

V2236

REPORT NO.: MGA-95-21415

SAFETY COMPLIANCE TESTING FOR FMVSS 214
"SIDE IMPACT PROTECTION - PASSENGER CARS"

CHRYSLER CORPORATION
1995 CHRYSLER CIRRUS 4 DOOR SEDAN
NHTSA NO: CS0309

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



MGA Ref. No.: G93A-02

Test Date: January 24, 1995

Report Date: February 7, 1995

FINAL REPORT

Prepared For:

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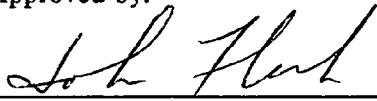
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16. Abstract Compliance tests were conducted on the subject 1995 Chrysler Cirrus 4 Door Sedan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure for the determination of FMVSS 214 compliance. The test was conducted at the MGA Research Proving Grounds and crash Test Center in Burlington, Wisconsin on January 24, 1995. The impact velocity of the Moving Barrier (MDB) was 33.0 mph (53.1 kph) and the ambient temperature of the struck side (driver's) of the target vehicle at the time of impact was 75°F. The maximum static crush of the impacted vehicle was 321 mm at the Occupant H-Point level of the struck vehicle. The test or target vehicle's performance is given below: <table border="0"> <thead> <tr> <th></th><th><u>Driver's SID</u></th><th><u>Left Rear SID</u></th></tr> </thead> <tbody> <tr> <td>Thoracic Trauma Index (TTI)</td><td>58 g's</td><td>67 g's</td></tr> <tr> <td>Pelvis Acceleration</td><td>67 g's</td><td>59 g's</td></tr> <tr> <td>Upper Rib Acceleration</td><td>51.5 g's</td><td>72.2 g's</td></tr> <tr> <td>Lower Rib</td><td>46.9 g's</td><td>65.6 g's</td></tr> <tr> <td>Lower Spine</td><td>64.2 g's</td><td>62.4 g's</td></tr> </tbody> </table>					<u>Driver's SID</u>	<u>Left Rear SID</u>	Thoracic Trauma Index (TTI)	58 g's	67 g's	Pelvis Acceleration	67 g's	59 g's	Upper Rib Acceleration	51.5 g's	72.2 g's	Lower Rib	46.9 g's	65.6 g's	Lower Spine	64.2 g's	62.4 g's
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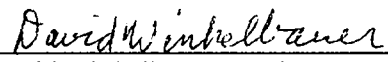
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Date: 2-9-95



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Date: 2-9-95

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SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 94 FMVSS 214 "Dynamic" 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 in a 1995 Chrysler Cirrus 4 Door Sedan.

This test was conducted using the Office of Vehicle Safety Compliance's FMVSS 214 test procedure (TP-214D-03, dated May 17, 1993).

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 stationary 1995 Chrysler Cirrus 4 Door Sedan 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 monorail at a velocity of 33.0 mph (53.1 kph) on January 24, 1995. The orientation angle of the striking vehicle was 90° counterclockwise with respect to the longitudinal axis of the struck vehicle. Pre- and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are shown in Appendix A.

Two restrained Side Impact Dummies (SIDs) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions. The SID in the driver (Pos. #1) and left rear (Pos. #4) were placed according to instructions specified in the Laboratory Test Procedure. The side impact event was documented by nine high speed cameras. Camera locations and other pertinent camera information can be found in this report. Appendix B contains the vehicle and dummy response data traces.

The SIDs were instrumented with the following accelerometers.

1. Left Upper Rib (LUR) uniaxial accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial accelerometer (Y-direction)

The summary of the side impact dummy (SID) configuration and performance verification test data are shown in Appendix C. Dummy and vehicle calibration data can be found in Appendix D of this report.

The driver's Thoracic Trauma Index (TTI) was 58 g's. Maximum pelvic Y acceleration was 67 g's.

The left rear passenger's TTI was 67 g's. Maximum pelvic Y acceleration was 59 g's.

TEST NOTES

The left B Post, Mid Y accelerometer was not used on this test because its placement would have required disassembling part of the vehicle interior.

SECTION 3
SUMMARY OF TEST DATA

TABLE 1
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan
Vehicle NHTSA No.: CS0309 VIN: 1C3EJ56H0SN507360
Vehicle Body Color: Green Month & Year of Manufacture: 11-94
Engine Data: 6 cylinders; CID; 2.5 Liter; cc
Placement Longitudinal; or X Lateral
Transmission: 3 speed; Manual; X Automatic; Overdrive
Final Drive: Rear Wheel Drive; X Frt. Wheel Drive; Four Wheel Drive
Odometer Reading 158 miles
Options: X A/C; X Pwr. Steering; X Pwr. Brakes; X Pwr. Windows
 Power Seats; X Tilt Wheel; X Power Door Locks; X Power Side Mirrors;

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 30 Psi FRONT (207 kpa)
30 Psi REAR (207 kpa)
Recommended Tire Size: 19565R15
Tires on Test Vehicle: 19565R15 Manufacturer: Michelin

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 = 865 lbs (A) (392.4 kg)
No. of Occupants x 150 lbs. = 750 lbs (B) (340.2 kg)
Cargo Capacity (A-B) = 115 lbs (52.2 kg)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>994</u> lbs (450.9 kg)	Right Rear	=	<u>566</u> lbs (256.7 kg)
Left Front	=	<u>1041</u> lbs (472.2 kg)	Left Rear	=	<u>571</u> lbs (259.0 kg)
TOTAL FRONT	=	<u>2035</u> lbs (923.1 kg)	TOTAL REAR	=	<u>1137</u> lbs (515.7 kg)
% of Total Vehicle Weight	=	<u>64.2</u> %;	% of Total Weight	=	<u>35.8</u> %
TOTAL WEIGHT	=	<u>3172</u> lbs (1438.8 kg)			

TABLE 2
TEST VEHICLE DATA

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids = 3172 lbs (1438.8 kg)
Cargo Carrying Capacity of Test Vehicle = 115 lbs (52.2 kg)
Weight of 2 Side Impact Dummies (2 x 178 lbs.) = 356 lbs (161.5 kg)
TEST VEHICLE TARGET WEIGHT: = 3643 lbs (1652.5 kg)

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front = 1054 lbs (478.1 kg) Right Rear = 674 lbs (305.7 kg)
Left Front = 1152 lbs (522.5 kg) Left Rear = 743 lbs (337.0 kg)
TOTAL FRONT = 2206 lbs (1000.6 kg) TOTAL REAR = 1417 lbs (642.7 kg)
% of Total Weight = 60.9% % of Total Weight = 39.1%
TOTAL TEST WEIGHT = 3623 lbs (1643.3 kg)

TEST VEHICLE ATTITUDE (all dimensions in inches):

CURB WEIGHT ATTITUDE: in (mm)

Right Front 27.8 (706) Left Front 27.6 (700) Right Rear 28.1 (715) Left Rear 28.0 (711)

FULLY LOADED WEIGHT ATTITUDE: in (mm)

Right Front 27.6 (702) Left Front 27.0 (685) Right Rear 27.2 (690) Left Rear 26.3 (668)

TEST ATTITUDE: in (mm)

Right Front 27.2 (690) Left Front 27.0 (685) Right Rear 27.3 (694) Left Rear 26.5 (673)

Test Vehicle Wheelbase: 107.9 inches (2740 mm)

C.G. = 42.2 inches (1071 mm) rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 172.8 in (4390 mm)
Centerline = 185.3 in (4707 mm)
Left Side = 172.8 in (4390 mm)

FIGURE 1
PRE-TEST CONDITIONS

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan
Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 8.7 in (220 mm)

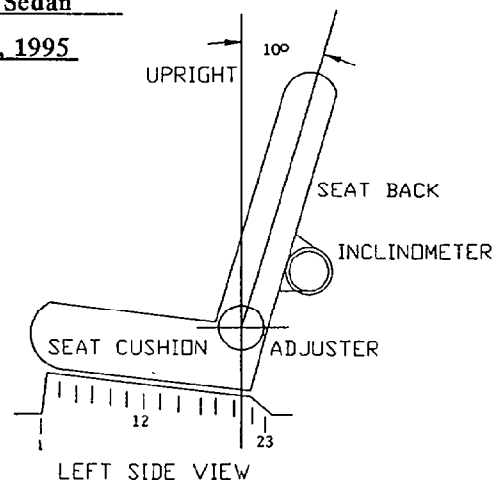
Total Number of Adjustment Positions or Detents: 23

Test Position: Mid Position

(12th detent from front, 1st position being #1)

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 10° degrees from full forward position



SECOND POSITION SEAT:

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

Seat Back Adjustment Position: N/A

ADJUSTABLE STEERING COLUMN POSITION: Mid Position

WINDOW POSITIONS: Left Front closed Left Rear closed

Right Front open Right Rear open

Note: Windows will be in closed position on struck side of test vehicle
and in open position on opposite side.

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 16.0 gallons (60.6 liters)

Test Volume: 14.75 gallons (55.9 liters) 92% of capacity

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

Wheelbase: = 107.9 in (2740 mm)

Impact Point is 16.9 in (430 mm) rearward of front axle centerline

TABLE 3
CRASH TEST SUMMARY FOR TEST VEHICLE

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan
 Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

Overall Length = 185.3 in (4707 mm); Overall Width = 71.3 in (1812 mm)

TEST WEIGHT:

Right Front	=	<u>1054</u> lbs (478.1 kg)	Right Rear	=	<u>674</u> lbs (305.7 kg)
Left Front	=	<u>1152</u> lbs (522.5 kg)	Left Rear	=	<u>743</u> lbs (337.0 kg)
TOTAL FRONT	=	<u>2206</u> lbs (1000.6 kg)	TOTAL REAR	=	<u>1417</u> lbs (642.7 kg)
% of Total Weight	=	<u>60.9</u> %	% of Total Weight	=	<u>39.1</u> %
TOTAL VEHICLE WEIGHT <u>3623</u> lbs (1643.3 kg)					
Wheelbase = <u>107.9</u> in (2740 mm)					
Longitudinal C.G. front Center of Front Axle			= <u>42.2</u> in (1071 mm)		
Impact Angle with Respect to Impactor			= <u>90°</u> degrees		

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (240 mm above ground) = 156 mm
 2. LEVEL 2 (485 mm above ground) = 321 mm
 3. LEVEL 3 (538 mm above ground) = 315 mm
 4. LEVEL 4 (832 mm above ground) = 244 mm
 5. LEVEL 5 (1292 mm above ground) = 29 mm
- Maximum Post-Test Intrusion = 321 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 2 lap &</u> <u>shoulder belt</u> <u>with airbag</u>	<u>type 2 lap &</u> <u>shoulder belt</u>

INSTRUMENTATION:

Number of Vehicle Data Channels:	=	<u>16</u>
Number of Cameras: Onboard Vehicle	=	<u>3</u>
Offboard Vehicle	=	<u>5</u>
Deformable Barrier	=	<u>2</u>
TOTAL	=	<u>10</u>

TABLE 4
CRASH TEST SUMMARY FOR SIDE IMPACTOR

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

Overall Width of Framework Carriage	= <u>49.3</u> in (1252.2 mm)
Overall Length of MDB (incl. honeycomb impact face)	= <u>162</u> in (4114.8 mm)
Wheelbase of Framework Carriage	= <u>102</u> in (2590.8 mm)
Tread of Framework Carriage (Front & Rear)	= <u>74</u> in (1879.6 mm)
C.G. Location Rearward of Front Axle	= <u>43.4</u> in (1102.4 mm)
C.G. Location From Center Line	= <u>-0.3</u> in (-7.62 mm)
C.G. Location Above Ground Level	= <u>19.2</u> in (487.7 mm)

MDB WEIGHT:

Left Front	= <u>1095</u> lbs (496.7 kg)	Left Rear	= <u>413</u> lbs (187.3 kg)
Right Front	= <u>624</u> lbs (283.0 kg)	Right Rear	= <u>858</u> lbs (389.2 kg)
TOTAL FRONT	= <u>1719</u> lbs (779.7 kg)	TOTAL REAR	= <u>1271</u> lbs (576.5 kg)
TOTAL MDB WEIGHT = <u>2990</u> lbs (1356.2 kg)			

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

Impact Speed = Primary: 32.99 mph (53.1 kph) Secondary: 32.90 mph (53.0 kph)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1.	Row A Top of Stack (33 in)	= <u>109</u> mm
2.	Row B Mid Stack (27 in)	= <u>66</u> mm
3.	Row C Top of Bumper (21 in)	= <u>56</u> mm
4.	Row D Center of Bumper (17 in)	= <u>76</u> mm

INSTRUMENTATION:

Number of MDB Data Channels = 7

TABLE 5
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to shoulder</u>	<u>to C Post</u>
Arm	<u>to door, door lock</u>	<u>to door</u>
Pelvis	<u>to armrest</u>	<u>to armrest</u>
Left Knee	<u>to armrest</u>	<u>to armrest</u>
Right Knee	<u>to left knee</u>	<u>to left knee</u>

DOOR OPENING:

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

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 4 mm (.2 in) forward Vertical: 3 mm (.1 in) high

ARM REST LOCATIONS:

Front: 210 mm below window opening
Rear: 245 mm below window opening

SEAT CRUSH:

Driver Seat Back: 77 mm Driver Seat Cushion: 55 mm
Left Rear Seat Back: 63 mm Left Rear Seat Cushion: 96 mm

GLAZING DAMAGE:

Driver and left rear passenger window broke, windshield cracked

PILLAR PERFORMANCE:

No failure noted

SILL SEPARATION:

No separation noted

OTHER NOTABLE IMPACT EFFECTS:

None noted

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

TABLE 6

SIDE IMPACT DUMMY (SID) TEST DATA SUMMARYYear/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door SedanVehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

	Front Dummy ID # 269				Rear Dummy ID # 272			
	Pos. Direct.		Neg. Direct		Pos. Direct.		Neg. Direct	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS:								
Upper Rib Lateral.....Y	51.5	28	13.3	79	72.2	44	2.6	197
Upper Rib Lateral....Y(R)	53.1	28	13.3	79	74.4	44	2.2	178
Lower Rib Lateral.....Y	46.9	28	10.8	161	65.6	45	19.0	72
Lower Rib Lateral.....Y(R)	47.6	28	11.0	161	65.2	45	19.0	73
SPINE ACCELERATIONS:								
Lower Lateral.....Y	64.2	32	10.2	91	62.4	49	8.9	78
Lower Lateral.....Y(R)	62.6	32	10.1	91	62.4	48	9.5	78
PELVIC ACCELERATIONS:								
Lateral.....Y	67.1	34	8.1	65	59.4	40	6.4	96
Lateral.....Y(R)	67.7	33	8.4	64	59.1	40	6.8	101

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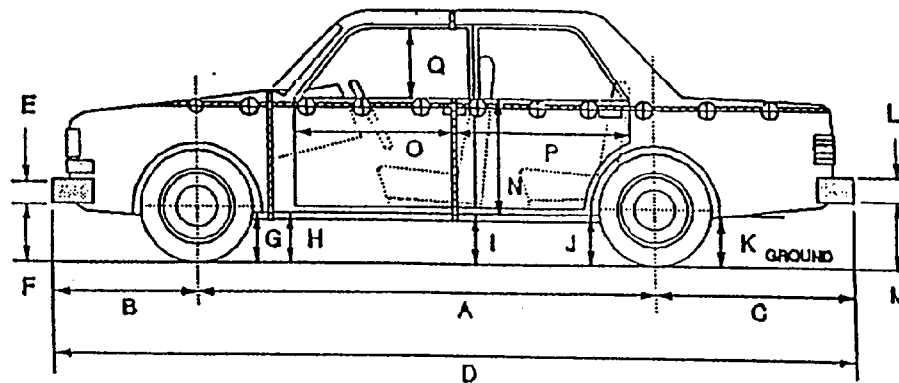
Positive Direction - Longitudinal (X) = forward

Lateral (Y) = to right

Vertical (Z) = up

Note: Y(R) denotes redundant Y direction accelerometer.

FIGURE 2
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

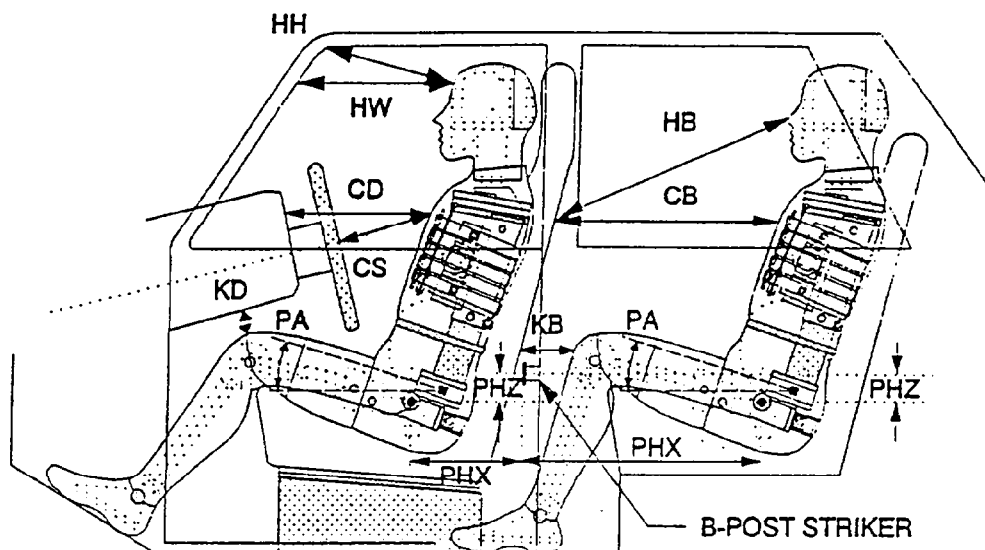
J1 = To Pinch Weld

J2 = To Sill

Units: mm

LOCATION	PRE-TEST	POST-TEST	Δ CHANGE
A	2740	2708	32
B	945	912	33
C	1022	1041	19
D	4707	4661	46
E	135	135	0
F	362	375	13
G	210	215	5
H	158	182	24
I	162	180	18
J1/J2	174/170	164/154	10/16
K	225	224	1
L	385	385	0
M	320	333	13
N	600	530	70
O	862	818	44
P	1175	1110	65
Q	420	396	24
R	4390	4356	34
S	4390	4355	35
T	1812	1561	251

FIGURE 3
SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS



LEFT SIDE VIEW

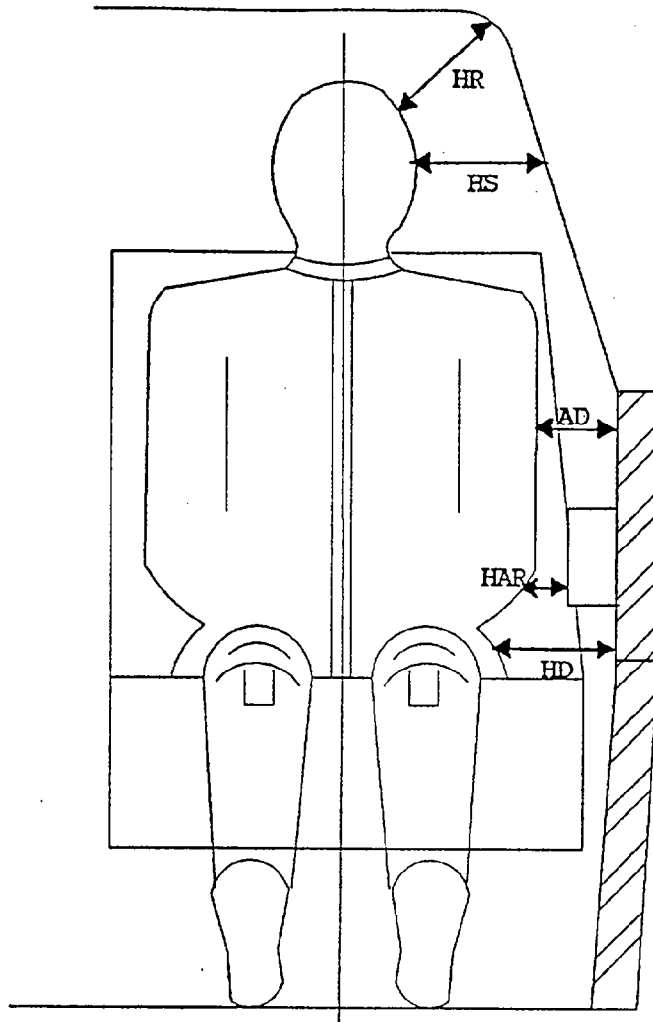
NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

NOTE: All dimensions are in mm

	DRIVER ID #269	LEFT REAR PASSENGER ID #272	
HH	364	N/A	
HW	511	N/A	
HS	N/A	734	
CD	516	CB	582
CS	332	N/A	
KDL	70	KBL	163
KDR	71	KBR	174
PA°	24.2°	23.4°	
PHX	232	208	
PHZ	92	307	

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

FIGURE 4
SIDE IMPACT DUMMY (SID) LATERAL CLEARANCE DIMENSIONS



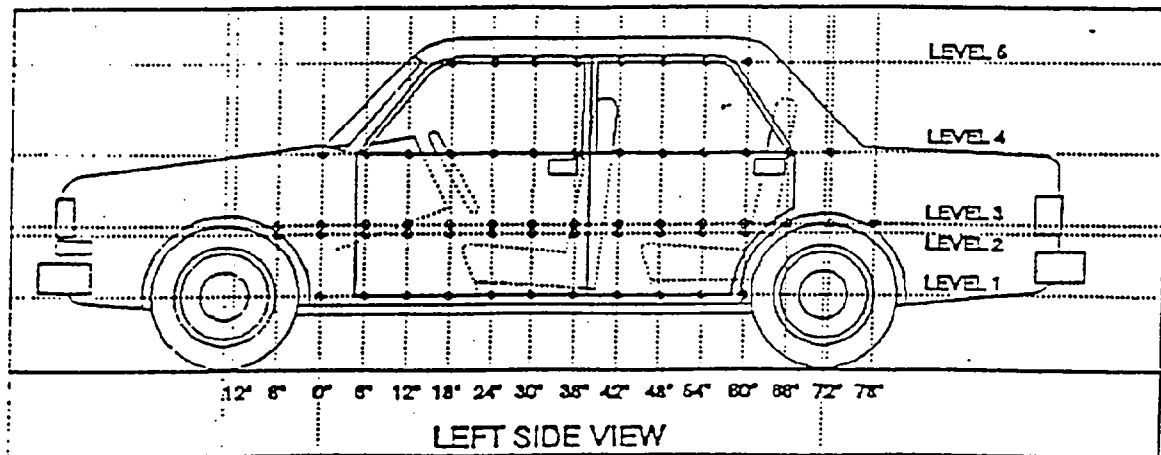
NOTE: All dimensions are in mm

	DRIVER ID #269	LEFT REAR PASSENGER ID #272
HR	92	127
HS	265	171
AD	104	105
HD	132	143

FIGURE 5
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995



As tested height measurements are with respect to ground along the vertical 33" line shown above:

<u>33" Side Profile</u>	
Level 5 @ Window Top	= <u>1292</u> mm
Level 4 @ Window Sill	= <u>832</u> mm
Level 3 @ Mid Door	= <u>538</u> mm
Level 2 @ Occupant H-Point	= <u>485</u> mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	= <u>240</u> mm

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH
LEVEL 1 AT AXLE CENTER LINE

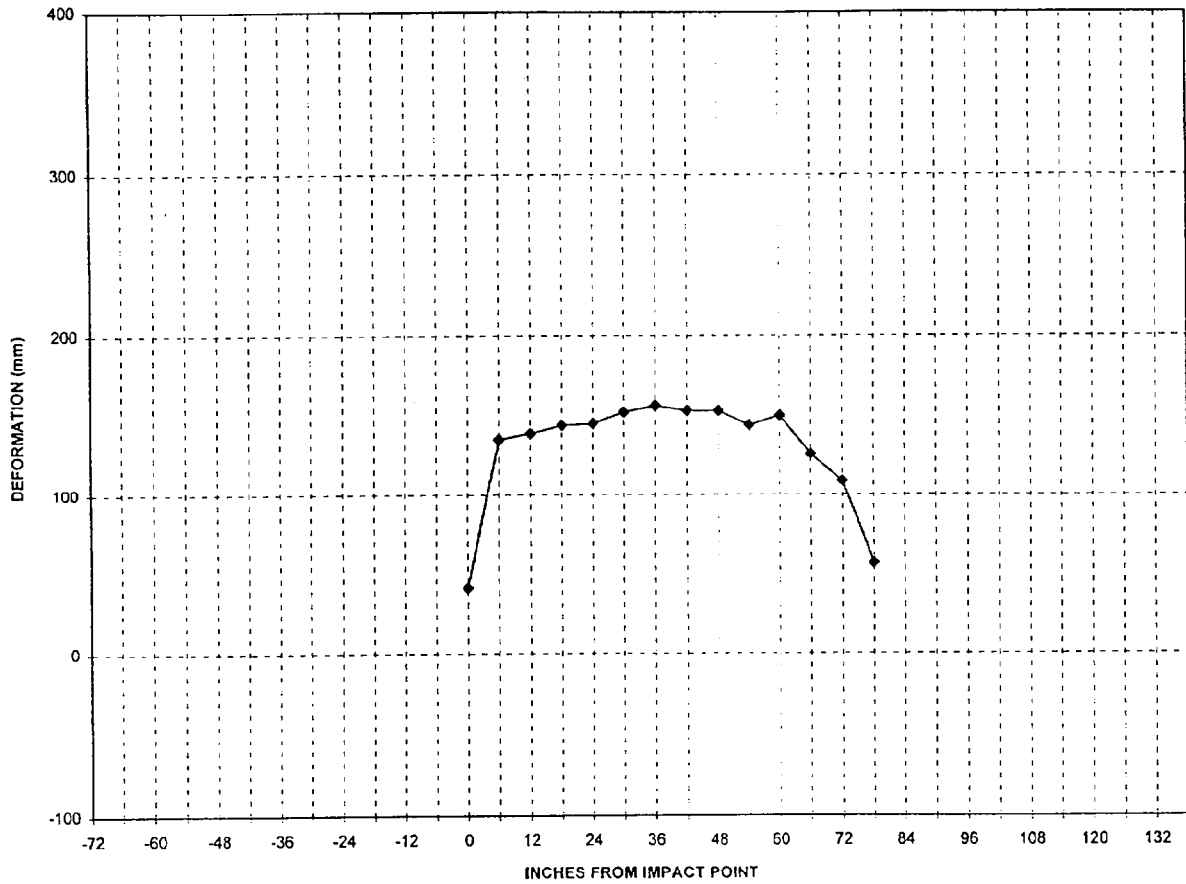
Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	---	---	---
-30	---	---	---
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	843	885	42 (impact point)
6	846	981	135
12	845	984	139
18	846	990	144
24	846	991	145
30	848	1000	152
36	846	1002	156
42	847	1000	153
48	847	1000	153
54	858	1002	144
60	851	1001	150
66	850	976	126
72	851	960	109
78	850	907	57
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	---	---	---
114	---	---	---
120	---	---	---
126	---	---	---
132	---	---	---
138	---	---	---

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 1 AT AXLE CENTER LINE

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH

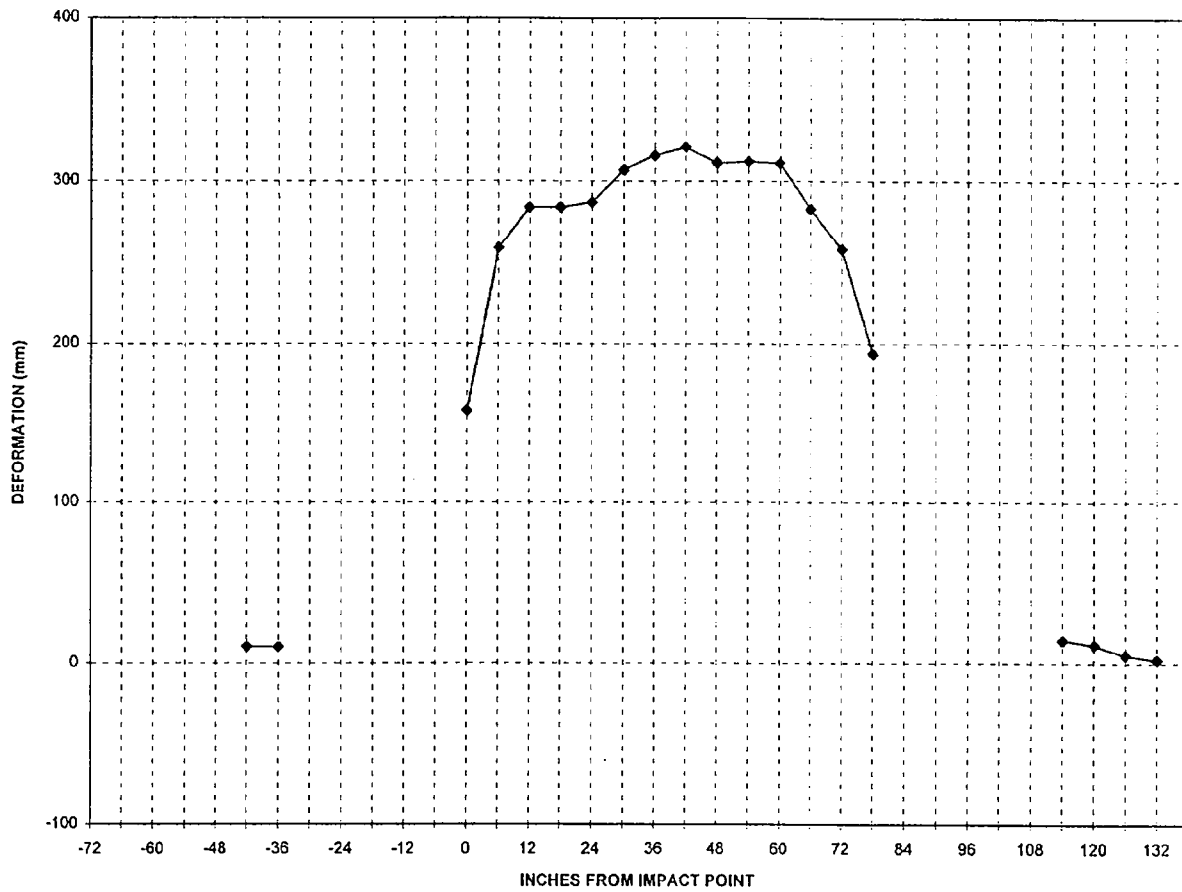
LEVEL 2 AT OCCUPANT H-POINT

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan
 Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	915	925	10
-36	871	881	10
-30	---	---	---
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	800	958	158 (impact point)
6	798	1057	259
12	792	1076	284
18	789	1073	284
24	790	1077	287
30	786	1093	307
36	786	1102	316
42	786	1107	321
48	795	1106	311
54	790	1102	312
60	791	1102	311
66	799	1082	283
72	805	1063	258
78	812	1006	194
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	---	---	---
114	861	875	14
120	887	898	11
126	920	925	5
132	963	965	2
138	---	---	---
144	---	---	---

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

FIGURE 6 (Cont'd)
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 2 AT OCCUPANT H-POINT

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH

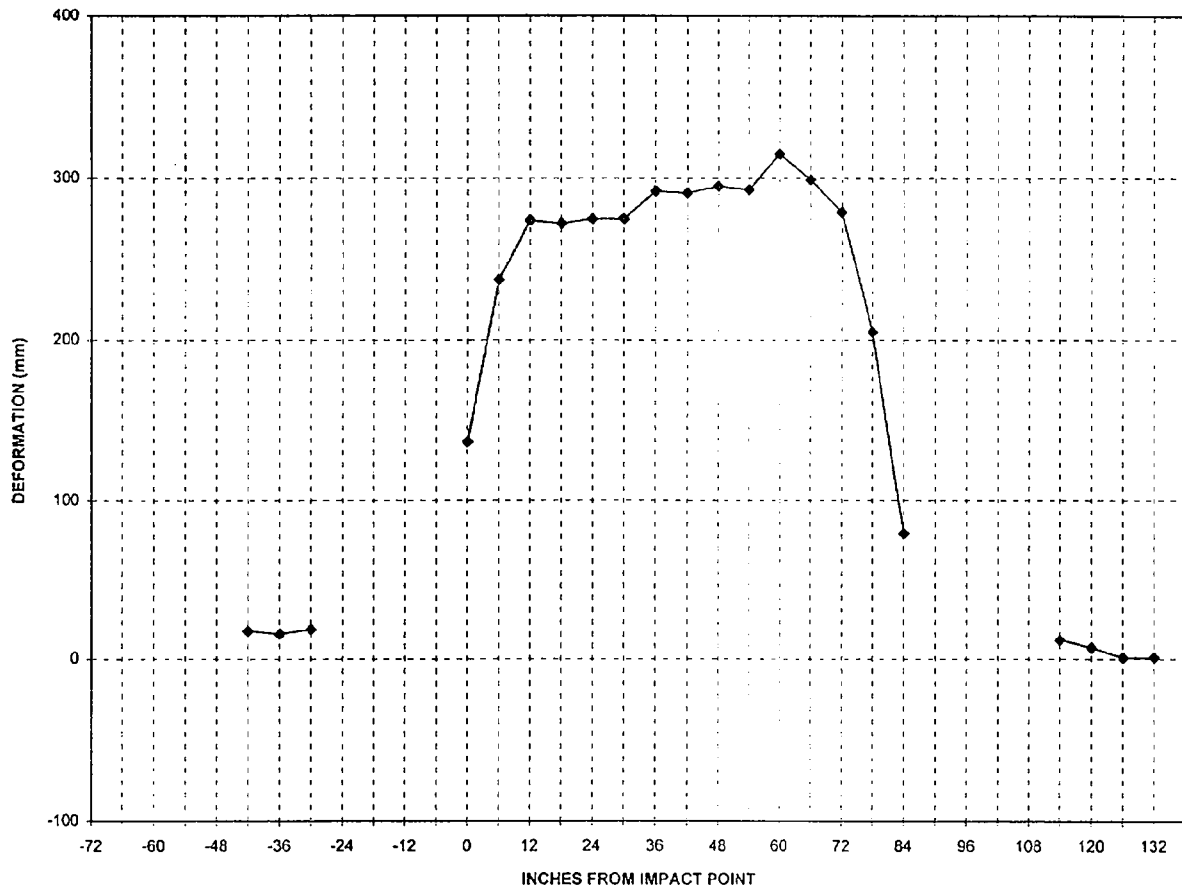
LEVEL 3 AT MID-DOOR

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan
 Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	910	928	18
-36	867	883	16
-30	818	837	19
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	794	931	137 (impact point)
6	793	1030	237
12	788	1062	274
18	784	1056	272
24	781	1056	275
30	780	1055	275
36	777	1069	292
42	776	1067	291
48	779	1074	295
54	782	1075	293
60	778	1093	315
66	792	1091	299
72	798	1077	279
78	805	1010	205
84	812	891	79
90	---	---	---
96	---	---	---
102	---	---	---
108	---	---	---
114	858	870	12
120	880	887	7
126	910	911	1
132	959	960	1
138	---	---	---

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 3 AT MID-DOOR

TABLE 7

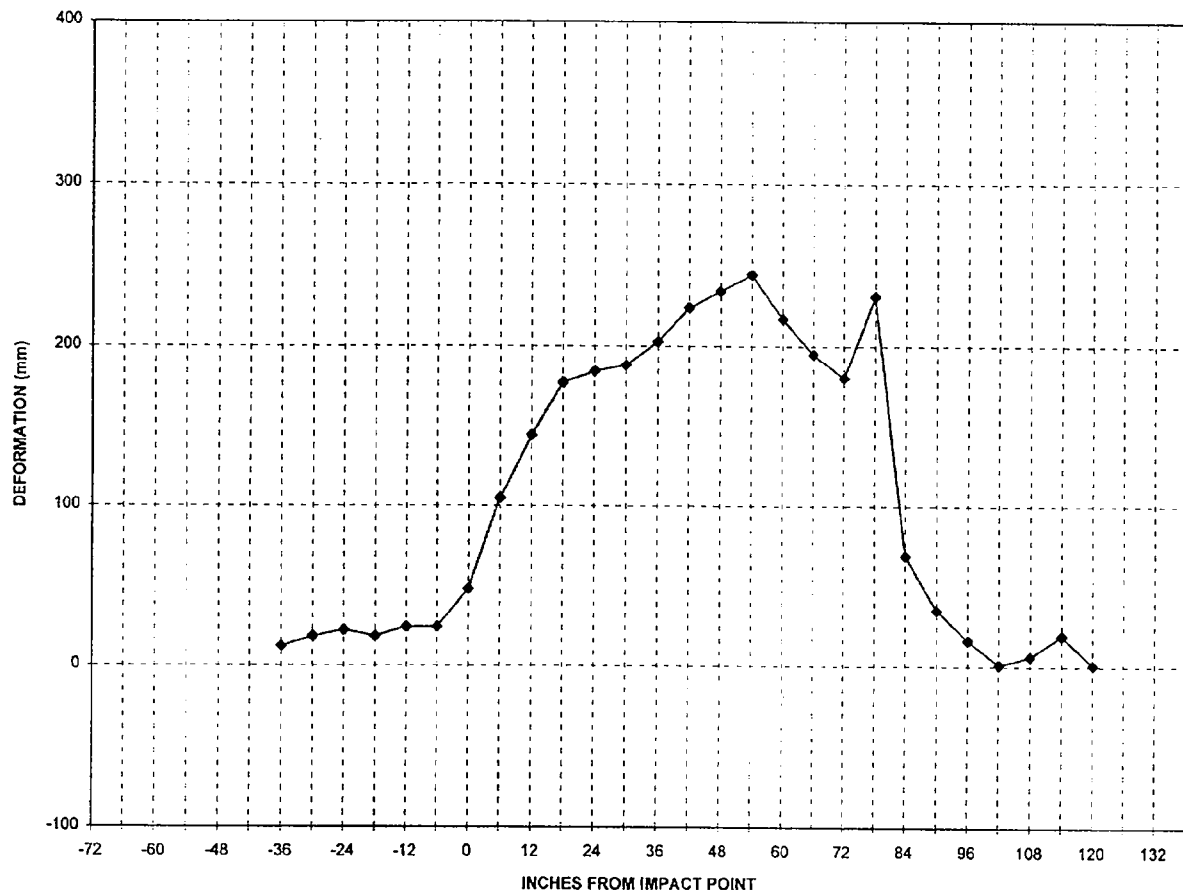
TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH
LEVEL 4 AT WINDOW SILL

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan
Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	960	972	12
-30	924	942	18
-24	900	922	22
-18	882	900	18
-12	867	891	24
-6	858	882	24
0	855	903	48 (impact point)
6	854	959	105
12	846	991	145
18	846	1023	177
24	845	1029	184
30	846	1034	188
36	840	1043	203
42	837	1061	224
48	839	1073	234
54	845	1089	244
60	846	1063	217
66	846	1041	195
72	846	1026	180
78	853	1084	231
84	858	927	69
90	866	901	35
96	875	891	16
102	886	887	1
108	900	906	6
114	916	935	19
120	935	936	1
126	---	---	---
132	---	---	---
138	---	---	---
144	---	---	---

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 4 AT WINDOW SILL

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH

LEVEL 5 AT WINDOW TOP

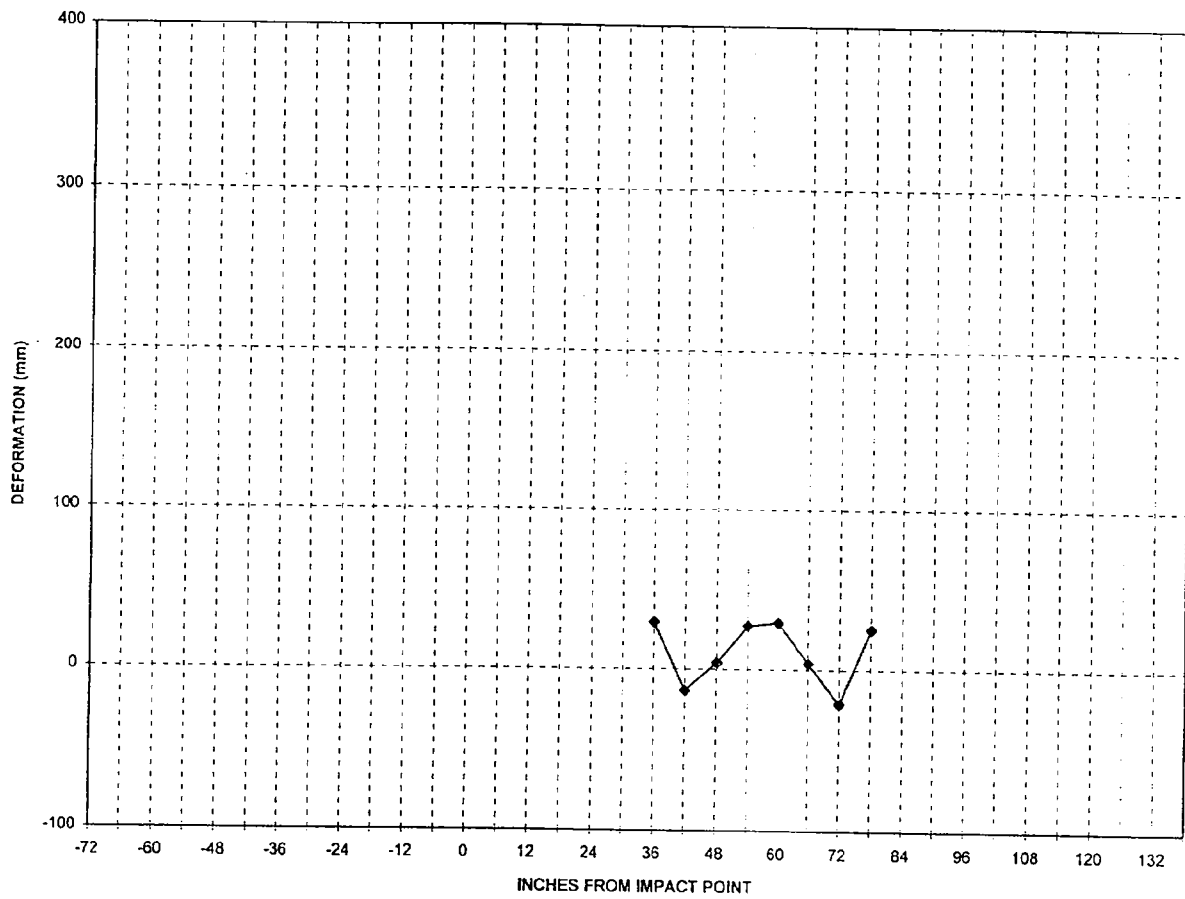
Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan
 Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	---	---	---
-30	---	---	---
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	---	---	---
6	---	---	---
12	---	---	---
18	---	---	---
24	---	---	---
30	---	---	---
36	1107	1136	29
42	1108	1095	-13
48	1101	1105	4
54	1104	1131	27
60	1108	1137	29
66	1112	1116	4
72	1117	1096	-21
78	1126	1151	25
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	---	---	---
114	---	---	---
120	---	---	---
126	---	---	---
132	---	---	---
138	---	---	---

(impact point)

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH

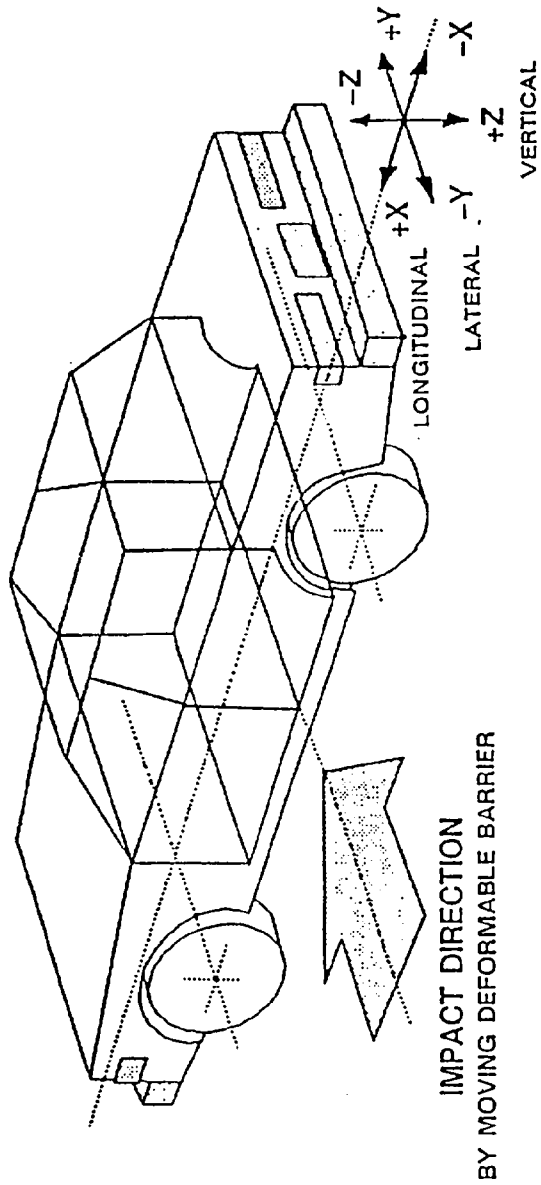


LEVEL 5 AT WINDOW TOP

FIGURE 7

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan
Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995



1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

2. Once the problem is identified, the next step is to define the objectives and goals of the project. This helps to clarify what needs to be achieved and provides a clear direction for the team.

3. The third step is to develop a plan or strategy to address the problem. This involves breaking down the problem into smaller, manageable tasks and determining the resources needed to complete each task.

4. The fourth step is to implement the plan. This involves assigning tasks to team members, setting deadlines, and monitoring progress to ensure that the project is on track.

5. The fifth step is to evaluate the results of the project. This involves comparing the actual outcomes with the objectives and goals to determine the effectiveness of the project.

6. Finally, the sixth step is to document the findings and lessons learned from the project. This helps to provide a record of the project's progress and outcomes, and can be used to inform future projects.

Isometric view of a rectangular block. The dimensions are labeled as follows:

- A**: Depth (width of the block).
- B**: Height (vertical dimension).
- C**: Length (horizontal dimension along the bottom).
- D**: Width (horizontal dimension along the top).
- E**: Depth (horizontal dimension along the top).

The block is labeled with "TOP", "LEFT", "RIGHT", and "CENTERLINE".

Diagram illustrating the front view of a rectangular block with a honeycomb pattern and a bumper. The block is labeled "HONEYCOMB" and "BUMPER". The dimensions are indicated as follows:

- D : Total height of the block.
- A : Height of the bumper section.
- B : Height of the honeycomb section.
- C : Height of the bumper section (indicated on the right side).

The block is labeled "FRONT VIEW" and "GROUND".

TABLE 8
EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

Location	Top of Stack (33 inches)	Mid-Stack (27 inches)	Top of Bumper (21 inches)	Center of Bumper (17 inches)
Horizontal Distance From Center	Crush inches (mm)	Crush inches (mm)	Crush inches (mm)	Crush inches (mm)
32"	1.9 (48)	.4 (10)	2.2 (56)	3.0 (76)
28"	.6 (15)	0 (0)	1.6 (41)	2.5 (64)
24"	.2 (5)	0 (0)	1.1 (28)	1.9 (48)
20"	.1 (3)	0 (0)	.8 (20)	1.4 (36)
16"	.2 (5)	0 (0)	.8 (20)	1.1 (28)
12"	.2 (5)	0 (0)	.7 (18)	1.1 (28)
8"	.2 (5)	.1 (3)	.6 (15)	1.0 (25)
4"	.2 (5)	.1 (3)	.4 (10)	1.1 (28)
0"	.3 (8)	.1 (3)	.7 (18)	1.0 (25)
4"	.4 (10)	.2 (5)	.8 (20)	1.1 (28)
8"	.4 (10)	.2 (5)	.8 (20)	1.1 (28)
12"	.5 (13)	.3 (8)	.9 (23)	1.1 (28)
16"	.7 (18)	.3 (8)	.9 (23)	1.2 (30)
20"	1.0 (25)	.4 (10)	.9 (23)	1.3 (33)
24"	1.7 (43)	.4 (10)	1.0 (25)	1.7 (43)
28"	3.1 (79)	1.0 (25)	1.2 (30)	1.7 (43)
32"	4.3 (109)	2.6 (66)	1.4 (36)	2.1 (53)

TABLE 9

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARYYear/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door SedanVehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

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	2762	672	300	5.1	5.4	19.6	2.4	3.8	6.2	20.0
2	Rt. Side Sill @ Rear Seat	1935	690	320	4.9	5.0	21.5	2.9	4.1	7.2	21.8
3	Rr. Floorpan Above Axle	948	2	490	2.7	8.3	24.2	2.9	4.7	3.2	25.7
4	Left Side Sill @ Rr. Seat	1720	-725	195	---	---	52.4	38.4	---	---	---
5	Left Side Sill @ Frt. Seat	2585	-725	210	---	---	47.0	11.7	---	---	---
6	Left Lower A-Post	3255	-720	410	---	---	101.5	25.4	---	---	---
7	Left Mid A-Post	3260	-764	820	---	---	29.3	18.5	---	---	---
8	Left B-Post Lower	2165	-700	312	---	---	54.2	34.0	---	---	---
9	Left B-Post Mid	---	---	---	---	---	---	---	---	---	---
10	Right Rear Occupant Compartment	1885	335	315	---	---	20.9	2.6	---	---	---
11	Driver Left Seat Track	2260	-522	225	---	---	51.5	33.3	---	---	---

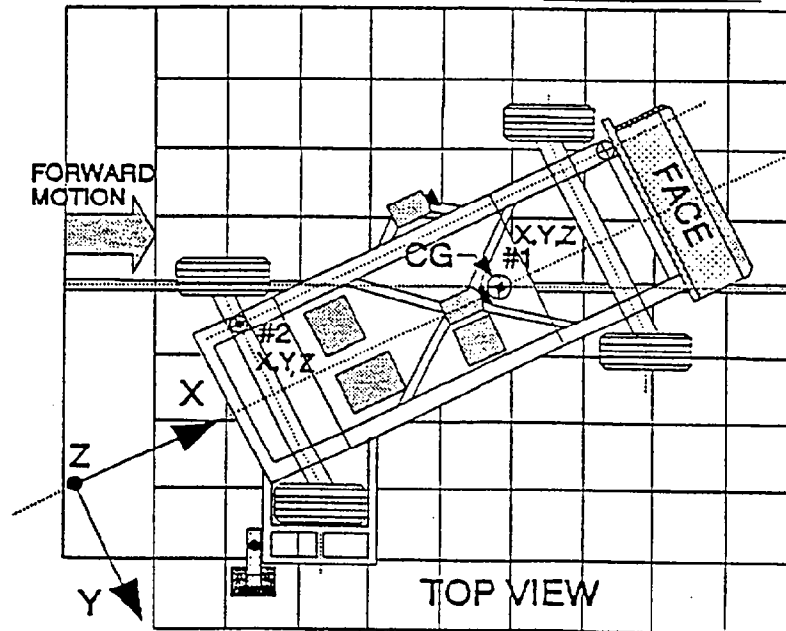
*Reference: X - Rear Bumper (+ Forward)
Y - Vehicle Centerline (+ To right)
Z - Ground Level (+ Up)

FIGURE 9

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

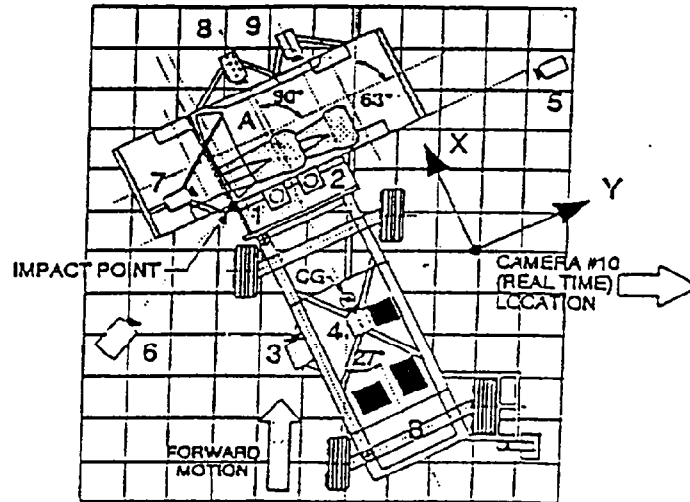


Accel. No.	Location	Coordinates (mm)			Pos. Direct.		Neg. Direct.	
					Max (g)	Time (msec)	Max (g)	Time (msec)
		X	Y	Z				
1	MDB Center of Gravity							
	Longitudinal ... X				1.7	120	14.5	45
	Lateral Y	-1092	0	483	0.9	55	7.7	36
	Vertical Z				13.1	38	11.6	67
	Resultant R				20.4	39	0.2	90
2	Rear Frame Member							
	Longitudinal ... X	-2591	-625	622	2.2	121	19.8	40
	Lateral Y				4.9	39	0.7	-19

Reference: X = Front Axle (+Forward)
Y = Vehicle Centerline (+ To Right)
Z = Ground Level (+ Up)

FIGURE 10
HIGH SPEED CAMERA LOCATIONS AND DATA

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan
 Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995



Camera No.	View	Coordinates (mm)			Angle	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
	Real Time					13	24
1	Top Impact	-350	850	5420		13	952
2	Top Wide	700	0	5130		8	917
3	Cart Pointer					35	455
4	Cart					13	571
5	Left Impact	2190	2530	1485	90°	13	952
6	Rear Impact						
7	Onboard Driver					7.5	1005
8	Onboard Hood					13	1000
9	Onboard Passenger					8	1005

* Reference: (from point of impact)
 +X = Forward
 +Y = To Right
 +Z = Upward

TABLE 10
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

FMVSS NO. 301

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

Test vehicle fuel tank filled to 92% to 94% of manufacturer's "useable" capacity and with electric fuel pump operating (if it will operate without engine operation). Part 572 test dummies located at each front designated seating position.

TEST VEHICLE IMPACT TYPE: X Side Impact MDB 33.0 mph (53.1 kph)

FUEL SPILLAGE MEASUREMENT:

1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

ACTUAL	MAX ALLOWED
0	1 oz.
0	5 oz.
0	1 oz./1 MIN

SOLVENT SPILLAGE DETAILS:

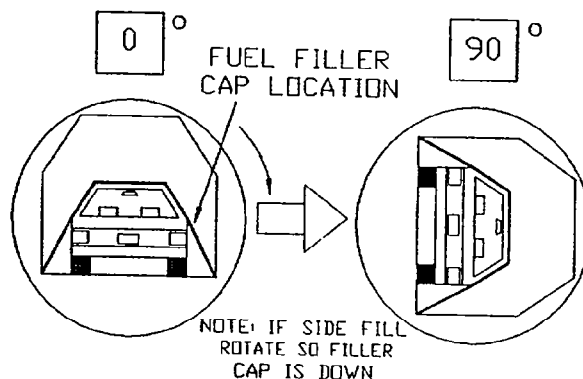
None

TABLE 11
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

TEST PHASE: 0° - 90°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 35 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 35 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	-------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record Spillage for whole minute intervals only as determined above.

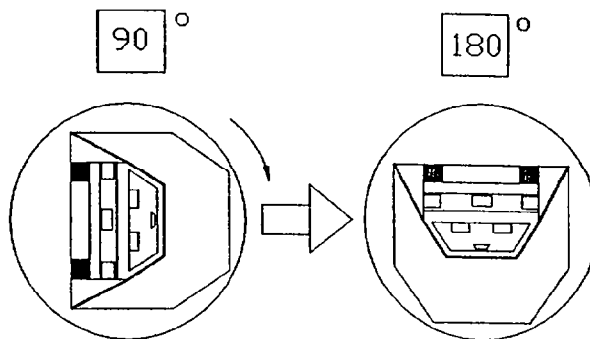
IV. SOLVENT SPILLAGE LOCATIONS(S): None

TABLE 11
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

TEST PHASE: 90° - 180°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 38 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds
 TOTAL 7 minutes 38 seconds
 Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	-------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record Spillage for whole minute intervals only as determined above.

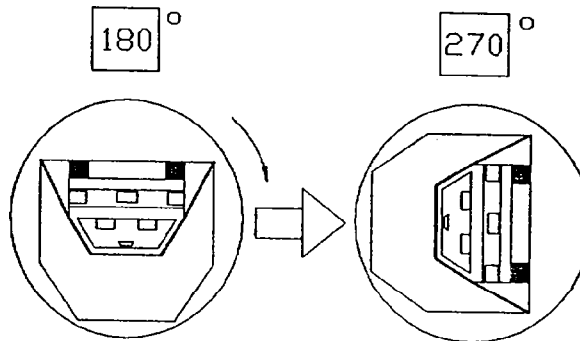
IV. SOLVENT SPILLAGE LOCATIONS(S): None

TABLE 11
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

TEST PHASE: 180° - 270°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 17 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 17 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	-------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record Spillage for whole minute intervals only as determined above.

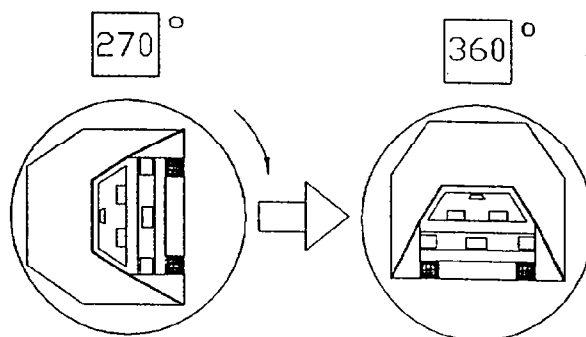
IV. SOLVENT SPILLAGE LOCATIONS(S): None

TABLE 11
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

Year/Make/Model/Body Style: 1995/Chrysler/Cirrus/4 Door Sedan

Vehicle NHTSA No.: CS0309 TEST DATE: January 24, 1995

TEST PHASE: 270° - 360°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 33 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 33 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	-------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record Spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATIONS(S): None

APPENDIX A - PHOTOGRAPHS

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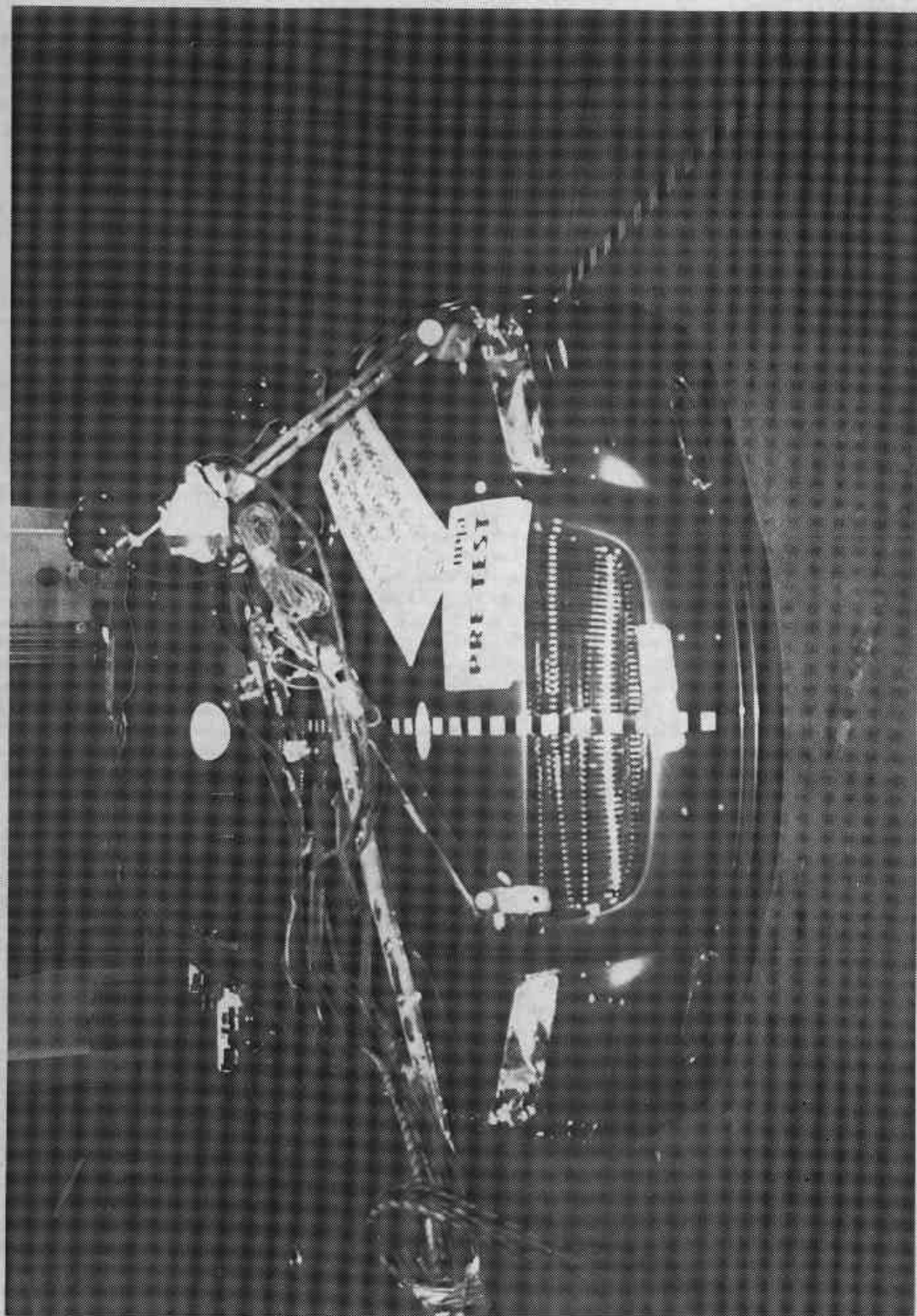


Photo No. A-1 - Pre-Test Front View of Test Vehicle.

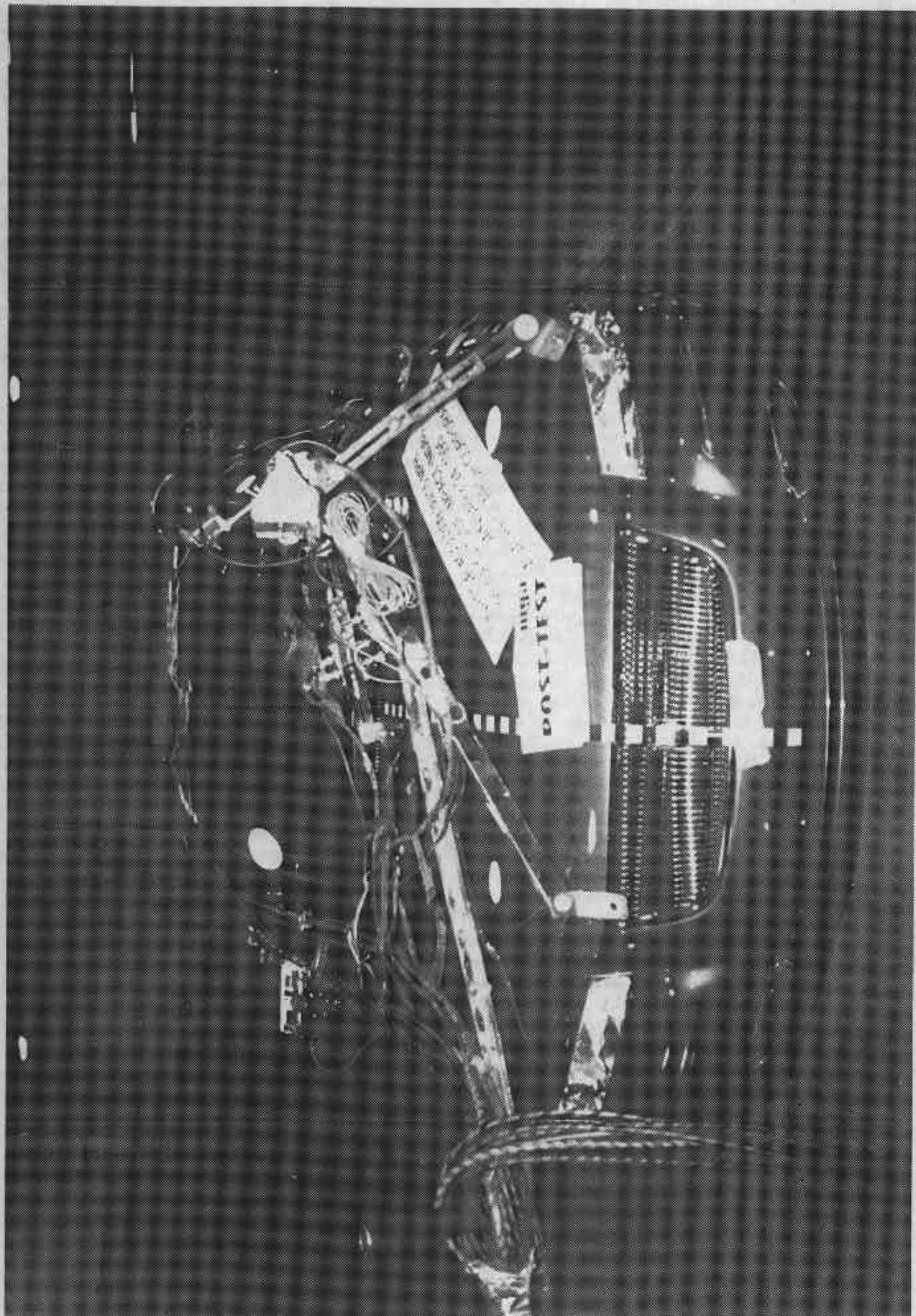


Photo No. A-2 - Post-Test Front View of Test Vehicle



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

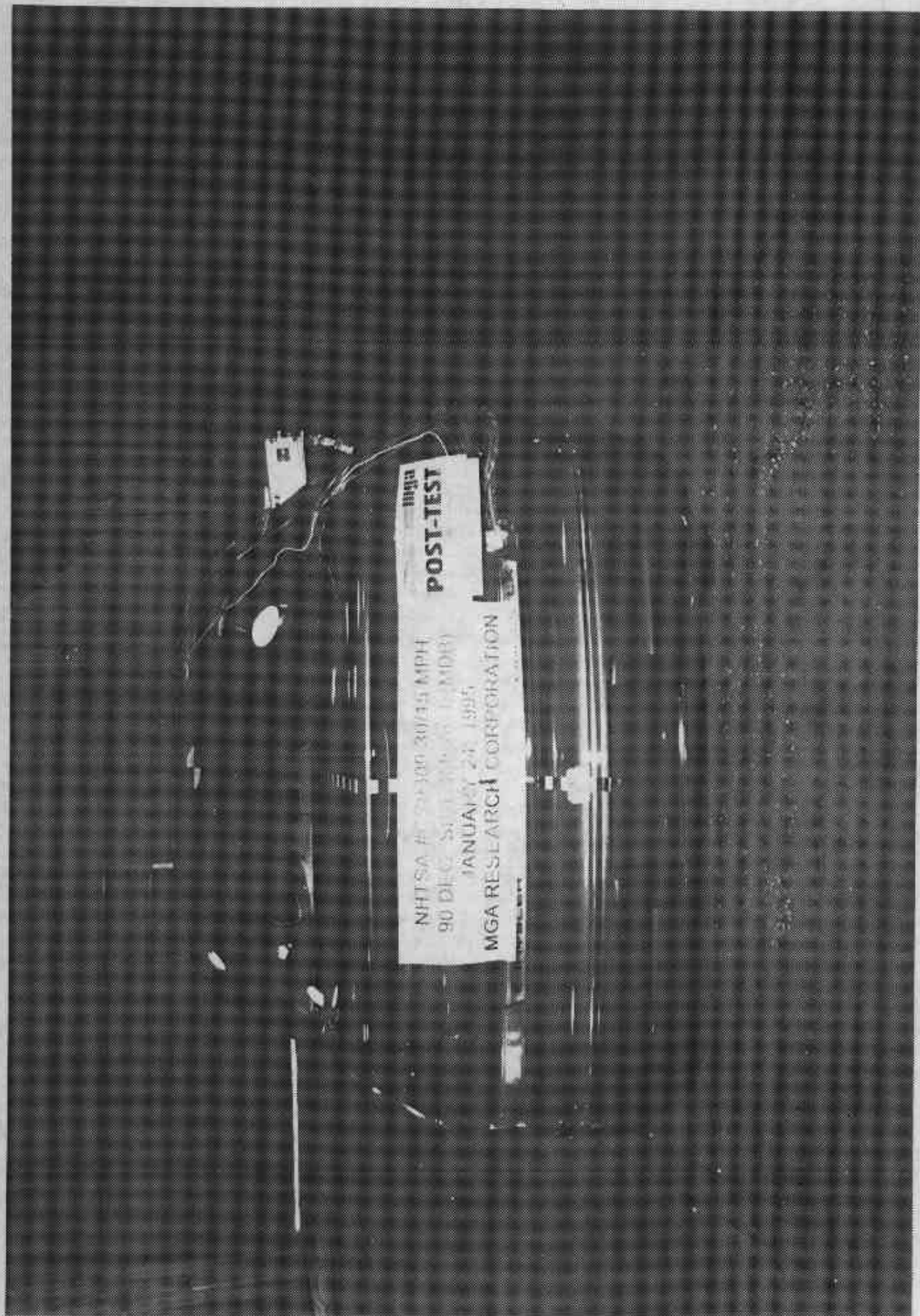


Photo No. A-4 - Post-Test Rear View of Test Vehicle

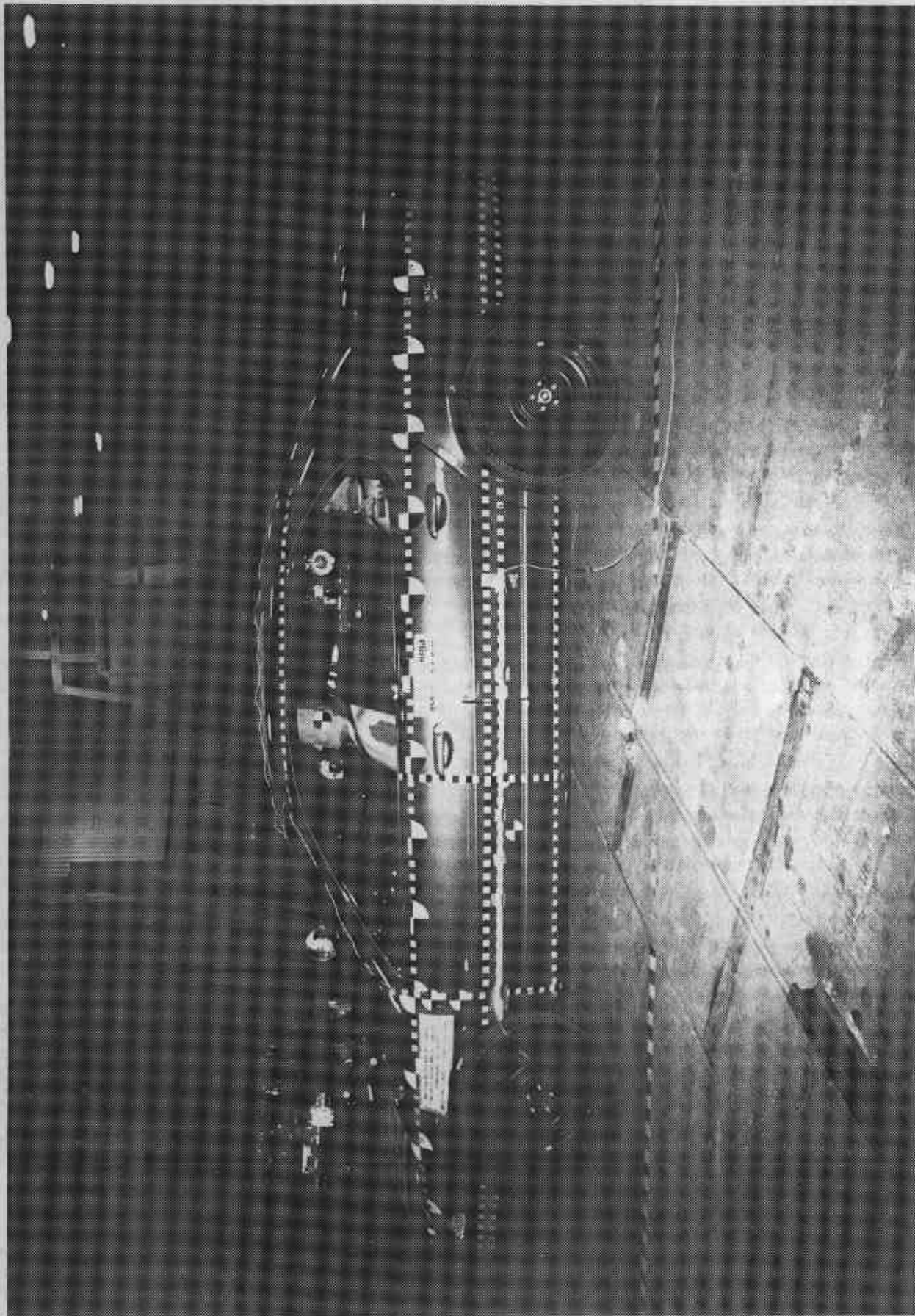


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

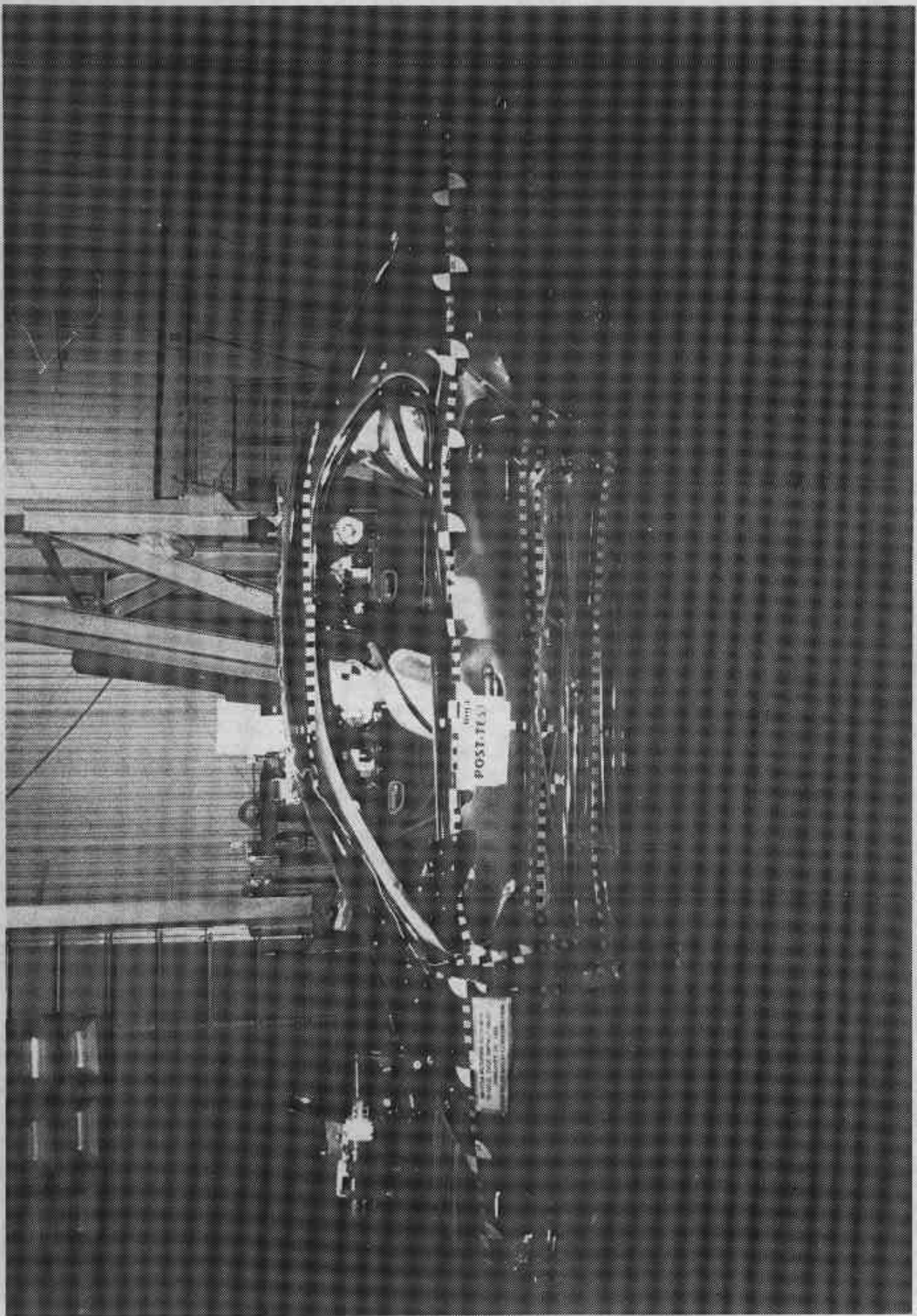


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

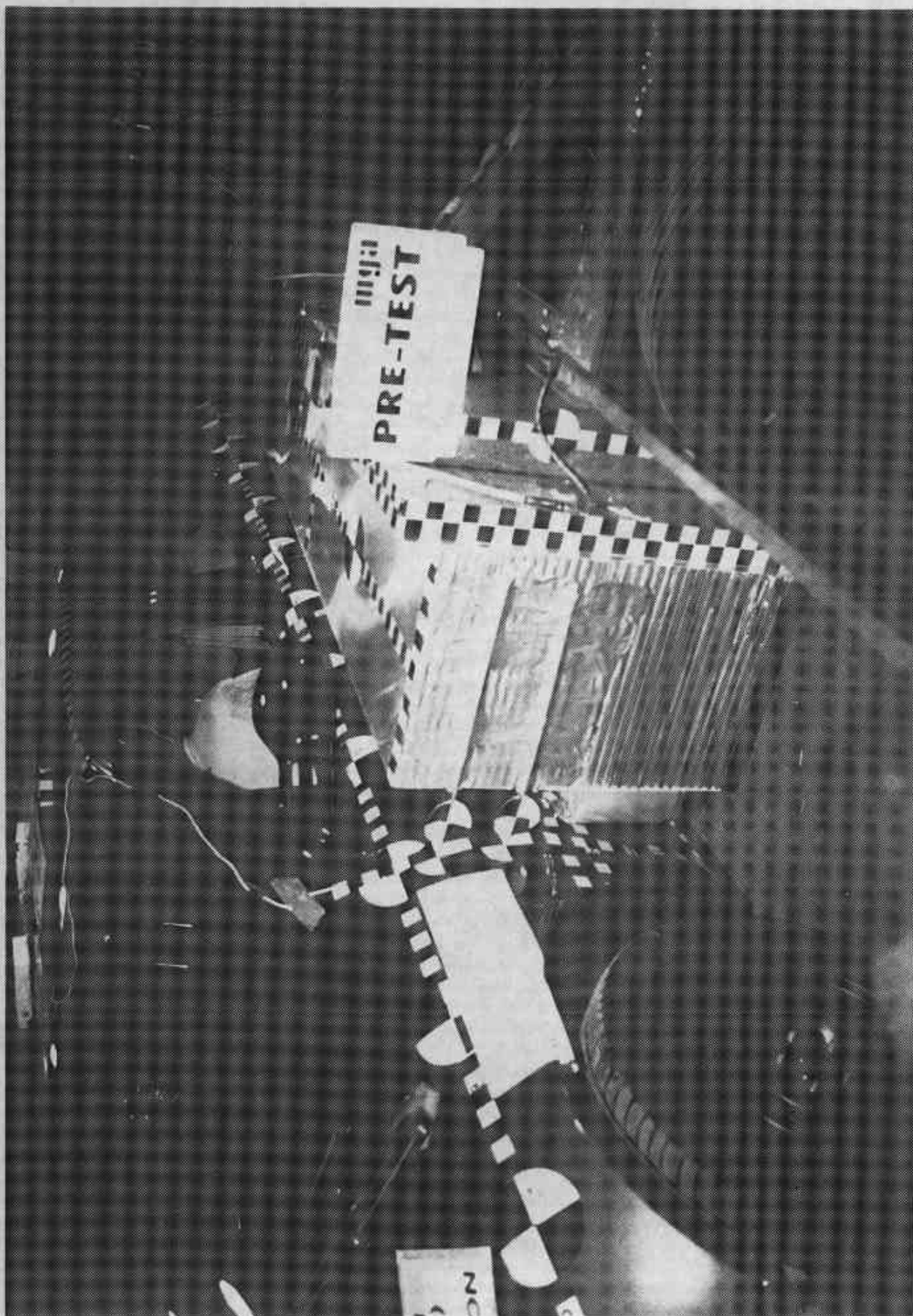


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)



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

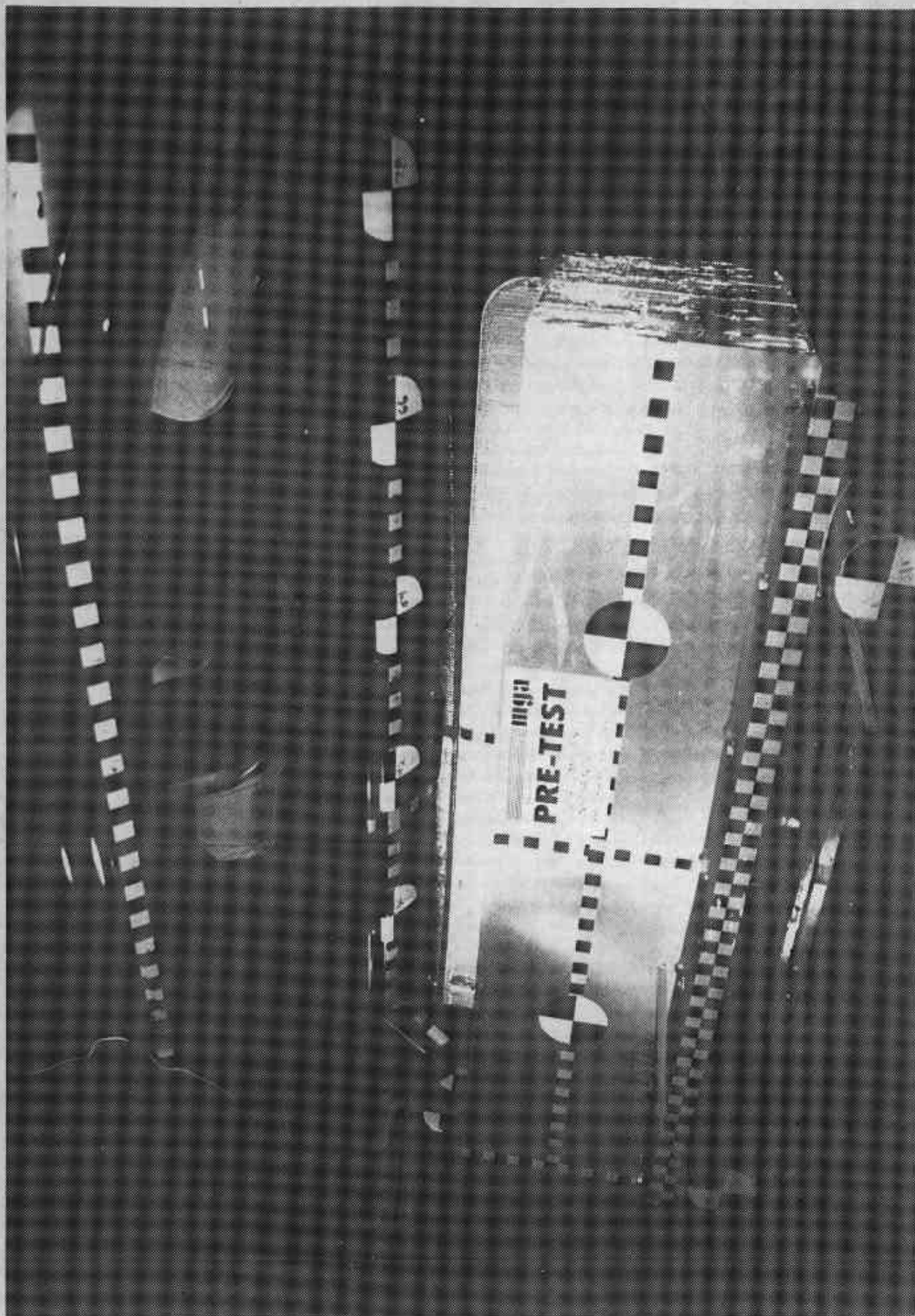


Photo No. A-9 - Pre-Test MDB Position Against Vehicle Overhead View

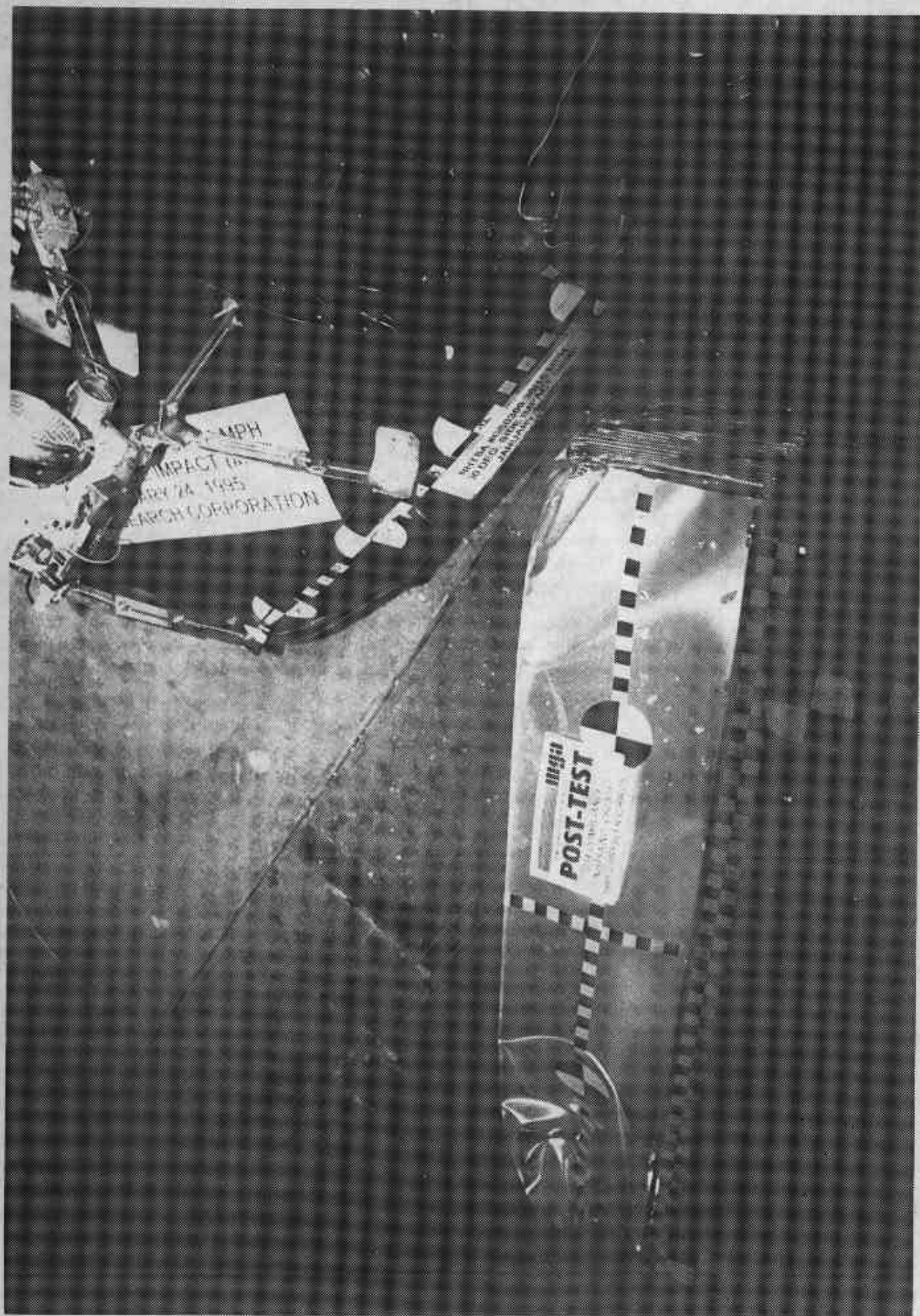


Photo No. A-18 - Post-Test MDB Position Against Vehicle Overhead View



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

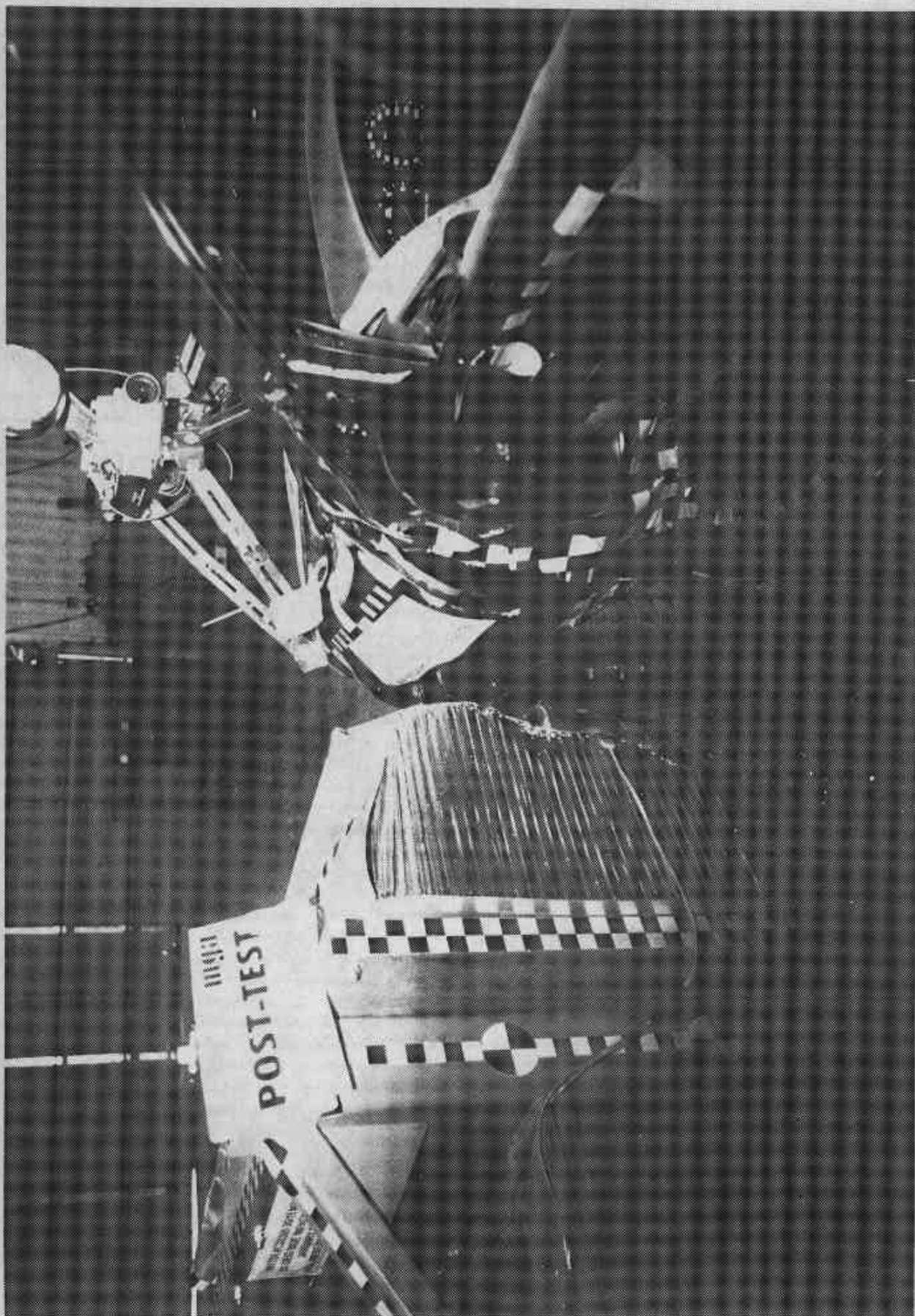
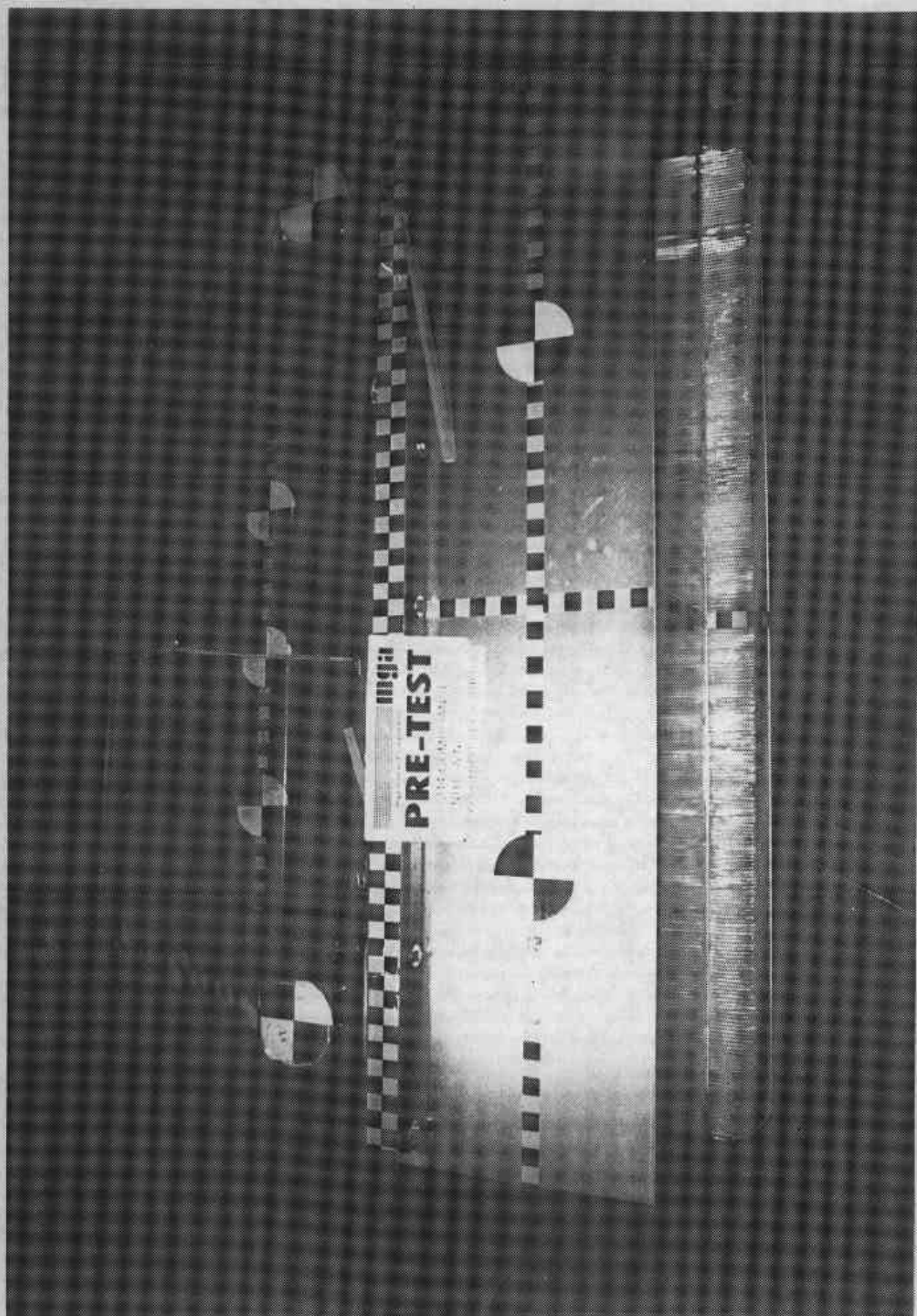
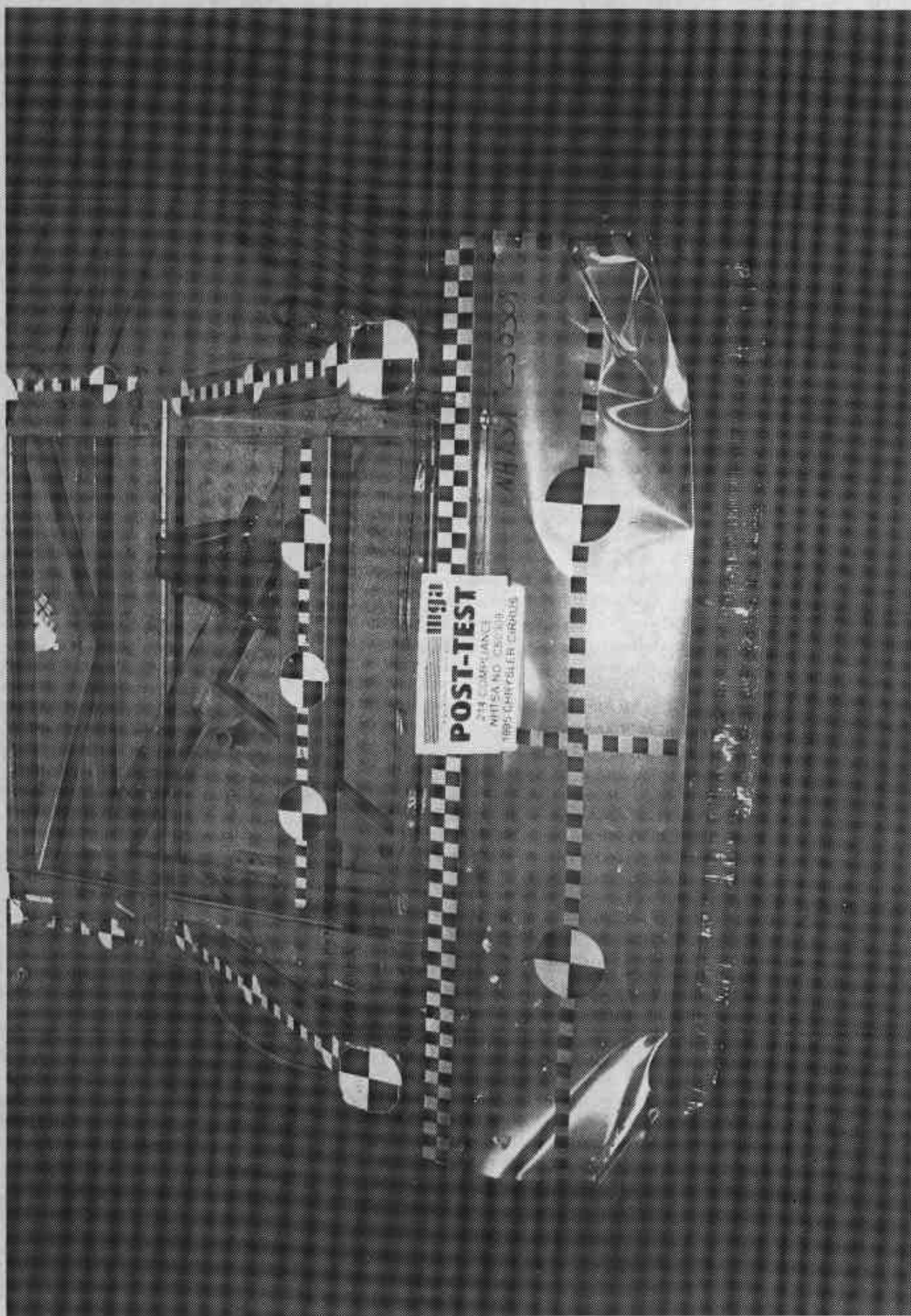


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Photo No. A-13 - Pre-Test MDB Top View



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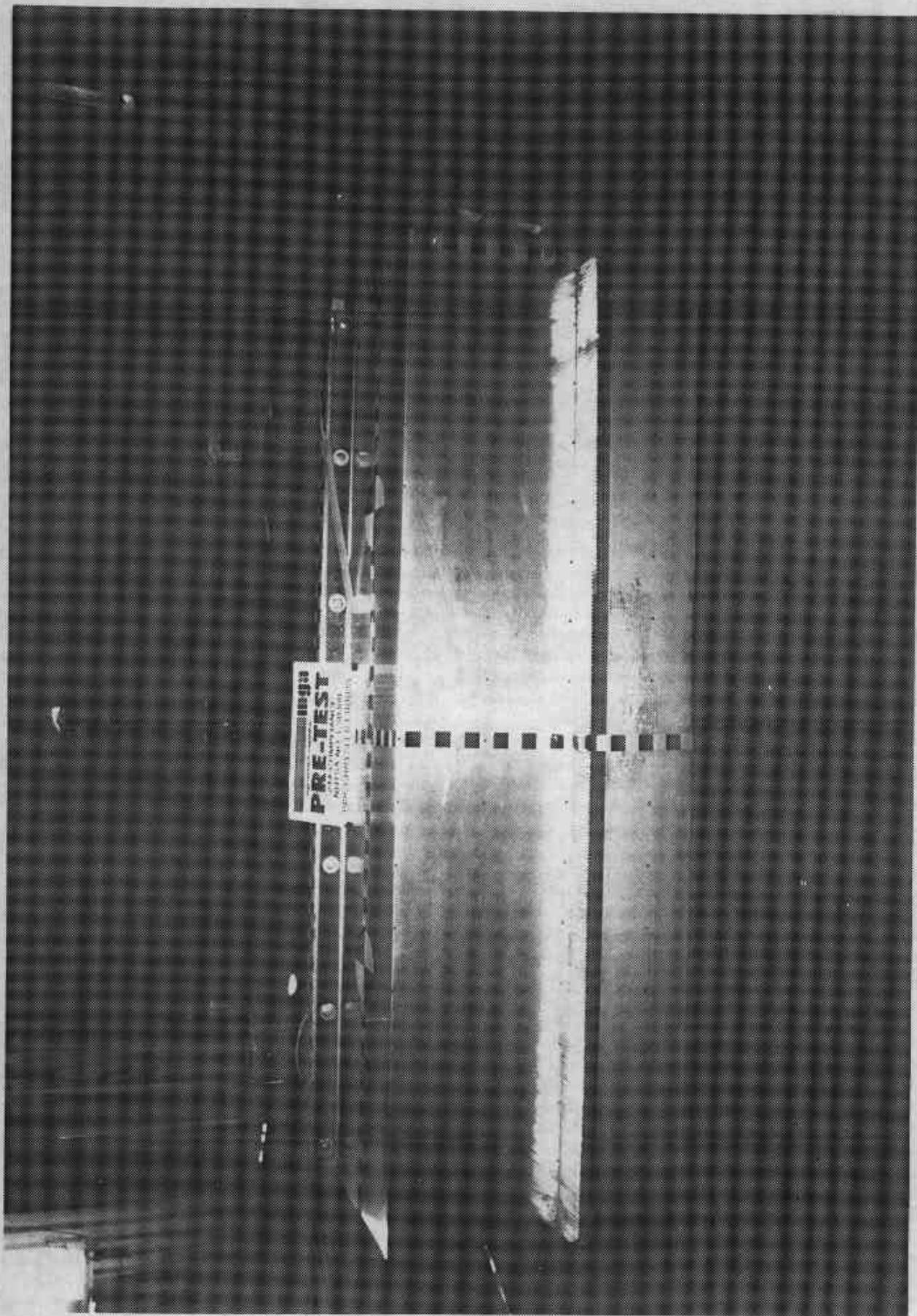


Photo No. A-15 - Pre-Test MDB Front View

A-15

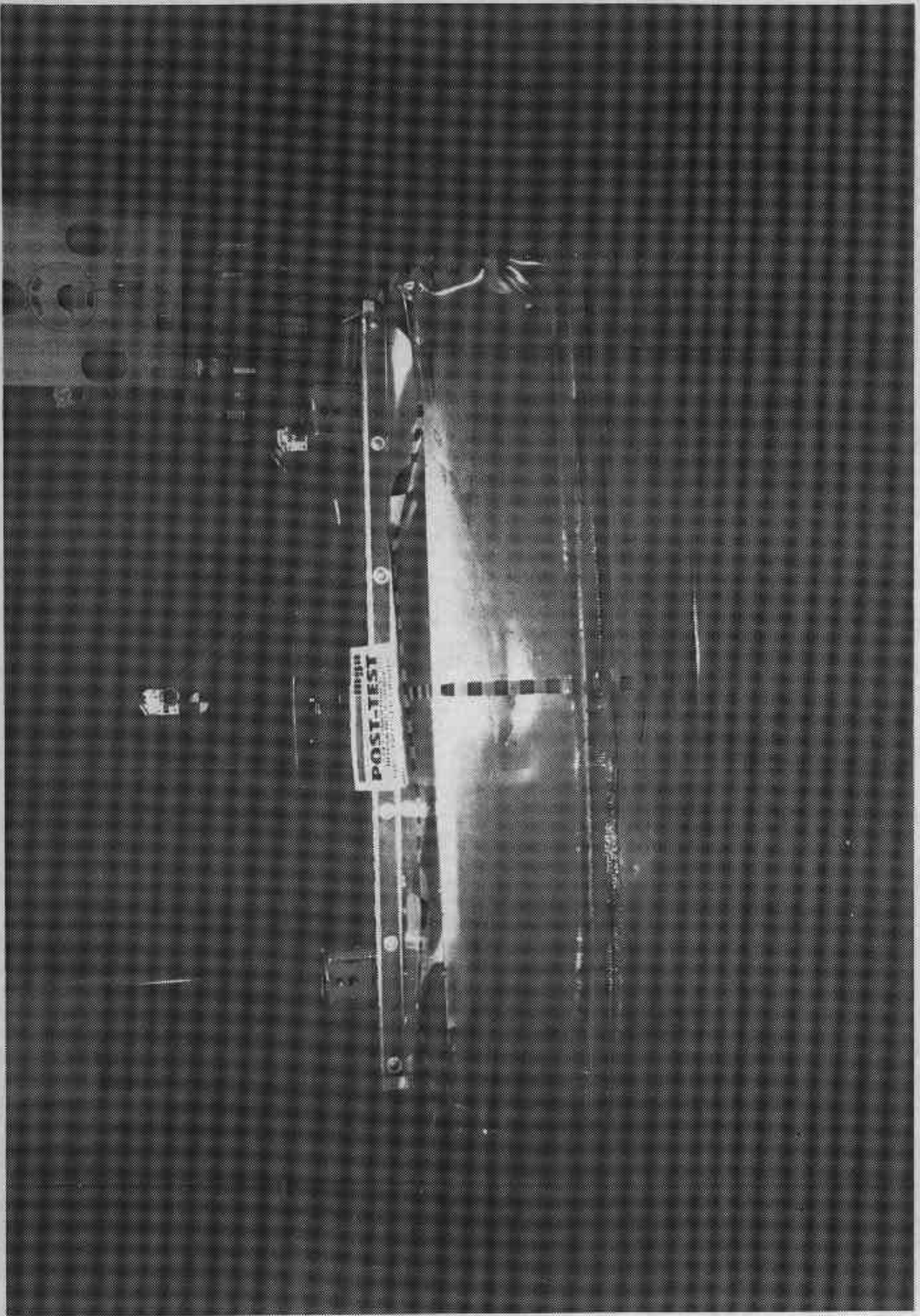


Photo No. A-16 - Post-Test MDB Front View

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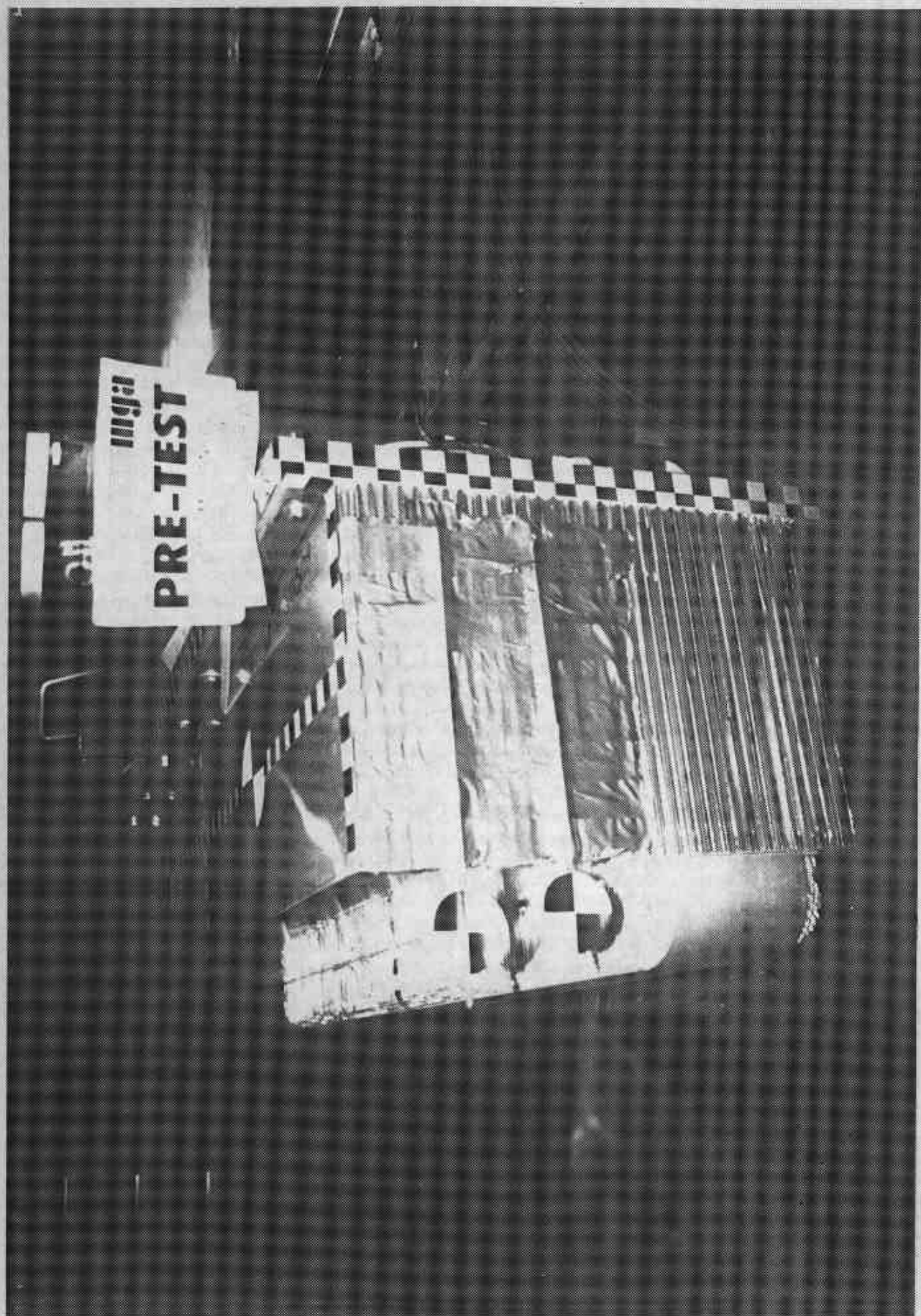
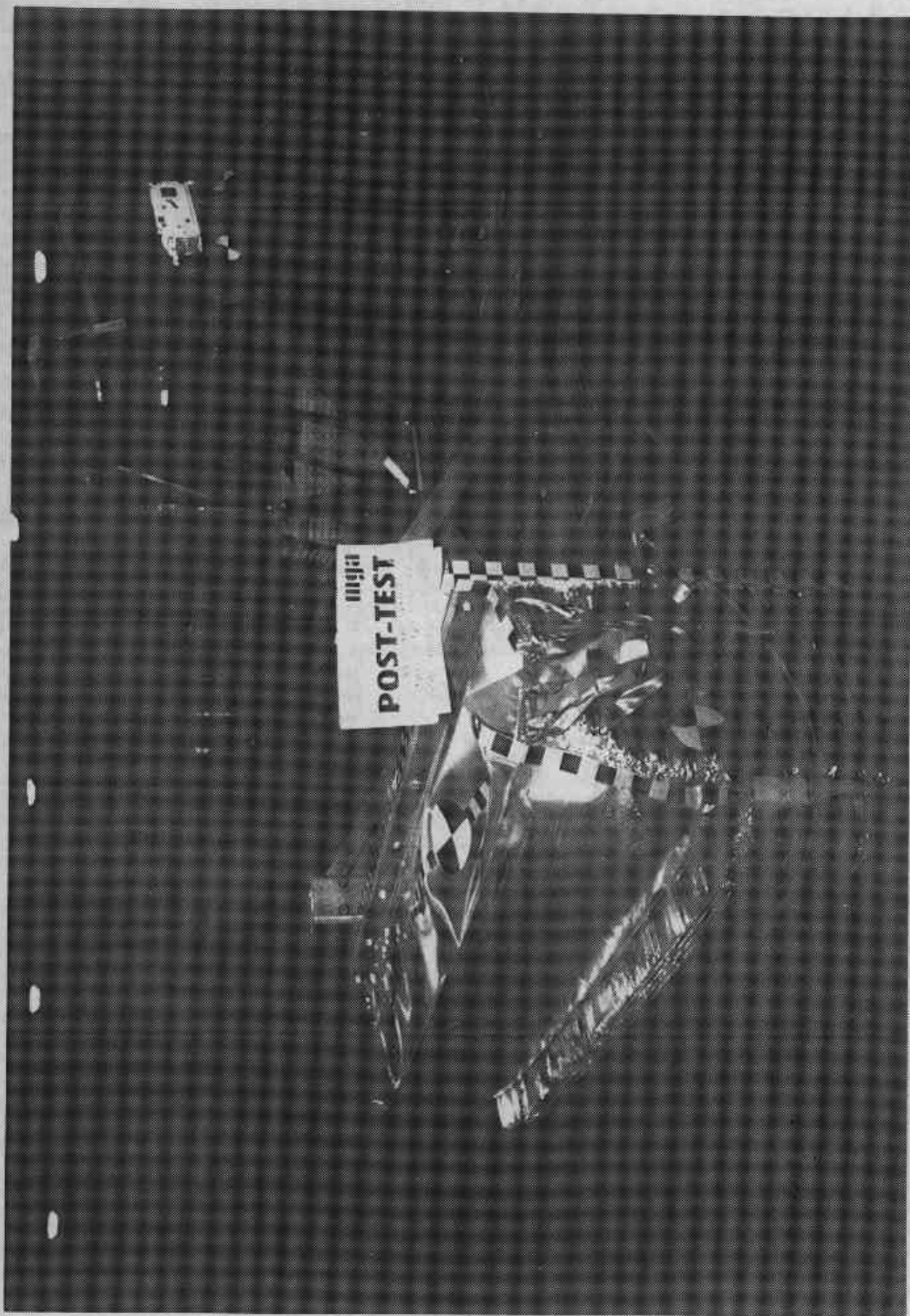


Photo No. A-17 - Pre-Test MDB Left Side View



A-18

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

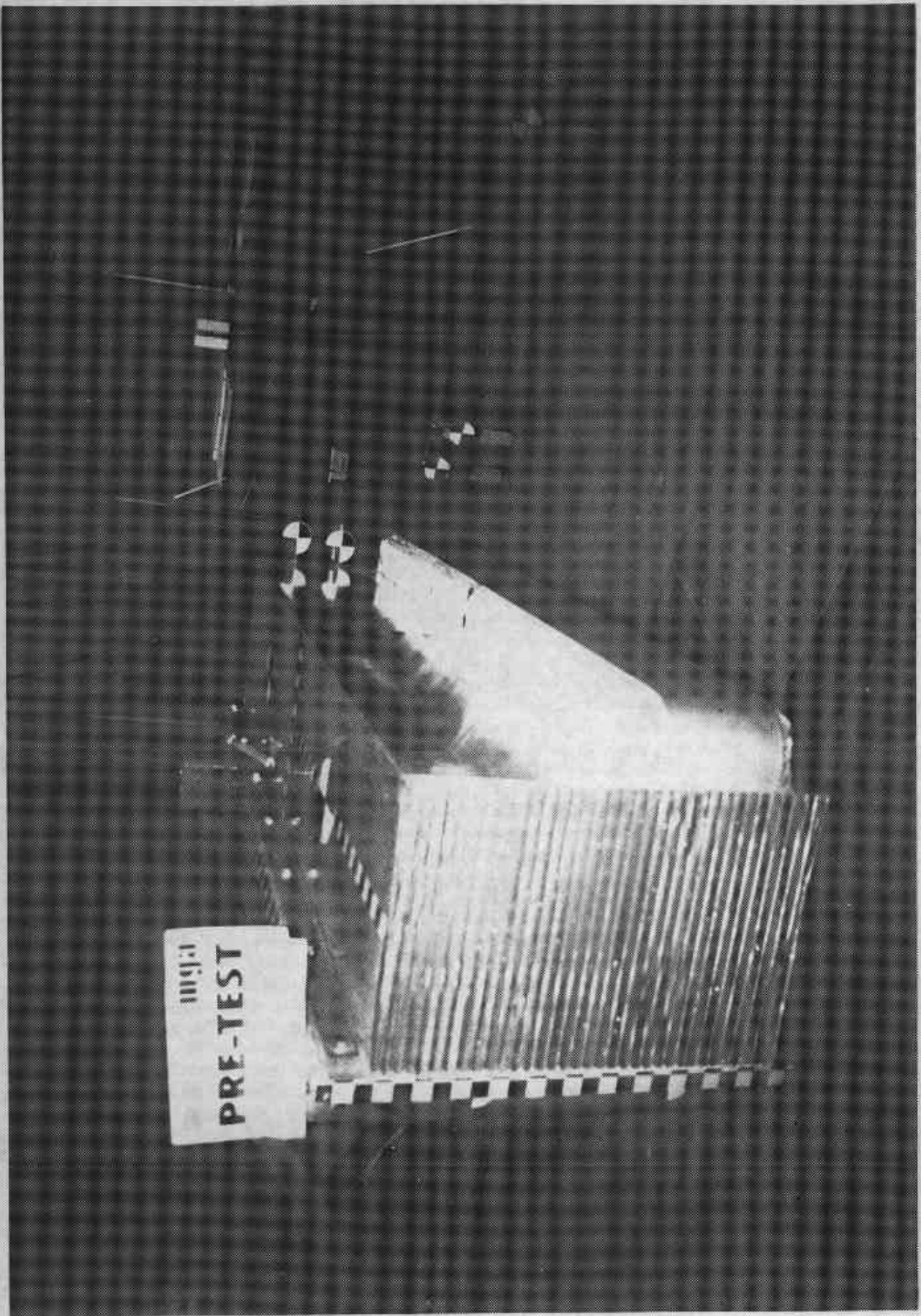


Photo No. A-19 - Pre-Test MDB Right Side View

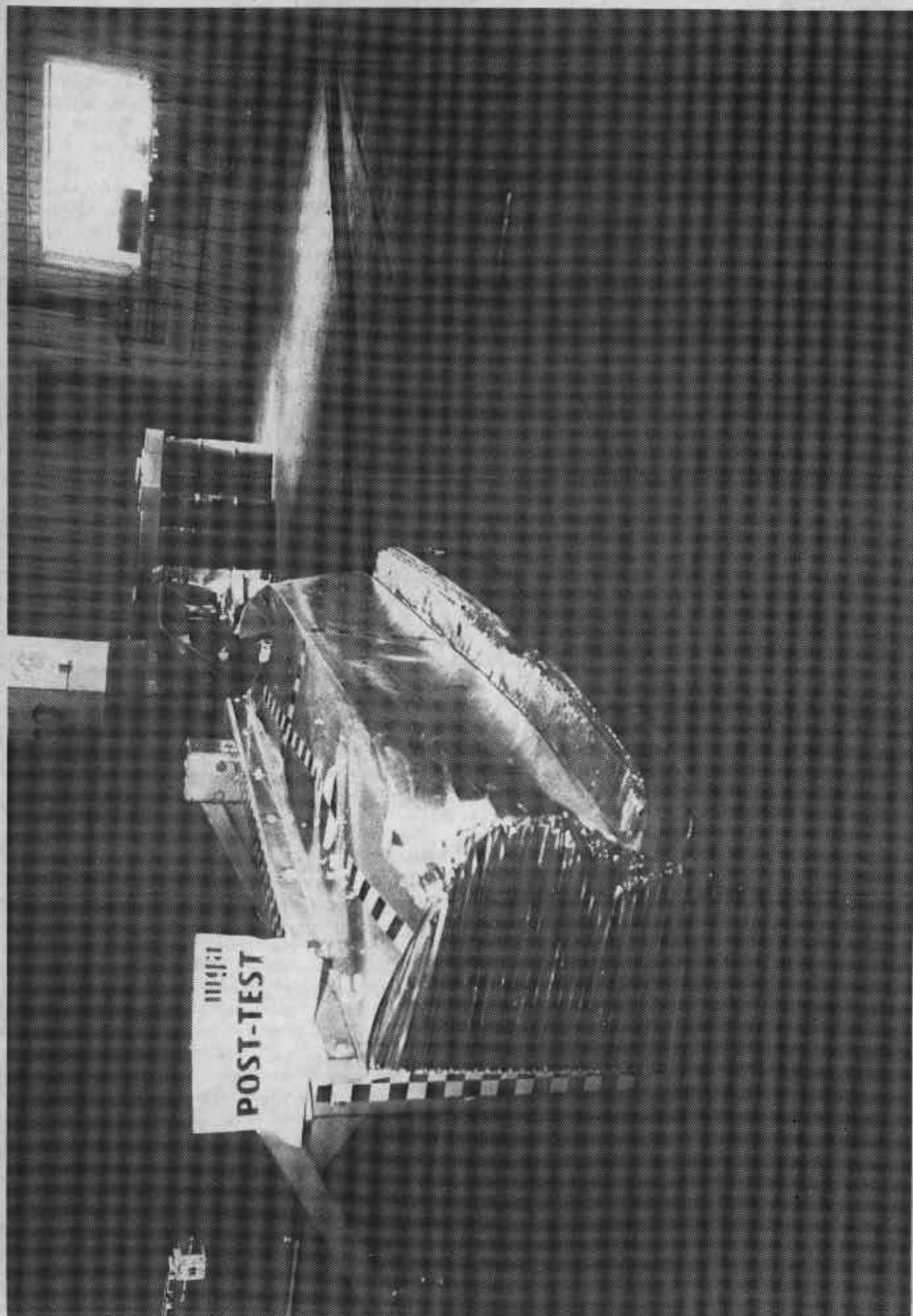


Photo No. A-20 - Post-Test MDB Right Side View

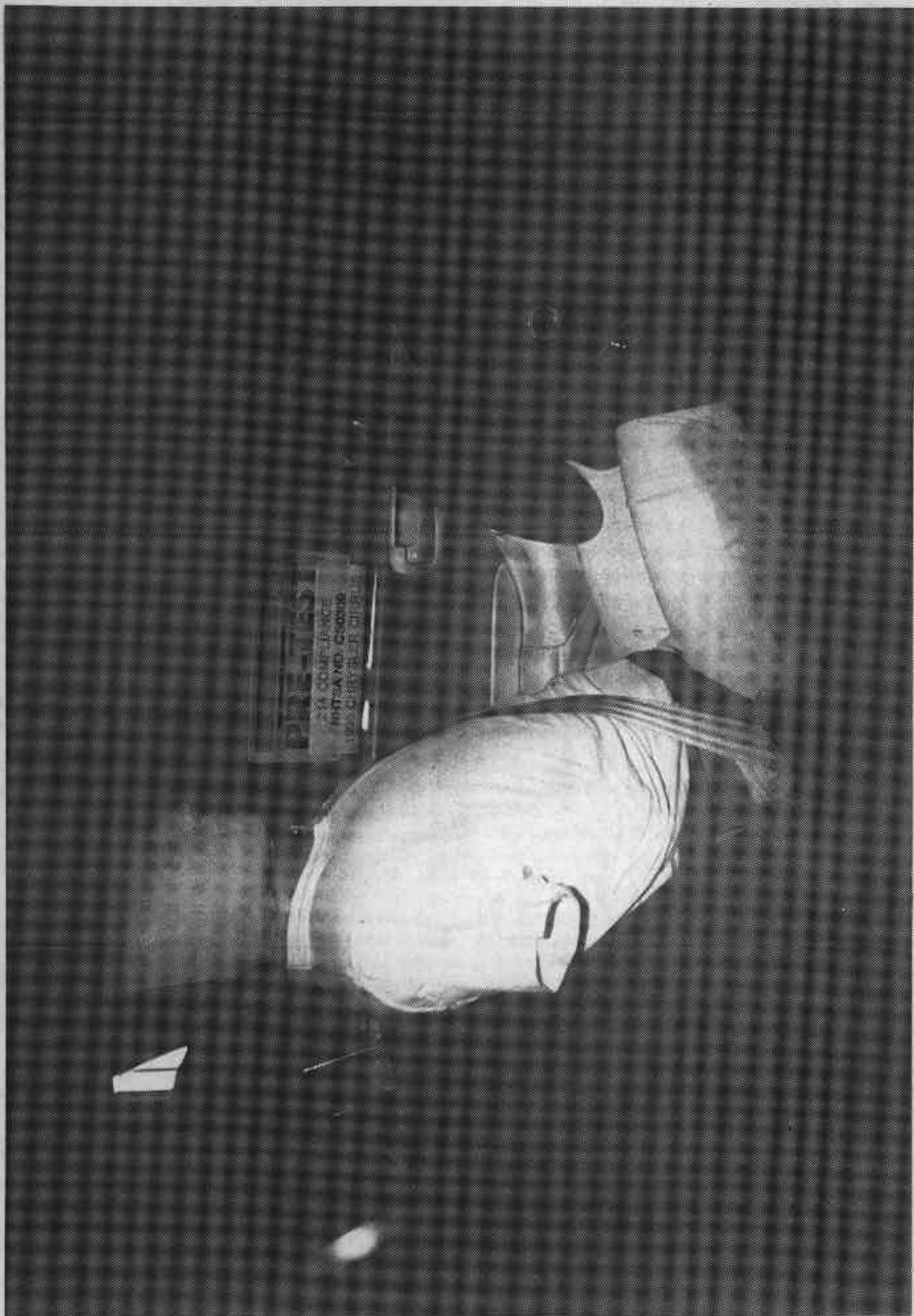


Photo No. A-21 - Pre-Test Driver Dummy Right Side View

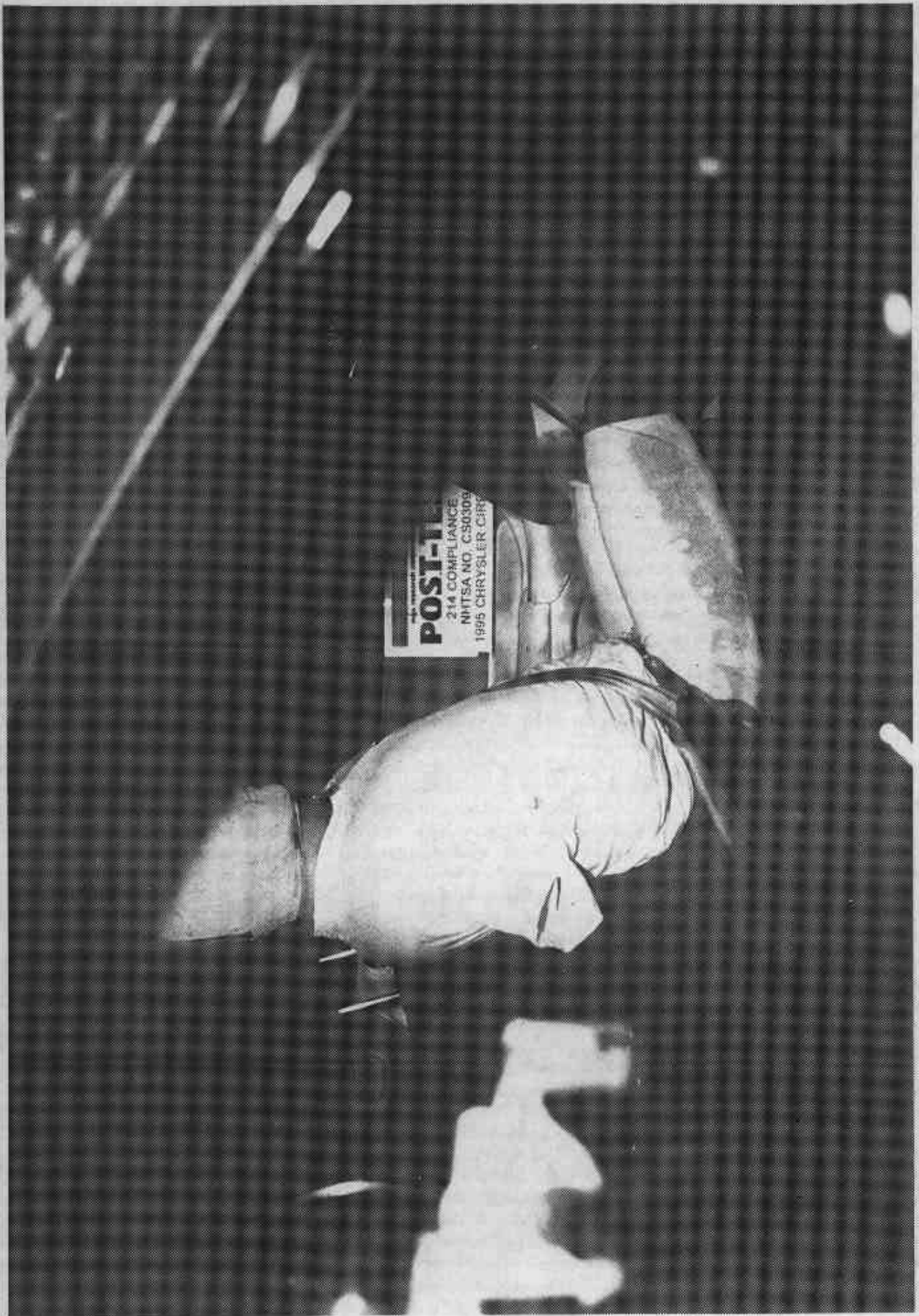


Photo No. A-22 - Post-Test Driver Dummy Right Side View

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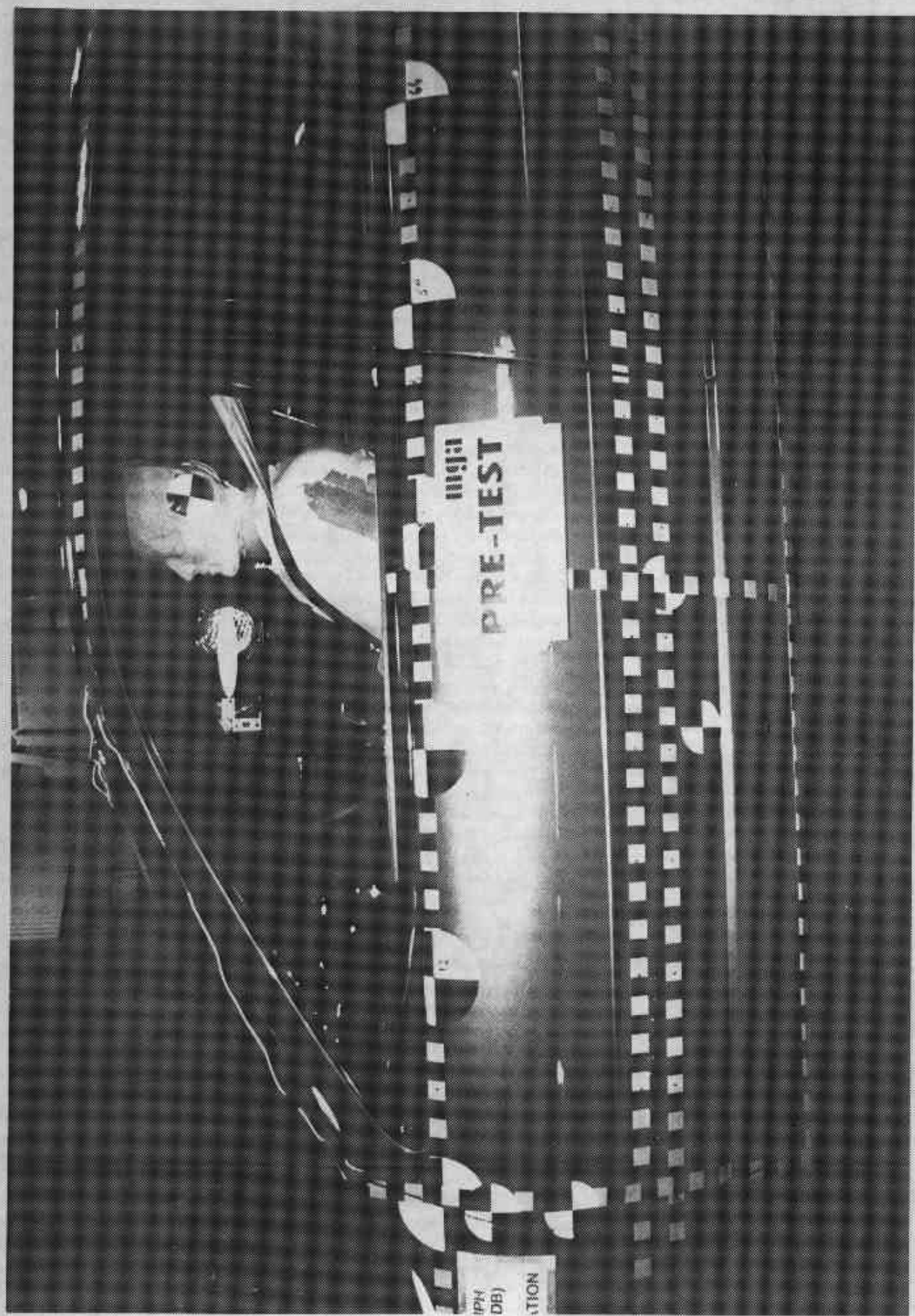


Photo No. A-23 - Pre-Test Driver Dummy Left Side View

A-23



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

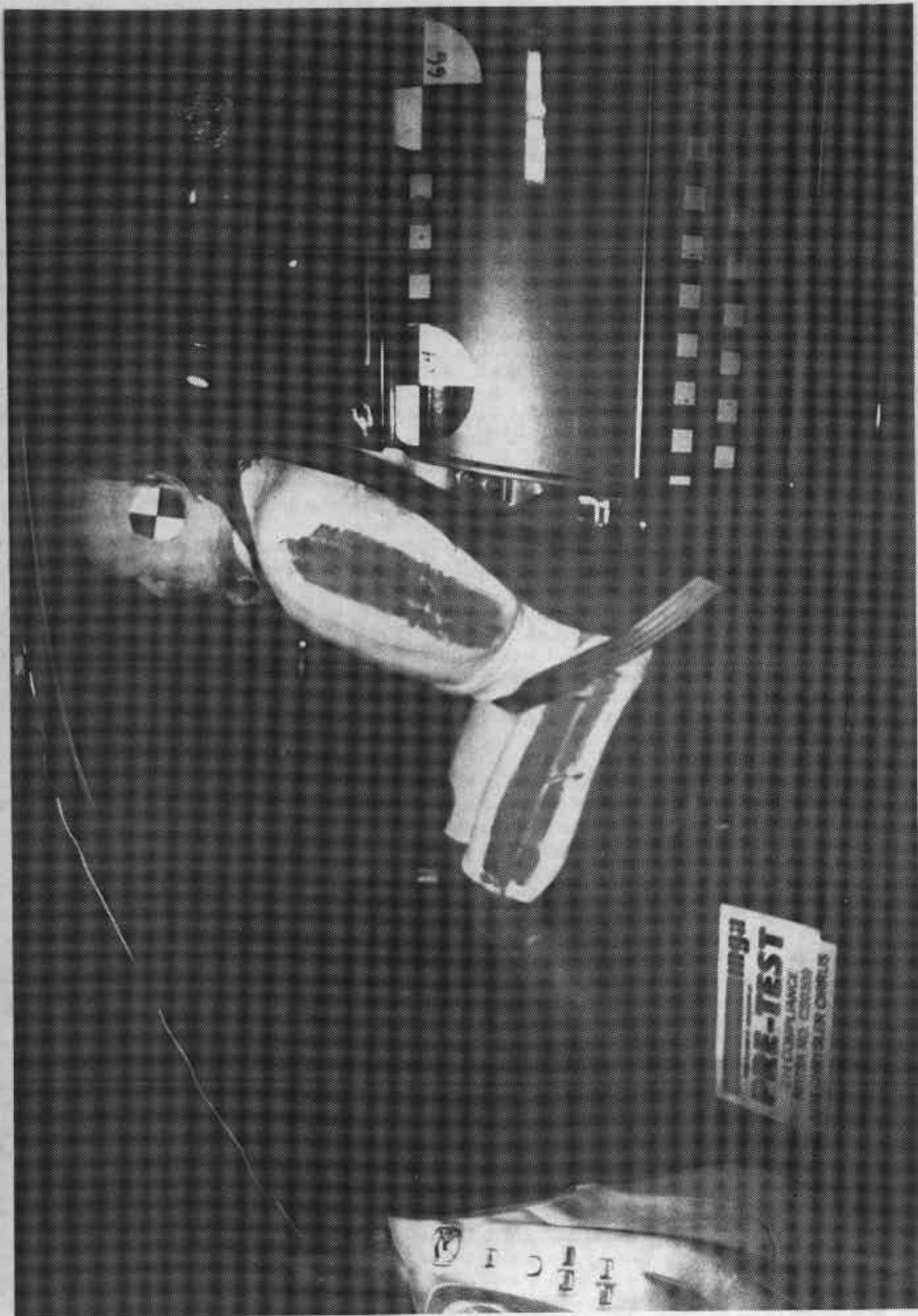


Photo No. A-25 - Pre-Test Driver Dummy Left Side View (Door Open)

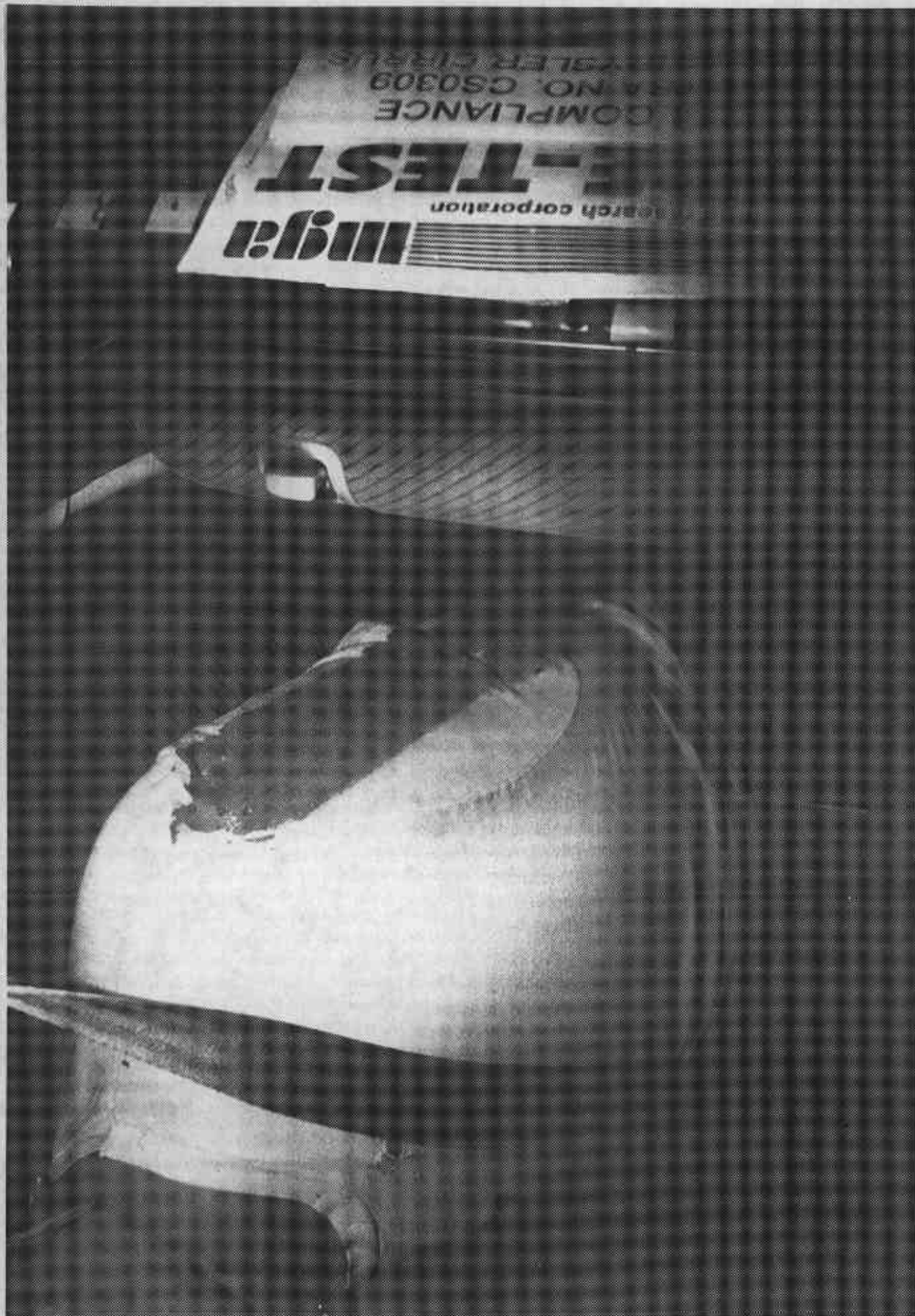


Photo No. A-26 - Pre-Test Driver Dummy Shoulder and Door Top View



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

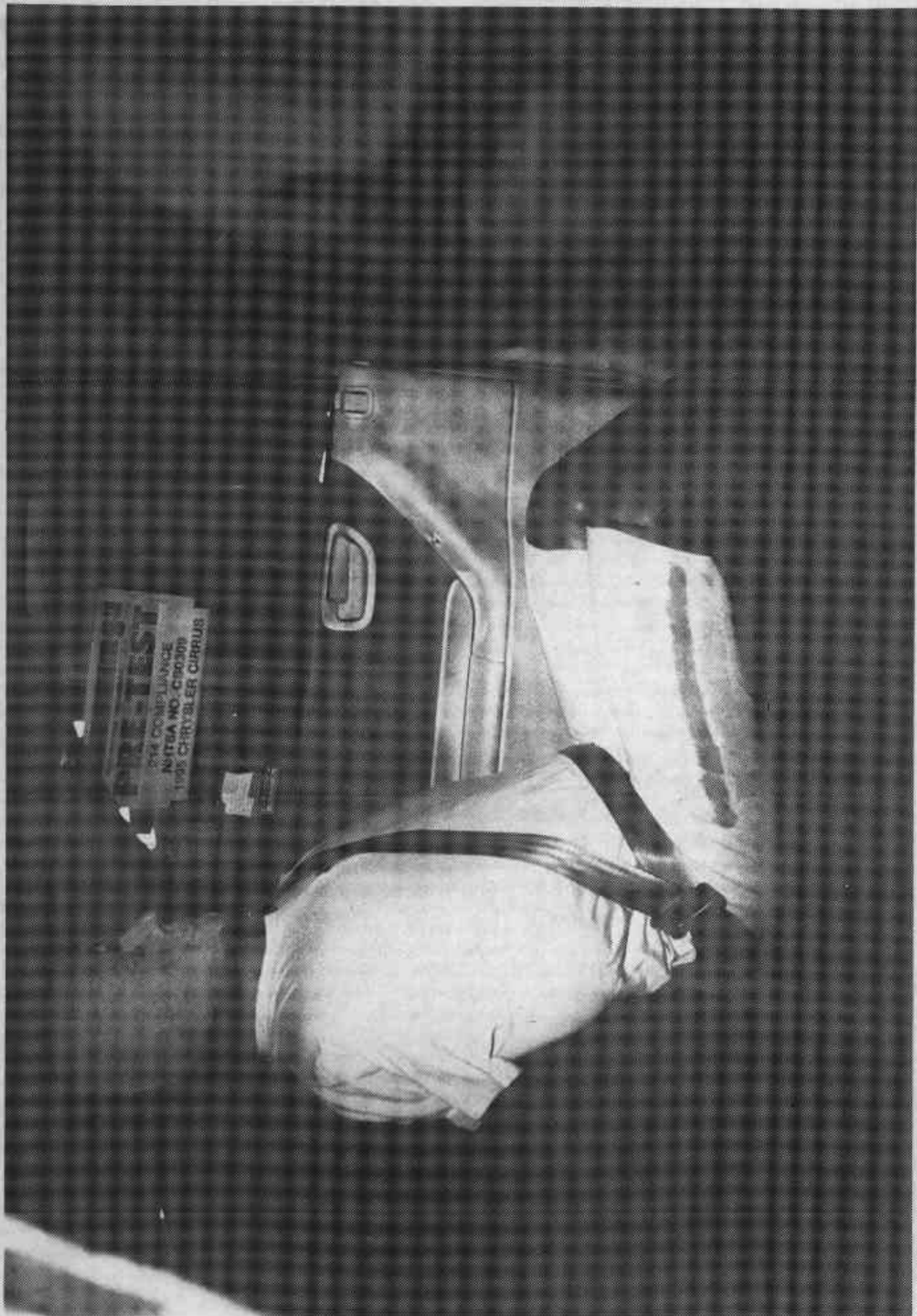


Photo No. A-29 - Pre-Test Passenger Dummy Right Side View

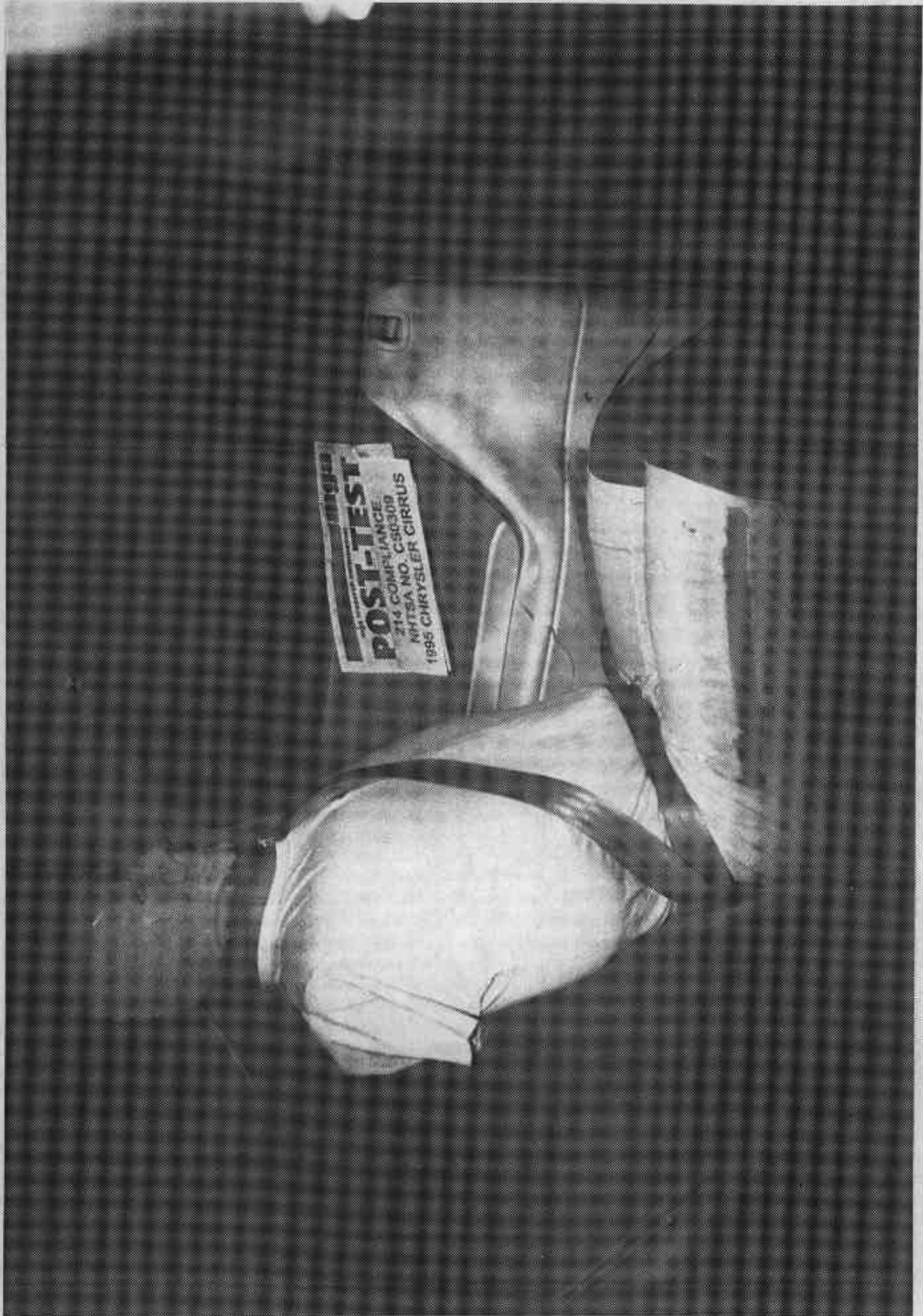


Photo No. A-30 - Post-Test Passenger Dummy Right Side View

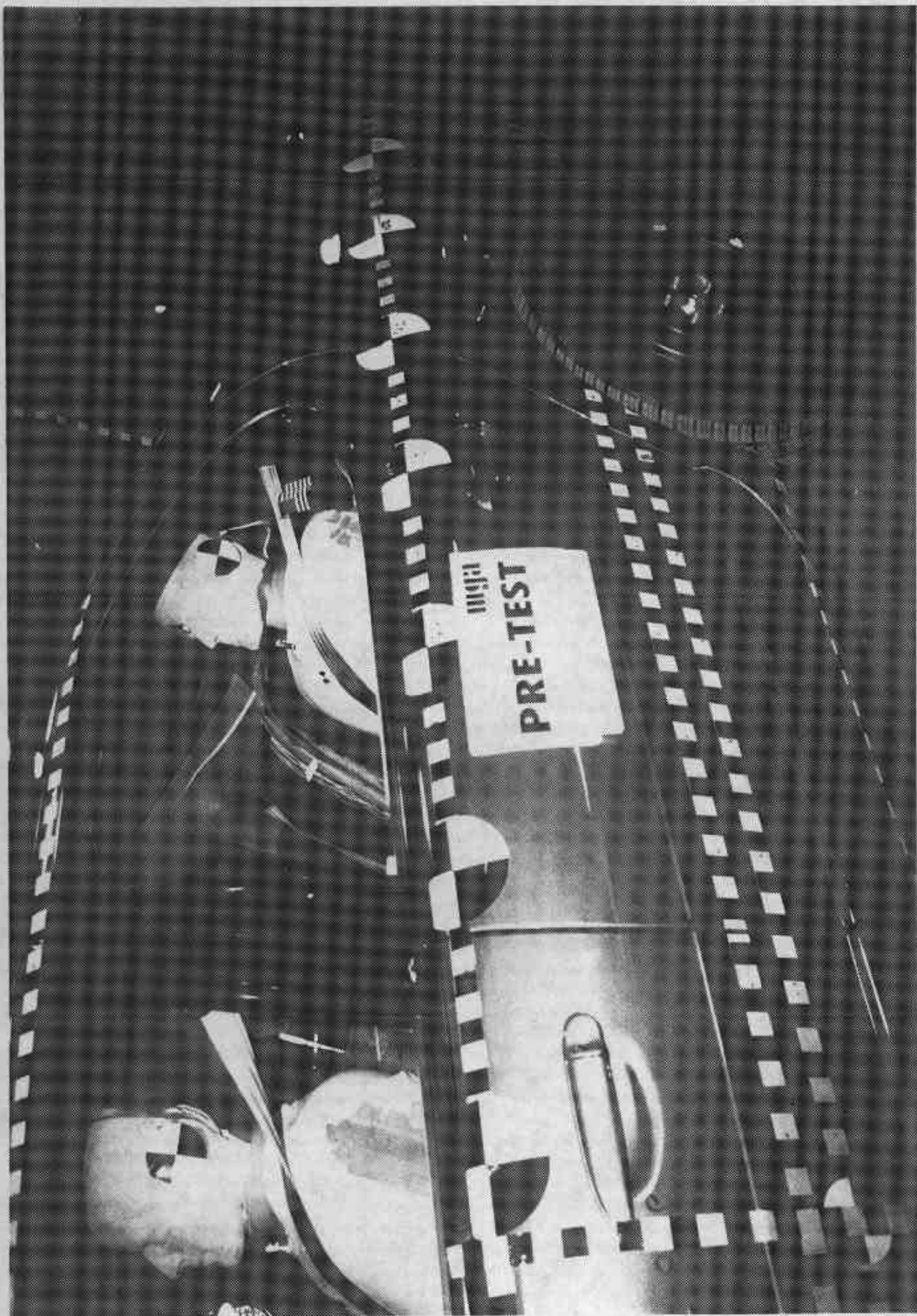


Photo No. A-31 - Pre-Test Passenger Dummy Left Side View

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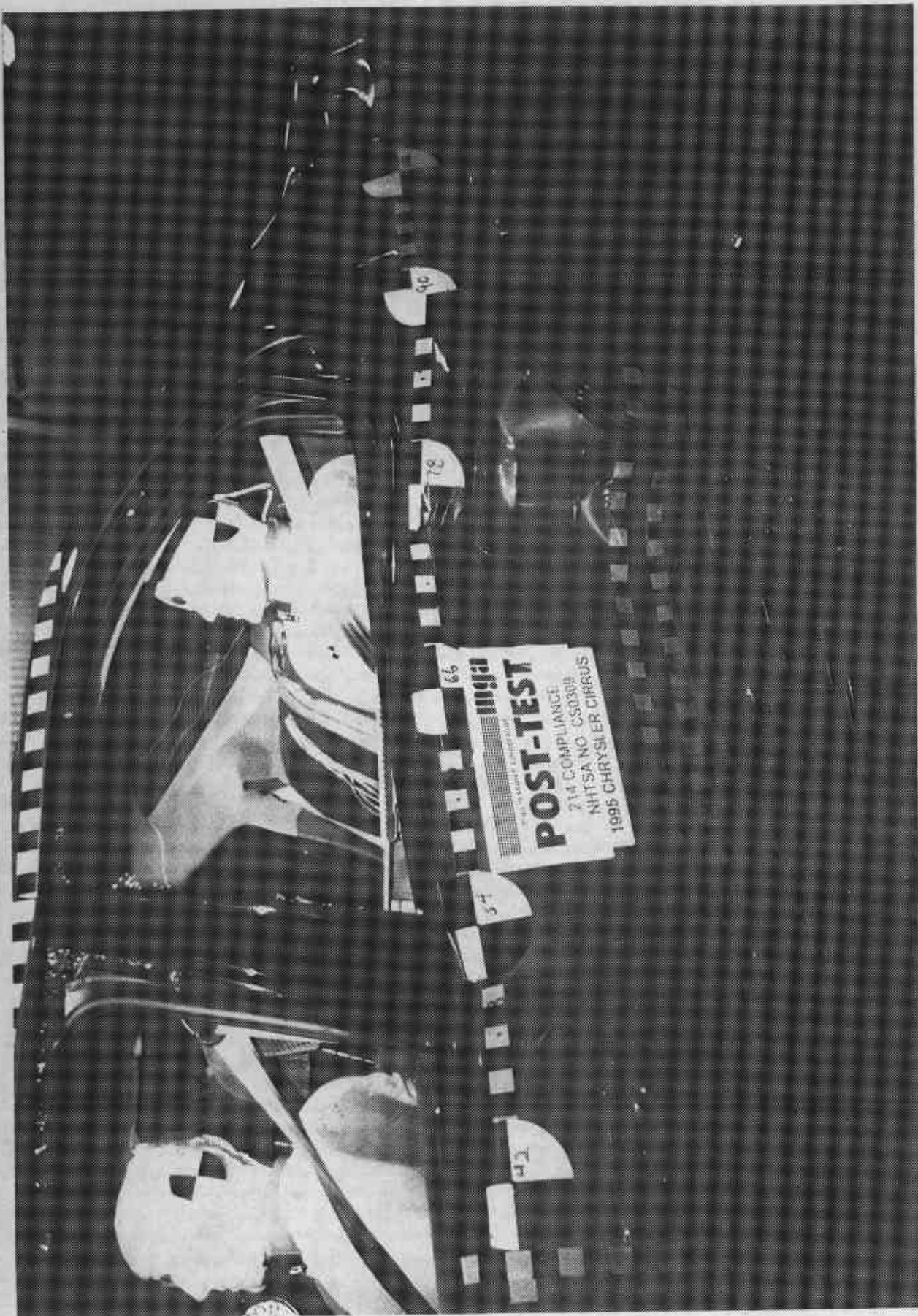


Photo No. A-32 - Post-Test Passenger Dummy Left Side View



Photo No. A-33 - Pre-Test Passenger Dummy Left Side View (Door Open)



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

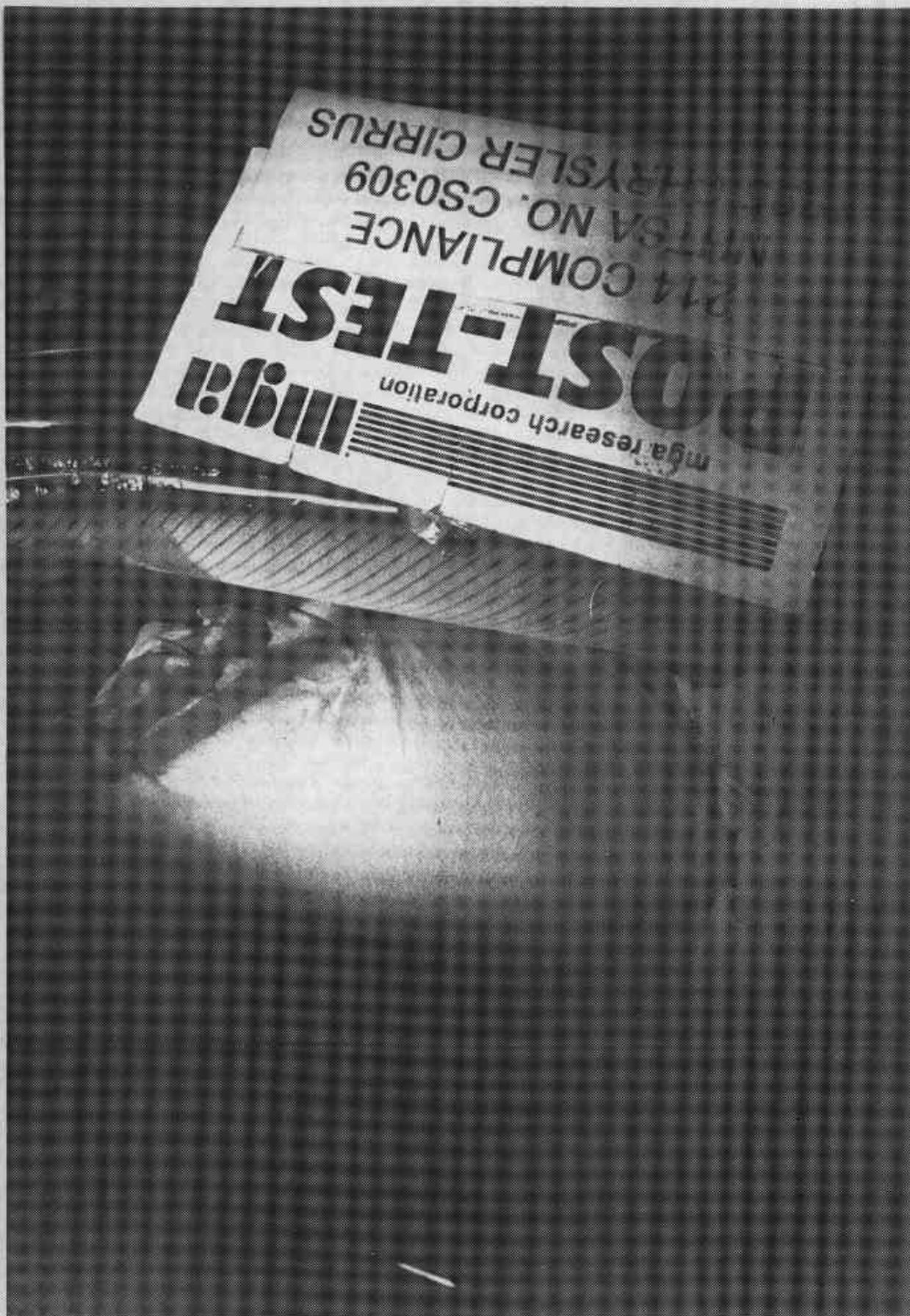


Photo No. A-35 - Post-Test Passenger Dummy Shoulder and Door Top View



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



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

MFD BY CHRYSLER CORPORATION

DATE OF MFG: 11-84

GWR 04112 LB
1866 KG

GMR 2305 LB
FRONT 1046 KG

GMR 1002 LB
REAR 400 KG

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

VIN: 1C3EJ56H0SN507360

TYPE: PASSenger



MR: 111638 534 PRINTED VEHICLE GALT INDUSTRIES

Photo No. A-38 - Vehicle Certification Label

	VEHICLE CAPACITY OR LESS
1ST SEAT	2 PASS.
2ND SEAT	3 PASS.
1 USGAGE	115 LBS-52 kg
TOTAL	5 PASS.
WEIGHT	365 LBS-392 kg
TIRE PRESSURE (COLD)	30 PSI 210 kPa FRONT AND REAR
RECOMMENDED TIRE SIZES	
P195/70R14 90S	
P195/65R15 89S	
P195/65R15 89H	
STANDARD LOAD	
SEE OWNERS MANUAL FOR ADDITIONAL DATA	
P-TYRE USA - 6465675	

Photo No. A-39 - Tire Placard

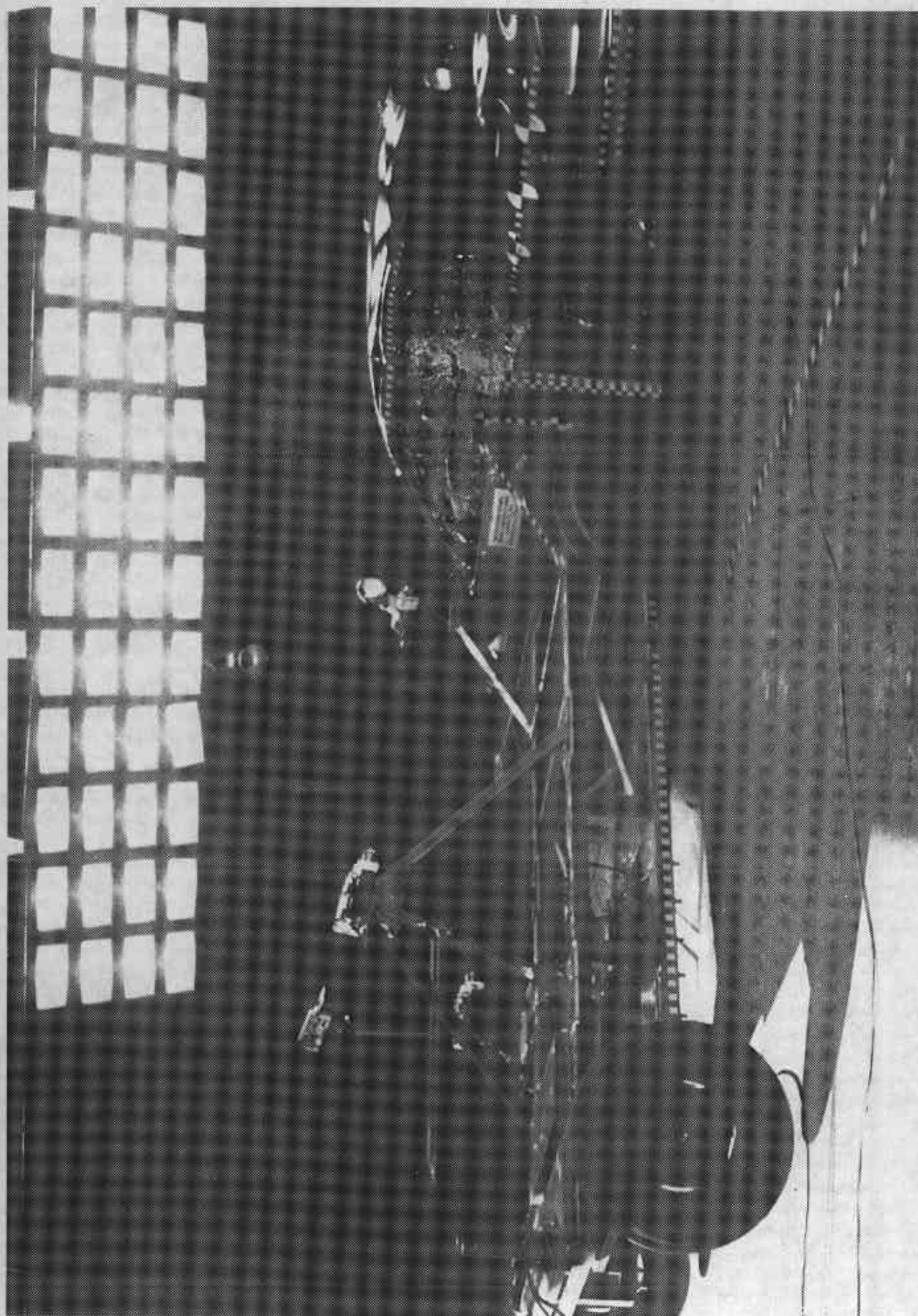


Photo No. A-48 - Impact

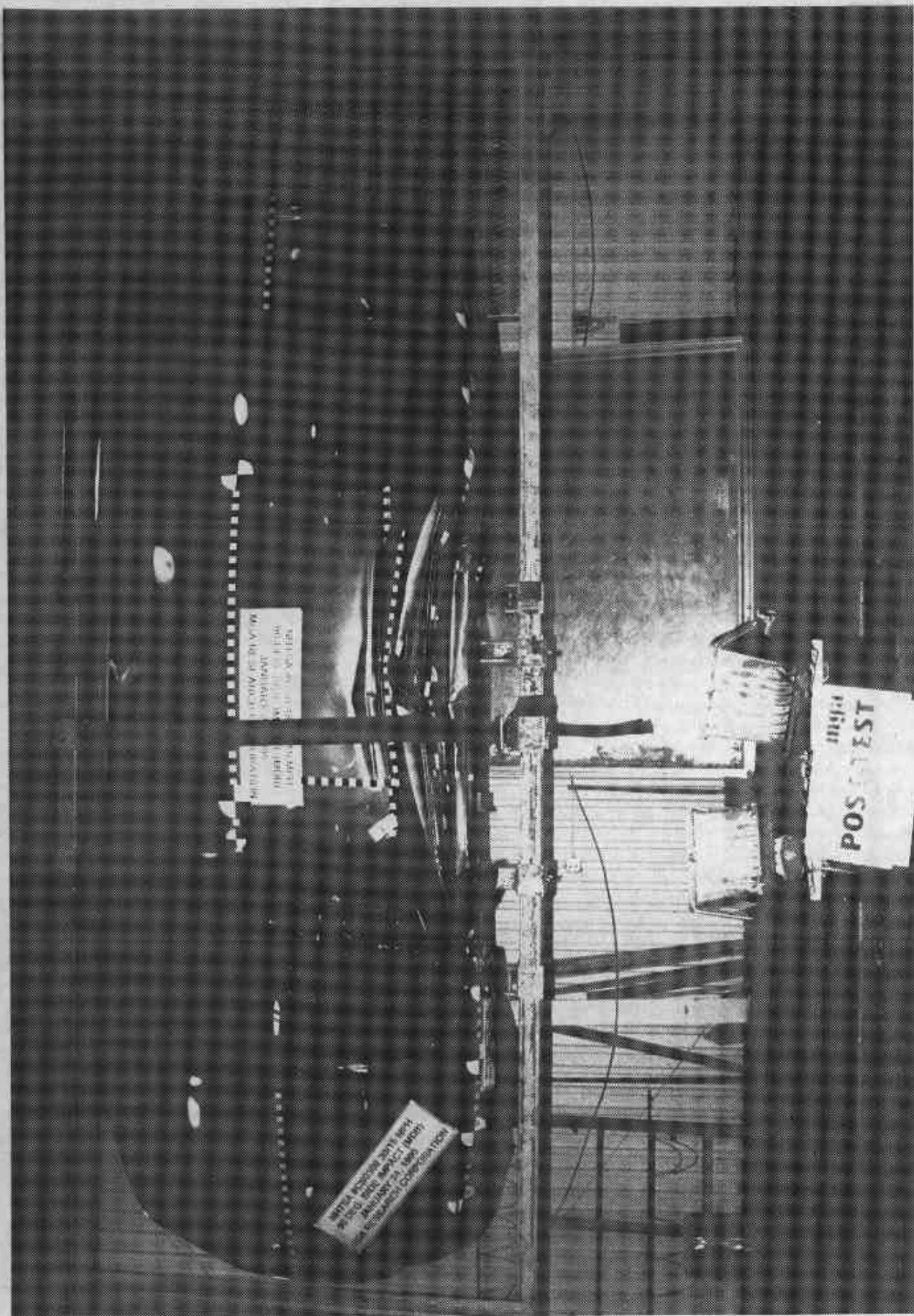


Photo No. A-41 - Rollover 9g°



Photo No. A-42 - Rollover 180°



Photo No. A-43 - Rollover 278°

A-43

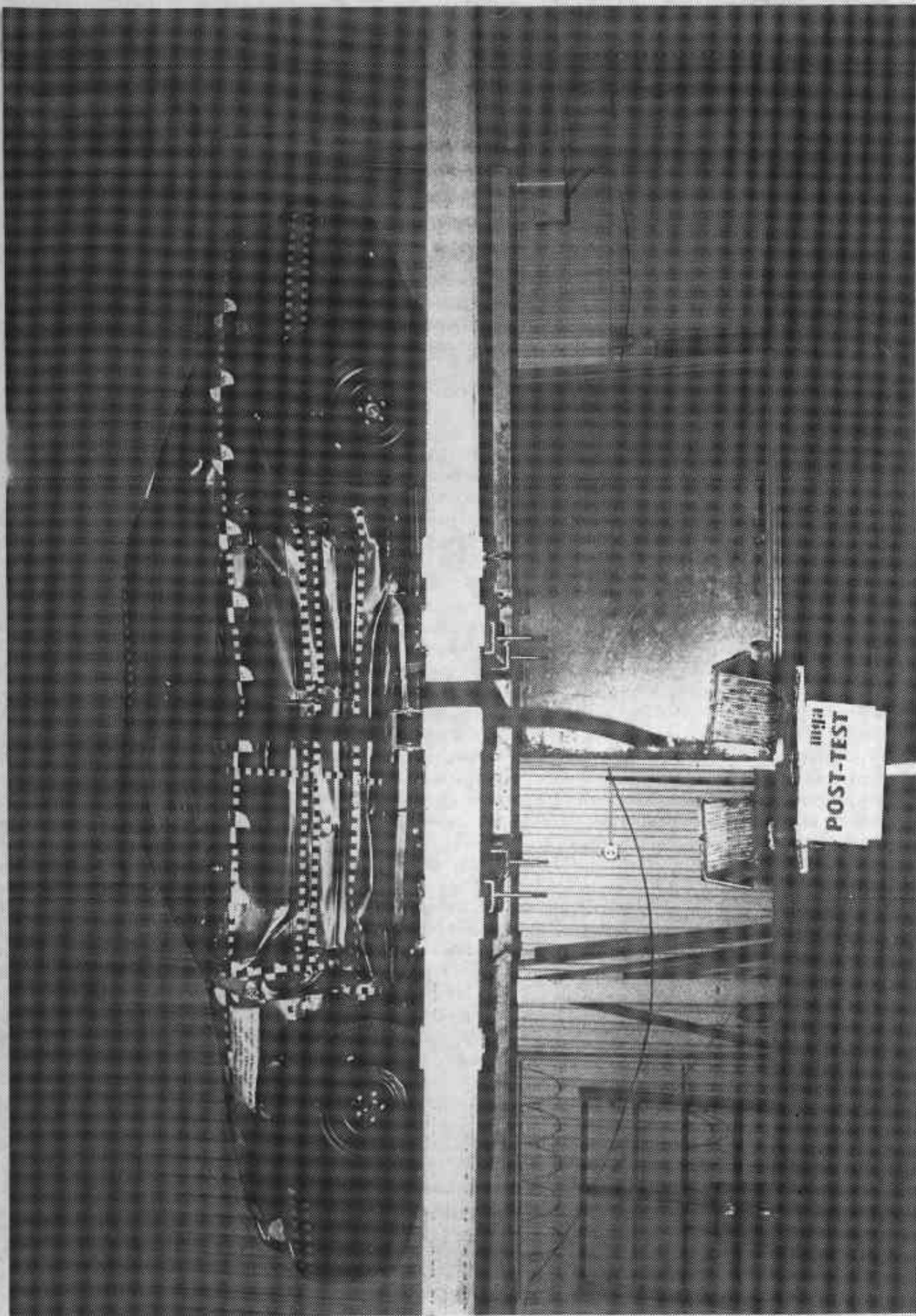


Photo No. A-44 - Rollover 369°

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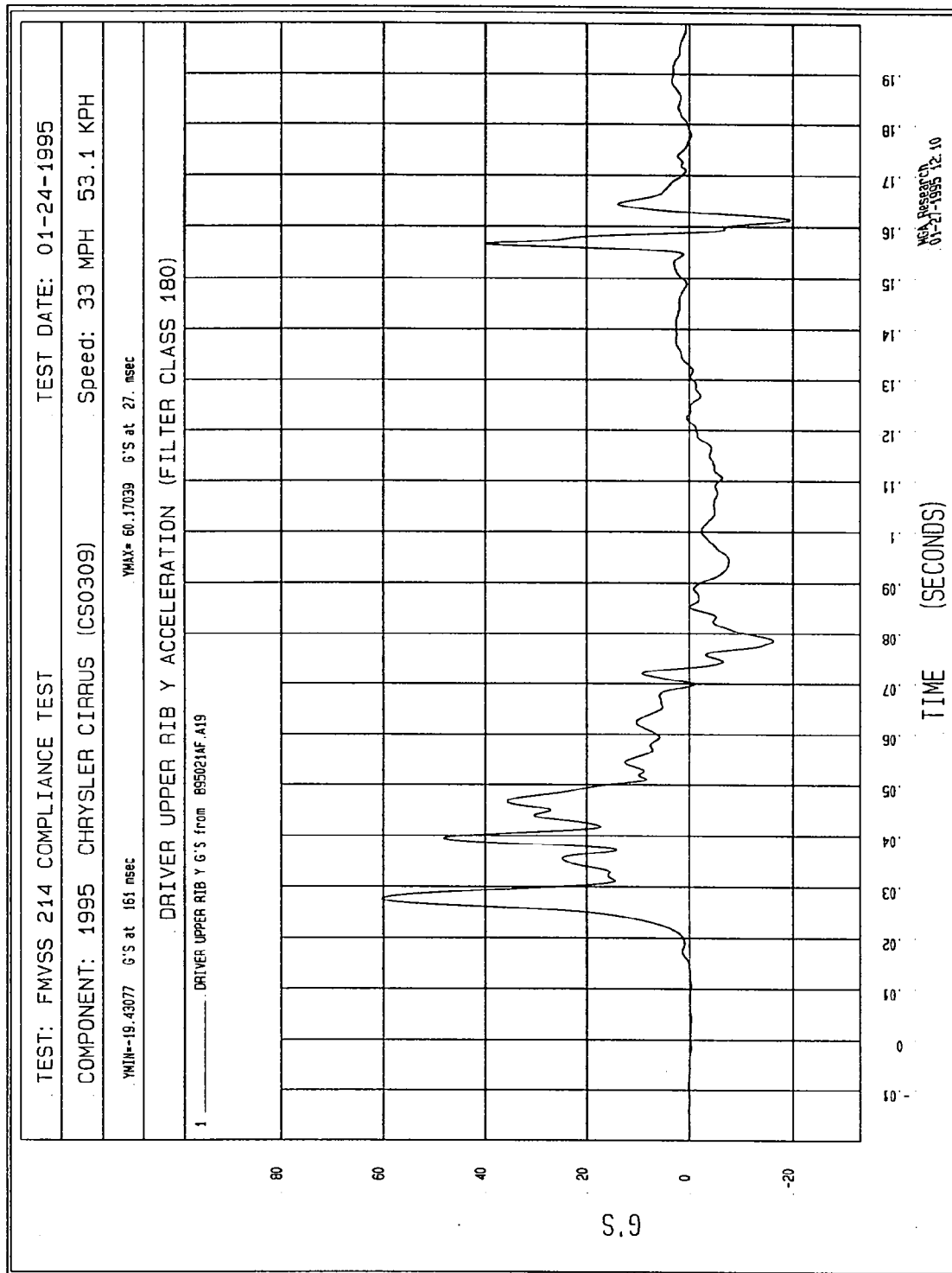


Figure B-1 - Driver Upper Rib Y Acceleration vs. Time

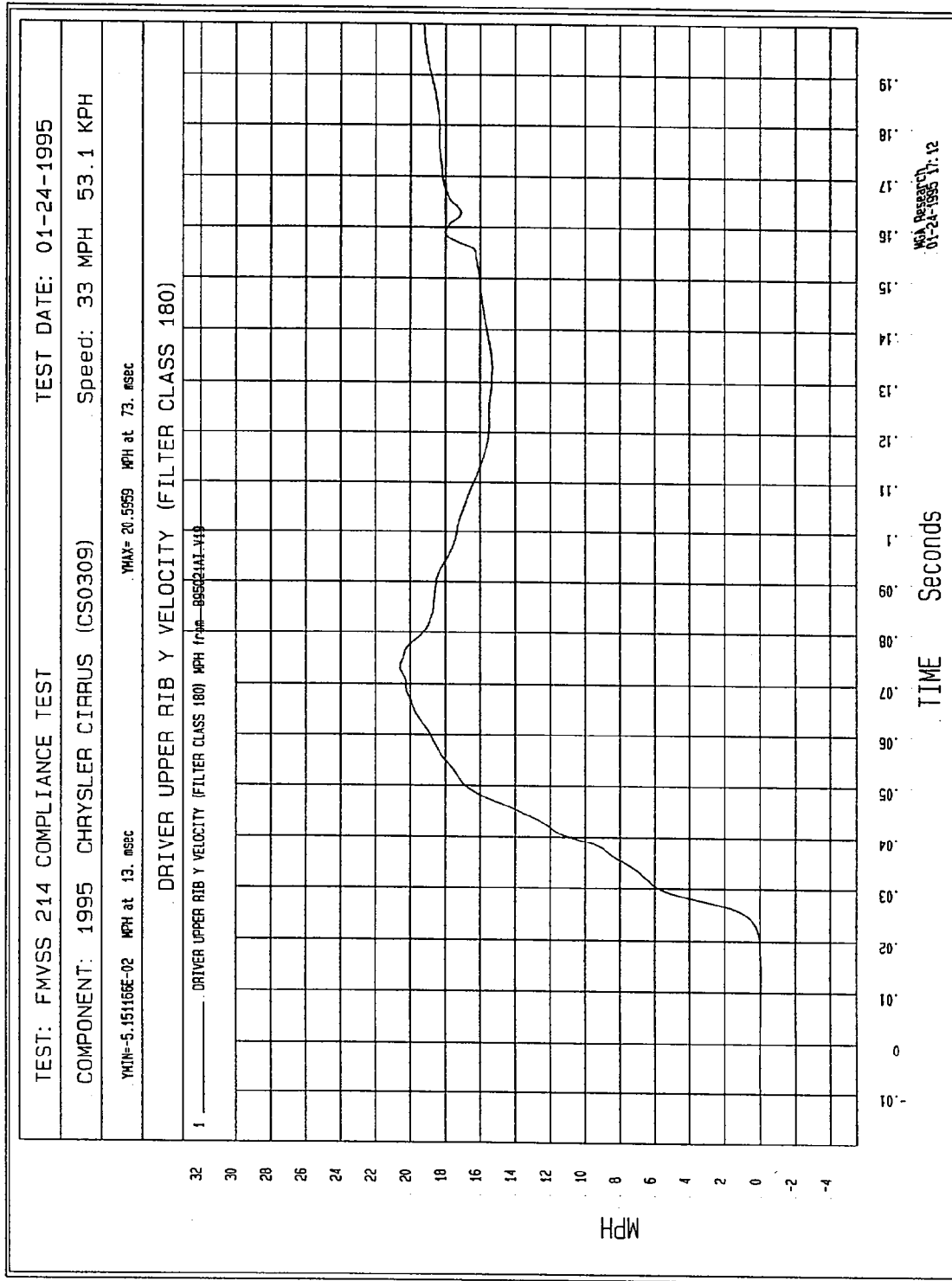


Figure B-2 - Driver Upper Rib Y Velocity vs. Time

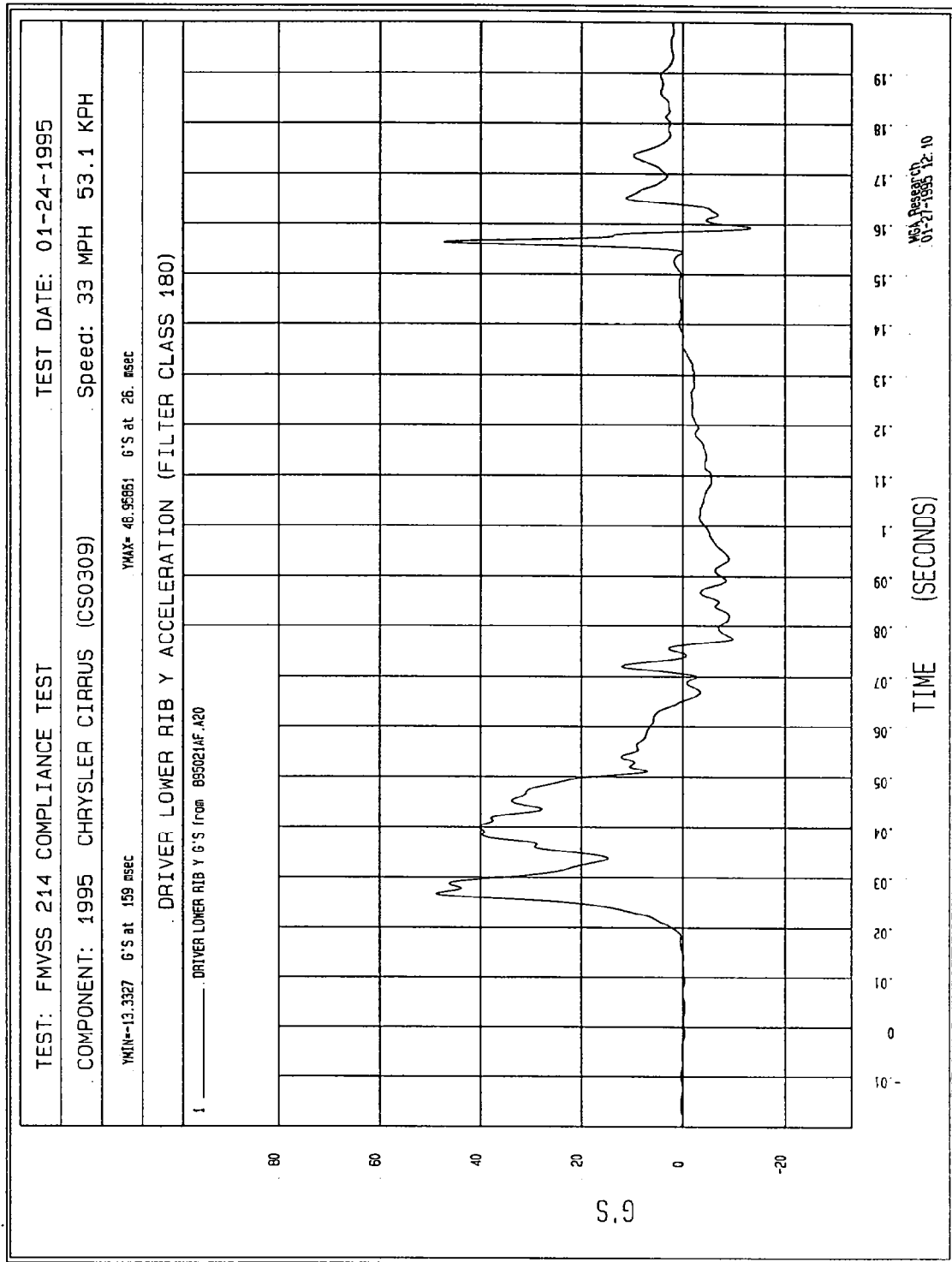


Figure B-3 - Driver Lower Rib Y Acceleration vs. Time

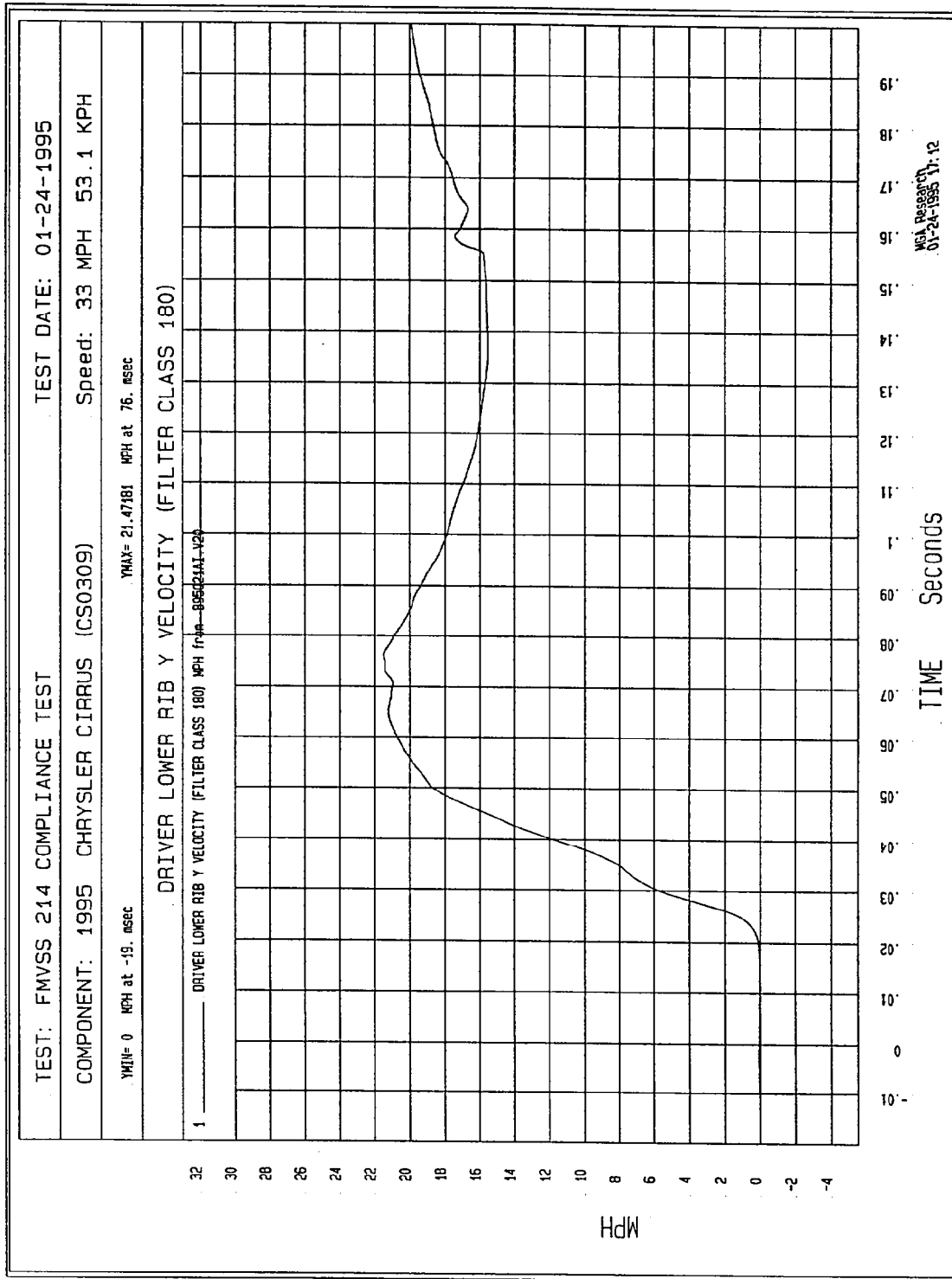


Figure B-4 - Driver Lower Rib Y Velocity vs. Time

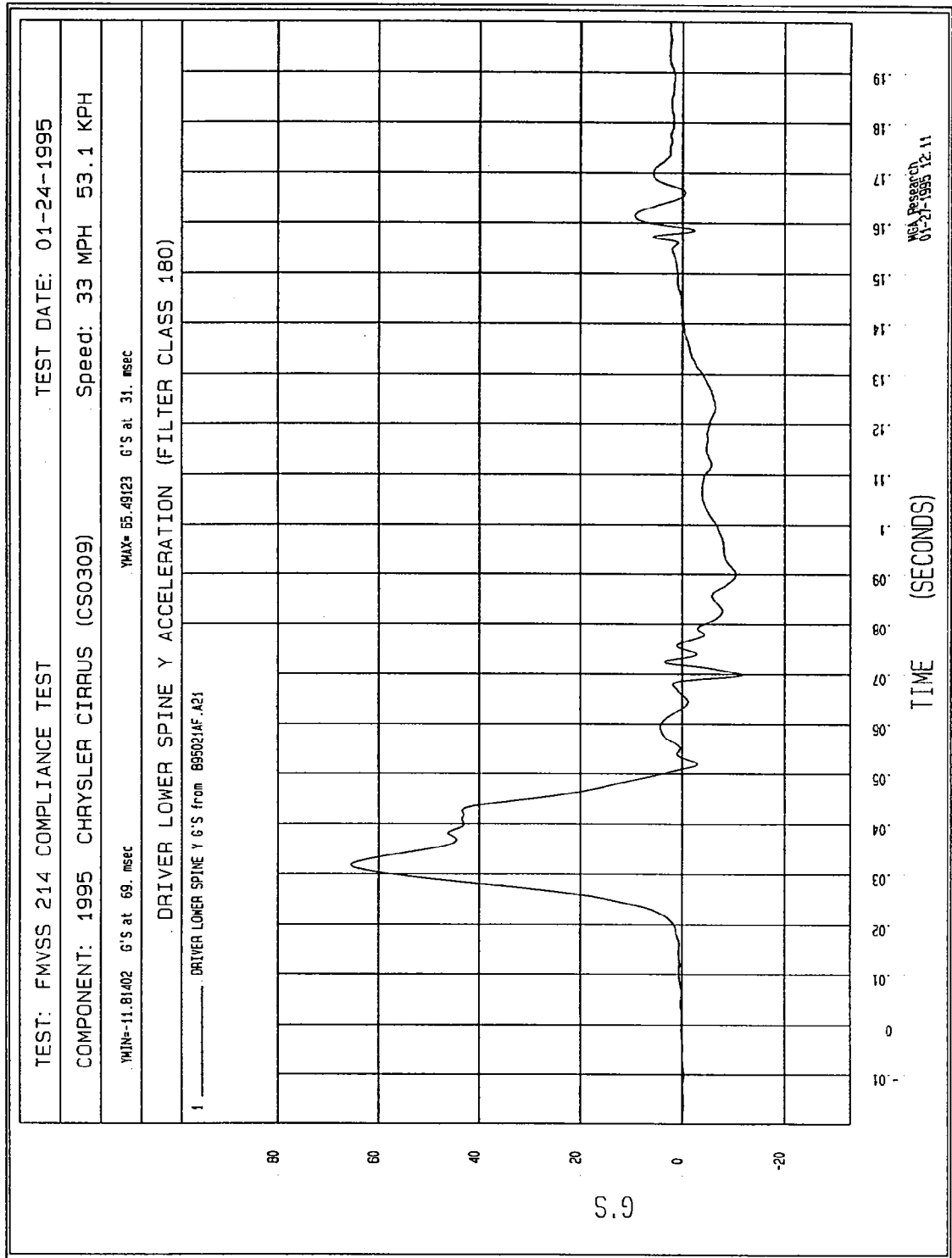


Figure B-5 - Driver Lower Spine Y Acceleration vs. Time

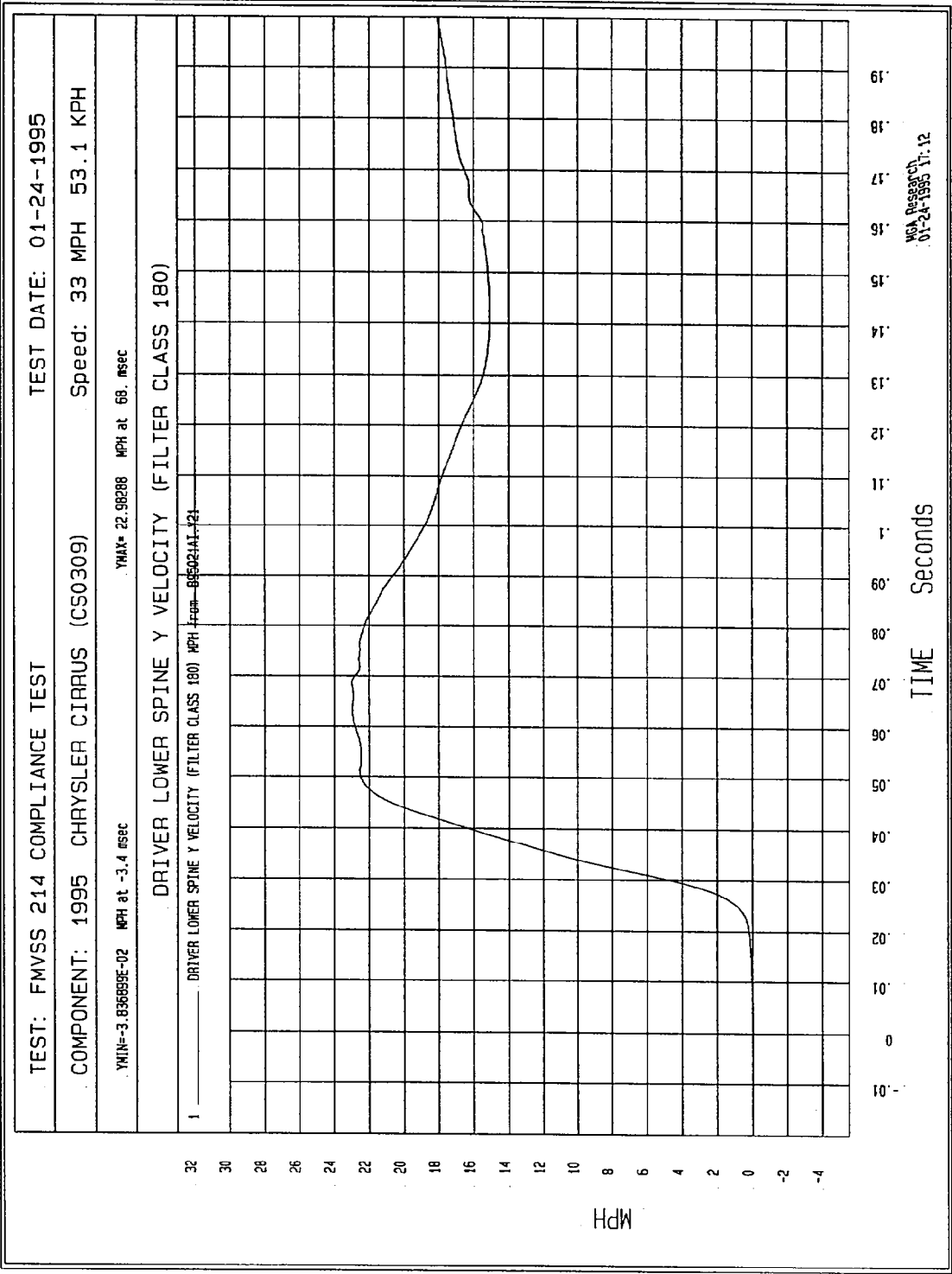


Figure B-6 - Driver Lower Spine Y Velocity vs. Time

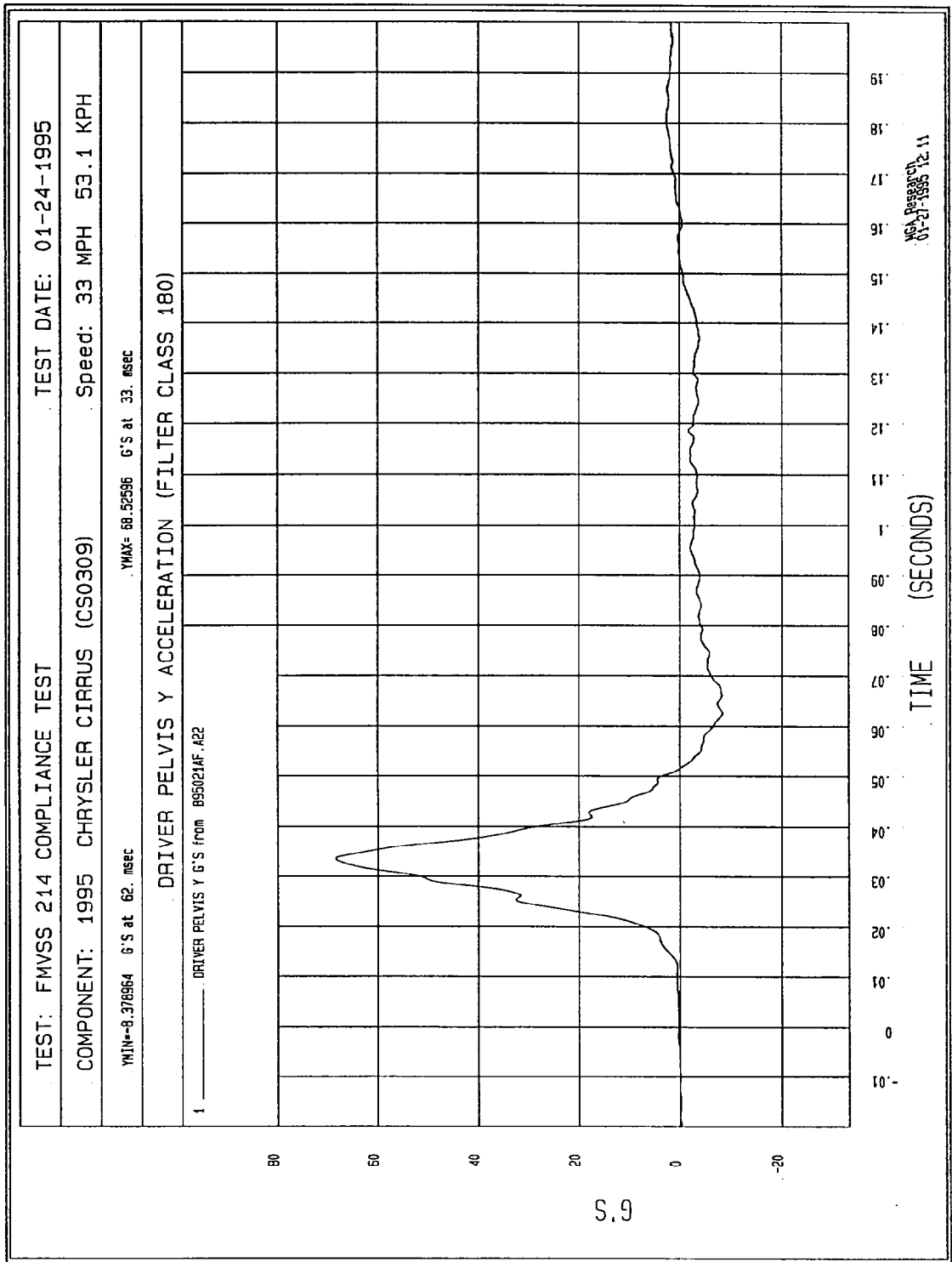


Figure B-7 - Driver Pelvis Y Acceleration vs. Time

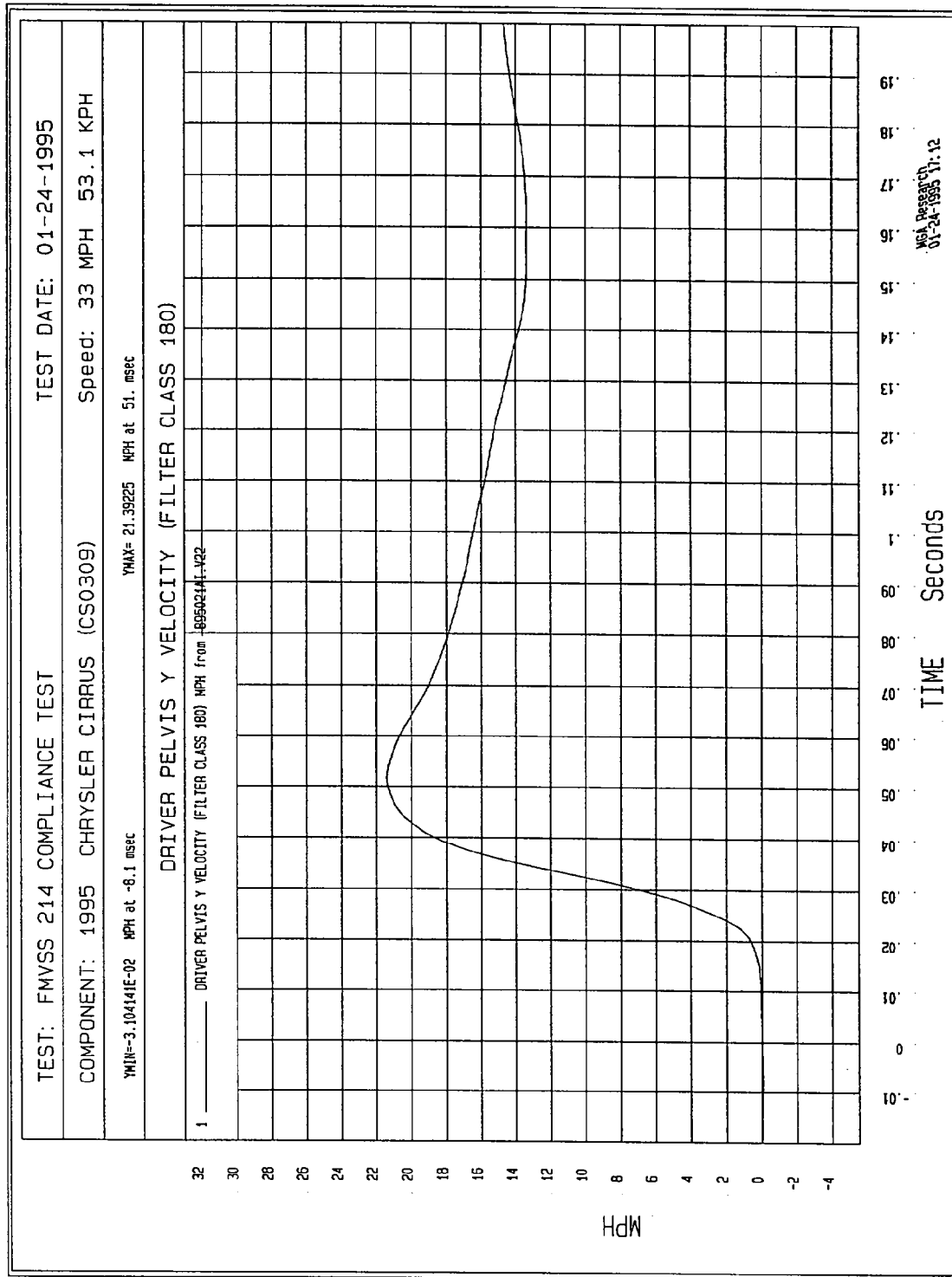


Figure B-8 - Driver Pelvis Y Velocity vs. Time

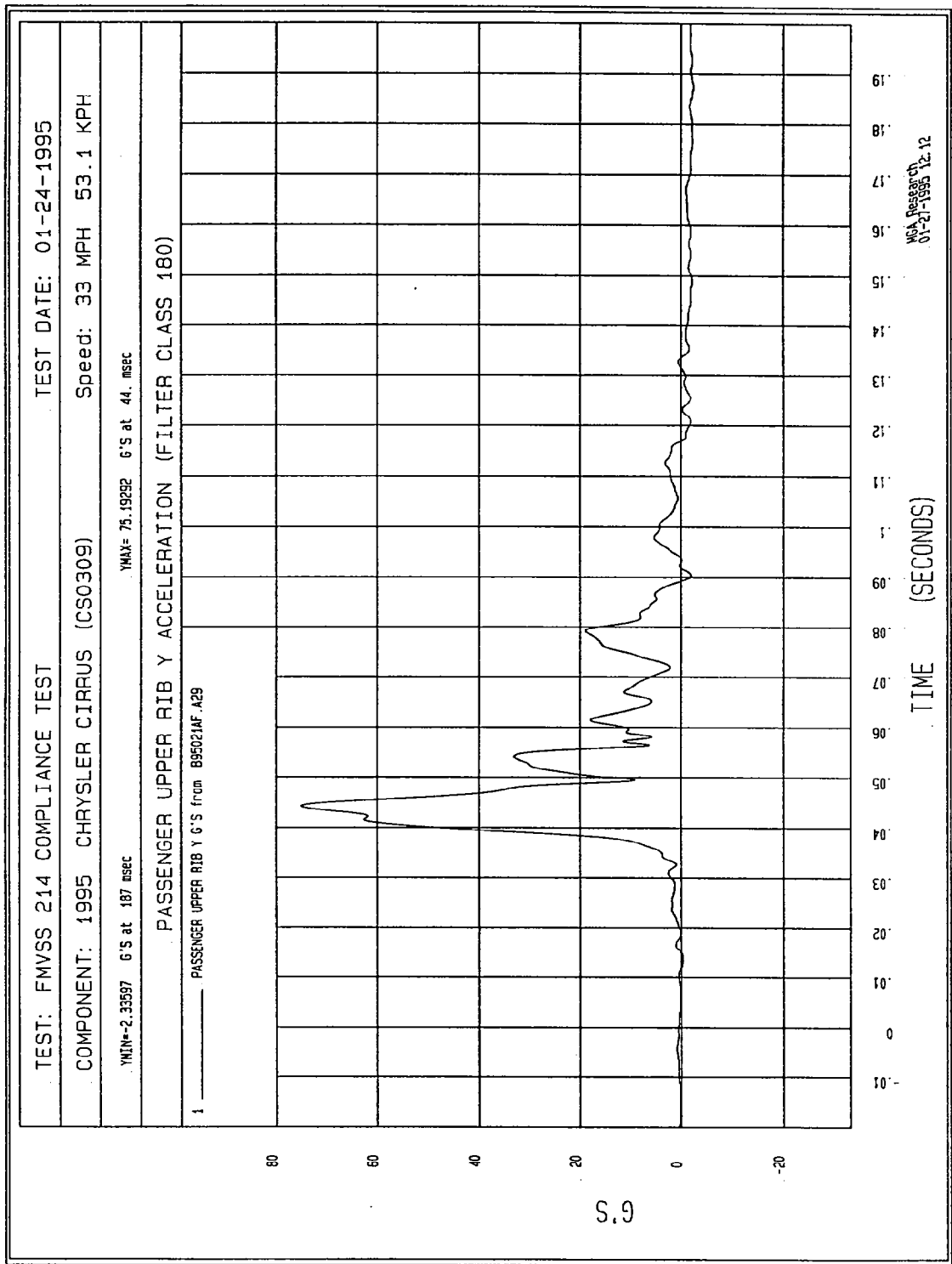


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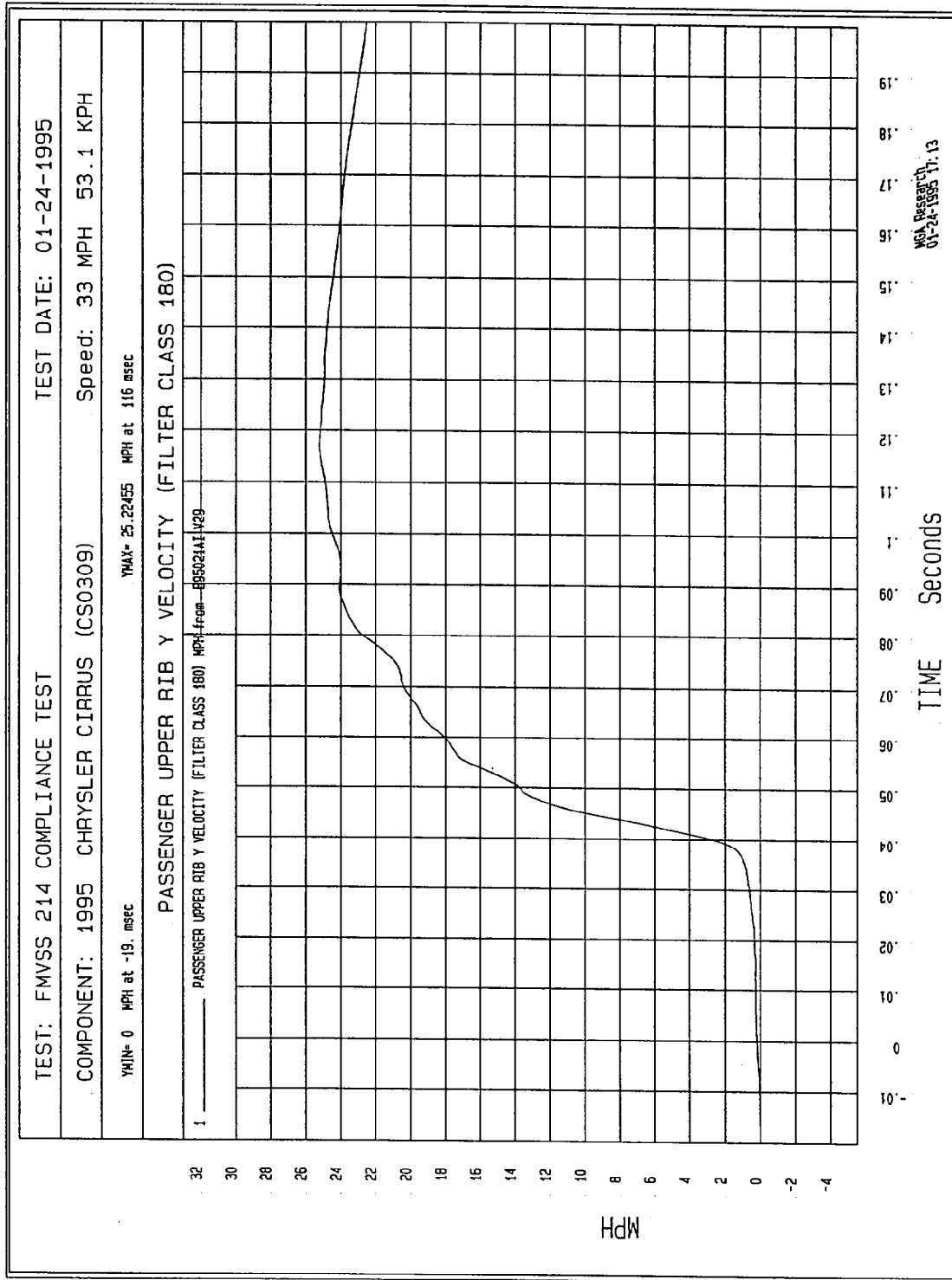


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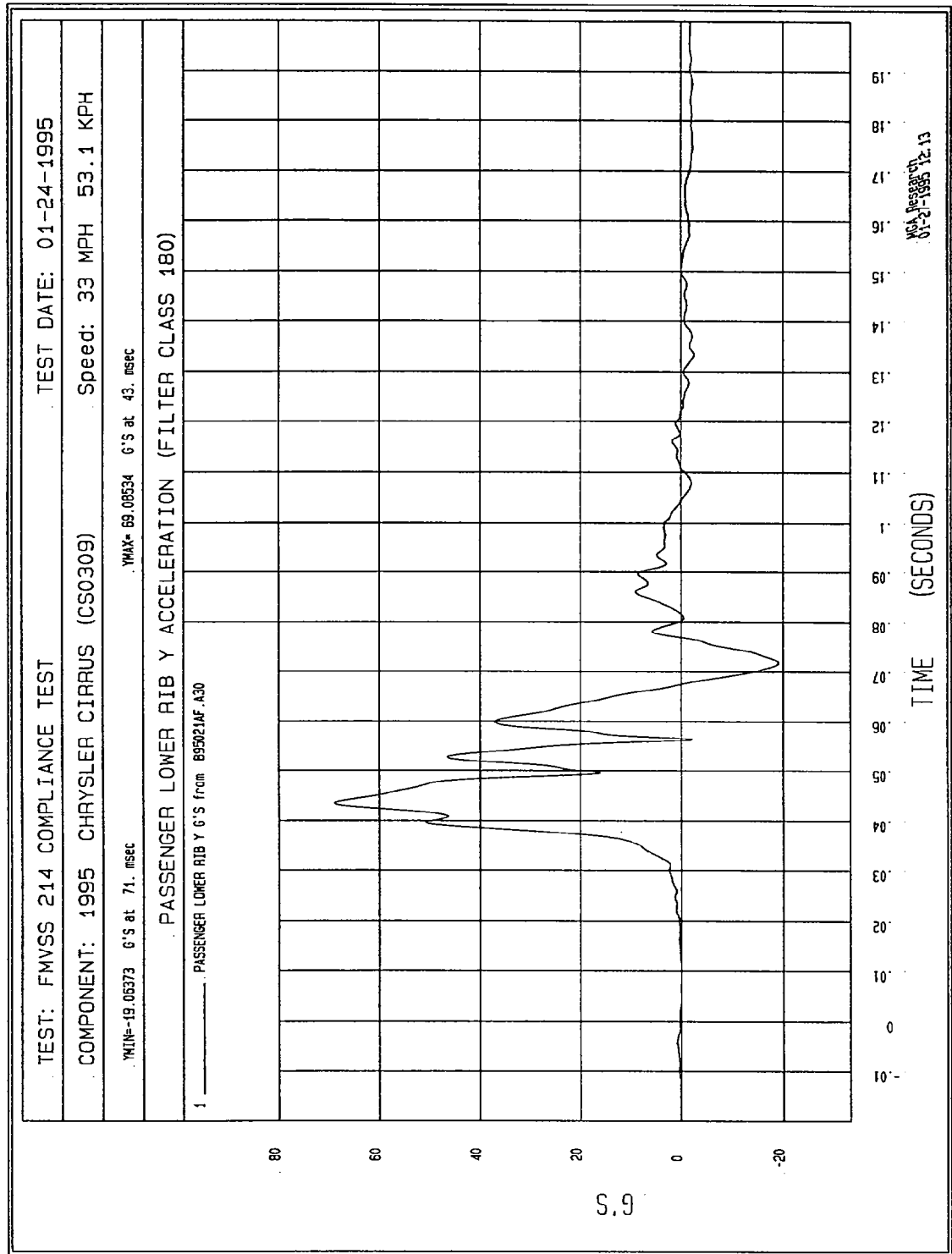
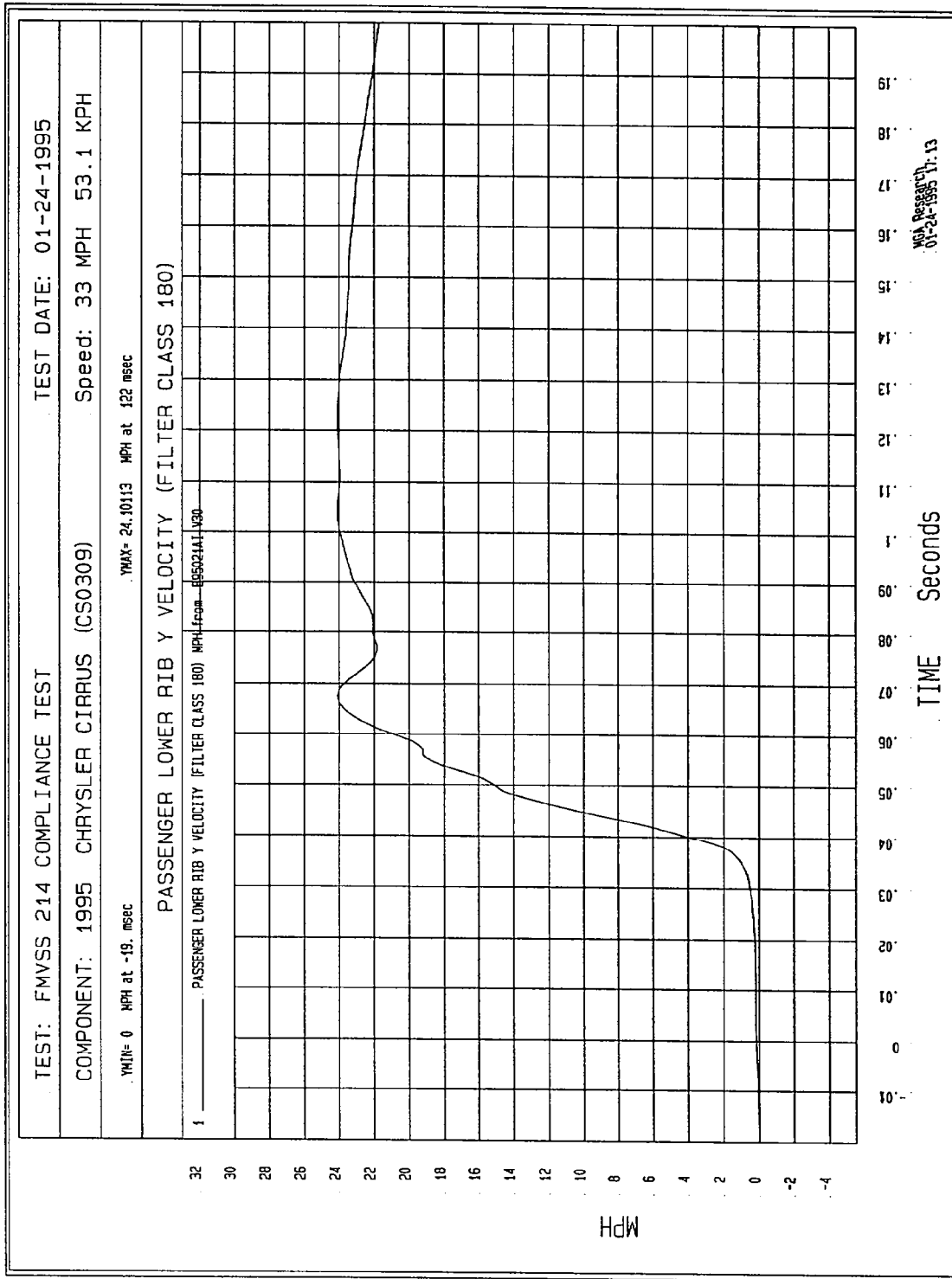


Figure B-11 - Passenger Lower Rib Y Acceleration vs. Time



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Figure B-12 - Passenger Lower Rib Y Velocity vs. Time

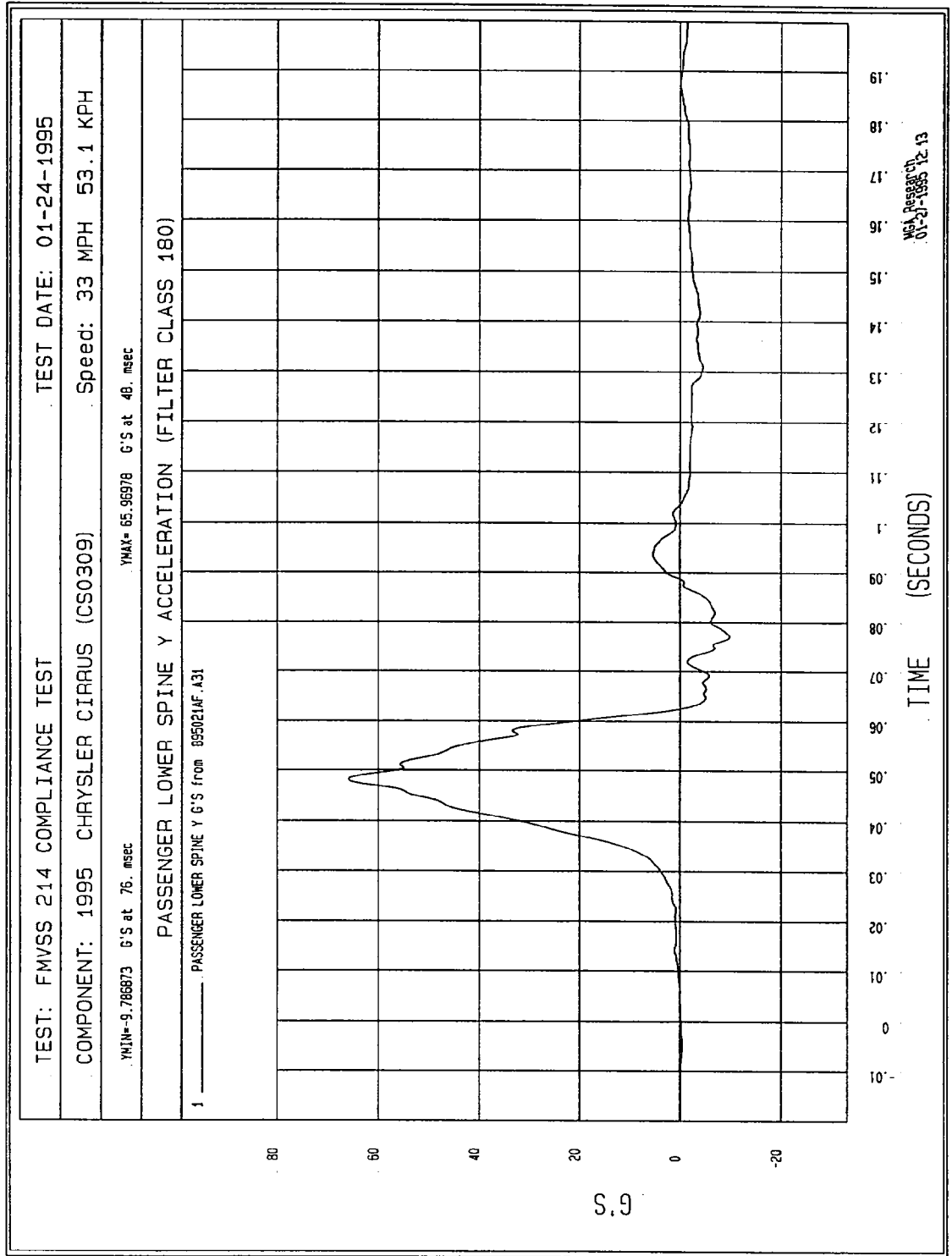


Figure B-13 - Passenger Lower Spine Y Acceleration vs. Time

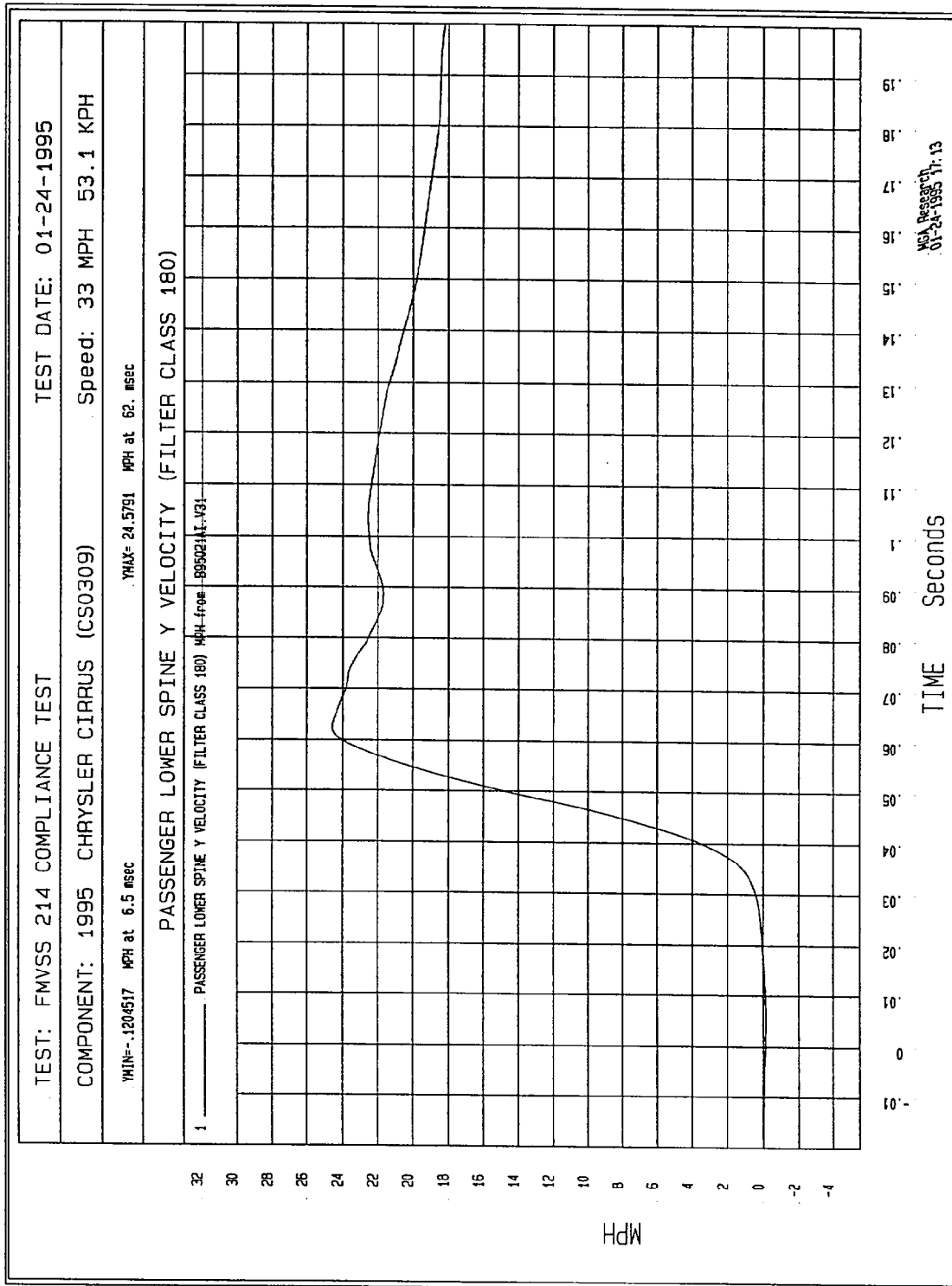


Figure B-14 - Passenger Lower Spine Y Velocity vs. Time

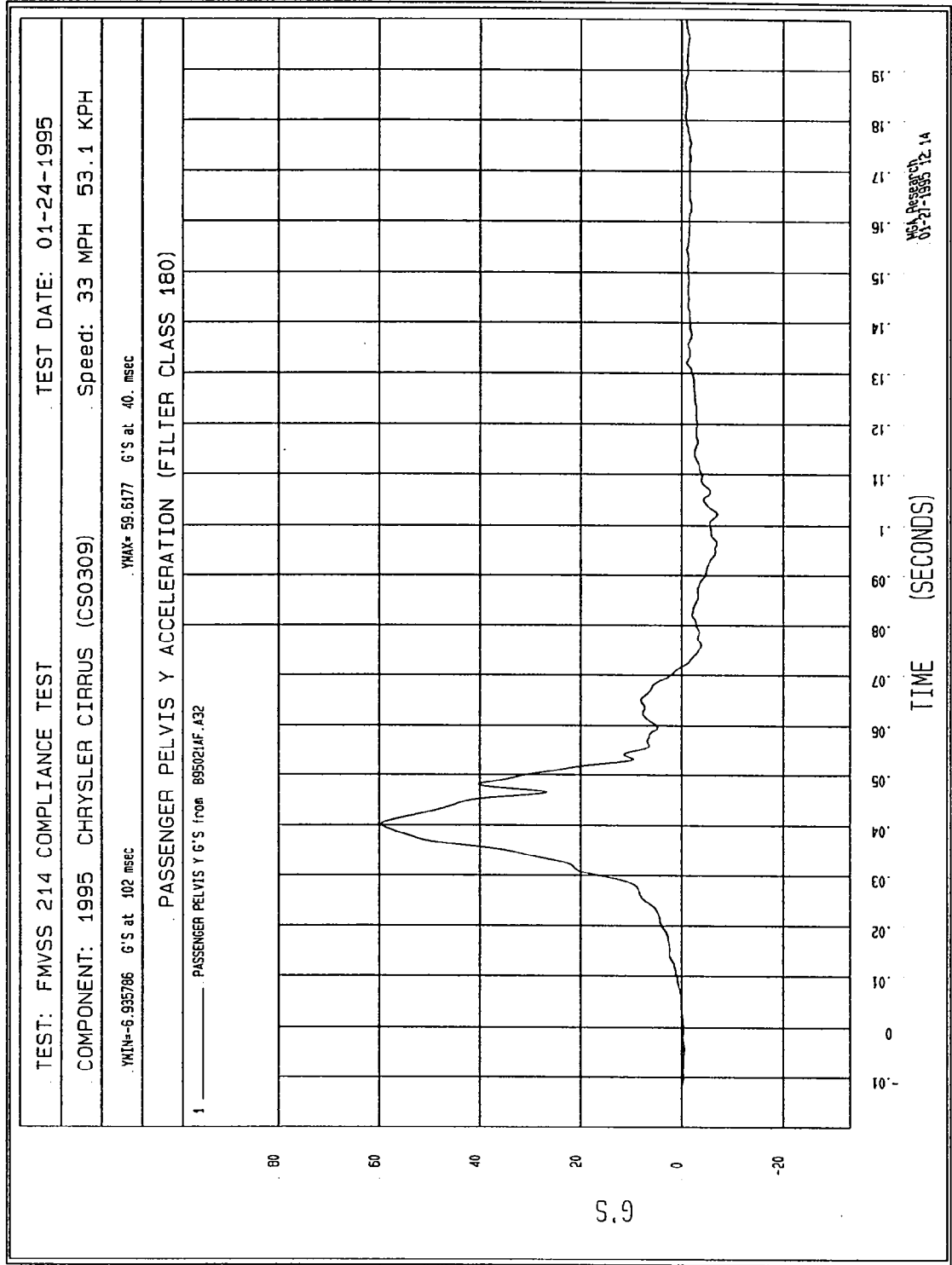


Figure B-15 - Passenger Pelvis Y Acceleration vs. Time

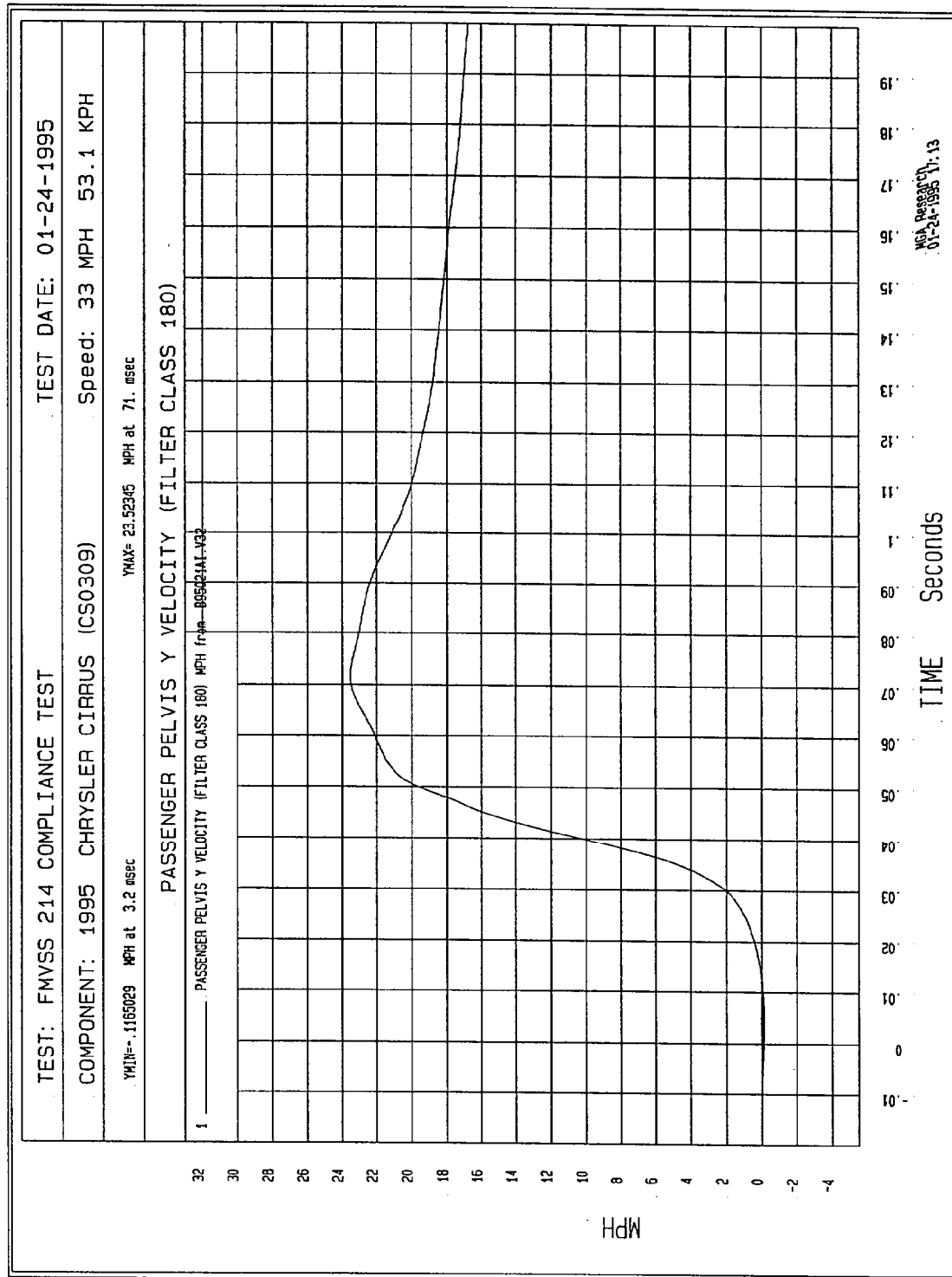


Figure B-16 - Passenger Pelvis Y Velocity vs. Time

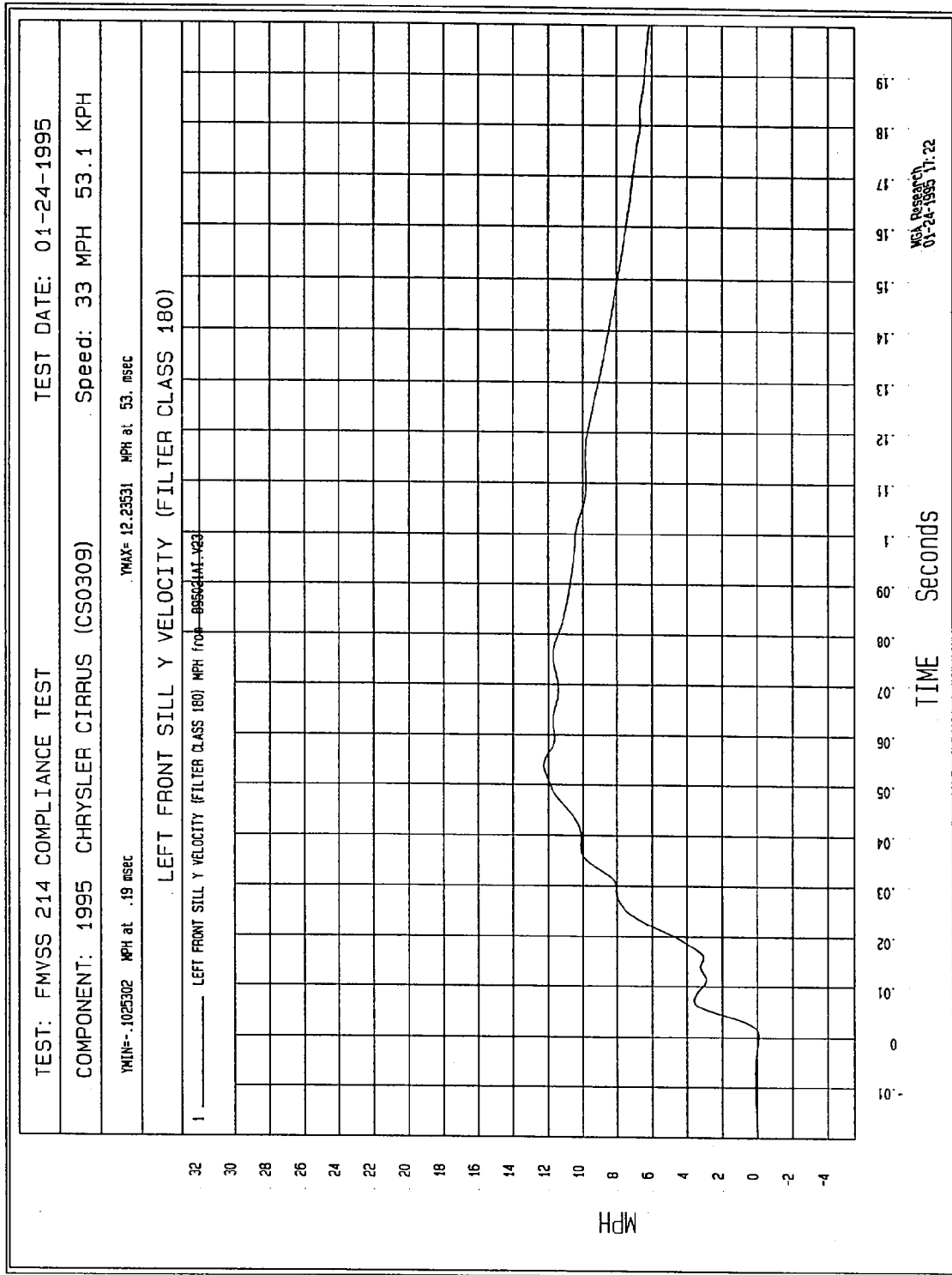


Figure B-18 - Left Front Sill Y Velocity vs. Time

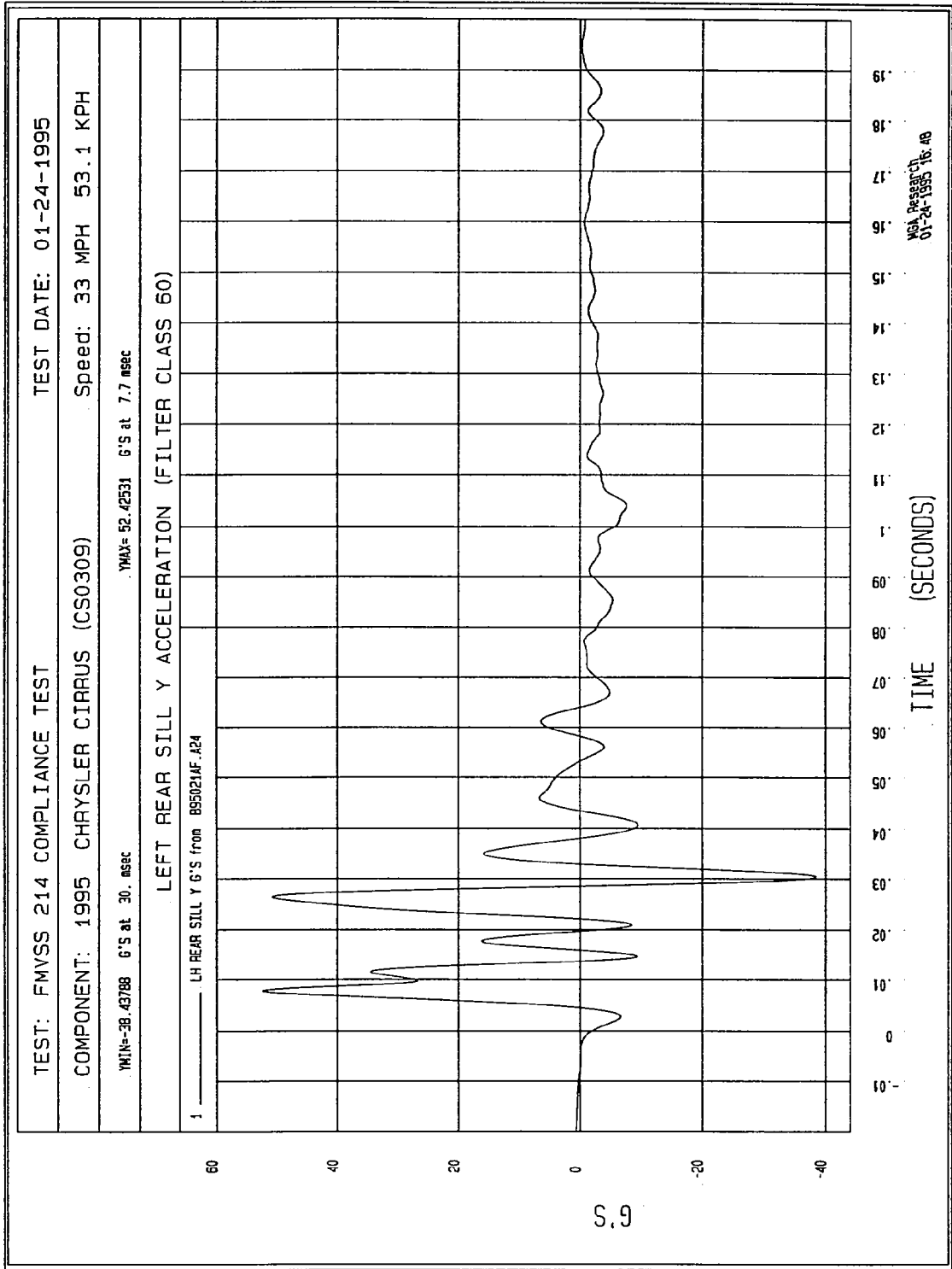


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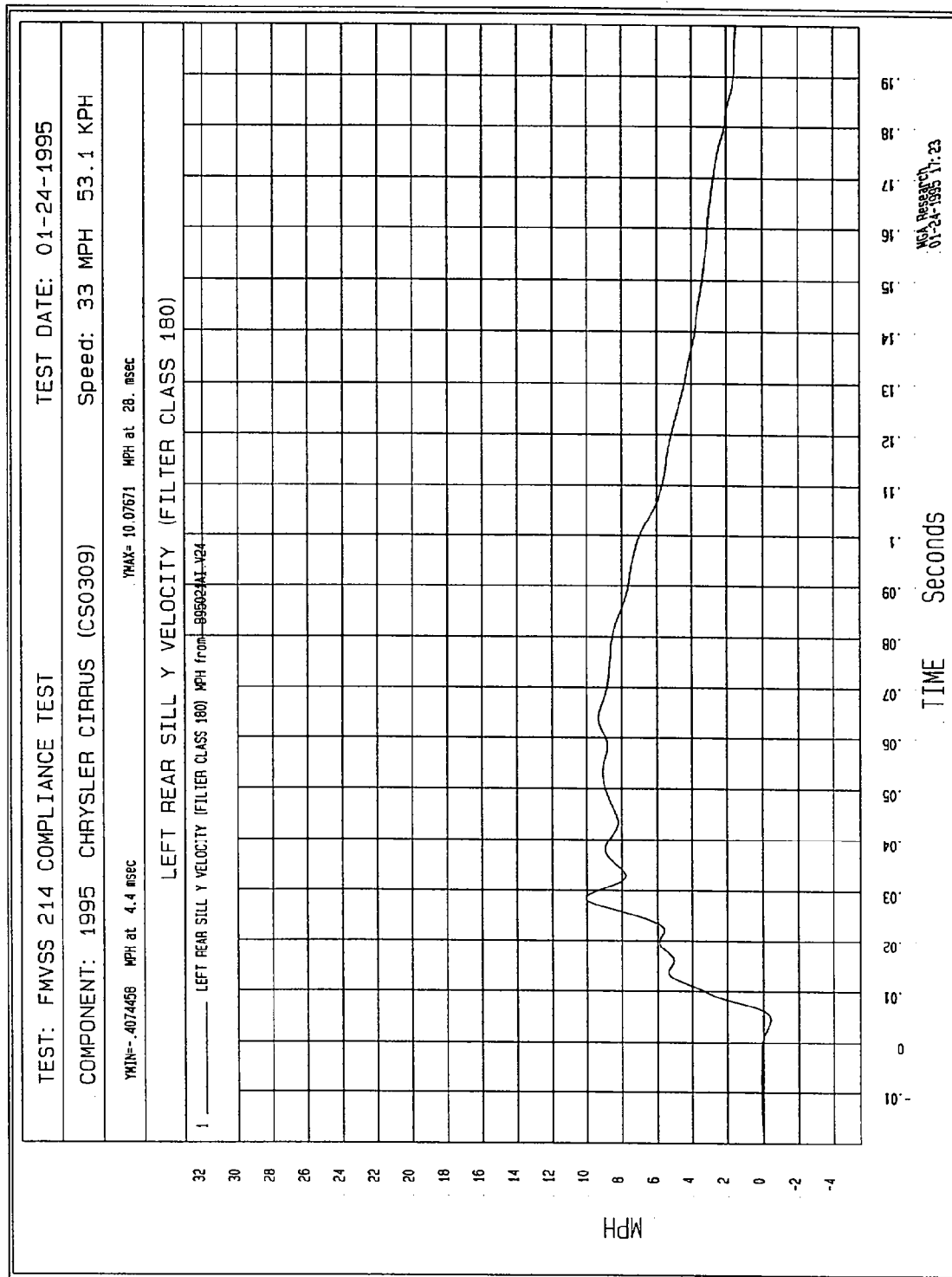


Figure B-20 - Left Rear Sill Y Velocity vs. Time

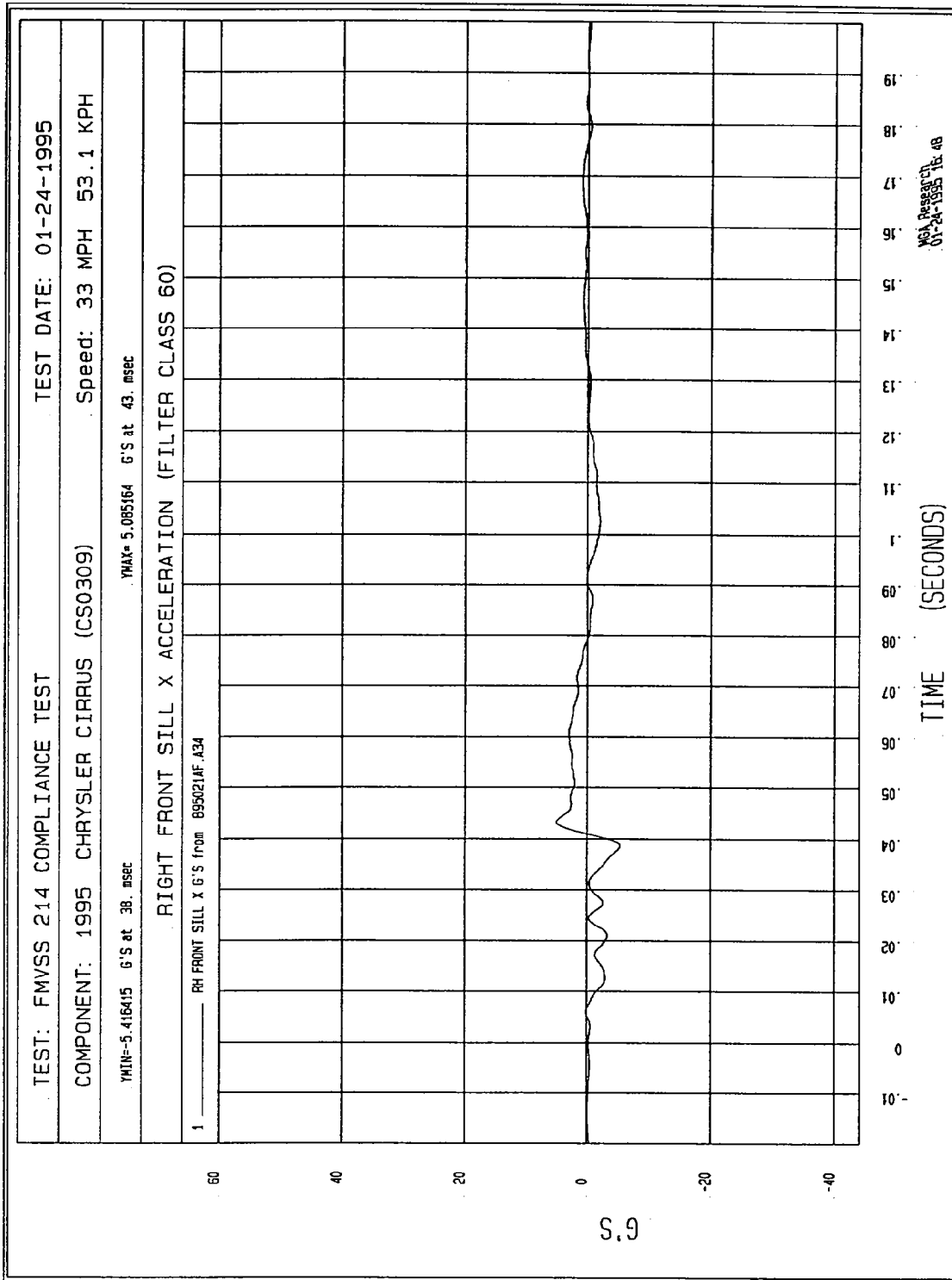


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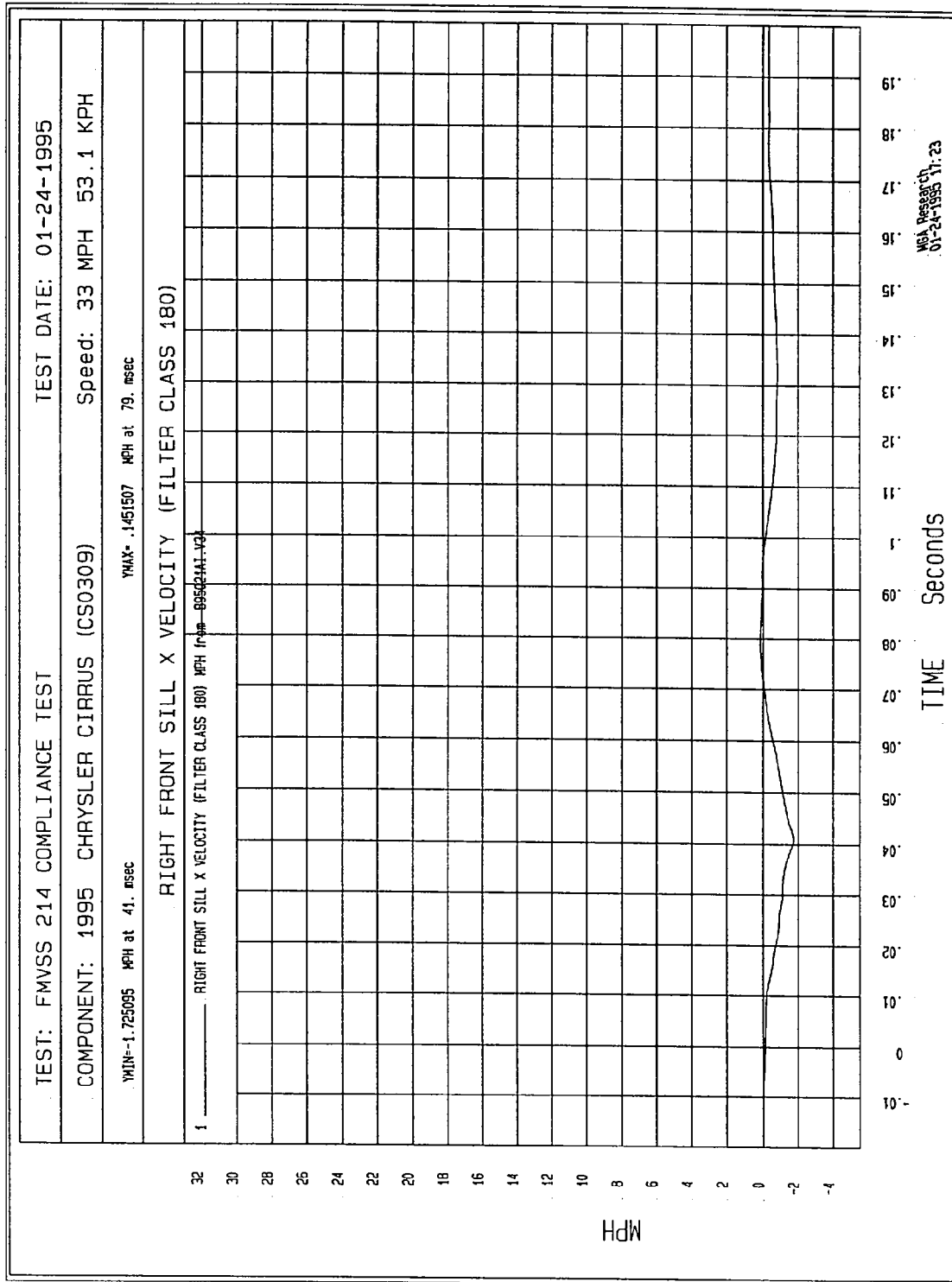


Figure B-22 - Right Front Sill X Velocity vs. Time

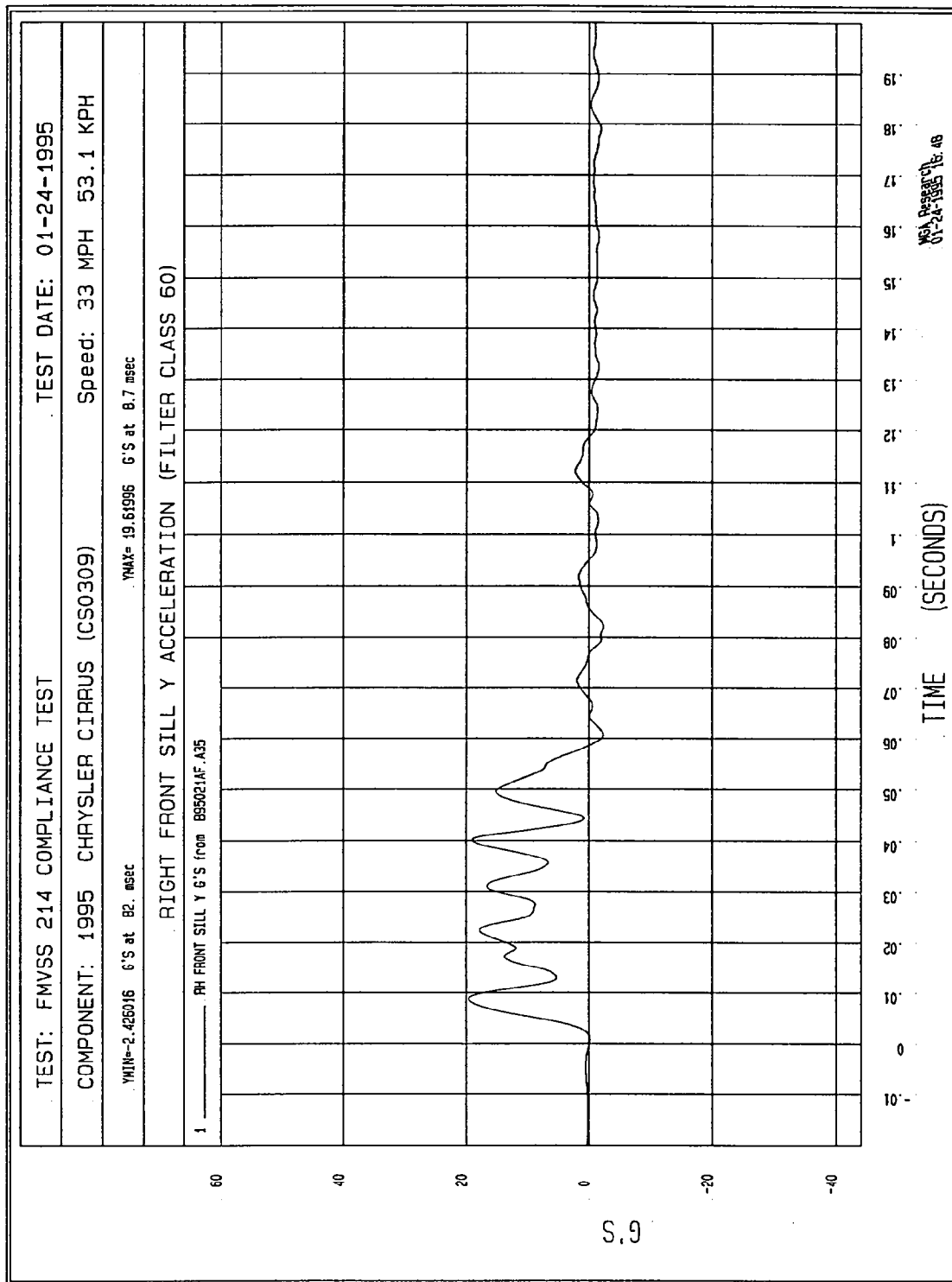


Figure B-23 - Right Front Sill Y Acceleration vs. Time

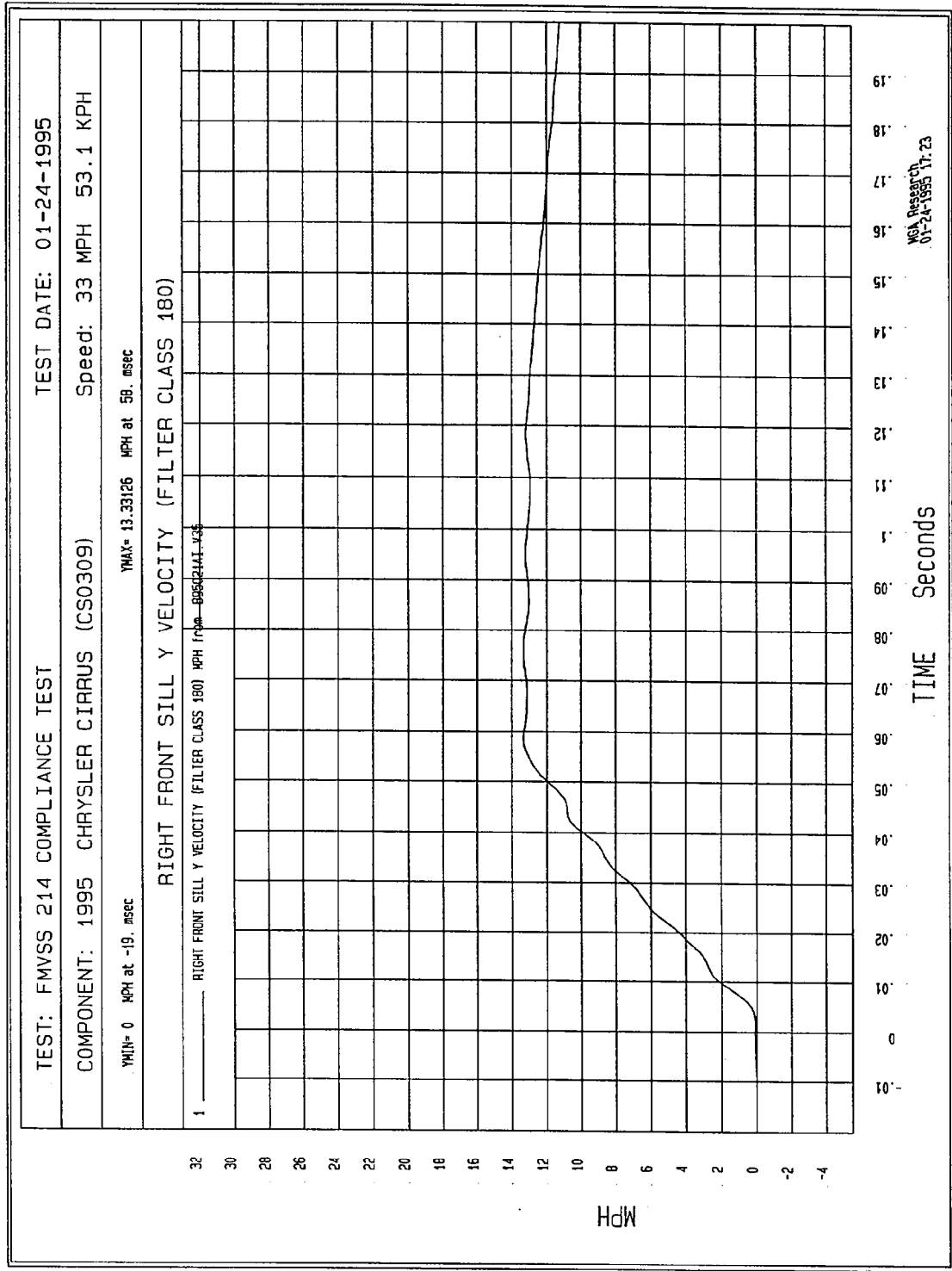


Figure B-24 - Right Front Sill Y Velocity vs. Time

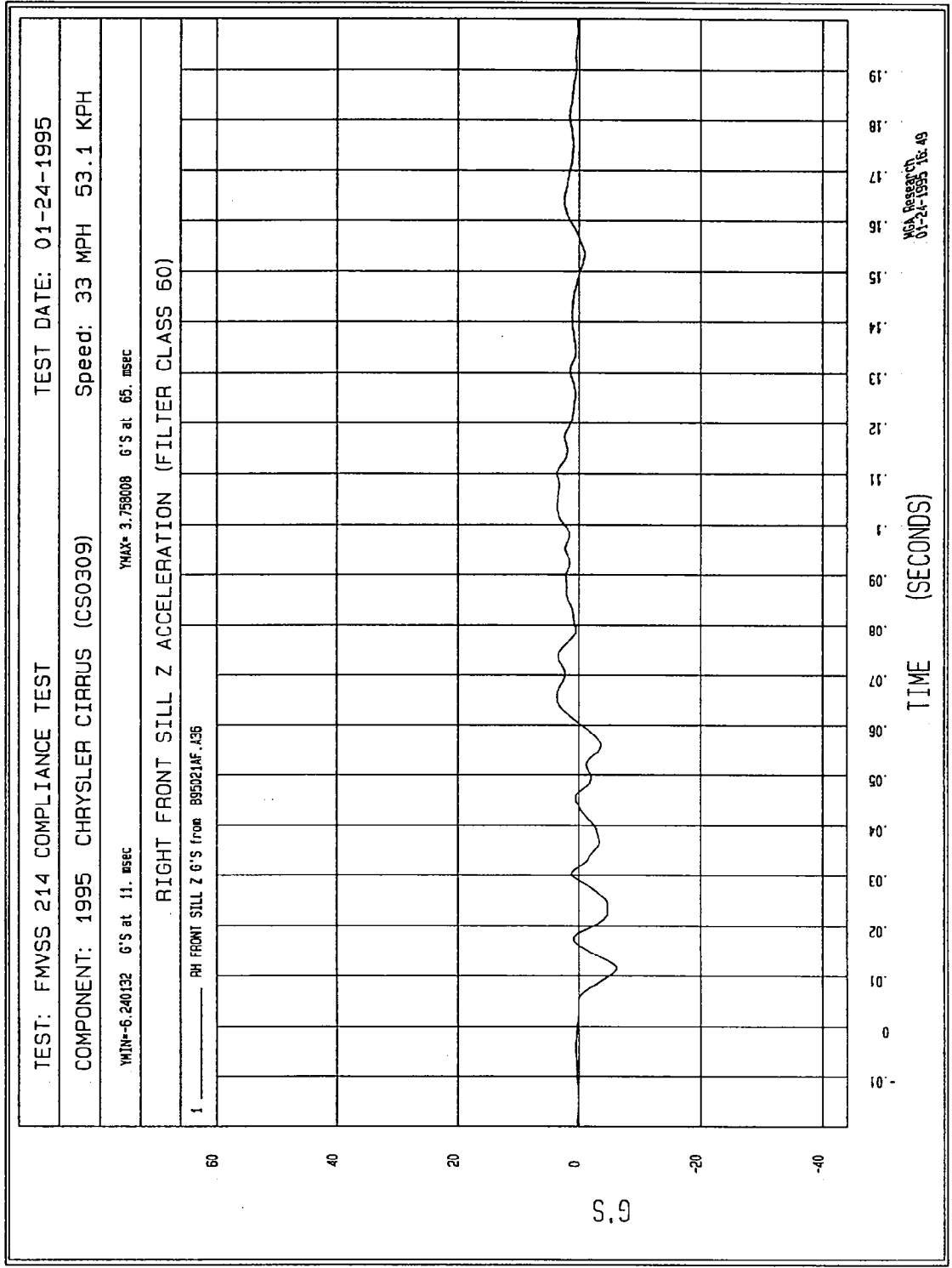


Figure B-25 - Right Front Sill Z Acceleration vs. Time

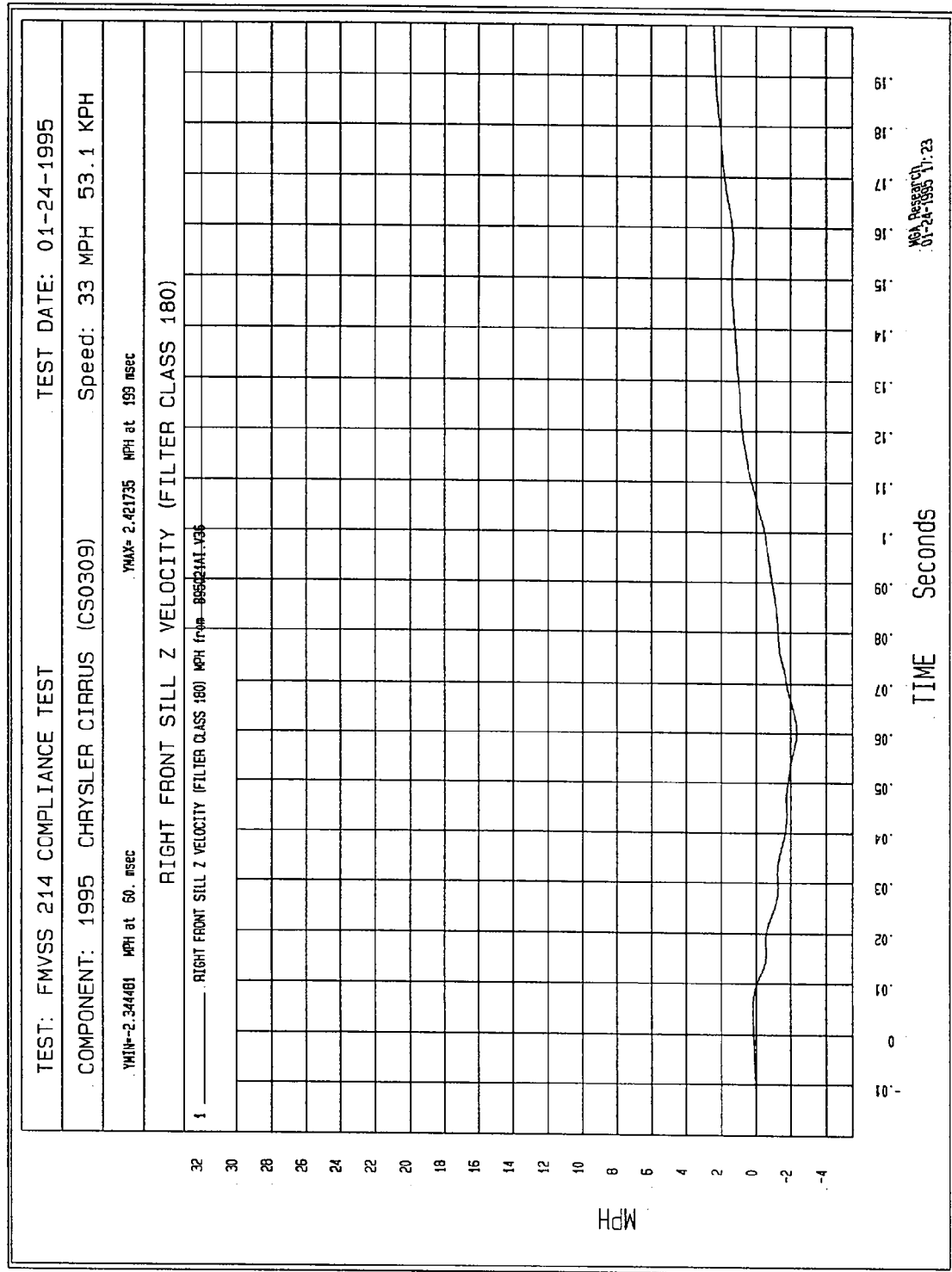


Figure B-26 - Right Front Sill Z Velocity vs. Time

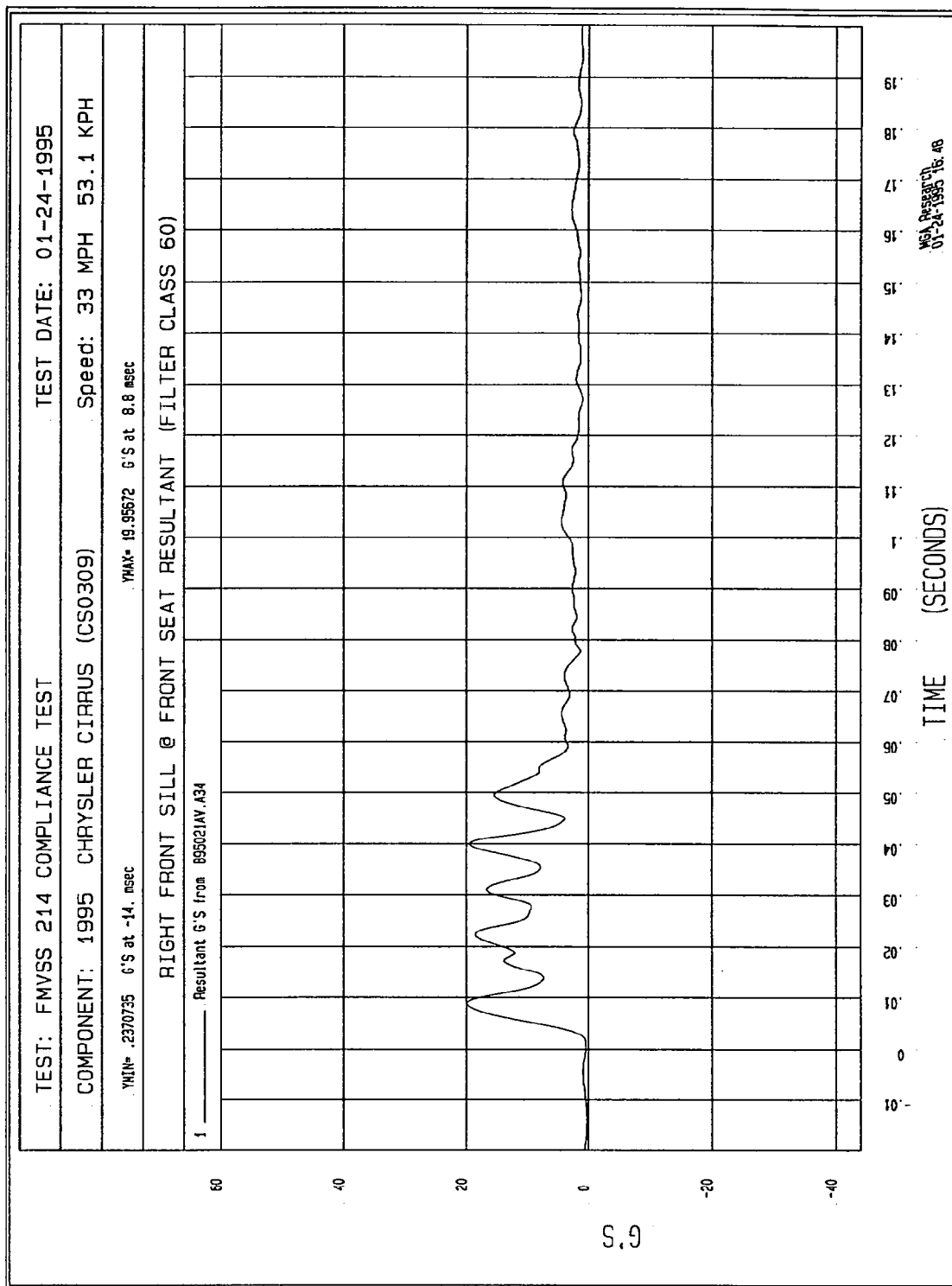


Figure B-27 - Right Front Sill at Front Seat Resultant vs. Time

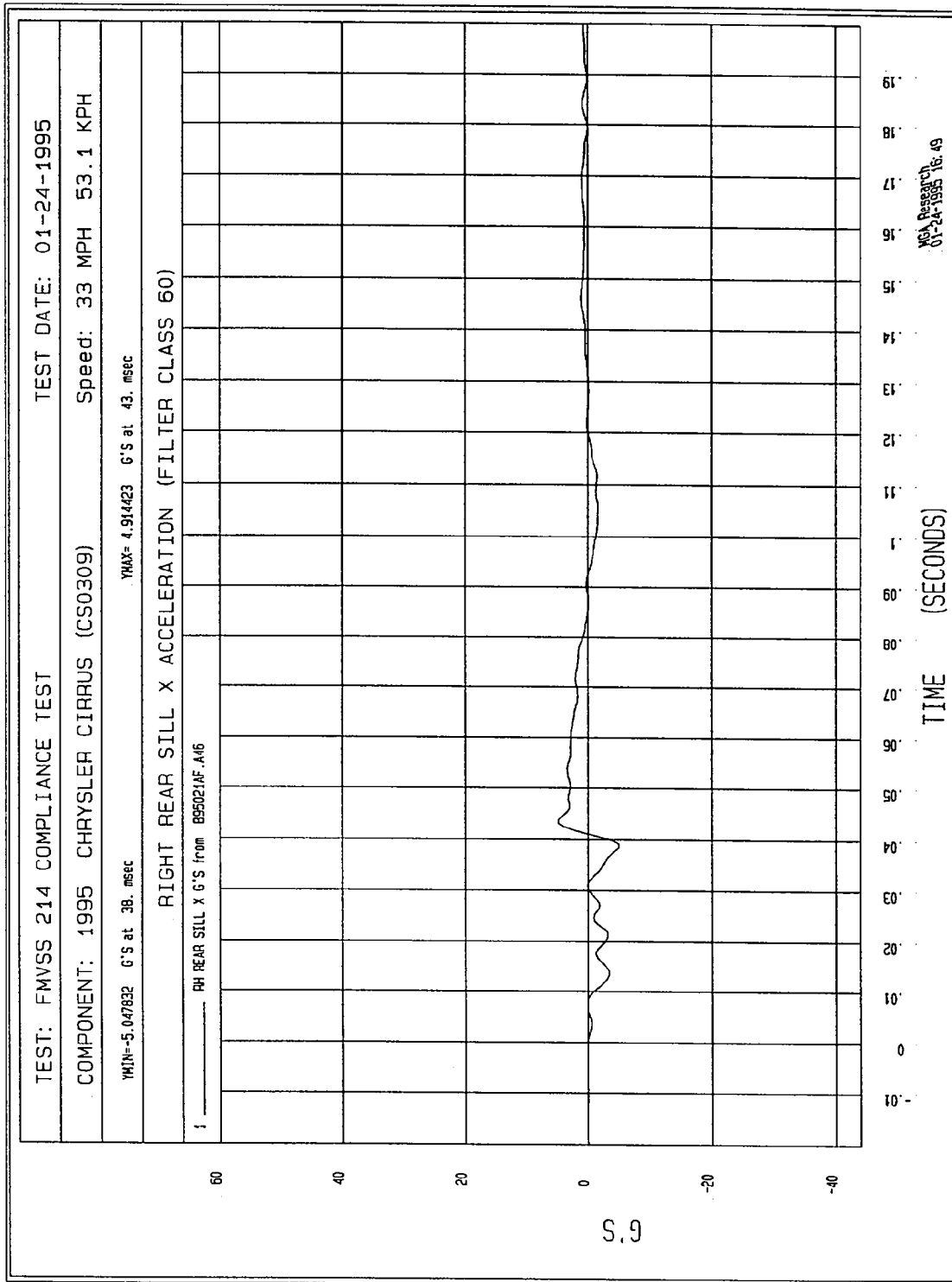


Figure B-28 - Right Rear Sill X Acceleration vs. Time

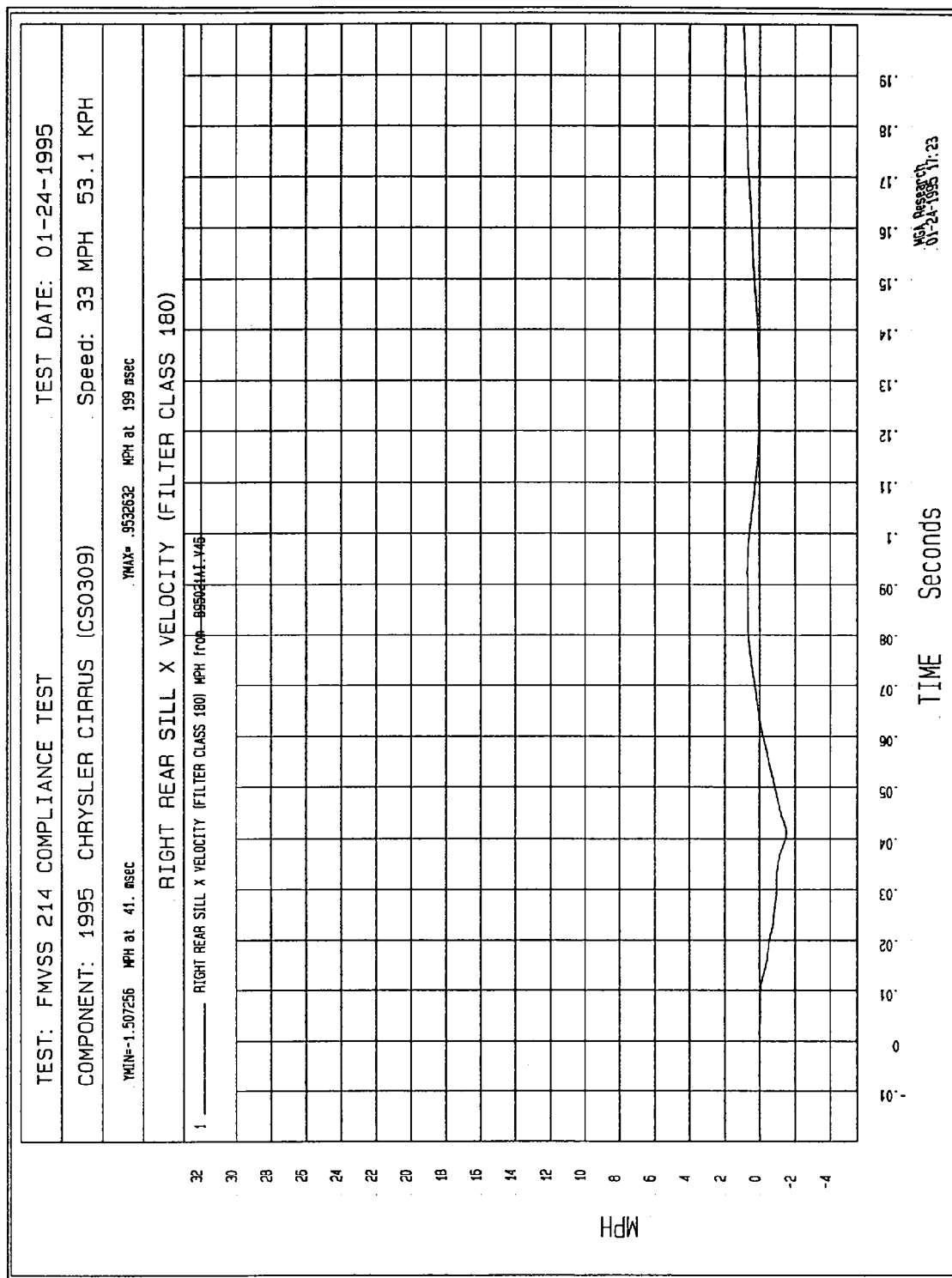


Figure B-29 - Right Rear Sill X Velocity vs. Time

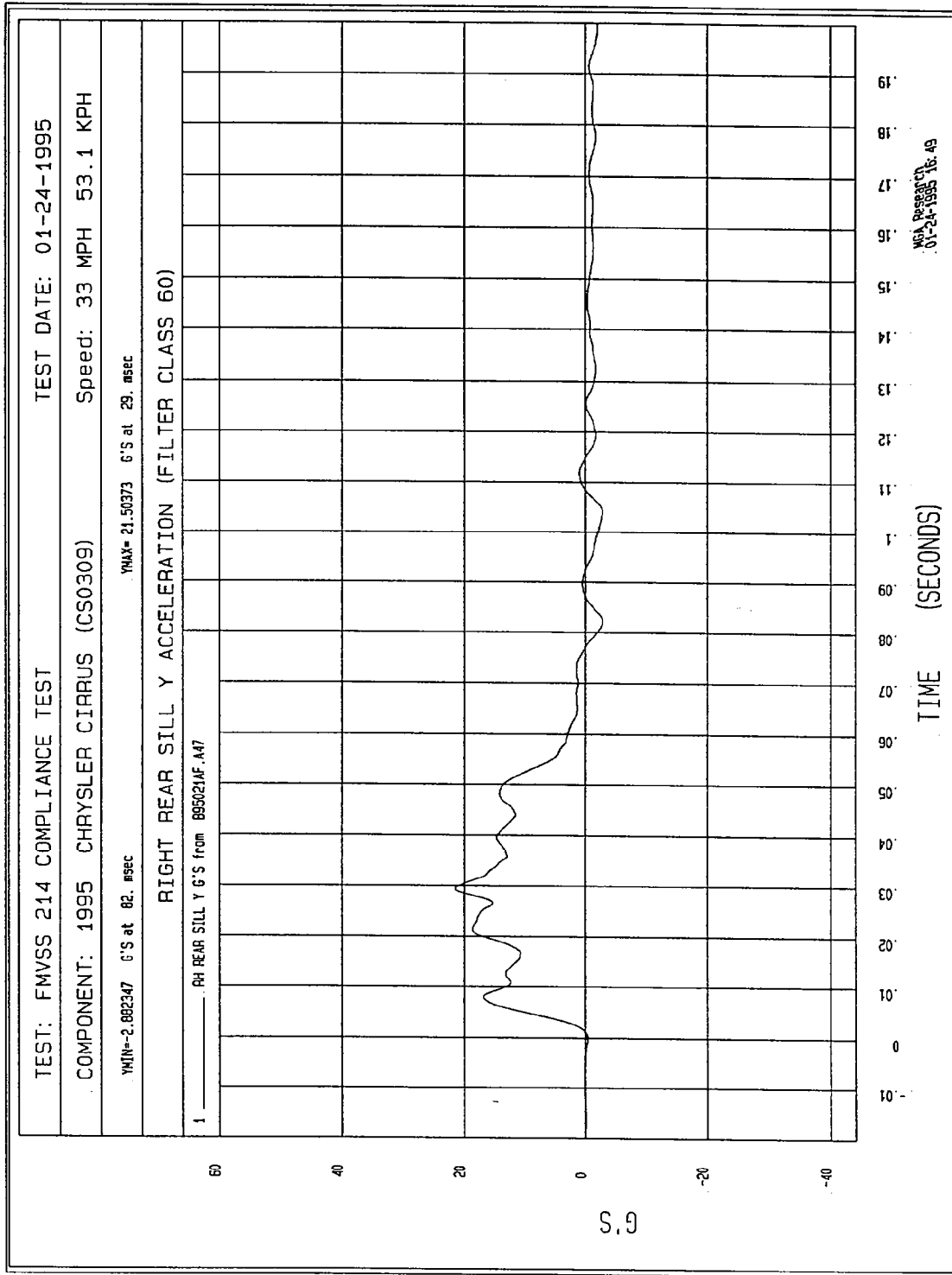


Figure B-30 - Right Rear Sill Y Acceleration vs. Time

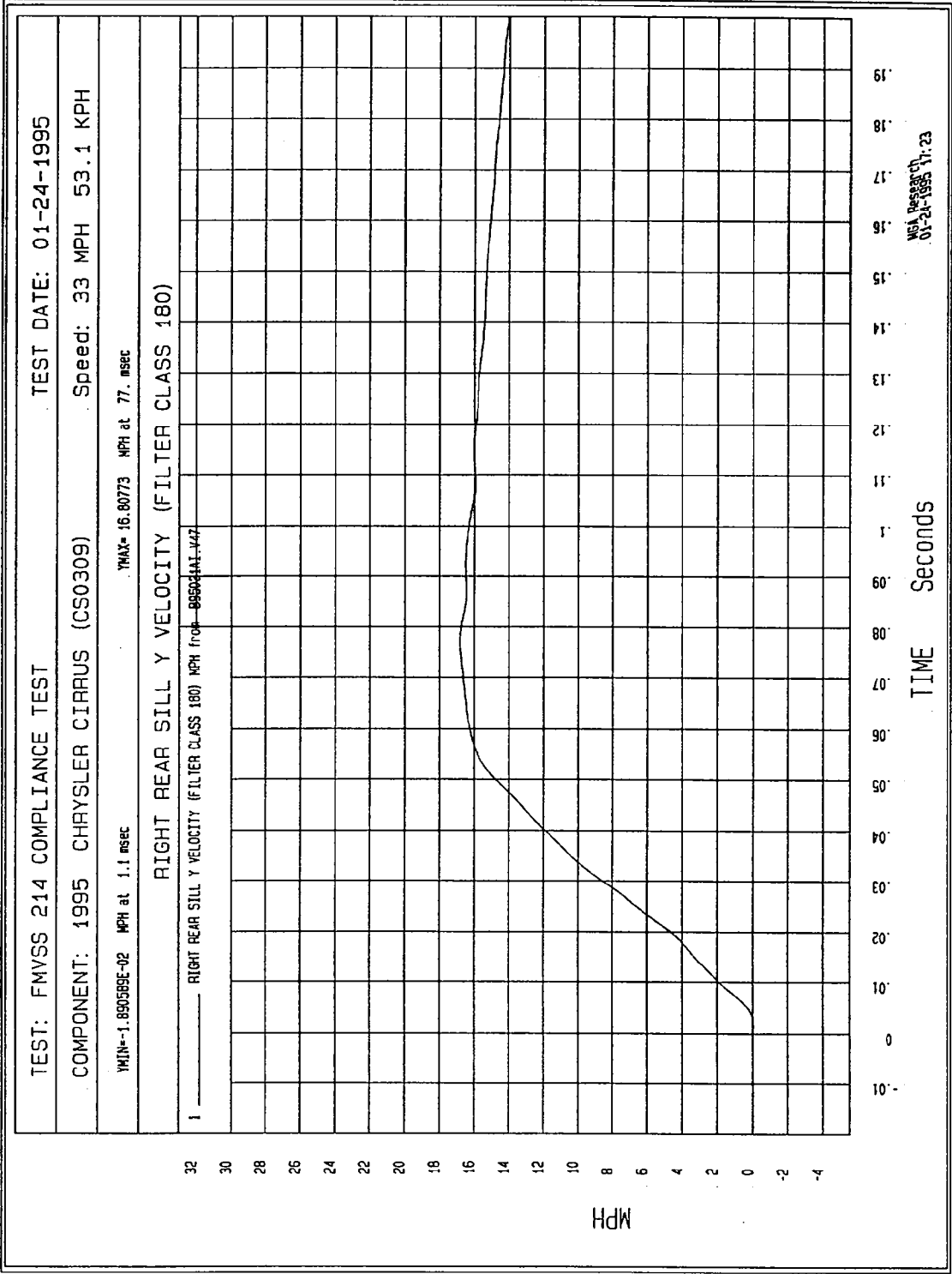


Figure B-31 - Right Rear Sill Y Velocity vs. Time

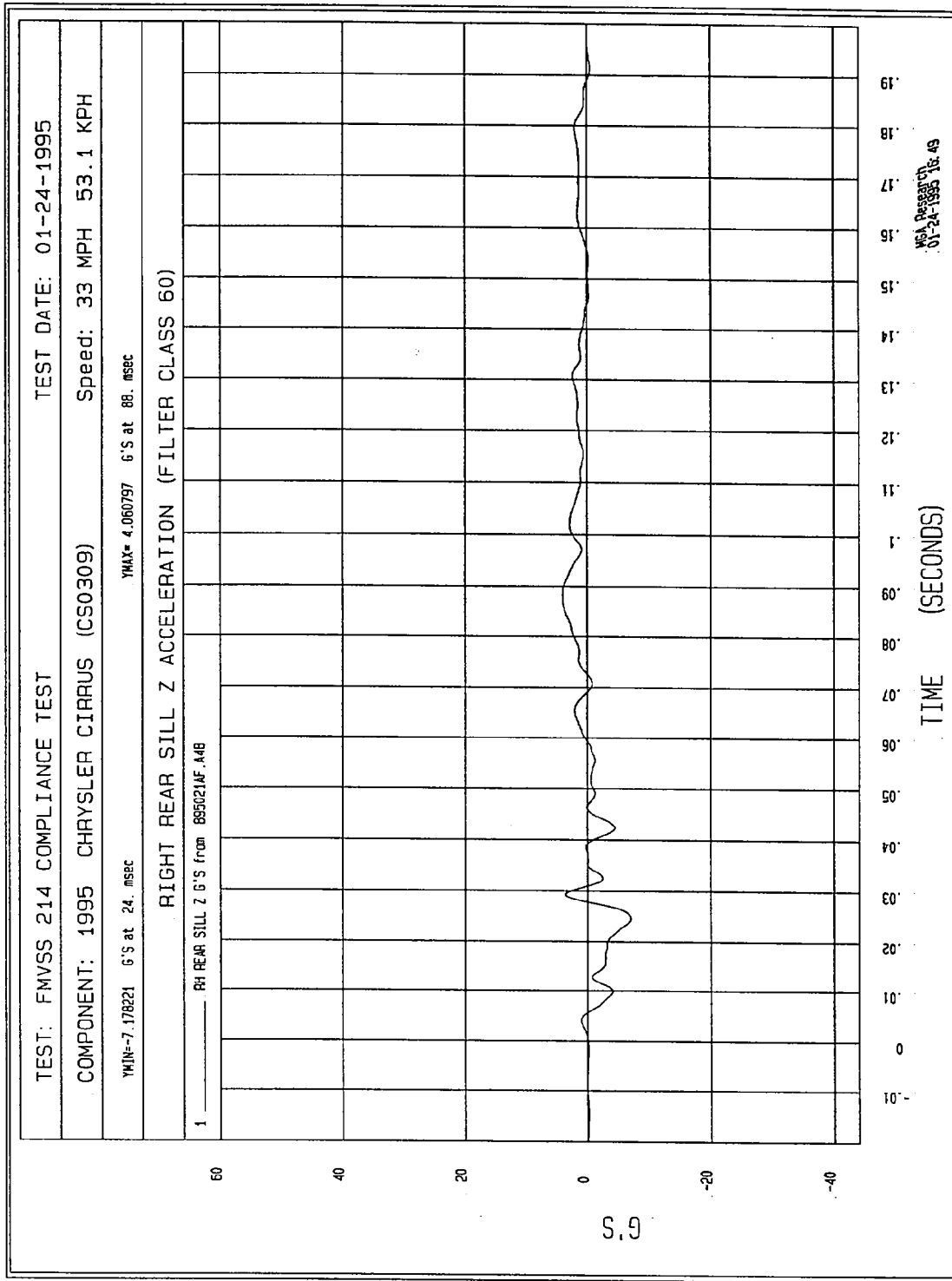


Figure B-32 - Right Rear Sill Z Acceleration vs. Time

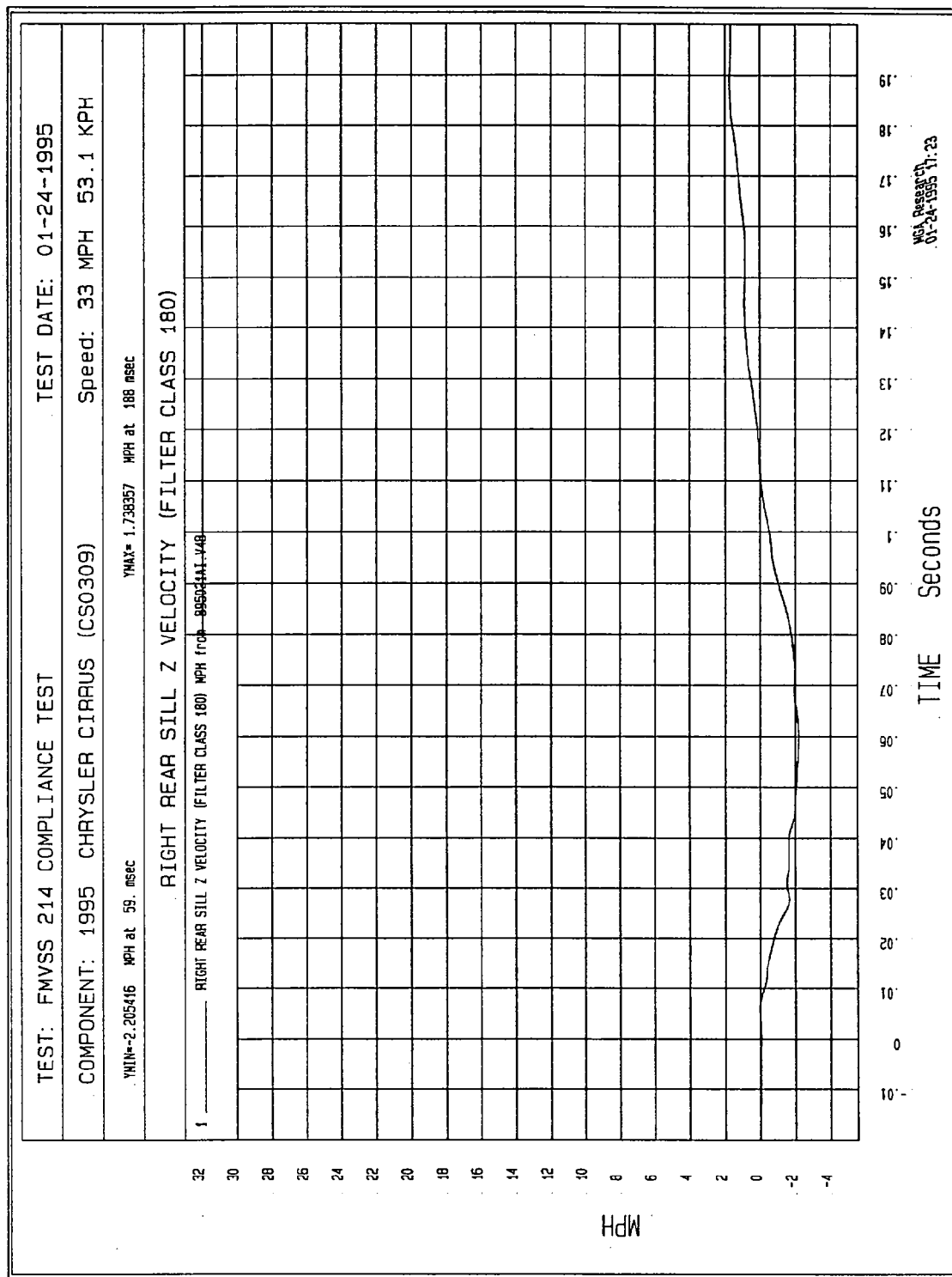


Figure B-33 - Right Rear Sill Z Velocity vs. Time

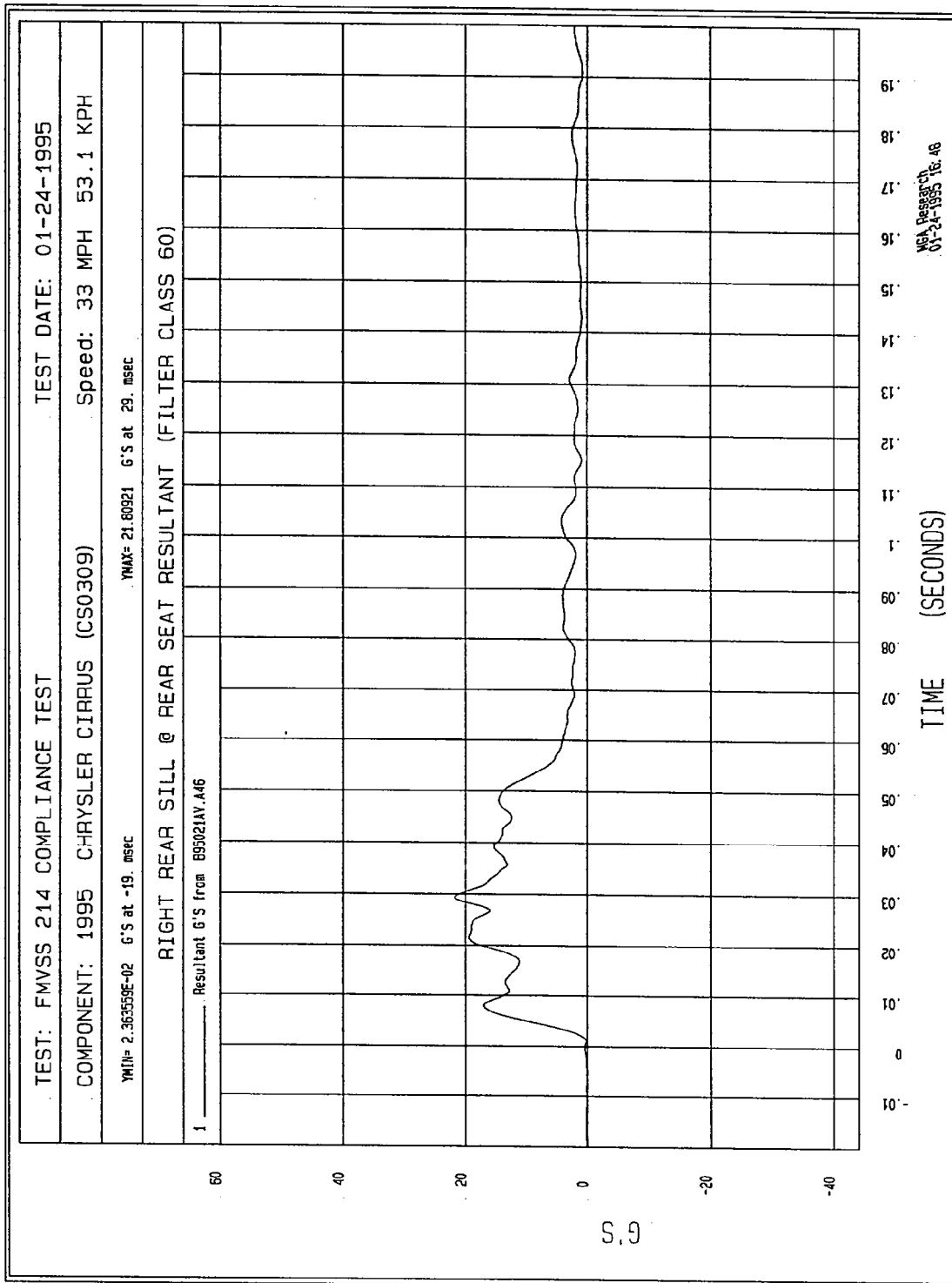


Figure B-34 - Right Rear Sill at Rear Seat Resultant vs. Time

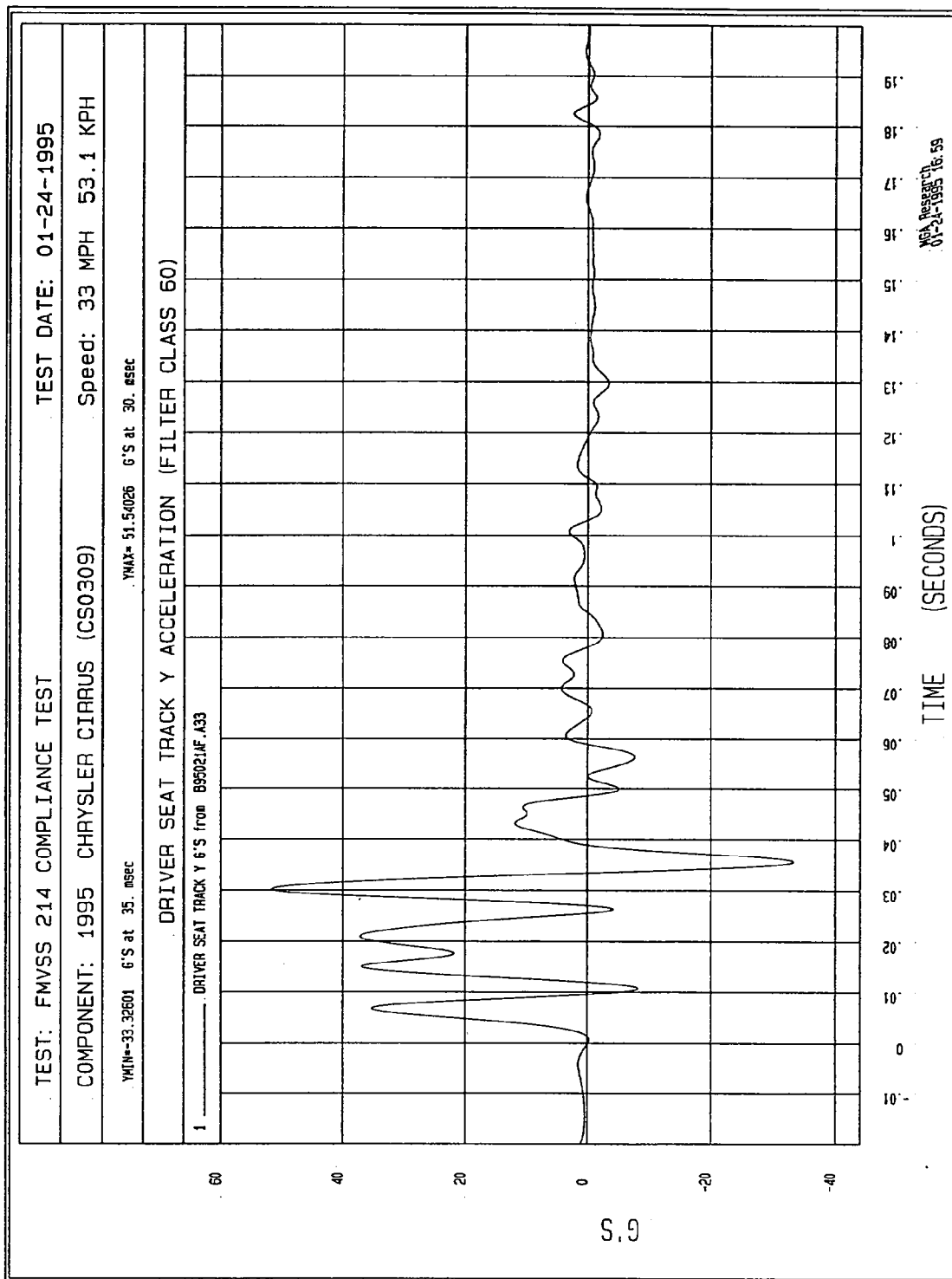


Figure B-35 - Driver Seat Track Y Acceleration vs. Time

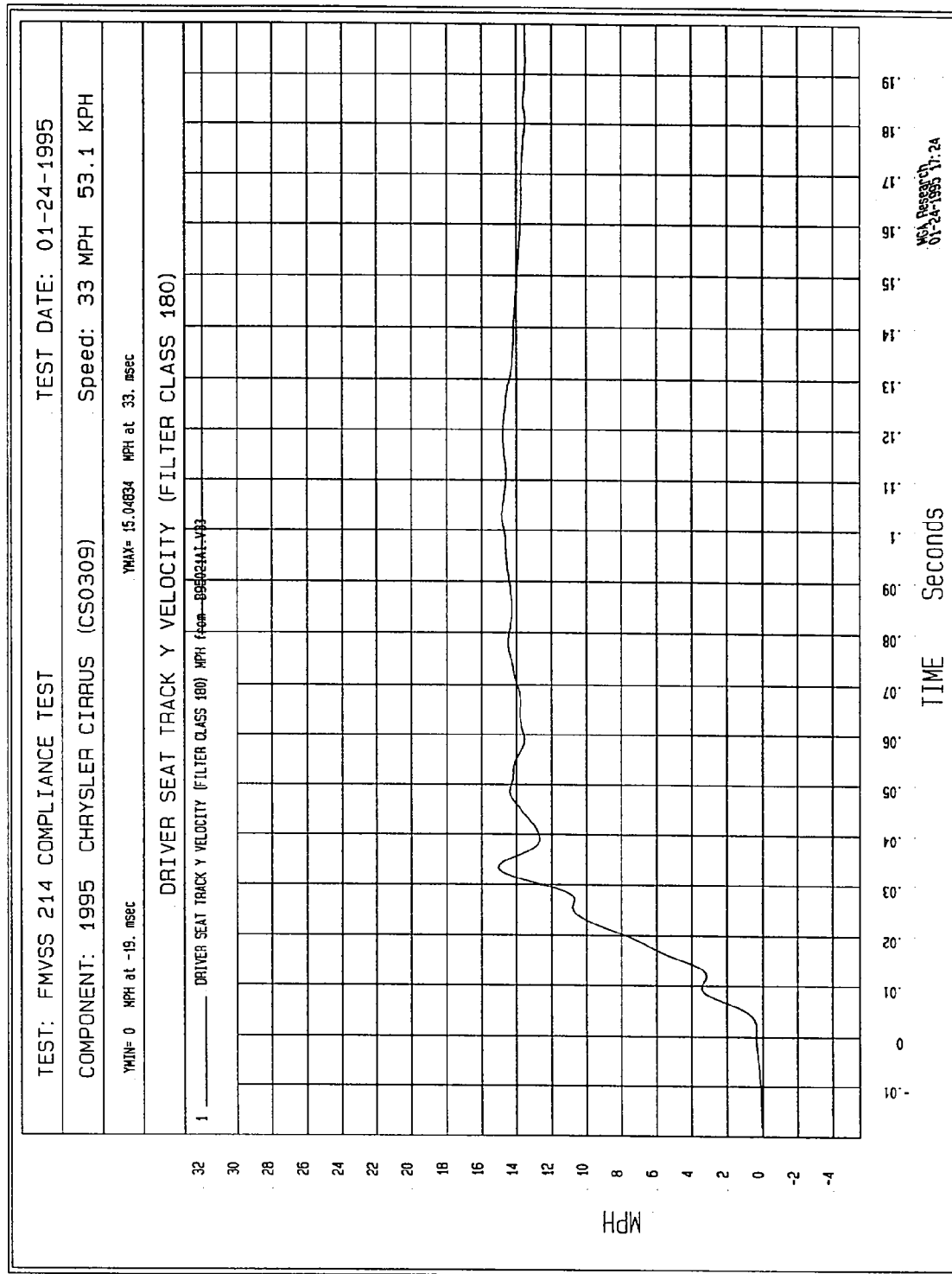


Figure B-36 - Driver Seat Track Y Velocity vs. Time

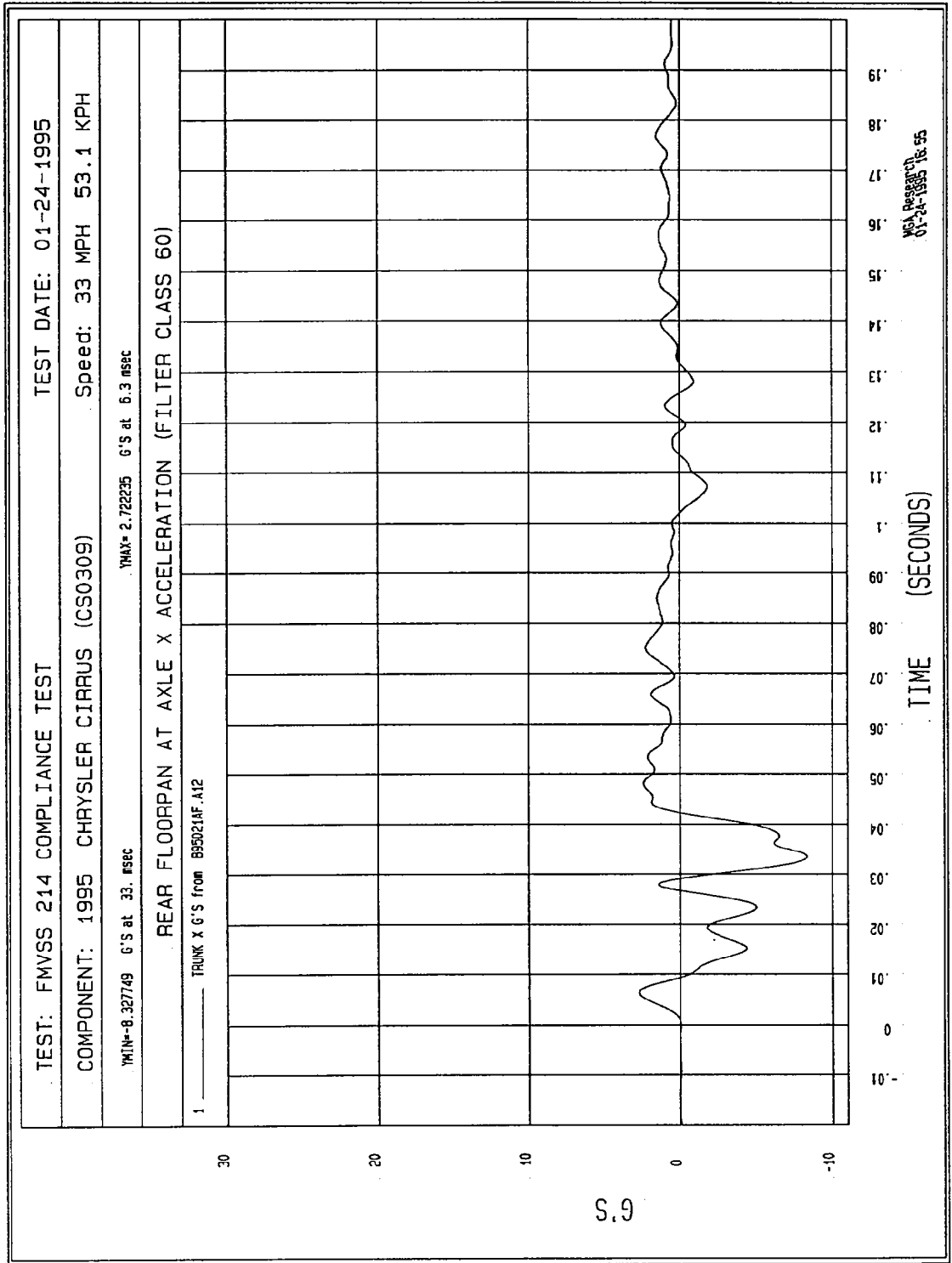


Figure B-37 - Rear Floorpan at Axle X Acceleration vs. Time

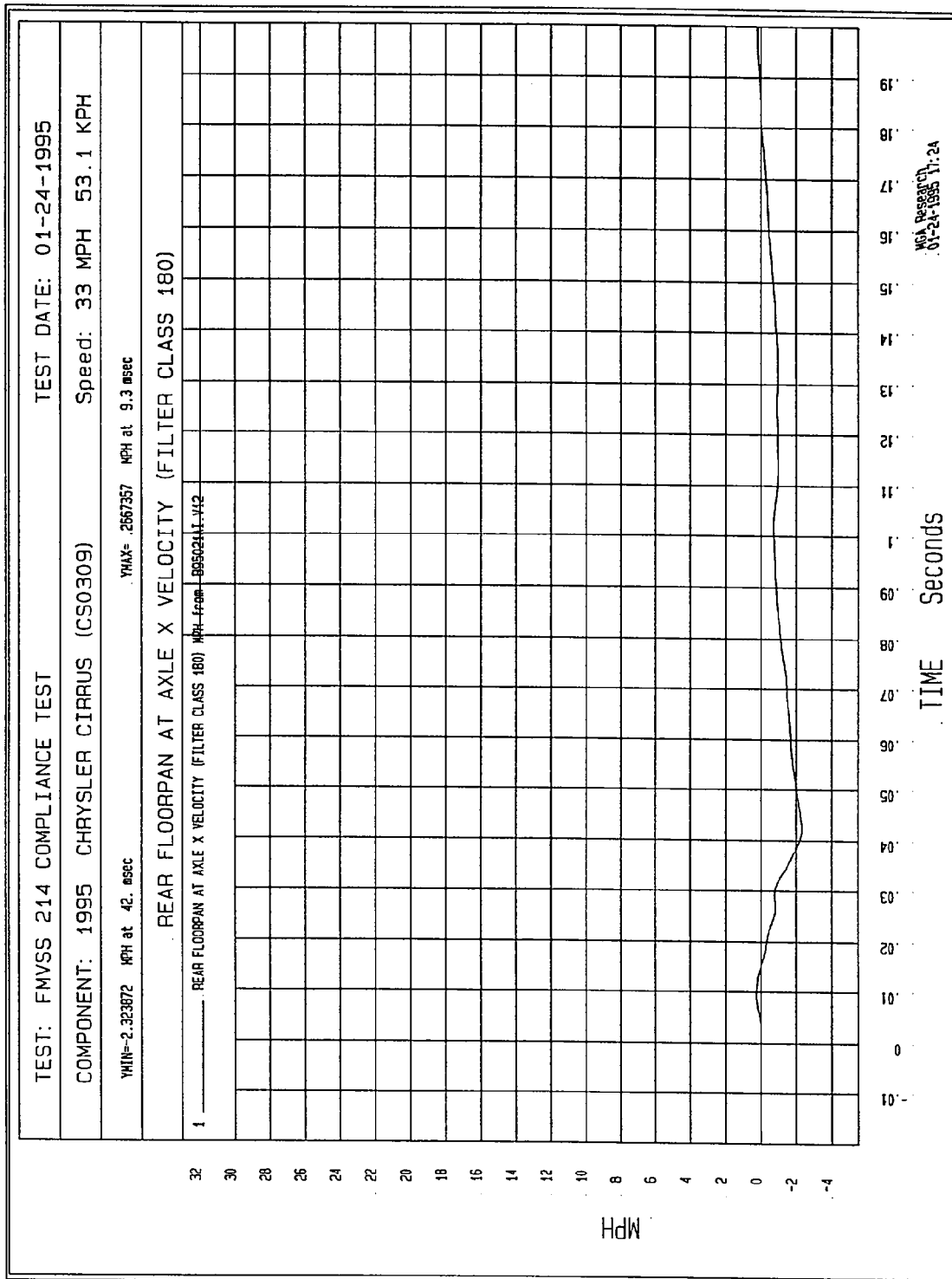


Figure B-38 - Rear Floorpan at Axle X Velocity vs. Time

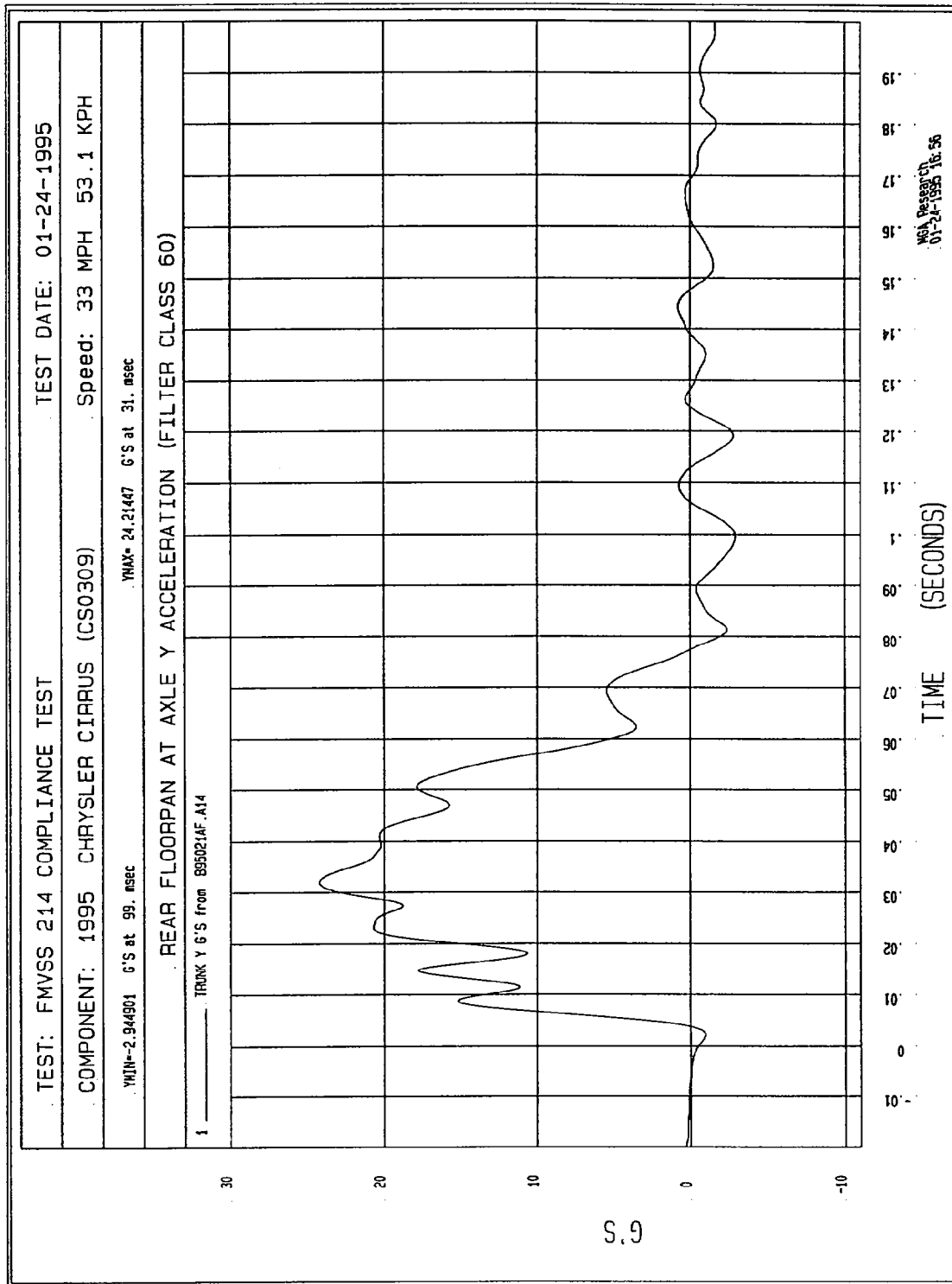


Figure B-39 - Rear Floorpan at Axle Y Acceleration vs. Time

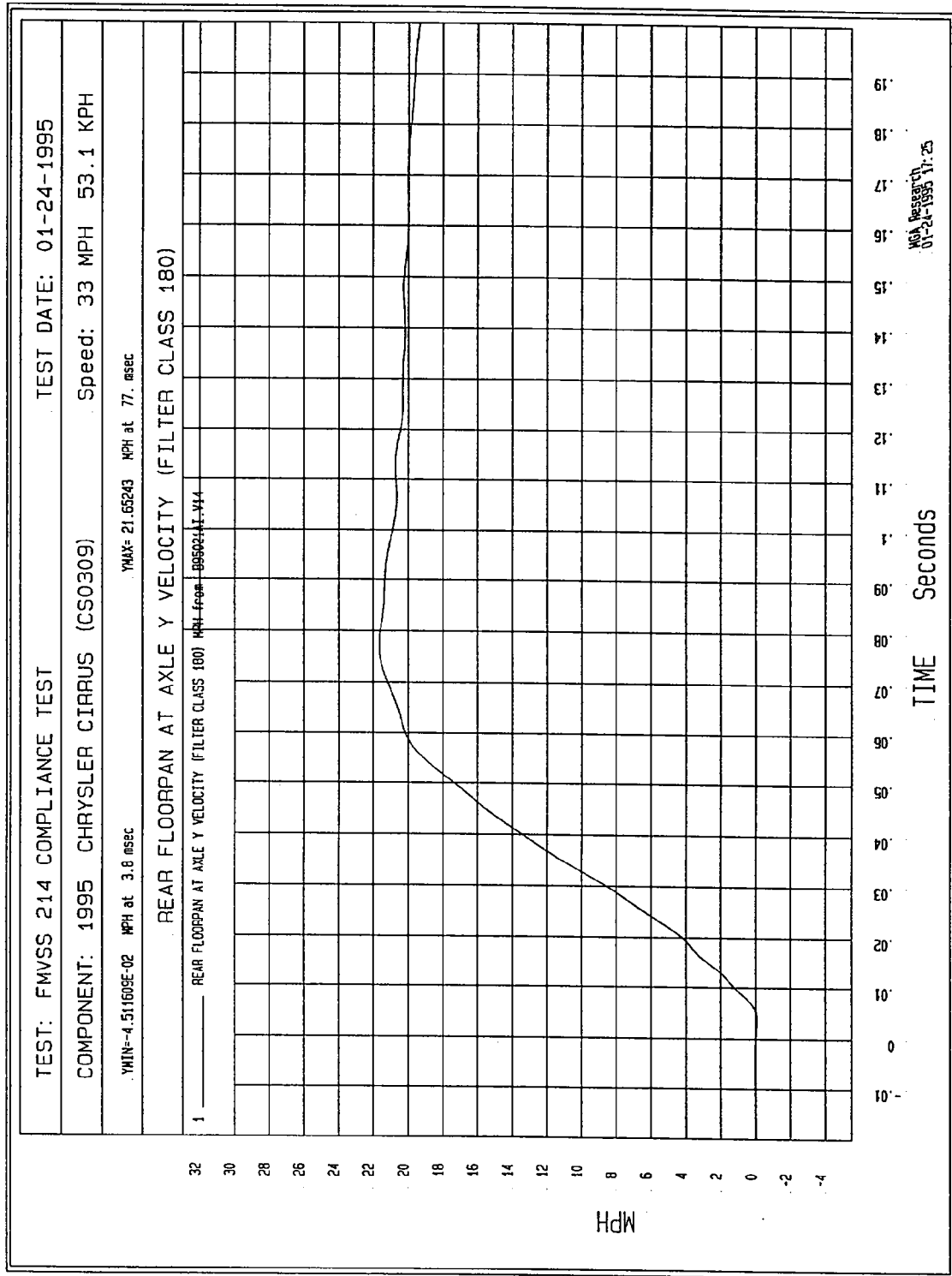


Figure B-40 - Rear Floorpan at Axle Y Velocity vs. Time

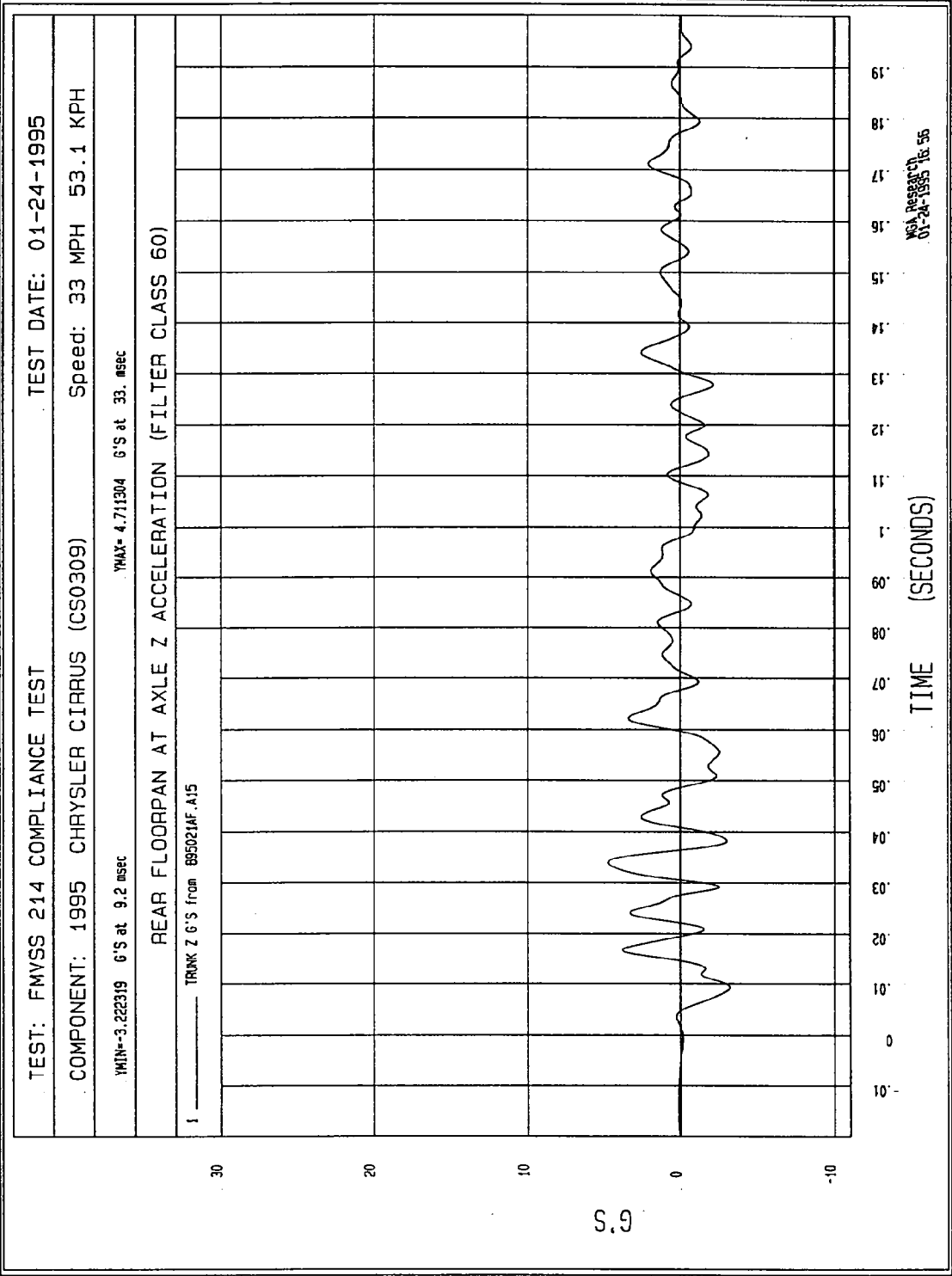


Figure B-41 - Rear Floorpan at Axle Z Acceleration vs. Time

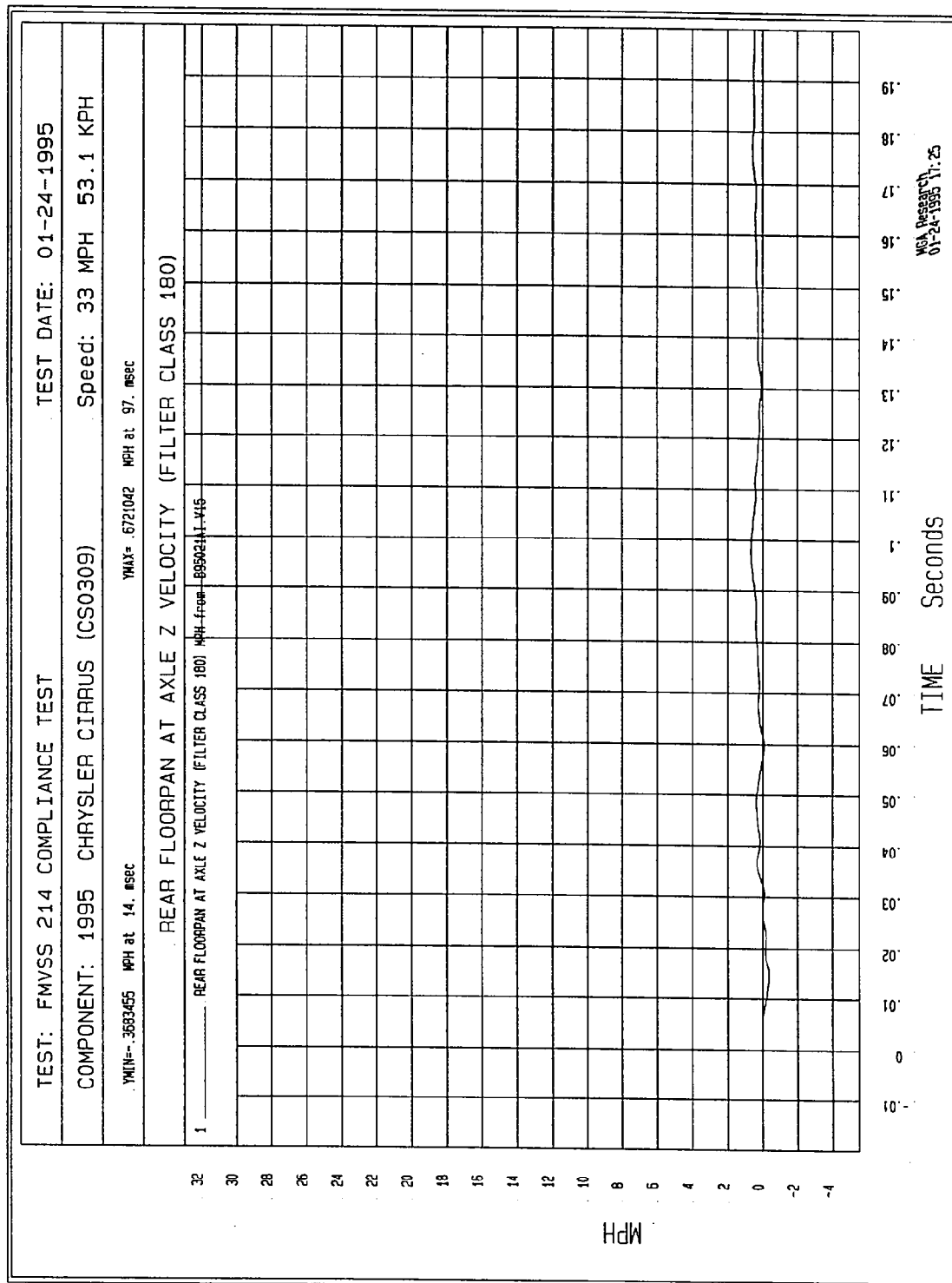


Figure B-42 - Rear Floorpan at Axle Z Velocity vs. Time

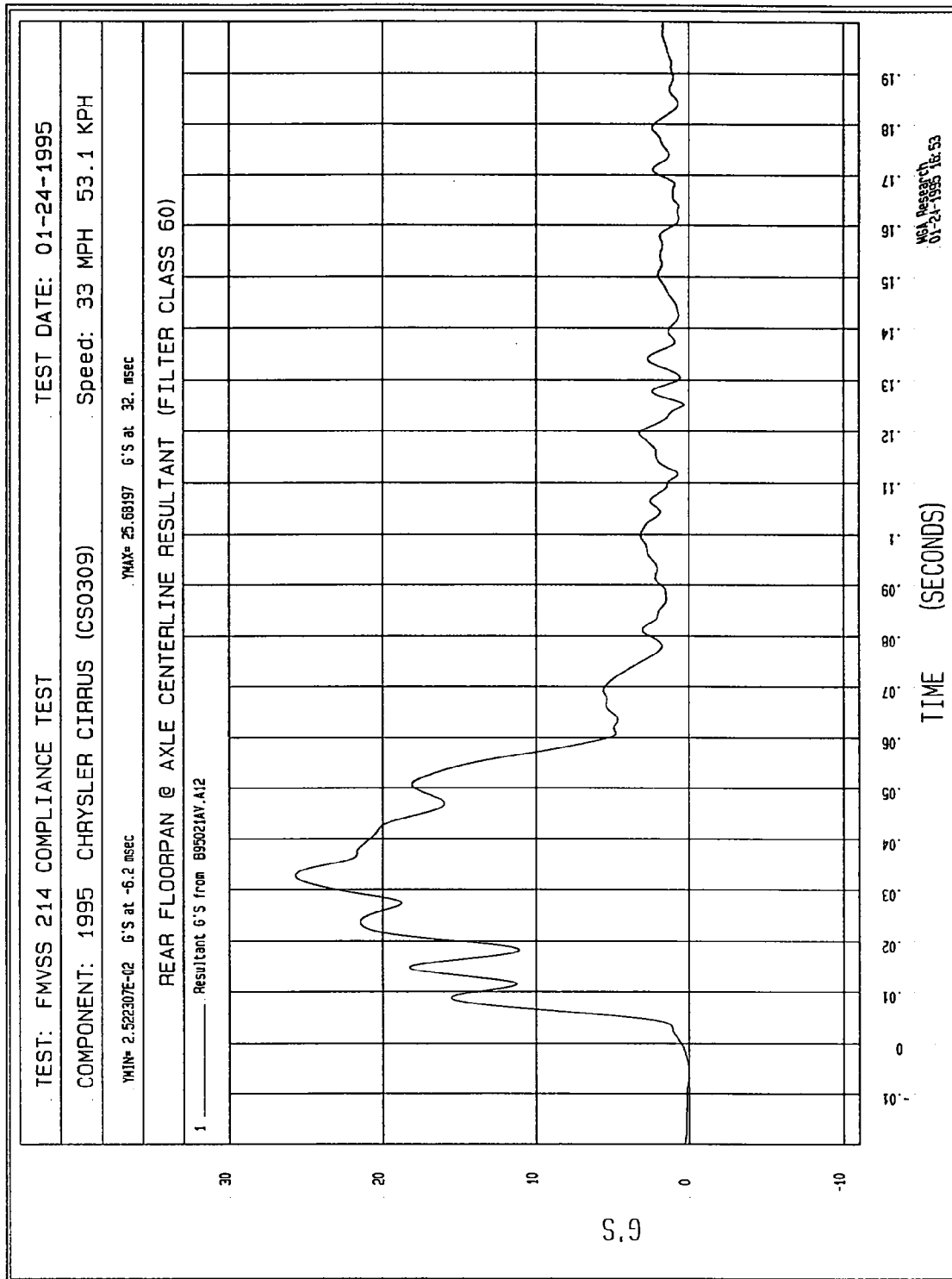


Figure B-43 - Rear Floorpan at Axle Centerline Resultant vs. Time

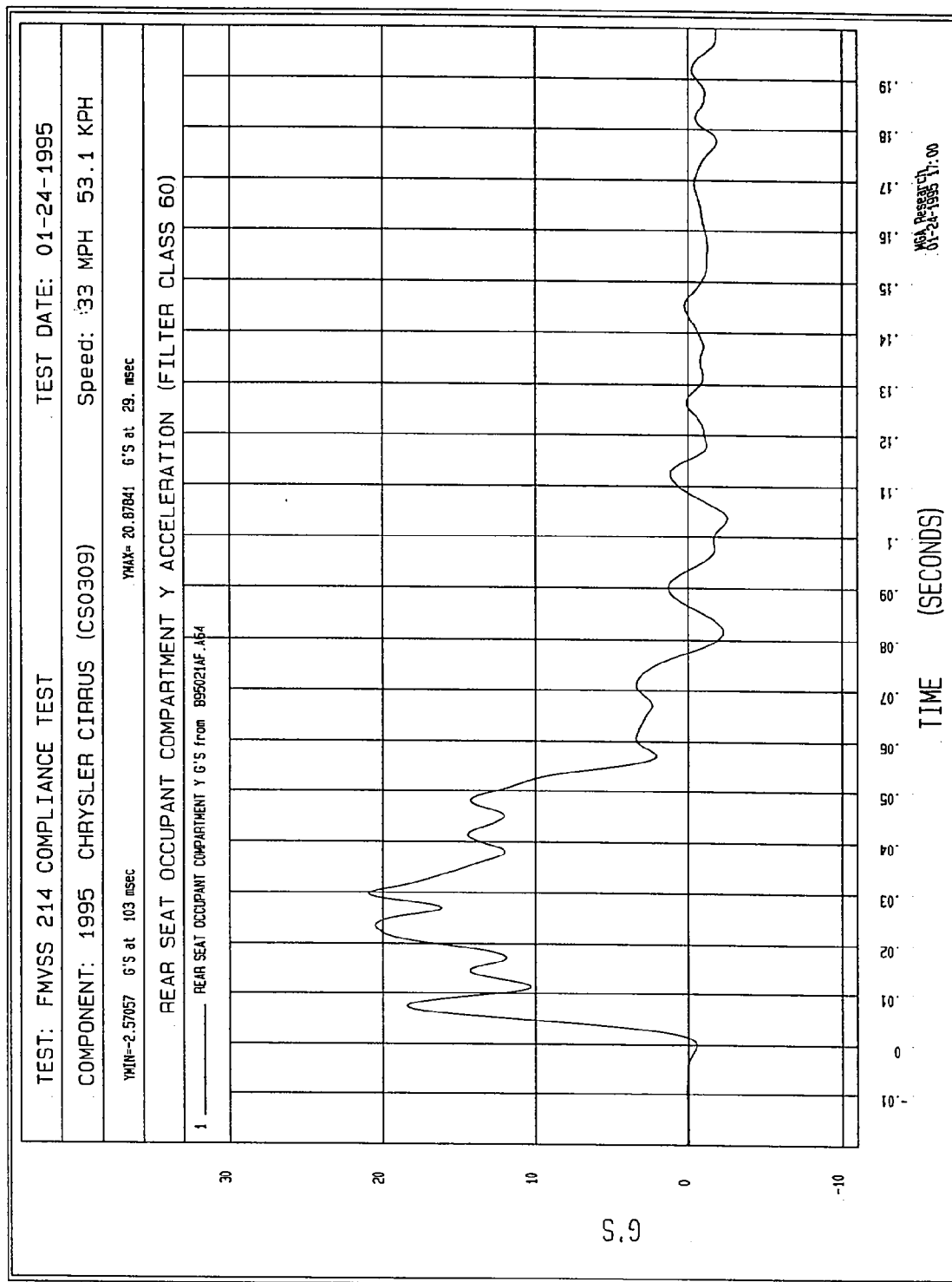


Figure B-44 - Rear Seat Occupant Compartment Y Acceleration vs. Time

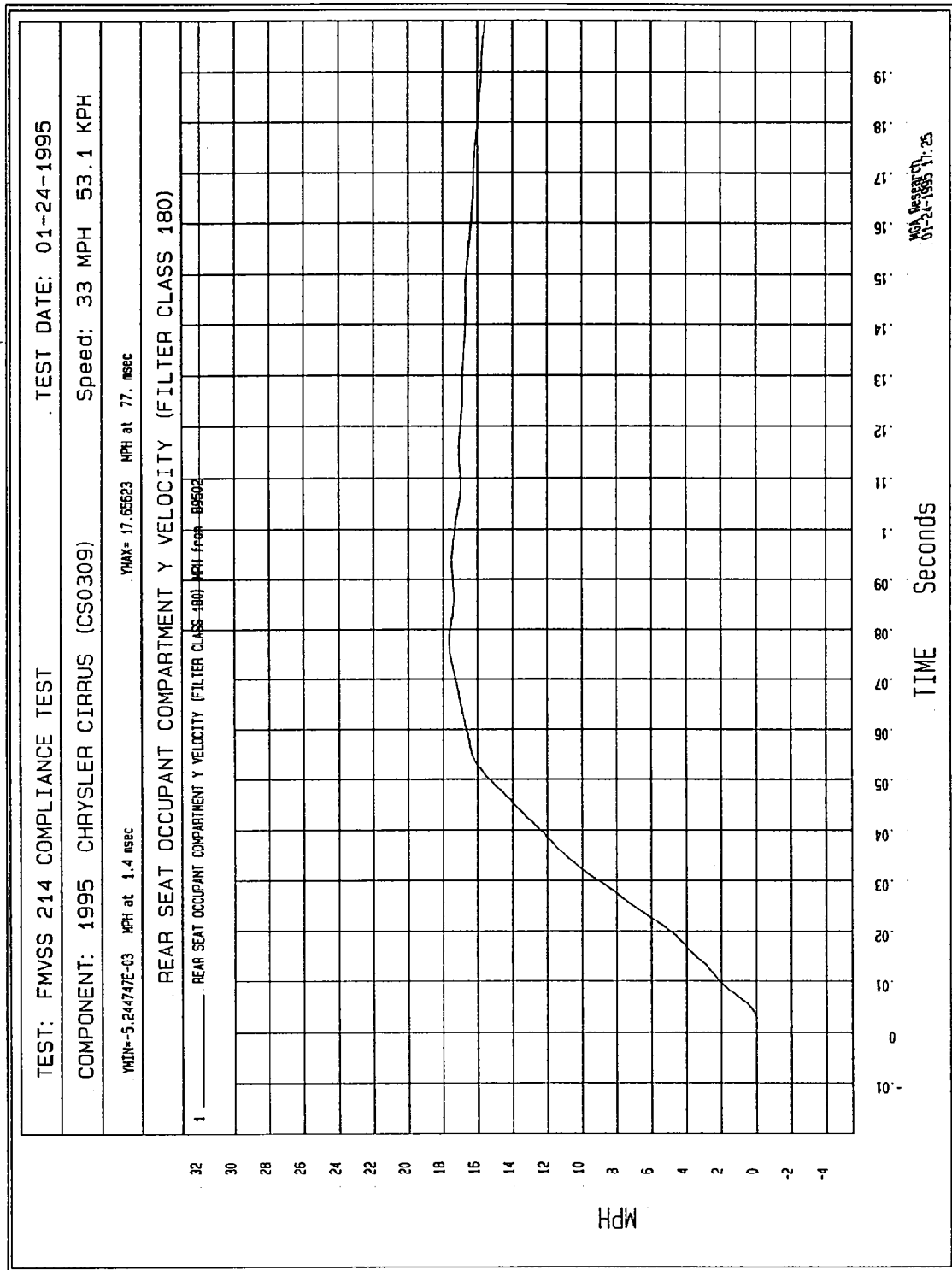


Figure B-45 - Rear Seat Occupant Compartment Y Velocity vs. Time

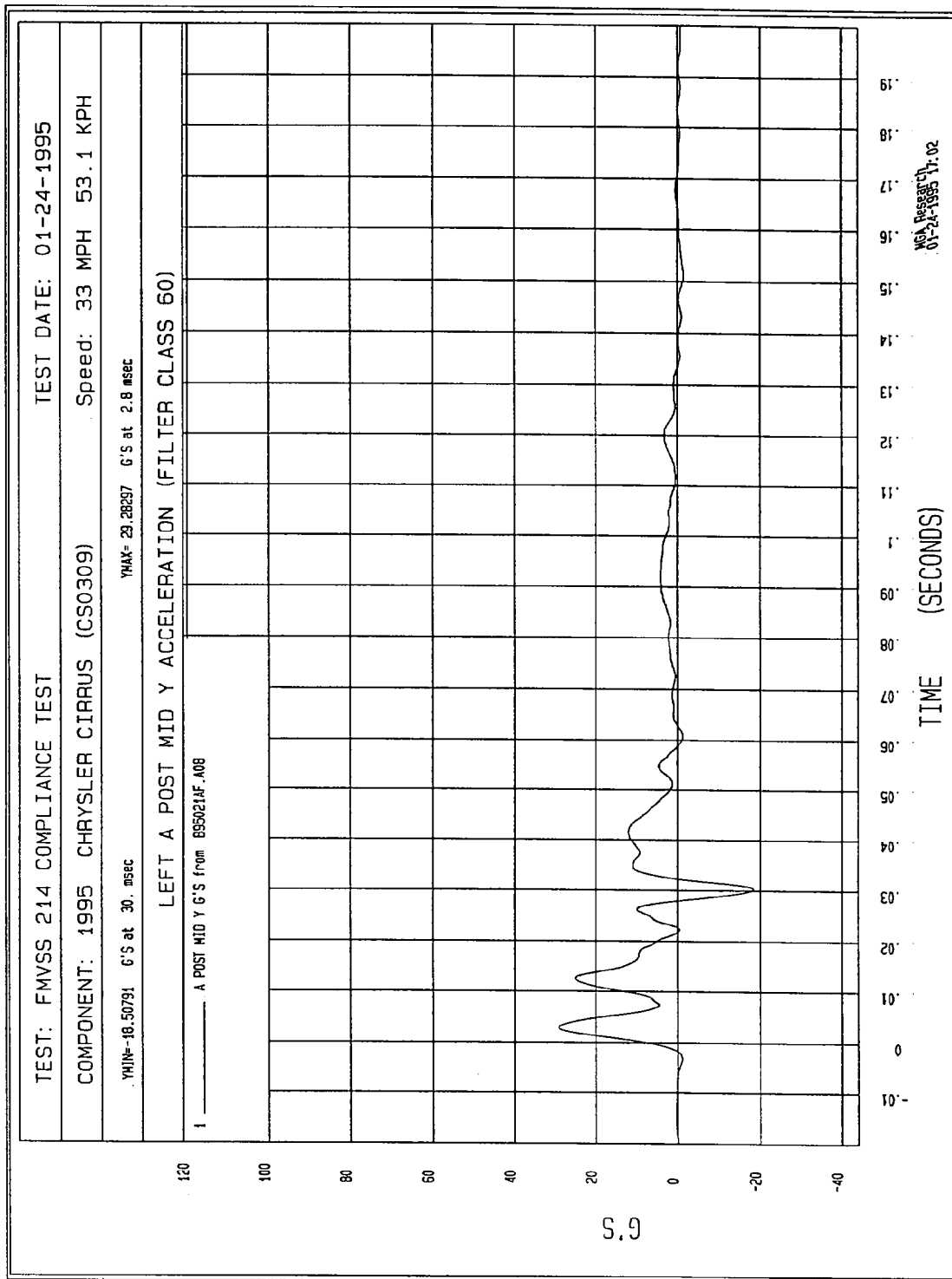


Figure B-46 - Left A Post Mid Y Acceleration vs. Time

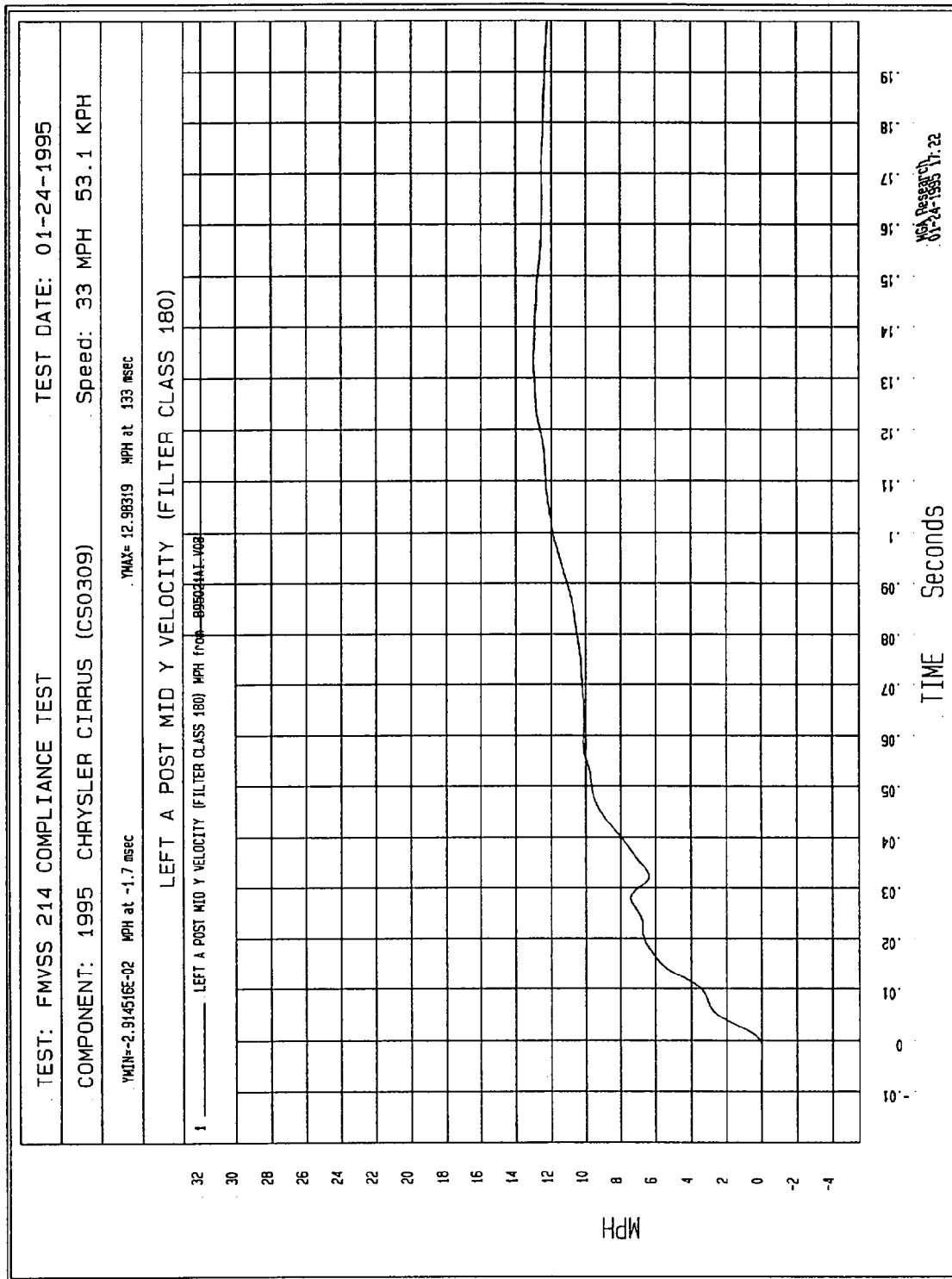


Figure B-47 - Left A Post Mid Y Velocity vs. Time

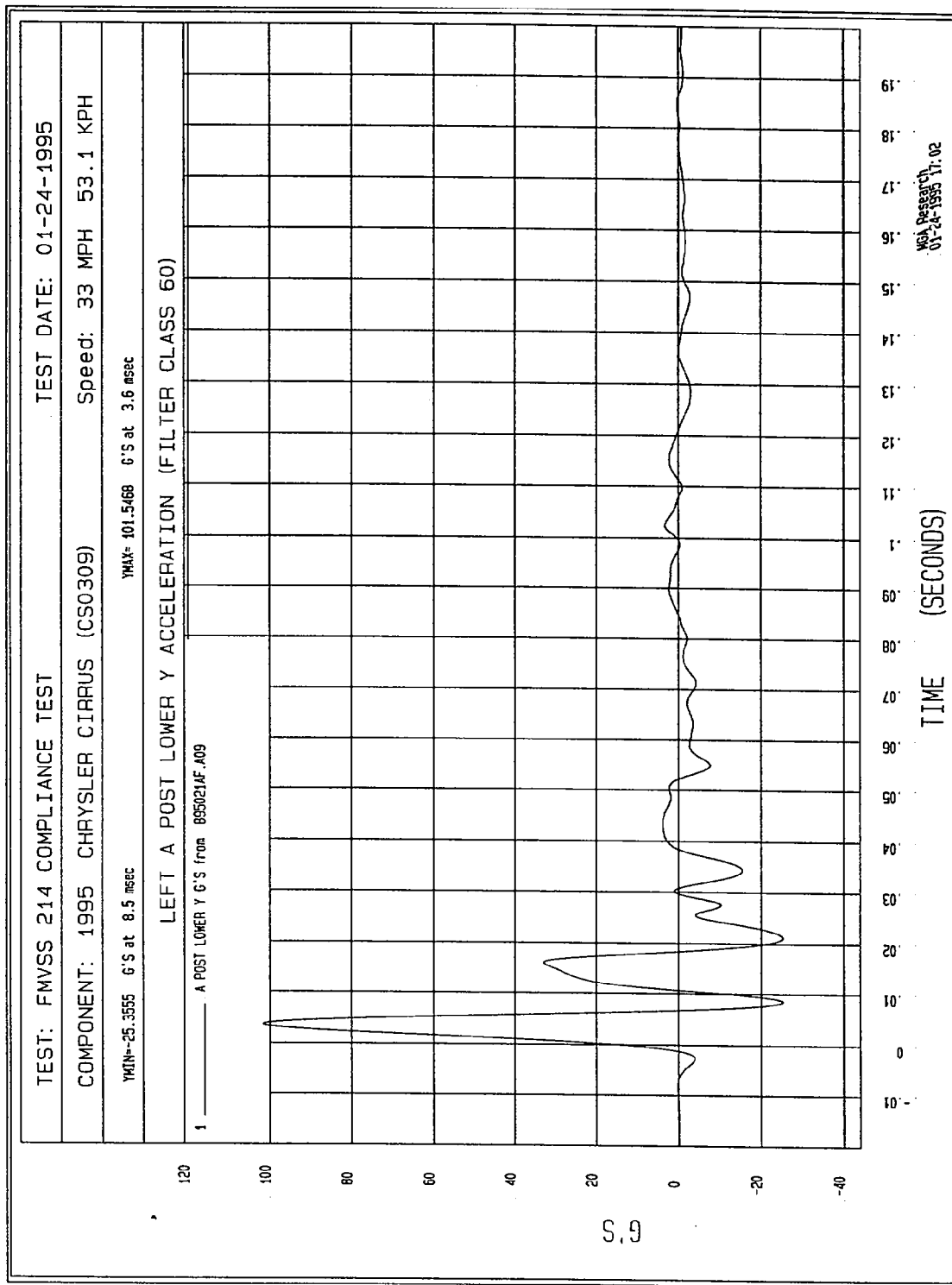


Figure B-48 - Left A Post Lower Y Acceleration vs. Time

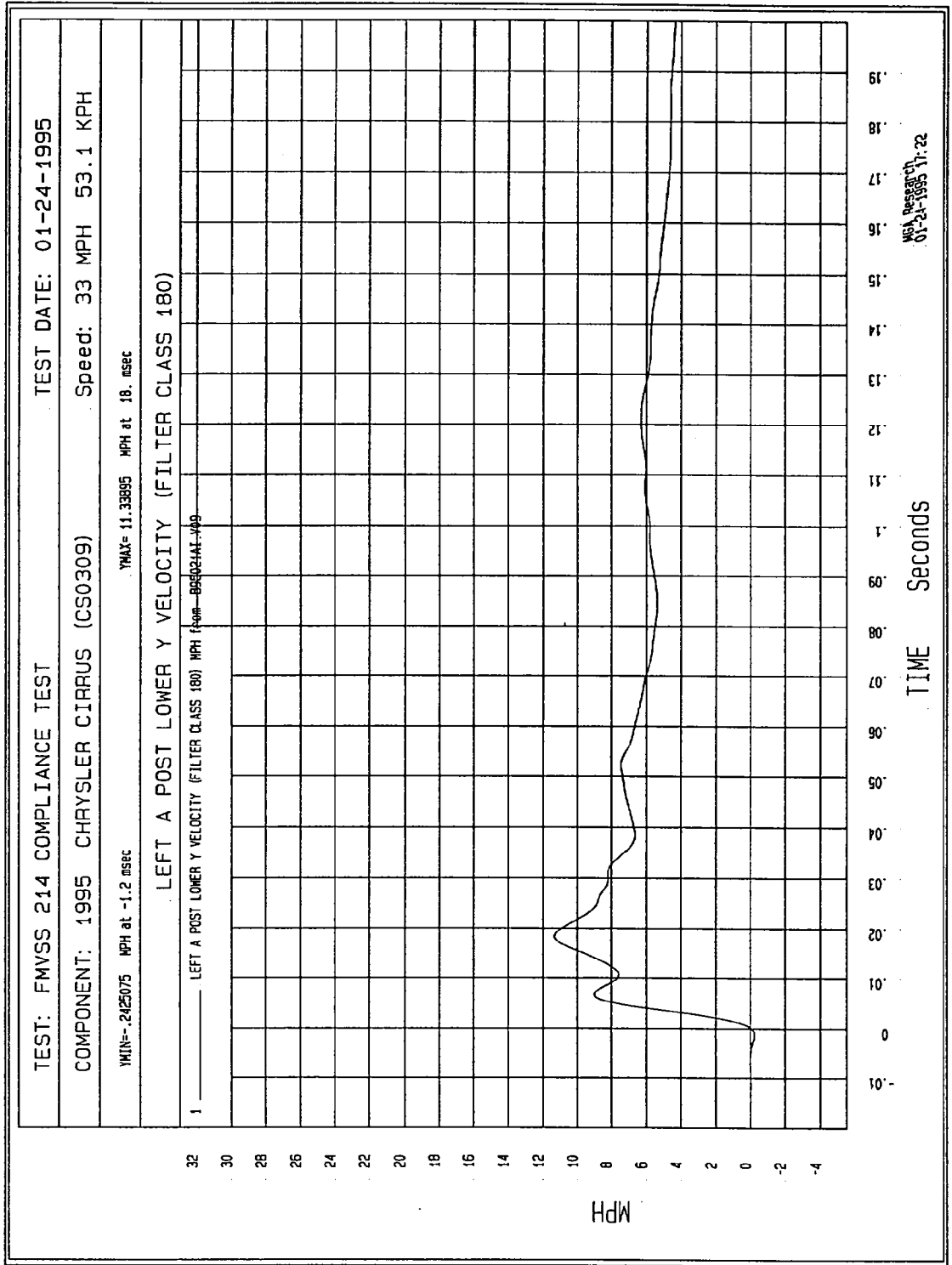


Figure B-49 - Left A Post Lower Y Velocity vs. Time

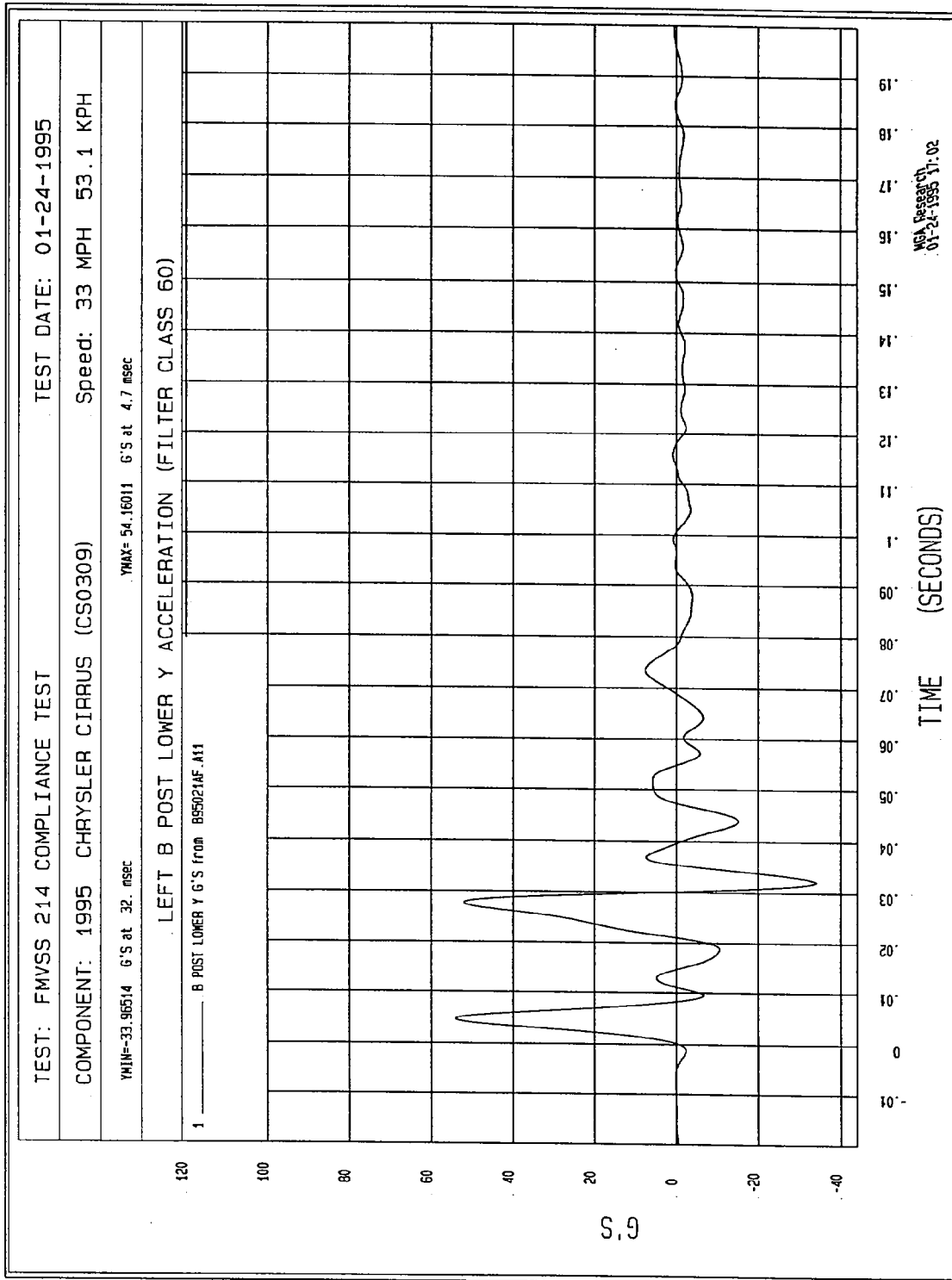


Figure B-50 - Left B Post Lower Y Acceleration vs. Time

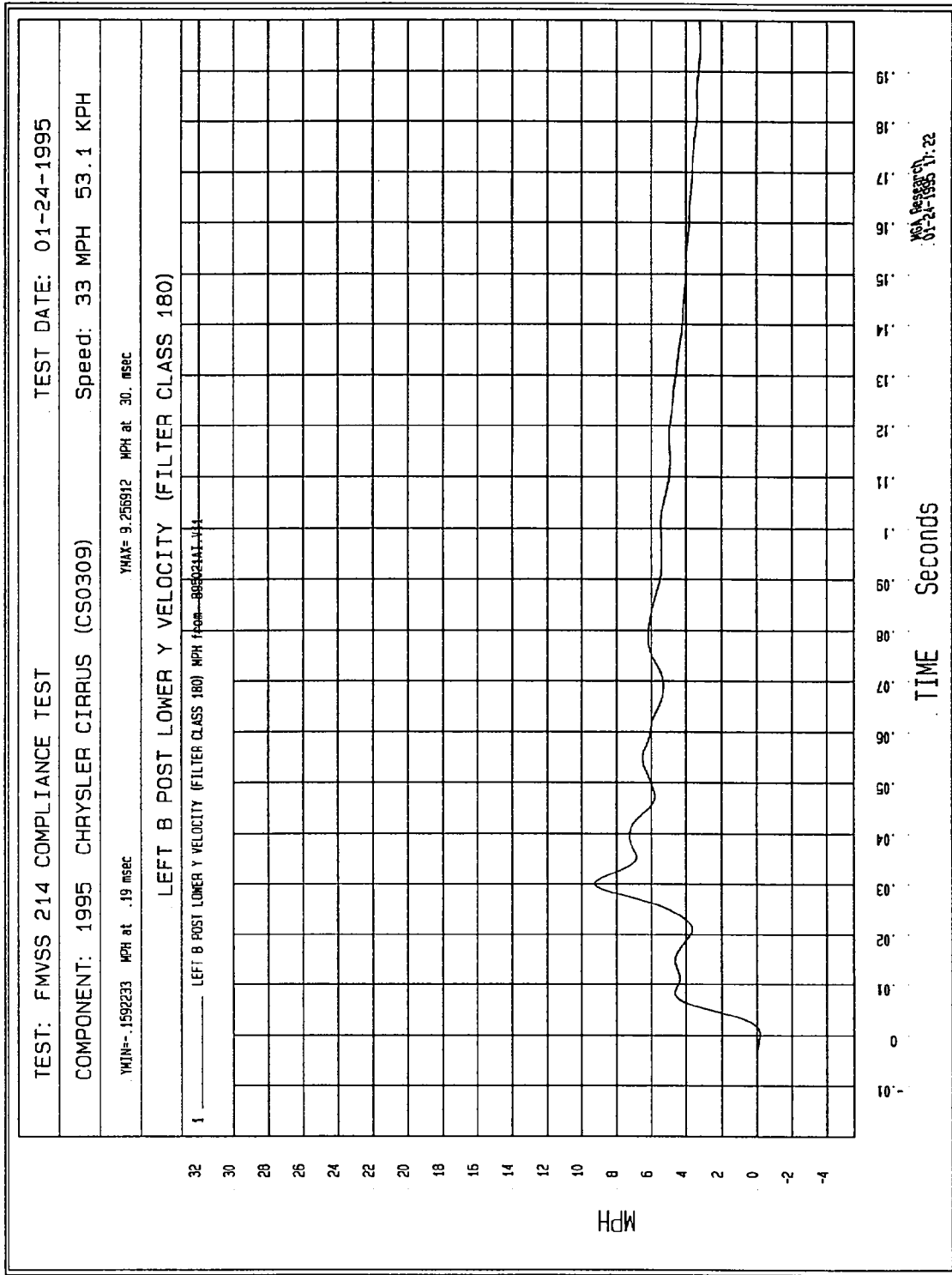


Figure B-51 - Left B Post Lower Y Velocity vs. Time

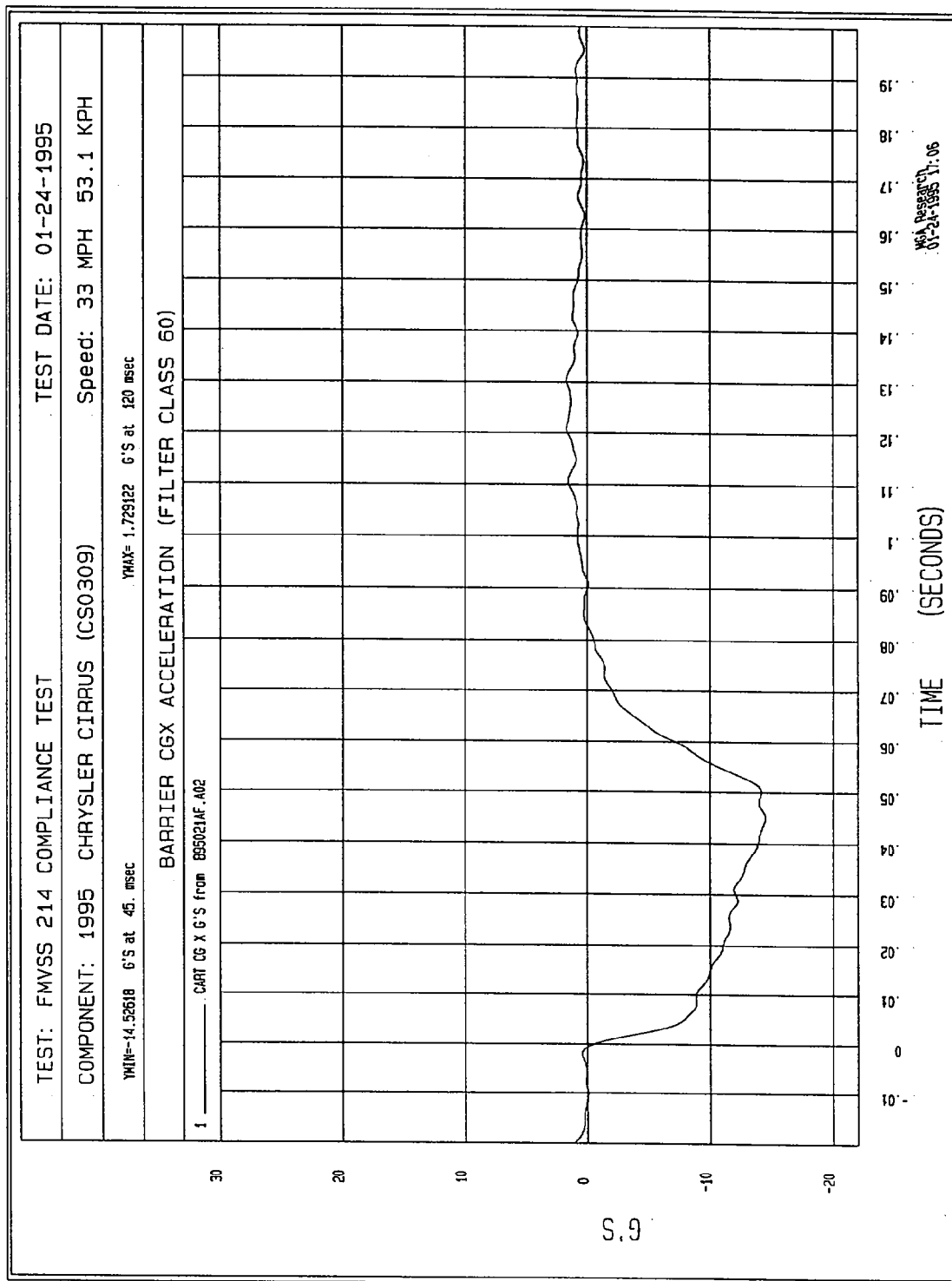


Figure B-52 - Moving Barrier Center of Gravity X Acceleration vs. Time

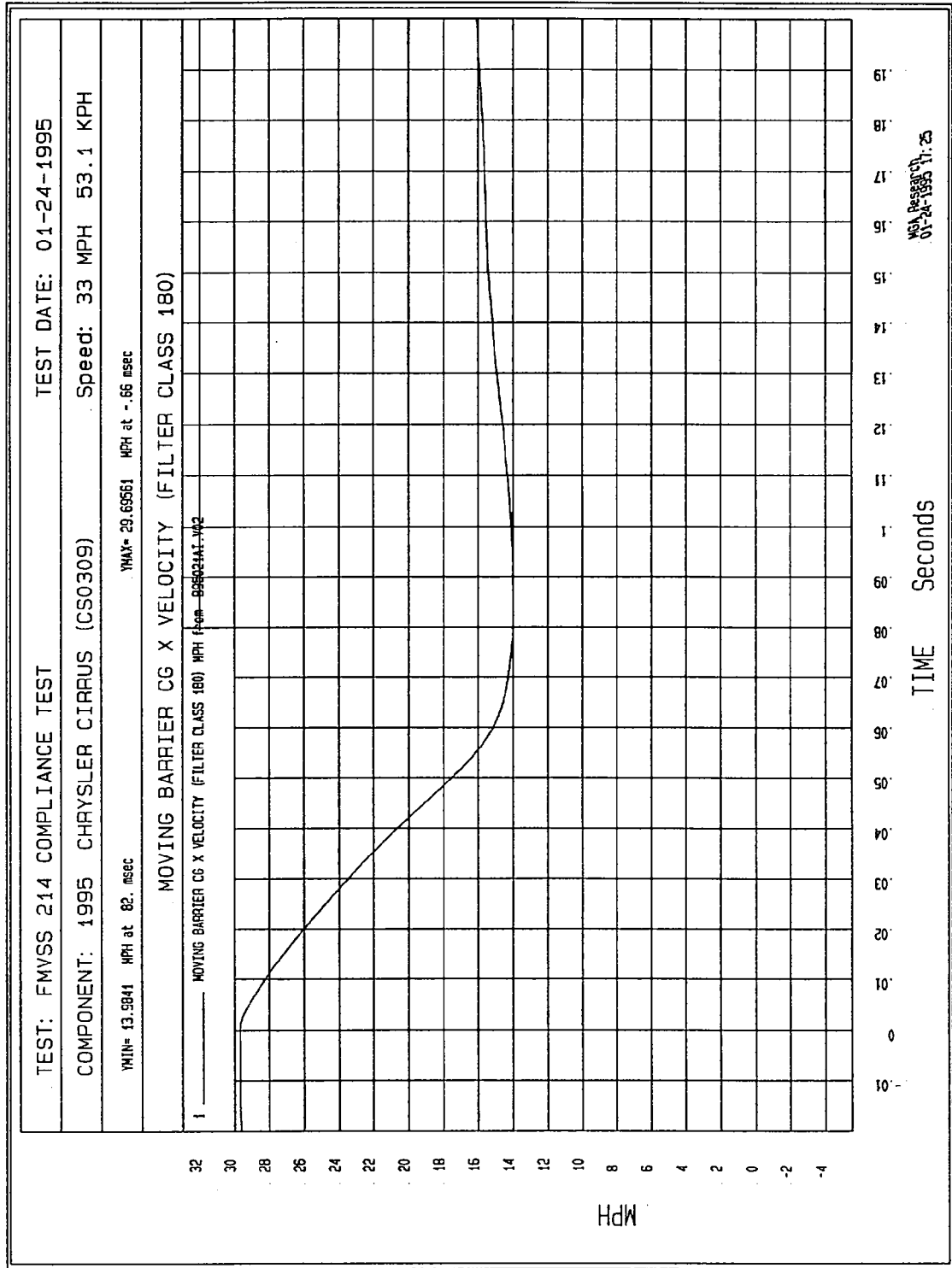


Figure B-53 - Moving Barrier Center of Gravity X Velocity vs. Time

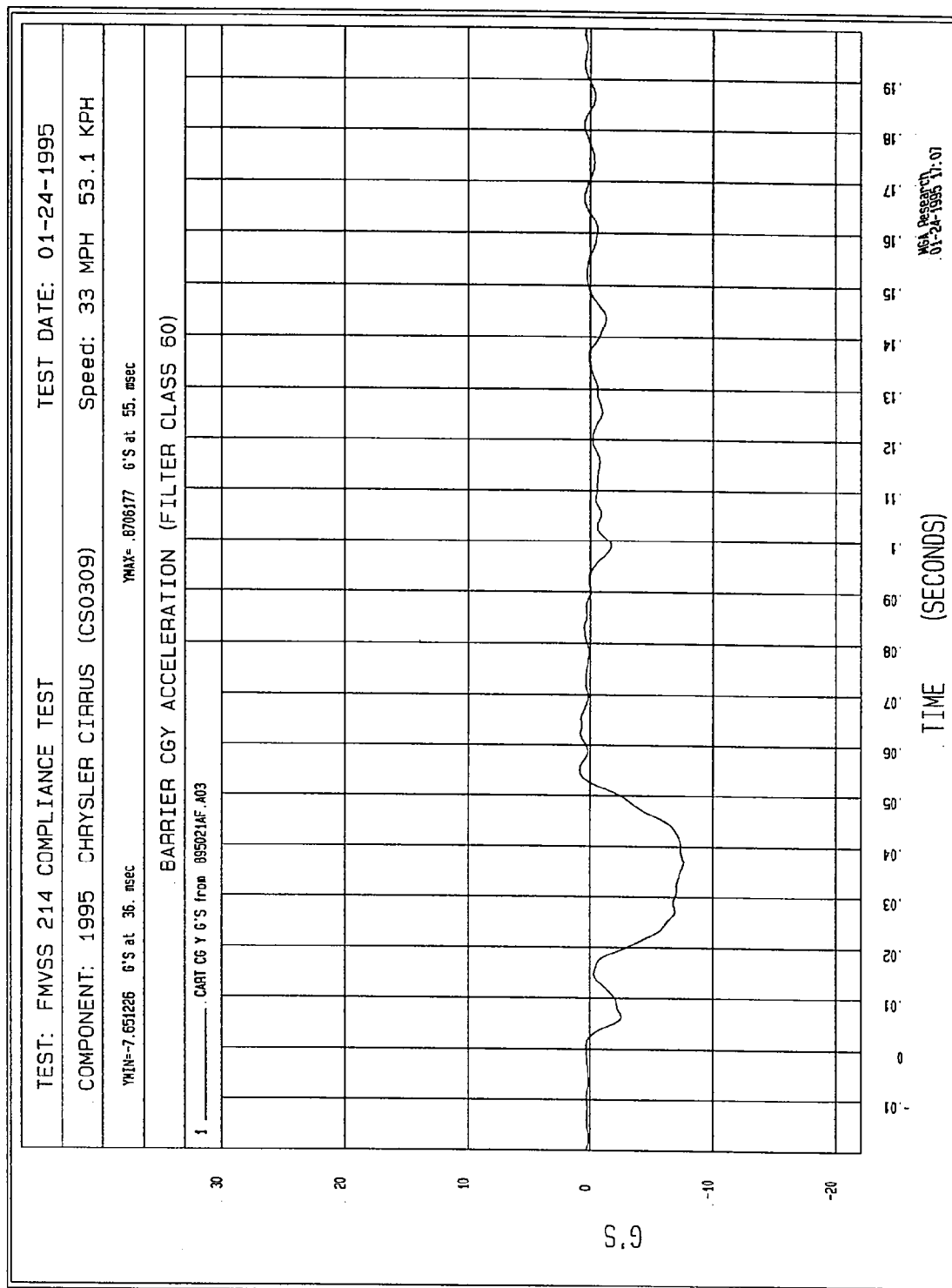


Figure B-54 - Moving Barrier Center of Gravity Y Acceleration vs. Time

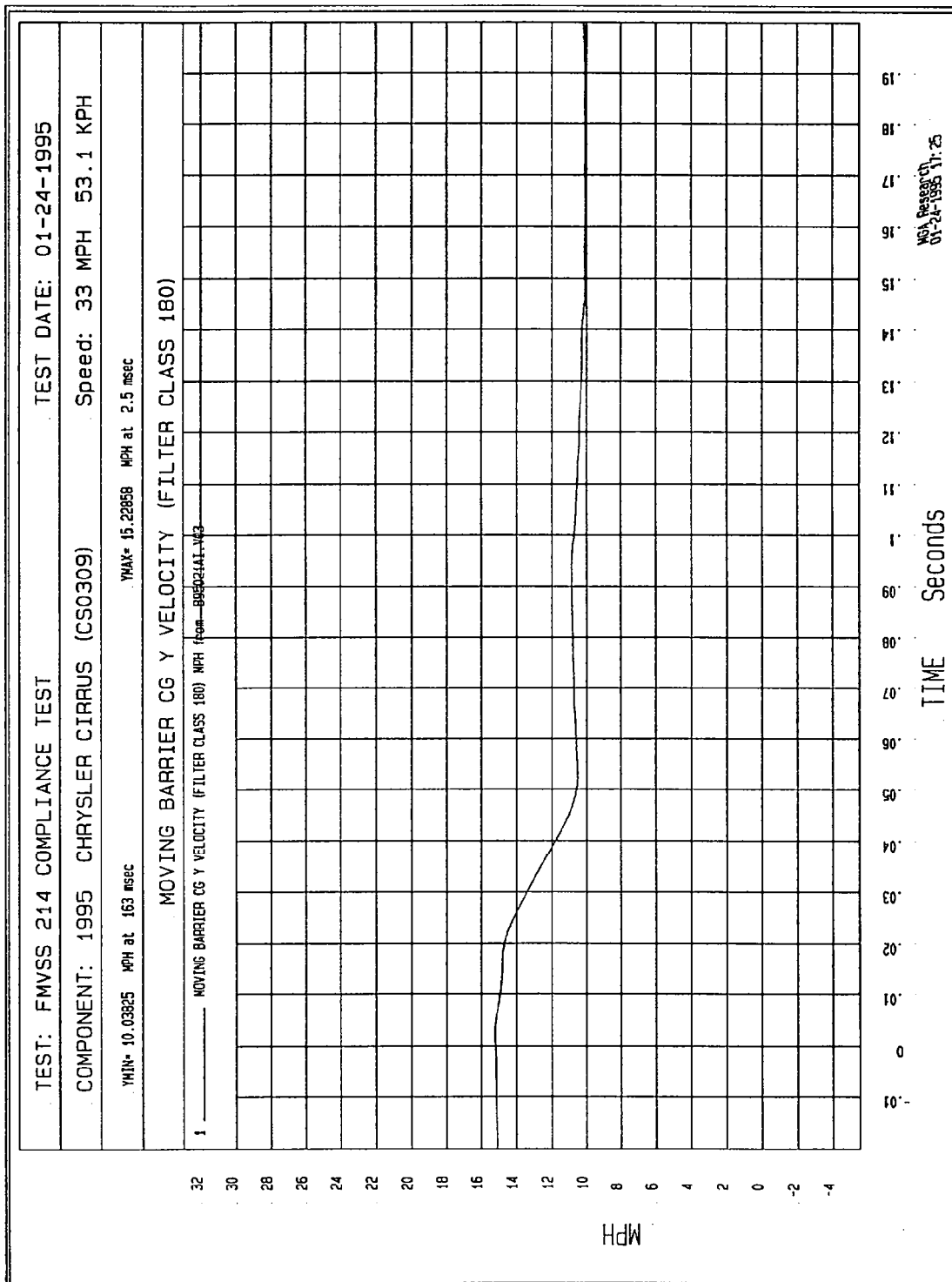


Figure B-55 - Moving Barrier Center of Gravity Y Velocity vs. Time

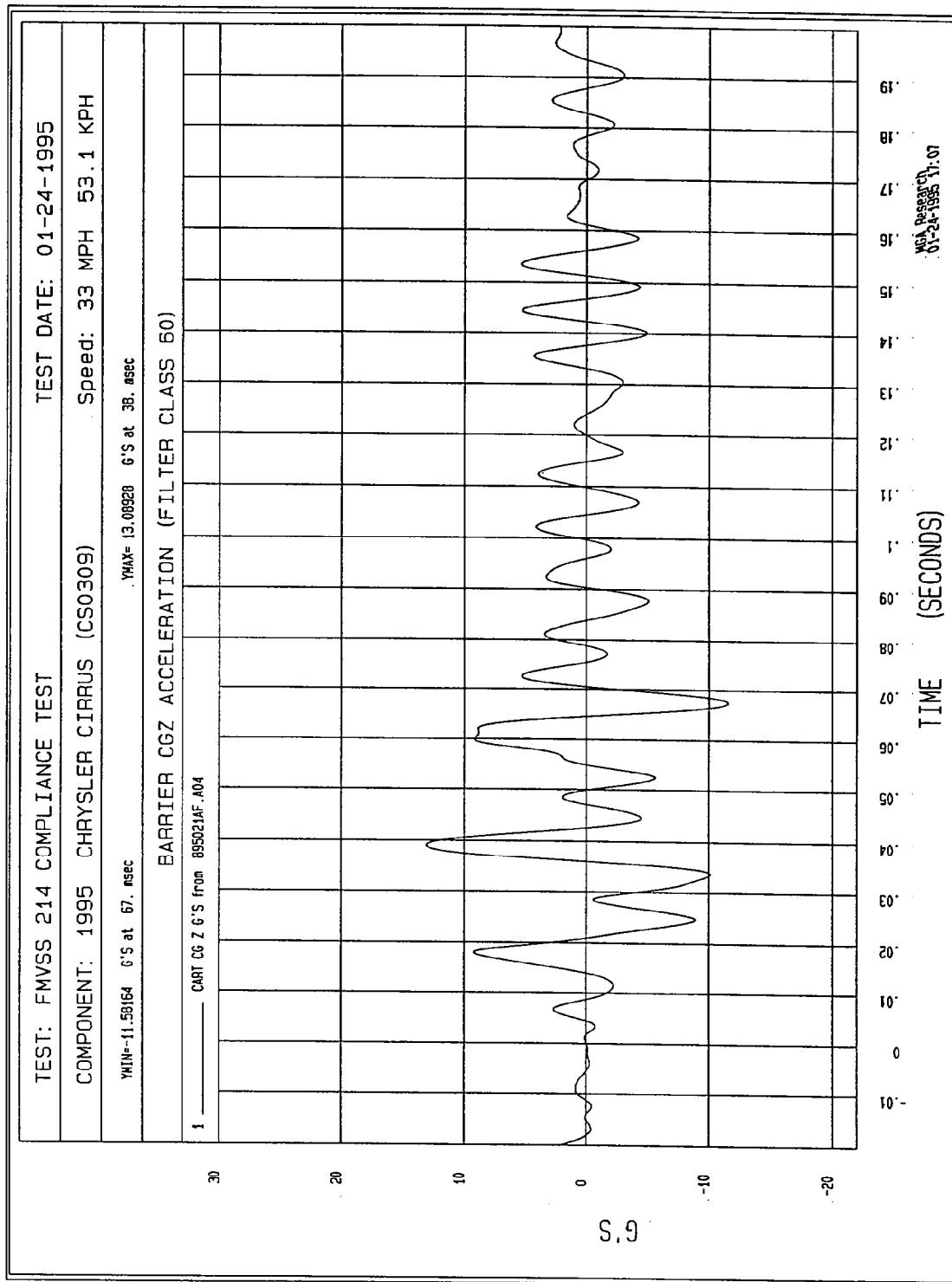
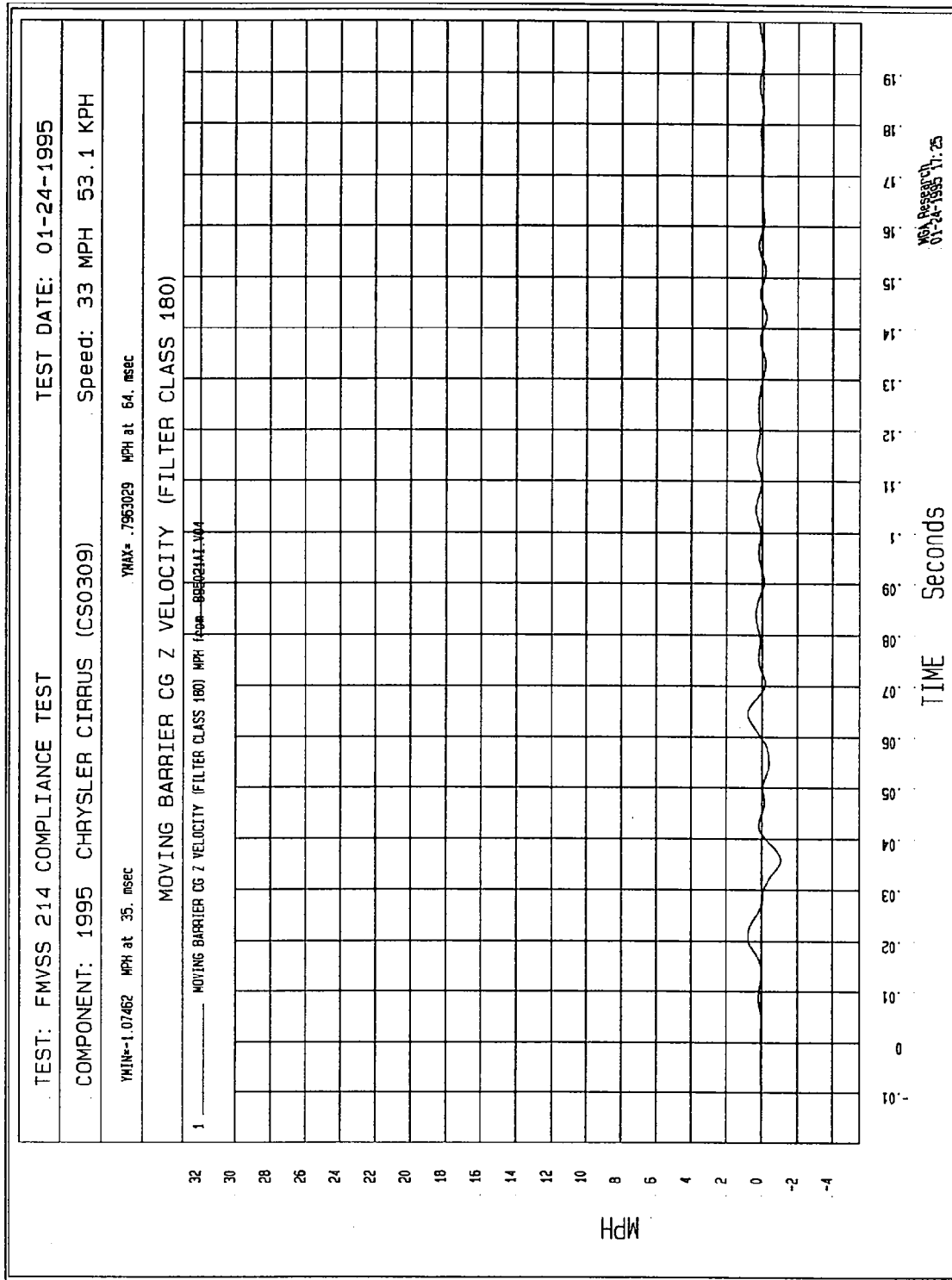


Figure B-56 - Moving Barrier Center of Gravity Z Acceleration vs. Time



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Figure B-57 - Moving Barrier Center of Gravity Z Velocity vs. Time

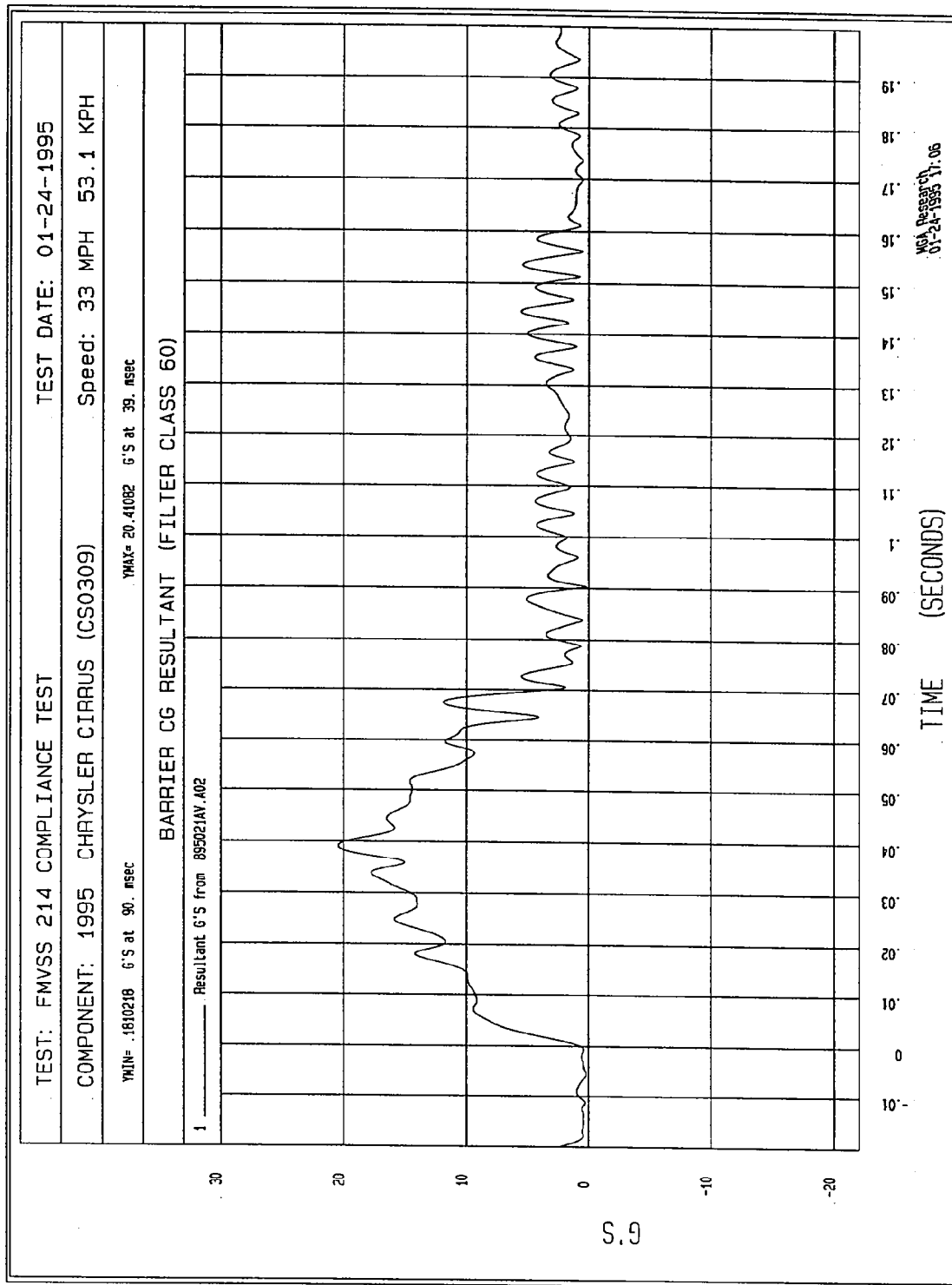


Figure B-58 - Moving Barrier Center of Gravity Resultant vs. Time

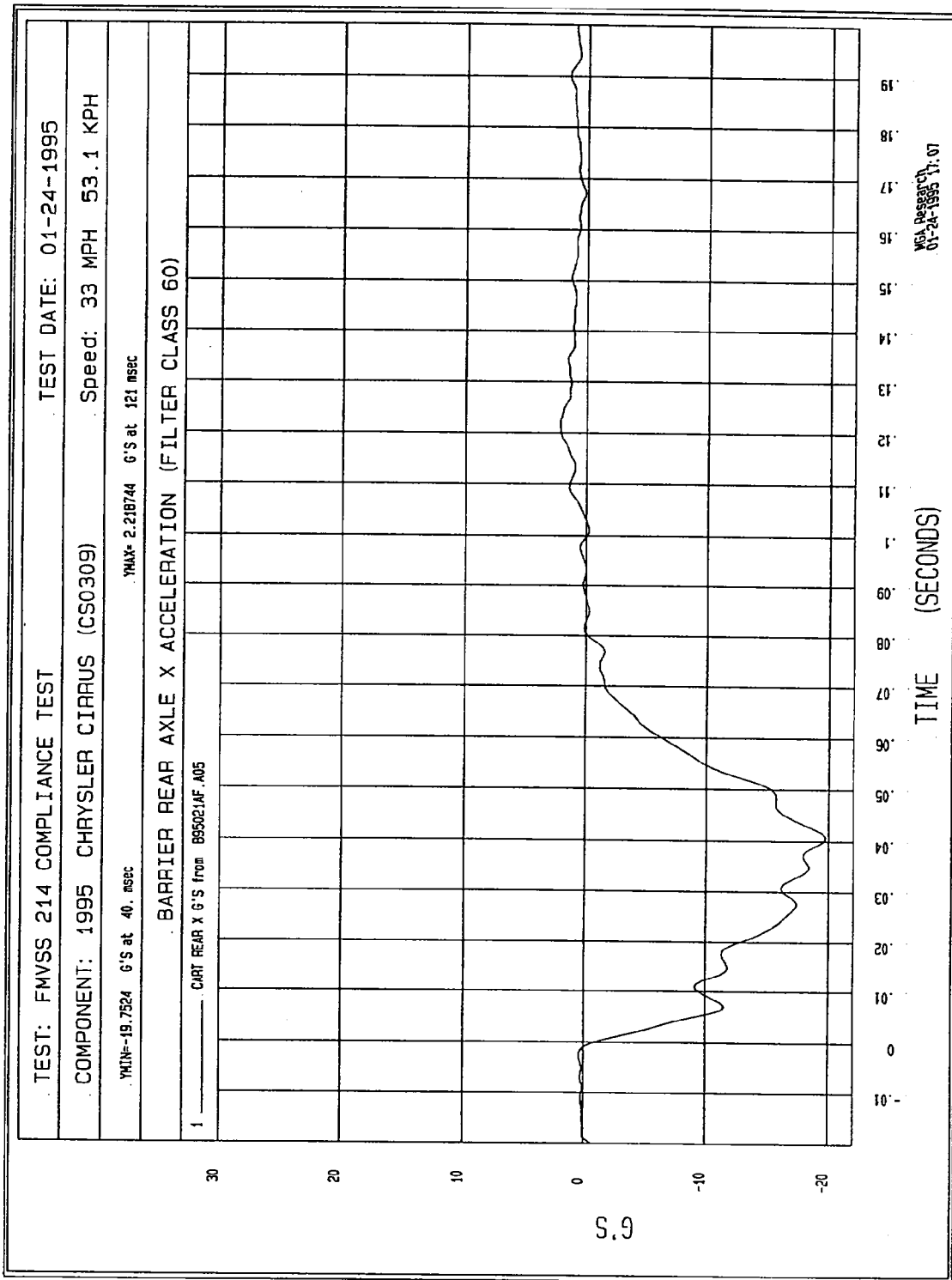


Figure B-59 - Moving Barrier Rear Axle X Acceleration vs. Time

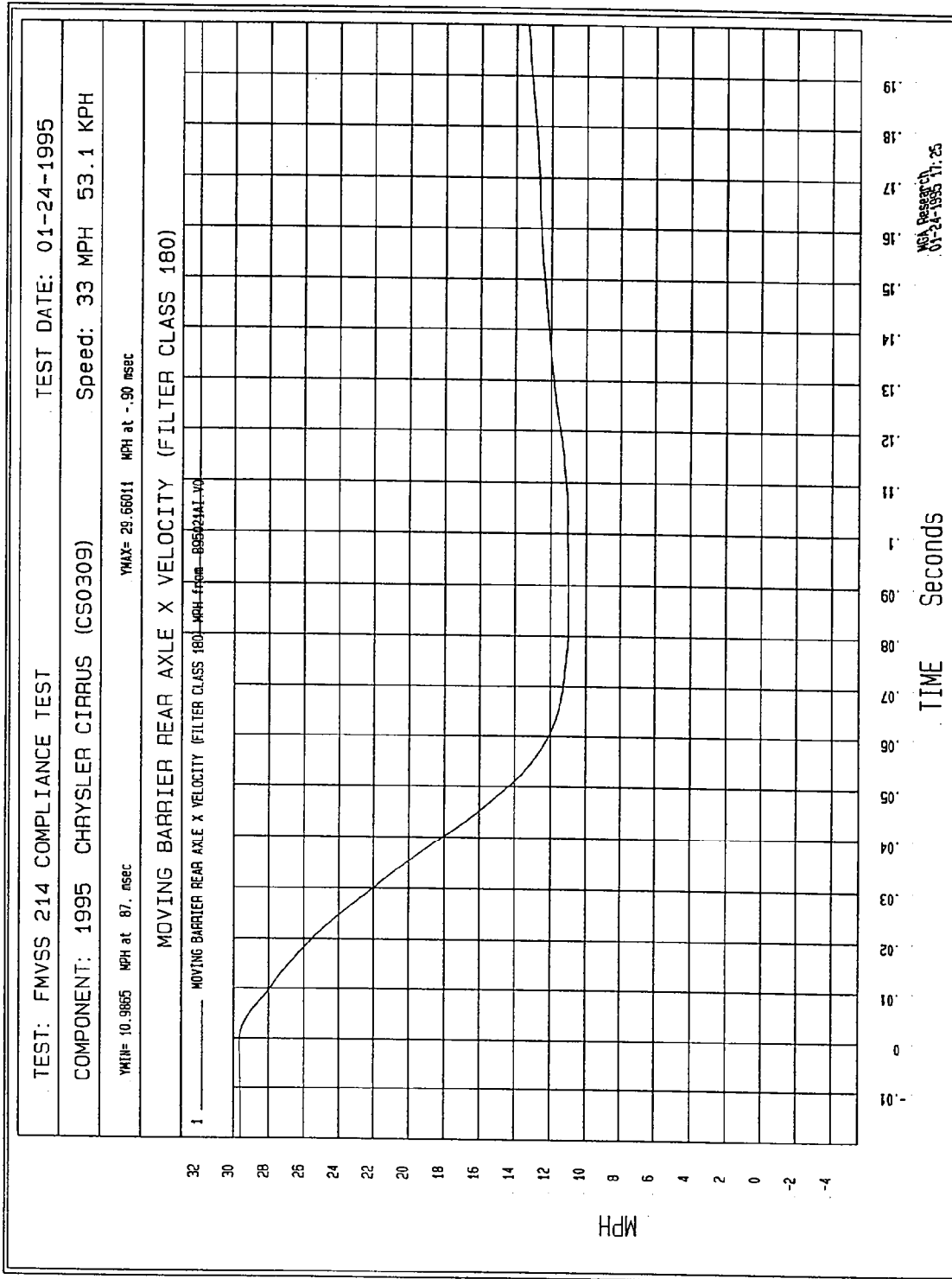


Figure B-60 - Moving Barrier Rear Axle X Velocity vs. Time

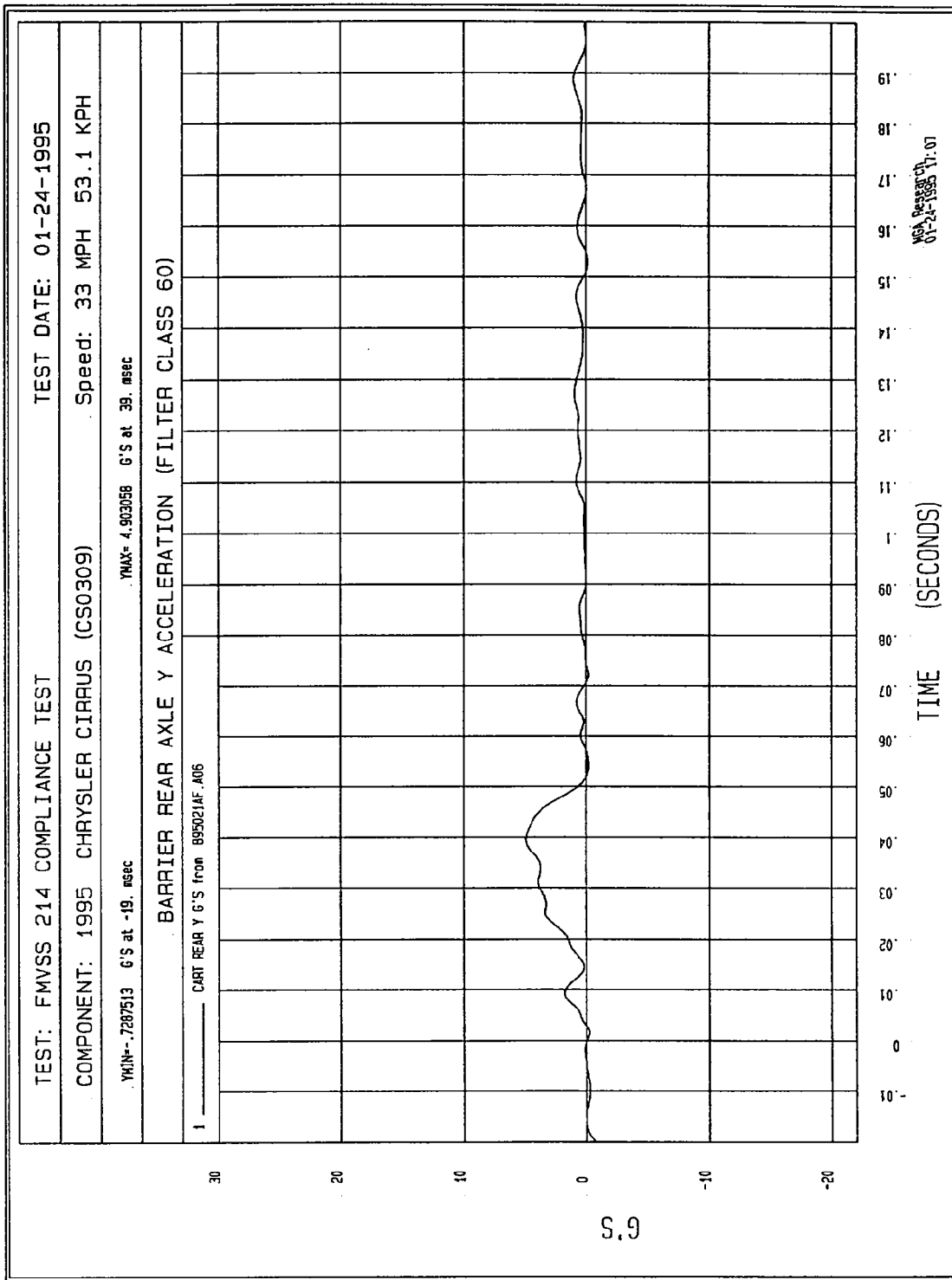


Figure B-61 - Moving Barrier Rear Axle Y Acceleration vs. Time

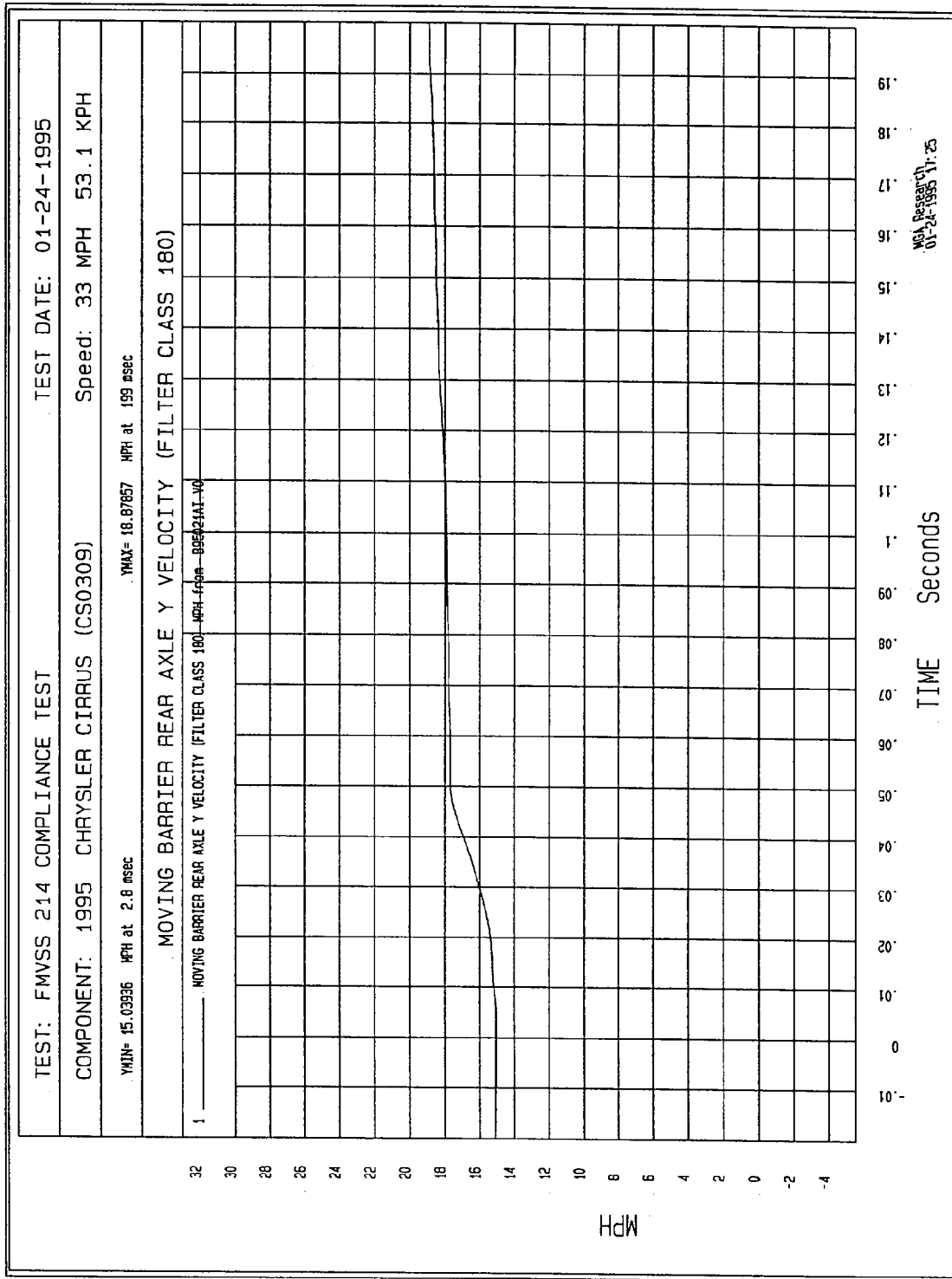


Figure B-62 - Moving Barrier Rear Axle Y Velocity vs. Time

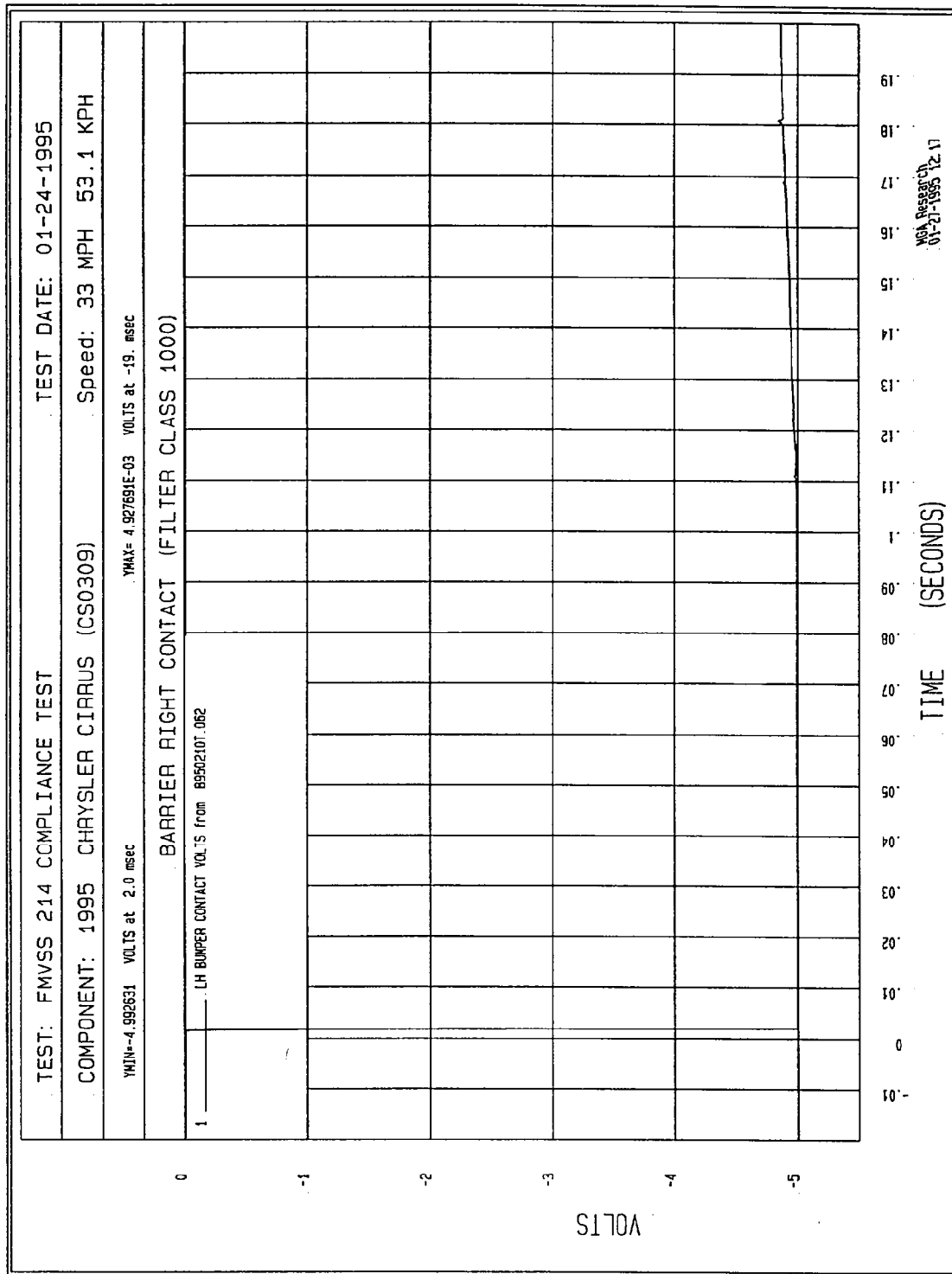


Figure B-63 - Right Hand Barrier Contact

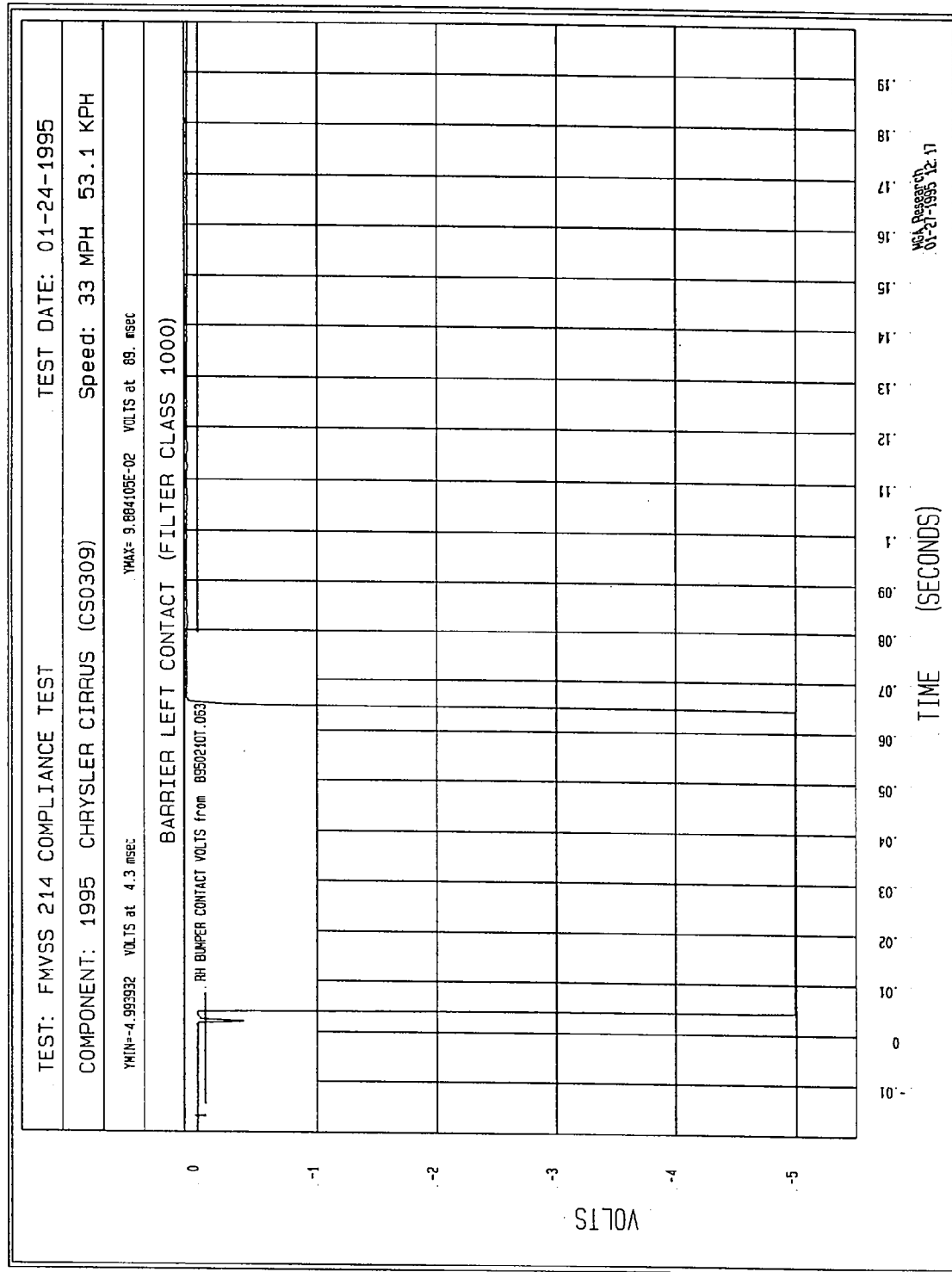


Figure B-64 - Left Hand Barrier Contact

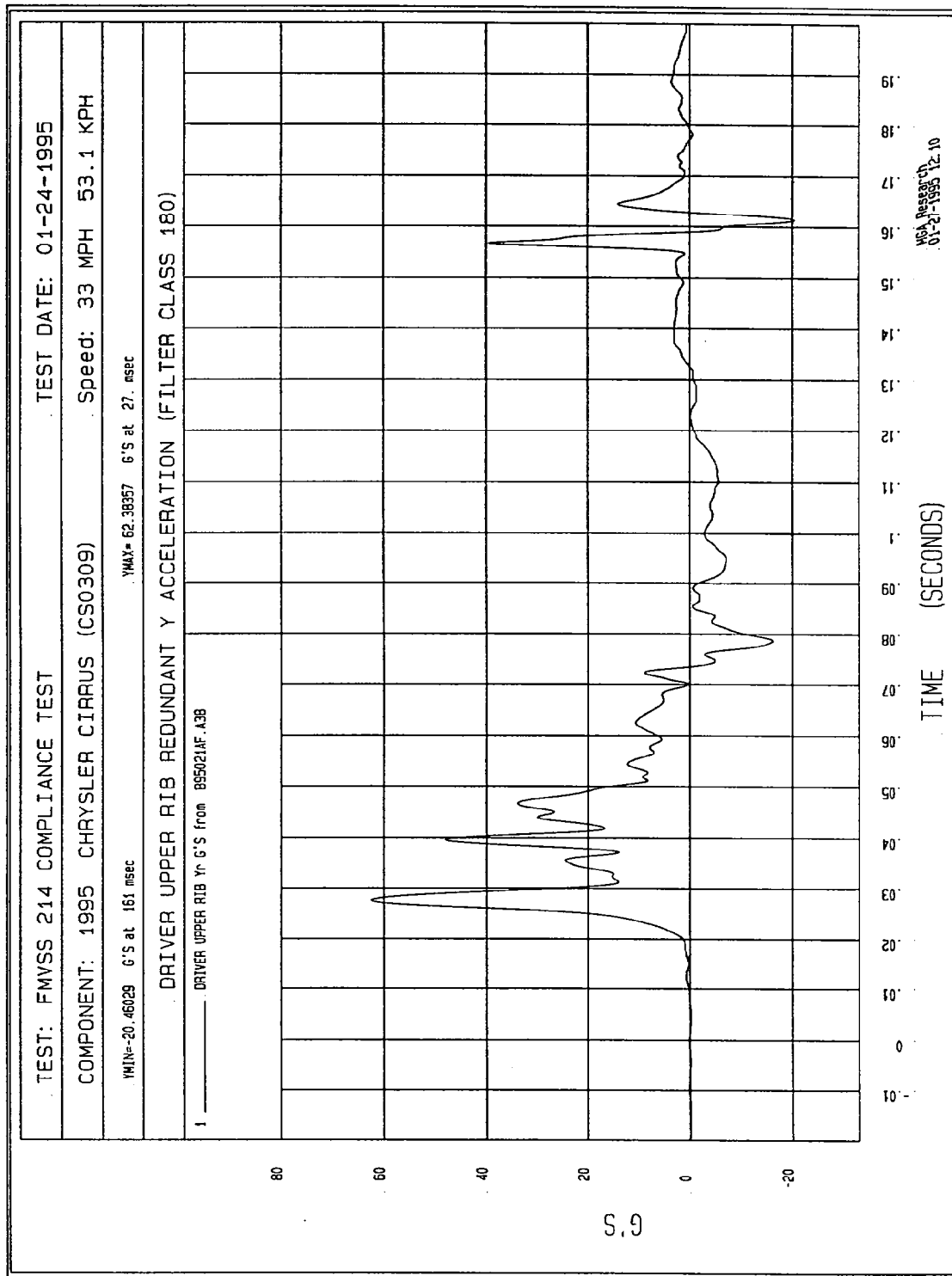
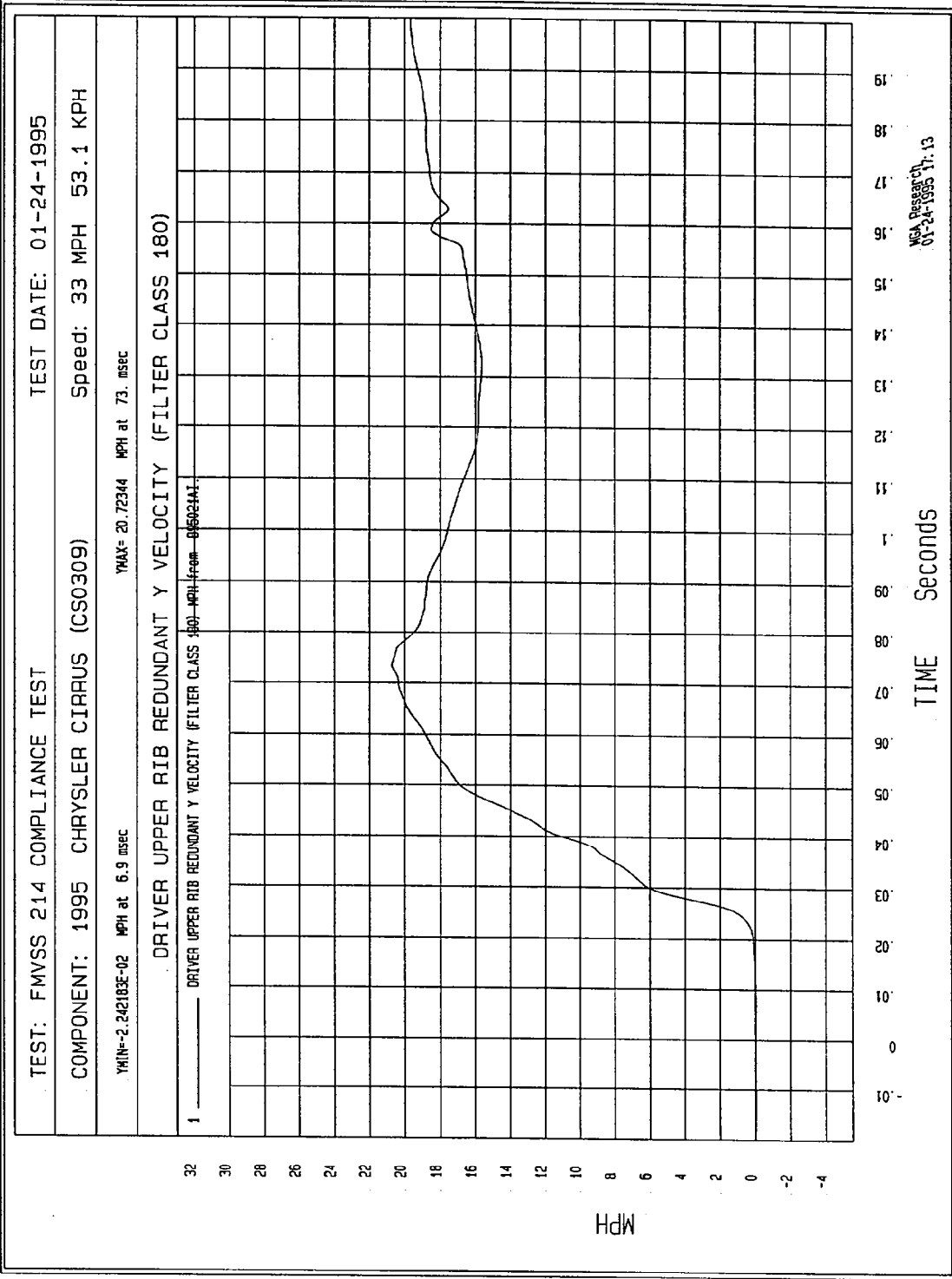
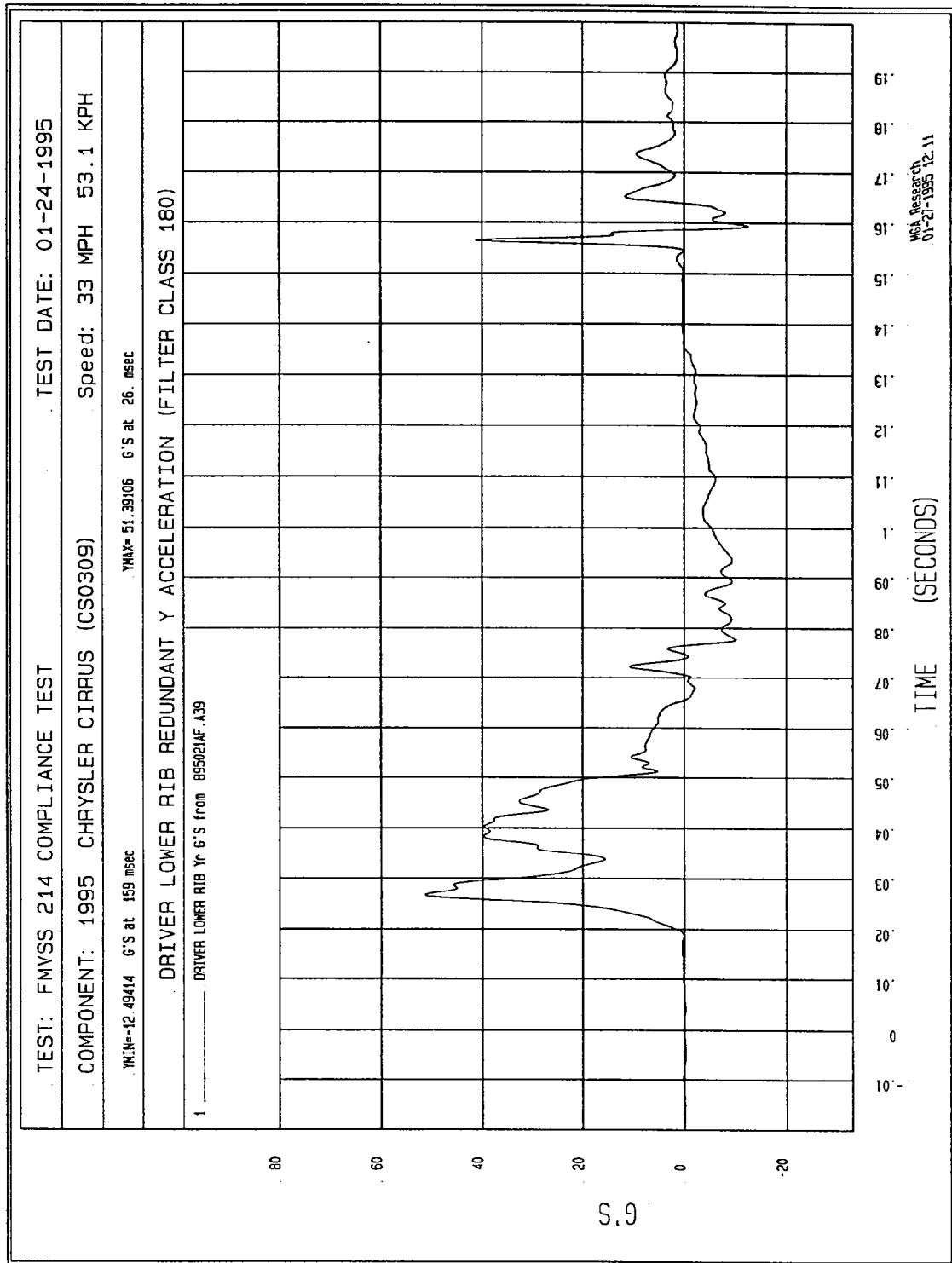


Figure B-65 - Driver Upper Rib Y Redundant Acceleration vs. Time





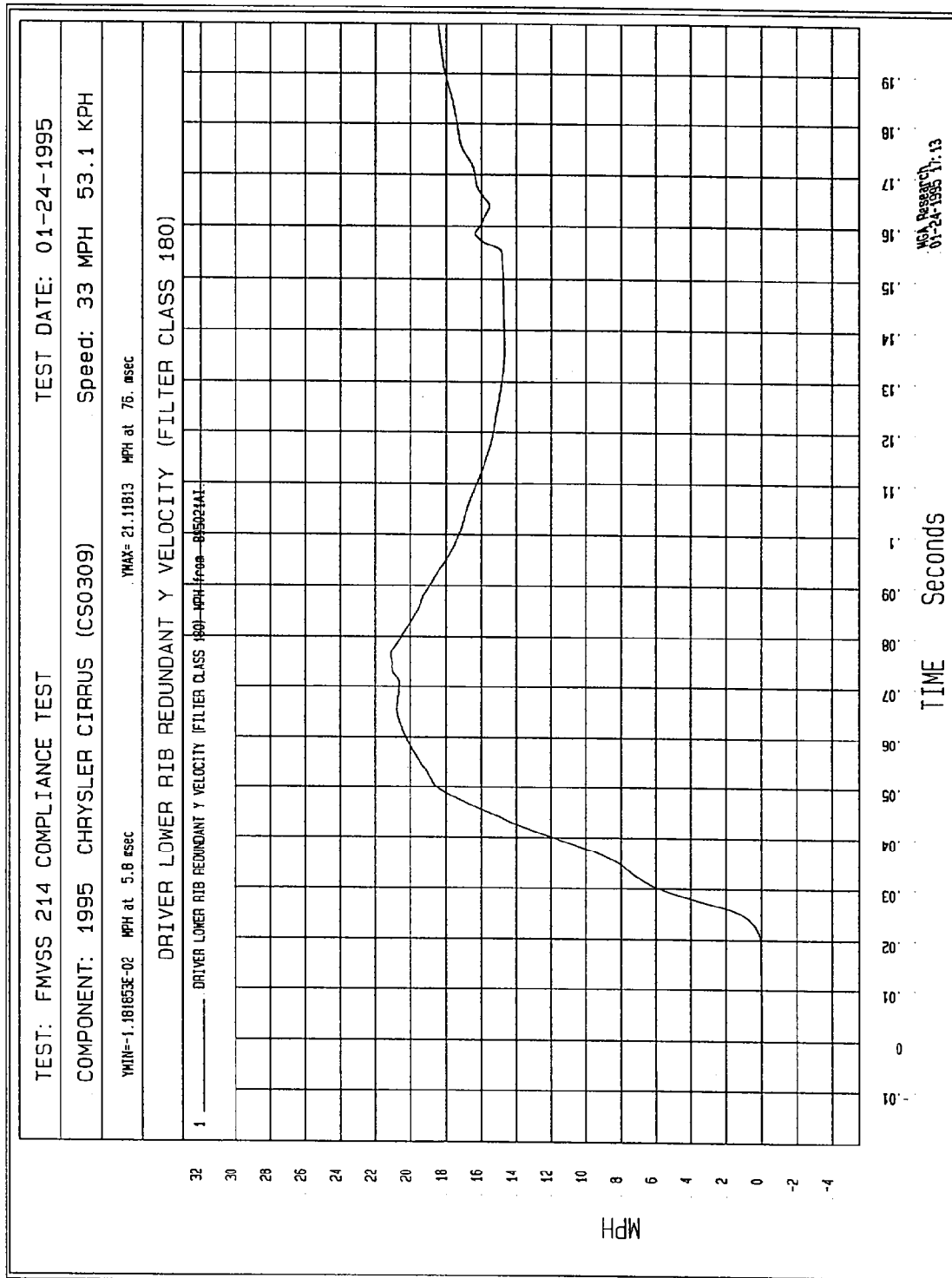


Figure B-68 - Driver Lower Rib Y Redundant Velocity vs. Time

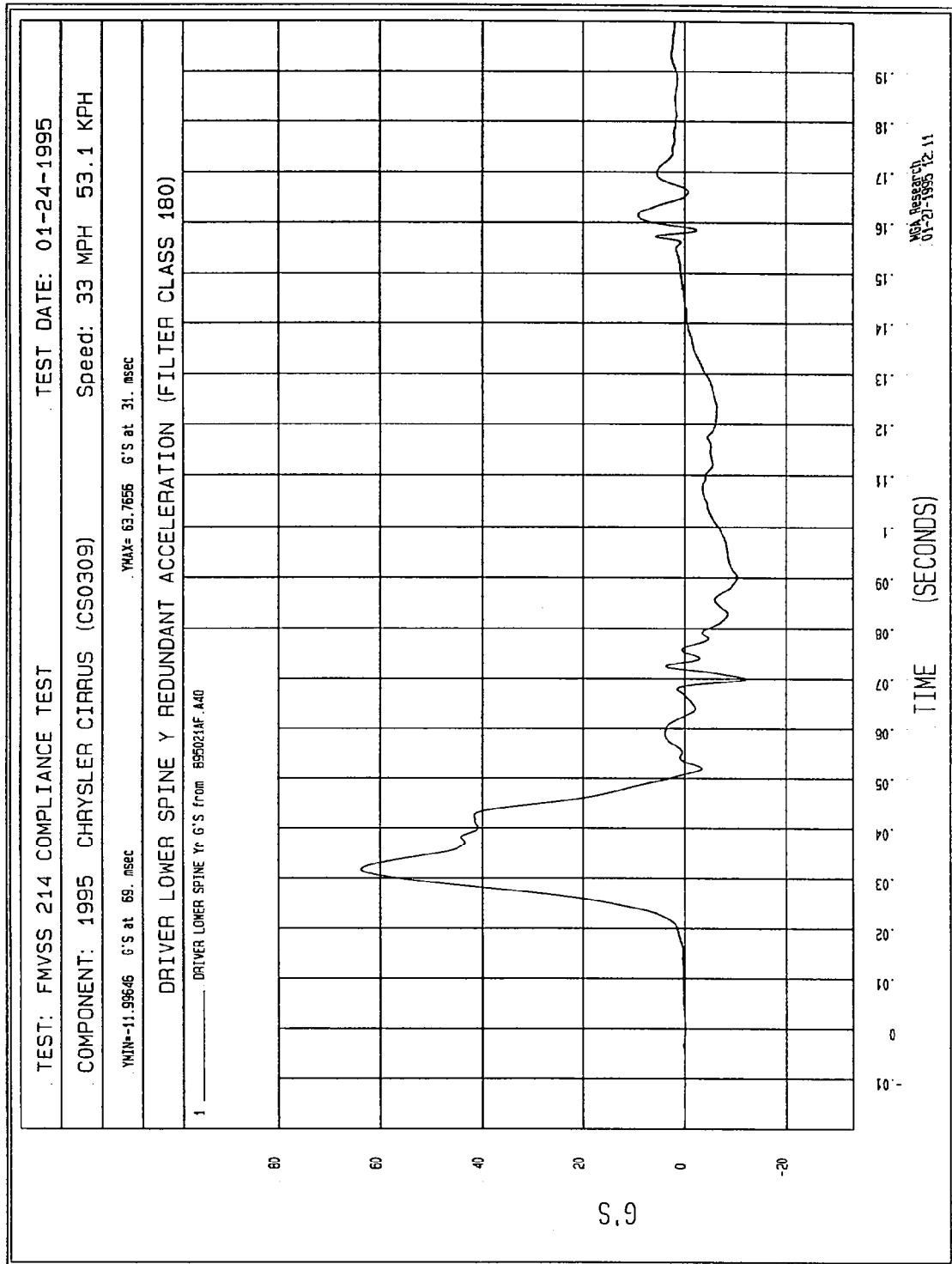


Figure B-69 - Driver Lower Spine Y Redundant Acceleration vs. Time

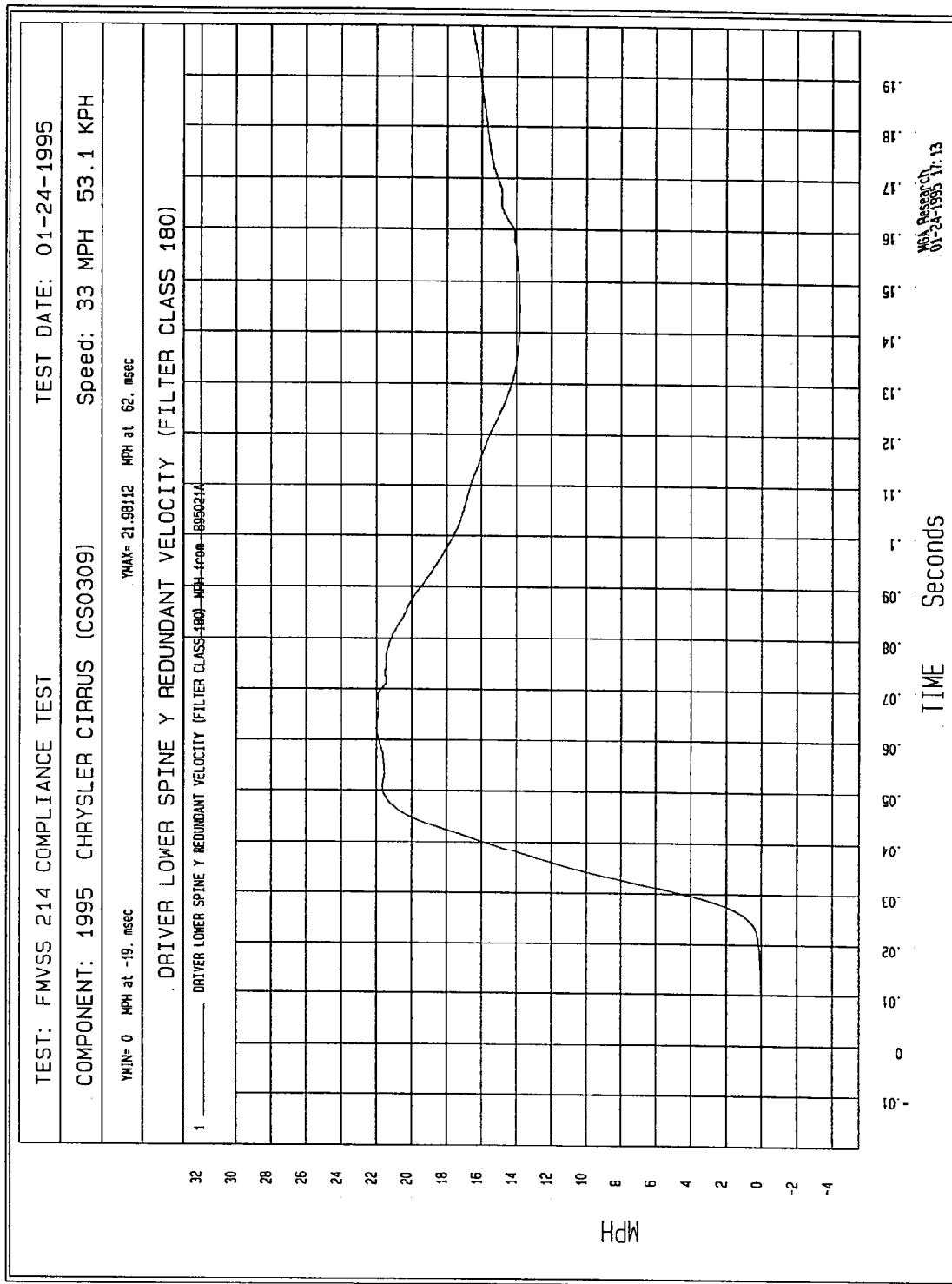


Figure B-70 - Driver Lower Spine Y Redundant Velocity vs. Time

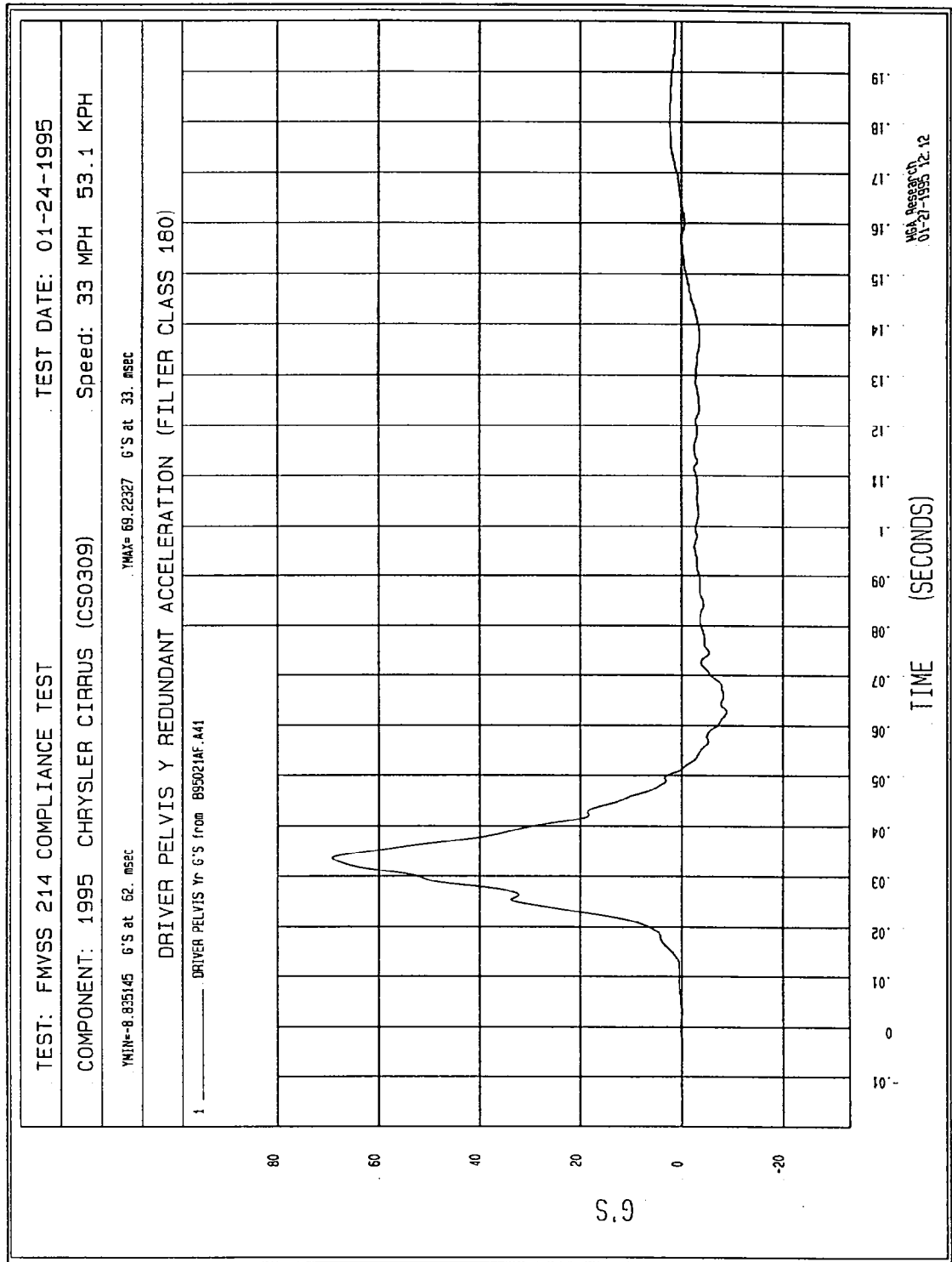


Figure B-71 - Driver Pelvis Y Redundant Acceleration vs. Time

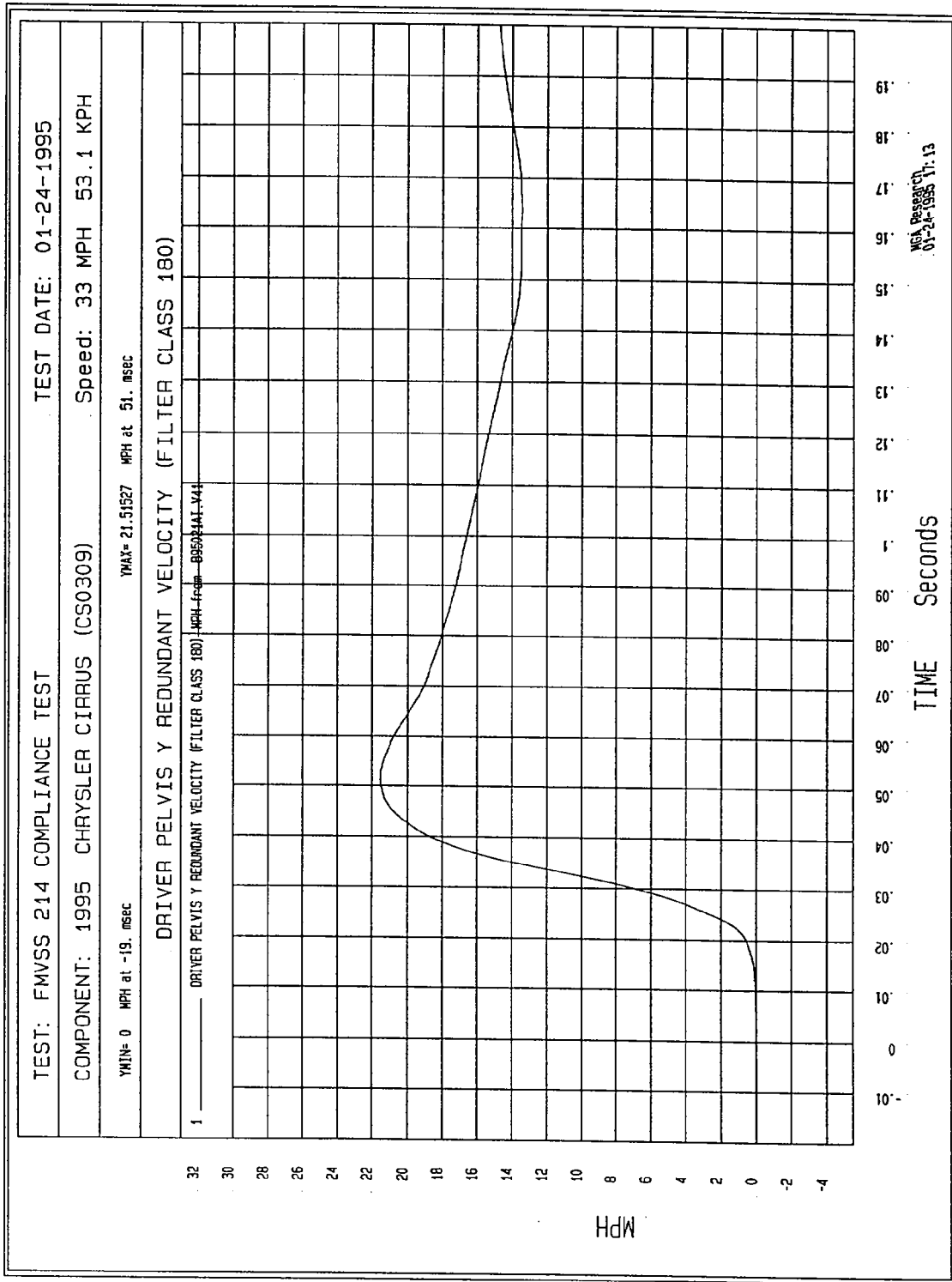


Figure B-72 - Driver Pelvis Y Redundant Velocity vs. Time

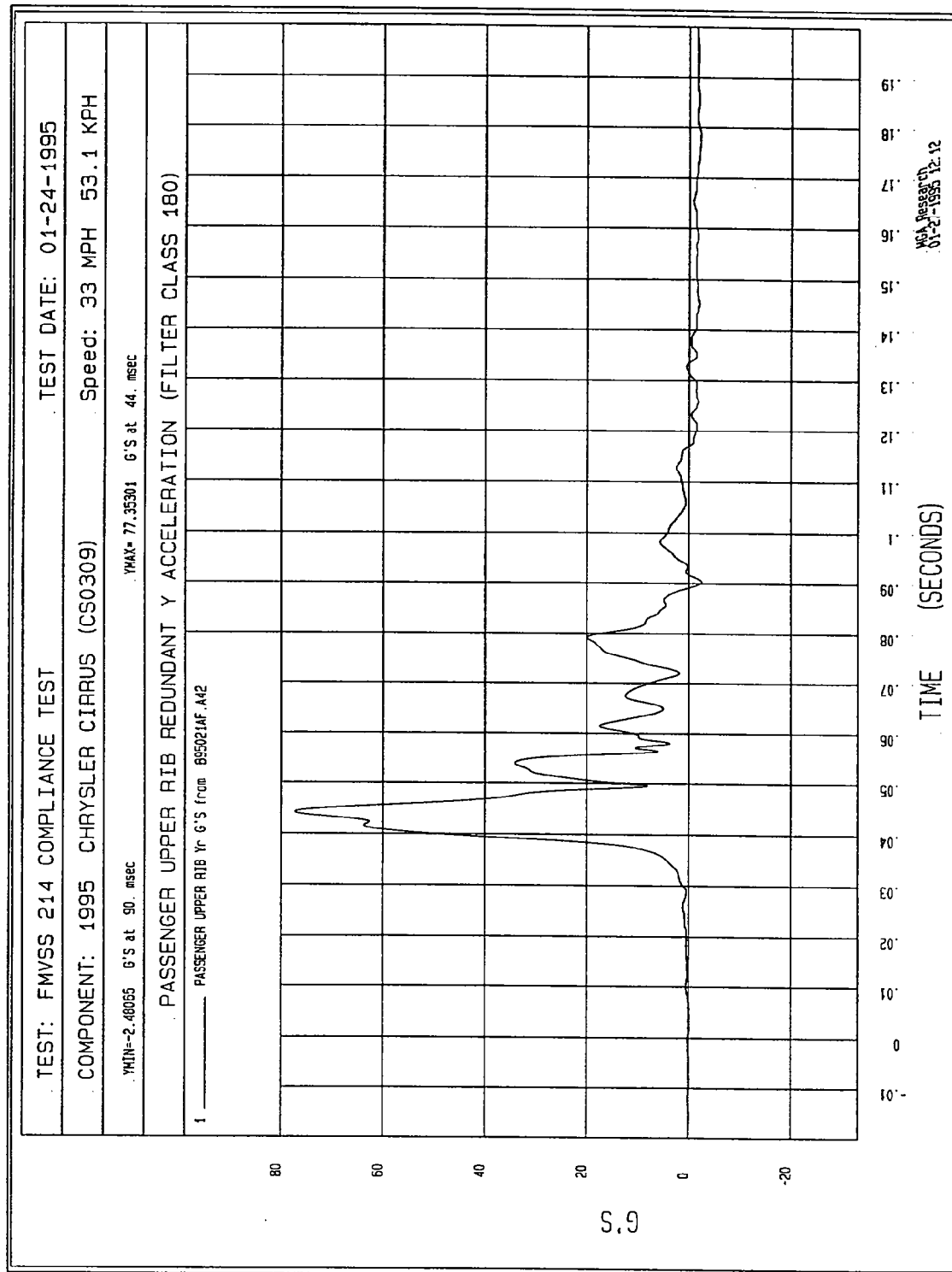


Figure B-73 - Passenger Upper Rib Y Redundant Acceleration vs. Time

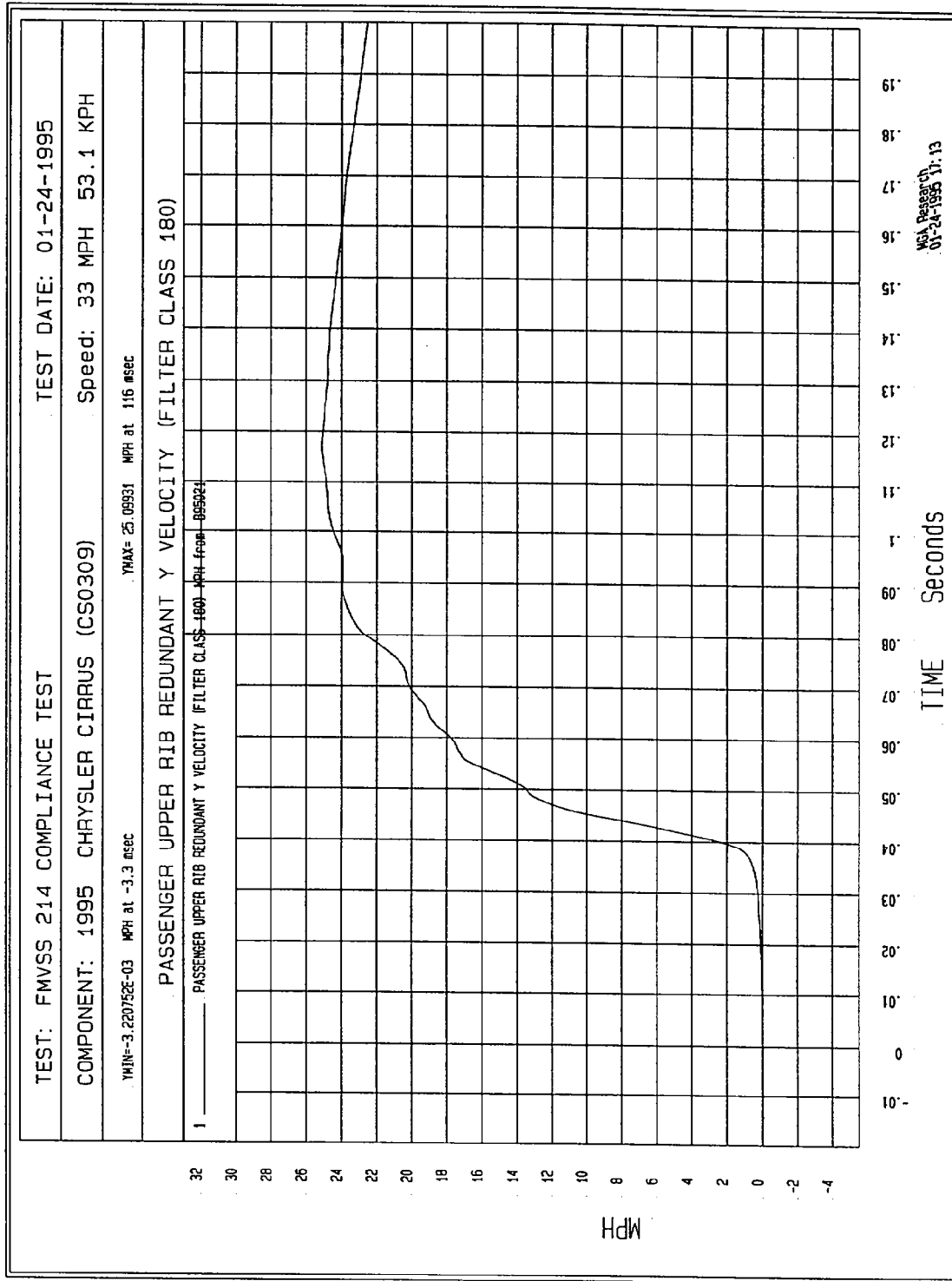


Figure B-74 - Passenger Upper Rib Y Redundant Velocity vs. Time

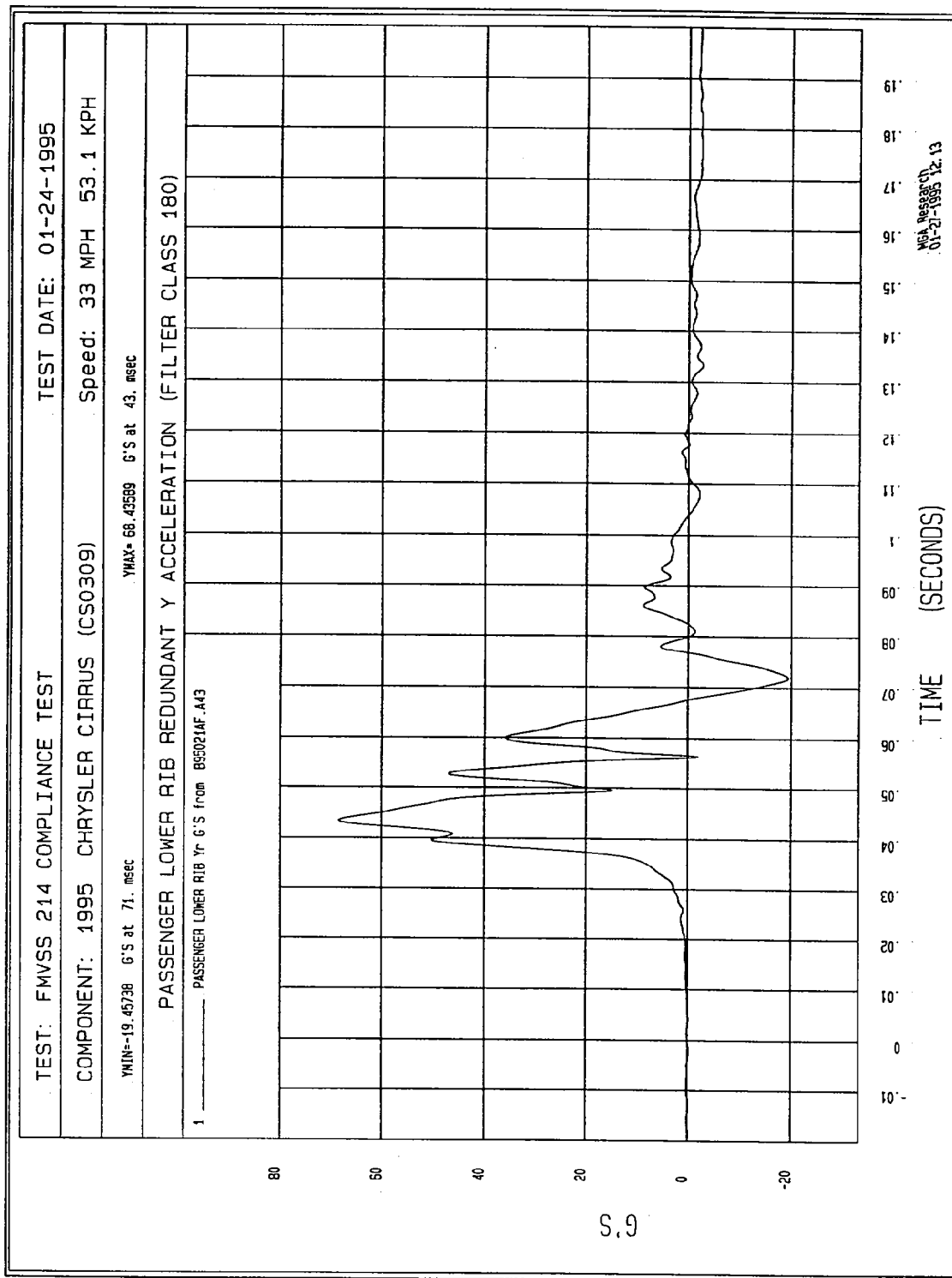


Figure B-75 - Passenger Lower Rib Y Redundant Acceleration vs. Time

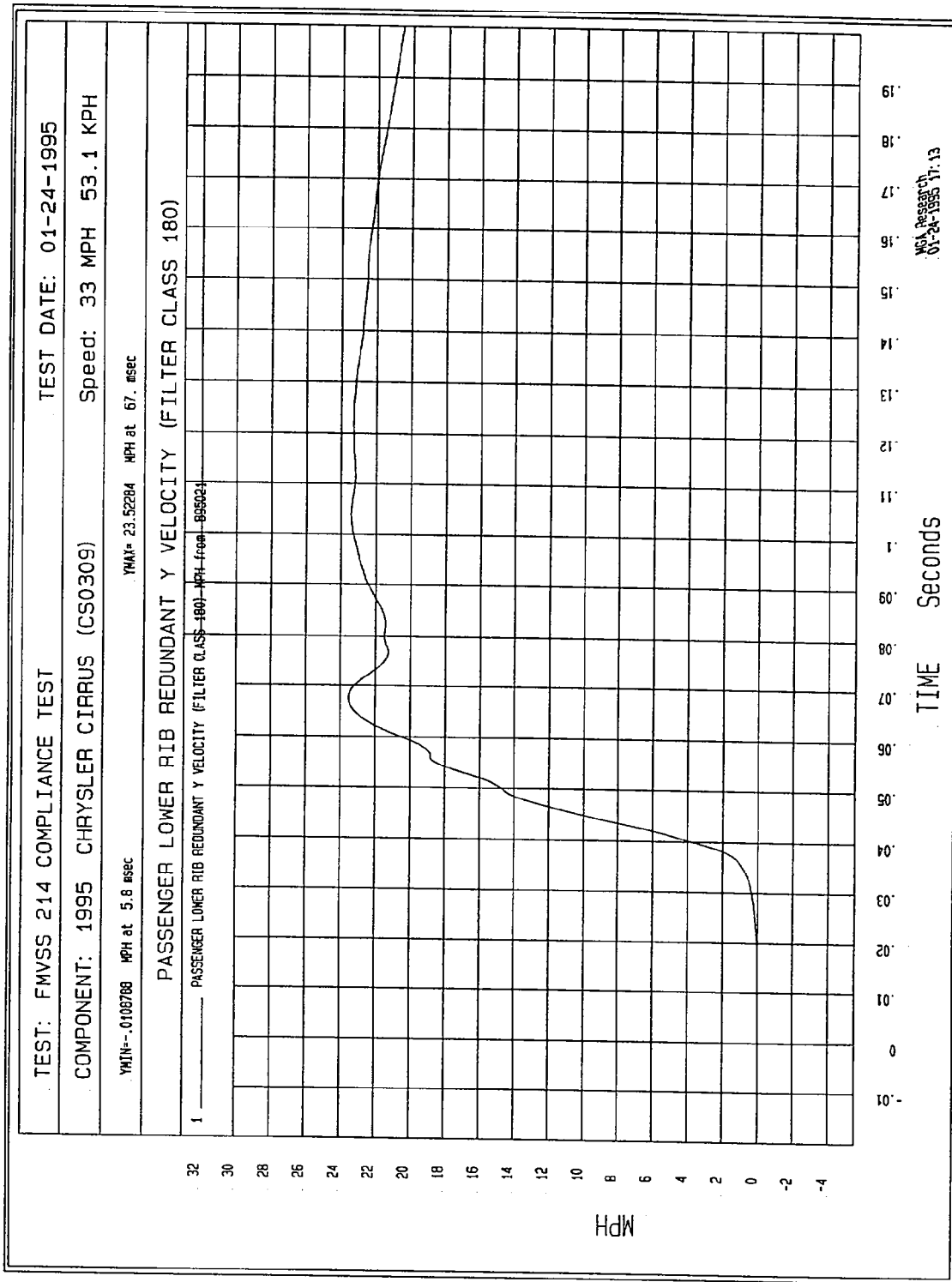


Figure B-76 - Passenger Lower Rib Y Redundant Velocity vs. Time

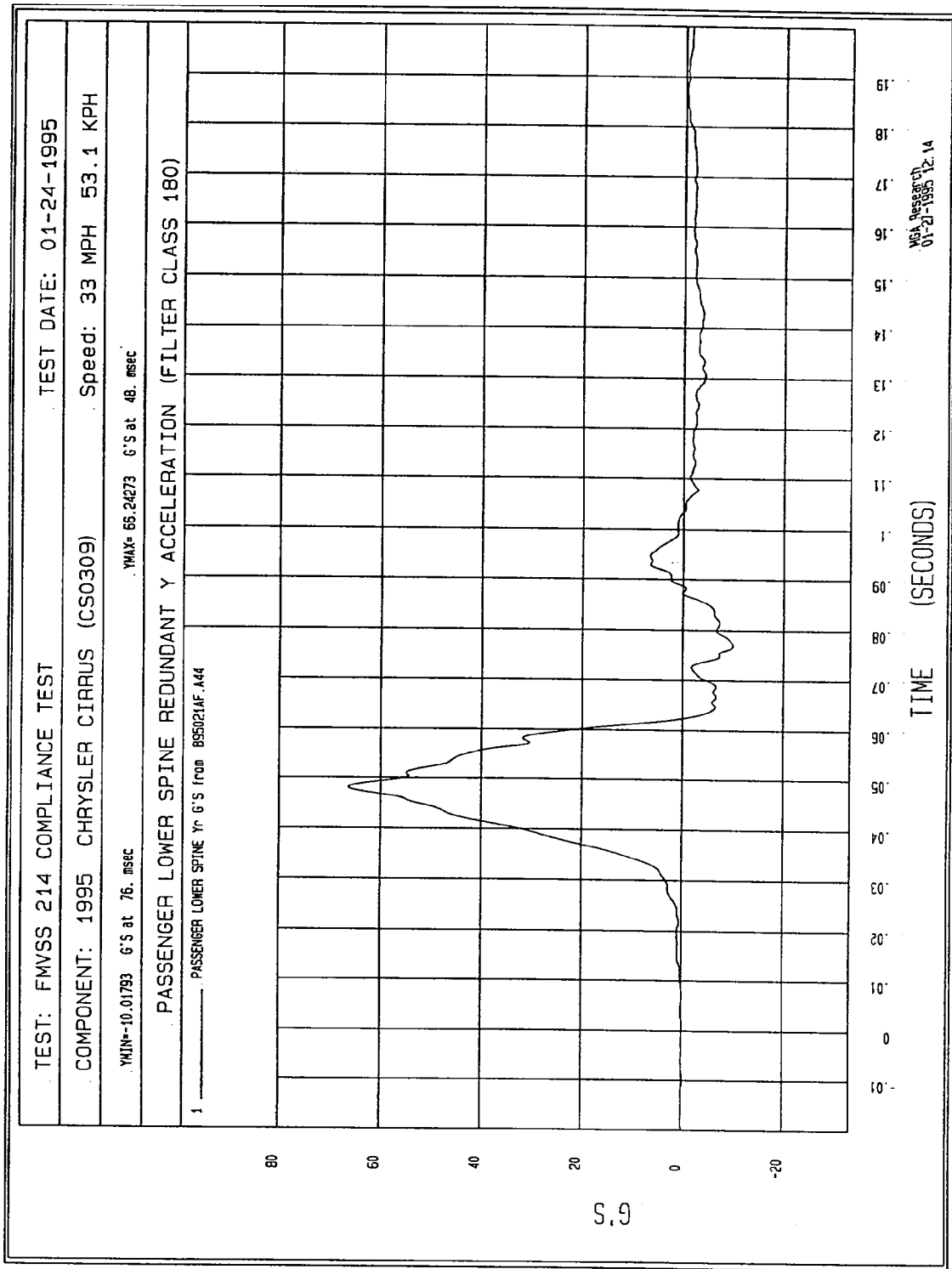


Figure B-77 - Passenger Lower Spine Y Redundant Acceleration vs. Time

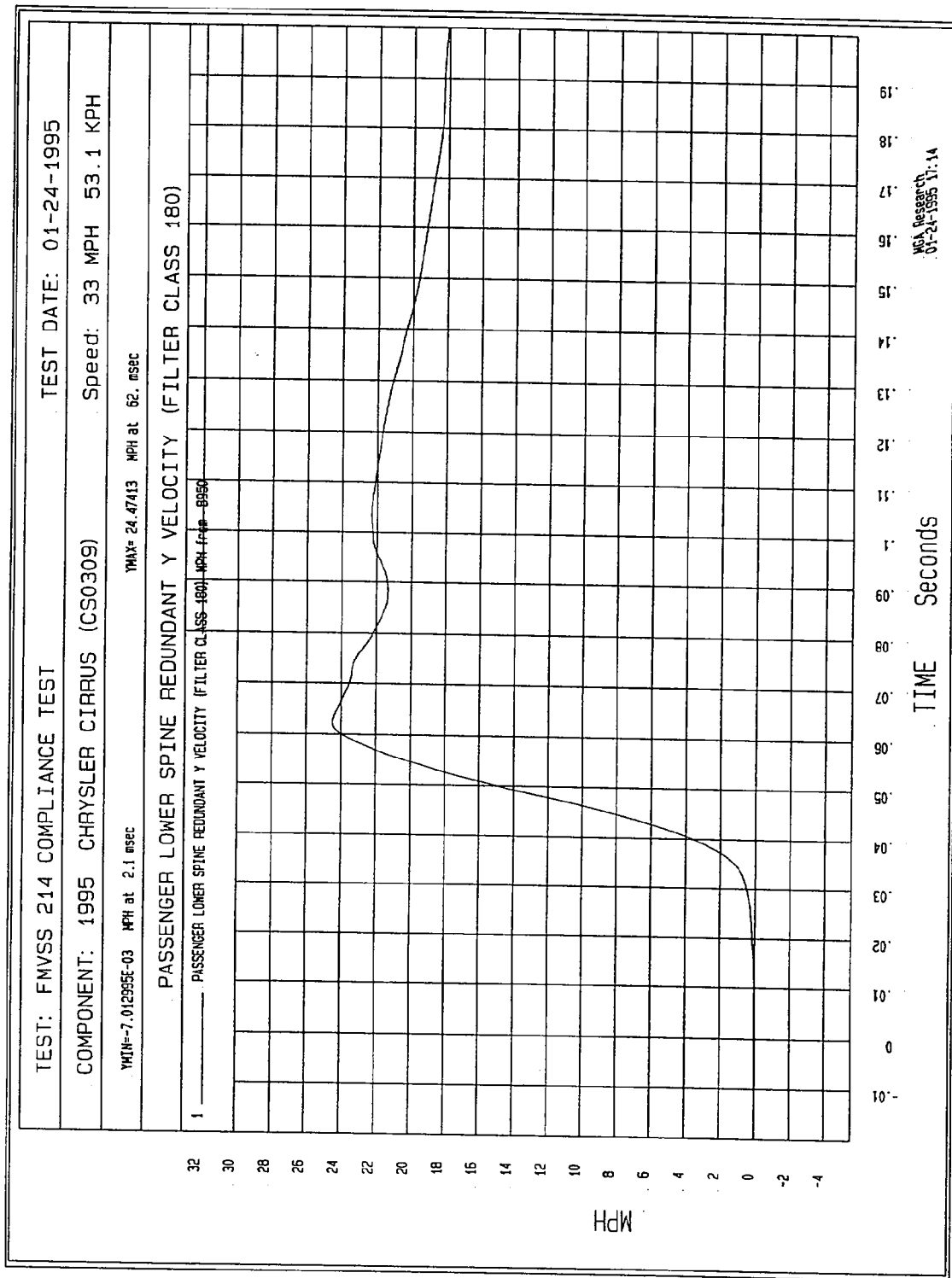


Figure B-78 - Passenger Lower Spine Y Redundant Velocity vs. Time

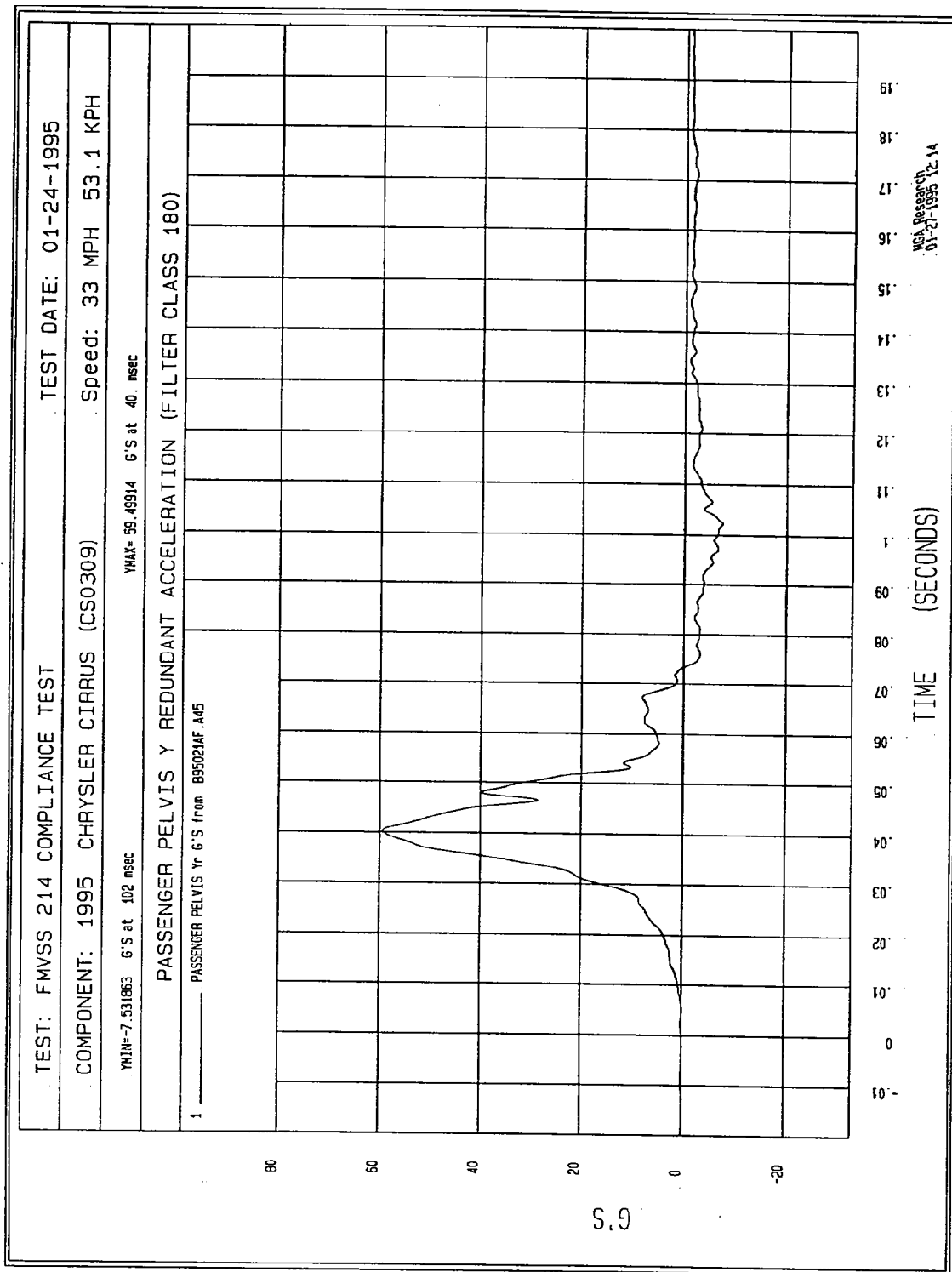


Figure B-79 - Passenger Pelvis Y Redundant Acceleration vs. Time

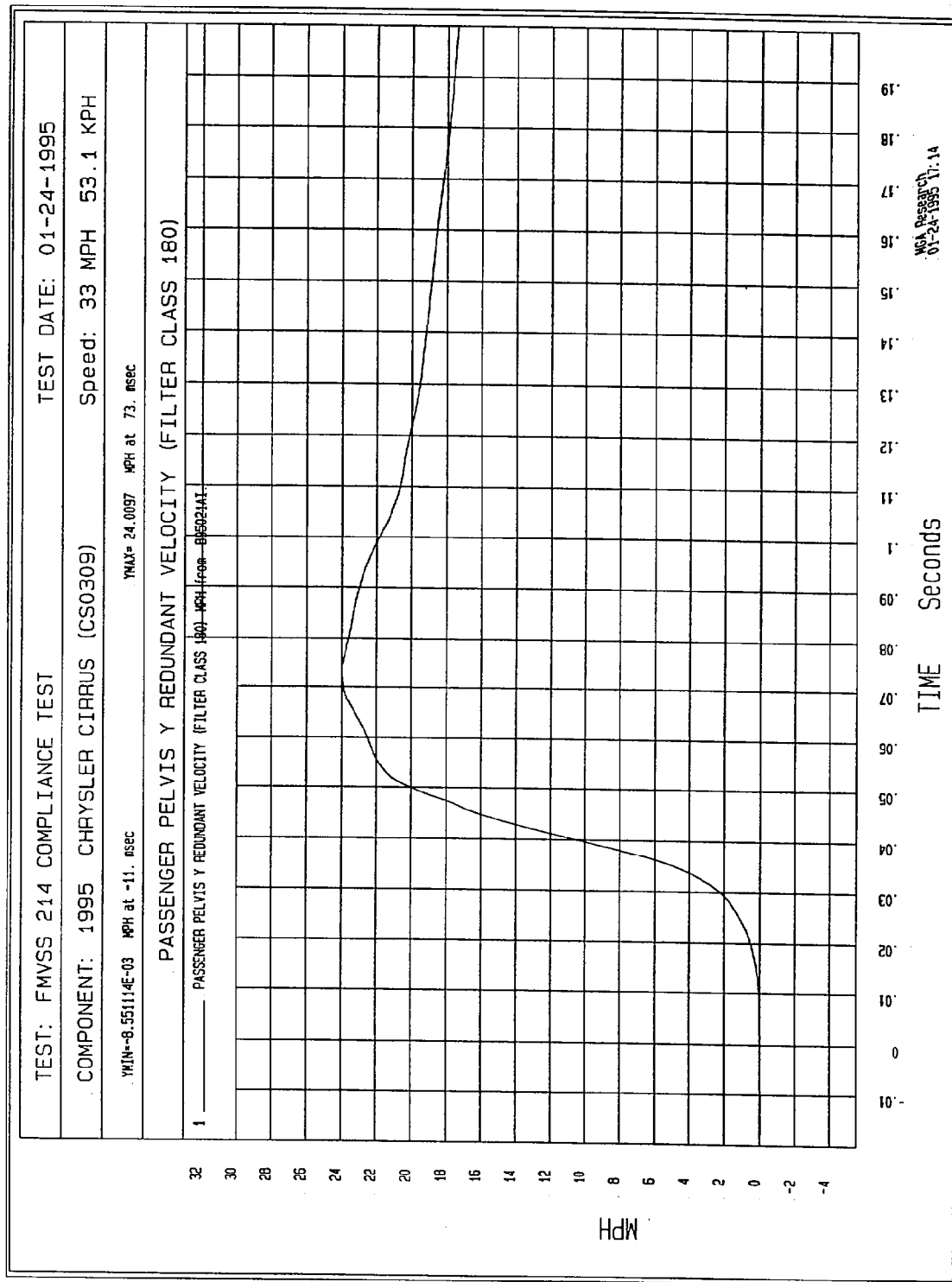


Figure B-80 - Passenger Pelvis Y Redundant Velocity vs. Time

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA

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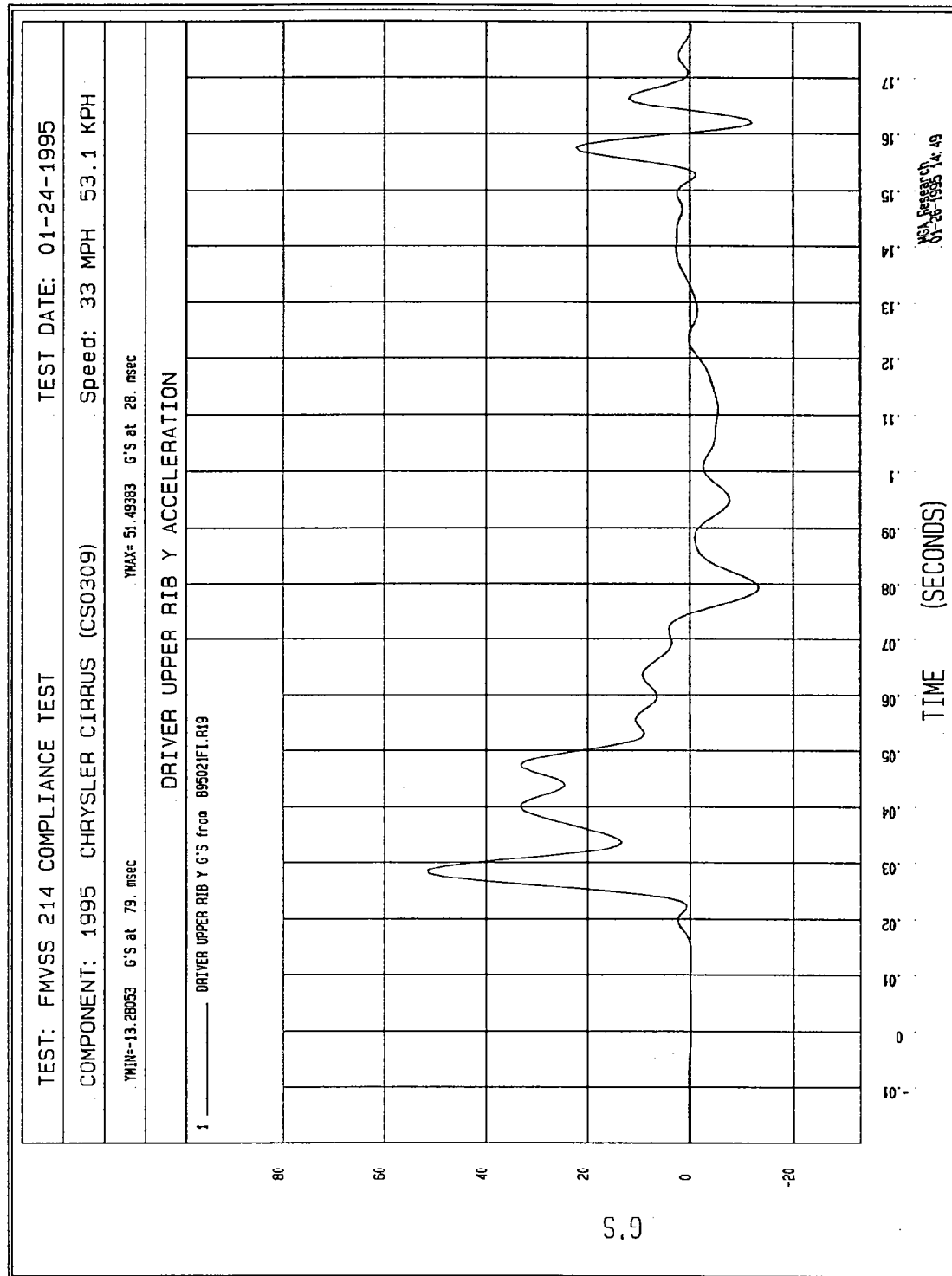


Figure B-81 - Driver Upper Rib Y Acceleration vs. Time

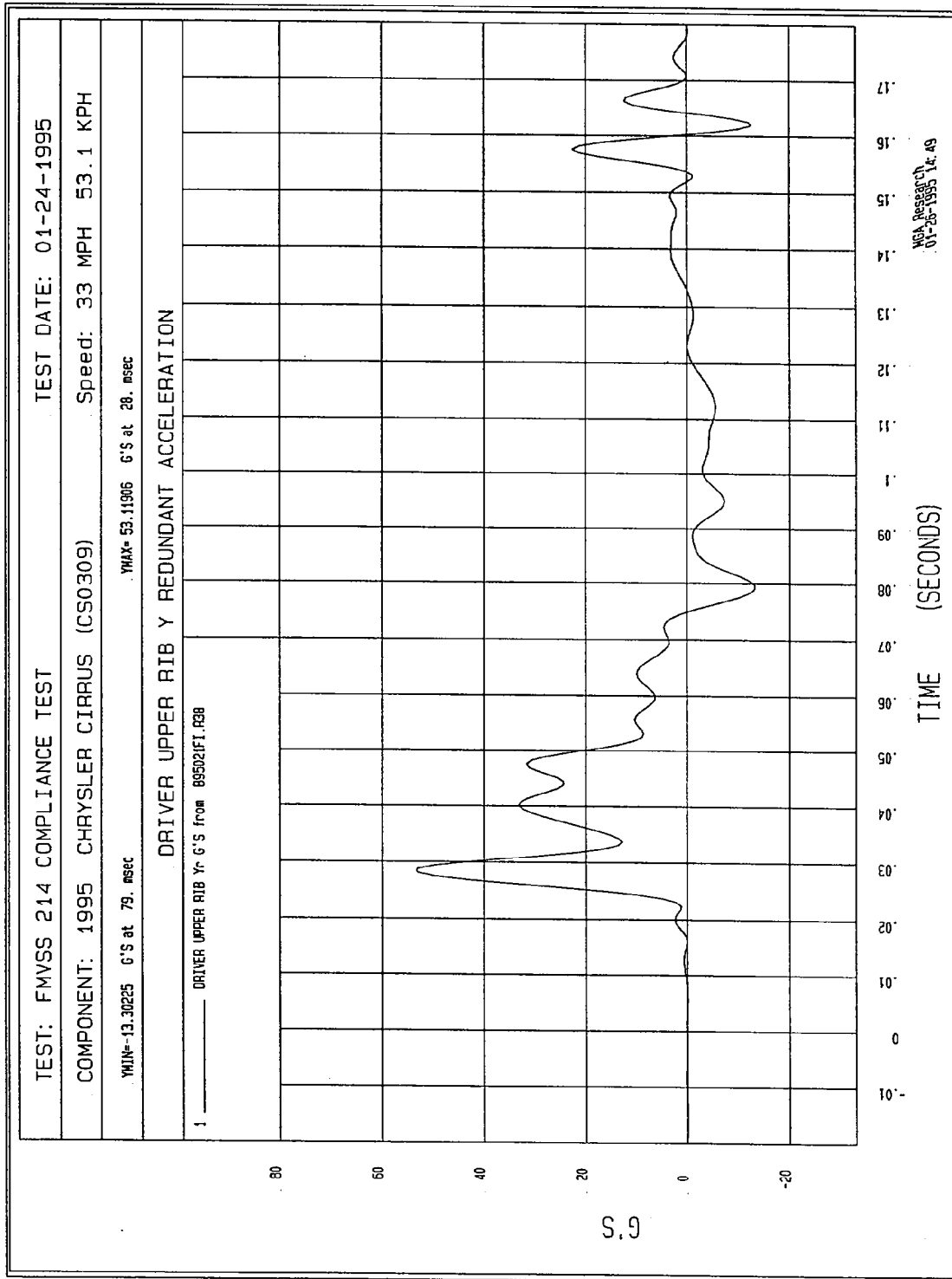


Figure B-82 - Driver Upper Rib Y Redundant Acceleration vs. Time

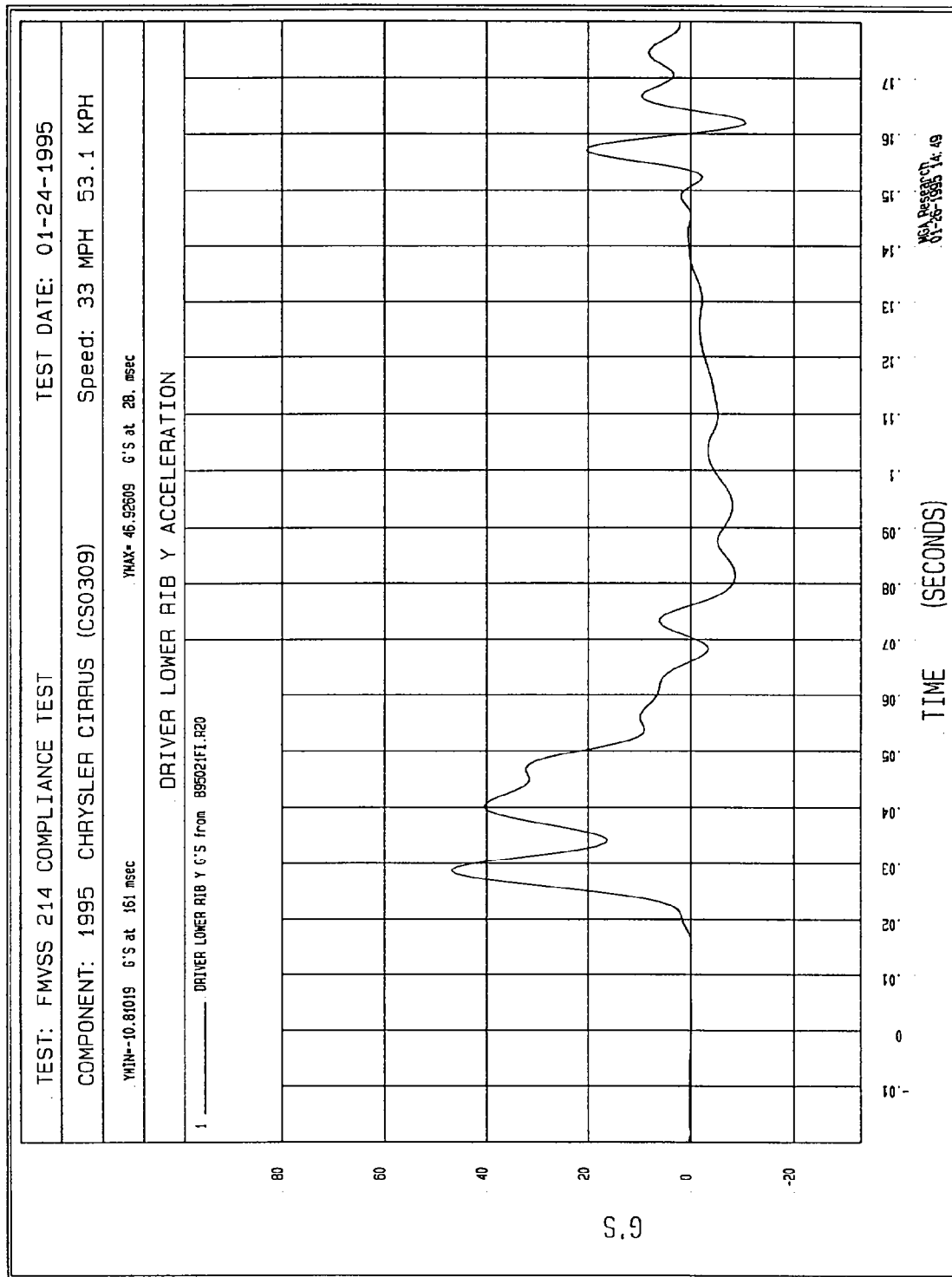


Figure B-83 - Driver Lower Rib Y Acceleration vs. Time

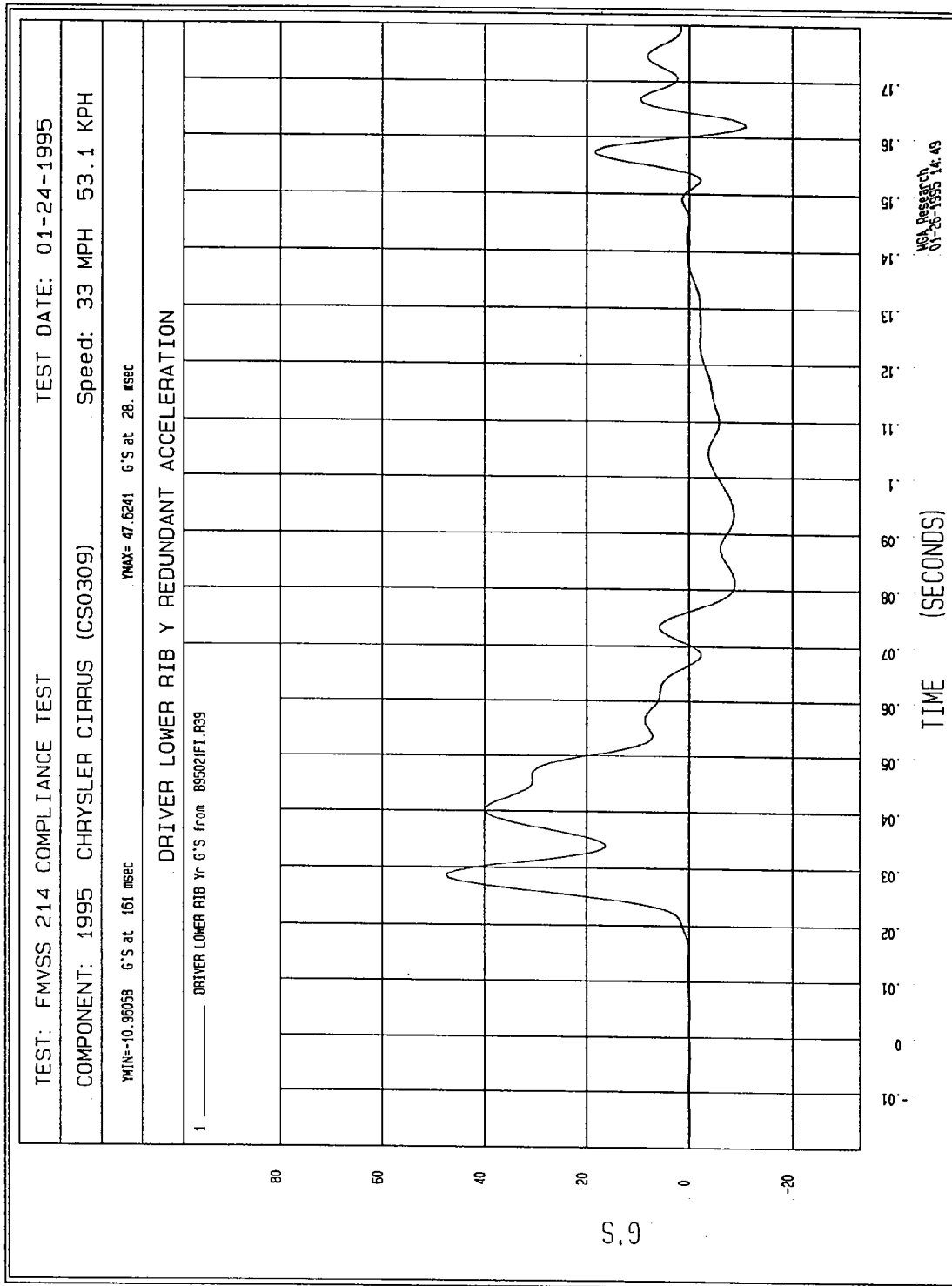


Figure B-84 - Driver Lower Rib Y Redundant Acceleration vs. Time

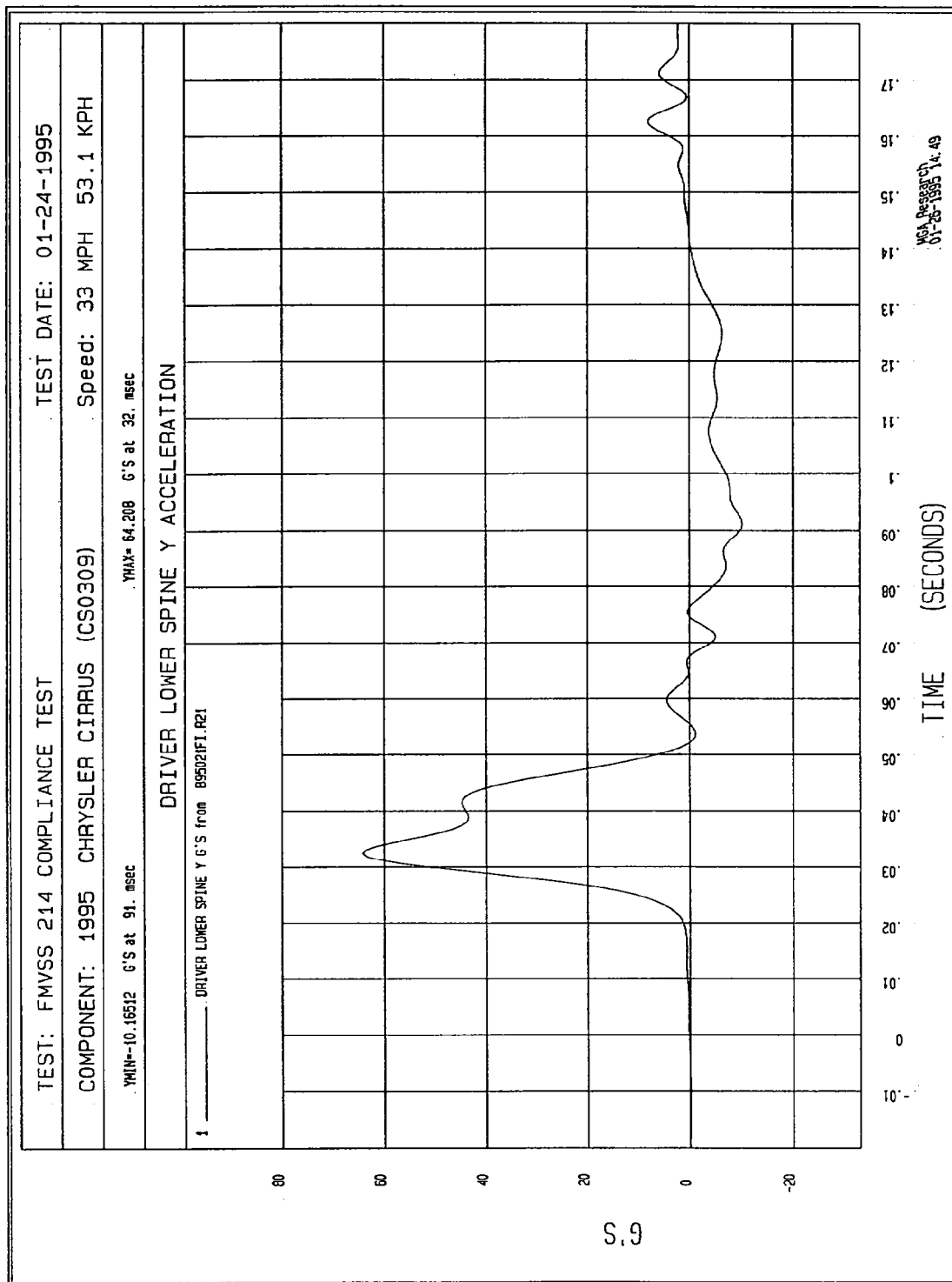


Figure B-85 - Driver Lower Spine Y Acceleration vs. Time

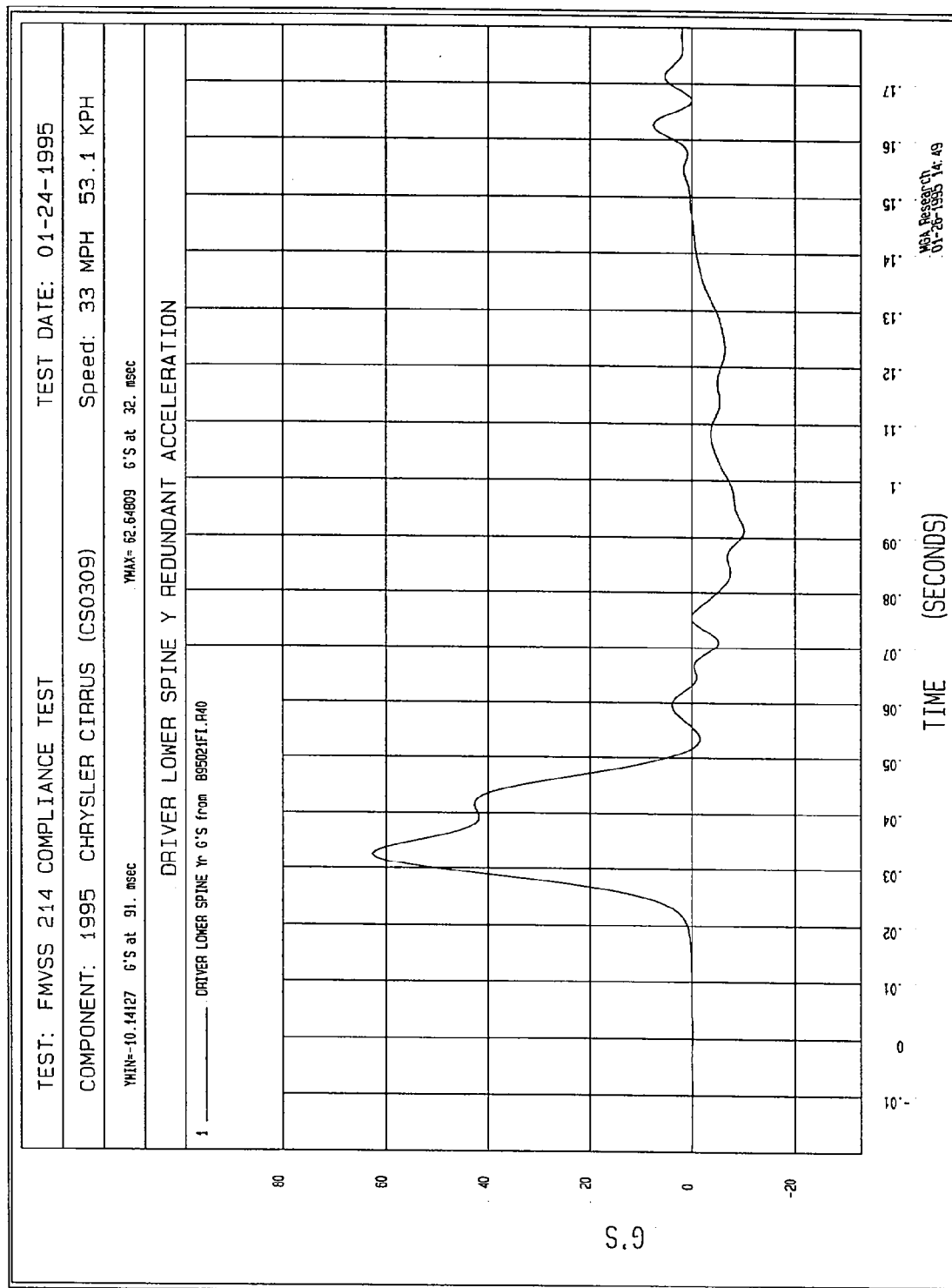


Figure B-86 - Driver Lower Spine Y Redundant Acceleration vs. Time

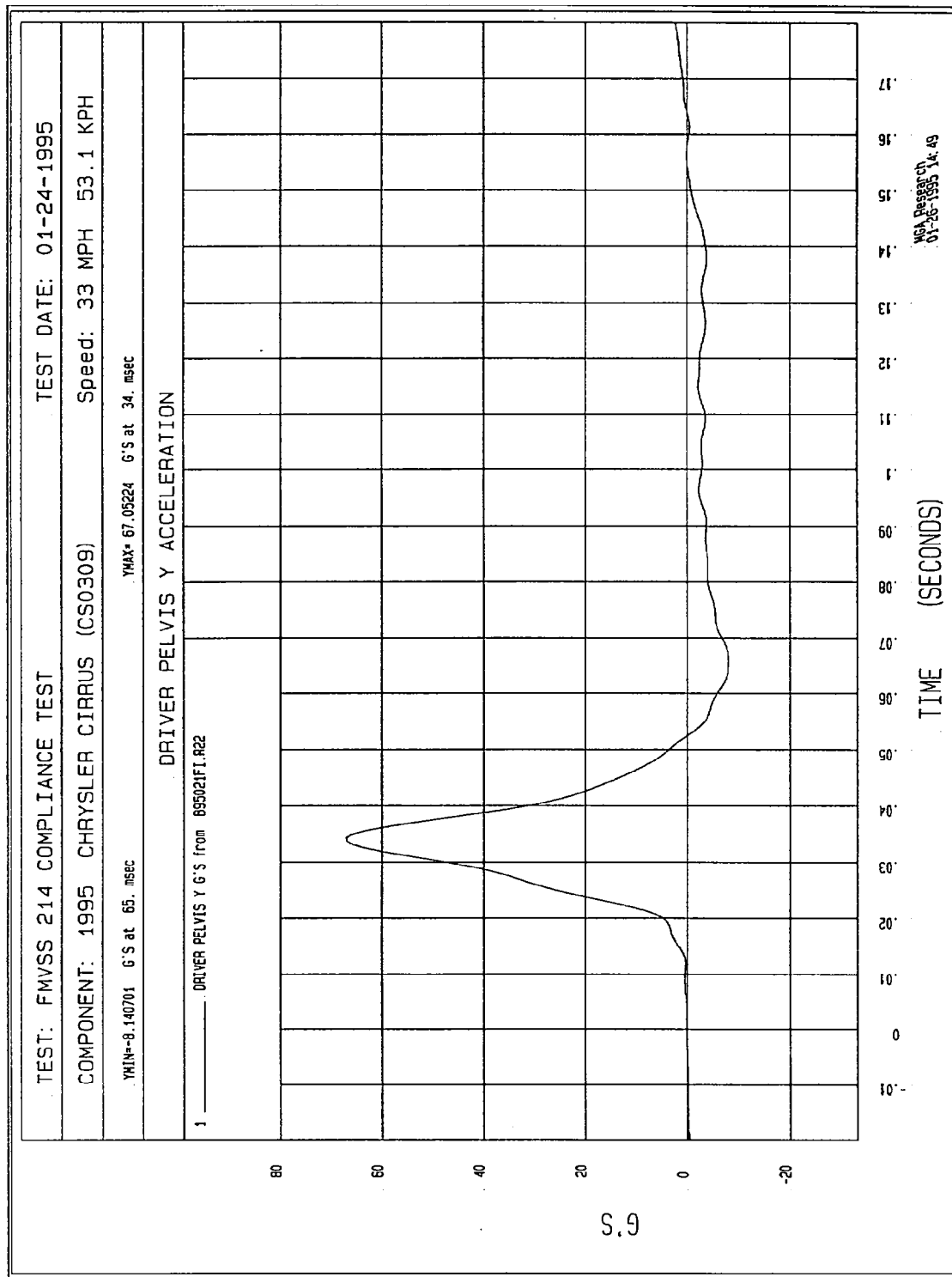


Figure B-87 - Driver Pelvis Y Acceleration vs. Time

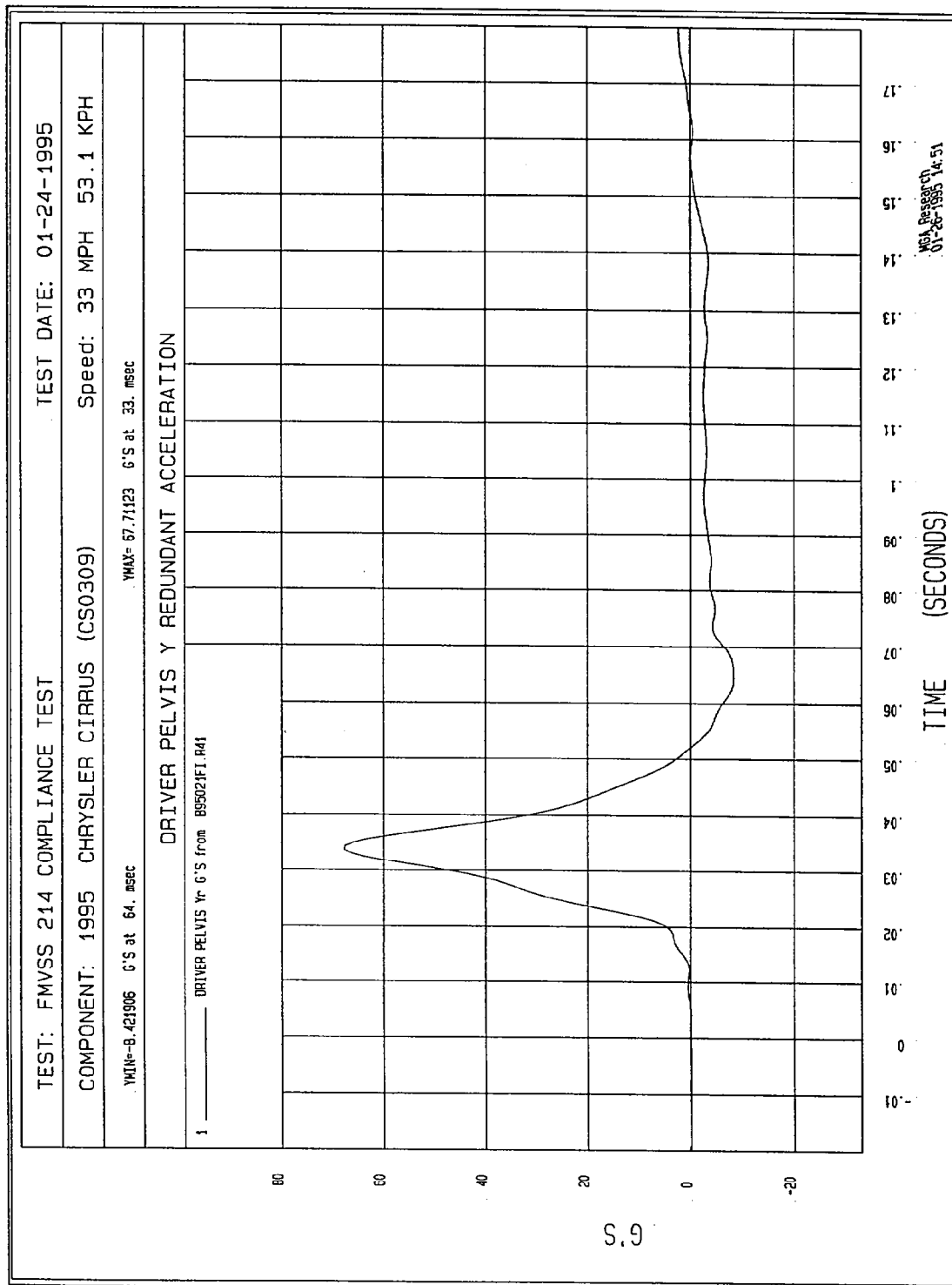


Figure B-88 - Driver Pelvis Y Redundant Acceleration vs. Time

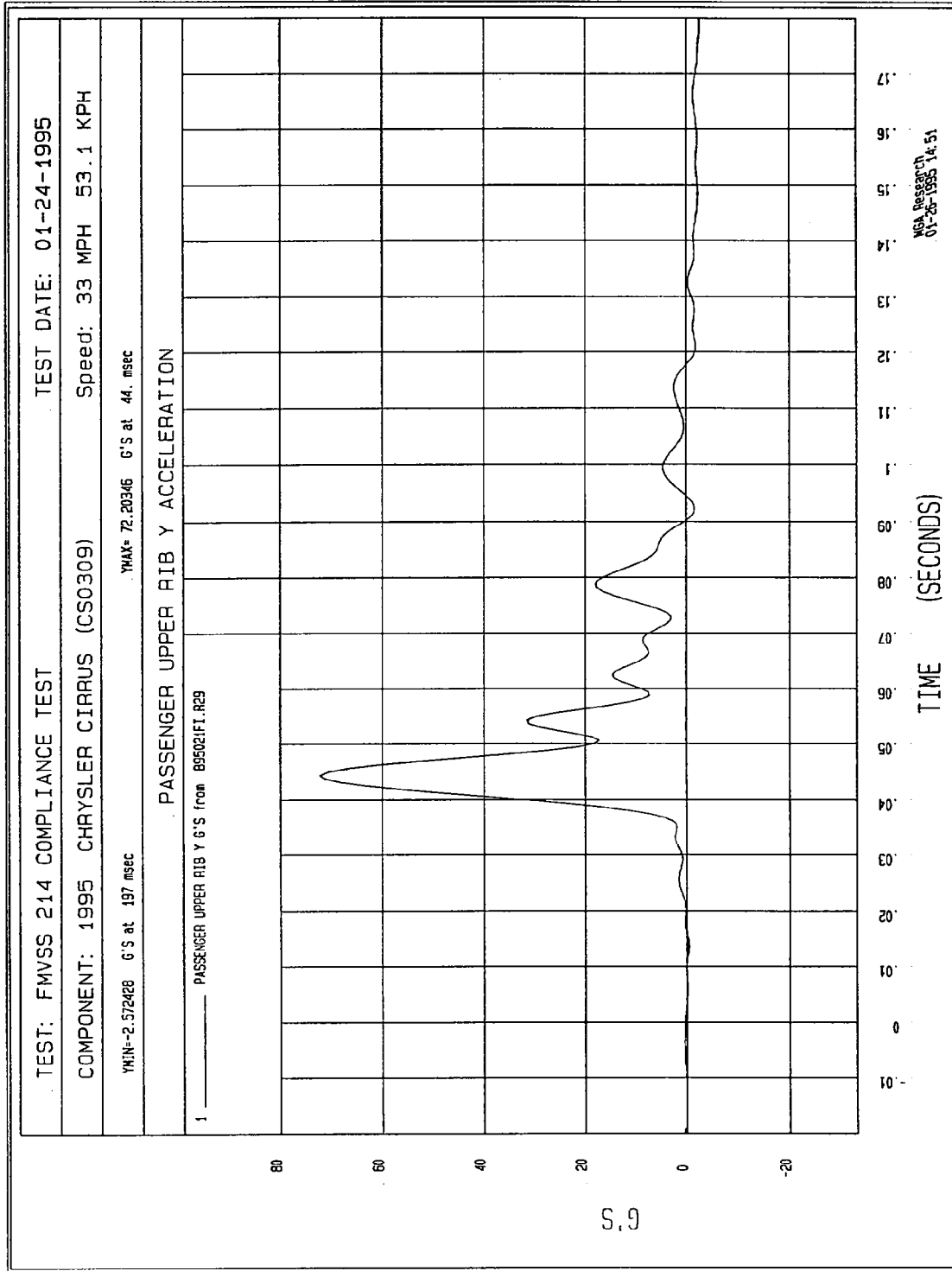


Figure B-89 - Passenger Upper Rib Y Acceleration vs. Time

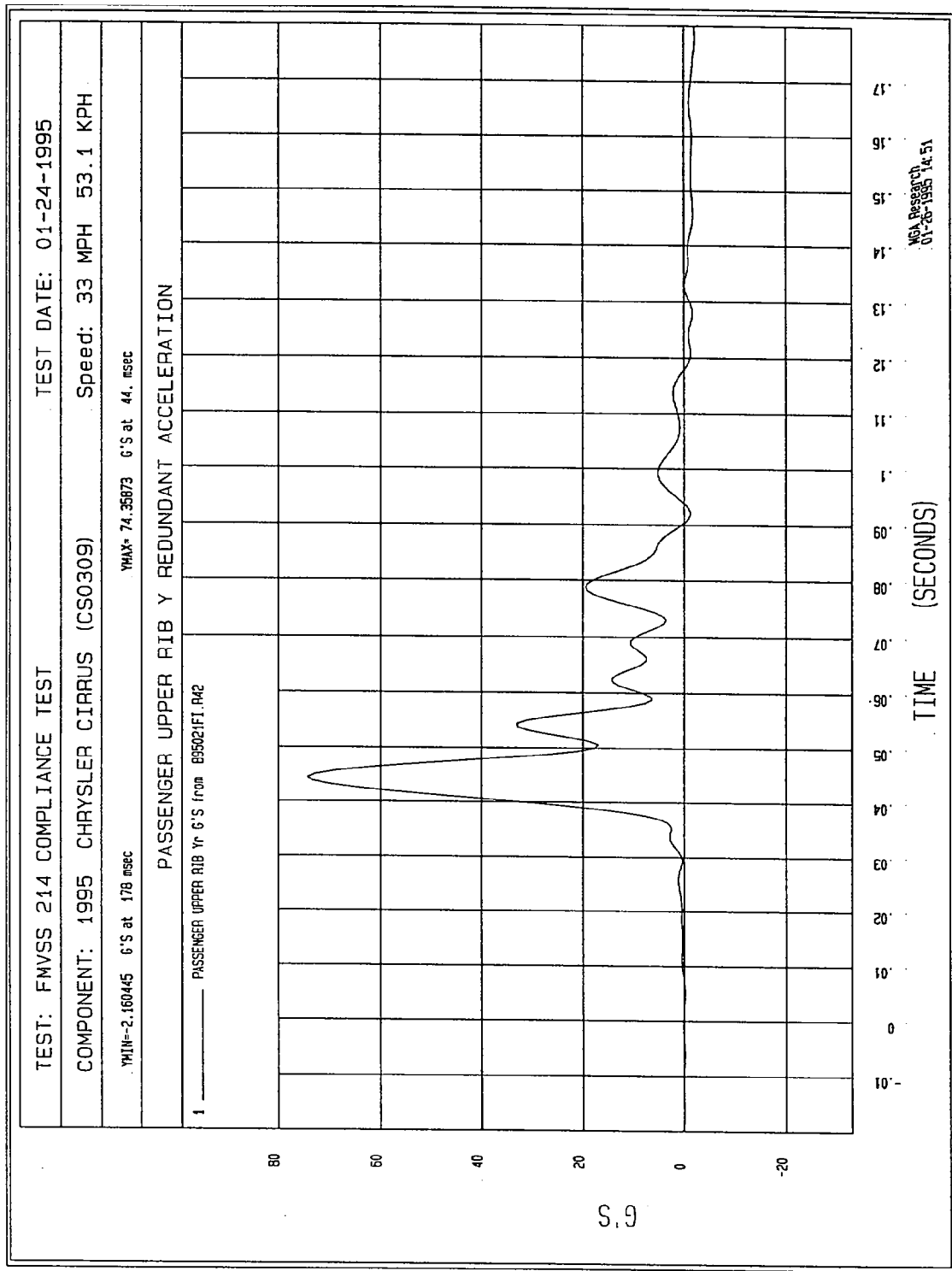


Figure B-90 - Passenger Upper Rib Y Redundant Acceleration vs. Time

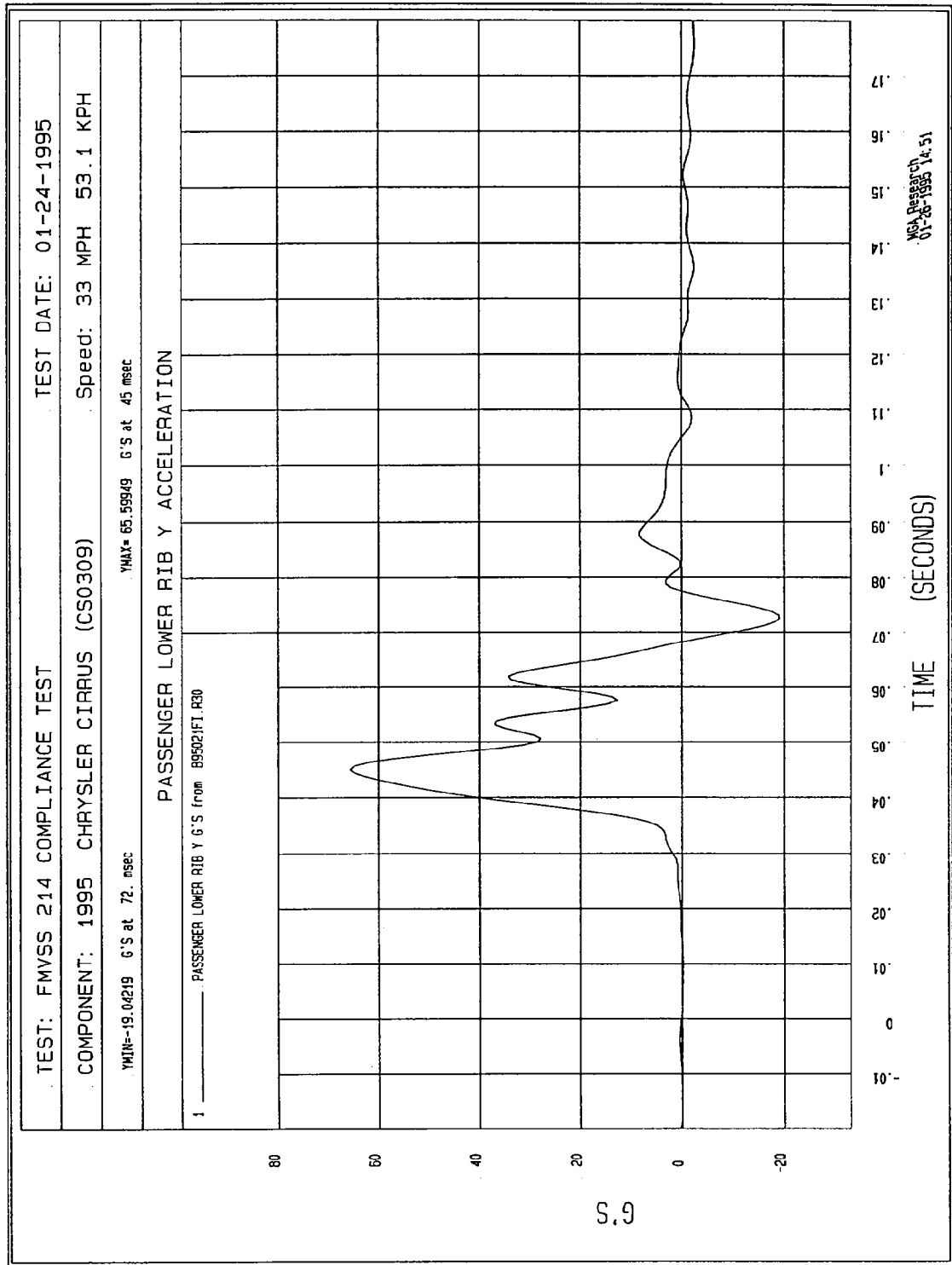


Figure B-91 - Passenger Lower Rib Y Acceleration vs. Time

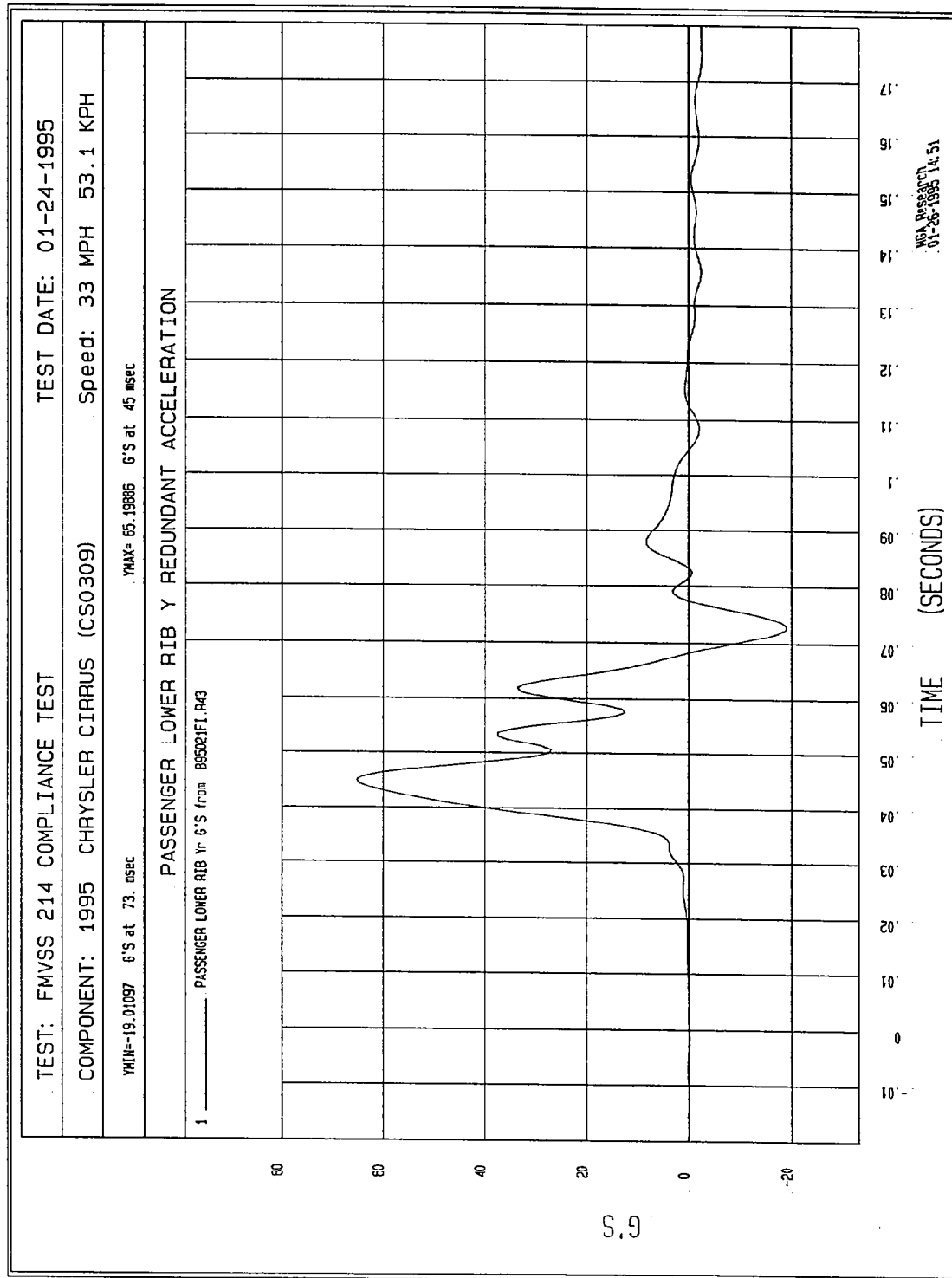


Figure B-92 - Passenger Lower Rib Y Redundant Acceleration vs. Time

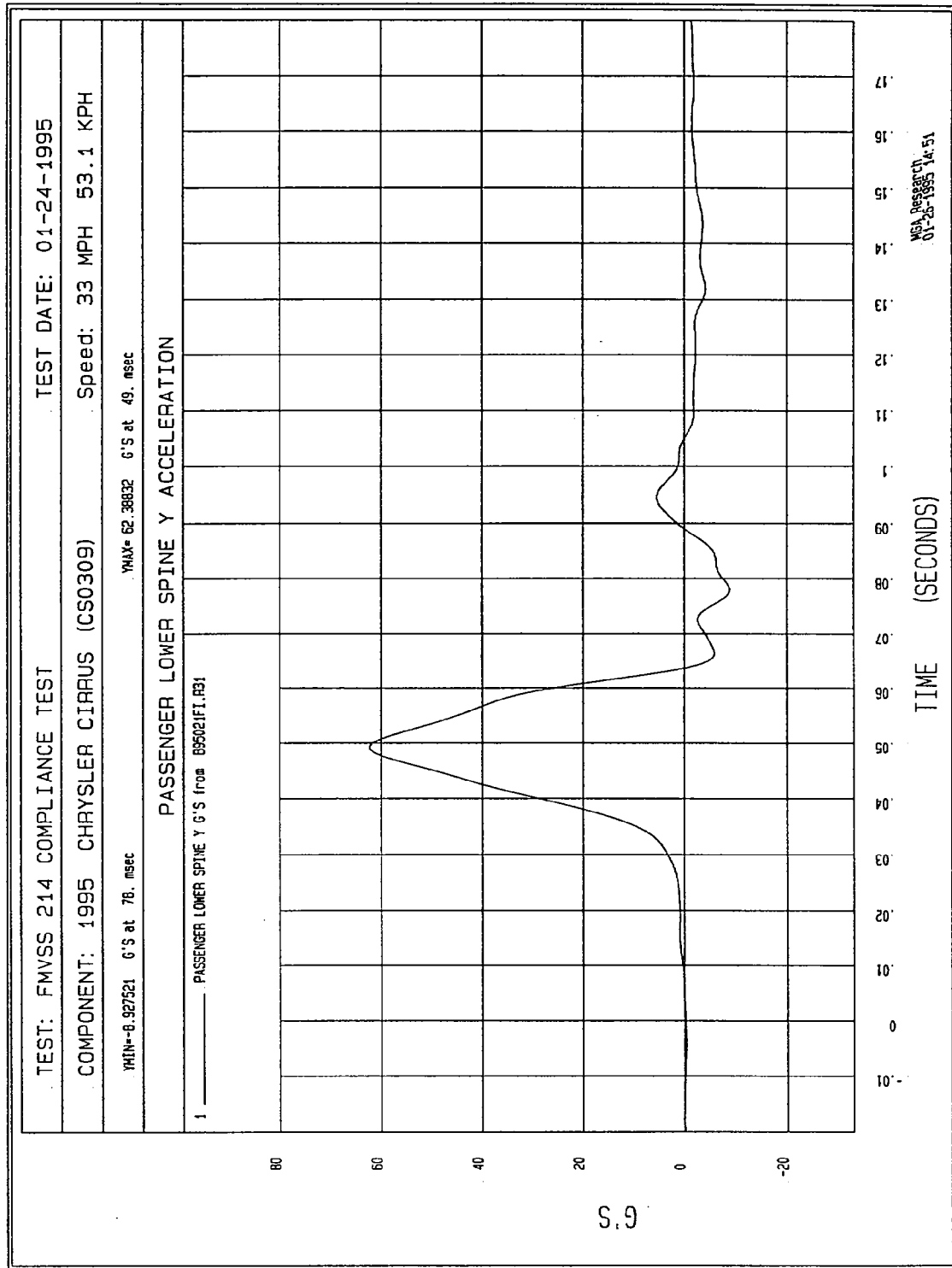


Figure B-93 - Passenger Lower Spine Y Acceleration vs. Time

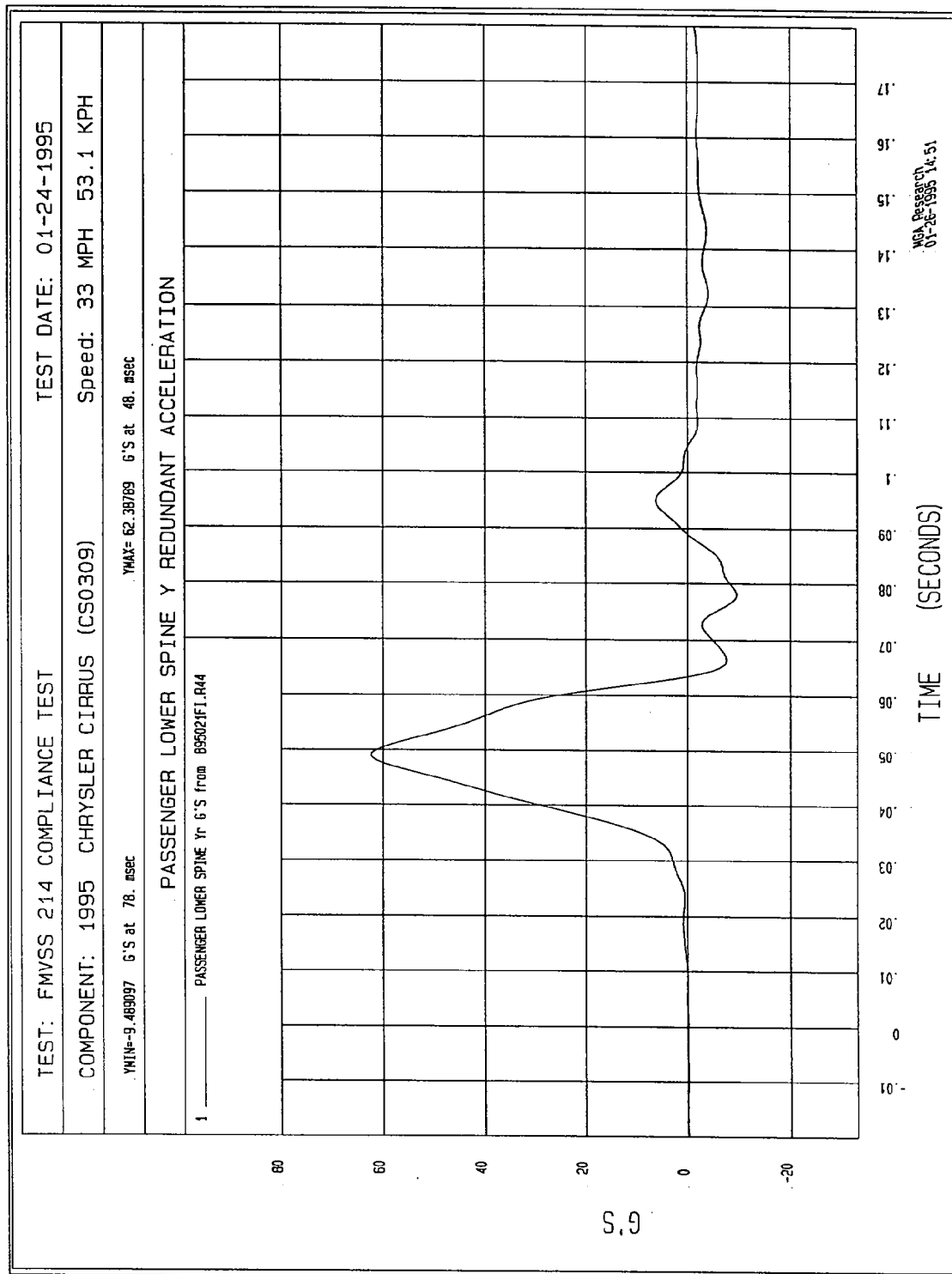
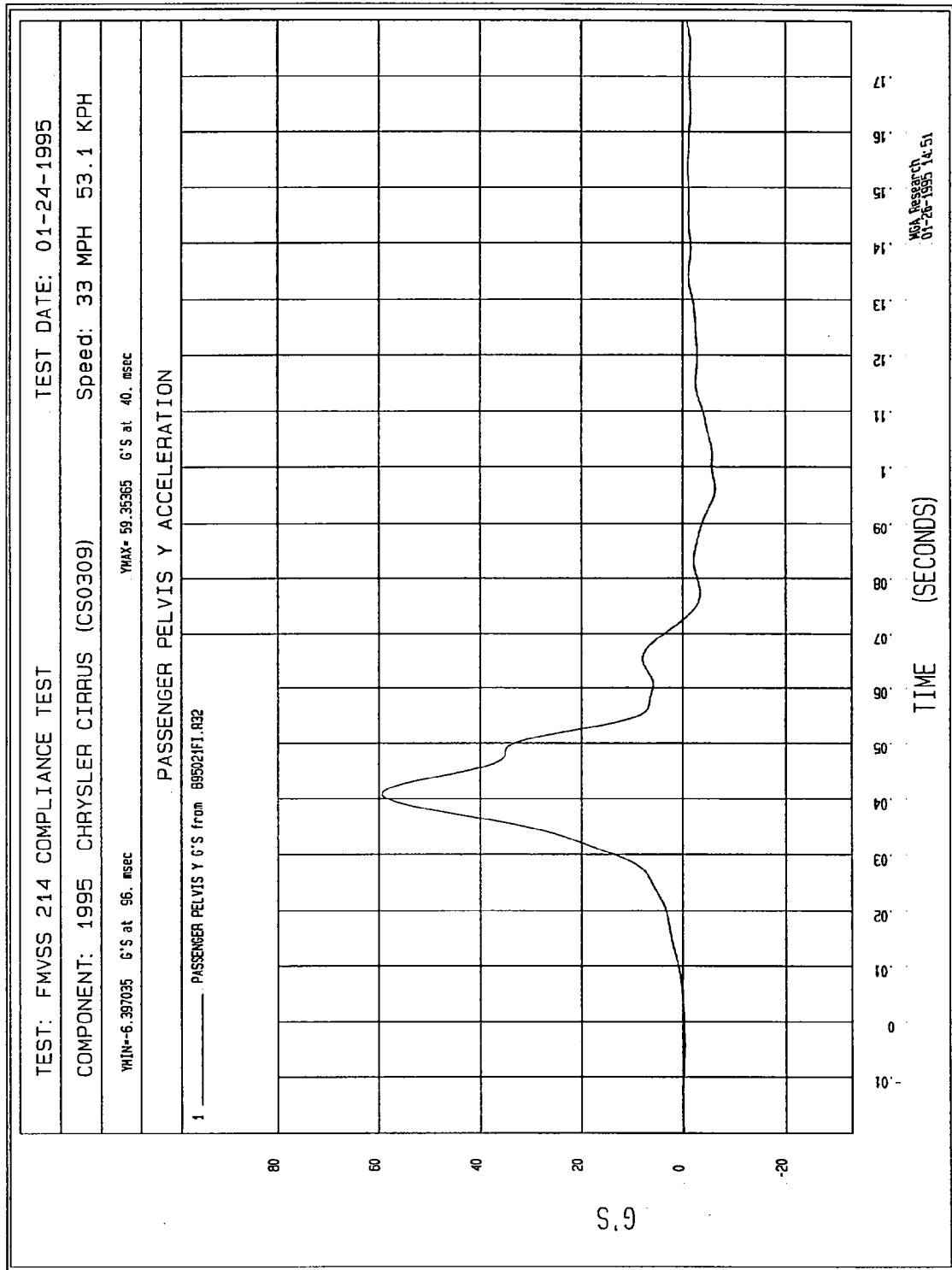


Figure B-94 - Passenger Lower Spine Y Redundant Acceleration vs. Time



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Figure B-95 - Passenger Pelvis Y Acceleration vs. Time

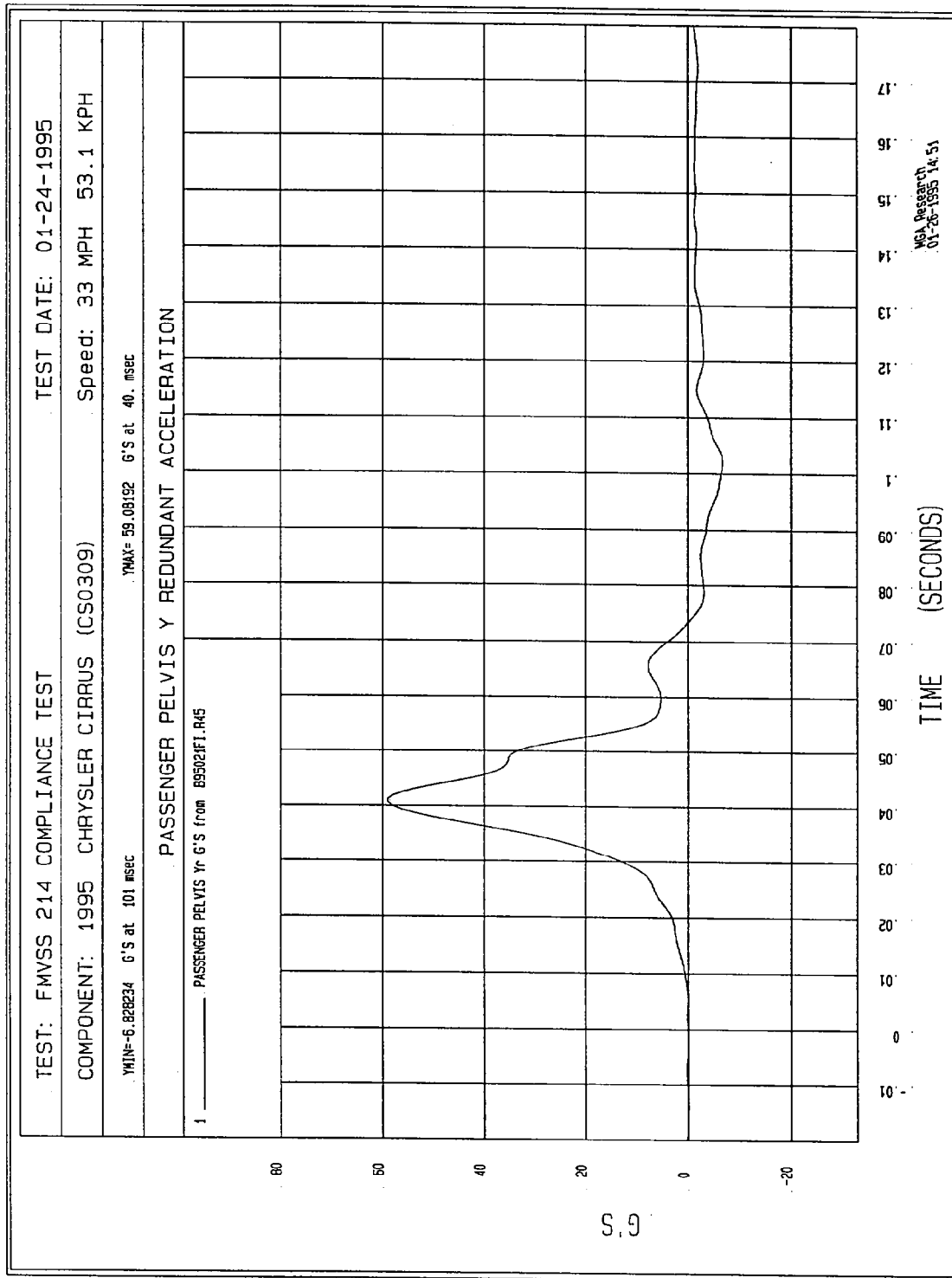


Figure B-96 - Passenger Pelvis Y Redundant Acceleration vs. Time

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-95-DC015

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

CHRYSLER CORPORATION
1995 CHRYSLER CIRRUS 4 DOOR SEDAN
NHTSA NO. CS0309

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: January 24, 1995

Report Date: February 7, 1995

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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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

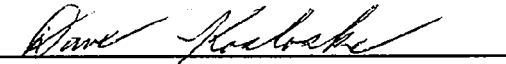
DATE OF VERIFICATION: January 20, 1995

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
RH - Rib Height	19.75" - 20.50"	20.10
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"	20.6
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.1

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 19, 1995

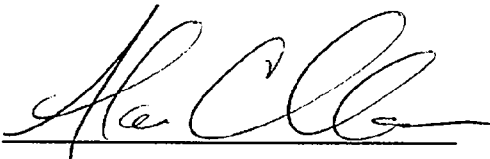
DUMMY NUMBER: 269

TEST NUMBER: D95092

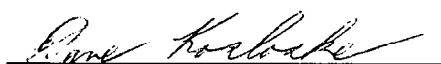
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	38
LOWER RIB	37 - 46 g's	37
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

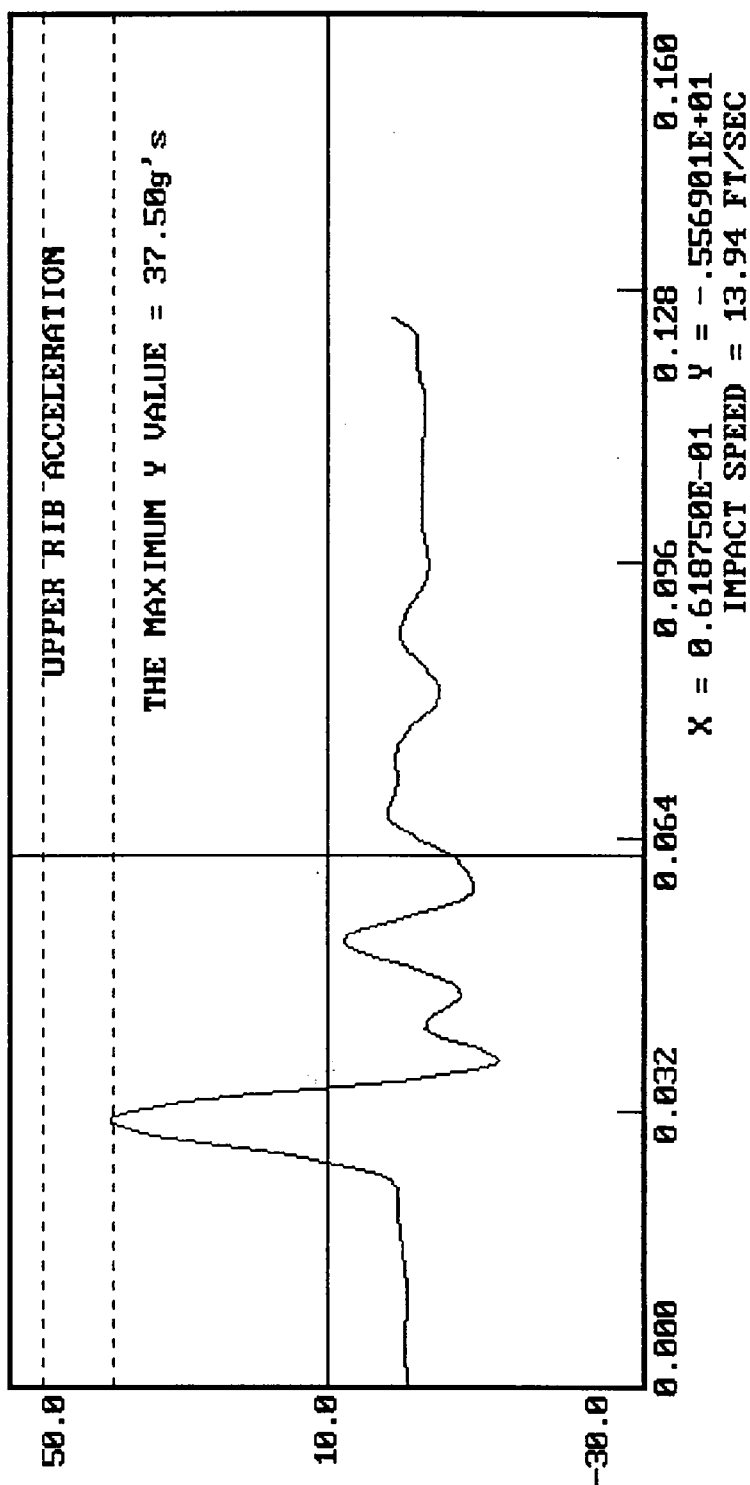


01-19-1995 10:30

DUMMY CALIBRATION - THORAX IMPACT

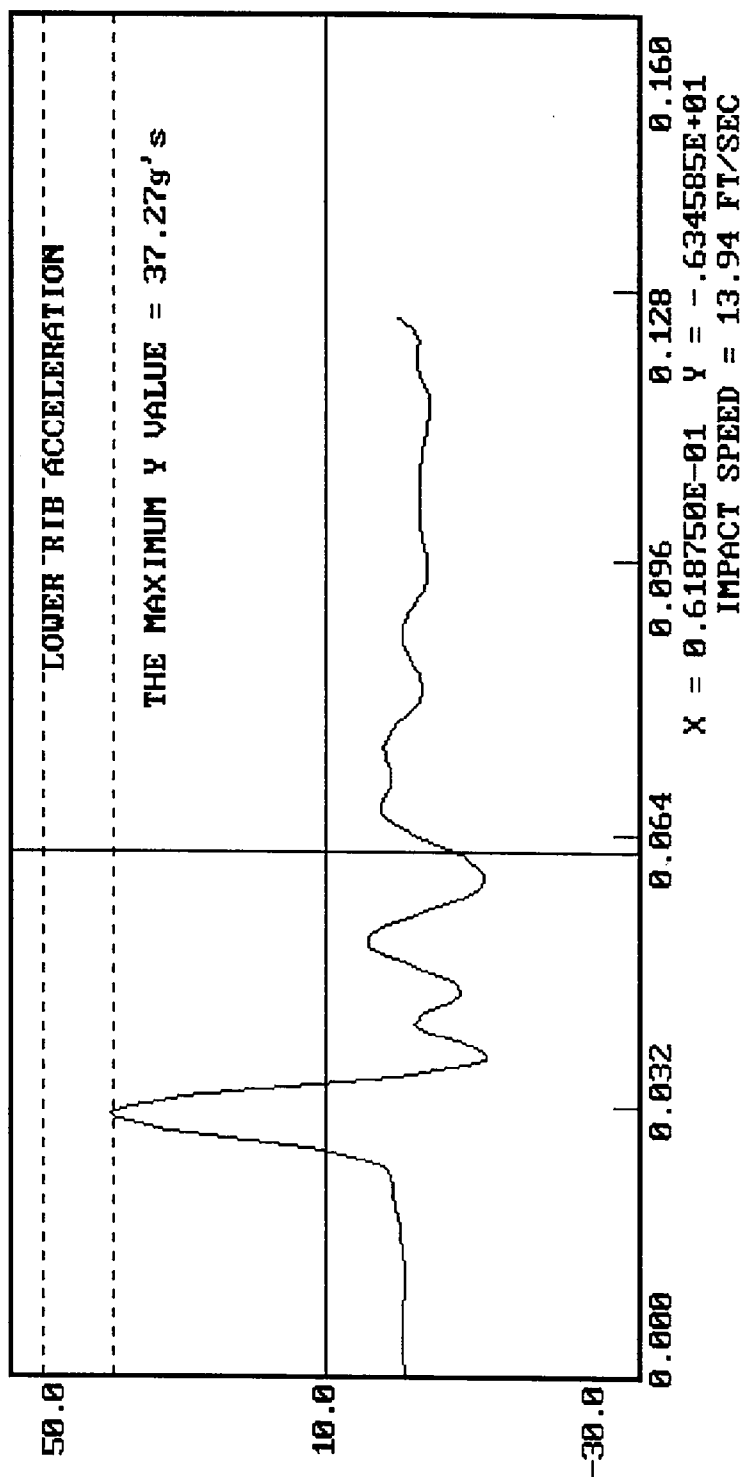
DUMMY # 269

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



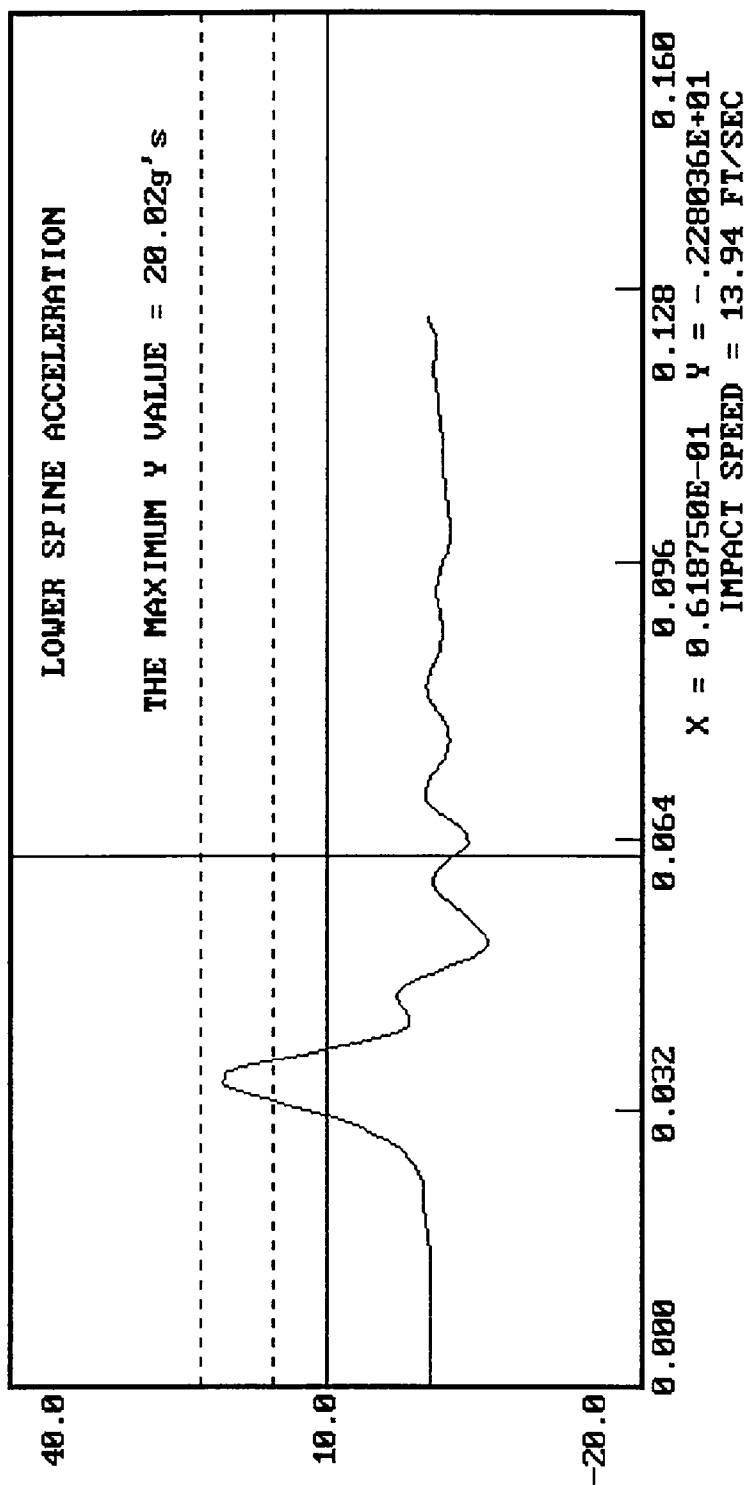
01-19-1995 10:30

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



01-19-1995 10:30

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 19, 1995

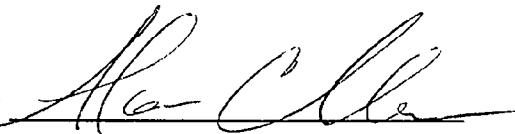
DUMMY NUMBER: 269

TEST NUMBER: D95093

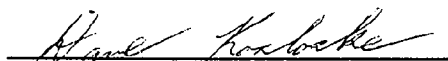
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	58

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

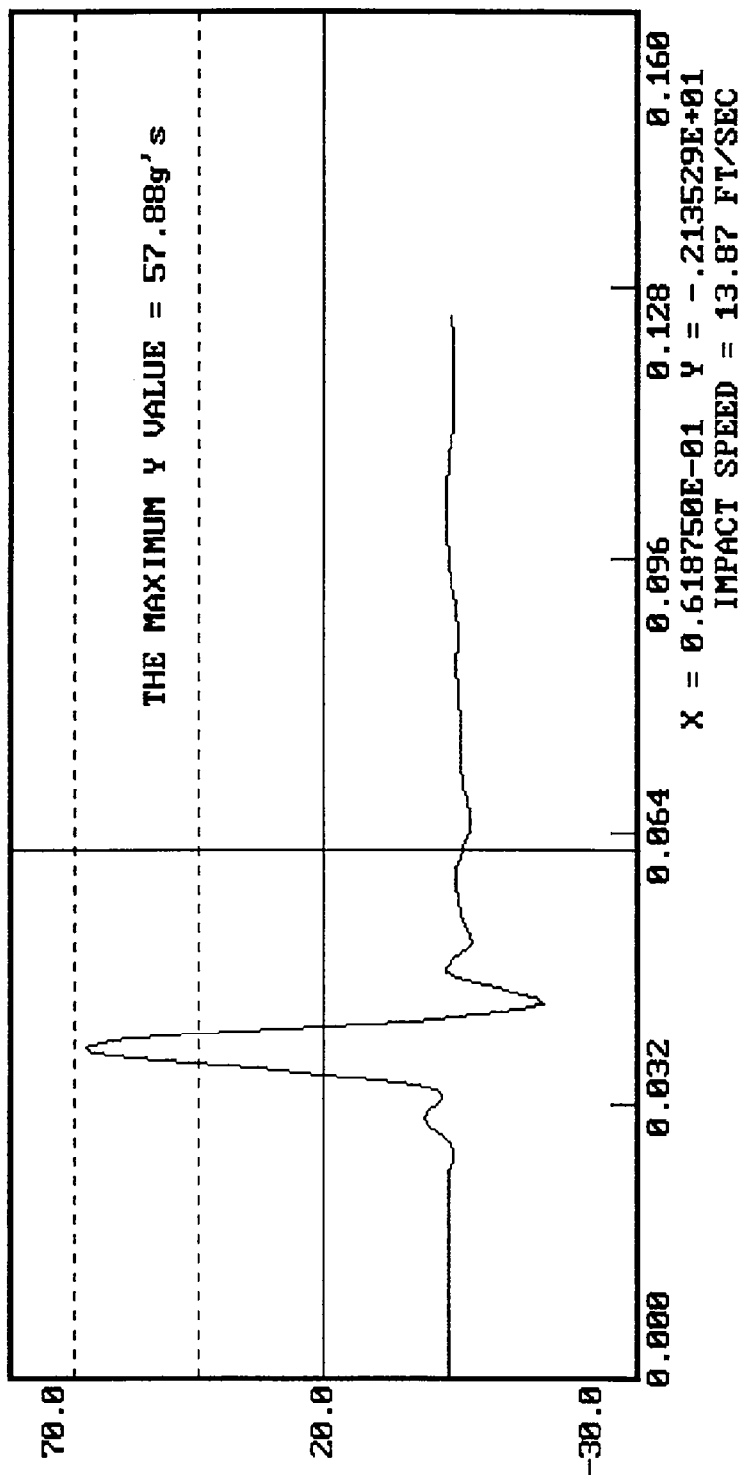


01-19-1995 12:12

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # 269

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



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

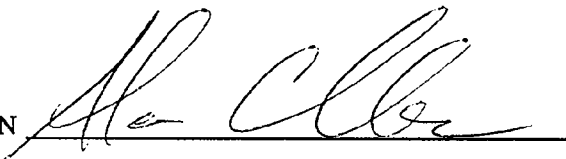
DATE: January 20, 1995

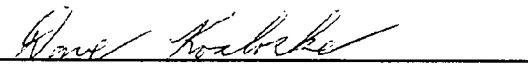
DUMMY NUMBER: 269

TEST NUMBER: D95094

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	24%
FORCE @ 0.5 in	23.3 - 36.5 lbs	32.3
FORCE @ 0.75 in	36.7 - 49.8 lbs	43.6
FORCE @ 1.0 in	50 - 63 lbs	58
FORCE @ 1.3 in	73 - 88 lbs	82

TEST MEETS SPECIFICATIONS

TECHNICIAN 

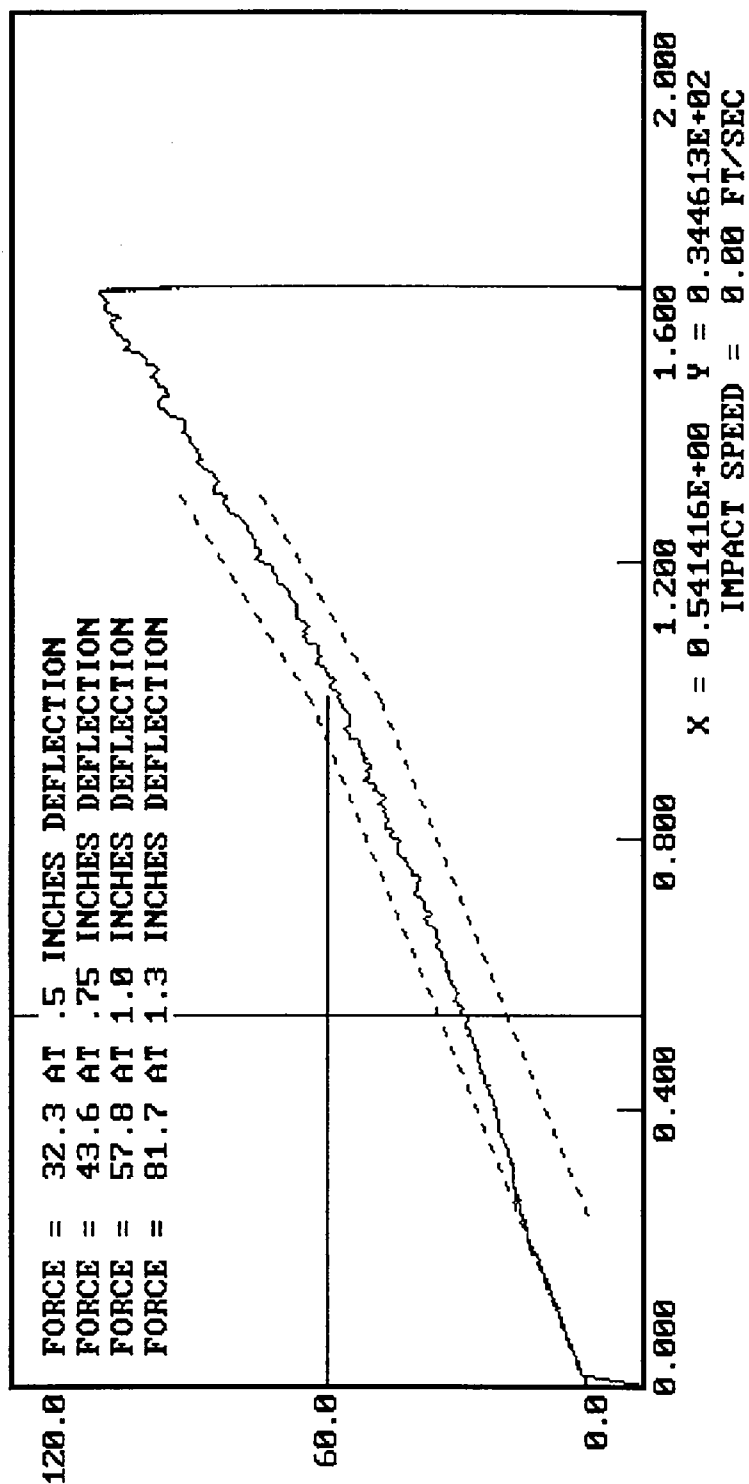
APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 269

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)

FORCE = 32.3 AT .5 INCHES DEFLECTION
FORCE = 43.6 AT .75 INCHES DEFLECTION
FORCE = 57.8 AT 1.0 INCHES DEFLECTION
FORCE = 81.7 AT 1.3 INCHES DEFLECTION



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

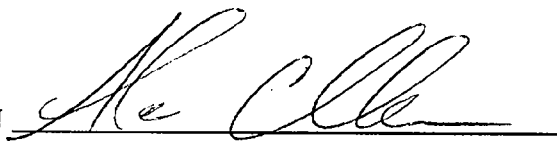
DATE: January 20, 1995

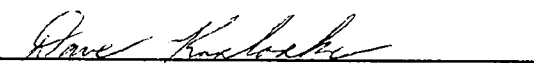
DUMMY NUMBER: 269

TEST NUMBER: D95095

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	26
FORCE @ 30°	34 - 46 lbs	34
FORCE @ 40°	46 - 58 lbs	50
RETURN ANGLE	12° maximum	6°

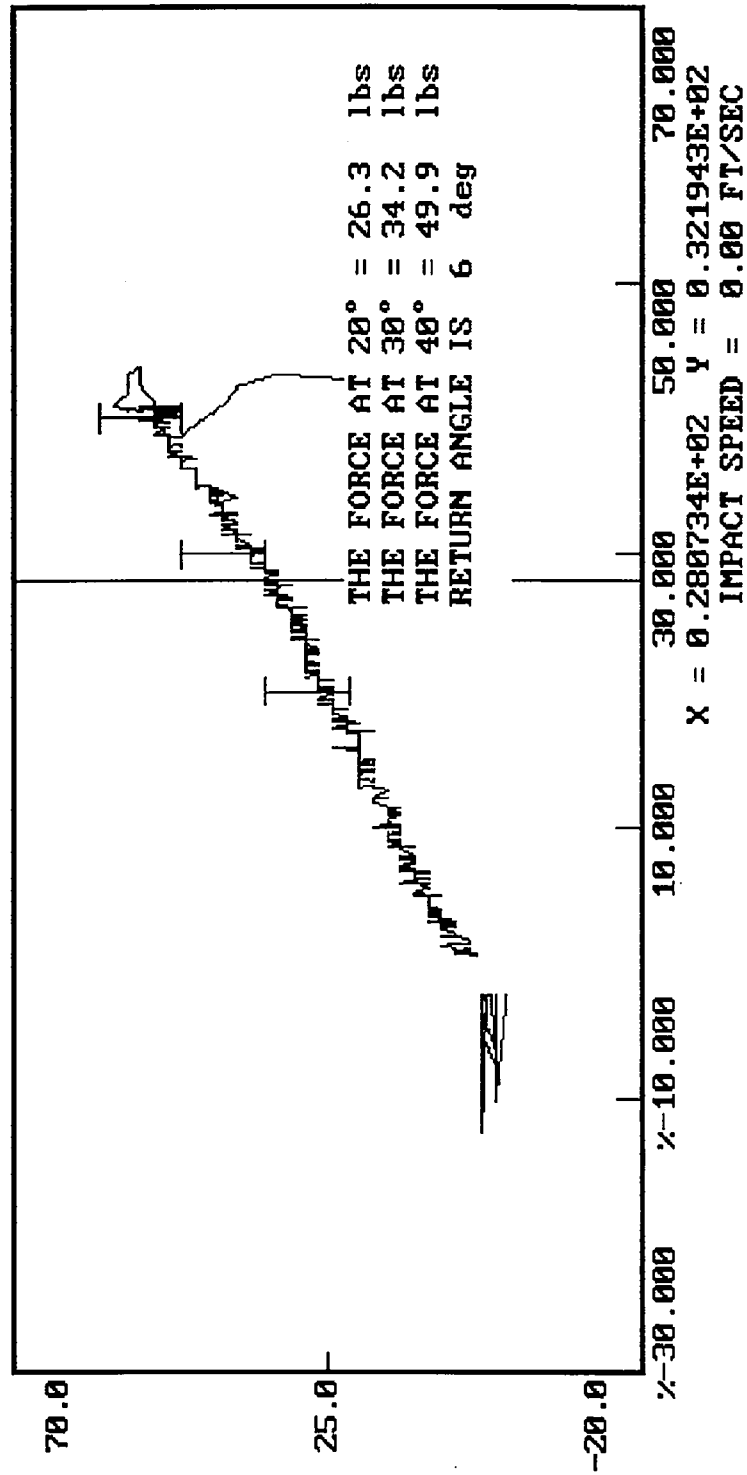
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

01-20-1995 11:06



PRE-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 272

Calibration Test Results Summary

Passenger Serial Number: 272

Pre-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 272

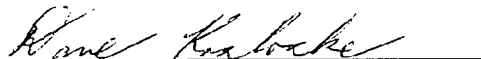
DATE OF VERIFICATION: January 20, 1995

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
RH - Rib Height	19.75" - 20.50"	20.10
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.5
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.1

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 19, 1995

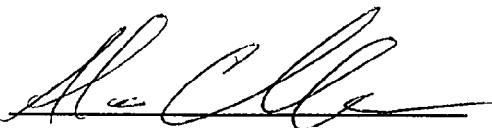
DUMMY NUMBER: 272

TEST NUMBER: D95102

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	43
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

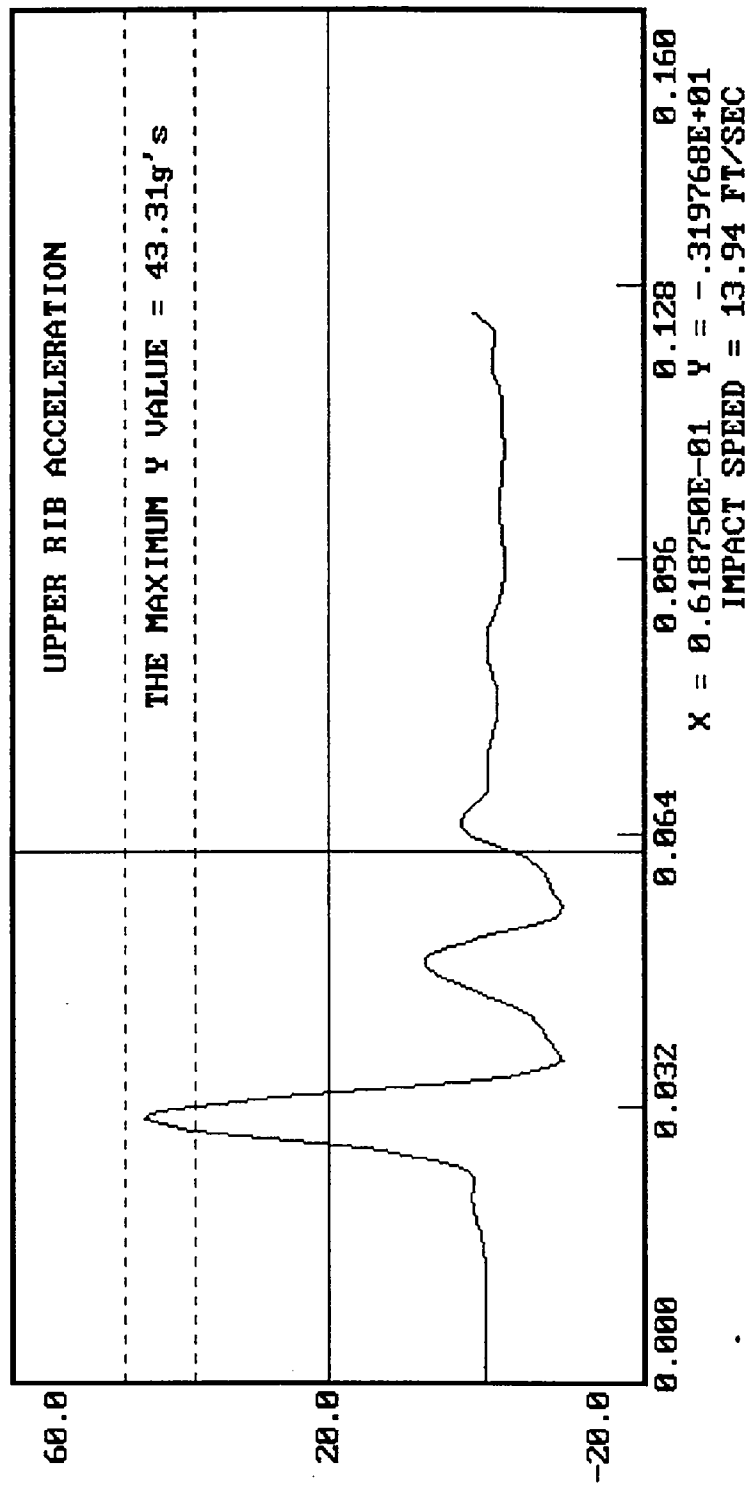


DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 272

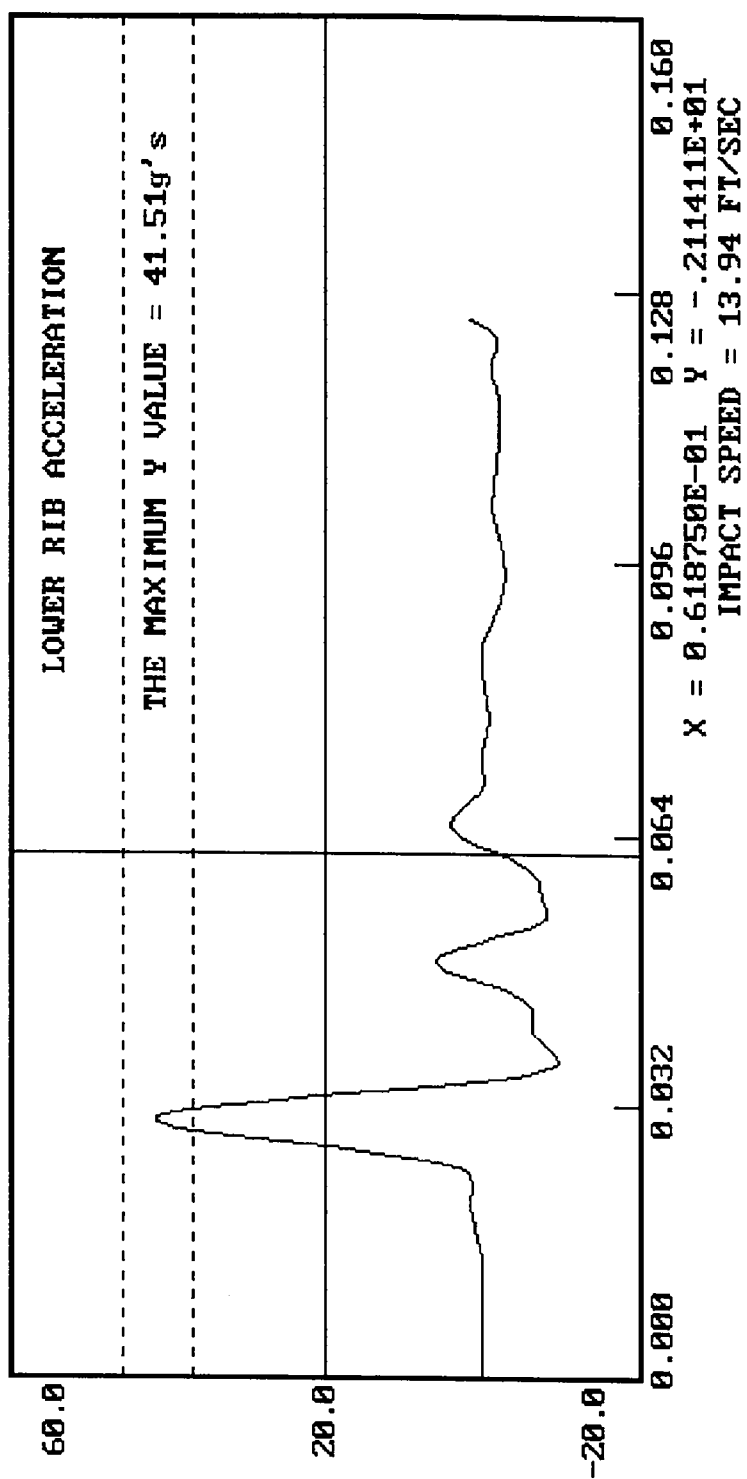
ACCELERATION (G'S) VS. TIME ((SECONDS))

01-19-1995 10:45

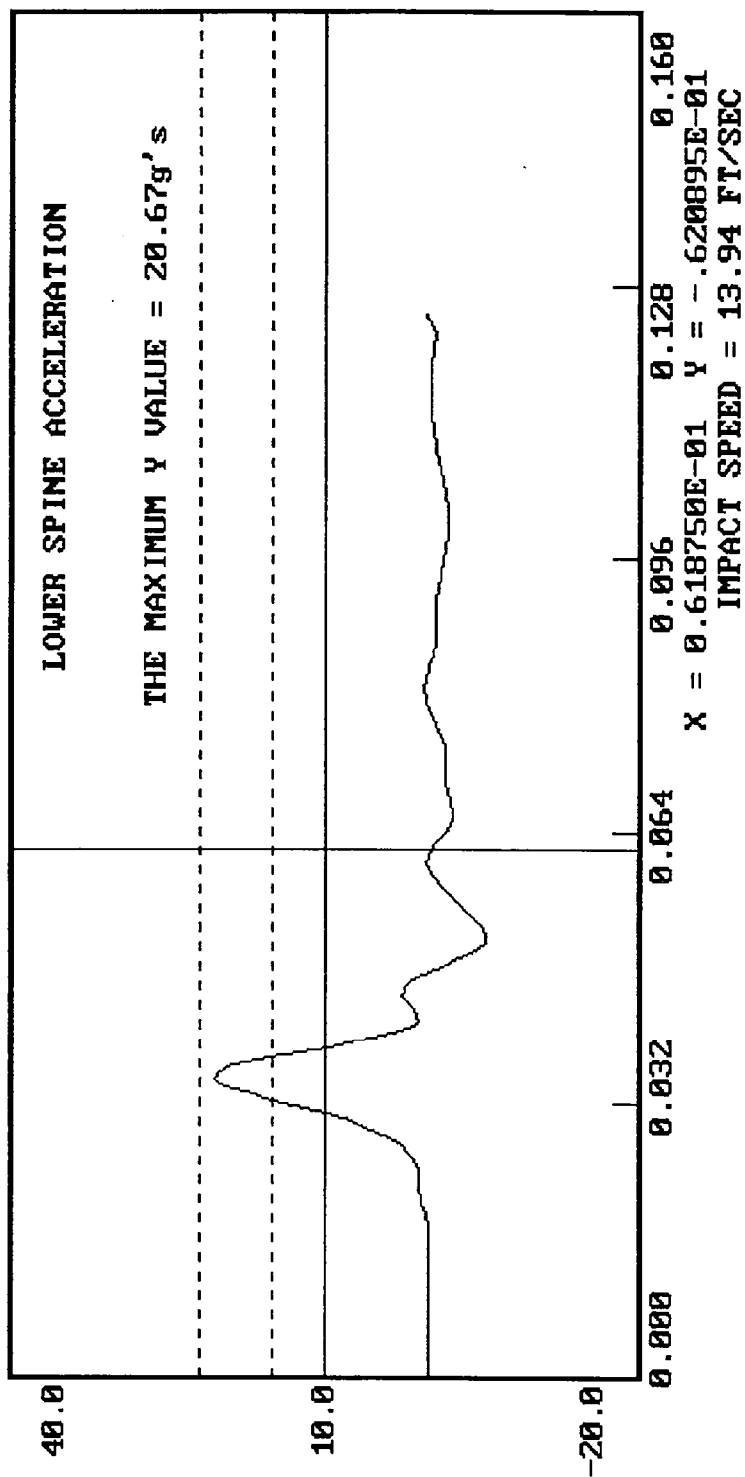


01-19-1995 10:45

DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 272
 01-19-1995 10:45
 ACCELERATION (G'S) VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 19, 1995

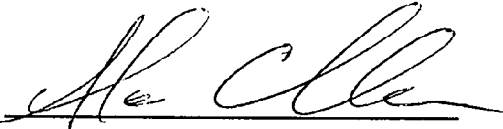
DUMMY NUMBER: 272

TEST NUMBER: D95103

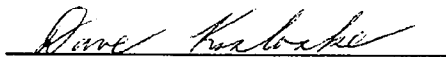
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	56

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

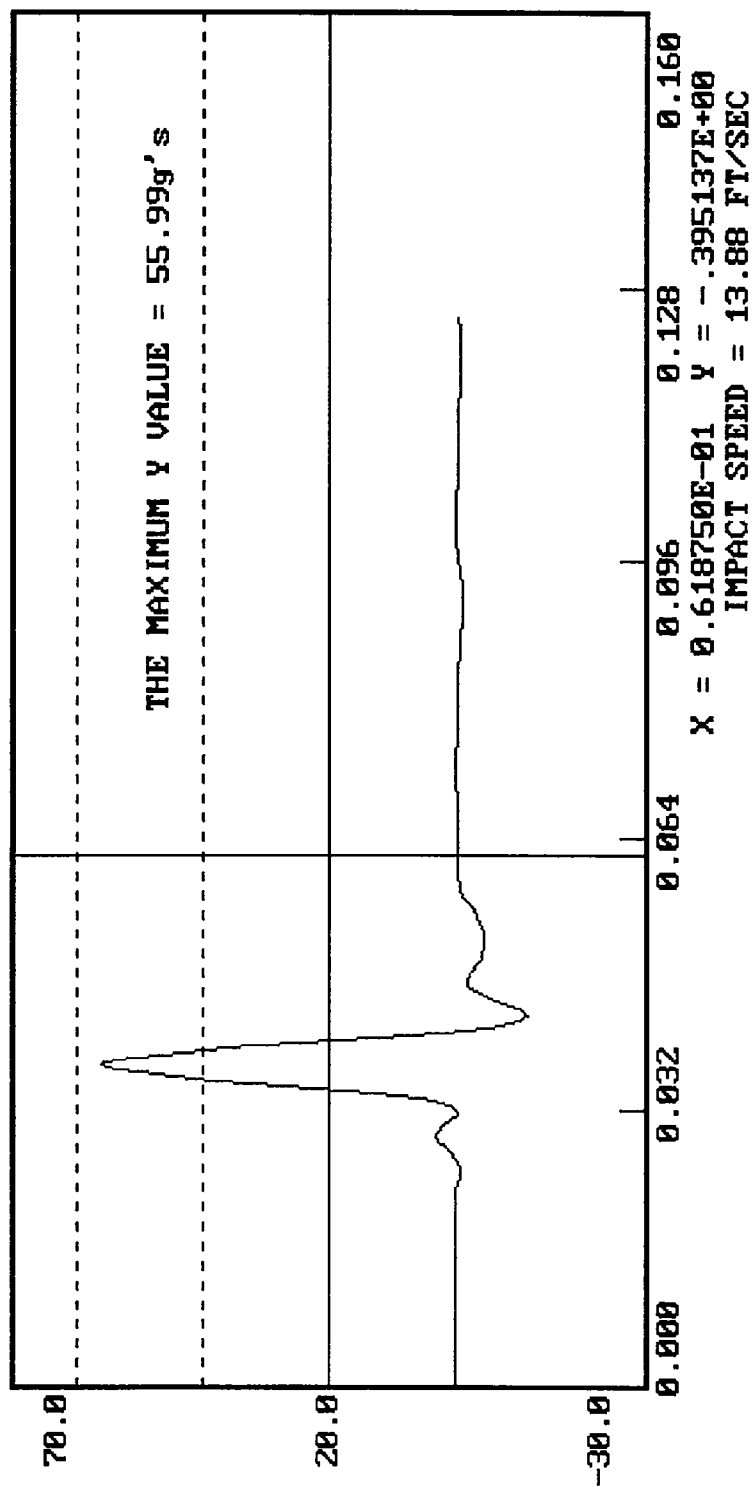


01-19-1995 12:07

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # 272

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



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

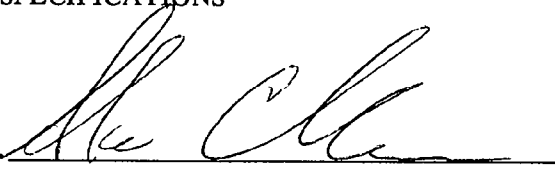
DATE: January 20, 1995

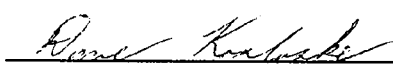
DUMMY NUMBER: 272

TEST NUMBER: D95104

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	24%
FORCE @ 0.5 in	23.3 - 36.5 lbs	28.6
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.9
FORCE @ 1.0 in	50 - 63 lbs	57
FORCE @ 1.3 in	73 - 88 lbs	79

TEST MEETS SPECIFICATIONS

TECHNICIAN 

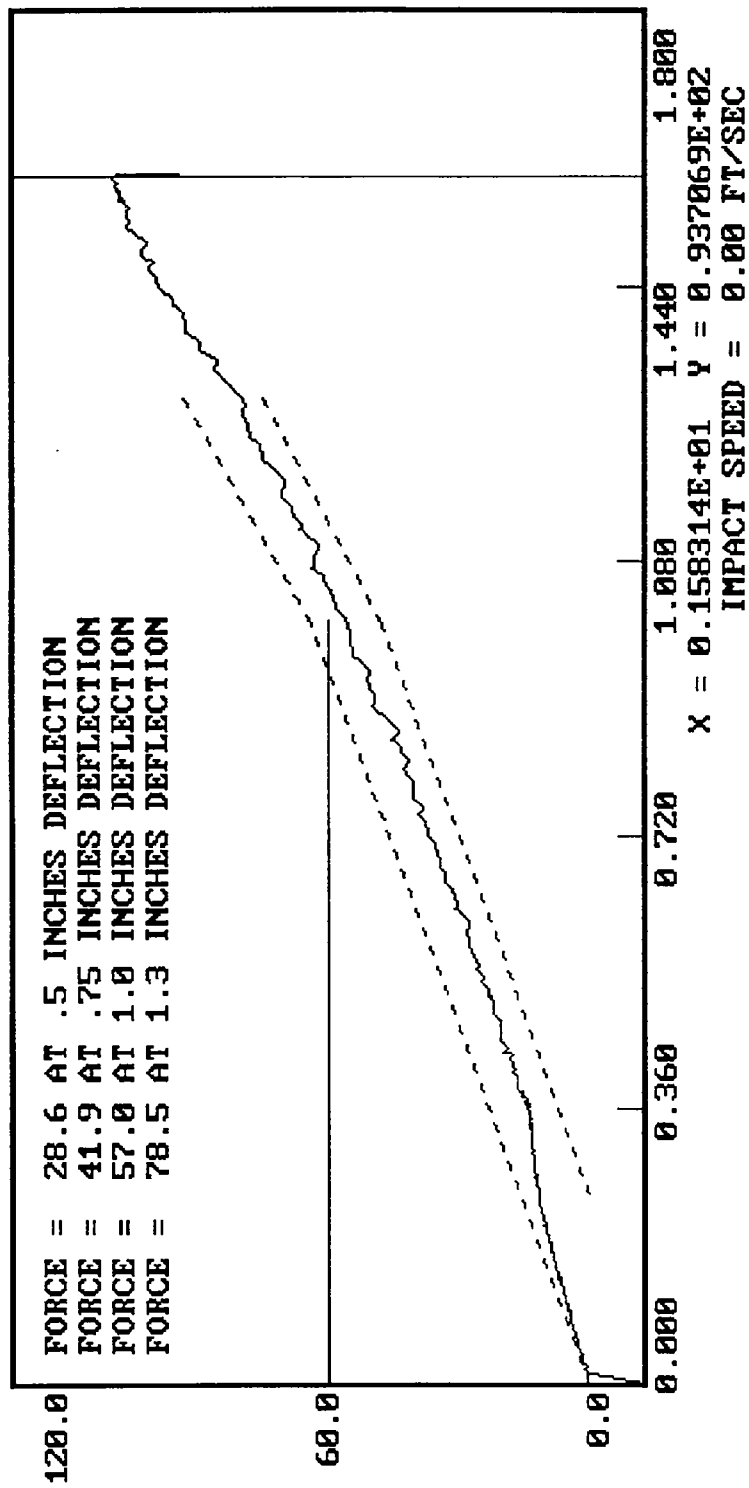
APPROVED BY 

01-20-1995 16:26

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 272

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: January 20, 1995

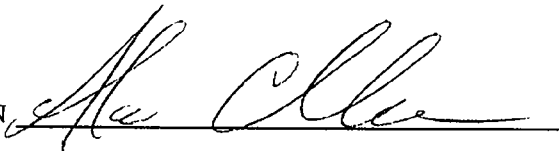
DUMMY NUMBER: 272

TEST NUMBER: D95105

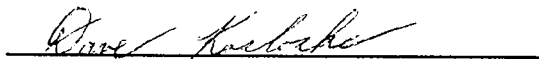
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	32
FORCE @ 30°	34 - 46 lbs	42
FORCE @ 40°	46 - 58 lbs	56
RETURN ANGLE	12° maximum	4°

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

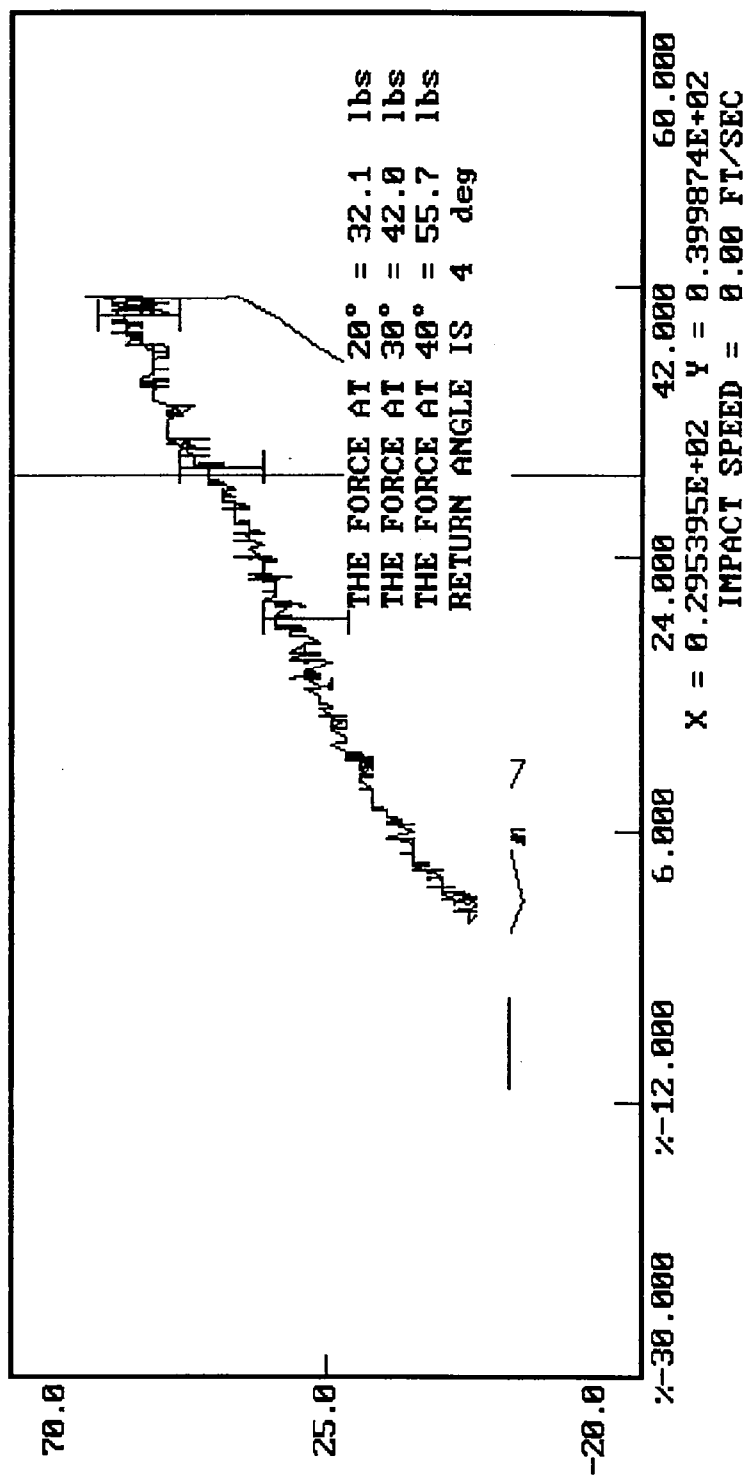


01-20-1995 10:57

DUMMY CALIBRATION - LUMBAR FLEXION

DUMMY # 272

FORCE () 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

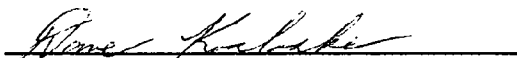
DATE OF VERIFICATION: January 25, 1995

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
RH - Rib Height	19.75" - 20.50"	20.00
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.7
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.2

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 25, 1995

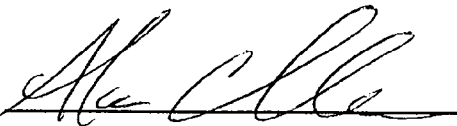
DUMMY NUMBER: 269

TEST NUMBER: D95152

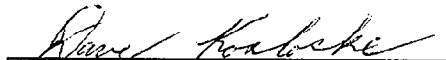
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	41
LOWER RIB	37 - 46 g's	40
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN

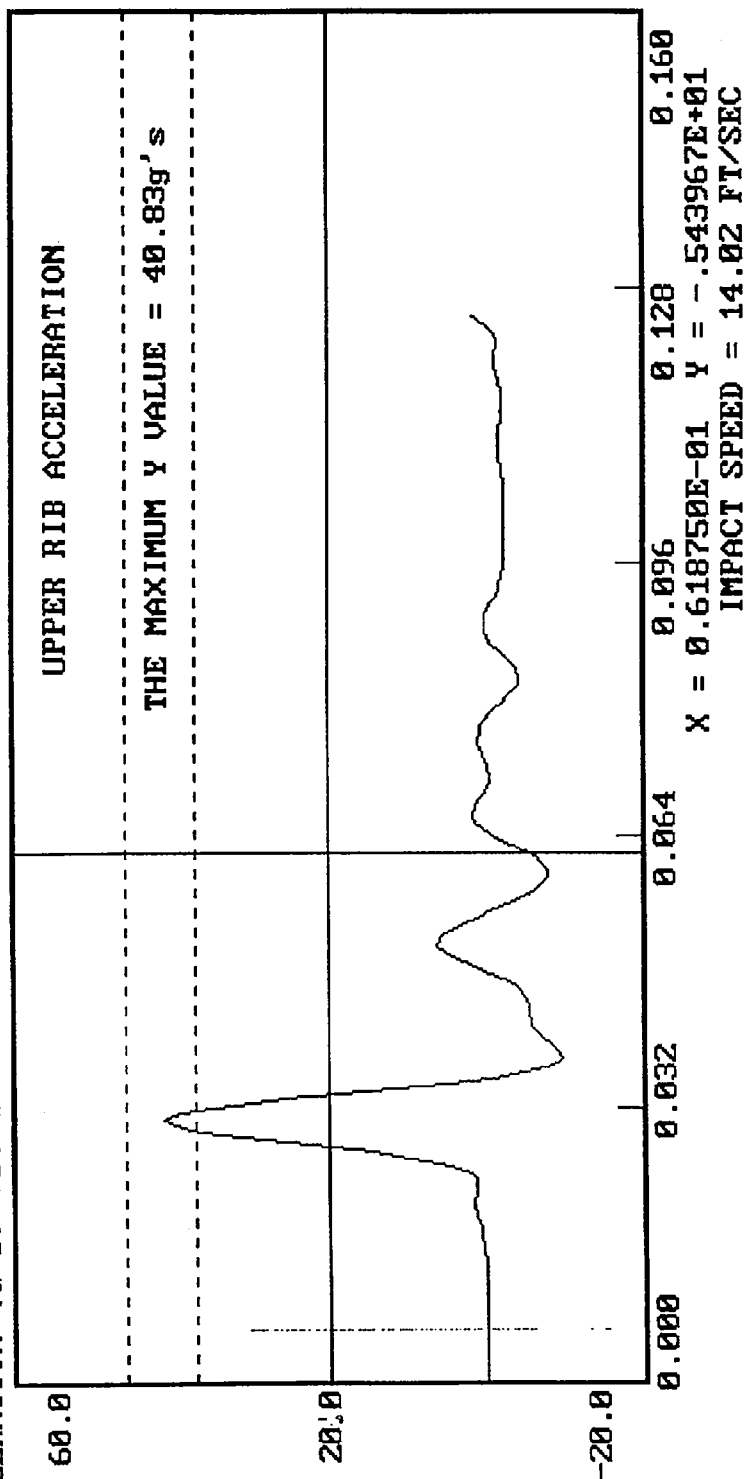


APPROVED BY



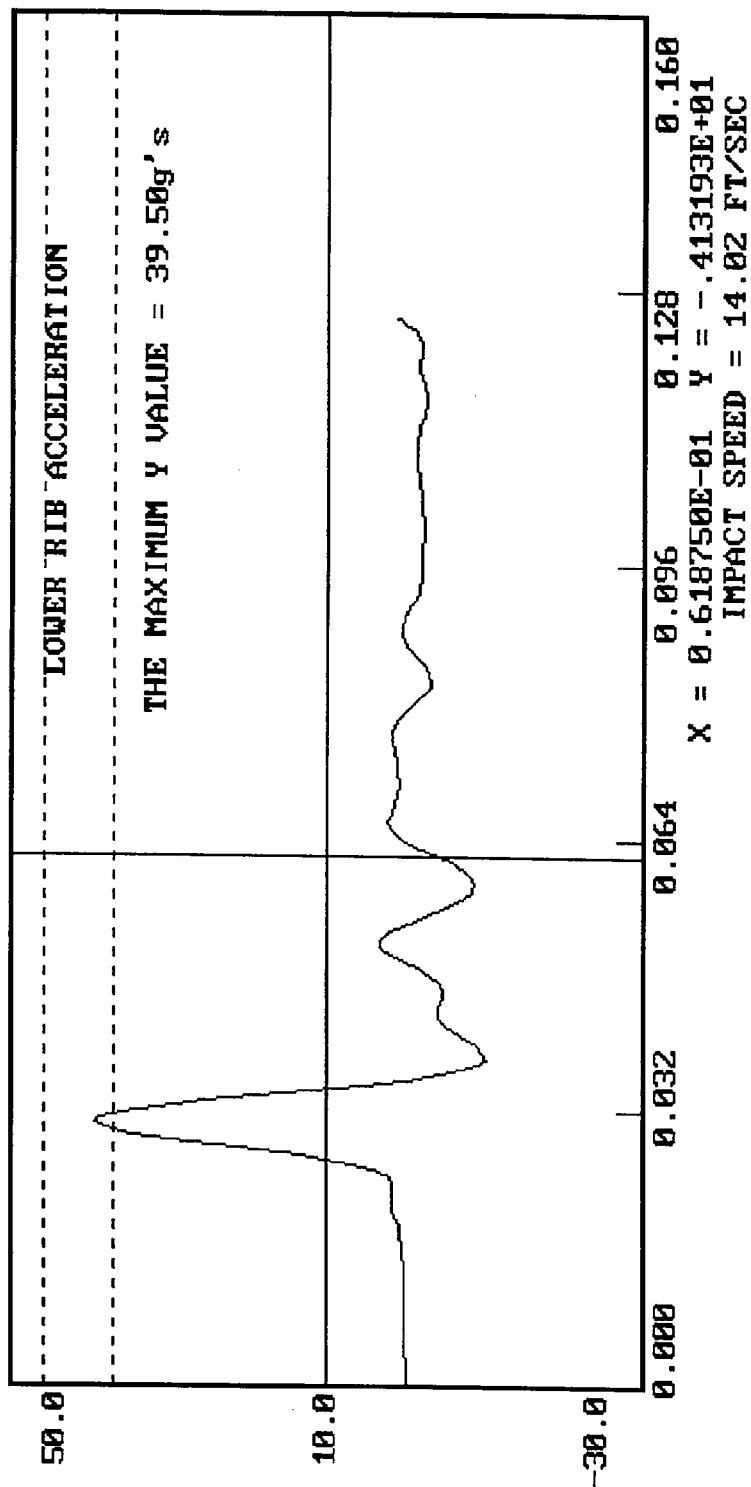
01-25-1995 11:07

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



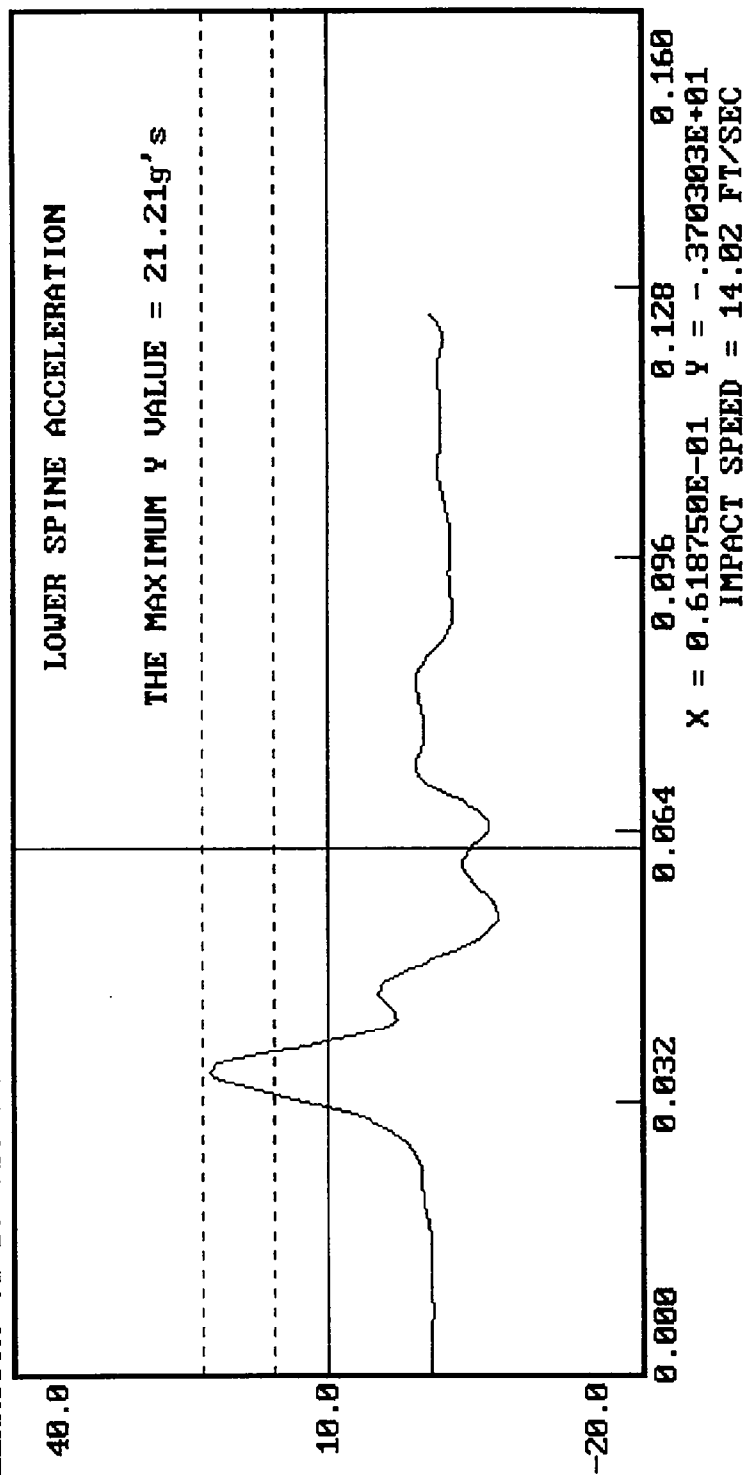
01-25-1995 11:07

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



01-25-1995 11:07

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 19, 1995

DUMMY NUMBER: 272

TEST NUMBER: D95103

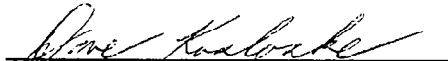
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	56

TEST MEETS SPECIFICATIONS

TECHNICIAN

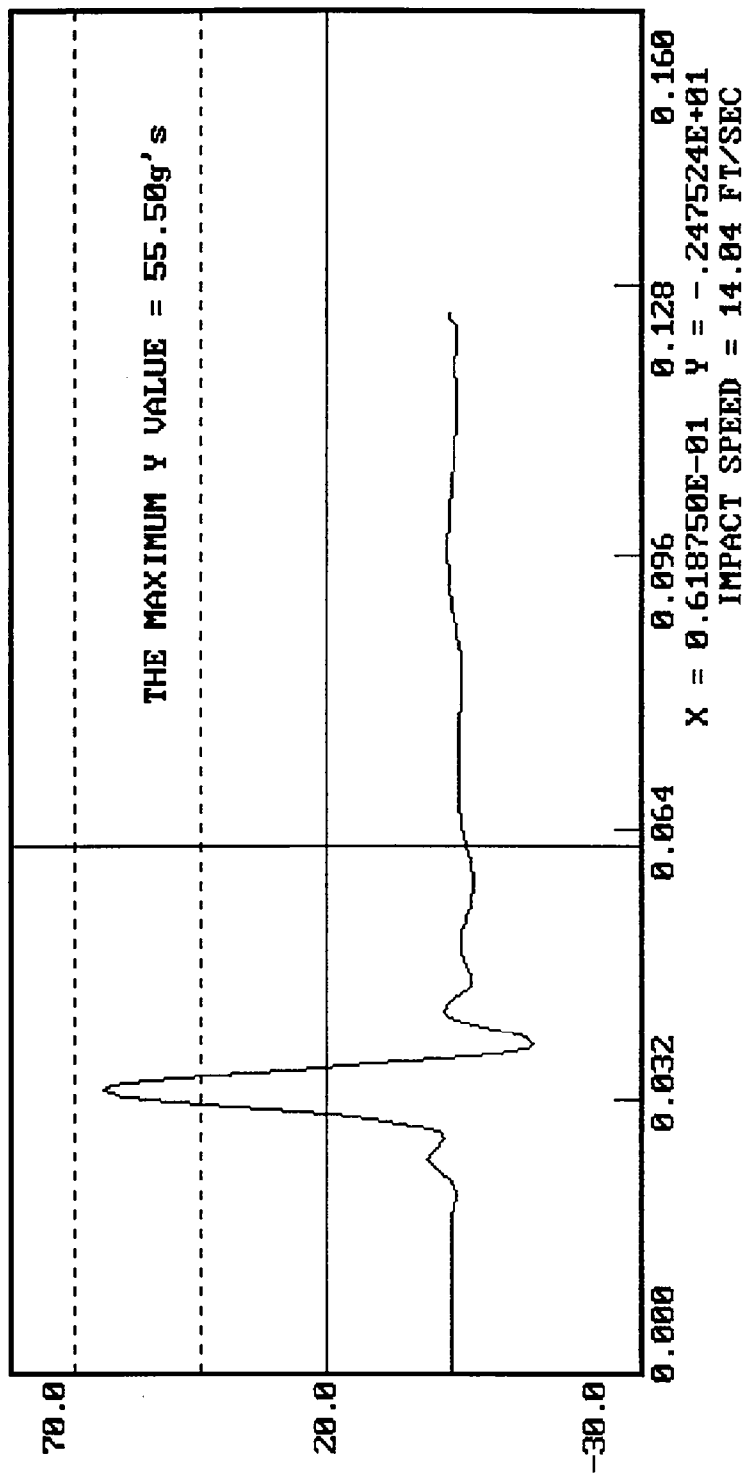


APPROVED BY



01-25-1995 08:58

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



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

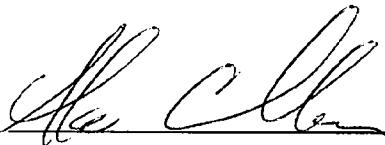
DATE: January 25, 1995

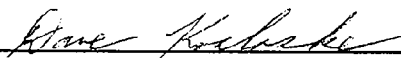
DUMMY NUMBER: 269

TEST NUMBER: D95154

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	32.3
FORCE @ 0.75 in	36.7 - 49.8 lbs	46.1
FORCE @ 1.0 in	50 - 63 lbs	62
FORCE @ 1.3 in	73 - 88 lbs	79

TEST MEETS SPECIFICATIONS

TECHNICIAN 

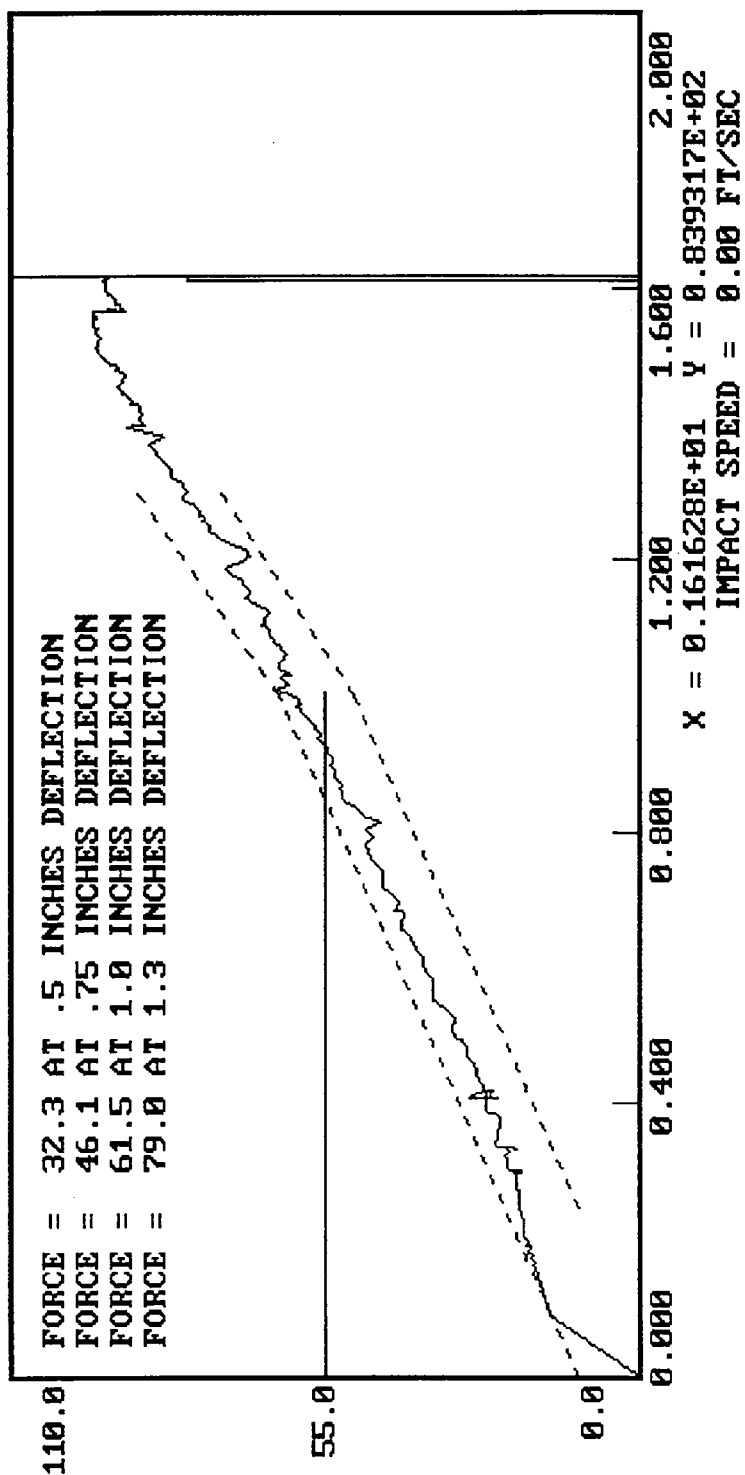
APPROVED BY 

01-25-1995 14:15

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 269

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

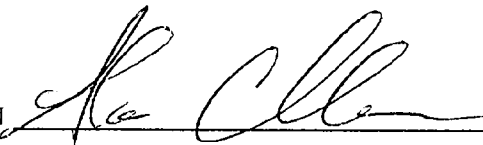
DATE: January 25, 1995

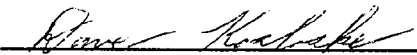
DUMMY NUMBER: 269

TEST NUMBER: D95155

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	26
FORCE @ 30°	34 - 46 lbs	38
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	9°

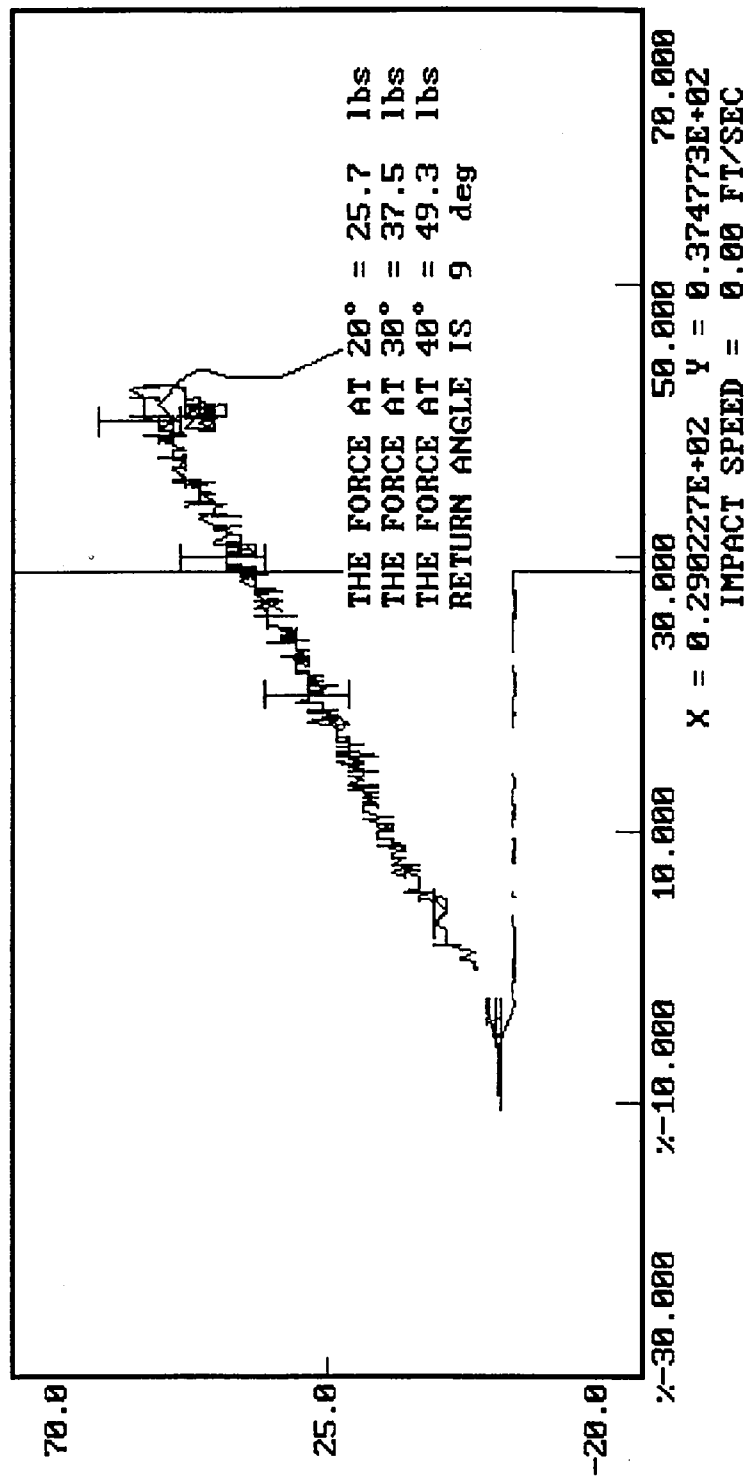
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

01-25-1995 14:56



POST-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 272

Calibration Test Results Summary

Dummy Serial Number: 272

Post-Test Calibration

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

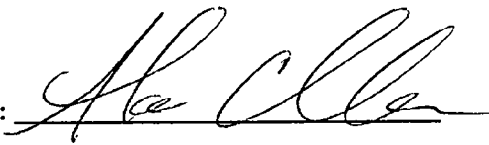
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 272

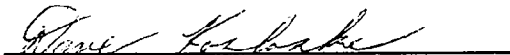
DATE OF VERIFICATION: January 25, 1995

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
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"	9.2
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.5
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.1

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 25, 1995

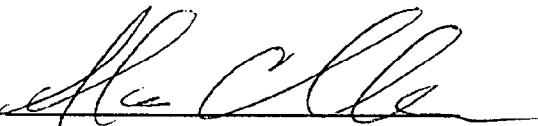
DUMMY NUMBER: 272

TEST NUMBER: D95162

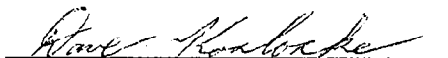
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	44
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN

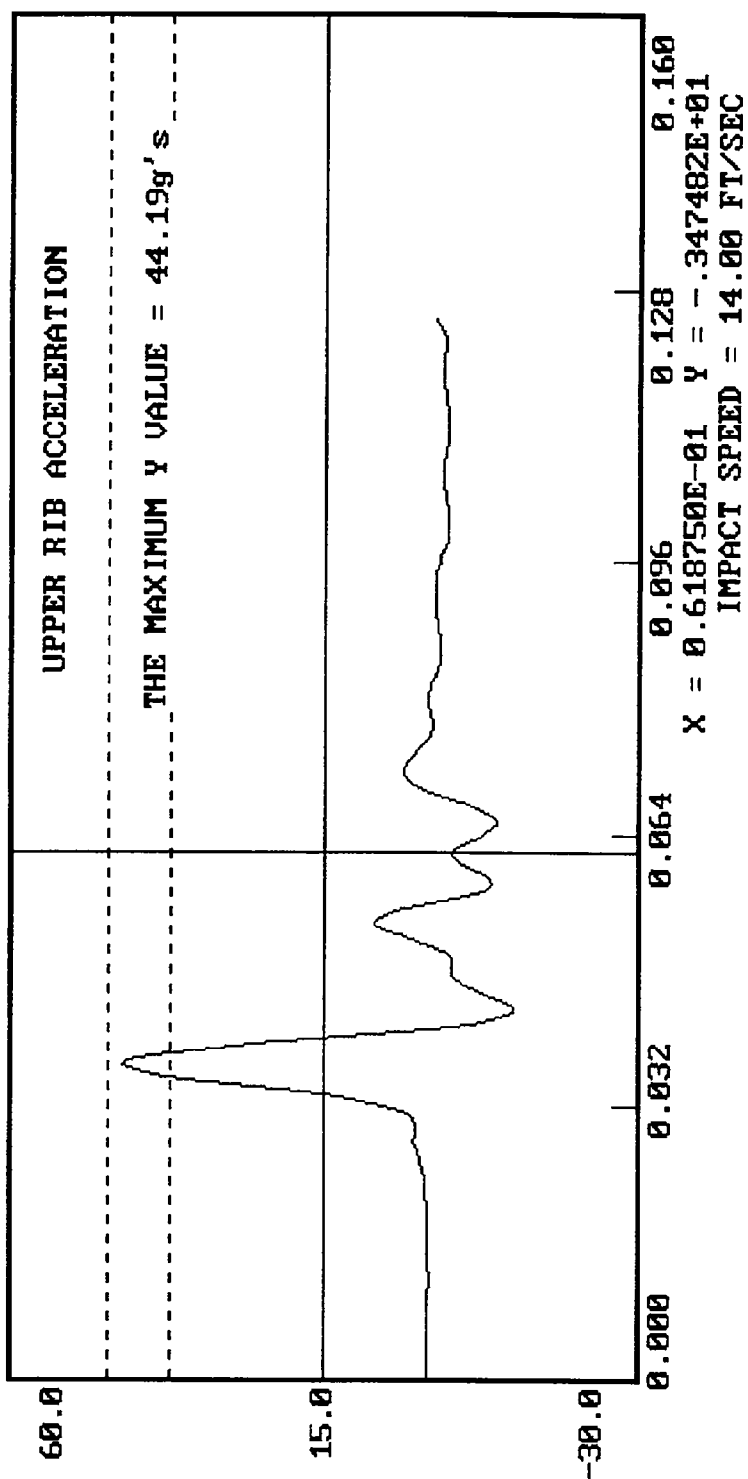


APPROVED BY



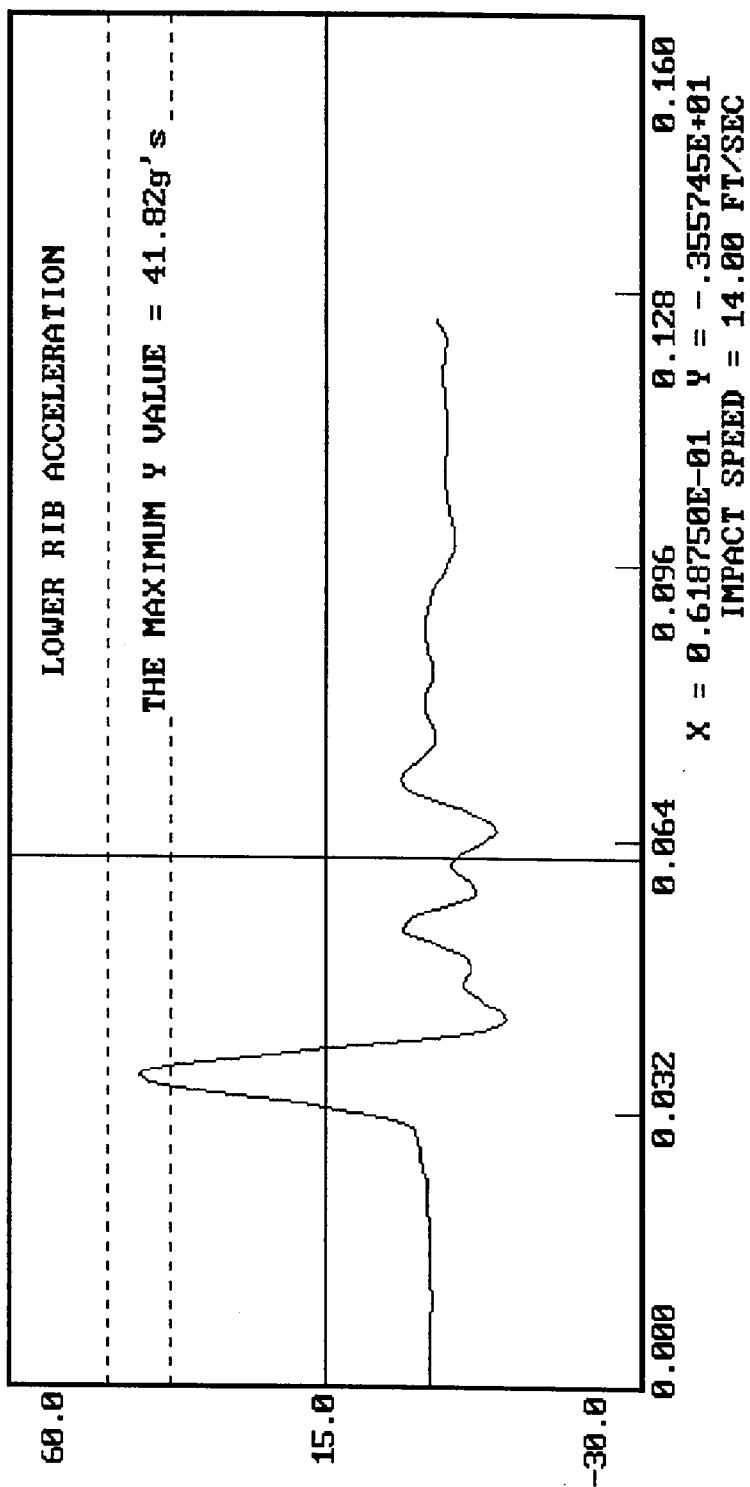
01-25-1995 09:43

DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))

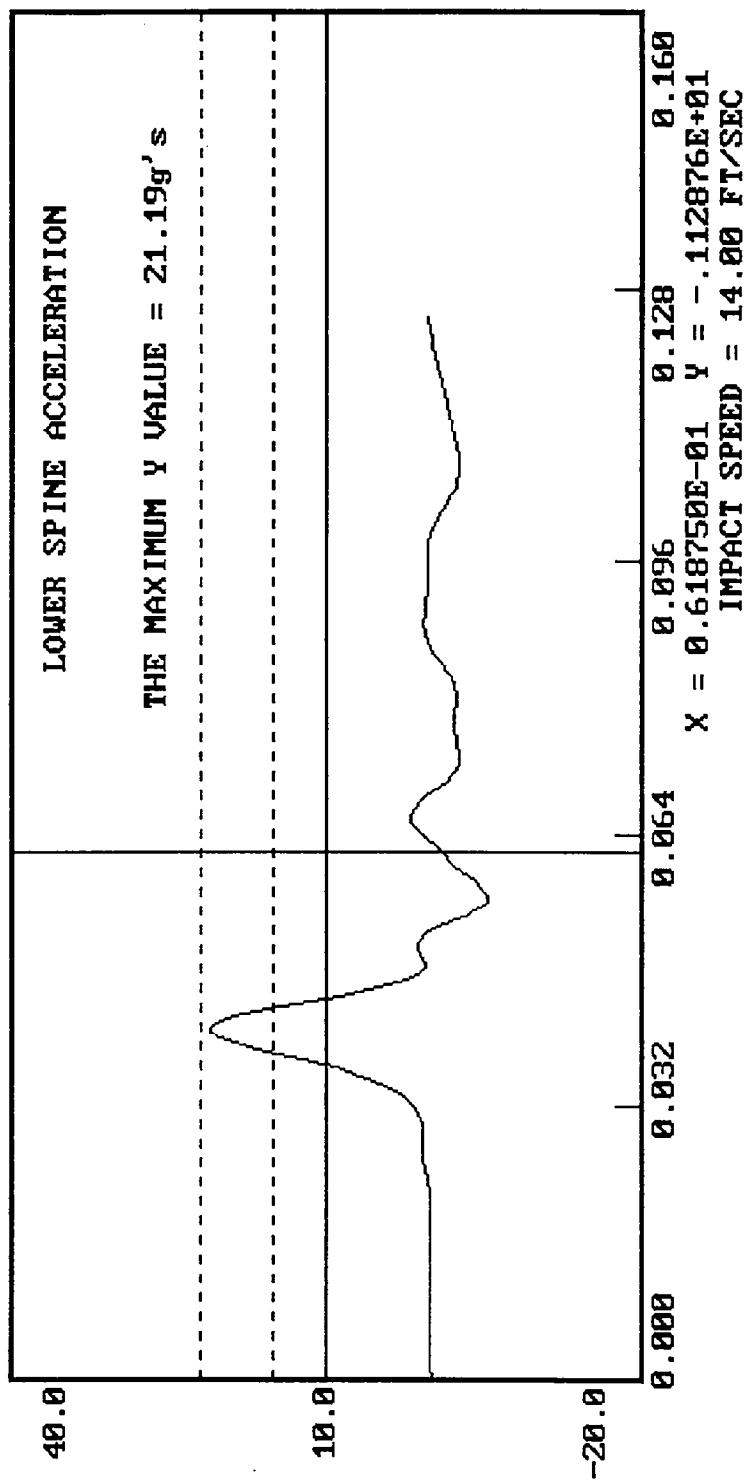


01-25-1995 09:43

DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 272
 01-25-1995 09:43
 ACCELERATION (G'S) VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 25, 1995

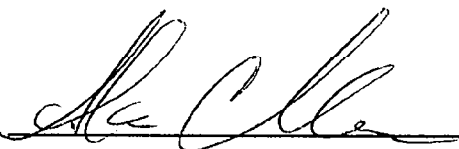
DUMMY NUMBER: 272

TEST NUMBER: D95163

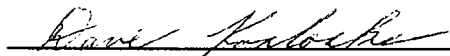
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	58

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

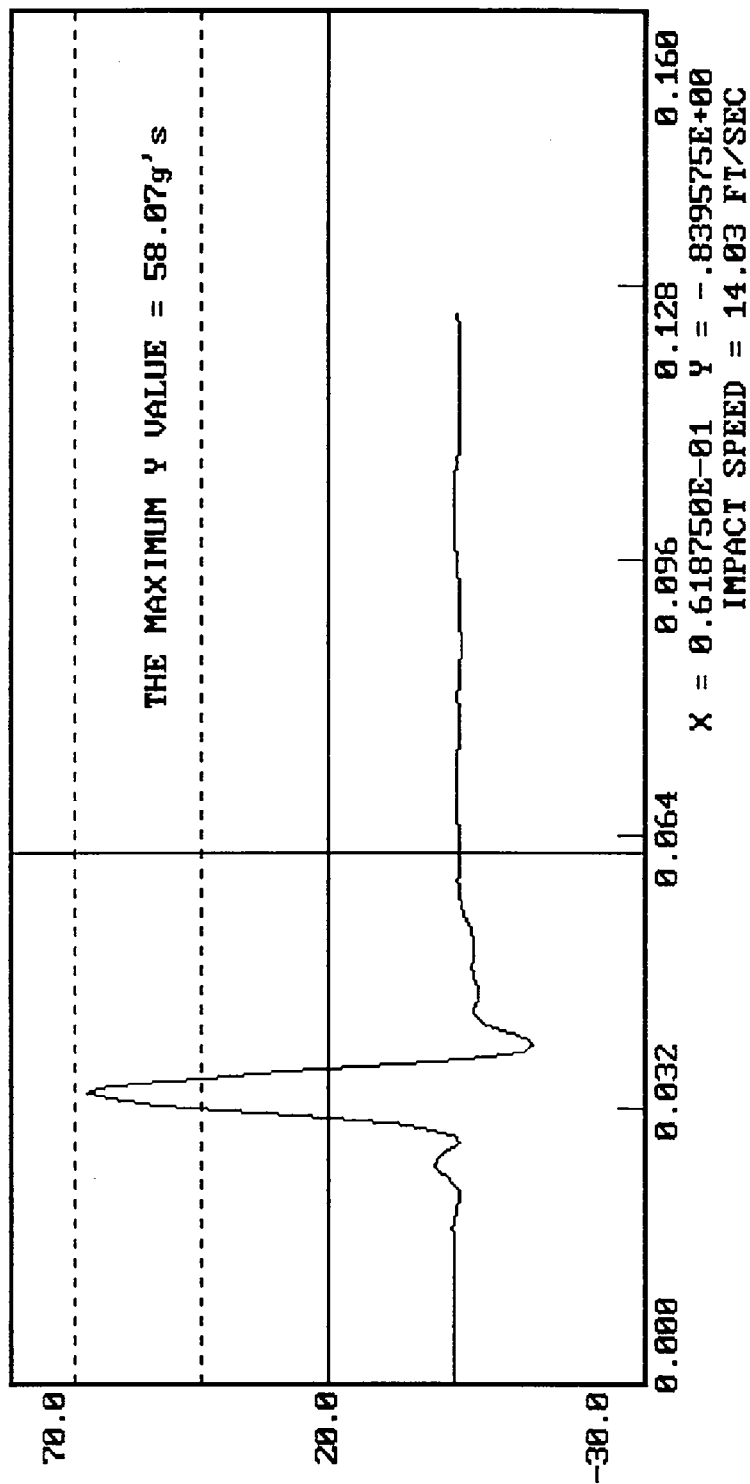


01-25-1995 09:09

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # 272

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



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: January 25, 1995

DUMMY NUMBER: 272

TEST NUMBER: D95164

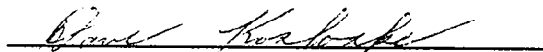
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	30.2
FORCE @ 0.75 in	36.7 - 49.8 lbs	45.5
FORCE @ 1.0 in	50 - 63 lbs	59
FORCE @ 1.3 in	73 - 88 lbs	79

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

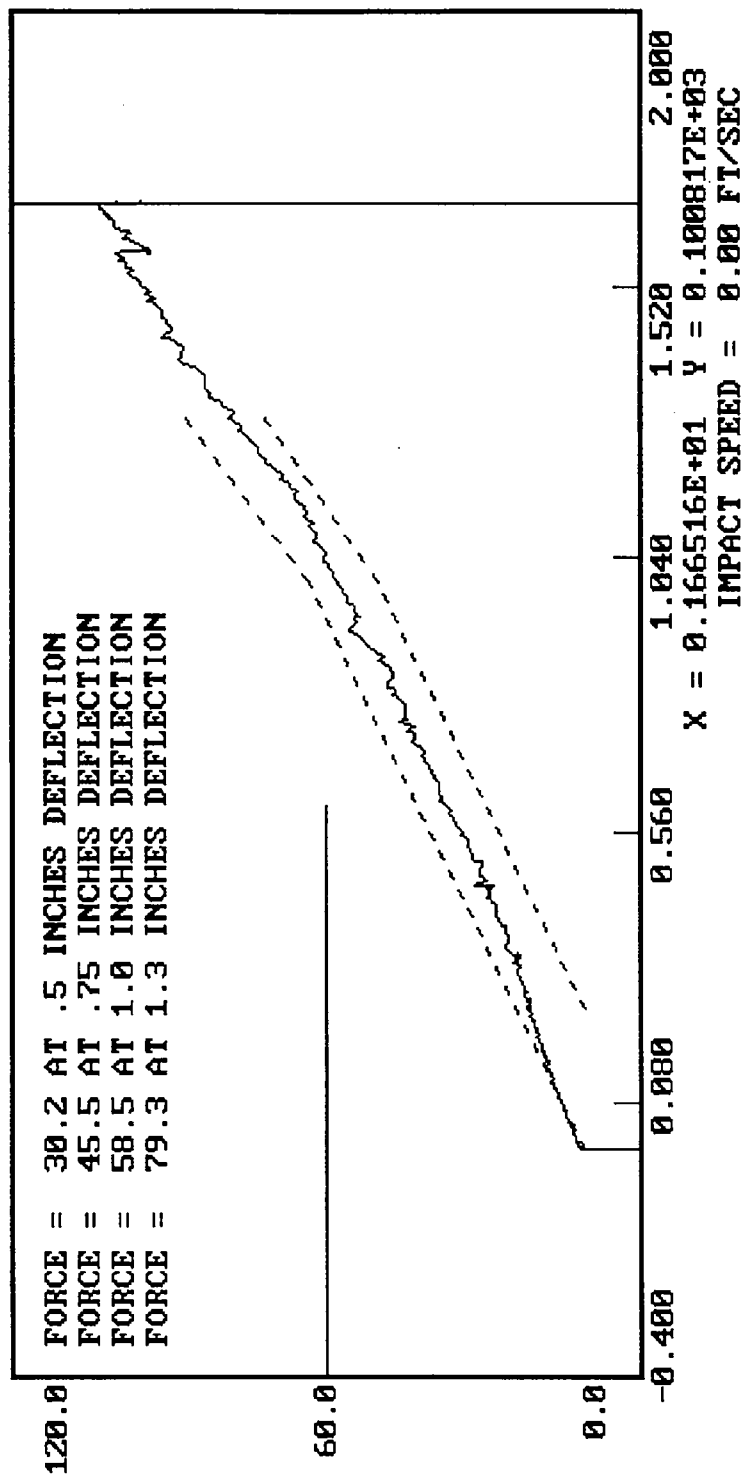


01-25-1995 14:19

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 272

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: January 25, 1995

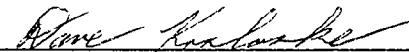
DUMMY NUMBER: 272

TEST NUMBER: D95165

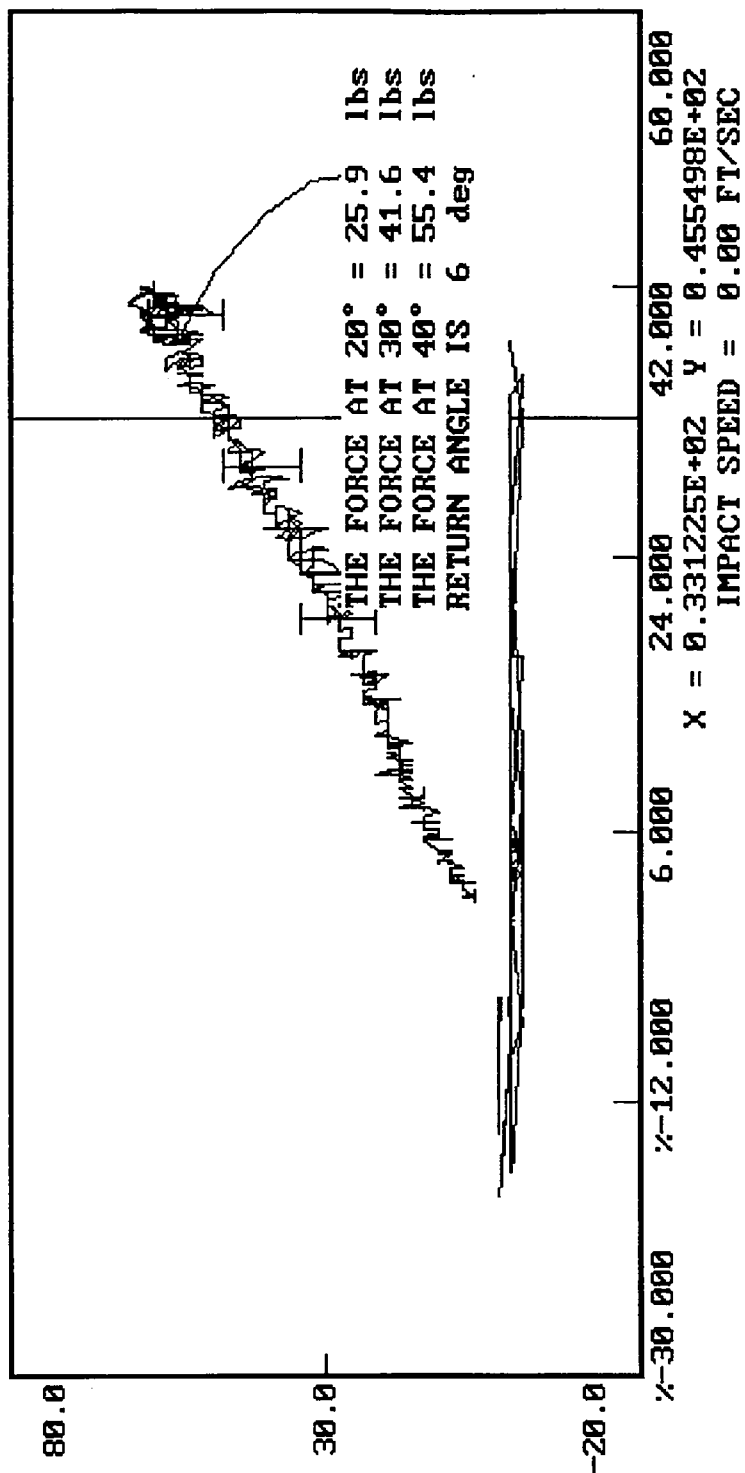
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	26
FORCE @ 30°	34 - 46 lbs	42
FORCE @ 40°	46 - 58 lbs	55
RETURN ANGLE	12° maximum	6°

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - LUMBAR FLEXION
 DUMMY # 272
 01-25-1995 14:48
 FORCE () VS. TORSO ROTATION (DEGREES)



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

Inspected By: Al Chalmers

Date: January 25, 1995

<u>Part</u>	<u>Items Checked</u>	<u>Comments</u>
Skin	visual inspection	OK
Head	visual, ballast, accelerometer mount	OK
Neck	visual, cable torque	OK
Spine box	visual, ballast, weldment, accelerometer mount	OK
Rib cage	visual, measure, stiffeners	OK
Sternum	visual	OK
Lumbar spine	visual	OK
Abdomen	visual	OK
Pelvis	visual, palpate, accelerometer mount	OK
Upper legs	visual	OK
Knees	visual, stops, inserts	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: 272

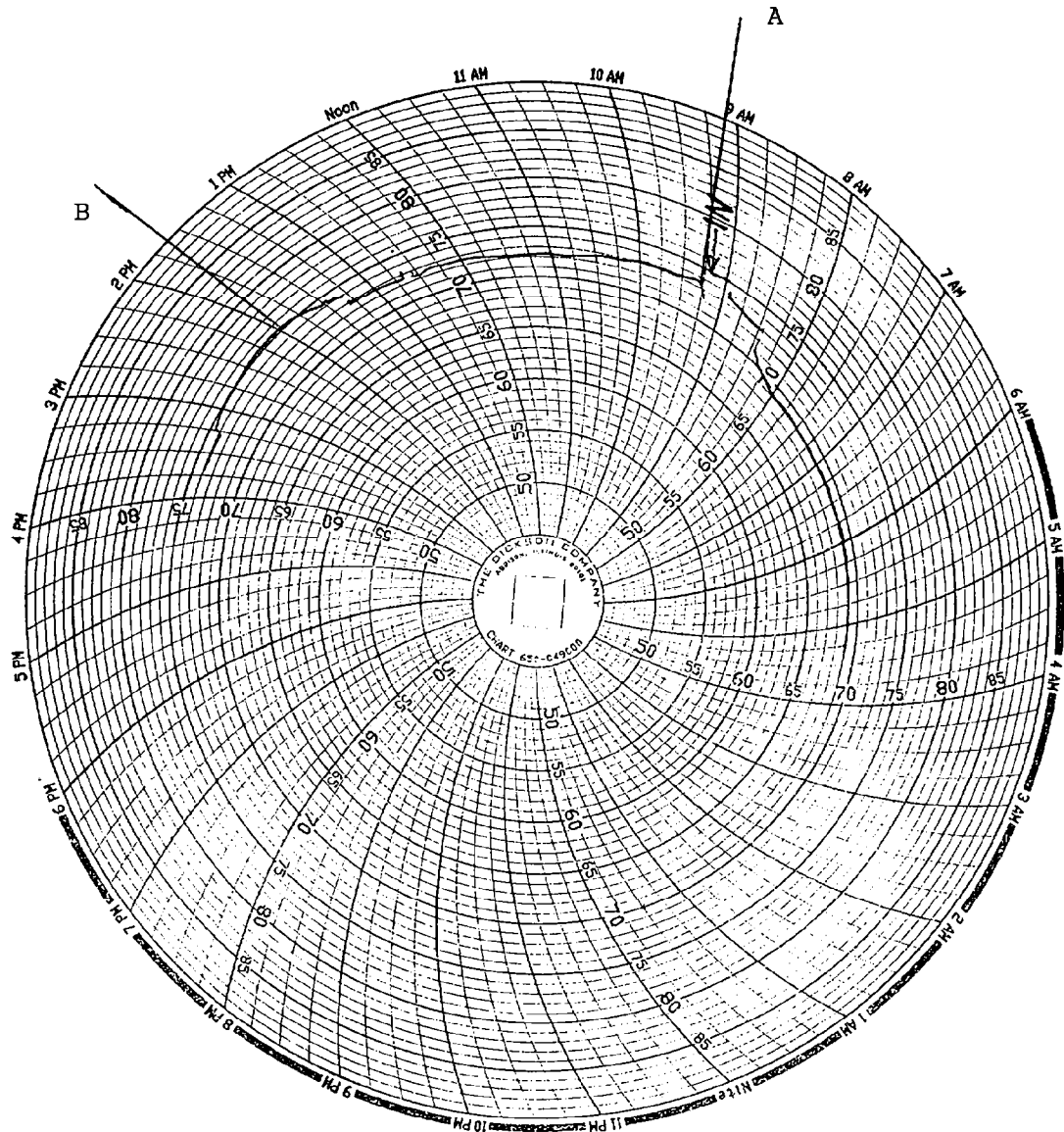
Inspected By: Al Chalmers

Date: January 25, 1995

<u>Part</u>	<u>Items Checked</u>	<u>Comments</u>
Skin	visual inspection	OK
Head	visual, ballast, accelerometer mount	OK
Neck	visual, cable torque	OK
Spine box	visual, ballast, weldment, accelerometer mount	OK
Rib cage	visual, measure, stiffeners	OK
Sternum	visual	OK
Lumbar spine	visual	OK
Abdomen	visual	OK
Pelvis	visual, palpate, accelerometer mount	OK
Upper legs	visual	OK
Knees	visual, stops, inserts	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



Temperature (degrees F)

A = Dummies installed in vehicle

B = Test conducted

APPENDIX D
DUMMY AND VEHICLE CALIBRATION DATA

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION
INSTRUMENTS FOR DRIVER DUMMY NO. 269

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib	AC913	Endevco	September 12, 1994
Lower Rib	AJ436	Endevco	January 16, 1995
Lower Spine	AH0D1	Endevco	September 01, 1994
Pelvis	AHWK8	Endevco	August 31, 1994
Upper Rib Redundant	AH0M0	Endevco	September 16, 1994
Lower Rib Redundant	AGT81	Endevco	January 16, 1995
Lower Spine Redundant	AH1G2	Endevco	June 20, 1994
Pelvis Redundant	AJ606	Endevco	November 10, 1994

INSTRUMENTS FOR PASSENGER DUMMY NO. 272

	LEFT REAR PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib	AHW95	Endevco	January 13, 1995
Lower Rib	AHY99	Endevco	September 02, 1994
Lower Spine	AJ7C2	Endevco	September 02, 1994
Pelvis	AGP07	Endevco	September 16, 1994
Upper Rib Redundant	AHR15	Endevco	January 13, 1995
Lower Rib Redundant	AJ614	Endevco	November 08, 1994
Lower Spine Redundant	AJ420	Endevco	September 02, 1994
Pelvis Redundant	AHWN3	Endevco	September 02, 1995

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
MDB CG X	AHDR9	Endevco	August 12, 1994
MDB CG Y	X14	Entran	October 30, 1994
MDB CG Z	MGA140	Entran	October 04, 1995
MDB Rear Axle X	AJ9E1	Endevco	October 14, 1994
MDB Rear Axle Y	AN47	Endevco	December 14, 1994
Mid Left A-Post	MGA076	Entran	November 18, 1994
Lower Left A-Post	AH0L7	Endevco	October 14, 1994
Lower Left B-Post	MGA145	Entran	December 16, 1994
Trunk Centerline X	X18	Entran	December 14, 1994
Trunk Centerline Y	MGA035	Entran	January 18, 1994
Trunk Centerline Z	MGA060	Entran	August 04, 1994
Driver Seat Track	AKAE8	Endevco	October 14, 1994
Right Front Sill X	AJ5L6	Endevco	October 17, 1994
Right Front Sill Y	AJ9D5	Endevco	October 17, 1994
Right Front Sill Z	AJ4R1	Endevco	October 14, 1994
Right Rear Sill X	AH0P9	Endevco	October 12, 1994
Right Rear Sill Y	AHY48	Endevco	October 14, 1994
Right Rear Sill Z	AHY55	Endevco	October 14, 1994
Left Front Sill Y	X08	Entran	January 17, 1994
Left Rear Sill Y	MGA122	Entran	January 11, 1995
Right Rear Seat Occupant Compartment Y	MGA024	Entran	December 16, 1994

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