

REPORT NO.: MGA-94-21411

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

TOYOTA MOTOR COMPANY
1995 LEXUS SC300 2 DOOR COUPE
NHTSA NO: CS5100

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



MGA Ref. No.: G93A-02

Test Date: June 23, 1994

Report Date: September 29, 1994

FINAL REPORT

Prepared For:

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Approved by:

John Fleck

Date: 9-29-94

John Fleck, Project Engineer

FINAL REPORT ACCEPTED BY:

[Signature]
Contract Technical Manager

Date: 10/7/94

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SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 94 FMVSS 214 "Dynamic" compliance test program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-93-C-02047. The purpose of this test was to evaluate side impact protection in a 1995 Toyota Lexus SC300 2 Door Coupe.

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

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

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A stationary 1995 Toyota Lexus SC300 2 Door Coupe was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 32.8 mph on June 23, 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 position. The SID in the driver (Pos. #1) was placed according to instructions specified in the Laboratory Test Procedure. The left rear SID (Pos. #4) could not be placed according to instructions specified in the laboratory test procedure and was used for informational purposes only. 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 63 g's. Maximum pelvic Y acceleration was 78 g's.

The left rear passenger's TTI was 39 g's. Maximum pelvic Y acceleration was 50 g's.

TEST NOTES

The left rear SID (Pos. #4) could not be positioned according to the laboratory test procedure (TP-214D-03). The required pelvic angle (23° to 25°) could not be attained. This SID was placed in the left rear seating position and data was recorded for information purposes only.

SECTION 3
SUMMARY OF TEST DATA

TABLE 1
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe
 Vehicle NHTSA No.: CS5100 VIN: JT8JZ31C750019618
 Vehicle Body Color: Silver Month & Year of Manufacture: 1-94
 Engine Data: 6 cylinders; CID; 3.0 Liter; cc
 Placement X Longitudinal; or Lateral
 Transmission: 4 speed; Manual; X Automatic; X Overdrive
 Final Drive: X Rear Wheel Drive; Frt. Wheel Drive; Four Wheel Drive
 Odometer Reading 157 miles
 Options: X A/C; X Pwr. Steering.; X Pwr. Brakes; X Pwr. Windows
X Power Seats; X Tilt Wheel; X Power Door Locks; Self Leveling System

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 32 psi FRONT
32 psi REAR
 Recommended Tire Size: P225/55R16
 Tires on Test Vehicle: P225/55R16 Manufacturer: Goodyear

Vehicle Capacity Data:

Number of Occupants: 2 Front; 2 Rear; 3rd Seat 4 Total
 Type of Front Seats: X Bucket; Bench; Split Bench
 Type of Front Seat Back: Fixed; X Adjustable with X Power
 Vehicle Maximum Capacity Loading = 750 lbs (A)
 No. of Occupants x 150 lbs. = 600 lbs (B)
 Cargo Capacity (A-B) = 150 lbs

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	= <u>962</u> lbs	Right Rear	= <u>837</u> lbs
Left Front	= <u>991</u> lbs	Left Rear	= <u>855</u> lbs
TOTAL FRONT	= <u>1953</u> lbs	TOTAL REAR	= <u>1692</u> lbs
% of Total Vehicle Weight =	<u>53.6</u> %;	% of Total Weight	= <u>46.4</u> %
TOTAL WEIGHT	= <u>3645</u> lbs		

TABLE 2
TEST VEHICLE DATA

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids = 3645 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: = 4151 lbs

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front = 1103 lbs Right Rear = 959 lbs

Left Front = 980 lbs Left Rear = 1094 lbs

TOTAL FRONT = 2083 lbs TOTAL REAR = 2053 lbs

% of Total Weight = 50.4 % % of Total Weight = 49.6 %

TOTAL TEST WEIGHT = 4136 lbs

TEST VEHICLE ATTITUDE (all dimensions in inches):

CURB WEIGHT ATTITUDE: (in)

Right Front 27.3 Left Front 27.5 Right Rear 27.3 Left Rear 26.9

FULLY LOADED WEIGHT ATTITUDE: (in)

Right Front 27.6 Left Front 27.0 Right Rear 26.0 Left Rear 25.5

TEST ATTITUDE: (in)

Right Front 27.4 Left Front 26.9 Right Rear 25.8 Left Rear 25.1

Test Vehicle Wheelbase: 105.5 inches

C.G. = 52.4 inches rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 179.9 in

Centerline = 191.0 in

Left Side = 179.9 in

FIGURE 1
PRE-TEST CONDITIONS

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 9.4 in

Total Number of Adjustment Positions or Detents: N/A Power

Test Position: Mid (4.7 in) From Front

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 21° degrees (13th notch)

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: Non Adjustable

Seat Back Adjustment Position: Non Adjustable

ADJUSTABLE STEERING COLUMN POSITION:

Adjusted to mid position

WINDOW POSITIONS:

Left Front closed Left Rear closed

Right Front open Right Rear removed

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

AMOUNT OF STODDARD SOLVENT IN FUEL TANK: Fuel system usable capacity = 20.6 gallons

Test Volume: 19.3 gallons (93.7% of capacity)

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

Wheelbase: = 105.5 in

Impact Point is 15.8 in rearward of front axle centerline

TABLE 3
CRASH TEST SUMMARY FOR TEST VEHICLE

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

Overall Length = 191.0 in; Overall Width = 70.1 in

TEST WEIGHT:

Right Front	=	<u>1103</u> lbs	Right Rear	=	<u>959</u> lbs
Left Front	=	<u>980</u> lbs	Left Rear	=	<u>1094</u> lbs
TOTAL FRONT	=	<u>2083</u> lbs	TOTAL REAR	=	<u>2053</u> lbs
TOTAL VEHICLE WEIGHT <u>4136</u> lbs					
Wheelbase = <u>105.5</u> in					
Longitudinal C.G. front Center of Front Axle				=	<u>52.4</u> in
Impact Angle with Respect to Impactor				=	<u>90°</u> degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (9.3 in above ground) = 6.2 in
2. LEVEL 2 (16.0 in above ground) = 12.6 in
3. LEVEL 3 (21.8 in above ground) = 13.8 in
4. LEVEL 4 (32.9 in above ground) = 8.5 in
5. LEVEL 5 (47.3 in above ground) = 2.7 in

Maximum Post-Test Intrusion = 13.8 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 &</u> <u>shoulder belt</u> <u>with airbag</u>	<u>3 pt. lap &</u> <u>shoulder belt</u>

INSTRUMENTATION:

Number of Vehicle Data Channels:	=	<u>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/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 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: 32.8 mph Secondary: 32.78 mph

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1.	Row A Top of Stack (33 in)	= <u>2.8</u> in
2.	Row B Mid Stack (27 in)	= <u>3.0</u> in
3.	Row C Top of Bumper (21 in)	= <u>1.9</u> in
4.	Row D Center of Bumper (17 in)	= <u>2.9</u> in

INSTRUMENTATION:

Number of MDB Data Channels = 7

TABLE 5
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to door header</u>	<u>to "C" Post</u>
Arm	<u>to door trim panel</u>	<u>to arm rest</u>
Pelvis	<u>to arm rest</u>	<u>to arm rest</u>
Left Knee	<u>to door trim panel</u>	<u>to arm rest and front door</u>
Right Knee	<u>to left knee</u>	<u>to left knee</u>

DOOR OPENING:

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

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 1.0 in forward Vertical: 1.0 in high

ARM REST LOCATIONS:

Front: 10.4 inches below window opening

Rear: 13.3 inches below window opening

SEAT CRUSH:

Driver Seat Back: 3.2 inches Driver Seat Cushion: 2.9 inches

Left Rear Seat Back: 1.0 inches Left Rear Seat Cushion: 2.3 inches

GLAZING DAMAGE:

Left side windows broken and windshield cracked

PILLAR PERFORMANCE:

No "A", "B" or "C" pillar separation evident

SILL SEPARATION:

No sill separation noted

OTHER NOTABLE IMPACT EFFECTS:

Both driver and front passenger airbags deployed

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

SIDE IMPACT DUMMY (SID) TEST DATA SUMMARY

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

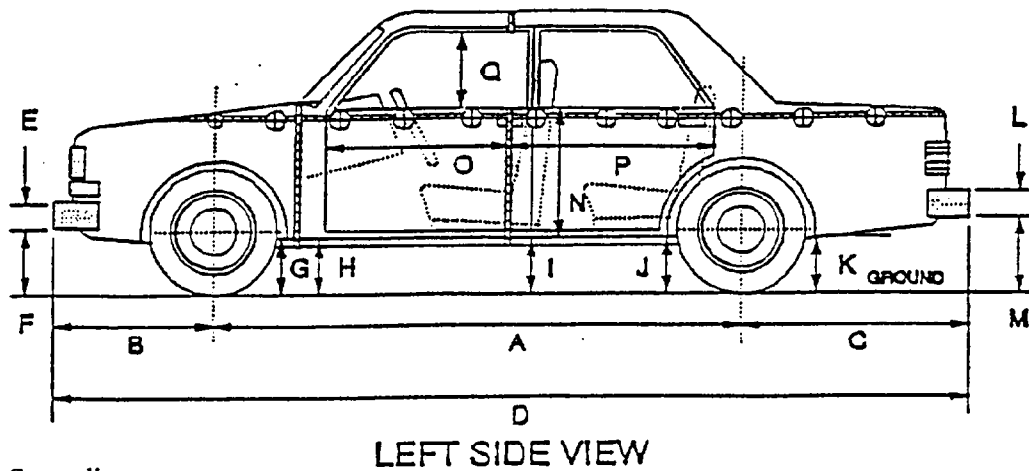
4-2

Positive Direction - Longitudinal (X) = forward

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

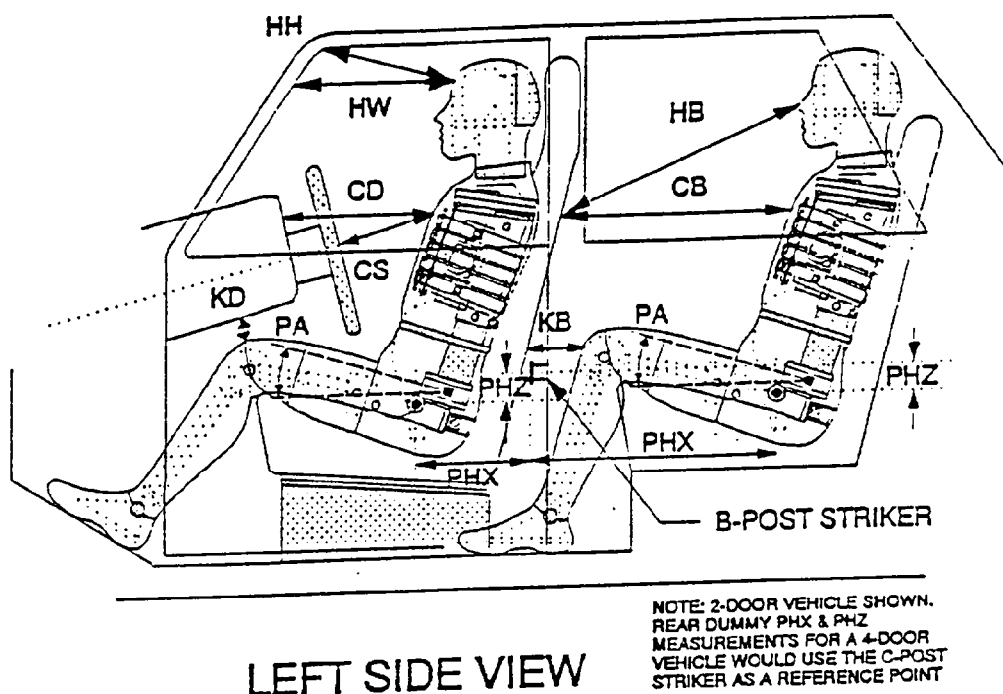
J1 = To Pinch Weld

J2 = To Sill

Units: in

LOCATION	PRE-TEST	POST-TEST	Δ CHANGE
A	105.5	104.3	1.2
B	40.0	36.5	3.5
C	45.5	45.3	0.2
D	191.0	186.1	4.9
E	18.4	17.9	0.5
F	9.8	11.0	1.2
G	6.6	6.8	0.2
H	6.0	5.9	0.1
I	5.4	4.9	0.5
J1/J2	5.1/5.4	5.3/5.0	0.2/0.4
K	6.5	6.6	0.1
L	13.1	13.5	0.4
M	9.6	10.0	0.4
N	---	---	---
O	26.2	26.3	0.1
P	32.1	32.1	0
Q	12.3	11.9	0.4
R	179.9	178.5	1.4
S	179.9	178.3	1.6
T	70.1	61.1	9.0

FIGURE 3
SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

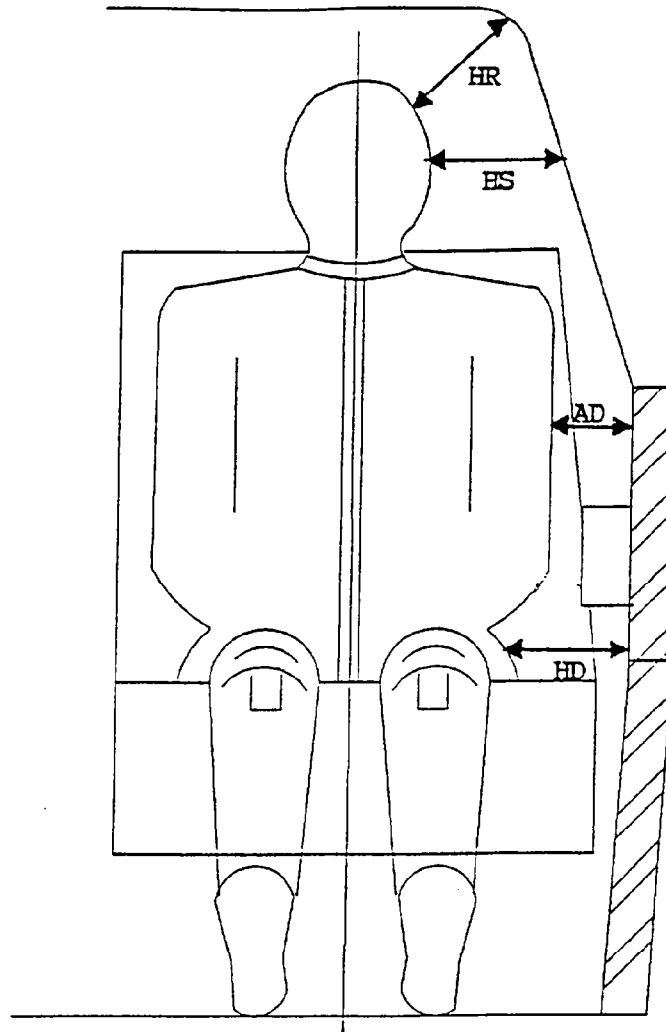


NOTE: All dimensions are in inches

	DRIVER ID #271	LEFT REAR PASSENGER ID #269	
HH	16.6	---	
HW	24.0	---	
HB	---	20.4	
CD	22.4	CB	14.4
CS	14.5	---	
KDL	7.0	KBL	4.6
KDR	7.0	KBR	4.9
PA°	24.0°	35.8°	
PHX	21.1	10.6	
PHZ	8.0	10.4	

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



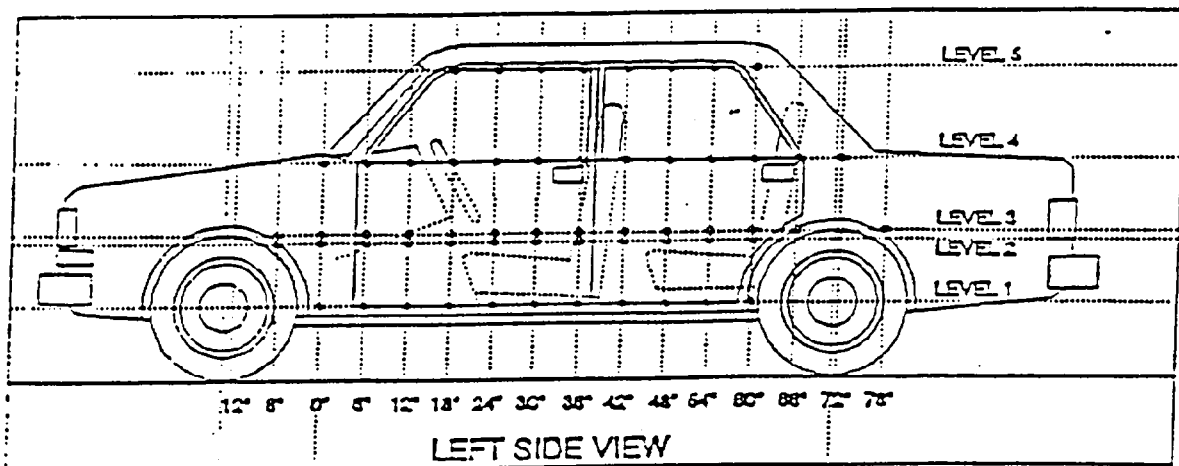
NOTE: All dimensions are in inches

	DRIVER ID #271	LEFT REAR PASSENGER ID #269
HR	4.3	5.9
HS	9.8	12.1
AD	4.0	4.5
HD	5.8	6.3

FIGURE 5
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994



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

33" Side Profile

Level 5 @ Window Top	= <u>47.3</u> in
Level 4 @ Window Sill	= <u>32.9</u> in
Level 3 @ Mid Door	= <u>21.8</u> in
Level 2 @ Occupant H-Point	= <u>16.0</u> in
Level 1 @ Axle Centerline Height (or Sill Top Height)	= <u>9.3</u> in

TABLE 7

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

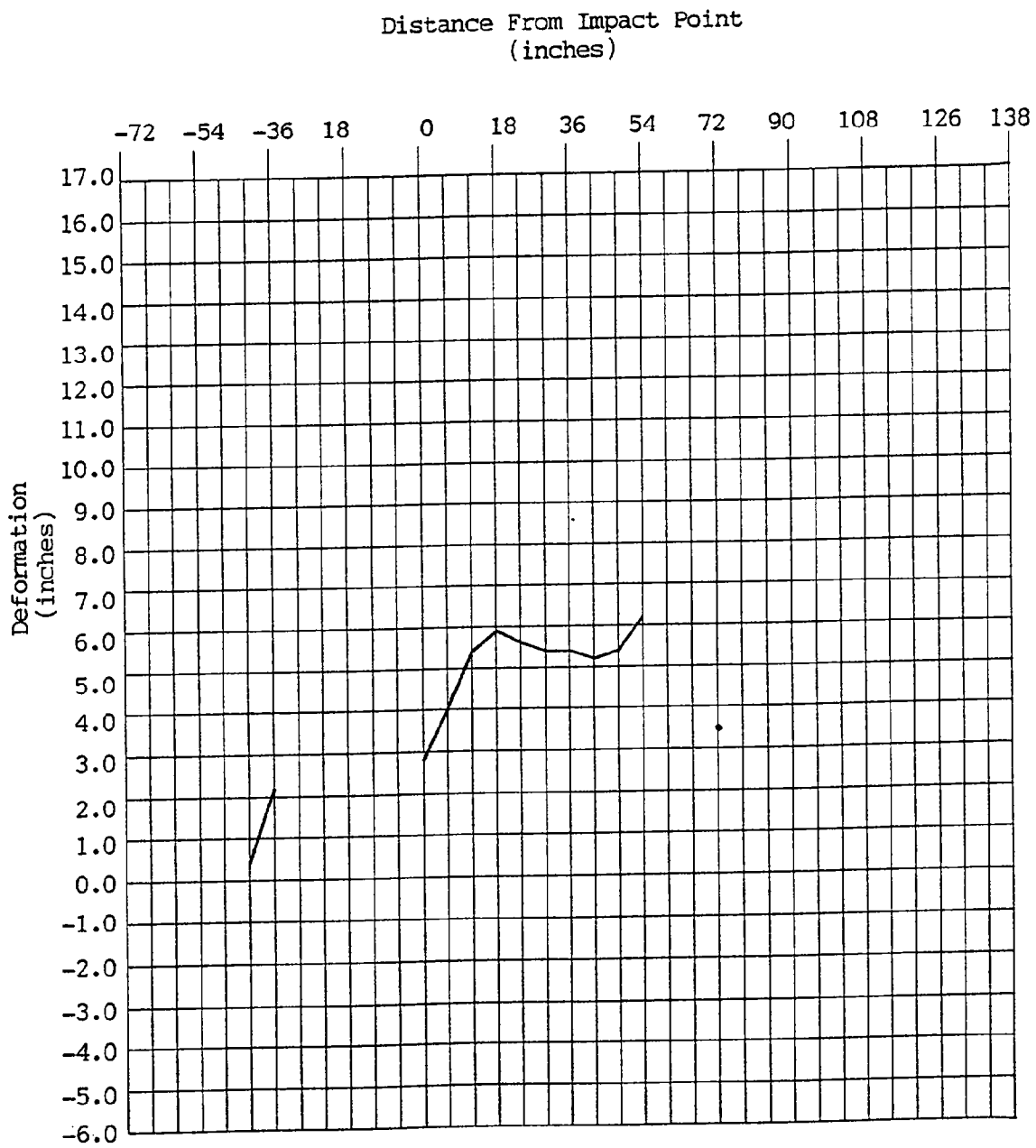
Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	<u>40.1</u>	<u>40.5</u>	<u>0.4</u>
-36	<u>25.9</u>	<u>28.1</u>	<u>2.2</u>
-30	---	---	---
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	<u>35.9</u>	<u>38.7</u>	<u>2.8</u> (impact point)
6	<u>36.7</u>	<u>40.7</u>	<u>4.0</u>
12	<u>36.8</u>	<u>42.2</u>	<u>5.4</u>
18	<u>36.8</u>	<u>42.7</u>	<u>5.9</u>
24	<u>36.8</u>	<u>42.4</u>	<u>5.6</u>
30	<u>36.7</u>	<u>42.1</u>	<u>5.4</u>
36	<u>36.8</u>	<u>42.2</u>	<u>5.4</u>
42	<u>36.9</u>	<u>42.1</u>	<u>5.2</u>
48	<u>36.9</u>	<u>42.3</u>	<u>5.4</u>
54	<u>36.7</u>	<u>42.9</u>	<u>6.2</u>
60	---	---	---
66	---	---	---
72	<u>36.5</u>	<u>40.0</u>	<u>3.5</u>
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

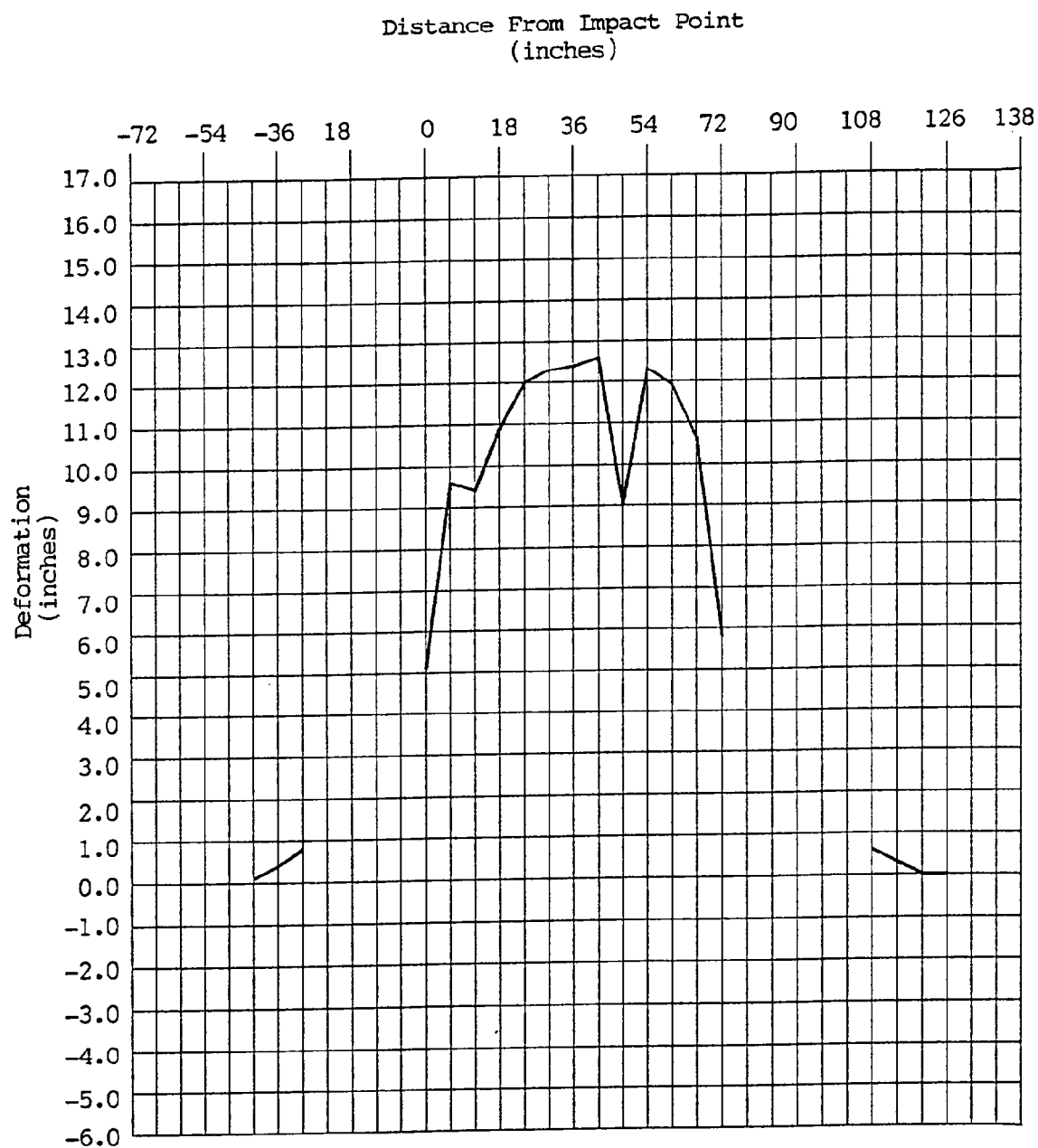
Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	37.9	38.0	0.1
-36	35.6	36.0	0.4
-30	34.0	34.8	0.8
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	34.1	39.2	5.1 (impact point)
6	33.9	43.5	9.6
12	34.3	43.7	9.4
18	34.3	45.2	10.9
24	34.3	46.3	12.0
30	34.3	46.6	12.3
36	34.3	46.7	12.4
42	34.3	46.9	12.6
48	34.3	43.3	9.0
54	34.4	46.7	12.3
60	34.4	46.3	11.9
66	34.3	44.9	10.6
72	34.3	40.1	5.8
78	---	---	---
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	34.8	35.4	0.6
114	35.6	35.9	0.3
120	36.7	36.7	0
126	38.4	38.4	0
132	---	---	---
138	---	---	---

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

FIGURE 6 (Cont'd)
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 2 AT OCCUPANT H-POINT

TABLE 7

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

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CR5602 TEST DATE: June 16, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	38.1	38.4	0.3
-36	35.8	36.3	0.5
-30	34.6	35.4	0.8
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	33.9	40.3	6.4 (impact point)
6	33.9	43.6	9.7
12	34.0	43.8	9.8
18	34.0	44.6	10.6
24	34.0	45.4	11.4
30	34.1	45.9	11.8
36	34.1	46.2	12.1
42	34.1	47.3	13.2
48	34.4	47.2	12.8
54	34.4	48.2	13.8
60	34.4	46.8	12.4
66	34.2	41.0	6.8
72	34.4	37.6	3.2
78	34.3	35.3	1.0
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	35.0	35.7	0.7
114	36.1	36.1	0
120	36.2	37.2	1.0
126	39.5	39.6	0.1
132	---	---	---
138	---	---	---

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH

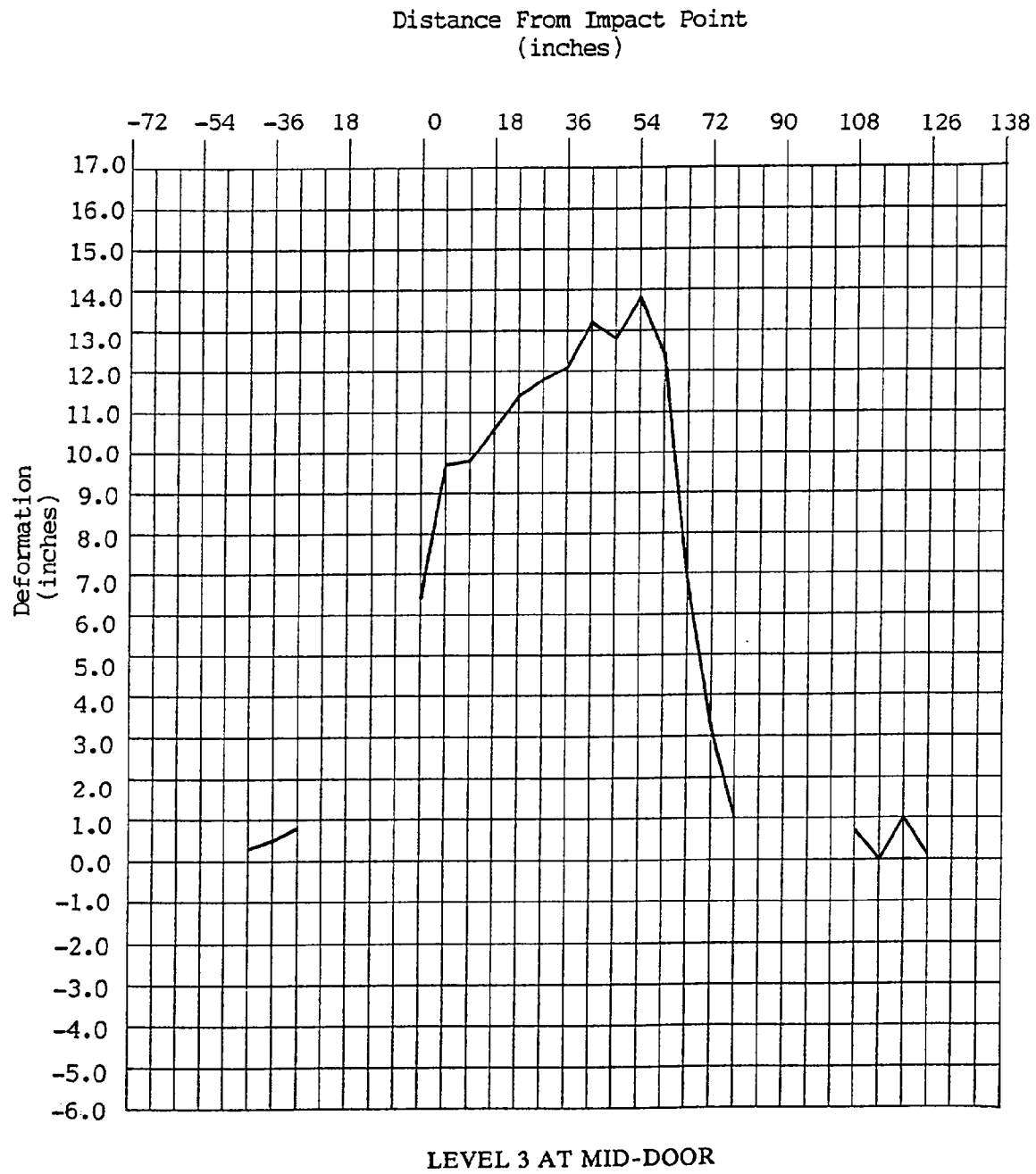


TABLE 7

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

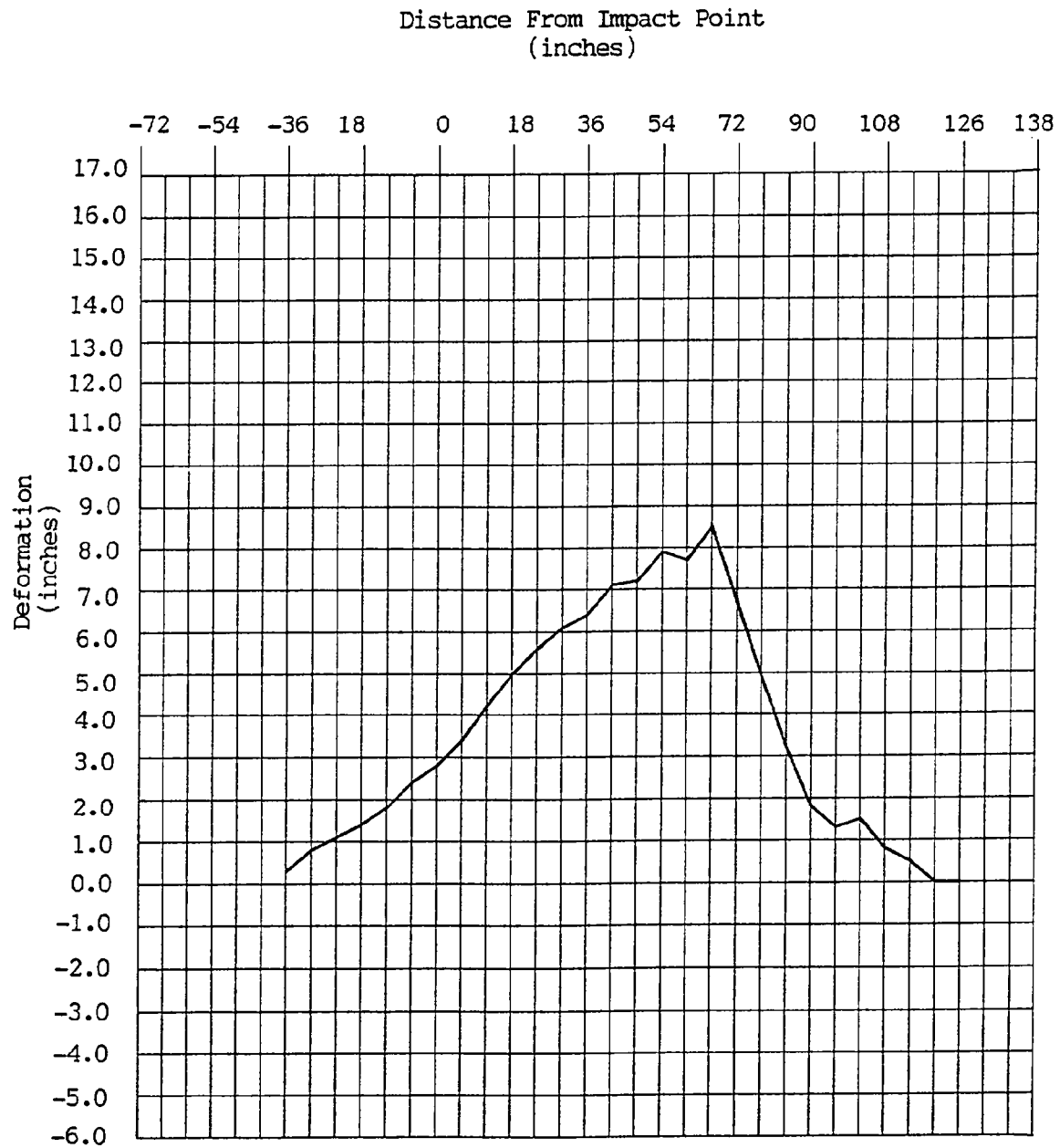
Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	39.3	39.6	0.3
-30	38.4	39.2	0.8
-24	37.8	38.9	1.1
-18	37.3	38.7	1.4
-12	37.1	38.9	1.8
-6	37.1	39.5	2.4
0	37.0	39.8	2.8 (impact point)
6	37.0	40.4	3.4
12	36.9	41.1	4.2
18	36.9	41.9	5.0
24	36.9	42.5	5.6
30	36.9	43.0	6.1
36	37.0	43.4	6.4
42	37.0	44.1	7.1
48	37.0	44.2	7.2
54	37.1	45.0	7.9
60	37.4	45.1	7.7
66	37.4	45.9	8.5
72	37.6	44.3	6.7
78	37.6	42.5	4.9
84	37.7	40.9	3.2
90	38.0	39.8	1.8
96	38.3	39.6	1.3
102	38.3	39.8	1.5
108	39.1	39.9	0.8
114	40.1	40.6	0.5
120	41.4	41.4	0
126	43.8	43.8	0
132	---	---	---
138	---	---	---

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 4 AT WINDOW SILL

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH
LEVEL 5 AT WINDOW TOP

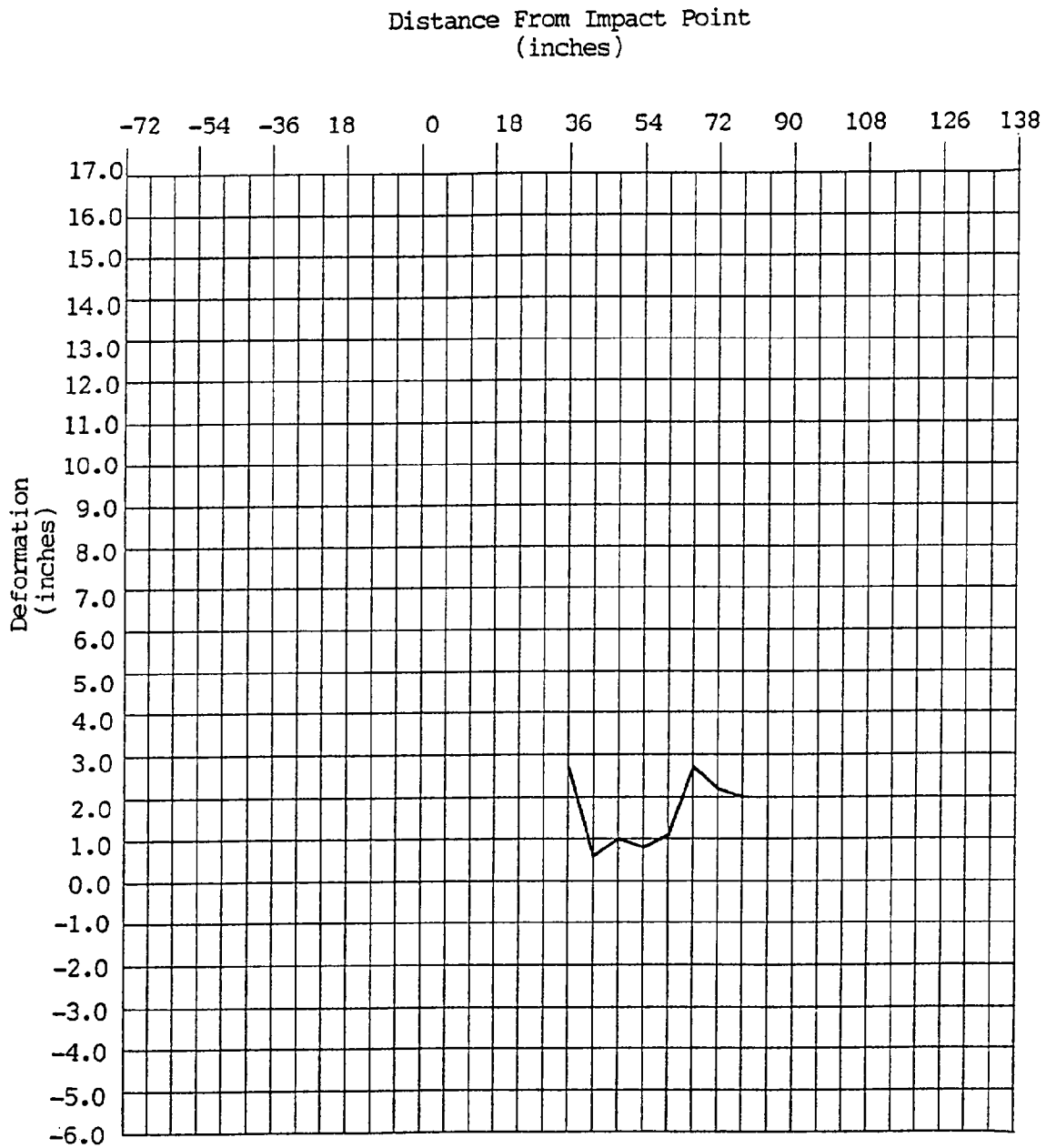
Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

Longitudinal Distance (in)	PRE-TEST (in)	POST-TEST (in)	STATIC CRUSH (in)	
-72	---	---	---	
-66	---	---	---	
-60	---	---	---	
-54	---	---	---	
-48	---	---	---	
-42	---	---	---	
-36	---	---	---	
-30	---	---	---	
-24	---	---	---	
-18	---	---	---	
-12	---	---	---	
-6	---	---	---	
0	---	---	---	(impactpoint)
6	---	---	---	
12	---	---	---	
18	---	---	---	
24	---	---	---	
30	---	---	---	
36	46.9	49.6	2.7	
42	46.6	47.2	0.6	
48	46.4	47.4	1.0	
54	46.4	47.2	0.8	
60	46.5	47.6	1.1	
66	46.6	49.3	2.7	
72	46.7	48.9	2.2	
78	47.2	49.2	2.0	
84	---	---	---	
90	---	---	---	
96	---	---	---	
102	---	---	---	
108	---	---	---	
114	---	---	---	
120	---	---	---	
126	---	---	---	
132	---	---	---	
138	---	---	---	

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH

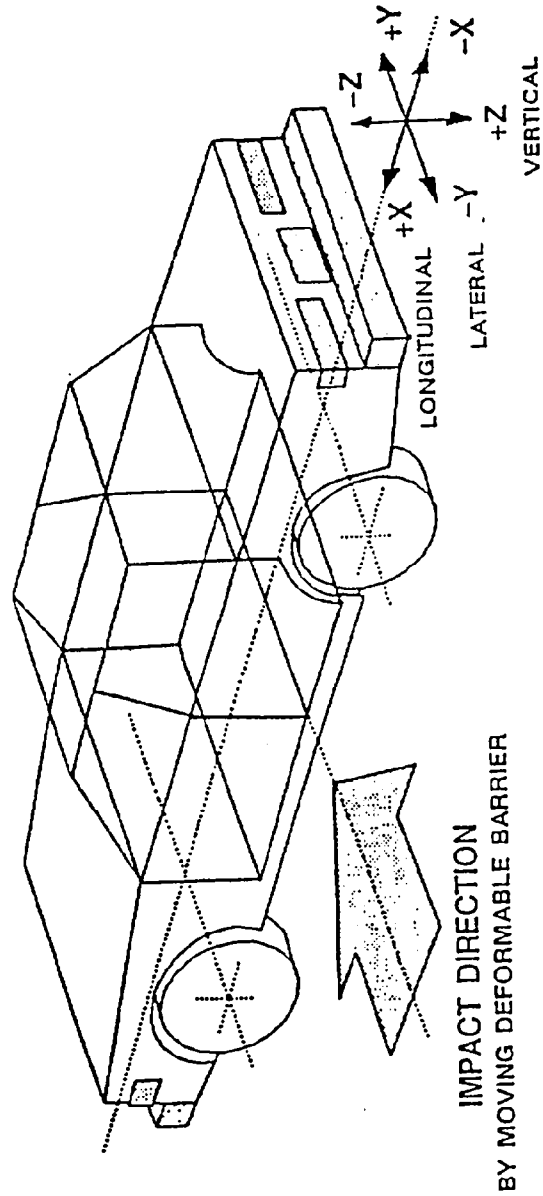


LEVEL 5 AT WINDOW TOP

FIGURE 7
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

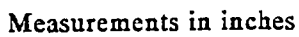
Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CR5602 TEST DATE: June 16, 1994



Measurements in inches

E = 66.3



D = 32.9 33.1



TABLE 8

EXTERIOR STATIC CRUSH FOR SIDE IMPACTORYear/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/4 Door SedanVehicle NHTSA No.: CS5100 TEST DATE: June 23, 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"	0.3	0.1	0.8	2.9
28"	-0.4	0.2	0.3	2.0
24"	-0.4	-0.3	-0.2	1.7
20"	-0.2	-0.3	-0.3	1.1
16"	-0.2	-0.3	-0.3	0.7
12"	-0.1	-0.3	-0.5	0.6
8"	-0.1	-0.2	-0.4	0.3
4"	0	-0.2	-0.4	0
0"	0	-0.2	-0.3	0.3
4"	0.1	-0.2	-0.2	0.4
8"	0.1	0	-0.2	0.5
12"	0.4	0	-0.1	0.5
16"	0.5	0.6	0.3	1.0
20"	1.3	1.8	0.4	1.8
24"	2.1	2.8	1.2	2.8
28"	2.6	3.0	1.9	2.7
32"	2.8	2.5	1.8	1.0

Right Side

Left Side

TABLE 9

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARYYear/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door CoupeVehicle NHTSA No.: CS5100 TEST DATE: June 23, 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	107.4	26.4	11.3	2.7	-6.1	20.9	-1.4	6.8	-4.3	21.2
2	Rt. Side Sill @ Rear Seat	81.1	26.1	12.4	2.4	-6.3	19.9	-2.1	4.0	-6.6	20.1
3	Rr. Floorpan Above Axle	35.0	0	14.8	2.8	-8.0	16.1	-2.8	8.7	-7.4	16.3
4	Left Side Sill @ Rr. Seat	74.6	-22.5	7.6	---	---	33.5	-2.6	---	---	---
5	Left Side Sill @ Frt. Seat	103.5	-22.5	7.3	---	---	30.7	-3.9	---	---	---
6	Left Lower "A" Post	124.0	-29.1	14.0	---	---	135.3	-19.2	---	---	---
7	Left Lower "B" Post	75.9	-29.5	26.0	---	---	104.2	-41.6	---	---	---
8	Left Mid "B" Post	75.5	-29.5	32.8	---	---	98.9	-65.4	---	---	---
9	Right Rear Occupant Compartment	76.1	11.8	12.5	---	---	18.3	-1.6	---	---	---
10	Driver Left Seat Track	92.1	-24.0	8.0	---	---	30.1	-3.8	---	---	---

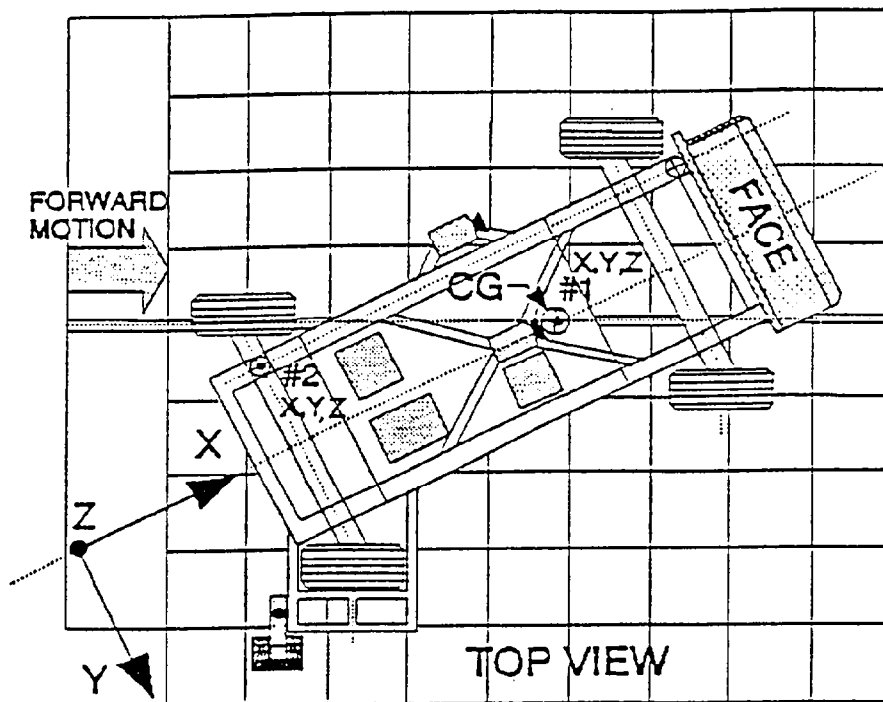
*Reference: X - Rear Bumper (+ Forward)
Y - Vehicle Centerline (+ To right)
Z - Ground Level (+ Up)

FIGURE 9

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/4 Door Sedan

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994



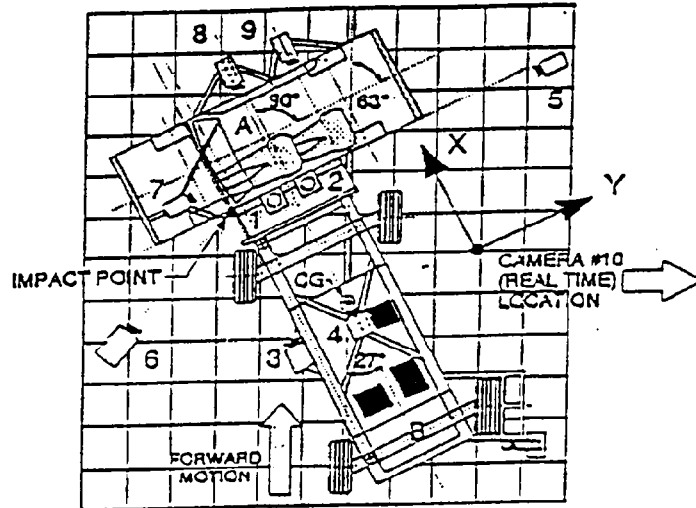
Accel. No.	Location	Coordinates (in)			Pos. Direct.		Neg. Direct.	
					Max (g)	Time (msec)	Max (g)	Time (msec)
		X	Y	Z				
1	MDB Center of Gravity							
	Longitudinal ... X				1.7	111	-18.1	37
	Lateral Y	-43.0	0	19.0	0.4	109	-8.0	23
	Vertical Z				7.2	59	-7.2	64
	Resultant R				18.9	29	---	---
2	Rear Frame Member							
	Longitudinal ... X	-102.0	-24.6	24.5	1.8	114	-22.6	32
	Lateral Y				7.2	26	-3.7	106

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/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994



Camera No.	View	Coordinates (in)			Angle	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
	Real Time					10	24
1	Top Pointer	0	15.0	193.7		13	1176
2	Top Wide	15.7	0	211.0		8	1143
3	Cart Pointer					35	1005
4	Cart					13	1020
5	Right Impact	20	-335.8	31.0	45°	35	1000
6	Left Impact	-95.3	112.2	52.0	45°	13	1136
7	Onboard Hood					13	1010
8	Onboard Driver					7.5	813
9	Onboard Passenger					8	1000

* Reference: (from point of impact)

+X = Forward

+Y = To Right

+Z = Upward

TABLE 10
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

FMVSS NO. 301

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Sedan

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

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

TEST VEHICLE IMPACT TYPE: X Side Impact MDB (32.8 mph)

FUEL SPILLAGE MEASUREMENT:

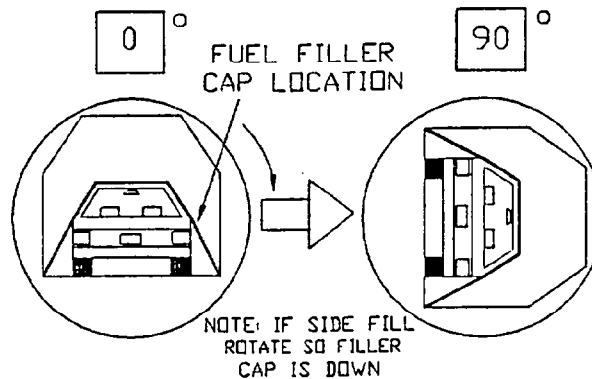
1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

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 SHEETYear/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door CoupeVehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994TEST PHASE: 0° - 90°I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 45 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 45 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
---	---	---	---

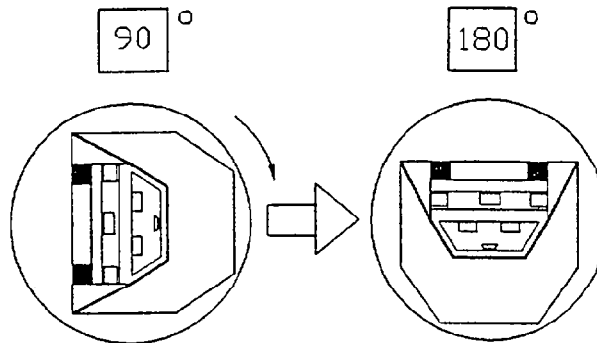
Note: Record Spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe
Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

TEST PHASE: 90° - 180°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 34 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds
TOTAL 7 minutes 34 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.

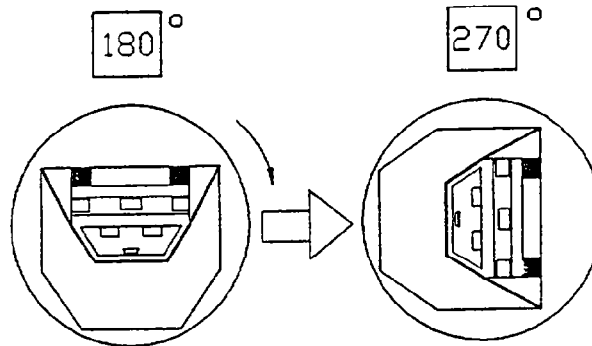
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Coupe

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

TEST PHASE: 180° - 270°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 15 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds
TOTAL 7 minutes 15 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.

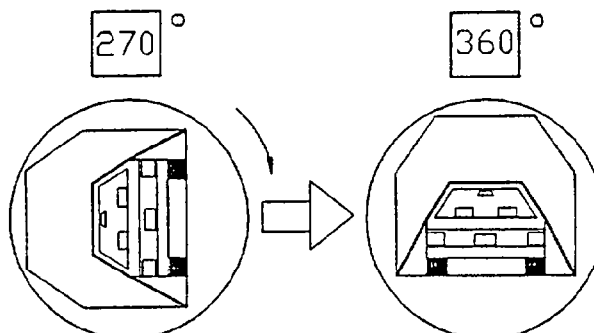
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1995/Toyota/Lexus/SC300/2 Door Sedan

Vehicle NHTSA No.: CS5100 TEST DATE: June 23, 1994

TEST PHASE: 270° - 360°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 37 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds
TOTAL 7 minutes 37 seconds
Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATIONS(S): None

APPENDIX A - PHOTOGRAPHS

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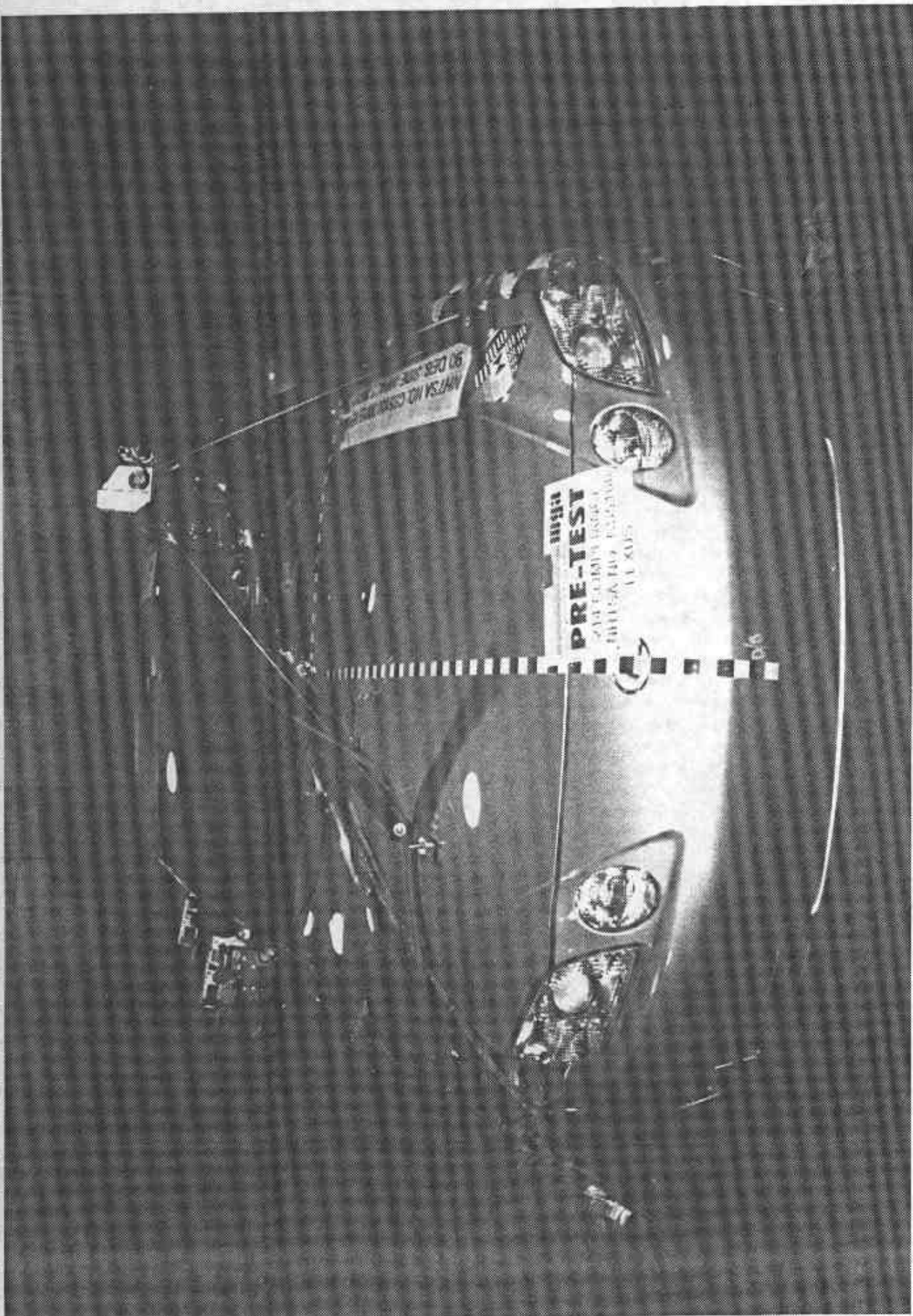


Photo No. A-1 - Pre-Test Front View of Test Vehicle

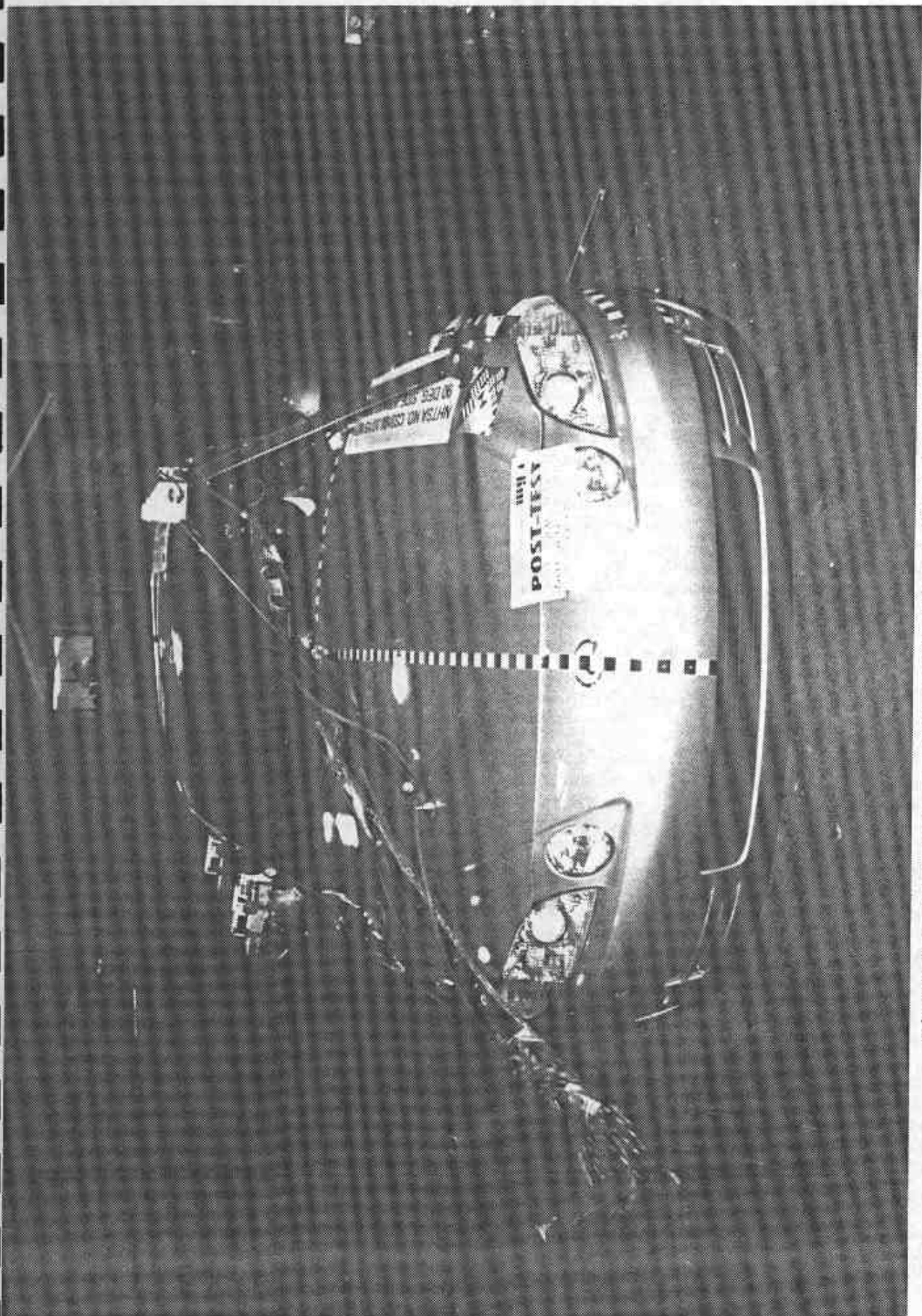


Photo No. A-2 - Post-Test Front View of Test Vehicle

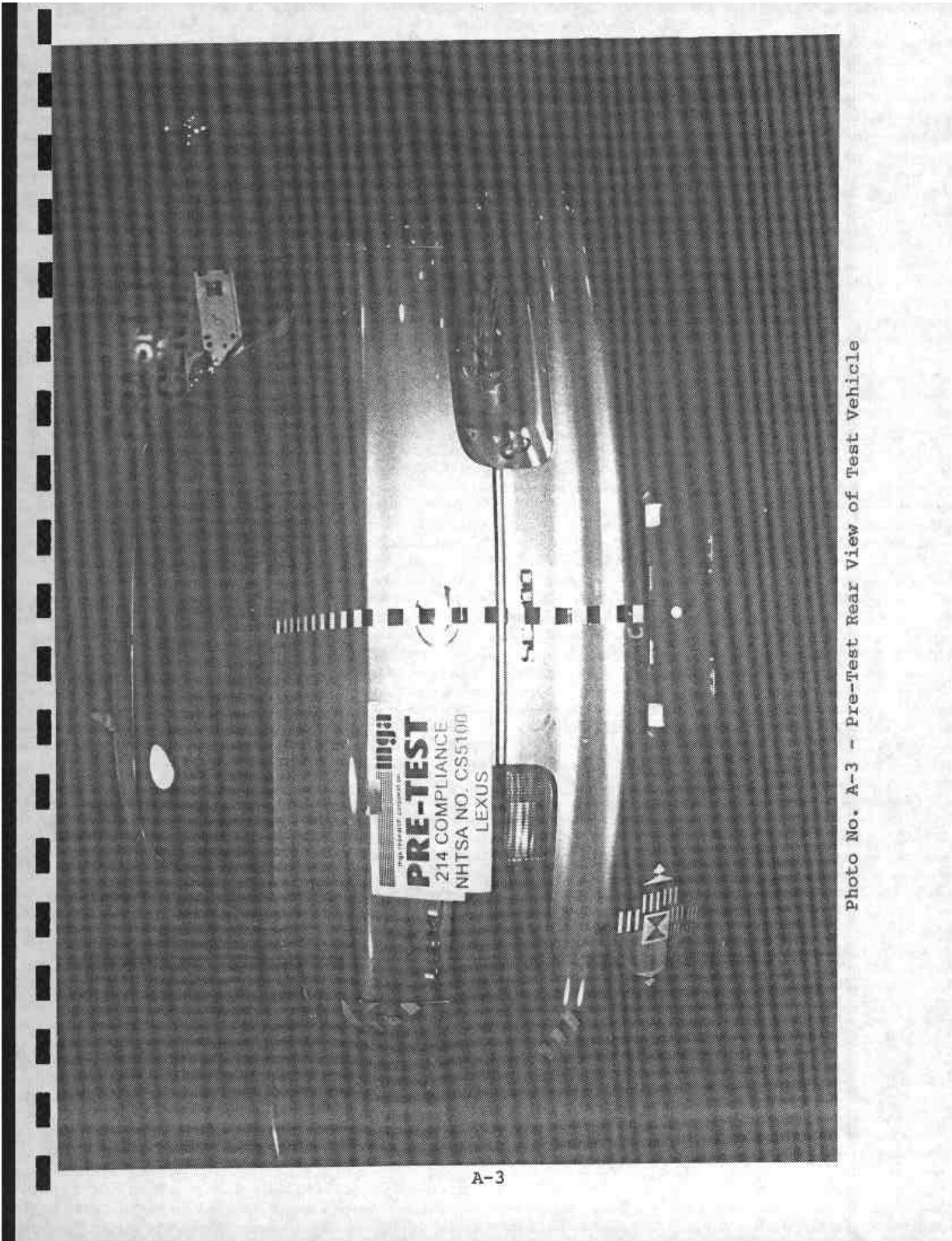


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

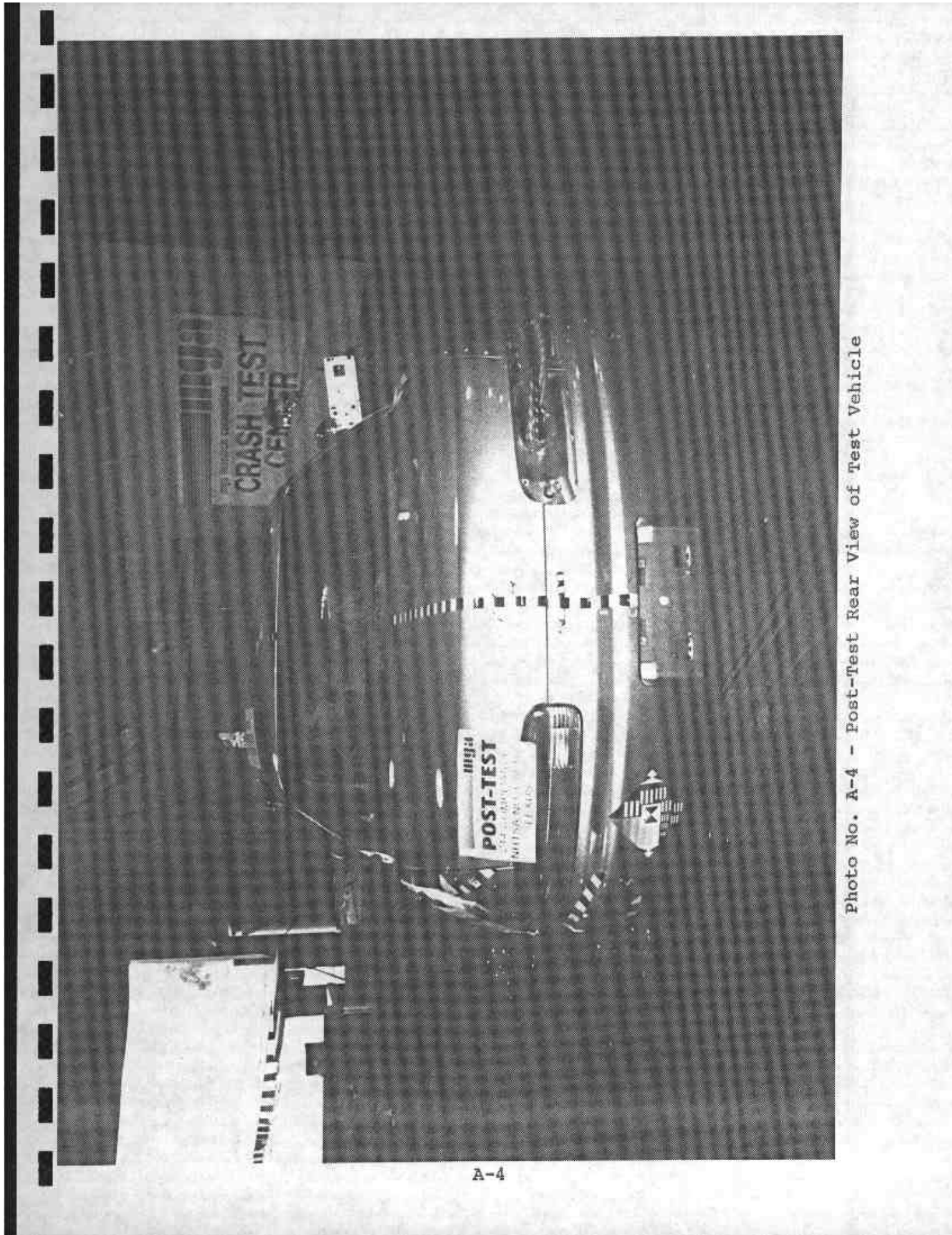


Photo No. A-4 - Post-Test Rear View of Test Vehicle

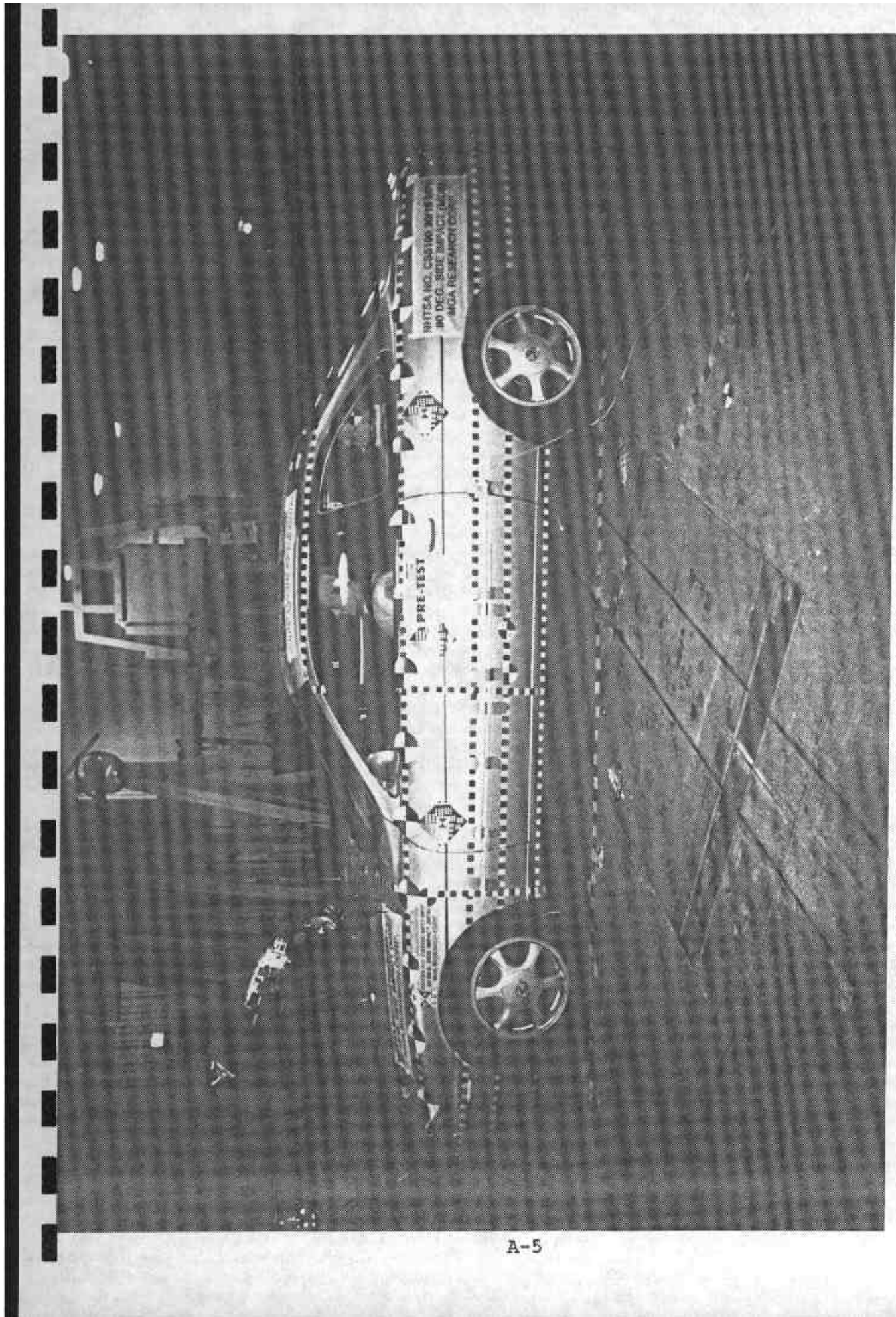


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

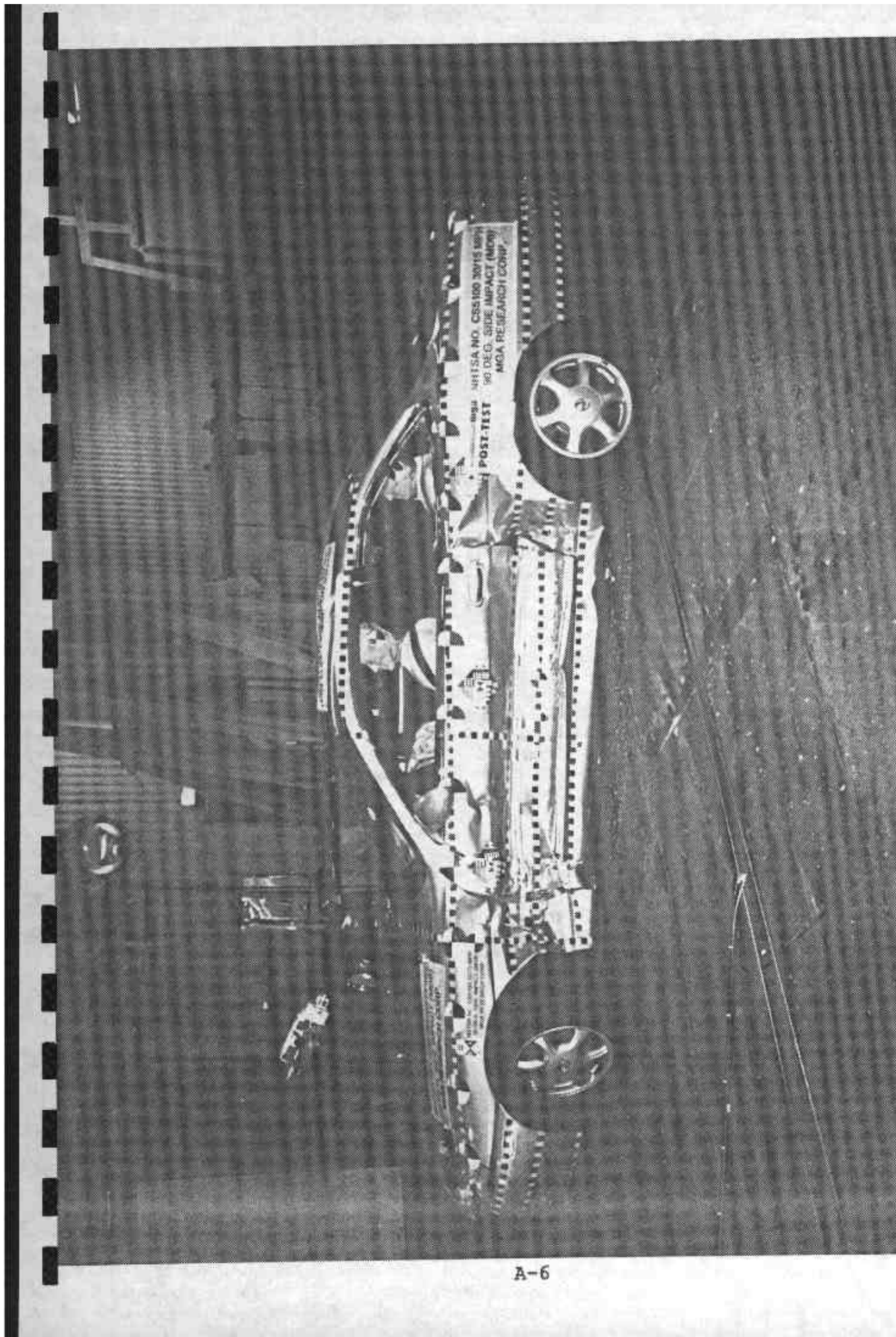


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

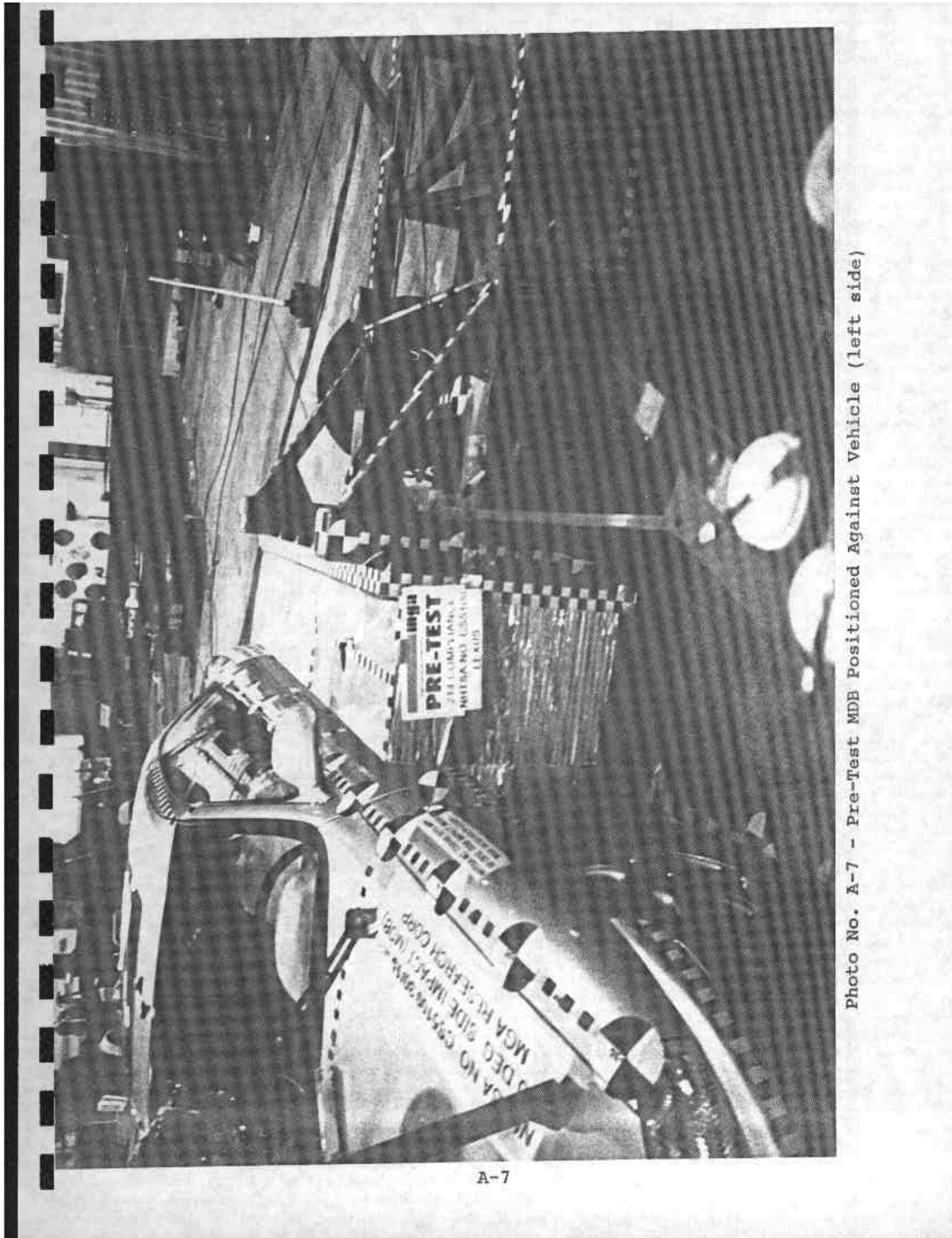


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)



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



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

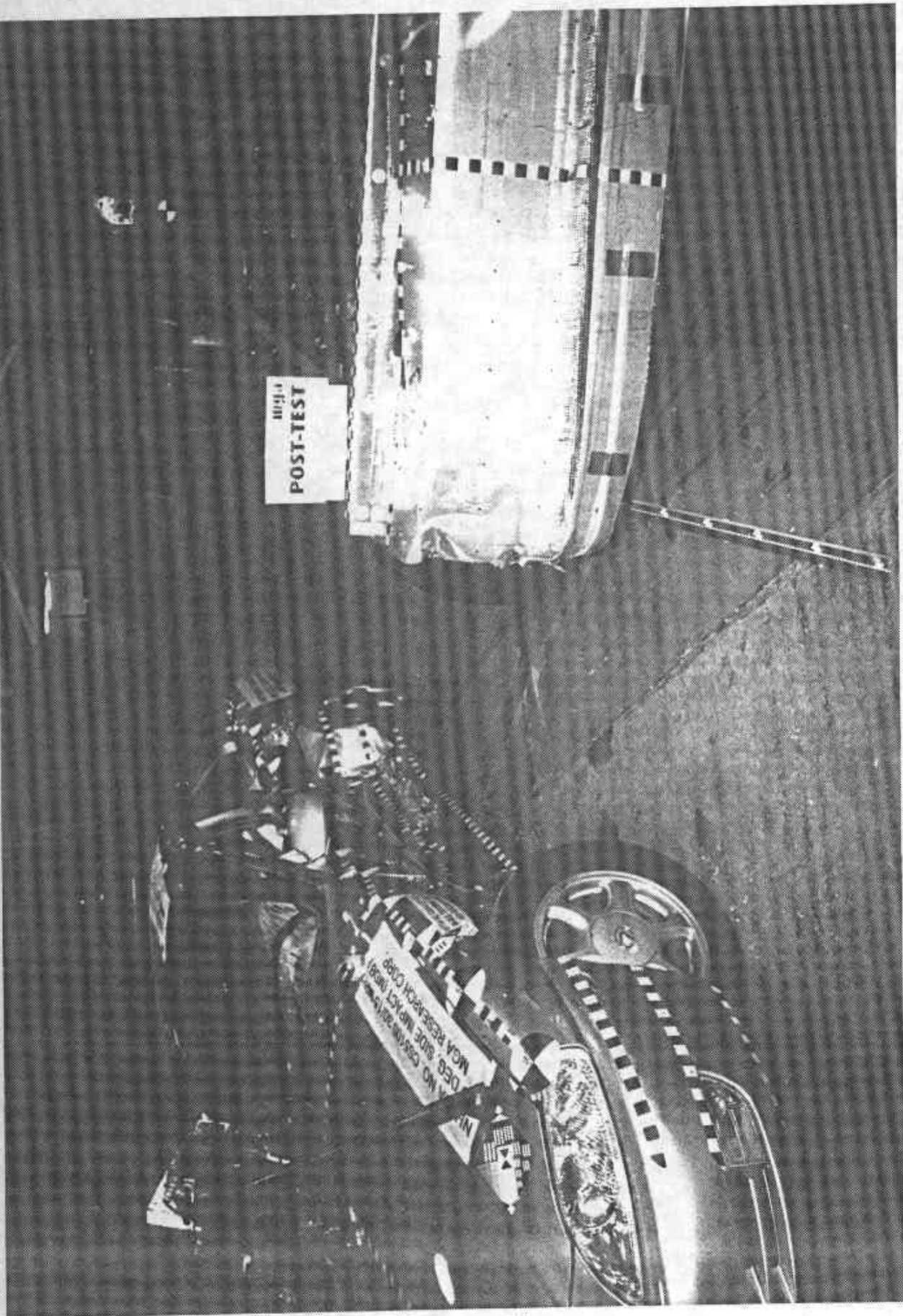


Photo No. A-10 - Post-Test MDB and Vehicle Left Side Front View

A-10

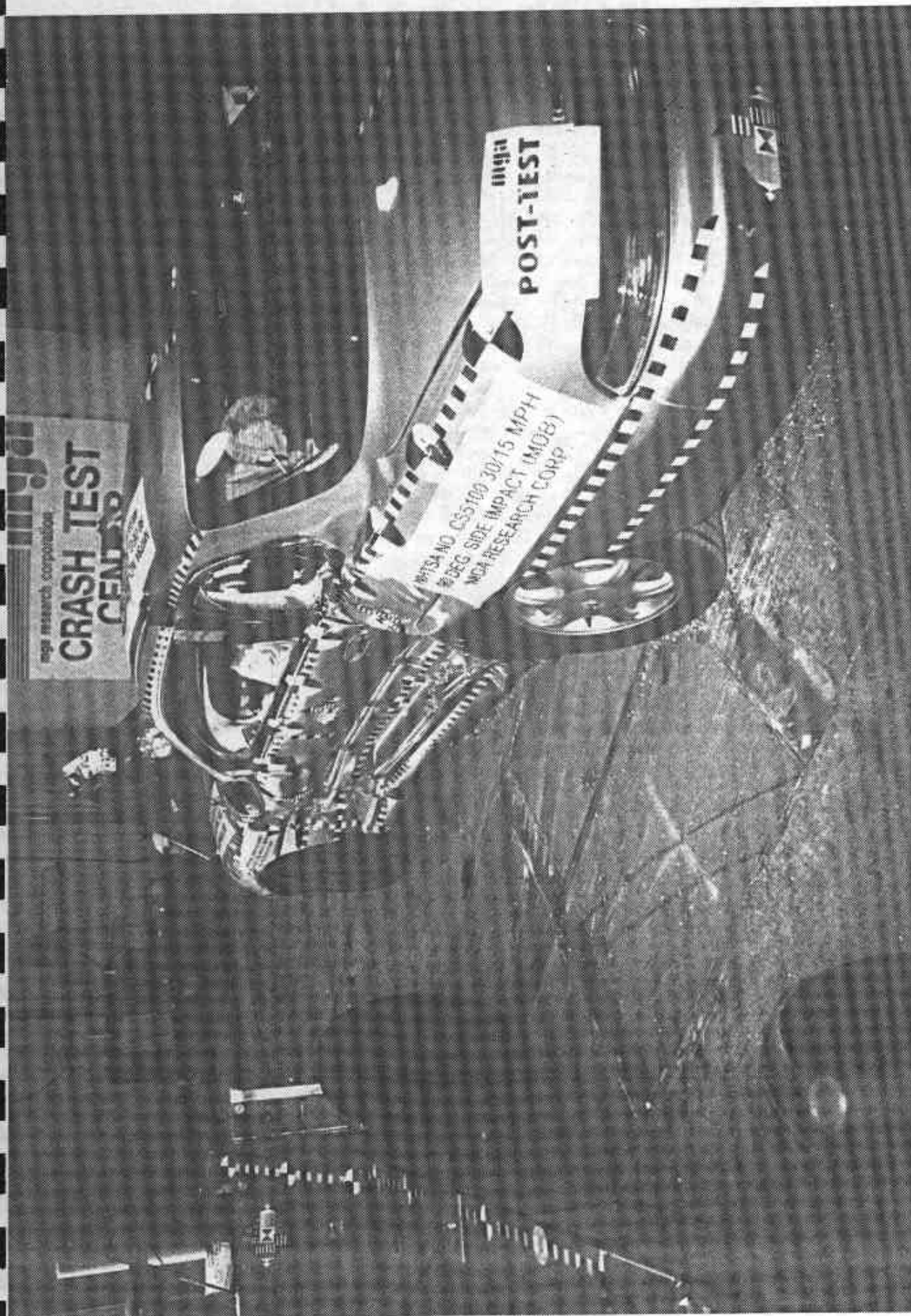


Photo No. A-11 - Post-Test MDB and Vehicle Right Side Rear View

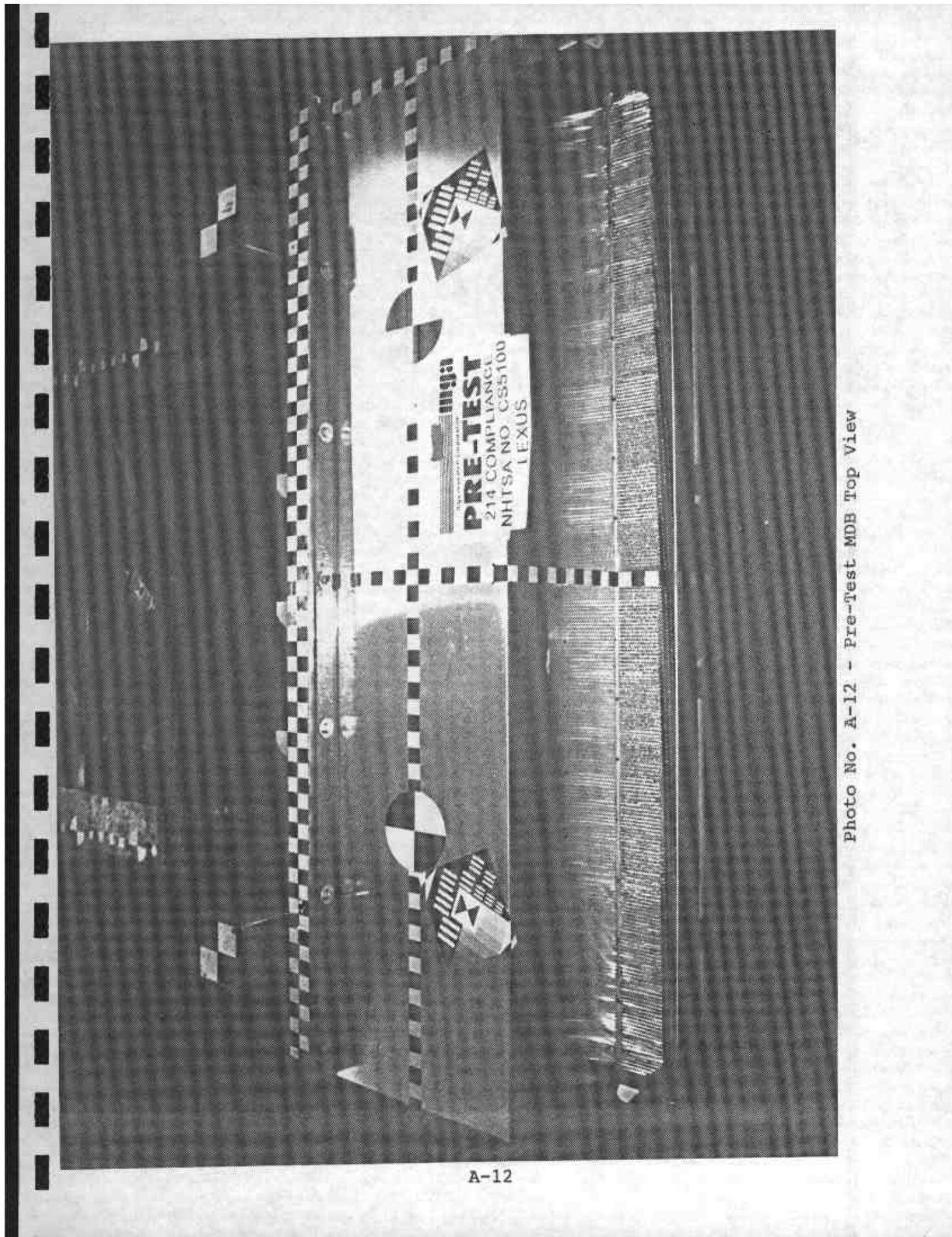


Photo No. A-12 - Pre-Test MDB Top View

A-12

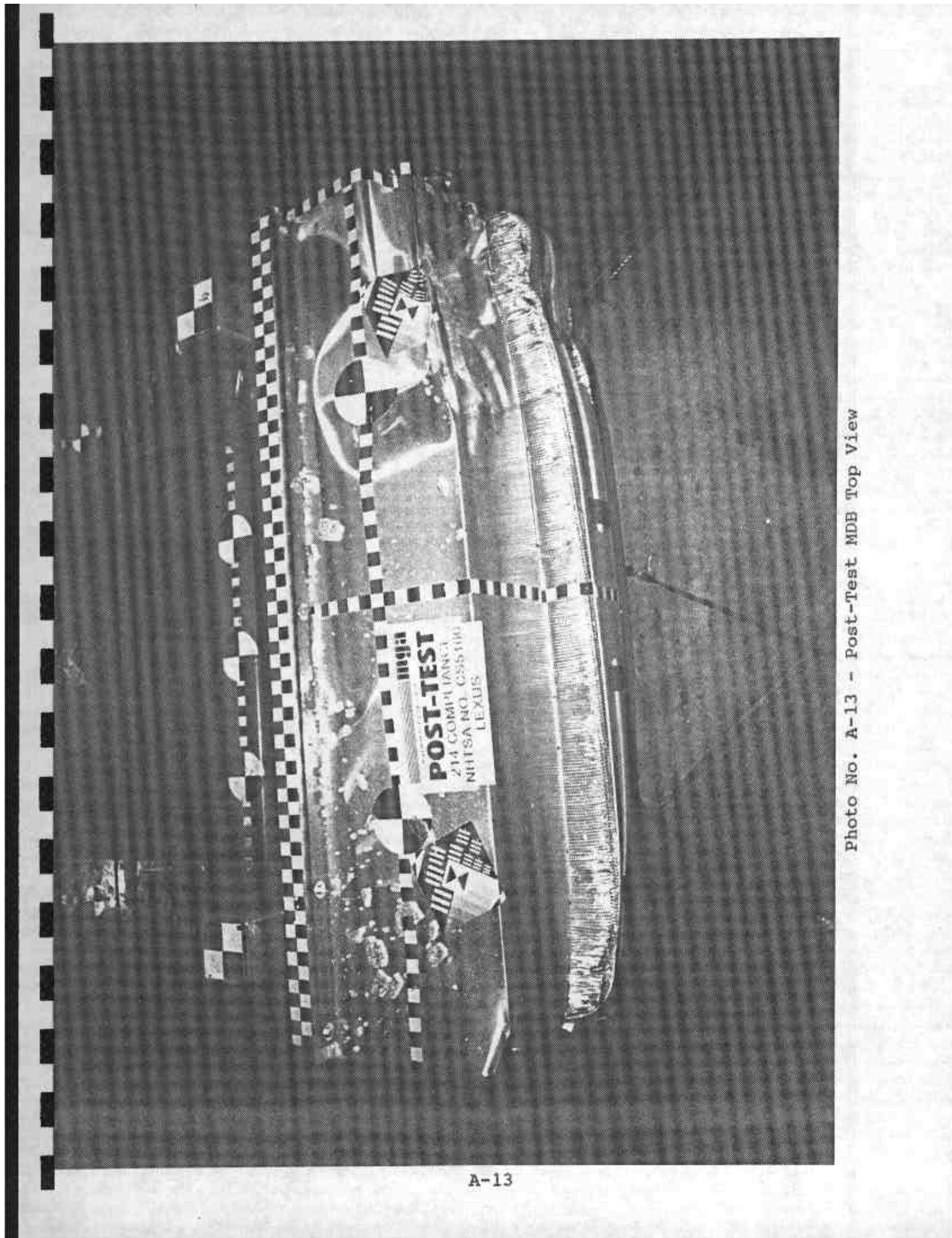


Photo No. A-13 - Post-Test MDB Top View

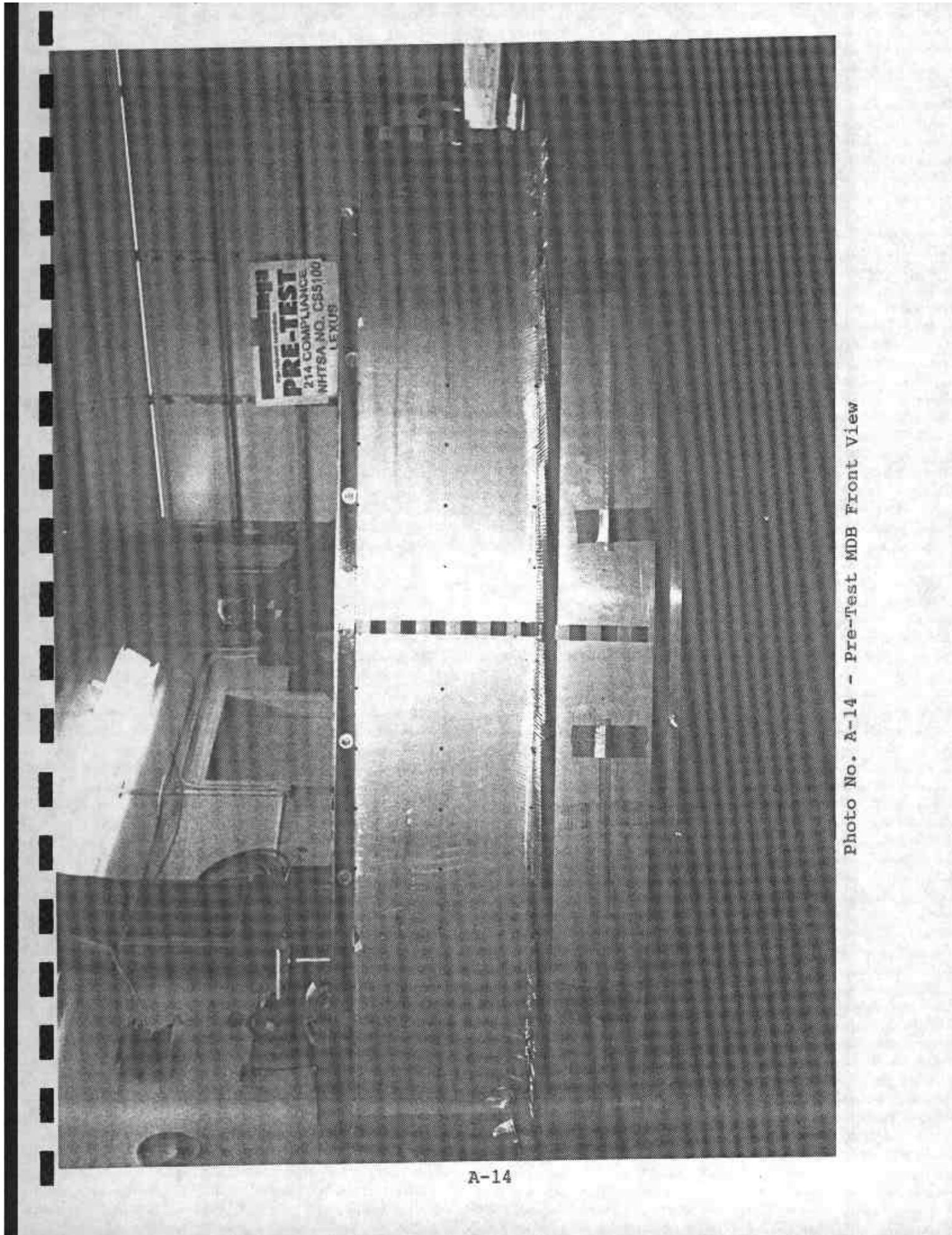


Photo No. A-14 - Pre-Test MDB Front View

POST-TEST
214 COMPLIANCE
NHTSA NO. CS5100
LEXUS

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

A-15



Photo No. A-16 - Pre-Test MDB Left Side View

POST-TEST
214 COMPLIANCE
NHTSA NO. CS5100
LEXUS

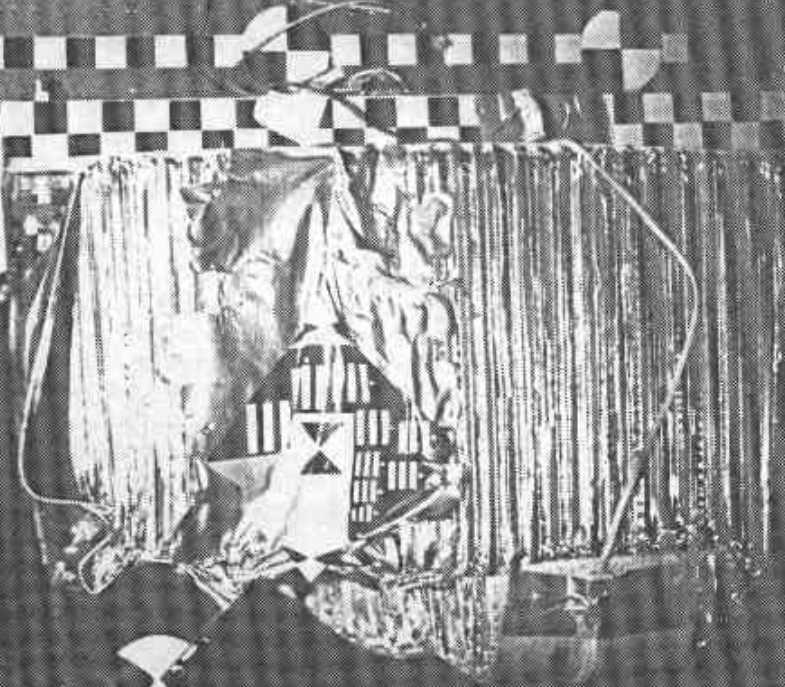


Photo No. A-17 - Post-Test MDB Left Side View

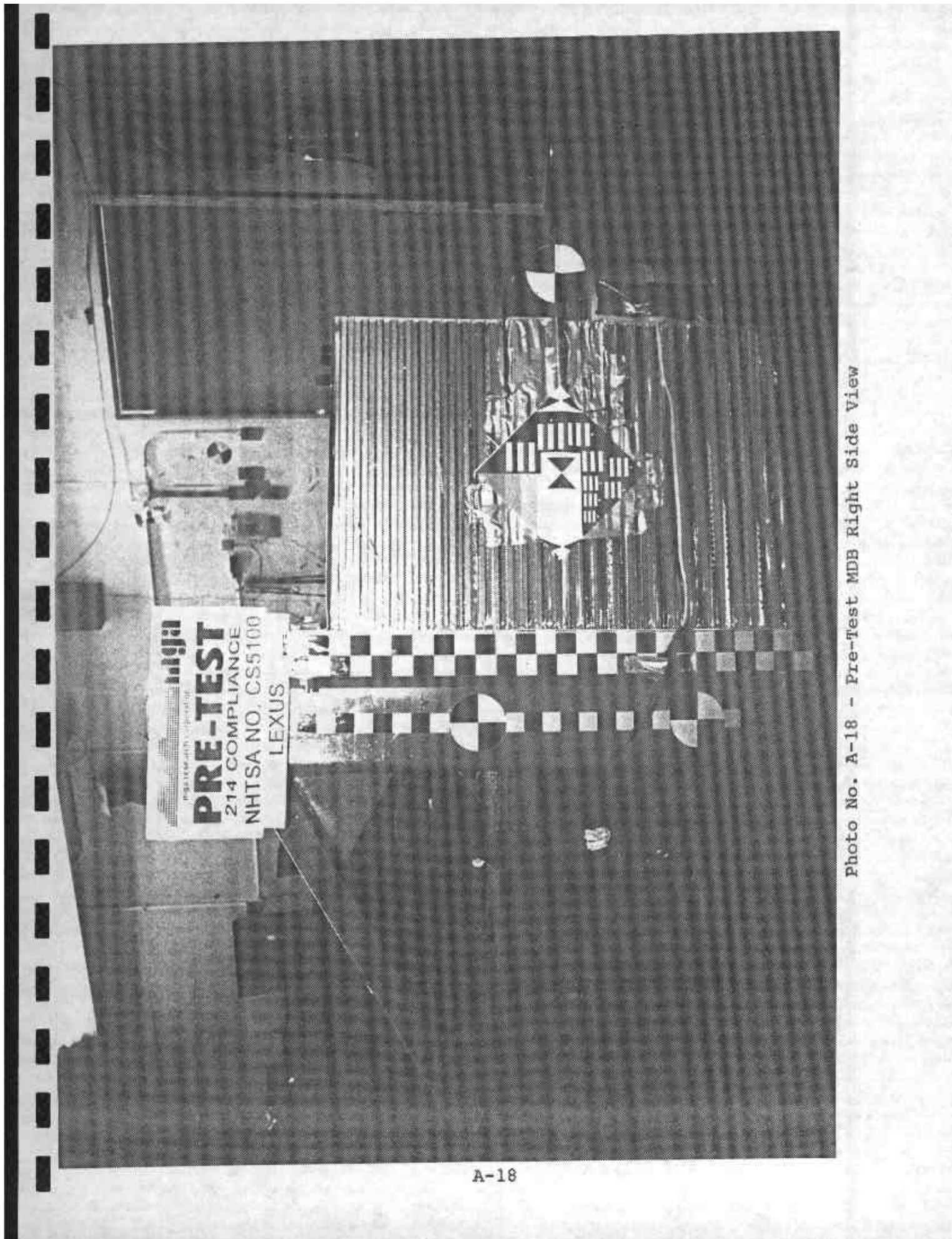


Photo No. A-18 - Pre-Test MDB Right Side View

INTECH
POST-TEST
214 COMPLIANCE
NHTSA NO. CS5100
LEXUS



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

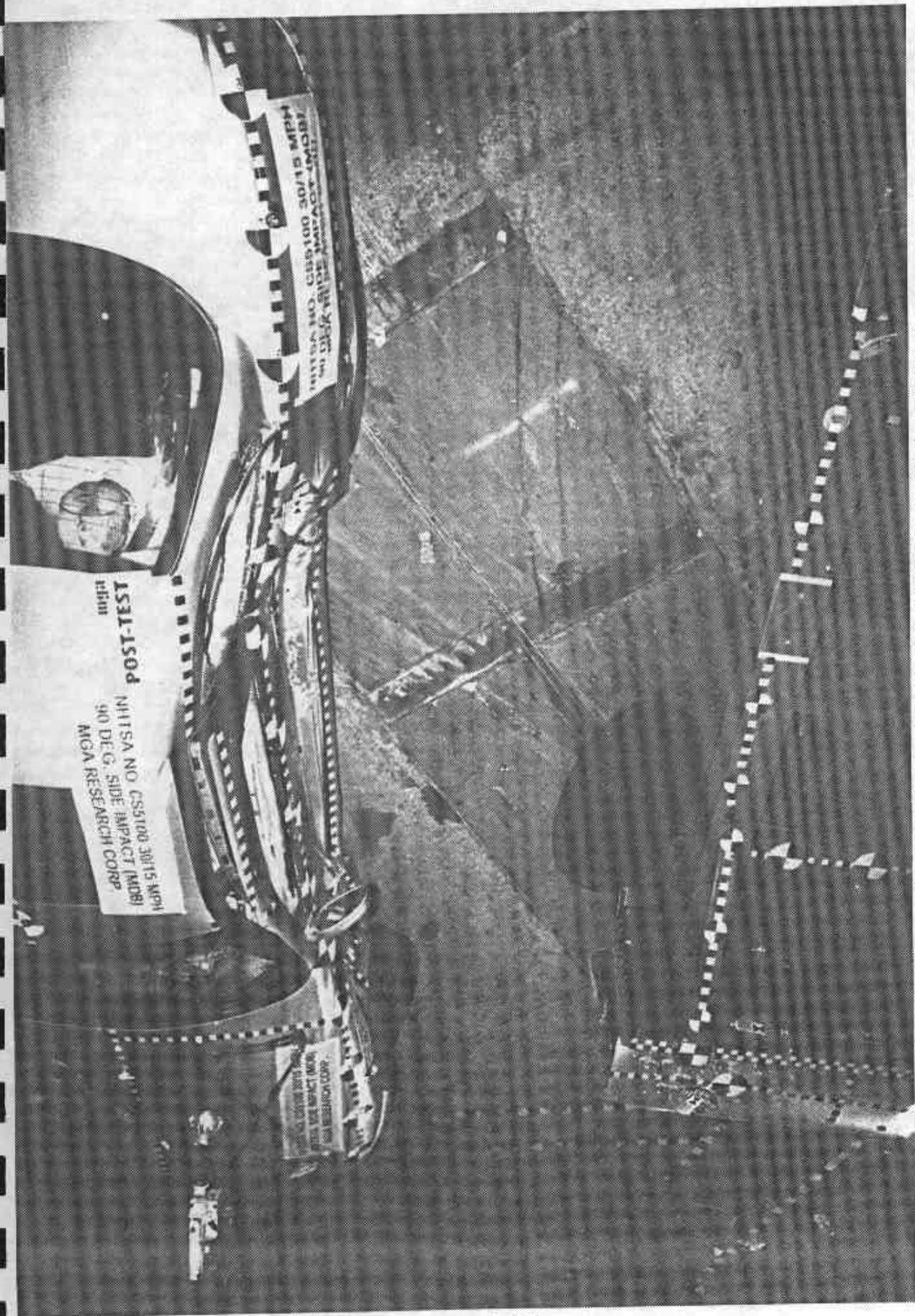


Photo No. A-20 - Post-Test MDB and Vehicle Overhead View



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



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

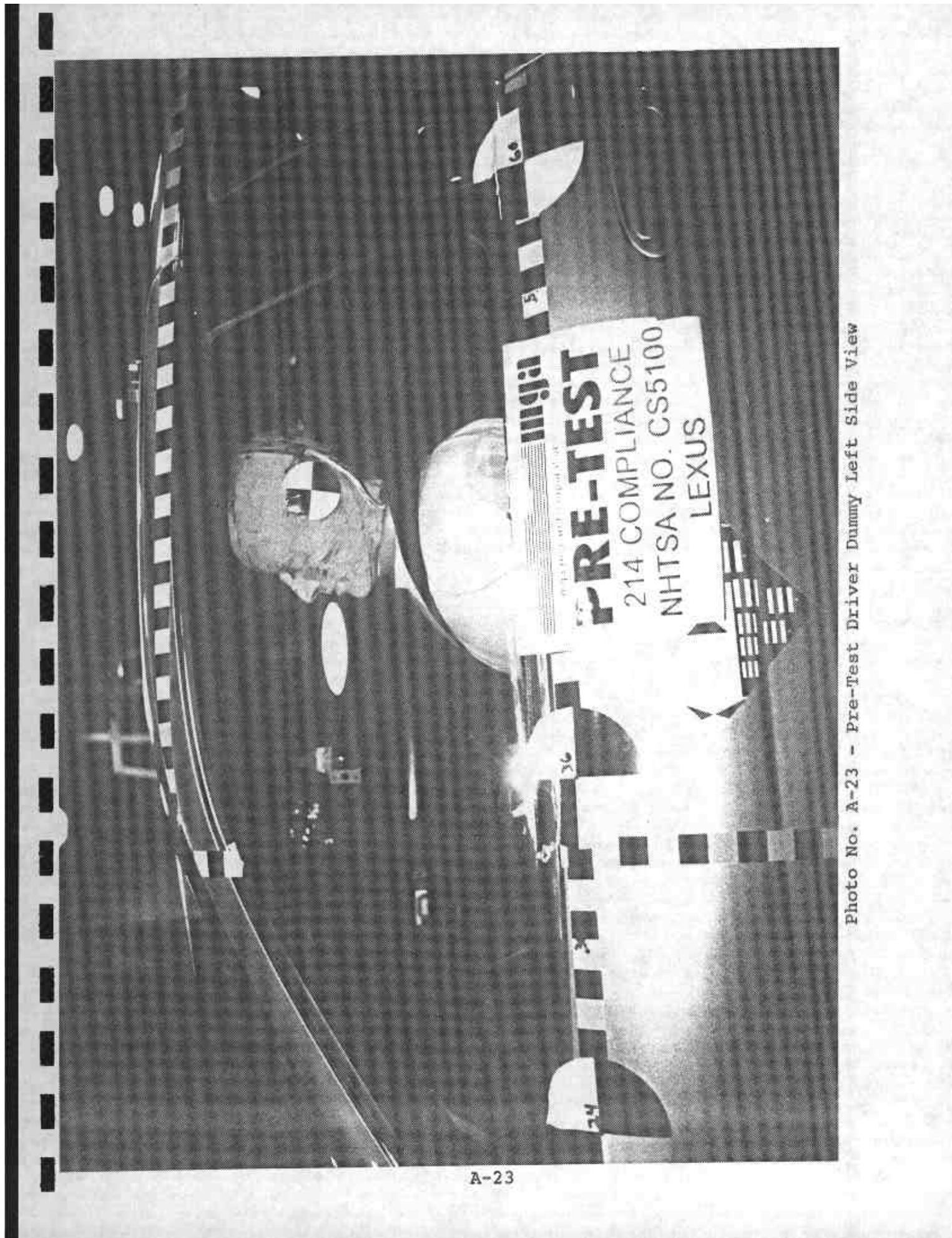


Photo No. A-23 - Pre-Test Driver Dummy Left Side View

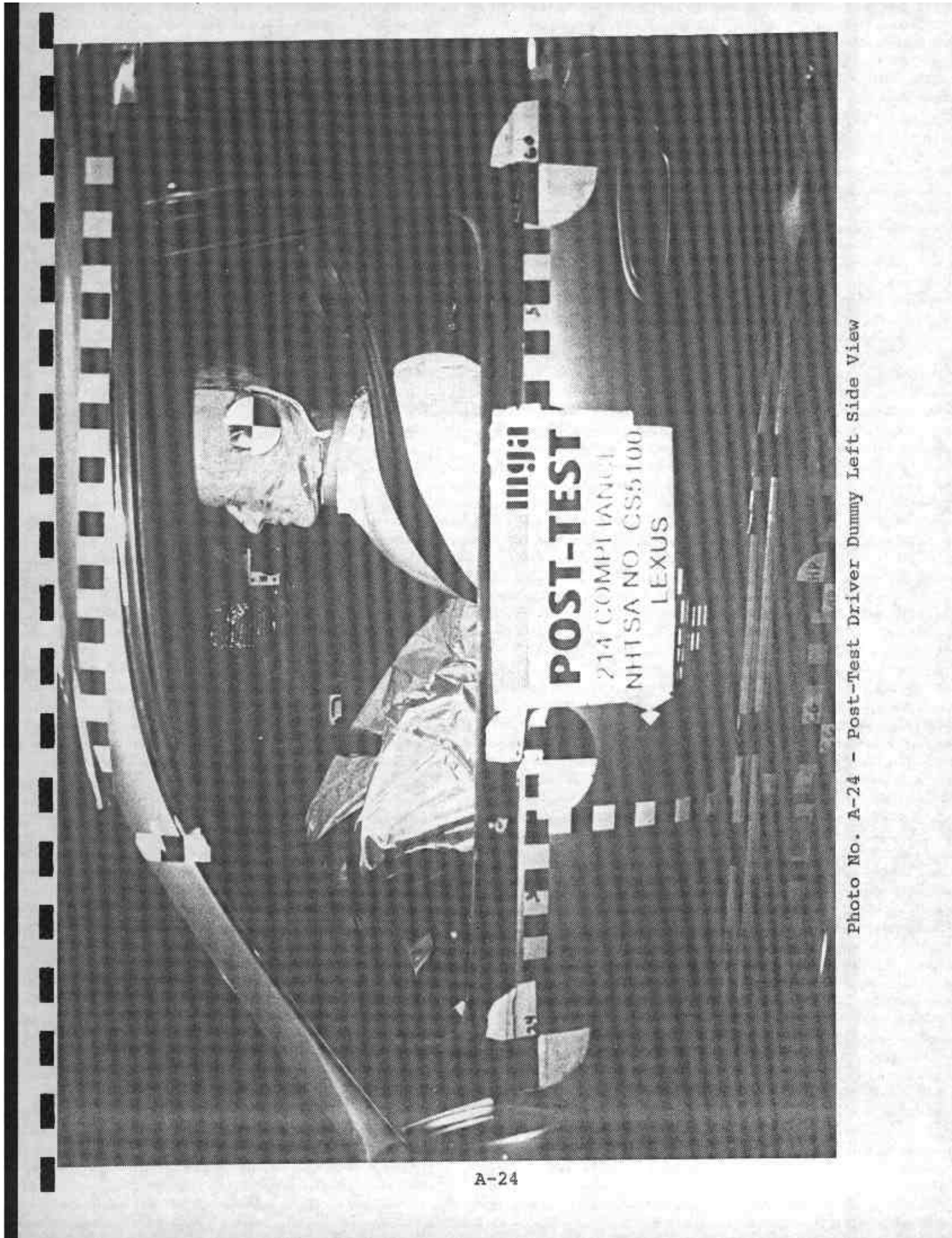


Photo No. A-24 - Post-Test Driver Dummy Left Side View



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

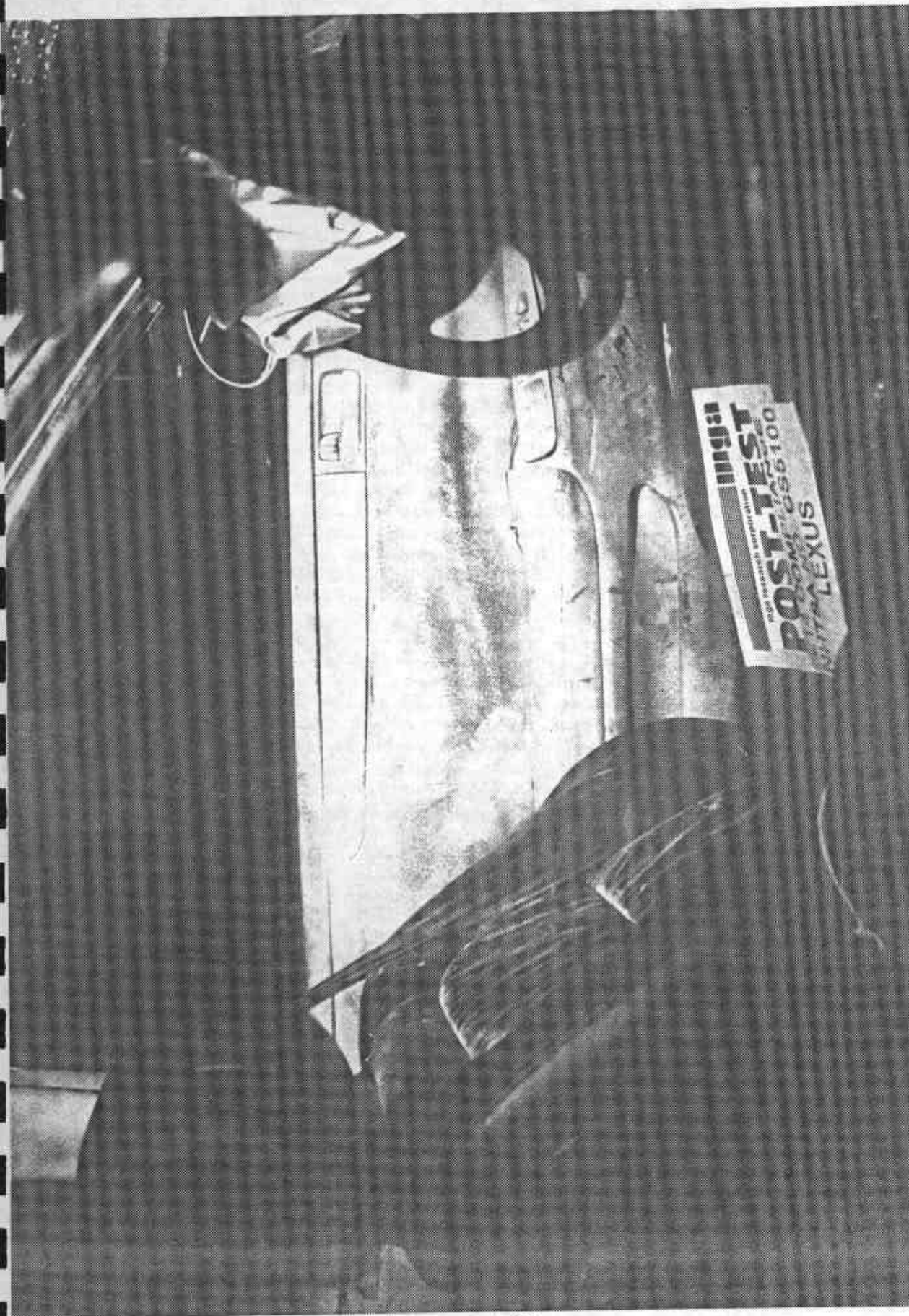


Photo No. A-26 - Post-Test Driver Dummy Impact Point



A-27

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



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

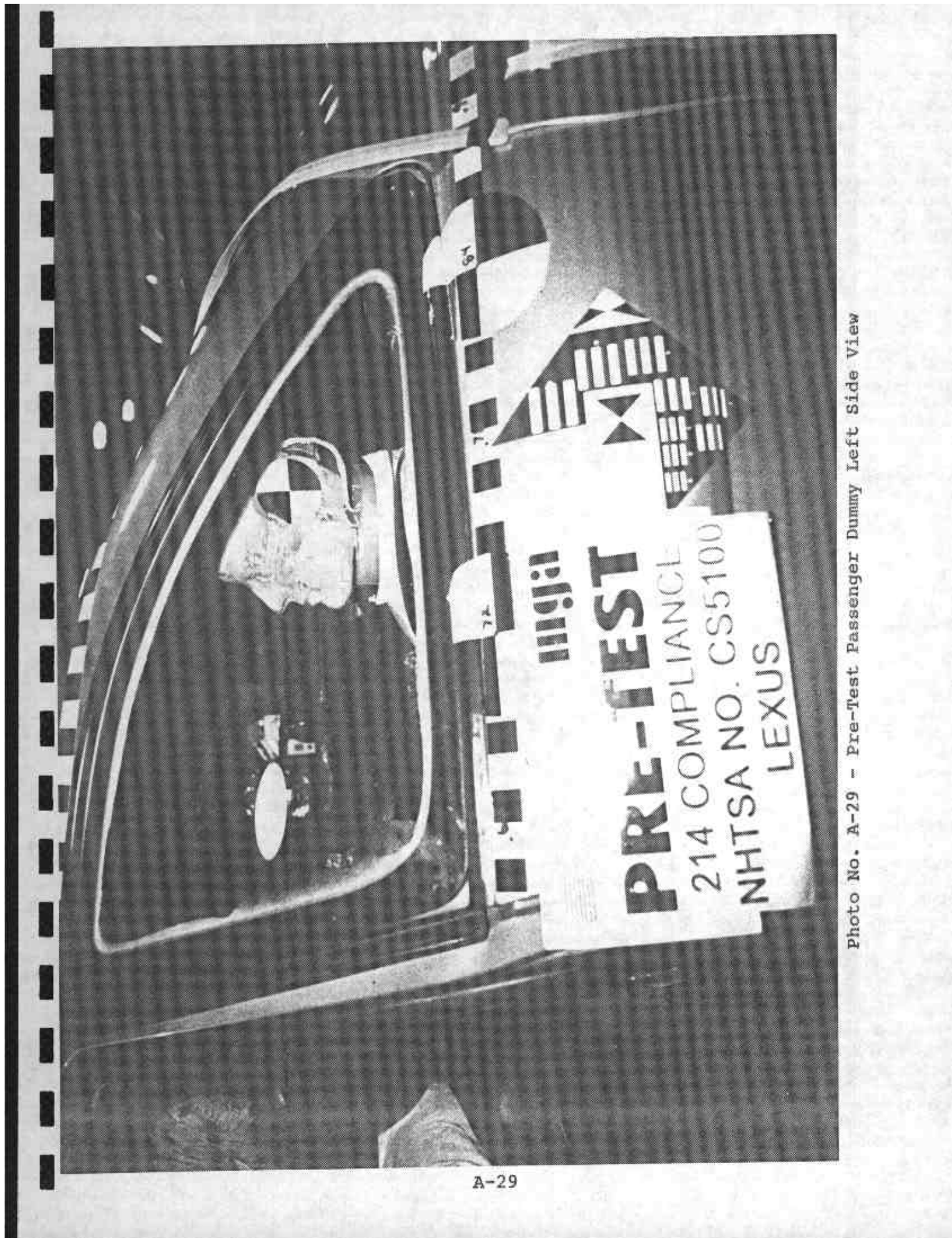


Photo No. A-29 - Pre-Test Passenger Dummy Left Side View

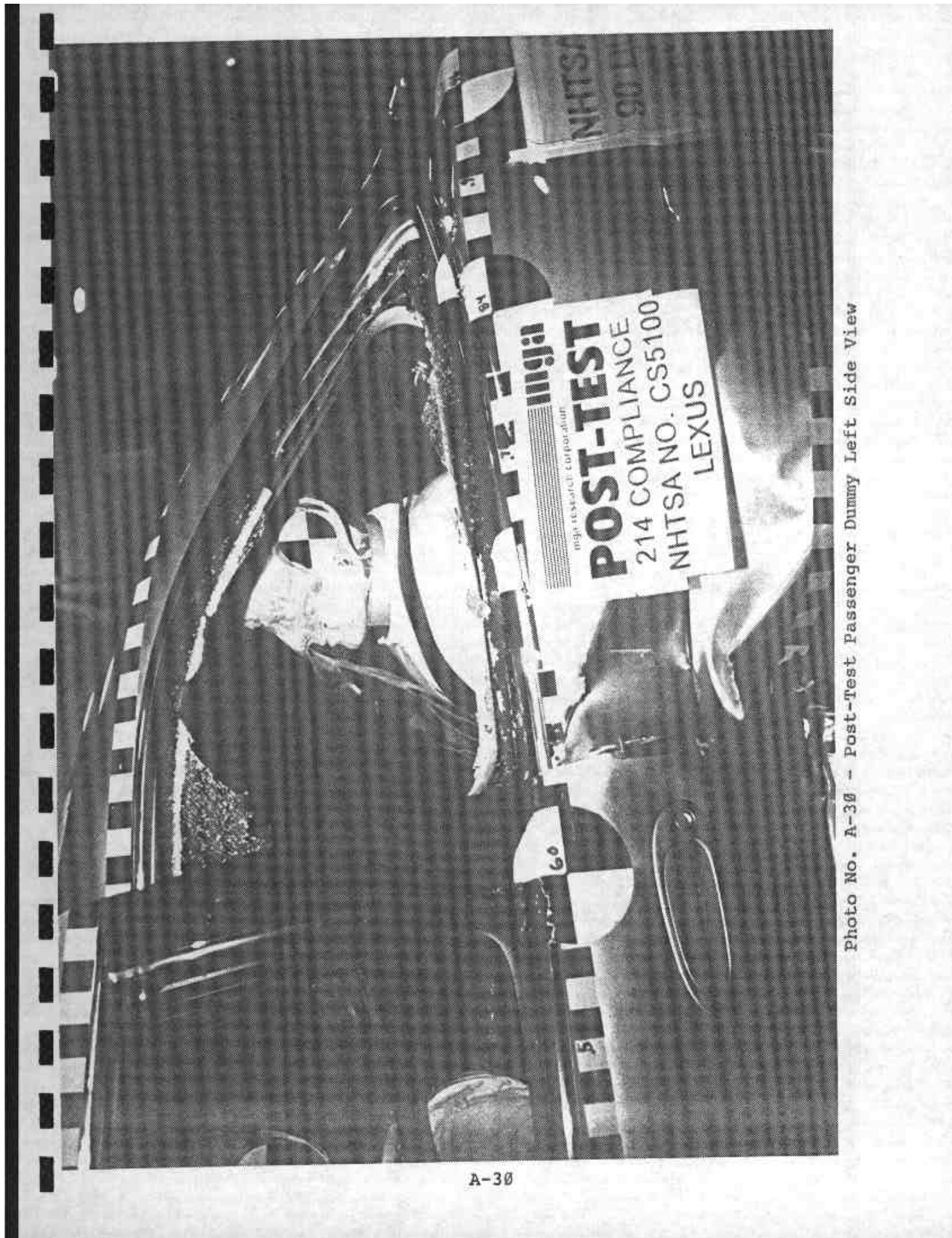
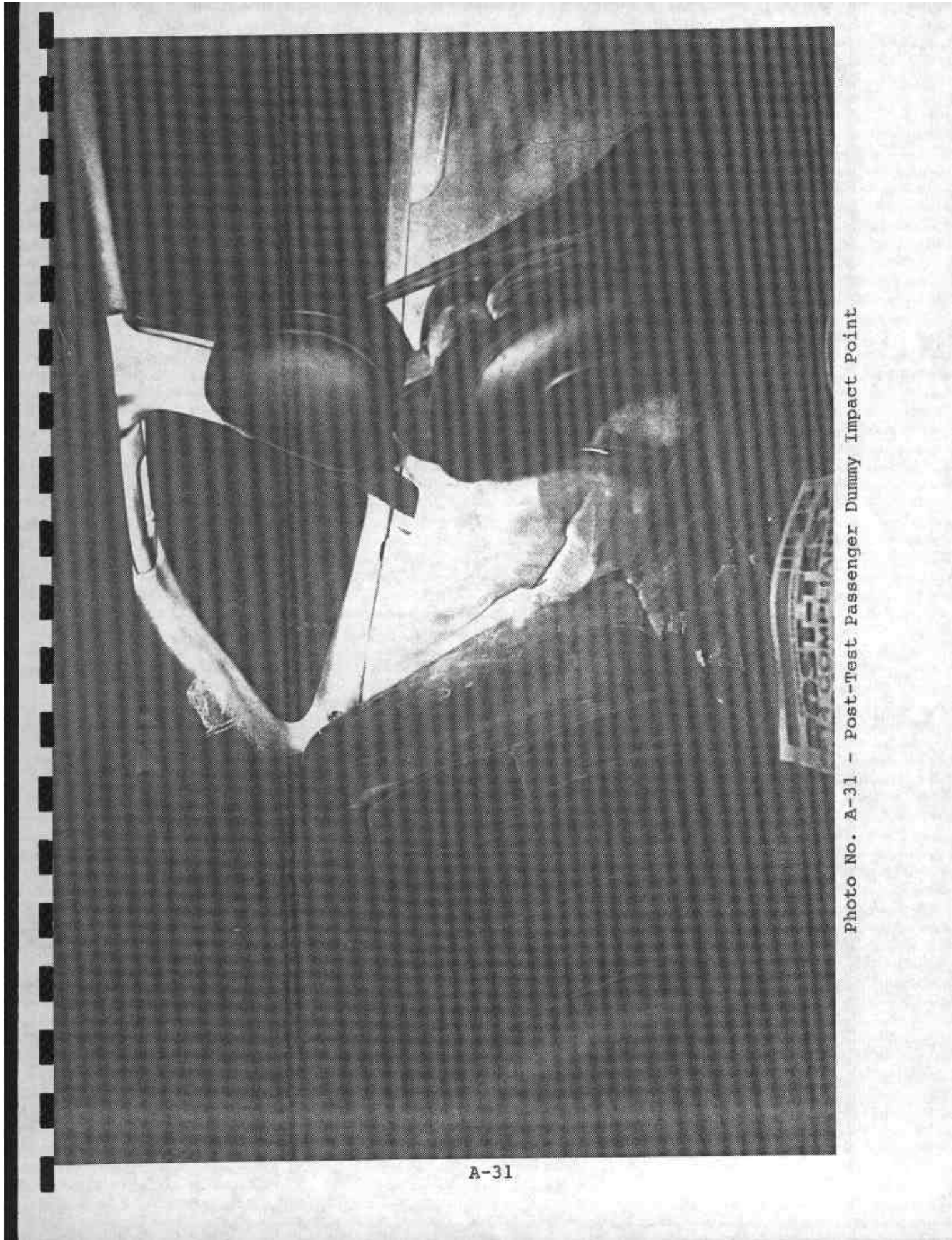


Photo No. A-30 - Post-Test passenger Dummy Left Side View

A-30



A-31

Photo No. A-31 - Post-Test Passenger Dummy Impact Point

TOYOTA

TOYOTA MOTOR VEHICLE SALES, INC.
16001 E. SPRING CREEK RD.
TOLSON, ARIZONA 85633
THE DATE OF MANUFACTURE SHOWN ABOVE
JTSJZ31C013E1R



C/TR 1A0/LD20 MODEL JZ31L-ACPVFA
A/TM A01A/A340E MADE IN JAPAN
NO 461

BA0255283

Photo No. A-32 - Vehicle Certification Label

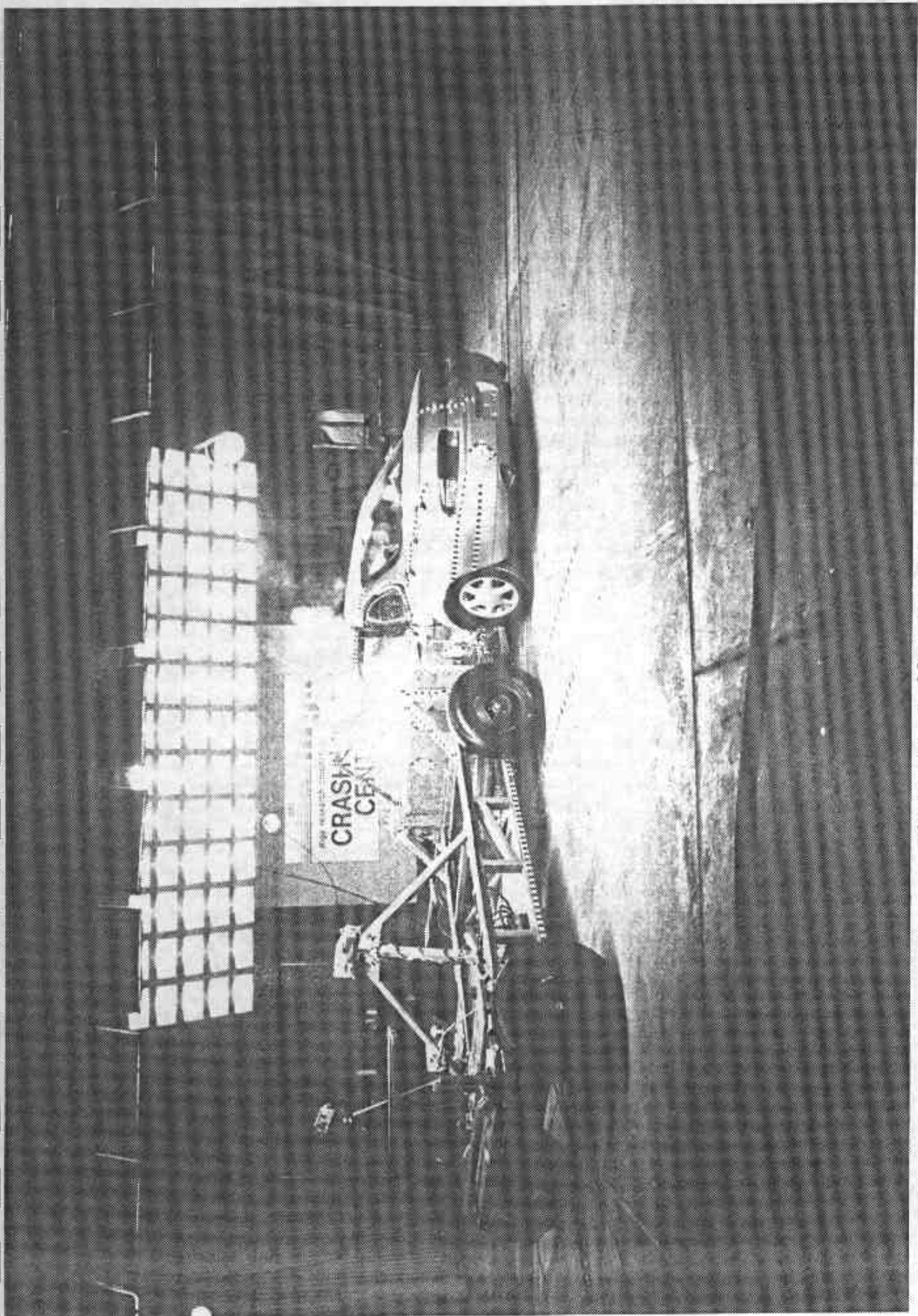


Photo No. A-33 - Impact

A-33



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

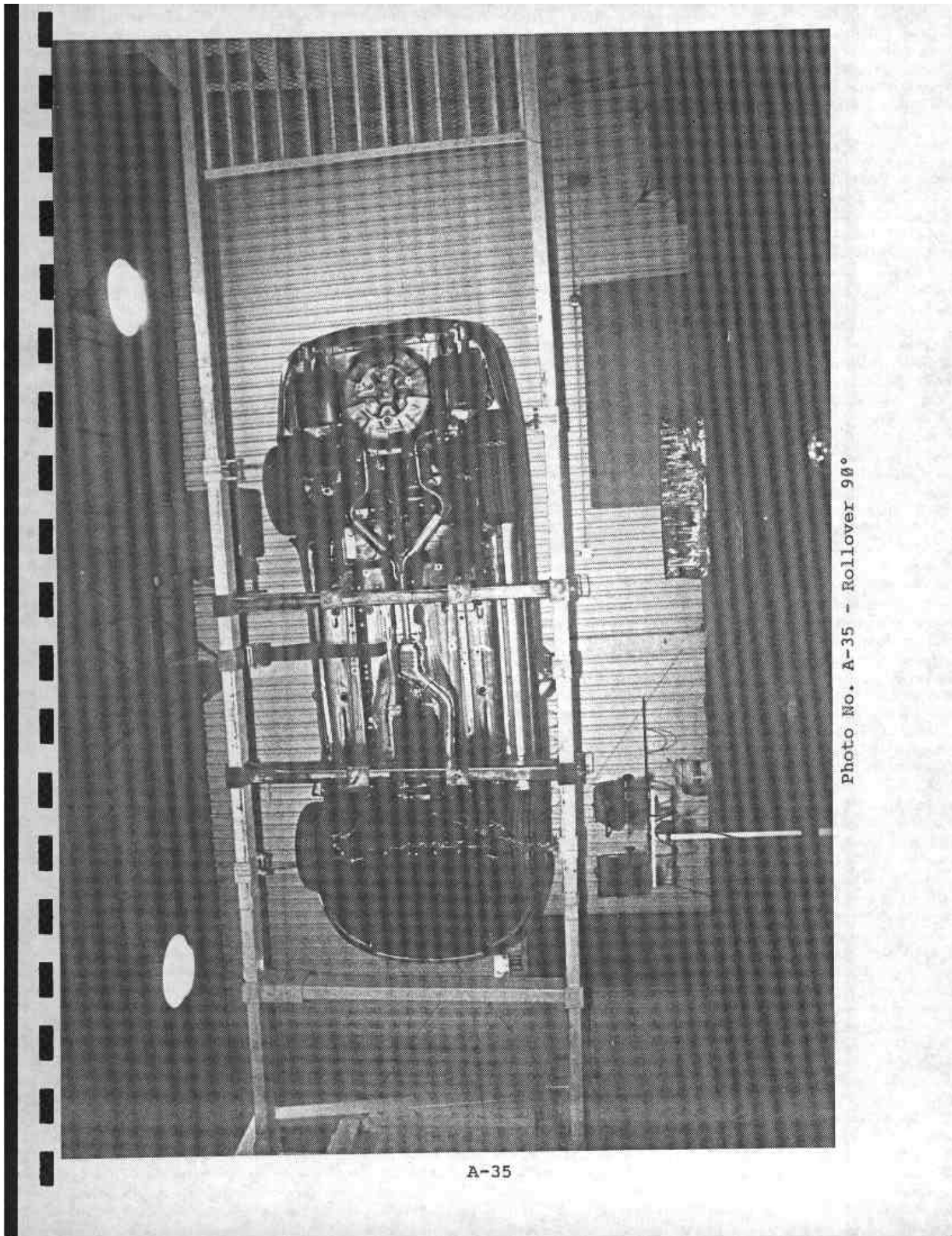


Photo No. A-35 - Rollover 90°

A-35

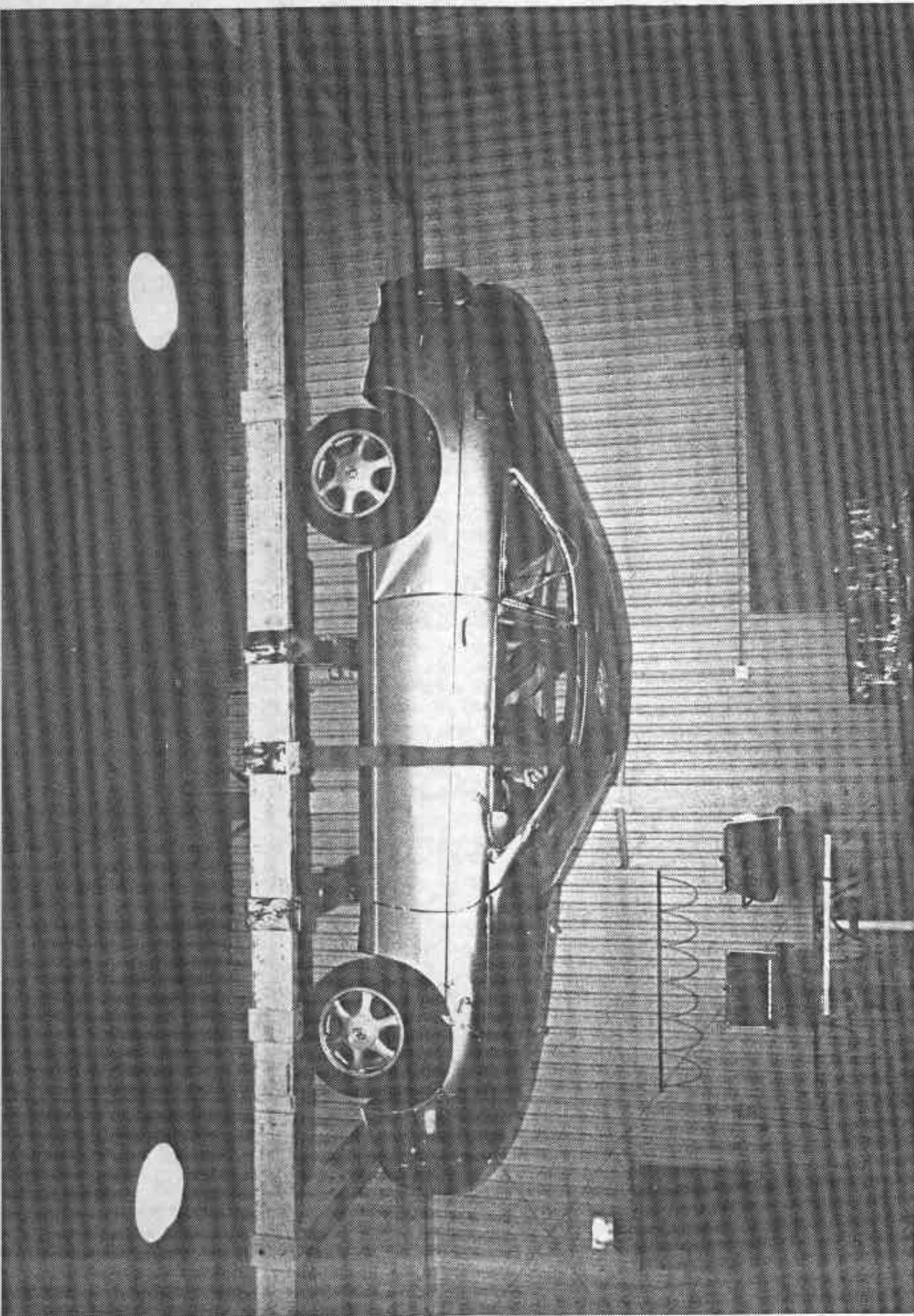


Photo No. A-36 - Rollover 180°

A-36

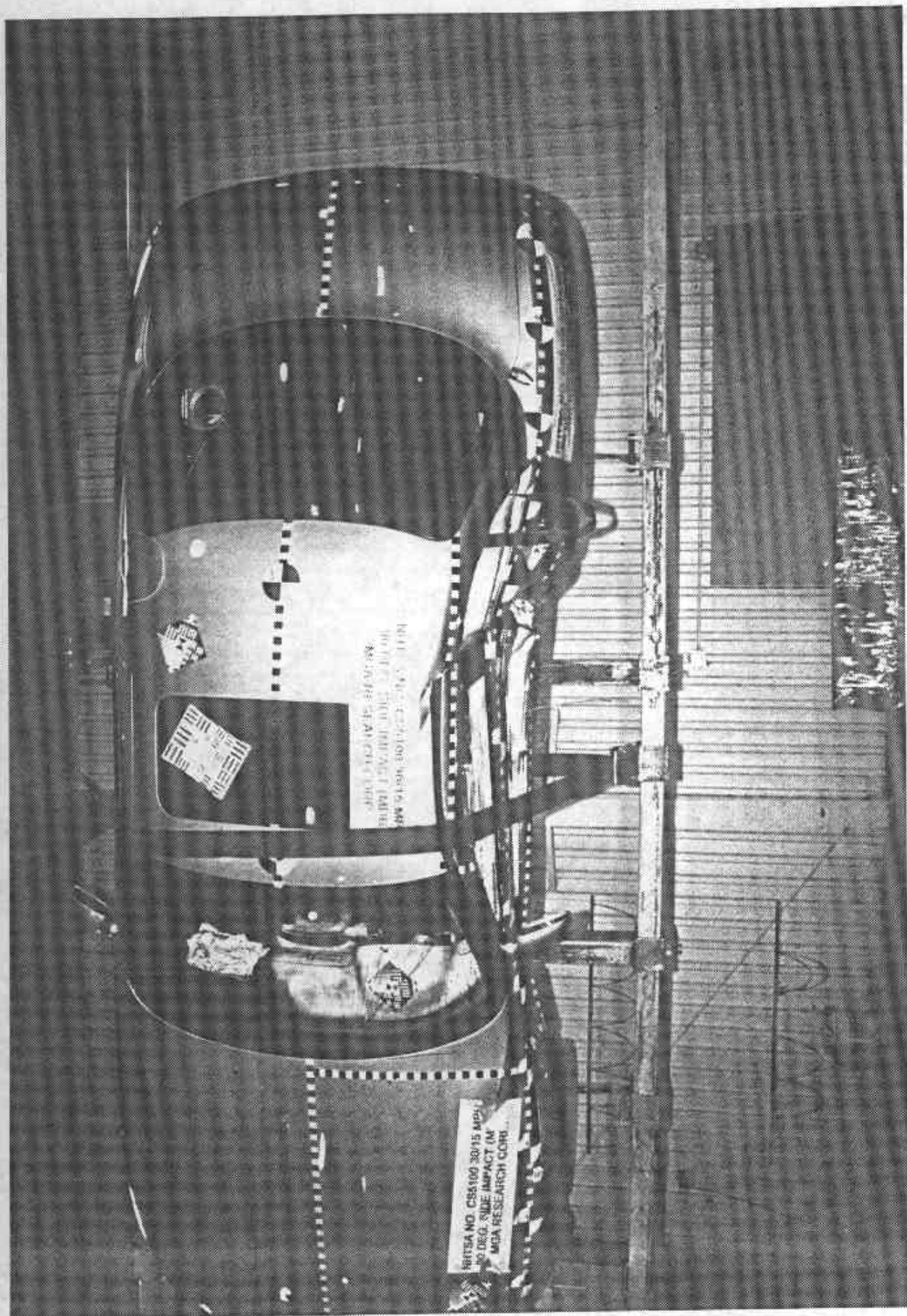


Photo No. A-37 - Rollover 270°

A-37

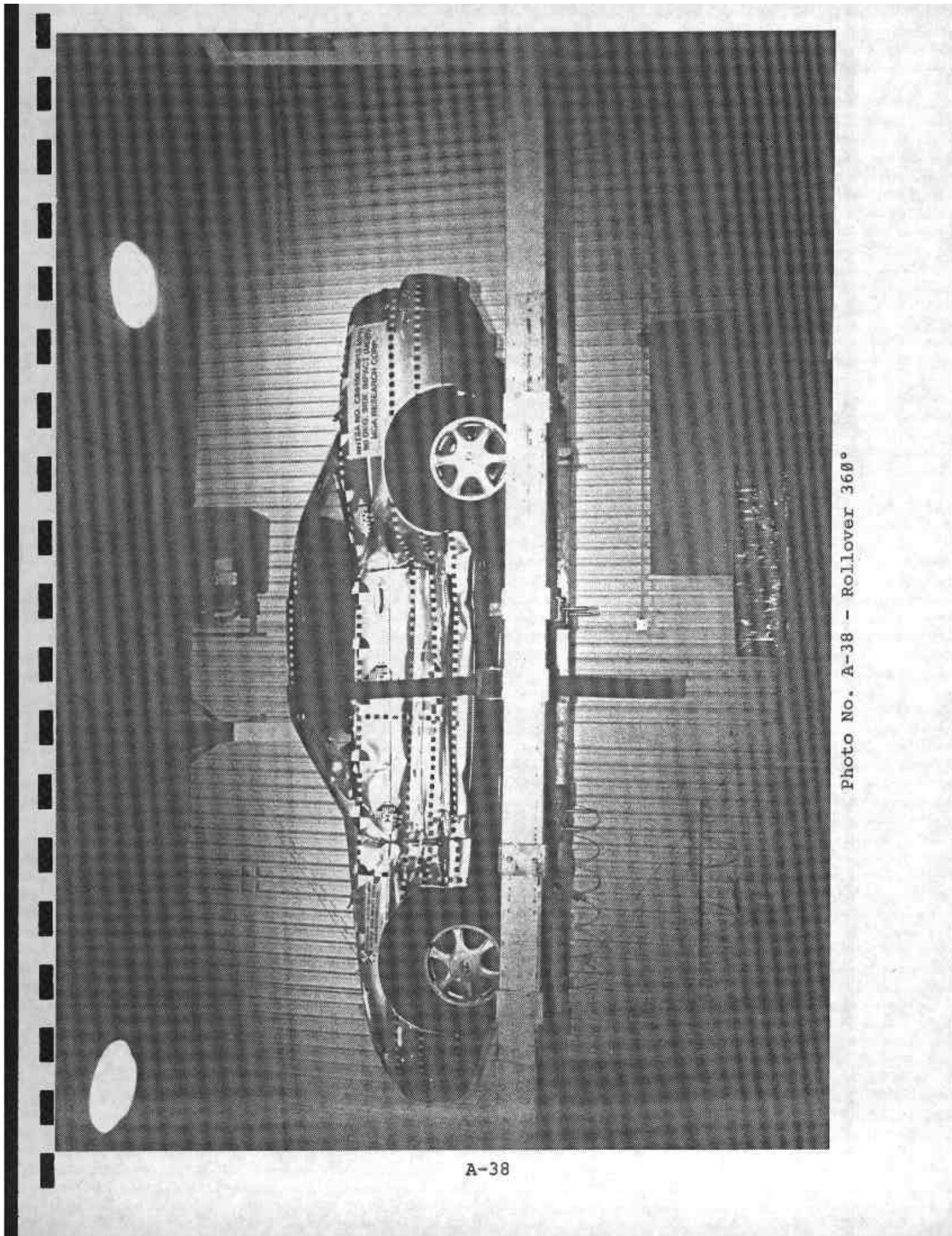


Photo No. A-38 - Rollover 360°

APPENDIX B - DATA PLOTS

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Filter: Class 180 (300 Hz)

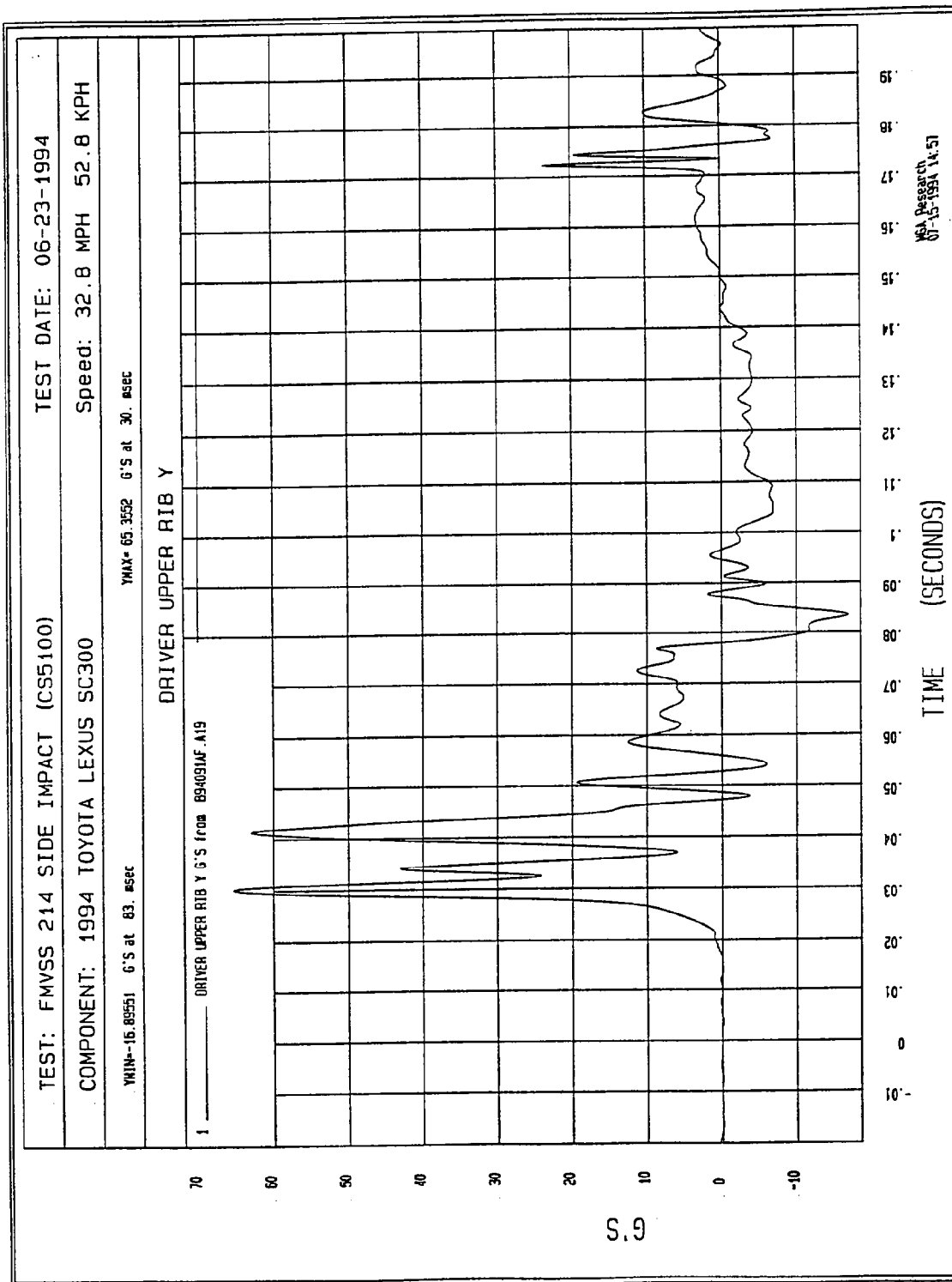


Figure B-1 - Driver Upper Rib Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

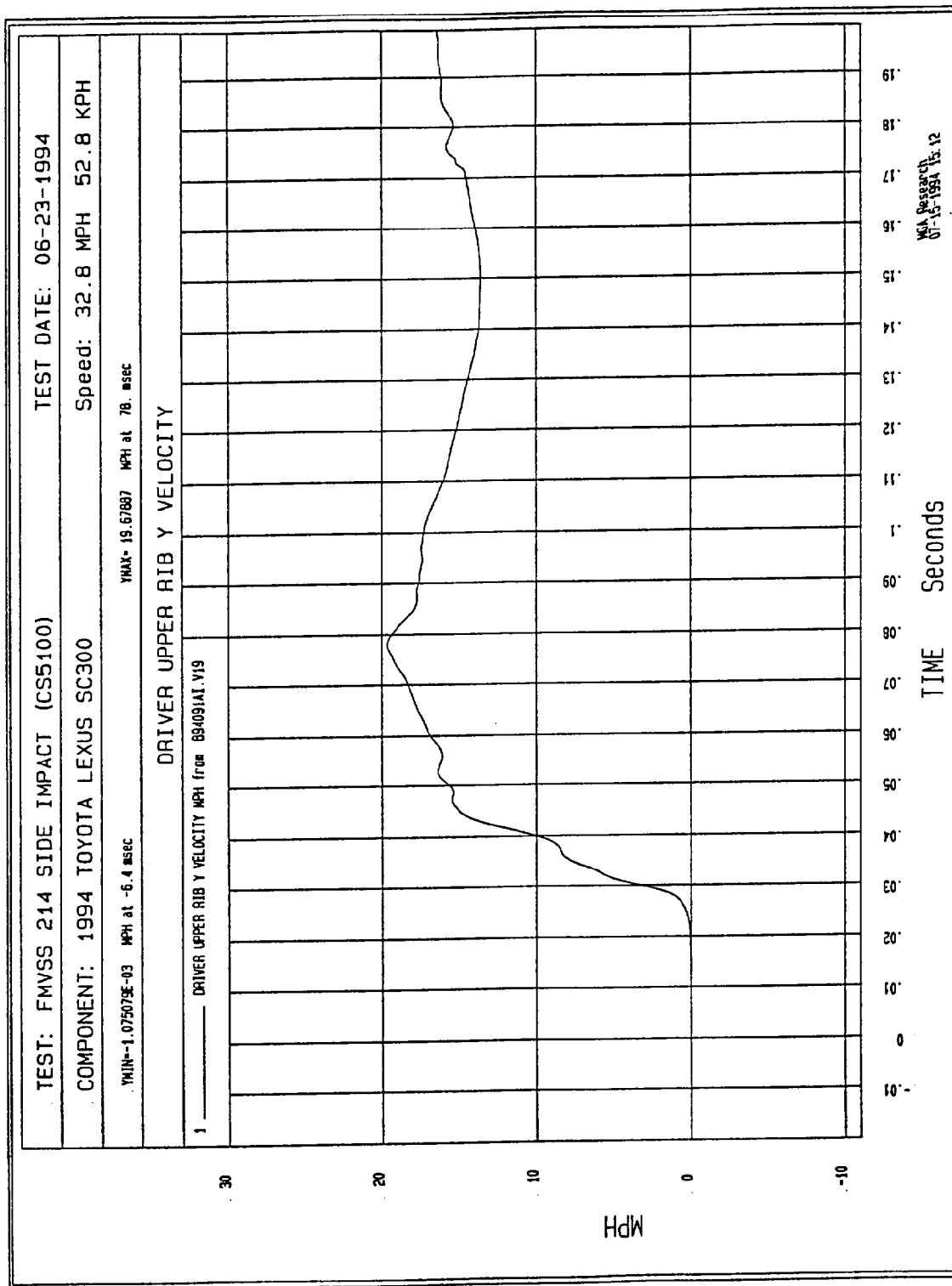


Figure B-2 - Driver Upper Rib Y Velocity vs. Time

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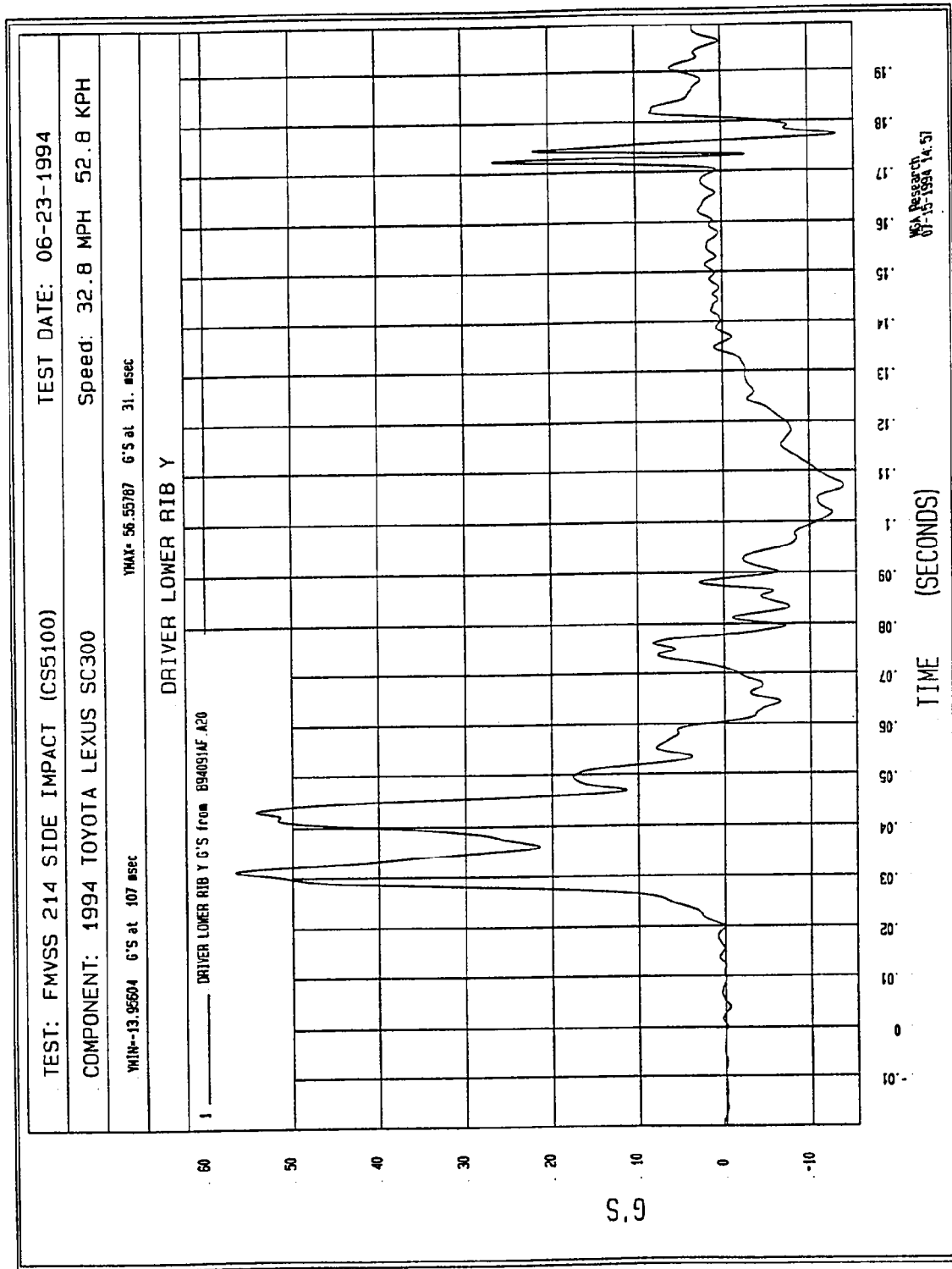


Figure B-3 - Driver Lower Rib Y Acceleration vs. Time

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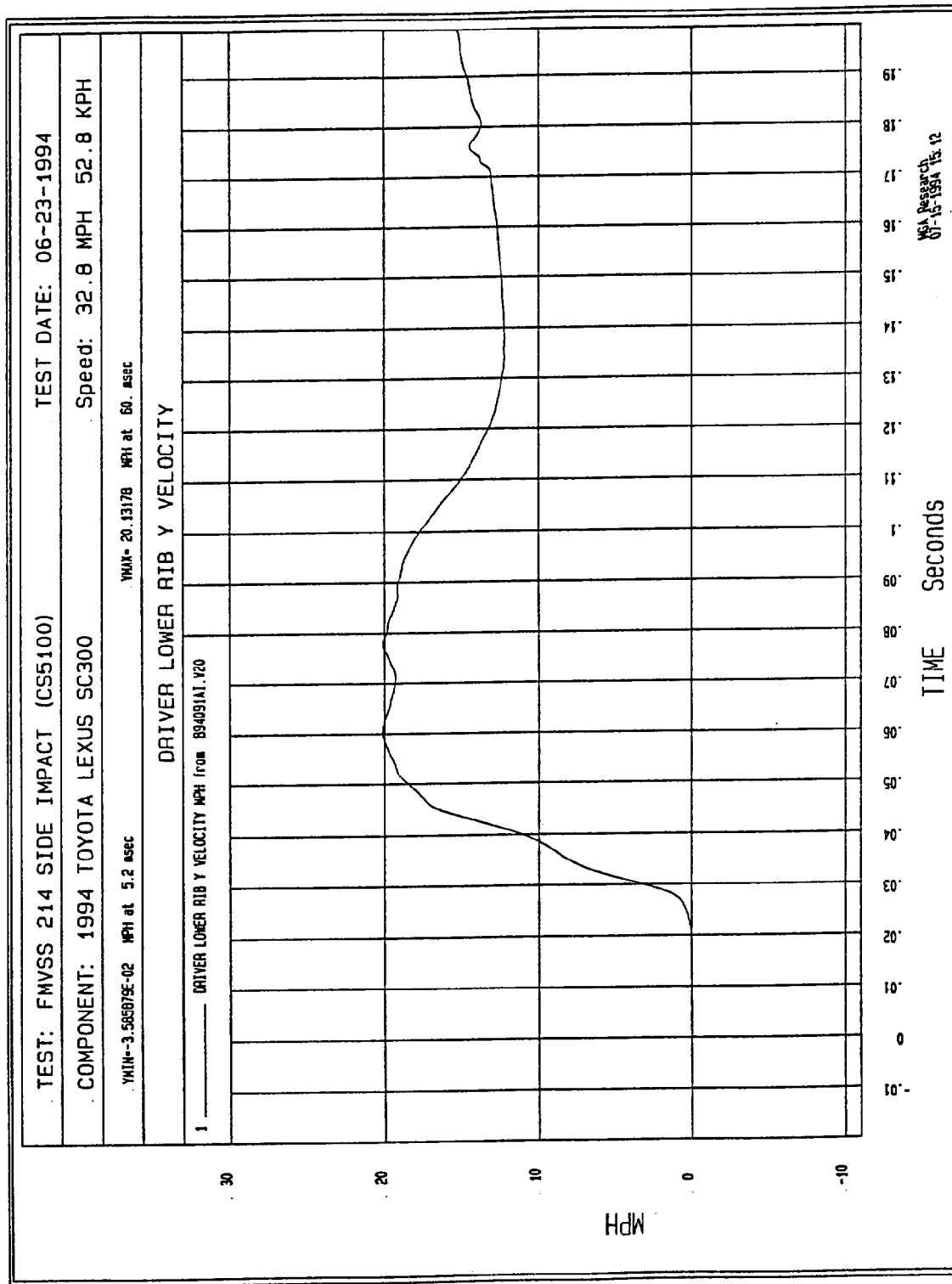


Figure B-4 - Driver Lower Rib Y Velocity vs. Time

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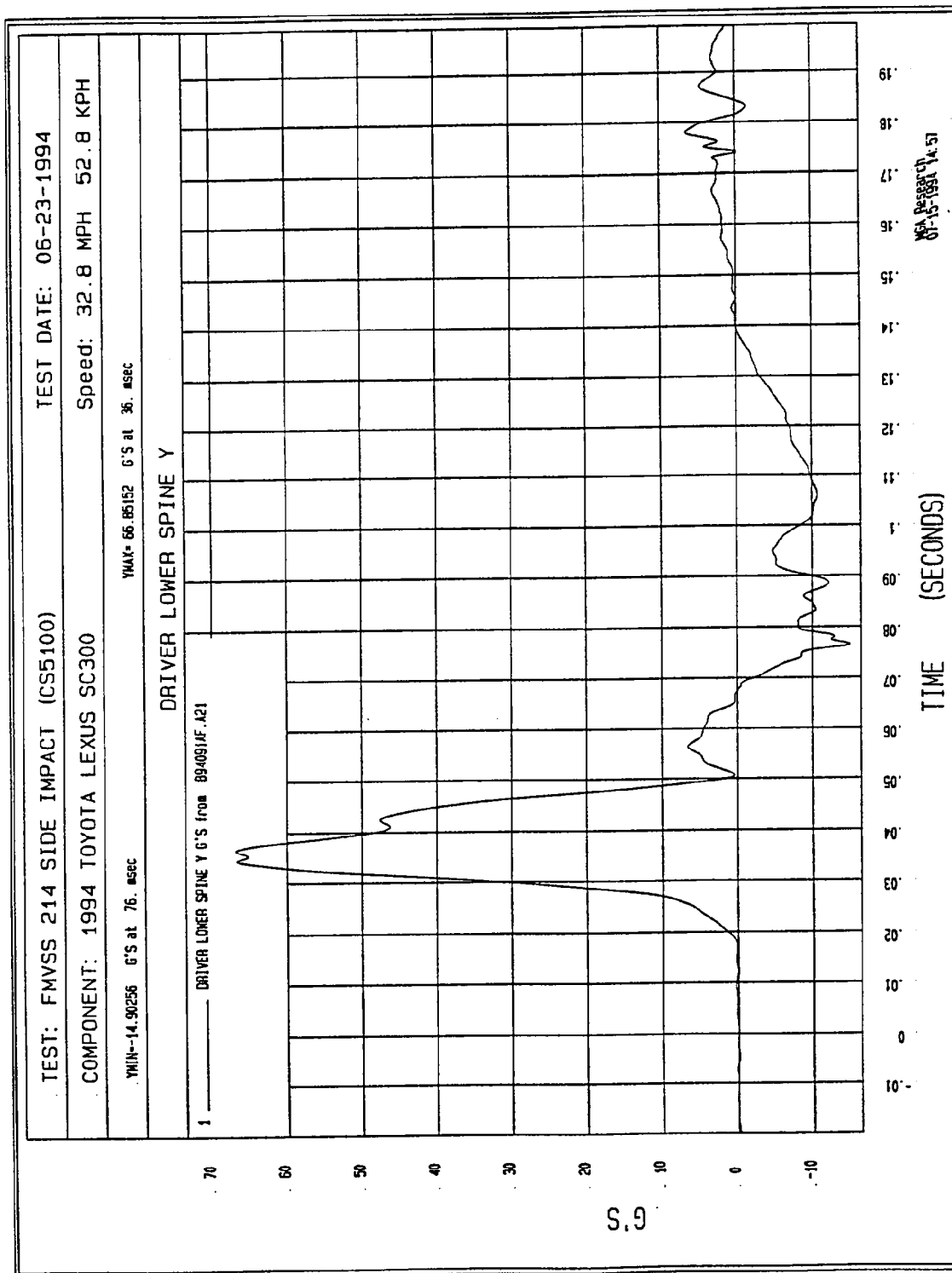


Figure B-5 - Driver Lower Spine Y Acceleration vs. Time

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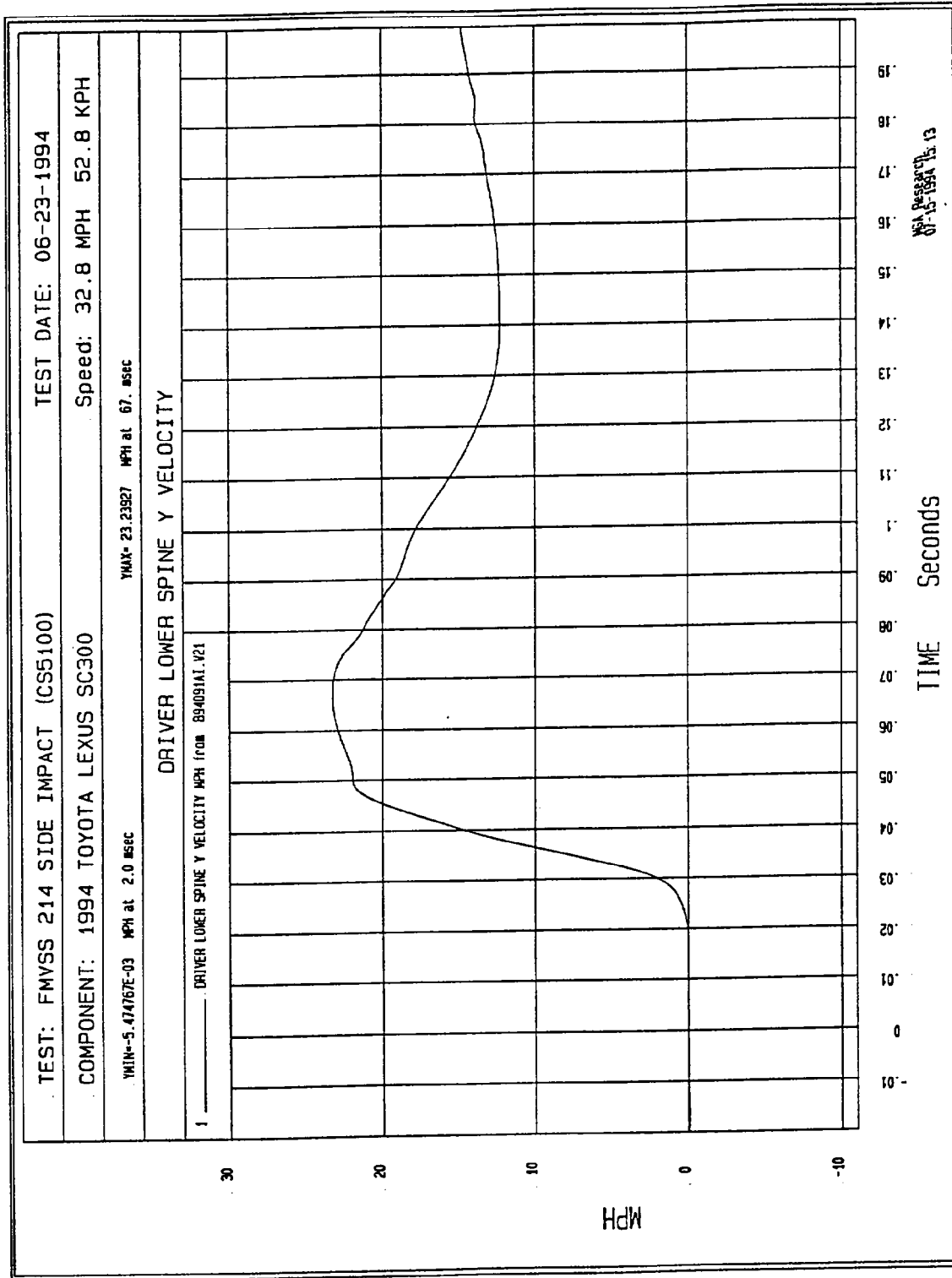


Figure B-6 - Driver Lower Spine Y Velocity vs. Time

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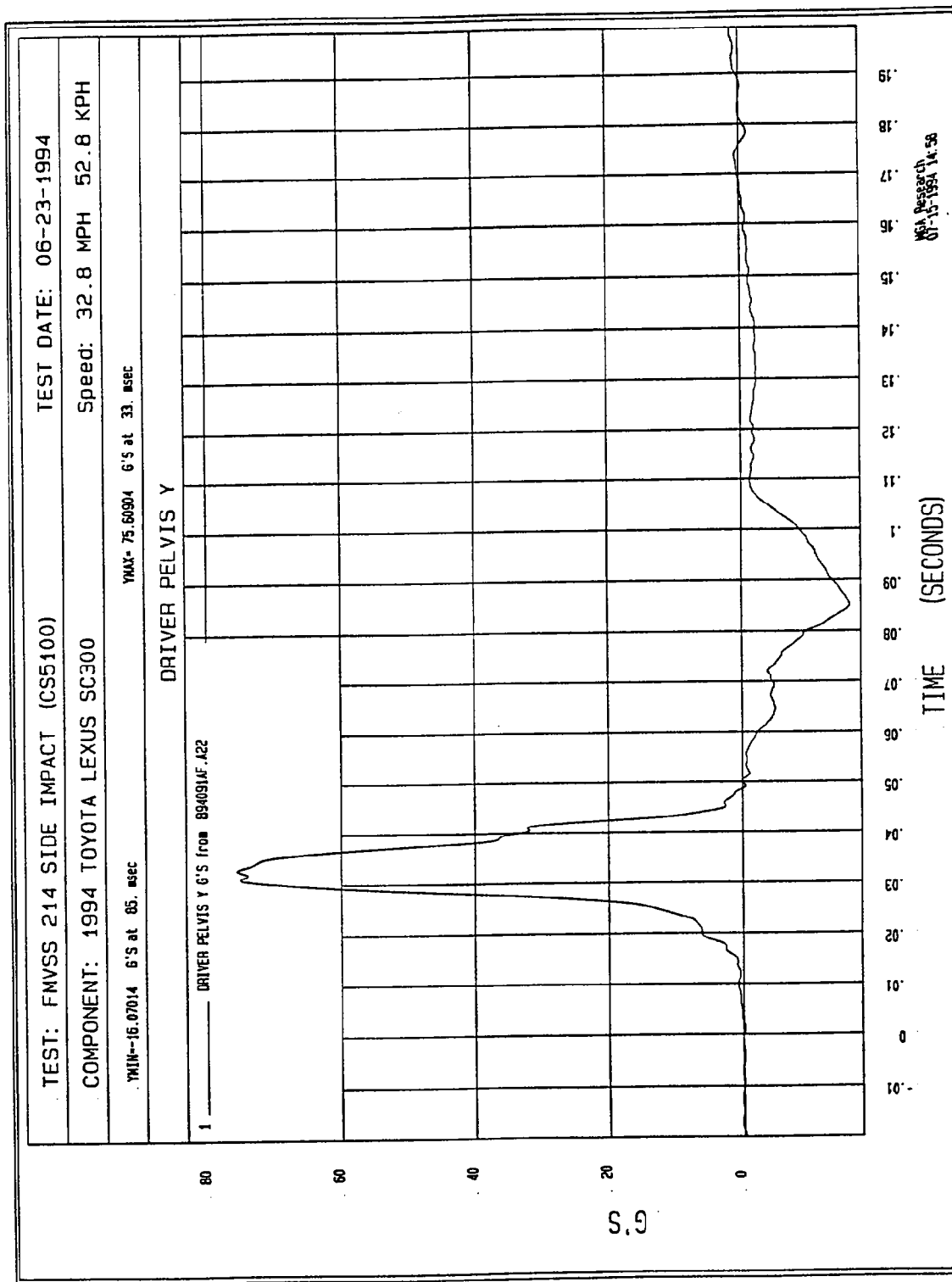


Figure B-7 - Driver Pelvis Y Acceleration vs. Time

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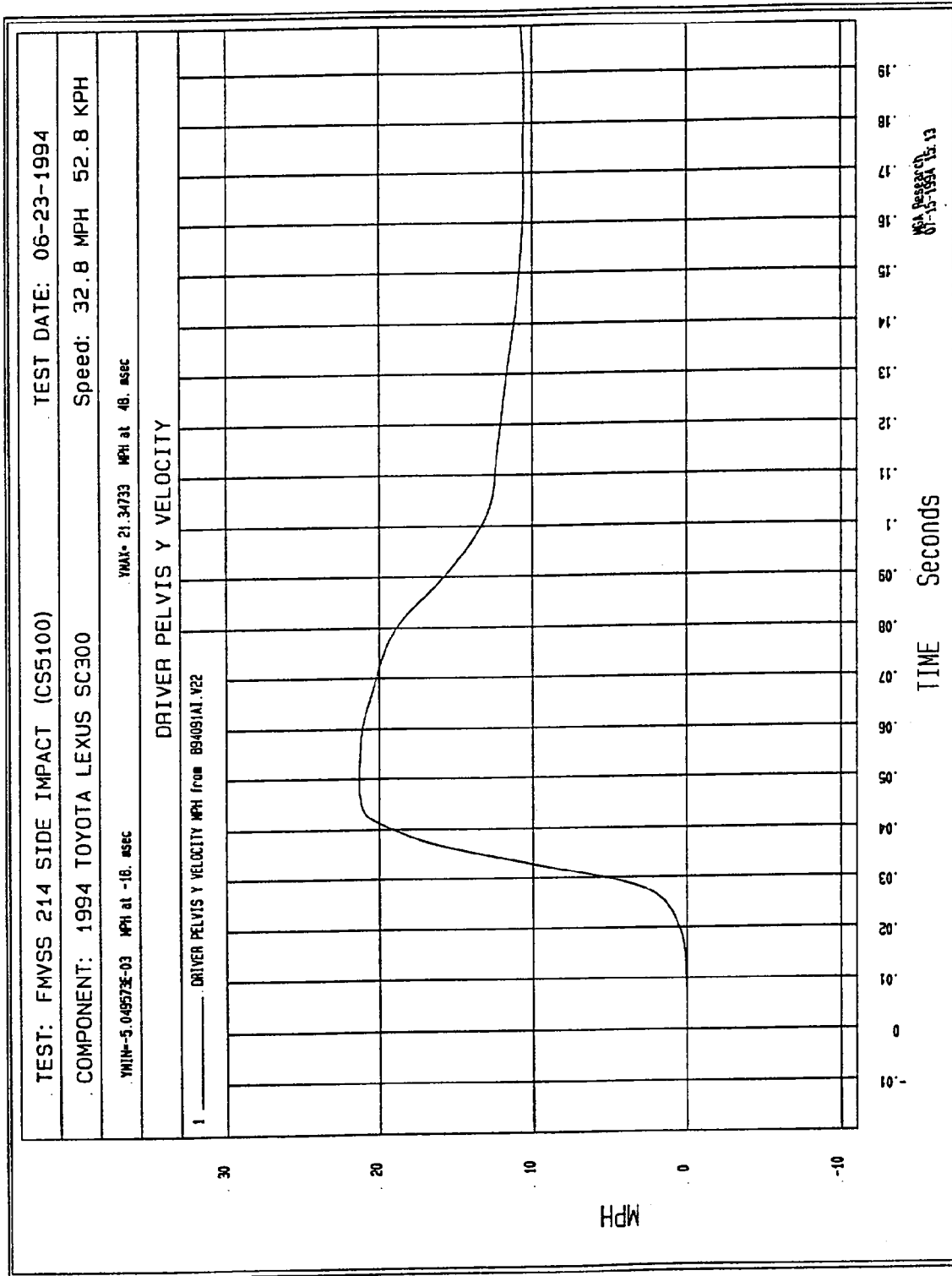


Figure B-8 - Driver Pelvis Y Velocity vs. Time

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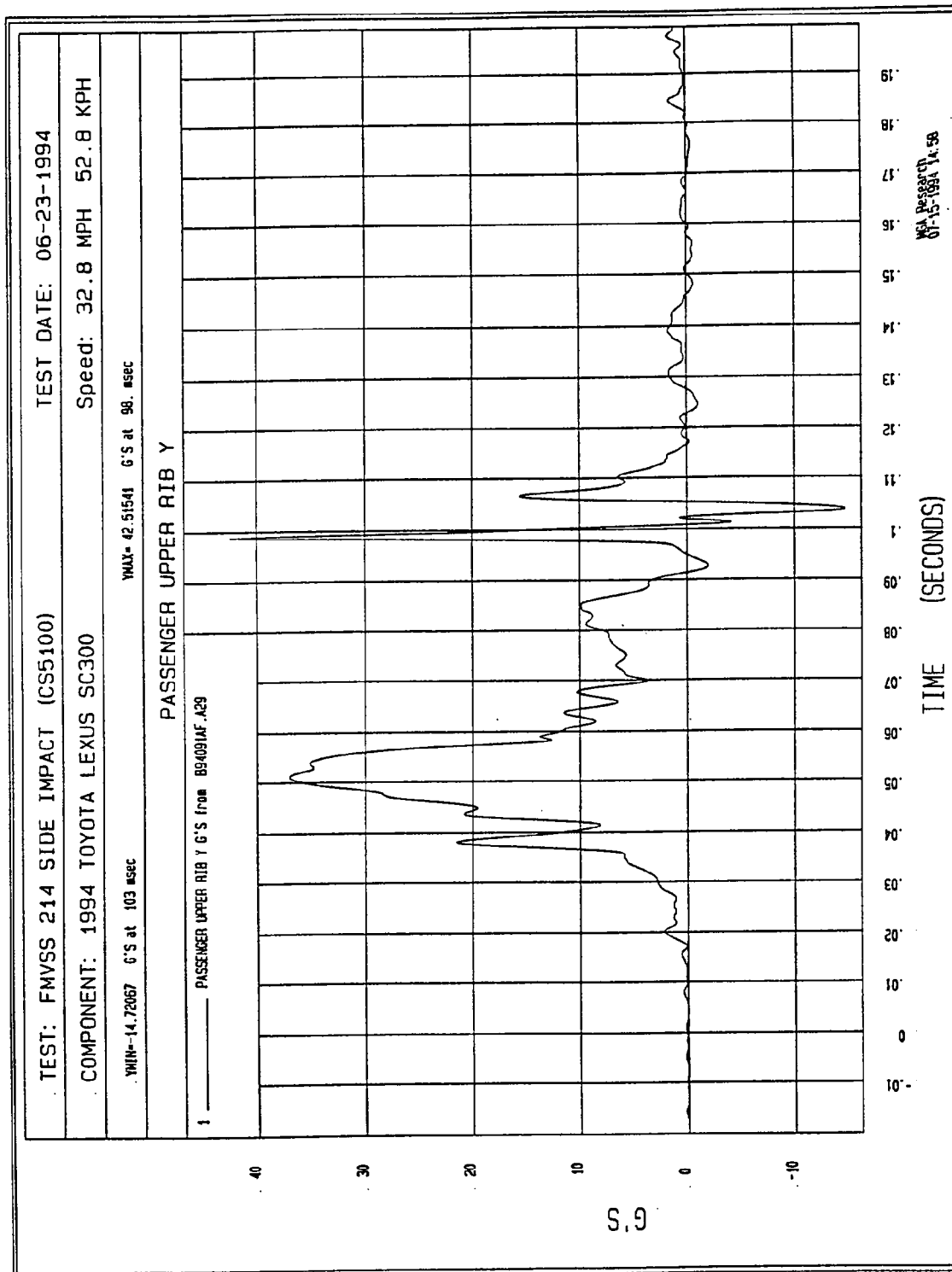


Figure B-9 - Passenger Upper Rib Y Acceleration vs. Time

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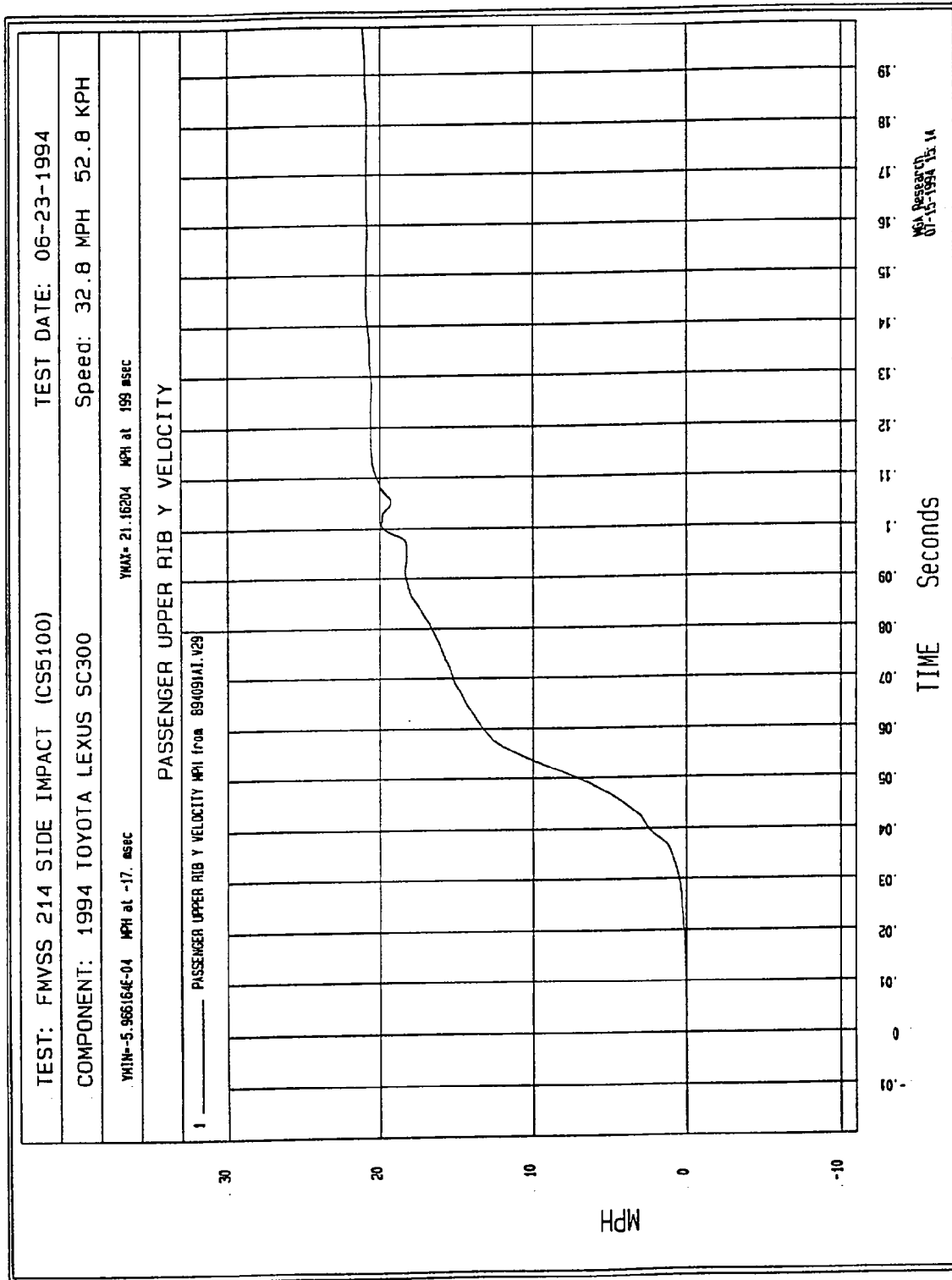


Figure B-10 - Passenger Upper Rib Y Velocity vs. Time

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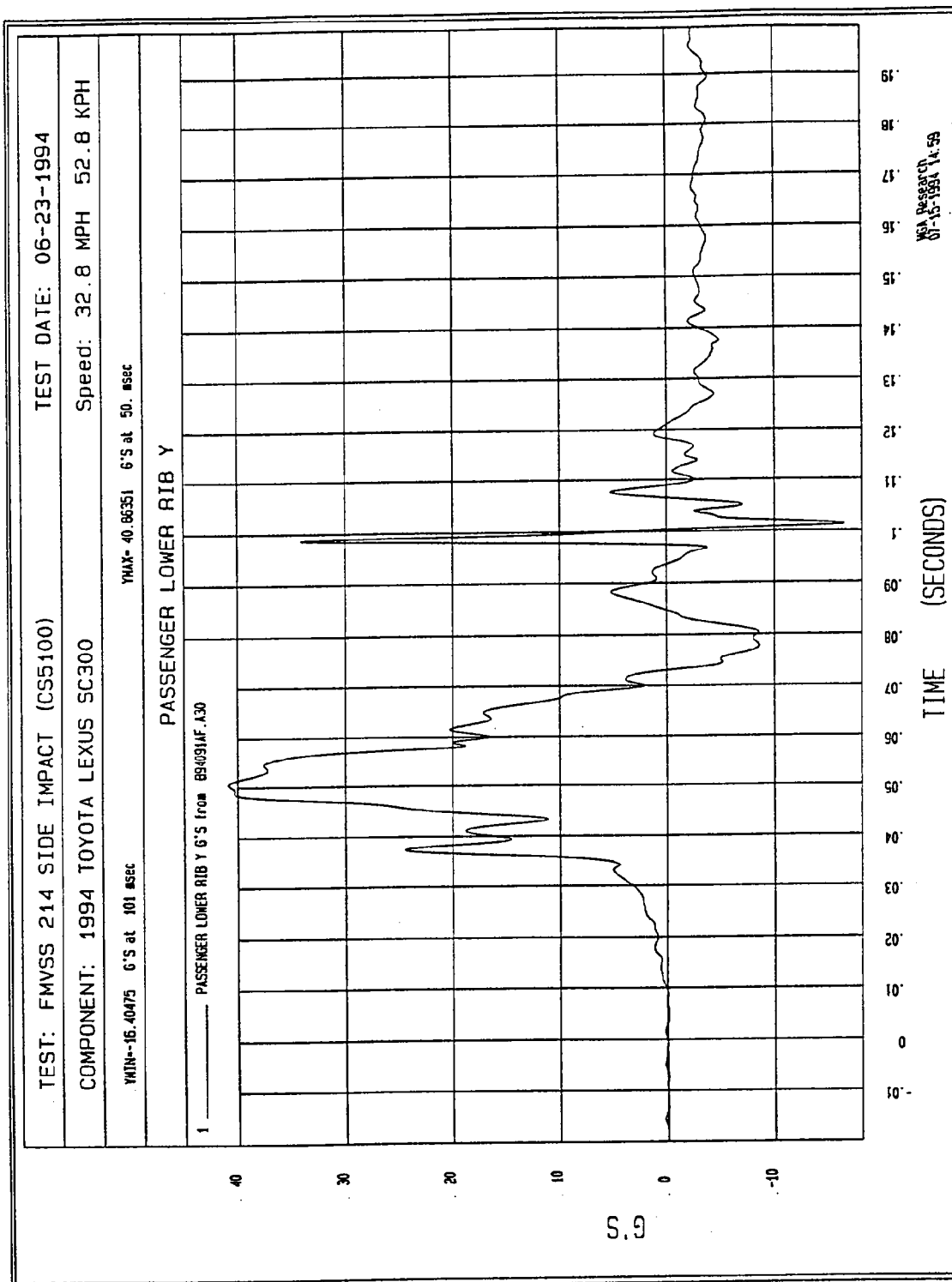


Figure B-11 - Passenger Lower Rib Y Acceleration vs. Time

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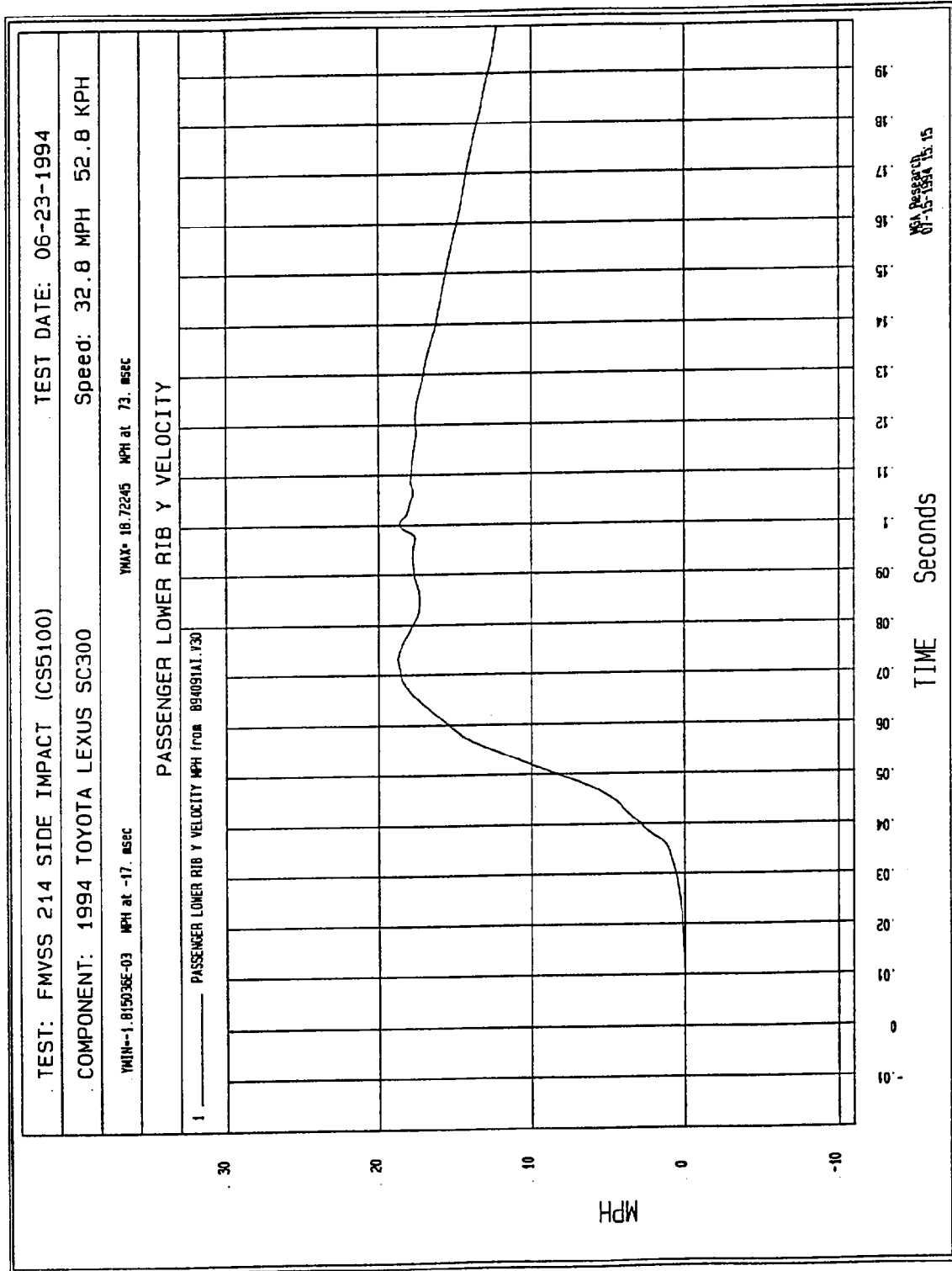


Figure B-12 - Passenger Lower Rib Y Velocity vs. Time

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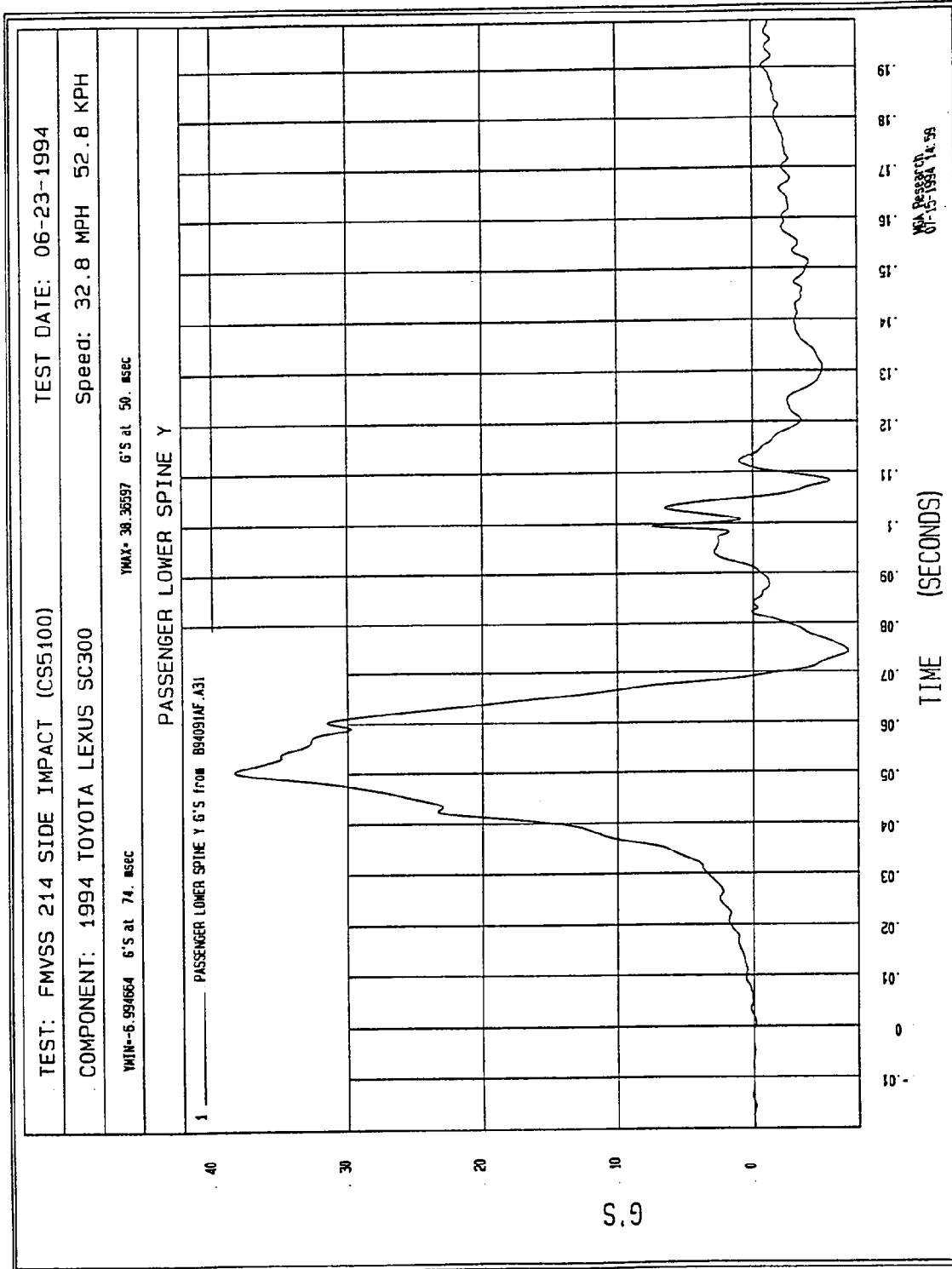


Figure B-13 - Passenger Lower Spine Y Acceleration vs. Time

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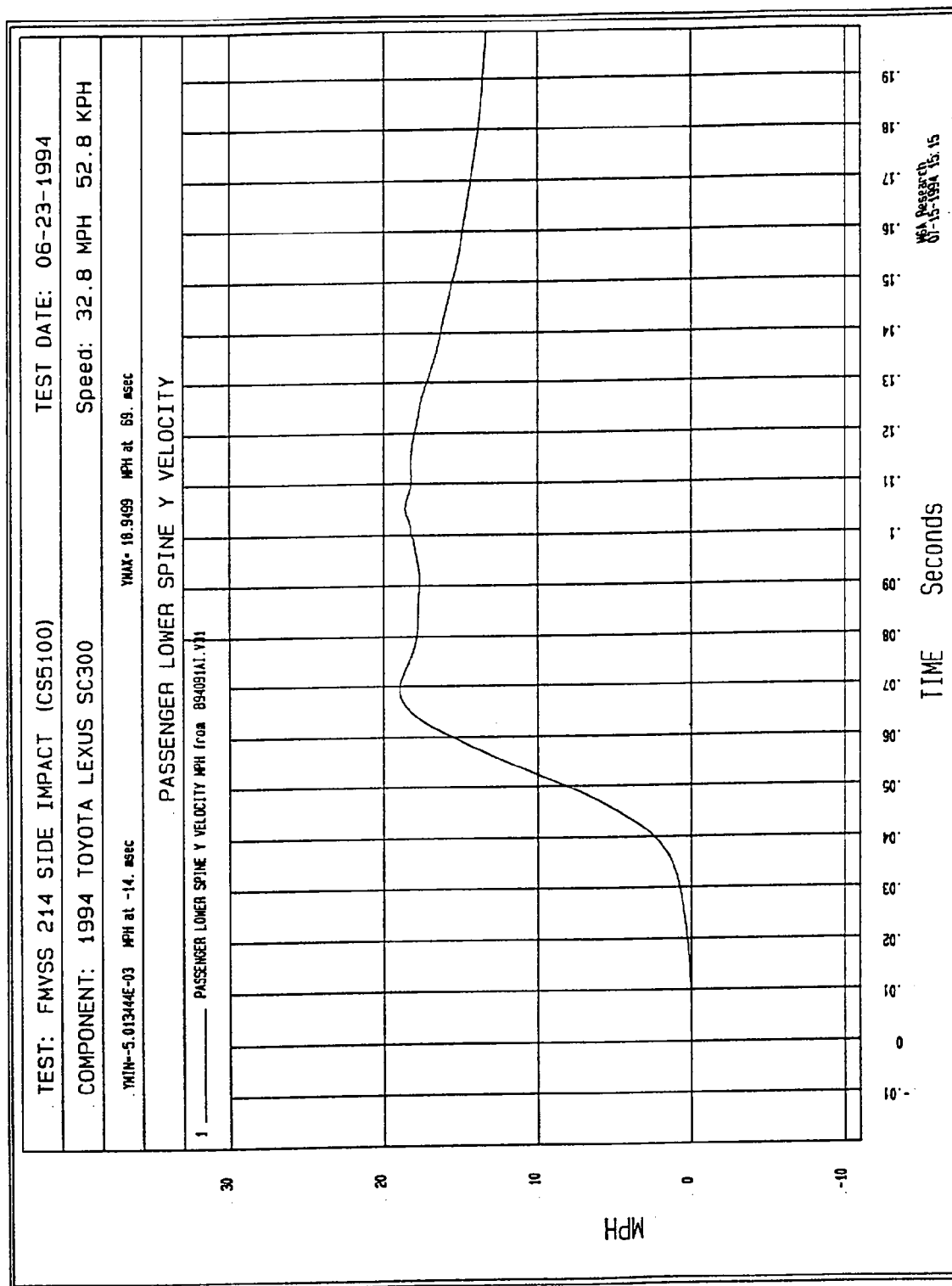


Figure B-14 - Passenger Lower Spine Y Velocity vs. Time

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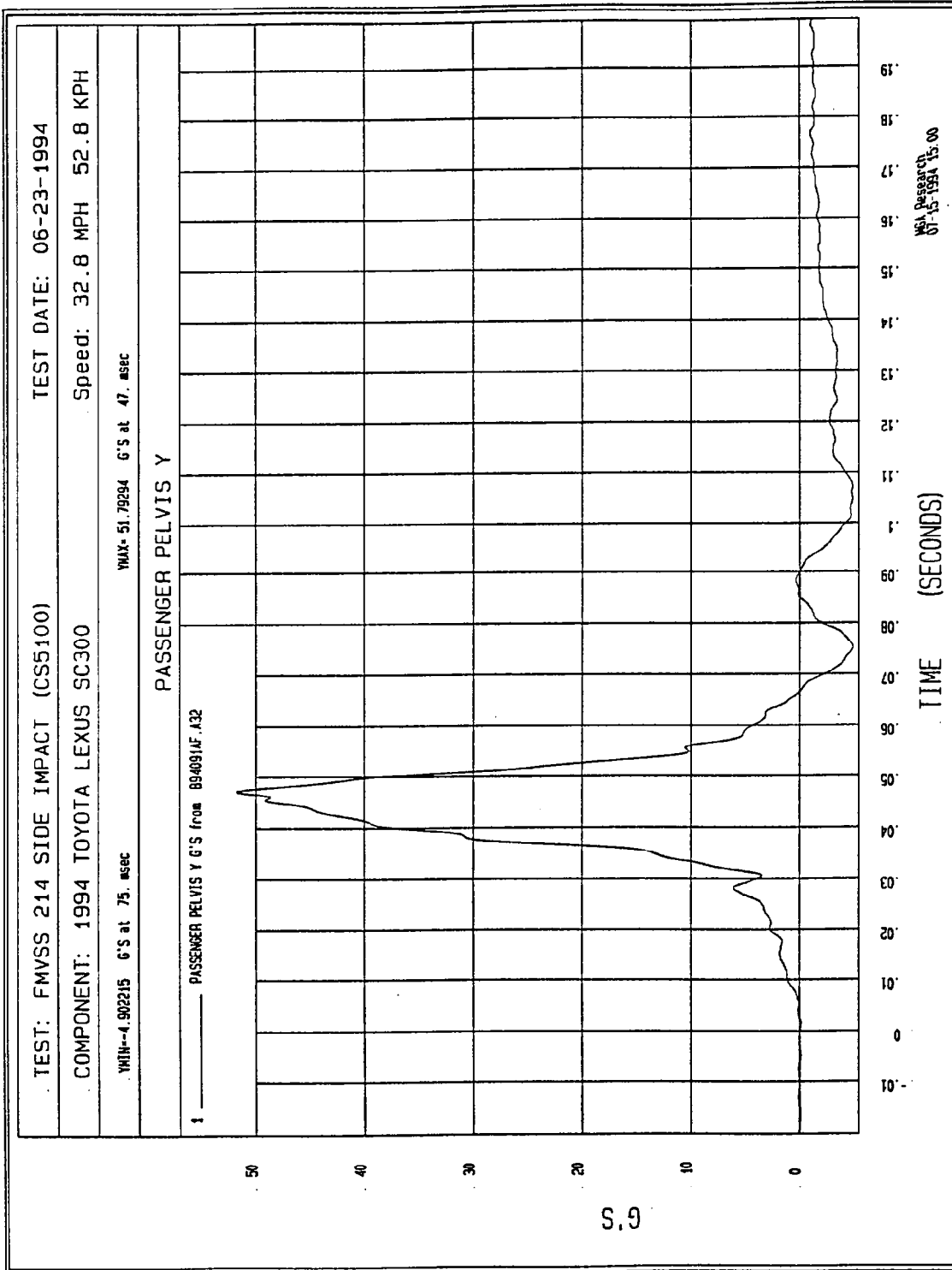


Figure B-15 - Passenger Pelvis Y Acceleration vs. Time

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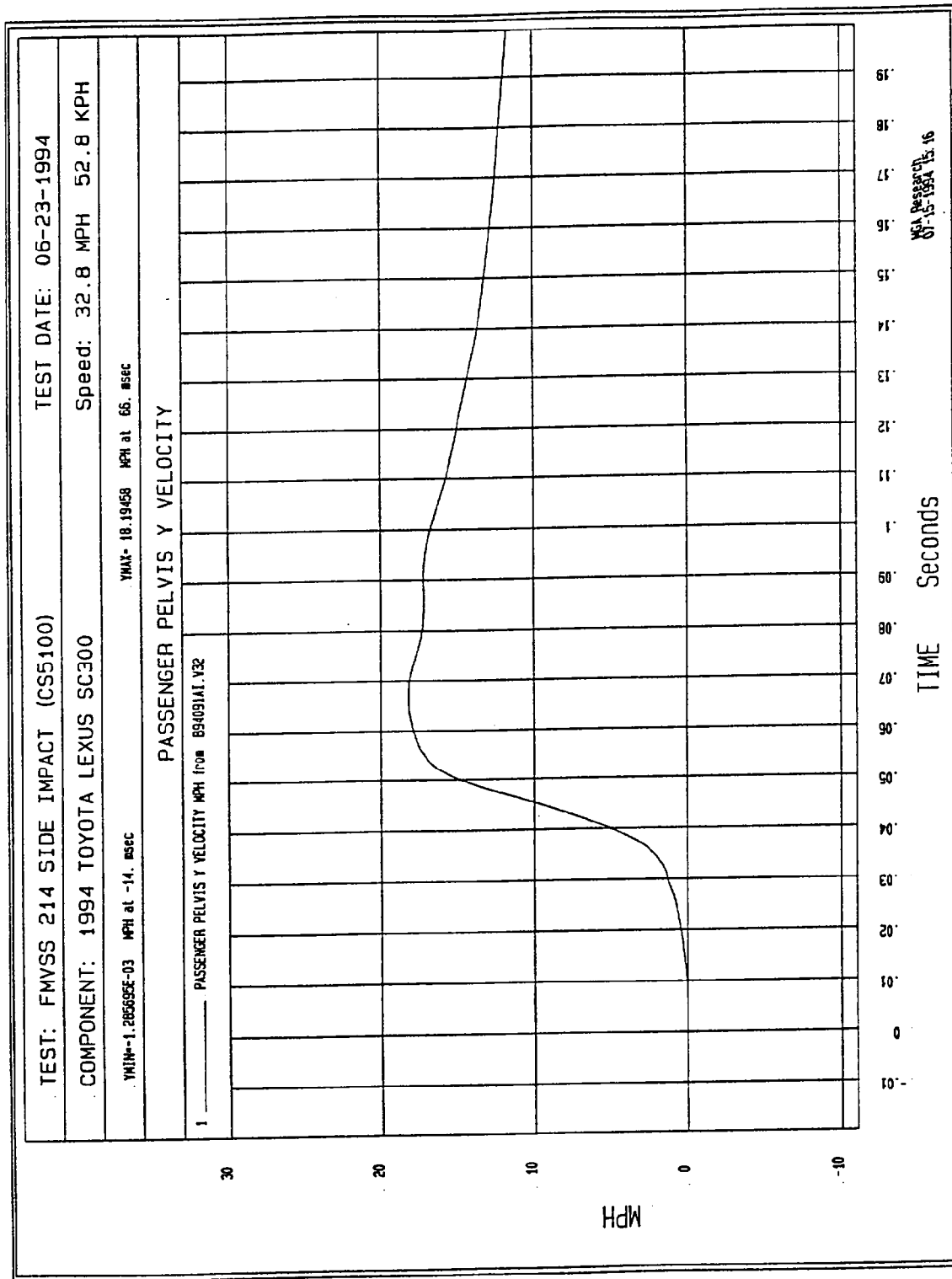


Figure B-16 - Passenger pelvis Y Velocity vs. Time

Filter: Class 60 (100 Hz)

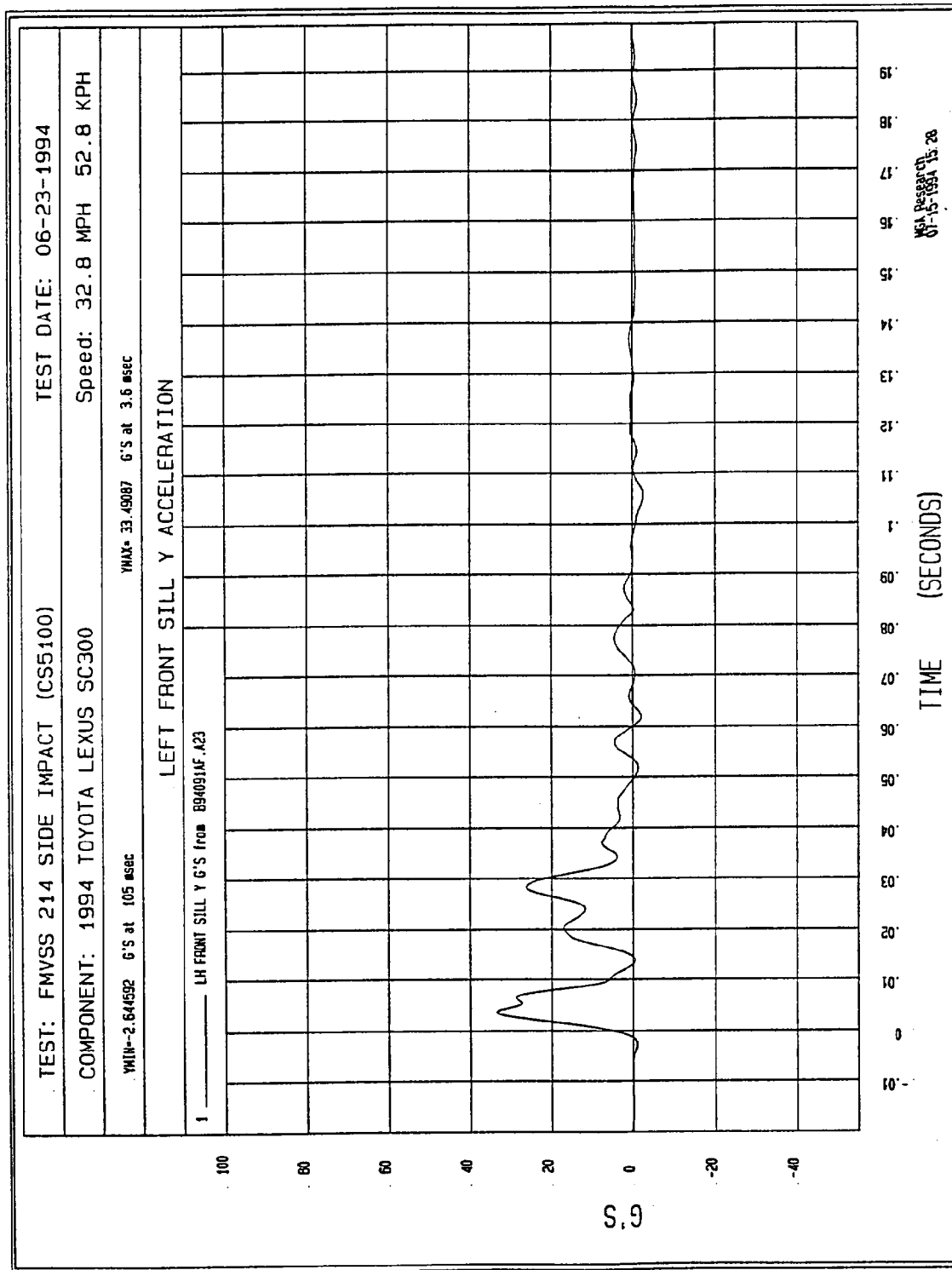


Figure B-17 - Left Front Sill Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

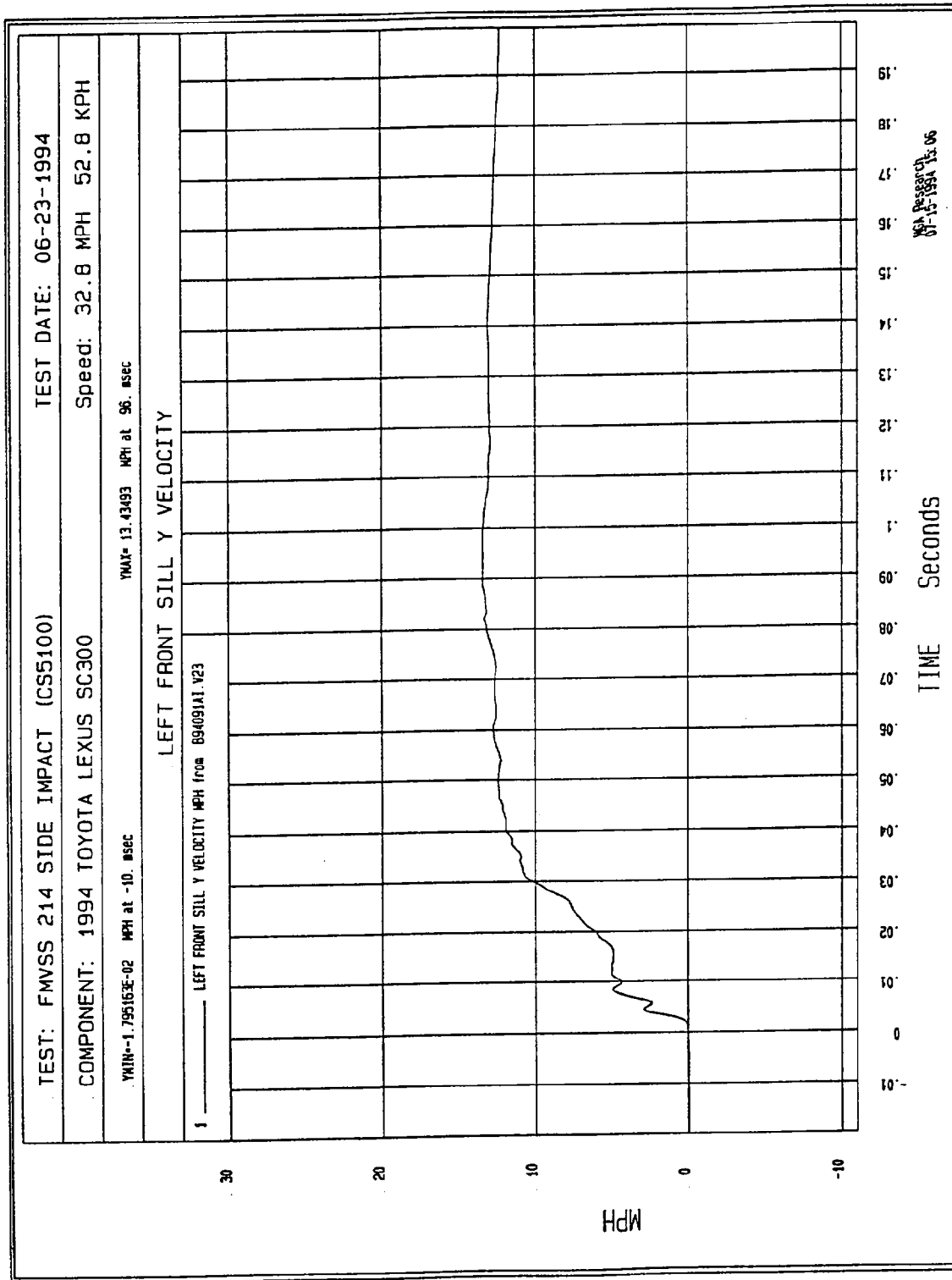


Figure B-18 - Left Front Sill Y Velocity vs. Time

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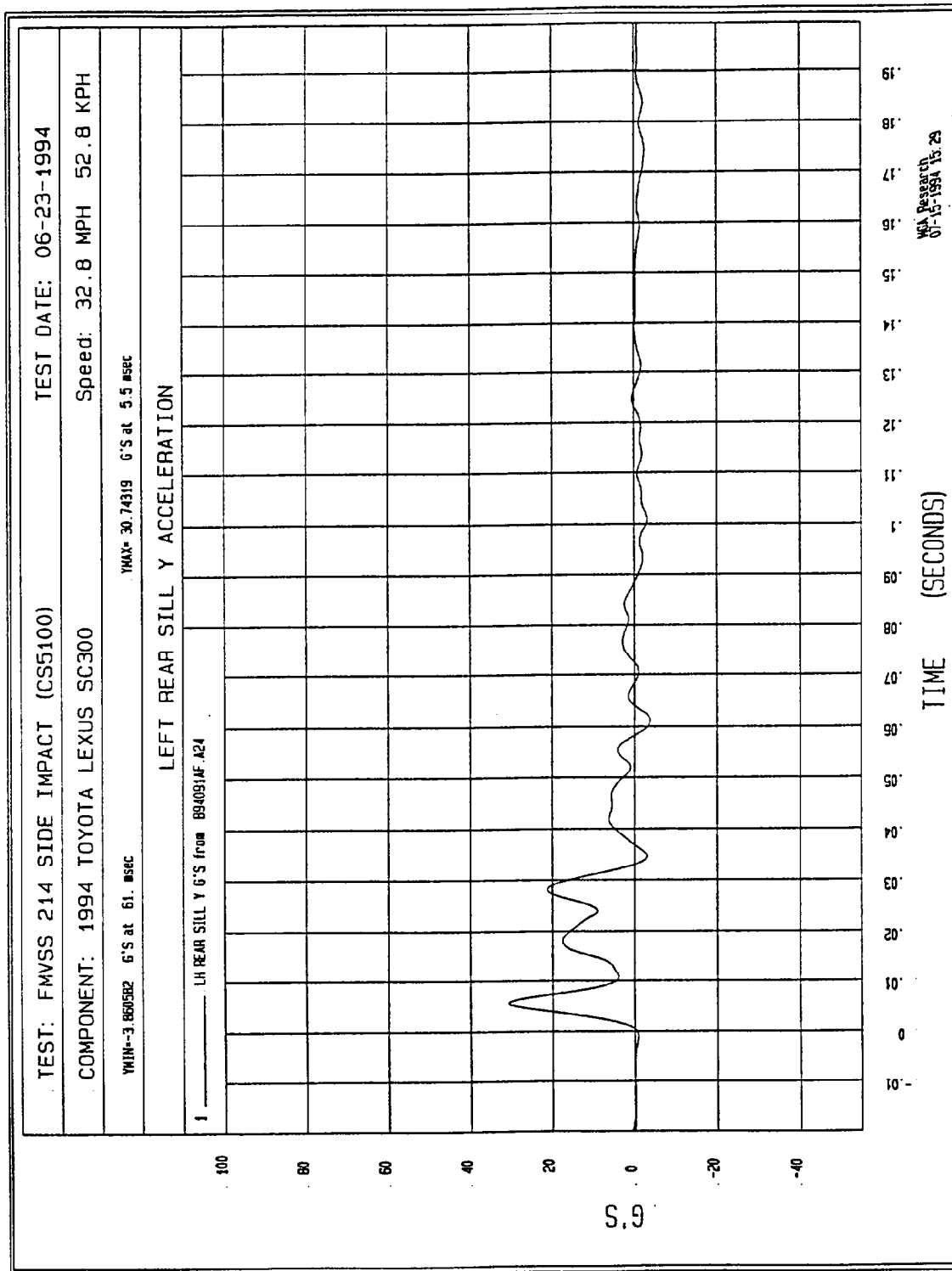


Figure B-19 - Left Rear Sill Y Acceleration vs. Time

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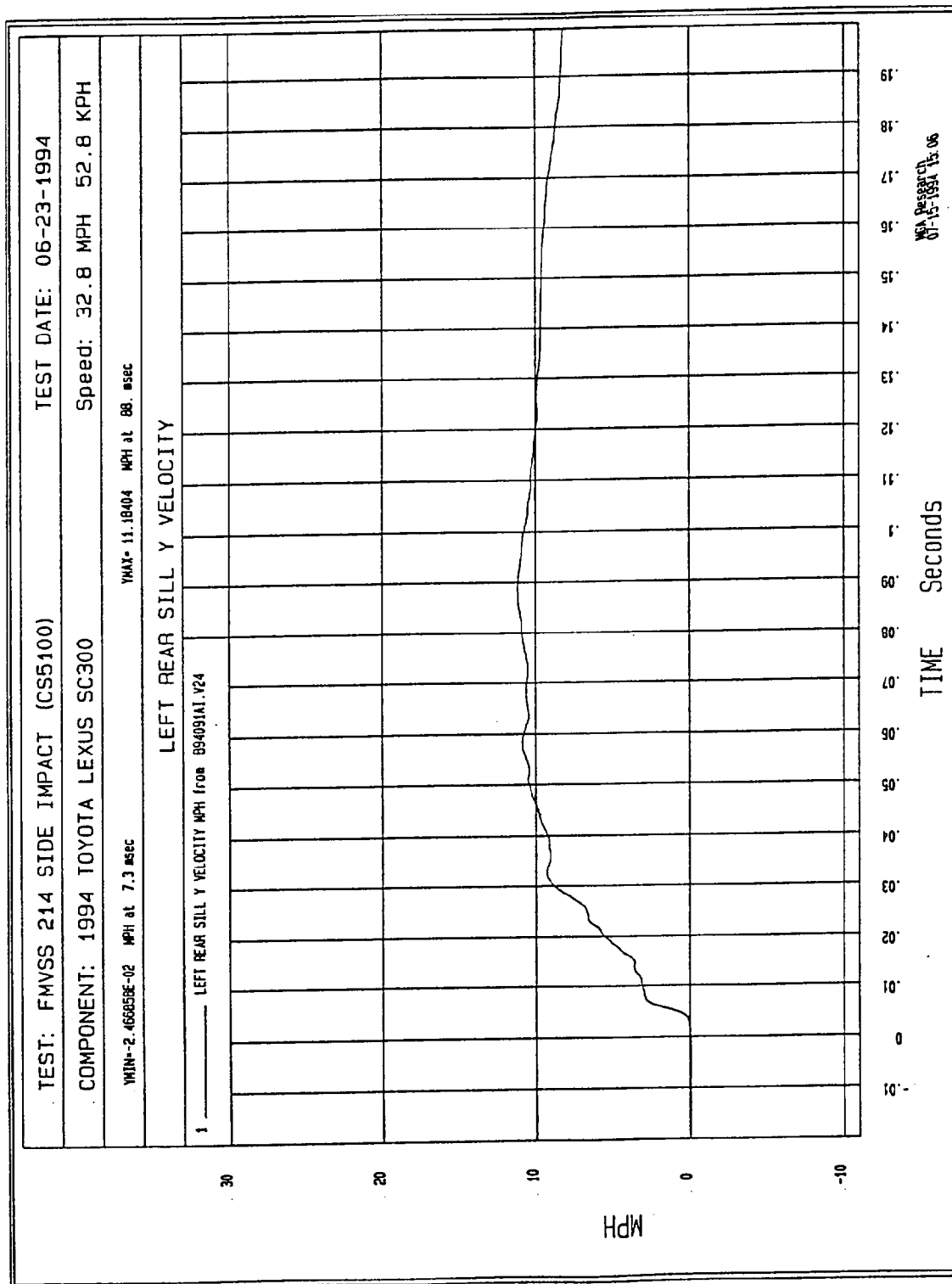


Figure B-20 - Left Rear Sill Y Velocity vs. Time

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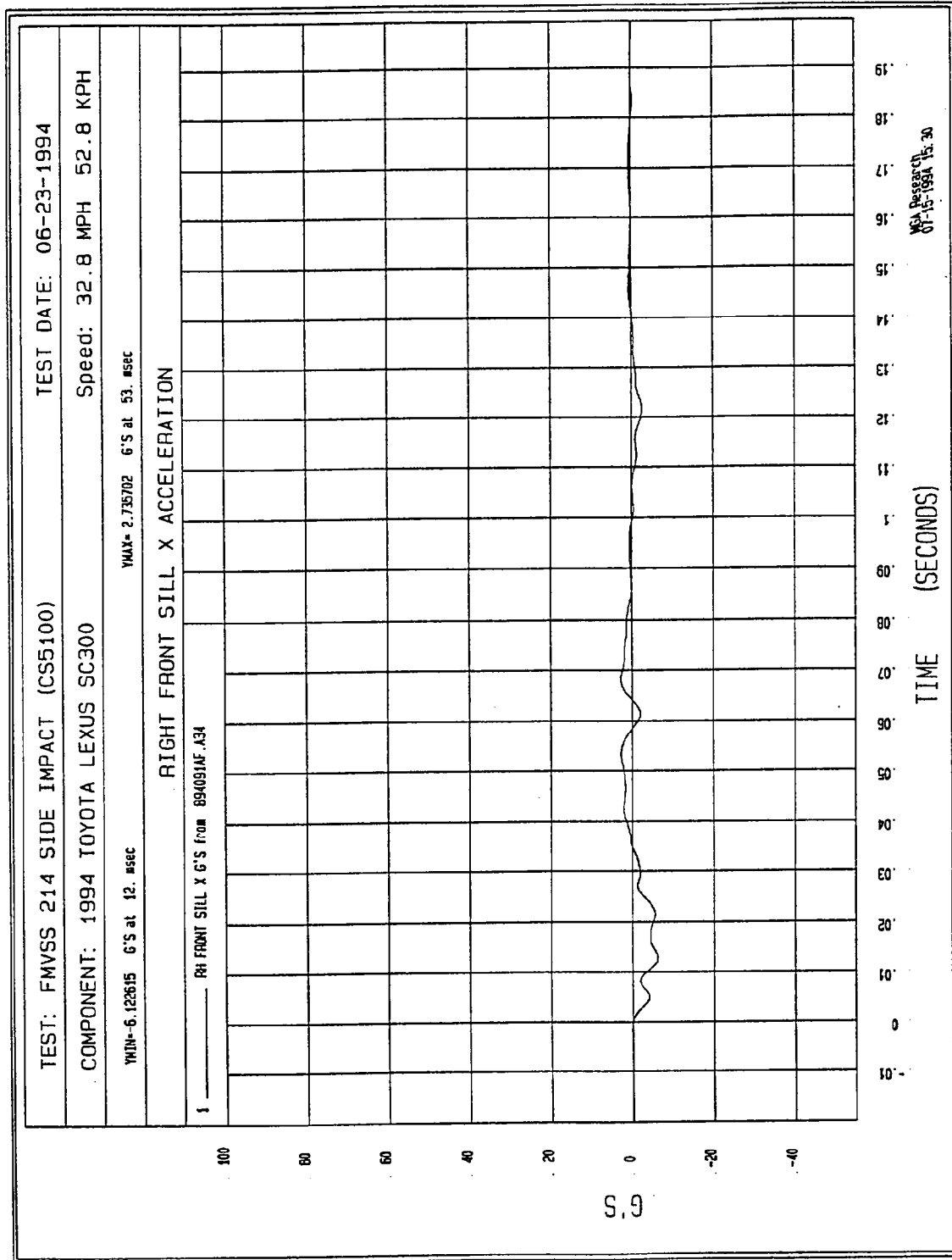


Figure B-21 - Right Front Sill X Acceleration vs. Time

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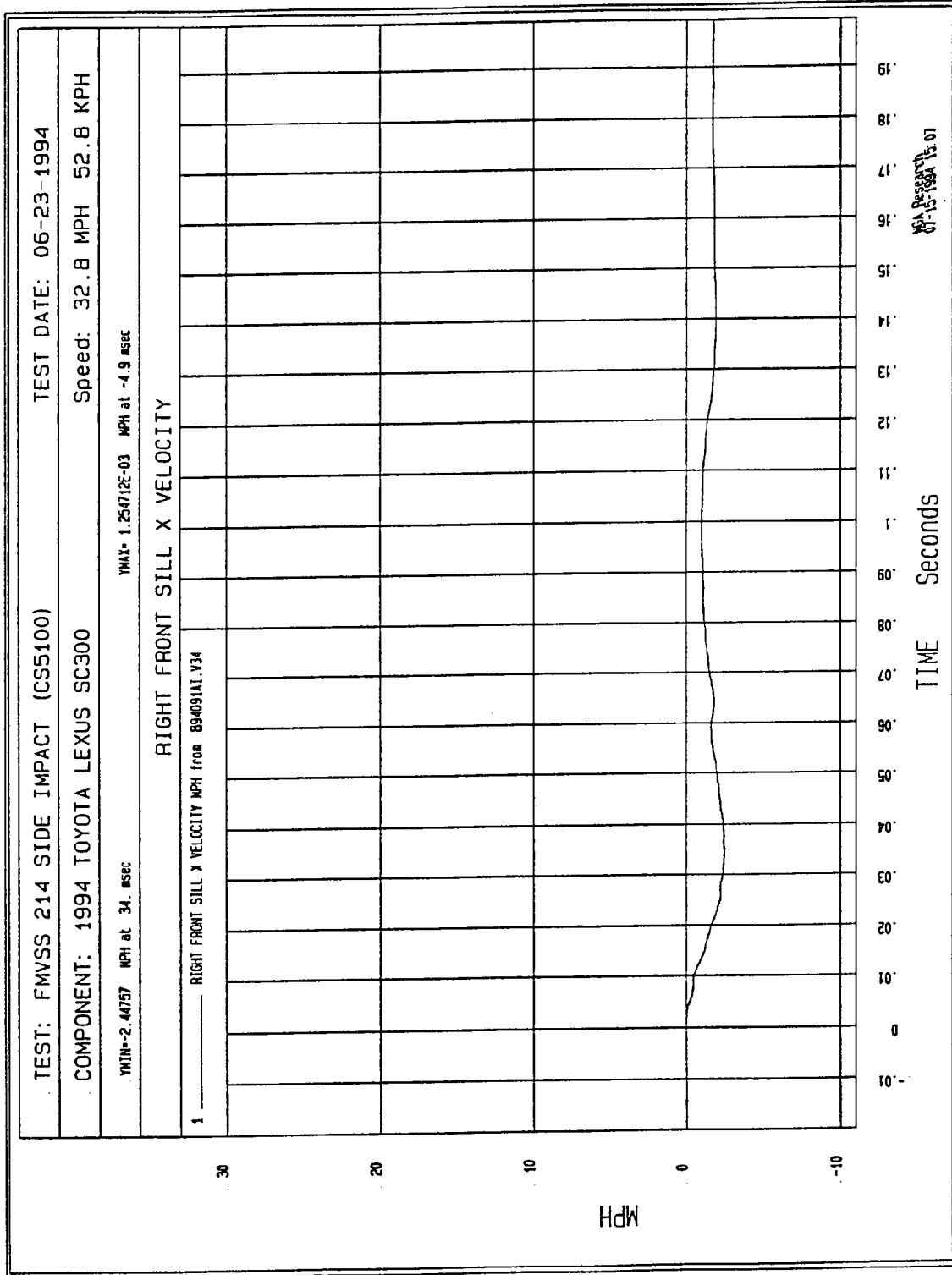


Figure B-22 - Right Front Sill x Velocity vs. Time

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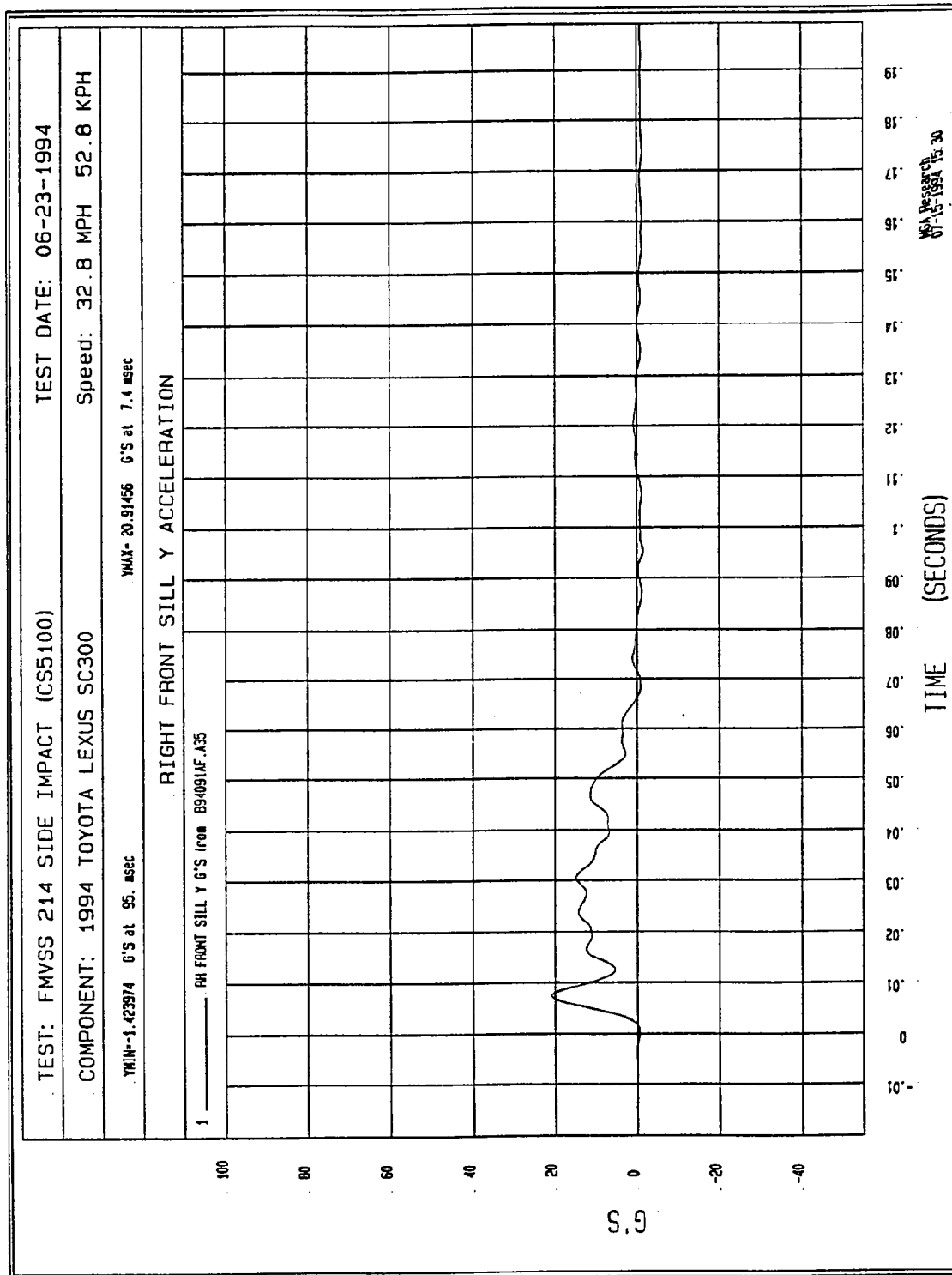


Figure B-23 - Right Front Sill Y Acceleration vs. Time

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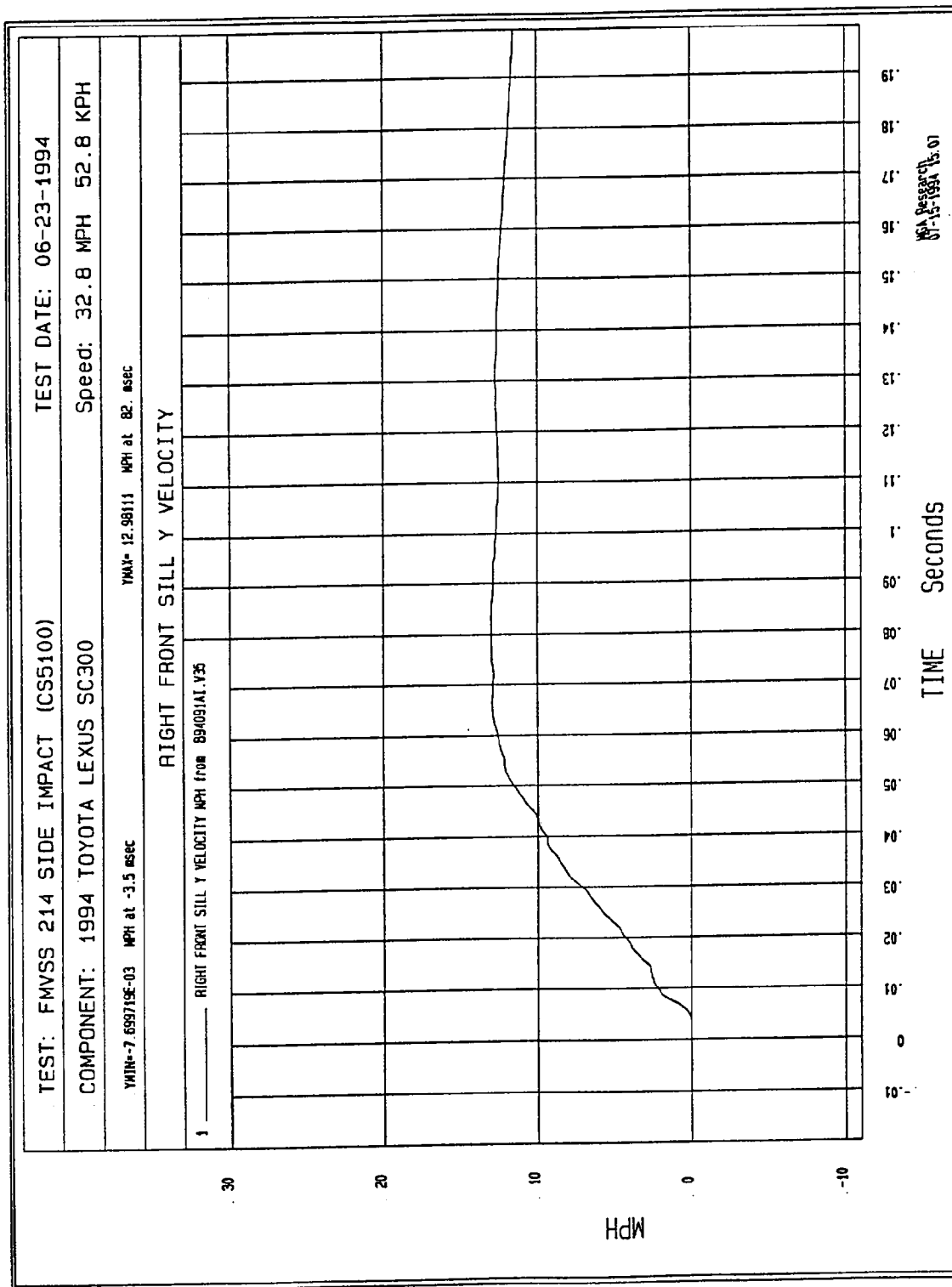


Figure B-24 - Right Front Sill Y Velocity vs. Time

Filter: Class 60 (100 Hz)

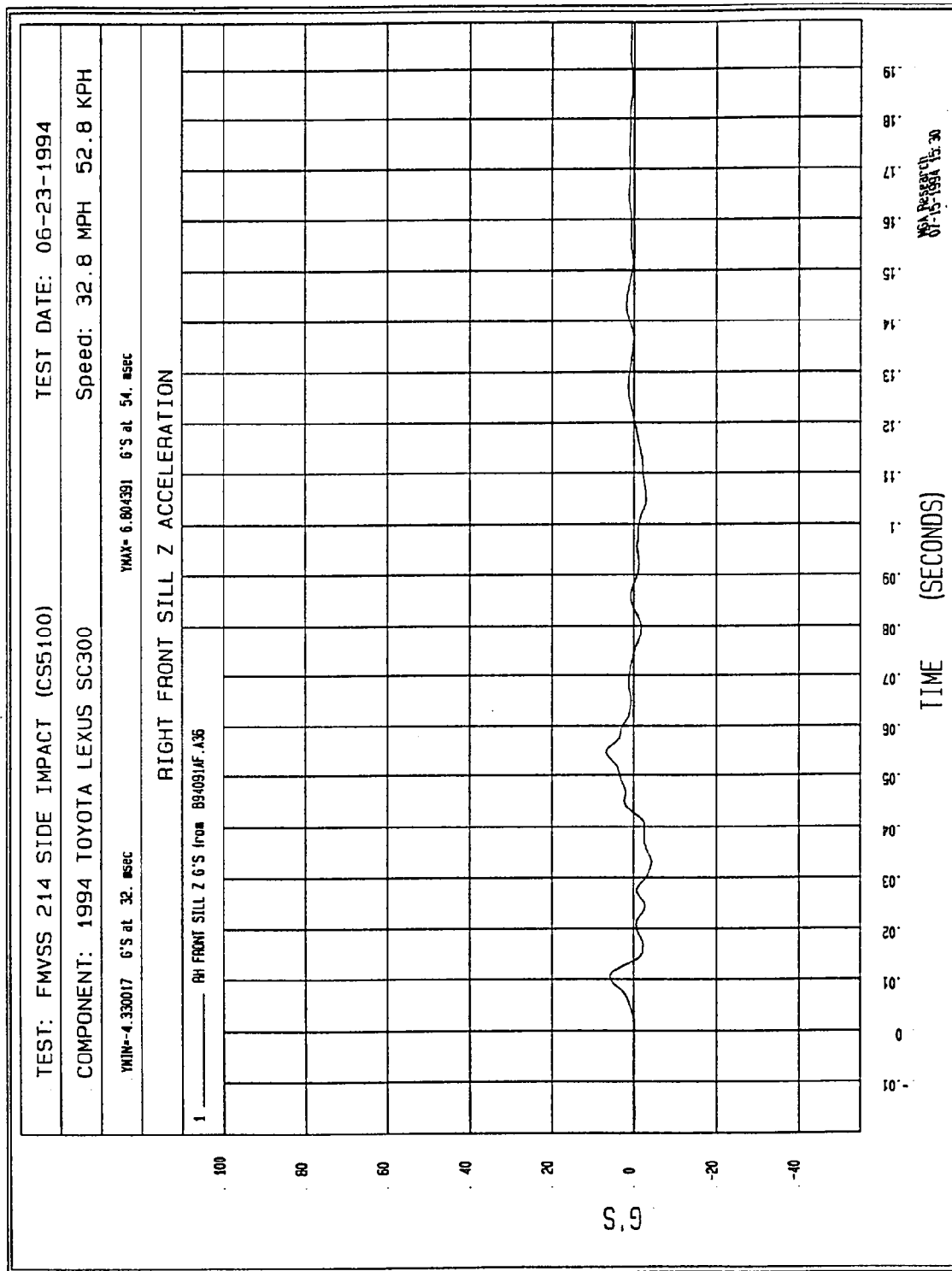


Figure B-25 - Right Front Sill Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

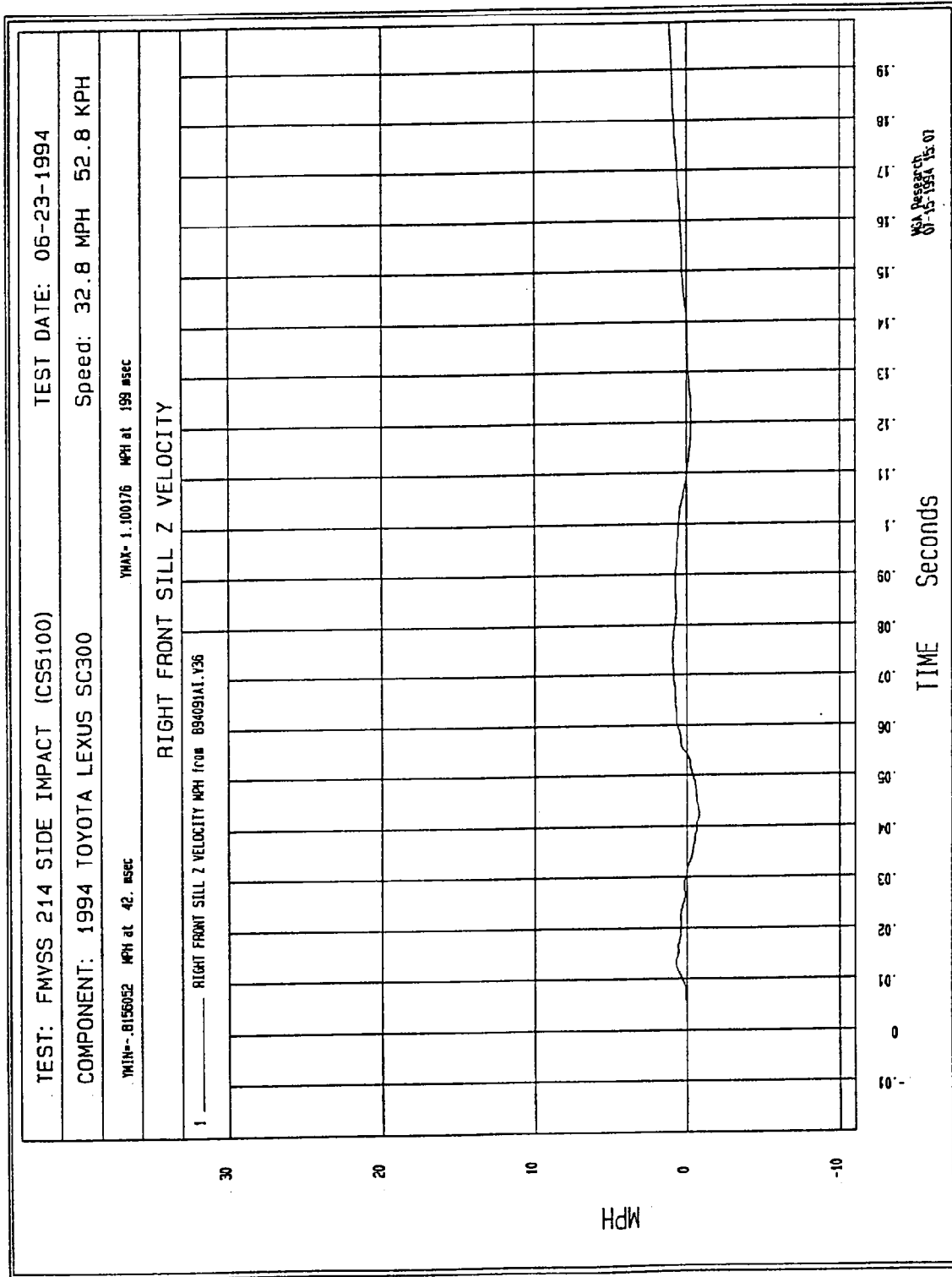


Figure B-26 - Right Front Sill z Velocity vs. Time

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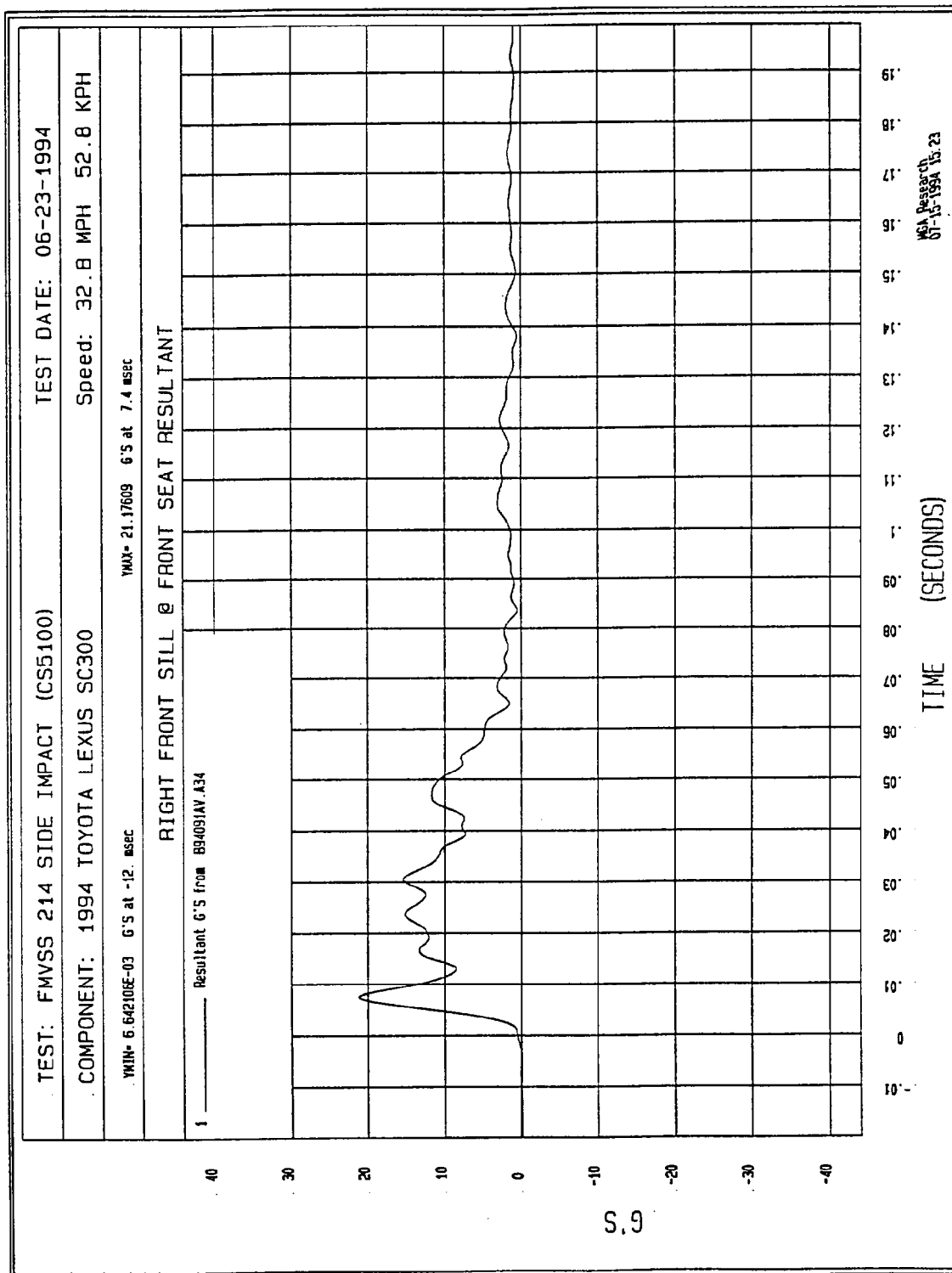


Figure B-27 - Right Front Sill at Front Seat Resultant vs. Time

Filter: Class 60 (100 Hz)

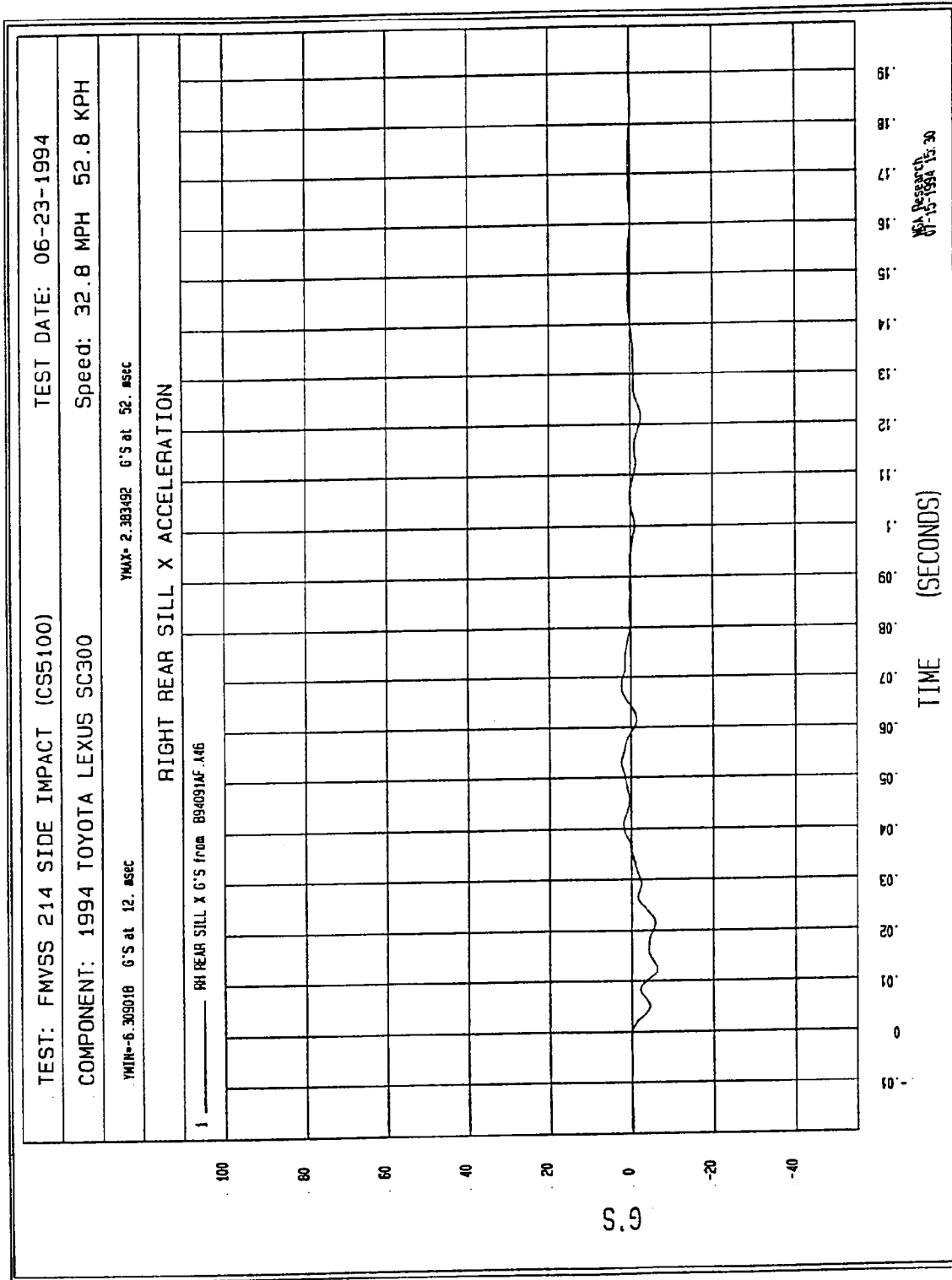


Figure B-28 - Right Rear Sill X Acceleration vs. Time

Filter: Class 180 (300 Hz)

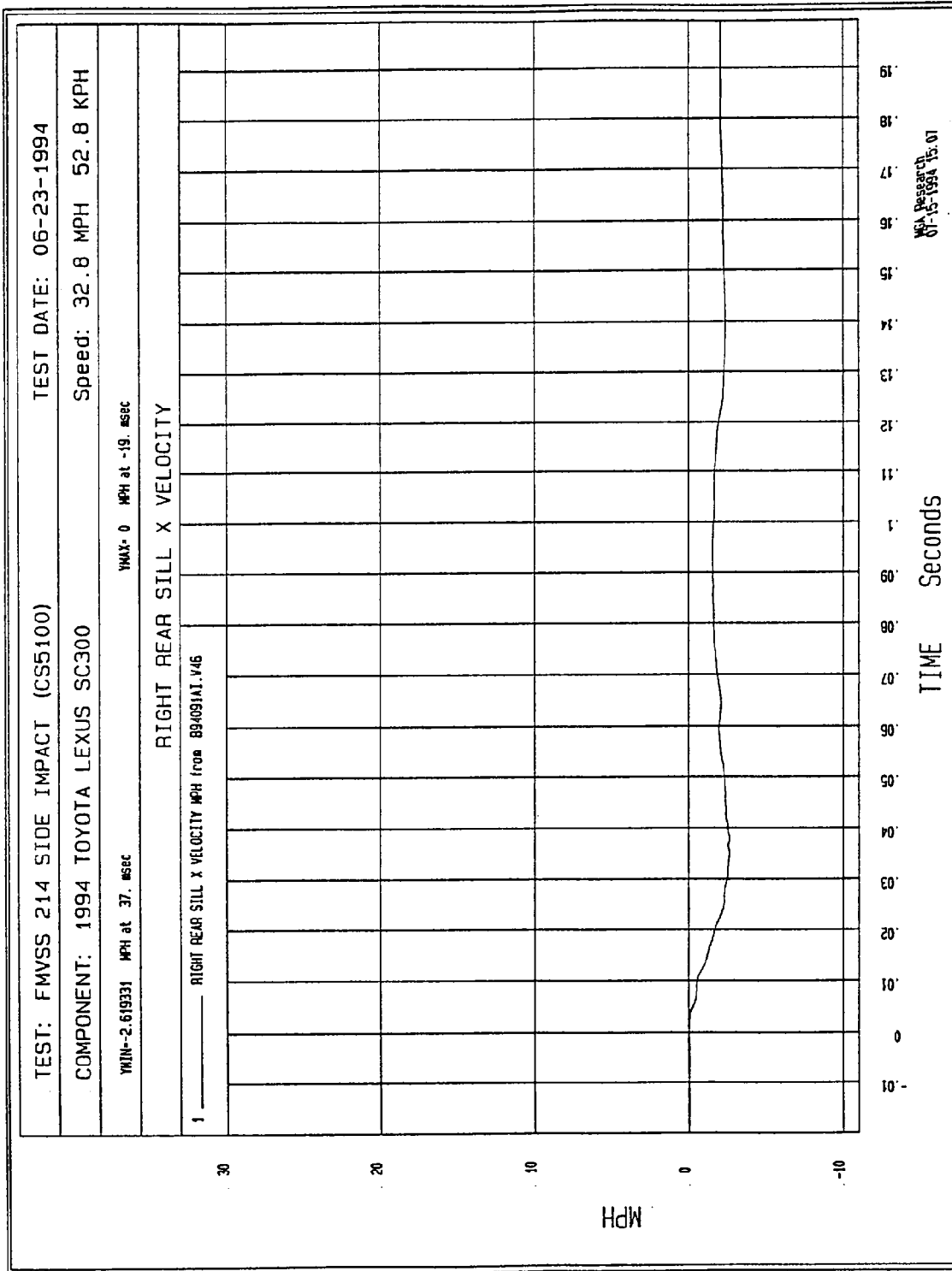


Figure B-29 - Right Rear Sill X Velocity vs. Time

Filter: Class 60 (100 Hz)

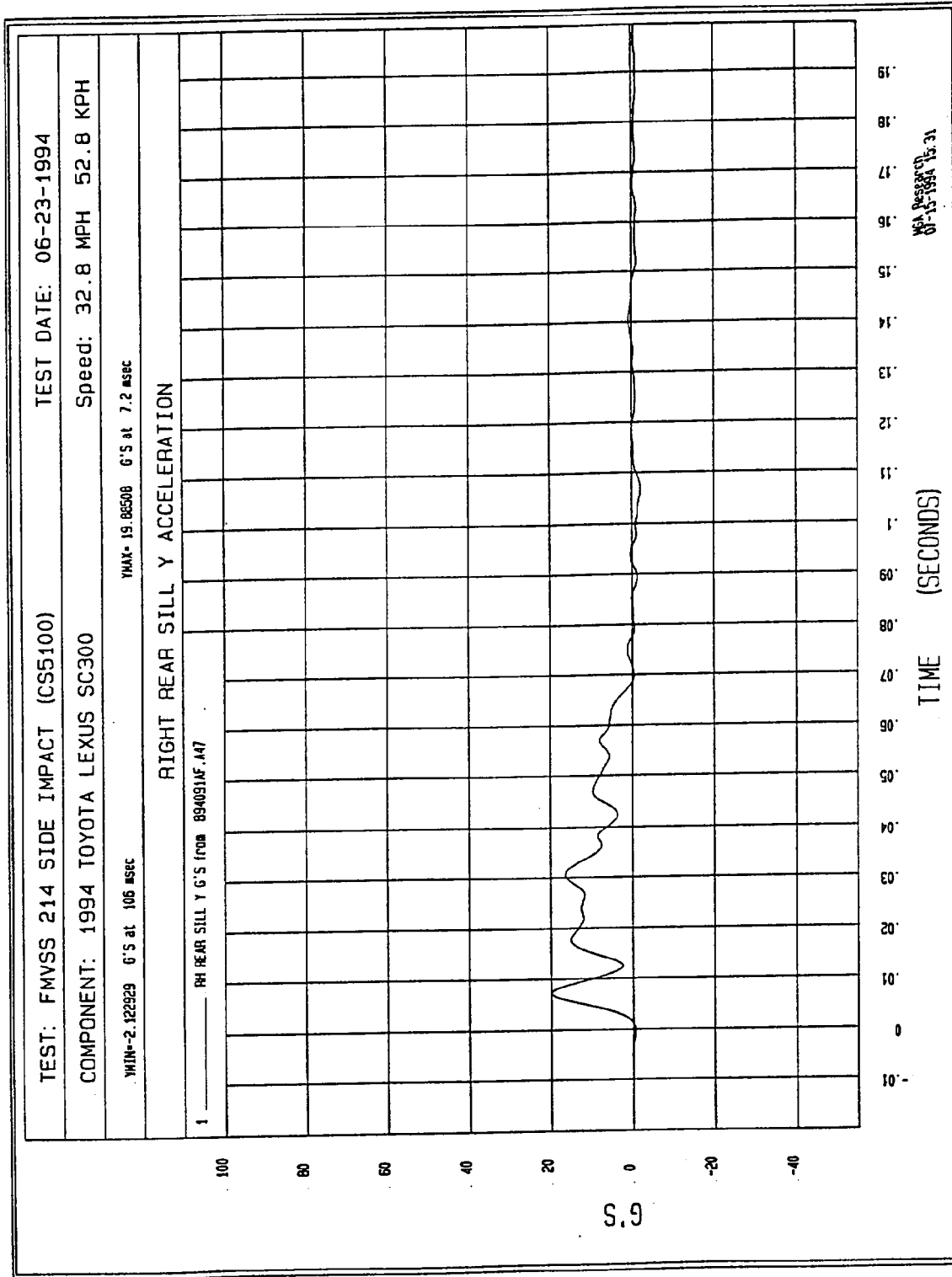


Figure B-30 - Right Rear Sill Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

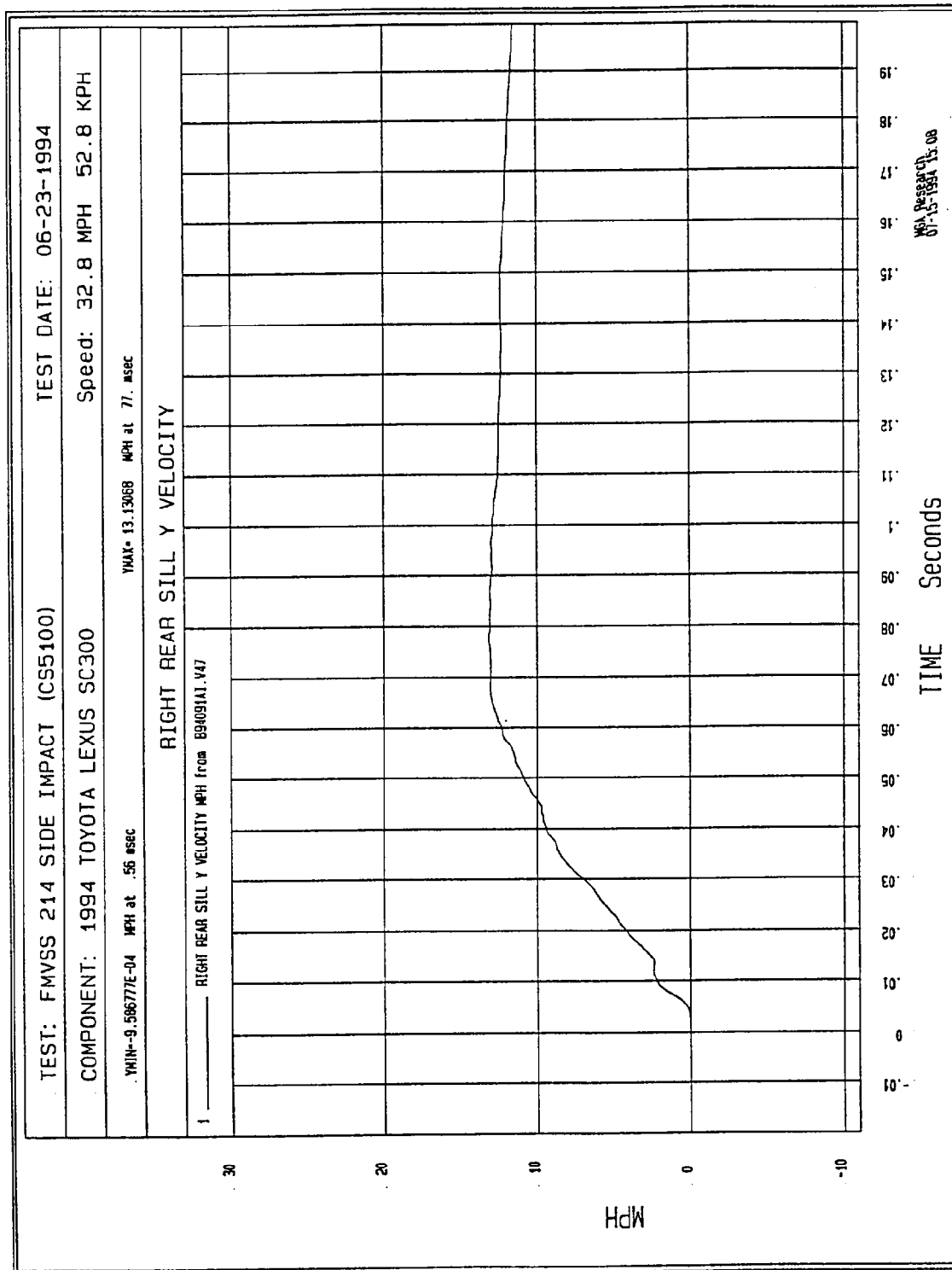


Figure B-31 - Right Rear Sill Y Velocity vs. Time

Filter: Class 60 (100 Hz)

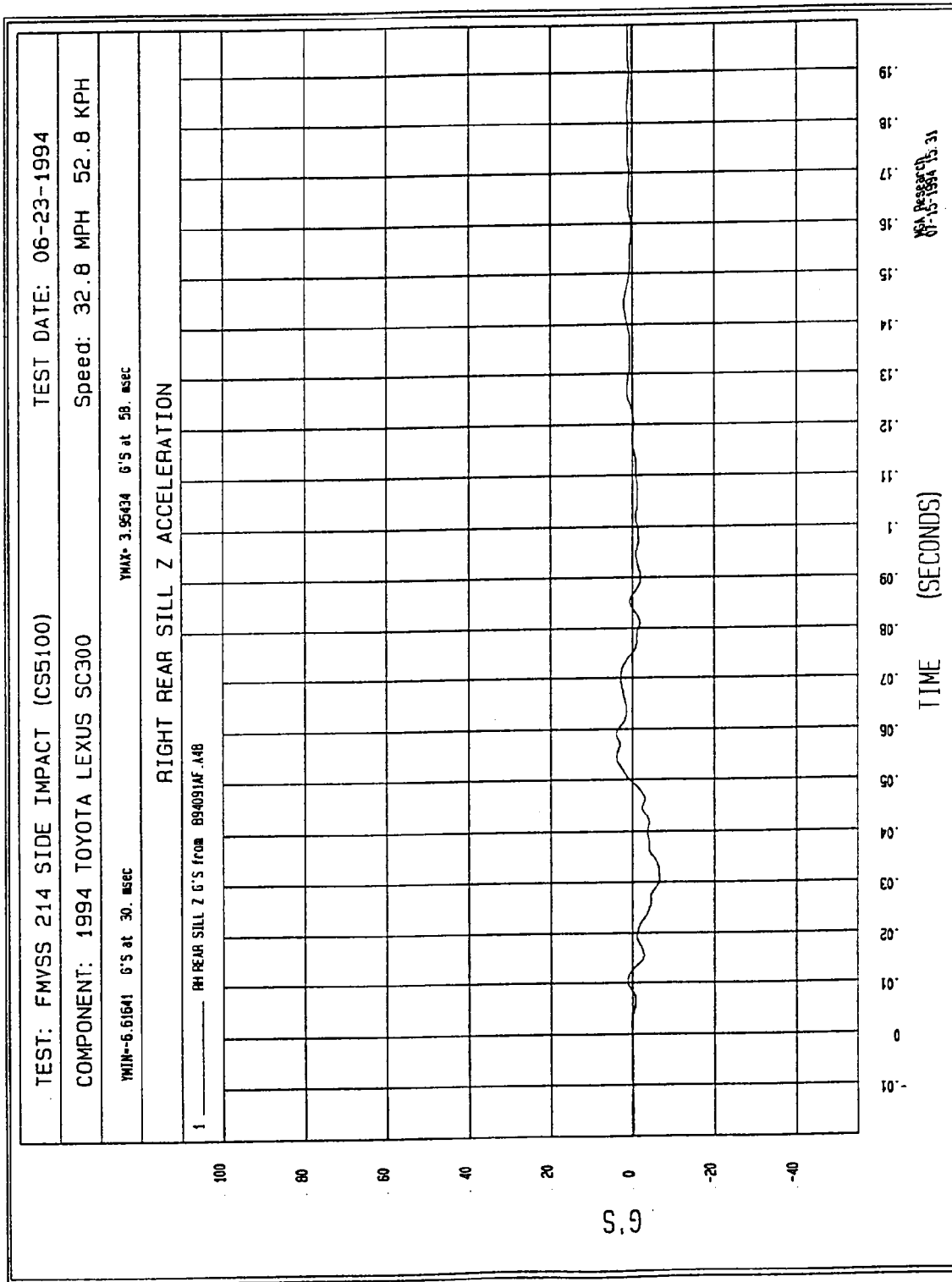


Figure B-32 - Right Rear Sill Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

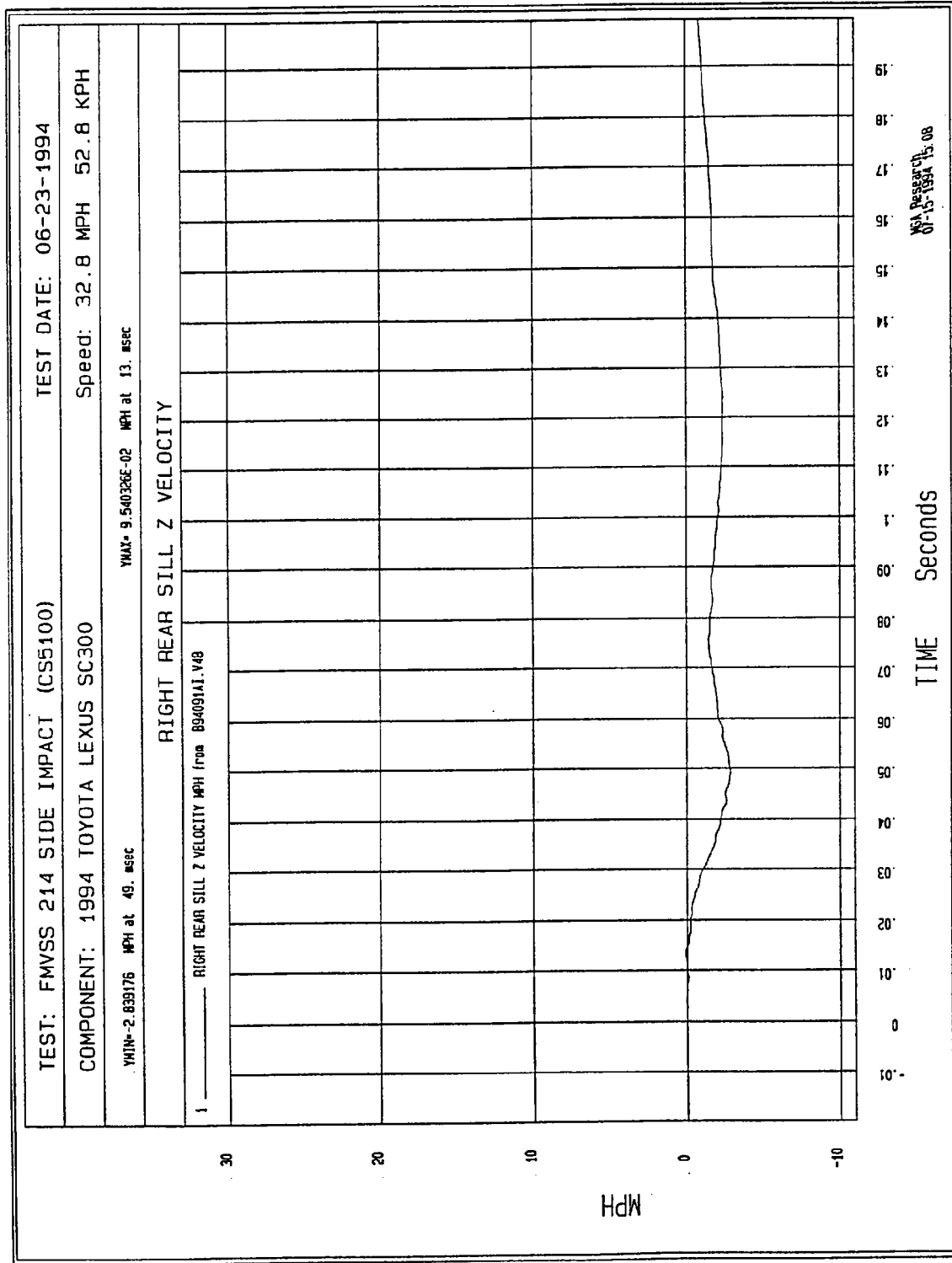


Figure B-33 - Right Rear Sill z Velocity vs. Time

Filter: Class 60 (100 Hz)

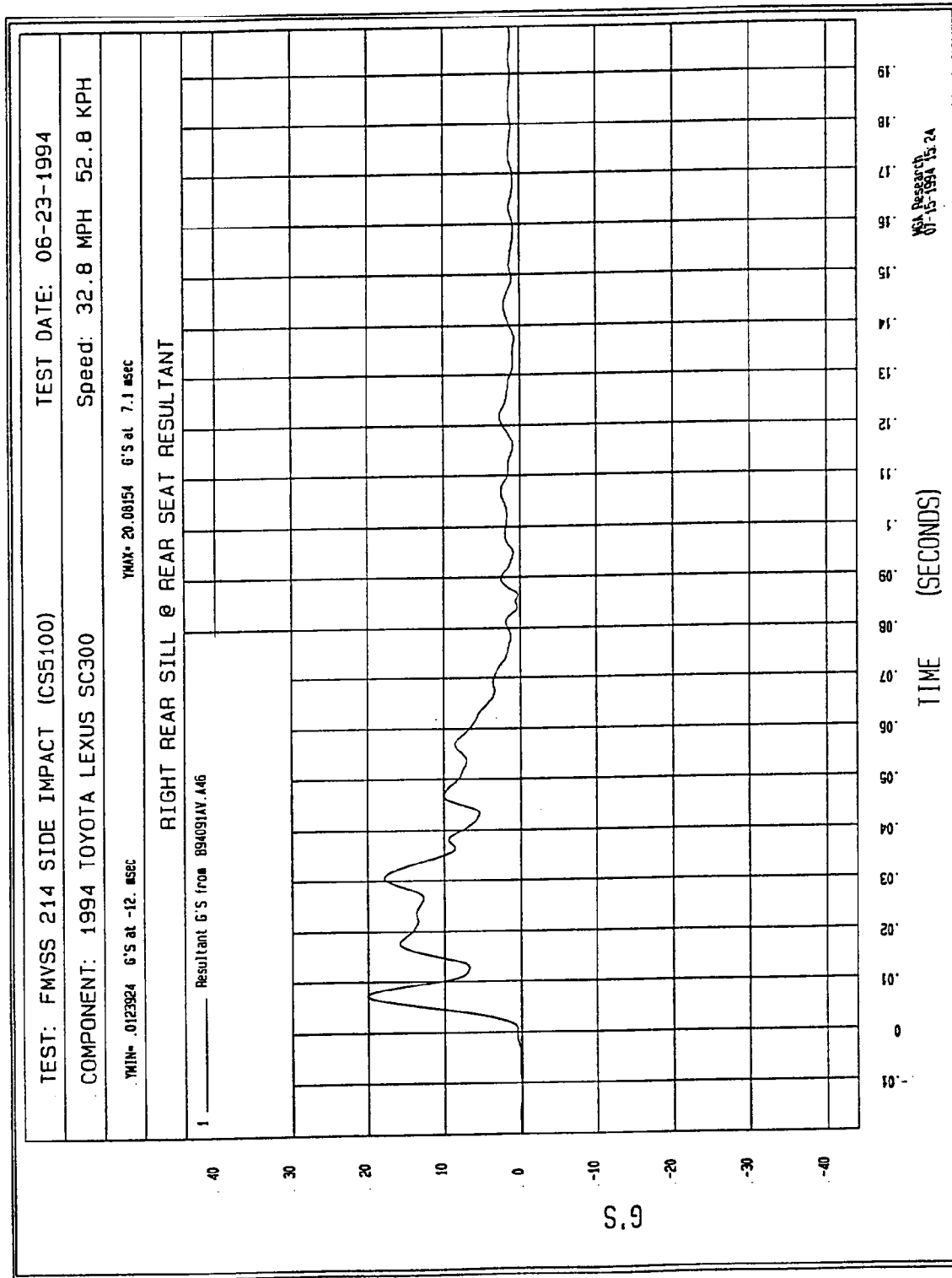


Figure B-34 - Right Rear Sill at Rear Seat Resultant vs. Time

Filter: Class 60 (100 Hz)

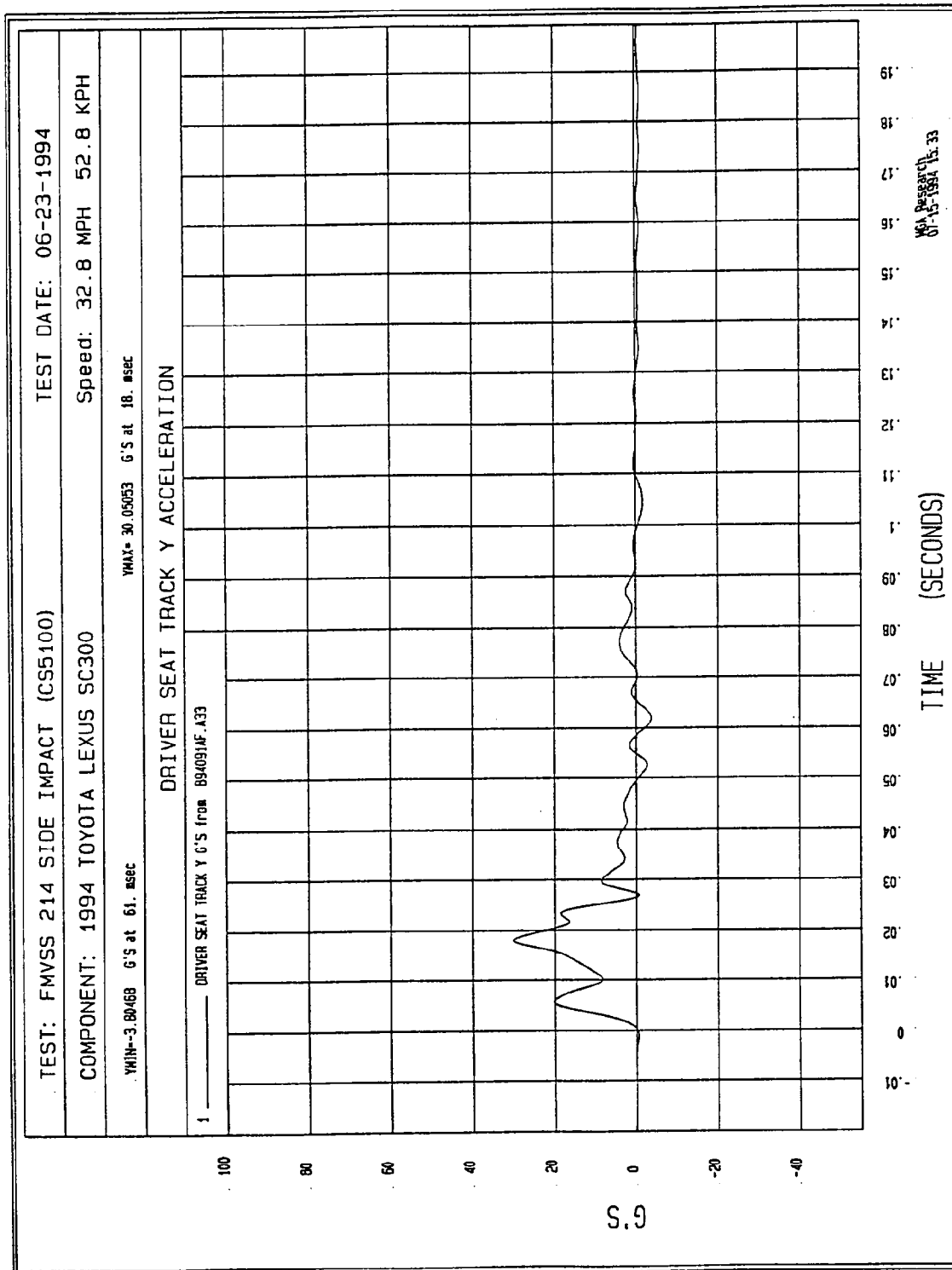


Figure B-35 - Driver Seat Track Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

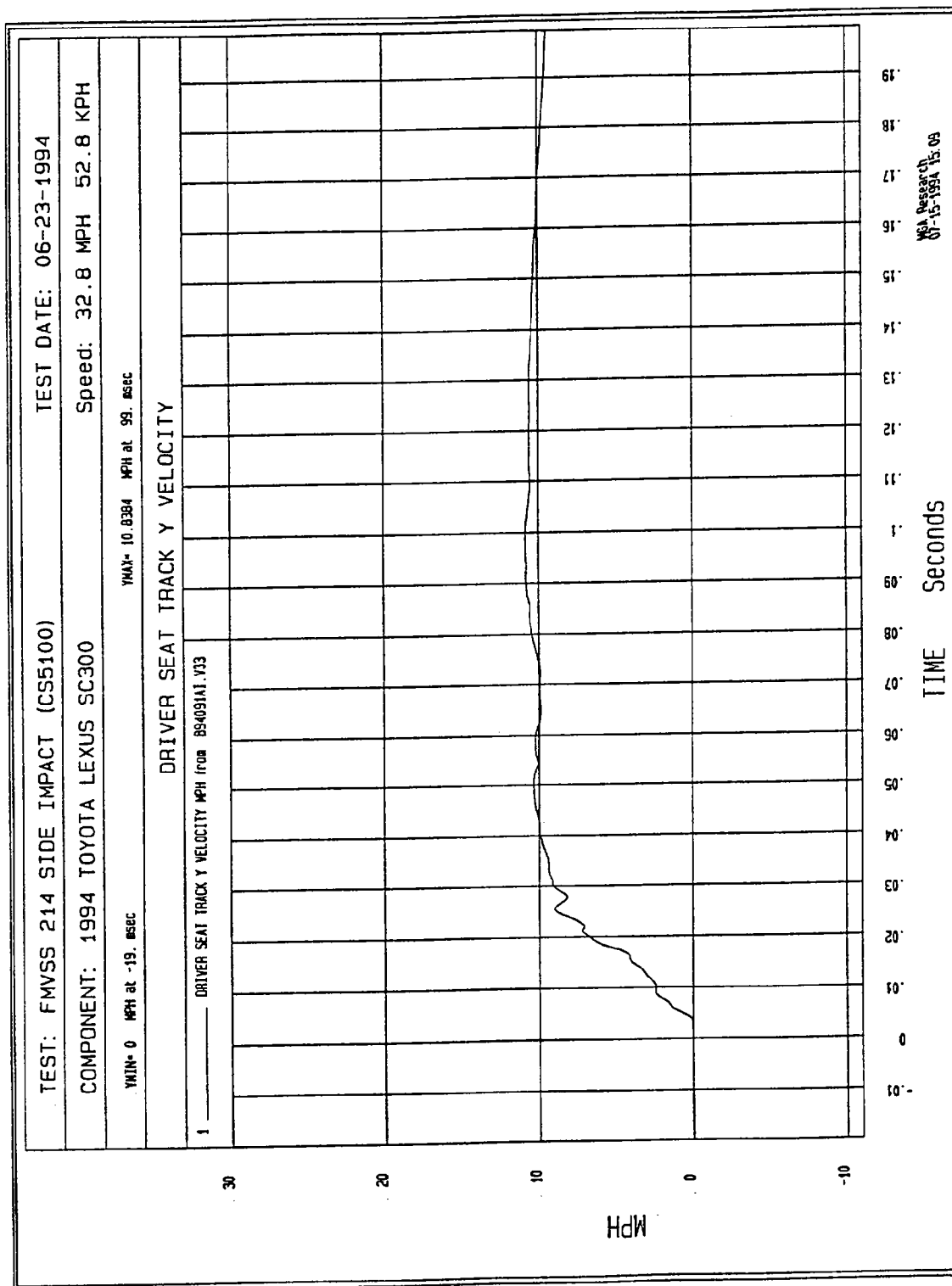


Figure B-36 - Driver Seat Track Y Velocity vs. Time

Filter: Class 60 (100 Hz)

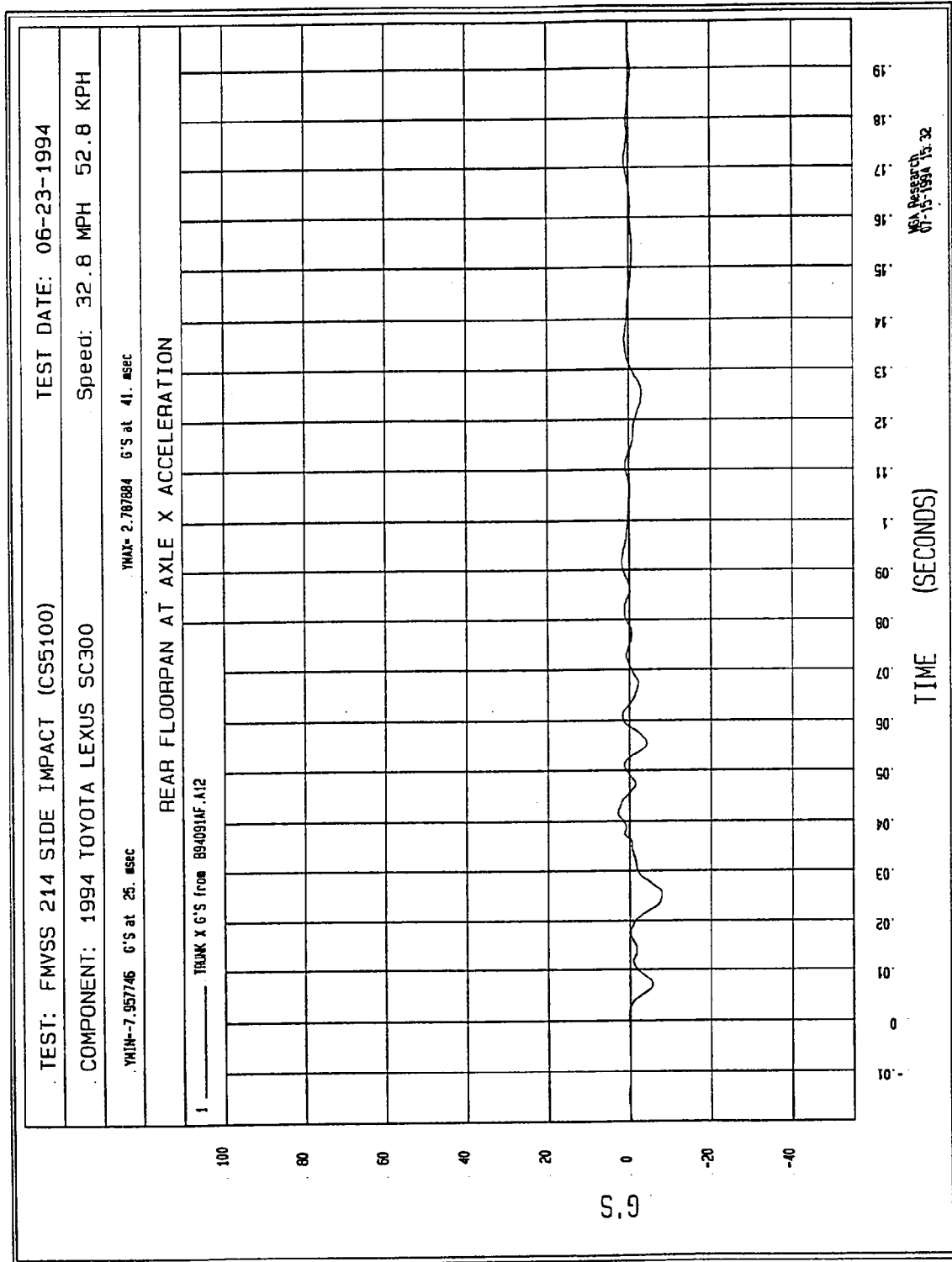


Figure B-37 - Rear Floorpan at Axle X Acceleration vs. Time

Filter: Class 180 (300 Hz)

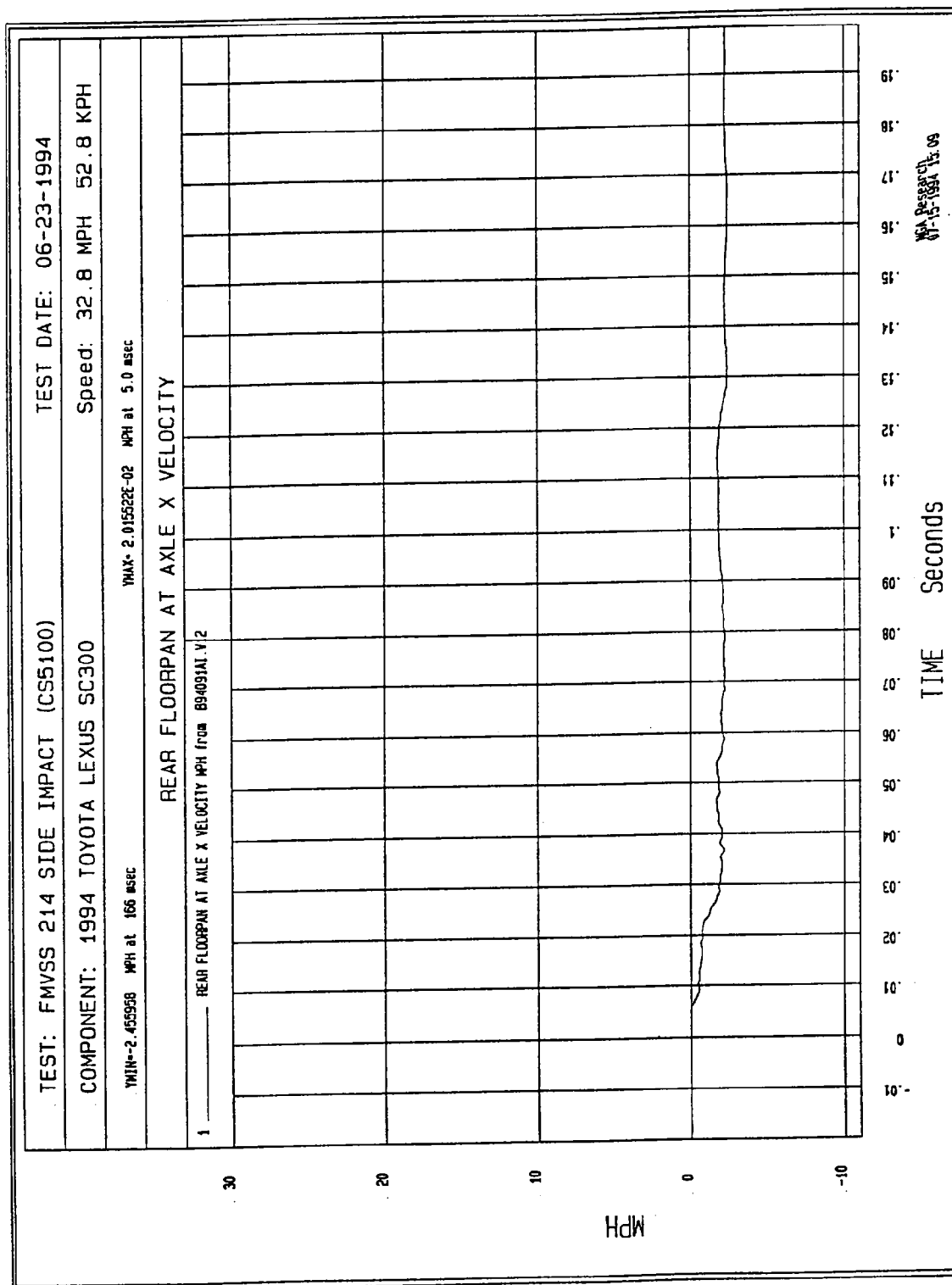


Figure B-38 - Rear Floorpan at Axle X Velocity vs. Time

Filter: Class 60 (100 Hz)

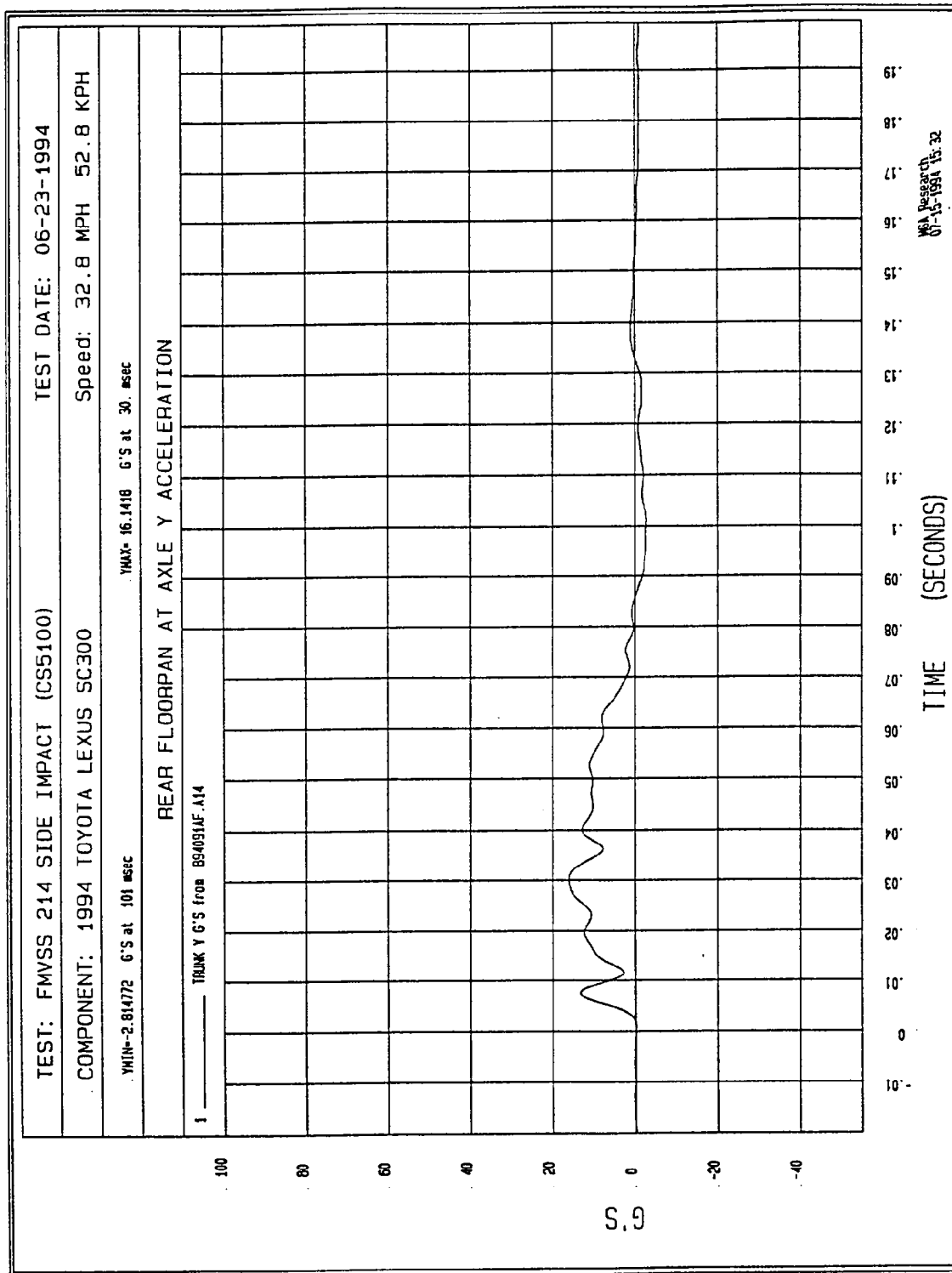


Figure B-39 - Rear Floorpan at Axle Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

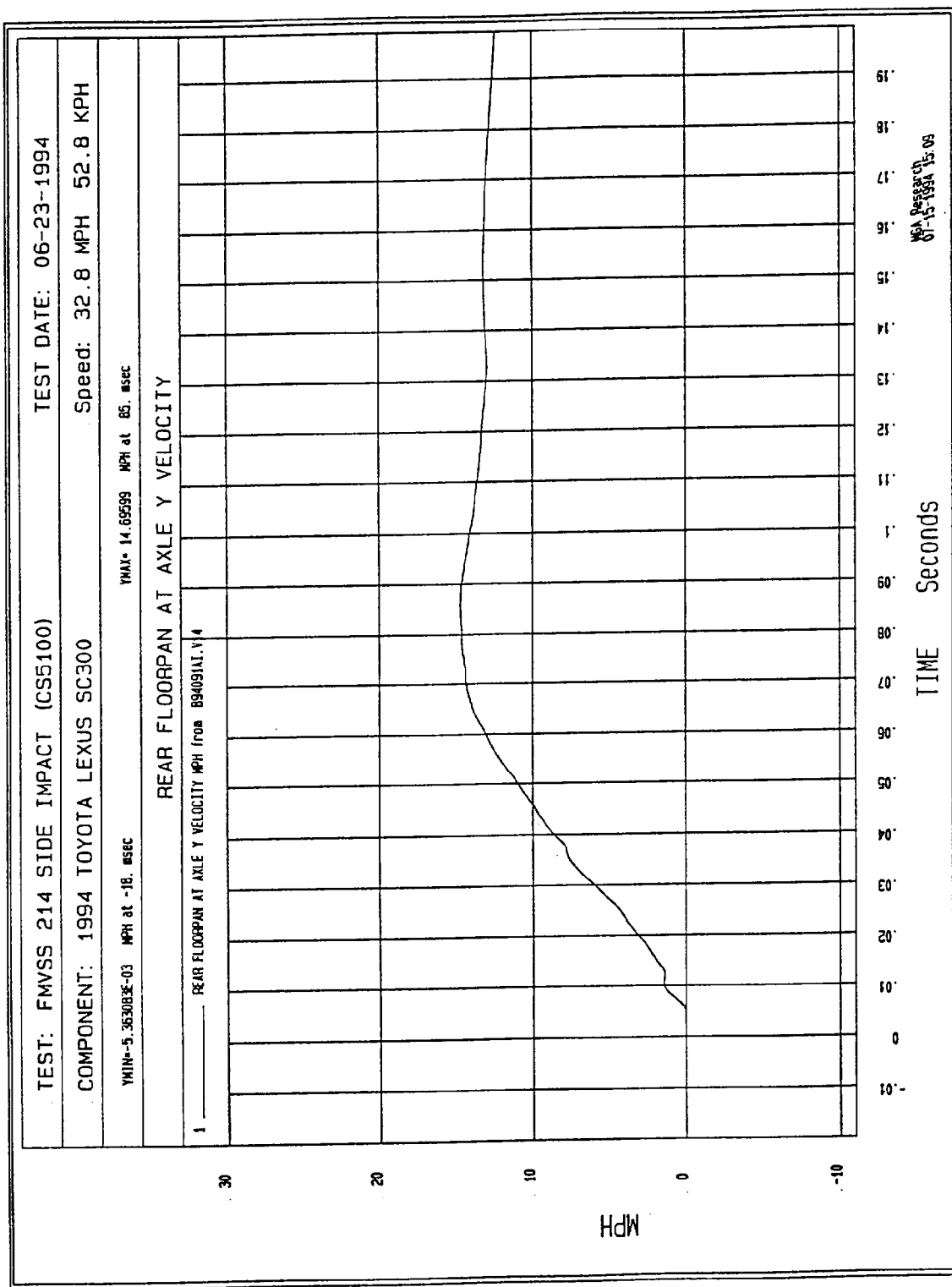


Figure B-40 - Rear Floorpan at Axle Y Velocity vs. Time

Filter: Class 60 (100 Hz)

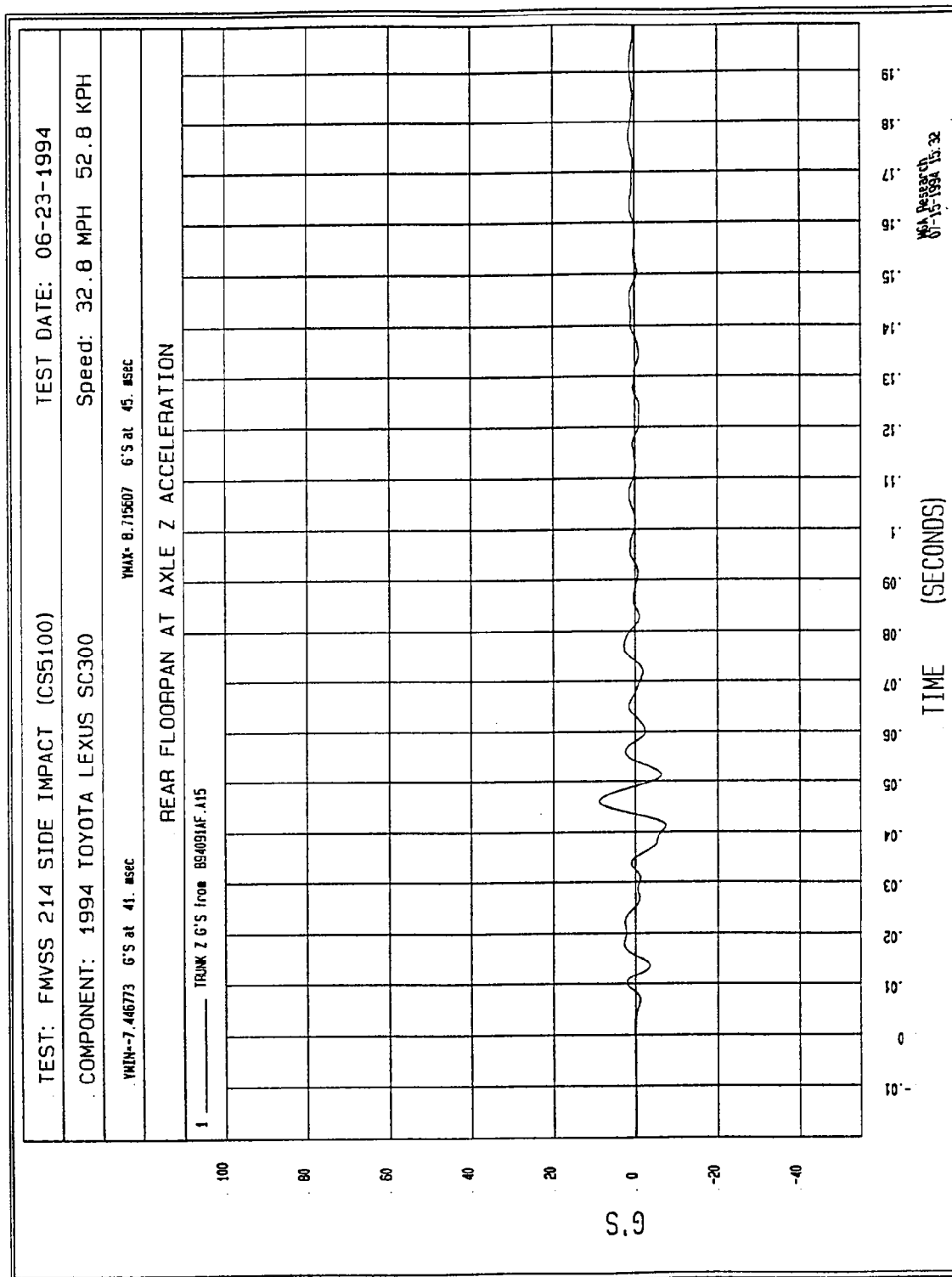


Figure B-41 - Rear Floorpan at Axle Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

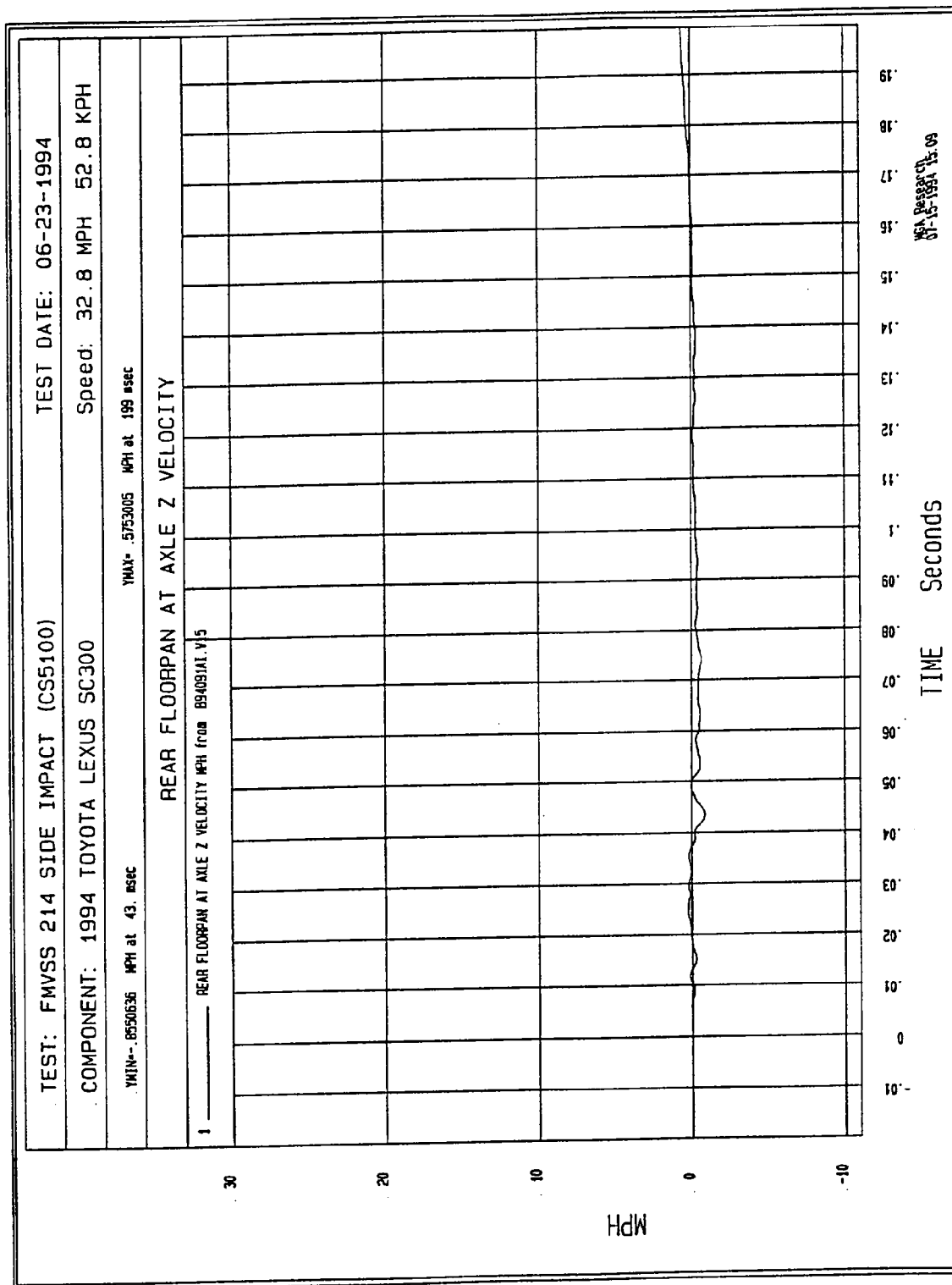


Figure B-42 - Rear Floorpan at Axle Z Velocity vs. Time

Filter: Class 60 (100 Hz)

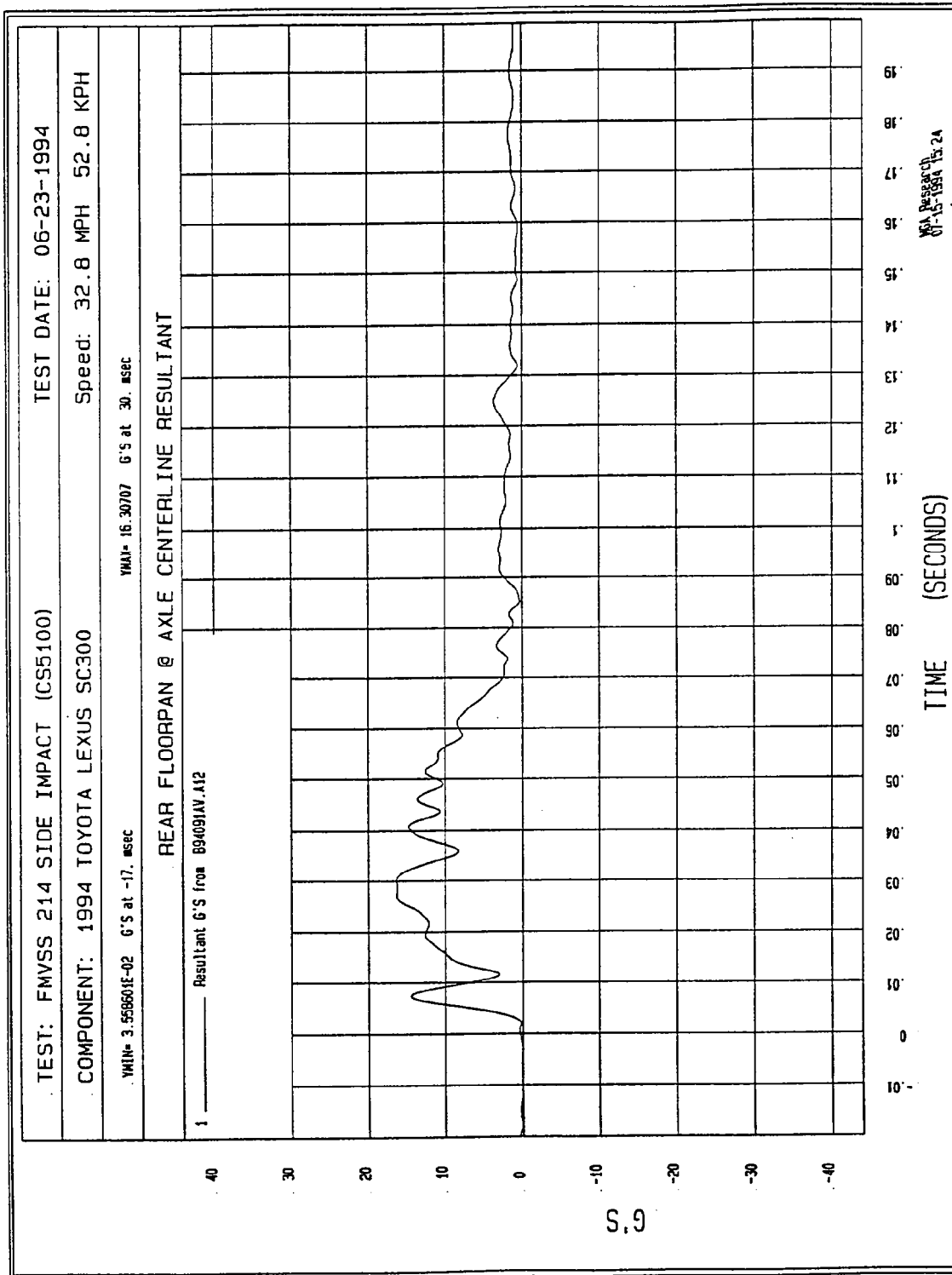


Figure B-43 - Rear Floorpan at Axle Centerline Resultant vs. Time

Filter: Class 60 (100 Hz)

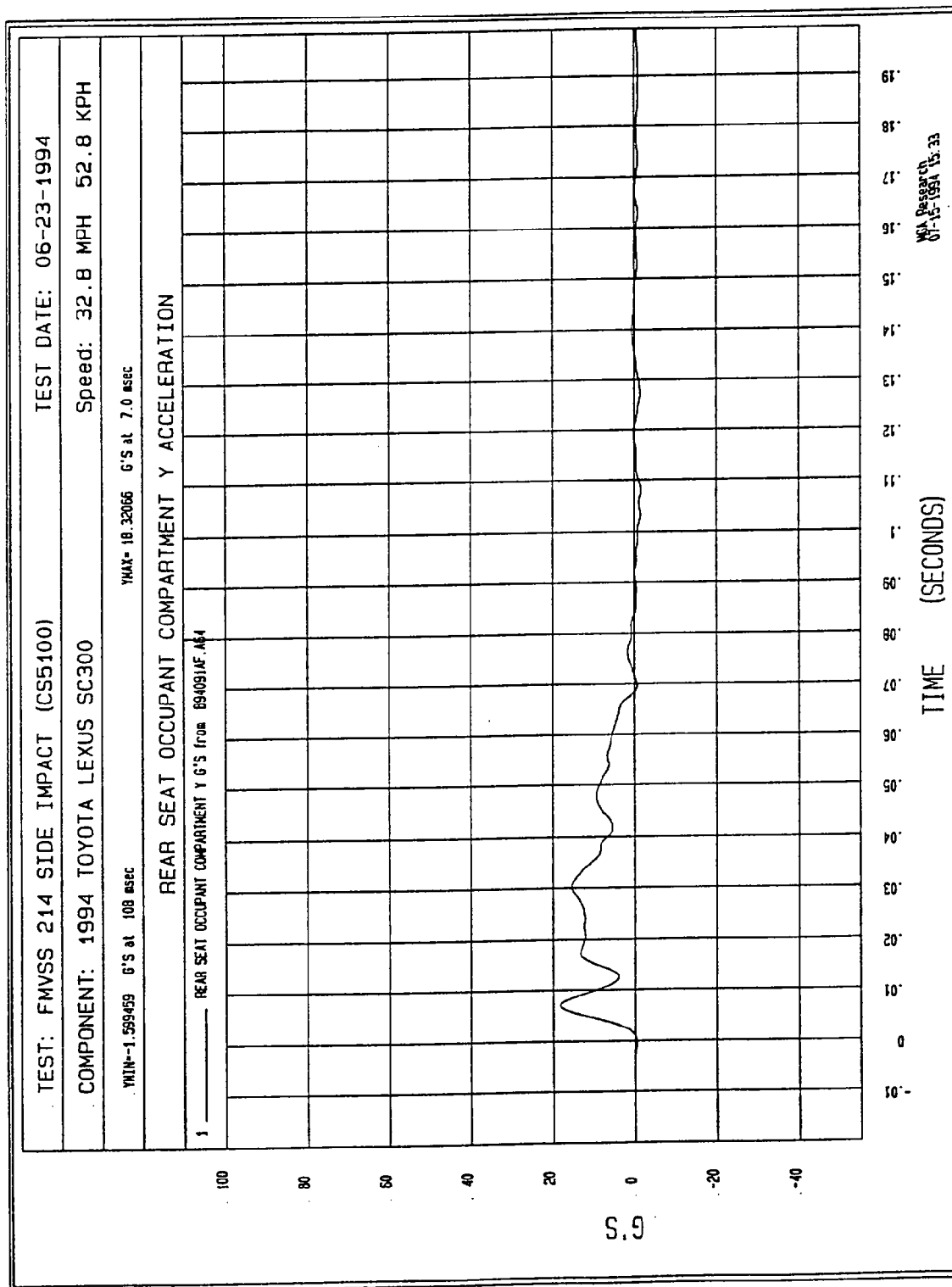


Figure B-44 - Rear Seat Occupant Compartment Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

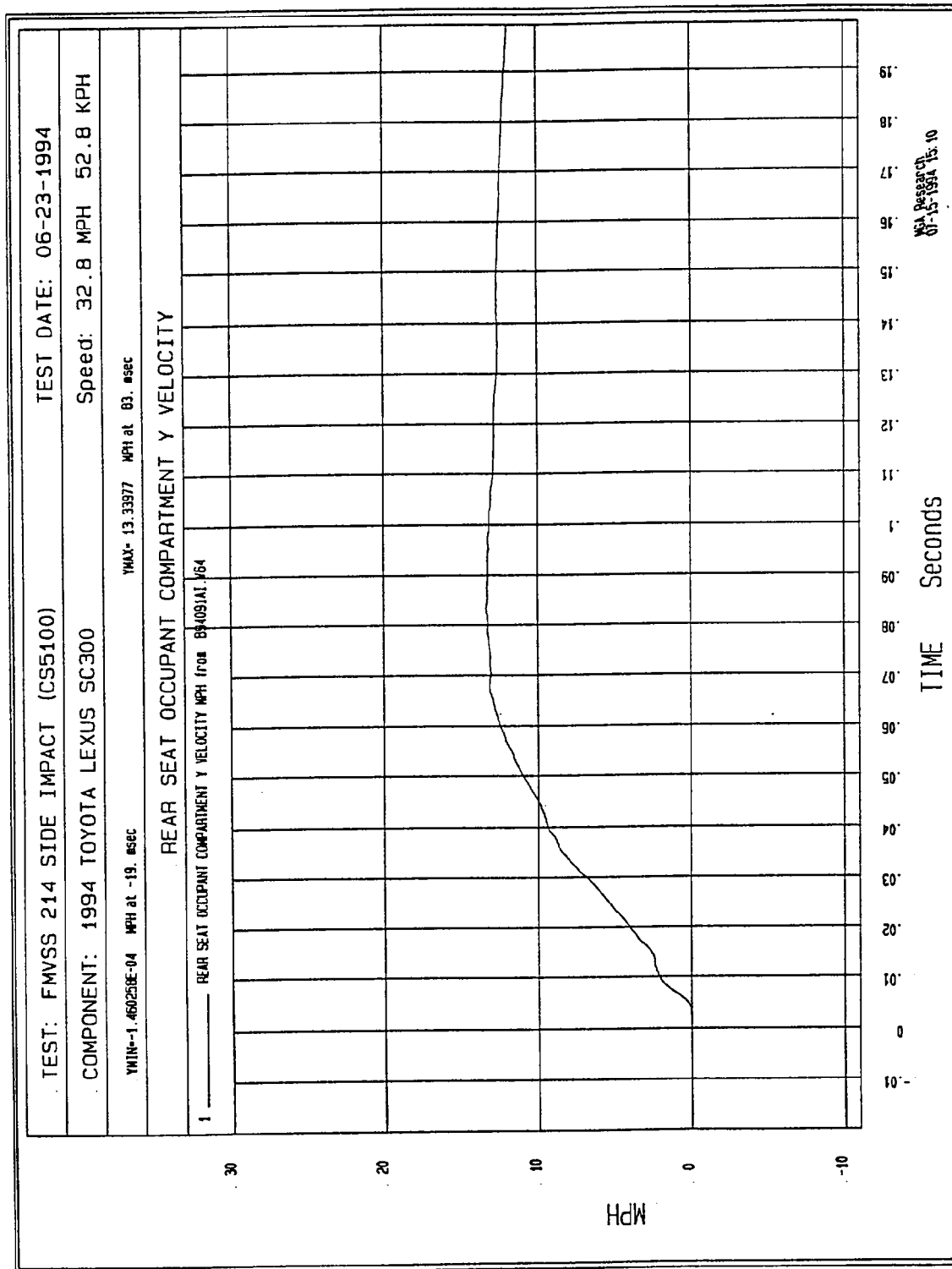


Figure B-45 - Rear Seat Occupant Compartment Y Velocity vs. Time

Filter: Class 60 (100 Hz)

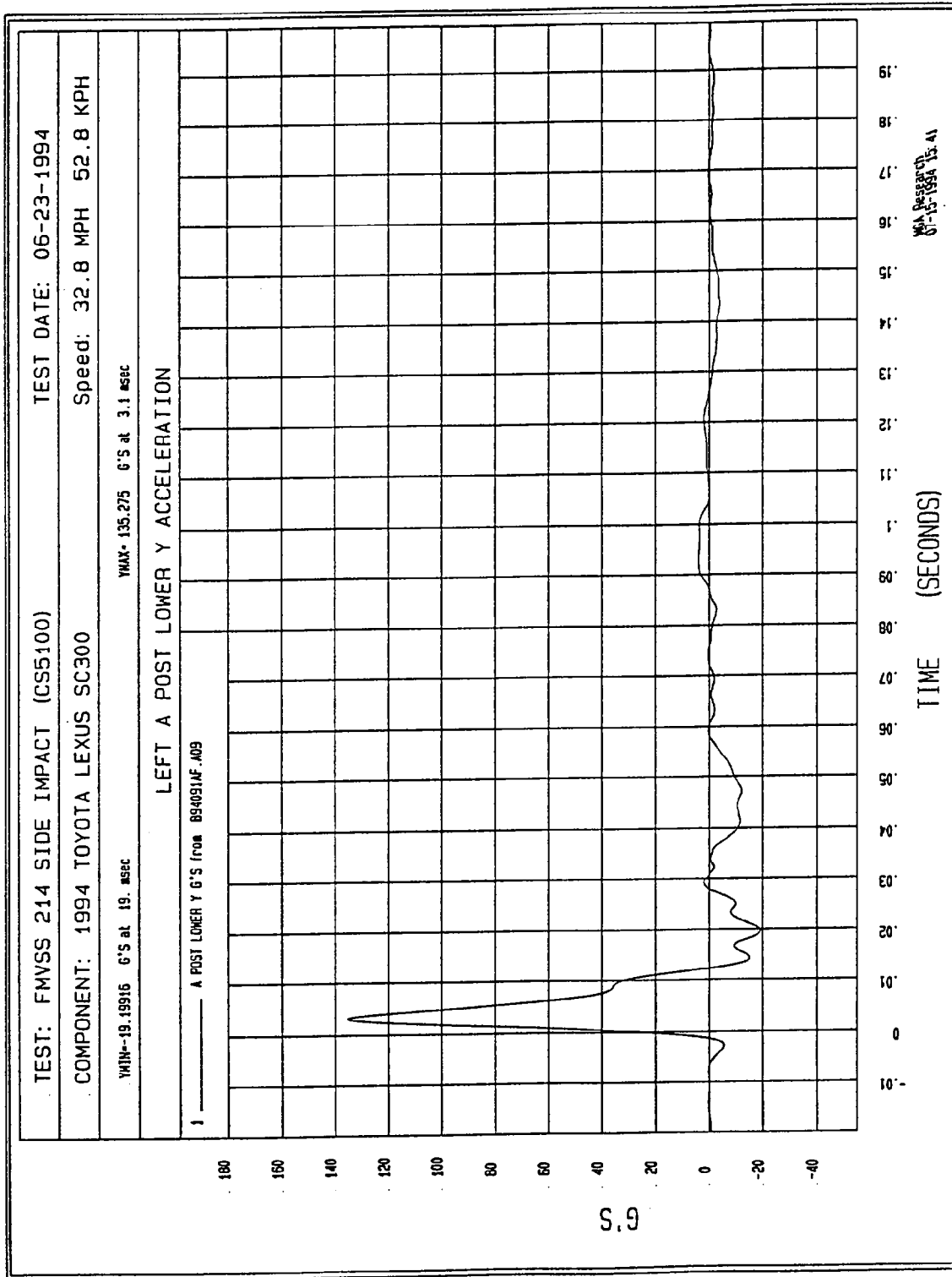


Figure B-46 - Left A Post Lower Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

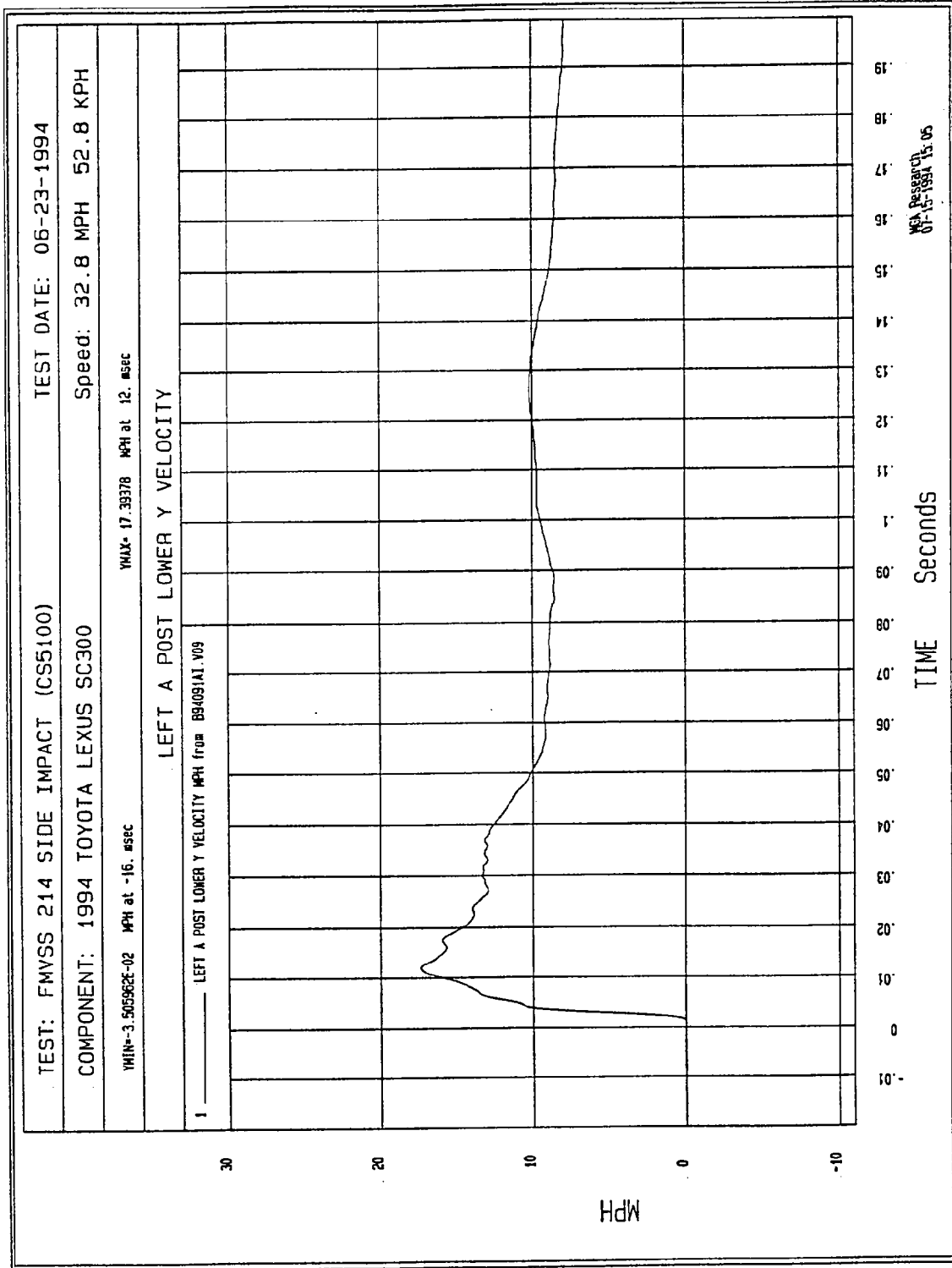


Figure B-47 - Left A Post Lower Y Velocity vs. Time

Filter: Class 60 (100 Hz)

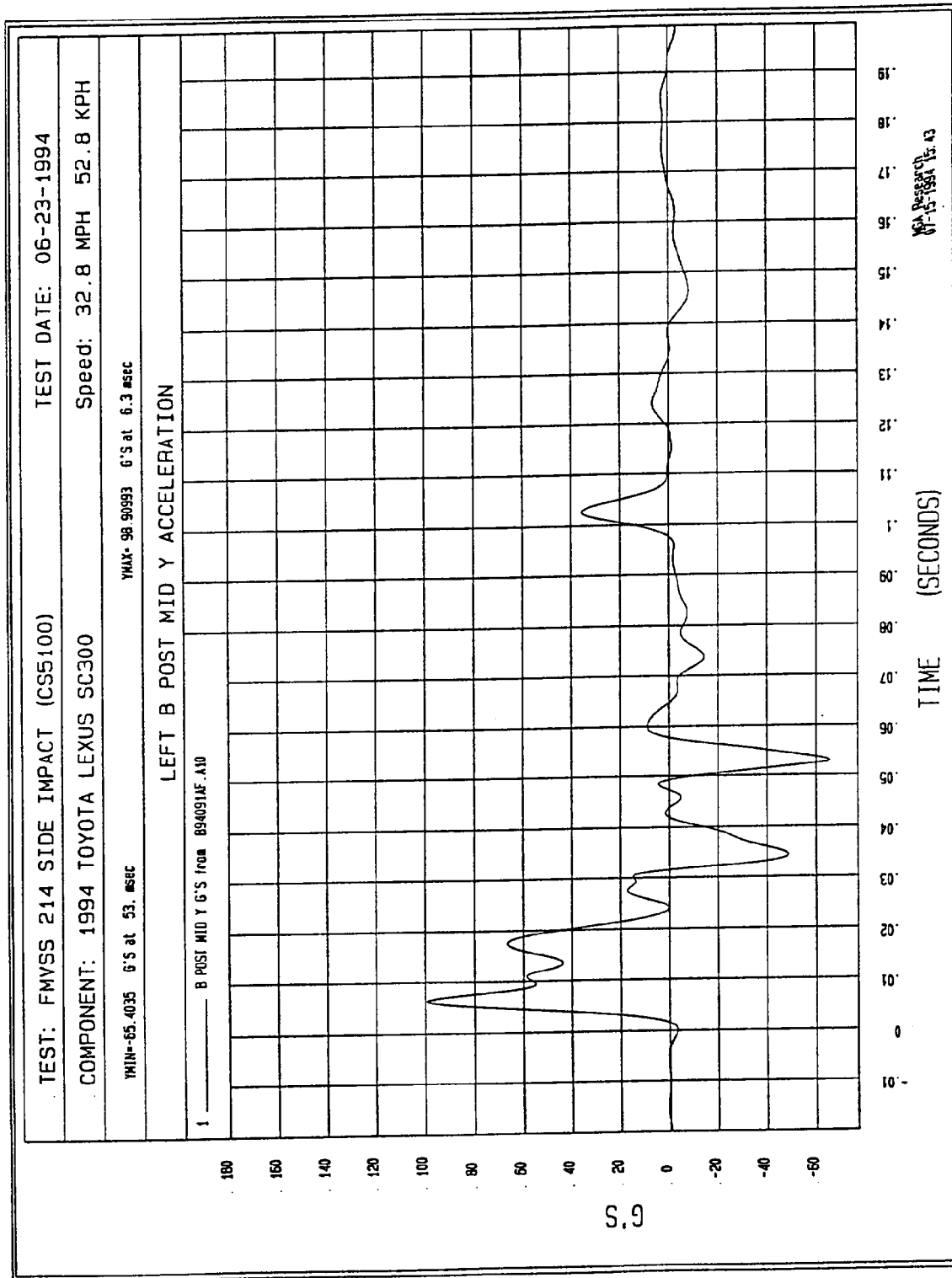


Figure B-48 - Left B Post Mid Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

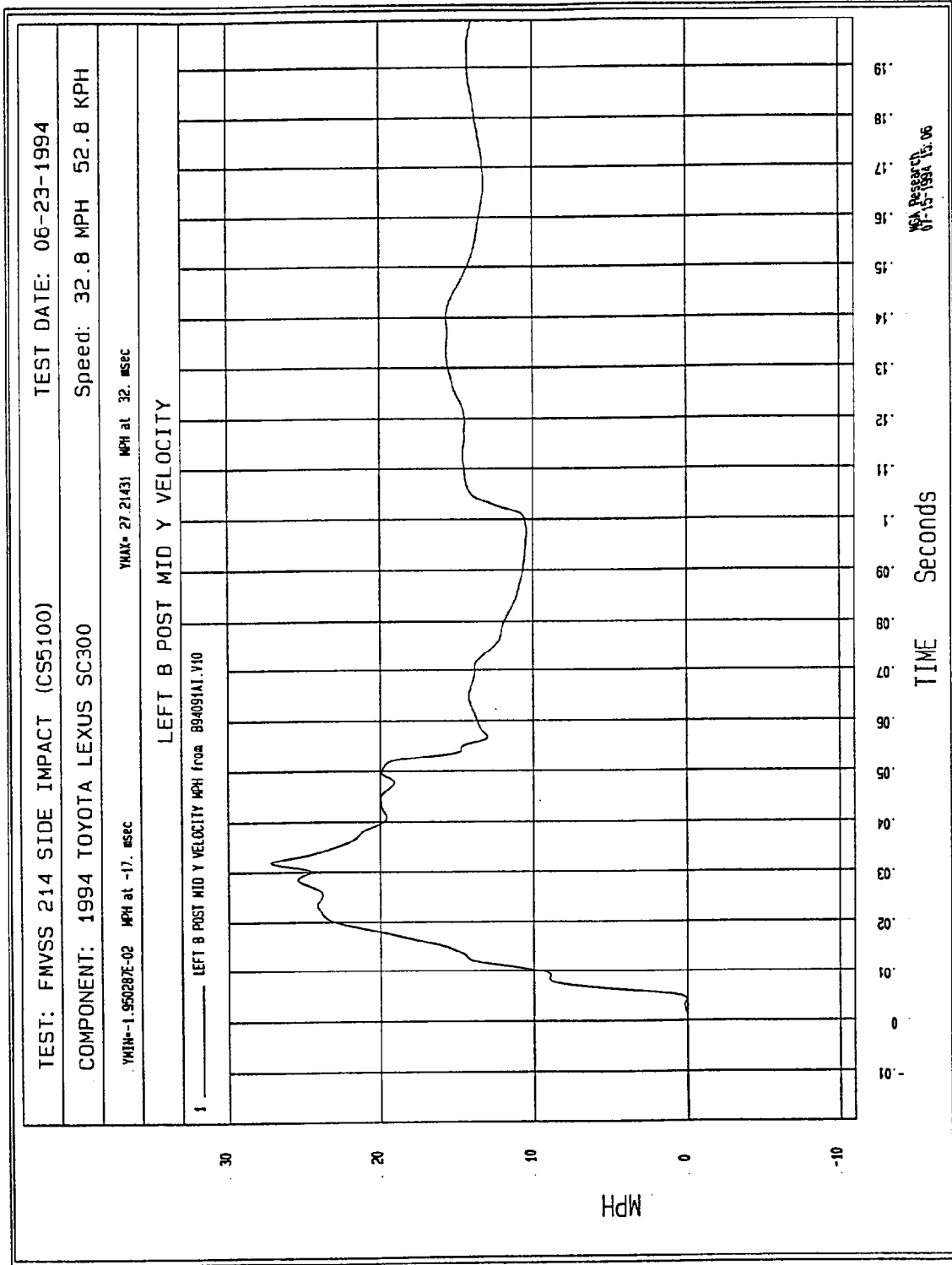


Figure B-49 - Left B Post Mid Y Velocity vs. Time

Filter: Class 60 (100 Hz)

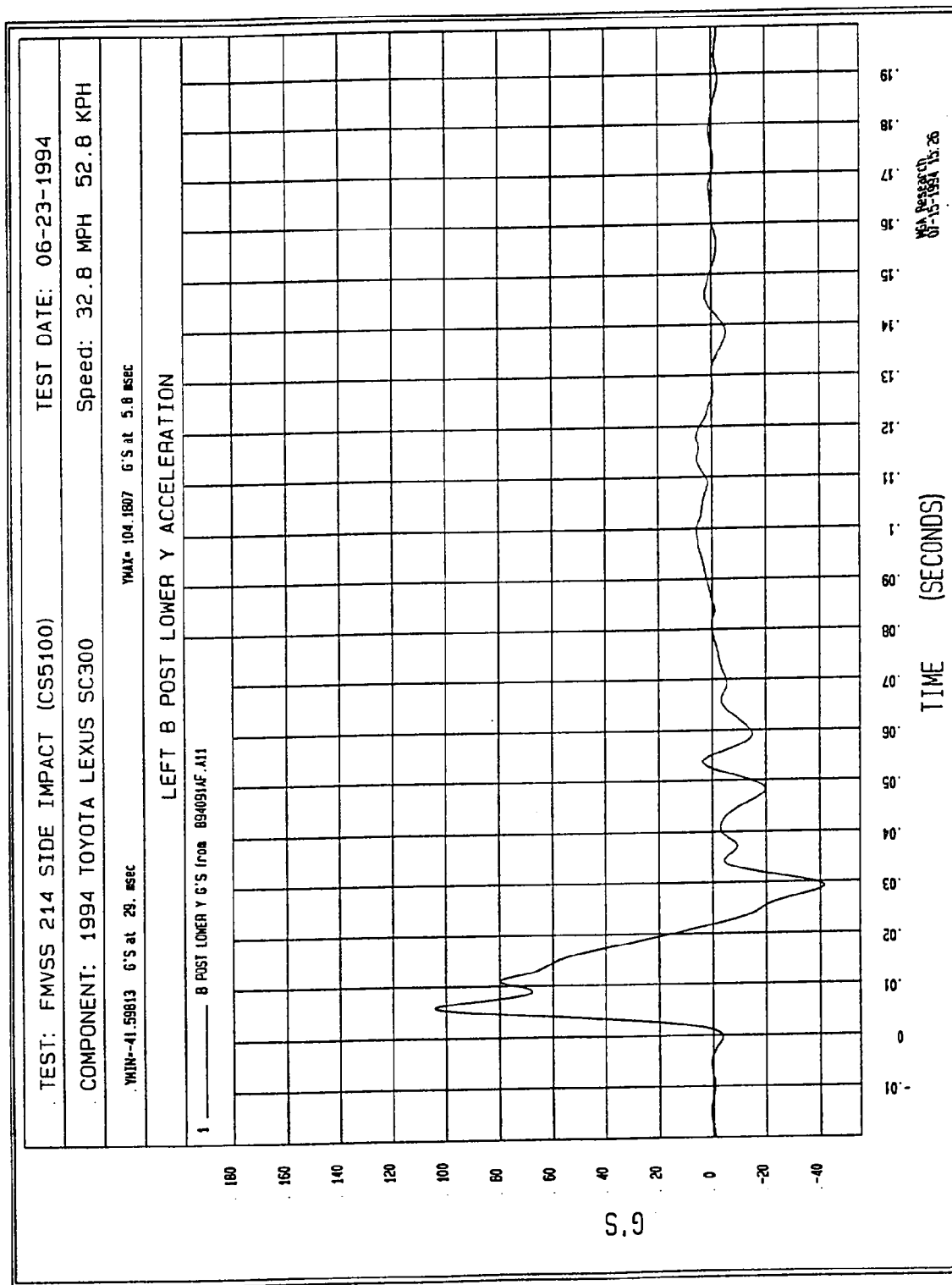


Figure B-50 - Left B Post Lower Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

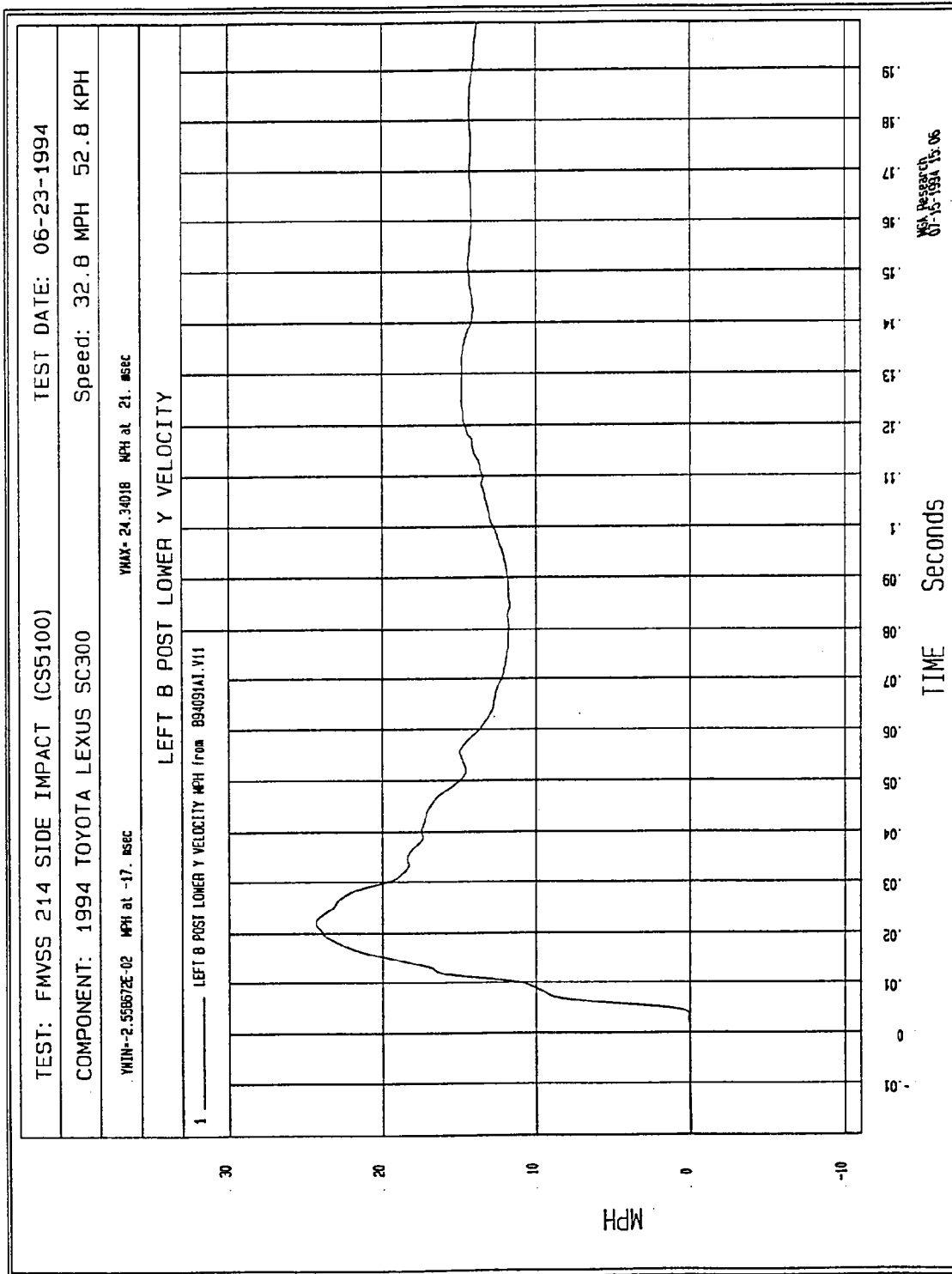


Figure B-51 - Left B Post Lower Y Velocity vs. Time

Filter: Class 60 (100 Hz)

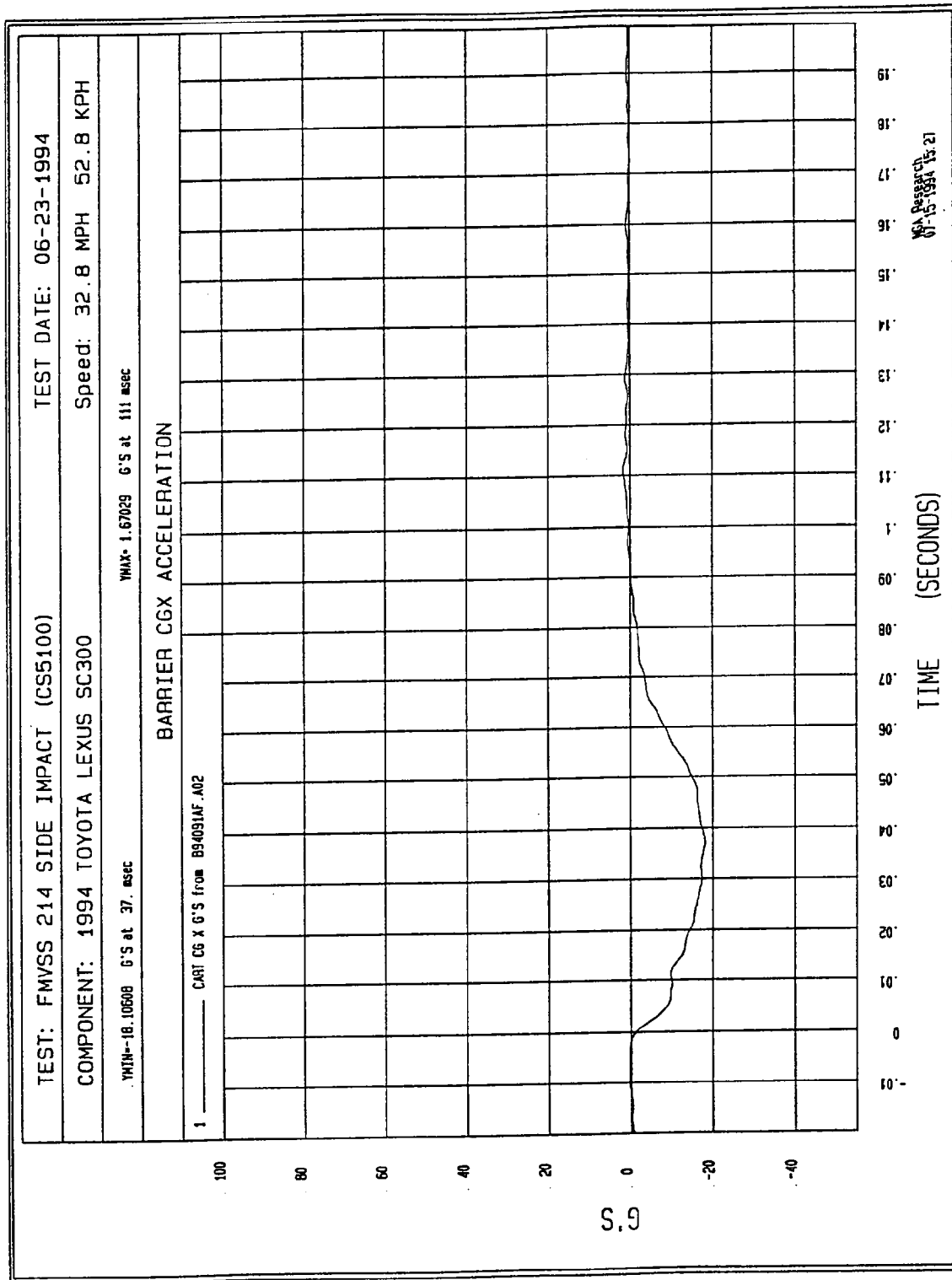


Figure B-52 - Moving Barrier Center of Gravity X Acceleration vs. Time

Filter: Class 180 (300 Hz)

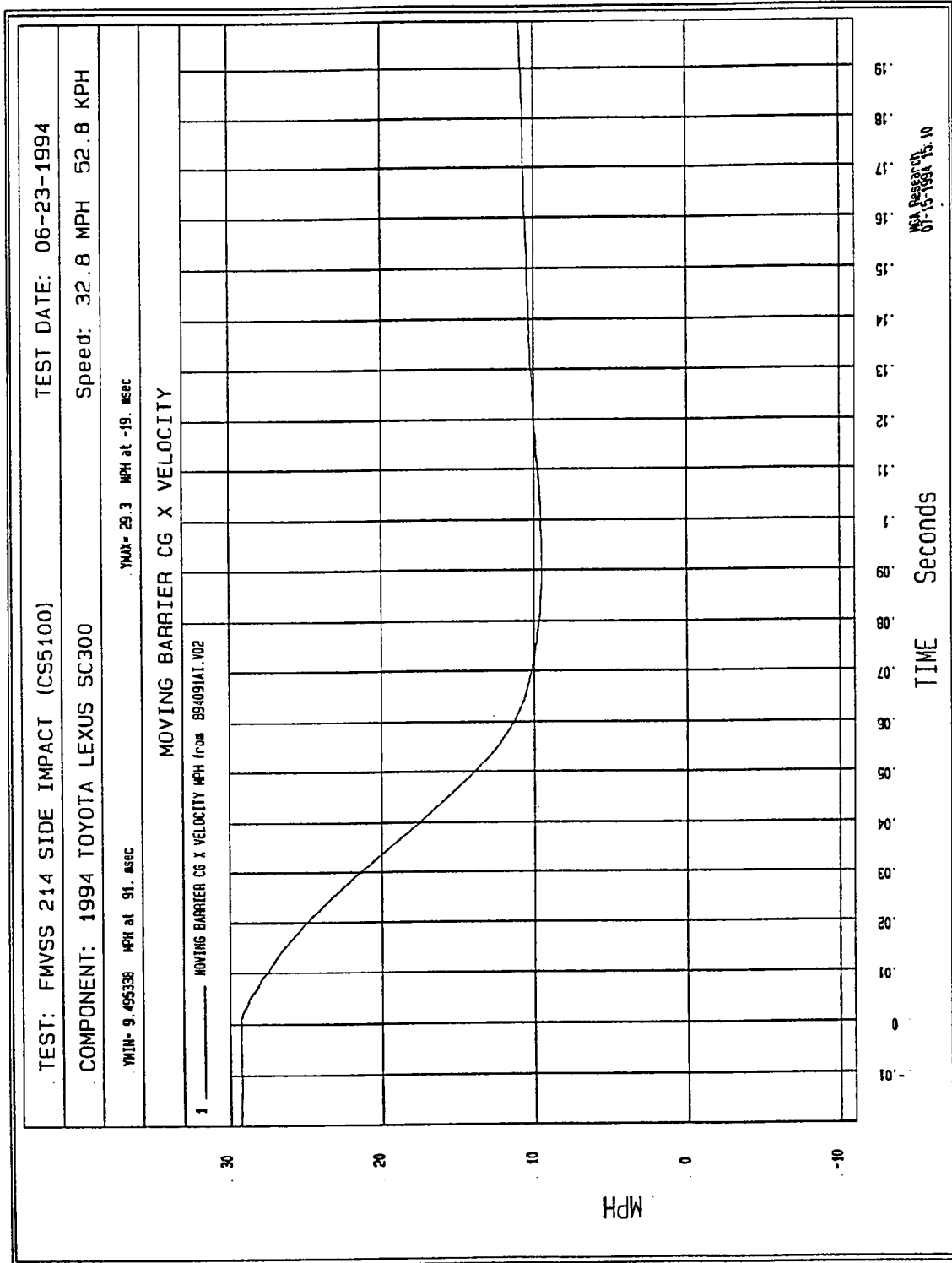


Figure B-53 - Moving Barrier Center of Gravity X Velocity vs. Time

Filter: Class 60 (100 Hz)

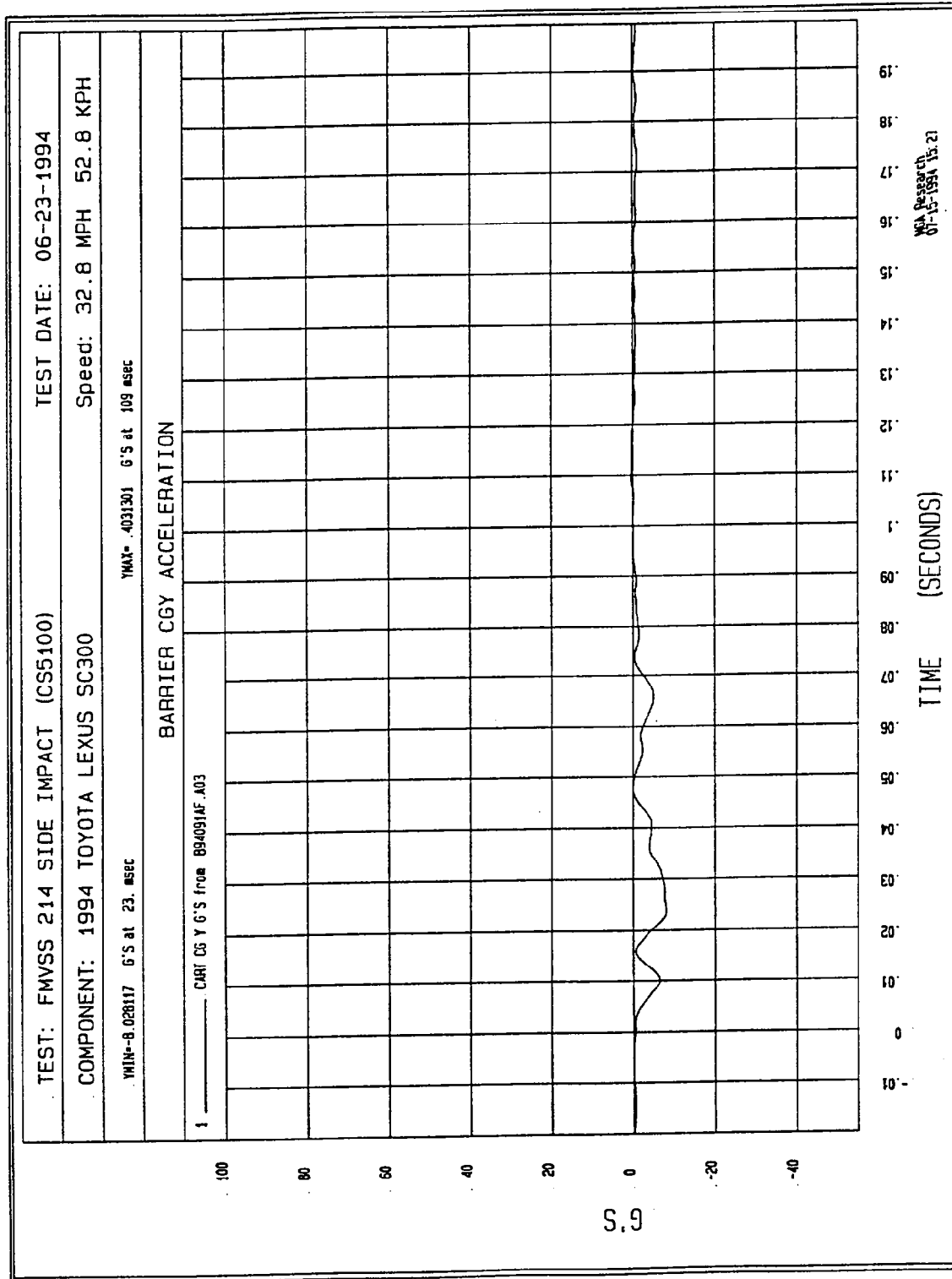


Figure B-54 - Moving Barrier Center of Gravity Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

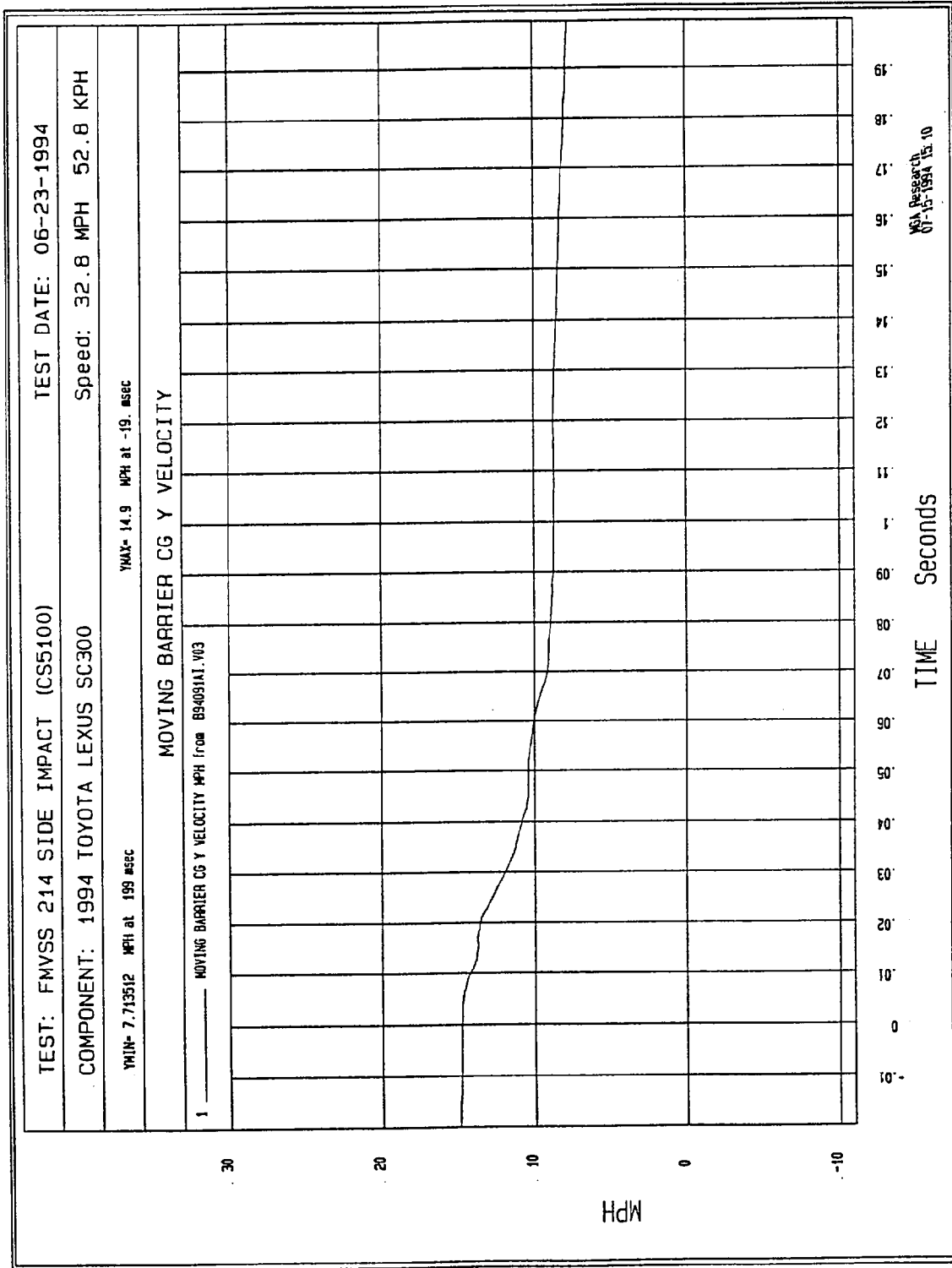


Figure B-55 - Moving Barrier Center of Gravity Y Velocity vs. Time

Filter: Class 60 (100 Hz)

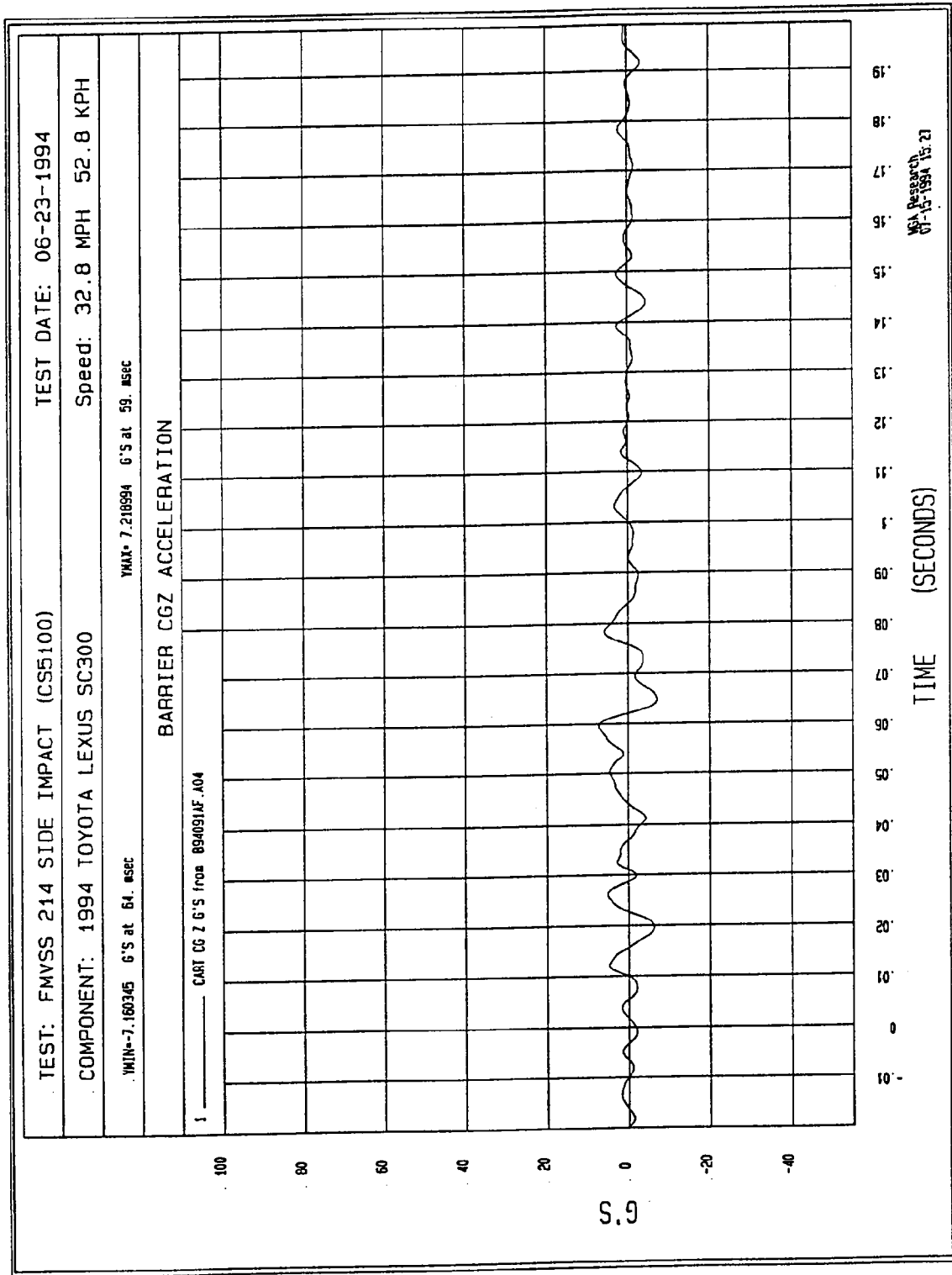


Figure B-56 - Moving Barrier Center of Gravity Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

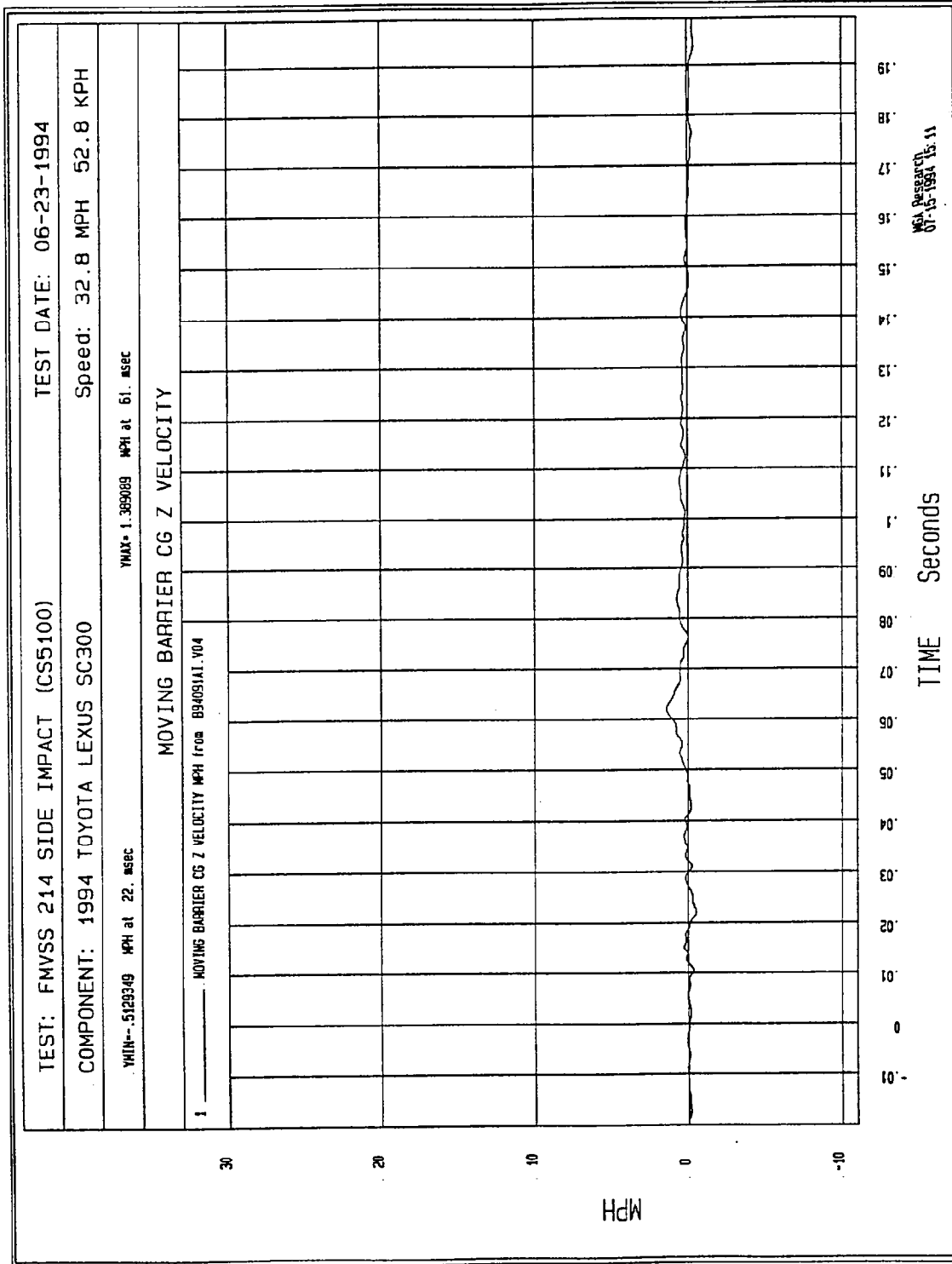


Figure B-57 - Moving Barrier Center of Gravity Z Velocity vs. Time

Filter: Class 60 (100 Hz)

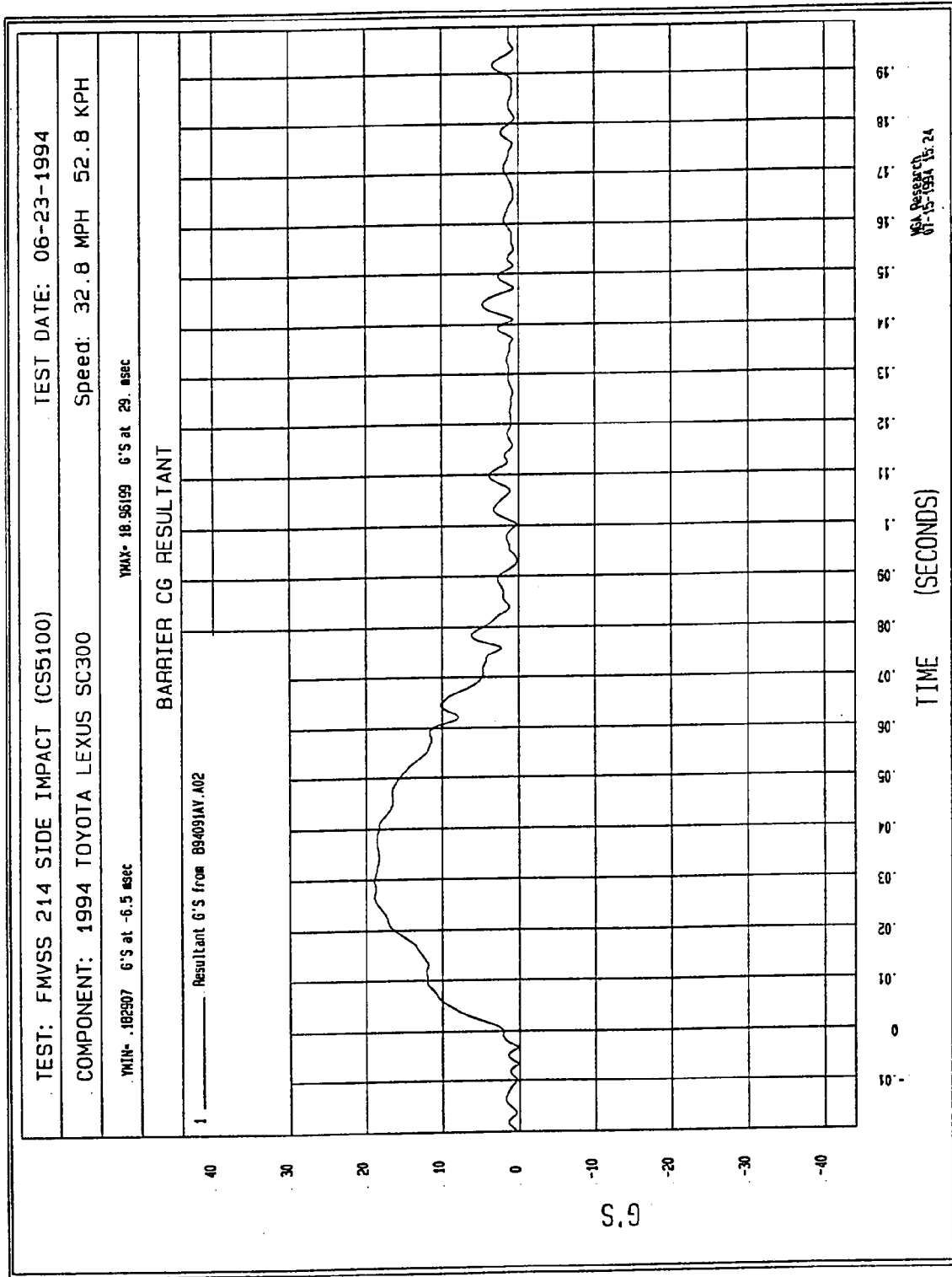


Figure B-58 - Moving Barrier Center of Gravity Resultant vs. Time

Filter: Class 60 (100 Hz)

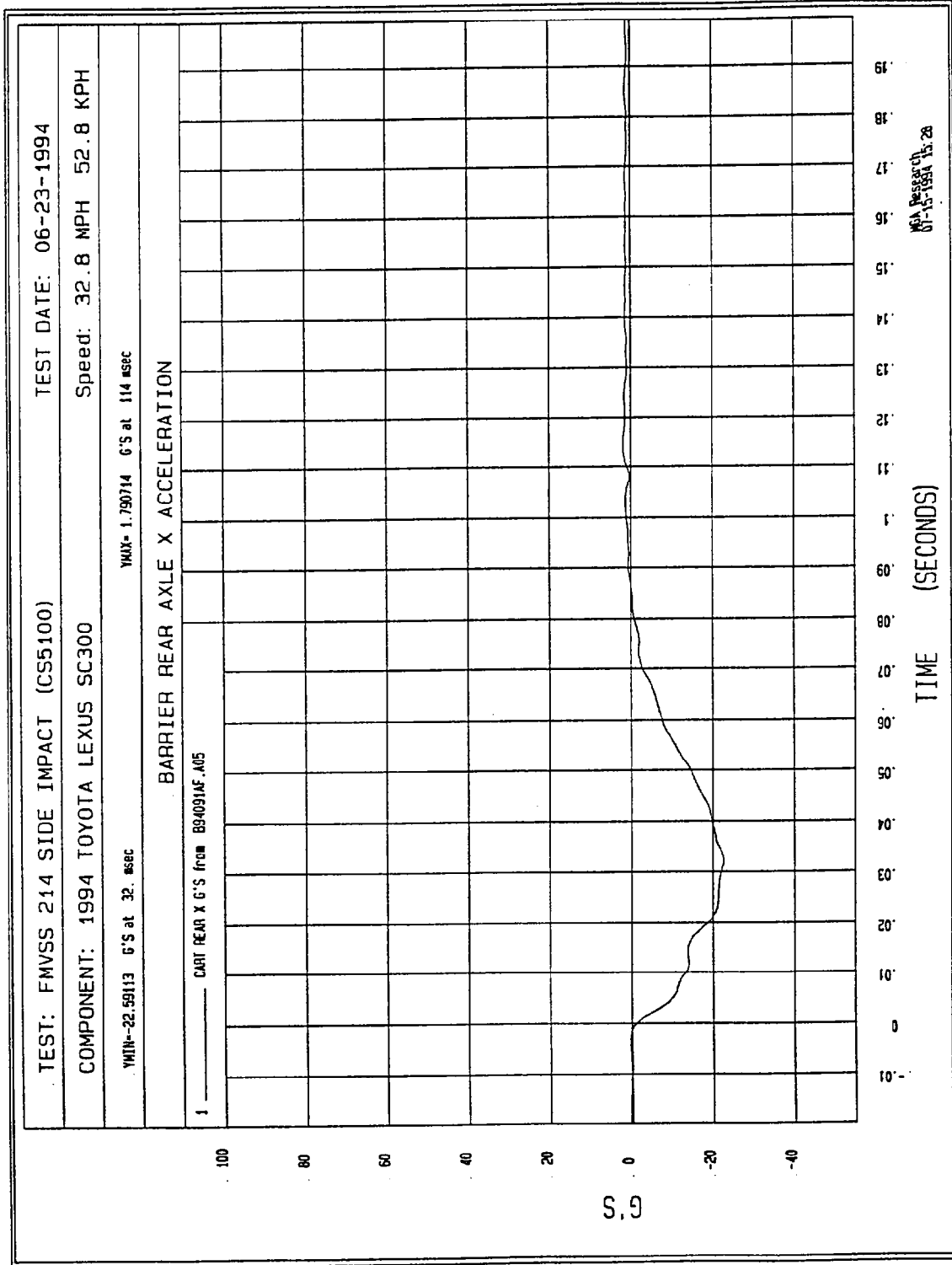


Figure B-59 - Moving Barrier Rear Axle X Acceleration vs. Time

Filter: Class 180 (300 Hz)

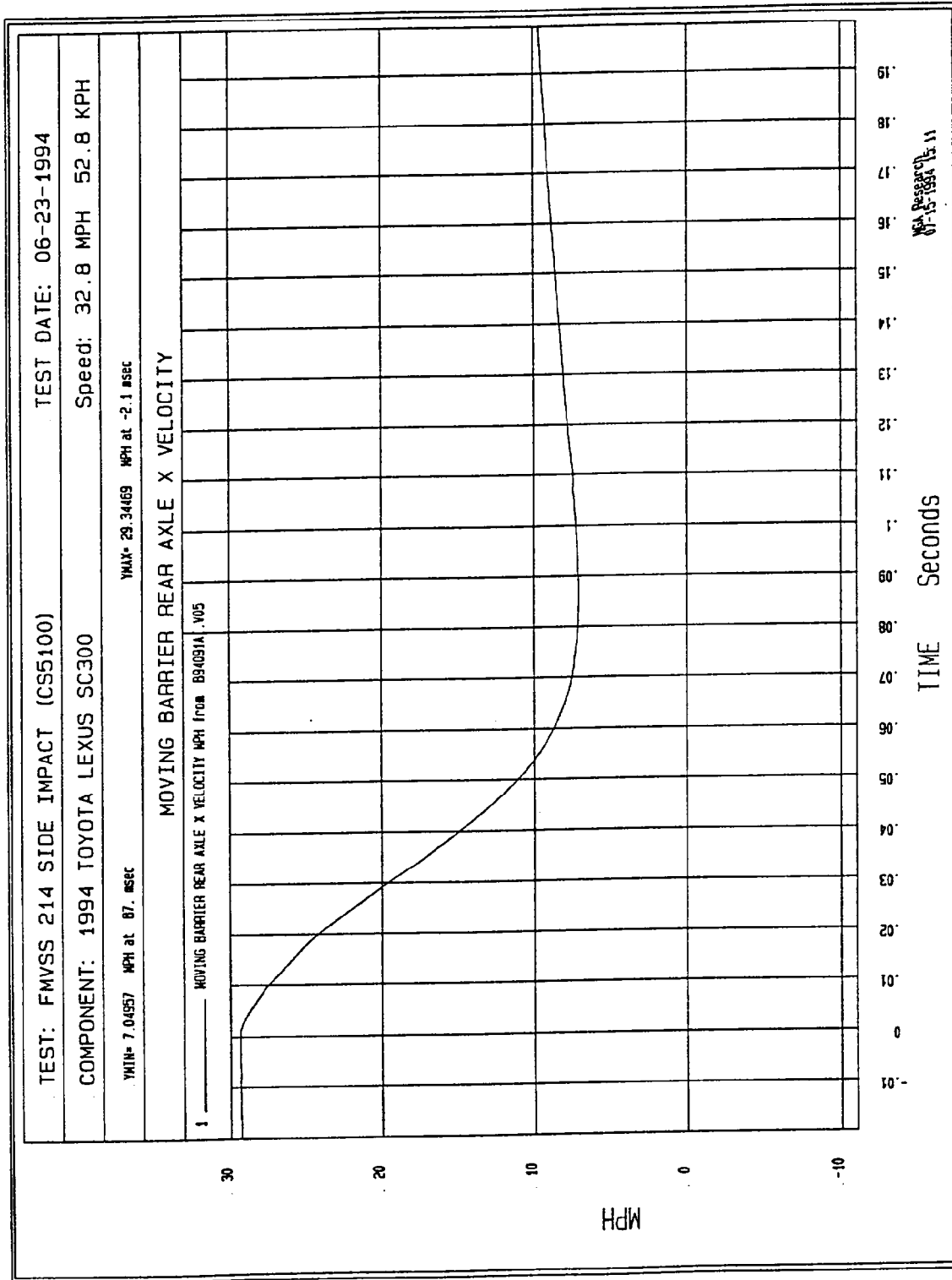


Figure B-60 - Moving Barrier Rear Axle X Velocity vs. Time

Filter: Class 60 (100 Hz)

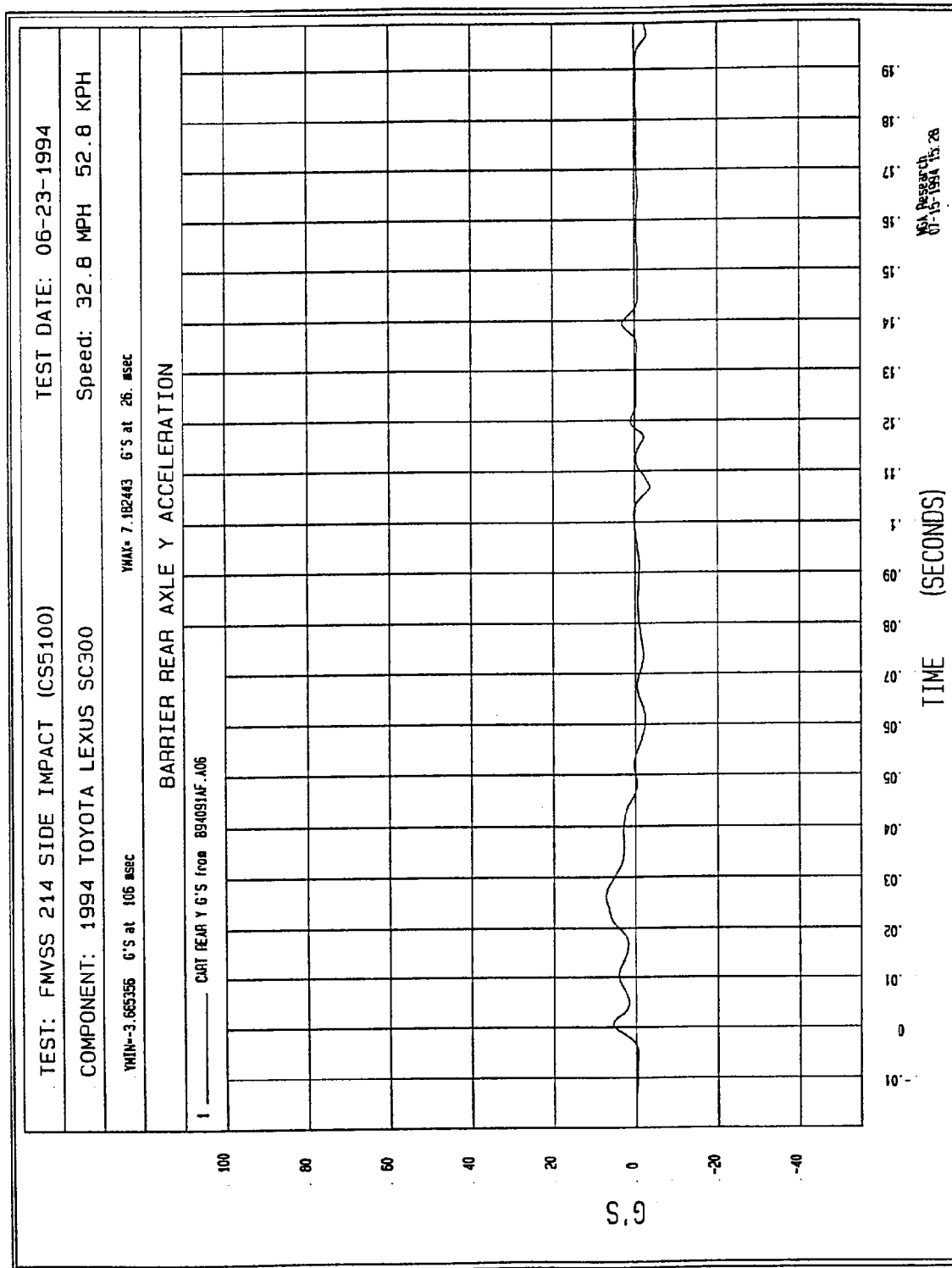


Figure B-61 - Moving Barrier Rear Axle Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

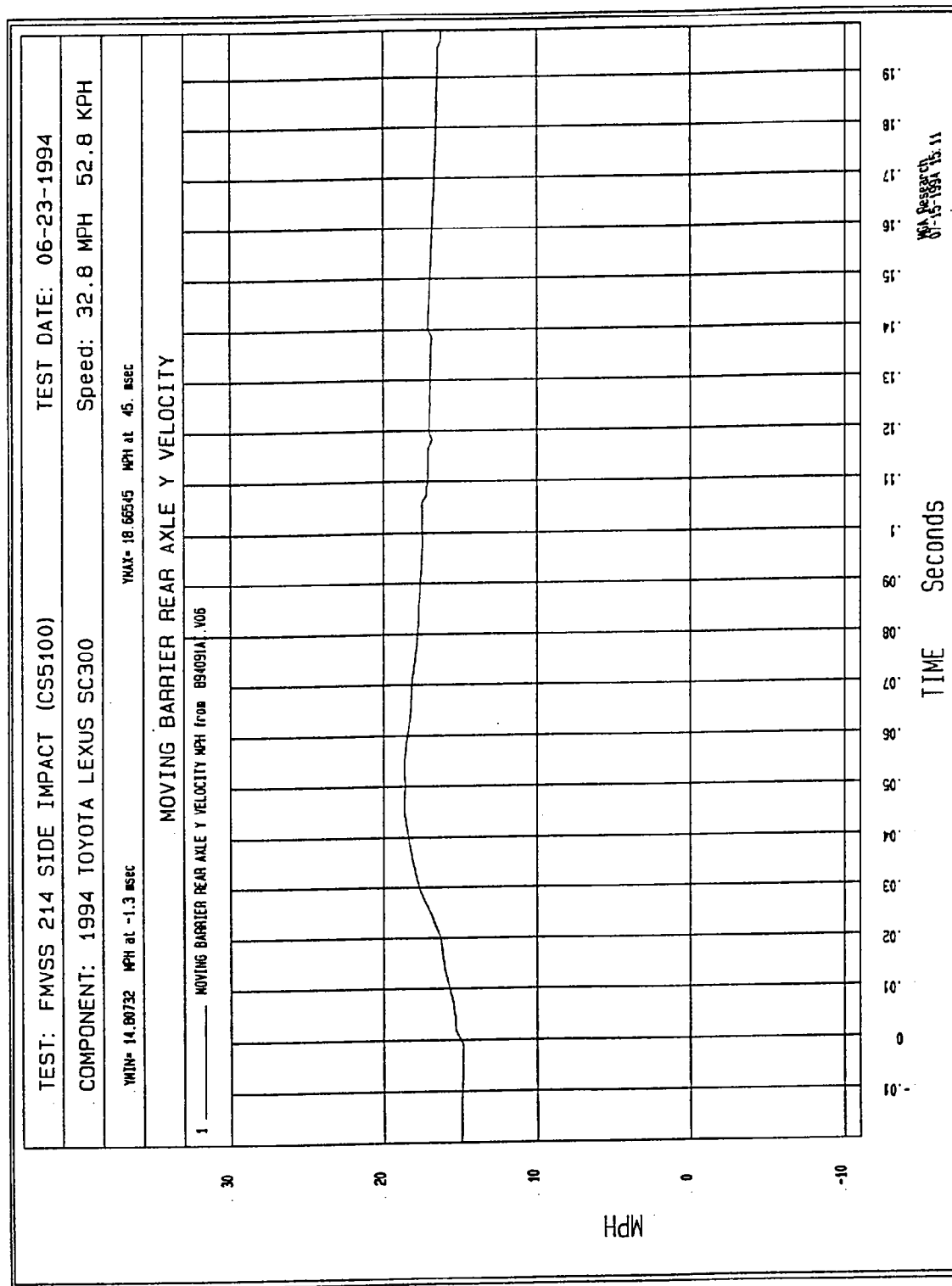


Figure B-62 - Moving Barrier Rear Axle Y Velocity vs. Time

Filter: Class 1000 (1650 Hz)

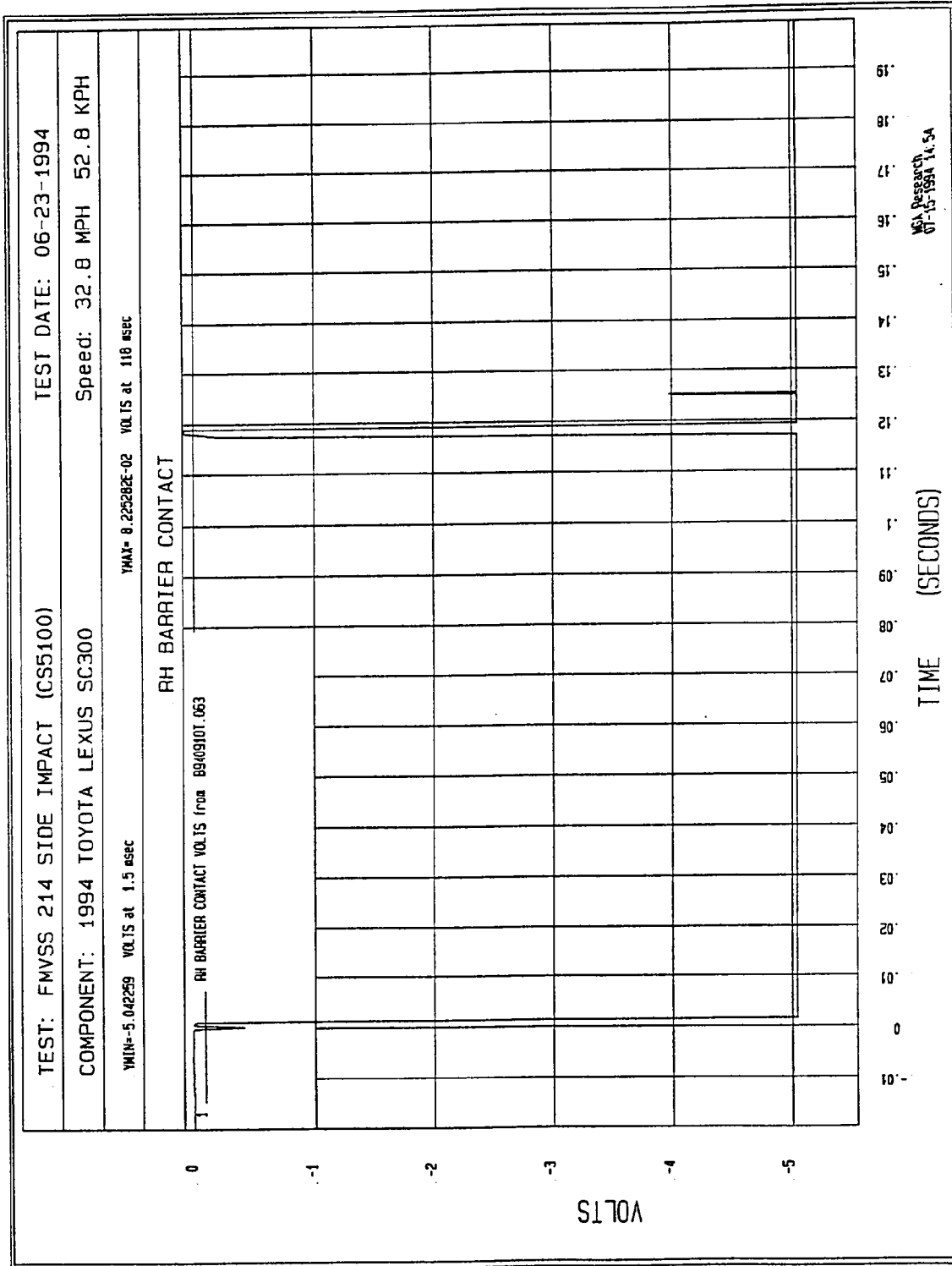


Figure B-63 - Right Hand Barrier Contact

Filter: Class 1000 (1650 Hz)

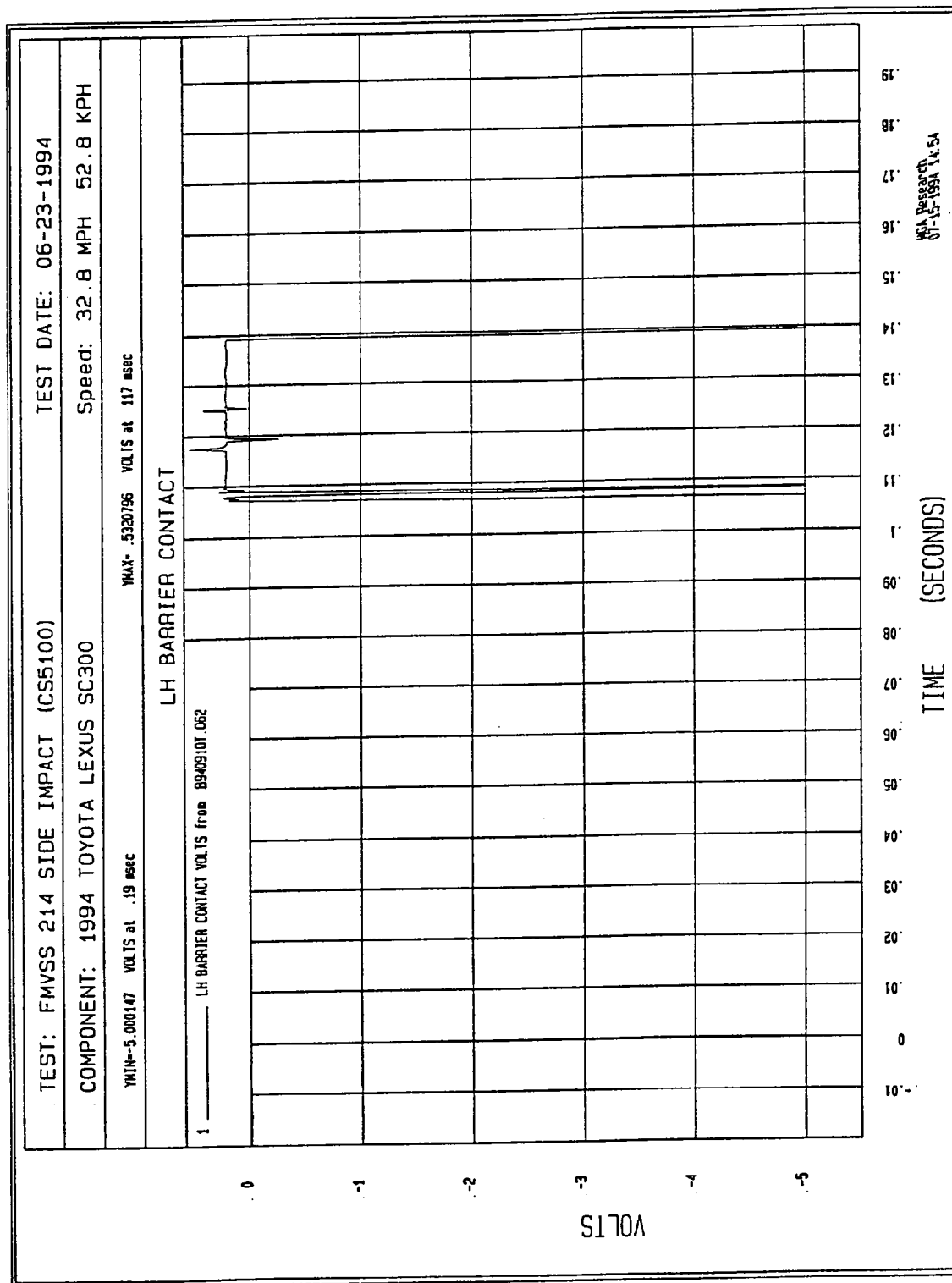


Figure B-64 - Left Hand Barrier Contact

Filter: Class 180 (300 Hz)

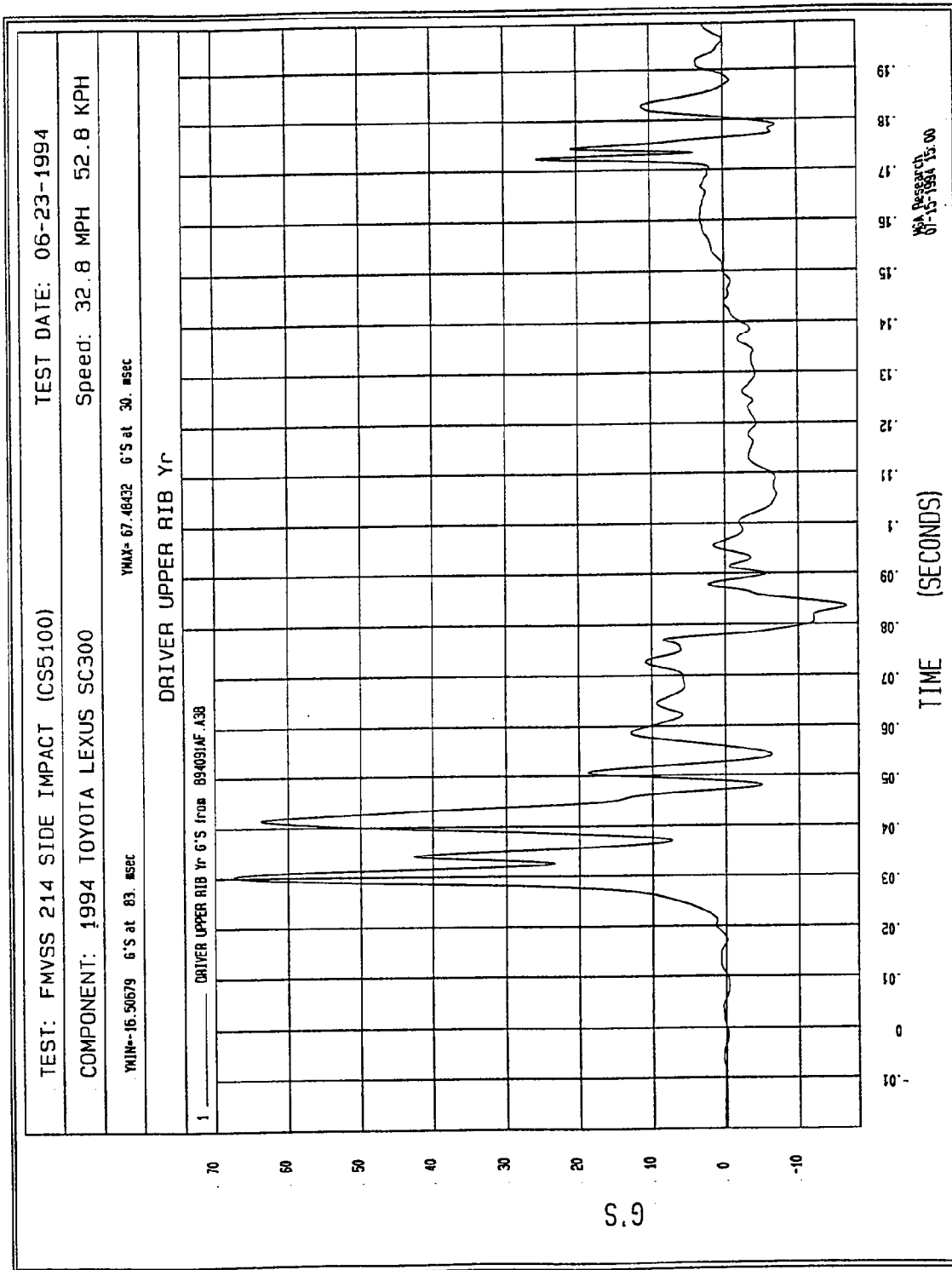


Figure B-65 - Driver Upper Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

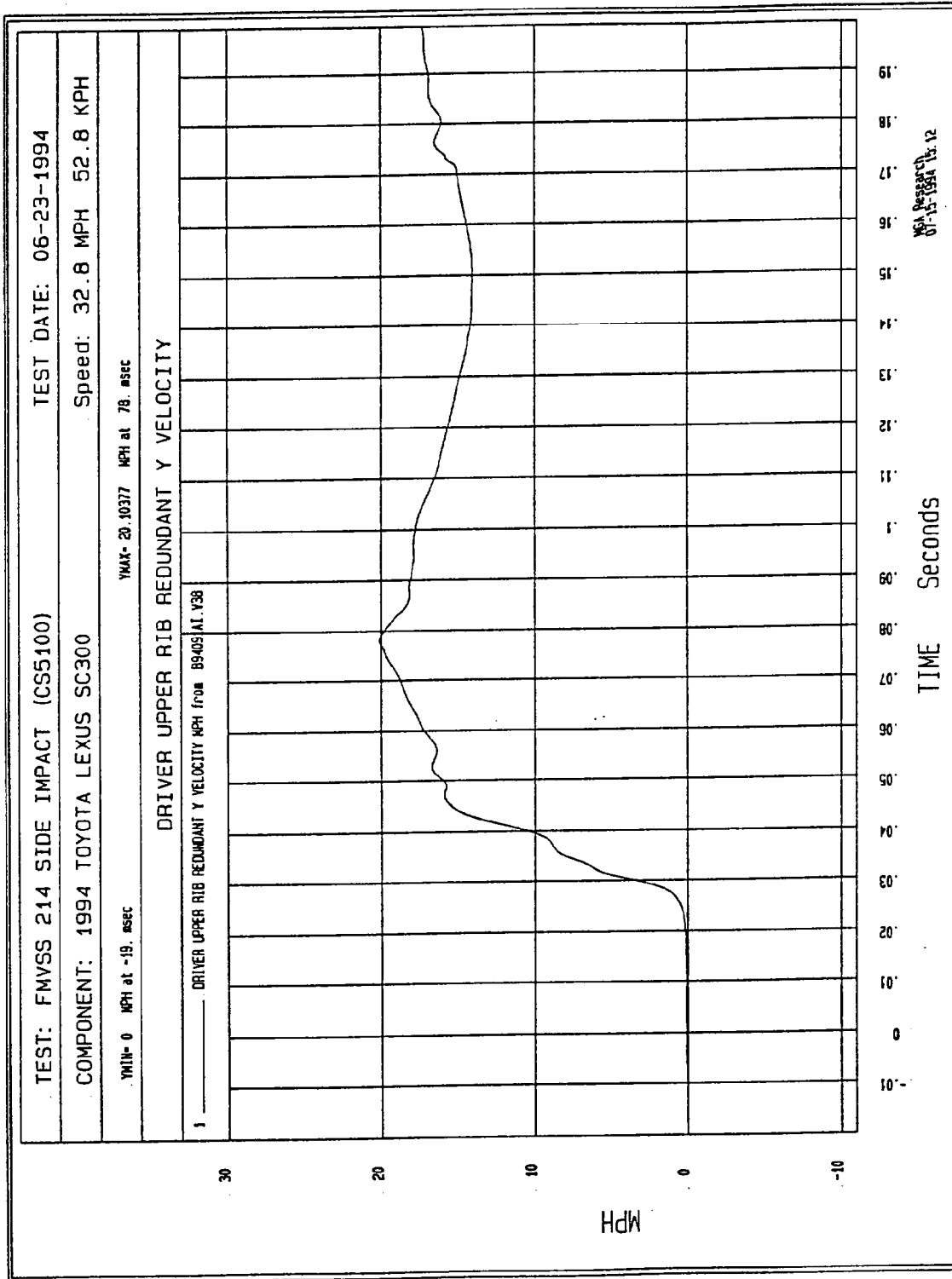


Figure B-66 - Driver Upper Rib Y Redundant Velocity vs. Time

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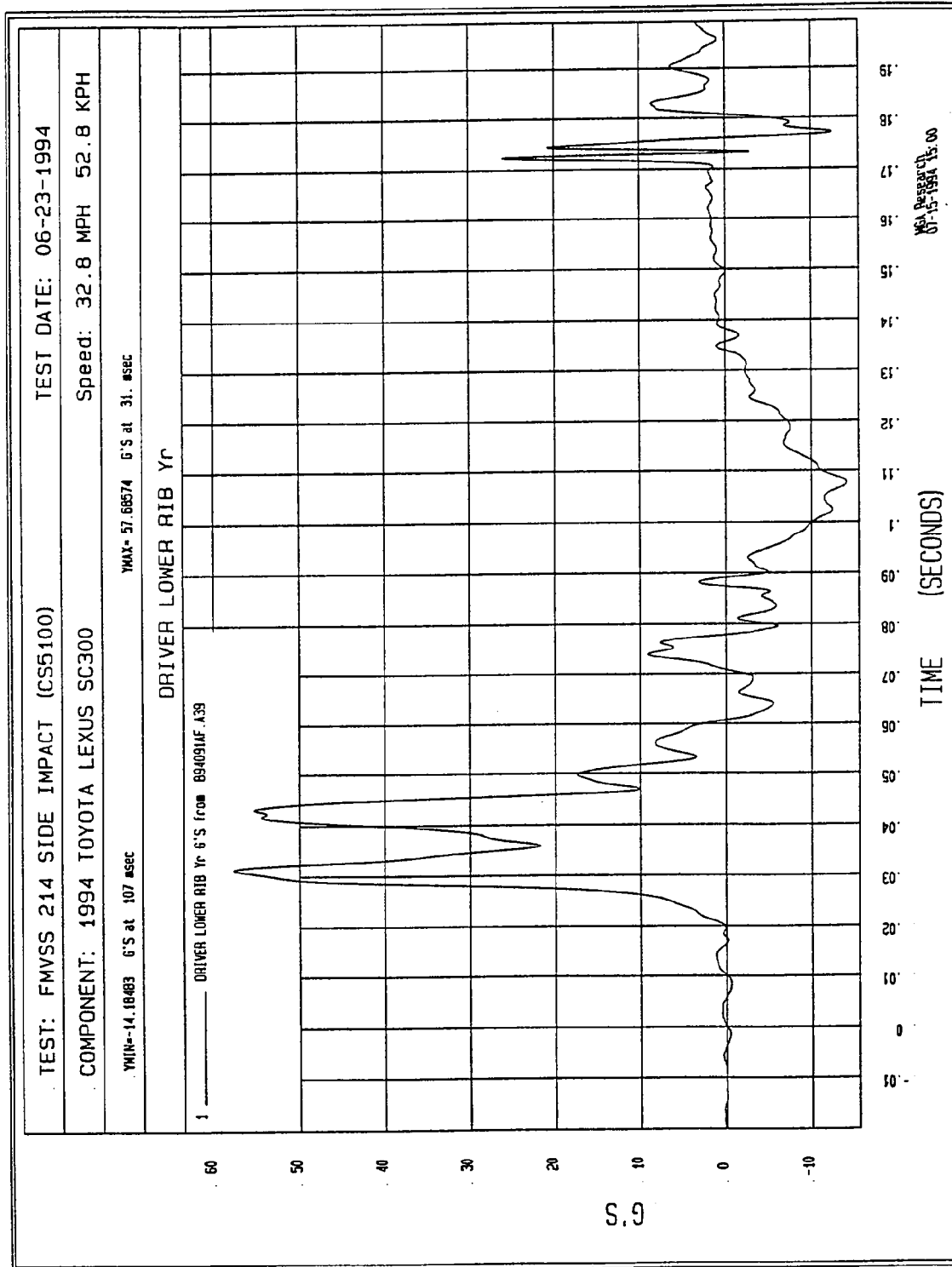


Figure B-67 - Driver Lower Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

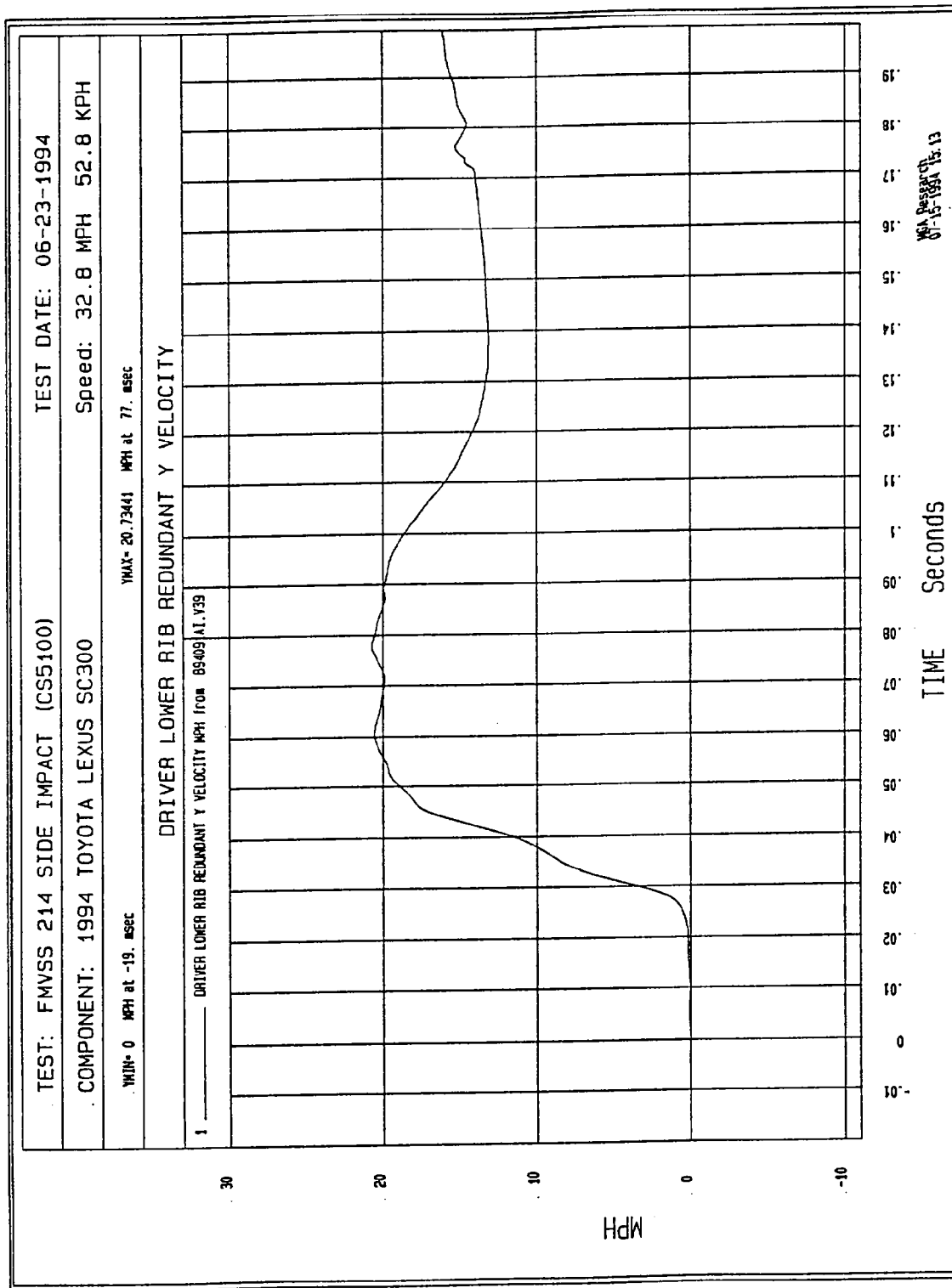


Figure B-68 - Driver Lower Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

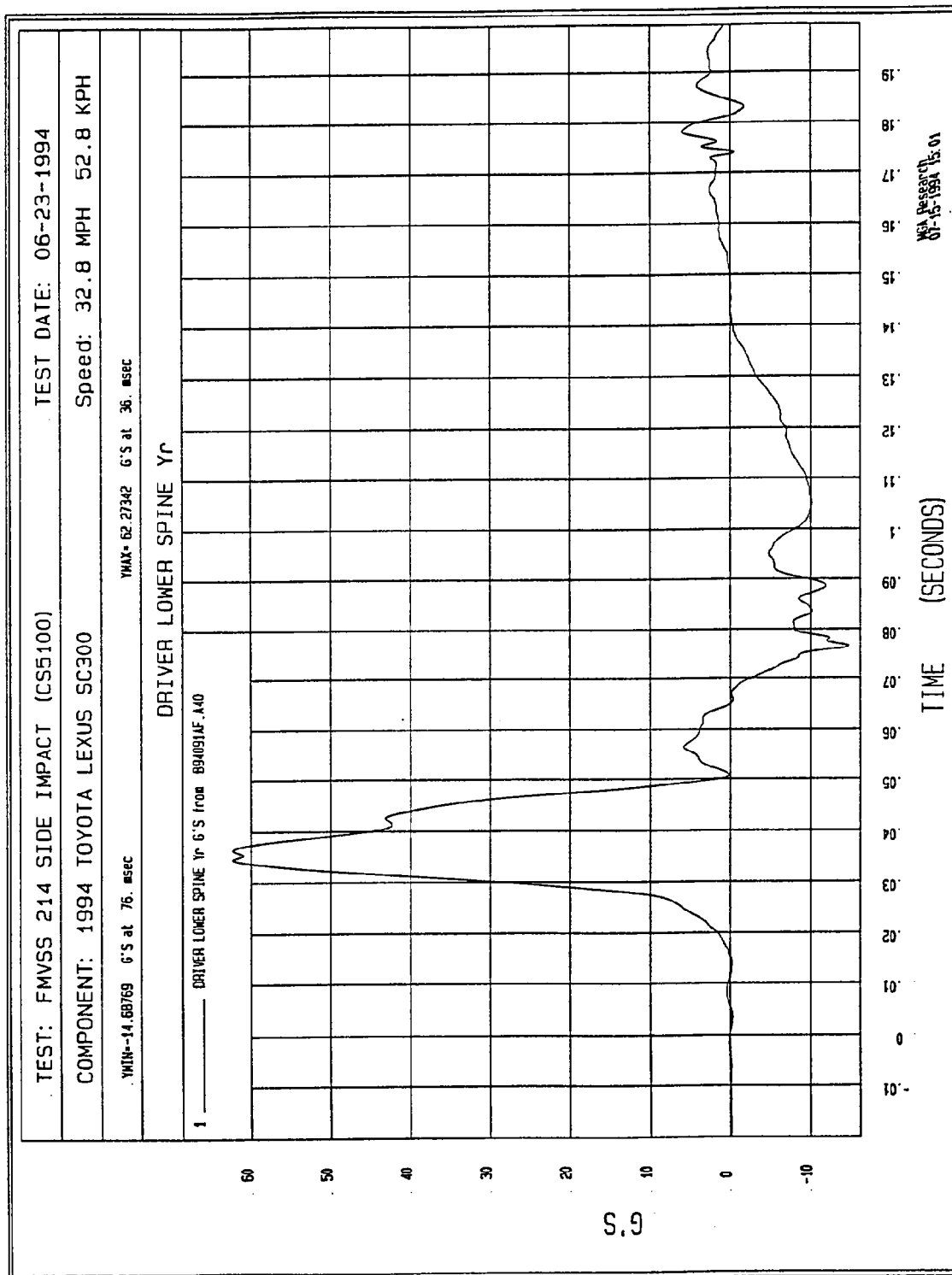


Figure B-69 - Driver Lower Spine Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

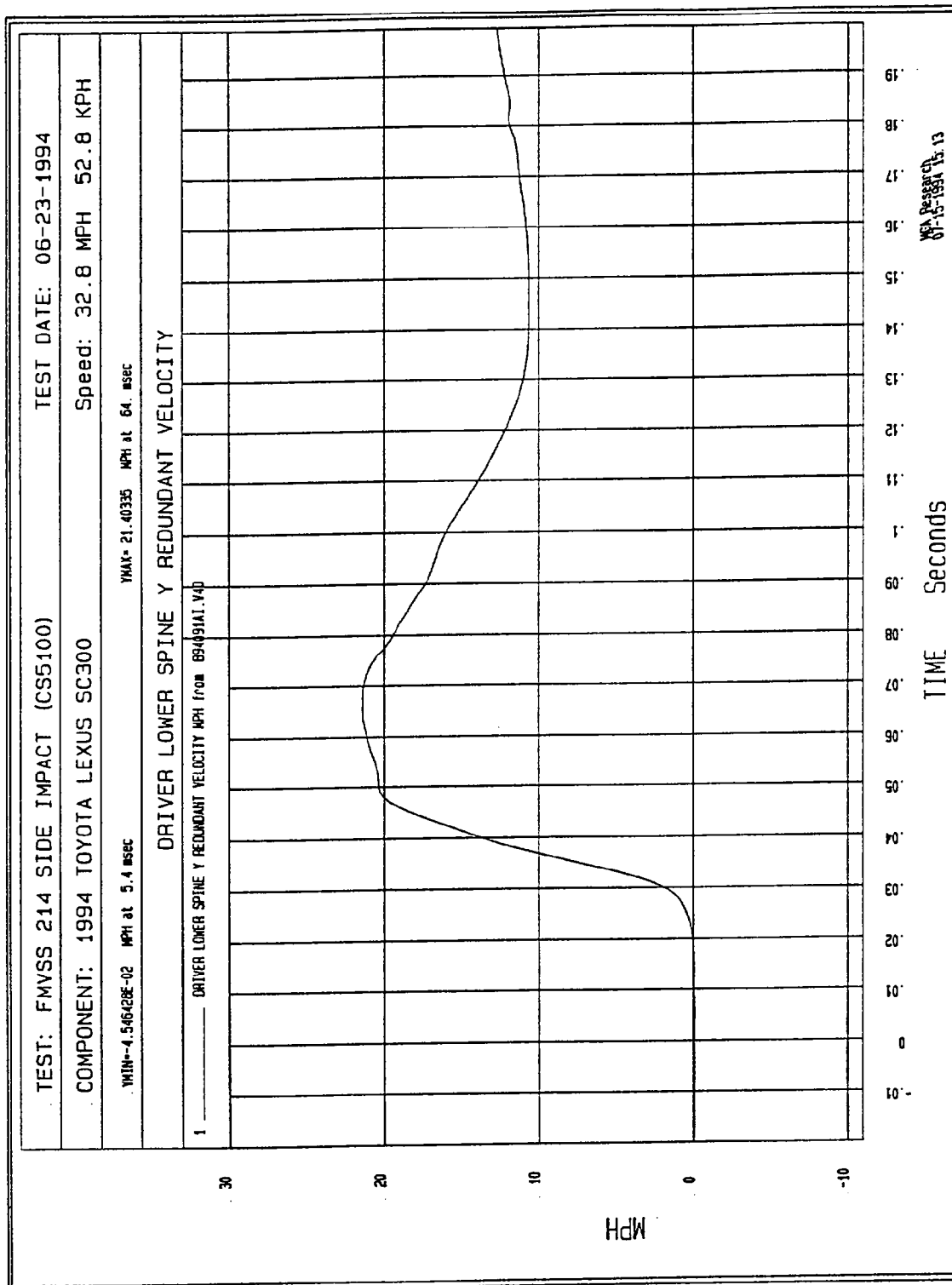


Figure B-70 - Driver Lower Spine Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

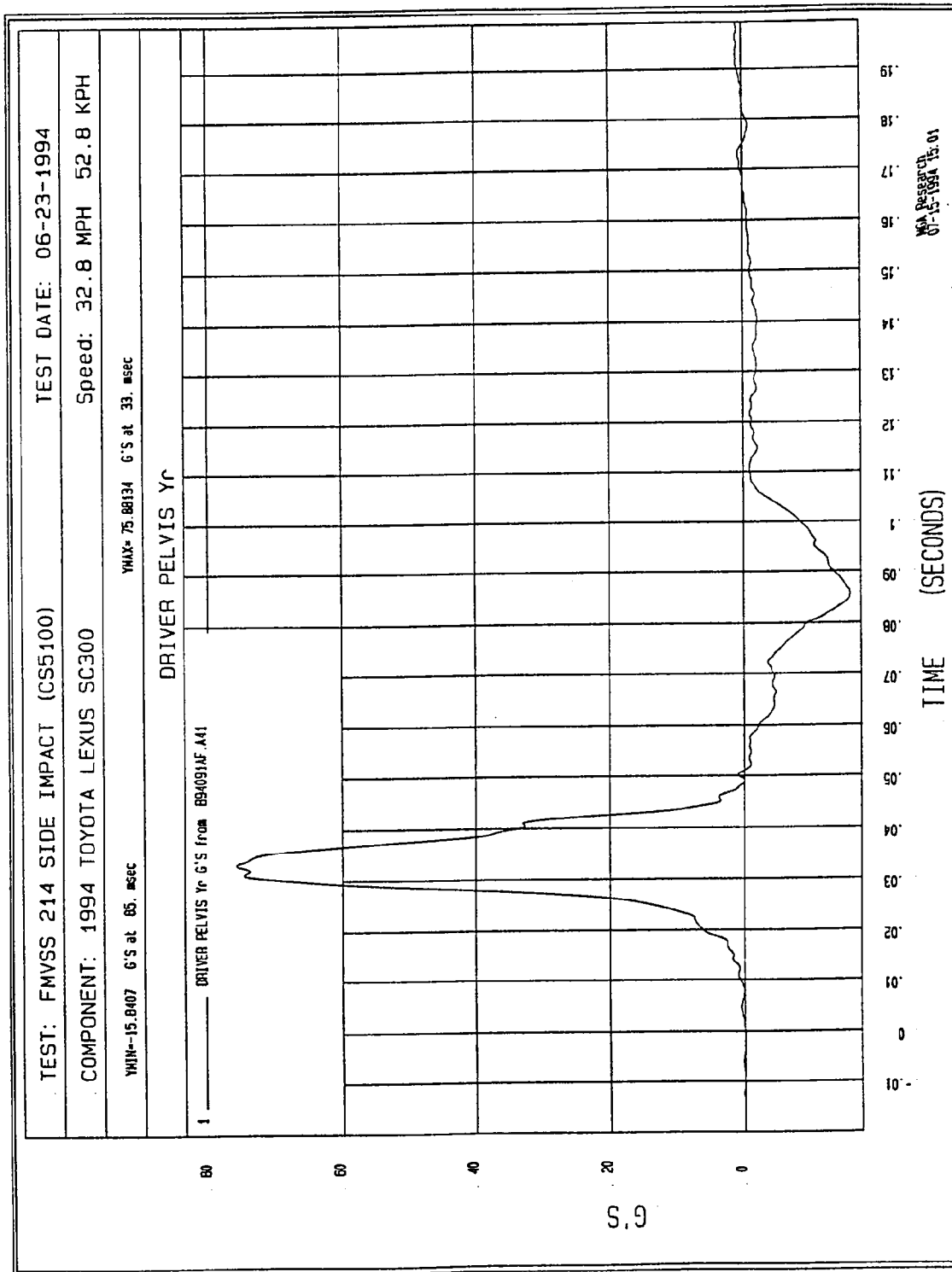


Figure B-71 - Driver Pelvis Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

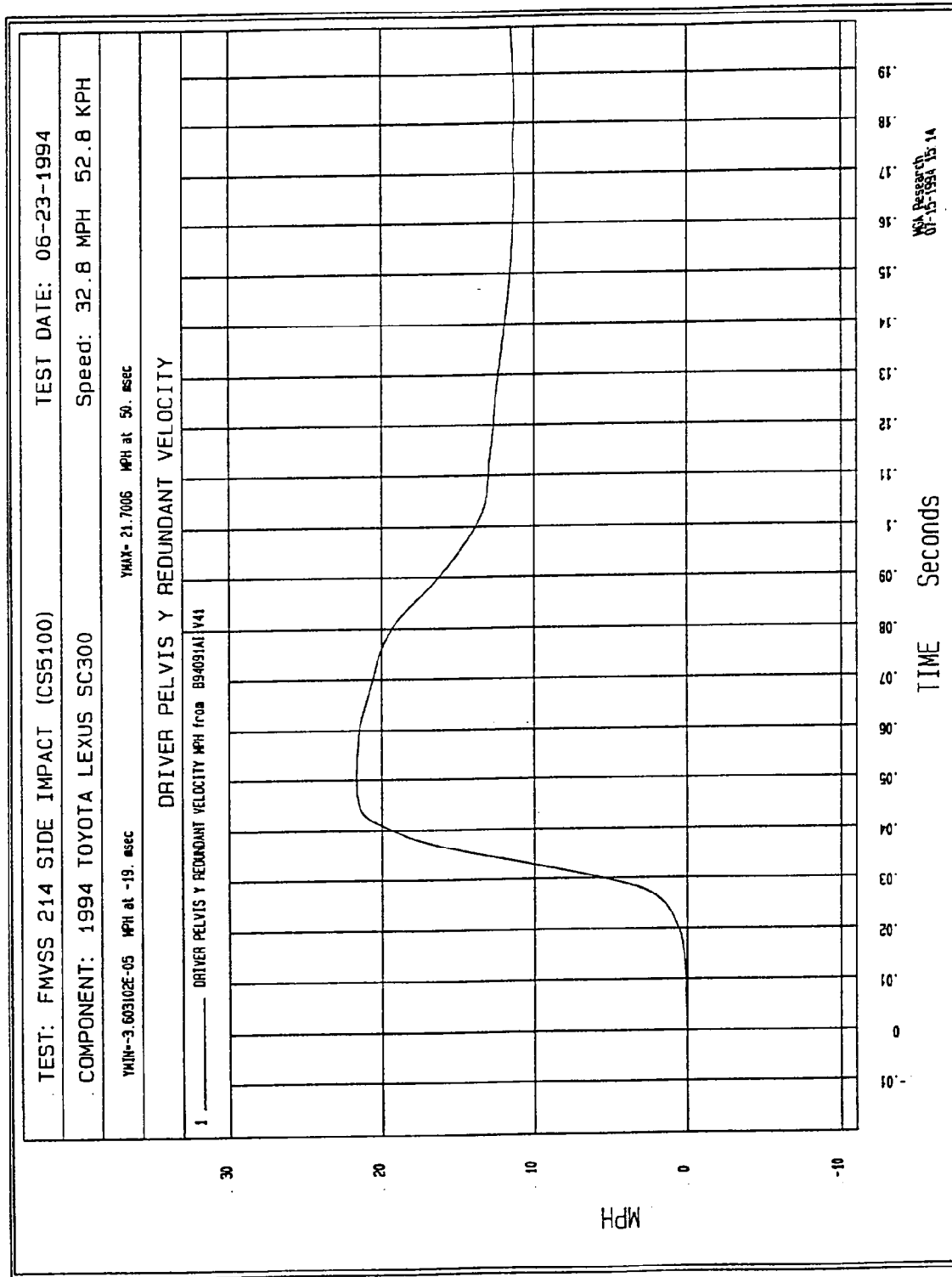


Figure B-72 - Driver Pelvis Y Redundant Velocity vs. Time

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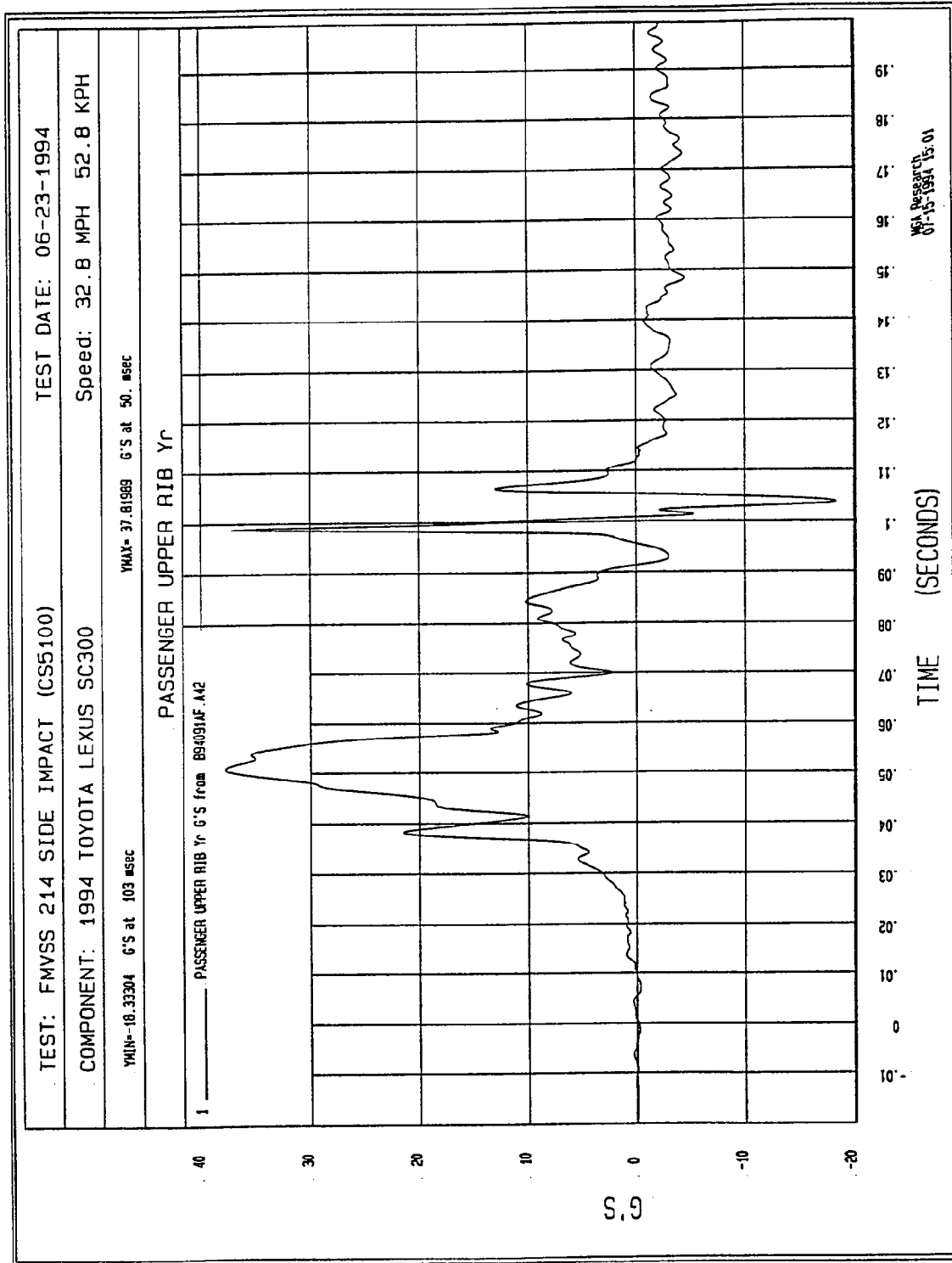


Figure B-73 - Passenger Upper Rib Y Redundant Acceleration vs. Time

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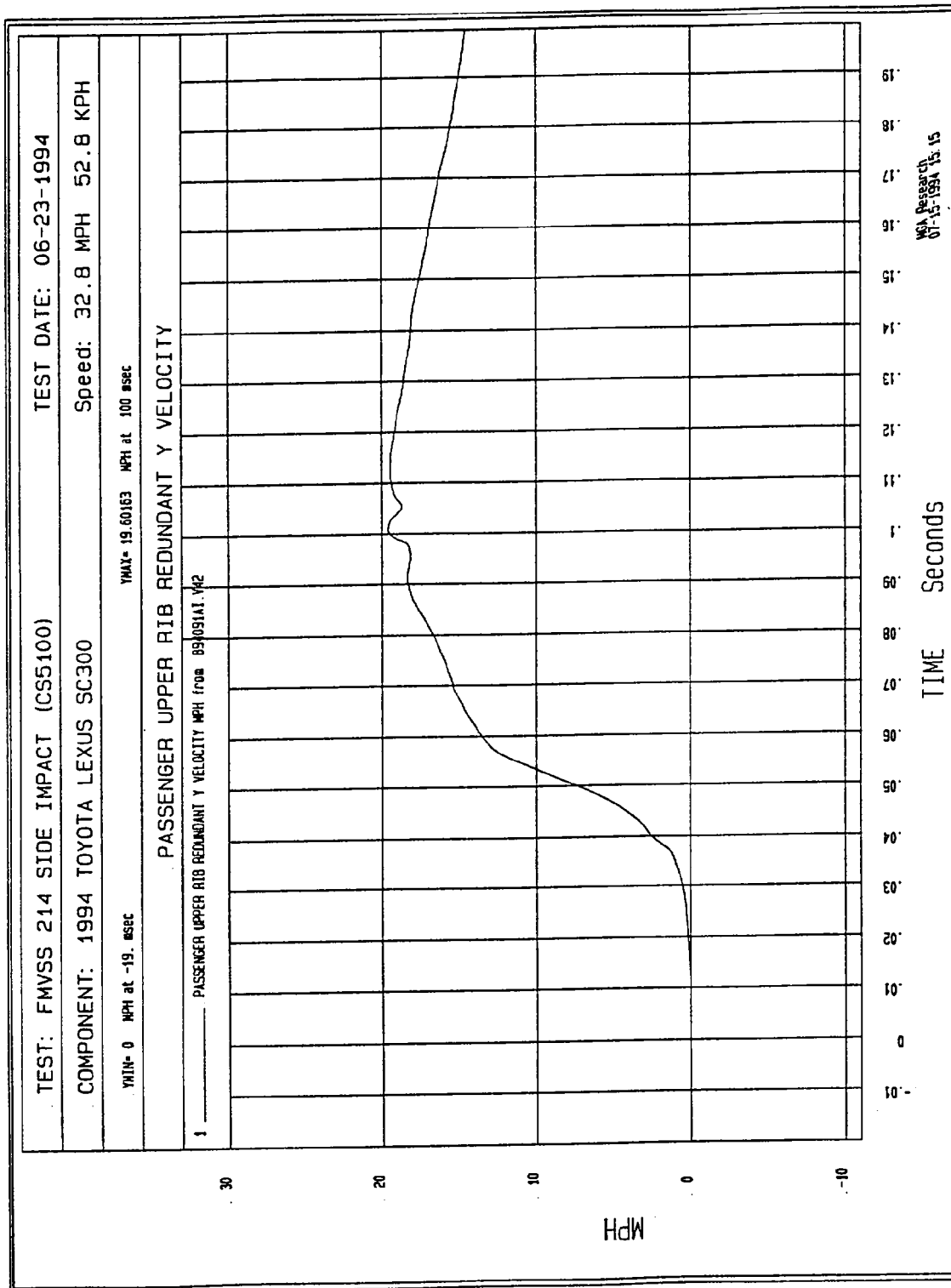


Figure B-74 - Passenger Upper Rib Y Redundant Velocity vs. Time

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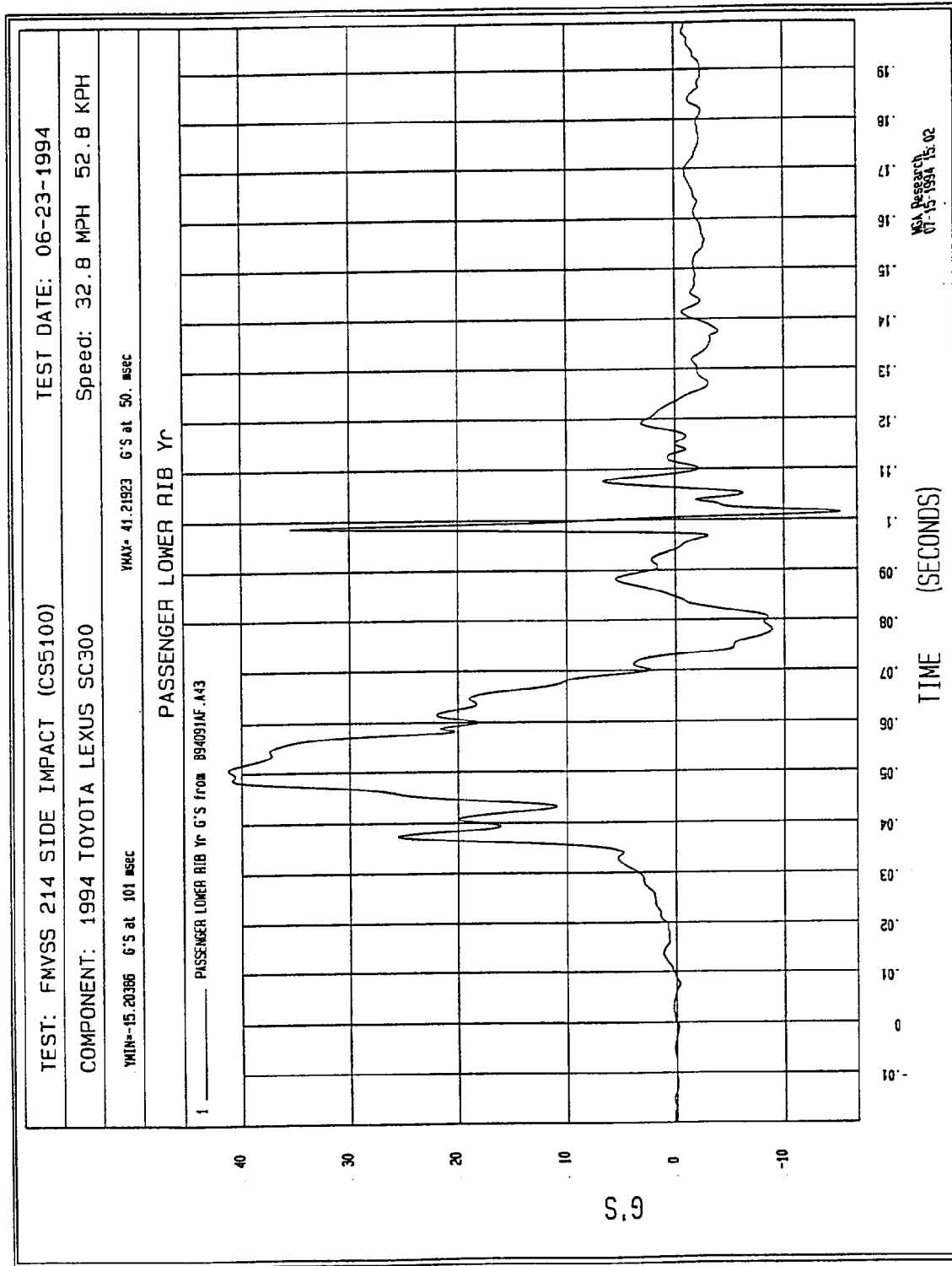


Figure B-75 - Passenger Lower Rib Y Redundant Acceleration vs. Time

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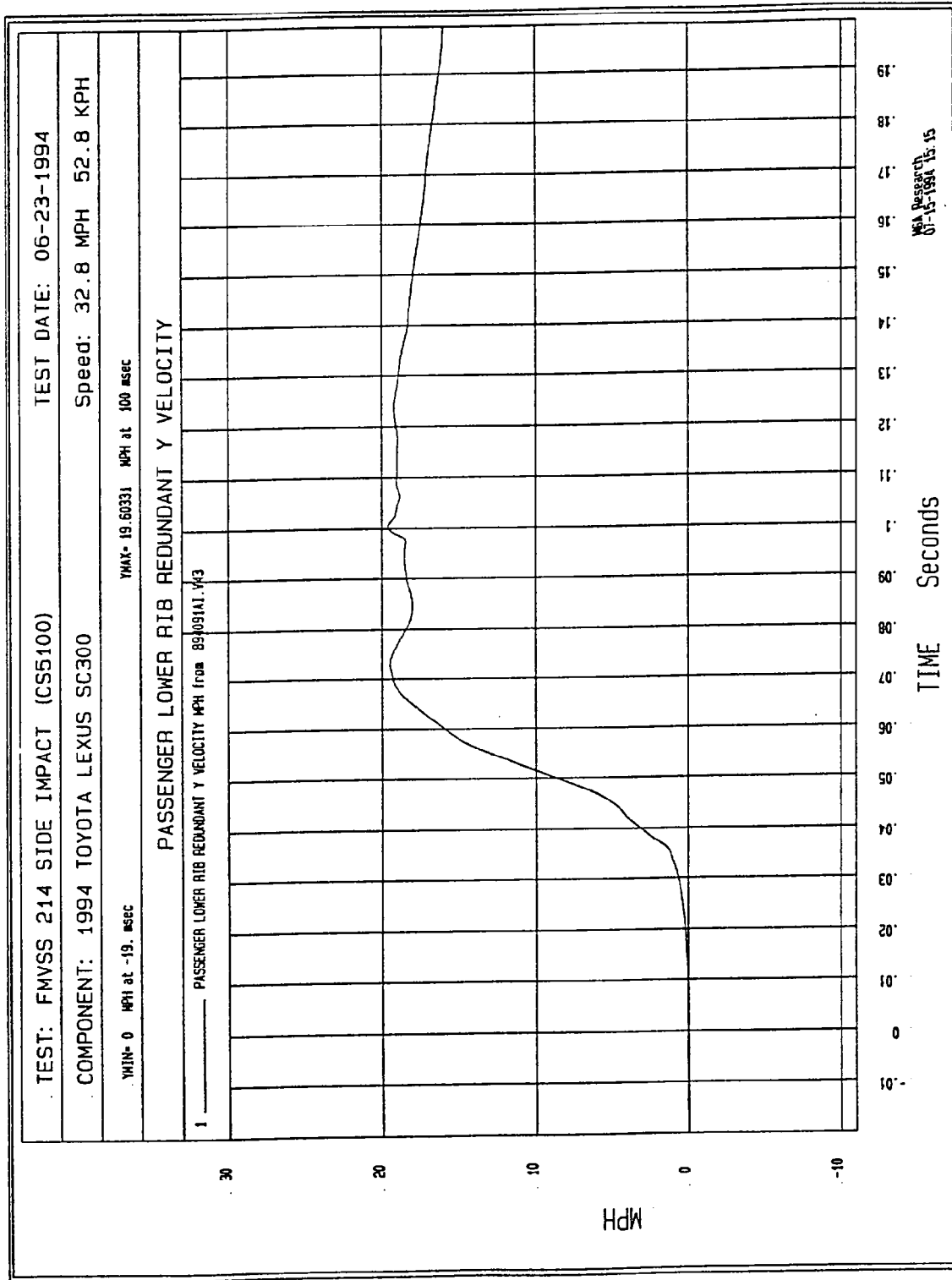


Figure B-76 - Passenger Lower Rib Y Redundant Velocity vs. Time

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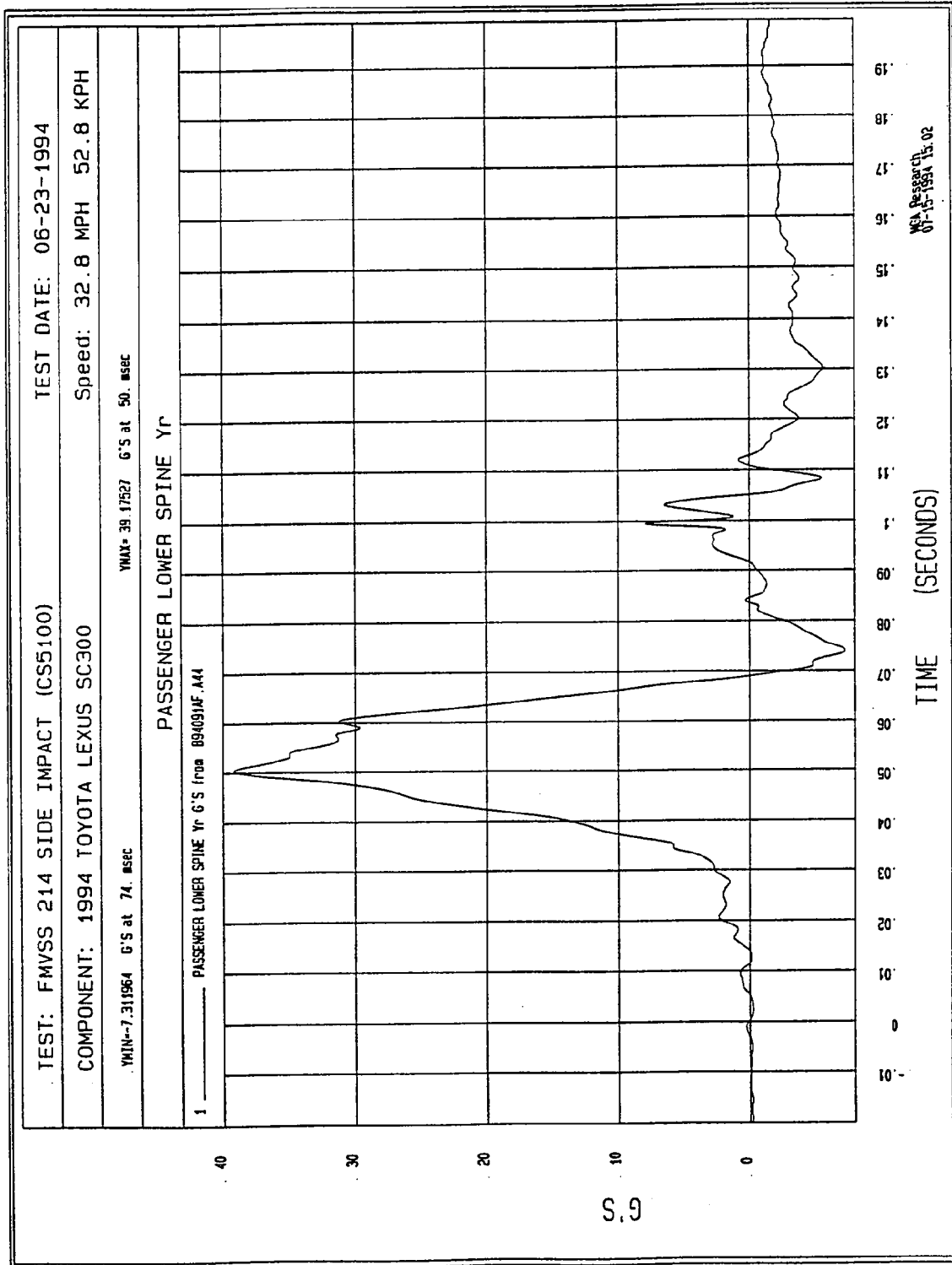


Figure B-77 - Passenger Lower Spine Y Redundant Acceleration vs. Time

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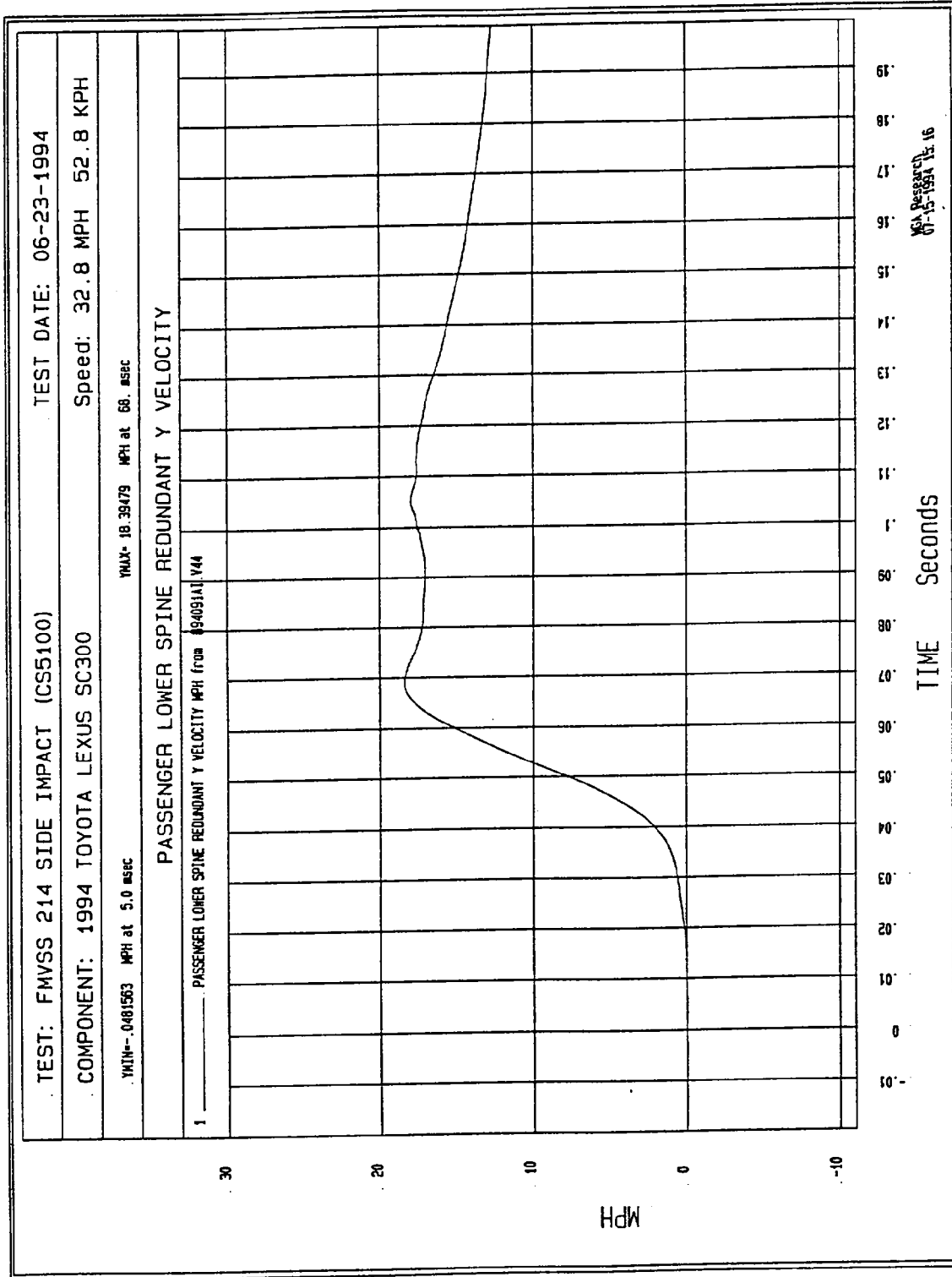


Figure B-78 - Passenger Lower Spine Y Redundant Velocity vs. Time

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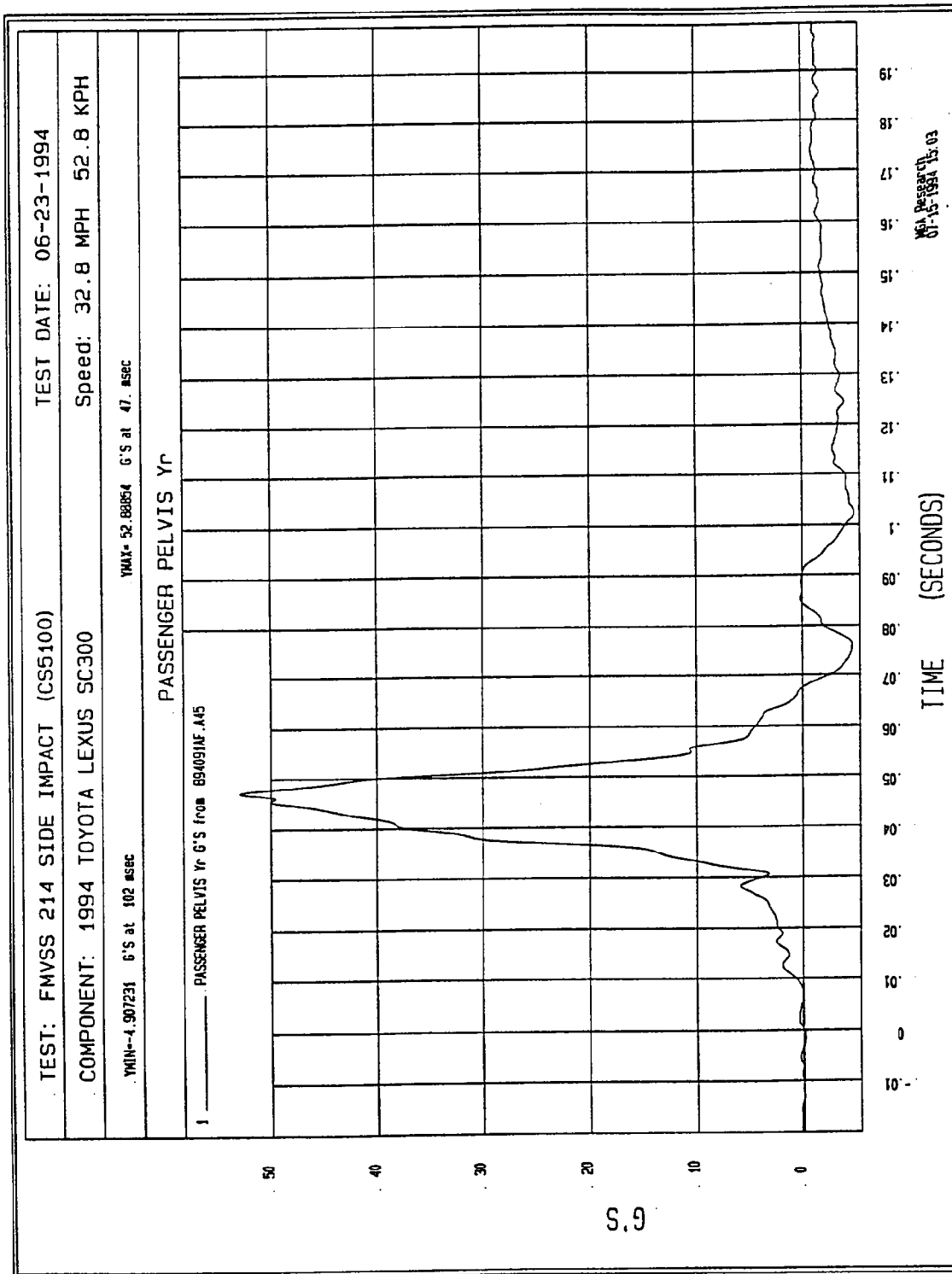


Figure B-79 - Passenger Pelvis Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

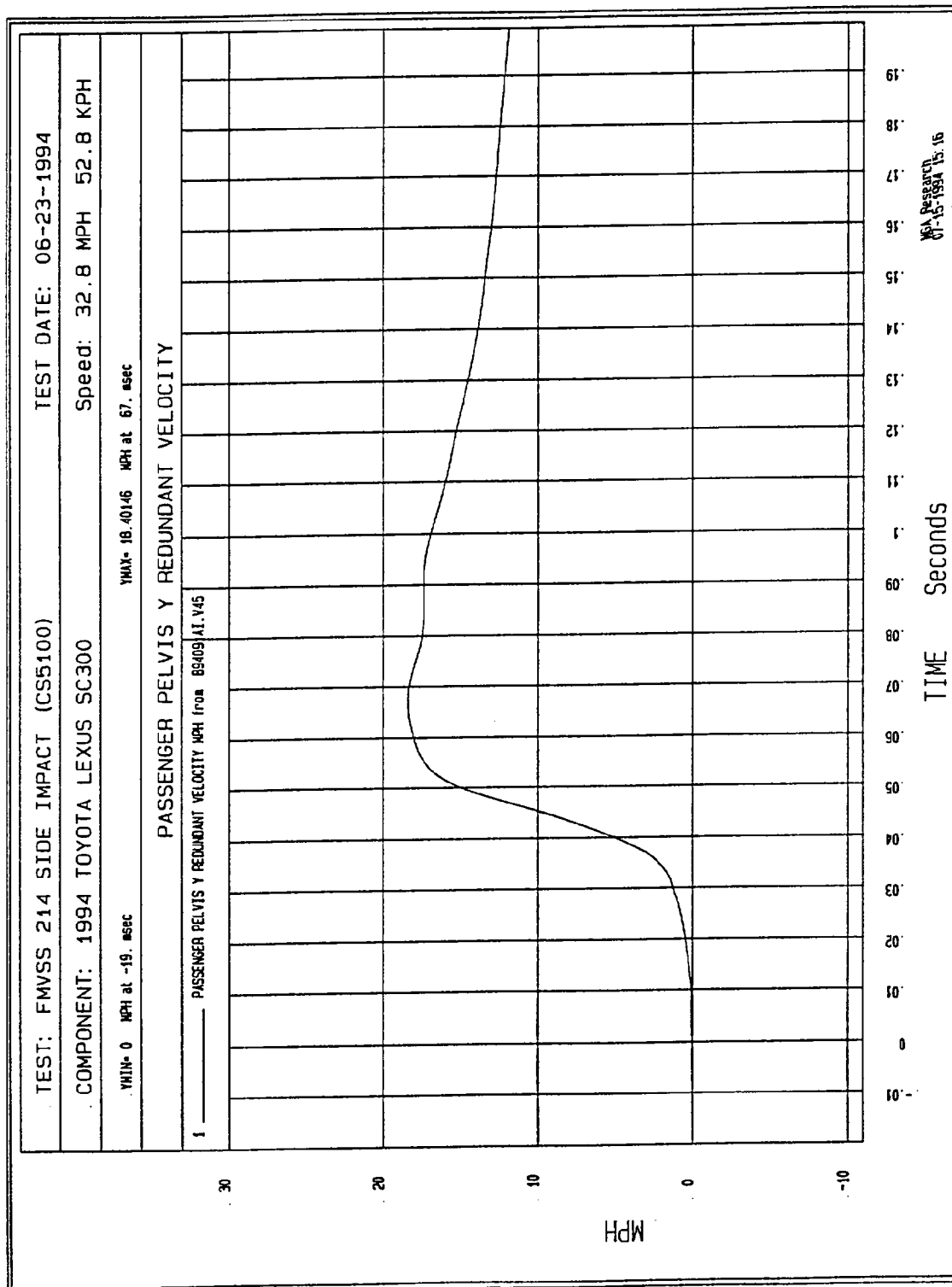


Figure B-80 - Passenger Pelvis Y Redundant Velocity vs. Time

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA

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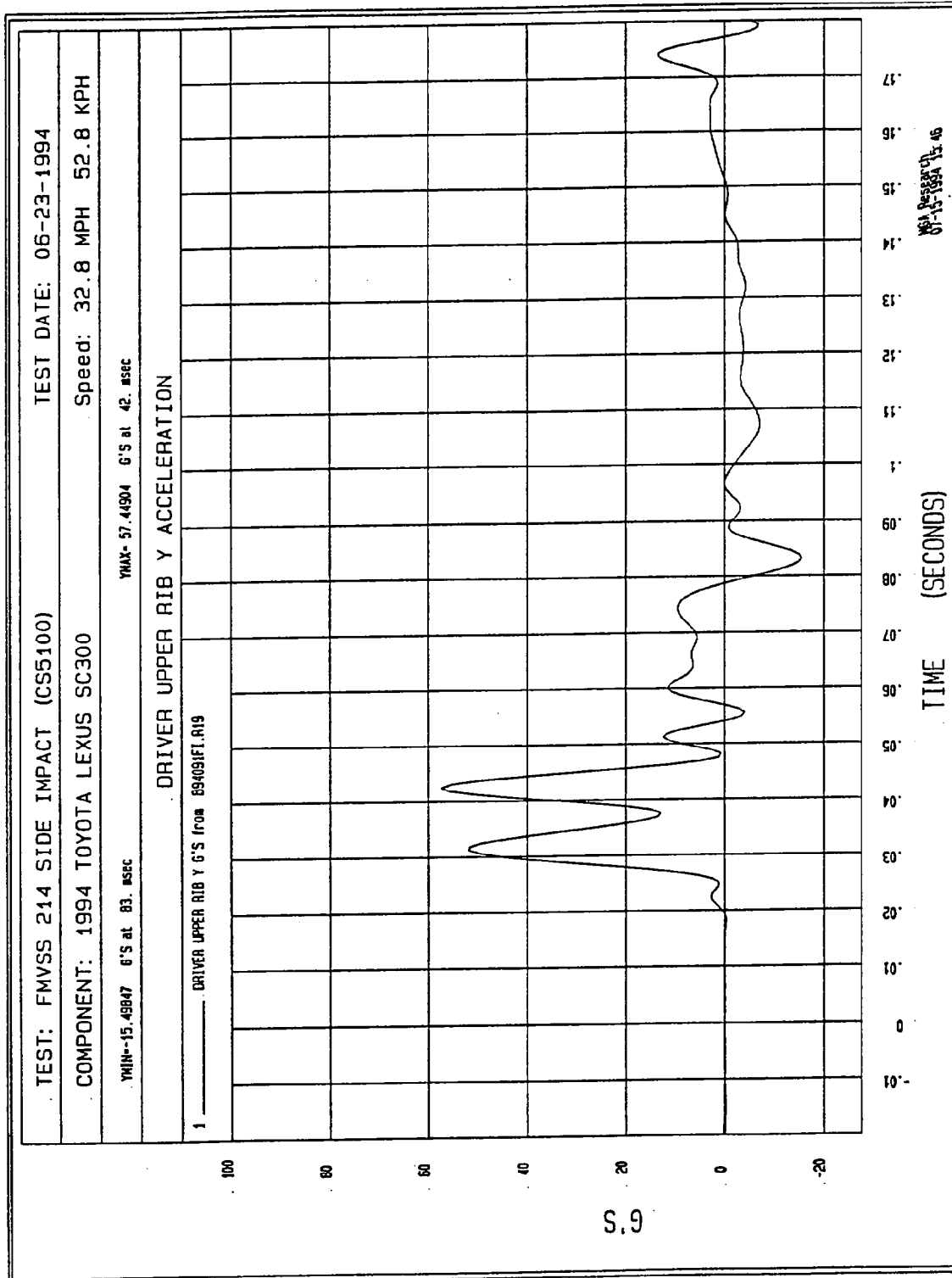


Figure B-81 - Driver Upper Rib Y Acceleration vs. Time

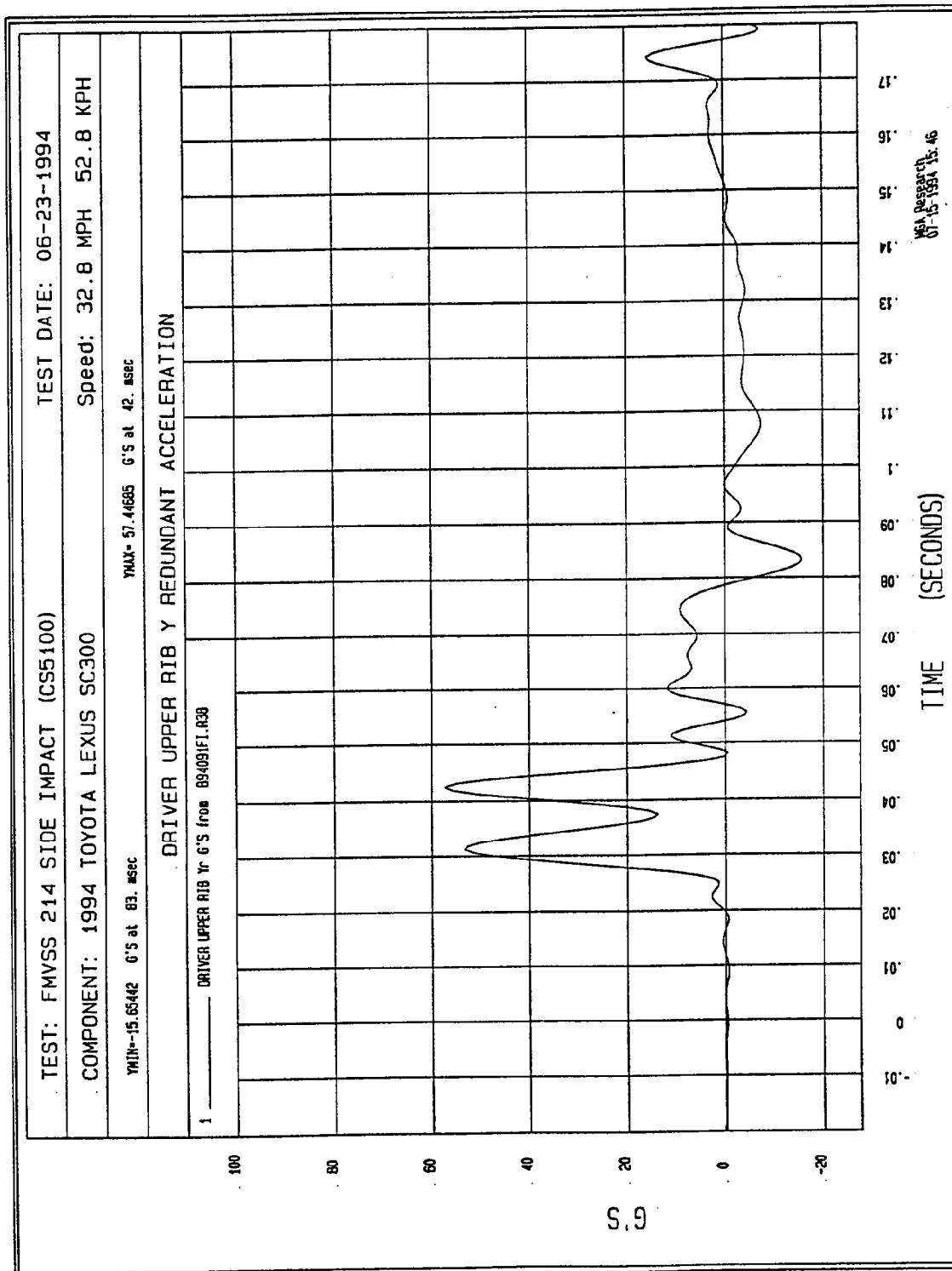


Figure B-82 - Driver Upper Rib Y Redundant Acceleration vs. Time

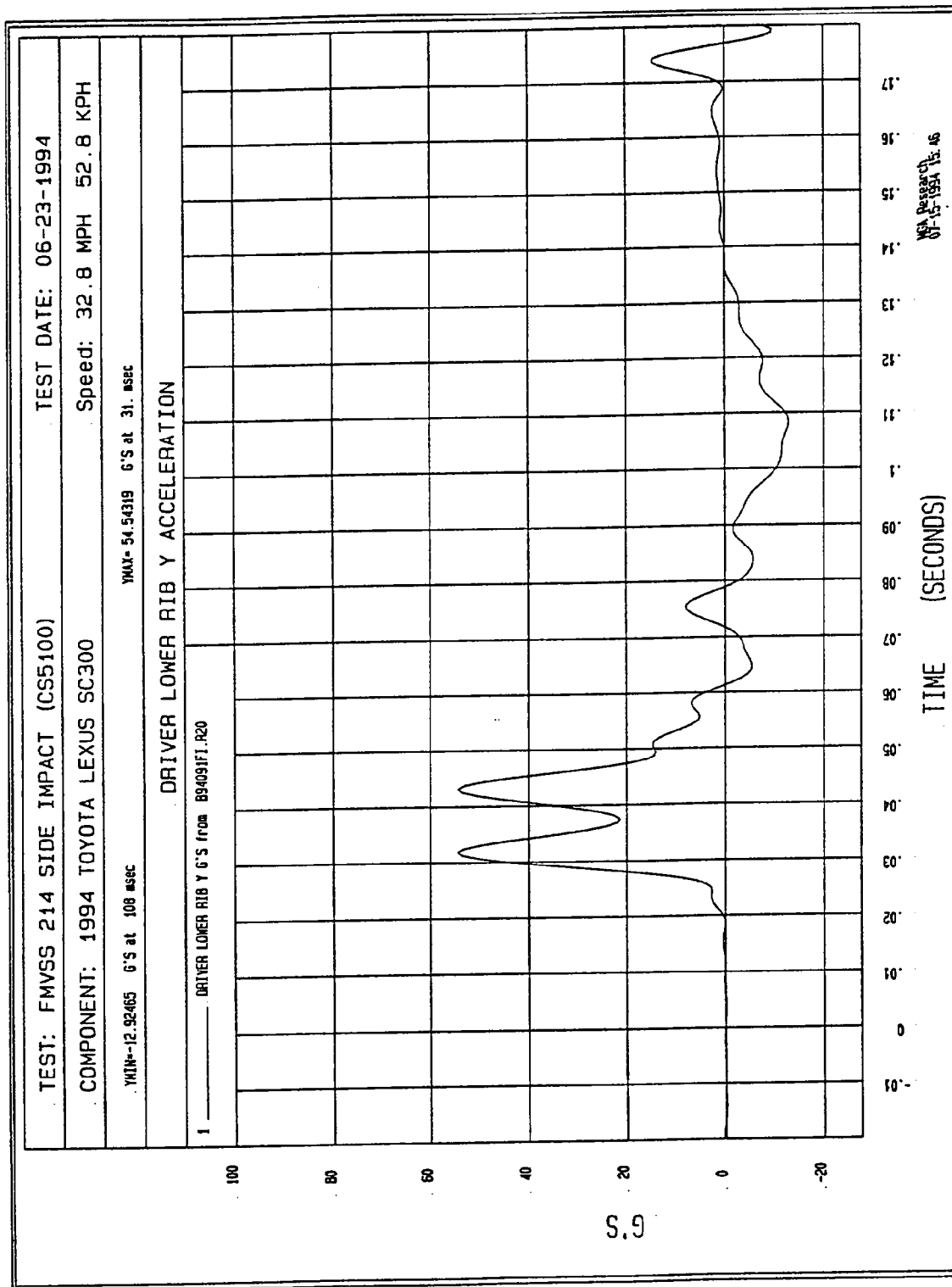


Figure B-83 - Driver Lower Rib Y Acceleration vs. Time

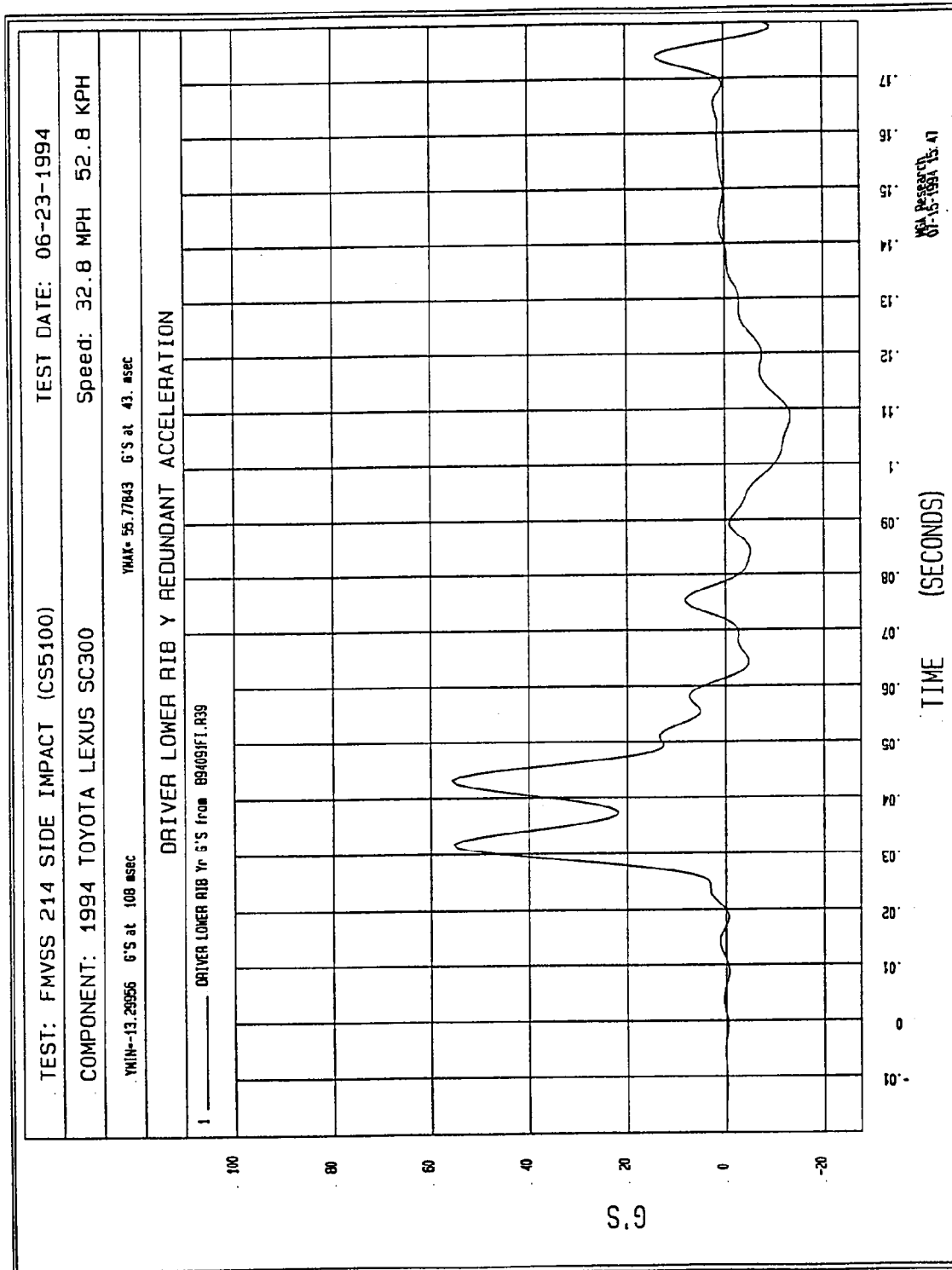


Figure B-84 - Driver Lower Rib Y Redundant Acceleration vs. Time

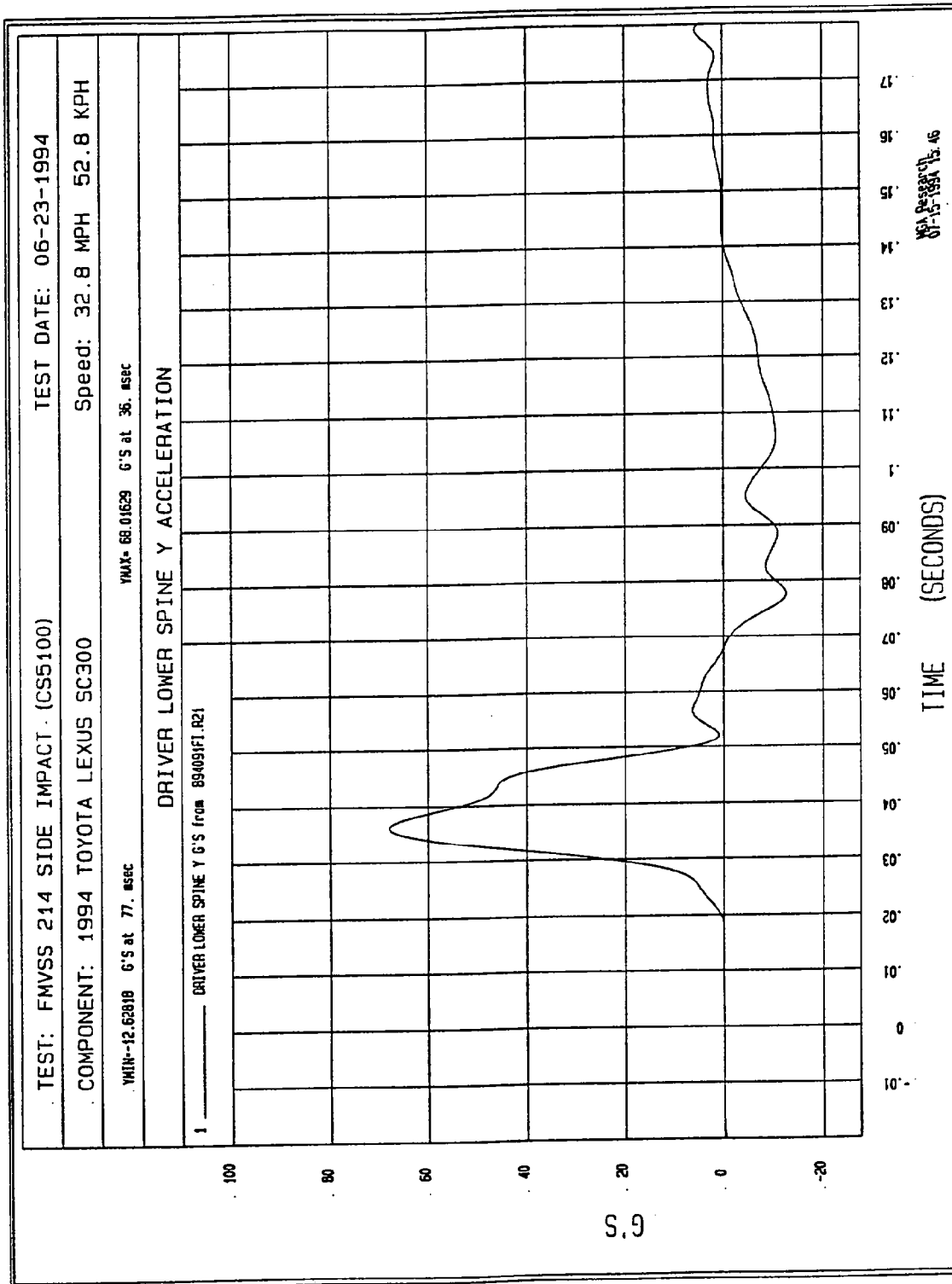


Figure B-85 - Driver Lower Spine Y Acceleration vs. Time

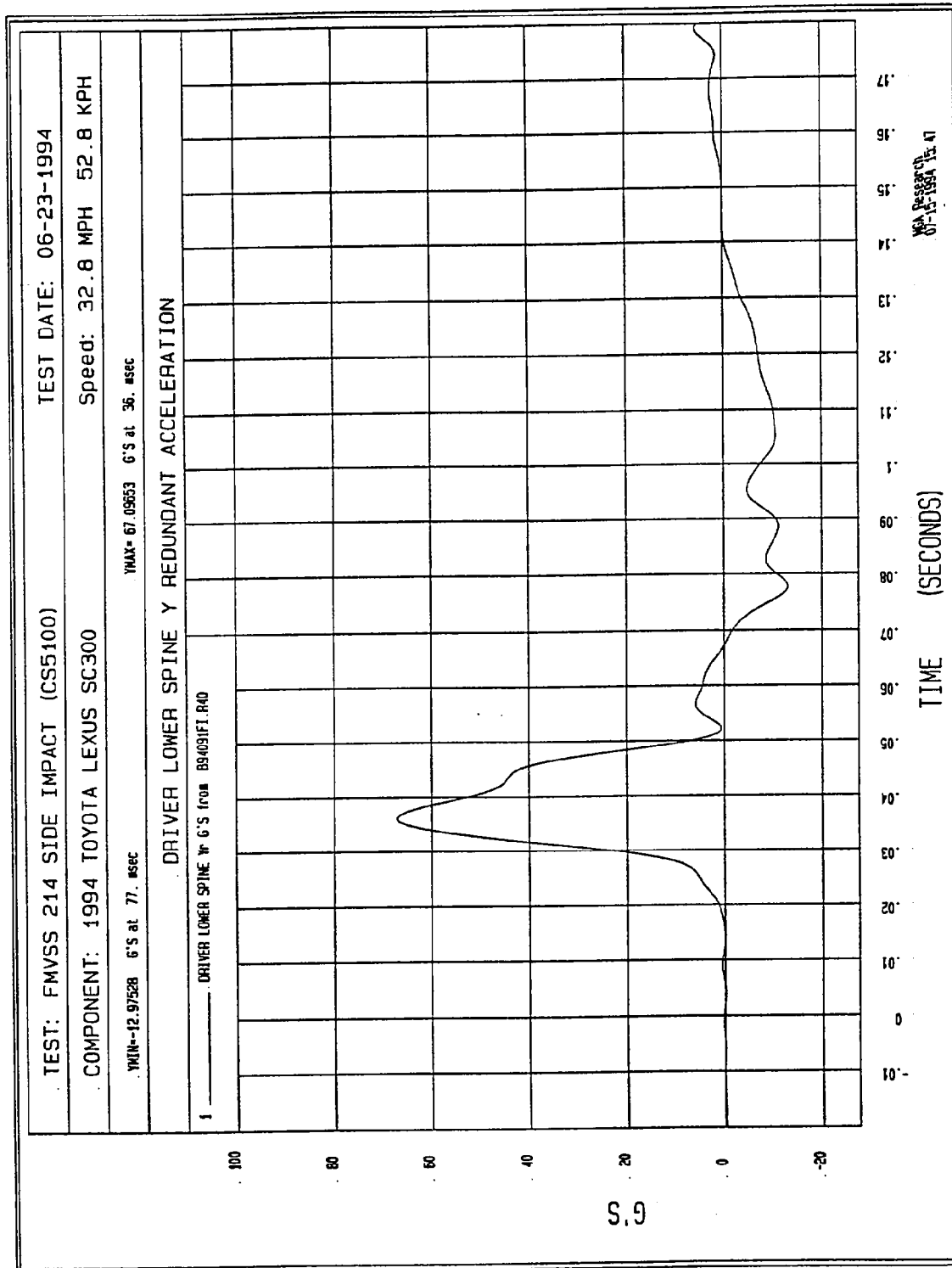


Figure B-86 - Driver Lower Spine Y Redundant Acceleration vs. Time

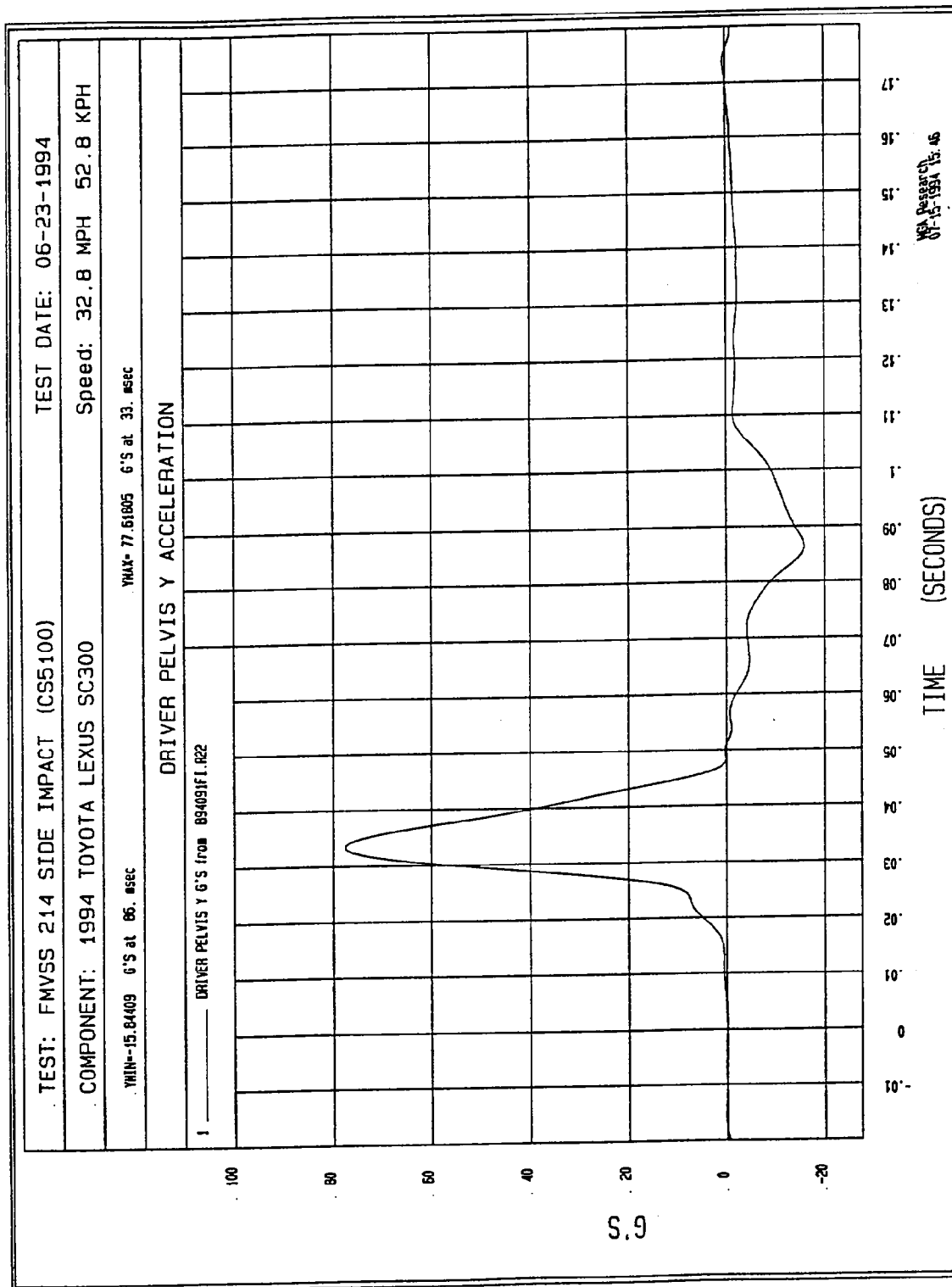


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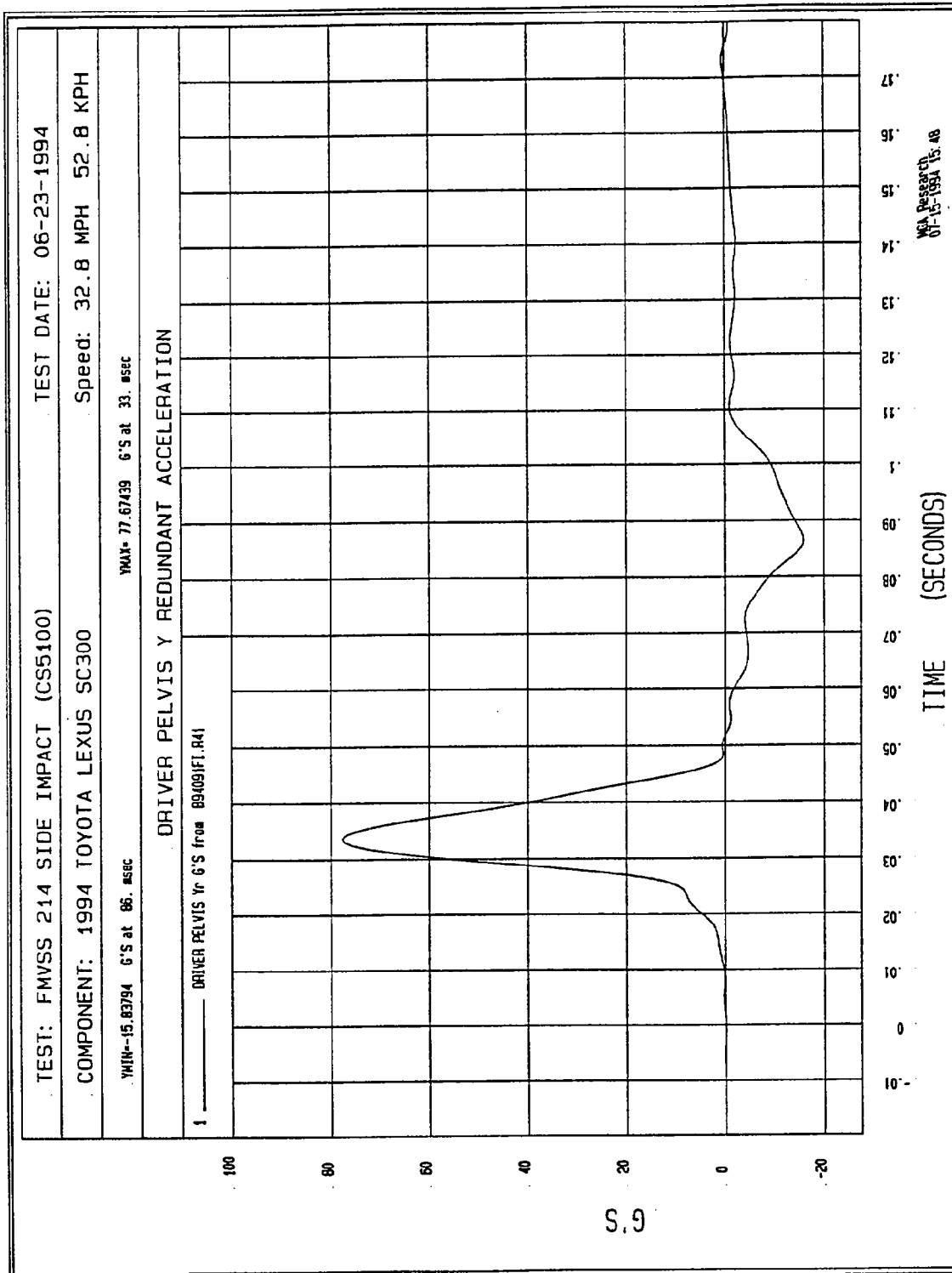


Figure B-88 - Driver Pelvis Y Redundant Acceleration vs. Time

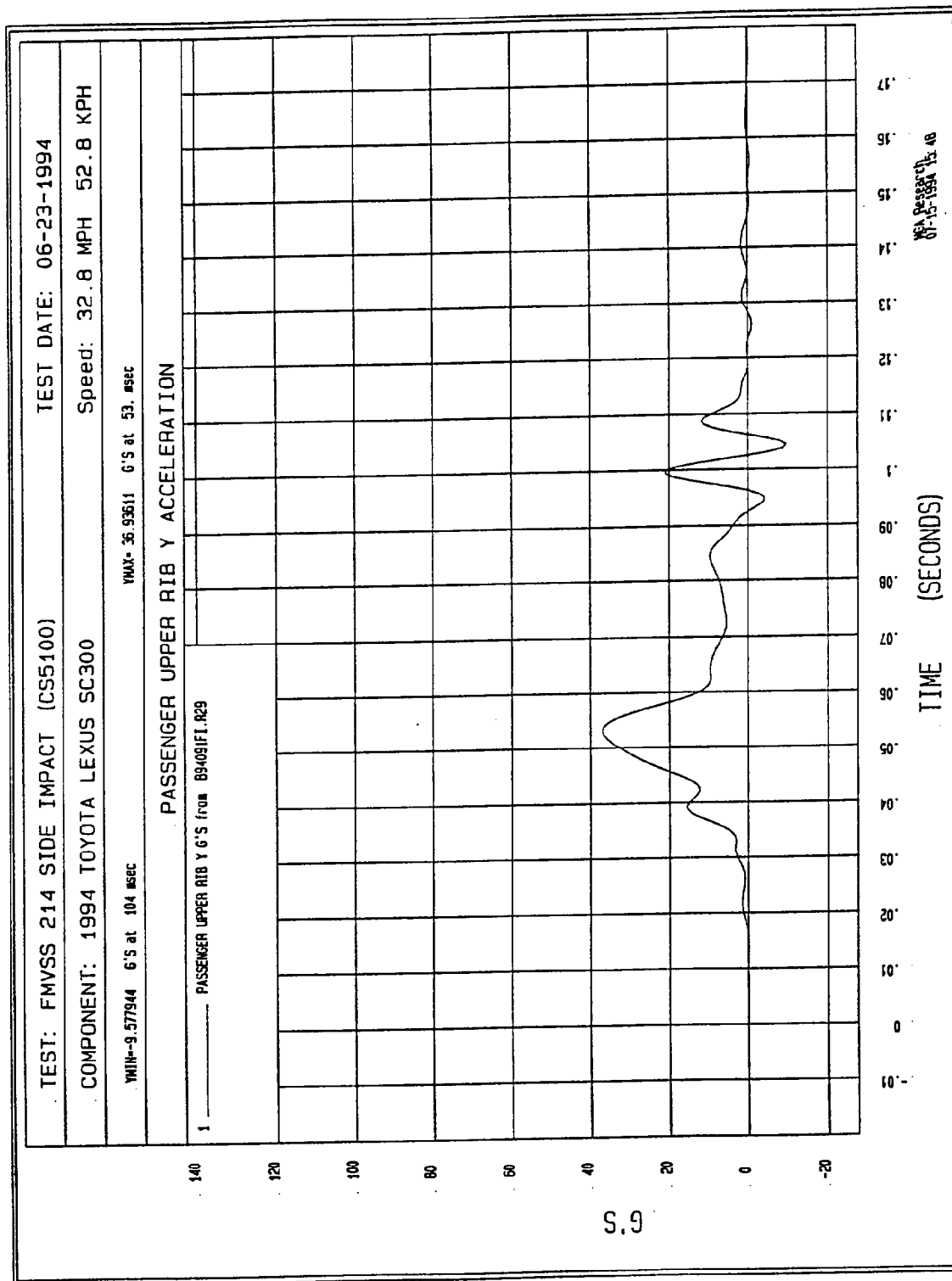


Figure B-89 - Passenger Upper Rib Y Acceleration vs. Time

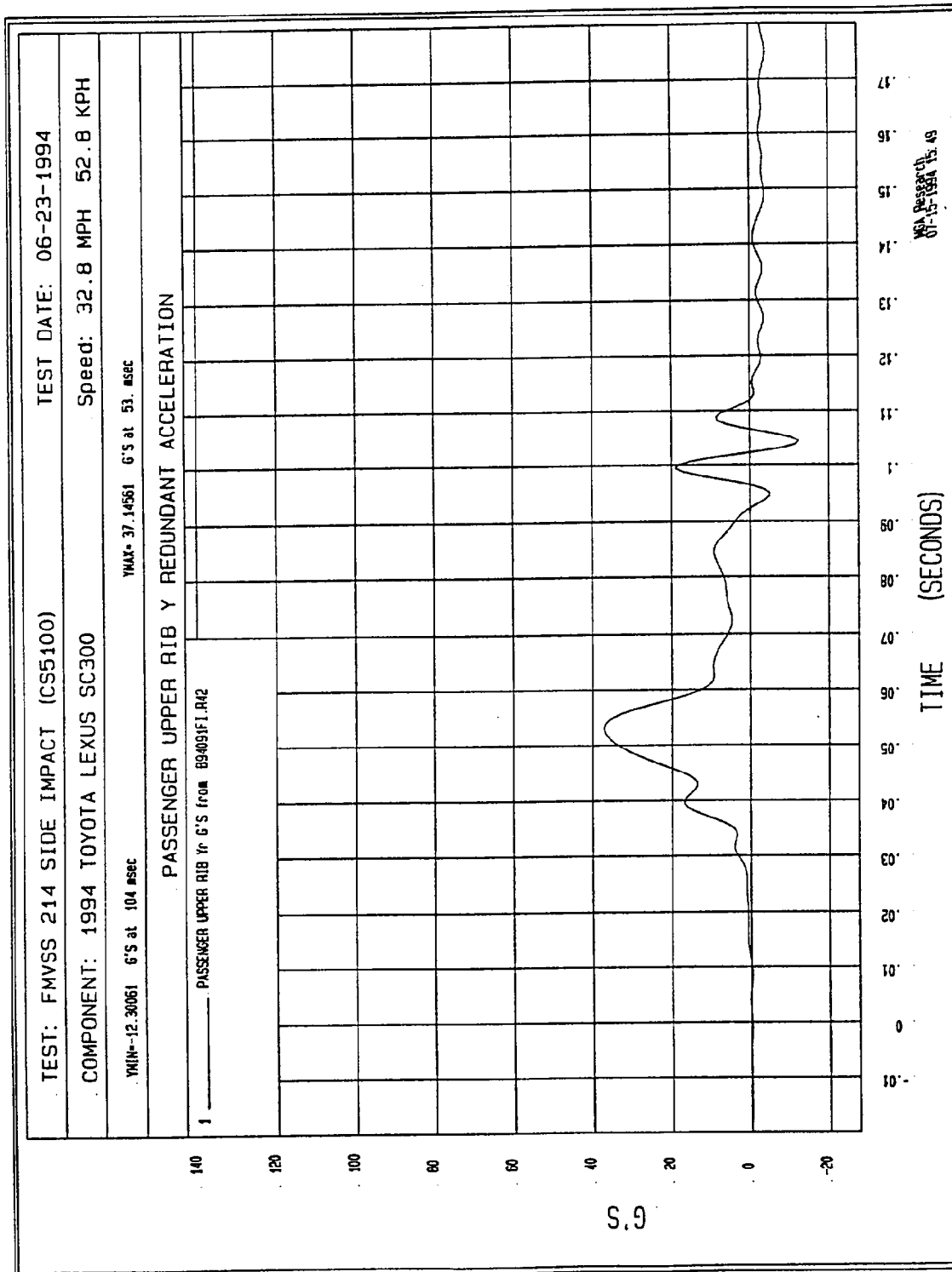


Figure B-90 - Passenger Upper Rib Y Redundant Acceleration vs. Time

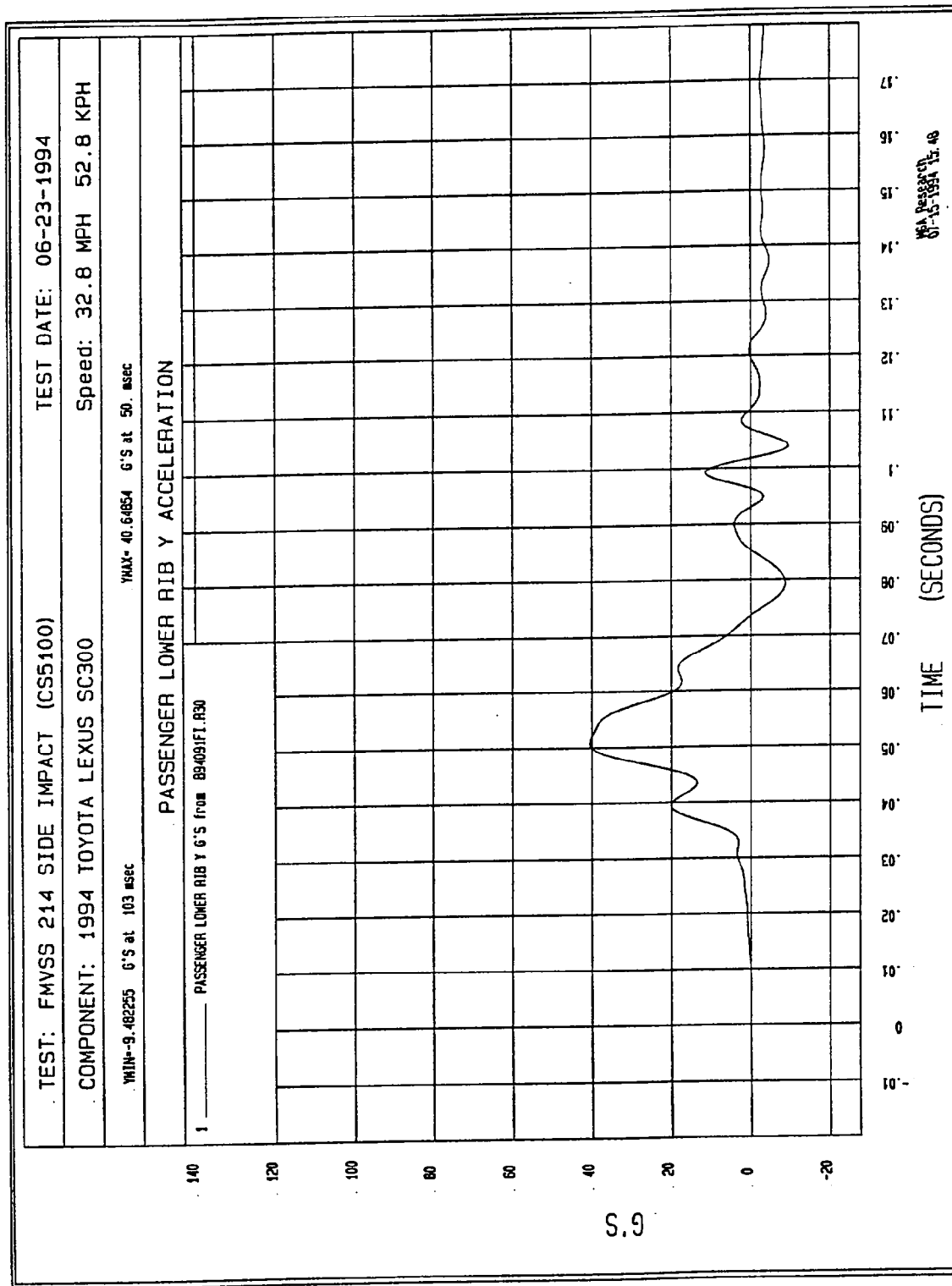


Figure B-91 - Passenger Lower Rib Y Acceleration vs. Time

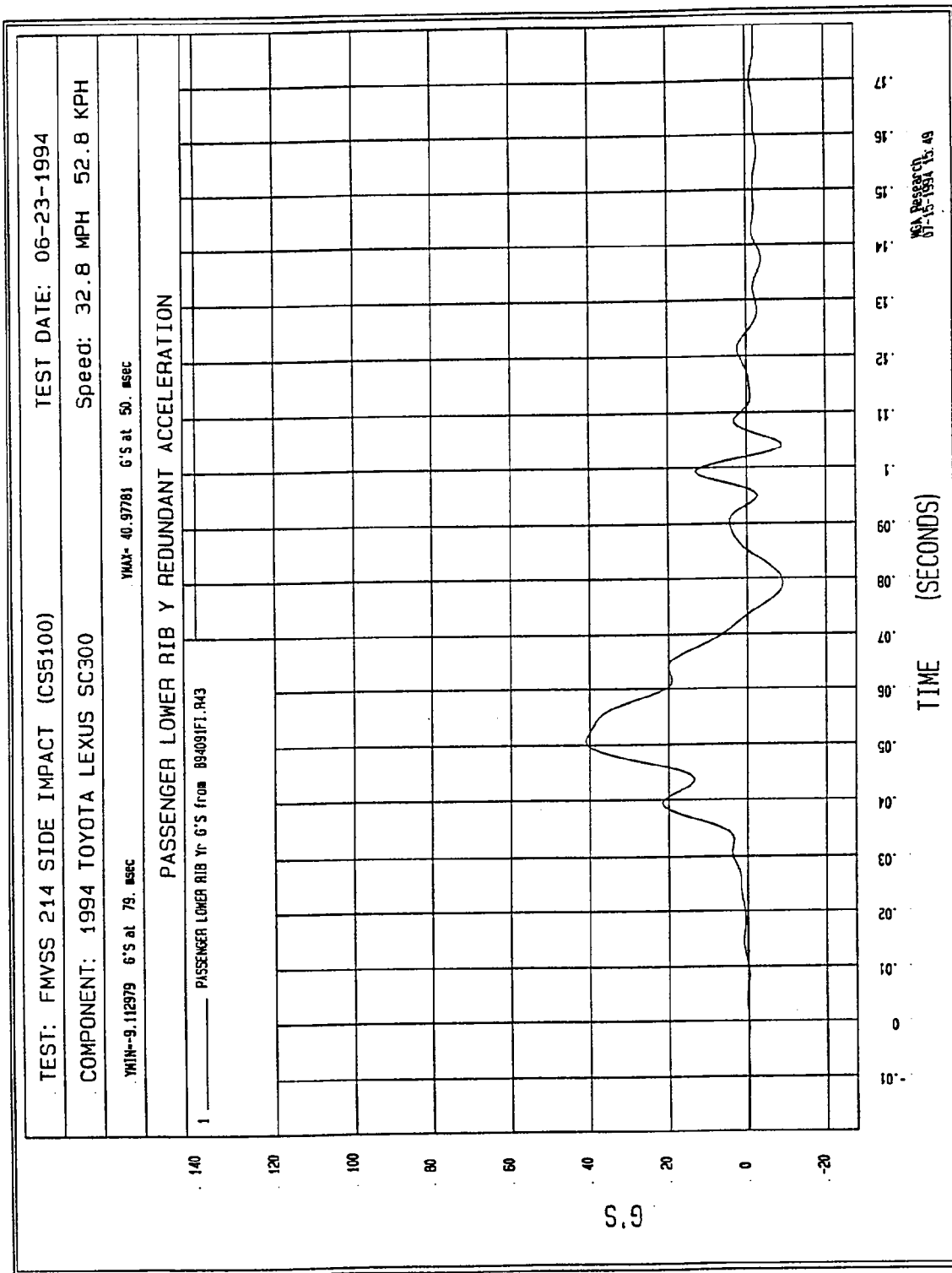


Figure B-92 - Passenger Lower Rib Y Redundant Acceleration vs. Time

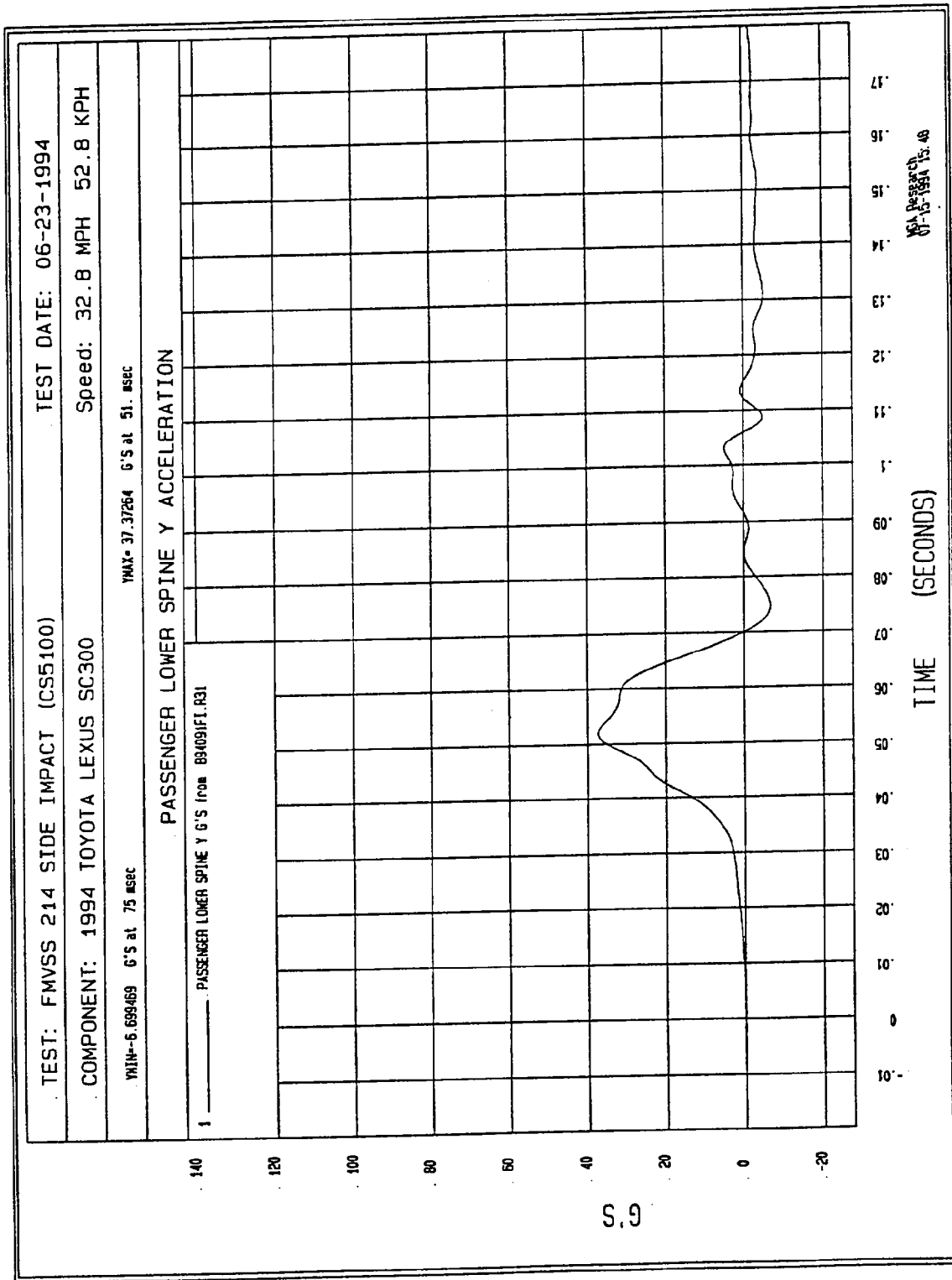


Figure B-93 - Passenger Lower Spine Y Acceleration vs. Time

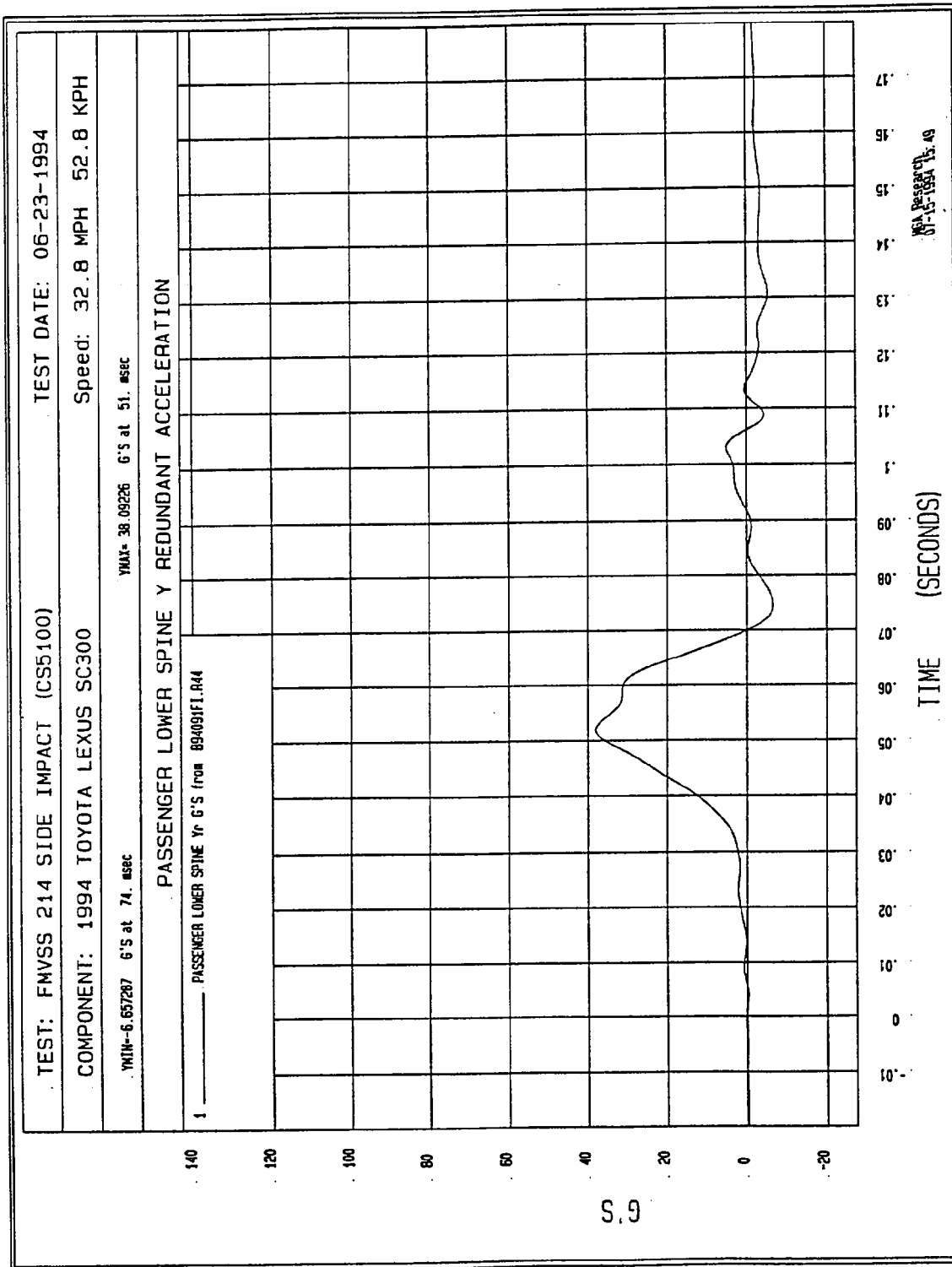


Figure B-94 - Passenger Lower Spine Y Redundant Acceleration vs. Time

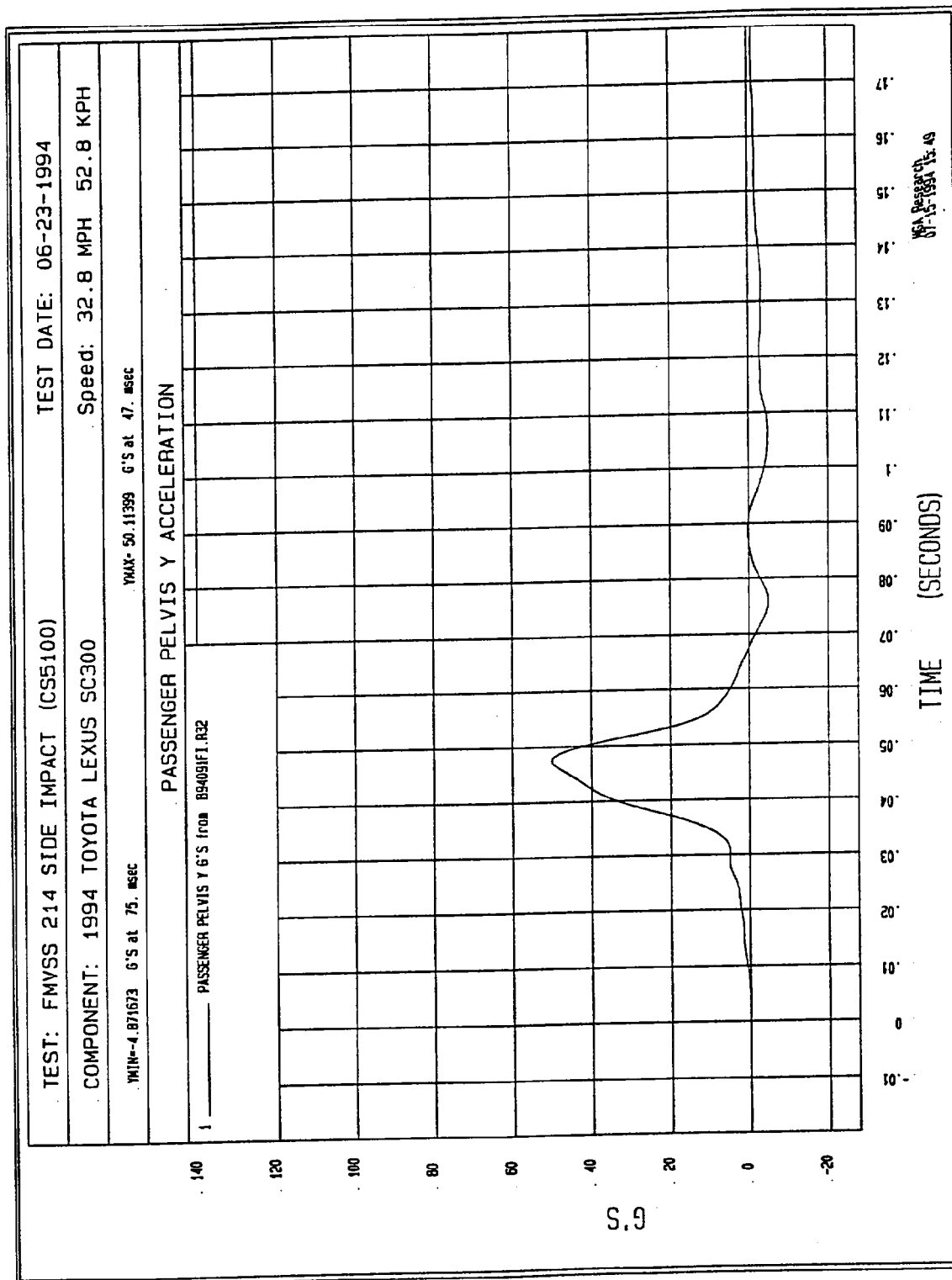


Figure B-95 - Passenger Pelvis Y Acceleration vs. Time

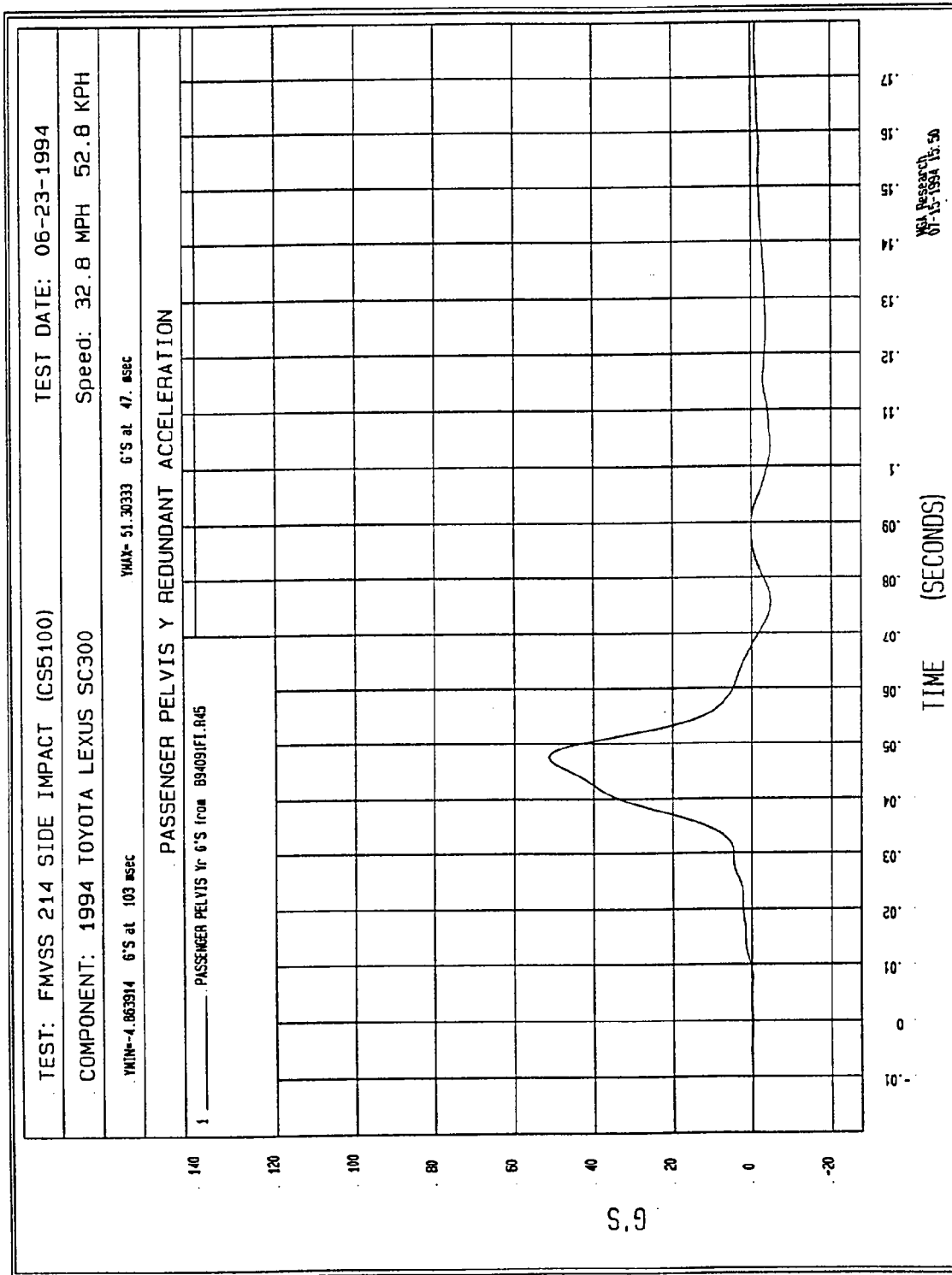


Figure B-96 - Passenger Pelvis Y Redundant Acceleration vs. Time

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-94-DC011

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

TOYOTA MOTOR COMPANY
1995 LEXUS 300SC 2 DOOR COUPE
NHTSA NO. CS5100

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: June 23, 1994

Report Date: September 29, 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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DUMMY S/N: 269	PRE-TEST CERTIFICATION DATA	1-1
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DUMMY S/N: 271	POST-TEST CERTIFICATION DATA	4-1
DUMMY S/N: 269	POST-TEST INSPECTION CHECKLIST	5-1
DUMMY S/N: 271	POST-TEST INSPECTION CHECKLIST	6-1
	VEHICLE AND DUMMY TEMPERATURE	7-1

PRE-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 269

Calibration Test Results Summary

Dummy Serial Number: 269

Pre-Test Calibration

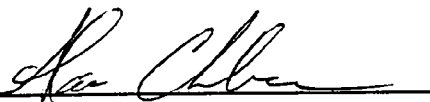
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: June 16, 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"	9.3
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"	14.4

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

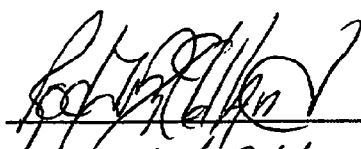
DATE: June 16, 1994

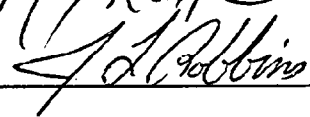
DUMMY NUMBER: 269

TEST NUMBER: D94152

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	55%
PROBE SPEED	13.8 - 14.2 fps	13.8
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN 

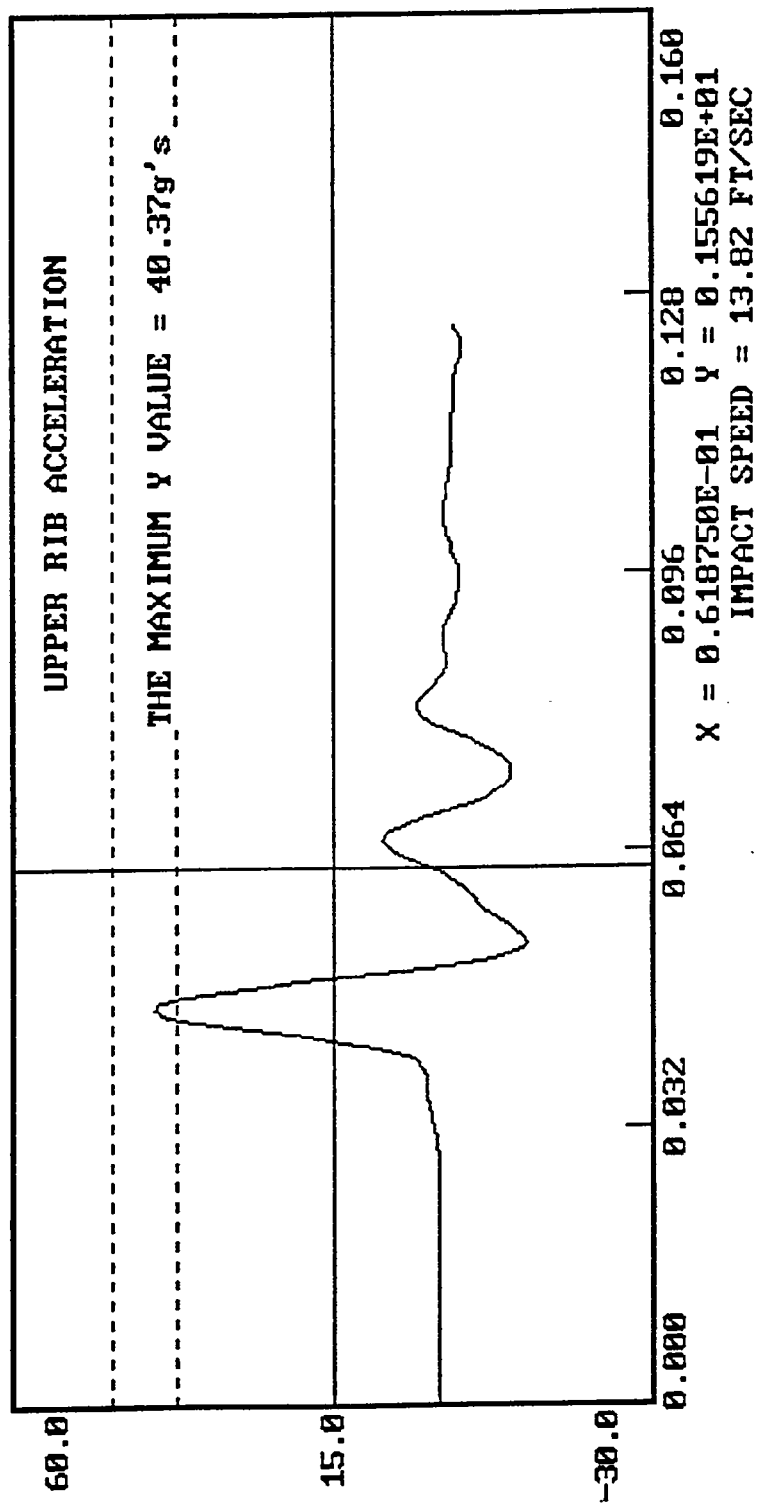
APPROVED BY 

06-16-1994 11:03

DUMMY CALIBRATION - THORAX IMPACT

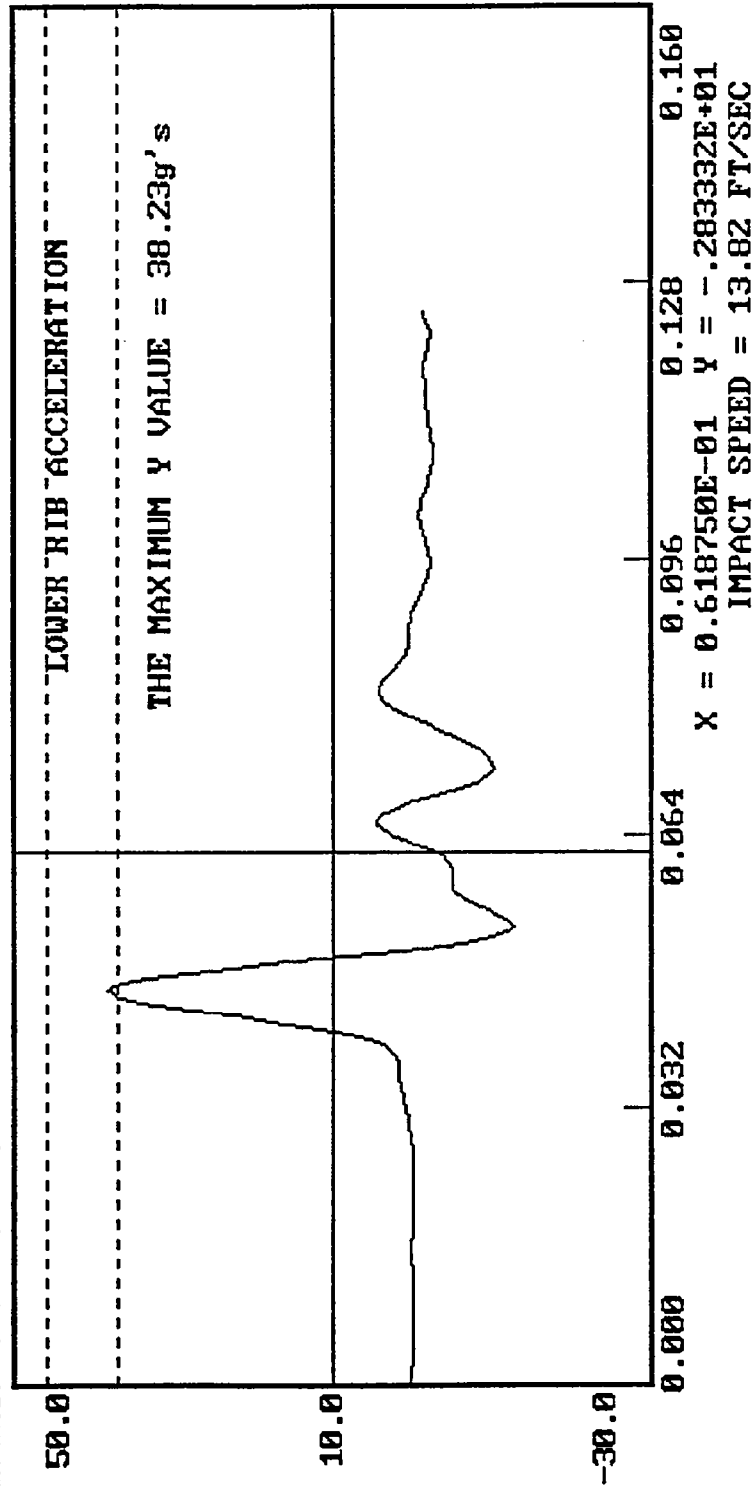
DUMMY # 269

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



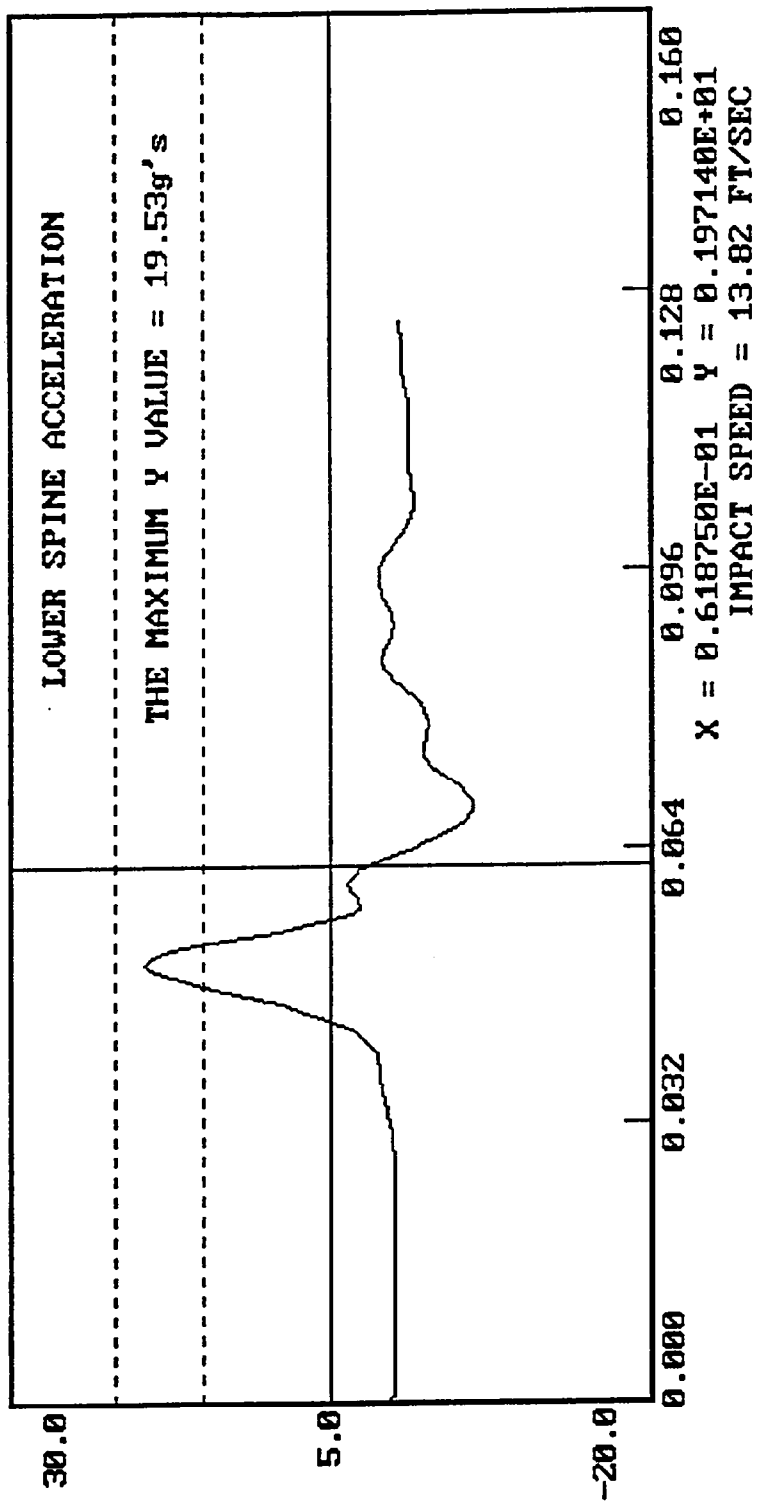
06-16-1994 11:03

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



06-16-1994 11:03

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: June 16, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94153

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	69°
RELATIVE HUMIDITY	10 - 70%	55%
PROBE SPEED	13.8 - 14.2 f/s	13.8
PELVIS ACCELERATION	40 - 60 g's	59

TEST MEETS SPECIFICATIONS

TECHNICIAN

Ha Chen

APPROVED BY

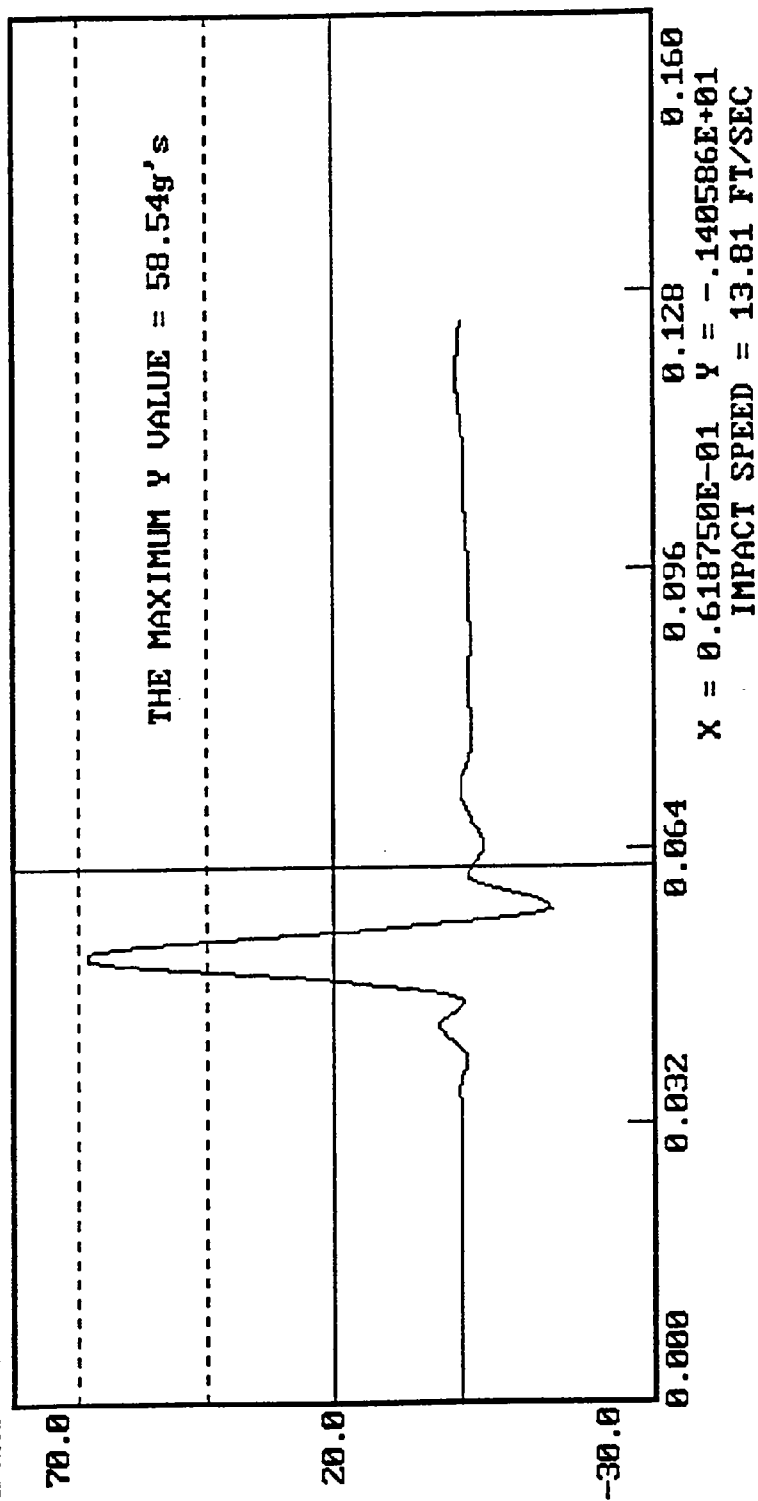
J. Robbins

06-16-1994 10:33

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # 269

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



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: June 20, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94154

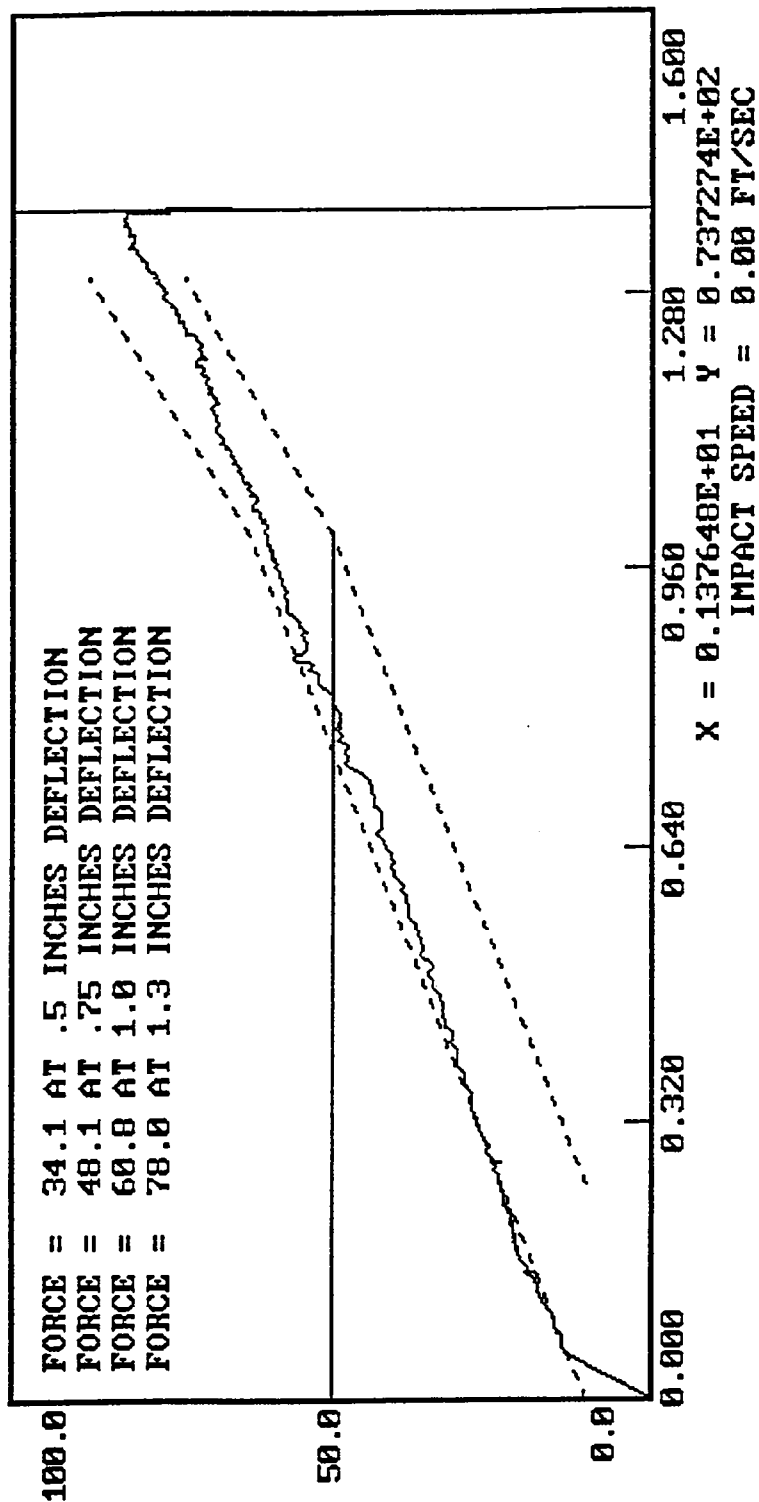
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	62%
FORCE @ 0.5 in	23.3 - 36.5 lbs	34.1
FORCE @ 0.75 in	36.7 - 49.8 lbs	48.1
FORCE @ 1.0 in	50 - 63 lbs	61
FORCE @ 1.3 in	73 - 88 lbs	78

TEST MEETS SPECIFICATIONS

TECHNICIAN *Ala CHe*

APPROVED BY *J. Robbins*

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 269
 06-20-1994 11:02
 ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: June 20, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94155

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	62%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	32
FORCE @ 30°	34 - 46 lbs	40
FORCE @ 40°	46 - 58 lbs	52
RETURN ANGLE	12° maximum	4°

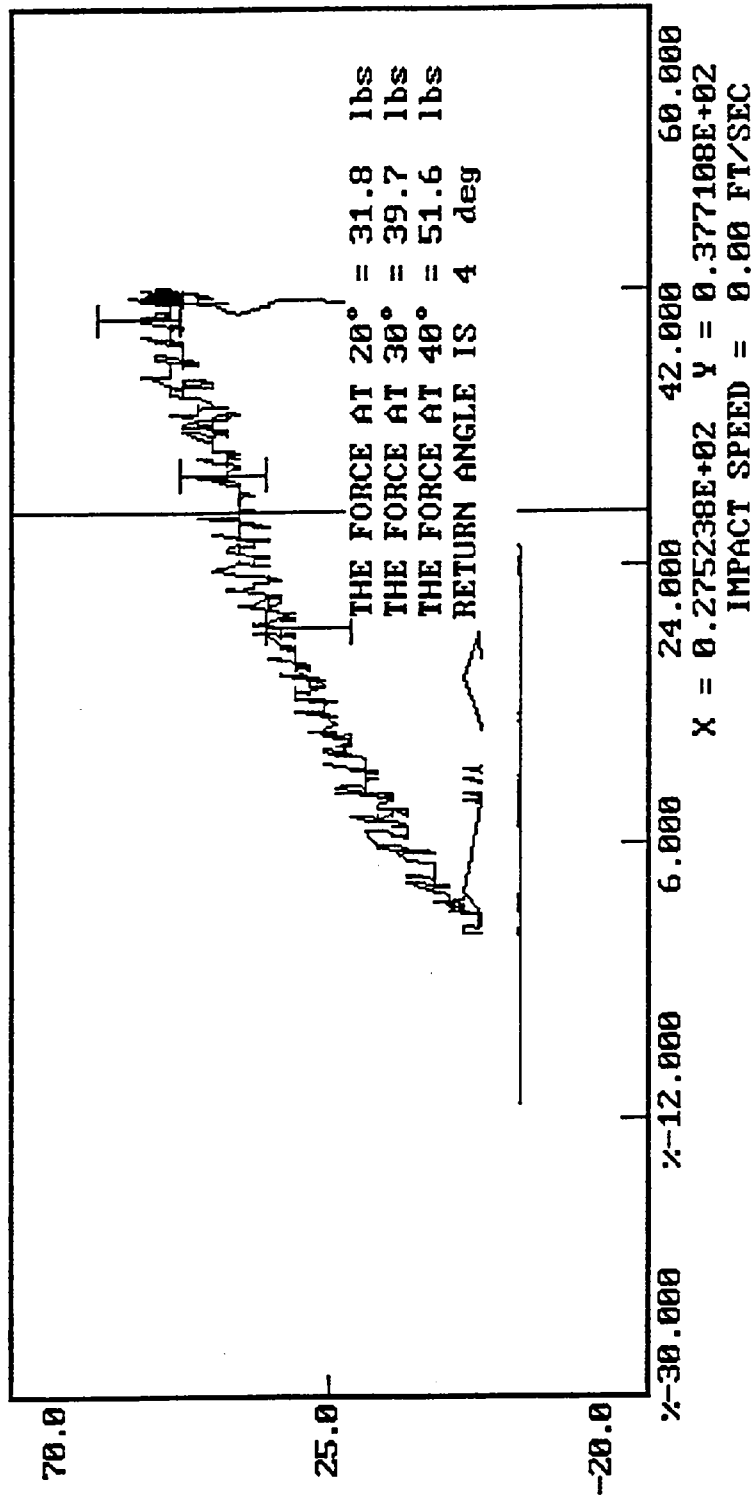
TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY

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

06-20-1994 10:16



PRE-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 271

Calibration Test Results Summary

Passenger Serial Number: 271

Pre-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 271

DATE OF VERIFICATION: June 16, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
RH - Rib Height	19.75 - 20.5"	19.9
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.5
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.5
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	14.5

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: June 16, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94162

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	55%
PROBE SPEED	13.8 - 14.2 fps	13.8
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	40
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN

Alan Ch...

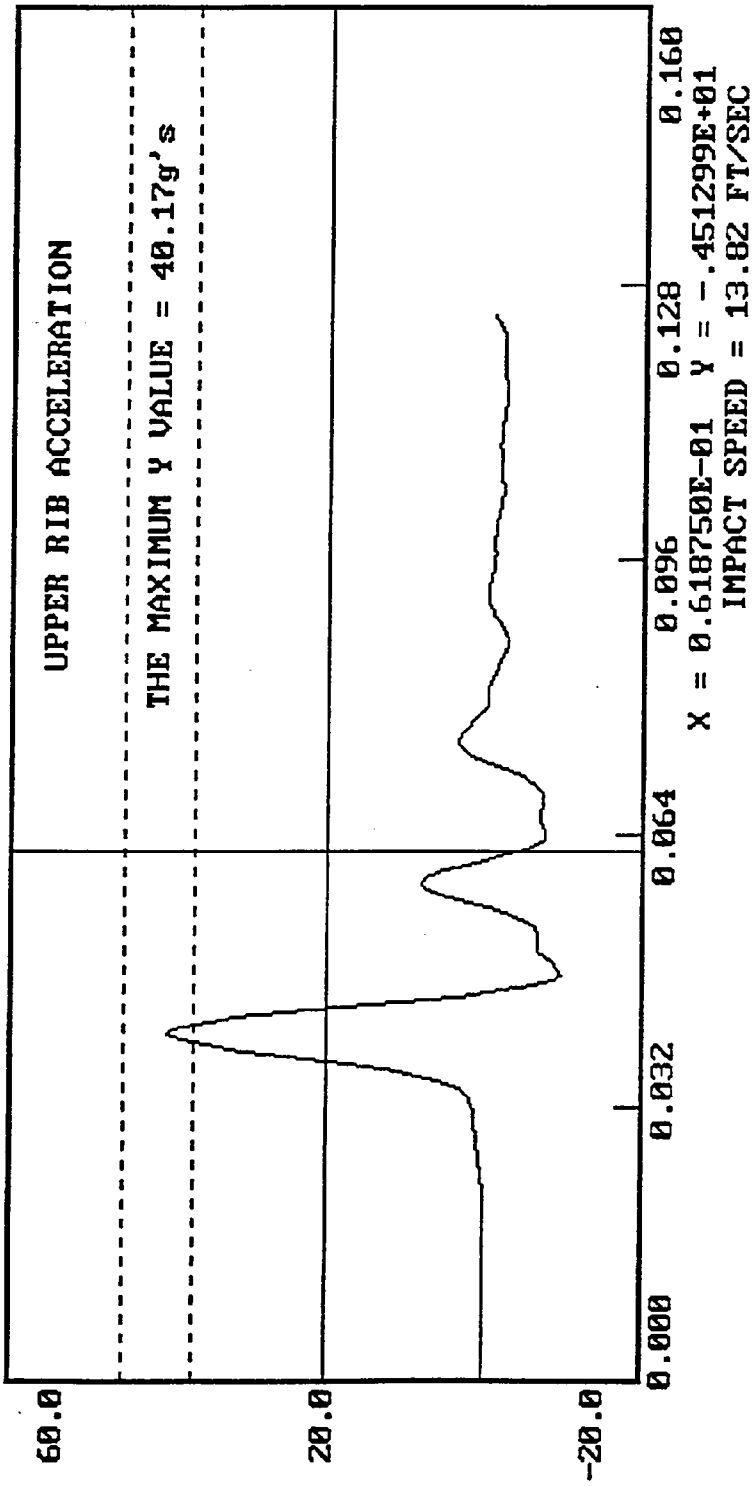
APPROVED BY

J. D. Robbins

DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 271

06-16-1994 11:27

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

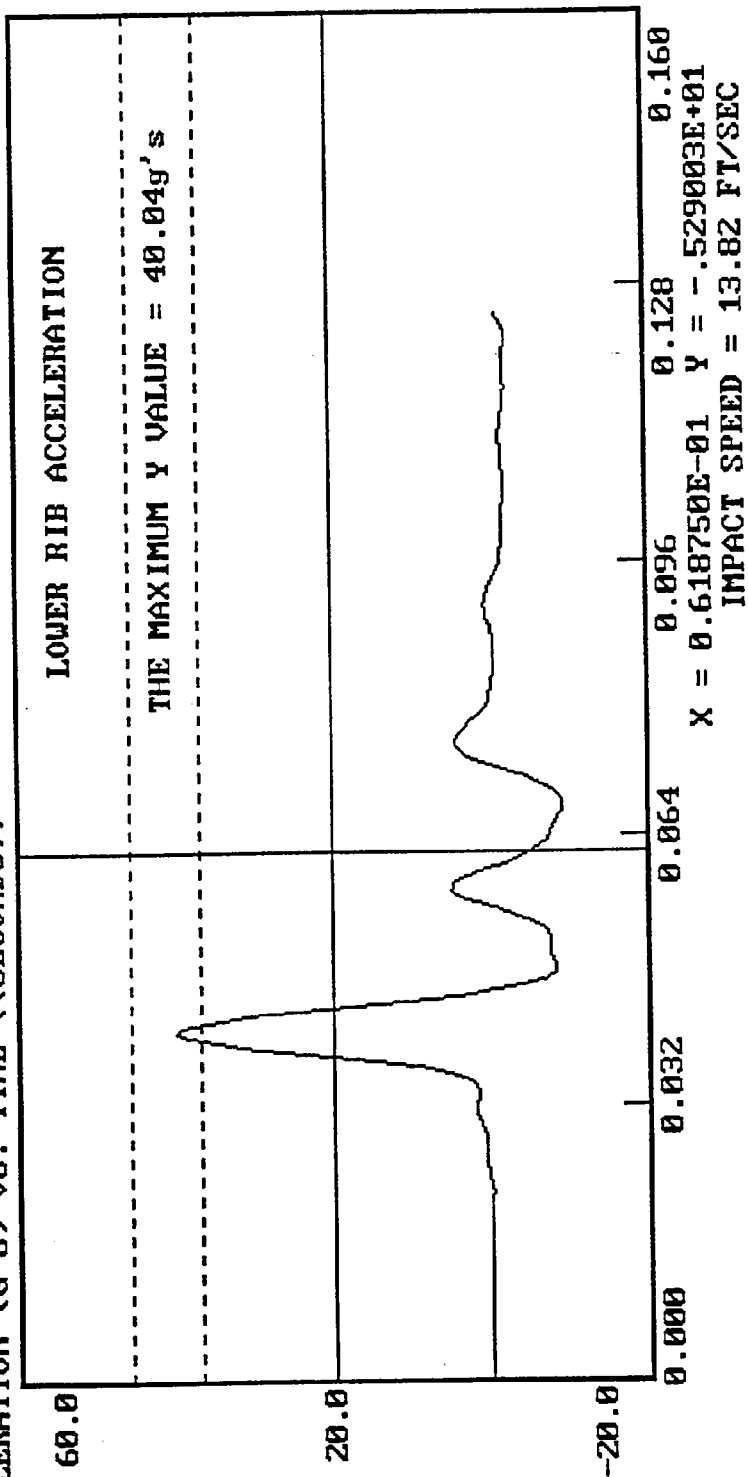


06-16-1994 11:27

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

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

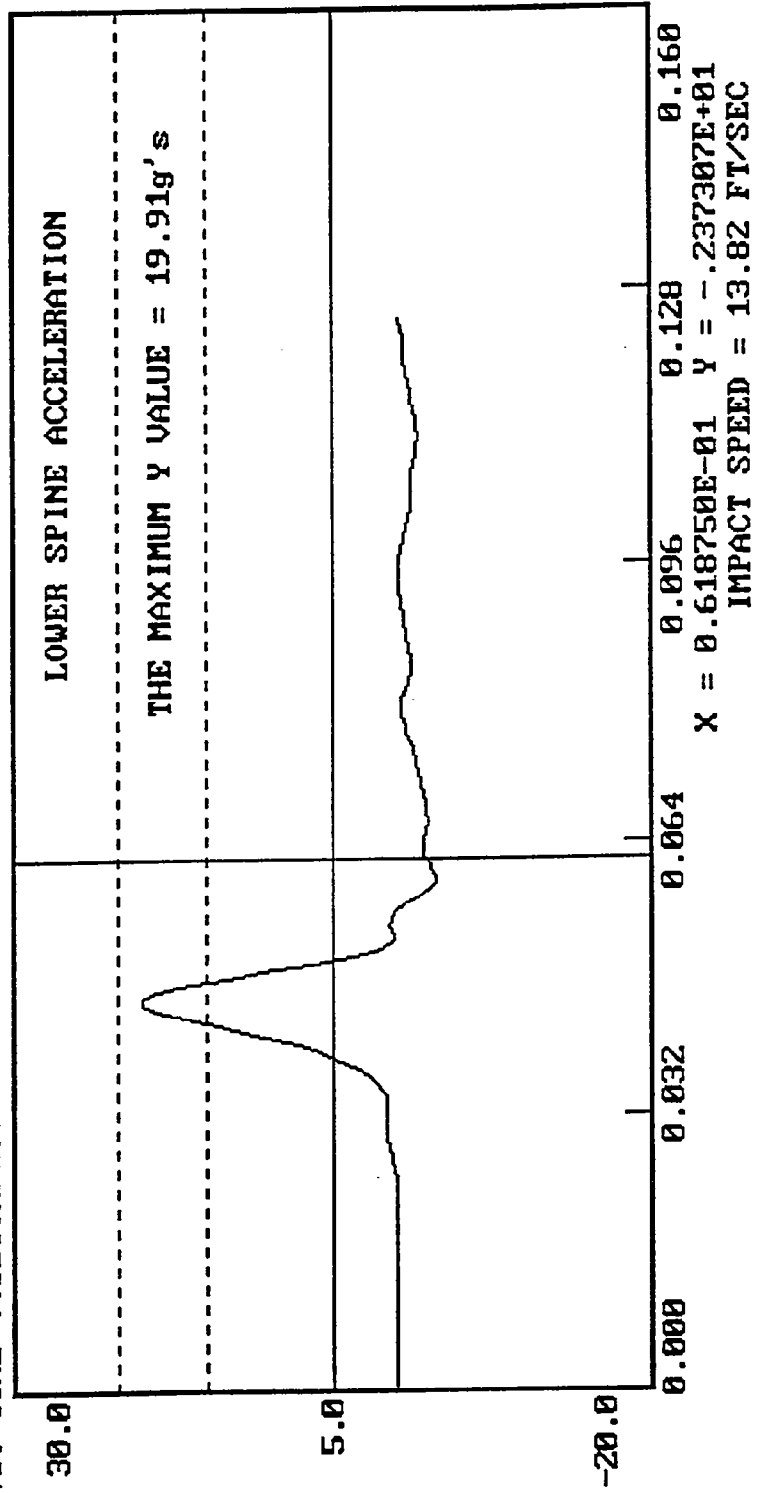


06-16-1994 11:27

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

() VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

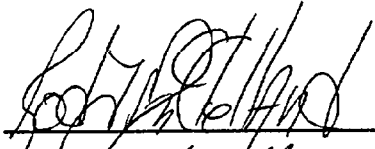
DATE: June 16, 1994

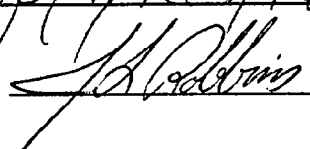
DUMMY NUMBER: 271

TEST NUMBER: D94163

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	69°
RELATIVE HUMIDITY	10 - 70%	55%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	59

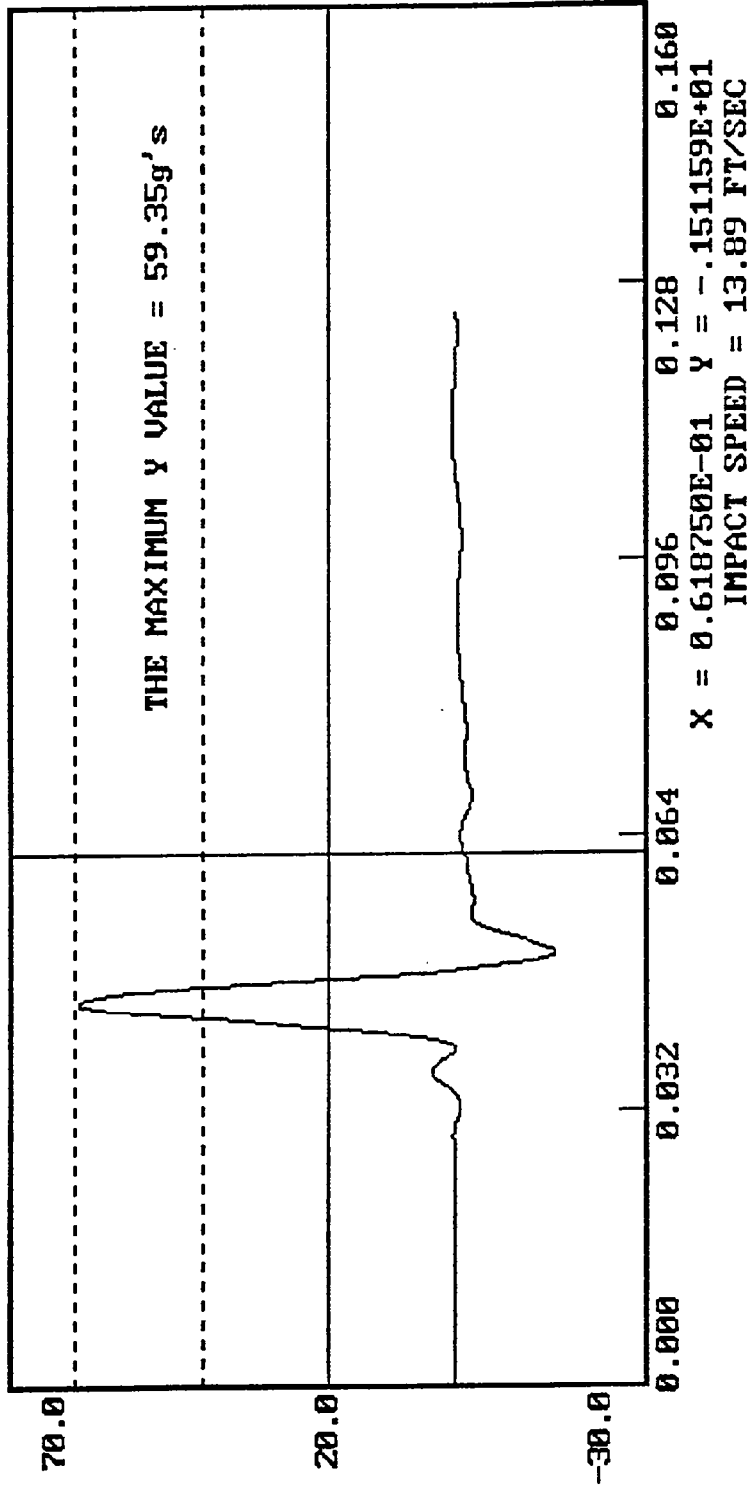
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

06-16-1994 10:02

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



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: June 20, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94164

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	62%
FORCE @ 0.5 in	23.3 - 36.5 lbs	28.0
FORCE @ 0.75 in	36.7 - 49.8 lbs	39.5
FORCE @ 1.0 in	50 - 63 lbs	54
FORCE @ 1.3 in	73 - 88 lbs	79

TEST MEETS SPECIFICATIONS

TECHNICIAN *He Clark*

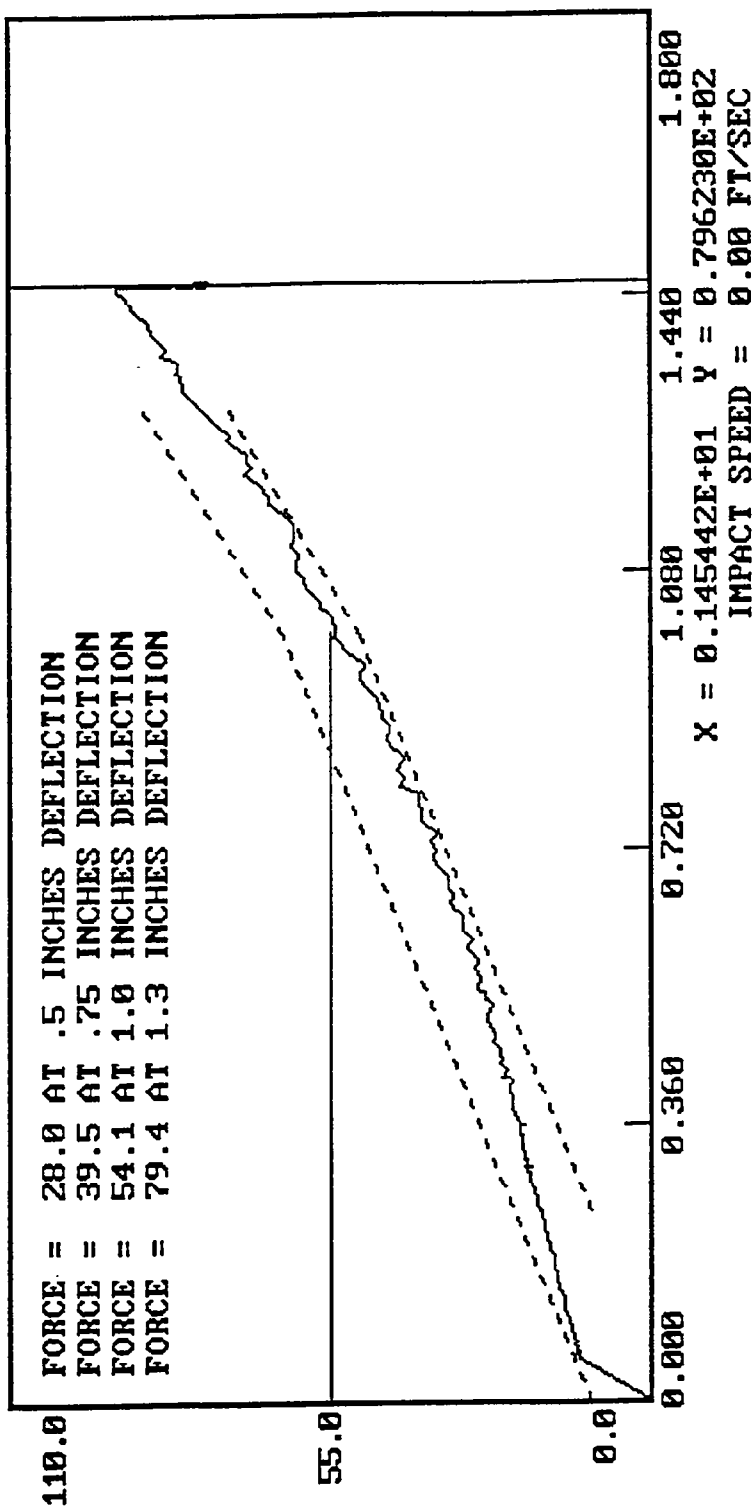
APPROVED BY *J. S. Rollins*

06-20-1994 11:09

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 271

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: June 20, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94165

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	62%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	32
FORCE @ 30°	34 - 46 lbs	44
FORCE @ 40°	46 - 58 lbs	56
RETURN ANGLE	12° maximum	5°

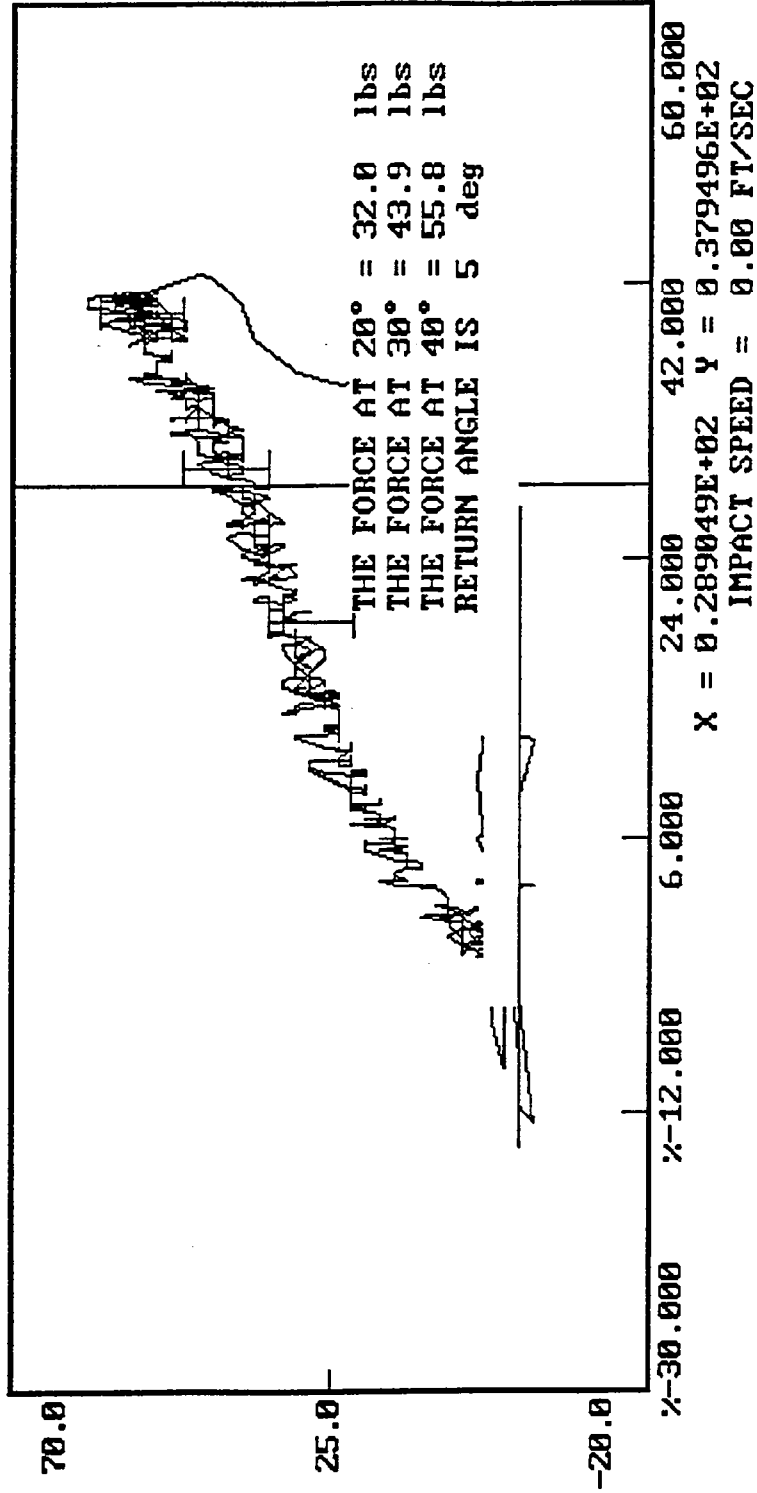
TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY

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

06-20-1994 10:47



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: June 27, 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"	19.6
HW - Hip Width	14.0" - 15.4"	14.4

MEASUREMENTS BY: *Stan Cline*

APPROVED BY: *J. D. Bellin*

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: June 27, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94282

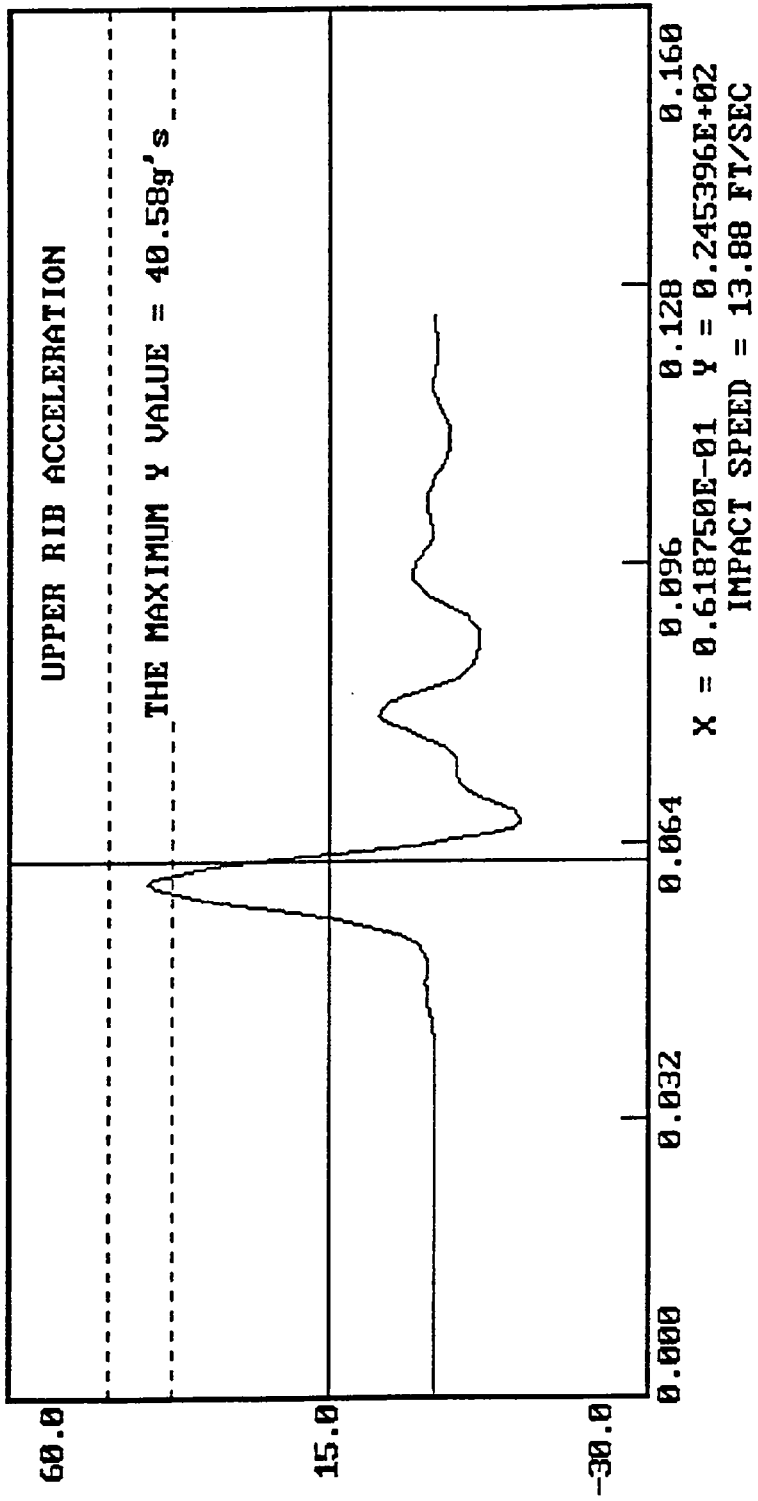
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	60%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	41
LOWER RIB	37 - 46 g's	37
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY

DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 269
 06-27-1994 13:29
 ACCELERATION (G'S) VS. TIME ((SECONDS))

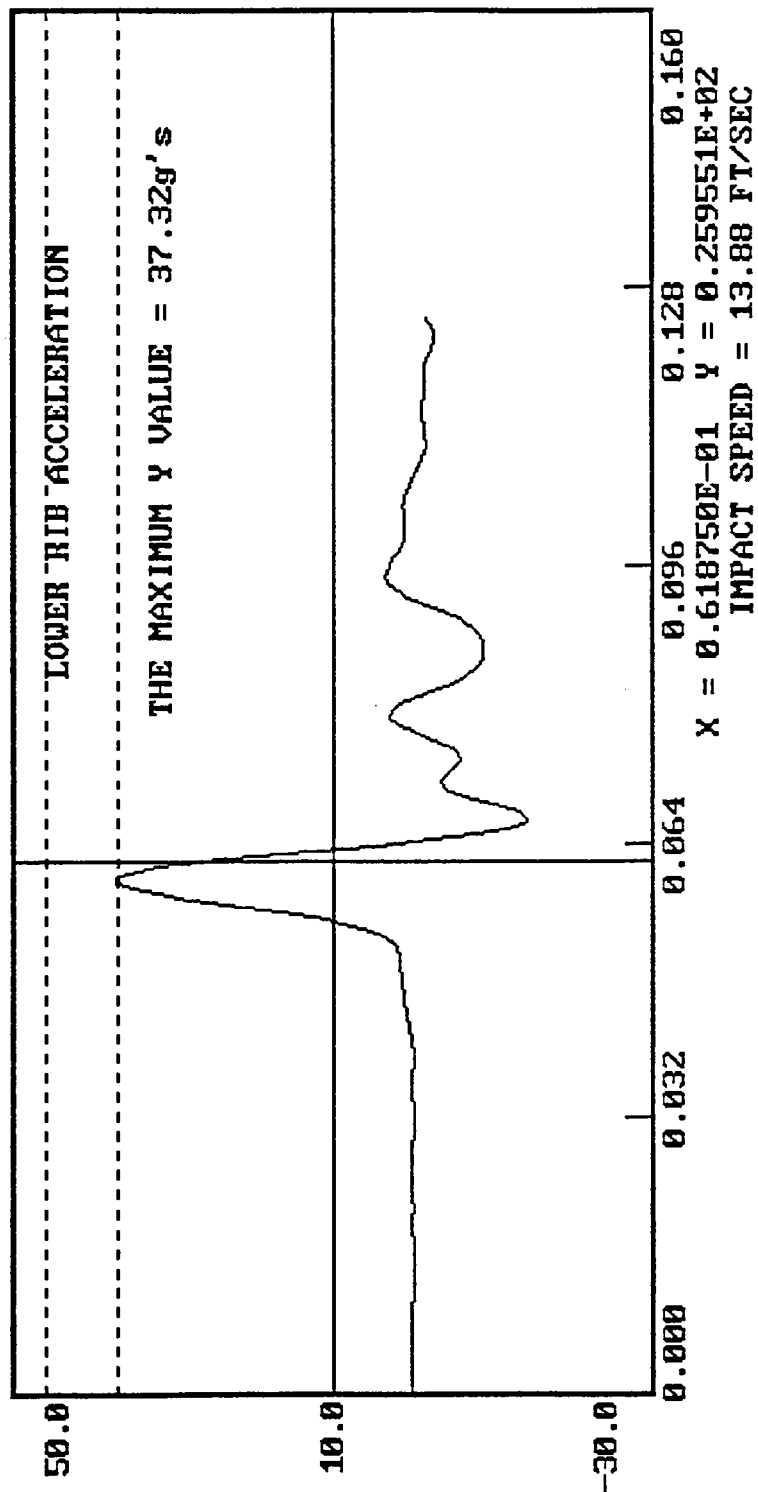


06-27-1994 13:29

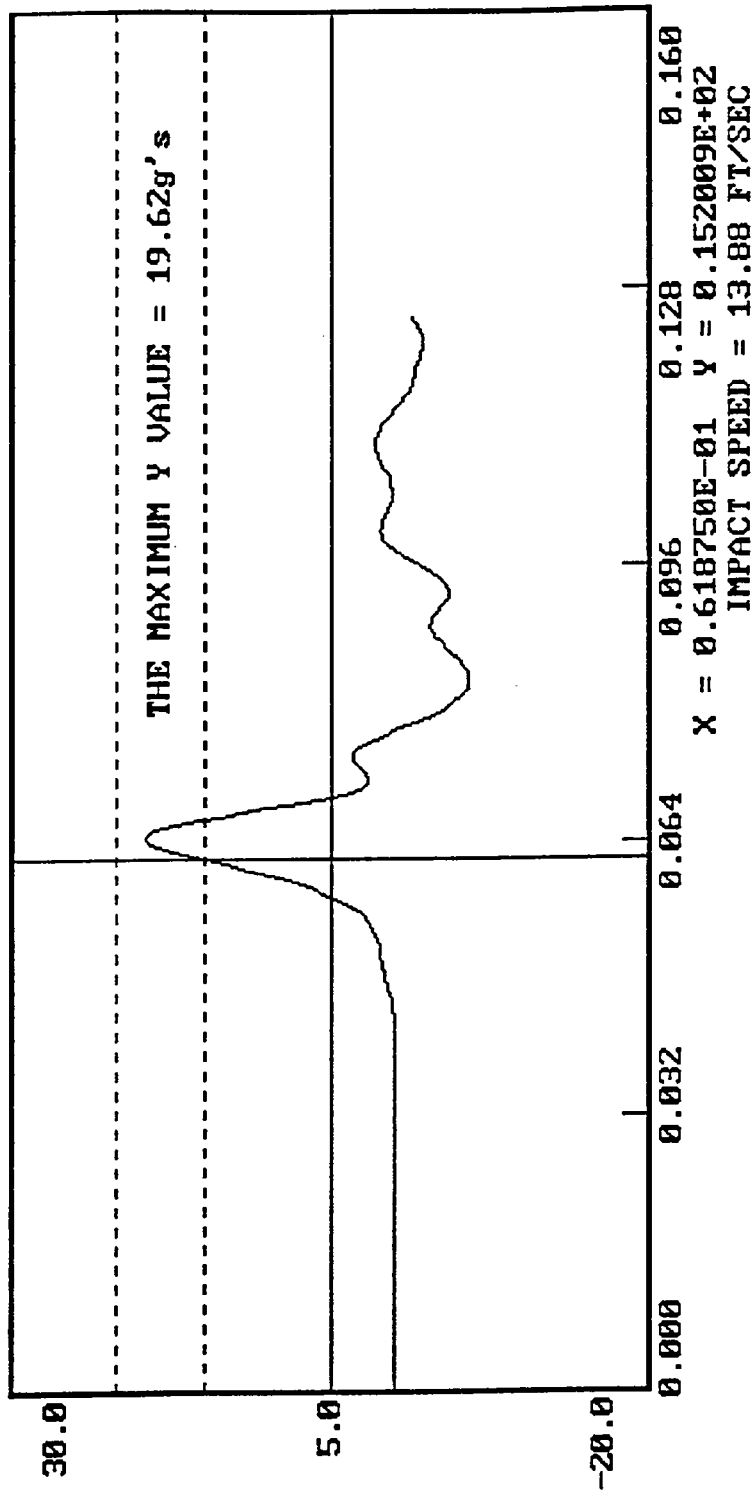
DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

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



DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 269
06-27-1994 13:29
ACCELERATION (G'S) VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: June 27, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94283

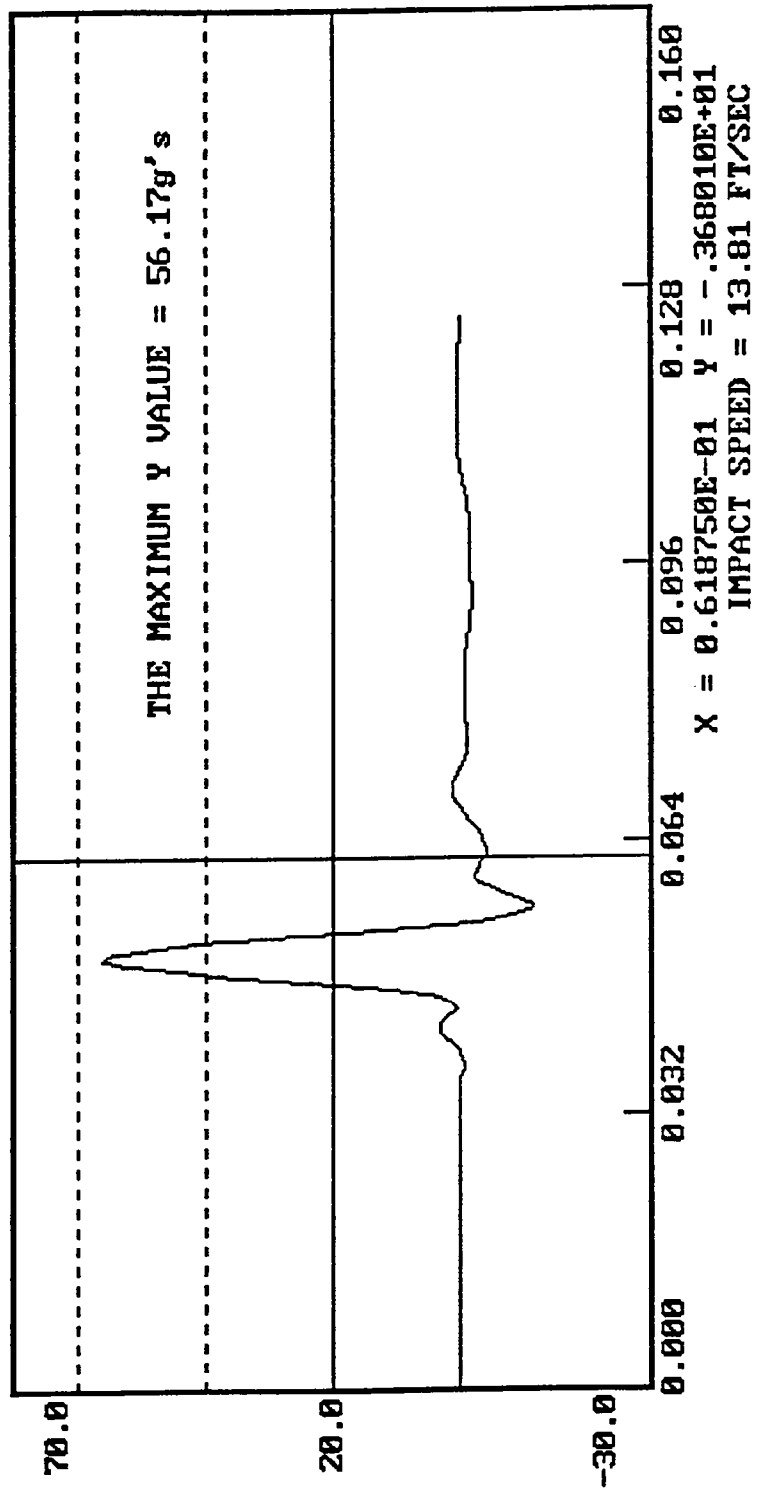
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	72°
RELATIVE HUMIDITY	10 - 70%	55%
PROBE SPEED	13.8 - 14.2 f/s	13.8
PELVIS ACCELERATION	40 - 60 g's	56

TEST MEETS SPECIFICATIONS

TECHNICIAN *He Chen*

APPROVED BY *J. Robbins*

DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 269
06-27-1994 16:03
ACCELERATION (G'S) VS. TIME ((SECONDS))



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

DATE: June 27, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94284

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	58%
FORCE @ 0.5 in	23.3 - 36.5 lbs	29.8
FORCE @ 0.75 in	36.7 - 49.8 lbs	45.5
FORCE @ 1.0 in	50 - 63 lbs	61
FORCE @ 1.3 in	73 - 88 lbs	84

TEST MEETS SPECIFICATIONS

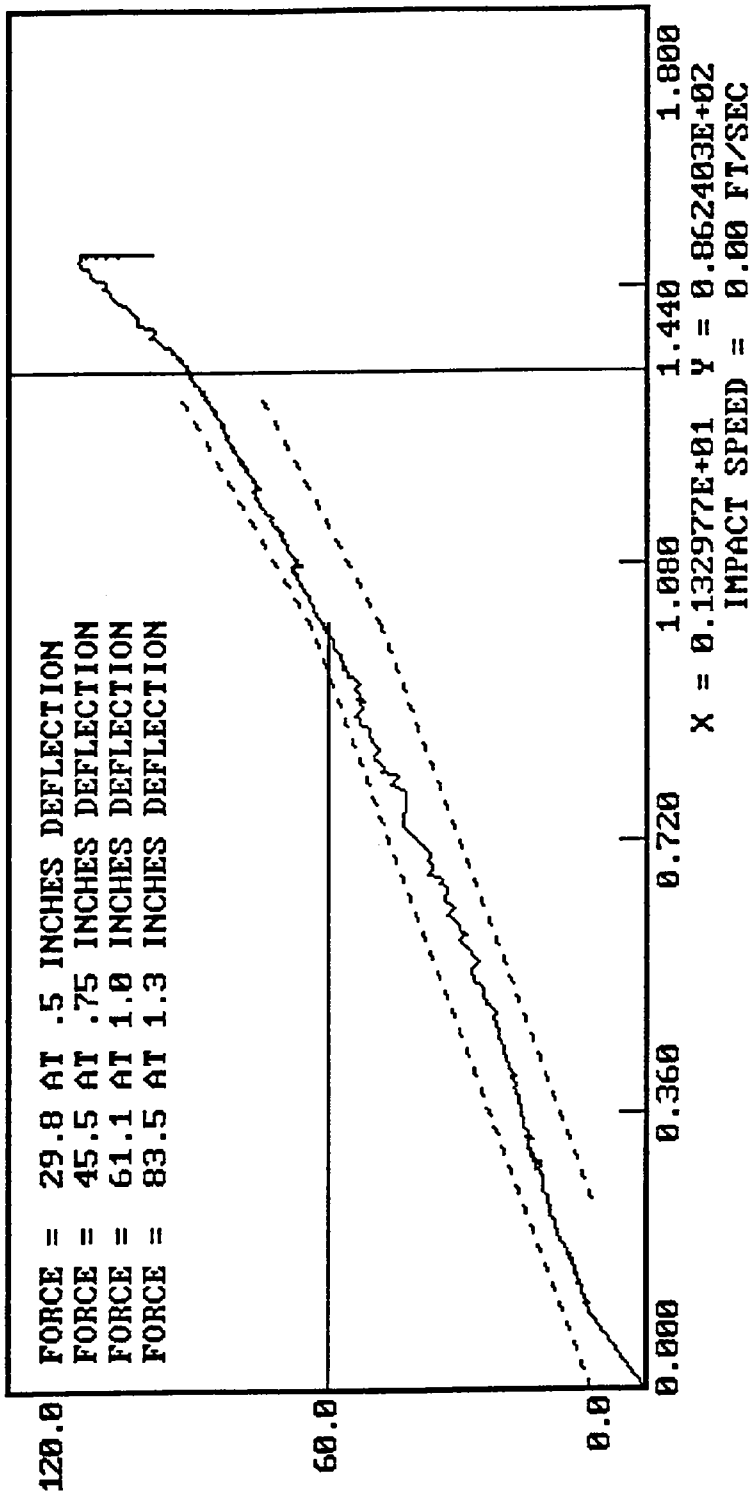
TECHNICIAN

He Chen

APPROVED BY

J. Robbins

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 269
 06-27-1994 10:16
 ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

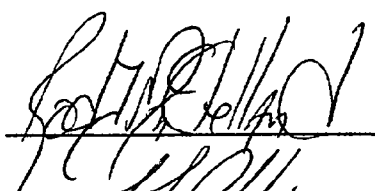
DATE: June 28, 1994

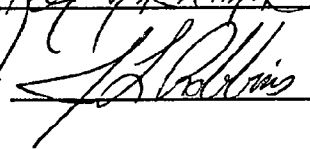
DUMMY NUMBER: 269

TEST NUMBER: D94285

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	60%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	29
FORCE @ 30°	34 - 46 lbs	40
FORCE @ 40°	46 - 58 lbs	50
RETURN ANGLE	12° maximum	5°

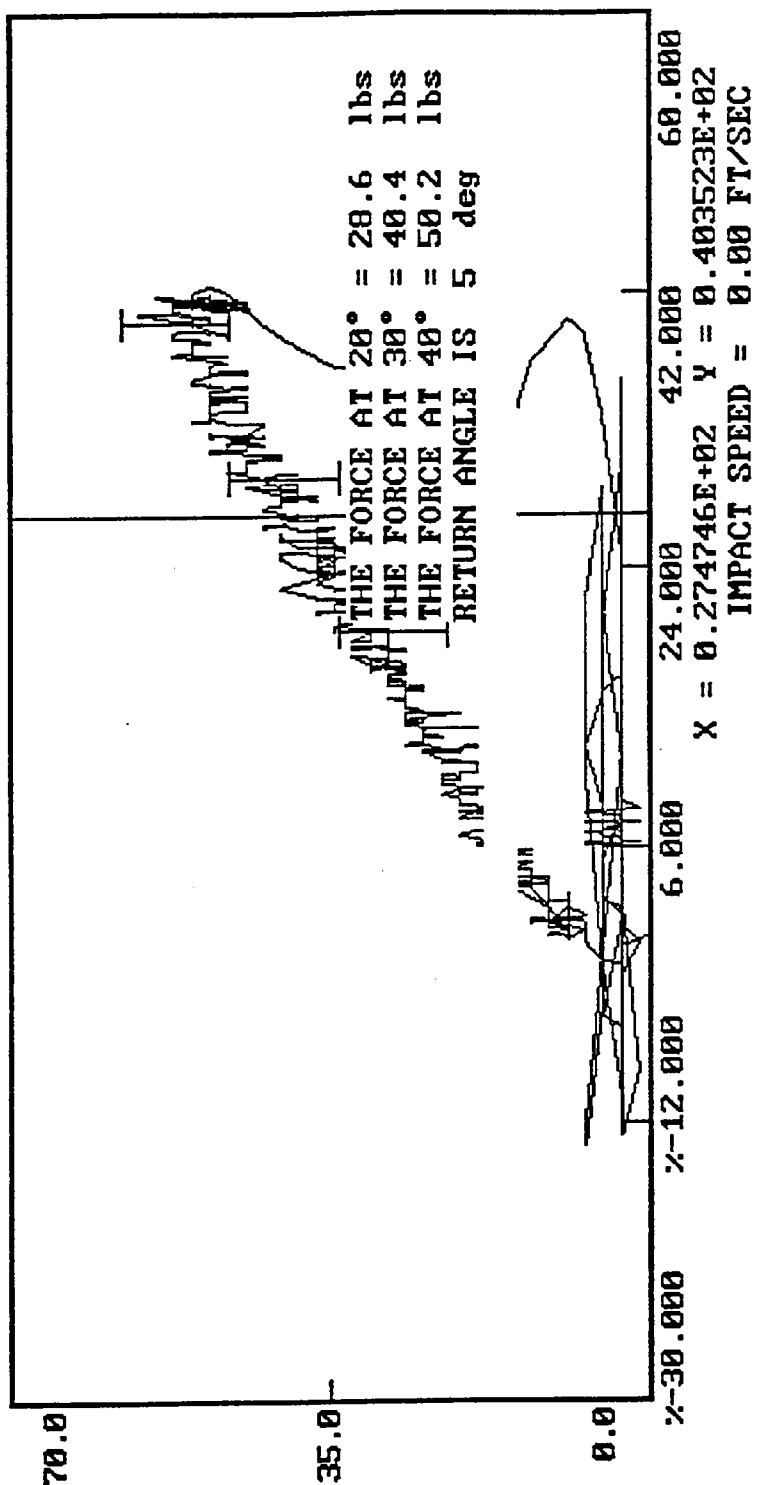
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

06-28-1994 08:57

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



POST-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 271

Calibration Test Results Summary

Dummy Serial Number: 271

Post-Test Calibration

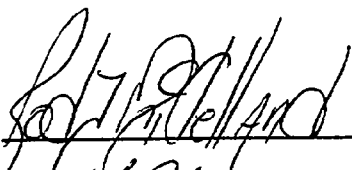
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen failed post-test compression requirements.
Lumbar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

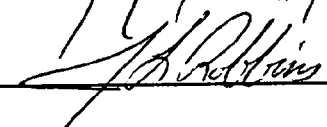
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 271

DATE OF VERIFICATION: June 27, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
RH - Rib Height	19.75 - 20.5"	19.9
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.5
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.4
HW - Hip Width	14.0" - 15.4"	14.8

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: June 27, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94292

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	72°
RELATIVE HUMIDITY	10 - 70%	50%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	38
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	19

TEST MEETS SPECIFICATIONS

TECHNICIAN Ma Chuan

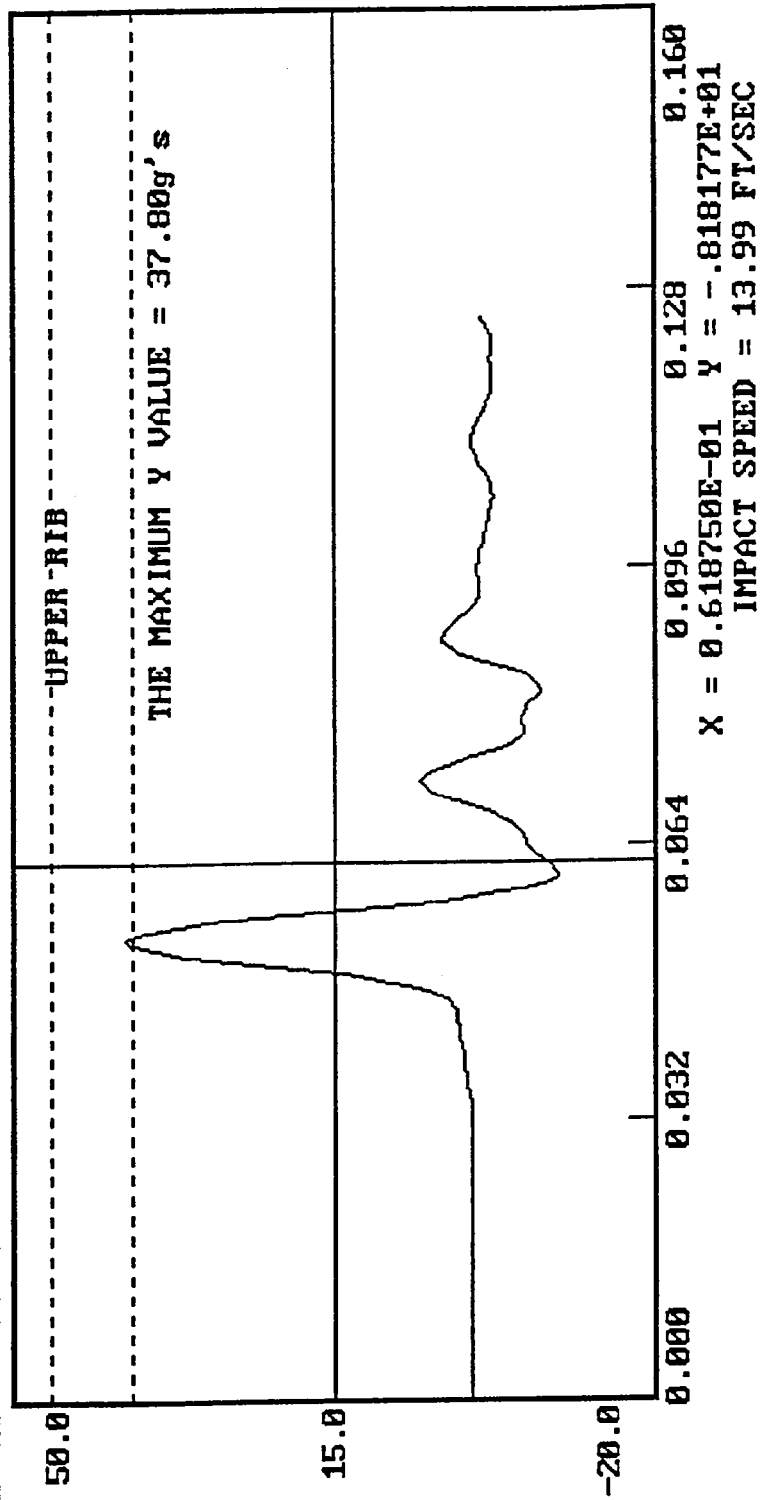
APPROVED BY J. Robbins

06-27-1994 14:01

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

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

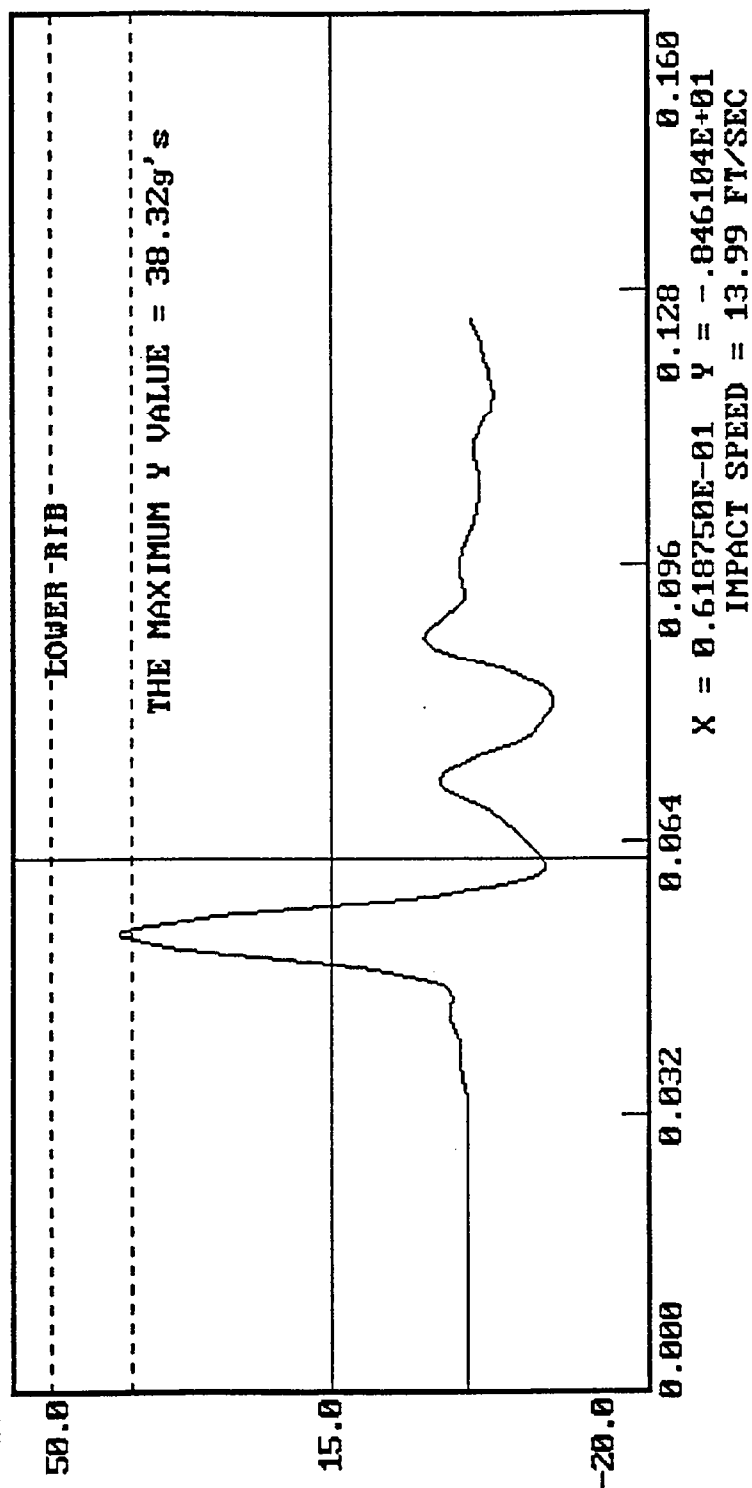


06-27-1994 14:01

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

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

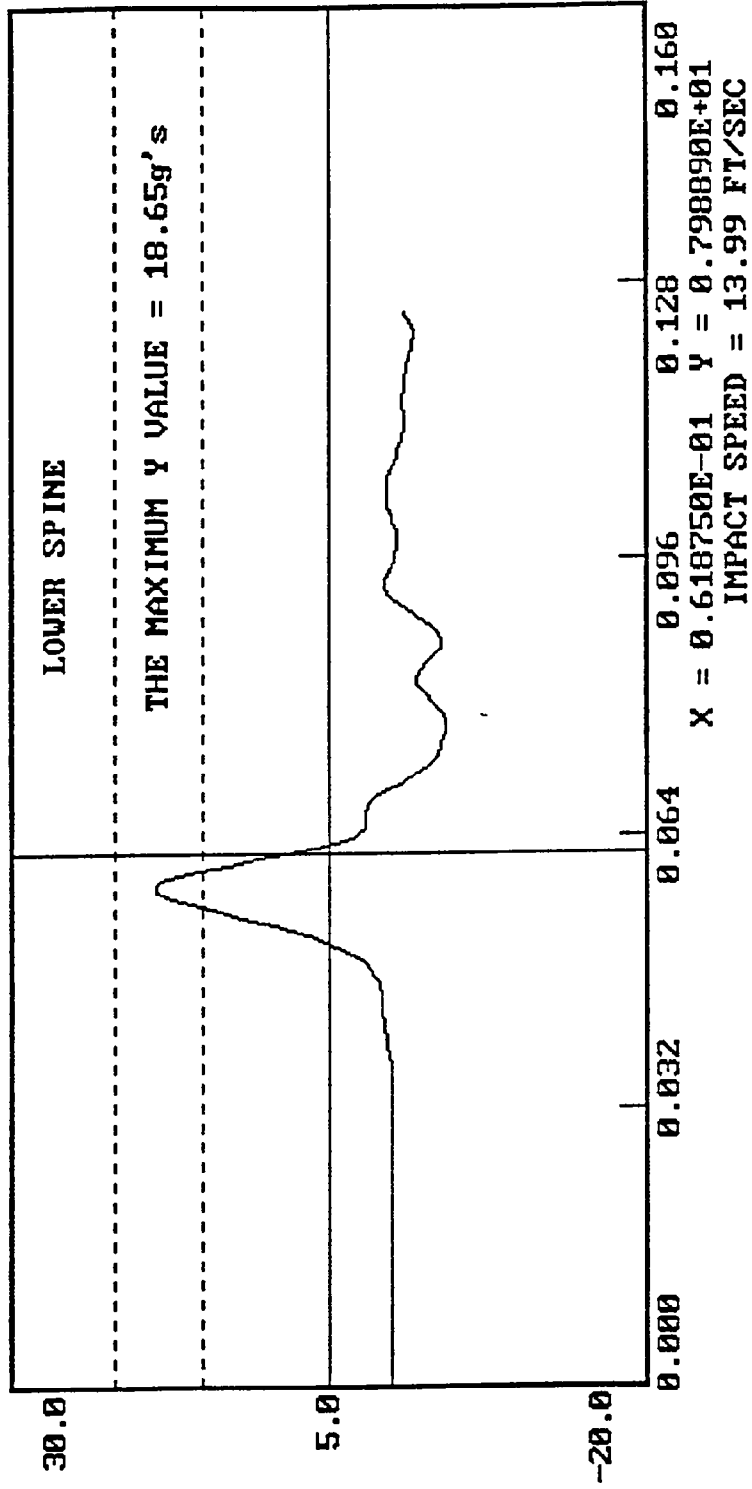


06-27-1994 14:01

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: June 27, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94293

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	59

TEST MEETS SPECIFICATIONS

TECHNICIAN

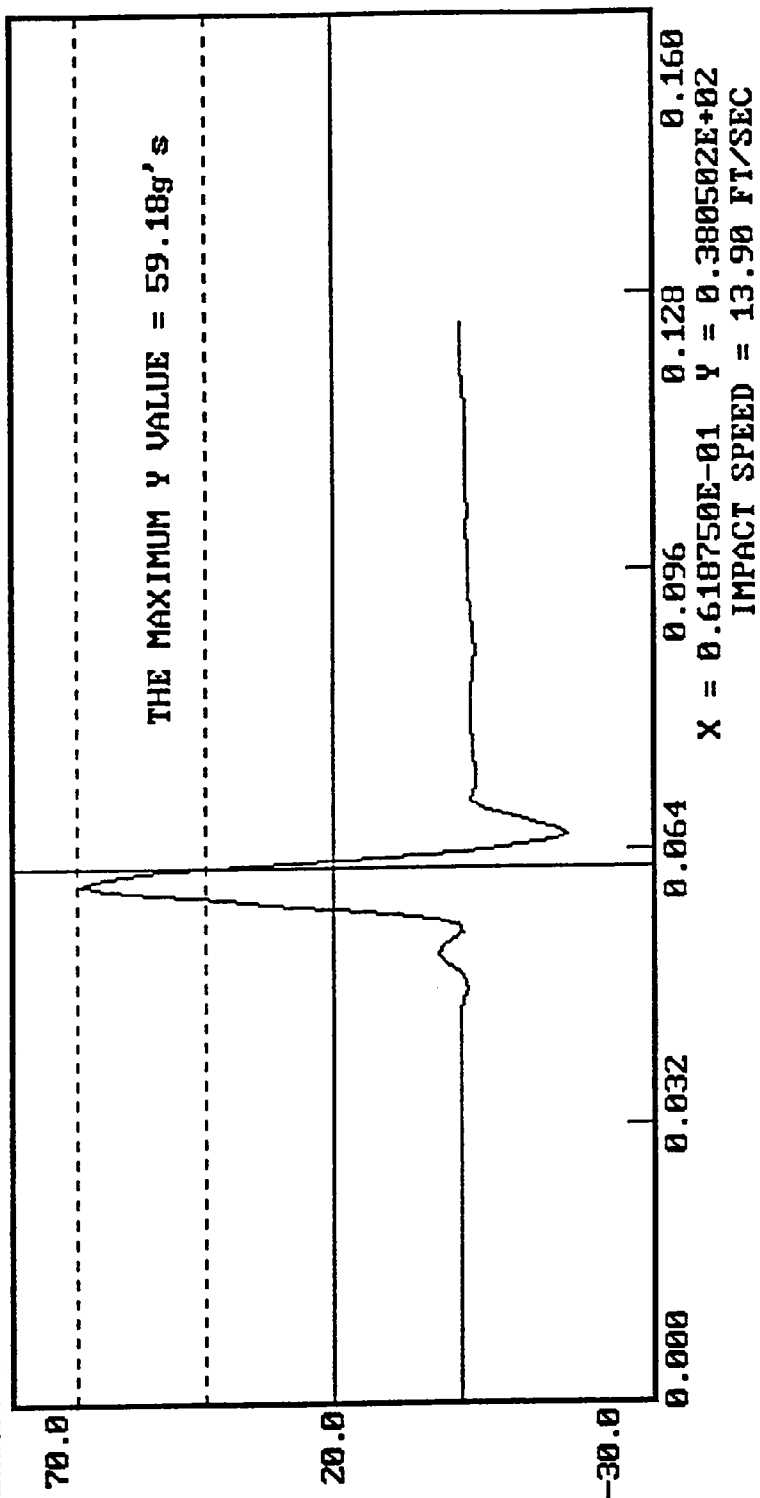
APPROVED BY

06-27-1994 15:29

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # 271

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



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: June 27, 1994

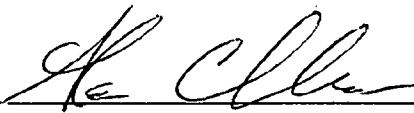
DUMMY NUMBER: 271

TEST NUMBER: D94294

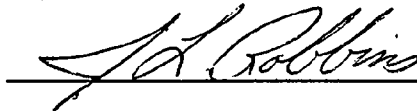
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	58%
FORCE @ 0.5 in	23.3 - 36.5 lbs	21.1*
FORCE @ 0.75 in	36.7 - 49.8 lbs	29.3*
FORCE @ 1.0 in	50 - 63 lbs	41*
FORCE @ 1.3 in	73 - 88 lbs	60*

*TEST DOES NOT MEET SPECIFIED REQUIREMENTS

TECHNICIAN



APPROVED BY



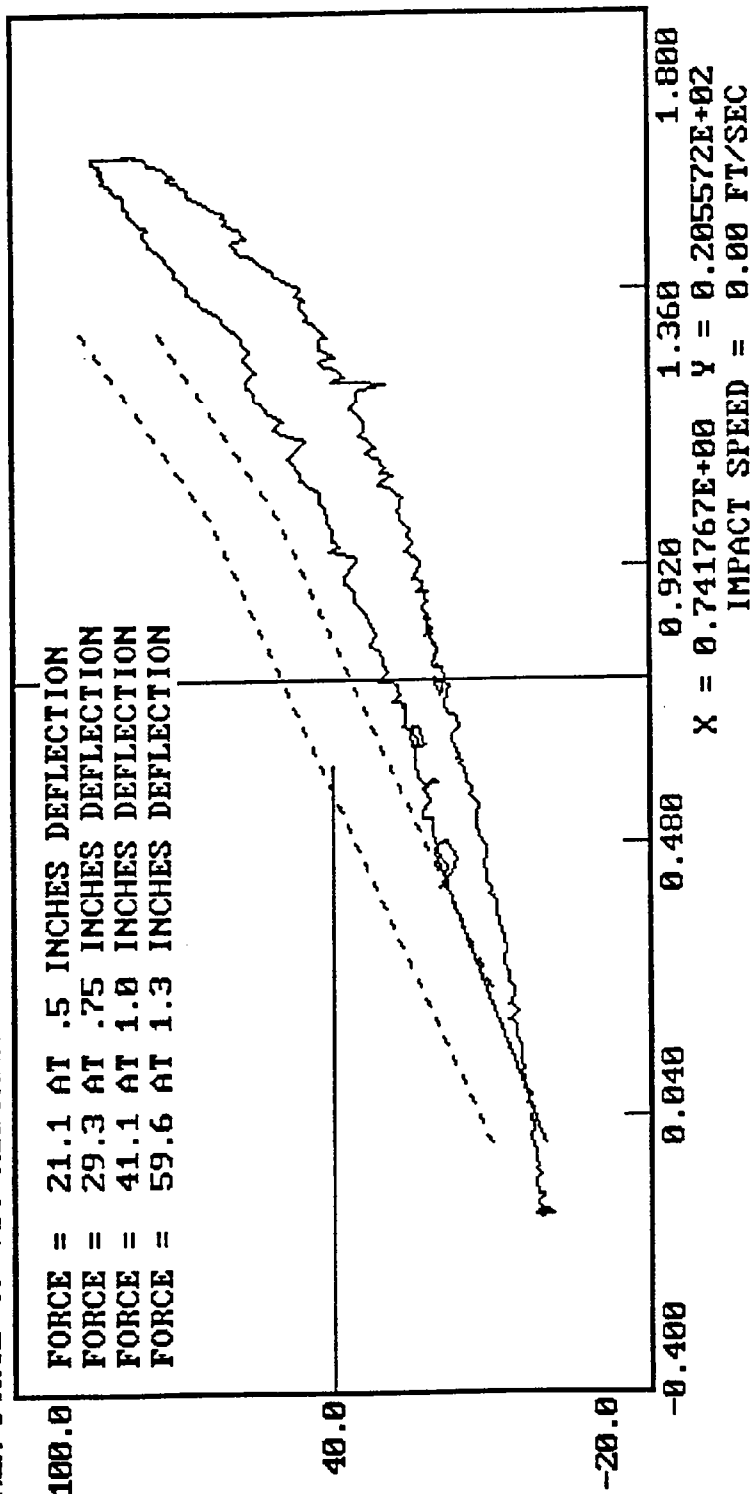
06-27-1994 10:26

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 271

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)

FORCE = 21.1 AT .5 INCHES DEFLECTION
FORCE = 29.3 AT .75 INCHES DEFLECTION
FORCE = 41.1 AT 1.0 INCHES DEFLECTION
FORCE = 59.6 AT 1.3 INCHES DEFLECTION



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

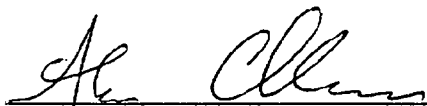
DATE: June 27, 1994

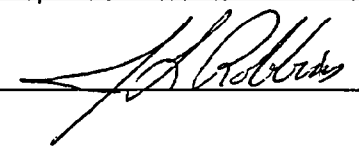
DUMMY NUMBER: 271

TEST NUMBER: D94295

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	58%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	31
FORCE @ 30°	34 - 46 lbs	44
FORCE @ 40°	46 - 58 lbs	52
RETURN ANGLE	12° maximum	3°

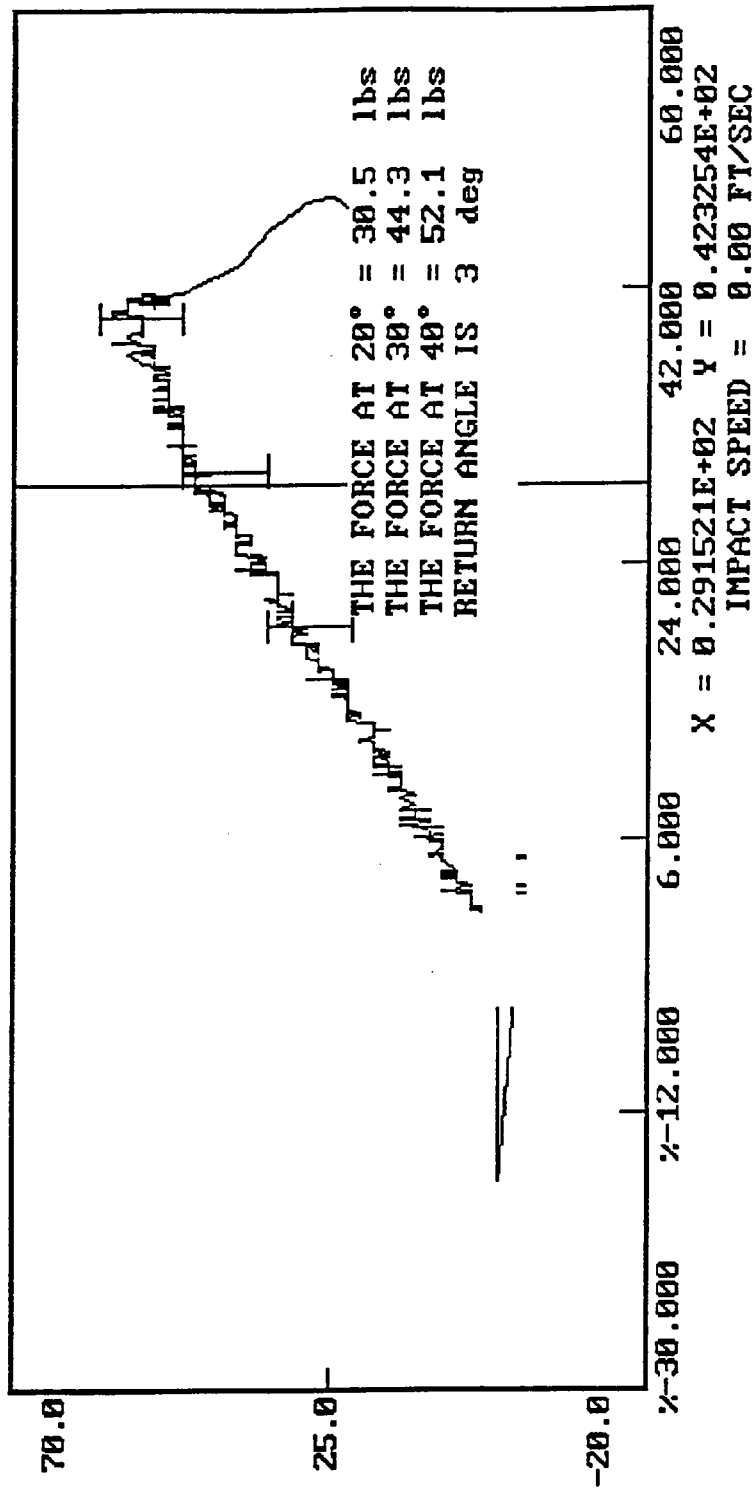
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

06-27-1994 10:55



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

Inspected By: Jeff Robbins

Date: June 24, 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: 271

Inspected By: Jeff Robbins

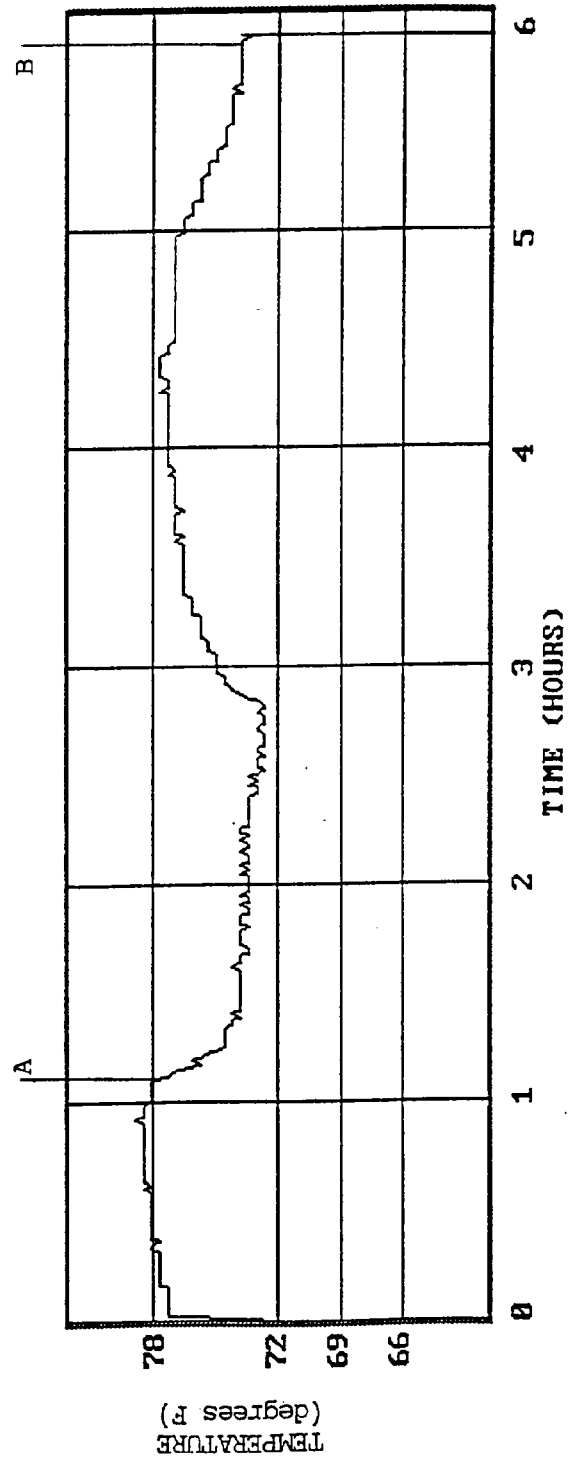
Date: June 24, 1994

<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		DAMAGED*

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

- * The Abdomen would not pass post-test calibration requirements. It was replaced with a new abdomen supplied by VRTC. The new abdomen calibration data did meet the abdominal calibration requirements. This data will be used for pre-test calibration data.

VEHICLE AND DUMMY TEMPERATURE



A = Dummies placed in vehicle
B = Test conducted

APPENDIX D
DUMMY AND VEHICLE CALIBRATION DATA

**DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION
INSTRUMENTS FOR DRIVER DUMMY NO. 271**

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib	AHY21	Endevco	June 21, 1994
Lower Rib	AH0A2	Endevco	June 21, 1994
Lower Spine	AHR15	Endevco	June 21, 1994
Pelvis	AH1G2	Endevco	June 20, 1994
Upper Rib Redundant	AHW86	Endevco	June 21, 1994
Lower Rib Redundant	AHWN3	Endevco	June 21, 1994
Lower Spine Redundant	AH0A7	Endevco	June 20, 1994
Pelvis Redundant	AH0M0	Endevco	June 20, 1994

INSTRUMENTS FOR PASSENGER DUMMY NO. 269

	LEFT REAR PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib	AGNA4	Endevco	June 21, 1994
Lower Rib	AH0N9	Endevco	June 20, 1994
Lower Spine	AHY97	Endevco	June 20, 1994
Pelvis	AHY68	Endevco	June 21, 1994
Upper Rib Redundant	AHW95	Endevco	June 21, 1994
Lower Rib Redundant	AH1E2	Endevco	June 20, 1994
Lower Spine Redundant	AHYA1	Endevco	June 21, 1994
Pelvis Redundant	AHT55	Endevco	June 21, 1994

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
MDB CG X	MGA135	Entran	June 13, 1994
MDB CG Y	MGA126	Entran	June 13, 1994
MDB CG Z	AZ02	Endevco	June 13, 1994
MDB Rear Axle X	MGA054	Entran	June 13, 1994
MDB Rear Axle Y	MGA165	Entran	June 14, 1994
Lower Left A-Post	MGA016	Entran	June 14, 1994
Lower Left B-Post	MGA079	Entran	June 14, 1994
Upper Left B-Post	A84	Endevco	June 2, 1994
Trunk Centerline X	MGA106	Entran	June 13, 1994
Trunk Centerline Y	MGA146	Entran	June 13, 1994
Trunk Centerline Z	MGA114	Entran	June 13, 1994
Driver Seat Track	MGA045	Entran	June 2, 1994
Right Front Sill X	MGA137	Entran	May 24, 1994
Right Front Sill Y	MGA158	Entran	June 14, 1994
Right Front Sill Z	MGA143	Entran	June 14, 1994
Right Rear Sill X	AC815	Endevco	June 13, 1994
Right Rear Sill Y	MGA124	Entran	June 13, 1994
Right Rear Sill Z	MGA007	Entran	June 14, 1994
Right Rear Seat Occupant Compartment	MGA058	Entran	June 9, 1994
Left Front Sill Y	MGA035	Entran	May 24, 1994
Left Rear Sill Y	MGA131	Entran	June 14, 1994

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