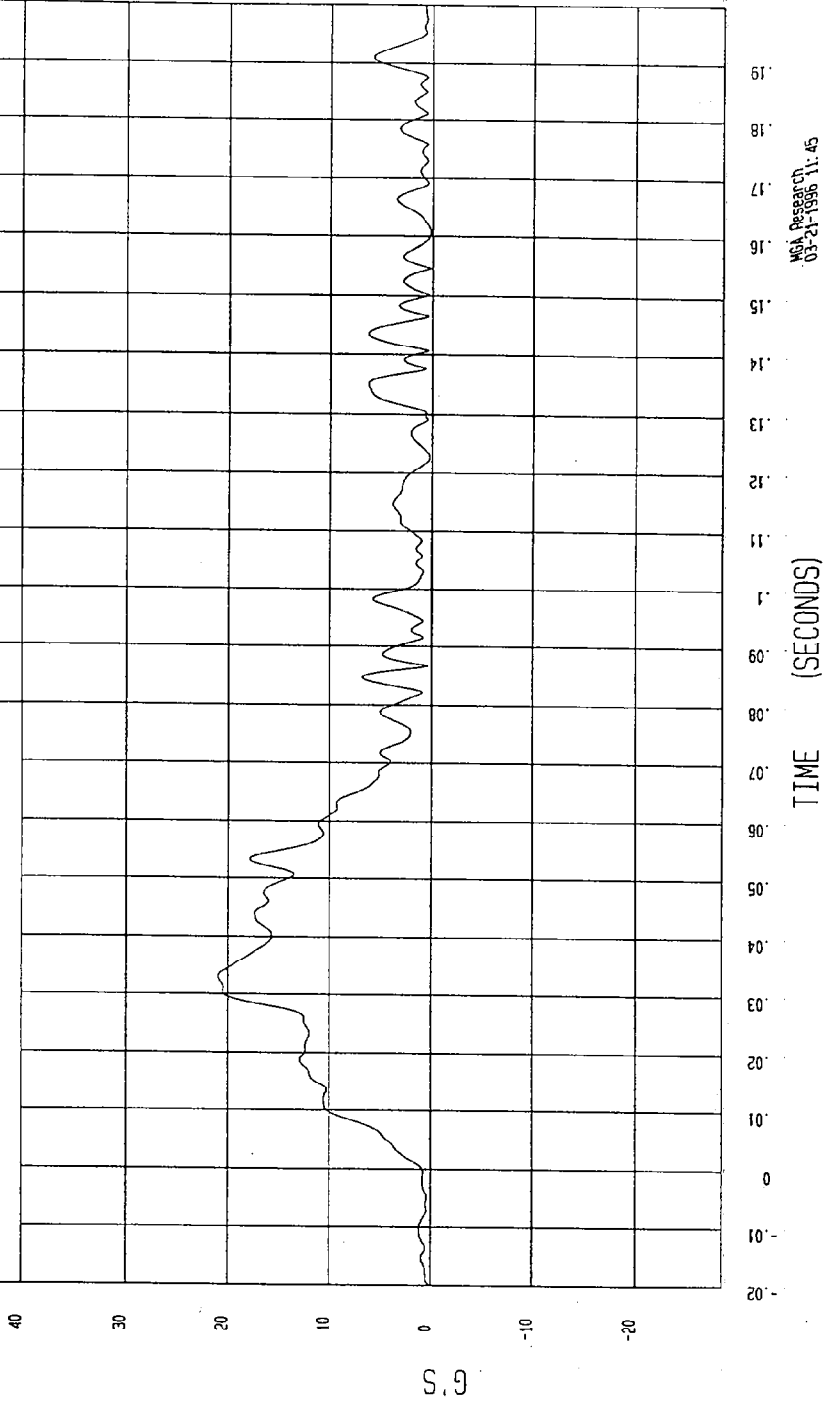
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (C10308) Speed: 33.1 MPH 53.3 KPH

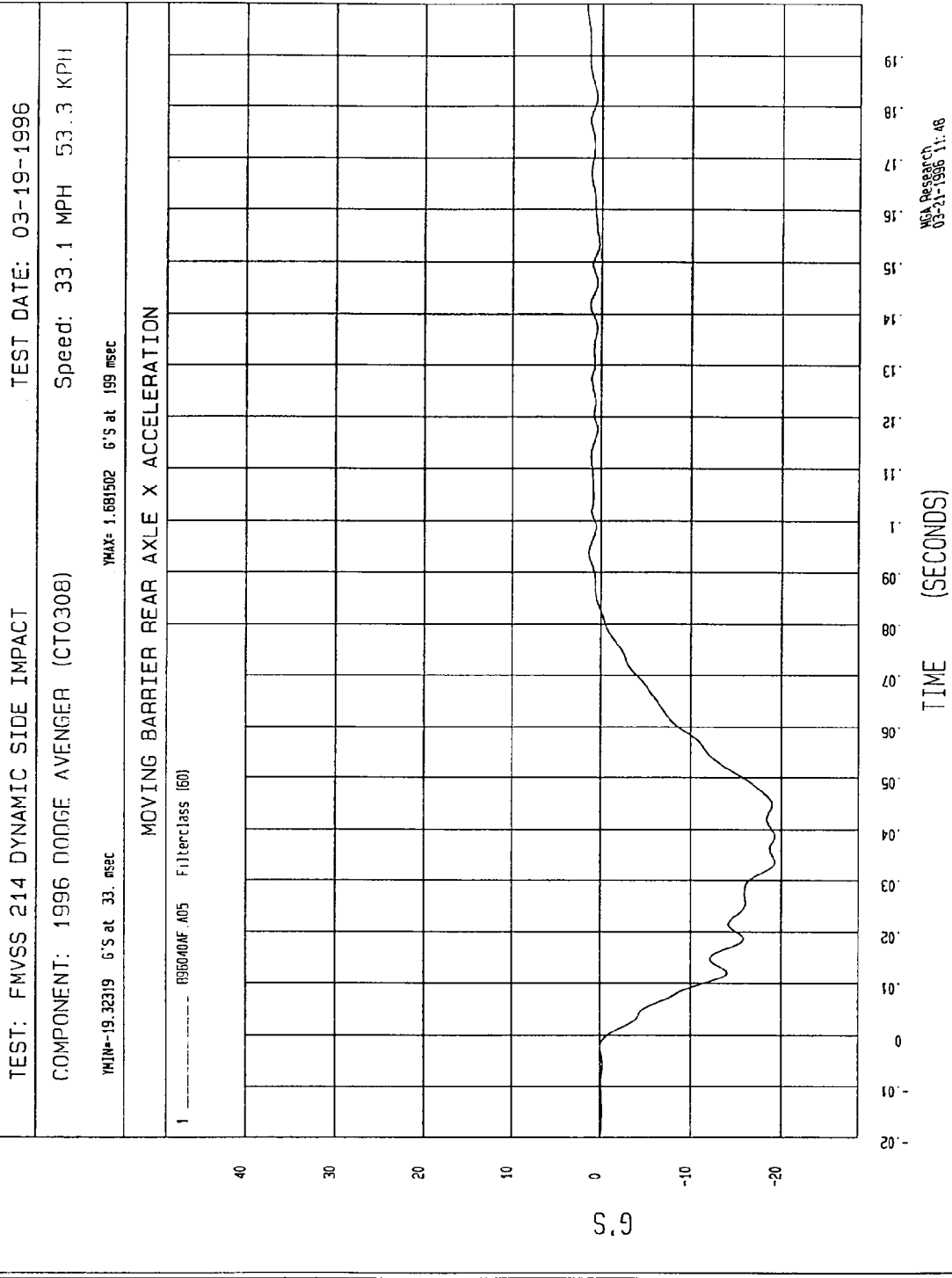
YMIN= .1171425 G'S at -20 msec YMAX= 20.94107 G'S at 33 msec

MOVING BARRIER CG RESULTANT ACCELERATION

1 B96040AV A02 Fillerclass (60)



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03-21-1996 11:45



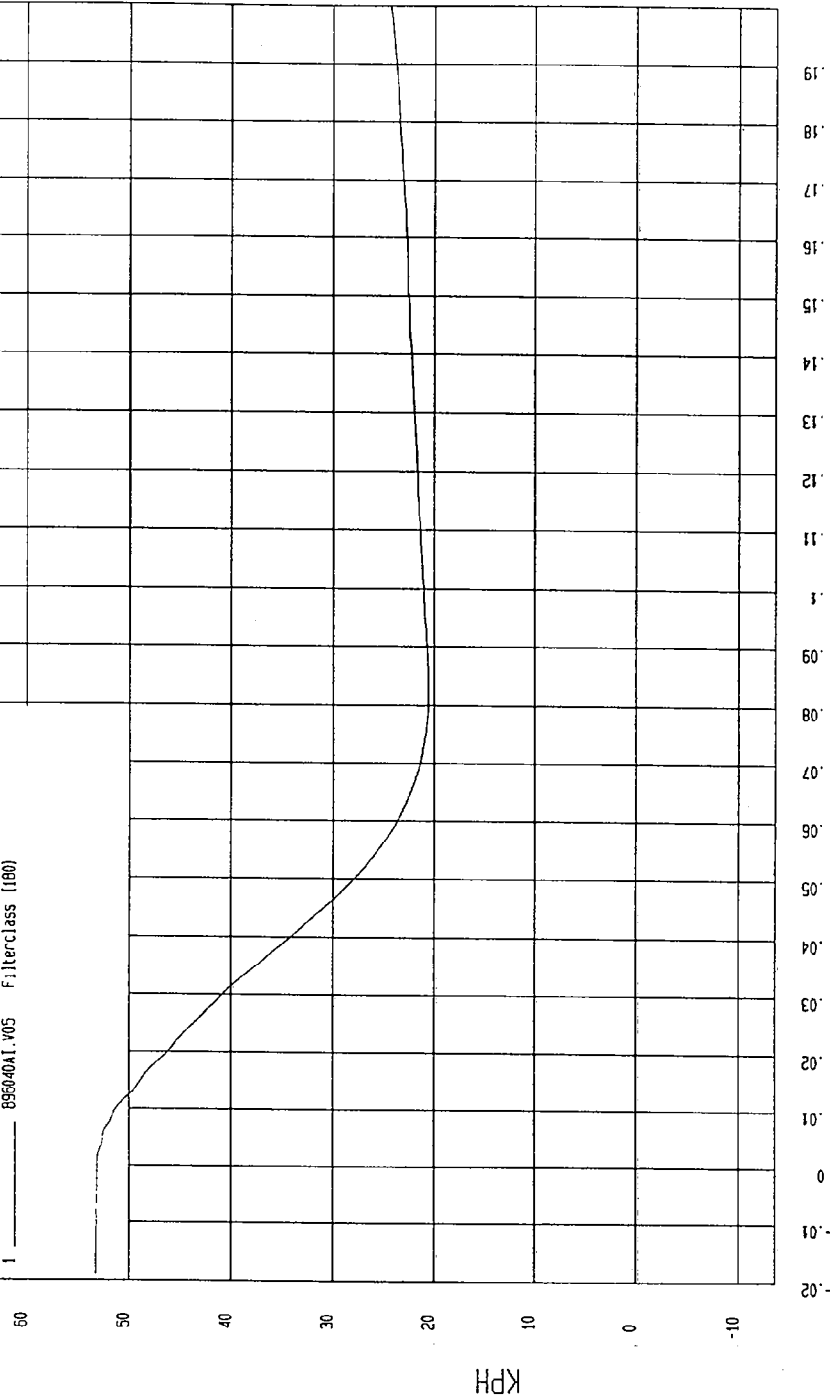
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN= 20.50540 KPH at 02. msec YMAX= 53.3 KPH at -20 msec

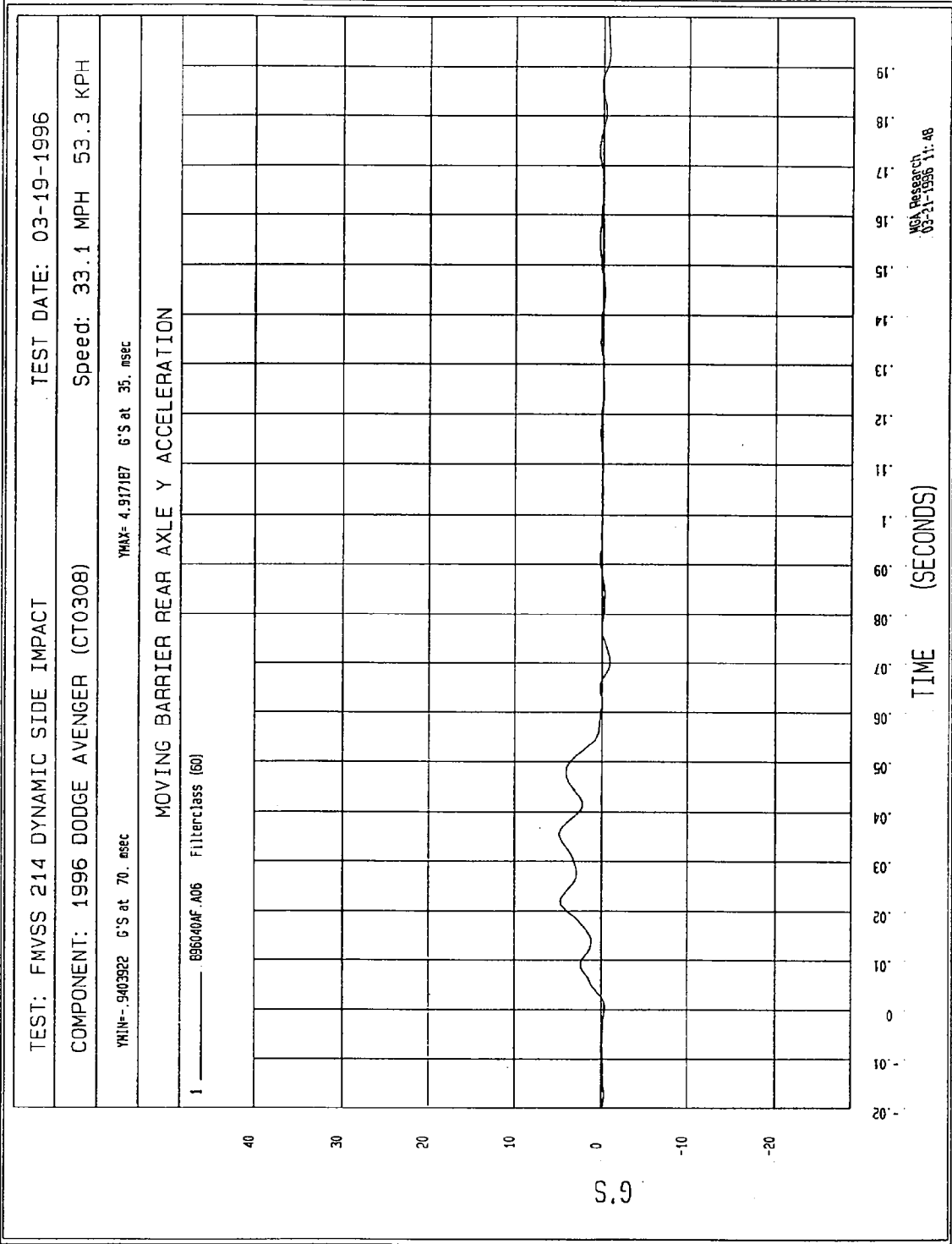
MOVING BARRIER REAR AXLE X VELOCITY

1 896040A1.V05 Filterclass (180)



McA Research  
03-21-1996 10:19

TIME Seconds



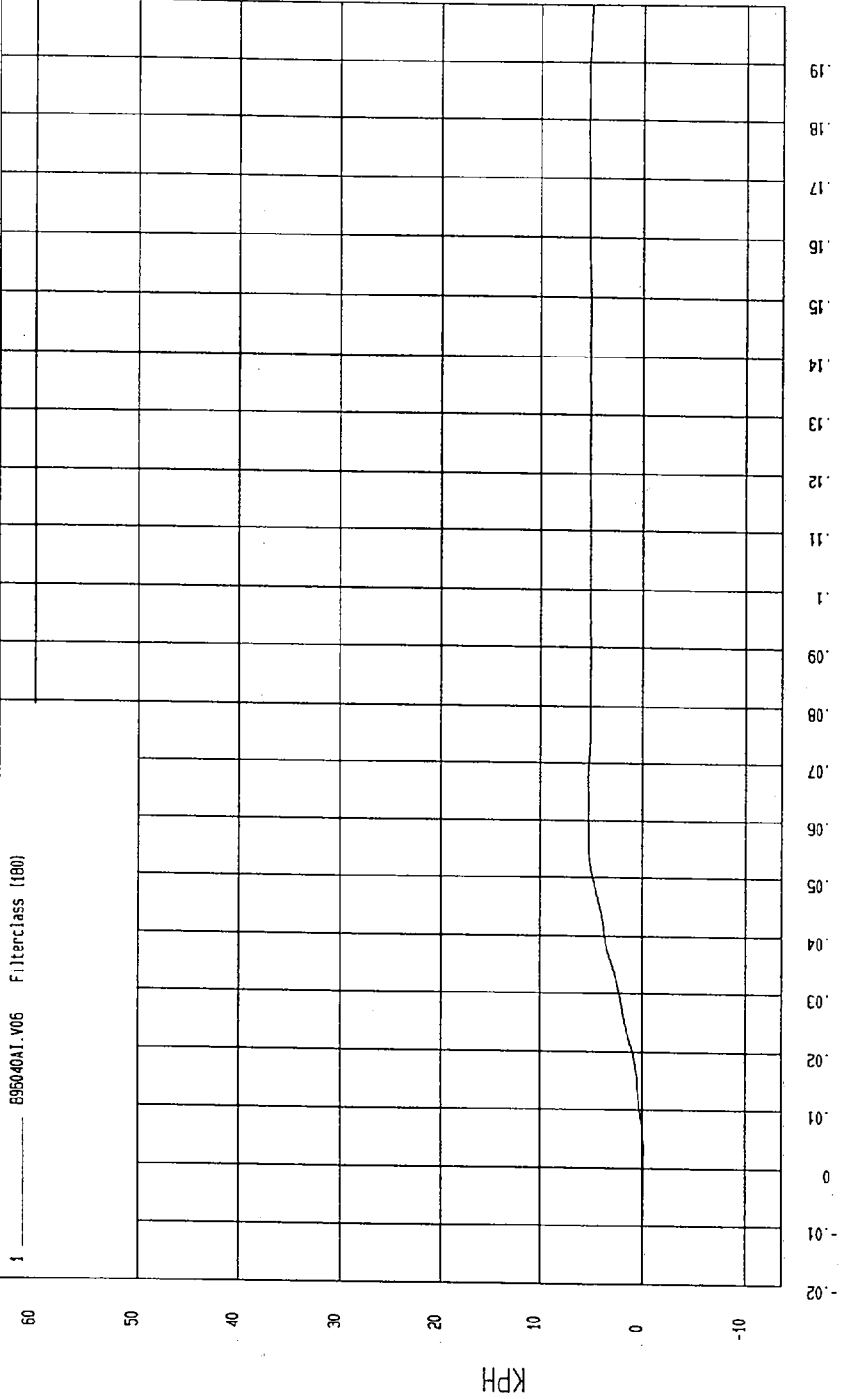
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN= .1553001 KPH at 3.0 msec

YMAX= 5.358029 KPH at 178 msec

MOVING BARRIER REAR AXLE Y VELOCITY



MCA Research  
03-21-1995 10:18

TIME Seconds

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

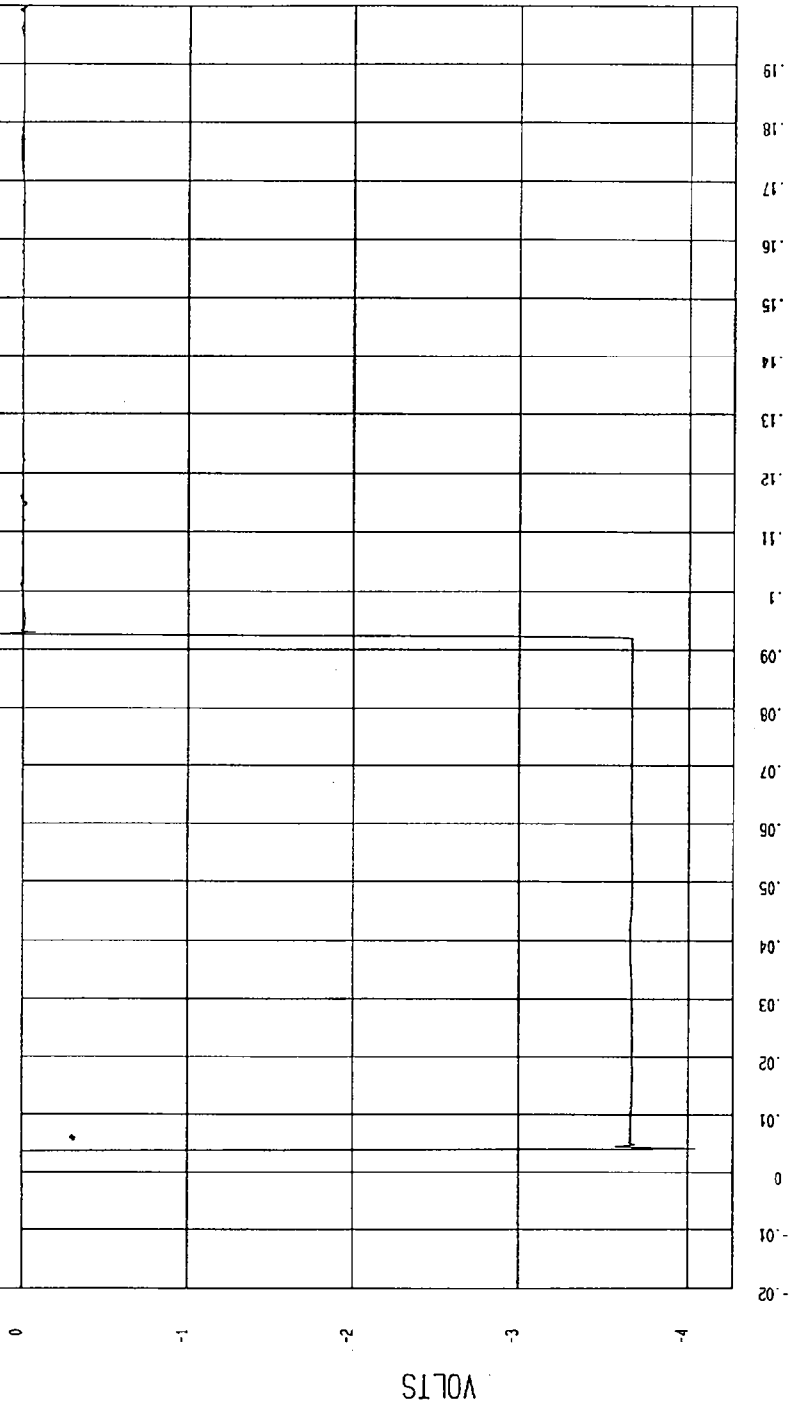
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-4.044186 VOLTS at 4.0 msec

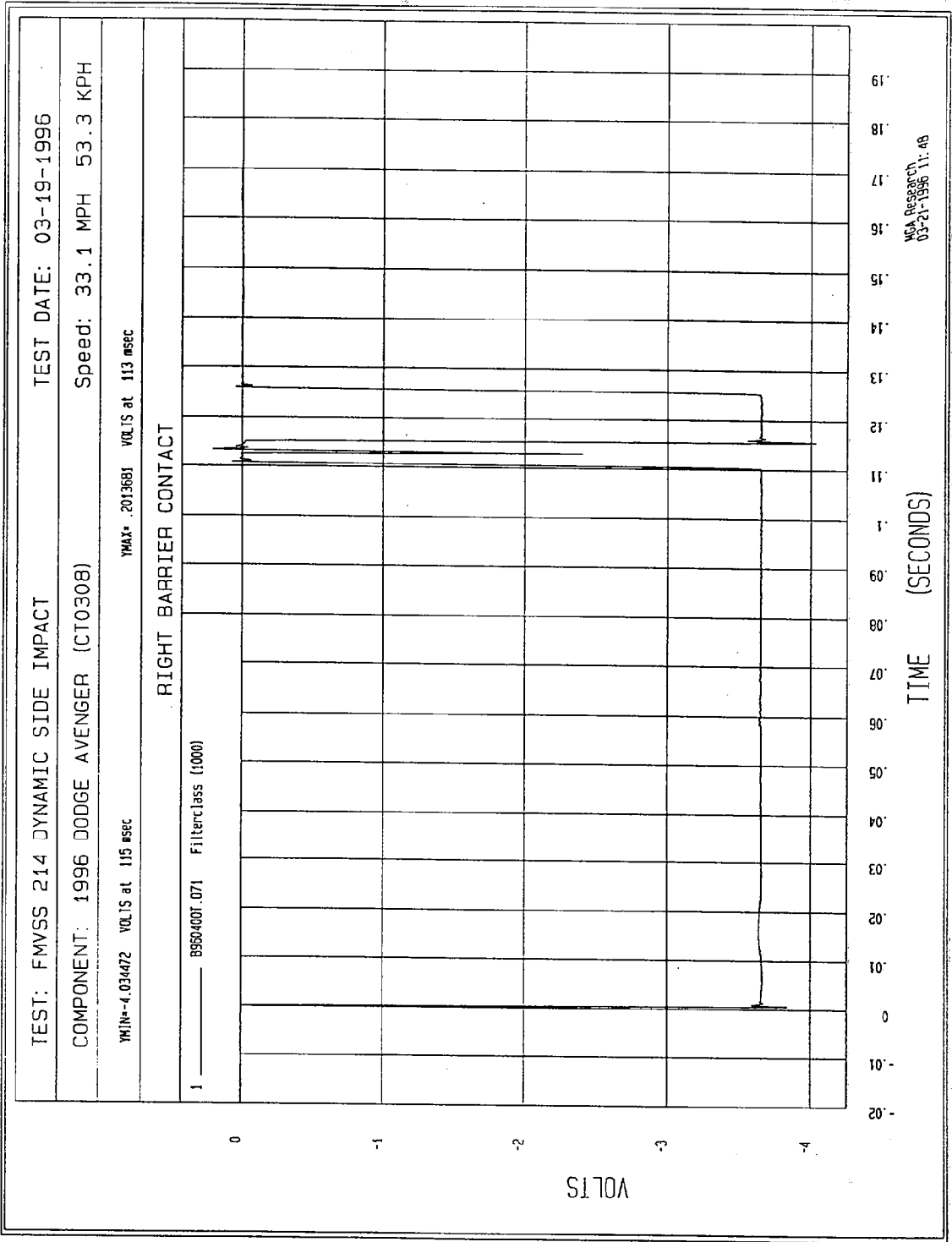
YMAX= 2.063022 VOLTS at 92. msec

1 89604001.072 Filterclass (1000)

LEFT BARRIER CONTACT



NSA Research Co.  
03-21-1996 11.48



TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

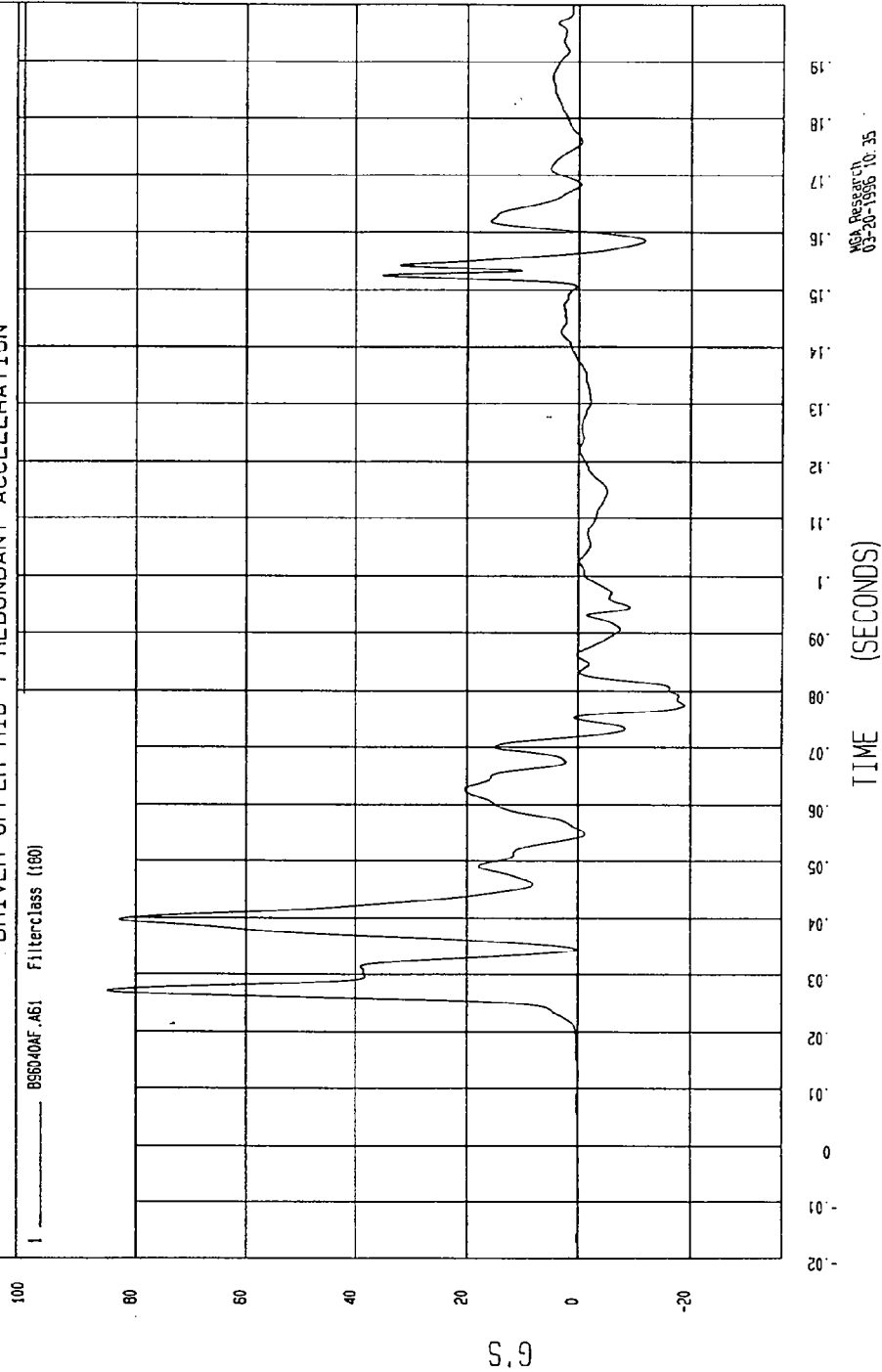
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YHJM-10-93043 G'S at 77. msec

YHAX-05-05205 G'S at 27. msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION

1 B56040AF.A61 FilterClass (160)



MCA Research  
03-20-1996 10:35

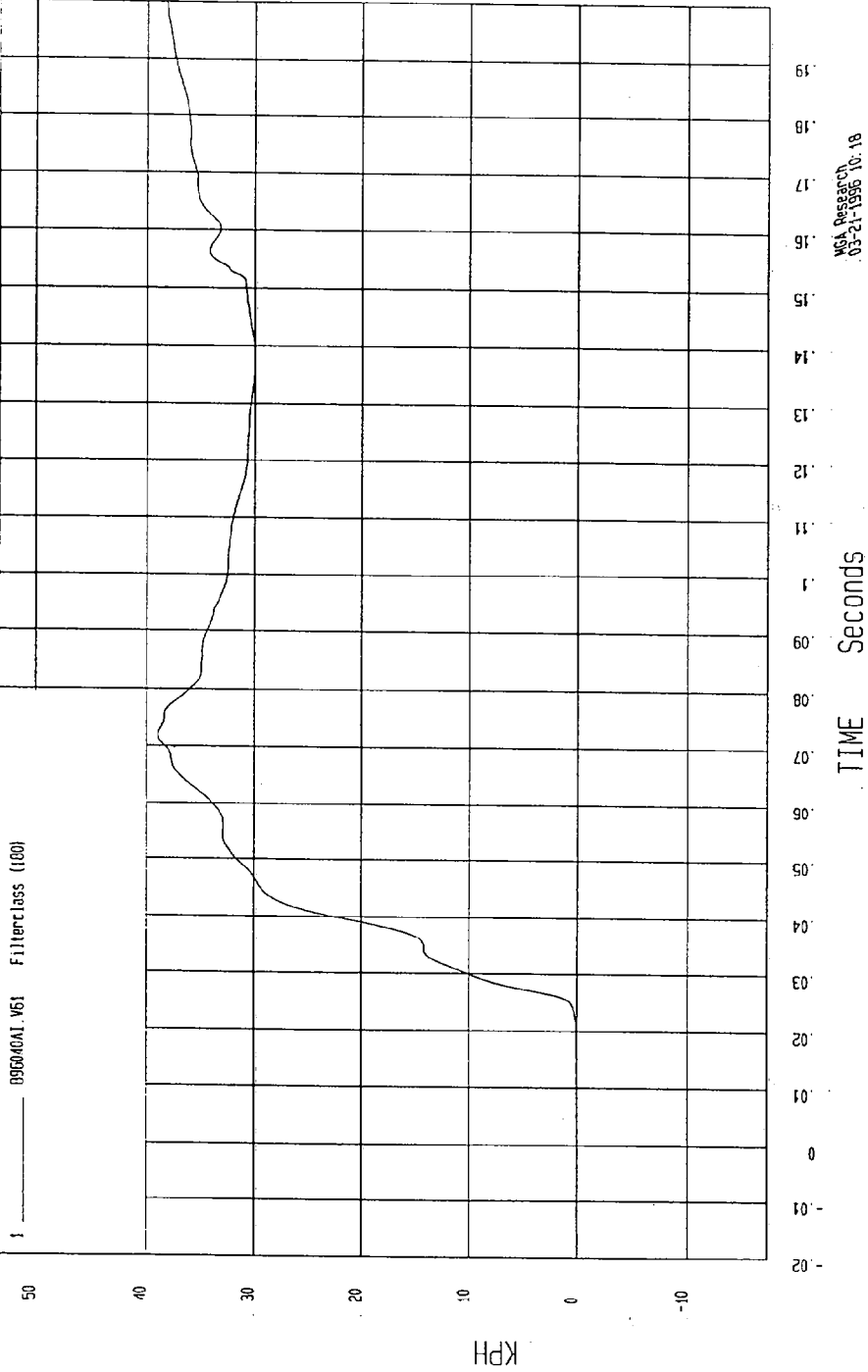
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

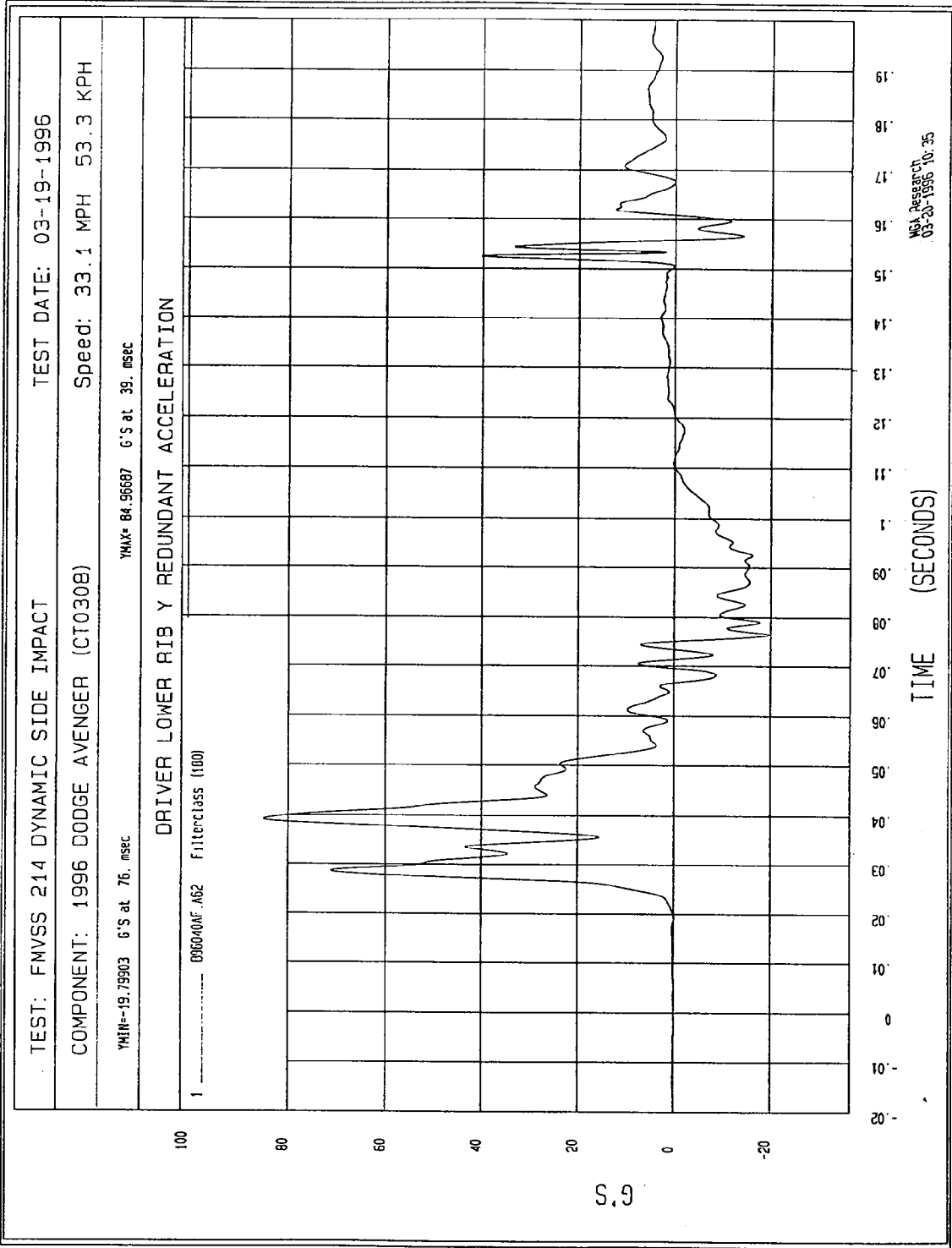
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-1.465415E-03 KPH at -18. msec

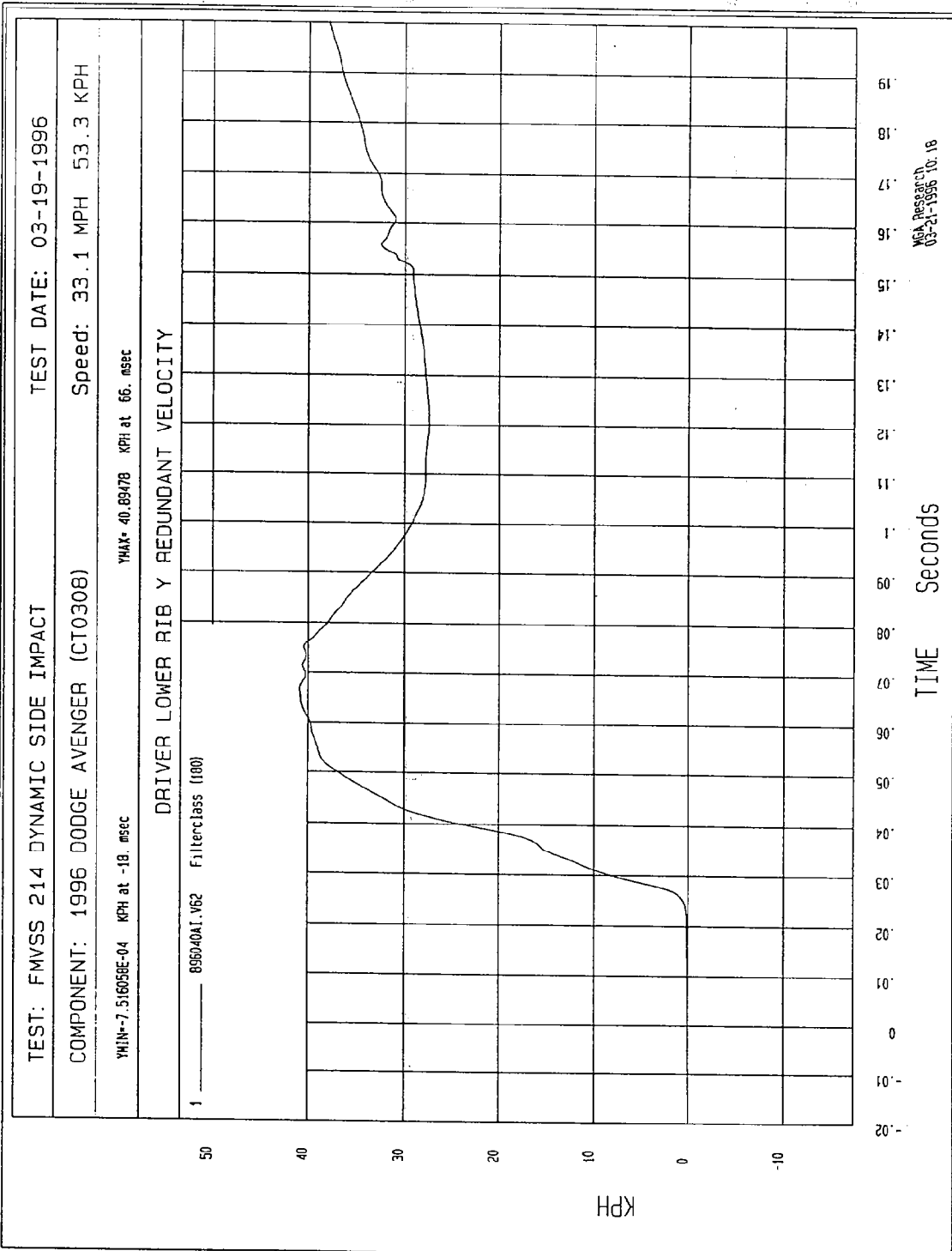
YMAX=39.01577 KPH at 71. msec

DRIVER UPPER RIB Y REDUNDANT VELOCITY





M&A Research  
 03-20-1996 10:35



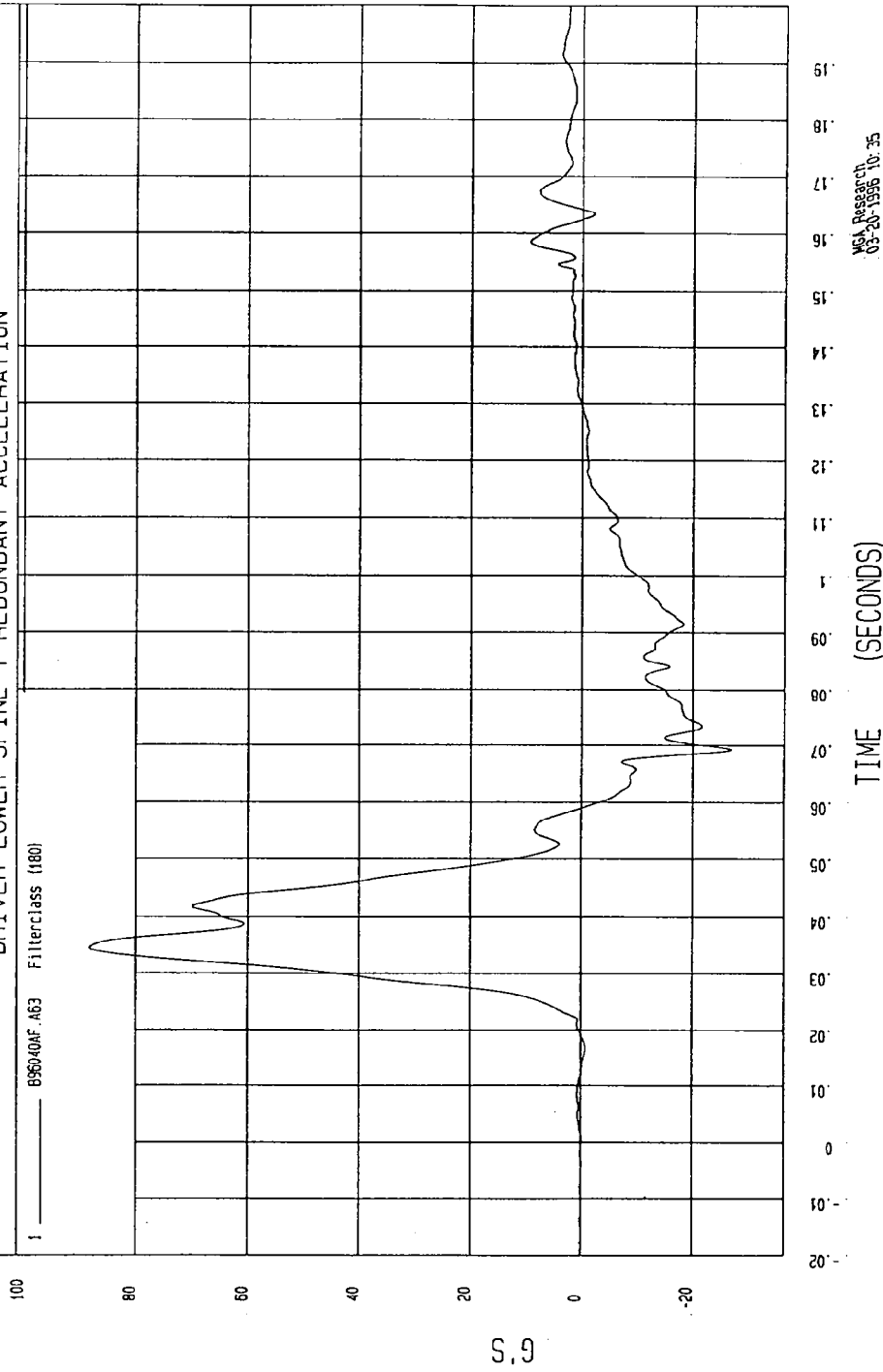
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

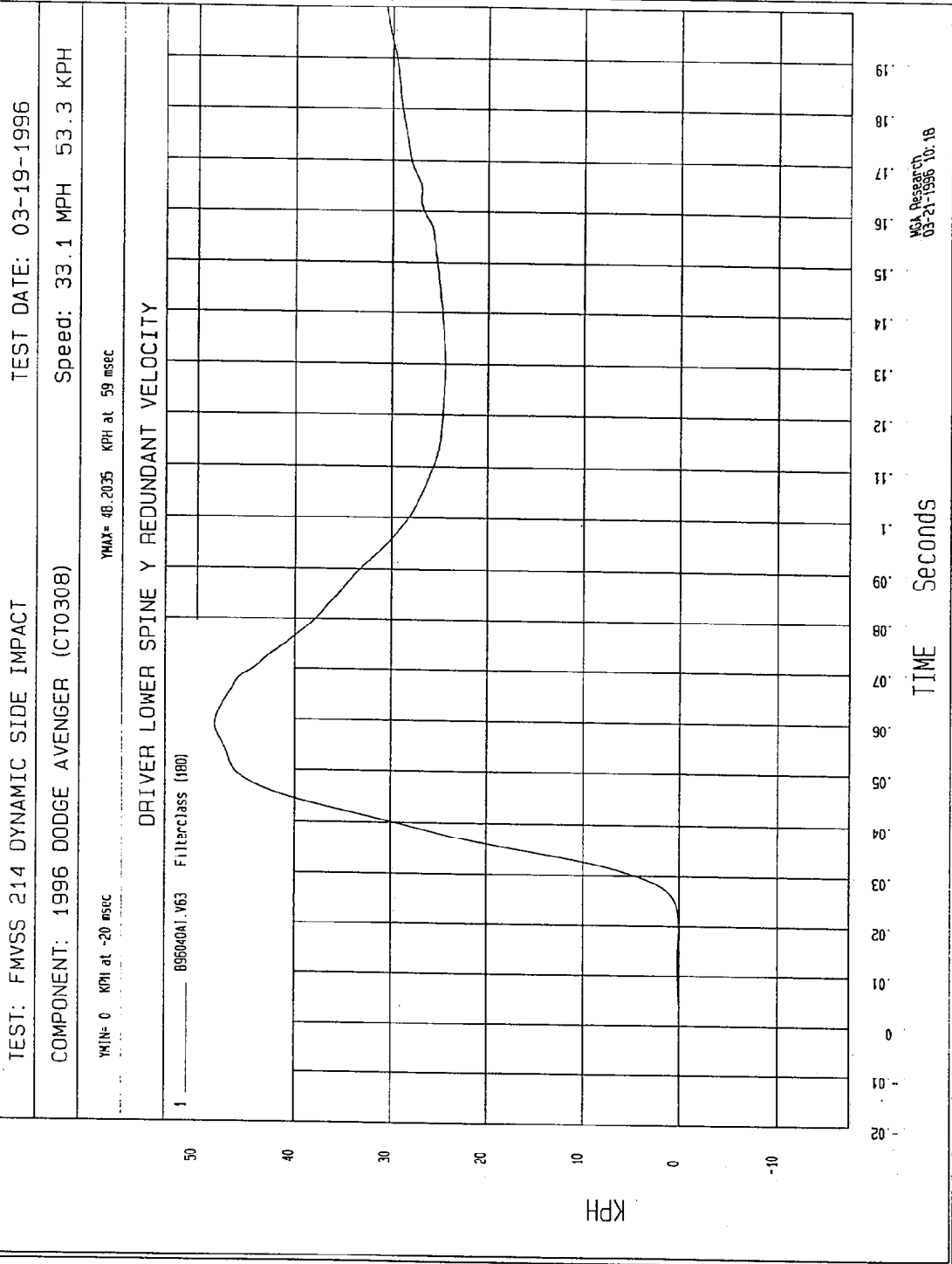
YMIN = 26.09917 G'S at 69. msec YMAX = 88.41421 G'S at 34. msec

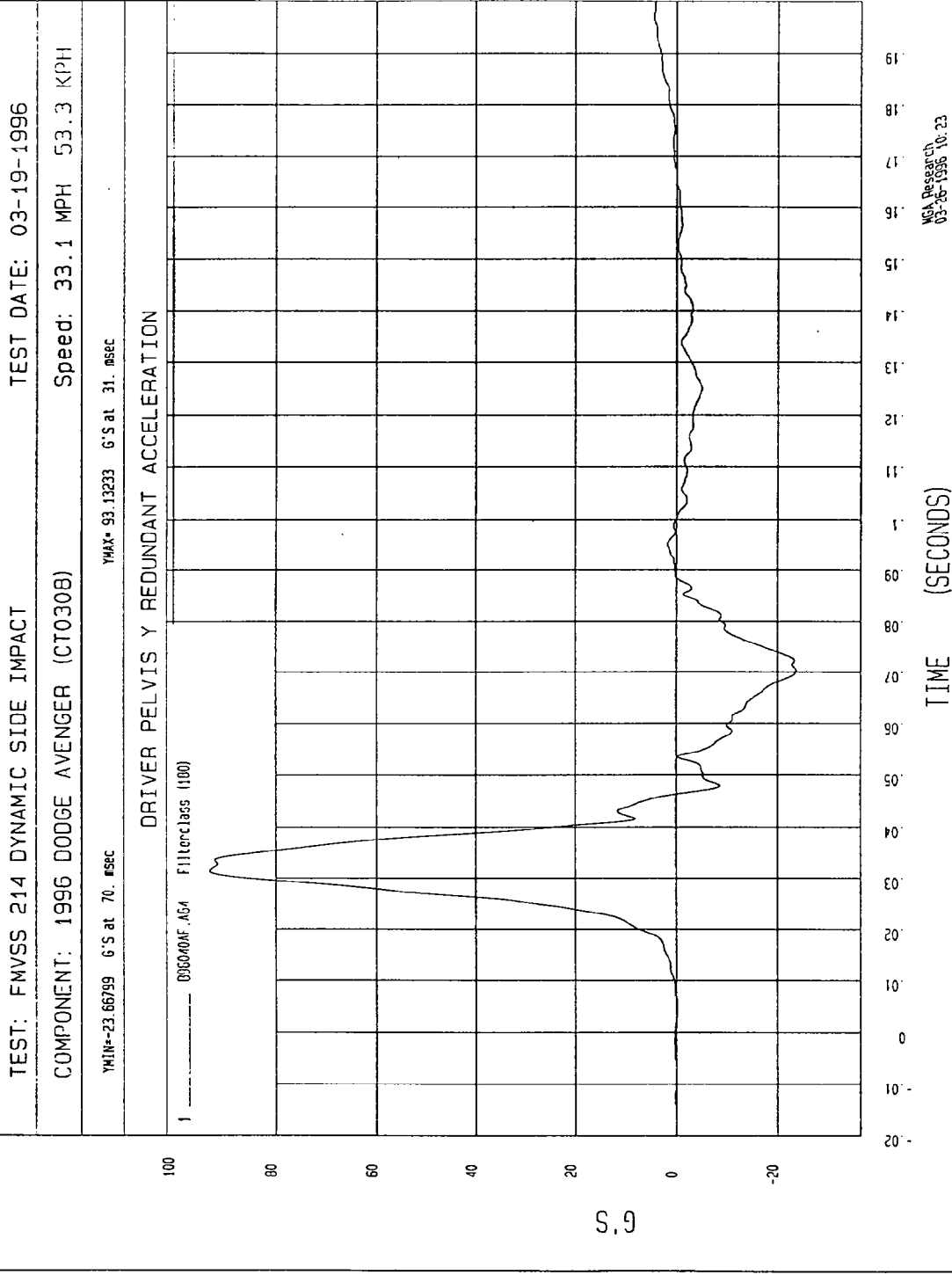
DRIVER LOWER SPINE Y REDUNDANT ACCELERATION

1 ——— B9604DAF.A63 Filterclass (160)



MEV Research  
03-20-1996 10:35





MSA Research  
03-26-1996 10: 23

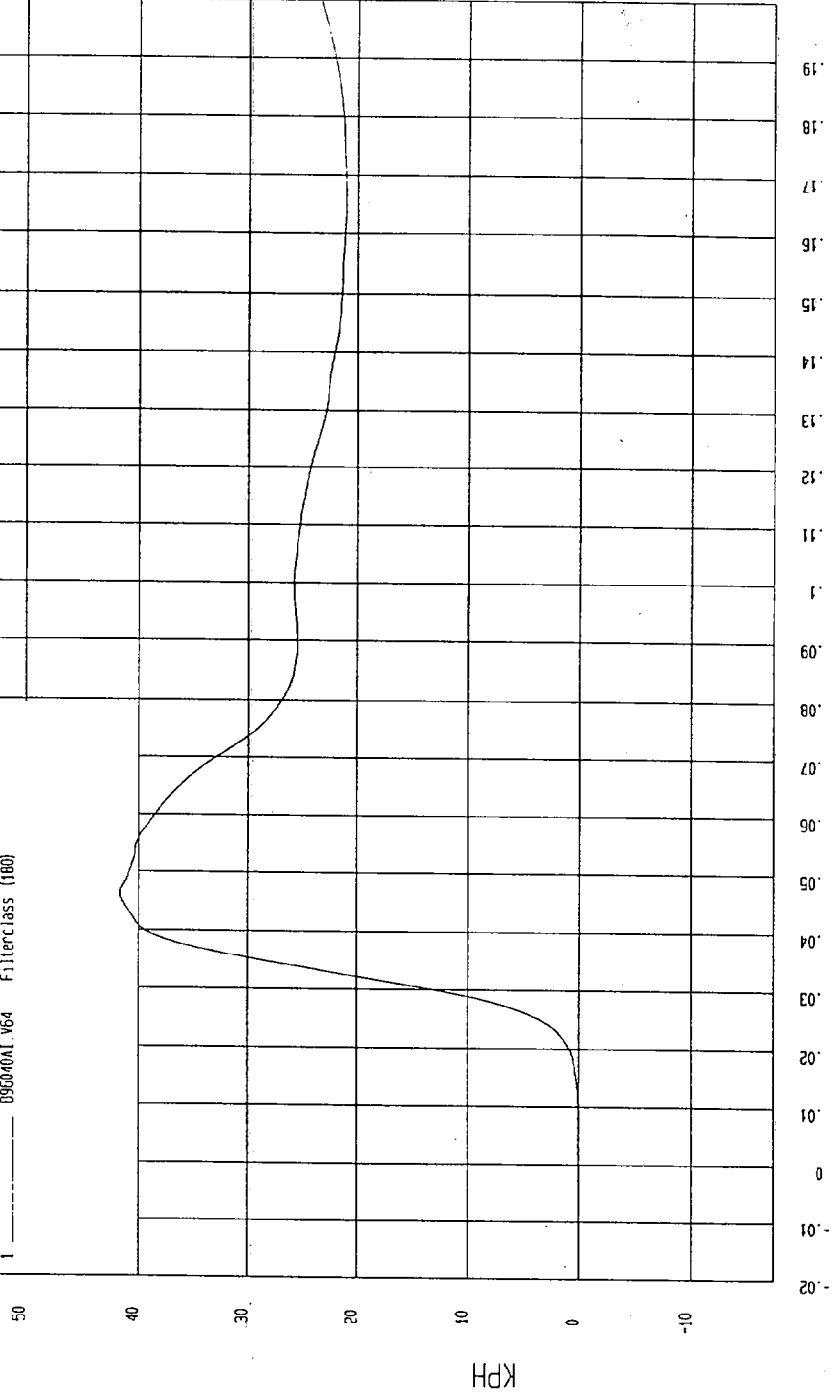
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

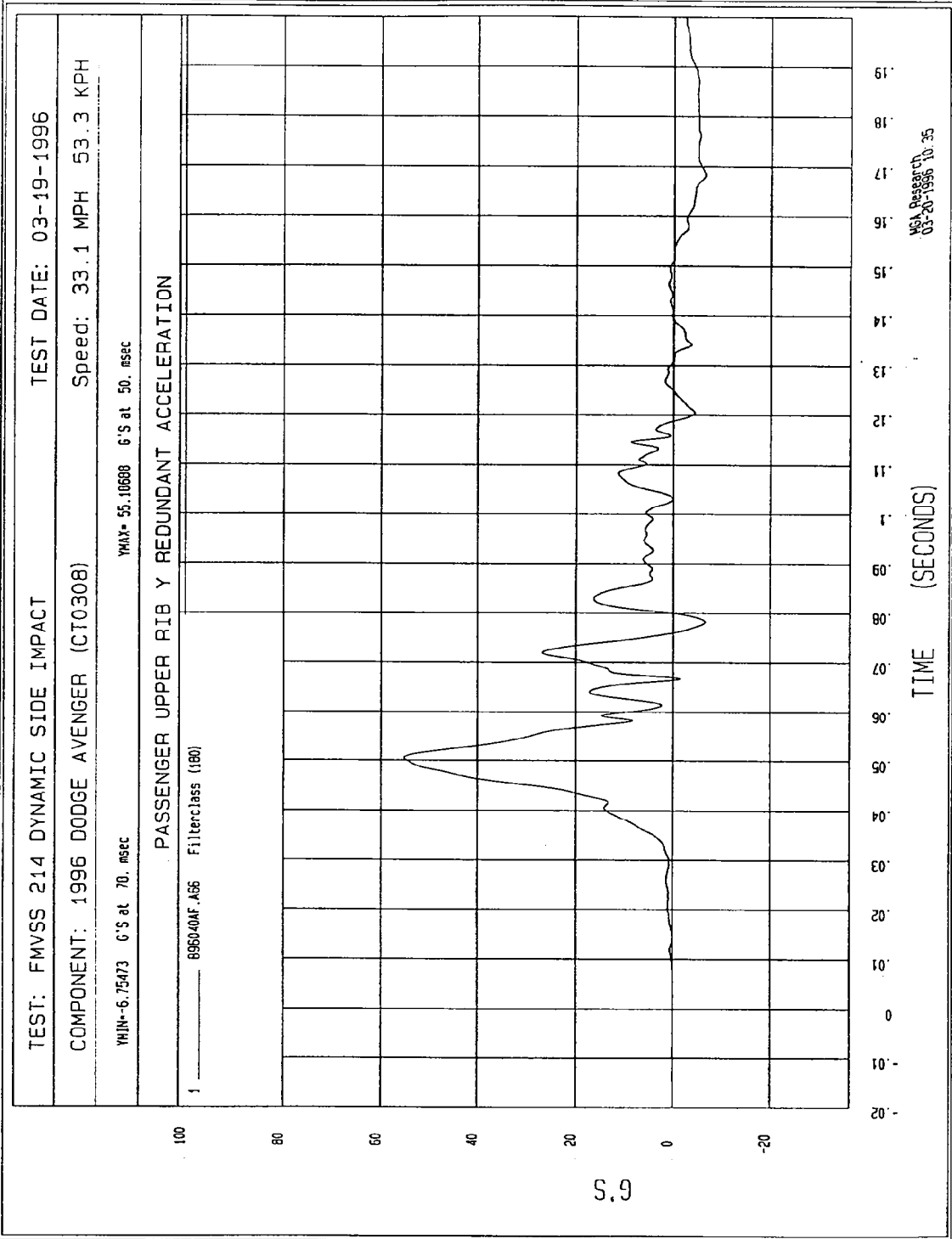
YMIN=-1.215275E-03 KPH at -16. msec YMAX= 41.61445 KPH at 46. msec

DRIVER PELVIS Y REDUNDANT VELOCITY

1 - - - - - D95040A1 V64 FilterClass (180)



NGI Research  
03-20-1996 10:24



TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

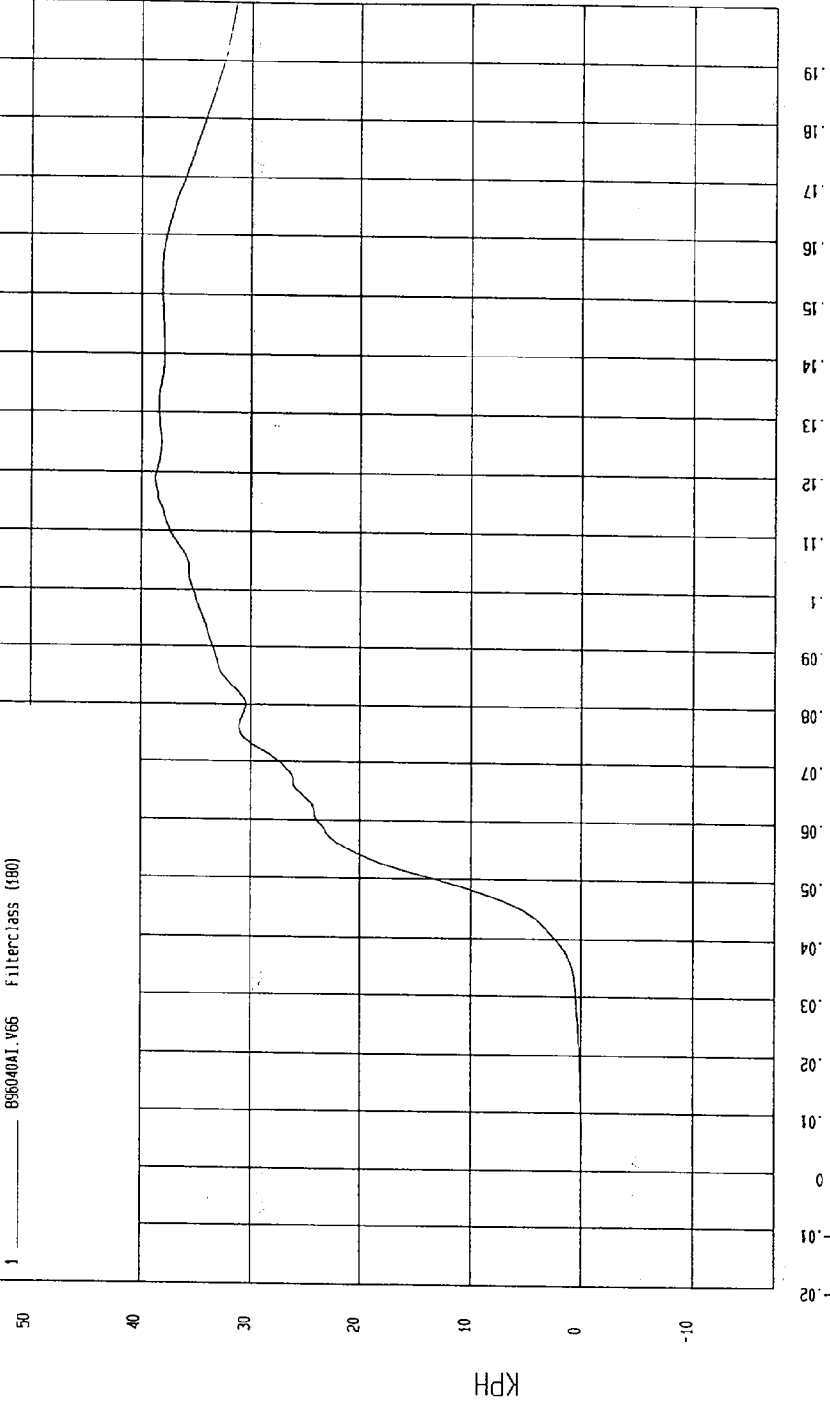
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN: 013041.02 KPH at 7.1 msec

YMAX: 30.7031 KPH at 110 msec

PASSENGER UPPER RIB Y REDUNDANT VELOCITY

1 — 896040A1.V65 Filterclass (180)



MCA Research  
03-21-1996 10:19

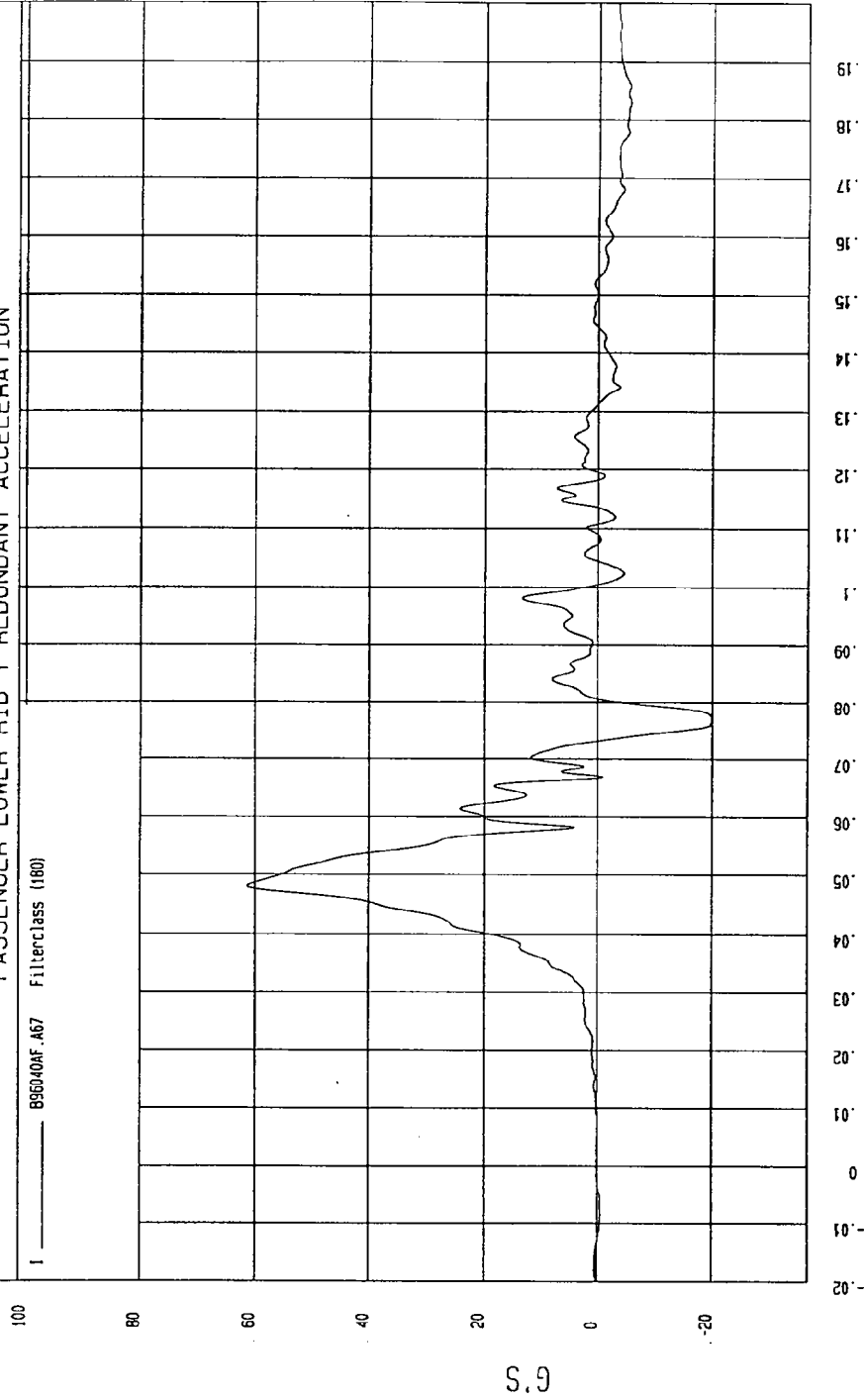
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-19.9767 G'S at 77. msec YMAX= 61.33924 G'S at 48 msec

PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

1 ——— B96040AF.A67 Filterclass (180)



MSA Research  
03-20-1996 10:35

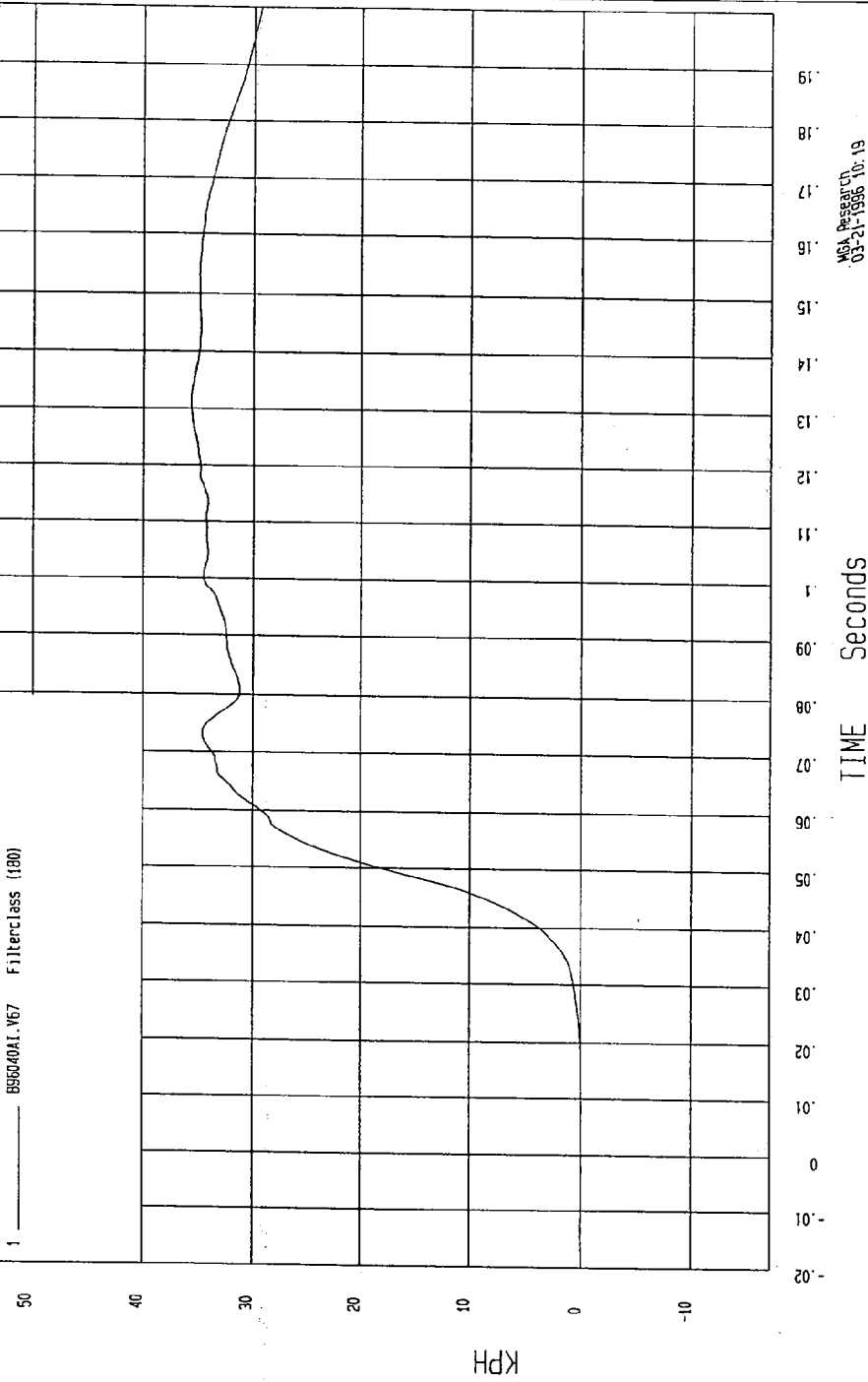
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-7.516784E-02 KPH at 8.5 msec YMAX=35.71232 KPH at 131 msec

PASSENGER LOWER RIB Y REDUNDANT VELOCITY

1 896040A1.V67 Filterclass (180)



MGA Research  
03-21-1996 10:19

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

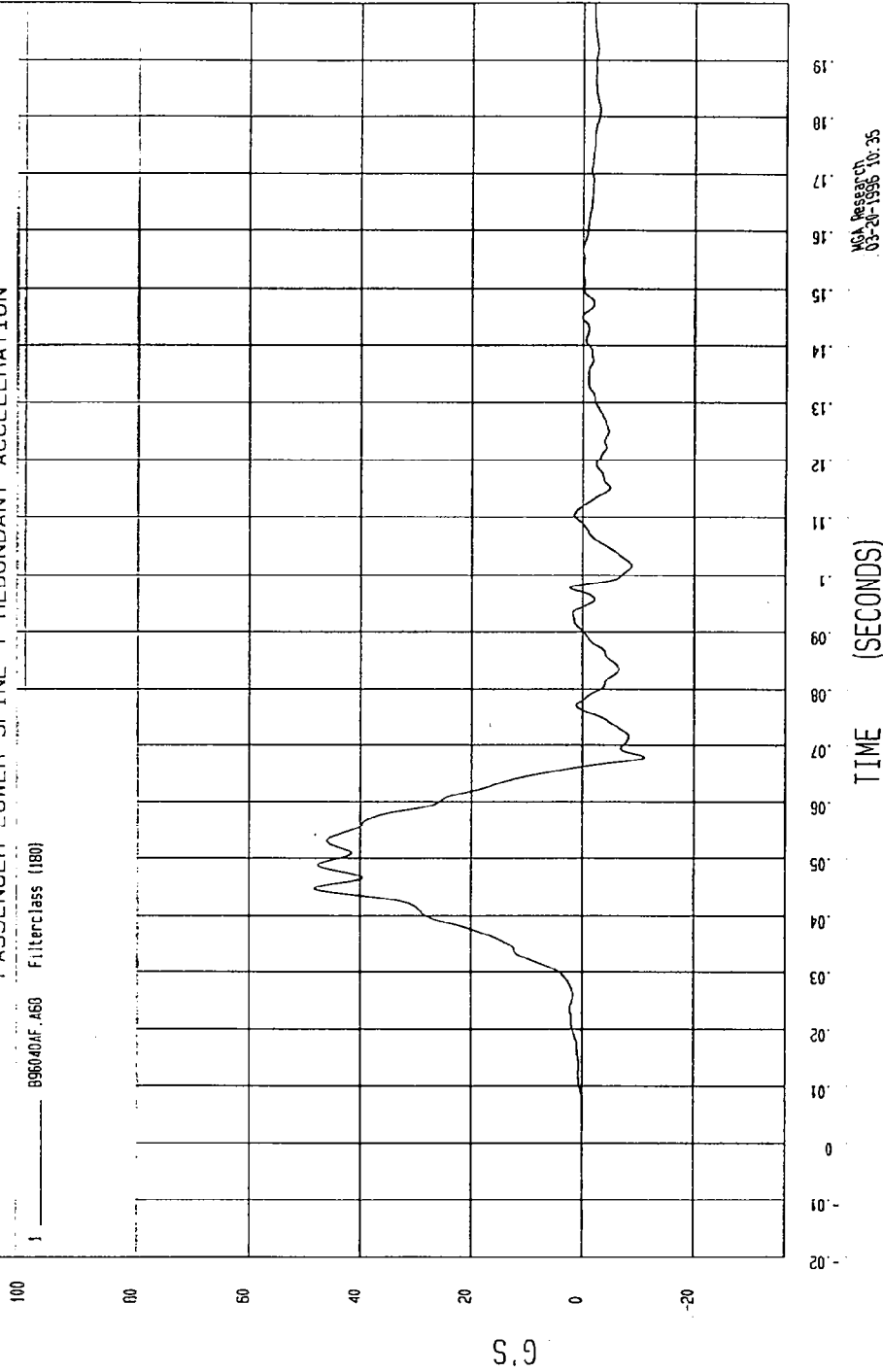
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-11.10809 G'S at 67. msec

YMAX=48.43466 G'S at 44. msec

PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 896040AF.460 Filterclass (180)



MCA Research  
03-20-1996 10:35

TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

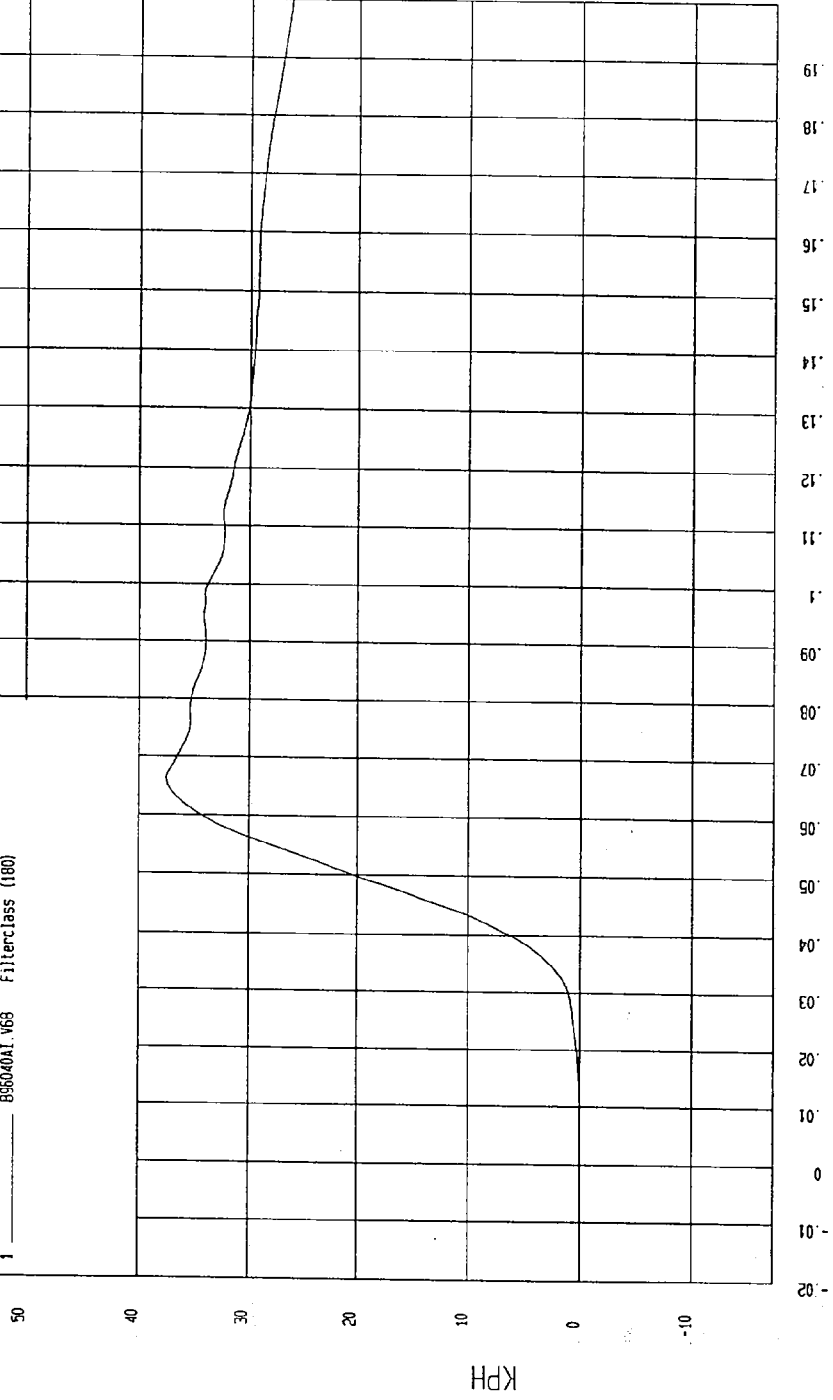
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-1.567507E-02 KPH at -.09 msec

YMAX= 37.5452 KPH at 56. msec

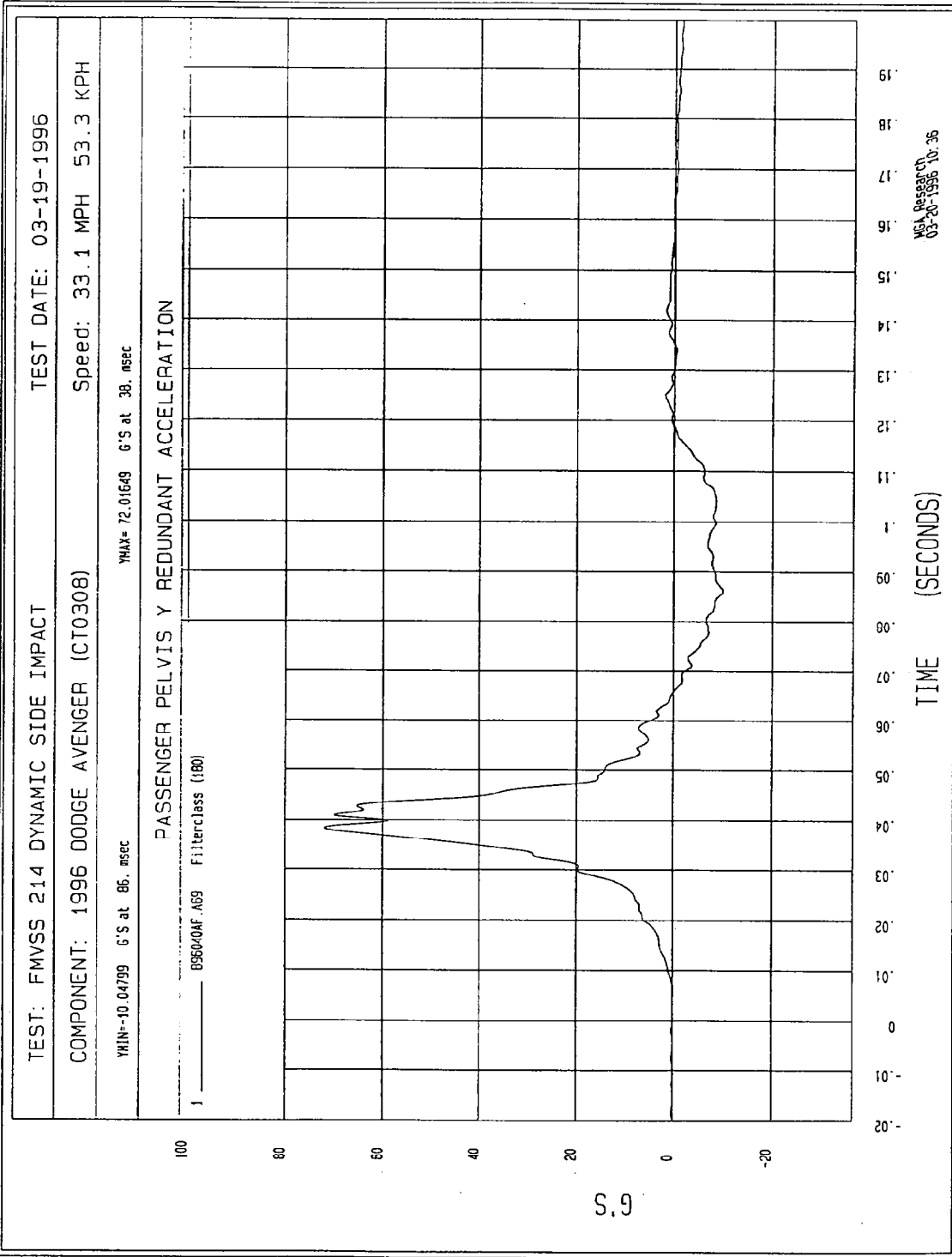
PASSENGER LOWER SPINE Y REDUNDANT VELOCITY

1 — 896040A1.V68 FilterClass (180)



NSA Research  
03-21-1996 10:19

TIME Seconds



TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

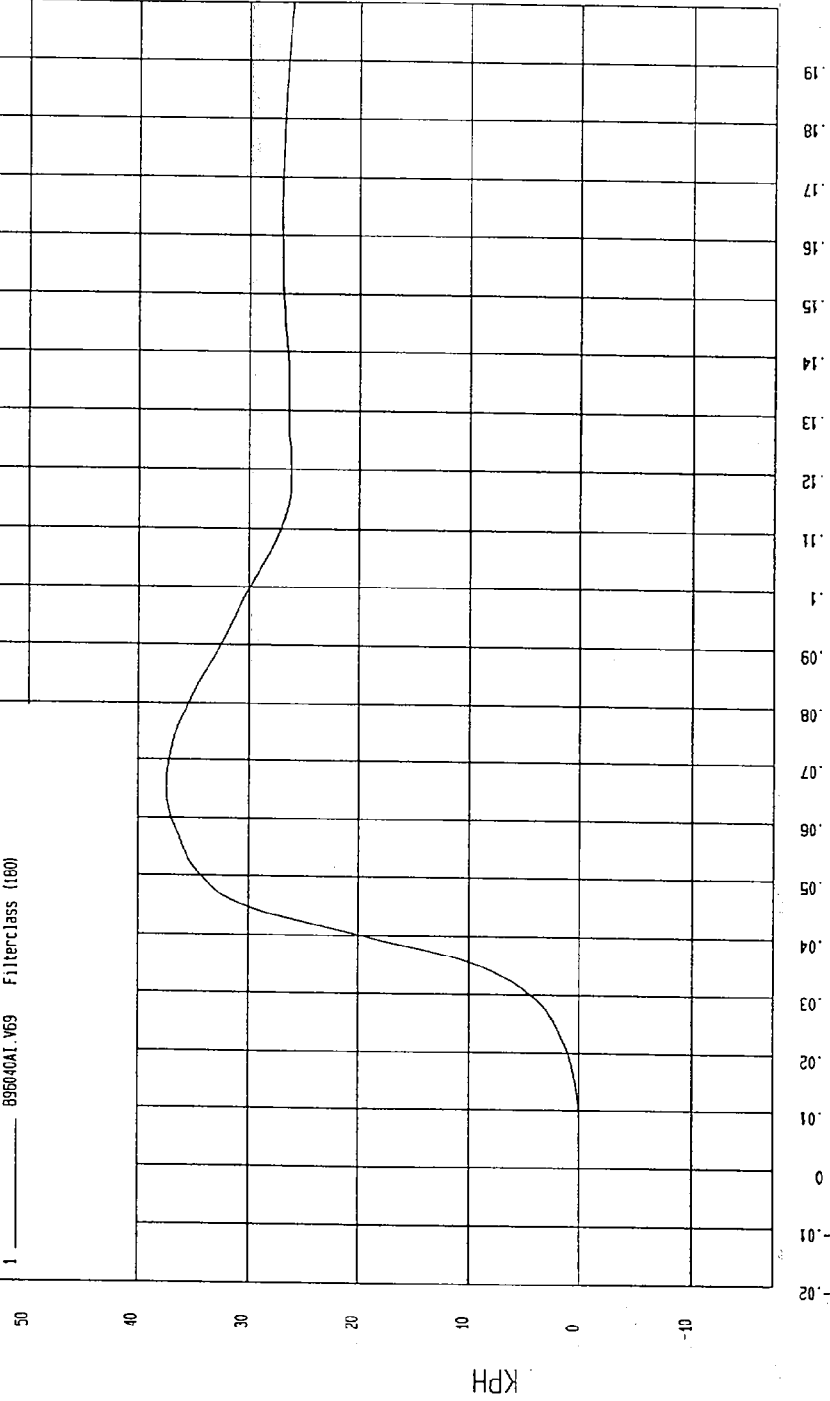
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN= 0 KPH at -20 msec

YMAX= 37.52903 KPH at 65. msec

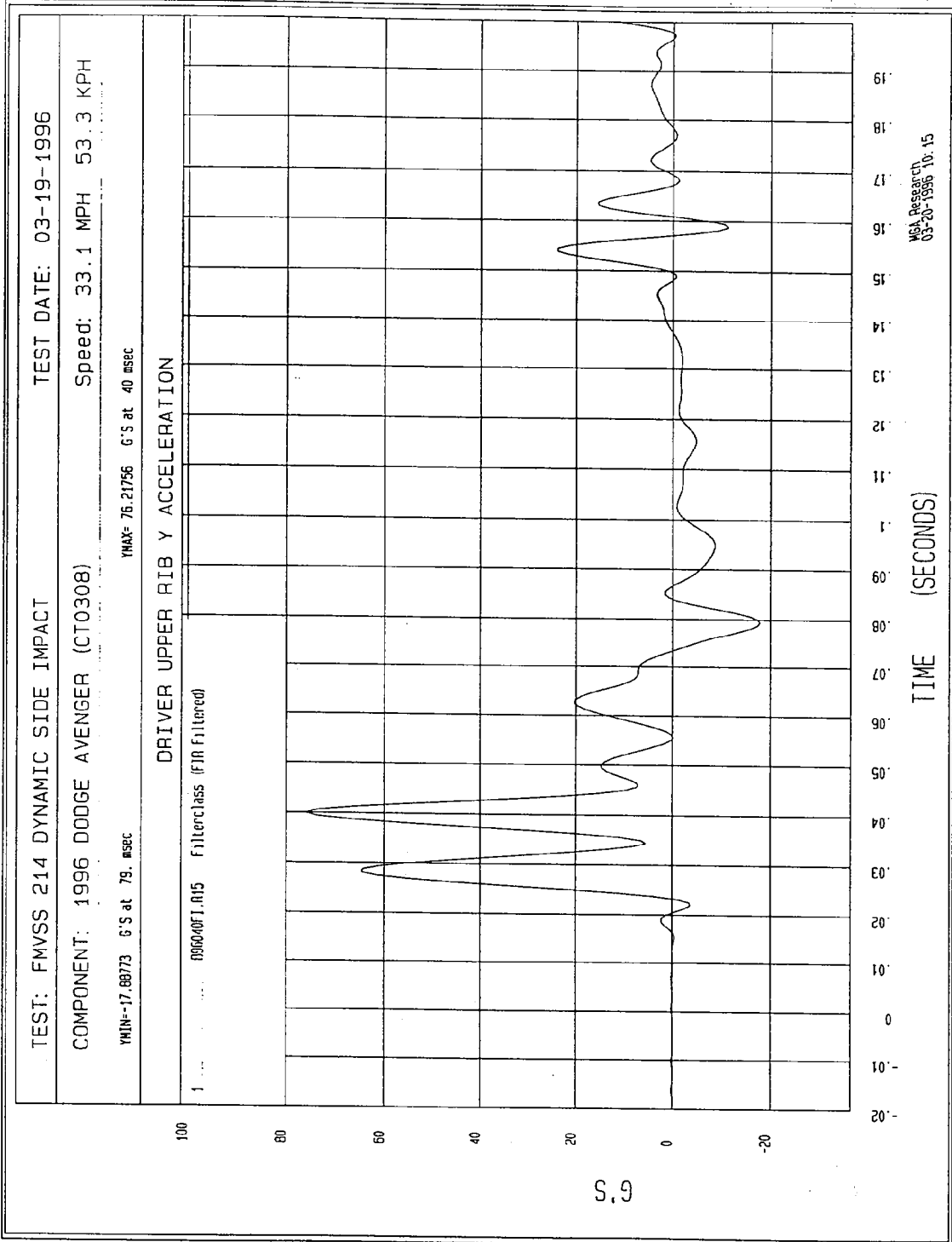
PASSENGER PELVIS Y REDUNDANT VELOCITY

1 ——— 895040A1.V69 Filterclass (180)



MCA Research  
03-21-1996 10.19

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA



TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

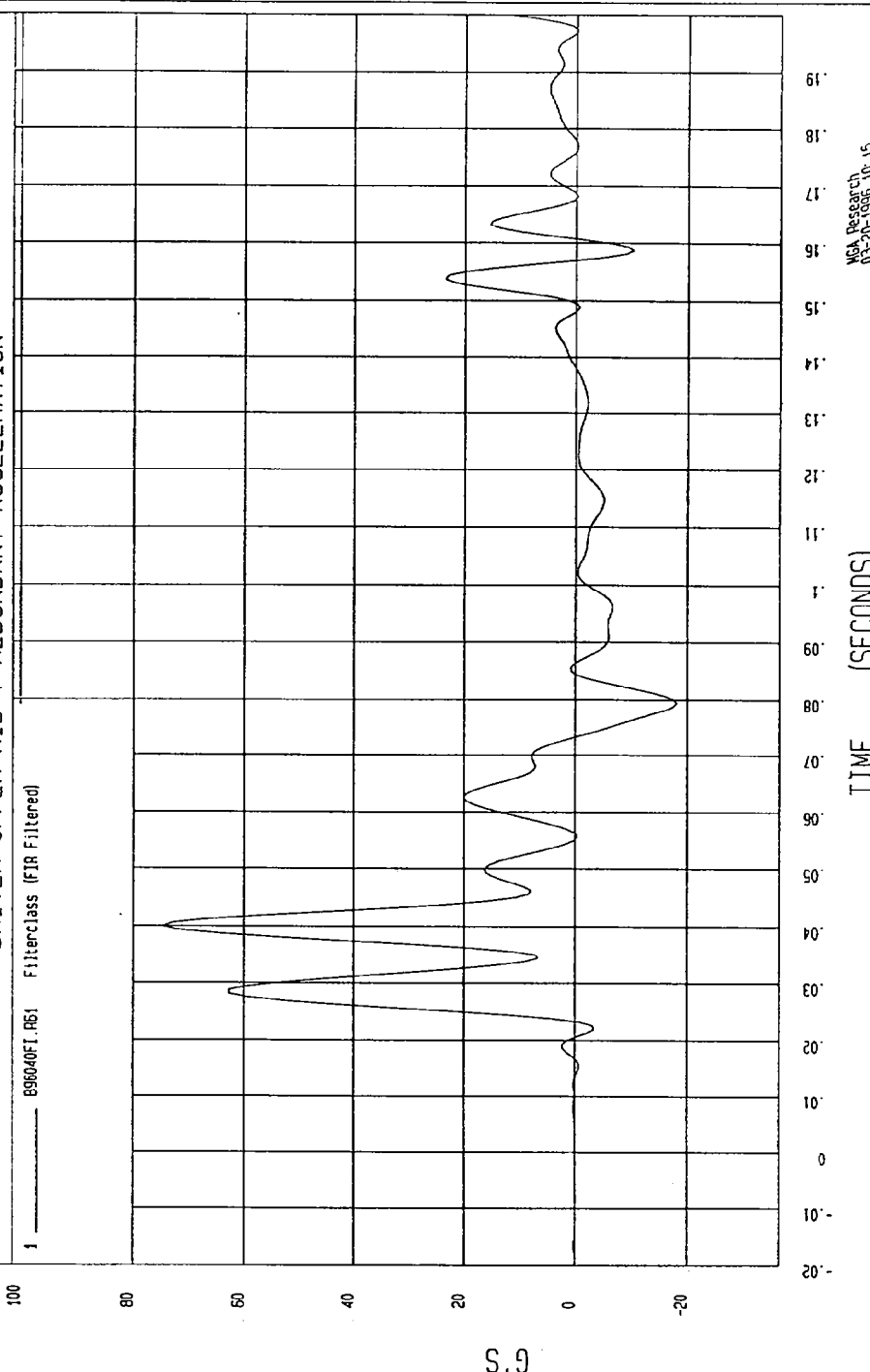
COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-10.09066 G'S at 79. msec

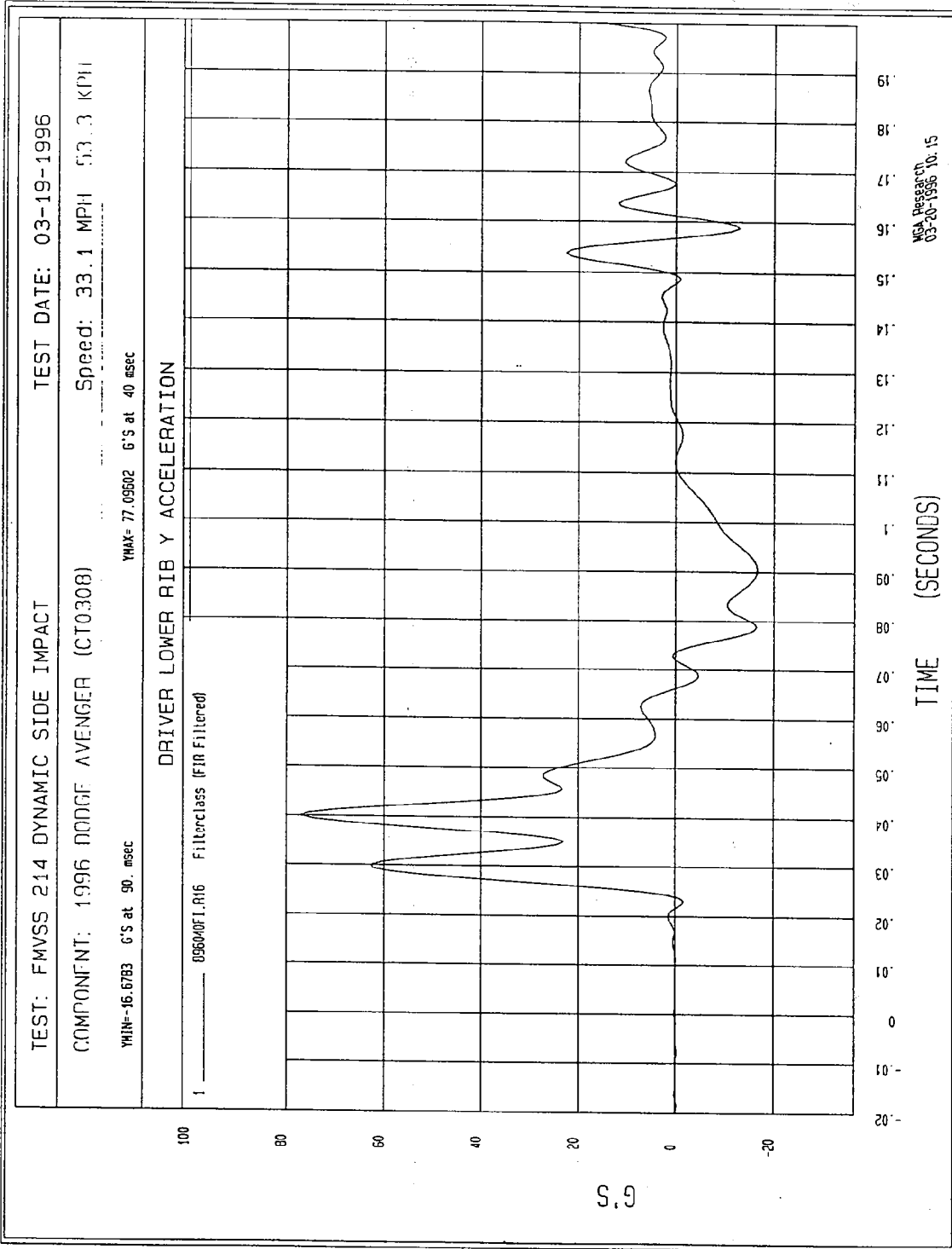
YMAX= 74.77647 G'S at 40 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ B96040F1.RB1 Filterclass (FIR Filtered)



MCA Research  
03-20-1996 10:15



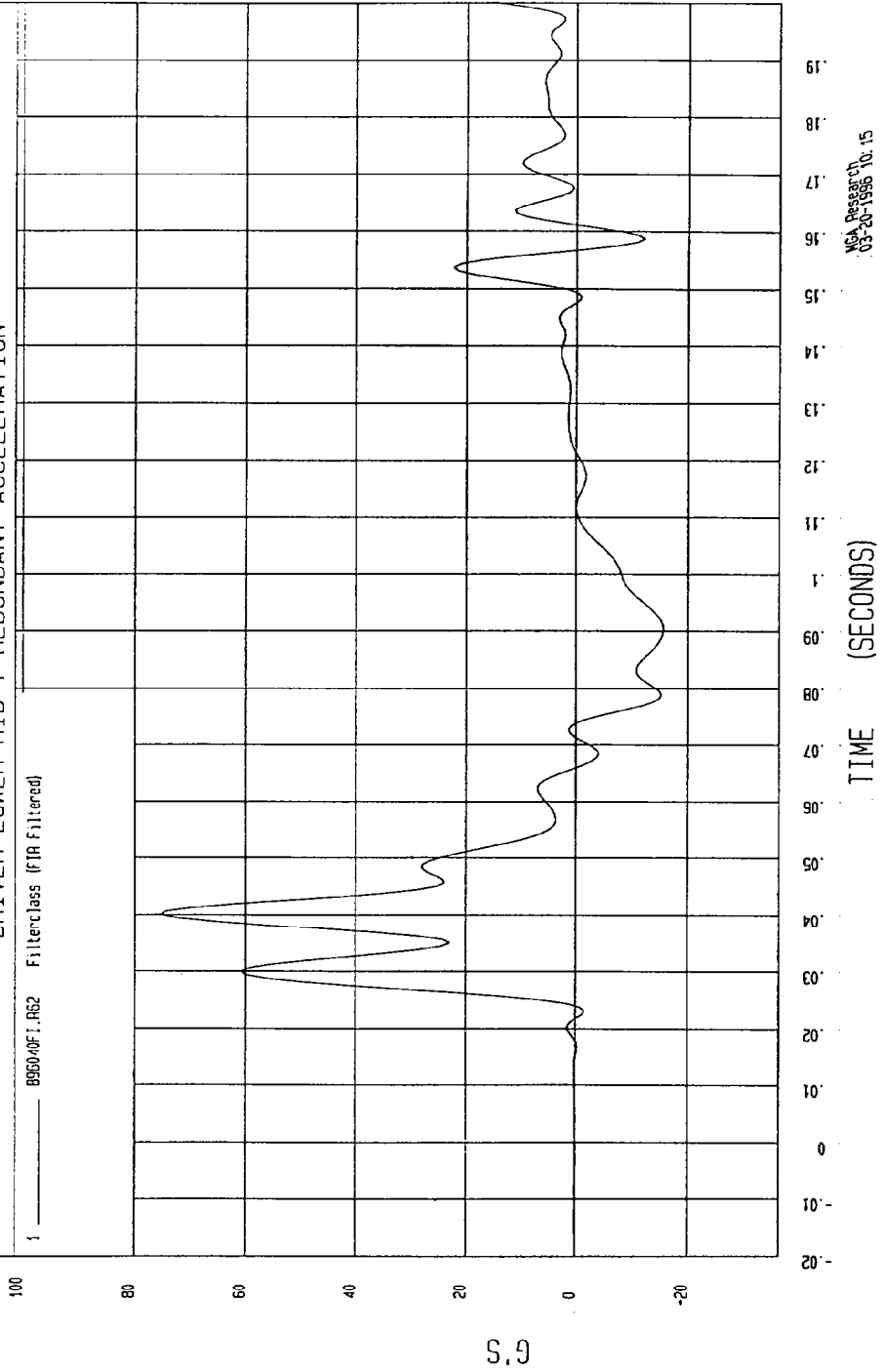
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-15.65522 G'S at 90. msec YMAX= 75.3984 G'S at 40 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ 8950/0F1.R62 Filterclass (FIR Filtered)



NSI Report  
03-20-1996 10:15

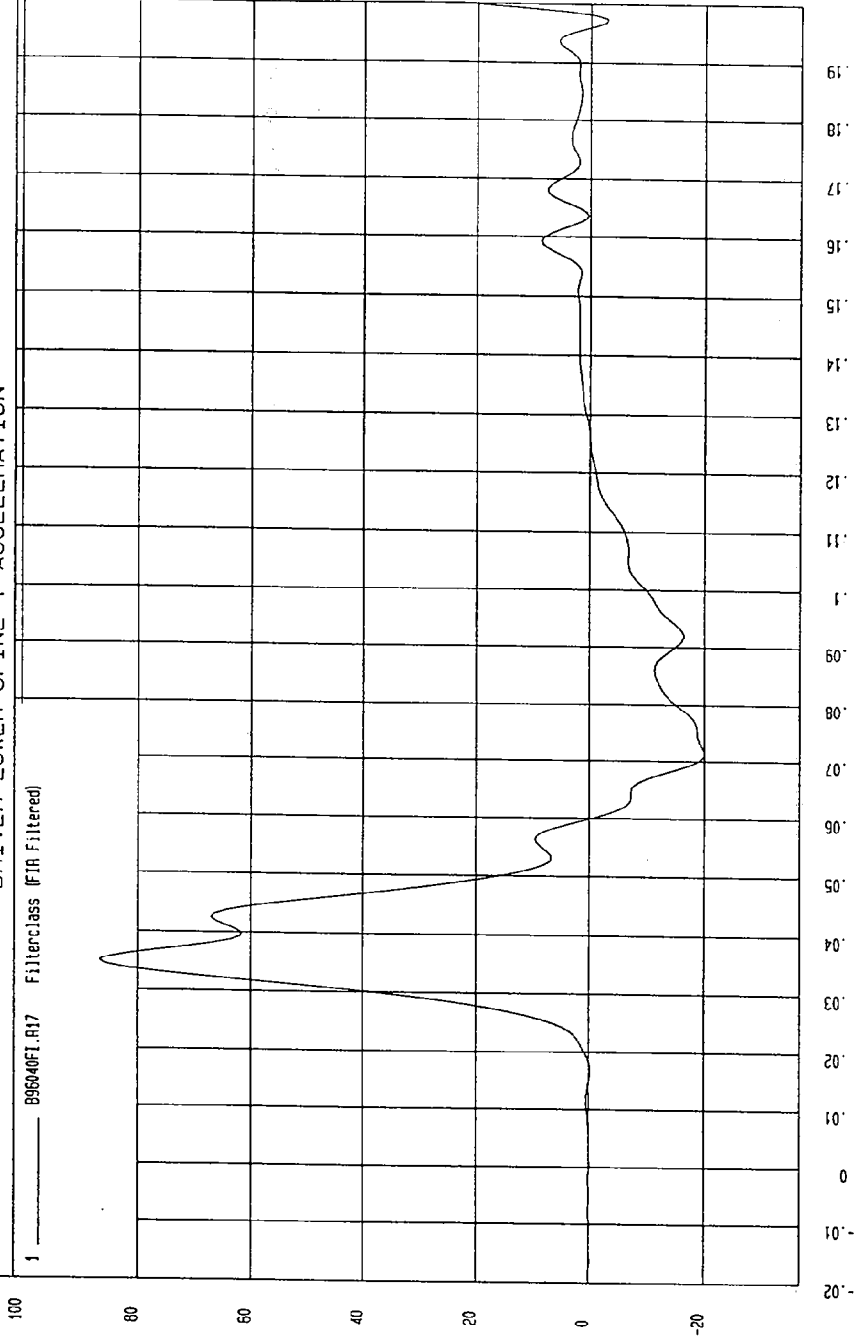
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-20.08202 G'S at 71. msec YMAX= 96.61668 G'S at 35 msec

DRIVER LOWER SPINE Y ACCELERATION

1 895040FL R17 Filterclass (FIR Filtered)



MCA Research  
03-20-1996 10:15

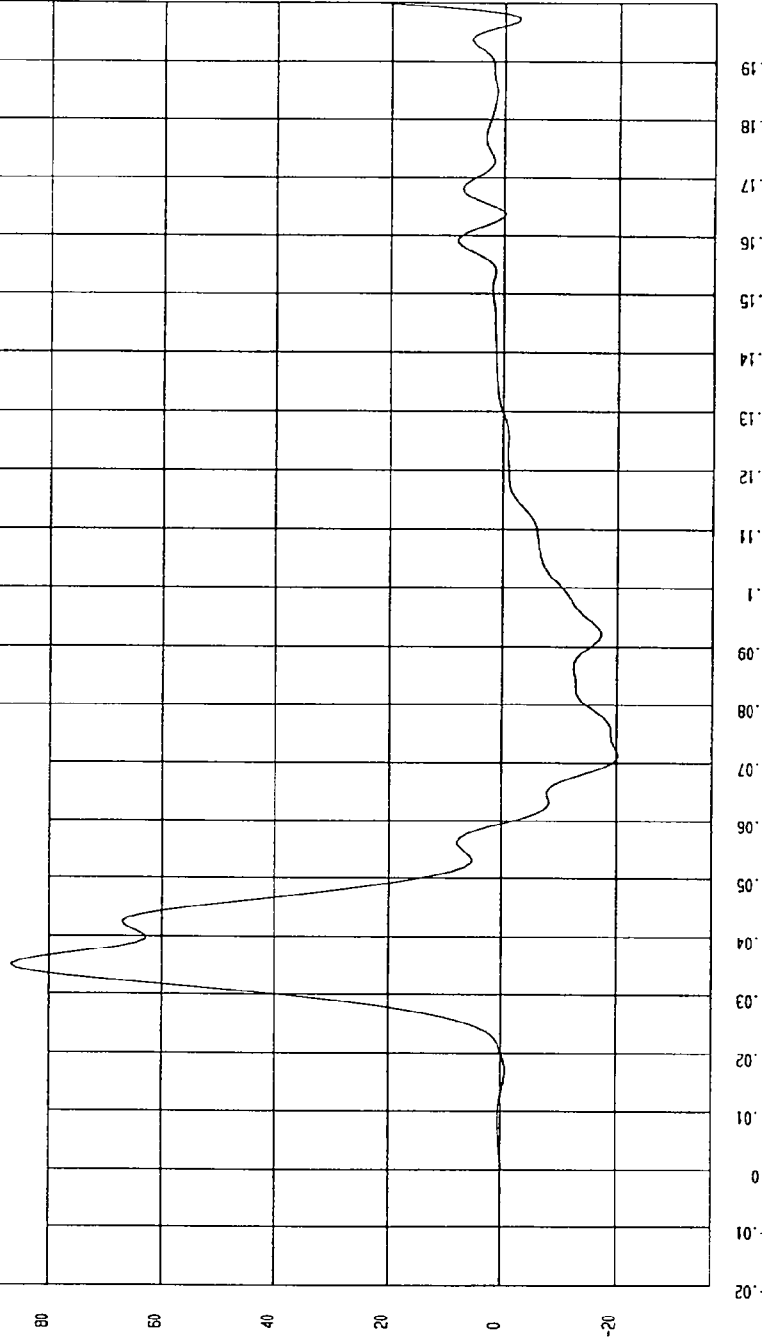
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

YMIN=-20.22464 G'S at 71. msec YMAX= 86.85543 G'S at 35 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION

1 ——— B95040F1.R63 Filter-class (FIR filtered)



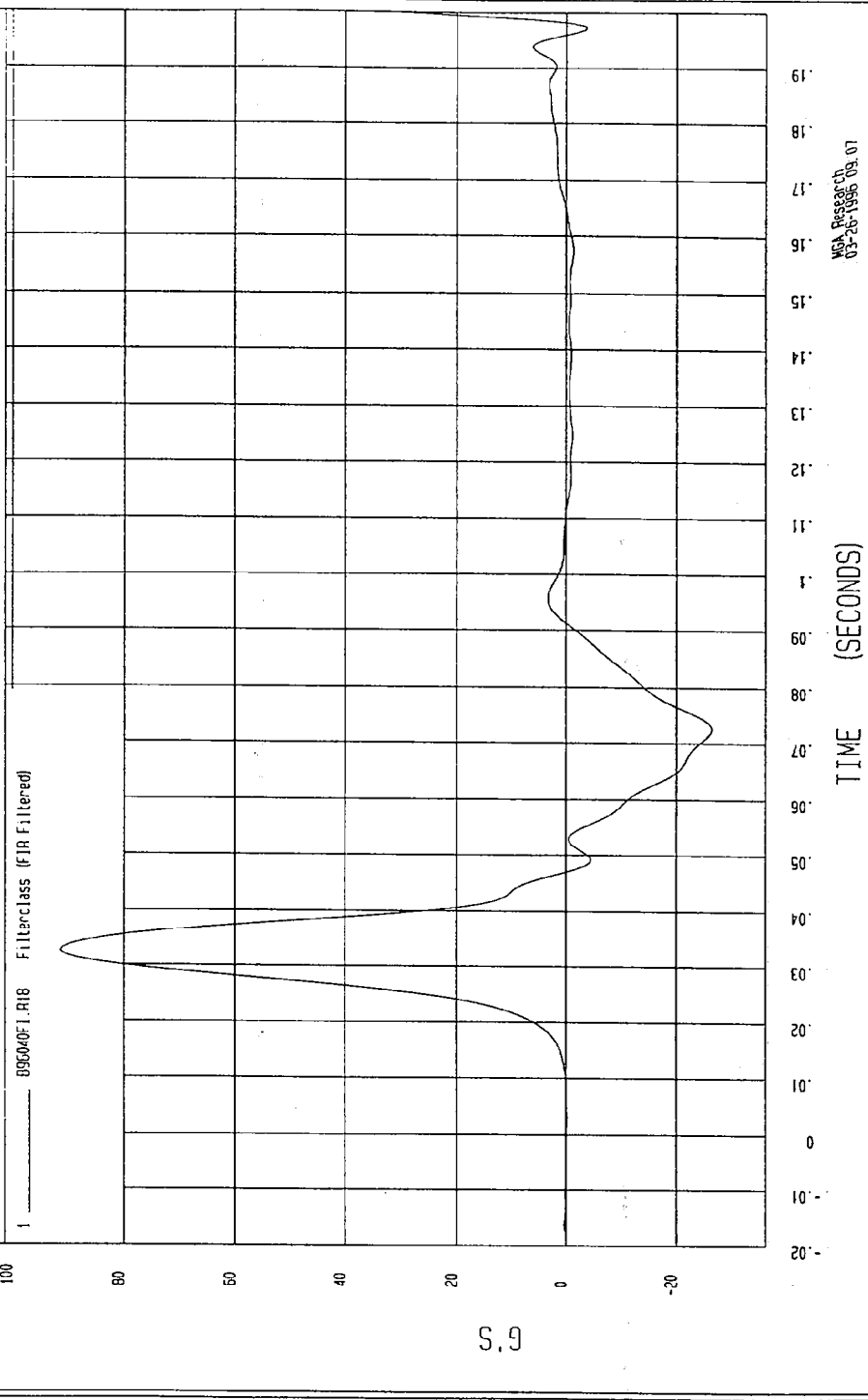
WEA Research  
03-20-1996 10:15

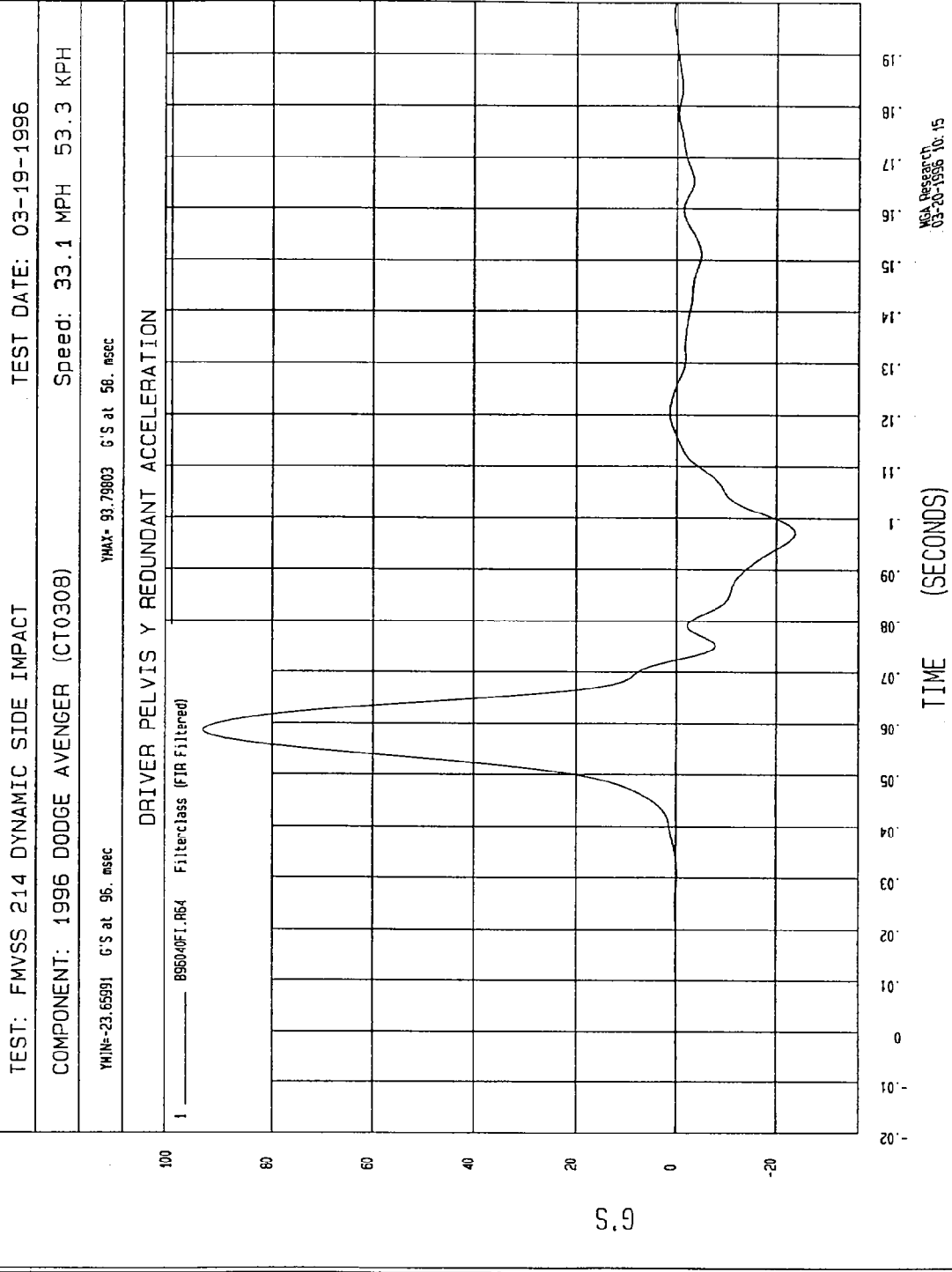
TEST: FMVSS 214 DYNAMIC SIDE IMPACT TEST DATE: 03-19-1996

COMPONENT: 1996 DODGE AVENGER (CT0308) Speed: 33.1 MPH 53.3 KPH

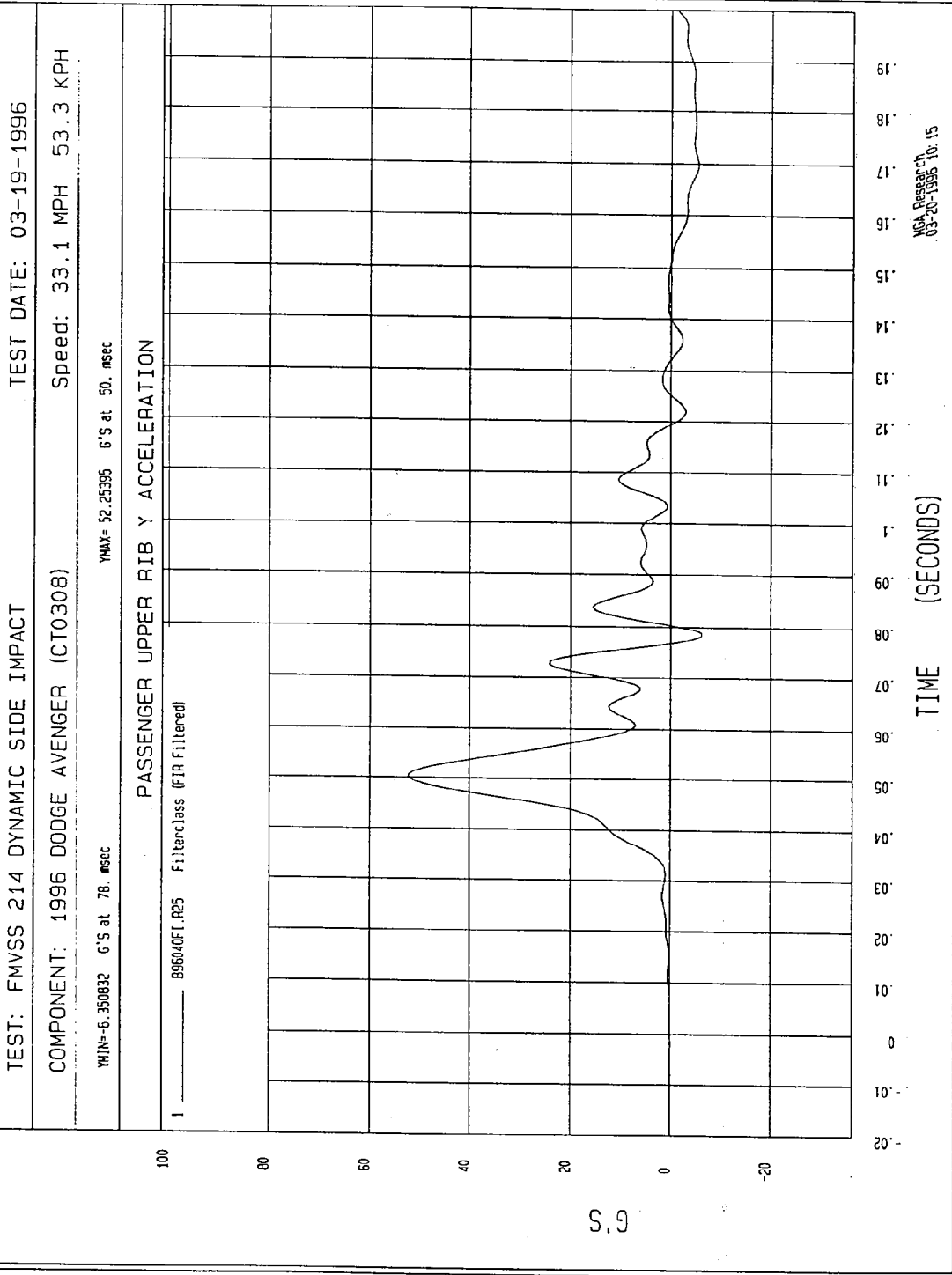
YMIN=-26.49758 G'S at 72. msec YMAX= 91.55455 G'S at 32. msec

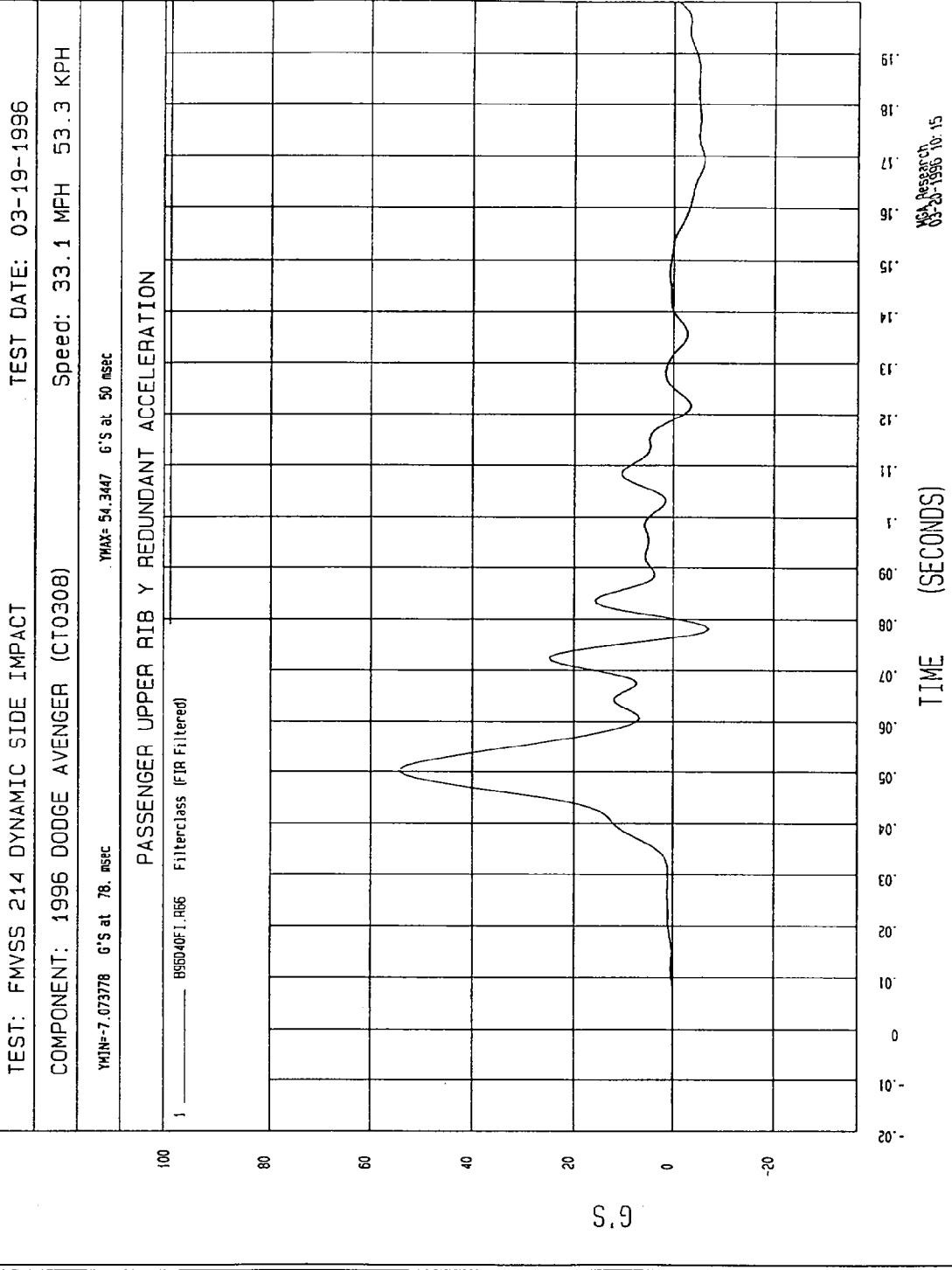
DRIVER PELVIS Y ACCELERATION

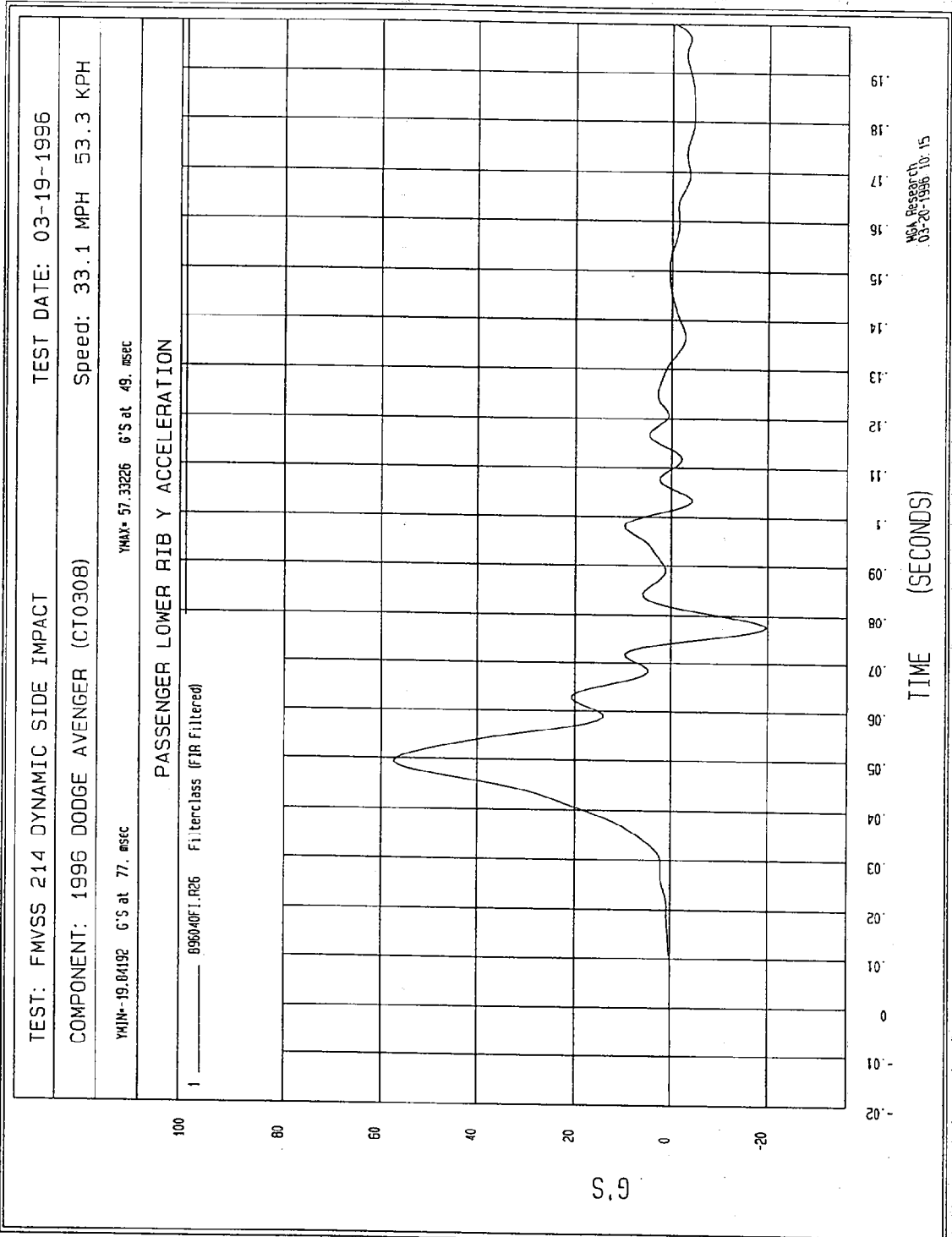


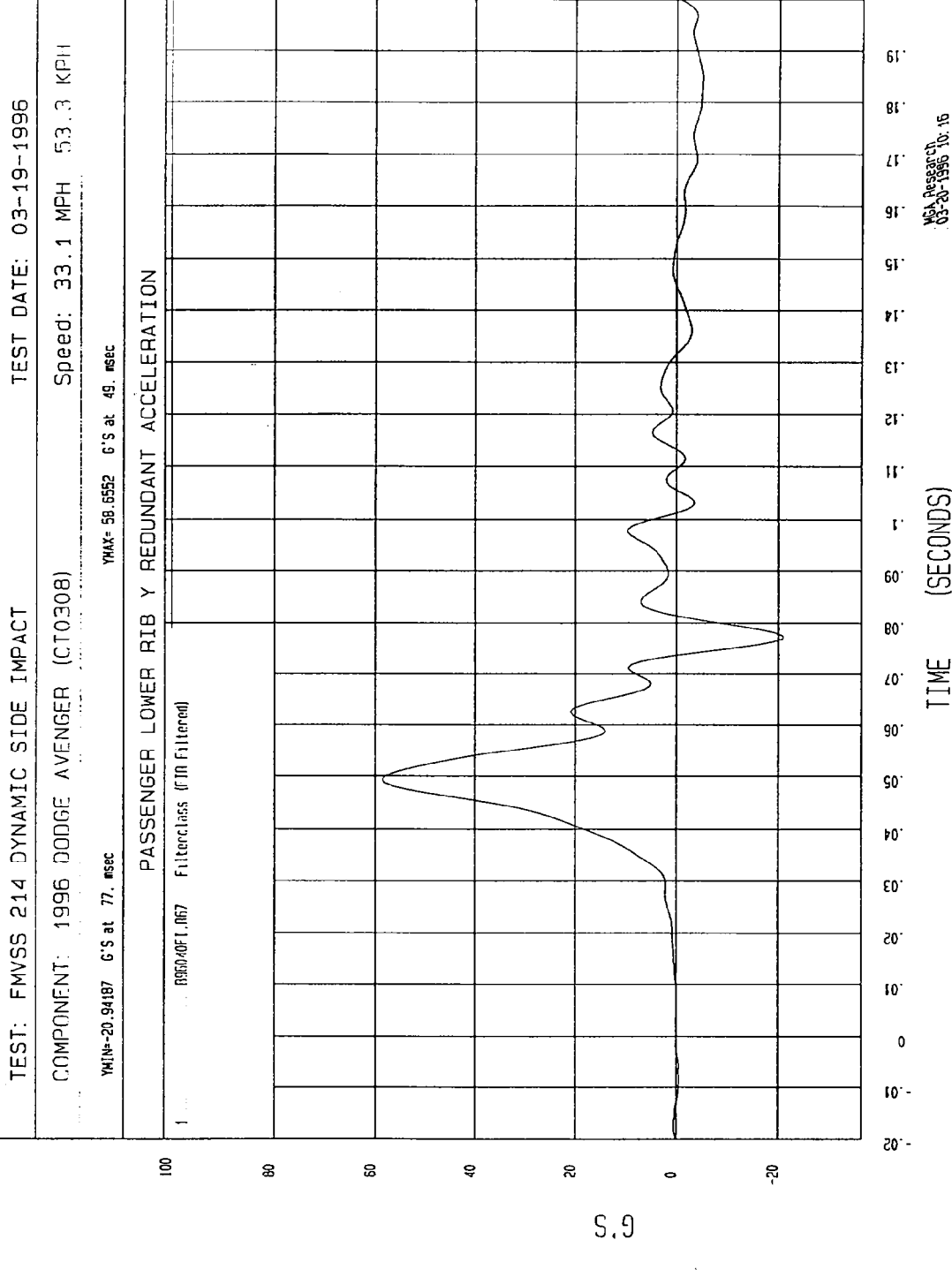


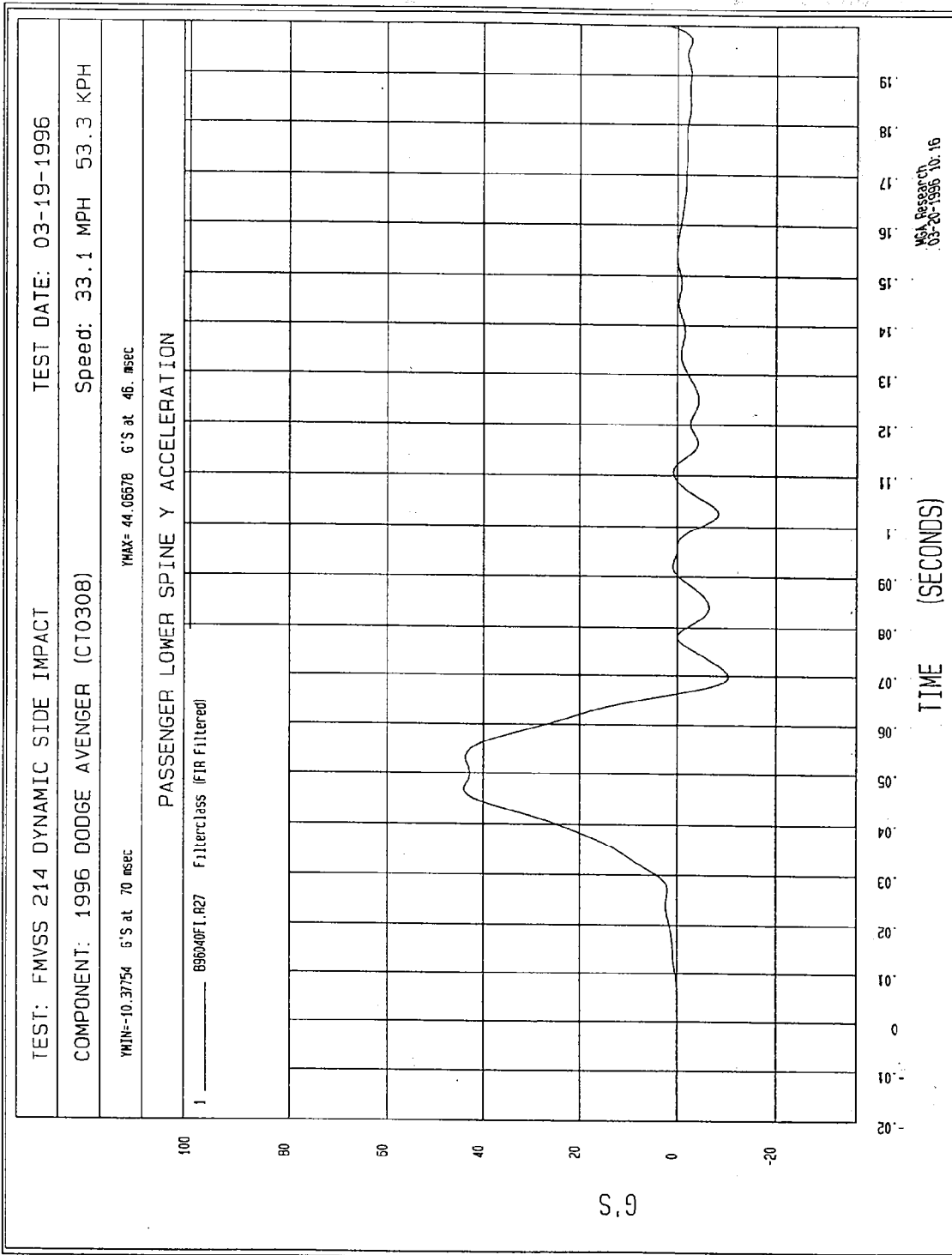
MCA Research  
 03-20-1996 10:15

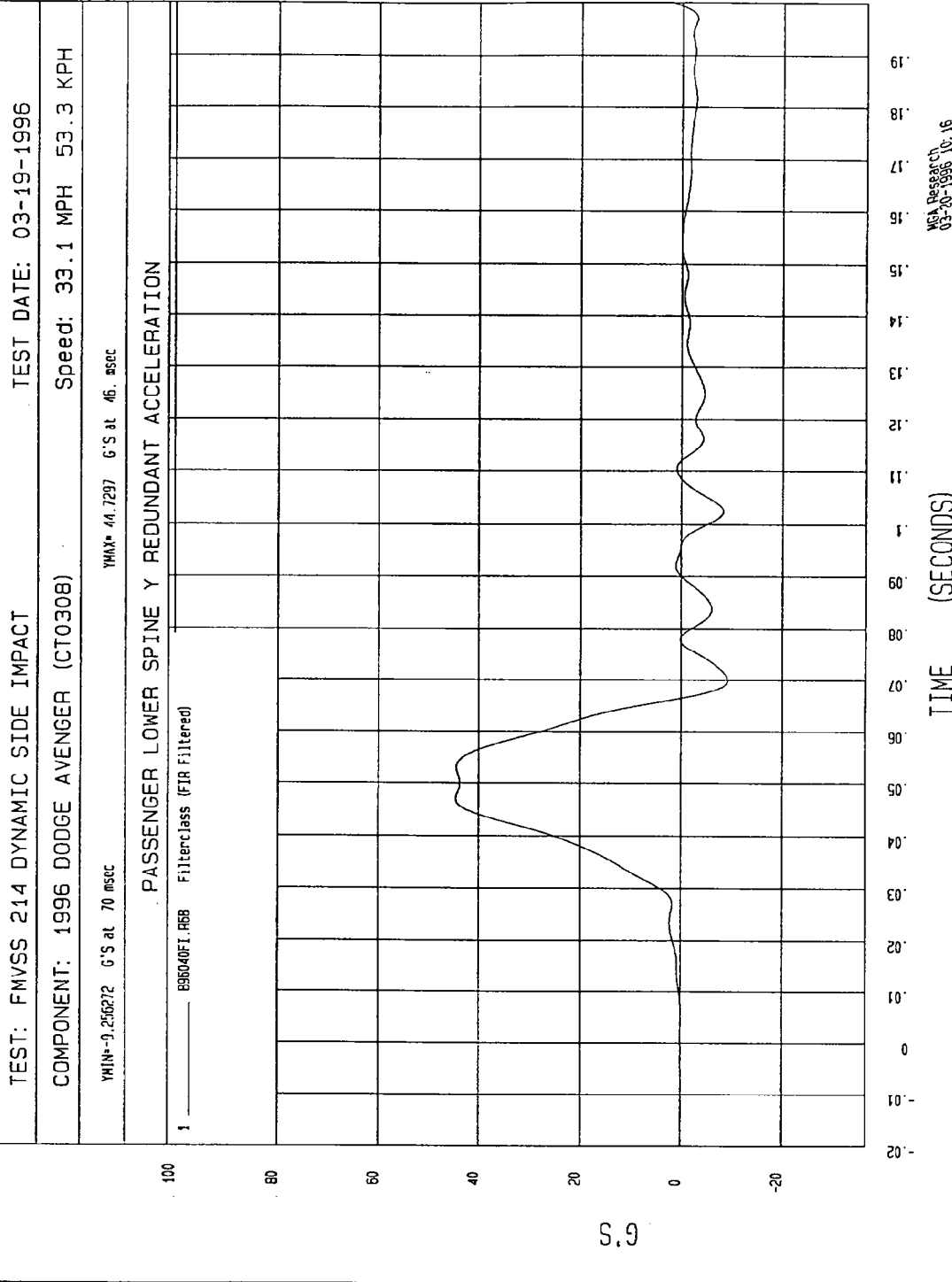


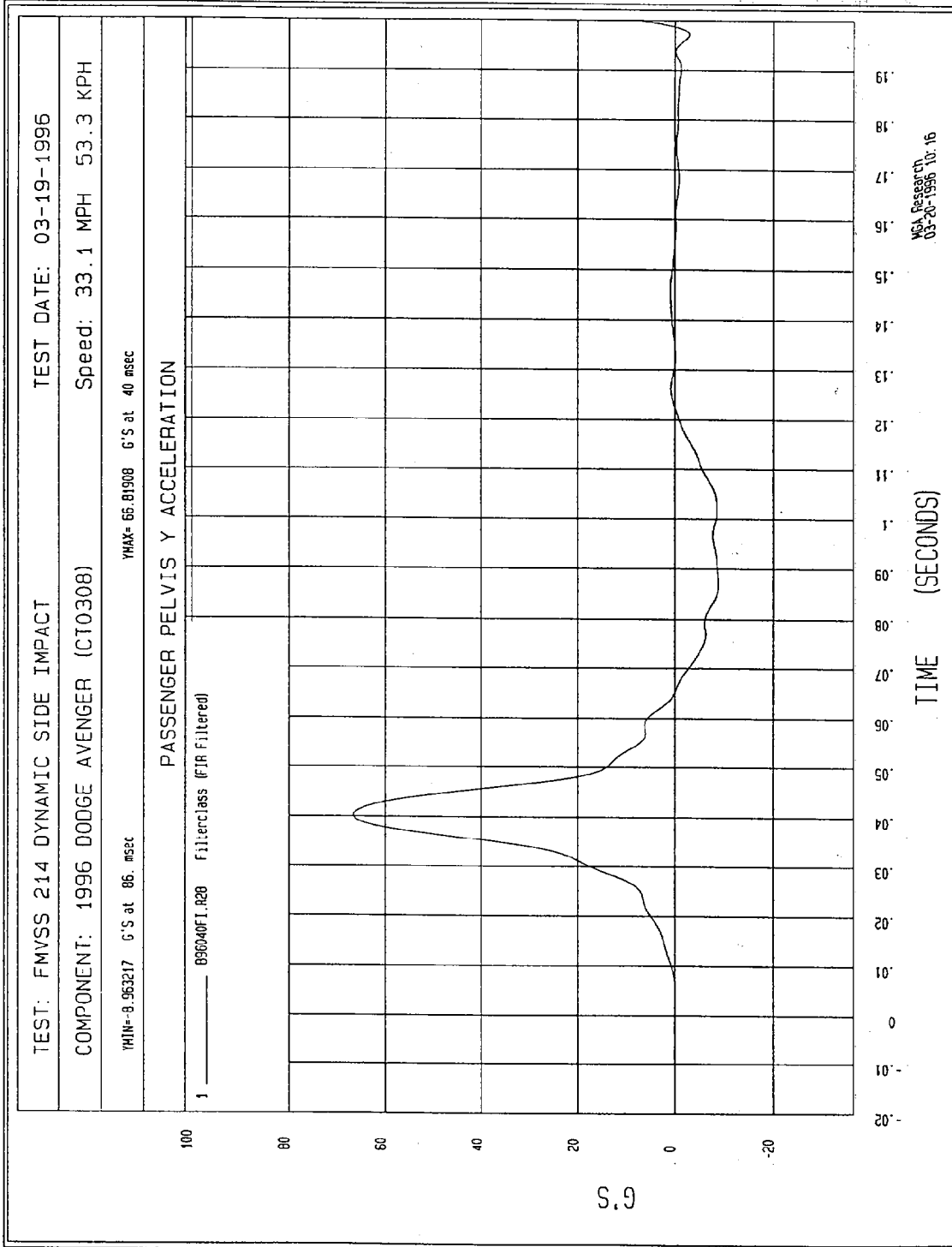


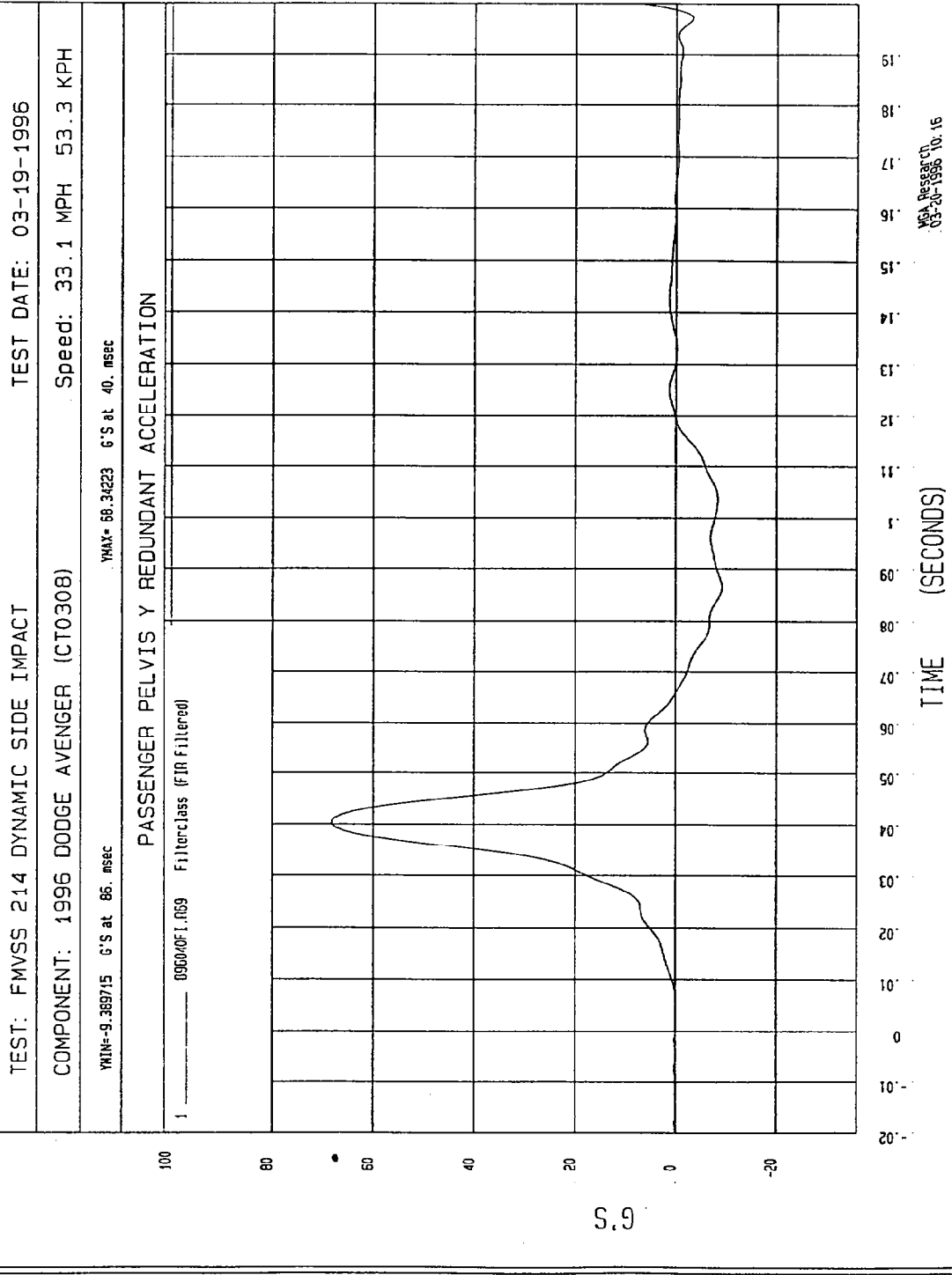












APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-96-DC16

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

CHRYSLER CORPORATION  
1996 DODGE AVENGER 2 DOOR COUPE  
NHTSA NO. CT0308

MGA PROVING GROUNDS  
5000 WARREN ROAD  
BURLINGTON, WI 53105



Test Date: March 19, 1996

Report Date: March 28, 1996

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: 270	POST-TEST CERTIFICATION DATA	4-1
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	VEHICLE AND DUMMY TEMPERATURE	7-1

PRE-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 269

Calibration Test Results Summary

Dummy Serial Number: 269

Pre-Test Calibration

External Dimensions: The dummy passed all external dimension requirements.

Thorax Impact Test: The thorax passed all impact test requirements.

Pelvic Impact Test: The pelvis passed all impact test requirements.

Abdominal Compression Test: The abdomen passed all compression test requirements.

Lumbar Flexion Test: The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: March 4, 1996

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

MEASUREMENTS BY: *Tom Walsh*

APPROVED BY: *Gene Koschke*

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: February 29, 1996

DUMMY NUMBER: 269

TEST NUMBER: D96412

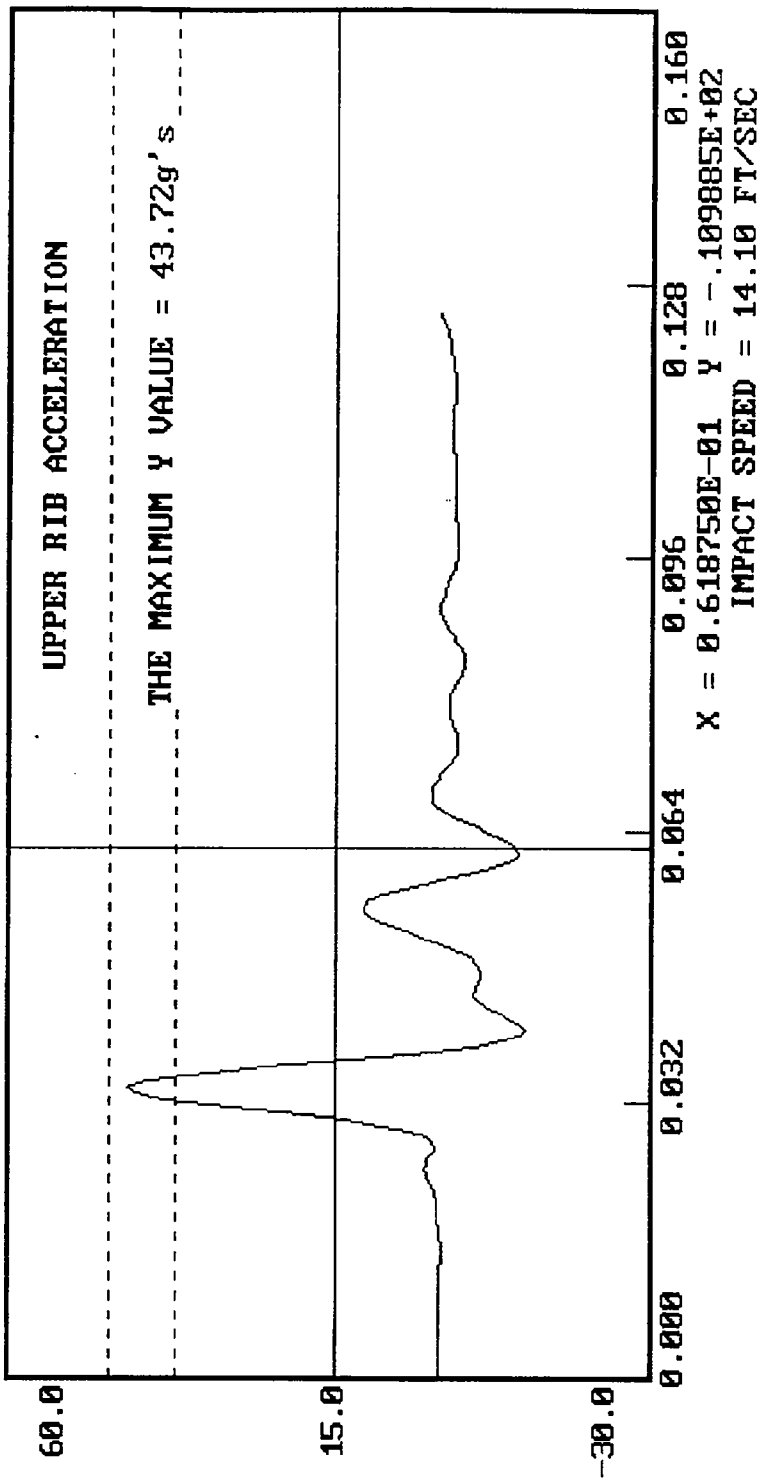
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
PROBE SPEED	13.8 - 14.2 fps	14.1
UPPER RIB	37 - 46 g's	44
LOWER RIB	37 - 46 g's	41
LOWER SPINE	15 - 22 g's	22

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim White

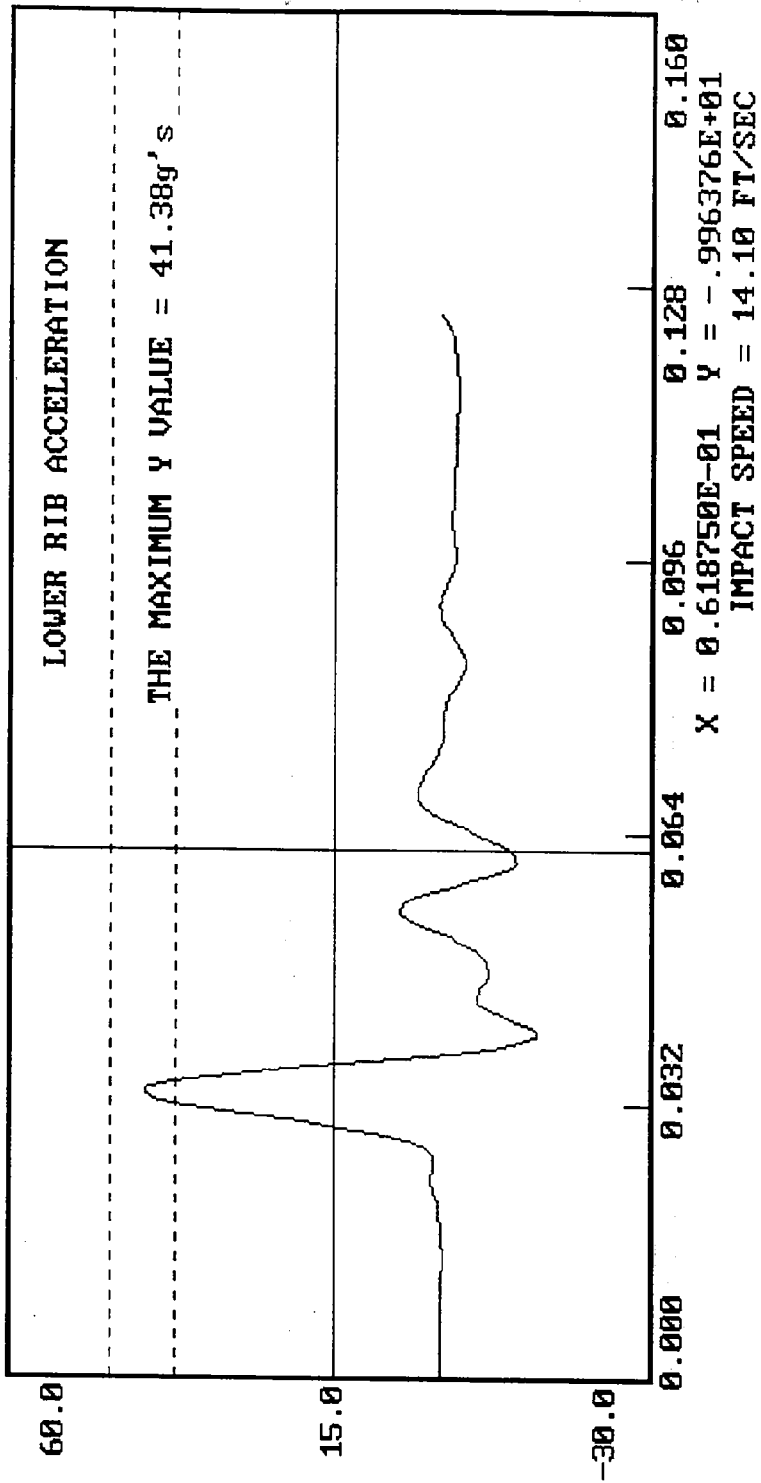
APPROVED BY Paul Koelke

DUMMY CALIBRATION - THORAX IMPACT  
 DUMMY # 269  
 02-29-1996 15:30  
 ACCELERATION (G'S) VS. TIME ((SECONDS))



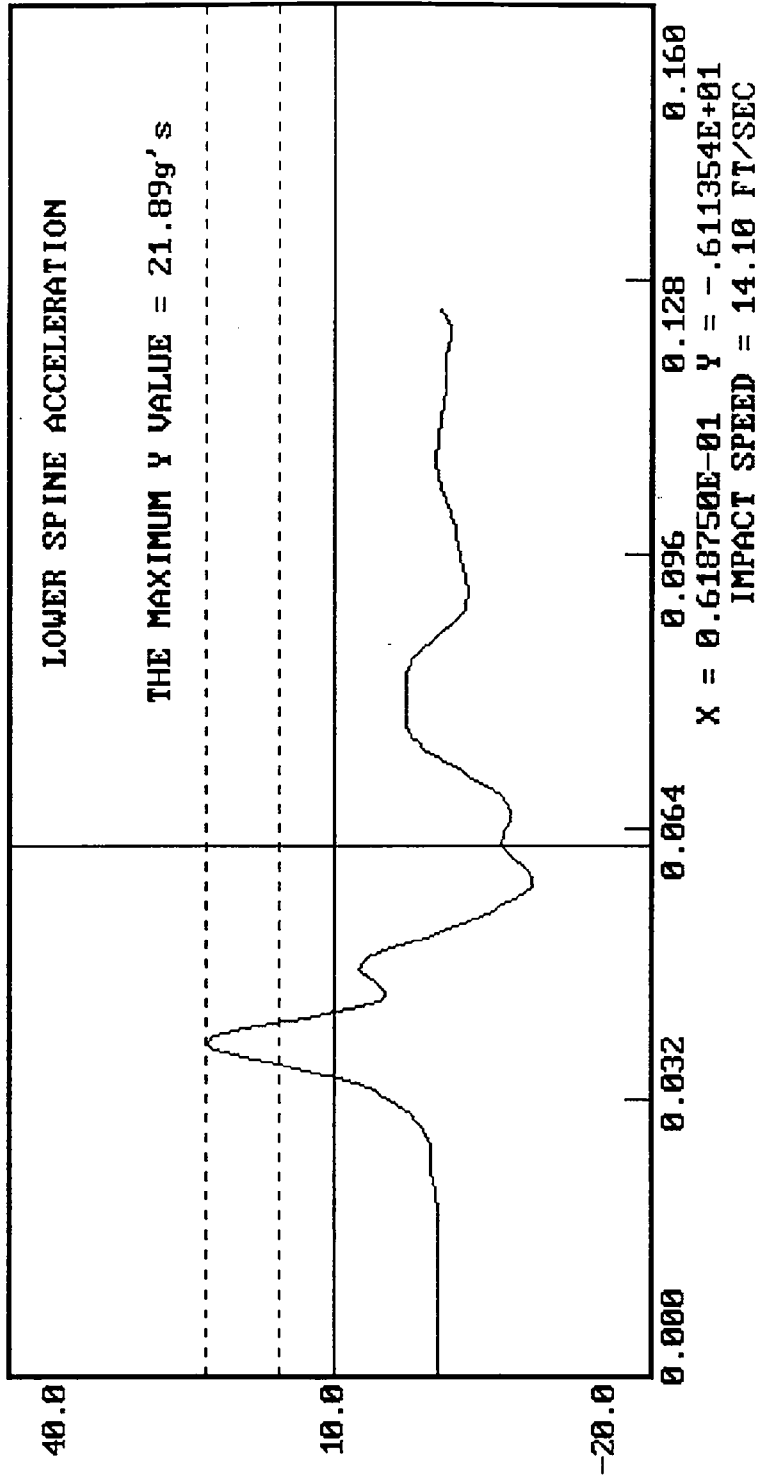
DUMMY CALIBRATION - THORAX IMPACT  
 DUMMY # 269  
 ACCELERATION (G'S) VS. TIME ((SECONDS))

02-29-1996 15:30



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

02-29-1996 15:30



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: February 29, 1996

DUMMY NUMBER: 269

TEST NUMBER: D96413

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
PROBE SPEED	13.8 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	57

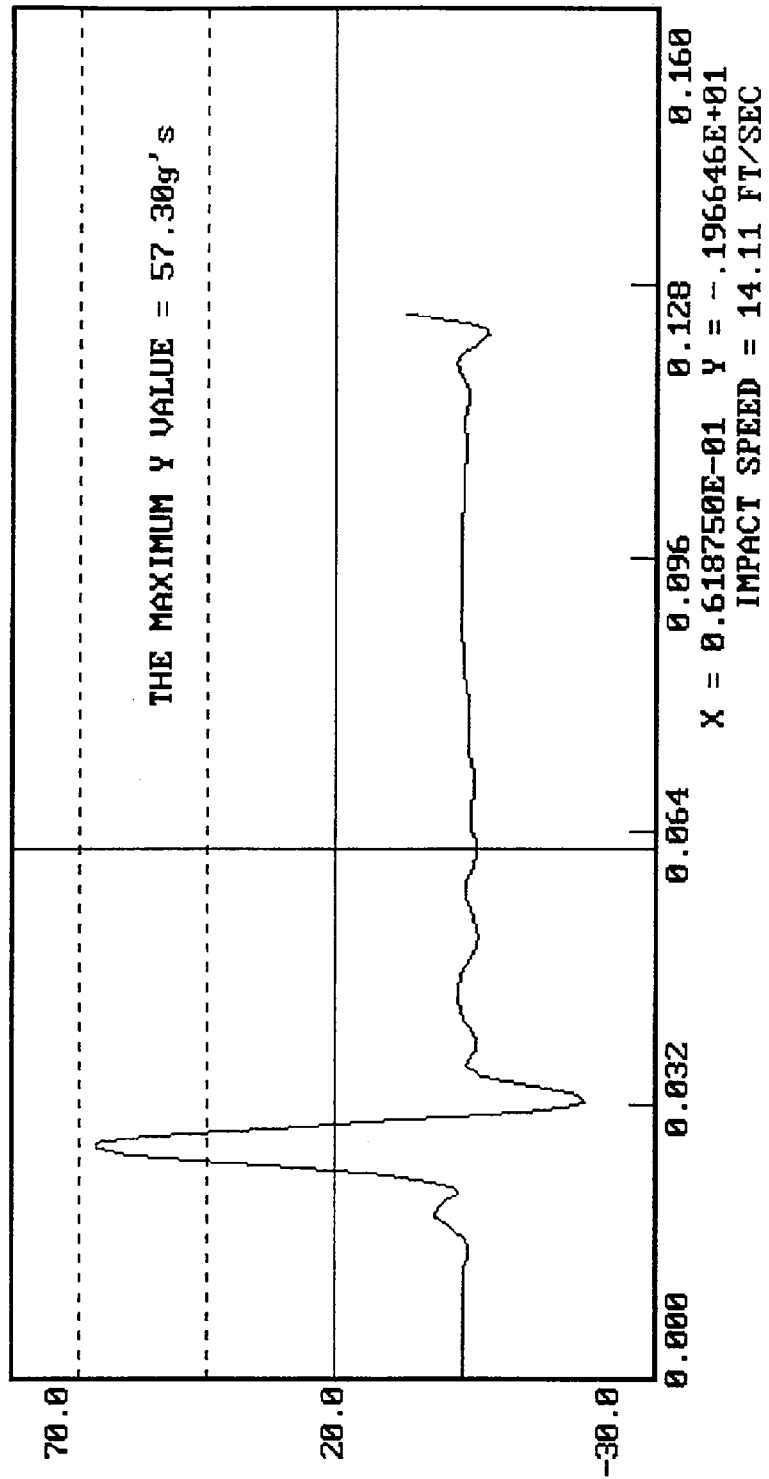
TEST MEETS SPECIFICATIONS

TECHNICIAN Jim White

APPROVED BY Paul Kucharski

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

02-29-1996 15:45



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST  
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: March 4, 1996

DUMMY NUMBER: 269

TEST NUMBER: D96414

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0.5 in	23.3 - 36.5 lbs	34.0
FORCE @ 0.75 in	36.7 - 49.8 lbs	47.2
FORCE @ 1.0 in	50 - 63 lbs	61
FORCE @ 1.3 in	73 - 88 lbs	83

TEST MEETS SPECIFICATIONS

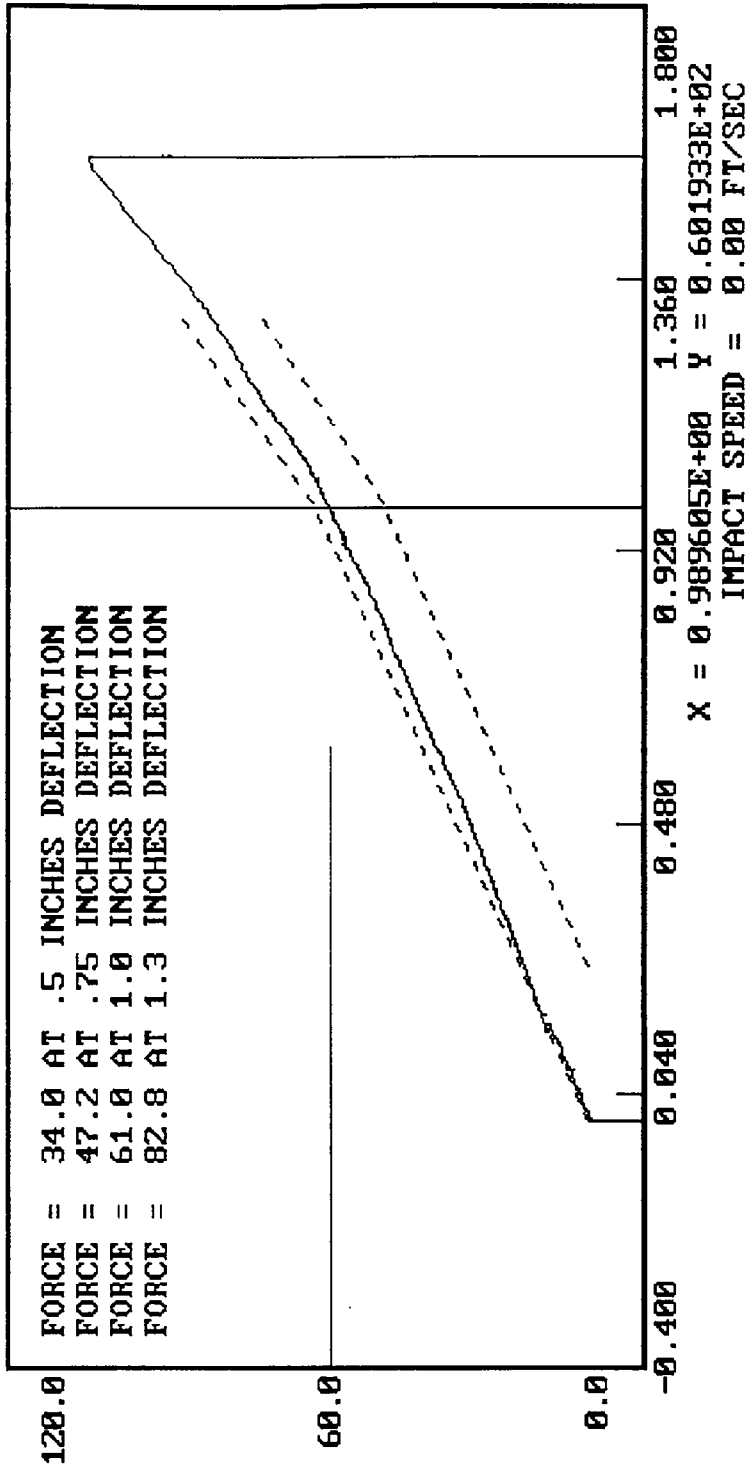
TECHNICIAN Jim Mahan

APPROVED BY Don Koshke

DUMMY CALIBRATION - ABDOMEN COMPRESSION  
DUMMY # 269

03-04-1996 14:25

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



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: March 4, 1996

DUMMY NUMBER: 269

TEST NUMBER: D96415

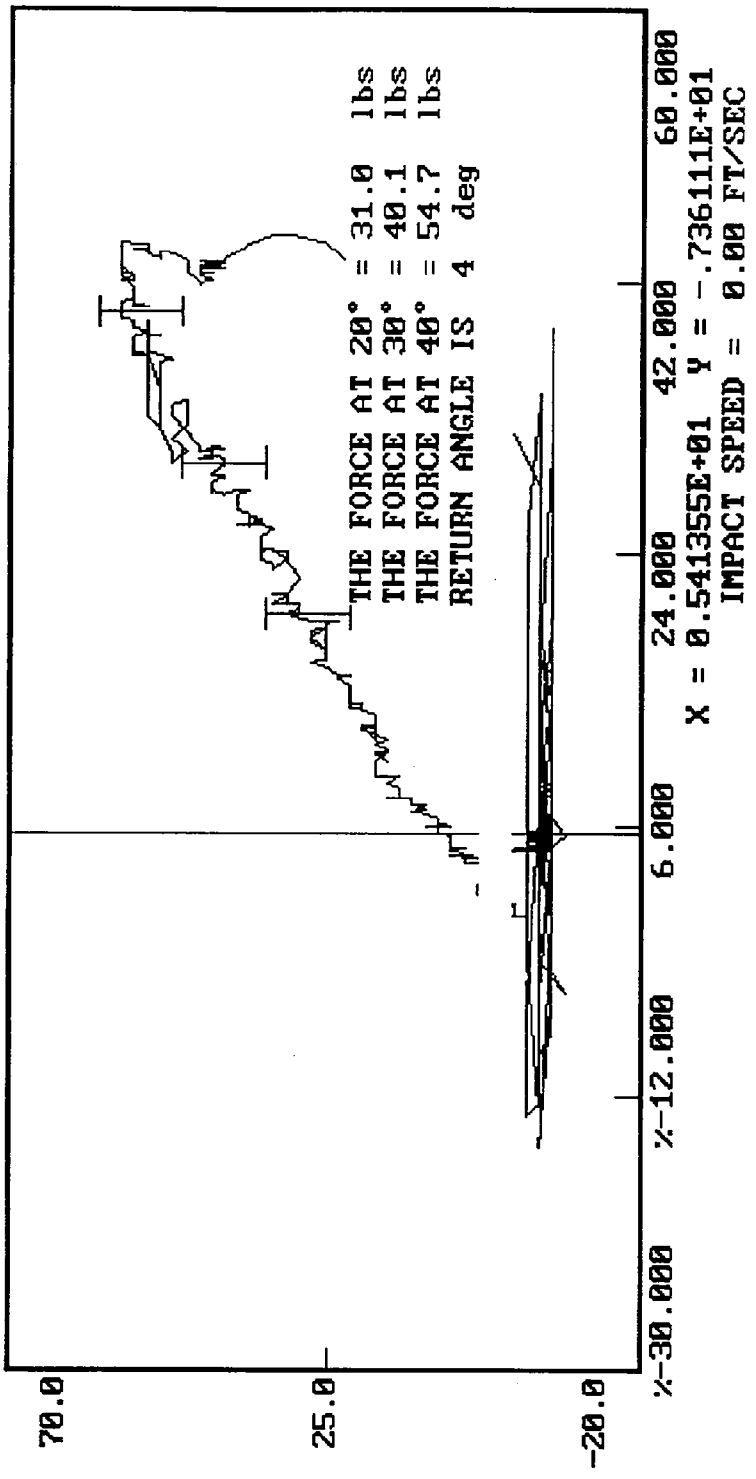
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	31
FORCE @ 30°	34 - 46 lbs	40
FORCE @ 40°	46 - 58 lbs	55
RETURN ANGLE	12° maximum	4°

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim White

APPROVED BY Paul Kobabe

DUMMY CALIBRATION - LUMBAR FLEXION  
 DUMMY # 269  
 FORCE (LBS) VS. TORSO ROTATION (DEGREES) 03-04-1996 16:31



PRE-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 270

Calibration Test Results Summary

Passenger Serial Number: 270

Pre-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: March 4, 1996

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

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 1, 1996

DUMMY NUMBER: 270

TEST NUMBER: D96422

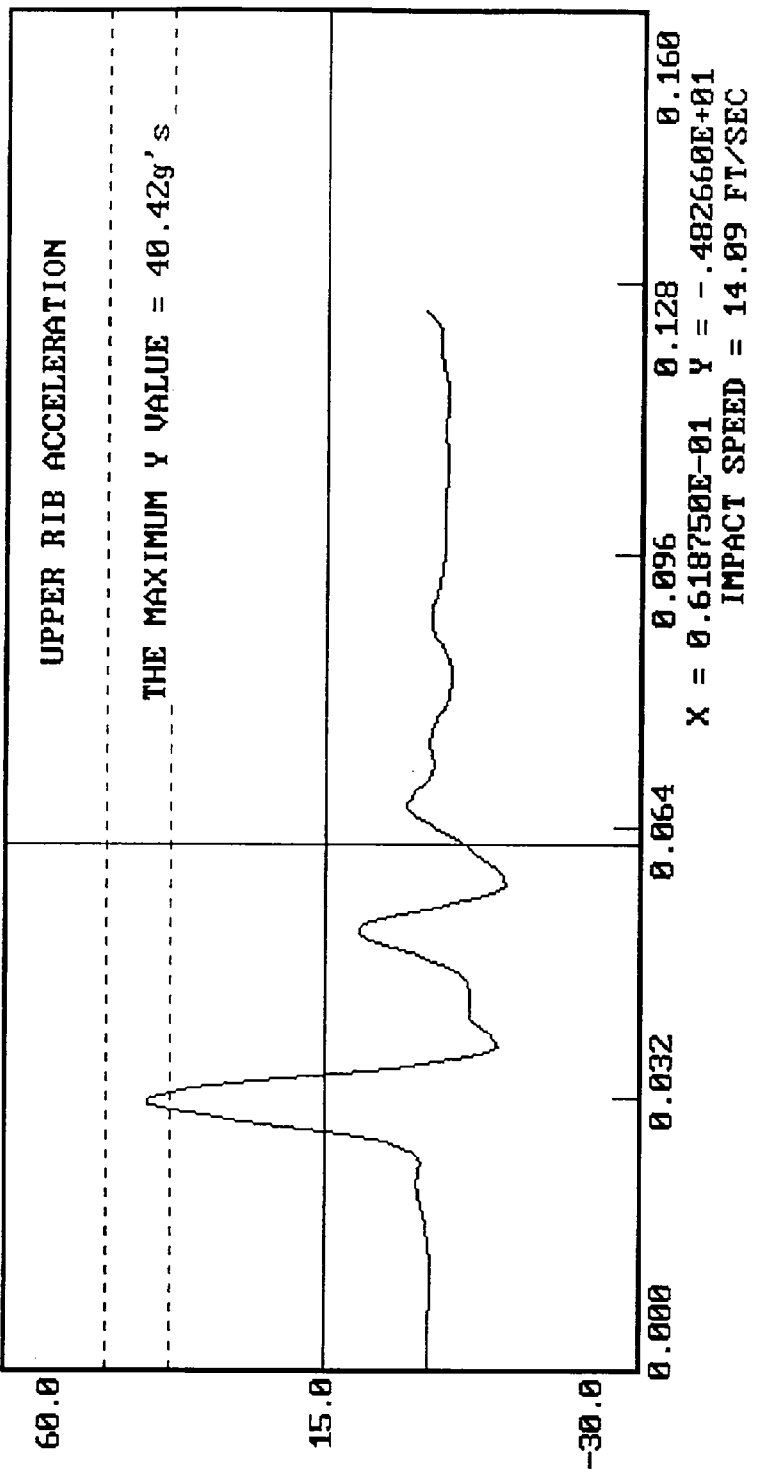
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
PROBE SPEED	13.8 - 14.2 fps	14.1
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	22

TEST MEETS SPECIFICATIONS

TECHNICIAN *Tim M. L.*

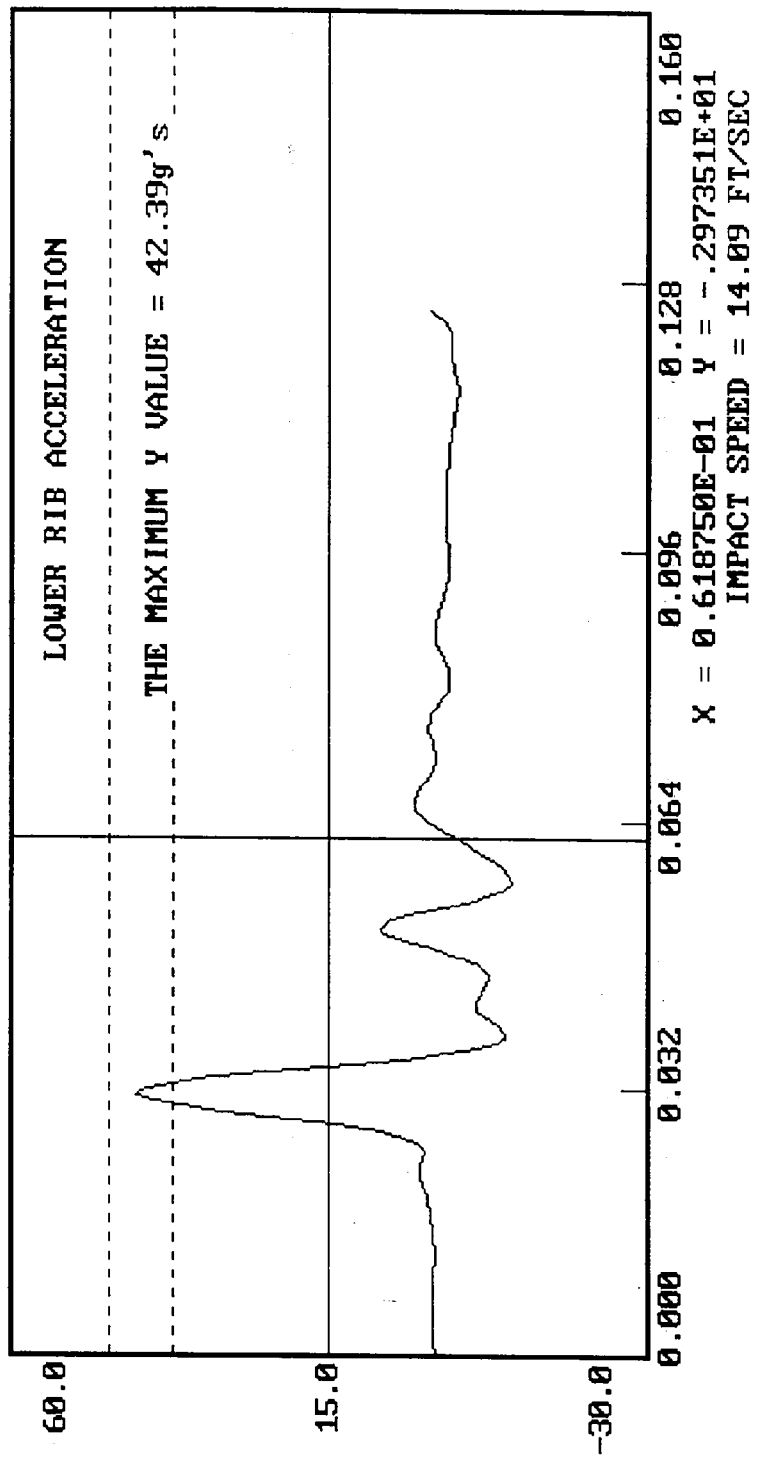
APPROVED BY *Don Koebke*

DUMMY CALIBRATION - THORAX IMPACT  
 DUMMY # 270  
 03-01-1996 13:25  
 ACCELERATION (G'S) VS. TIME ((SECONDS))



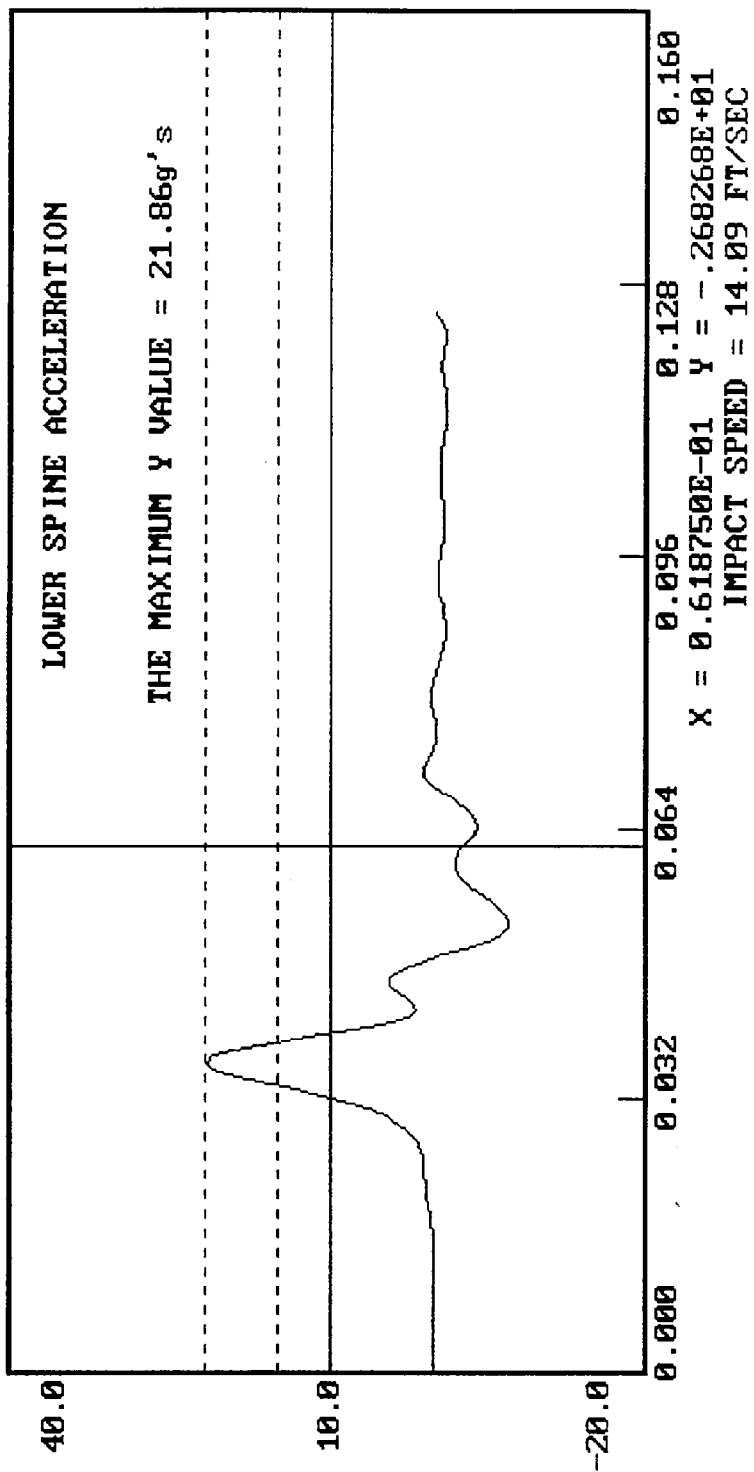
DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 270  
ACCELERATION (G'S) VS. TIME ((SECONDS))

03-01-1996 13:25



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

03-01-1996 13:25



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 1, 1996

DUMMY NUMBER: 270

TEST NUMBER: D96423

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	50

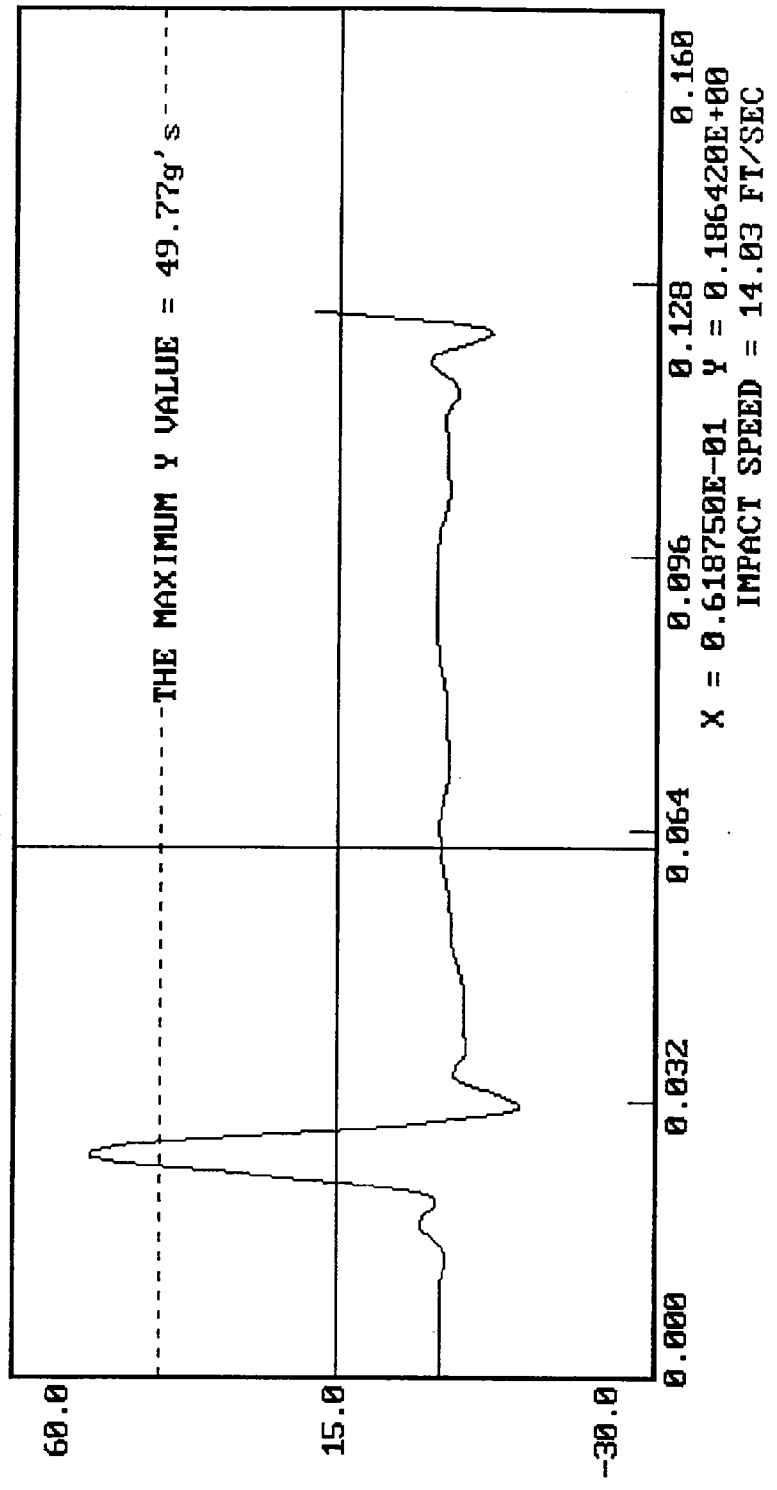
TEST MEETS SPECIFICATIONS

TECHNICIAN Jim Hill

APPROVED BY Paul Kosbake

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

03-01-1996 14:27



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST  
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: March 4, 1996

DUMMY NUMBER: 270

TEST NUMBER: D96424

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.0
FORCE @ 0.75 in	36.7 - 49.8 lbs	45.2
FORCE @ 1.0 in	50 - 63 lbs	60
FORCE @ 1.3 in	73 - 88 lbs	82

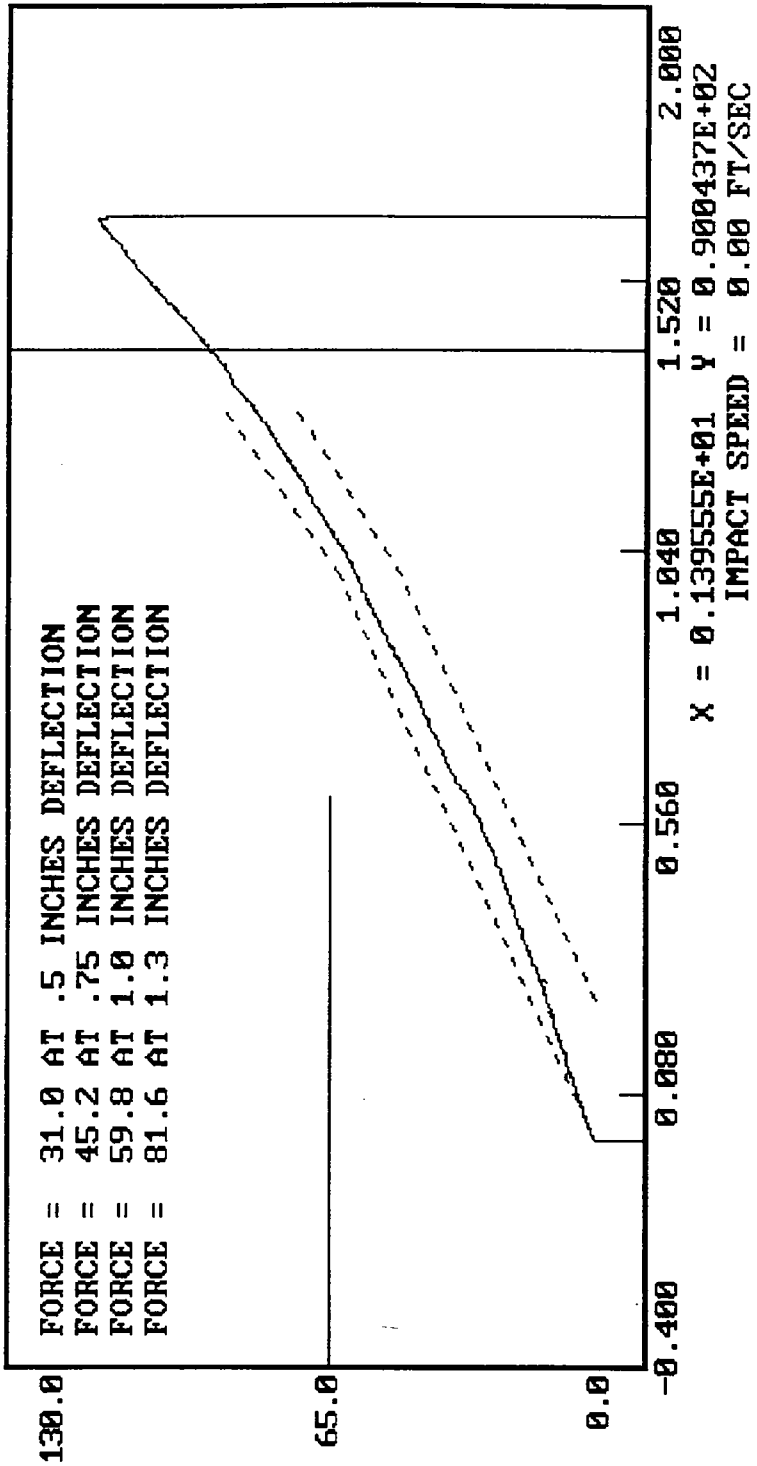
TEST MEETS SPECIFICATIONS

TECHNICIAN *Jim W. Q.*

APPROVED BY *Rene Koobake*

DUMMY CALIBRATION - ABDOMEN COMPRESSION  
DUMMY # 270  
03-04-1996 14:33

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



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: March 4, 1996

DUMMY NUMBER: 270

TEST NUMBER: D96425

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	26
FORCE @ 30°	34 - 46 lbs	40
FORCE @ 40°	46 - 58 lbs	53
RETURN ANGLE	12° maximum	2°

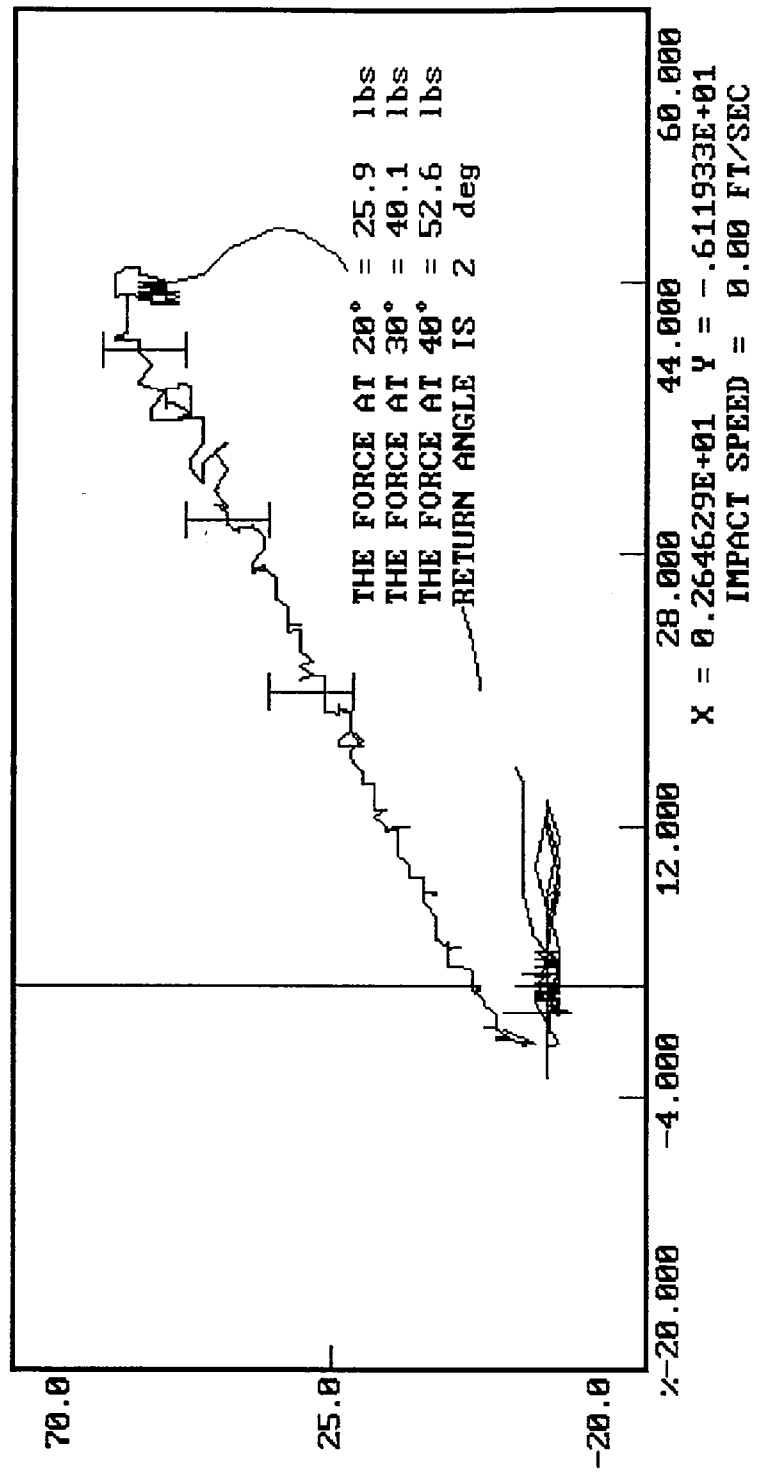
TEST MEETS SPECIFICATIONS

TECHNICIAN Tim Wil

APPROVED BY Paul Keabake

03-04-1996 16:56

DUMMY CALIBRATION - LUMBAR FLEXION  
DUMMY # 270  
FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 269

Calibration Test Results Summary

Dummy Serial Number: 269

Post-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: April 4, 1996

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

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION  
 THORACIC SHOCK ABSORBER TEST  
 SIDE IMPACT DUMMY (SID)

DATE: April 2, 1996

DUMMY NUMBER: 269

TEST NUMBER: D9606678

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		66° - 78° F	70°
RELATIVE HUMIDITY		10 - 70%	28%
VELOCITY 10 ft/s	FORCE (lb.)	188 - 253	222
	DISPLACEMENT (in.)	1.18 - 1.38	1.34
VELOCITY 14 ft/s	FORCE (lb.)	389 - 472	416
	DISPLACEMENT (in.)	1.26 - 1.47	1.28
VELOCITY 20 ft/s	FORCE (lb.)	841 - 1000	848
	DISPLACEMENT (in.)	1.30 - 1.57	1.30

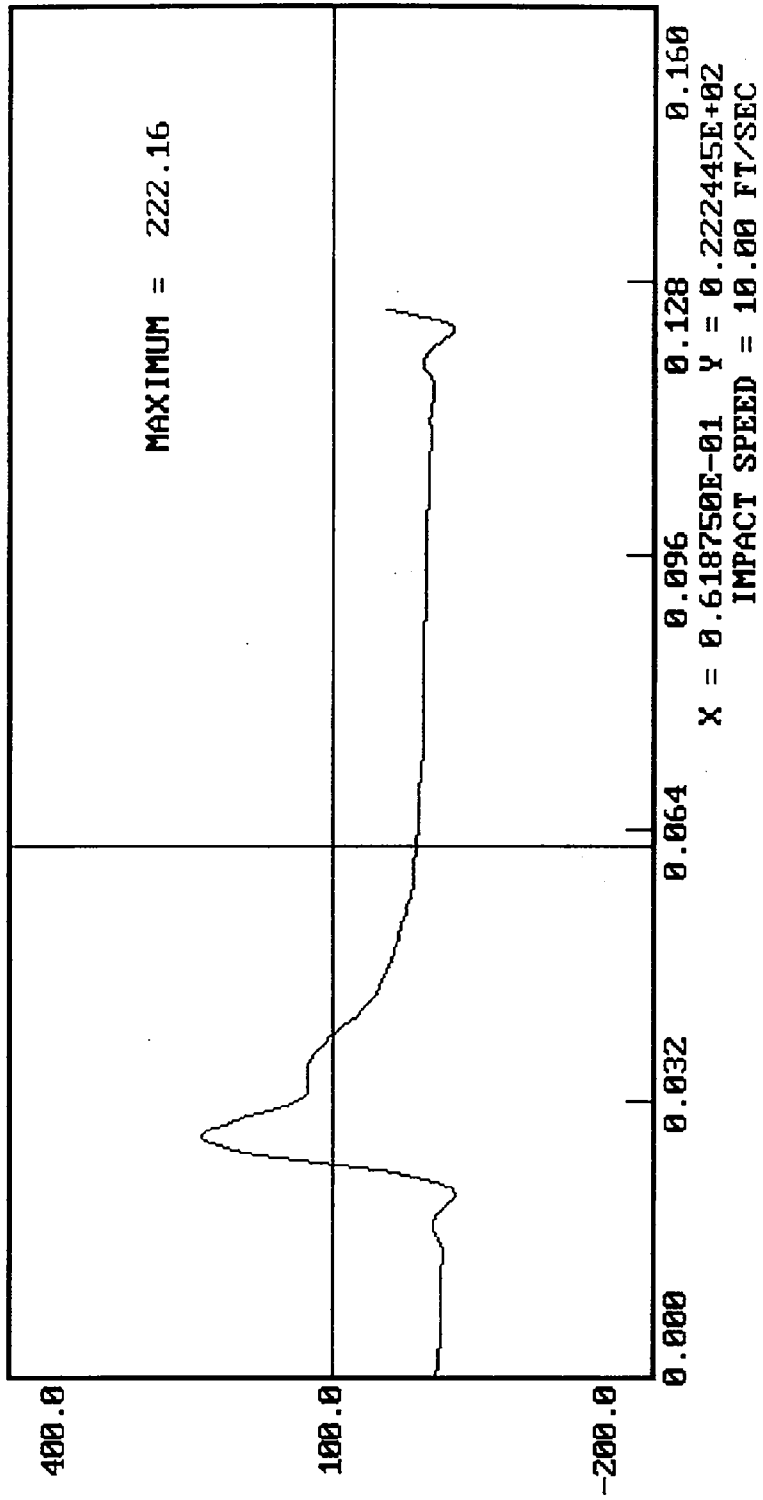
TEST MEETS SPECIFICATIONS

TECHNICIAN Tim Wil

APPROVED BY Paul Koslowski

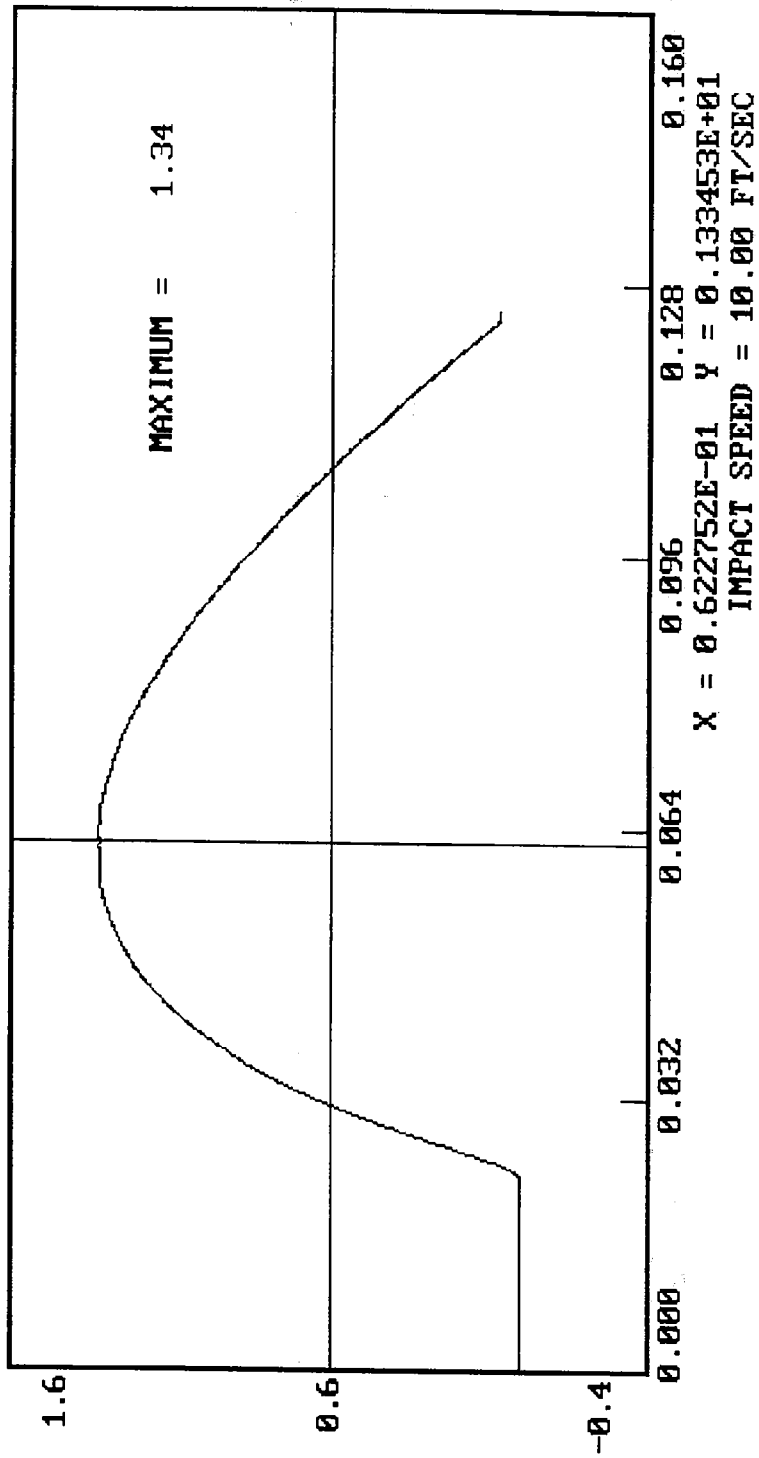
DUMMY CALIBRATION - DAMPENER BENCH TEST  
DUMMY # 269  
FORCE (LBS) VS. TIME ((SECONDS))

04-02-1996 10:39



DUMMY CALIBRATION - DAMPENER BENCH TEST  
DUMMY # 269  
DISPLACEMENT (IN) VS. TIME ((SECONDS))

04-02-1996 10:36

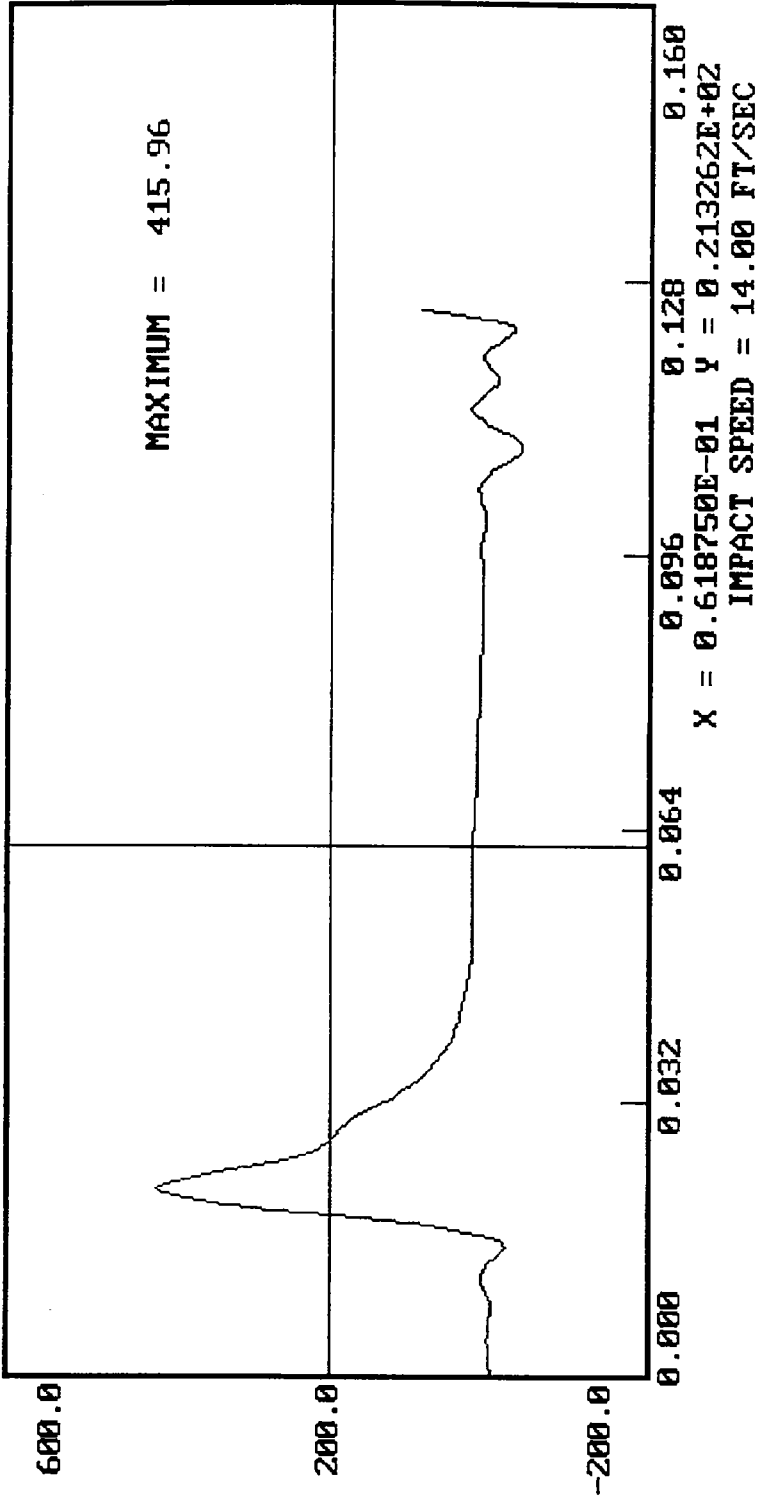


04-02-1996 17:38

DUMMY CALIBRATION - DAMPENER BENCH TEST

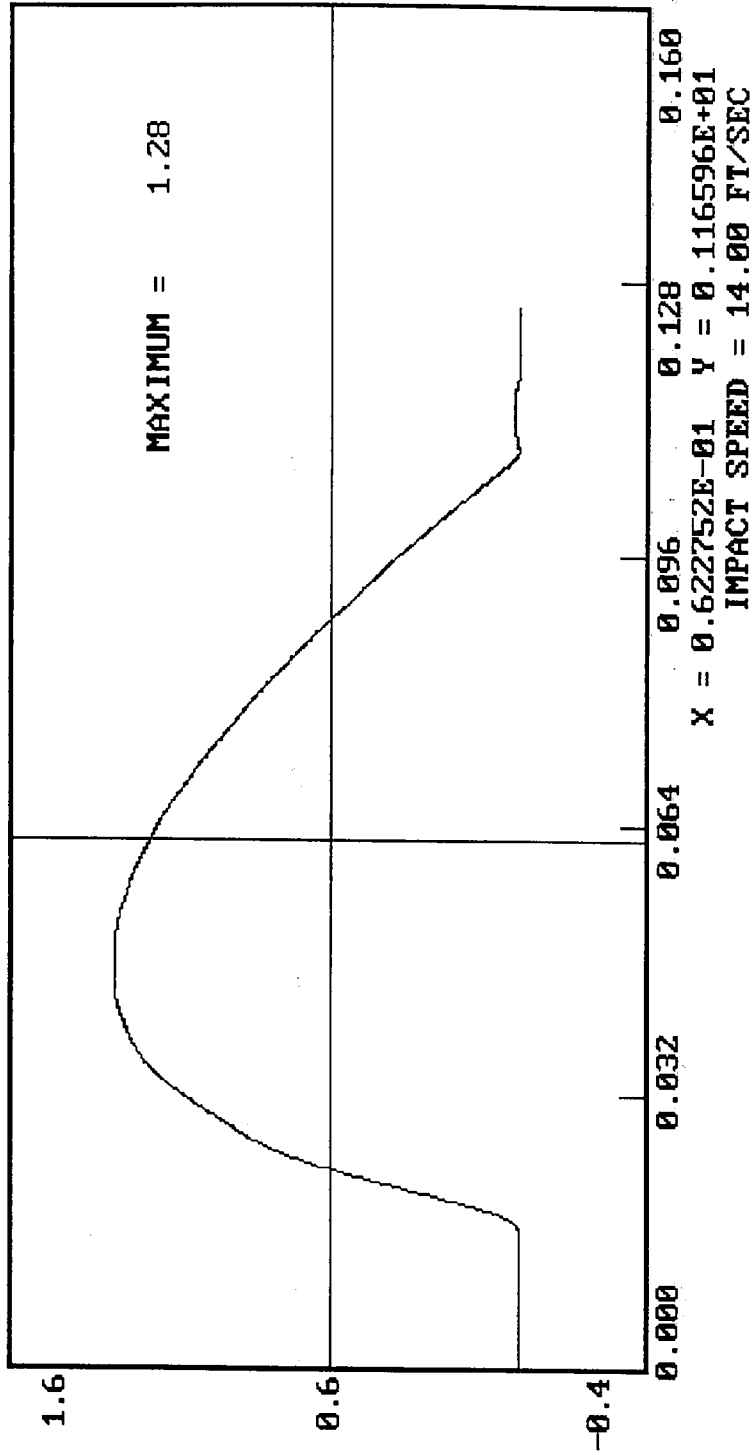
DUMMY # 269

FORCE (LBS) VS. TIME ((SECONDS))



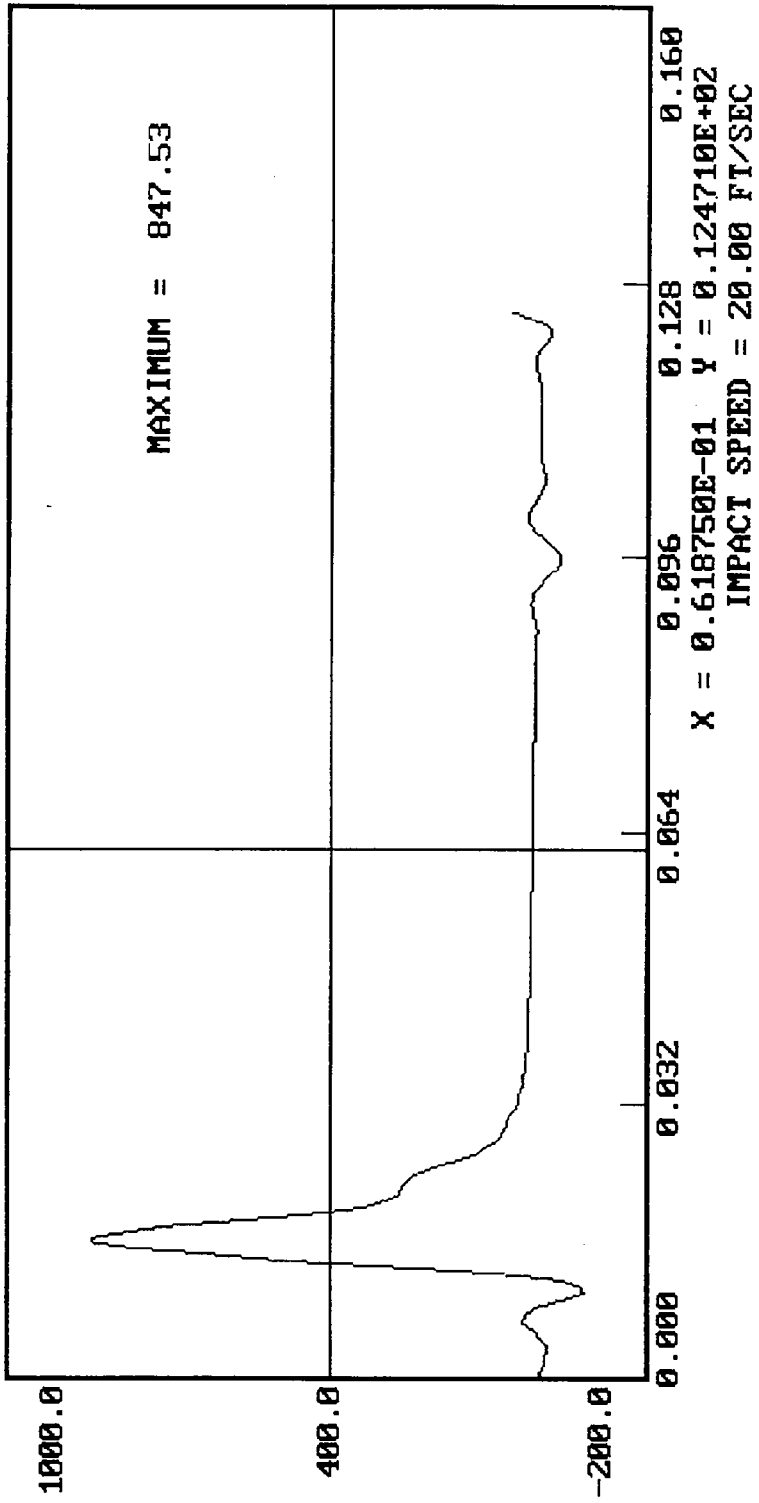
DUMMY CALIBRATION - DAMPENER BENCH TEST  
DUMMY # 269  
DISPLACEMENT (IN) VS. TIME ((SECONDS))

04-02-1996 17:38



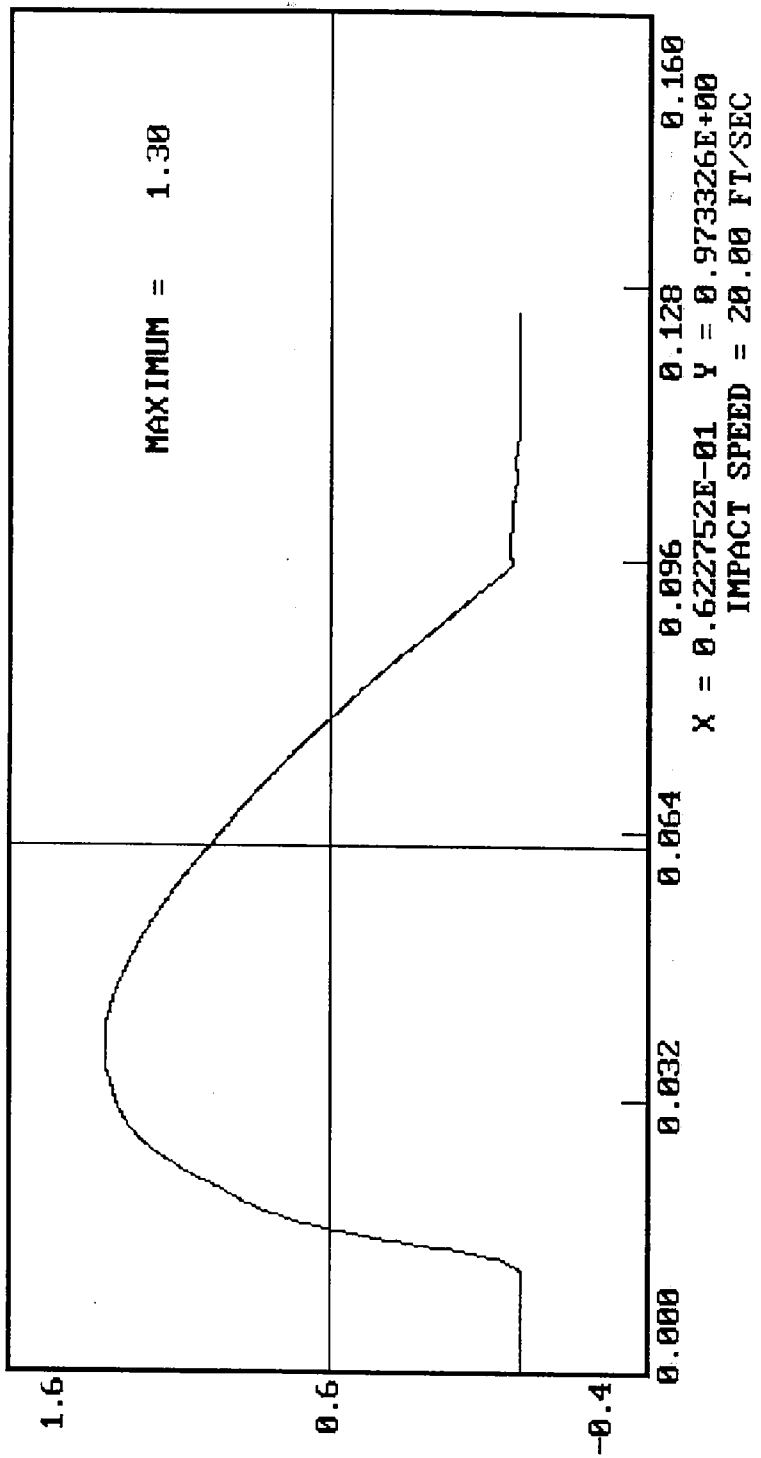
DUMMY CALIBRATION - DAMPENER BENCH TEST  
DUMMY # 269  
FORCE (LBS) VS. TIME ((SECONDS))

04-02-1996 17:25



04-02-1996 17:23

DUMMY CALIBRATION - DAMPENER BENCH TEST  
DUMMY # 269  
DISPLACEMENT (IN) VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: April 4, 1996

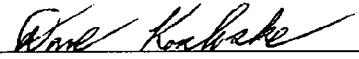
DUMMY NUMBER: 269

TEST NUMBER: D96602

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	32%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	39
LOWER RIB	37 - 46 g's	44
LOWER SPINE	15 - 22 g's	19

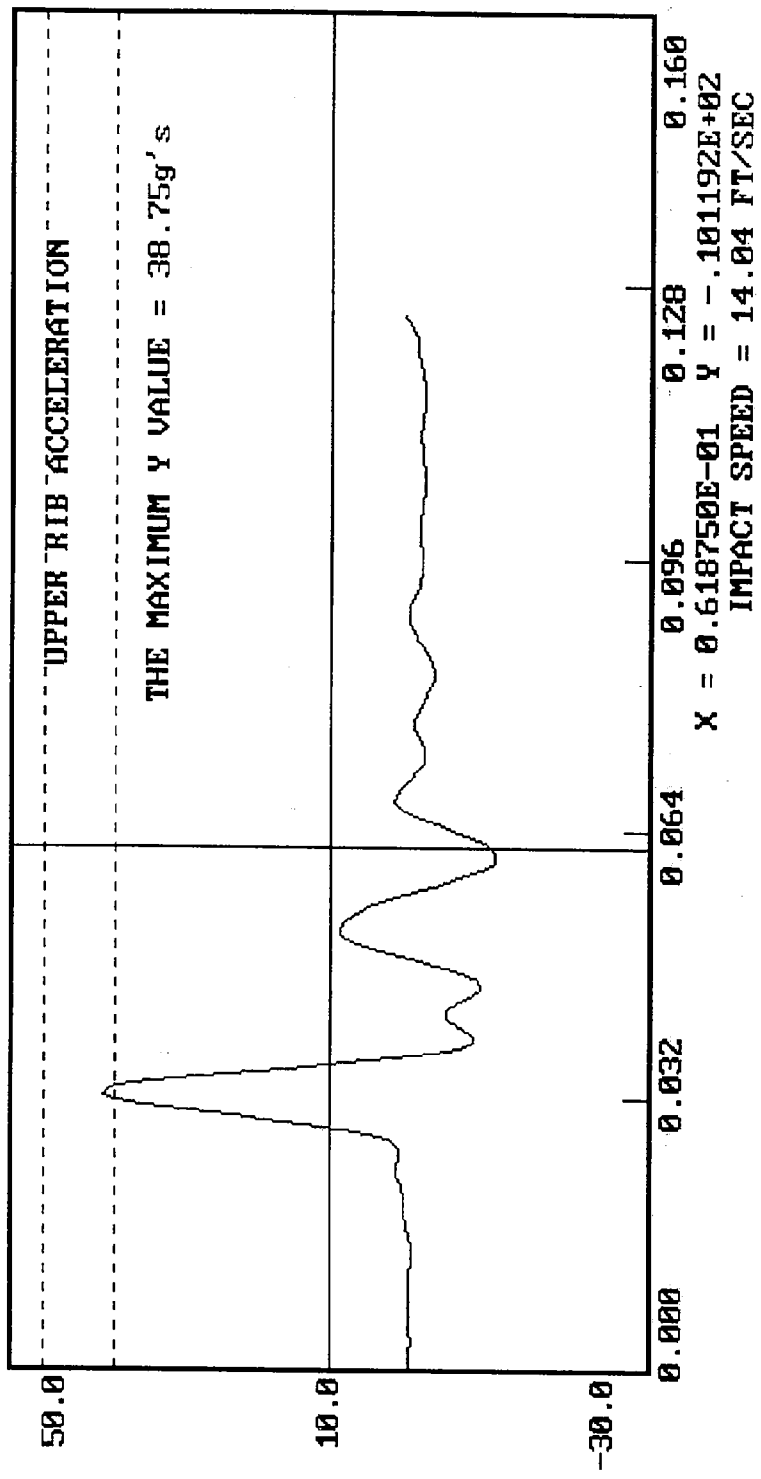
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

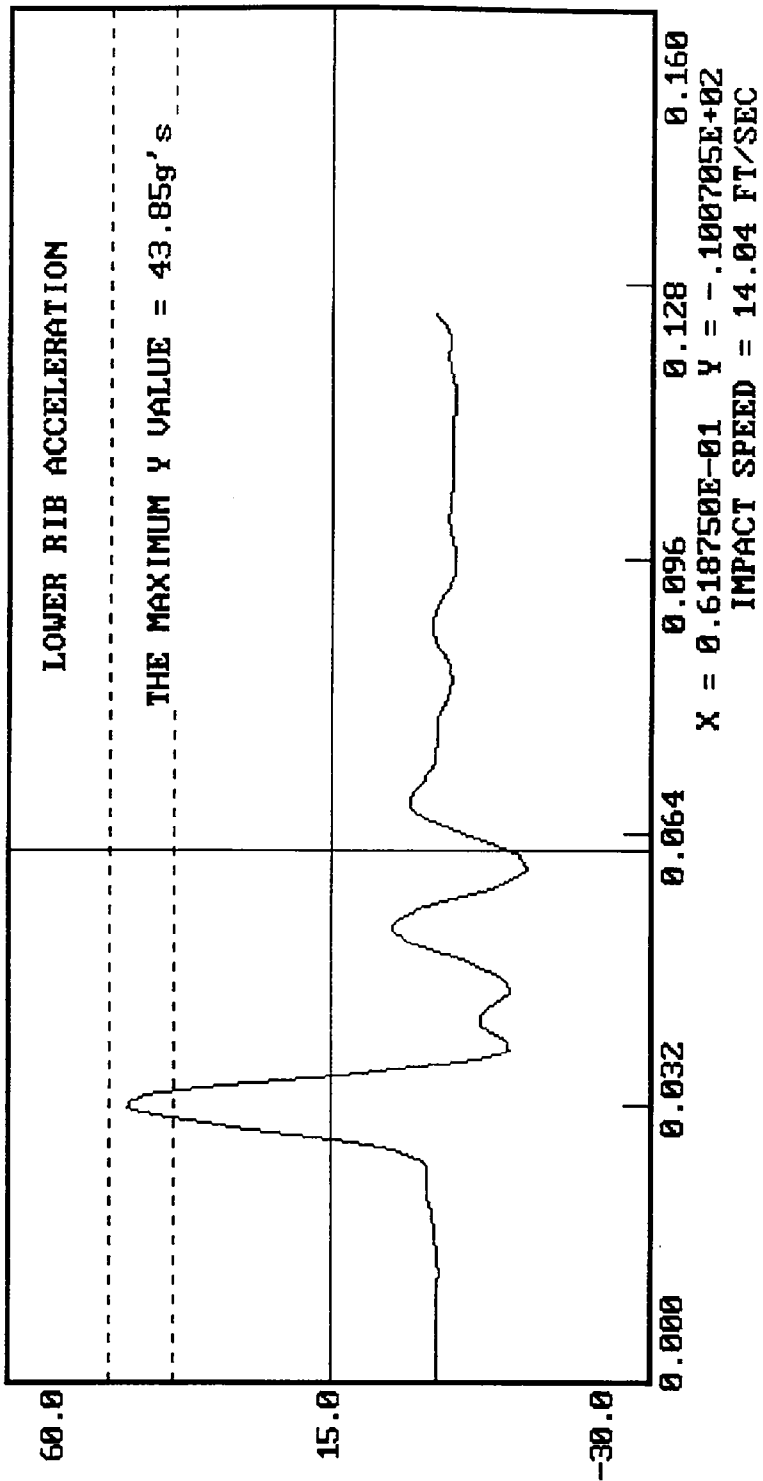
DUMMY CALIBRATION - THORAX IMPACT  
 DUMMY # 269  
 ACCELERATION (G'S) VS. TIME ((SECONDS))

04-04-1996 11:10



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

04-04-1996 11:17

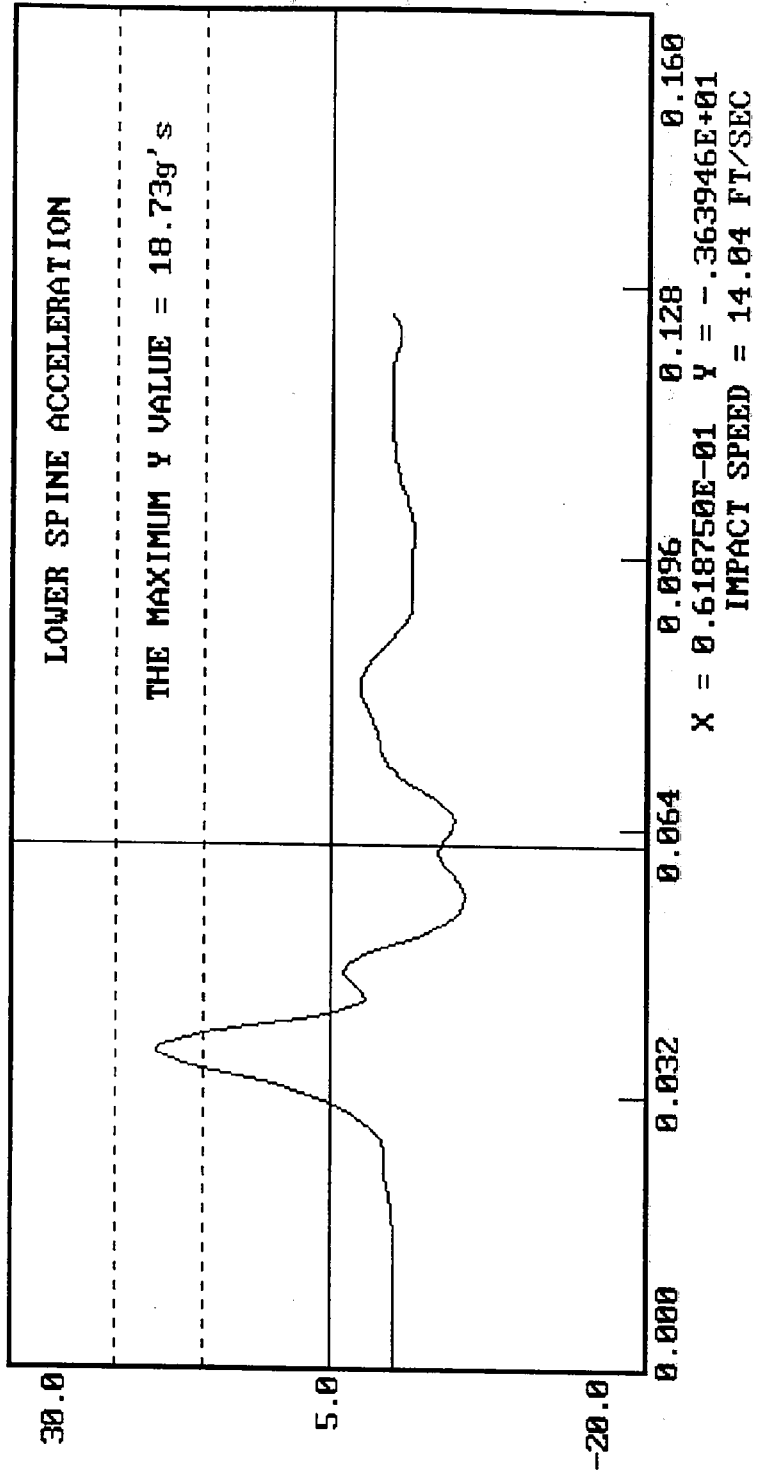


04-04-1996 11:18

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

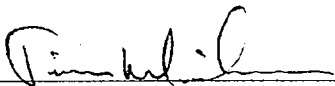
DATE: April 4, 1996

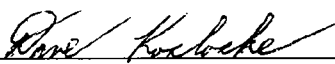
DUMMY NUMBER: 269

TEST NUMBER: D96603

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	32%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	50

TEST MEETS SPECIFICATIONS

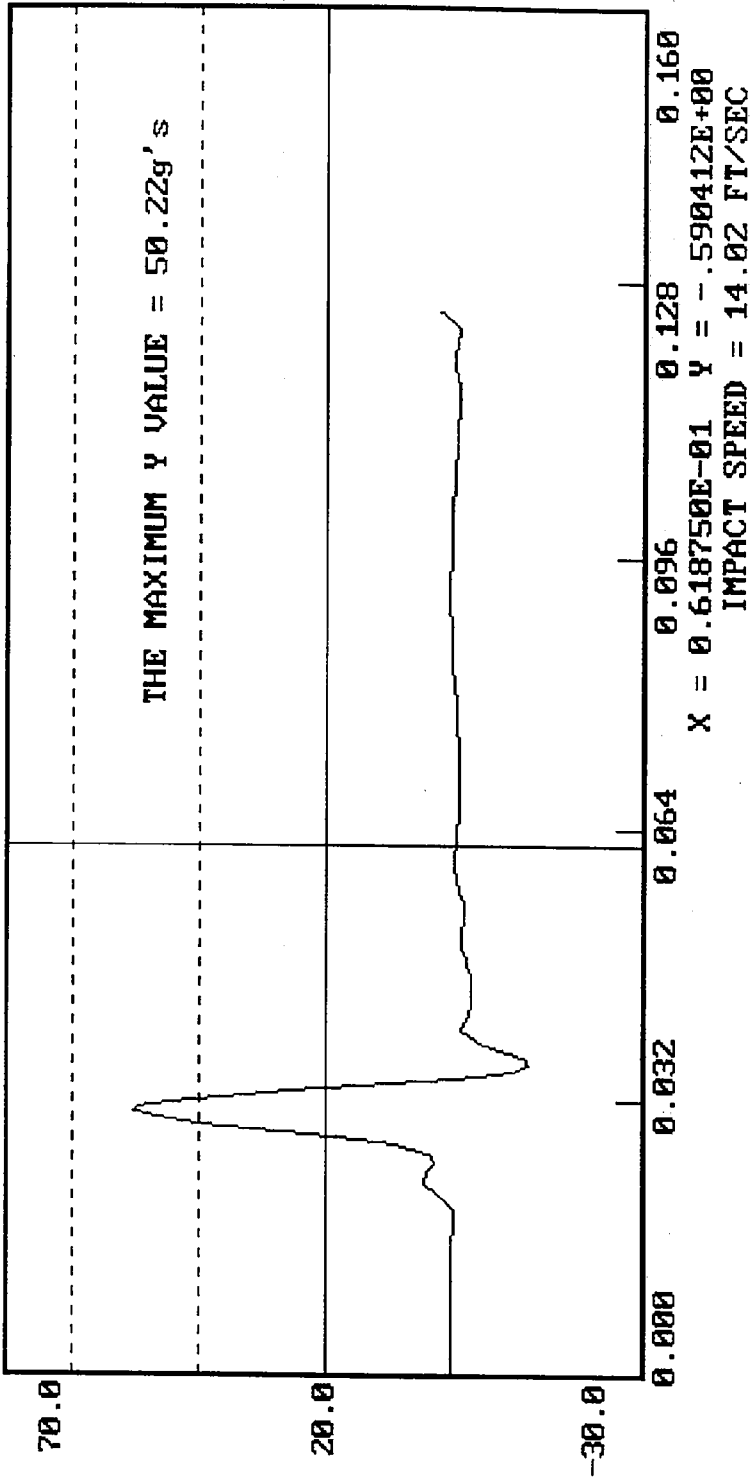
TECHNICIAN 

APPROVED BY 

04-04-1996 11:28

DUMMY CALIBRATION - PELVIS IMPACT  
DUMMY # 269

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



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST  
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: March 27, 1996

DUMMY NUMBER: 269

TEST NUMBER: D96604

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	24%
FORCE @ 0.5 in	23.3 - 36.5 lbs	34.5
FORCE @ 0.75 in	36.7 - 49.8 lbs	48.1
FORCE @ 1.0 in	50 - 63 lbs	62
FORCE @ 1.3 in	73 - 88 lbs	83

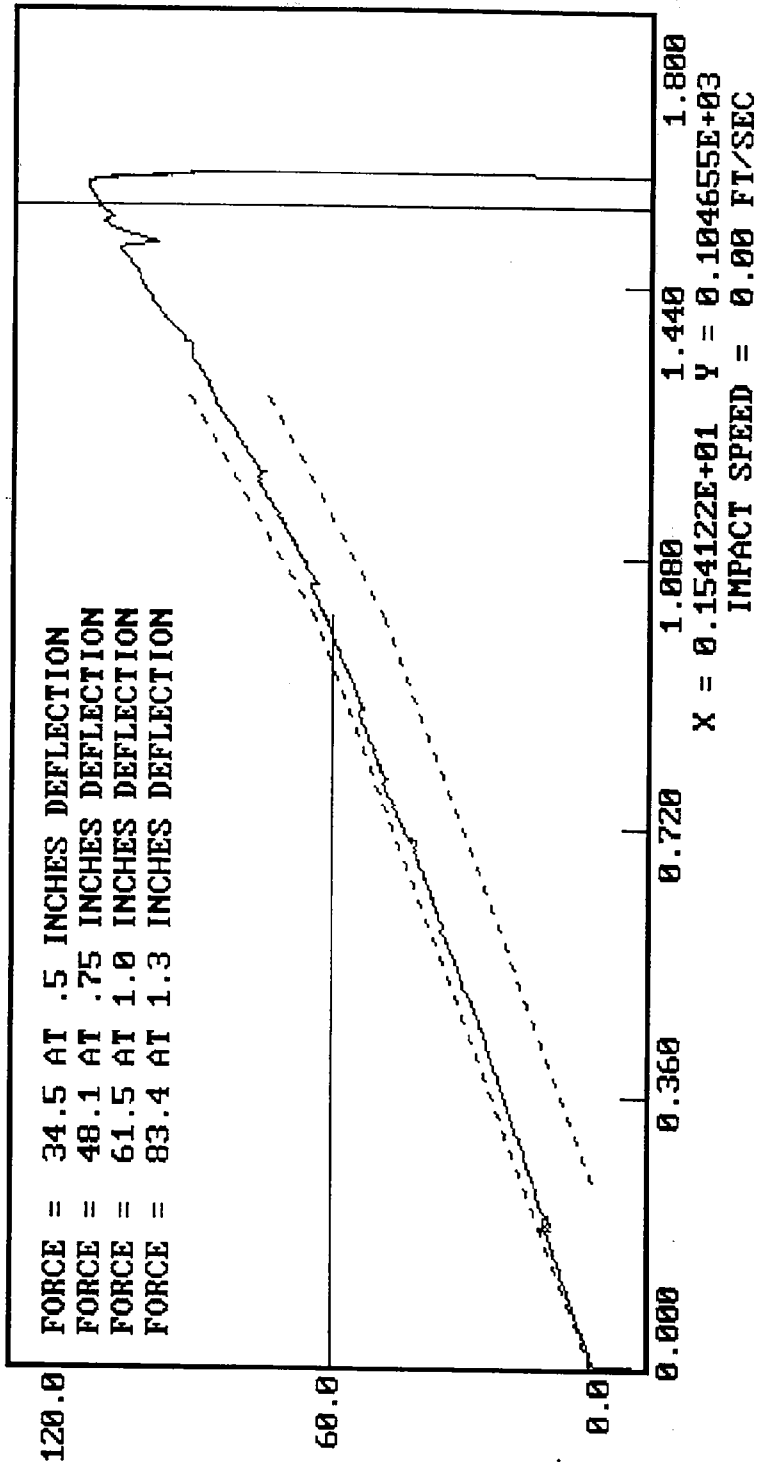
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION  
 DUMMY # 269  
 03-27-1996 09:52

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



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

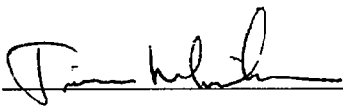
DATE: March 26, 1996

DUMMY NUMBER: 269

TEST NUMBER: D96605

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	27
FORCE @ 30°	34 - 46 lbs	38
FORCE @ 40°	46 - 58 lbs	50
RETURN ANGLE	12° maximum	7°

TEST MEETS SPECIFICATIONS

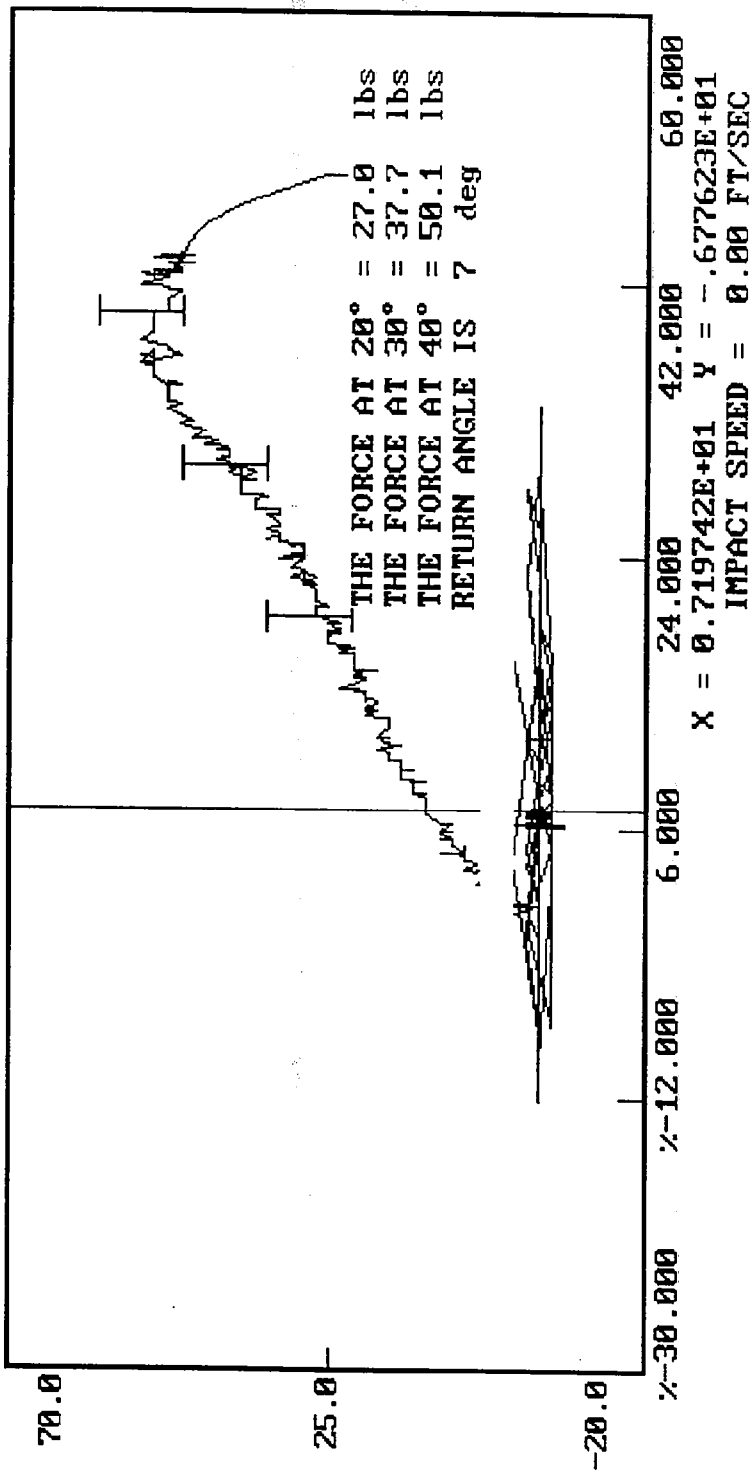
TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - LUMBAR FLEXION  
DUMMY # 269

03-26-1996 16:22

FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 270

Calibration Test Results Summary

Dummy Serial Number: 270

Post-Test Calibration

External Dimensions: The dummy passed all external dimension requirements.

Thorax Impact Test: The thorax passed all impact test requirements.

Pelvic Impact Test: The pelvis passed all impact test requirements.

Abdominal Compression Test: The abdomen passed all compression test requirements.

Lumbar Flexion Test: The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: March 4, 1996

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

MEASUREMENTS BY: Jim White

APPROVED BY: Paul Kloba

MGA RESEARCH CORPORATION  
 THORACIC SHOCK ABSORBER TEST  
 SIDE IMPACT DUMMY (SID)

DATE: April 3, 1996

DUMMY NUMBER: 270

TEST NUMBER: D9661678

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		66° - 78° F	70°
RELATIVE HUMIDITY		10 - 70%	30%
VELOCITY 10 ft/s	FORCE (lb.)	188 - 253	204
	DISPLACEMENT (in.)	1.18 - 1.38	1.25
VELOCITY 14 ft/s	FORCE (lb.)	389 - 472	394
	DISPLACEMENT (in.)	1.26 - 1.47	1.26
VELOCITY 20 ft/s	FORCE (lb.)	841 - 1000	847
	DISPLACEMENT (in.)	1.30 - 1.57	1.31

TEST MEETS SPECIFICATIONS

TECHNICIAN *Jim [Signature]*

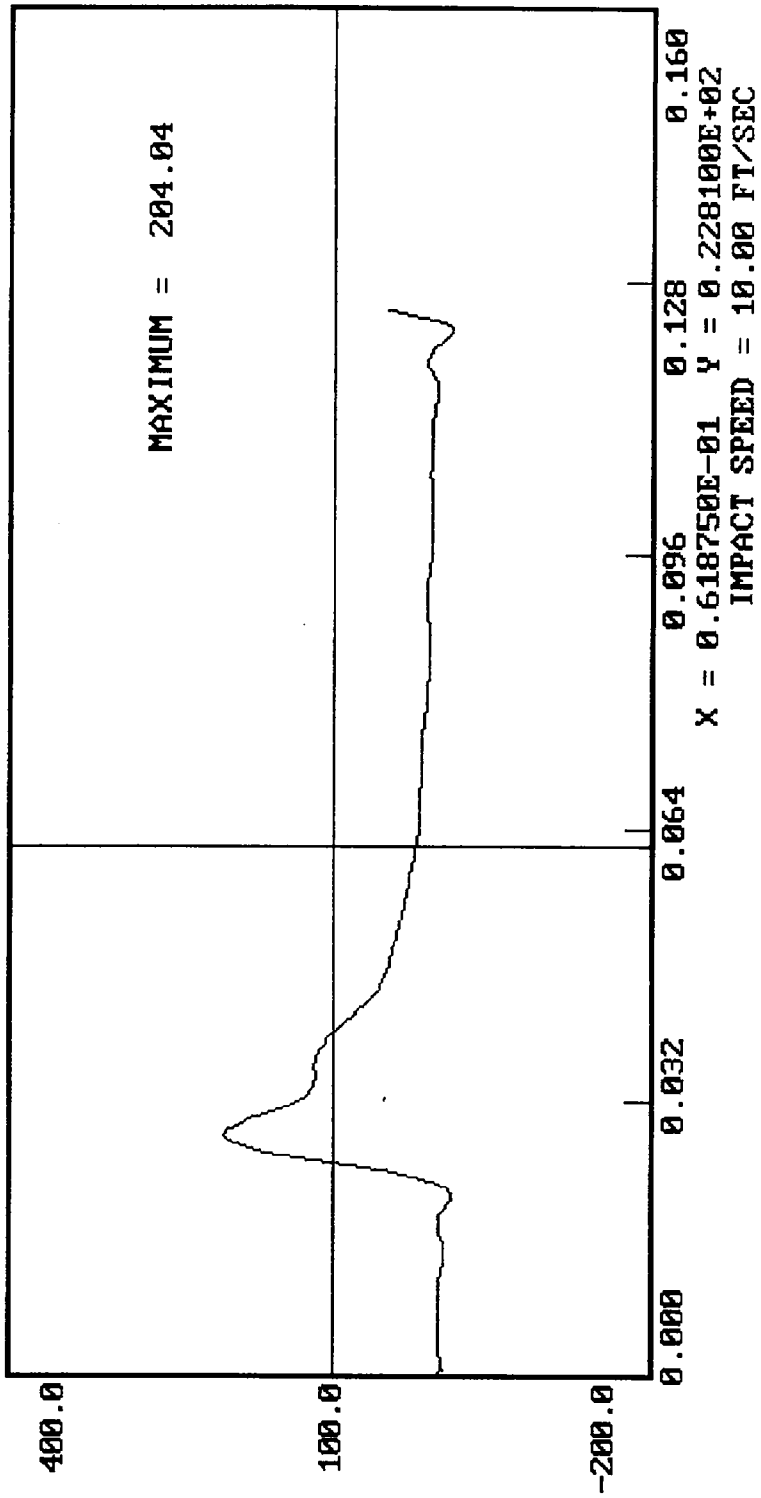
APPROVED BY *Dave Kobabe*

04-03-1996 08:31

DUMMY CALIBRATION - DAMPENER BENCH TEST

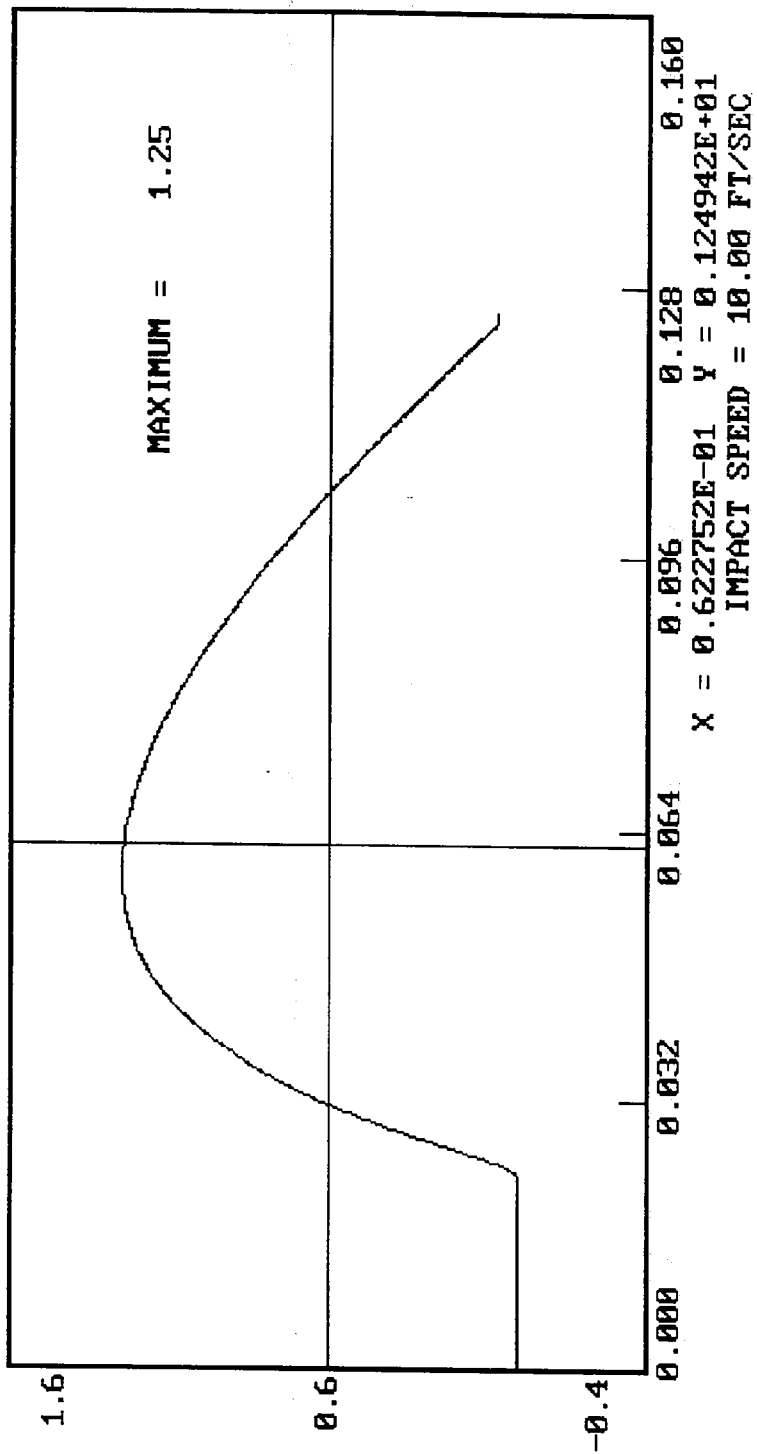
DUMMY # 270

FORCE (LBS) VS. TIME ((SECONDS))



DUMMY CALIBRATION - DAMPENER BENCH TEST  
DUMMY # 270  
DISPLACEMENT (IN) VS. TIME ((SECONDS))

04-03-1996 08:31

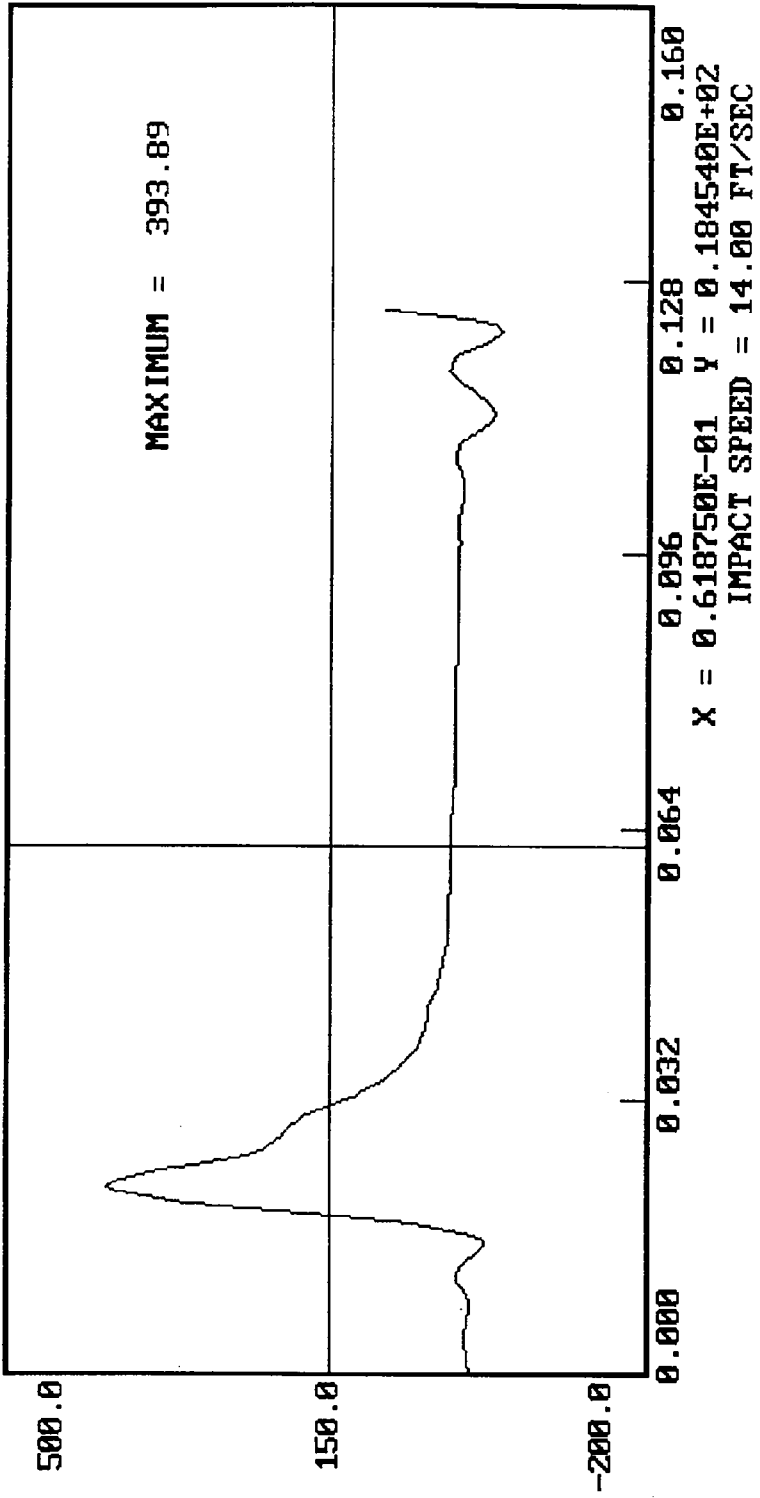


04-03-1996 08:19

DUMMY CALIBRATION - DAMPENER BENCH TEST

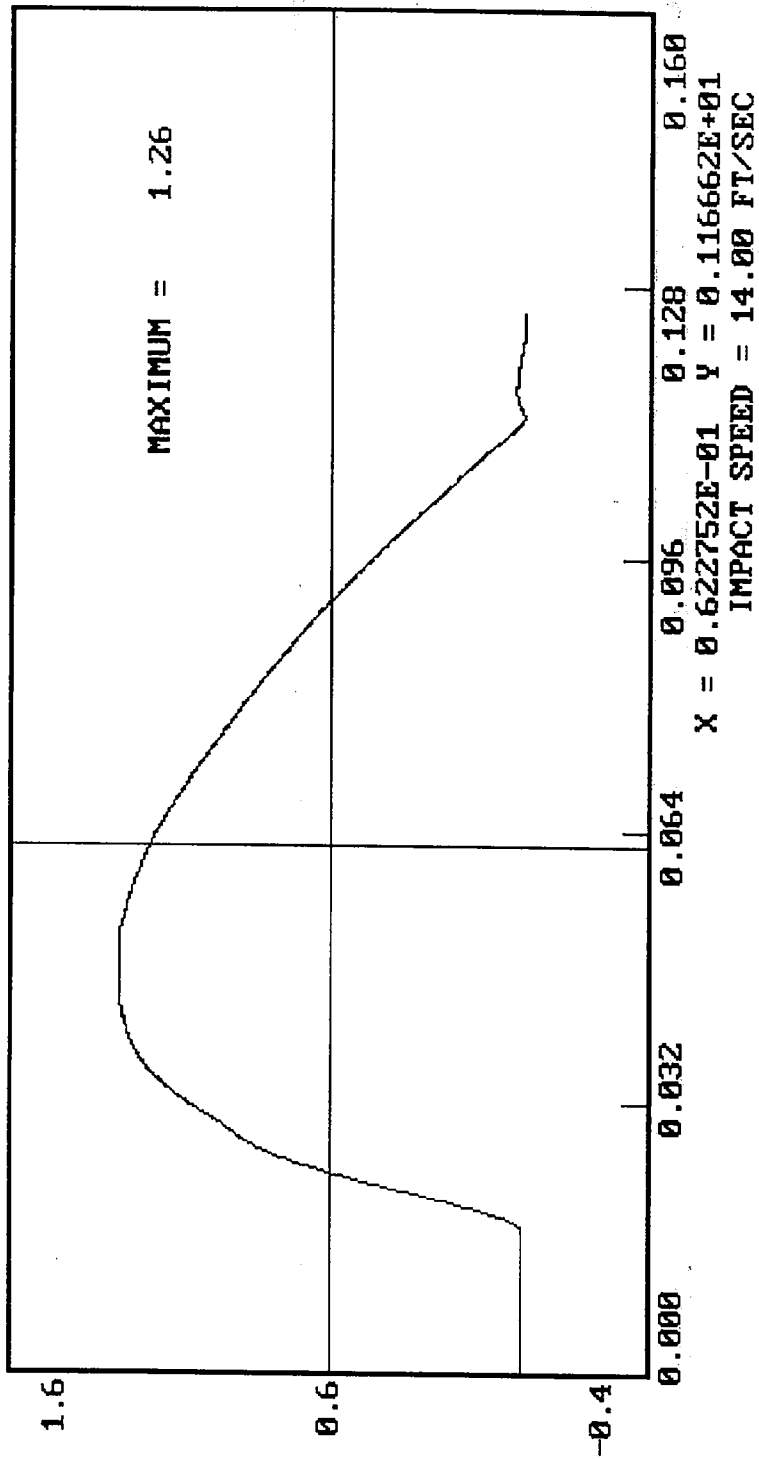
DUMMY # 270

FORCE (LBS) VS. TIME ((SECONDS))



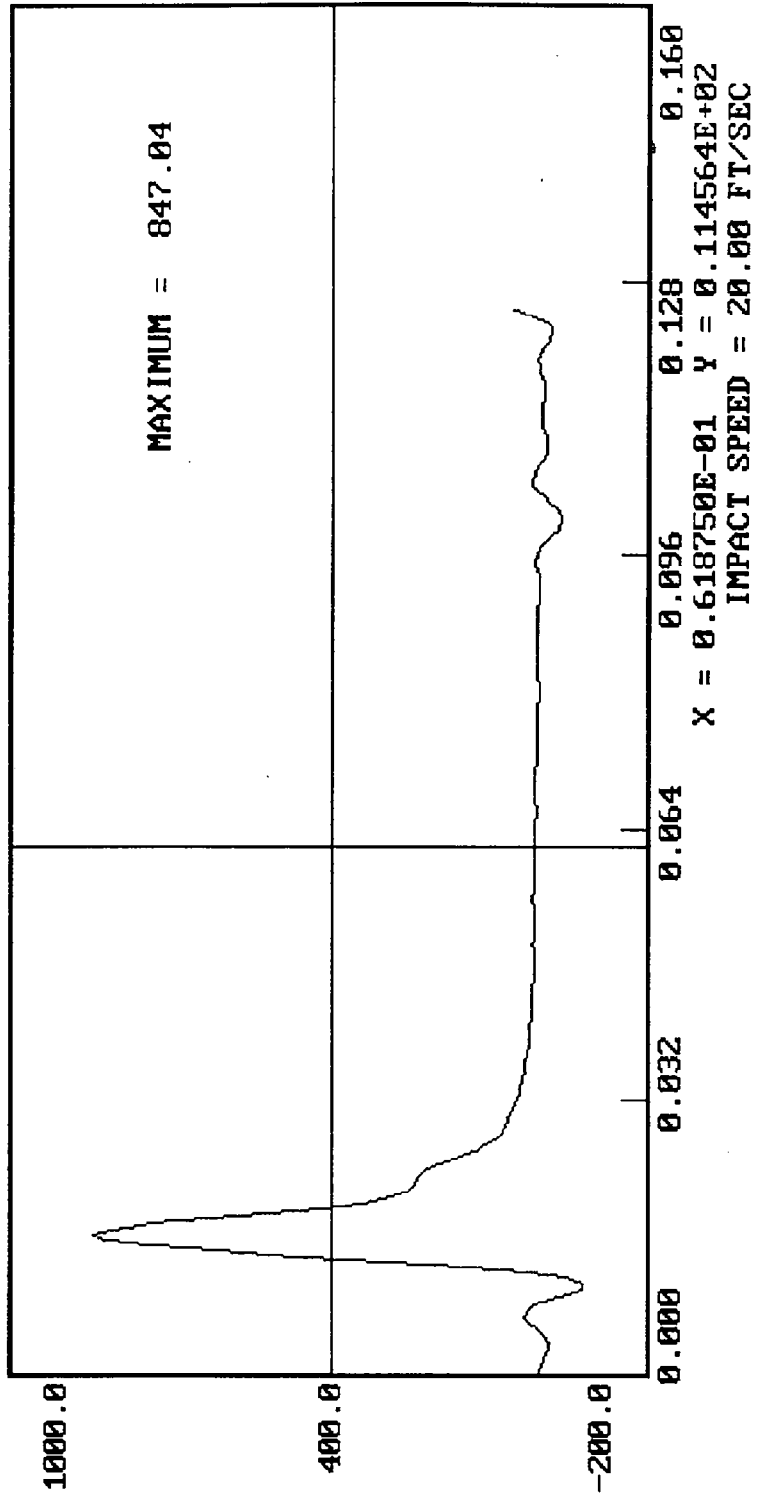
04-03-1996 08:19

DUMMY CALIBRATION - DAMPENER BENCH TEST  
DUMMY # 270  
DISPLACEMENT (IN) VS. TIME ((SECONDS))



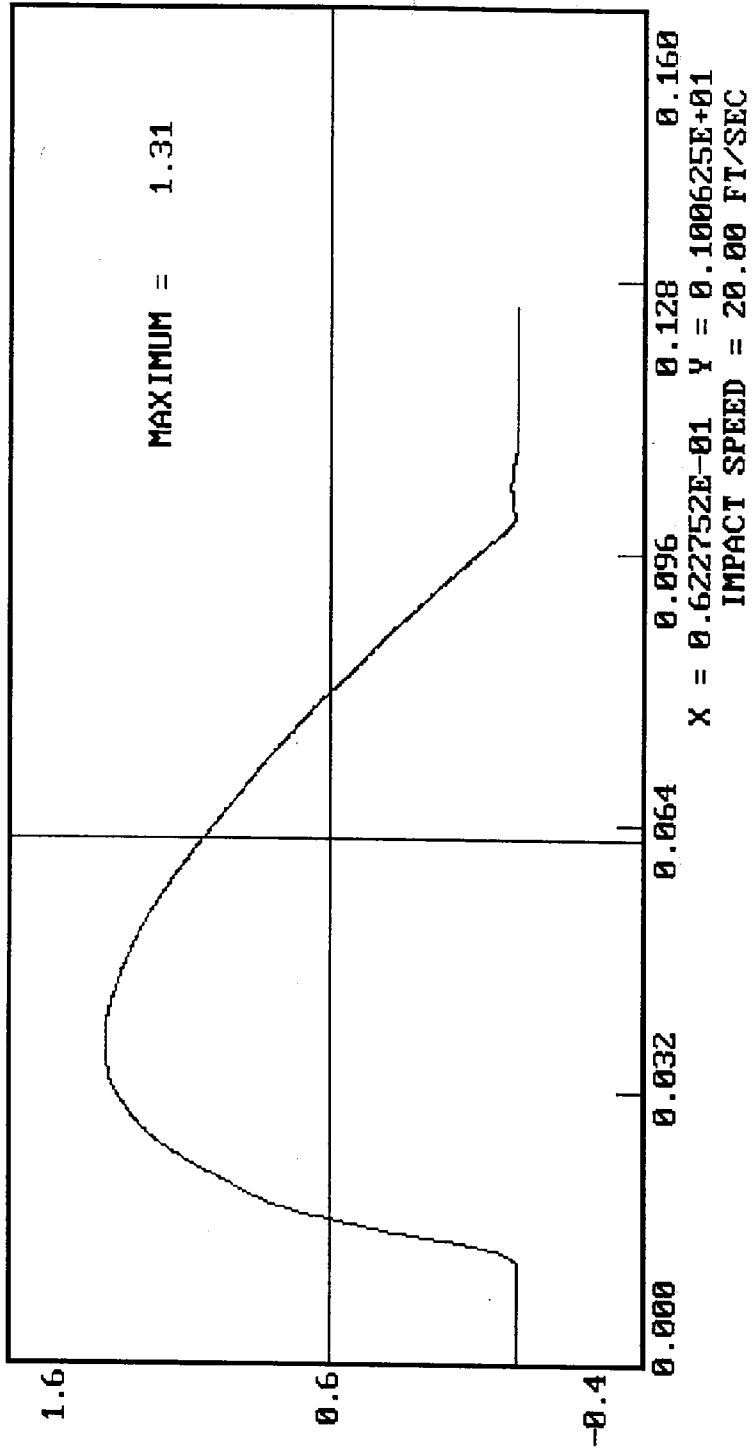
DUMMY CALIBRATION - DAMPENER BENCH TEST  
DUMMY # 270  
FORCE (LBS) VS. TIME ((SECONDS))

04-02-1996 19:08



DUMMY CALIBRATION - DAMPENER BENCH TEST  
DUMMY # 278  
DISPLACEMENT (IN) VS. TIME ((SECONDS))

04-02-1996 19:07



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: April 4, 1996

DUMMY NUMBER: 270

TEST NUMBER: D96612

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	32%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	39
LOWER SPINE	15 - 22 g's	22

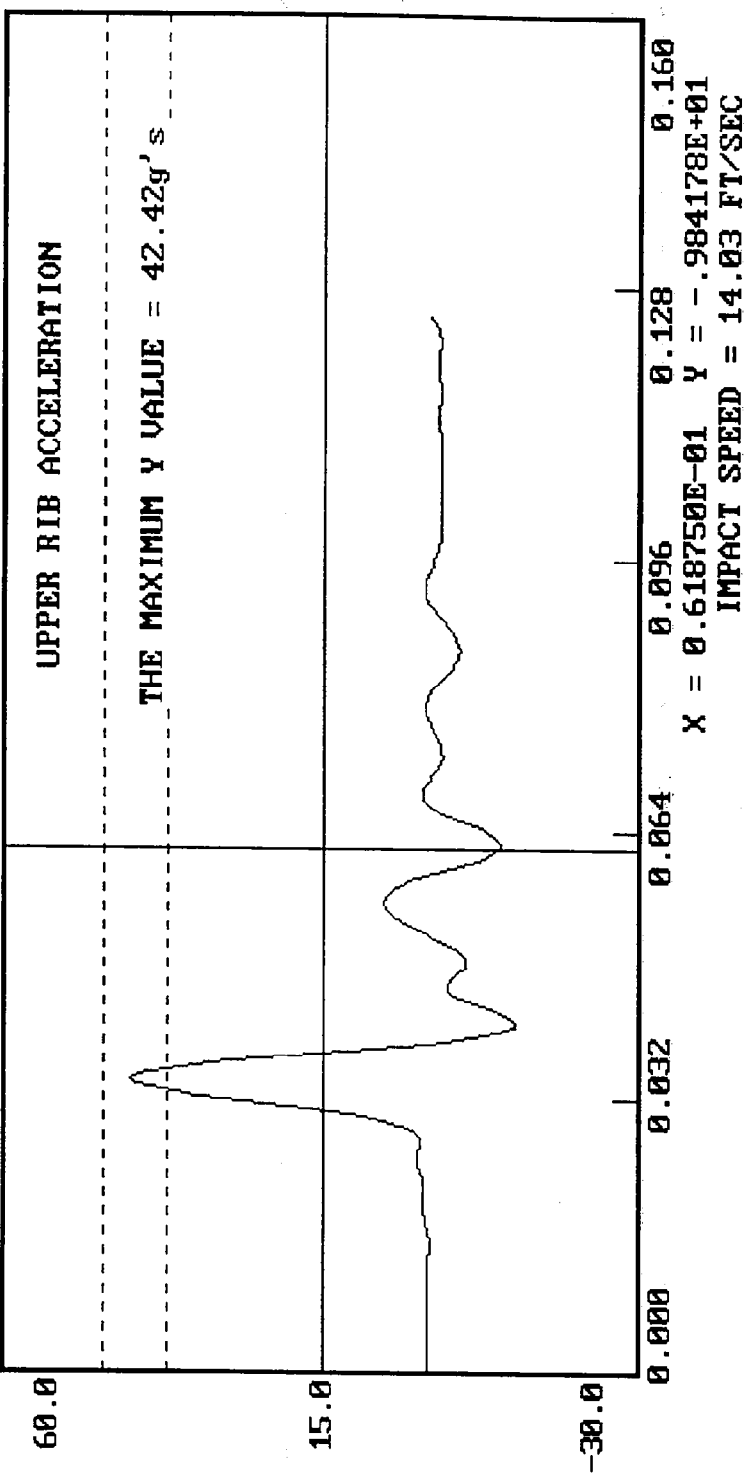
TEST MEETS SPECIFICATIONS

TECHNICIAN *Tim M. D.*

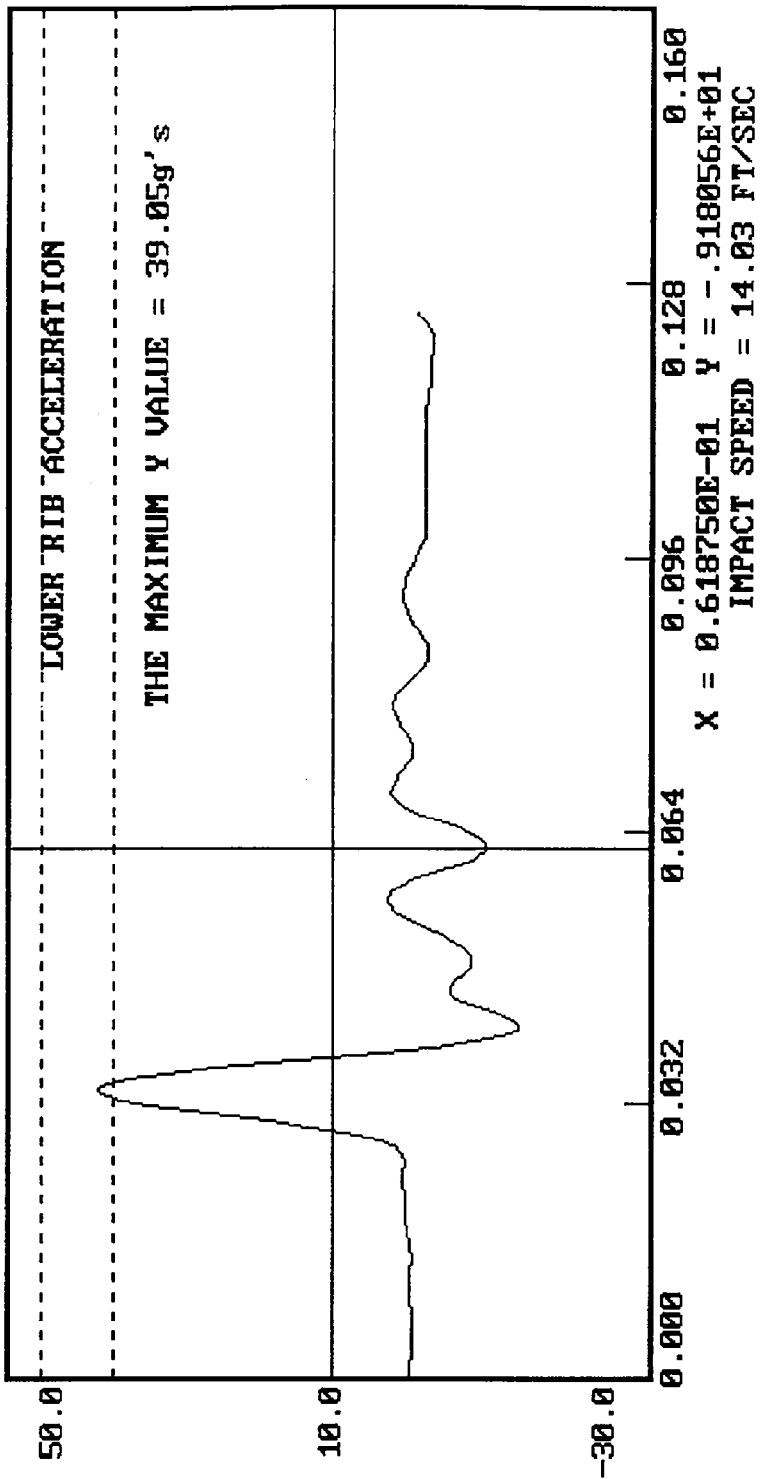
APPROVED BY *Rene Kabeke*

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

04-04-1996 10:46

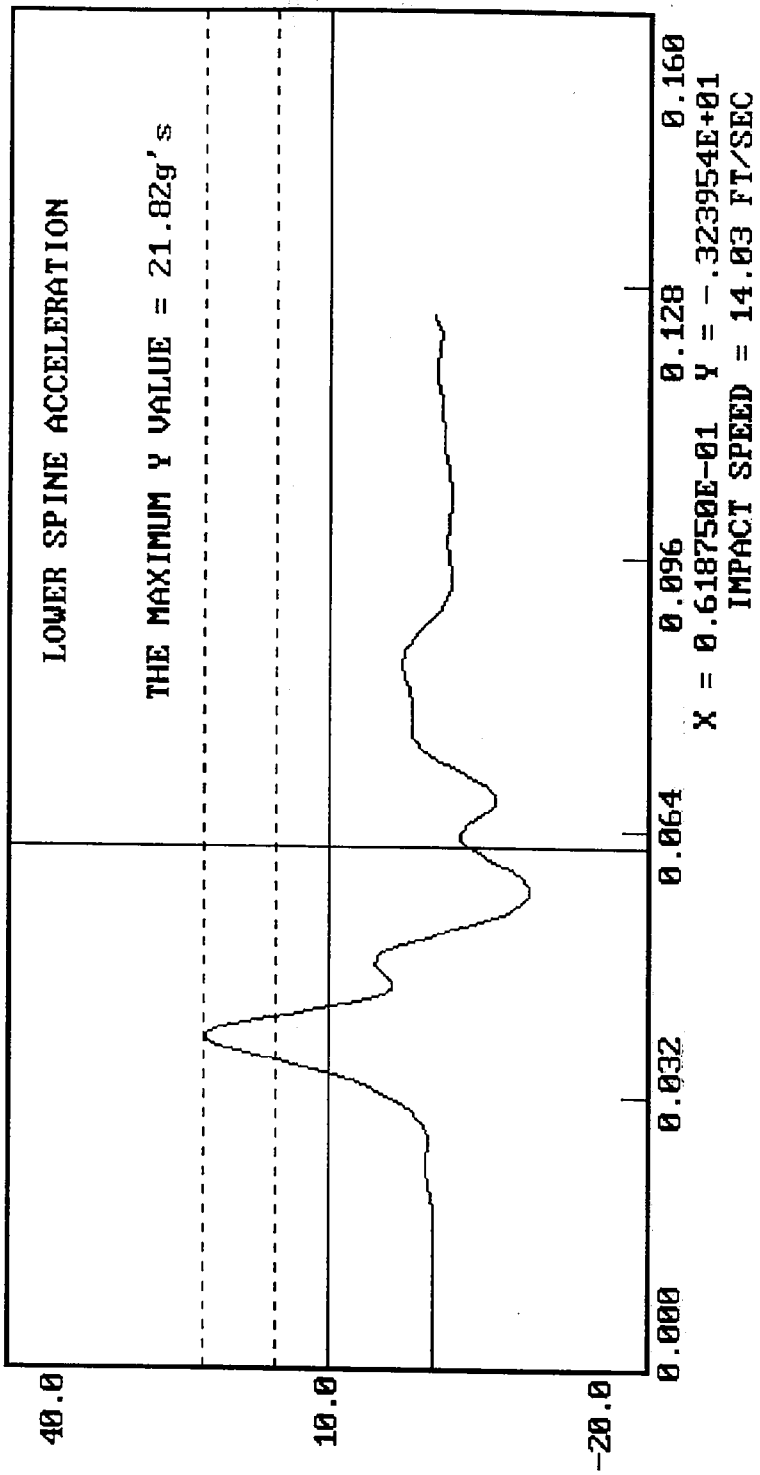


DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 270  
ACCELERATION (G'S) VS. TIME (SECONDS) 04-04-1996 10:46



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

04-04-1996 10:46



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: April 4, 1996

DUMMY NUMBER: 270

TEST NUMBER: D96613

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	32%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	53

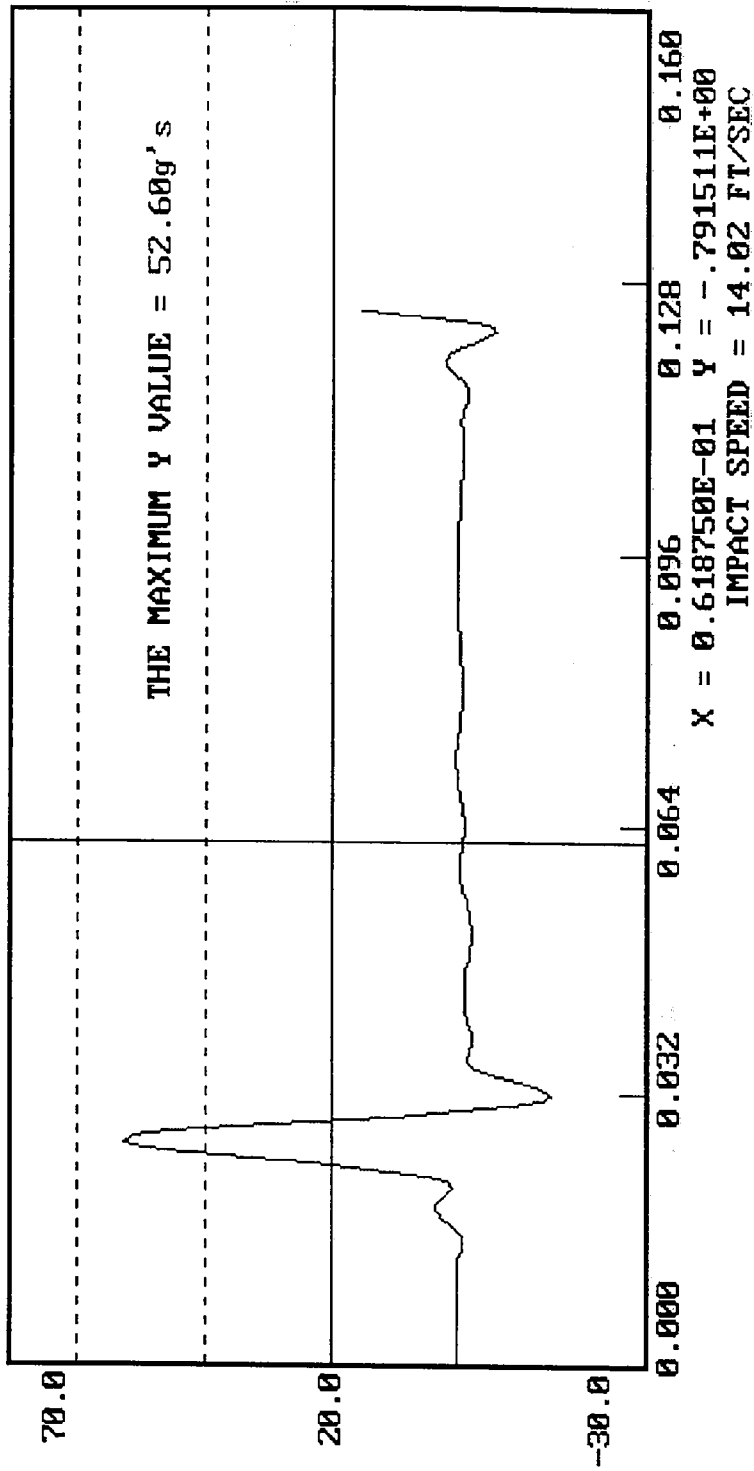
TEST MEETS SPECIFICATIONS

TECHNICIAN Tim White

APPROVED BY Rene Kabele

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

04-04-1996 10:52



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST  
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: March 27, 1996

DUMMY NUMBER: 270

TEST NUMBER: D96614

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	24%
FORCE @ 0.5 in	23.3 - 36.5 lbs	30.0
FORCE @ 0.75 in	36.7 - 49.8 lbs	42.5
FORCE @ 1.0 in	50 - 63 lbs	56
FORCE @ 1.3 in	73 - 88 lbs	78

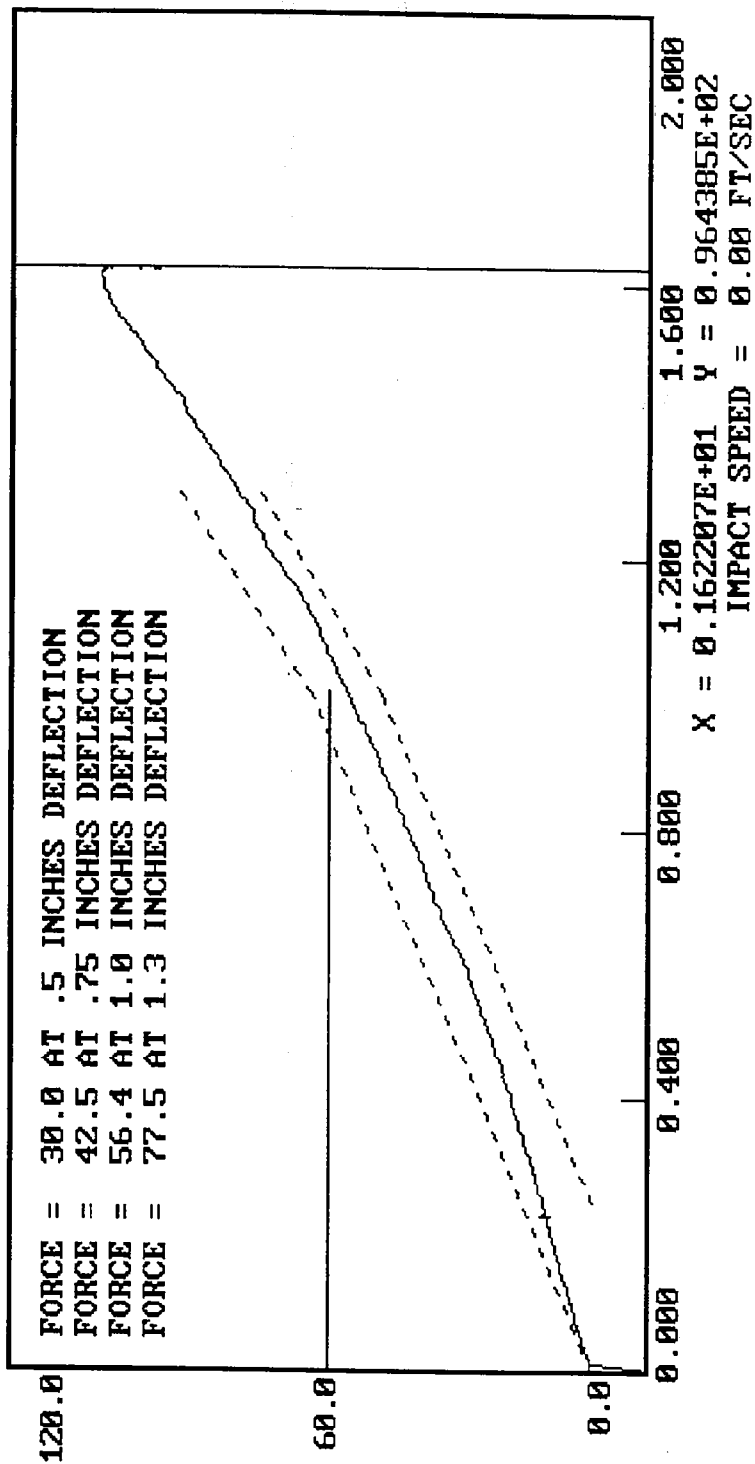
TEST MEETS SPECIFICATIONS

TECHNICIAN Jim White

APPROVED BY Steve Korbade

DUMMY CALIBRATION - ABDOMEN COMPRESSION  
 DUMMY # 270  
 03-27-1996 09:45

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



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: March 26, 1996

DUMMY NUMBER: 270

TEST NUMBER: D96615

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	24
FORCE @ 30°	34 - 46 lbs	40
FORCE @ 40°	46 - 58 lbs	50
RETURN ANGLE	12° maximum	1°

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim Hill

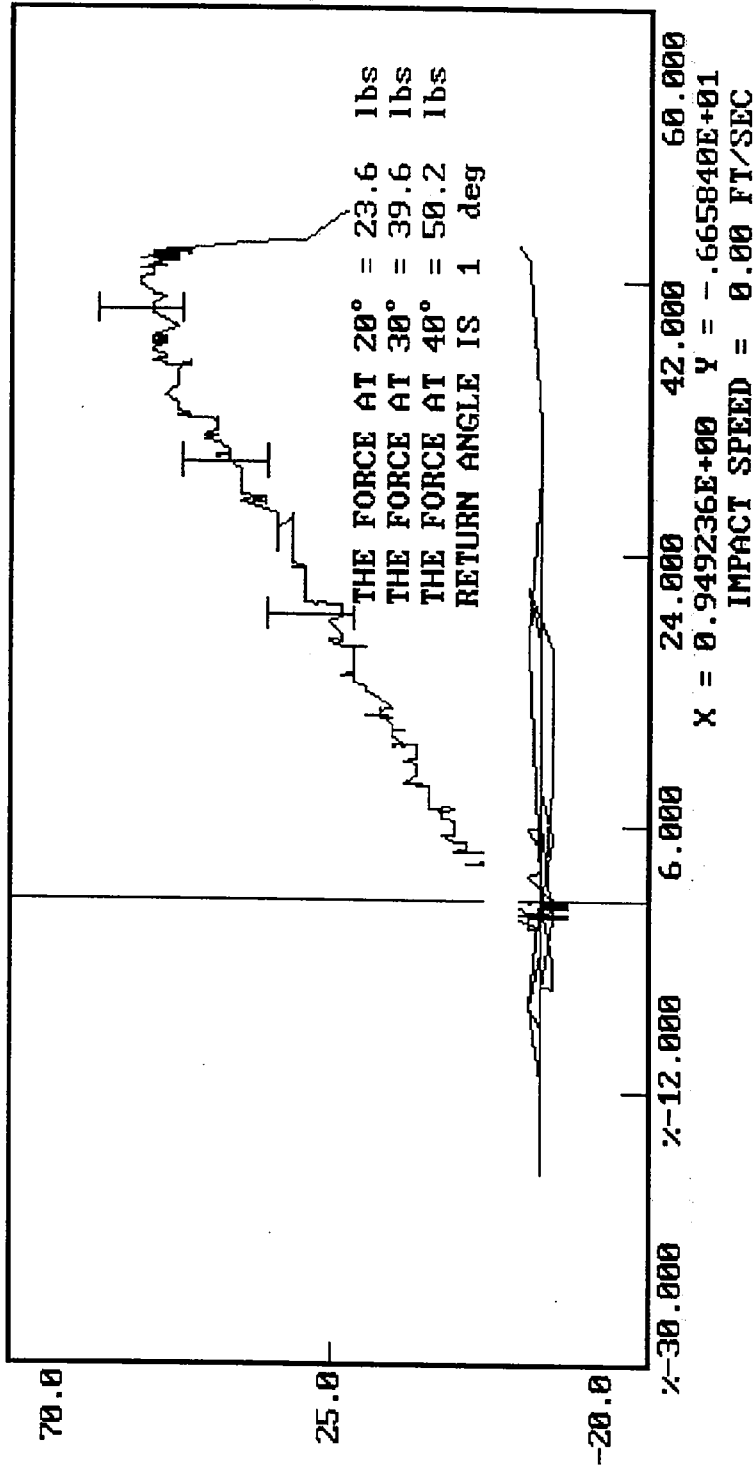
APPROVED BY Paul Kebede

03-26-1996 16:53

DUMMY CALIBRATION - LUMBAR FLEXION

DUMMY # 270

FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

Inspected By: Al Chalmers

Date: April 4, 1996

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

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

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 270

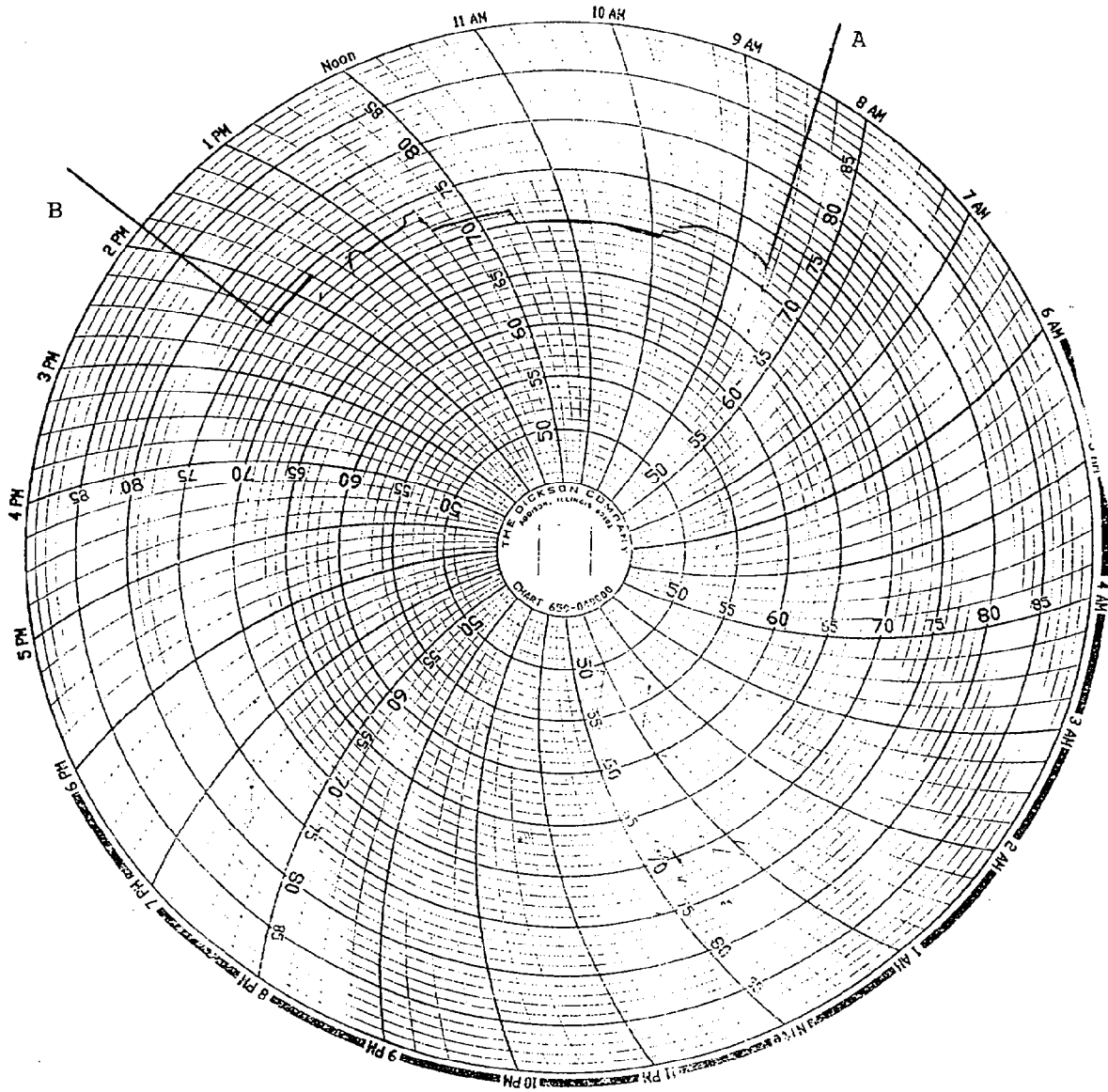
Inspected By: Tim Michnay

Date: April 4, 1996

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

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

VEHICLE AND DUMMY TEMPERATURE



A = Dummies placed in vehicle  
B = Test conducted

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

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

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AGTM2	Endevco	February 12, 1996
Lower Rib Y	ALEC1	Endevco	February 12, 1996
Lower Spine Y	AH1G2	Endevco	February 12, 1996
Pelvis Y	ALCN9	Endevco	February 12, 1996
Upper Rib Redundant Y	AGTB5	Endevco	February 12, 1996
Lower Rib Redundant Y	10411	Endevco	February 12, 1996
Lower Spine Redundant Y	AM751	Endevco	February 12, 1996
Pelvis Redundant Y	AKAF3	Endevco	February 12, 1996

INSTRUMENTS FOR PASSENGER DUMMY NO. 270

LEFT REAR PASSENGER			
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	APIH2	Endevco	March 4, 1996
Lower Rib Y	AJ9C2	Endevco	March 4, 1996
Lower Spine Y	AP2D7	Endevco	March 4, 1996
Pelvis Y	ALCH7	Endevco	March 4, 1996
Upper Rib Redundant Y	AH0B0	Endevco	March 4, 1996
Lower Rib Redundant Y	AHTT2	Endevco	March 4, 1996
Lower Spine Redundant Y	APIT8	Endevco	March 4, 1996
Pelvis Redundant Y	AJ420	Endevco	March 4, 1996

VEHICLE INSTRUMENT CALIBRATION

VEHICLE ACCELEROMETERS			
SERIAL NO.	MANUFACTURER	CALIBRATION DATE	
Moving Barrier CG X	J06-D17	Entran	January 22, 1996
Moving Barrier CG Y	J23-E01	Entran	January 22, 1996
Moving Barrier CG Z	J23-E08	Entran	January 22, 1996
Moving Barrier Rear Axle X	C25-A08	Entran	October 24, 1995
Moving Barrier Rear Axle Y	L18-G01	Entran	October 24, 1995
Left Mid A-Post Y	L14-D03	Entran	October 23, 1995
Left Lower A-Post Y	D06-A16	Entran	February 02, 1996
Left Mid B-Post Y	L18-E11	Entran	October 23, 1995
Left Lower B-Post Y	C25-A04	Entran	January 31, 1996
Rear Floorpan Above Axle X	J23-E06	Entran	January 26, 1996
Rear Floorpan Above Axle Y	L14-D15	Entran	October 23, 1995
Rear Floorpan Above Axle Z	L18-E10	Entran	October 23, 1995
Driver Seat Track Y	C27-B02	Entran	September 28, 1995
Right Side Sill at Front Seat X	J06-D15	Entran	December 13, 1995
Right Side Sill at Front Seat Y	L14-D10	Entran	October 23, 1995
Right Side Sill at Front Seat Z	E13-D01	Entran	September 28, 1995
Right Side Sill at Rear Seat X	F07-A19	Entran	September 29, 1995
Right Side Sill at Rear Seat Y	L18-E13	Entran	January 22, 1996
Right Side Sill at Rear Seat Z	H16-X16	Entran	September 21, 1995
Left Side Sill at Front Seat Y	J10-E08	Entran	January 22, 1996

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Rear Seat Y	L18-E15	Entran	October 24, 1995
Right Rear Occupant Compartment Y	E24-G02	Entran	February 02, 1996
Vehicle CG X	J10-E14	Entran	January 26, 1996
Vehicle CG Y	L14-D06	Entran	October 24, 1995
Vehicle CG Z	J10-E15	Entran	January 26, 1996

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