

V2119

REPORT NO.: MGA-94-21417

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

NISSAN MOTOR COMPANY
1995 NISSAN MAXIMA 4 DOOR SEDAN
NHTSA NO: CS5201

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



MGA Ref. No.: G93A-02

Test Date: July 20, 1994

Report Date: September 30, 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, SW ROOM 6115**

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. MGA-94-21417		2. Government Accession No.		3. Recipient's Catalog No.																			
4. Title and Subtitle Final Report for FMVSS 214 Compliance Testing of a 1995 Nissan Maxima 4 Door Sedan NHTSA NO. CS5201				5. Report Date September 30, 1994																			
				6. Performing Organization Code MGA																			
7. Author(s) John Fleck				8. Performing Organization Report No. MGA-DOT-214-17																			
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105				10. Work Unit No.																			
				11. Contract or Grant No. DTNH22-93-C-02047																			
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (Mail Code: NEF-30) 400 Seventh St., S.W., Room 6115 Washington, D.C. 20590				13. Type of Report and Period Covered Final Report August 1994																			
				14. Sponsoring Agency Code NEF-30																			
15. Supplementary Notes																							
16. Abstract Compliance tests were conducted on the subject 1995 Nissan Maxima 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 July 20, 1994. The impact velocity of the Moving Barrier (MDB) was 32.9 mph and the ambient temperature of the struck side (driver's) of the target vehicle at the time of impact was 76°F. The maximum static crush of the impacted vehicle was 15.8 inches at the occupant H-Point level. The test or target vehicle's performance is given below:																							
<table border="0"> <thead> <tr> <th></th> <th align="center"><u>Driver's SID</u></th> <th align="center"><u>Left Rear SID</u></th> </tr> </thead> <tbody> <tr> <td>Thoracic Trauma Index (TTI)</td> <td align="center">62 g's</td> <td align="center">58 g's</td> </tr> <tr> <td>Pelvis Acceleration</td> <td align="center">73 g's</td> <td align="center">81 g's</td> </tr> <tr> <td>Upper Rib Acceleration</td> <td align="center">48.3 g's</td> <td align="center">47.0 g's</td> </tr> <tr> <td>Lower Rib</td> <td align="center">57.7 g's</td> <td align="center">55.5 g's</td> </tr> <tr> <td>Lower Spine</td> <td align="center">67.1 g's</td> <td align="center">60.3 g's</td> </tr> </tbody> </table>							<u>Driver's SID</u>	<u>Left Rear SID</u>	Thoracic Trauma Index (TTI)	62 g's	58 g's	Pelvis Acceleration	73 g's	81 g's	Upper Rib Acceleration	48.3 g's	47.0 g's	Lower Rib	57.7 g's	55.5 g's	Lower Spine	67.1 g's	60.3 g's
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17. Key Words Side Impact Dummy (SID) Compliance Test FMVSS 214 Side Impact Protection				18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division, Room 5108 (NAD-52), 400 Seventh Street, S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946 Attn: Robert Hornickle																			
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 244	22. Price																		

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

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Approved by:



Date: 9/30/94

John Fleck, Project Engineer

FINAL REPORT ACCEPTED BY:



Date: 10/7/94

Contract Technical Manager

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SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 94 FMVSS 214 "Dynamic" compliance test program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-93-C-02047. The purpose of this test was to evaluate side impact protection in a 1995 Nissan Maxima 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 Nissan Maxima 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 32.9 mph on July 20, 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. 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.

The driver's Thoracic Trauma Index (TTI) was 62 g's. Maximum pelvic Y acceleration was 73 g's.

The left rear passenger's TTI was 58 g's. Maximum pelvic Y acceleration was 81 g's.

TEST NOTES

Both the left lower "A" Post and left lower "B" Post Accelerometers detached from their mounting approximately 15 msec. following impact. The data presented in this report for these two channels is only valid for approximately 15 msec.

SECTION 3
SUMMARY OF TEST DATA

TABLE 1
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan
Vehicle NHTSA No.: CS5201 VIN: JN1CA21D8ST007239
Vehicle Body Color: Maroon Month & Year of Manufacture: 3-94
Engine Data: 6 cylinders; CID; 3.0 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 600 miles
Options. X A/C; X Pwr. Steering.; X Pwr. Brakes; X Pwr. Windows
 Power Seats; Tilt Wheel; X Power Door Locks; Self Leveling System

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 29 psi FRONT
29 psi REAR
Recommended Tire Size: P205/65R15
Tires on Test Vehicle: P205/65R15 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 = 900 lbs (A)
No. of Occupants x 150 lbs. = 750 lbs (B)
Cargo Capacity (A-B) = 150 lbs

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>915</u> lbs	Right Rear	=	<u>553</u> lbs
Left Front	=	<u>904</u> lbs	Left Rear	=	<u>543</u> lbs
TOTAL FRONT	=	<u>1819</u> lbs	TOTAL REAR	=	<u>1096</u> lbs
% of Total Vehicle Weight	=	<u>62</u> %;	% of Total Weight	=	<u>38</u> %
TOTAL WEIGHT	=	<u>2915</u> lbs			

TABLE 2
TEST VEHICLE DATA

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan
Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 1994

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids = 2915 lbs
Maximum Cargo Carrying Capacity of Test Vehicle = 150 lbs
Weight of 2 Side Impact Dummies (2 x 178 lbs.) = 356 lbs
TEST VEHICLE TARGET WEIGHT: = 3421 lbs

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front	= <u>989</u> lbs	Right Rear	= <u>676</u> lbs
Left Front	= <u>1028</u> lbs	Left Rear	= <u>711</u> lbs
TOTAL FRONT	= <u>2017</u> lbs	TOTAL REAR	= <u>1387</u> lbs
% of Total Weight	= <u>59</u> %	% of Total Weight	= <u>41</u> %
TOTAL TEST WEIGHT	= <u>3404</u> lbs		

TEST VEHICLE ATTITUDE (all dimensions in inches)

CURB WEIGHT ATTITUDE: (in)

Right Front 28.7 Left Front 28.8 Right Rear 28.8 Left Rear 28.5

FULLY LOADED WEIGHT ATTITUDE: (in)

Right Front 28.3 Left Front 27.5 Right Rear 27.3 Left Rear 26.3

TEST ATTITUDE: (in)

Right Front 27.8 Left Front 27.4 Right Rear 27.5 Left Rear 27.0

Test Vehicle Wheelbase: 106 inches

C.G. = 43.2 inches rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 178.0 in
Centerline = 185.8 in
Left Side = 178.0 in

FIGURE 1
PRE-TEST CONDITIONS

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 1994

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 8.9 in

Total Number of Adjustment Positions or Detents: 20

Test Position: 11th detent From Front

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 25° degrees

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: Non Adjustable

Seat Back Adjustment Position: Non Adjustable

ADJUSTABLE STEERING COLUMN POSITION: Non Adjustable

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 = 18.5 gallons

Test Volume: 17.3 gallons (93.5% of capacity)

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

Wheelbase: = 106 in

Impact Point is 16 in rearward of front axle centerline

TABLE 3

CRASH TEST SUMMARY FOR TEST VEHICLEYear/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door SedanVehicle NHTSA No. CS5201 TEST DATE July 20, 1994Overall Length = 185.8 in, Overall Width = 69.1 inTEST WEIGHT

Right Front	= <u>915</u> lbs	Right Rear	= <u>553</u> lbs
Left Front	= <u>904</u> lbs	Left Rear	= <u>543</u> lbs
TOTAL FRONT	= <u>1819</u> lbs	TOTAL REAR	= <u>1096</u> lbs
TOTAL VEHICLE WEIGHT <u>2915</u> lbs			
Wheelbase = <u>106</u> in			
Longitudinal C G front Center of Front Axle		= <u>43.2</u> in	
Impact Angle with Respect to Impactor		= <u>90°</u> degrees	

MAXIMUM EXTERIOR STATIC CRUSH

1	LEVEL 1 (<u>10.3</u> in above ground)	= <u>9.0</u> in
2	LEVEL 2 (<u>18.6</u> in above ground)	= <u>15.8</u> in
3	LEVEL 3 (<u>23.3</u> in above ground)	= <u>14.6</u> in
4	LEVEL 4 (<u>34.6</u> in above ground)	= <u>10.5</u> in
5	LEVEL 5 (<u>52.1</u> in above ground)	= <u>2.4</u> in
Maximum Post-Test Intrusion = <u>15.8</u> in		

OCCUPANTS:

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

INSTRUMENTATION.

Number of Vehicle Data Channels:	= <u>16</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: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 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>-0.3</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: 32.9 mph Secondary: 32.9 mph

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1.	Row A Top of Stack (33 in)	=	<u>5.7</u>	in
2.	Row B Mid Stack (27 in)	=	<u>2.8</u>	in
3.	Row C Top of Bumper (21 in)	=	<u>1.1</u>	in
4.	Row D Center of Bumper (17 in)	=	<u>2.2</u>	in

INSTRUMENTATION:

Number of MDB Data Channels = 7

TABLE 5
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1995/Nissan/Maximum/4 Door Sedan
Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 1994

VISIBLE DUMMY CONTACT POINTS.

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to shoulder</u>	<u>to "C" Post</u>
Arm	<u>to door trim</u>	<u>to door trim</u>
Pelvis	<u>to armrest</u>	<u>to armrest</u>
Left Knee	<u>to armrest</u>	<u>to armrest</u>
Right Knee	<u>to right knee</u>	<u>to right 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: 0 1 in forward Vertical: 0 5 in high

ARM REST LOCATIONS.

Front 9 6 inches below window opening
Rear: 9 3 inches below window opening

SEAT CRUSH

Driver Seat Cushion: 2 8 inches Driver Seat Back: 4 5 inches
Left Rear Seat Cushion: 8 5 inches Left Rear Seat Back: 5 8 inches

GLAZING DAMAGE:

Both left side door glass broken and windshield cracked

PILLAR PERFORMANCE:

No separation noted

SILL SEPARATION:

No separation noted

OTHER NOTABLE IMPACT EFFECTS:

The driver and right front passenger airbags deployed

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

TABLE 6

SIDE IMPACT DUMMY (SID) TEST DATA SUMMARY

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 1994

	Front Dummy ID # 269				Rear Dummy ID # 270			
	Pos. Direct.		Neg. Direct		Pos. Direct.		Neg. Direct	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS:								
Upper Rib Lateral.....Y	48.3	36	-21.7	80	47.0	51	-9.5	107
Upper Rib Lateral....Y(R)	48.8	36	-21.8	80	46.3	51	-10.3	108
Lower Rib Lateral.....Y	57.7	36	-15.9	163	55.5	47	-13.1	82
Lower Rib Lateral.....Y(R)	58.5	37	-15.2	163	55.6	47	-14.2	83
SPINE ACCELERATIONS:								
Lower Lateral.....Y	67.1	38	-15.8	84	60.3	44	-18.8	77
Lower Lateral.....Y(R)	64.2	38	-16.5	84	62.7	43	-19.5	77
PELVIC ACCELERATIONS:								
Lateral.....Y	72.5	33	-18.0	53	80.7	36	-15.8	65
Lateral.....Y(R)	73.8	33	-17.5	53	80.9	36	-15.0	65

REFERENCE:

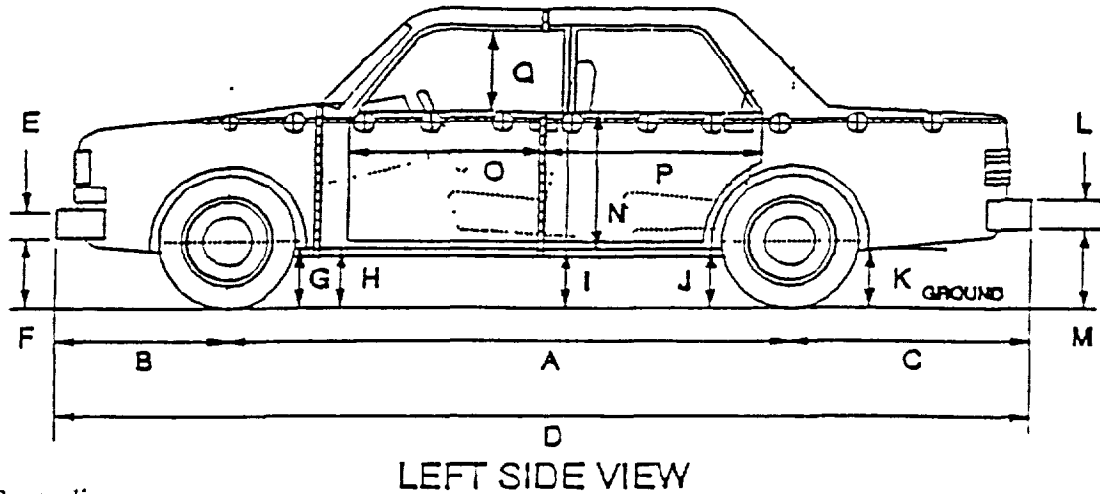
Positive Direction - Longitudinal (X) = forward

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

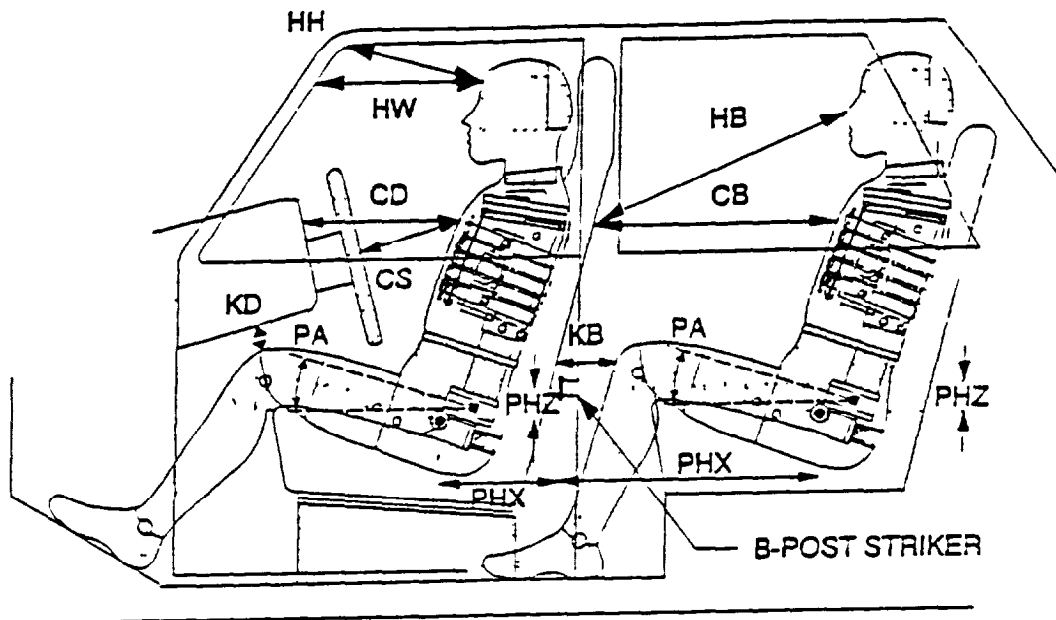
J1 = To Pinch Weld

J2 = To Sill

Units: in

LOCATION	PRE-TEST	POST-TEST	Δ CHANGE
A	106.0	104.8	1.2
B	38.5	38.0	0.5
C	41.3	41.0	0.3
D	185.8	183.8	2.0
E	12.9	12.9	0
F	9.3	10.2	0.9
G	8.8	9.4	0.6
H	8.5	7.2	1.3
I	7.8	9.1	1.3
J1/J2	7.6/7.4	7.3/7.7	0.3/0.3
K	9.2	9.6	0.4
L	11.9	11.9	0
M	11.7	12.1	0.4
N	24.5	22.9	0.4
O	30.0	28.9	1.1
P	44.0	40.8	3.2
Q	17.5	16.8	0.7
R	178.0	177.3	0.7
S	178.0	176.0	2.0
T	69.1	54.5	14.6

FIGURE 3
SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS



LEFT SIDE VIEW

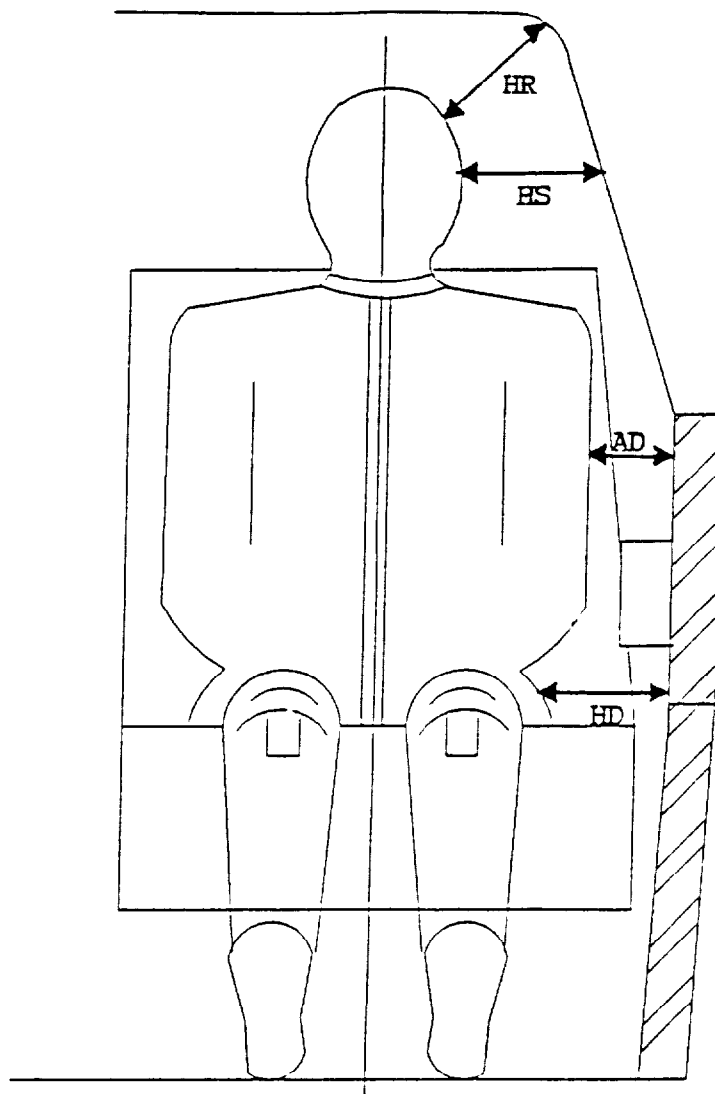
NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

NOTE: All dimensions are in inches

	DRIVER ID #269	LEFT REAR PASSENGER ID #270	
HH	14.5	---	
HW	26.5	---	
HB	---	26.4	
CD	22.5	CB	20.8
CS	14.4	---	
KDL	7.3	KBL	8.9
KDR	7.0	KBR	8.4
PA*	24.0°	23.7°	
PHX	9.3	11.1	
PHZ	6.0	12.8	

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



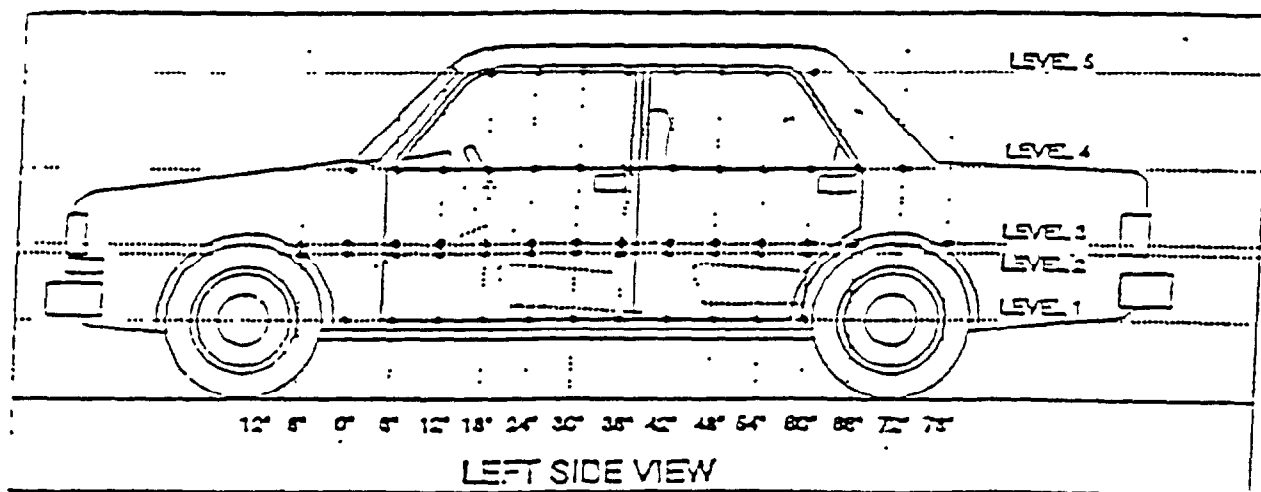
NOTE: All dimensions are in inches

	DRIVER ID #269	LEFT REAR PASSENGER ID #270
HR	5.0	5.4
HS	11.3	11.8
AD	4.5	5.3
HD	7.0	7.3

FIGURE 5
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 1994



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

<u>33" Side Profile</u>	
Level 5 @ Window Top	= <u>52.1</u> in
Level 4 @ Window Sill	= <u>34.6</u> in
Level 3 @ Mid Door	= <u>23.3</u> in
Level 2 @ Occupant H-Point	= <u>18.6</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

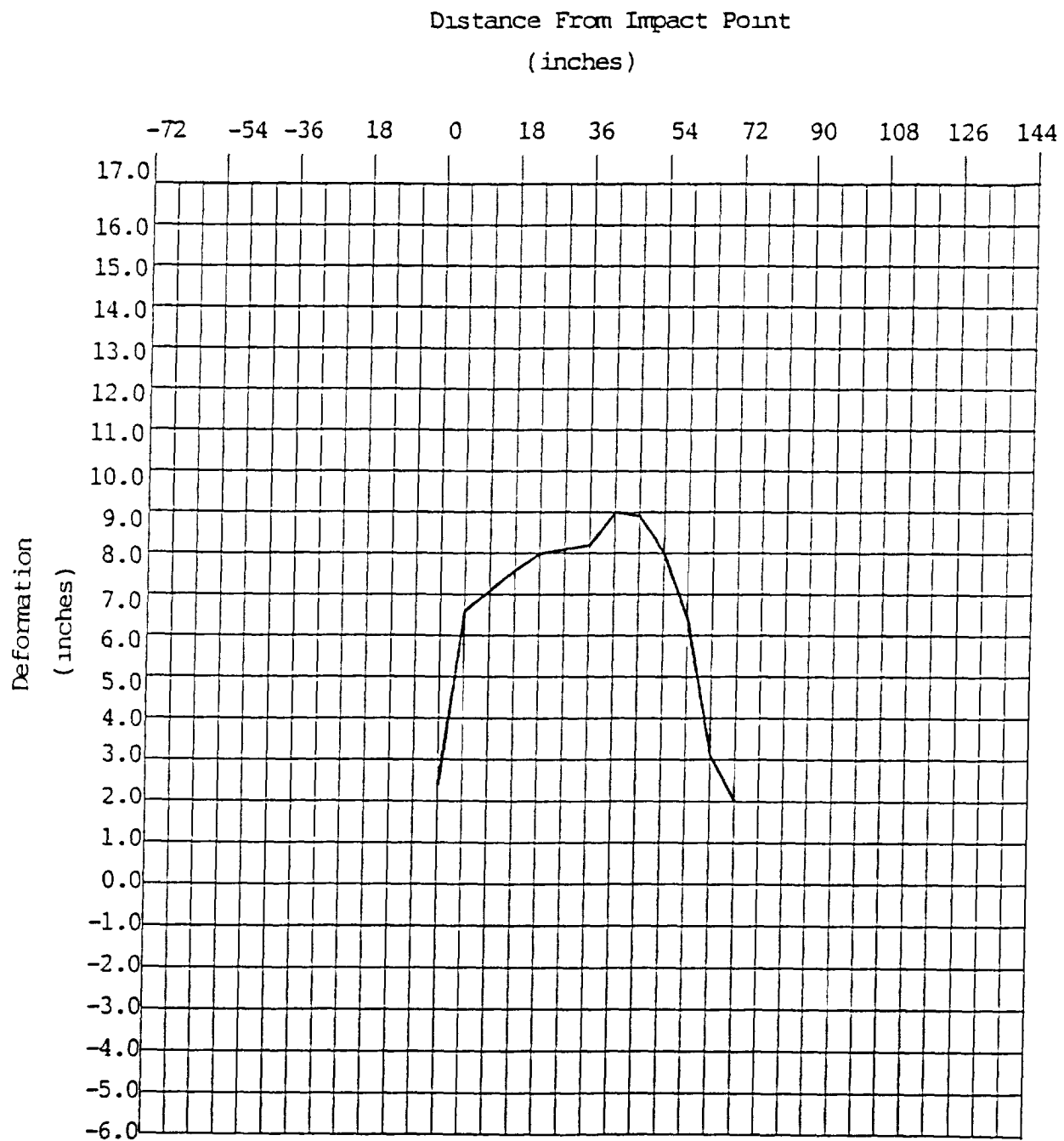
Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No : CS5201 TEST DATE July 20, 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	32.6	35.0	2.4 (impact point)
6	32.7	39.3	6.6
12	32.7	39.8	7.1
18	32.6	40.2	7.6
24	32.6	40.6	8.0
30	32.6	40.7	8.1
36	32.6	40.8	8.2
42	32.6	41.6	9.0
48	32.6	41.5	8.9
54	32.6	40.6	8.0
60	32.6	39.0	6.4
66	32.6	35.7	3.1
72	32.6	34.6	2.0
78	---	---	---
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	---	---	---
114	---	---	---
120	---	---	---
126	---	---	---
132	---	---	---
138	---	---	---

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 1 AT AXLE CENTER LINE

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH

LEVEL 2 AT OCCUPANT H-POINT

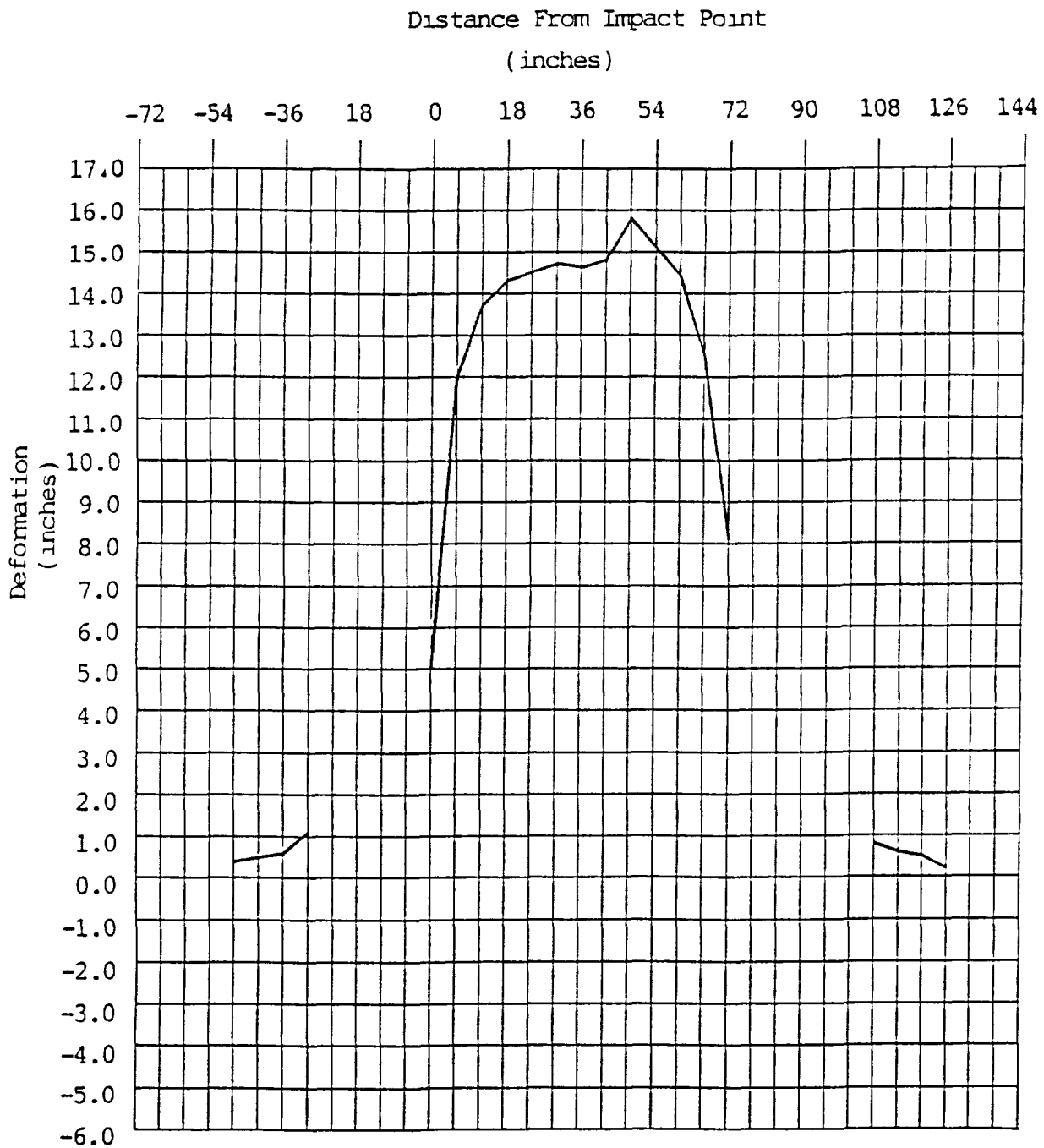
Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	36.5	36.9	0.4
-42	34.4	34.9	0.5
-36	33.0	33.6	0.6
-30	31.4	32.5	1.1
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	30.6	35.6	5.0 (impact point)
6	30.7	42.7	12.0
12	30.8	44.5	13.7
18	30.7	45.0	14.3
24	30.7	45.2	14.5
30	30.6	45.3	14.7
36	30.6	45.2	14.6
42	30.6	45.4	14.8
48	30.6	46.4	15.8
54	30.5	45.6	15.1
60	30.6	45.0	14.4
66	30.6	43.1	12.5
72	30.6	38.7	8.1
78	---	---	---
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	31.7	32.5	0.8
114	32.4	33.0	0.6
120	33.1	33.6	0.5
126	34.2	34.4	0.2
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

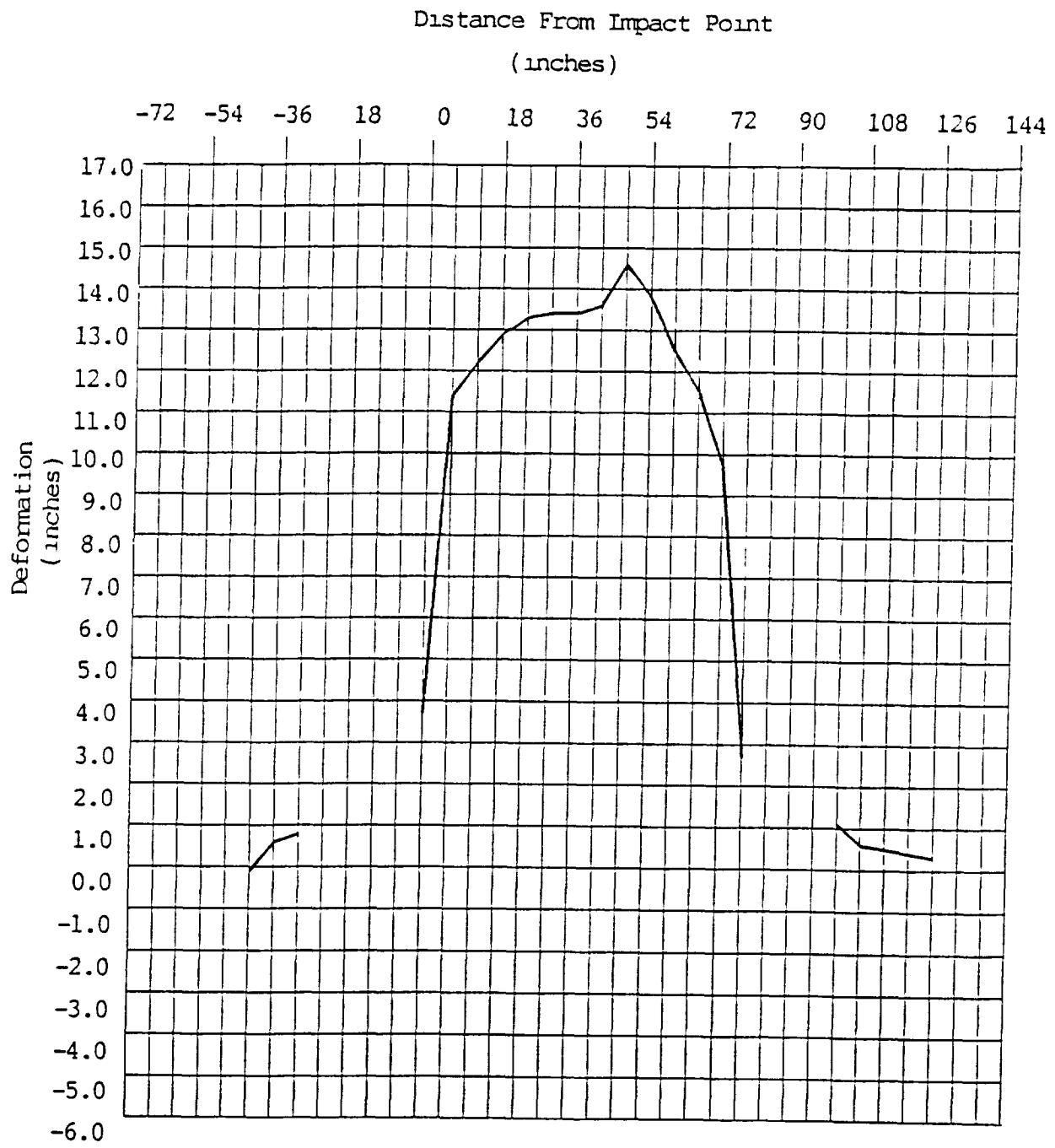
Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No CS5201 TEST DATE: July 20, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	35.8	35.7	-0.1
-36	33.2	33.8	0.6
-30	32.2	33.0	0.8
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	30.7	34.4	3.7 (impact point)
6	30.6	42.0	11.4
12	30.6	42.8	12.2
18	30.6	43.5	12.9
24	30.6	43.9	13.3
30	30.5	43.9	13.4
36	30.5	43.9	13.4
42	30.3	43.9	13.6
48	30.4	45.0	14.6
54	30.4	44.2	13.8
60	30.4	42.9	12.5
66	30.4	41.9	11.5
72	30.4	40.1	9.7
78	30.4	33.1	2.7
84	---	---	---
90	---	---	---
96	---	---	---
102	30.9	32.0	1.1
108	31.8	32.4	0.6
114	32.6	33.1	0.5
120	33.3	33.7	0.4
126	34.9	35.2	0.3
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

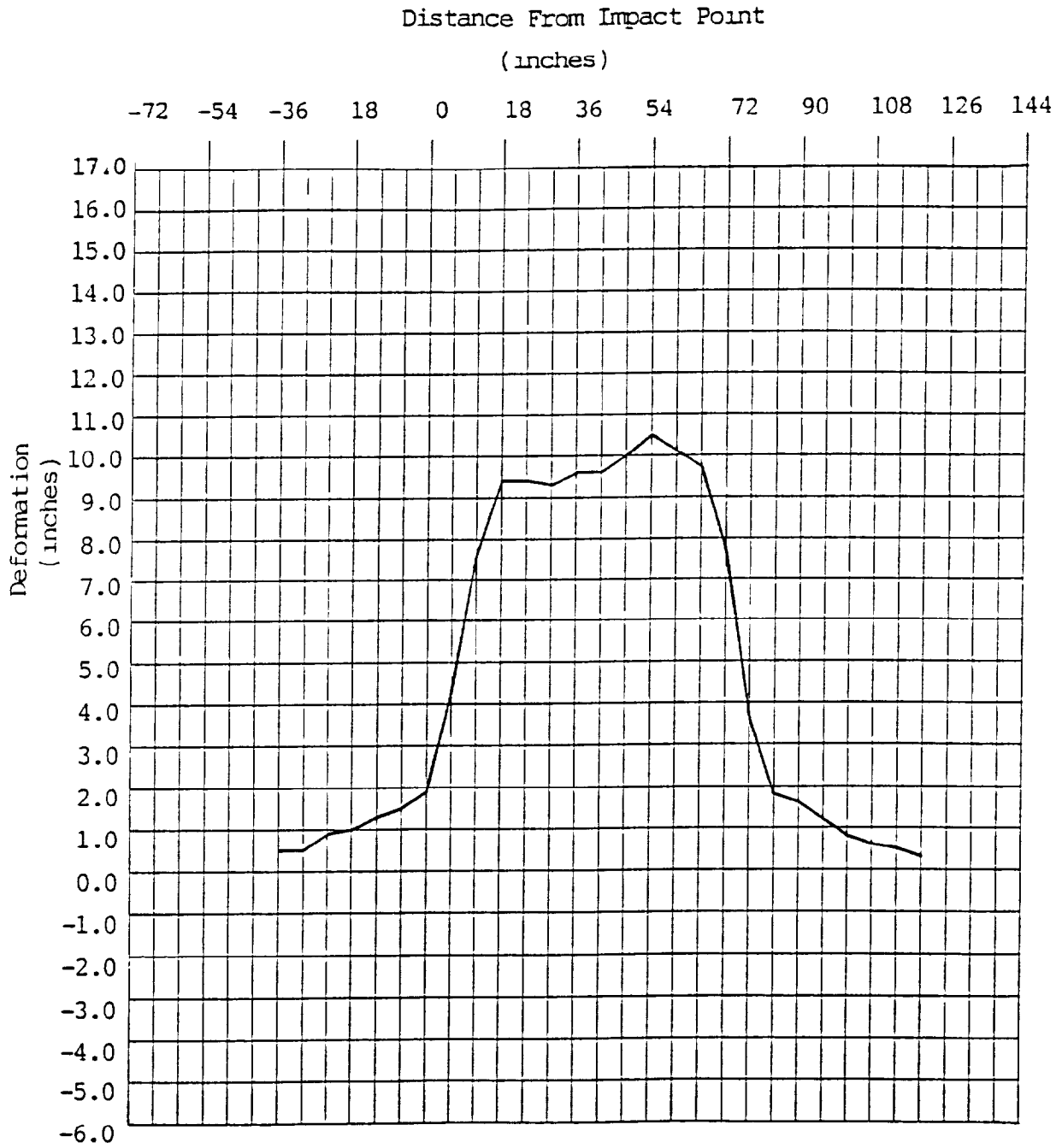
Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.. CS5201 TEST DATE: July 20, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	37.7	38.2	0.5
-30	36.4	36.9	0.5
-24	35.5	36.4	0.9
-18	34.8	35.8	1.0
-12	33.9	35.2	1.3
-6	33.7	35.2	1.5
0	33.2	35.1	1.9 (impact point)
6	33.0	37.3	4.3
12	33.0	40.6	7.6
18	32.8	42.2	9.4
24	32.7	42.1	9.4
30	32.6	41.9	9.3
36	32.5	42.1	9.6
42	32.4	42.0	9.6
48	32.4	42.4	10.0
54	32.4	42.9	10.5
60	32.4	42.5	10.1
66	32.4	42.1	9.7
72	32.4	40.1	7.7
78	32.5	36.1	3.6
84	32.5	34.3	1.8
90	32.7	34.3	1.6
96	33.0	34.2	1.2
102	33.5	34.3	0.8
108	34.2	34.8	0.6
114	34.7	35.2	0.5
120	35.6	35.9	0.3
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/Nissan/Maxima/4 Door Sedan

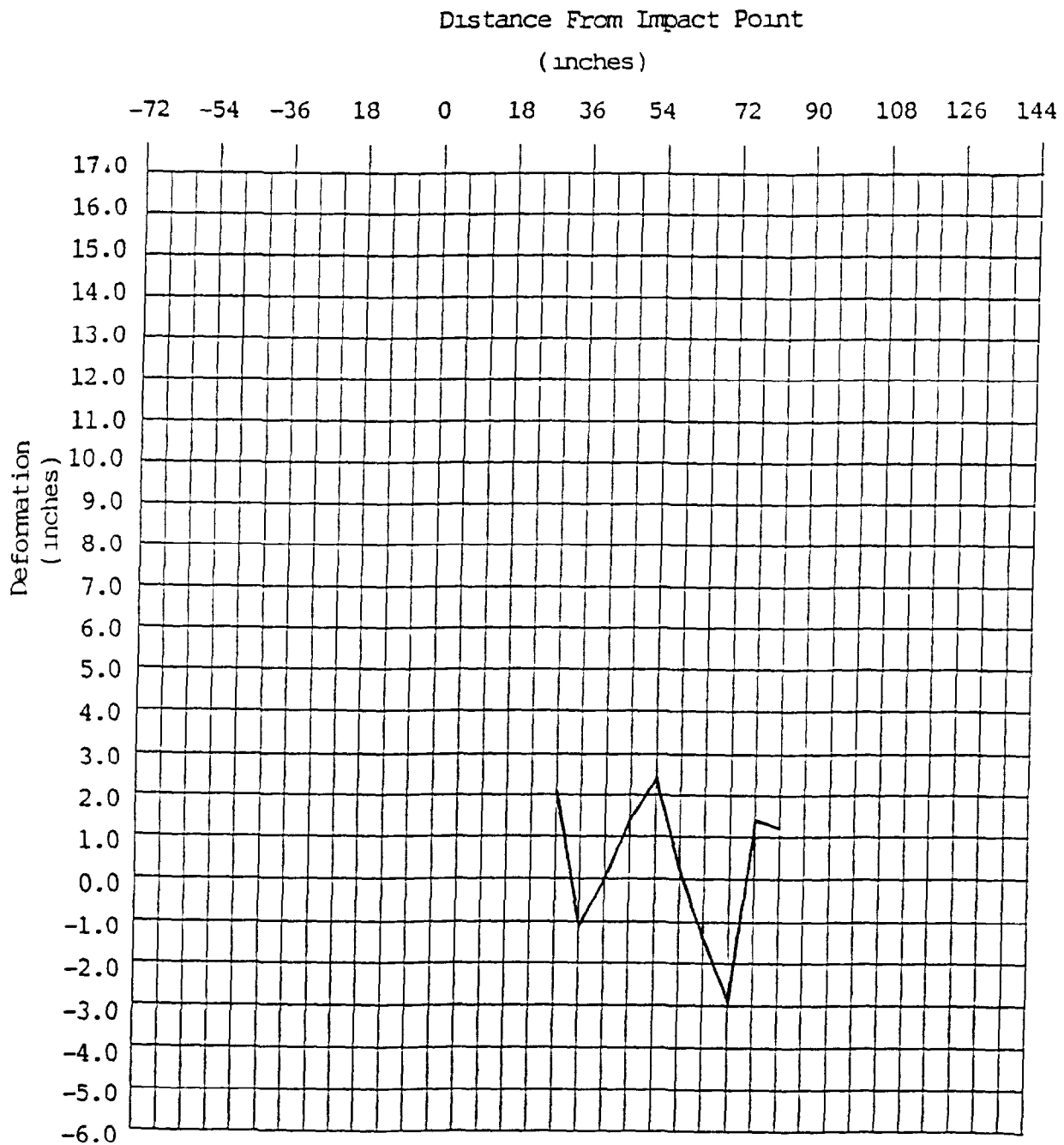
Vehicle NHTSA No.. CS5201 TEST DATE: July 20, 1994

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	---	---	---
6	---	---	---
12	---	---	---
18	---	---	---
24	---	---	---
30	43.0	45.1	2.1
36	42.6	41.5	-1.1
42	42.3	42.3	0
48	42.2	43.6	1.4
54	42.1	44.5	2.4
60	42.1	42.3	0.2
66	42.0	40.6	-1.4
72	42.0	39.1	-2.9
78	42.4	43.8	1.4
84	42.8	44.0	1.2
90	---	---	---
96	---	---	---
102	---	---	---
108	---	---	---
114	---	---	---
120	---	---	---
126	---	---	---
132	---	---	---
138	---	---	---

(impact point)

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 5 AT WINDOW TOP

TEST VEHICLE ACCELERATION LOCATIONS AND DATA SUMMARY

FIGURE 7

unlabeled

4994

TEST DATE: July 26, 1994

TEST VEHICLE ACCELERATION LOCATIONS AND DATA SUMMARY

Vehicle NHTSA No.: C181

Year/Make/Model/Body Style: 1994/Jeep/Grand Cherokee/4-door

Vehicle NHTSA No.: C181

Year/Make/Model/Body Style: 1994/Jeep/Grand Cherokee/4-door

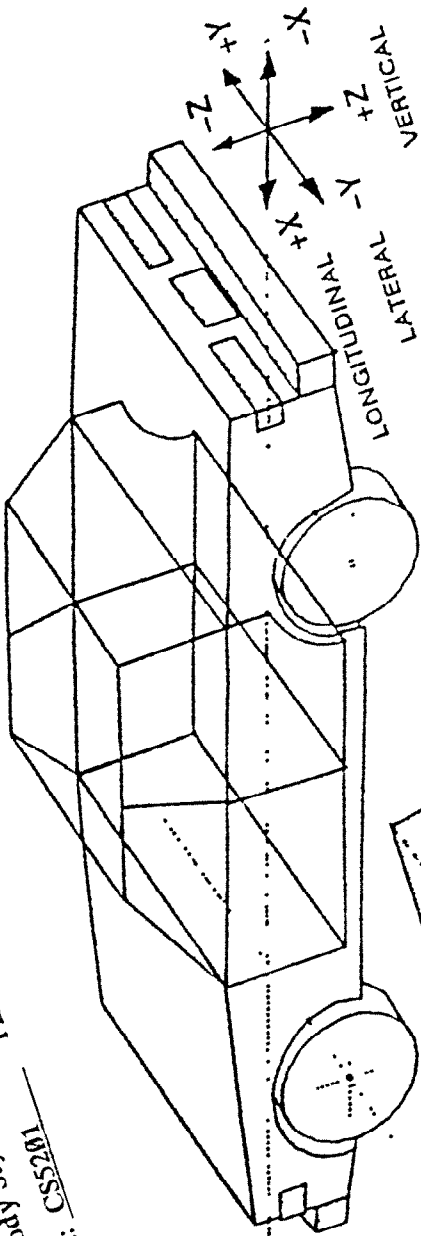
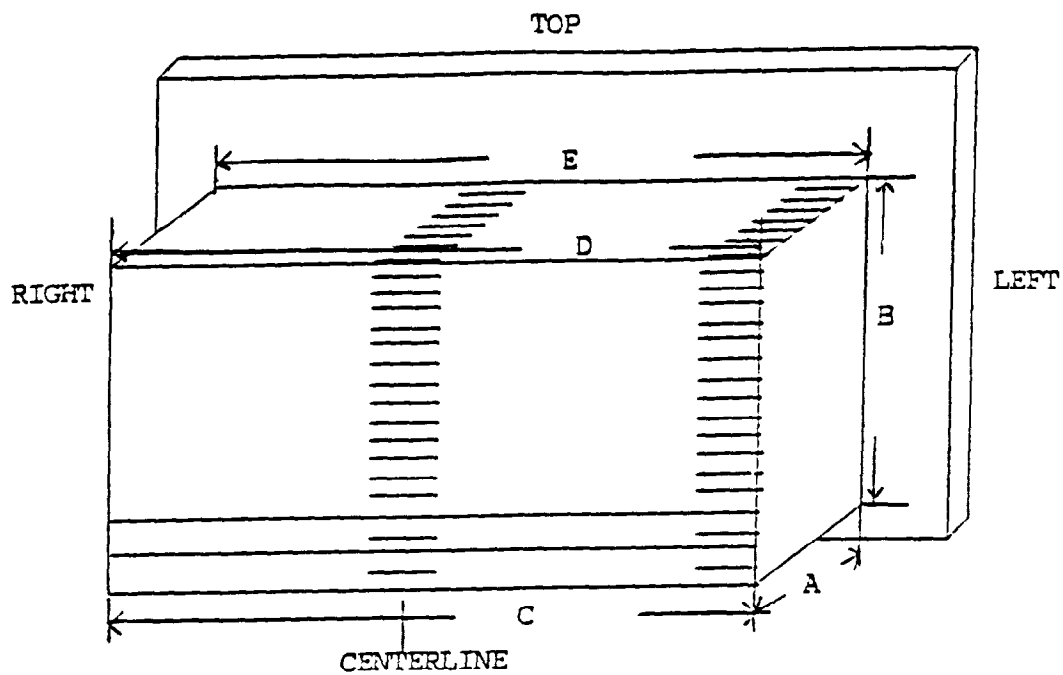


FIGURE 8
MDB FACE DIMENSIONS

Measurements in inches

- A = 15.1
- B = 22.0
- C = 66.2
- D = 66.2
- E = 66.2



Measurements in inches

	Right	Left
A =	<u>10.9</u>	<u>10.9</u>
B =	<u>12.9</u>	<u>12.9</u>
C =	<u>20.9</u>	<u>21.0</u>
D =	<u>33.0</u>	<u>33.0</u>

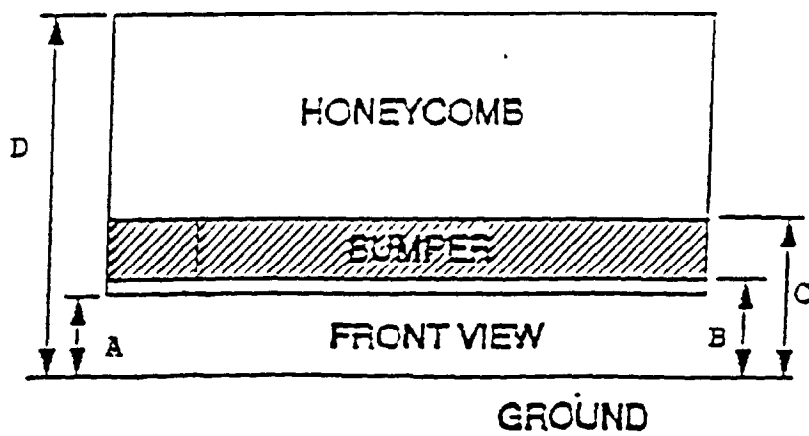


TABLE 8

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

Year/Make/Model/Body Style: 1994/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 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"	0.8	0.4	0.3	1.4
28"	0	-0.2	-0.1	0.9
24"	-0.1	-0.2	-0.2	0.4
20"	-0.1	-0.2	-0.2	0.5
16"	-0.1	-0.2	-0.2	0.6
12"	0	-0.2	-0.2	0.6
8"	0	-0.2	-0.2	0.5
4"	0	-0.2	-0.2	0.5
0"	0	-0.2	-0.2	0.5
4"	0.1	-0.2	-0.1	0.5
8"	0.1	-0.2	-0.1	0.5
12"	0.1	-0.2	0	0.5
16"	0.1	-0.2	0	0.6
20"	0.4	-0.2	0	0.7
24"	1.8	0.1	0.1	0.8
28"	3.3	0.6	0.4	1.4
32"	5.7	2.8	1.1	2.2

Right Side

Left Side

TABLE 9

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 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	109.1	25.3	13.0	3.6	-4.0	19.4	-2.5	5.1	-6.4	19.8
2	Rt. Side Sill @ Rear Seat	78.4	26.0	12.5	3.5	-4.7	19.6	-2.5	4.3	-7.1	19.8
3	Rr. Floorpan Above Axle	40.5	0	19.3	3.1	-7.0	18.5	-2.2	7.8	-7.1	19.1
4	Left Side Sill @ Rr. Seat	73.8	-28.5	9.5	---	---	38.1	-8.8	---	---	---
5	Left Side Sill @ Frt. Seat	108.0	-28.5	9.5	---	---	32.2	-5.1	---	---	---
6	Left A-Post Lower**	124.0	-28.5	18.8	---	---	90.0	**	---	---	---
7	Left B-Post Lower**	82.9	-28.5	15.8	---	---	163.7	**	---	---	---
8	Left B-Post Mid	86.3	-29.8	32.5	---	---	136.7	-26.9	---	---	---
9	Right Rear Occupant Compartment	74.5	12.3	12.5	---	---	19.2	-2.3	---	---	---
10	Driver Left Seat Track	91.3	-22.4	11.9	---	---	82.2	-42.6	---	---	---

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

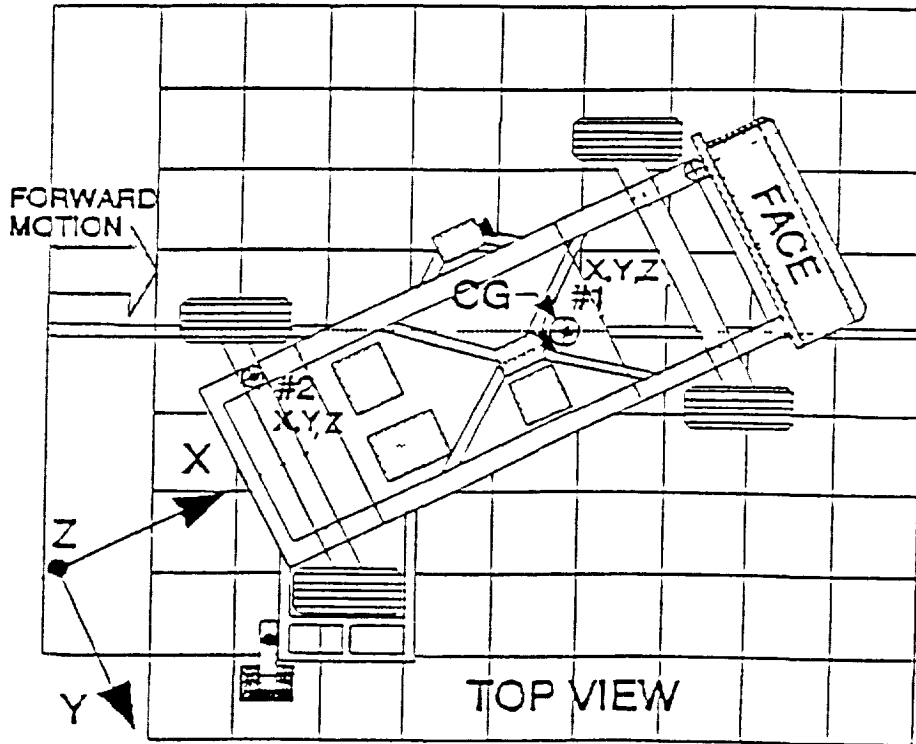
** Data not valid after 15 msec.

FIGURE 9

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 1994



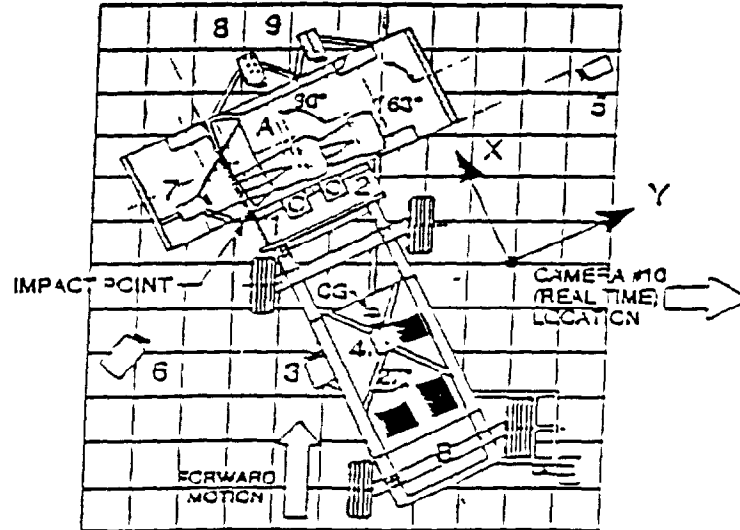
Accel. No.	Location	Coordinates (in)			Pos. Direct.		Neg. Direct.	
		X	Y	Z	Max (g)	Time (msec)	Max (g)	Time (msec)
1	MDB Center of Gravity Longitudinal ... X Lateral Y Vertical Z Resultant R	-43.0	0	19.0	1.7 1.7 18.7 22.9	154 61 23 23	-15.2 -7.1 -7.4 ---	31 23 53 ---
2	Rear Frame Member Longitudinal ... X Lateral Y	-102.0	-24.6	24.5	1.8 5.9	113 47	-20.2 -3.3	28 68

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/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CR5201 TEST DATE: July 20, 1994



Camera No.	View	Coordinates (in)			Angle	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
	Real Time					13	**
1	Top Pointer	0	15.0	193.7		13	**
2	Top Wide	15.7	0	211.0		8	**
3	Cart Pointer					35	**
4	Cart					13	**
5	Right Impact	22.0	328.7	30.9	45°	35	**
6	Left Impact	-83.5	-92.1	50.4	45°	13	**
7	Onboard Hood					13	**
8	Onboard Driver					7.5	**
9	Onboard Passenger					8	**

* Reference: (from point of impact)

+X = Forward

+Y = To Right

+Z = Upward

** Due to a short in a wire, no timing marks are available on the high speed film.

TABLE 10
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

FMVSS NO. 301

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 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 (33.3 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
0	1 oz.
0	5 oz.
0	1 oz./1 MIN

SOLVENT SPILLAGE DETAILS:

None

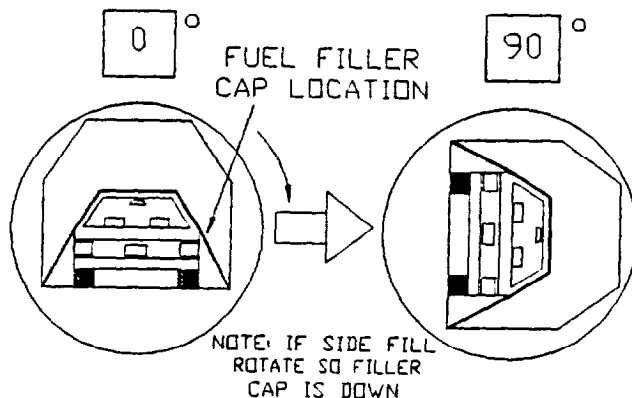
TABLE 11

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 1994

TEST PHASE: 0° - 90°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 46 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 46 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.

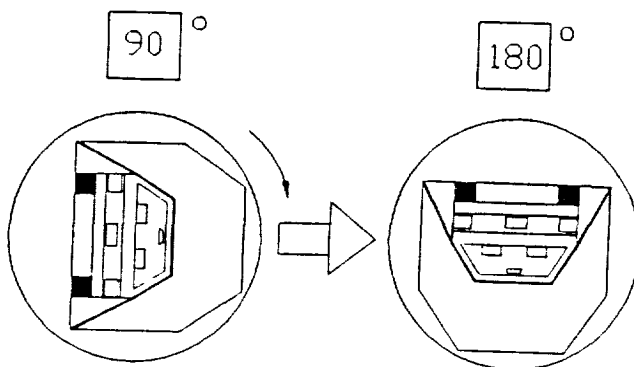
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.. CS5201 TEST DATE: July 20, 1994

TEST PHASE: 90° - 180°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 27 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 27 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.

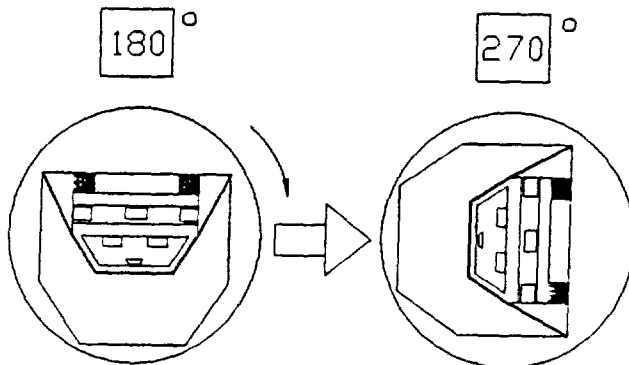
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 1994

TEST PHASE: 180° - 270°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 25 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

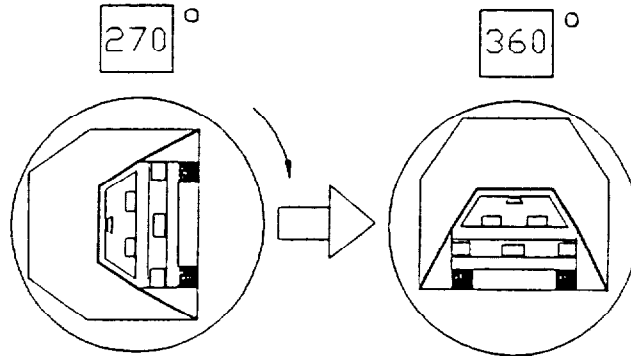
TABLE 11

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

Year/Make/Model/Body Style: 1995/Nissan/Maxima/4 Door Sedan

Vehicle NHTSA No.: CS5201 TEST DATE: July 20, 1994

TEST PHASE: 270° - 360°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 31 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 31 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

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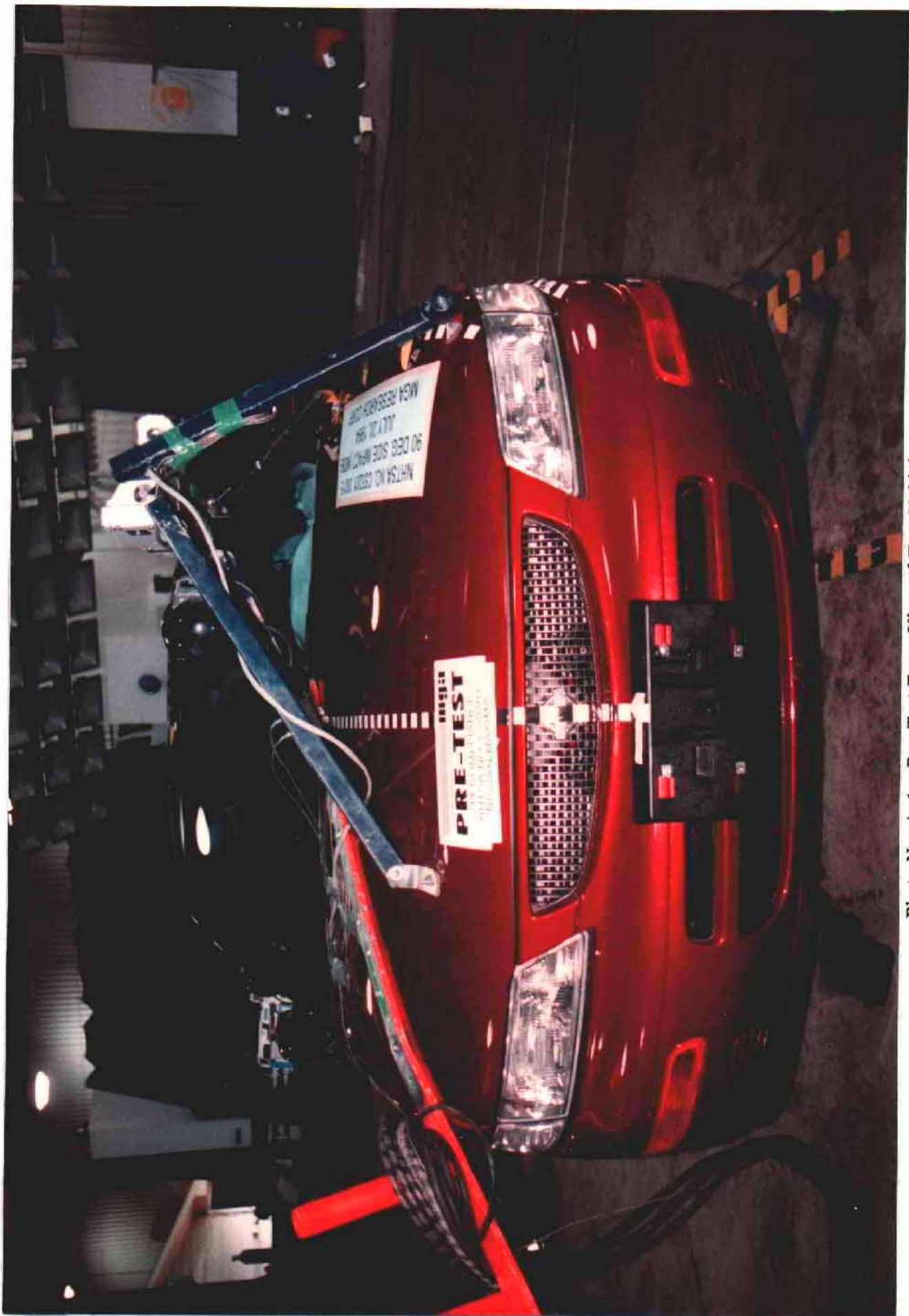


Photo No. A-1 - Pre-Test Front View of Test Vehicle

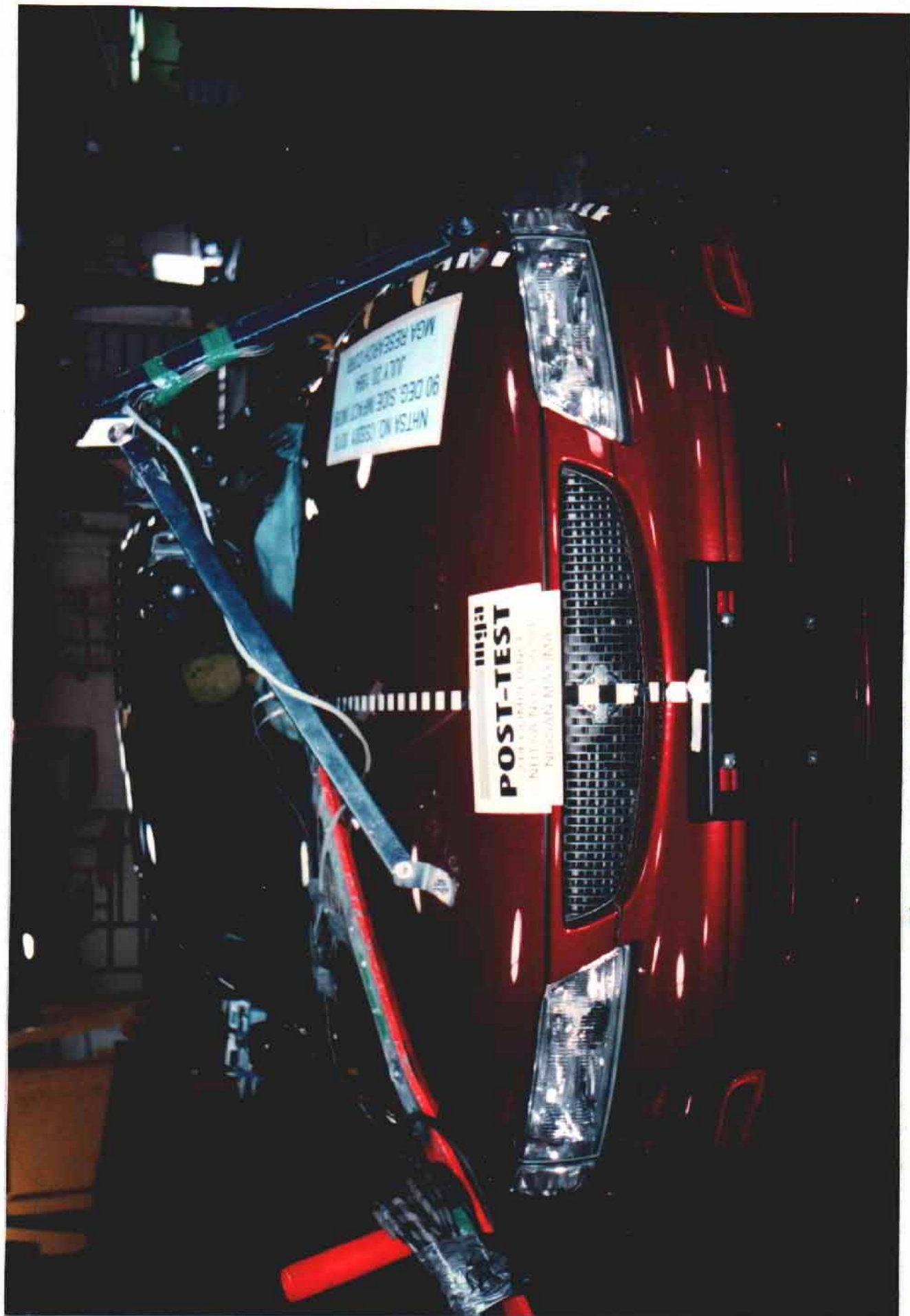


Photo No. A-2 - Post-Test Front View of Test Vehicle



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

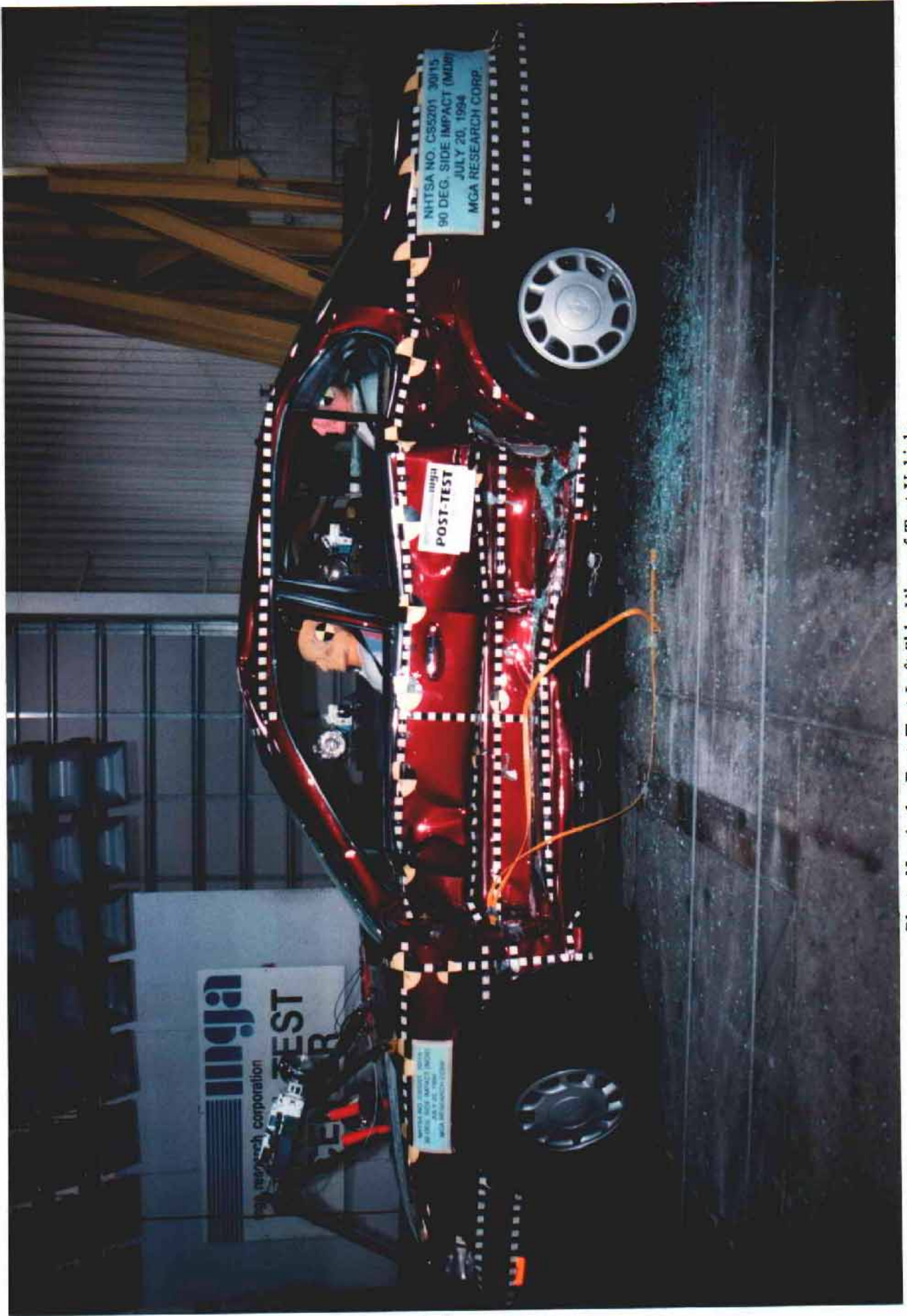


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

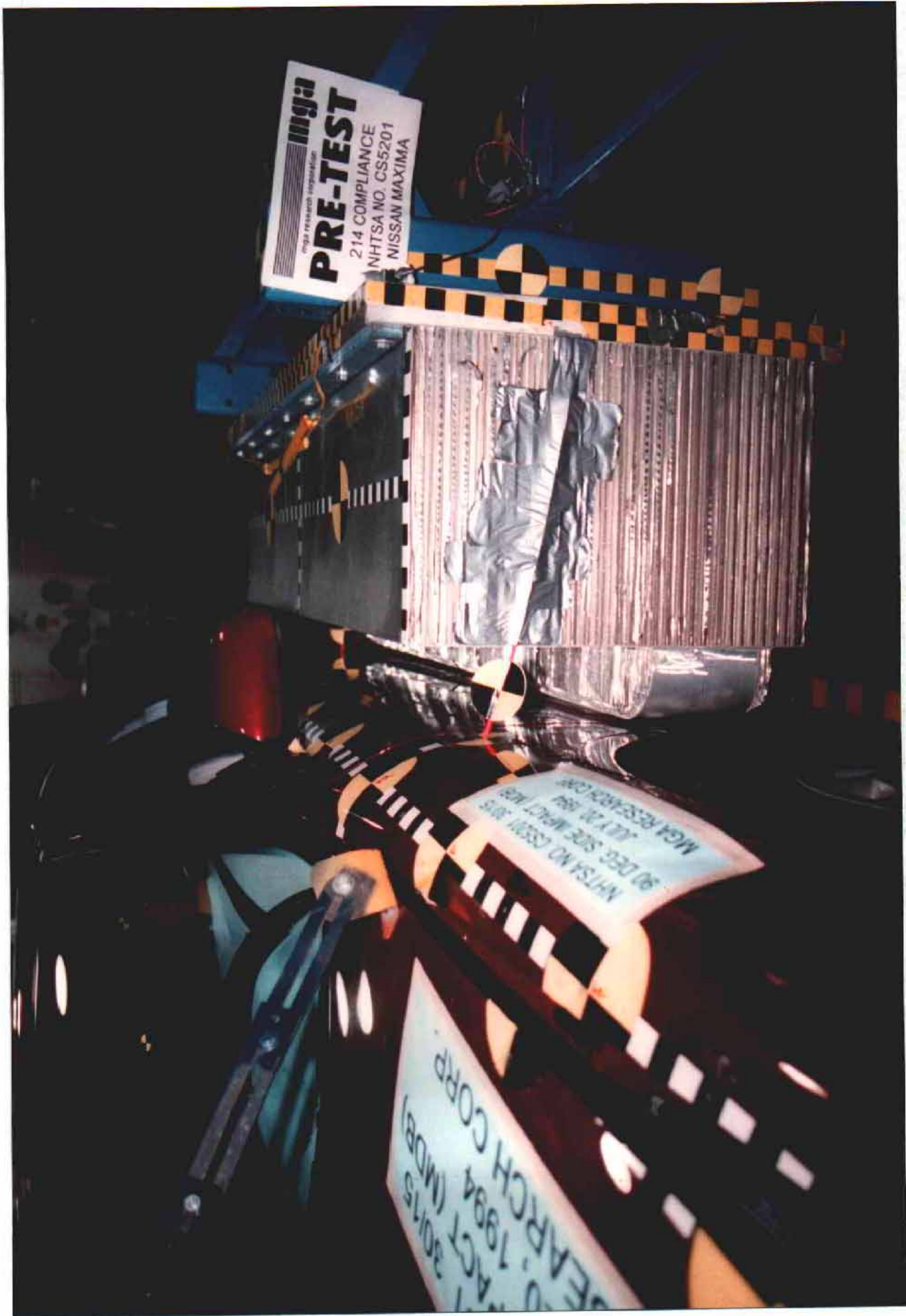


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

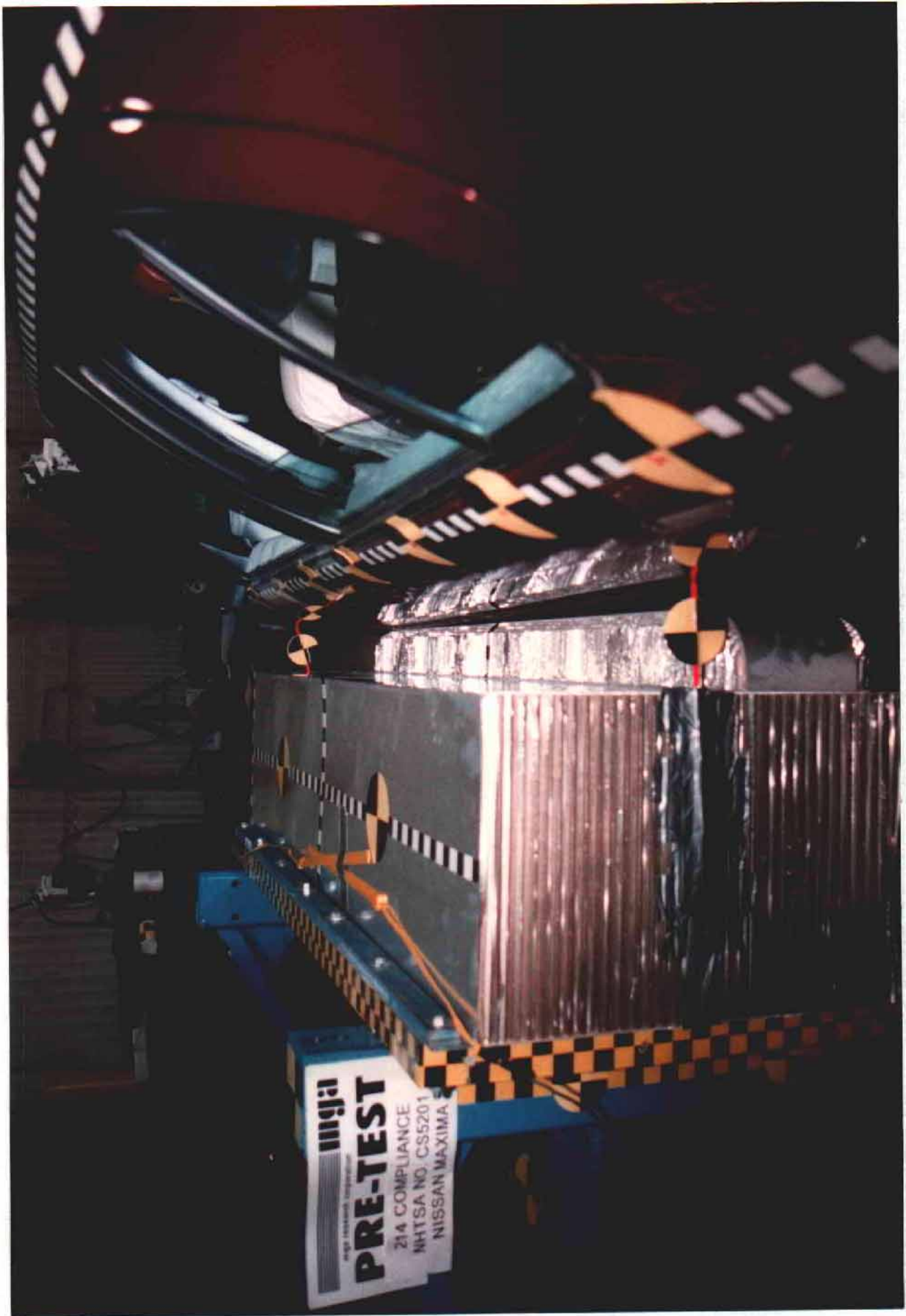


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)

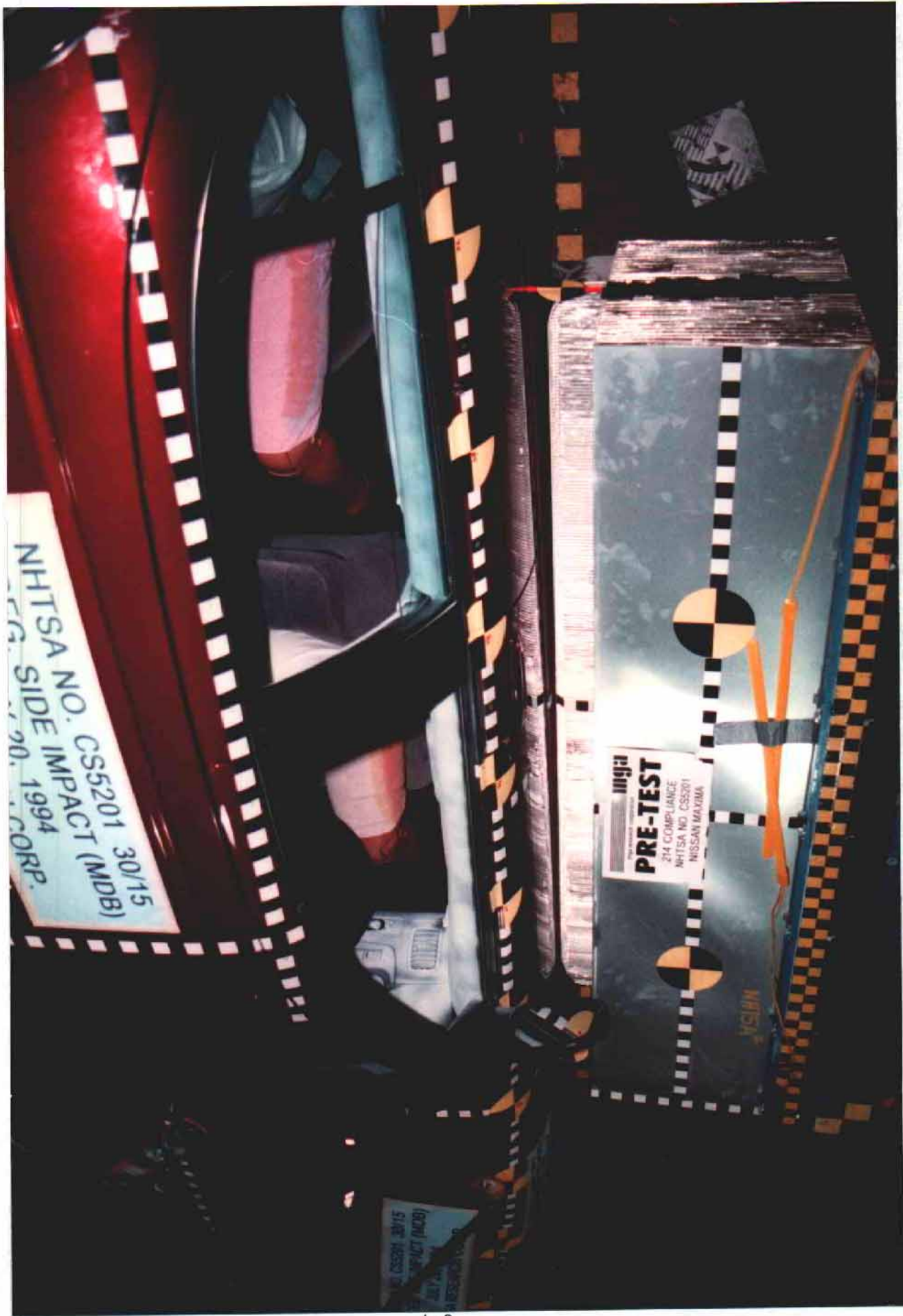


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Photo No. A-10 - Post-Test MDB and Vehicle Left Side Front View

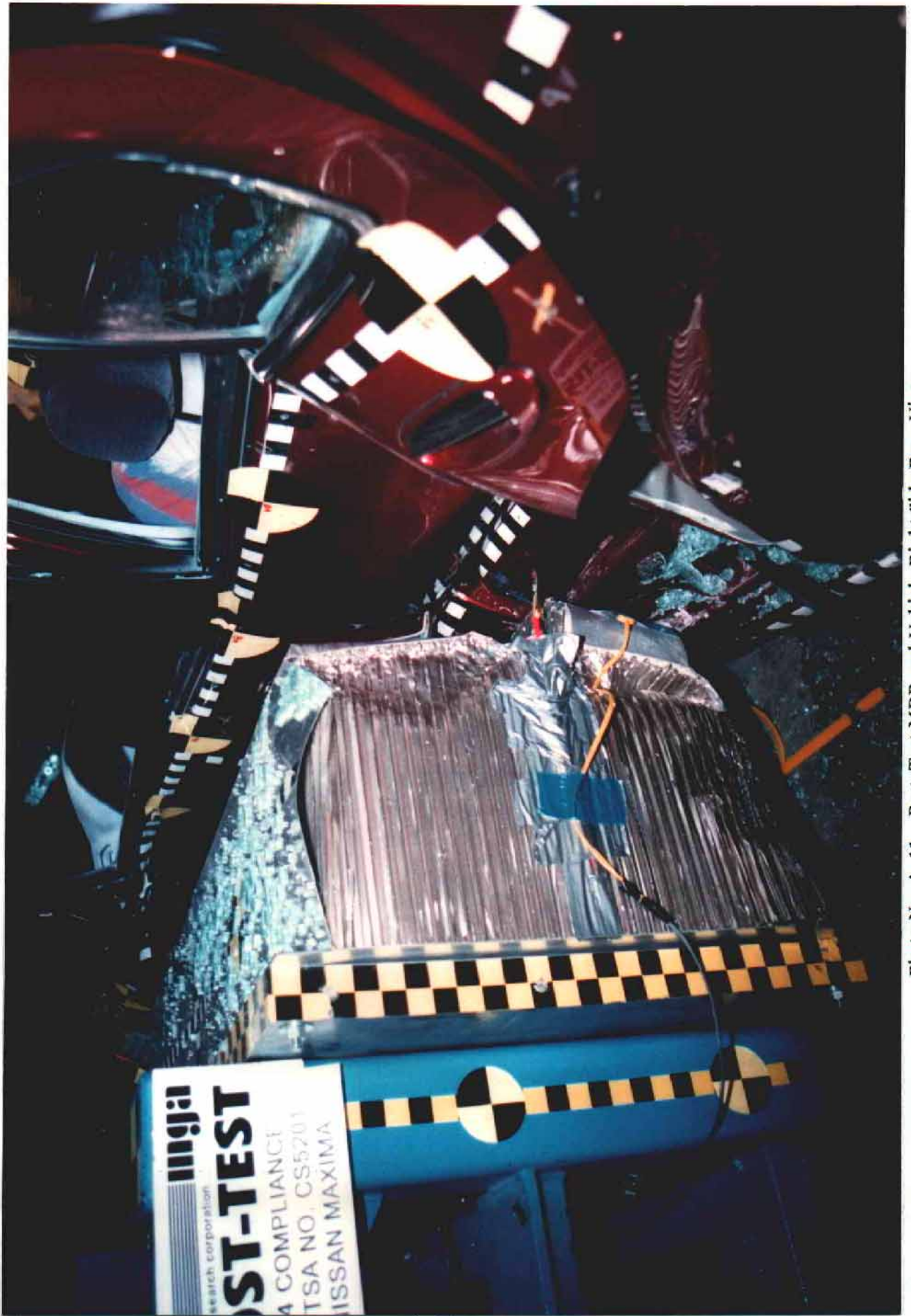
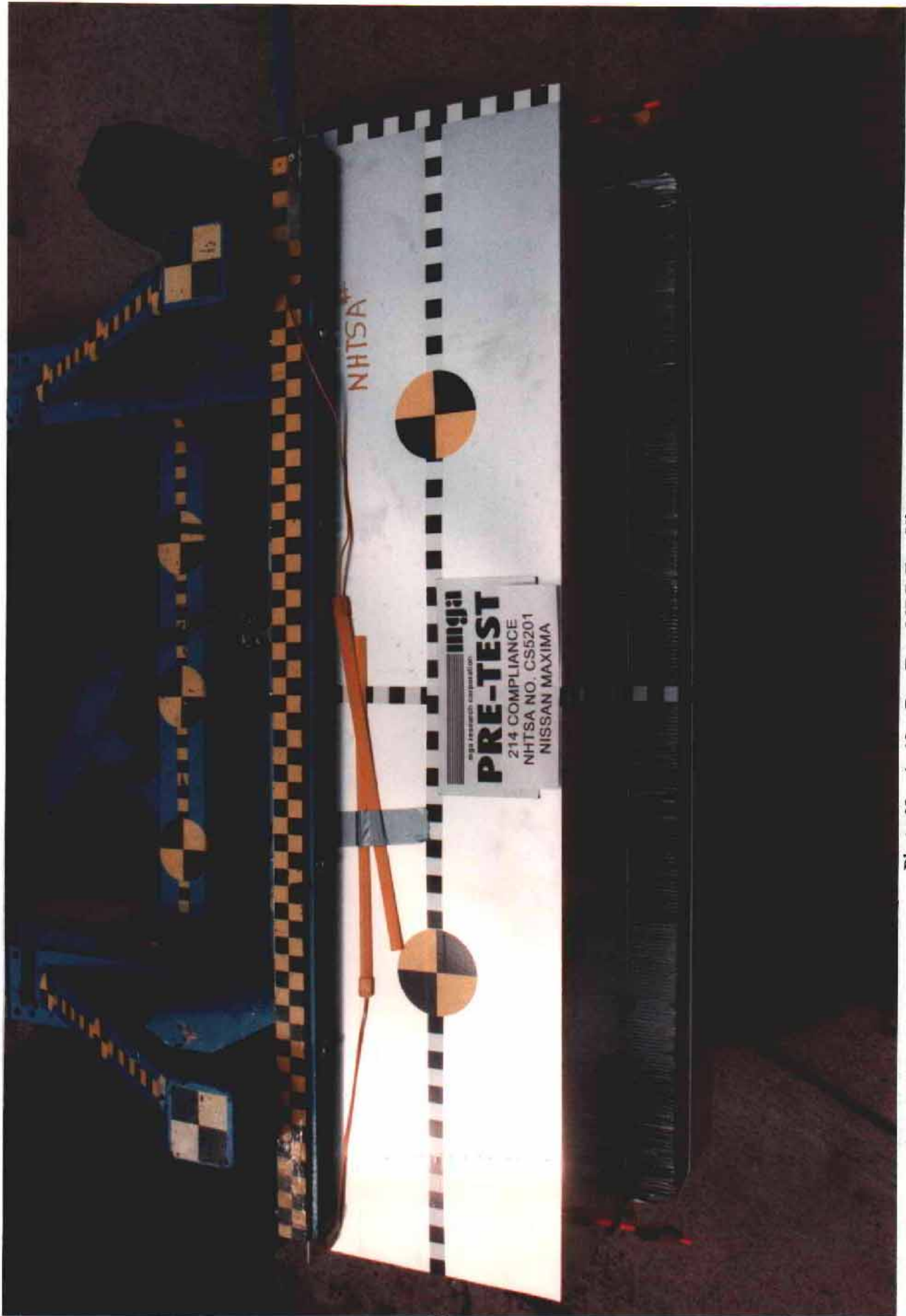
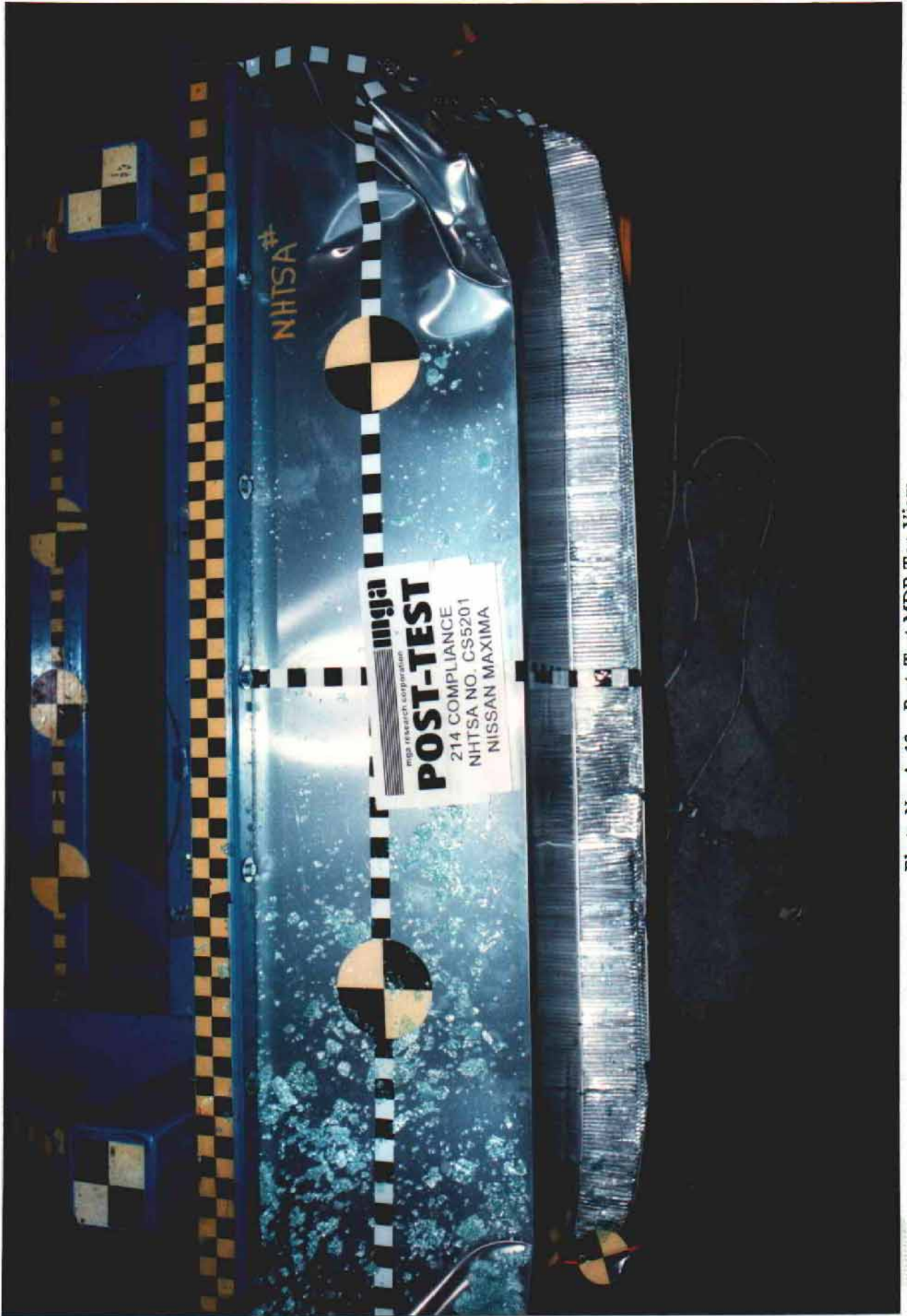


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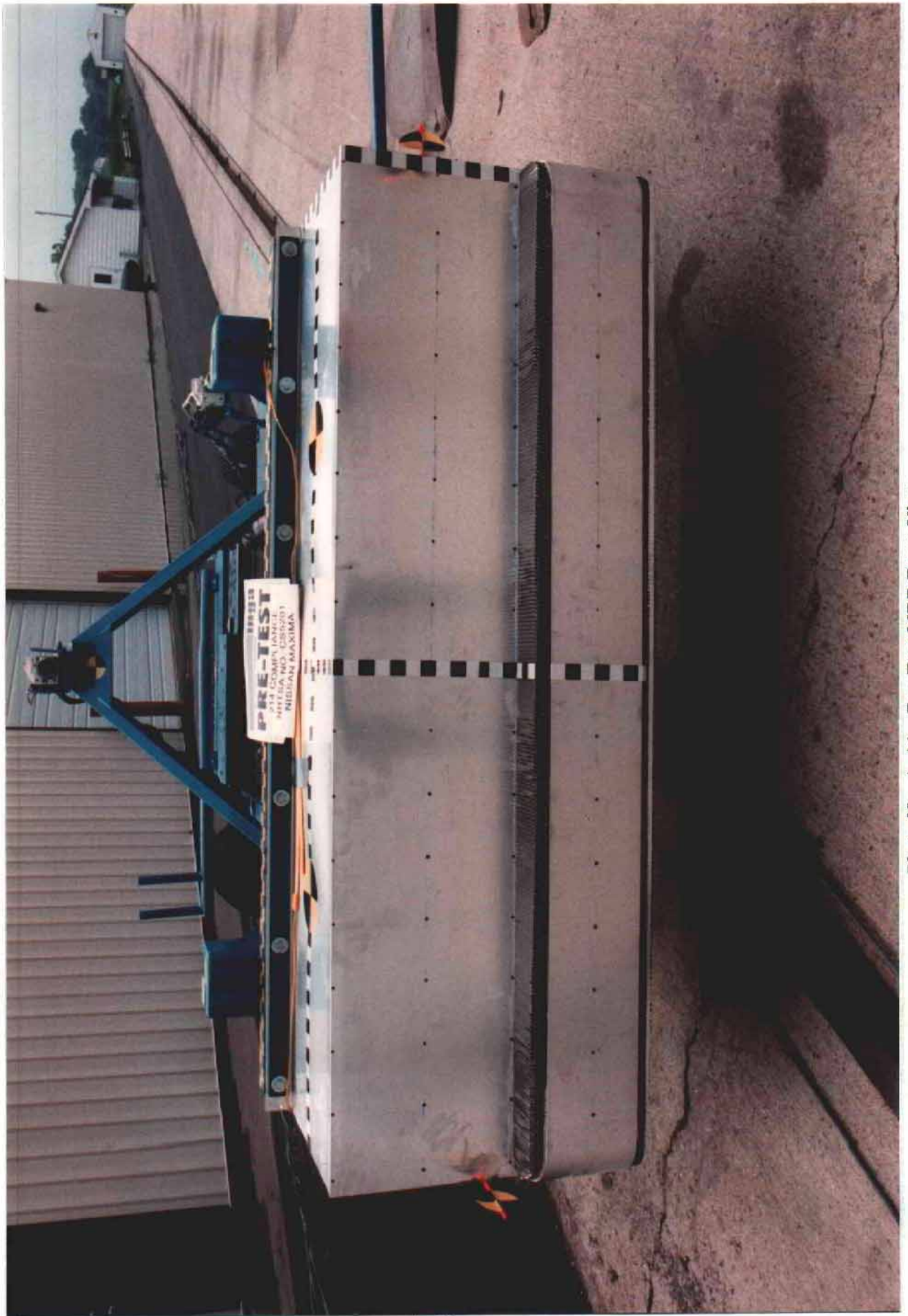


Photo No. A-14 - Pre-Test MDB Front View

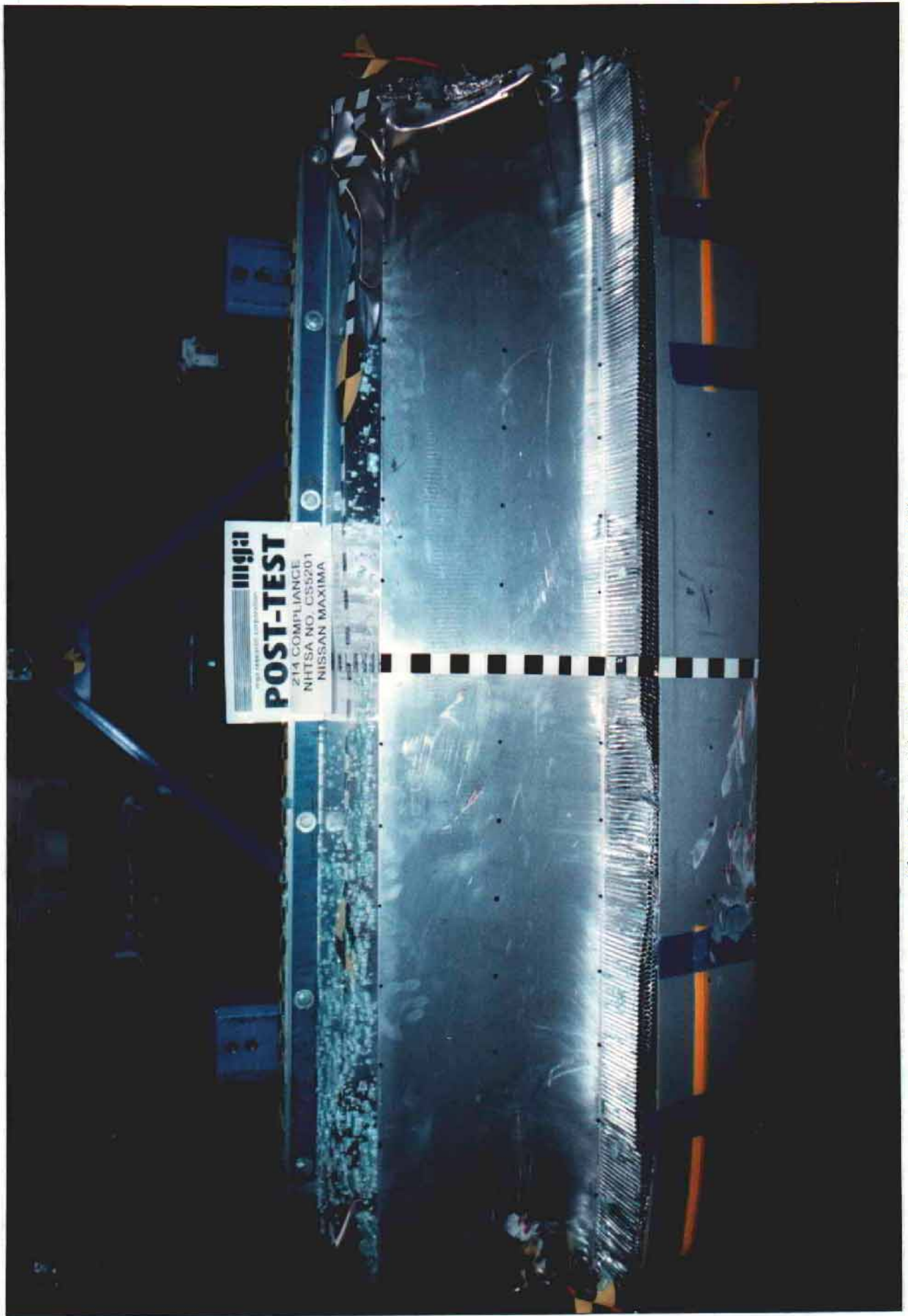


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Photo No. A-17 - Post-Test MDB Left Side View

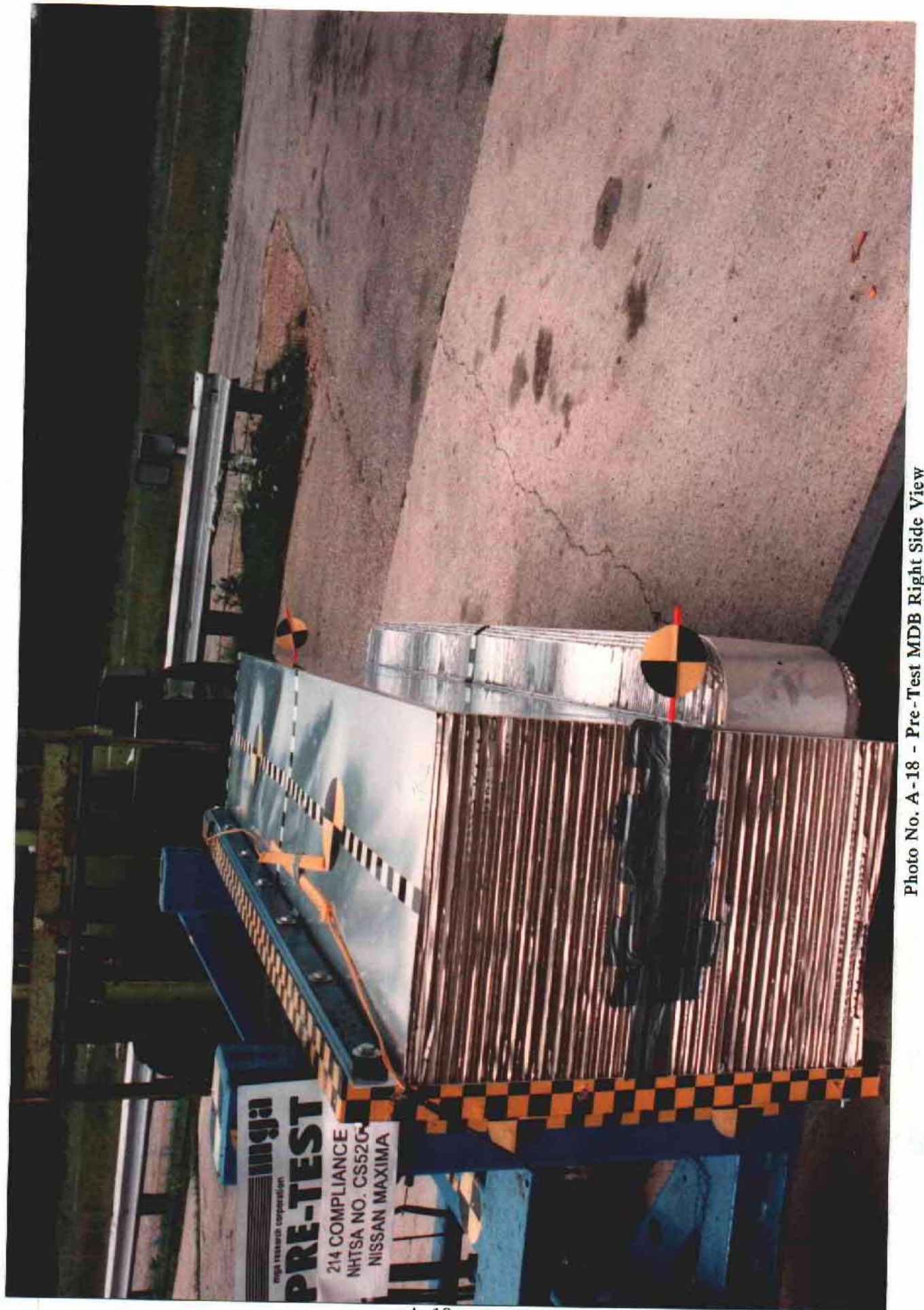


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Photo No. A-19 - Post-Test MDB Right Side View

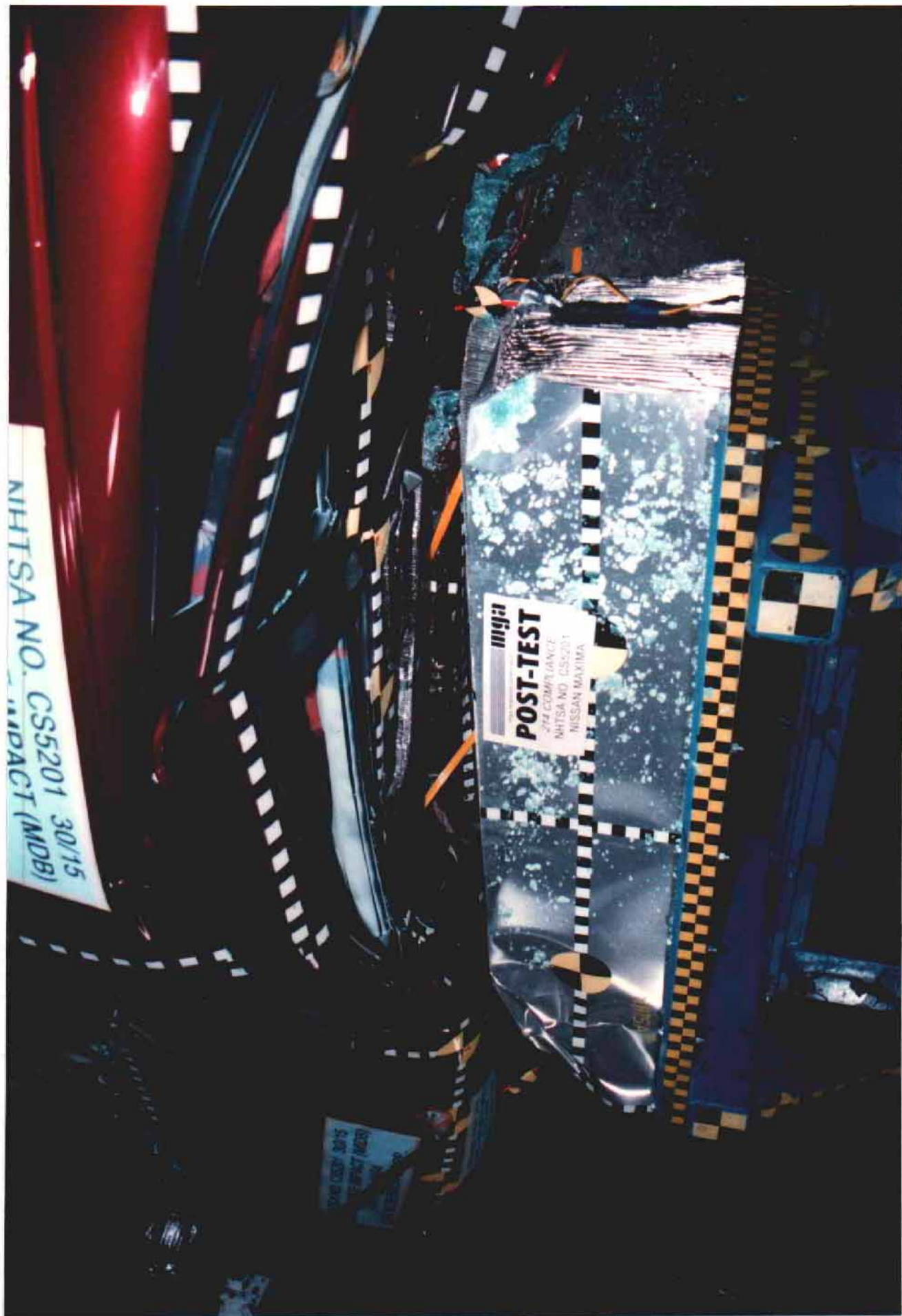


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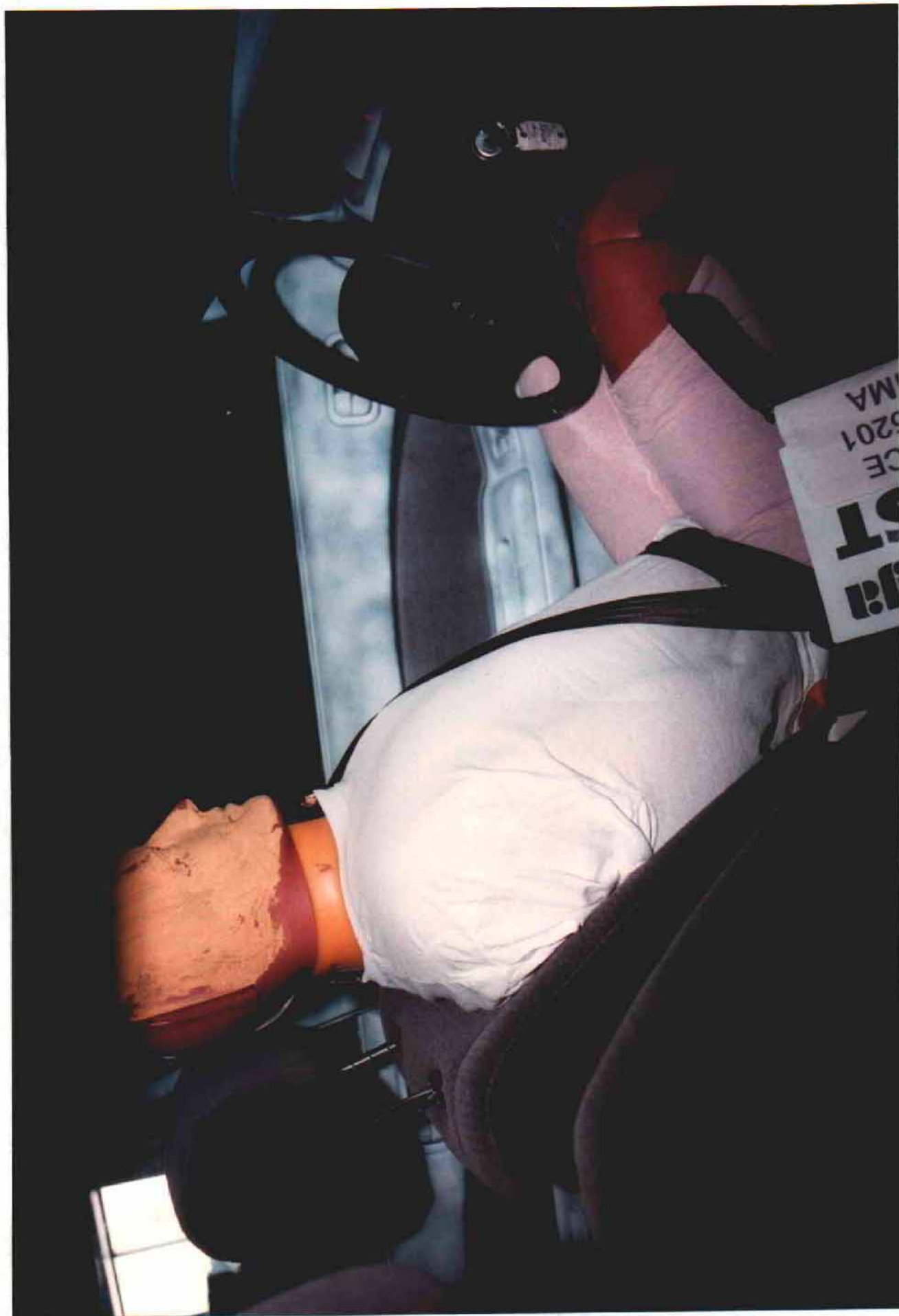


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Photo No. A-22 - Post-Test Driver Dummy Right Side View

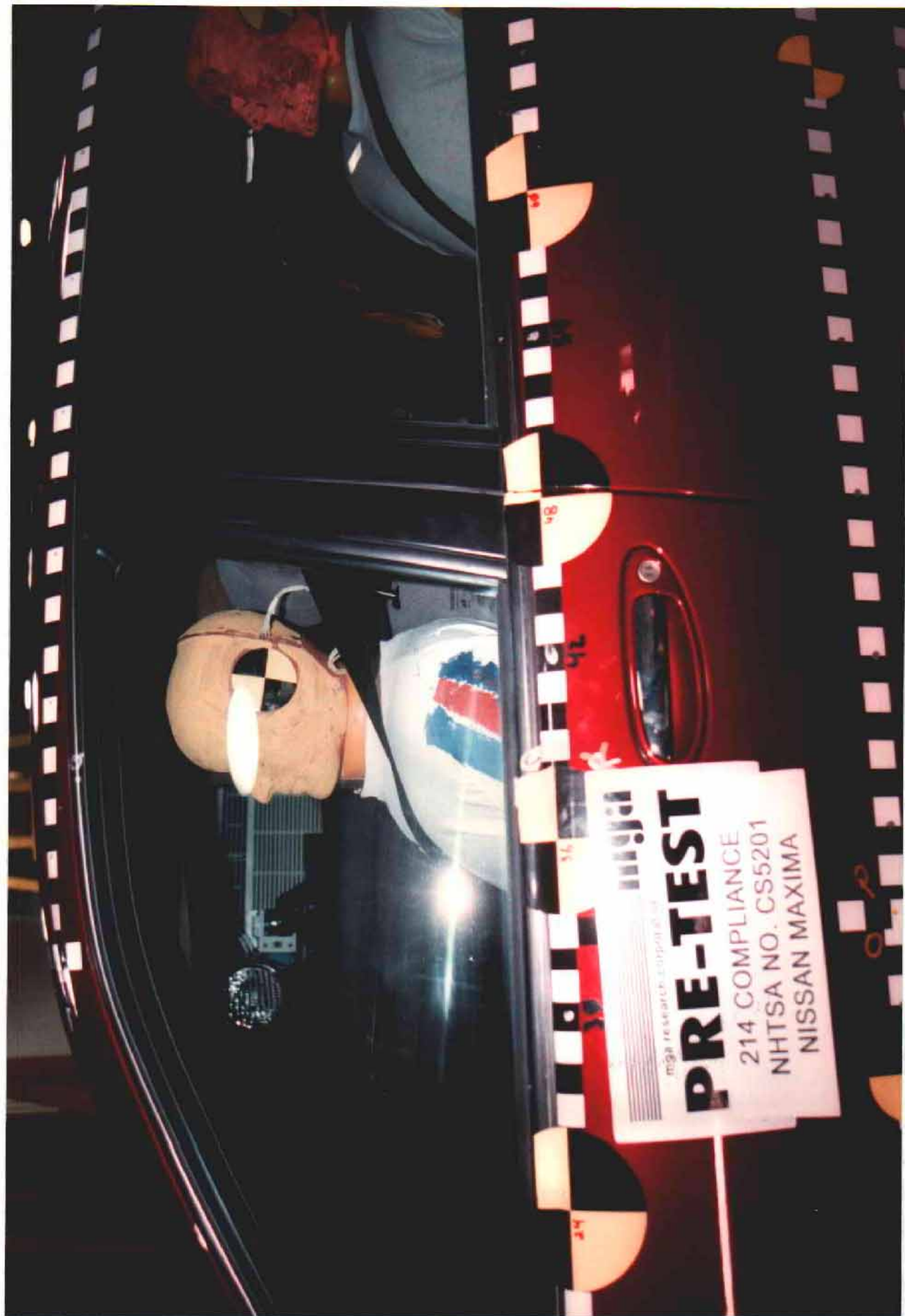


Photo No. A-23 - Pre-Test Driver Dummy Left Side View



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

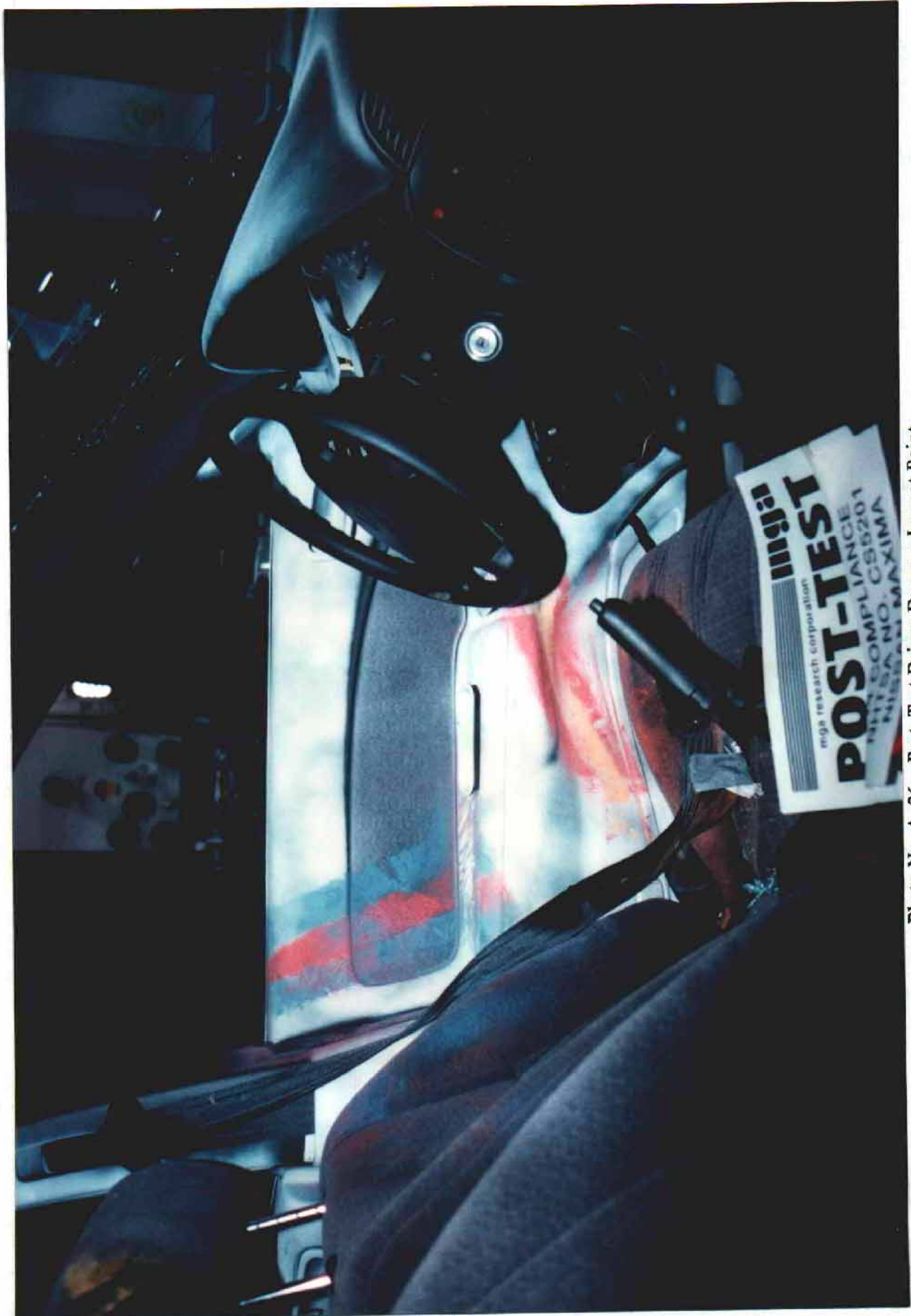


Photo No. A-26 - Post-Test Driver Dummy Impact Point



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



Photo No. A-28 - Post-Test Passenger Dummy Right Side View

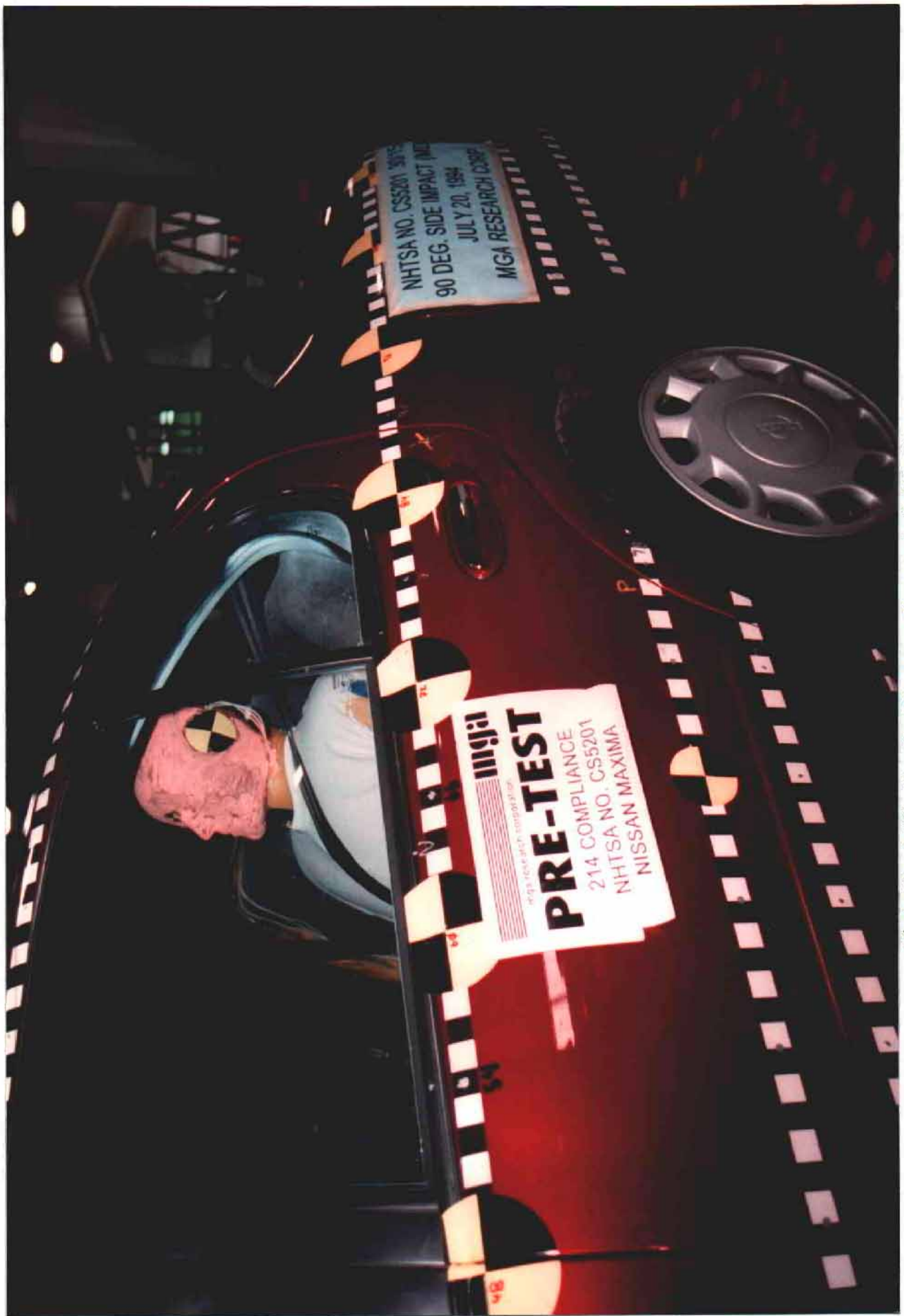


Photo No. A-29 - Pre-Test Passenger Dummy Left Side View

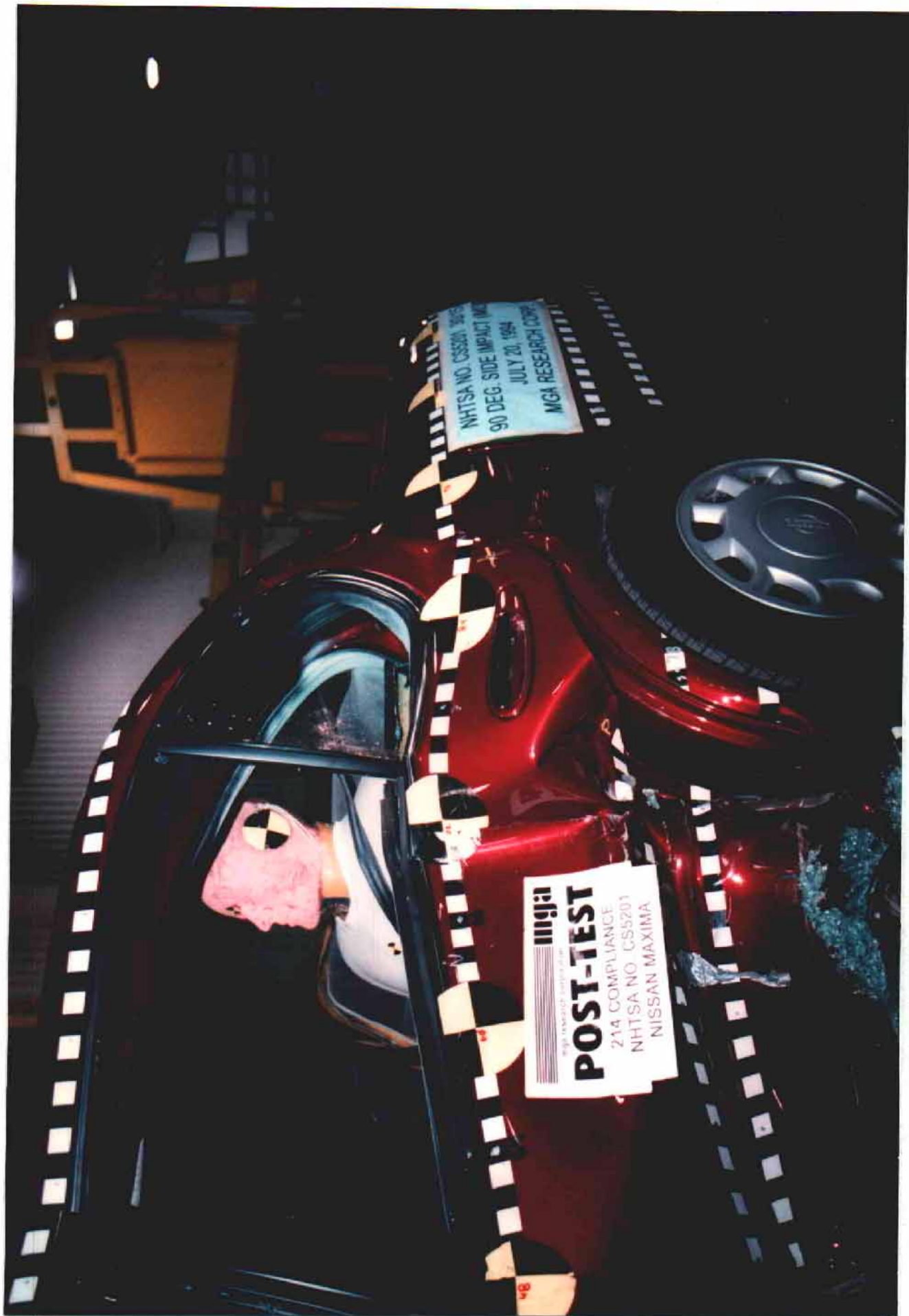


Photo No. A-30 - Post-Test Passenger Dummy Left Side View

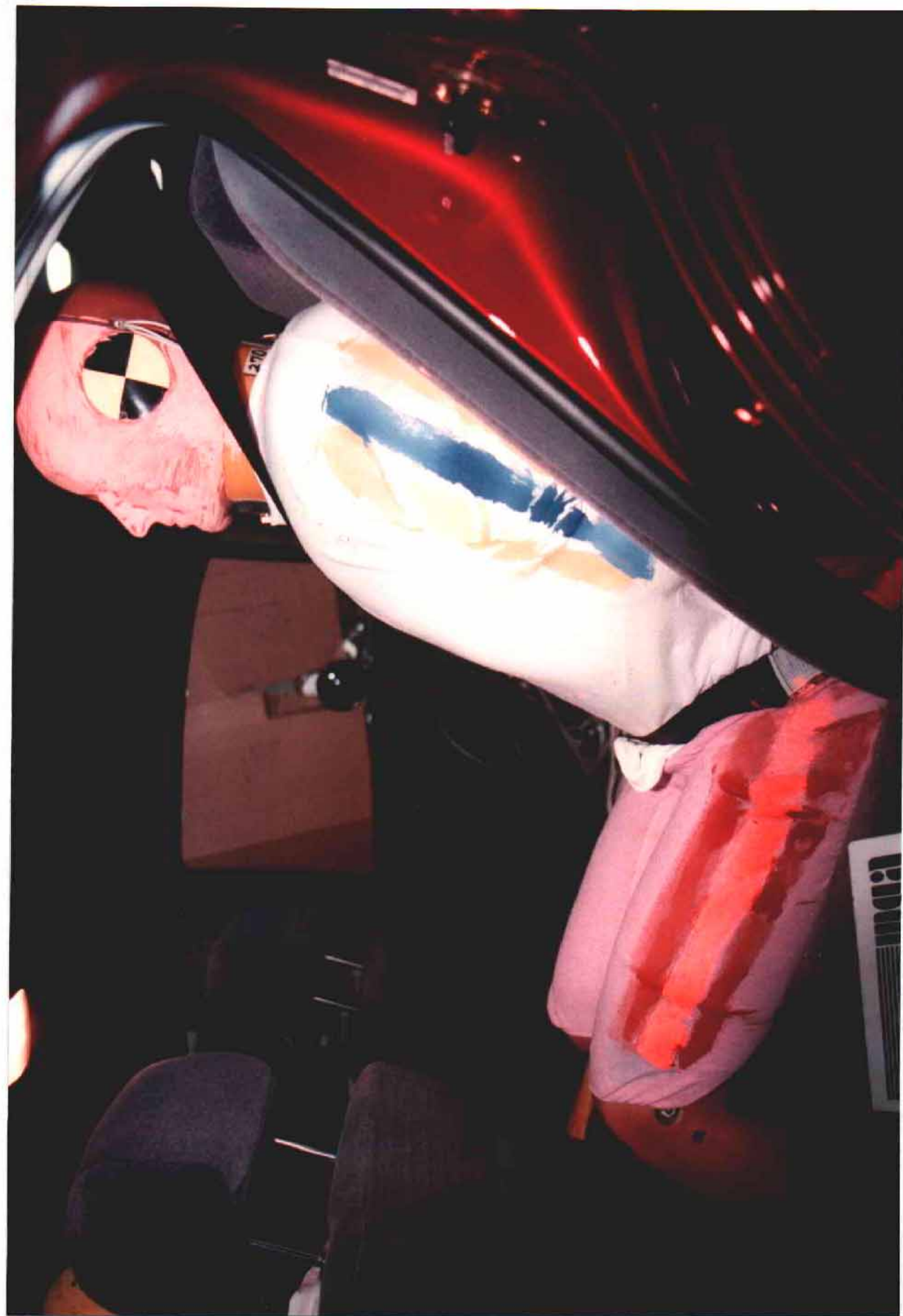
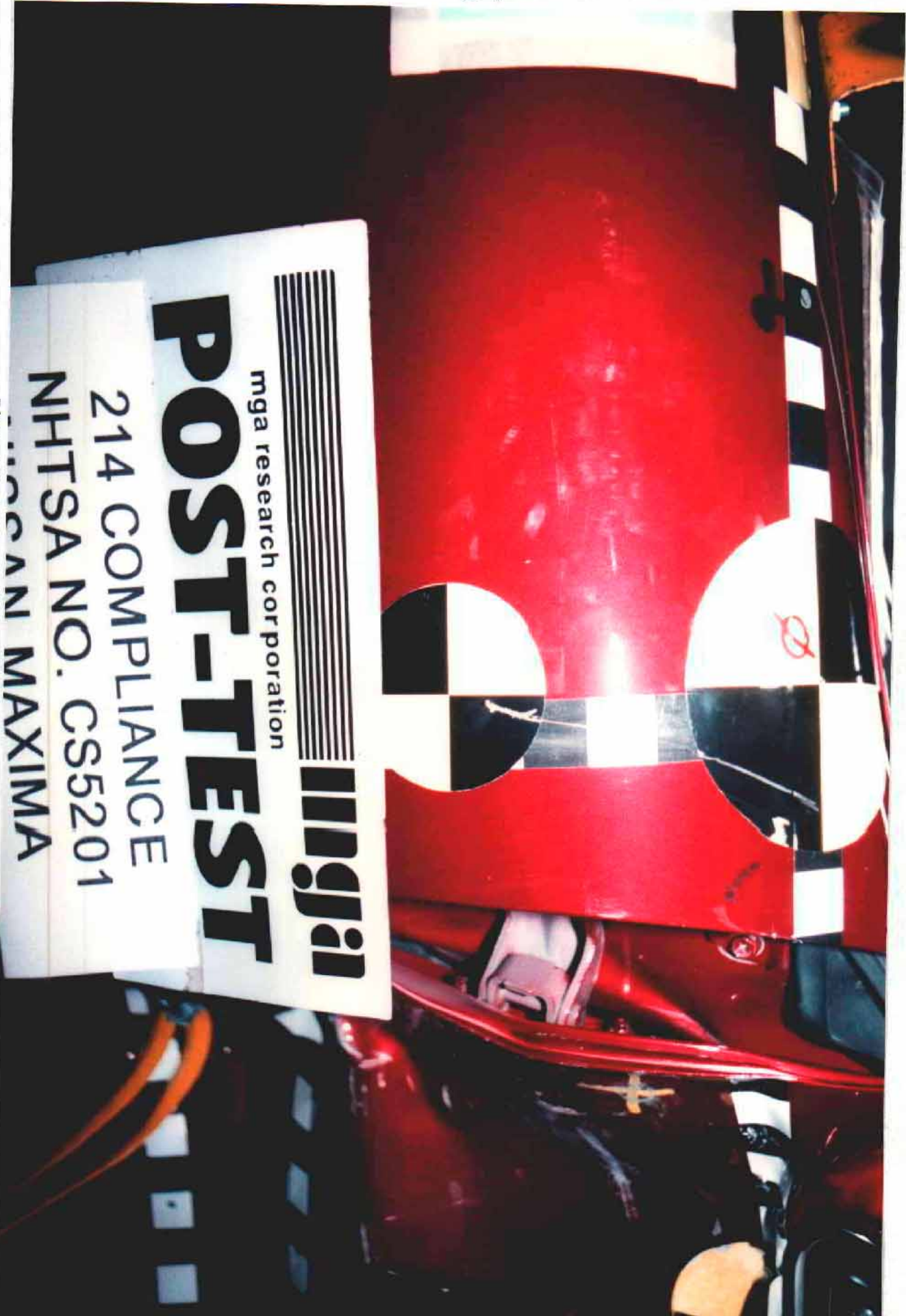


Photo No. A-31 - Pre-Test Passenger Dummy Left Side View (Door Open)



PHOTO No. A-32 - Post-Test Passenger Dummy Impact Point





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POST-TEST

214 COMPLIANCE

NHTSA NO. CS5201

MAXIMA

Photo No. A-33 - Left Front Impact Point on Vehicle



Higji

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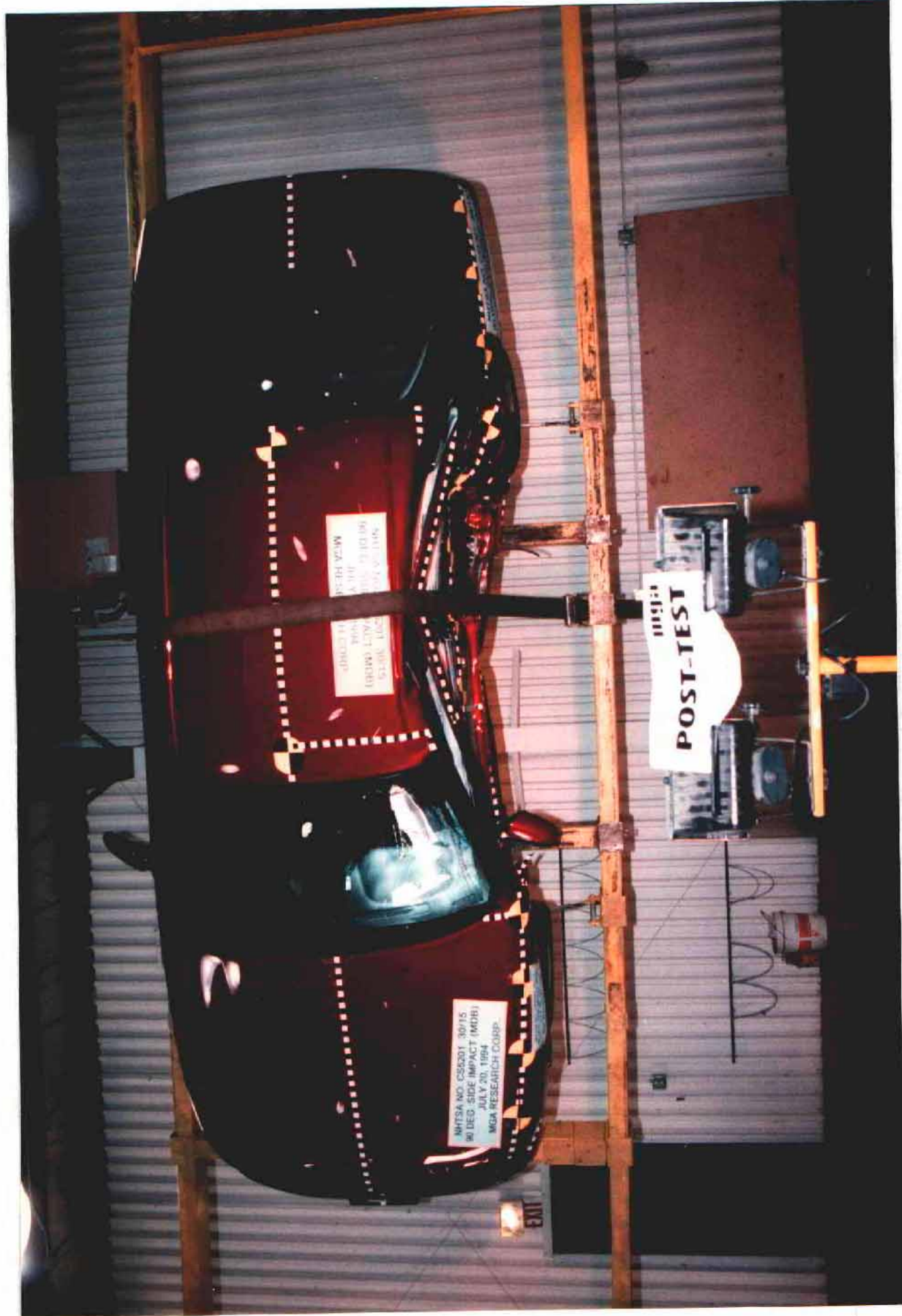
POST-TEST

214 COMPLIANCE
NHTSA NO. CS5201
NISSAN MAXIMA

Photo No. A-34 - Left Rear Impact Point on Vehicle

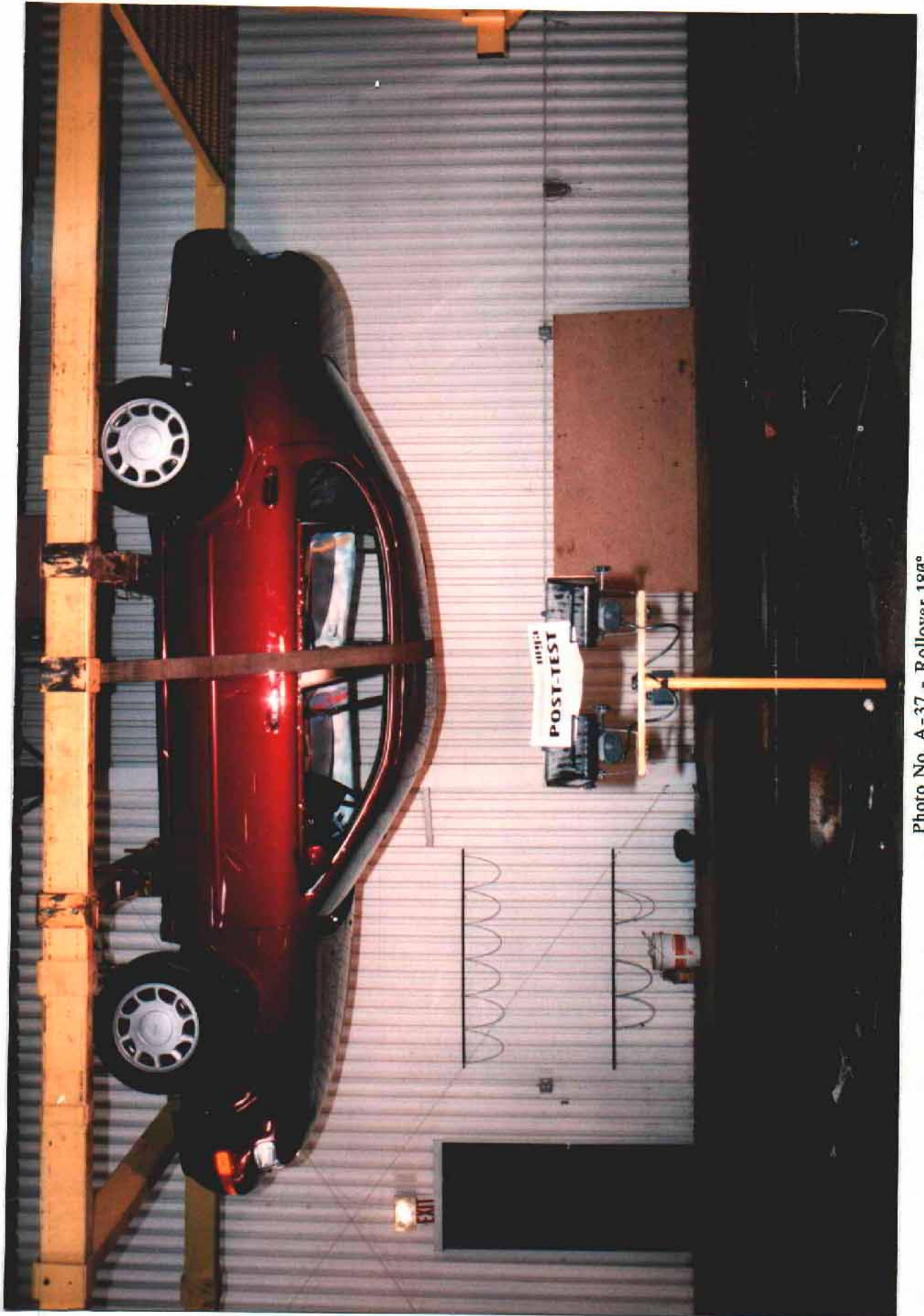


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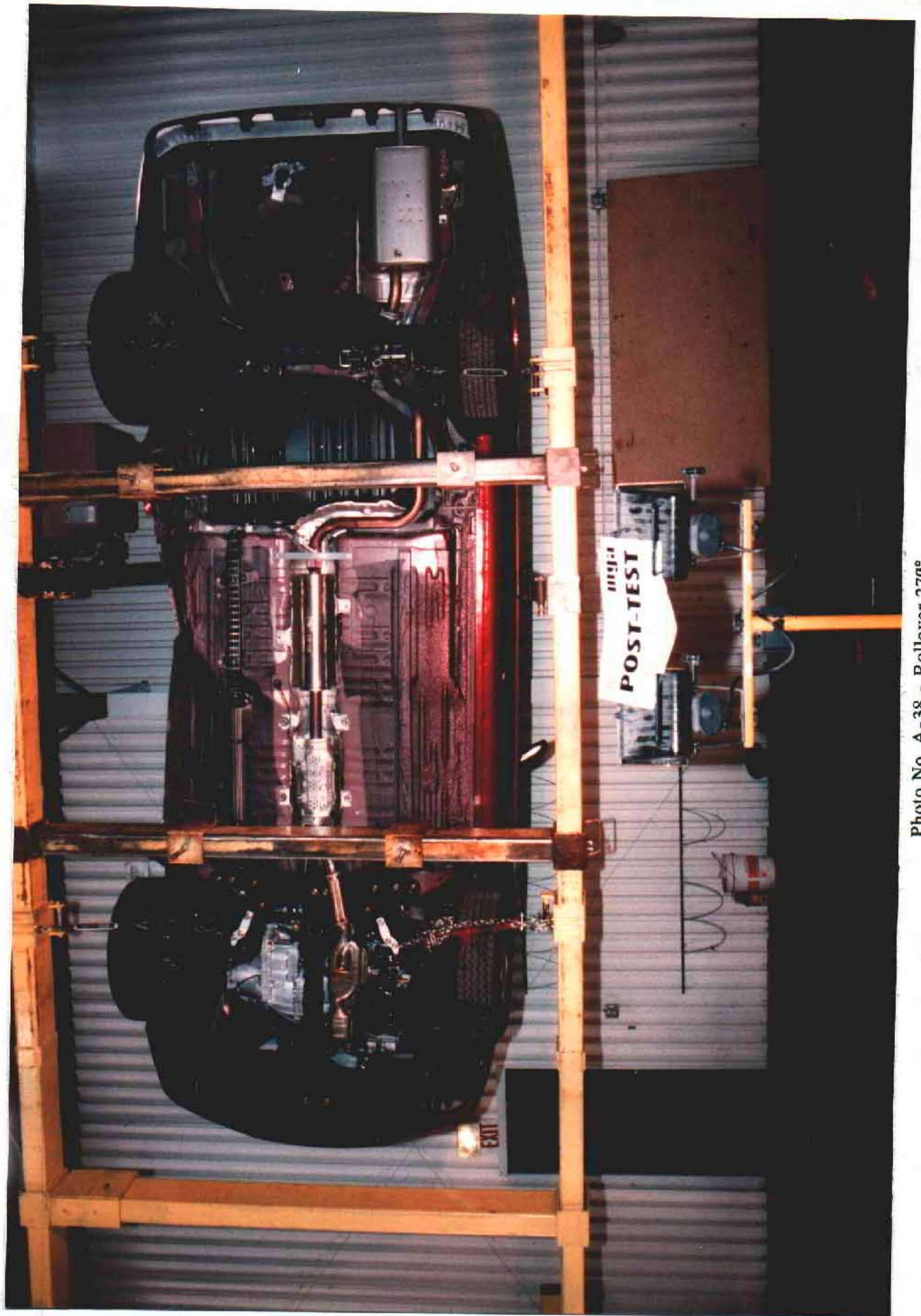
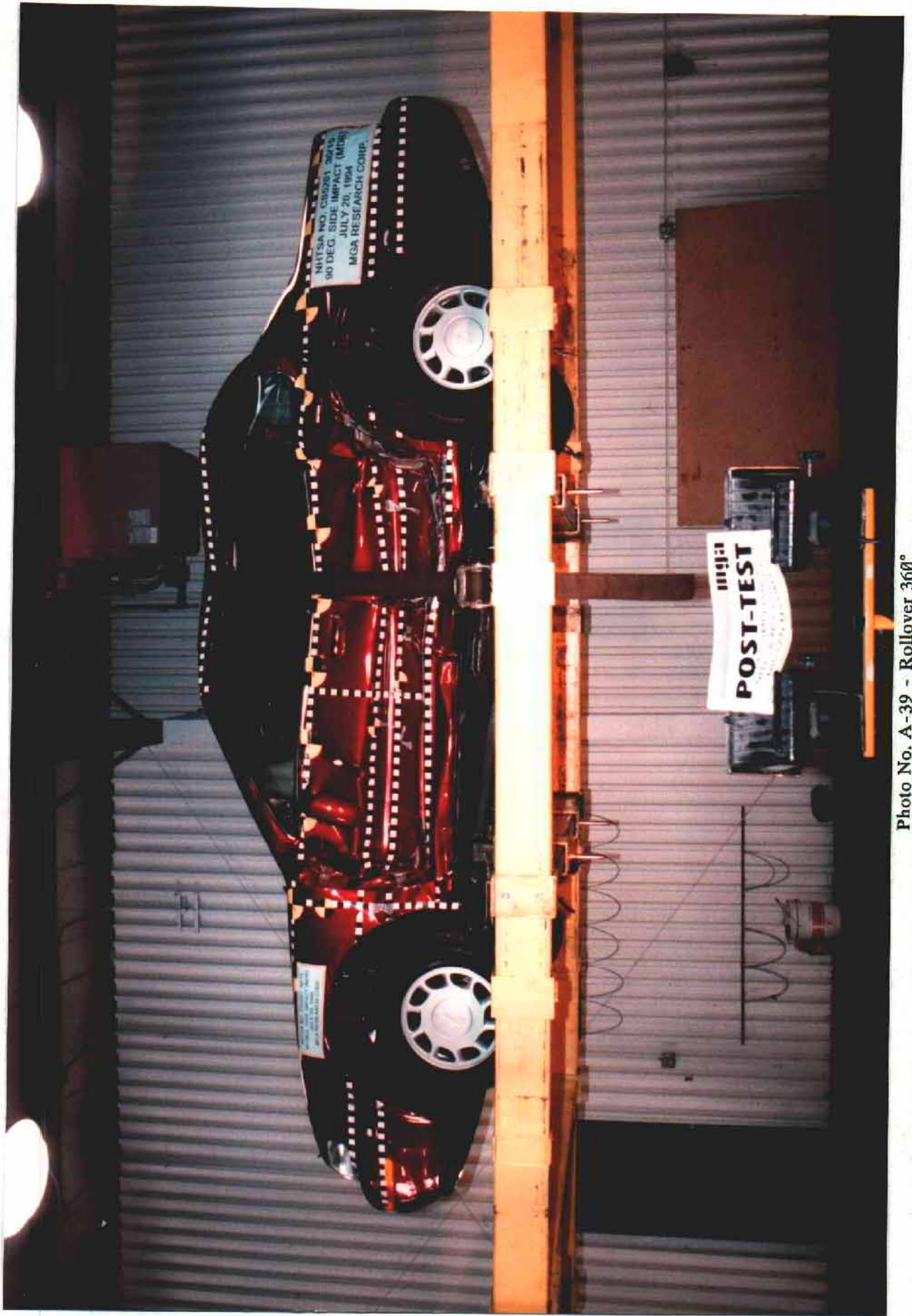


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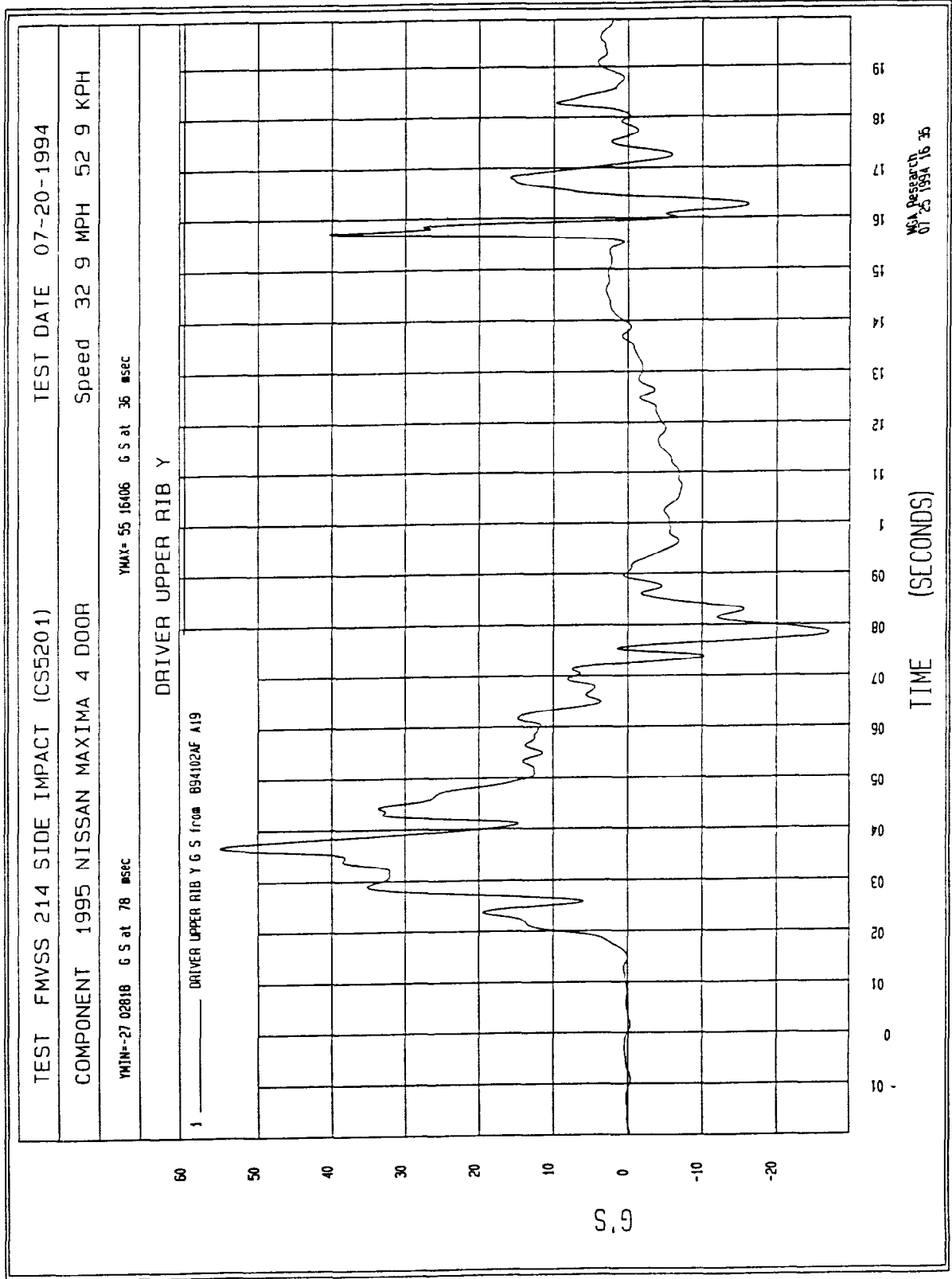


Figure B-1 - Driver Upper Rib Y Acceleration vs. Time

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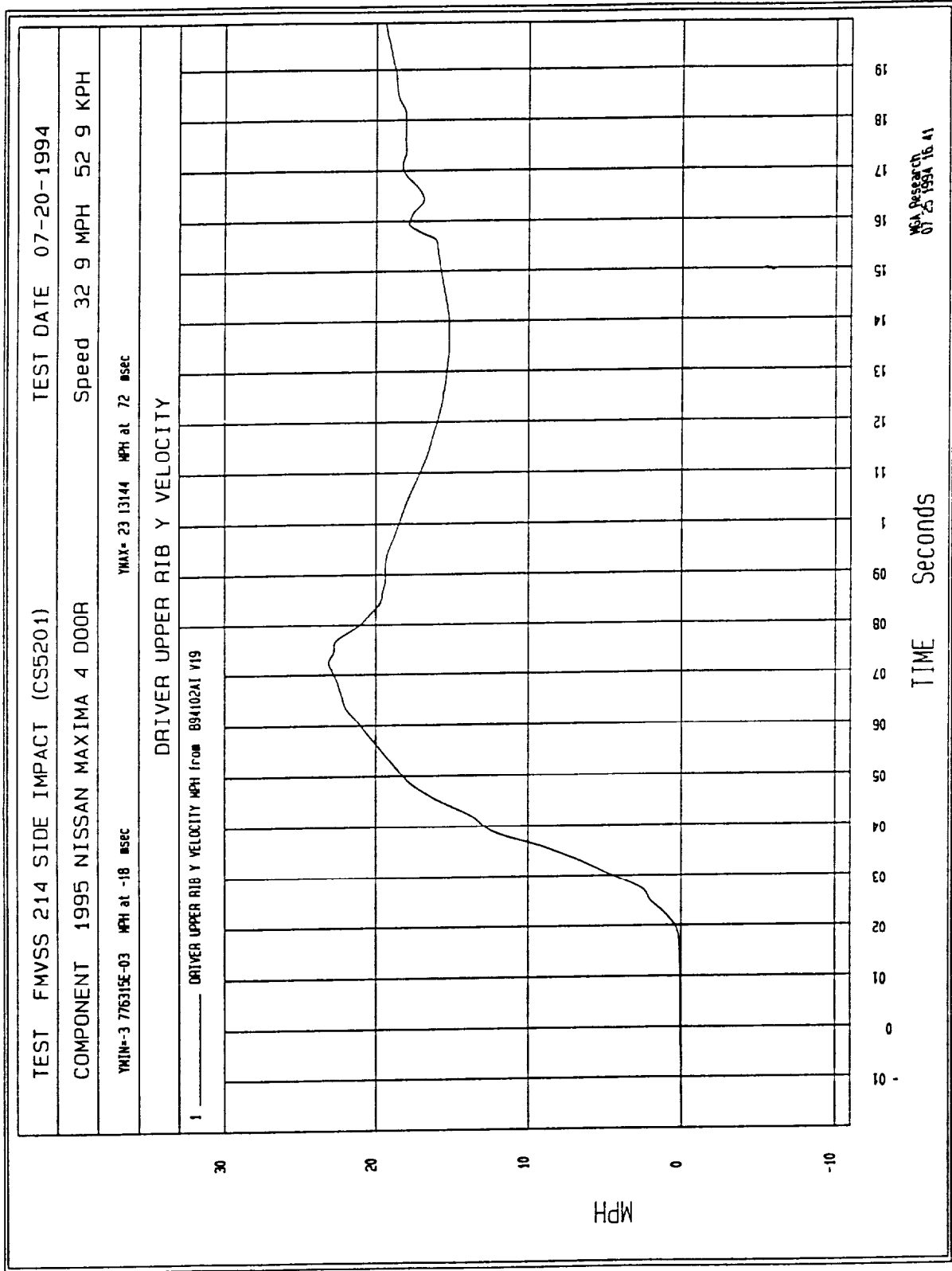


Figure B-2 - Driver Upper Rib Y Velocity vs. Time

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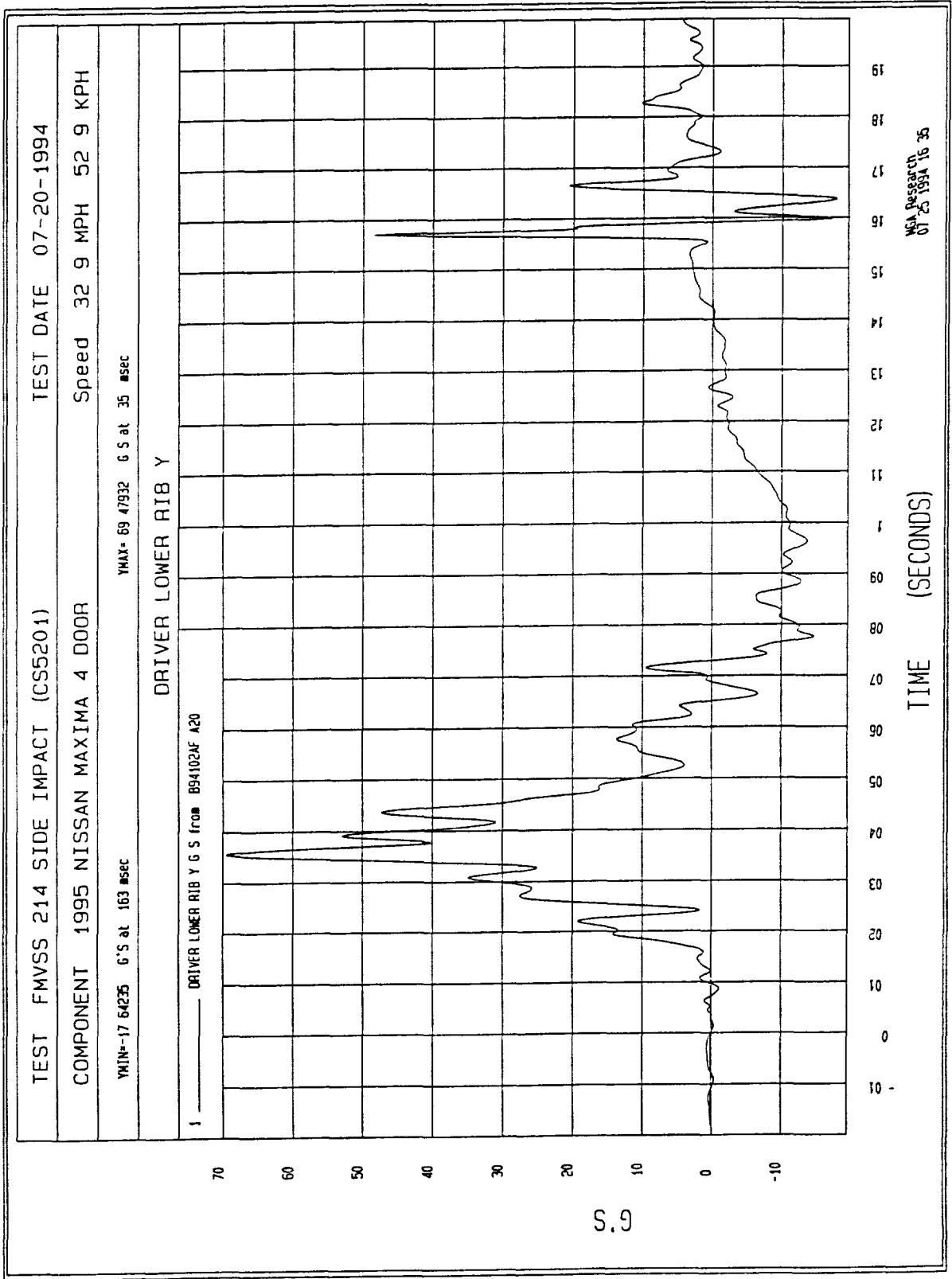


Figure B-3 - Driver Lower Rib Y Acceleration vs Time

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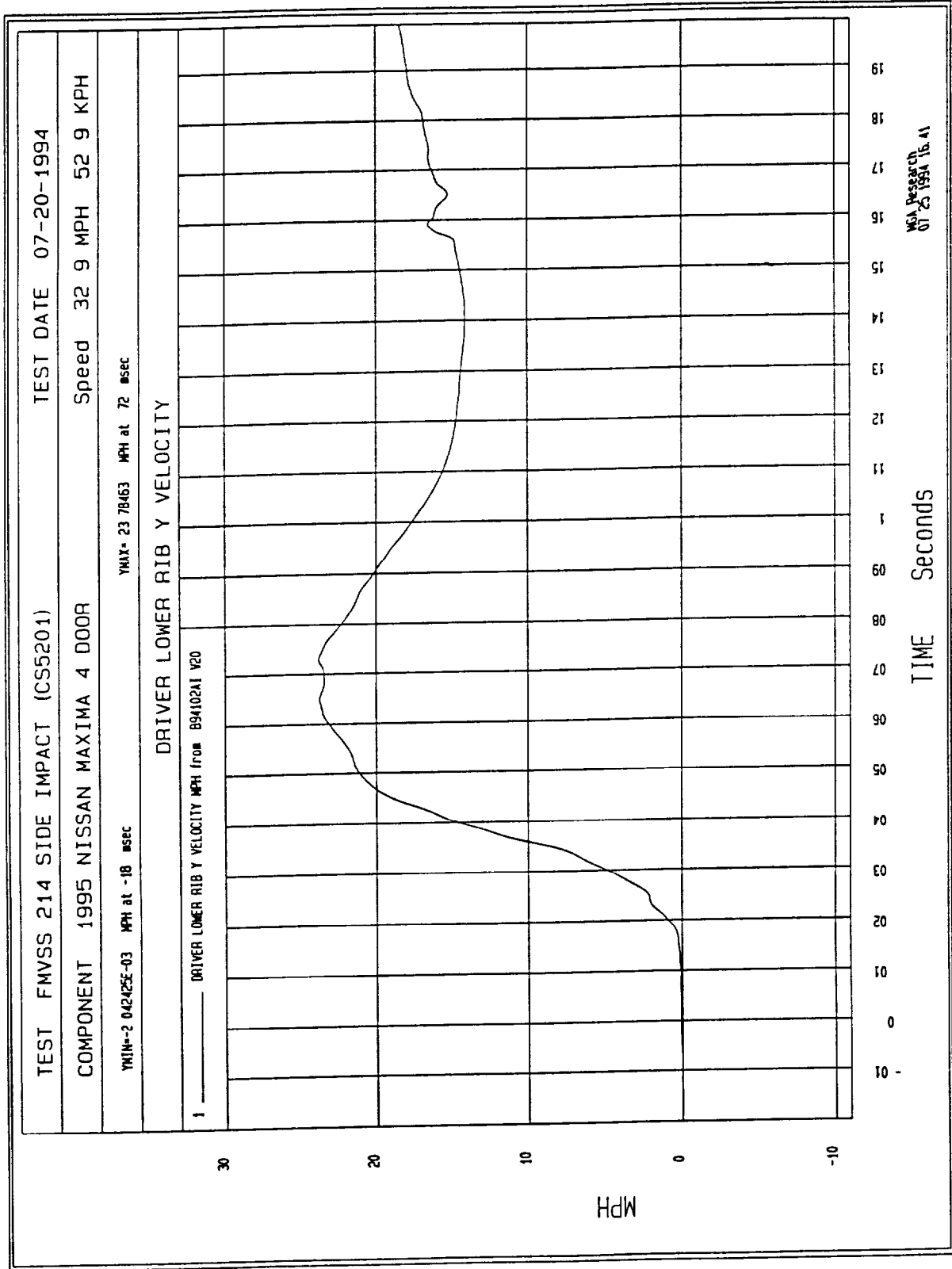


Figure B-4 - Driver Lower Rib Y Velocity vs. Time

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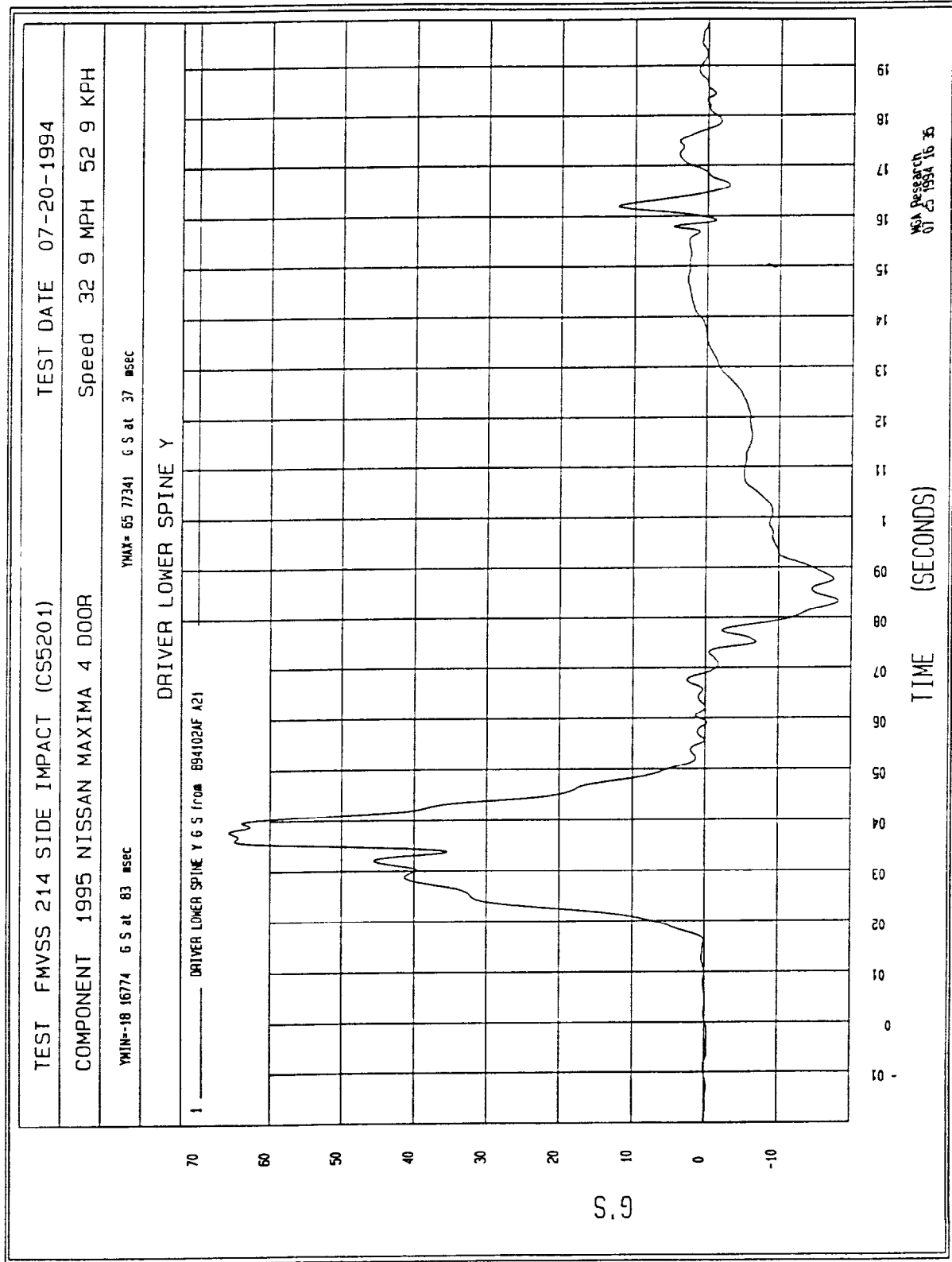


Figure B-5 - Driver Lower Spine Y Acceleration vs. Time

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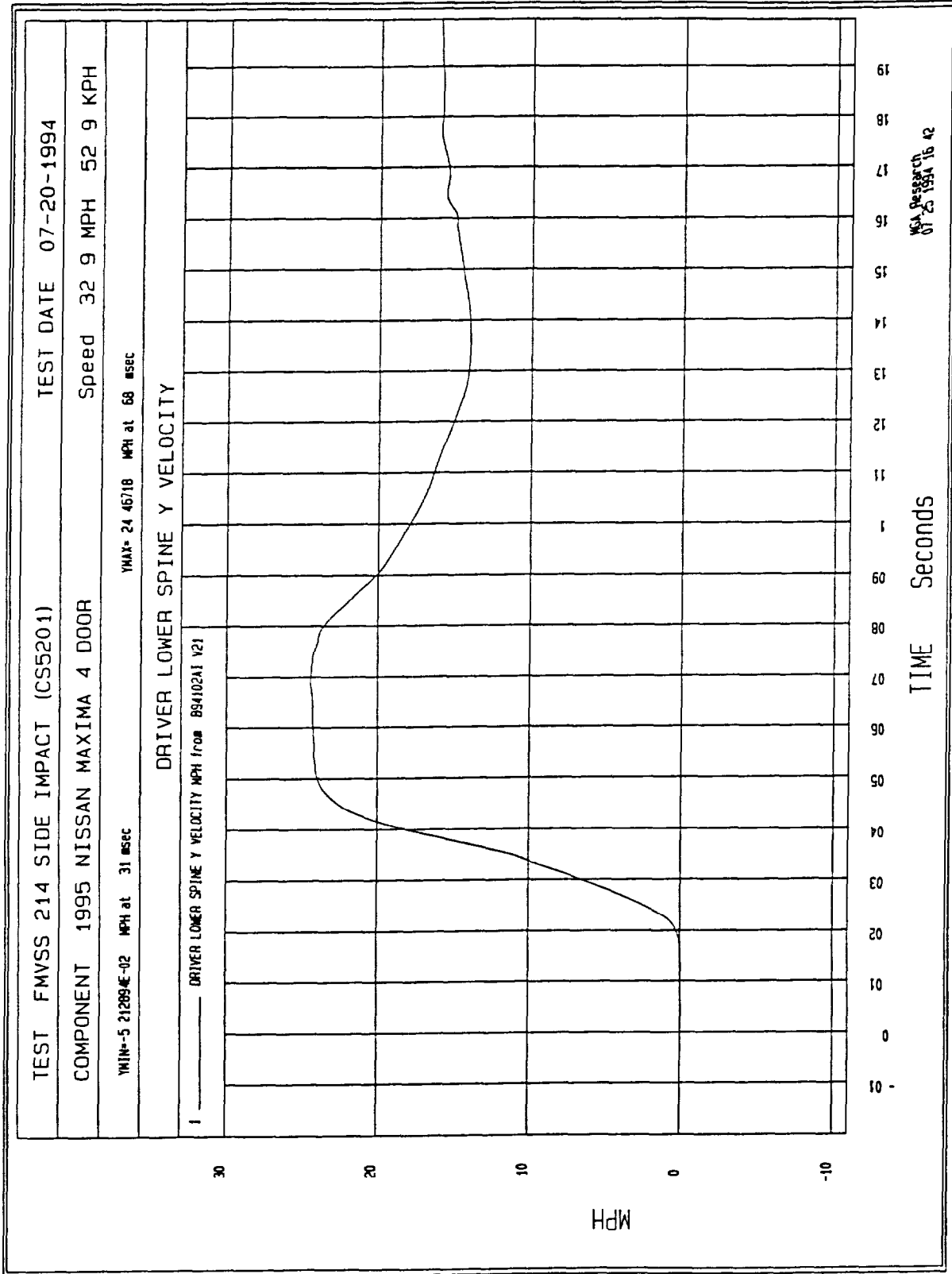


Figure B-6 - Driver Lower Spine Y Velocity vs. Time

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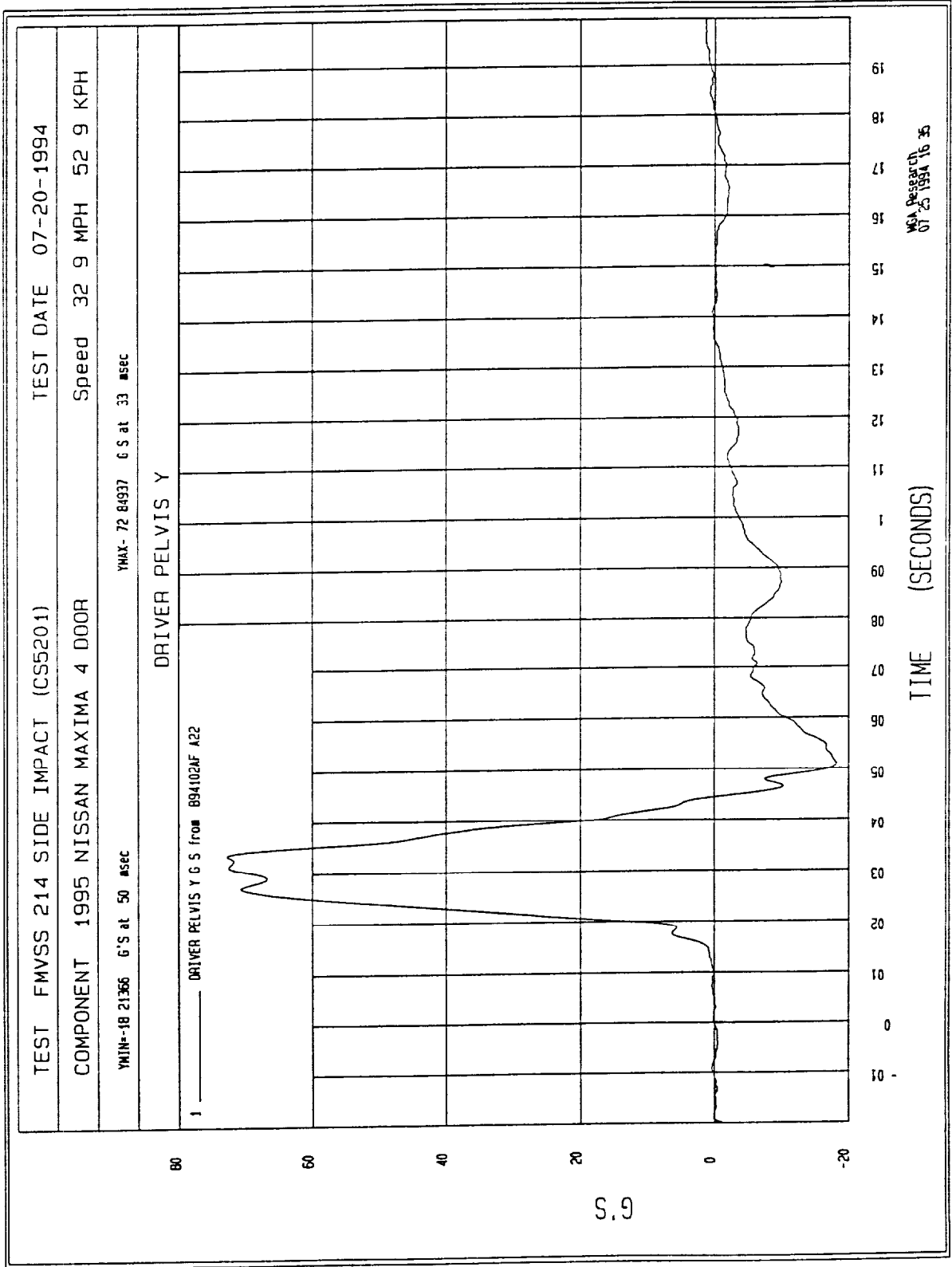


Figure B-7 - Driver Pelvis Y Acceleration vs. Time

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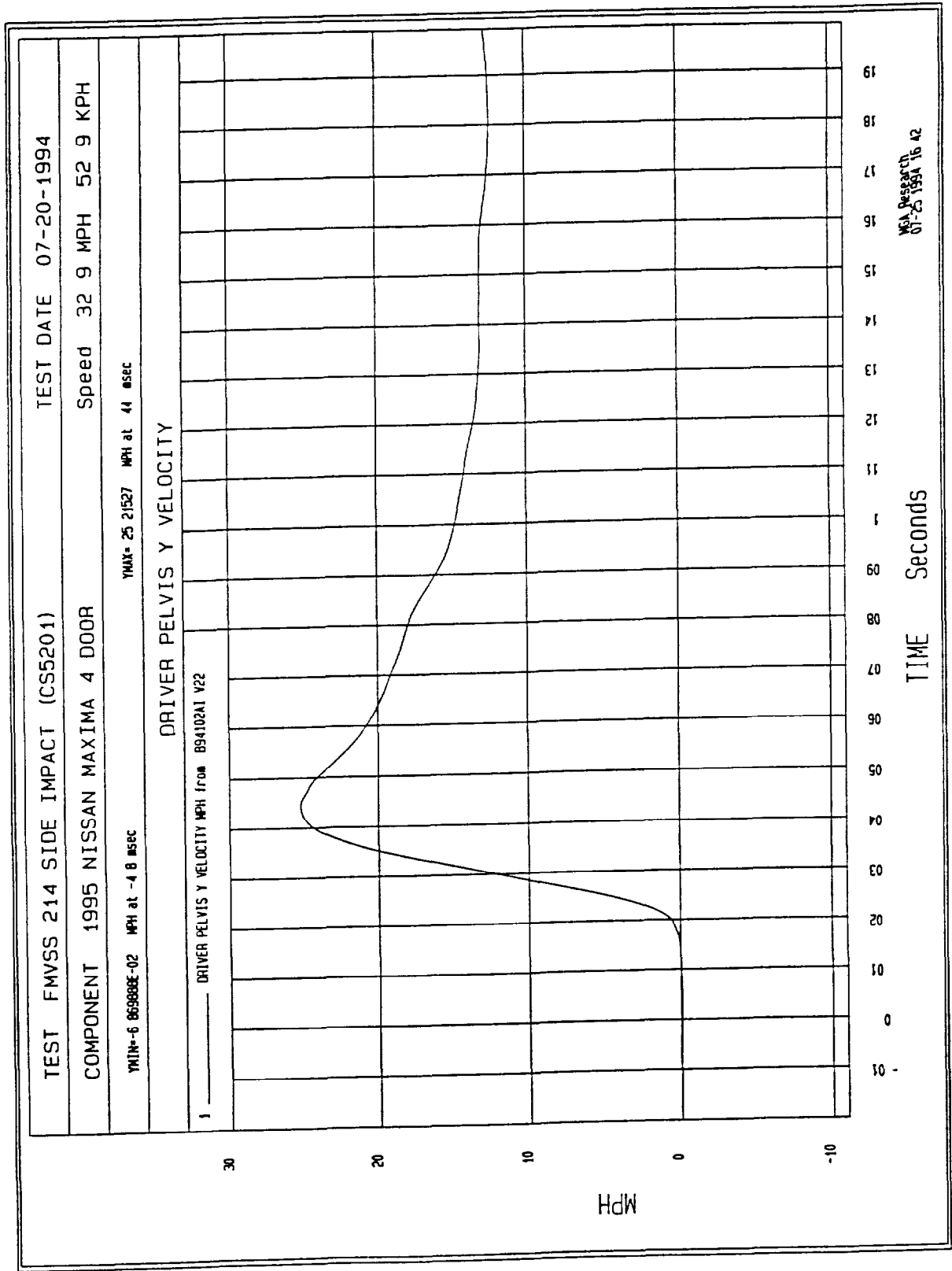


Figure B-8 - Driver Pelvis Y Velocity vs. Time

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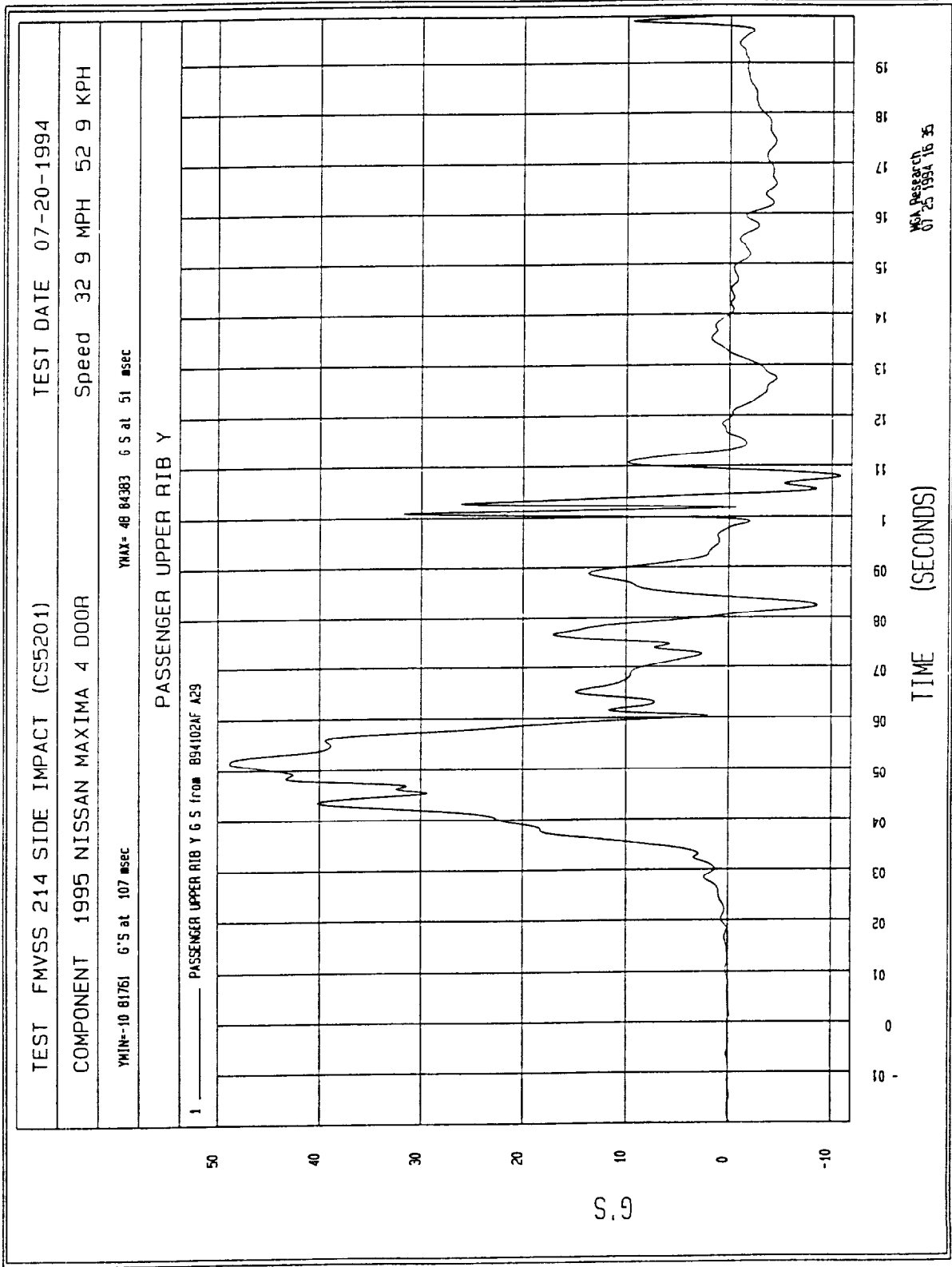


Figure B-9 - Passenger Upper Rib Y Acceleration vs. Time

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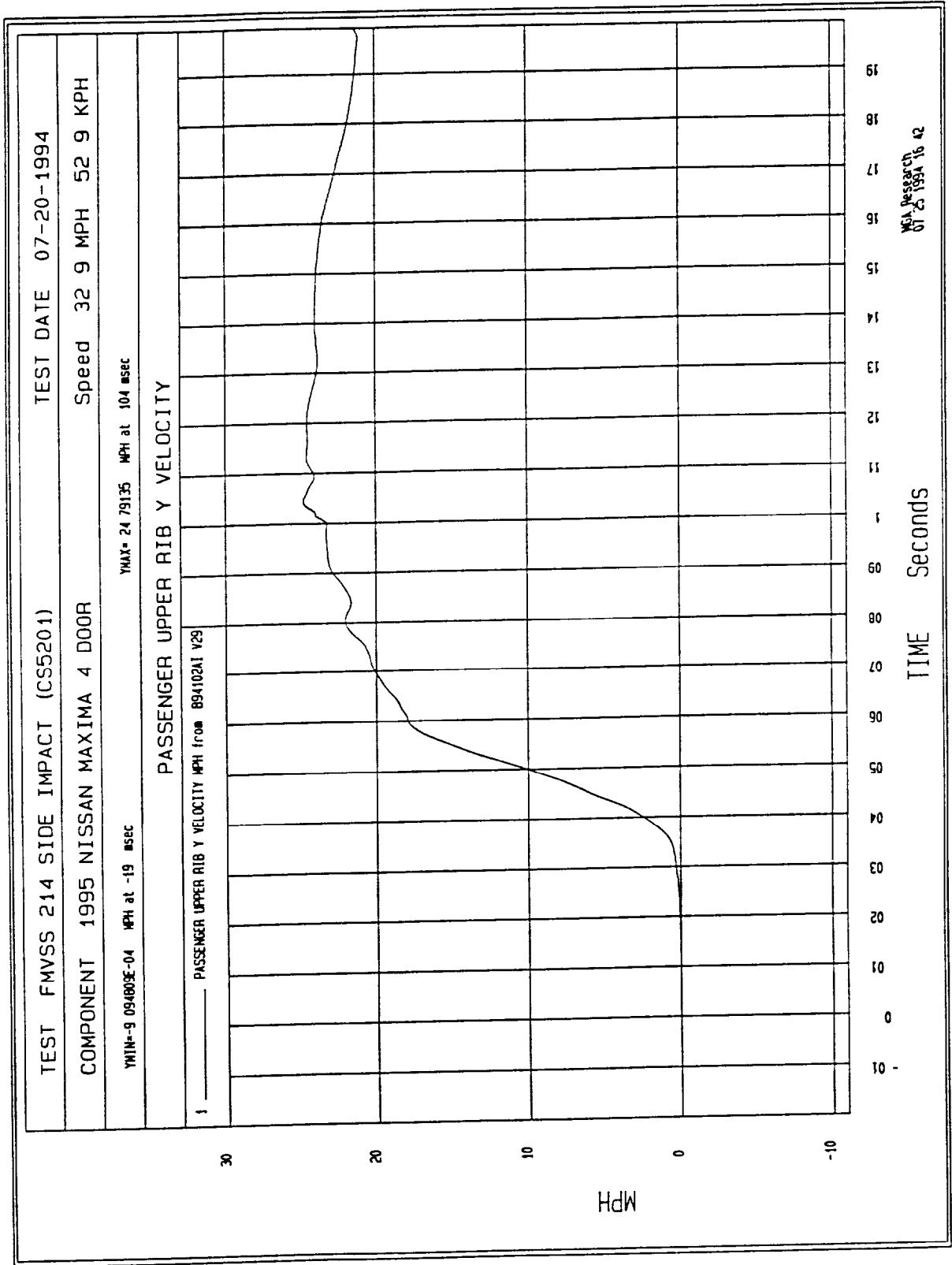


Figure B-10 - Passenger Upper Rib Y Velocity vs. Time

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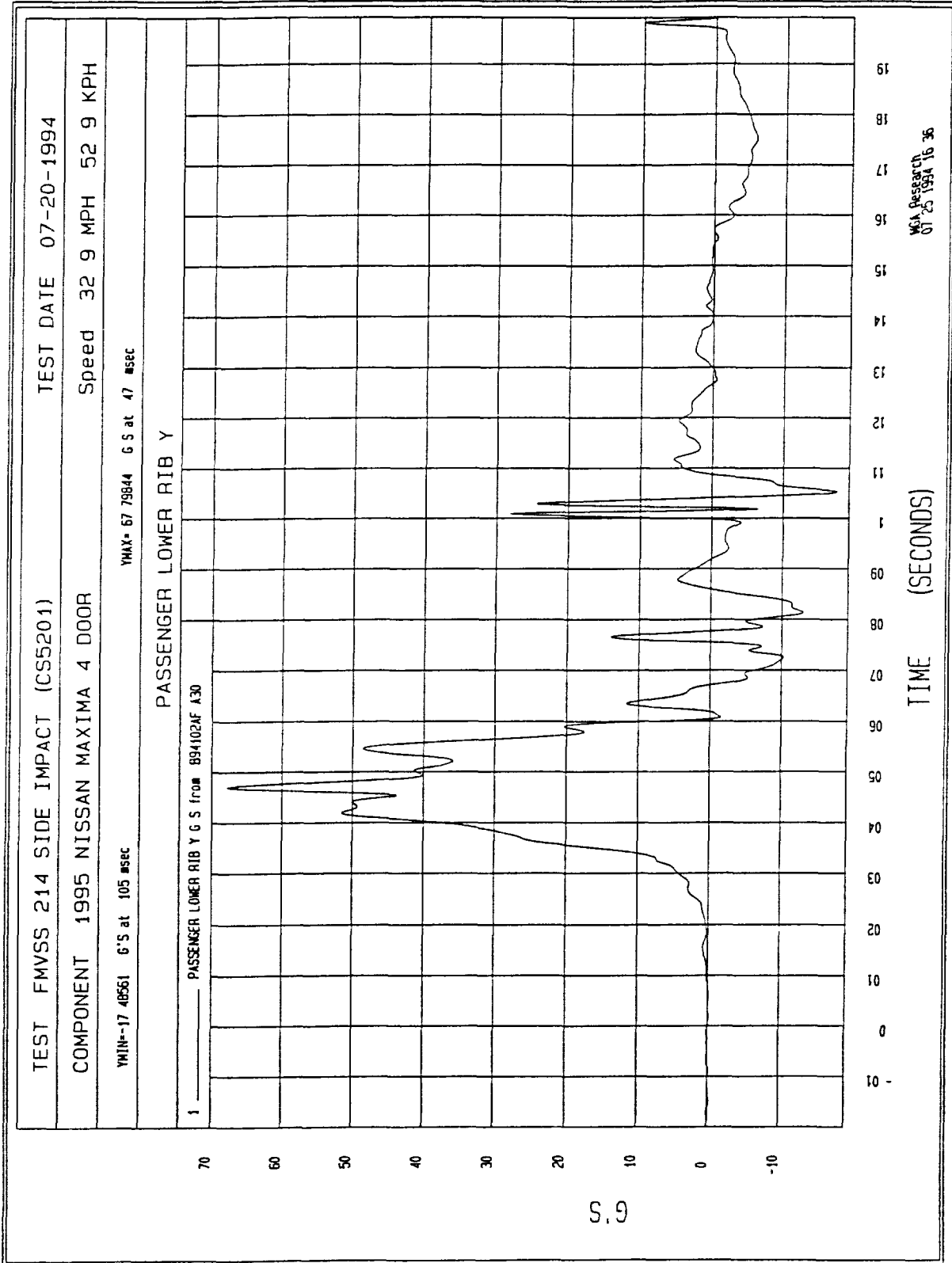


Figure B-11 - Passenger Lower Rib Y Acceleration vs. Time

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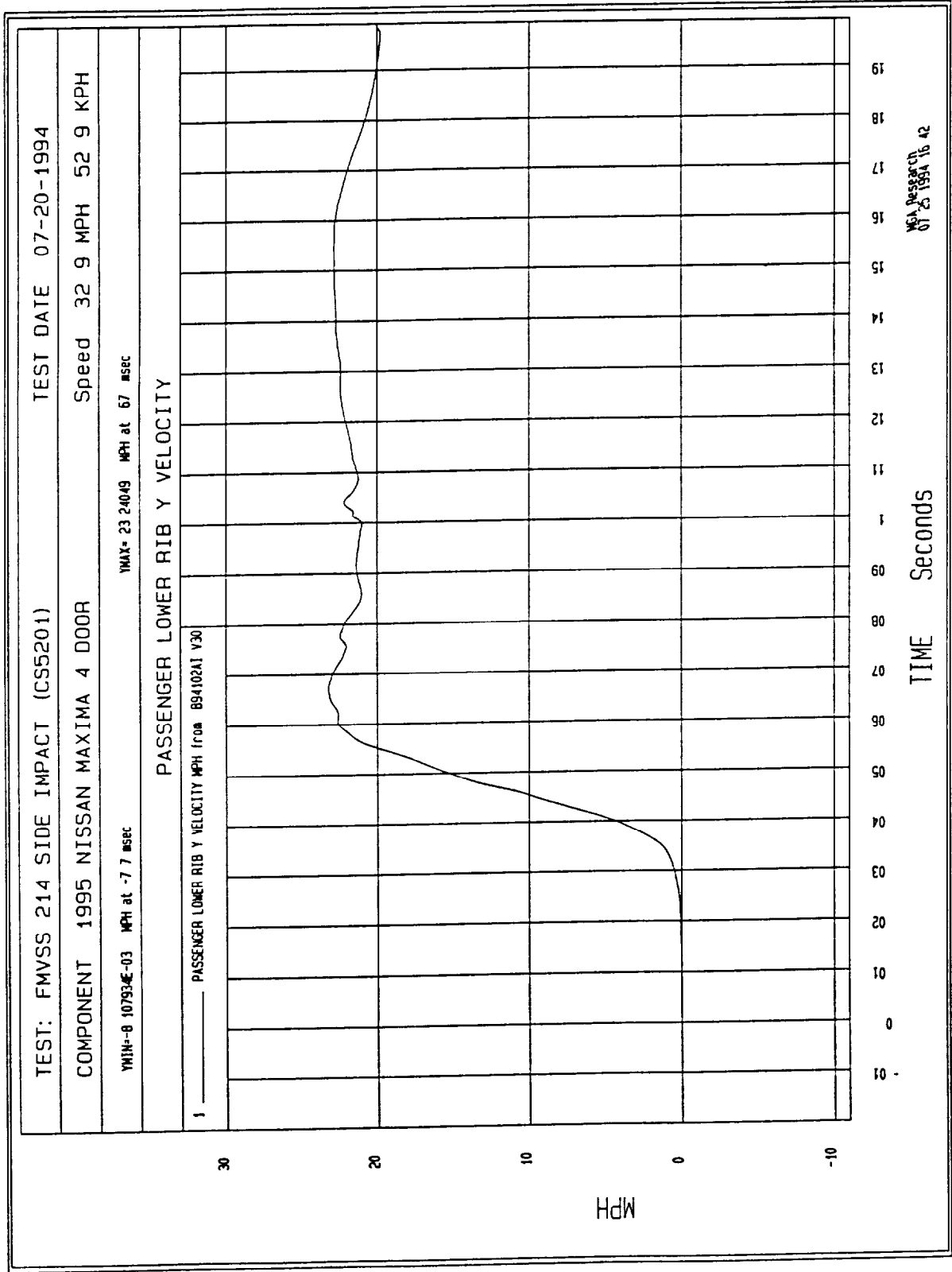


Figure B-12 - Passenger Lower Rib Y Velocity vs. Time

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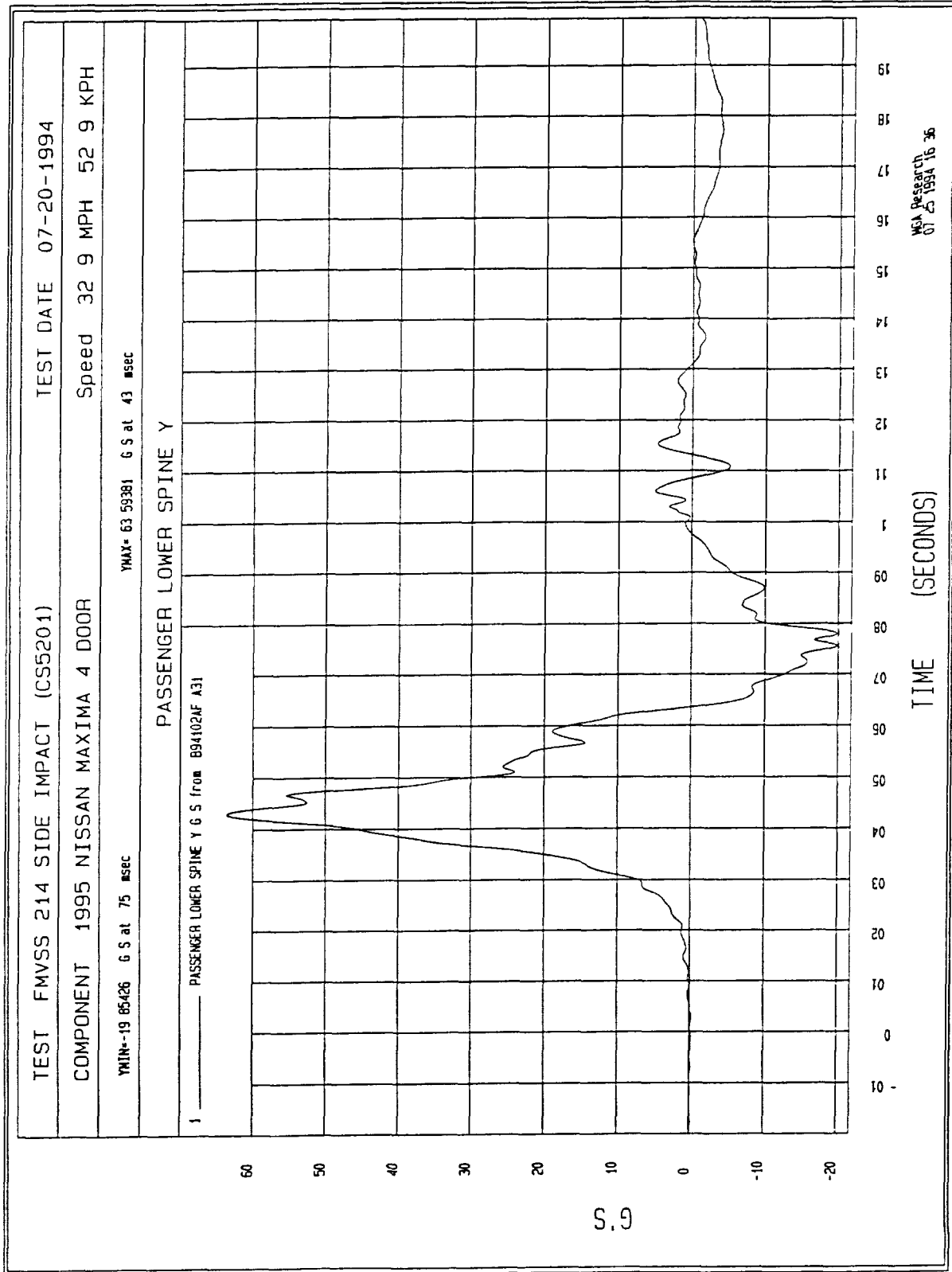


Figure B-13 - Passenger Lower Spine Y Acceleration vs. Time

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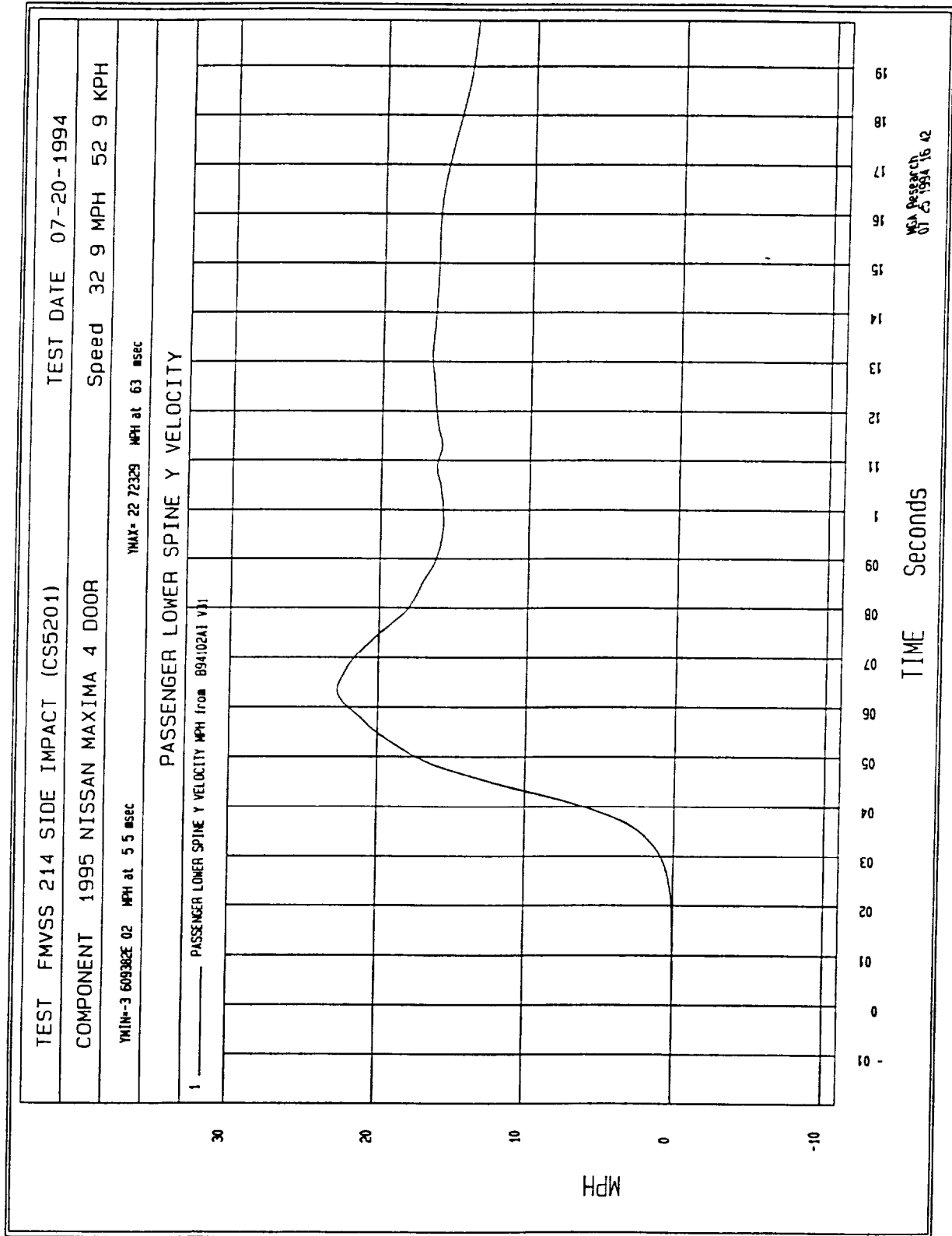


Figure B-14 - Passenger Lower Spine Y Velocity vs. Time

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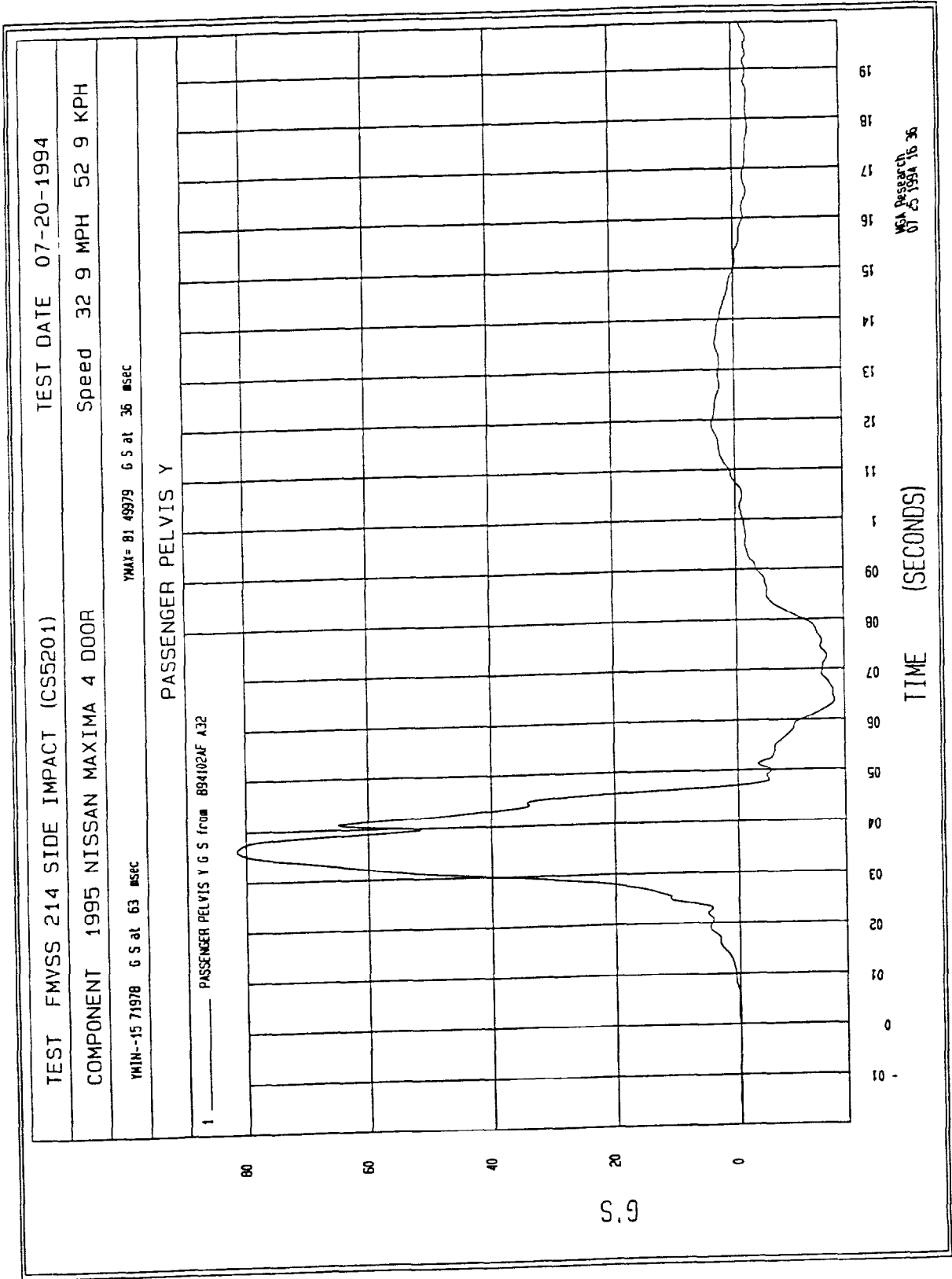


Figure B-15 - Passenger Pelvis Y Acceleration vs. Time

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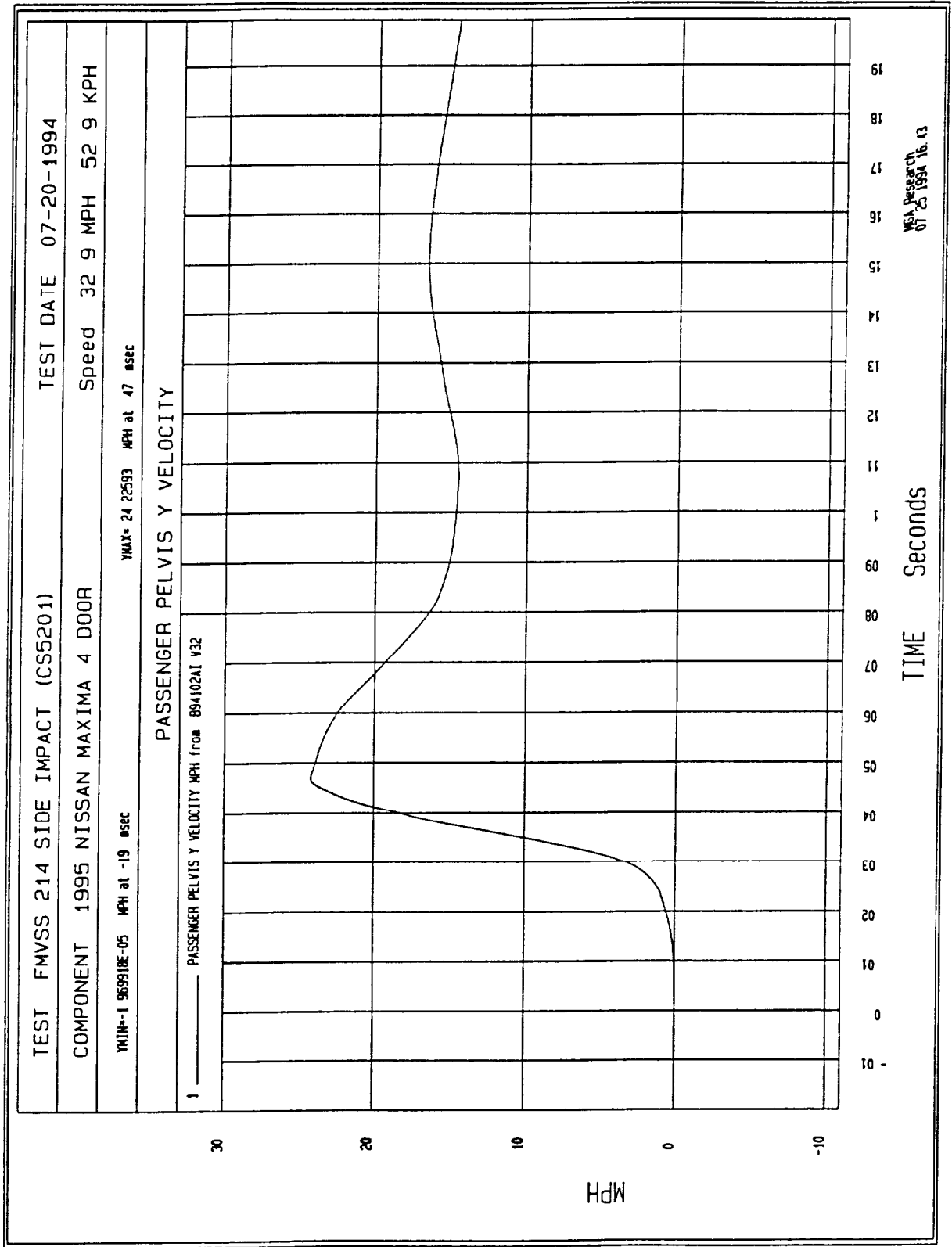


Figure B-16 - Passenger Pelvis Y Velocity vs. Time

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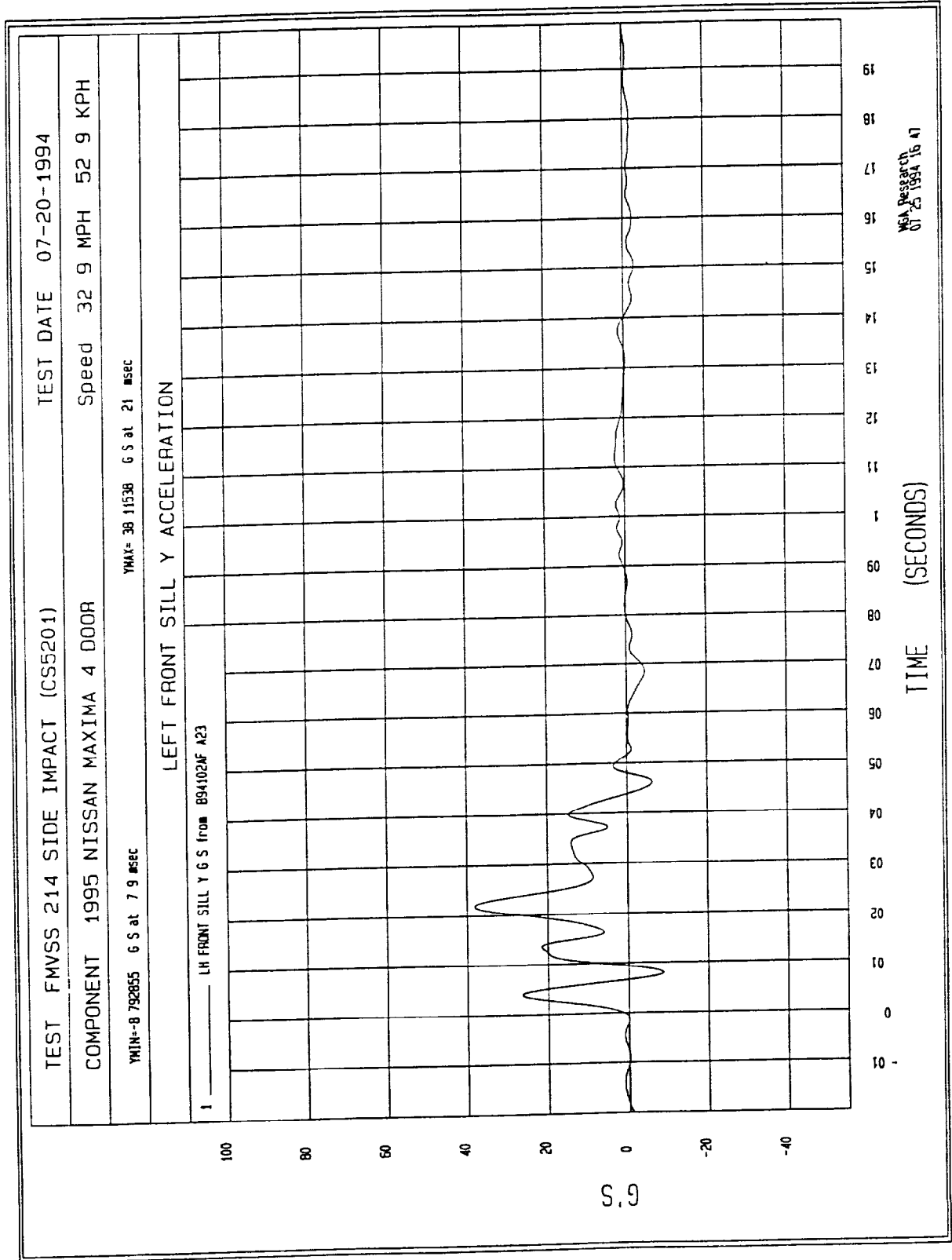


Figure B-17 - Left Front Sill Y Acceleration vs. Time

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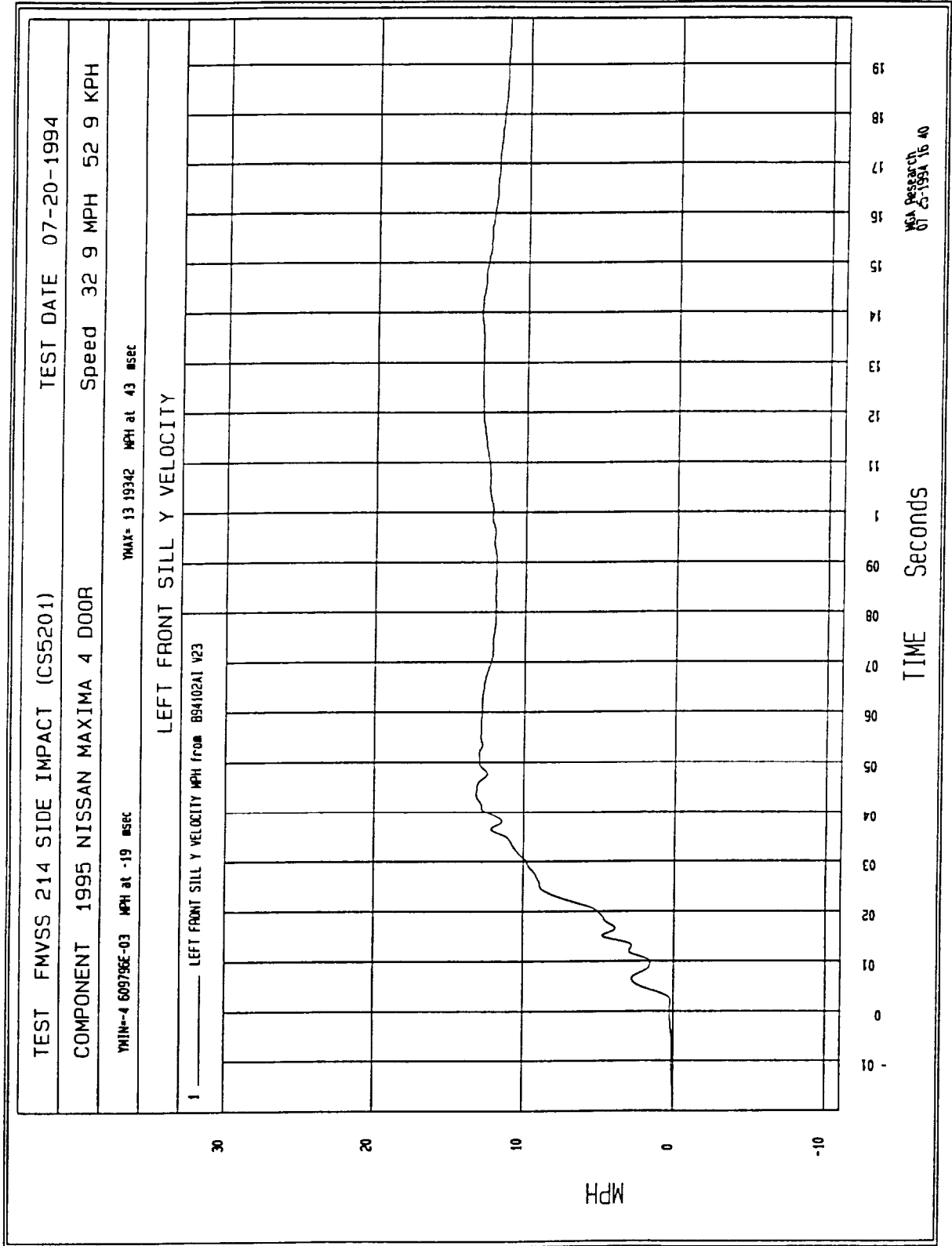


Figure B-18 - Left Front Sill Y Velocity vs. Time

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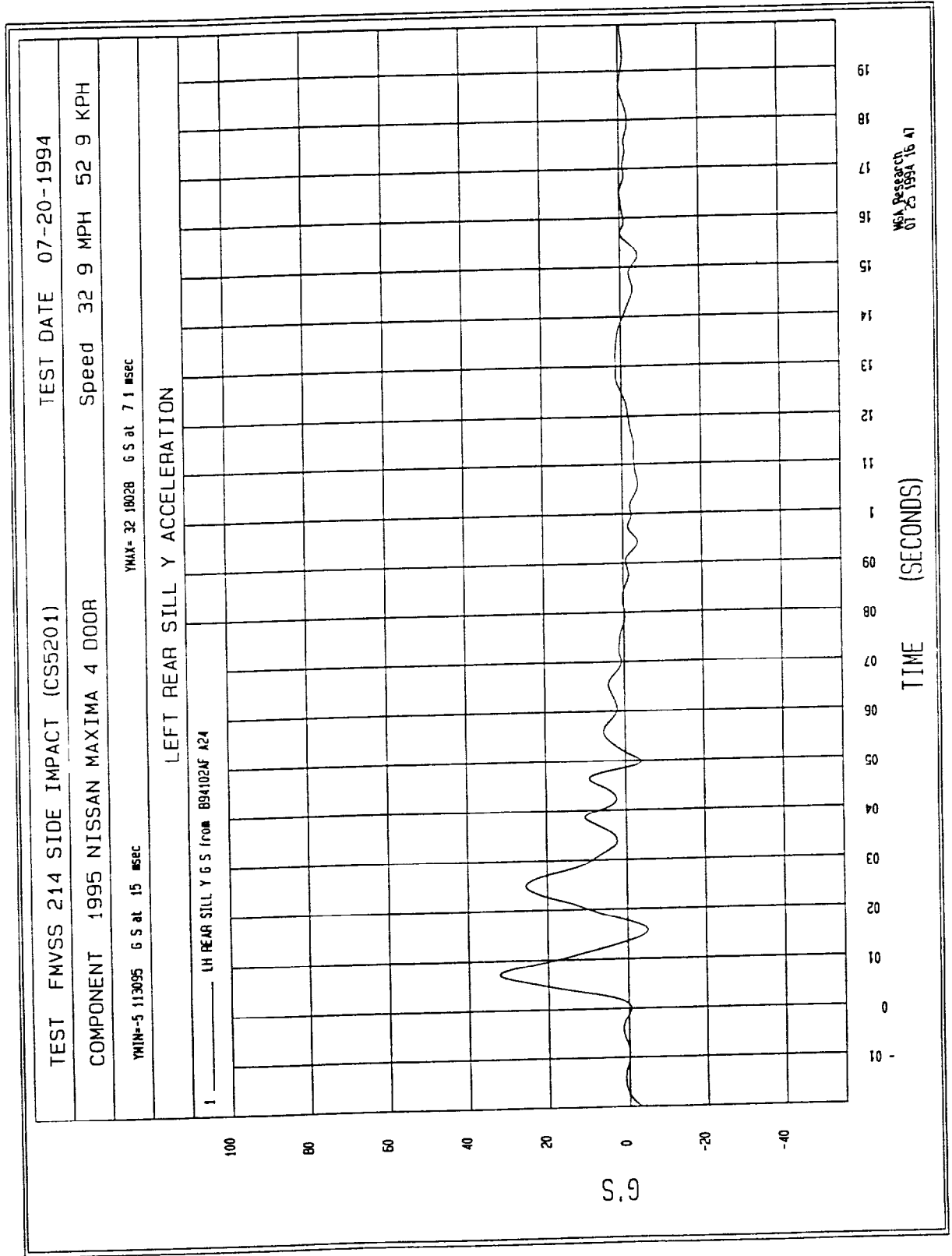


Figure B-19 - Left Rear Sill Y Acceleration vs. Time

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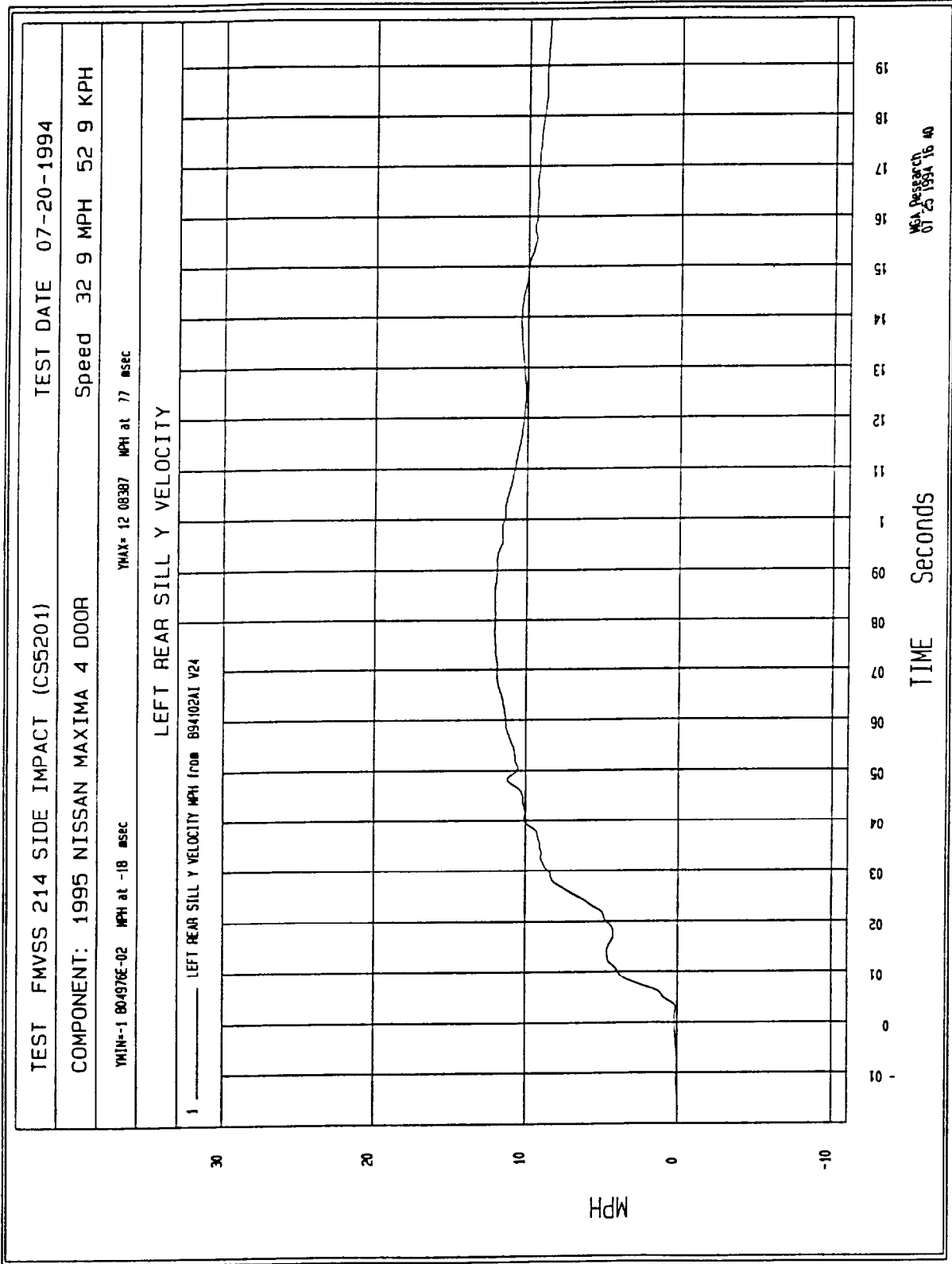


Figure B-20 - Left Rear Sill Y Velocity vs. Time

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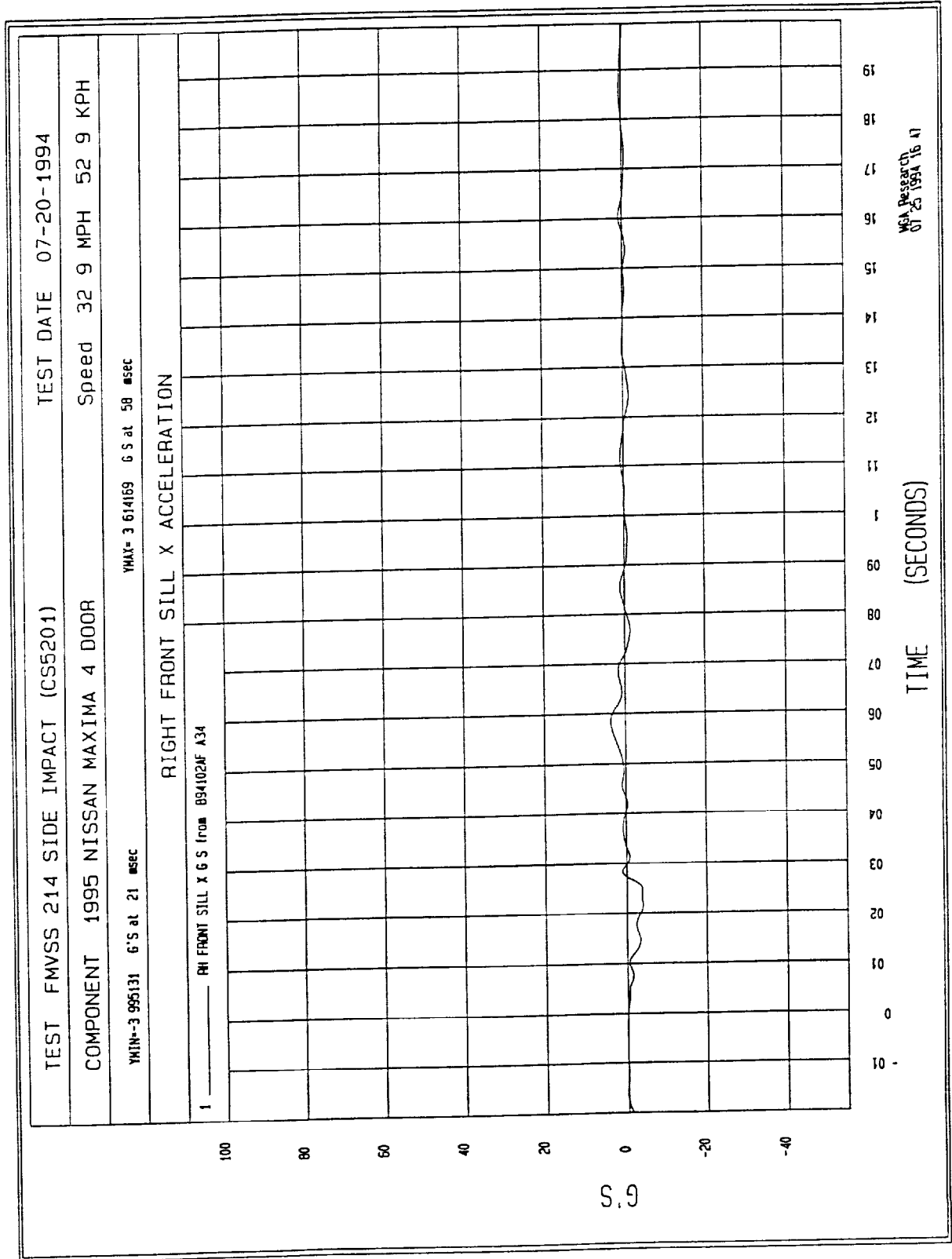


Figure B-21 - Right Front Sill X Acceleration vs. Time

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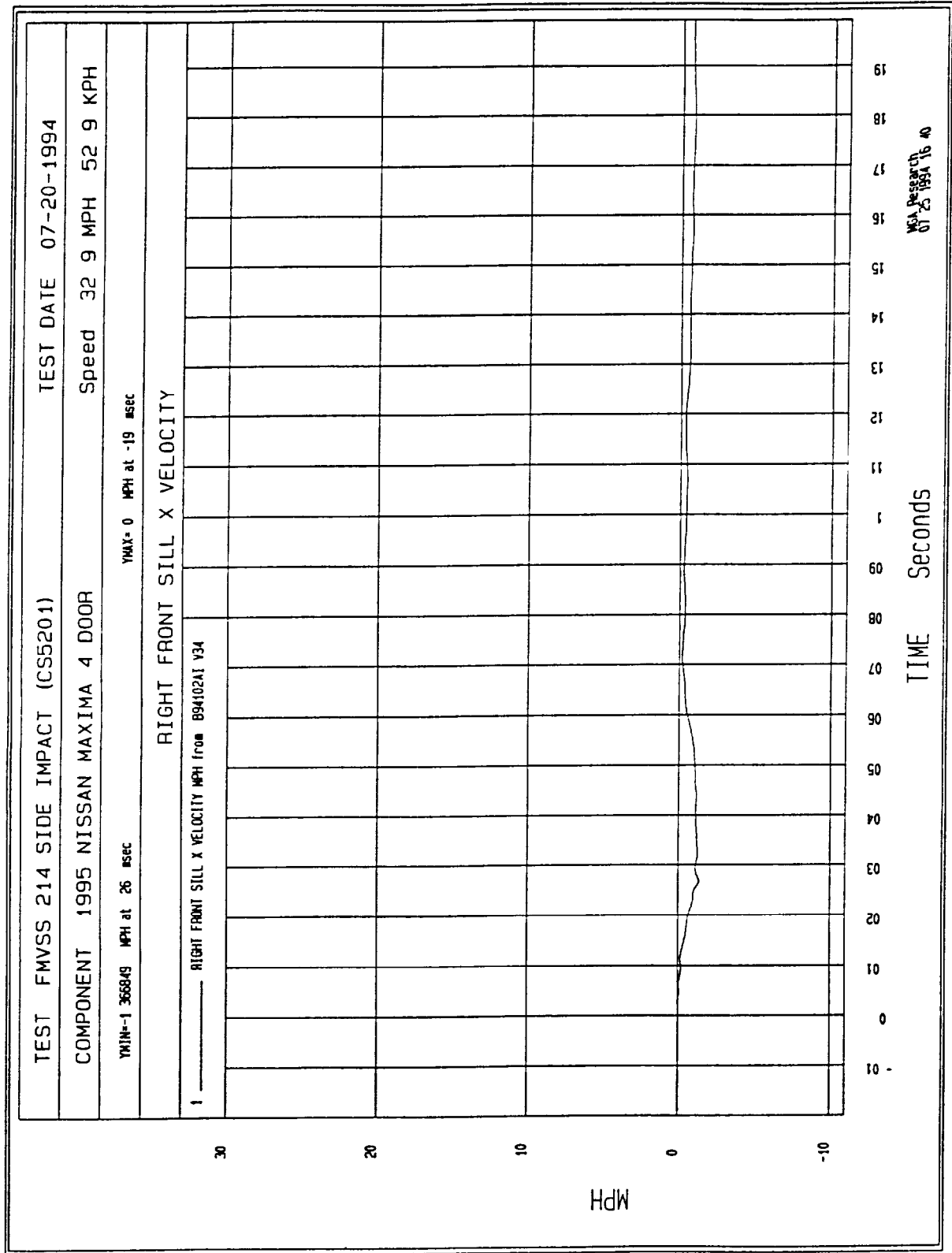


Figure B-22 - Right Front Sill X Velocity vs. Time

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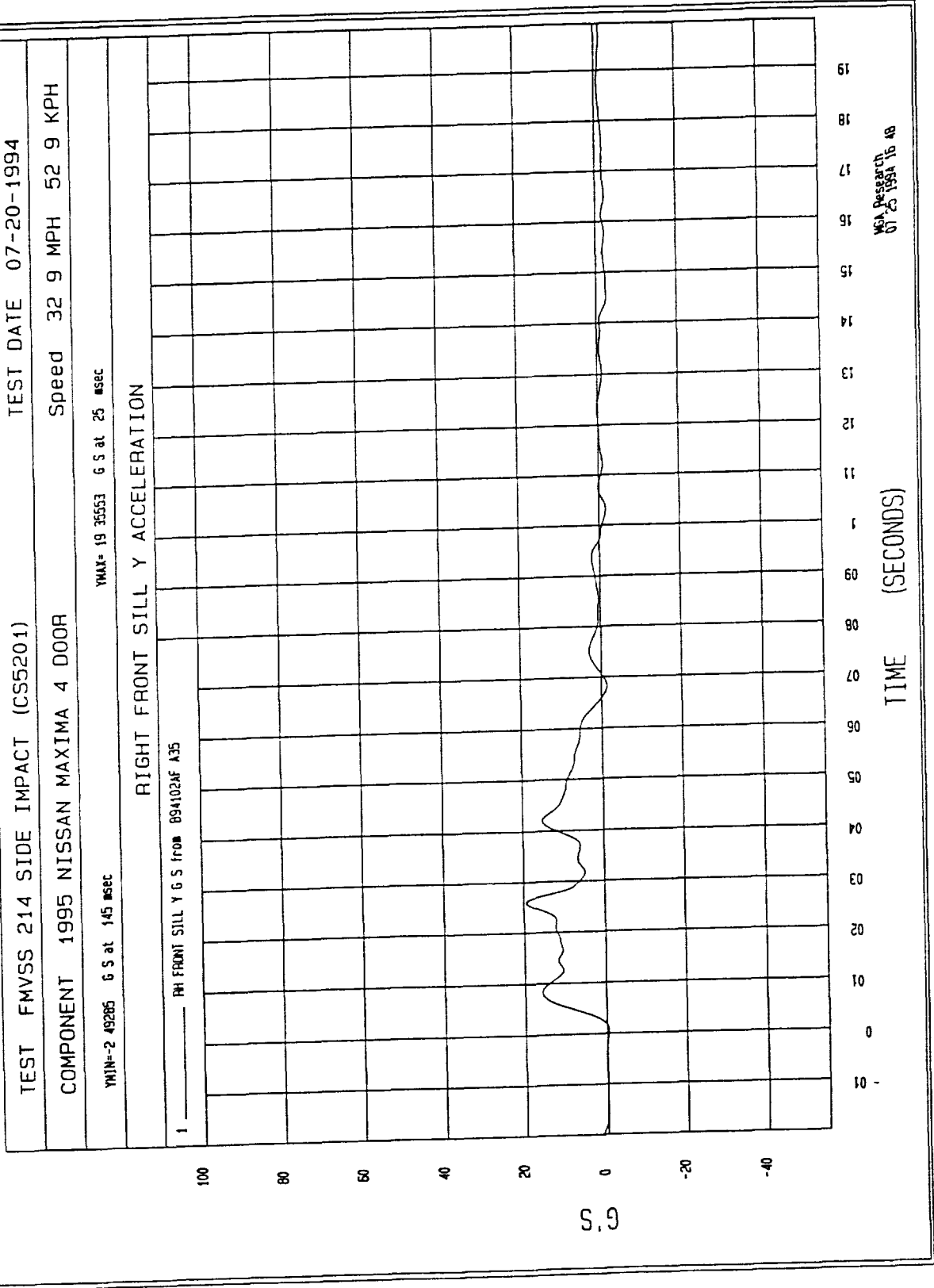


Figure B-23 - Right Front Sill Y Acceleration vs. Time

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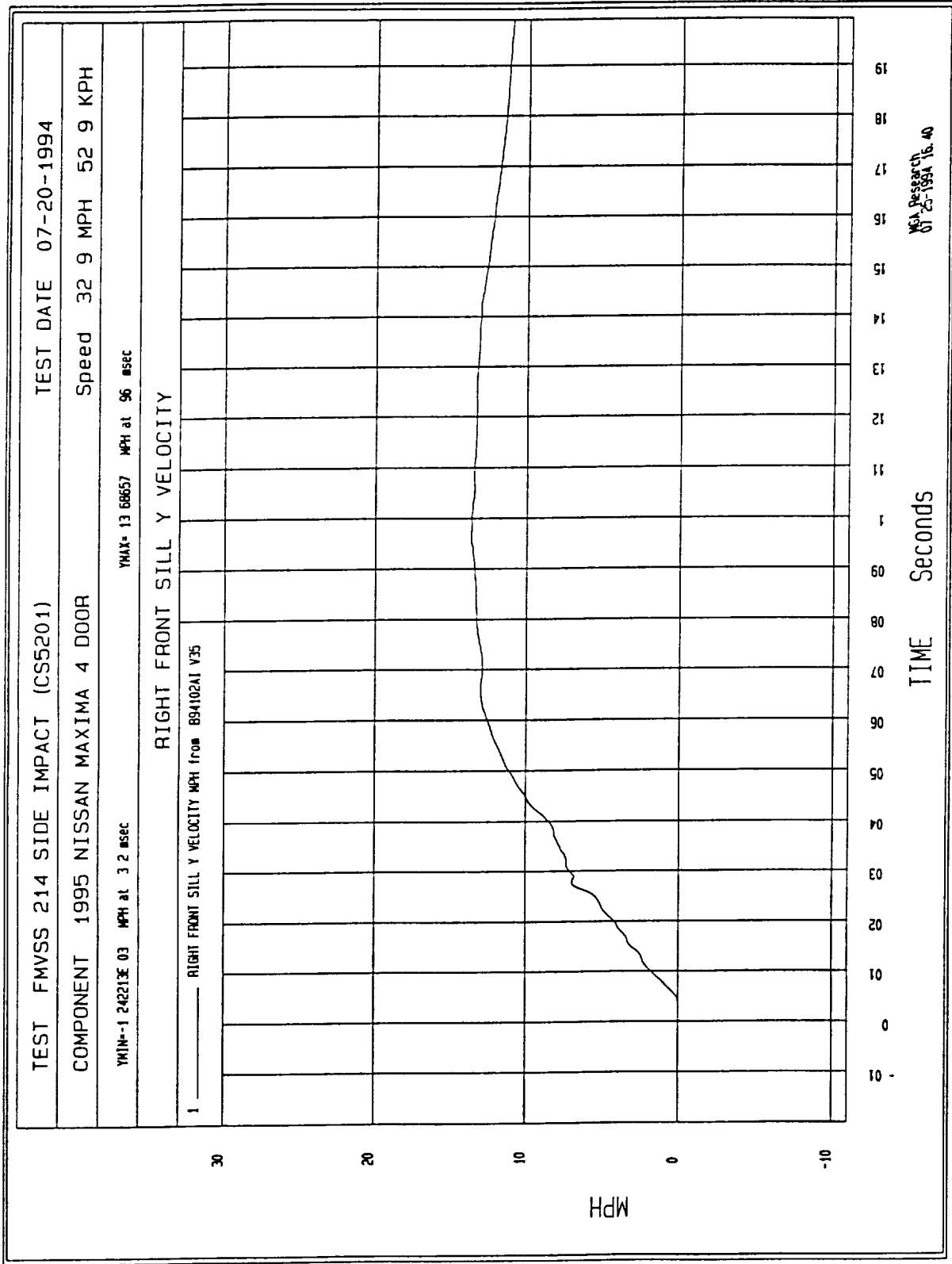


Figure B-24 - Right Front Sill Y Velocity vs. Time

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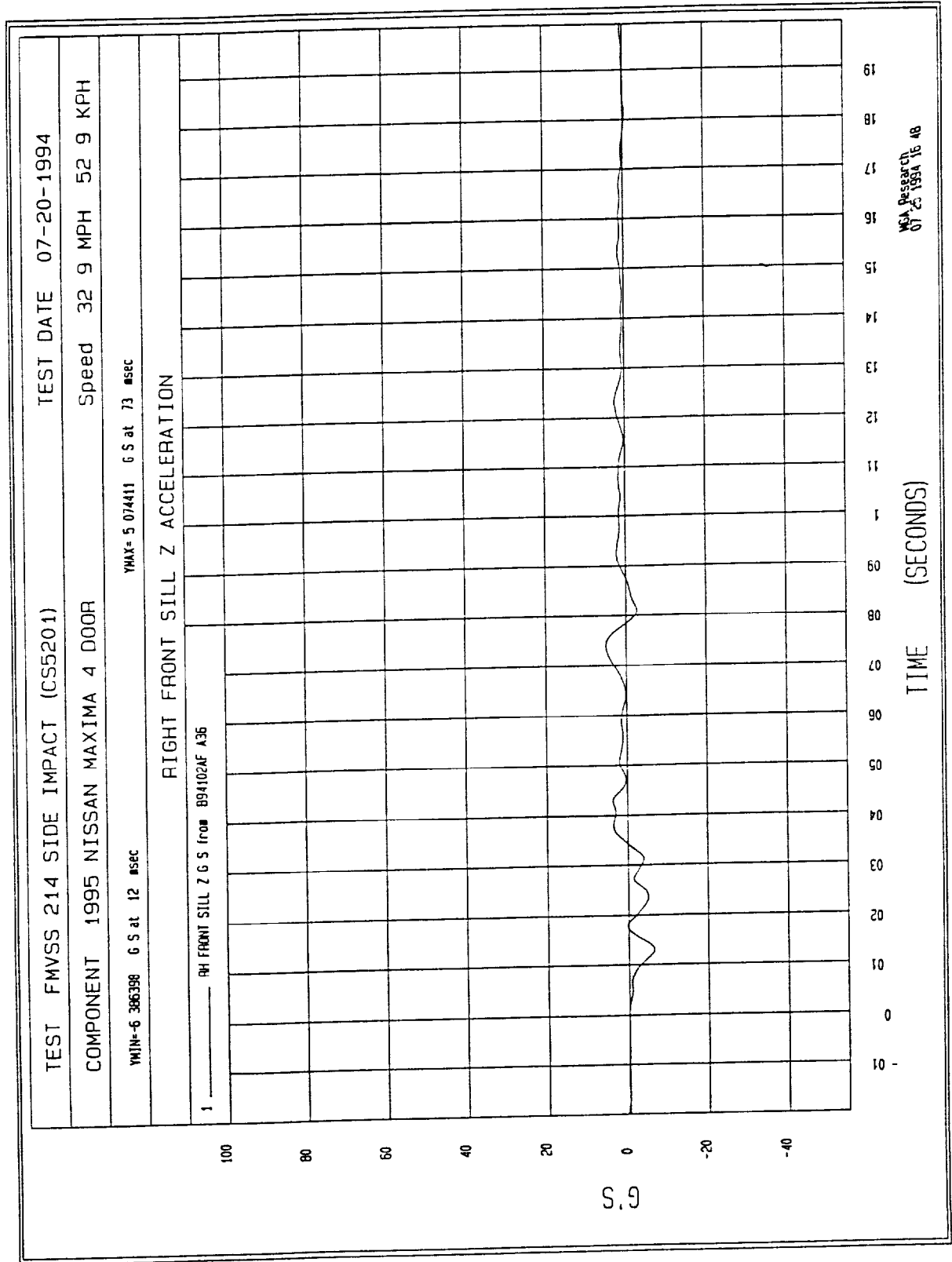


Figure B-25 - Right Front Sill Z Acceleration vs. Time

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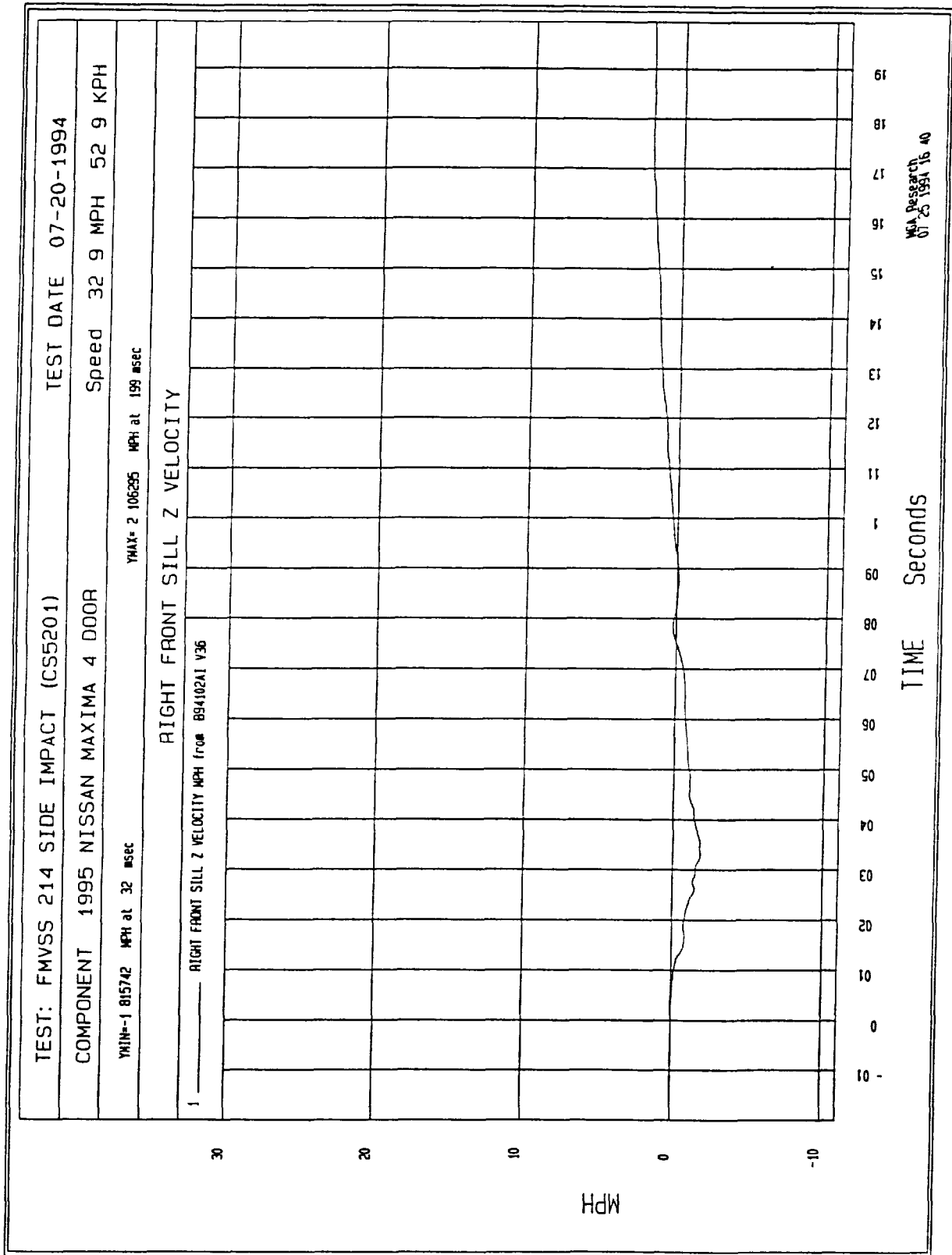


Figure B-26 - Right Front Sill Z Velocity vs. Time

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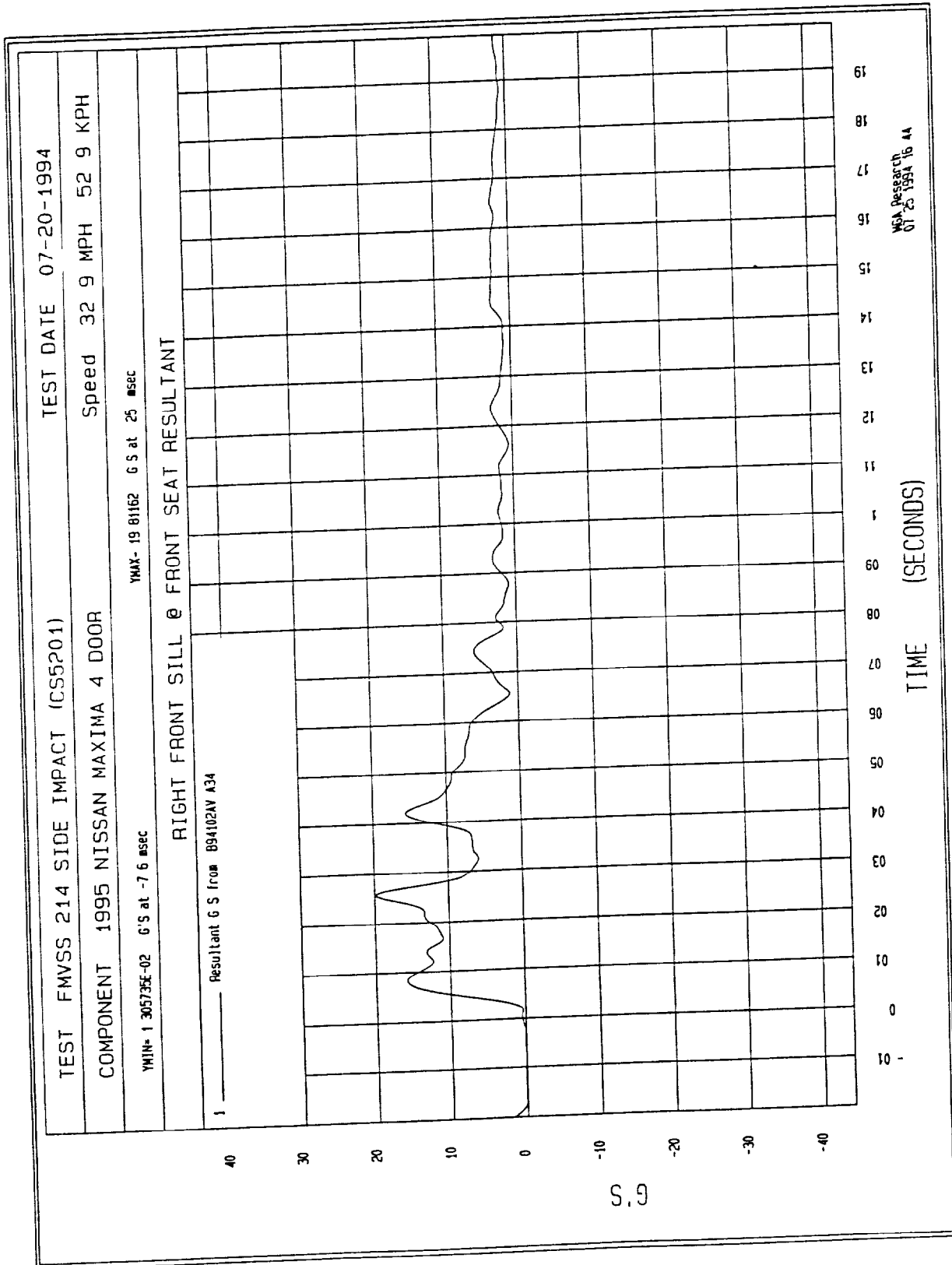


Figure B-27 - Right Front Sill at Front Seat Resultant vs. Time

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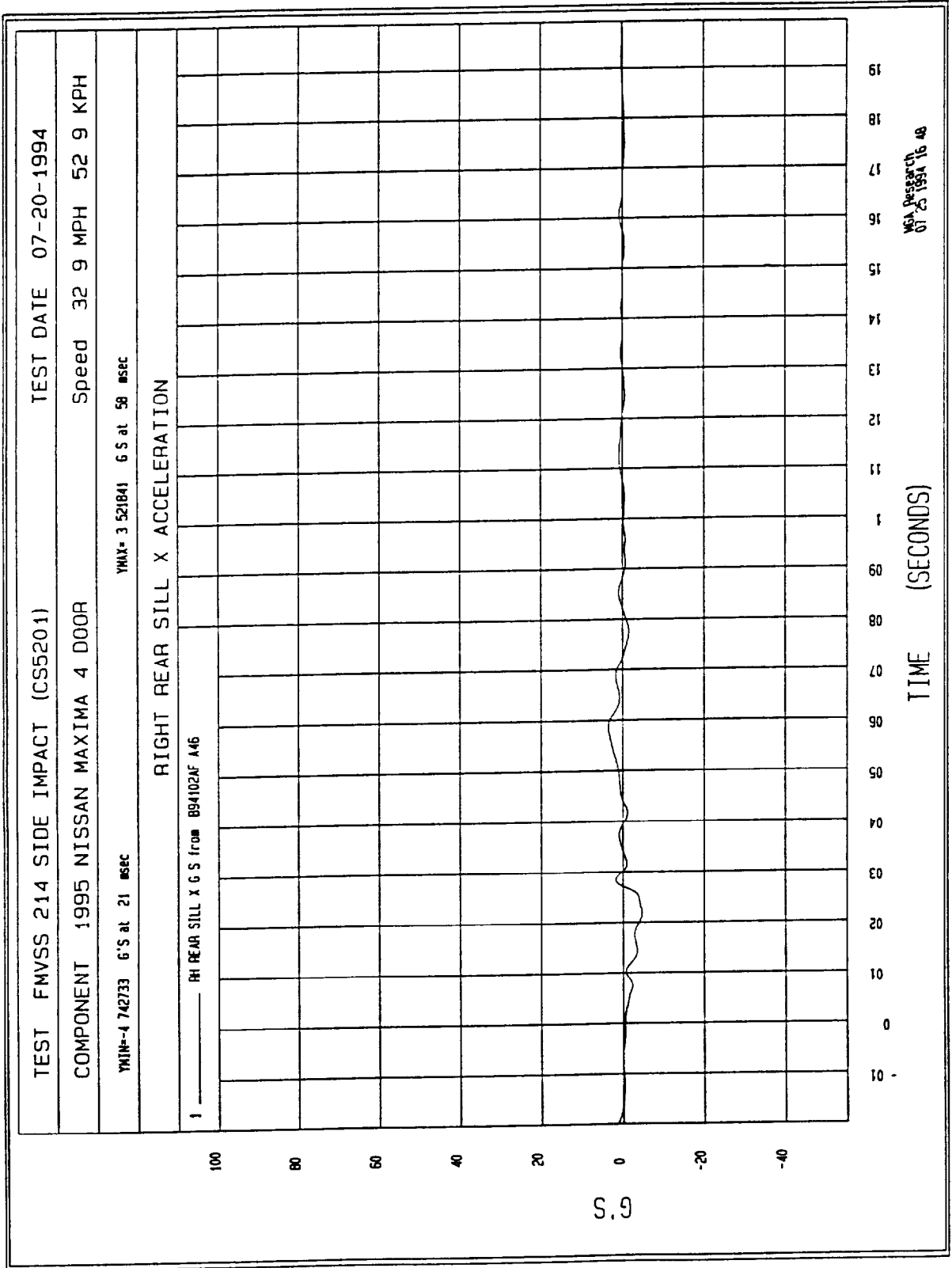


Figure B-28 - Right Rear Sill X Acceleration vs. Time

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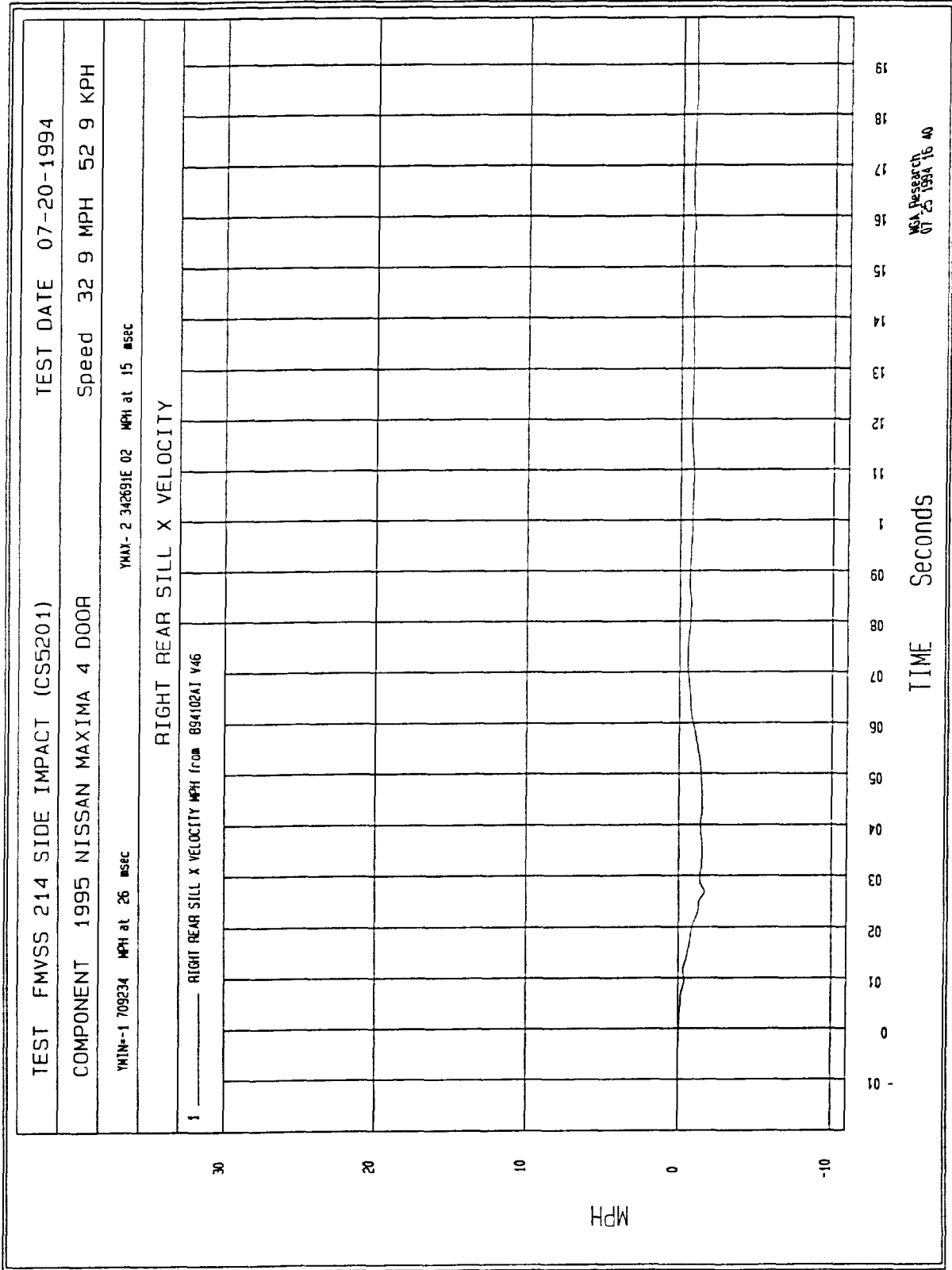


Figure B-29 - Right Rear Sill X Velocity vs. Time

Filter: Class 60 (100 Hz)

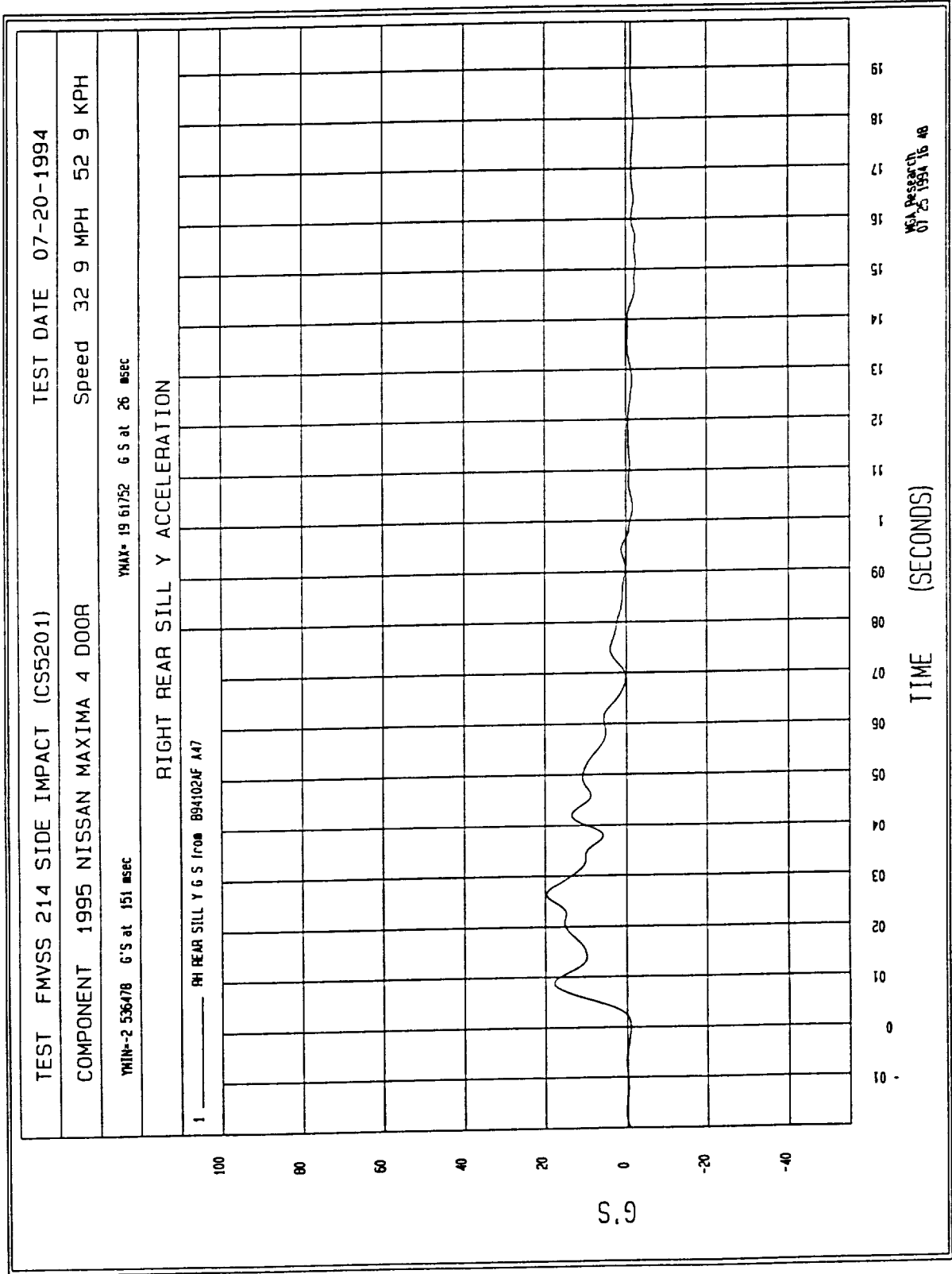


Figure B-30 - Right Rear Sill Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

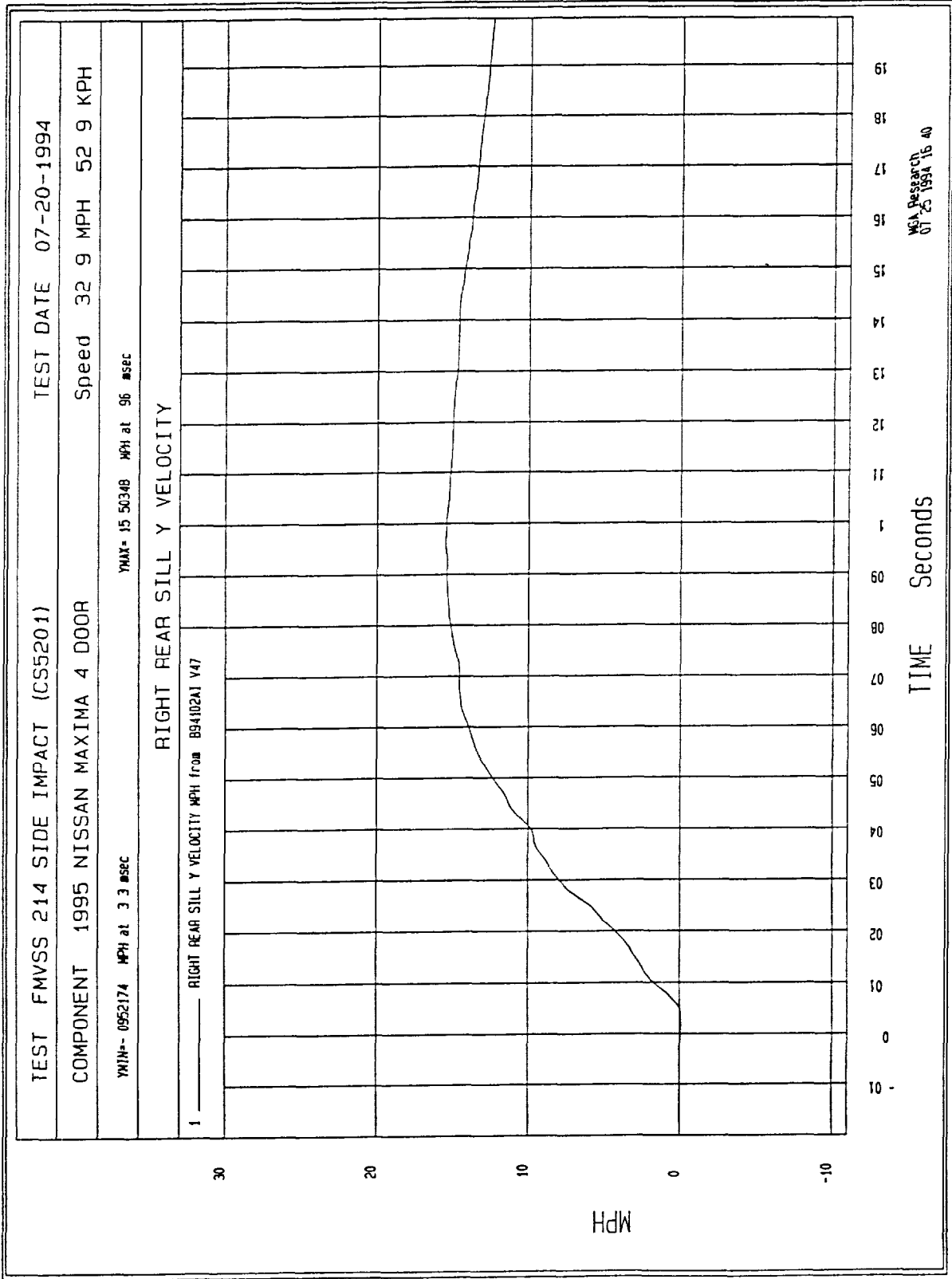


Figure B-31 - Right Rear Sill Y Velocity vs. Time

Filter: Class 60 (100 Hz)

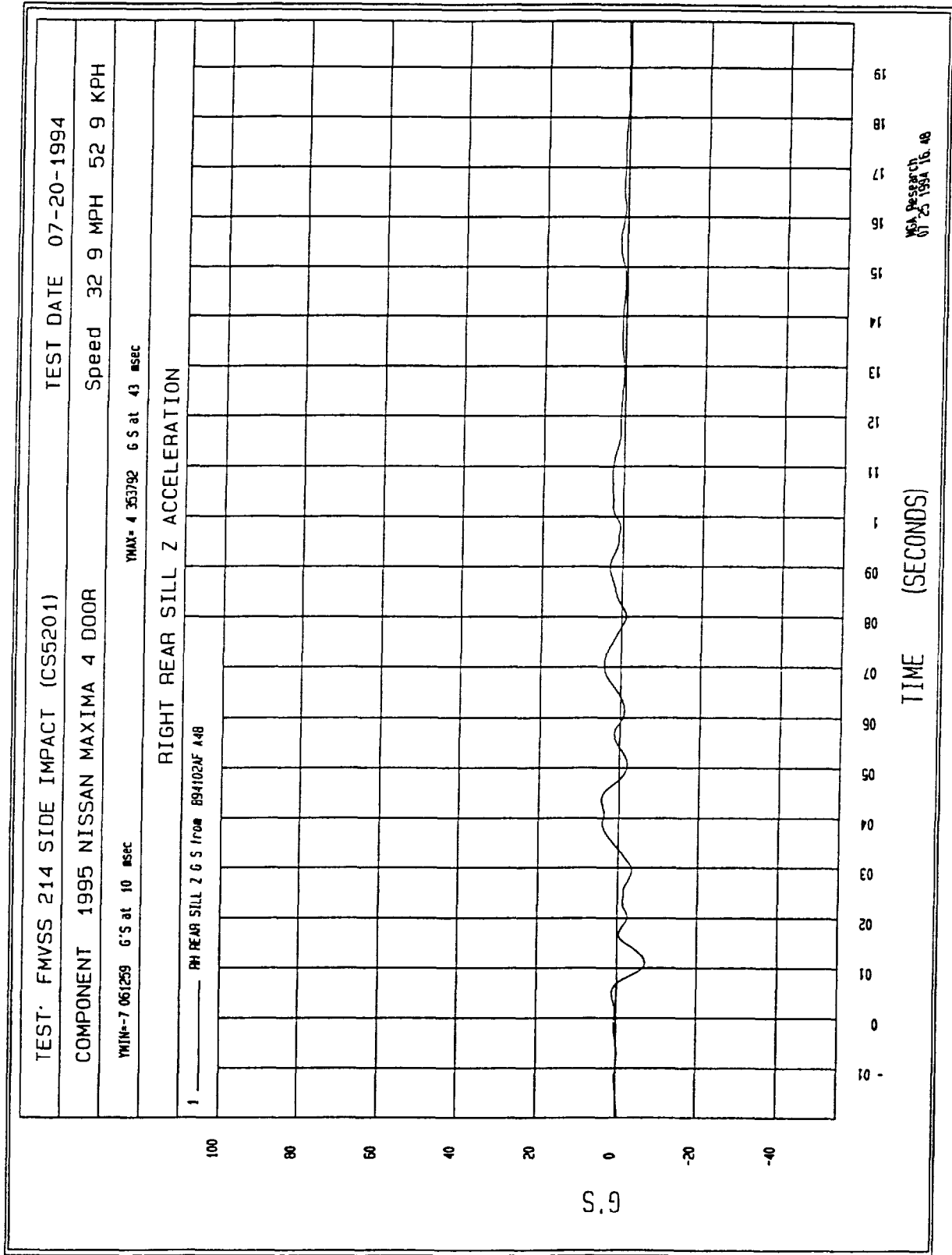


Figure B-32 - Right Rear Sill Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

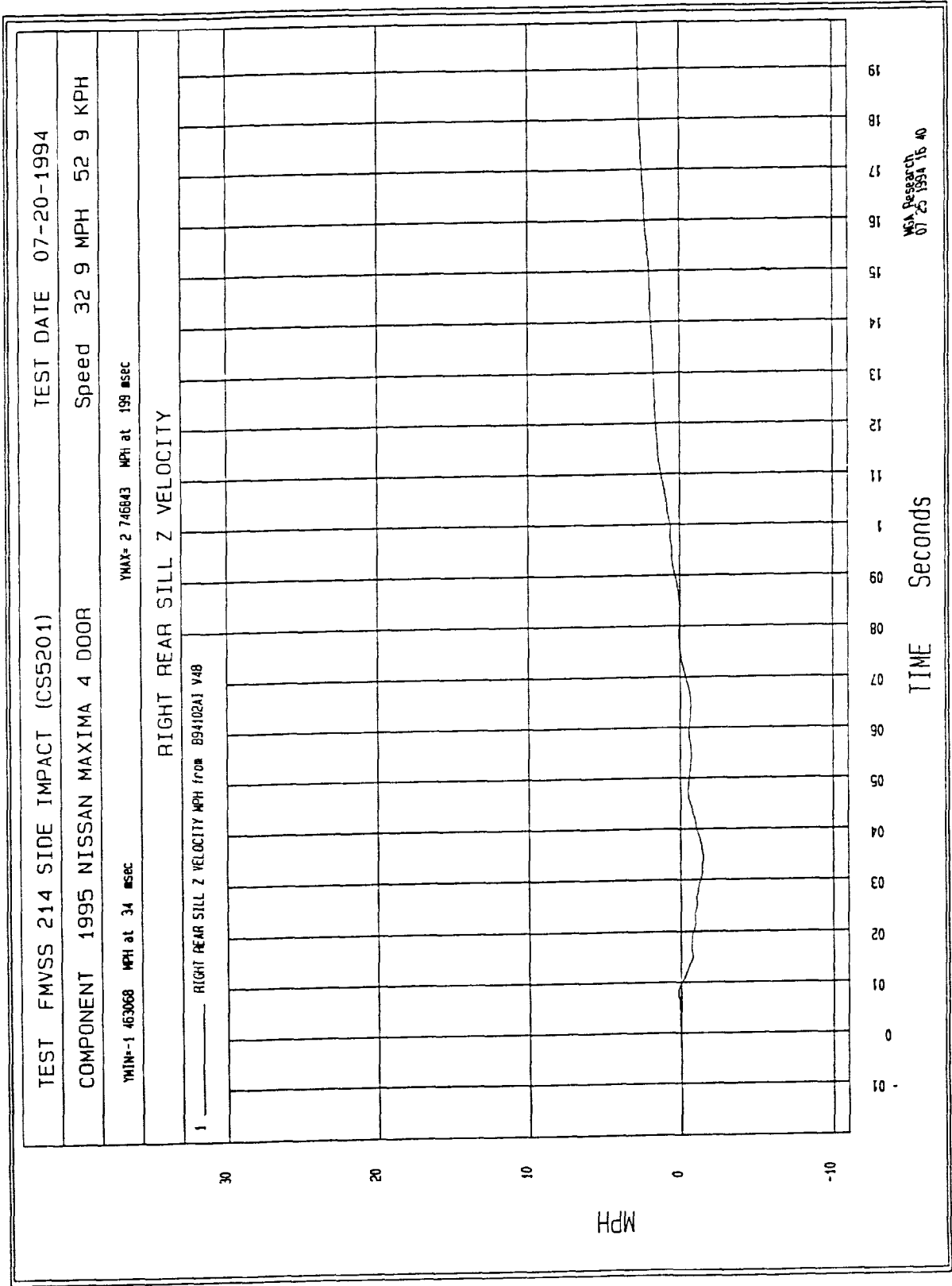


Figure B-33 - Right Rear Sill Z Velocity vs. Time

Filter: Class 60 (100 Hz)

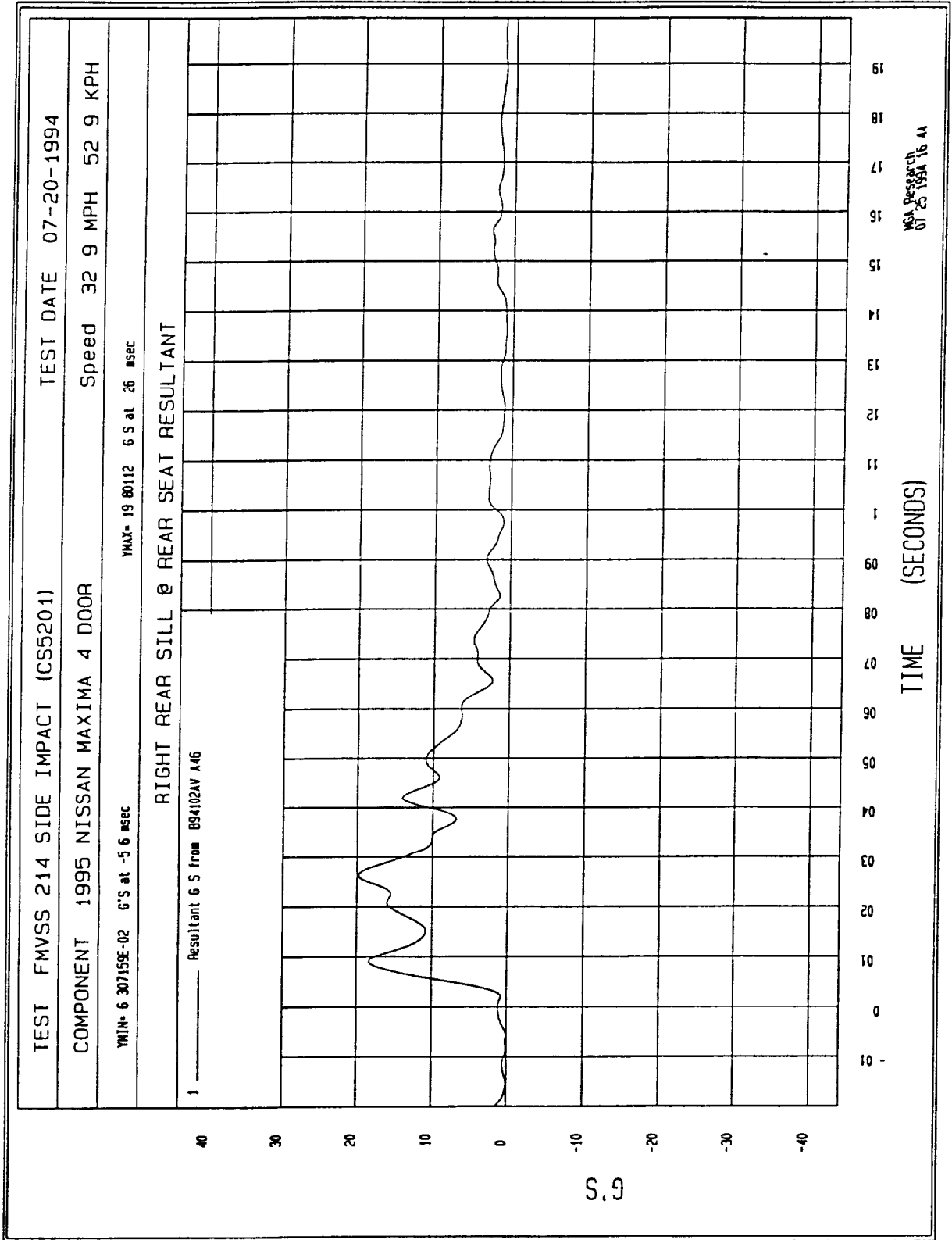


Figure B-34 - Right Rear Sill at Rear Seat Resultant vs. Time

Filter: Class 60 (100 Hz)

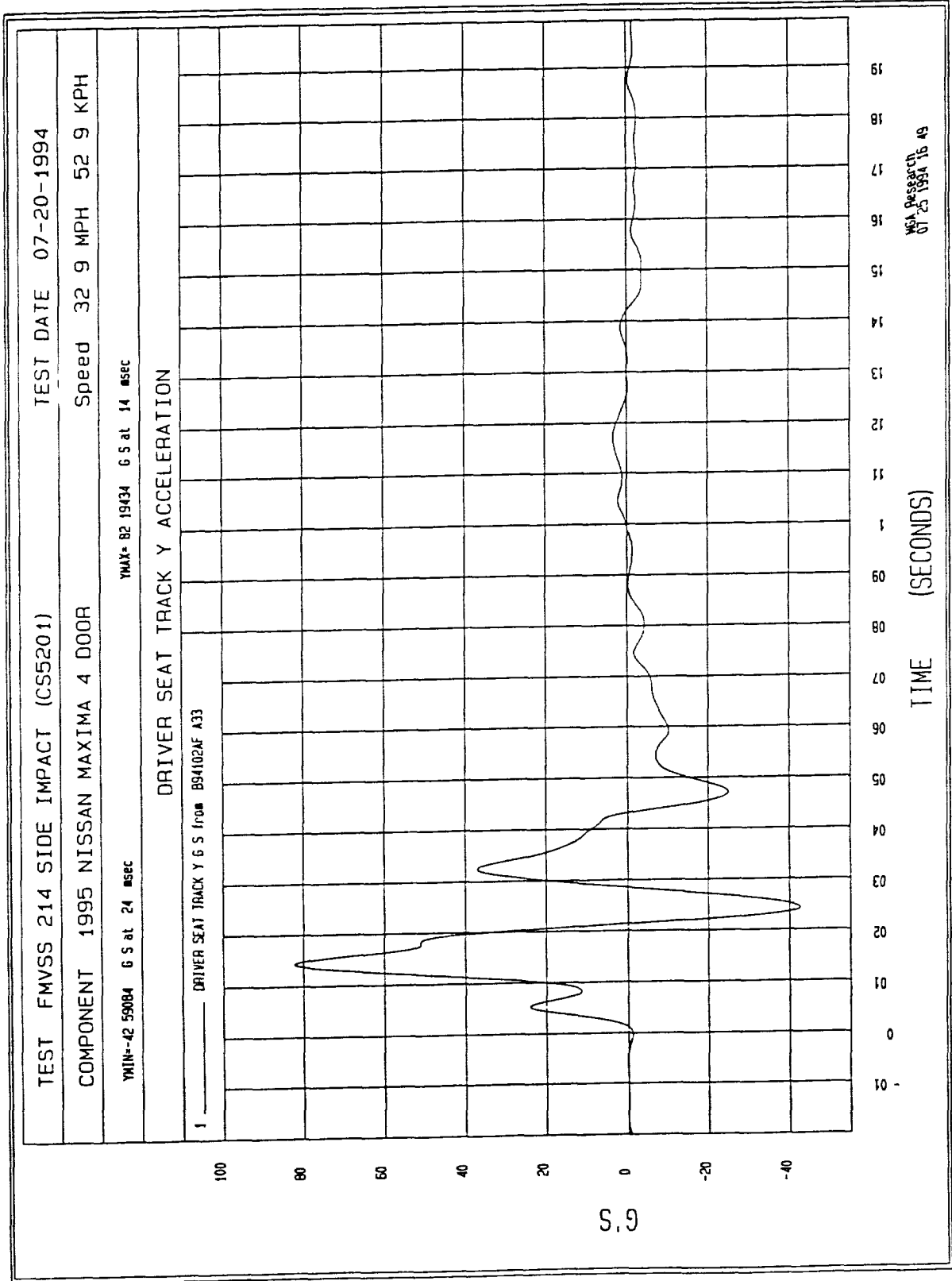


Figure B-35 - Driver Seat Track Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

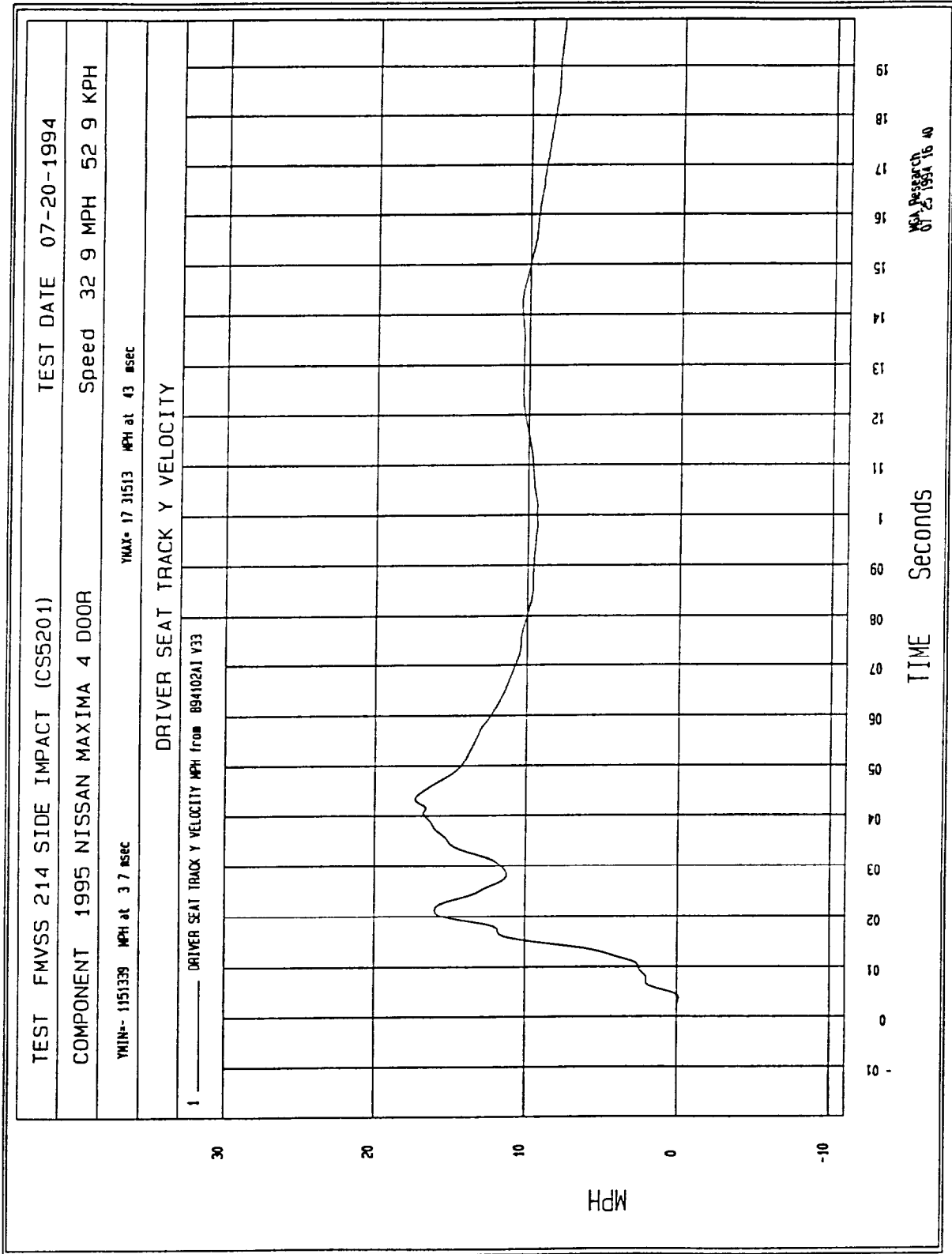


Figure B-36 - Driver Seat Track Y Velocity vs. Time

Filter: Class 60 (100 Hz)

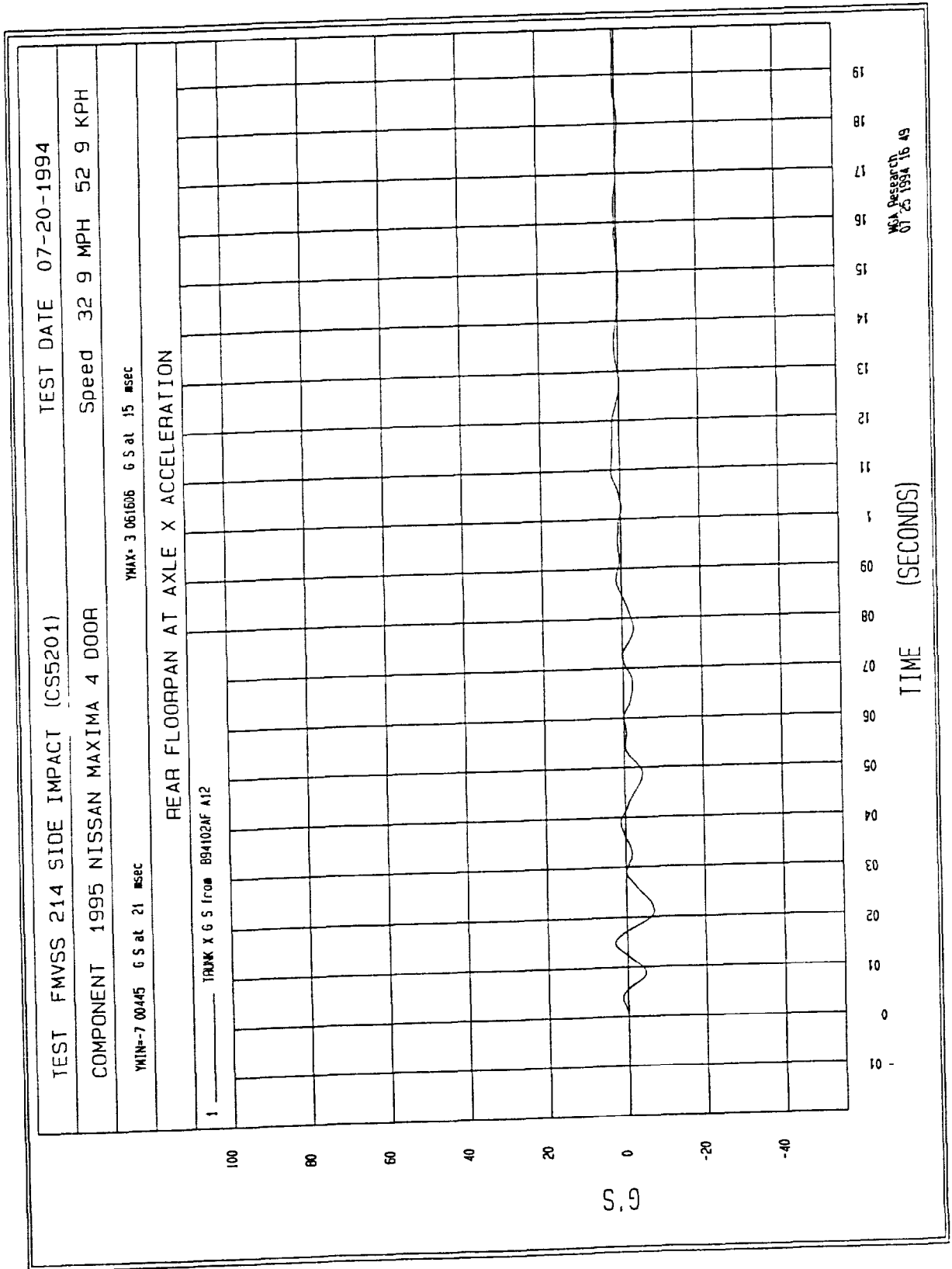


Figure B-37 - Rear Floorpan at Axle X Acceleration vs. Time

Filter: Class 180 (300 Hz)

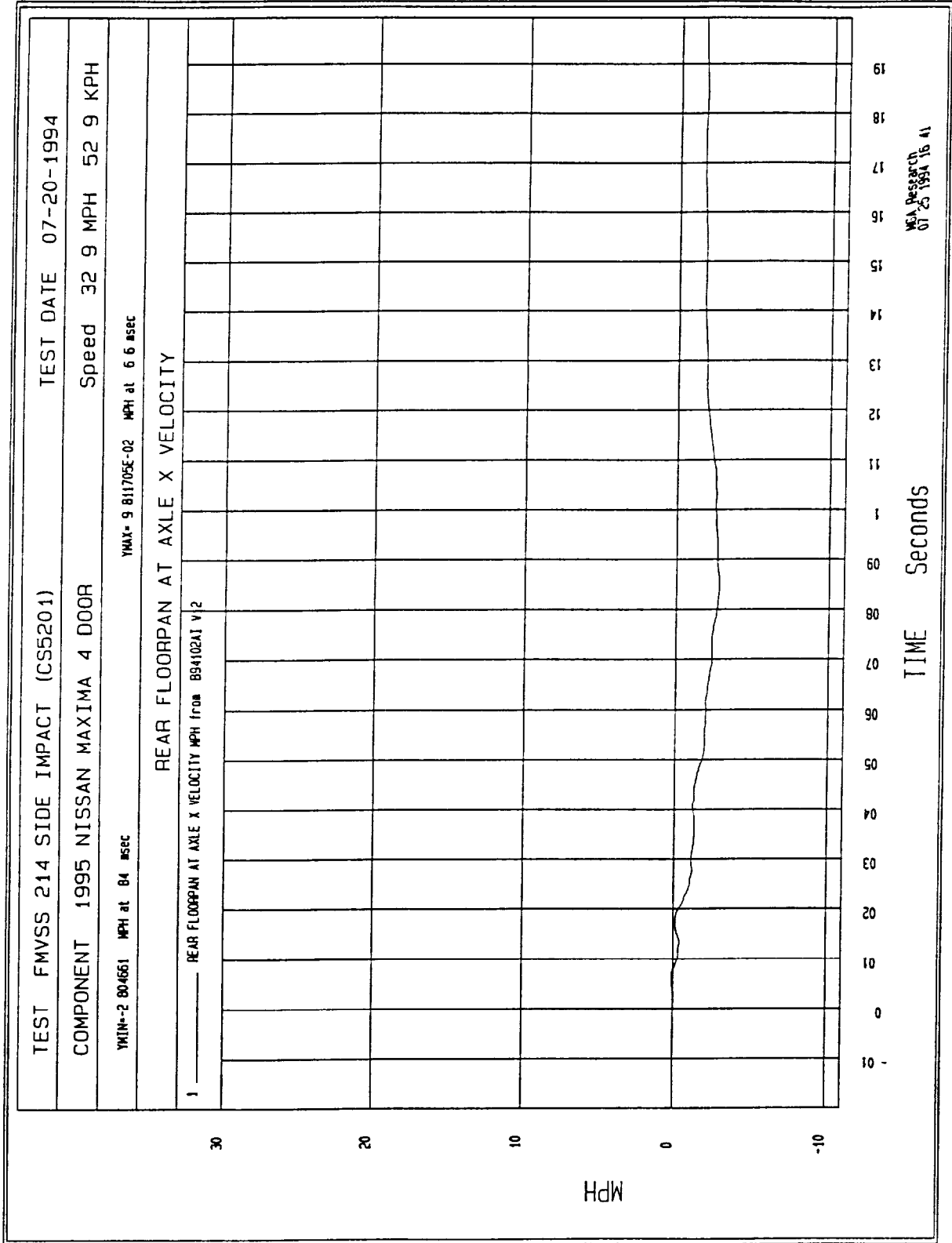


Figure B-38 - Rear Floorpan at Axle X Velocity vs. Time

Filter: Class 60 (100 Hz)

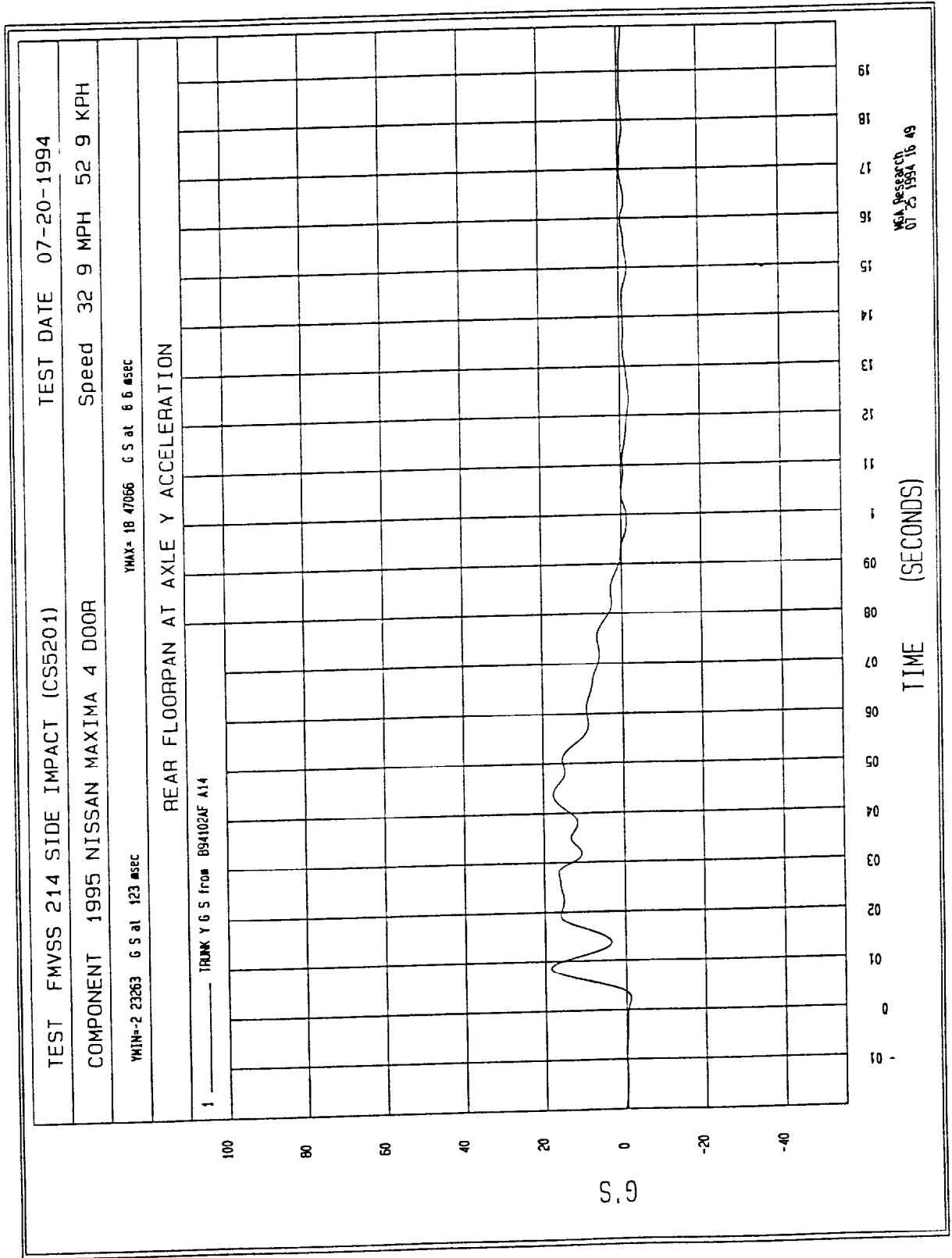


Figure B-39 - Rear Floorpan at Axle Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

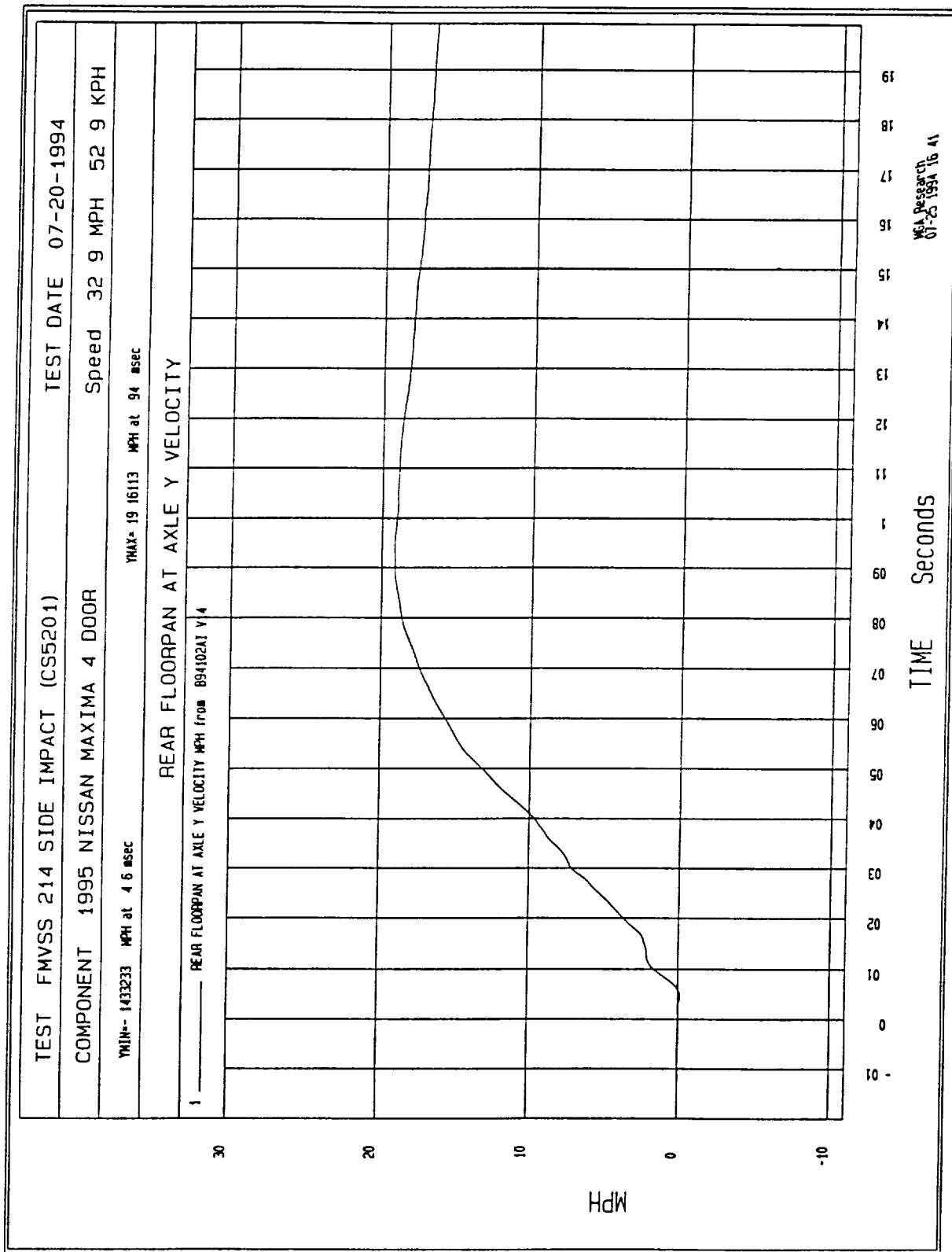


Figure B-40 - Rear Floorpan at Axle Y Velocity vs. Time

Filter: Class 60 (100 Hz)

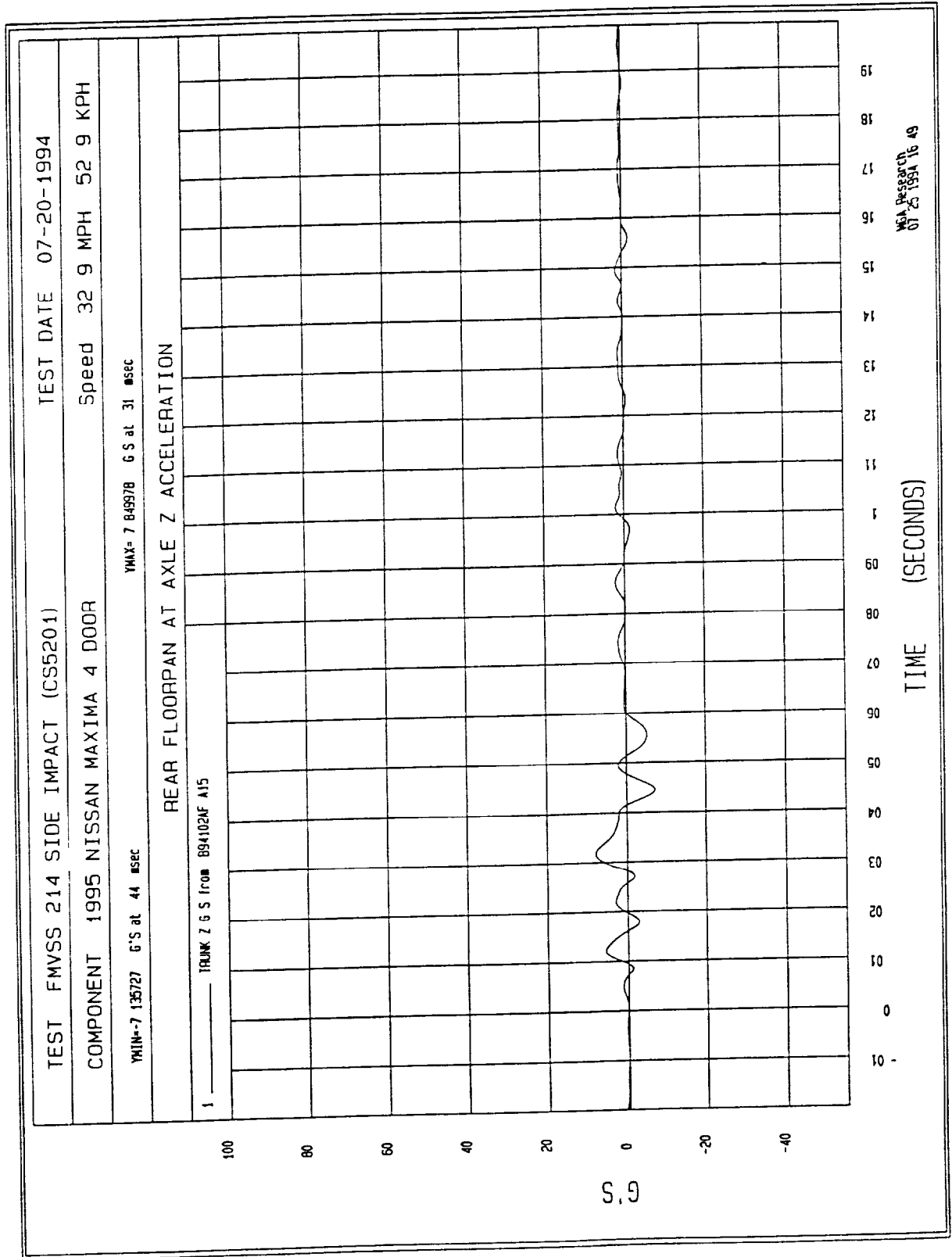


Figure B-41 - Rear Floorpan at Axle Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

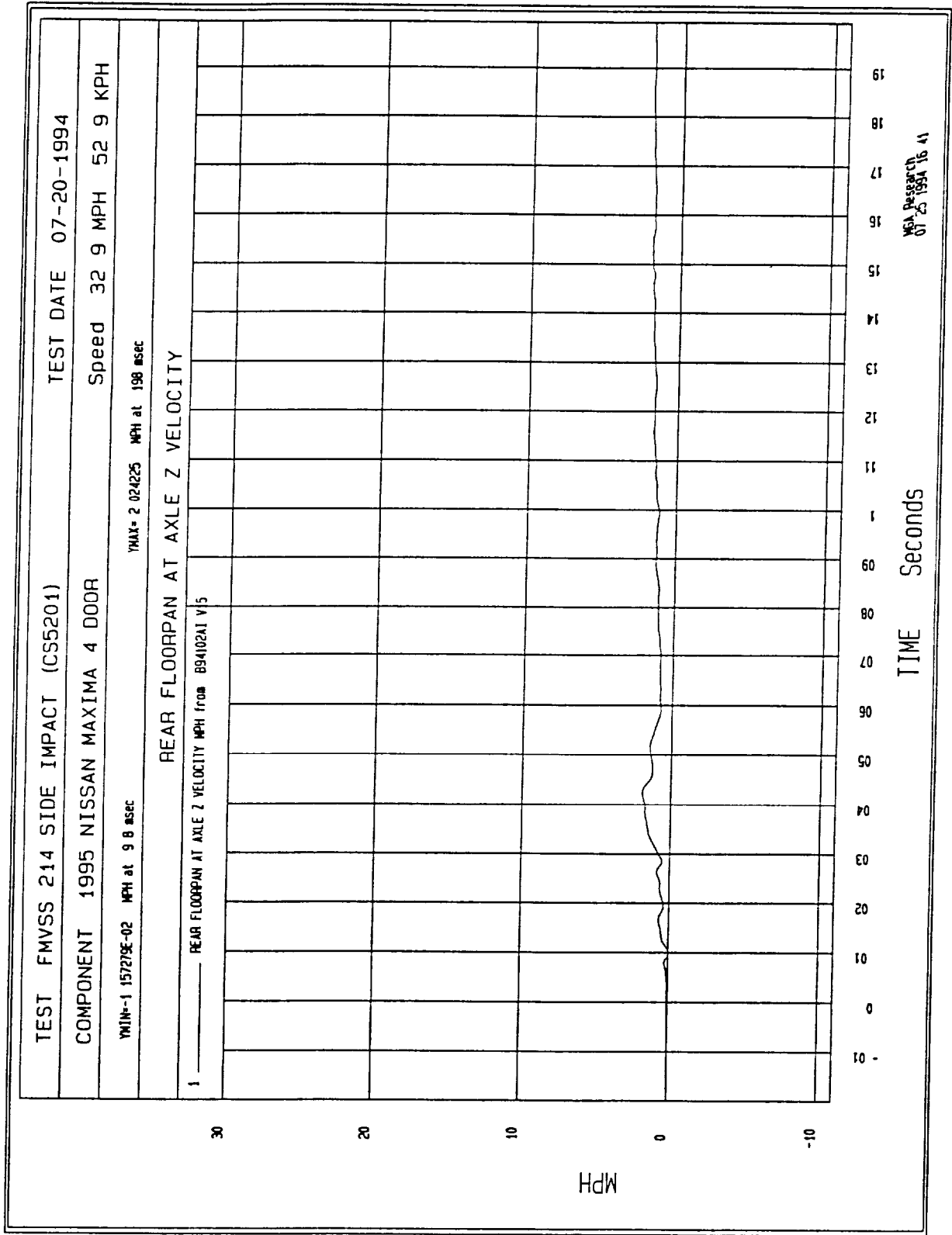


Figure B-42 - Rear Floorpan at Axle Z Velocity vs. Time

Filter: Class 60 (100 Hz)

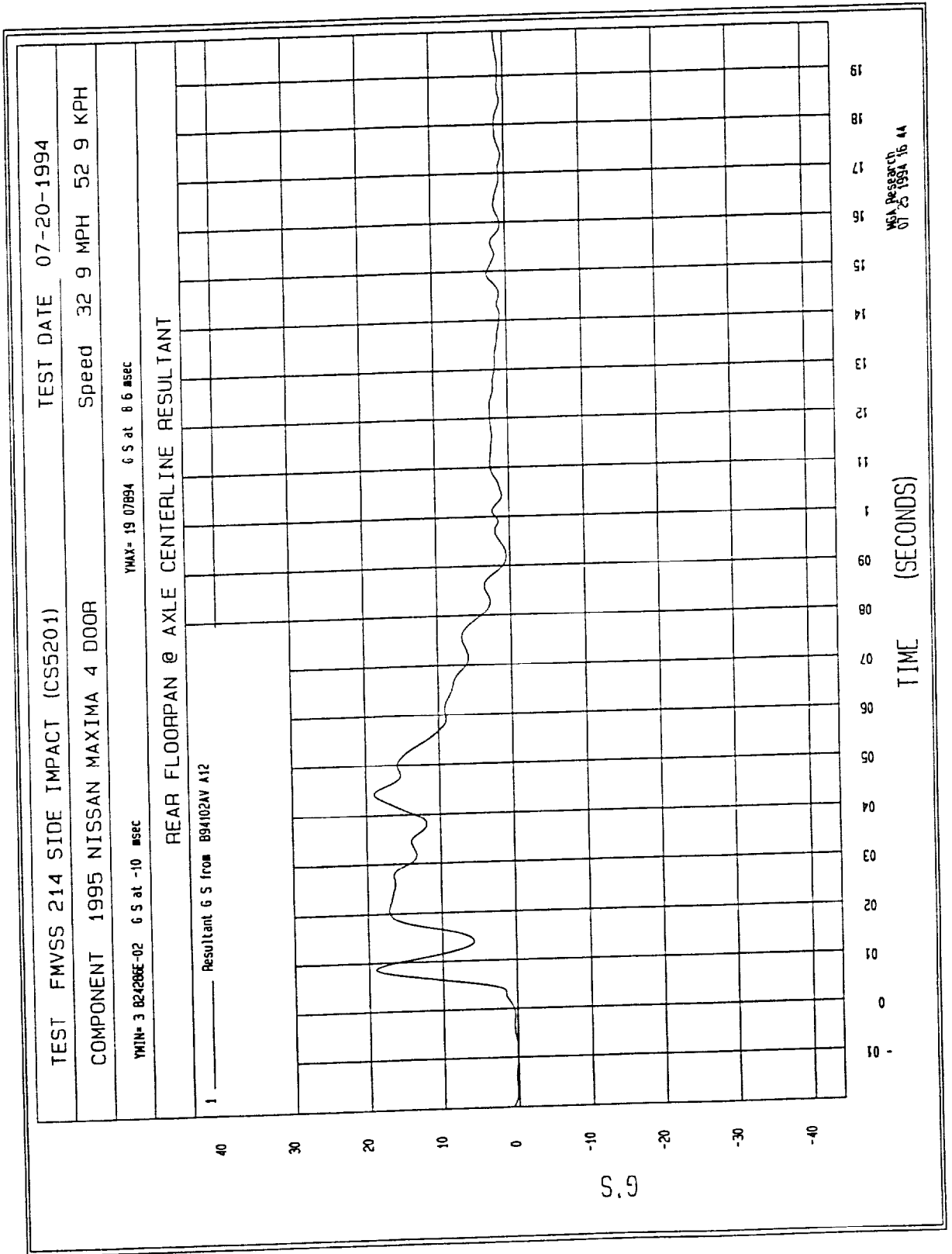


Figure B-43 - Rear Floorpan at Axle Centerline Resultant vs. Time

Filter: Class 60 (100 Hz)

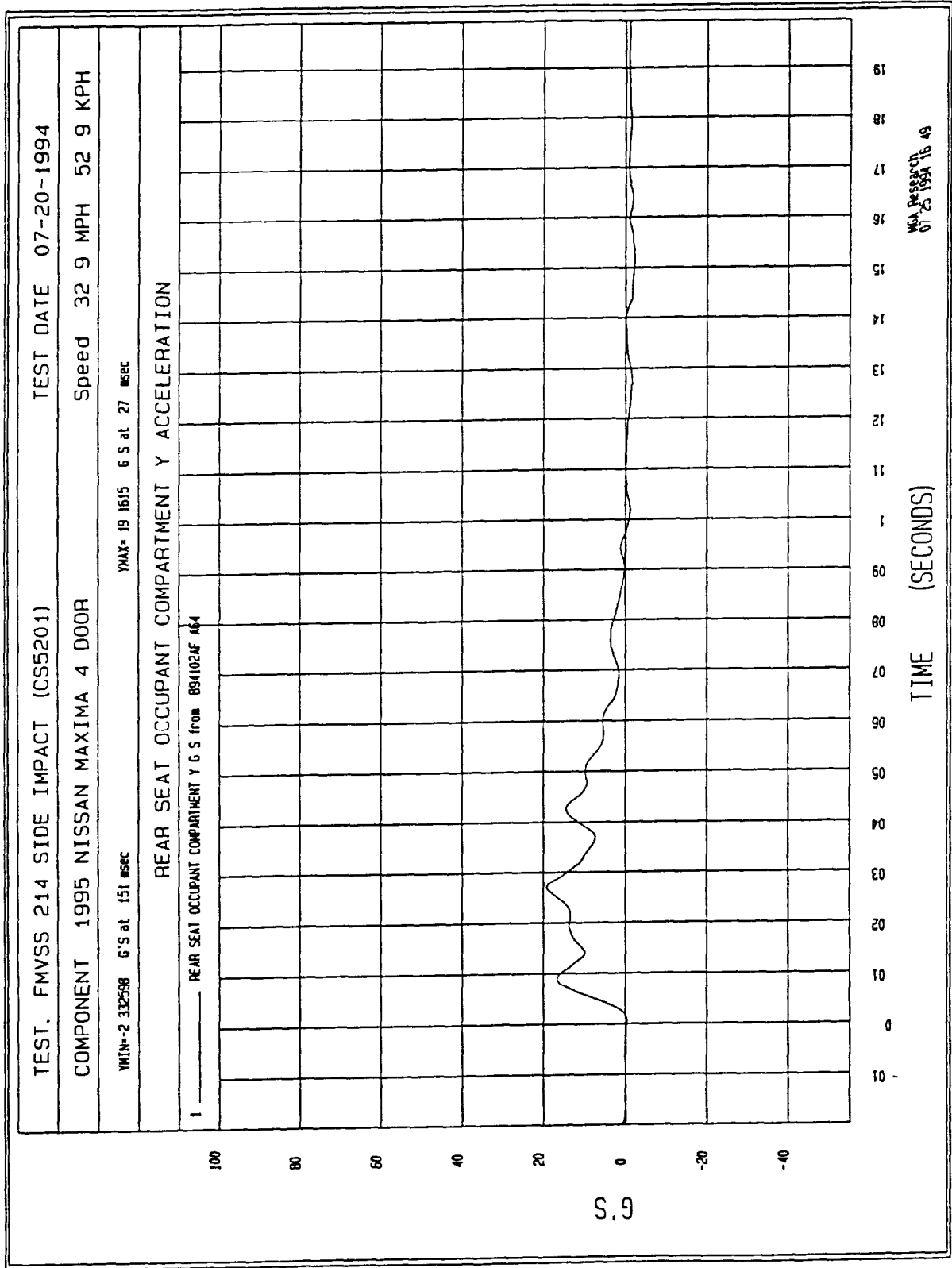


Figure B-44 - Rear Seat Occupant Compartment Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

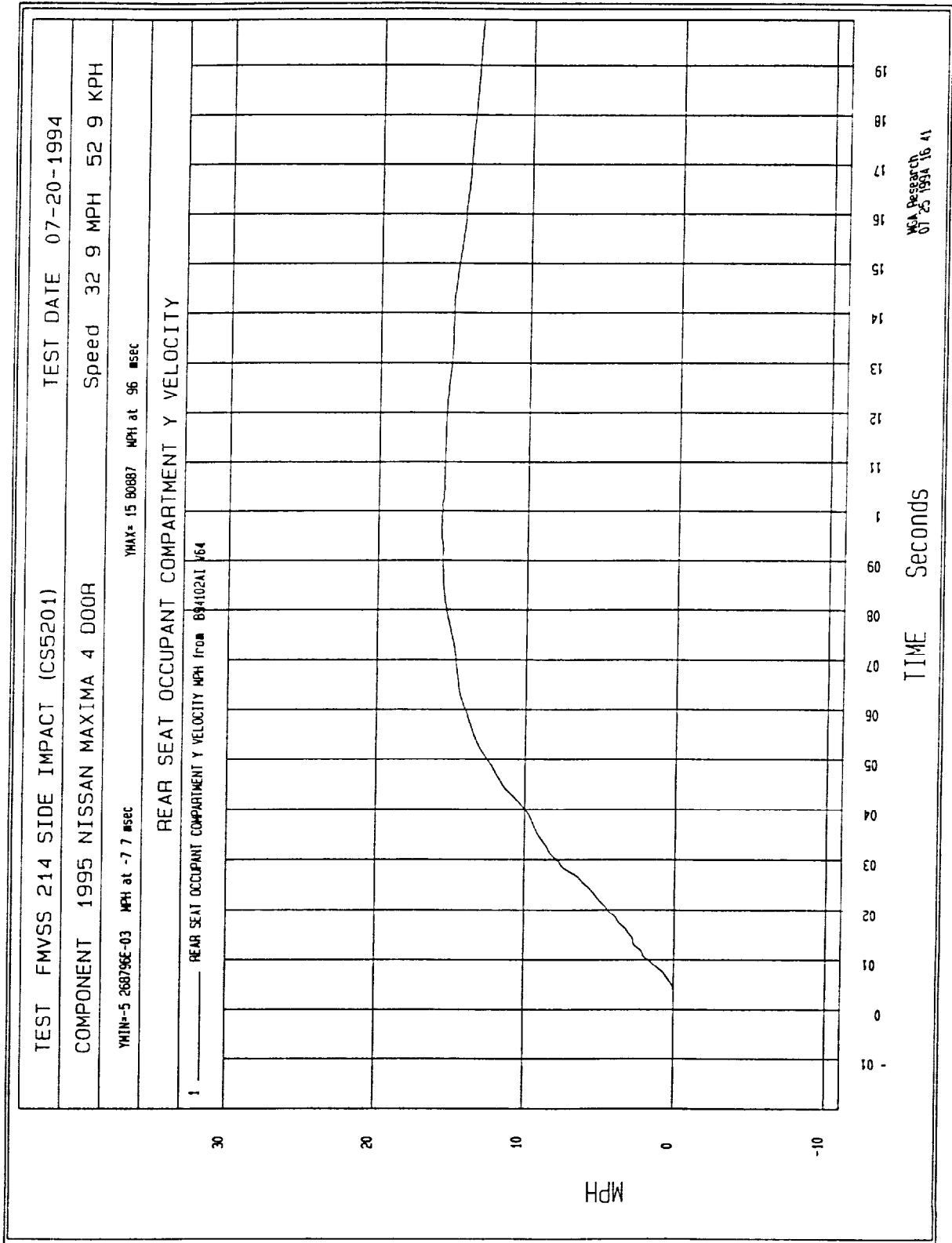


Figure B-45 - Rear Seat Occupant Compartment Y Velocity vs. Time

Filter: Class 60 (100 Hz)

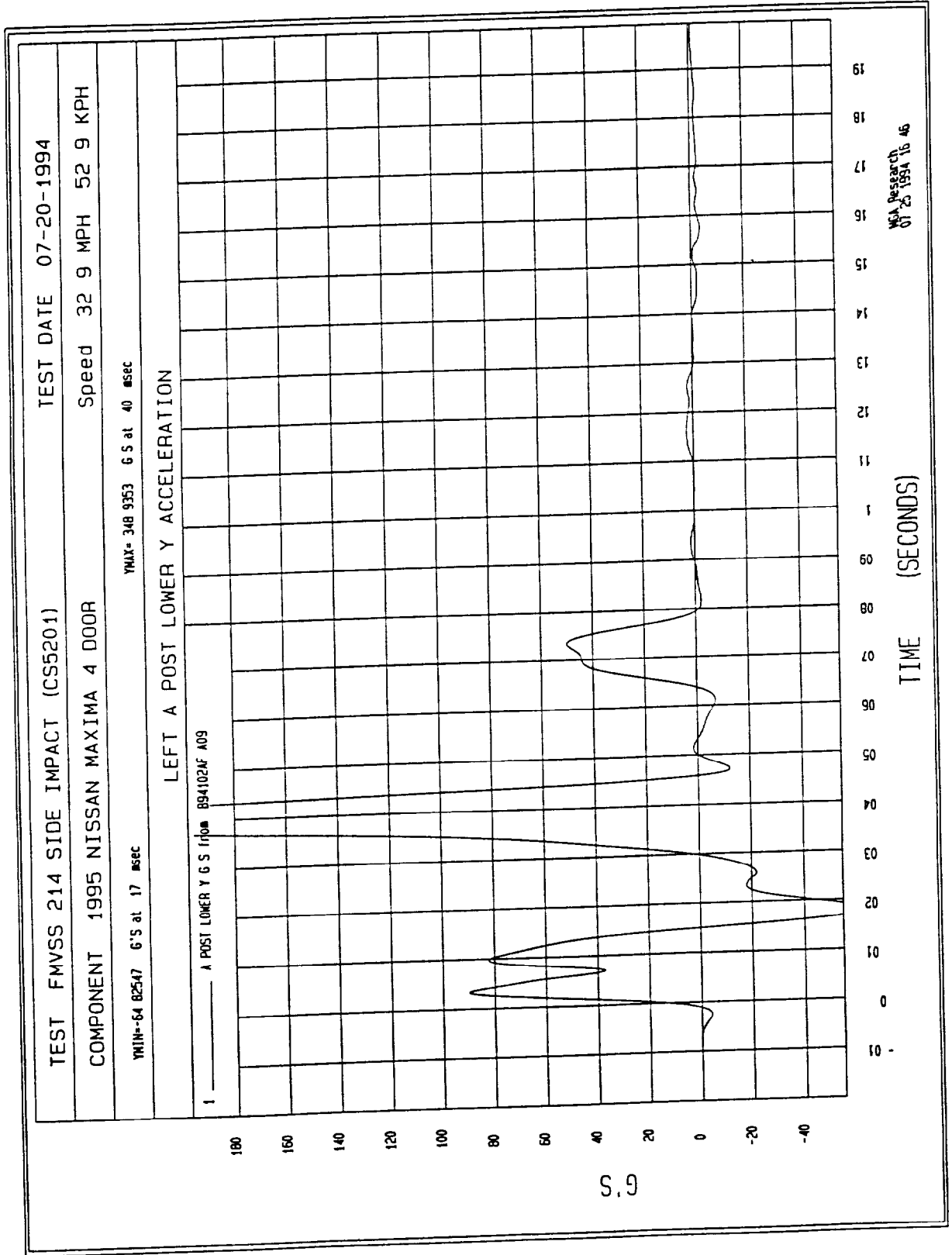


Figure B-46 - Left A Post Lower Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

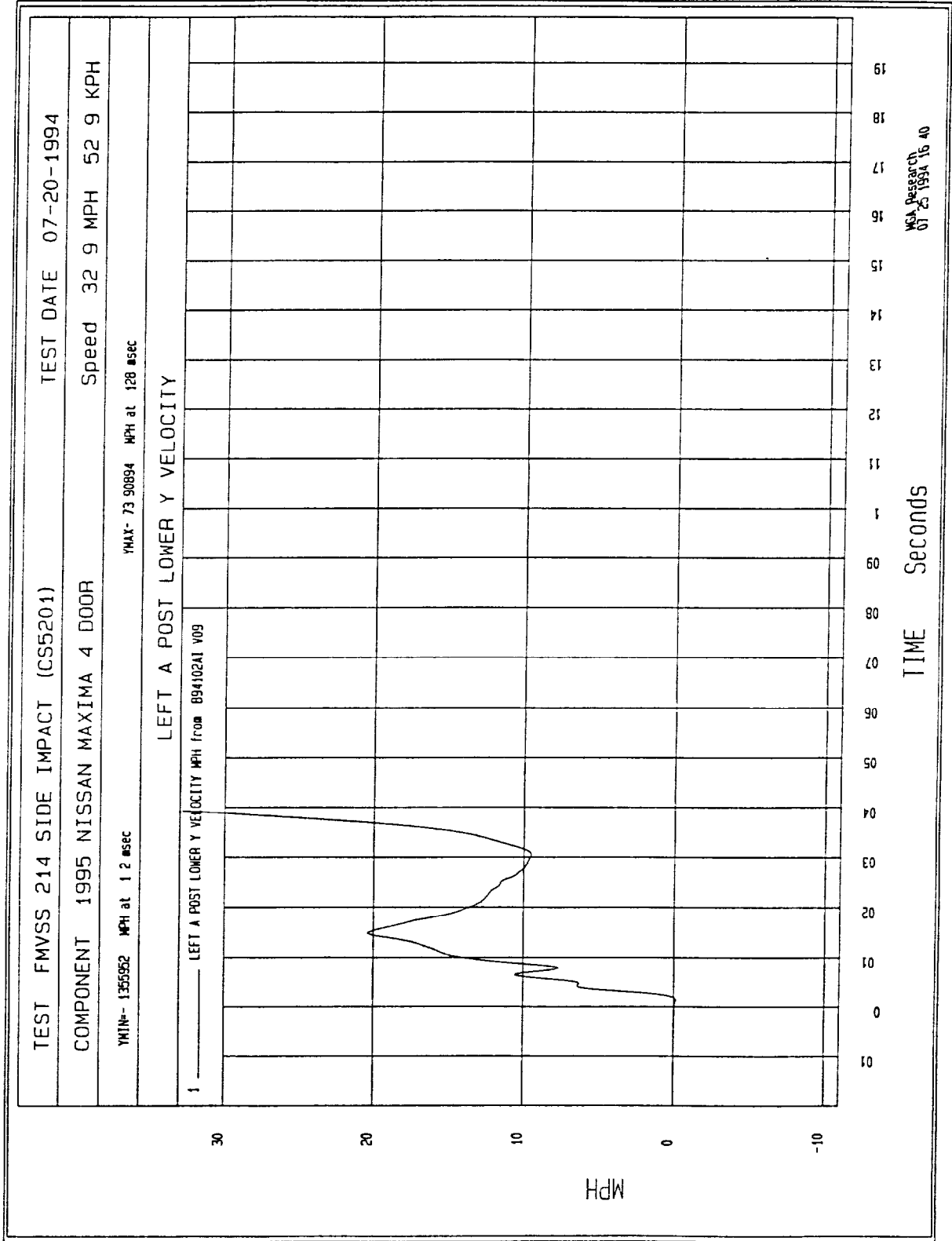


Figure B-47 - Left A Post Lower Y Velocity vs. Time

Filter: Class 60 (100 Hz)

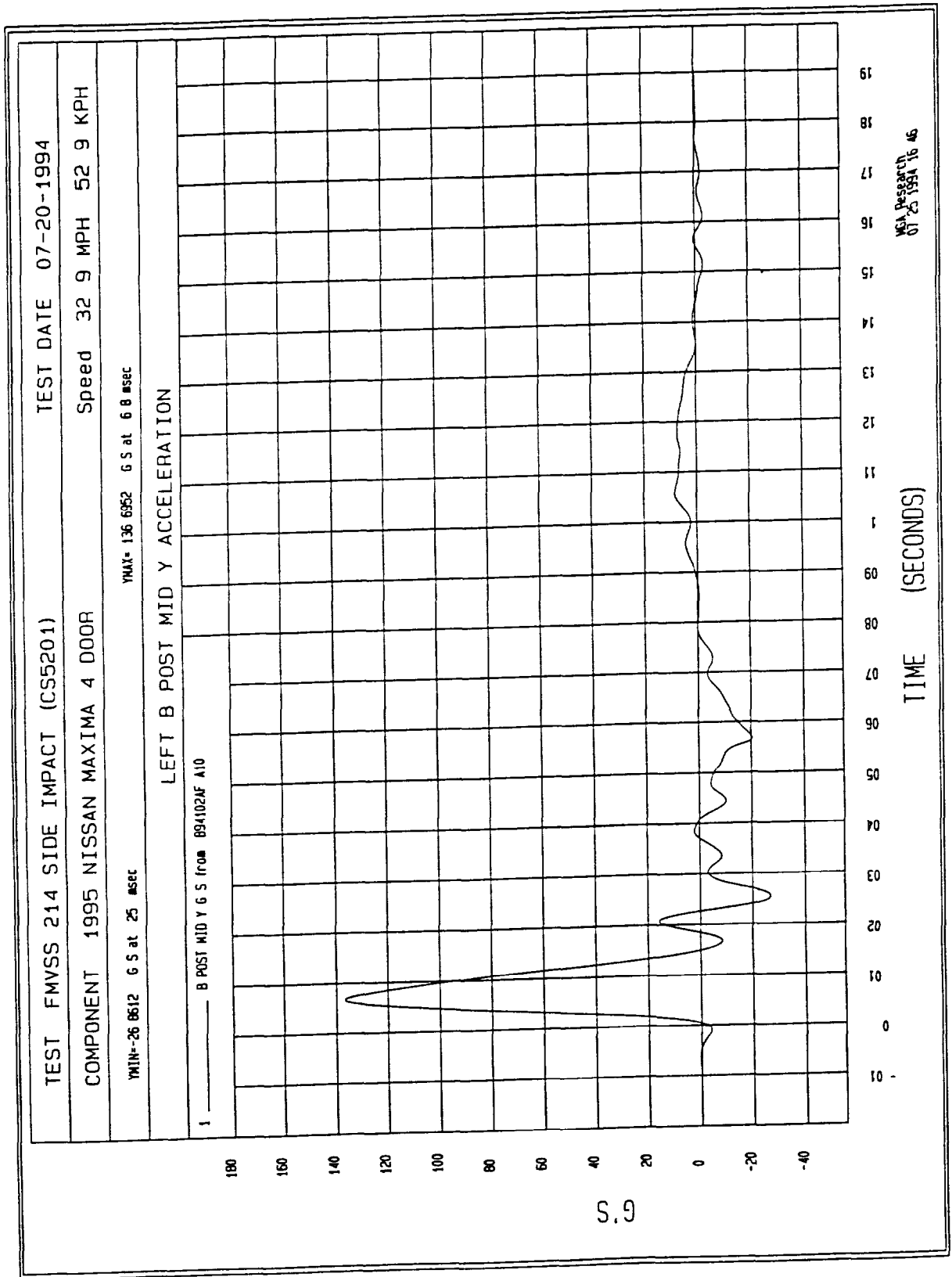


Figure B-48 - Left B Post Mid Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

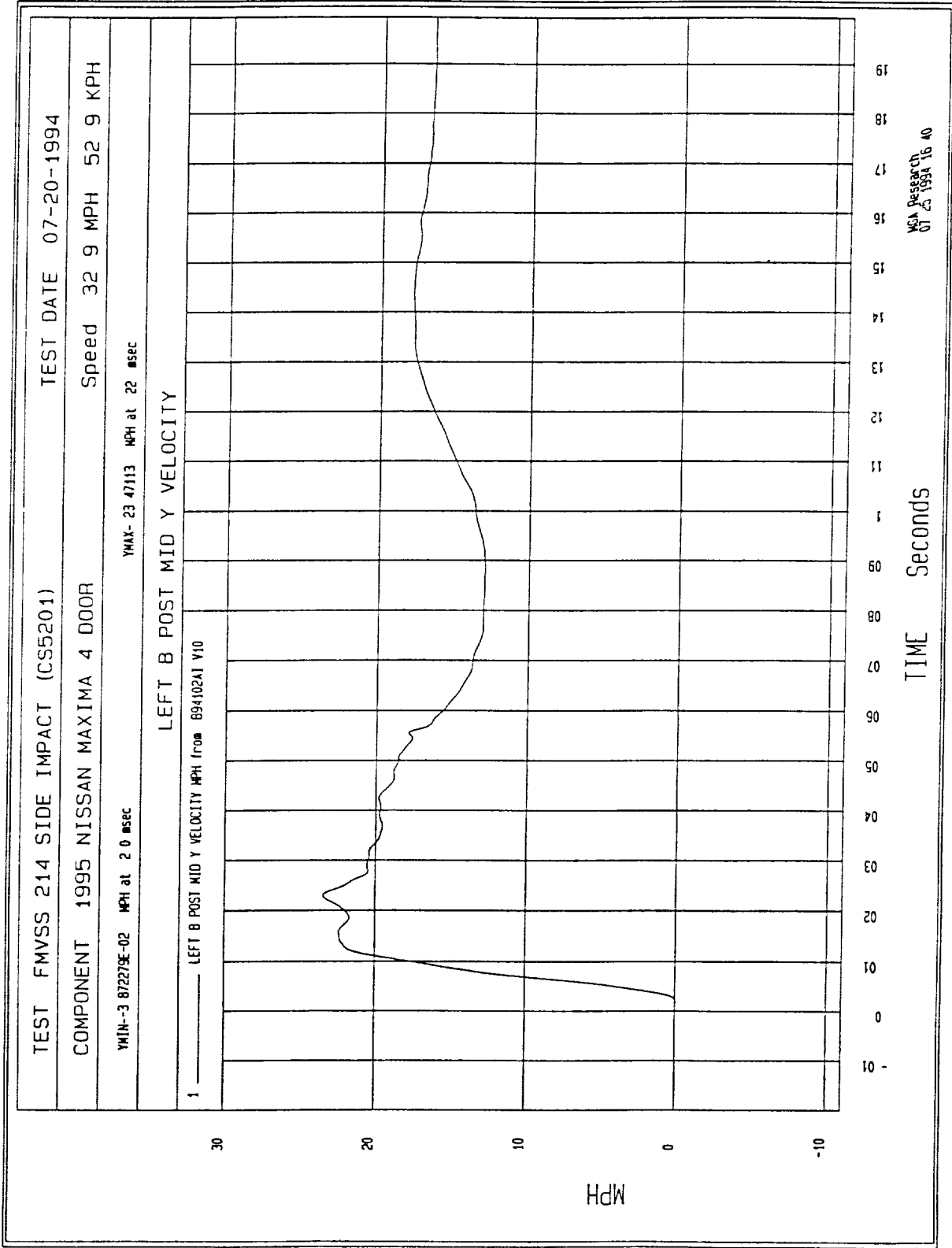


Figure B-49 - Left B Post Mid Y Velocity vs. Time

Filter: Class 60 (100 Hz)

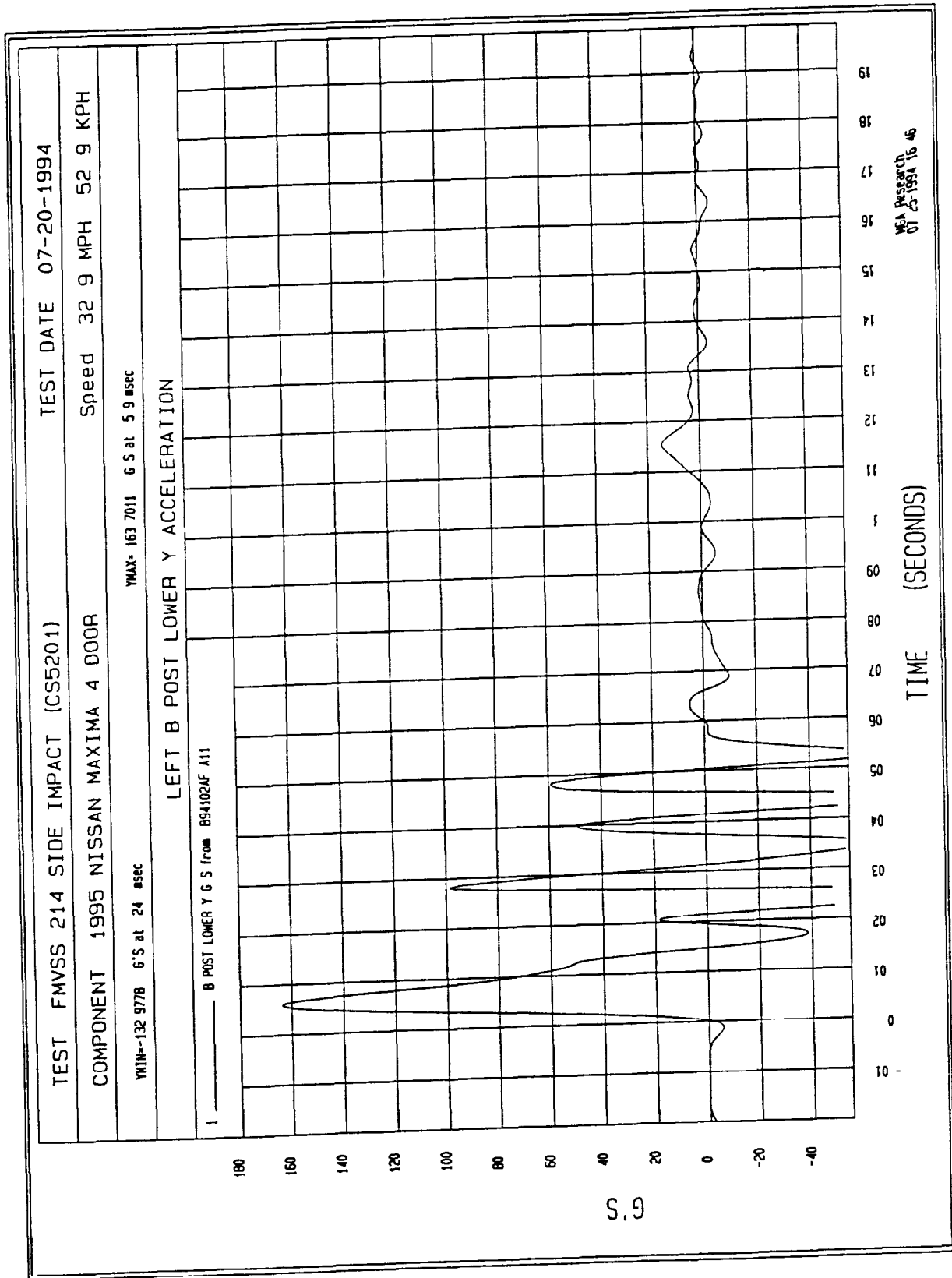


Figure B-50 - Left B Post Lower Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

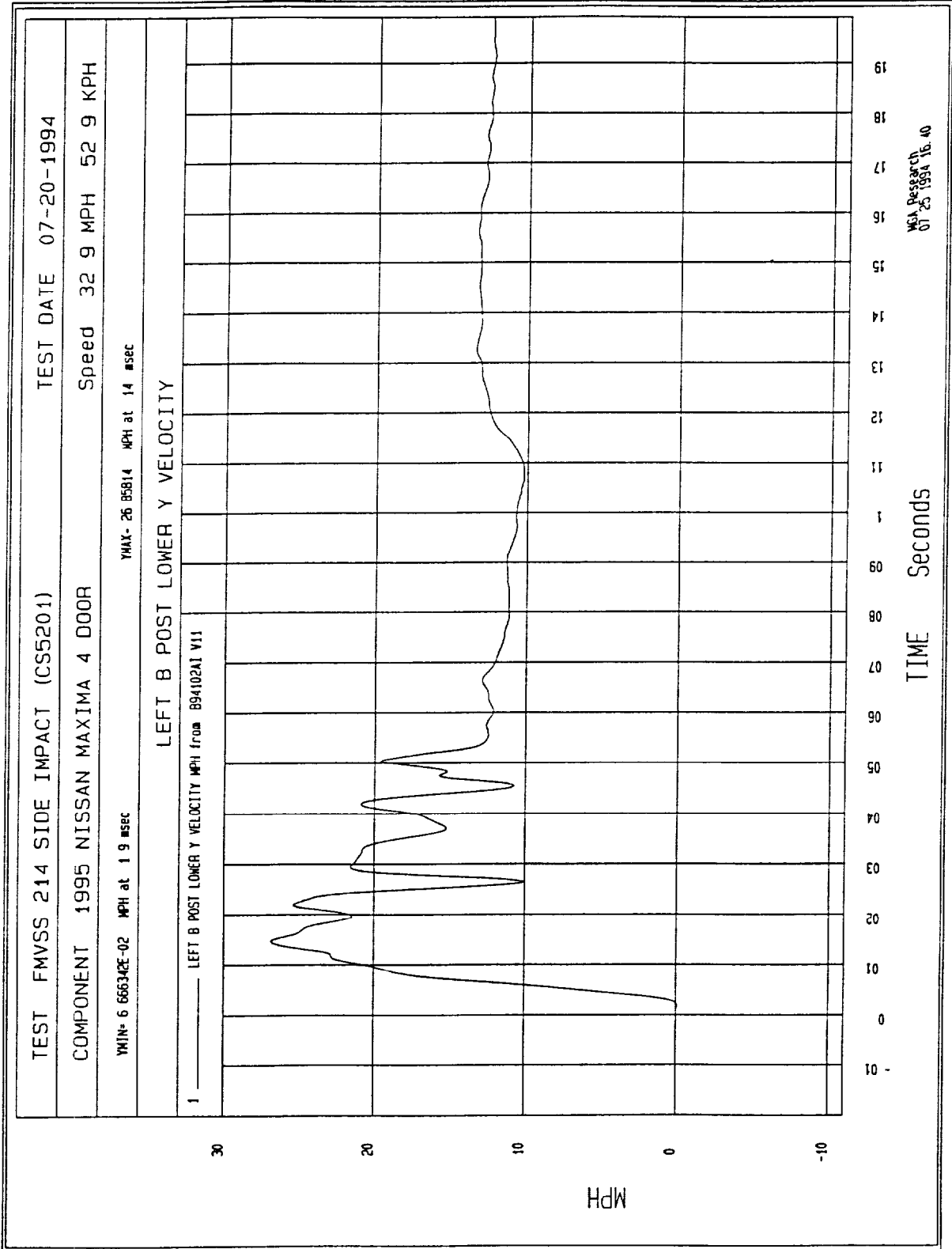


Figure B-51 - Left B Post Lower Y Velocity vs. Time

Filter: Class 60 (100 Hz)

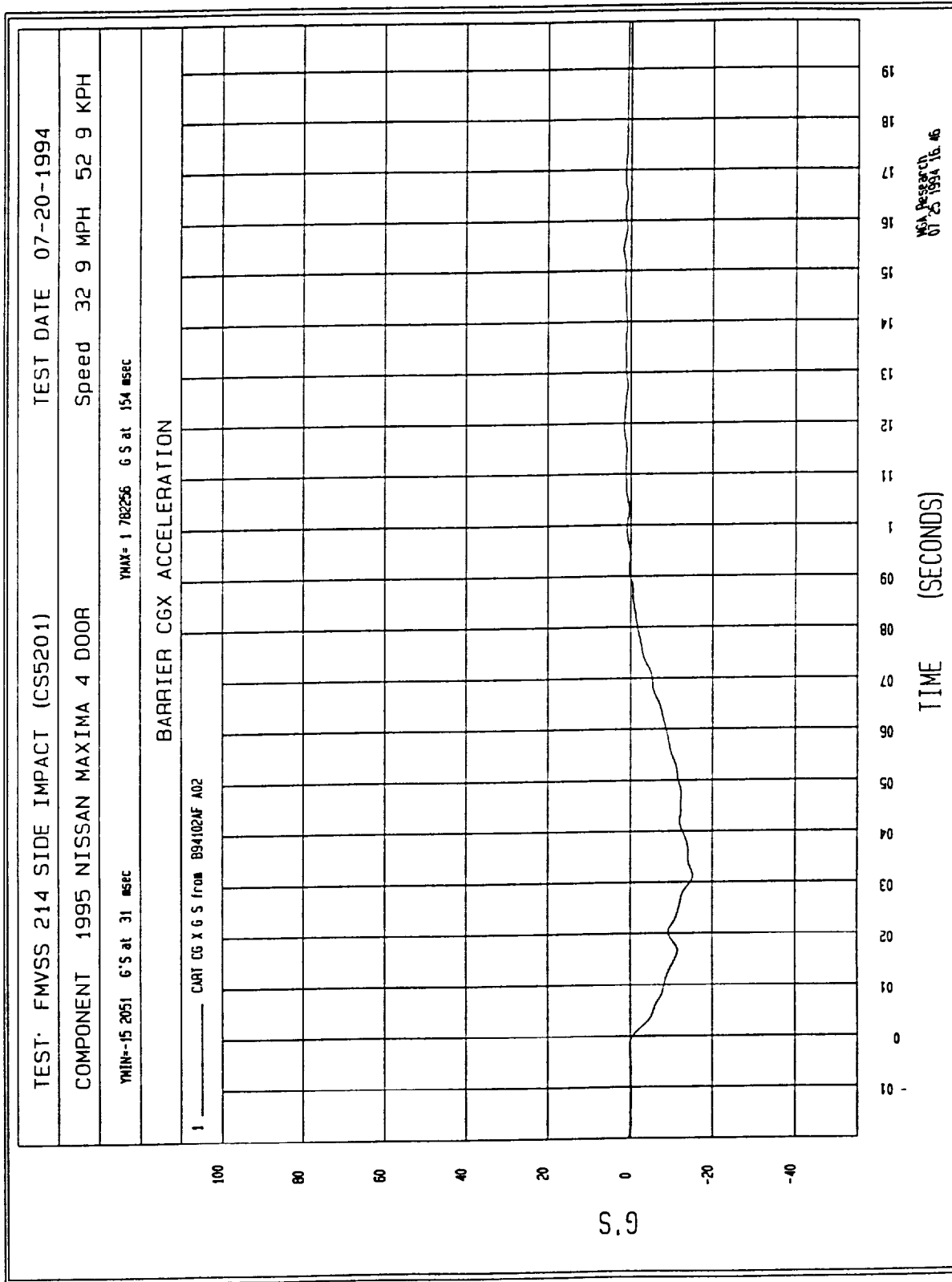


Figure B-52 - Moving Barrier Center of Gravity X Acceleration vs. Time

Filter: Class 180 (300 Hz)

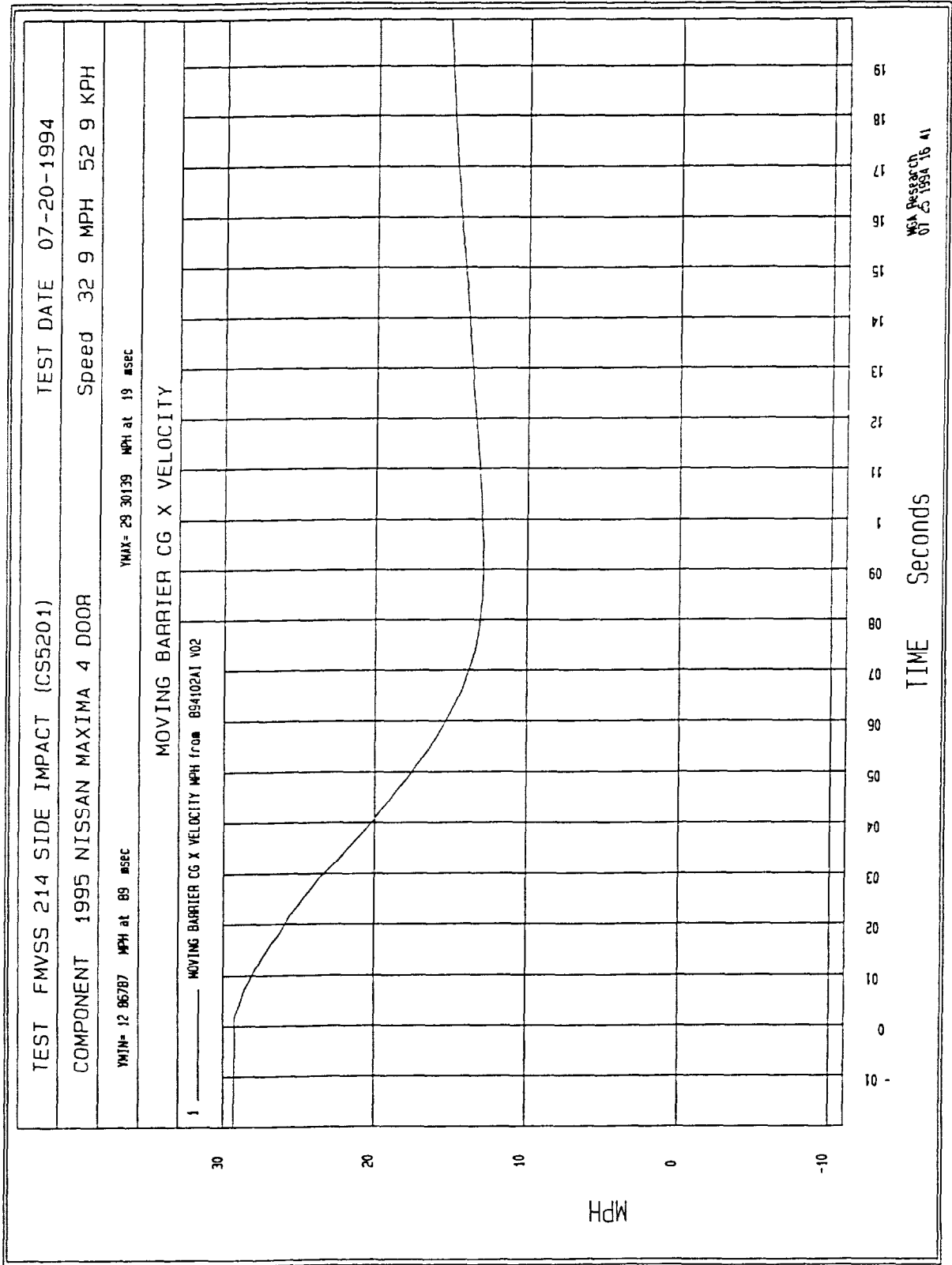


Figure B-53 - Moving Barrier Center of Gravity X Velocity vs. Time

Filter: Class 60 (100 Hz)

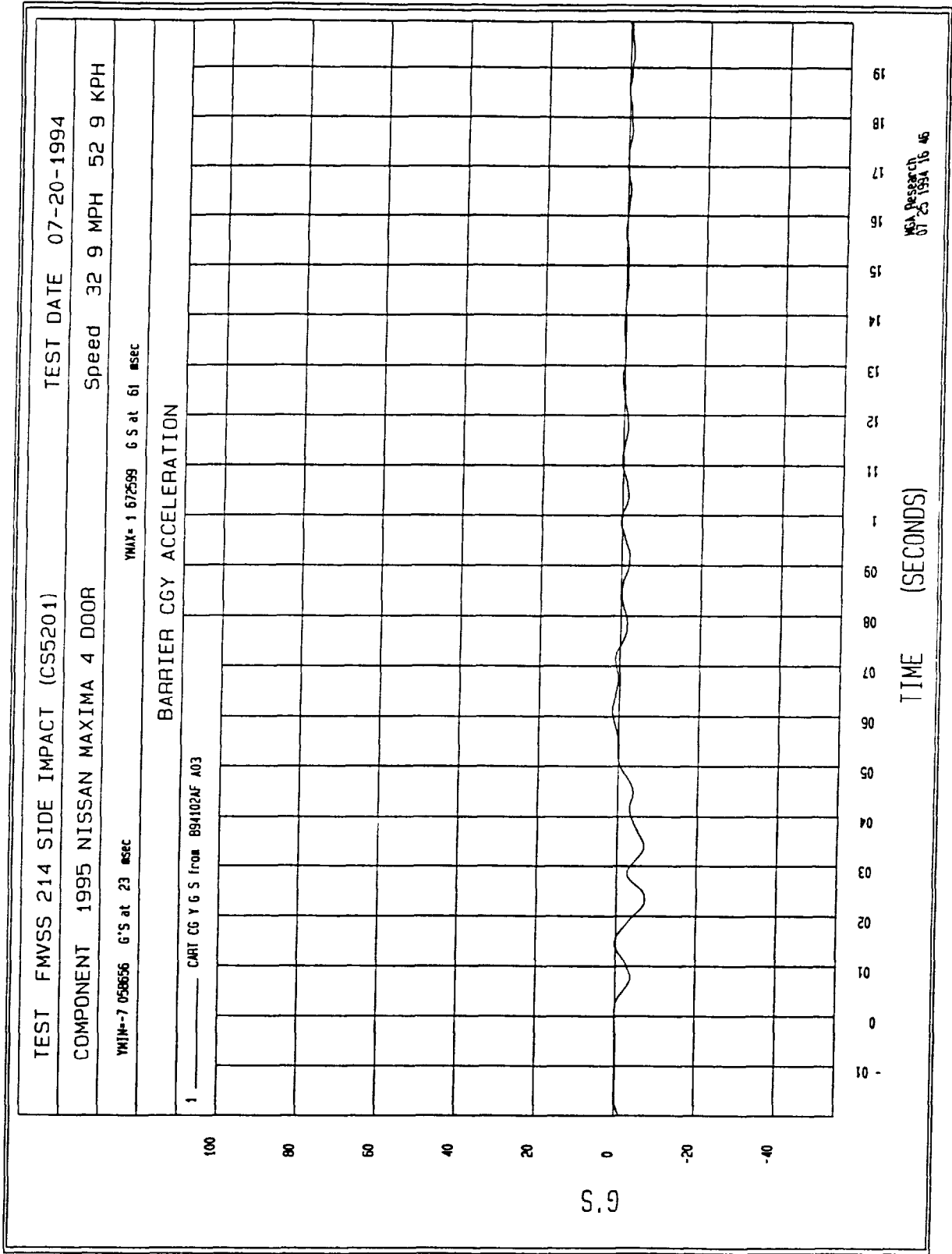


Figure B-54 - Moving Barrier Center of Gravity Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

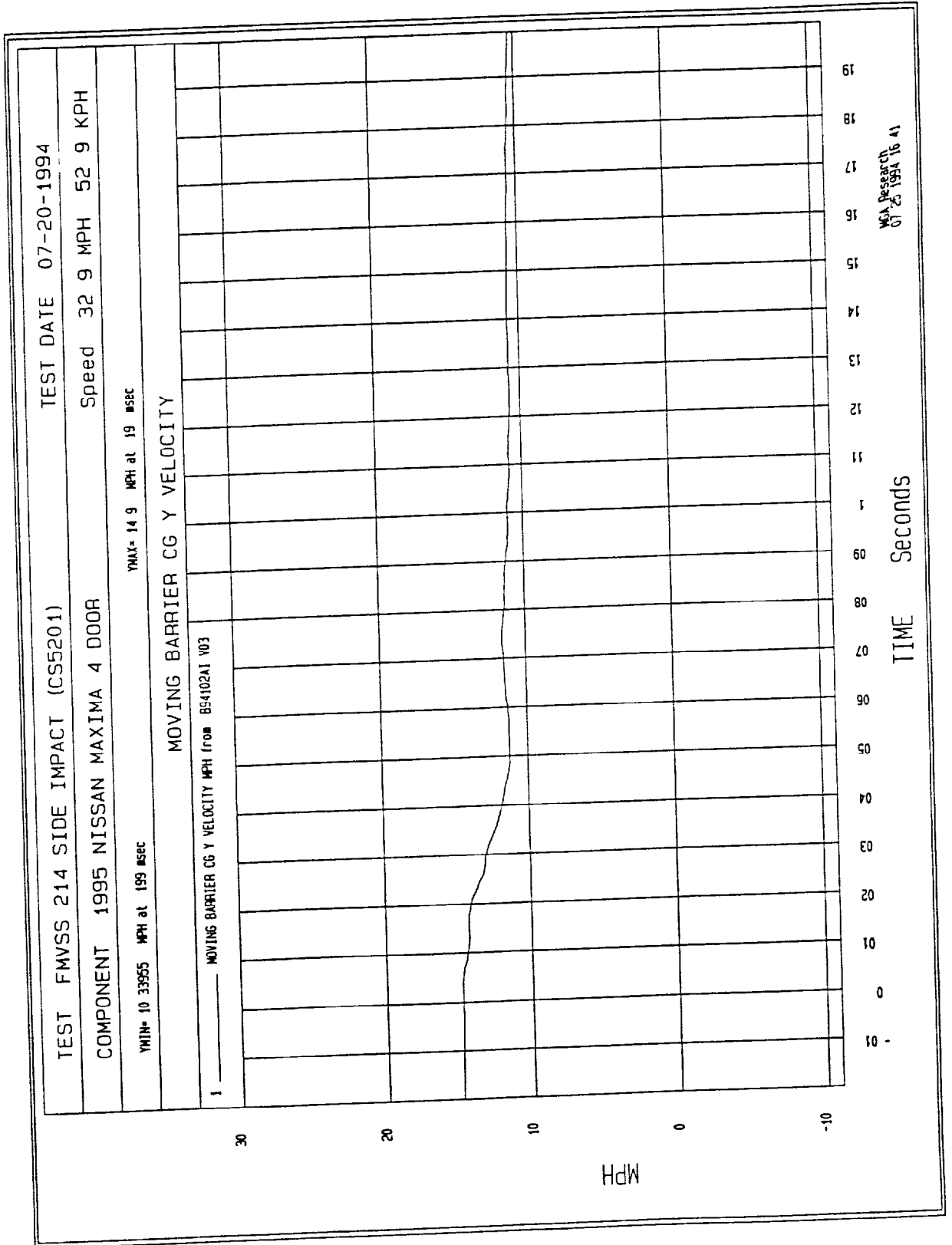


Figure B-55 - Moving Barrier Center of Gravity Y Velocity vs. Time

Filter: Class 60 (100 Hz)

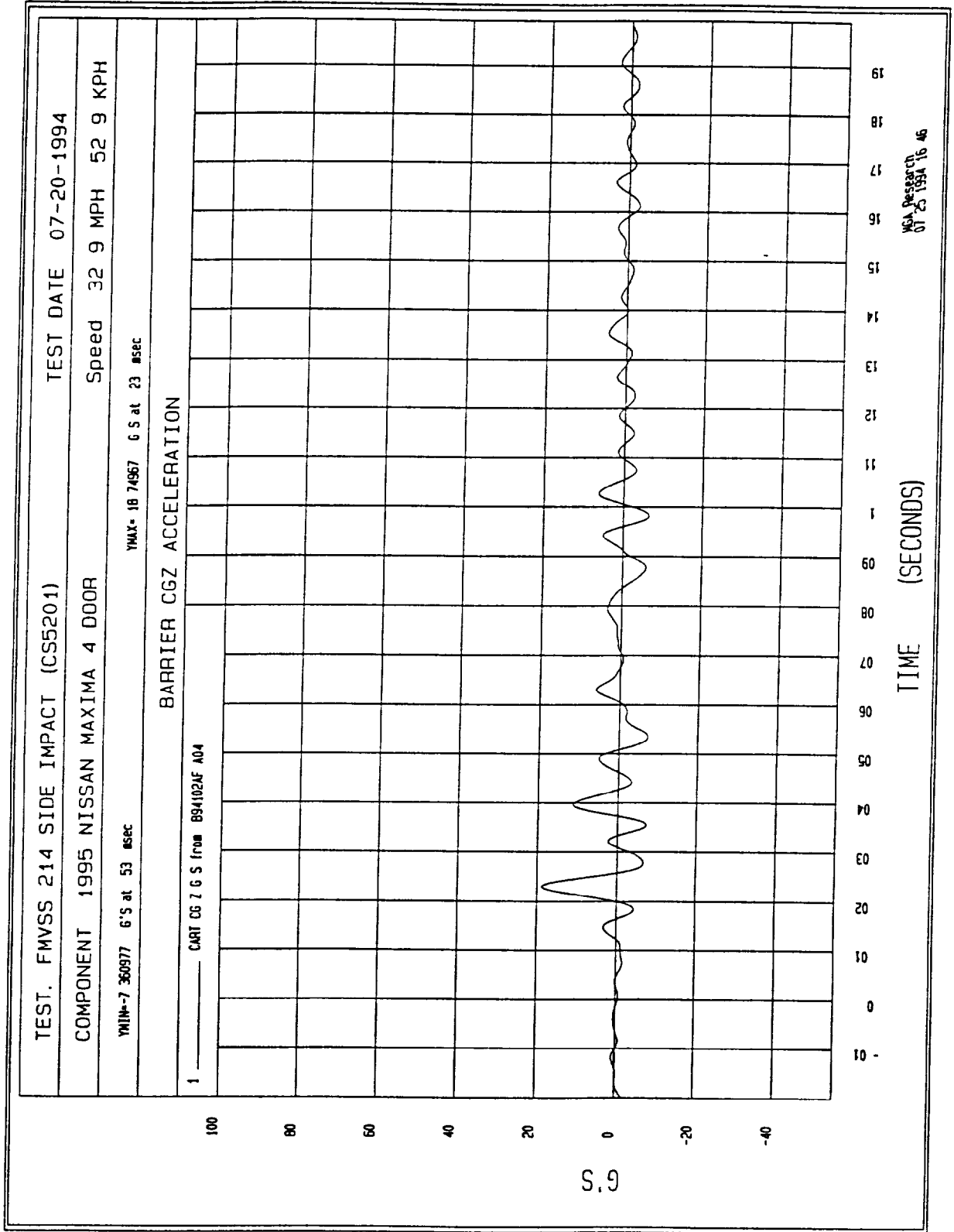


Figure B-56 - Moving Barrier Center of Gravity Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

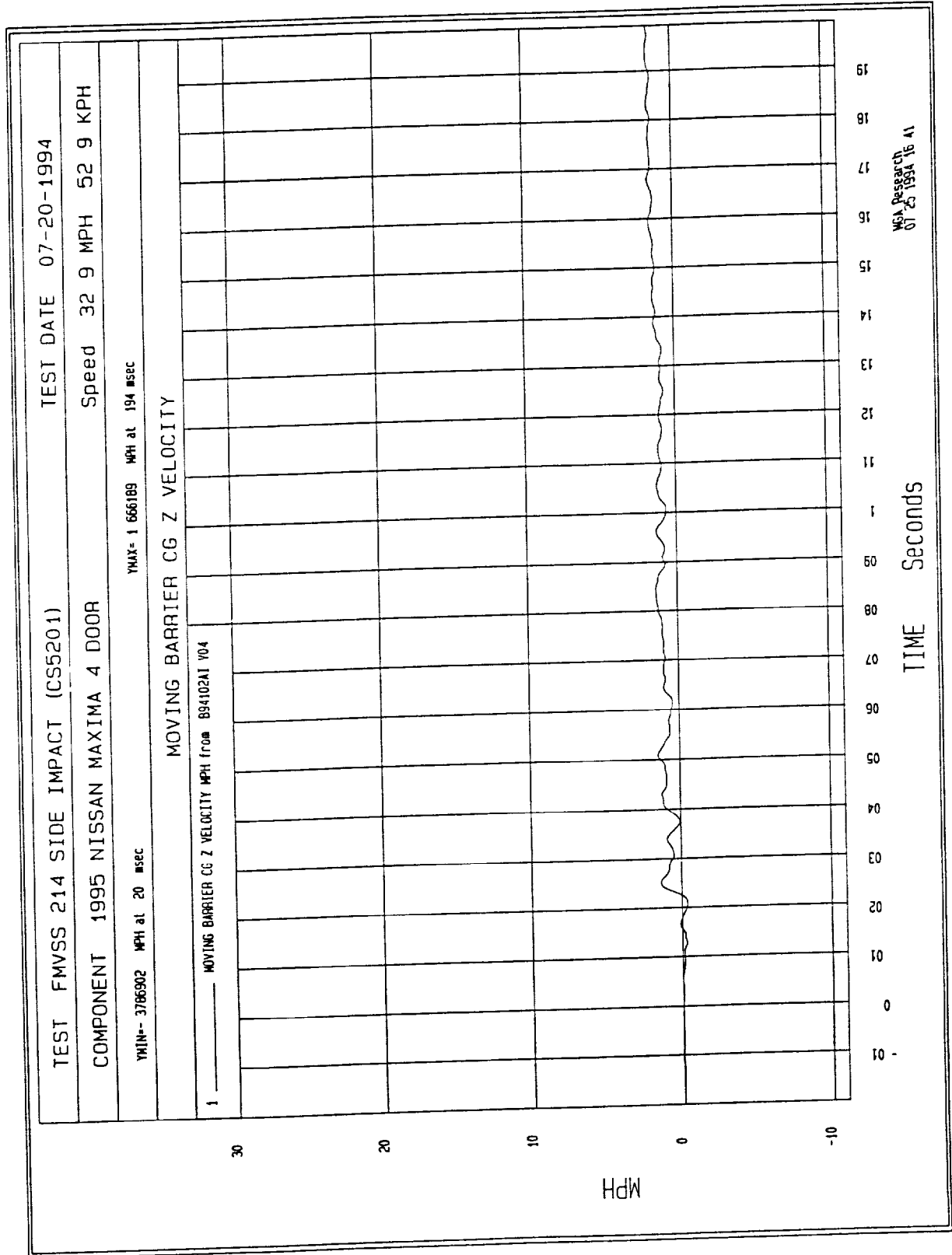


Figure B-57 - Moving Barrier Center of Gravity Z Velocity vs. Time

Filter: Class 60 (100 Hz)

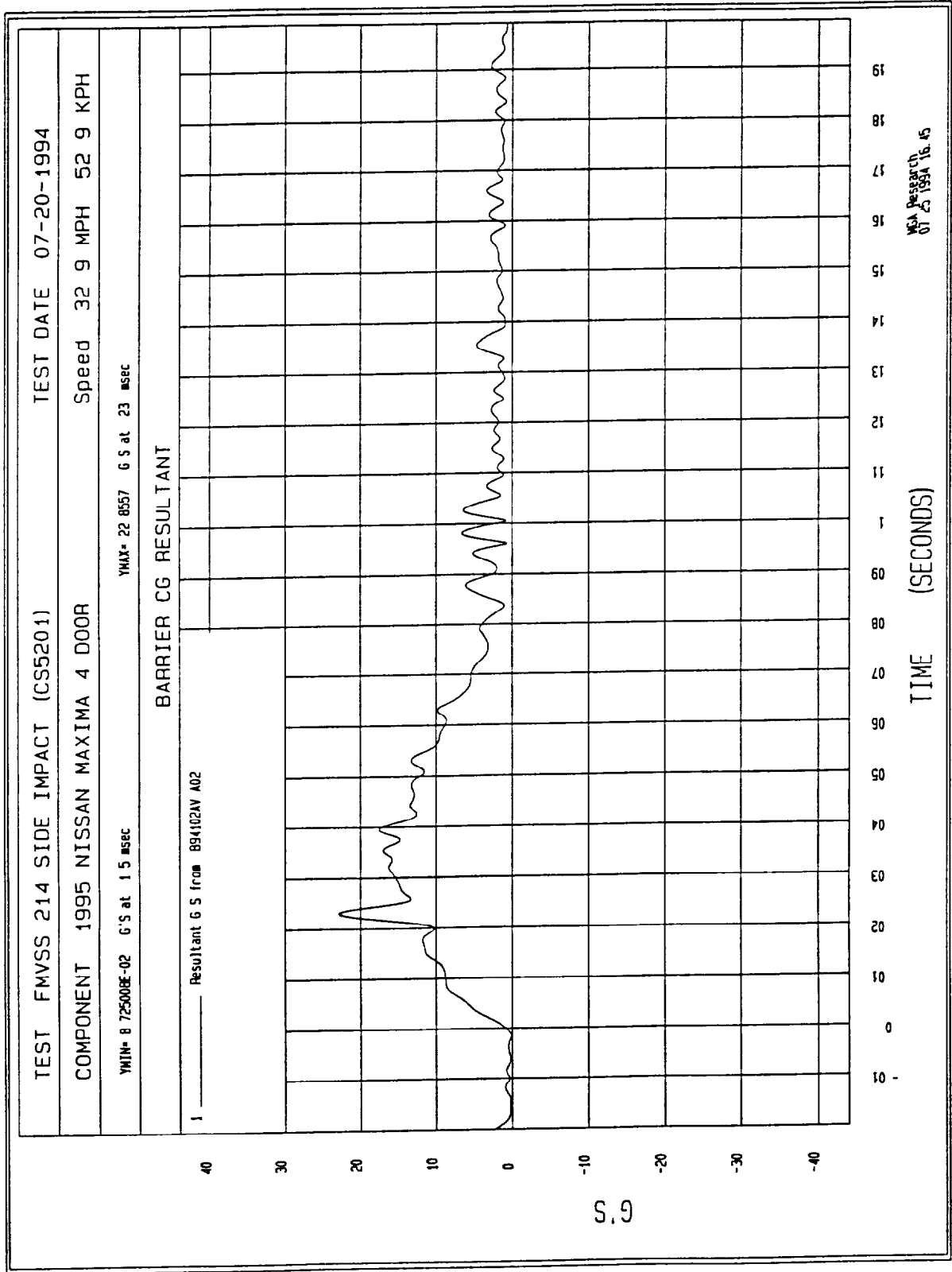


Figure B-58 - Moving Barrier Center of Gravity Resultant vs. Time

Filter: Class 60 (100 Hz)

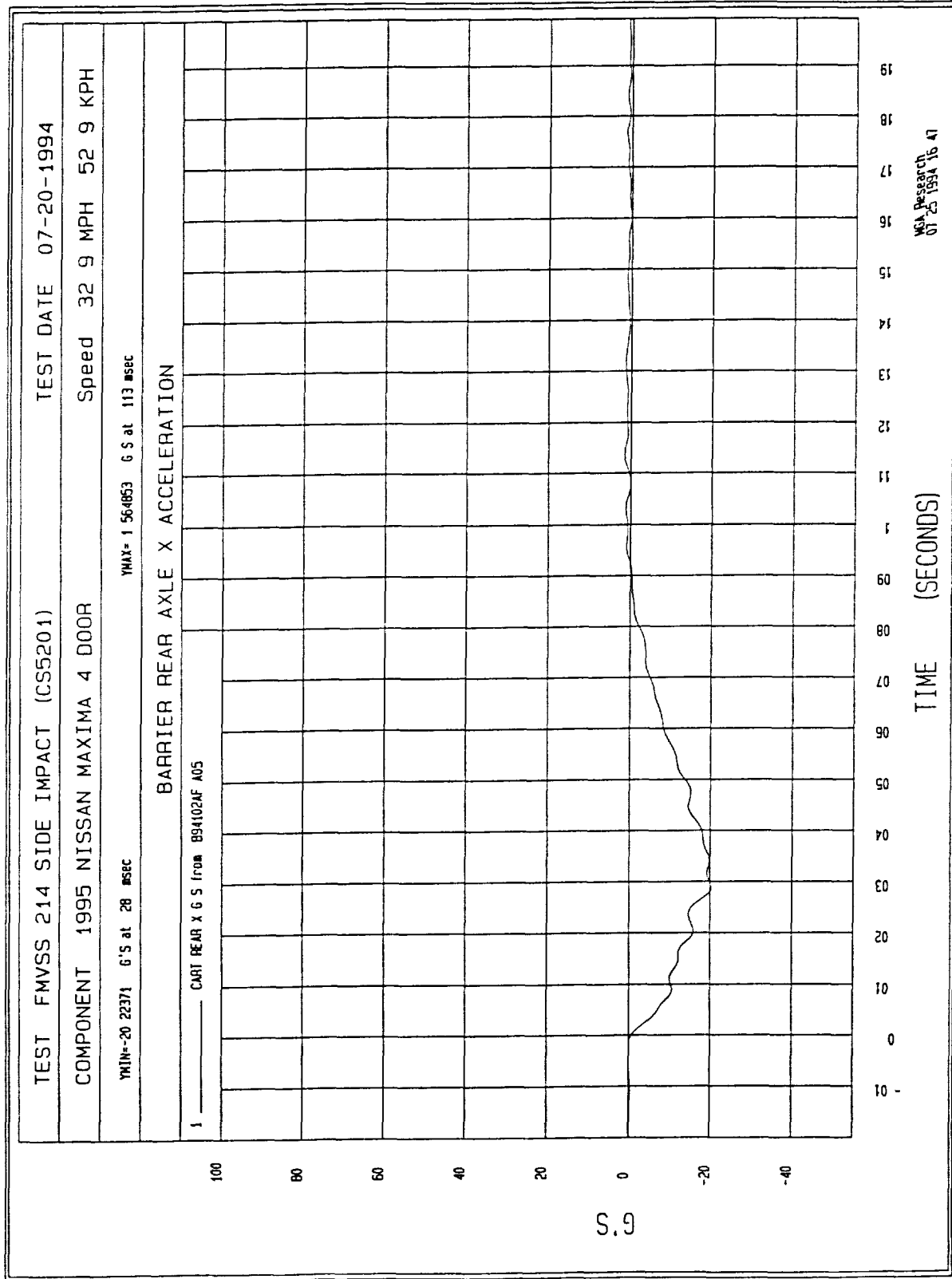


Figure B-59 - Moving Barrier Rear Axle X Acceleration vs. Time

Filter: Class 180 (300 Hz)

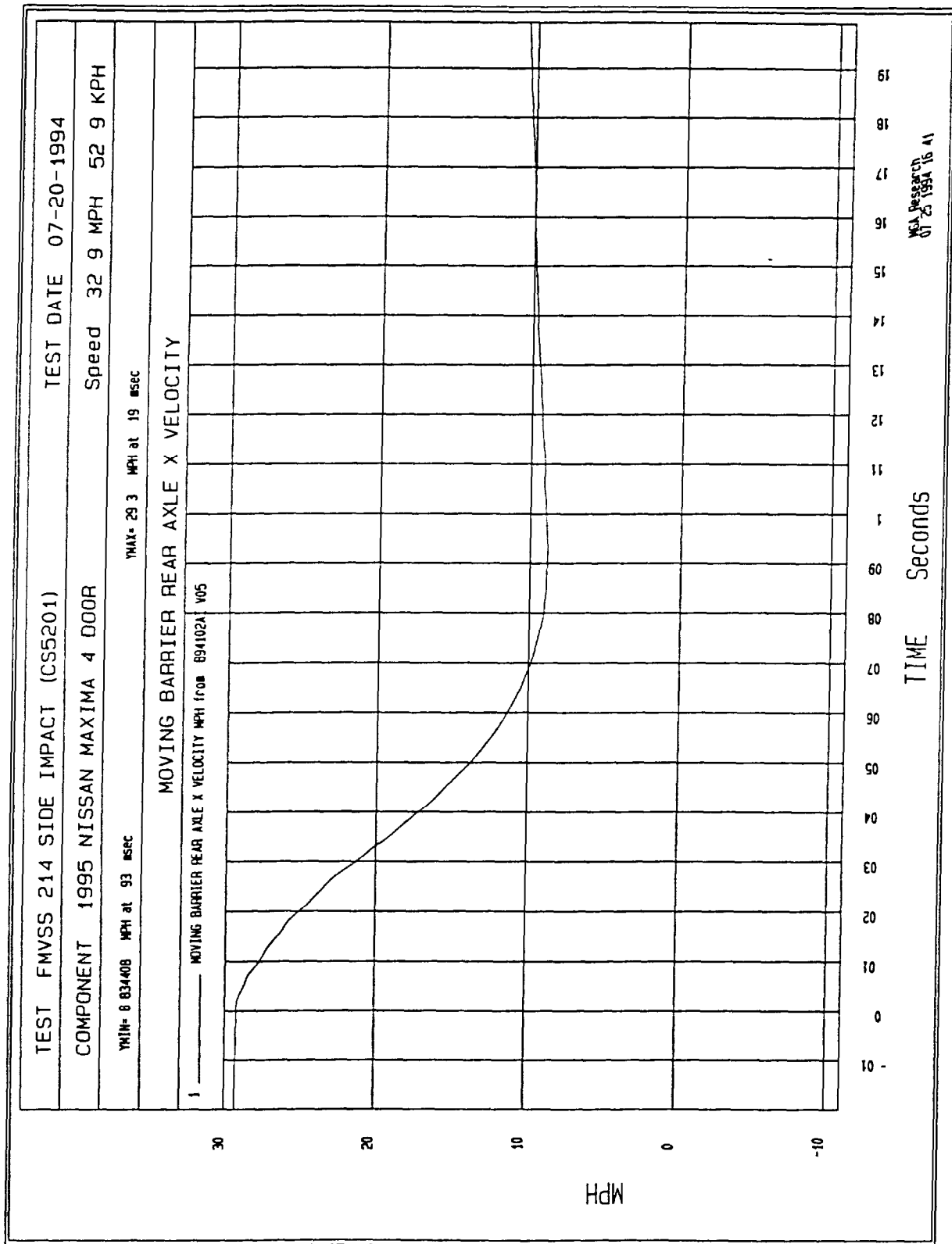


Figure B-60 - Moving Barrier Rear Axle X Velocity vs. Time

Filter: Class 60 (100 Hz)

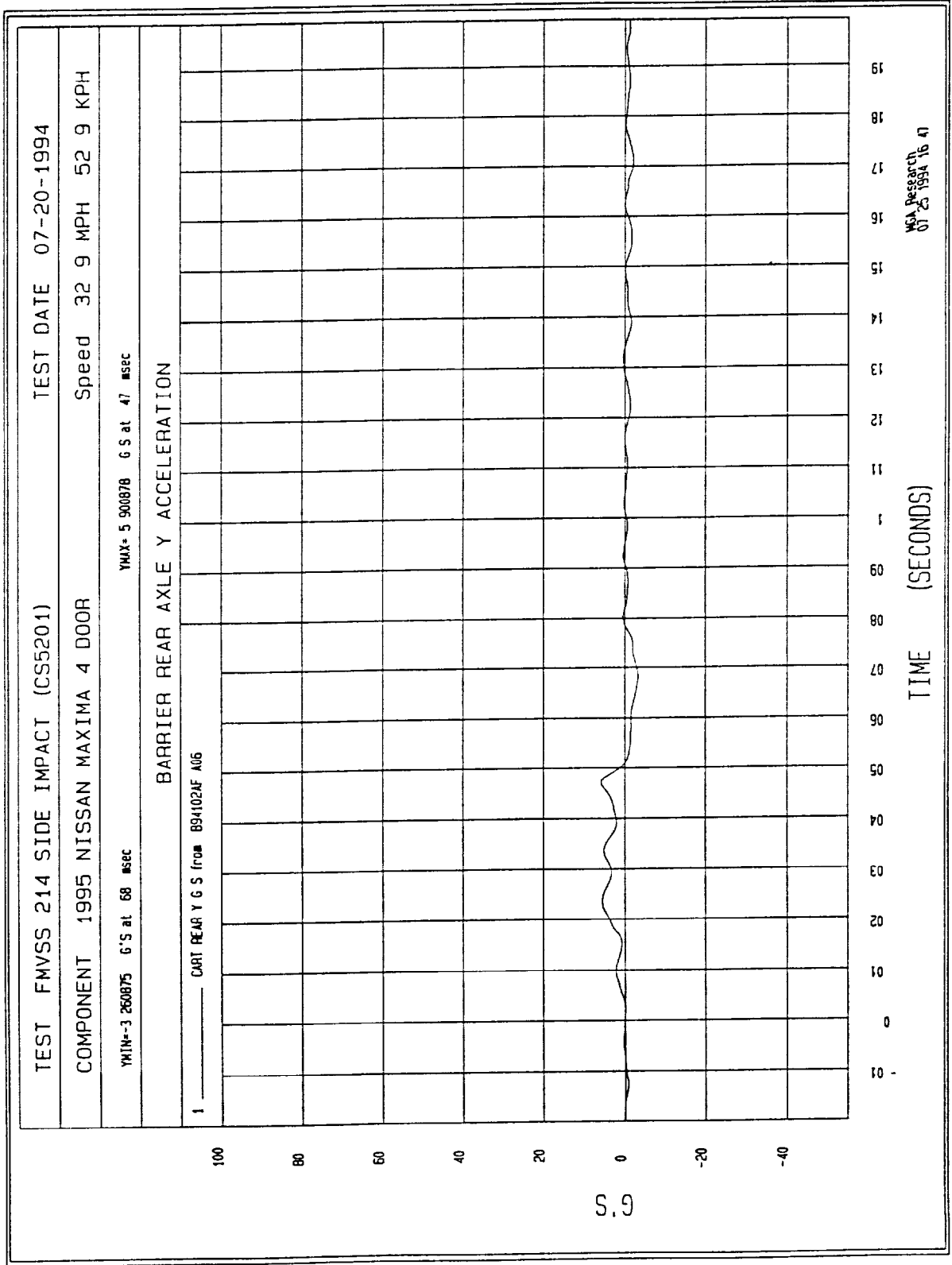


Figure B-61 - Moving Barrier Rear Axle Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

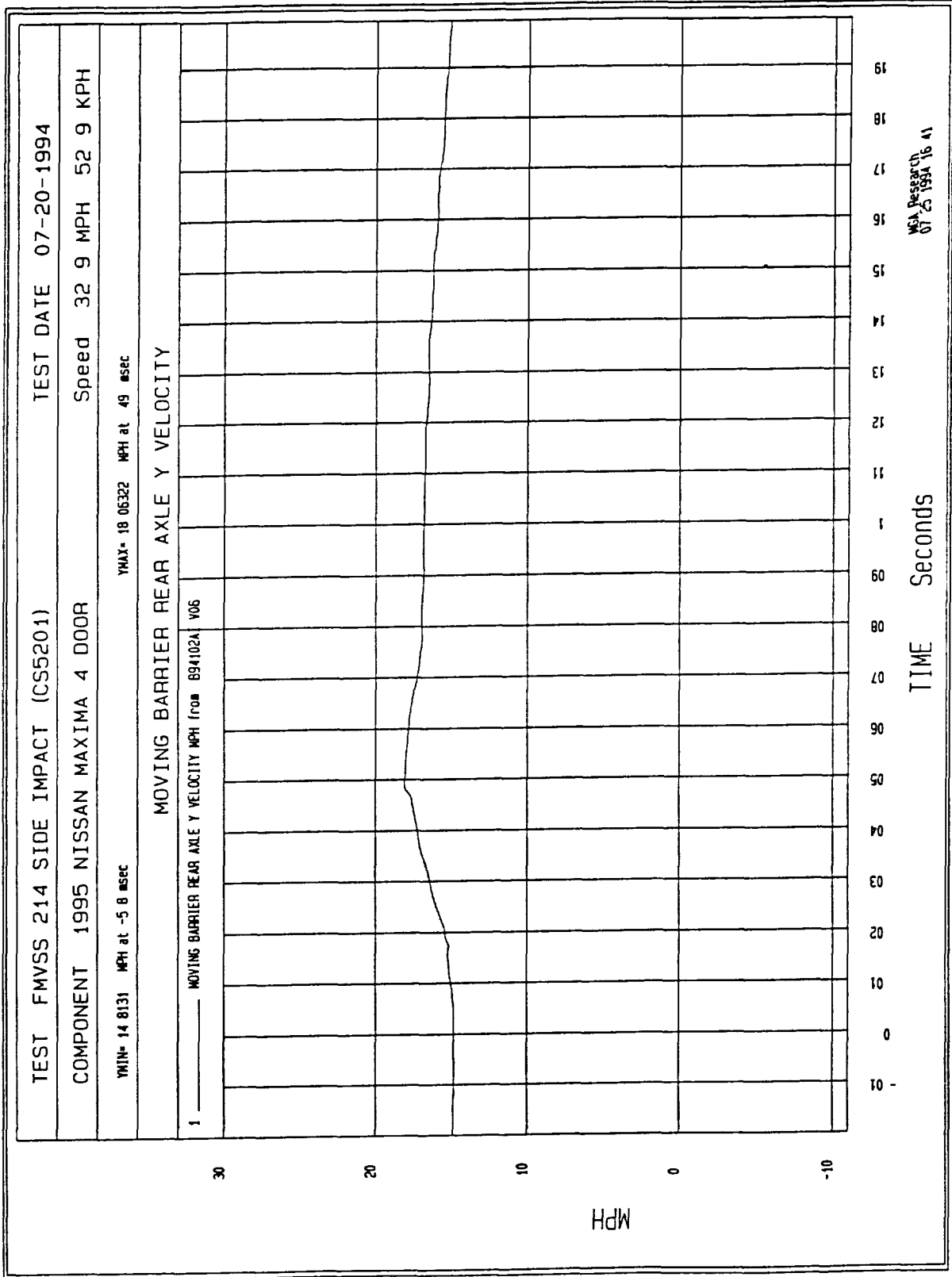


Figure B-62 - Moving Barrier Rear Axle Y Velocity vs. Time

Filter: Class 1000 (1650 Hz)

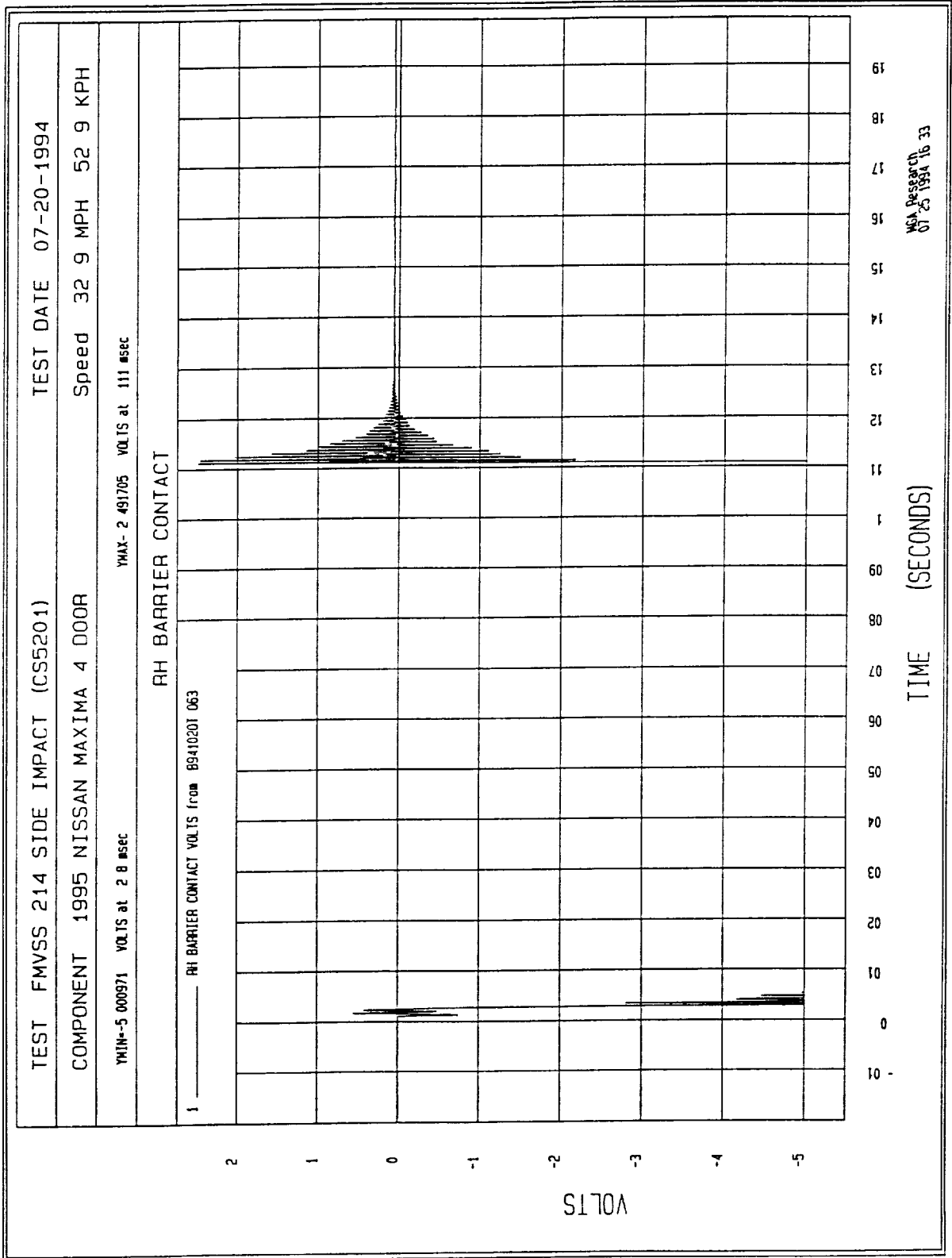


Figure B-63 - Right Hand Barrier Contact

Filter: Class 1000 (1650 Hz)

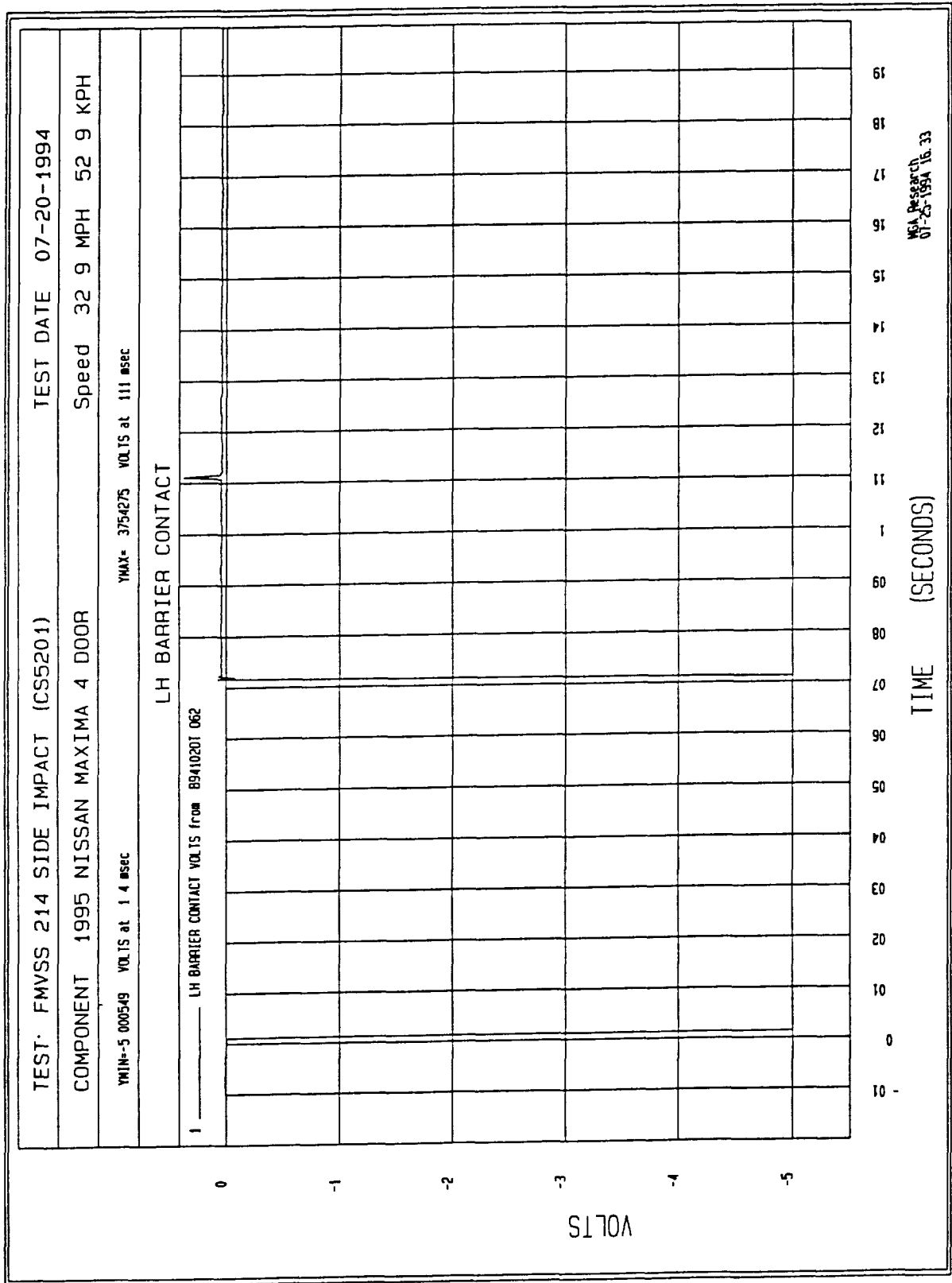


Figure B-64 - Left Hand Barrier Contact

Filter: Class 180 (300 Hz)

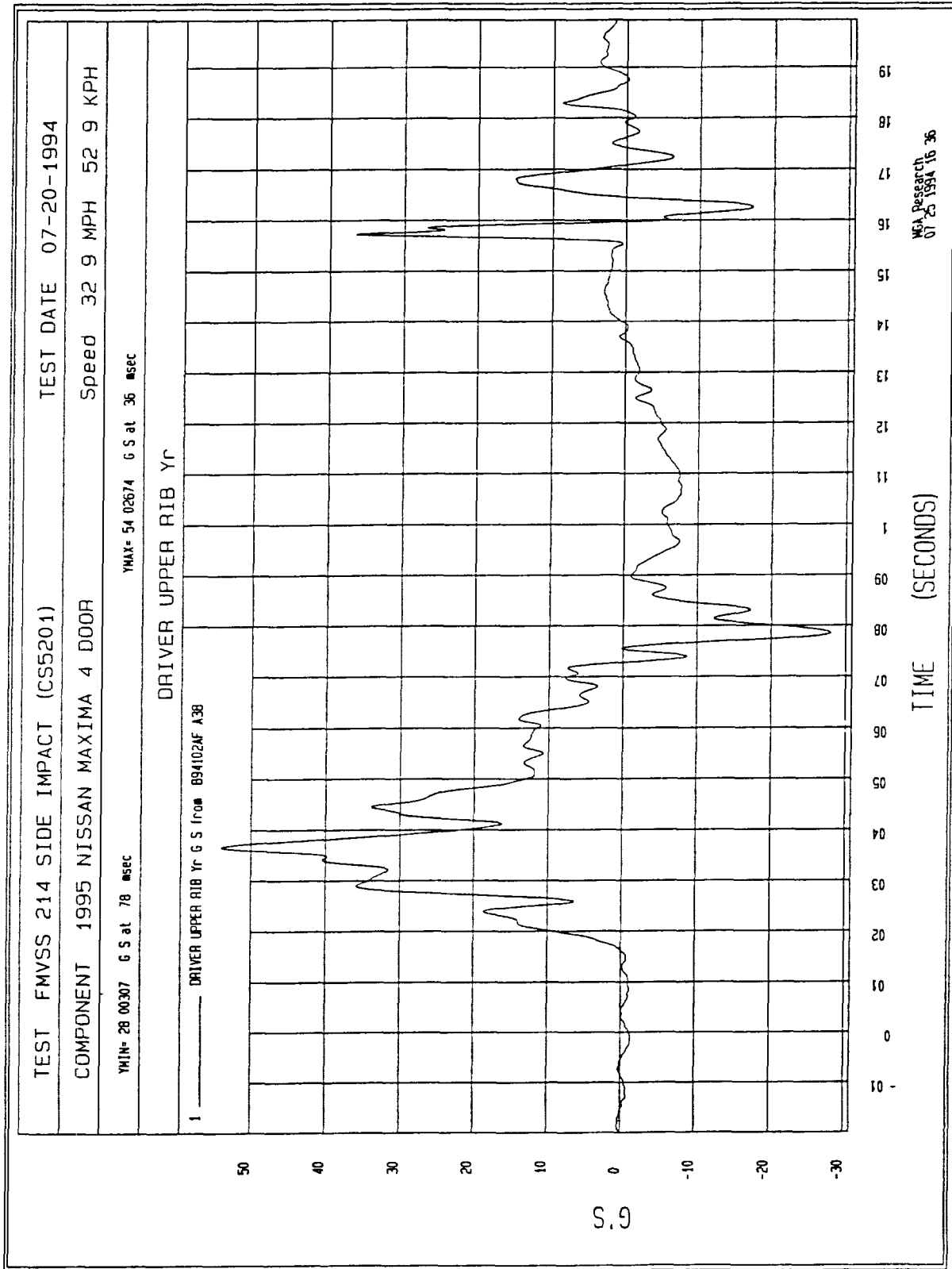


Figure B-65 - Driver Upper Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

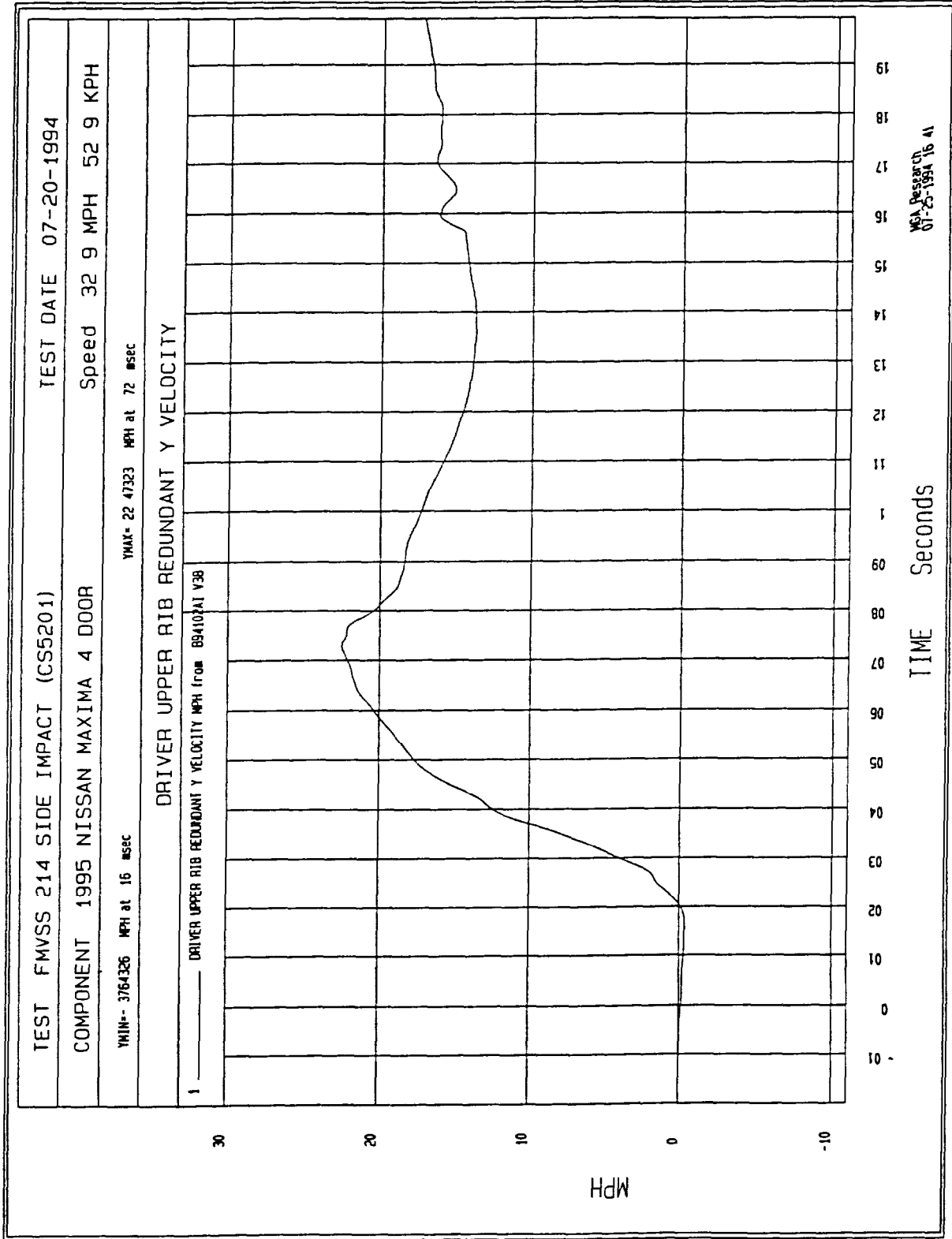


Figure B-66 - Driver Upper Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

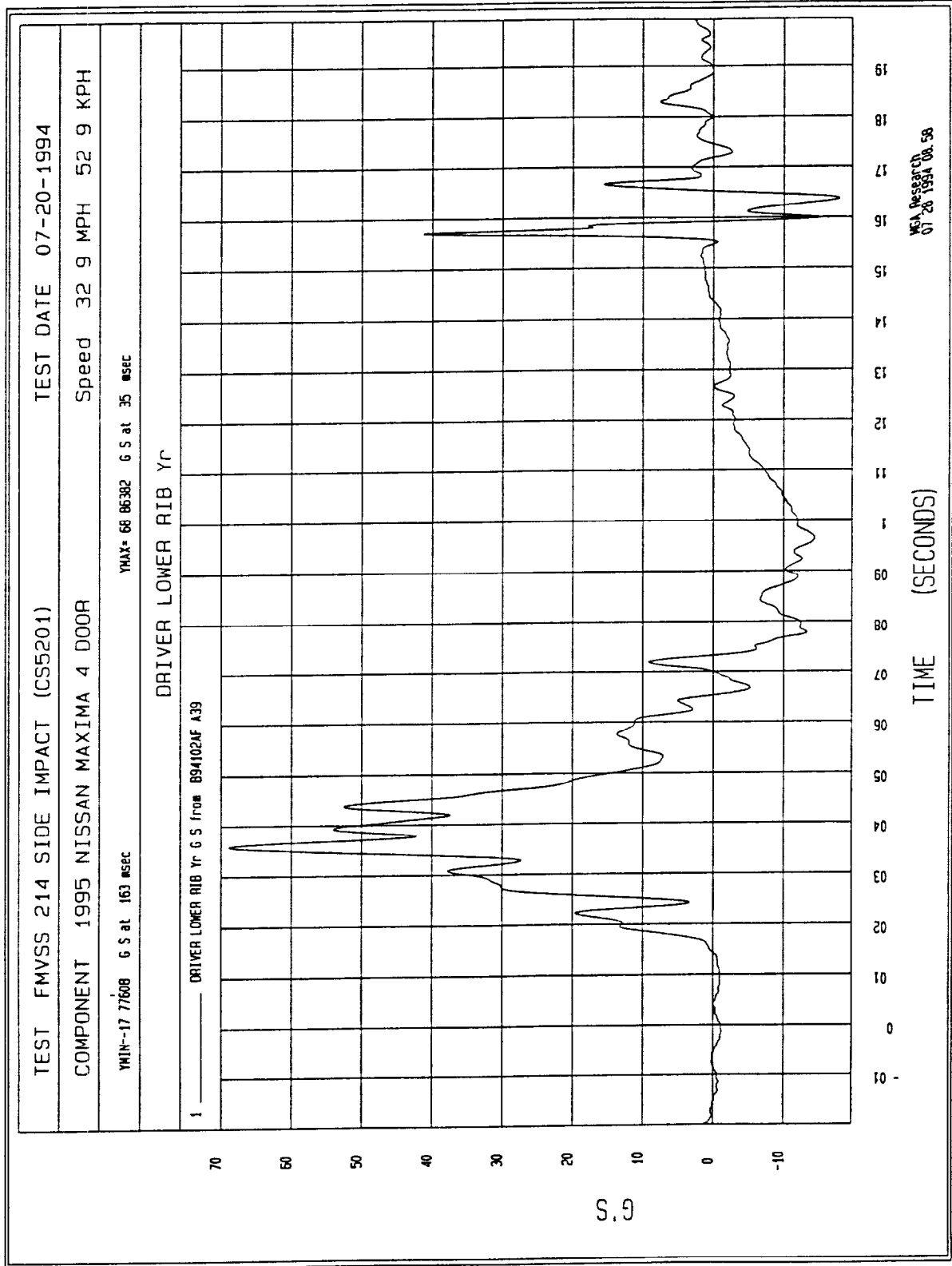


Figure B-67 - Driver Lower Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

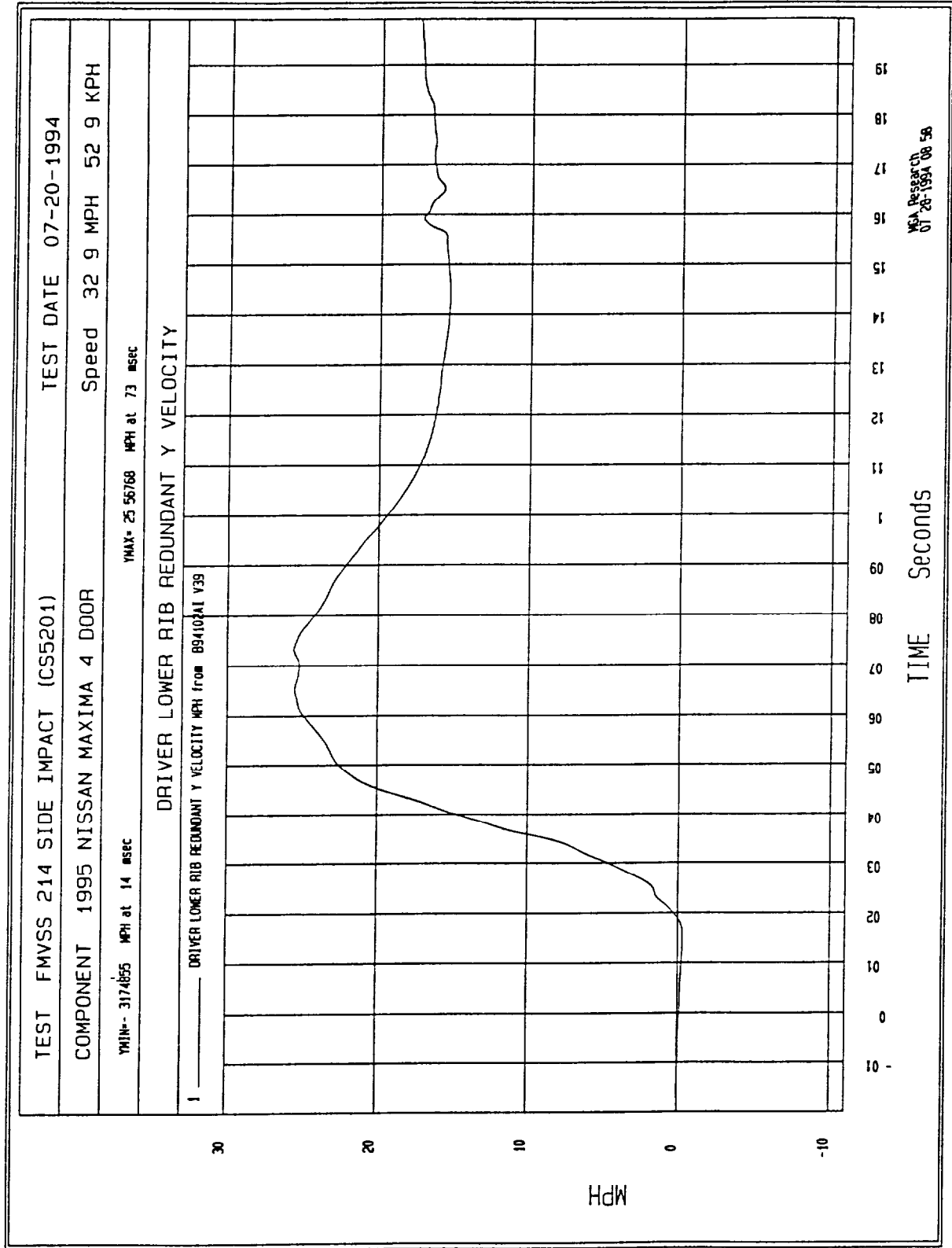


Figure B-68 - Driver Lower Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

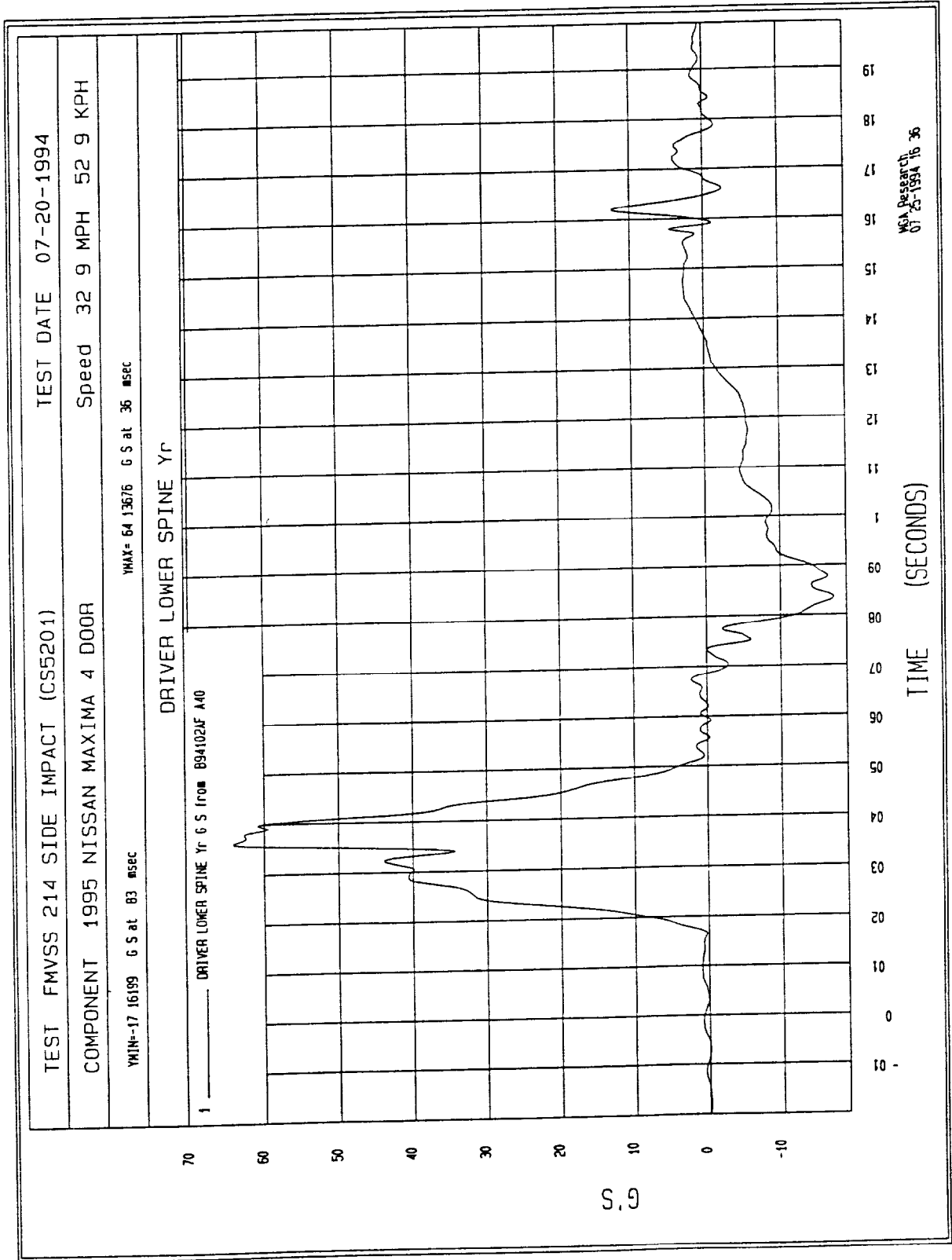


Figure B-69 - Driver Lower Spine Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

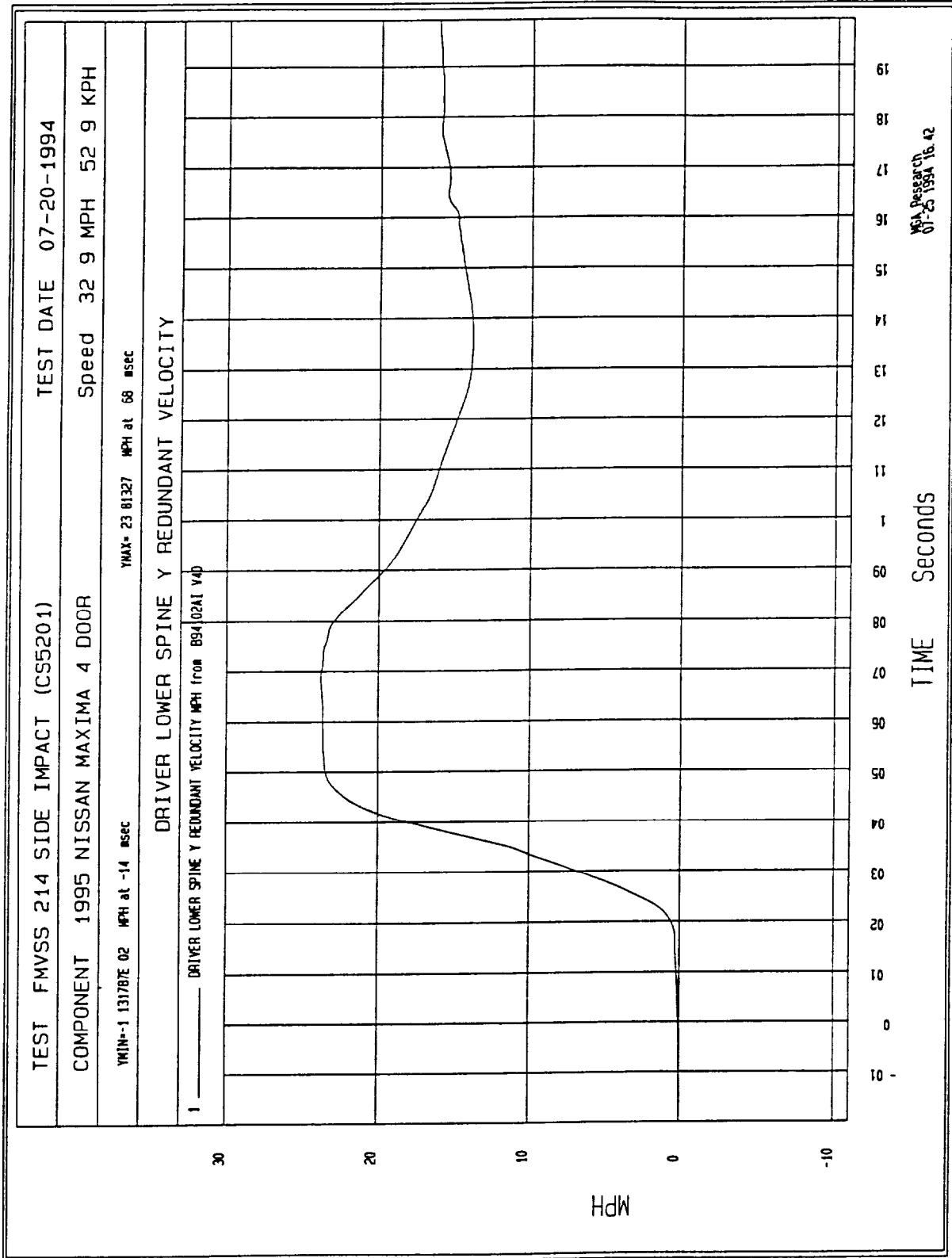


Figure B-70 - Driver Lower Spine Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

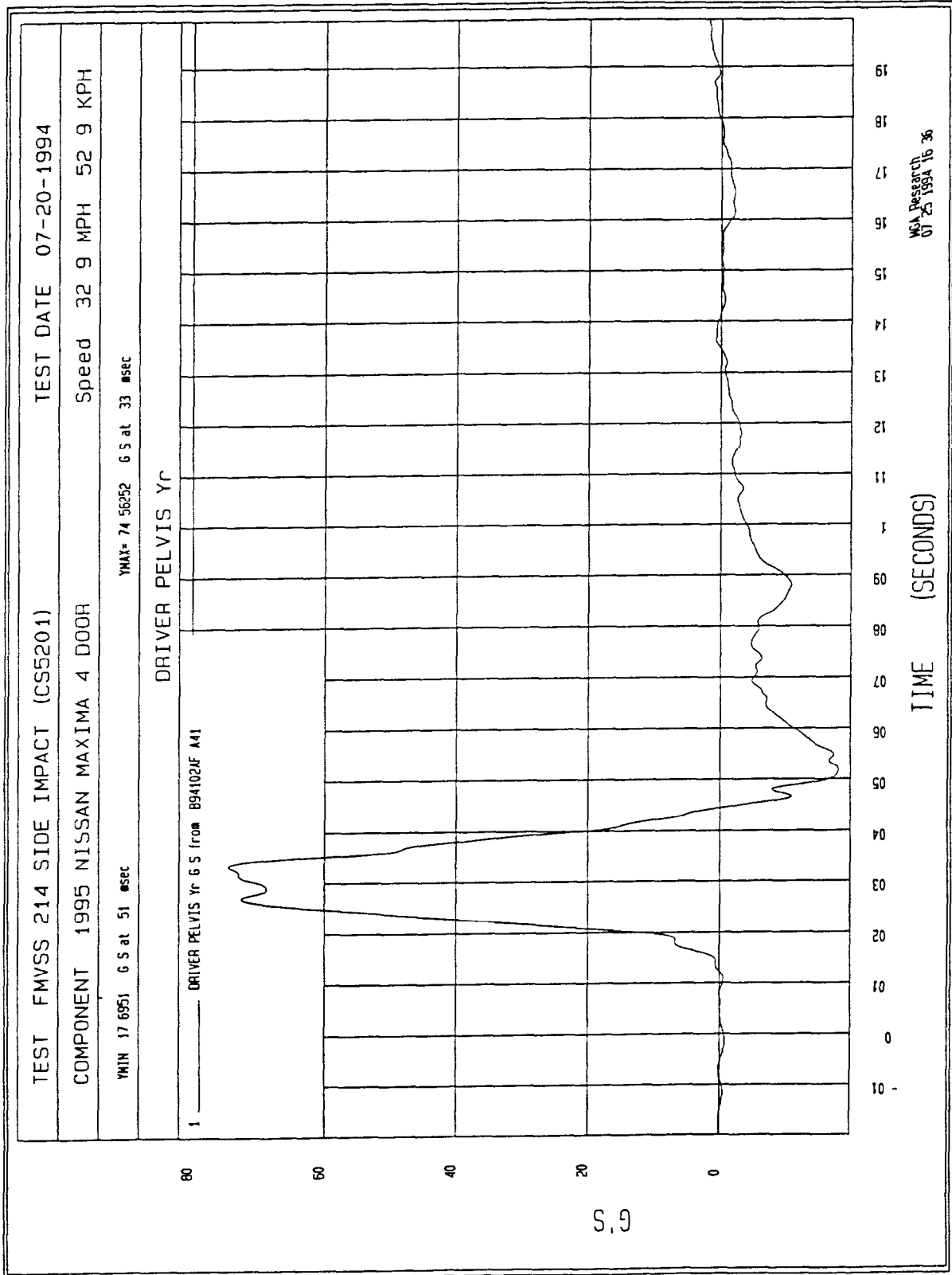


Figure B-71 - Driver Pelvis Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

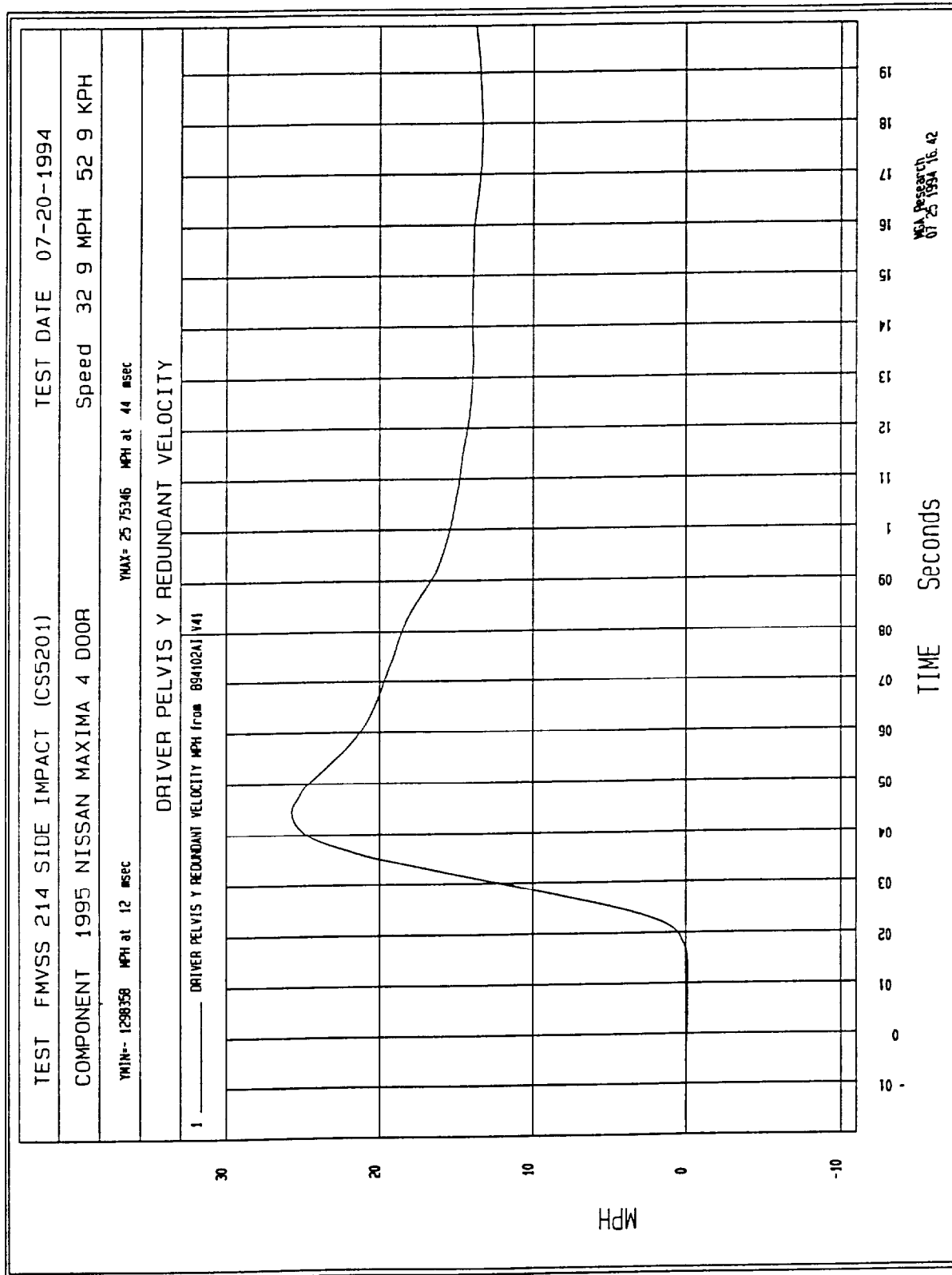


Figure B-72 - Driver Pelvis Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

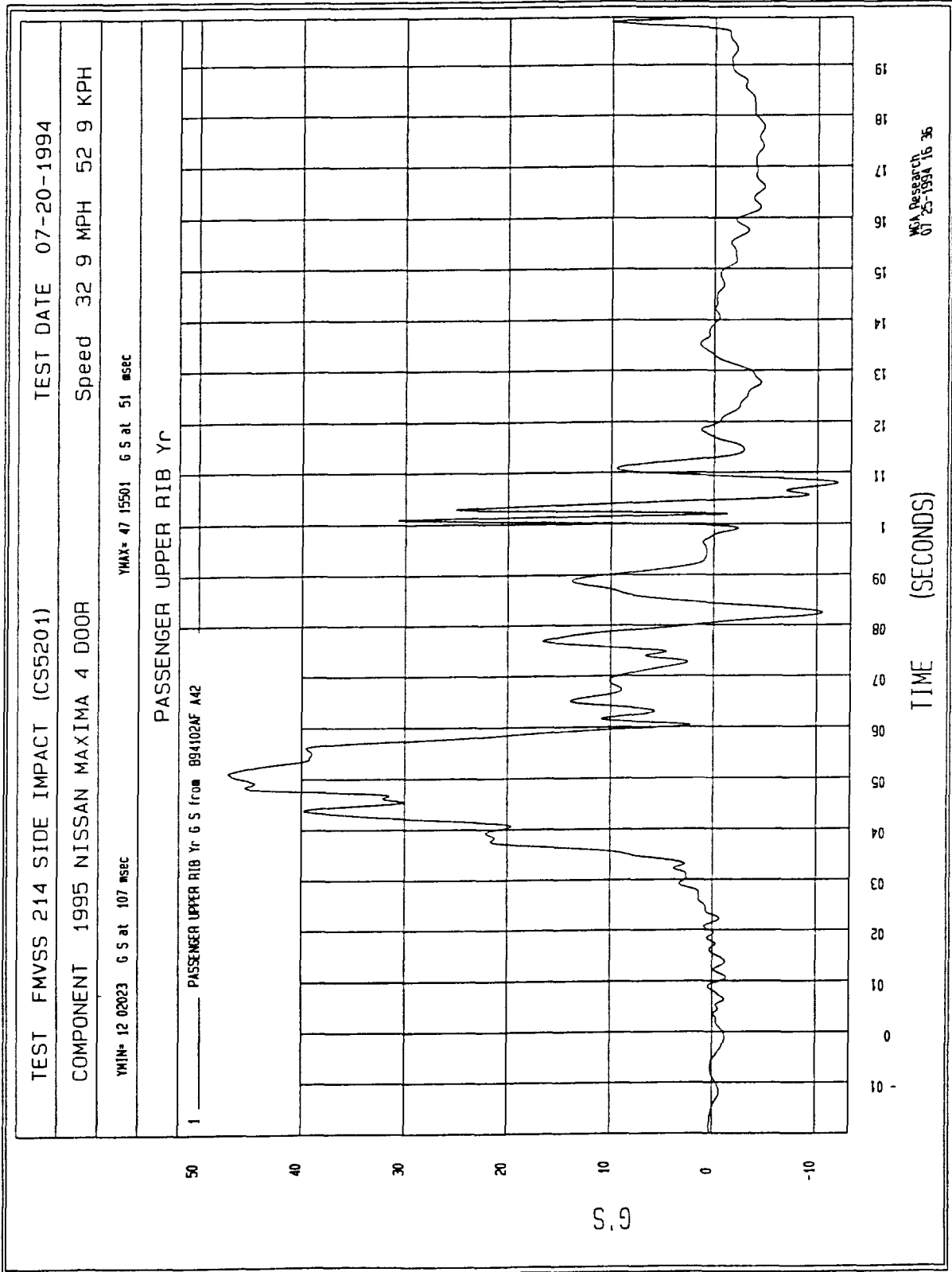


Figure B-73 - Passenger Upper Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

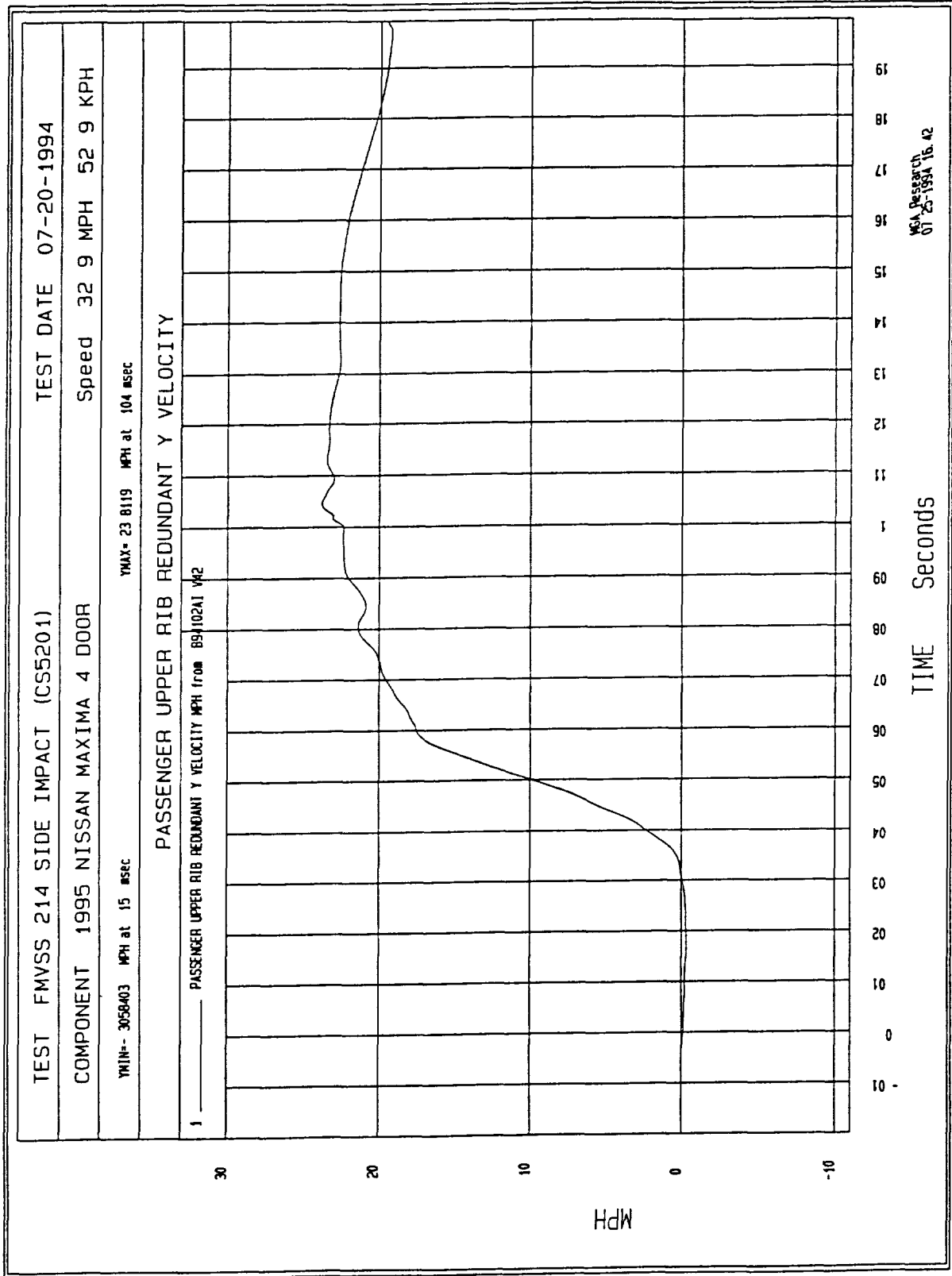


Figure B-74 - Passenger Upper Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

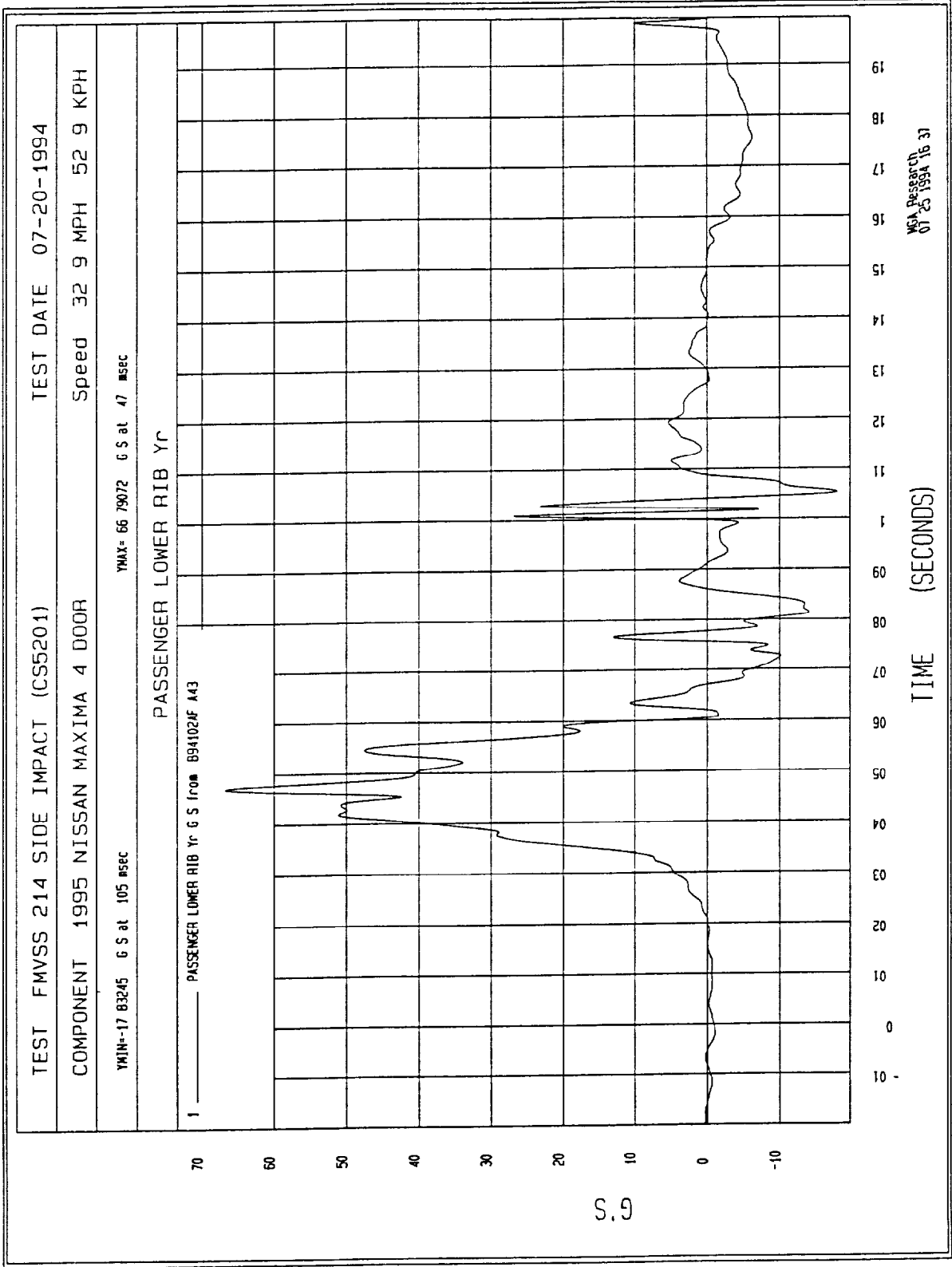


Figure B-75 - Passenger Lower Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

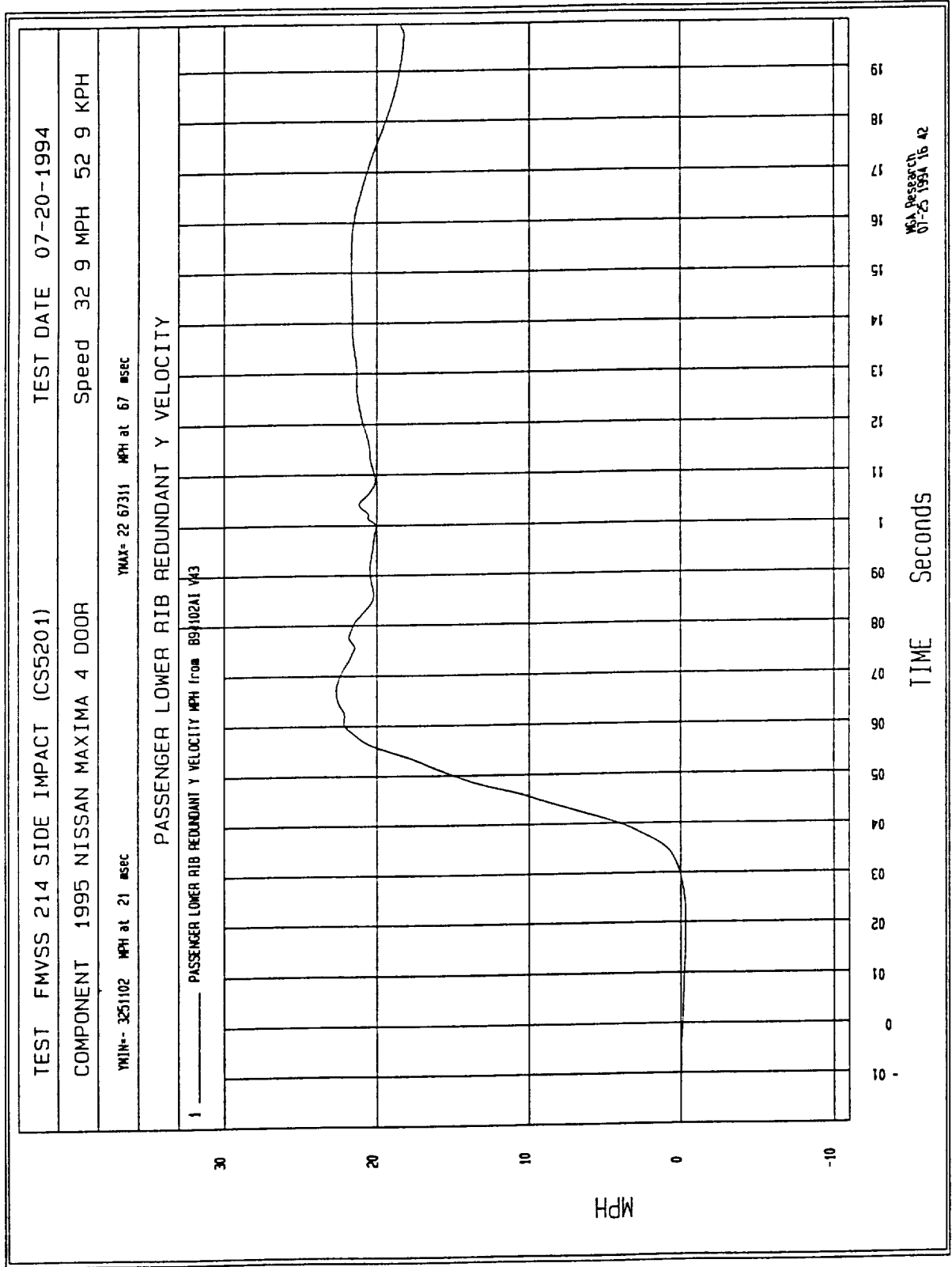


Figure B-76 - Passenger Lower Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

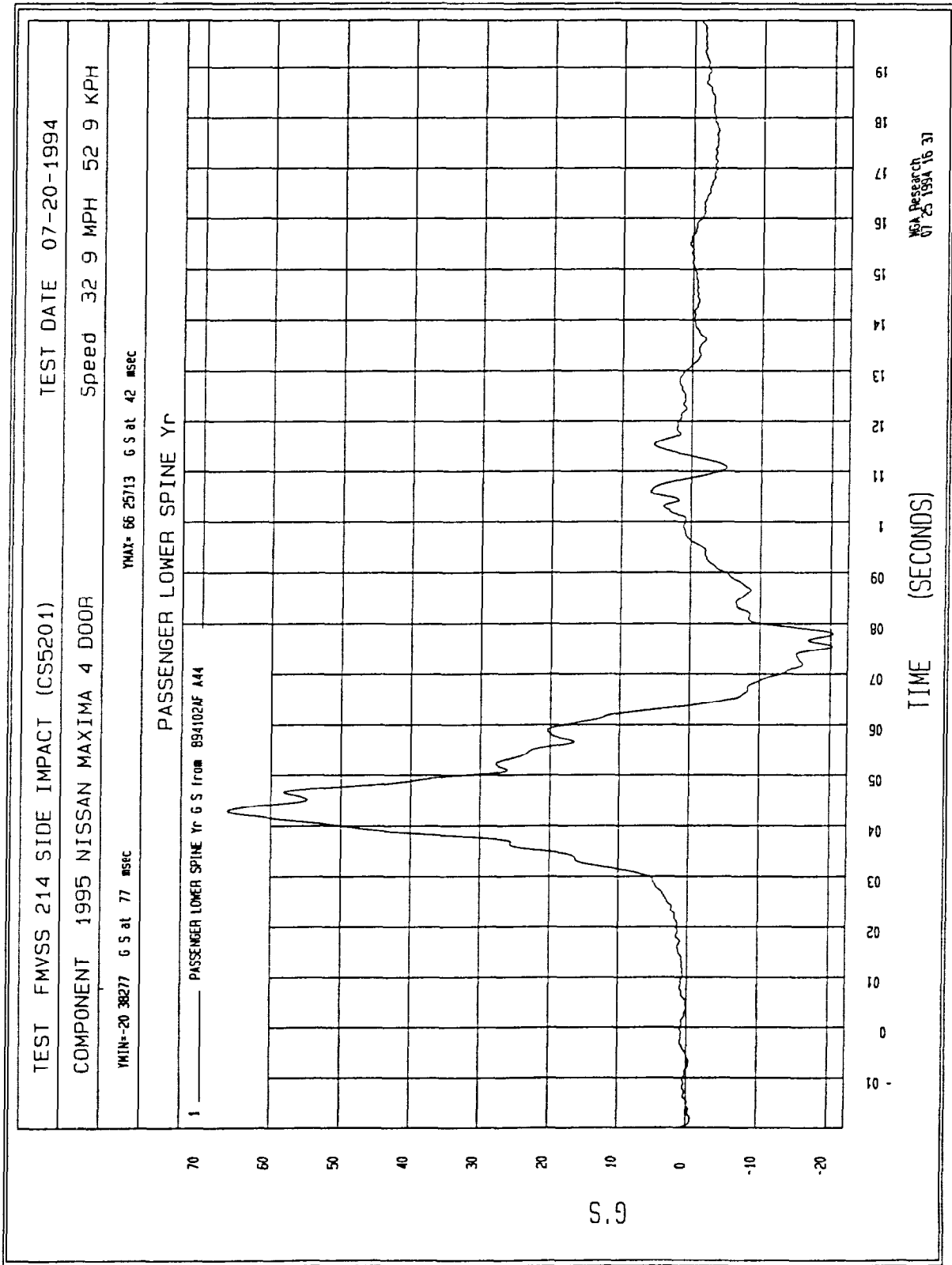


Figure B-77 - Passenger Lower Spine Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

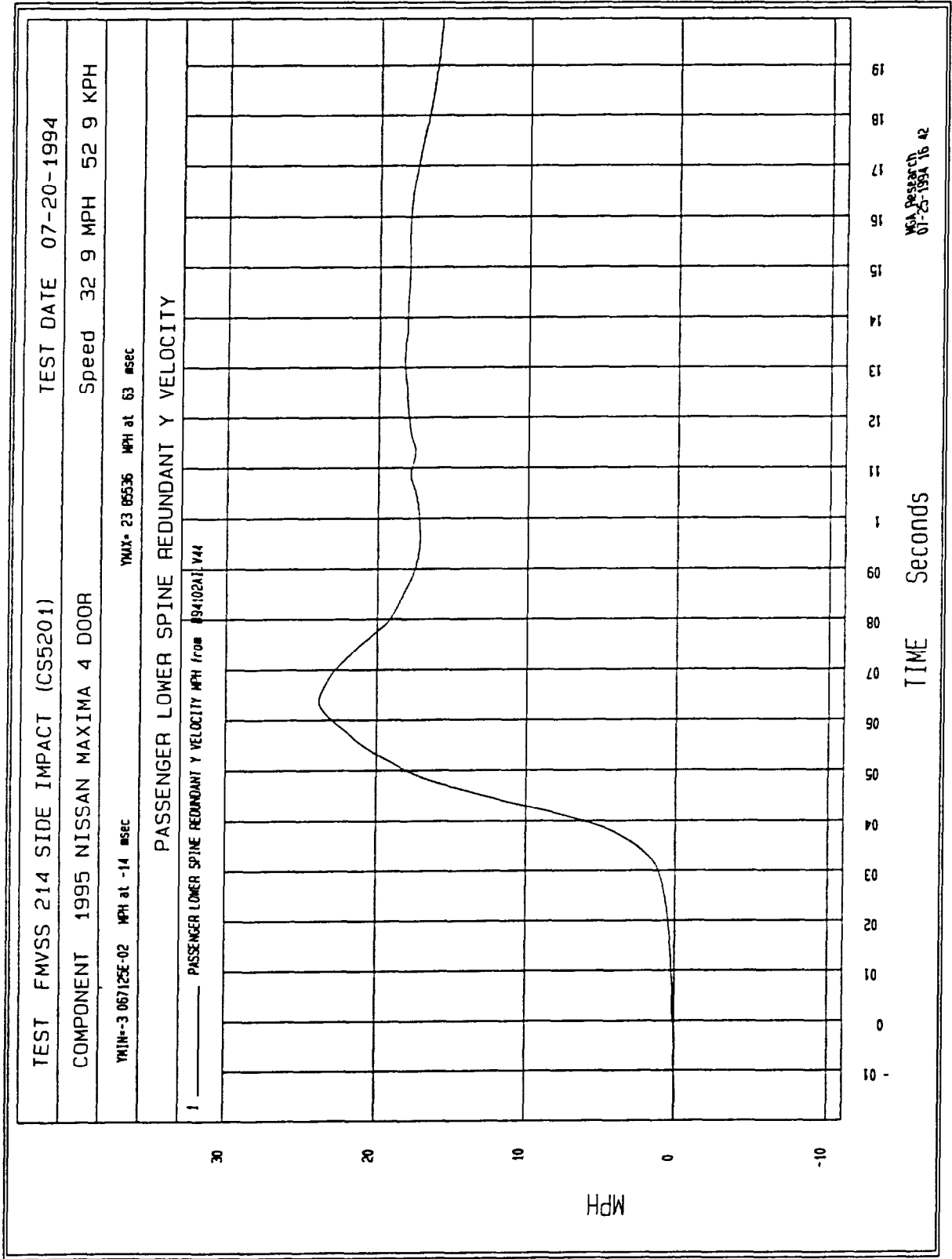


Figure B-78 - Passenger Lower Spine Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

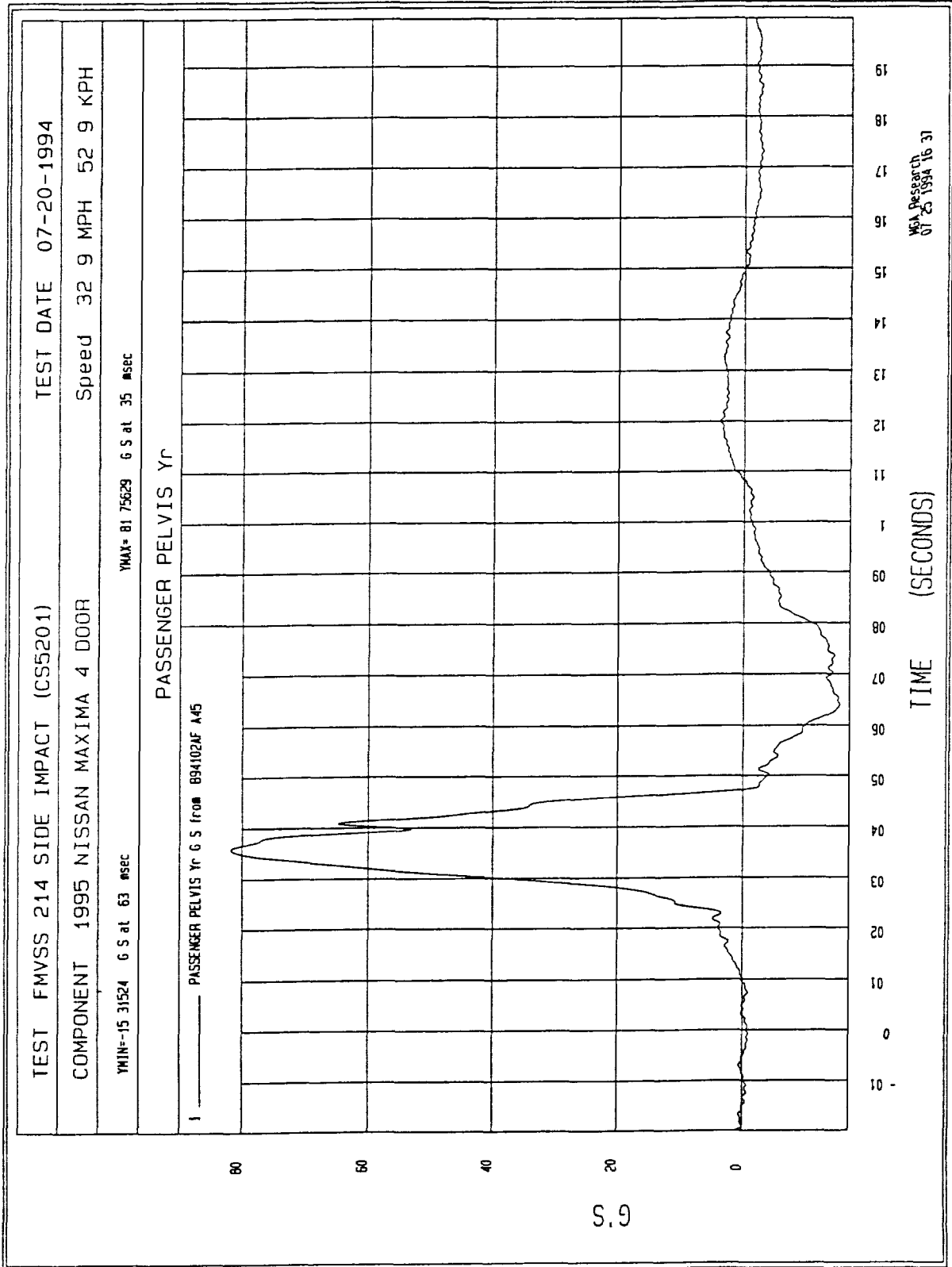


Figure B-79 - Passenger Pelvis Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

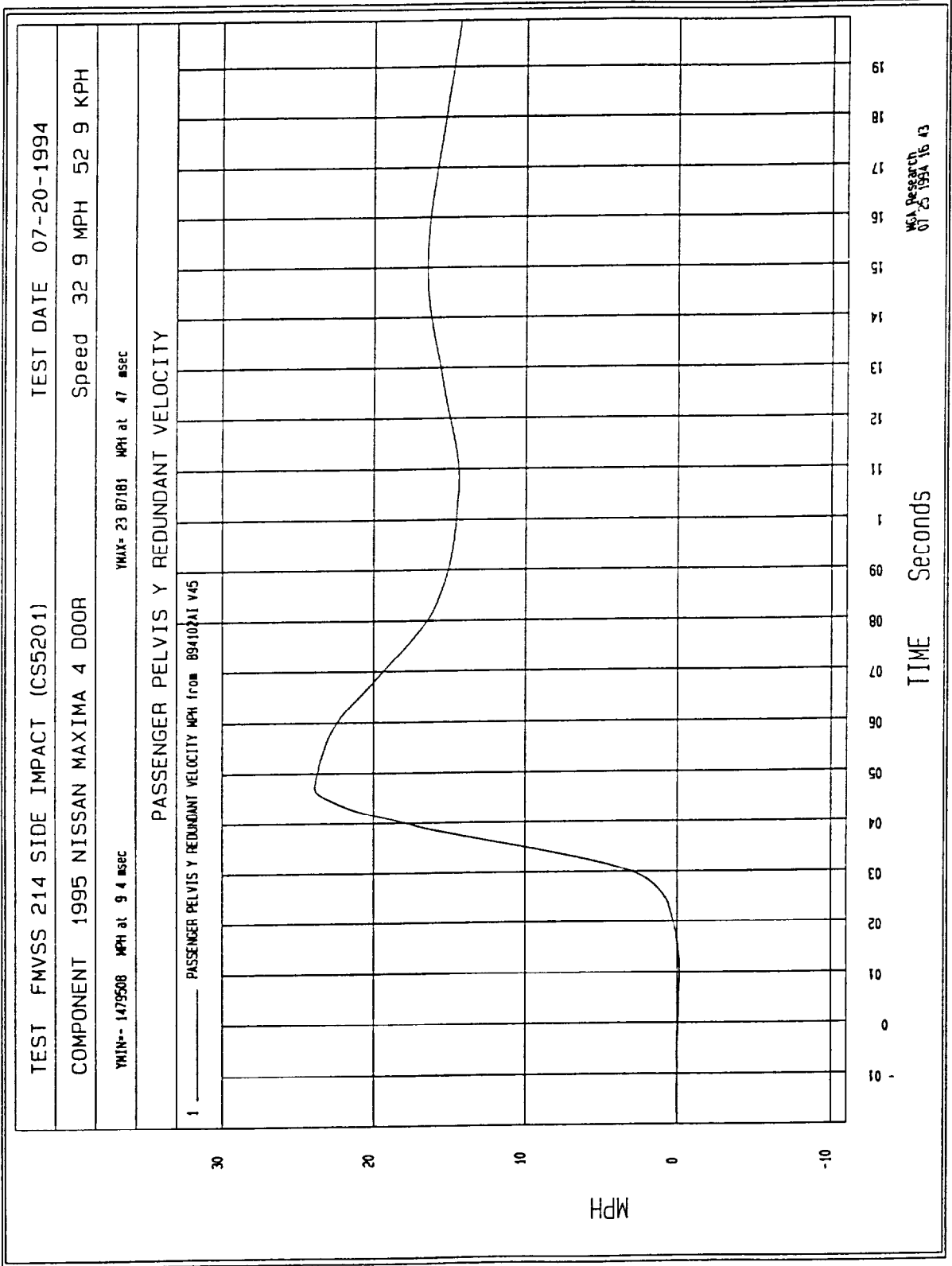


Figure B-80 - Passenger Pelvis Y Redundant Velocity vs. Time

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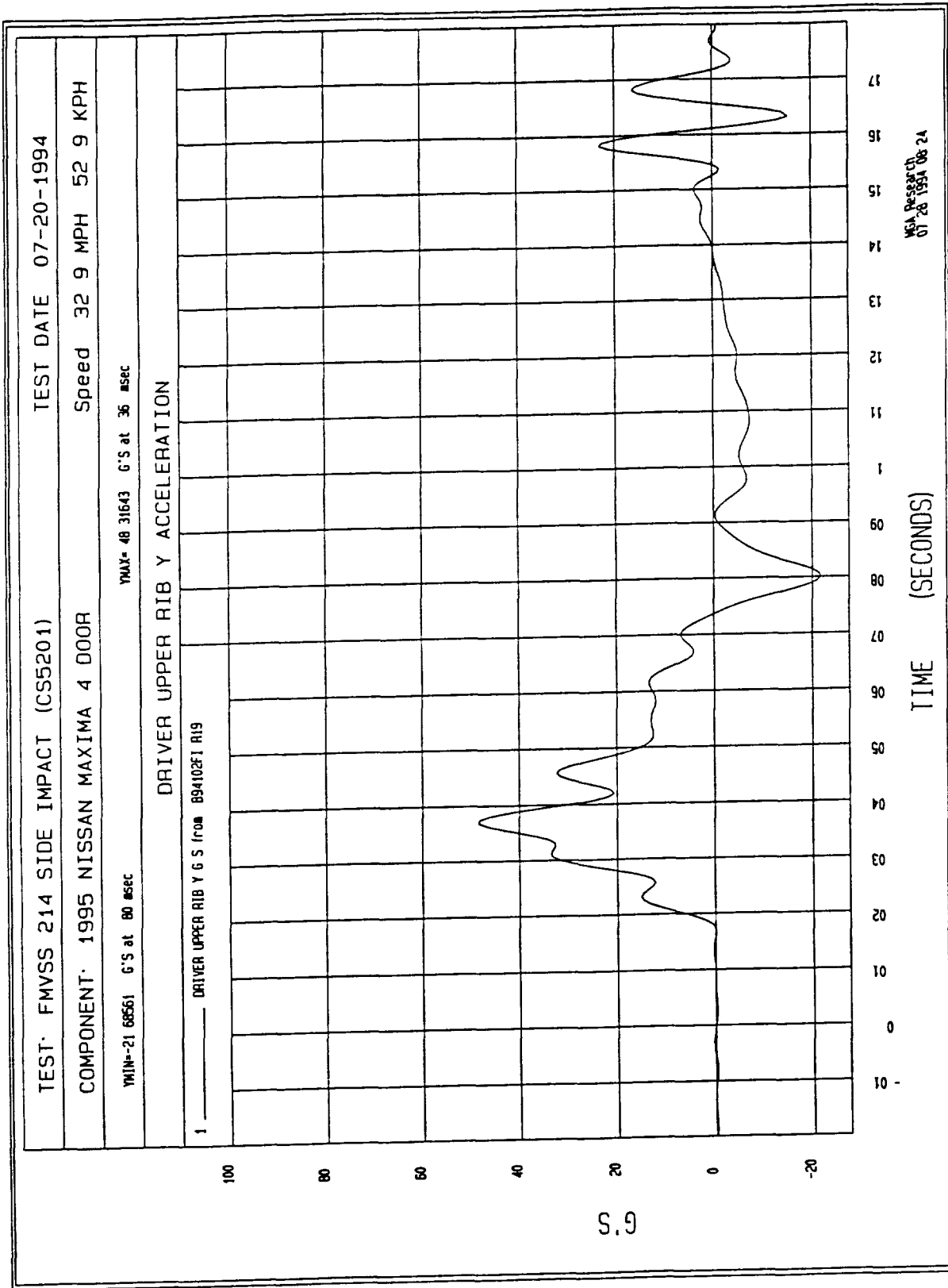


Figure B-81 - Driver Upper Rib Y Acceleration vs. Time

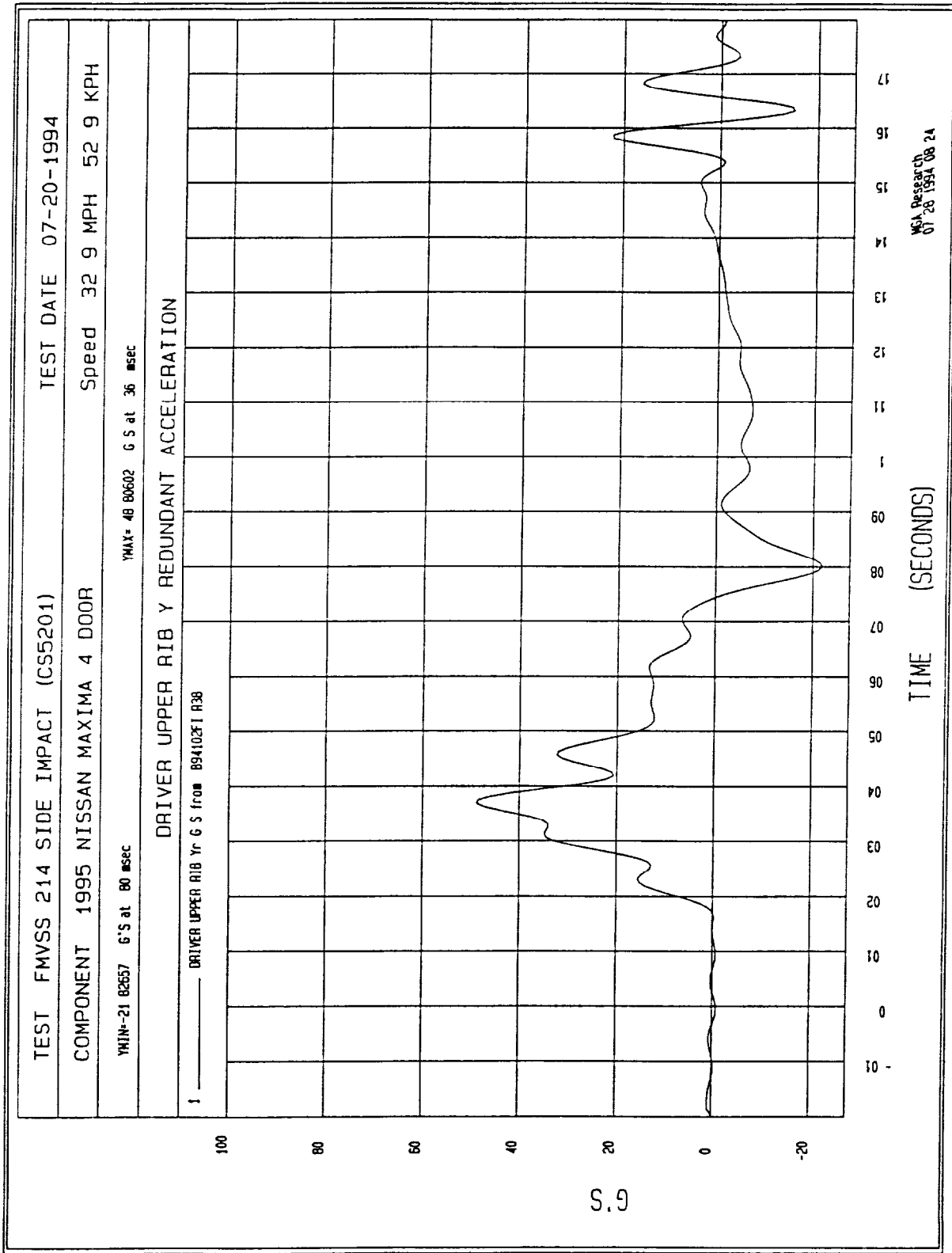


Figure B-82 - Driver Upper Rib Y Redundant Acceleration vs. Time

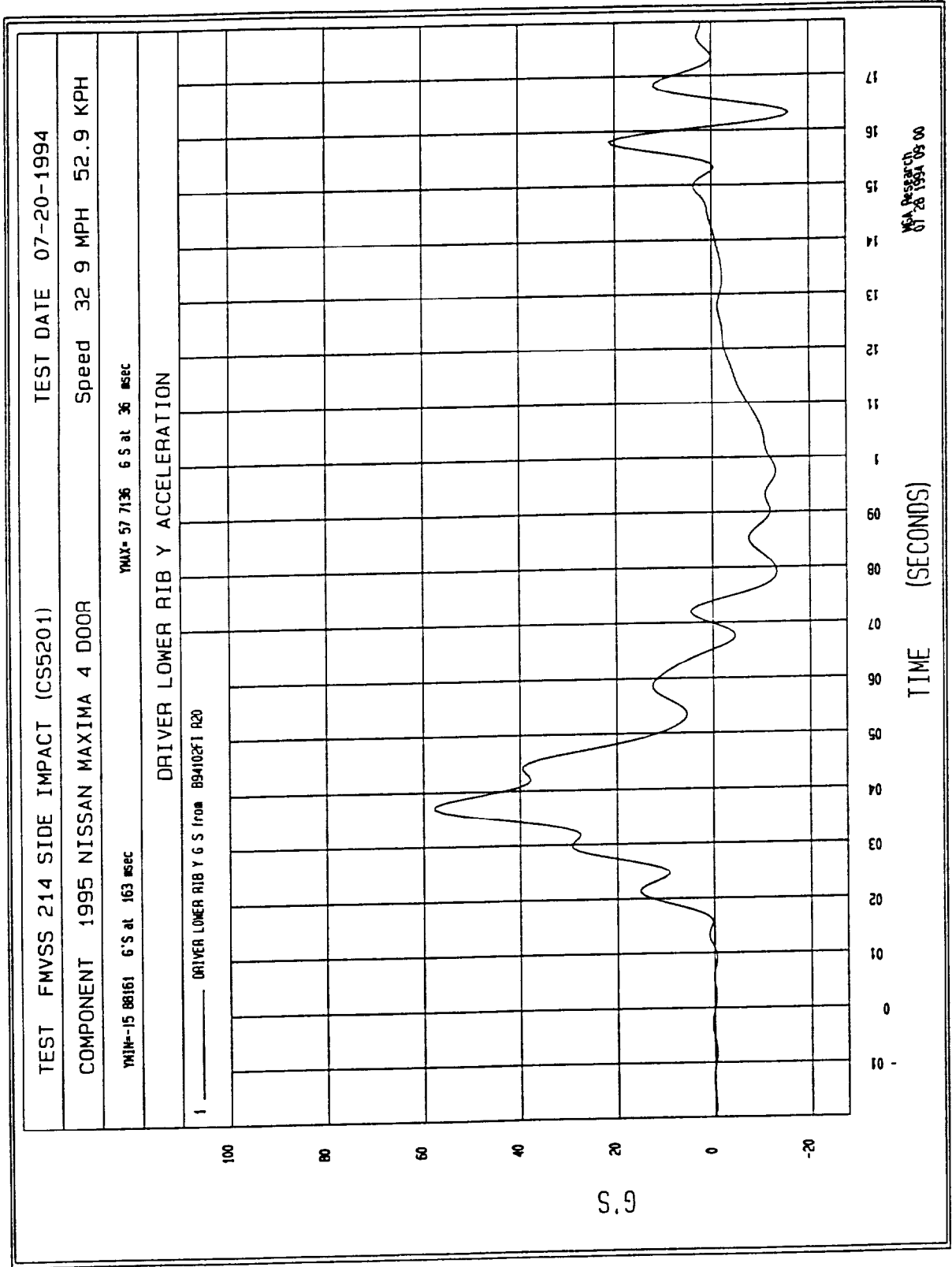


Figure B-83 - Driver Lower Rib Y Acceleration vs. Time

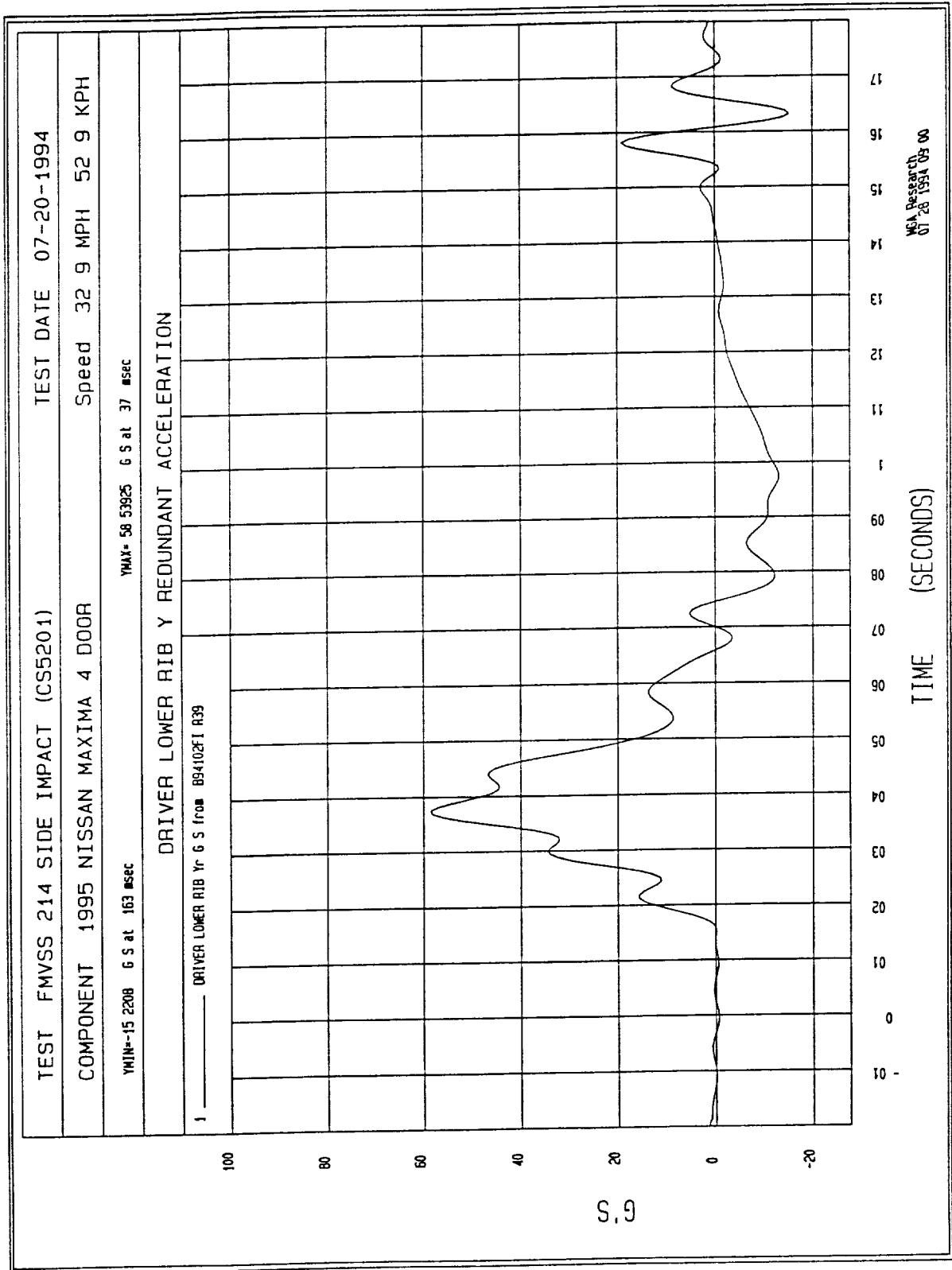


Figure B-84 - Driver Lower Rib Y Redundant Acceleration vs. Time

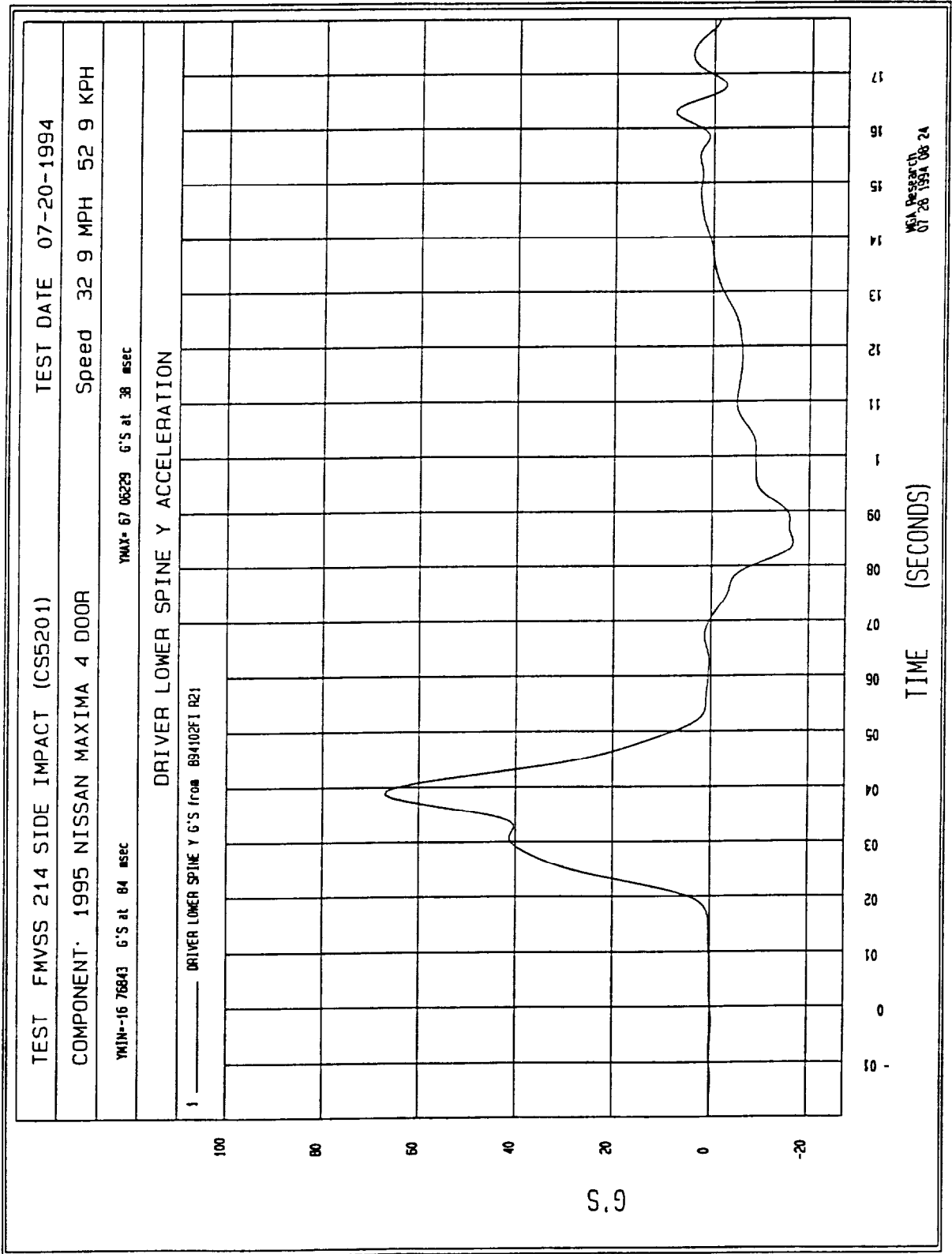


Figure B-85 - Driver Lower Spine Y Acceleration vs. Time

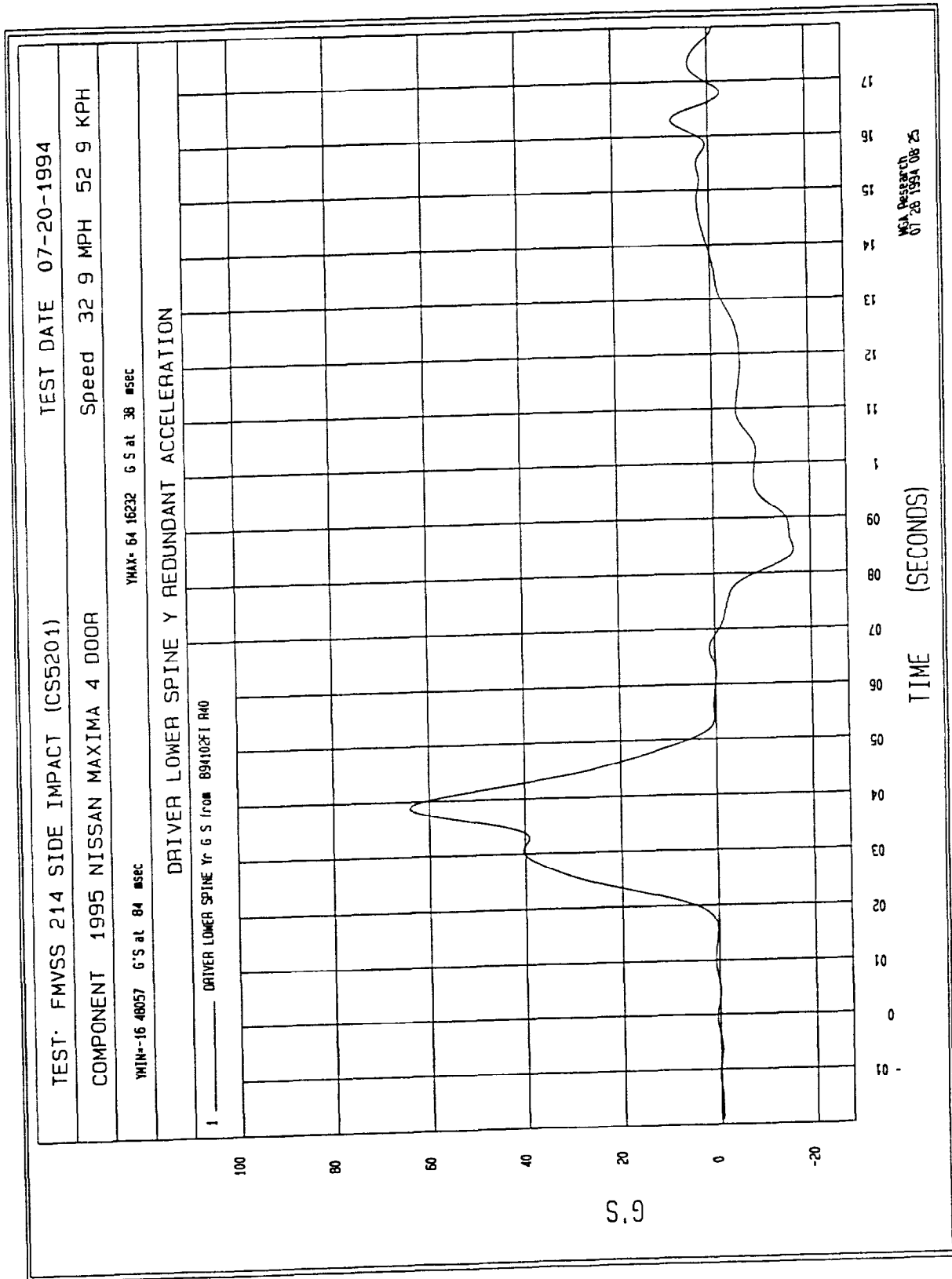
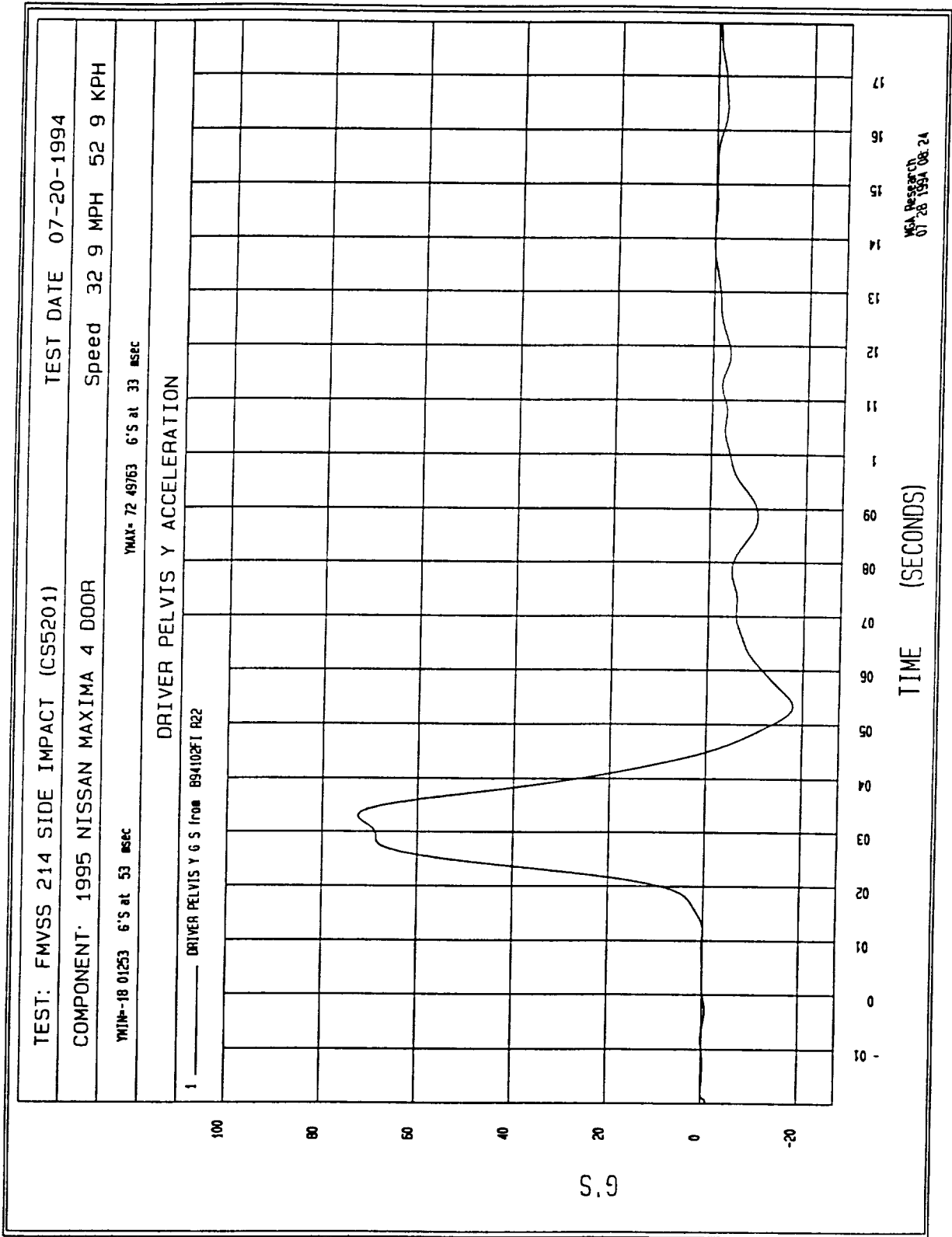


Figure B-86 - Driver Lower Spine Y Redundant Acceleration vs. Time



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

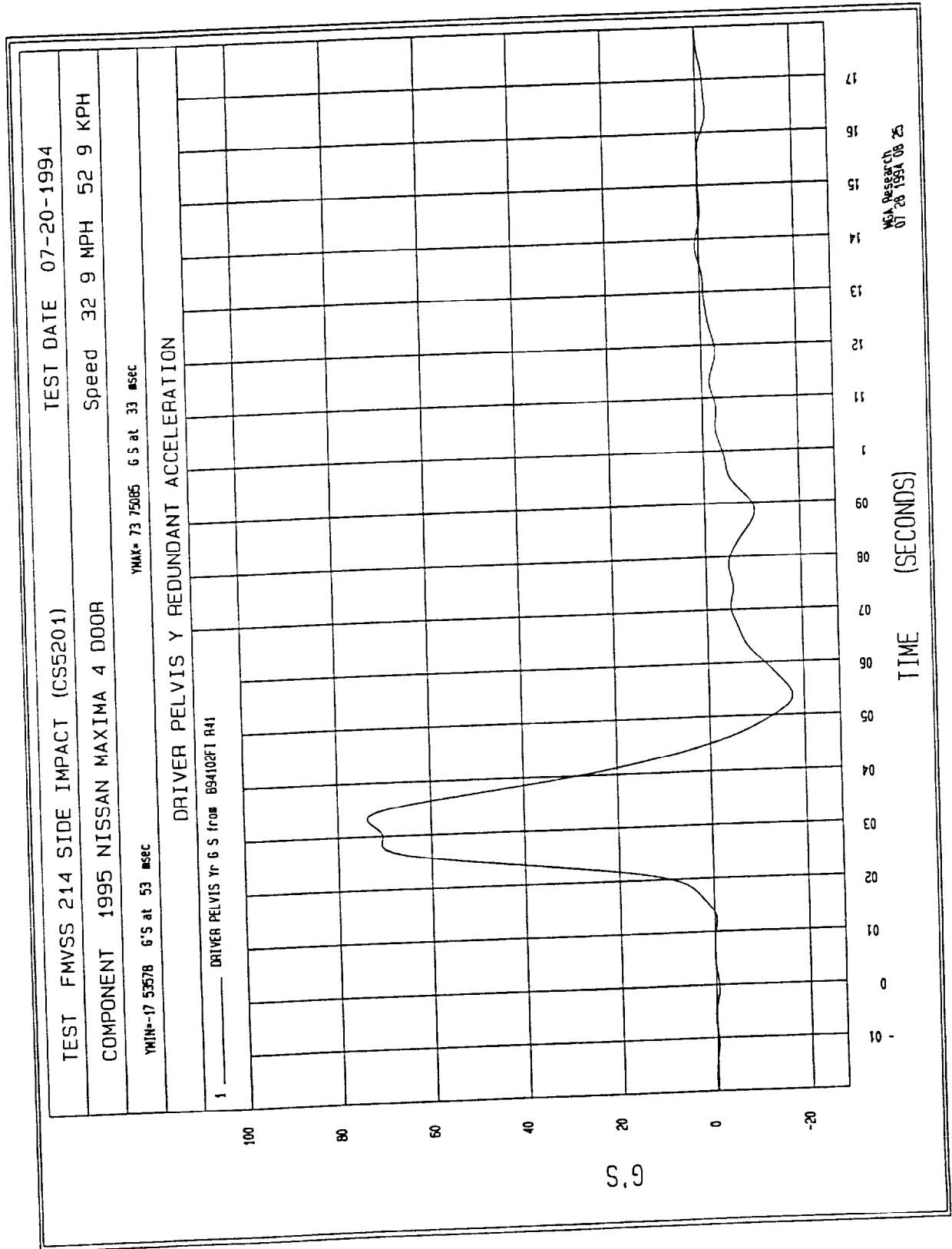


Figure B-88 - Driver Pelvis Y Redundant Acceleration vs. Time

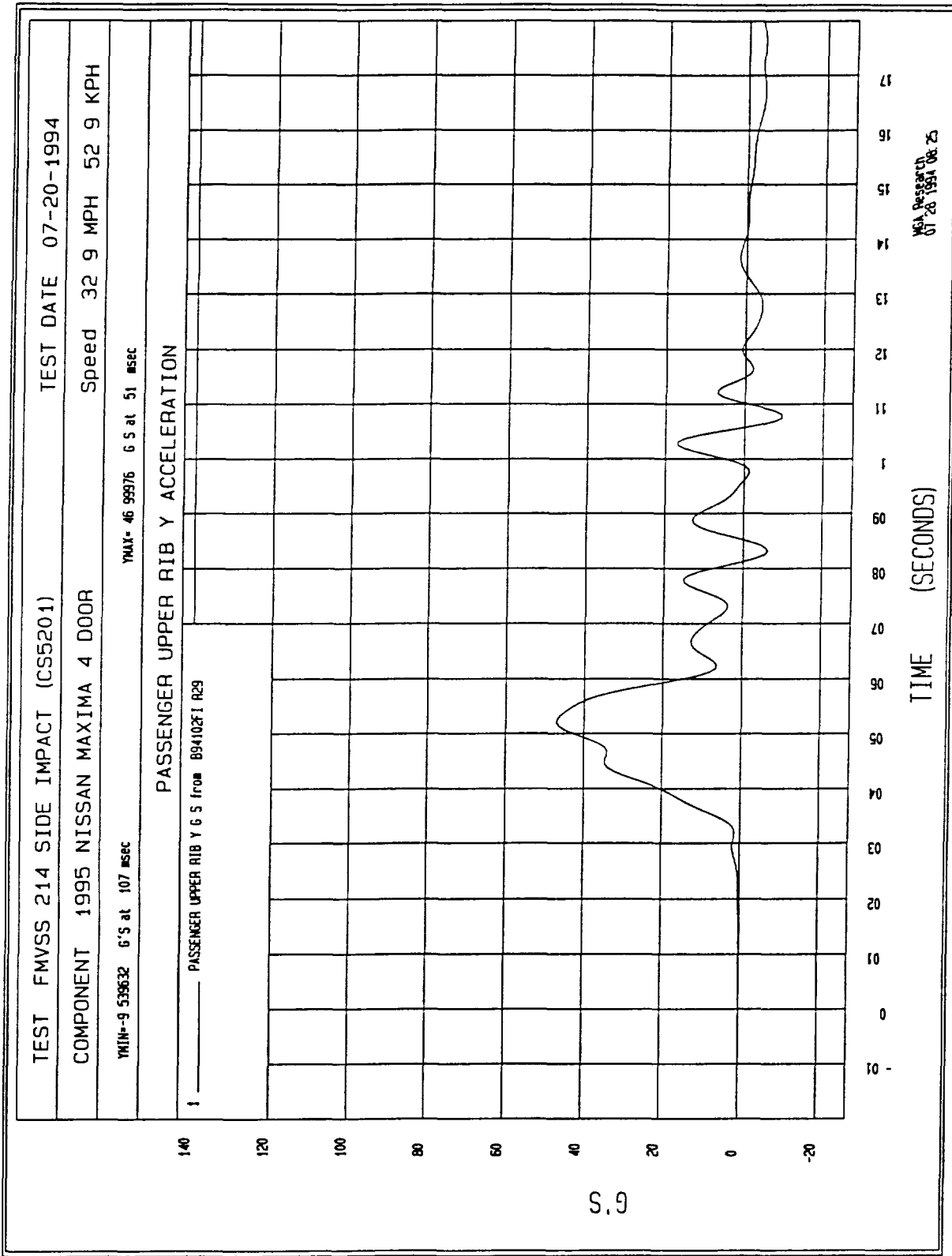


Figure B-89 - Passenger Upper Rib Y Acceleration vs. Time

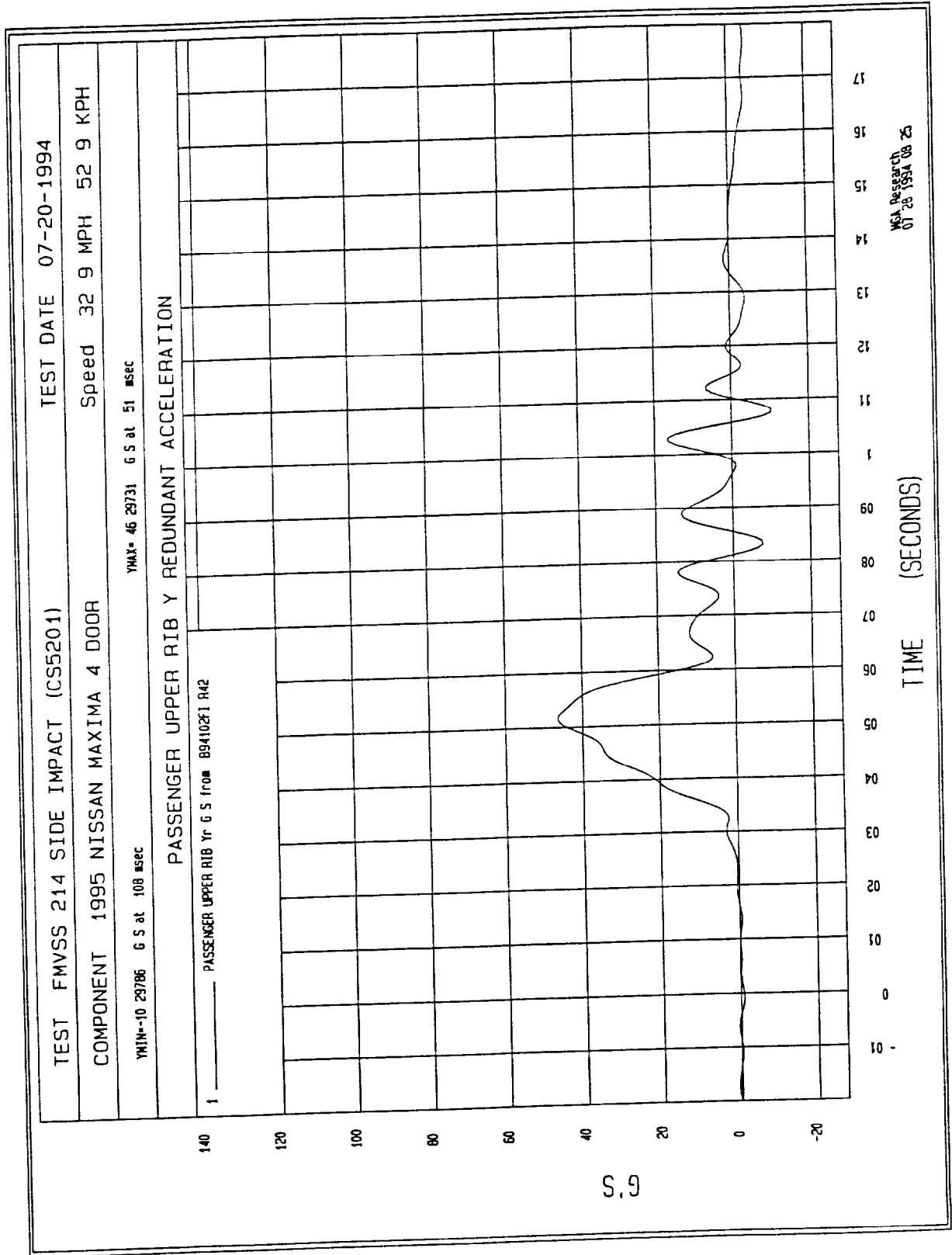


Figure B-90 - Passenger Upper Rib Y Redundant Acceleration vs. Time

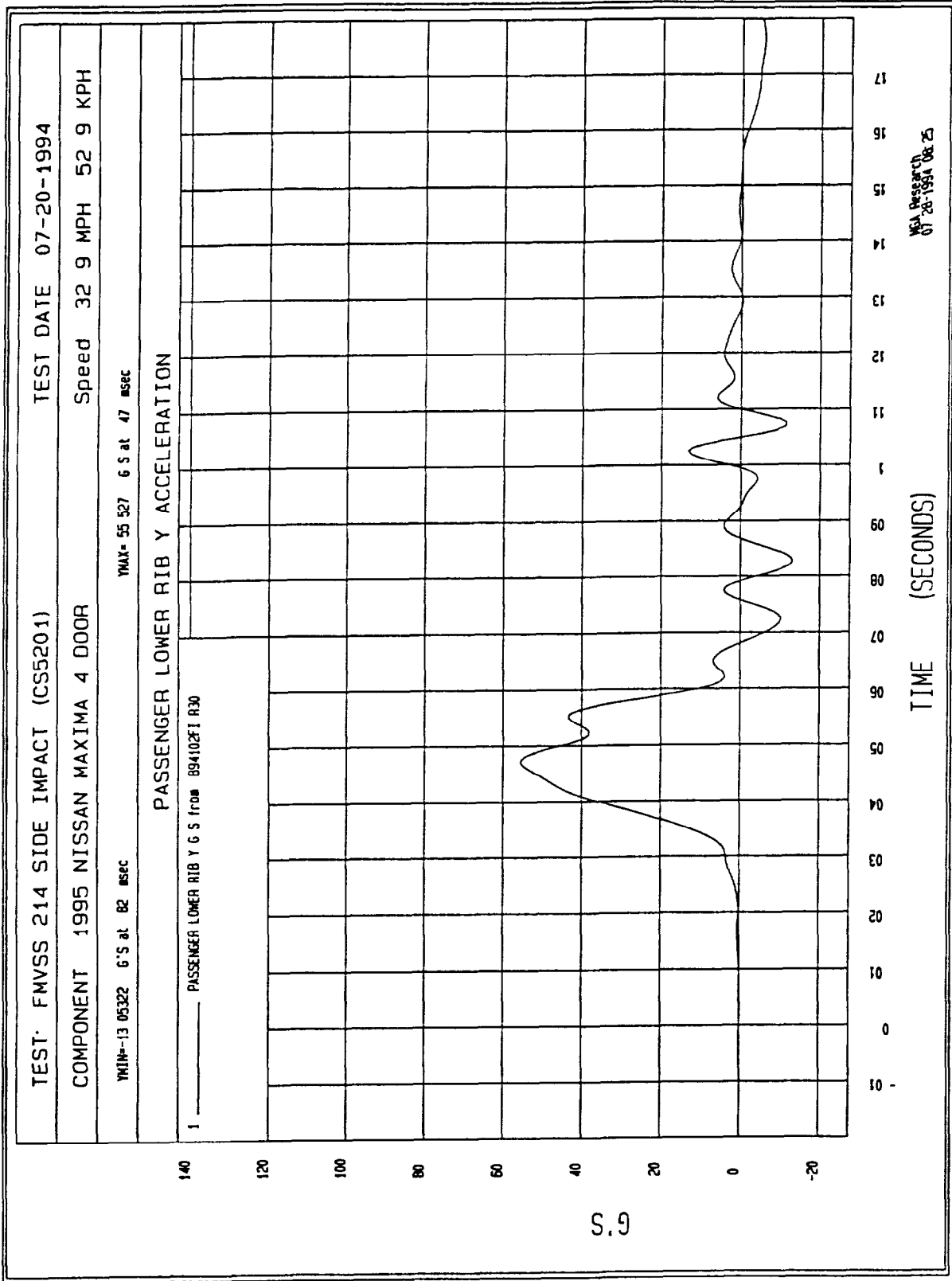


Figure B-91 - Passenger Lower Rib Y Acceleration vs. Time

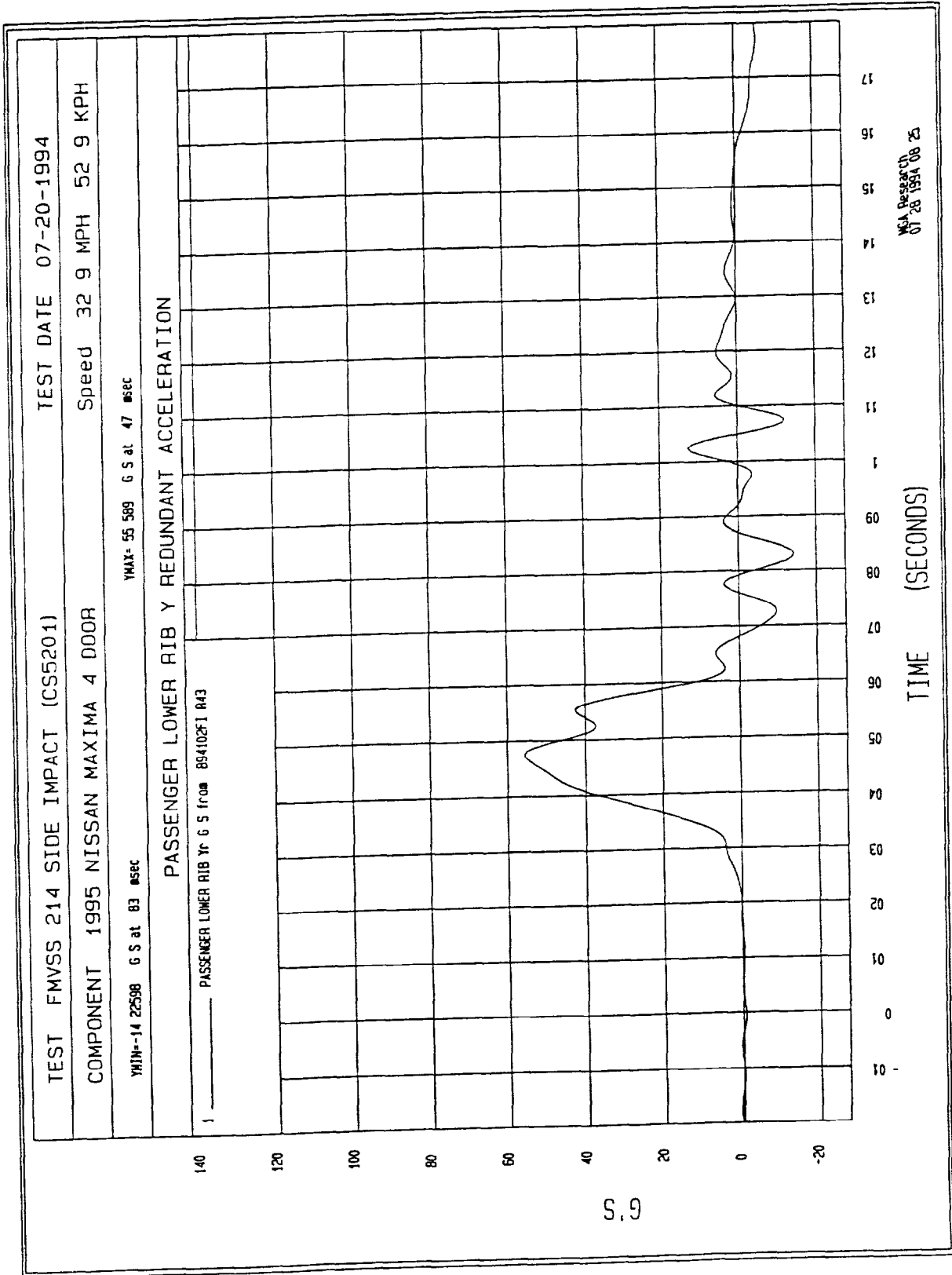


Figure B-92 - Passenger Lower Rib Y Redundant Acceleration vs. Time

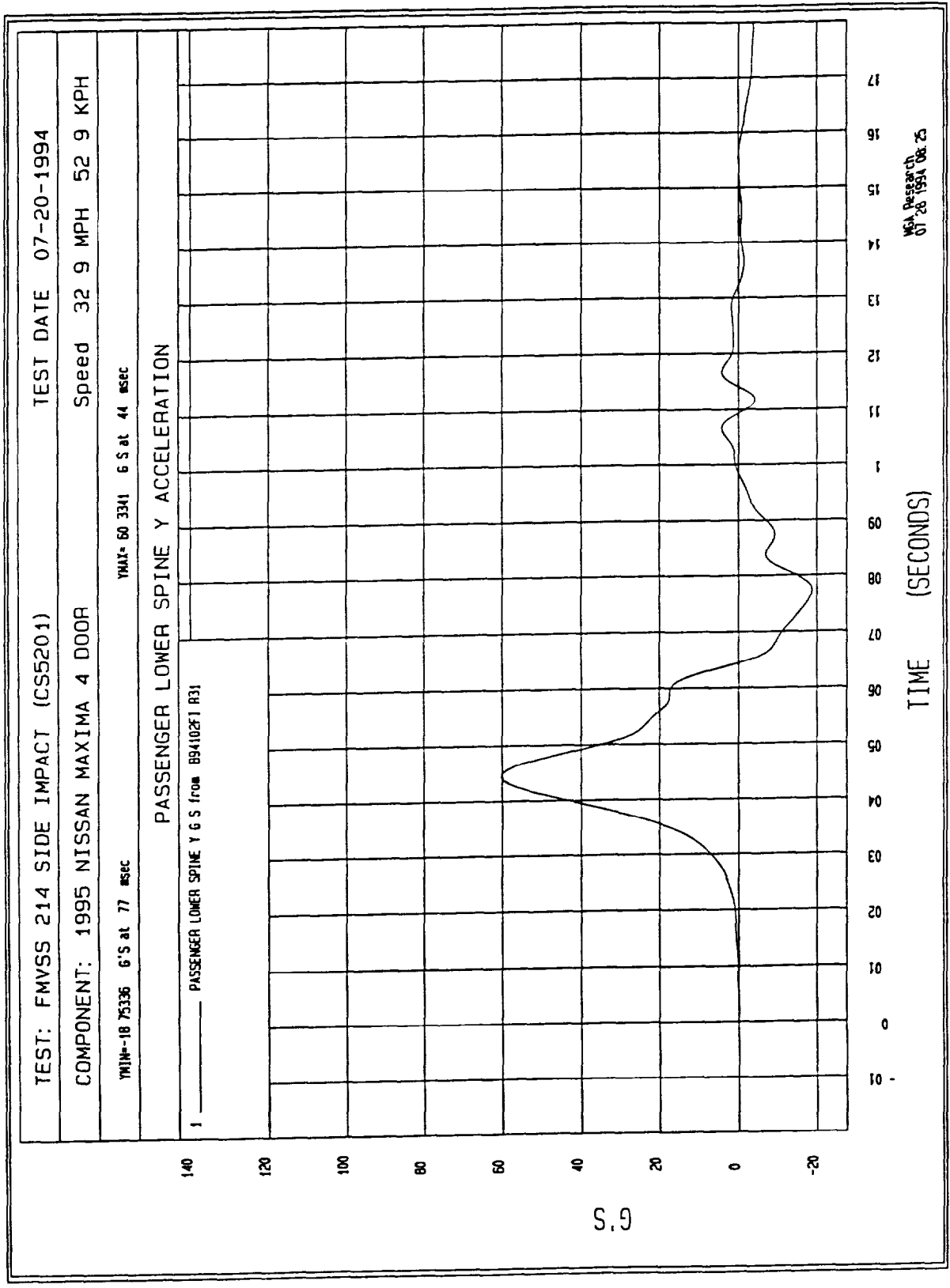


Figure B-93 - Passenger Lower Spine Y Acceleration vs. Time

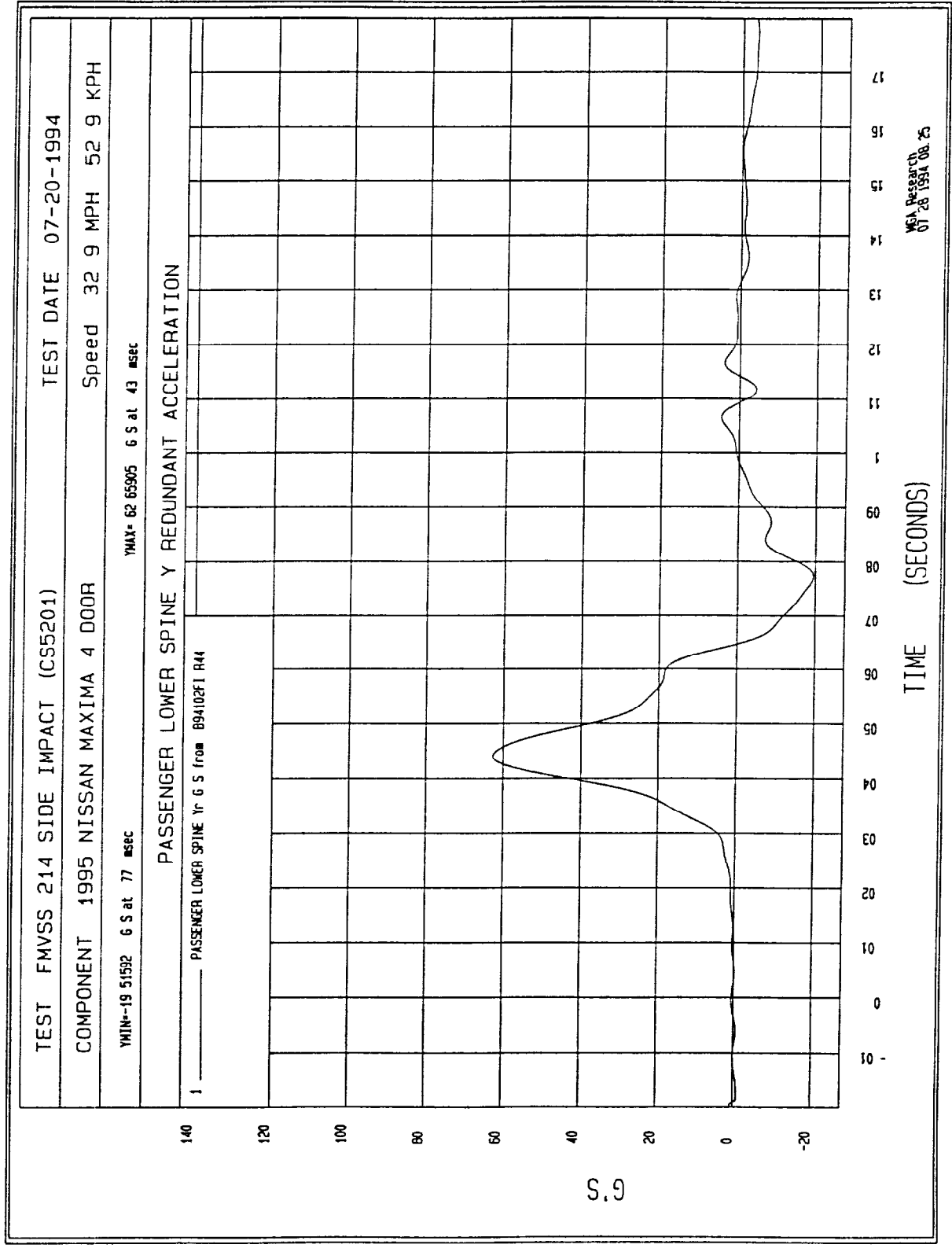


Figure B-94 - Passenger Lower Spine Y Redundant Acceleration vs. Time

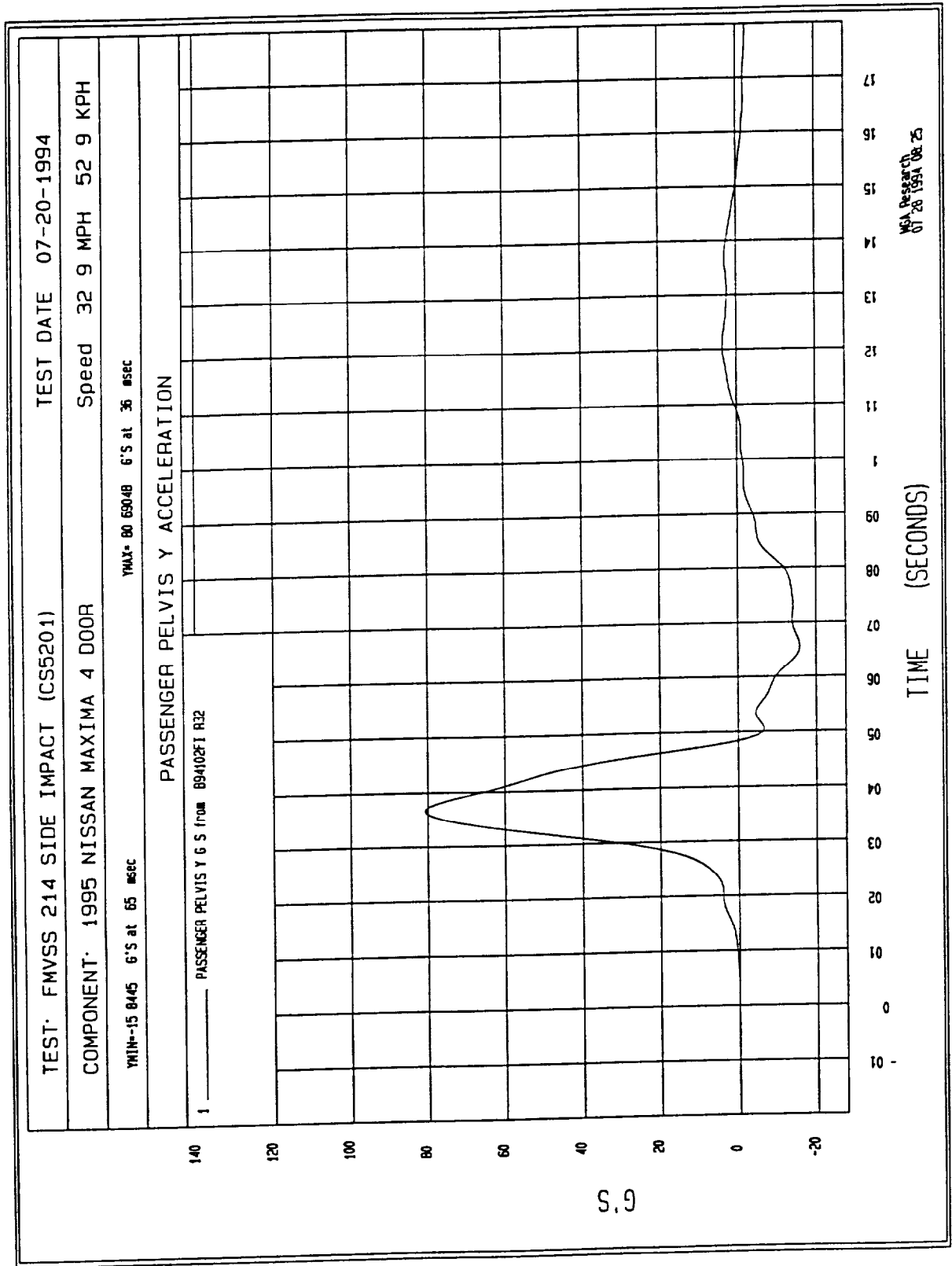


Figure B-95 - Passenger Pelvis Y Acceleration vs. Time

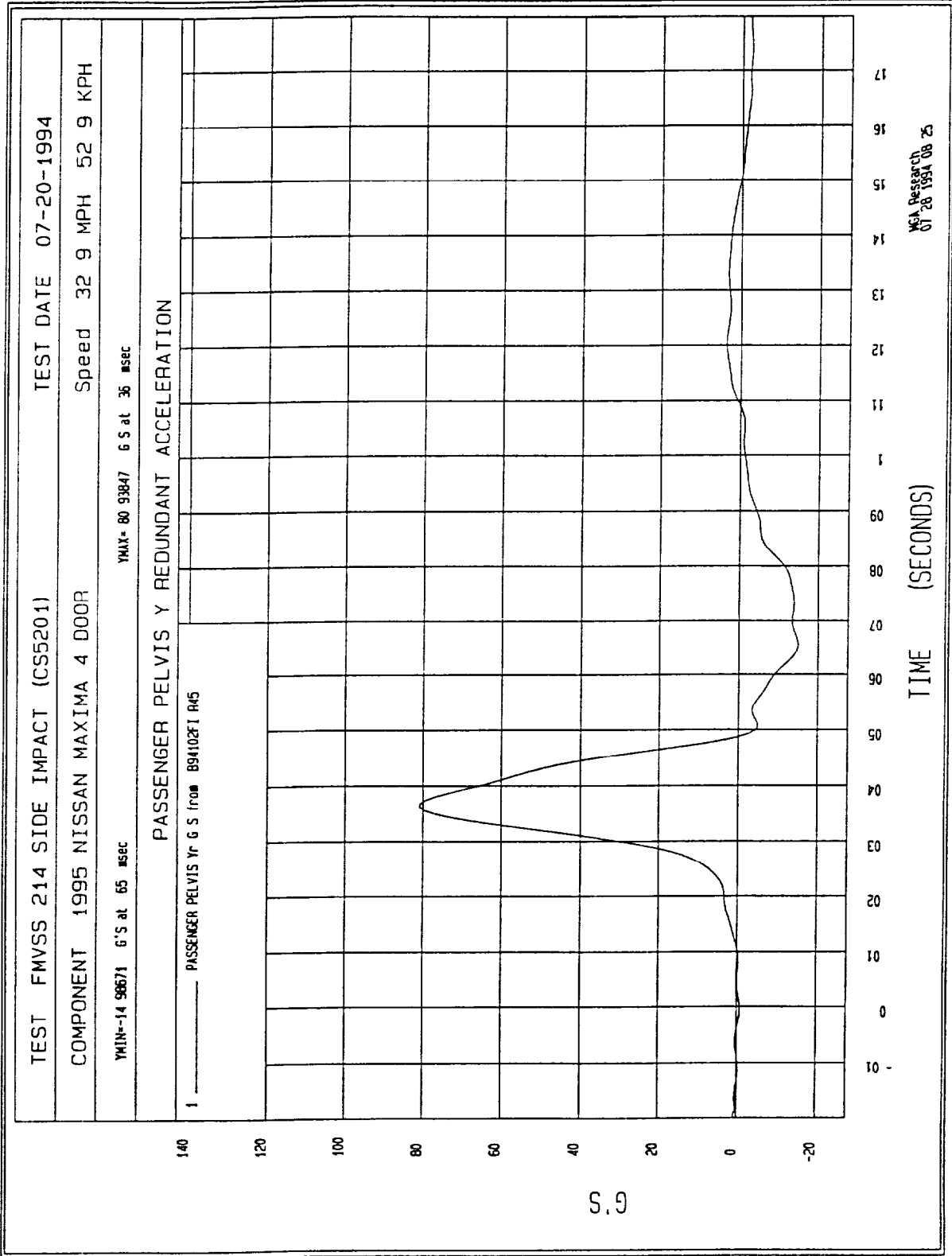


Figure B-96 - Passenger Pelvis Y Redundant Acceleration vs. Time

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-94-DC017

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

NISSAN MOTOR CORPORATION
1995 NISSAN MAXIMA 4 DOOR SEDAN
NHTSA NO. CS5201

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: July 20, 1994

Report Date: August 10, 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.

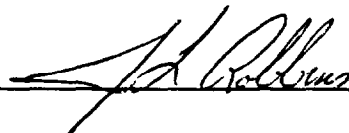
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: July 7, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
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"	9.2
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"	14.7

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: July 19, 1994

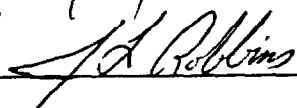
DUMMY NUMBER: 269

TEST NUMBER: D94512

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	50%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	19

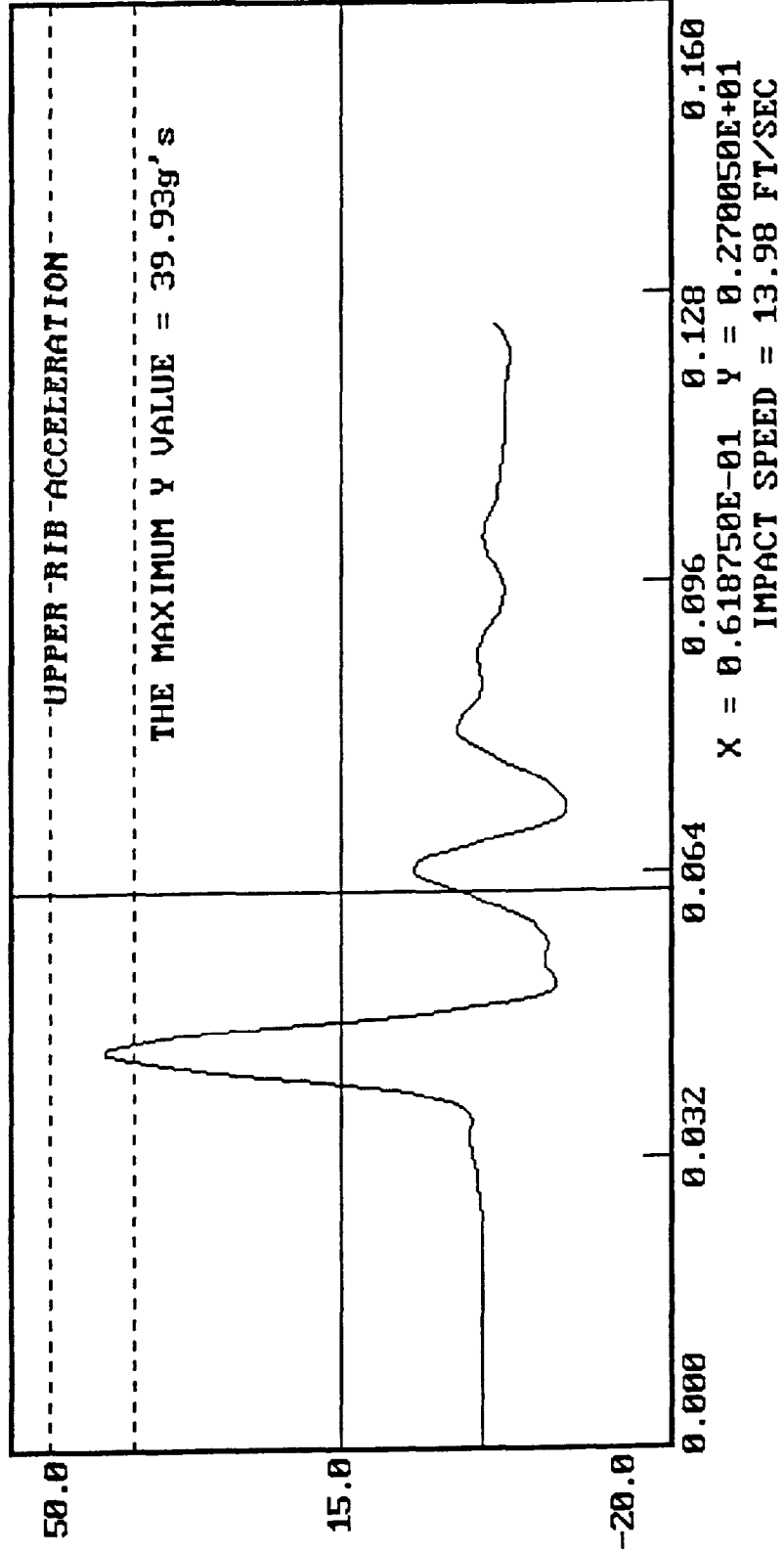
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

07-19-1994 12:21

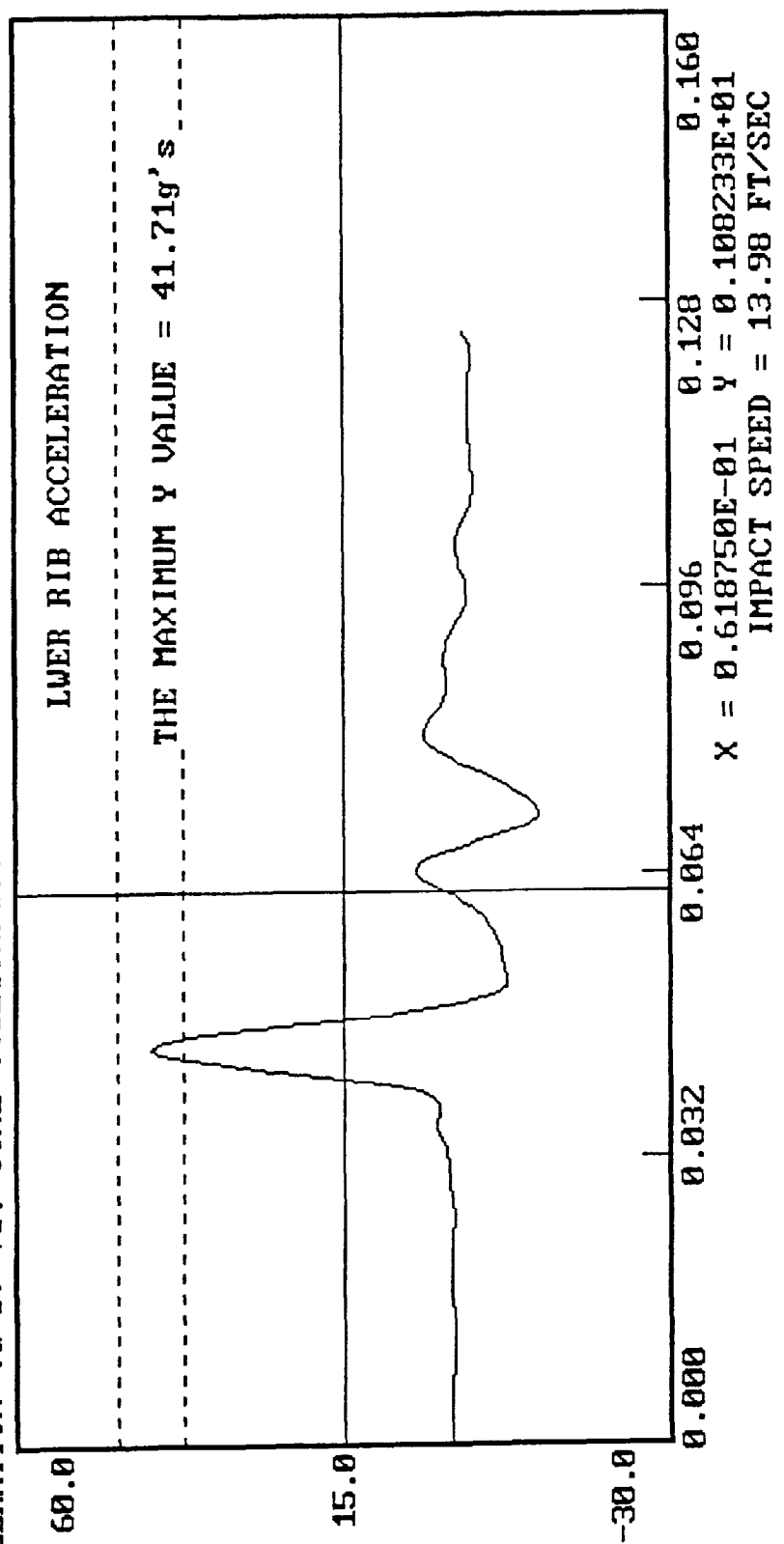


07-19-1994 12:21

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

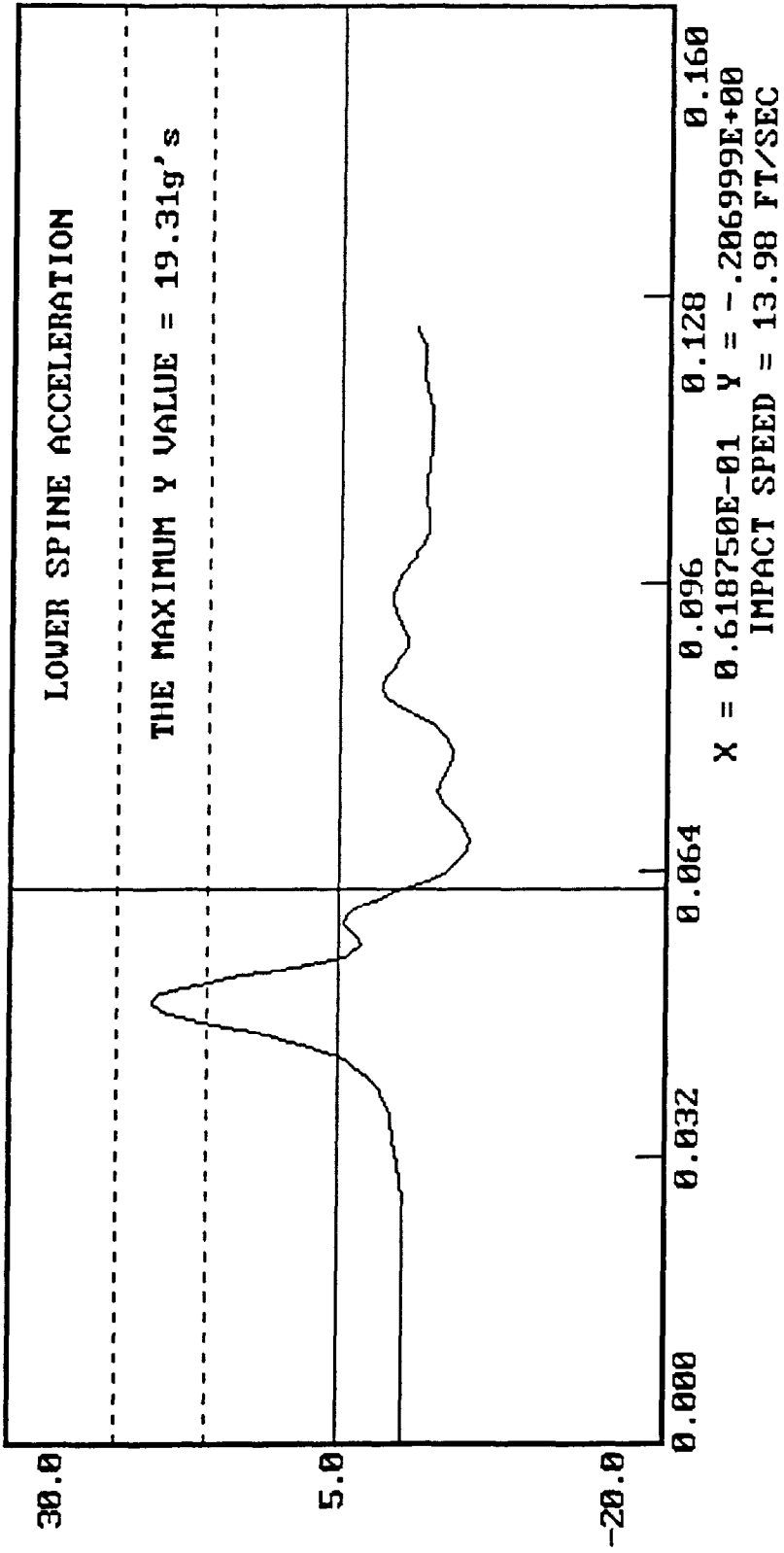
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 269

07-19-1994 12:21

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: July 7, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94513

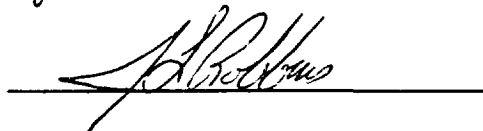
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	50%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	56

TEST MEETS SPECIFICATIONS

TECHNICIAN

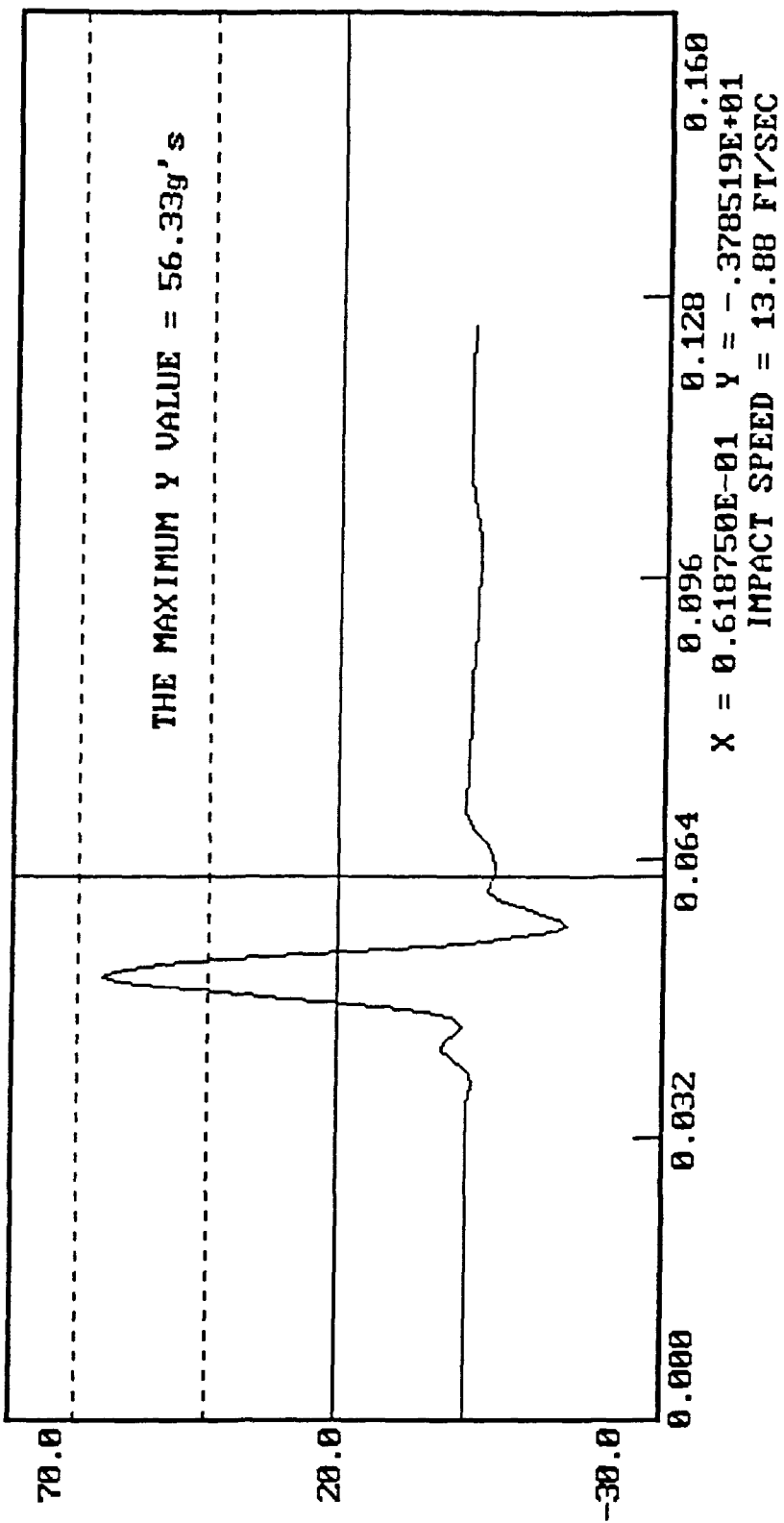


APPROVED BY



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

07-07-1994 17:02



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

DATE: July 8, 1994

DUMMY NUMBER. 269

TEST NUMBER. D94514

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	45%
FORCE @ 0.5 in	23.3 - 36.5 lbs	32.6
FORCE @ 0.75 in	36.7 - 49.8 lbs	44.1
FORCE @ 1.0 in	50 - 63 lbs	59
FORCE @ 1.3 in	73 - 88 lbs	79

TEST MEETS SPECIFICATIONS

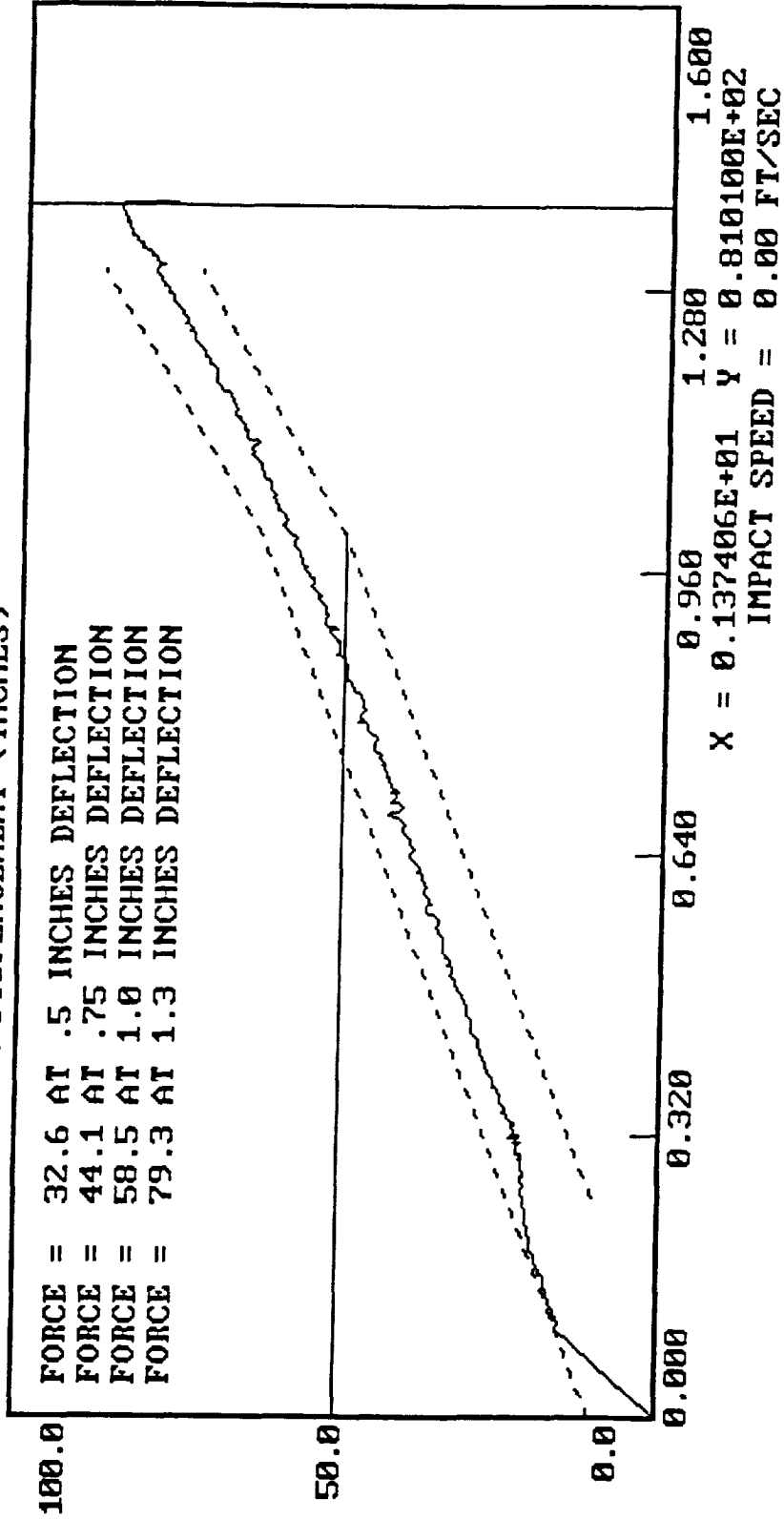
TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION
DUMMY # 269

07-08-1994 16:40

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION
LUMBAR FLEXION TEST
SIDE IMPACT DUMMY (SID)

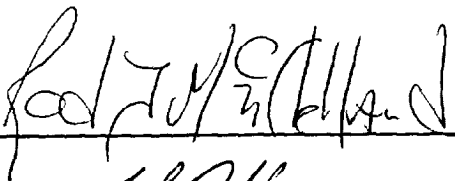
DATE: July 8, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94515

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	45%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	34
FORCE @ 30°	34 - 46 lbs	44
FORCE @ 40°	46 - 58 lbs	56
RETURN ANGLE	12° maximum	6°

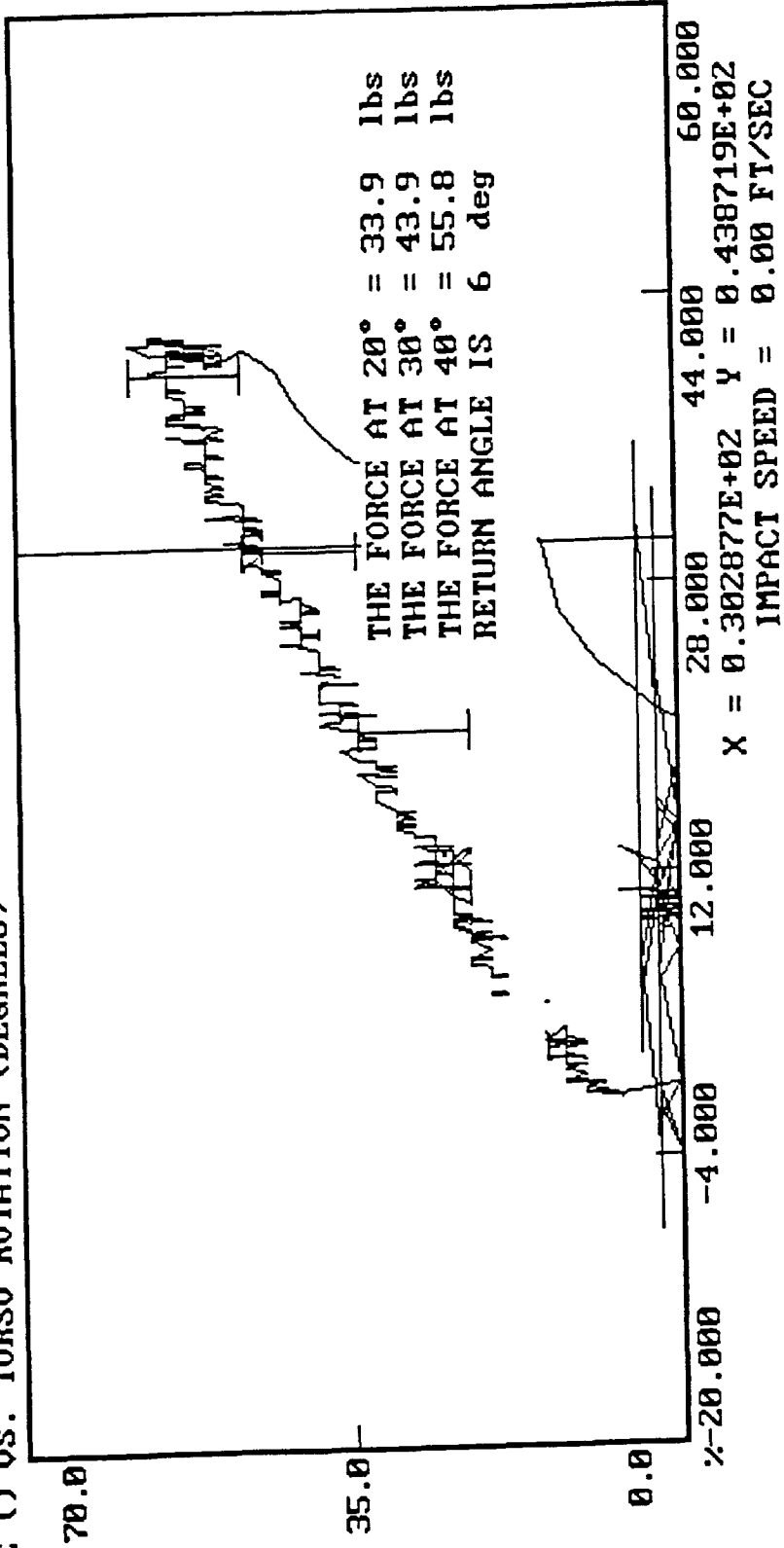
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

07-08-1994 16:19

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



PRE-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 270

Calibration Test Results Summary

Passenger Serial Number: 270

Pre-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: July 7, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
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"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.2
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	14.9

MEASUREMENTS BY: Robert McHale

APPROVED BY: J. Collins

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: July 7, 1994

DUMMY NUMBER: 270

TEST NUMBER. D94502

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	50%
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	19

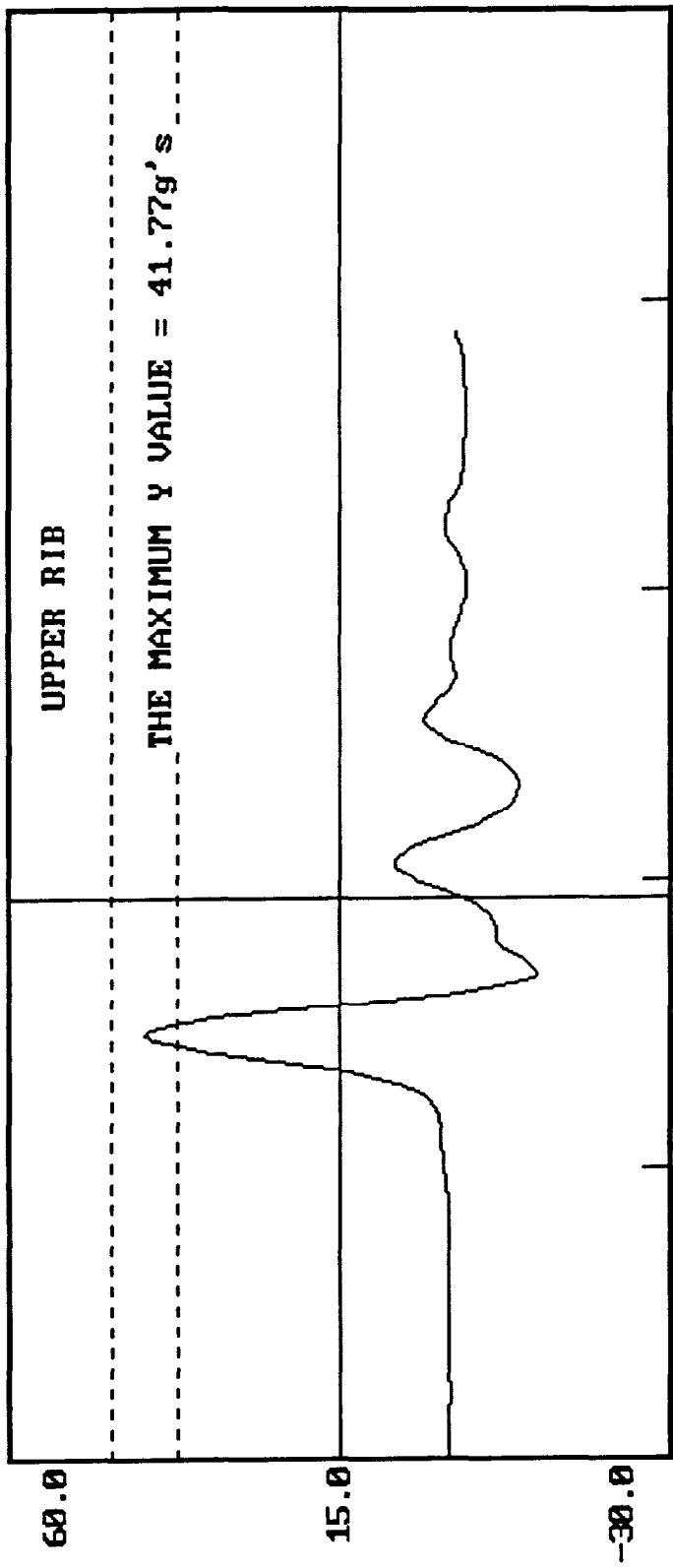
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

07-07-1994 15:14

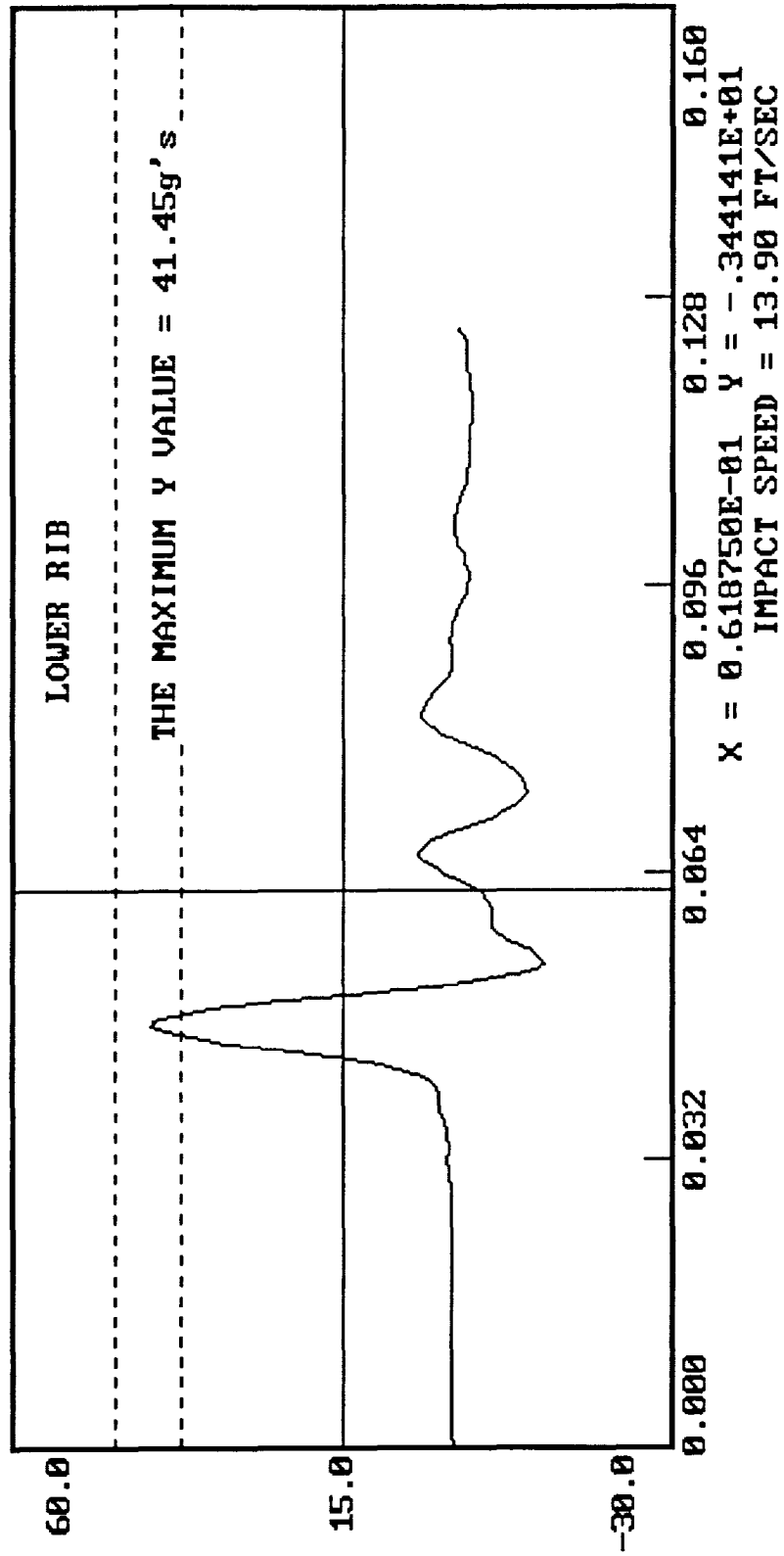
DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 270
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.177782E+01
IMPACT SPEED = 13.90 FT/SEC

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

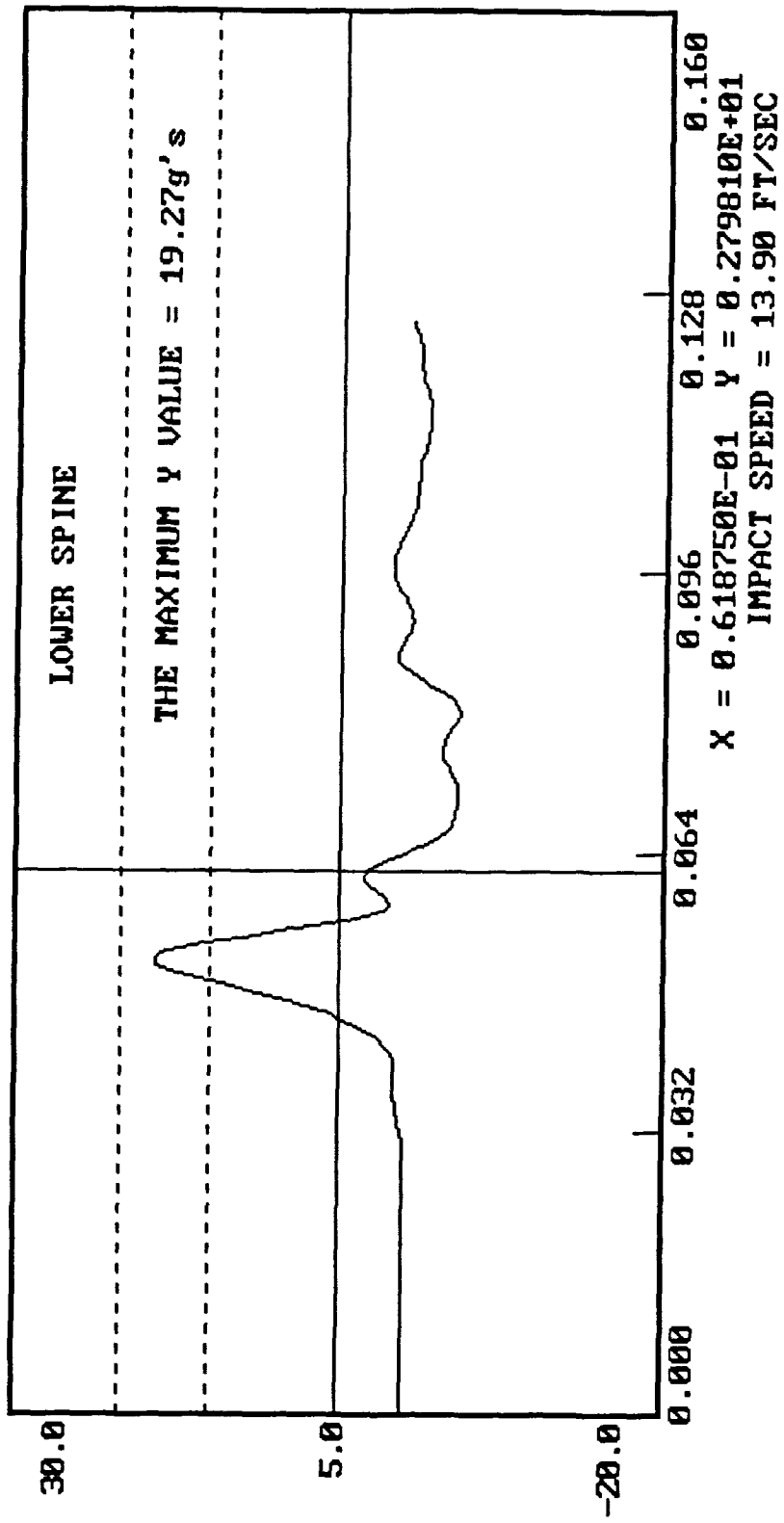
07-07-1994 15:14



DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 270

07-07-1994 15:14

(VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)


DATE July 7, 1994

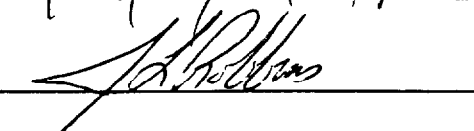
DUMMY NUMBER: 270

TEST NUMBER. D94503

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	50%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	60

TEST MEETS SPECIFICATIONS

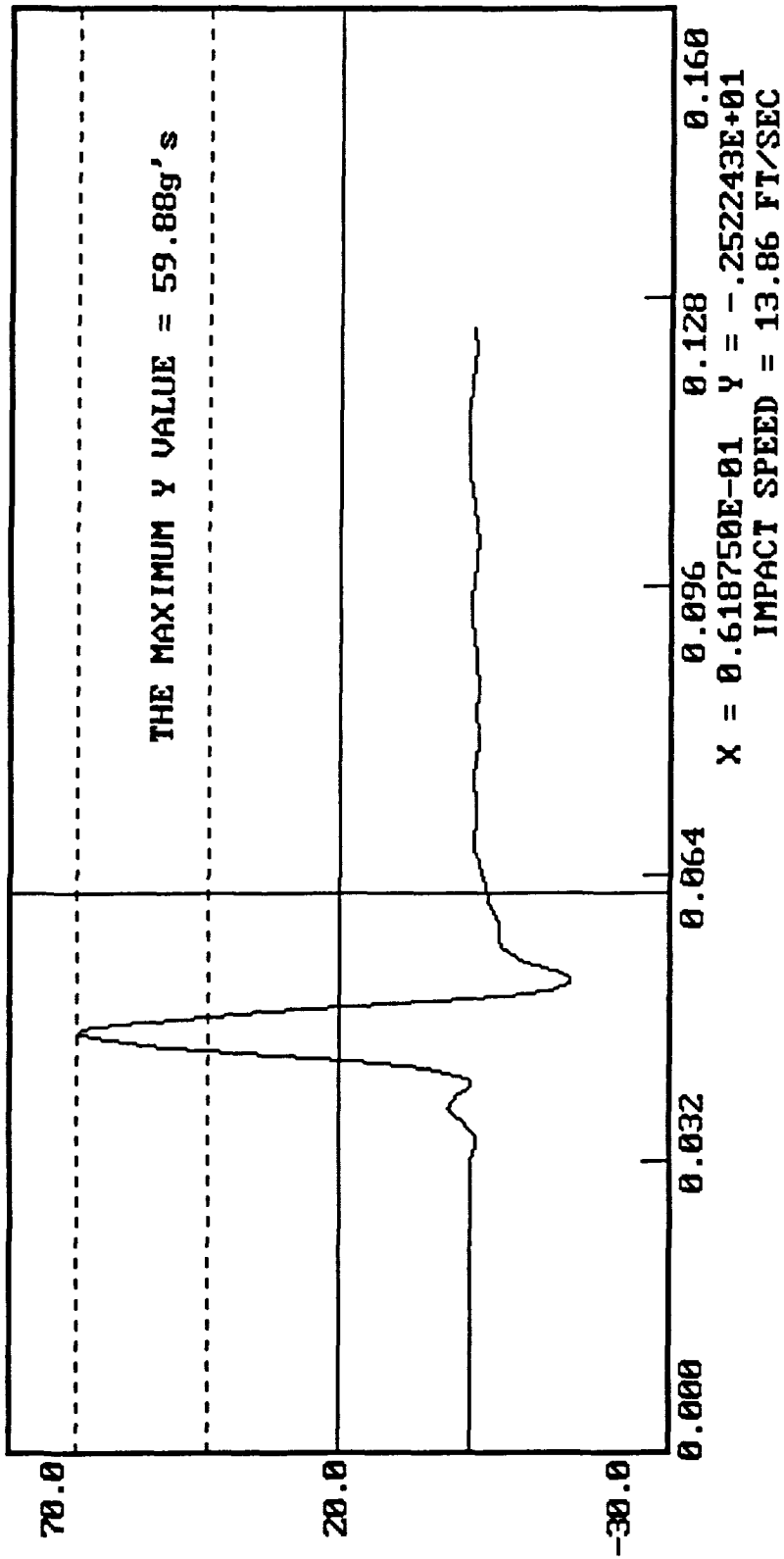
TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 270

07-07-1994 16:46

() VS. TIME ((SECONDS))



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

DATE: July 8, 1994

DUMMY NUMBER: 270

TEST NUMBER: D94504

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	45%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.2
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.9
FORCE @ 1.0 in	50 - 63 lbs	56
FORCE @ 1.3 in	73 - 88 lbs	76

TEST MEETS SPECIFICATIONS

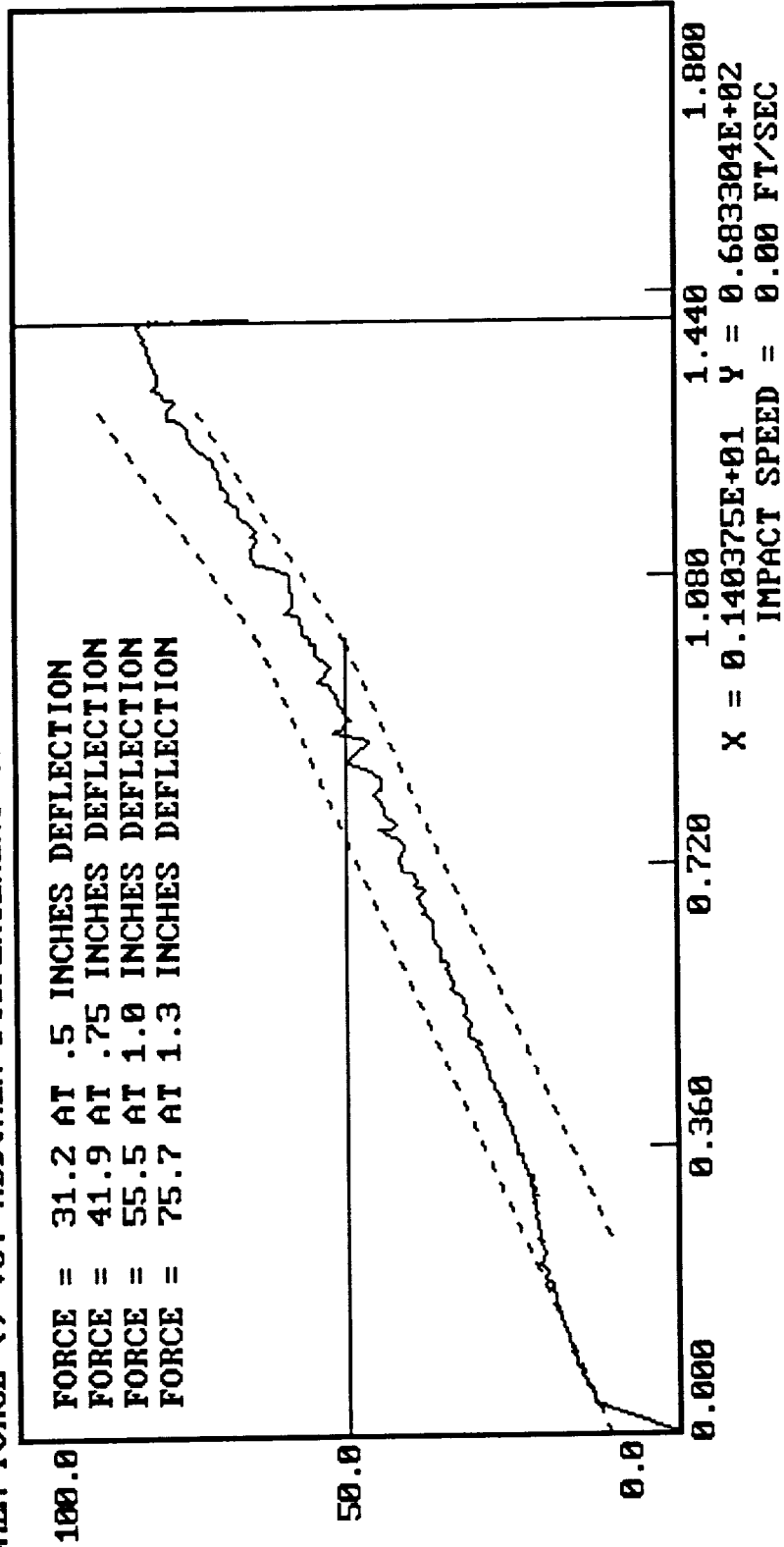
TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 270

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: July 8, 1994

DUMMY NUMBER. 270

TEST NUMBER: D94505

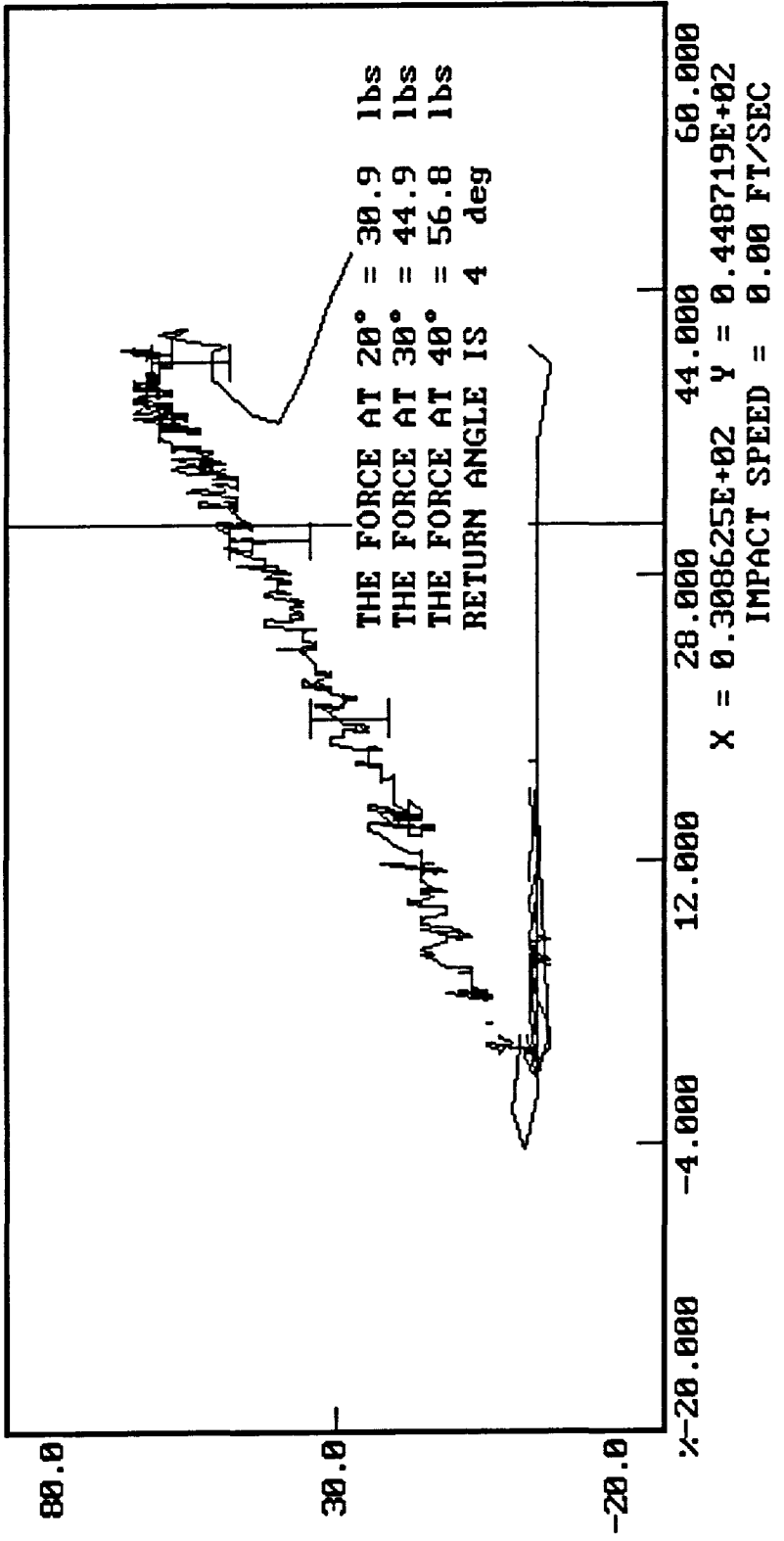
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	45%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	31
FORCE @ 30°	34 - 46 lbs	45
FORCE @ 40°	46 - 58 lbs	57
RETURN ANGLE	12° maximum	4°

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - LUMBAR FLEXION
DUMMY # Z70
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.

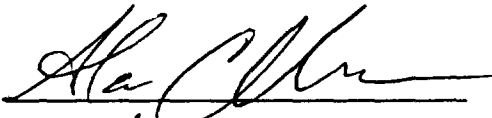
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

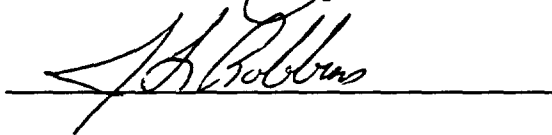
DATE OF VERIFICATION: July 20, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
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"	9.4
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.4
HW - Hip Width	14.0" - 15.4"	14.9

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

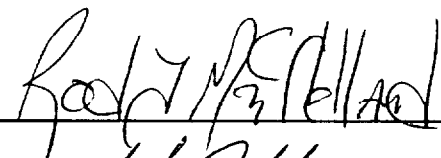
DATE: July 20, 1994

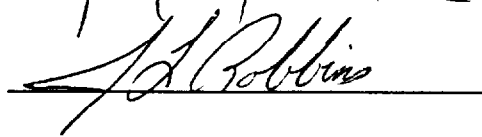
DUMMY NUMBER: 269

TEST NUMBER: D94602

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	50%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	40
LOWER SPINE	15 - 22 g's	21

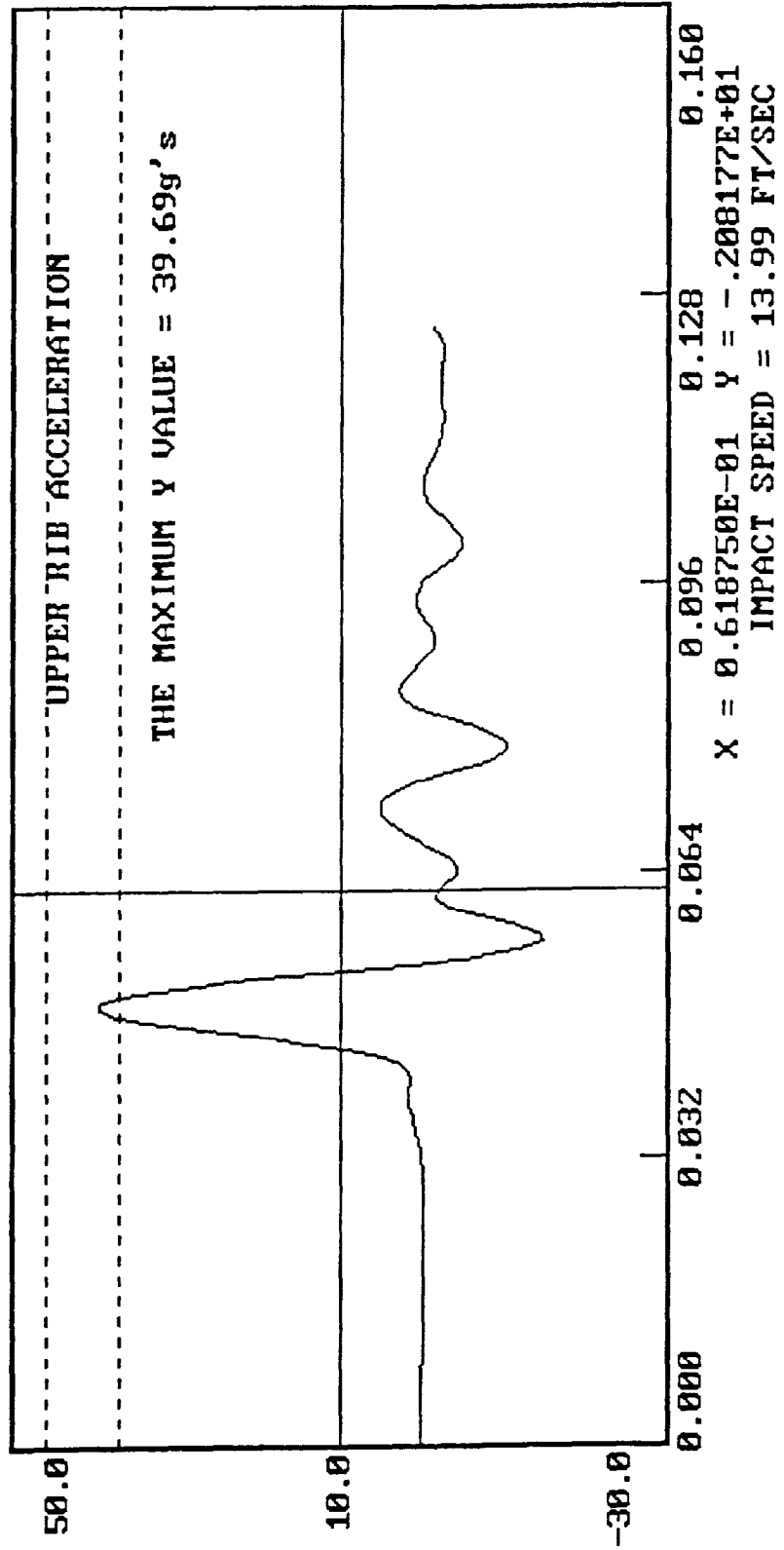
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

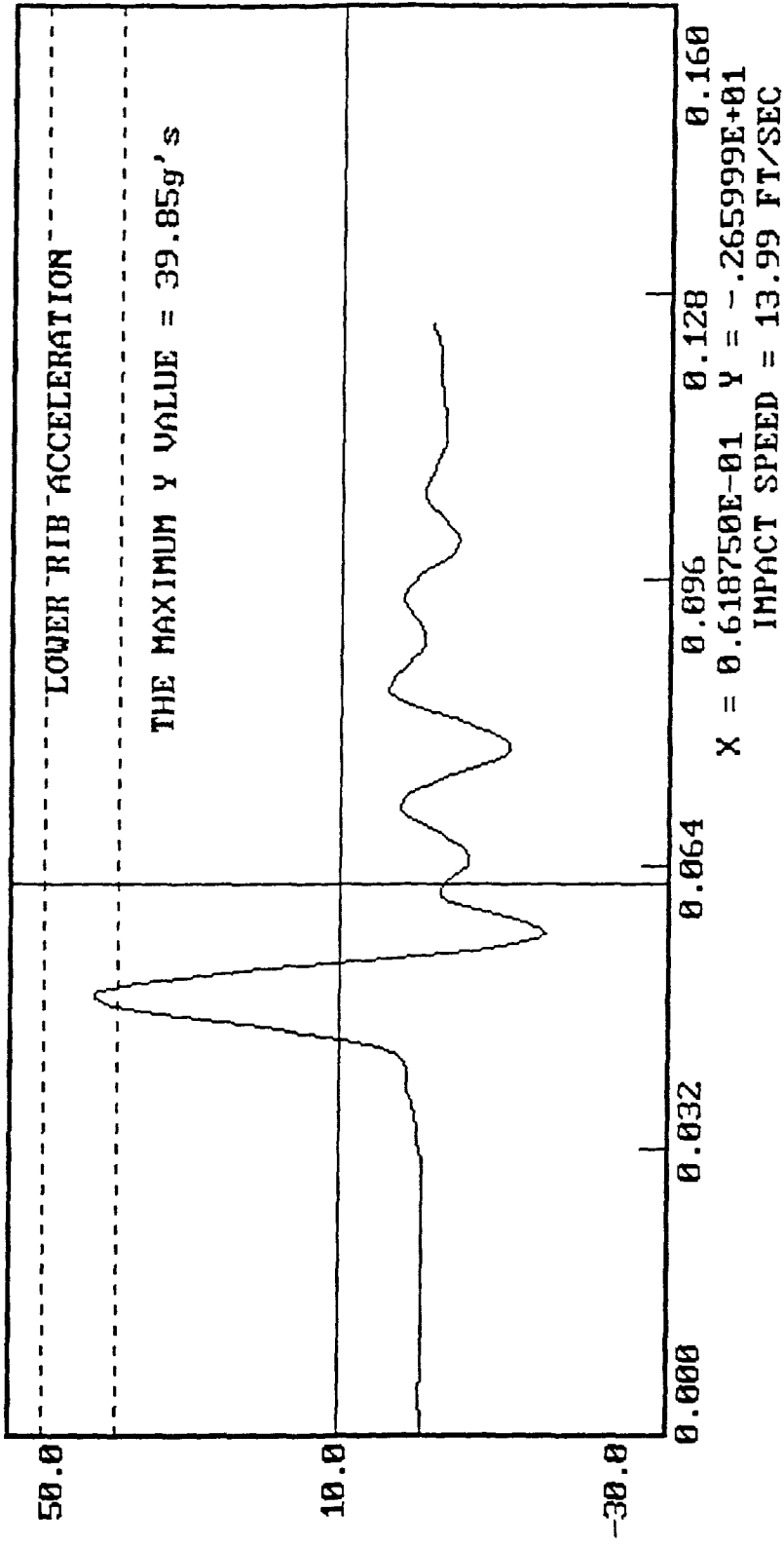
07-20-1994 18:22



DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 269

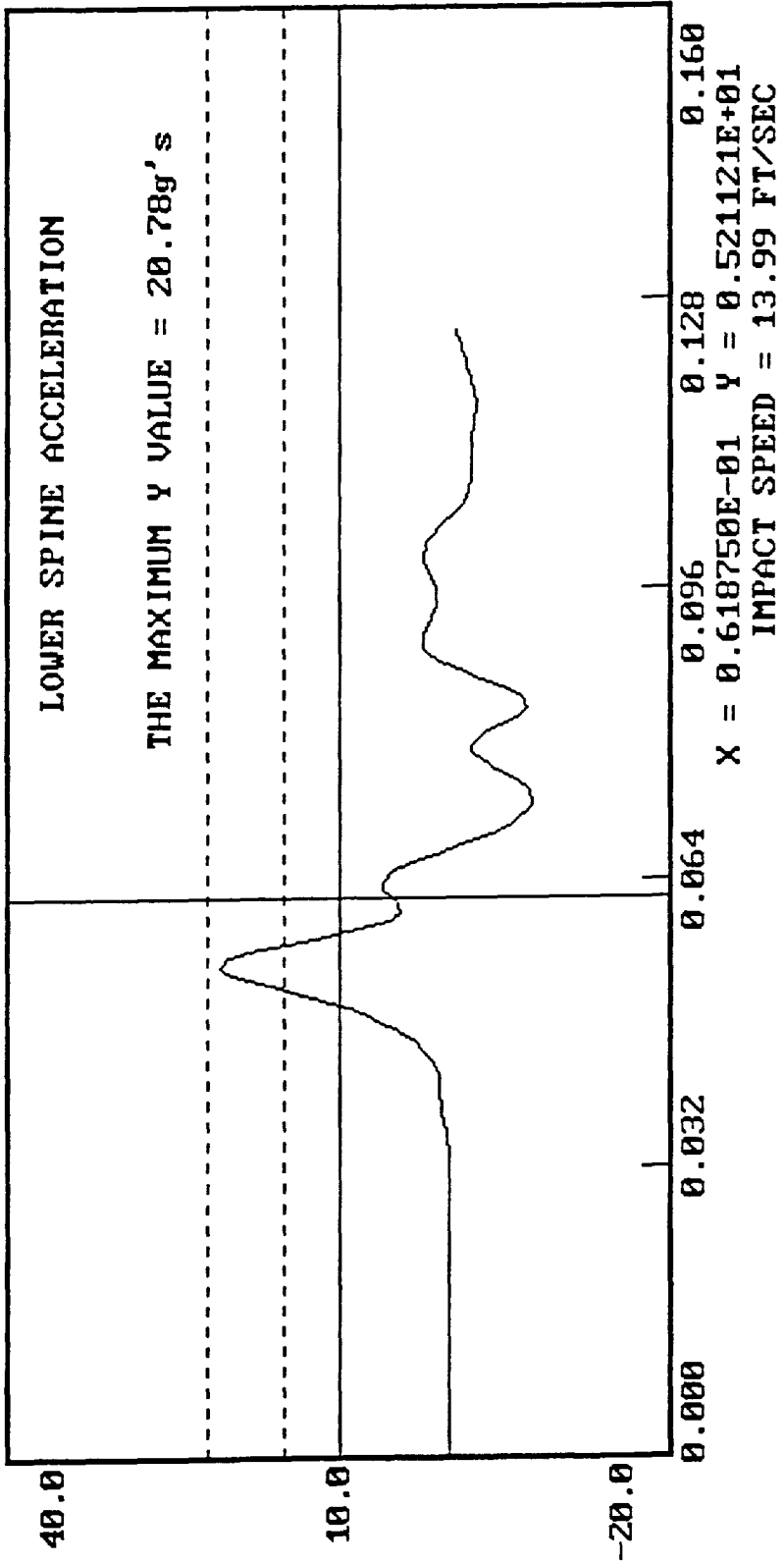
07-20-1994 18:22

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



07-20-1994 18:22

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: July 21, 1994

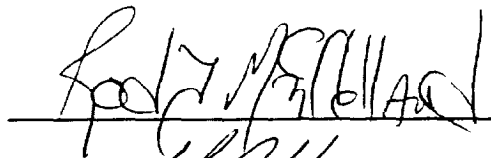
DUMMY NUMBER: 269

TEST NUMBER: D94603

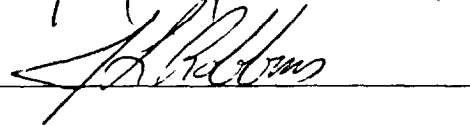
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	50%
PROBE SPEED	13.8 - 14.2 f/s	13.8
PELVIS ACCELERATION	40 - 60 g's	55

TEST MEETS SPECIFICATIONS

TECHNICIAN

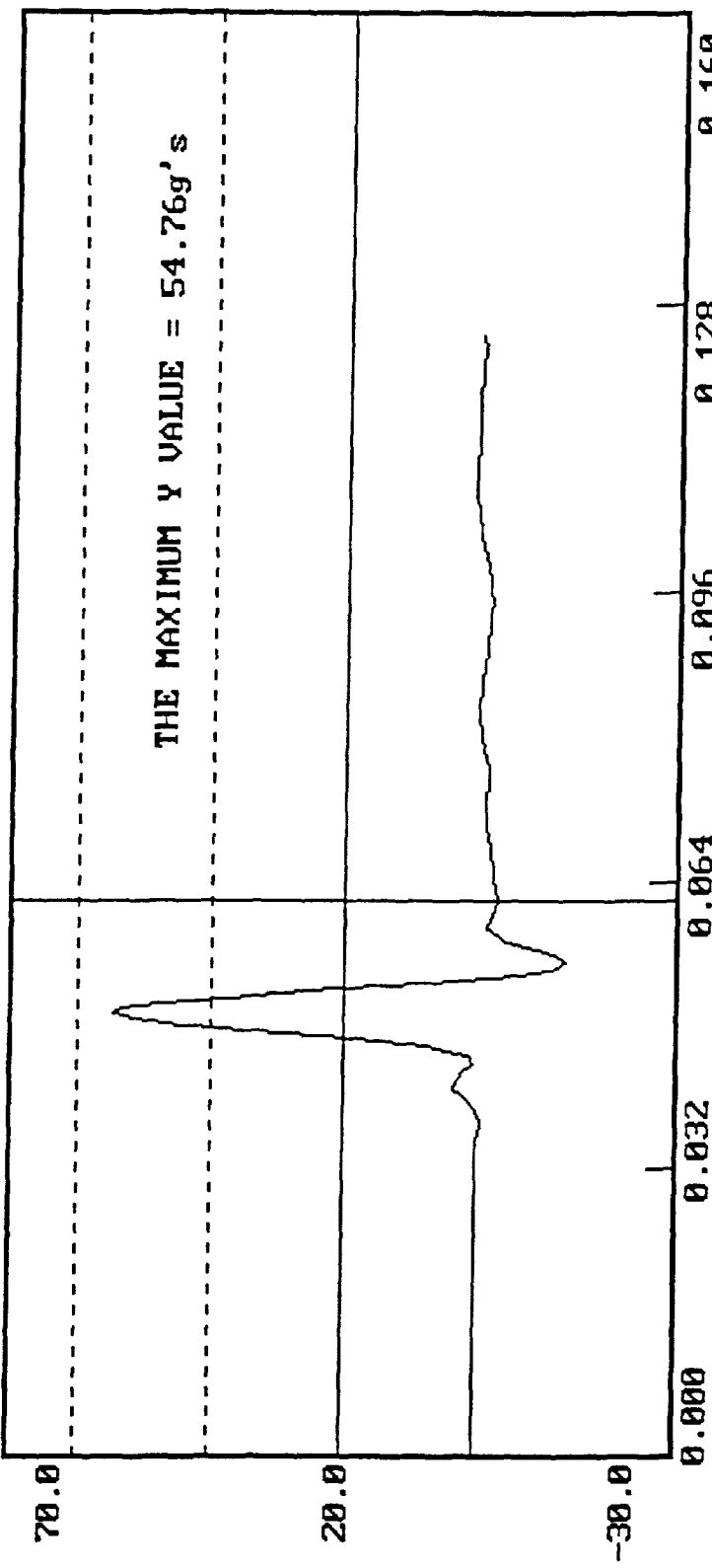


APPROVED BY



DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 269
07-21-1994 10:01

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



X = 0.618750E-01 Y = -.298150E+01
IMPACT SPEED = 13.80 FT/SEC

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

DATE. July 22, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94604

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	60%
FORCE @ 0.5 in	23.3 - 36.5 lbs	30.9
FORCE @ 0.75 in	36.7 - 49.8 lbs	42.7
FORCE @ 1 0 in	50 - 63 lbs	57
FORCE @ 1.3 in	73 - 88 lbs	80

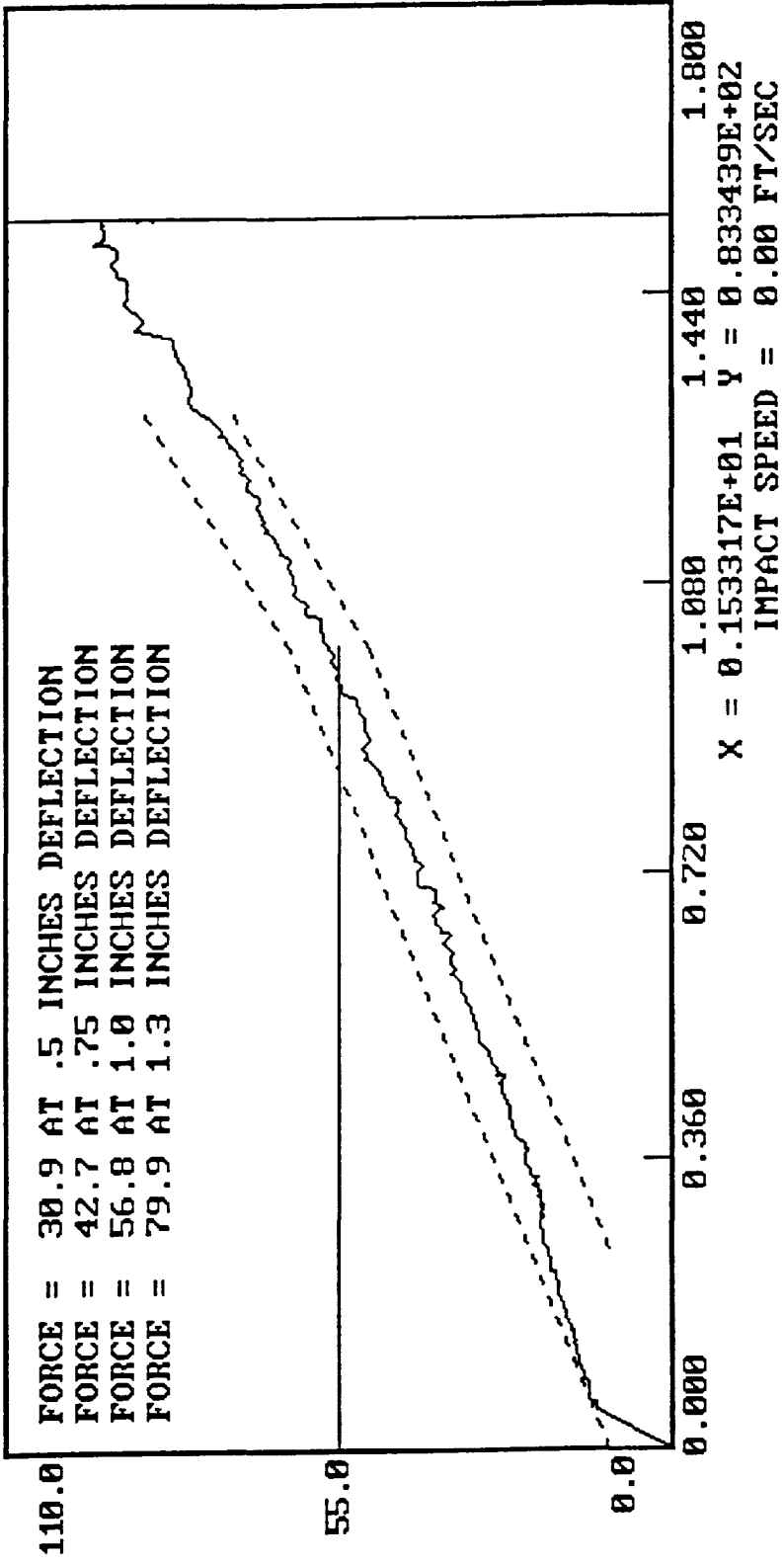
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 269
 07-22-1994 10:46

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: July 21, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94605

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	50%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	32
FORCE @ 30°	34 - 46 lbs	46
FORCE @ 40°	46 - 58 lbs	48
RETURN ANGLE	12° maximum	8°

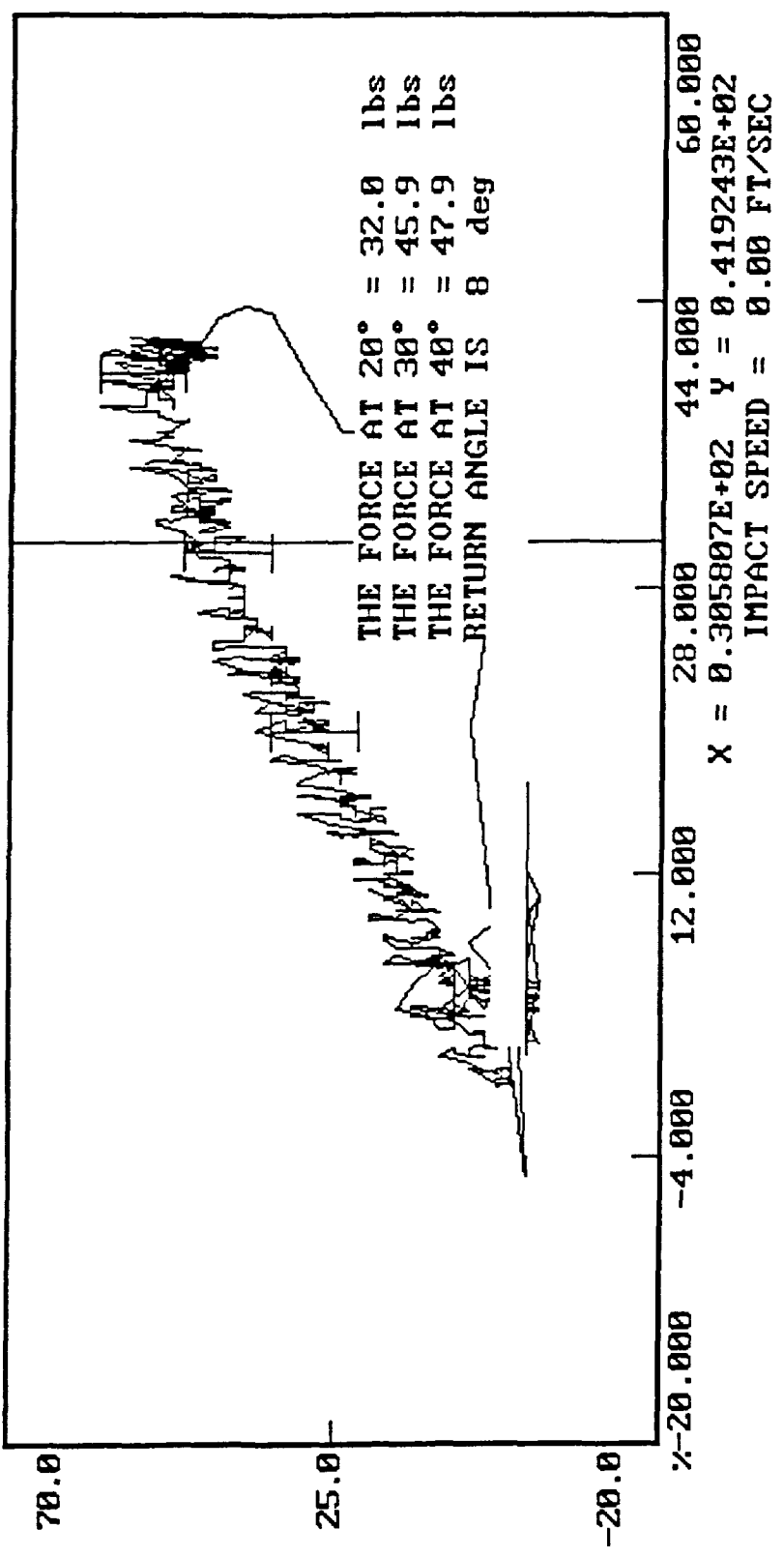
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

07-21-1994 13:23



POST-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 270

Calibration Test Results Summary

Dummy Serial Number: 270

Post-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: July 20, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
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"	14.8

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: July 21, 1994

DUMMY NUMBER. 270

TEST NUMBER: D94612

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	50%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	39
LOWER SPINE	15 - 22 g's	19

TEST MEETS SPECIFICATIONS

TECHNICIAN 

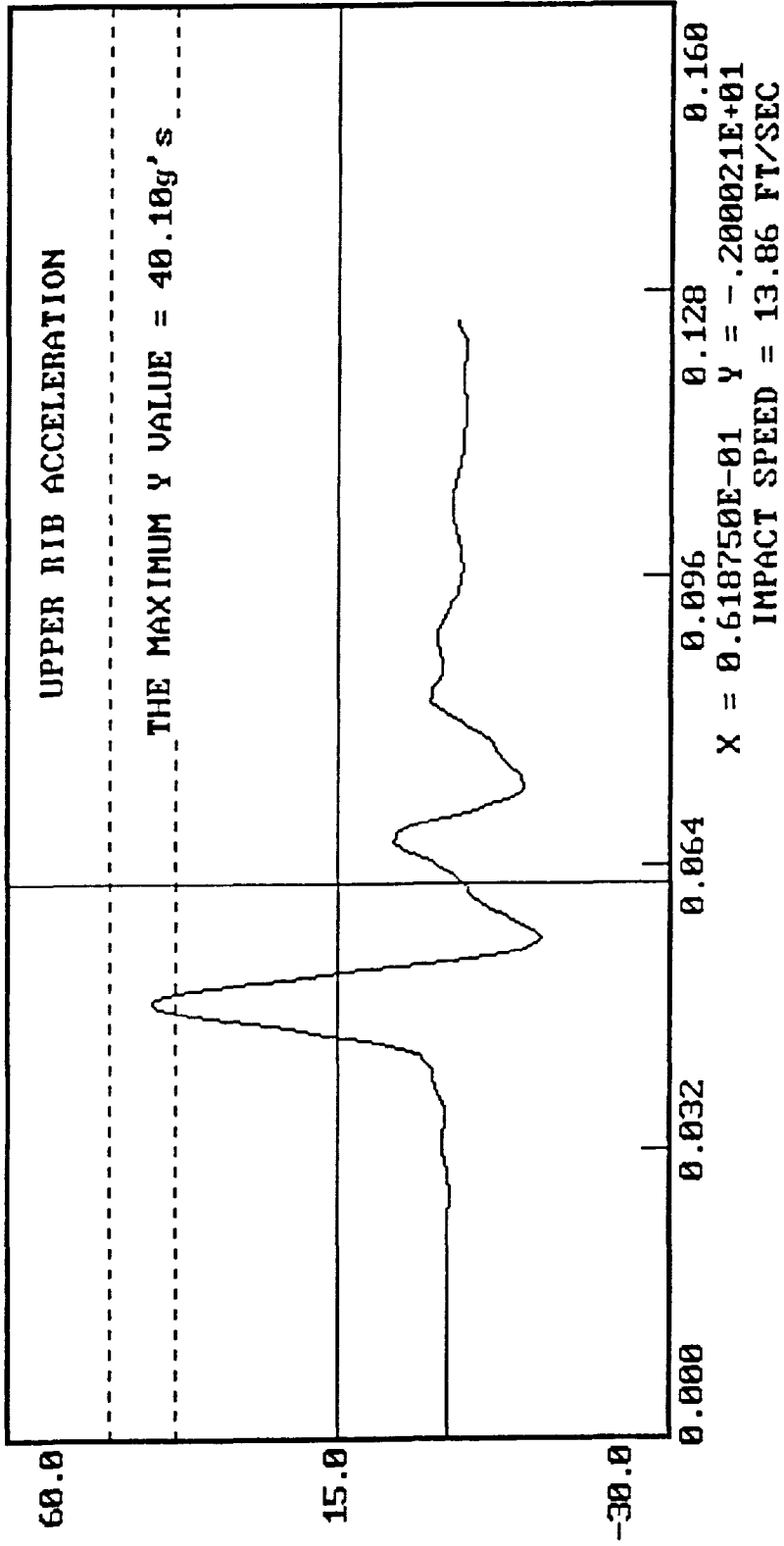
APPROVED BY 

07-21-1994 09:07

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 270

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

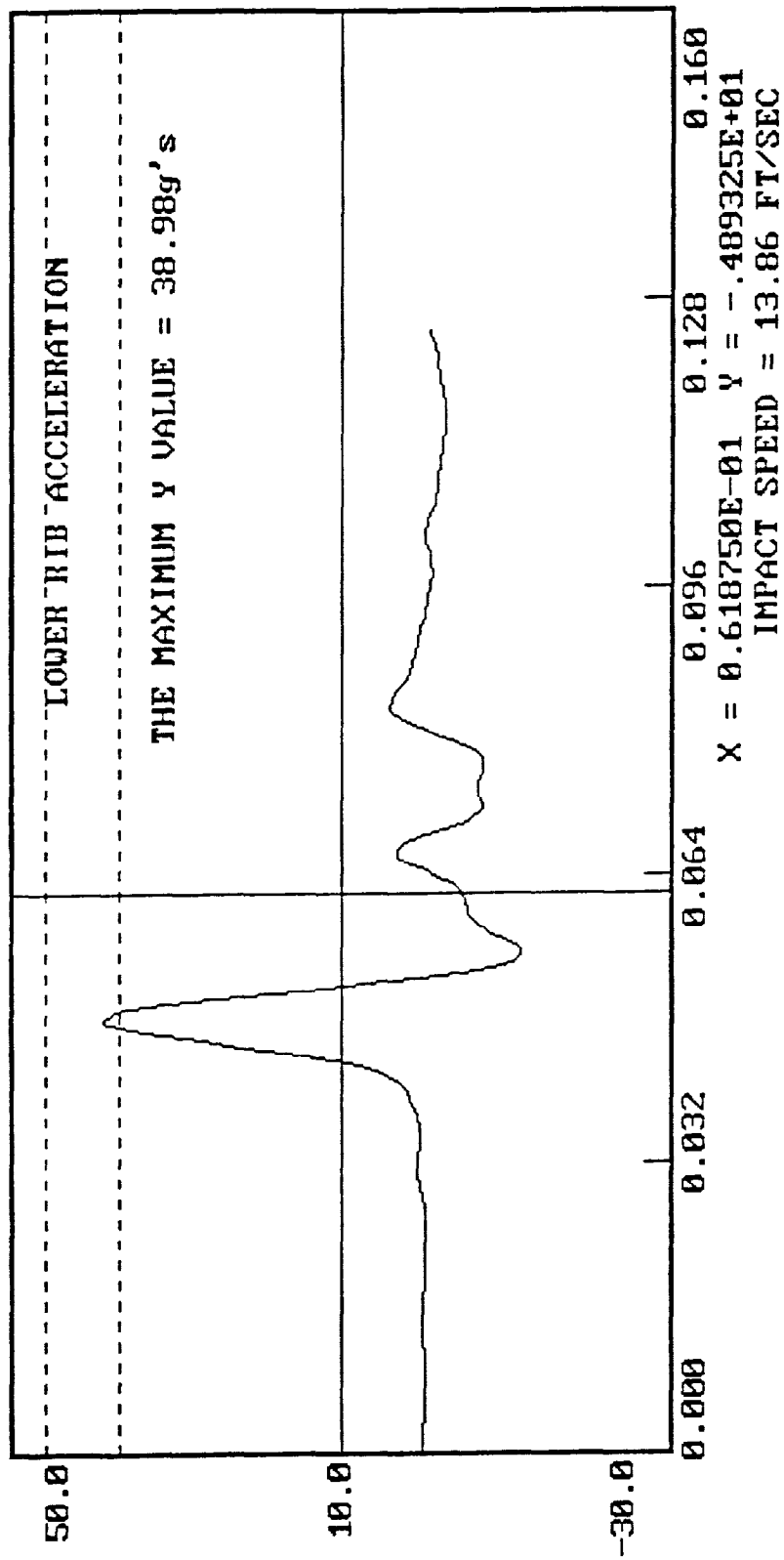


07-21-1994 09:07

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 270

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

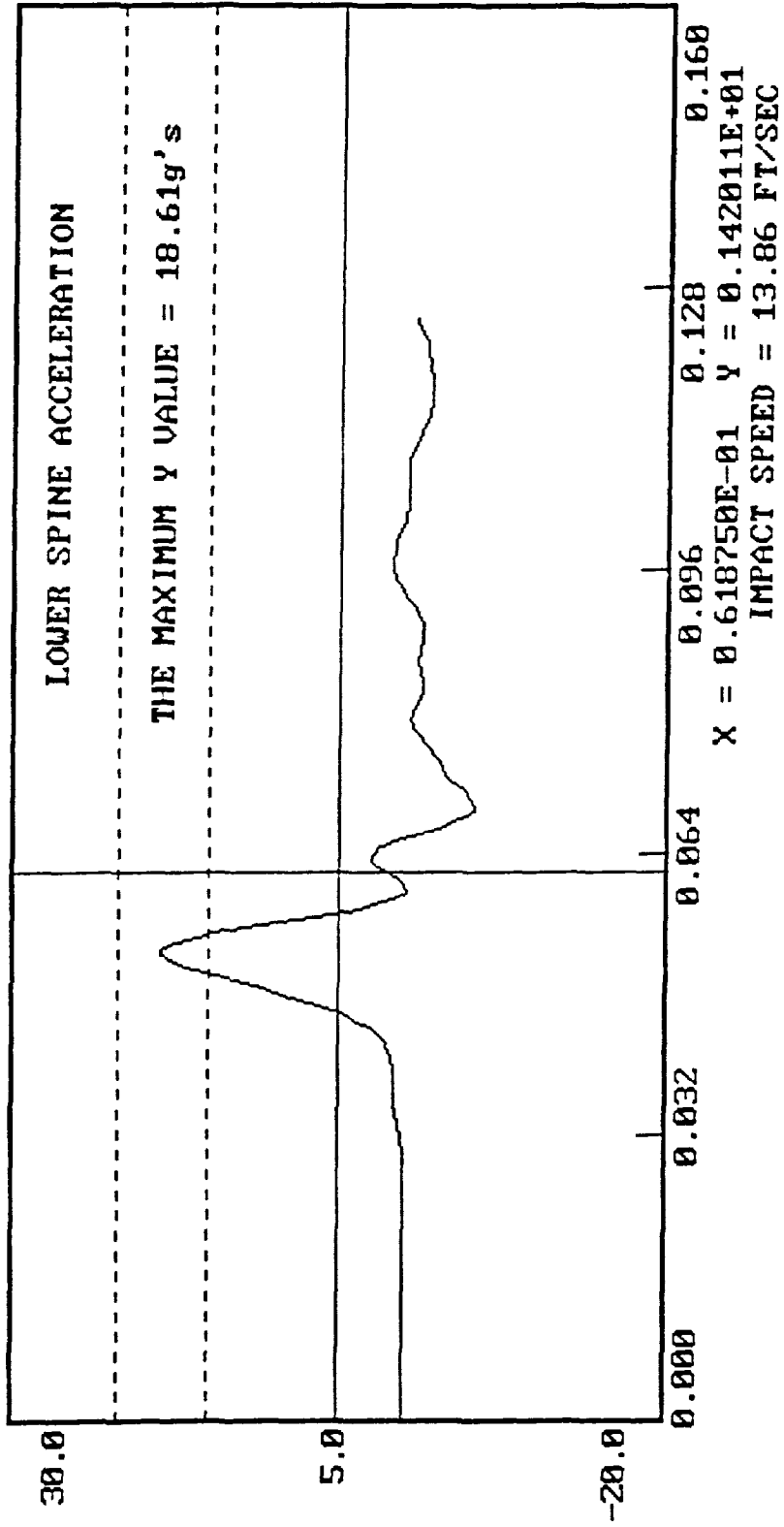


DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 270

(VS. TIME ((SECONDS))

07-21-1994 09:07



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: July 21, 1994

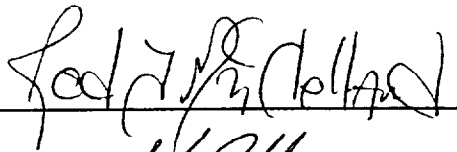
DUMMY NUMBER 270

TEST NUMBER: D94613

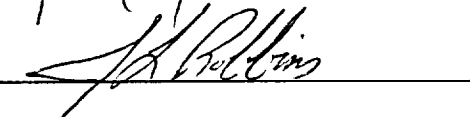
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	50%
PROBE SPEED	13.8 - 14.2 f/s	13.8
PELVIS ACCELERATION	40 - 60 g's	59

TEST MEETS SPECIFICATIONS

TECHNICIAN

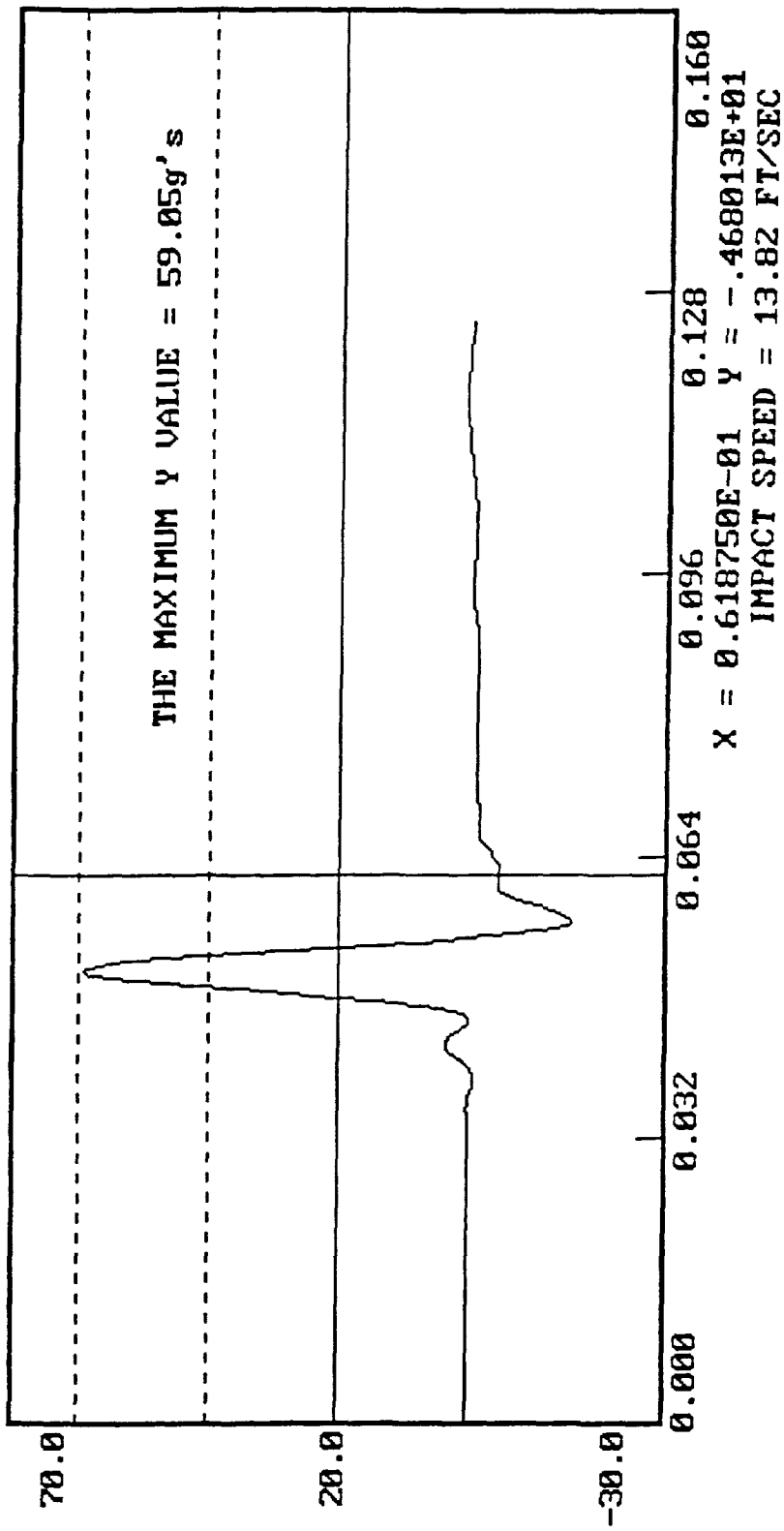


APPROVED BY



DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 270
07-21-1994 09:49

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



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

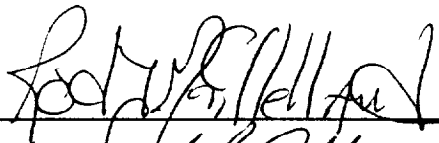
DATE: July 22, 1994

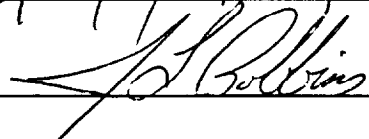
DUMMY NUMBER: 270

TEST NUMBER. D94614

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	60%
FORCE @ 0.5 in	23.3 - 36.5 lbs	34.6
FORCE @ 0.75 in	36.7 - 49.8 lbs	47.9
FORCE @ 1.0 in	50 - 63 lbs	63
FORCE @ 1.3 in	73 - 88 lbs	87

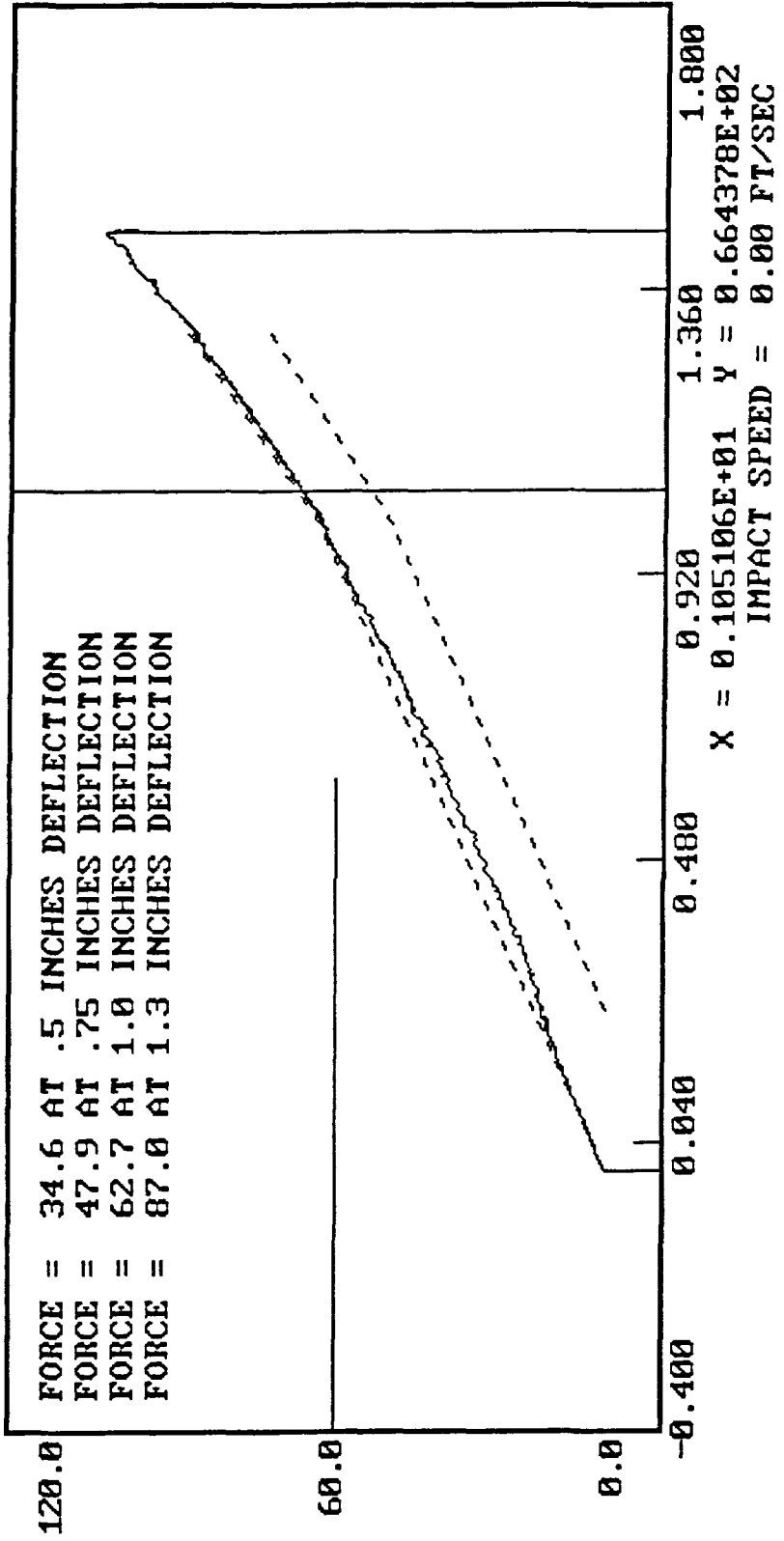
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 270
 07-22-1994 10:54

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: July 21, 1994

DUMMY NUMBER: 270

TEST NUMBER: D94615

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	48%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	28
FORCE @ 30°	34 - 46 lbs	40
FORCE @ 40°	46 - 58 lbs	54
RETURN ANGLE	12° maximum	7°

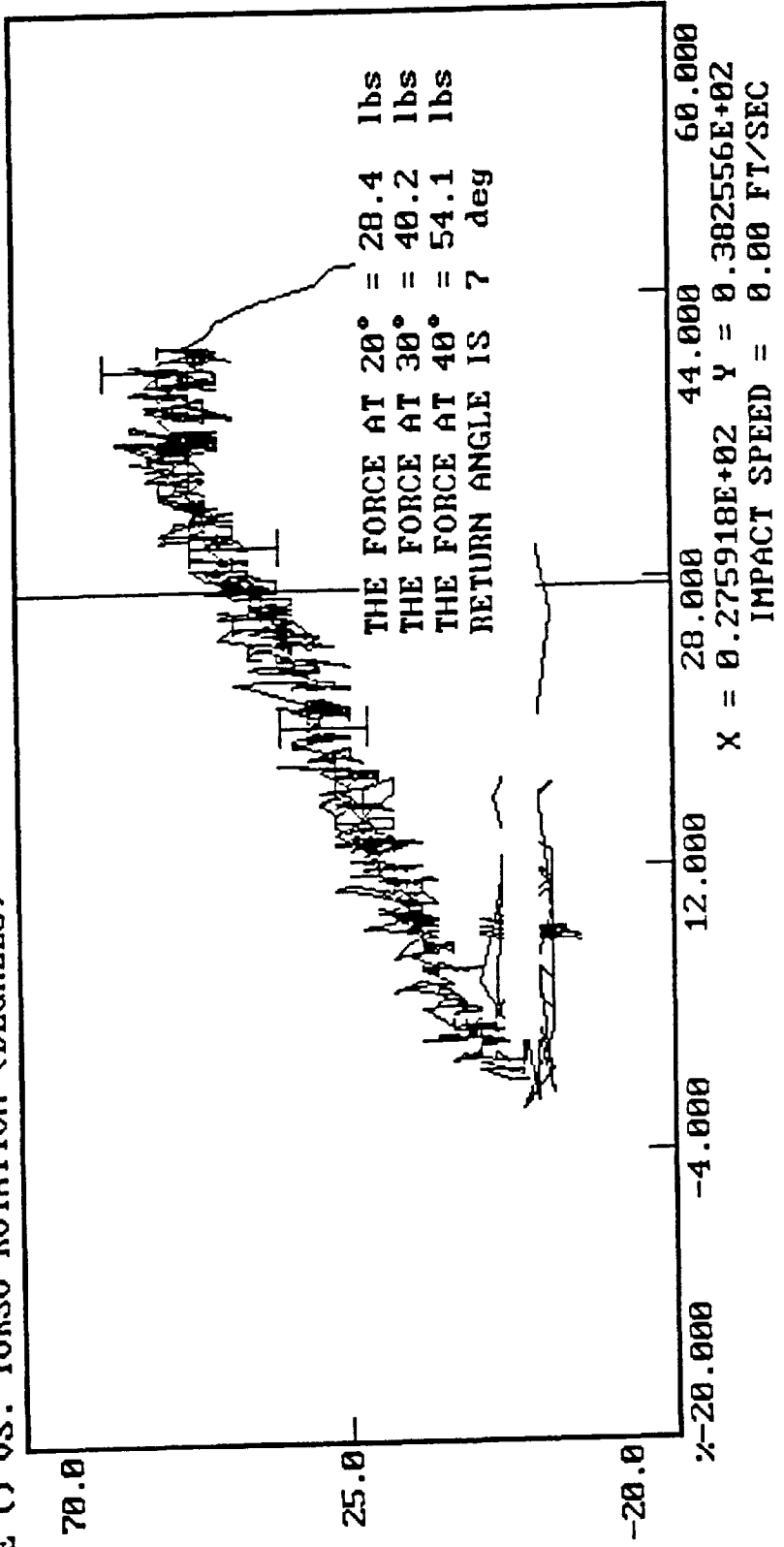
TEST MEETS SPECIFICATIONS

TECHNICIAN *Alan Allen*

APPROVED BY *J. Robbins*

07-21-1994 14:18

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



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

Inspected By: Jeff Robbins

Date: July 20, 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: 270

Inspected By: Jeff Robbins

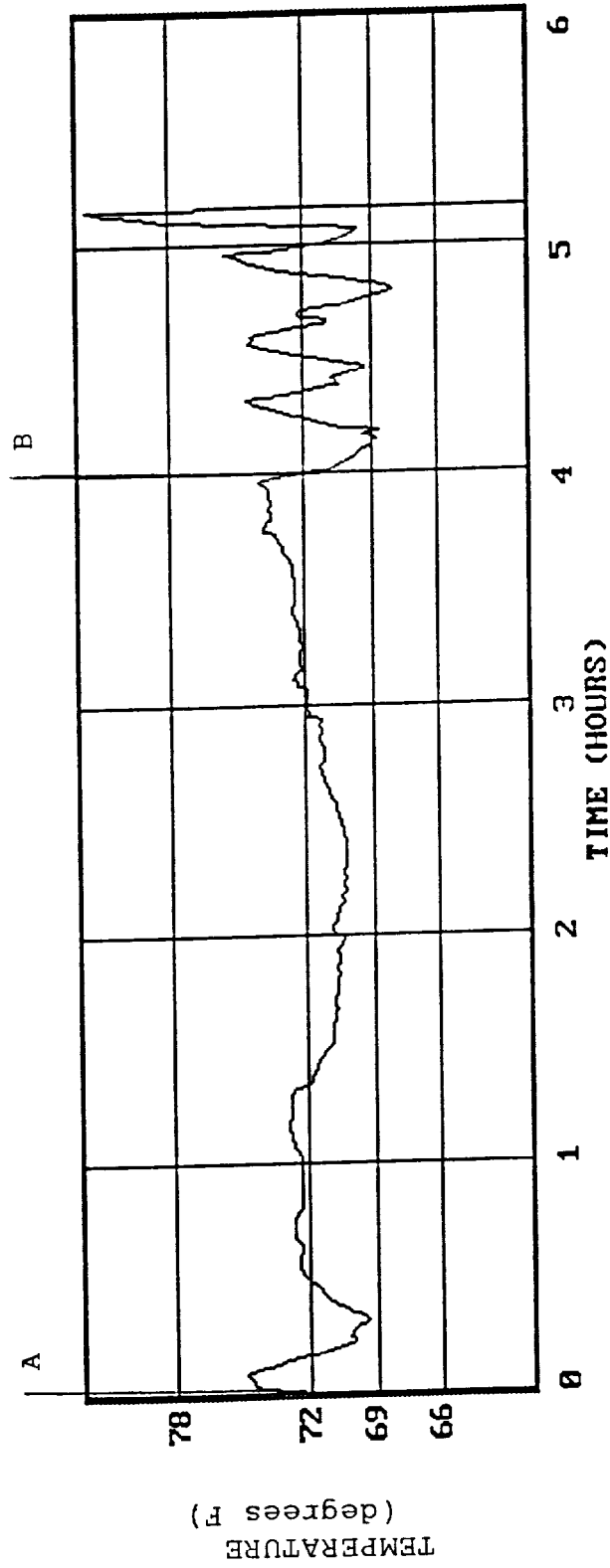
Date: July 20, 1994

<u>Part</u>	<u>Items Checked</u>	<u>Comments</u>
Skin	visual inspection	DAMAGED*
Head	visual, ballast, accelerometer mount	DAMAGED*
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):

- * It was noted that the passenger dummy No. 270 had a slice approximately 1 1/2" deep on the lower left leg and small cuts and abrasions on the head.

VEHICLE AND DUMMY TEMPERATURE



A = Dummies installed in vehicle
B = Test conducted

APPENDIX D
DUMMY AND VEHICLE CALIBRATION DATA

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION
INSTRUMENTS FOR DRIVER DUMMY NO. 270

DRIVER			
SERIAL NO.	MANUFACTURER	CALIBRATION DATE	
Upper Rib	AHTT3	Endevco	July 10, 1994
Lower Rib	AHTY2	Endevco	June 10, 1994
Lower Spine	AHTC3	Endevco	June 21, 1994
Pelvis	AHY68	Endevco	June 21, 1994
Upper Rib Redundant	ACC81	Endevco	June 10, 1994
Lower Rib Redundant	AGTP7	Endevco	June 10, 1994
Lower Spine Redundant	AHT20	Endevco	June 10, 1994
Pelvis Redundant	AHTN7	Endevco	June 10, 1994

INSTRUMENTS FOR PASSENGER DUMMY NO. 272

LEFT REAR PASSENGER			
SERIAL NO.	MANUFACTURER	CALIBRATION DATE	
Upper Rib	AGTE9	Endevco	June 27, 1994
Lower Rib	AHTN3	Endevco	June 27, 1994
Lower Spine	AE9C8	Endevco	June 27, 1994
Pelvis	AGRW3	Endevco	June 27, 1994
Upper Rib Redundant	AH0C3	Endevco	June 27, 1994
Lower Rib Redundant	AHTT4	Endevco	June 27, 1994
Lower Spine Redundant	AGMT2	Endevco	June 27, 1994
Pelvis Redundant	AHT12	Endevco	June 27, 1994

VEHICLE INSTRUMENT CALIBRATION

VEHICLE ACCELEROMETERS		
SERIAL NO.	MANUFACTURER	CALIBRATION DATE
MDB CG X	Entran	June 13, 1994
MDB CG Y	Entran	June 13, 1994
MDB CG Z	Endevco	June 13, 1994
MDB Rear Axle X	Entran	June 13, 1994
MDB Rear Axle Y	Endevco	June 9, 1994
Lower Left A-Post Y	Entran	June 9, 1994
Lower Left B-Post Y	Entran	June 2, 1994
Upper Left B-Post Y	Entran	June 9, 1994
Trunk Centerline X	Endevco	July 12, 1994
Trunk Centerline Y	Endevco	July 12, 1994
Trunk Centerline Z	Endevco	July 12, 1994
Driver Seat Track Y	Endevco	June 2, 1994
Right Front Sill X	Endevco	July 12, 1994
Right Front Sill Y	Endevco	July 12, 1994
Right Front Sill Z	Endevco	July 12, 1994
Right Rear Sill X	Endevco	July 12, 1994
Right Rear Sill Y	Endevco	July 12, 1994
Right Rear Sill Z	Endevco	July 12, 1994
Right Rear Seat Occupant Compartment Y	Entran	June 9, 1994
Left Front Sill Y	Entran	June 21, 1994
Left Rear Sill Y	Entran	June 21, 1994

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