

V2227

REPORT NO.: MGA-95-21413

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

VOLKSWAGEN
1995 VOLKSWAGEN GOLF III 5 DOOR HATCHBACK
NHTSA NO: CS5801

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



MGA Ref. No.: G93A-02

Test Date: January 18, 1995

Report Date: January 30, 1995

FINAL REPORT

Prepared For:

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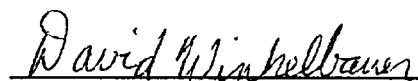
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TABLE OF CONTENTS

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

LIST OF FIGURES

<u>Figure No.</u>		<u>Page No.</u>
1	PRE-TEST CONDITIONS	3-4
2	PRE- AND POST-TEST MEASUREMENTS	4-3
3	SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS	4-4
4	SIDE IMPACT DUMMY (SID) LATERAL CLEARANCE DIMENSIONS	4-5
5	VEHICLE SIDE MEASUREMENT	4-6
6	VEHICLE EXTERIOR STATIC CRUSH	4-8
7	TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY	4-17
8	MDB FACE DIMENSIONS	4-18
9	MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS	4-21
10	HIGH SPEED CAMERA LOCATIONS AND DATA	4-22

LIST OF TABLES

<u>Table No.</u>		<u>Page No.</u>
1	GENERAL TEST AND VEHICLE PARAMETER DATA	3-2
2	TEST VEHICLE DATA	3-3
3	CRASH TEST SUMMARY FOR TEST VEHICLE	3-5
4	CRASH TEST SUMMARY FOR SIDE IMPACTOR	3-6
5	POST-TEST OBSERVATIONS	3-7
6	SIDE IMPACT DUMMY (SID) TEST DATA SUMMARY	4-2
7	TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH	4-7
8	EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR	4-19
9	TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY	4-20
10	FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA	4-23
11	FMVSS NO. 301 STATIC ROLLOVER DATA SHEET	4-24

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 Volkswagen Golf III 5 Door Hatchback.

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 Volkswagen Golf III 5 Door Hatchback 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 33.2 mph (53.3 kph) on January 18, 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 53 g's. Maximum pelvic Y acceleration was 57 g's.

The left rear passenger's TTI was 73 g's. Maximum pelvic Y acceleration was 88 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/Volkswagen/Golf III/5 Door Hatchback
Vehicle NHTSA No.: CS5801 VIN: 3VWFC81H85M041493
Vehicle Body Color: Silver Month & Year of Manufacture: 10-94
Engine Data: 4 cylinders; CID; 2.0 Liter; cc
Placement Longitudinal; or X Lateral
Transmission: 5 speed; X Manual; Automatic; Overdrive
Final Drive: Rear Wheel Drive; X Frt. Wheel Drive; Four Wheel Drive
Odometer Reading 79 miles
Options: X A/C; X Pwr. Steering.; X Pwr. Brakes; Pwr. Windows
 Power Seats; Tilt Wheel; Power Door Locks; Self Leveling System;

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 34 Psi FRONT (234 kpa)
39 Psi REAR (269 kpa)
Recommended Tire Size: 18560R14 or 19560R14
Tires on Test Vehicle: 18560R14 Manufacturer: Goodyear

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; 3rd Seat 5 Total
Type of Front Seats: X Bucket; Bench; Split Bench
Type of Front Seat Back: Fixed; X Adjustable with X Knob
Vehicle Maximum Capacity Loading = 996 lbs (A) (451.8 kg)
No. of Occupants x 150 lbs. = 750 lbs (B) (340.2 kg)
Cargo Capacity (A-B) = 246 lbs (111.6 kg)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>796</u> lbs (361.1 kg)	Right Rear	=	<u>501</u> lbs (227.3 kg)
Left Front	=	<u>802</u> lbs (363.8 kg)	Left Rear	=	<u>481</u> lbs (218.2 kg)
TOTAL FRONT	=	<u>1598</u> lbs (724.9 kg)	TOTAL REAR	=	<u>982</u> lbs (445.5 kg)
% of Total Vehicle Weight	=	<u>61.9</u> %;	% of Total Weight	=	<u>38.1</u> %
TOTAL WEIGHT	=	<u>2580</u> lbs (1170.4 kg)			

TABLE 2
TEST VEHICLE DATA

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids = 2580 lbs (1170.4 kg)
Cargo Carrying Capacity of Test Vehicle = 246 lbs (111.6 kg)
Weight of 2 Side Impact Dummies (2 x 178 lbs.) = 356 lbs (161.5 kg)
TEST VEHICLE TARGET WEIGHT: = 3182 lbs (1443.5 kg)

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front	= <u>856</u> lbs (388.3 kg)	Right Rear	= <u>682</u> lbs (309.4 kg)
Left Front	= <u>922</u> lbs (418.2 kg)	Left Rear	= <u>716</u> lbs (324.8 kg)
TOTAL FRONT	= <u>1778</u> lbs (806.5 kg)	TOTAL REAR	= <u>1398</u> lbs (634.2 kg)
% of Total Weight	= <u>56.0</u> %	% of Total Weight	= <u>44.0</u> %
TOTAL TEST WEIGHT	= <u>3176</u> lbs (1440.7 kg)		

TEST VEHICLE ATTITUDE (all dimensions in inches):

CURB WEIGHT ATTITUDE: in (mm)

Right Front 26.0 (661) Left Front 25.9 (657) Right Rear 25.6 (651) Left Rear 25.6 (651)

FULLY LOADED WEIGHT ATTITUDE: in (mm)

Right Front 25.7 (654) Left Front 25.2 (639) Right Rear 24.3 (618) Left Rear 23.9 (607)

TEST ATTITUDE: in (mm)

Right Front 25.2 (639) Left Front 25.4 (644) Right Rear 24.3 (617) Left Rear 24.0 (610)

Test Vehicle Wheelbase: 97.3 inches (2471 mm)

C.G. = 42.8 inches (1088 mm) rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 149.9 in (3808 mm)
Centerline = 160.7 in (4083 mm)
Left Side = 149.9 in (3808 mm)

FIGURE 1
PRE-TEST CONDITIONS

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 9.3 in (235 mm)

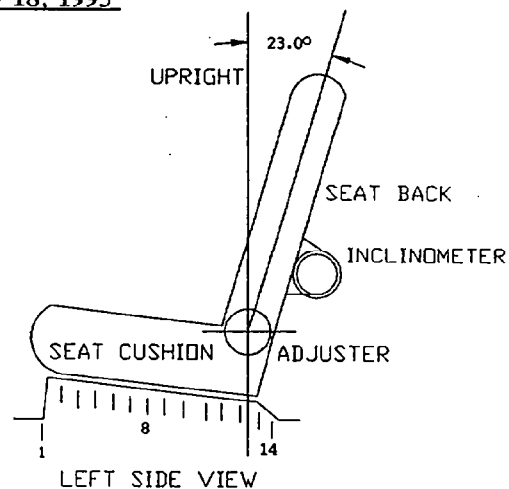
Total Number of Adjustment Positions or Detents: 14

Test Position: 8th detent

(8th detent from front, 1st position being #1)

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 23.0° degrees



SECOND POSITION SEAT:

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

Seat Back Adjustment Position: N/A

ADJUSTABLE STEERING COLUMN POSITION: N/A

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 = 14.5 gallons (54.9 liters)

Test Volume: 13.5 gallons (51.1 liters) 93% of capacity

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

Wheelbase: = 97.3 in (2471 mm)

Impact Point is 11.7 in (297 mm) rearward of front axle centerline

TABLE 3
CRASH TEST SUMMARY FOR TEST VEHICLE

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback
Vehicle NHTSA No.: CS5881 TEST DATE: January 18, 1995

Overall Length = 160.7 in (4083 mm); Overall Width = 66.3 in (1684 mm)

TEST WEIGHT:

Right Front = 856 lbs (388.3 kg) Right Rear = 682 lbs (309.4 kg)
Left Front = 922 lbs (418.2 kg) Left Rear = 716 lbs (324.8 kg)
TOTAL FRONT = 1778 lbs (806.5 kg) TOTAL REAR = 1398 lbs (634.2 kg)
% of Total Weight = 56.0 % % of Total Weight = 44.0 %
TOTAL VEHICLE WEIGHT 3176 lbs (1440.7 kg)
Wheelbase = 97.3 in (2471 mm)
Longitudinal C.G. front Center of Front Axle = 42.8 in (1088 mm)
Impact Angle with Respect to Impactor = 90° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (240 mm above ground) = 176 mm
2. LEVEL 2 (477 mm above ground) = 309 mm
3. LEVEL 3 (585 mm above ground) = 269 mm
4. LEVEL 4 (860 mm above ground) = 267 mm
5. LEVEL 5 (1328 mm above ground) = 72 mm
Maximum Post-Test Intrusion = 309 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: = 16
Number of Cameras: Onboard Vehicle = 3
Offboard Vehicle = 5
Deformable Barrier = 2
TOTAL = 10

TABLE 4
CRASH TEST SUMMARY FOR SIDE IMPACTOR

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 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 (259.1 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: 33.15 mph (53.3 kph) Secondary: 33.10 mph (53.2 kph)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1.	Row A Top of Stack (33 in)	= <u>114</u> mm
2.	Row B Mid Stack (27 in)	= <u>74</u> mm
3.	Row C Top of Bumper (21 in)	= <u>64</u> mm
4.	Row D Center of Bumper (17 in)	= <u>94</u> mm

INSTRUMENTATION:

Number of MDB Data Channels = 7

TABLE 5
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback
Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to seat belt</u>	<u>to frame of rear window,</u> <u>C Post & Side header</u>
Arm	<u>to front edge of B-Post, door</u>	<u>to rear of rear door</u>
Pelvis	<u>to lower armrest</u>	<u>to door and armrest</u>
Left Knee	<u>to door</u>	<u>to door and 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: 25 mm forward Vertical: 0 mm high

ARM REST LOCATIONS:

Front: 195 mm below window opening
Rear: 230 mm below window opening

SEAT CRUSH:

Driver Seat Back: 76 mm Driver Seat Cushion: 35 mm
Left Rear Seat Back: 22 mm Left Rear Seat Cushion: 111 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/Volkswagen/Golf III/5 Door HatchbackVehicle NHTSA No.: CS5801 TEST DATE: January 18, 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	41.2	28	76	66.3	37	6.0	90
	Upper Rib Lateral.....Y(R)	42.5	28	77	66.4	37	6.6	90
	Lower Rib Lateral.....Y	43.5	32	77	77.1	37	14.4	65
	Lower Rib Lateral.....Y(R)	45.0	32	78	76.9	37	14.6	65
SPINE ACCELERATIONS:								
	Lower Lateral.....Y	62.8	41	71	68.6	41	22.8	68
	Lower Lateral.....Y(R)	62.5	41	71	68.1	41	23.2	68
PELVIC ACCELERATIONS:								
	Lateral.....Y	56.6	35	63	88.0	33	5.9	50
	Lateral.....Y(R)	57.2	35	63	87.2	33	6.8	50

REFERENCE:

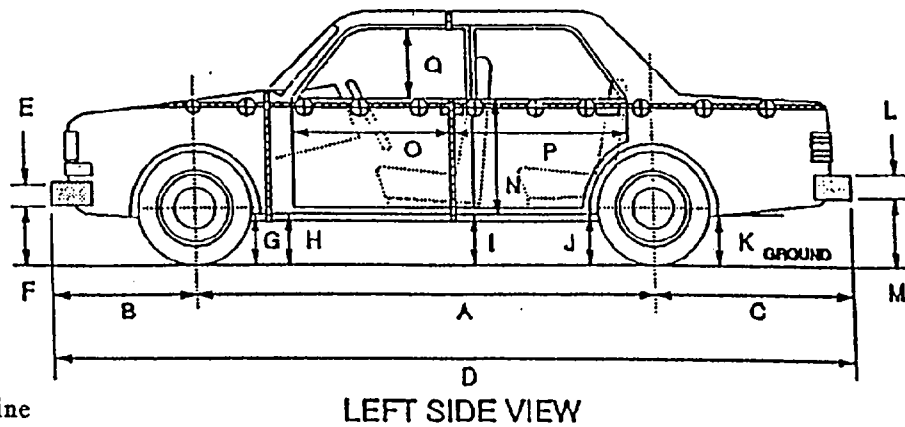
Positive Direction - Longitudinal (X) = forward

Lateral (Y) = to right

Vertical (Z) = up

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

FIGURE 2
PRE- AND POST-TEST MEASUREMENTS



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

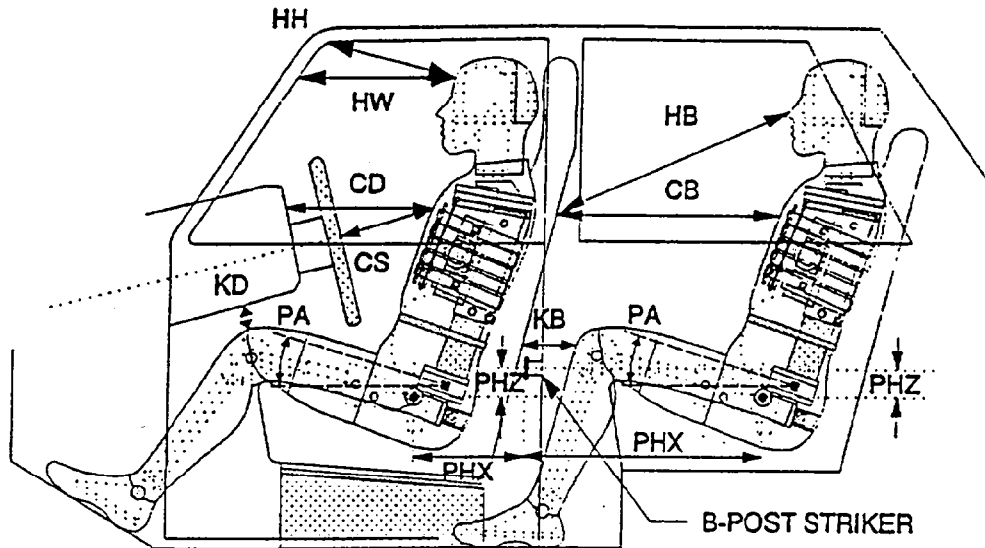
J2 = To Sill

Units: mm

LOCATION	PRE-TEST	POST-TEST	Δ CHANGE
A	2471	2464	7
B	865	860	5
C	747	745	2
D	4083	4069	14
E	185	185	0
F	358	375	17
G	198	211	13
H	154	250	96
I	164	197	33
J1/J2	153/155	170/180	17/25
K	201	215	14
L	318	318	0
M	262	273	11
N	625	590	35
O	750	738	12
P	1272	1200	72
Q	645	440	205
R	3808	3832	24
S	3808	3804	4
T	1684	1492	192

FIGURE 3

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS



LEFT SIDE VIEW

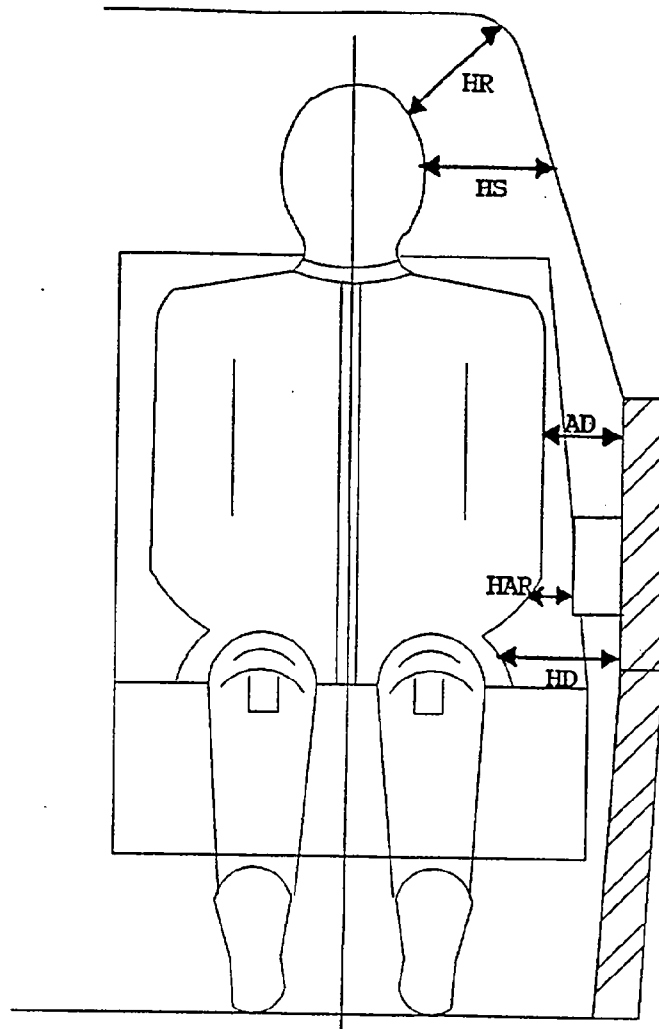
NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

NOTE: All dimensions are in mm

	DRIVER ID #269	LEFT REAR PASSENGER ID #272	
HH	444	---	
HW	664	---	
HB	N/A	570	
CD	592	CB	413
CS	376	---	
KDL	128	KBL	72
KDR	130	KBR	88
PA°	24.2°	24.7°	
PHX	180	282	
PHZ	358	229	

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



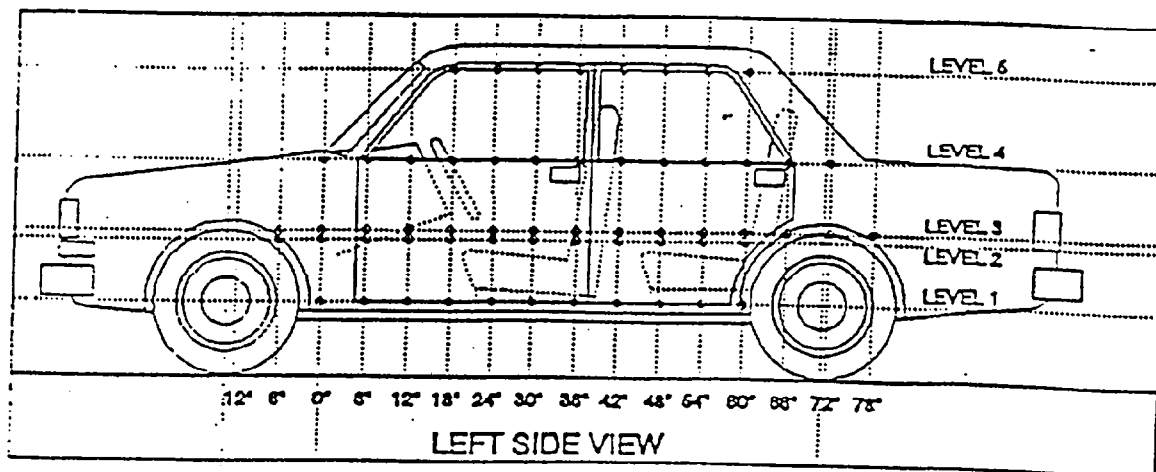
NOTE: All dimensions are in mm

	DRIVER ID #269	LEFT REAR PASSENGER ID #272
HR	138	76
HS	240	201
AD	100	61
HD	220	96

FIGURE 5
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995



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

33" Side Profile

Level 5 @ Window Top	= <u>1328</u> mm
Level 4 @ Window Sill	= <u>860</u> mm
Level 3 @ Mid Door	= <u>585</u> mm
Level 2 @ Occupant H-Point	= <u>477</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/Volkswagen/Golf III/5Door Hatchback

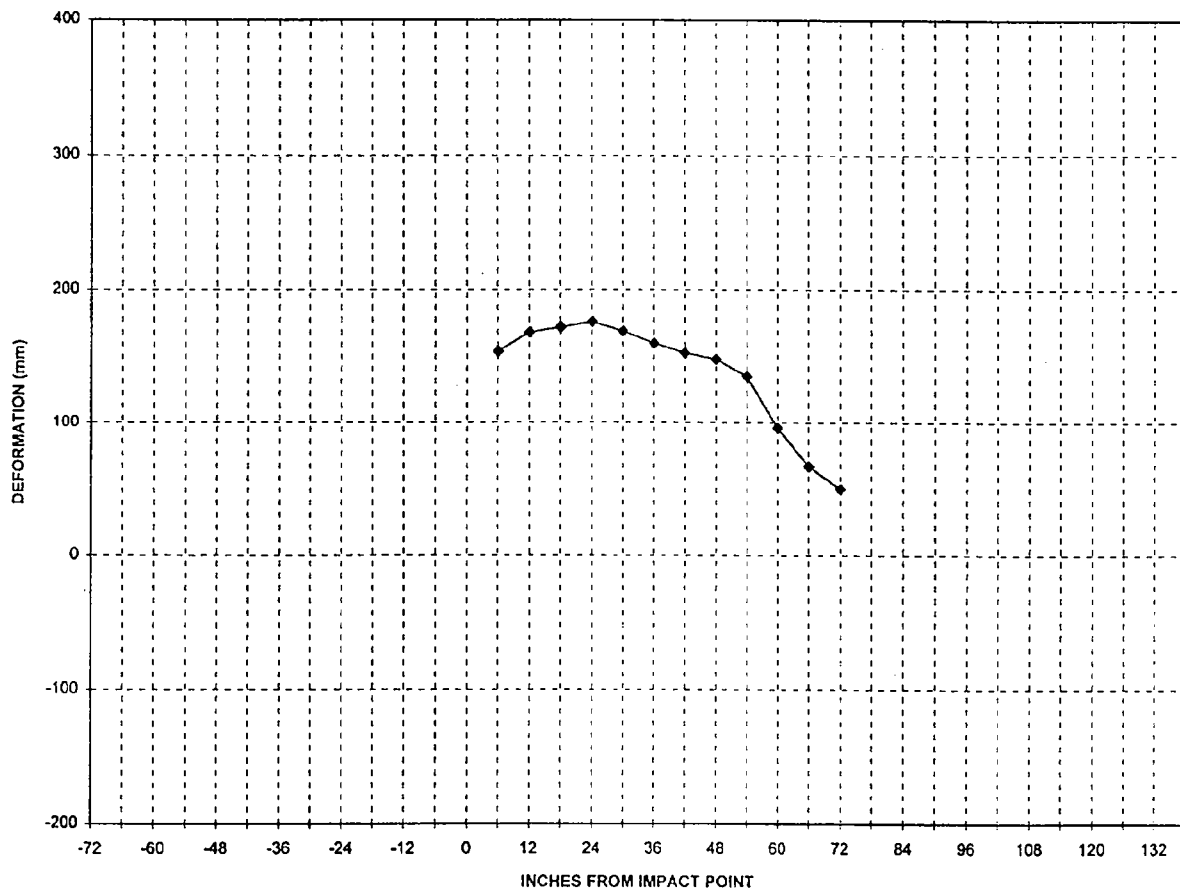
Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

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	916	1070	154
12	916	1084	168
18	915	1087	172
24	914	1090	176
30	915	1084	169
36	916	1076	160
42	916	1069	153
48	917	1065	148
54	917	1052	135
60	916	1012	96
66	915	982	67
72	915	965	50
78	---	---	---
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 1 AT AXLE CENTER LINE

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH
LEVEL 2 AT OCCUPANT H-POINT

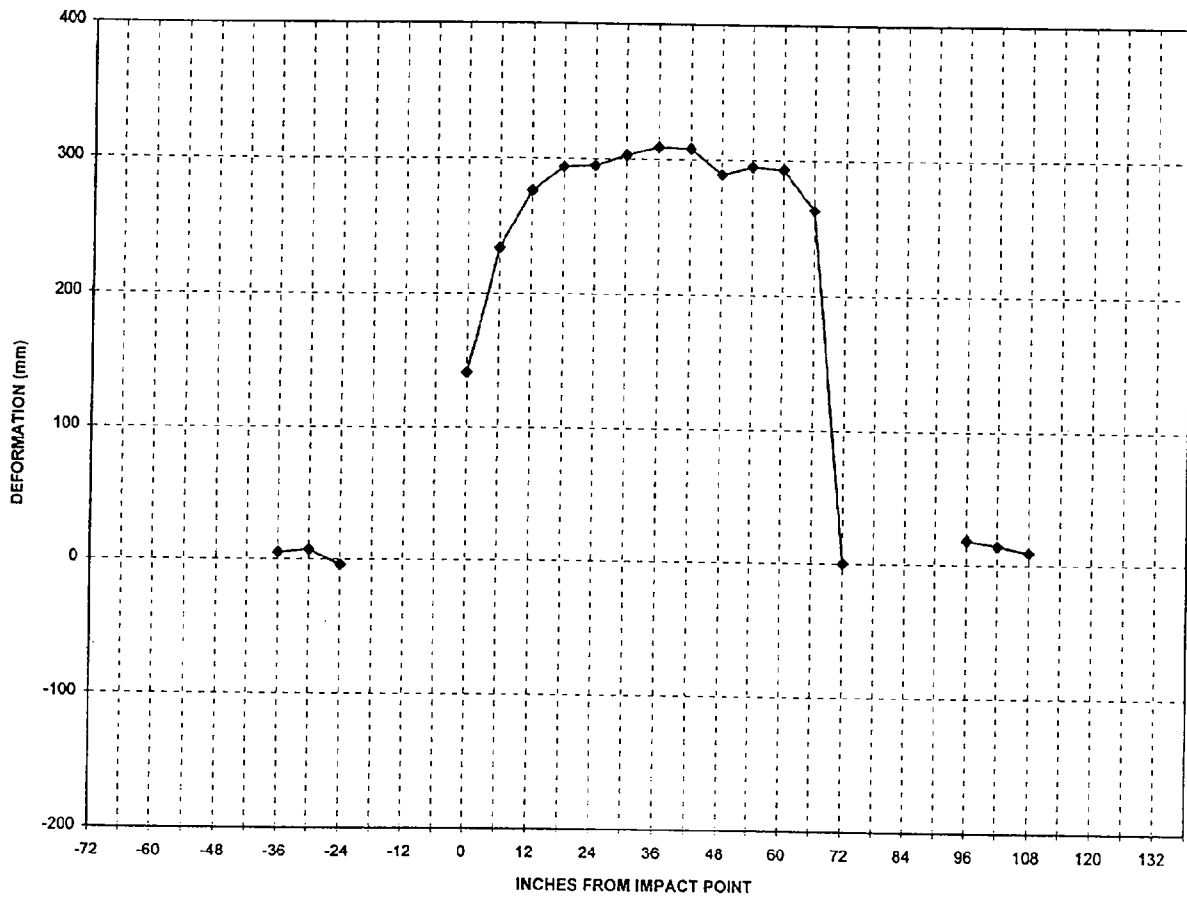
Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	930	935	5
-30	903	910	7
-24	899	895	-4
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	864	1005	141 (impact point)
6	867	1100	233
12	864	1140	276
18	861	1155	294
24	860	1155	295
30	859	1162	303
36	858	1167	309
42	862	1170	308
48	861	1150	289
54	862	1157	295
60	866	1159	293
66	869	1132	263
72	970	970	0
78	---	---	---
84	---	---	---
90	---	---	---
96	882	900	18
102	906	920	14
108	936	945	9
114	---	---	---
120	---	---	---
126	---	---	---
132	---	---	---
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

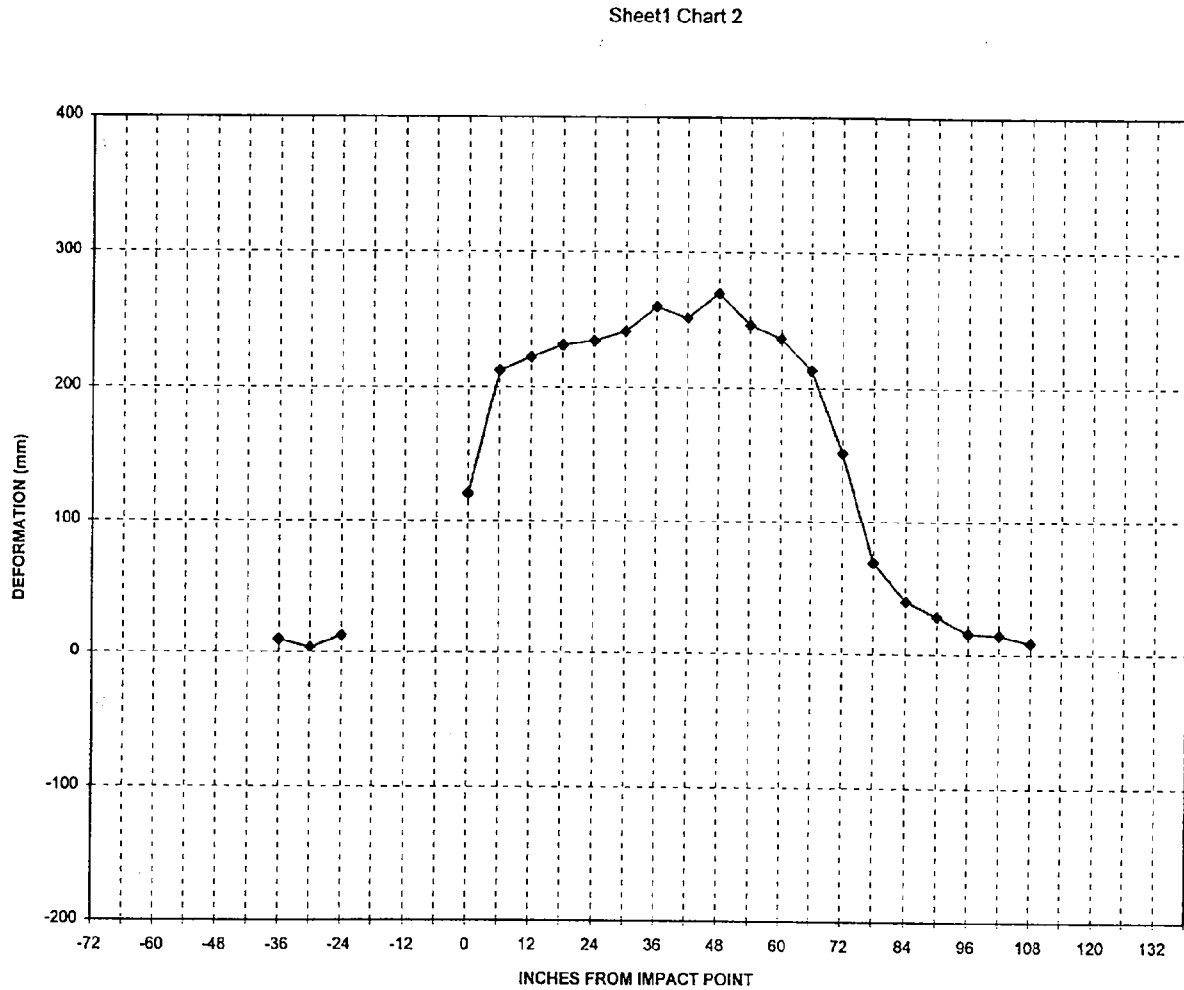
TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH
LEVEL 3 AT MID-DOOR

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback
Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	985	995	10
-30	939	943	4
-24	897	910	13
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	865	985	120 (impact point)
6	868	1080	212
12	865	1087	222
18	864	1095	231
24	861	1095	234
30	861	1102	241
36	861	1120	259
42	861	1112	251
48	863	1132	269
54	866	1112	246
60	868	1104	236
66	872	1085	213
72	876	1027	151
78	875	944	69
84	876	916	40
90	876	905	29
96	909	925	16
102	945	960	15
108	983	992	9
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 3 AT MID-DOOR

TABLE 7

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

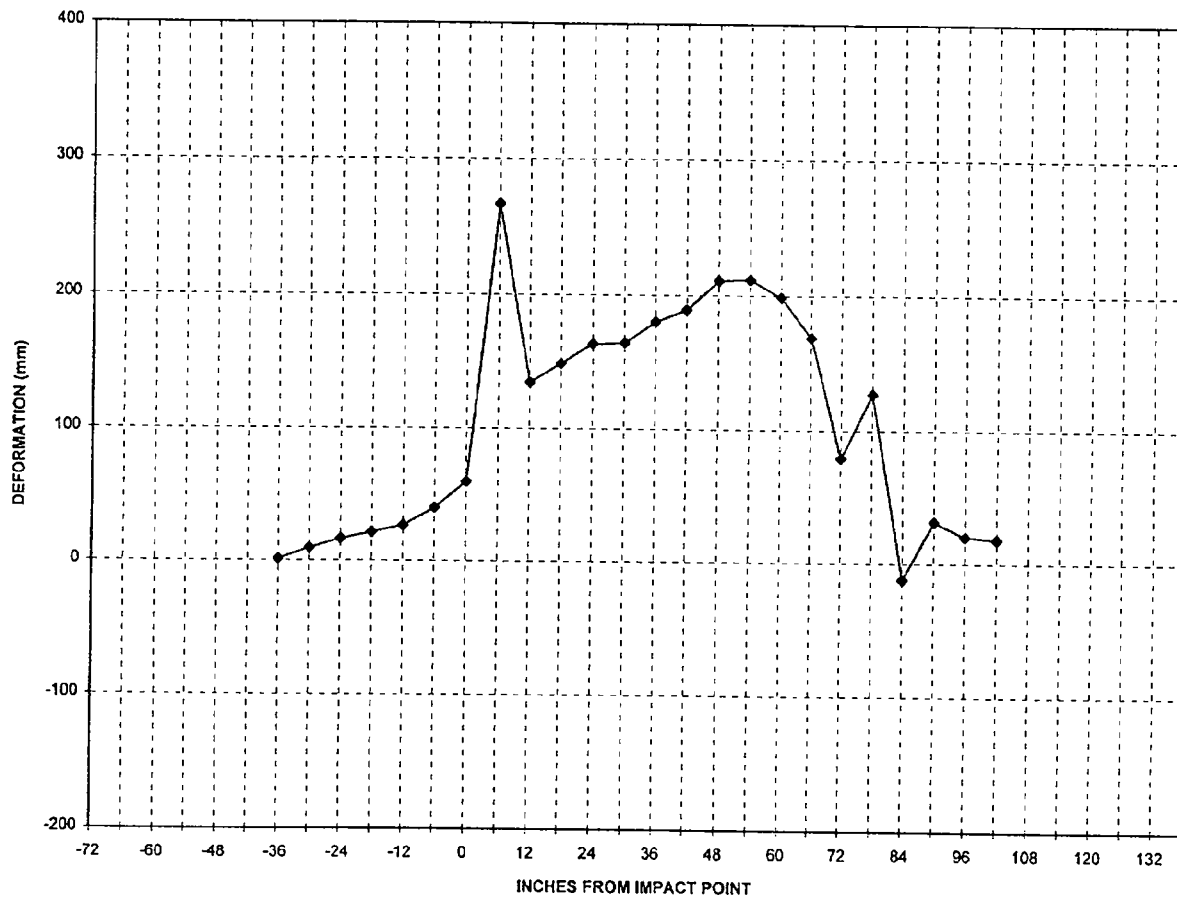
Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	1049	1050	1
-30	1011	1020	9
-24	984	1000	16
-18	969	990	21
-12	958	984	26
-6	945	984	39
0	935	994	59 (impact point)
6	933	1200	267
12	928	1062	134
18	927	1075	148
24	927	1090	163
30	927	1091	164
36	930	1110	180
42	931	1120	189
48	934	1145	211
54	938	1150	212
60	943	1142	199
66	946	1115	169
72	953	1032	79
78	964	1091	127
84	974	962	-12
90	989	1020	31
96	1012	1032	20
102	1032	1050	18
108	---	---	---
114	---	---	---
120	---	---	---
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/Volkswagen/Golf III/5 Door HatchbackVehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

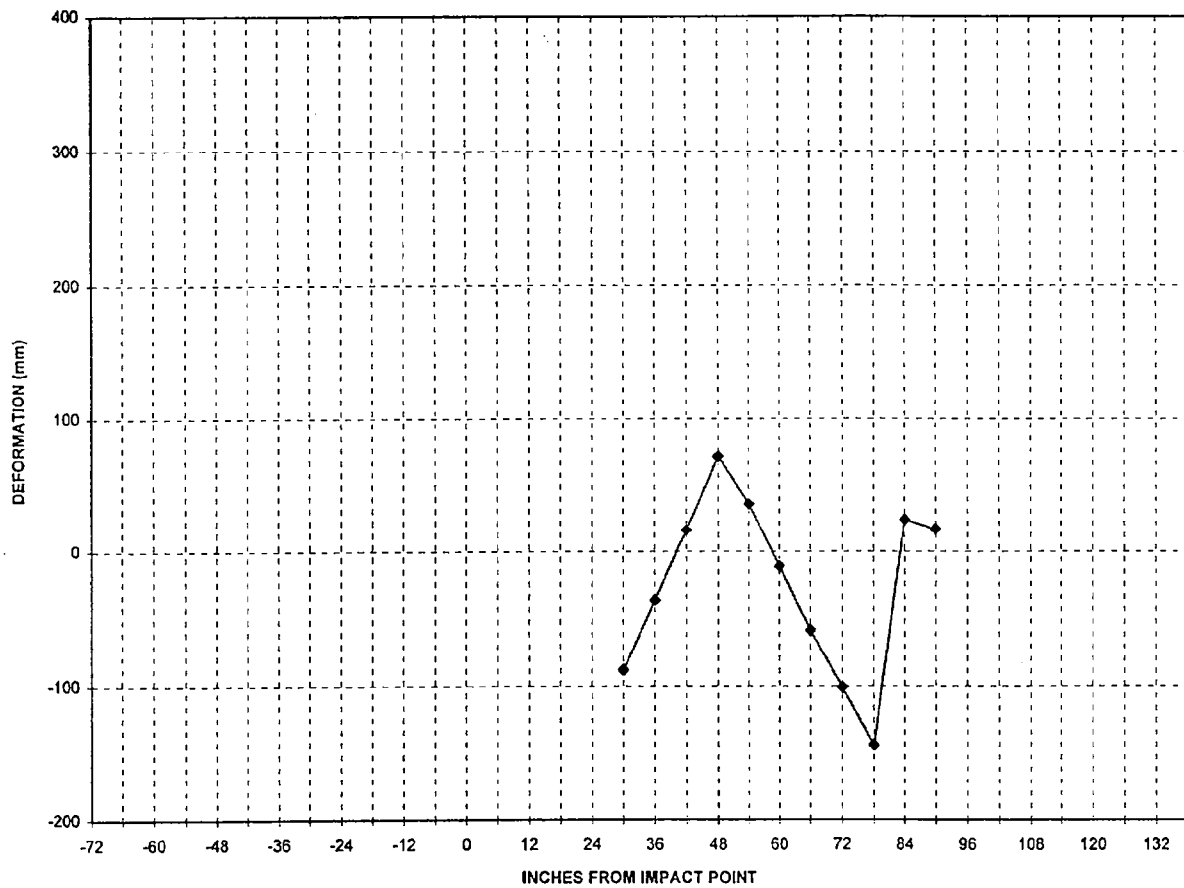
Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	---	---	---
-30	---	---	---
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	---	---	---
6	---	---	---
12	---	---	---
18	---	---	---
24	---	---	---
30	1188	1100	-88
36	1190	1154	-36
42	1194	1210	16
48	1196	1268	72
54	1196	1232	36
60	1198	1187	-11
66	1205	1147	-58
72	1206	1105	-101
78	1212	1068	-144
84	1218	1242	24
90	1230	1247	17
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

Sheet1 Chart 2



LEVEL 5 AT WINDOW TOP

FIGURE 7
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

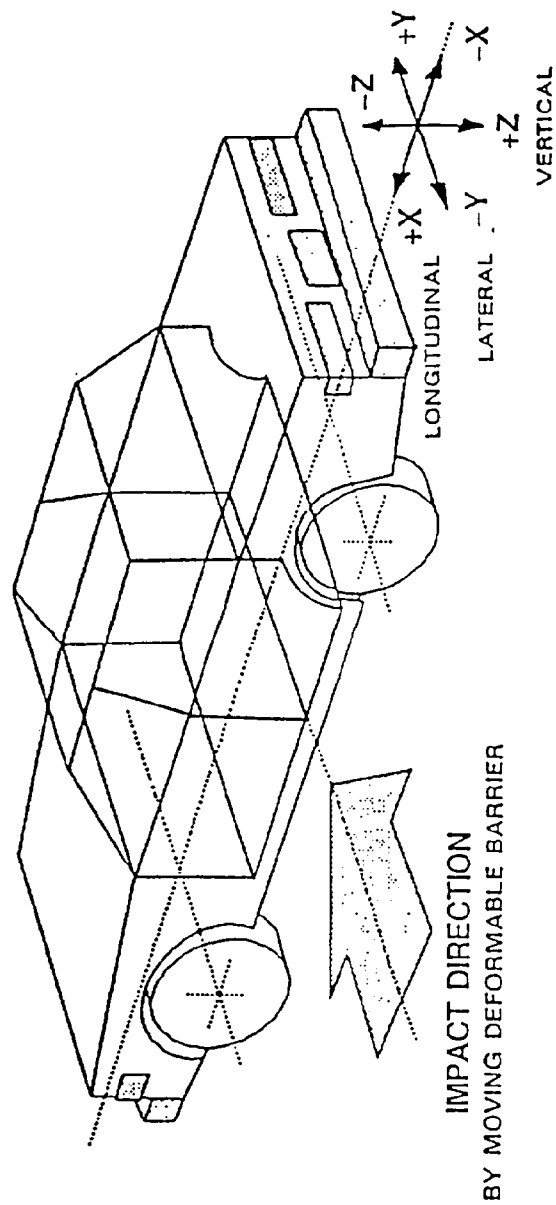
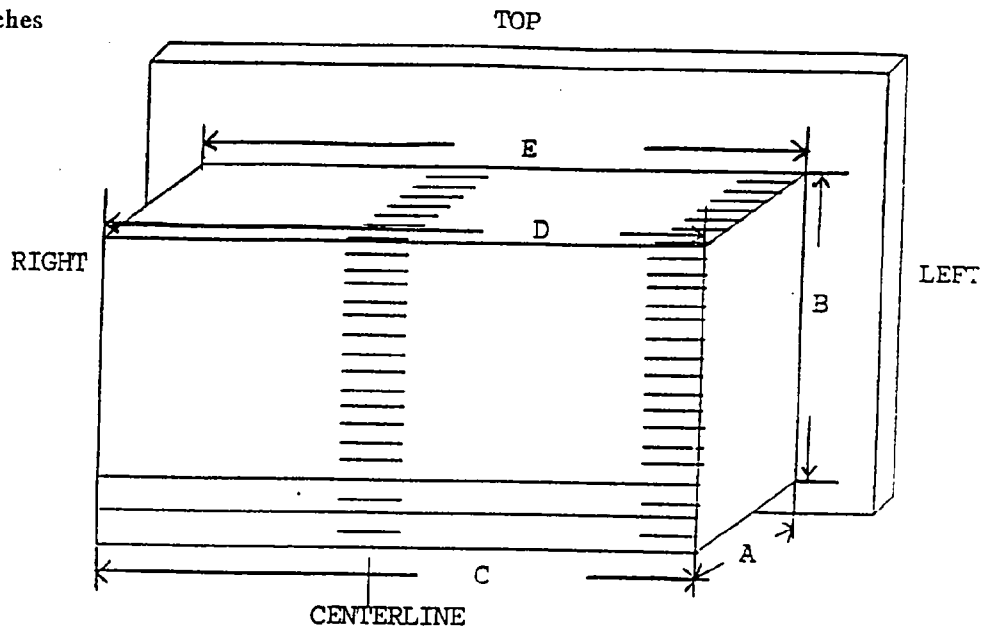


FIGURE 8
MDB FACE DIMENSIONS

Measurements in inches

A = 15.0
B = 22.1
C = 66.0
D = 66.2
E = 66.3



Measurements in inches

	Right	Left
A =	<u>10.9</u>	<u>10.9</u>
B =	<u>13.0</u>	<u>13.0</u>
C =	<u>21.0</u>	<u>20.9</u>
D =	<u>33.0</u>	<u>33.0</u>

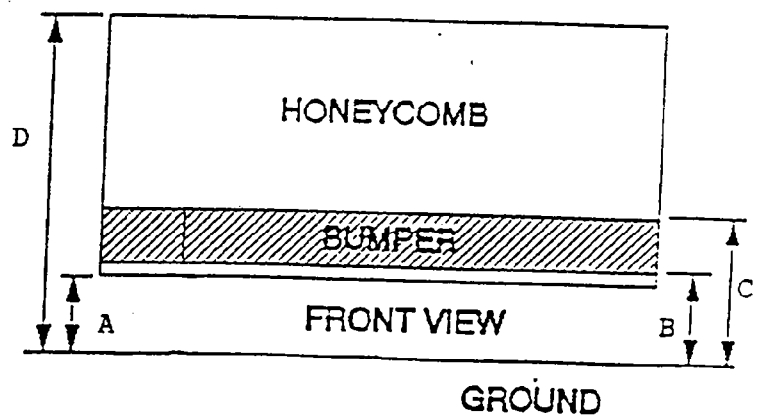


TABLE 8

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 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)	1.5 (38)	2.2 (56)	3.7 (94)
28"	.2 (5)	.1 (3)	1.7 (43)	3.1 (79)
24"	0 (0)	0 (0)	1.4 (36)	2.5 (64)
20"	0 (0)	0 (0)	1.3 (33)	2.0 (51)
16"	0 (0)	.1 (3)	1.2 (30)	1.7 (43)
12"	.1 (3)	.1 (3)	1.1 (28)	1.7 (43)
8"	.2 (5)	.2 (5)	1.1 (28)	1.4 (36)
4"	.2 (5)	.2 (5)	1.0 (25)	1.3 (33)
0"	.2 (5)	.2 (5)	1.0 (25)	1.2 (30)
4"	.3 (8)	.2 (5)	1.0 (25)	1.1 (28)
8"	.4 (10)	.3 (8)	1.0 (25)	1.1 (28)
12"	.5 (13)	.3 (8)	1.0 (25)	1.1 (28)
16"	.8 (20)	.4 (10)	1.2 (30)	1.1 (28)
20"	1.4 (36)	.4 (10)	1.2 (30)	1.2 (30)
24"	1.8 (46)	.7 (18)	1.4 (36)	1.7 (43)
28"	3.1 (79)	2.0 (51)	2.0 (51)	1.8 (46)
32"	4.5 (114)	2.9 (74)	2.5 (64)	2.5 (64)

Right

Left

TABLE 9

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door HatchbackVehicle NHTSA No.: CS5801 TEST DATE: January 18, 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	2266	700	329	4.8	5.0	17.9	2.4	3.6	12.5	21.8
2	Rt. Side Sill @ Rear Seat	1410	672	350	6.7	5.2	22.5	2.2	311.6	11.4	311.6
3	Rr. Floorpan Above Axle	744	-15	414	3.0	12.4	23.8	3.1	13.2	23.9	34.5
4	Left Side Sill @ Rr. Seat	1541	-698	185	---	---	40.2	3.4	---	---	---
5	Left Side Sill @ Frt. Seat	2190	-698	187	---	---	65.7	5.8	---	---	---
6	Left Lower A-Post	2725	-710	400	---	---	150.4	62.2	---	---	---
7	Left Mid A-Post	2780	-722	863	---	---	590.2	602.9	---	---	---
8	Left B-Post Lower	1648	-645	247	---	---	49.6	8.7	---	---	---
9	Right Rear Occupant Compartment	1448	250	360	---	---	23.5	1.8	---	---	---
10	Driver Left Seat Track	1816	-595	180	---	---	47.5	15.1	---	---	---

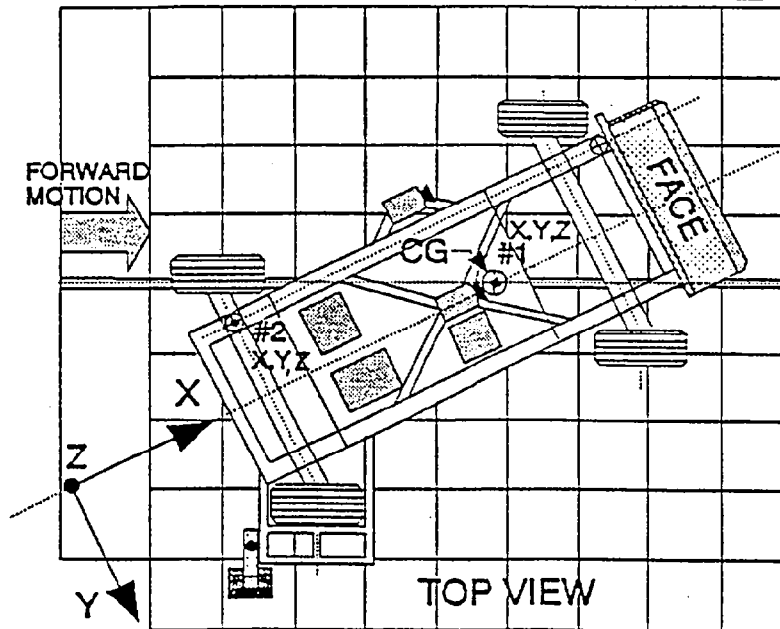
*Reference: X - Rear Bumper (+ Forward)
Y - Vehicle Centerline (+ To right)
Z - Ground Level (+ Up)

FIGURE 9

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995



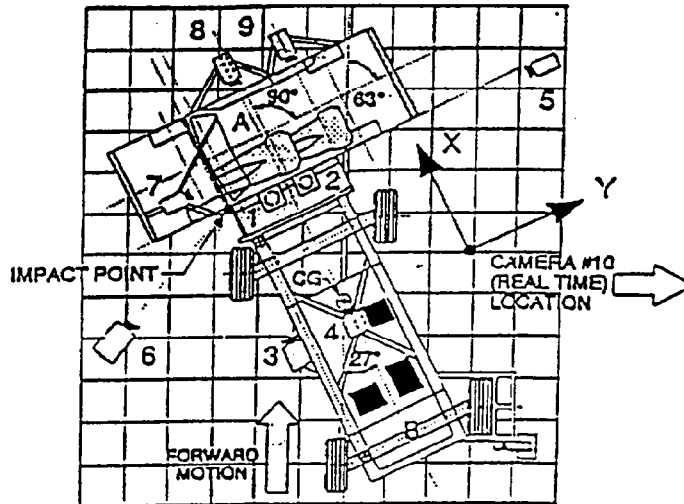
Accel. No.	Location	Coordinates (mm)			Pos. Direct.		Neg. Direct.	
					Max (g)	Time (msec)	Max (g)	Time (msec)
		X	Y	Z				
1	MDB Center of Gravity							
	Longitudinal ... X				1.5	123	17.6	37
	Lateral Y	-1092	0	483	0.8	64	7.9	29
	Vertical Z				9.0	48	15.6	43
	Resultant R				22.8	43	0.1	-18
2	Rear Frame Member							
	Longitudinal ... X	-2591	-625	622	1.3	184	21.5	30
	Lateral Y				5.5	22	1.5	160

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/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995



Camera No.	View	Coordinates (mm)			Angle	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
	Real Time					13	24
1	Top Impact						no run
2	Top Wide					8	1087
3	Cart Pointer					35	787
4	Cart					13	1000
5	Rear Impact	3850	7400	1020	90°	25	1093
6	Left Impact	3150	2500	1540	90°	13	1010
7	Onboard Hood					13	1015
8	Onboard Driver					7.5	930
9	Onboard Passenger					8	no run

* 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/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 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 33.2 mph (53.3 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:

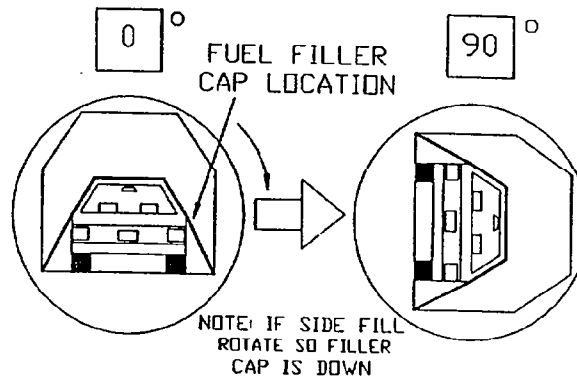
None

TABLE 11
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

TEST PHASE: 0° - 90°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 44 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 44 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.

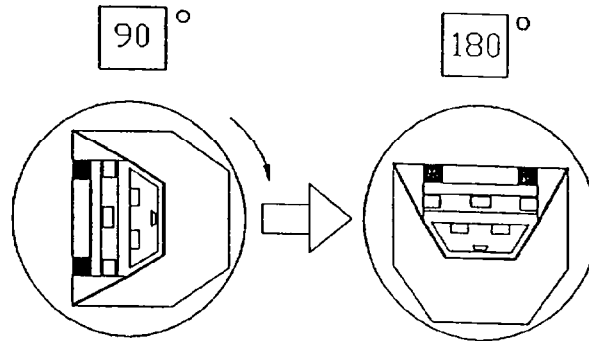
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

TEST PHASE: 90° - 180°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 29 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 29 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.

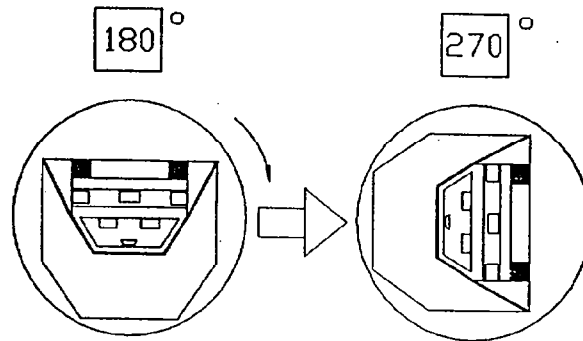
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

TEST PHASE: 180° - 270°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 16 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds
TOTAL 7 minutes 16 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.

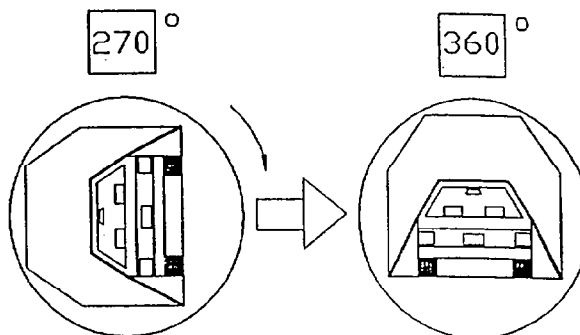
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1995/Volkswagen/Golf III/5 Door Hatchback

Vehicle NHTSA No.: CS5801 TEST DATE: January 18, 1995

TEST PHASE: 270° - 360°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 41 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 41 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

TABLE OF PHOTOGRAPHS

	<u>Page No.</u>
Photo No. A-1 - Pre-Test Front View of Test Vehicle	A-1
Photo No. A-2 - Post-Test Front View of Test Vehicle	A-2
Photo No. A-3 - Pre-Test Rear View of Test Vehicle	A-3
Photo No. A-4 - Post-Test Rear View of Test Vehicle	A-4
Photo No. A-5 - Pre-Test Left Side View of Test Vehicle	A-5
Photo No. A-6 - Post-Test Left Side View of Test Vehicle	A-6
Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)	A-7
Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)	A-8
Photo No. A-9 - Pre-Test MDB Position Against Vehicle Overhead View	A-9
Photo No. A-10 - Post-Test MDB Position Against Vehicle Overhead View	A-10
Photo No. A-11 - Post-Test MDB Position Against Vehicle (left side)	A-11
Photo No. A-12 - Post-Test MDB Positioned Against Vehicle (right side)	A-12
Photo No. A-13 - Pre-Test MDB Top View	A-13
Photo No. A-14 - Post-Test MDB Top View	A-14
Photo No. A-15 - Pre-Test MDB Front View	A-15
Photo No. A-16 - Post-Test MDB Front View	A-16
Photo No. A-17 - Pre-Test MDB Left Side View	A-17
Photo No. A-18 - Post-Test MDB Left Side View	A-18
Photo No. A-19 - Pre-Test MDB Right Side View	A-19
Photo No. A-20 - Post-Test MDB Right Side View	A-20
Photo No. A-21 - Pre-Test Driver Dummy Right Side View	A-21
Photo No. A-22 - Post-Test Driver Dummy Right Side View	A-22
Photo No. A-23 - Pre-Test Driver Dummy Left Side View	A-23
Photo No. A-24 - Post-Test Driver Dummy Left Side View	A-24
Photo No. A-25 - Pre-Test Driver Dummy Left Side View (Door Open)	A-25
Photo No. A-26 - Pre-Test Driver Dummy Shoulder and Door Top View	A-26
Photo No. A-27 - Post-Test Driver Dummy Shoulder and Door Top View	A-27
Photo No. A-28 - Post-Test Driver Dummy Contact	A-28
Photo No. A-29 - Pre-Test Passenger Dummy Right Side View	A-29
Photo No. A-30 - Post-Test Passenger Dummy Right Side View	A-30
Photo No. A-31 - Pre-Test Passenger Dummy Left Side View	A-31
Photo No. A-32 - Post-Test Passenger Dummy Left Side View	A-32
Photo No. A-33 - Pre-Test Passenger Dummy Left Side View (Door Open)	A-33

TABLE OF PHOTOGRAPHS

	<u>Page No.</u>
Photo No. A-34 - Pre-Test Passenger Dummy Shoulder and Door Top View	A-34
Photo No. A-35 - Post-Test Passenger Dummy Shoulder and Door Top View	A-35
Photo No. A-36 - Post-Test Passenger Dummy Contact	A-36
Photo No. A-37 - Left Front Impact Point on Vehicle	A-37
Photo No. A-38 - Vehicle Certification Label	A-38
Photo No. A-39 - Tire Placard	A-39
Photo No. A-40 - Impact	A-40
Photo No. A-41 - Rollover 90°	A-41
Photo No. A-42 - Rollover 180°	A-42
Photo No. A-43 - Rollover 270°	A-43
Photo No. A-44 - Rollover 360°	A-44

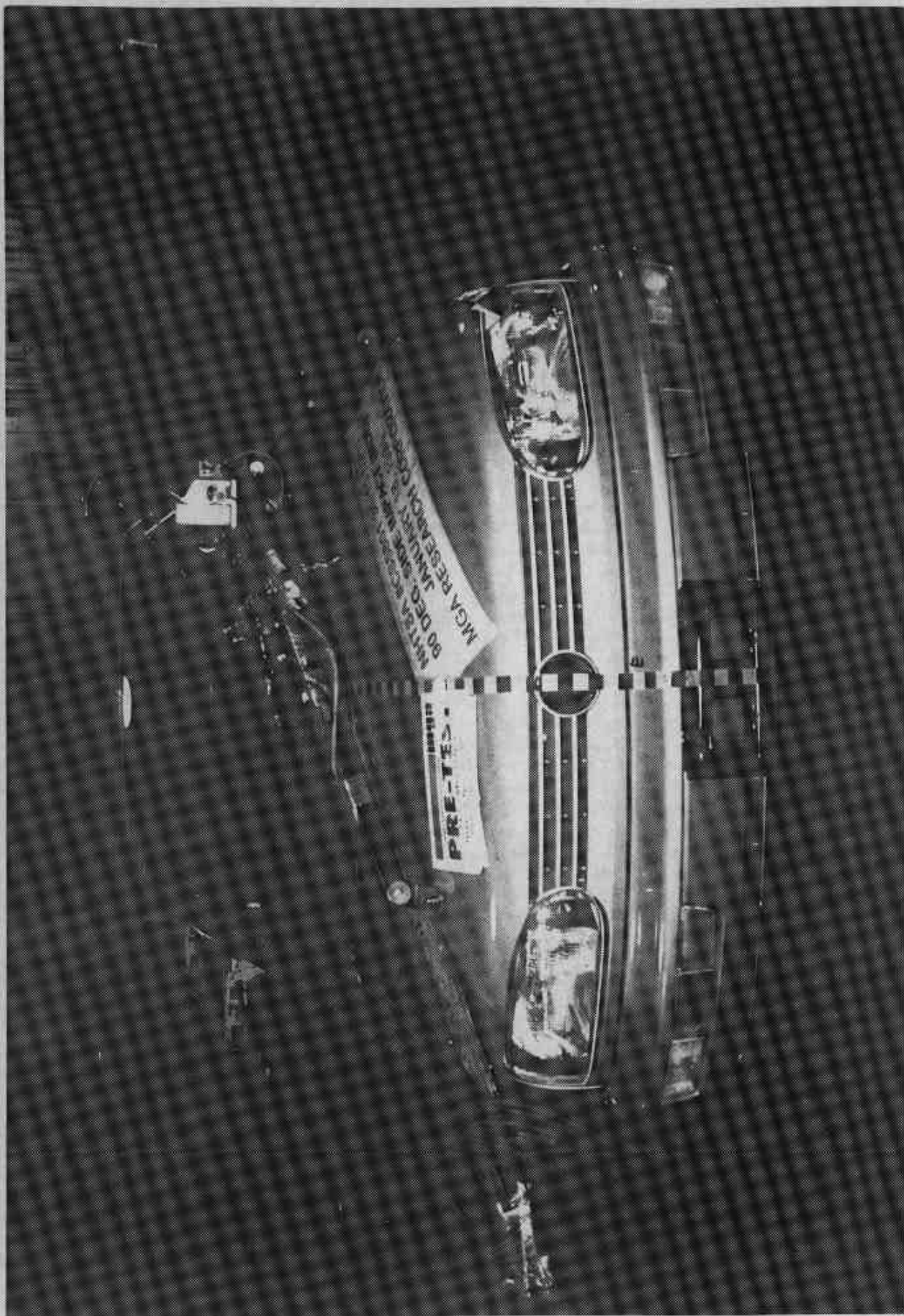


Photo No. A-1 - Pre-Test Front View of Test Vehicle

A-1

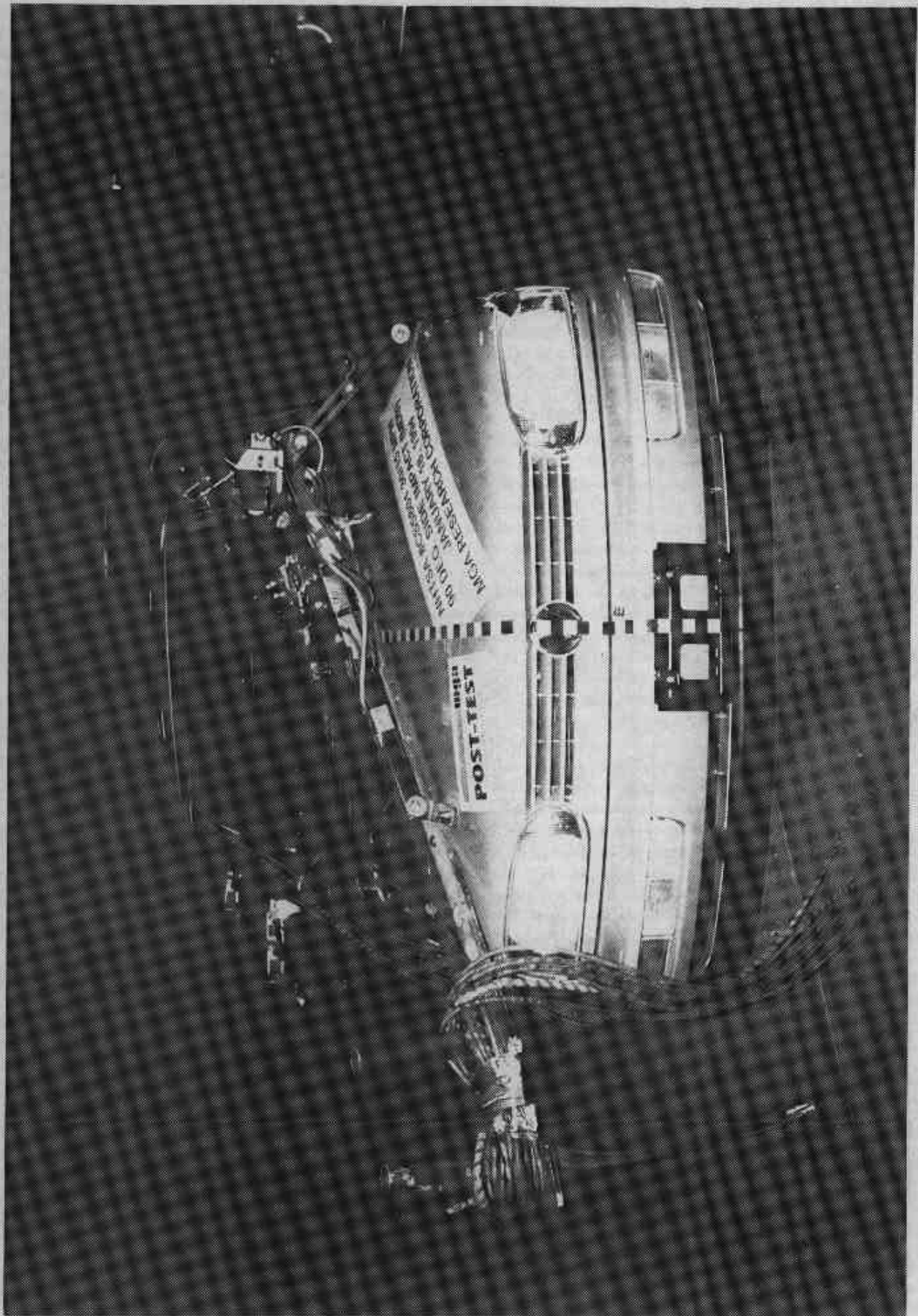


Photo No. A-2 - Post-Test Front View of Test Vehicle

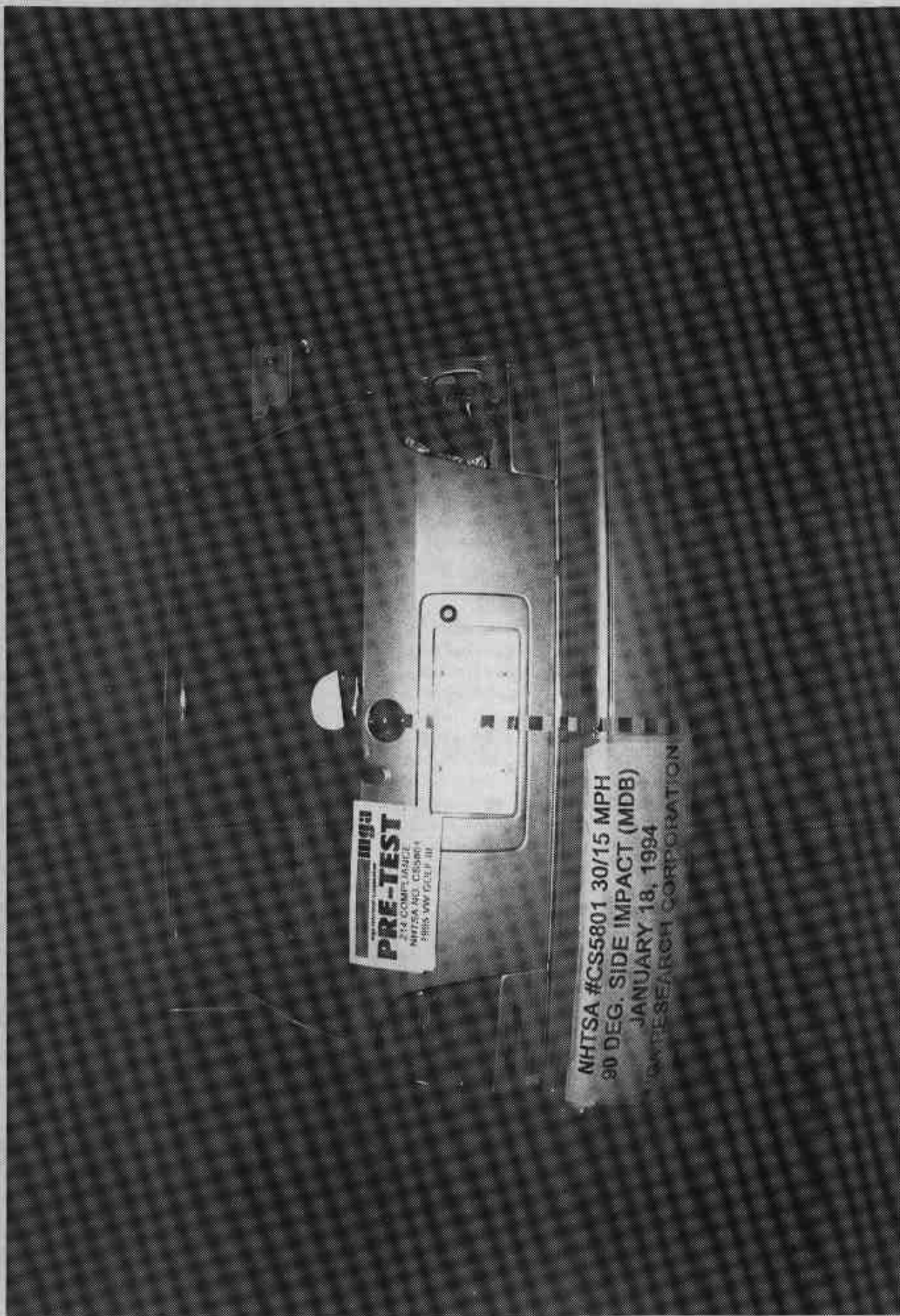


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

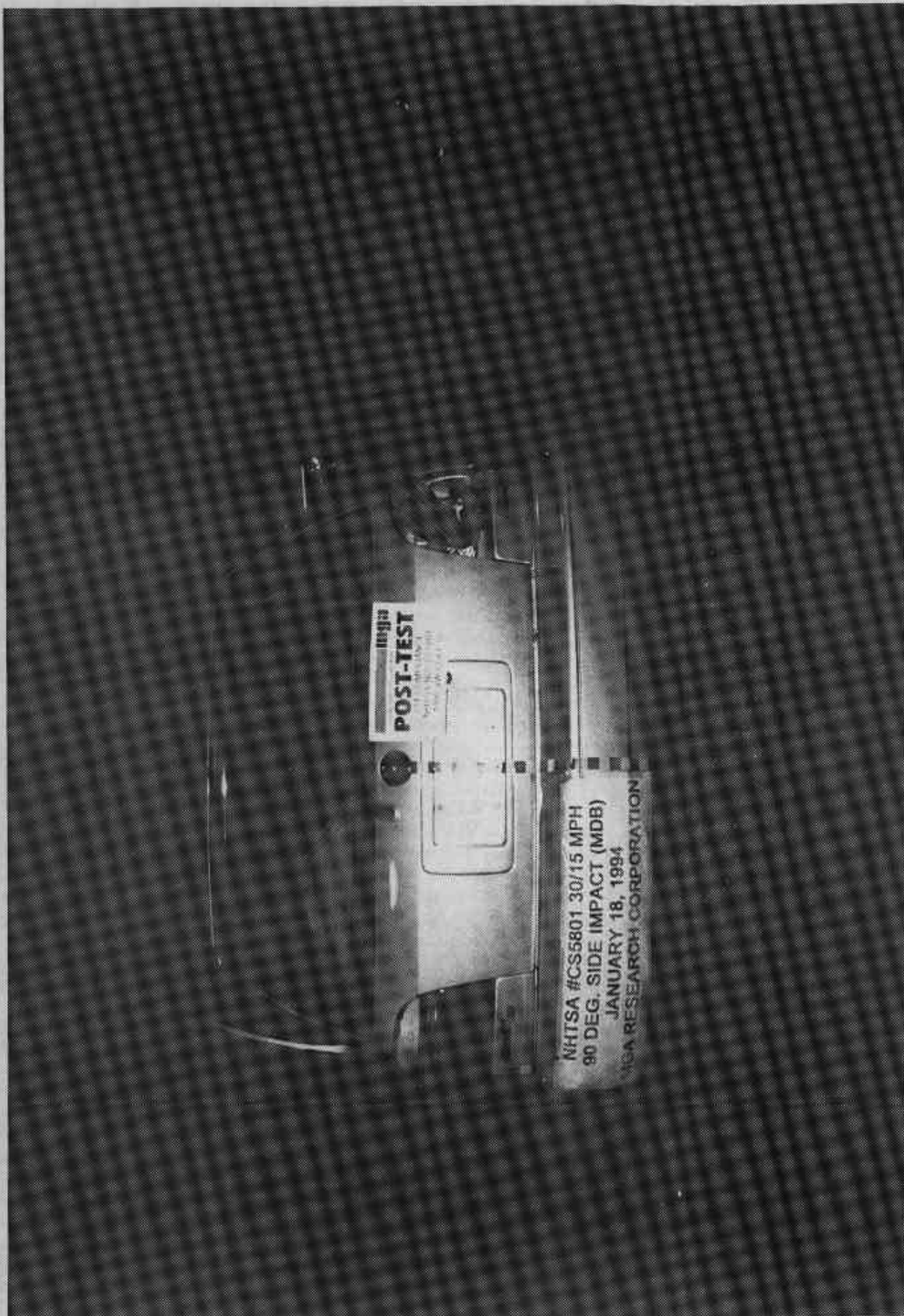


Photo No. A-4 - Post-Test Rear View of Test Vehicle

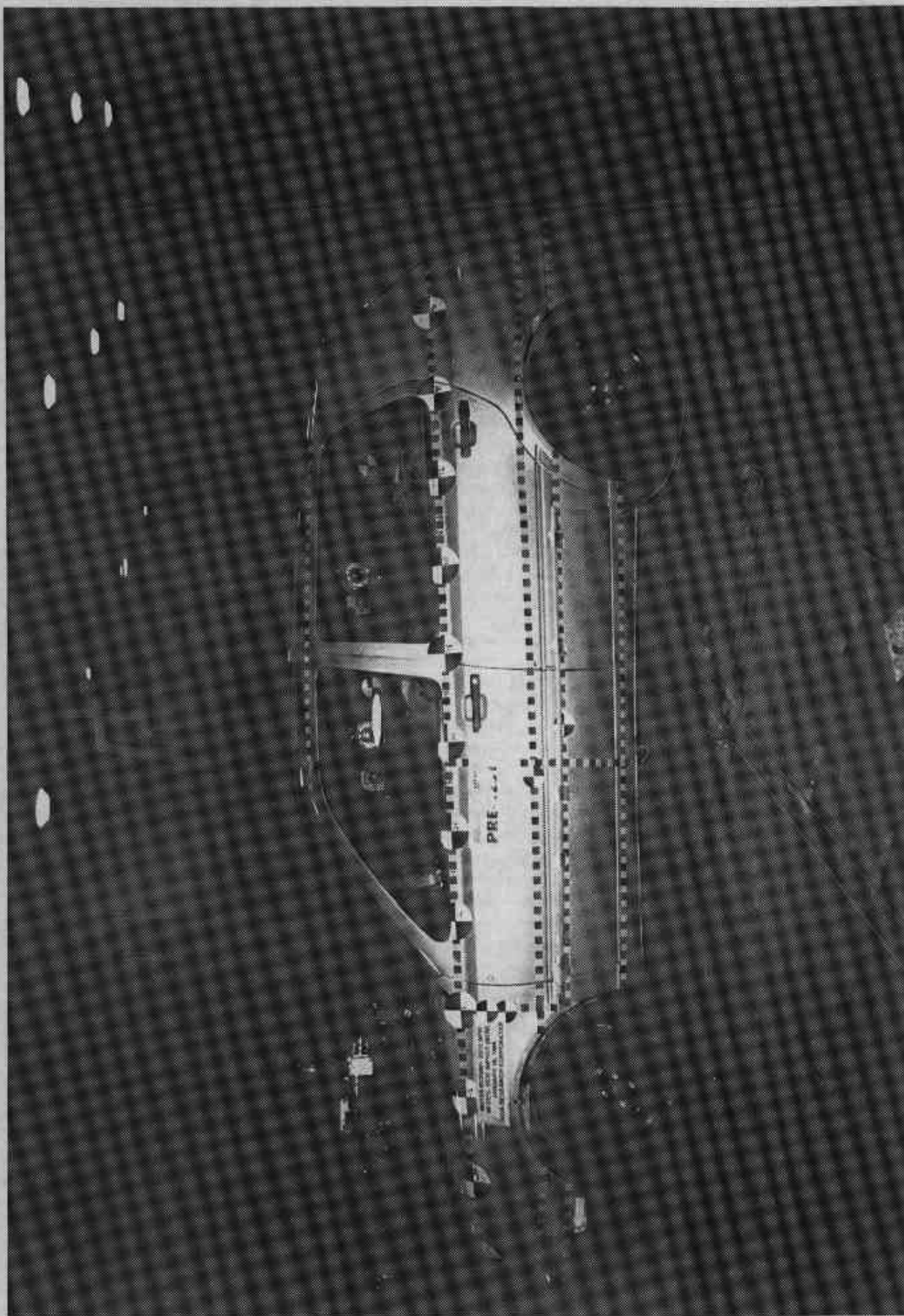


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

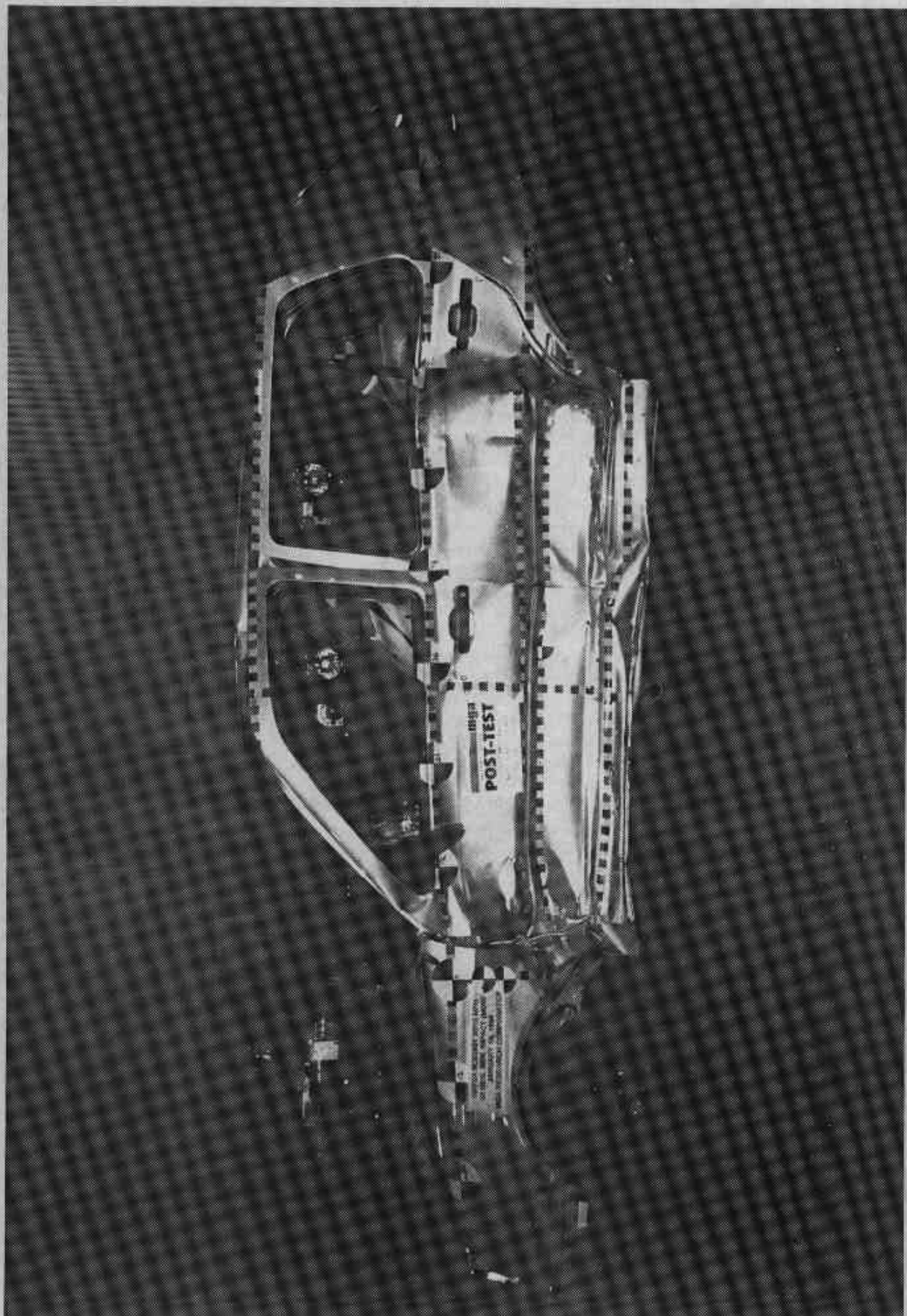


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

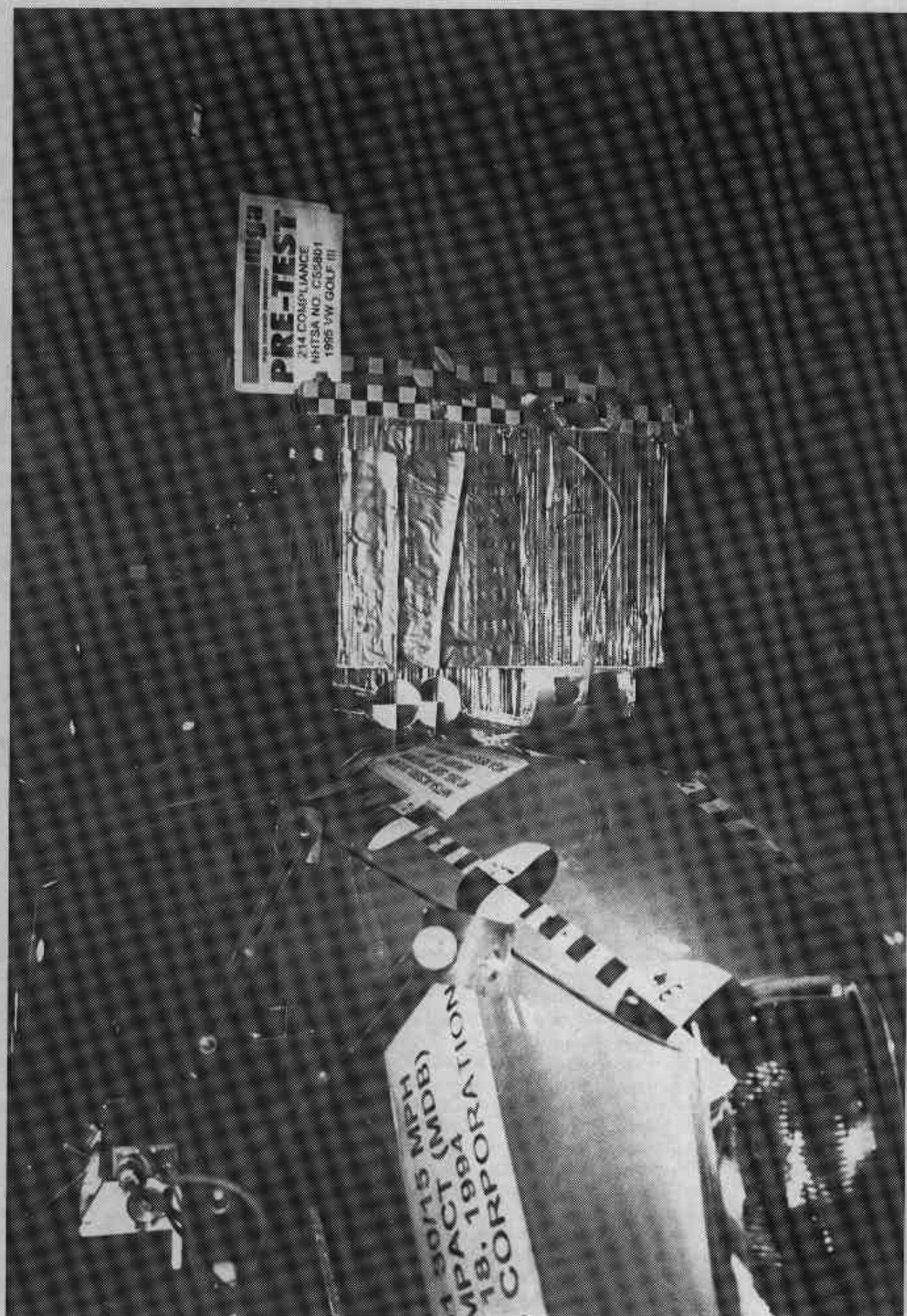


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

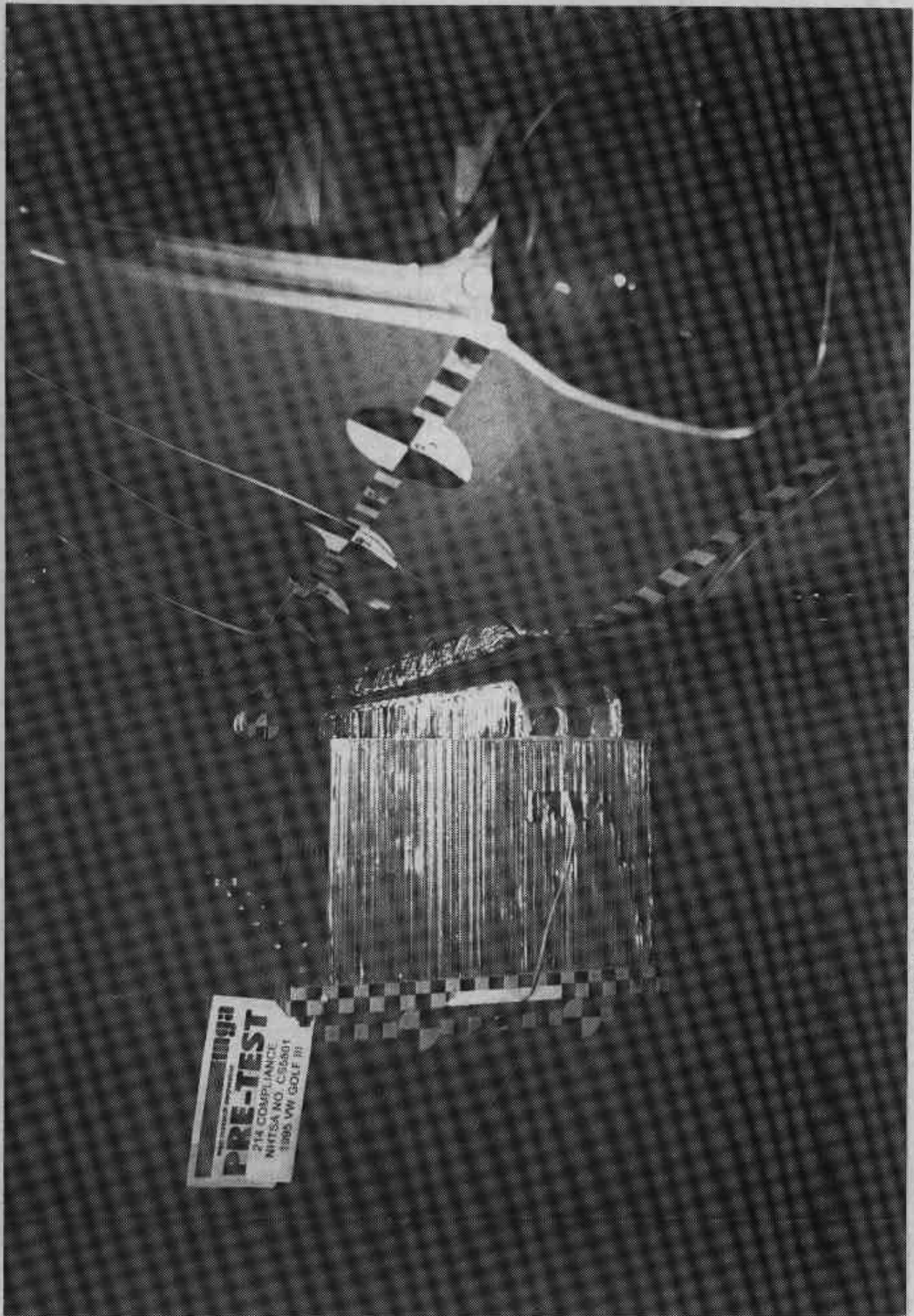


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)



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

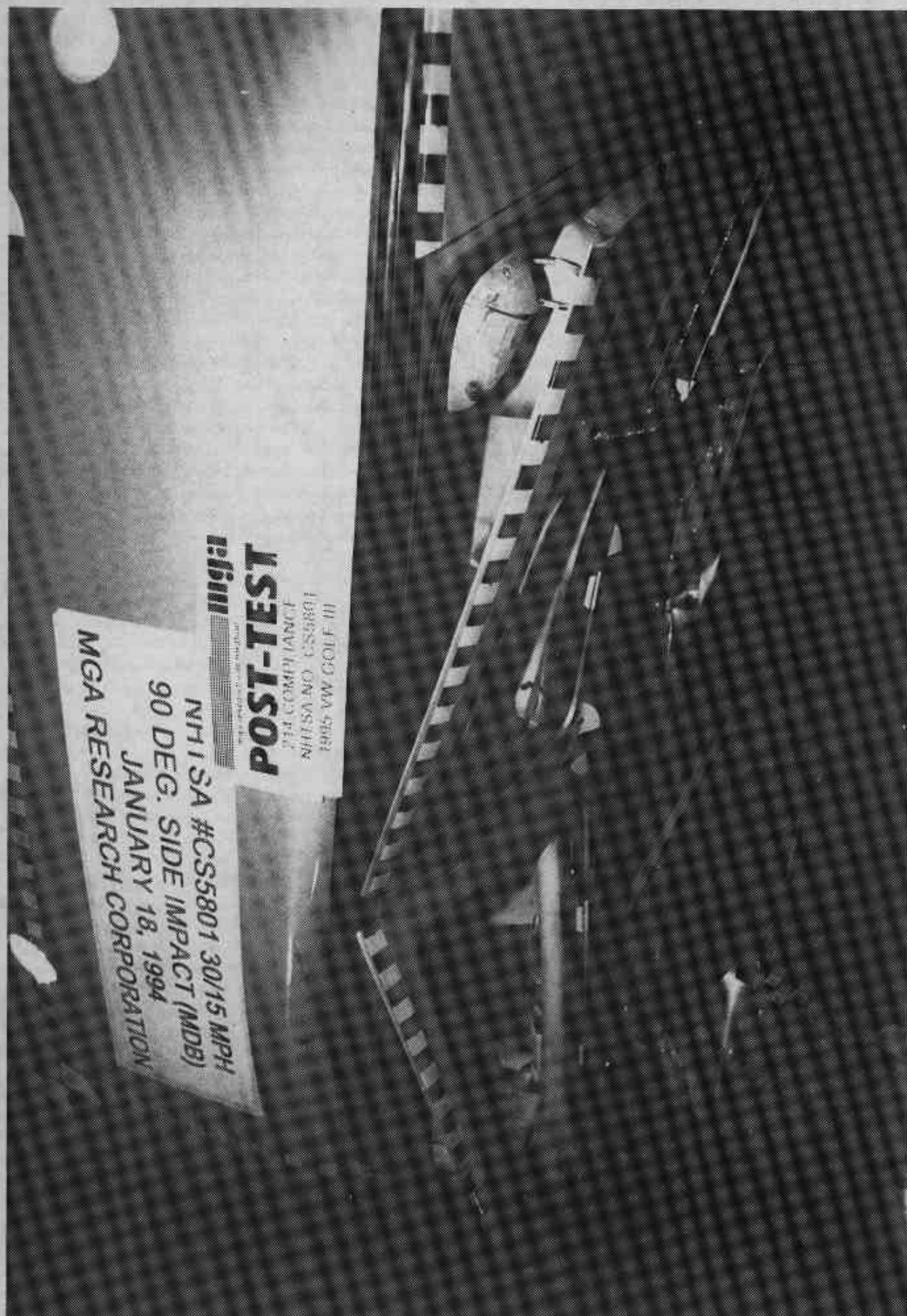


Photo No. A-10 - Post-Test MDB Position Against Vehicle Overhead View

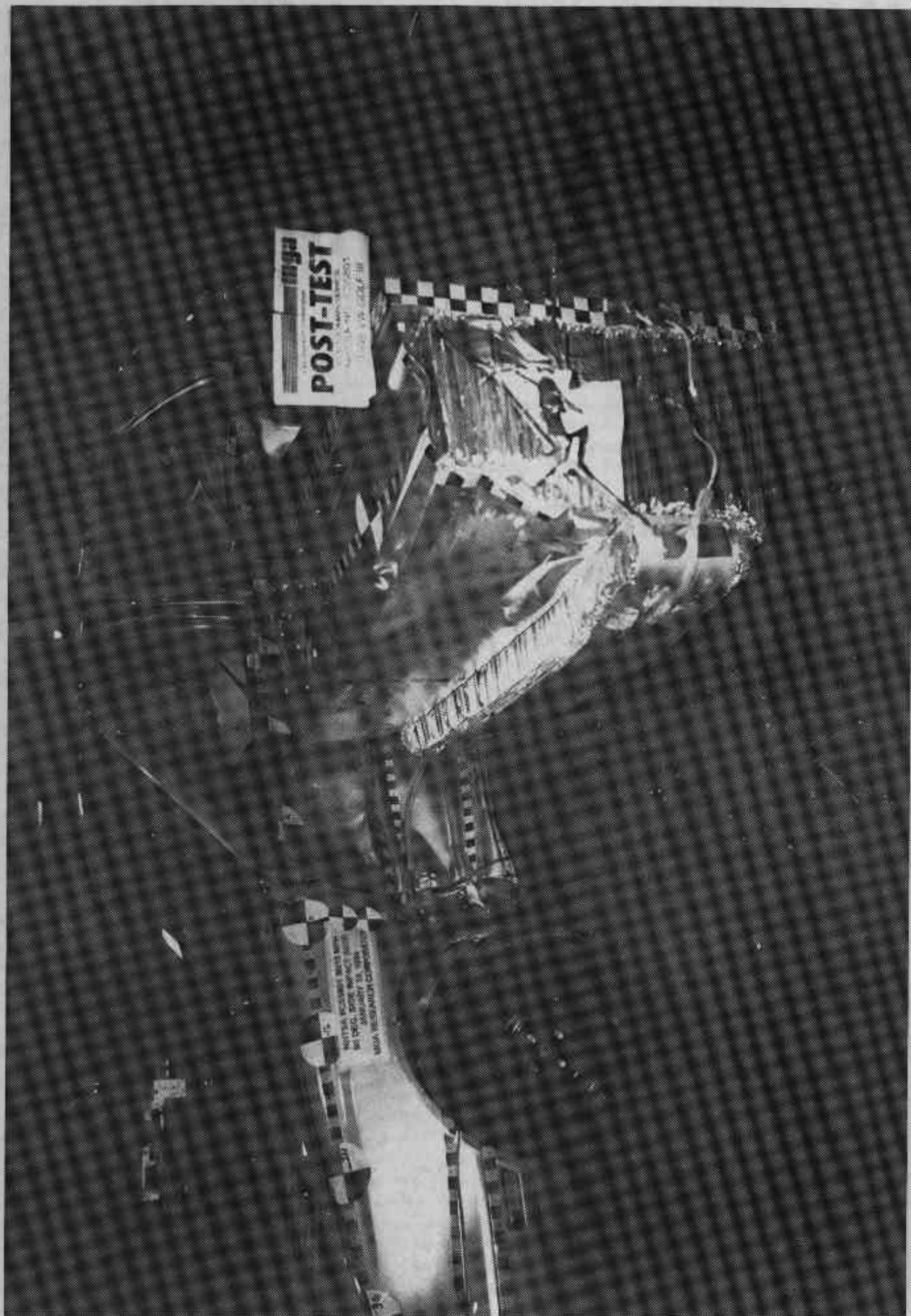


Photo No. A-11 - Post-Test MDE Position Against Vehicle (left side)

A-11



Photo No. A-12 - Post-Test MDE Positioned Against Vehicle (right side)

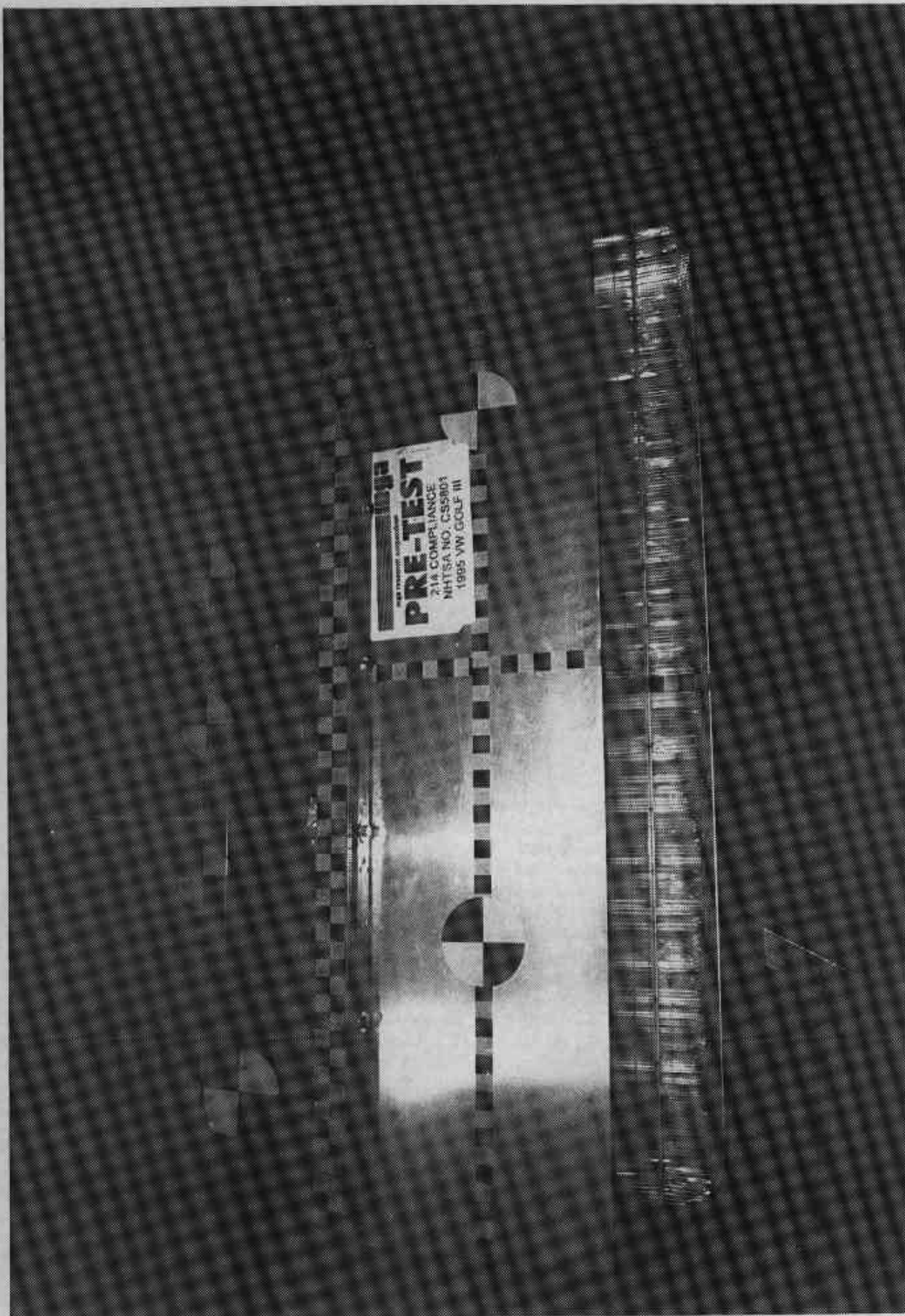


Photo No. A-13 - Pre-Test MDB Top View

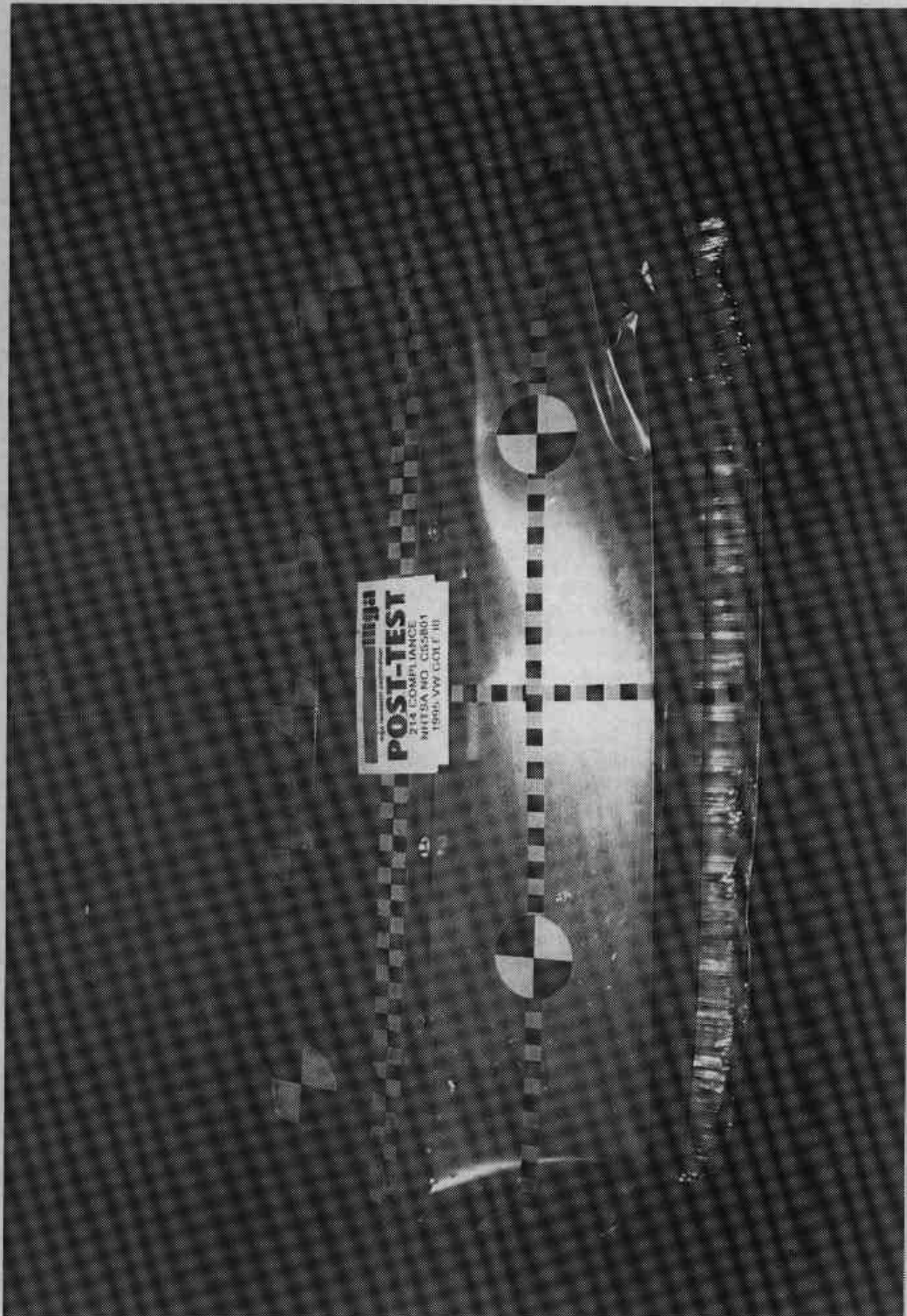


Photo No. A-14 - Post-Test MDB Top View

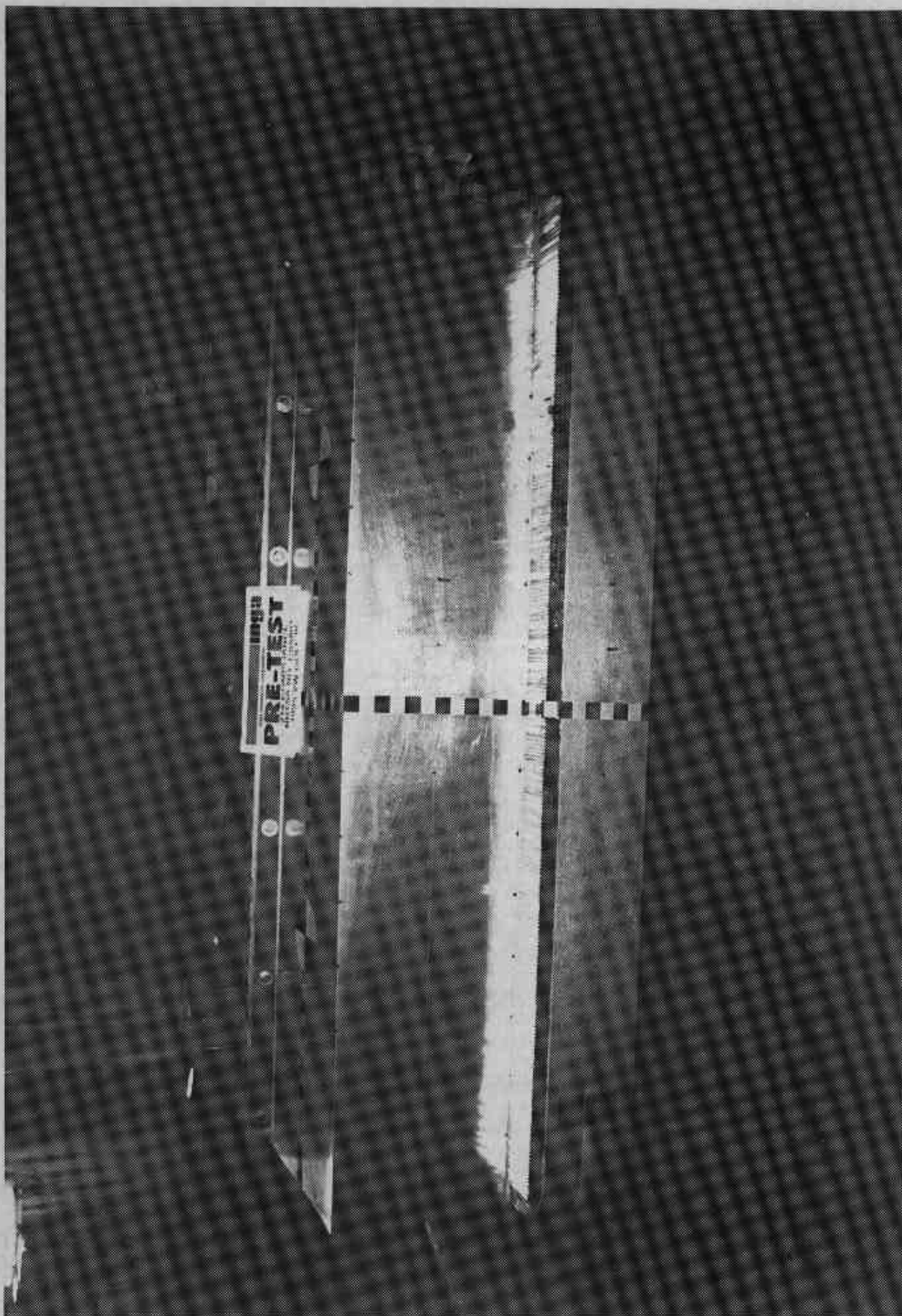


Photo No. A-15 - Pre-Test MDB Front View

A-15

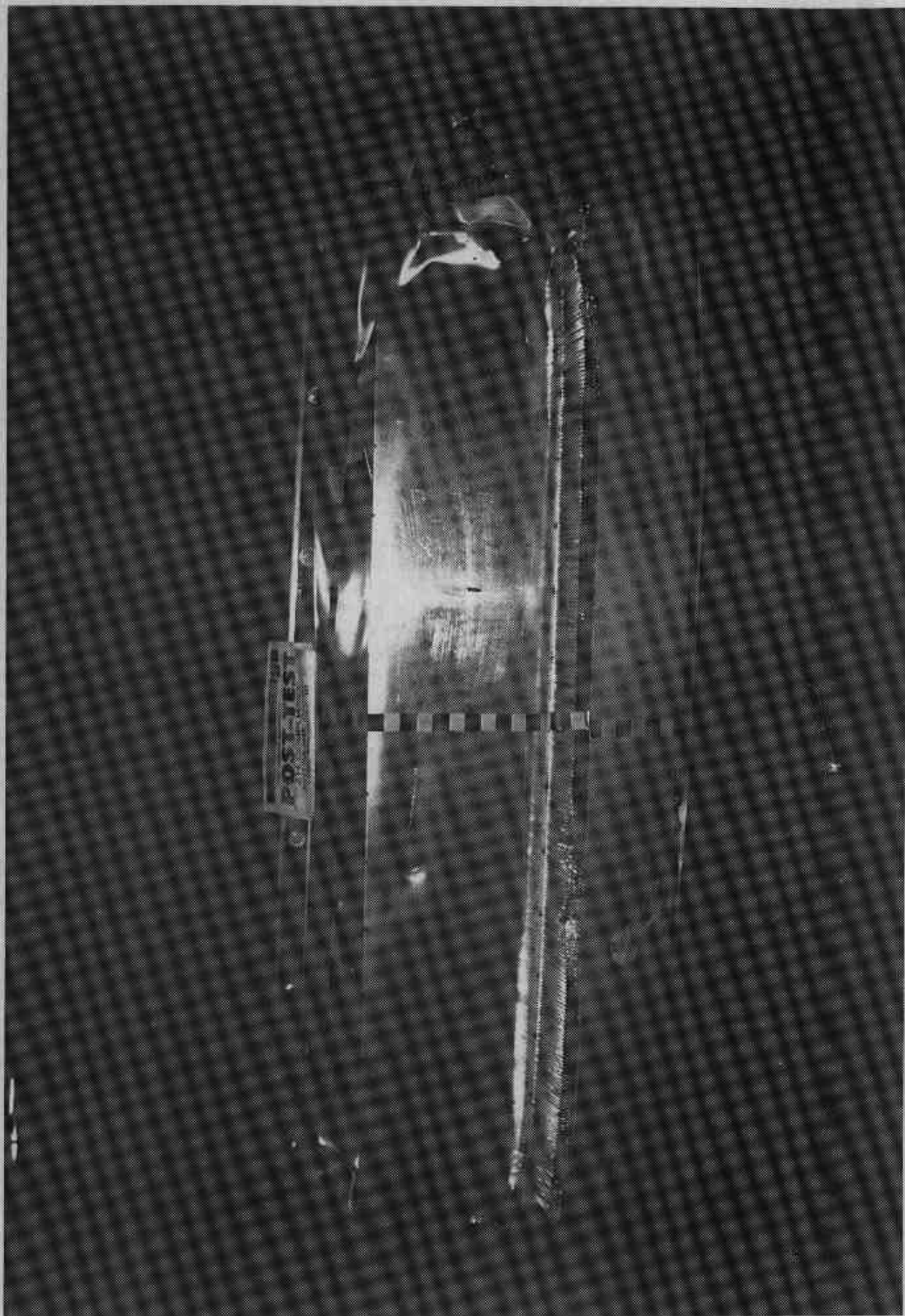


Photo No. A-16 - Post-Test MDB Front View

A-16

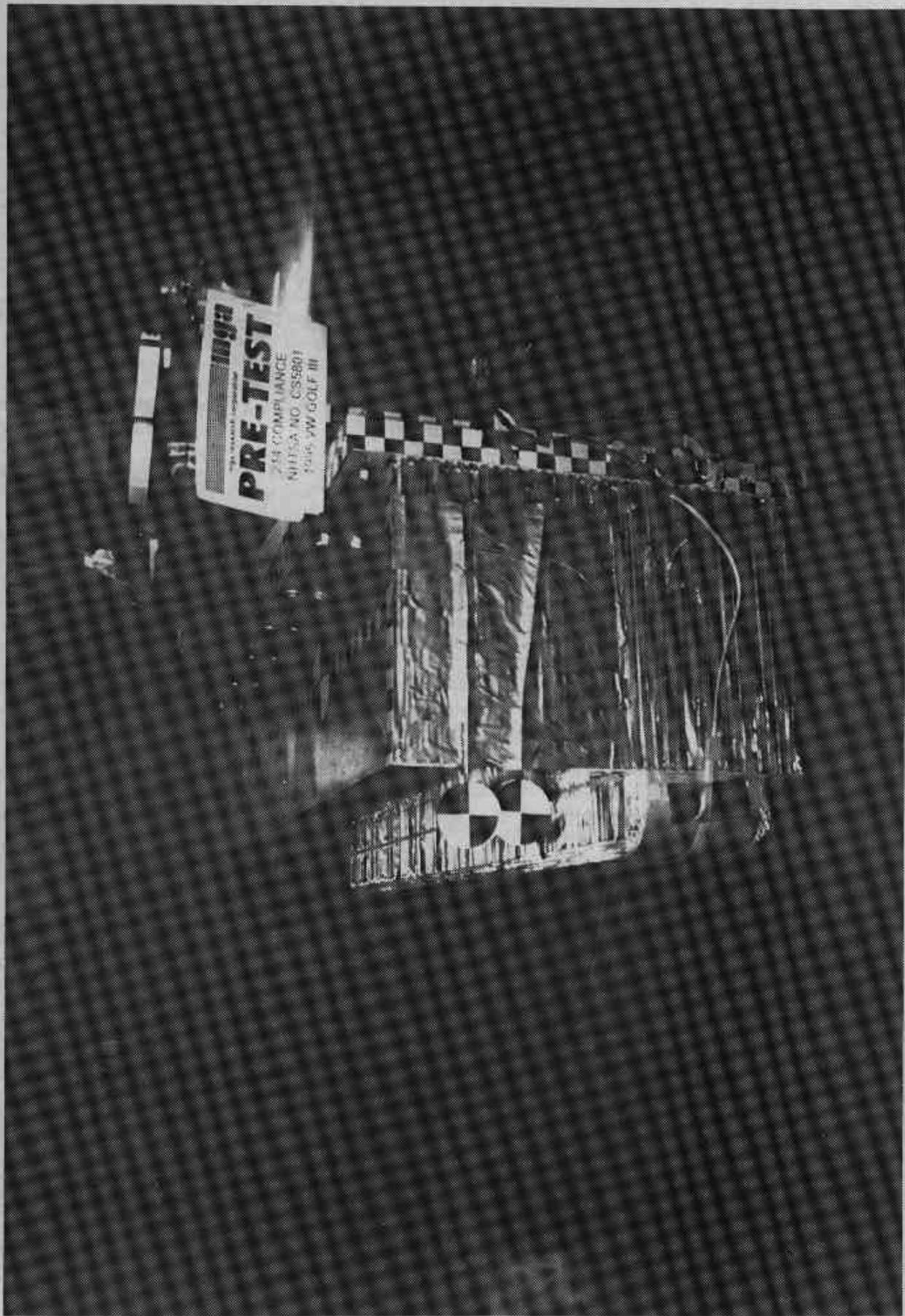


Photo No. A-17 - Pre-Test MDB Left Side View

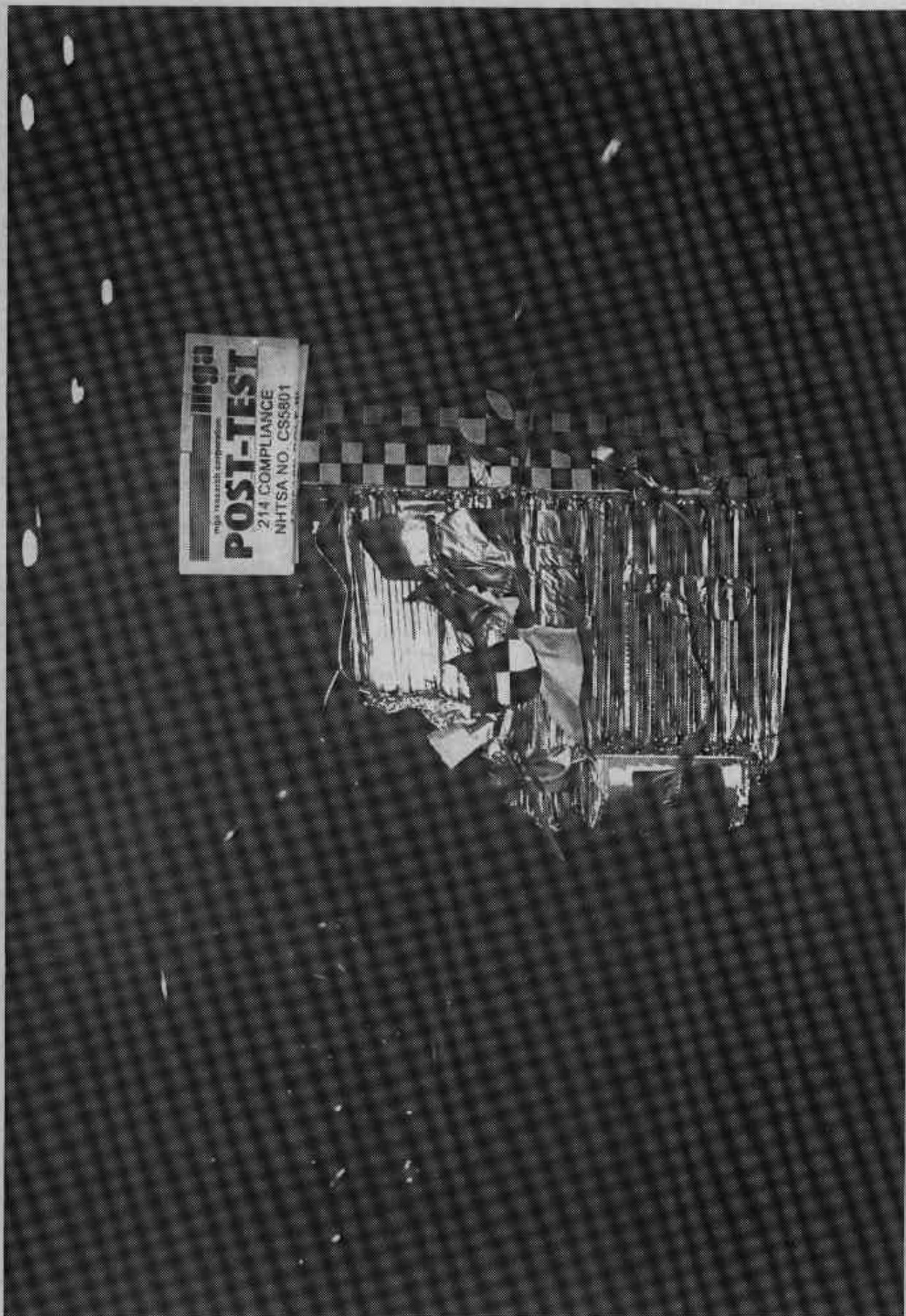


Photo No. A-18 - Post-Test MDB Left Side View

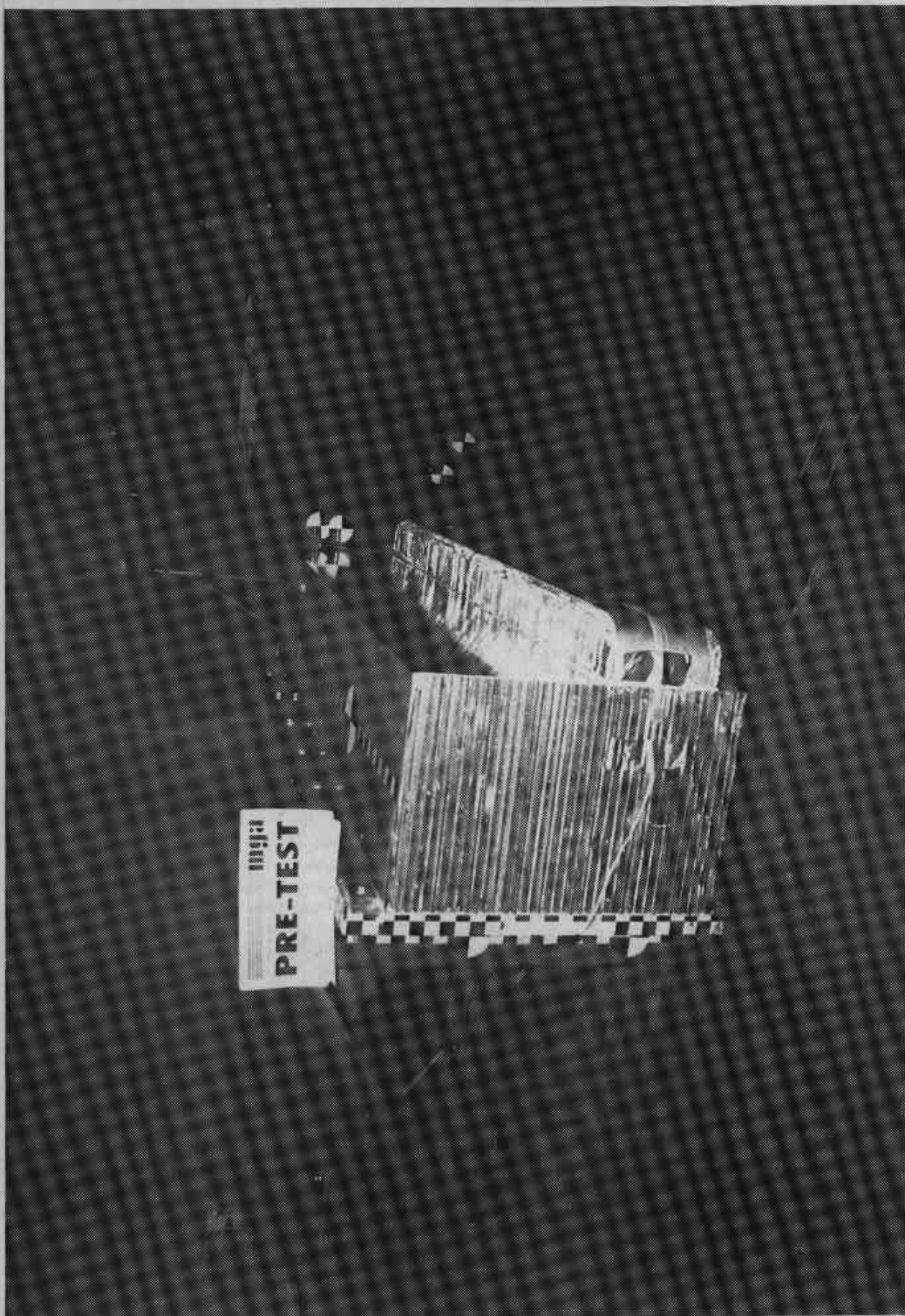


Photo No. A-19 - Pre-Test MDB Right Side View



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

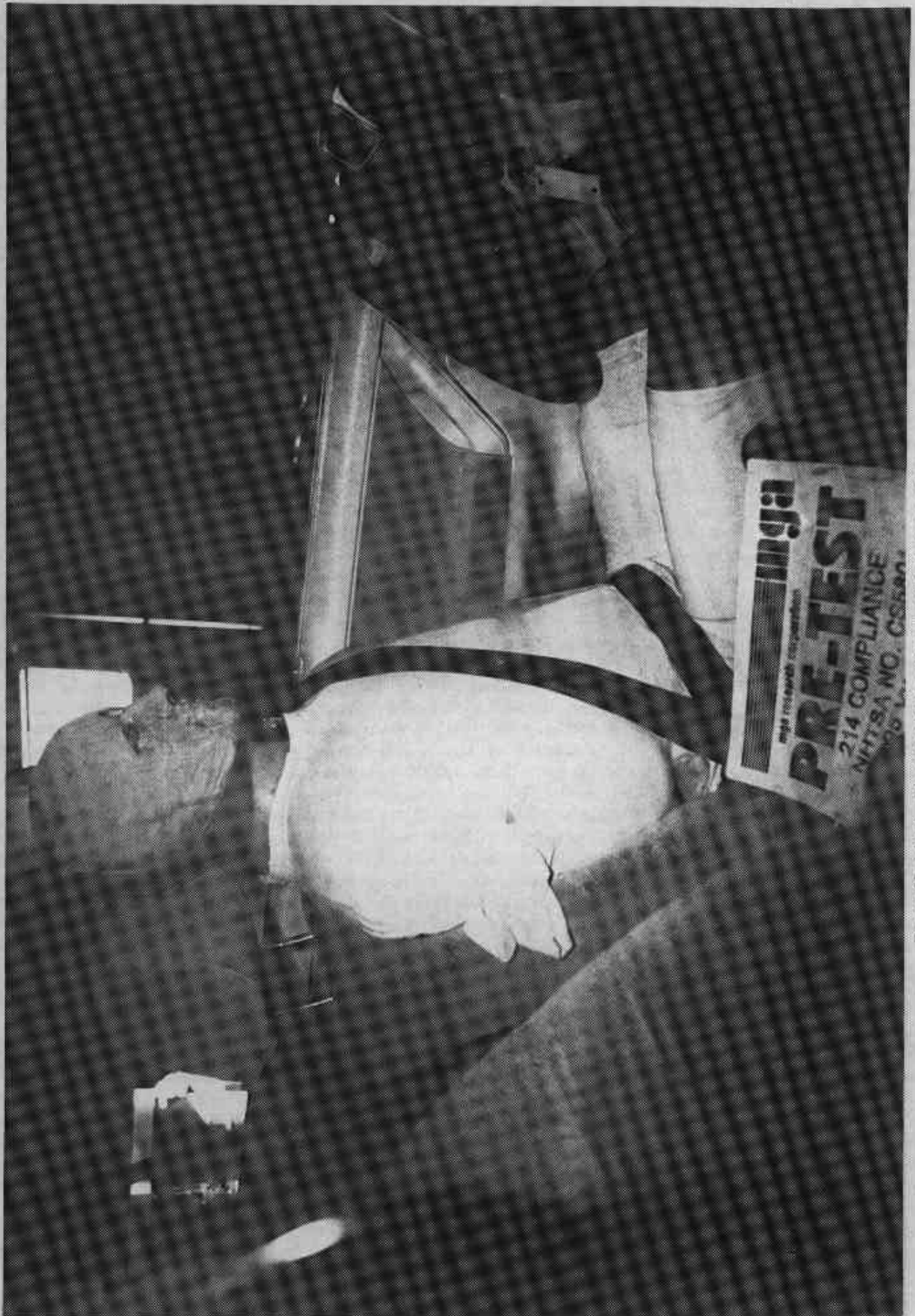


Photo No. A-21 - Pre-Test Driver Dummy Right Side View

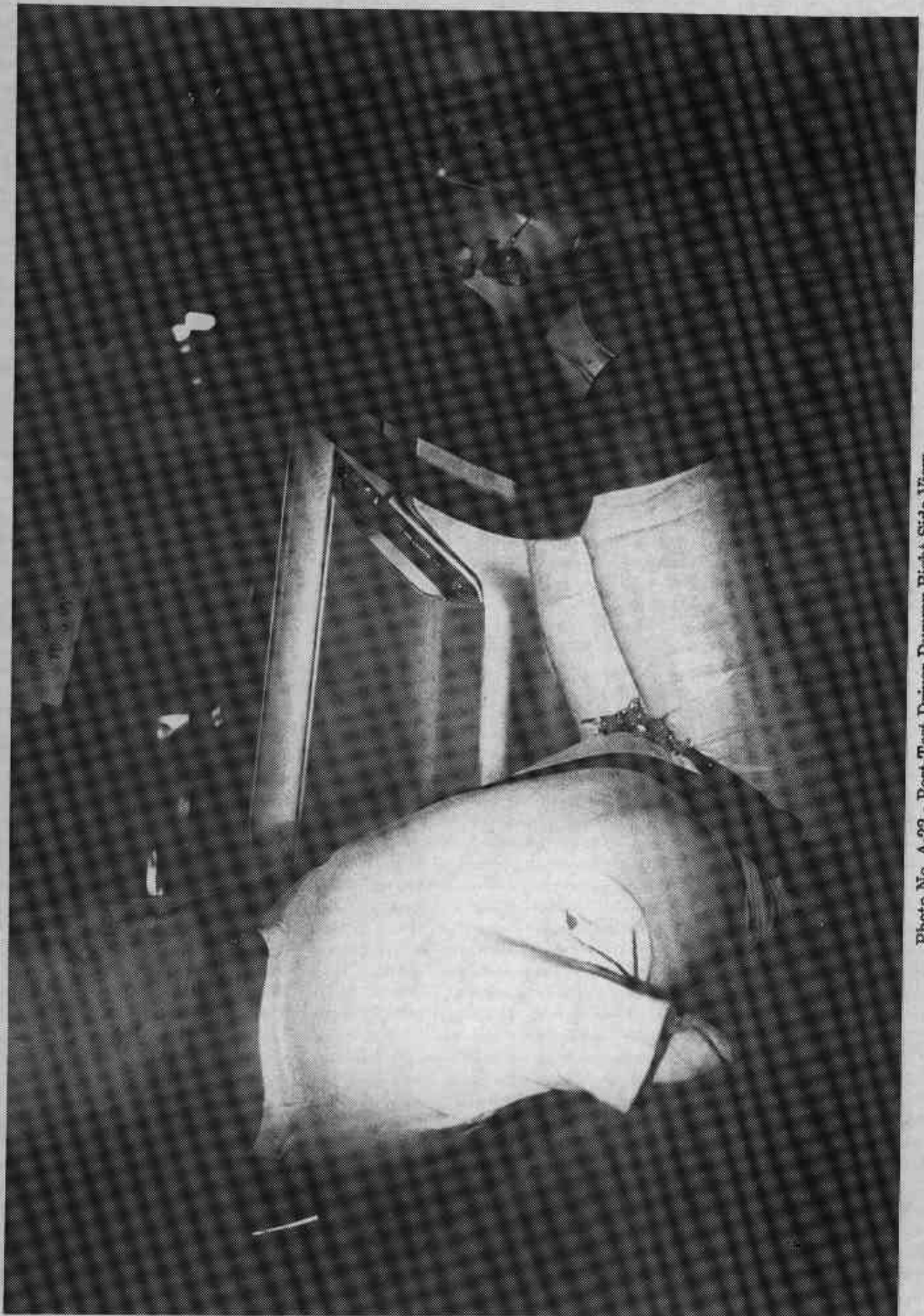


Photo No. A-22 - Post-Test Driver Dummy Right Side View

A-22

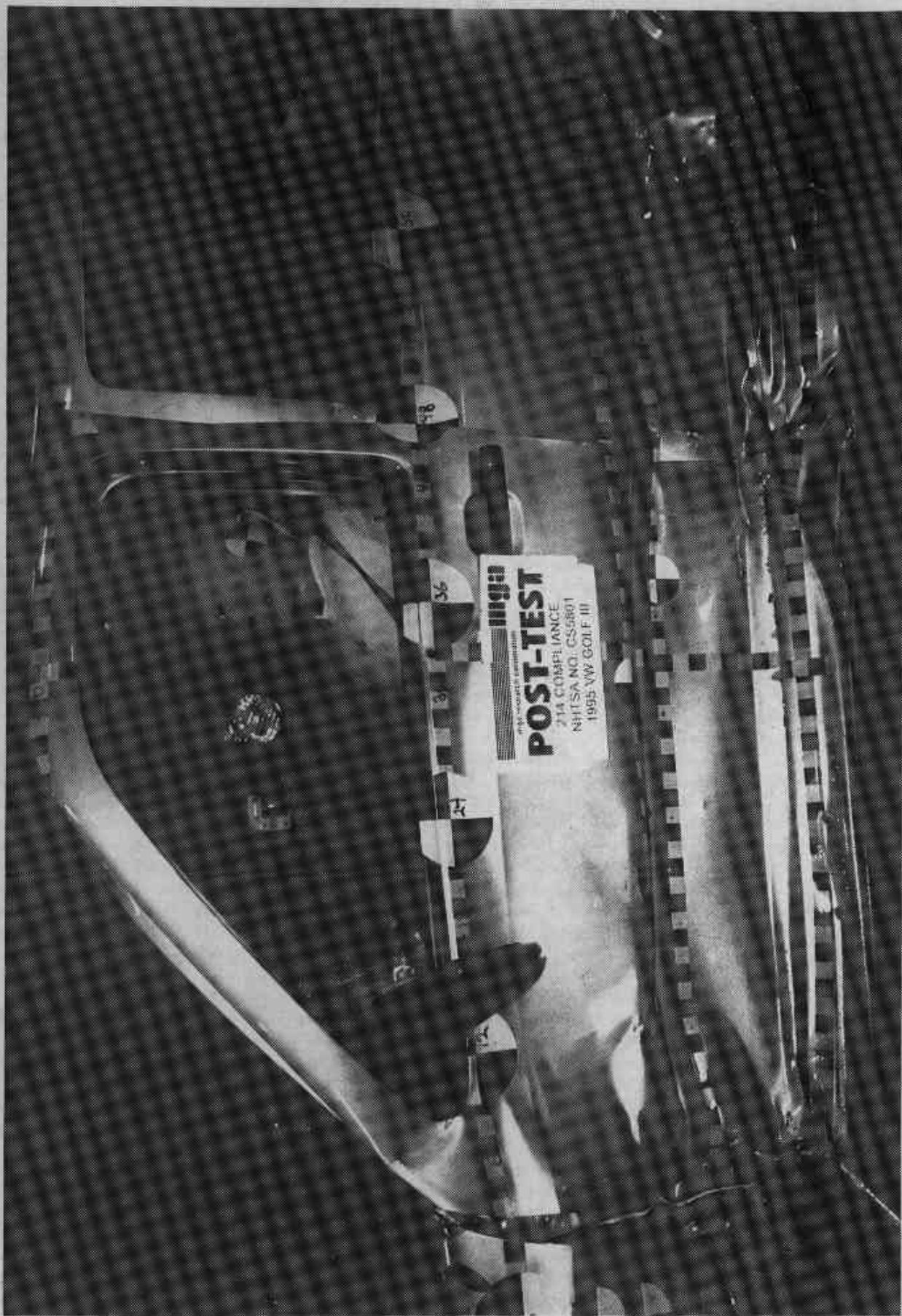


Photo No. A-24 - Post-Test Driver Dummy Left Side View

A-24



A-25

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



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

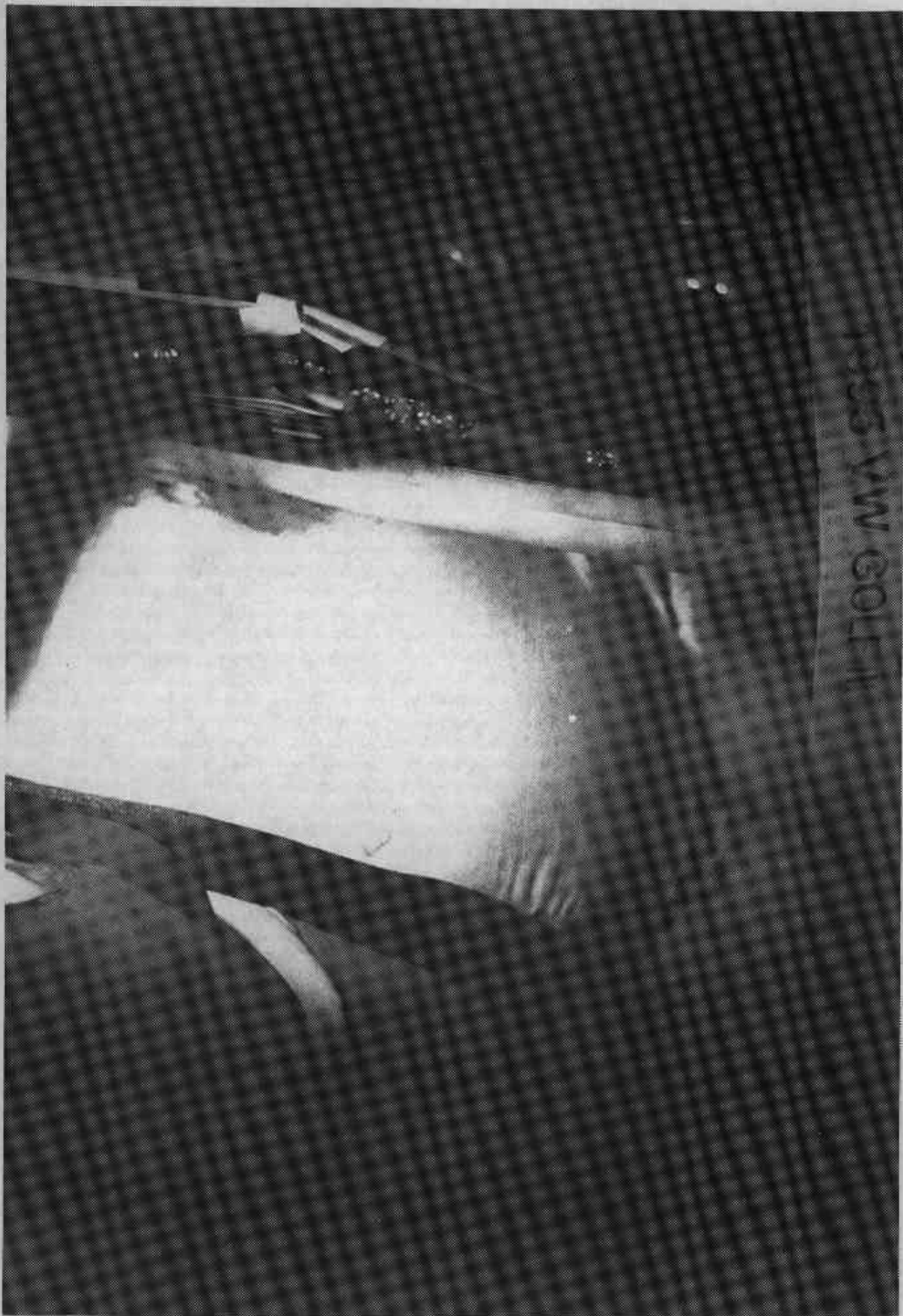


Photo No. A-27 - Post-Test Driver Dummy Shoulder and Door Top View



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

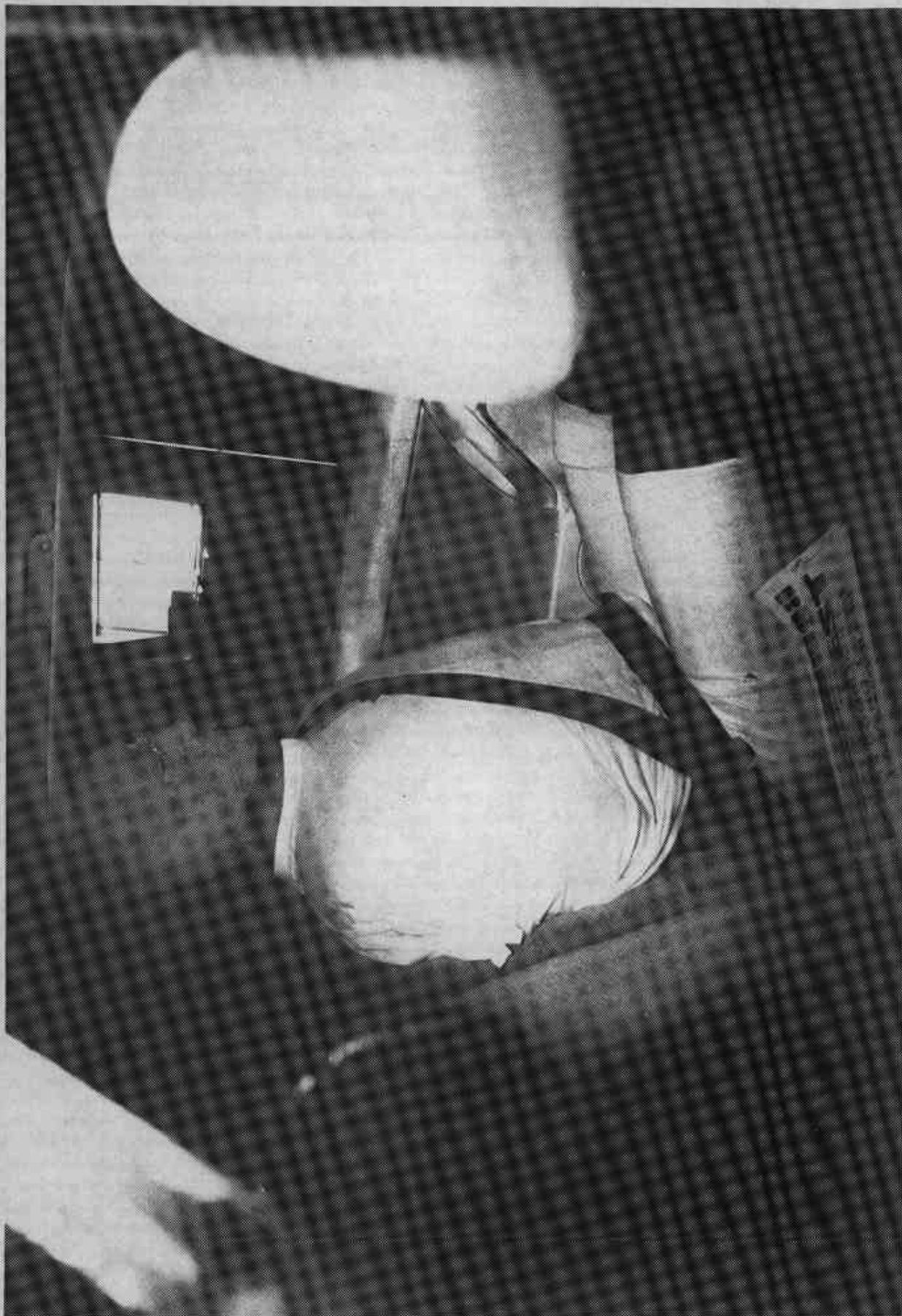
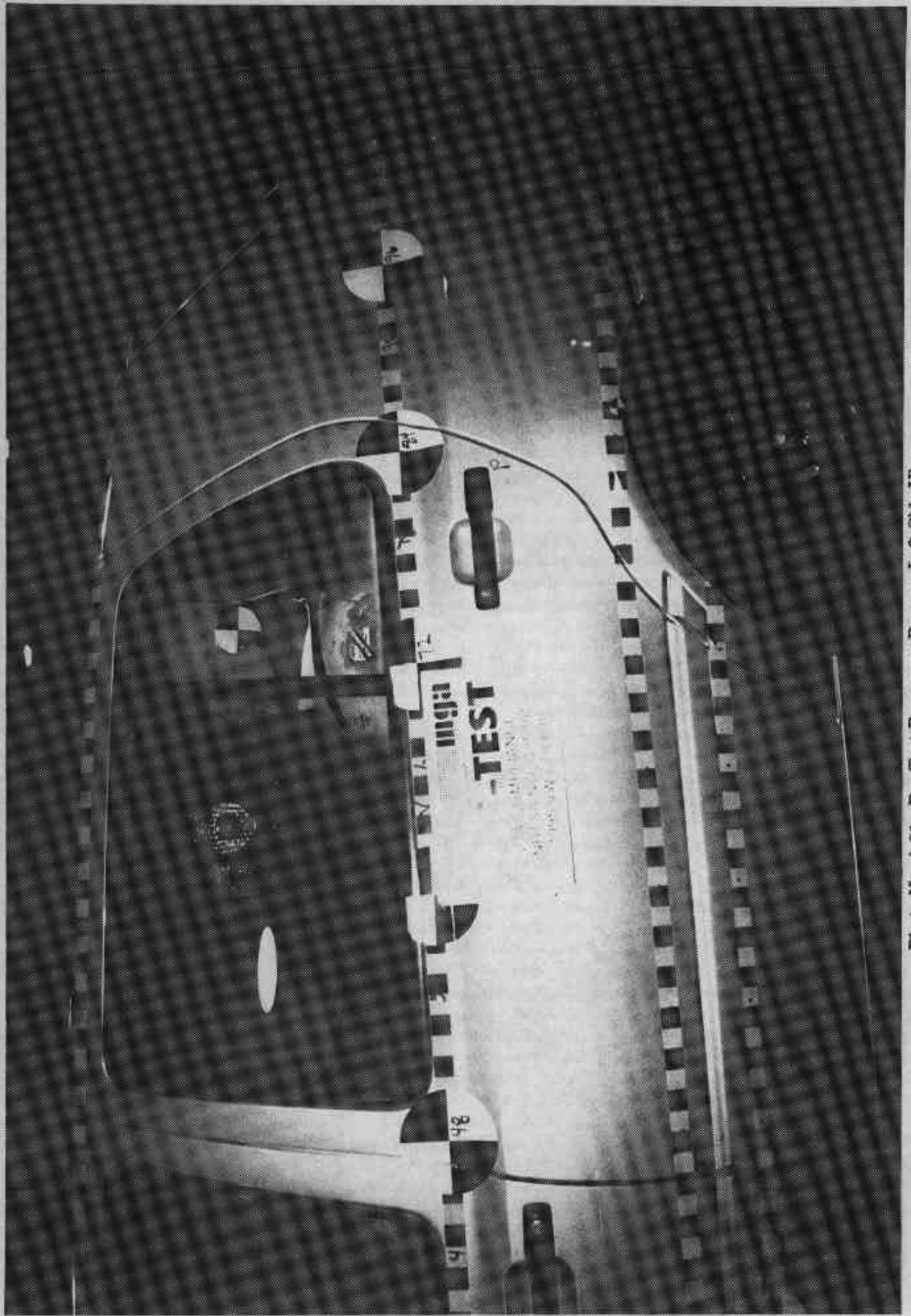


Photo No. A-29 - Pre-Test Passenger Dummy Right Side View

A-29



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



A-31

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

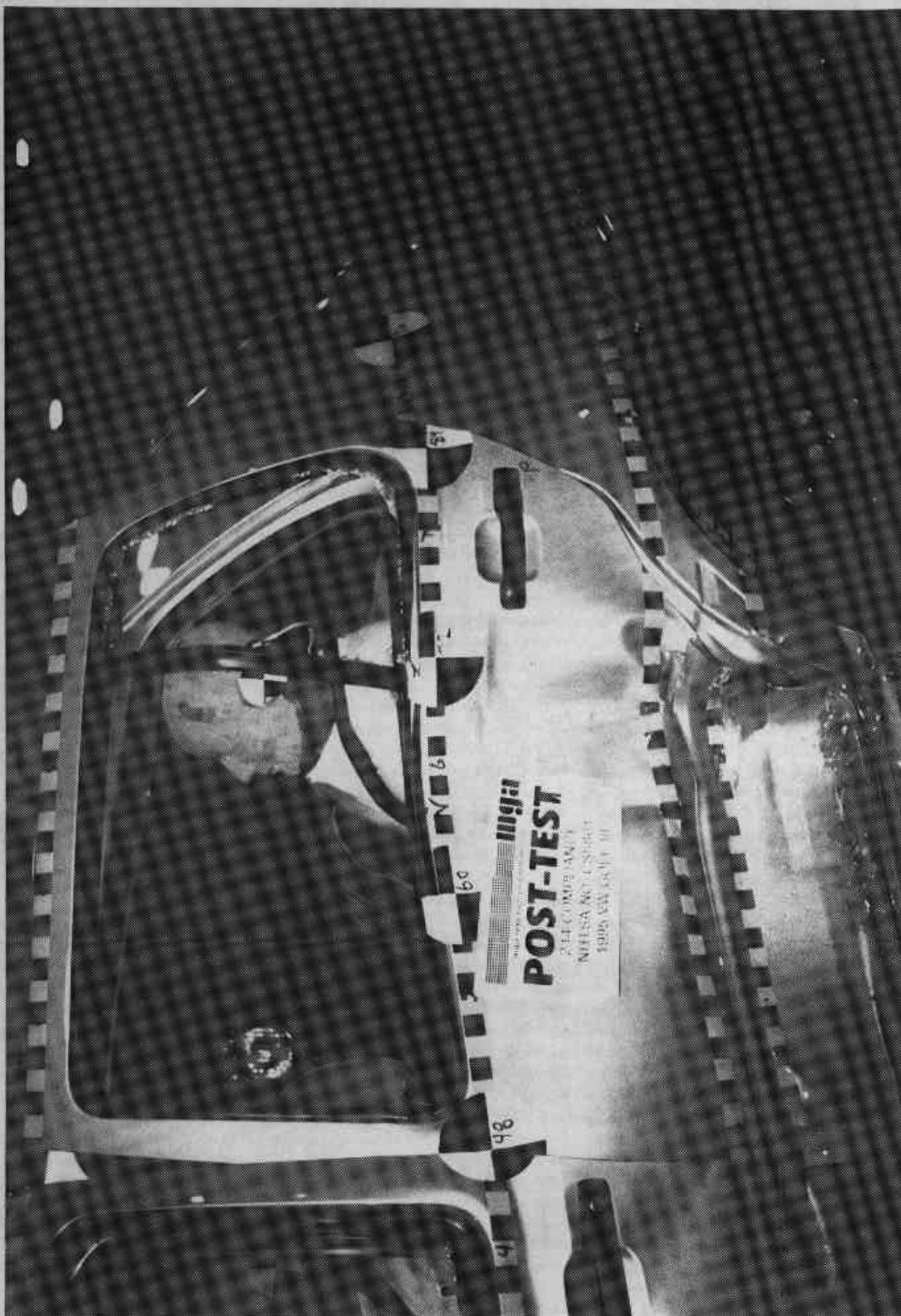


Photo No. A-32 - Post-Test Passenger Dummy Left Side View

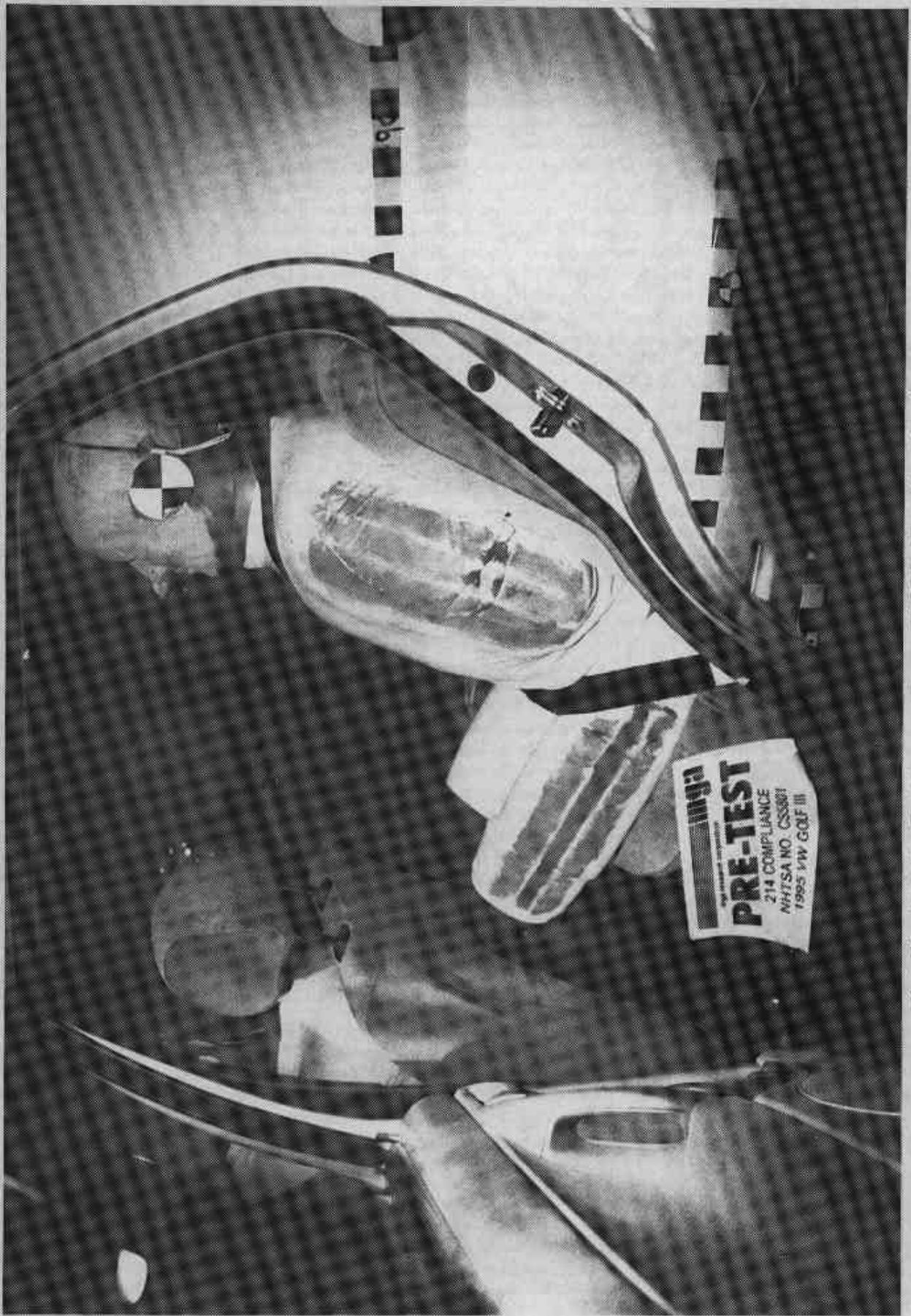


Photo No. A-33 - Pre-Test Passenger Dummy Left Side View (Door Open)



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

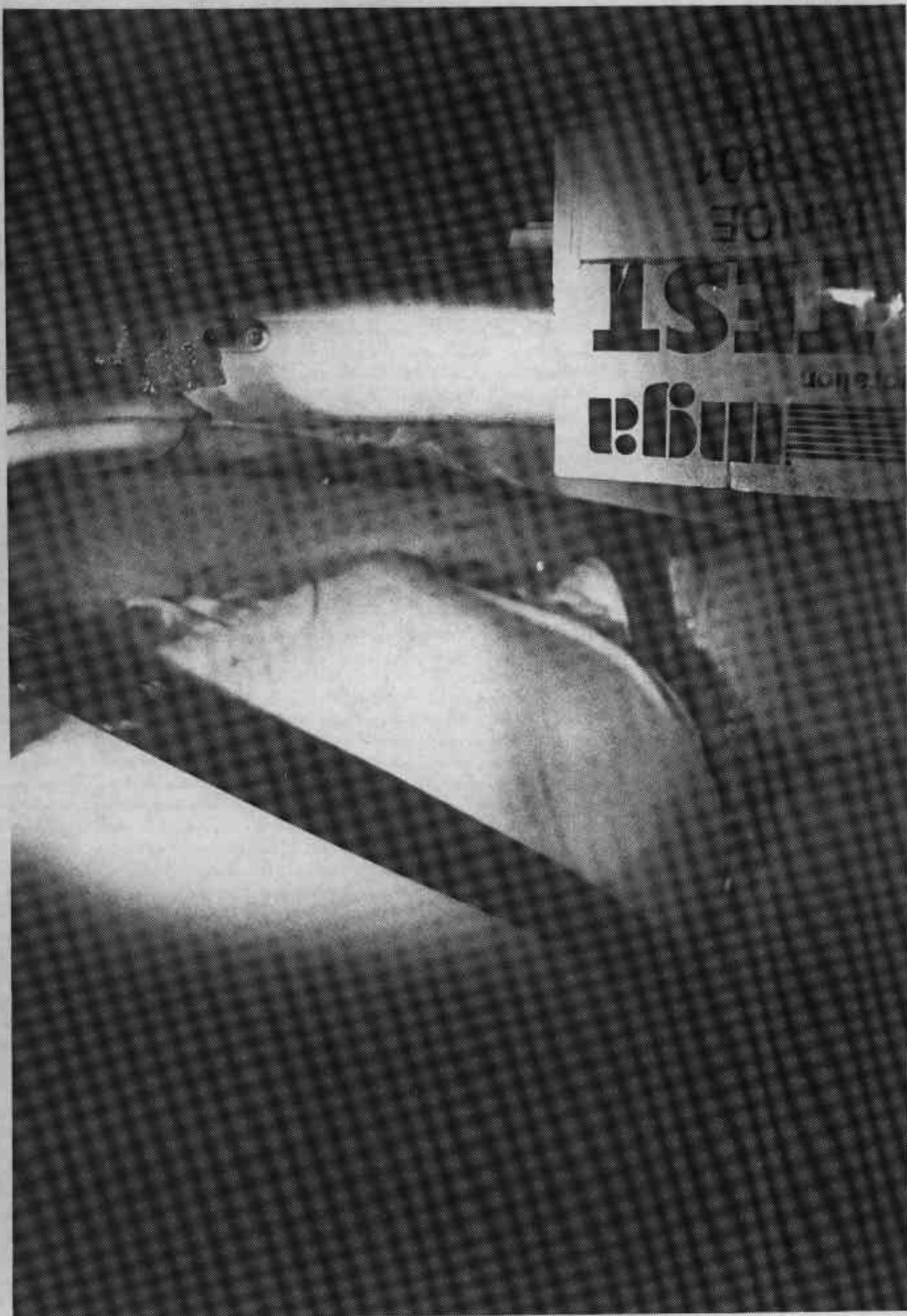


Photo No. A-35 - Post-Test Passenger Dummy Shoulder and Door Top View



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



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A-37

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

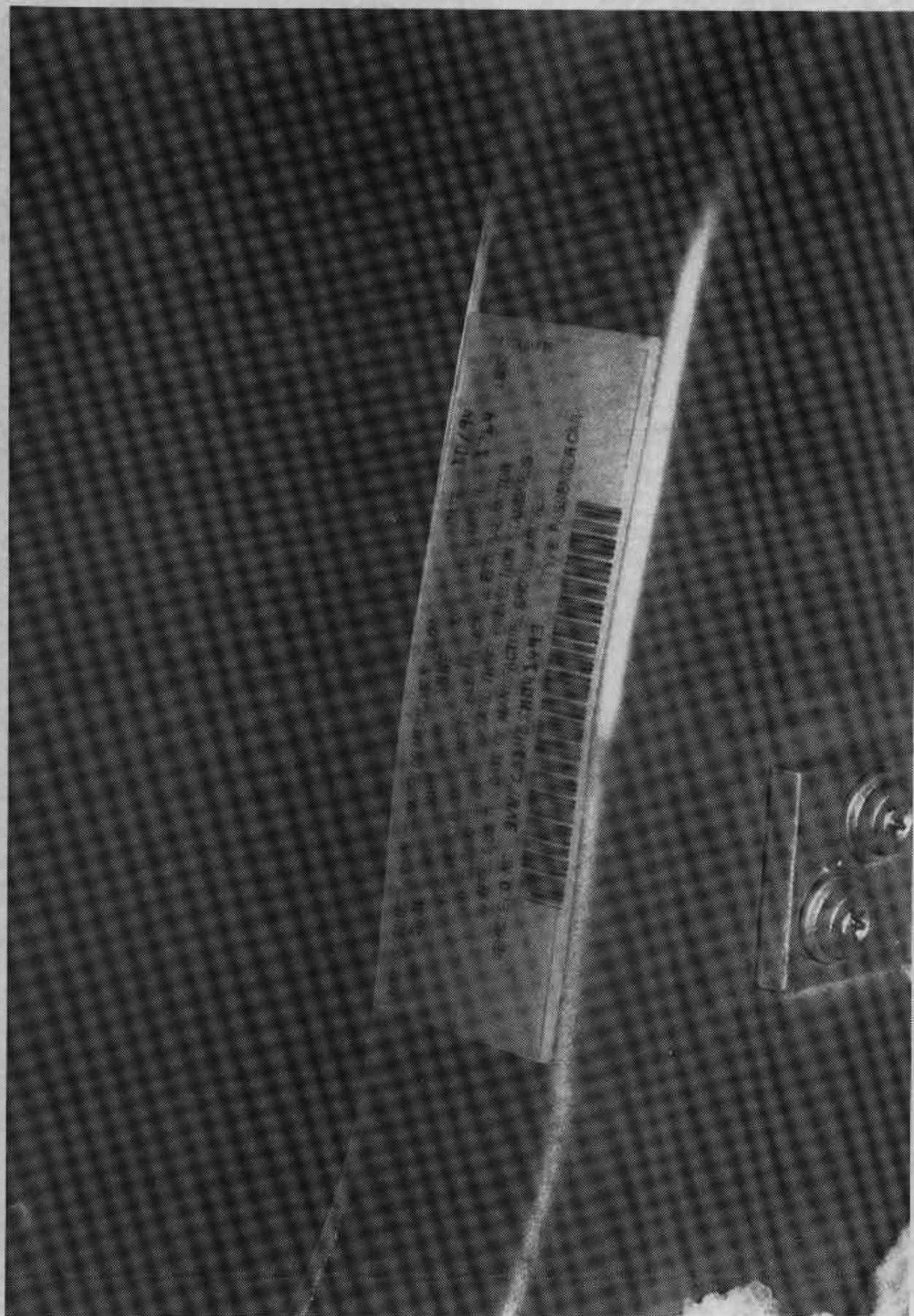


Photo No. A-38 - Vehicle Certification Label

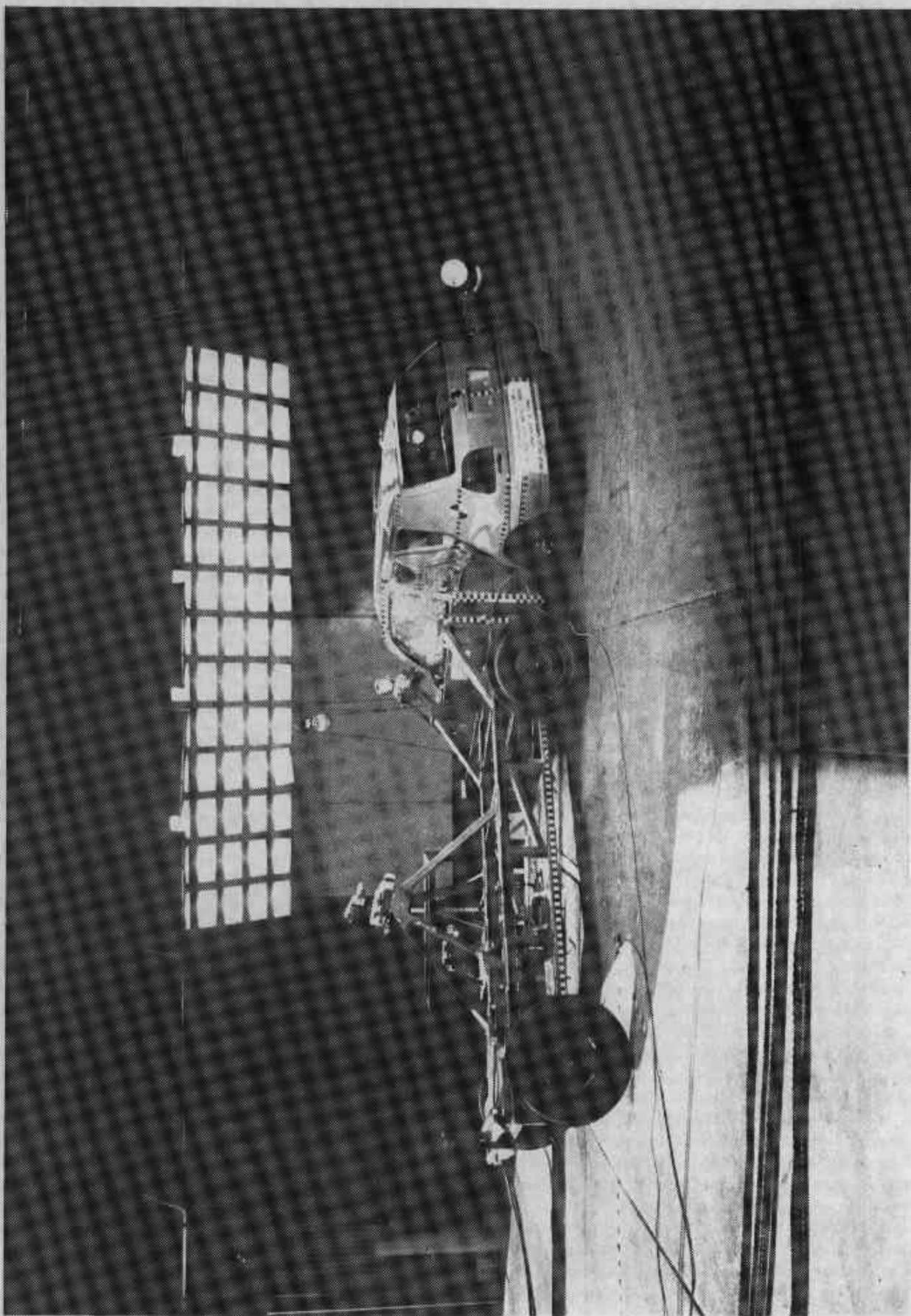


Photo No. A-49 - Impact

A-40

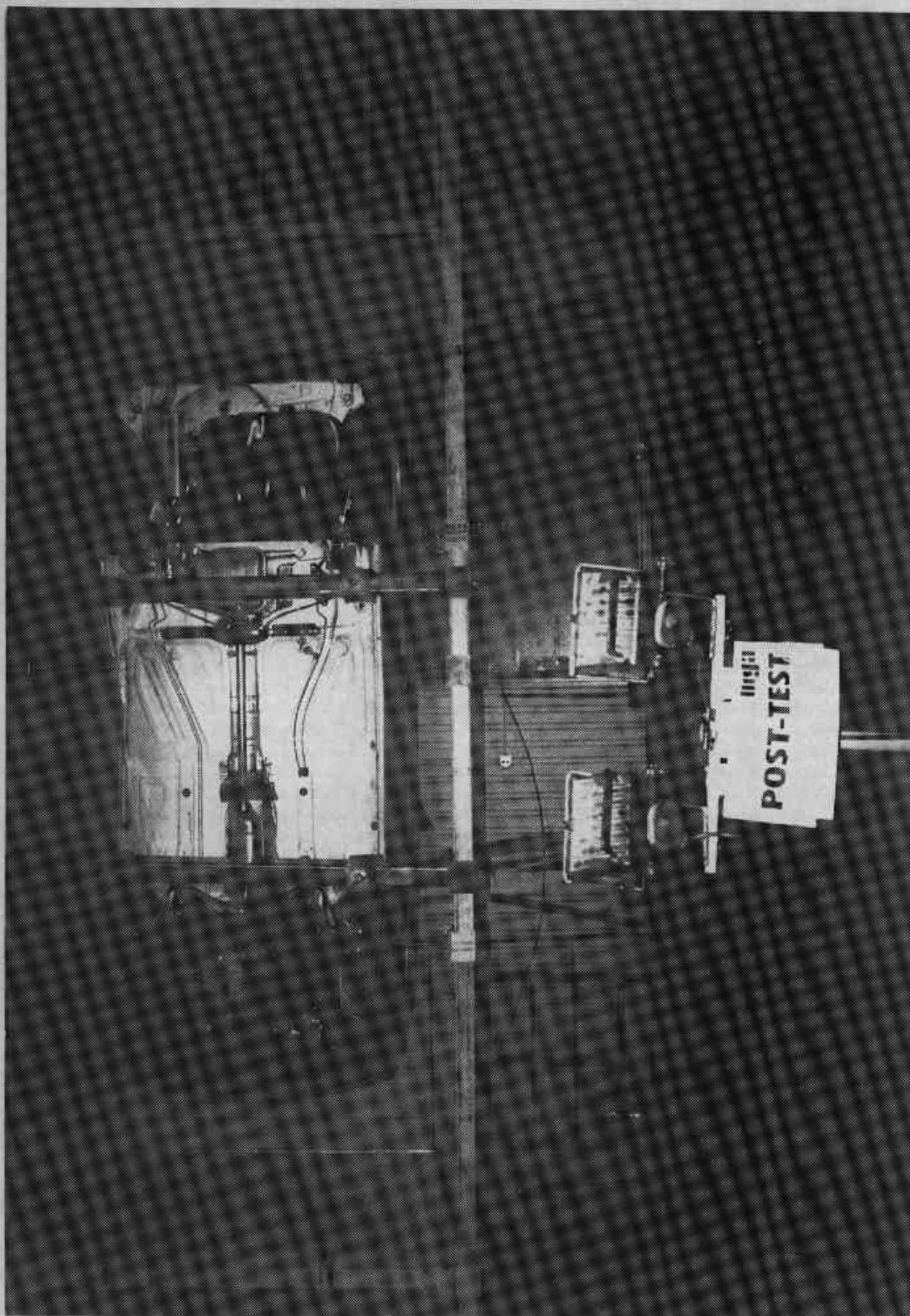


Photo No. A-41 - Rollover 90°

A-41



Photo No. A-42 - Rollover 180°

A-42

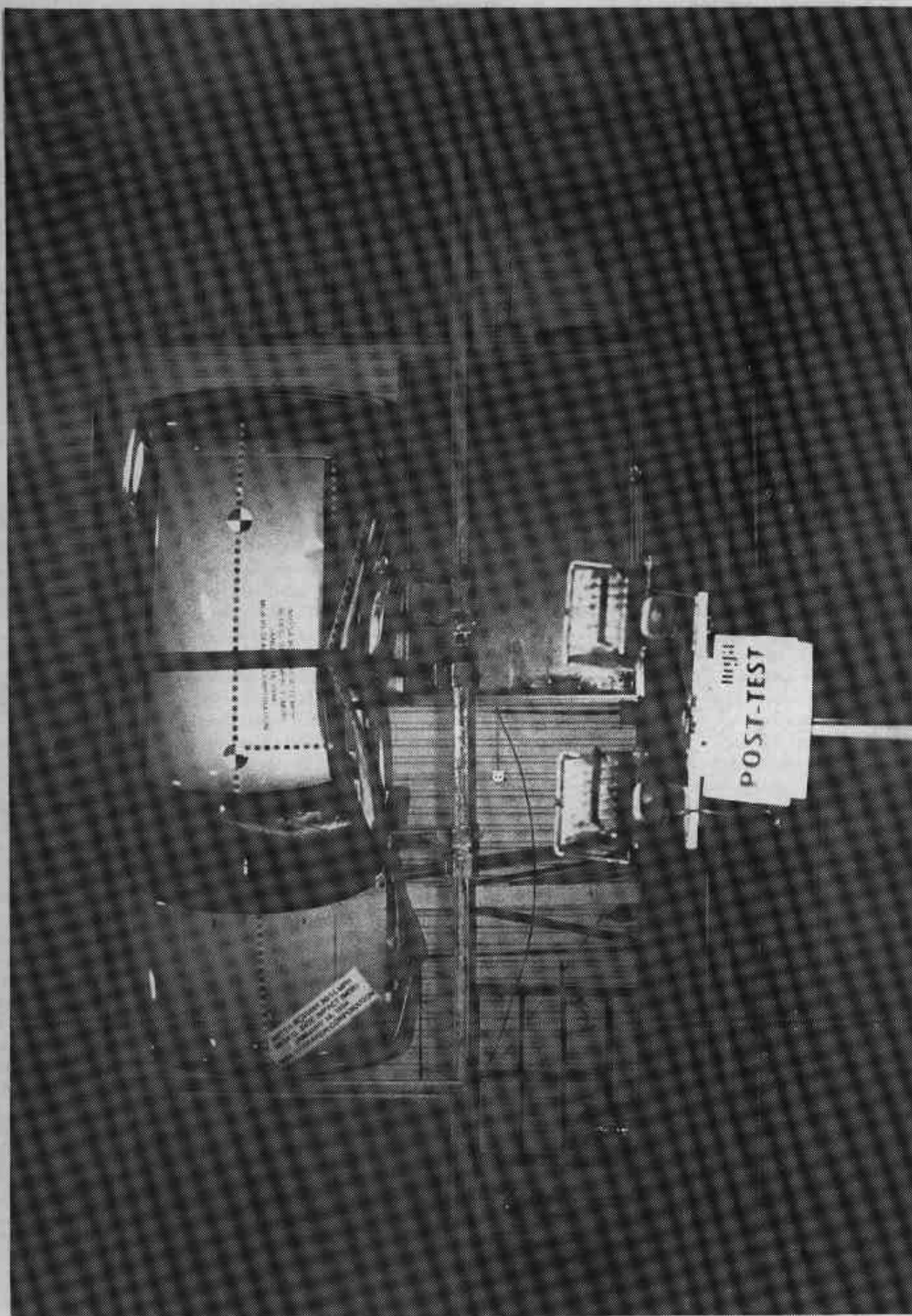


Photo No. A-43 - Rollover 270°



A-44

Photo No. A-44 - Rollover 360°

APPENDIX B - DATA PLOTS

Table of Data Plots

Occupant:

	<u>Page No.</u>
Figure B-1 - Driver Upper Rib Y Acceleration vs. Time	B-1
Figure B-2 - Driver Upper Rib Y Velocity vs. Time	B-2
Figure B-3 - Driver Lower Rib Y Acceleration vs. Time	B-3
Figure B-4 - Driver Lower Rib Y Velocity vs. Time	B-4
Figure B-5 - Driver Lower Spine Y Acceleration vs. Time	B-5
Figure B-6 - Driver Lower Spine Y Velocity vs. Time	B-6
Figure B-7 - Driver Pelvis Y Acceleration vs. Time	B-7
Figure B-8 - Driver Pelvis Y Velocity vs. Time	B-8
Figure B-9 - Passenger Upper Rib Y Acceleration vs. Time	B-9
Figure B-10 - Passenger Upper Rib Y Velocity vs. Time	B-10
Figure B-11 - Passenger Lower Rib Y Acceleration vs. Time	B-11
Figure B-12 - Passenger Lower Rib Y Velocity vs. Time	B-12
Figure B-13 - Passenger Lower Spine Y Acceleration vs. Time	B-13
Figure B-14 - Passenger Lower Spine Y Velocity vs. Time	B-14
Figure B-15 - Passenger Pelvis Y Acceleration vs. Time	B-15
Figure B-16 - Passenger Pelvis Y Velocity vs. Time	B-16

Vehicle:

Figure B-17 - Left Front Sill Y Acceleration vs. Time	B-17
Figure B-18 - Left Front Sill Y Velocity vs. Time	B-18
Figure B-19 - Left Rear Sill Y Acceleration vs. Time	B-19
Figure B-20 - Left Rear Sill Y Velocity vs. Time	B-20
Figure B-21 - Right Front Sill X Acceleration vs. Time	B-21
Figure B-22 - Right Front Sill X Velocity vs. Time	B-22
Figure B-23 - Right Front Sill Y Acceleration vs. Time	B-23
Figure B-24 - Right Front Sill Y Velocity vs. Time	B-24
Figure B-25 - Right Front Sill Z Acceleration vs. Time	B-25
Figure B-26 - Right Front Sill Z Velocity vs. Time	B-26
Figure B-27 - Right Front Sill at Front Seat Resultant vs. Time	B-27
Figure B-28 - Right Rear Sill X Acceleration vs. Time	B-28
Figure B-29 - Right Rear Sill X Velocity vs. Time	B-29
Figure B-30 - Right Rear Sill Y Acceleration vs. Time	B-30
Figure B-31 - Right Rear Sill Y Velocity vs. Time	B-31

Table of Data Plots

<u>Vehicle (Cont'd):</u>	<u>Page No.</u>
Figure B-32 - Right Rear Sill Z Acceleration vs. Time	B-32
Figure B-33 - Right Rear Sill Z Velocity vs. Time	B-33
Figure B-34 - Right Rear Sill at Rear Seat Resultant vs. Time	B-34
Figure B-35 - Driver Seat Track Y Acceleration vs. Time	B-35
Figure B-36 - Driver Seat Track Y Velocity vs. Time	B-36
Figure B-37 - Rear Floorpan at Axle X Acceleration vs. Time	B-37
Figure B-38 - Rear Floorpan at Axle X Velocity vs. Time	B-38
Figure B-39 - Rear Floorpan at Axle Y Acceleration vs. Time	B-39
Figure B-40 - Rear Floorpan at Axle Y Velocity vs. Time	B-40
Figure B-41 - Rear Floorpan at Axle Z Acceleration vs. Time	B-41
Figure B-42 - Rear Floorpan at Axle Z Velocity vs. Time	B-42
Figure B-43 - Rear Floorpan at Axle Centerline Resultant vs. Time	B-43
Figure B-44 - Rear Seat Occupant Compartment Y Acceleration vs. Time	B-44
Figure B-45 - Rear Seat Occupant Compartment Y Velocity vs. Time	B-45
Figure B-46 - Left A Post Mid Y Acceleration vs. Time	B-46
Figure B-47 - Left A Post Mid Y Velocity vs. Time	B-47
Figure B-48 - Left A Post Lower Y Acceleration vs. Time	B-48
Figure B-49 - Left A Post Lower Y Velocity vs. Time	B-49
Figure B-50 - Left B Post Lower Y Acceleration vs. Time	B-50
Figure B-51 - Left B Post Lower Y Velocity vs. Time	B-51
Figure B-52 - Moving Barrier Center of Gravity X Acceleration vs. Time	B-52
Figure B-53 - Moving Barrier Center of Gravity X Velocity vs. Time	B-53
Figure B-54 - Moving Barrier Center of Gravity Y Acceleration vs. Time	B-54
Figure B-55 - Moving Barrier Center of Gravity Y Velocity vs. Time	B-55
Figure B-56 - Moving Barrier Center of Gravity Z Acceleration vs. Time	B-56
Figure B-57 - Moving Barrier Center of Gravity Z Velocity vs. Time	B-57
Figure B-58 - Moving Barrier Center of Gravity Resultant vs. Time	B-58
Figure B-59 - Moving Barrier Rear Axle X Acceleration vs. Time	B-59
Figure B-60 - Moving Barrier Rear Axle X Velocity vs. Time	B-60
Figure B-61 - Moving Barrier Rear Axle Y Acceleration vs. Time	B-61
Figure B-62 - Moving Barrier Rear Axle Y Velocity vs. Time	B-62

Table of Data Plots

<u>Redundant:</u>	<u>Page No.</u>
Figure B-63 - Right Hand Barrier Contact	B-63
Figure B-64 - Left Hand Barrier Contact	B-64
Figure B-65 - Driver Upper Rib Y Redundant Acceleration vs. Time	B-65
Figure B-66 - Driver Upper Rib Y Redundant Velocity vs. Time	B-66
Figure B-67 - Driver Lower Rib Y Redundant Acceleration vs. Time	B-67
Figure B-68 - Driver Lower Rib Y Redundant Velocity vs. Time	B-68
Figure B-69 - Driver Lower Spine Y Redundant Acceleration vs. Time	B-69
Figure B-70 - Driver Lower Spine Y Redundant Velocity vs. Time	B-70
Figure B-71 - Driver Pelvis Y Redundant Acceleration vs. Time	B-71
Figure B-72 - Driver Pelvis Y Redundant Velocity vs. Time	B-72
Figure B-73 - Passenger Upper Rib Y Redundant Acceleration vs. Time	B-73
Figure B-74 - Passenger Upper Rib Y Redundant Velocity vs. Time	B-74
Figure B-75 - Passenger Lower Rib Y Redundant Acceleration vs. Time	B-75
Figure B-76 - Passenger Lower Rib Y Redundant Velocity vs. Time	B-76
Figure B-77 - Passenger Lower Spine Y Redundant Acceleration vs. Time	B-77
Figure B-78 - Passenger Lower Spine Y Redundant Velocity vs. Time	B-78
Figure B-79 - Passenger Pelvis Y Redundant Acceleration vs. Time	B-79
Figure B-80 - Passenger Pelvis Y Redundant Velocity vs. Time	B-80

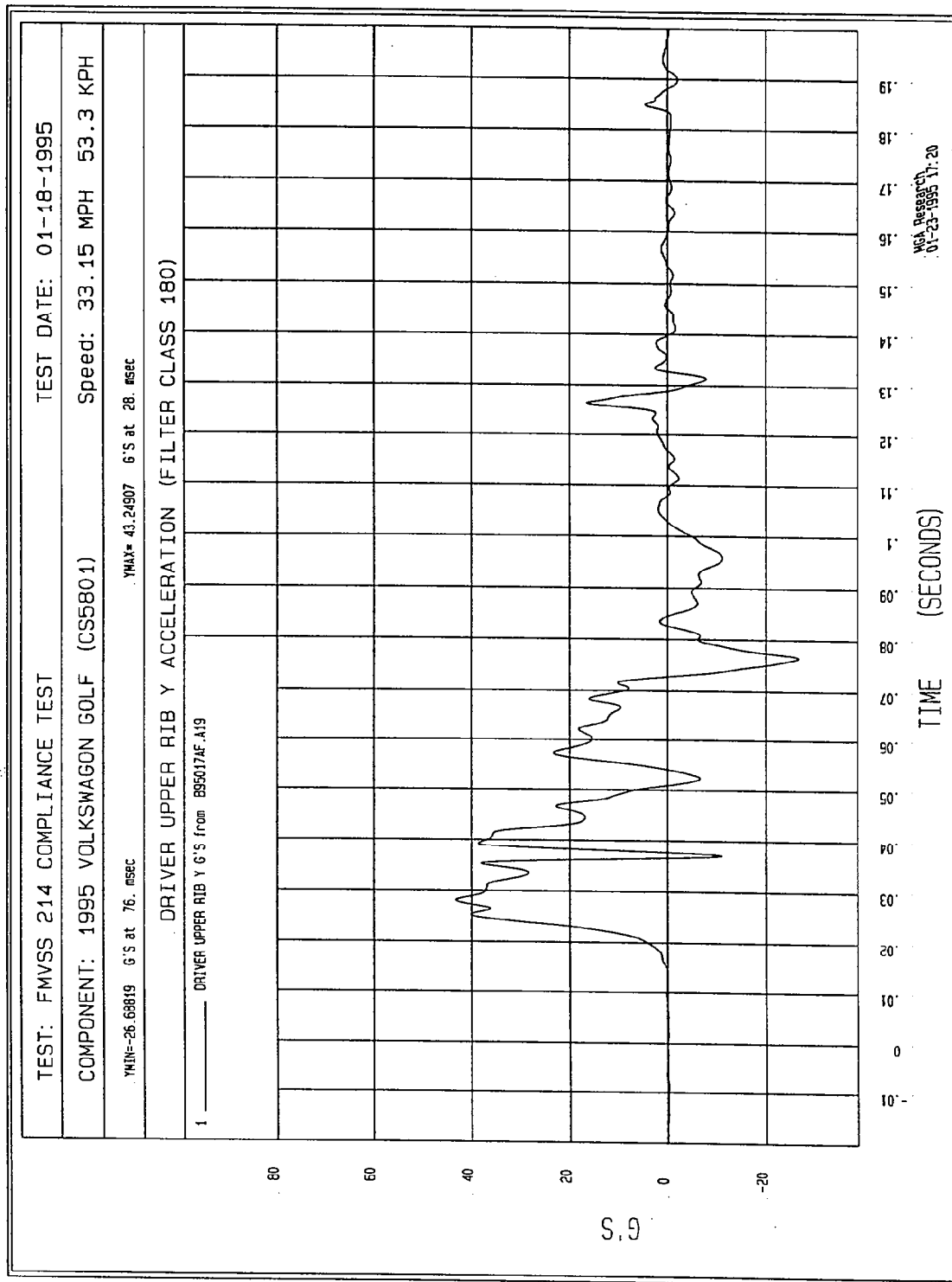


Figure B-1 - Driver Upper Rib Y Acceleration vs. Time

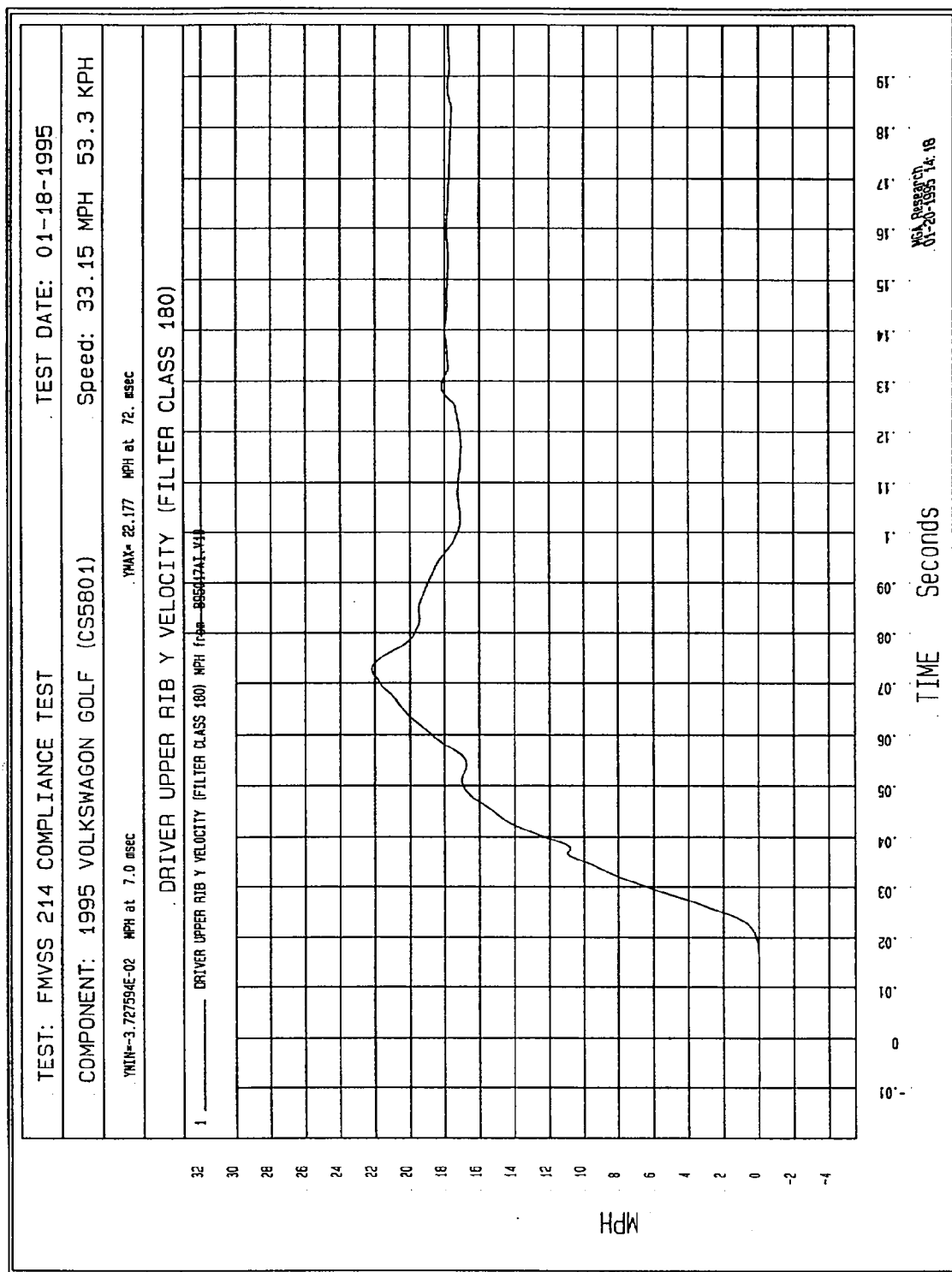


Figure B-2 - Driver Upper Rib Y Velocity vs. Time

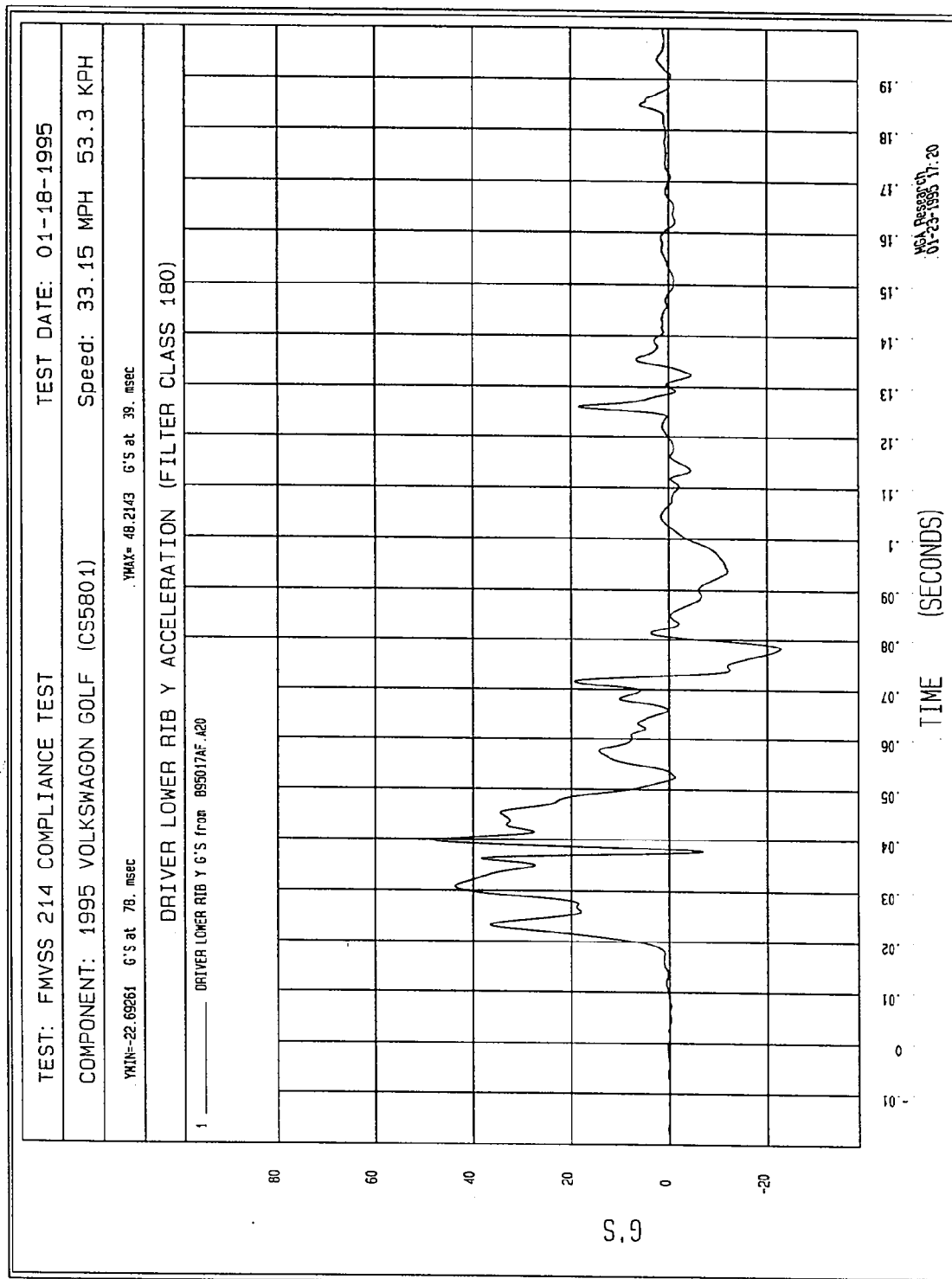


Figure B-3 - Driver Lower Rib Y Acceleration vs. Time

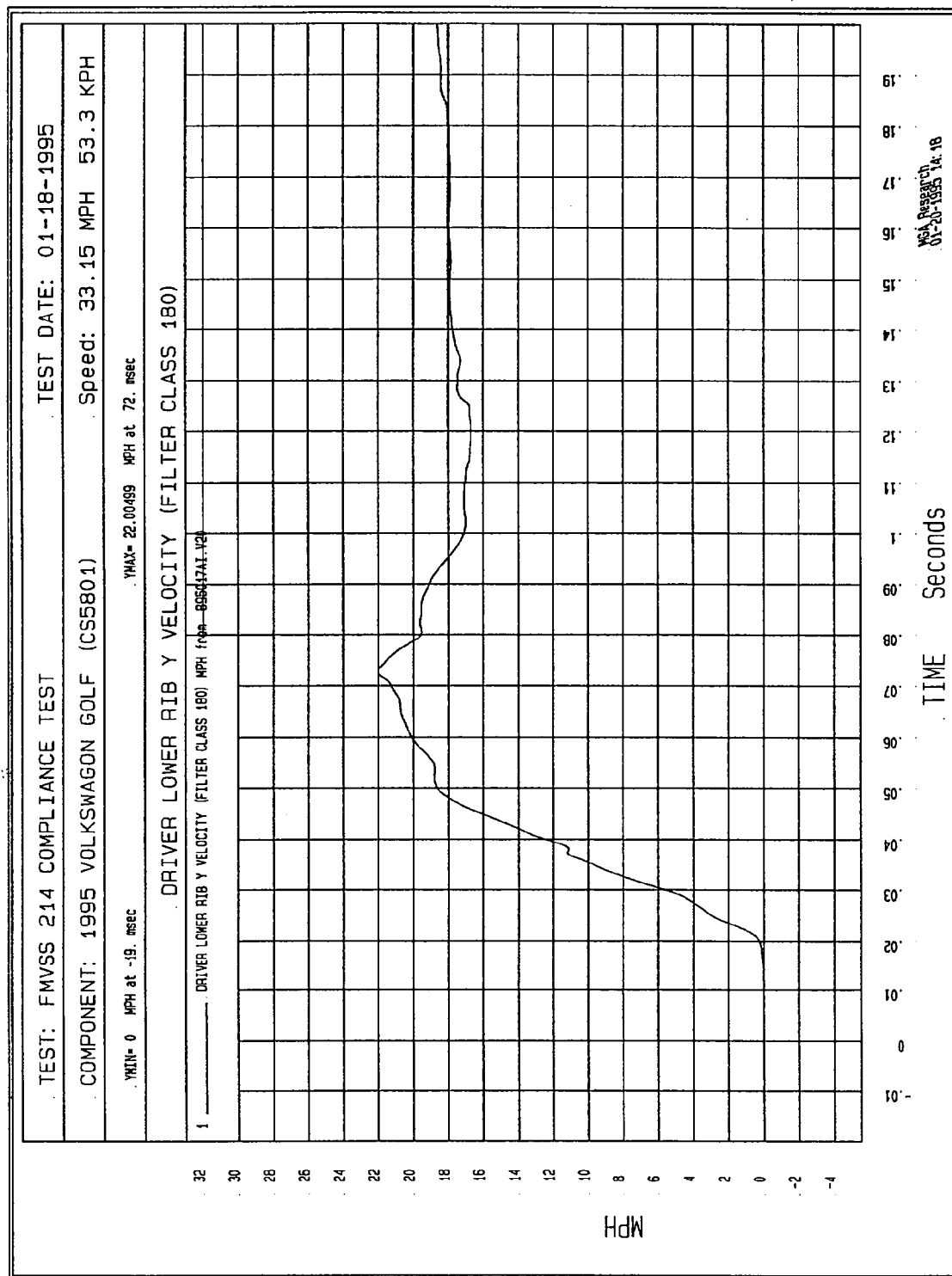


Figure B-4 - Driver Lower Rib Y Velocity vs. Time

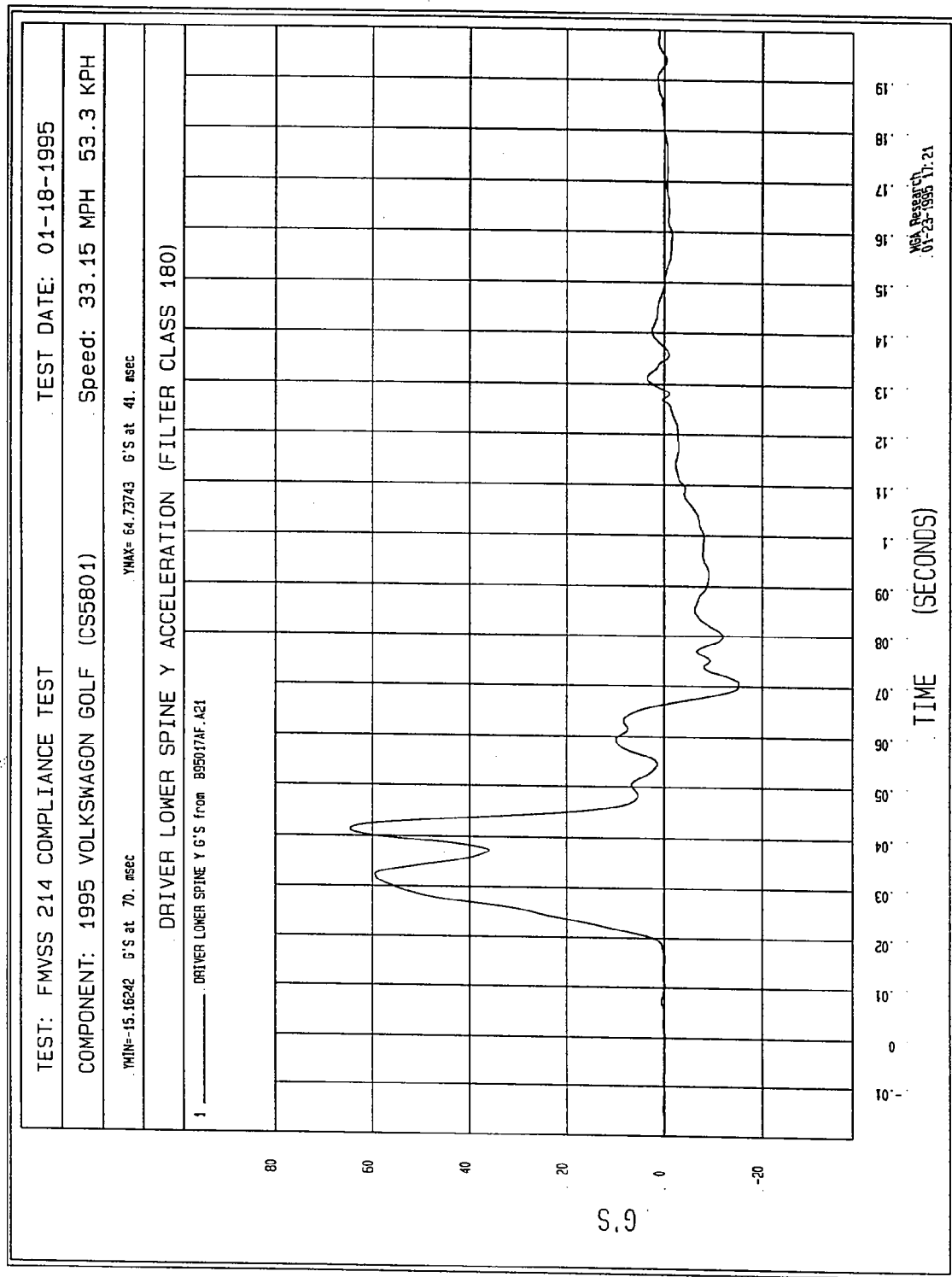


Figure B-5 - Driver Lower Spine Y Acceleration vs. Time

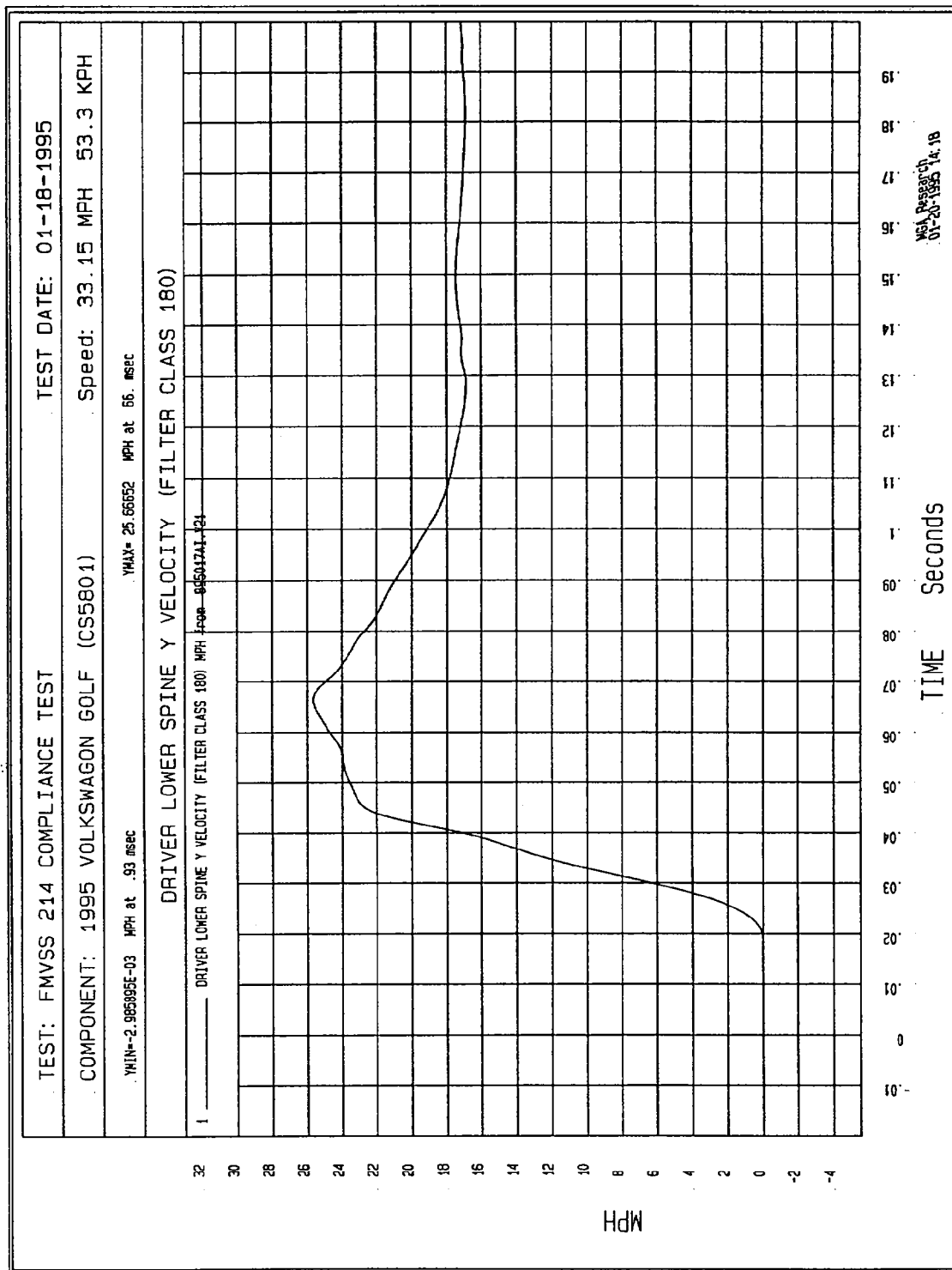
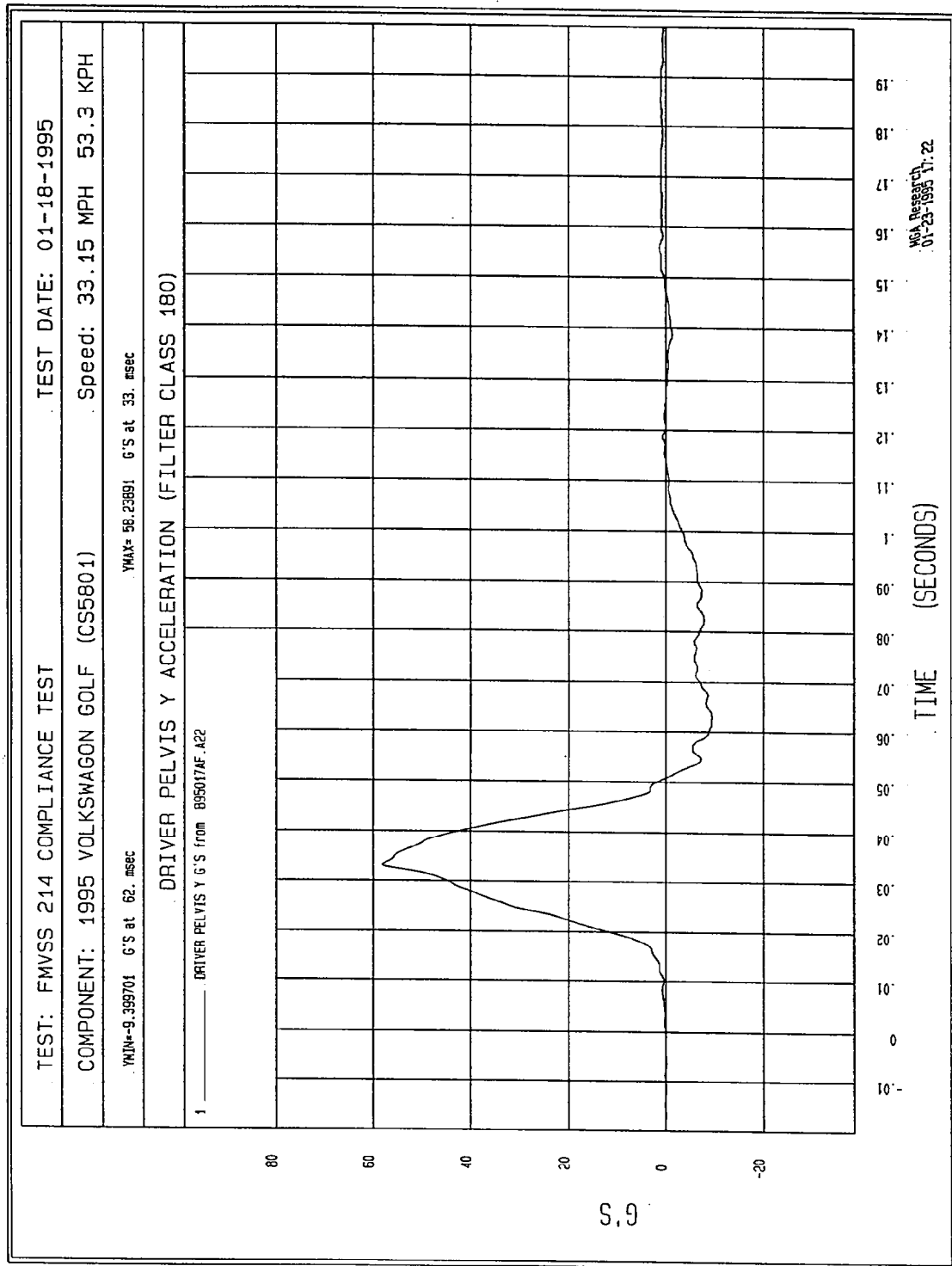


Figure B-6 - Driver Lower Spine Y Velocity vs. Time



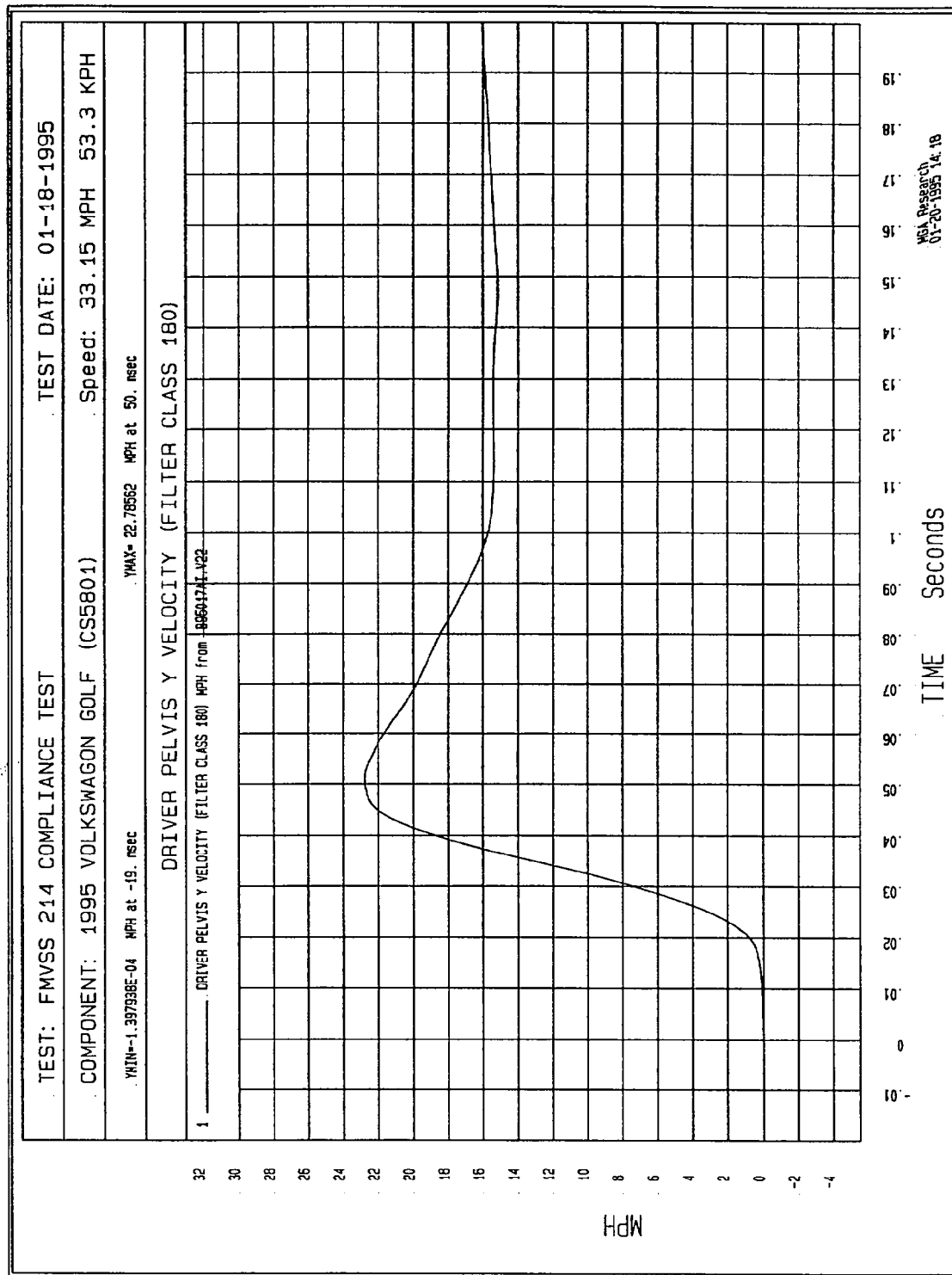


Figure B-8 - Driver Pelvis Y Velocity vs. Time

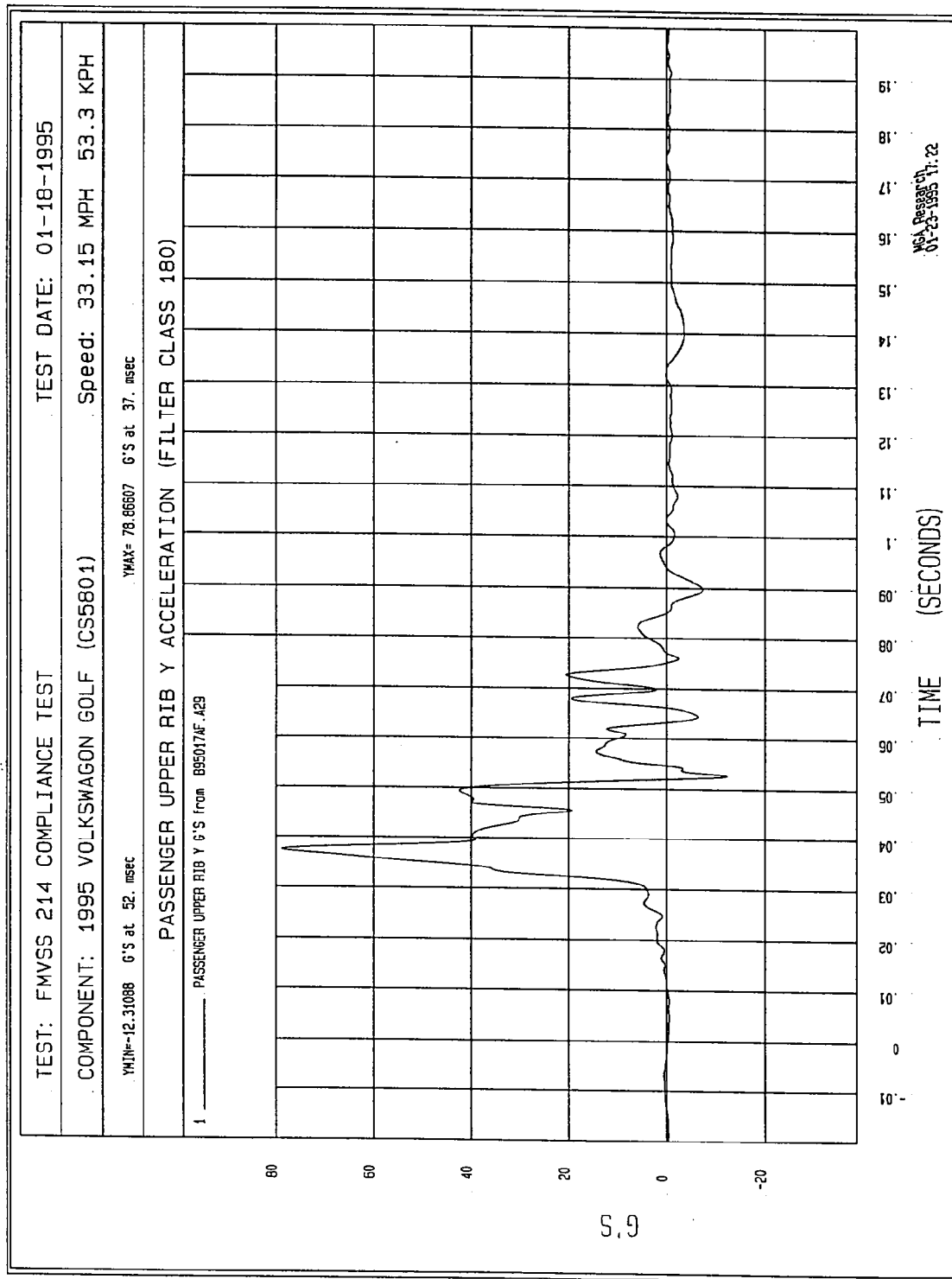


Figure B-9 - Passenger Upper Rib Y Acceleration vs. Time

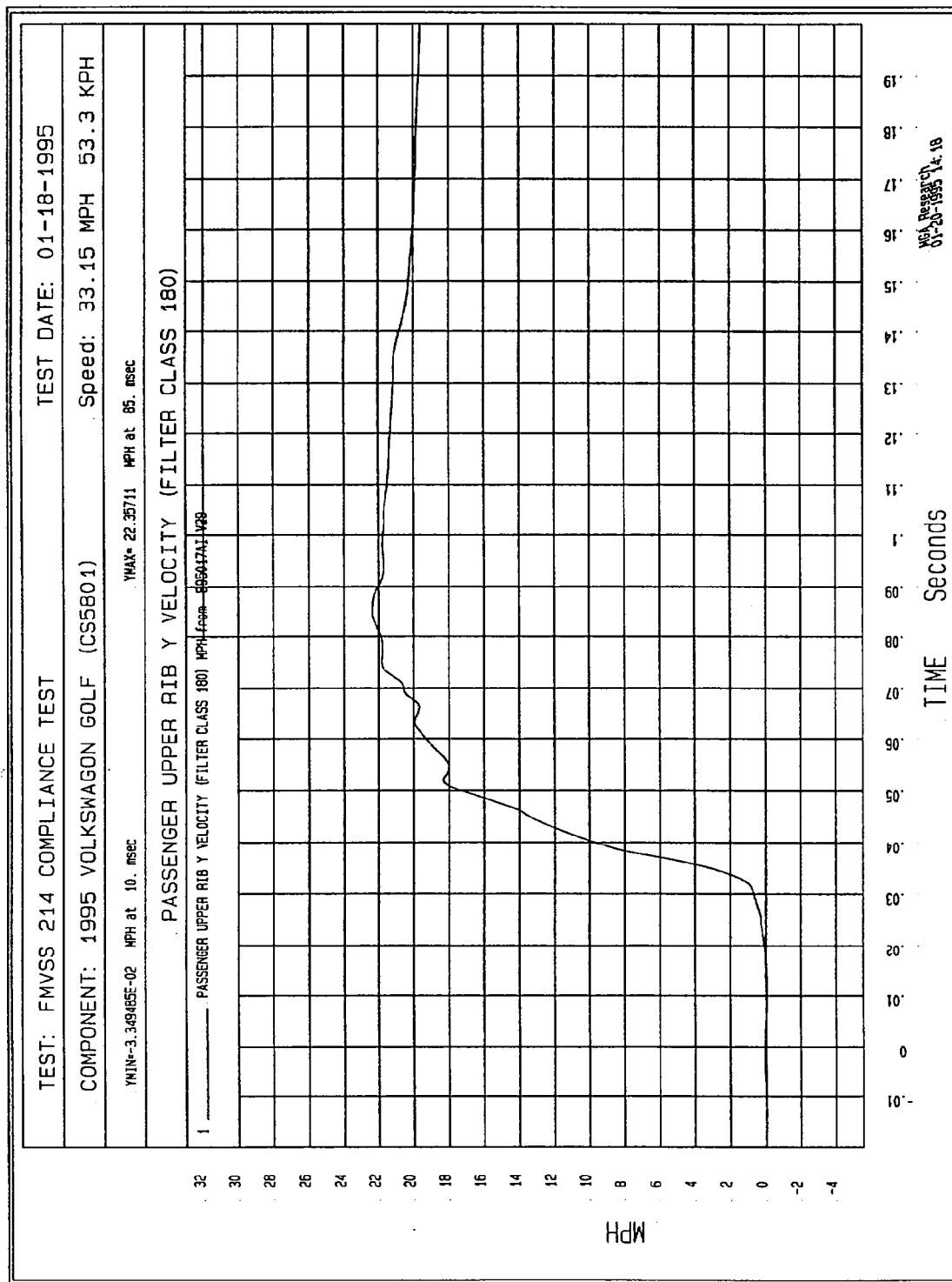


Figure B-10 - Passenger Upper Rib Y Velocity vs. Time

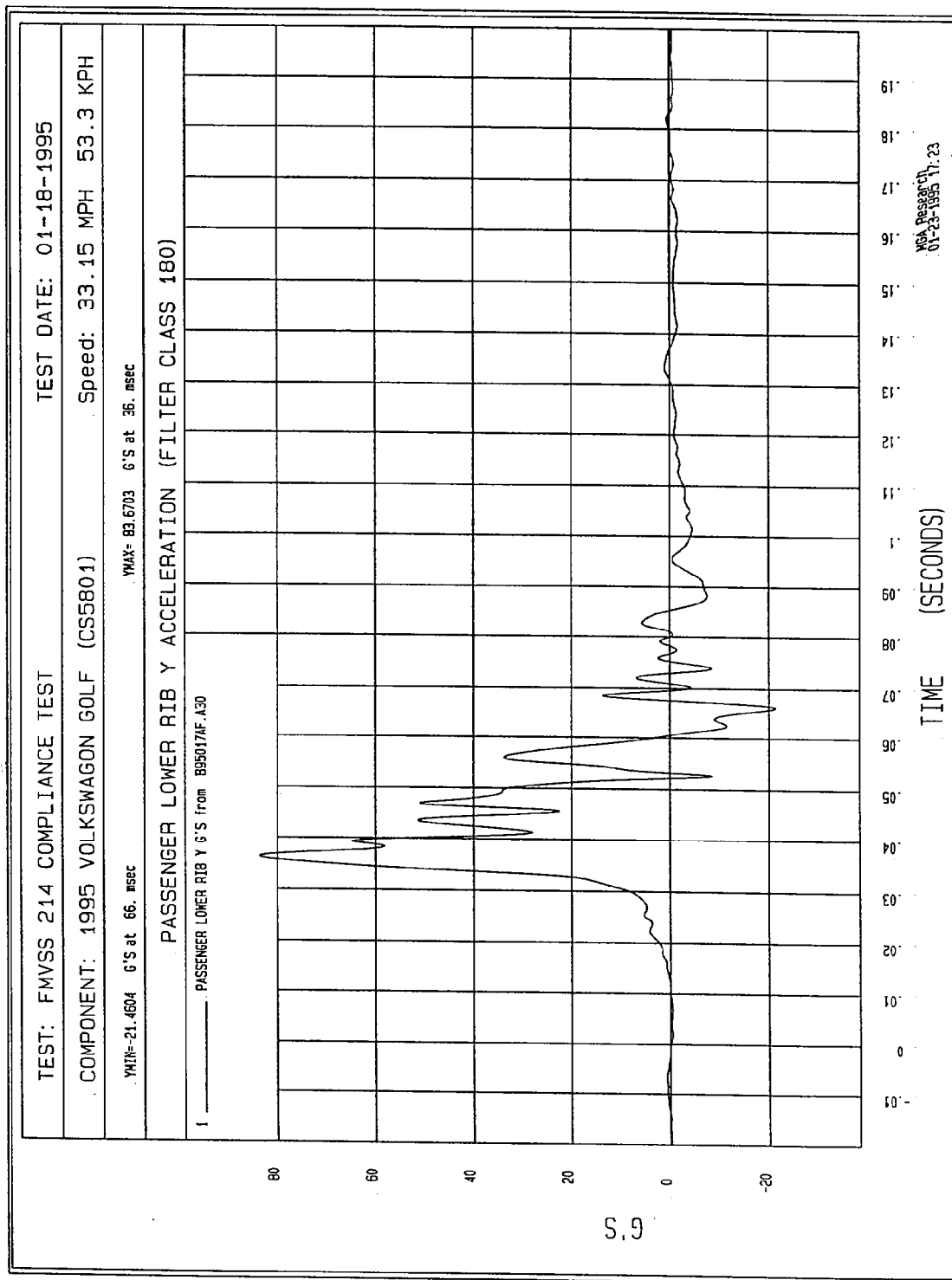


Figure B-11 - Passenger Lower Rib Y Acceleration vs. Time

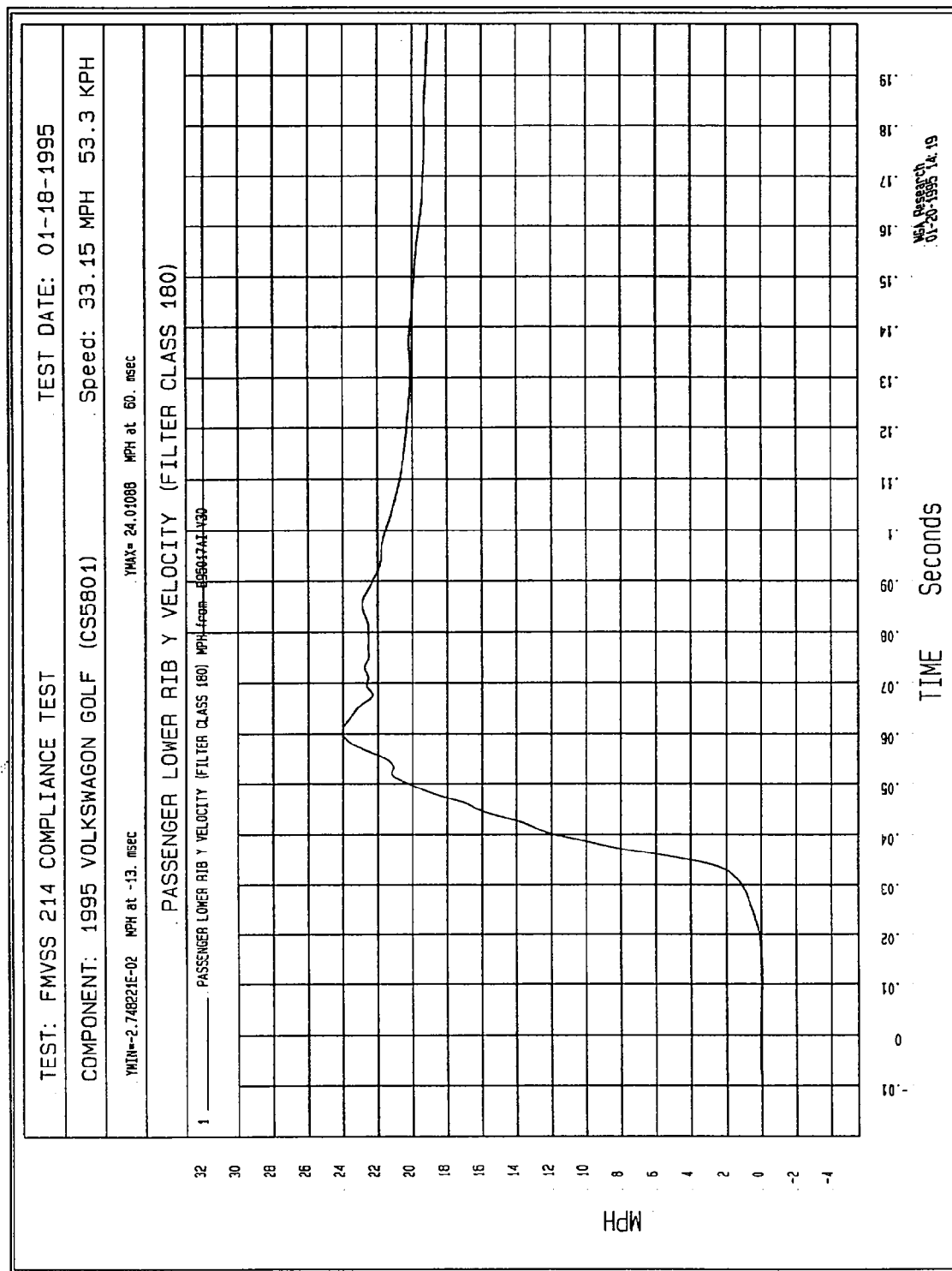


Figure B-12 - Passenger Lower Rib Y Velocity vs. Time

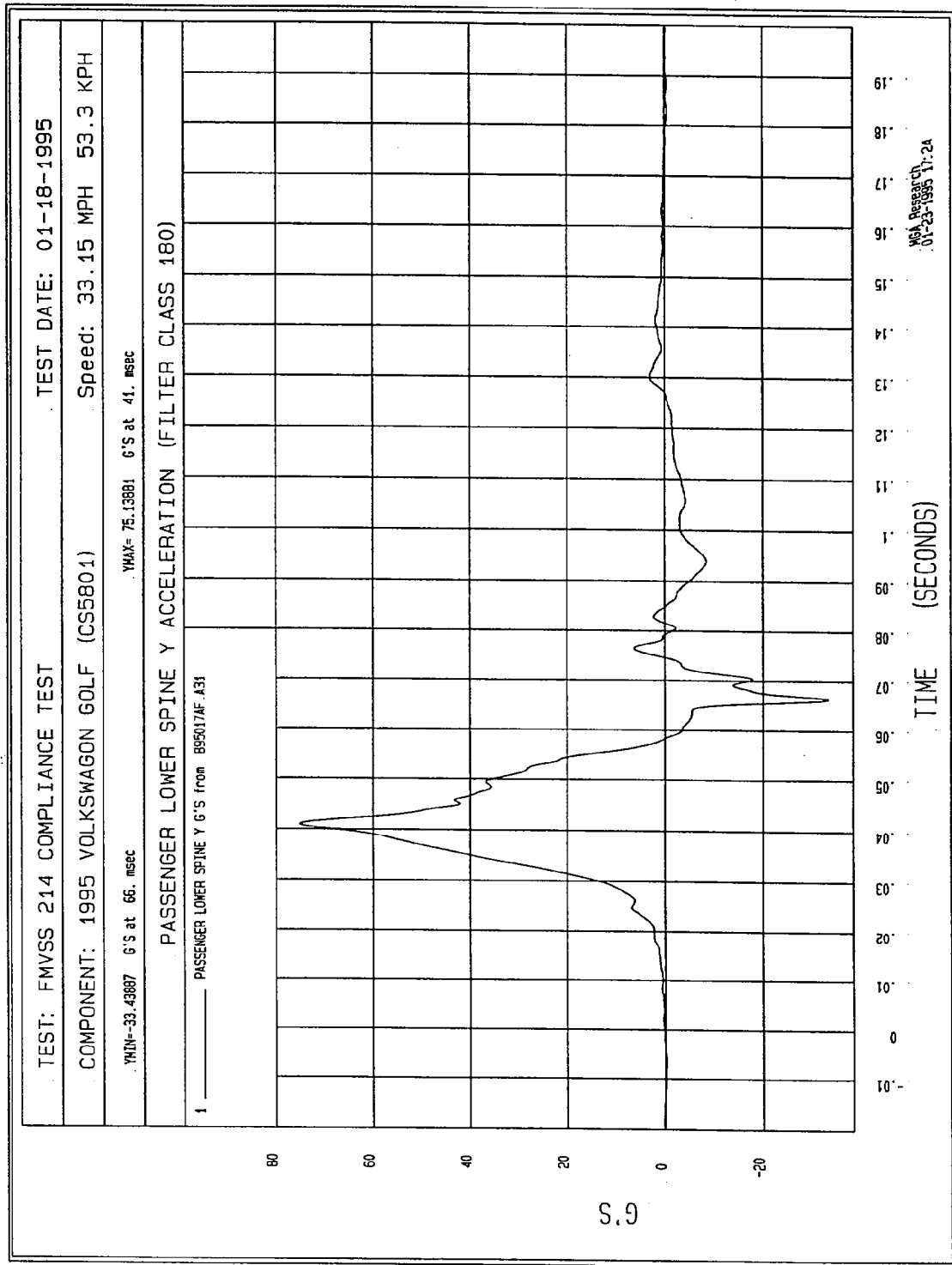


Figure B-13 - Passenger Lower Spine Y Acceleration vs. Time

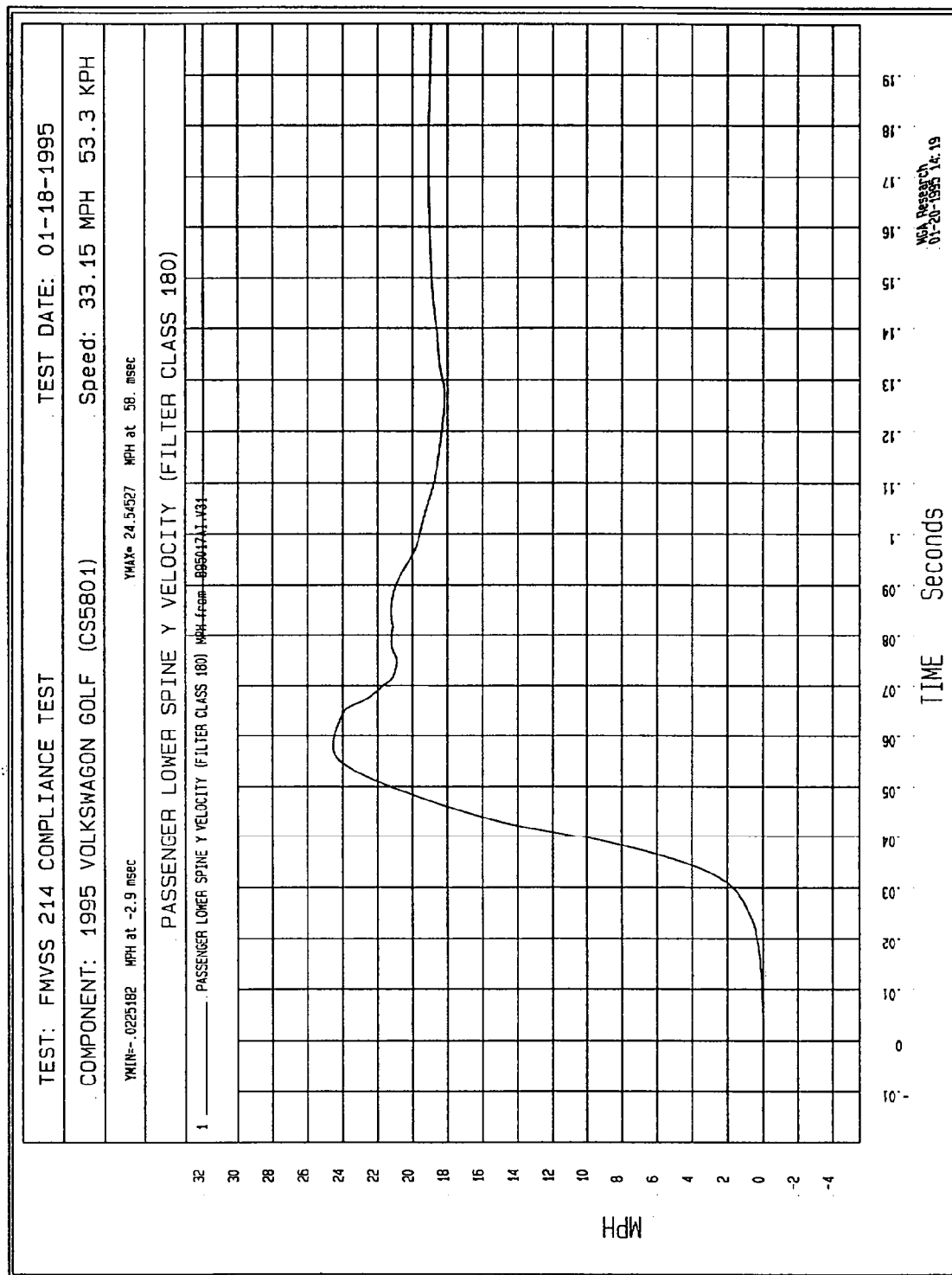
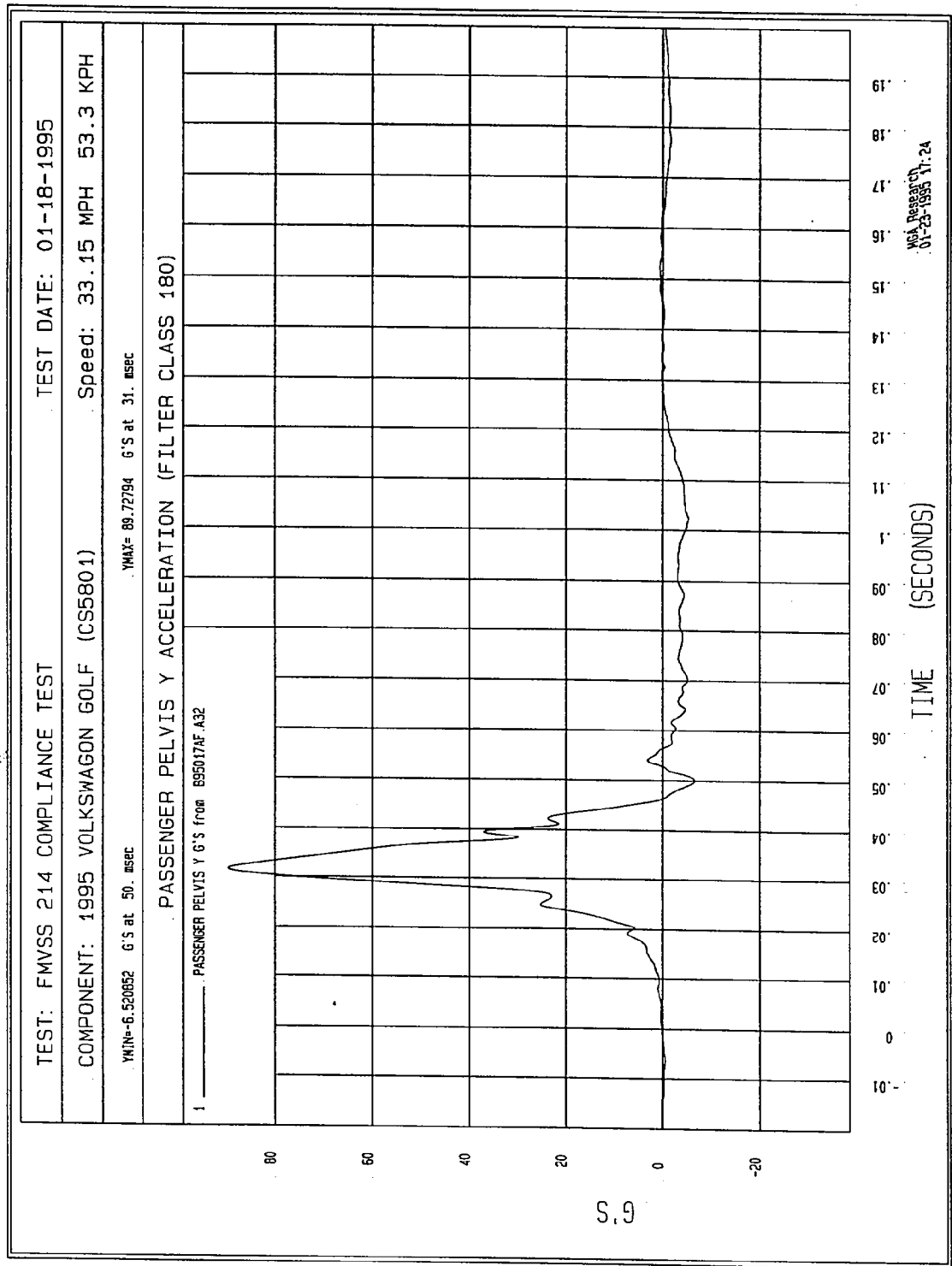


Figure B-14 - Passenger Lower Spine Y Velocity vs. Time



B-15

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

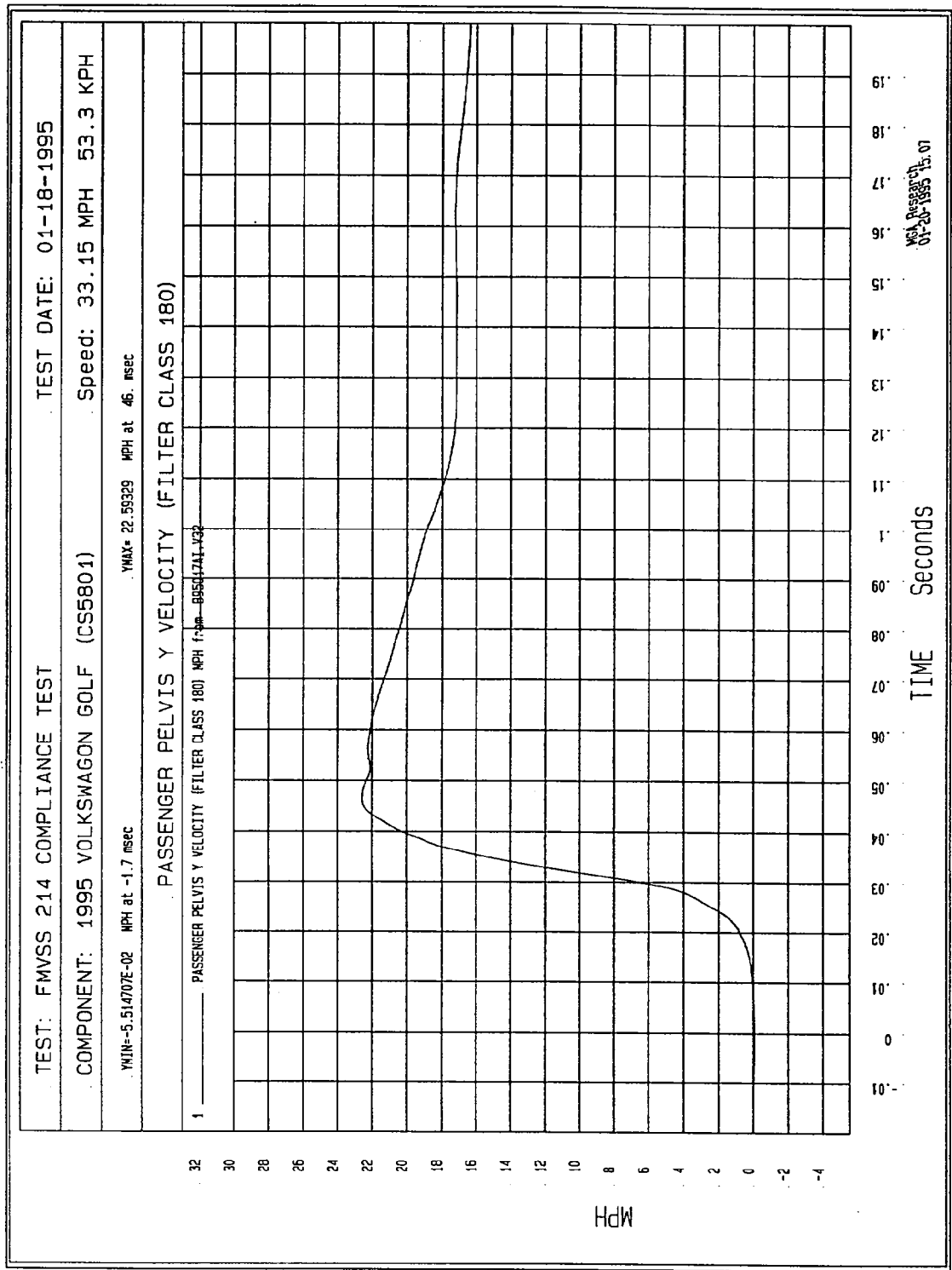


Figure B-16 - Passenger Pelvis Y Velocity vs. Time

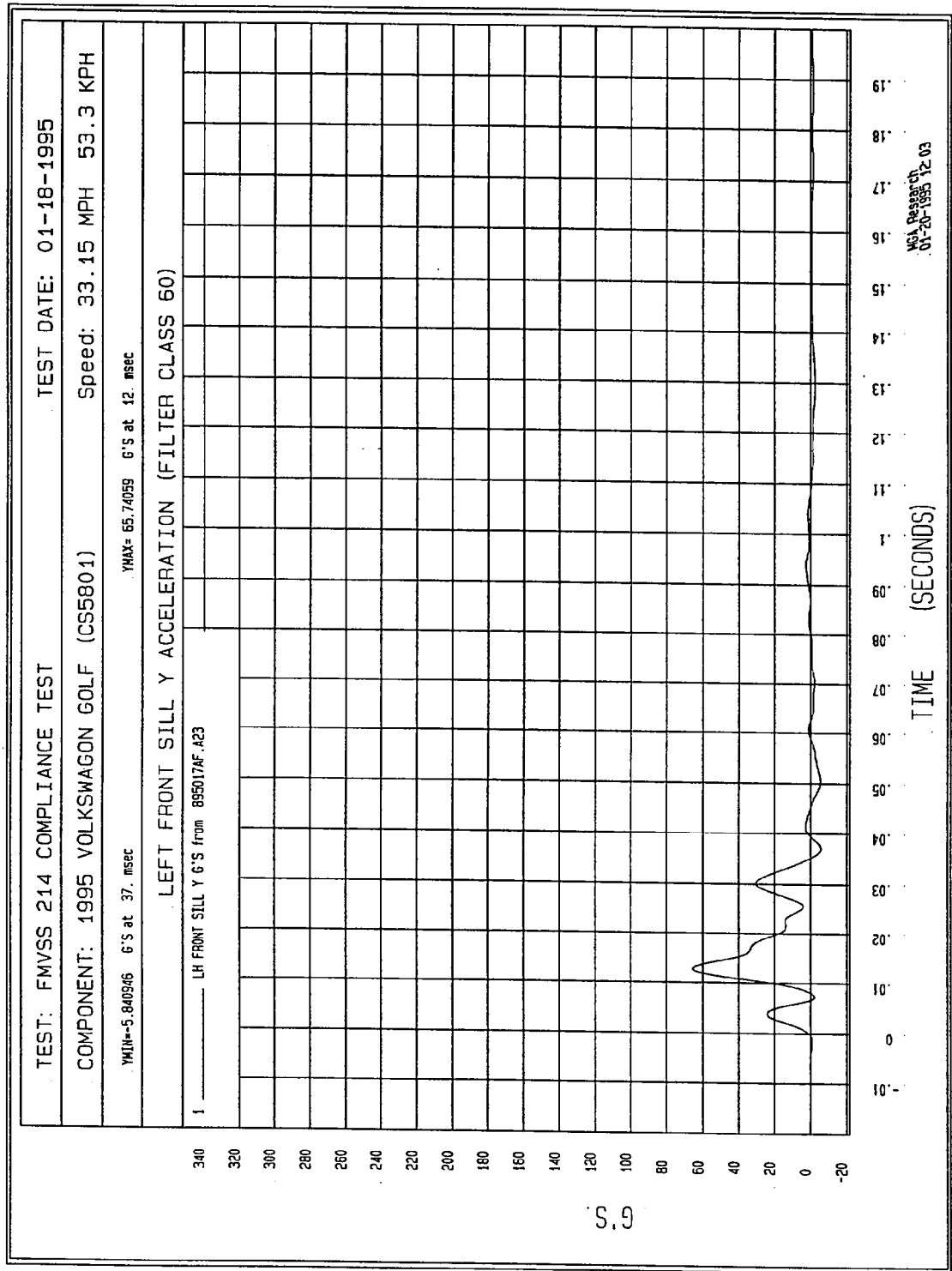


Figure B-17 - Left Front Sill Y Acceleration vs. Time

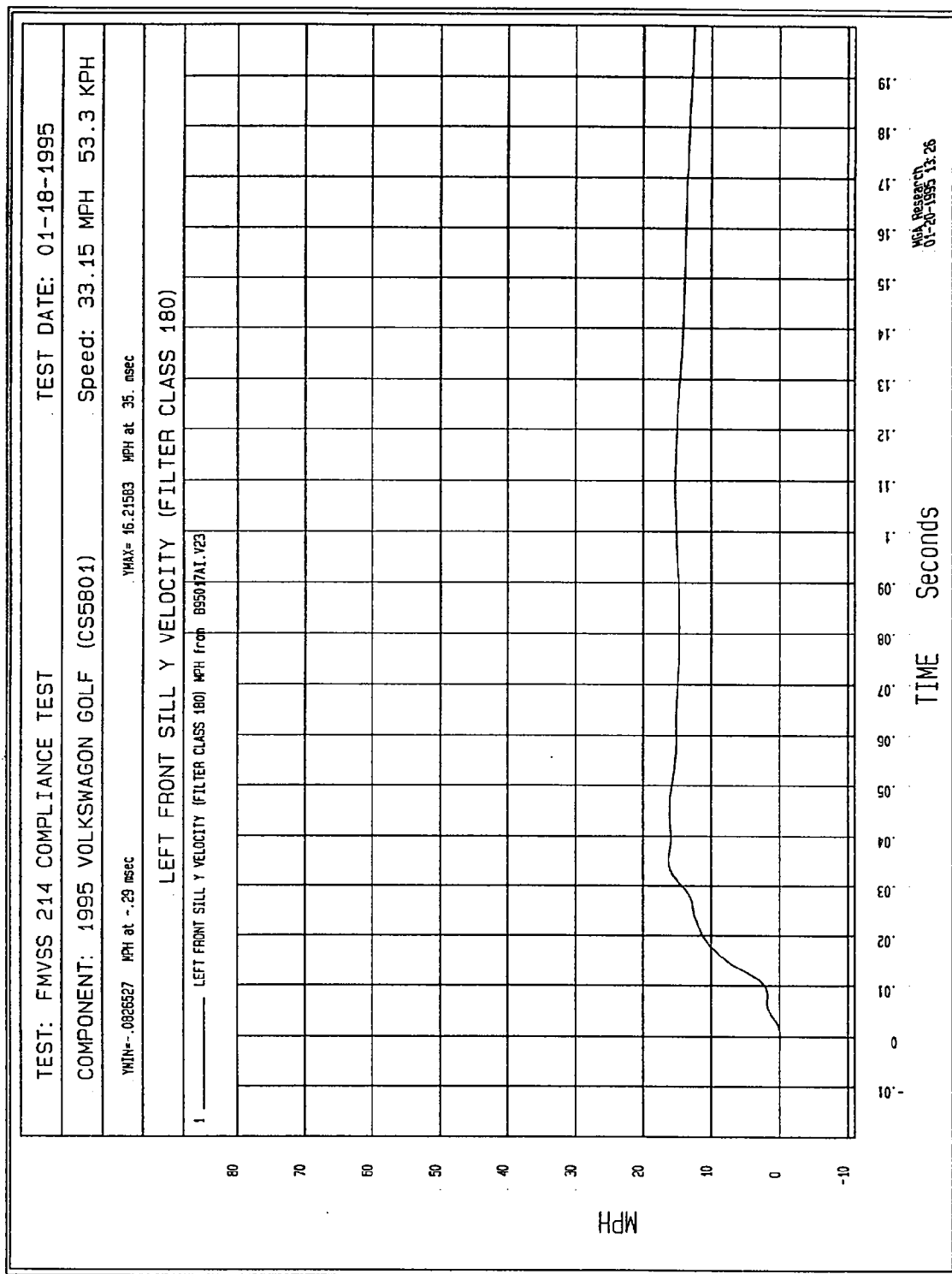


Figure B-18 - Left Front Sill Y Velocity vs. Time

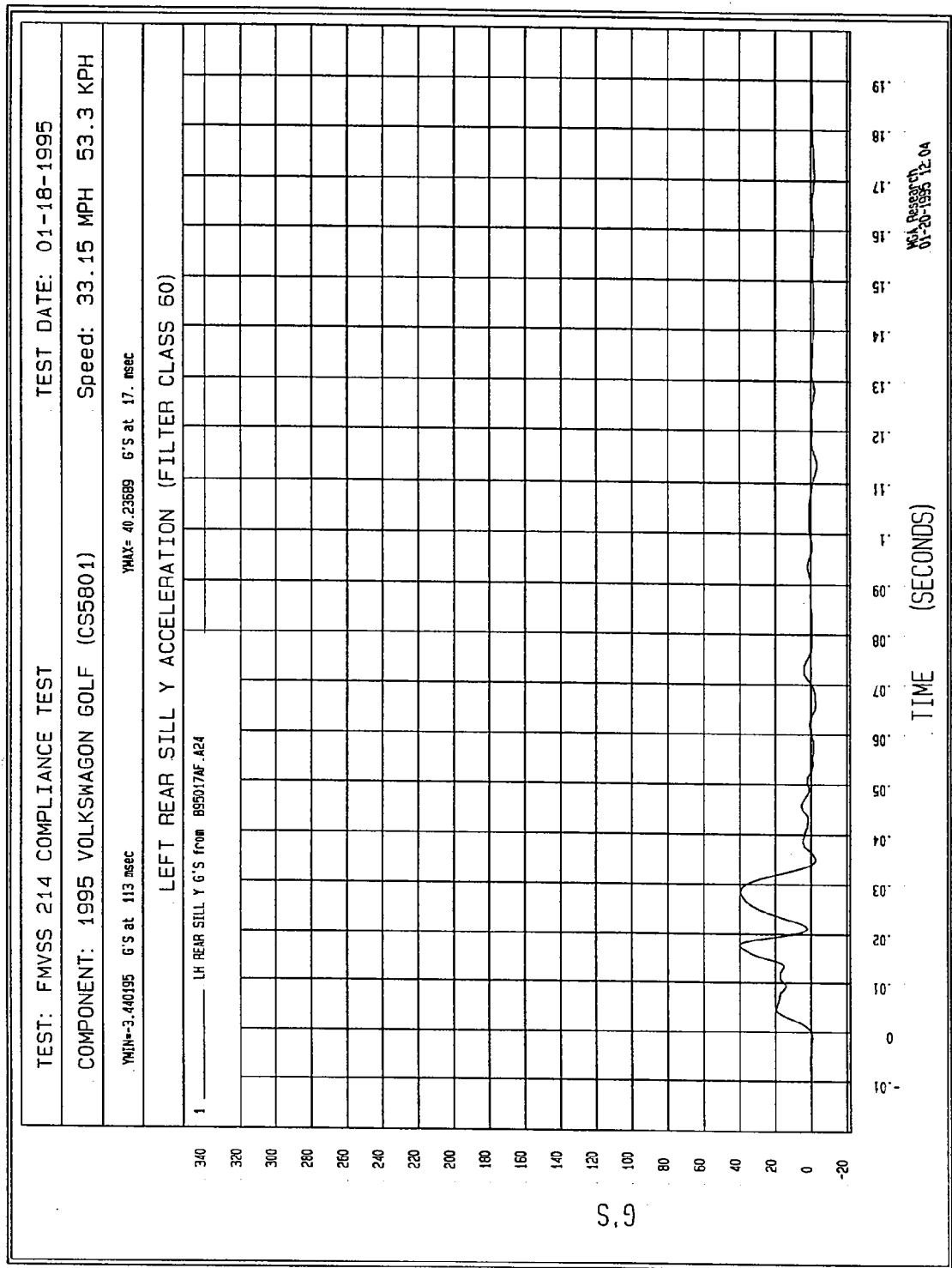


Figure B-19 - Left Rear Sill Y Acceleration vs. Time

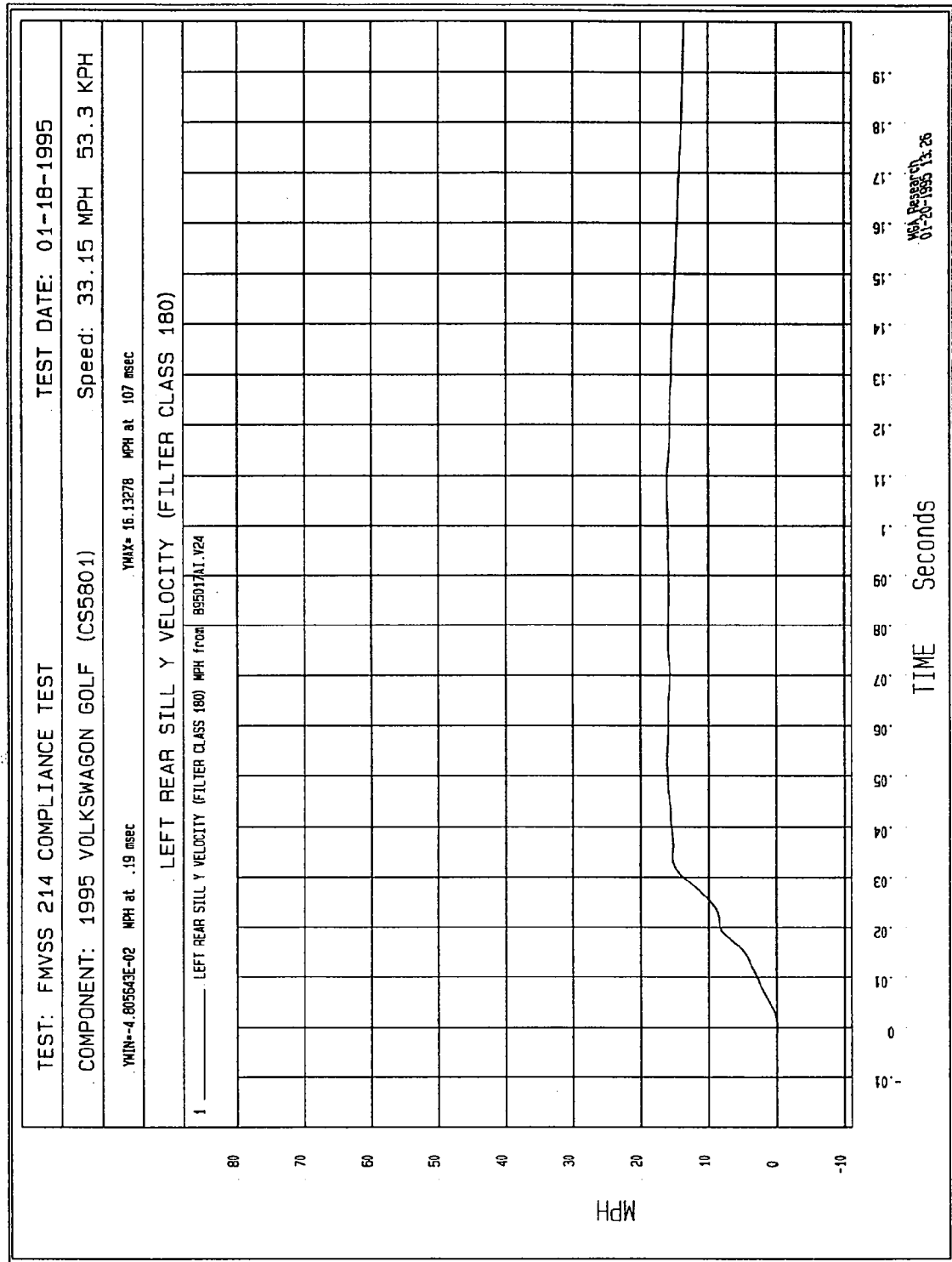


Figure B-20 - Left Rear Sill Y Velocity vs. Time

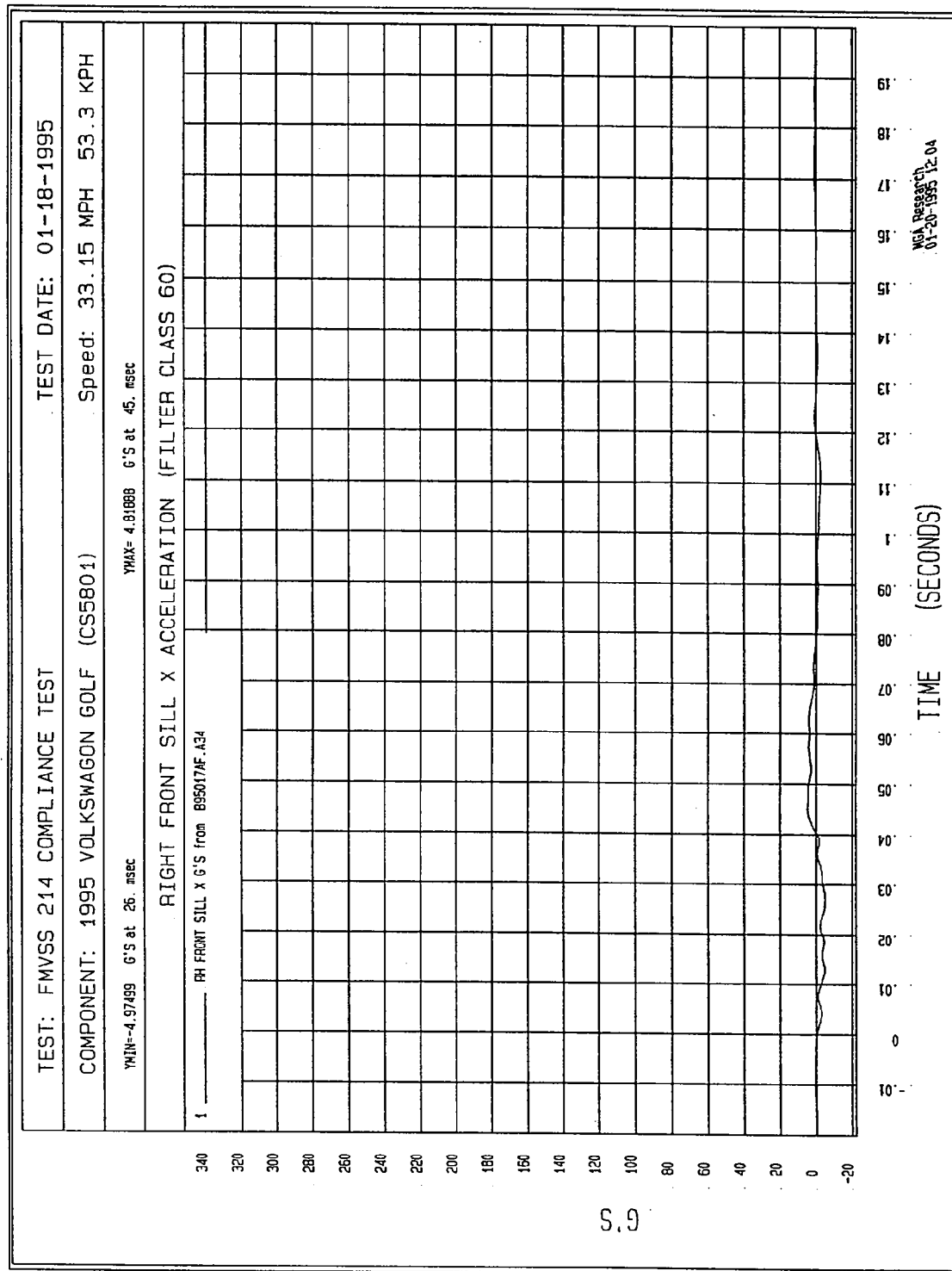


Figure B-21 - Right Front Sill X Acceleration vs. Time

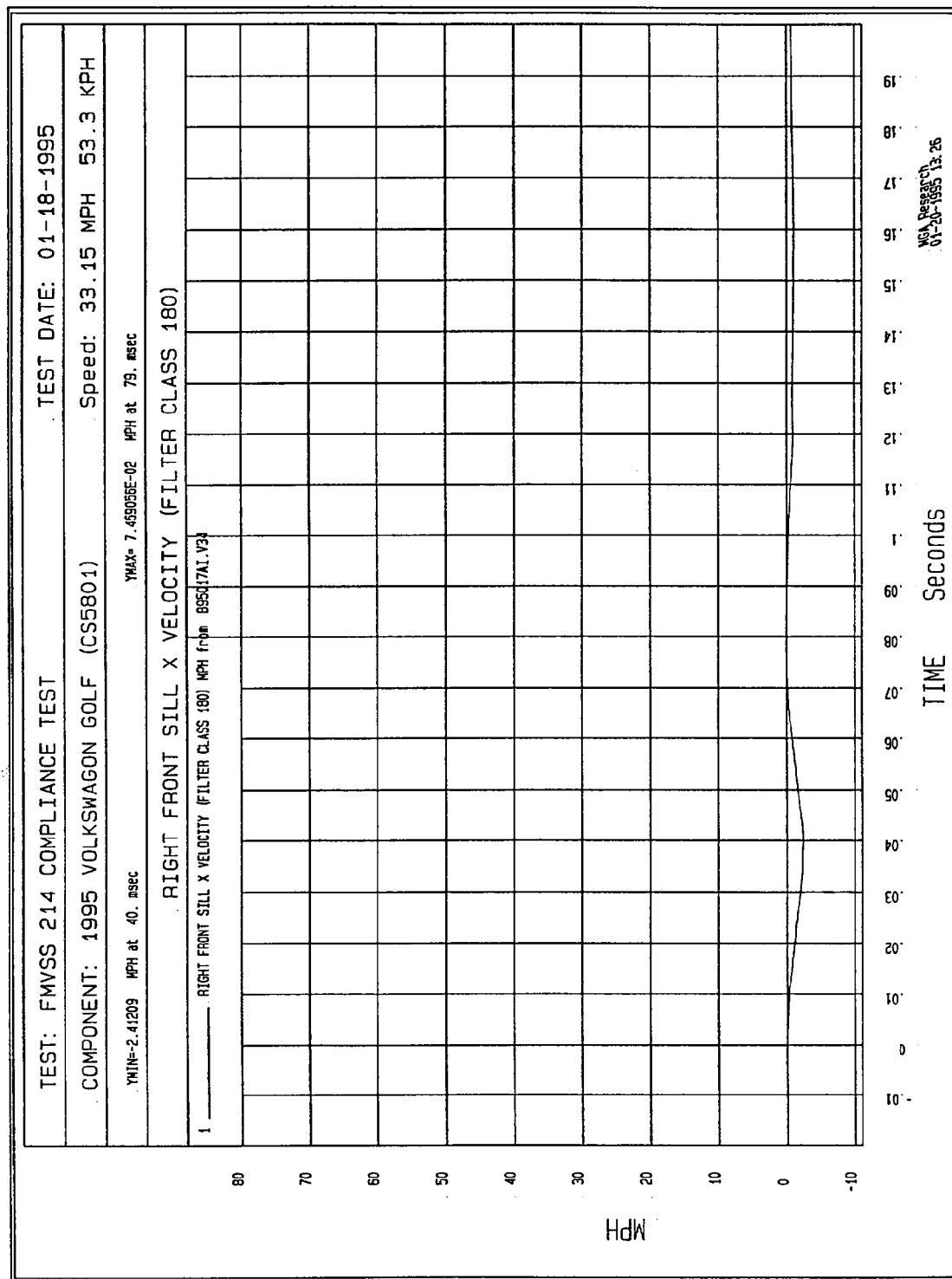


Figure B-22 - Right Front Sill X Velocity vs. Time

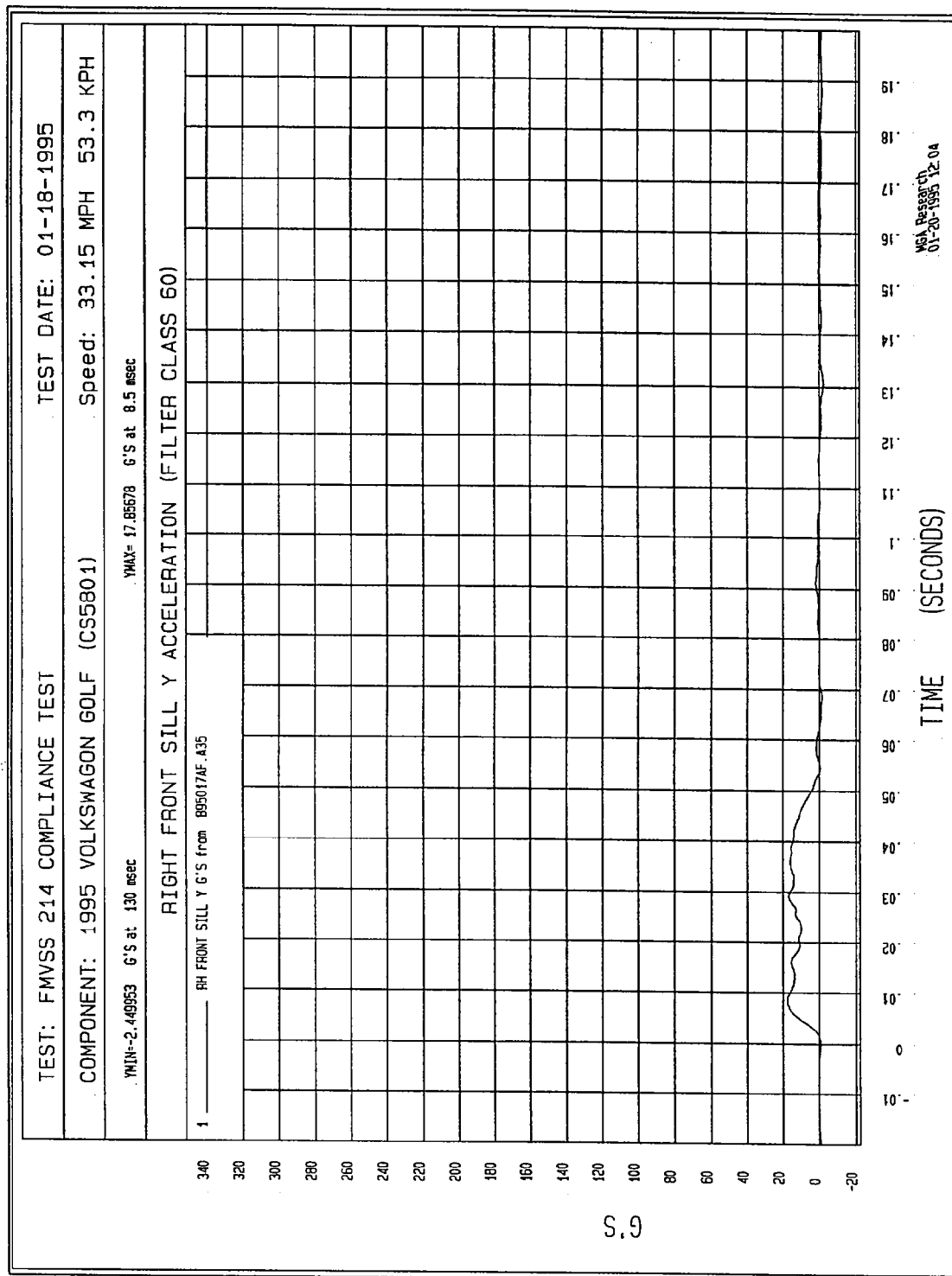


Figure B-23 - Right Front Sill Y Acceleration vs. Time

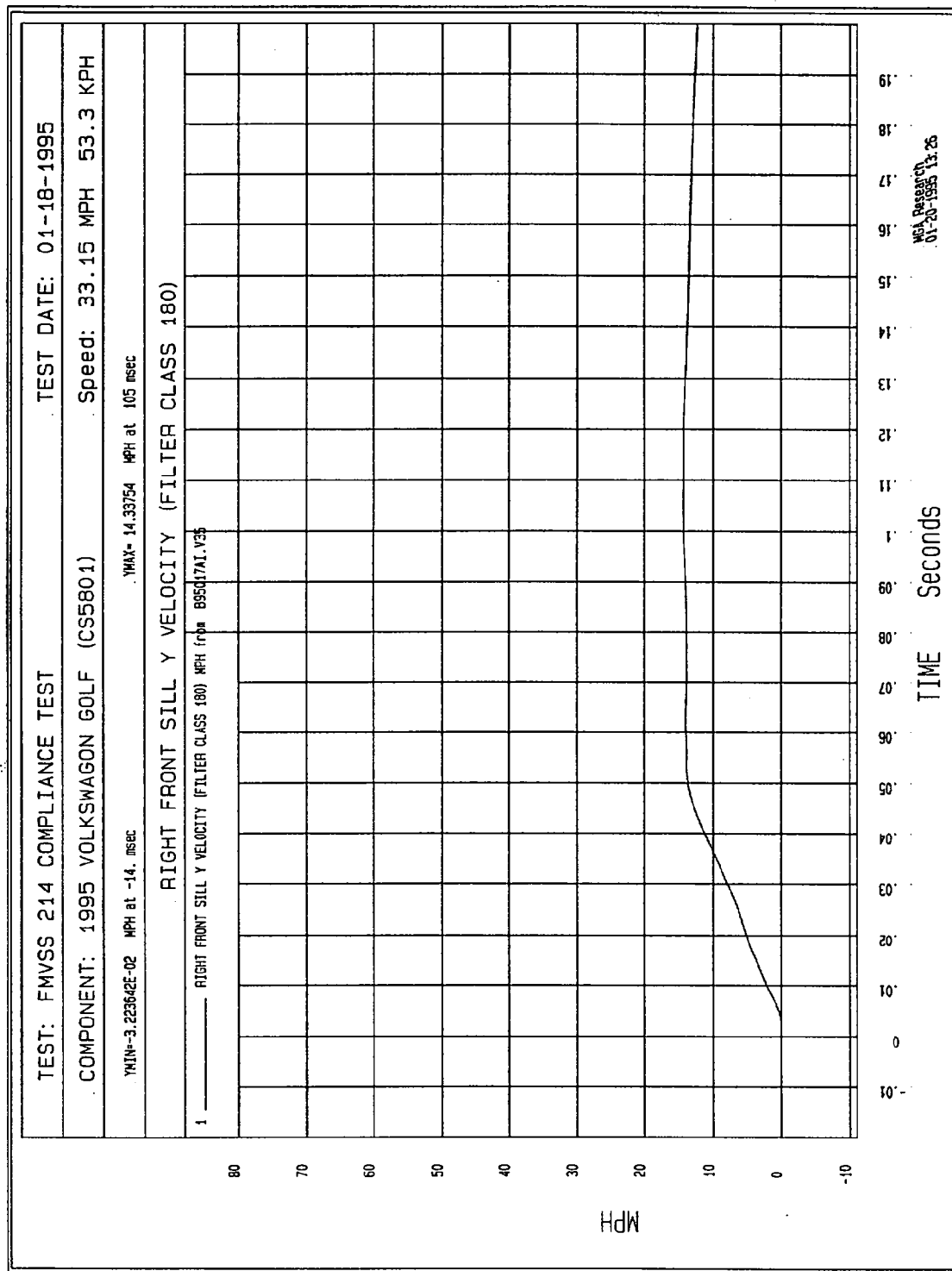


Figure B-24 - Right Front Sill Y Velocity vs. Time

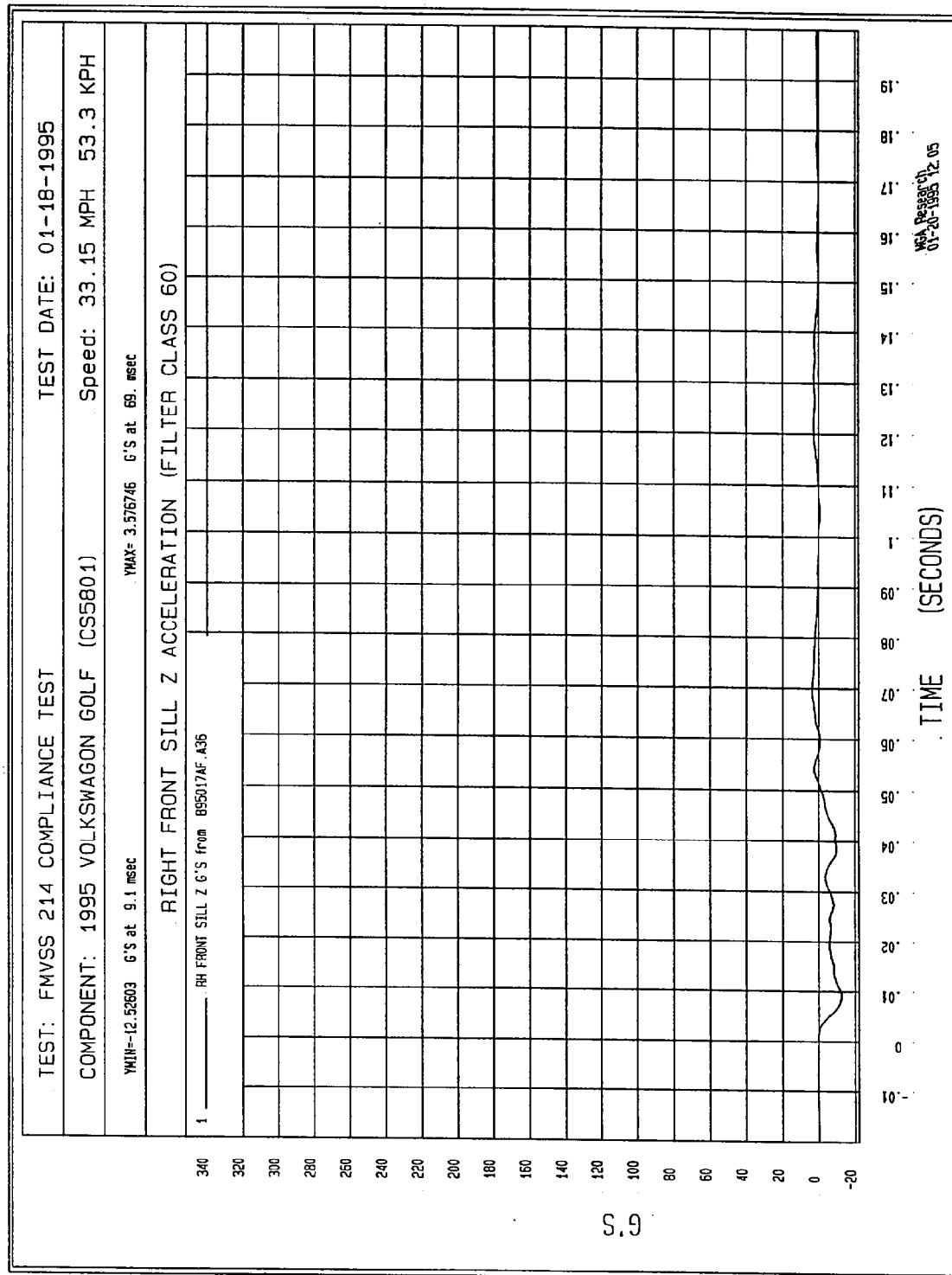


Figure B-25 - Right Front Sill Z Acceleration vs. Time

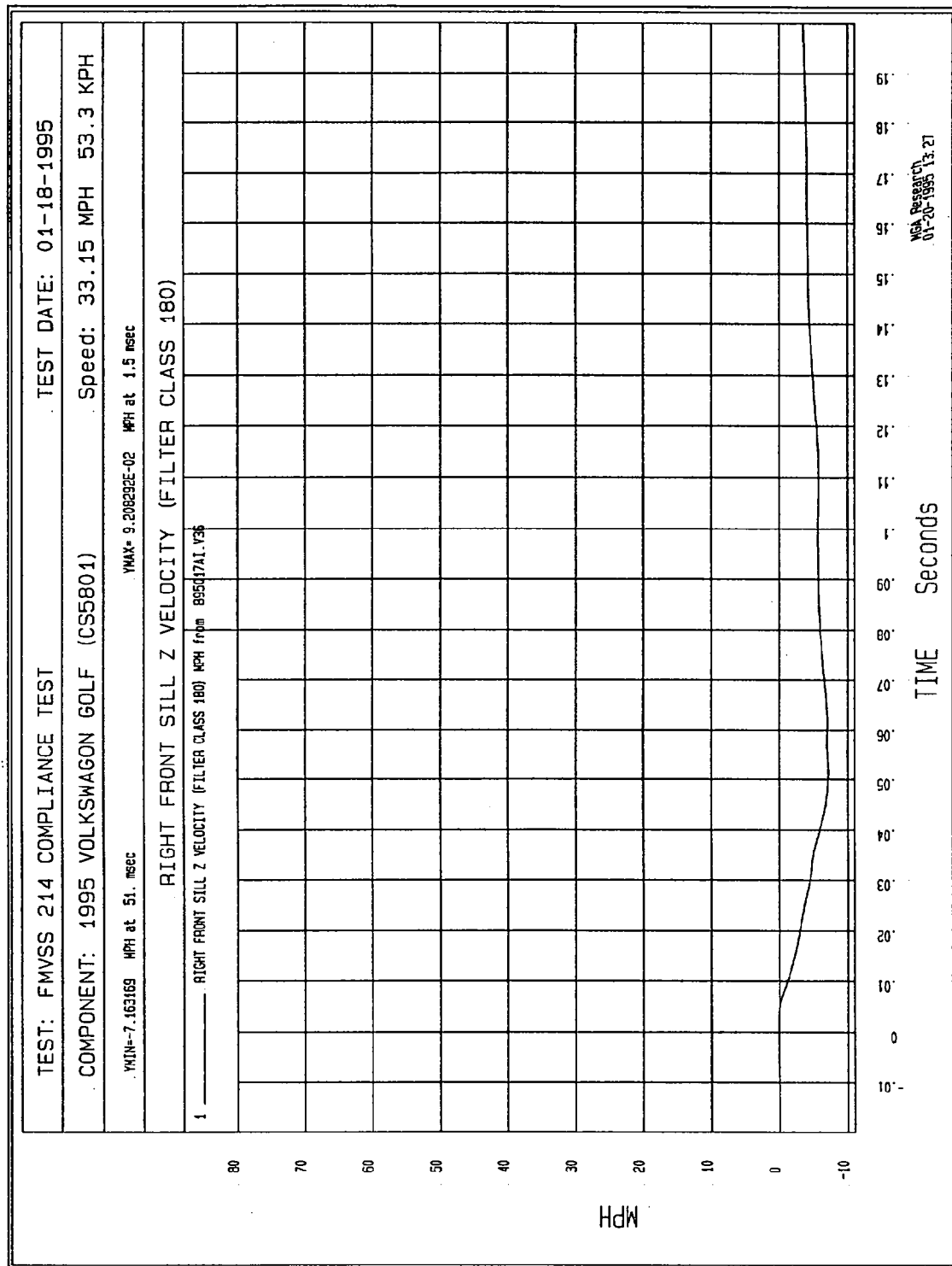


Figure B-26 - Right Front Sill z Velocity vs. Time

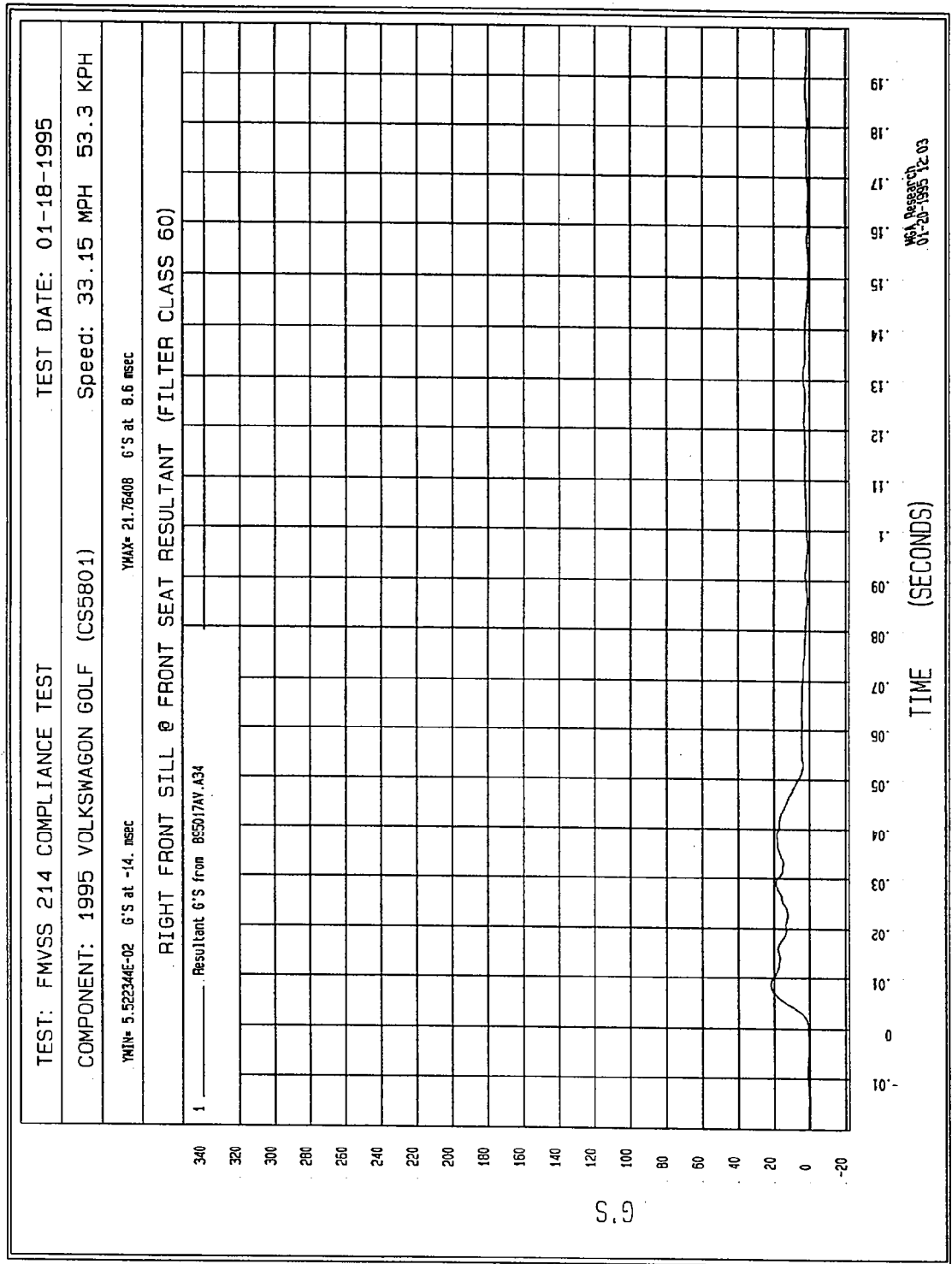


Figure B-27 - Right Front Sill at Front Seat Resultant vs. Time

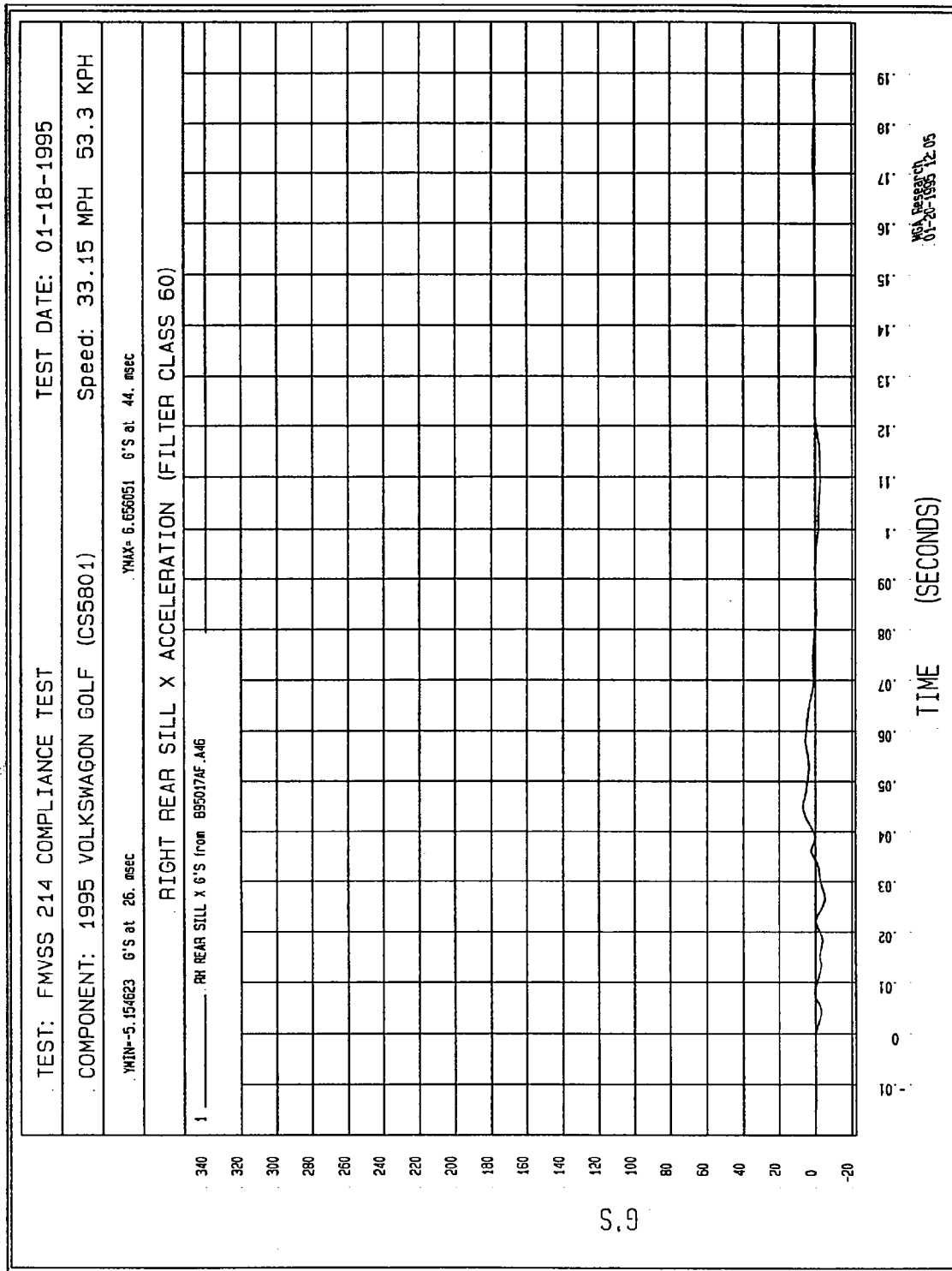


Figure B-28 - Right Rear Sill X Acceleration vs. Time

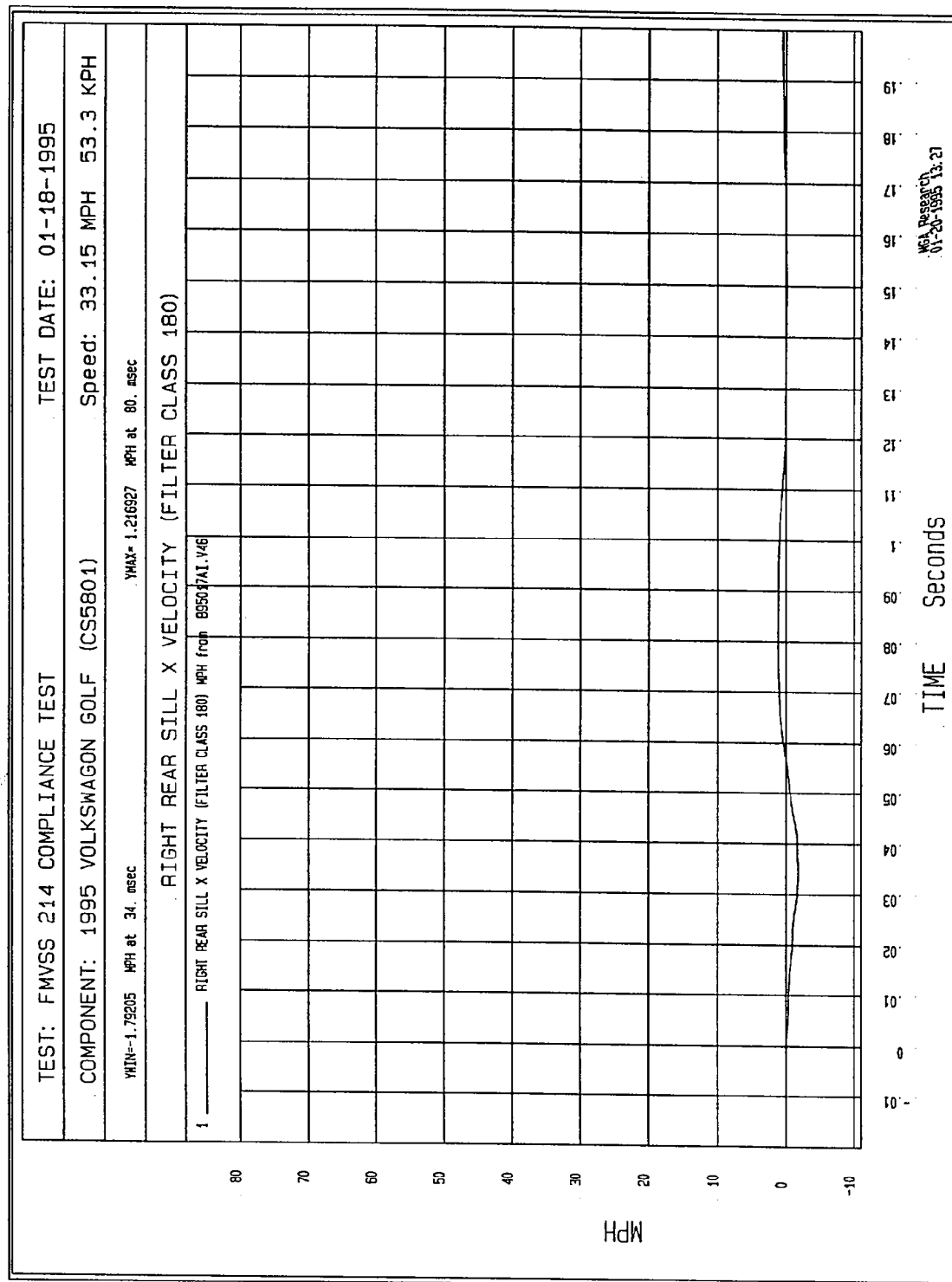


Figure B-29 - Right Rear Sill X Velocity vs. Time

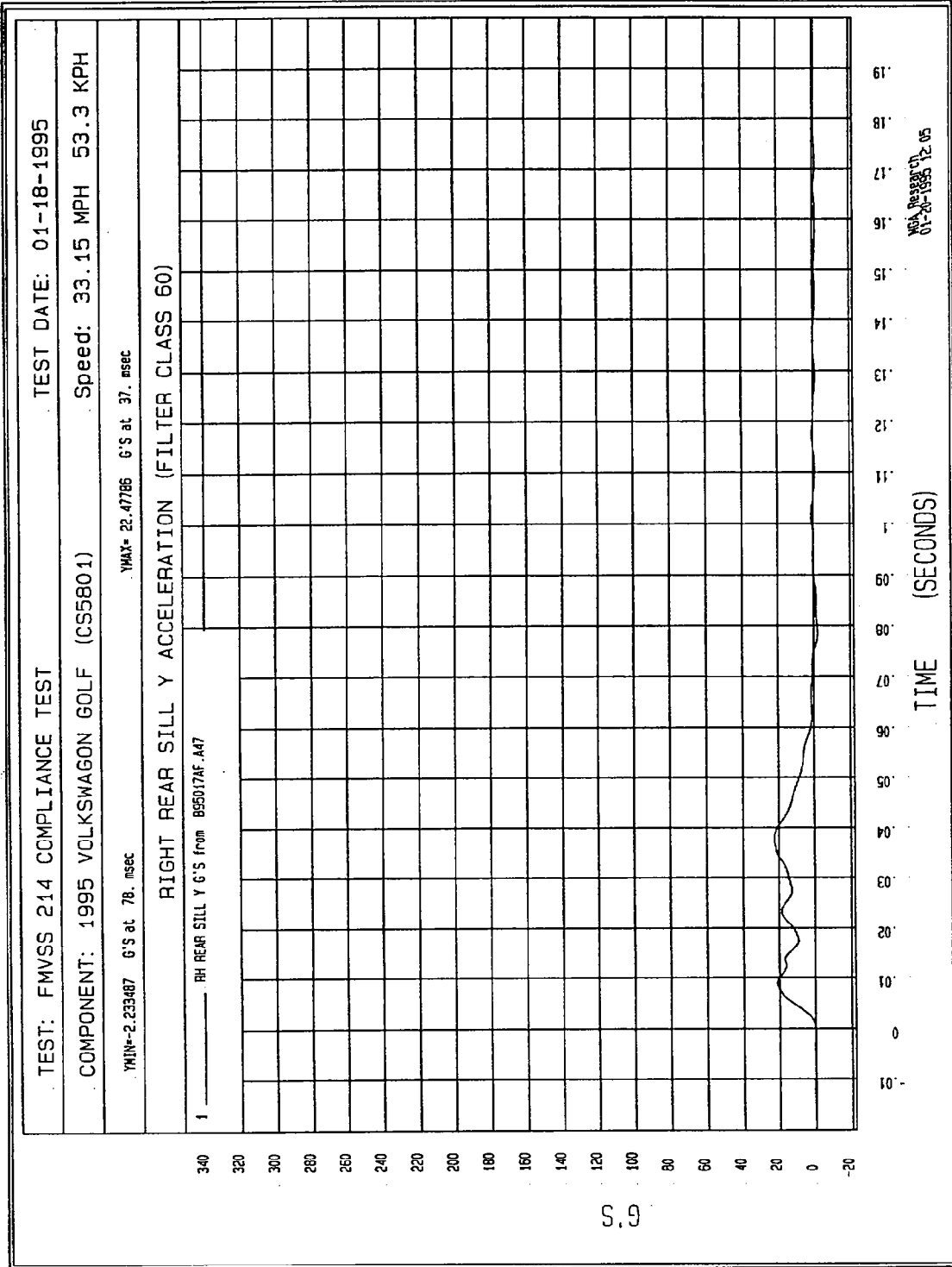


Figure B-30 - Right Rear Sill Y Acceleration vs. Time

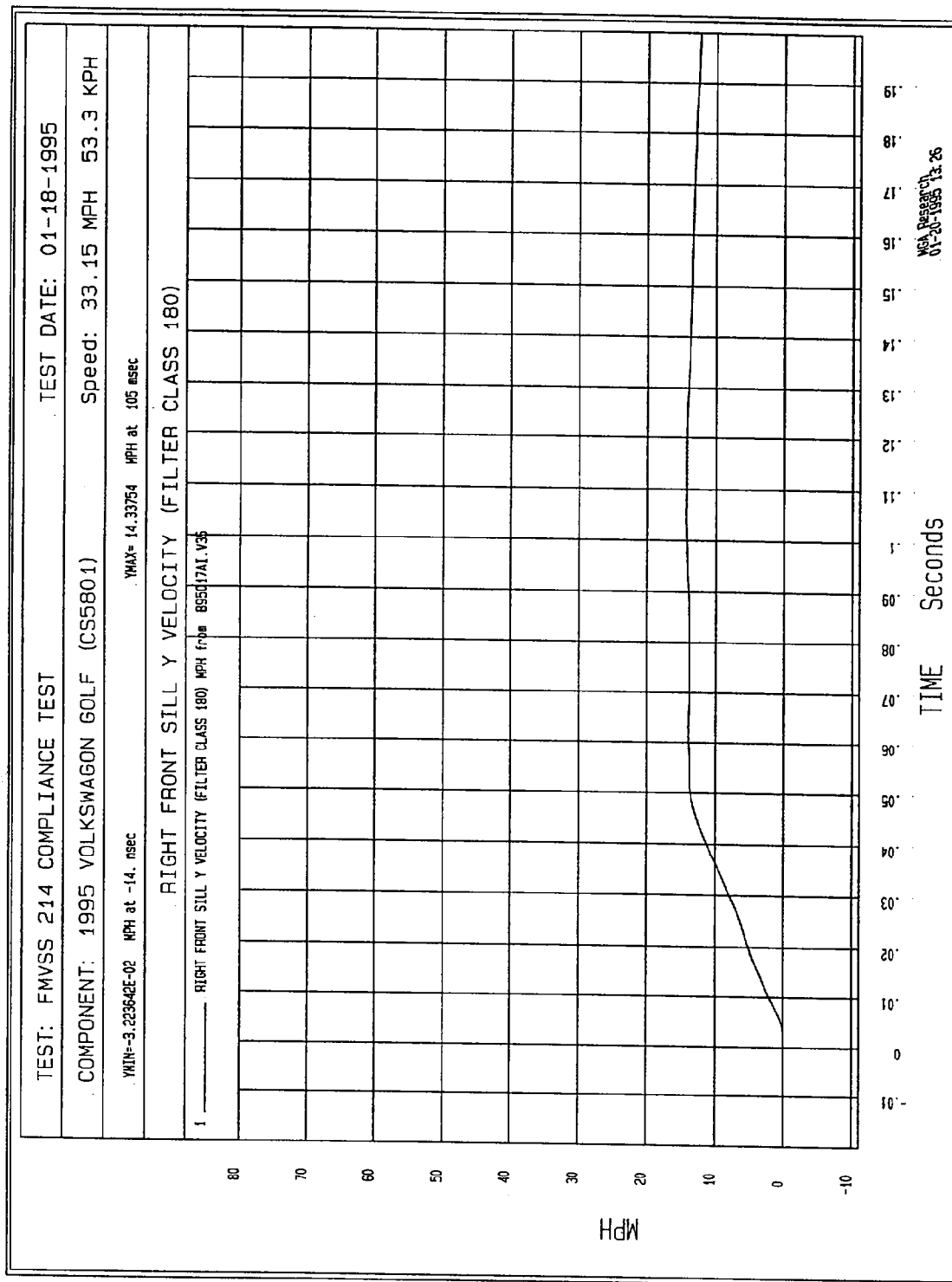


Figure B-31 - Right Rear Sill Y Velocity vs. Time

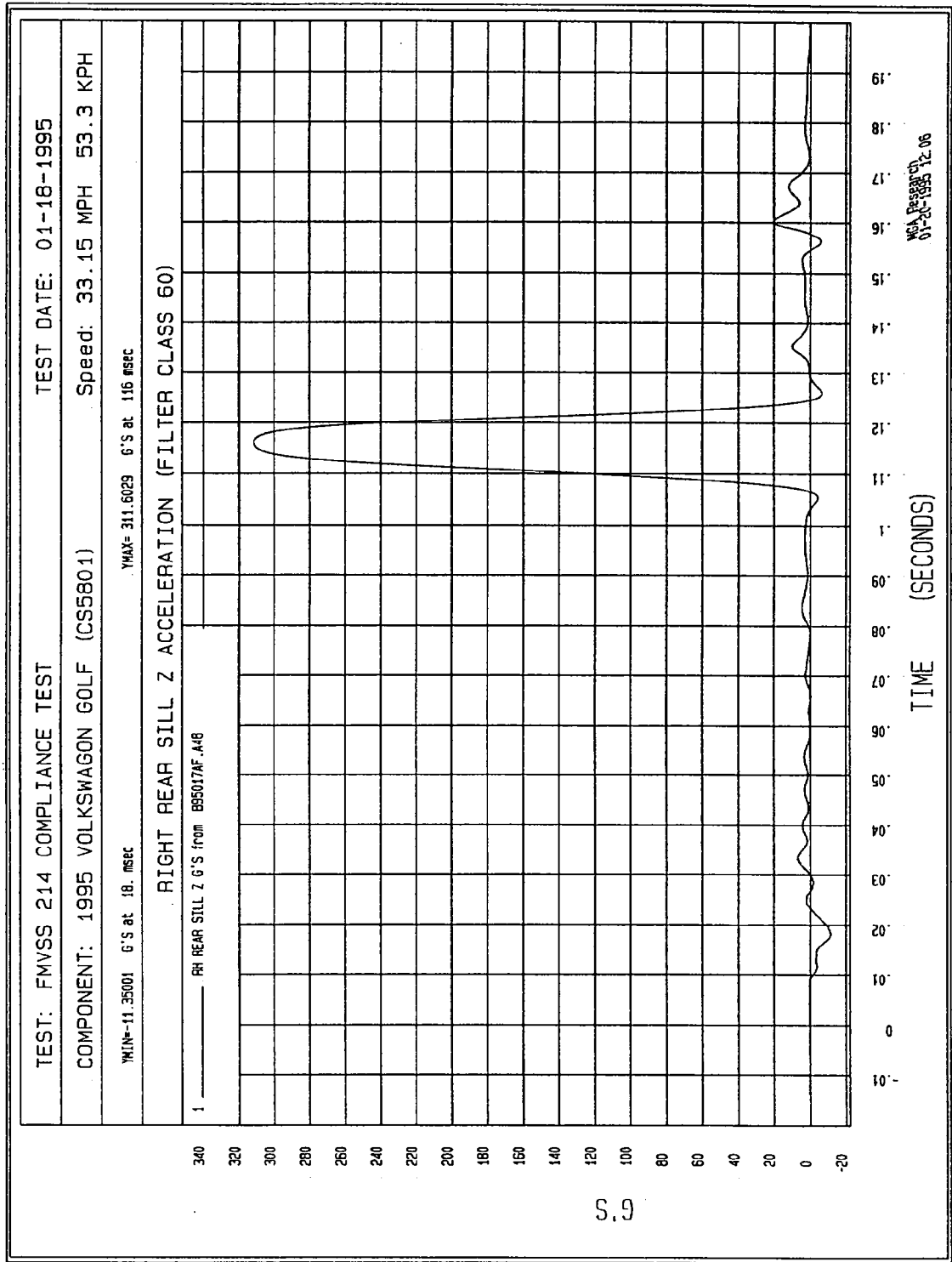


Figure B-32 - Right Rear Sill Z Acceleration vs. Time

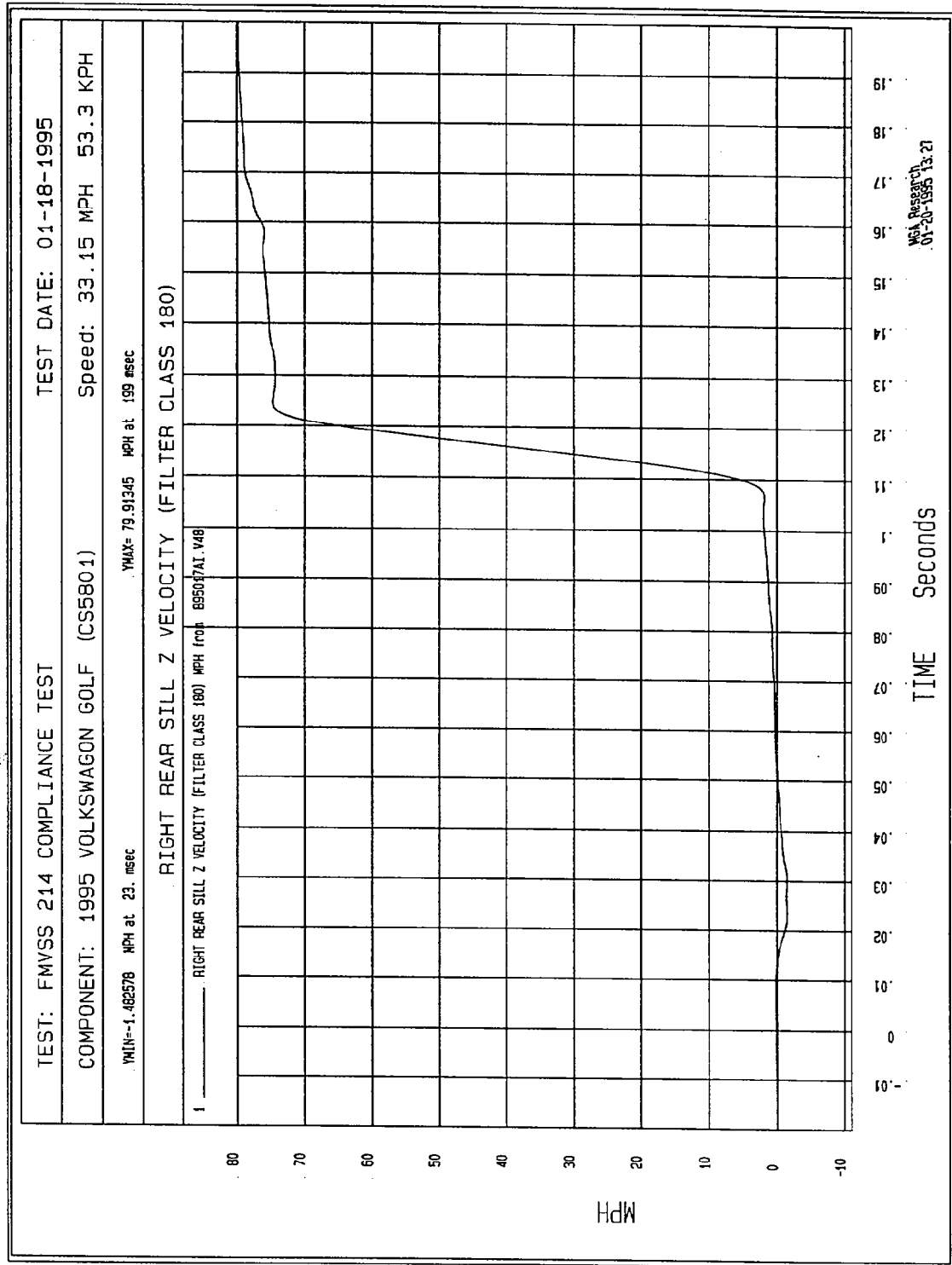


Figure B-33 - Right Rear Sill Z Velocity vs. Time

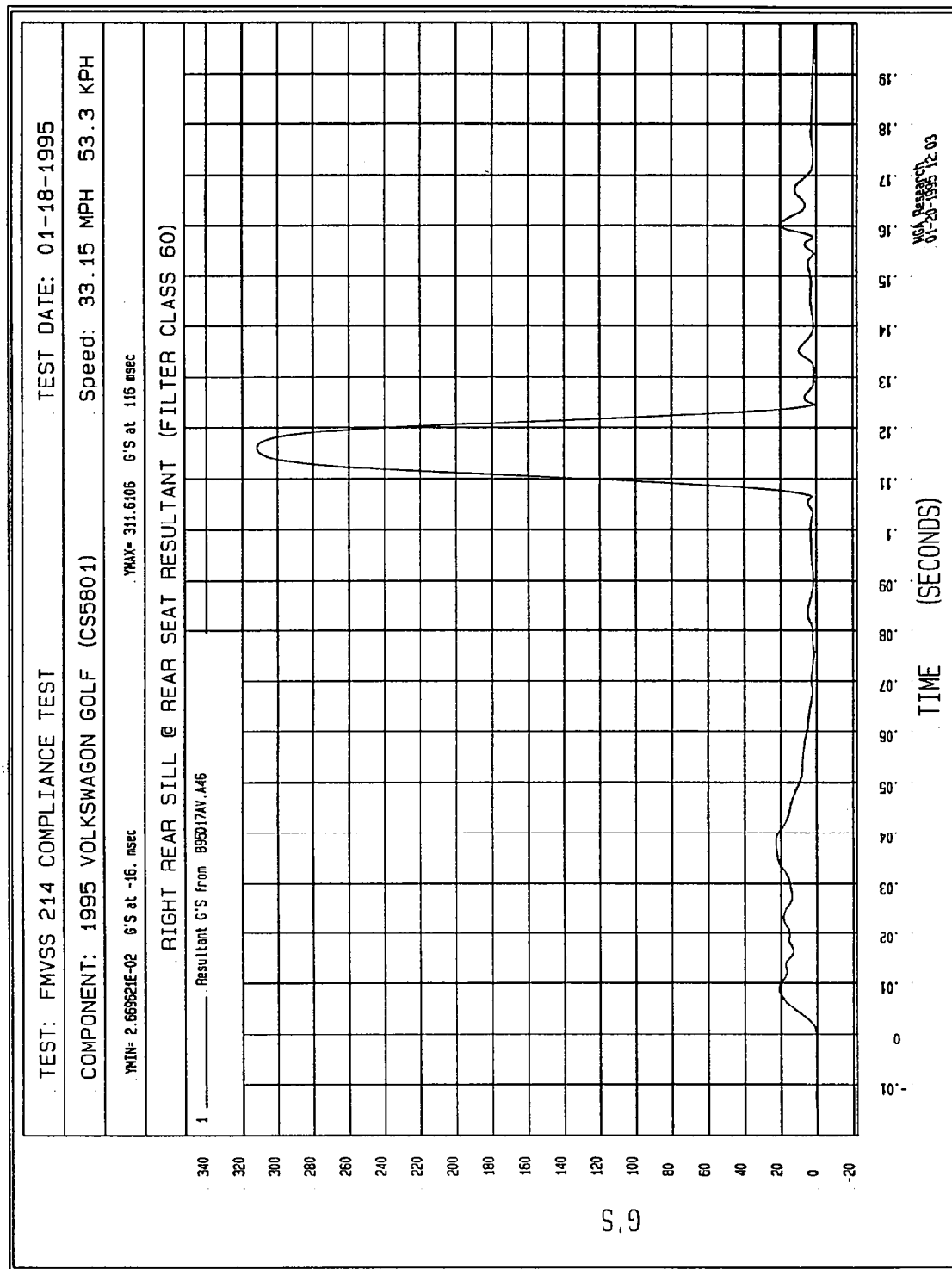


Figure B-34 - Right Rear Sill at Rear Seat Resultant vs. Time

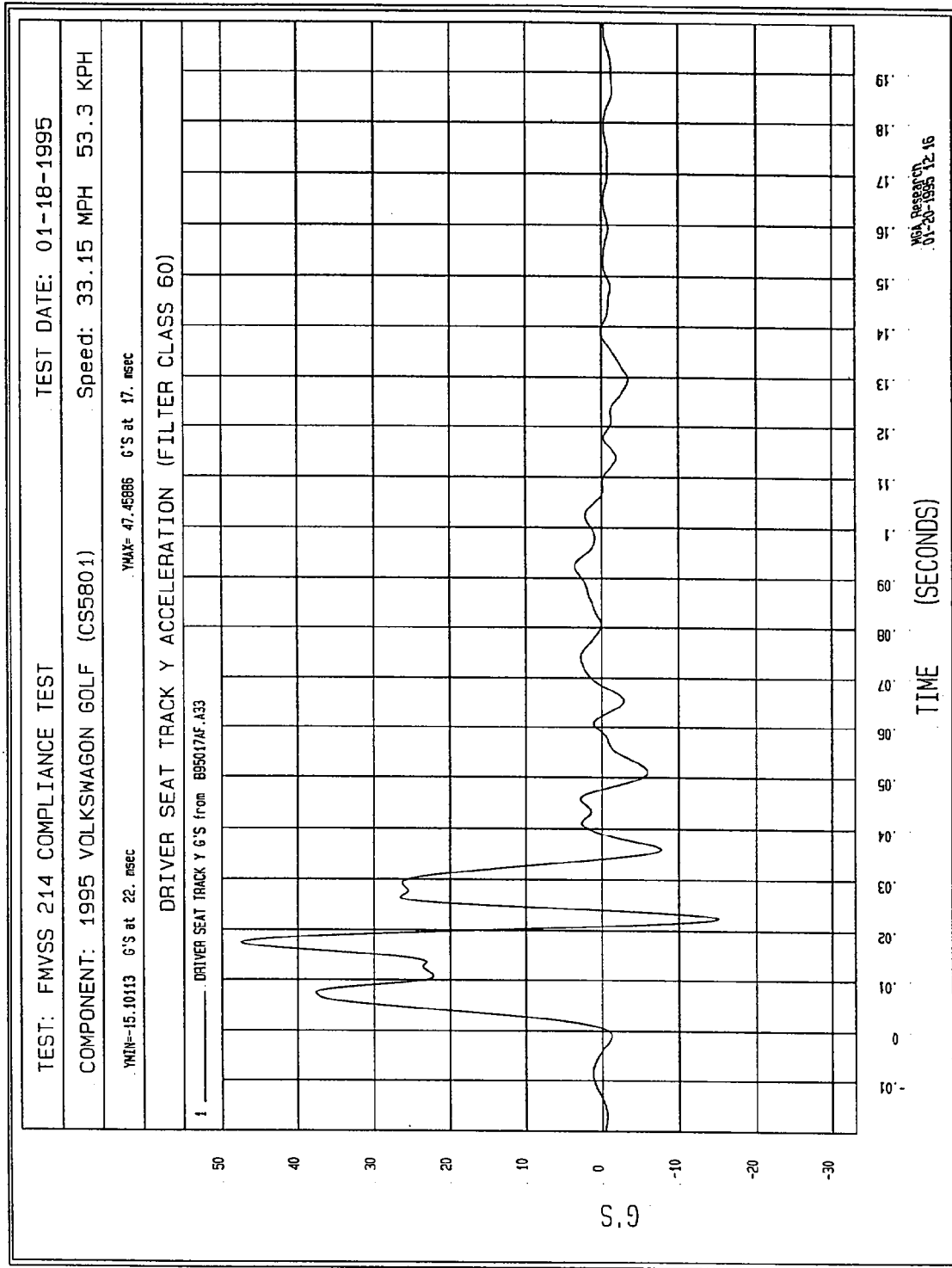


Figure B-35 - Driver Seat Track Y Acceleration vs. Time

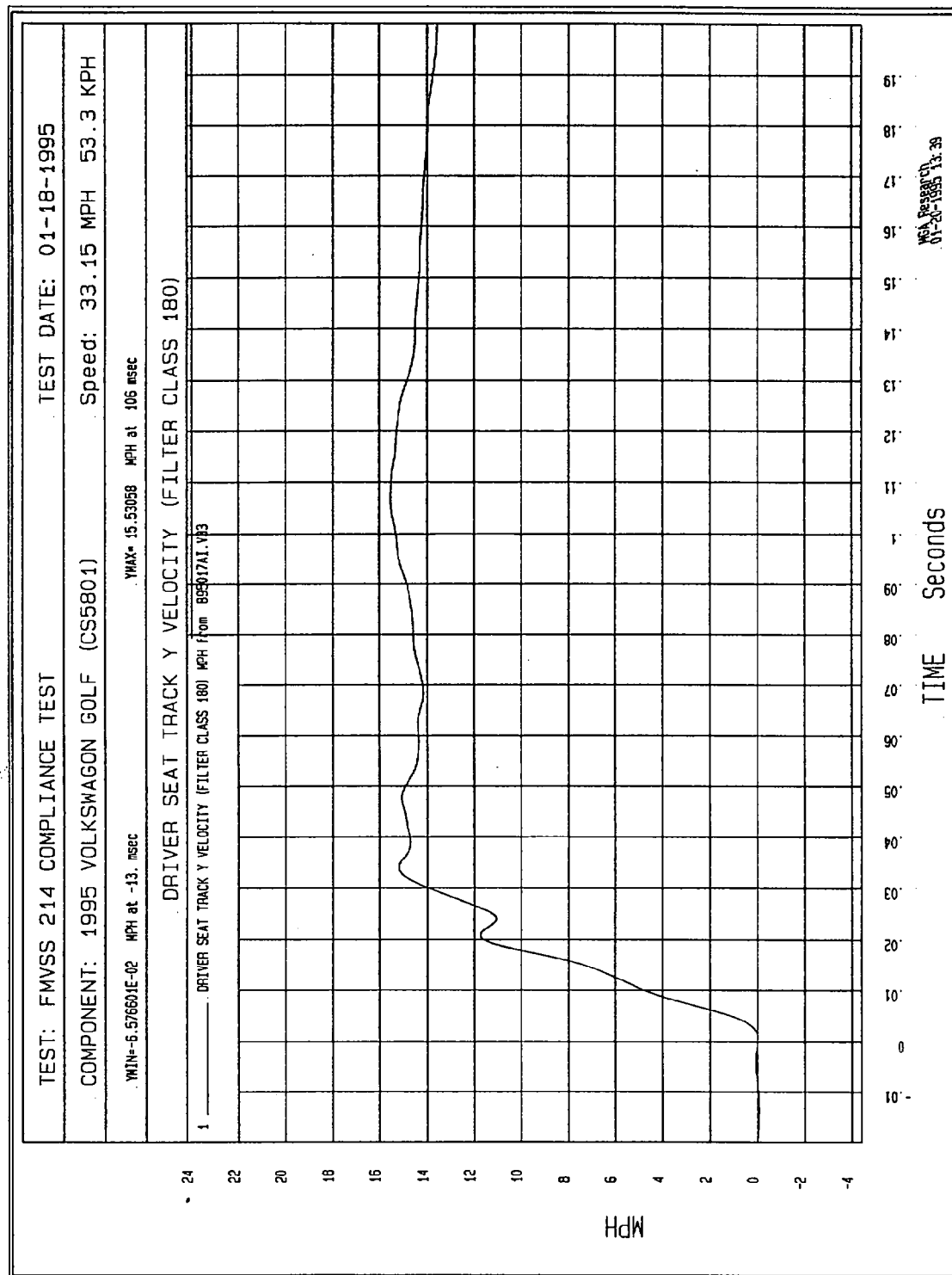
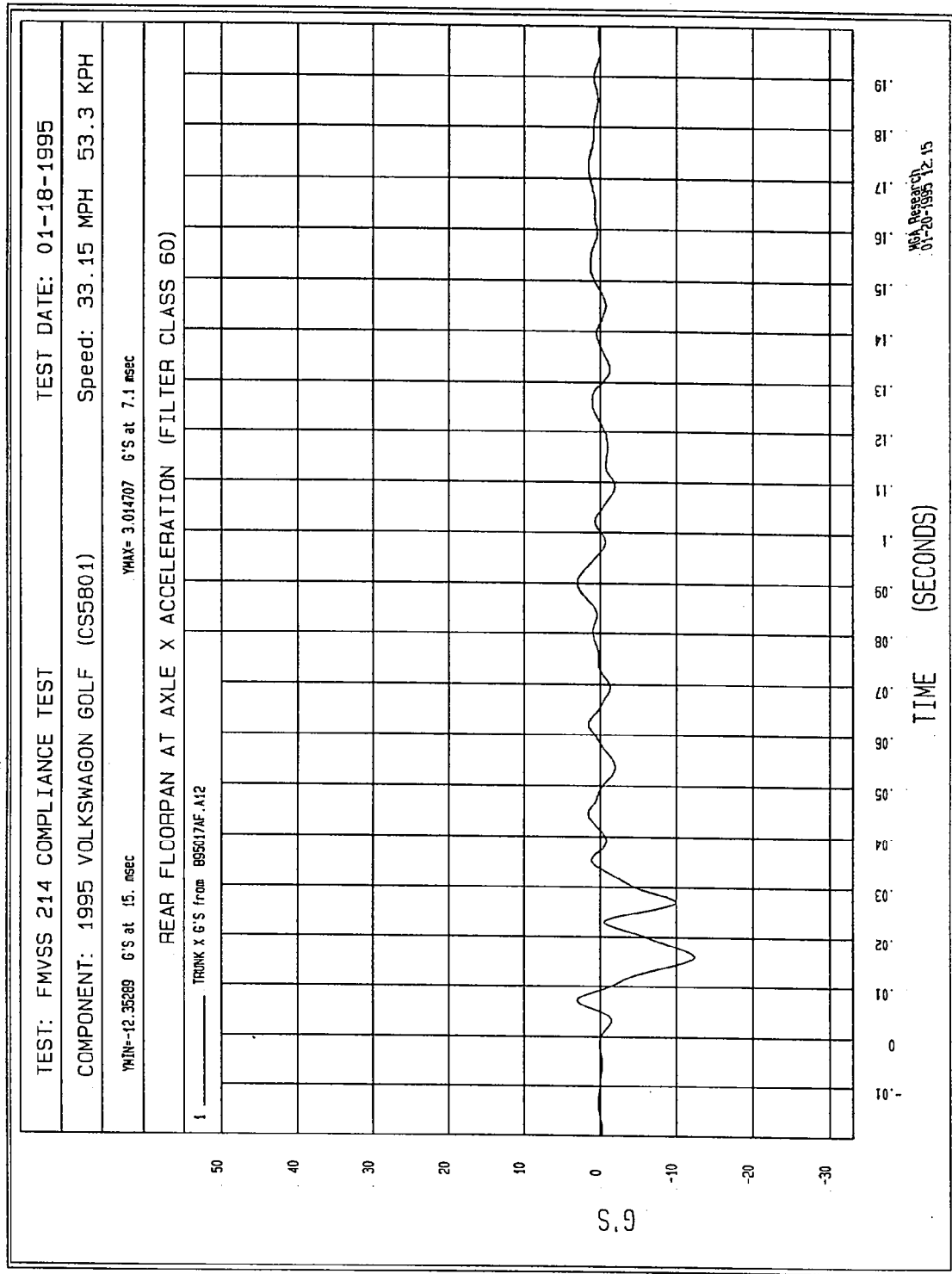


Figure B-36 - Driver Seat Track Y Velocity vs. Time



B-37

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

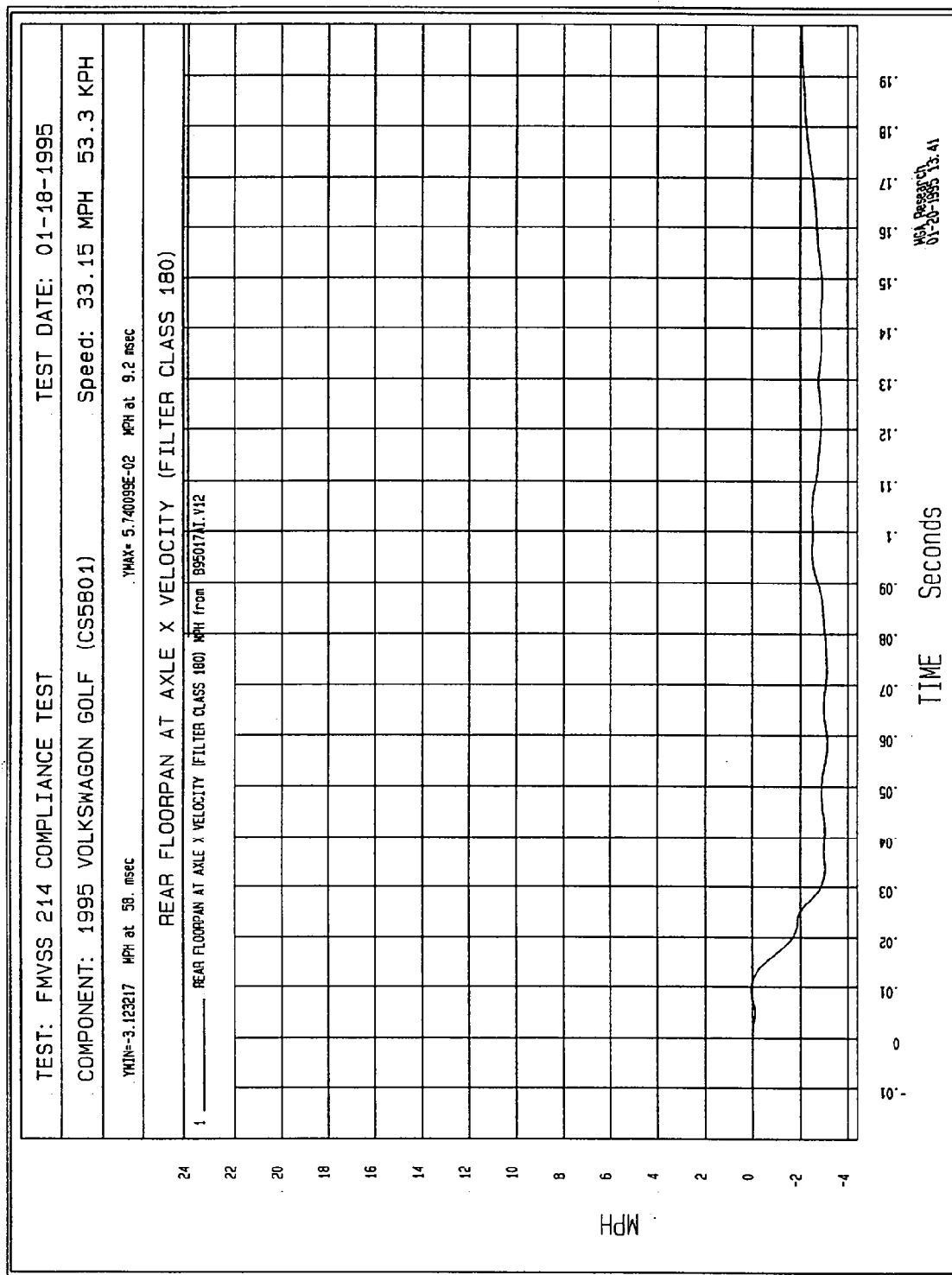


Figure B-38 - Rear Floorpan at Axle X Velocity vs. Time

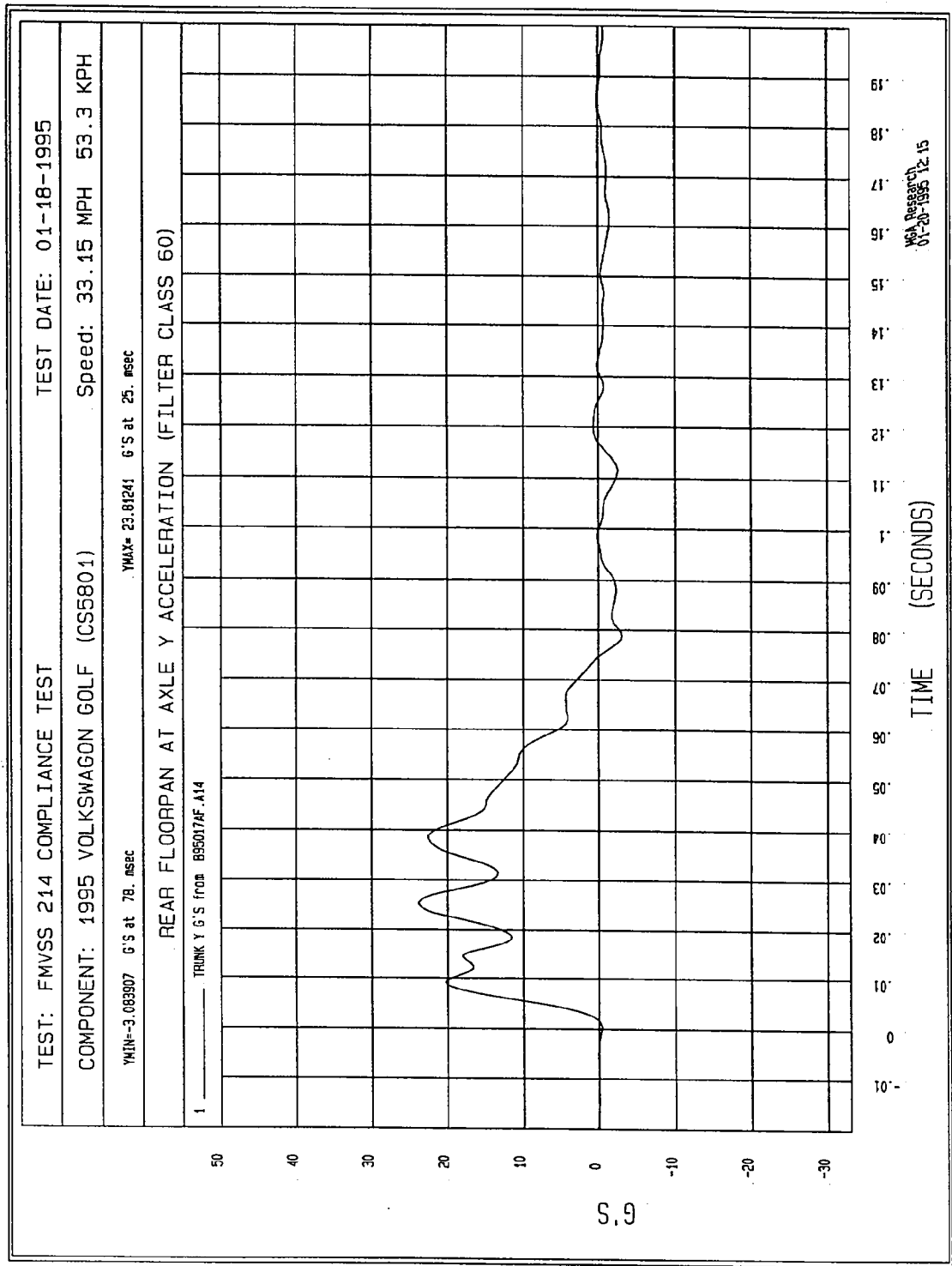


Figure B-39 - Rear Floorpan at Axle Y Acceleration vs. Time

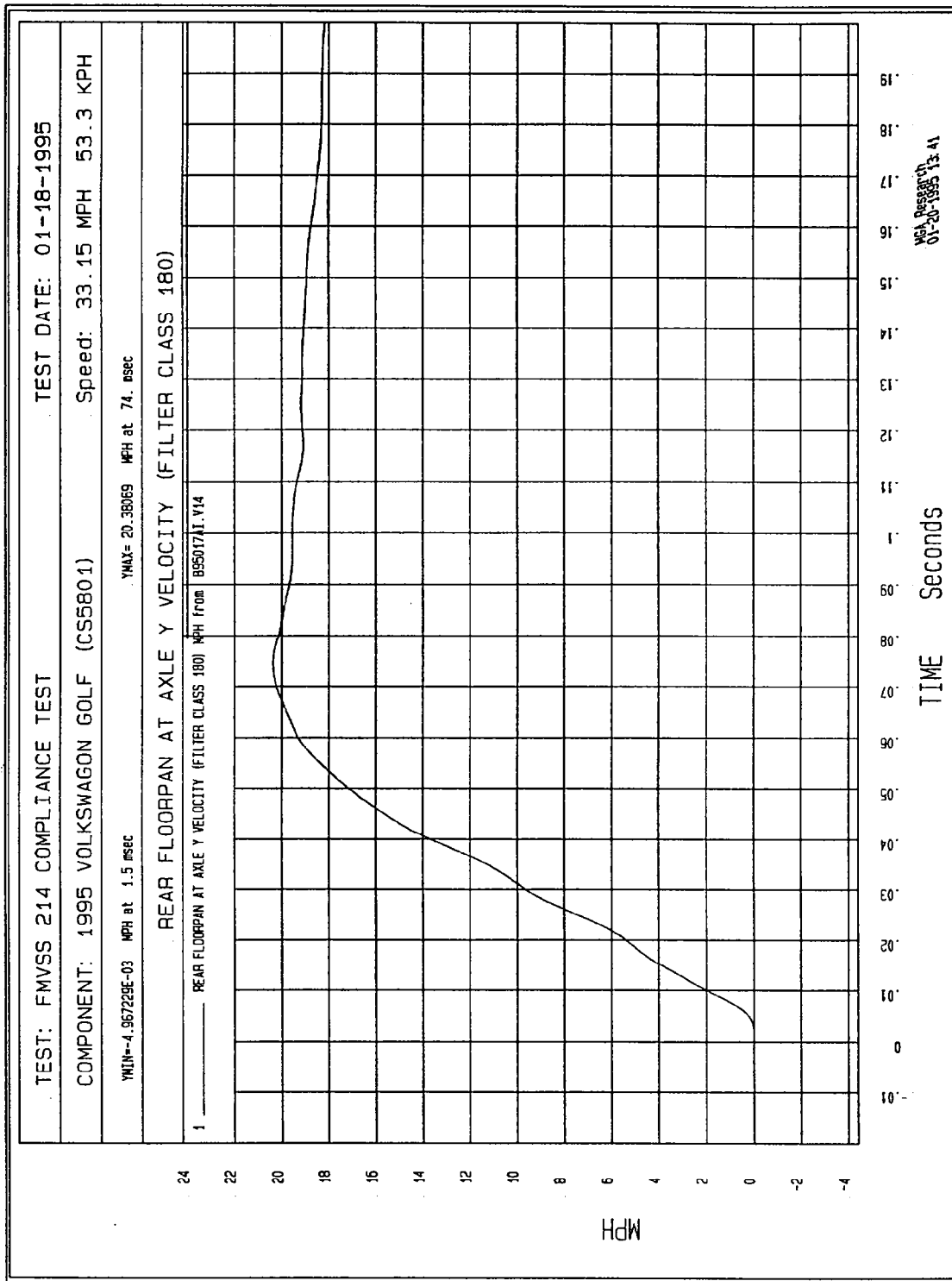


Figure B-40 - Rear Floorpan at Axle Y Velocity vs. Time

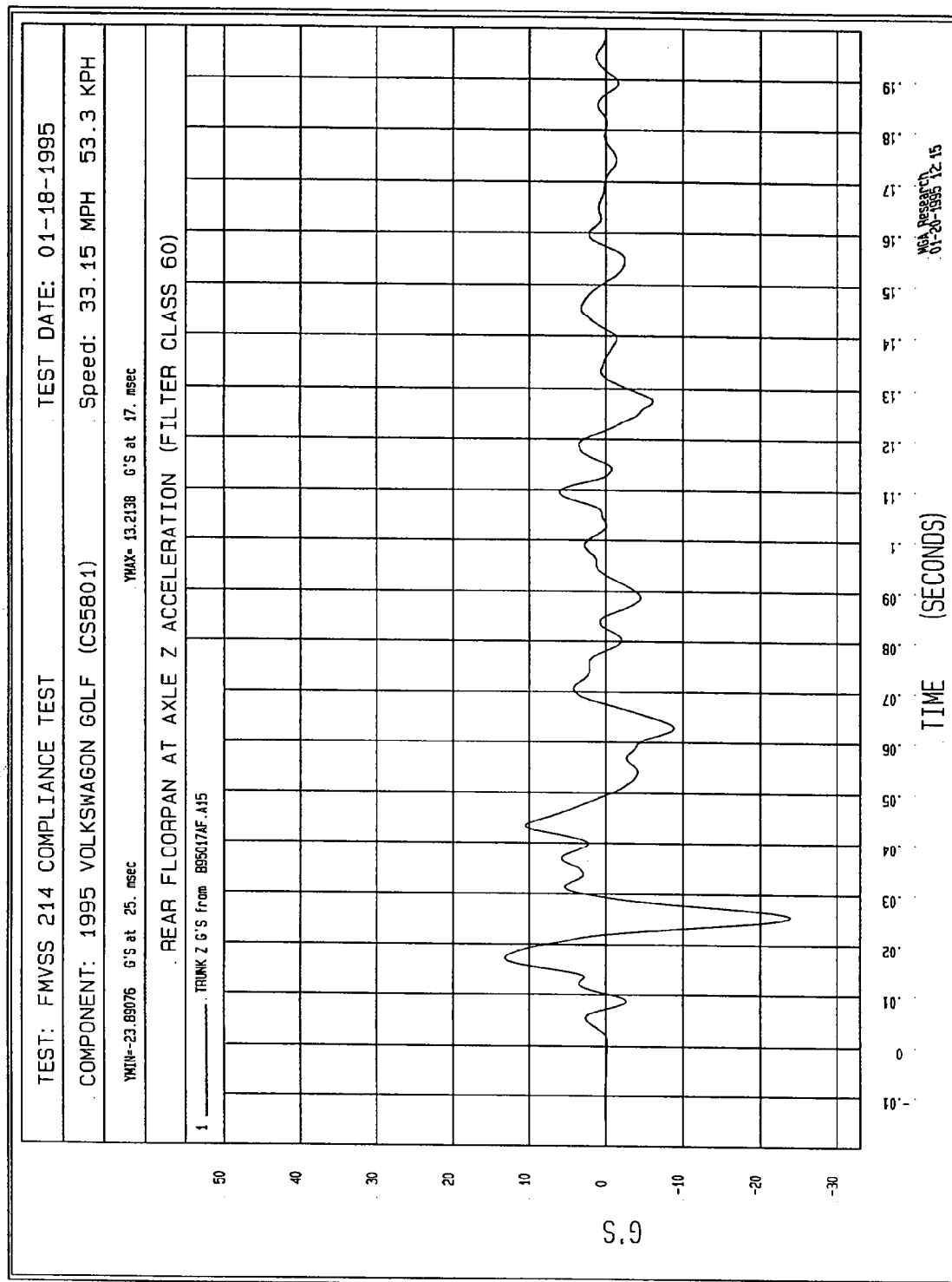


Figure B-41 - Rear Floorpan at Axle Z Acceleration vs. Time

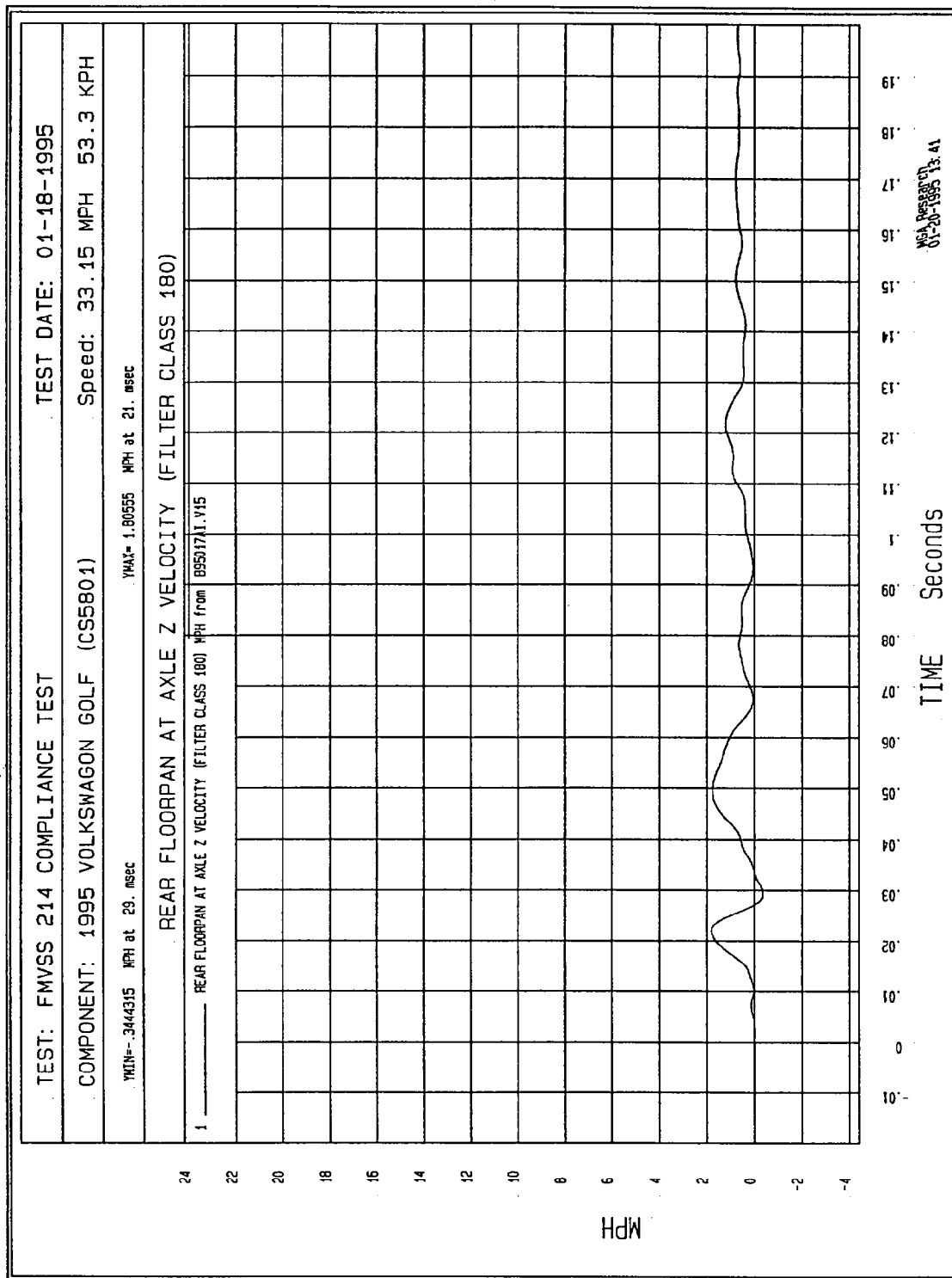


Figure B-42 - Rear Floorpan at Axle Z Velocity vs. Time

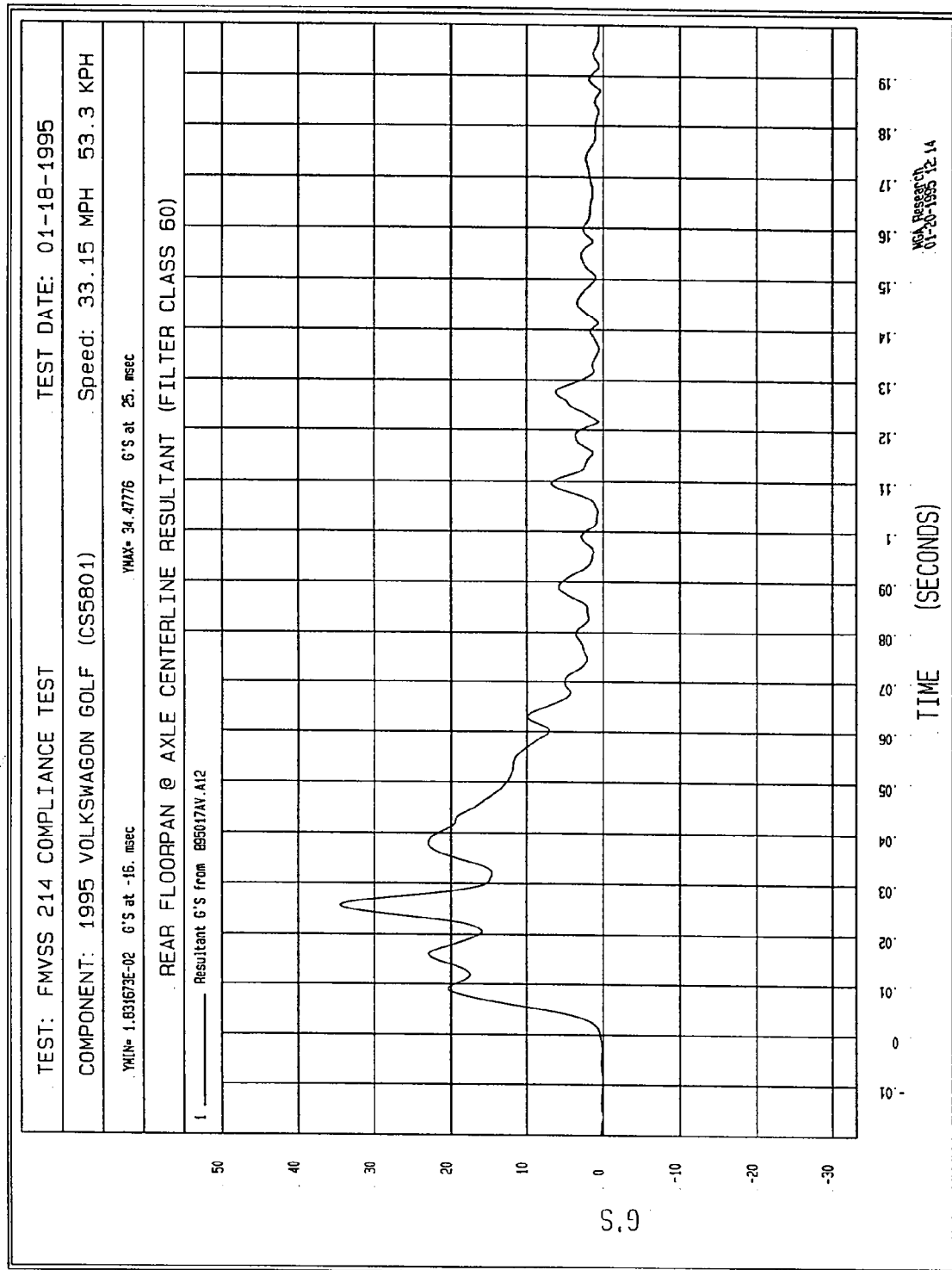


Figure B-43 - Rear Floorpan at Axle Centerline Resultant vs. Time

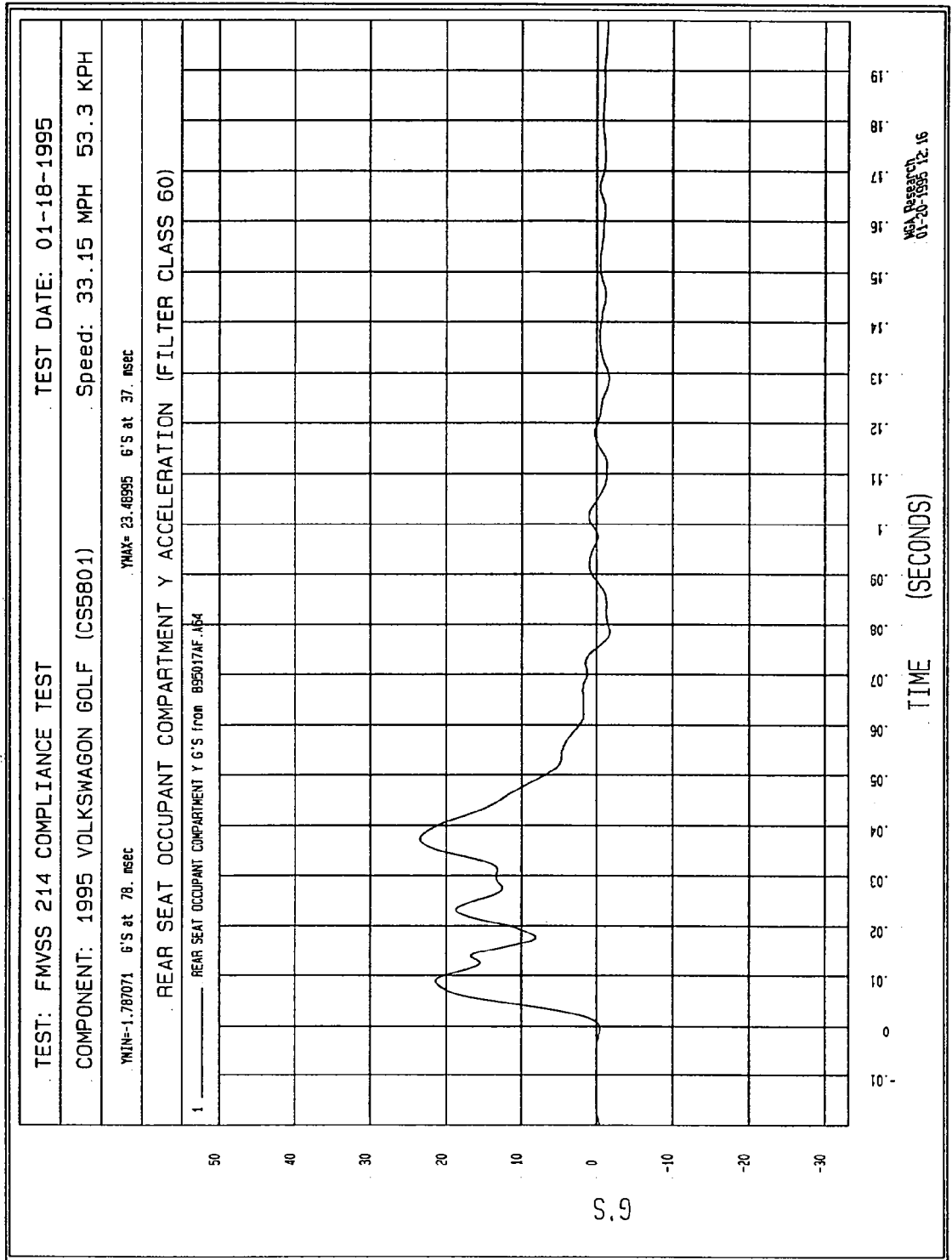


Figure B-44 - Rear Seat Occupant Compartment Y Acceleration vs. Time

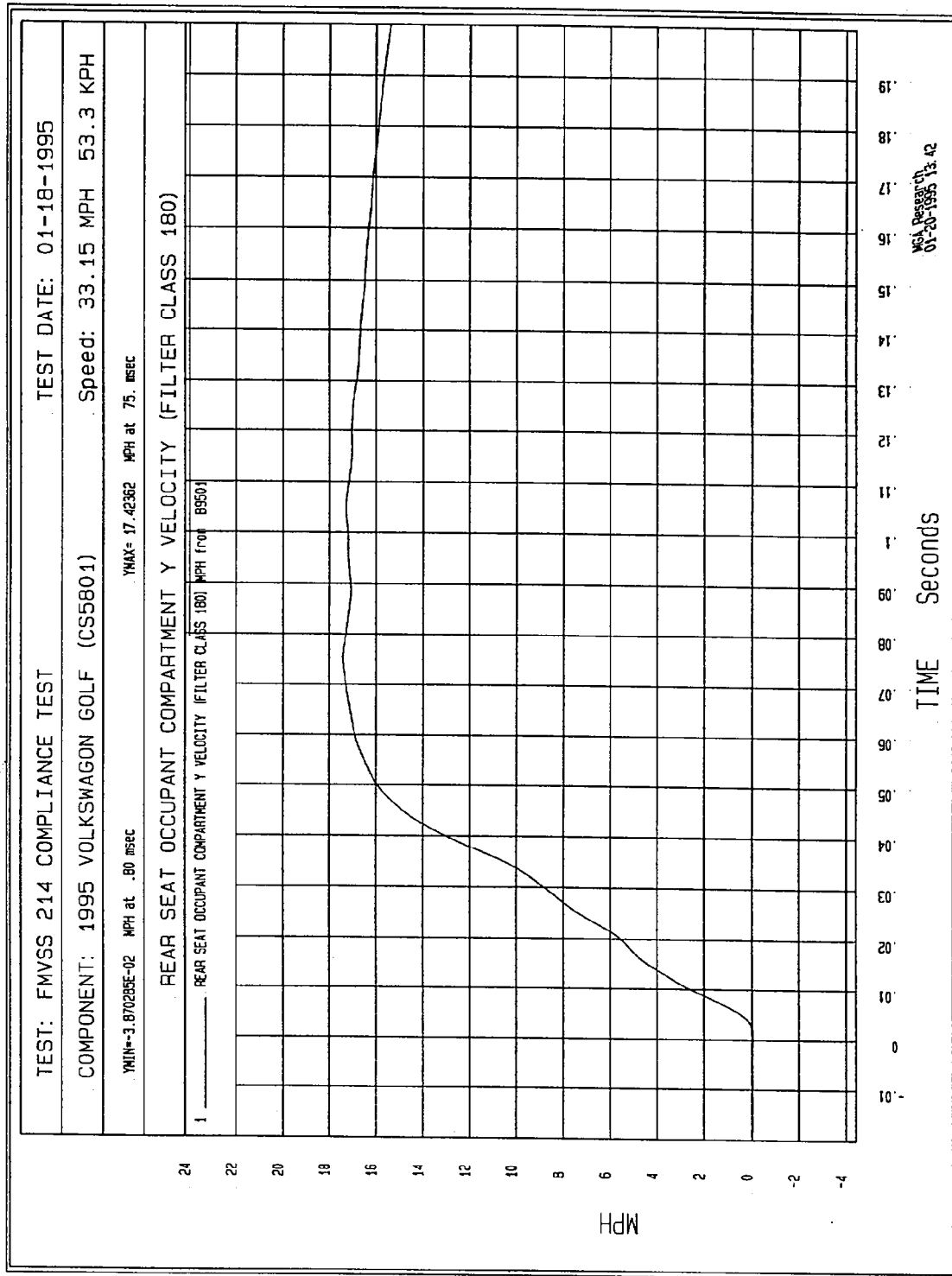


Figure B-45 - Rear Seat Occupant Compartment Y Velocity vs. Time

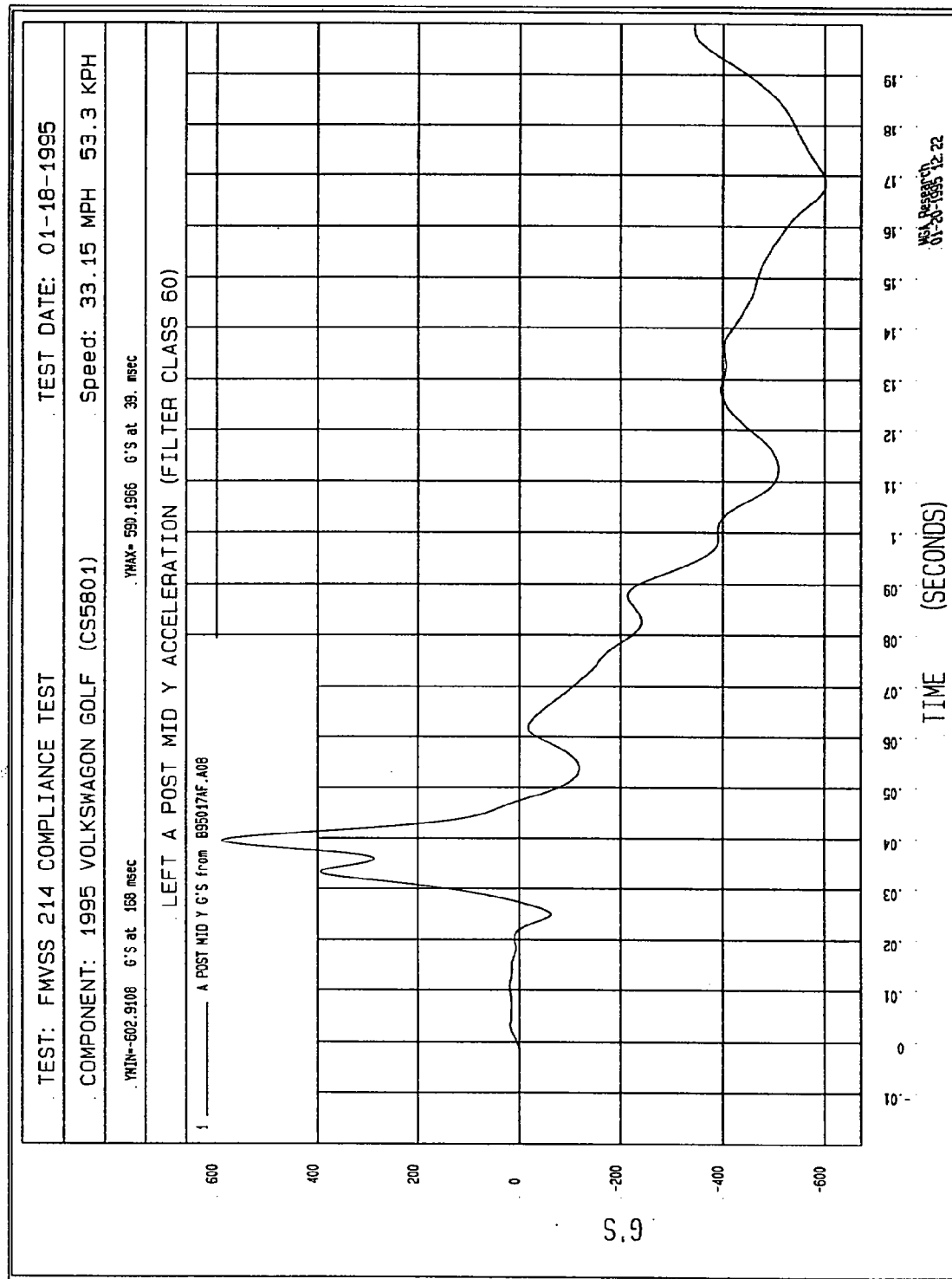
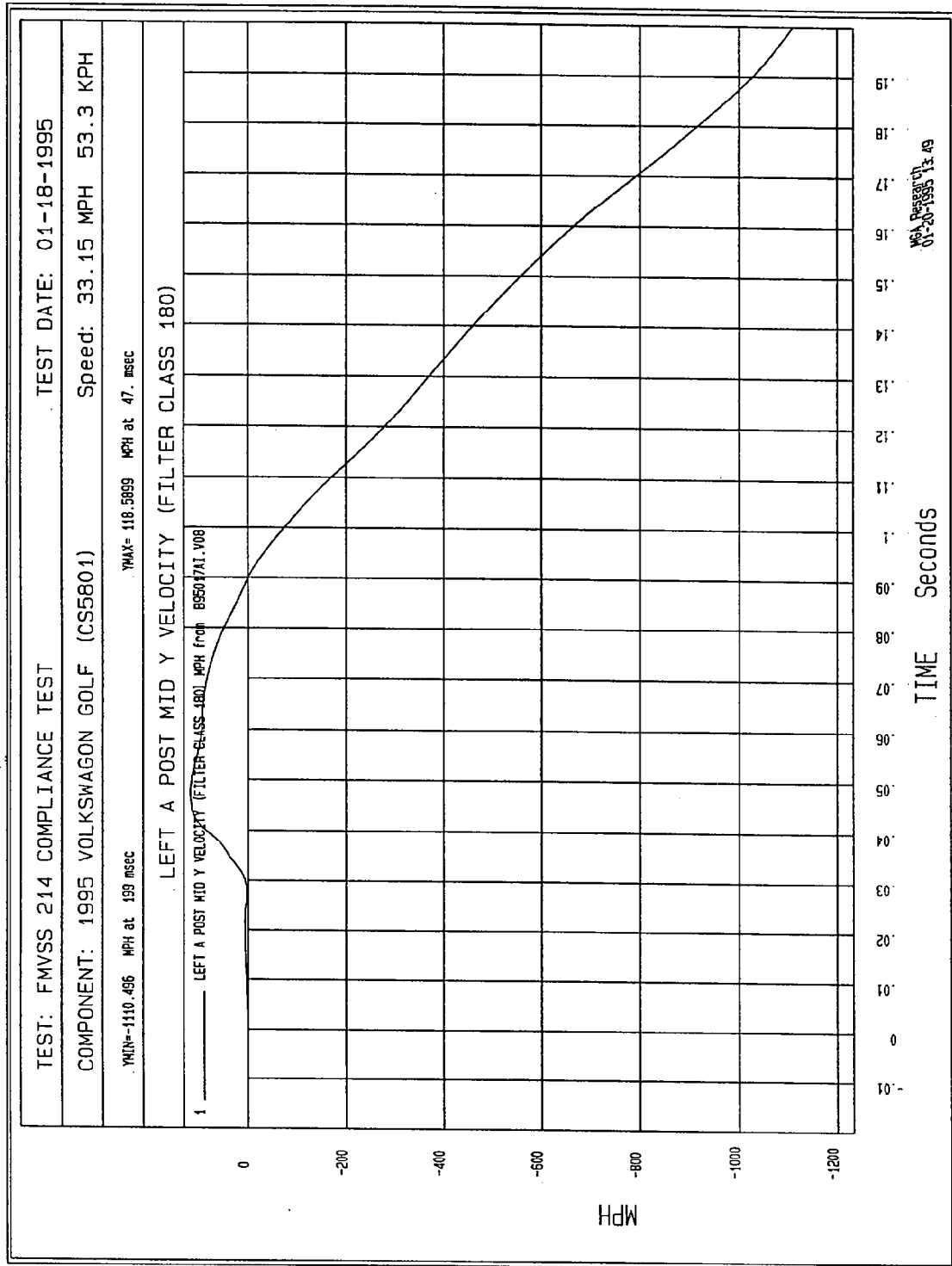


Figure B-46 - Left A Post Mid Y Acceleration vs. Time



B-47

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

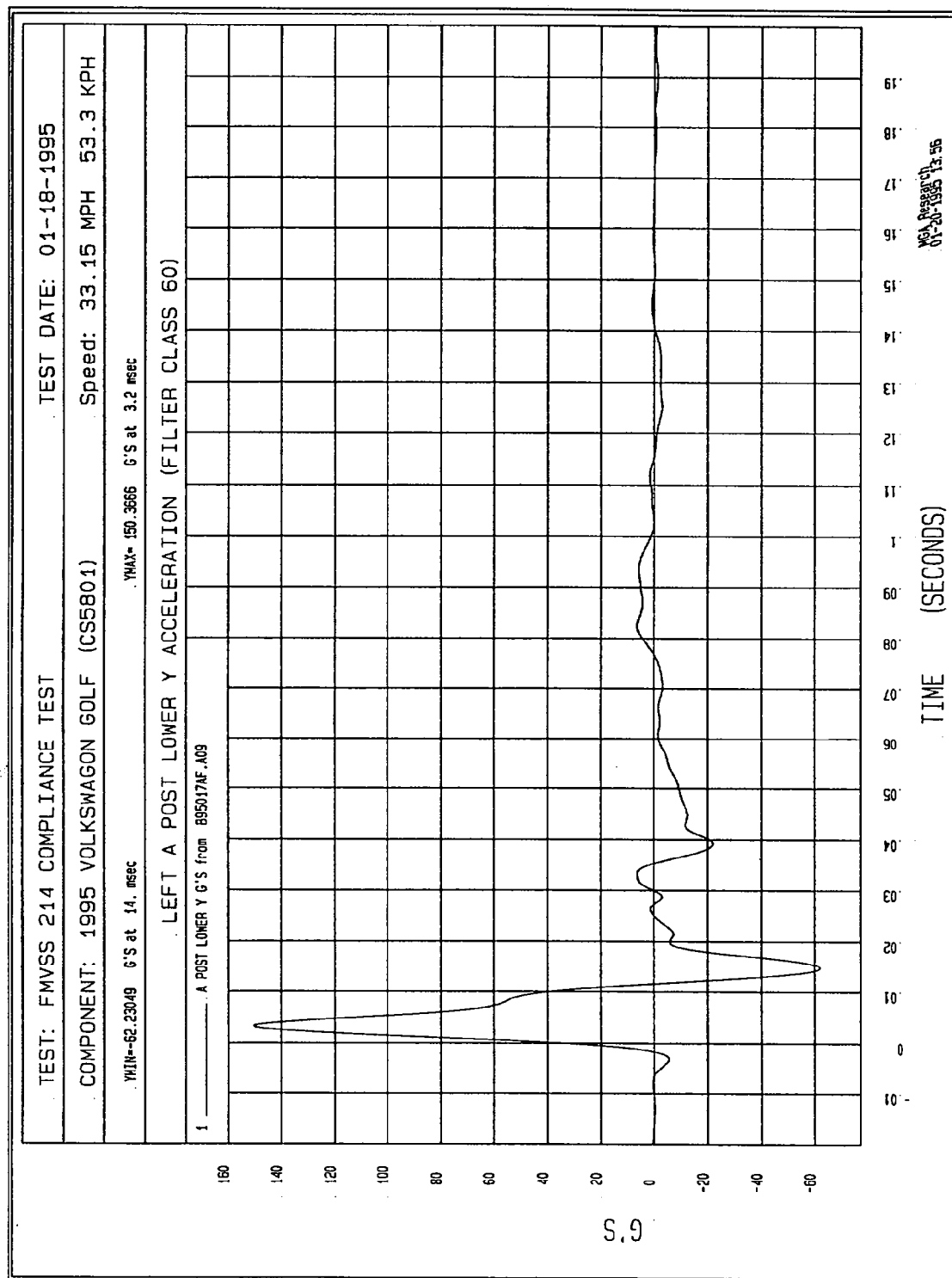


Figure B-48 - Left A Post Lower Y Acceleration vs. Time

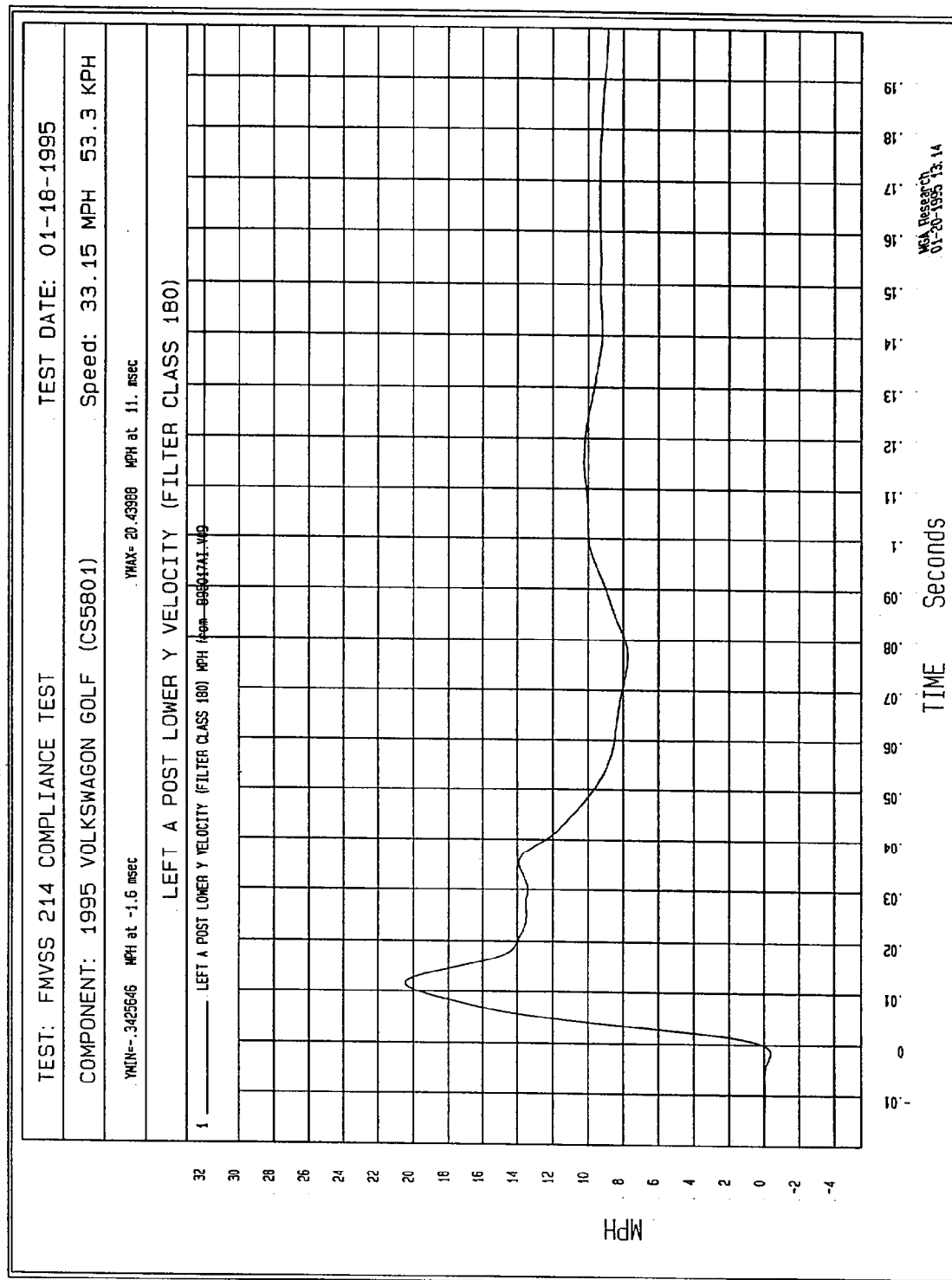


Figure B-49 - Left A Post Lower Y Velocity vs. Time

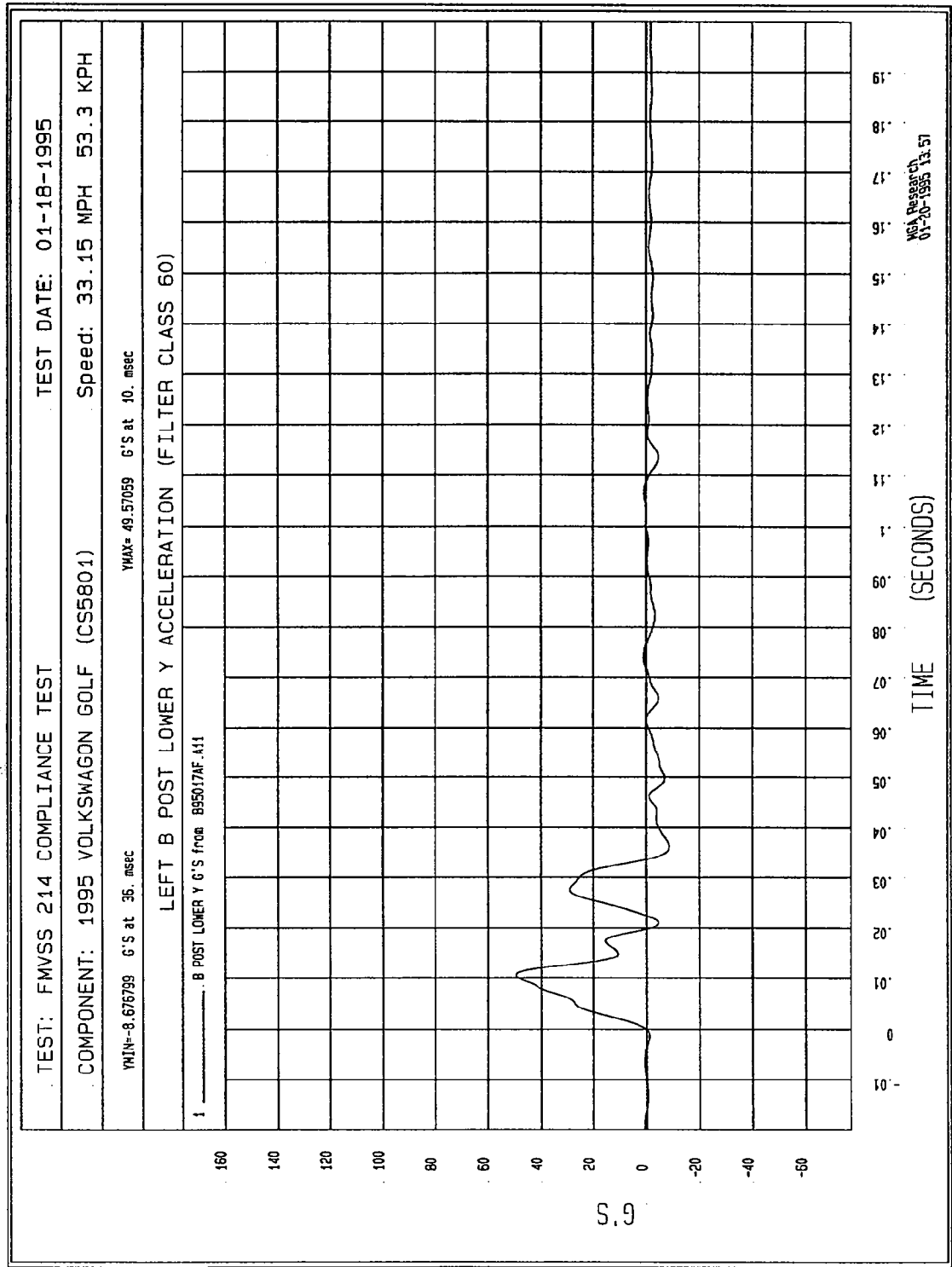


Figure B-50 - Left B Post Lower Y Acceleration vs. Time

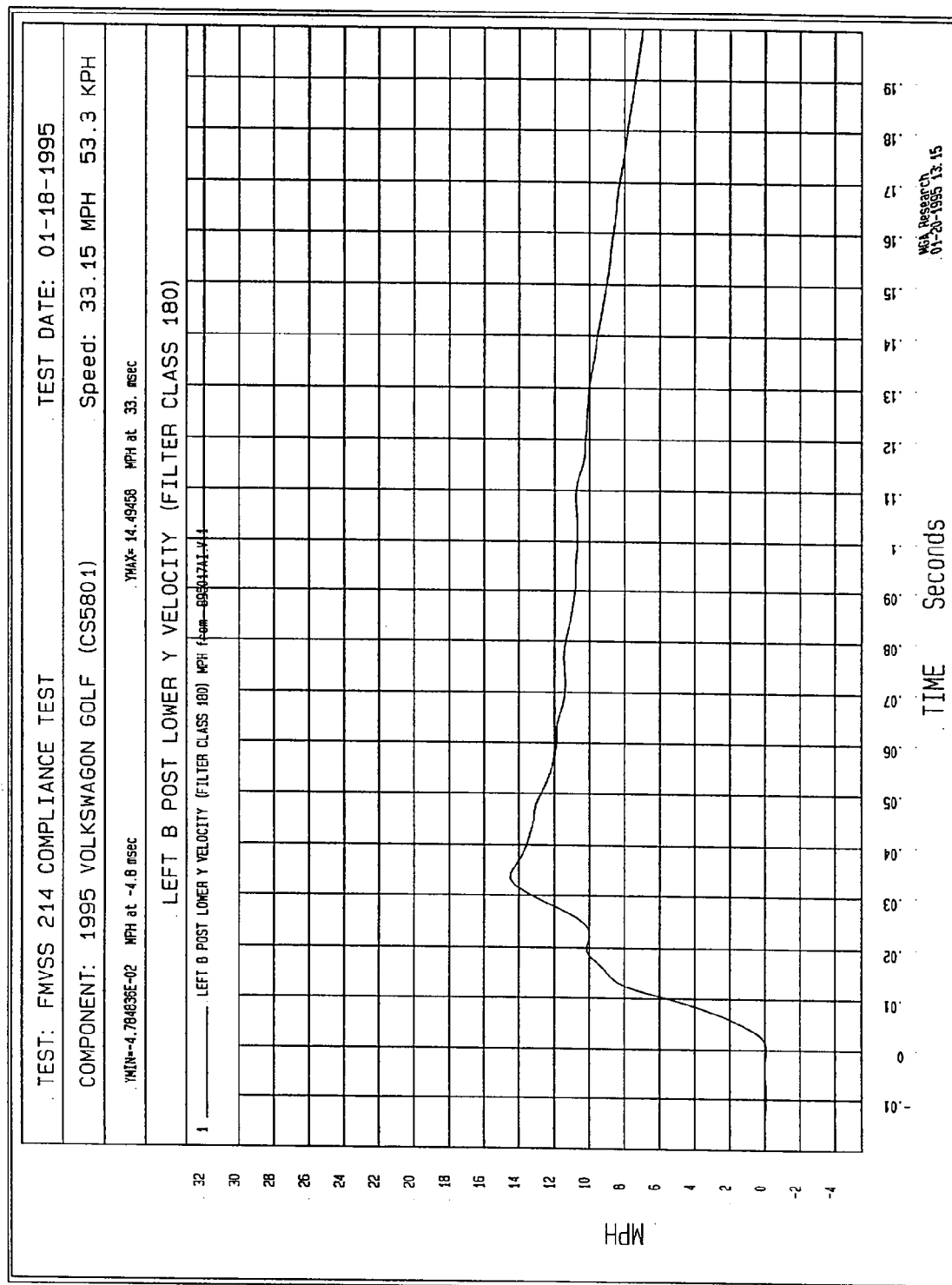


Figure B-51 - Left B Post Lower Y Velocity vs. Time

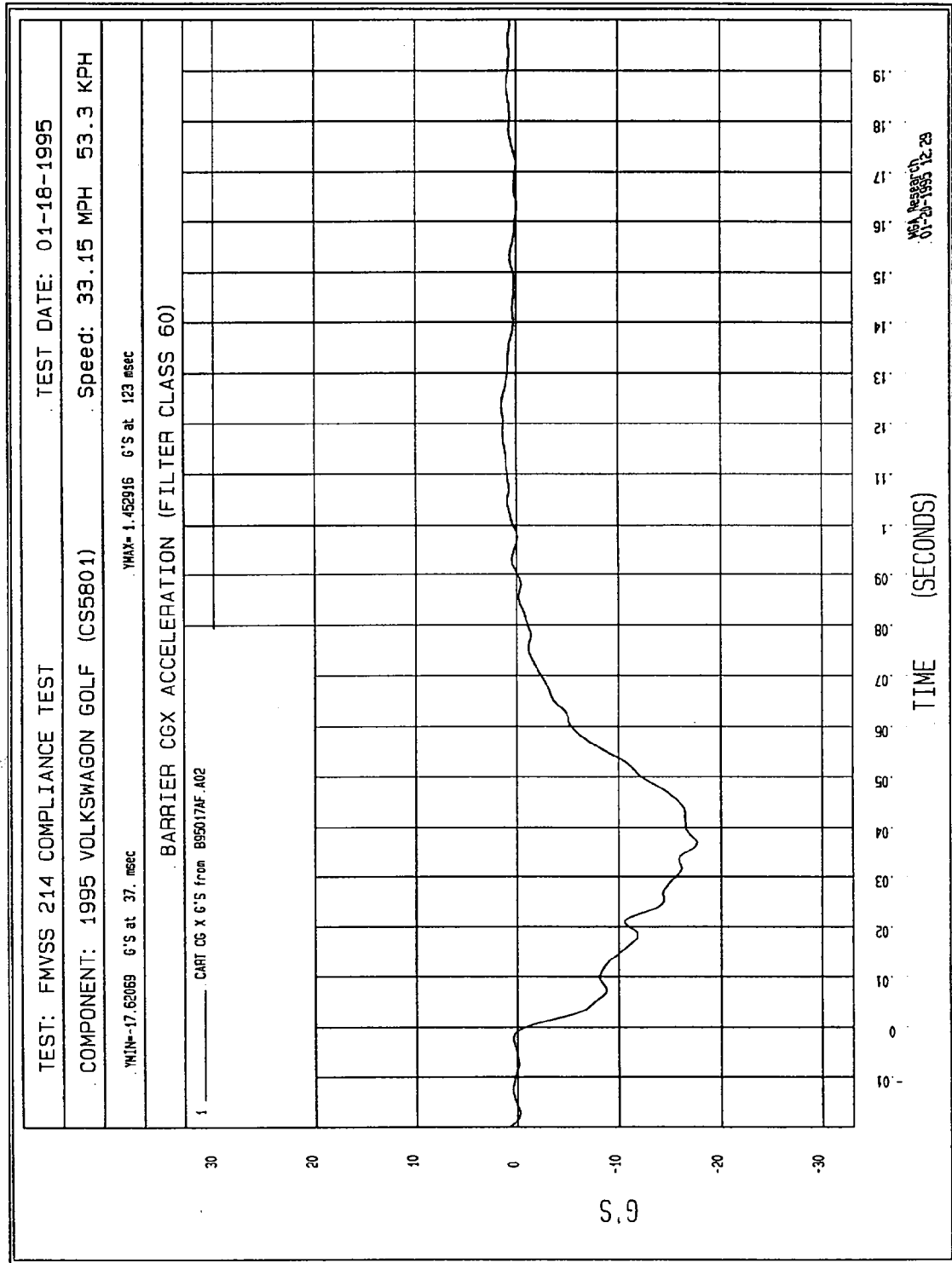


Figure B-52 - Moving Barrier Center of Gravity X Acceleration vs. Time

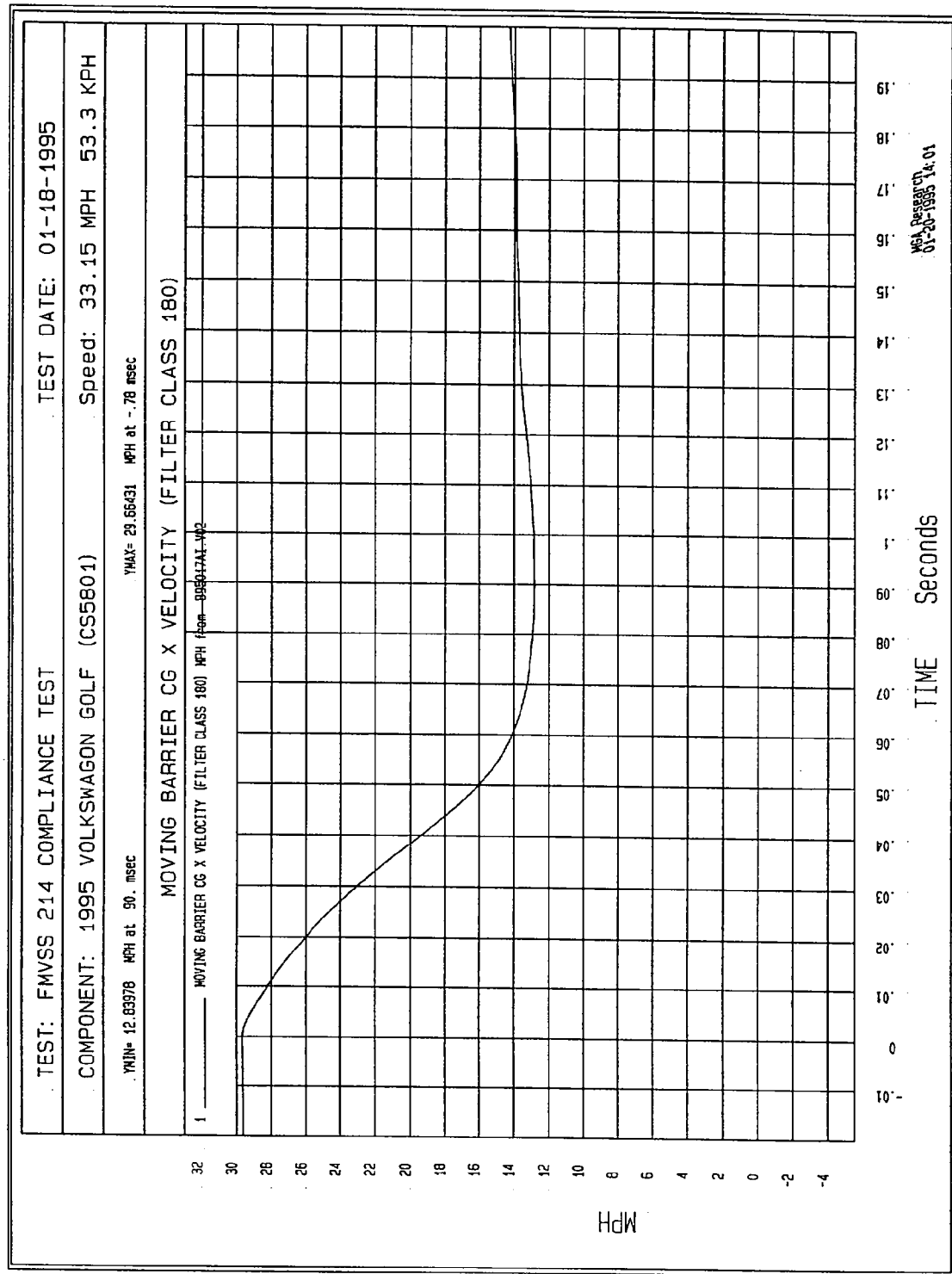


Figure B-53 - Moving Barrier Center of Gravity X Velocity vs. Time

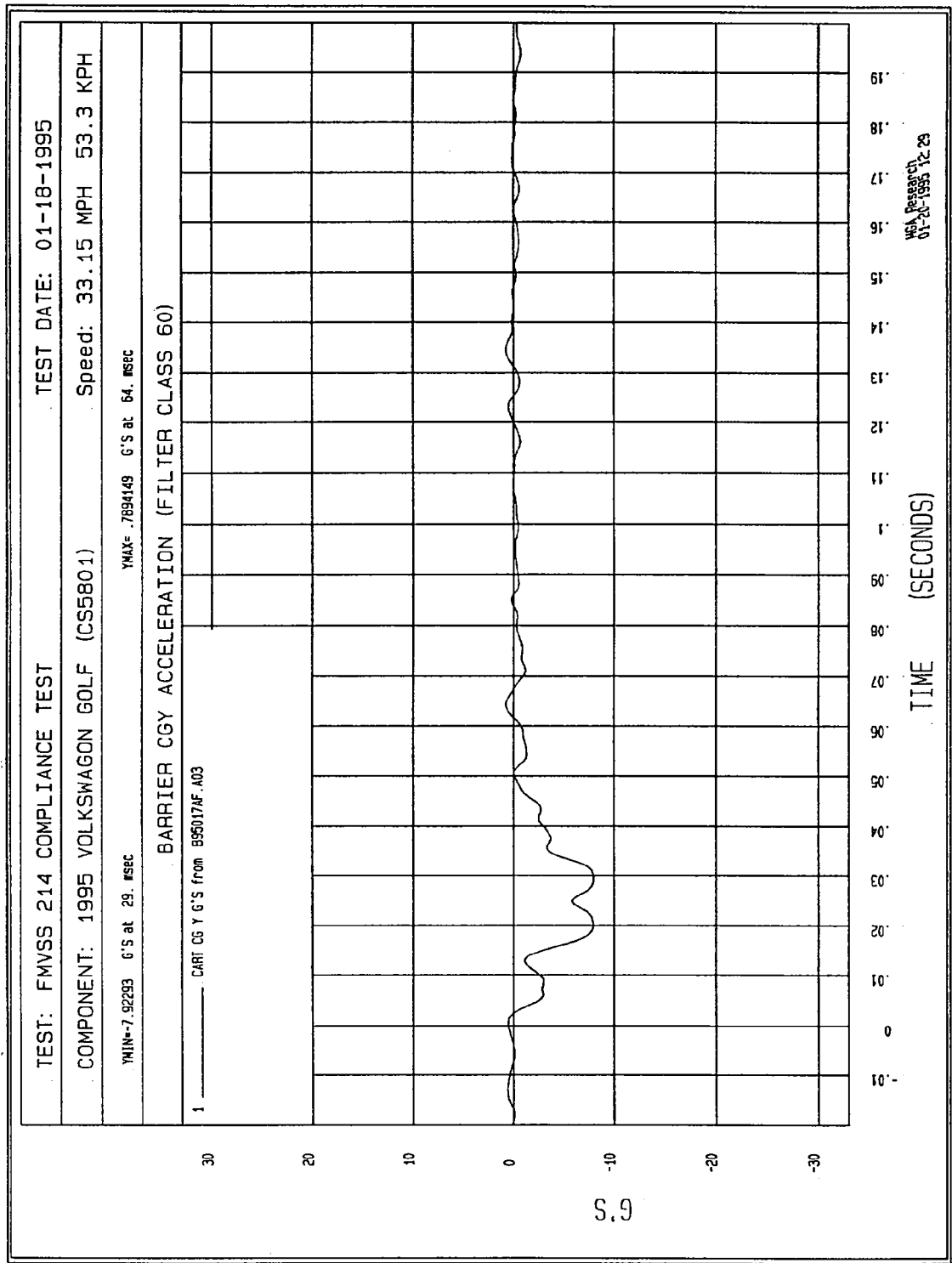


Figure B-54 - Moving Barrier Center of Gravity Y Acceleration vs. Time

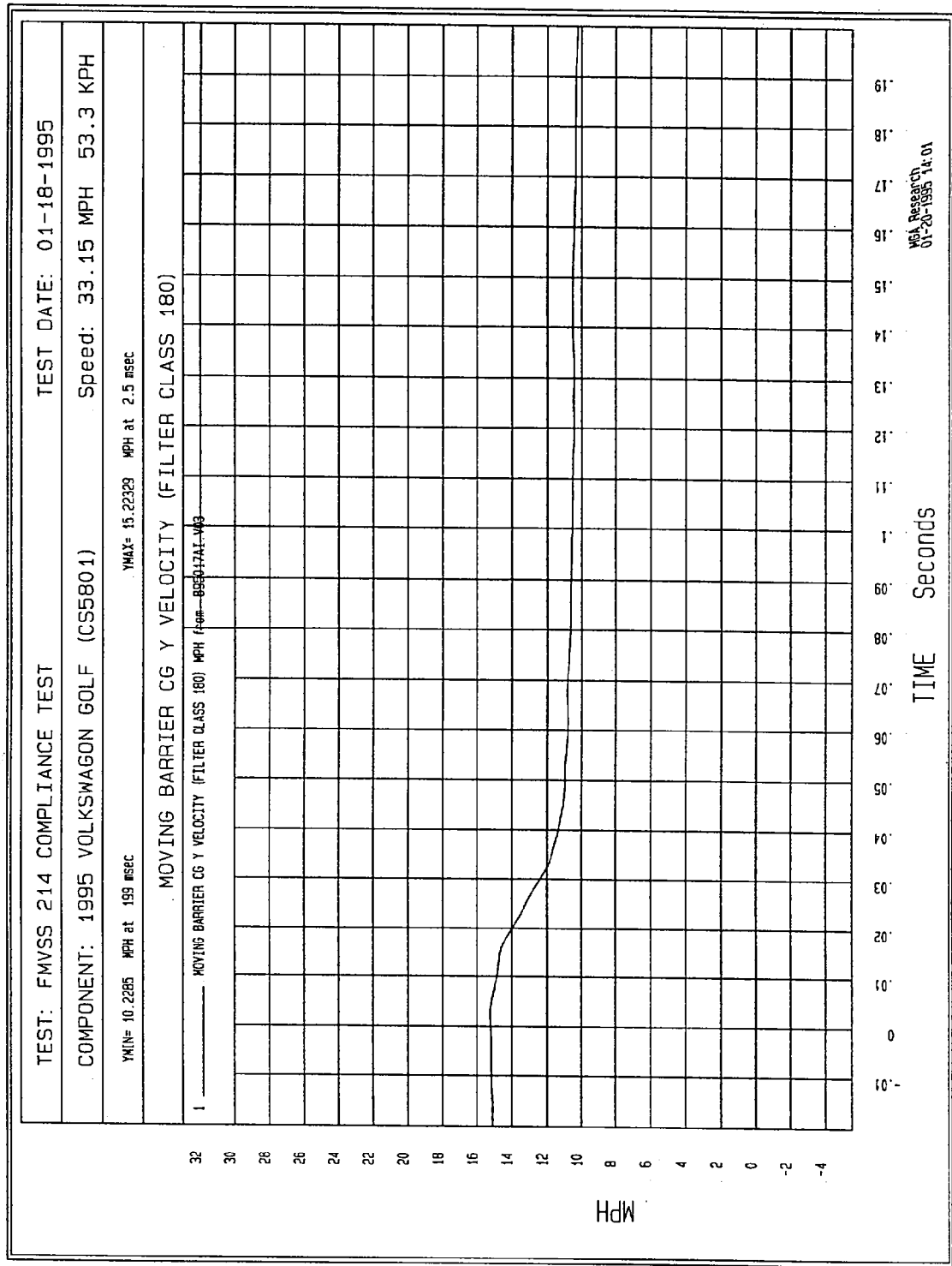


Figure B-55 - Moving Barrier Center of Gravity Y Velocity vs. Time

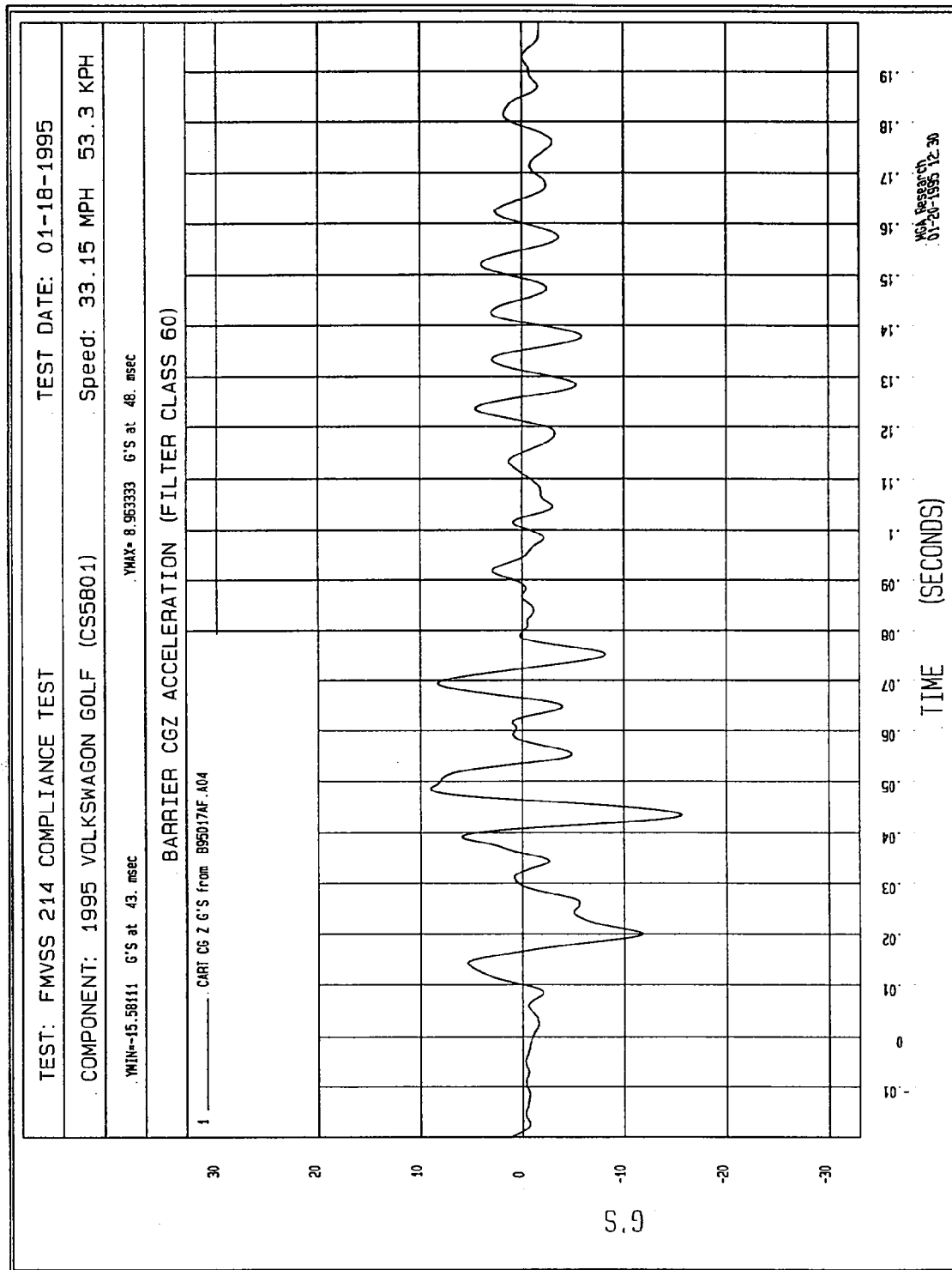


Figure B-56 - Moving Barrier Center of Gravity Z Acceleration vs. Time

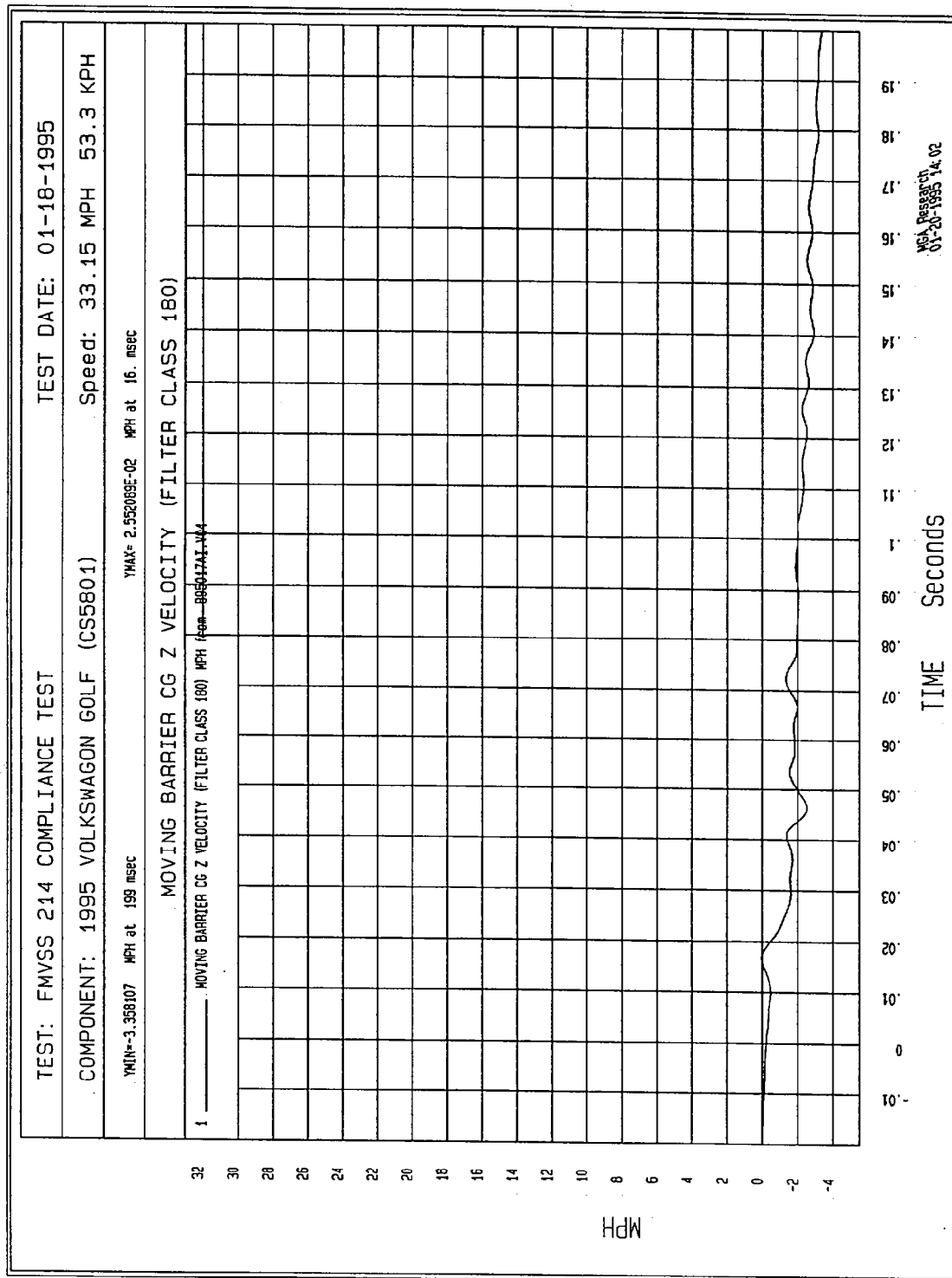


Figure B-57 - Moving Barrier Center of Gravity Z Velocity vs. Time

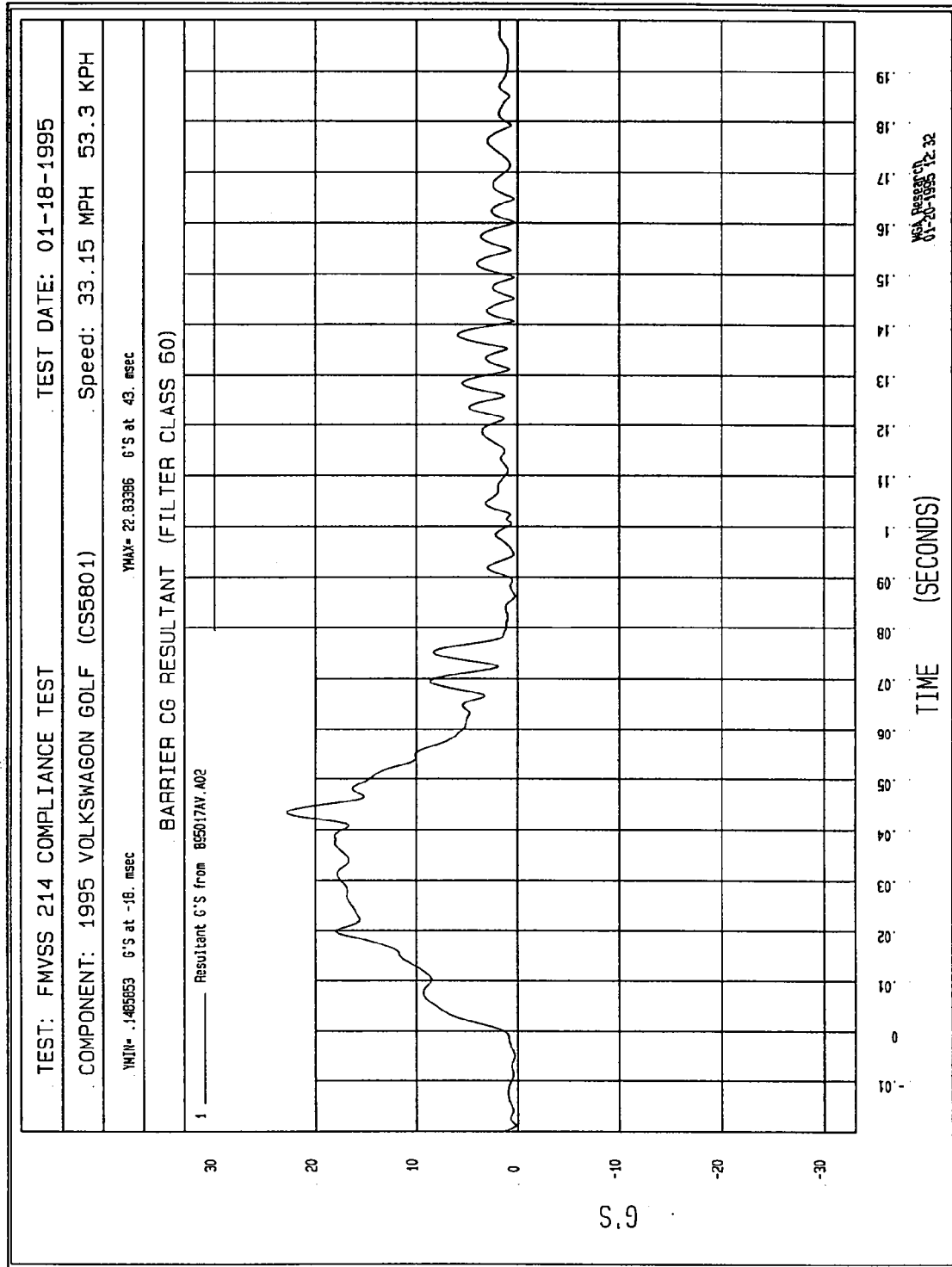


Figure B-58 - Moving Barrier Center of Gravity Resultant vs. Time

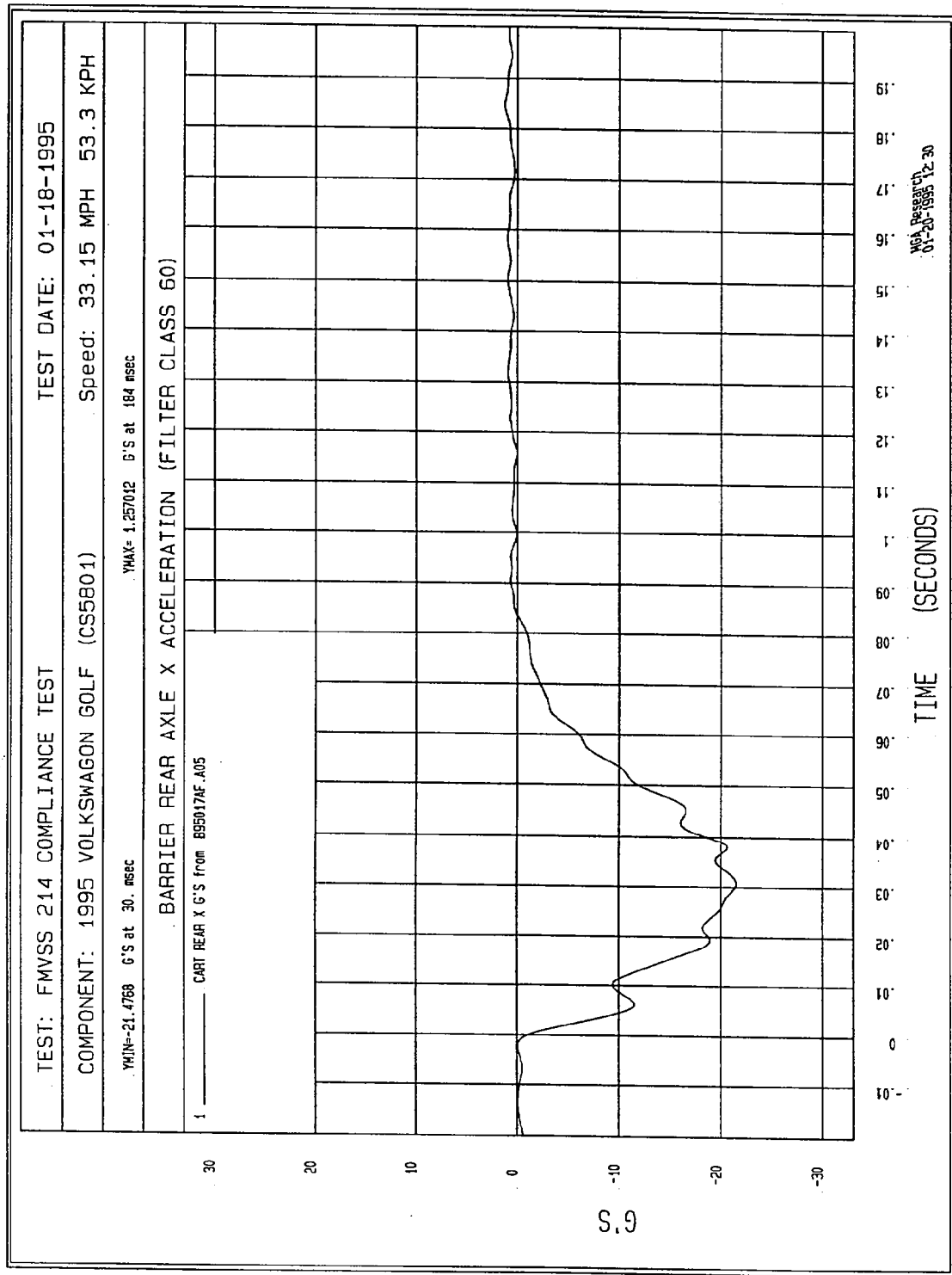


Figure B-59 - Moving Barrier Rear Axle X Acceleration vs. Time

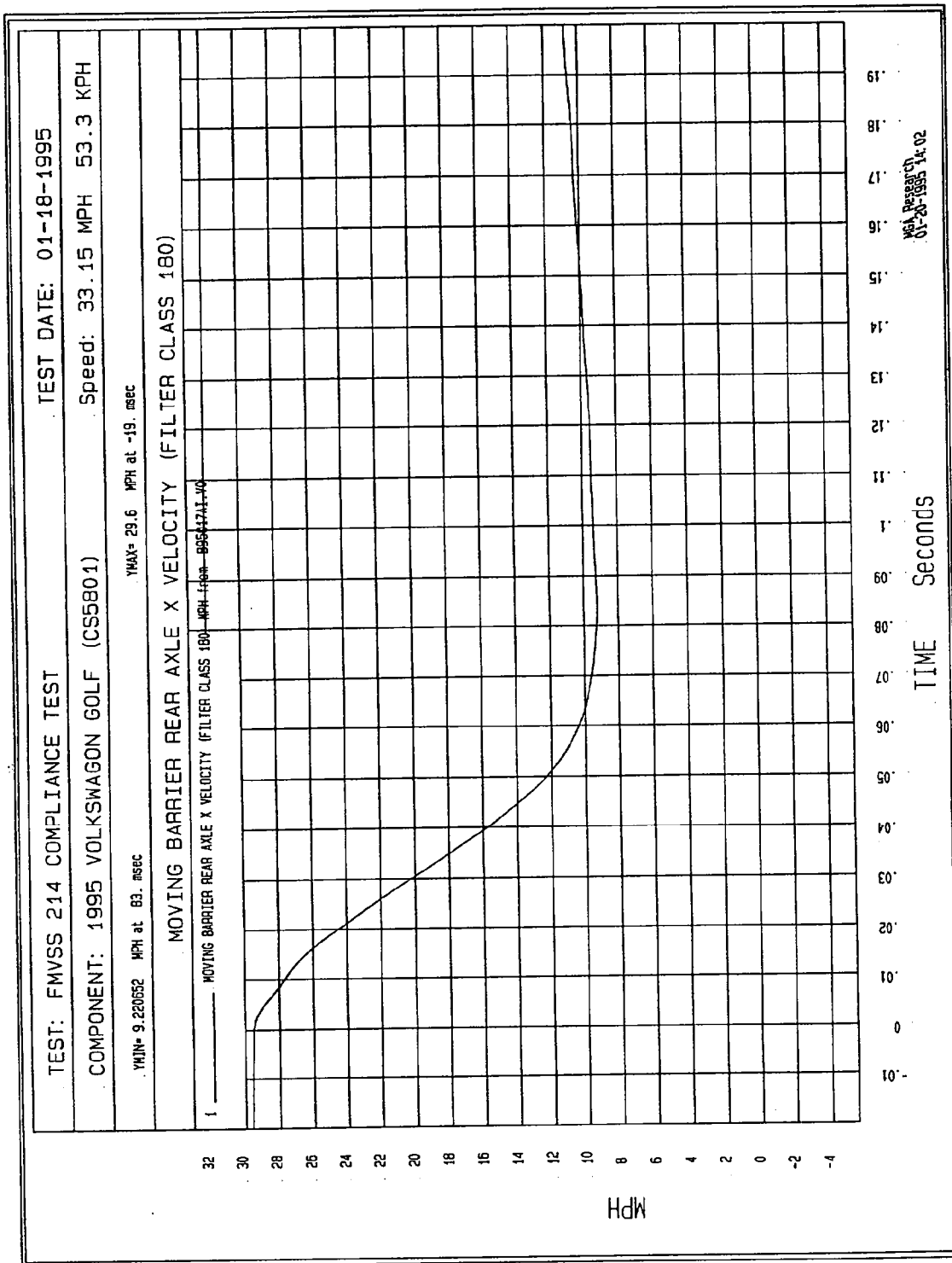


Figure B-60 - Moving Barrier Rear Axle X Velocity vs. Time

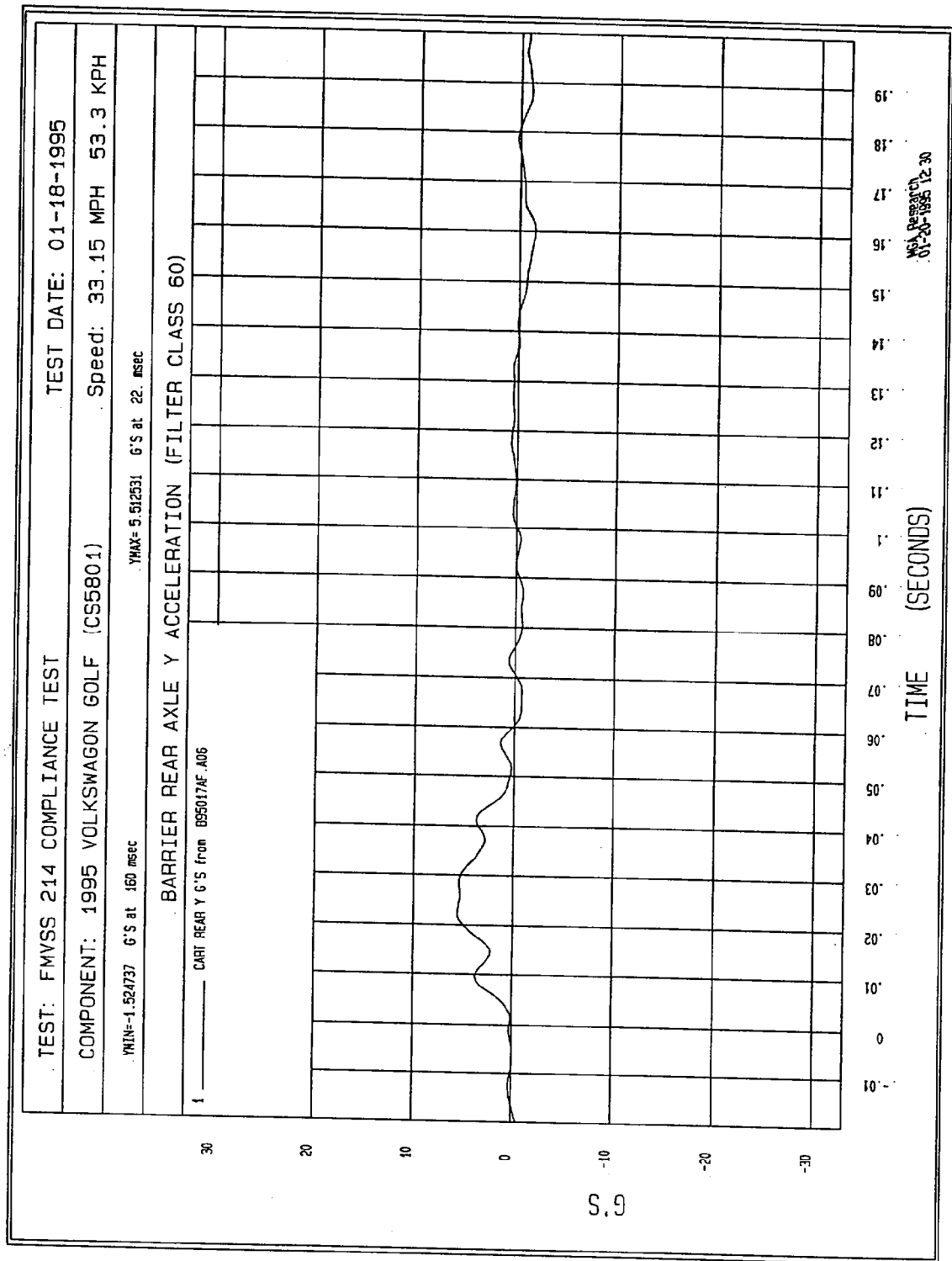


Figure B-61 - Moving Barrier Rear Axle Y Acceleration vs. Time

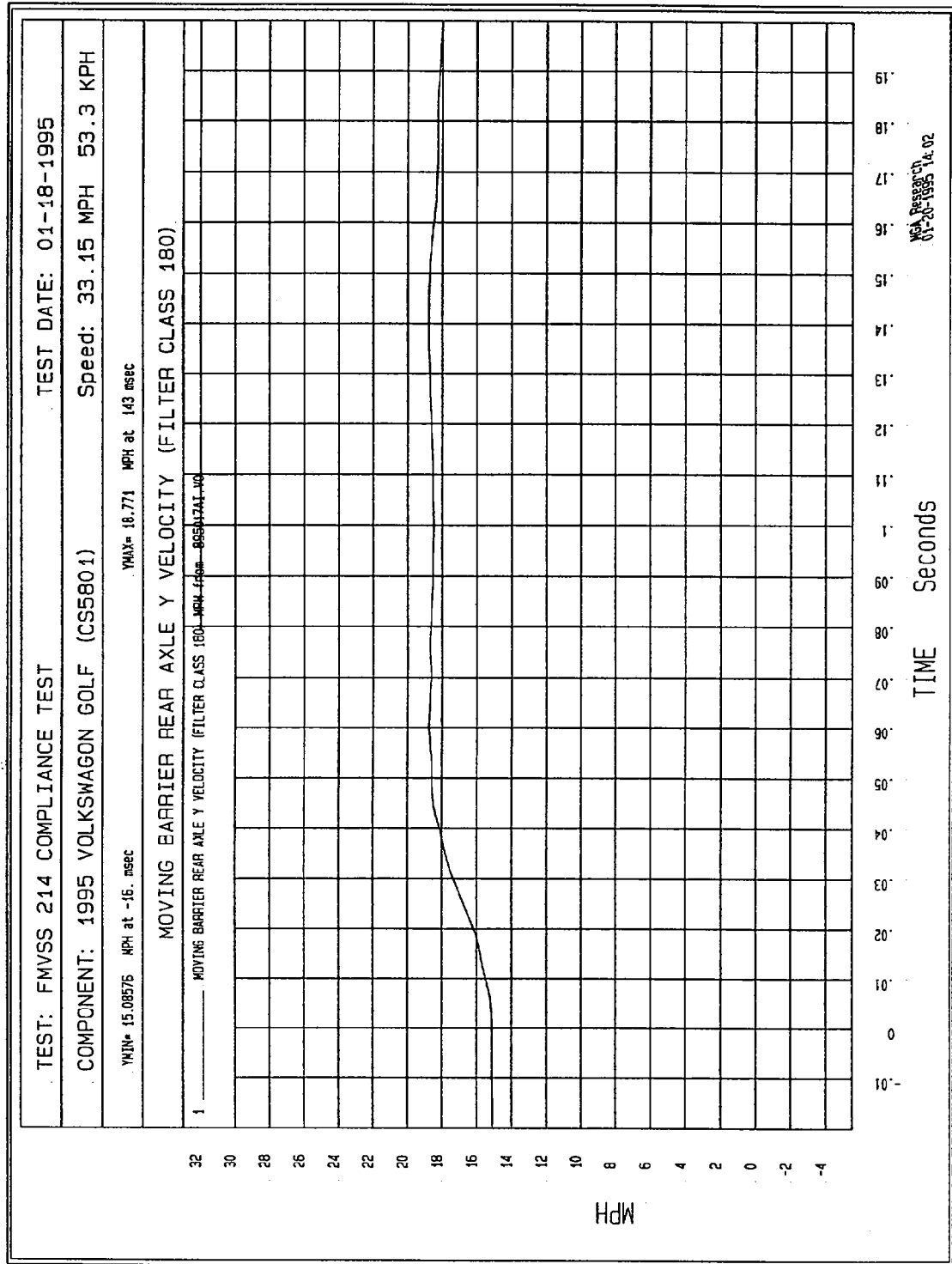
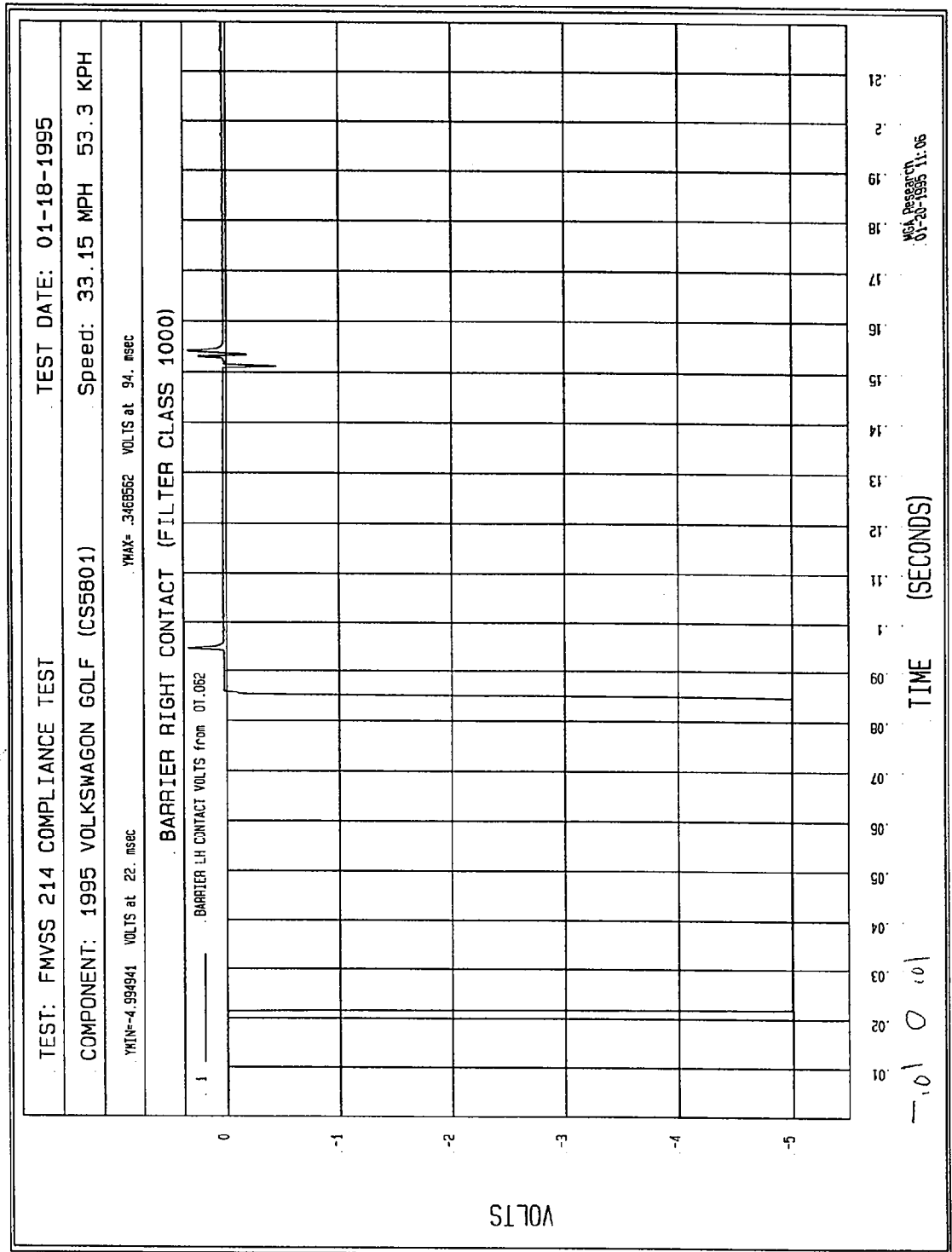


Figure B-62 - Moving Barrier Rear Axle Y Velocity vs. Time



B-63

Figure B-63 - Right Hand Barrier Contact

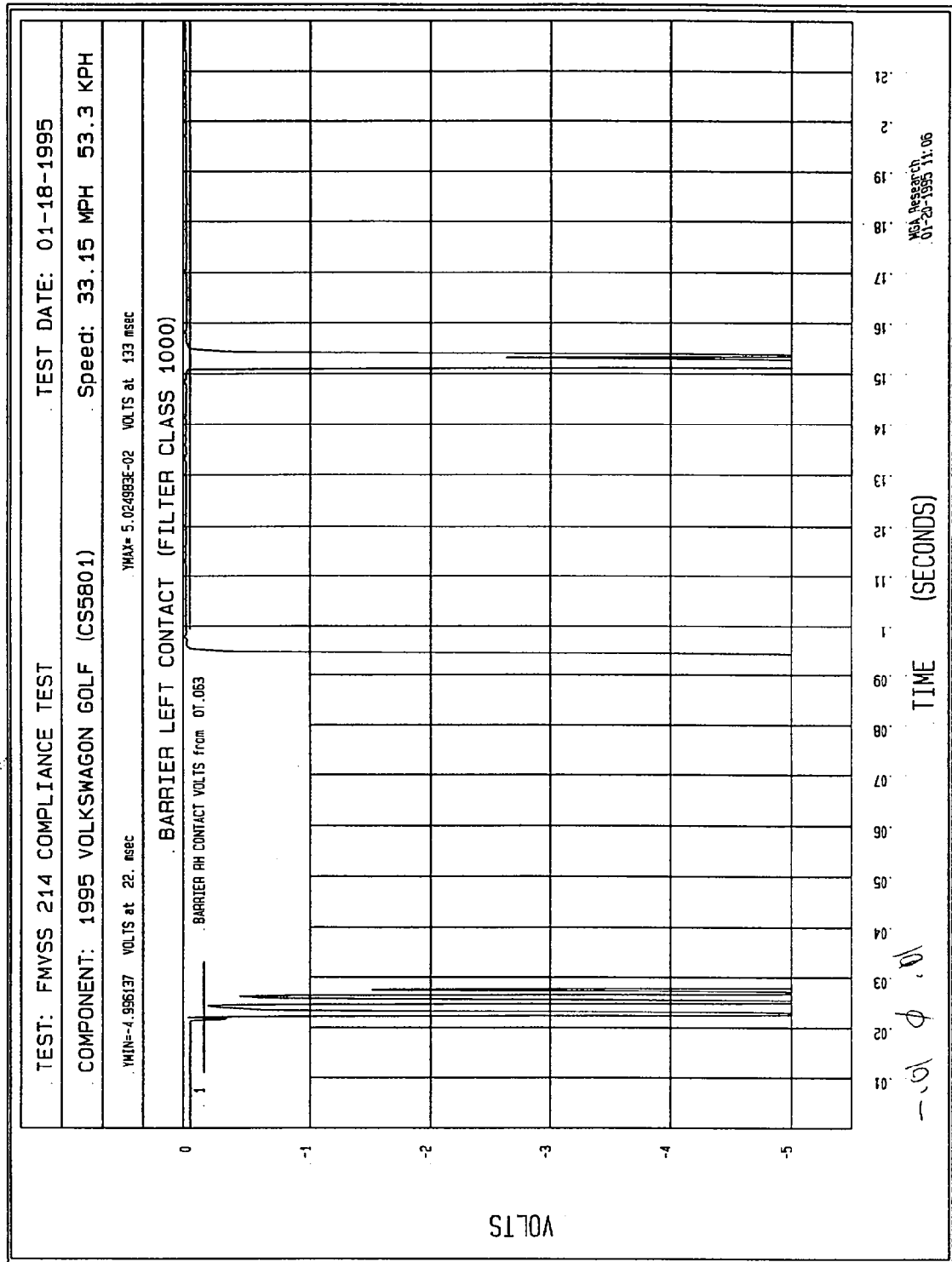


Figure B-64 - Left Hand Barrier Contact

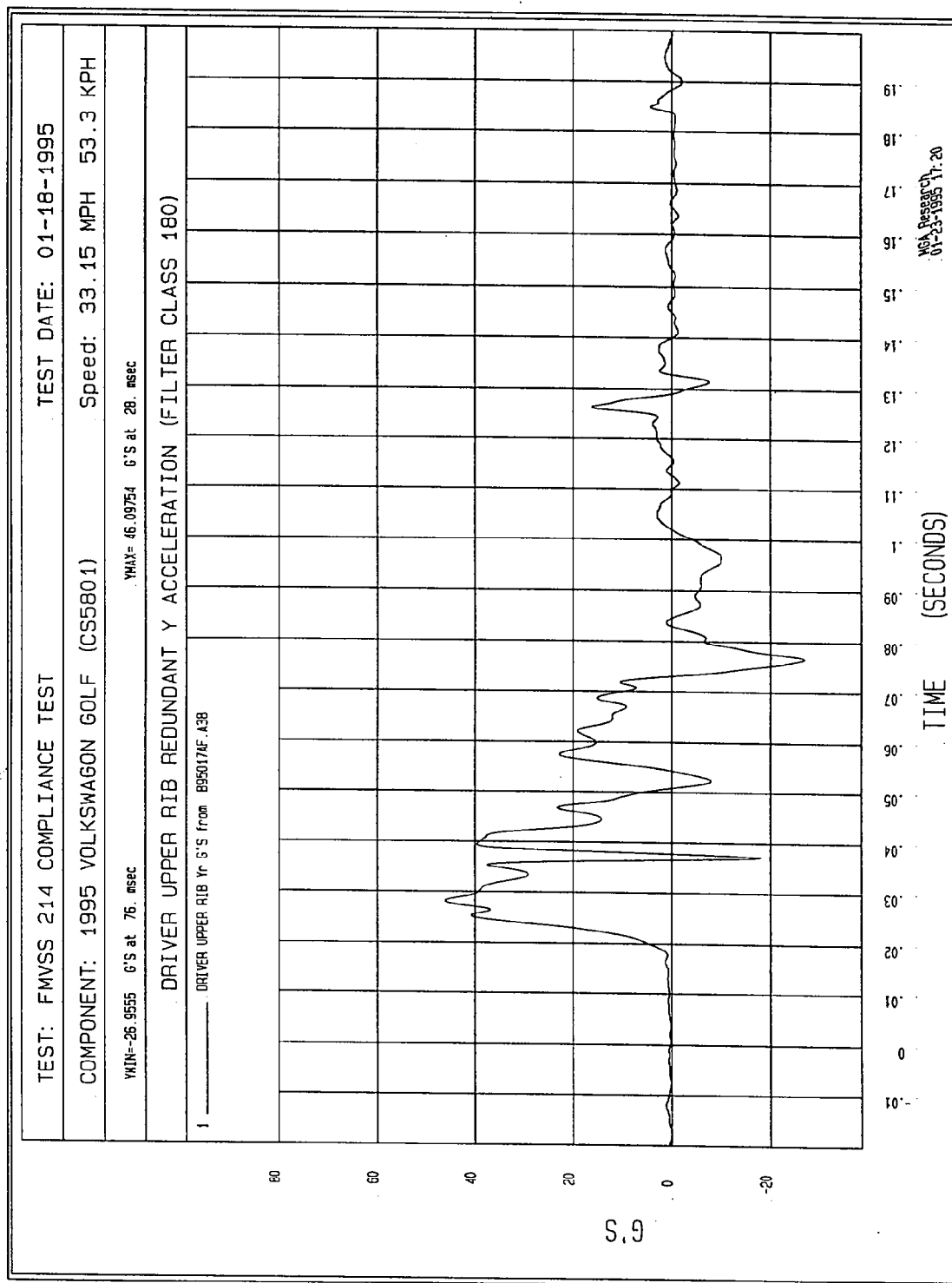


Figure B-65 - Driver Upper Rib Y Redundant Acceleration vs. Time

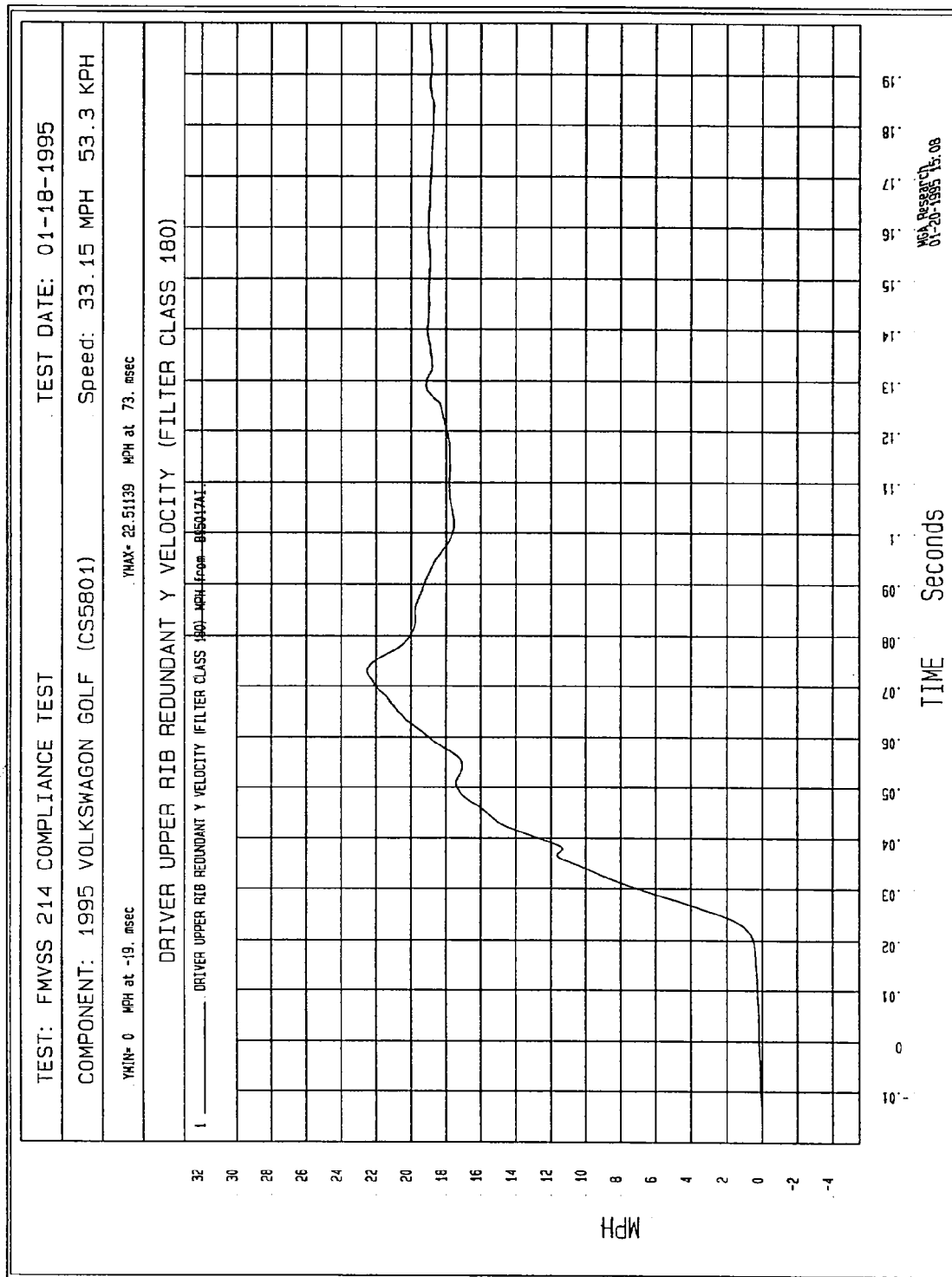
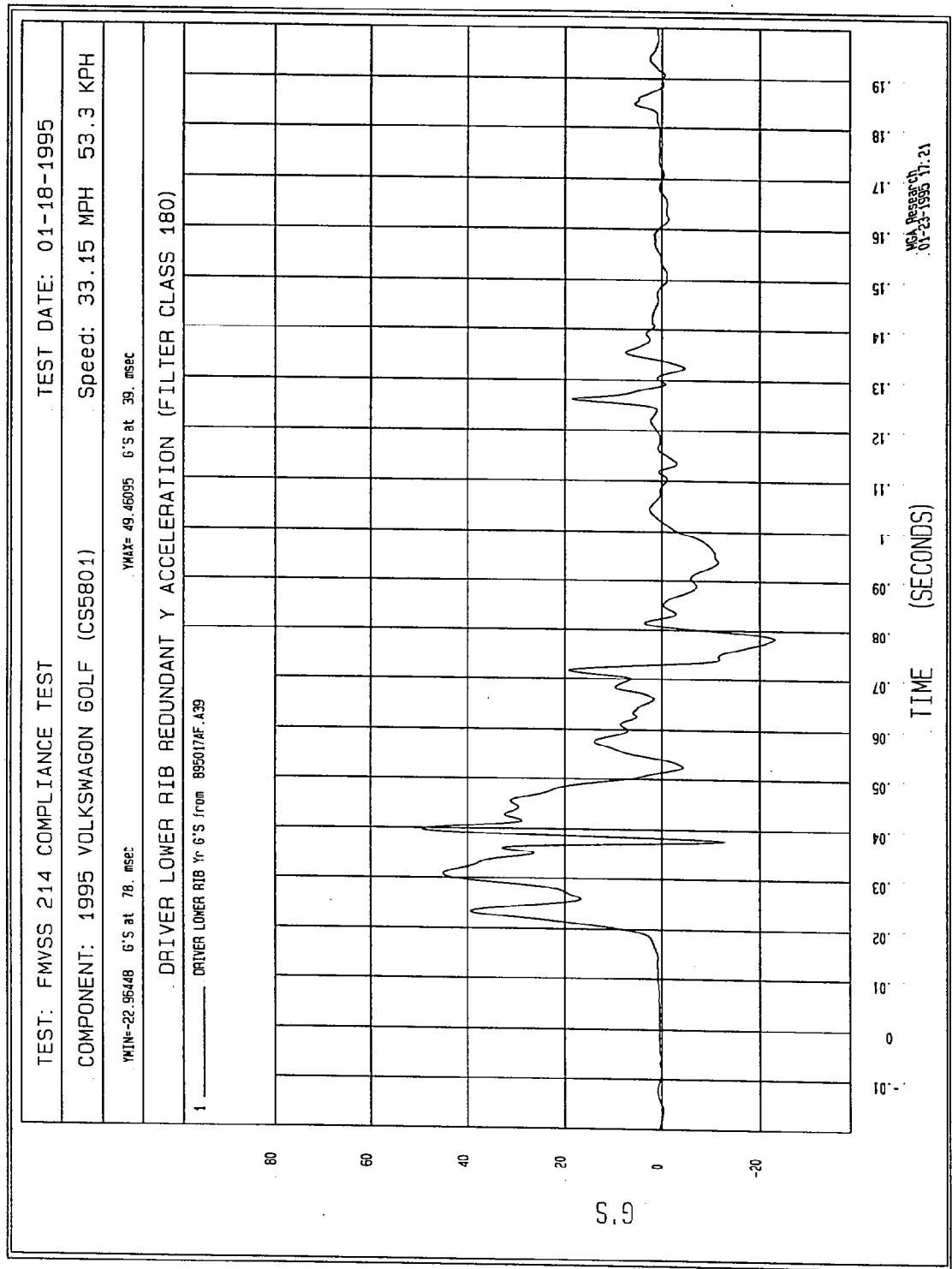


Figure B-66 - Driver Upper Rib Y Redundant Velocity vs. Time



B-67

Figure B-67 - Driver Lower Rib Y Redundant Acceleration vs. Time

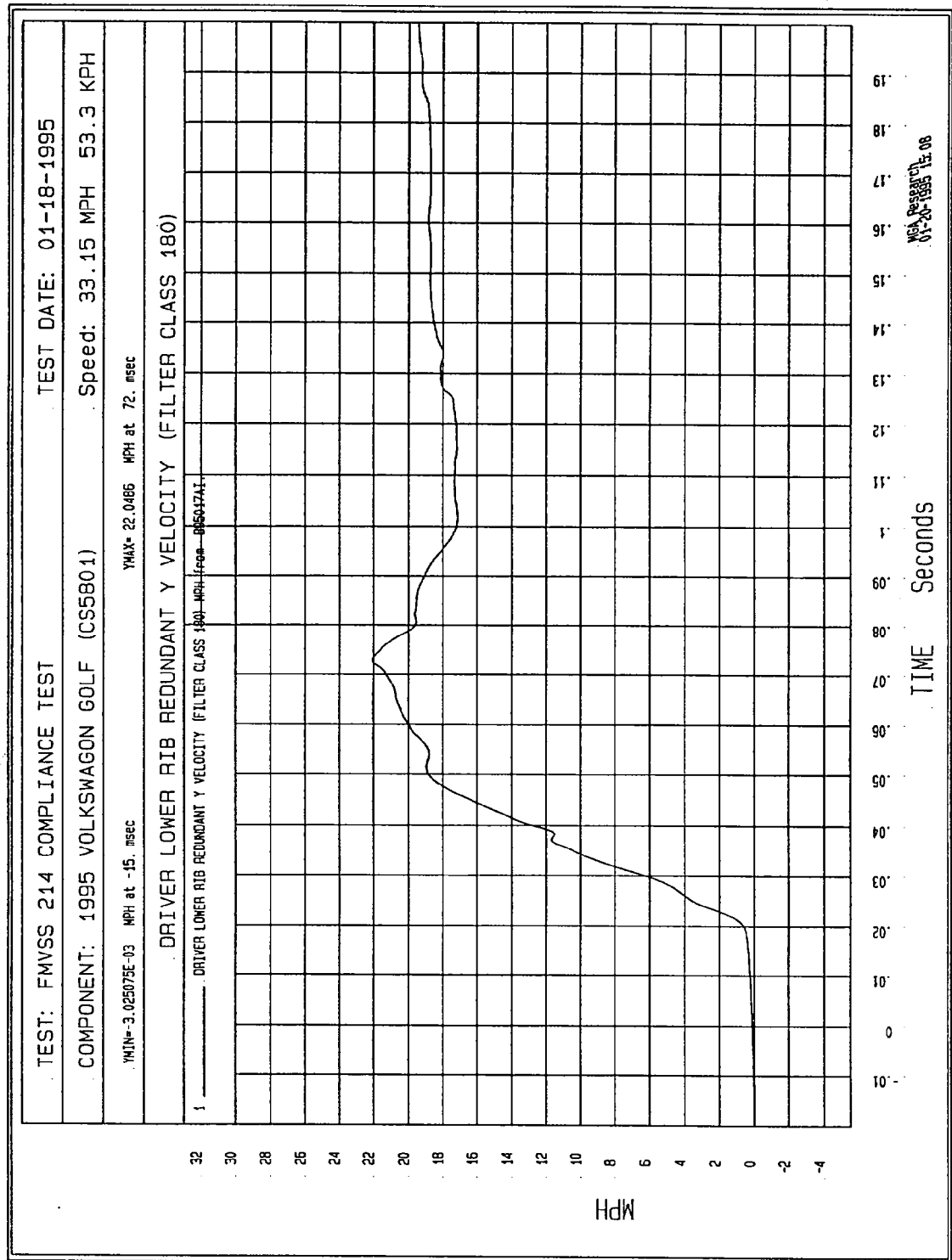


Figure B-68 - Driver Lower Rib Y Redundant Velocity vs. Time

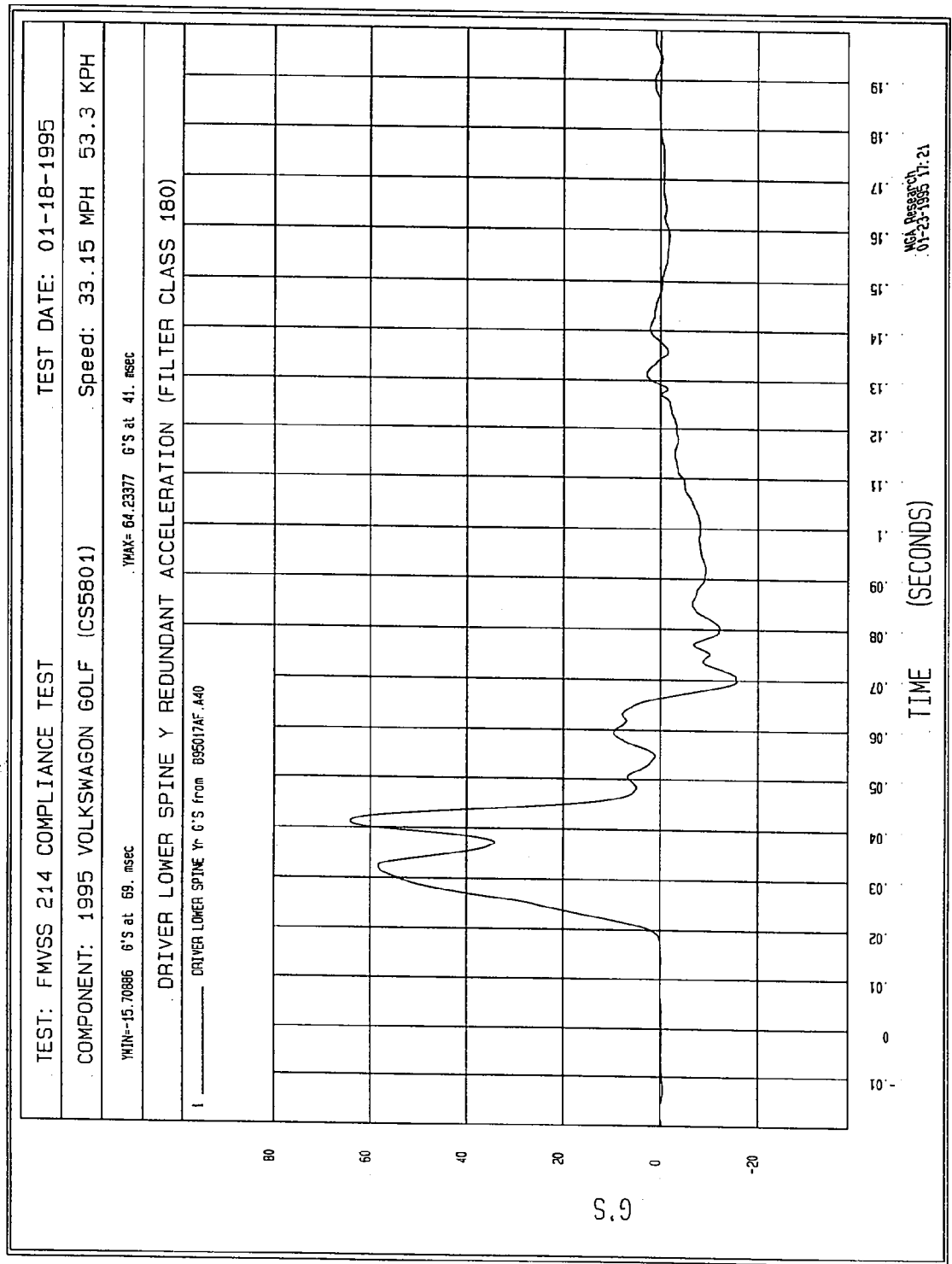


Figure B-69 - Driver Lower Spine Y Redundant Acceleration vs. Time

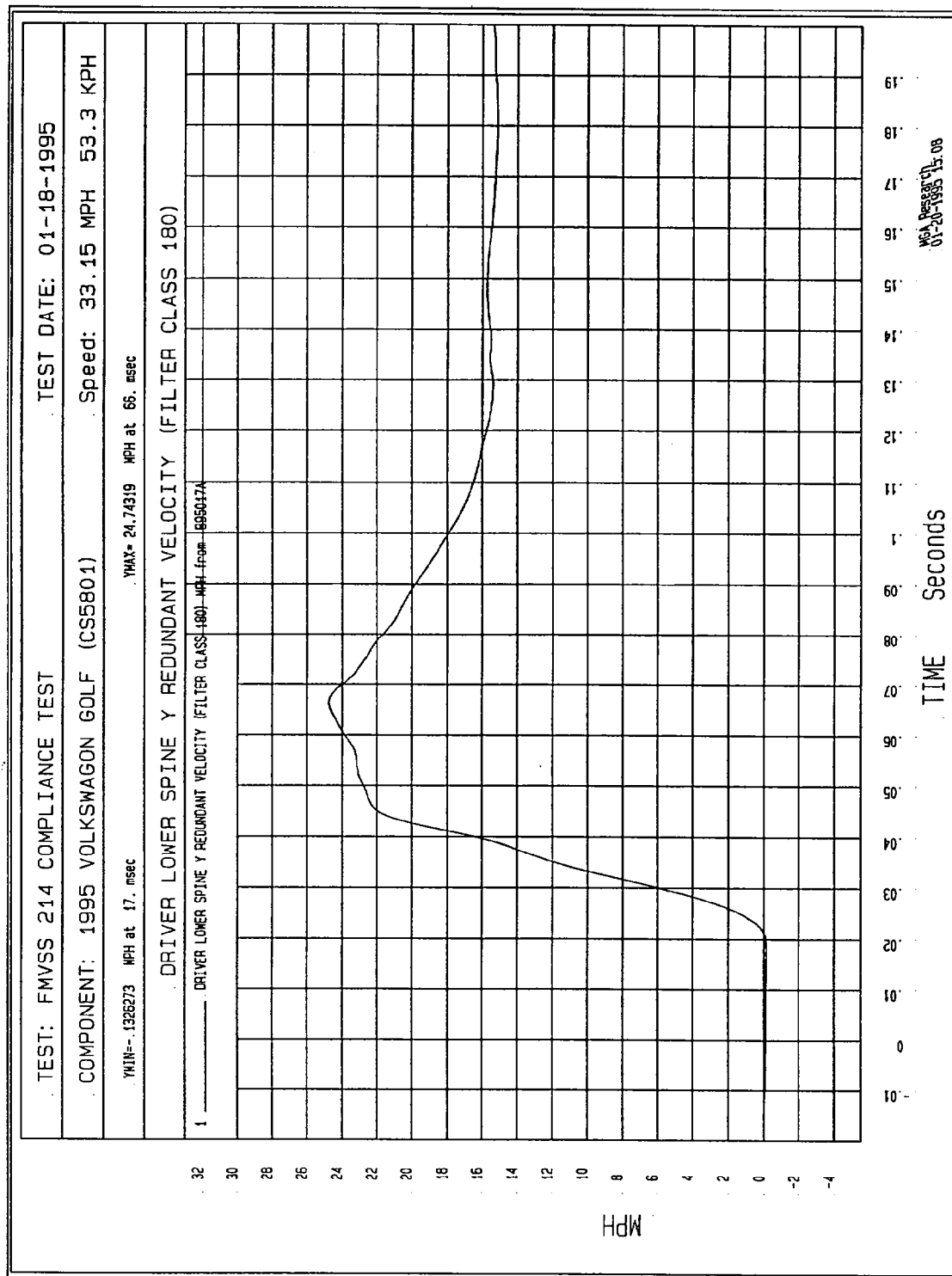


Figure B-70 - Driver Lower Spine Y Redundant Velocity vs. Time

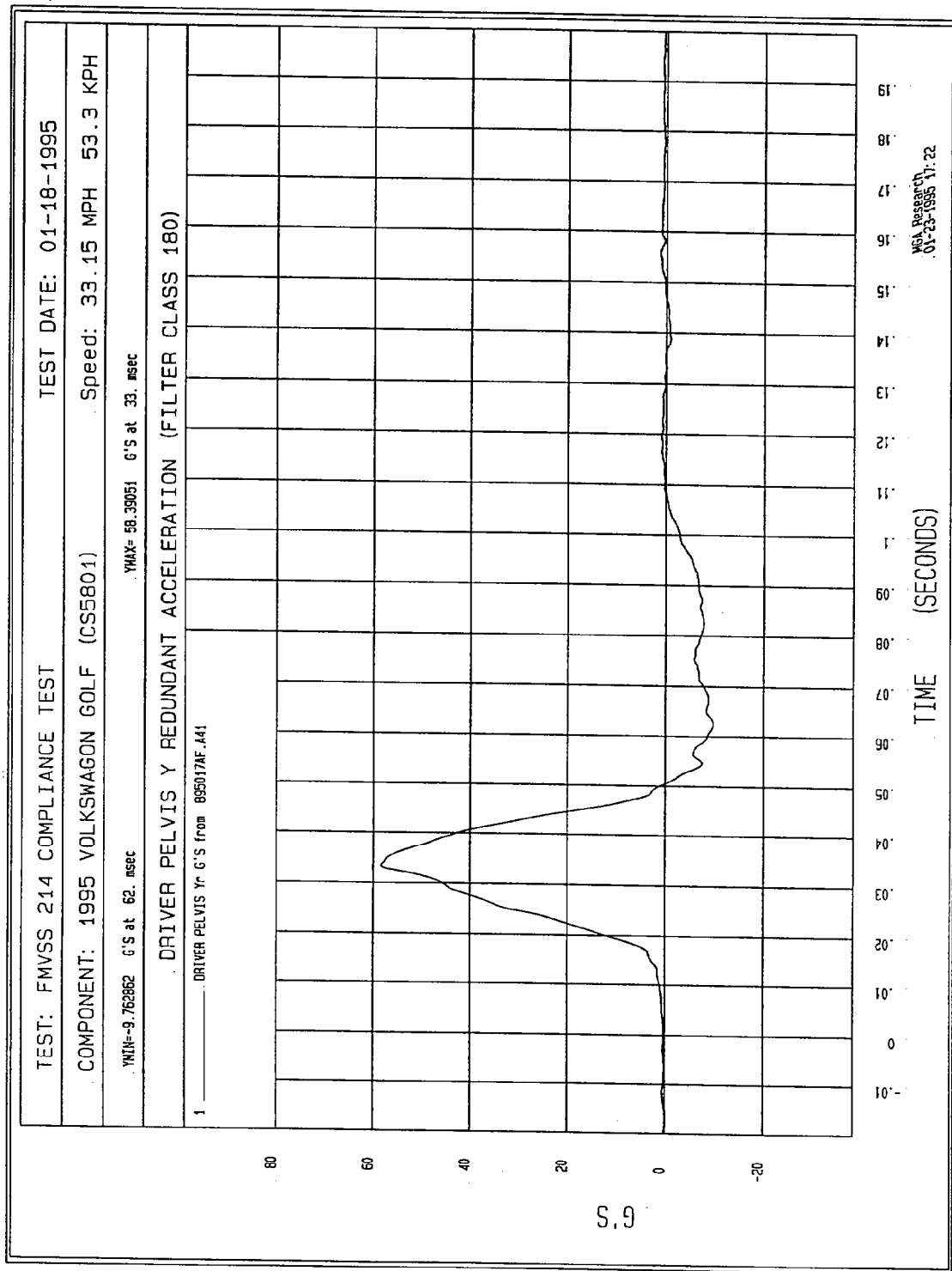


Figure B-71 - Driver Pelvis Y Redundant Acceleration vs. Time

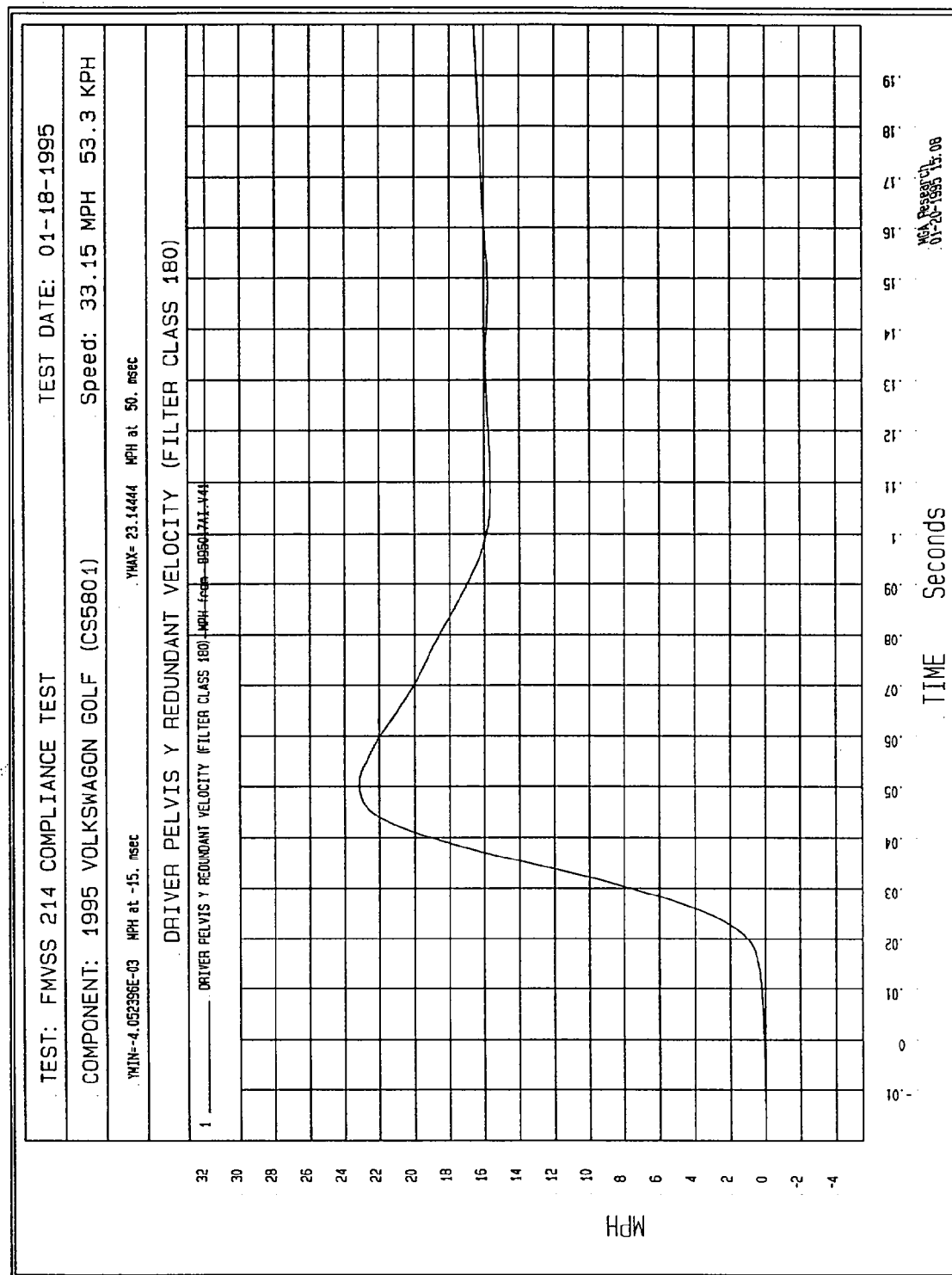
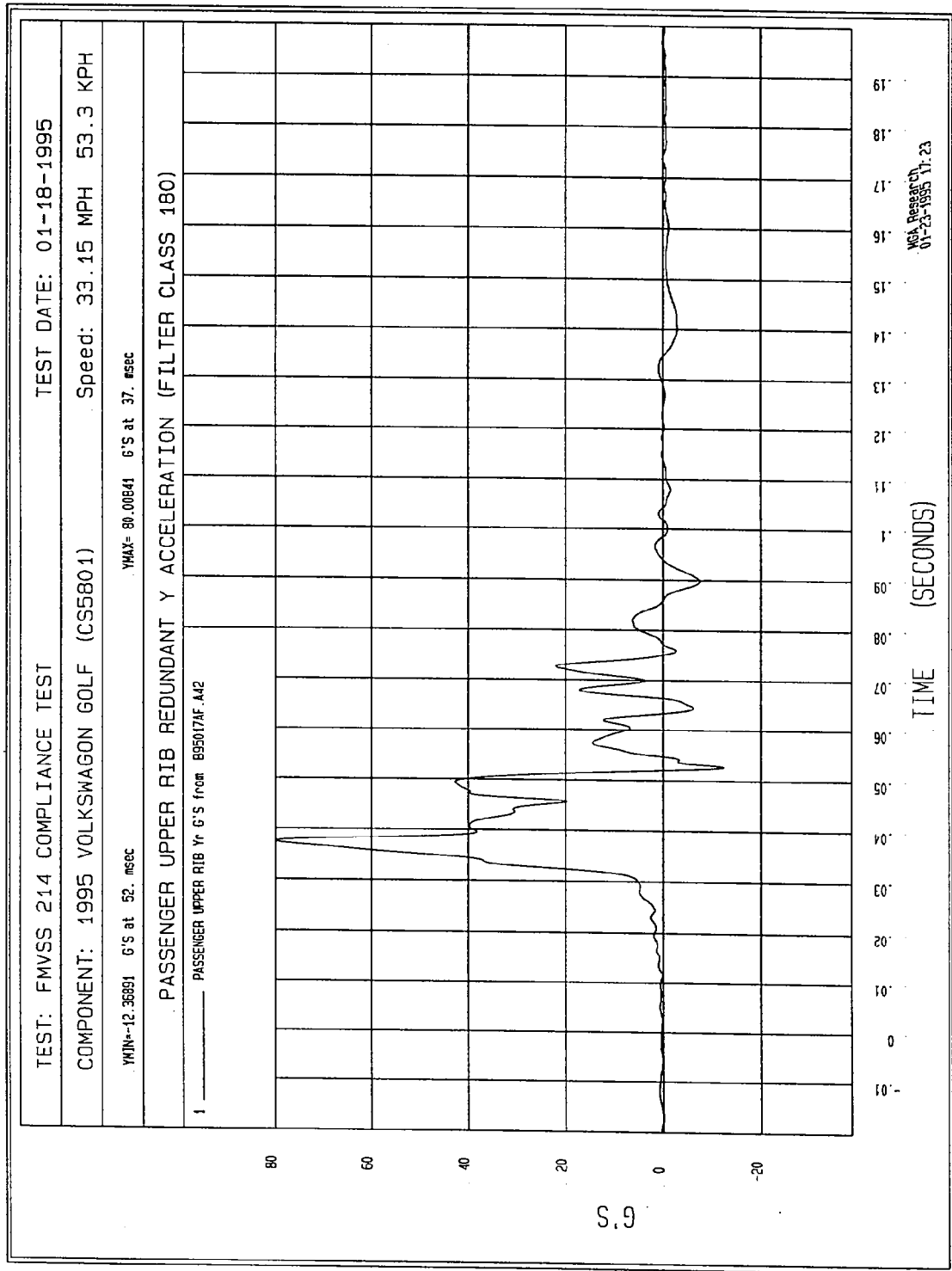


Figure B-72 - Driver Pelvis Y Redundant Velocity vs. Time



B-73

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

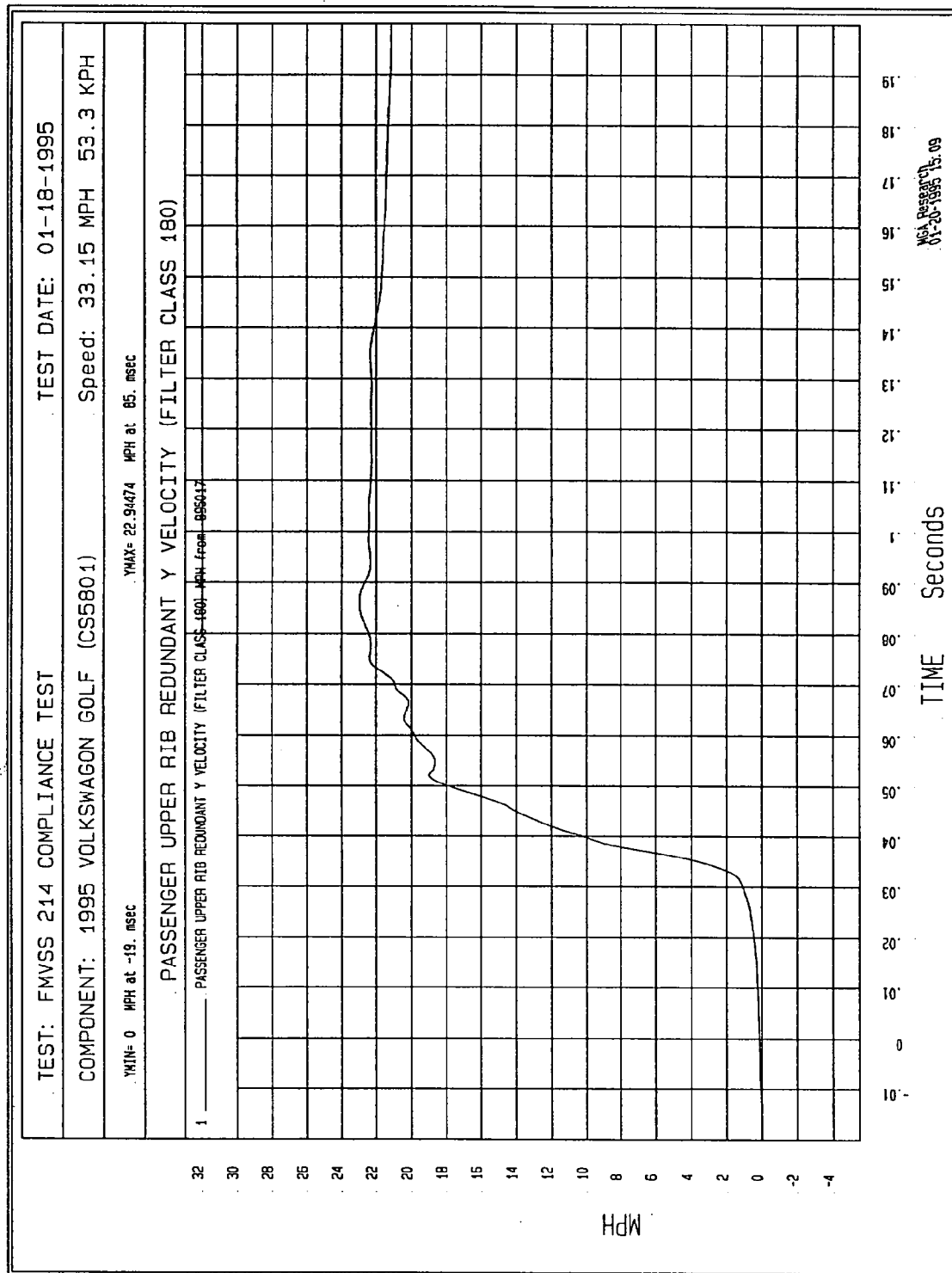


Figure B-74 - Passenger Upper Rib Y Redundant Velocity vs. Time

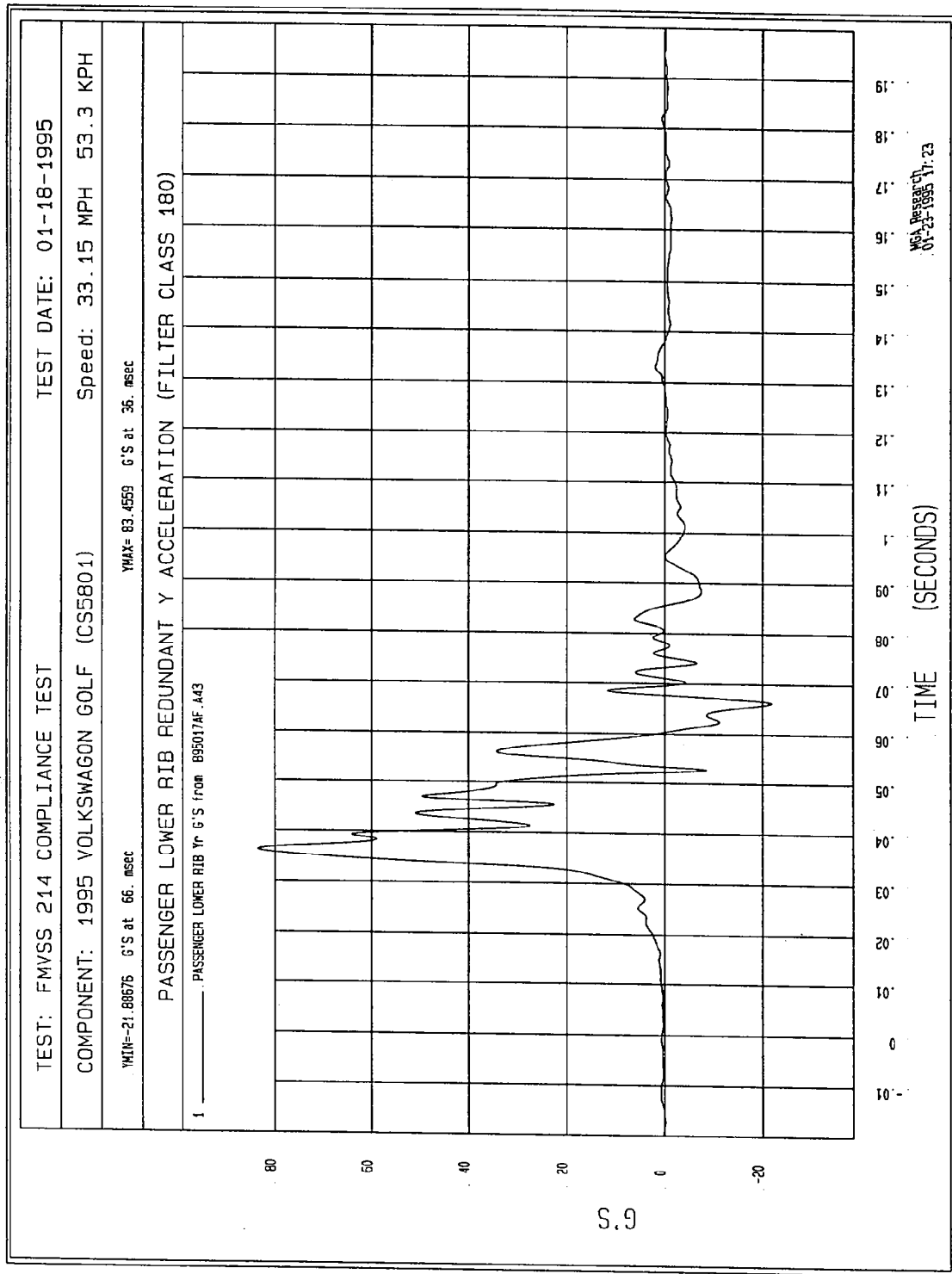


Figure B-75 - Passenger Lower Rib Y Redundant Acceleration vs. Time

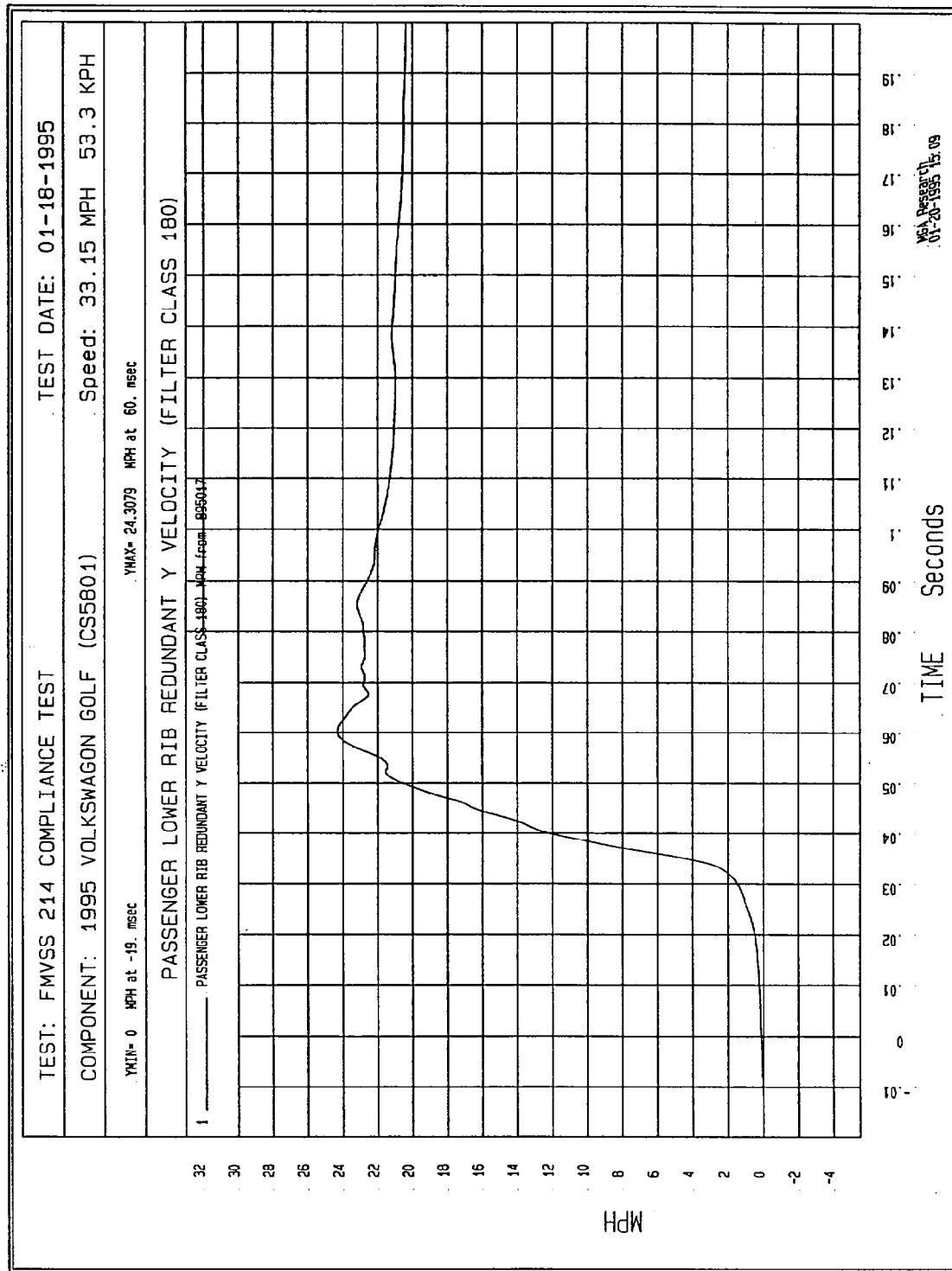
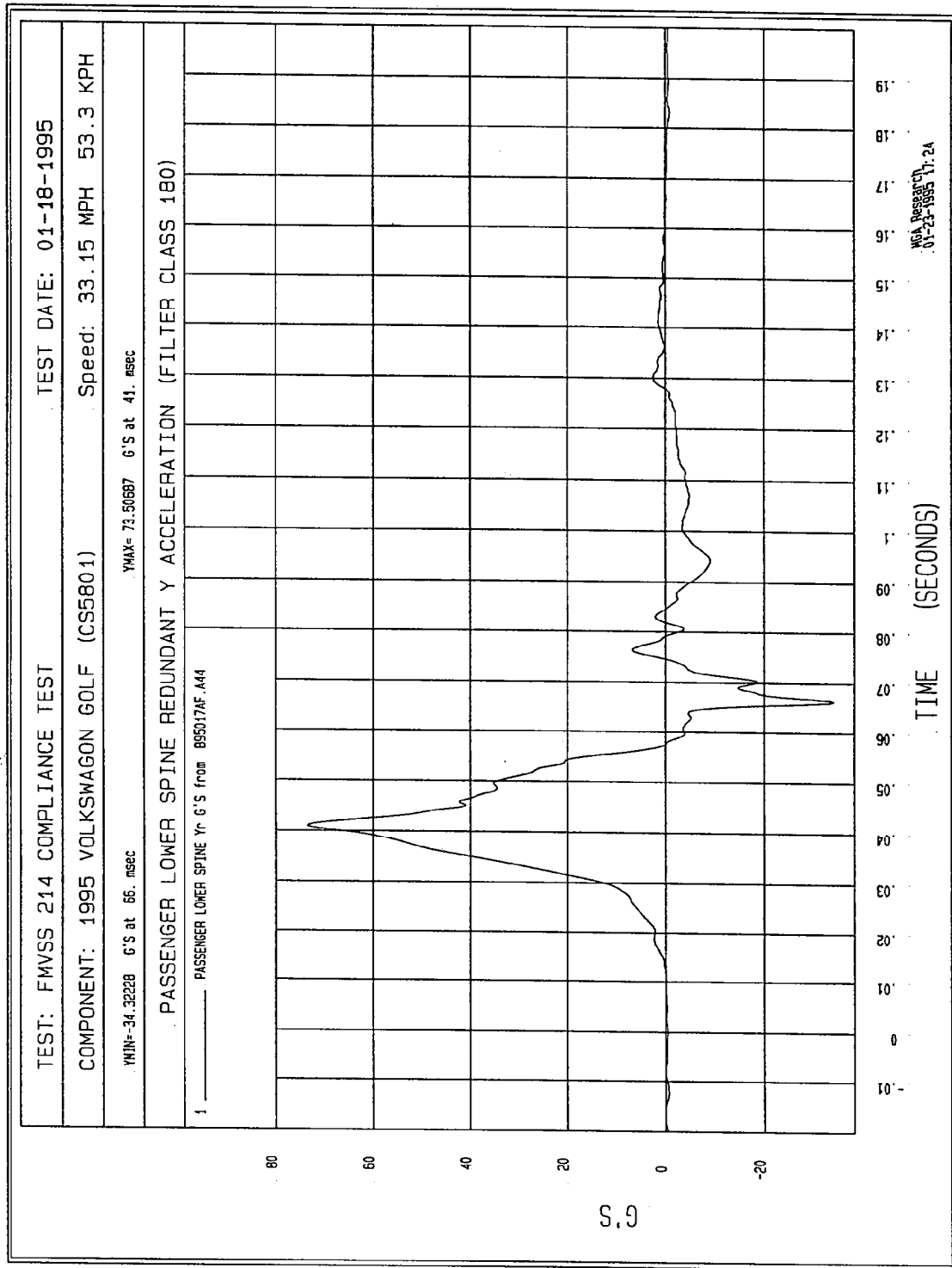


Figure B-76 - Passenger Lower Rib Y Redundant Velocity vs. Time



B-77

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

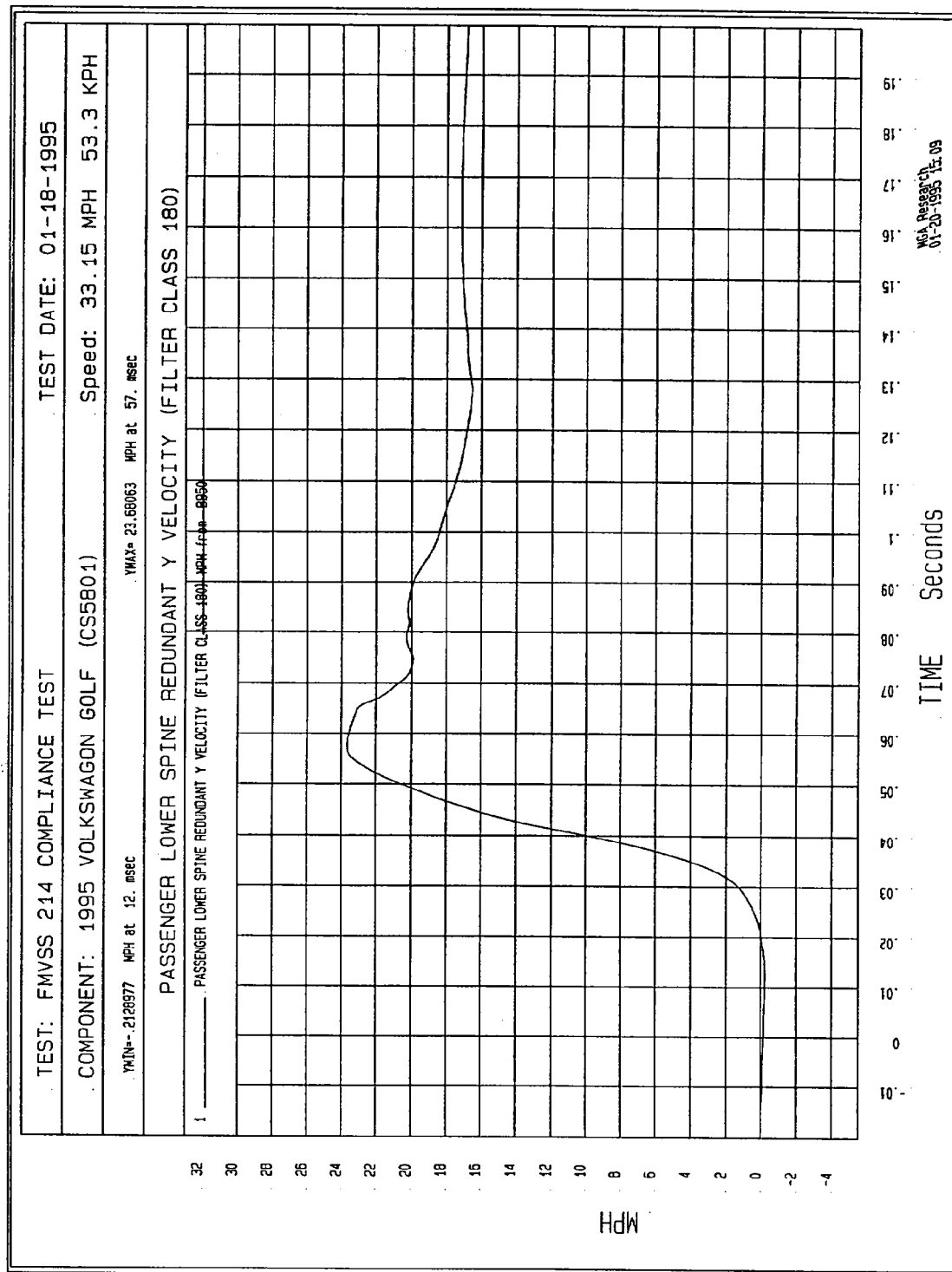
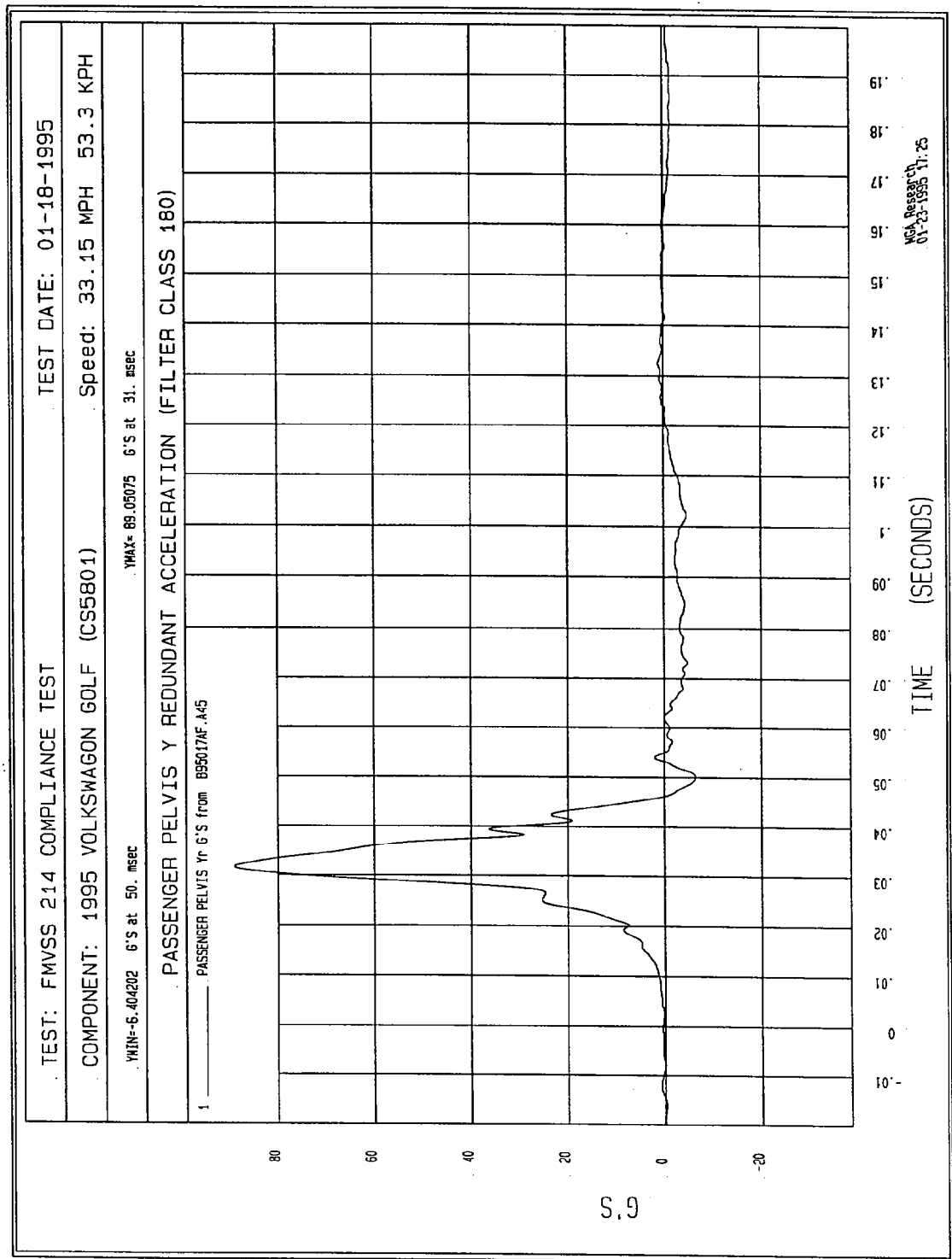


Figure B-78 - Passenger Lower Spine Y Redundant Velocity vs. Time



B-79

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

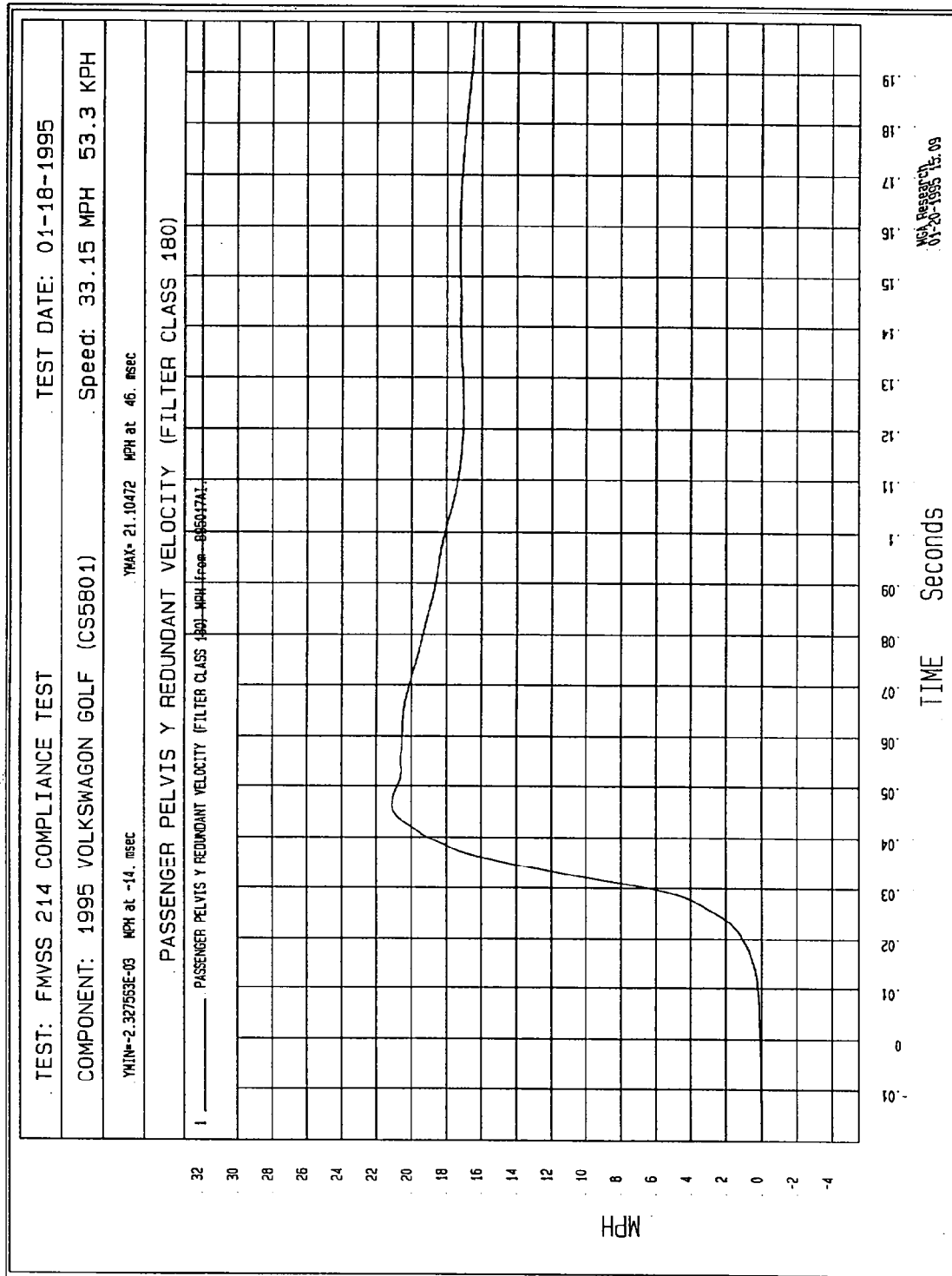
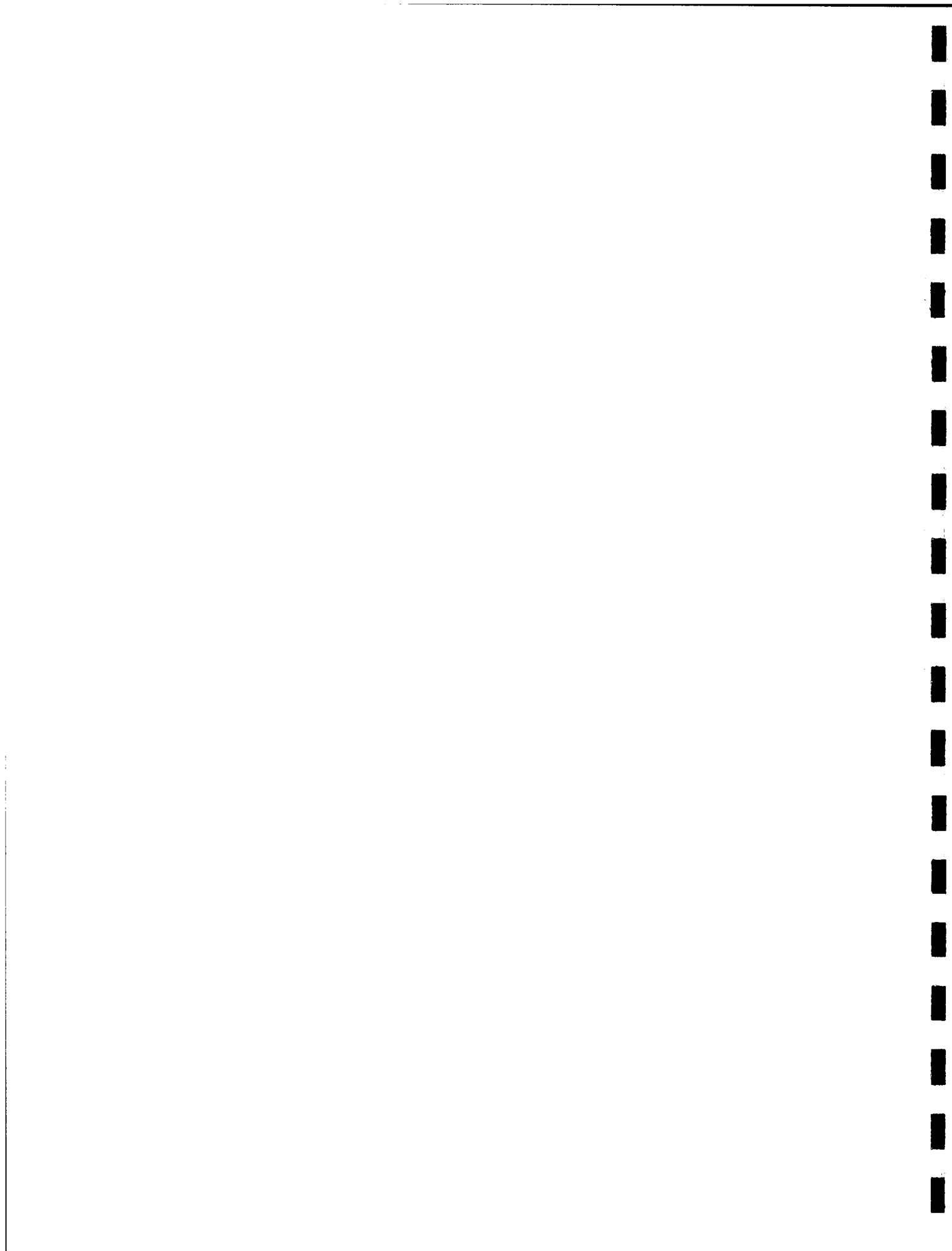


Figure B-80 - Passenger Pelvis Y Redundant Velocity vs. Time

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA

Table of Data Plots

	<u>Page No.</u>
Figure B-81 - Driver Upper Rib Y Acceleration vs. Time	B-81
Figure B-82 - Driver Upper Rib Y Redundant Acceleration vs. Time	B-82
Figure B-83 - Driver Lower Rib Y Acceleration vs. Time	B-83
Figure B-84 - Driver Lower Rib Y Redundant Acceleration vs. Time	B-84
Figure B-85 - Driver Lower Spine Y Acceleration vs. Time	B-85
Figure B-86 - Driver Lower Spine Y Redundant Acceleration vs. Time	B-86
Figure B-87 - Driver Pelvis Y Acceleration vs. Time	B-87
Figure B-88 - Driver Pelvis Y Redundant Acceleration vs. Time	B-88
Figure B-89 - Passenger Upper Rib Y Acceleration vs. Time	B-89
Figure B-90 - Passenger Upper Rib Y Redundant Acceleration vs. Time	B-90
Figure B-91 - Passenger Lower Rib Y Acceleration vs. Time	B-91
Figure B-92 - Passenger Lower Rib Y Redundant Acceleration vs. Time	B-92
Figure B-93 - Passenger Lower Spine Y Acceleration vs. Time	B-93
Figure B-94 - Passenger Lower Spine Y Redundant Acceleration vs. Time	B-94
Figure B-95 - Passenger Pelvis Y Acceleration vs. Time	B-95
Figure B-96 - Passenger Pelvis Y Redundant Acceleration vs. Time	B-96



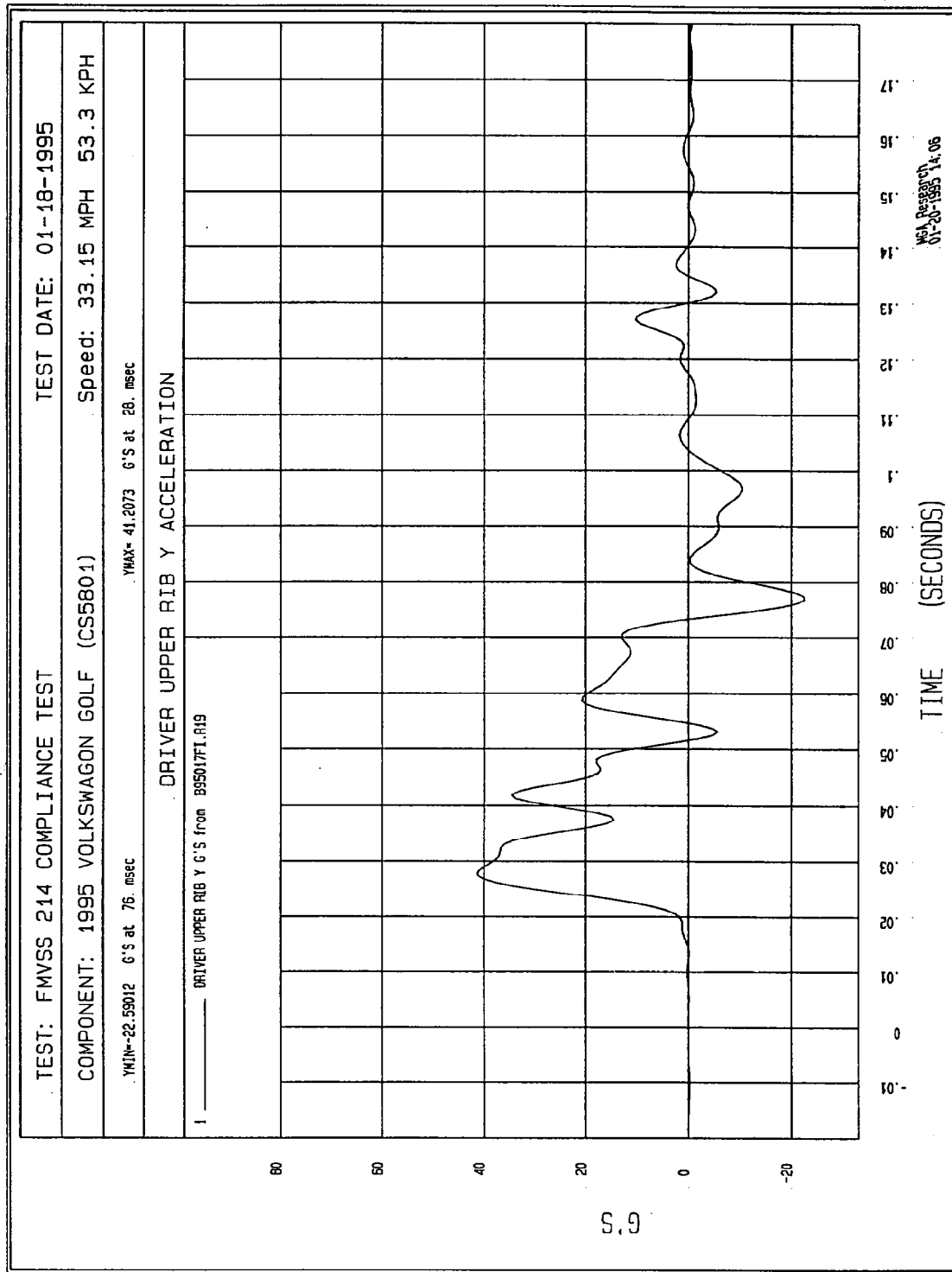
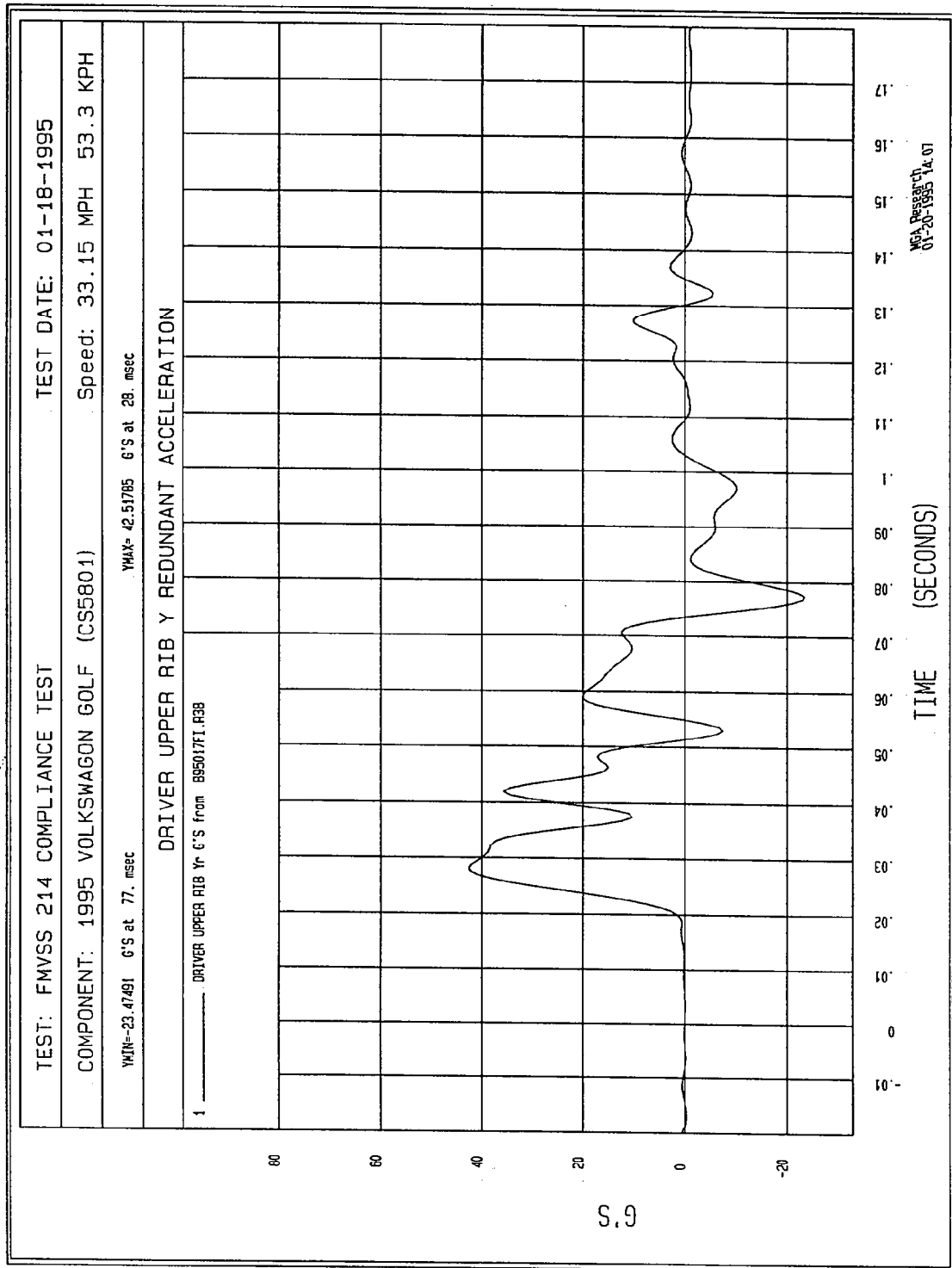


Figure B-81 - Driver Upper Rib Y Acceleration vs. Time



B-82

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

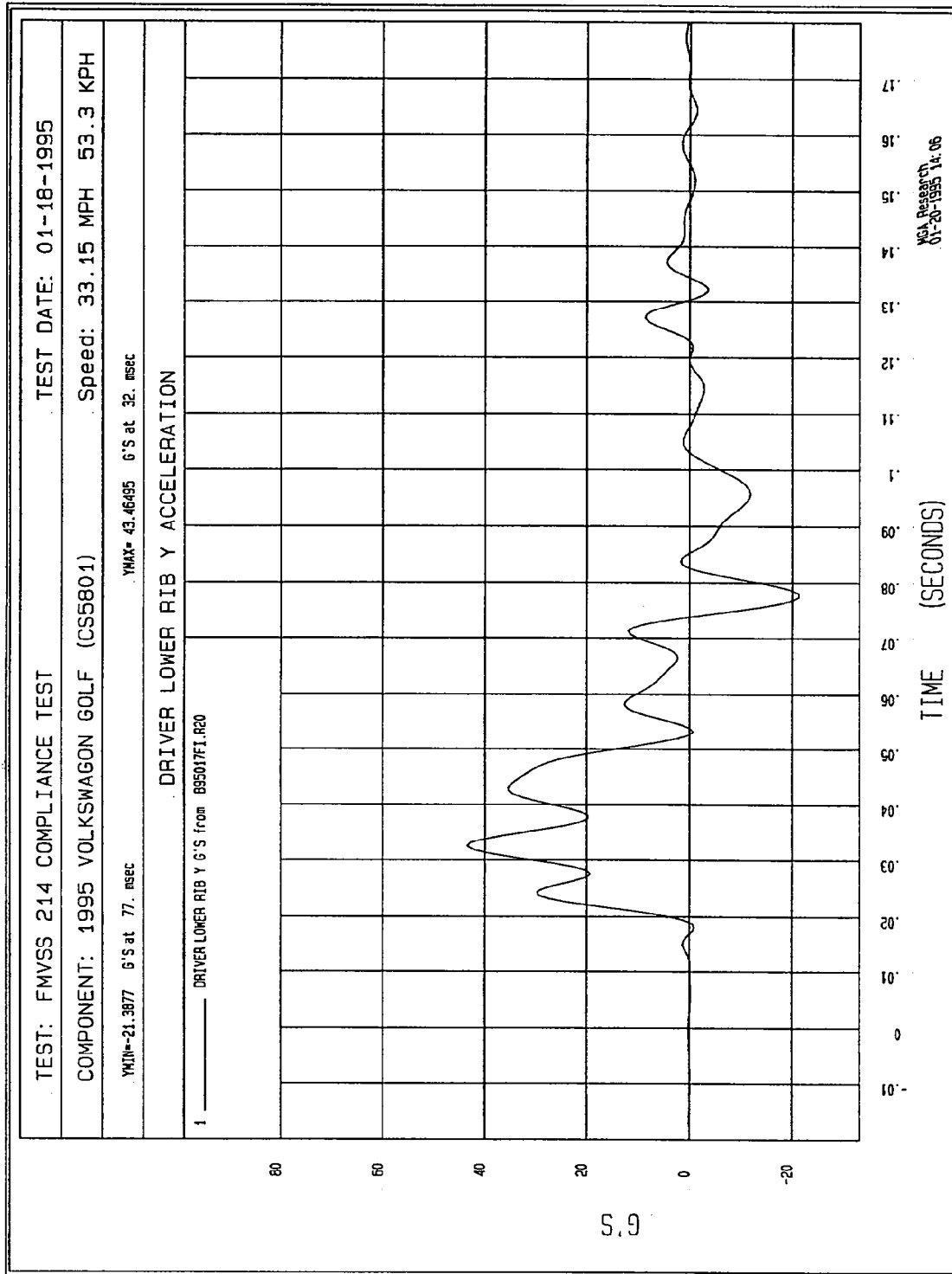


Figure B-83 - Driver Lower Rib Y Acceleration vs. Time

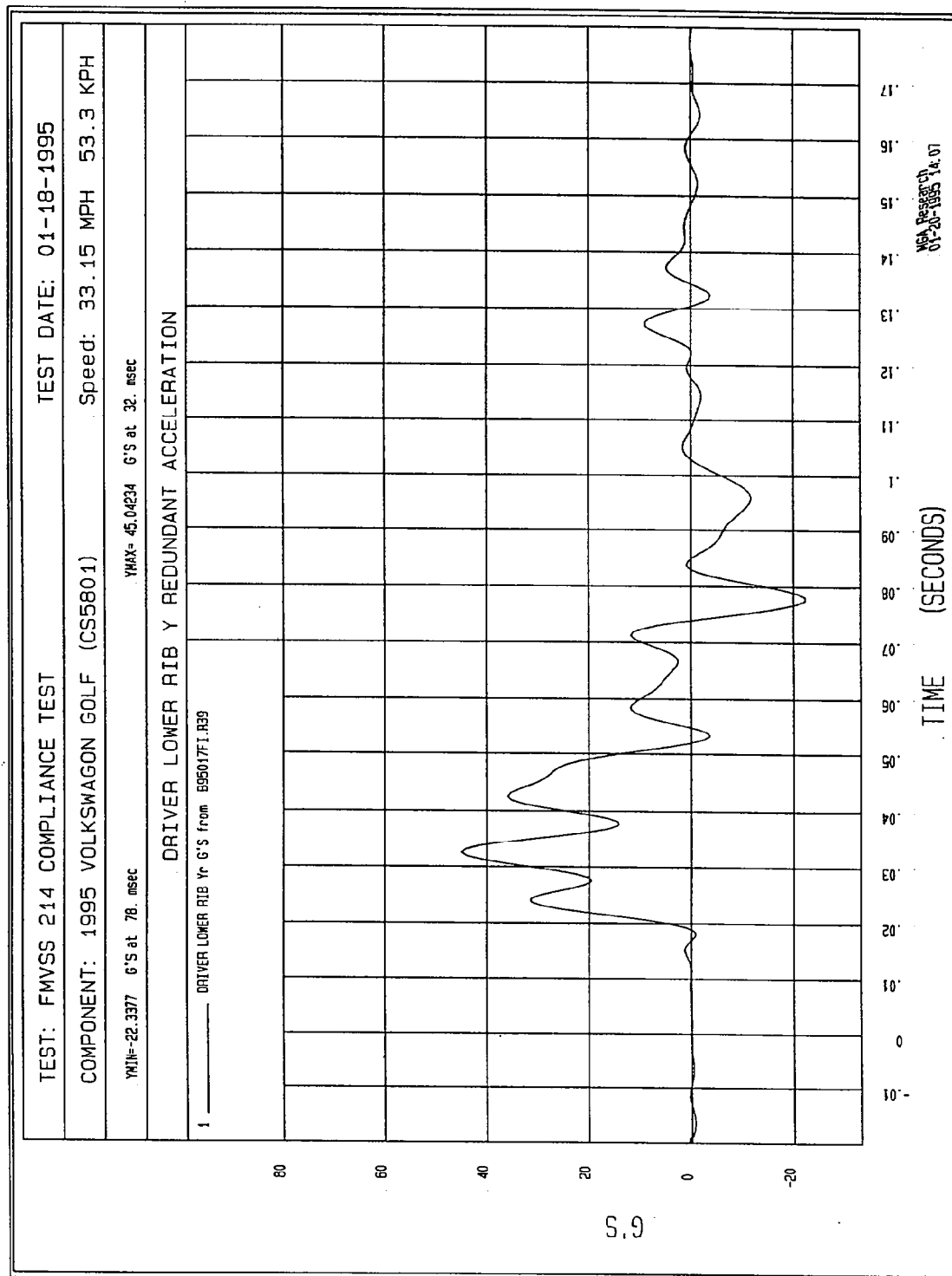


Figure B-84 - Driver Lower Rib Y Redundant Acceleration vs. Time

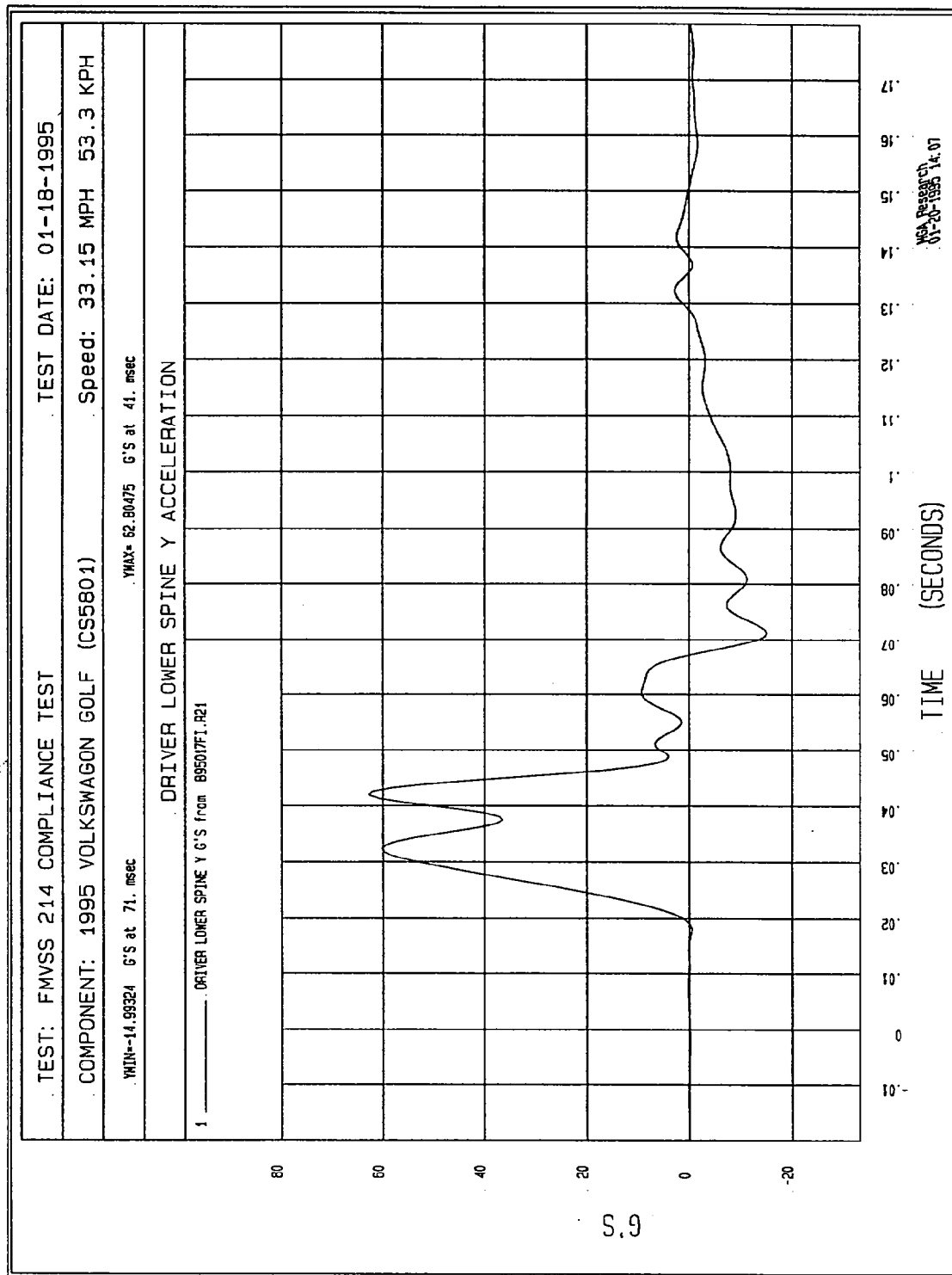


Figure B-85 - Driver Lower Spine Y Acceleration vs. Time

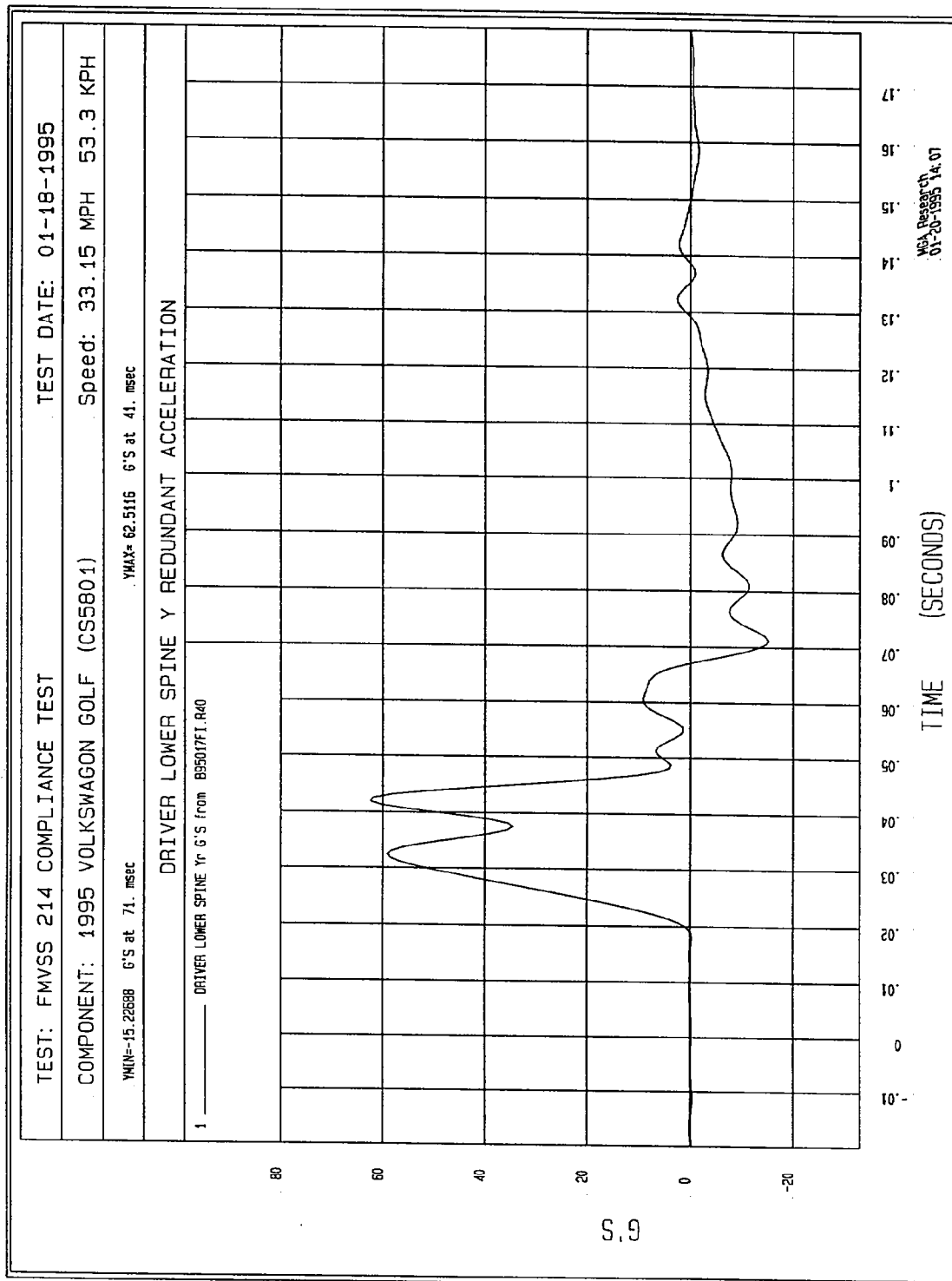


Figure B-86 - Driver Lower Spine Y Redundant Acceleration vs. Time

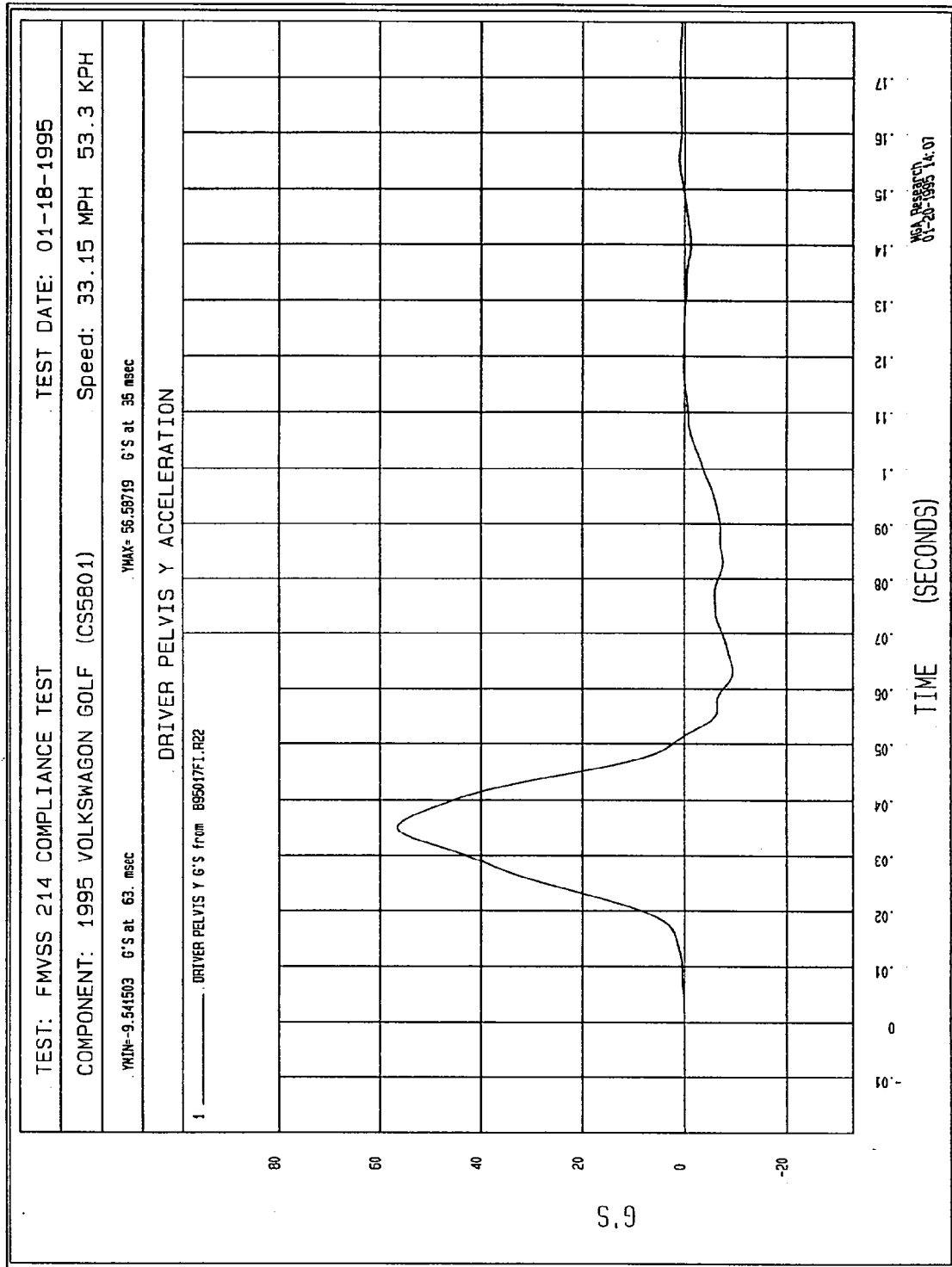


Figure B-87 - Driver Pelvis Y Acceleration vs. Time

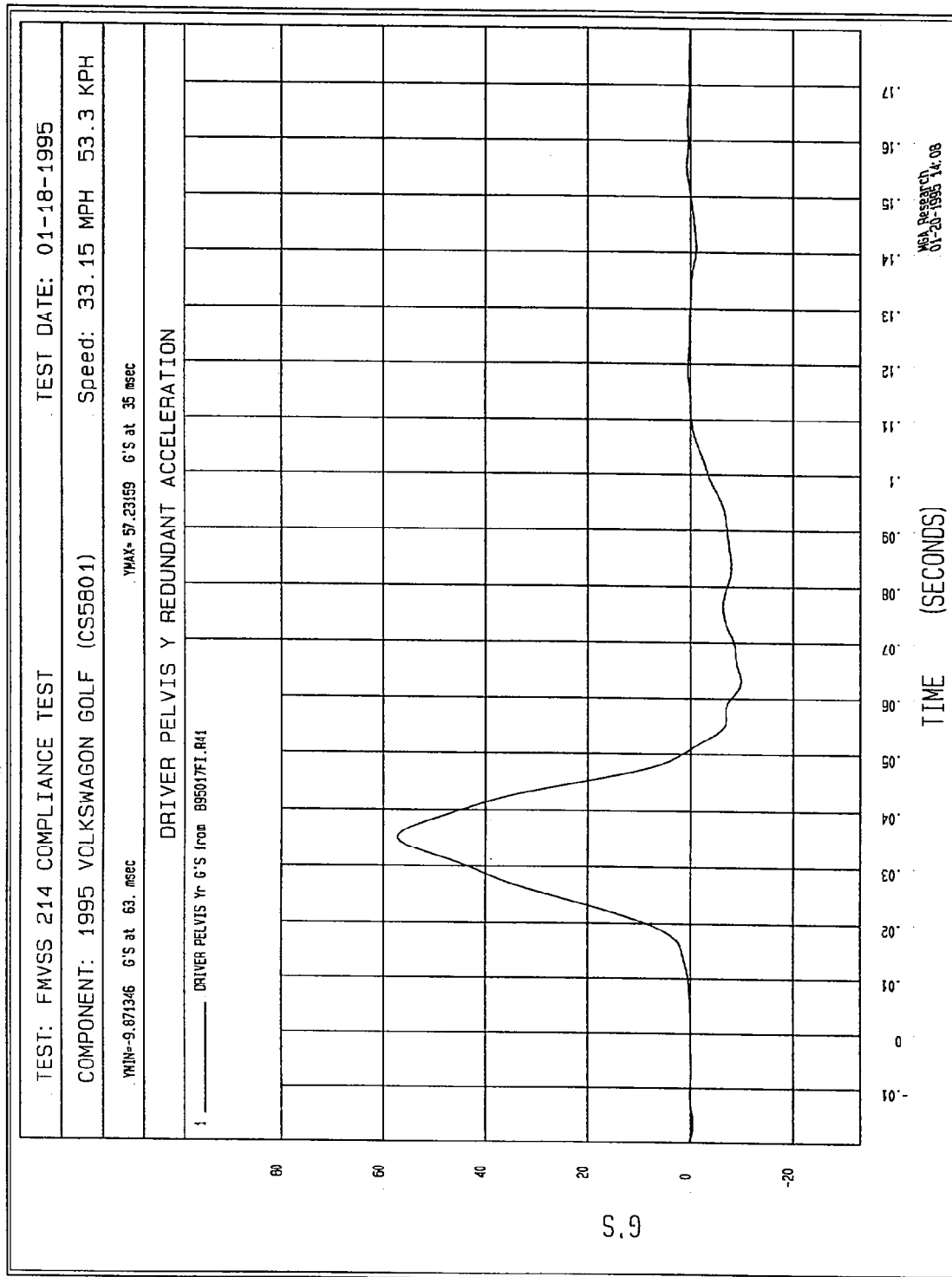


Figure B-88 - Driver Pelvis Y Redundant Acceleration vs. Time

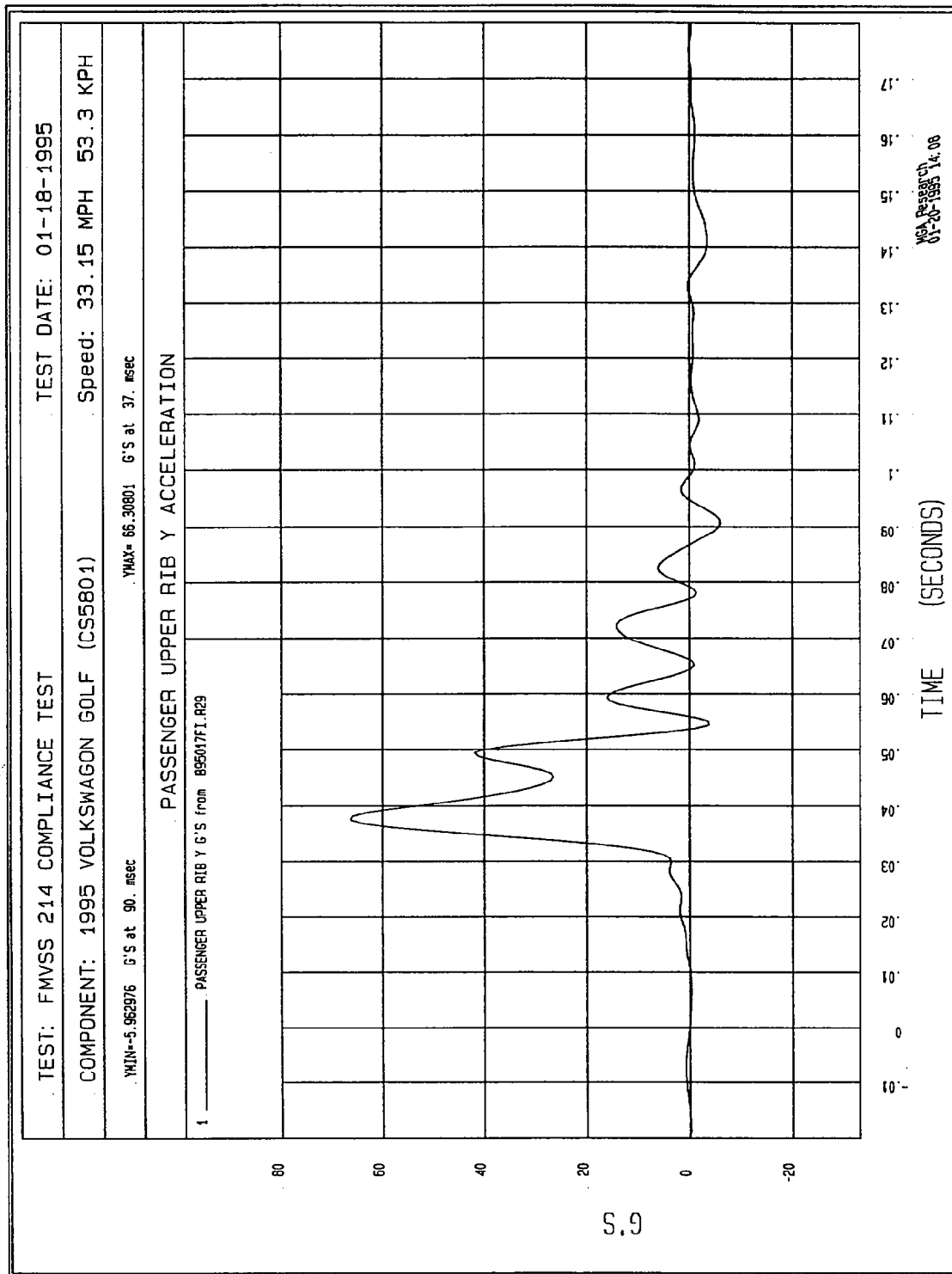


Figure B-89 - Passenger Upper Rib Y Acceleration vs. Time

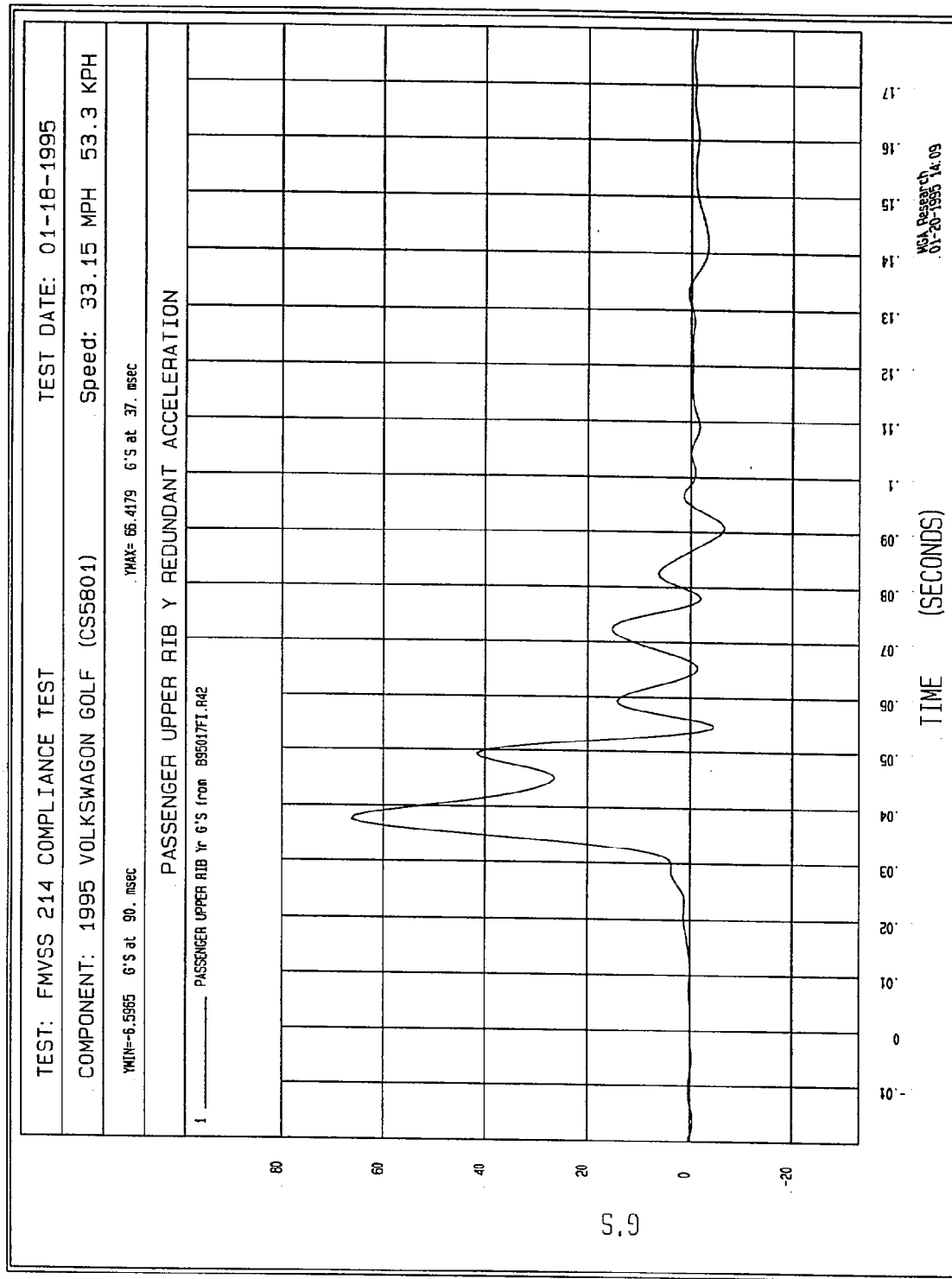


Figure B-90 - Passenger Upper Rib Y Redundant Acceleration vs. Time

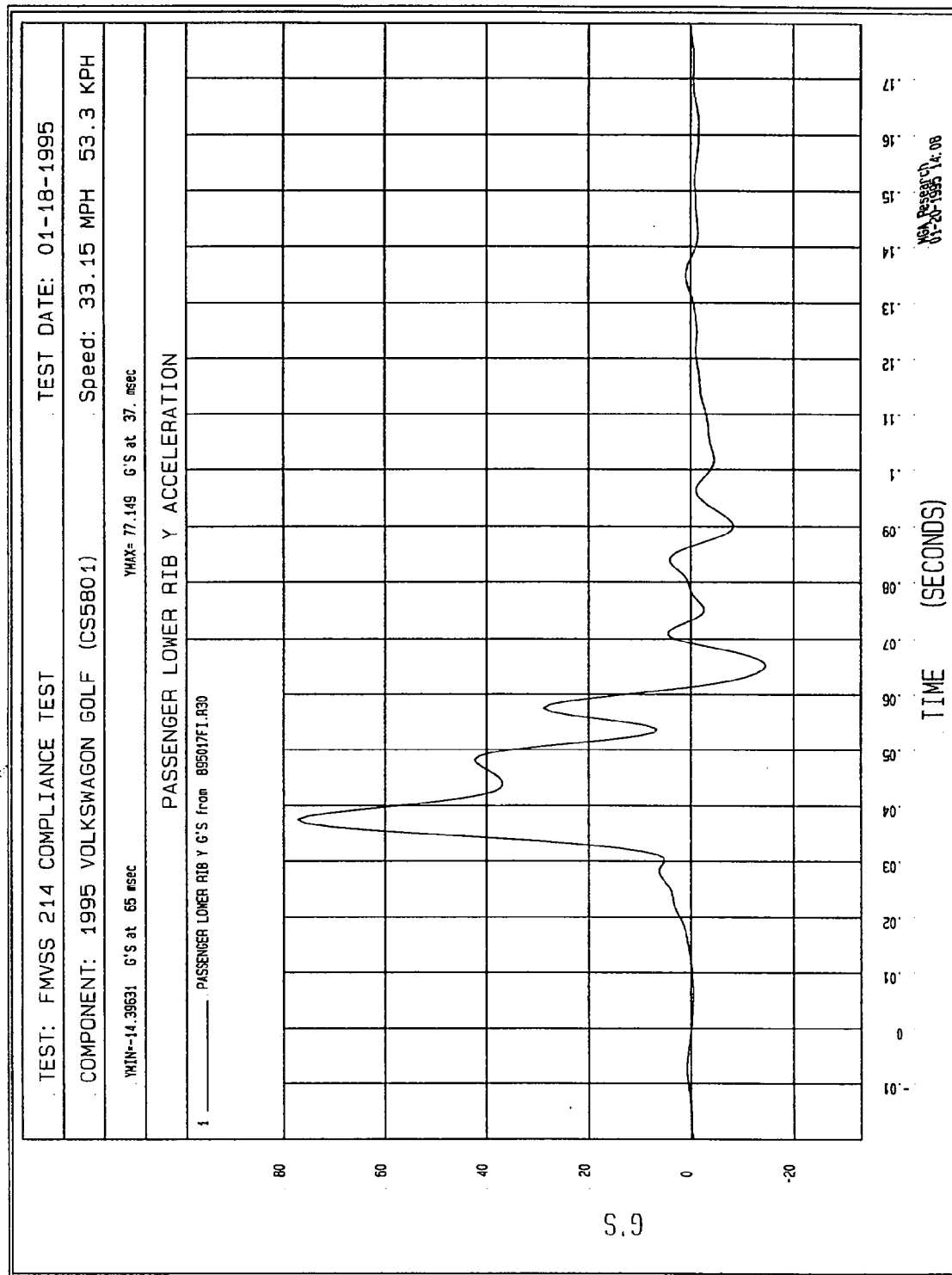


Figure B-91 - Passenger Lower Rib Y Acceleration vs. Time

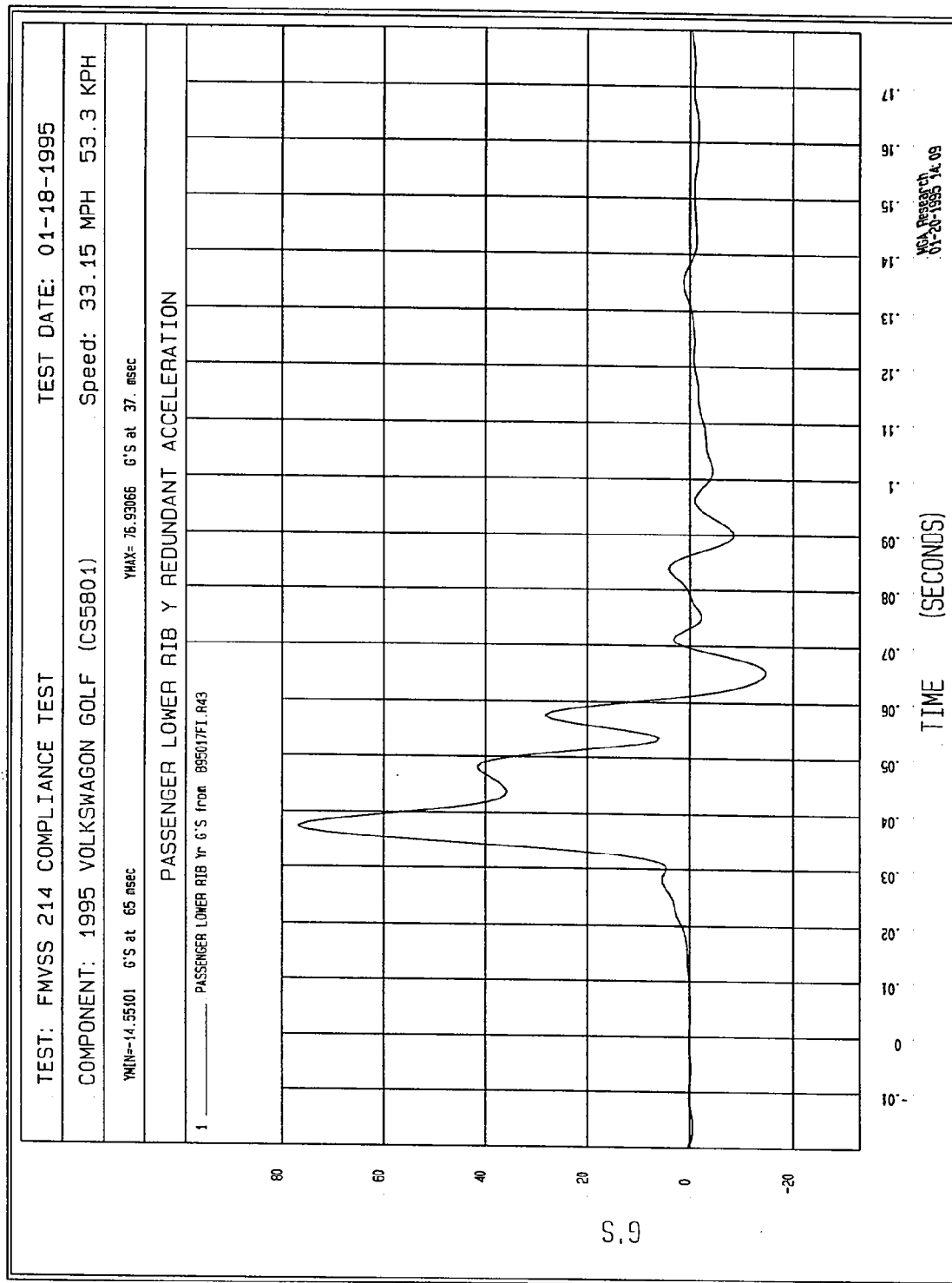


Figure B-92 - Passenger Lower Rib Y Redundant Acceleration vs. Time

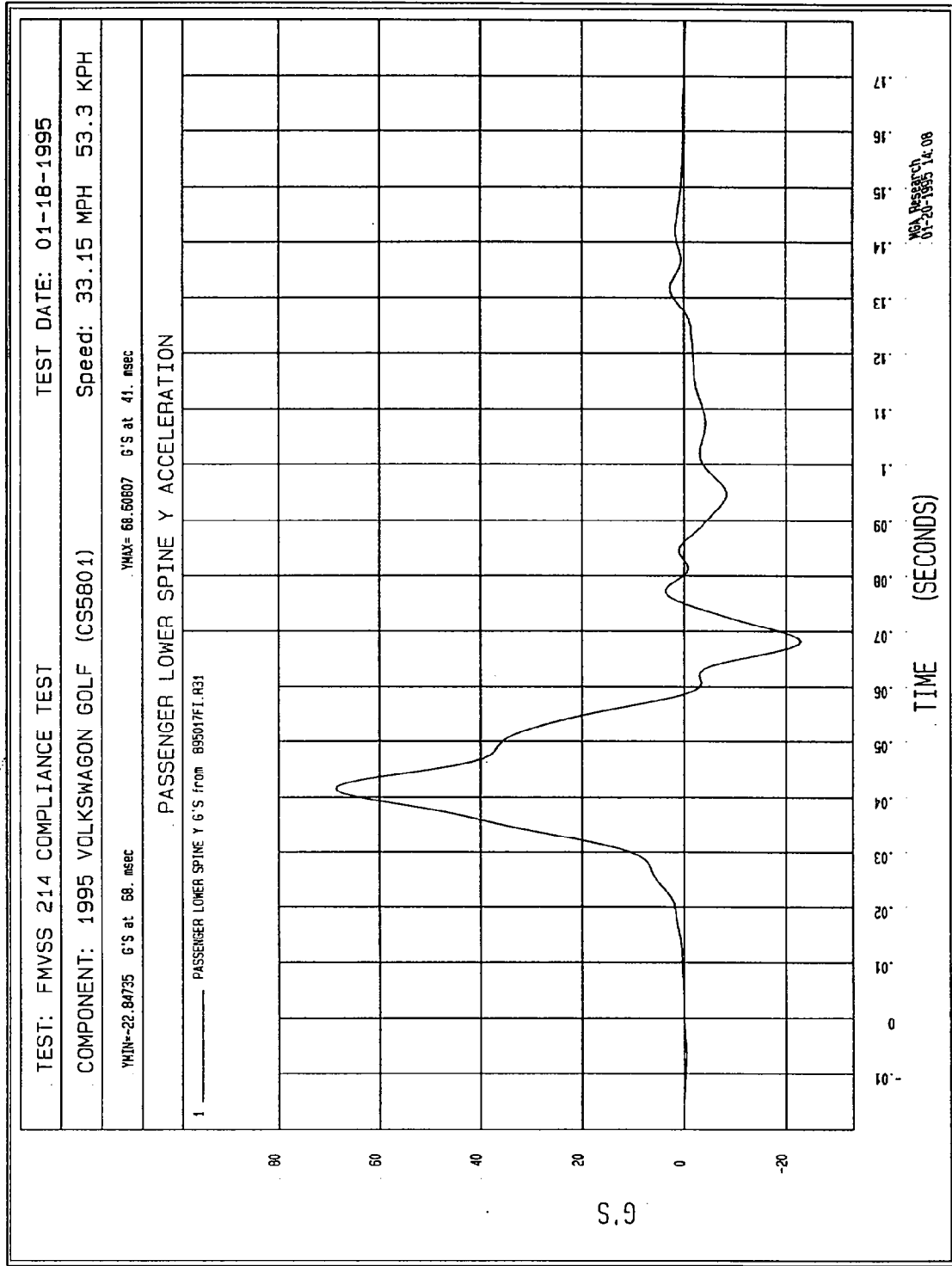


Figure B-93 - Passenger Lower Spine Y Acceleration vs. Time

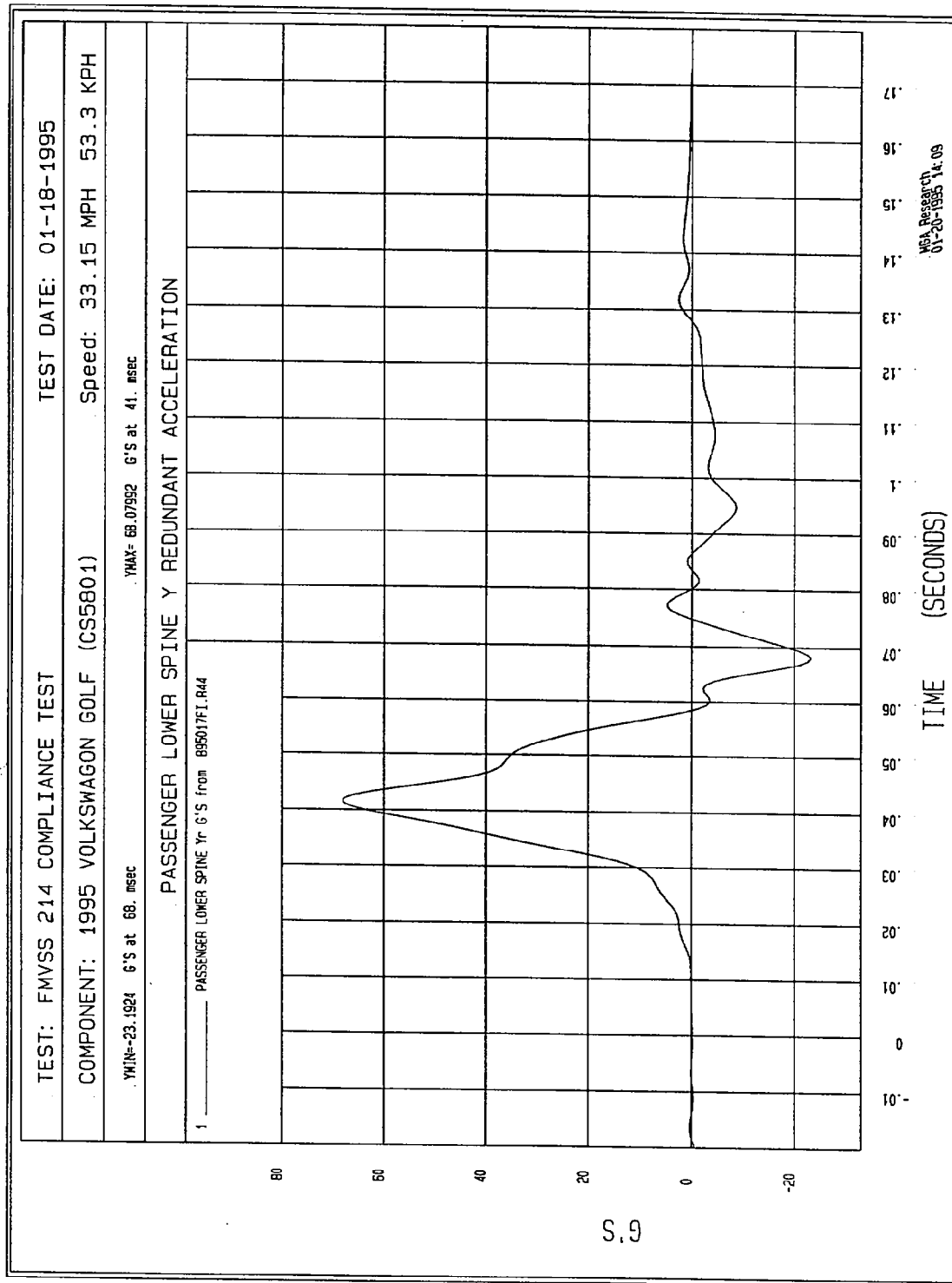
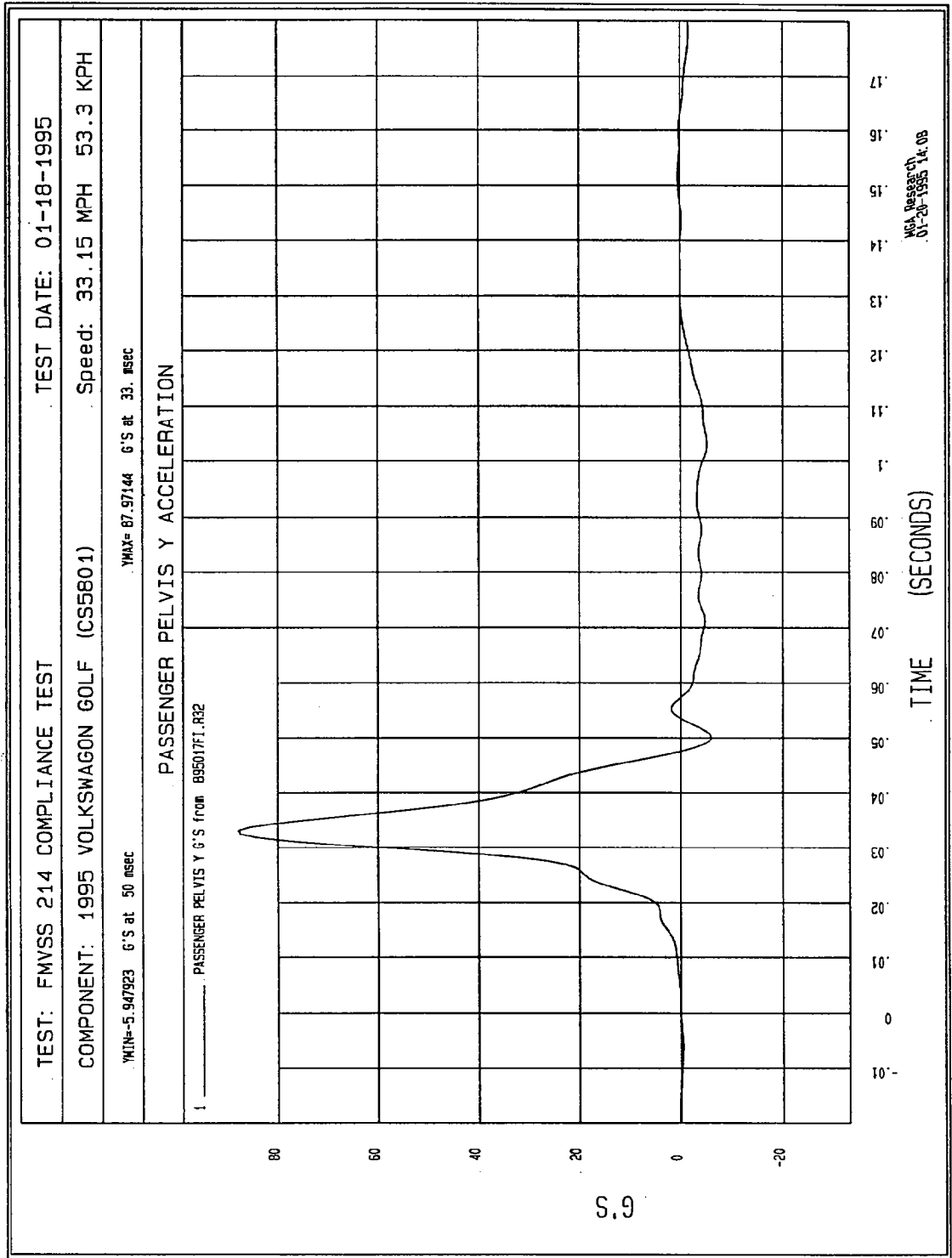


Figure B-94 - Passenger Lower Spine Y Redundant Acceleration vs. Time



B-95

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

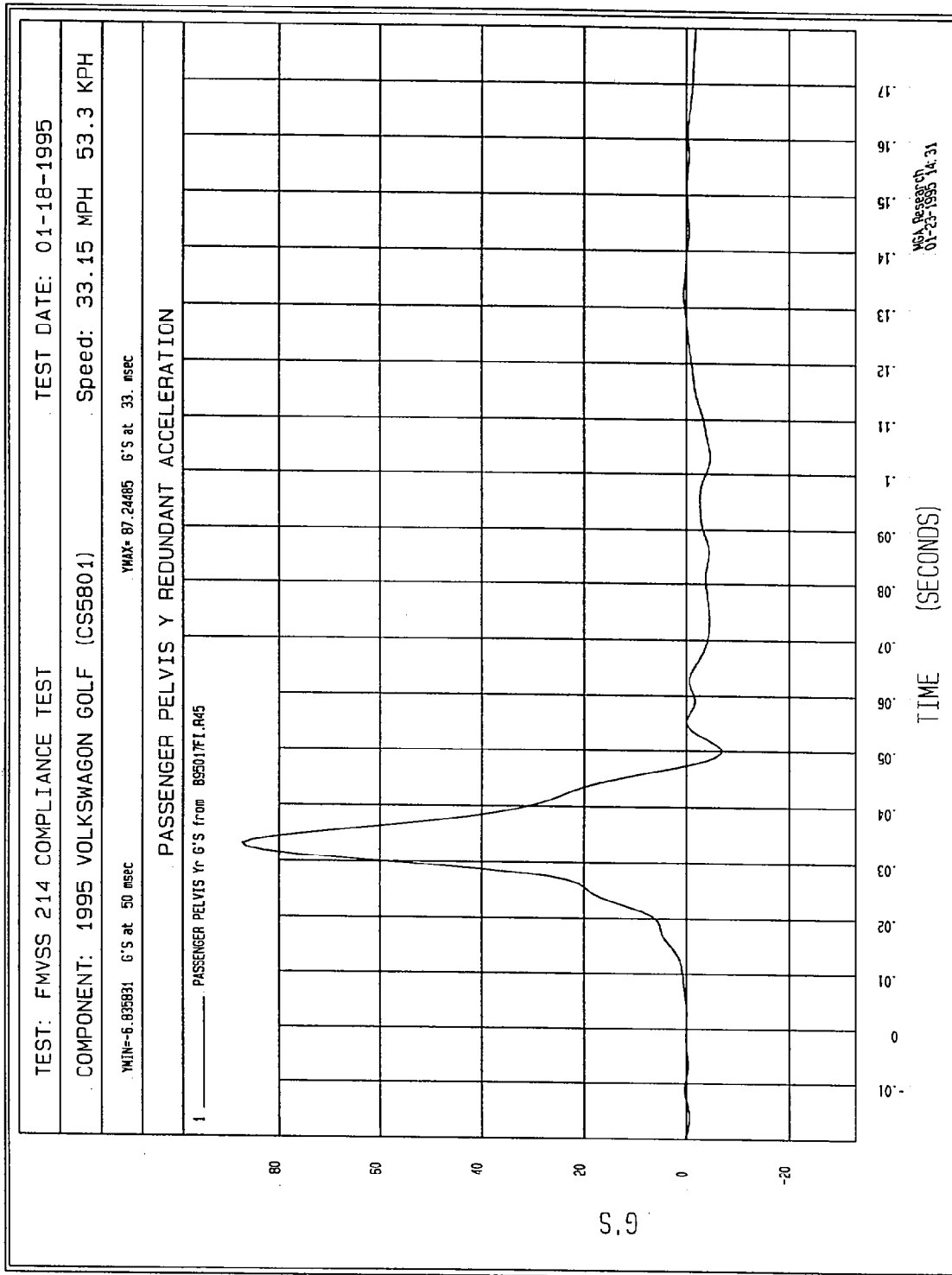


Figure B-96 - Passenger Pelvis Y Redundant Acceleration vs. Time

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-95-DC013

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

VOLKSWAGEN

1995 VOLKSWAGEN GOLF III 5 DOOR HATCHBACK
NHTSA NO. CS5801

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: January 18, 1995

Report Date: January 30, 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

TABLE OF CONTENTS

		<u>Page No.</u>
DUMMY S/N: 269	PRE-TEST CERTIFICATION DATA	1-1
DUMMY S/N: 272	PRE-TEST CERTIFICATION DATA	2-1
DUMMY S/N: 269	POST-TEST CERTIFICATION DATA	3-1
DUMMY S/N: 272	POST-TEST CERTIFICATION DATA	4-1
DUMMY S/N: 269	POST-TEST INSPECTION CHECKLIST	5-1
DUMMY S/N: 272	POST-TEST INSPECTION CHECKLIST	6-1
	VEHICLE AND DUMMY TEMPERATURE	7-1

PRE-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 269

Calibration Test Results Summary

Dummy Serial Number: 269

Pre-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: December 22, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
RH - Rib Height	19.75" - 20.50"	20.25
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"	15.0

MEASUREMENTS BY: *Ha Chen*

APPROVED BY: *Gene Kraback*

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 22, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94512

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
PROBE SPEED	13.8 - 14.2 fps	13.8
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

Ala Ch

APPROVED BY

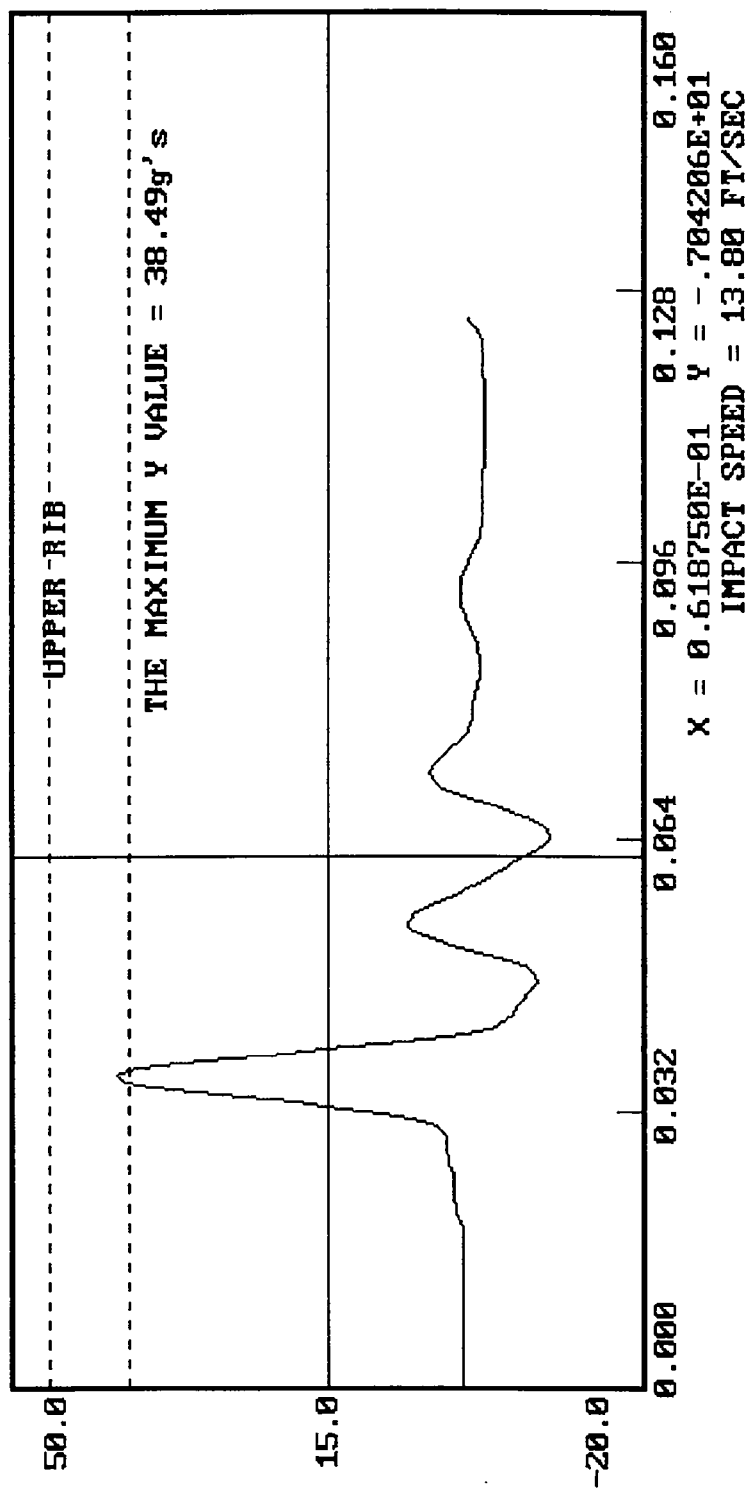
Don Kabeke

12-22-1994 11:12

DUMMY CALIBRATION - THORAX IMPACT

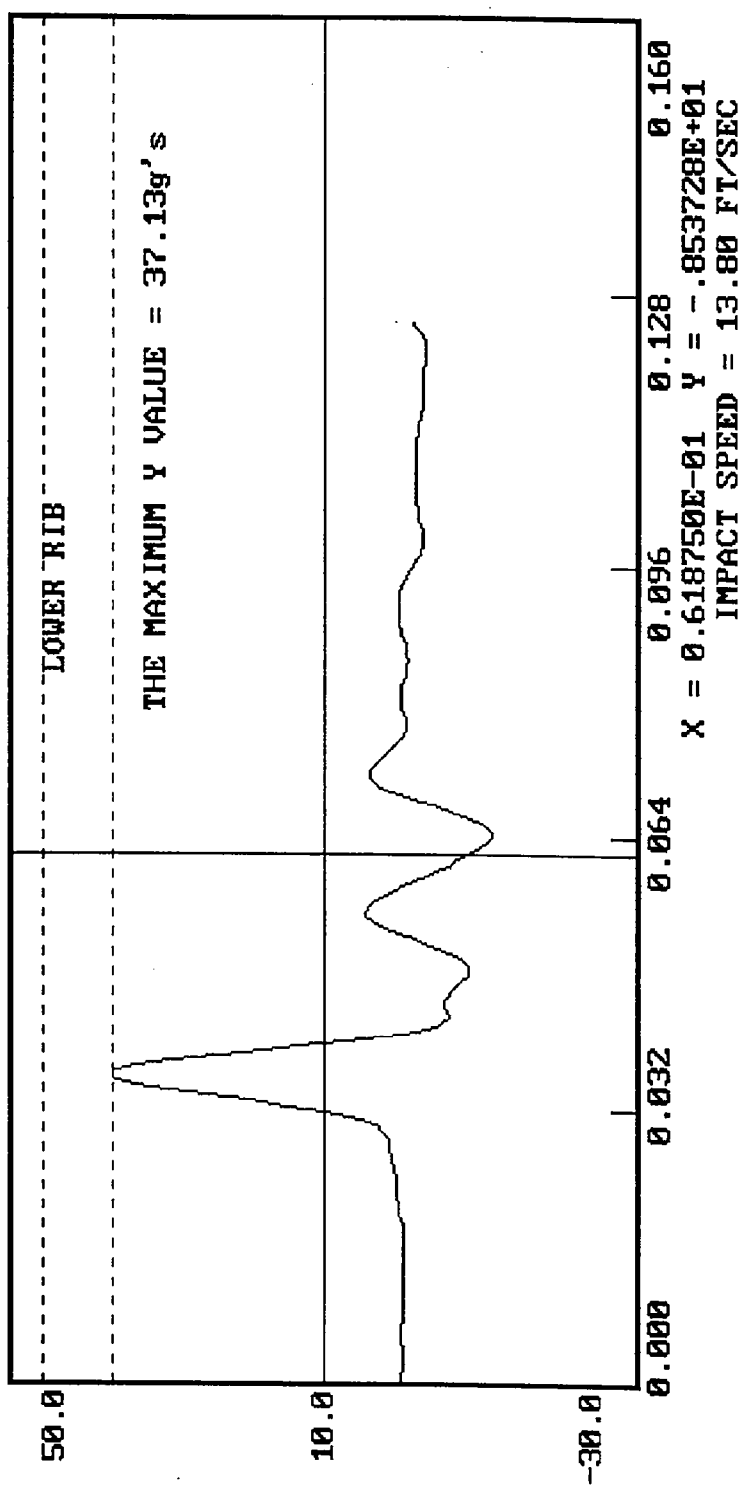
DUMMY # 269

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



12-22-1994 11:12

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

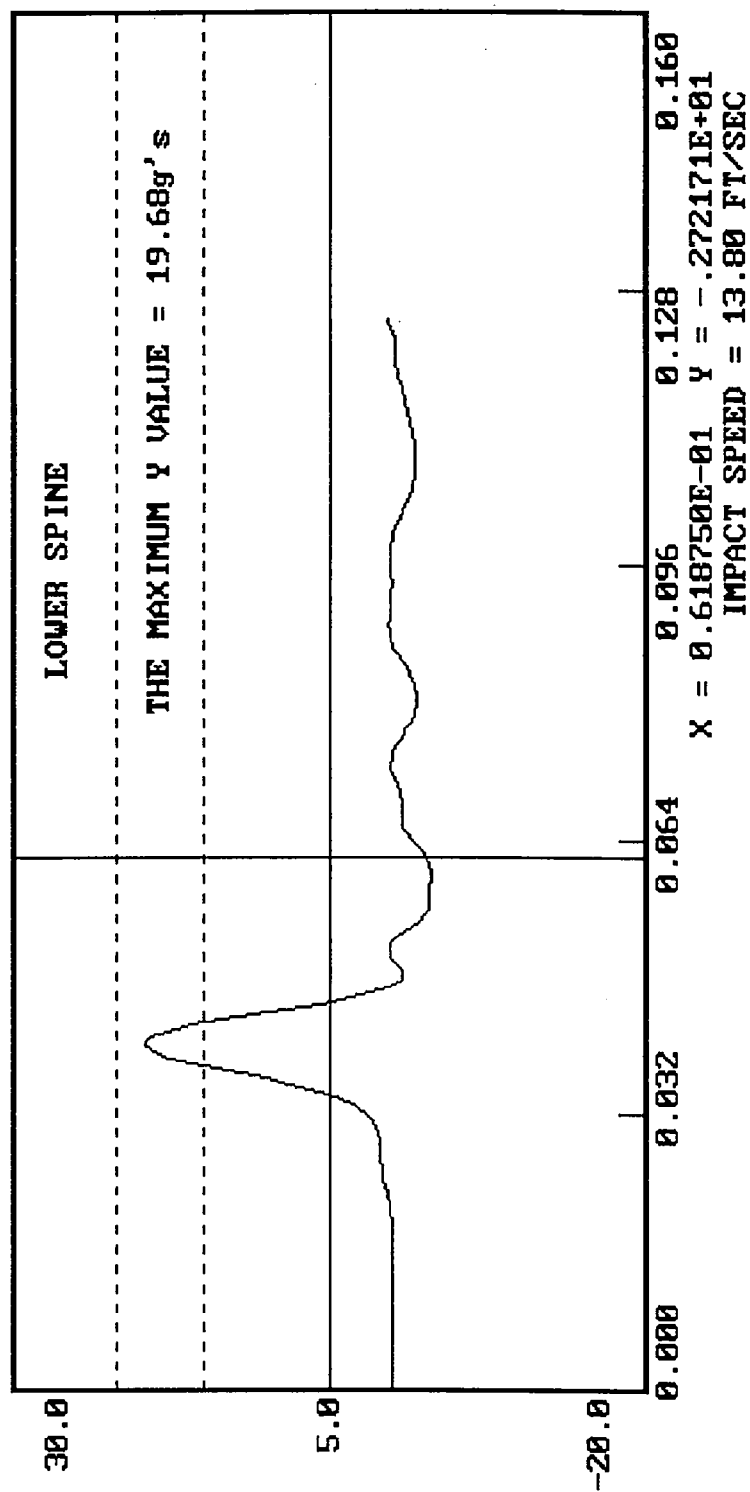


12-22-1994 11:12

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 22, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94513

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
PROBE SPEED	13.8 - 14.2 f/s	13.8
PELVIS ACCELERATION	40 - 60 g's	56

TEST MEETS SPECIFICATIONS

TECHNICIAN *De Clee*

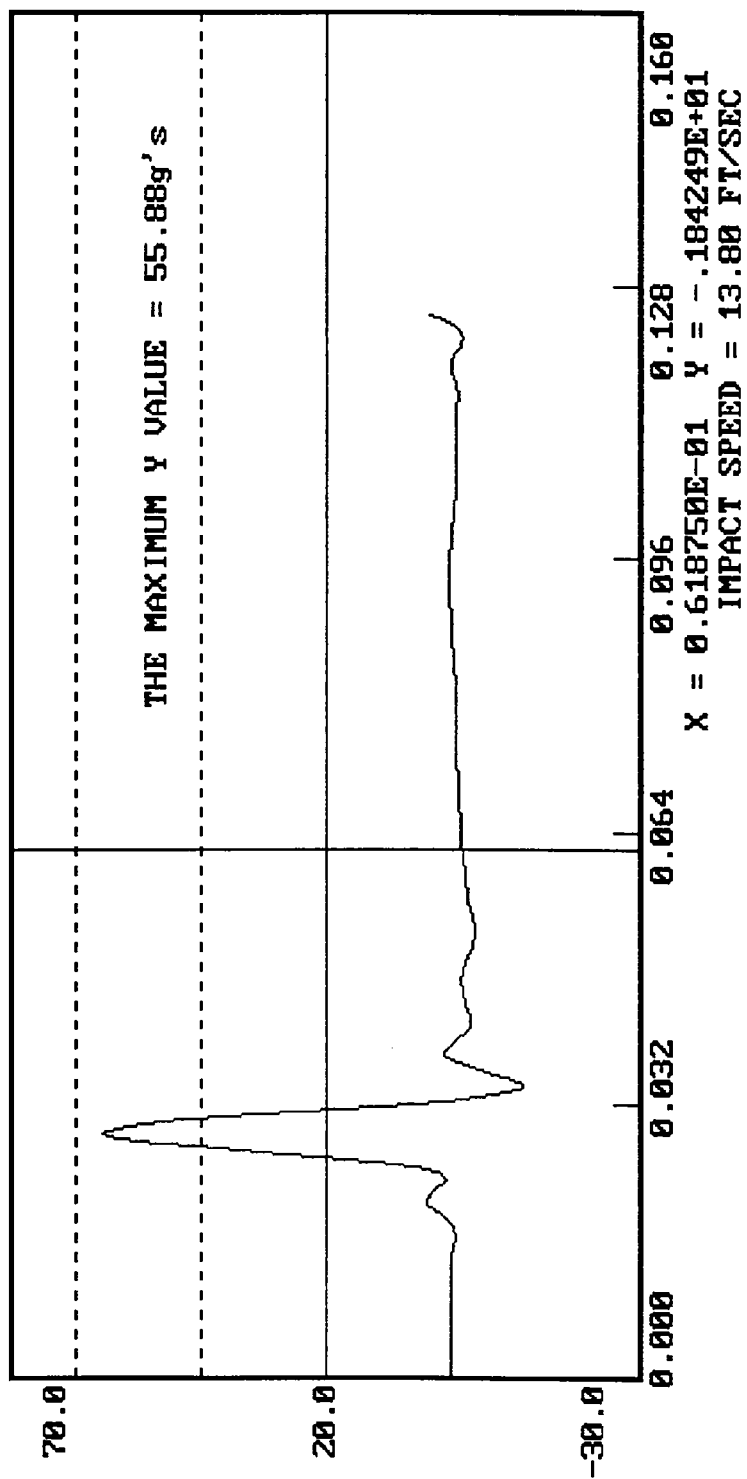
APPROVED BY *Gene Katoke*

12-22-1994 13:28

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # 269

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



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: December 22, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94514

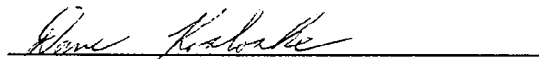
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
FORCE @ 0.5 in	23.3 - 36.5 lbs	30.6
FORCE @ 0.75 in	36.7 - 49.8 lbs	42.2
FORCE @ 1.0 in	50 - 63 lbs	56
FORCE @ 1.3 in	73 - 88 lbs	78

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

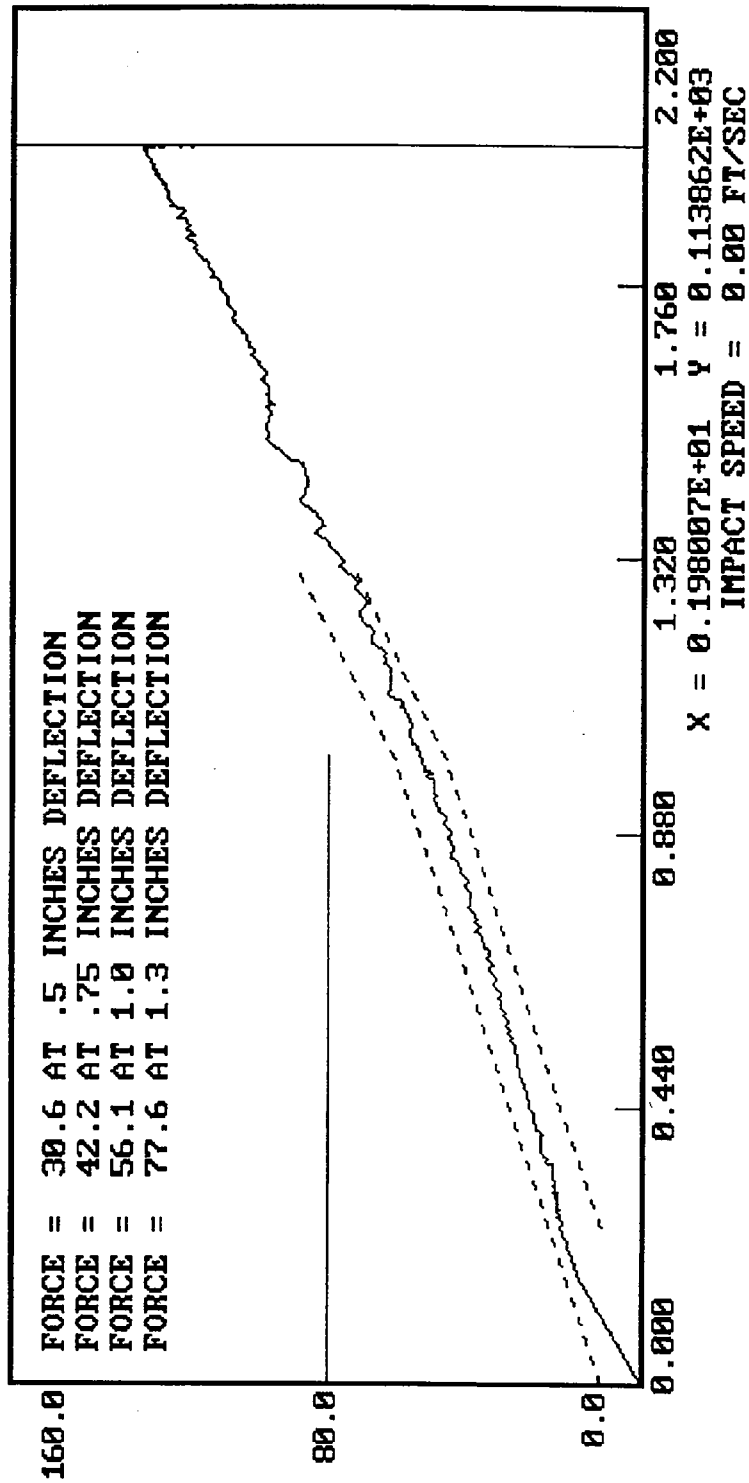


DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 269

12-22-1994 16:14

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

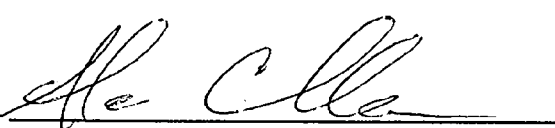
DATE: December 22, 1994

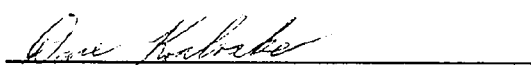
DUMMY NUMBER: 269

TEST NUMBER: D94515

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	30
FORCE @ 30°	34 - 46 lbs	38
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	4°

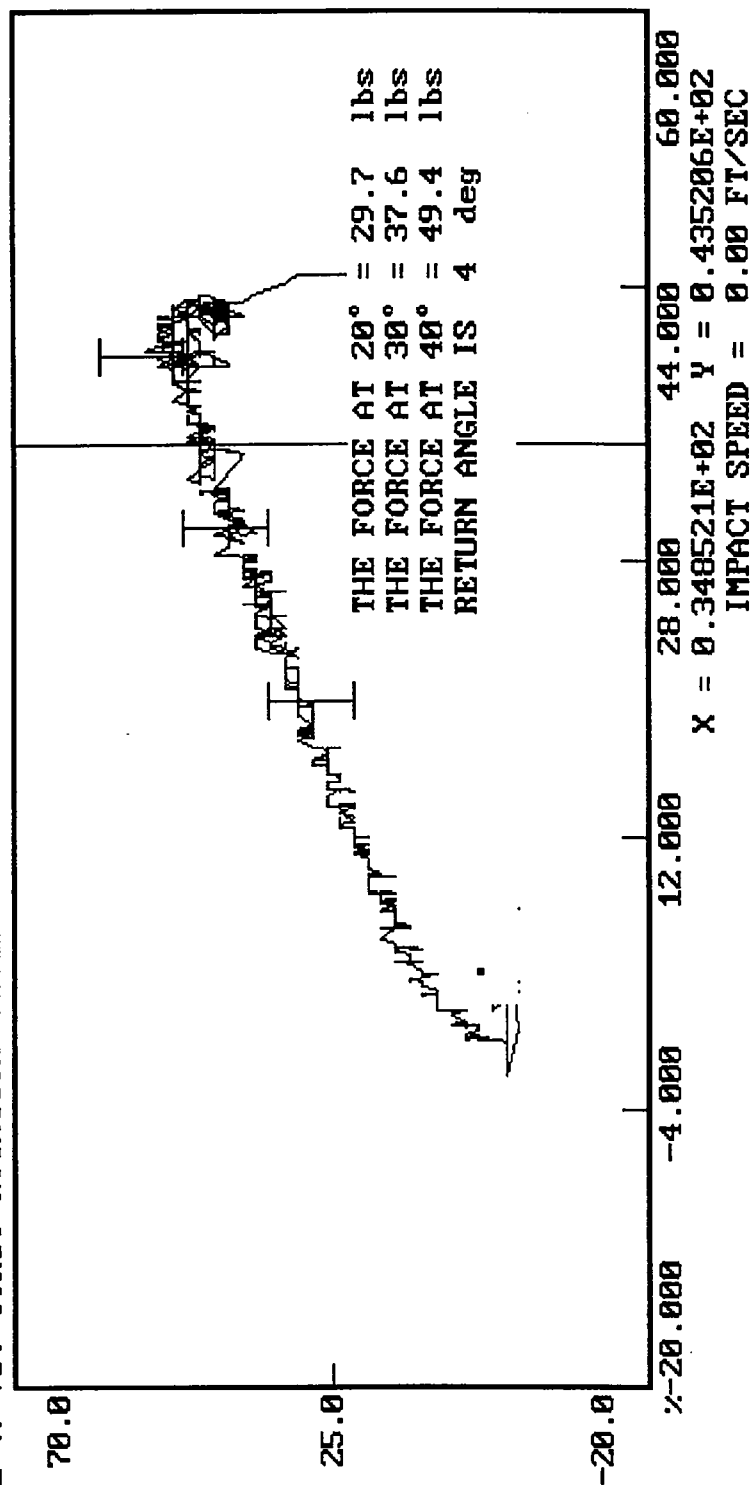
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

12-22-1994 17:10

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





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

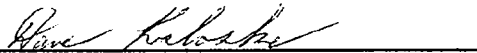
DATE OF VERIFICATION: December 22, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
RH - Rib Height	19.75" - 20.50"	20.25
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"	15.0

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 22, 1994

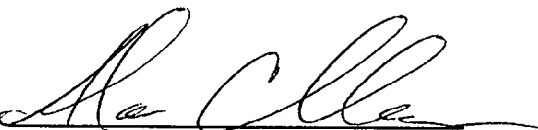
DUMMY NUMBER: 272

TEST NUMBER: D94542

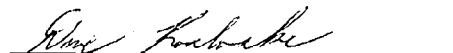
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
PROBE SPEED	13.8 - 14.2 fps	13.8
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	40
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN

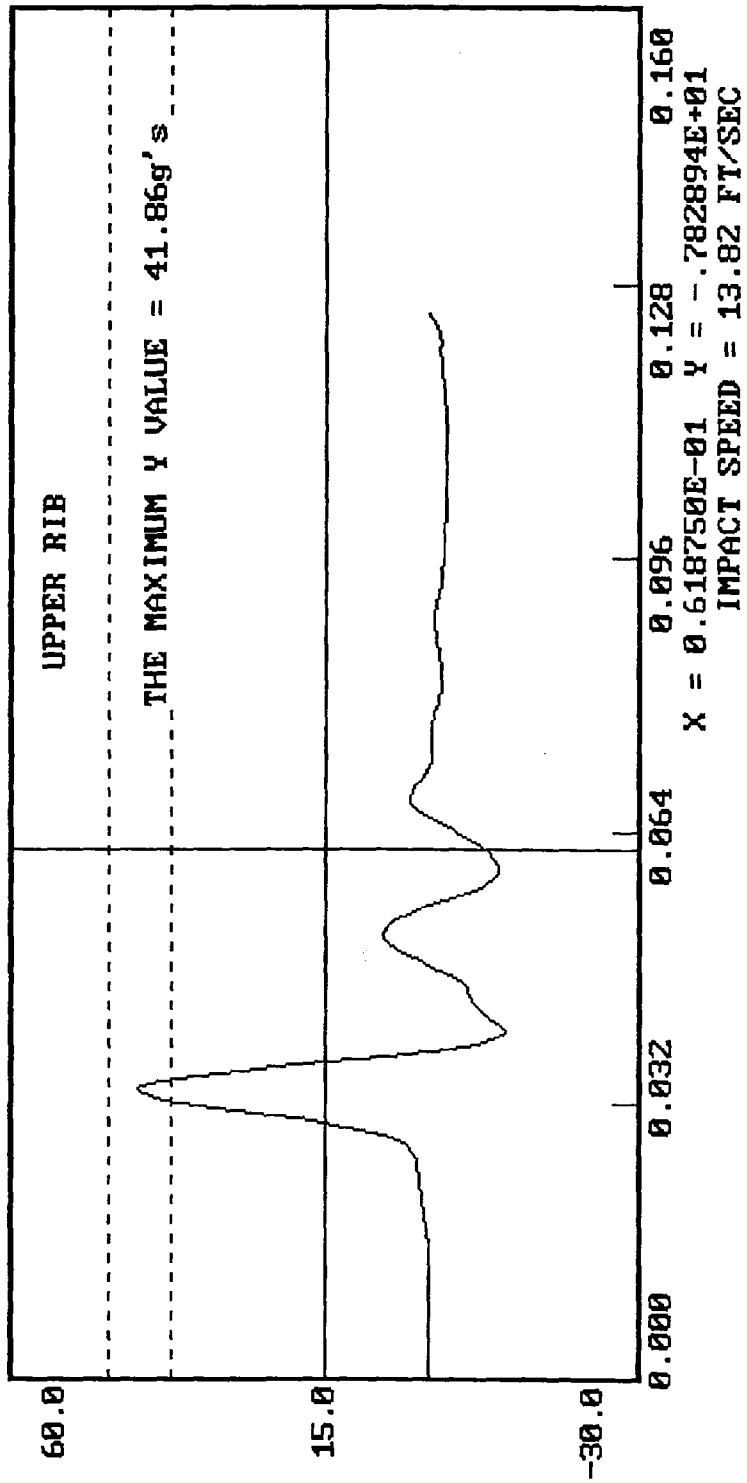


APPROVED BY



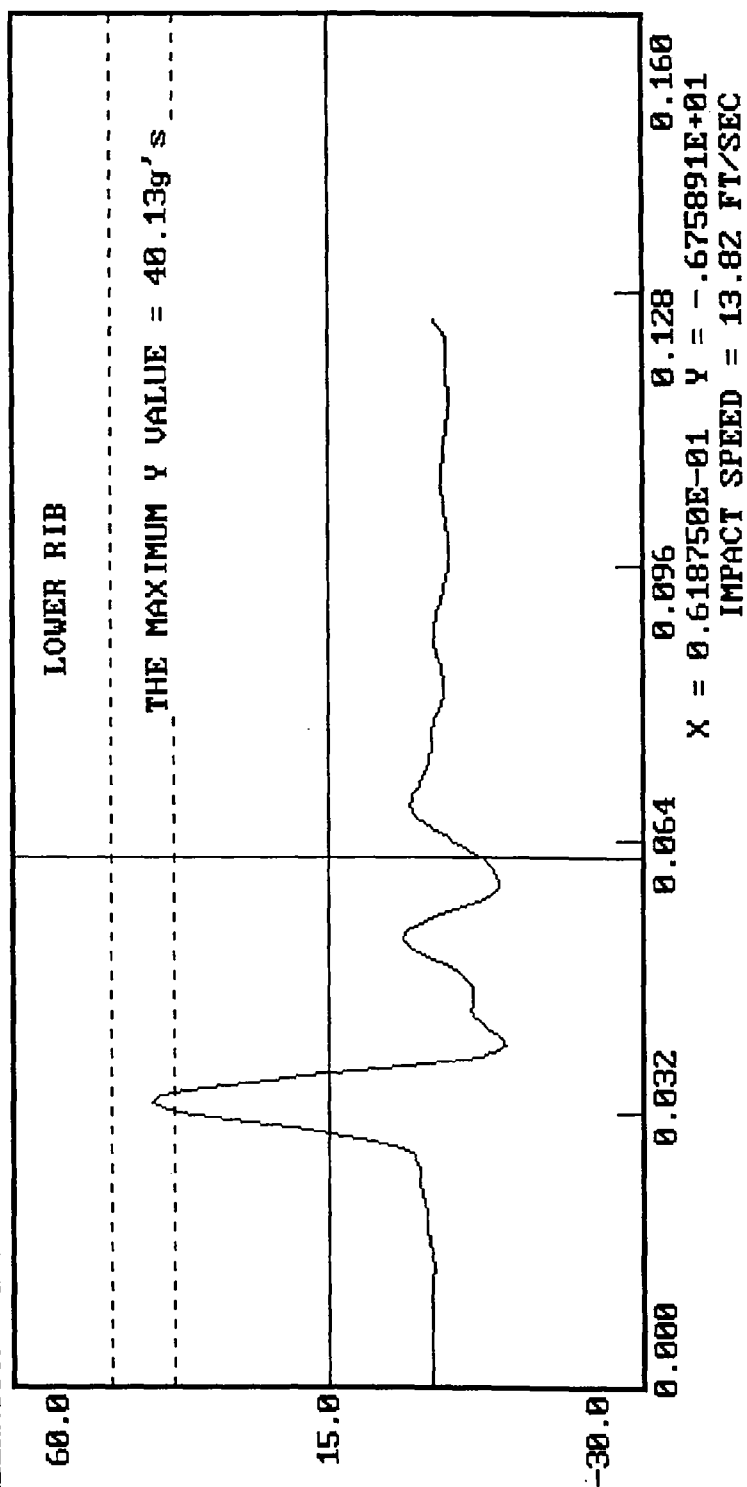
12-22-1994 11:41

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



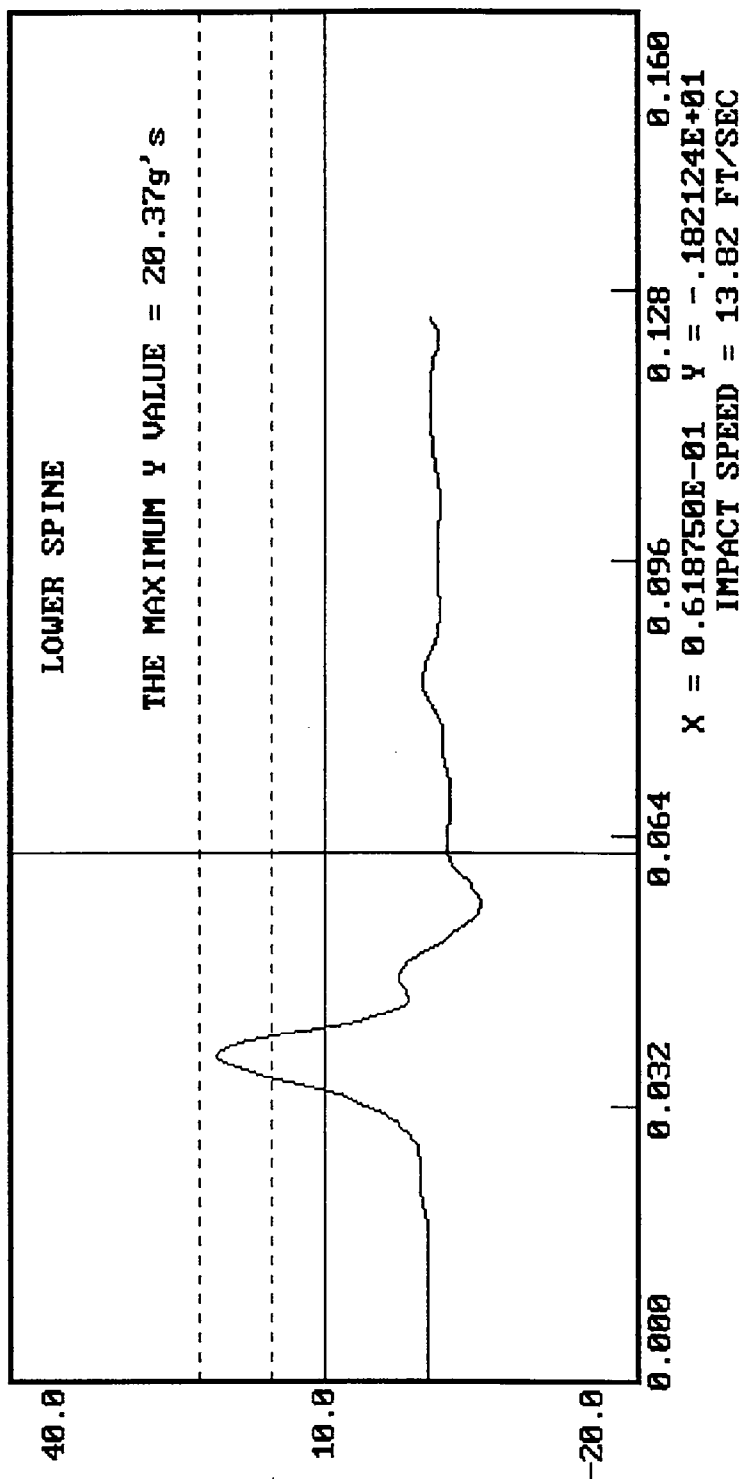
12-22-1994 11:41

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



12-22-1994 11:41

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 22, 1994

DUMMY NUMBER: 272

TEST NUMBER: D94543

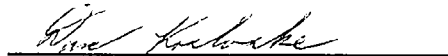
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
PROBE SPEED	13.8 - 14.2 f/s	13.8
PELVIS ACCELERATION	40 - 60 g's	47

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

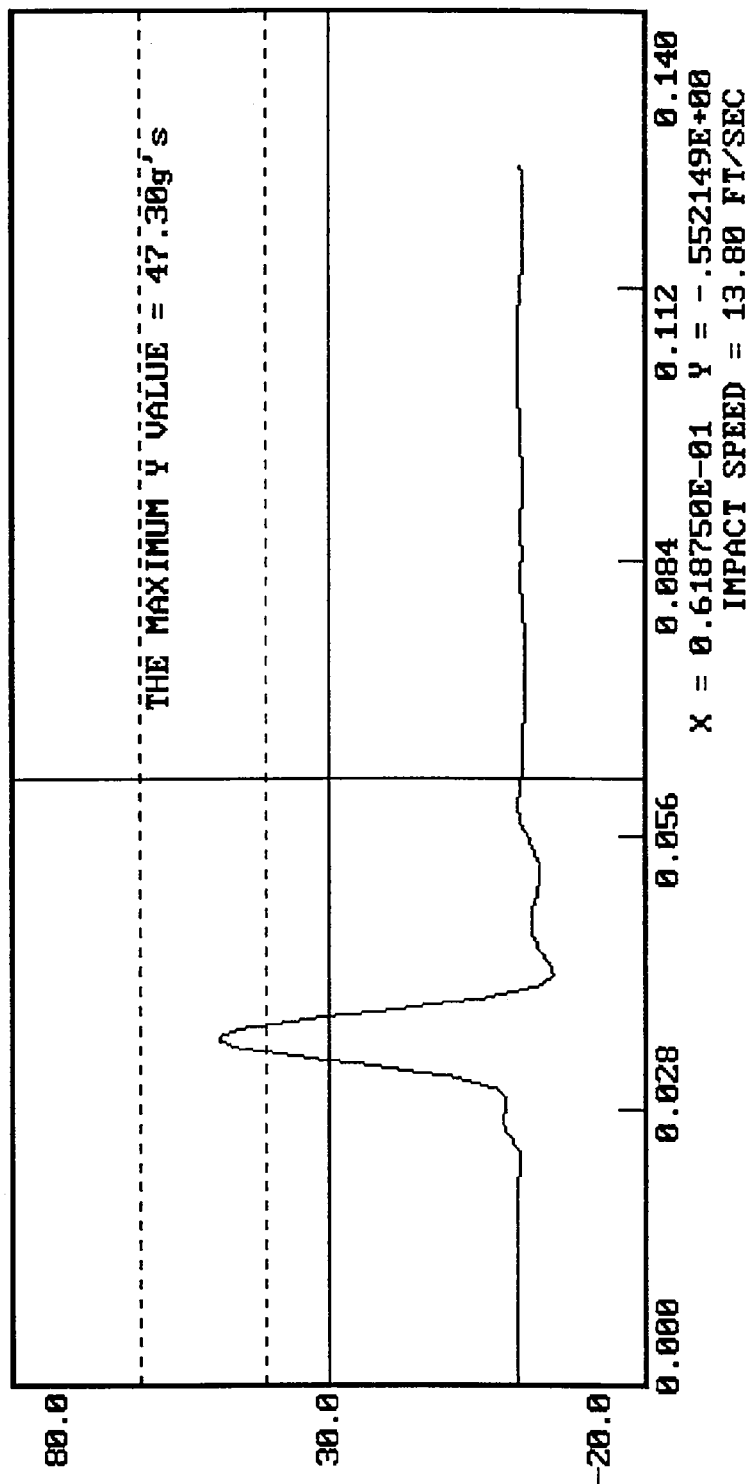


12-22-1994 12:55

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: December 22, 1994

DUMMY NUMBER: 272

TEST NUMBER: D94544

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.4
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	80

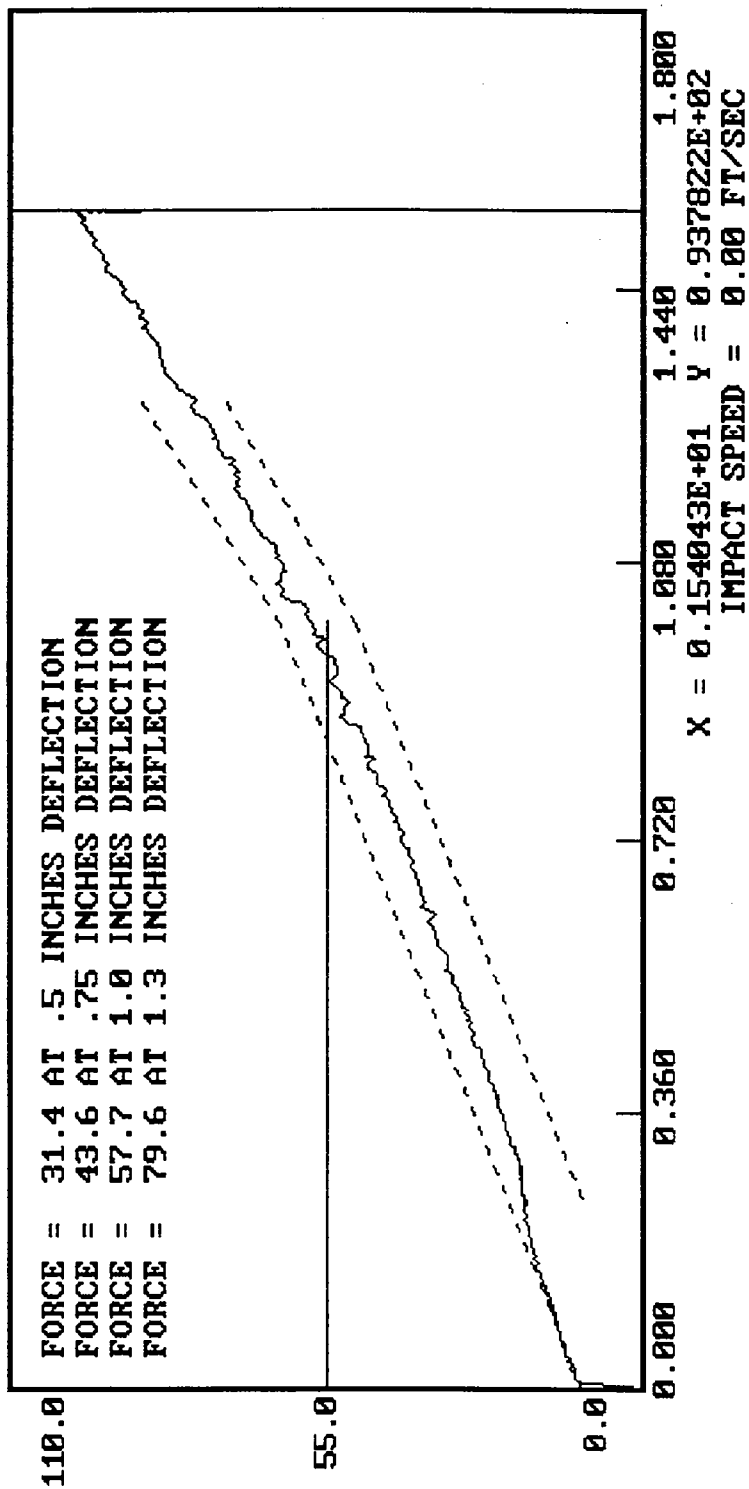
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 272
 12-22-1994 16:35

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: December 22, 1994

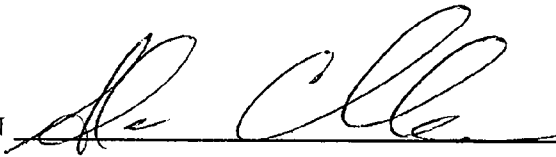
DUMMY NUMBER: 272

TEST NUMBER: D94545

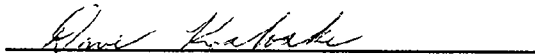
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	32
FORCE @ 30°	34 - 46 lbs	43
FORCE @ 40°	46 - 58 lbs	57
RETURN ANGLE	12° maximum	5°

TEST MEETS SPECIFICATIONS

TECHNICIAN

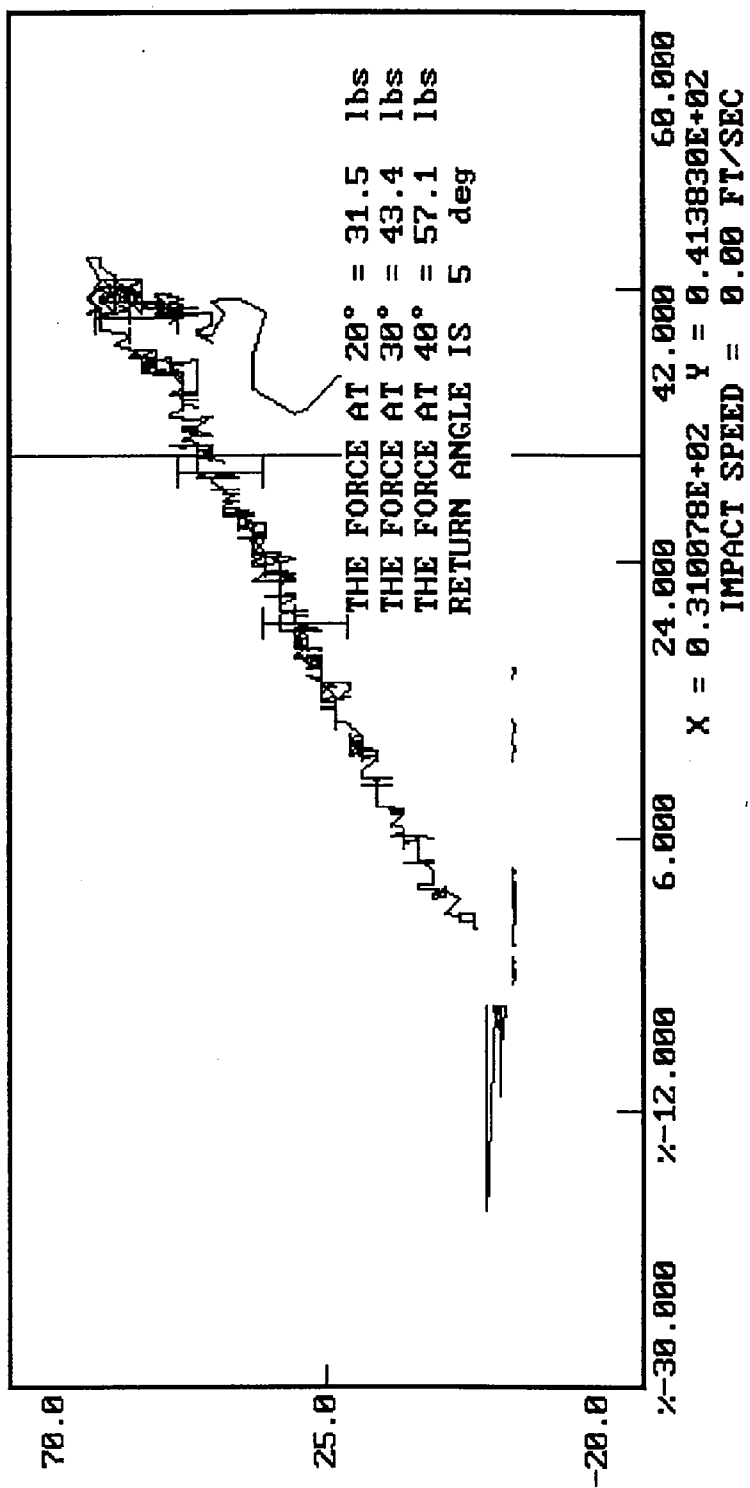


APPROVED BY



12-22-1994 17:25

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

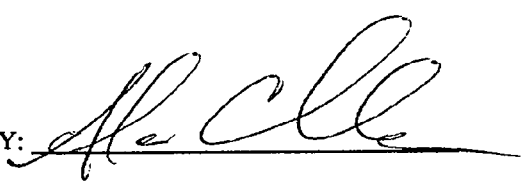
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

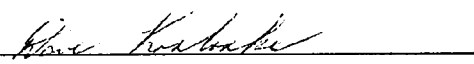
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: January 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

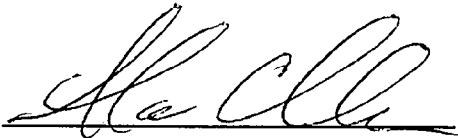
DUMMY NUMBER: 269

TEST NUMBER: D95092

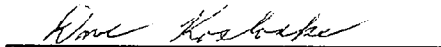
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	38
LOWER RIB	37 - 46 g's	37
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN

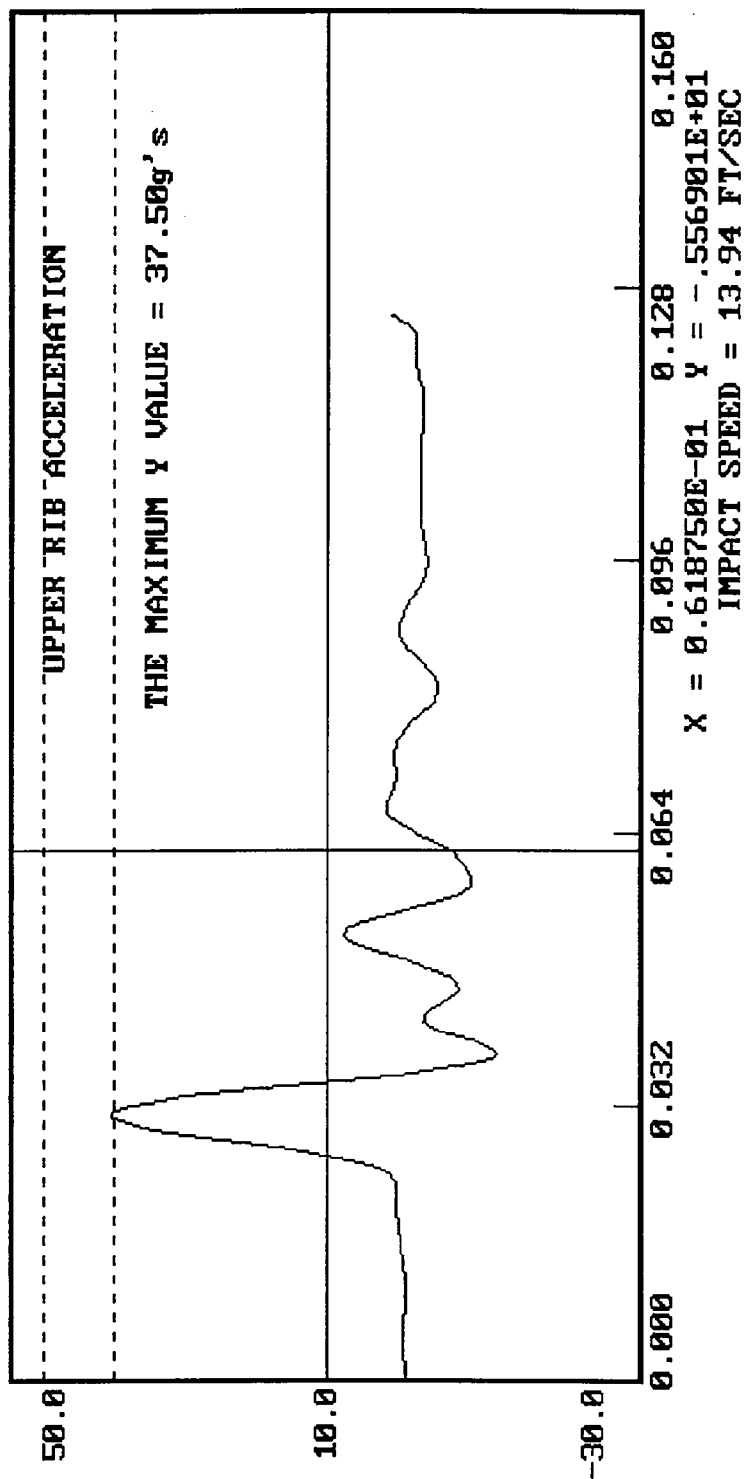


APPROVED BY



01-19-1995 10:30

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

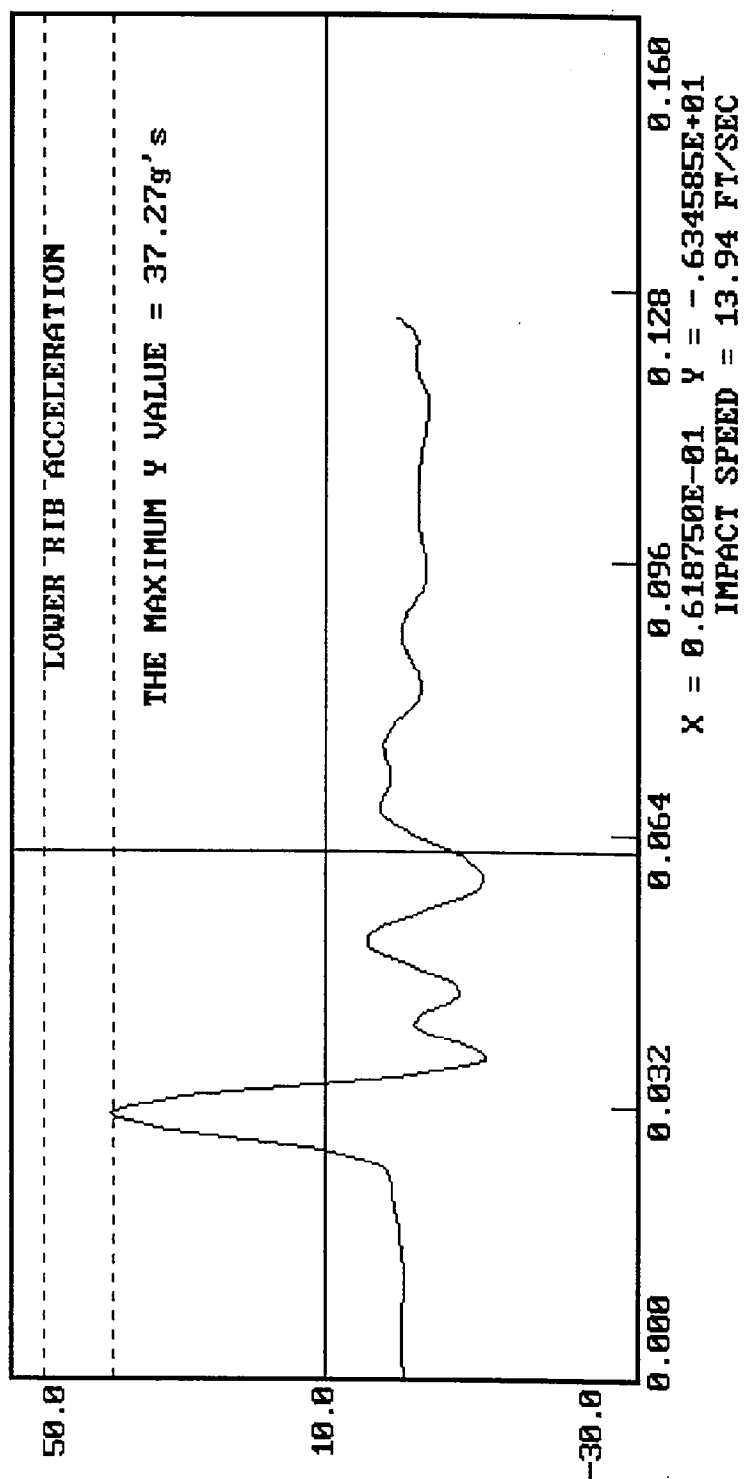


01-19-1995 10:30

DUMMY CALIBRATION - THORAX IMPACT

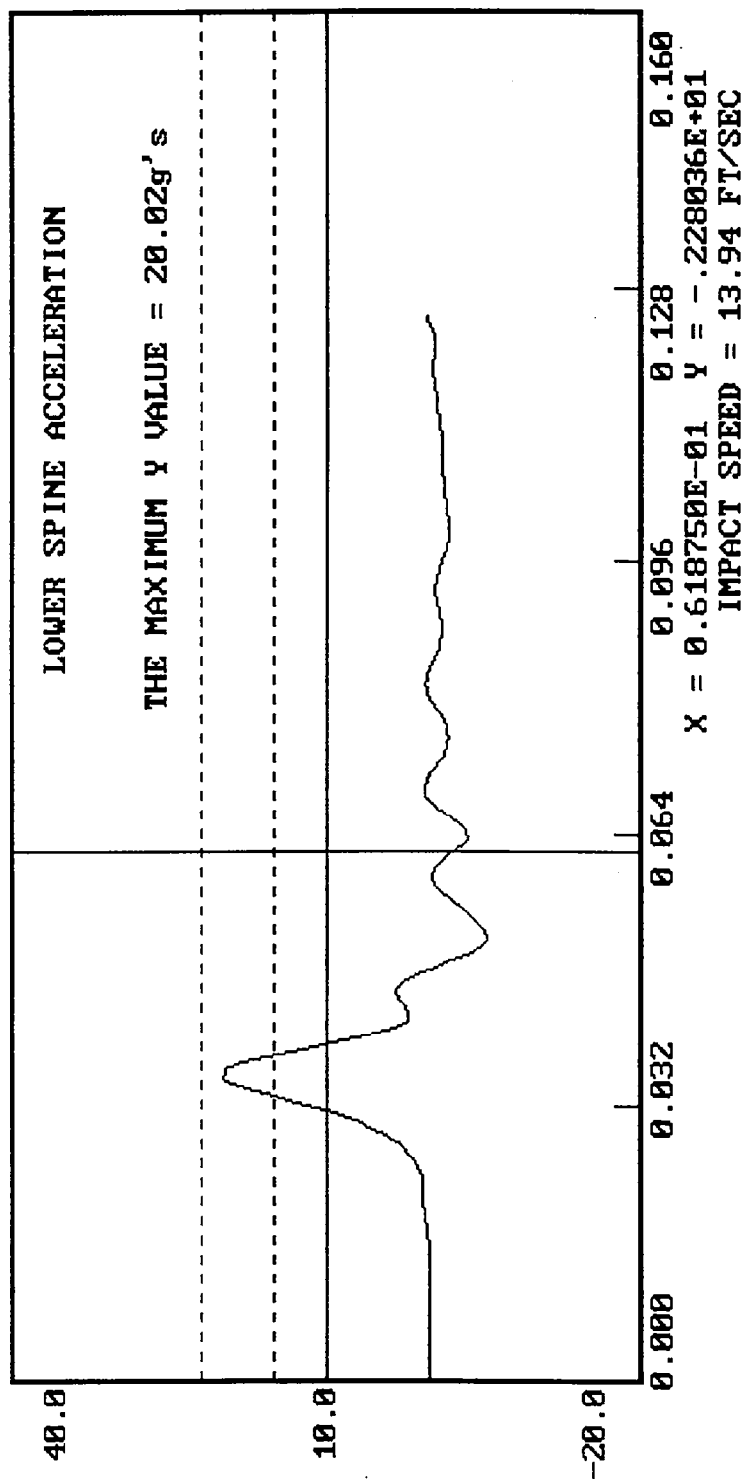
DUMMY # 269

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

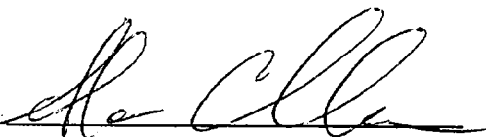
DUMMY NUMBER: 269

TEST NUMBER: D95093

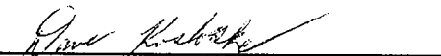
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	58

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

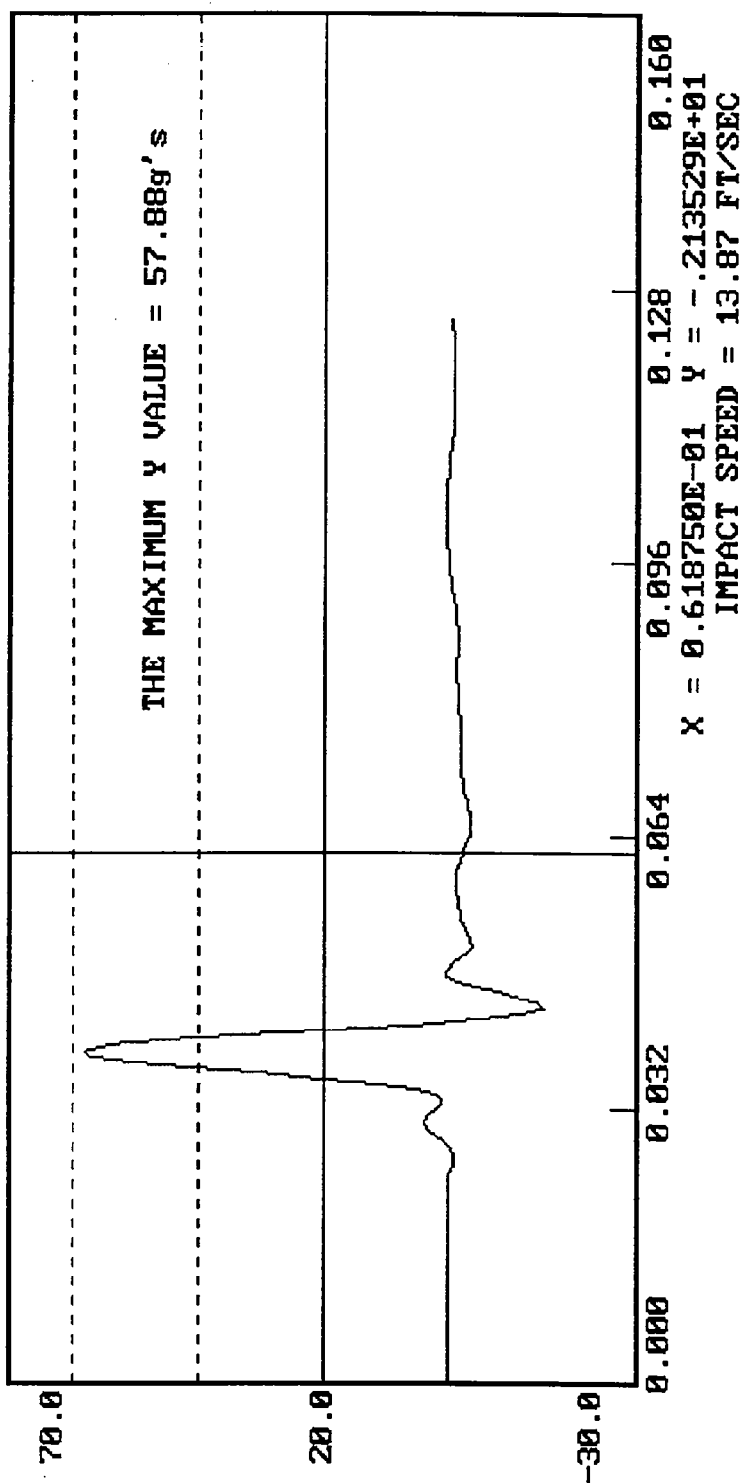


01-19-1995 12:12

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

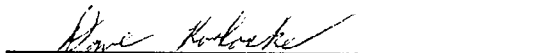
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	24%
FORCE @ 0.5 in	23.3 - 36.5 lbs	32.3
FORCE @ 0.75 in	36.7 - 49.8 lbs	43.6
FORCE @ 1.0 in	50 - 63 lbs	58
FORCE @ 1.3 in	73 - 88 lbs	82

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

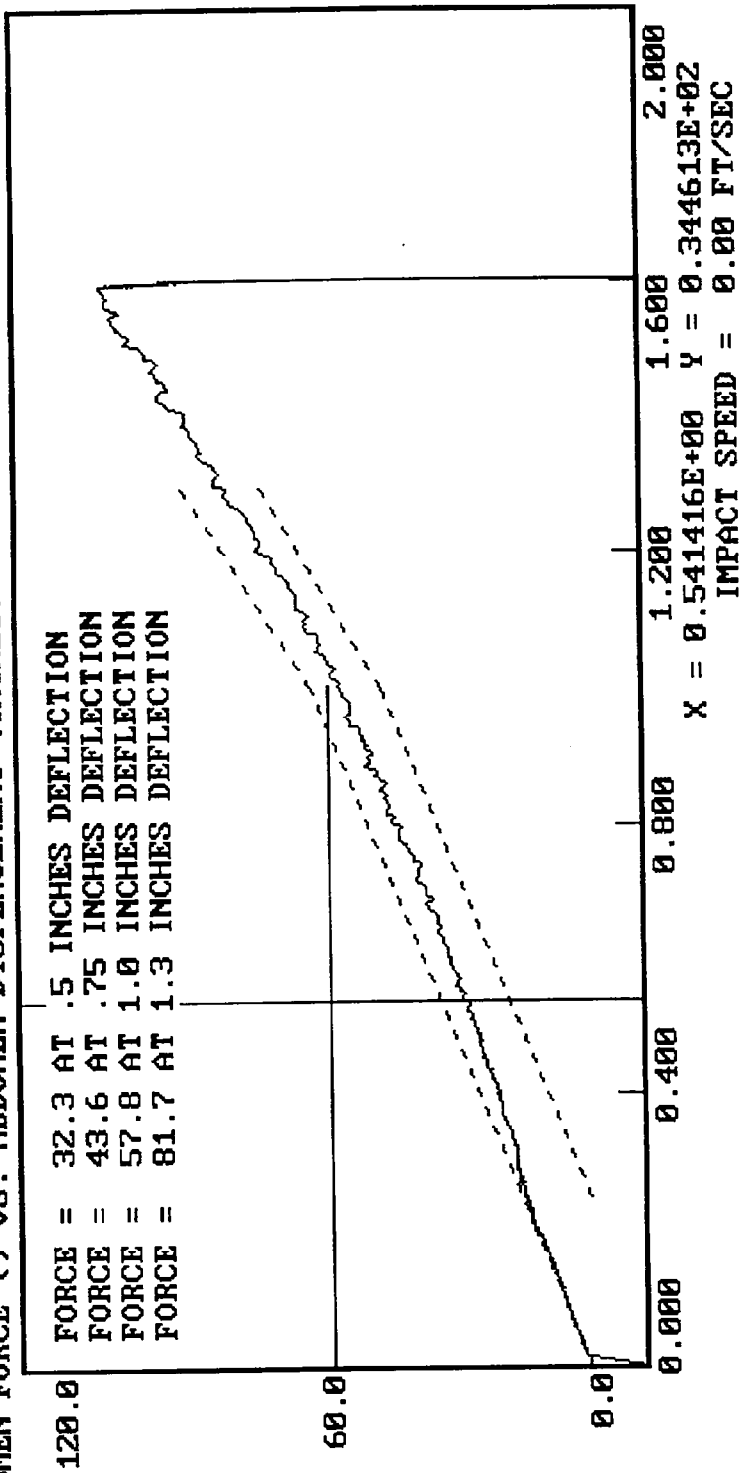


01-20-1995 16:17

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 269

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: January 20, 1995

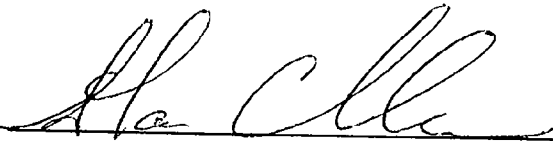
DUMMY NUMBER: 269

TEST NUMBER: D95095

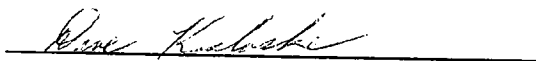
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	26
FORCE @ 30°	34 - 46 lbs	34
FORCE @ 40°	46 - 58 lbs	50
RETURN ANGLE	12° maximum	6°

TEST MEETS SPECIFICATIONS

TECHNICIAN

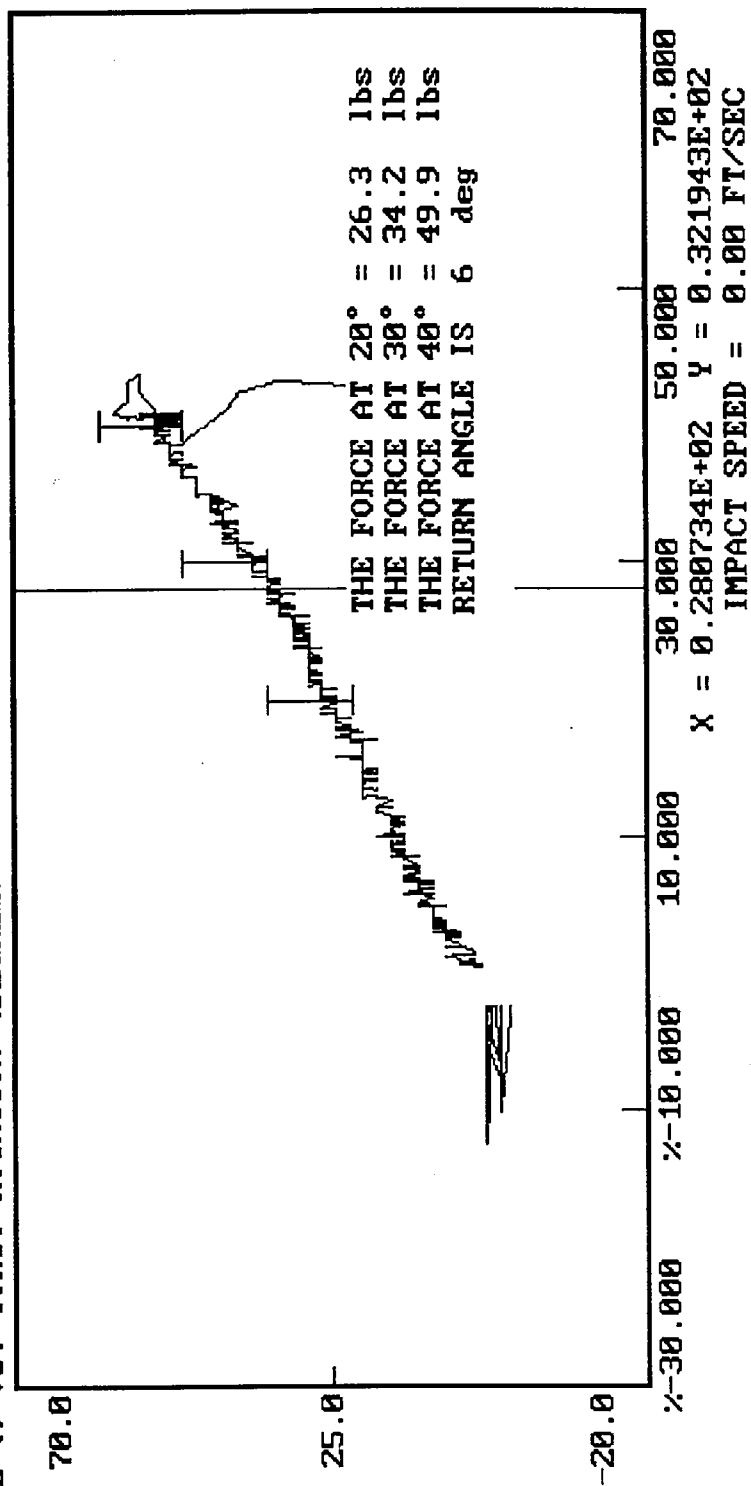


APPROVED BY



01-20-1995 11:06

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



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.

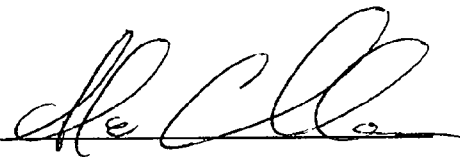
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 272

DATE OF VERIFICATION: January 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

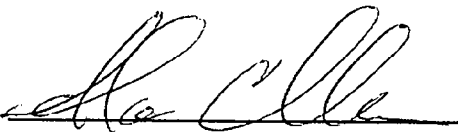
DUMMY NUMBER: 272

TEST NUMBER: D95102

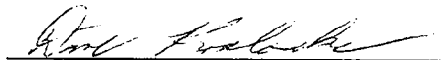
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	43
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN



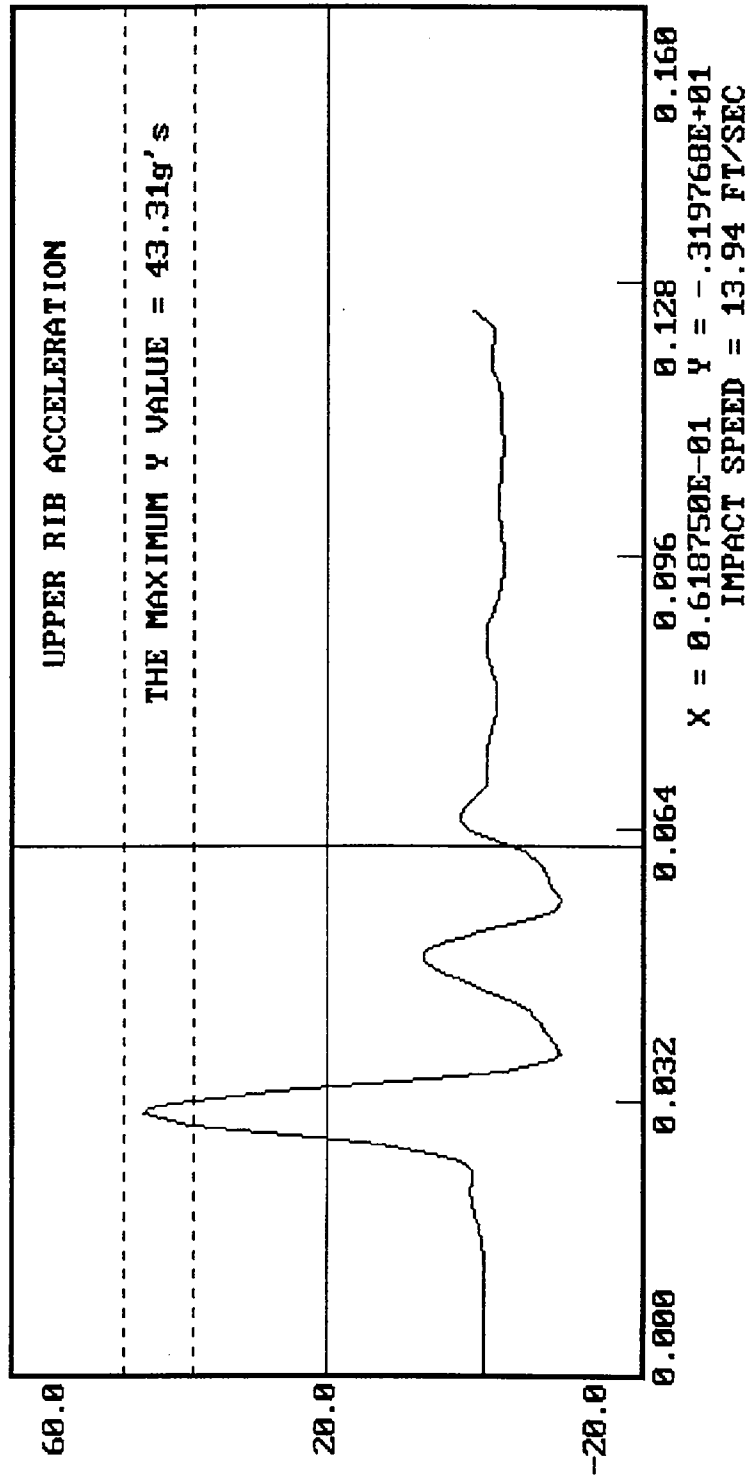
APPROVED BY



01-19-1995 10:45

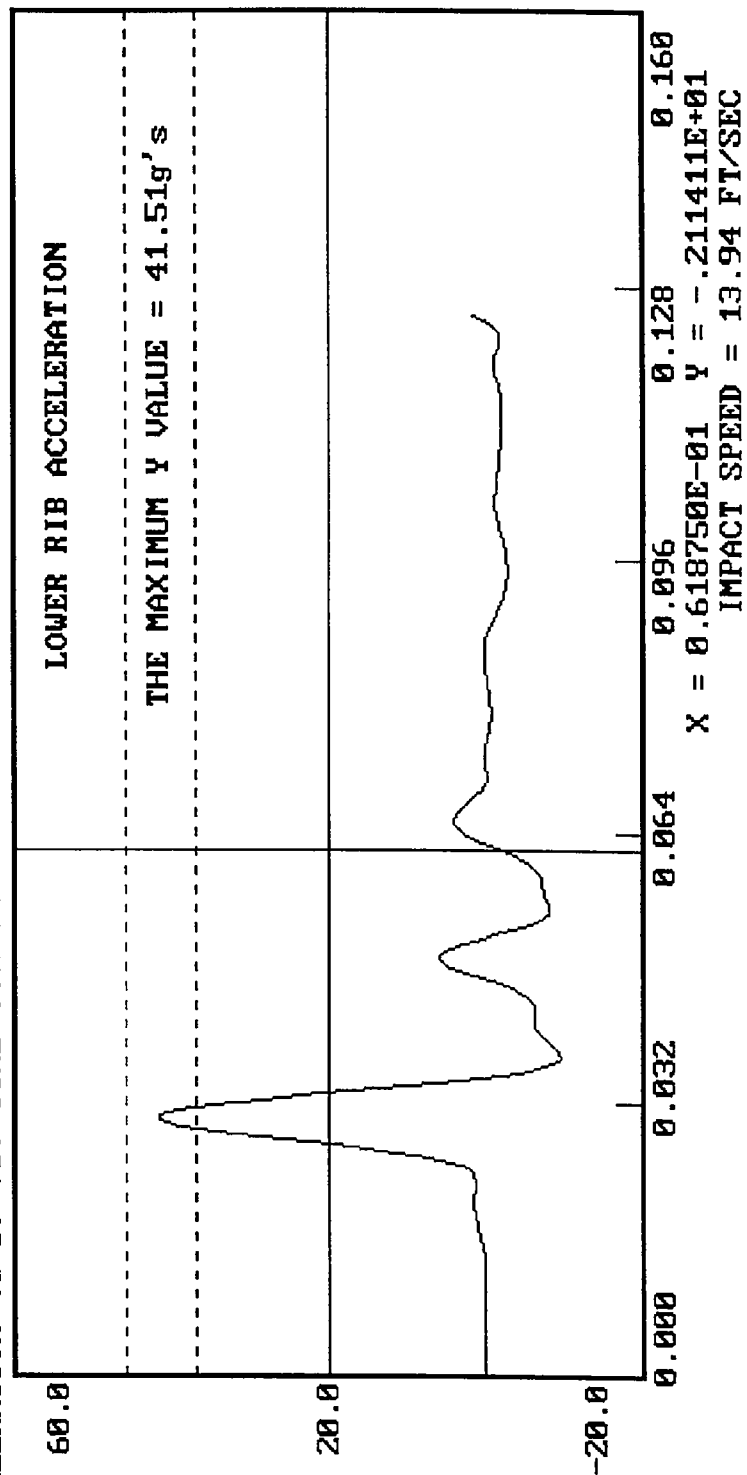
DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 272

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



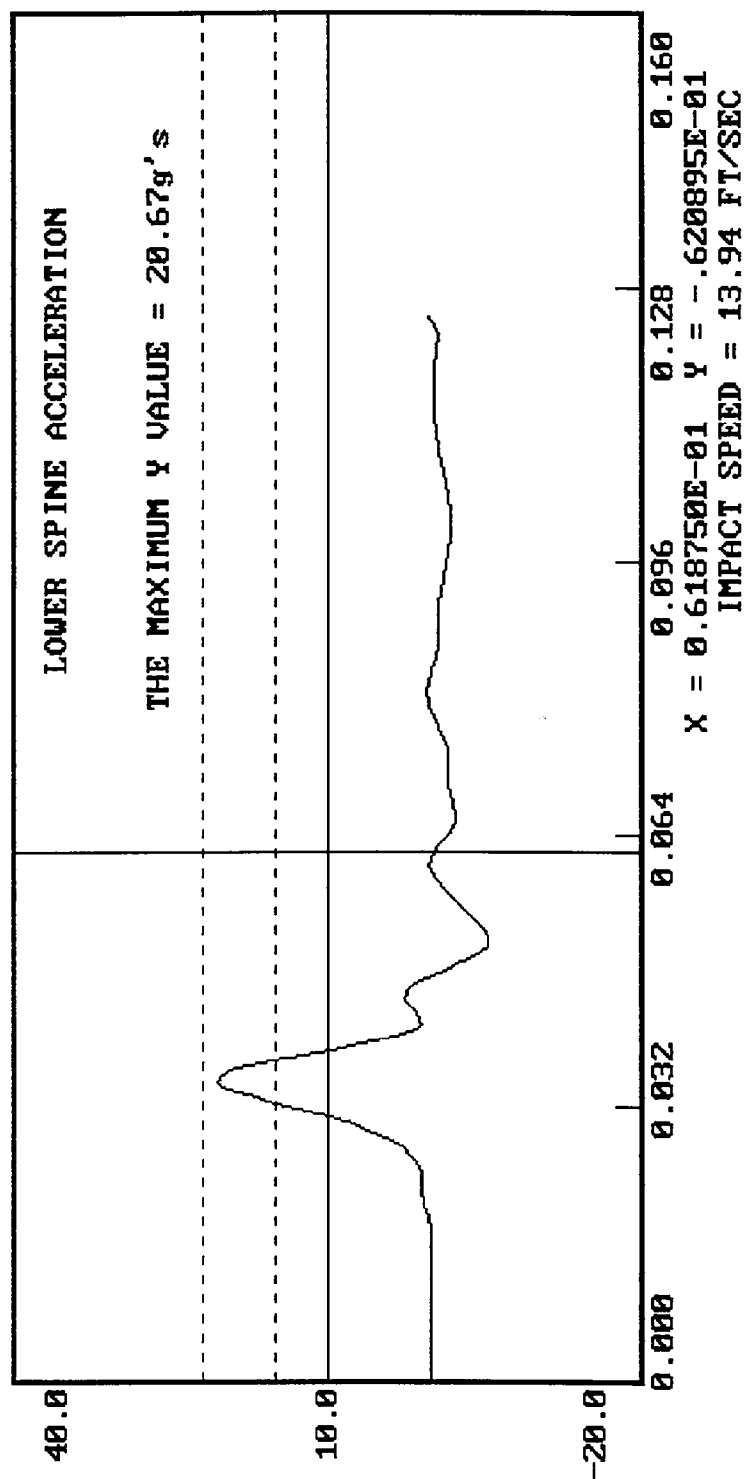
01-19-1995 10:45

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



01-19-1995 10:45

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 19, 1995

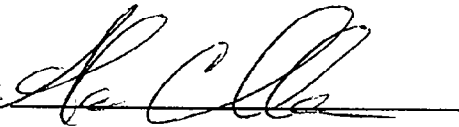
DUMMY NUMBER: 272

TEST NUMBER: D95103

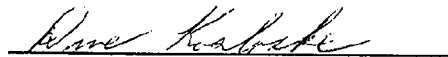
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	56

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

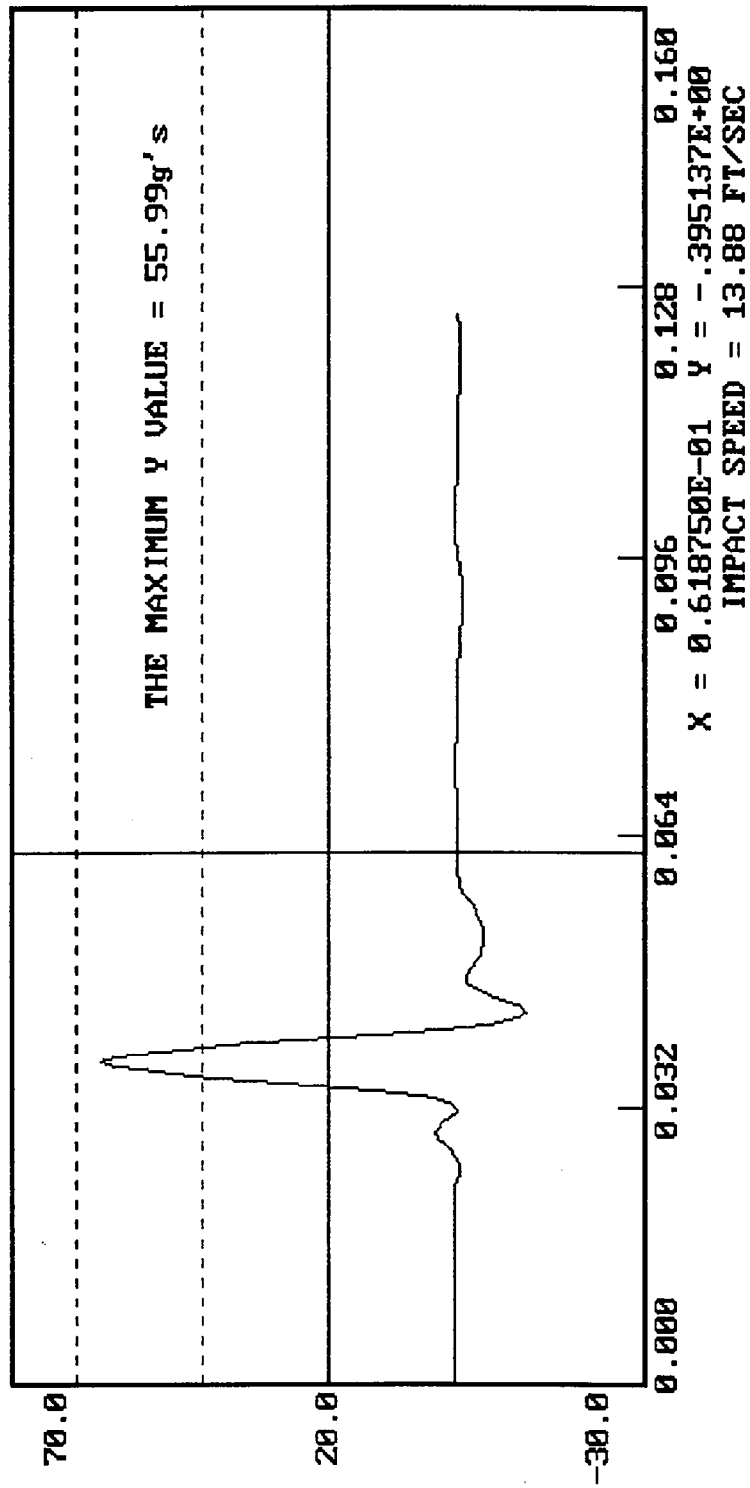


01-19-1995 12:07

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

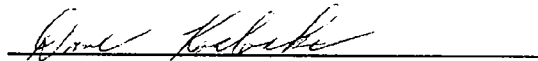
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	24%
FORCE @ 0.5 in	23.3 - 36.5 lbs	28.6
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.9
FORCE @ 1.0 in	50 - 63 lbs	57
FORCE @ 1.3 in	73 - 88 lbs	79

TEST MEETS SPECIFICATIONS

TECHNICIAN

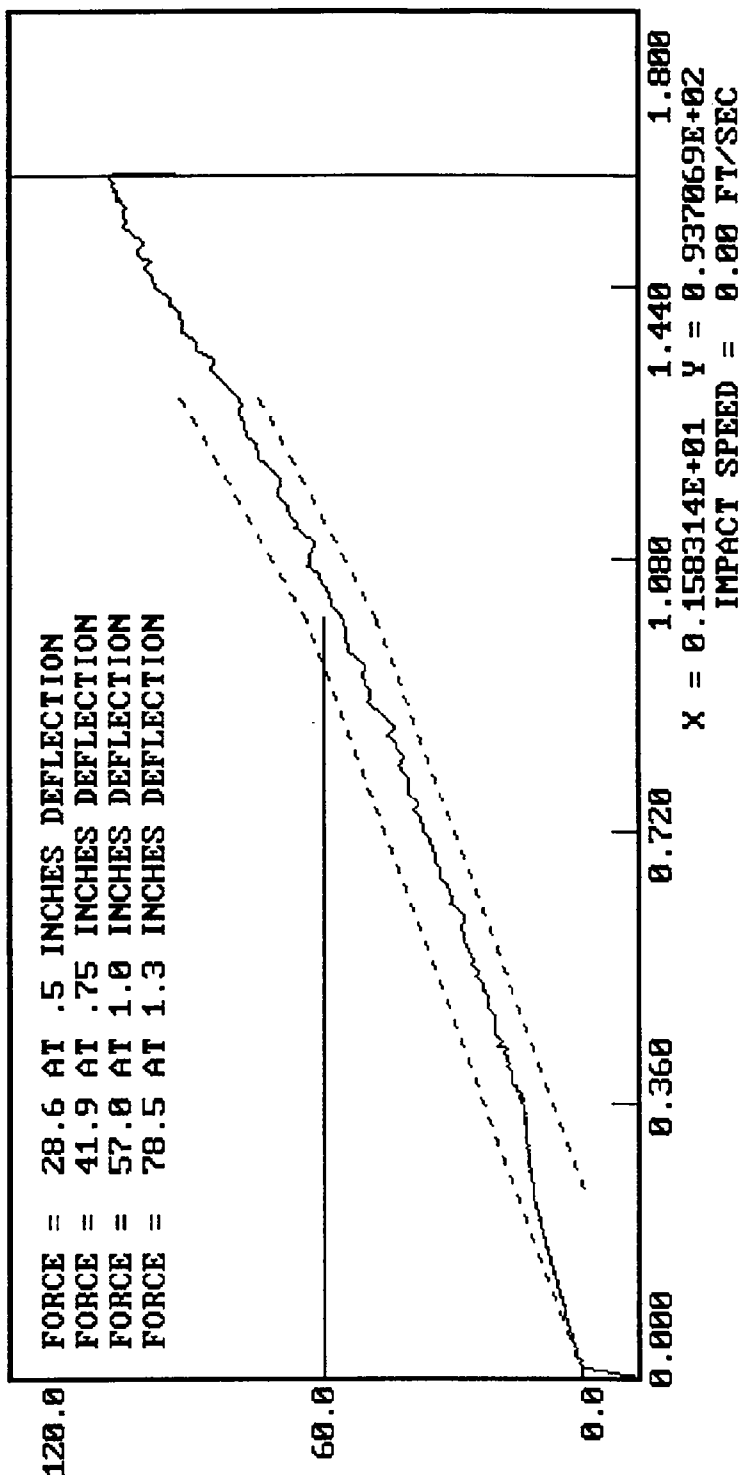


APPROVED BY



DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 272
 01-20-1995 16:26

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

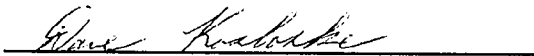
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	25%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	32
FORCE @ 30°	34 - 46 lbs	42
FORCE @ 40°	46 - 58 lbs	56
RETURN ANGLE	12° maximum	4°

TEST MEETS SPECIFICATIONS

TECHNICIAN

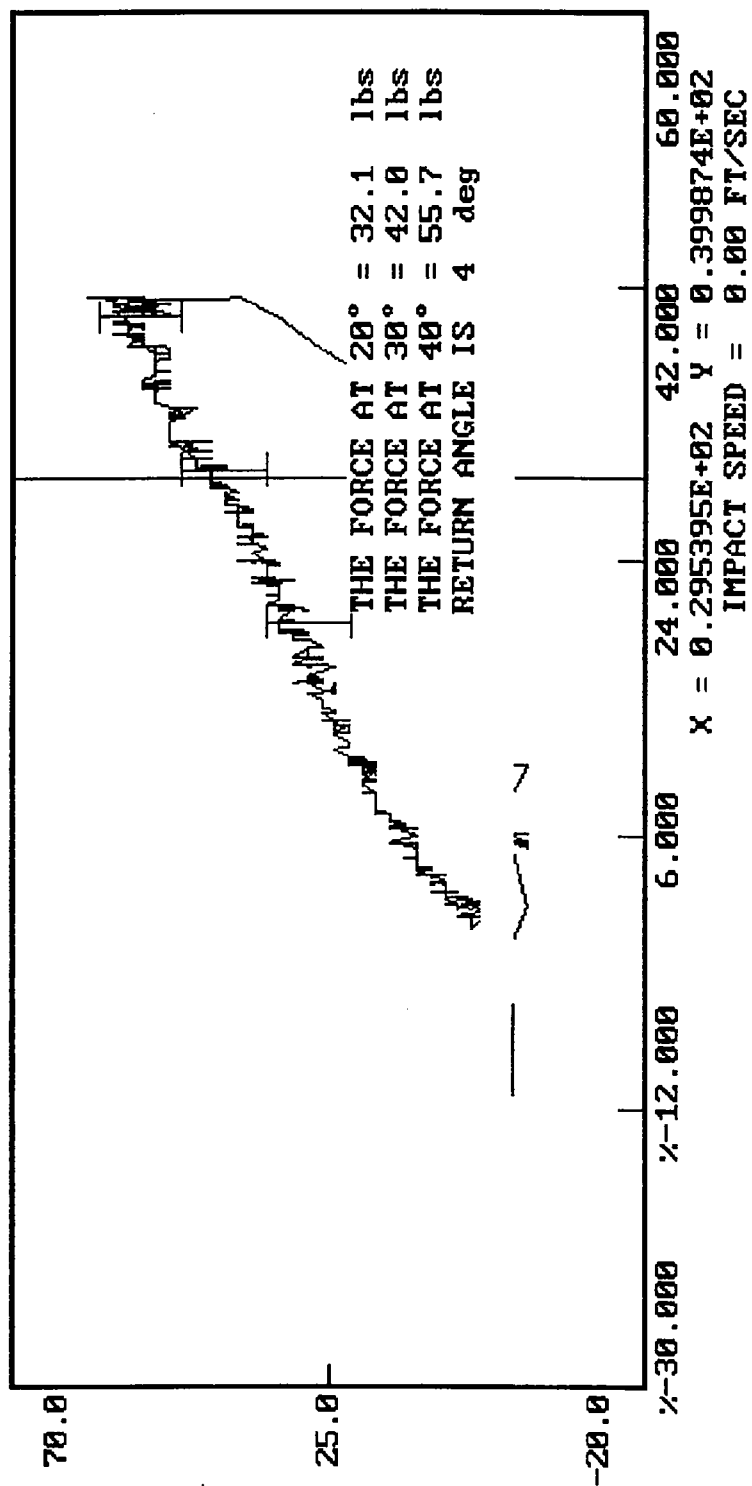


APPROVED BY



01-20-1995 10:57

DUMMY CALIBRATION - LUMBAR FLEXION
DUMMY # 272
FORCE () VS. TORSO ROTATION (DEGREES)



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

Inspected By: Al Chalmers

Date: January 20, 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

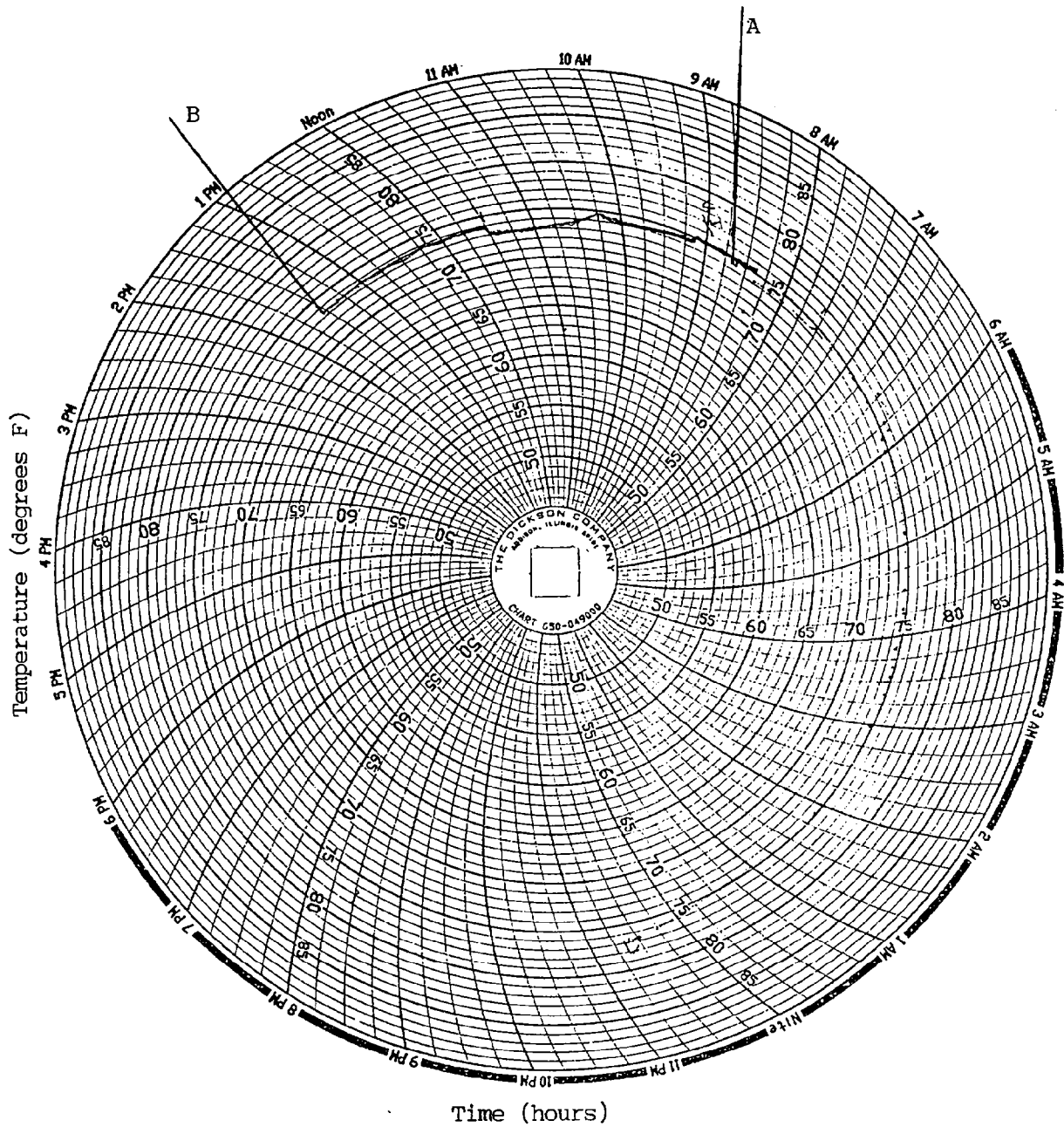
Inspected By: Tim Michnay

Date: January 20, 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



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 06, 1995
Lower Spine Redundant	AH1G2	Endevco	June 20, 1994
Pelvis Redundant	AJ606	Endevco	November 10, 1995

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	August 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, 1994

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, 1994
MDB Rear Axle X	AJ9E1	Endevco	October 14, 1994
MDB Rear Axle Y	AN47	Endevco	December 14, 1994
Mid Left A-Post	MGA138	Entran	January 11, 1995
Lower Left A-Post	A02	Entran	October 30, 1994
Lower Left B-Post	MGA024	Entran	December 16, 1994
Trunk Centerline X	MGA094	Entran	December 02, 1994
Trunk Centerline Y	MGA159	Entran	January 04, 1995
Trunk Centerline Z	MGA150	Entran	December 02, 1994
Driver Seat Track	MGA076	Entran	November 18, 1994
Right Front Sill X	MGA145	Entran	December 16, 1994
Right Front Sill Y	A01	Entran	November 04, 1994
Right Front Sill Z	X02	Entran	November 07, 1994
Right Rear Sill X	MGA021	Entran	December 14, 1994
Right Rear Sill Y	MGA126	Entran	November 18, 1994
Right Rear Sill Z	MGA106	Entran	November 18, 1994
Left Front Sill Y	MGA014	Entran	January 04, 1995
Left Rear Sill Y	MGA119	Entran	January 04, 1995
Right Rear Seat Occupant Compartment Y	A17	Entran	November 07, 1994

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