

REPORT NO.: MGA-94-21403

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

HONDA
1994 HONDA ACCORD DX 4 DOOR SEDAN
NHTSA NO: CR5308

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



MGA Ref. No.: G93A-02

Test Date: May 26, 1994

Report Date: August 19, 1994

FINAL REPORT

Prepared For:

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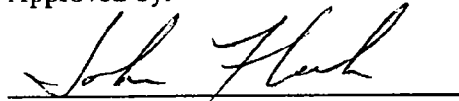
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16. Abstract Compliance tests were conducted on the subject 1994 Honda Accord DX 4 Door Sedan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure for the determination of FMVSS 214 compliance. The test was conducted at the MGA Research Proving Grounds and crash Test Center in Burlington, Wisconsin on May 26, 1994. The impact velocity of the Moving Barrier (MDB) was 32.7 mph and the ambient temperature of the struck side (driver's) of the target vehicle at the time of impact was 72°F. The test or target vehicle's performance is given below:																							
<table border="0"> <thead> <tr> <th></th> <th><u>Driver's SID</u></th> <th><u>Left Rear SID</u></th> </tr> </thead> <tbody> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>76 g's</td> <td>70 g's</td> </tr> <tr> <td>Pelvis Acceleration</td> <td>73 g's</td> <td>77 g's</td> </tr> <tr> <td>Upper Rib Acceleration</td> <td>65.1 g's</td> <td>65.8 g's</td> </tr> <tr> <td>Lower Rib</td> <td>56.8 g's</td> <td>75.6 g's</td> </tr> <tr> <td>Lower Spine</td> <td>86.8 g's</td> <td>64.0 g's</td> </tr> </tbody> </table>							<u>Driver's SID</u>	<u>Left Rear SID</u>	Thoracic Trauma Index (TTI)	76 g's	70 g's	Pelvis Acceleration	73 g's	77 g's	Upper Rib Acceleration	65.1 g's	65.8 g's	Lower Rib	56.8 g's	75.6 g's	Lower Spine	86.8 g's	64.0 g's
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Approved by:



Date: 9-22-'94

John Fleck, Project Engineer

FINAL REPORT ACCEPTED BY:


Contract Technical Manager

Date: 9/20/94

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Section 1

PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 94 FMVSS 214 "Dynamic" compliance test program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-93-C-02047. The purpose of this test was to evaluate side impact protection in a 1994 Honda Accord DX 4 Door Sedan.

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

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

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A stationary 1994 Honda Accord DX 4 Door Sedan was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 32.7 mph on May 26, 1994. 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 according to instructions specified in the Laboratory Test Procedure which is dated May 17, 1993. 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 driver's Thoracic Trauma Index (TTI) was 76 g's. Maximum pelvic Y acceleration was 73 g's.

The left rear passenger's TTI was 70 g's. Maximum pelvic Y acceleration was 77 g's.

TEST NOTES

The left sill vehicle accelerometers (left front and left rear) detached following barrier impact with the vehicle. These data plots are valid for approximately 10 msec. following impact.

SECTION 3
SUMMARY OF TEST DATA

TABLE 1
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan
 Vehicle NHTSA No.: CR5308 VIN: 1HGC05522RAD47600
 Vehicle Body Color: White Month & Year of Manufacture: 11-93
 Engine Data: 4 cylinders; CID; 2.2 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 54 miles
 Options: 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): 32 psi FRONT
 32 psi REAR
 Recommended Tire Size: P185/70R14
 Tires on Test Vehicle: P185/70R14 Manufacturer: Bridgestone

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; N/A 3rd Seat 5 Total
 Type of Front Seats: X Bucket; Bench; Split Bench
 Type of Front Seat Back: Fixed; X Adjustable with X Lever
 Vehicle Maximum Capacity Loading = 850 lbs (A)
 No. of Occupants x 150 lbs. = 750 lbs (B)
 Cargo Capacity (A-B) = 100 lbs

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	= <u>835</u> lbs	Right Rear	= <u>538</u> lbs
Left Front	= <u>855</u> lbs	Left Rear	= <u>544</u> lbs
TOTAL FRONT	= <u>1690</u> lbs	TOTAL REAR	= <u>1082</u> lbs
% of Total Vehicle Weight =	<u>61.0</u> %;	% of Total Weight =	<u>39.0</u> %
TOTAL WEIGHT	= <u>2772</u> lbs		

TABLE 2
TEST VEHICLE DATA

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids = 2772 lbs
Maximum Cargo Carrying Capacity of Test Vehicle = 100 lbs
Weight of 2 Side Impact Dummies (2 x 168 lbs.) = 336 lbs
TEST VEHICLE TARGET WEIGHT: = 3208 lbs

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front	= <u>887</u> lbs	Right Rear	= <u>663</u> lbs
Left Front	= <u>944</u> lbs	Left Rear	= <u>709</u> lbs
TOTAL FRONT	= <u>1831</u> lbs	TOTAL REAR	= <u>1372</u> lbs
% of Total Weight	= <u>57.2</u> %	% of Total Weight	= <u>42.8</u> %
TOTAL TEST WEIGHT	= <u>3203</u> lbs		

TEST VEHICLE ATTITUDE (all dimensions in inches):

CURB WEIGHT ATTITUDE: (in)

Right Front 27.8 Left Front 27.4 Right Rear 27.2 Left Rear 26.9

FULLY LOADED WEIGHT ATTITUDE: (in)

Right Front 27.5 Left Front 26.6 Right Rear 26.1 Left Rear 25.1

TEST ATTITUDE: (in)

Right Front 27.4 Left Front 26.4 Right Rear 26.6 Left Rear 25.3

Test Vehicle Wheelbase: 107.0 inches

C.G. = 45.8 inches rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 173.4 in
Centerline = 183.7 in
Left Side = 173.4 in

FIGURE 1
PRE-TEST CONDITIONS

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 8.3 in

Total Number of Adjustment Positions or Detents: 22

Seat Position: 12th detent From Front

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 22° degrees

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: Non Adjustable

Seat Back Adjustment Position: Non Adjustable

ADJUSTABLE STEERING COLUMN POSITION:

Not applicable

WINDOW POSITIONS:

Left Front closed Left Rear closed

Right Front removed Right Rear removed

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 = 17 gallons

Test Volume: 15.8 gallons (92.9% of capacity)

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

Wheelbase: = 107.0 in

Impact Point is 16.8 in rearward of front axle centerline (which
is 37 inches forward of the wheelbase midpoint)

TABLE 3
CRASH TEST SUMMARY FOR TEST VEHICLE

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

Overall Length = 183.7 in; Overall Width = 70.2 in

TEST WEIGHT:

Right Front	= <u>887</u> lbs	Right Rear	= <u>663</u> lbs
Left Front	= <u>944</u> lbs	Left Rear	= <u>709</u> lbs
TOTAL FRONT	= <u>1831</u> lbs	TOTAL REAR	= <u>1372</u> lbs
TOTAL VEHICLE WEIGHT <u>3203</u> lbs			
Wheelbase = <u>107.0</u> in			
Longitudinal C.G. front Center of Front Axle		= <u>45.8</u> in	
Impact Angle with Respect to Impactor		= <u>90°</u> degrees	

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (10.3 in above ground) = 9.1 in
 2. LEVEL 2 (16.5 in above ground) = 14.7 in
 3. LEVEL 3 (21.5 in above ground) = 14.8 in
 4. LEVEL 4 (33.4 in above ground) = 10.1 in
 5. LEVEL 5 (51.0 in above ground) = 3.7 in
- Maximum Post-Test Intrusion = 14.8 in

OCCUPANTS:

	<u>Front Passenger</u>	<u>Rear Passenger</u>
Type of Dummy	<u>SID</u>	<u>SID</u>
Restraints Used	<u>3 pt. lap &</u> <u>shoulder belt</u> <u>with airbag</u>	<u>3 pt. lap &</u> <u>shoulder belt</u>

INSTRUMENTATION:

Number of Vehicle Data Channels:	= <u>14</u>
Number of Cameras: Onboard Vehicle	= <u>3</u>
Offboard Vehicle	= <u>4</u>
Deformable Barrier	= <u>2</u>
TOTAL	= <u>9</u>

TABLE 4
CRASH TEST SUMMARY FOR SIDE IMPACTOR

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

Overall Width of Framework Carriage	=	<u>49.3</u>	in
Overall Length of MDB (incl. honeycomb impact face)	=	<u>162</u>	in
Wheelbase of Framework Carriage	=	<u>102</u>	in
Tread of Framework Carriage (Front & Rear)	=	<u>74</u>	in
C.G. Location Rearward of Front Axle	=	<u>43.4</u>	in
C.G. Location From Center Line	=	<u>-.3</u>	in
C.G. Location Above Ground Level	=	<u>19.2</u>	in

MDB WEIGHT:

Left Front	=	<u>1095</u>	lbs	Left Rear	=	<u>413</u>	lbs
Right Front	=	<u>624</u>	lbs	Right Rear	=	<u>858</u>	lbs
TOTAL FRONT	=	<u>1719</u>	lbs	TOTAL REAR	=	<u>1271</u>	lbs
TOTAL MDB WEIGHT = <u>2990</u> lbs							

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

Impact Speed = Primary: 32.7 mph Secondary: 32.5 mph

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1.	Row A Top of Stack (33 in)	=	<u>6.3</u>	in
2.	Row B Mid Stack (27 in)	=	<u>3.6</u>	in
3.	Row C Top of Bumper (21 in)	=	<u>2.0</u>	in
4.	Row D Center of Bumper (17 in)	=	<u>2.1</u>	in

INSTRUMENTATION:

Number of MDB Data Channels = 7

TABLE 5
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to side window</u>	<u>to "C" Post</u>
Arm	<u>to door trim panel</u>	<u>to door trim panel</u>
Pelvis	<u>to door trim panel</u>	<u>to door trim panel</u>
Left Knee	<u>to door trim panel</u>	<u>to door trim panel</u>
Right Knee	<u>to left knee</u>	<u>to left knee</u>

DOOR OPENING:

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

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 1.5 in rearward Vertical: 1.0 in high

ARM REST LOCATIONS:

Front: 9.9 inches below window opening

Rear: 10.1 inches below window opening

SEAT CRUSH:

Driver Seat Back: 3.2 inches Driver Seat Cushion: 4.9 inches

Passenger Seat Back: 4.7 inches Passenger Seat Cushion: 3.3 inches

GLAZING DAMAGE:

Both driver and passenger windows broke, windshield cracked

PILLAR PERFORMANCE:

No "A" or "B" pillar separation evident

SILL SEPARATION:

No sill separation noted

OTHER NOTABLE IMPACT EFFECTS:

Both driver and passenger airbags deployed

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

TABLE 6

SIDE IMPACT DUMMY (SID) TEST DATA SUMMARY

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door SedanVehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

	Front Dummy ID # 269				Rear Dummy ID # 271			
	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	31	-13.2	84	65.8	45	-4.6	144
	Upper Rib Lateral...Y(R)	31	-15.0	84	65.0	45	-7.1	73
	Lower Rib Lateral.....Y	30	-17.1	84	75.6	44	-23.7	72
	Lower Rib Lateral.....Y(R)	30	-18.0	84	72.9	44	-23.2	73
SPINE ACCELERATIONS:								
	Lower Lateral.....Y	34	-19.2	75	64.0	48	-12.5	66
	Lower Lateral.....Y(R)	34	-18.8	75	66.6	48	-12.7	85
PELVIC ACCELERATIONS:								
	Lateral.....Y	34	-16.4	80	76.7	39	-18.1	90
	Lateral.....Y(R)	35	-16.0	81	78.9	39	-17.8	91

REFERENCE:

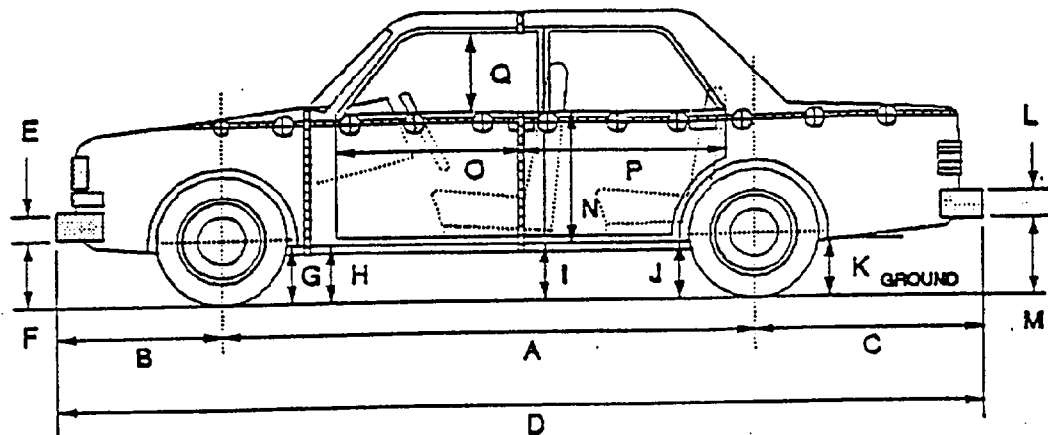
Positive Direction - Longitudinal (X) = forward

Lateral (Y) = to right

Vertical (Z) = up

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

FIGURE 2
PRE- AND POST-TEST MEASUREMENTS



LEFT SIDE VIEW

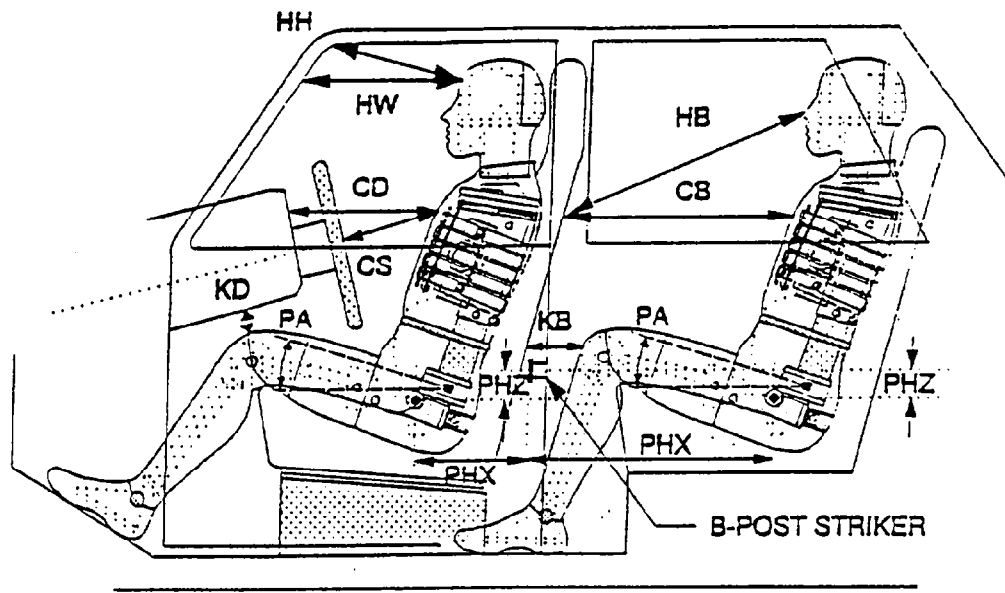
D = Length at Centerline
R = Right Side Length
S = Left Side Length
T = Width at B Post
E & L = Bumper Thickness

J1 = To Pinch Weld
J2 = To Sill

Units: in

LOCATION	PRE-TEST	POST-TEST	Δ CHANGE
A	107.0	104.7	2.3
B	36.5	38.0	1.5
C	40.3	39.5	.8
D	183.7	182.2	1.5
E	4.3	4.3	0
F	15.7	17.4	1.7
G	8.3	8.7	.4
H	6.1	6.1	0
I	7.5	10.2	2.7
J1/J2	6.7/5.9	7.4/4.8	.7/1.1
K	9.3	9.1	.2
L	9.6	9.6	0
M	13.3	12.6	.7
N	25.2	22.6	2.6
O	30.9	28.0	2.9
P	45.2	43.8	1.4
Q	16.1	15.9	.2
R	173.4	177.1	3.7
S	173.5	173.4	.1
T	70.2	56.2	14.0

FIGURE 3
SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS



LEFT SIDE VIEW

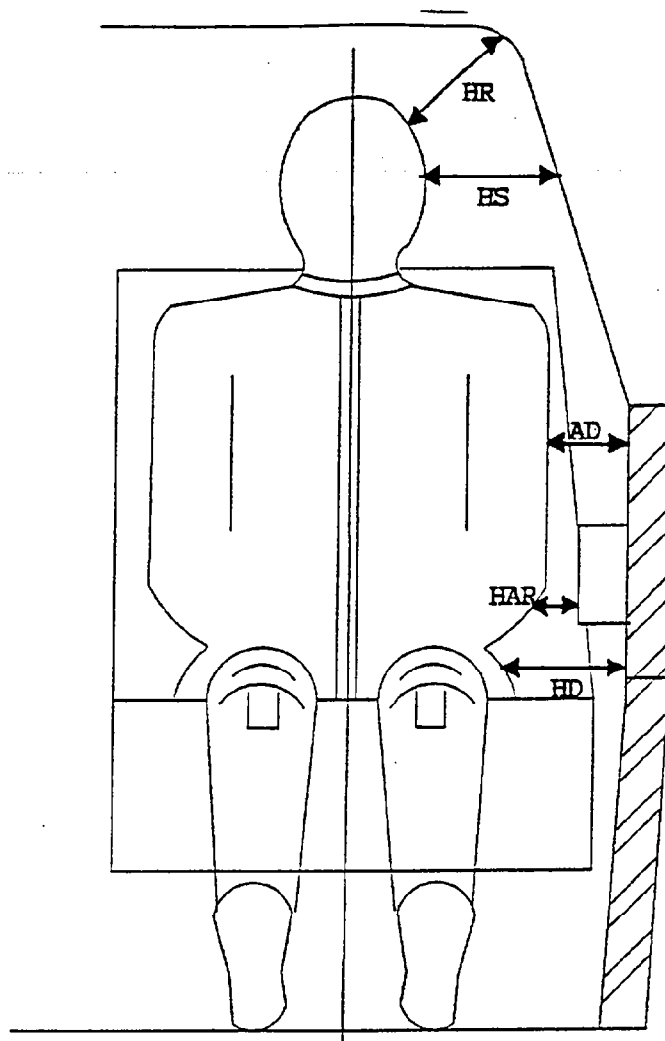
NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

NOTE: All dimensions are in inches

	DRIVER ID #269	LEFT REAR PASSENGER ID #271	
HH	17.4	---	
HW	27.9	---	
HB	---	24.5	
CD	23.5	CB	---
CS	15.0	19.0	
KDL	5.8	KBL	7.1
KDR	7.5	KBR	7.1
PA°	23.1	23.6	
PHX	7.0	10.5	
PHZ	7.0	12.0	

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



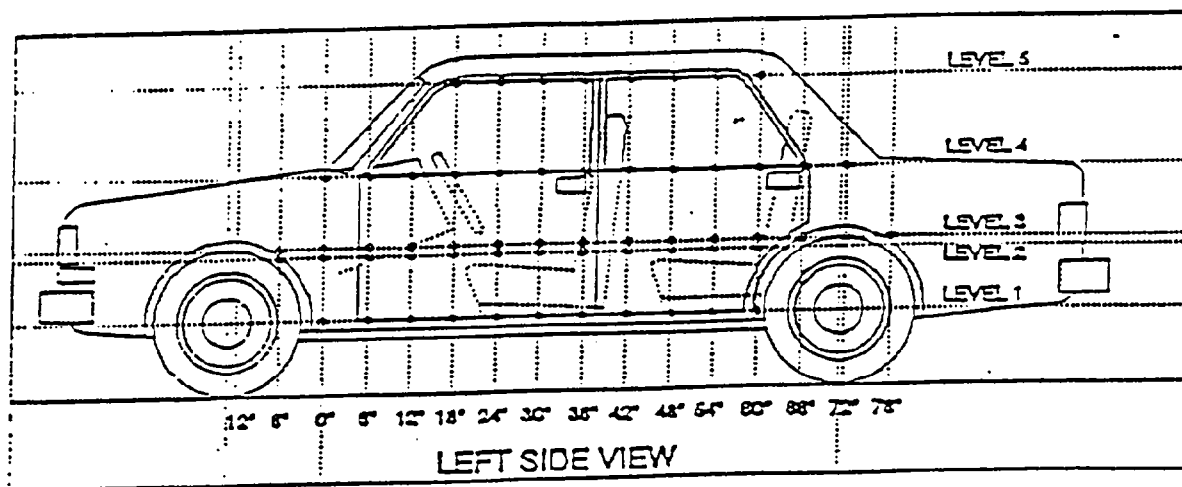
NOTE: All dimensions are in inches

	DRIVER ID #269	LEFT REAR PASSENGER ID #271
HR	5.1	4.1
HS	10.4	9.8
AD	4.4	3.3
HD	5.5	6.1

FIGURE 5
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994



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

33" Side Profile

Level 5 @ Window Top	= <u>51.0</u> in
Level 4 @ Window Sill	= <u>33.4</u> in
Level 3 @ Mid Door	= <u>21.5</u> in
Level 2 @ Occupant H-Point	= <u>16.5</u> in
Level 1 @ Axle Centerline Height (or Sill Top Height)	= <u>10.3</u> in

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH

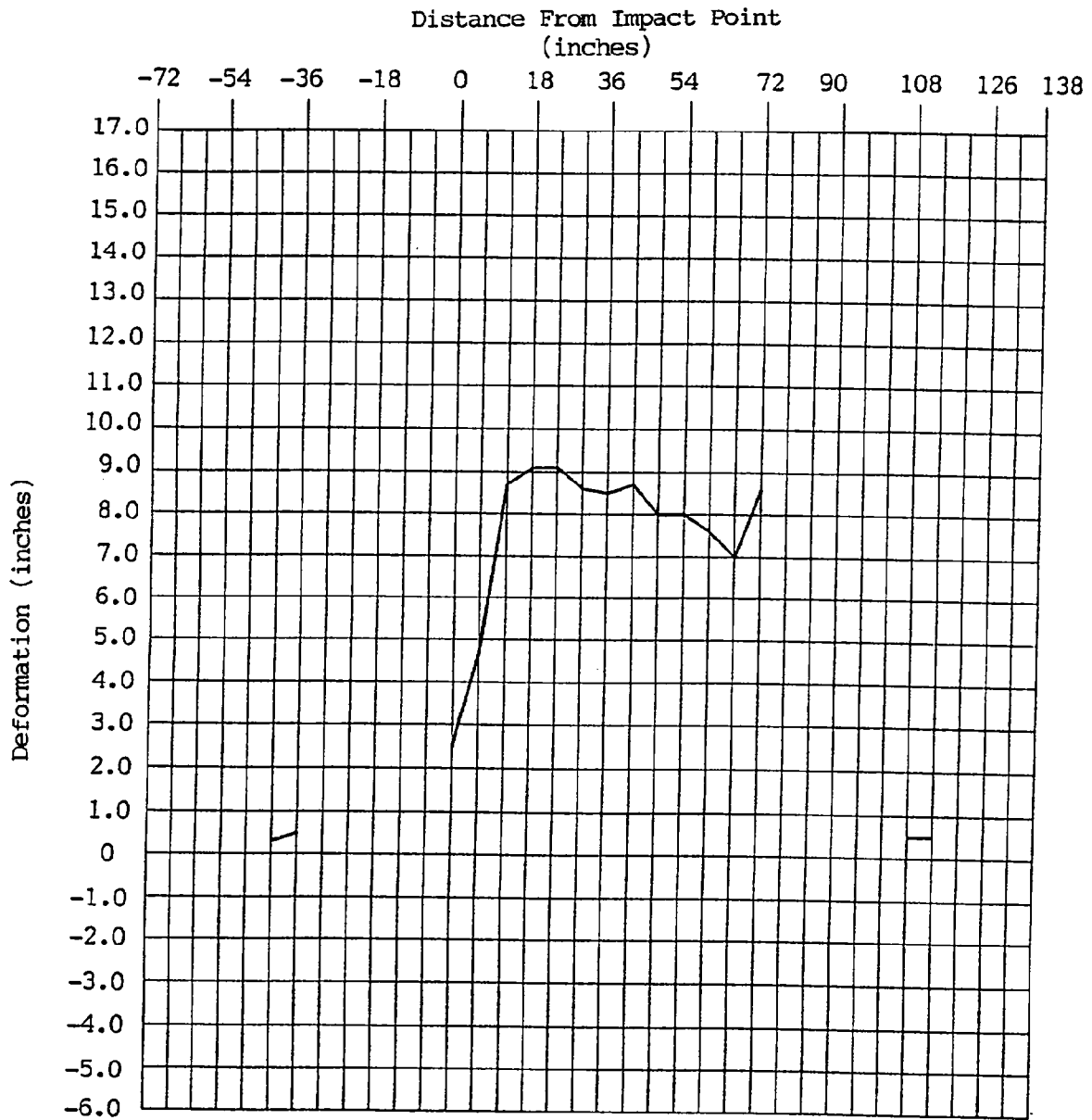
LEVEL 1 AT AXLE CENTER LINE

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door SedanVehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	34.6	34.3	0.3
-36	33.4	32.9	0.5
-30	---	---	---
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	34.6	32.1	2.5 (impact point)
6	37.3	32.6	4.7
12	41.3	32.6	8.7
18	41.6	32.5	9.1
24	41.6	32.5	9.1
30	41.2	32.6	8.6
36	41.1	32.6	8.5
42	41.3	32.6	8.7
48	40.7	32.7	8.0
54	40.7	32.7	8.0
60	40.5	32.9	7.6
66	40.0	33.0	7.0
72	41.6	33.0	8.6
78	---	---	---
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	34.7	34.2	0.5
114	35.7	35.2	0.5
120	---	---	---
126	---	---	---
132	---	---	---
138	---	---	---

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 1 AT AXLE CENTER LINE

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH

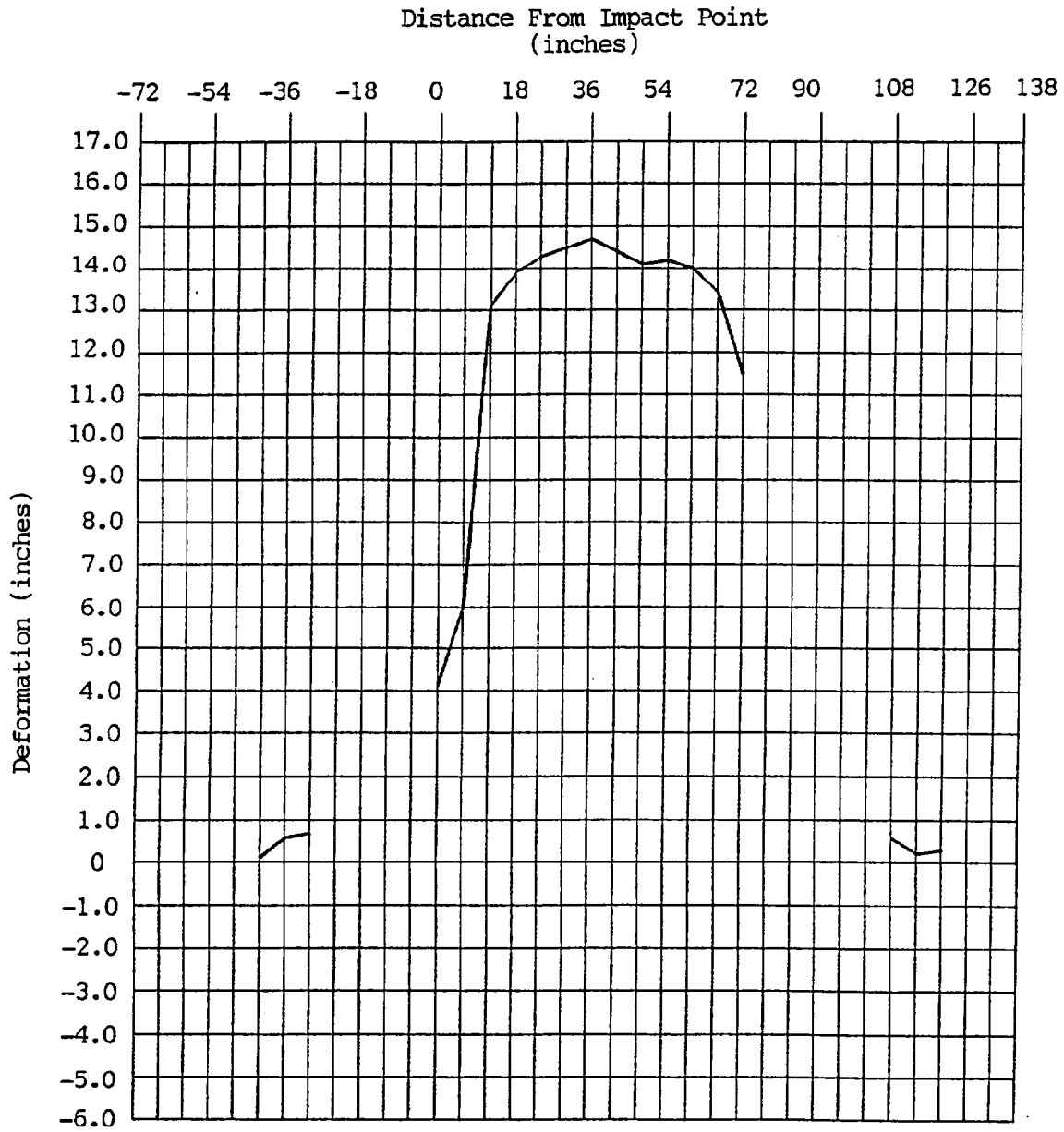
LEVEL 2 AT OCCUPANT H-POINT

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door SedanVehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	33.9	33.8	0.1
-36	33.0	32.4	0.6
-30	32.3	31.6	0.7
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	34.8	30.7	4.1 (impact point)
6	36.8	30.8	6.0
12	43.9	30.8	13.1
18	44.6	30.7	13.9
24	45.0	30.7	14.3
30	45.1	30.6	14.5
36	45.4	30.7	14.7
42	45.1	30.7	14.4
48	44.8	30.7	14.1
54	45.0	30.8	14.2
60	44.9	30.9	14.0
66	44.4	31.0	13.4
72	42.6	31.1	11.5
78	---	---	---
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	33.6	33.0	0.6
114	33.9	33.7	0.2
120	34.8	34.5	0.3
126	---	---	---
132	---	---	---
138	---	---	---

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

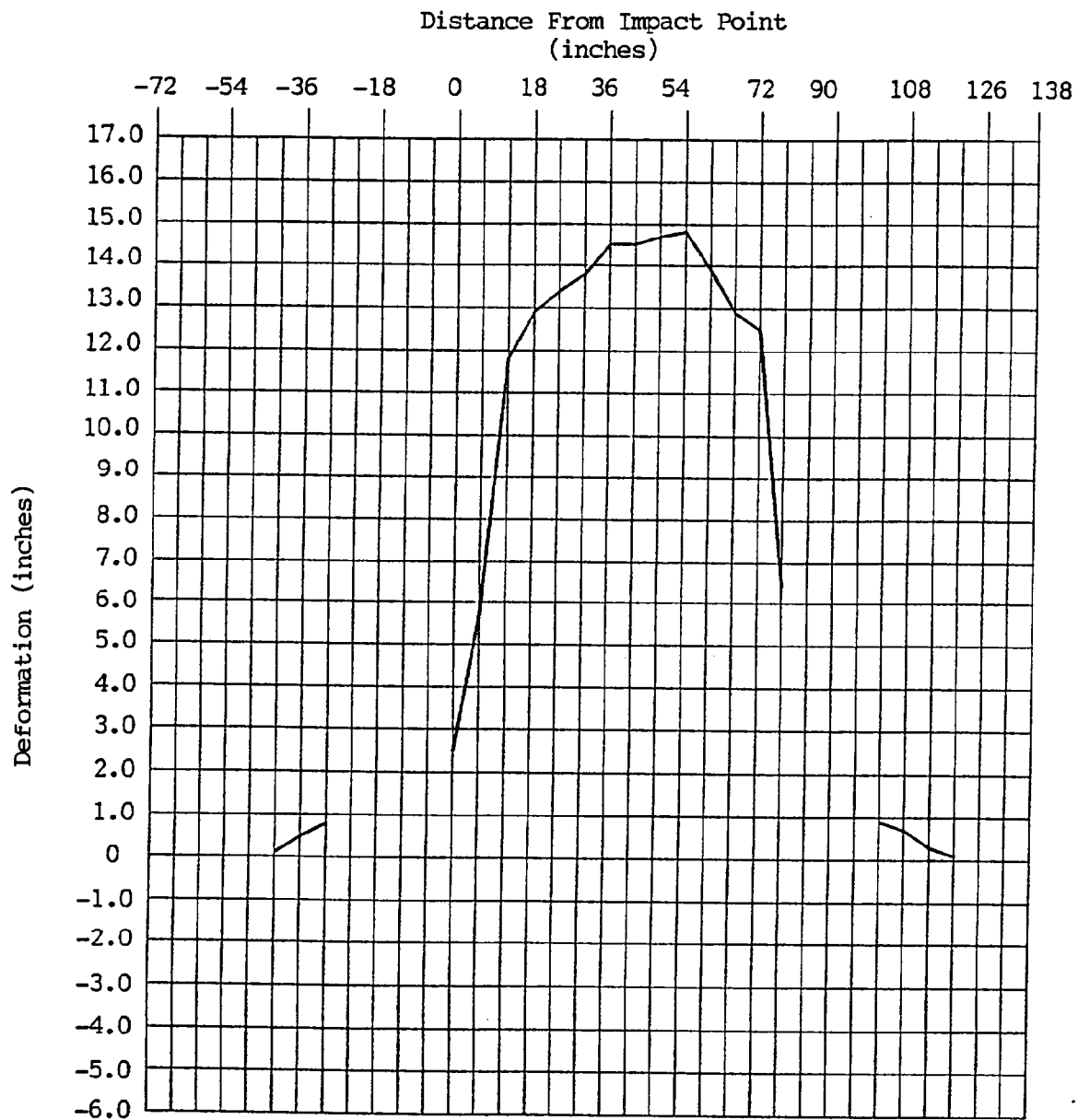
LEVEL 3 AT MID-DOOR

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door SedanVehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	34.4	34.3	0.1
-36	33.4	32.9	0.5
-30	32.5	31.7	0.8
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	33.5	31.0	2.5 (impact point)
6	36.7	31.0	5.7
12	42.8	31.0	11.8
18	43.8	30.9	12.9
24	44.2	30.8	13.4
30	44.6	30.8	13.8
36	45.1	30.6	14.5
42	45.2	30.7	14.5
48	45.4	30.7	14.7
54	45.5	30.7	14.8
60	44.8	30.9	13.9
66	43.9	31.0	12.9
72	43.5	31.0	12.5
78	37.4	31.0	6.4
84	---	---	---
90	---	---	---
96	---	---	---
102	32.9	32.0	0.9
108	33.4	32.7	0.7
114	33.7	33.4	0.3
120	34.3	34.2	0.1
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

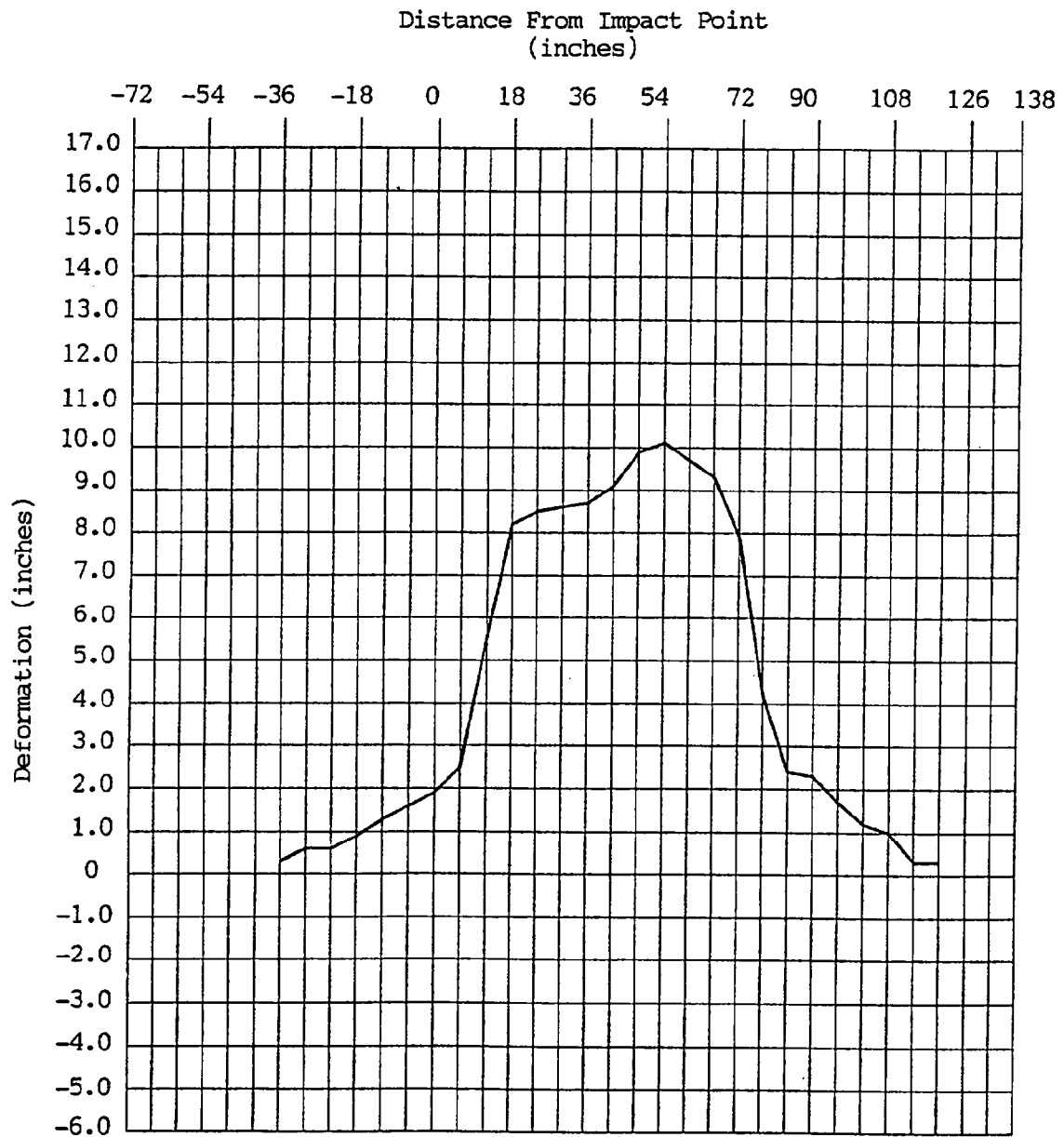
LEVEL 4 AT WINDOW SILL

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door SedanVehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	36.2	35.9	0.3
-30	35.4	34.8	0.6
-24	34.6	34.0	0.6
-18	34.6	33.7	0.9
-12	34.6	33.3	1.3
-6	35.0	33.4	1.6
0	35.2	33.3	1.9 (impact point)
6	35.8	33.3	2.5
12	38.8	33.3	5.5
18	41.6	33.4	8.2
24	41.9	33.4	8.5
30	42.0	33.4	8.6
36	42.4	33.7	8.7
42	42.9	33.8	9.1
48	43.8	33.9	9.9
54	44.2	34.1	10.1
60	44.0	34.3	9.7
66	43.7	34.4	9.3
72	42.4	34.5	7.9
78	39.0	34.8	4.2
84	37.4	35.0	2.4
90	37.7	35.4	2.3
96	37.5	35.8	1.7
102	37.7	36.5	1.2
108	38.1	37.1	1.0
114	38.2	37.9	0.3
120	39.2	38.9	0.3
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 4 AT WINDOW SILL

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH

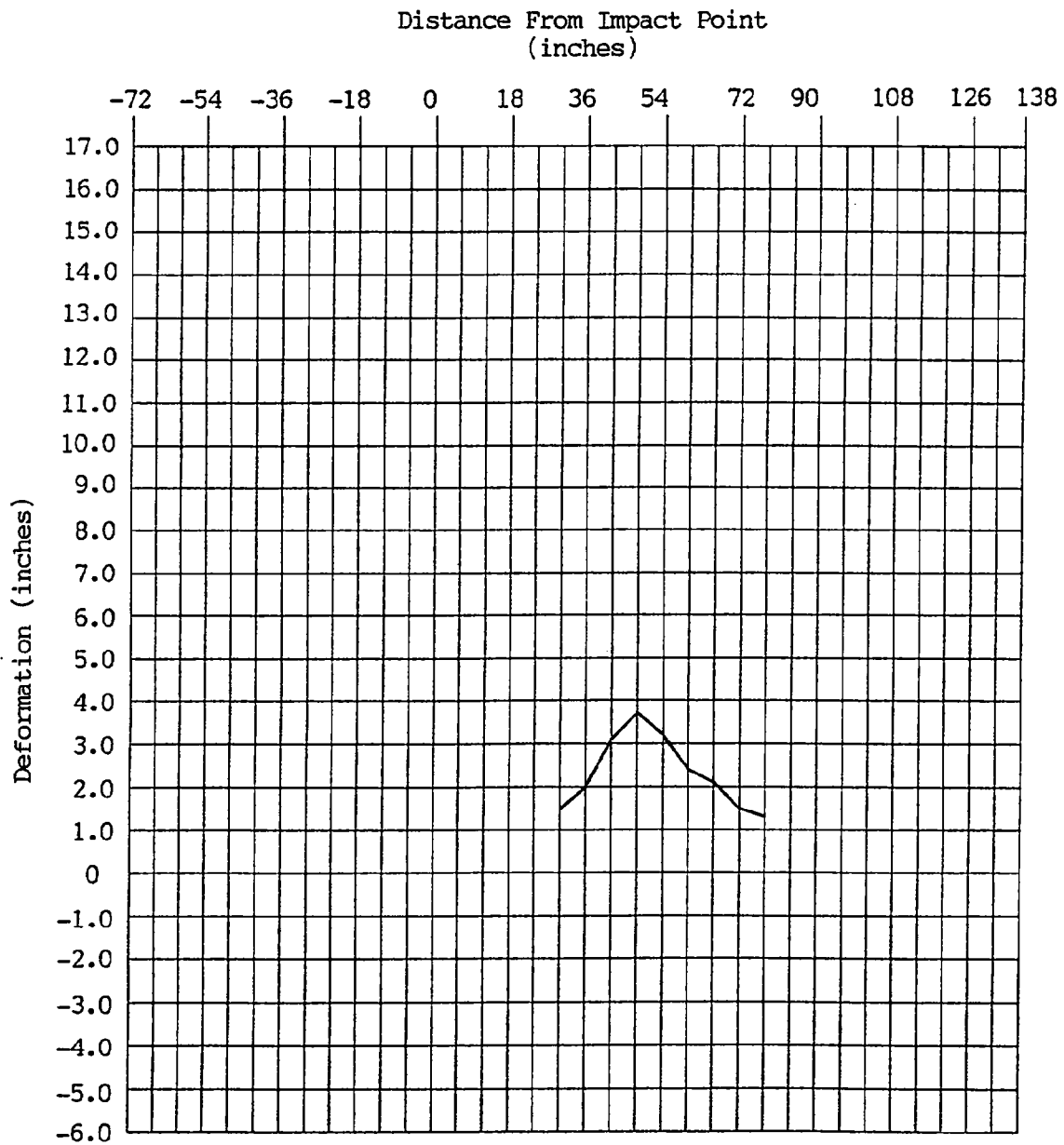
LEVEL 5 AT WINDOW TOP

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door SedanVehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)	
-72	---	---	---	
-66	---	---	---	
-60	---	---	---	
-54	---	---	---	
-48	---	---	---	
-42	---	---	---	
-36	---	---	---	
-30	---	---	---	
-24	---	---	---	
-18	---	---	---	
-12	---	---	---	
-6	---	---	---	
0	---	---	---	(impactpoint)
6	---	---	---	
12	---	---	---	
18	---	---	---	
24	---	---	---	
30	46.3	44.8	1.5	
36	46.5	44.5	2.0	
42	47.8	44.7	3.1	
48	48.2	44.5	3.7	
54	47.8	44.6	3.2	
60	47.2	44.8	2.4	
66	47.0	44.9	2.1	
72	46.9	45.4	1.5	
78	46.9	45.6	1.3	
84	---	---	---	
90	---	---	---	
96	---	---	---	
102	---	---	---	
108	---	---	---	
114	---	---	---	
120	---	---	---	
126	---	---	---	
132	---	---	---	
138	---	---	---	

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 5 AT WINDOW TOP

FIGURE 7

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

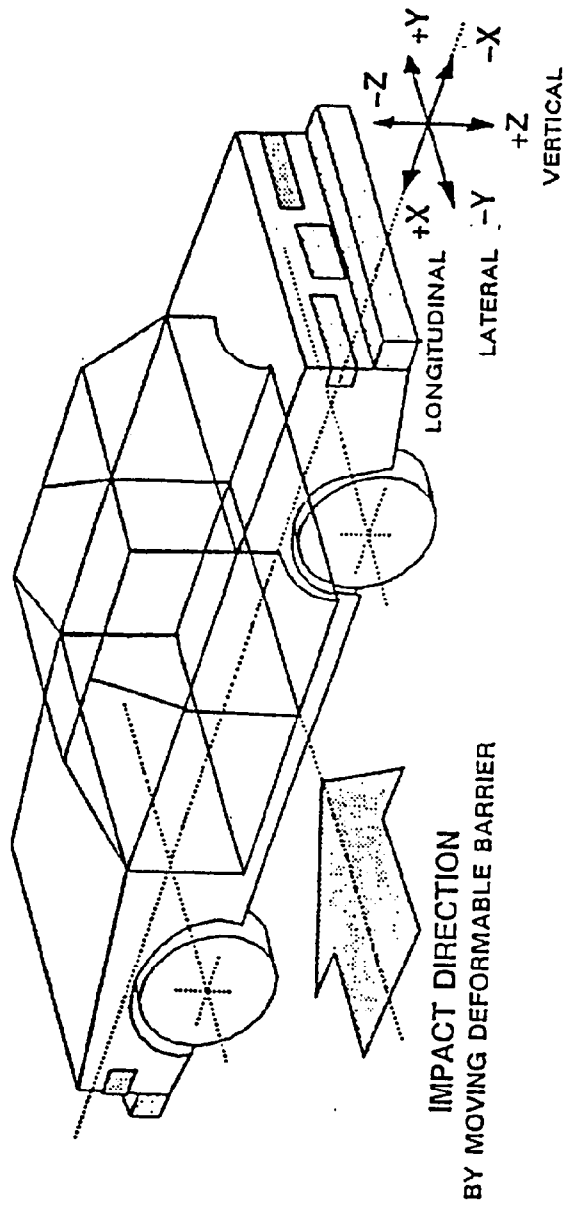
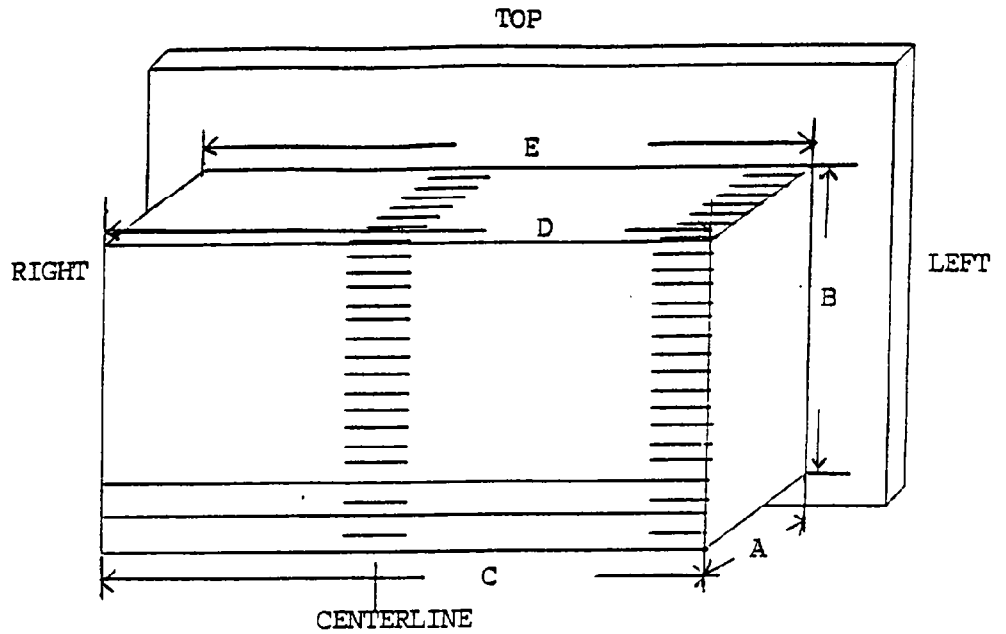


FIGURE 8
MDB FACE DIMENSIONS

Measurements in inches

A = 15.0
B = 21.5
C = 66.0
D = 66.0
E = 66.0



Measurements in inches

	Right	Left
A =	<u>11.1</u>	<u>11.0</u>
B =	<u>13.1</u>	<u>13.1</u>
C =	<u>21.1</u>	<u>21.0</u>
D =	<u>33.1</u>	<u>33.0</u>

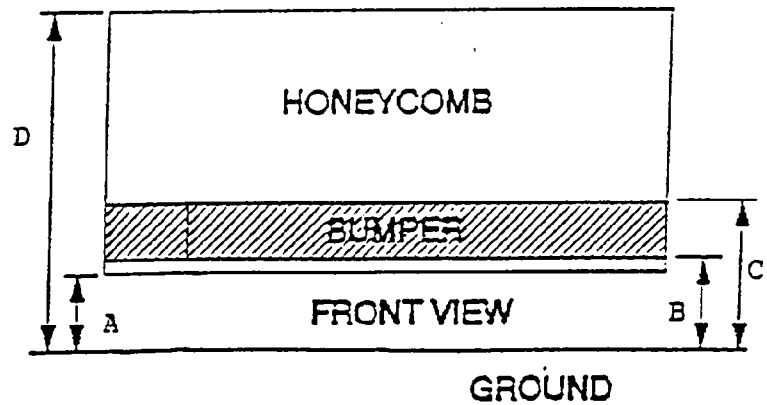


TABLE 8
EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR
Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan
Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

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)	Crush (inches)	Crush (inches)	Crush (inches)
32"	6.3	3.6	2.0	2.1
28"	4.2	1.6	1.1	1.3
24"	1.8	0.7	0.6	.75
20"	0.6	0.2	0.4	0.5
16"	0.4	0.1	0.1	0.3
12"	0.2	0	0	0.3
8"	0.2	0	0	0.3
4"	0.1	0	0	0.3
0"	0	0	0	0.3
4"	0	0	0	0.3
8"	0	0	0	0.3
12"	0	0	0	0.3
16"	0	0	0	0.1
20"	0	0	0	0
24"	0	0	0	0.2
28"	0.1	-0.2	0.2	0.3
32"	1.5	0.6	0.5	1.0

Left Side

Right Side

TABLE 9

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARYYear/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door SedanVehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

Accel. No.	Description	Coordinates (in)			Long. (X) Maximums		Lat. (Y) Maximums		Vert. (Z) Maximums		Resultant
		X	Y	Z	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
1	Rt. Side Sill @ Front Seat	105.7	25.0	10.6	3.0	-8.0	15.5	-2.3	4.4	-4.2	17.0
2	Rt. Side Sill @ Rear Seat	76.2	24.6	9.8	3.5	-7.7	18.7	-2.3	2.6	-4.3	19.7
3	Rr. Floorpan Above Axle	46.6	0	19.0	15.8	-24.5	23.2	-3.1	20.9	-11.4	28.2
4	Left Side Sill @ Rr. Seat*	74.6	-25.6	7.3	---	---	76.8	-18.1	---	---	---
5	Left Side Sill @ Frt. Seat*	109.0	-26.3	7.1	---	---	19.0	-12.0	---	---	---
6	Right Rear Occupant Compartment	72.8	14.4	10.6	---	---	20.1	-2.5	---	---	---
7	Left Mid B Post	84.8	-27.0	28.5	---	---	131.4	-33.7	---	---	---
8	Left Lower B Post	85.2	-27.0	23.1	---	---	152.2	-43.1	---	---	---

*Reference: X - Rear Bumper (+ Forward)

Y - Vehicle Centerline (+ To right)

Z - Ground Level (+ Up)

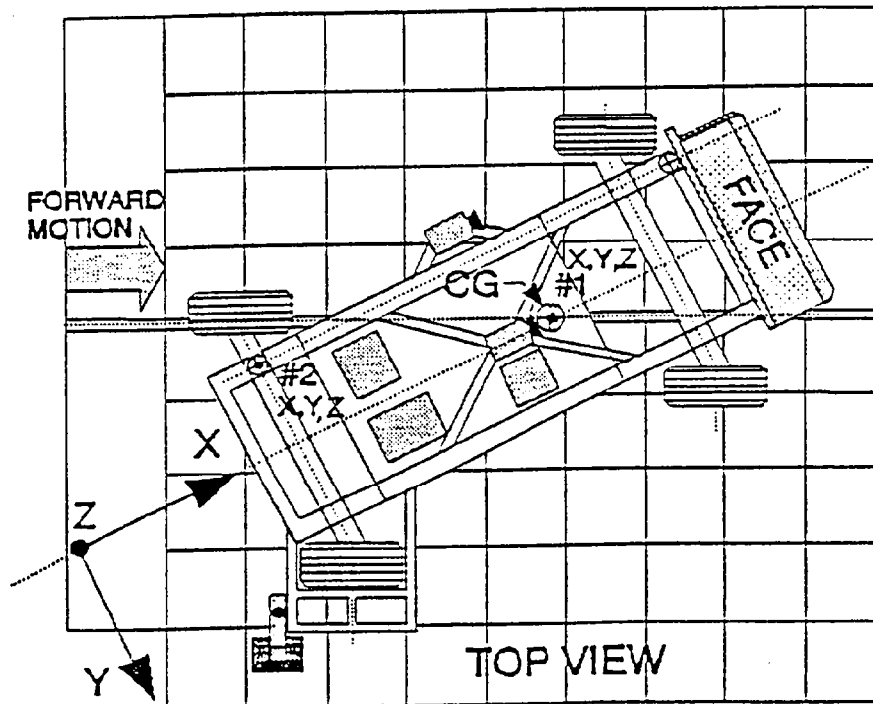
* Accelerometer detached from vehicle body during impact

FIGURE 9

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994



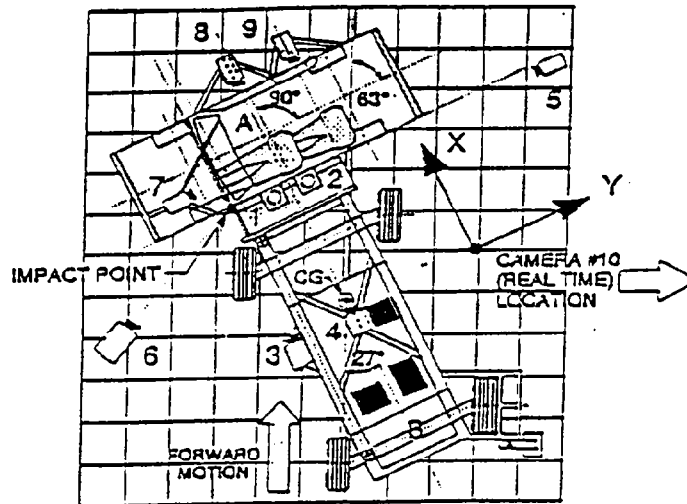
Accel. No.	Location	Coordinates (in)			Pos. Direct.		Neg. Direct.	
		X	Y	Z	Max (g)	Time (msec)	Max (g)	Time (msec)
1	MDB Center of Gravity							
	Longitudinal ... X				1.4	115	-14.7	33
	Lateral Y	-43	0	19.0	0.5	63	-8.5	27
	Vertical Z				8.0	31	-7.9	26
	Resultant R				17.8	39	---	---
2	Rear Frame Member							
	Longitudinal ... X	-102	-24.6	24.5	1.5	112	-20.2	38
	Lateral Y				---	---	---	---

* 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: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994



Camera No.	View	Coordinates (in)			Angle	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
	Real Time					10	24
1	Top Pointer	0	380	4920		13	1053
2	Top Wide	400	0	5360		8	1176
3	Cart Pointer					35	1020
4	Cart					13	922
5	Right Impact	1110	-8560	990	45°	35	985
6	Left Impact	-3040	3130	1490	45°	13	714
7	Onboard Hood					13	1000
8	Onboard Driver					7.5	9090
9	Onboard Passenger					8	1010

* 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: 1994/Honda/Accord/DX 4 Door Sedan
Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

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 (32.7 mph)

FUEL SPILLAGE MEASUREMENT:

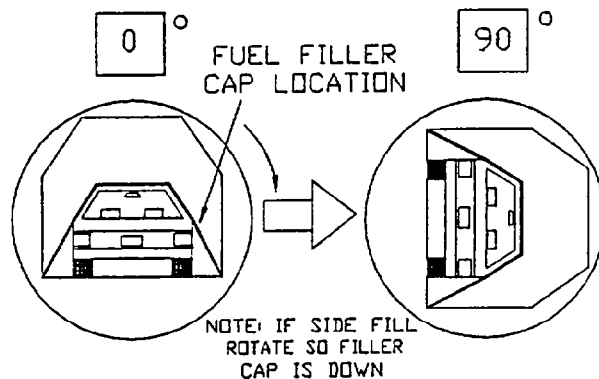
1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

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

SOLVENT SPILLAGE DETAILS:

None

TABLE 11

FMVSS NO. 301 STATIC ROLLOVER DATA SHEETYear/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door SedanVehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994TEST PHASE: 0° - 90°I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 42 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 42 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.

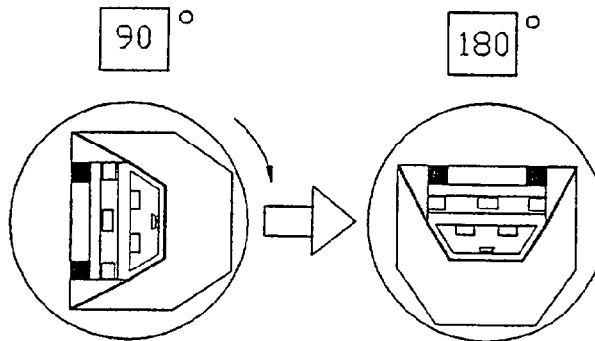
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

TEST PHASE: 90° - 180°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 35 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 35 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

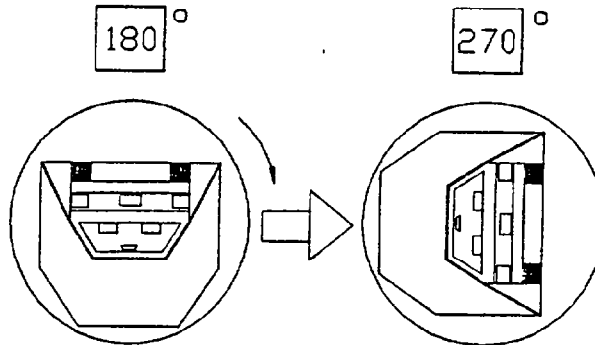
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATIONS(S): None

TABLE 11

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door SedanVehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994TEST PHASE: 180° - 270°I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 21 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds
 TOTAL 7 minutes 21 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.

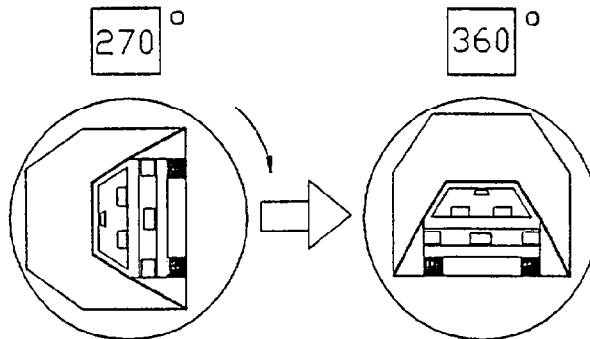
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1994/Honda/Accord/DX 4 Door Sedan

Vehicle NHTSA No.: CR5308 TEST DATE: May 26, 1994

TEST PHASE: 270° - 360°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 32 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds
TOTAL 7 minutes 32 seconds
Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATIONS(S): None

APPENDIX A - PHOTOGRAPHS

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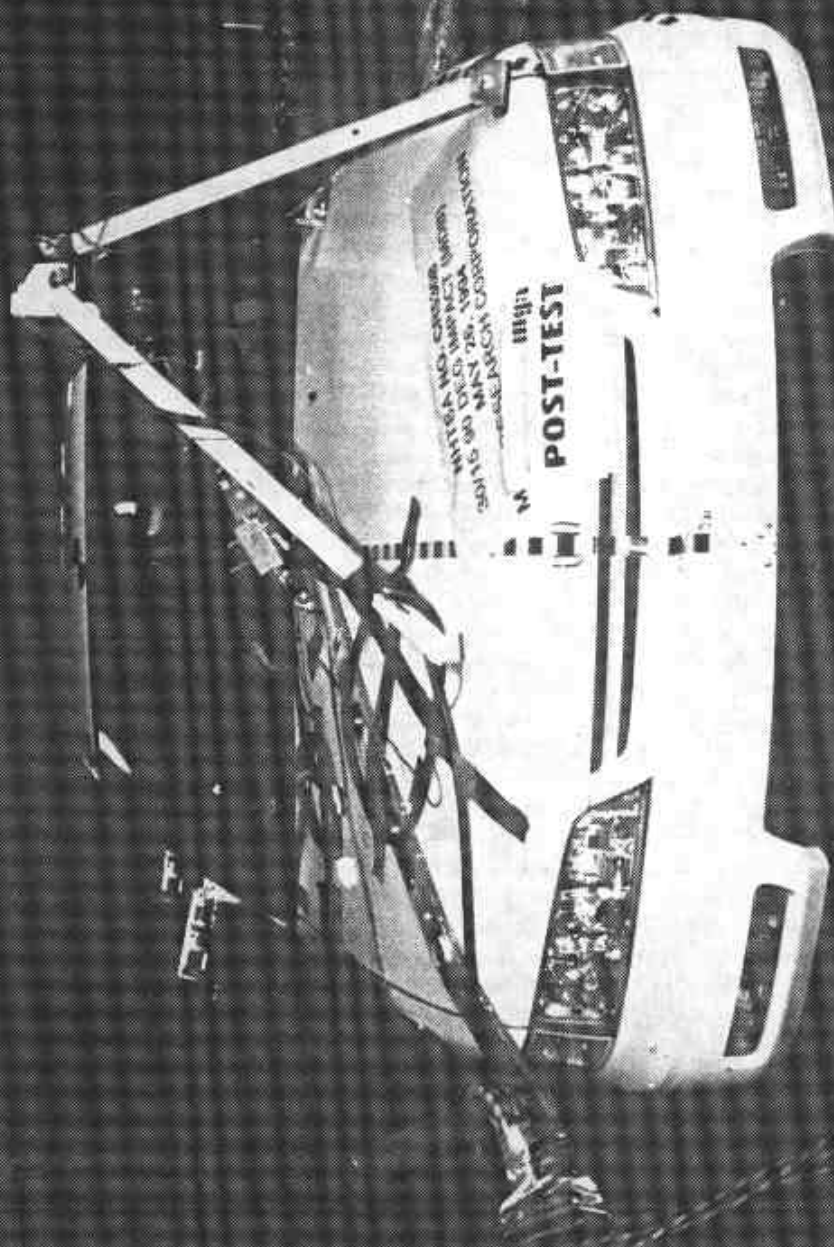


Photo No. A-1 - Post-Test Front View of Test Vehicle



Photo No. A-2 - Pre-Test Rear View of Test Vehicle

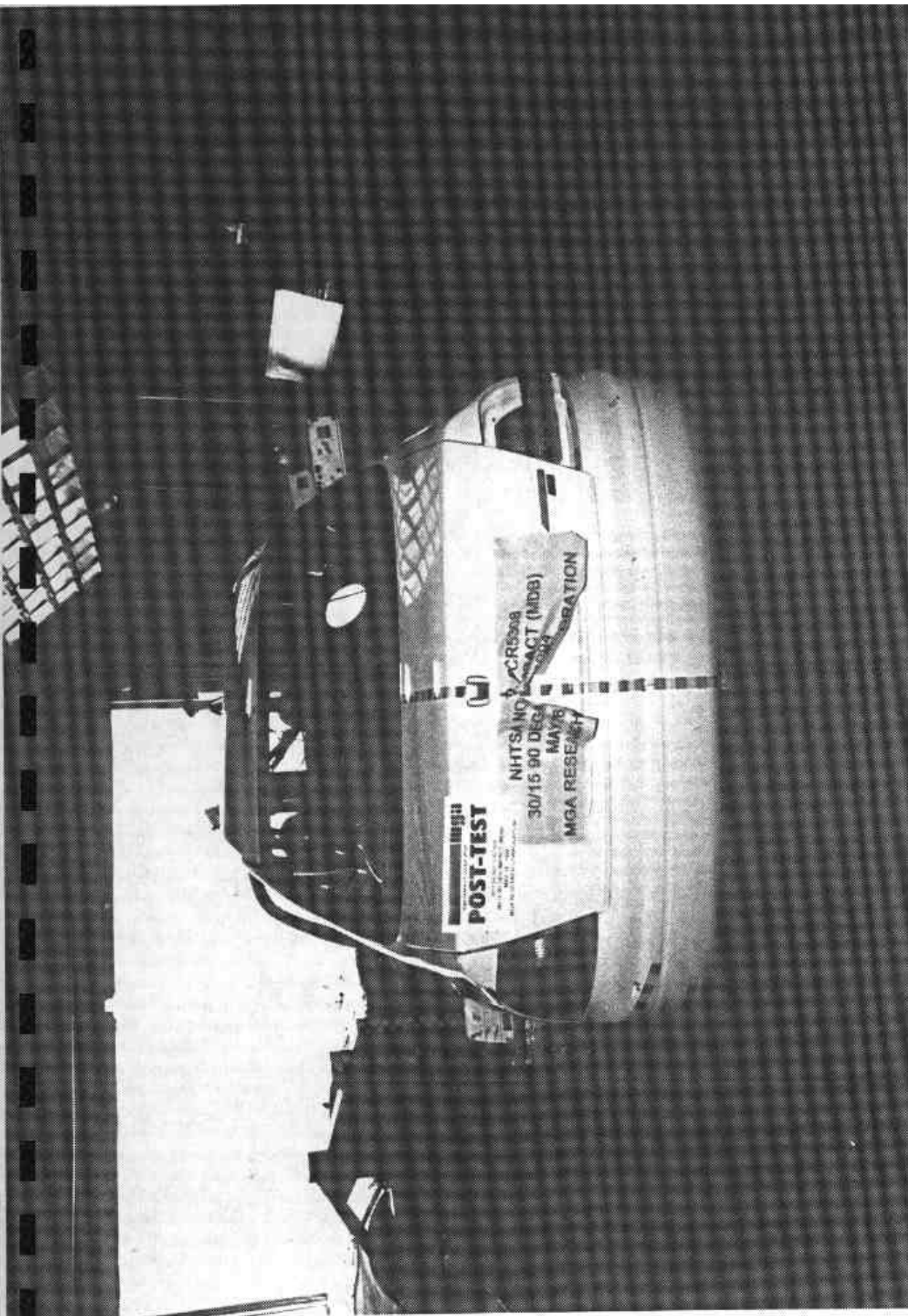


Photo No. A-3 - Post-Test Rear View of Test Vehicle

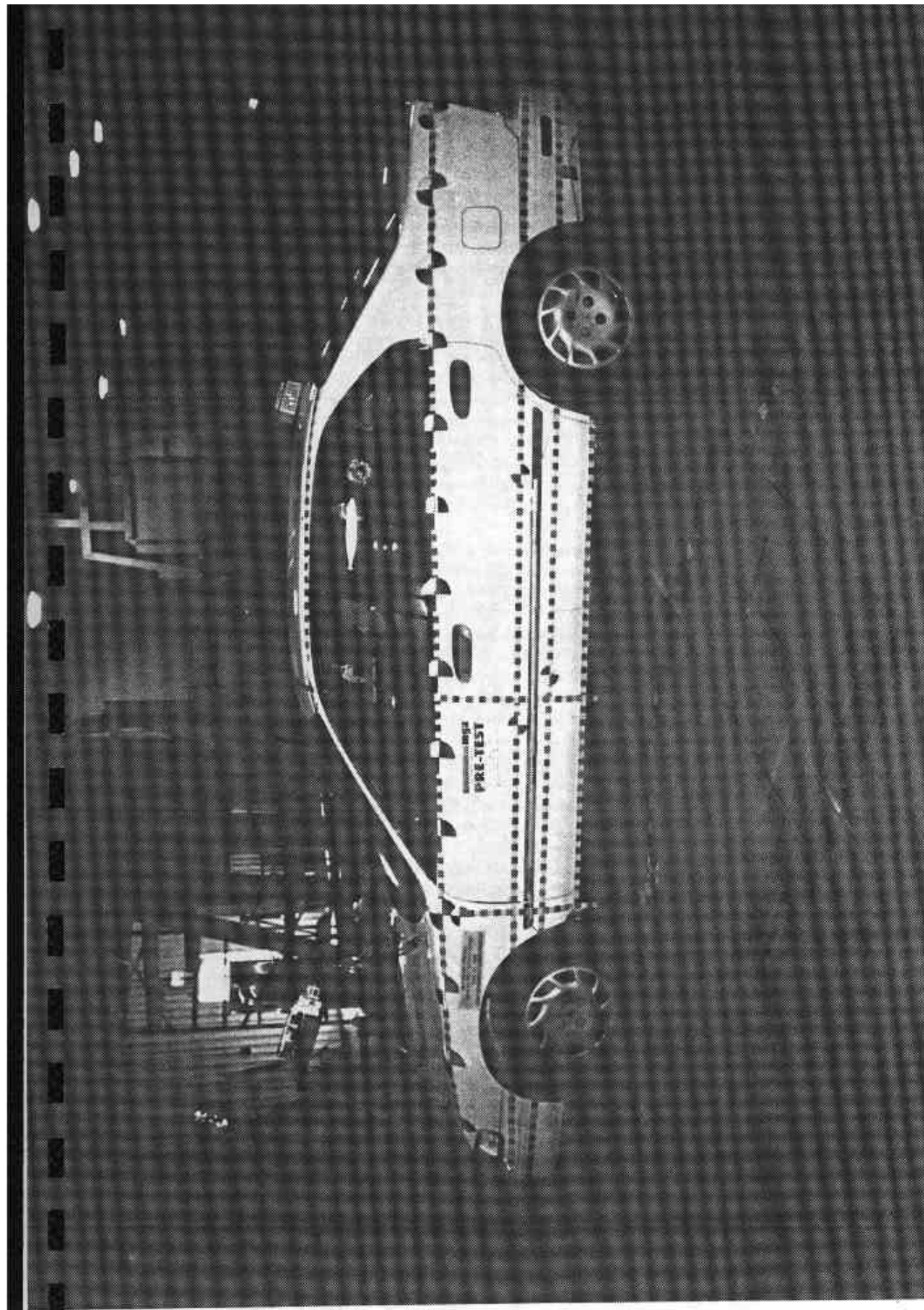


Photo No. A-4 - Pre-Test Left Side View of Test Vehicle

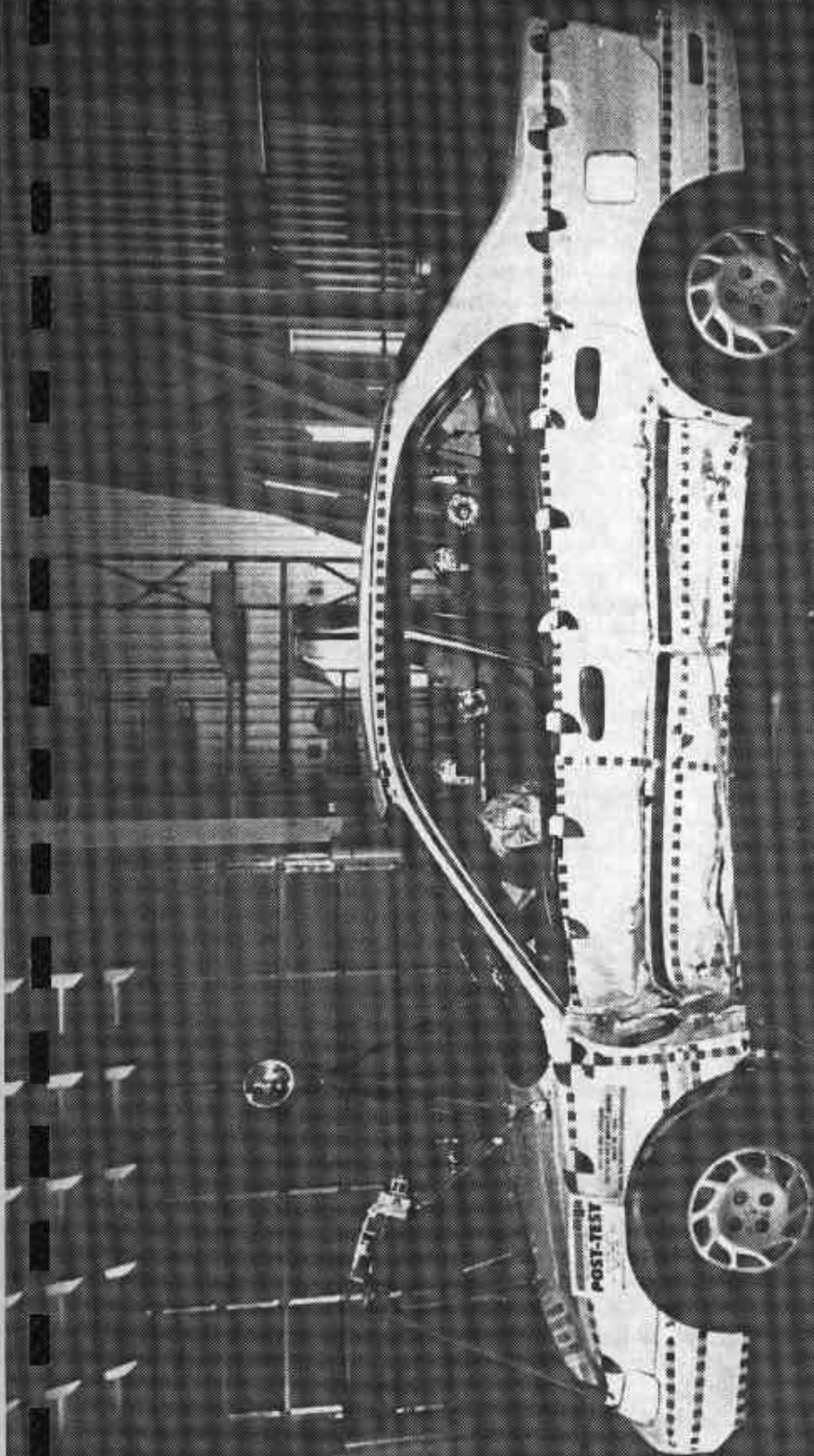


Photo No. A-5 - Post-Test Left Side View of Test Vehicle

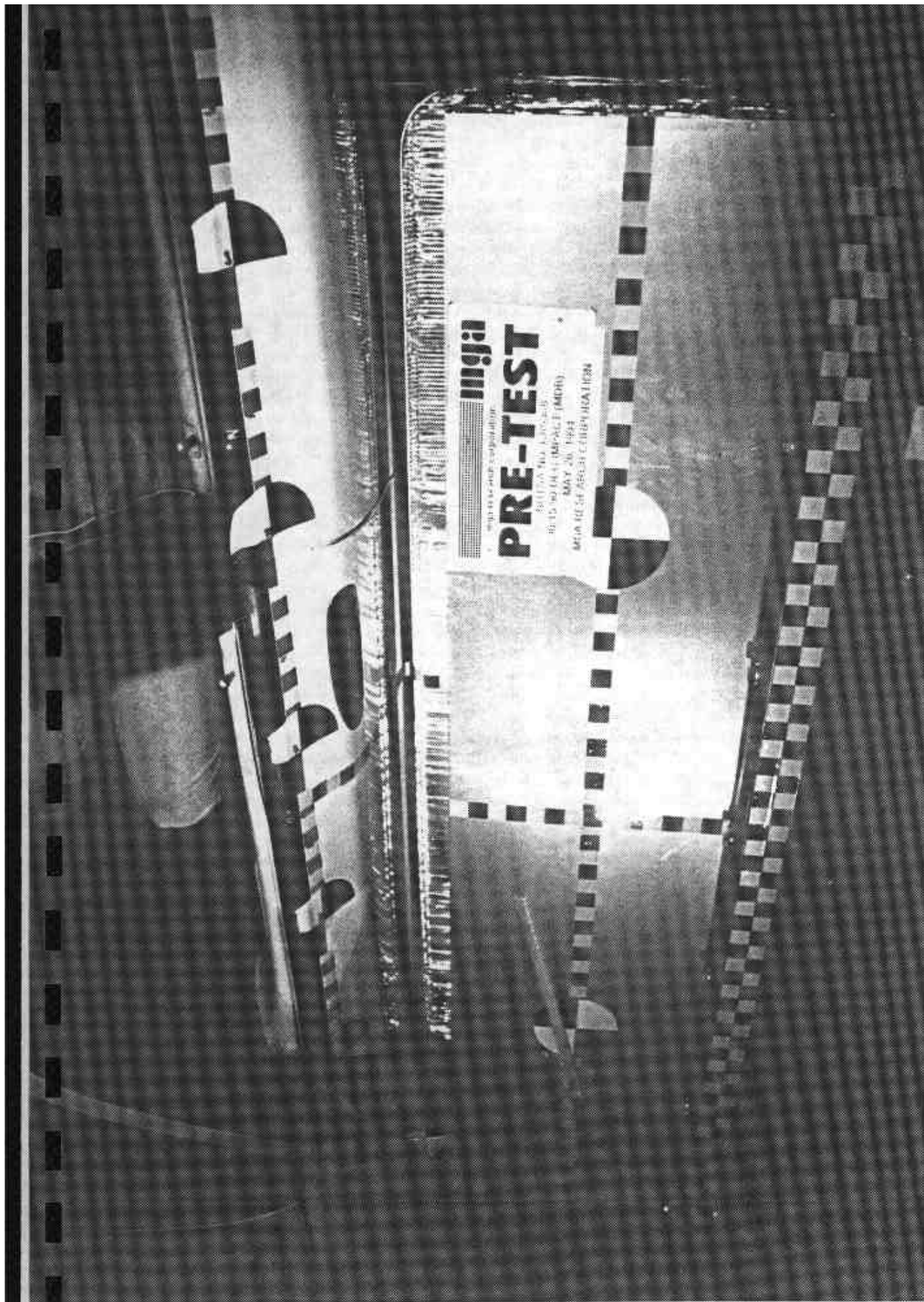


Photo No. A-8 - Pre-Test MDB Position Against Vehicle Overhead View

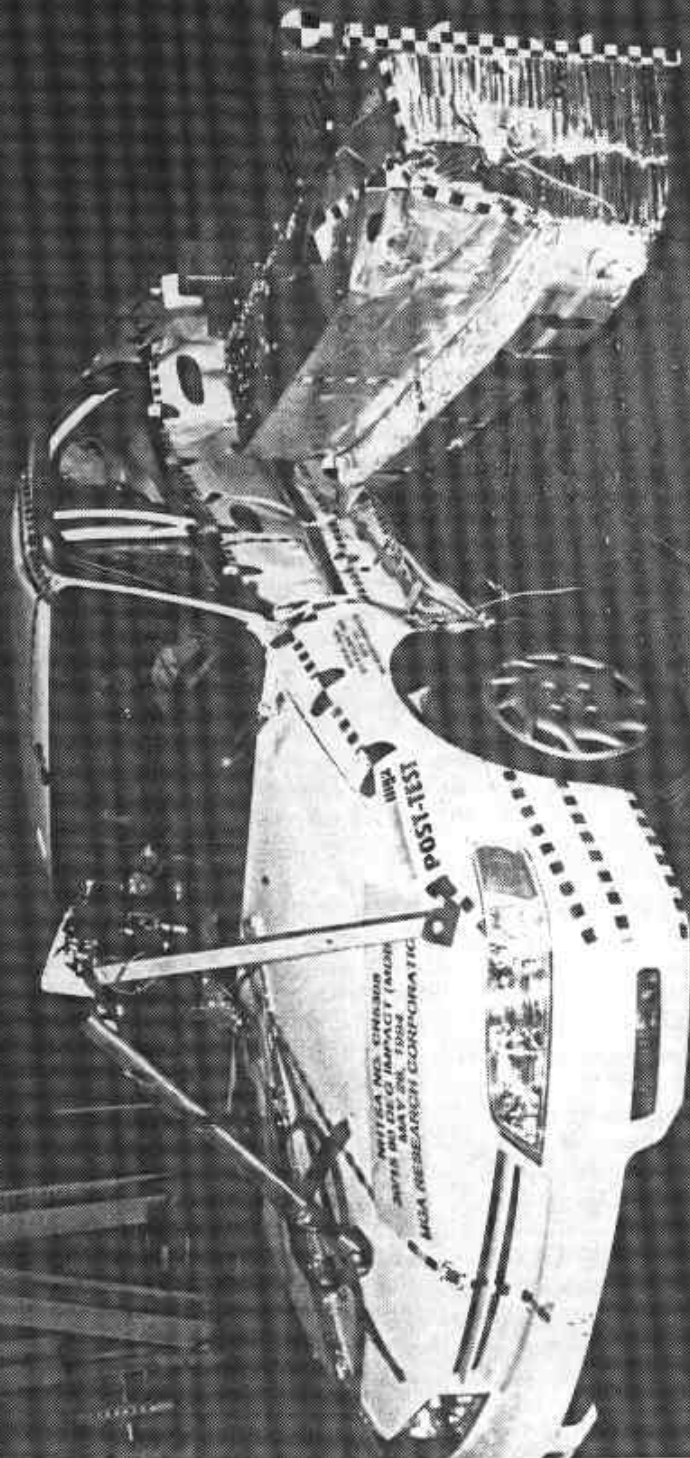


Photo No. A-9 - Post-Test MDB and Vehicle Left Side Front View

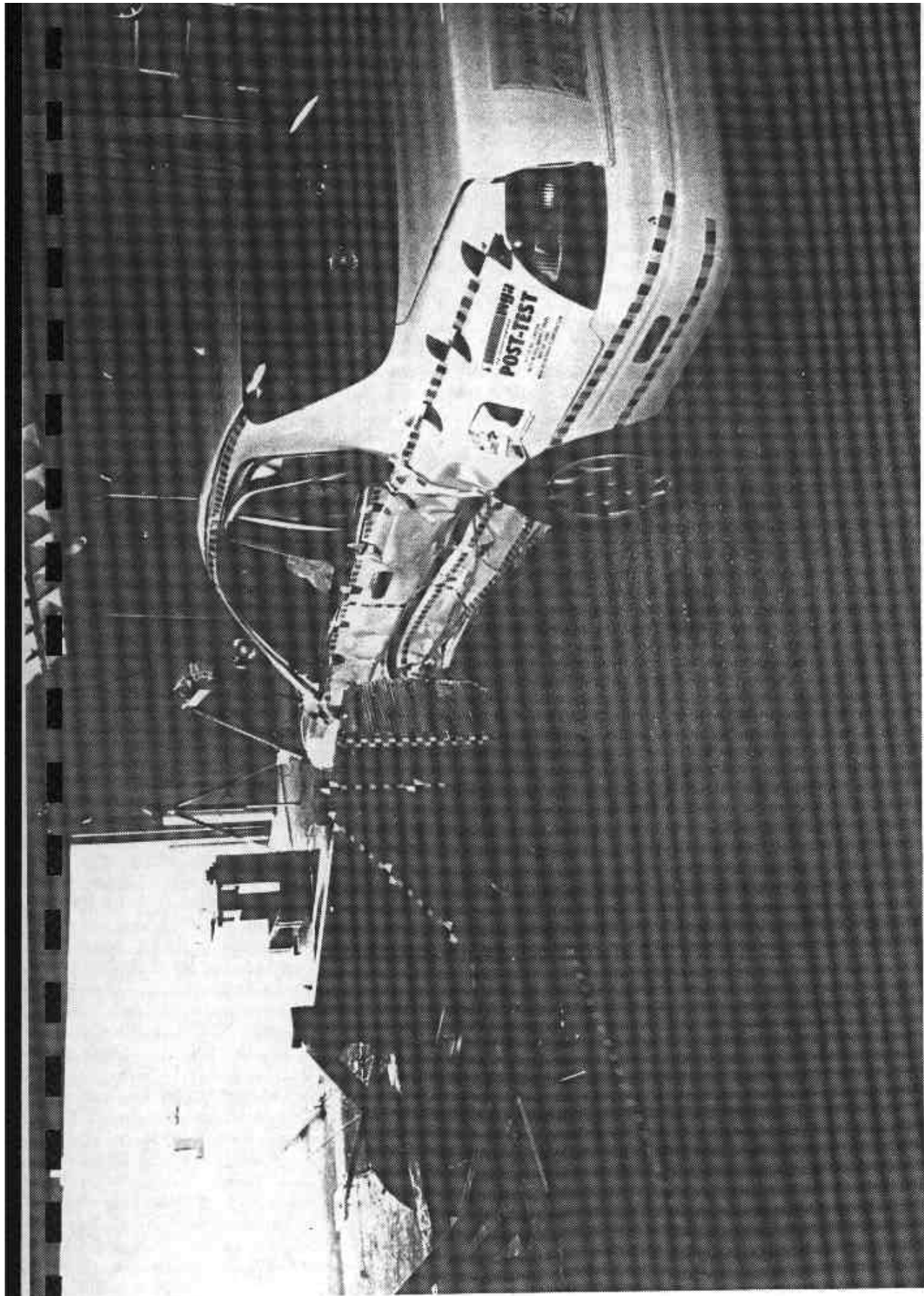


Photo No. A-10 - Post-Test MDB and Vehicle Right Side Rear View

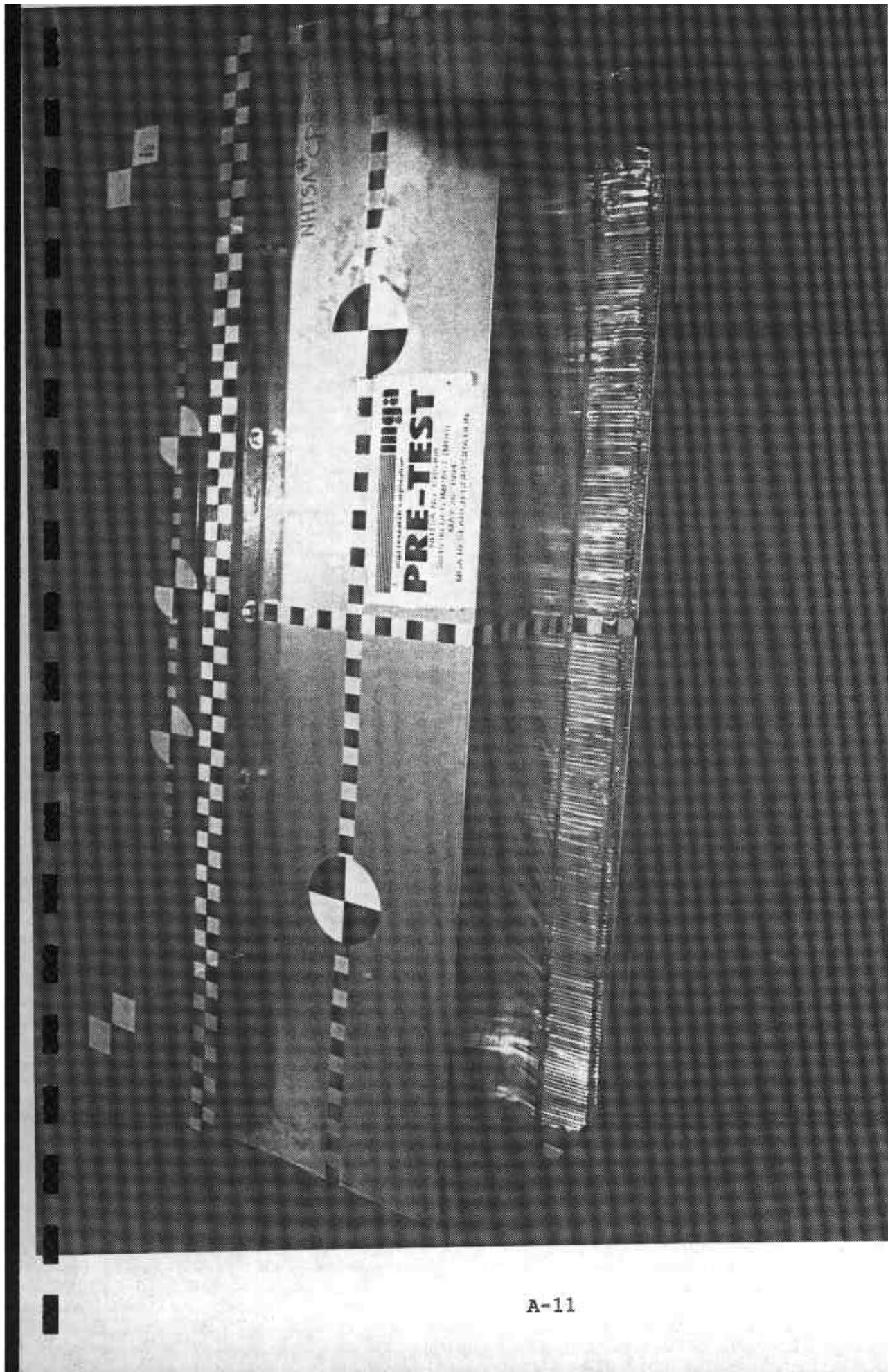


Photo No. A-11 - Pre-Test MDB Top View

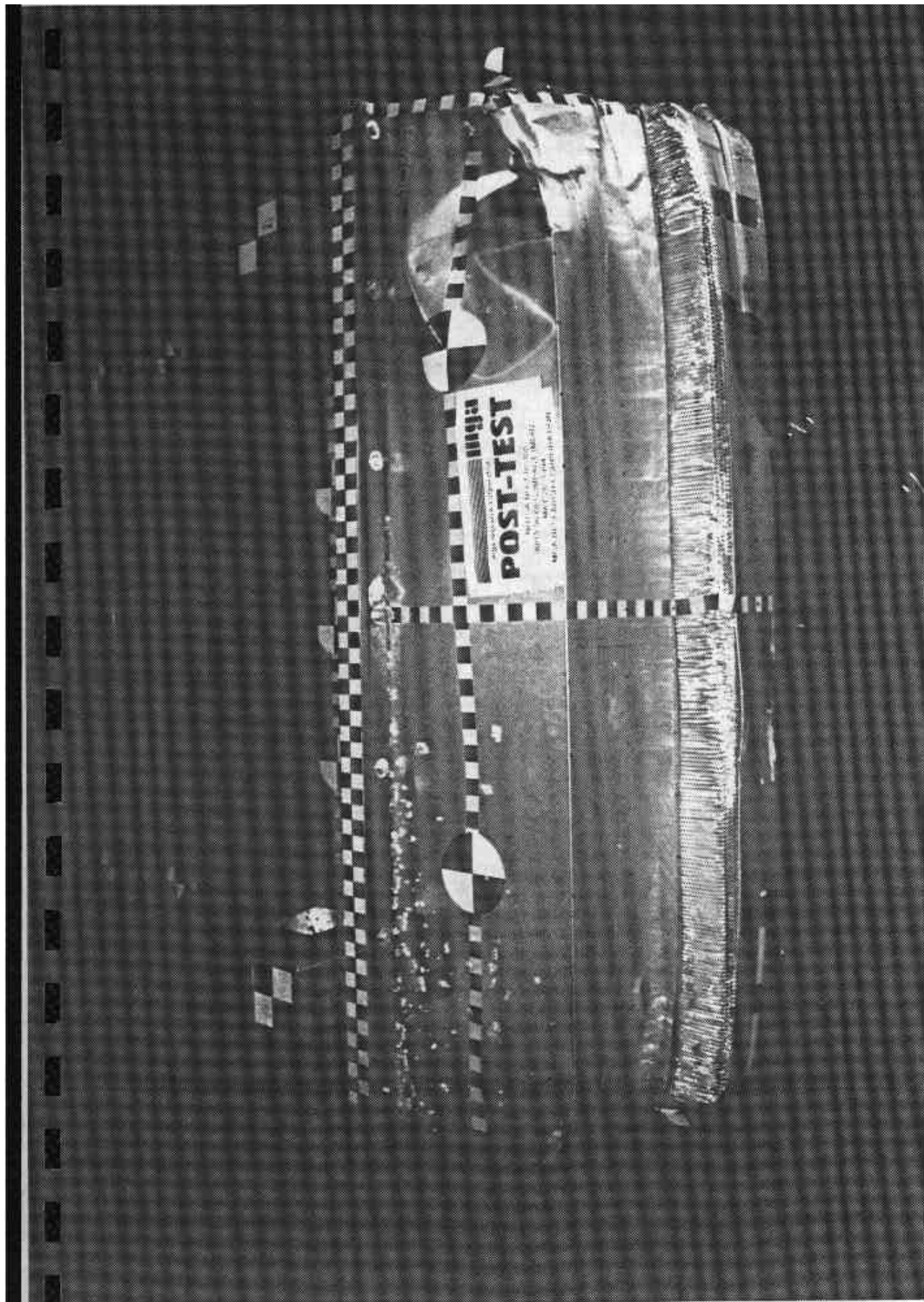


Photo No. A-12 - Post-Test MDB Top View

PRE-TEST
MILITARY
A-13

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

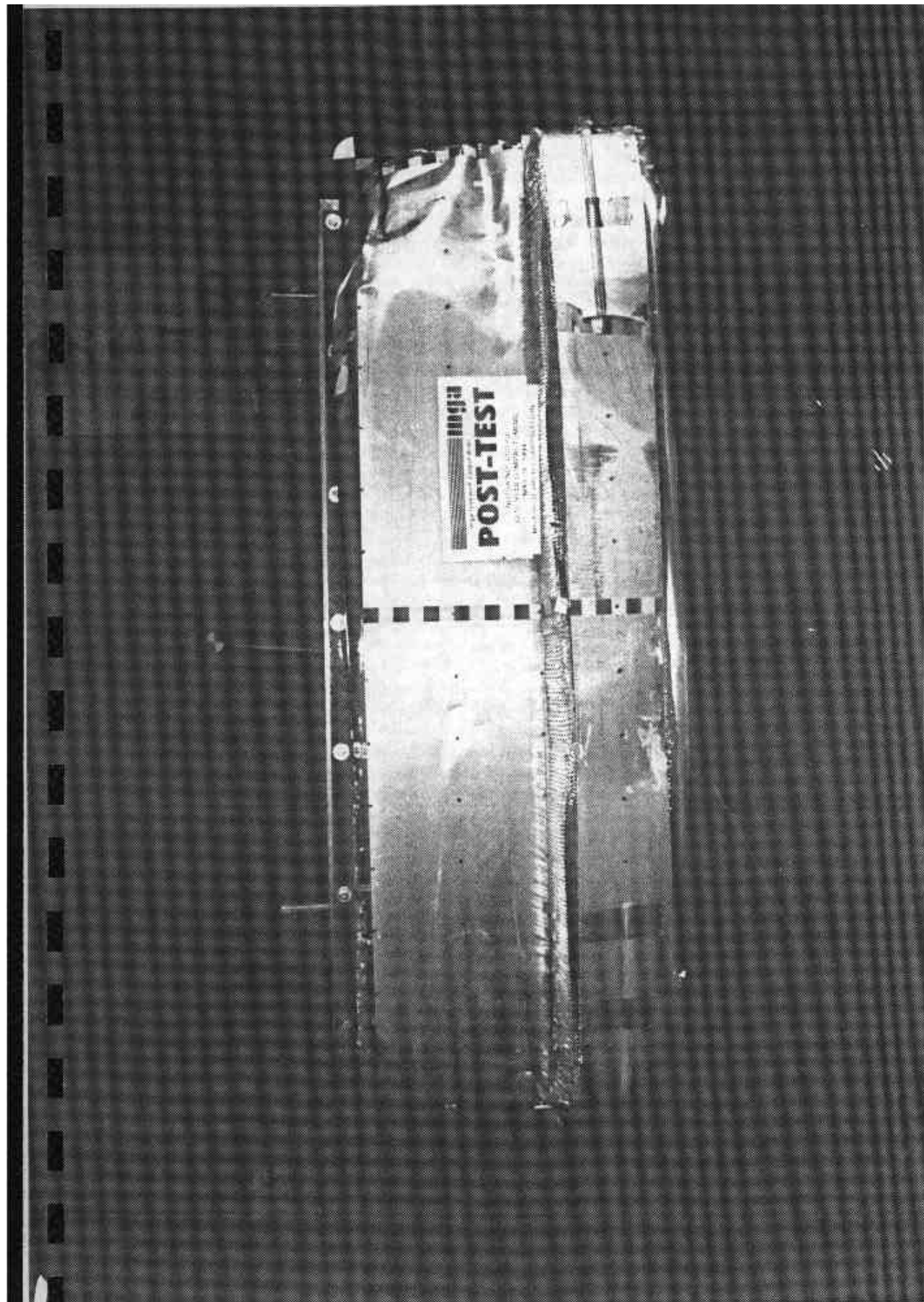


Photo No. A-14 - Post-Test MDB Front View

ingra
ingra research corporation
PRE-TEST
NADA No. 1470-BIB
2010-REDC 0185/ACT (MDO)
MAY 26, 1994
EARLIER CORPORATION

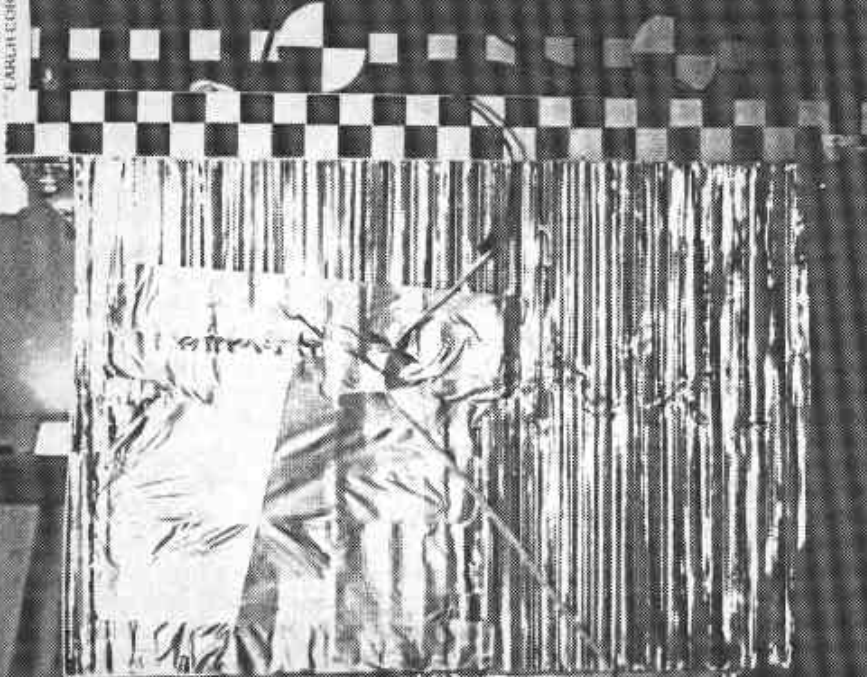


Photo No. A-15 - Pre-Test MDB Left Side View

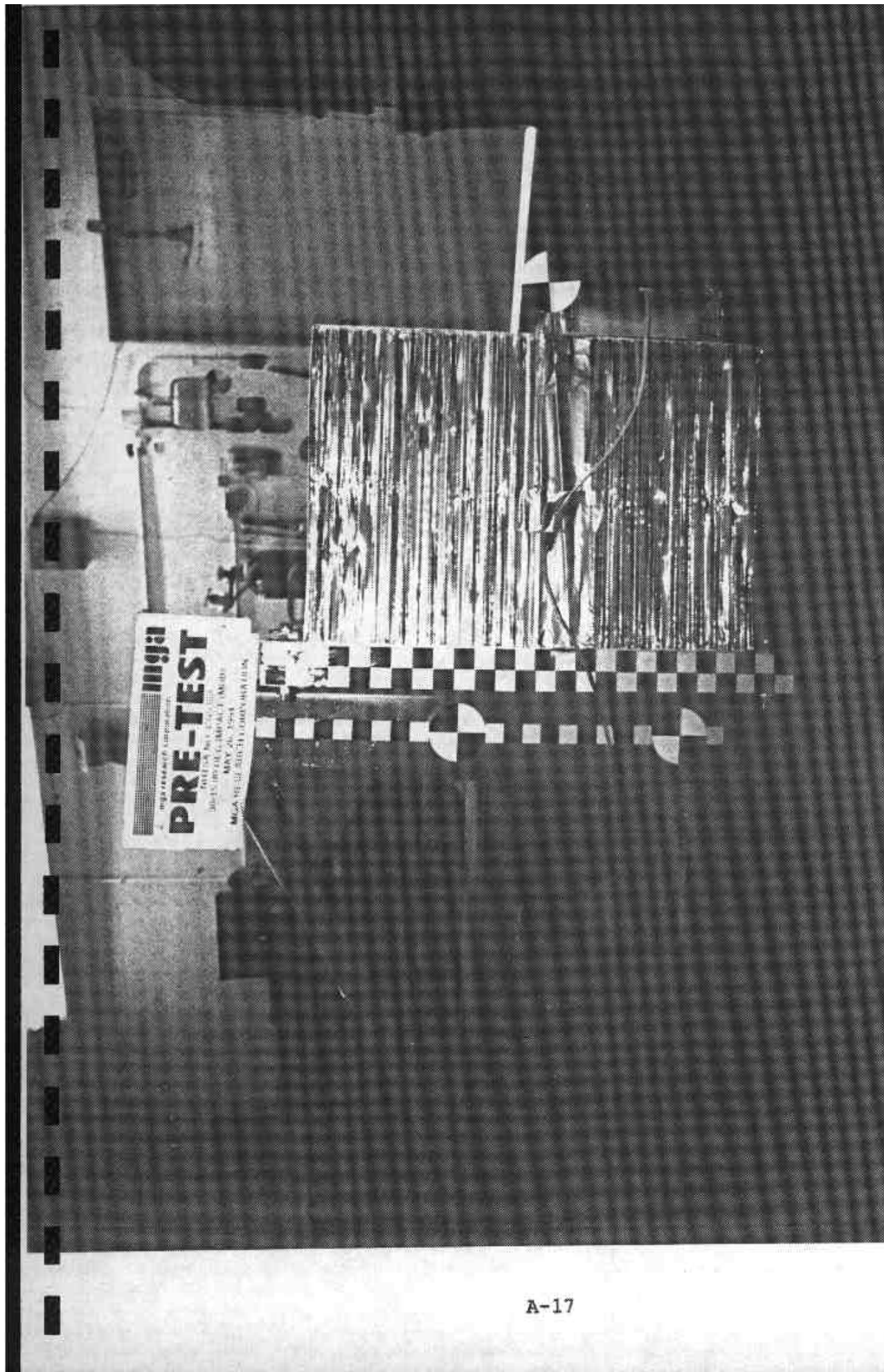


Photo No. A-17 - Pre-Test MDB Right Side View

ingra
POST-TEST
TESTING & ANALYSIS
SERIES NO. C-1000
2015 1015 1015 1015 1015
MCA TESTED COMPANY

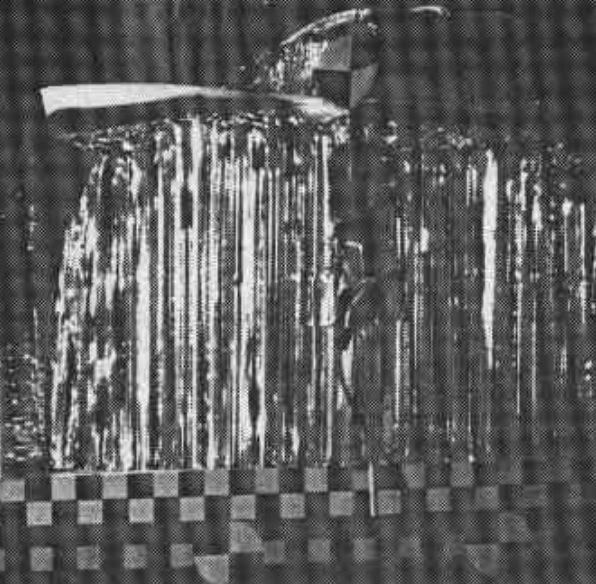


Photo No. A-18 - Post-Test MDB Right Side View

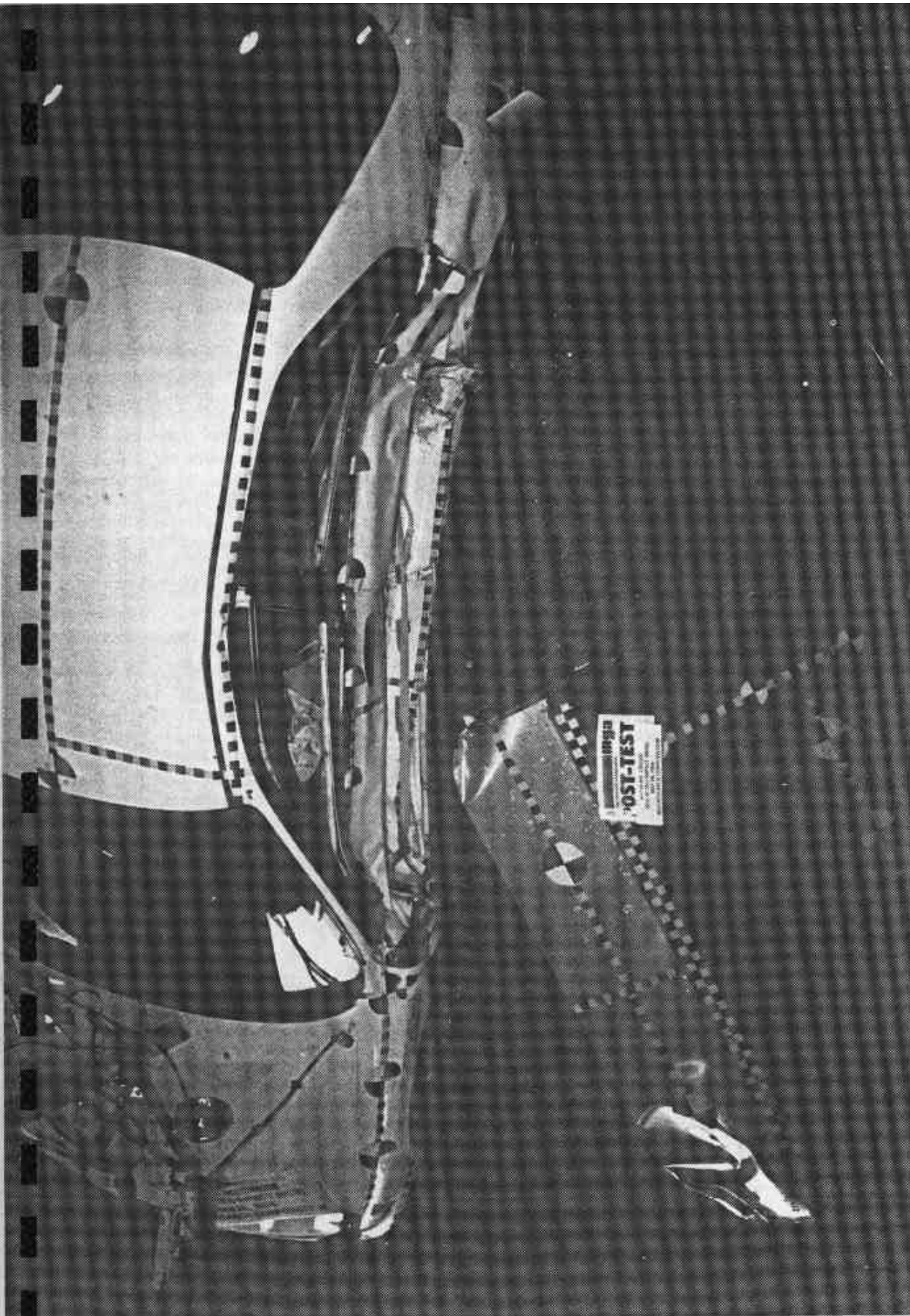


Photo No. A-19 - Post-Test MDB and Vehicle Overhead View

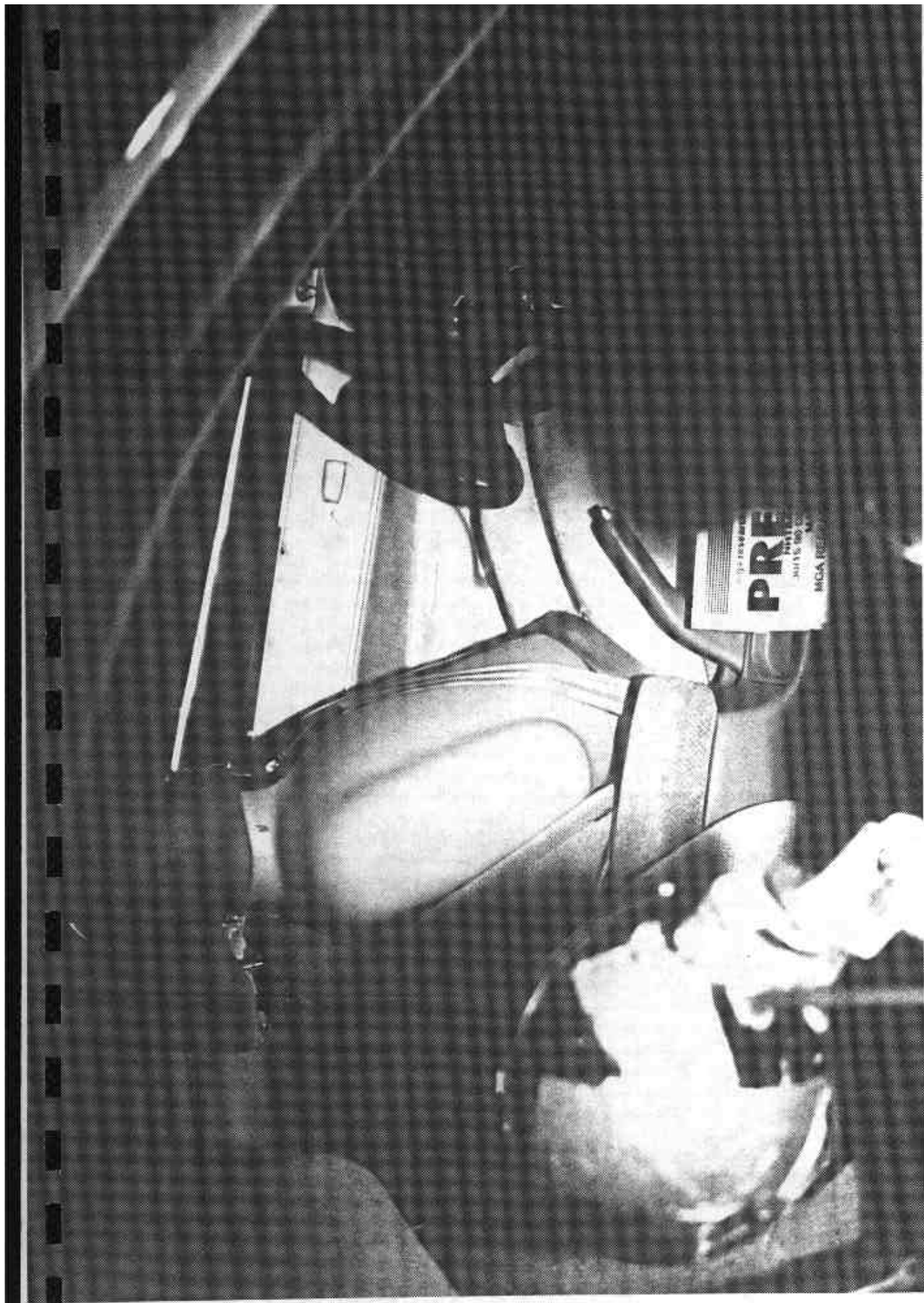


Photo No. A-20 - Pre-Test Driver Dummy Right Side View

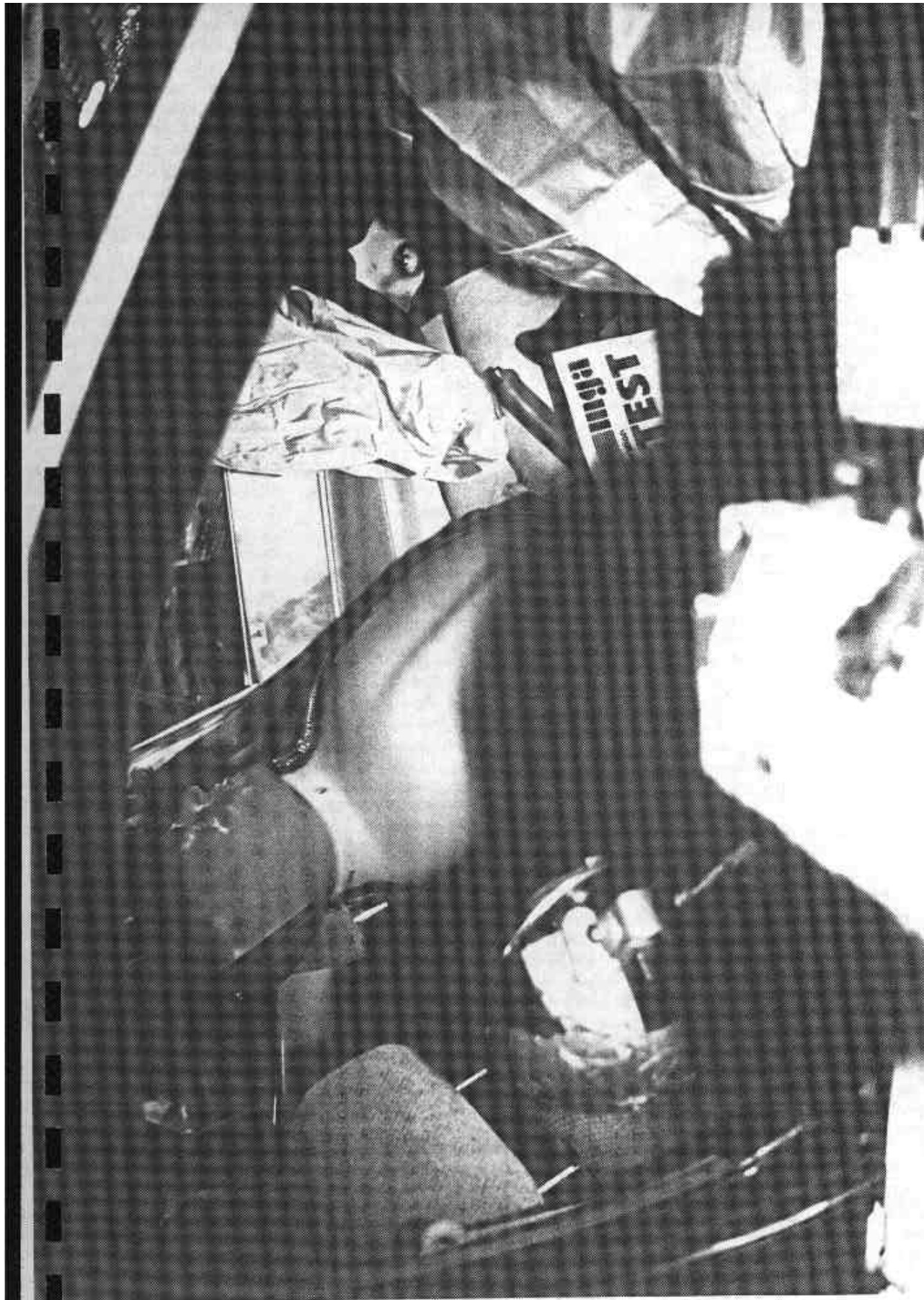


Photo No. A-21 - Post-Test Driver Dummy Right Side View

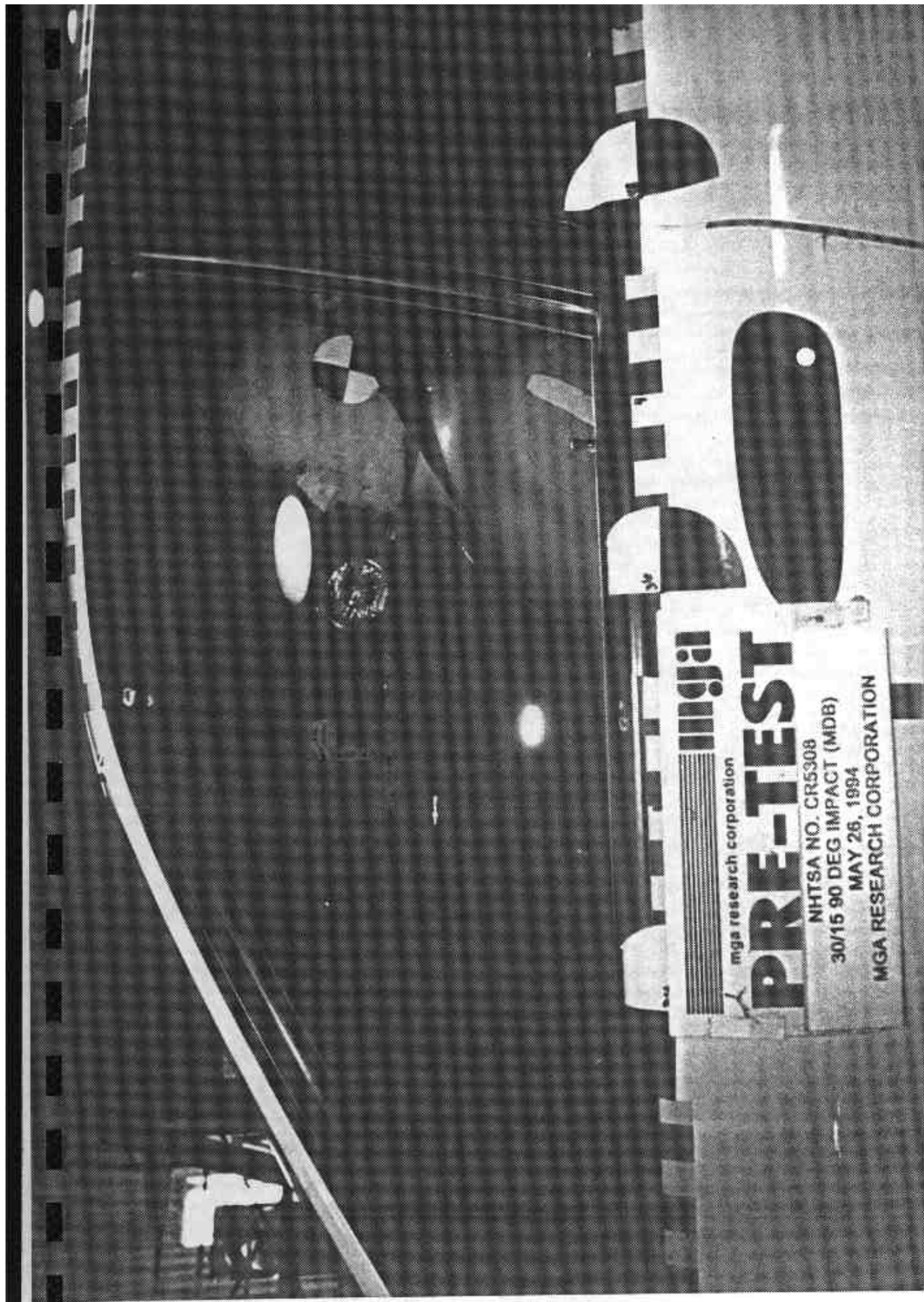


Photo No. A-22 - Pre-Test Driver Dummy Left Side View

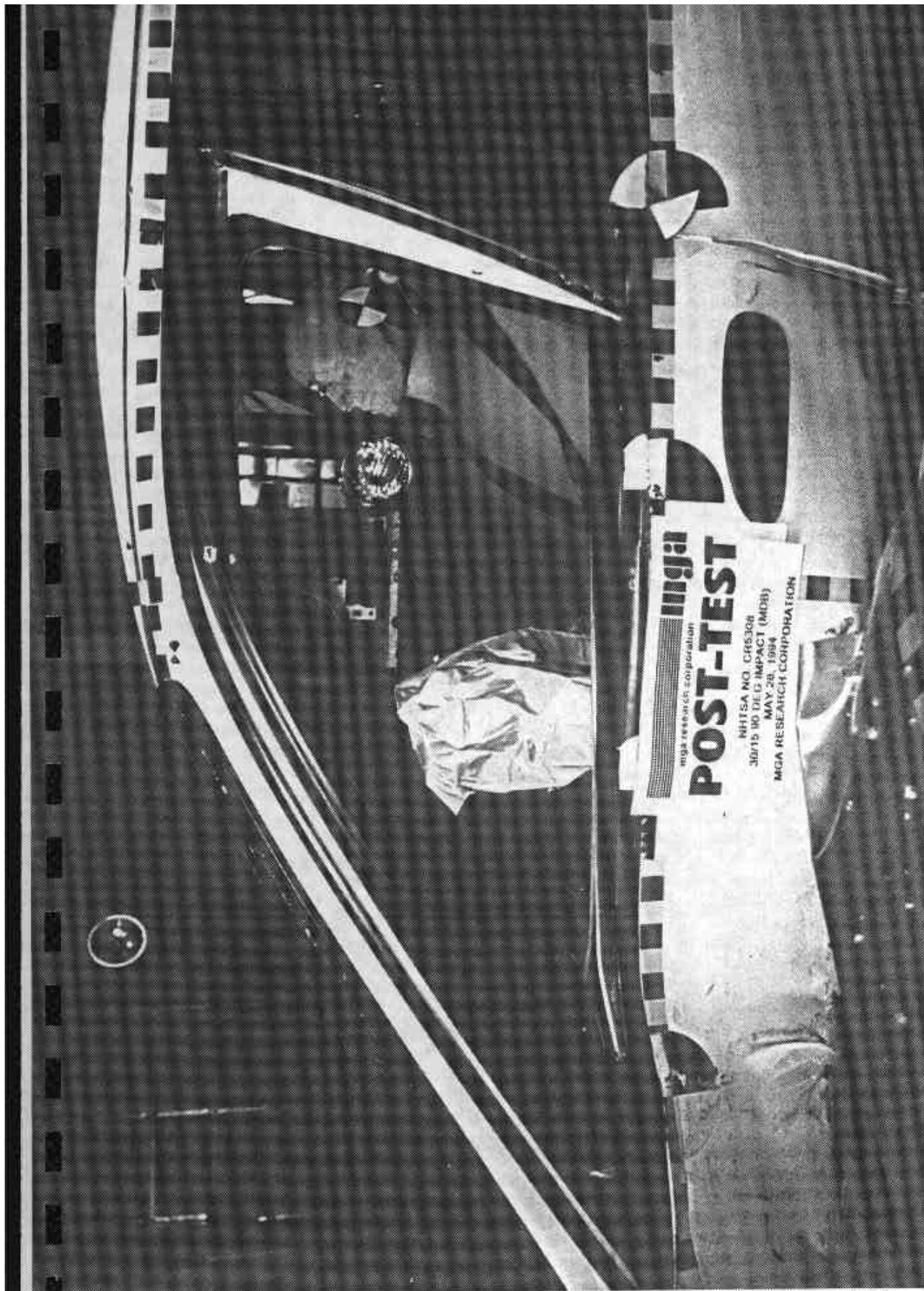


Photo No. A-23 - Post-Test Driver Dummy Left Side View

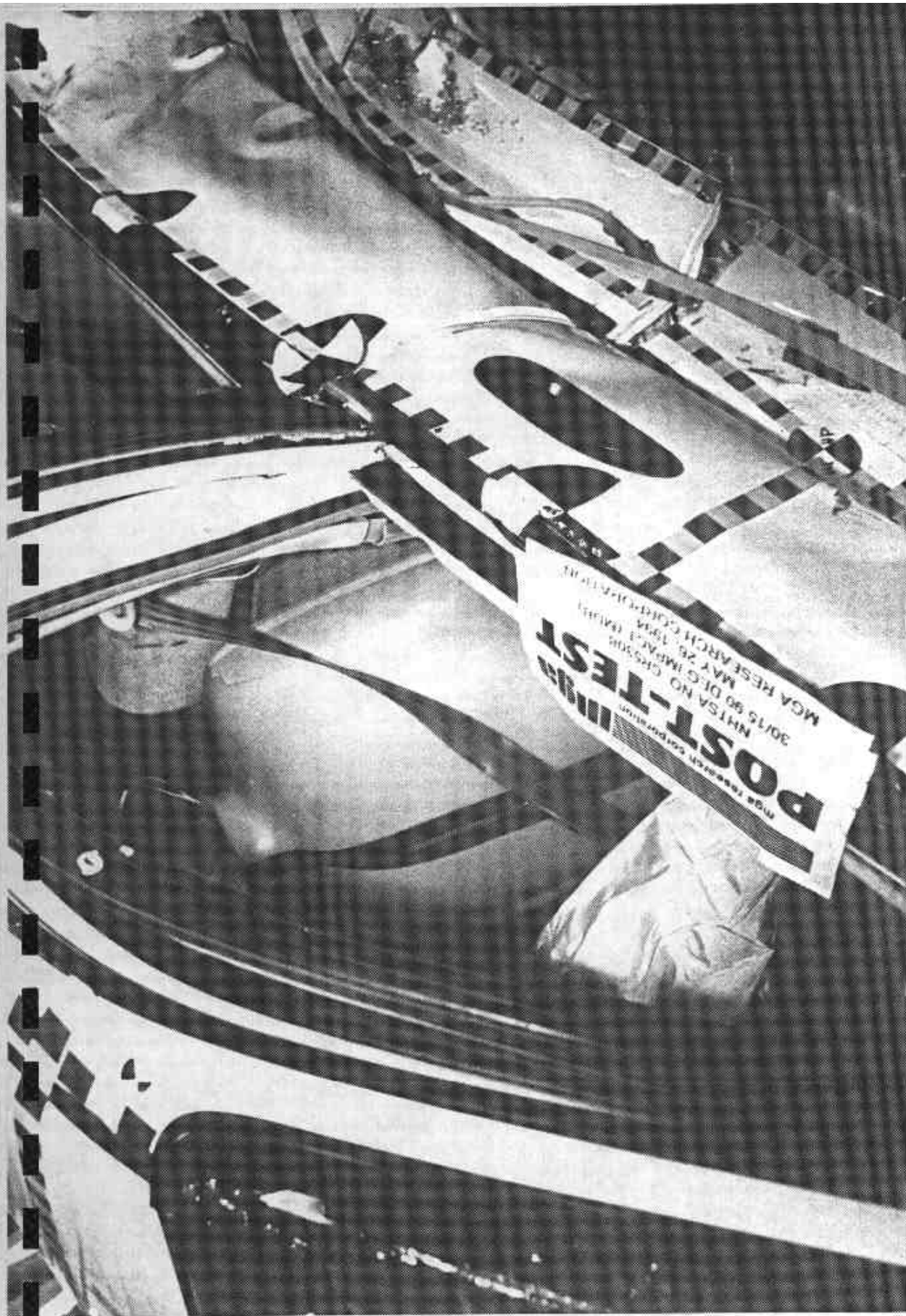


Photo No. A-24 - Post-Test Driver Dummy Front Oblique View

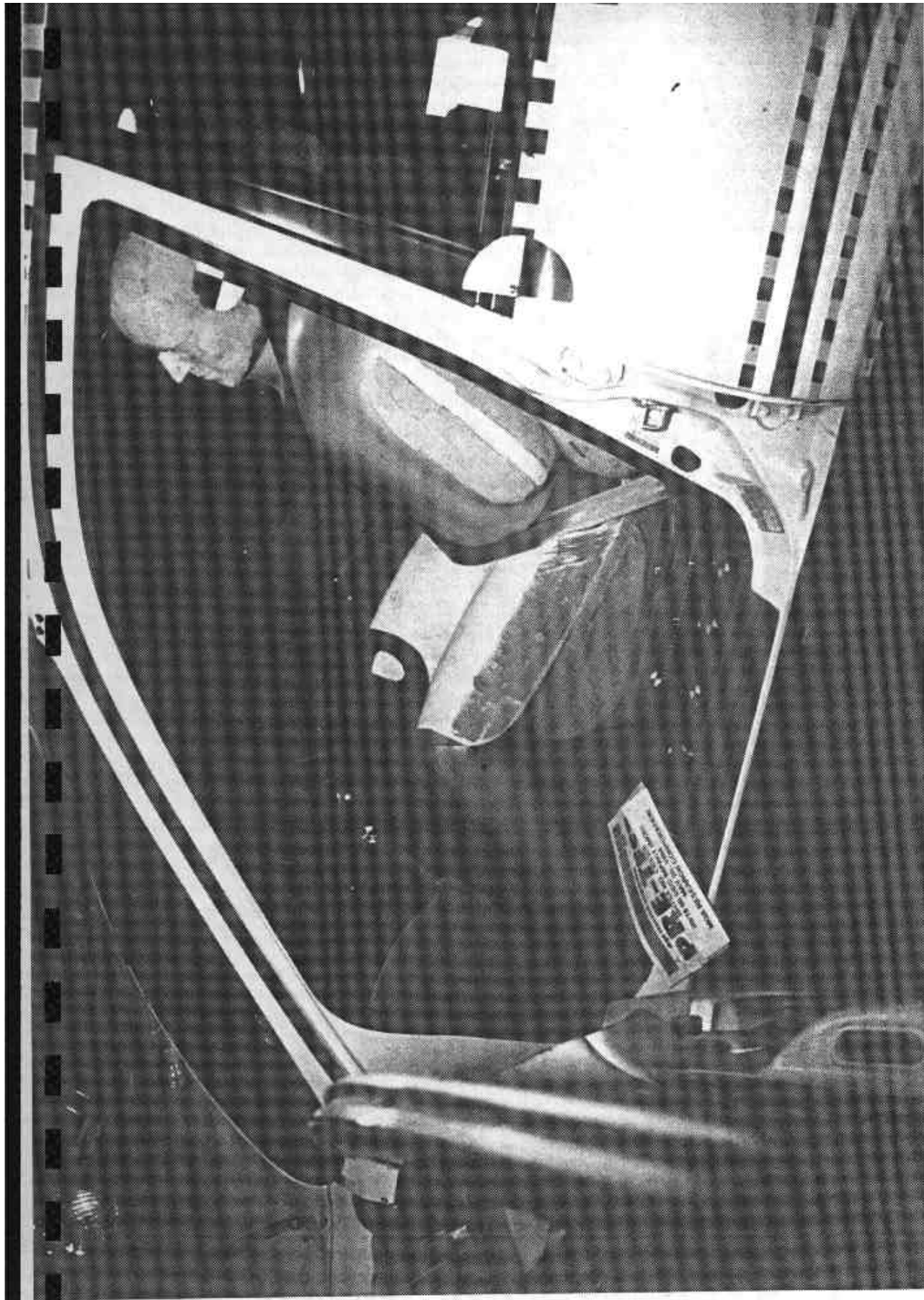


Photo No. A-25 - Pre-Test Driver Dummy Left Side View (Door Open)

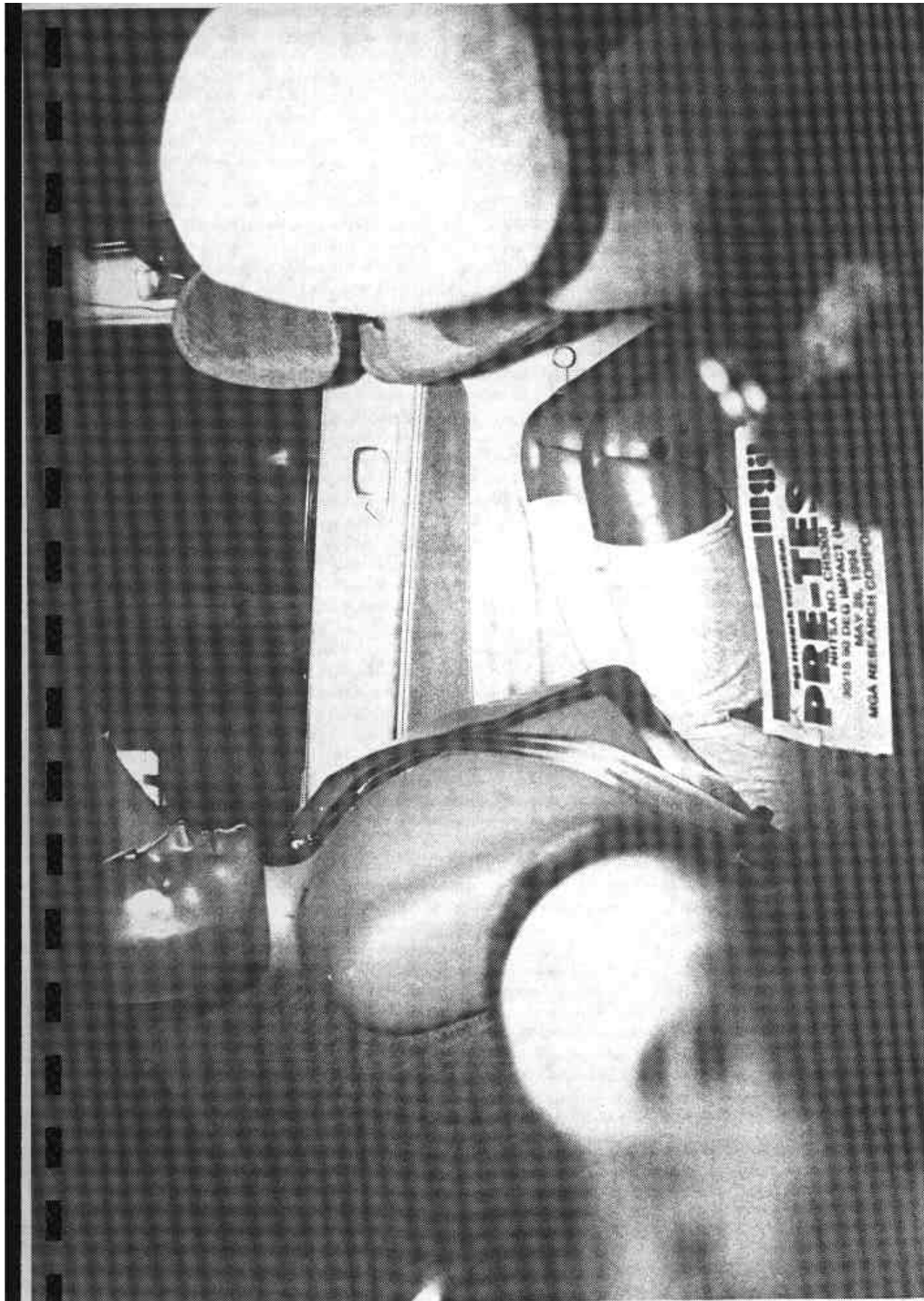


Photo No. A-26 - Pre-Test Passenger Dummy Right Side View



Photo No. A-27 - Post-Test Passenger Dummy Right Side View

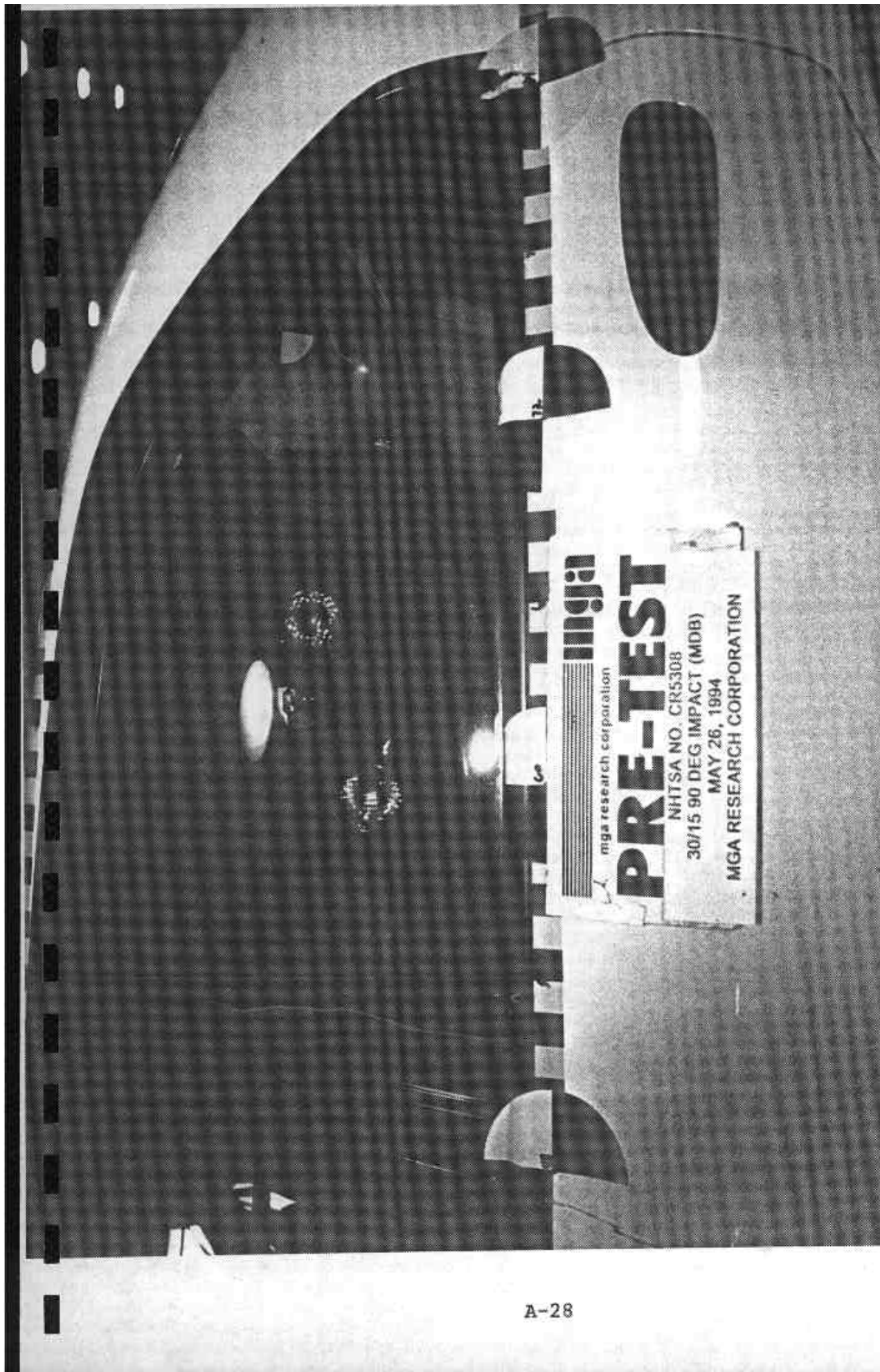


Photo No. A-28 - Pre-Test Passenger Dummy Left Side View

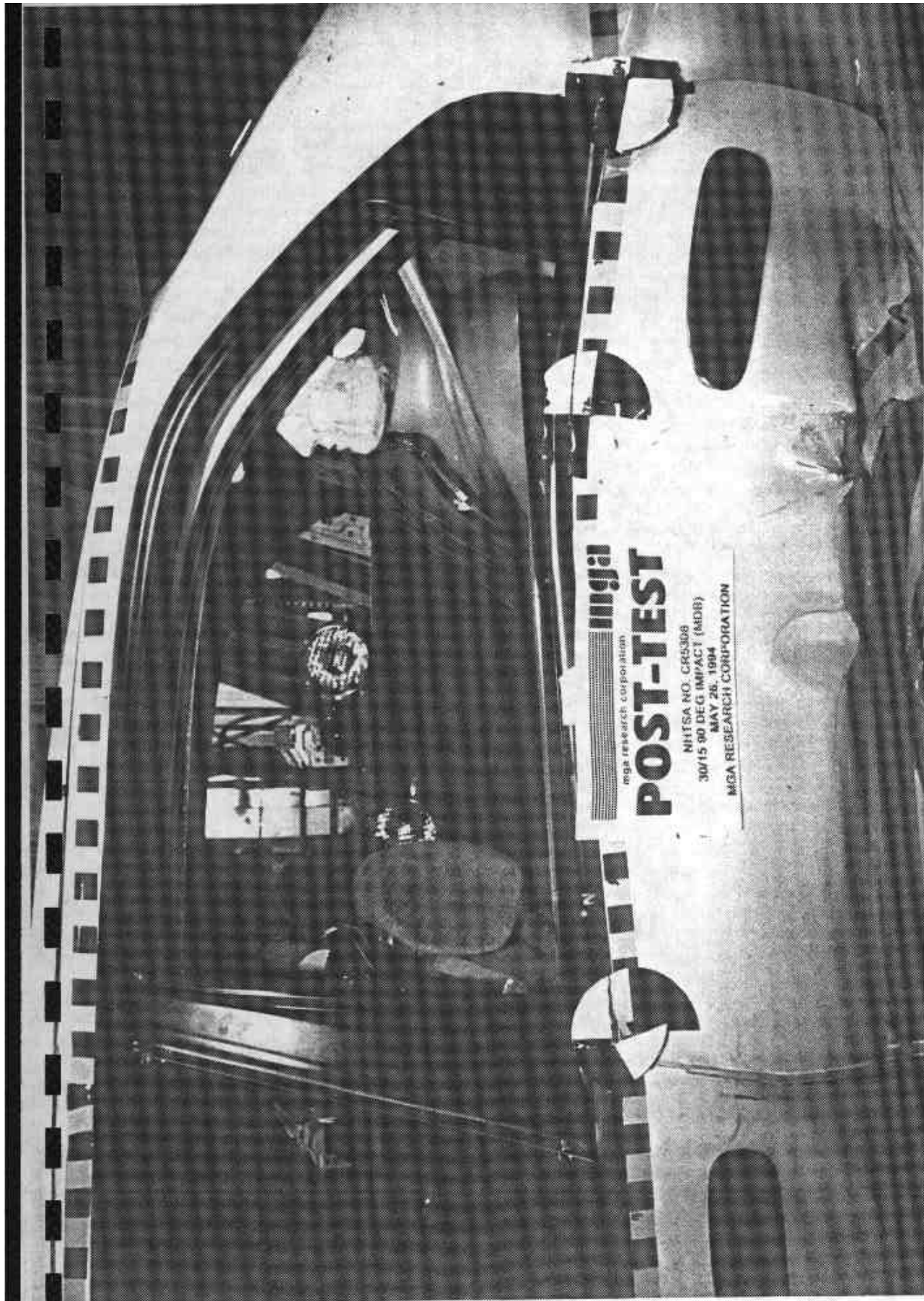


Photo No. A-29 - Post-Test Passenger Dummy Left Side View

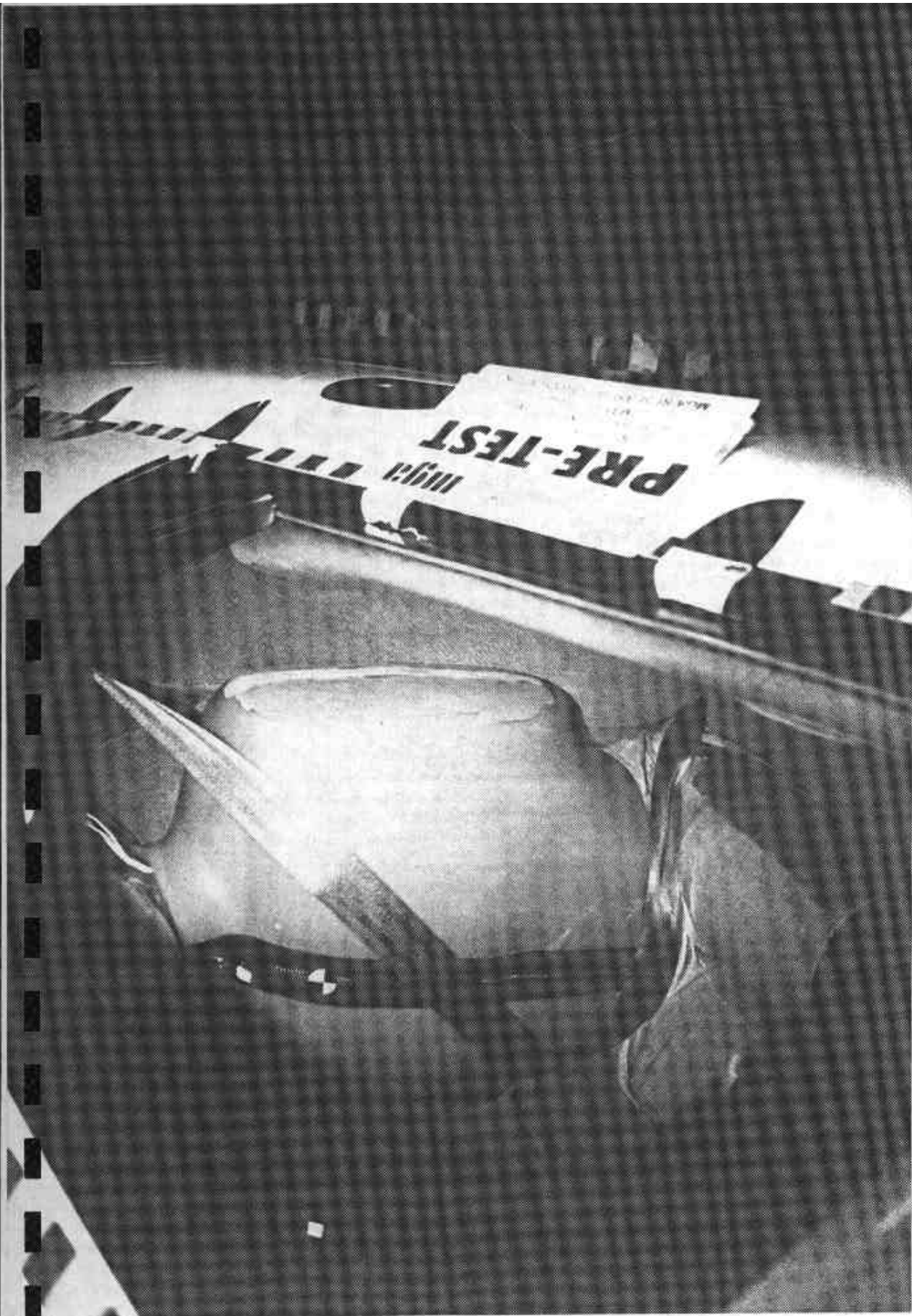


Photo No. A-30 - Pre-Test Passenger Dummy Front Oblique View

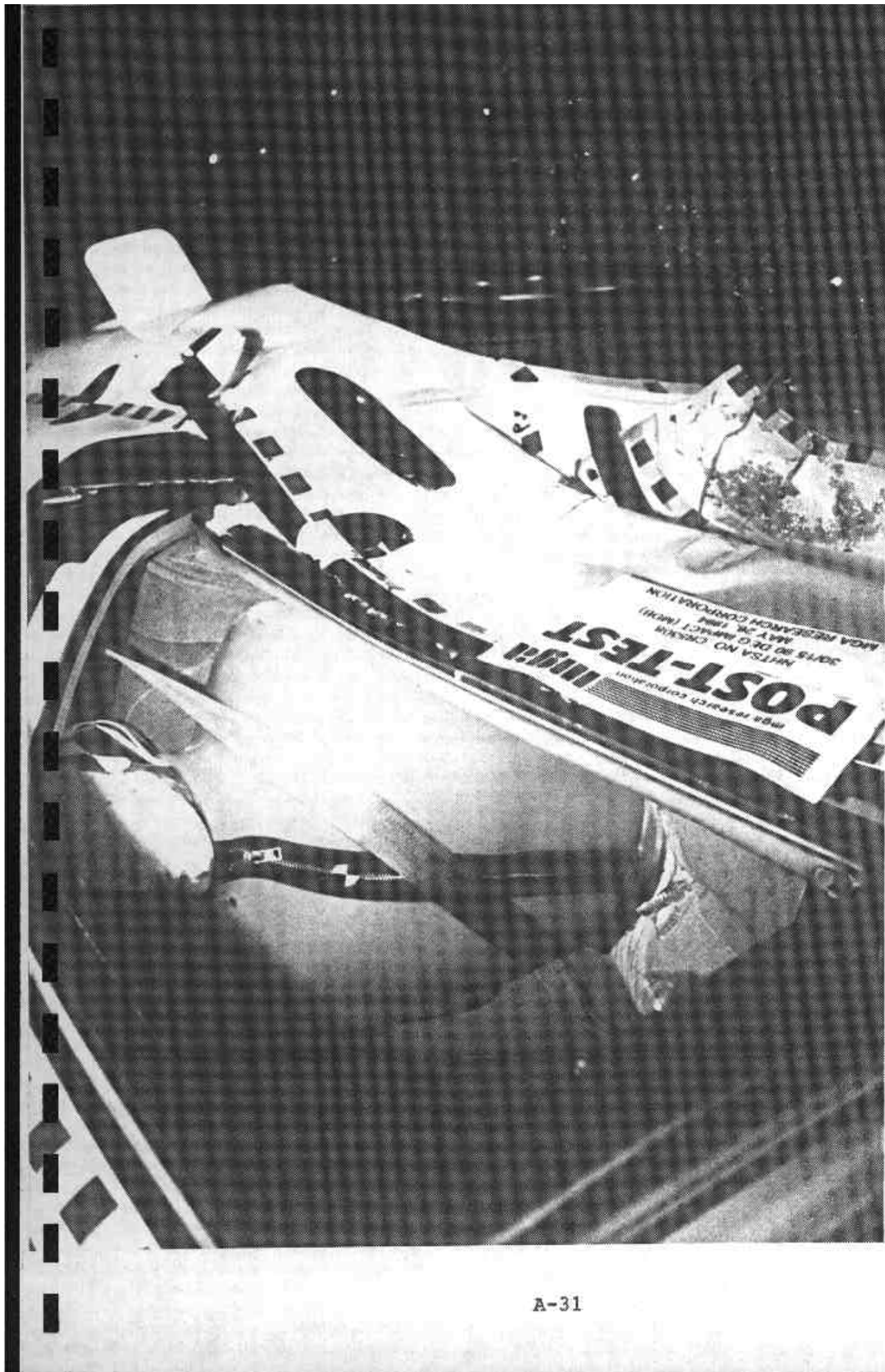


Photo No. A-31 - Post-Test Passenger Dummy Front Oblique View

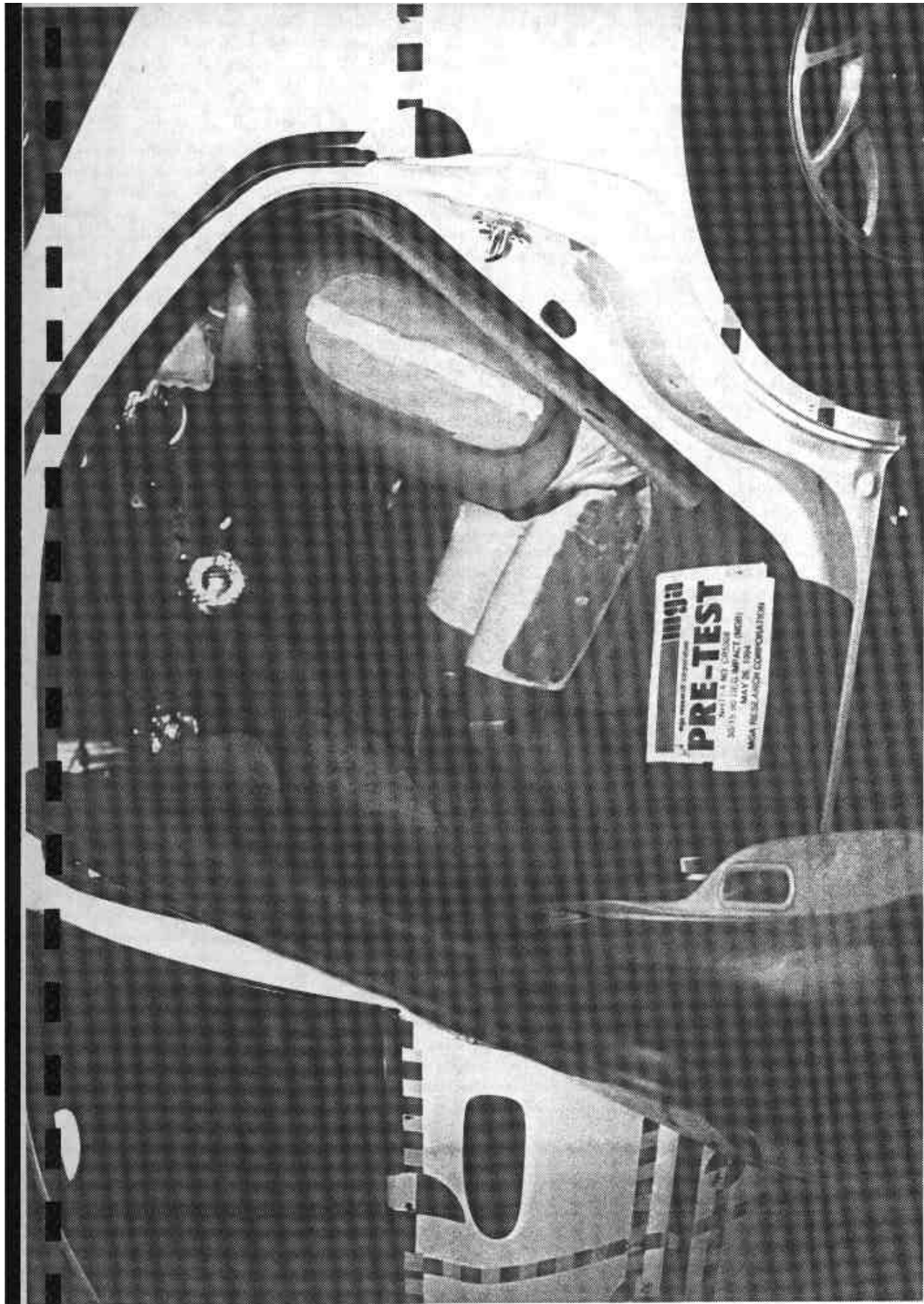


Photo No. A-32 - Pre-Test Passenger Dummy Left Side View (Door Open)



Photo No. A-33 - Post-Test Driver Dummy Front View

TIRE INFORMATION

CITY WEIGHT: 850 lbs.

CITY: TOTAL 5 FRONT 2 REAR 3

TIRE SIZE	COLD TIRE INFLATION PRESSURE.	VEHICLE WEIGHT.
P185 / 70R14 87S	FRONT / REAR 220kPa	VEHICLE WEIGHT.
COMPACT SPARE TIRE T115 / 70D14	INFLATION PRESSURE 420kPa	ON OTHER VEHICLES

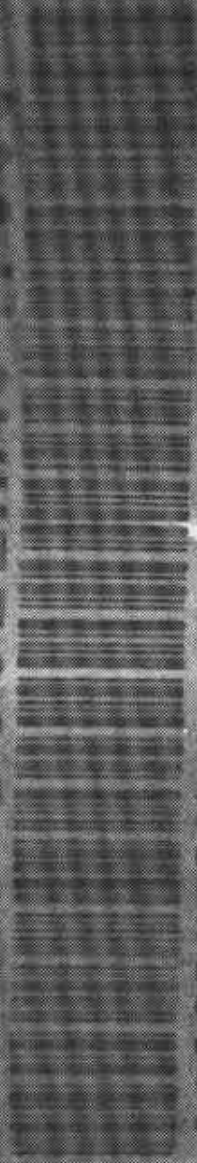
SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION

on **HONDA**

Photo No. A-34 - Tire Placard

MFD BY HONDA OF AMERICA MFG., INC. 11/93
GVWR 3915LBS GAWR F 2140LBS R 1810LBS
THIS VEHICLE CONFORMS TO ALL APPLICABLE
FEDERAL MOTOR VEHICLE SAFETY, BUMPER,
AND THEFT PREVENTION STANDARDS IN EFFECT
ON THE DATE OF MANUFACTURE SHOWN ABOVE

VIN 1HGCD5522RA047600



PASSENGER CAR

MADE IN U.S.A.

Photo No. A-35 - Certification Label

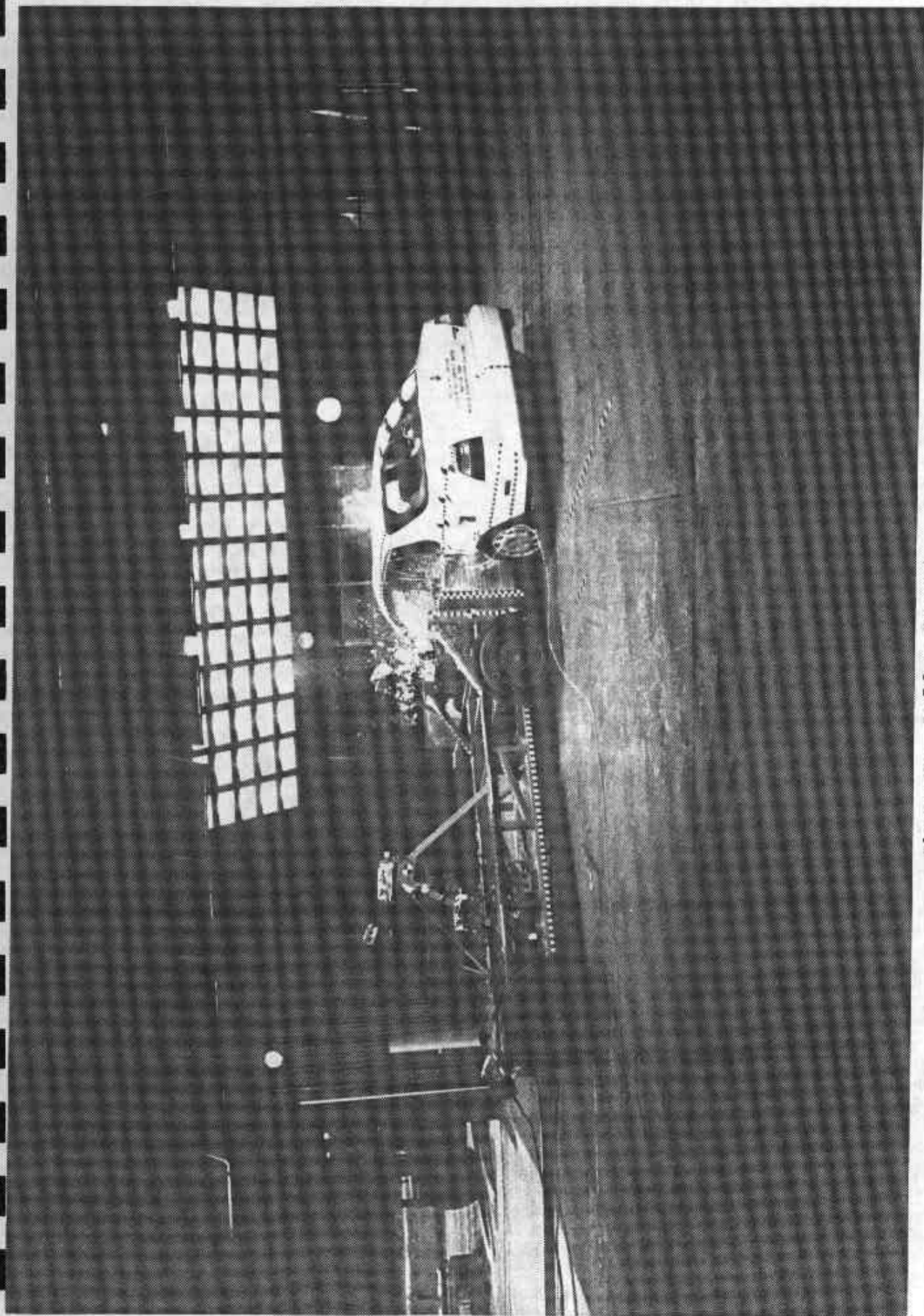
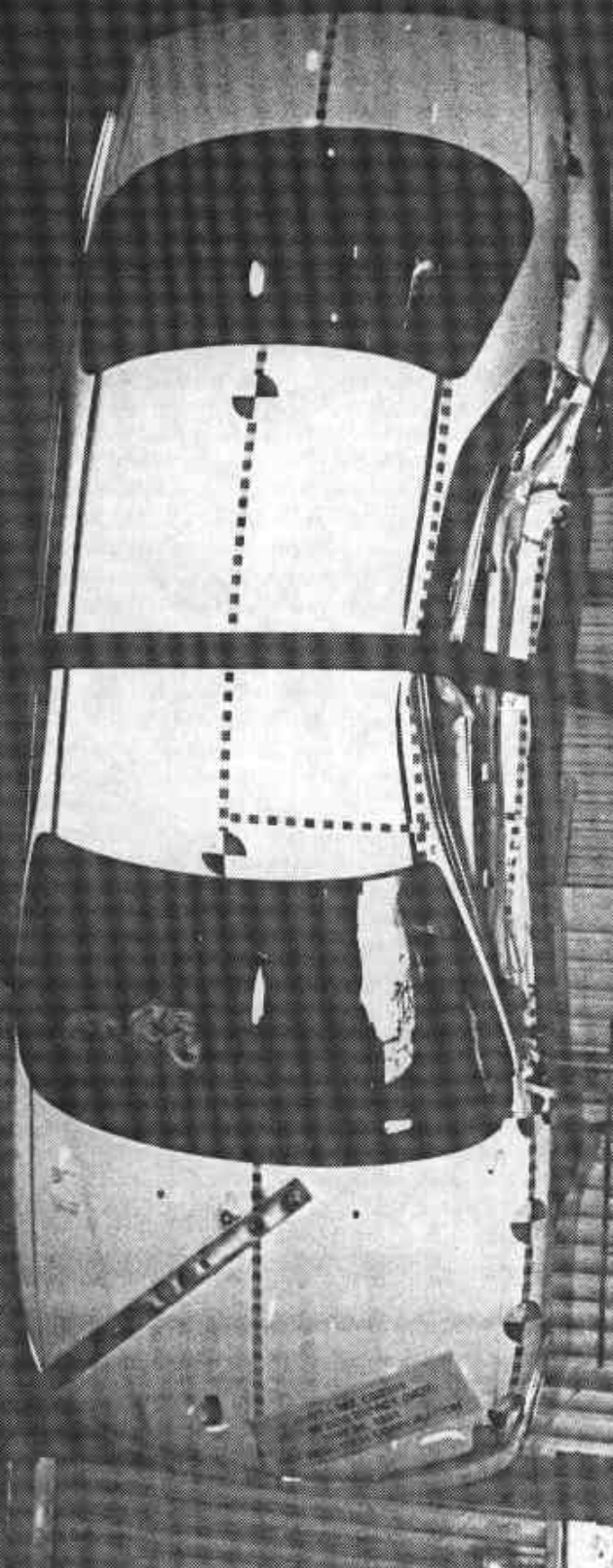


Photo No. A-36 - Impact

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POST-TEST

Photo No. A-37 - Rollover 90°

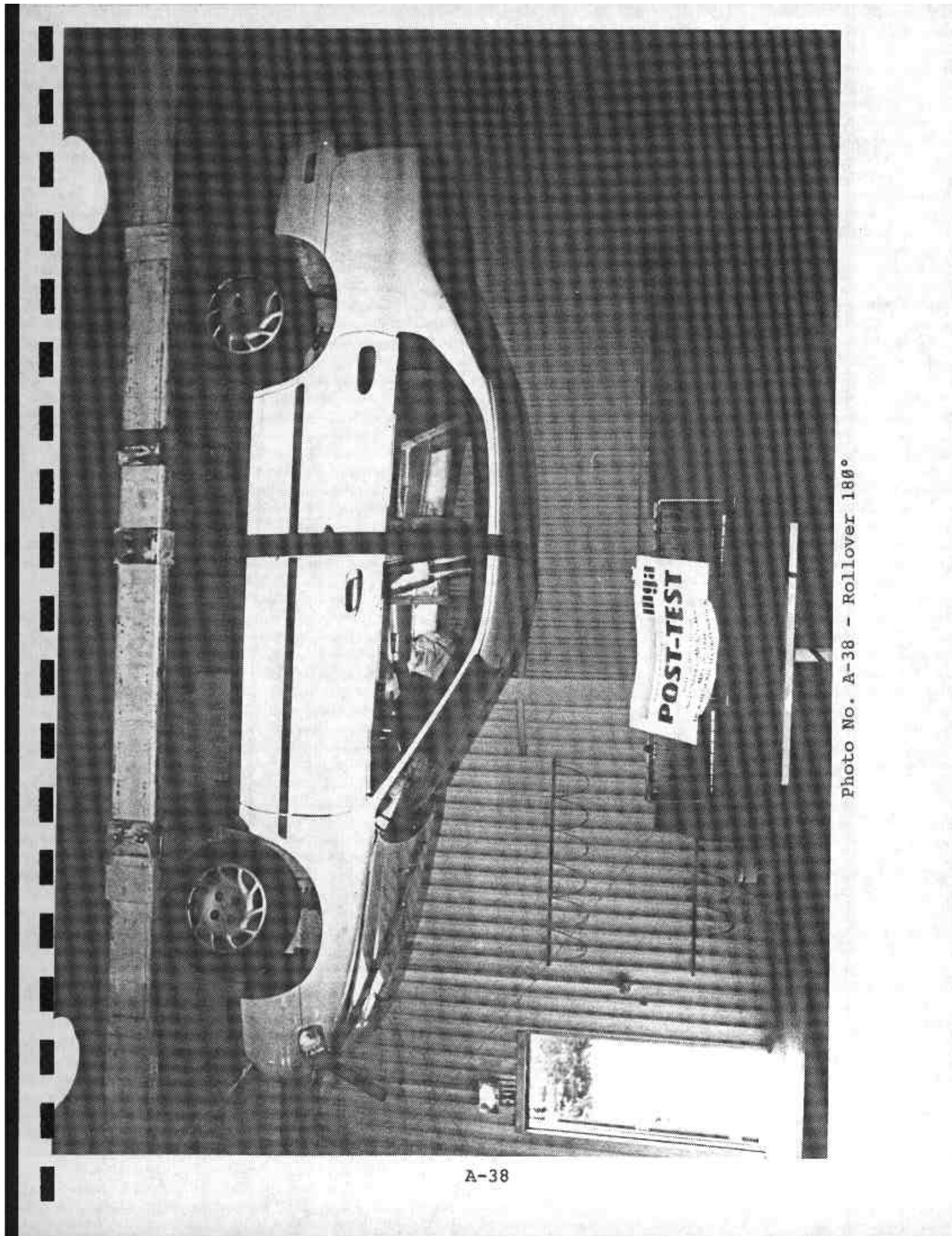


Photo No. A-38 - Rollover 180°

A-38

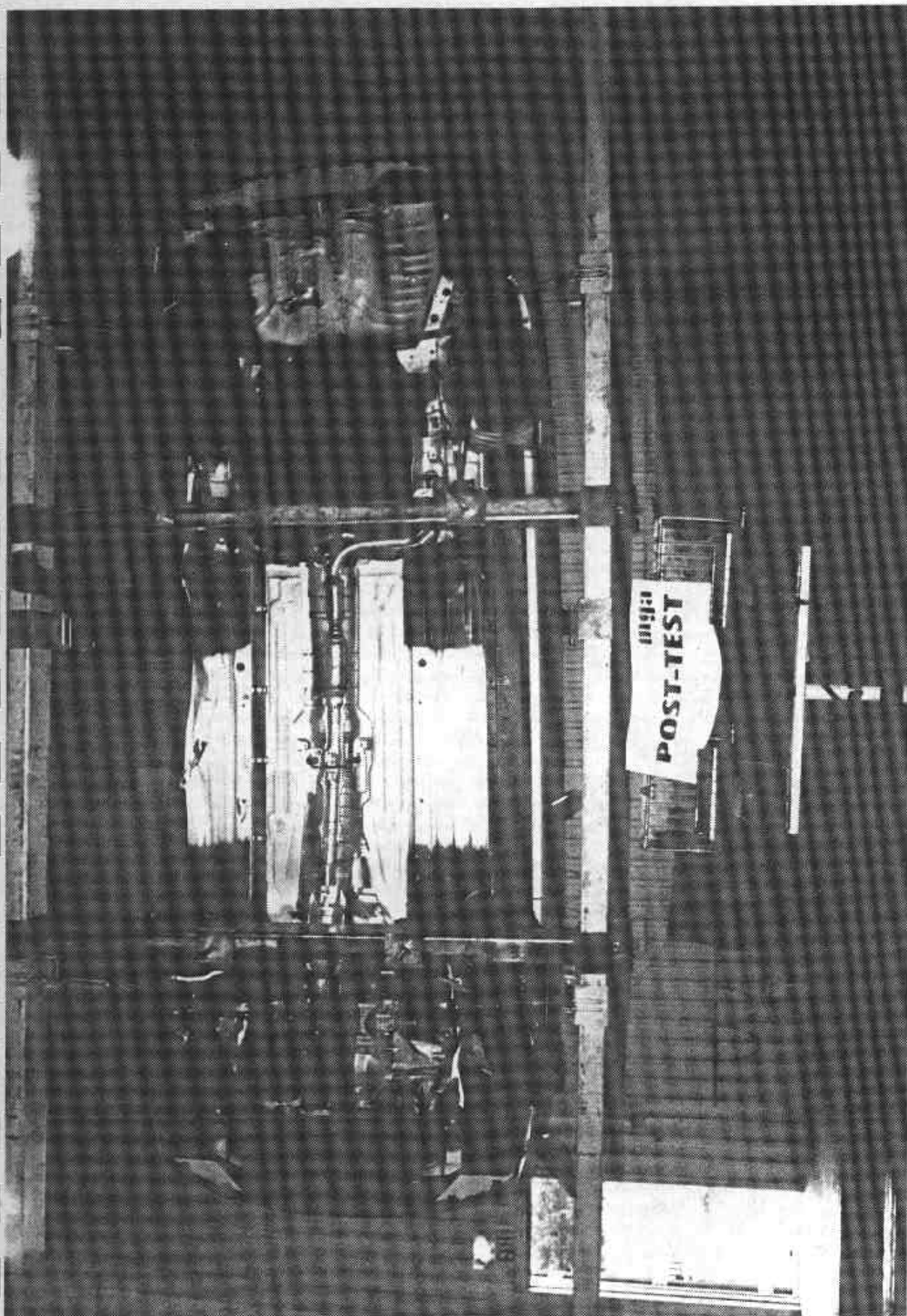


Photo No. A-39 - Rollover 270°

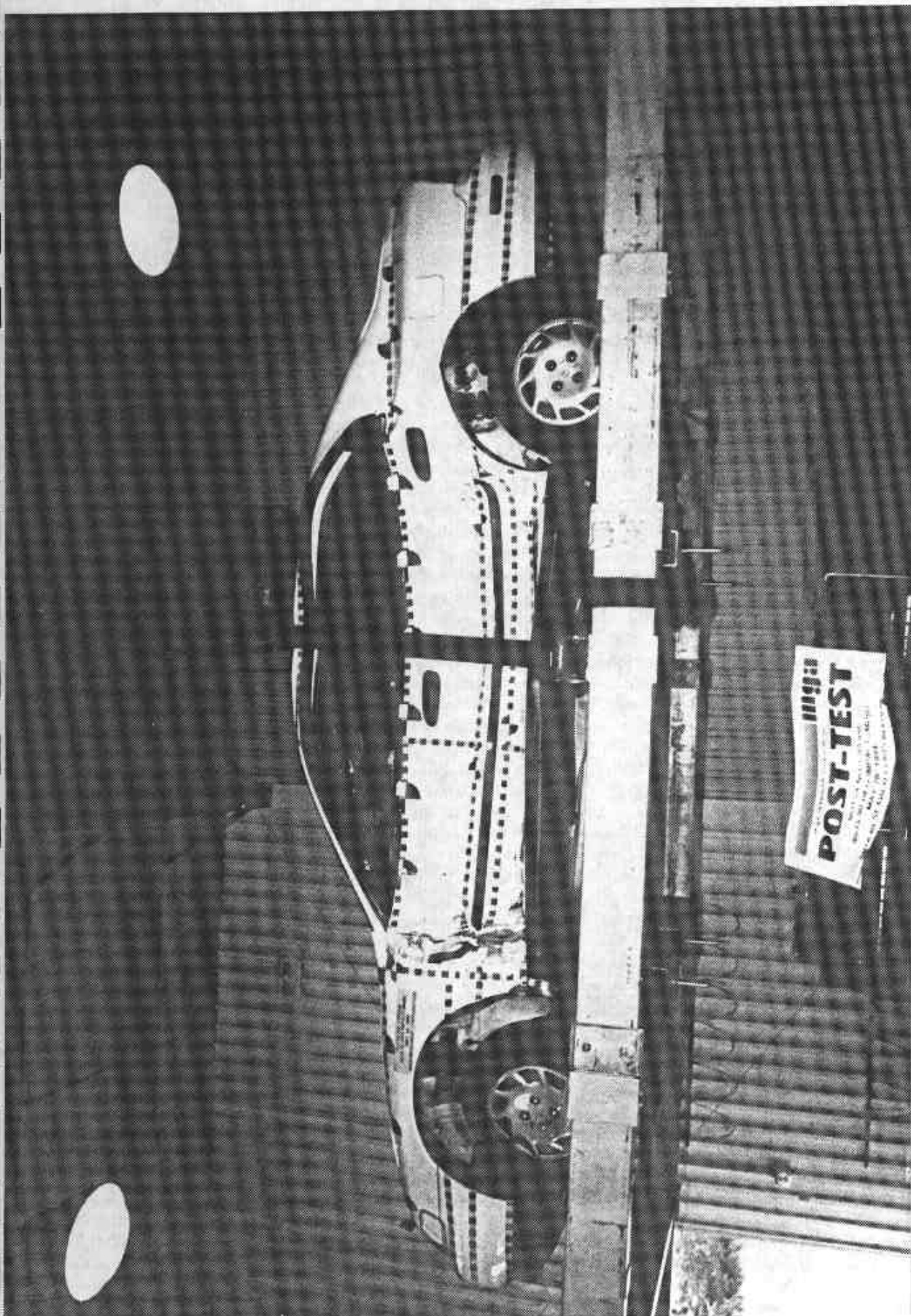


Photo No. A-40 - Rollover 360°

A-40

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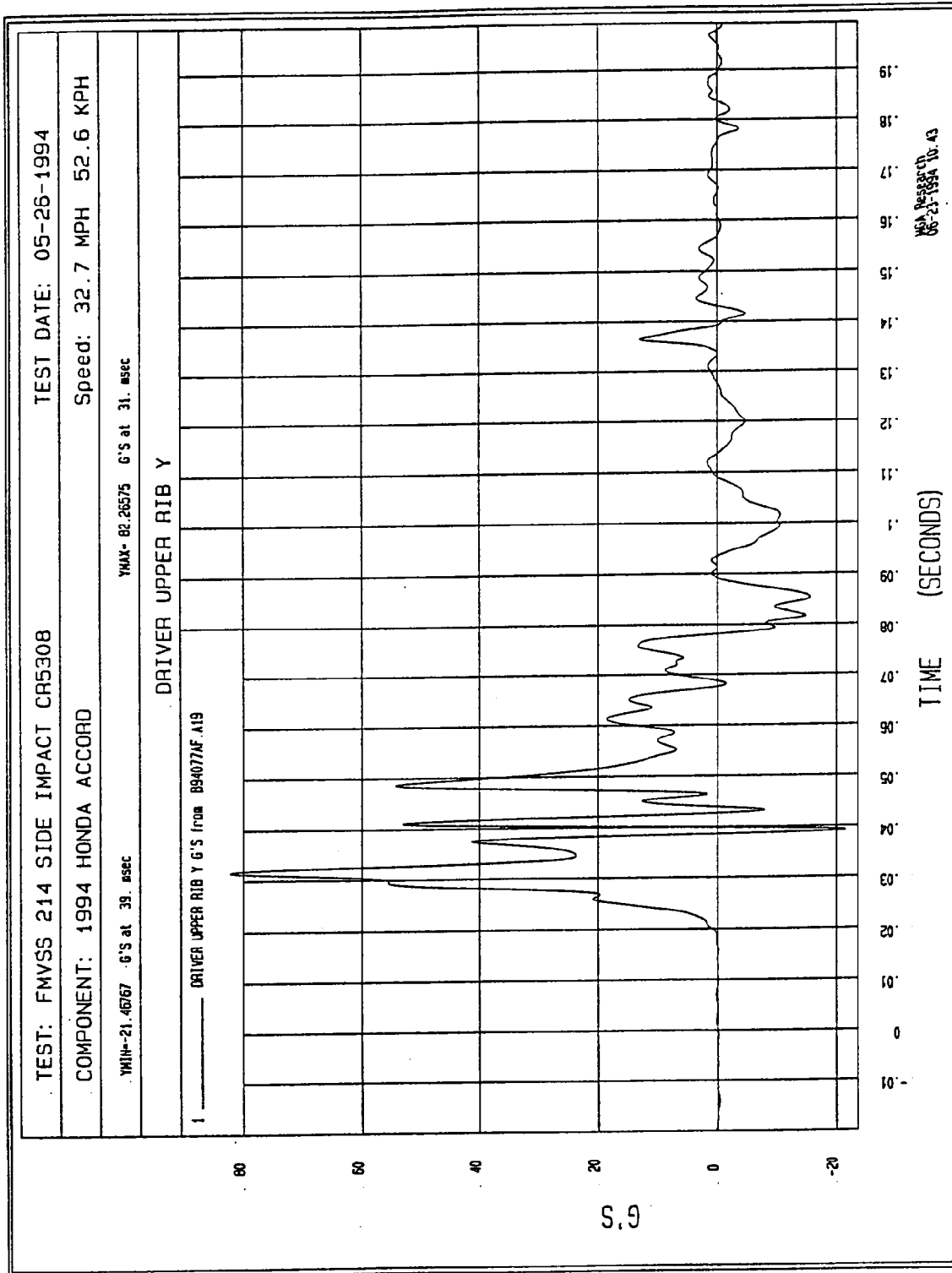


Figure B-1 - Driver Upper Rib Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

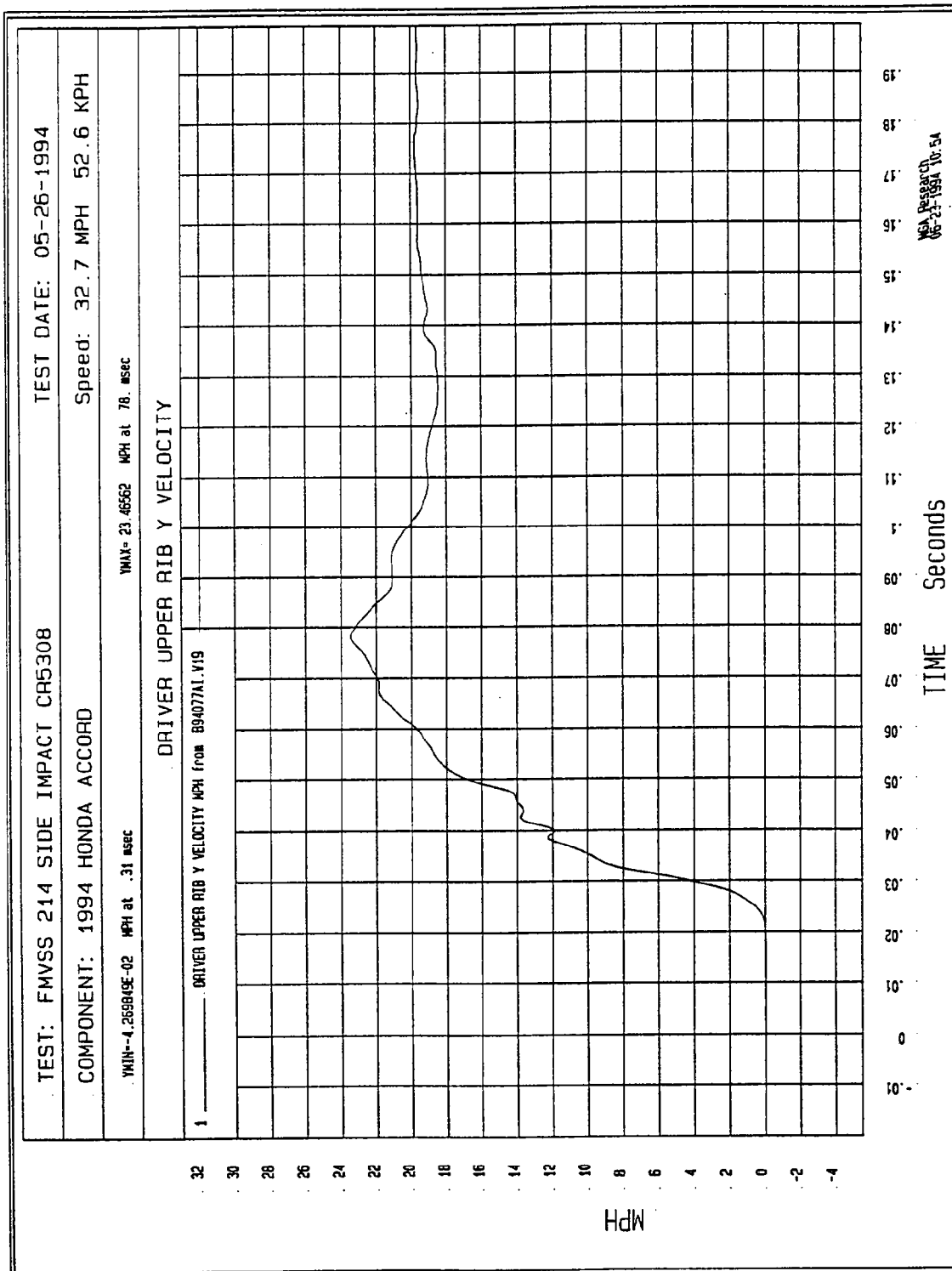


Figure B-2 - Driver Upper Rib Y Velocity vs. Time

Filter: Class 180 (300 Hz)

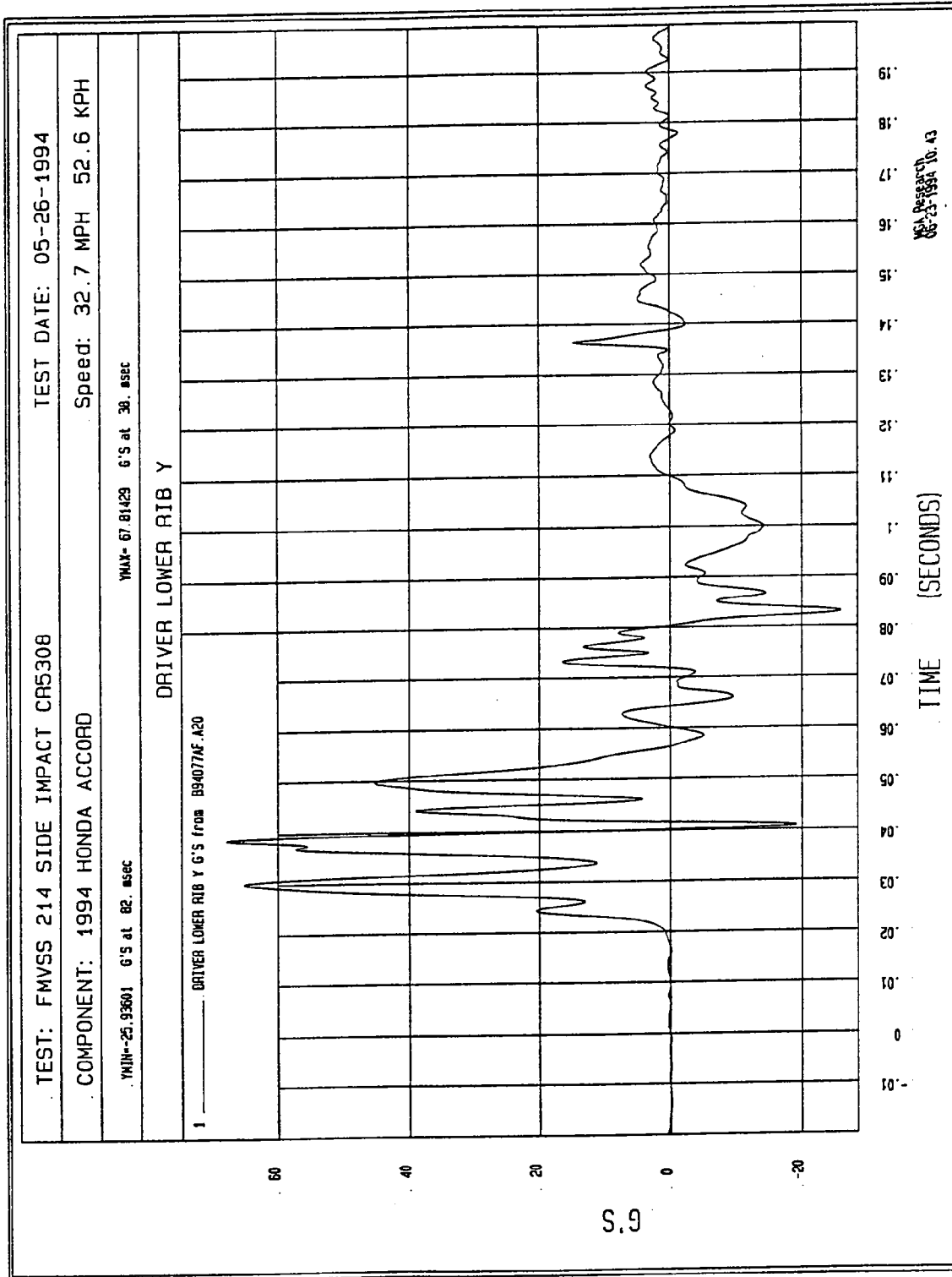


Figure B-3 - Driver Lower Rib Y Acceleration vs. Time

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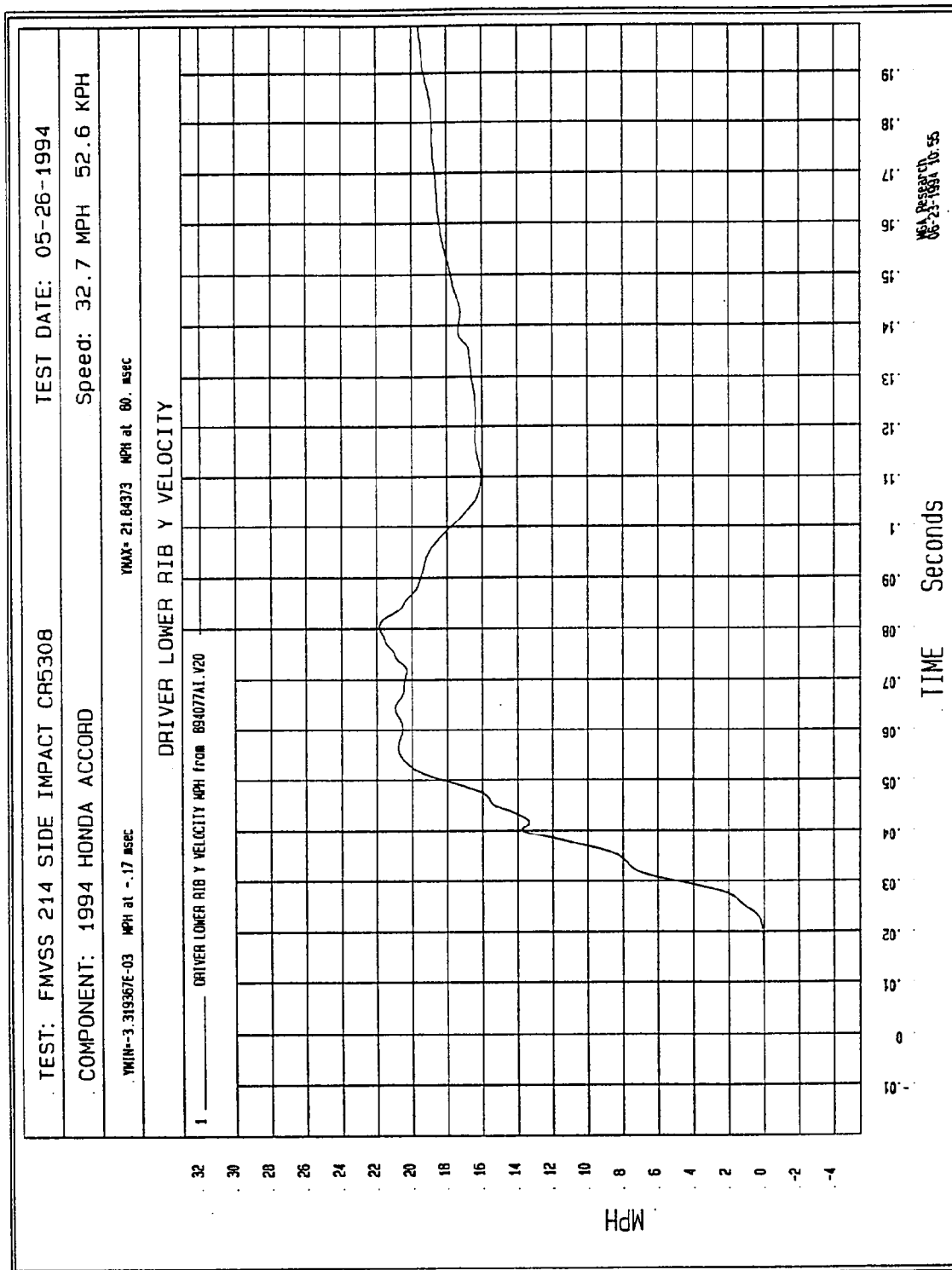


Figure B-4 - Driver Lower Rib Y Velocity vs. Time

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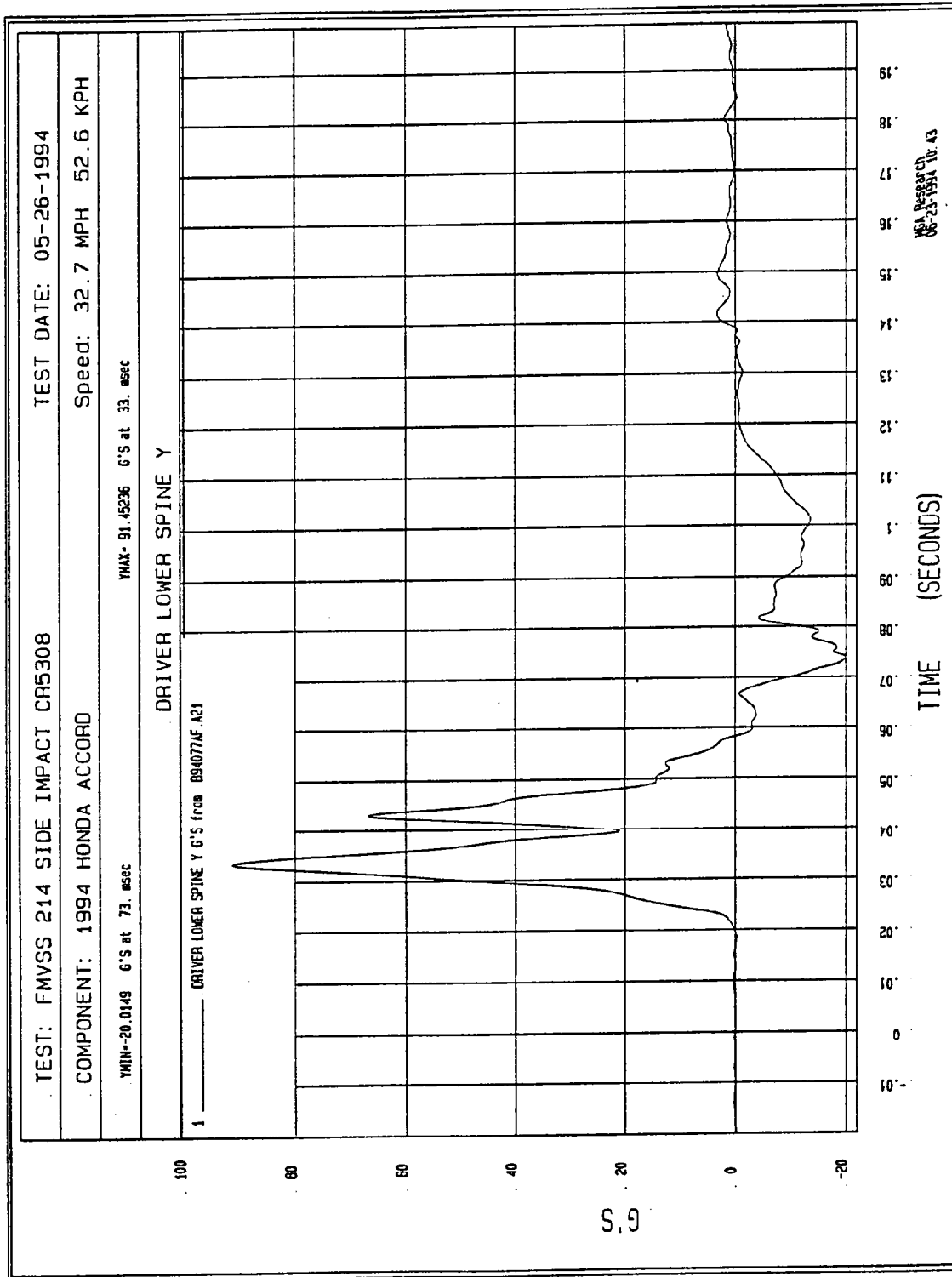


Figure B-5 - Driver Lower Spine Y Acceleration vs. Time

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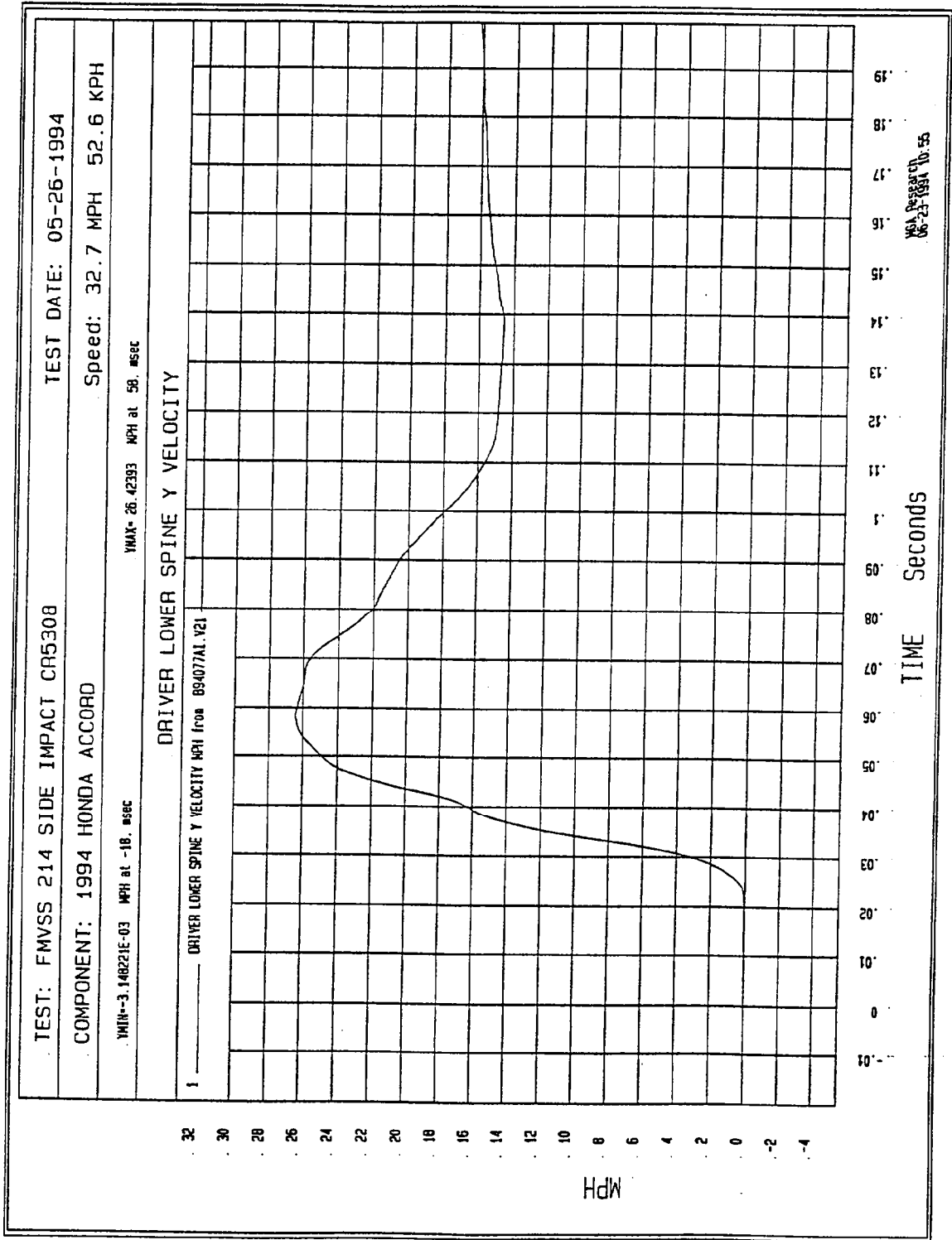


Figure B-6 - Driver Lower Spine Y Velocity vs. Time

Filter: Class 180 (300 Hz)

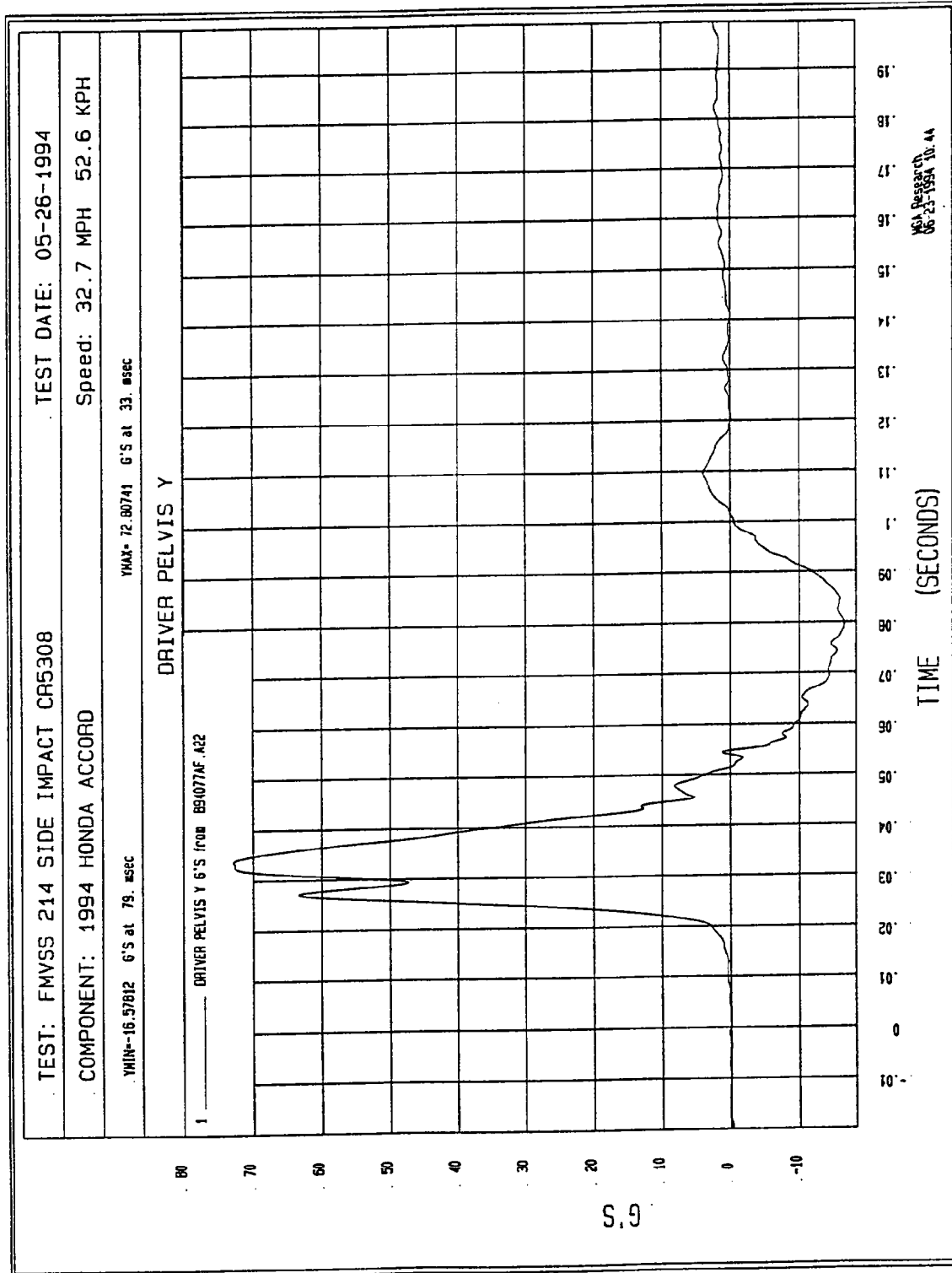


Figure B-7 - Driver Pelvis Y Acceleration vs. Time

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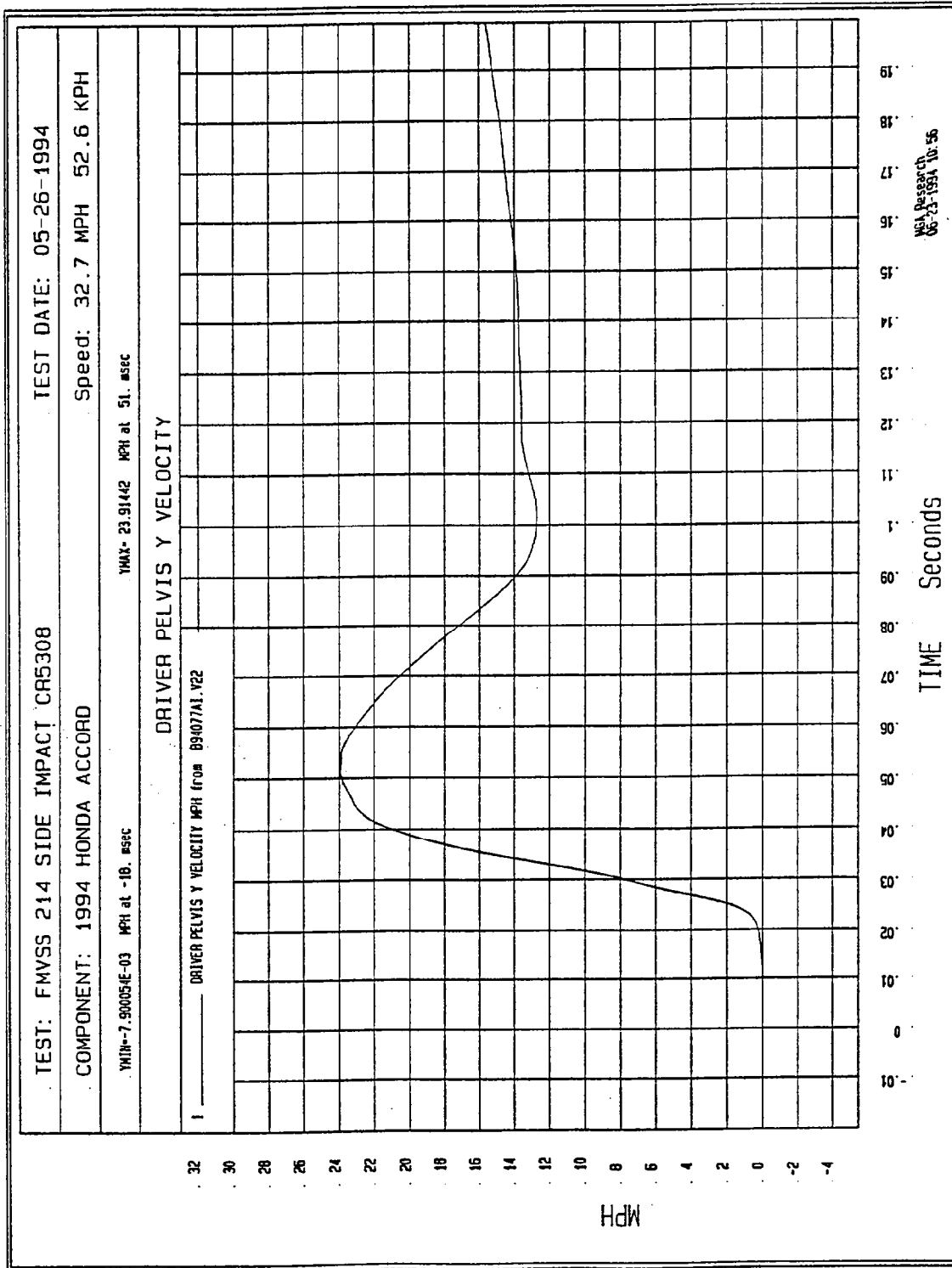


Figure B-8 - Driver Pelvis Y Velocity vs. Time

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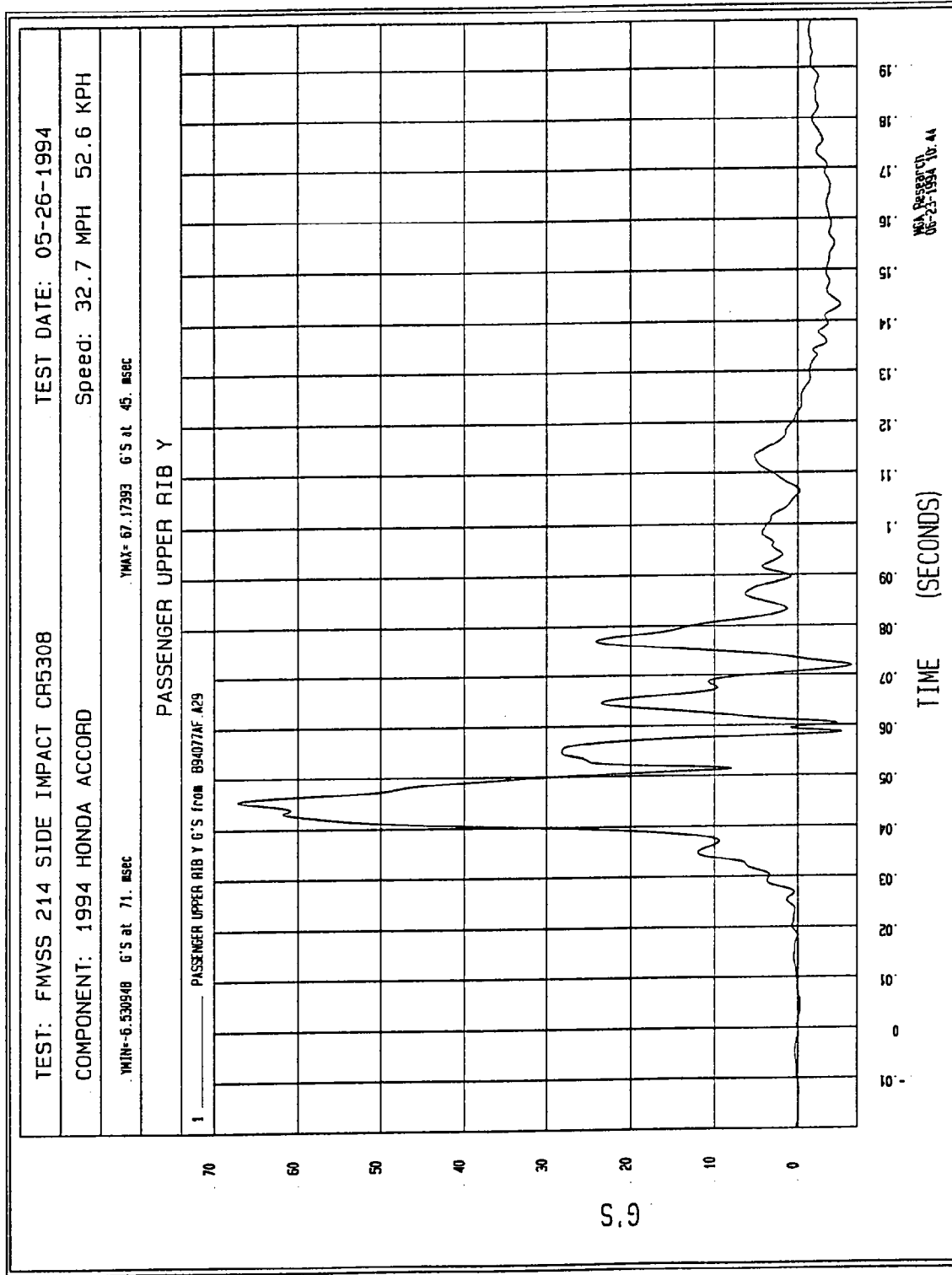


Figure B-9 - Passenger Upper Rib Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

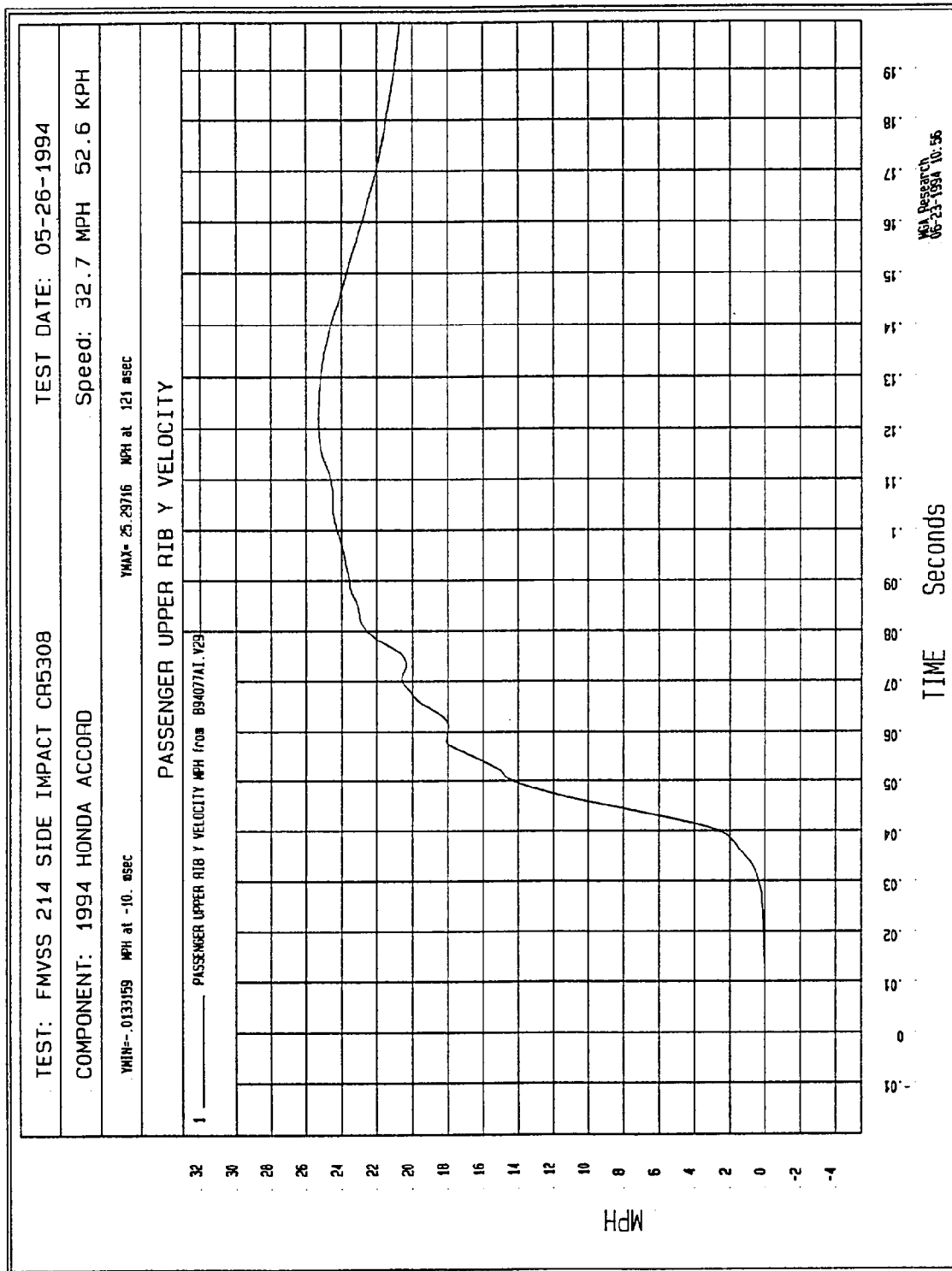


Figure B-10 - Passenger Upper Rib Y Velocity vs. Time

Filter: Class 180 (300 Hz)

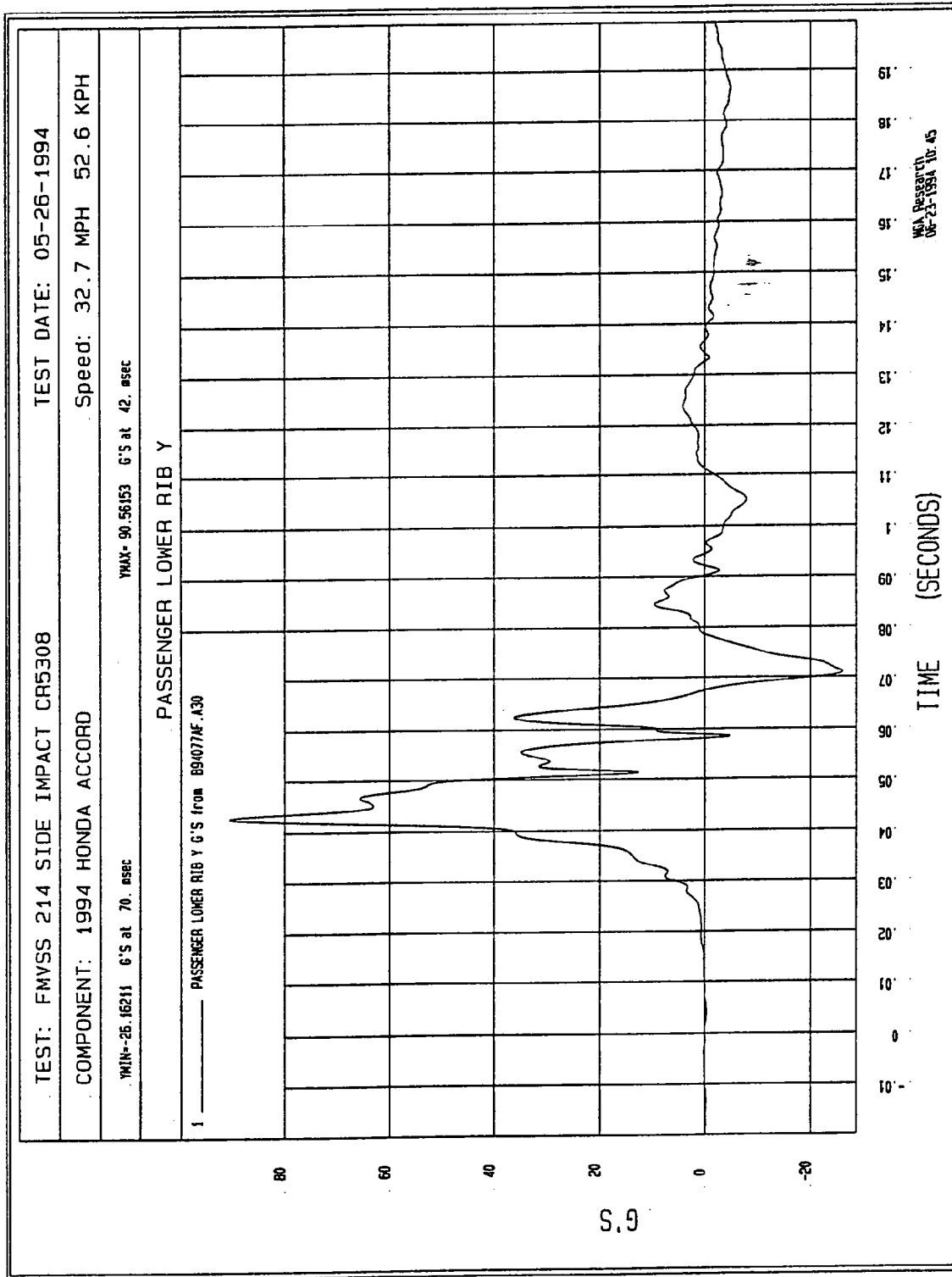


Figure B-11 - Passenger Lower Rib Y Acceleration vs. Time

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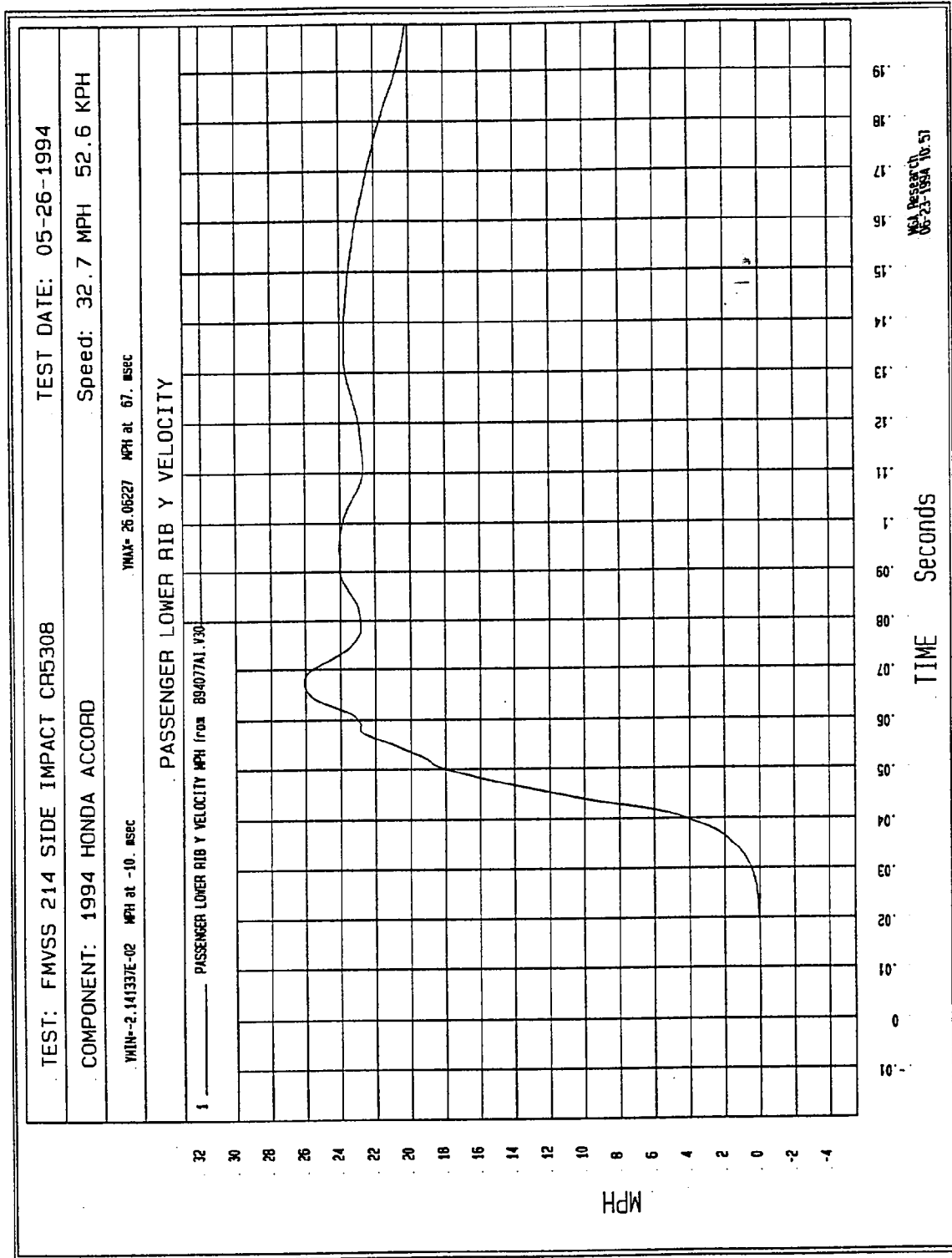


Figure B-12 - Passenger Lower Rib Y Velocity vs. Time

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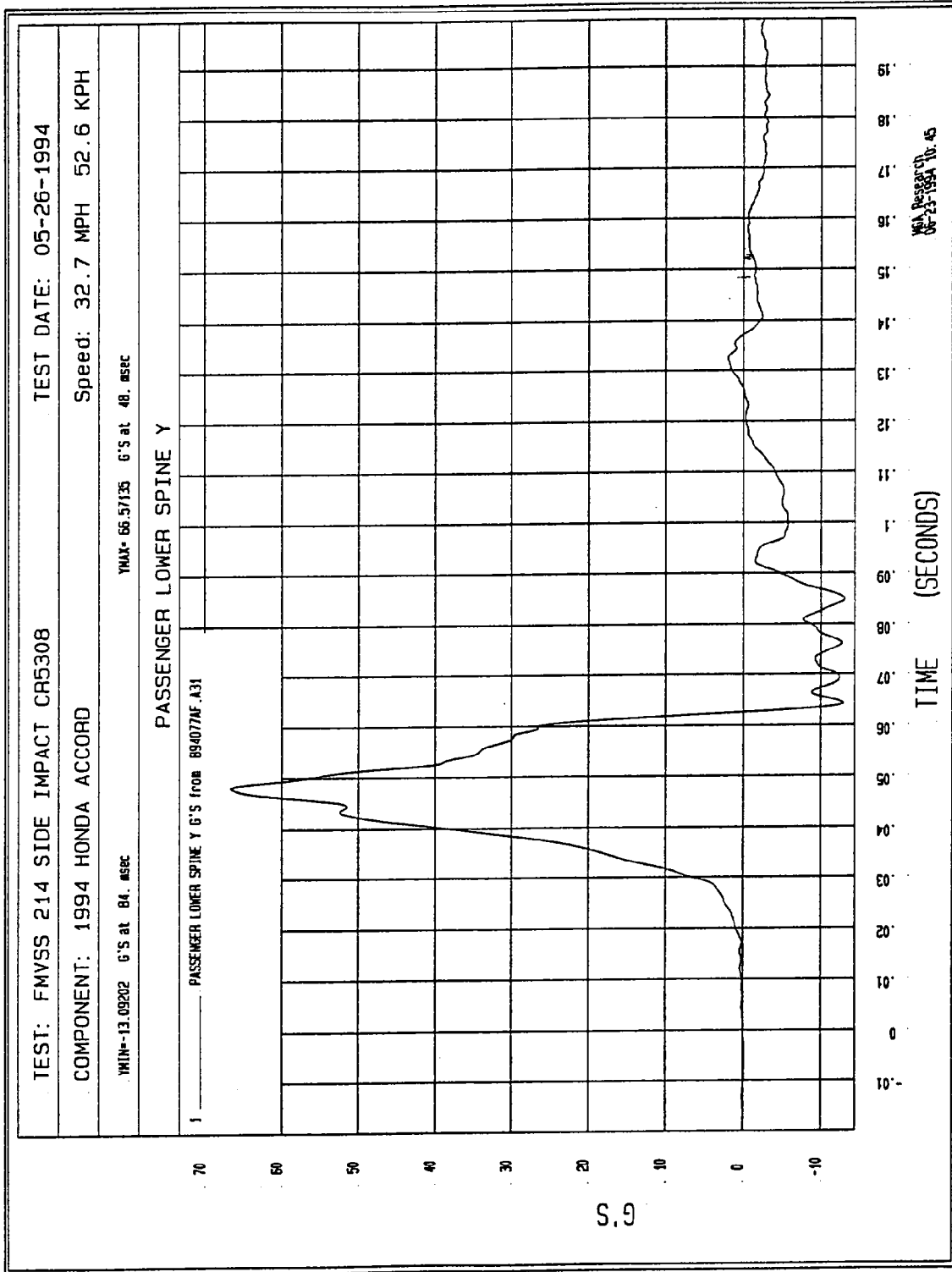


Figure B-13 - Passenger Lower Spine Y Acceleration vs. Time

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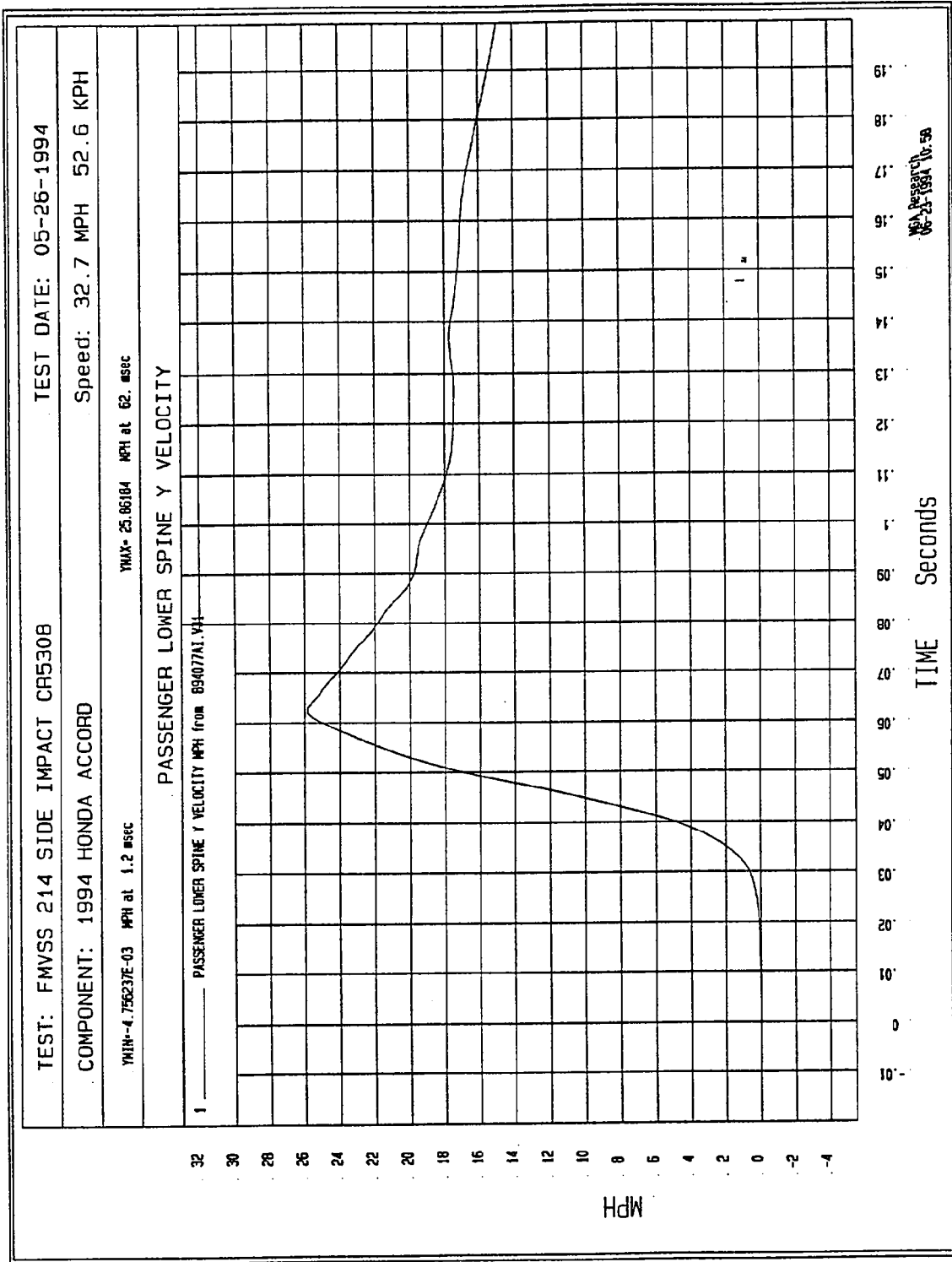


Figure B-14 - Passenger Lower Spine Y Velocity vs. Time

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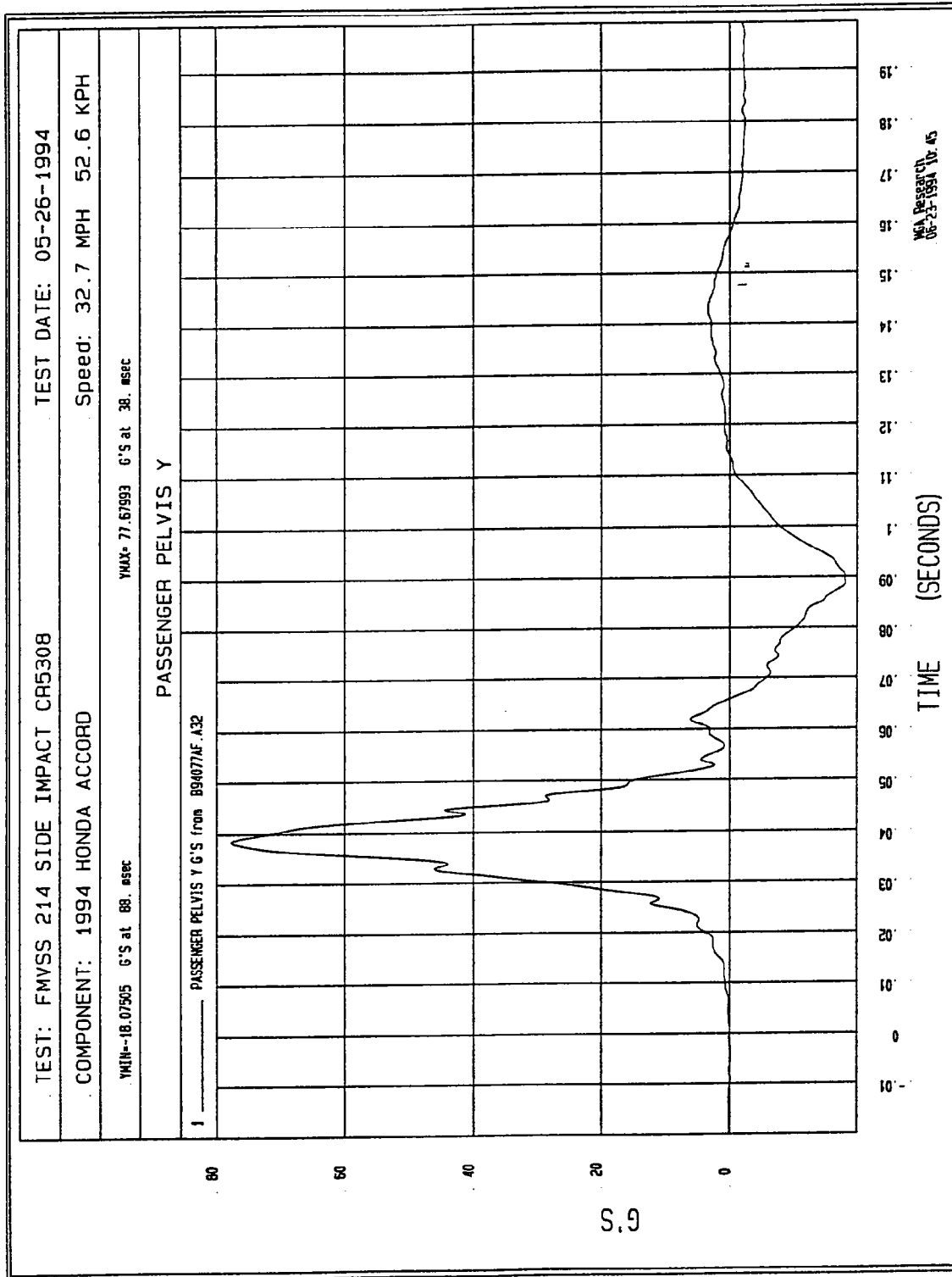


Figure B-15 - Passenger Pelvis Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

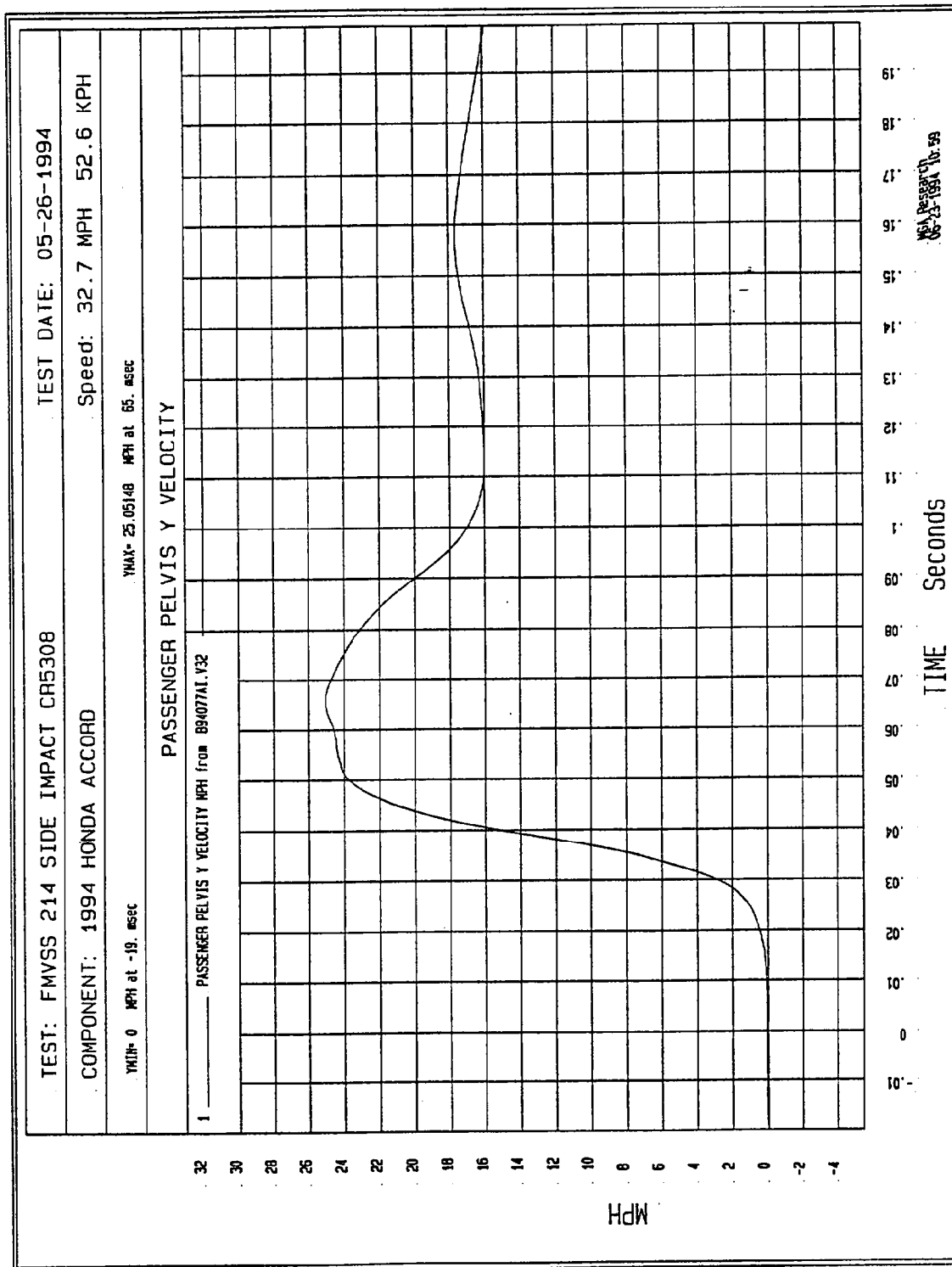


Figure B-16 - Passenger Pelvis Y Velocity vs. Time

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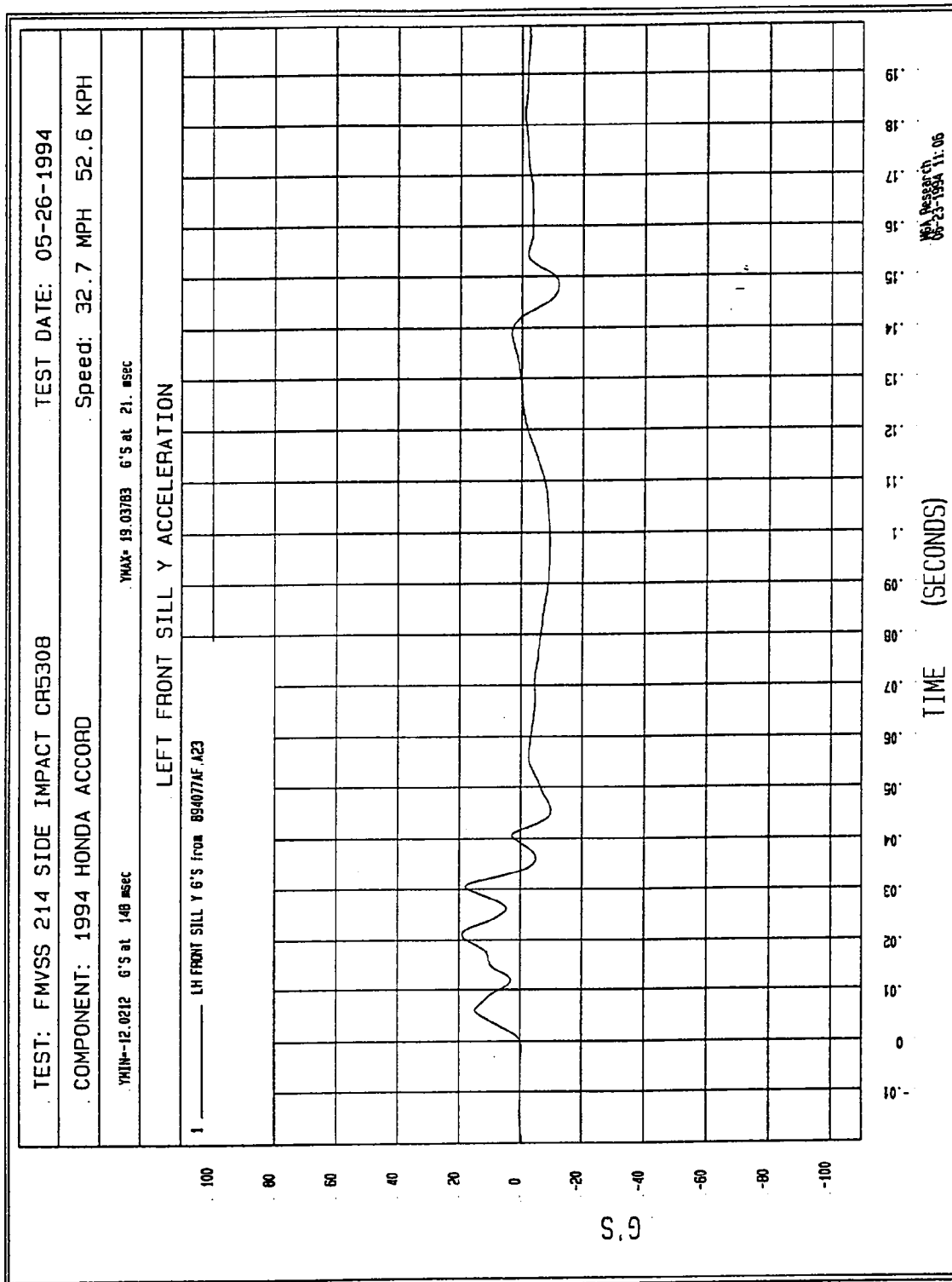


Figure B-17 - Left Front Sill Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

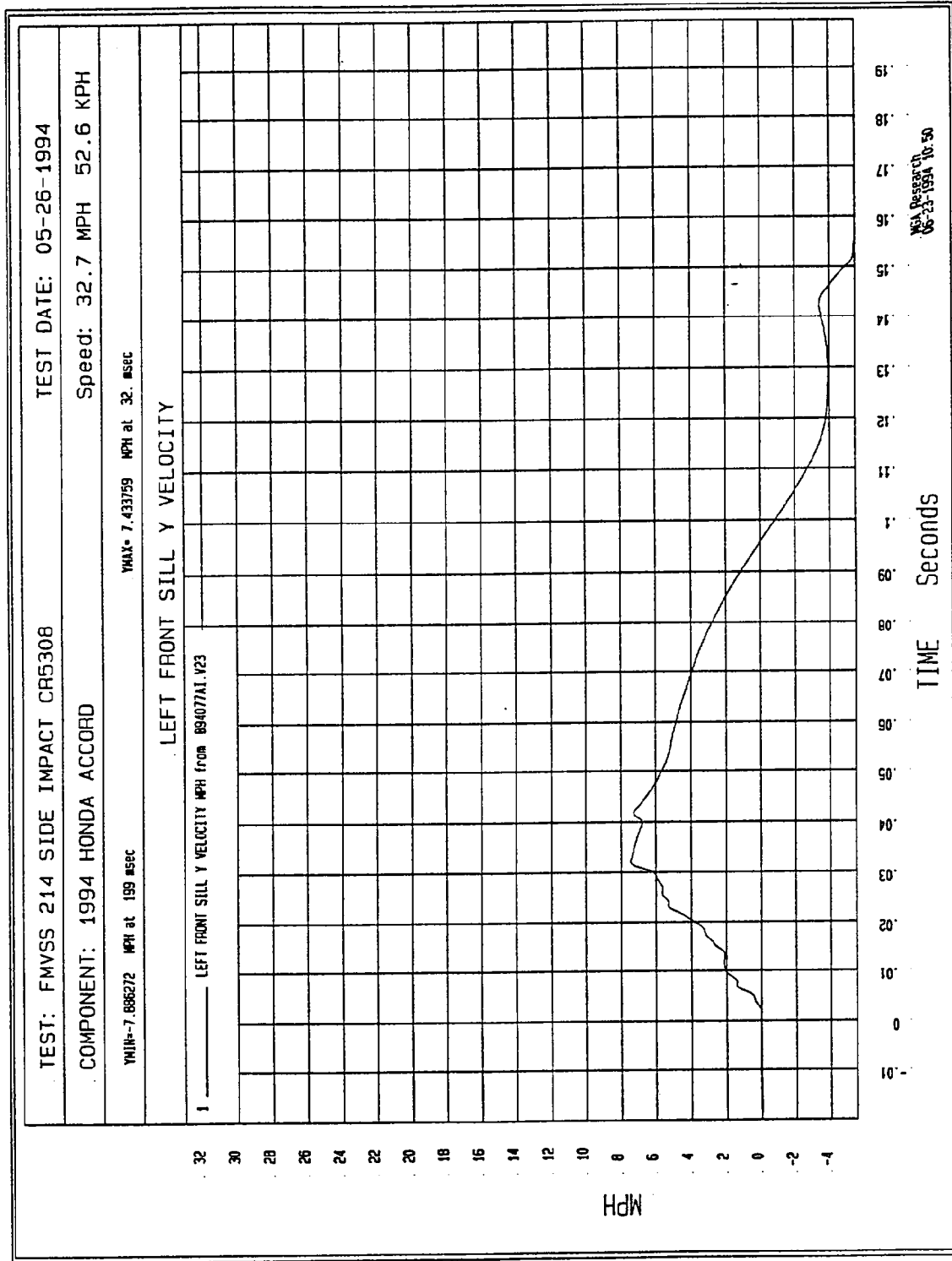


Figure B-18 - Left Front Sill Y Velocity vs. Time

Filter: Class 60 (100 Hz)

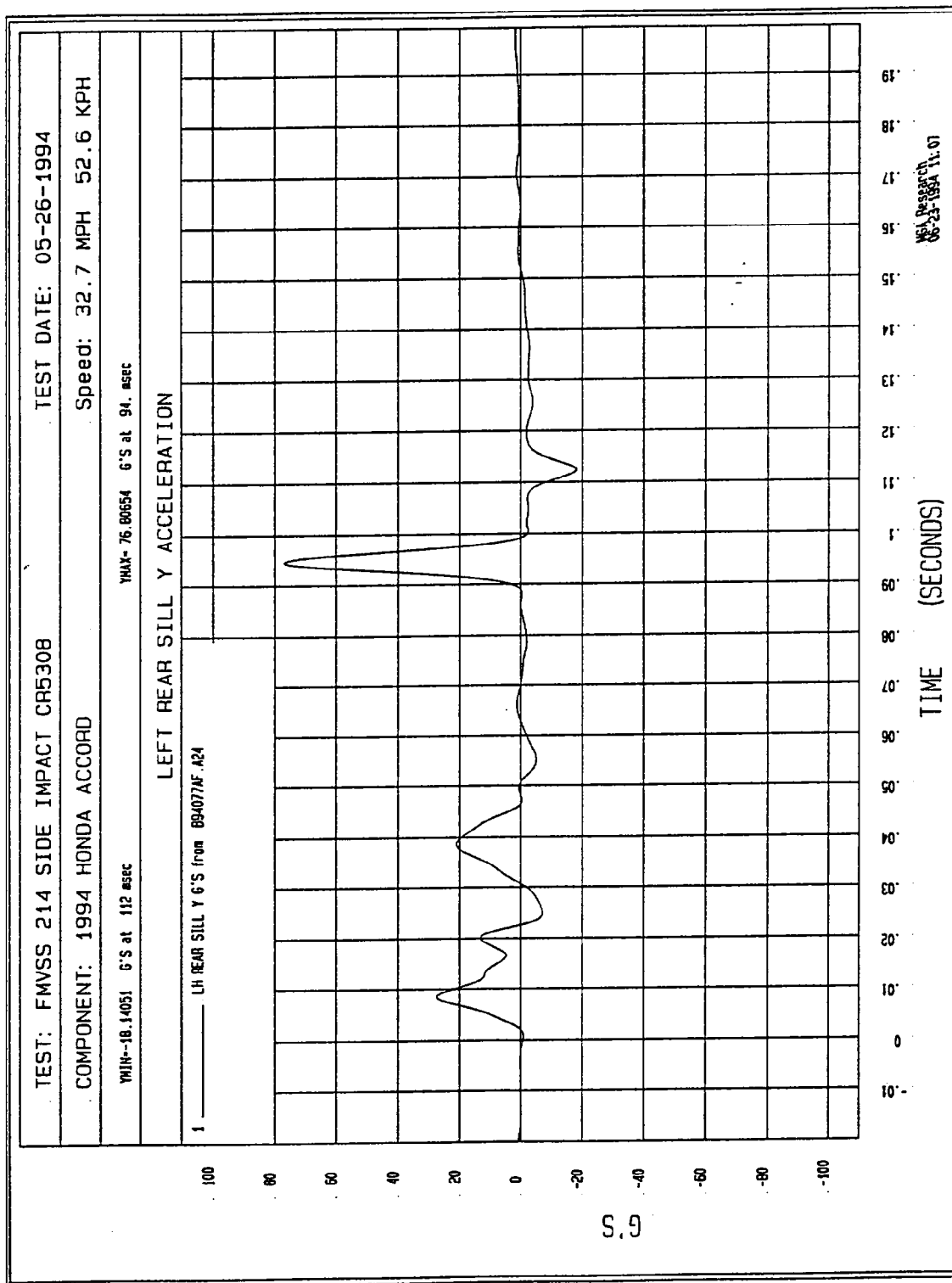


Figure B-19 - Left Rear Sill Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

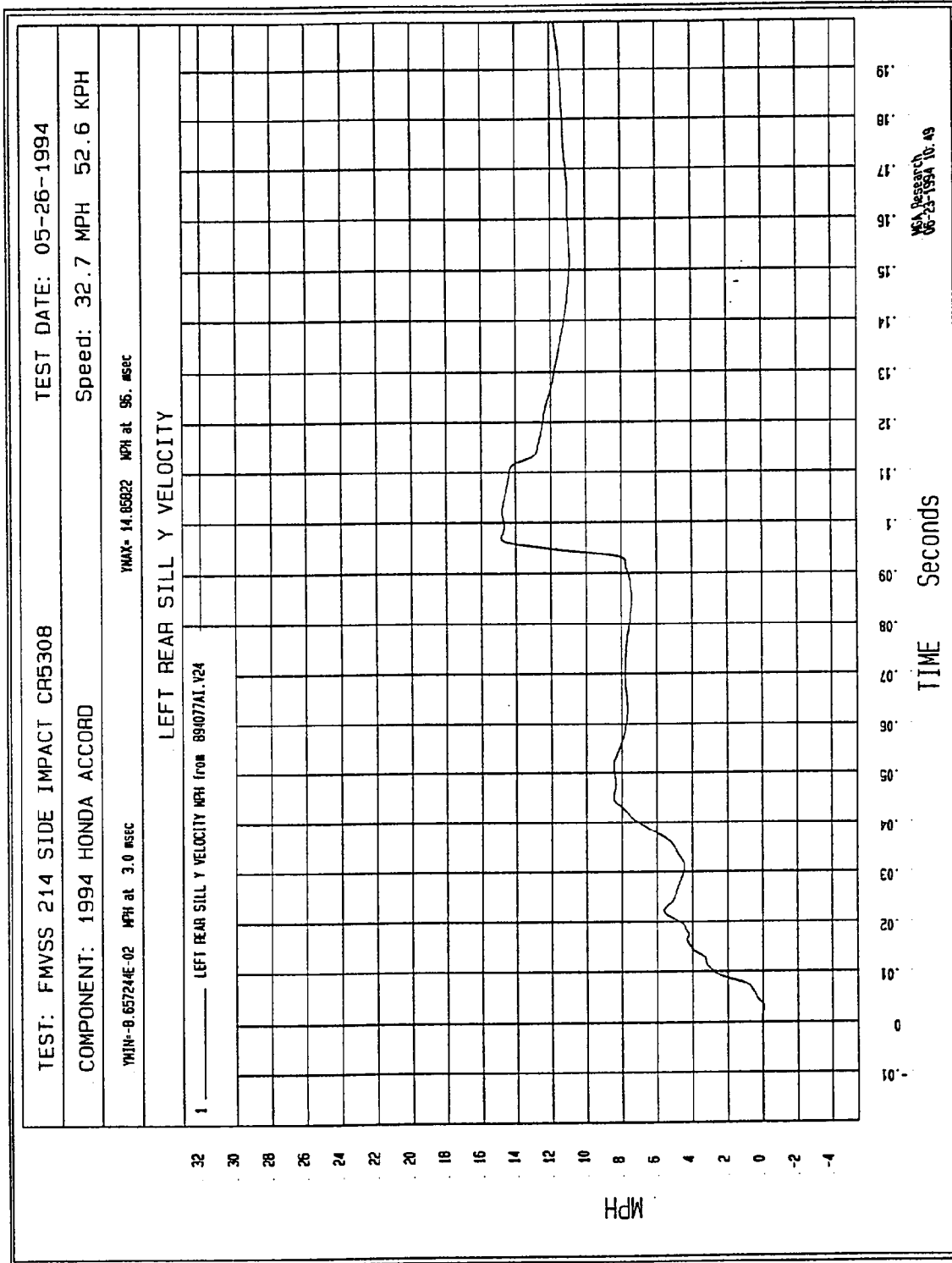


Figure B-20 - Left Rear Sill Y Velocity vs. Time

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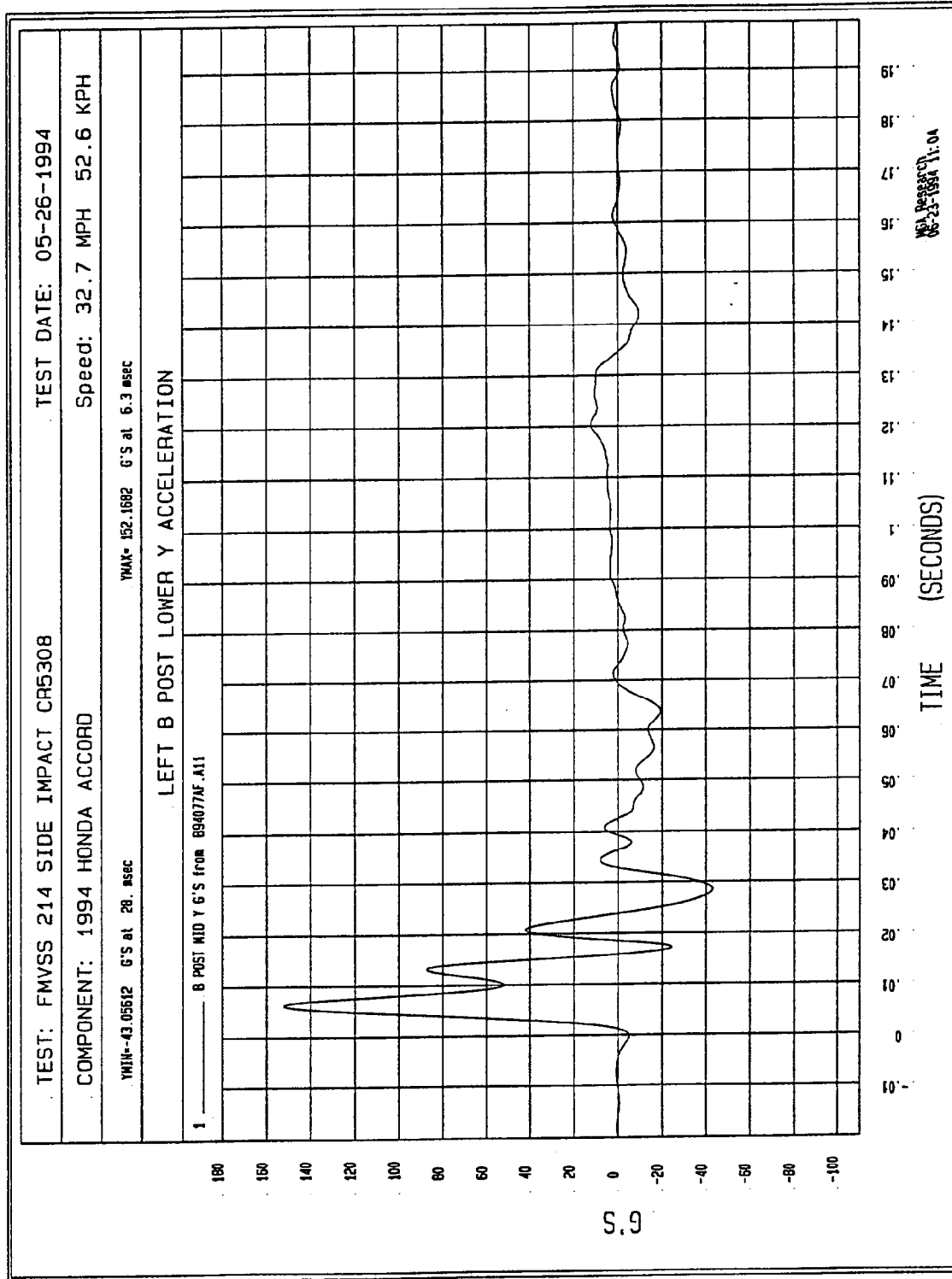
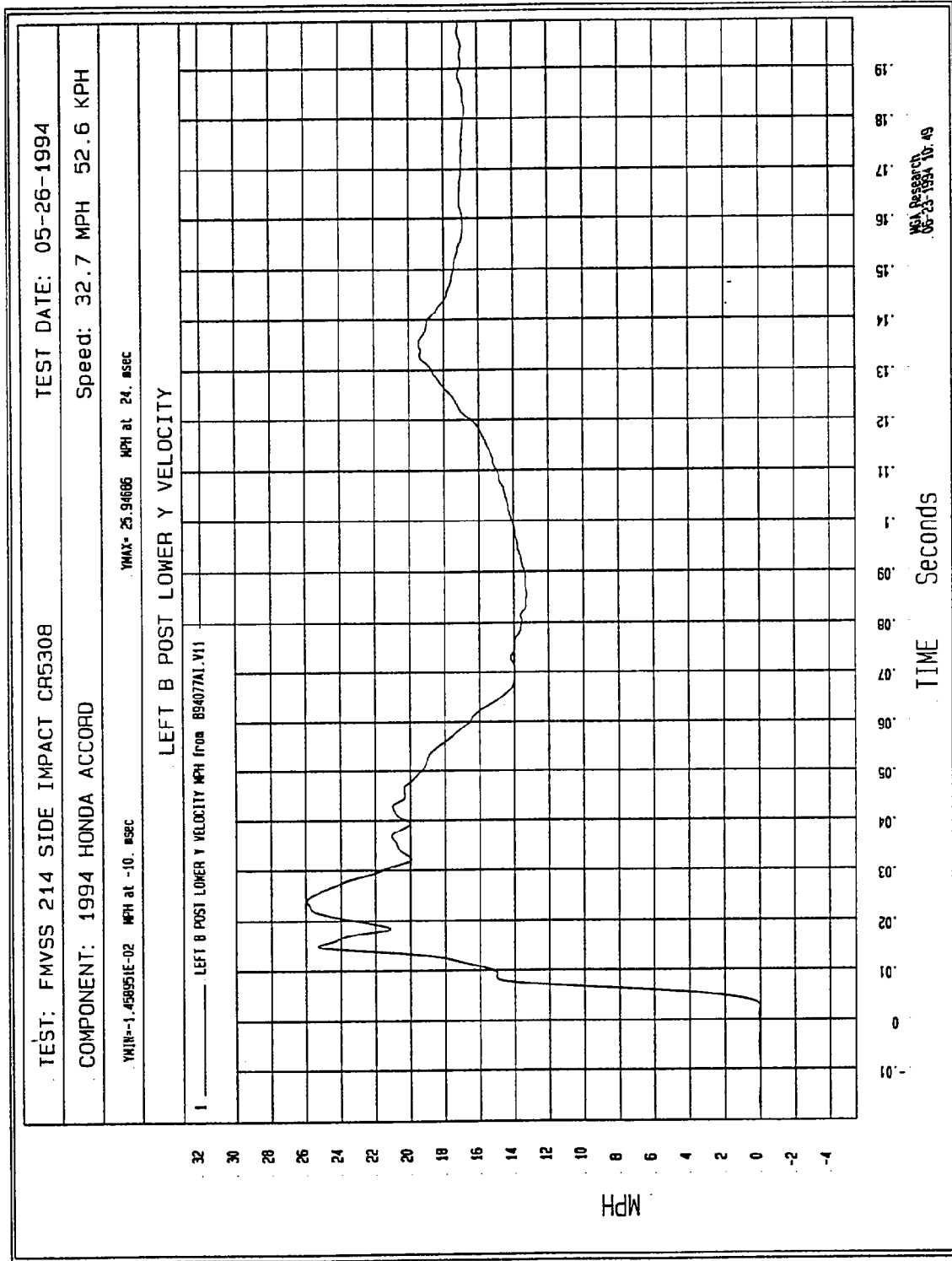


Figure B-21 - Left B Post Lower Y Acceleration vs. Time

Filter: Class 180 (300 Hz)



B-22

Figure B-22 - Left B Post Lower Y Velocity vs. Time

Filter: Class 60 (100 Hz)

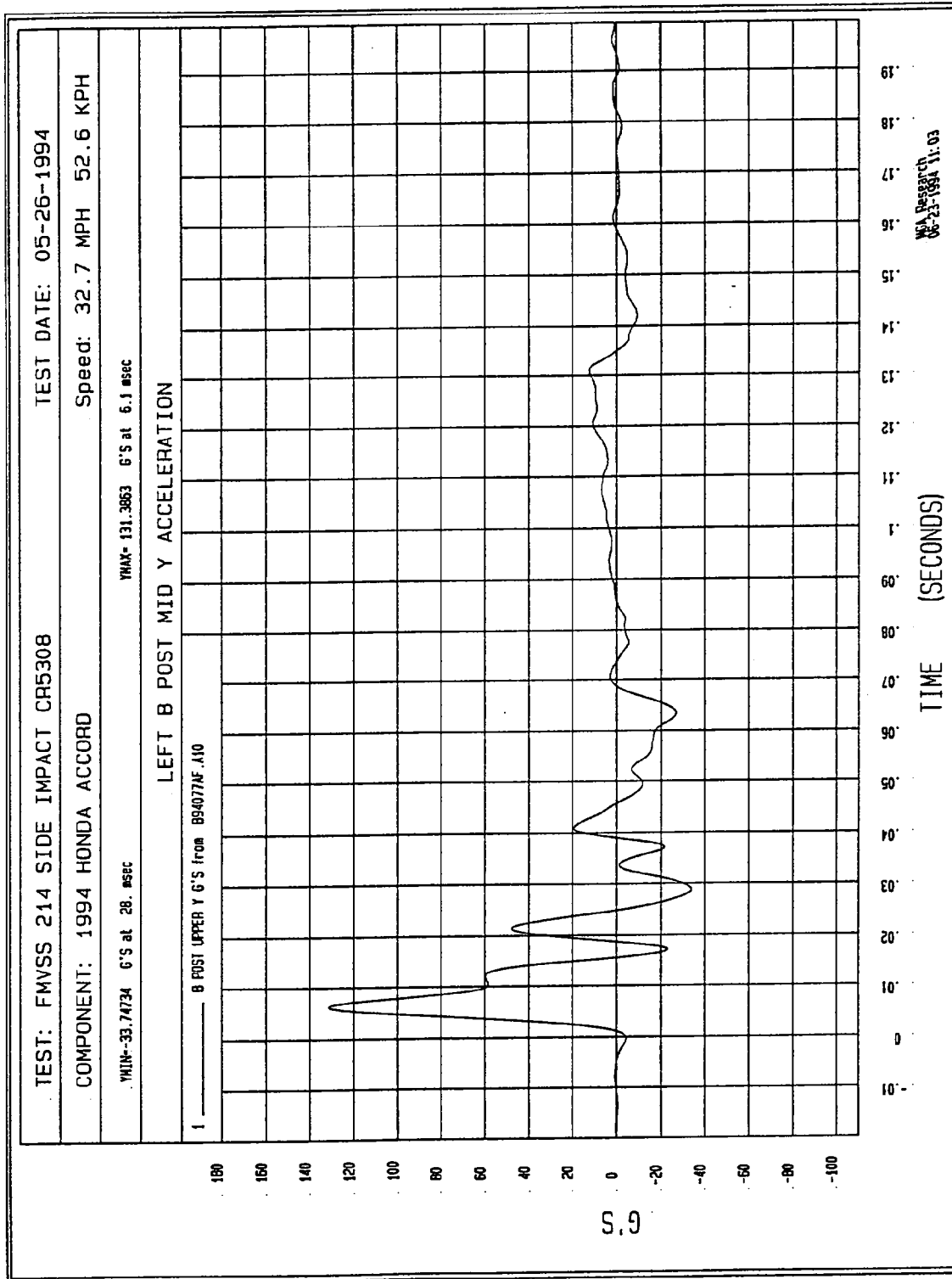


Figure B-23 - Left B Post Mid Y Acceleration vs. Time

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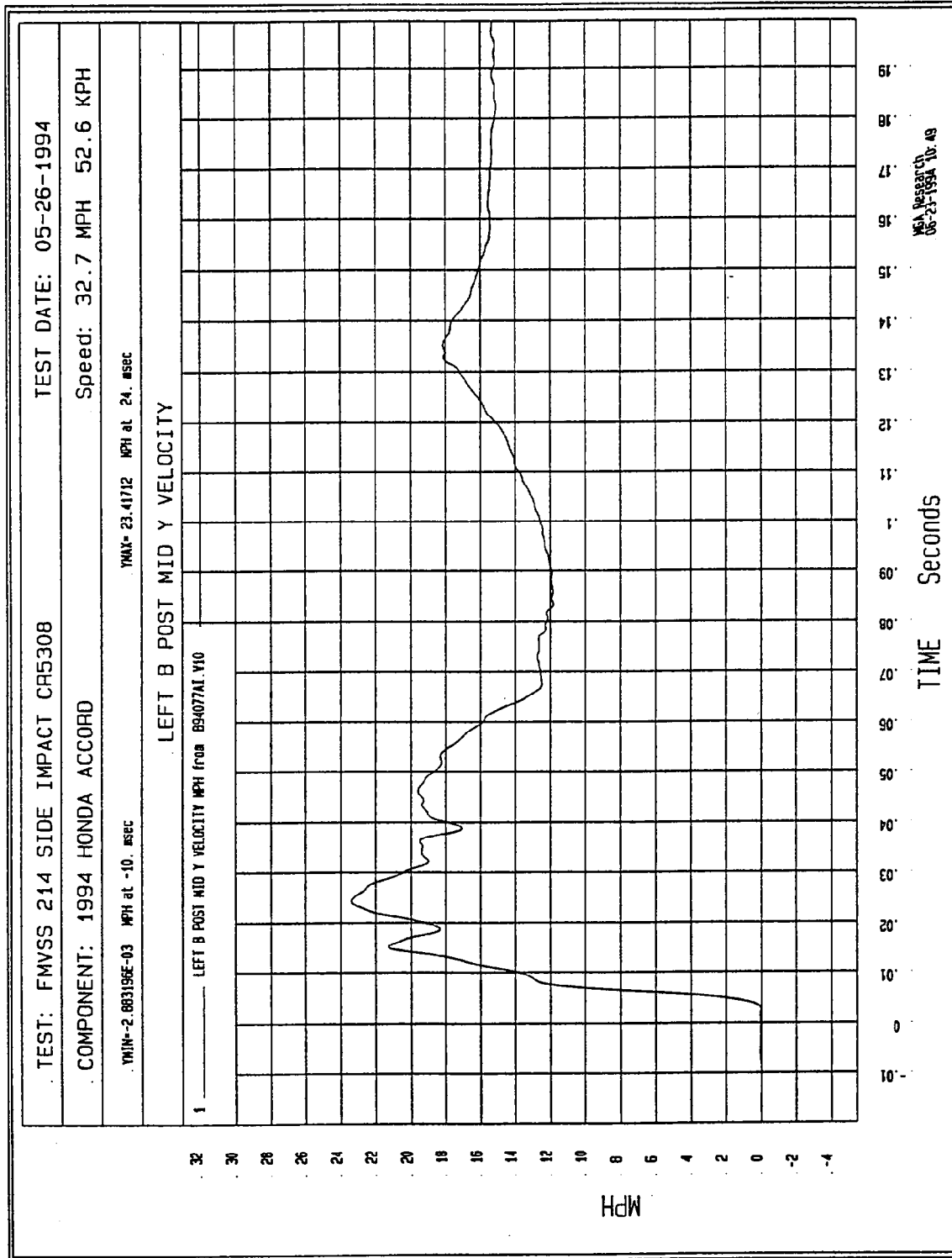


Figure B-24 - Left B Post Mid Y Velocity vs. Time

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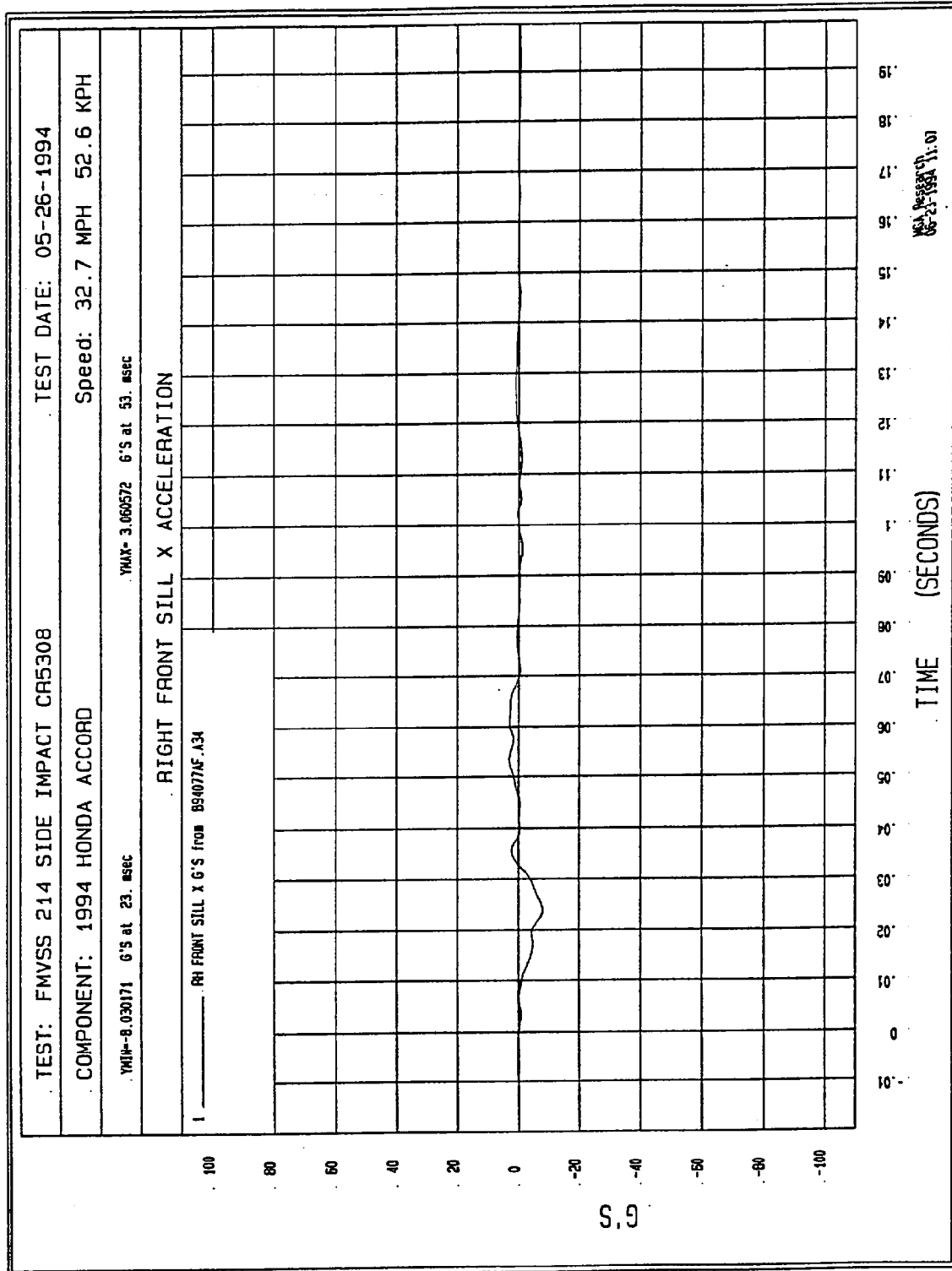


Figure B-25 - Right Front Sill X Acceleration vs. Time

Filter: Class 180 (300 Hz)

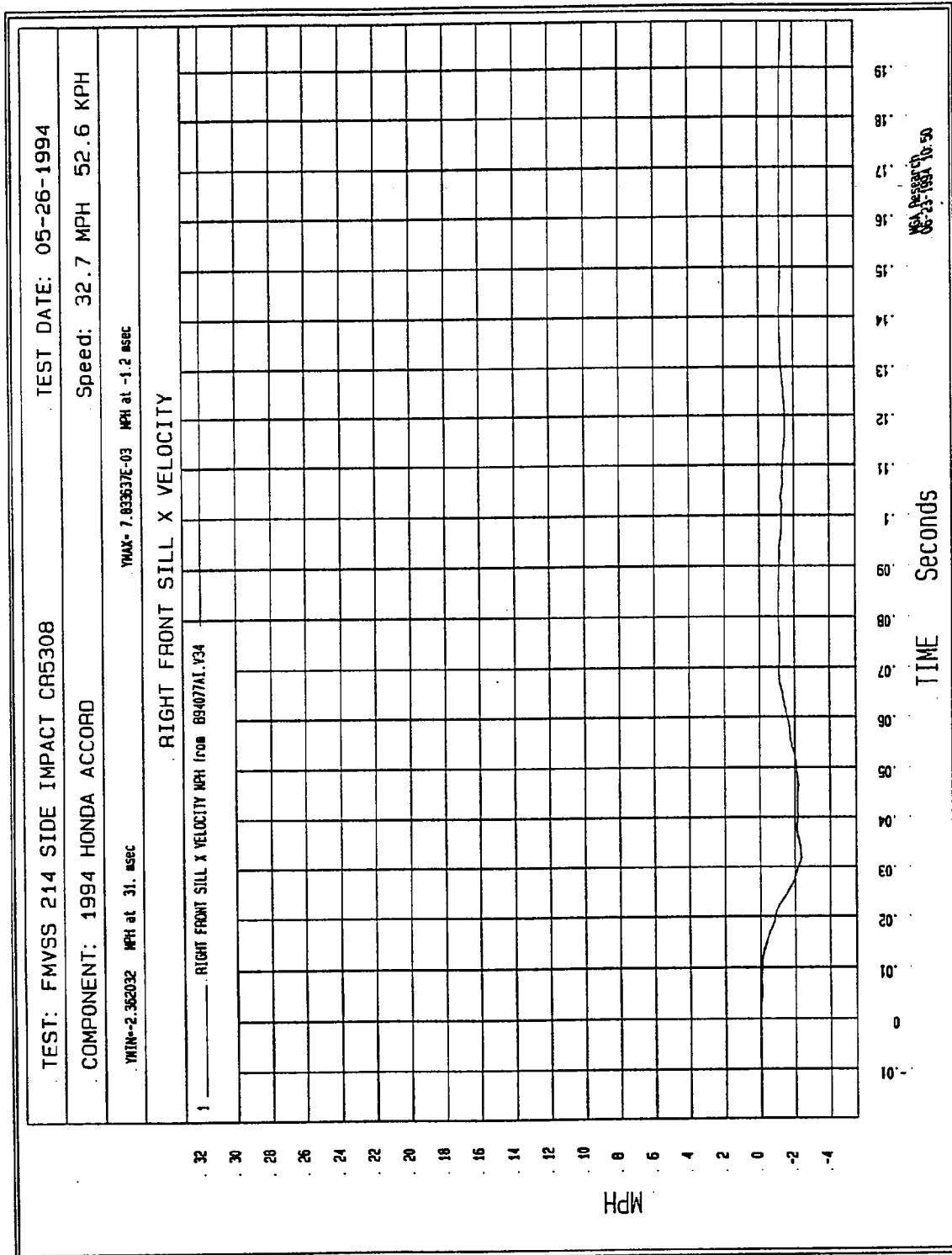


Figure B-26 - Right Front Sill X Velocity vs. Time

Filter: Class 60 (100 Hz)

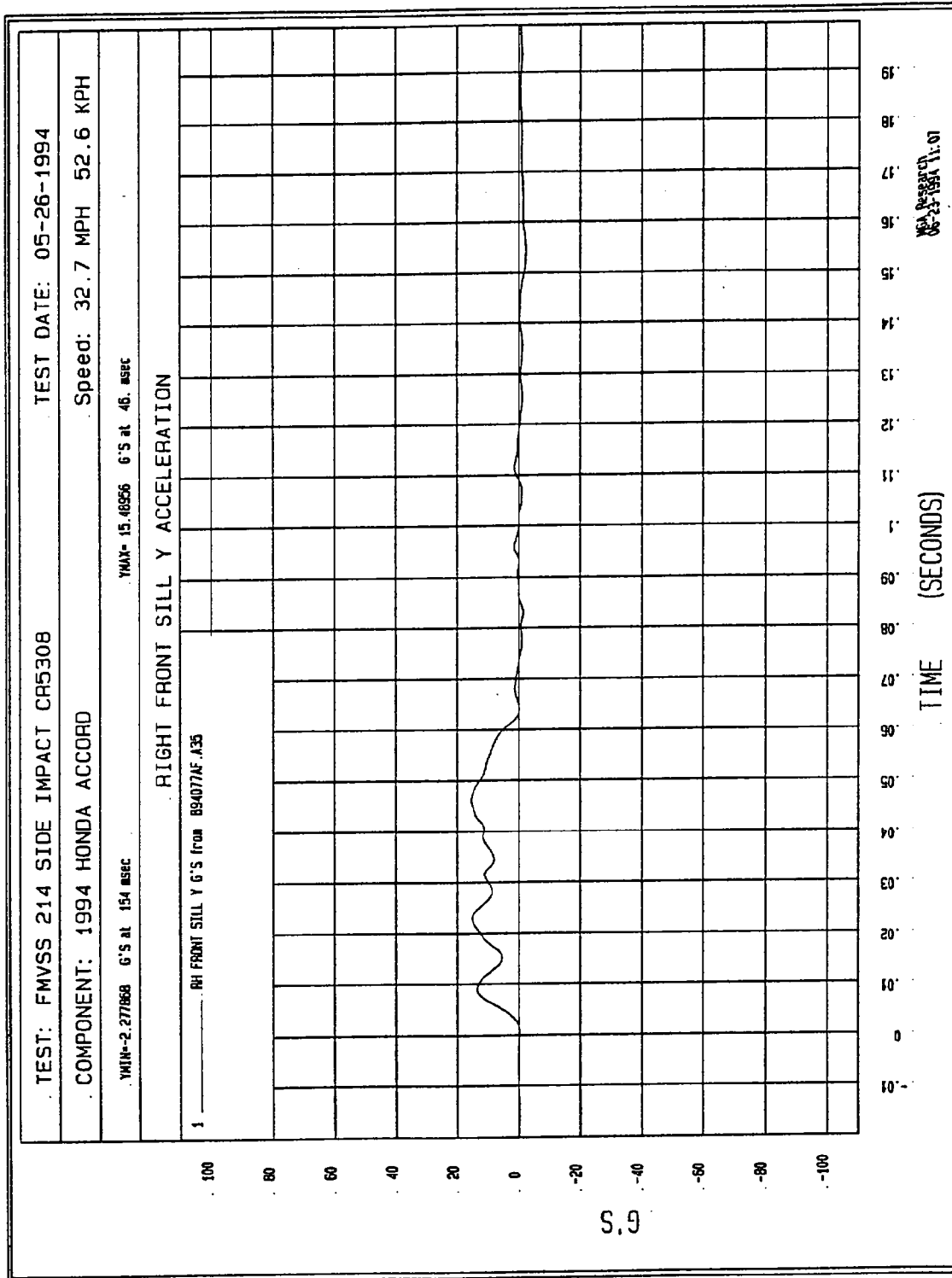


Figure B-27 - Right Front Sill Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

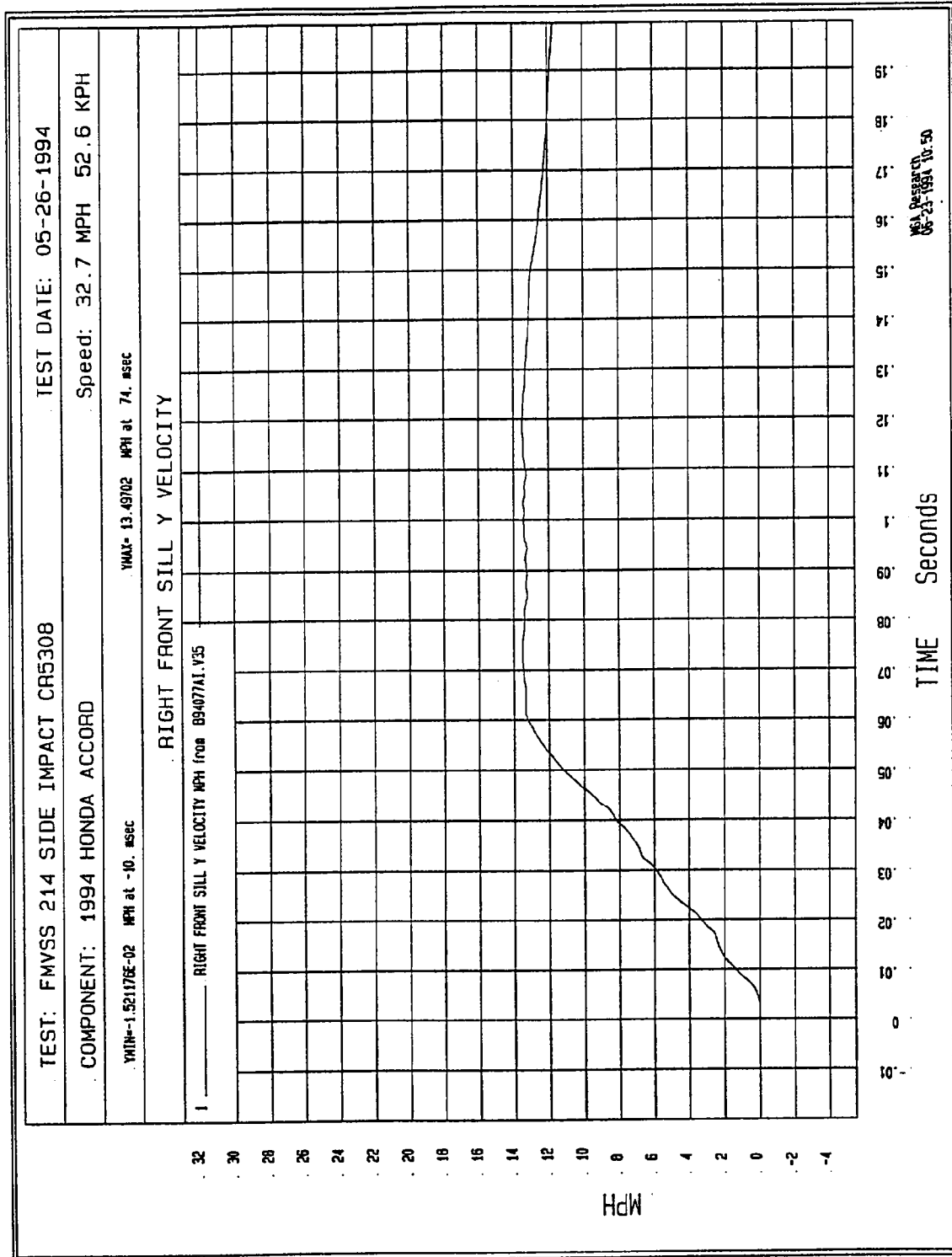


Figure B-28 - Right Front Sill Y Velocity vs. Time

Filter: Class 60 (100 Hz)

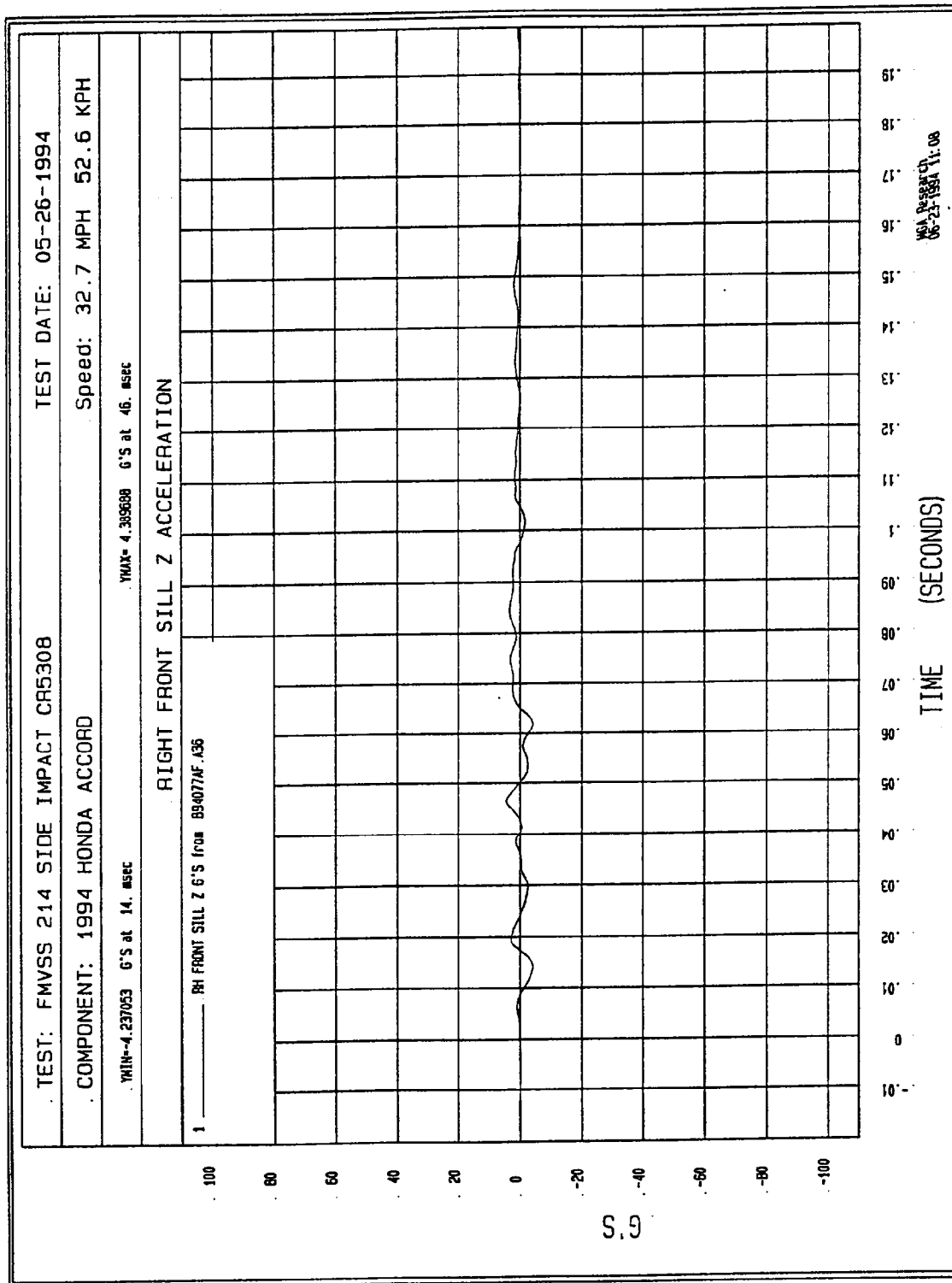
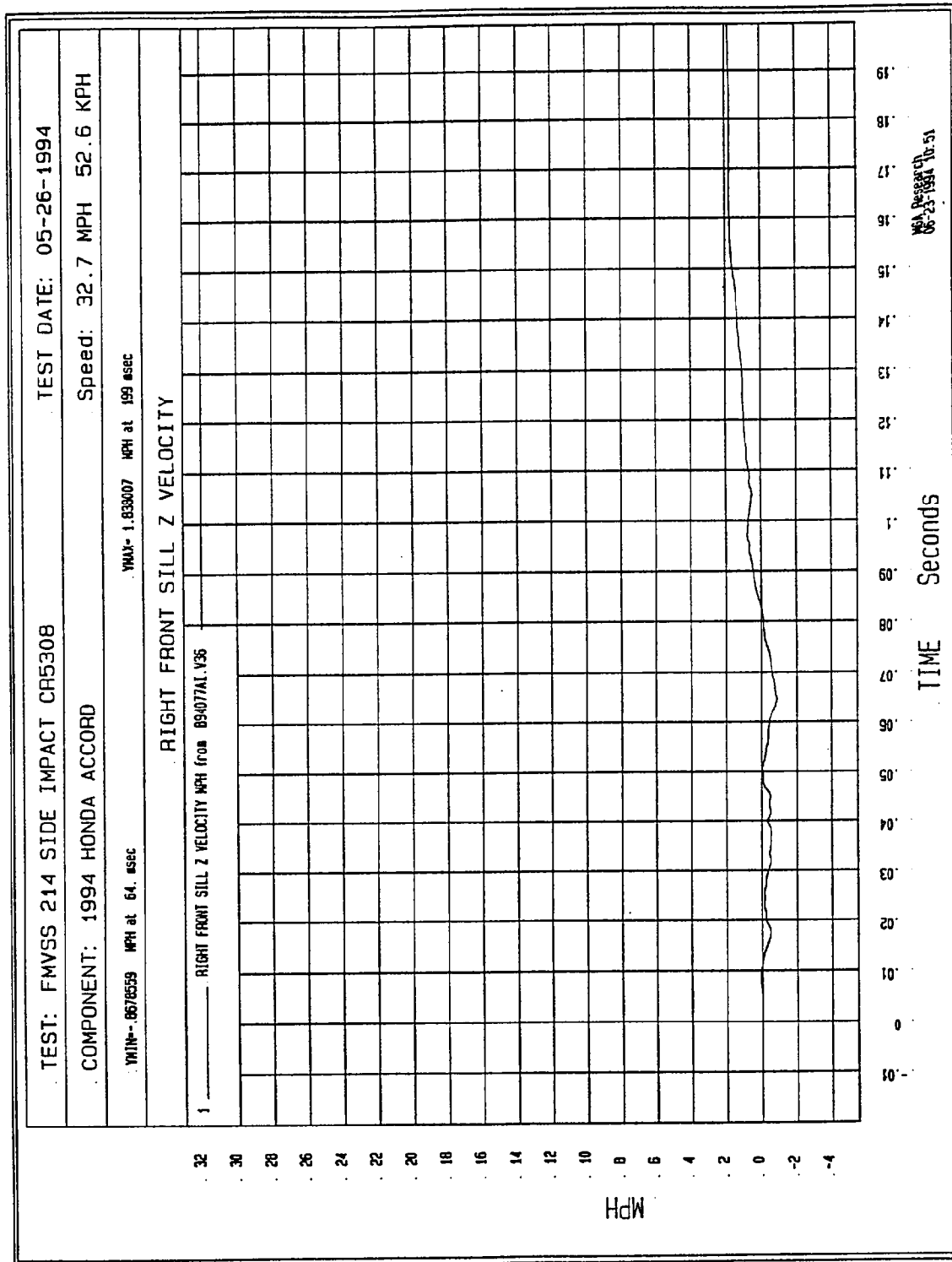


Figure B-29 - Right Front Sill Z Acceleration vs. Time

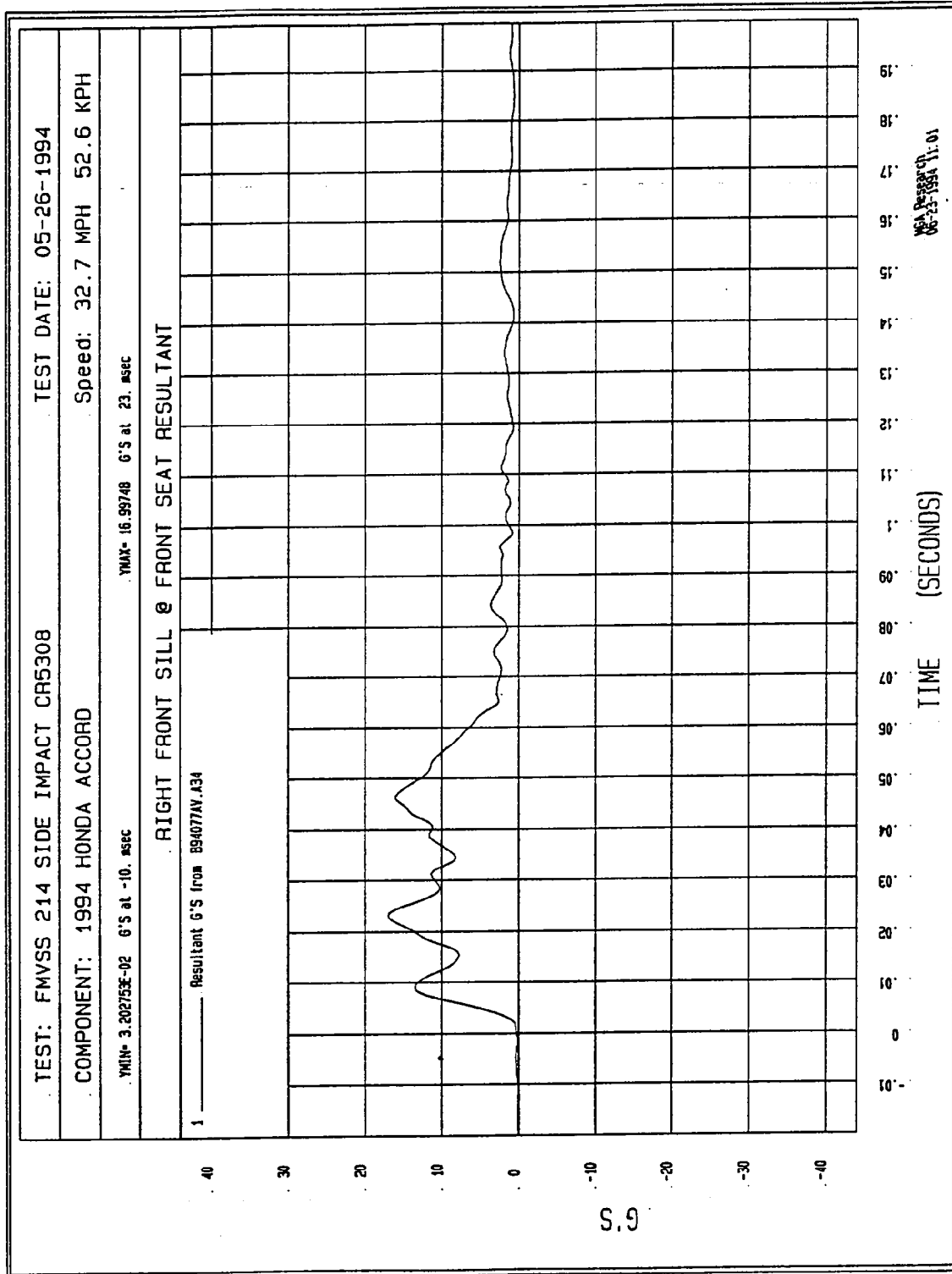
Filter: Class 180 (300 Hz)



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Figure B-30 - Right Front Sill z Velocity vs. Time

Filter: Class 60 (100 Hz)



B-31

Figure B-31 - Right Front Sill at Front Seat Resultant vs. Time

Filter: Class 60 (100 Hz)

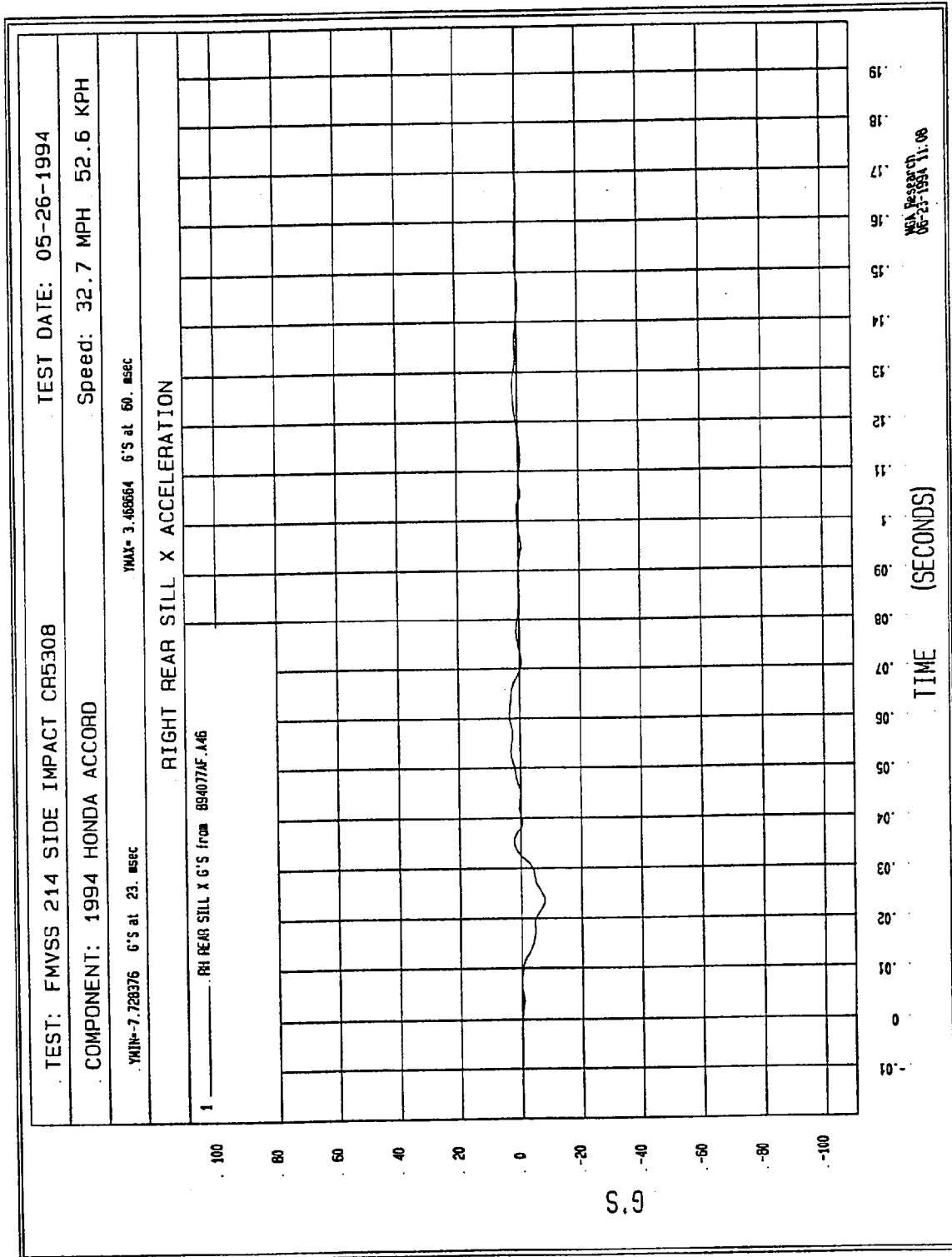


Figure B-32 - Right Rear Sill X Acceleration vs. Time

Filter: Class 180 (300 Hz)

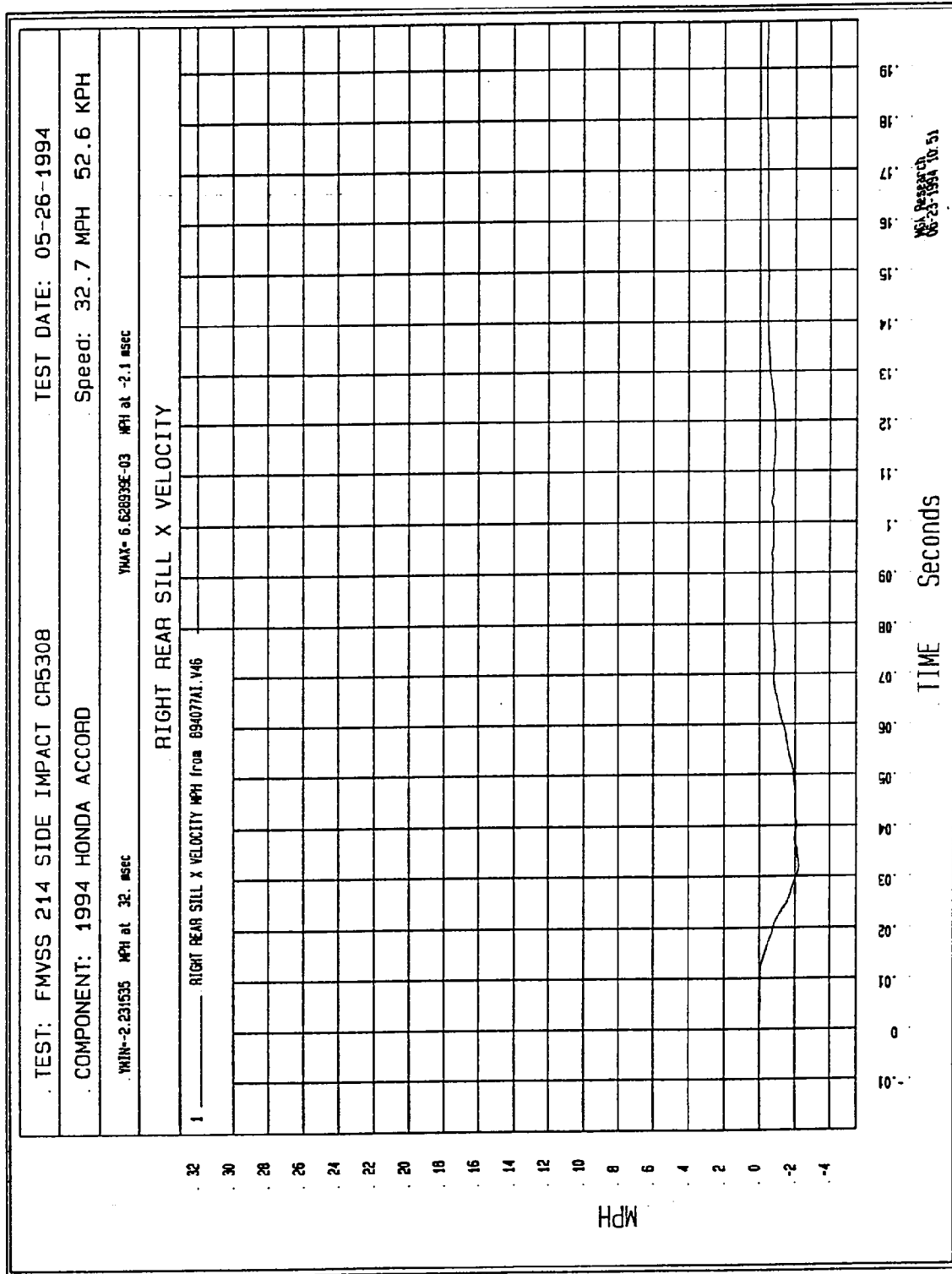


Figure B-33 - Right Rear Sill X Velocity vs. Time

Filter: Class 60 (100 Hz)

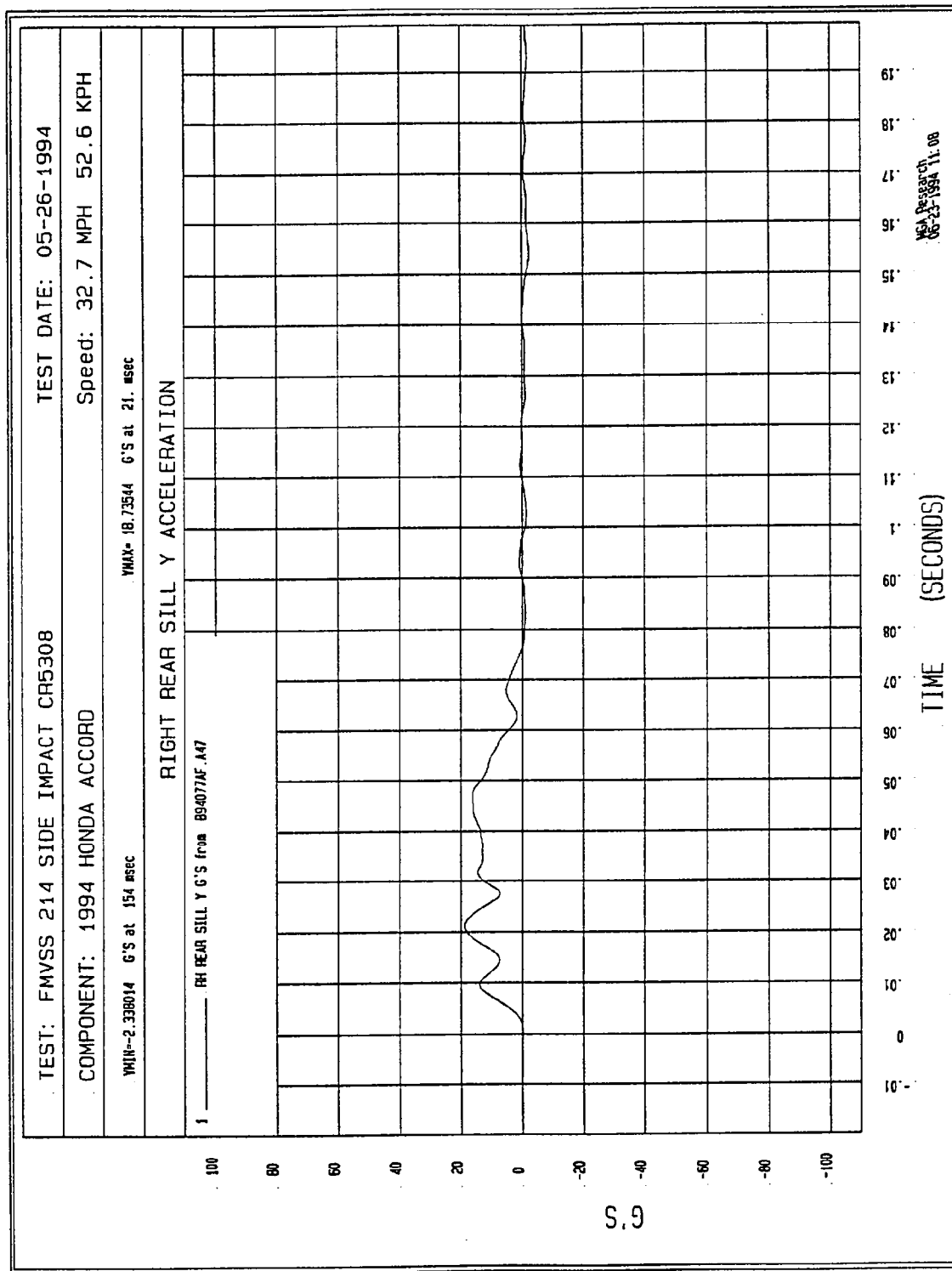


Figure B-34 - Right Rear Sill Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

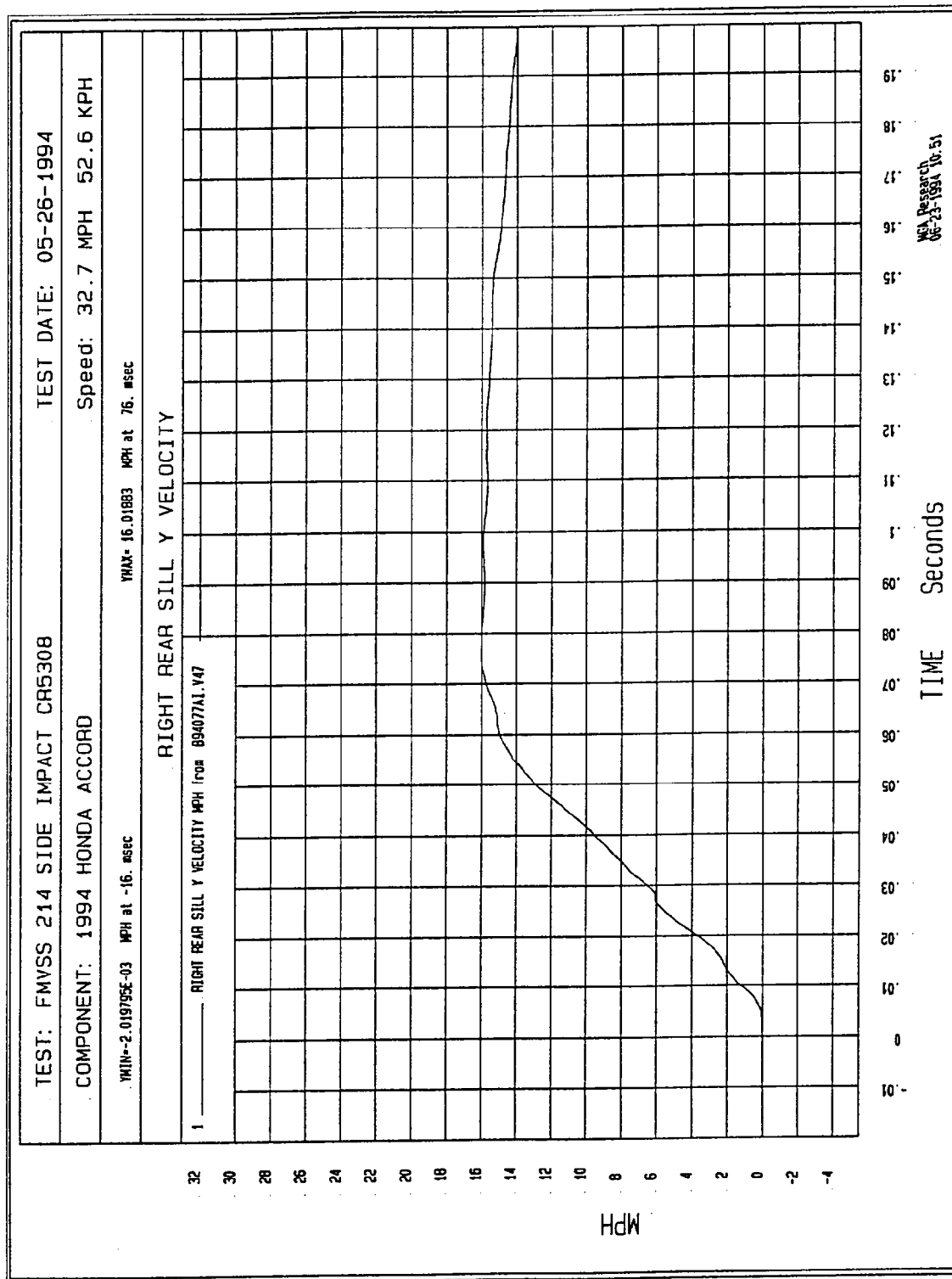


Figure B-35 - Right Rear Sill Y Velocity vs. Time

Filter: Class 60 (100 Hz)

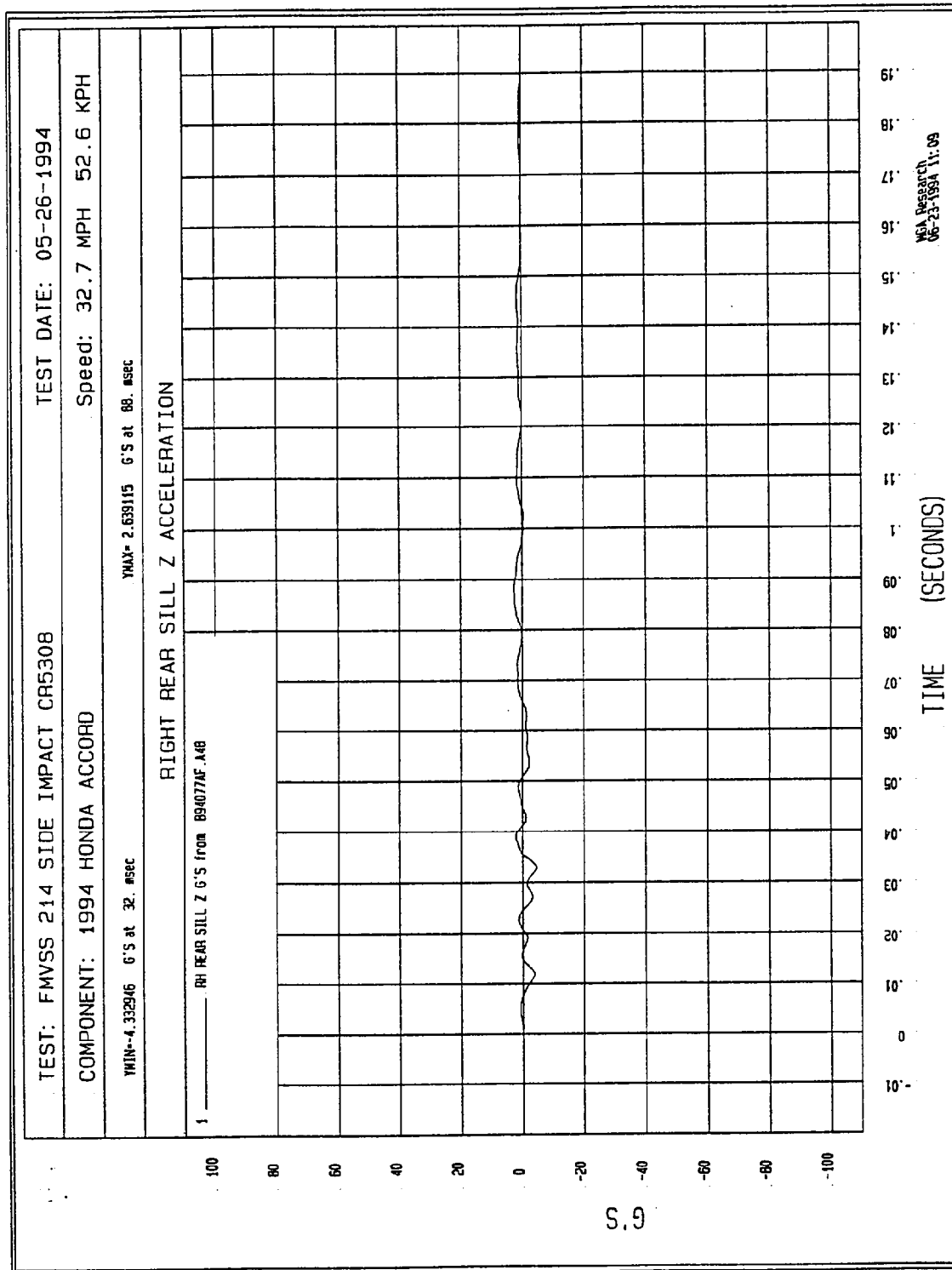


Figure B-36 - Right Rear Sill Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

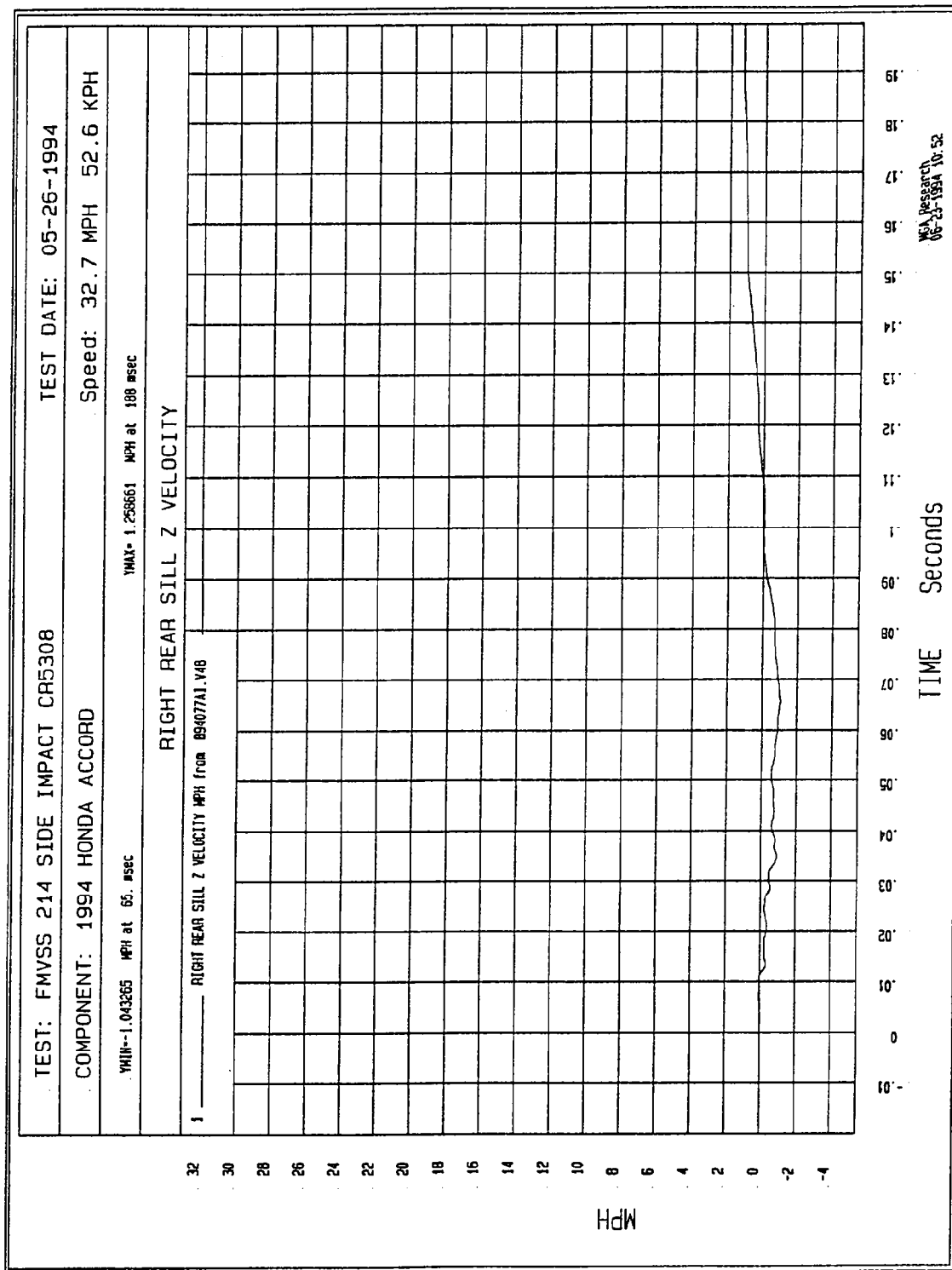


Figure B-37 - Right Rear Sill z Velocity vs. Time

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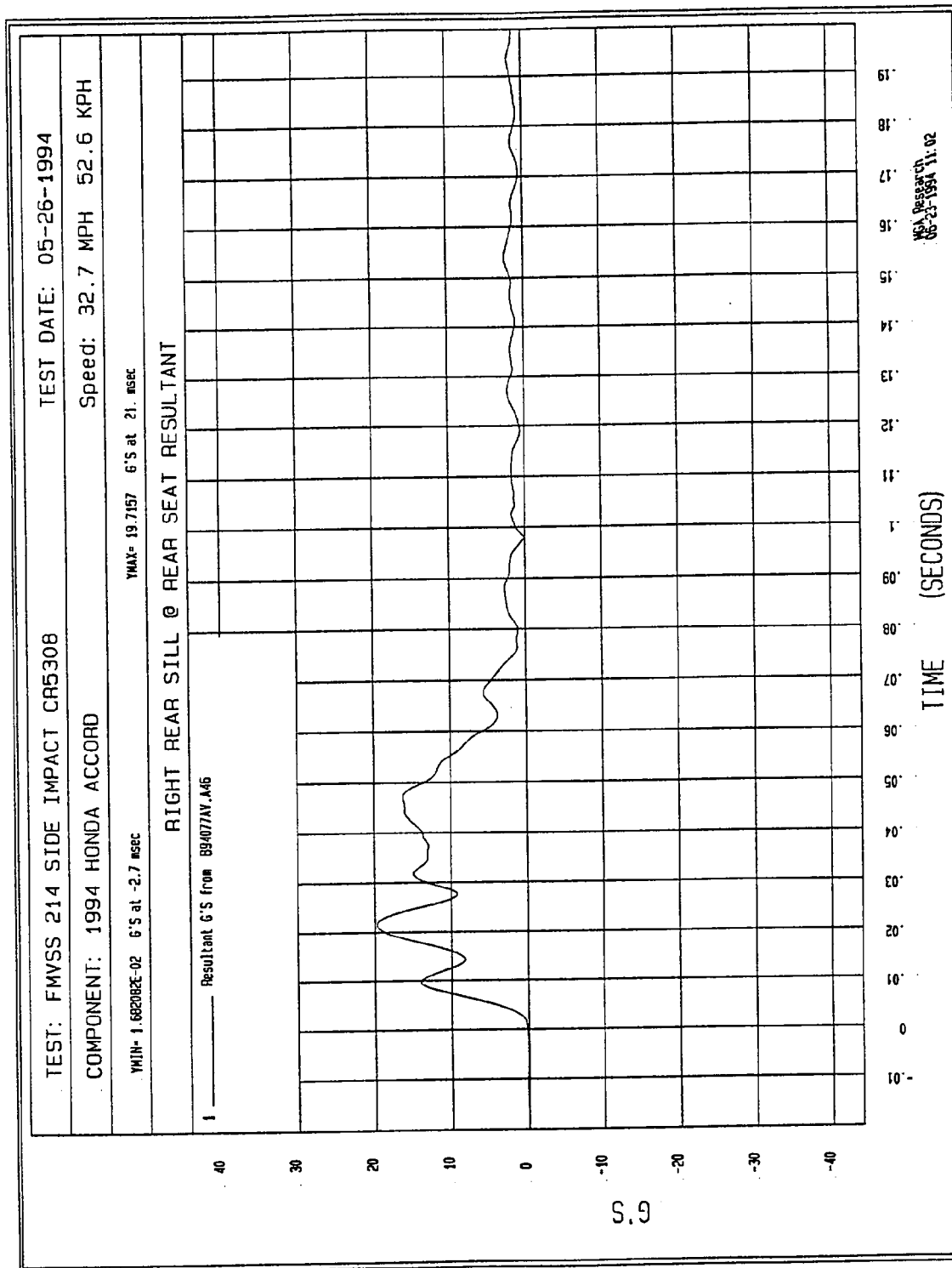


Figure B-38 - Right Rear Sill at Rear Seat Resultant vs. Time

Filter: Class 60 (100 Hz)

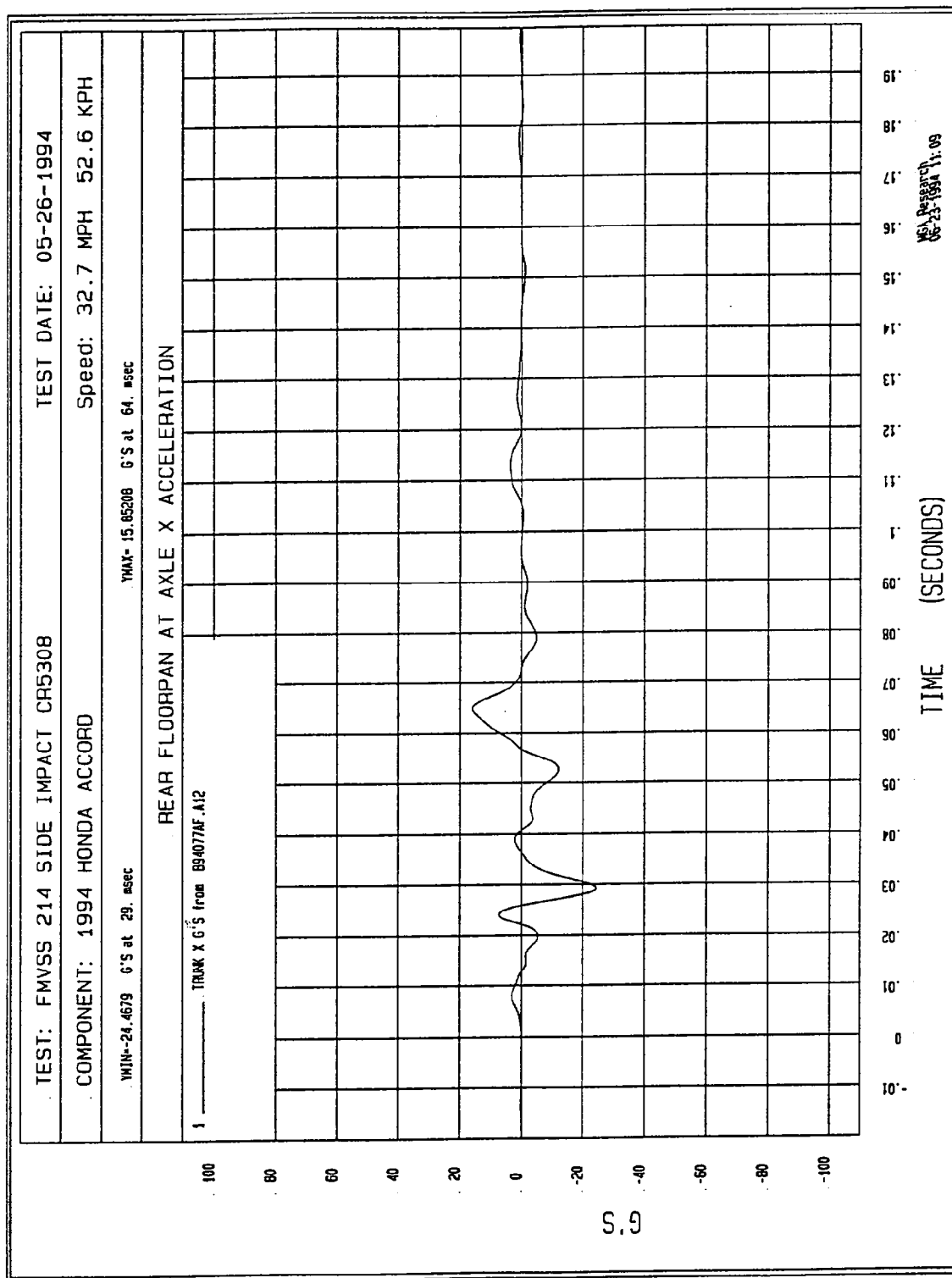


Figure B-39 - Rear Floorpan at Axle X Acceleration vs. Time

Filter: Class 180 (300 Hz)

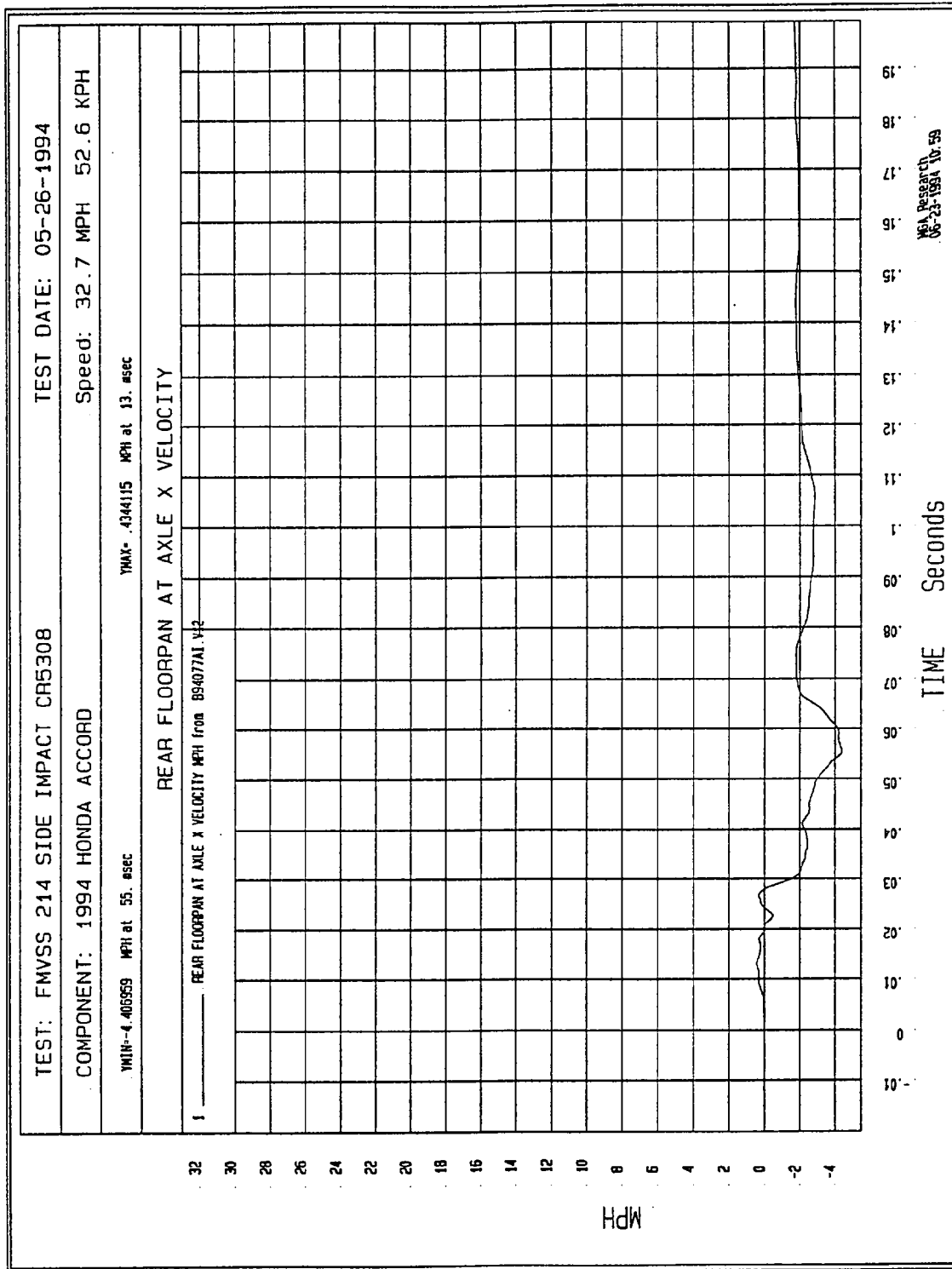


Figure B-40 - Rear Floorpan at Axle X Velocity vs. Time

Filter: Class 60 (100 Hz)

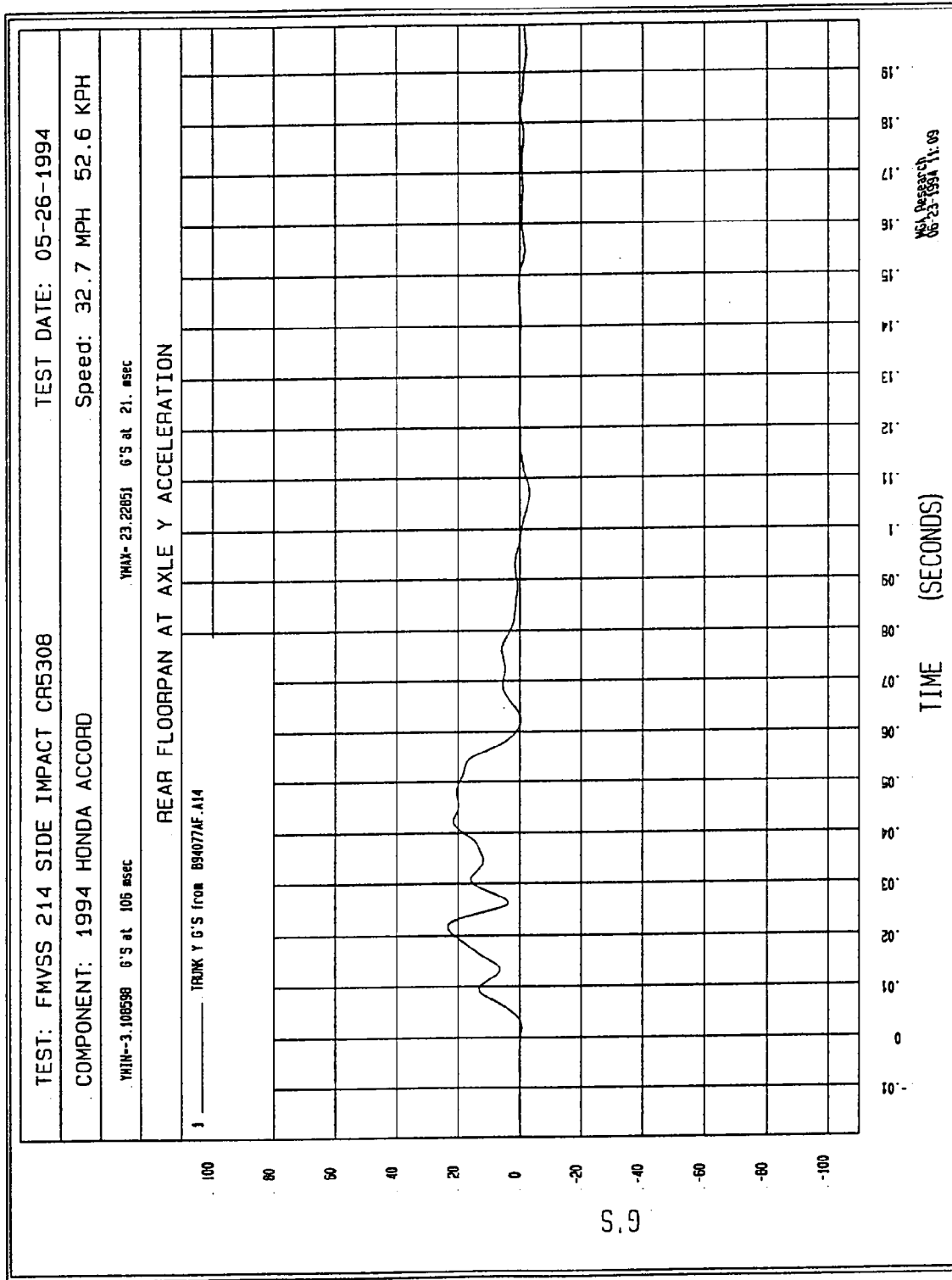
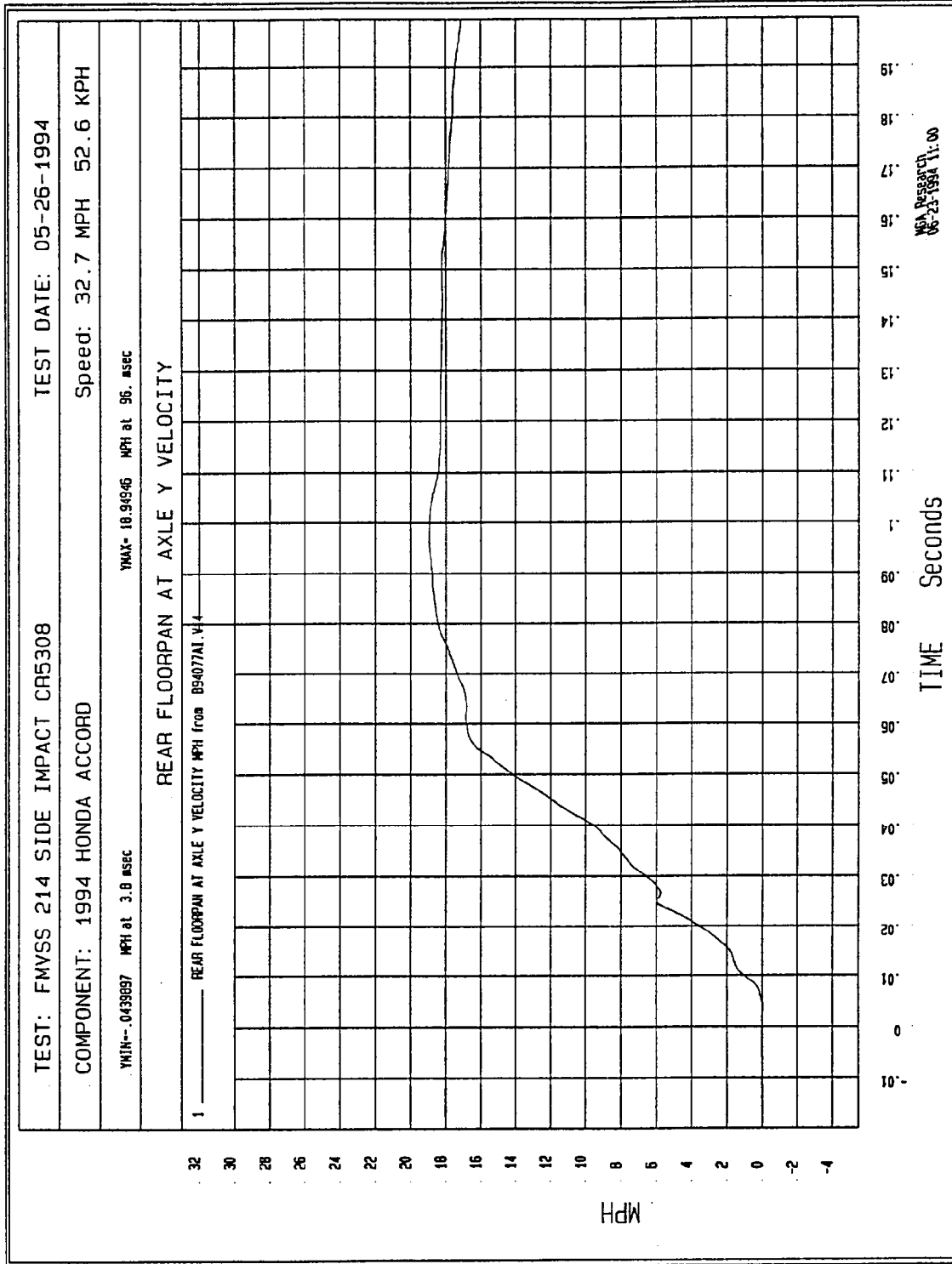


Figure B-41 - Rear Floorpan at Axle Y Acceleration vs. Time

Filter: Class 180 (300 Hz)



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

Filter: Class 60 (100 Hz)

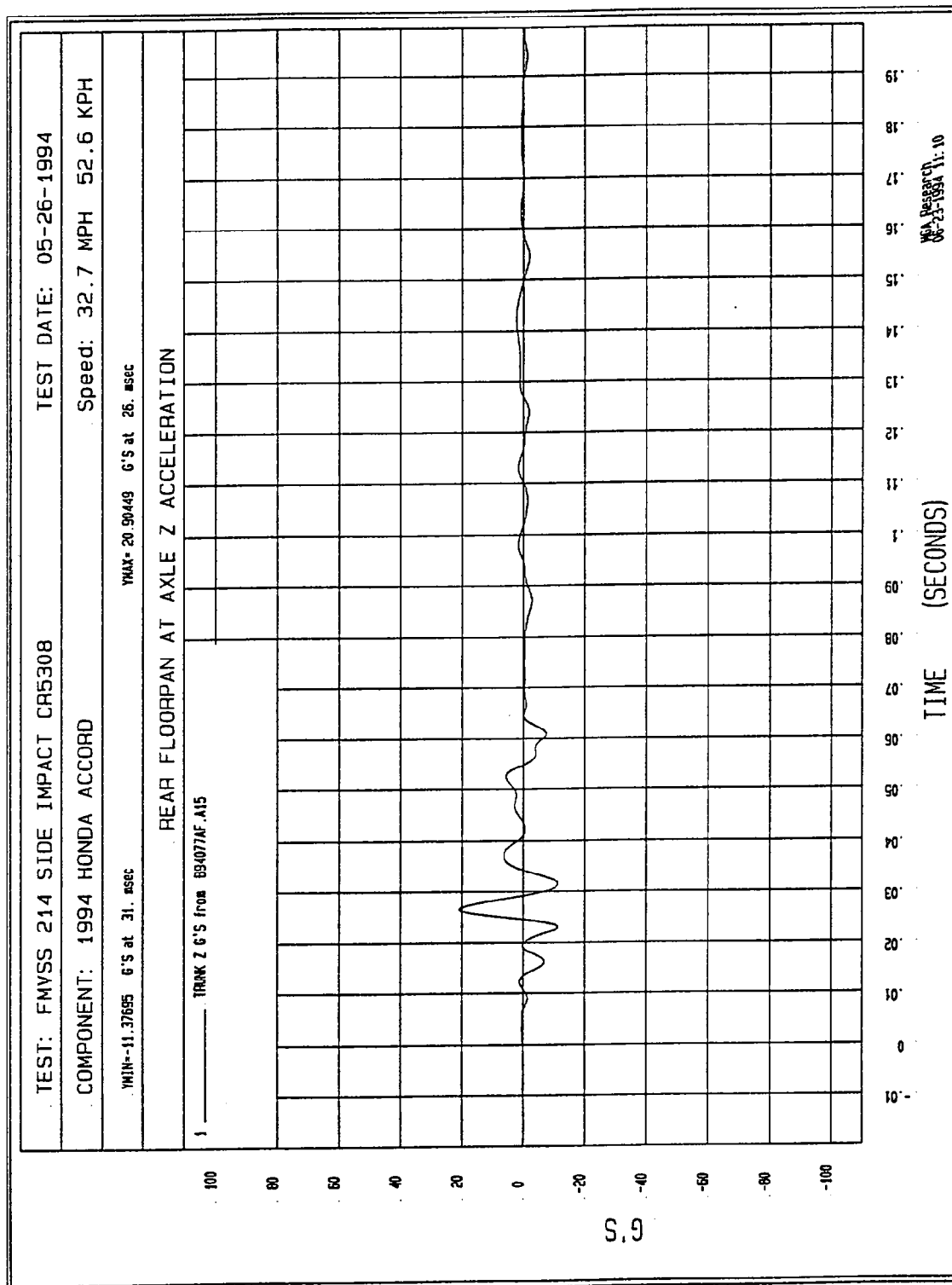


Figure B-43 - Rear Floorpan at Axle Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

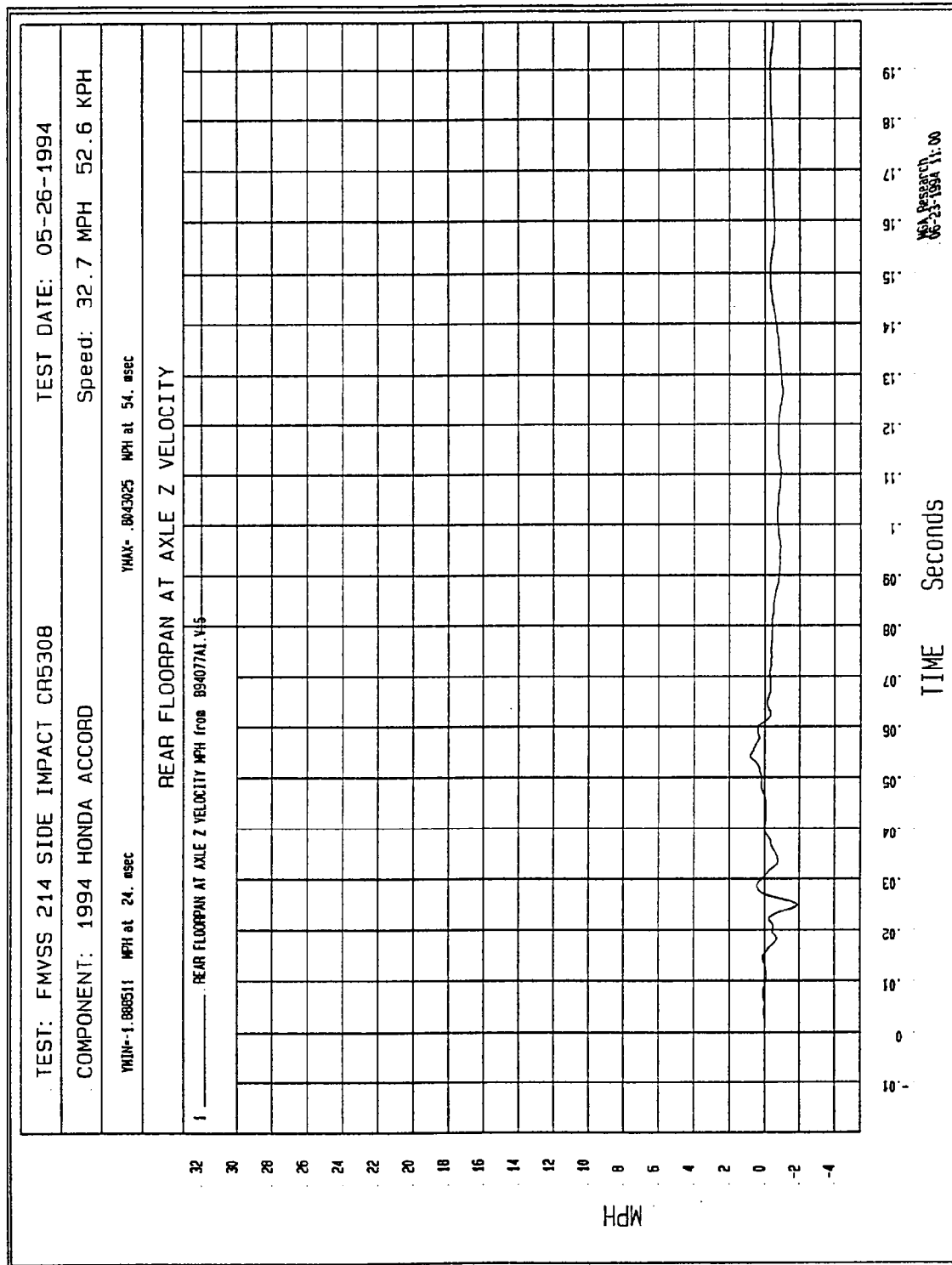


Figure B-44 - Rear Floorpan at Axle Z Velocity vs. Time

Filter: Class 60 (100 Hz)

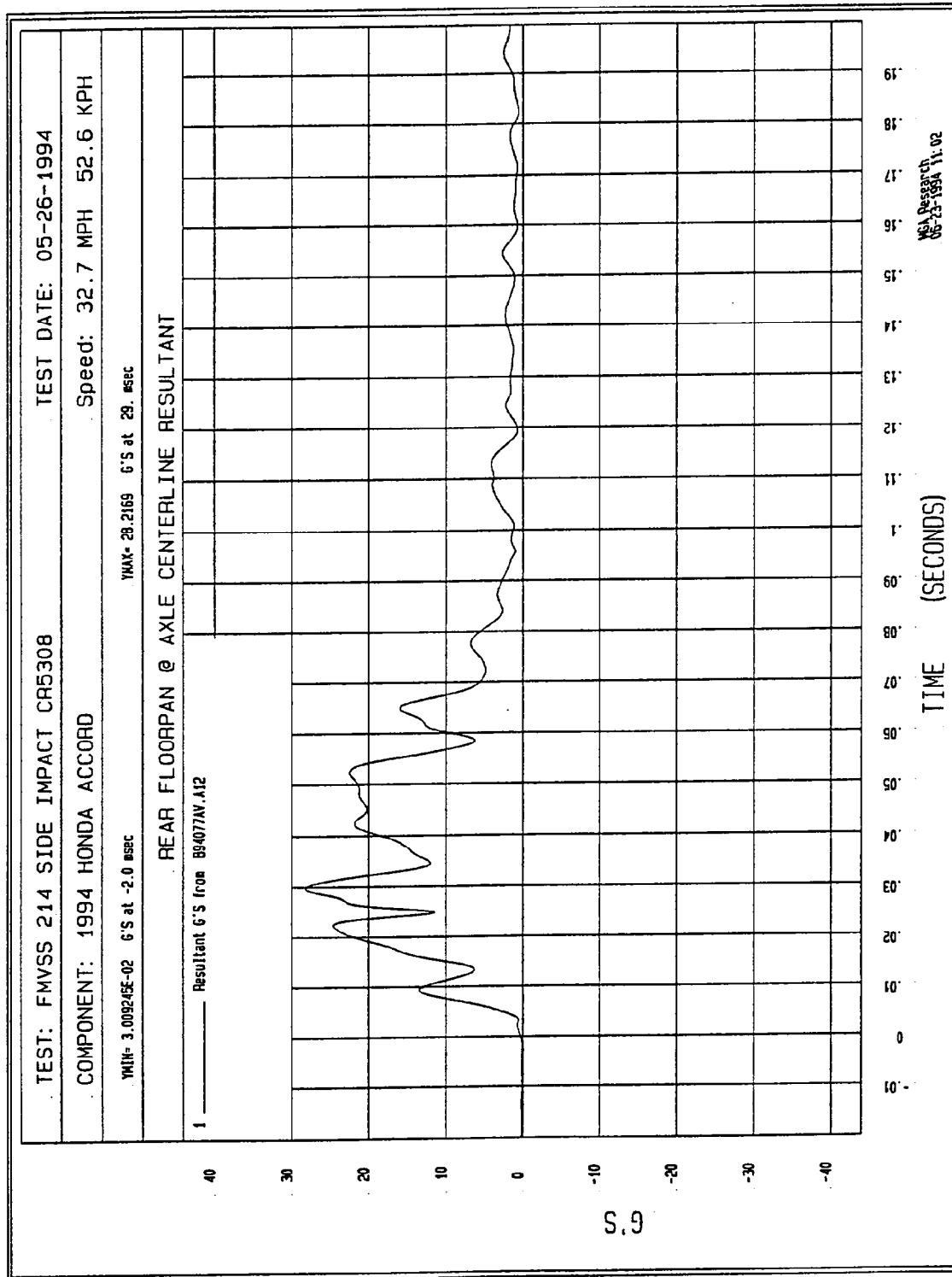


Figure B-45 - Rear Floorpan at Axle Centerline Resultant vs. Time

Filter: Class 60 (100 Hz)

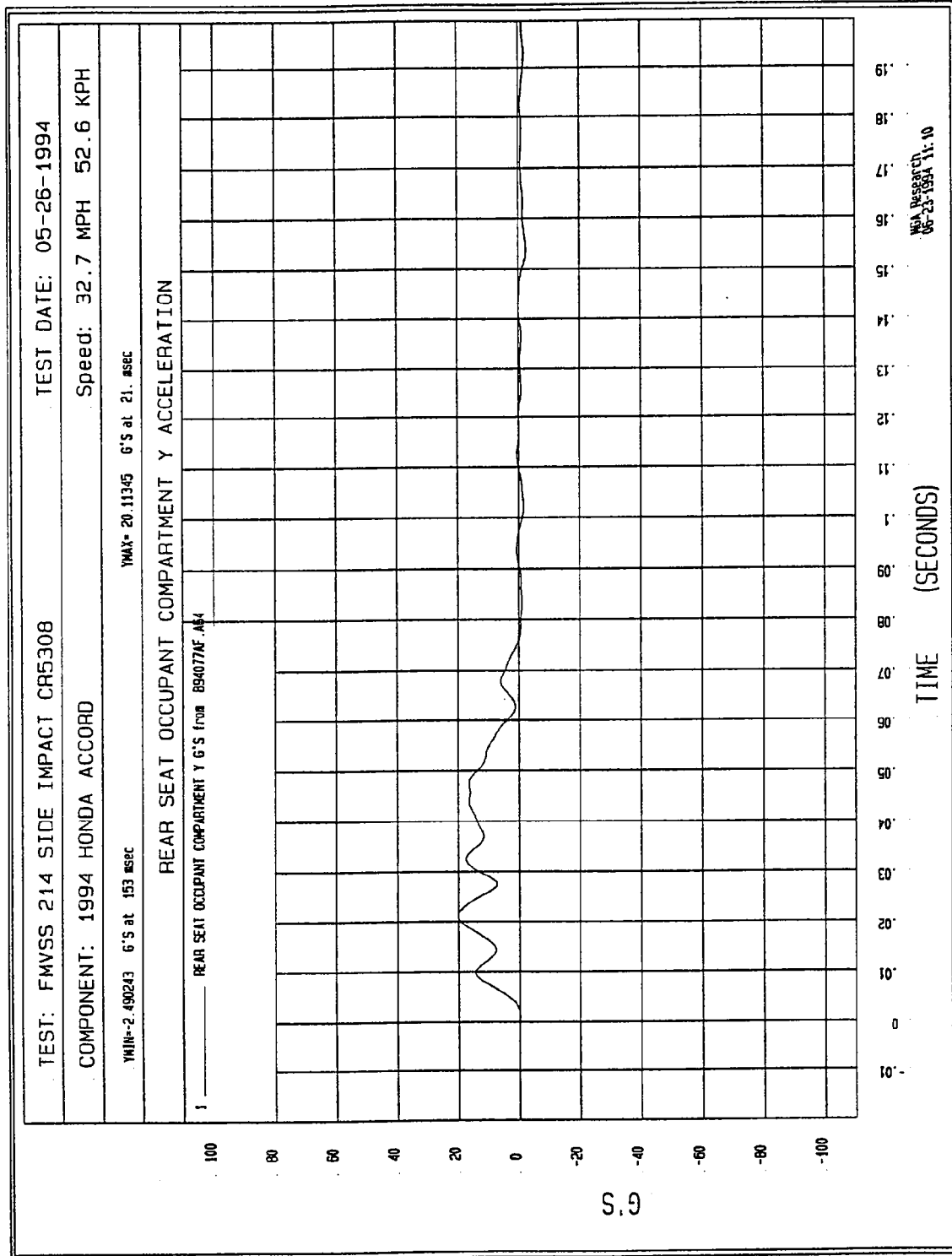


Figure B-46 - Rear Seat Occupant Compartment Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

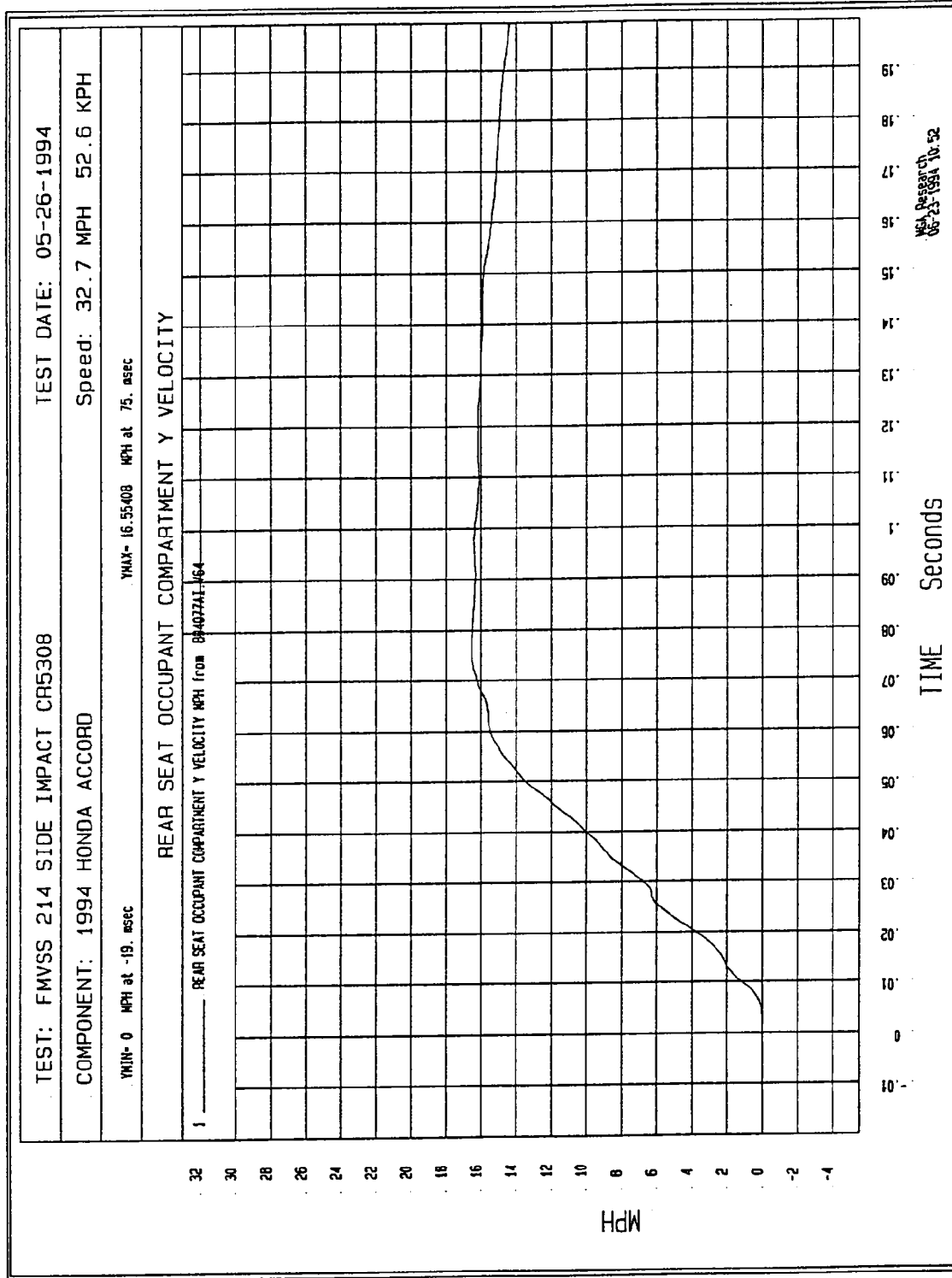


Figure B-47 - Rear Seat Occupant Compartment Y Velocity vs. Time

Filter: Class 60 (100 Hz)

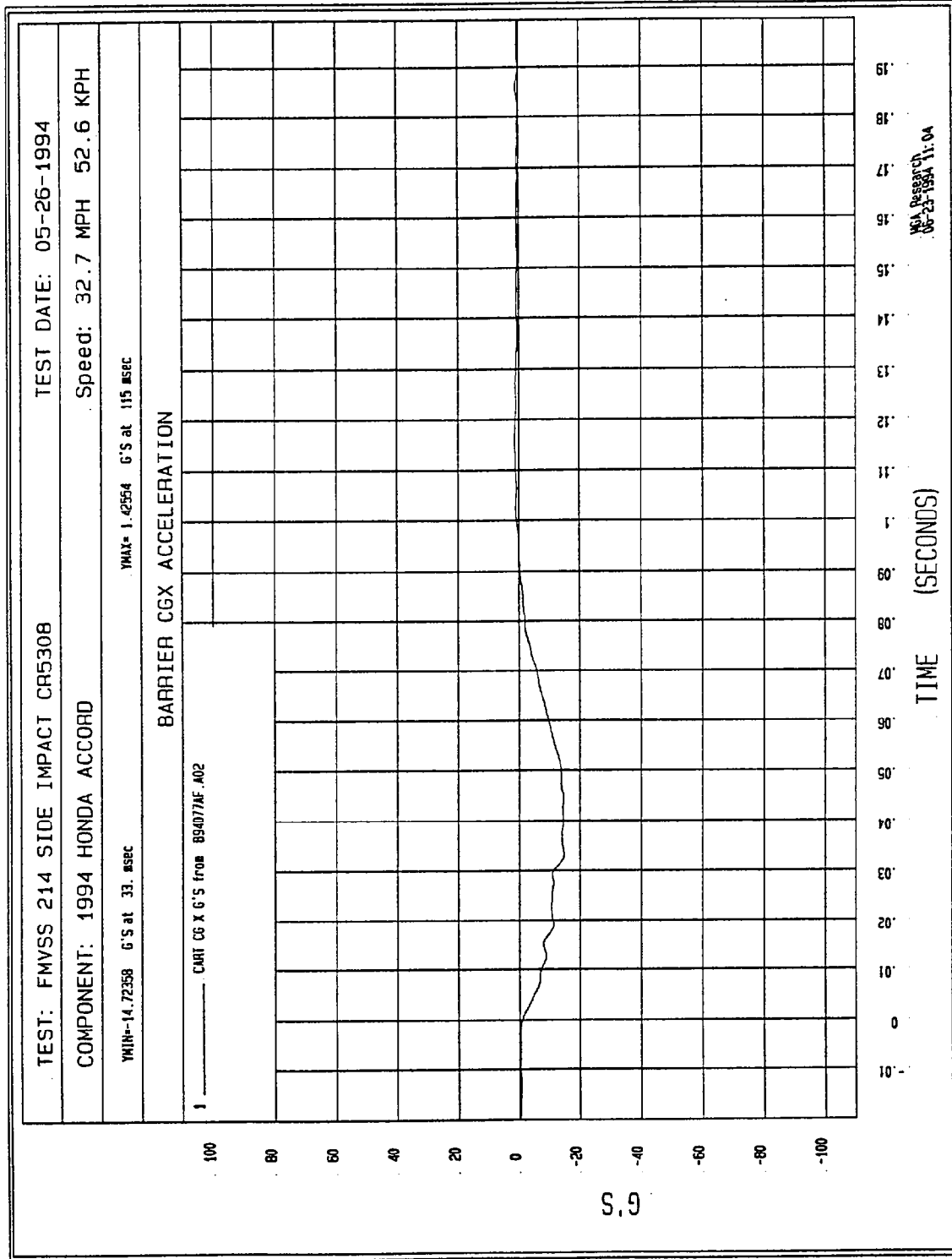


Figure B-48 - Moving Barrier Center of Gravity X Acceleration vs. Time

Filter: Class 180 (300 Hz)

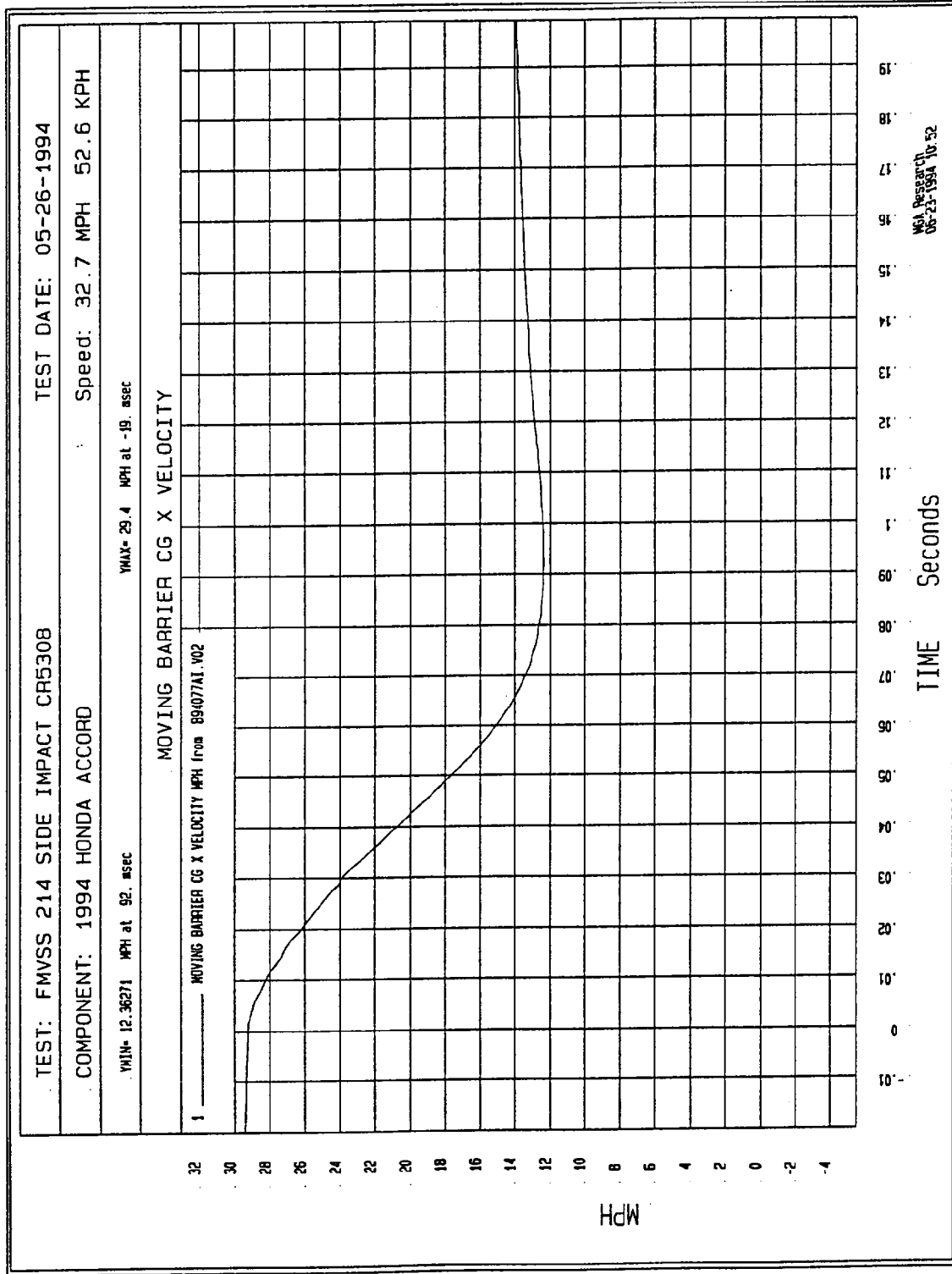


Figure B-49 - Moving Barrier Center of Gravity X Velocity vs. Time

Filter: Class 60 (100 Hz)

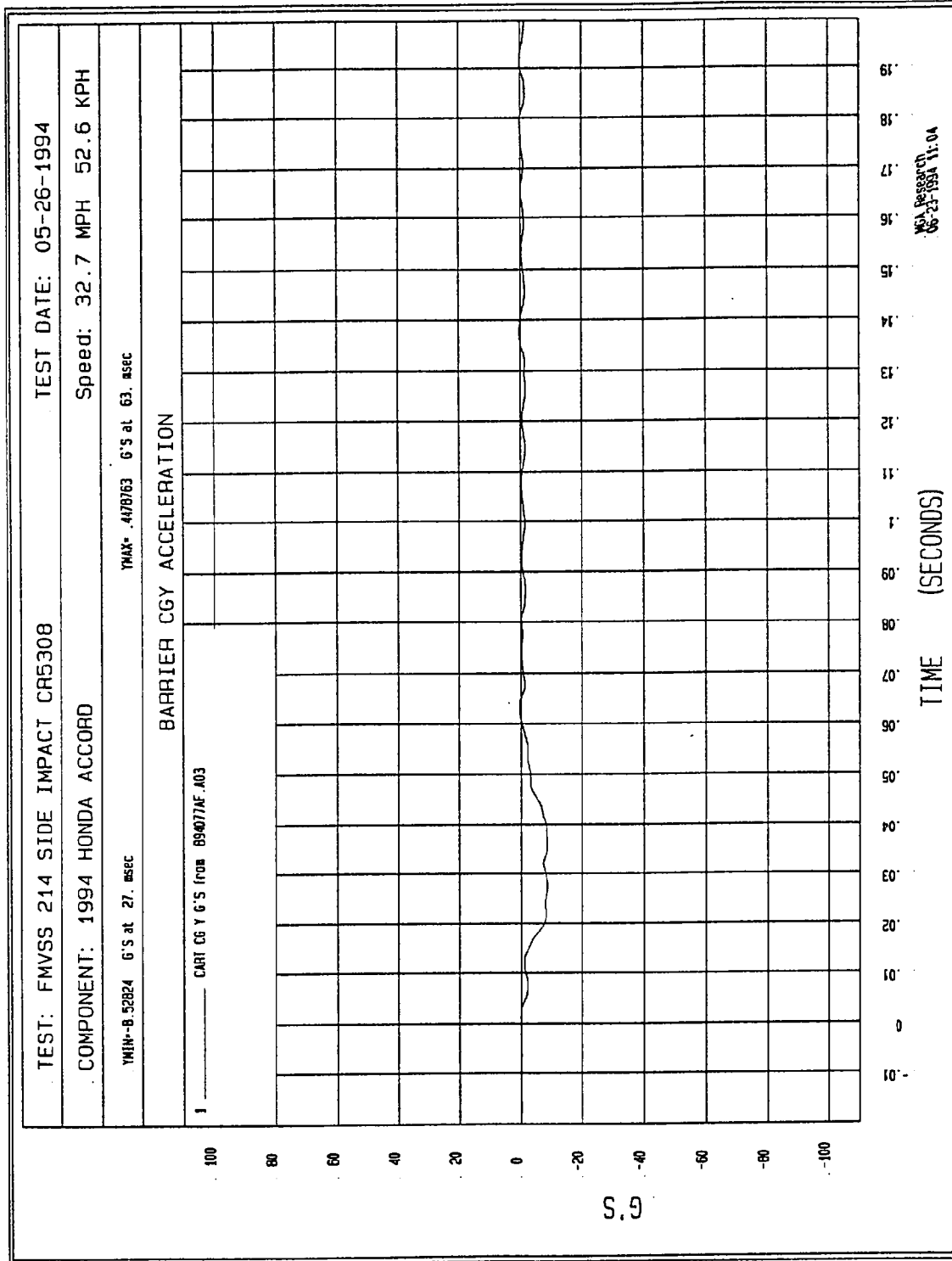
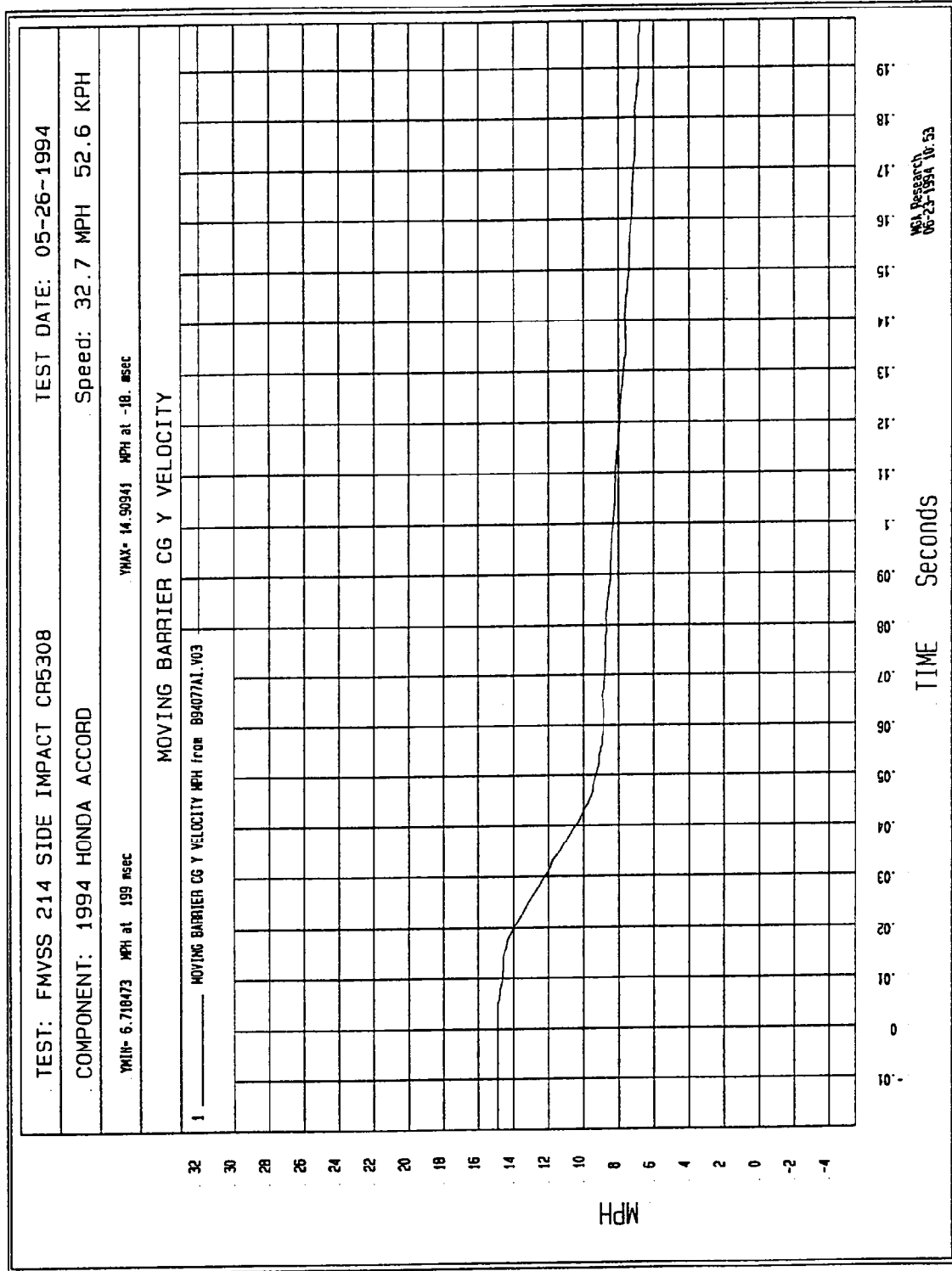


Figure B-50 - Moving Barrier Center of Gravity Y Acceleration vs. Time

Filter: Class 180 (300 Hz)



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Figure B-51 - Moving Barrier Center of Gravity Y Velocity vs. Time

Filter: Class 60 (100 Hz)

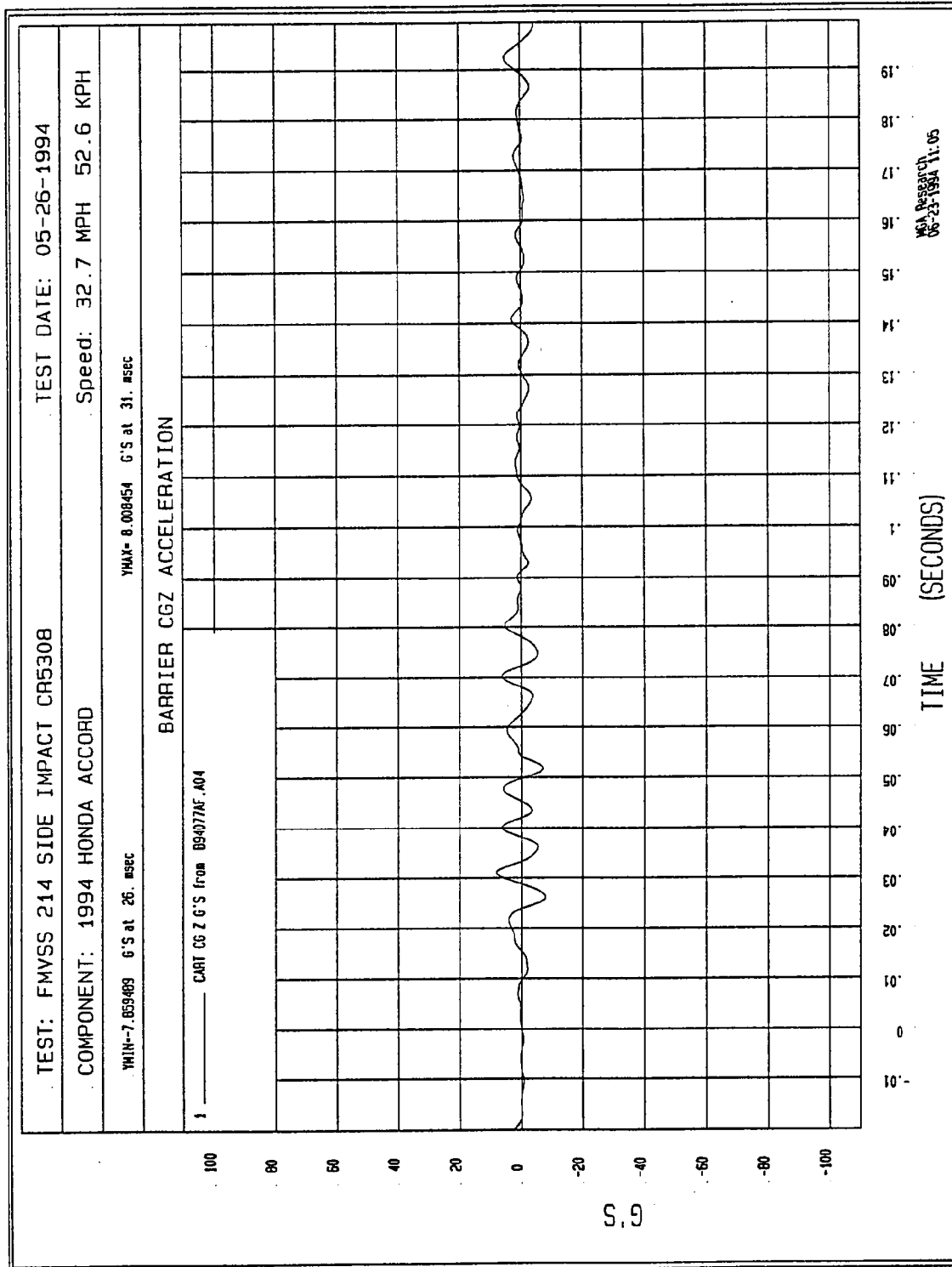


Figure B-52 - Moving Barrier Center of Gravity Z Acceleration vs. Time

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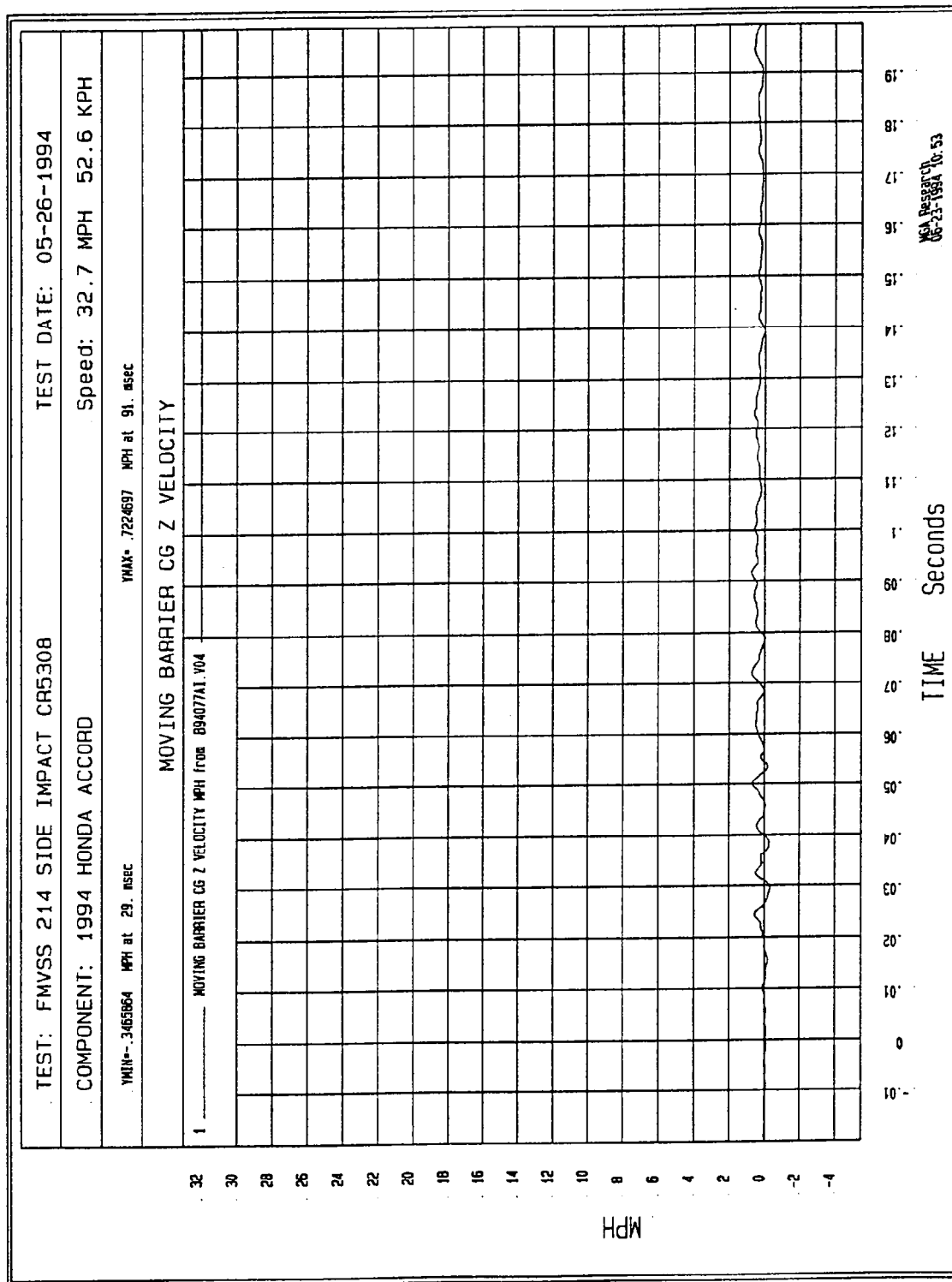


Figure B-53 - Moving Barrier Center of Gravity Z Velocity vs. Time

Filter: Class 60 (100 Hz)

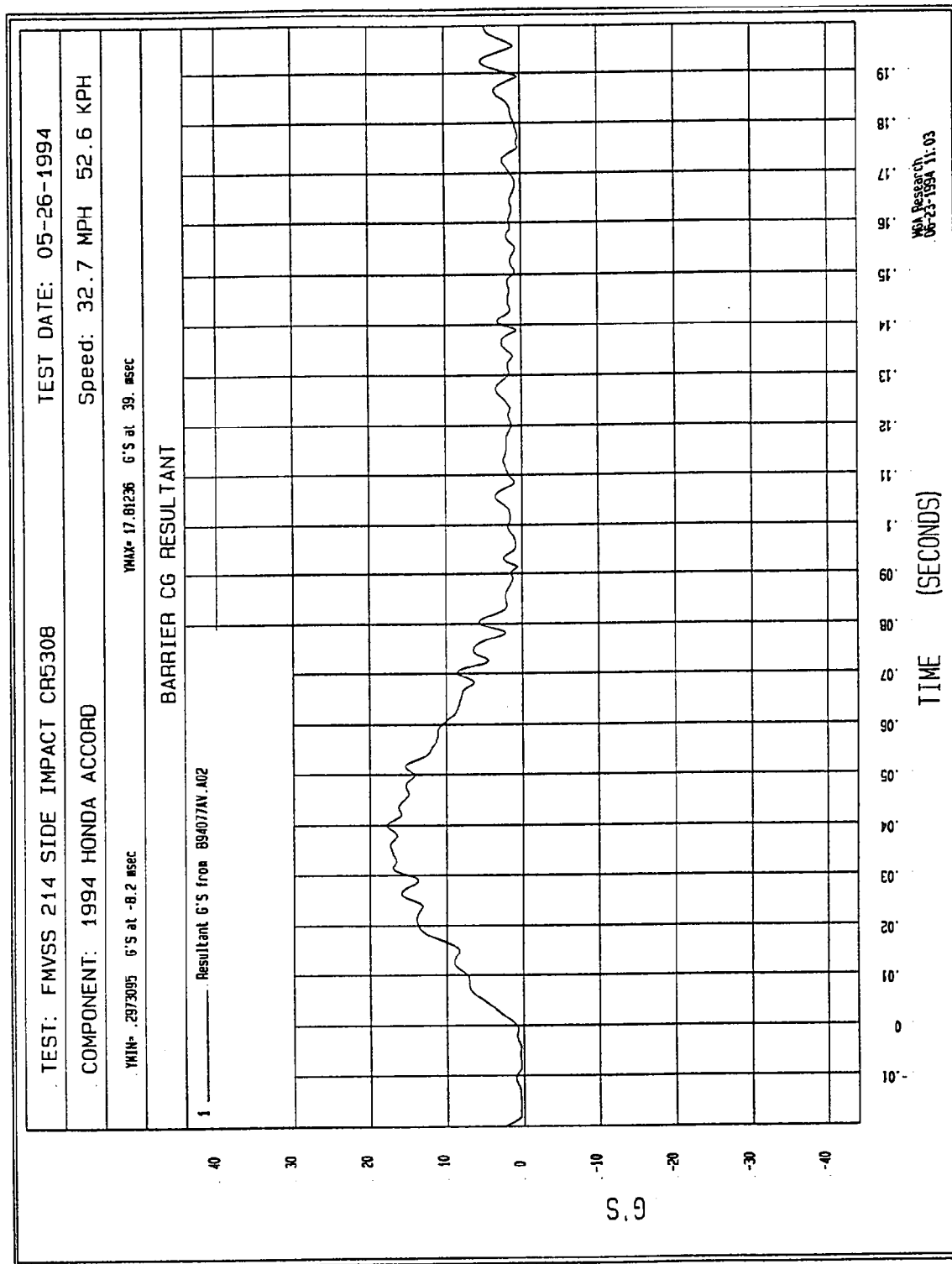


Figure B-54 - Moving Barrier Center of Gravity Resultant vs. Time

Filter: Class 60 (100 Hz)

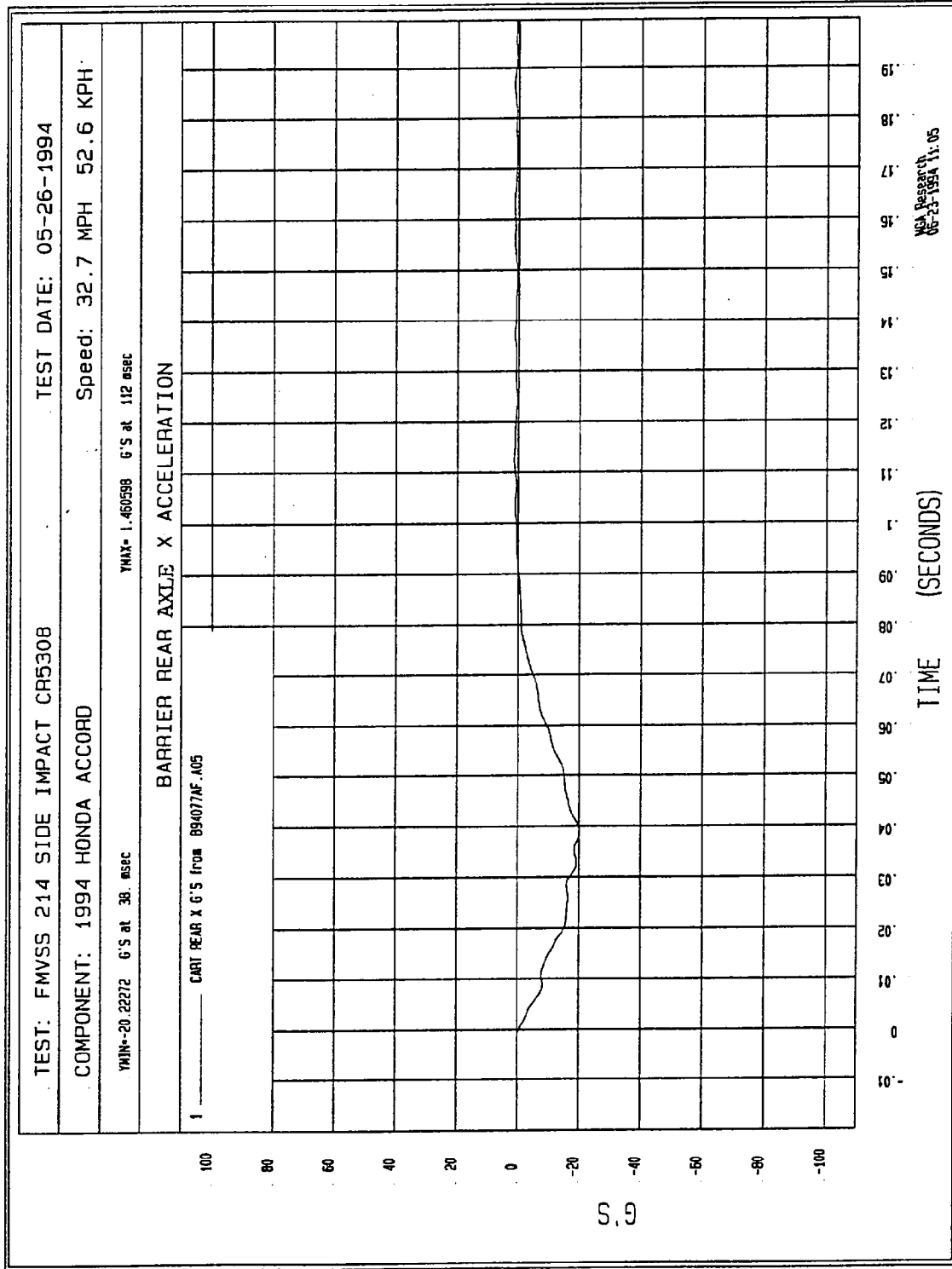


Figure B-55 - Moving Barrier Rear Axle X Acceleration vs. Time

Filter: Class 180 (300 Hz)

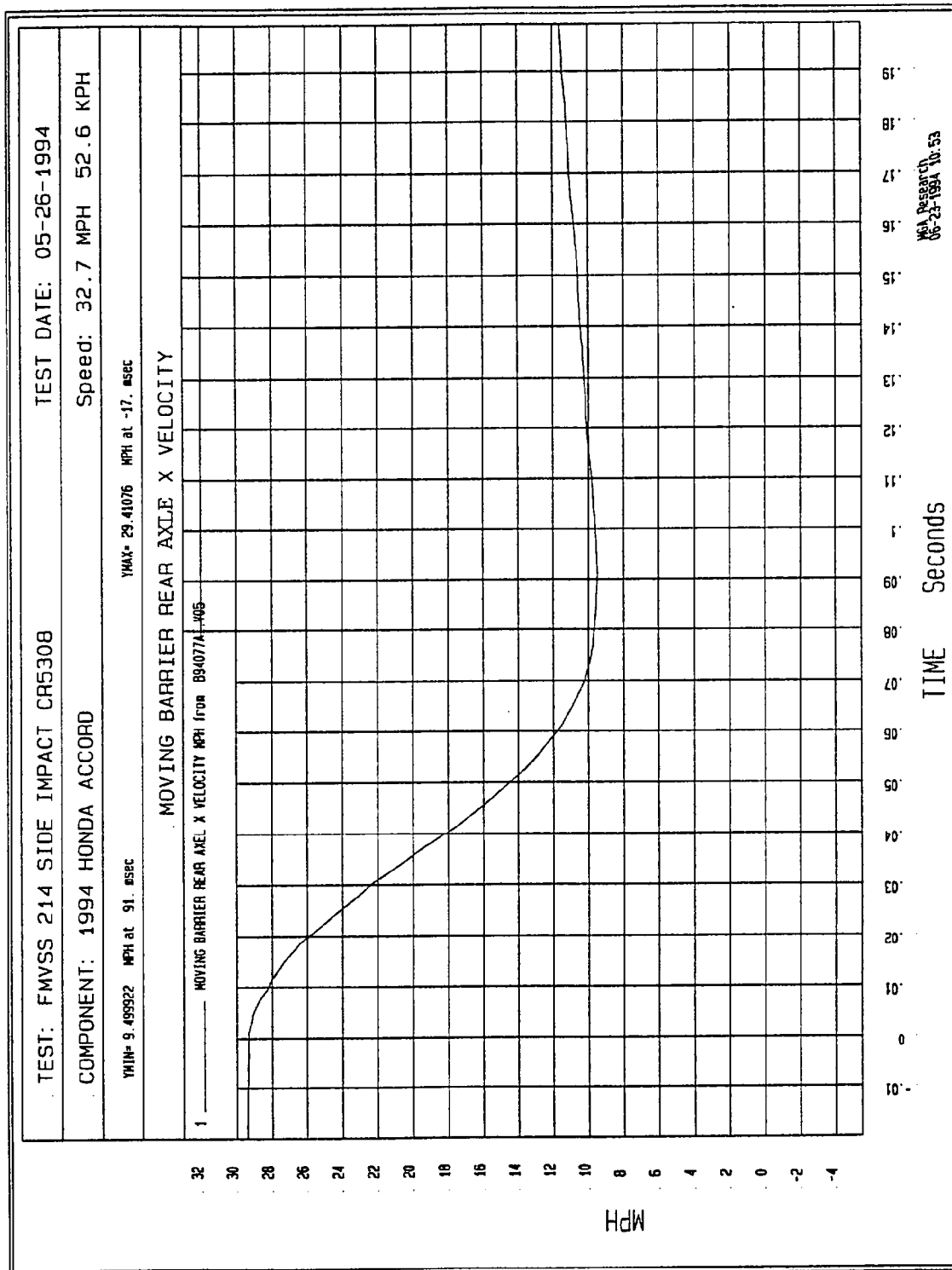


Figure B-56 - Moving Barrier Rear Axle X Velocity vs. Time

Filter: Class 60 (100 Hz)

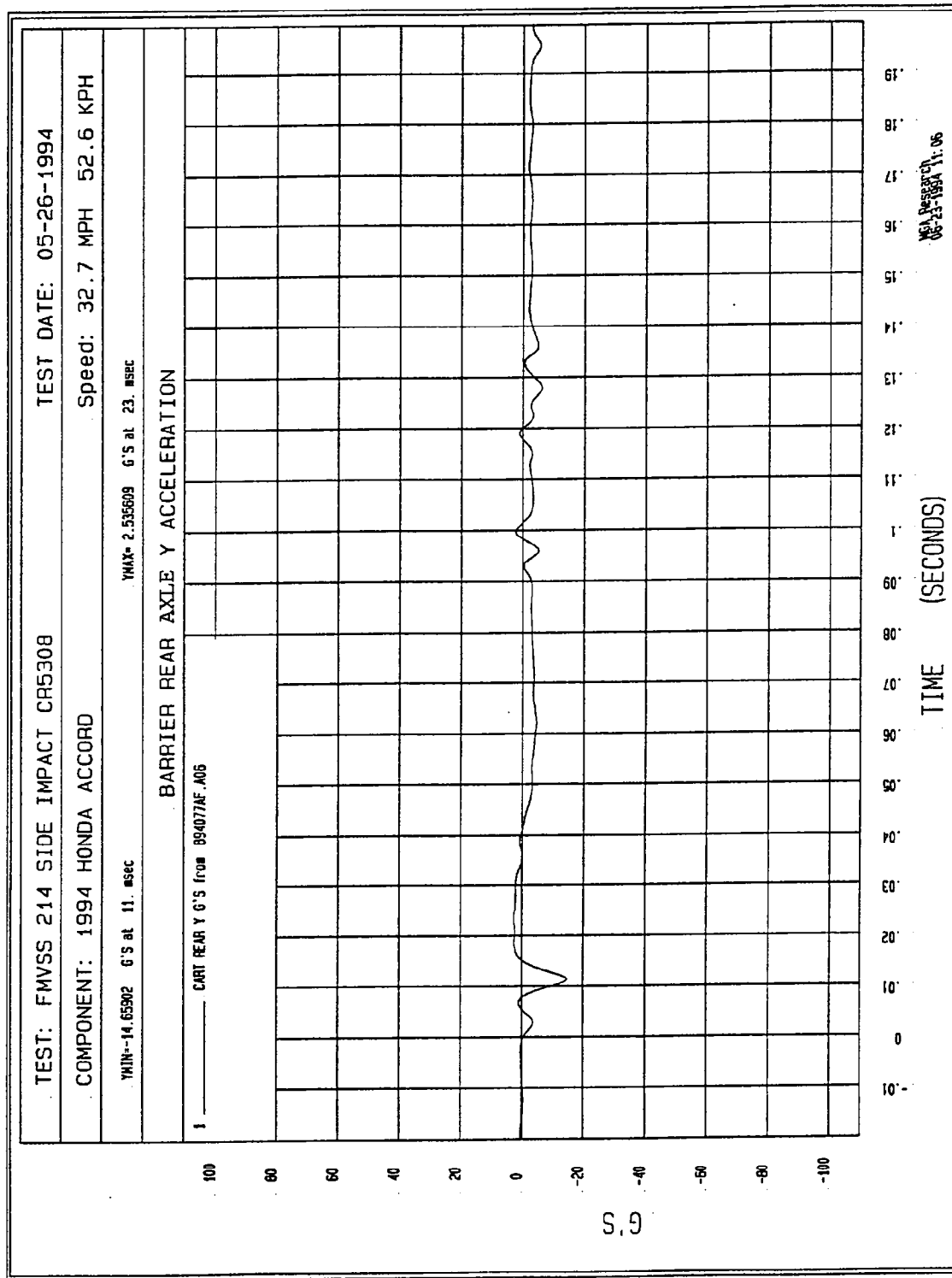


Figure B-57 - Moving Barrier Rear Axle Y Acceleration vs. Time

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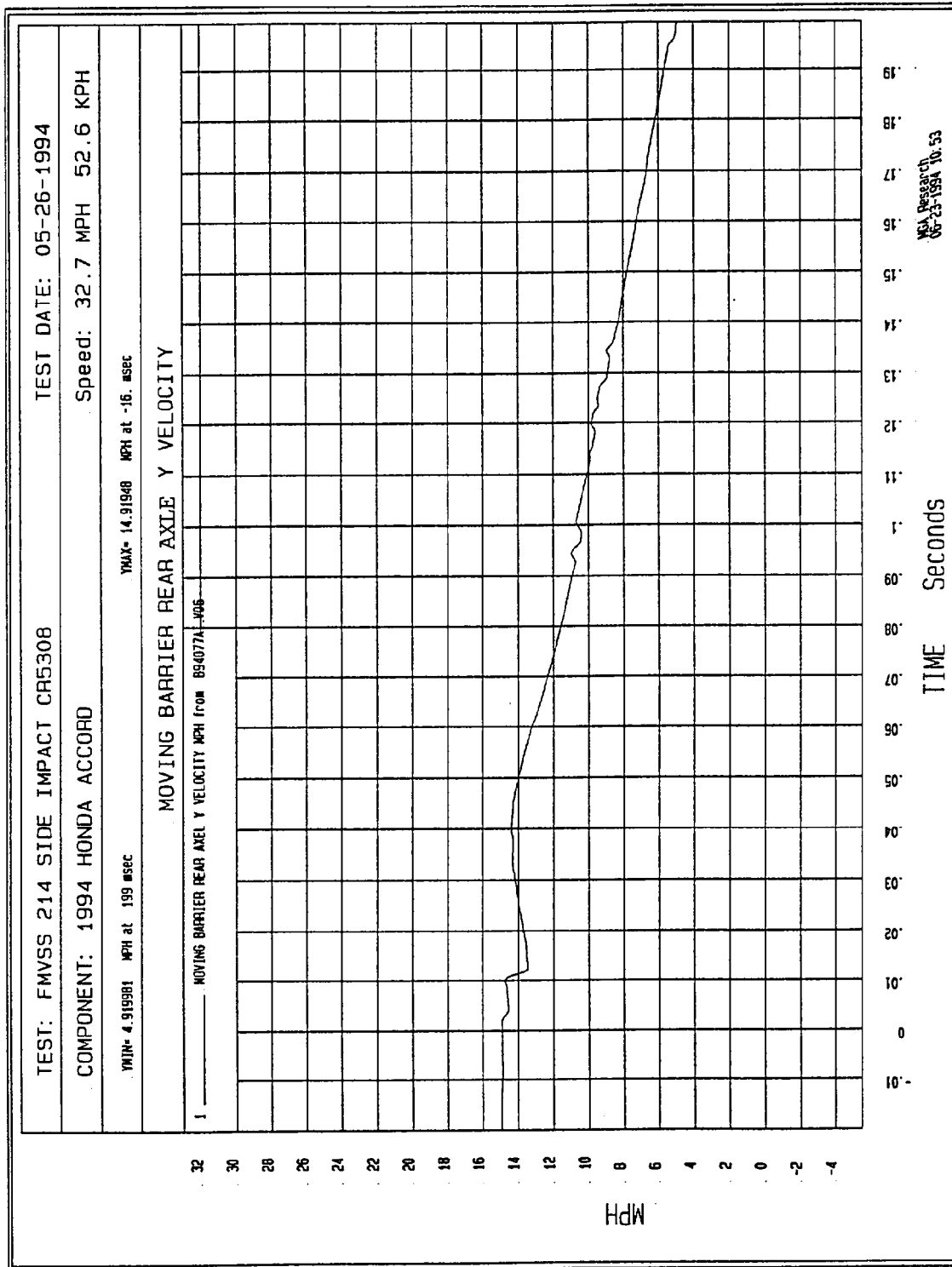


Figure B-58 - Moving Barrier Rear Axle Y Velocity vs. Time

Filter: Class 1000 (1650 Hz)

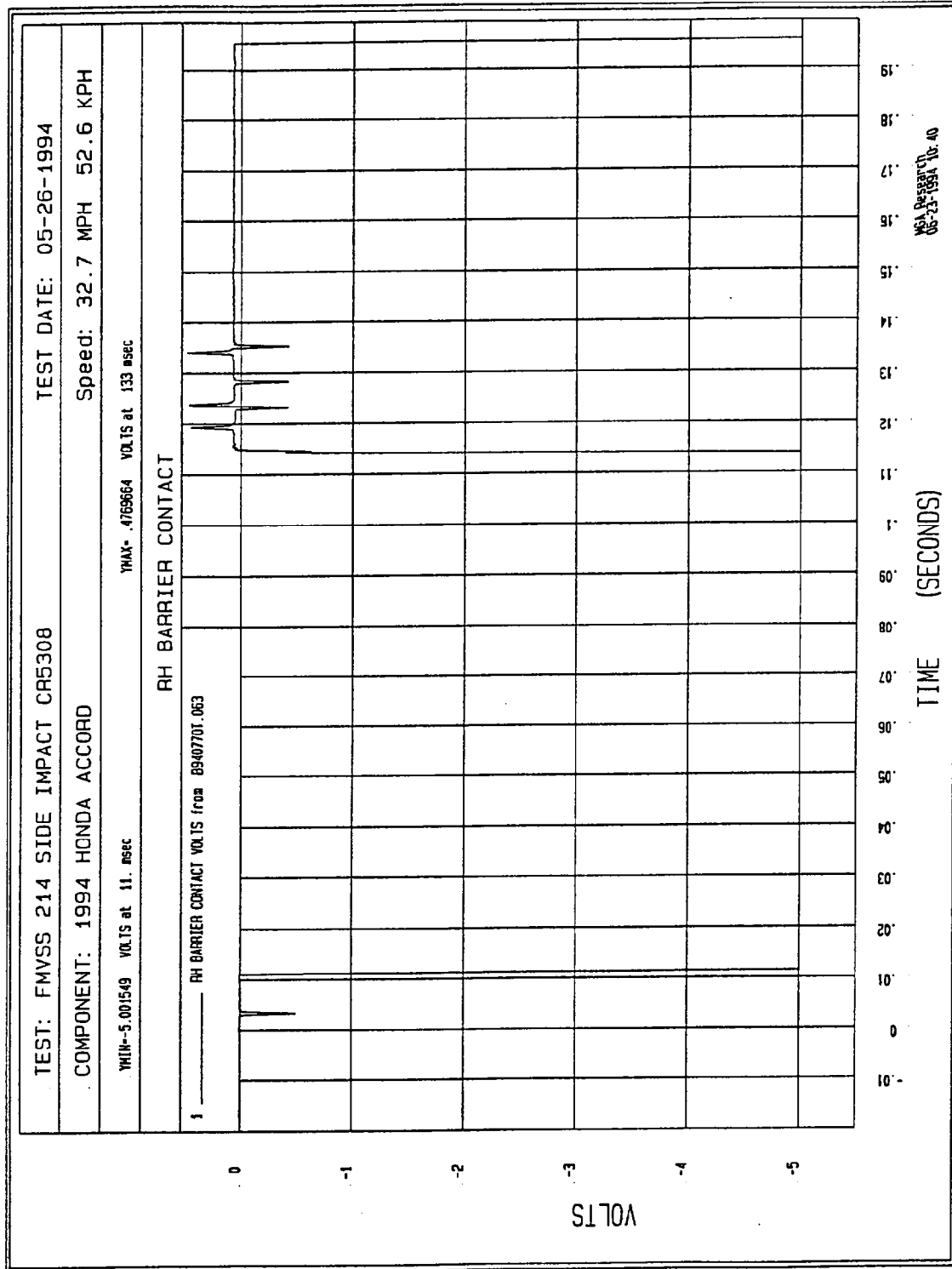


Figure B-59 - Right Hand Barrier Contact

Filter: Class 1000 (1650 Hz)

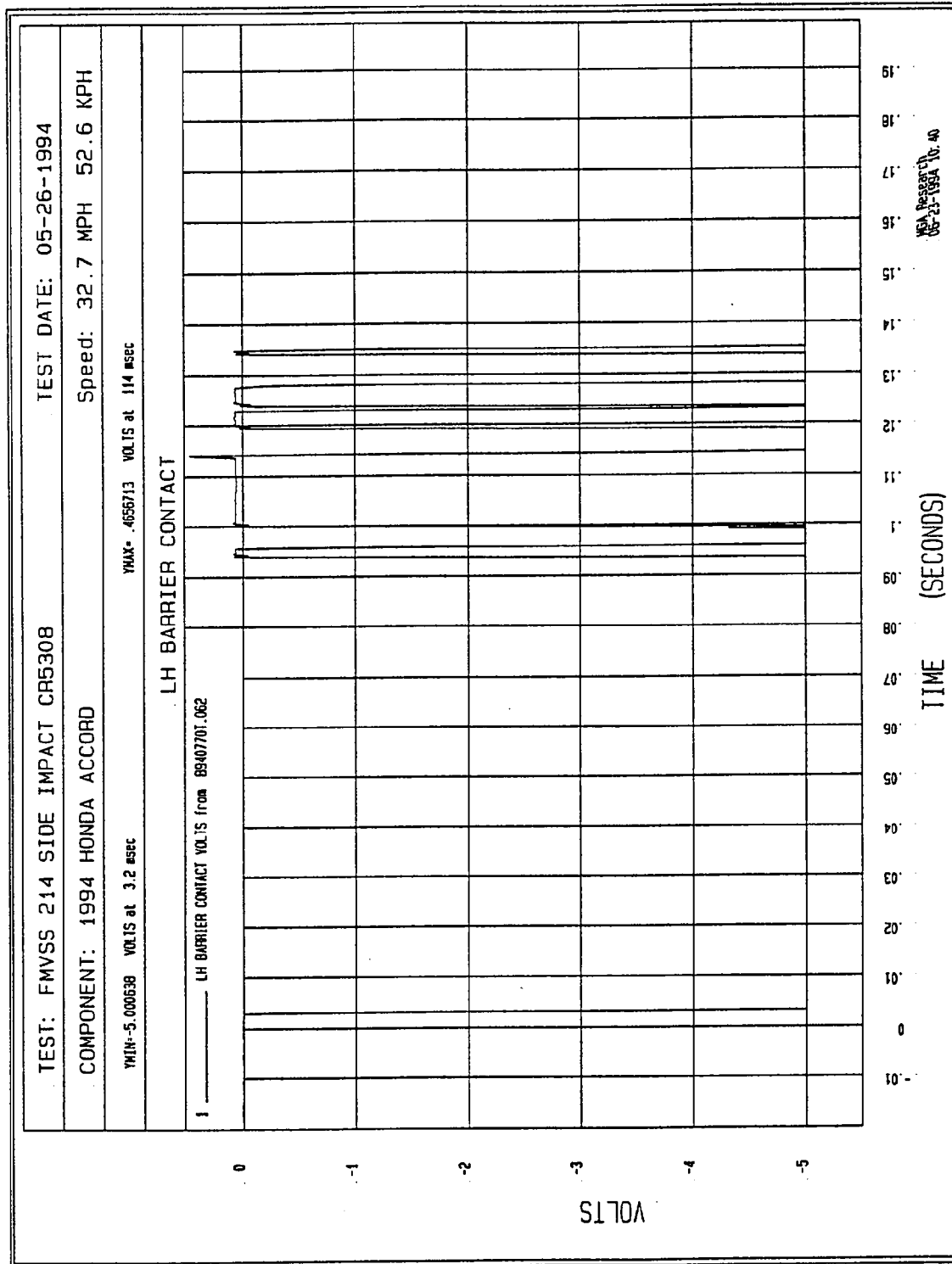


Figure B-60 - Left Hand Barrier Contact

Filter: Class 180 (300 Hz)

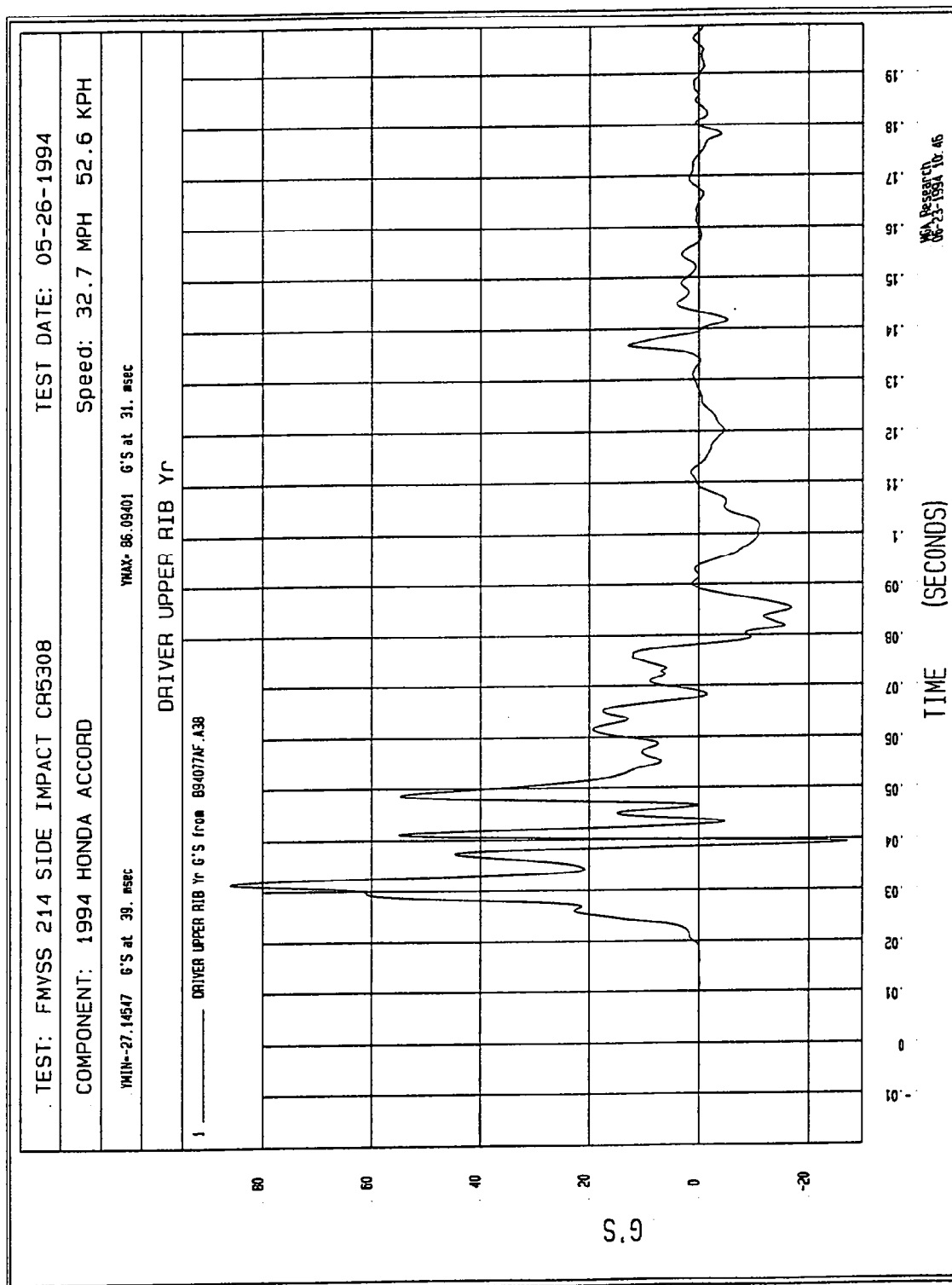


Figure B-61 - Driver Upper Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

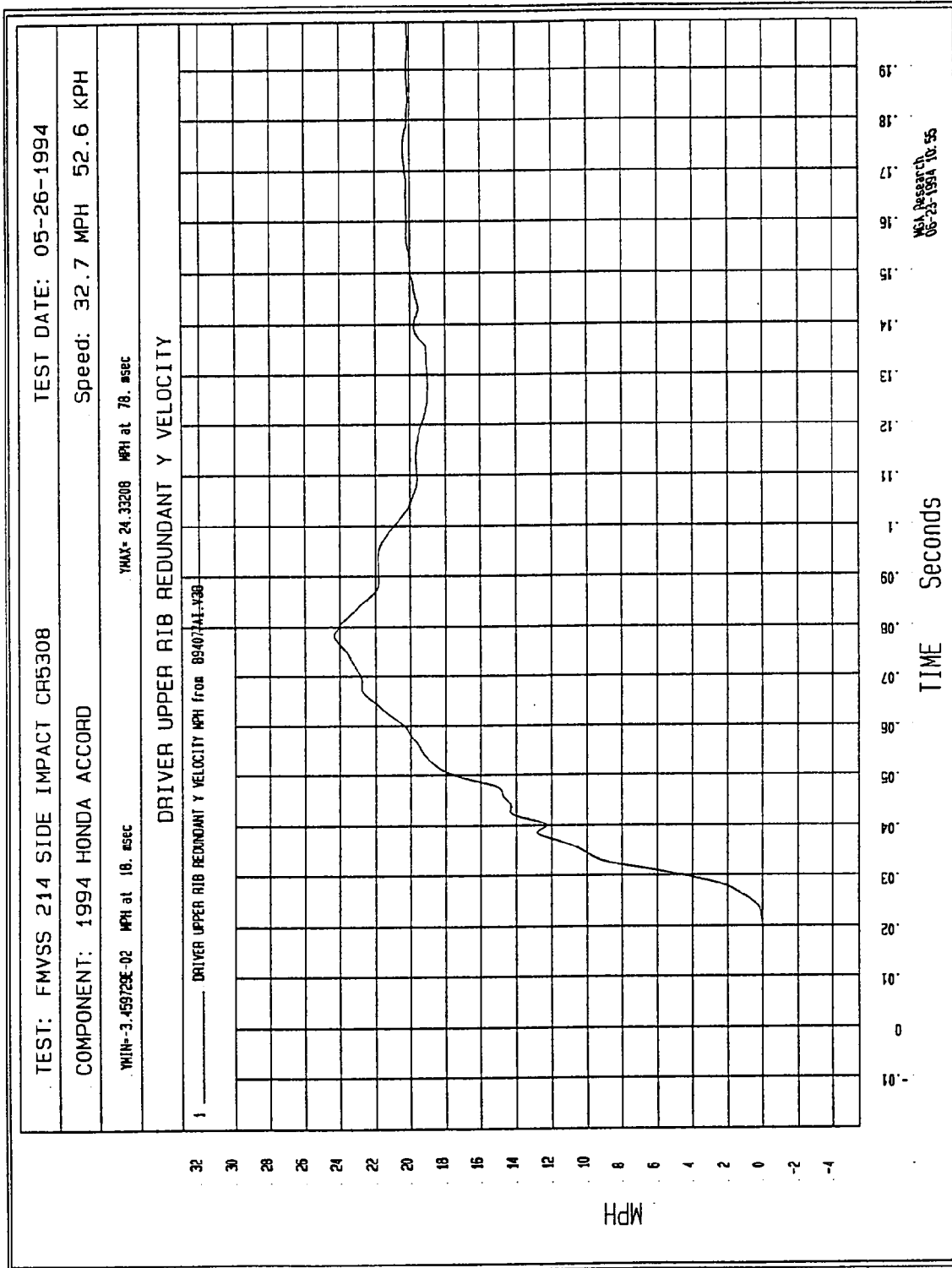


Figure B-62 - Driver Upper Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

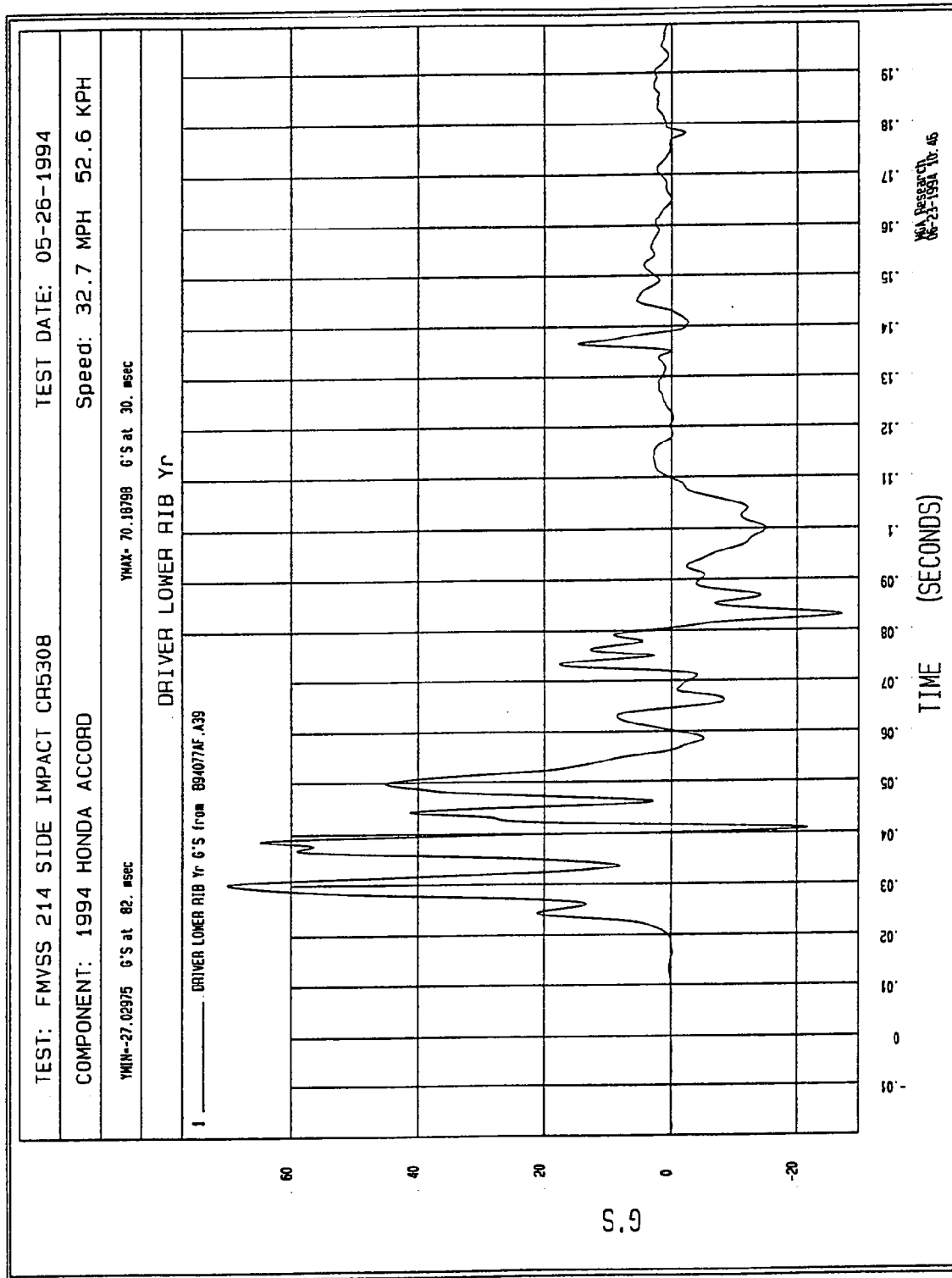
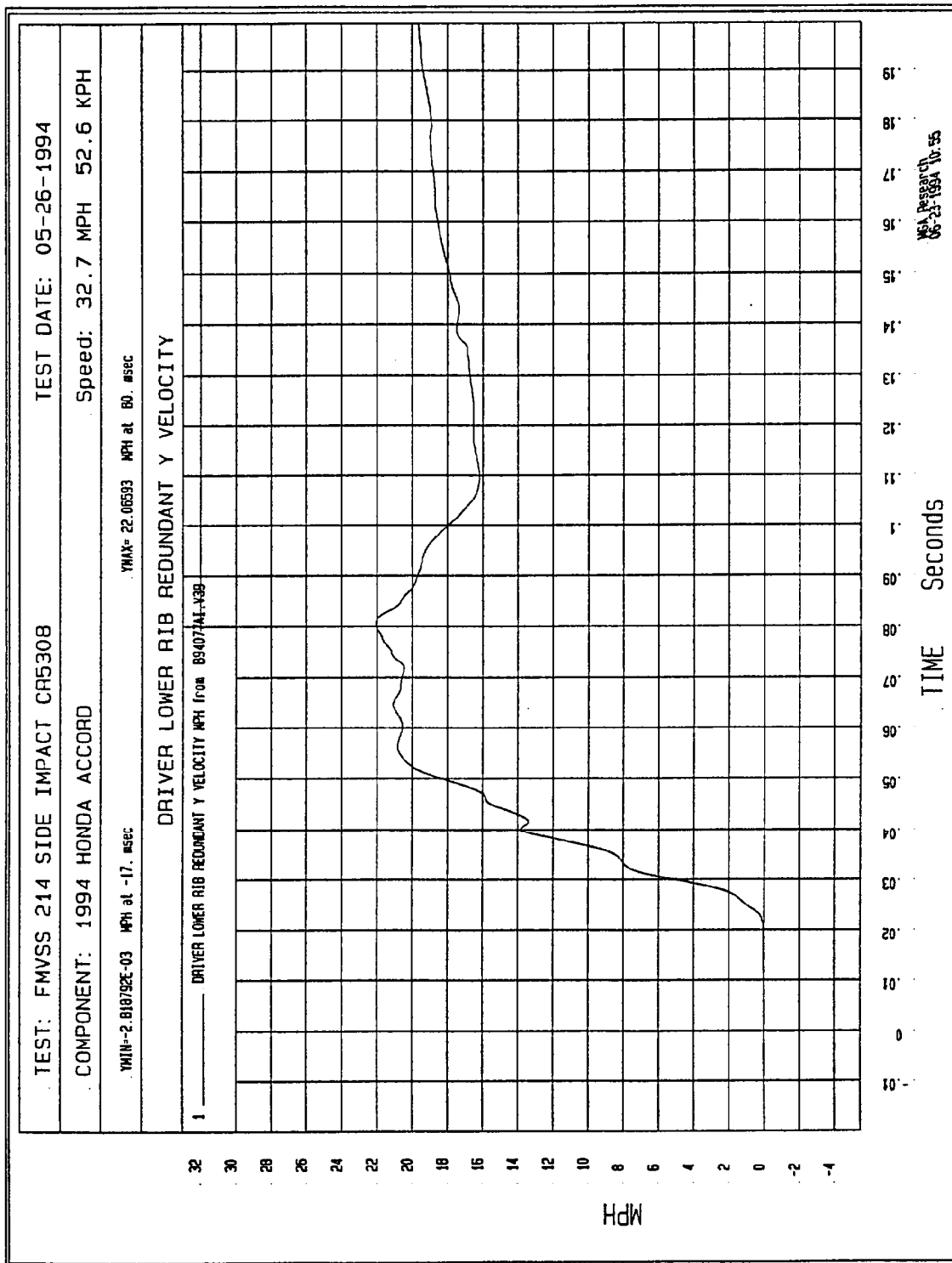


Figure B-63 - Driver Lower Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)



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Figure B-64 - Driver Lower Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

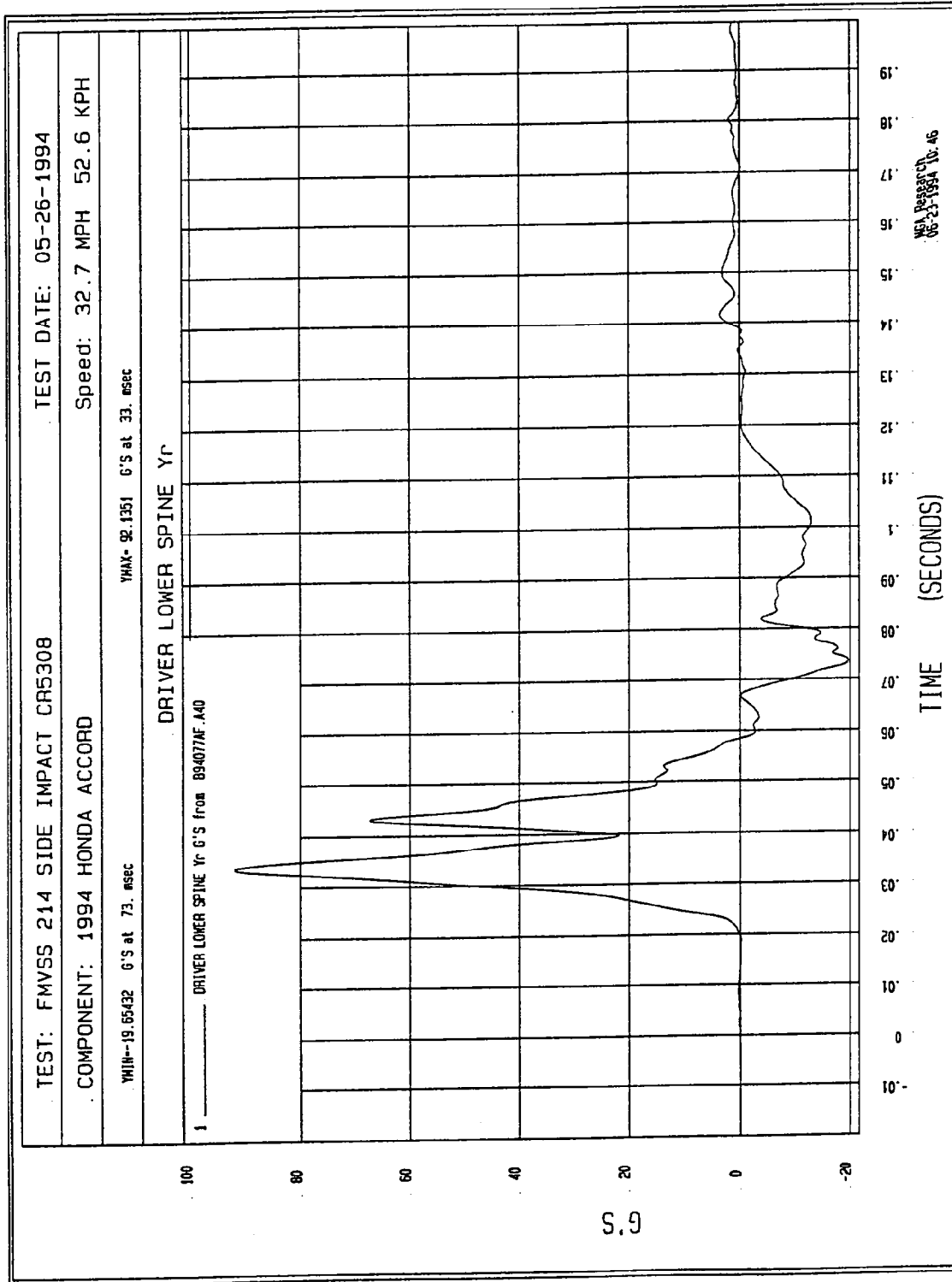


Figure B-65 - Driver Lower Spine Y Redundant Acceleration vs. Time

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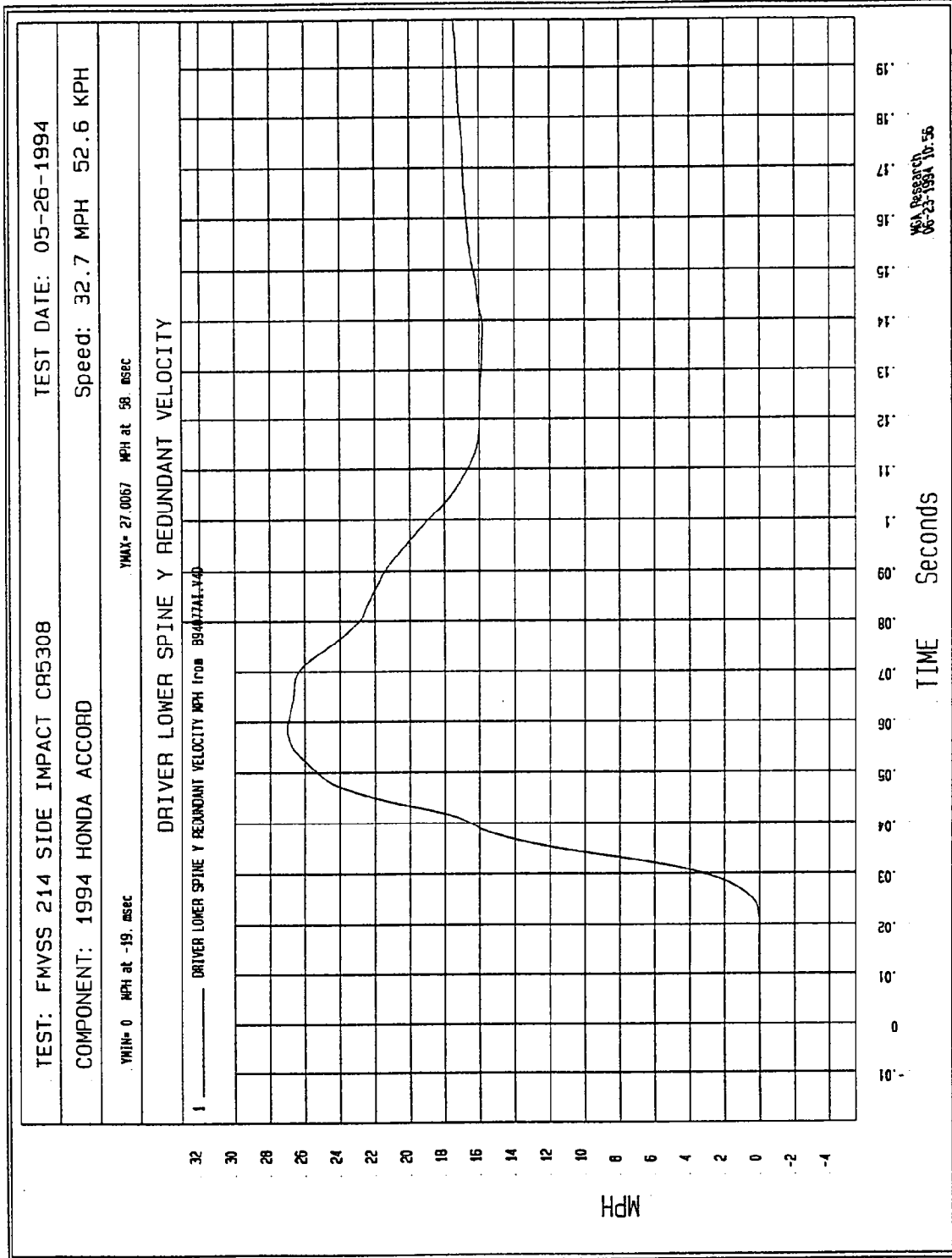


Figure B-66 - Driver Lower Spine Y Redundant Velocity vs. Time

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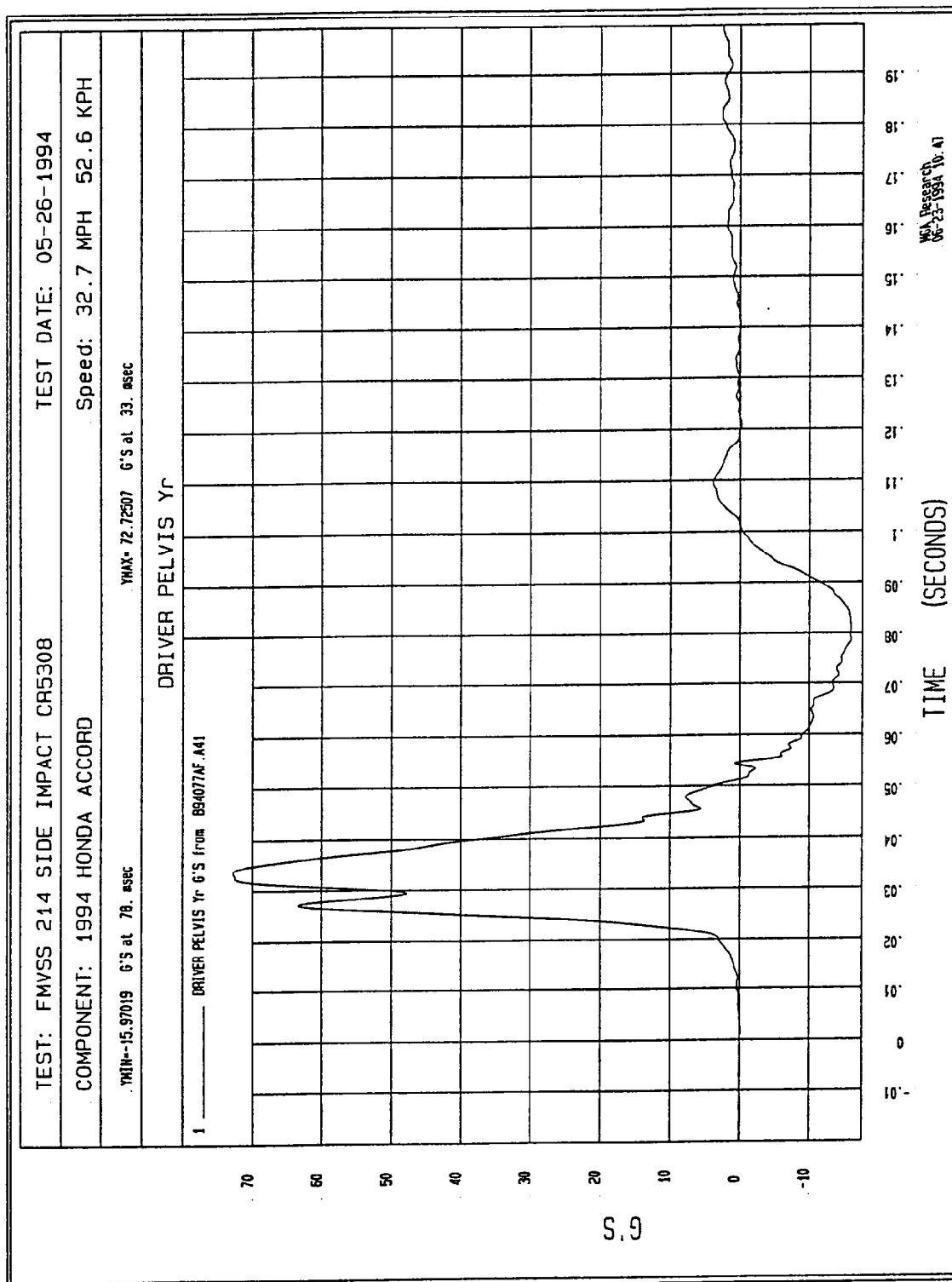


Figure B-67 - Driver Pelvis Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

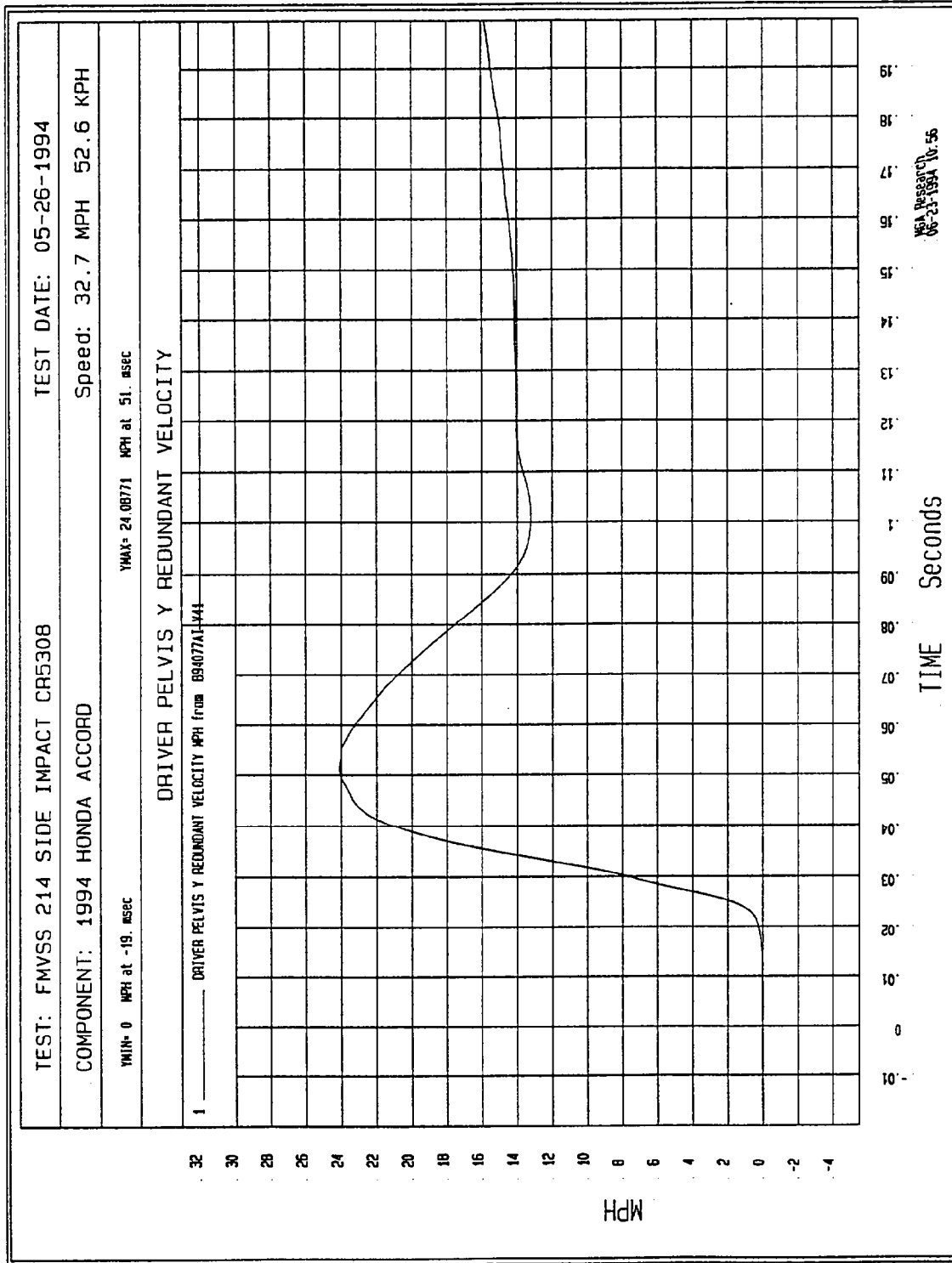


Figure B-68 - Driver Pelvis Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

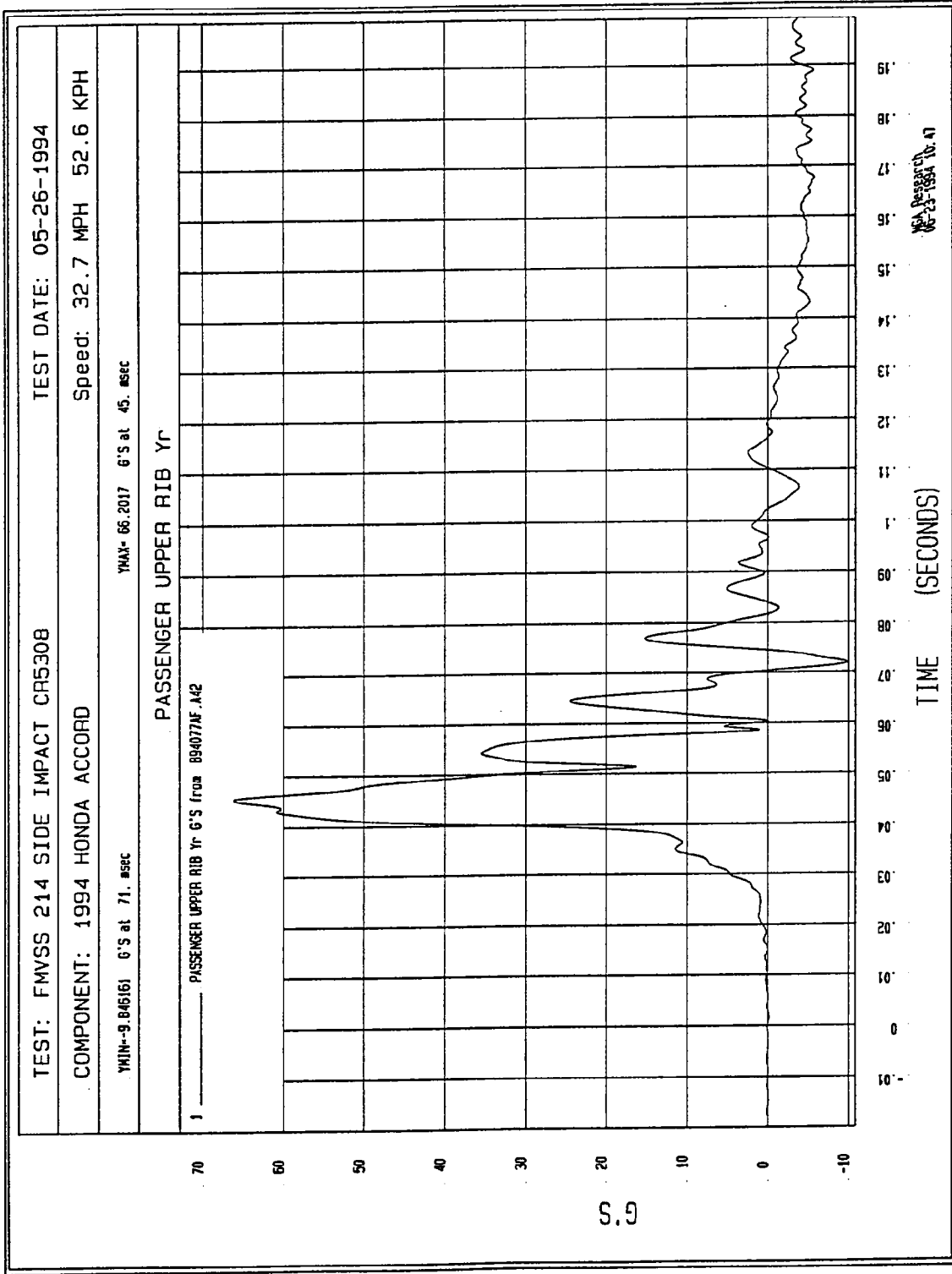
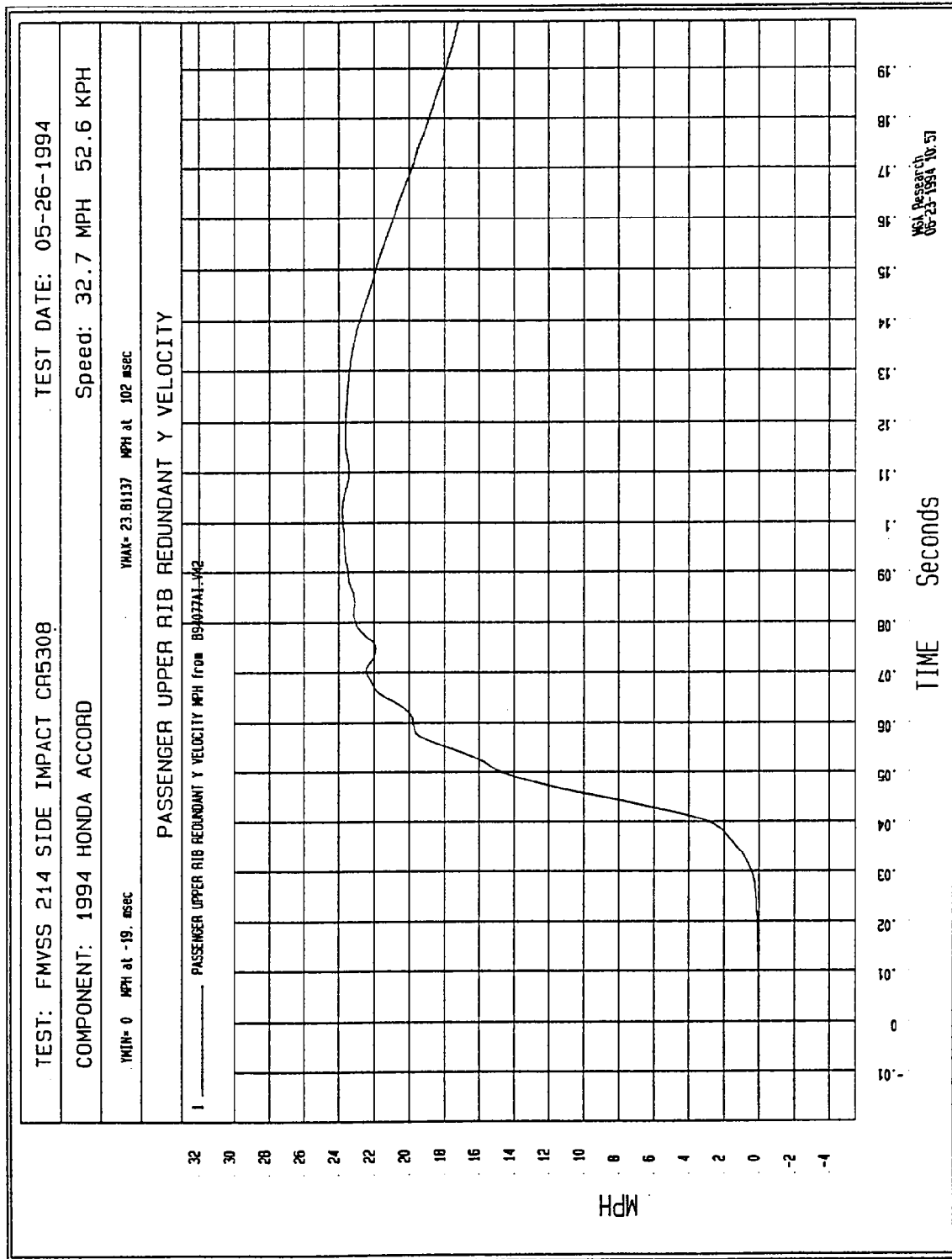


Figure B-69 - Passenger Upper Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)



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Figure B-70 - Passenger Upper Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

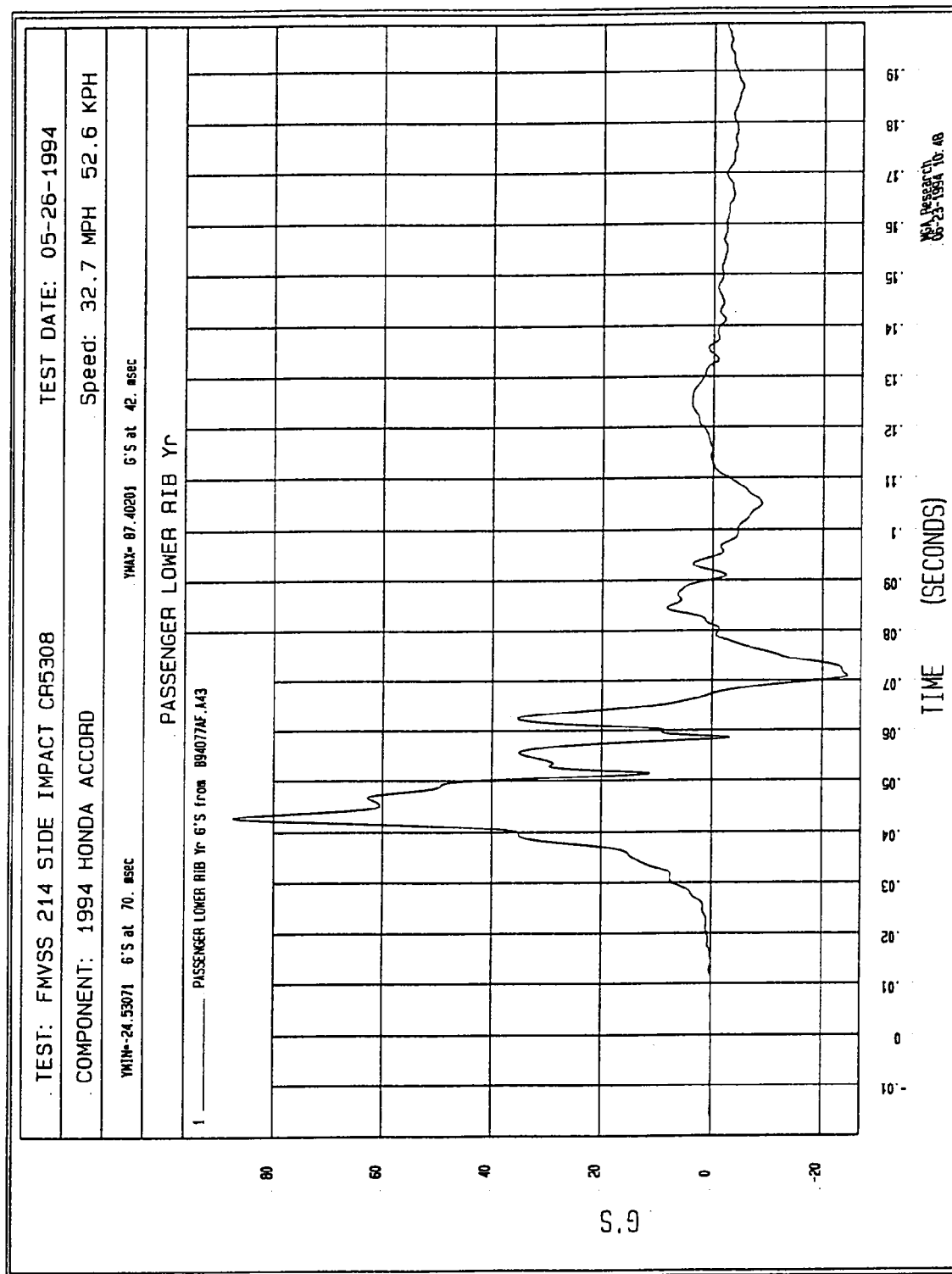


Figure B-71 - Passenger Lower Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

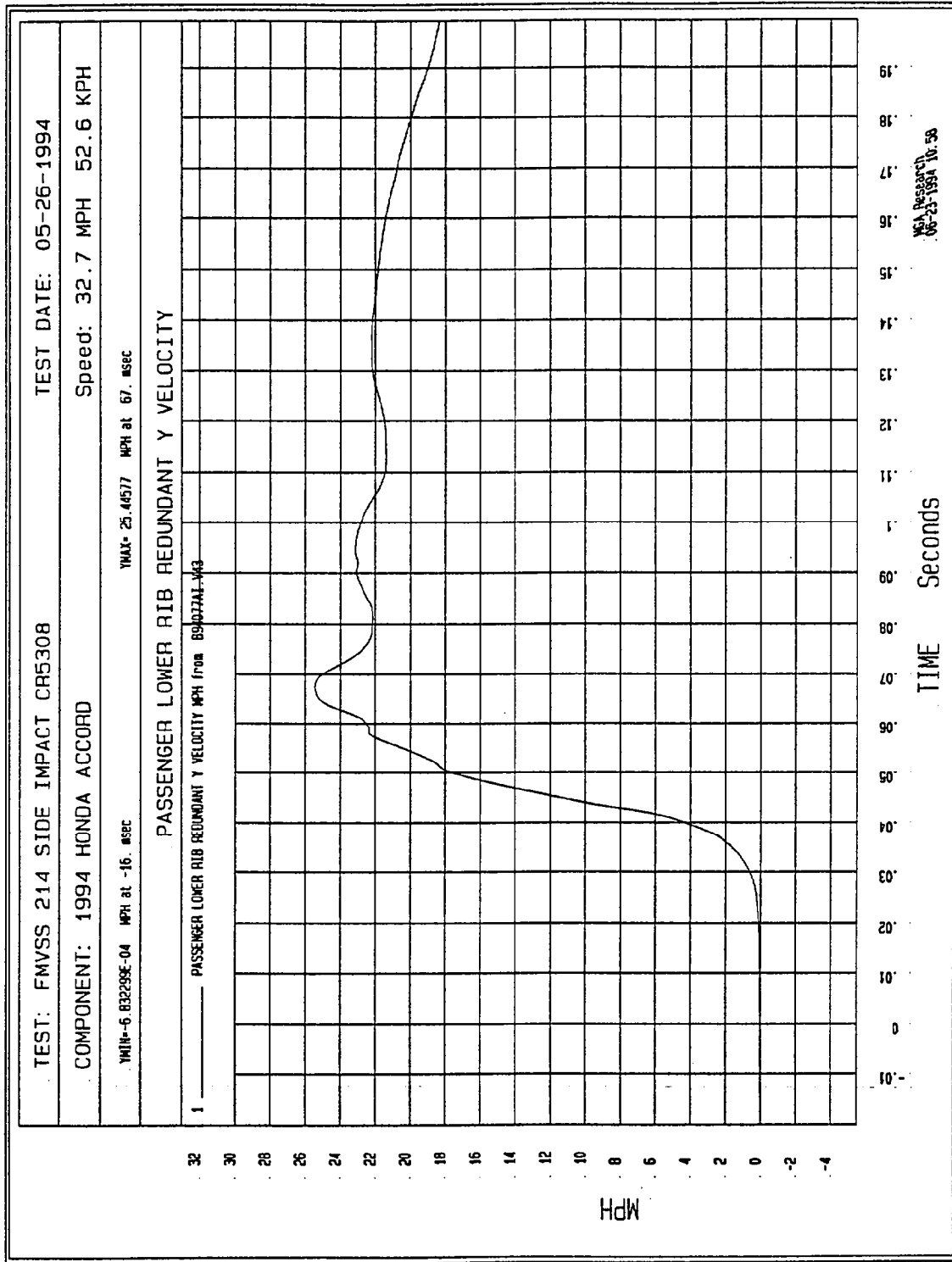


Figure B-72 - Passenger Lower Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

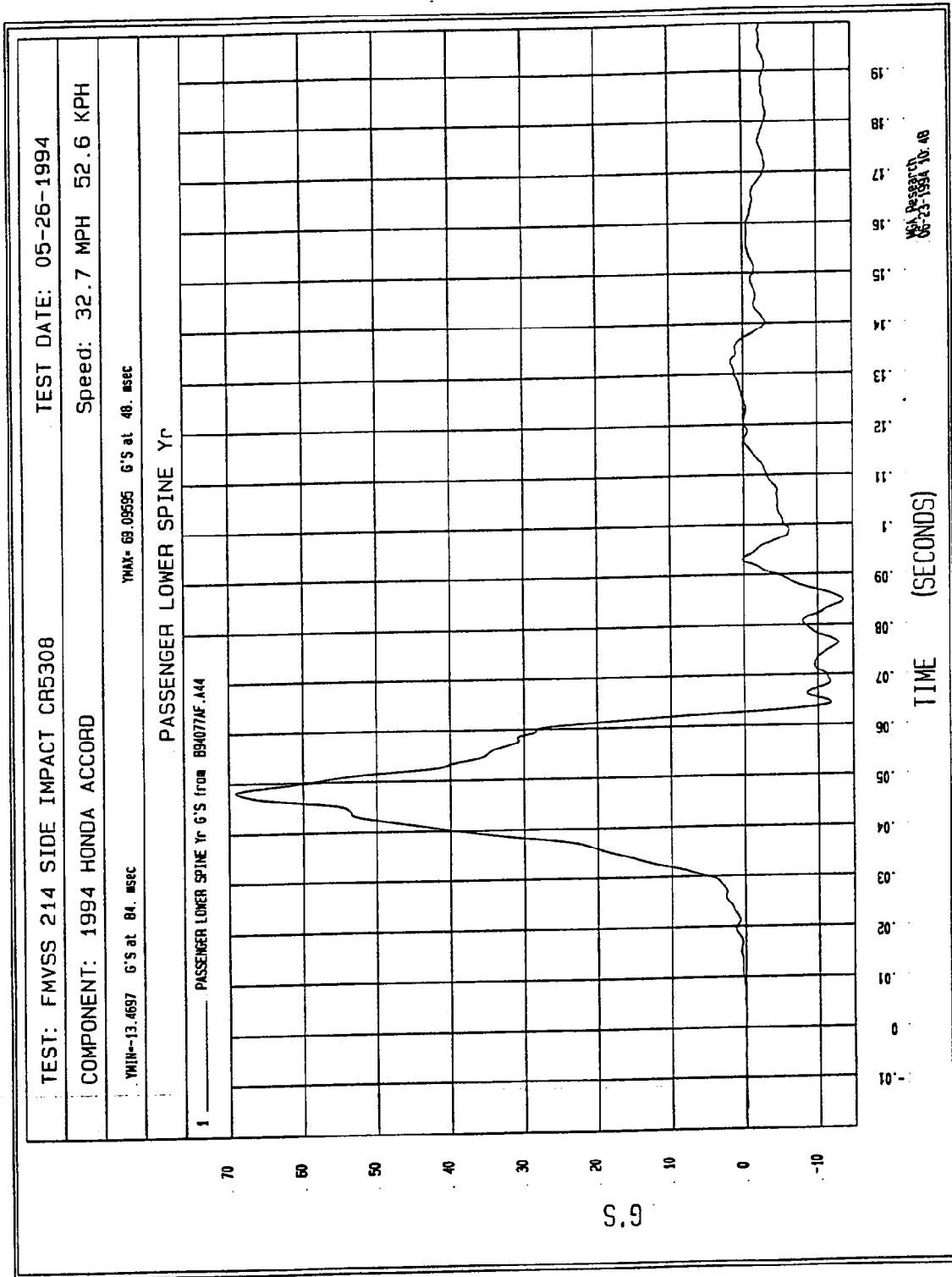


Figure B-73 - Passenger Lower Spine Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

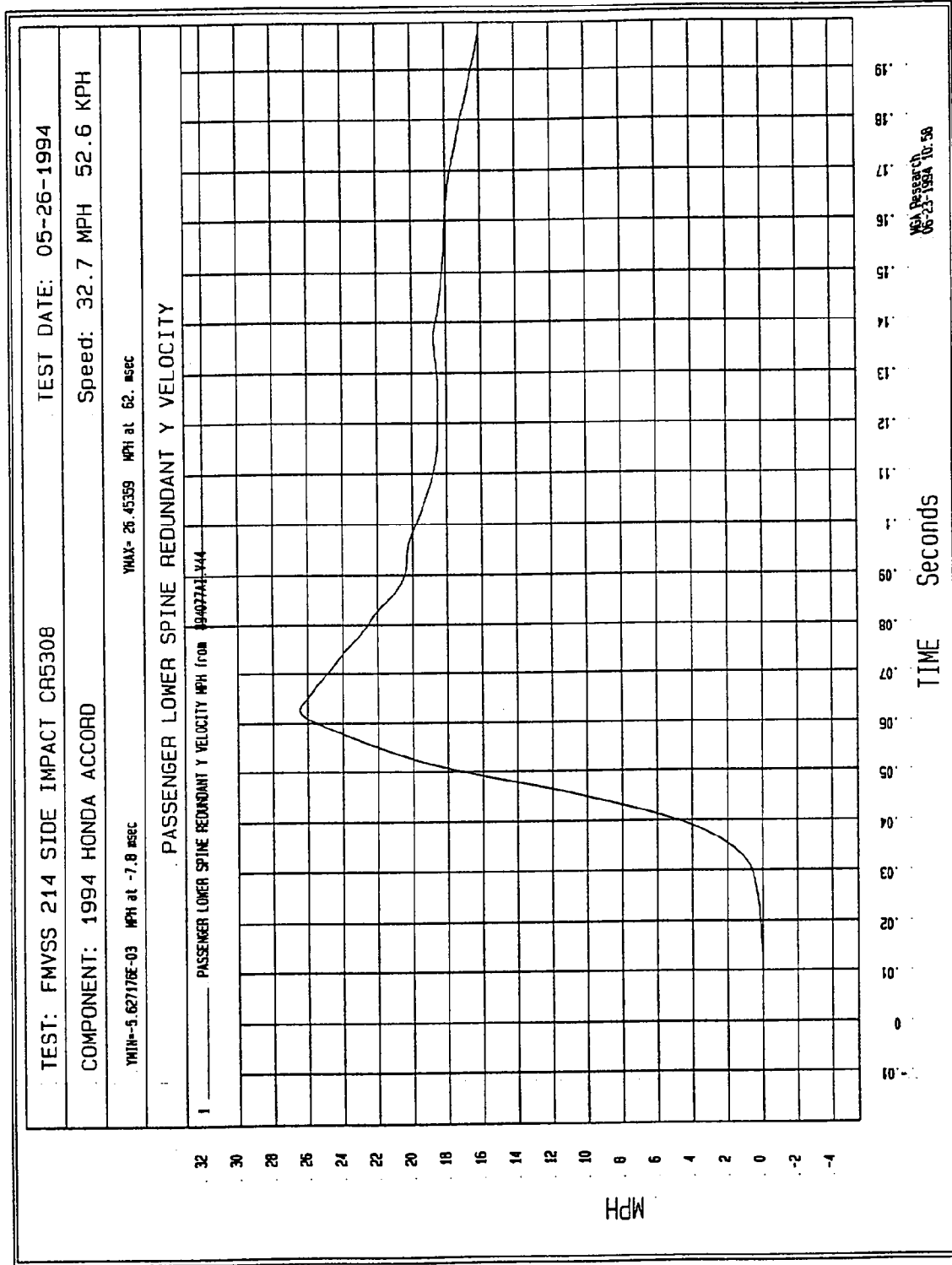


Figure B-74 - Passenger Lower Spine Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

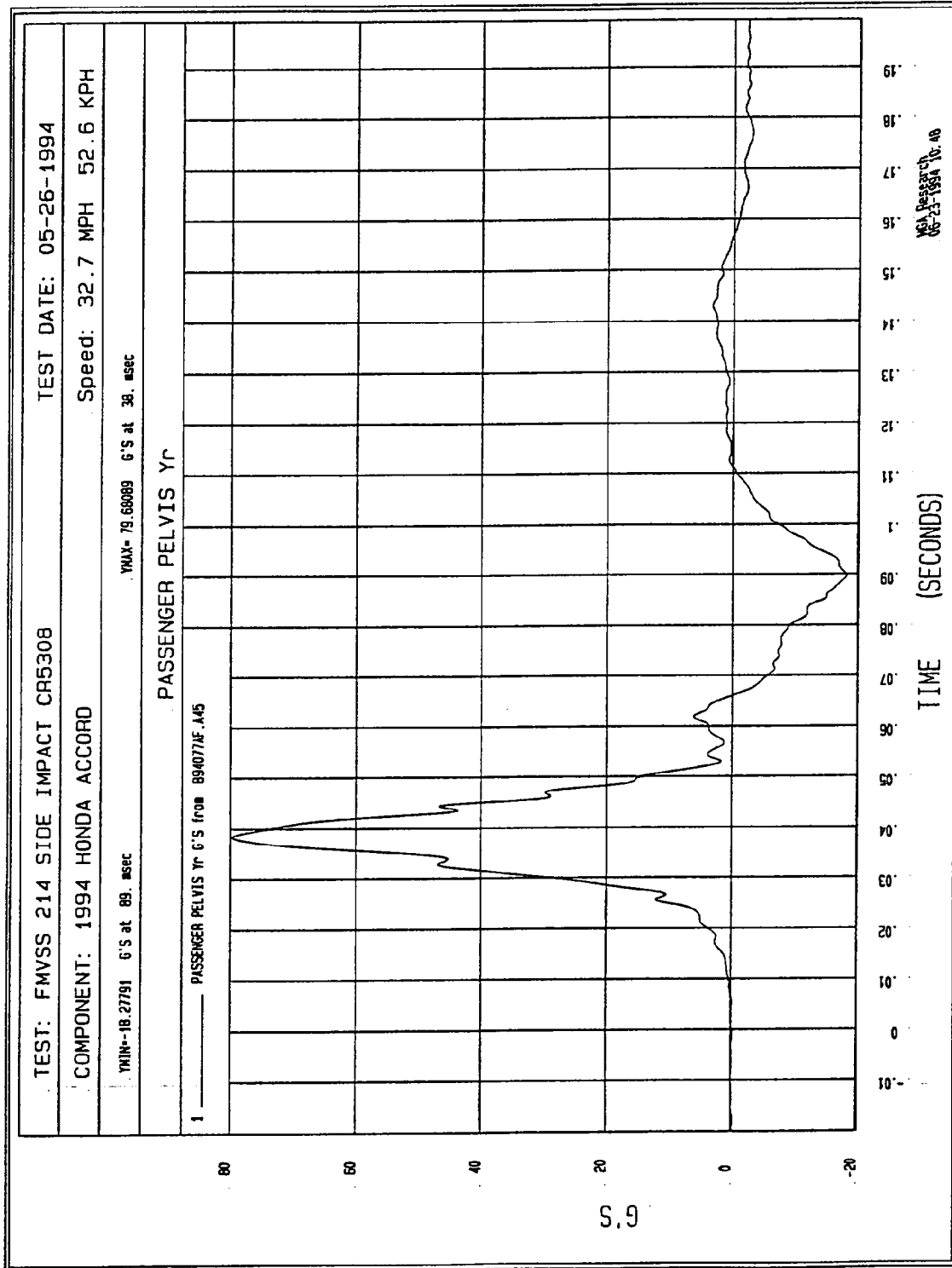


Figure B-75 - Passenger Pelvis Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

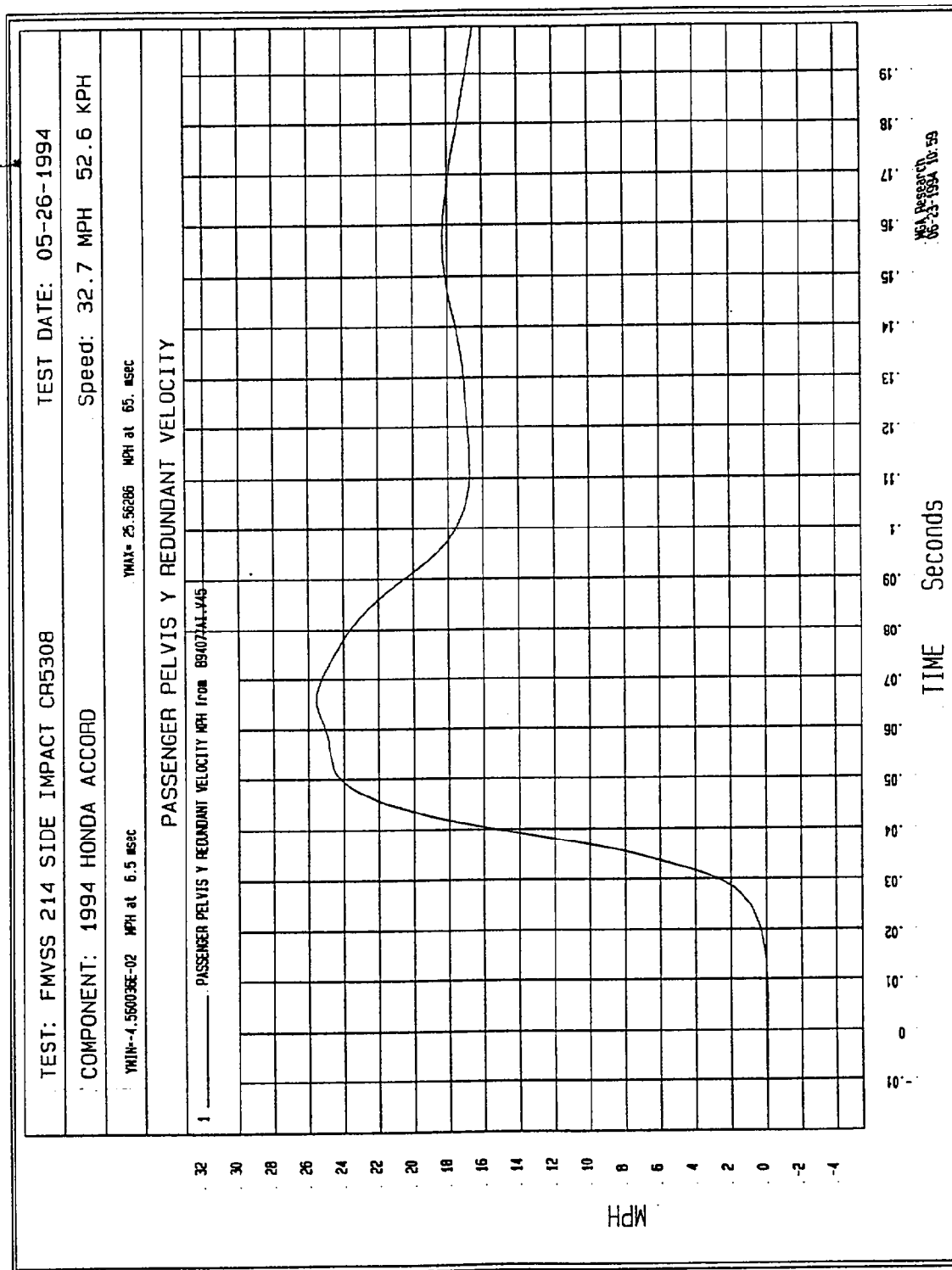


Figure B-76 - Passenger Pelvis Y Redundant Velocity vs. Time

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA

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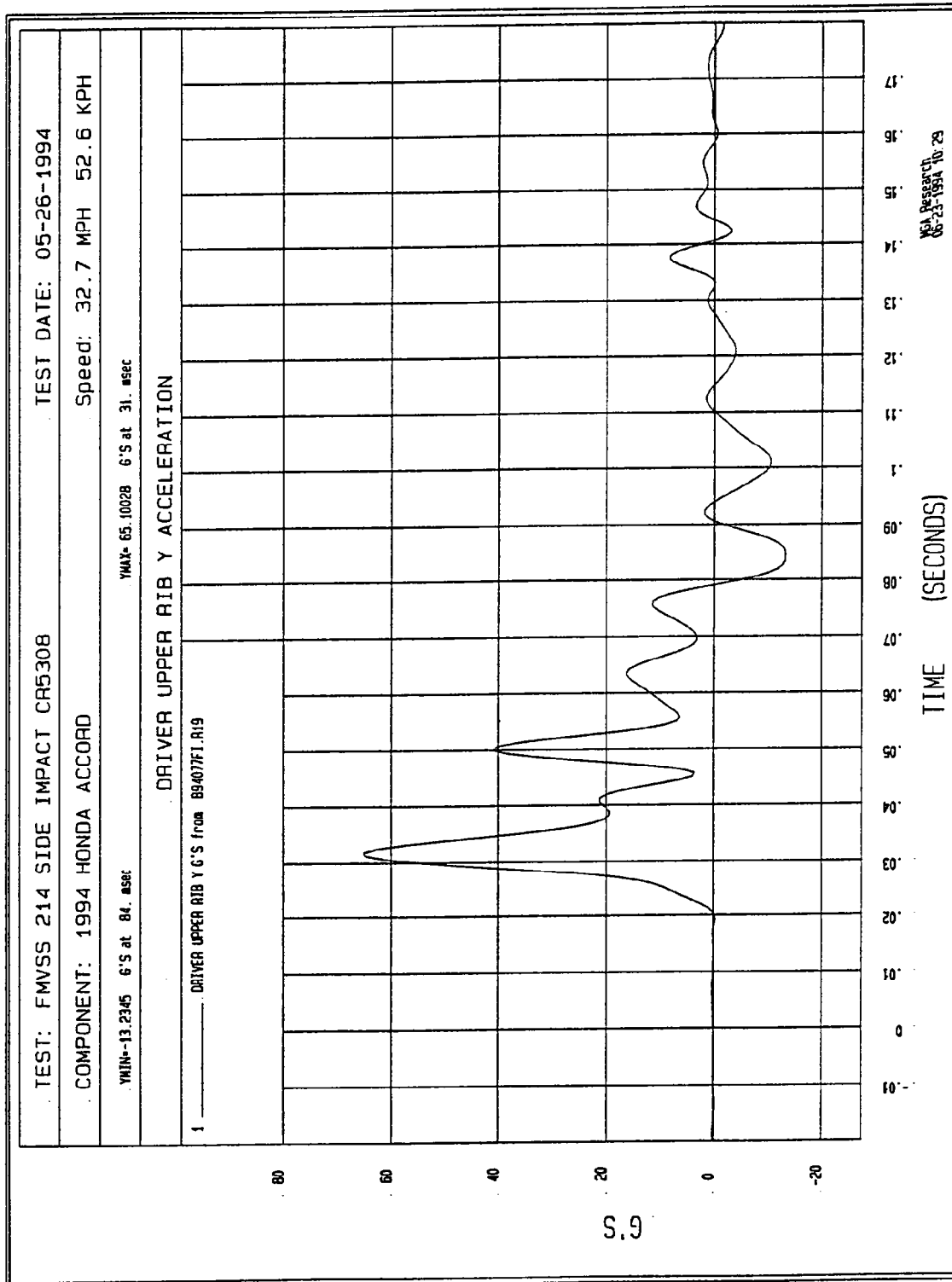


Figure B-77 - Driver Upper Rib Y Acceleration vs. Time

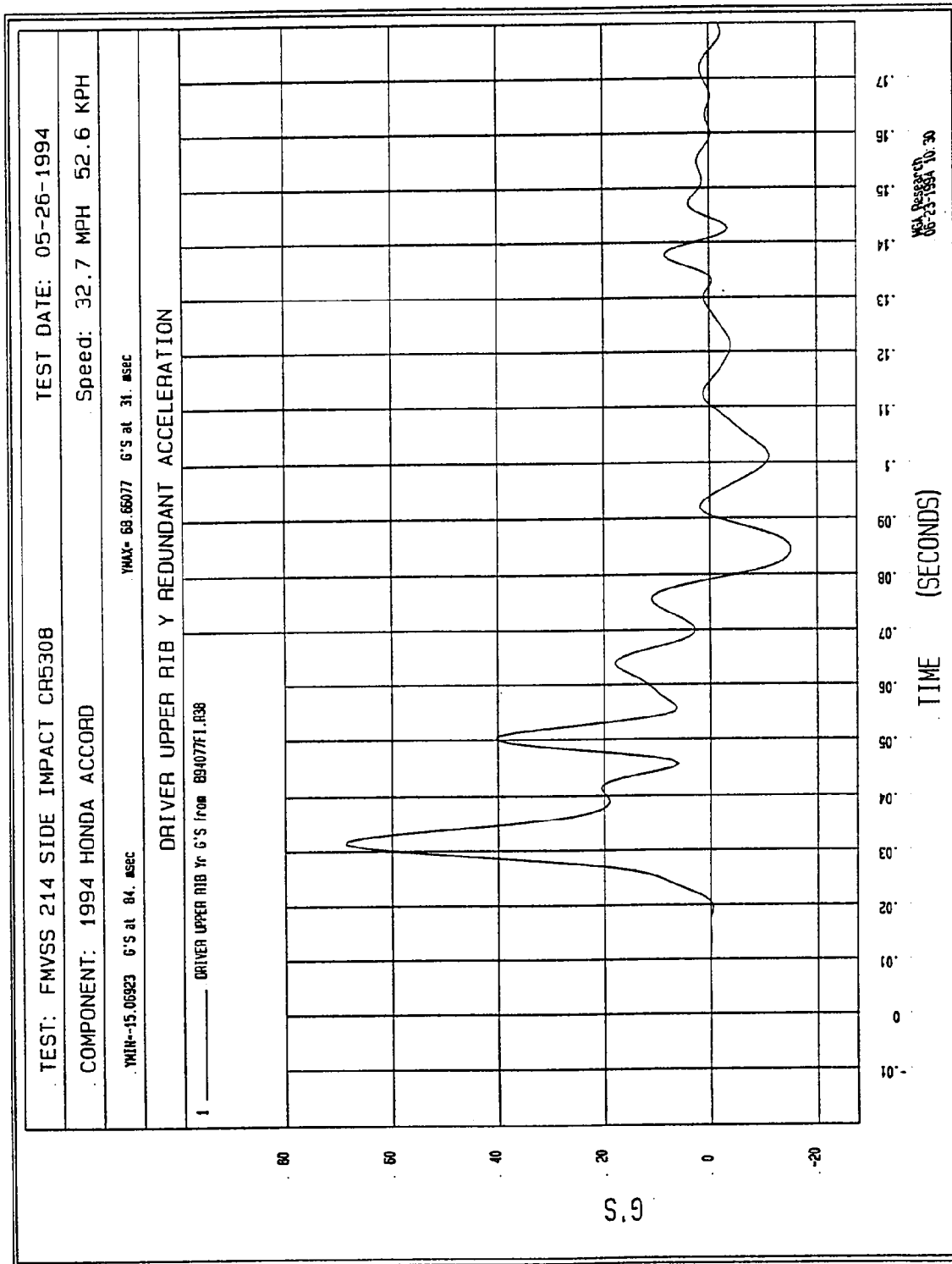


Figure B-78 - Driver Upper Rib Y Redundant Acceleration vs. Time

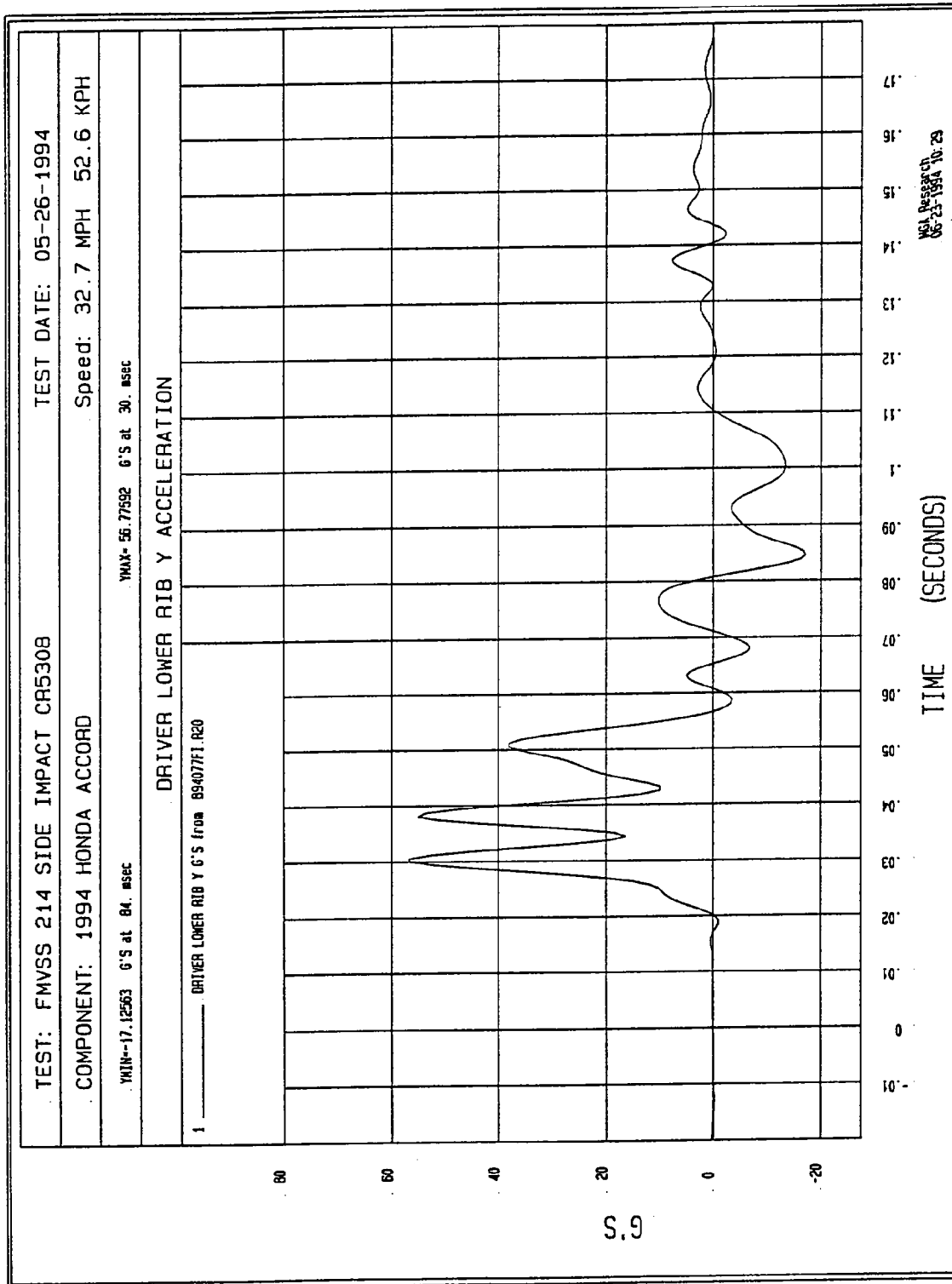
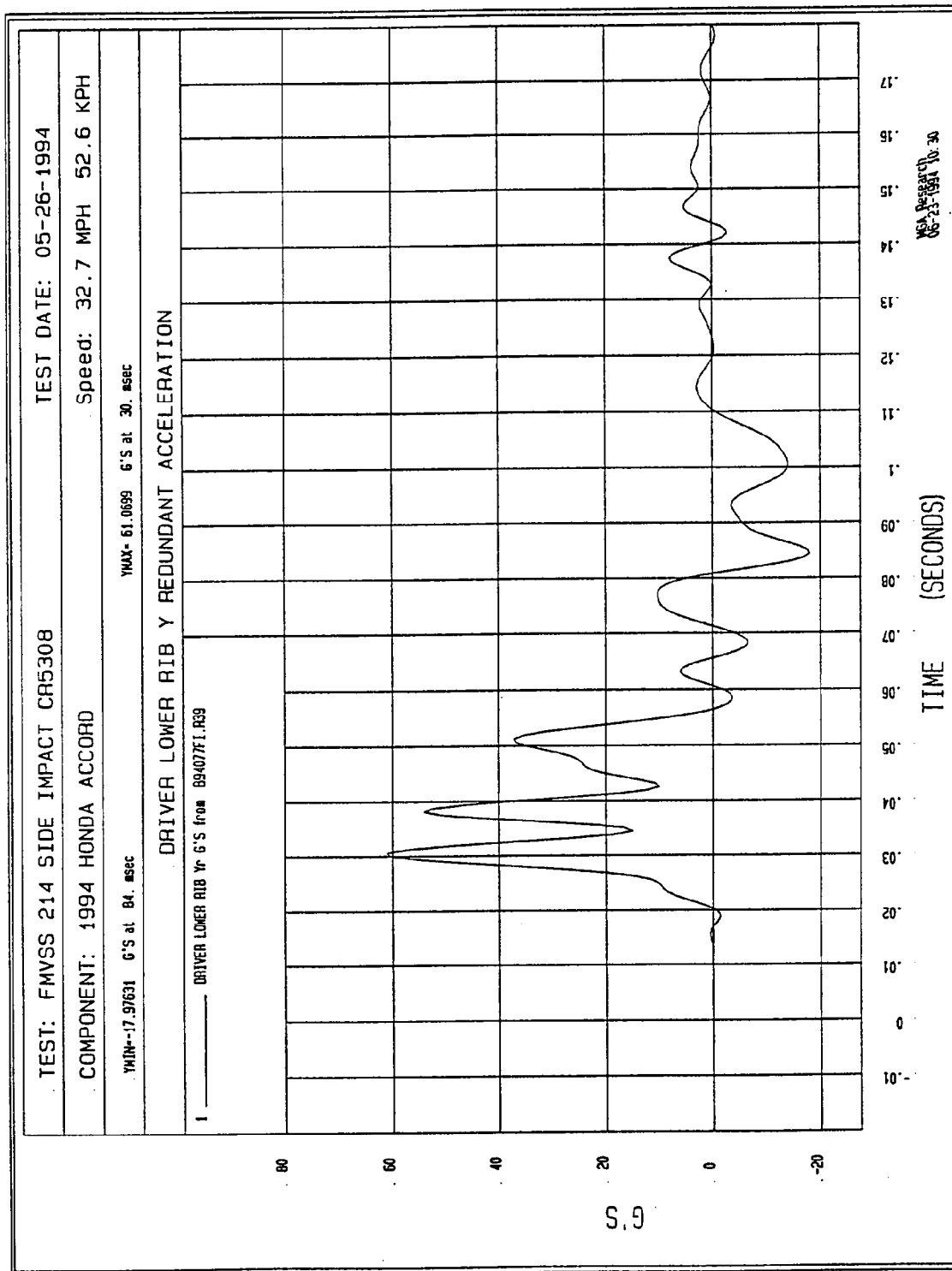


Figure B-79 - Driver Lower Rib Y Acceleration vs. Time



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Figure B-80 - Driver Lower Rib Y Redundant Acceleration vs. Time

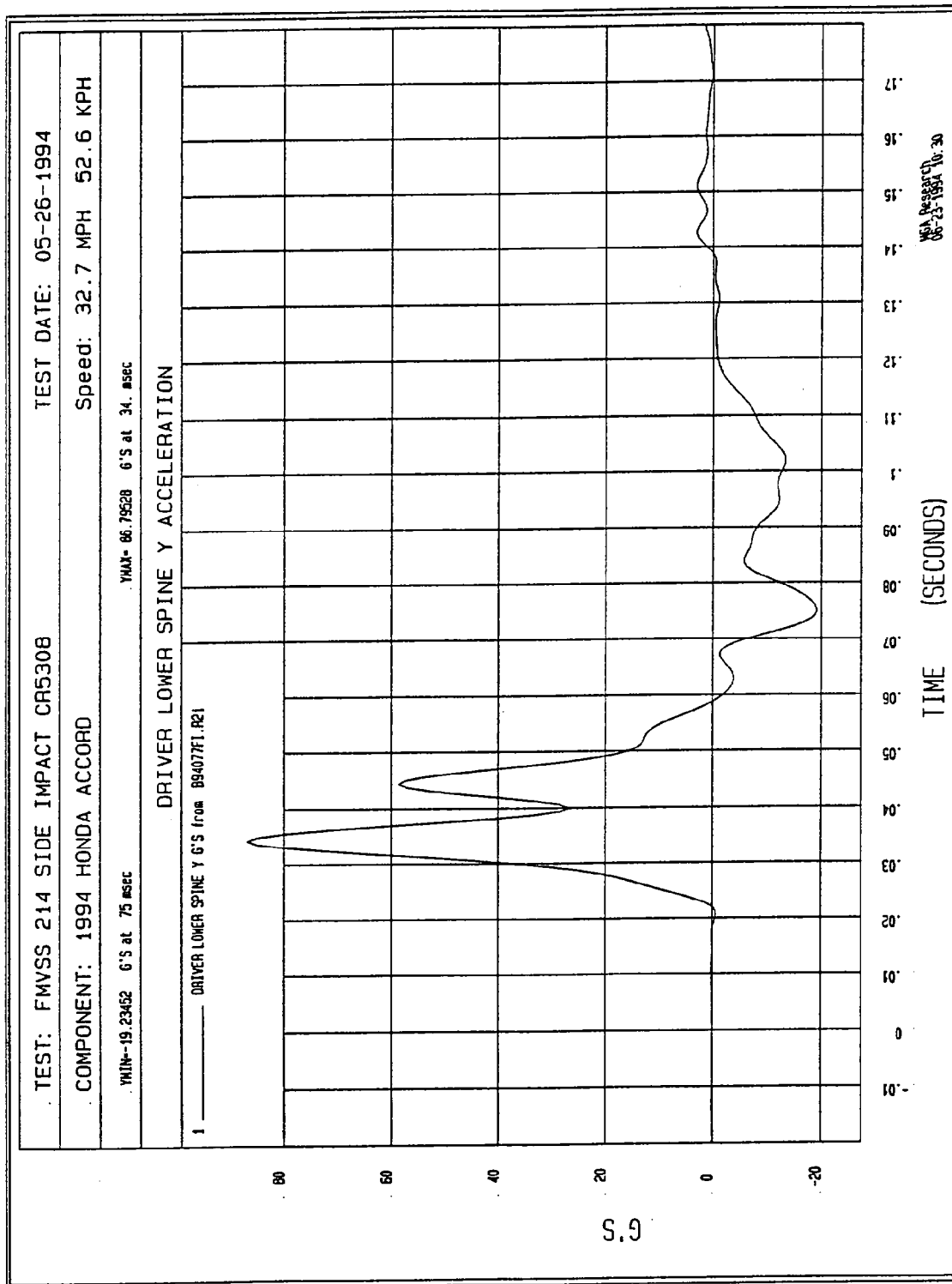


Figure B-81 - Driver Lower Spine Y Acceleration vs. Time

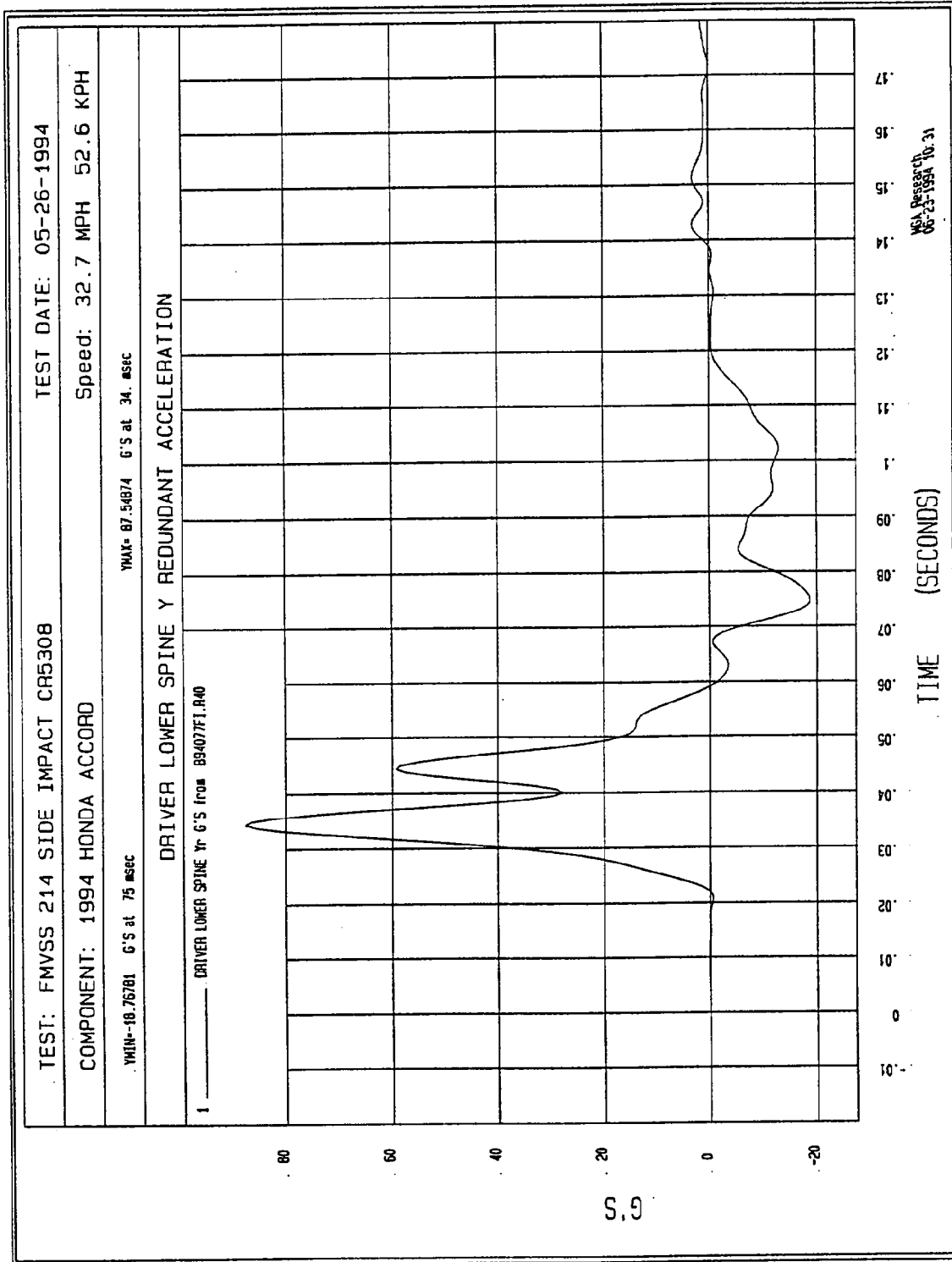


Figure B-82 - Driver Lower Spine Y Redundant Acceleration vs. Time

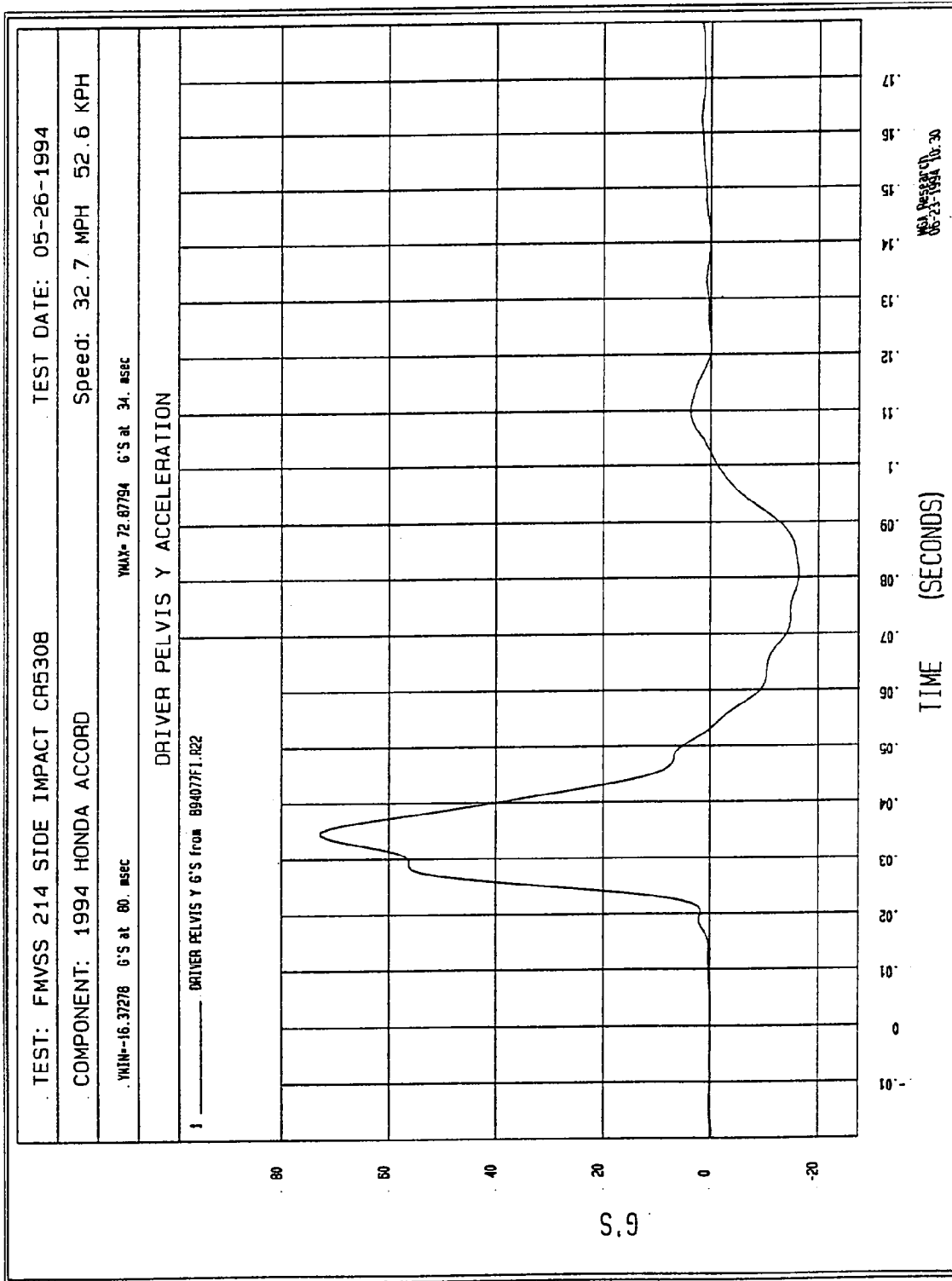


Figure B-83 - Driver Pelvis Y Acceleration vs. Time

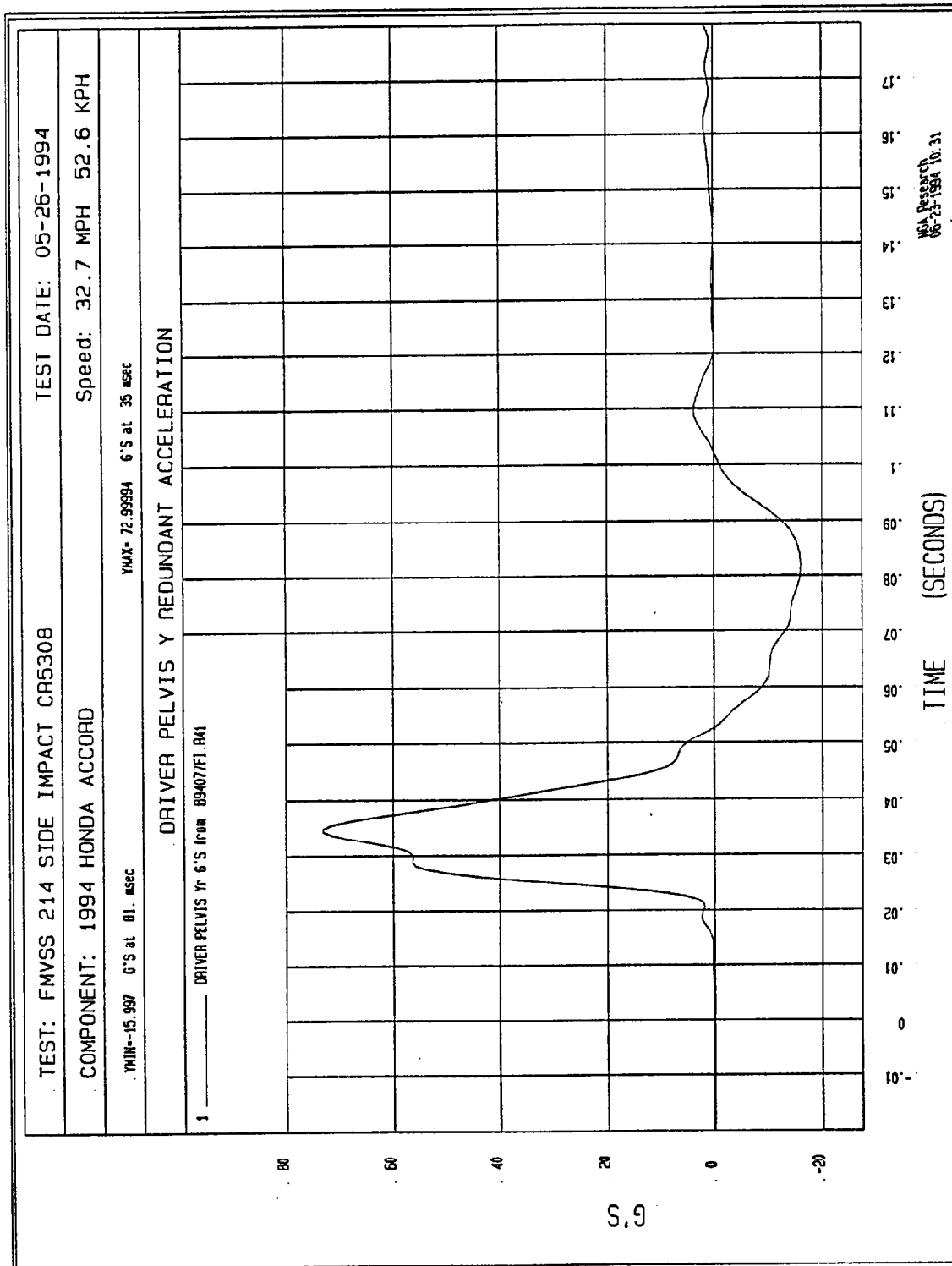


Figure B-84 - Driver Pelvis Y Redundant Acceleration vs. Time

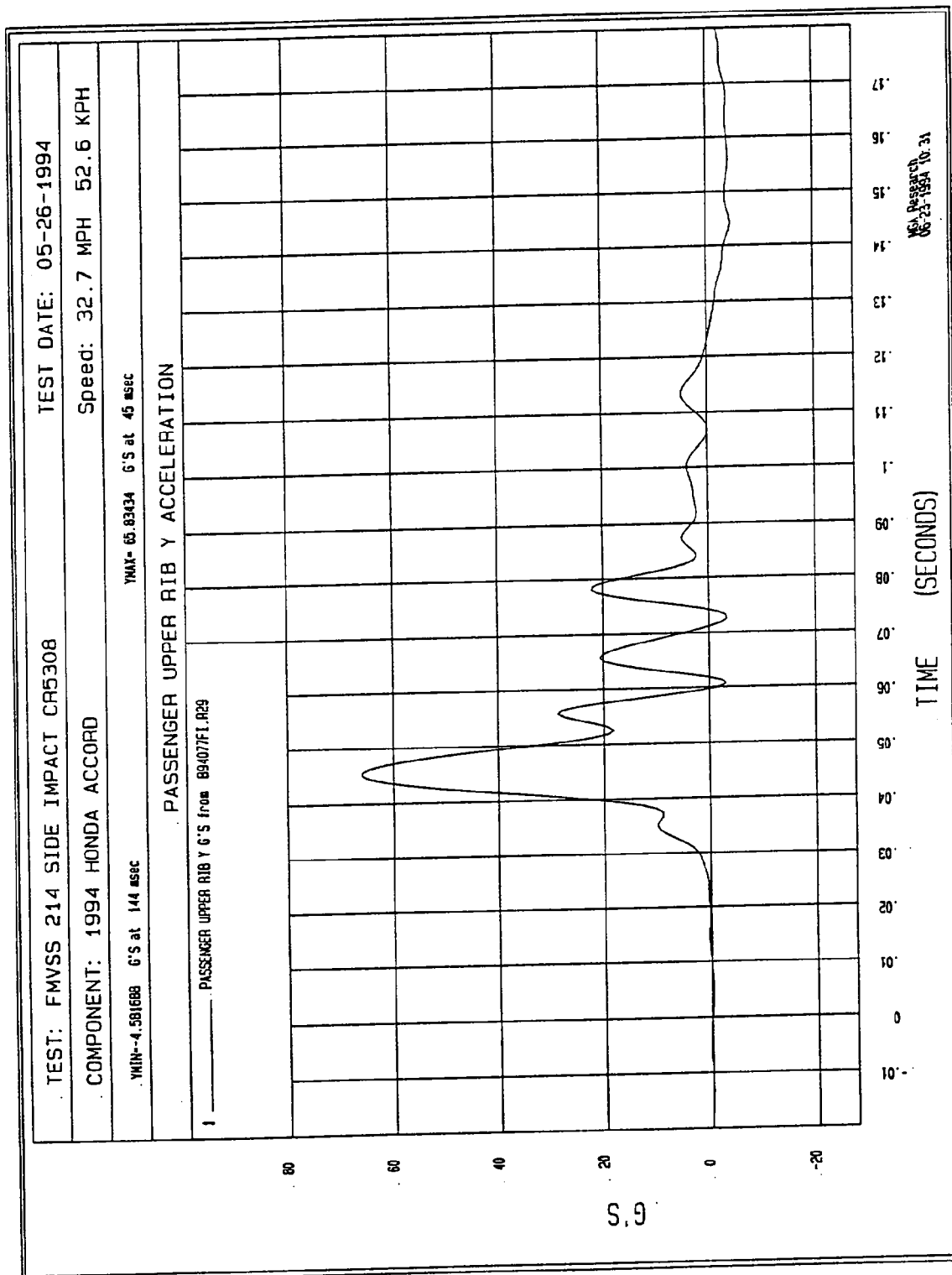


Figure B-85 - Passenger Upper Rib Y Acceleration vs. Time

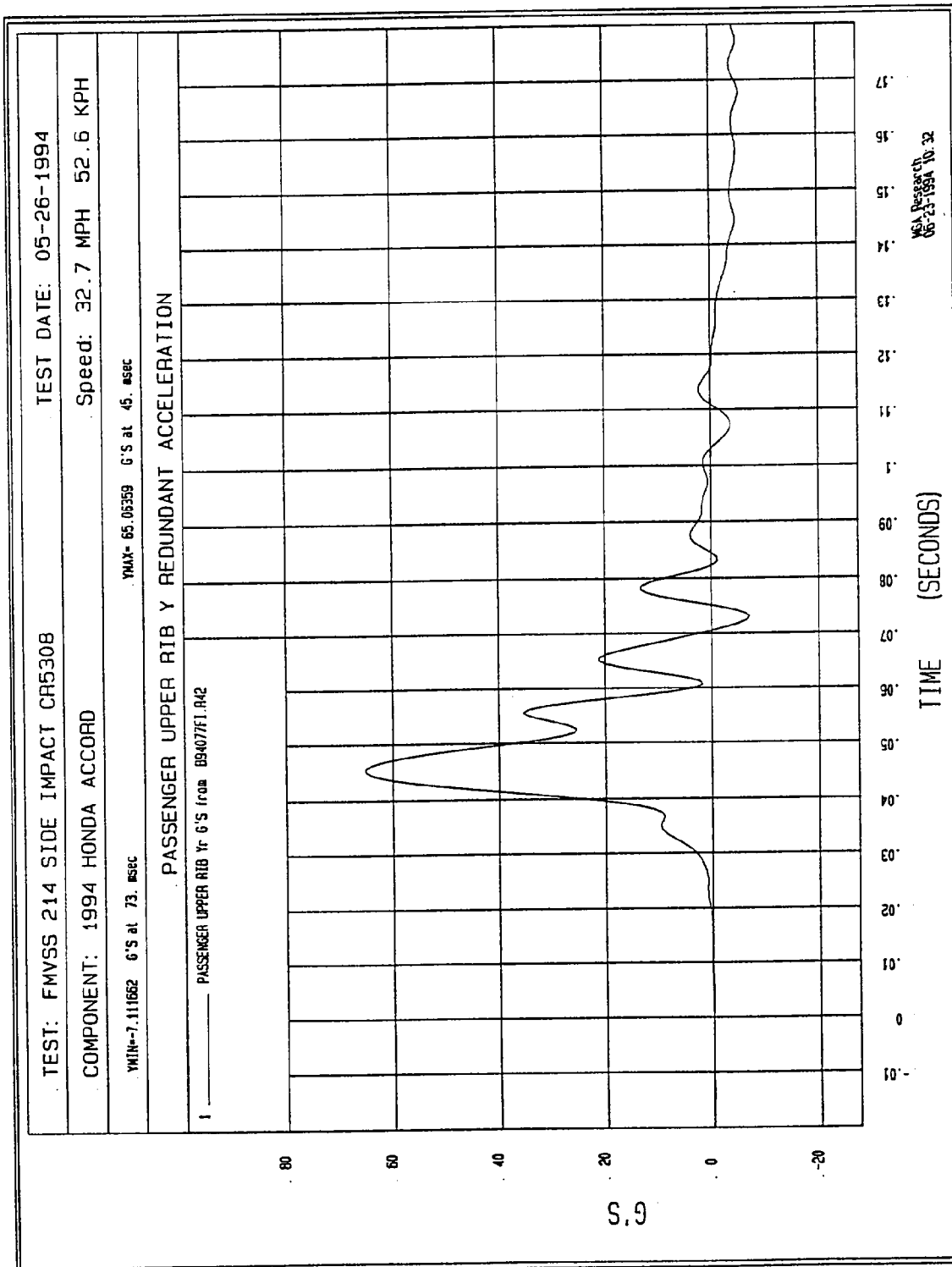


Figure B-86 - Passenger Upper Rib Y Redundant Acceleration vs. Time

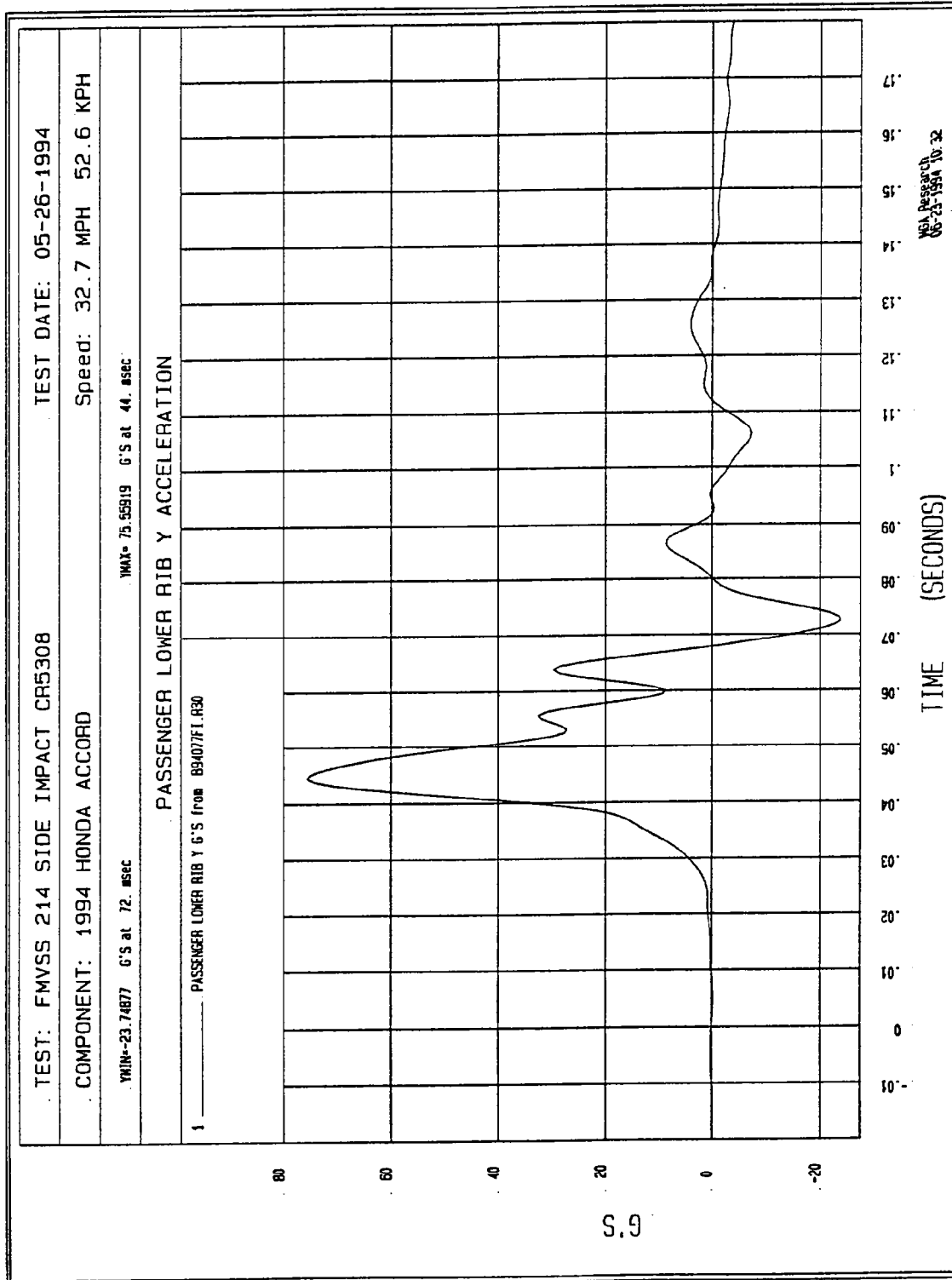


Figure B-87 - Passenger Lower Rib Y Acceleration vs. Time

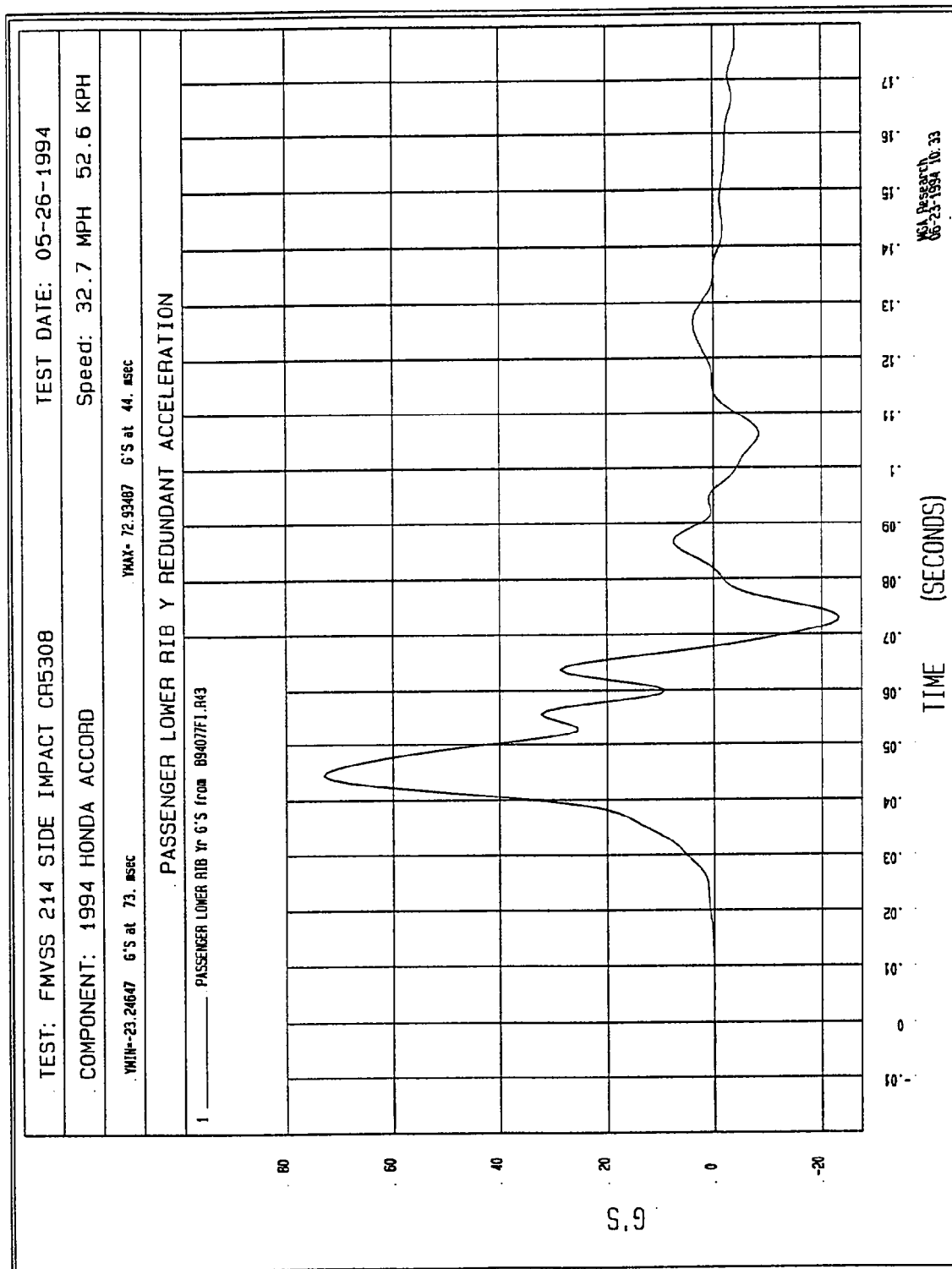


Figure B-88 - Passenger Lower Rib Y Redundant Acceleration vs. Time

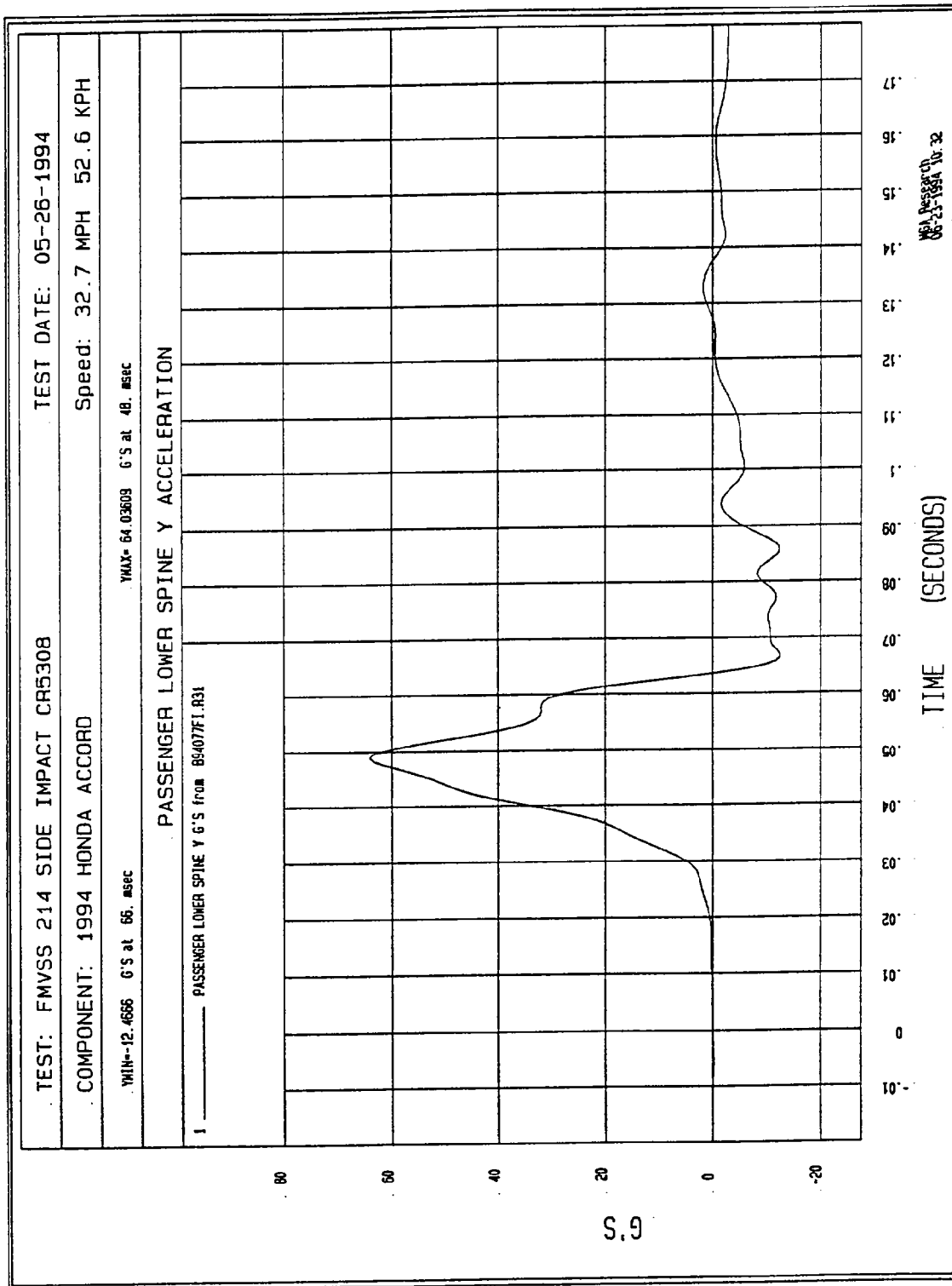


Figure B-89 - Passenger Lower Spine Y Acceleration vs. Time

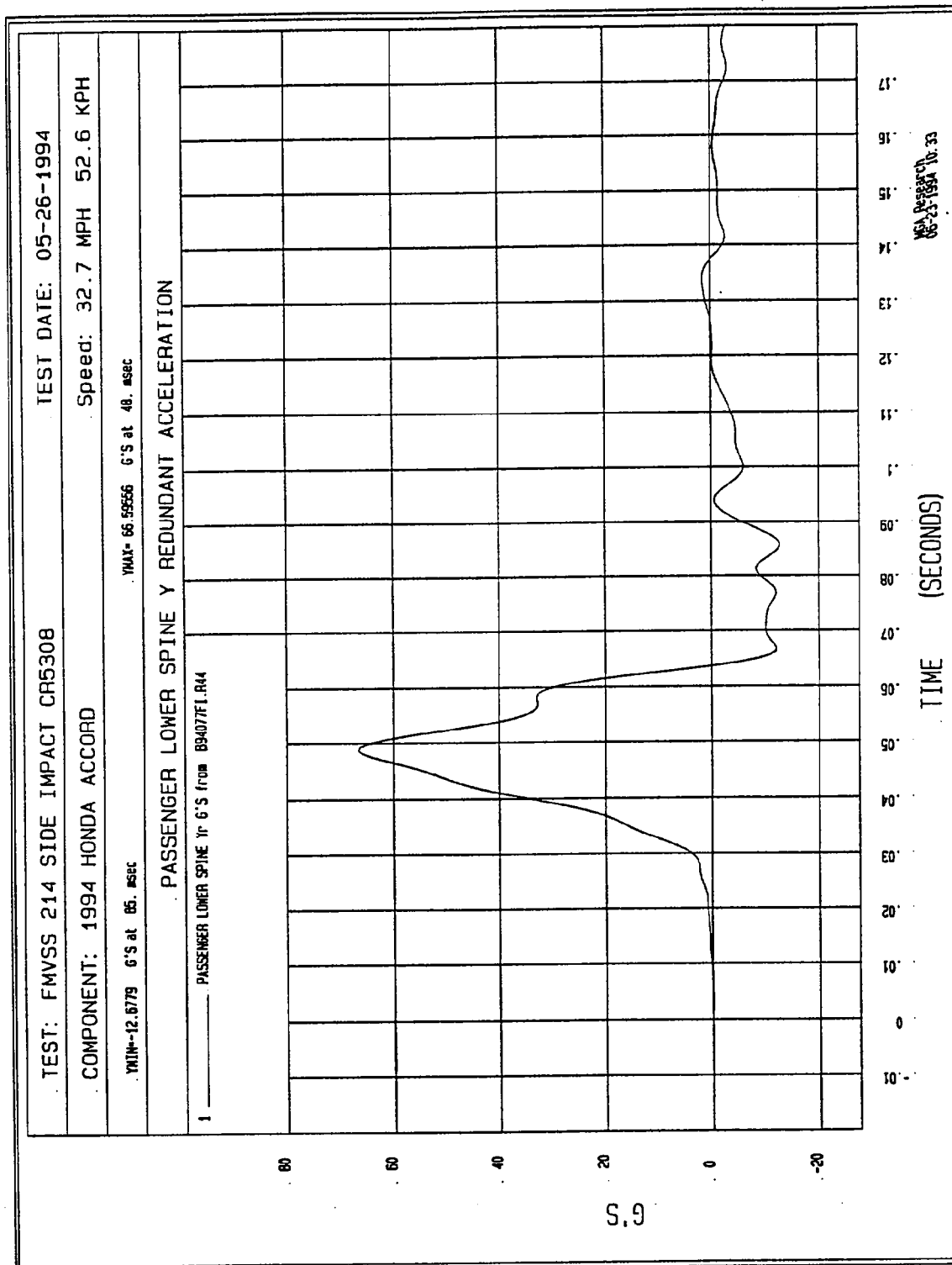


Figure B-90 - Passenger Lower Spine Y Redundant Acceleration vs. Time

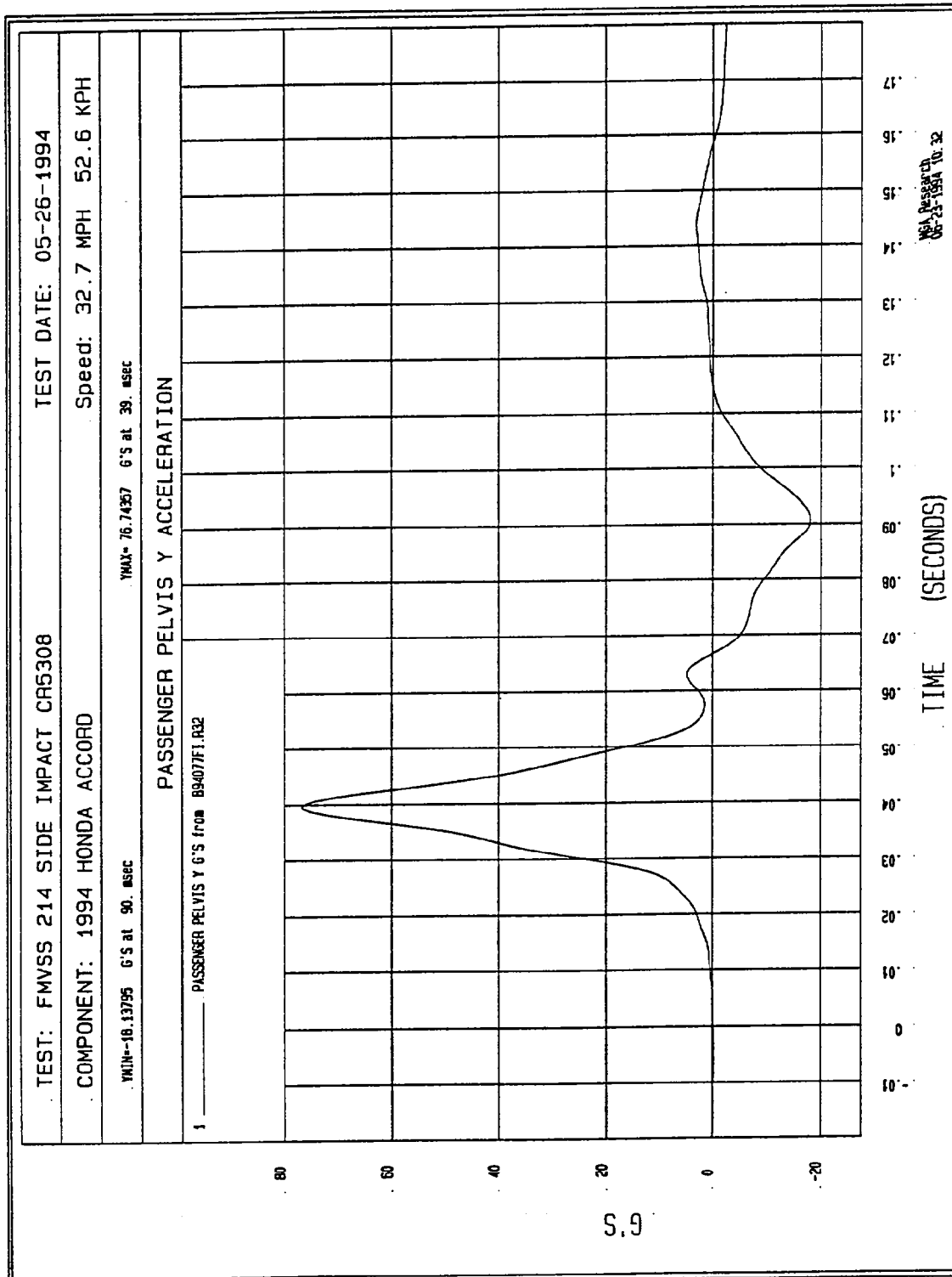


Figure B-91 - Passenger Pelvis Y Acceleration vs. Time

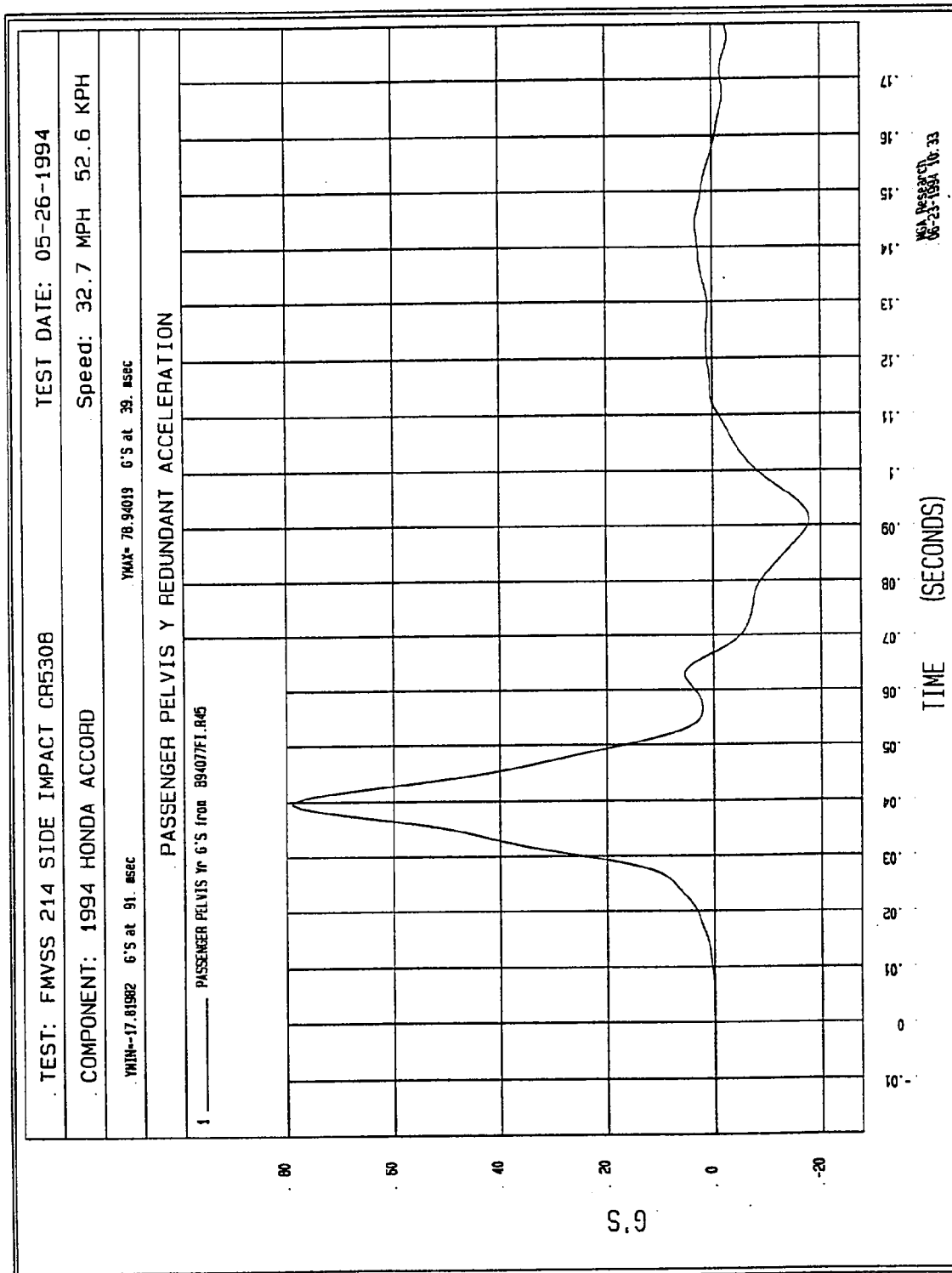


Figure B-92 - Passenger Pelvis Y Redundant Acceleration vs. Time

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-94-DC003

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

HONDA
1994 HONDA ACCORD DX 4 DOOR SEDAN
NHTSA NO. CR5308

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: May 26, 1994

Report Date: August 19, 1994

FINAL REPORT

Prepared For:

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

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PRE-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 269

Calibration Test Results Summary

Dummy Serial Number: 269

Pre-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: May 16, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.7
RH - Rib Height	19.75 - 20.5"	20.3
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.5
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	14.5

MEASUREMENTS BY: _____

APPROVED BY: _____

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: May 24, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94762

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	35%
PROBE SPEED	13.8 - 14.2 fps	13.8
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	39
LOWER SPINE	15 - 22 g's	16

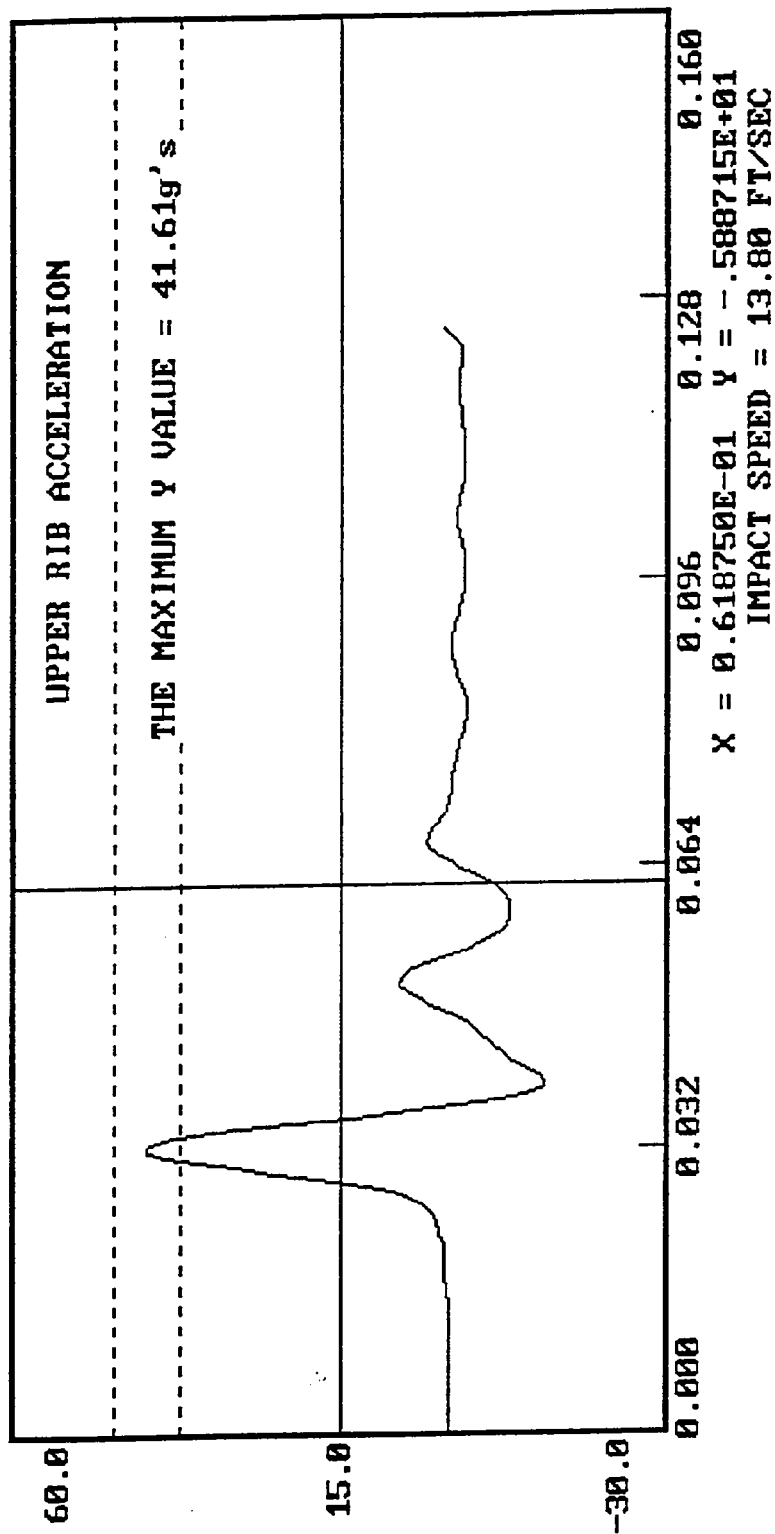
TEST MEETS SPECIFICATIONS

TECHNICIAN *Ha Chien*

APPROVED BY *J. Robbins*

05-24-1994 13:38

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

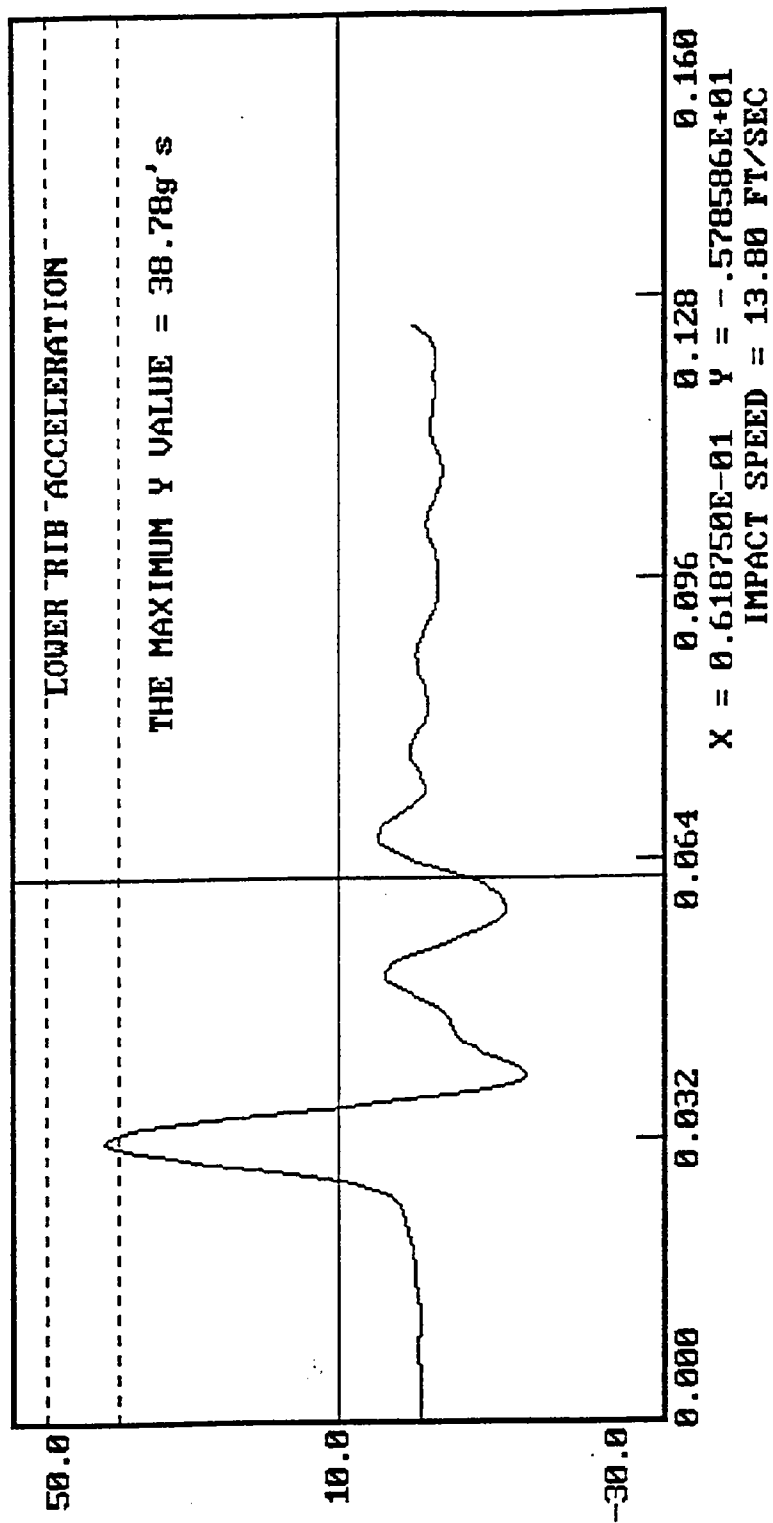


05-24-1994 13:38

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

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

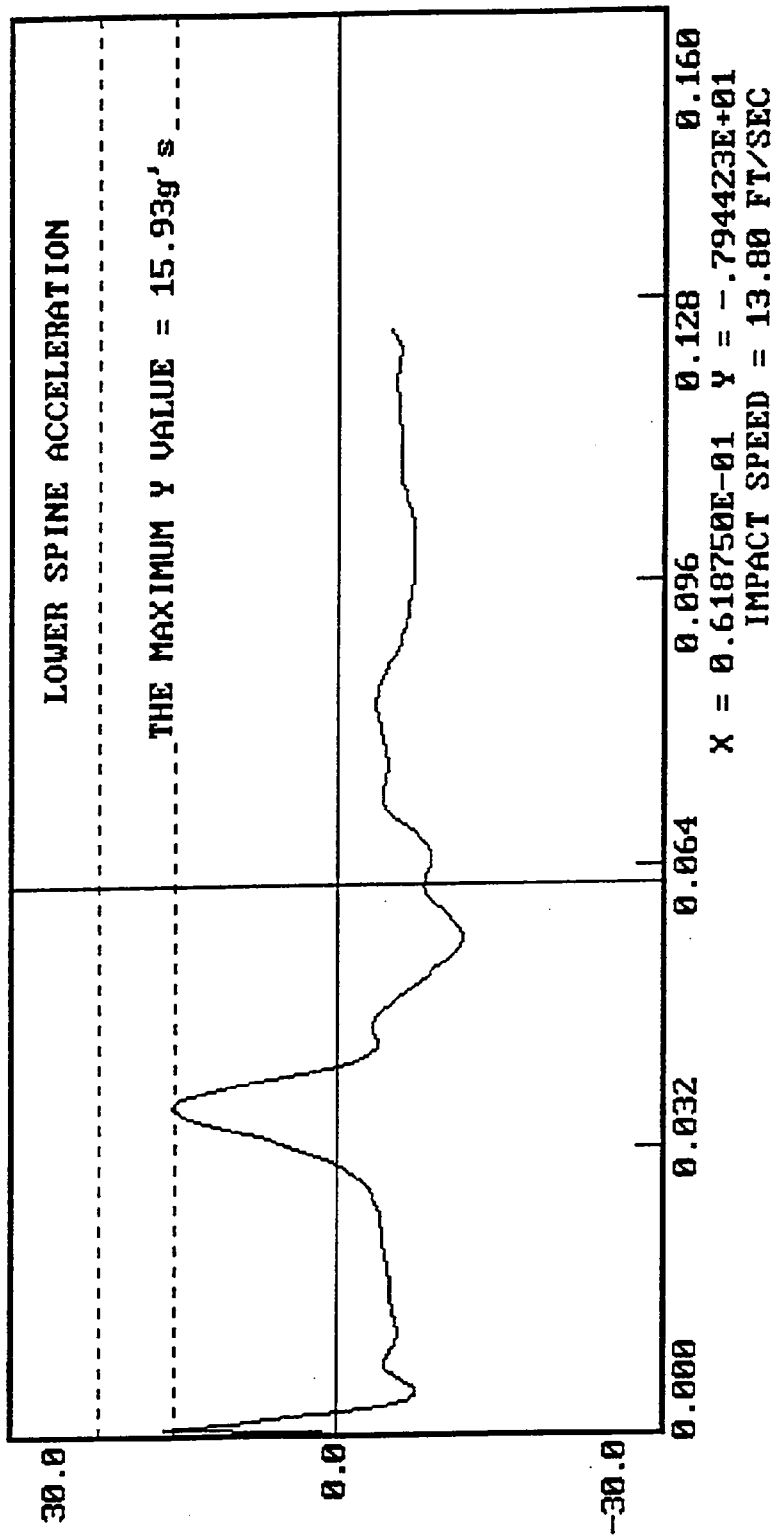


05-24-1994 13:38

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: May 24, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94763

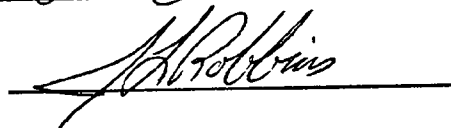
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	35%
PROBE SPEED	13.8 - 14.2 fps	13.9
PELVIS ACCELERATION	40 - 60 g's	54

TEST MEETS SPECIFICATIONS

TECHNICIAN

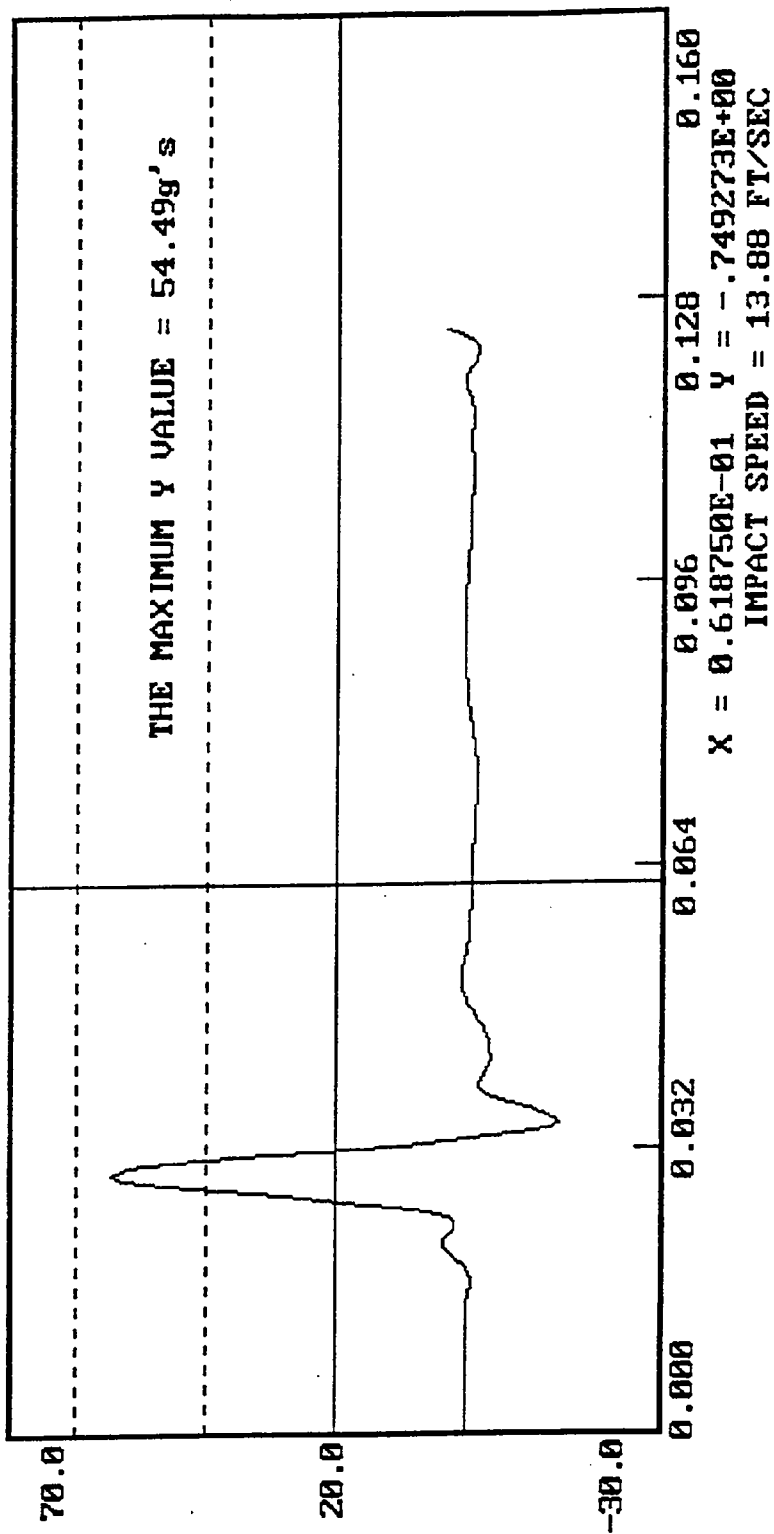


APPROVED BY



DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 269
05-24-1994 19:23

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



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

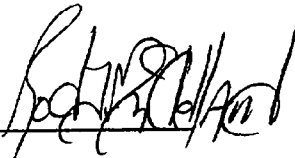
DATE: May 25, 1994

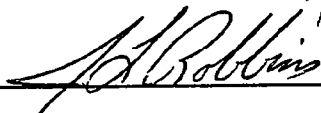
DUMMY NUMBER: 269

TEST NUMBER: D94764

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0.5 in	23.3 - 36.5 lbs	33.1
FORCE @ 0.75 in	36.7 - 49.8 lbs	46.3
FORCE @ 1.0 in	50 - 63 lbs	63
FORCE @ 1.3 in	73 - 88 lbs	84

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

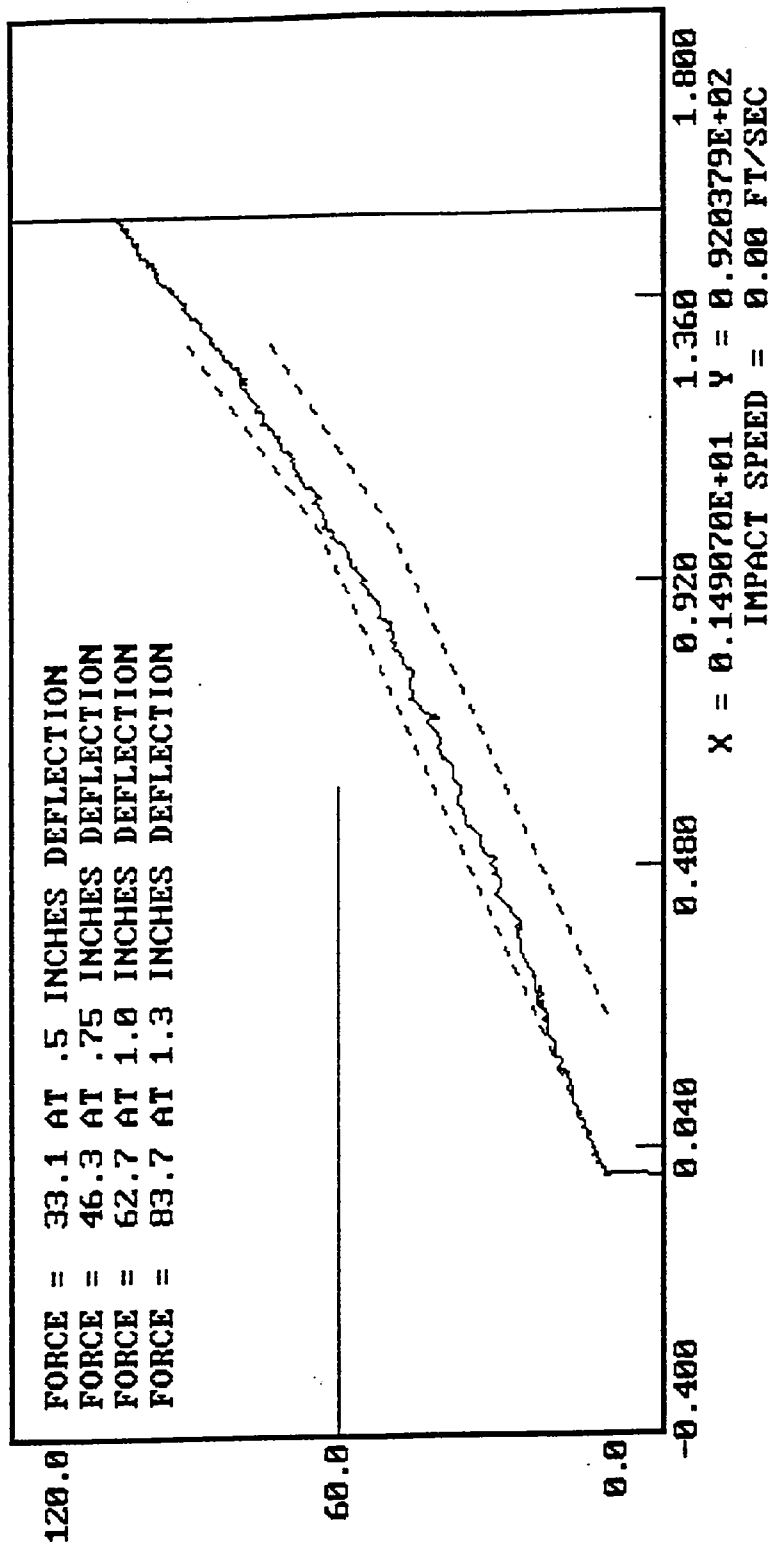
05-25-1994 16:38

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY #

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)

FORCE = 33.1 AT .5 INCHES DEFLECTION
FORCE = 46.3 AT .75 INCHES DEFLECTION
FORCE = 62.7 AT 1.0 INCHES DEFLECTION
FORCE = 83.7 AT 1.3 INCHES DEFLECTION



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

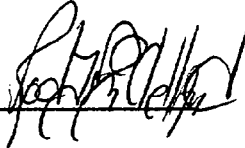
DATE: May 25, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94765

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	25
FORCE @ 30°	34 - 46 lbs	35
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	7°

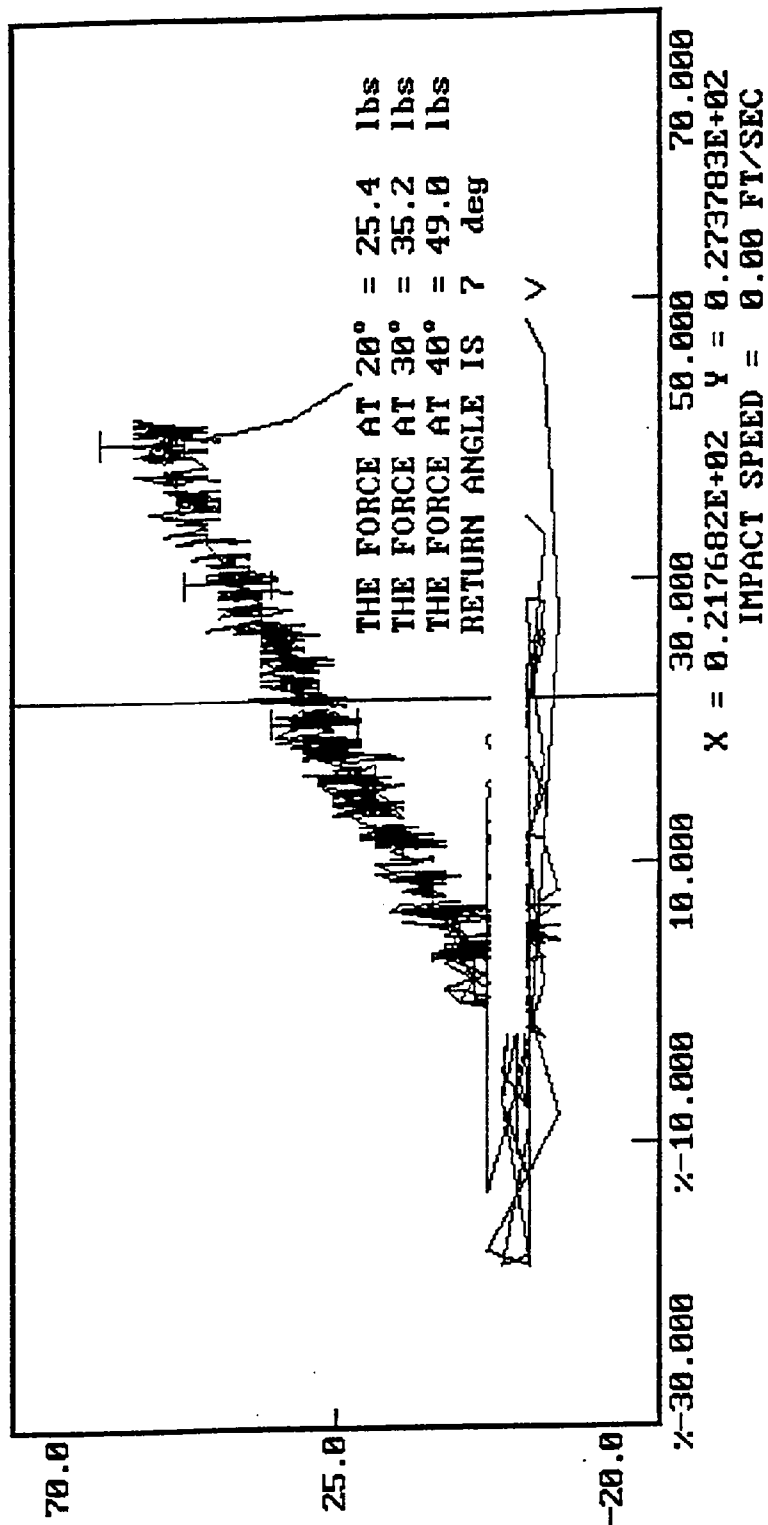
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

05-25-1994 15:12



PRE-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 271

Calibration Test Results Summary

Passenger Serial Number: 271

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.: 271

DATE OF VERIFICATION: May 16, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.6
RH - Rib Height	19.75 - 20.5"	20.4
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.2
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	14.5

MEASUREMENTS BY: _____

APPROVED BY: _____

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: May 24, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94782

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	35%
PROBE SPEED	13.8 - 14.2 fps	13.8
UPPER RIB	37 - 46 g's	43
LOWER RIB	37 - 46 g's	40
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN

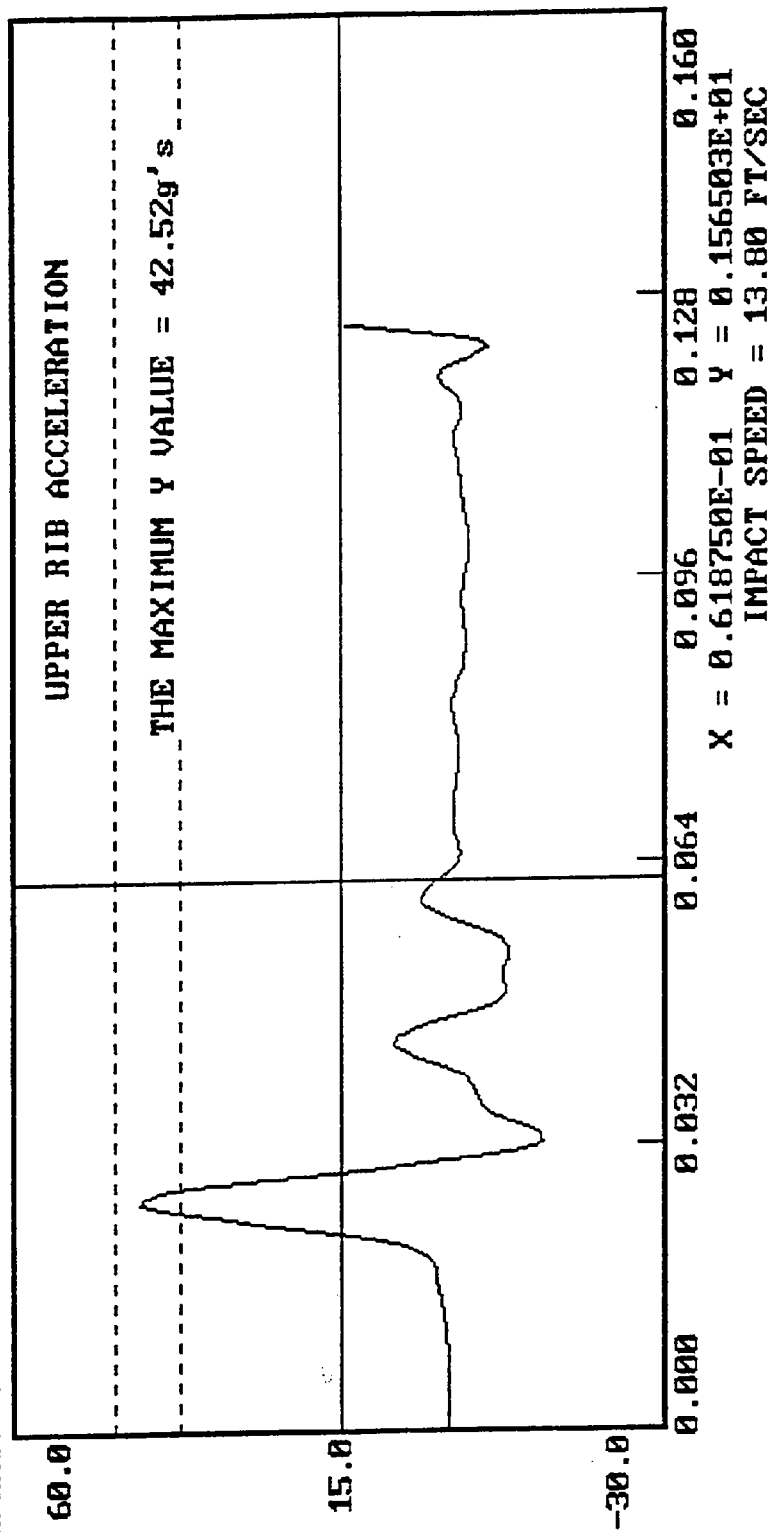


APPROVED BY



05-24-1994 16:27

DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 271
ACCELERATION (G'S) VS. TIME ((SECONDS))

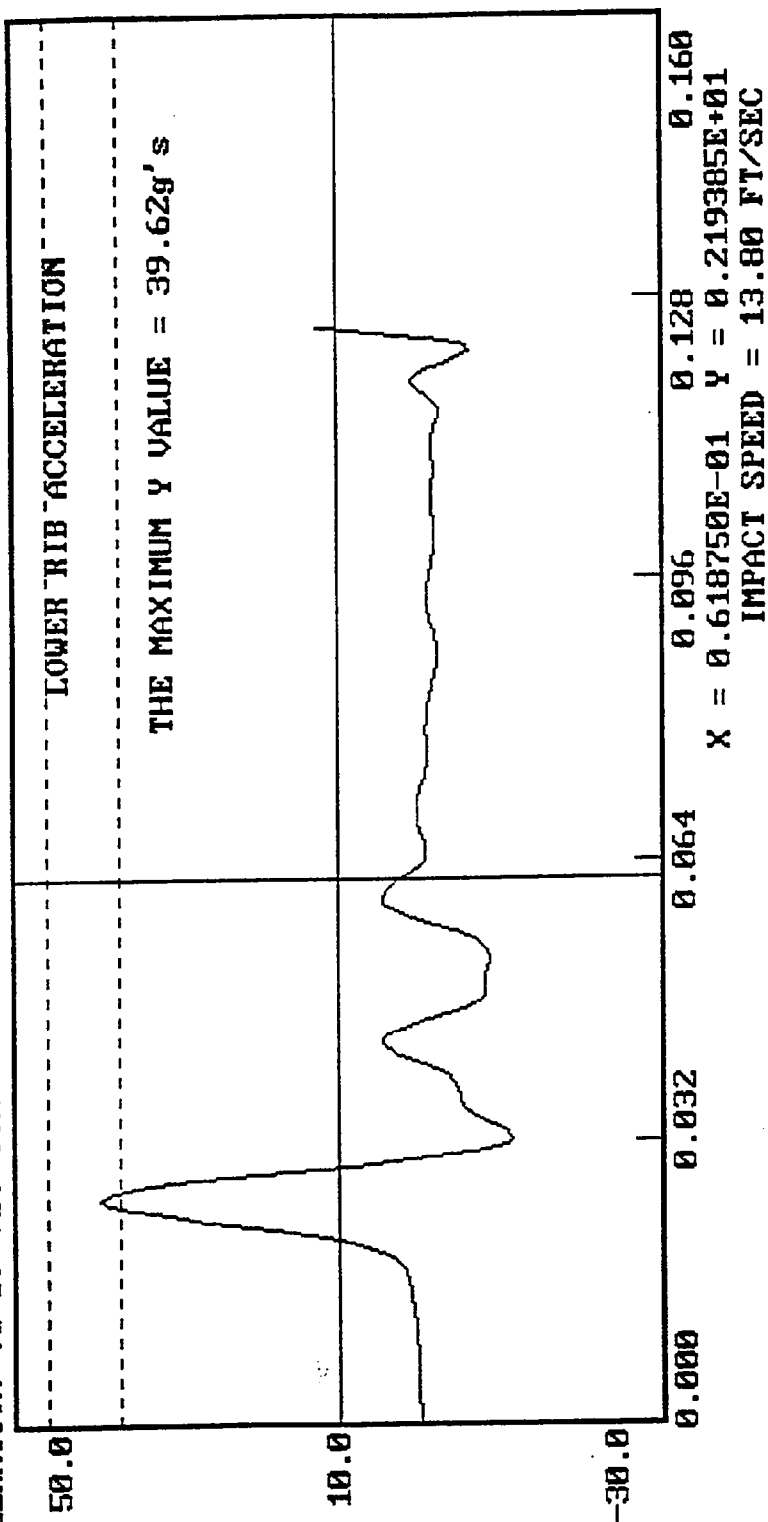


05-24-1994 16:27

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

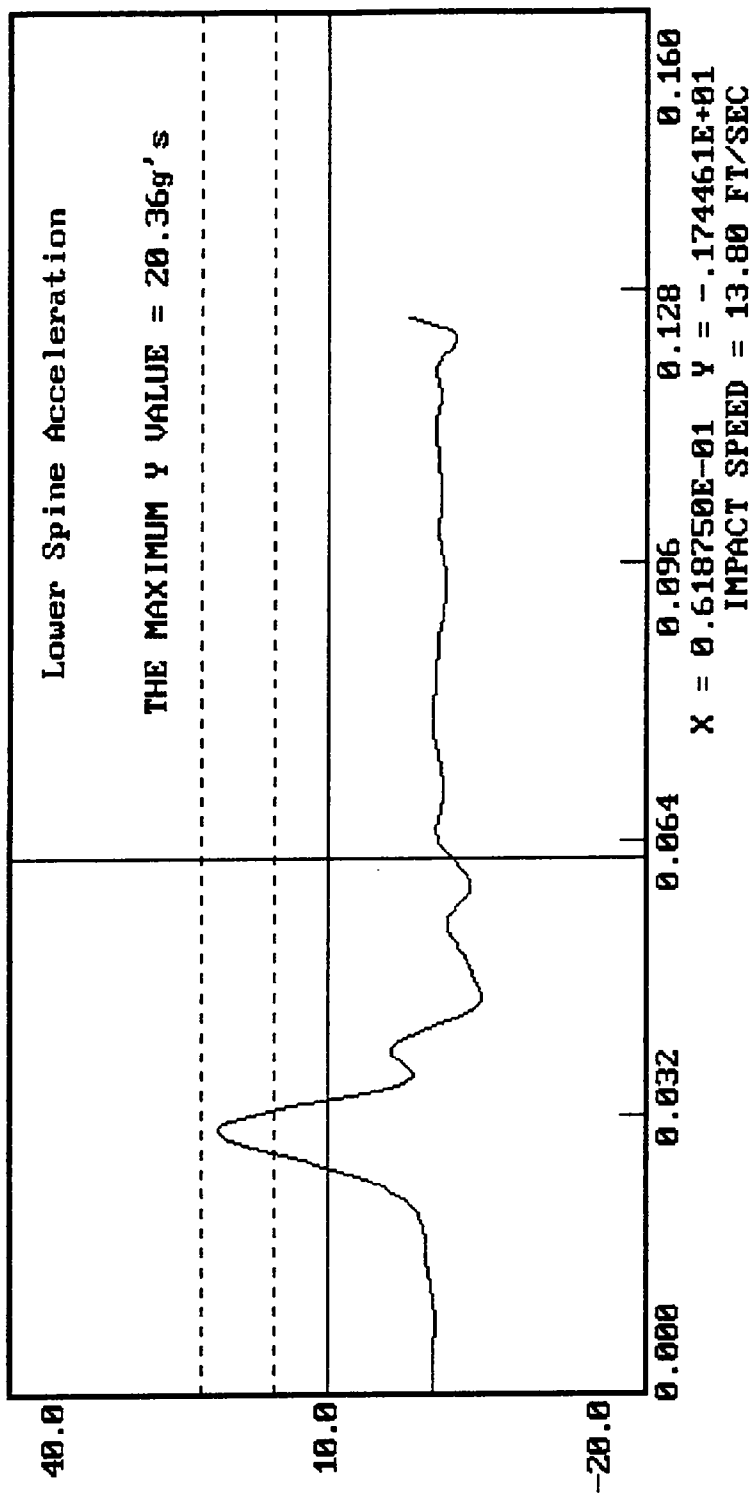
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 271

05-24-1994 16:27

((US. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: May 24, 1994

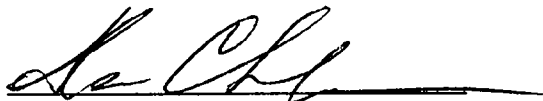
DUMMY NUMBER: 271

TEST NUMBER: D94783

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	35%
PROBE SPEED	13.8 - 14.2 fps	13.9
PELVIS ACCELERATION	40 - 60 g's	58

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

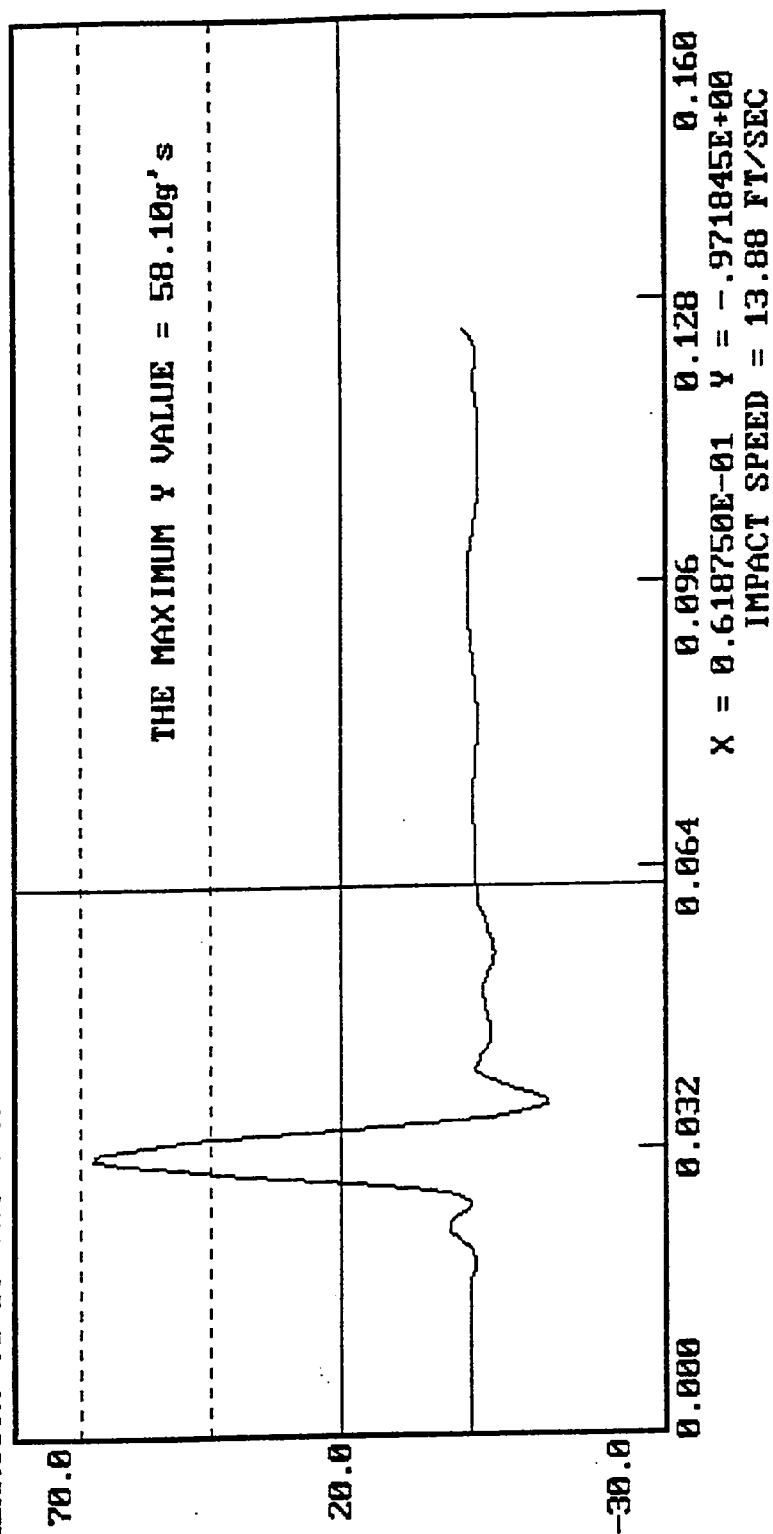


05-24-1994 19:15

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # 271

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



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

DATE: May 25, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94784

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0.5 in	23.3 - 36.5 lbs	26.8
FORCE @ 0.75 in	36.7 - 49.8 lbs	38.3
FORCE @ 1.0 in	50 - 63 lbs	53
FORCE @ 1.3 in	73 - 88 lbs	78

TEST MEETS SPECIFICATIONS

TECHNICIAN _____

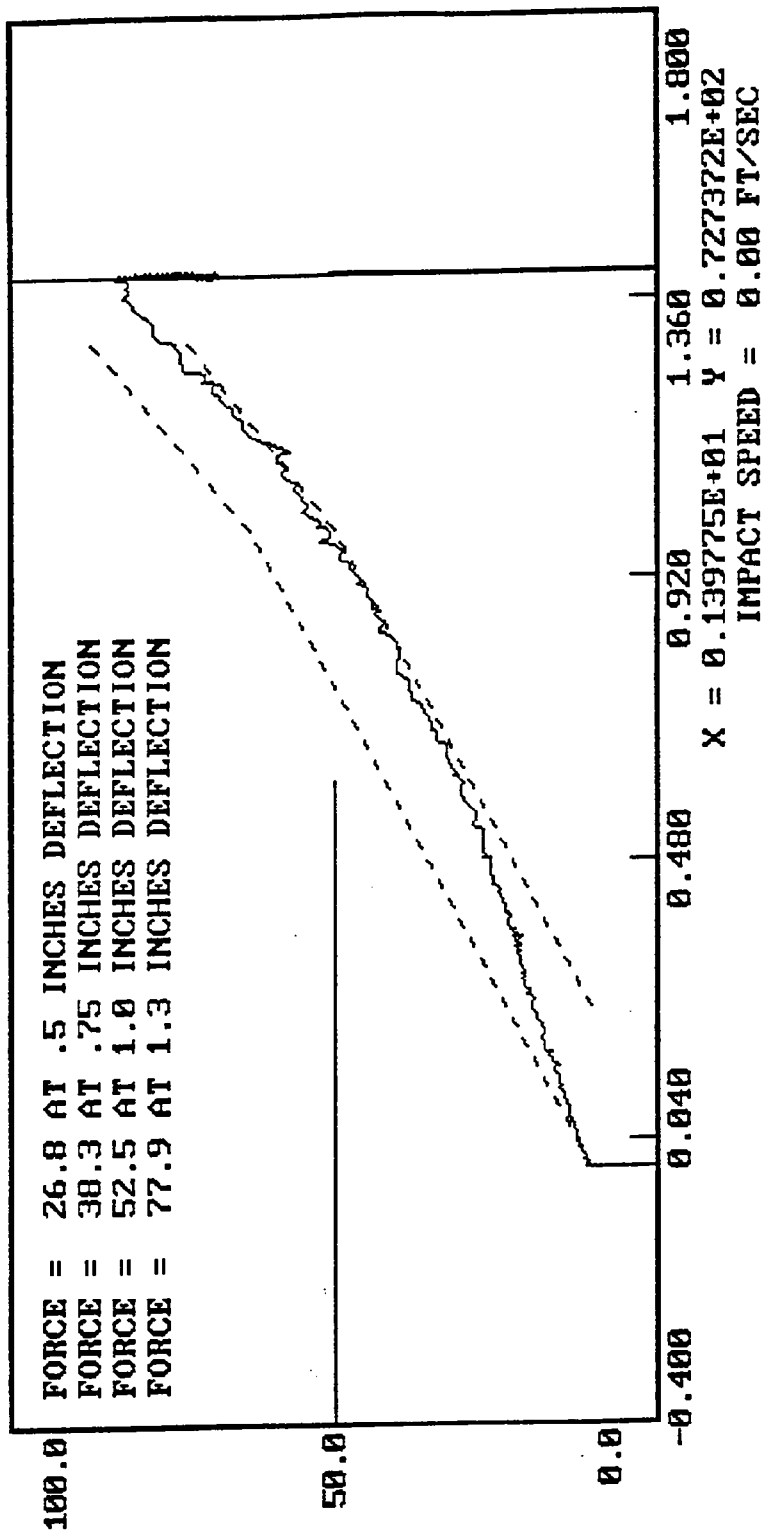
APPROVED BY _____

05-25-1994 16:53

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 271

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: May 25, 1994

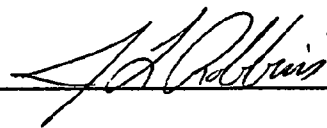
DUMMY NUMBER: 271

TEST NUMBER: D94785

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	31
FORCE @ 30°	34 - 46 lbs	44
FORCE @ 40°	46 - 58 lbs	46
RETURN ANGLE	12° maximum	10°

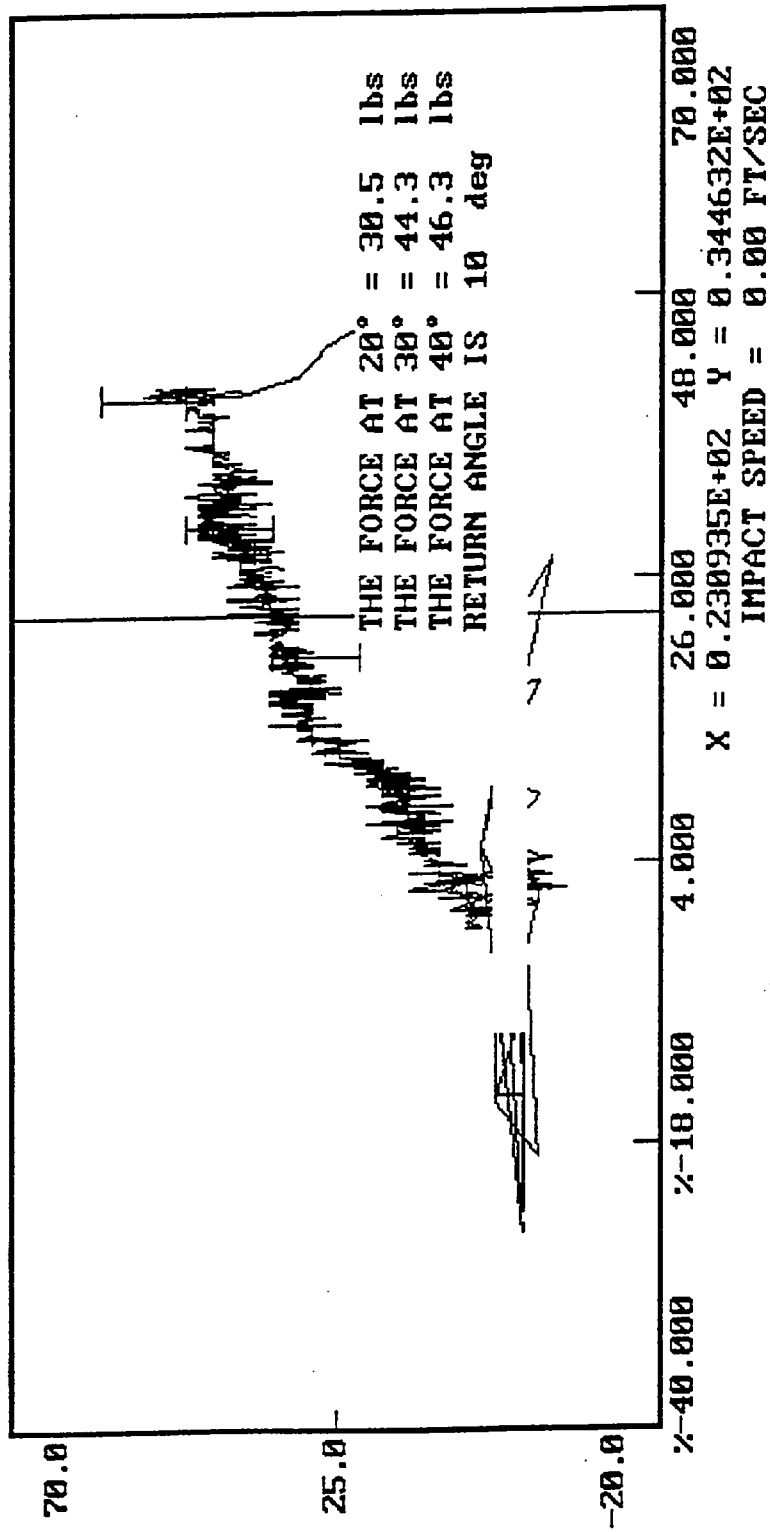
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

05-25-1994 15:26

DUMMY CALIBRATION - LUMBAR FLEXION
DUMMY # 271
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.
Pelvis 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: May 31, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.6
RH - Rib Height	19.75 - 20.5"	20.3
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"	19.6
HW - Hip Width	14.0" - 15.4"	14.5

MEASUREMENTS BY: _____

APPROVED BY: _____

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: June 2, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94822

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
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	20

TEST MEETS SPECIFICATIONS

TECHNICIAN 

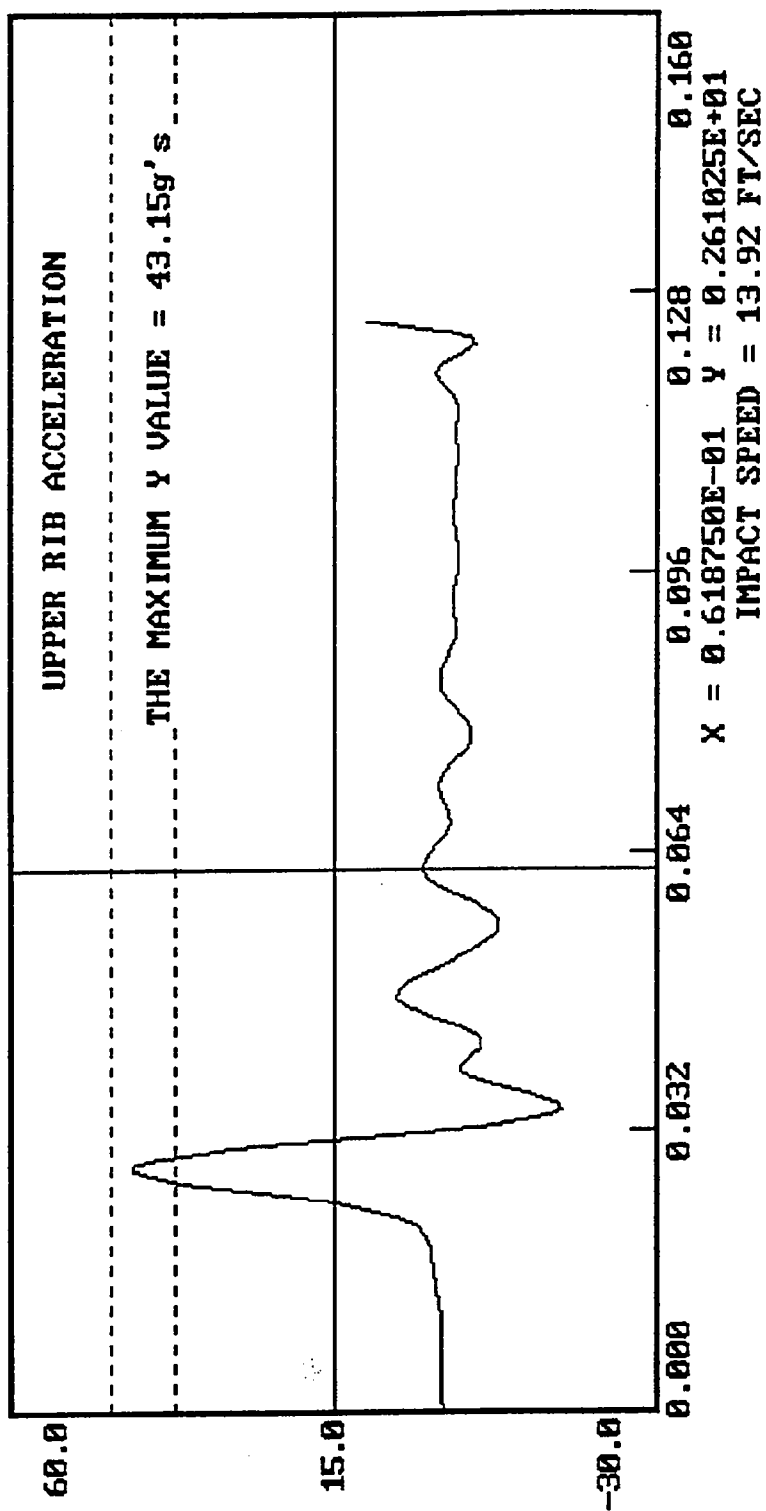
APPROVED BY 

06-02-1994 10:57

DUMMY CALIBRATION - THORAX IMPACT

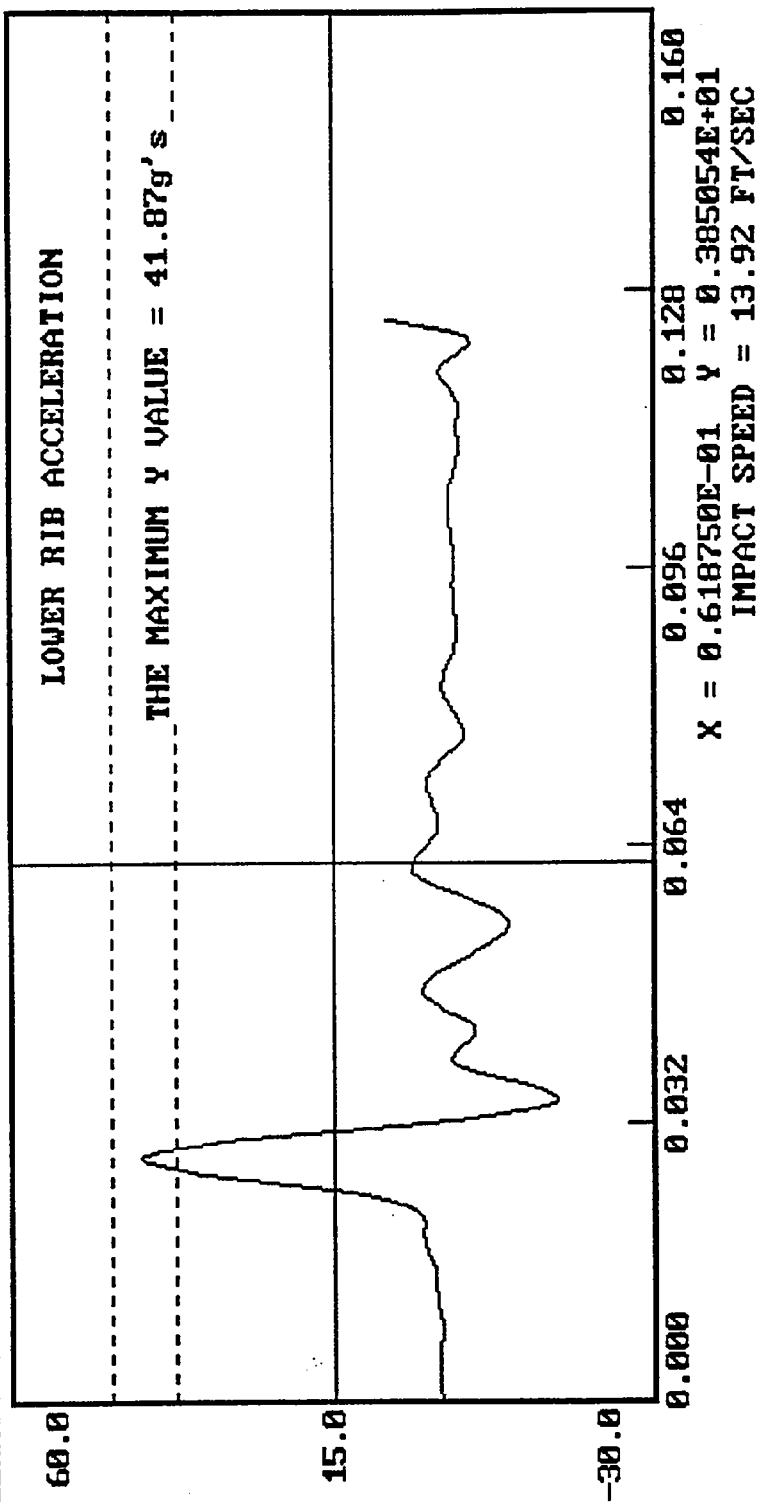
DUMMY # 269

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



06-02-1994 10:57

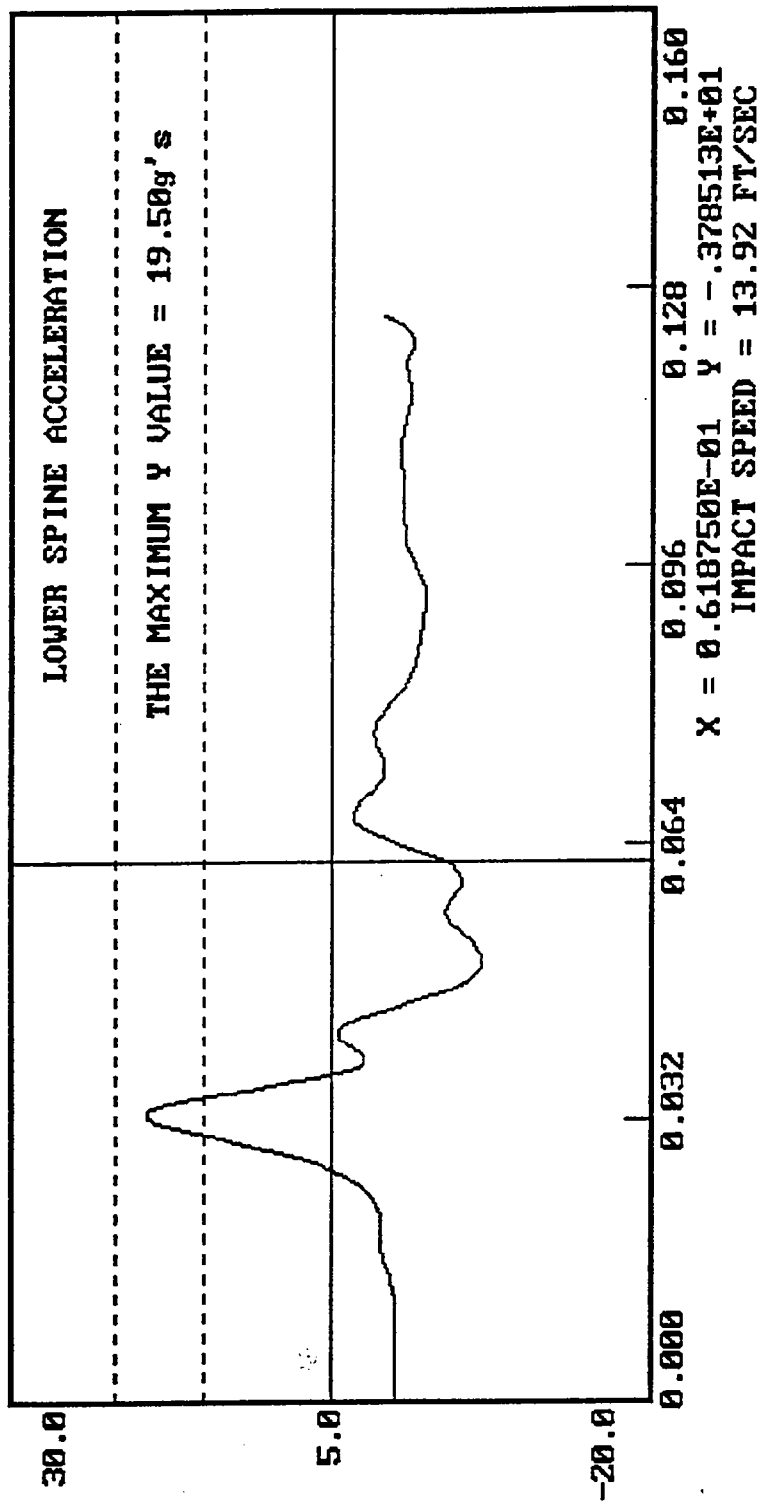
DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 269
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 269

06-02-1994 10:57

() VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: June 2, 1994

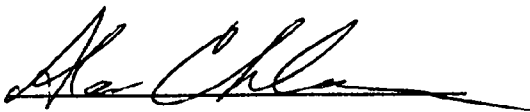
DUMMY NUMBER: 269

TEST NUMBER: D94823

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 fps	13.9
PELVIS ACCELERATION	40 - 60 g's	54

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

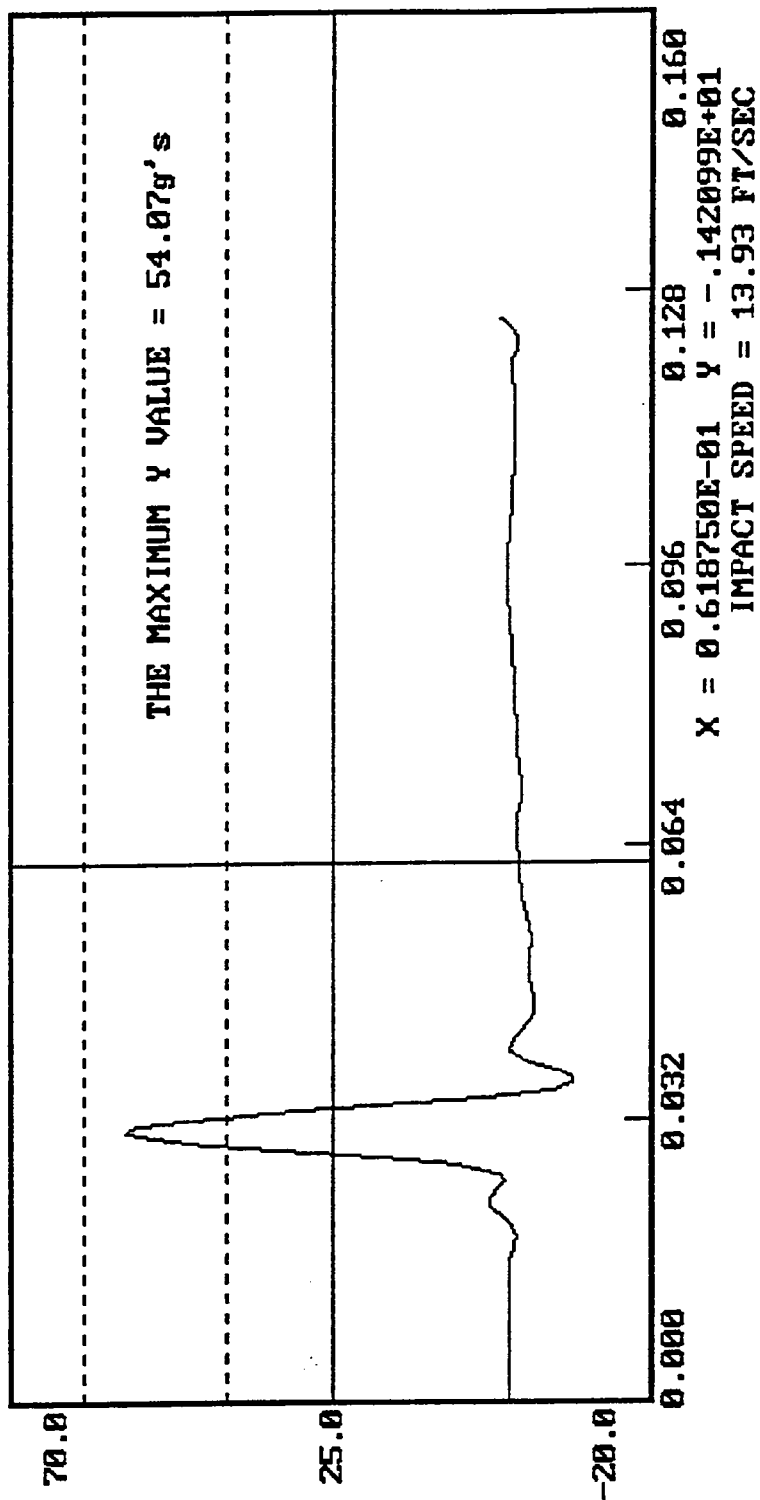


06-02-1994 09:08

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: June 1, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94824

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.3
FORCE @ 0.75 in	36.7 - 49.8 lbs	42.5
FORCE @ 1.0 in	50 - 63 lbs	57
FORCE @ 1.3 in	73 - 88 lbs	79

TEST MEETS SPECIFICATIONS

TECHNICIAN _____

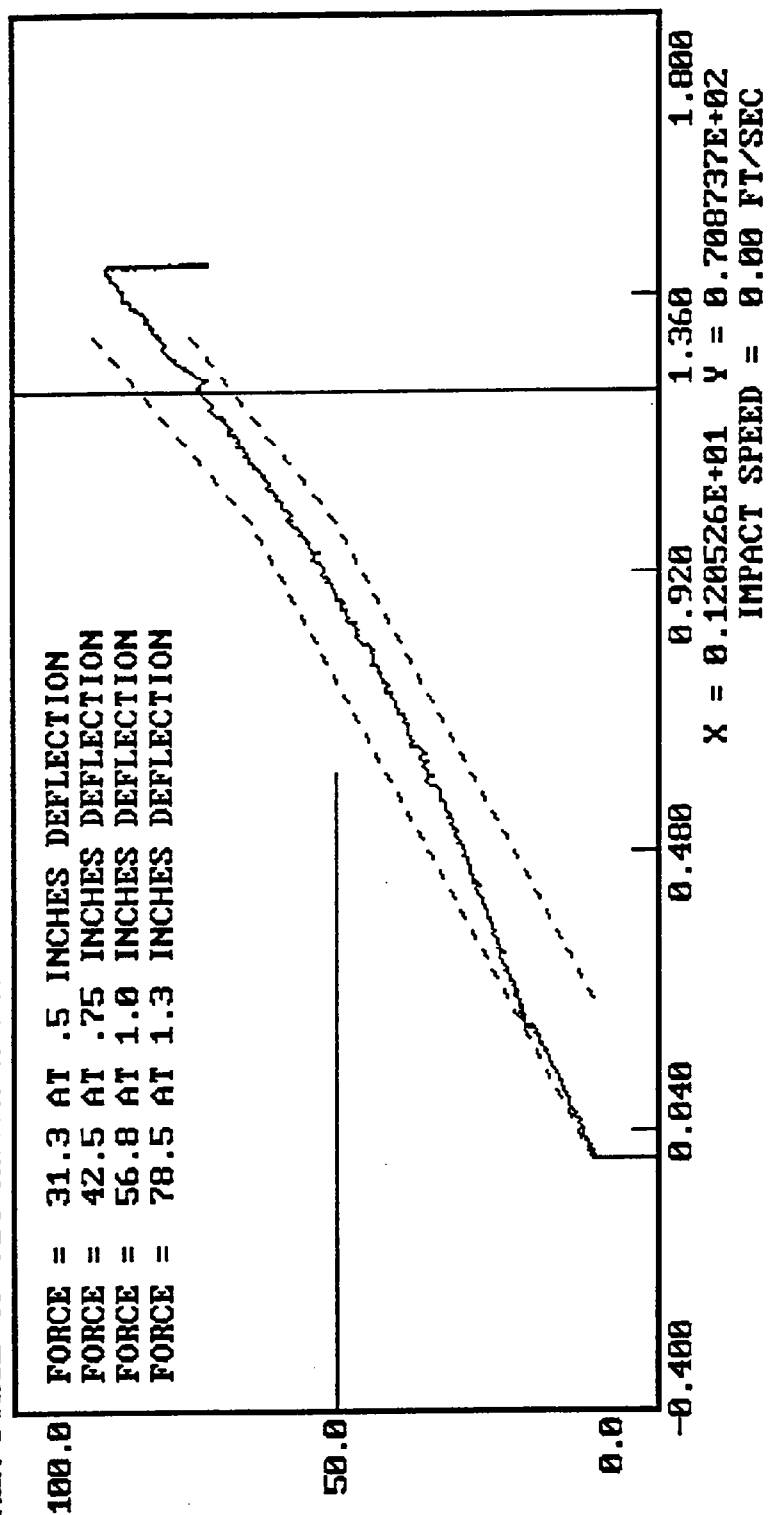
APPROVED BY _____

06-01-1994 09:44

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 269

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: June 11, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94825

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	24
FORCE @ 30°	34 - 46 lbs	38
FORCE @ 40°	46 - 58 lbs	51
RETURN ANGLE	12° maximum	9°

TEST MEETS SPECIFICATIONS

TECHNICIAN

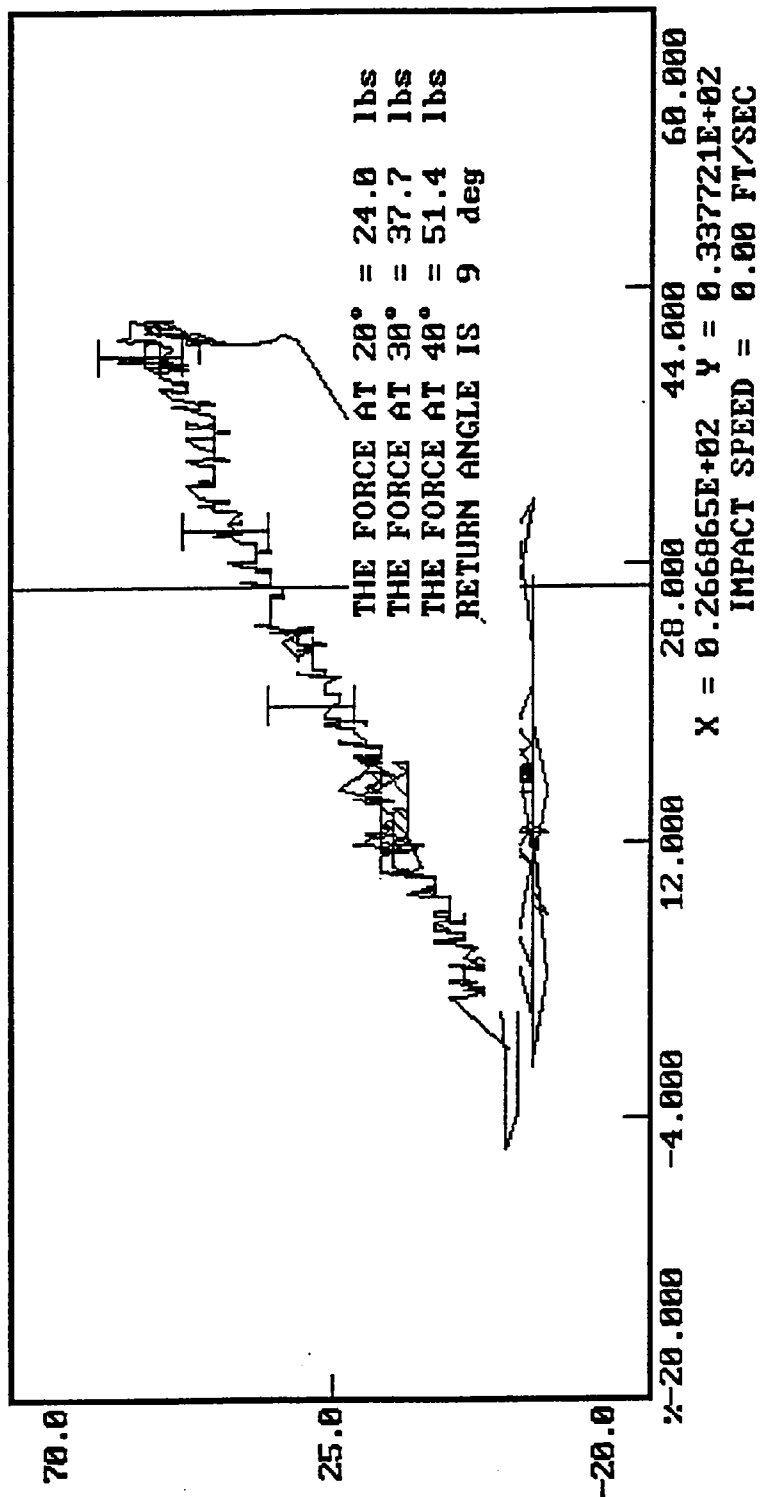


APPROVED BY



06-01-1994 11:58

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



POST-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 271

Calibration Test Results Summary

Dummy Serial Number: 271

Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Tests:	The pelvic 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.: 271

DATE OF VERIFICATION: May 31, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.6
RH - Rib Height	19.75 - 20.5"	20.3
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	14.5

MEASUREMENTS BY: _____

APPROVED BY: _____

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: June 2, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94832

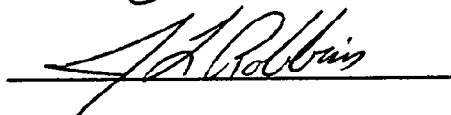
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	41
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

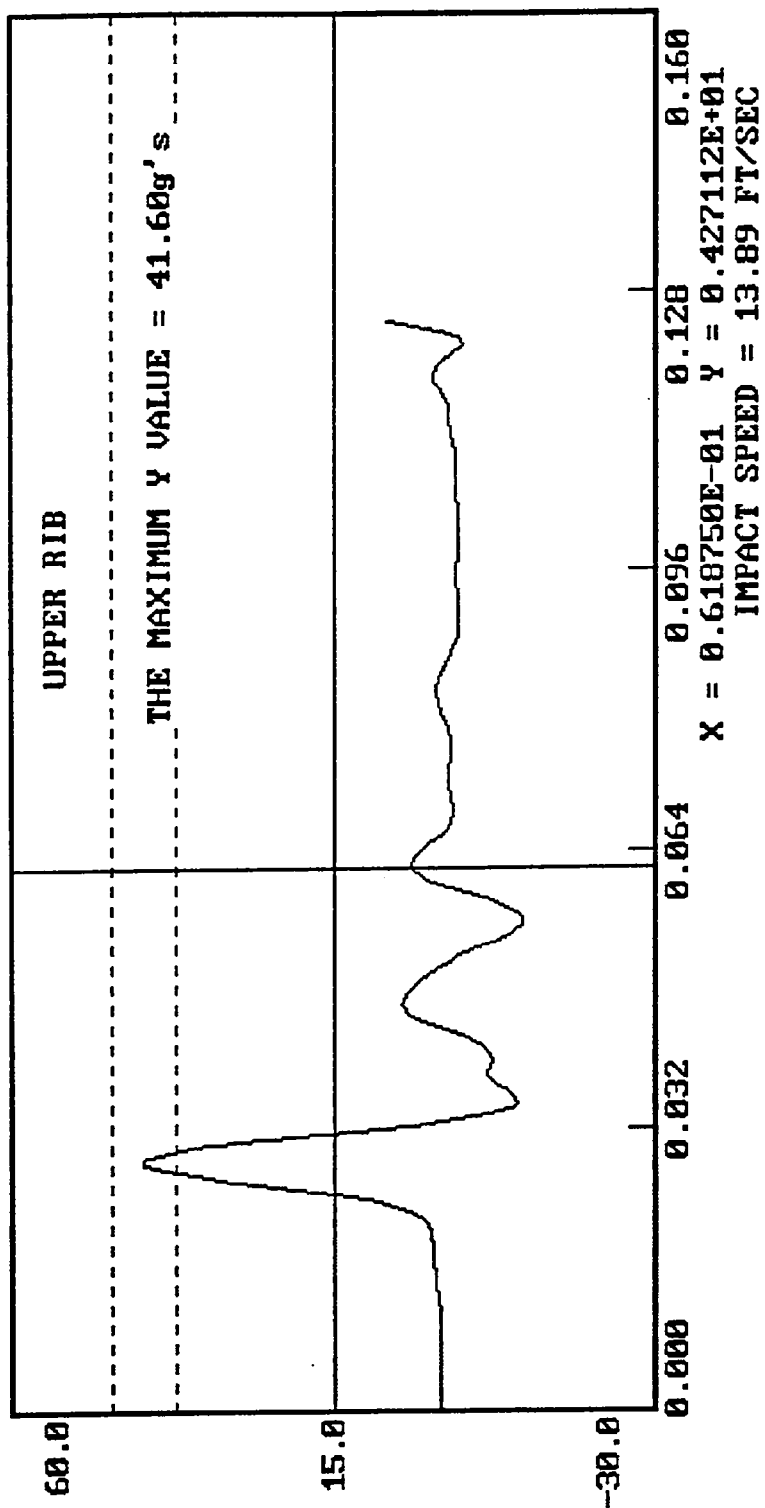


06-02-1994 12:20

DUMMY CALIBRATION - THORAX IMPACT

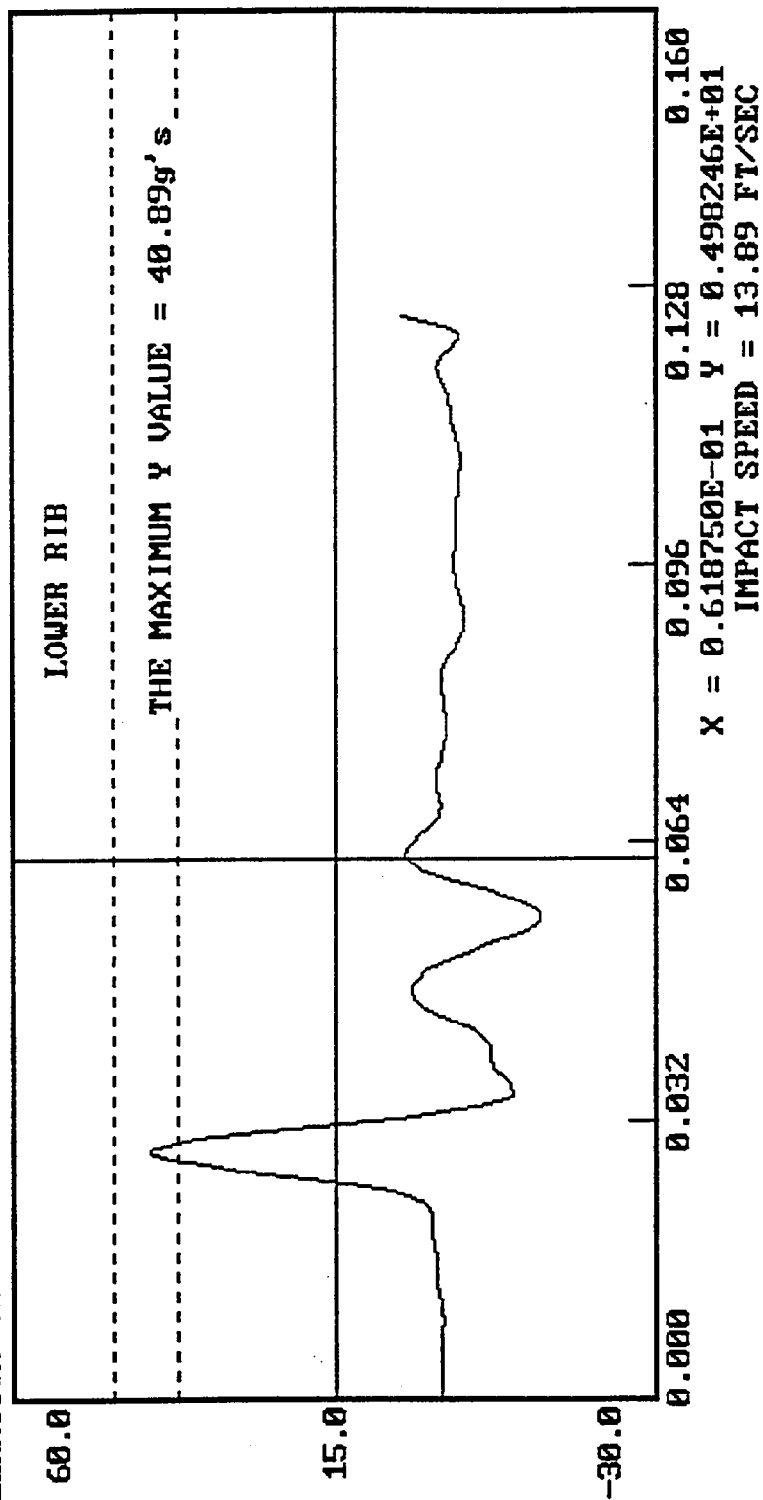
DUMMY # 271

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



06-02-1994 12:20

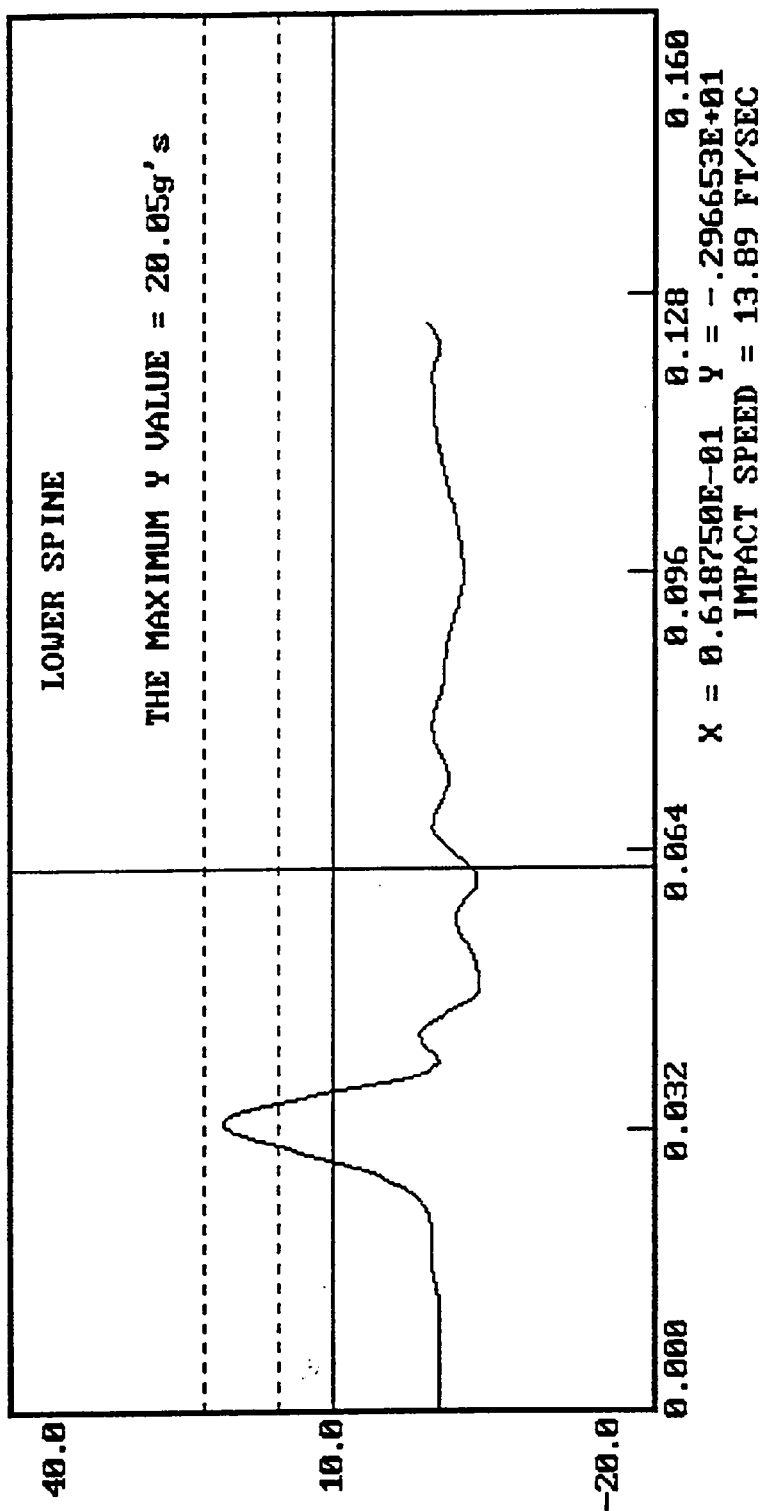
DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 271
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 271

06-02-1994 12:20

((VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: June 2, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94833

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 fps	14.0
PELVIS ACCELERATION	40 - 60 g's	50

TEST MEETS SPECIFICATIONS

TECHNICIAN

A. C. [Signature]

APPROVED BY

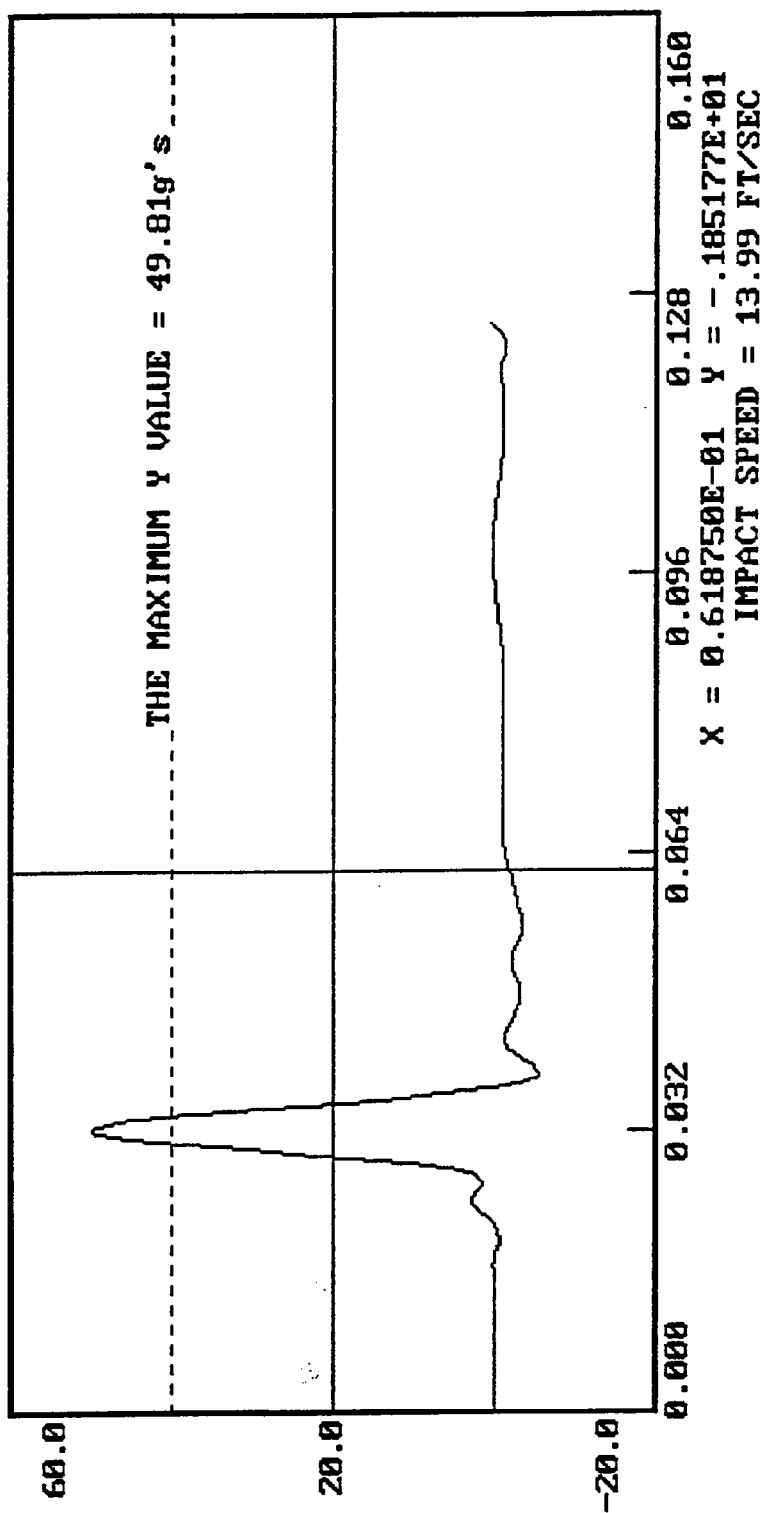
J. H. Robbins

06-02-1994 08:46

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # Z71

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



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

DATE: June 1, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94834

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
FORCE @ 0.5 in	23.3 - 36.5 lbs	29.4
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.9
FORCE @ 1.0 in	50 - 63 lbs	58
FORCE @ 1.3 in	73 - 88 lbs	81

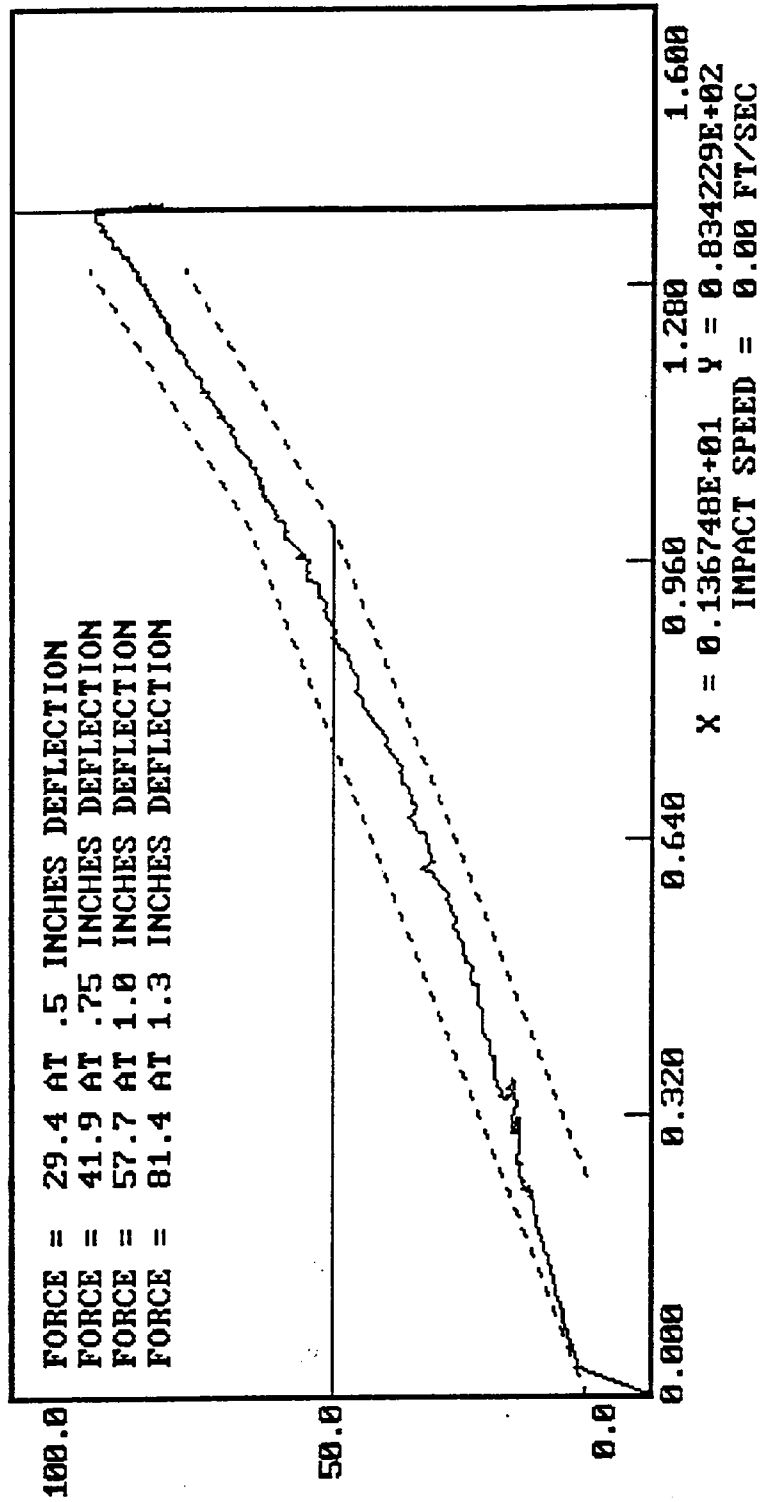
TEST MEETS SPECIFICATIONS

TECHNICIAN _____

APPROVED BY _____

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 271
 06-01-1994 09:31

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: June 1, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94835

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	30
FORCE @ 30°	34 - 46 lbs	40
FORCE @ 40°	46 - 58 lbs	48
RETURN ANGLE	12° maximum	3°

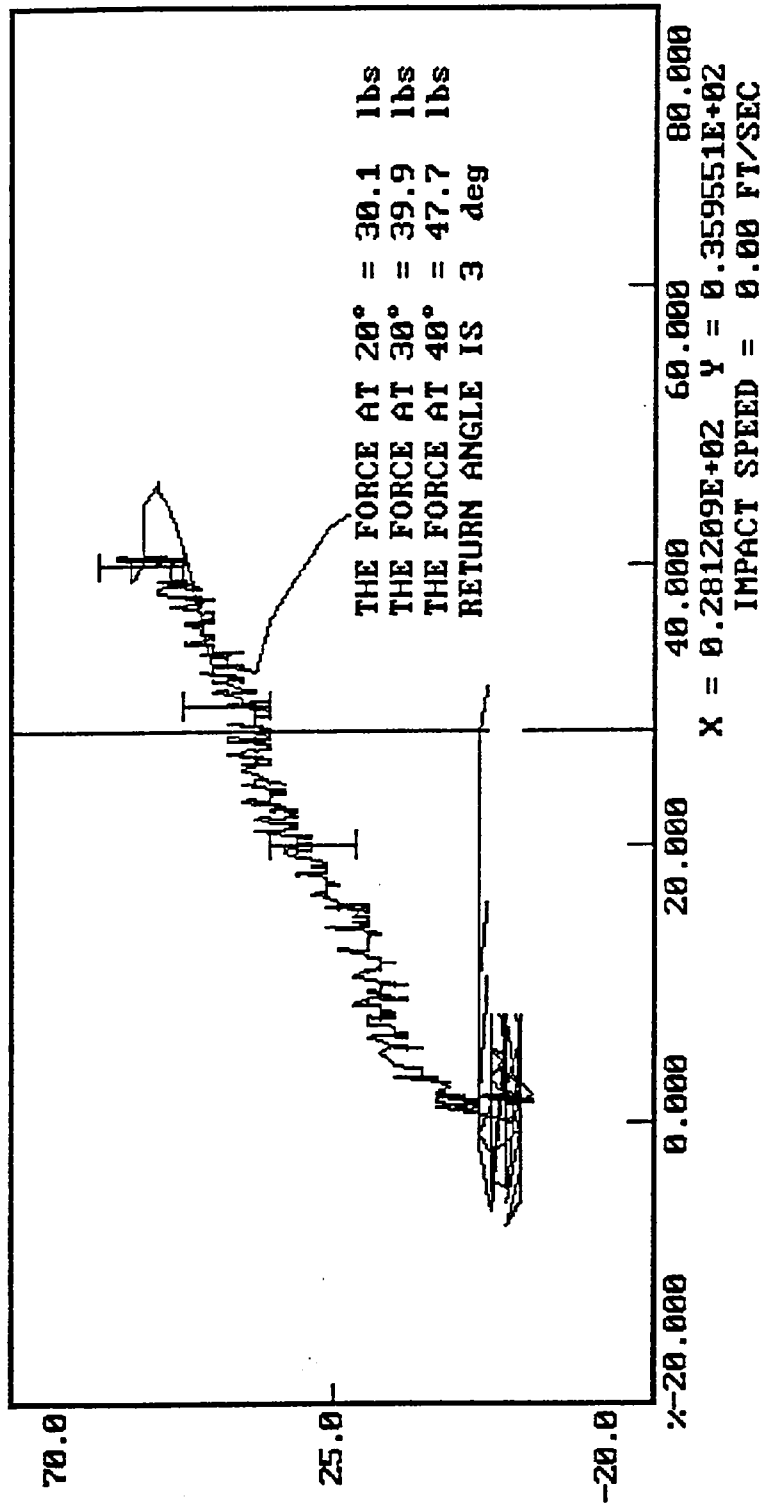
TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY

DUMMY CALIBRATION - LUMBAR FLEXION
 DUMMY # 271
 FORCE () VS. TORSO ROTATION (DEGREES)

06-01-1994 12:50



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

Inspected By: Jeff Robbins

Date: June 1, 1994

<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: 269

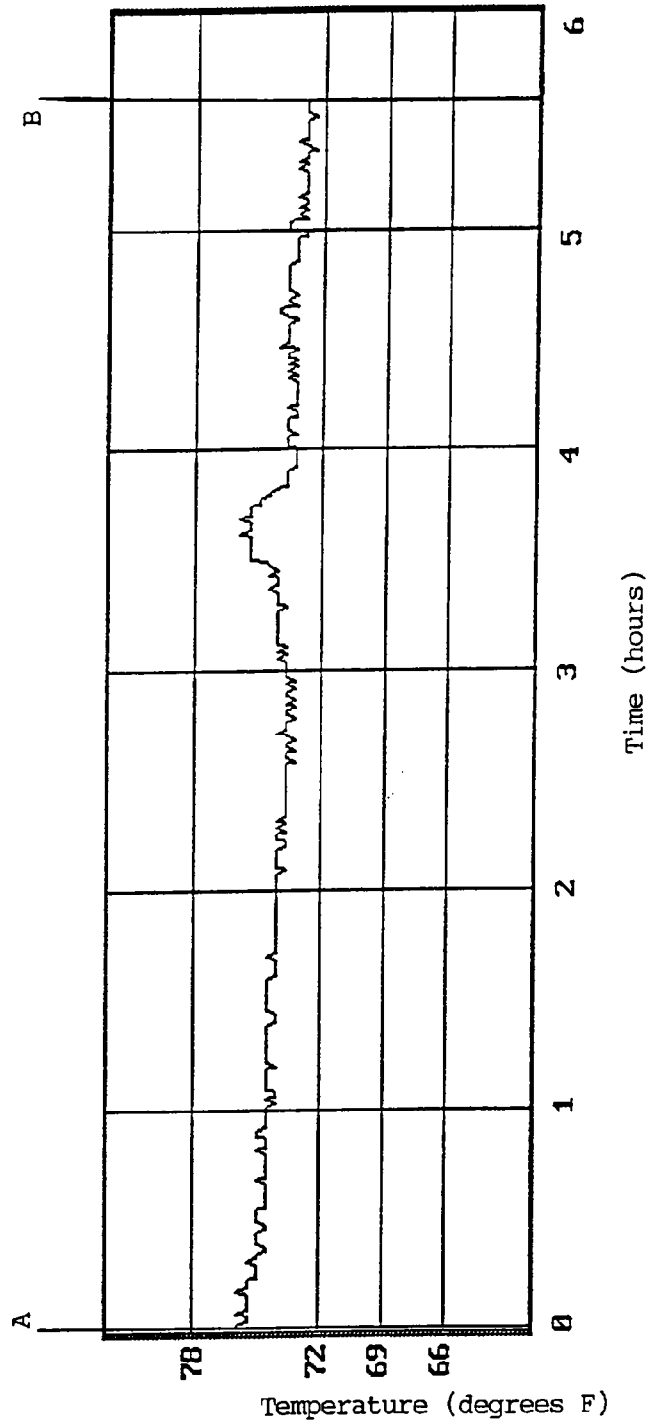
Inspected By: Jeff Robbins

Date: May 25, 1994

<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



A = Dummies placed in vehicle
B = Test conducted

APPENDIX D
DUMMY AND VEHICLE CALIBRATION DATA

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

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib	AHRY3	Endevco	April 27, 1994
Lower Rib	AHT11	Endevco	April 27, 1994
Lower Spine	AHT13	Endevco	April 27, 1994
Pelvis	AHTN7	Endevco	April 27, 1994
Upper Rib Redundant	AGTH6	Endevco	April 28, 1994
Lower Rib Redundant	AHTY4	Endevco	April 27, 1994
Lower Spine Redundant	AGT06	Endevco	April 28, 1994
Pelvis Redundant	AGTF7	Endevco	April 27, 1994

INSTRUMENTS FOR PASSENGER DUMMY NO. 271

	LEFT REAR PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib	AHTT3	Endevco	April 18, 1994
Lower Rib	AHTY2	Endevco	April 18, 1994
Lower Spine	AHT12	Endevco	April 28, 1994
Pelvis	AGWA4	Endevco	April 18, 1994
Upper Rib Redundant	AHTP7	Endevco	April 18, 1994
Lower Rib Redundant	AHT20	Endevco	April 27, 1994
Lower Spine Redundant	AHTB2	Endevco	April 28, 1994
Pelvis Redundant	AHWK8	Endevco	April 27, 1994

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
MDB CG X	MGA132	Entran	May 06, 1994
MDB CG Y	MGA007	Entran	May 06, 1994
MDB CG Z	MGA016	Entran	May 06, 1994
MDB Rear Axle X	MGA134	Entran	May 06, 1994
MDB Rear Axle Y	MGA147	Entran	May 06, 1994
Lower Left B-Post Y	MGA165	Entran	May 16, 1994
Upper Left B-Post Y	ADA34	Endevco	May 06, 1994
Trunk Centerline X	MGA124	Entran	May 06, 1994
Trunk Centerline Y	AC815	Endevco	May 06, 1994
Trunk Centerline Z	MGA146	Entran	May 06, 1994
Right Front Sill X	MGA084	Entran	May 06, 1994
Right Front Sill Y	MGA091	Entran	April 25, 1994
Right Front Sill Z	MGA004	Entran	May 16, 1994
Right Rear Sill X	MGA145	Entran	May 06, 1994
Right Rear Sill Y	MGA045	Entran	May 06, 1994
Right Rear Sill Z	MGA029	Entran	November 29, 1993
Right Rear Seat Occupant Compartment Y	MGA014	Entran	April 25, 1994
Left Front Sill Y	MGA114	Entran	April 27, 1994
Left Rear Sill Y	AN47	Endevco	April 25, 1994

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