

V2217

REPORT NO.: MGA-95-21407

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

MITSUBISHI MOTORS
1995 **MITSUBISHI GALANT 4 DOOR**
NHTSA NO: CS5601

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



MGA Ref. No.: G93A-02

Test Date: November 29, 1994

Report Date: December 20, 1994

FINAL REPORT

Prepared For:

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	<u>Driver's SID</u>	<u>Left Rear SID</u>	
Thoracic Trauma Index (TTI)	74 g's	66 g's	
Pelvis Acceleration	56 g's	94 g's	
Upper Rib Acceleration	72.8 g's	73.8 g's	
Lower Rib	62.1 g's	80.2 g's	
Lower Spine	75.0 g's	52.7 g's	
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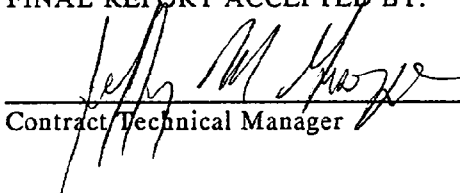
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Approved by:


John Fleck, Project Engineer

Date: 12-20-'94

FINAL REPORT ACCEPTED BY:


Contract Technical Manager

Date: 2/7/95

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SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 94 FMVSS 214 "Dynamic" compliance test program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-93-C-02047. The purpose of this test was to evaluate side impact protection in a 1995 Mitsubishi Galant 4 Door.

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 Mitsubishi Galant 4 Door was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 33.1 mph (53.3 kph) on November 29, 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. The SID in the driver (Pos. #1) was placed according to instructions specified in the Laboratory Test Procedure. The side impact event was documented by nine high speed cameras. Camera locations and other pertinent camera information can be found in this report. Appendix B contains the vehicle and dummy response data traces.

The SIDs were instrumented with the following accelerometers.

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

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

The driver's Thoracic Trauma Index (TTI) was 74 g's. Maximum pelvic Y acceleration was 56 g's.

The left rear passenger's TTI was 66 g's. Maximum pelvic Y acceleration was 94 g's.

SECTION 3
SUMMARY OF TEST DATA

TABLE 1
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door
 Vehicle NHTSA No.: CS5601 VIN: 4A3AJ46G4SE011602
 Vehicle Body Color: White Month & Year of Manufacture: 5-94
 Engine Data: 4 cylinders; CID; 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 93 miles
 Options: A/C; X Pwr. Steering.; X Pwr. Brakes; Pwr. Windows
 Power Seats; Tilt Wheel; Power Door Locks; Self Leveling System

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 32 Psi FRONT (221 kpa)
29 Psi REAR (200 kpa)
 Recommended Tire Size: P185/70R14
 Tires on Test Vehicle: P185/70R14 Manufacturer: Bridgestone

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; 3rd Seat 5 Total
 Type of Front Seats: X Bucket; Bench; Split Bench
 Type of Front Seat Back: Fixed; X Adjustable with X Lever
 Vehicle Maximum Capacity Loading = 827 lbs (A) (375.1 kg)
 No. of Occupants x 150 lbs. = 750 lbs (B) (340.2 kg)
 Cargo Capacity (A-B) = 77 lbs (34.9 kg)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>837</u> lbs (379.7 kg)	Right Rear	=	<u>535</u> lbs (242.7 kg)
Left Front	=	<u>853</u> lbs (381.9 kg)	Left Rear	=	<u>554</u> lbs (251.3 kg)
TOTAL FRONT	=	<u>1690</u> lbs (766.6 kg)	TOTAL REAR	=	<u>1089</u> lbs (494.0 kg)
% of Total Vehicle Weight	=	<u>60.8</u> %;	% of Total Weight	=	<u>39.2</u> %
TOTAL WEIGHT	=	<u>2779</u> lbs (1260.6 kg)			

TABLE 2
TEST VEHICLE DATA

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door

Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	=	<u>2779</u> lbs (1260.6 kg)
Cargo Carrying Capacity of Test Vehicle	=	<u>77</u> lbs (34.9 kg)
Weight of 2 Side Impact Dummies (2 x <u>178</u> lbs.)	=	<u>356</u> lbs (161.5 kg)
TEST VEHICLE TARGET WEIGHT:	=	<u>3212</u> lbs (1457.0 kg)

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front	=	<u>906</u> lbs (410.9 kg)	Right Rear	=	<u>629</u> lbs (285.3 kg)
Left Front	=	<u>963</u> lbs (436.8 kg)	Left Rear	=	<u>698</u> lbs (316.6 kg)
TOTAL FRONT	=	<u>1869</u> lbs (847.7 kg)	TOTAL REAR	=	<u>1327</u> lbs (601.9 kg)
% of Total Weight	=	<u>58.5%</u>	% of Total Weight	=	<u>41.5%</u>
TOTAL TEST WEIGHT	=	<u>3196</u> lbs (1449.7 kg)			

TEST VEHICLE ATTITUDE (all dimensions in inches):

CURB WEIGHT ATTITUDE: in (mm)

Right Front 33.0 (837) Left Front 33.6 (853) Right Rear 21.1 (535) Left Rear 21.8 (554)

FULLY LOADED WEIGHT ATTITUDE: in (mm)

Right Front 27.1 (688) Left Front 26.2 (666) Right Rear 26.2 (665) Left Rear 25.1 (638)

TEST ATTITUDE: in (mm)

Right Front 26.5 (672) Left Front 26.3 (669) Right Rear 26.2 (665) Left Rear 25.4 (645)

Test Vehicle Wheelbase: 103.8 inches (2636 mm)

C.G. = 43.1 inches (1095 mm) rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side	=	<u>172.4</u> in (4380 mm)
Centerline	=	<u>187.8</u> in (4770 mm)
Left Side	=	<u>172.4</u> in (4380 mm)

FIGURE 1
PRE-TEST CONDITIONS

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door
Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 9 in (228 mm)
Total Number of Adjustment Positions or Detents: 23
Test Position: 12th from front
(12th detent from front, 1st position being #1)

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 24° degrees

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: Non-Adjustable
Seat Back Adjustment Position: N/A

ADJUSTABLE STEERING COLUMN POSITION: Adjusted to mid position

WINDOW POSITIONS: Left Front closed Left Rear closed
Right Front open Right Rear open
Note: Windows will be in closed position on struck side of test vehicle
and in open position on opposite side.

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 16.9 gallons (63.9 liters)
Test Volume: 15.75 gallons (59.6 liters) 93% of capacity

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

Wheelbase: = 103.8 in (2635 mm)
Impact Point is 14.9 in (378 mm) rearward of front axle centerline

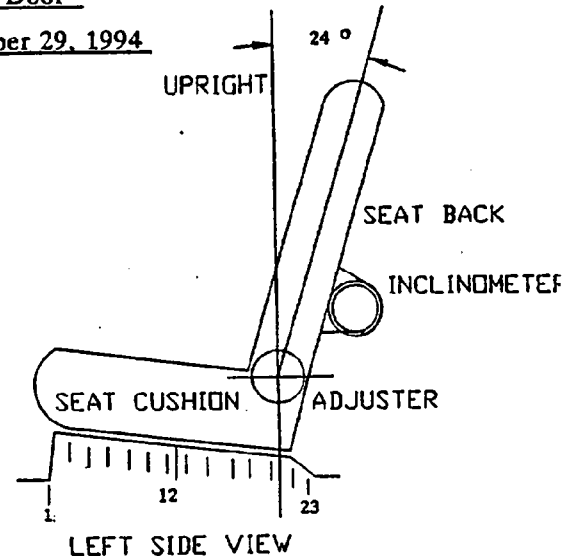


TABLE 3
CRASH TEST SUMMARY FOR TEST VEHICLE

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door
Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

Overall Length = 187.8 in (4770 mm); Overall Width = 67.7 in (1720 mm)

TEST WEIGHT:

Right Front	=	<u>906</u> lbs (410.9 kg)	Right Rear	=	<u>629</u> lbs (285.3 kg)
Left Front	=	<u>963</u> lbs (436.8 kg)	Left Rear	=	<u>698</u> lbs (316.6 kg)
TOTAL FRONT	=	<u>1869</u> lbs (847.7 kg)	TOTAL REAR	=	<u>1327</u> lbs (601.9 kg)
% of Total Weight	=	<u>58.5%</u>	% of Total Weight	=	<u>41.5%</u>
TOTAL VEHICLE WEIGHT <u>3196</u> lbs (1449.7 kg)					
Wheelbase = <u>103.8</u> in (2636 mm)					
Longitudinal C.G. front Center of Front Axle				=	<u>43.1</u> in (1095 mm)
Impact Angle with Respect to Impactor				=	<u>90°</u> degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (250 mm above ground) = 240 mm
 2. LEVEL 2 (438 mm above ground) = 341 mm
 3. LEVEL 3 (580 mm above ground) = 309 mm
 4. LEVEL 4 (865 mm above ground) = 261 mm
 5. LEVEL 5 (1292 mm above ground) = 51 mm
- Maximum Post-Test Intrusion = 341 mm

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/Mitsubishi/Galant/4 Door

Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

Overall Width of Framework Carriage	= <u>49.3</u> in (1252.2 mm)
Overall Length of MDB (incl. honeycomb impact face)	= <u>162</u> in (4114.8 mm)
Wheelbase of Framework Carriage	= <u>102</u> in (259.1 mm)
Tread of Framework Carriage (Front & Rear)	= <u>74</u> in (1879.6 mm)
C.G. Location Rearward of Front Axle	= <u>43.4</u> in (1102.4 mm)
C.G. Location From Center Line	= <u>-0.3</u> in (-7.62 mm)
C.G. Location Above Ground Level	= <u>19.2</u> in (487.7 mm)

MDB WEIGHT:

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

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

Impact Speed = Primary: 33.14 mph (53.3 kph) Secondary: 33.05 mph (53.2 kph)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A Top of Stack (33 in)	= <u>150</u> mm
2. Row B Mid Stack (27 in)	= <u>116</u> mm
3. Row C Top of Bumper (21 in)	= <u>59</u> mm
4. Row D Center of Bumper (17 in)	= <u>85</u> mm

INSTRUMENTATION:

Number of MDB Data Channels = 7

TABLE 5
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door Coupe

Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to shoulder belt</u>	<u>to "C" Post</u>
Arm	<u>to door trim panel</u>	<u>to side window & trim panel</u>
Pelvis	<u>to door trim panel</u>	<u>to door trim panel</u>
Left Knee	<u>to door armrest</u>	<u>to window crank & upper armrest</u>
Right Knee	<u>to left 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>N/A</u>	<u>N/A</u>

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: .25 in rear Vertical: 0

ARM REST LOCATIONS:

Front: 250 mm below window opening
Rear: 240 mm below window opening

SEAT CRUSH:

Driver Seat Back: 68 mm Driver Seat Cushion: 80 mm
Left Rear Seat Back: 70 mm Left Rear Seat Cushion: 140 mm

GLAZING DAMAGE:

Left side windows broken & windshield cracked

PILLAR PERFORMANCE:

No separation noted

SILL SEPARATION:

Mid passenger door 644 mm forward of rear axle centerline

OTHER NOTABLE IMPACT EFFECTS:

None

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

TABLE 6

SIDE IMPACT DUMMY (SID) TEST DATA SUMMARYYear/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 DoorVehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

	Front Dummy ID # 271			Rear Dummy ID # 269		
	Pos. Direct.		Neg. Direct	Pos. Direct.		Neg. Direct
	Max (g)	Time (msec)		Max (g)	Time (msec)	
RIB ACCELERATIONS: Upper Rib Lateral.....Y Upper Rib Lateral....Y(R) Lower Rib Lateral.....Y Lower Rib Lateral.....Y(R)	72.8	28	9.1	73.8	47	7.1
	76.5	28	10.1	71.7	47	6.9
	62.1	28	12.0	80.2	46	10.1
	63.1	28	12.0	77.0	46	9.2
SPINE ACCELERATIONS: Lower Lateral.....Y Lower Lateral.....Y(R)	75.0	31	20.7	52.7	51	8.8
	73.9	31	21.1	51.5	51	9.7
PELVIC ACCELERATIONS: Lateral.....Y Lateral.....Y(R)	55.9	36	24.3	94.5	41	10.3
	56.5	36	24.0	94.4	41	10.3

REFERENCE:

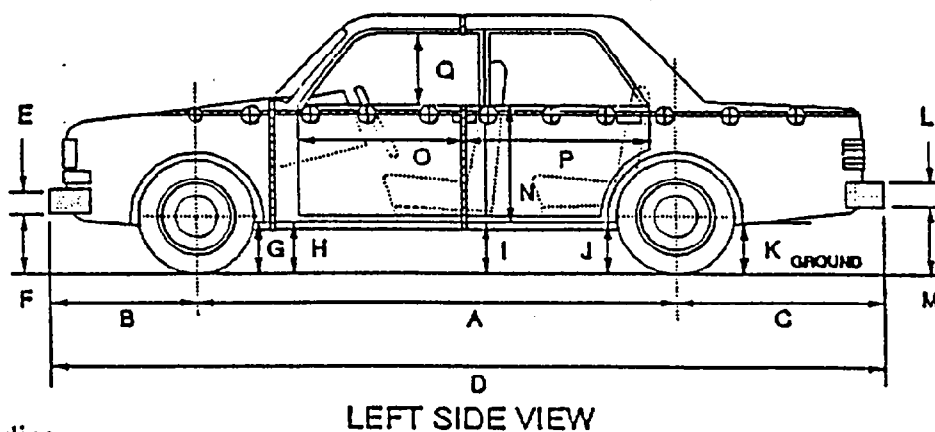
Positive Direction - Longitudinal (X) = forward

Lateral (Y) = to right

Vertical (Z) = up

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

FIGURE 2
PRE- AND POST-TEST MEASUREMENTS



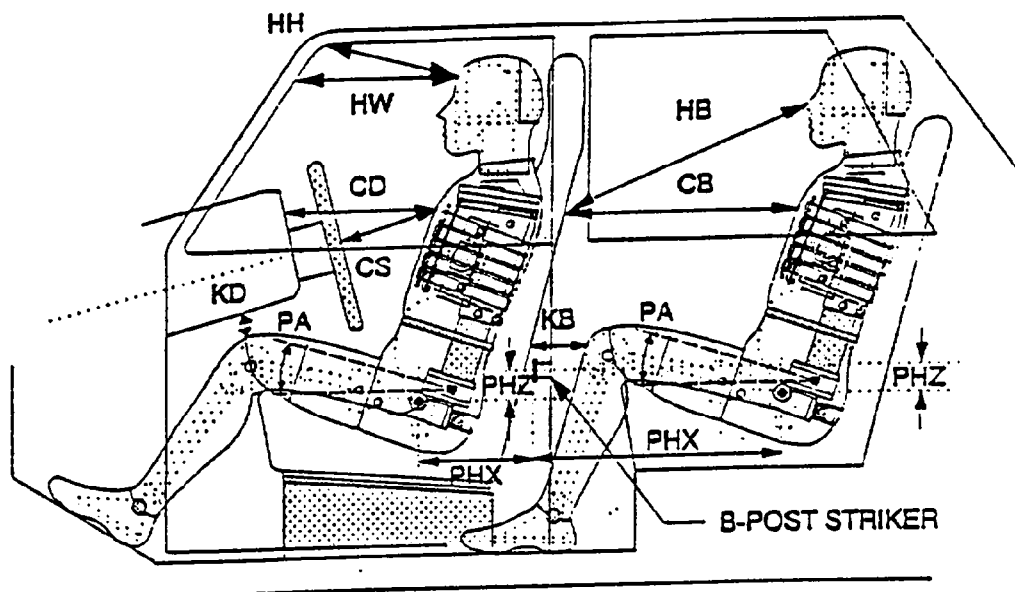
D = Length at Centerline
R = Right Side Length
S = Left Side Length
T = Width at B Post
E & L = Bumper Thickness

J1 = To Pinch Weld
J2 = To Sill

Units: mm

LOCATION	PRE-TEST	POST-TEST	Δ CHANGE
A	2619	2596	23
B	1000	1000	0
C	1151	1159	8
D	4770	4759	11
E	150	150	0
F	358	390	32
G	168	185	17
H	168	237	69
I	165	187	22
J1/J2	168/169	197/193	29/24
K	230	277	47
L	270	270	0
M	318	377	59
N	650	547	103
O	712	690	22
P	1305	1229	76
Q	395	373	22
R	4380	4380	0
S	4380	4324	56
T	1720	1504	216

FIGURE 3
SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS



LEFT SIDE VIEW

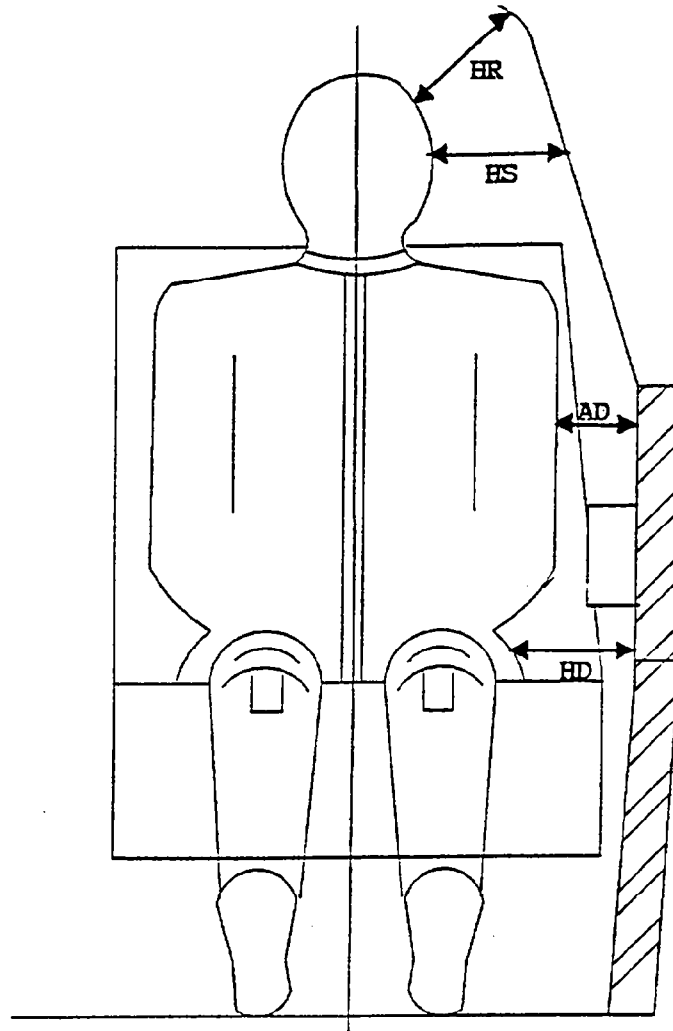
NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

NOTE: All dimensions are in mm

	DRIVER ID #271	LEFT REAR PASSENGER ID #269	
HH	384	---	
HW	598	---	
HB	---	657	
CD	569	CB	508
CS	354	---	
KDL	148	KBL	96
KDR	140	KBR	89
PA°	24.2°	23.2°	
PHX	154	230	
PHZ	132	307	

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

FIGURE 4
SIDE IMPACT DUMMY (SID) LATERAL CLEARANCE DIMENSIONS

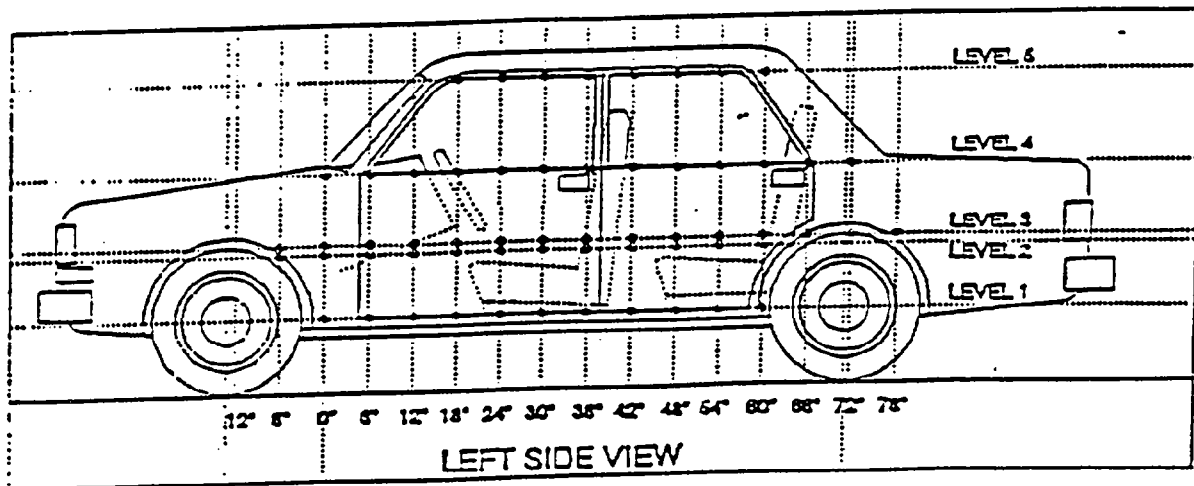


NOTE: All dimensions are in mm

	DRIVER ID #271	LEFT REAR PASSENGER ID #269
HR	134	95
HS	245	182
AD	130	120
HD	190	211

FIGURE 5
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door
Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 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>50.9</u> in (1292 mm)
Level 4 @ Window Sill	= <u>34.0</u> in (865 mm)
Level 3 @ Mid Door	= <u>22.8</u> in (580 mm)
Level 2 @ Occupant H-Point	= <u>17.2</u> in (438 mm)
Level 1 @ Axle Centerline Height (or Sill Top Height)	= <u>9.8</u> in (250 mm)

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH

LEVEL 1 AT AXLE CENTER LINE

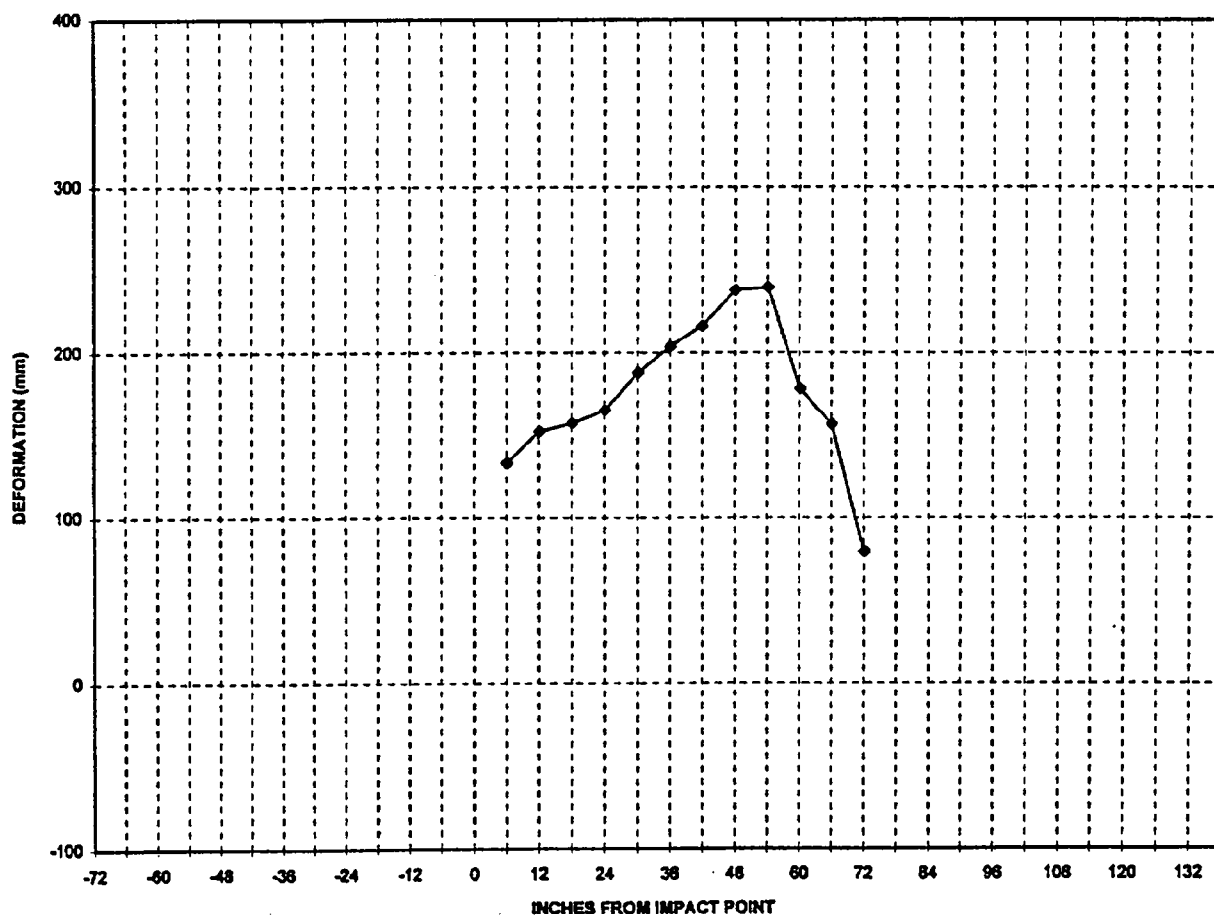
Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 DoorVehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	---	---	---
-30	---	---	---
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	---	---	---
6	826	959	133
12	837	984	152
18	843	1000	157
24	843	1008	165
30	843	1031	188
36	842	1046	204
42	843	1059	216
48	844	1082	238
54	840	1080	240
60	833	1011	178
66	828	984	156
72	824	903	79
78	---	---	---
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	---	---	---
114	---	---	---
120	---	---	---
126	---	---	---
132	---	---	---
138	---	---	---

(impact point)

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 1 AT AXLE CENTER LINE

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH

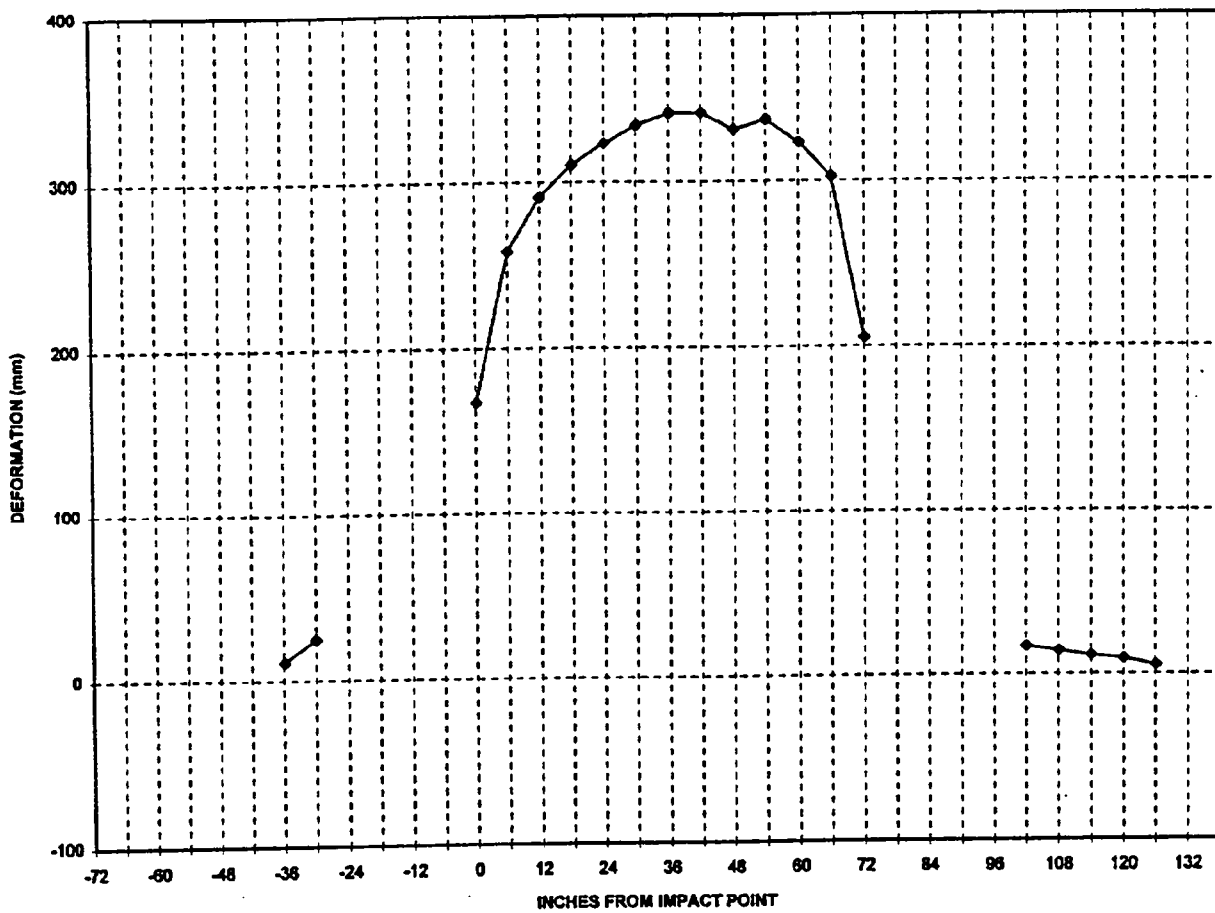
LEVEL 2 AT OCCUPANT H-POINT

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 DoorVehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	833	842	11
-30	813	838	25
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	806	973	167 (impact point)
6	800	1059	259
12	801	1091	291
18	801	1111	310
24	801	1124	323
30	801	1135	334
36	800	1141	341
42	800	1141	341
48	801	1132	331
54	800	1137	337
60	800	1123	323
66	800	1102	302
72	801	1006	205
78	---	---	---
84	---	---	---
90	---	---	---
96	---	---	---
102	810	827	17
108	821	835	14
114	835	846	11
120	850	859	9
126	889	894	5
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

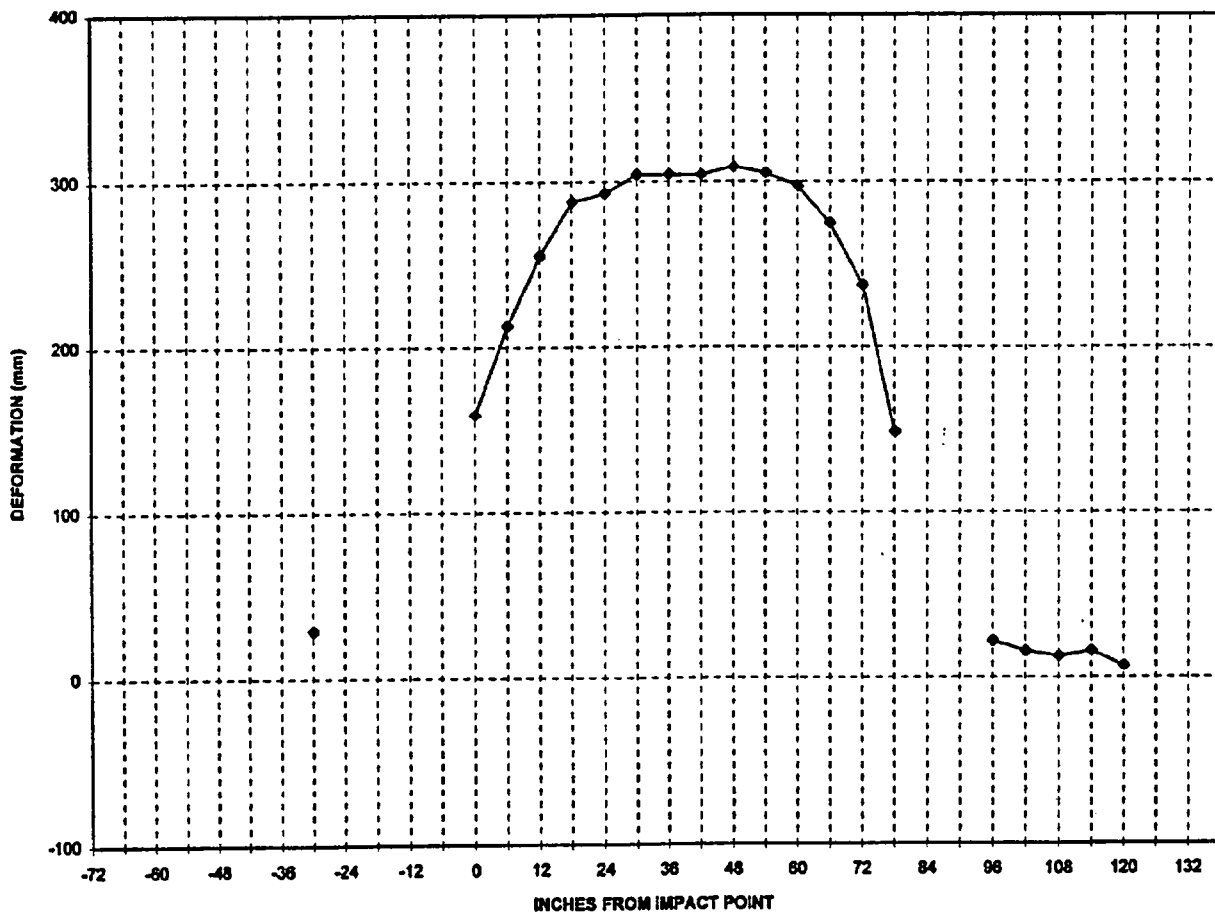
LEVEL 3 AT MID-DOOR

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 DoorVehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	---	---	---
-30	826	855	29
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	796	955	159 (impact point)
6	797	1010	213
12	798	1054	256
18	798	1086	288
24	797	1090	293
30	796	1100	304
36	794	1098	304
42	795	1099	304
48	795	1104	309
54	793	1098	305
60	793	1090	297
66	792	1067	275
72	792	1030	238
78	792	940	148
84	---	---	---
90	---	---	---
96	800	822	22
102	805	821	16
108	824	837	13
114	842	858	16
120	878	885	7
126	---	---	---
132	---	---	---
138	---	---	---

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 3 AT MID-DOOR

TABLE 7

TEST VEHICLE EXTERIOR PROFILES FROM REFERENCE PLANE AND STATIC CRUSH

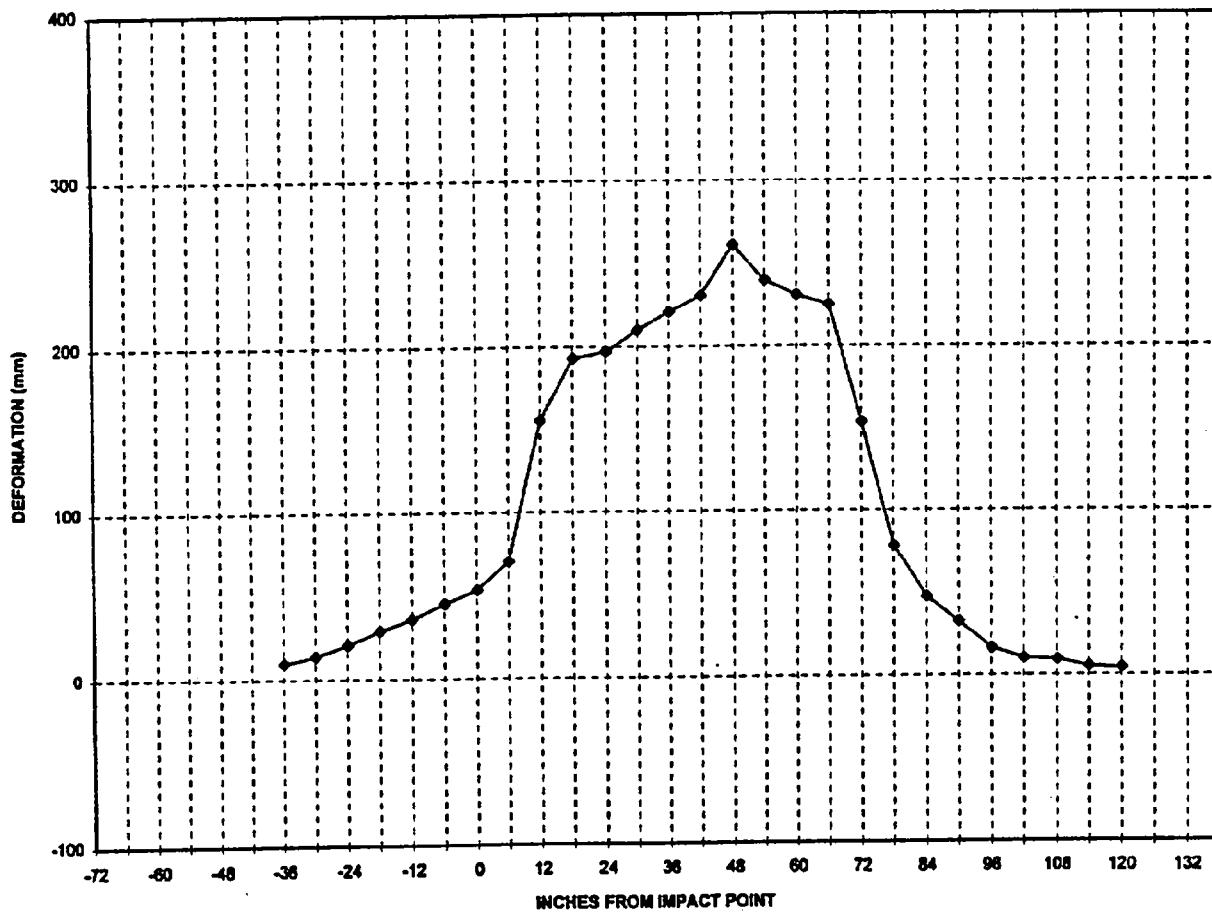
LEVEL 4 AT WINDOW SILL

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 DoorVehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	915	925	10
-30	900	914	14
-24	890	911	21
-18	881	910	29
-12	877	913	36
-6	872	917	45
0	872	925	53 (impact point)
6	868	938	70
12	865	1021	156
18	867	1060	193
24	867	1064	197
30	865	1075	210
36	865	1086	221
42	866	1097	231
48	867	1128	261
54	867	1107	240
60	871	1102	231
66	875	1100	225
72	876	1030	154
78	880	958	78
84	886	933	47
90	888	920	32
96	895	911	16
102	905	915	10
108	921	930	9
114	933	938	5
120	951	955	4
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

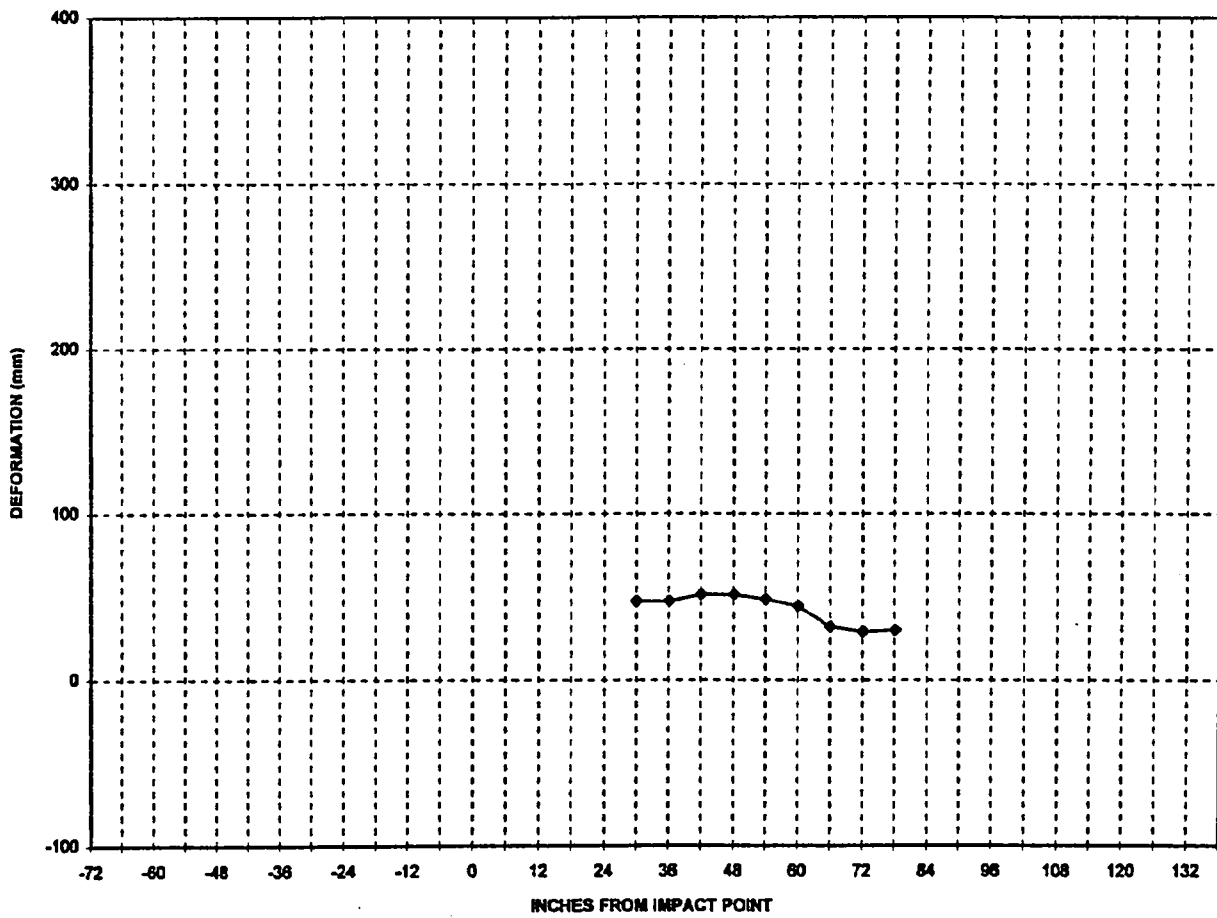
Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 DoorVehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

Longitudinal Distance (in)	PRE-TEST (mm)	POST-TEST (mm)	STATIC CRUSH (mm)
-72	---	---	---
-66	---	---	---
-60	---	---	---
-54	---	---	---
-48	---	---	---
-42	---	---	---
-36	---	---	---
-30	---	---	---
-24	---	---	---
-18	---	---	---
-12	---	---	---
-6	---	---	---
0	---	---	---
6	---	---	---
12	---	---	---
18	---	---	---
24	---	---	---
30	1115	1162	47
36	1111	1158	47
42	1103	1154	51
48	1101	1152	51
54	1107	1155	48
60	1113	1157	44
66	1118	1150	32
72	1125	1154	29
78	1133	1163	30
84	---	---	---
90	---	---	---
96	---	---	---
102	---	---	---
108	---	---	---
114	---	---	---
120	---	---	---
126	---	---	---
132	---	---	---
138	---	---	---

(impact point)

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

FIGURE 6
VEHICLE EXTERIOR STATIC CRUSH



LEVEL 5 AT WINDOW TOP

FIGURE 7
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door
Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

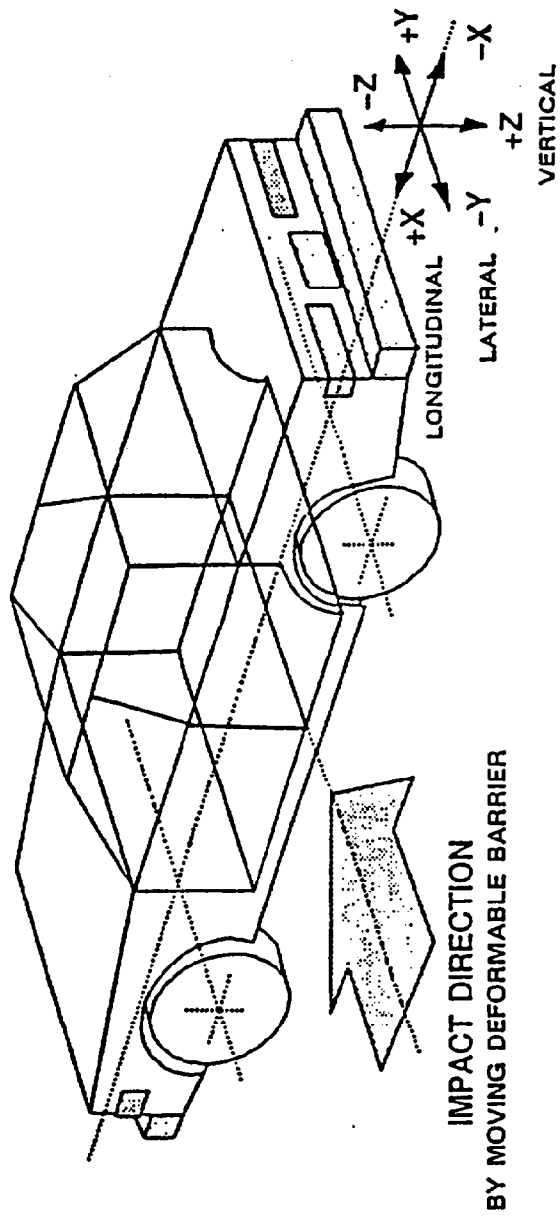
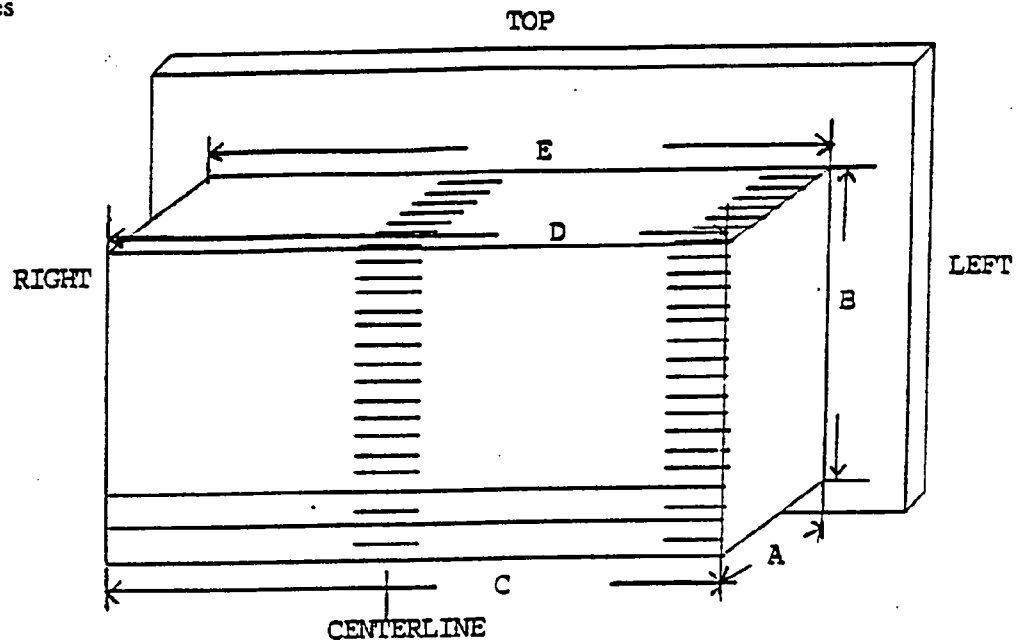


FIGURE 8
MDB FACE DIMENSIONS

Measurements in inches

A = 15.0
B = 22.5
C = 66.1
D = 66.0
E = 66.1



Measurements in inches

	Right	Left
A =	<u>11.1</u>	<u>11.0</u>
B =	<u>13.0</u>	<u>13.1</u>
C =	<u>21.0</u>	<u>21.1</u>
D =	<u>33.1</u>	<u>33.1</u>

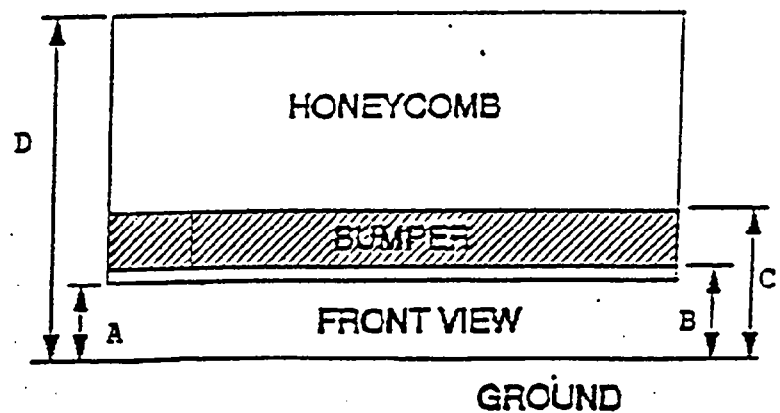


TABLE 8

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 DoorVehicle NHTSA No.: CS5601 TEST DATE: November 29, 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 (mm)	Crush inches (mm)	Crush inches (mm)	Crush inches (mm)
32"	1.3 (33)	.9 (24)	.2 (5)	1.2 (30)
28"	.3 (8)	.3 (8)	.2 (5)	.7 (19)
24"	.2 (5)	.3 (8)	.2 (5)	.4 (9)
20"	.2 (5)	.3 (8)	.2 (5)	.4 (9)
16"	.2 (5)	.4 (9)	.2 (5)	.5 (12)
12"	.2 (5)	.4 (9)	.2 (5)	.5 (12)
8"	.2 (5)	.4 (9)	.1 (2)	.6 (16)
4"	.2 (5)	.1 (2)	.1 (2)	.7 (19)
0"	.1 (2)	.1 (2)	.1 (2)	.9 (22)
4"	.1 (2)	.1 (2)	.3 (8)	1.0 (25)
8"	.1 (2)	.1 (2)	.6 (14)	1.1 (28)
12"	.1 (2)	.1 (2)	.7 (17)	1.4 (35)
16"	.8 (20)	.1 (2)	.8 (21)	1.6 (41)
20"	.8 (20)	.1 (2)	1.1 (27)	1.9 (47)
24"	2.1 (52)	.4 (11)	1.2 (30)	2.4 (60)
28"	4.1 (103)	2.4 (62)	1.6 (40)	3.4 (85)
32"	5.9 (150)	4.6 (116)	2.3 (59)	3.3 (83)

Right

Left

TABLE 9

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARYYear/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 DoorVehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

Accel. No.	Description	Coordinates (mm)*			Long. (X) Maximums (g's)		Lat. (Y) Maximums (g's)		Vert. (Z) Maximums (g's)		Resultant (g's)
		X	Y	Z	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
1	Rt. Side Sill @ Front Seat	2710	690	300	2.8	7.3	18.1	1.5	10.0	4.3	19.0
2	Rt. Side Sill @ Rear Seat	1940	680	280	3.2	7.3	17.1	1.8	6.4	7.4	18.6
3	Rr. Floorpan Above Axle	1151	0	580	2.5	5.9	17.7	1.6	6.8	11.2	19.1
4	Left Side Sill @ Rr. Seat	2100	-710	300	---	---	31.6	6.2	---	---	---
5	Left Side Sill @ Frt. Seat	2910	-710	270	---	---	66.8	64.6	---	---	---
6	Left A-Post Lower	3300	-730	320	---	---	90.0	68.4	---	---	---
7	Left Mid A-Post	3340	-820	600	---	---	**	**	---	---	---
8	Left B-Post Lower	2240	-720	290	---	---	140.4	46.2	---	---	---
9	Right Rear Occupant Compartment	1870	310	300	---	---	19.1	1.6	---	---	---
10	Driver Left Seat Track	2800	-600	290	---	---	125.2	1.3	---	---	---

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

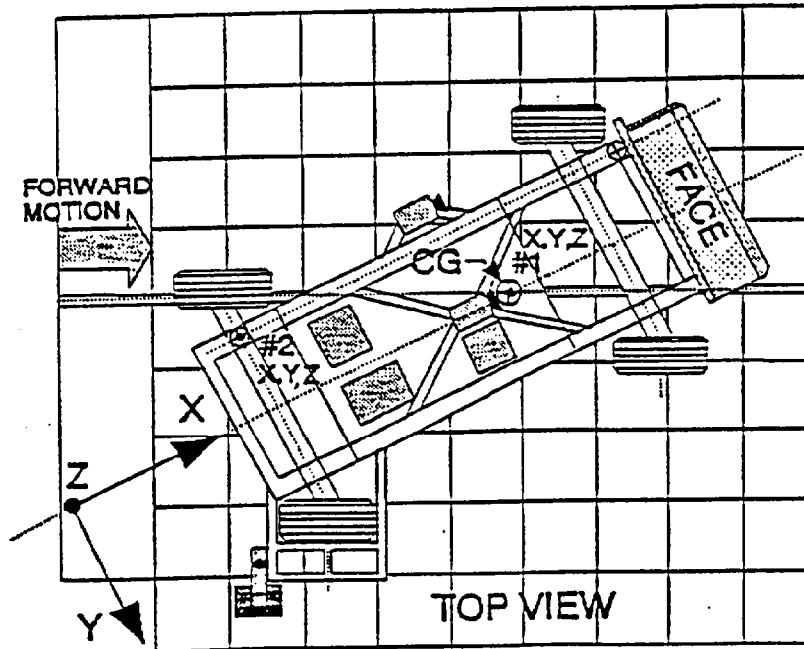
** No valid data collected

FIGURE 9

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door

Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

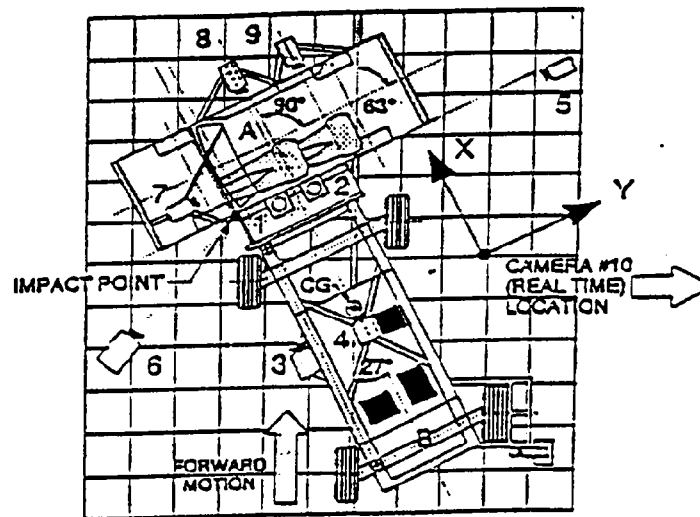


Accel. No.	Location	Coordinates (mm)			Pos. Direct.		Neg. Direct.	
					Max (g)	Time (msec)	Max (g)	Time (msec)
		X	Y	Z				
1	MDB Center of Gravity				0.6	137	17.0	37
	Longitudinal ... X				1.1	58	6.7	19
	Lateral Y	-1092	0	483	12.2	28	15.5	24
	Vertical Z				20.5	24	---	---
	Resultant R							
2	Rear Frame Member							
	Longitudinal ... X	-2591	-625	622	2.5	157	17.9	32
	Lateral Y				4.5	19	1.8	62

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/Mitsubishi/Galant/4 Door
Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994



Camera No.	View	Coordinates (mm)			Angle	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
	Real Time					13	24
1	Top Impact	-350	850	5420		13	1000
2	Top Wide	700	0	5130		8	1053
3	Cart Pointer					35	917
4	Cart					13	1005
5	Right Impact	3330	-7740	1015		25	889
6	Left Overall	-2620	2440	1665		13	976
7	Onboard Driver					8	939
8	Onboard Hood					13	1000
9	Onboard Passenger					8	1005

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

TABLE 10
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

FMVSS NO. 301

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door

Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 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 (33.1 kph)

FUEL SPILLAGE MEASUREMENT:

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

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

SOLVENT SPILLAGE DETAILS:

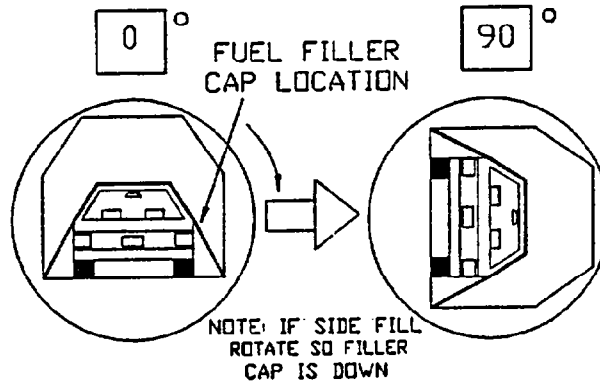
None

TABLE 11
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door

Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 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.

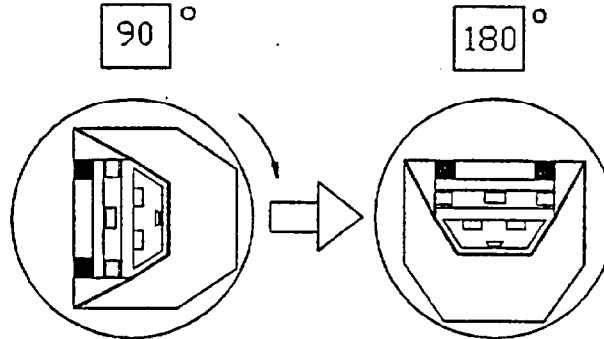
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door

Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 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
----------	---------	---------	---------

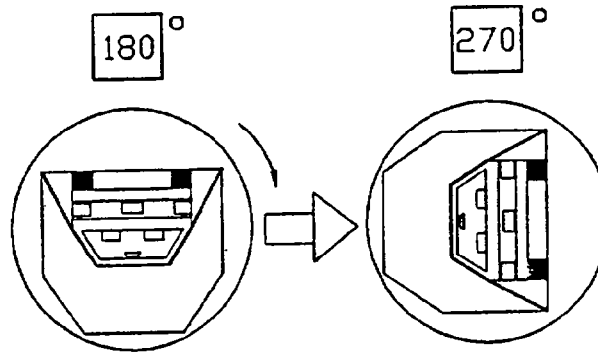
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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/Mitsubishi/Galant/4 DoorVehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994TEST PHASE: 180° - 270°DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 11 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 11 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.

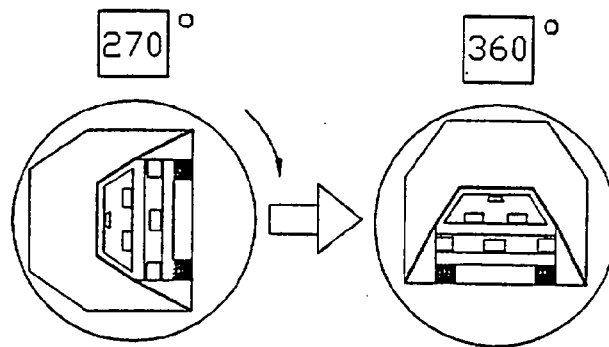
IV. SOLVENT SPILLAGE LOCATIONS(S): None

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

Year/Make/Model/Body Style: 1995/Mitsubishi/Galant/4 Door

Vehicle NHTSA No.: CS5601 TEST DATE: November 29, 1994

TEST PHASE: 270° - 360°



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 39 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds
TOTAL 7 minutes 39 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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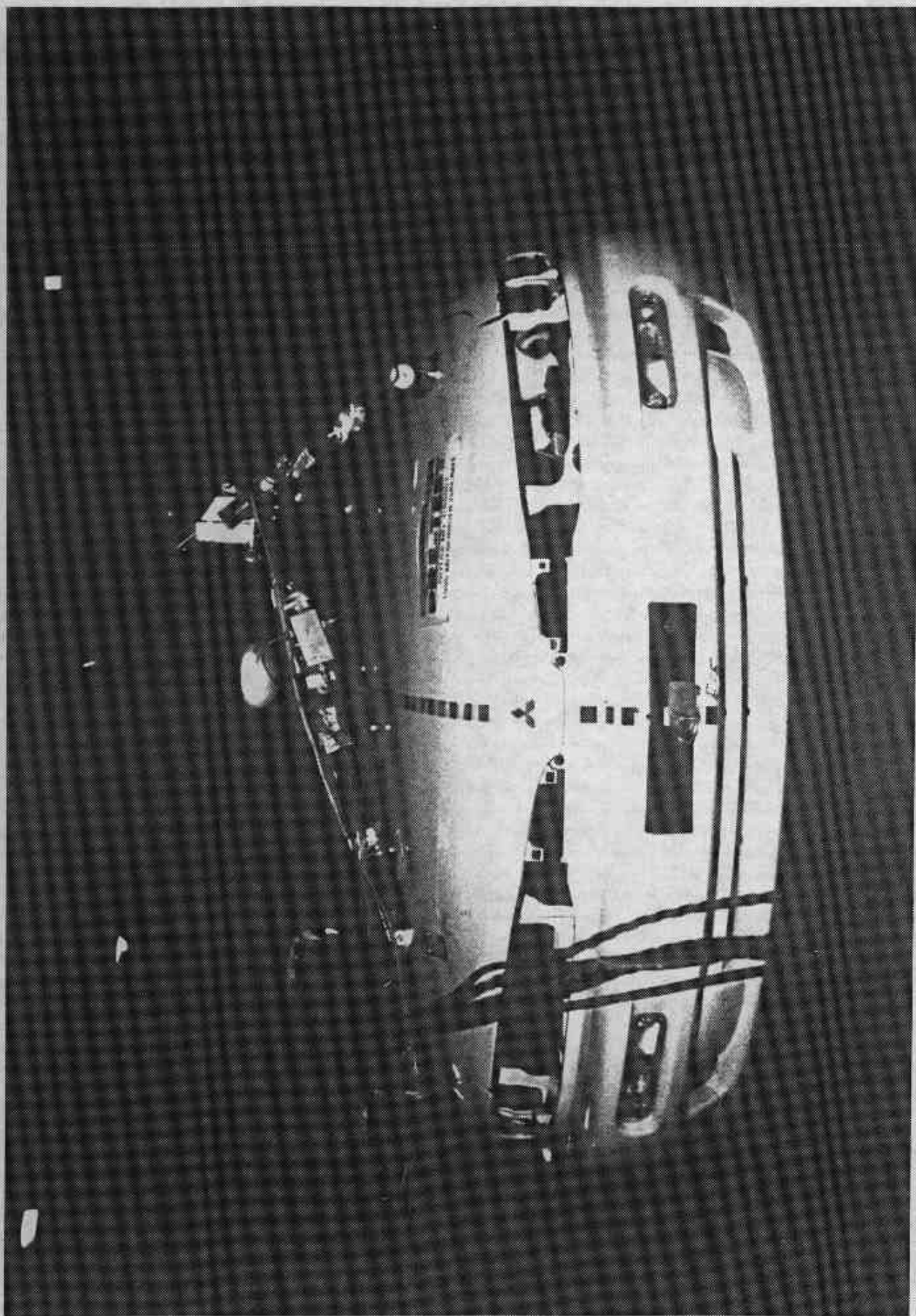


Photo No. A-1 - Pre-Test Front View of Test Vehicle

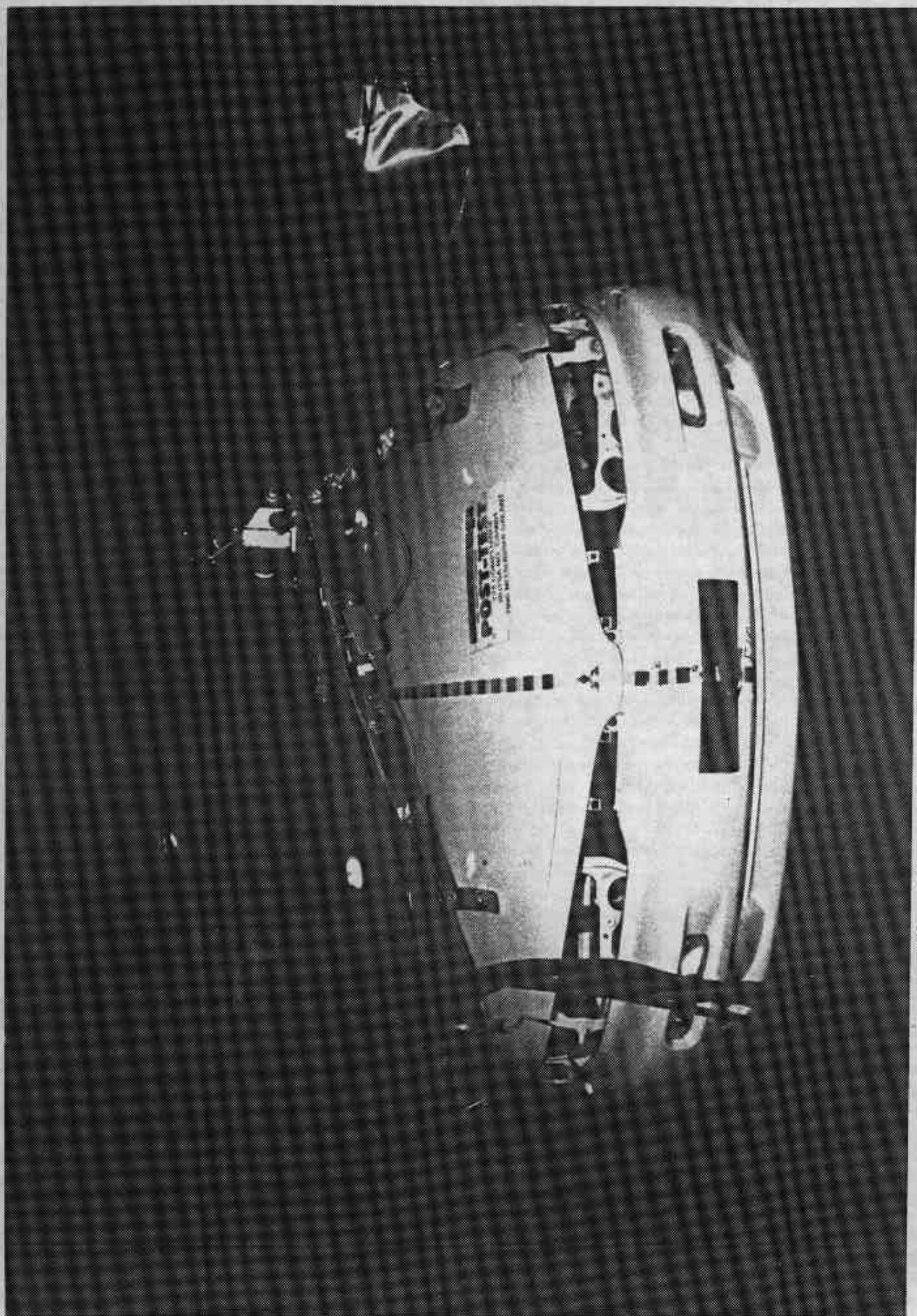


Photo No. A-2 - Post-Test Front View of Test Vehicle

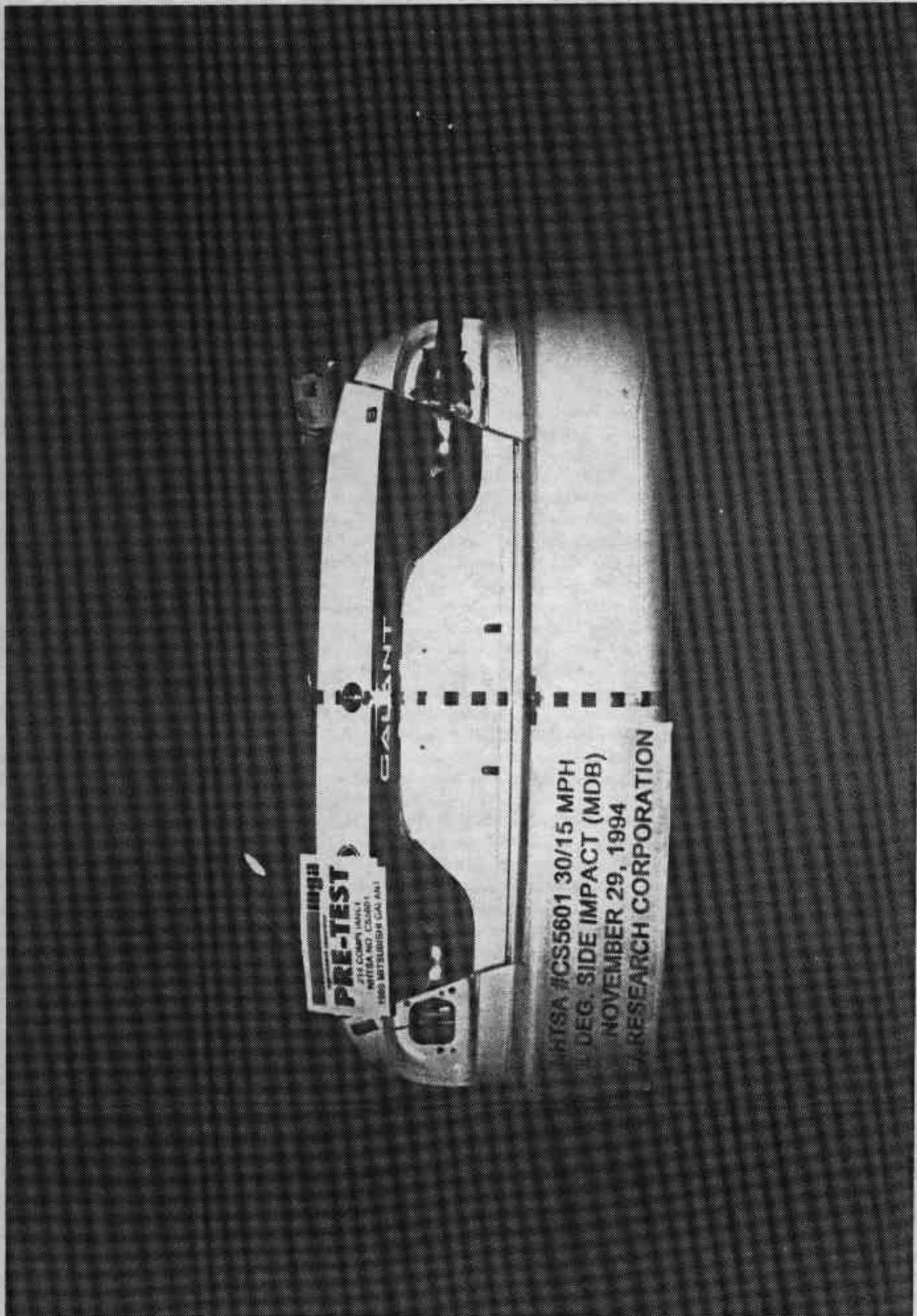


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

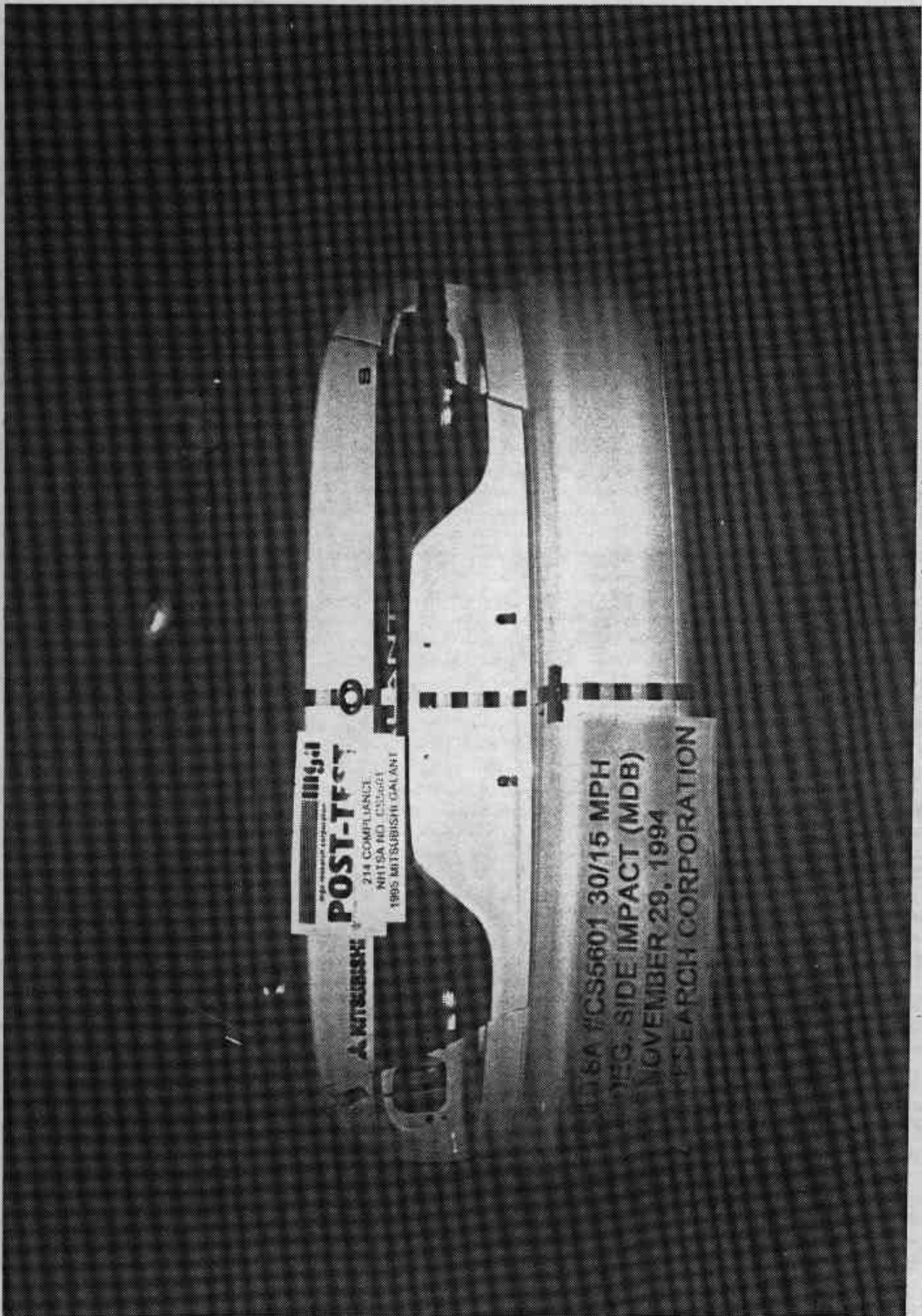


Photo No. A-4 - Post-Test Rear View of Test Vehicle

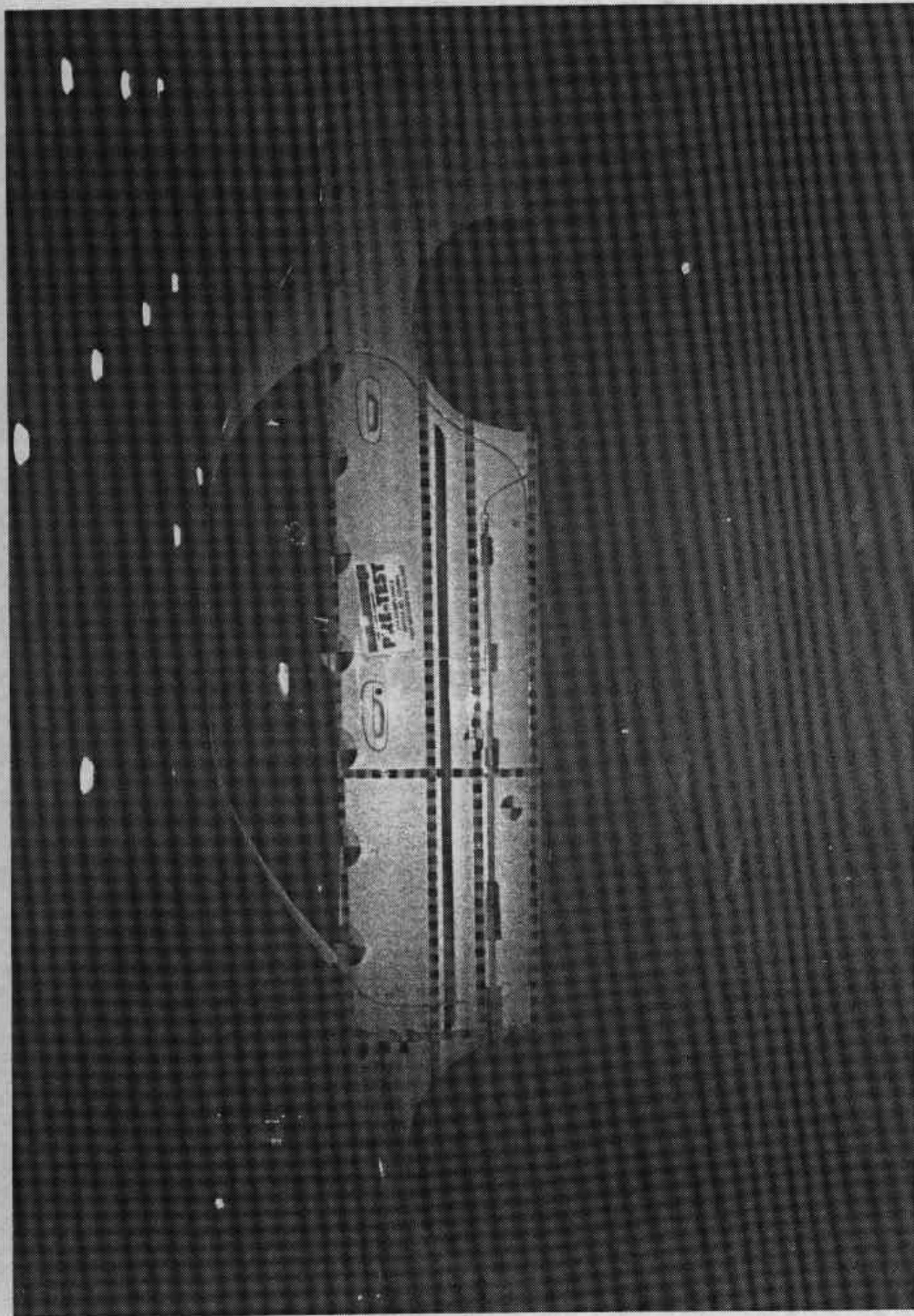


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle



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

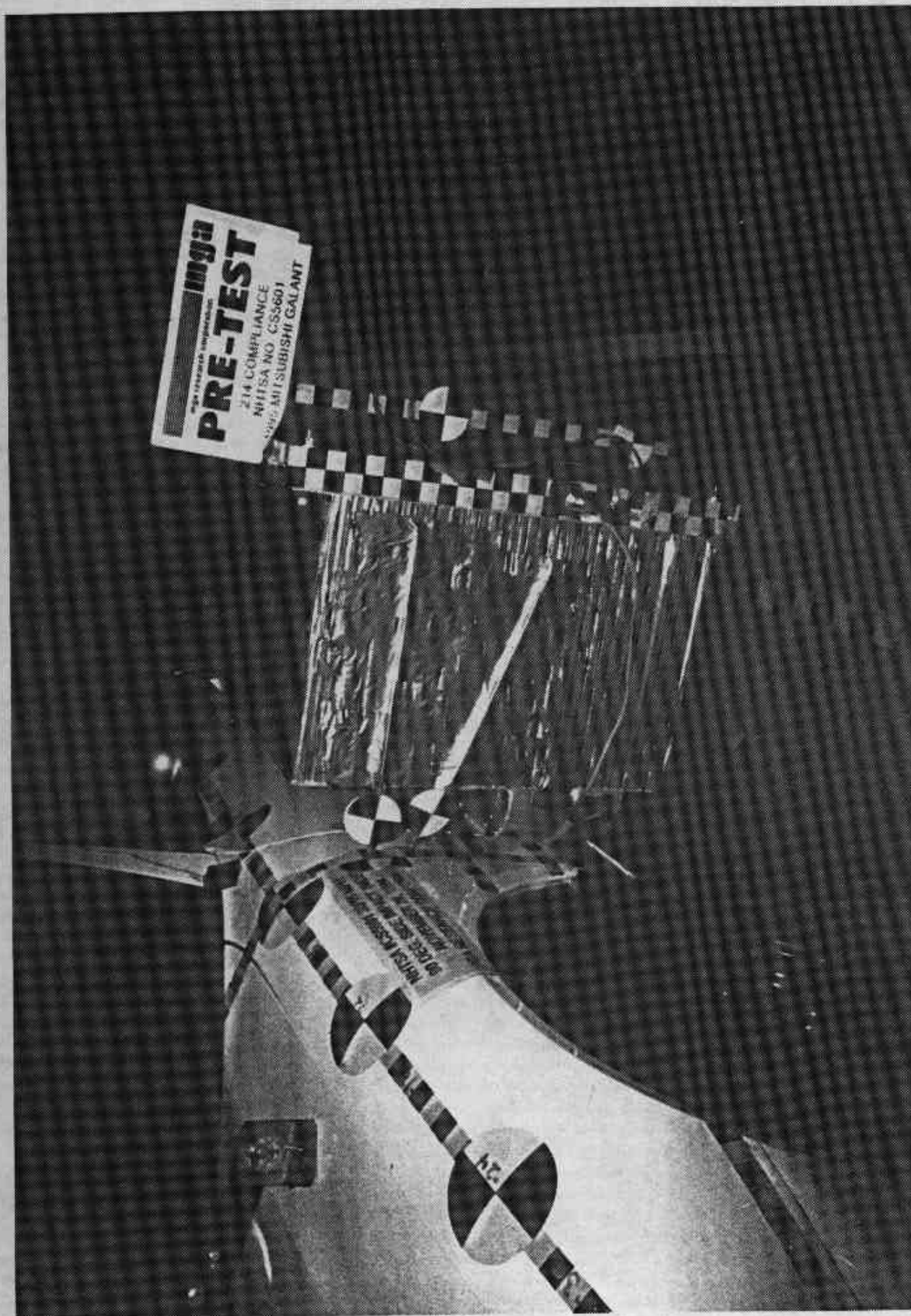


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

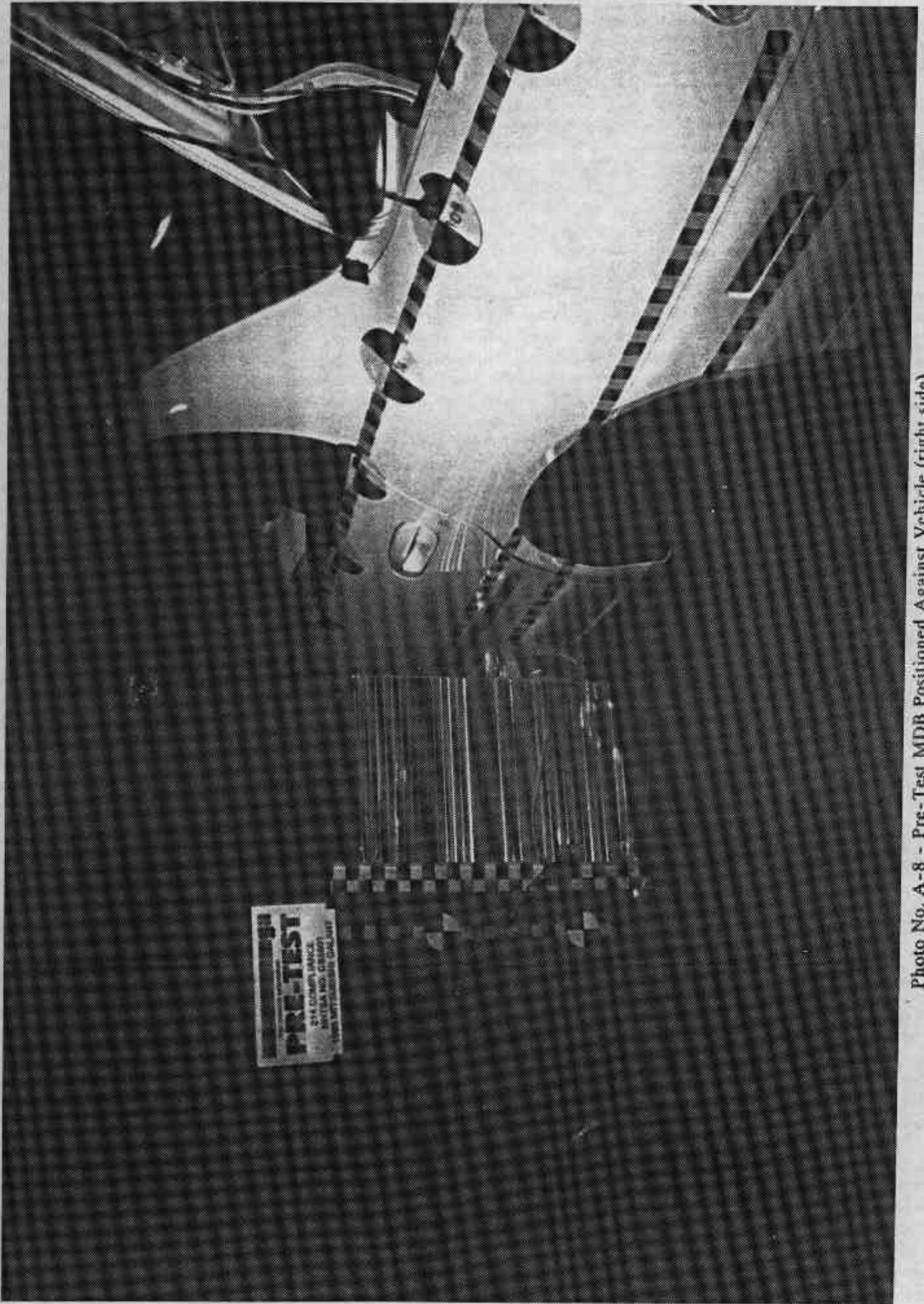


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)

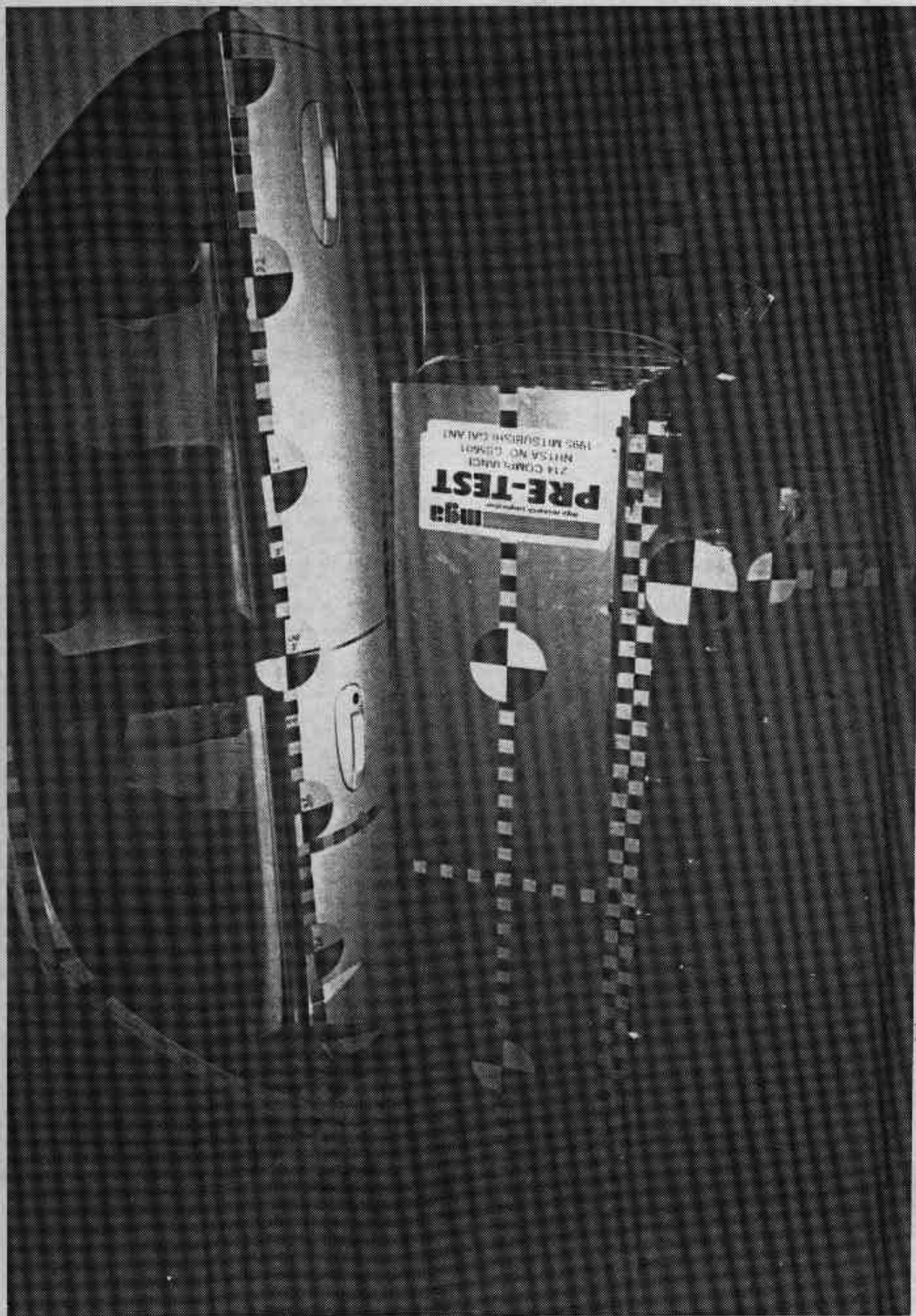
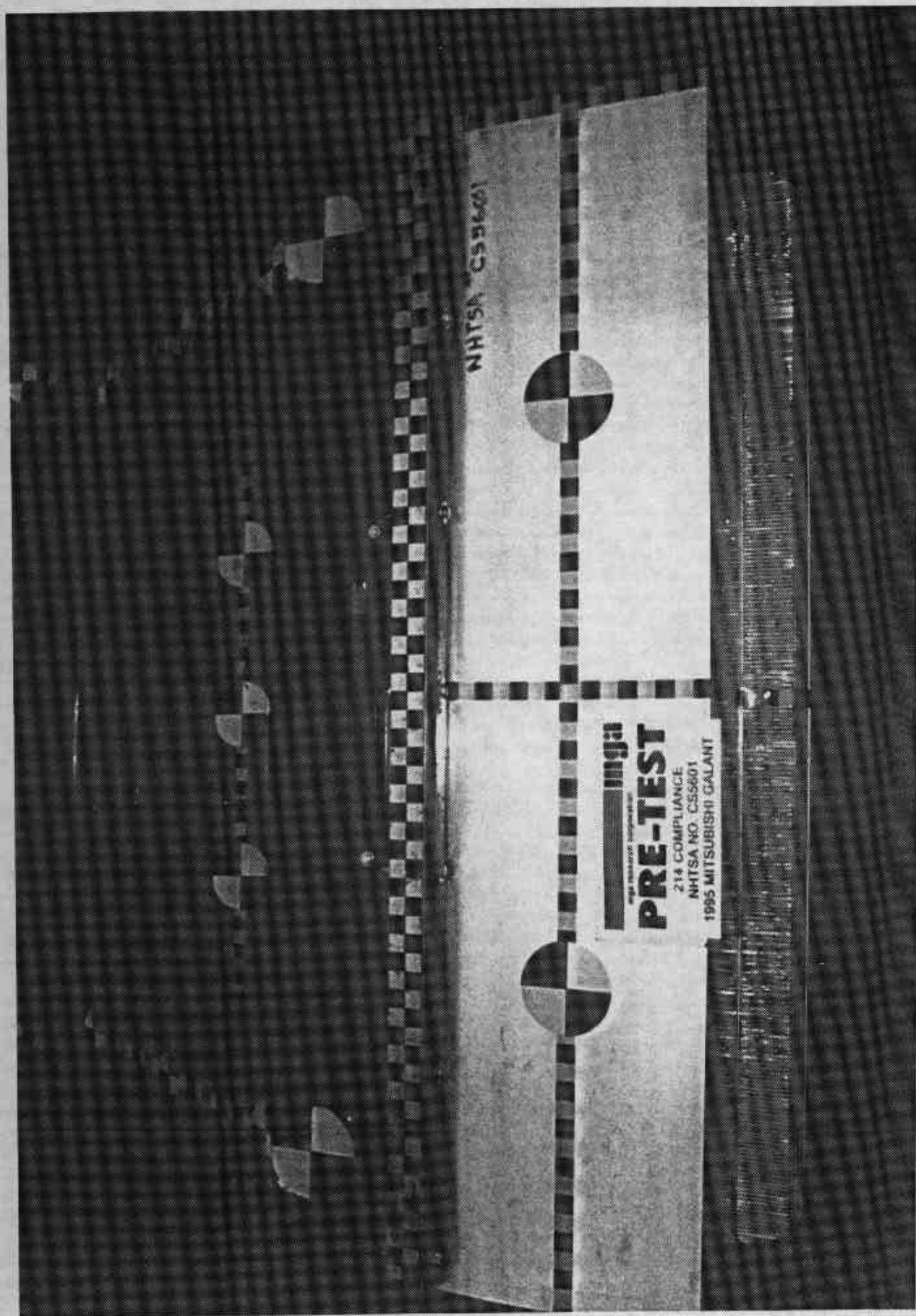


Photo No. A-9 - Pre-Test MDB Position Against Vehicle Overhead View



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



A-12

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

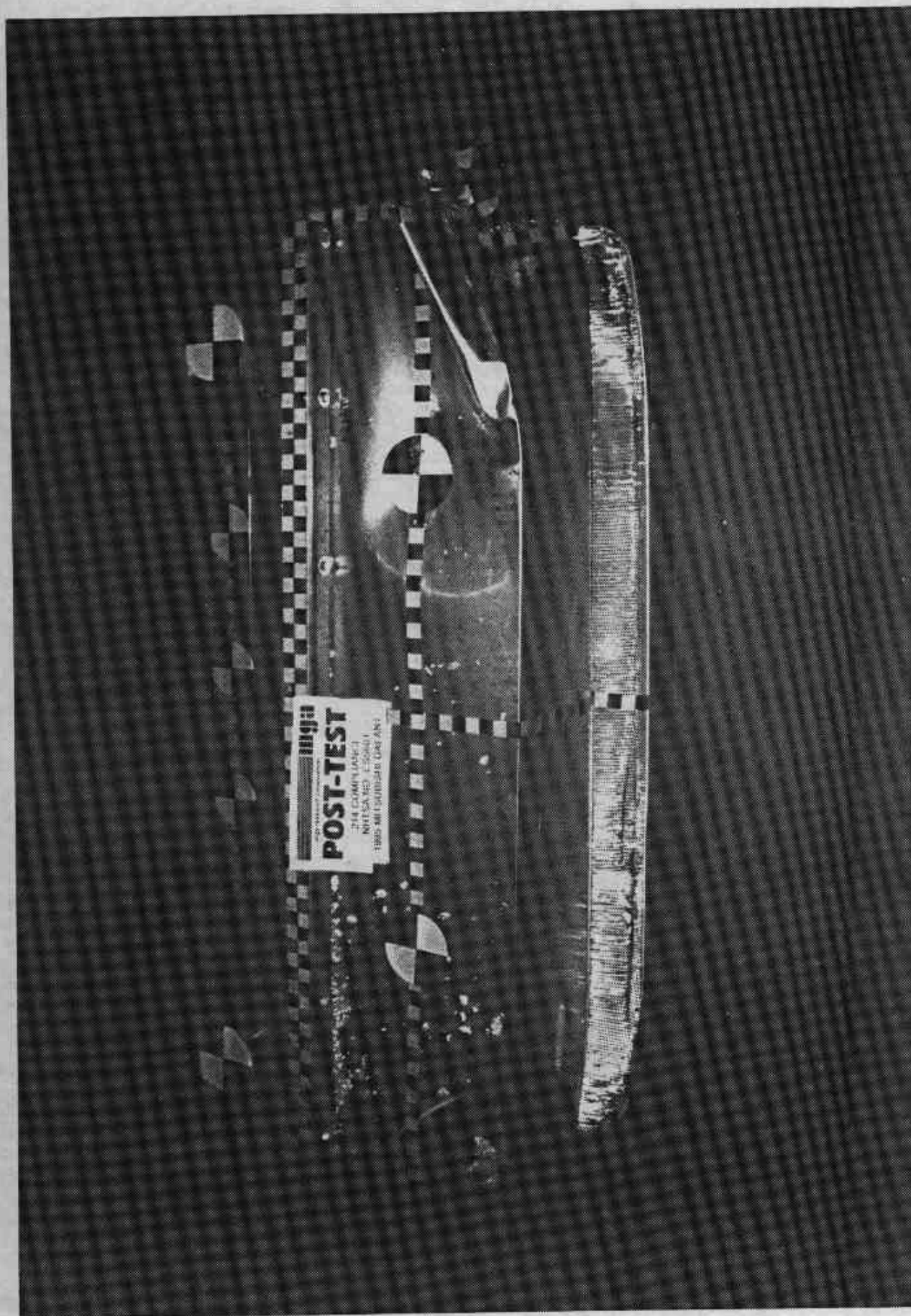


Photo No. A-13 - Post-Test MDB Top View

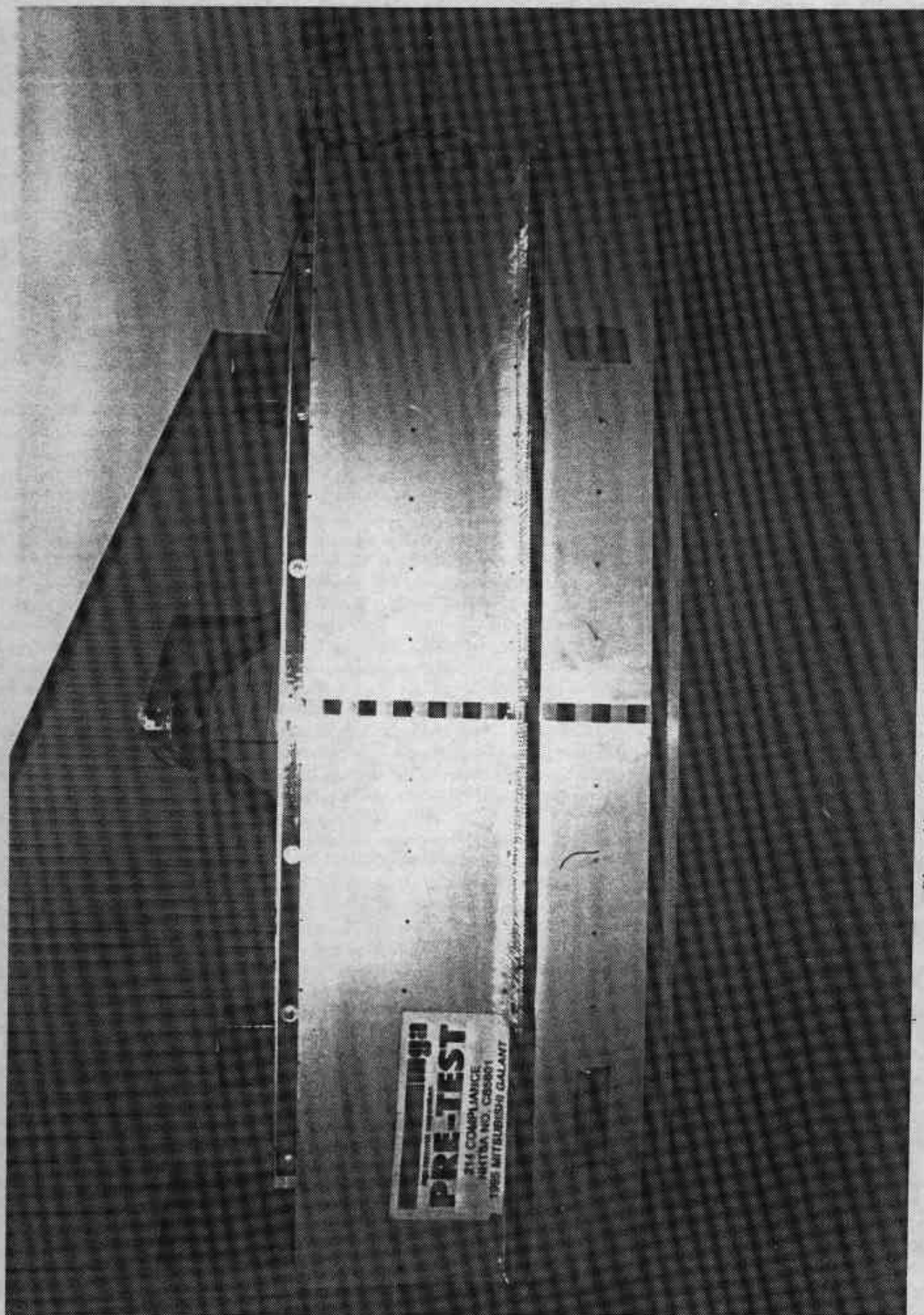


Photo No. A-14 - Pre-Test MDB Front View



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

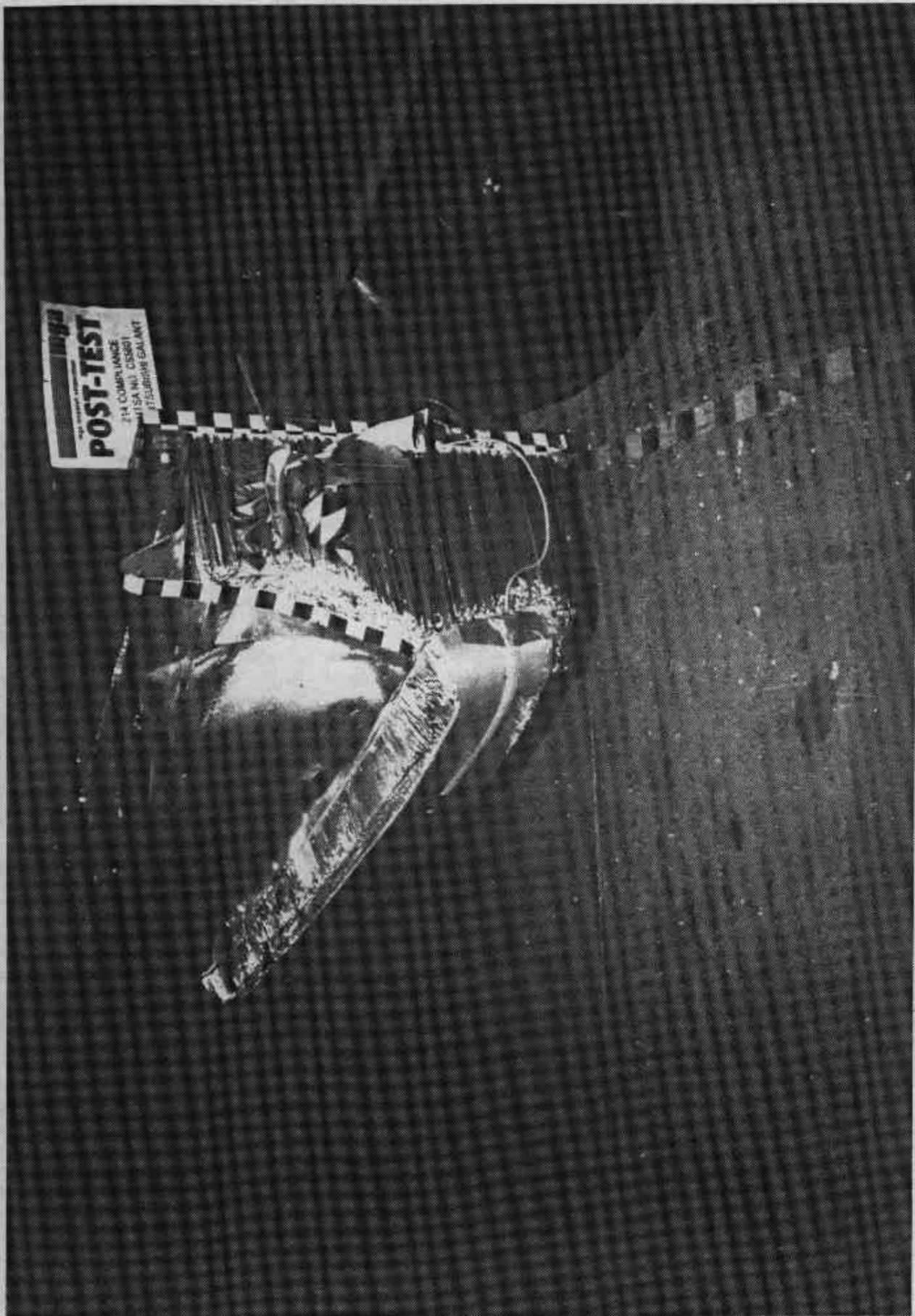


Photo No. A-17 - Post-Test MDB Left Side View

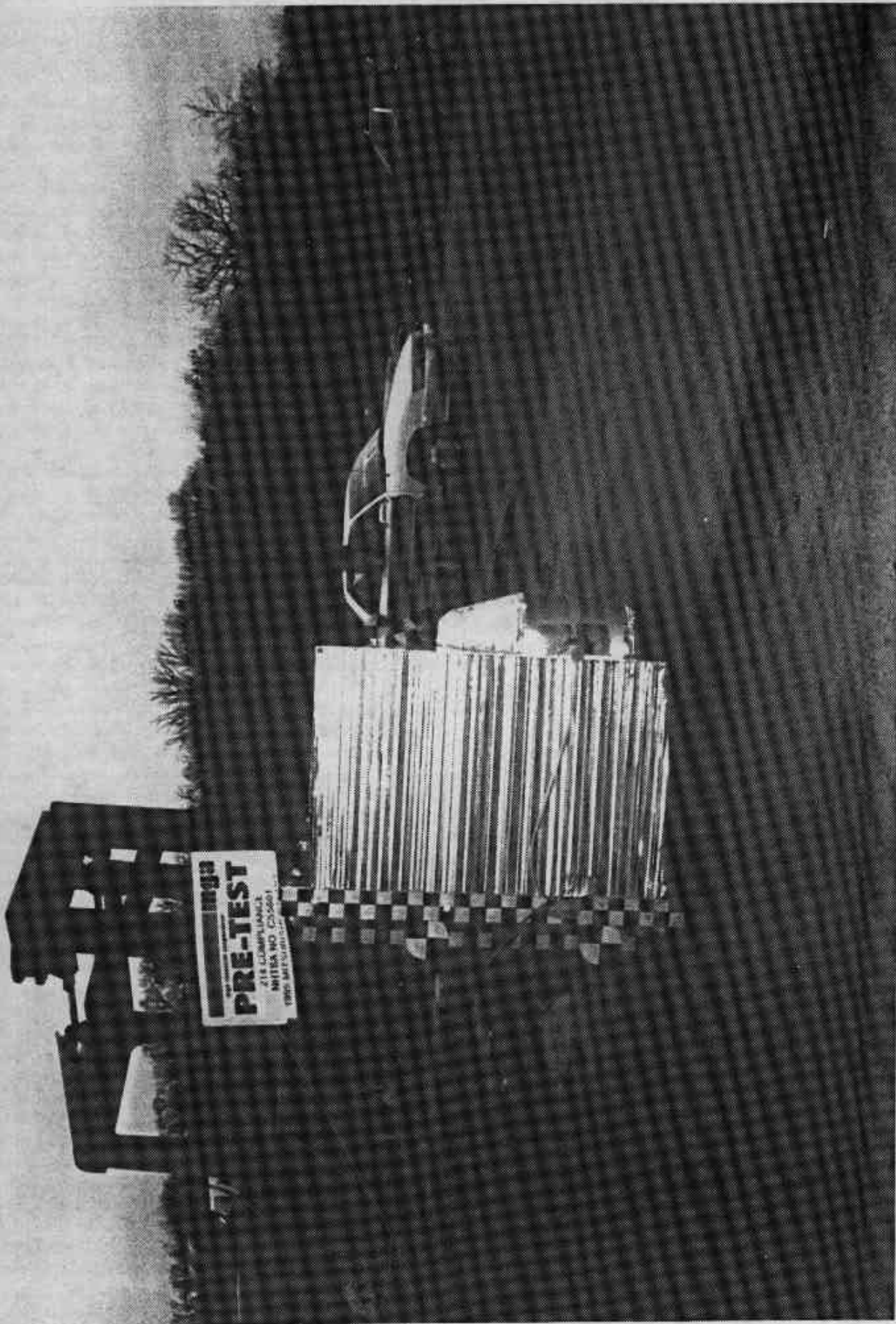
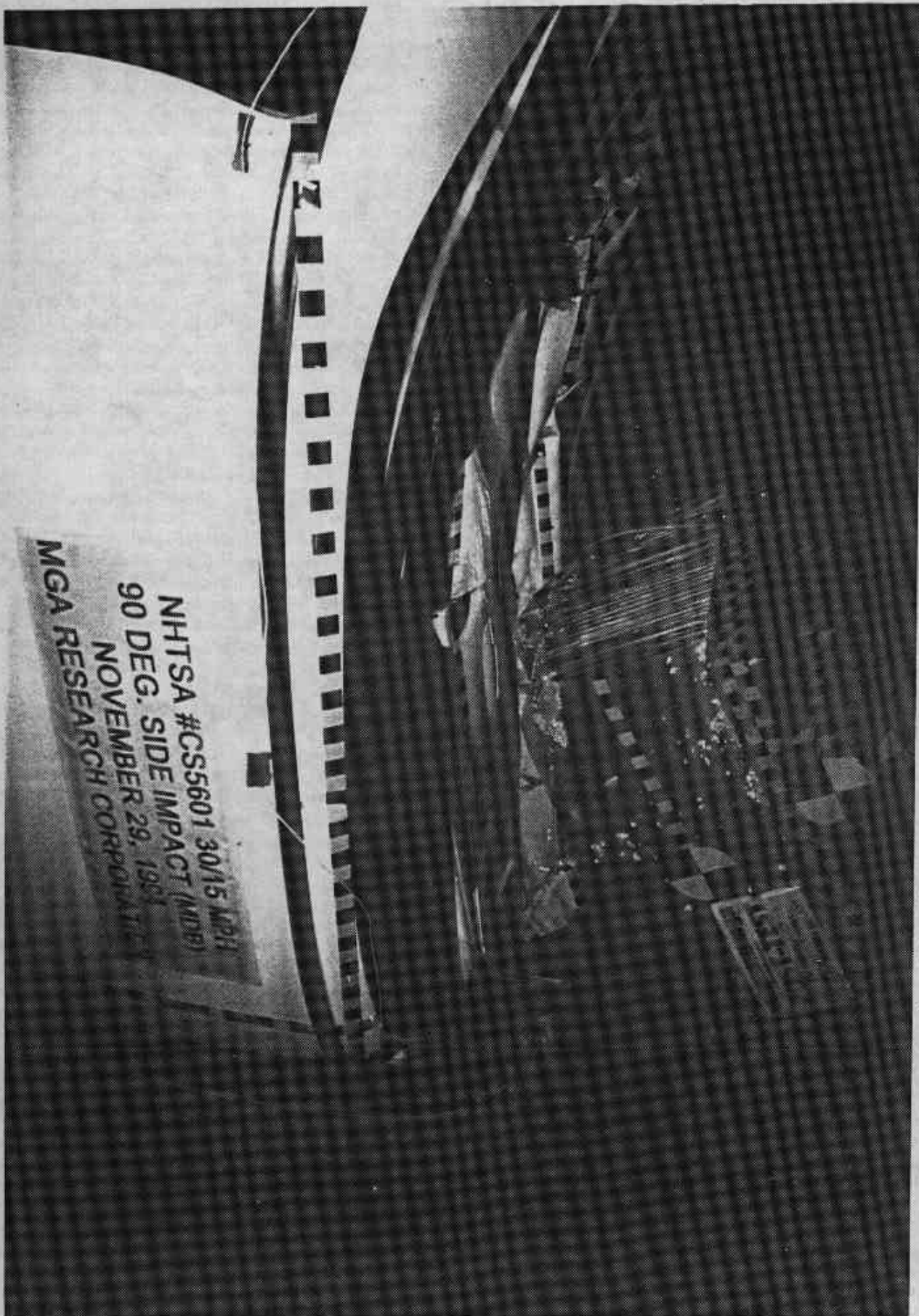


Photo No. A-18 - Pre-Test MDB Right Side View



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



NHTSA #CS5601 30/15 MPH
90 DEG. SIDE IMPACT (MDB)
NOVEMBER 29, 1984
MGA RESEARCH CORPORATION

Photo No. A-28 - Post-Test MDB and Vehicle Overhead View



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

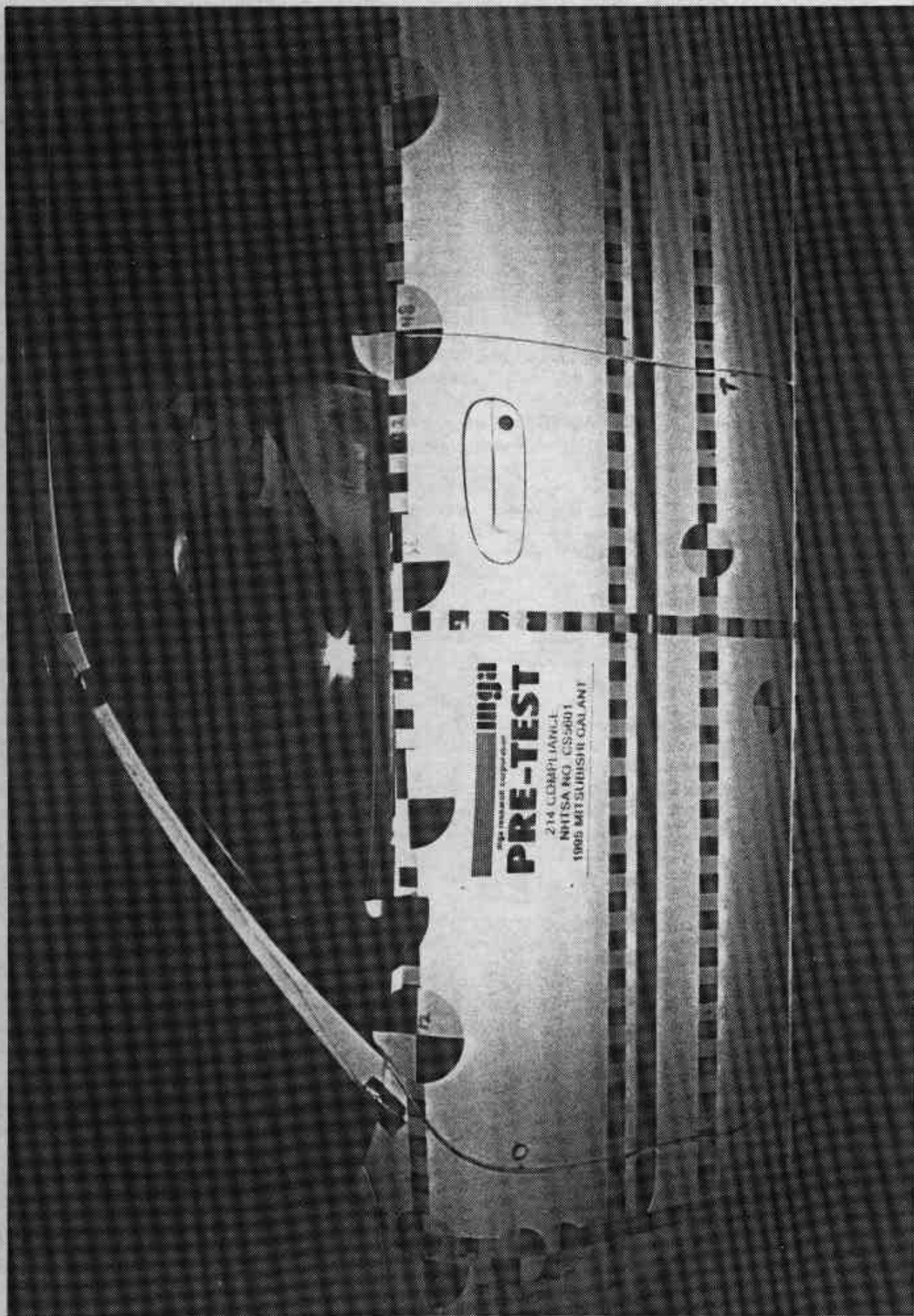


Photo No. A-22 - Pre-Test Driver Dummy Left Side View

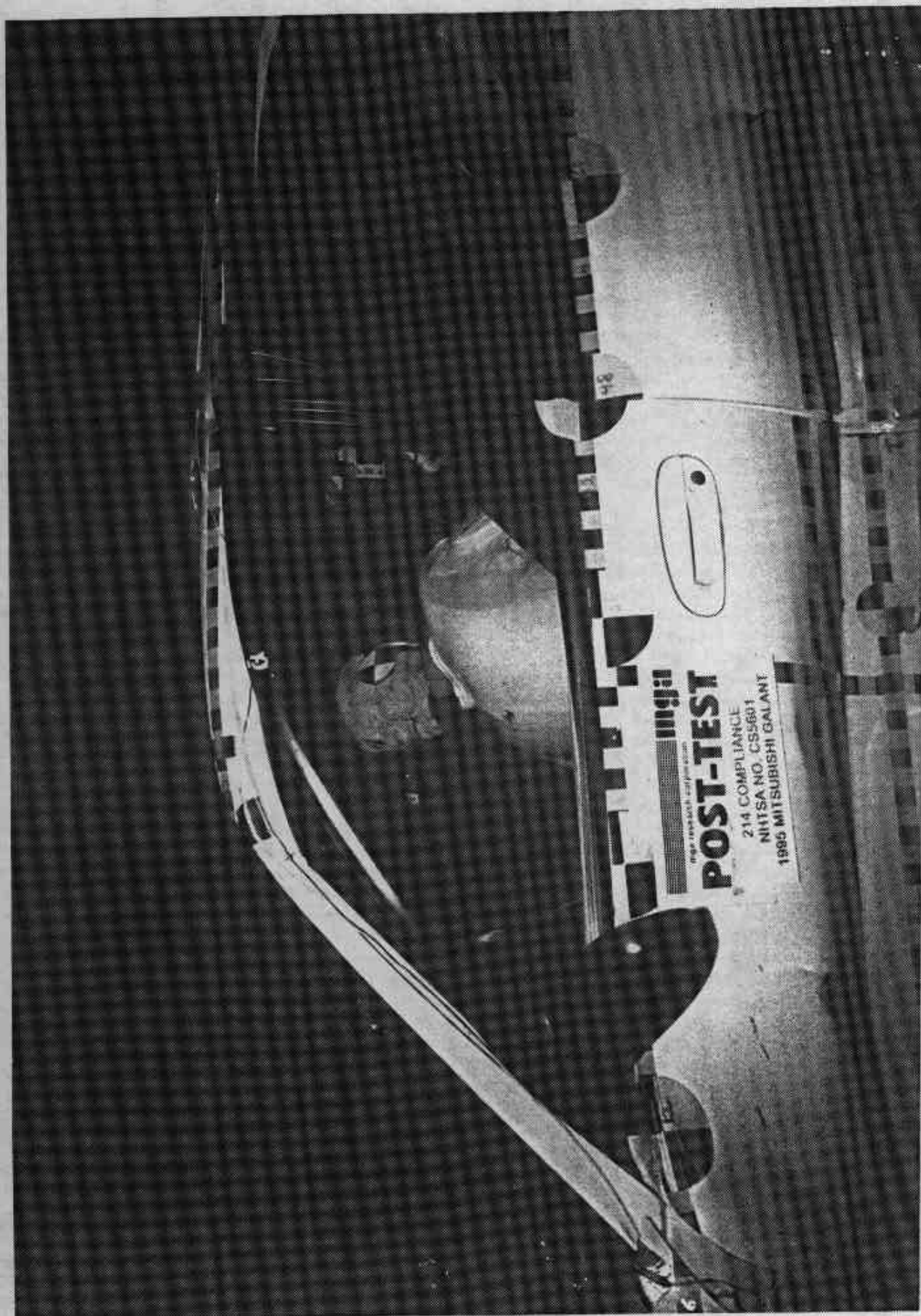


Photo No. A-23 - Post-Test Driver Dummy Left Side View

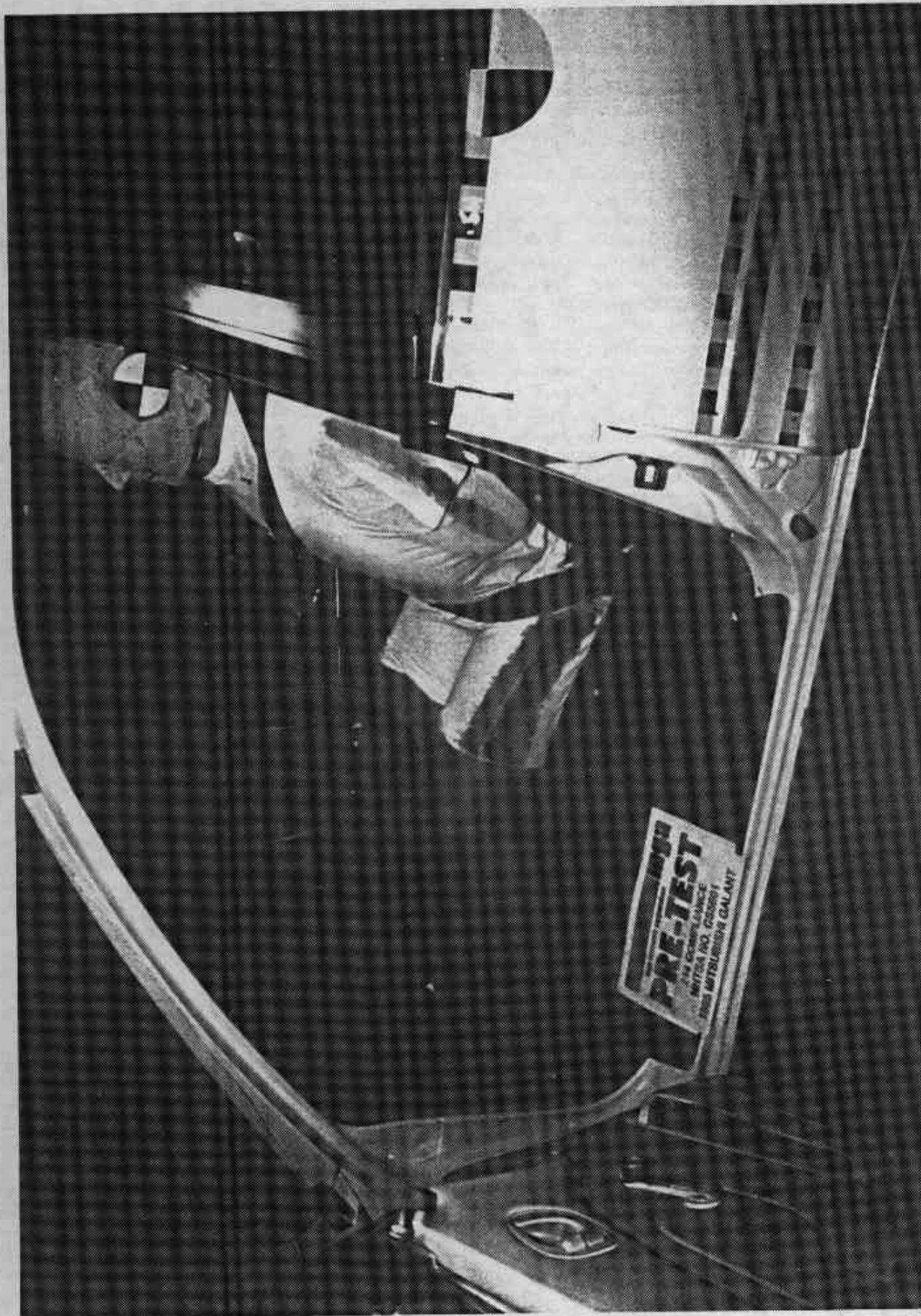


Photo No. A-24 - Pre-Test Driver Dummy Left Side View (Door Open)



Photo No. A-25 - Pre-Test Driver Dummy Shoulder and Door Top View



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

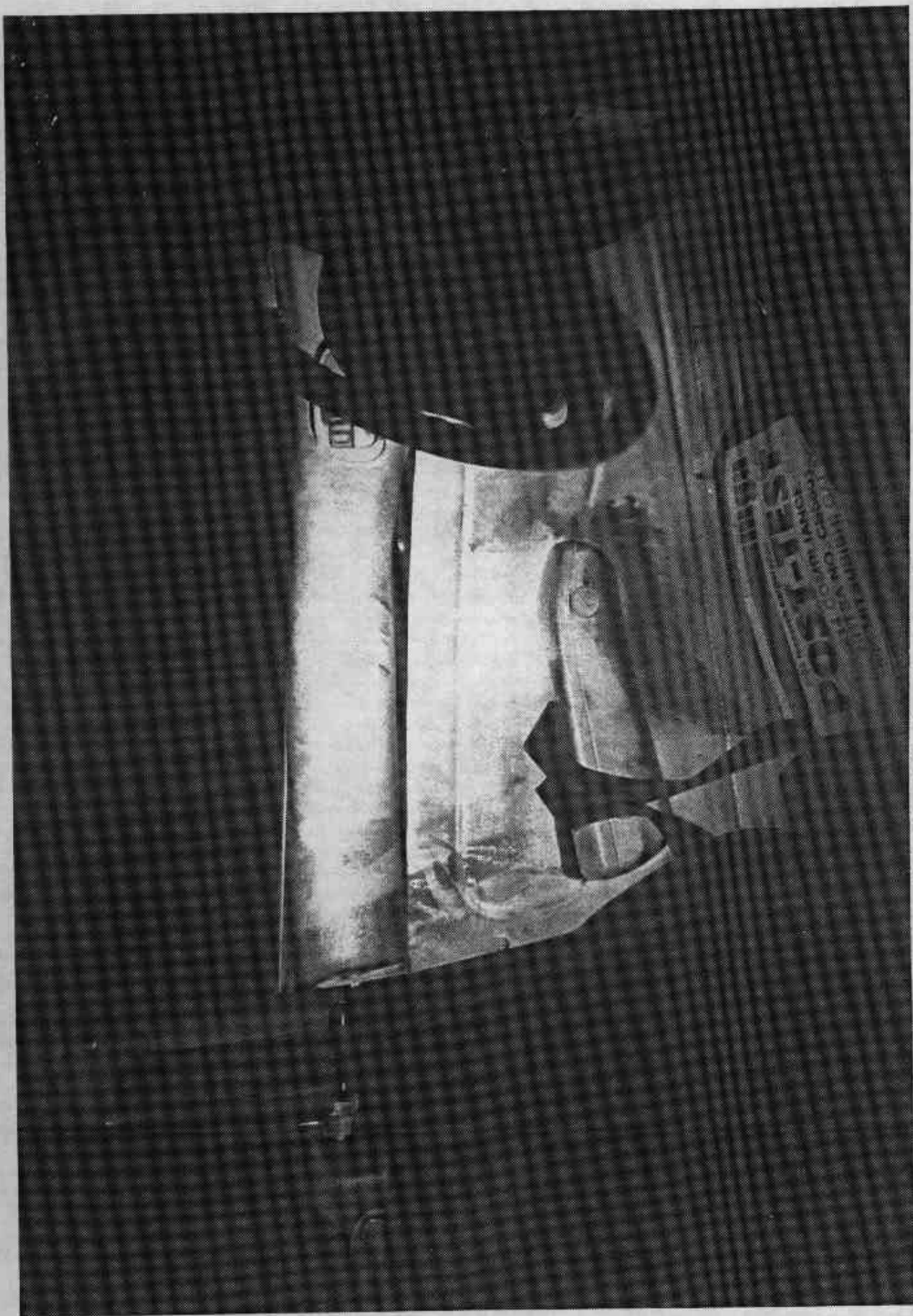


Photo No. A-27 - Post-Test Driver Dummy Contact

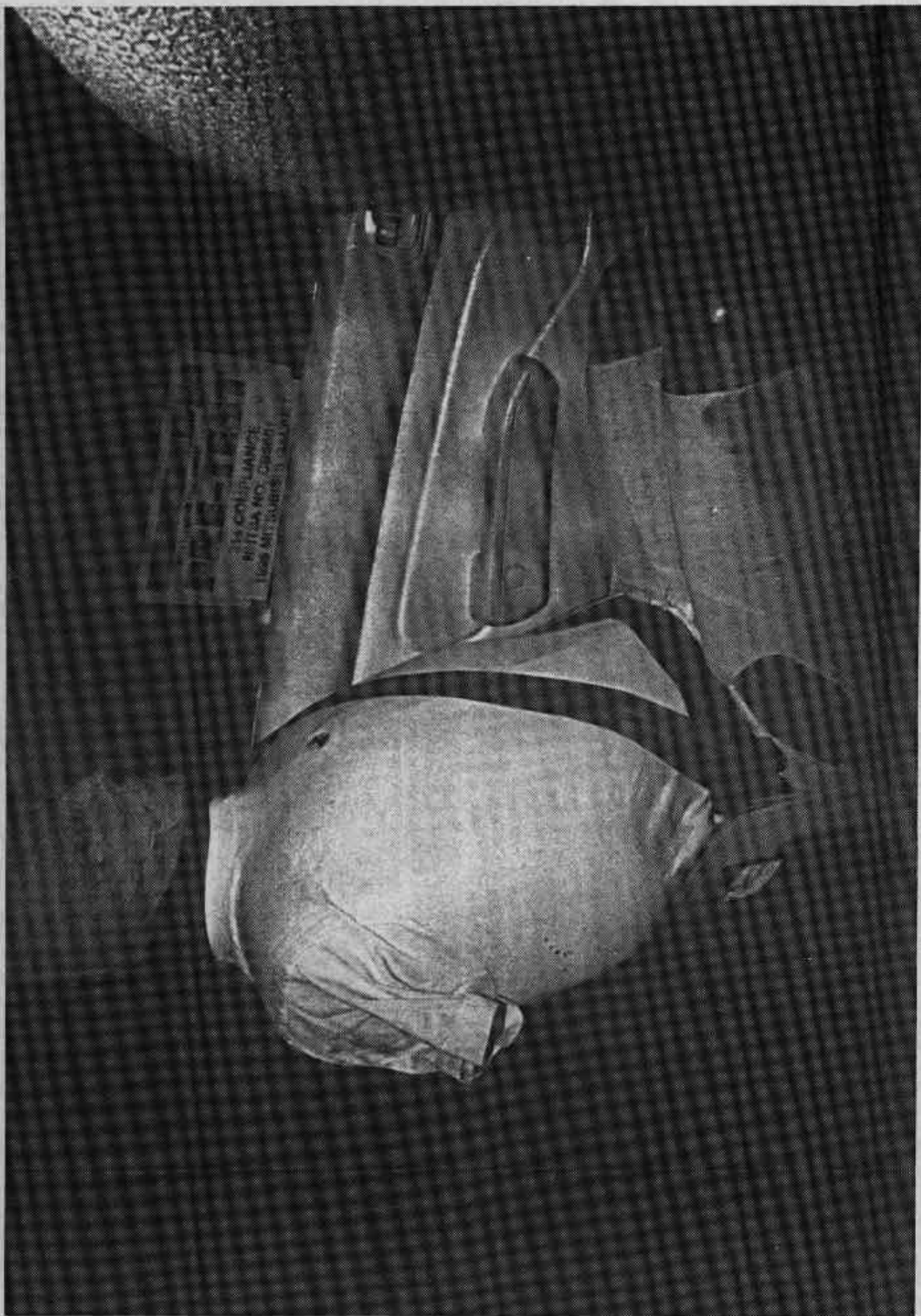


Photo No. A-28 - Pre-Test Passenger Dummy Right Side View



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



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



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



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



Photo No. A-33 - Pre-Test Passenger Dummy Shoulder and Door Top View



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



Photo No. A-35 - Post-Test Passenger Dummy Contact



Photo No. A-36 - Left Front Impact Point on Vehicle

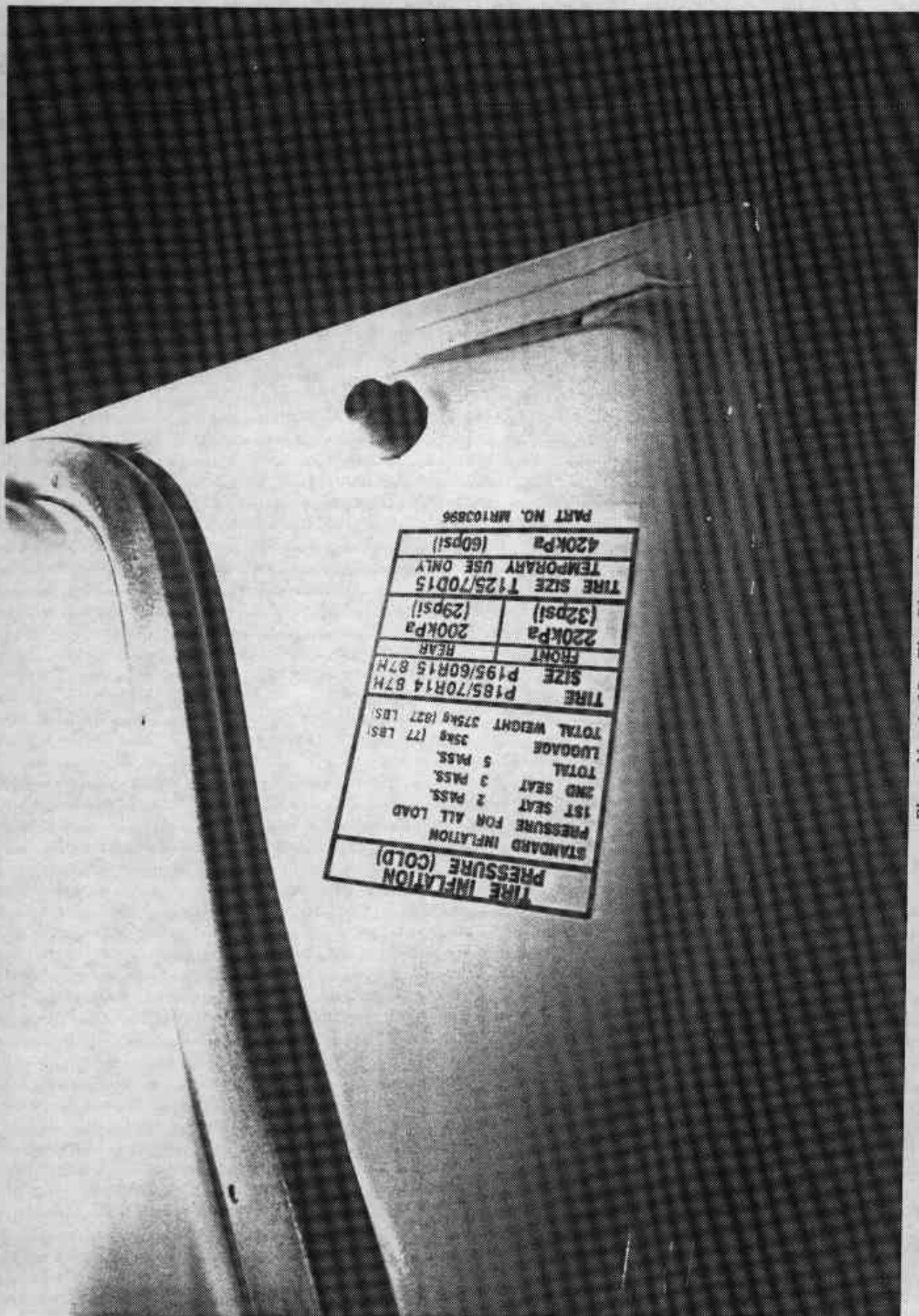
MADE IN U.S.A. DATE MAY 1974

MANUFACTURED BY DIAMOND-STAR MOTORS CORP.

GWR 3325 LBS GAWR 2740 LBS GAWR 1785 LBS
1780 KG FR. 470 KG RR. 610 KG

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

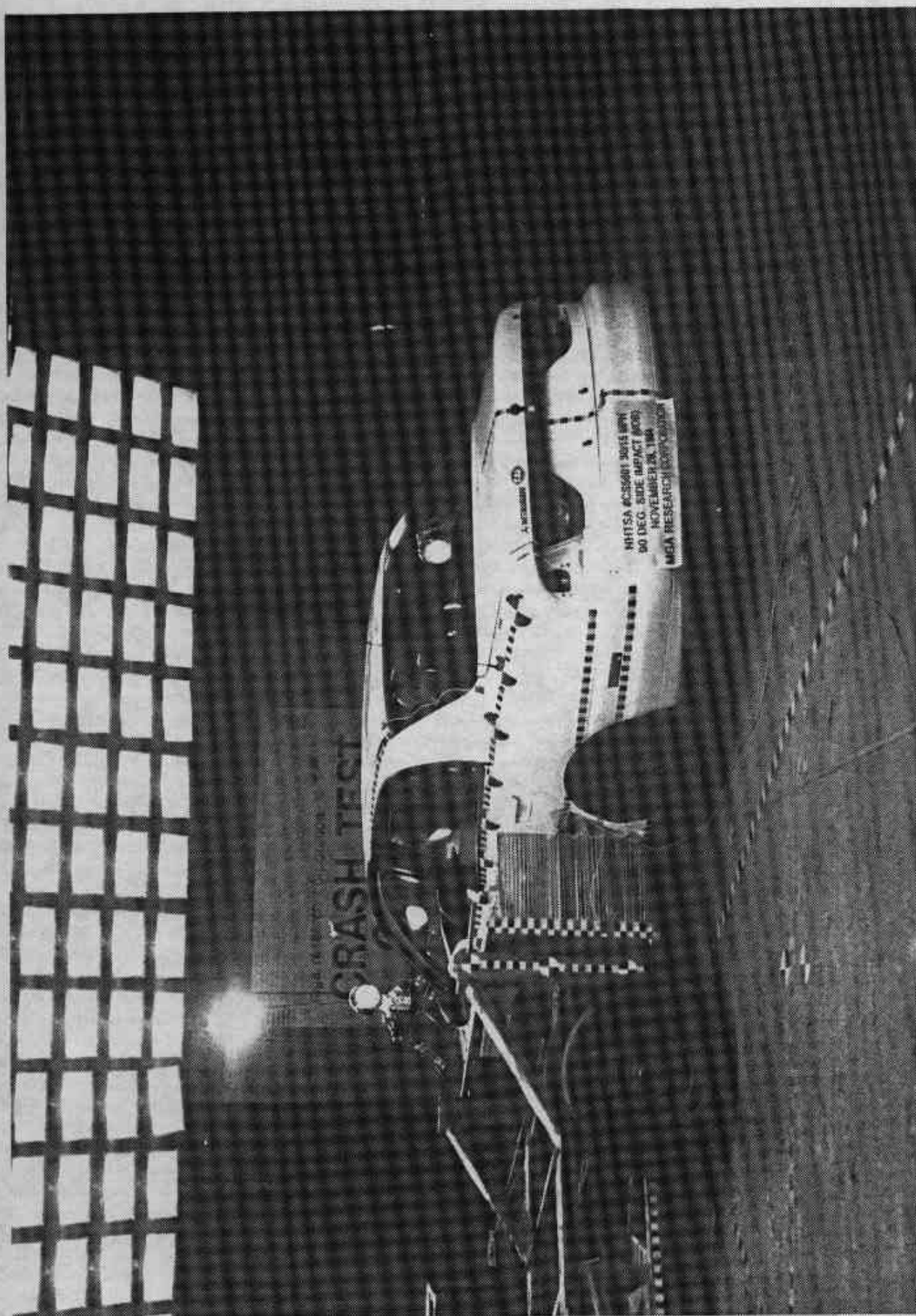
4 3 A 4 4 6 4 5 E 1 1 3 4 1 2



TIRE INFLATION PRESSURE (COLD)	
STANDARD INFLATION PRESSURE FOR ALL LOAD	
1ST SEAT	2 PASS.
2ND SEAT	3 PASS.
TOTAL	5 PASS.
LUGGAGE	35kg (77 LBS)
TOTAL WEIGHT	375kg (827 LBS)
TIRE	
SIZE P185/70R14 87H	
FRONT	REAR
220kPa (32psi)	200kPa (29psi)
TIRE SIZE T125/70D15	
TEMPORARY USE ONLY	
420kPa (60psi)	

PART NO. MR103896

Photo No. A-38 - Tire Placard



A-39

Photo No. A-39 - Impact



A-41

Photo No. A-41 - Rollover 180°

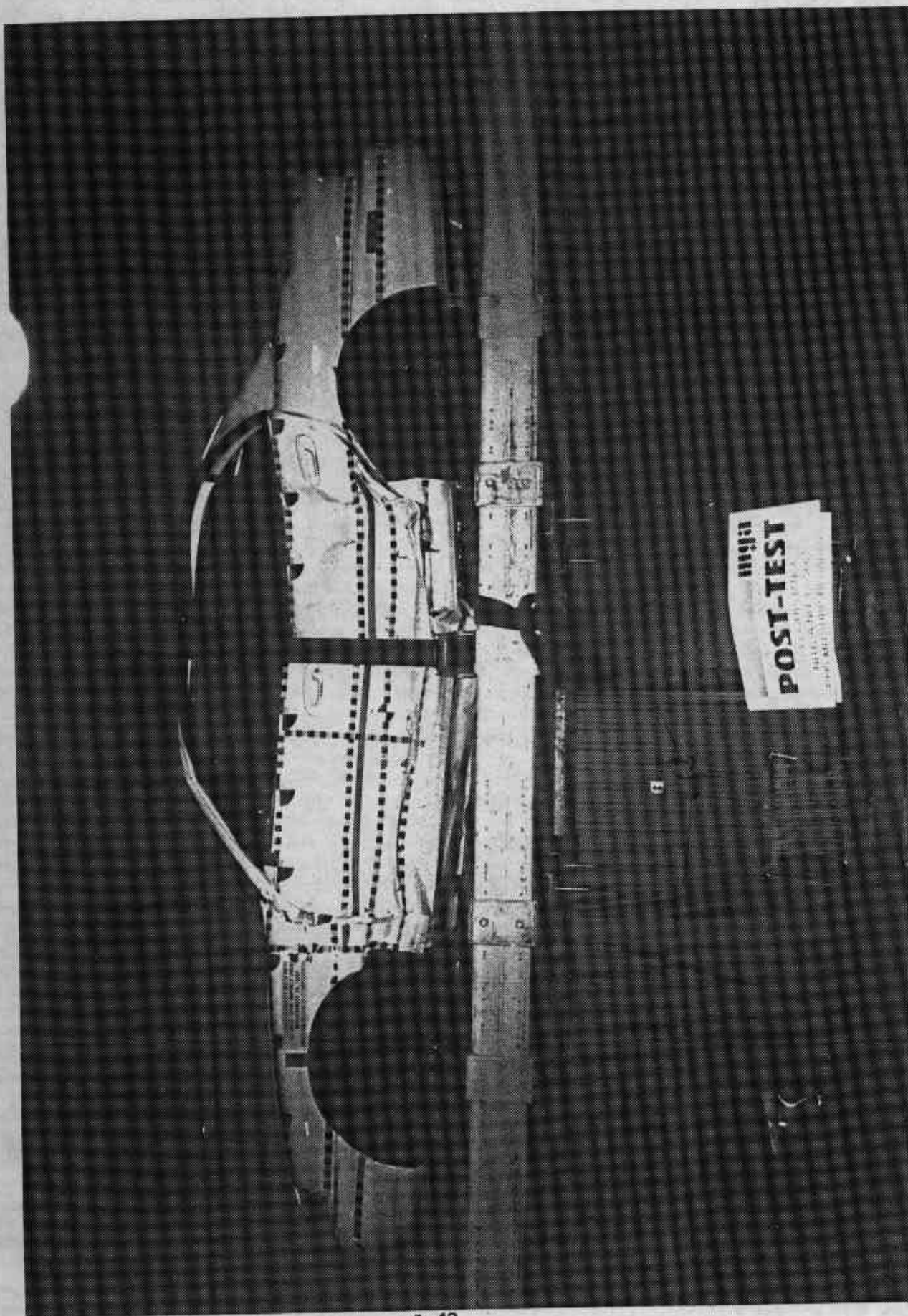


Photo No. A-43 - Rollover 360°

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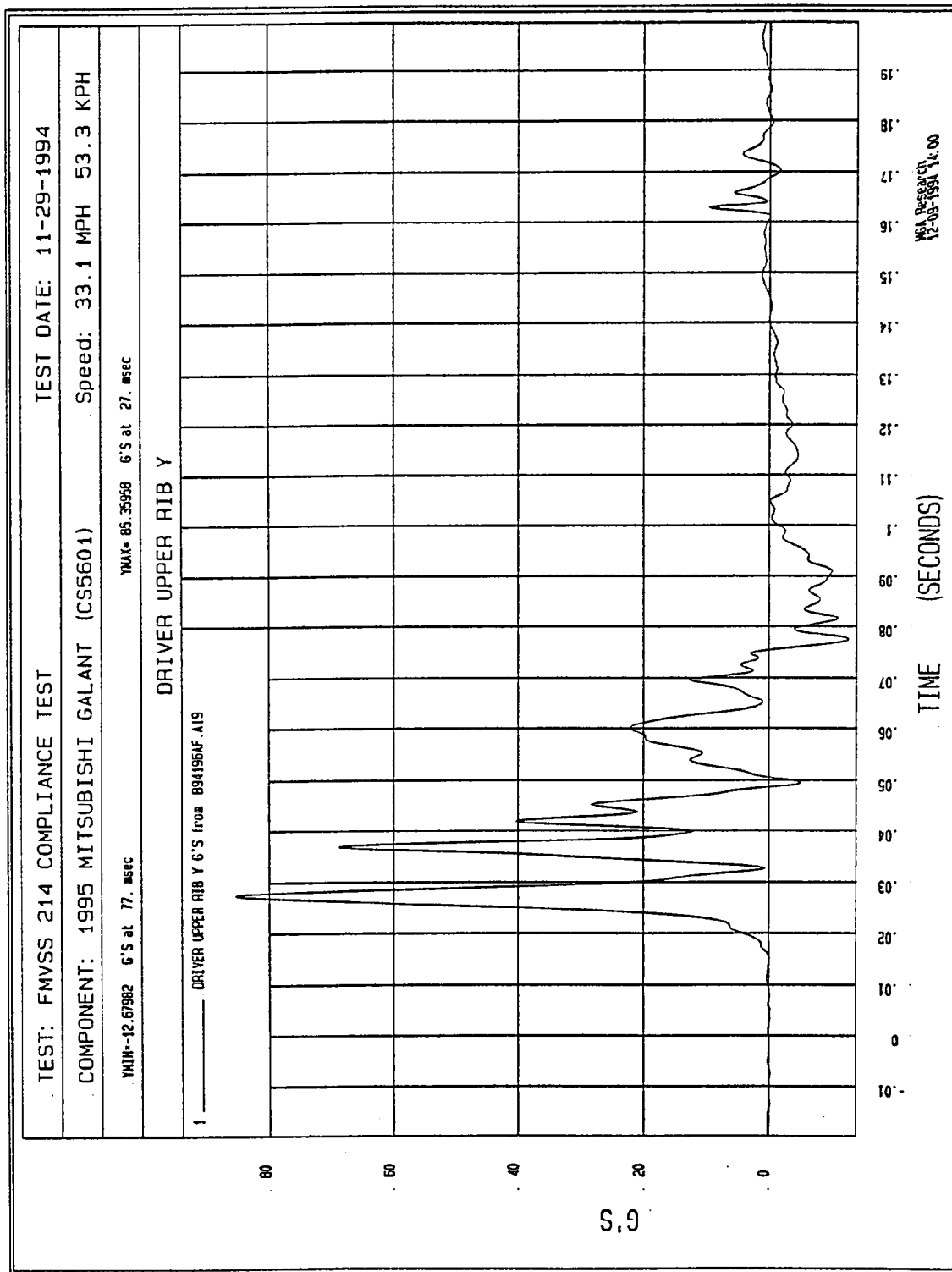


Figure B-1 - Driver Upper Rib Y Acceleration vs. Time

Filter: Class 1000 (1650 Hz)

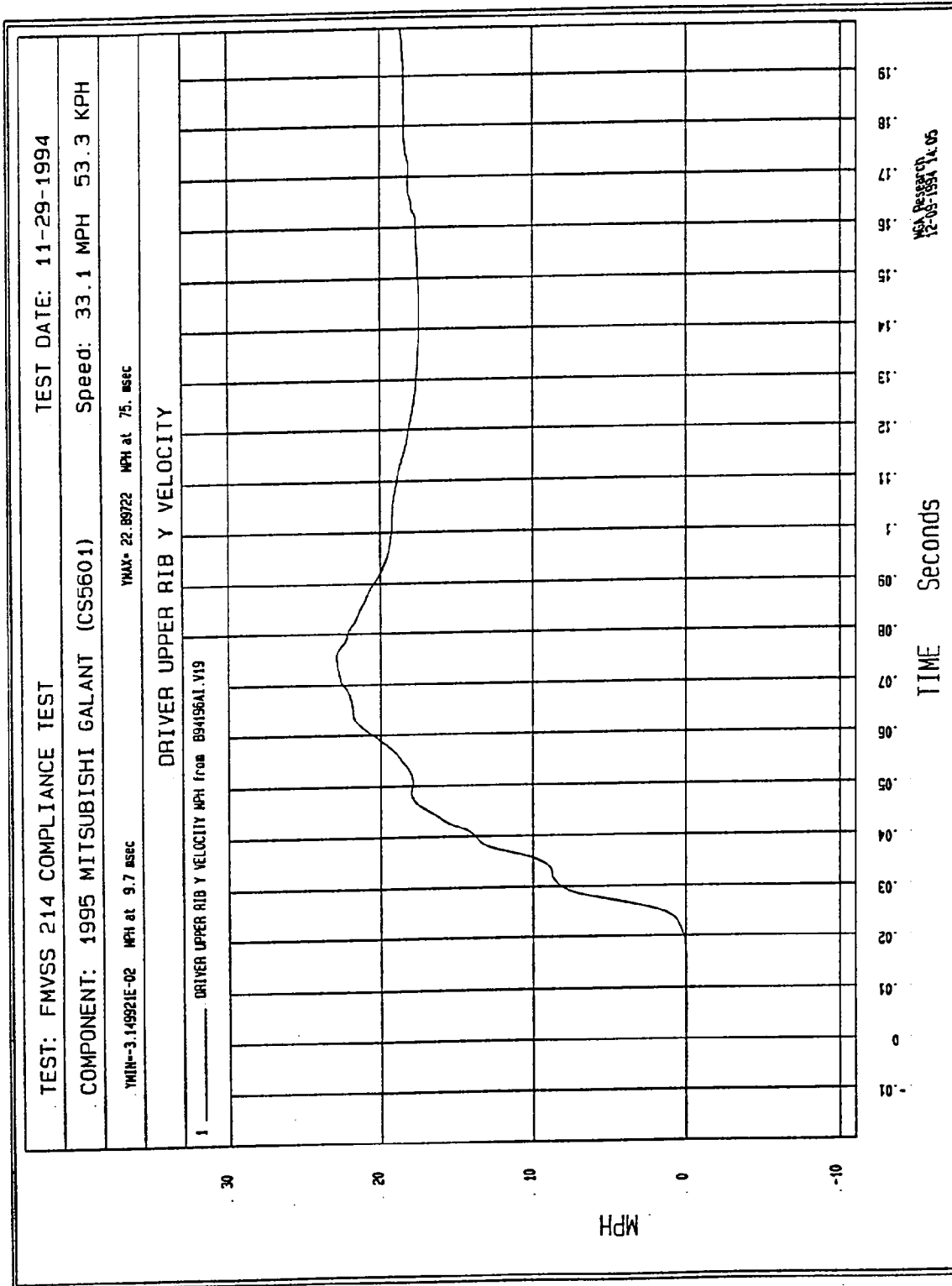


Figure B-2 - Driver Upper Rib Y Velocity vs. Time

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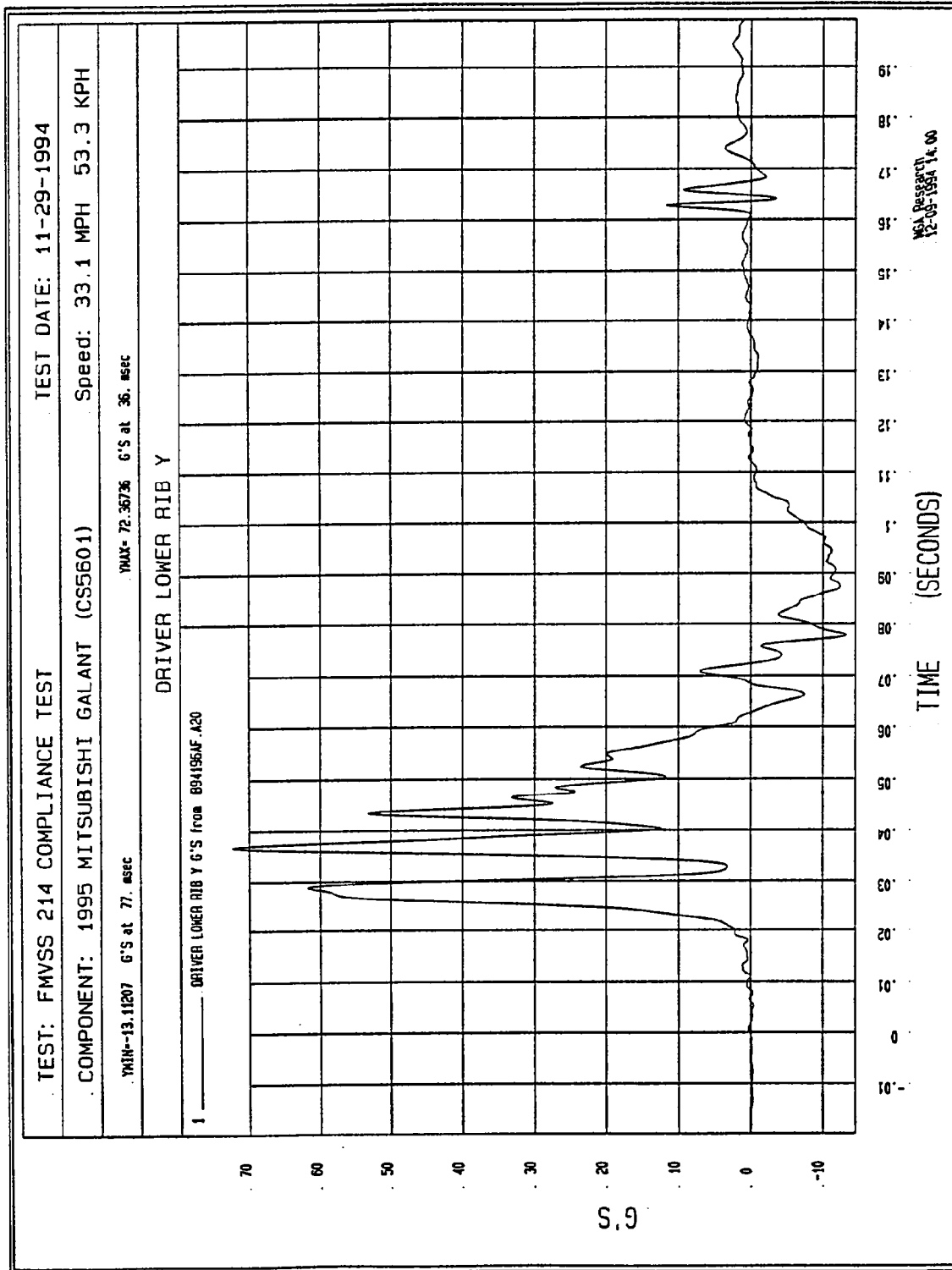


Figure B-3 - Driver Lower Rib Y Acceleration vs. Time

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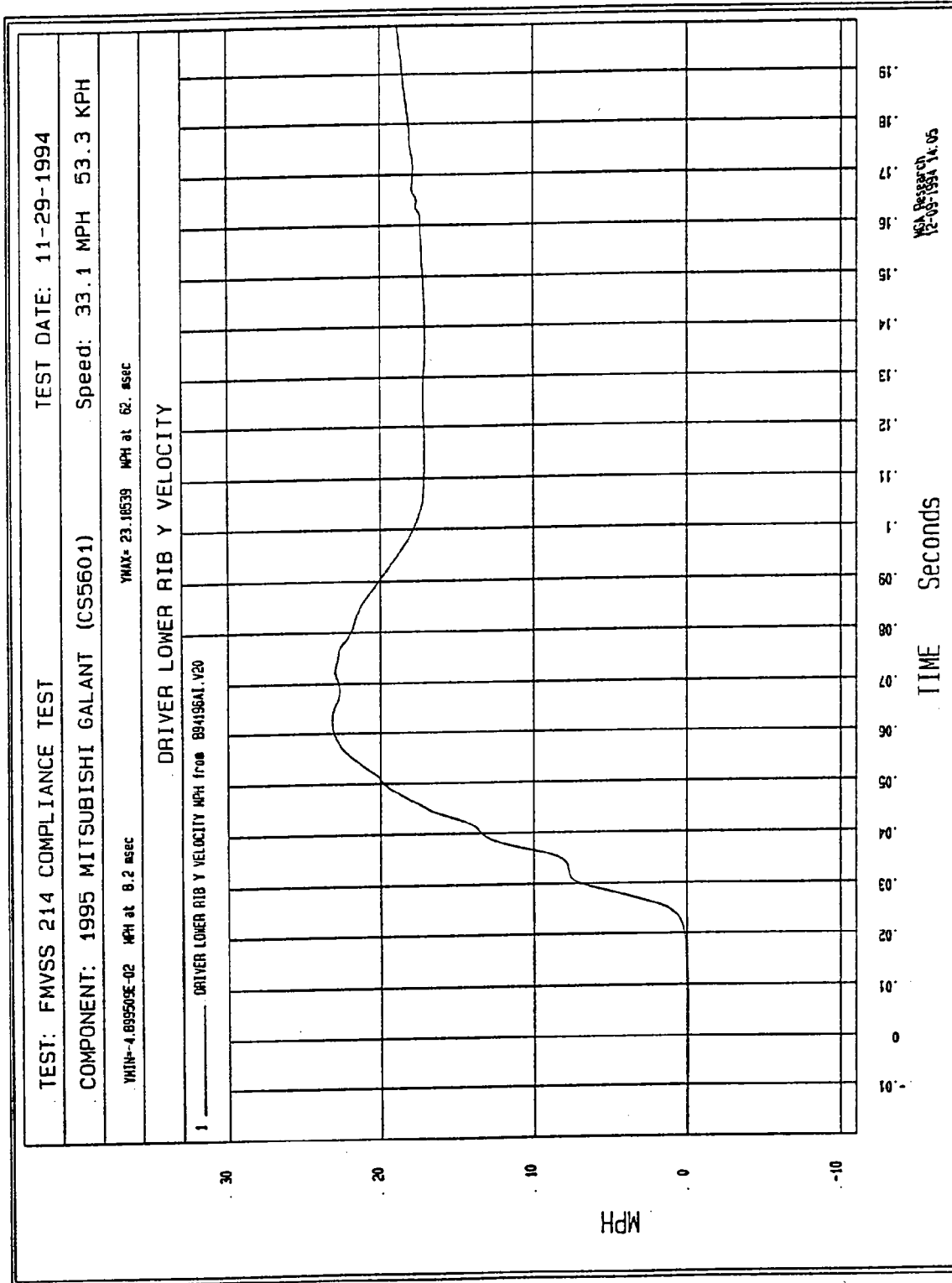


Figure B-4 - Driver Lower Rib Y Velocity vs. Time

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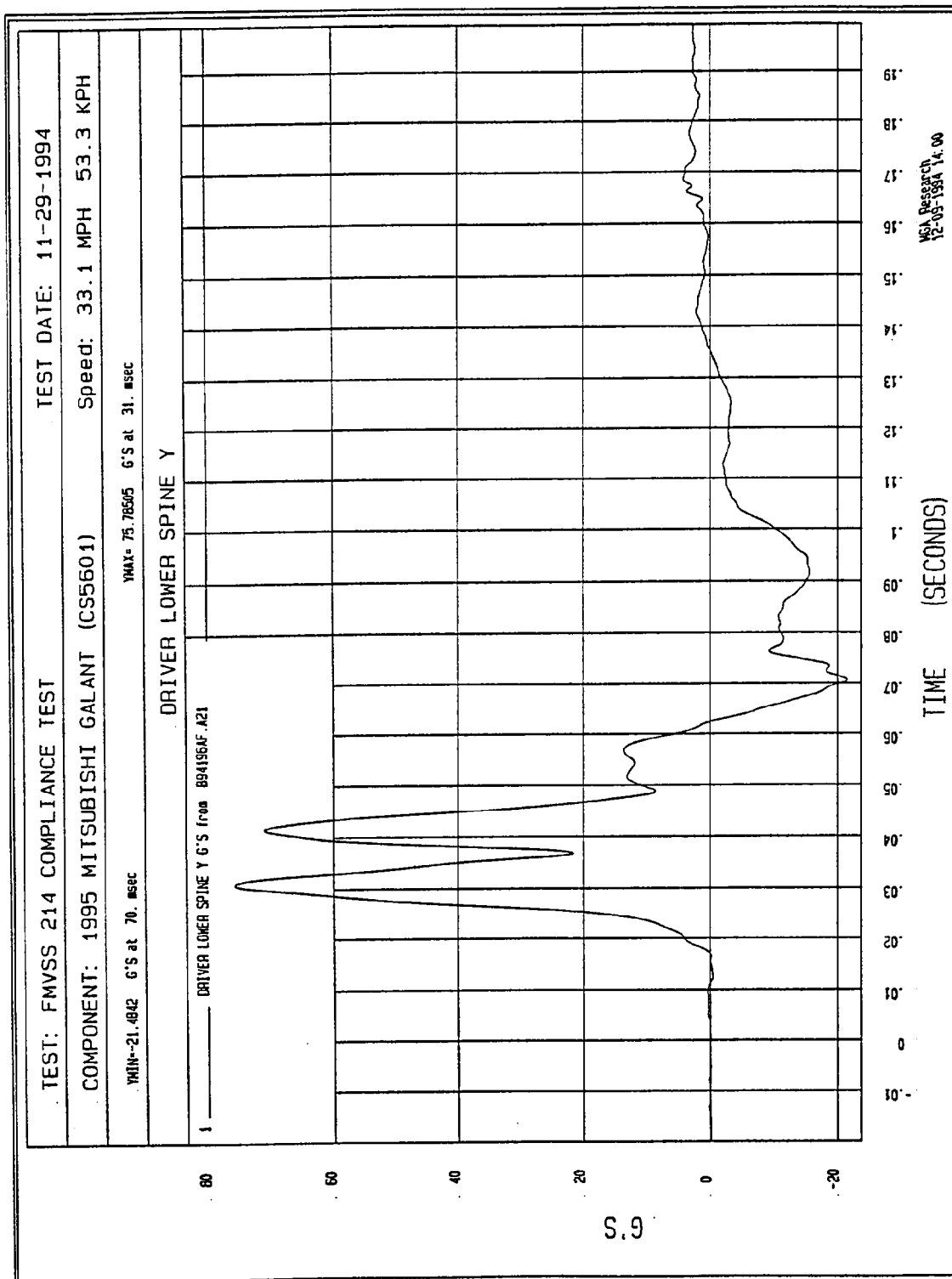


Figure B-5 - Driver Lower Spine Y Acceleration vs. Time

Filter: Class 1000 (1650 Hz)

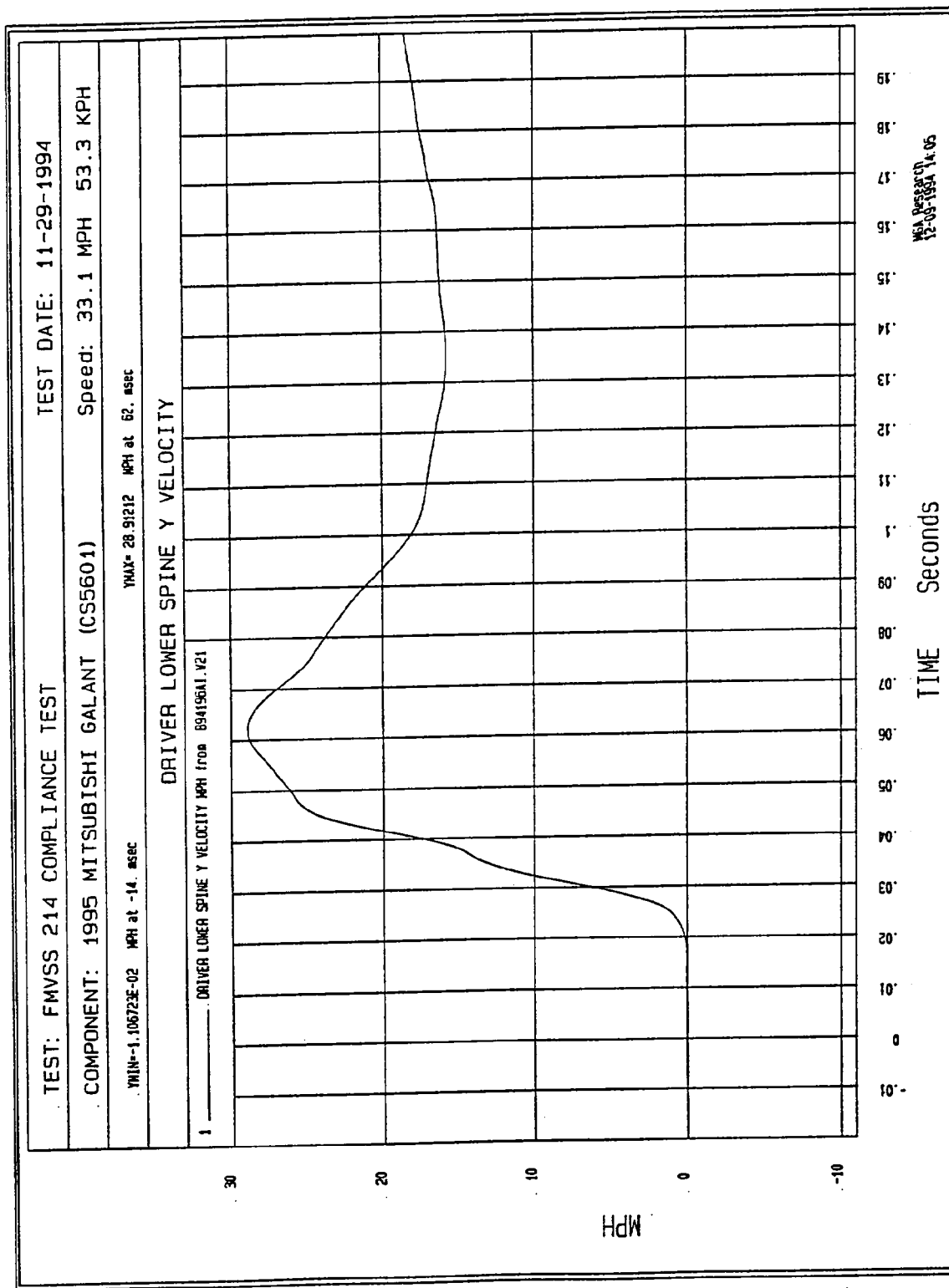


Figure B-6 - Driver Lower Spine Y Velocity vs. Time

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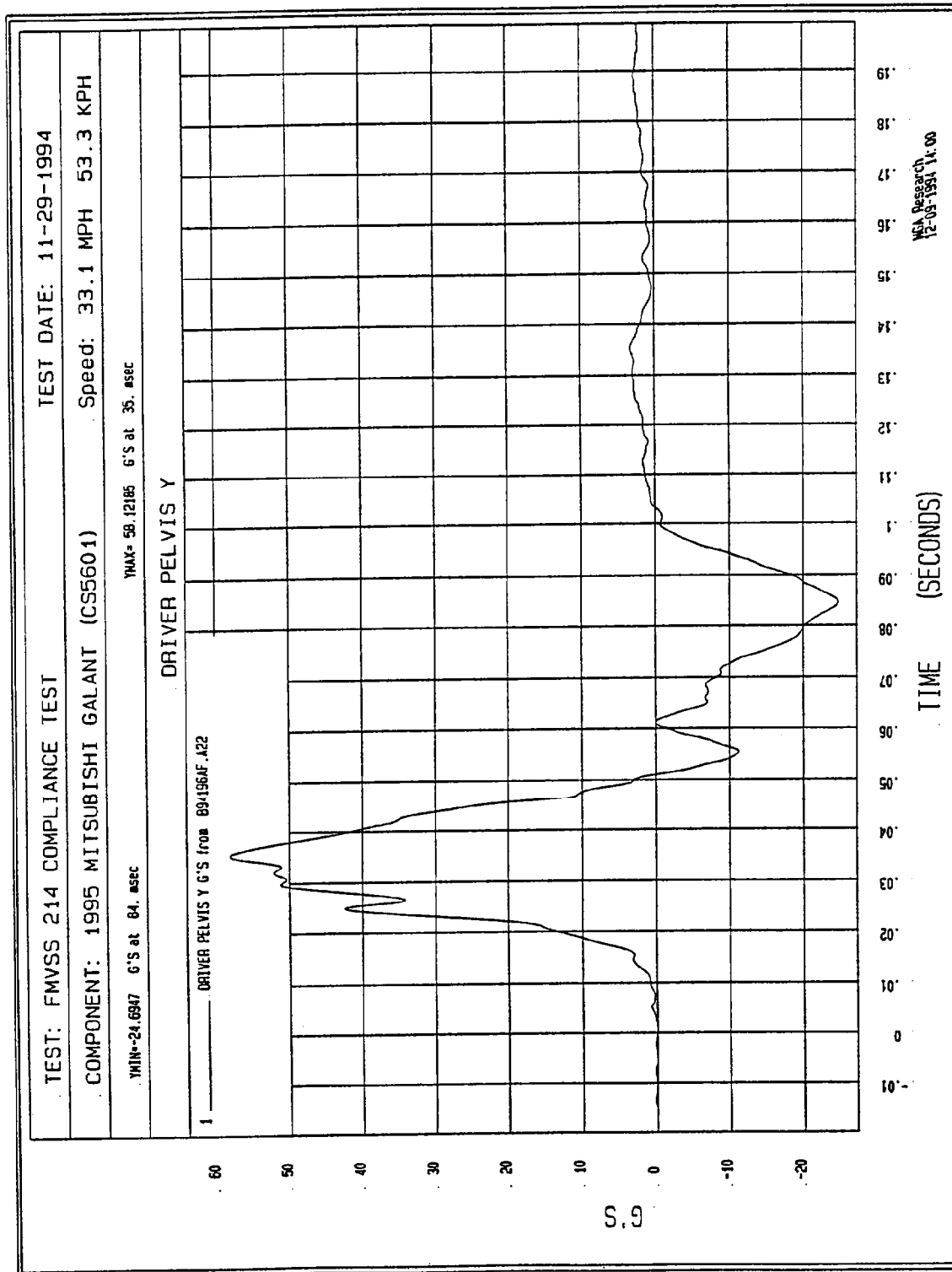


Figure B-7 - Driver Pelvis Y Acceleration vs. Time

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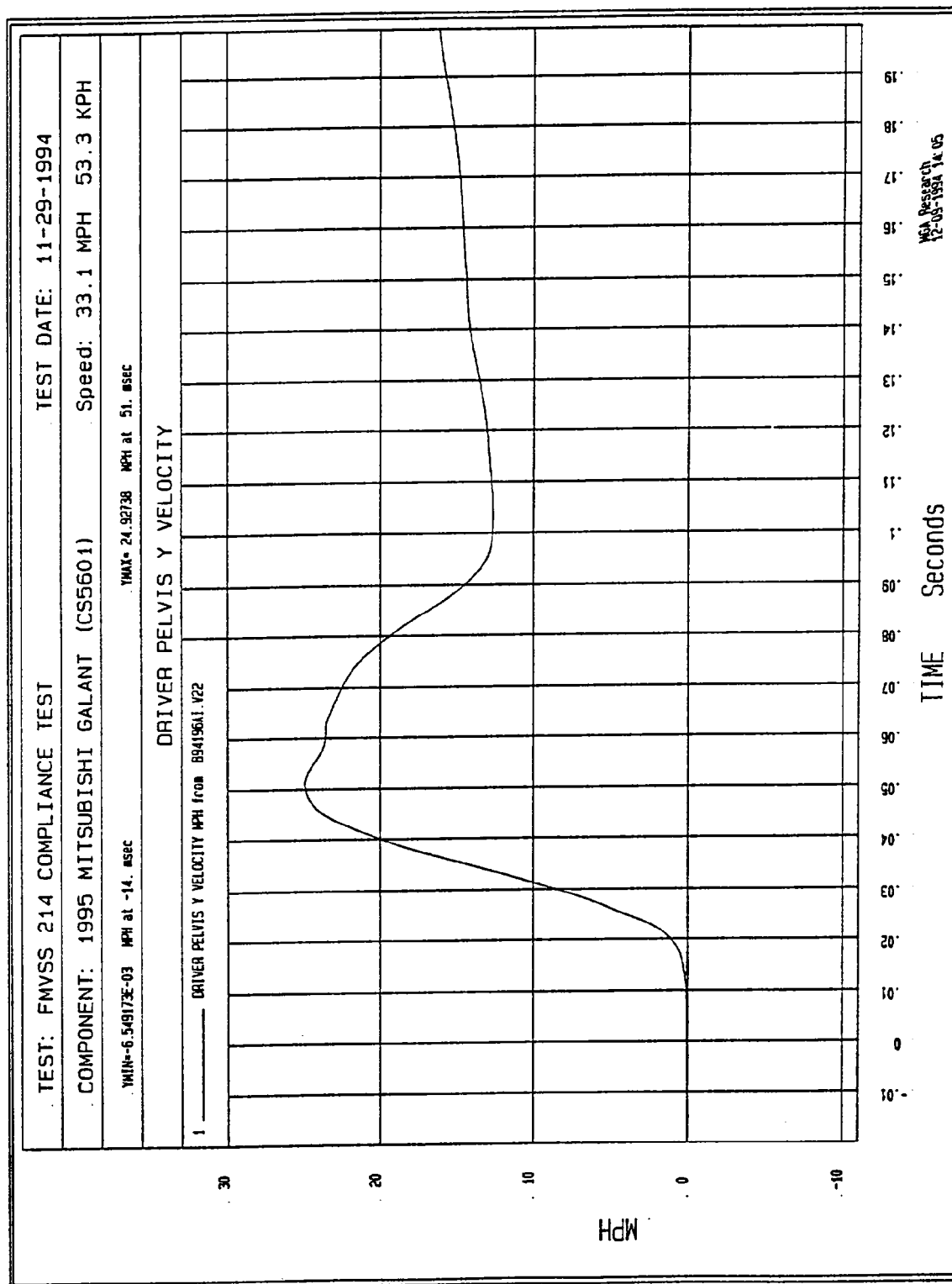


Figure B-8 - Driver Pelvis Y Velocity vs. Time

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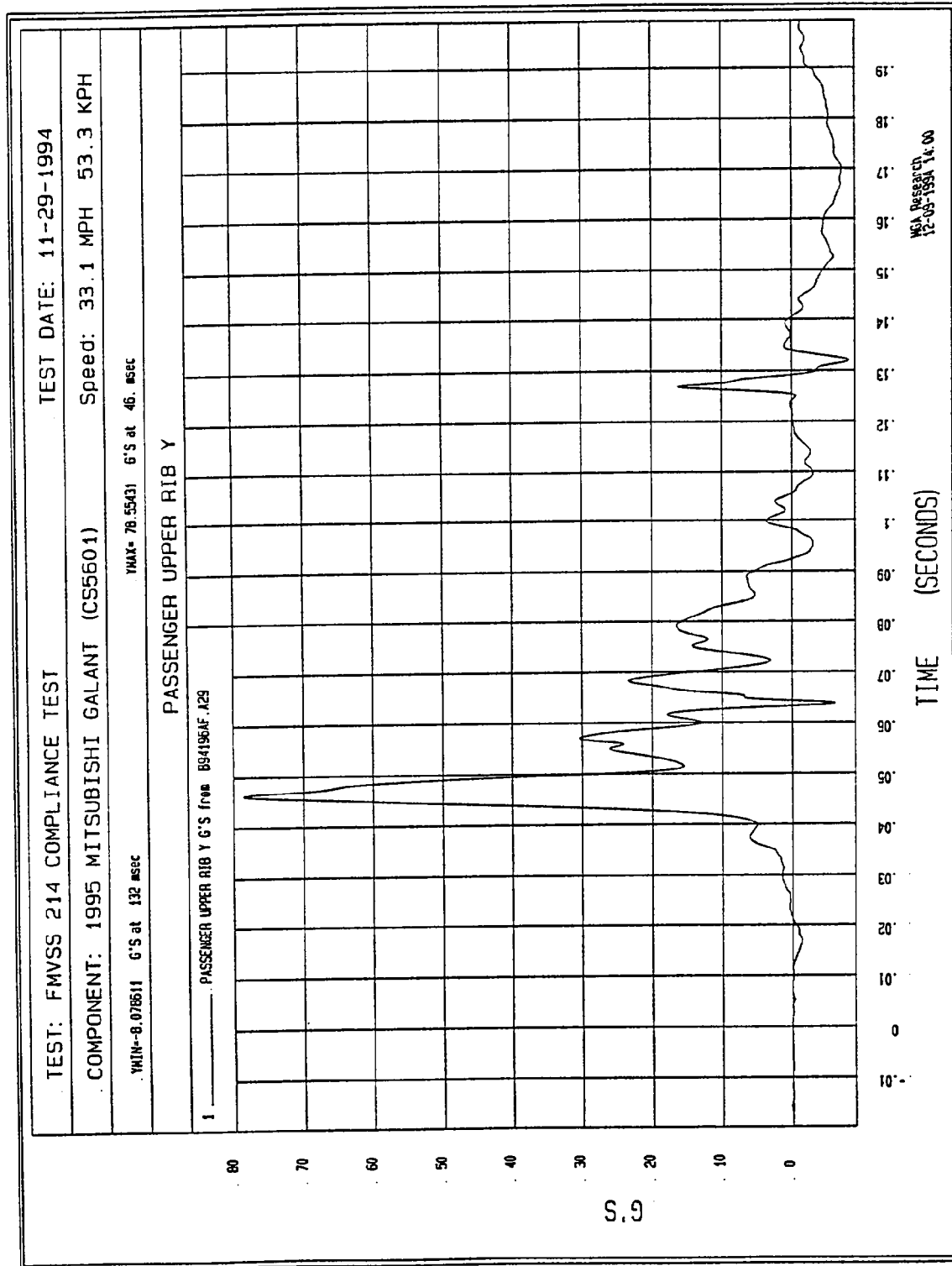
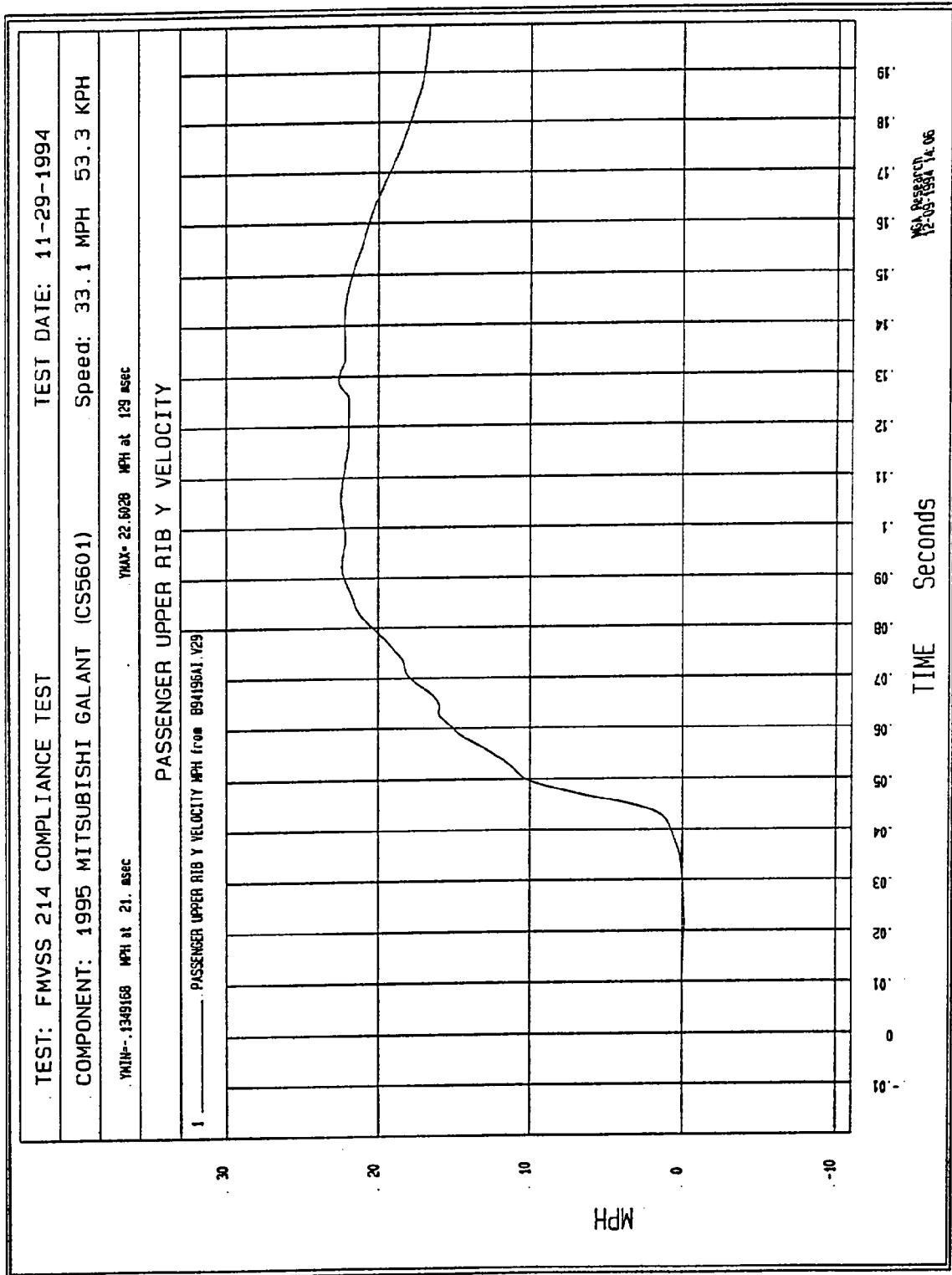


Figure B-9 - Passenger Upper Rib Y Acceleration vs. Time

Filter: Class 1000 (1650 Hz)



B-10

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

Filter: Class 1000 (1650 Hz)

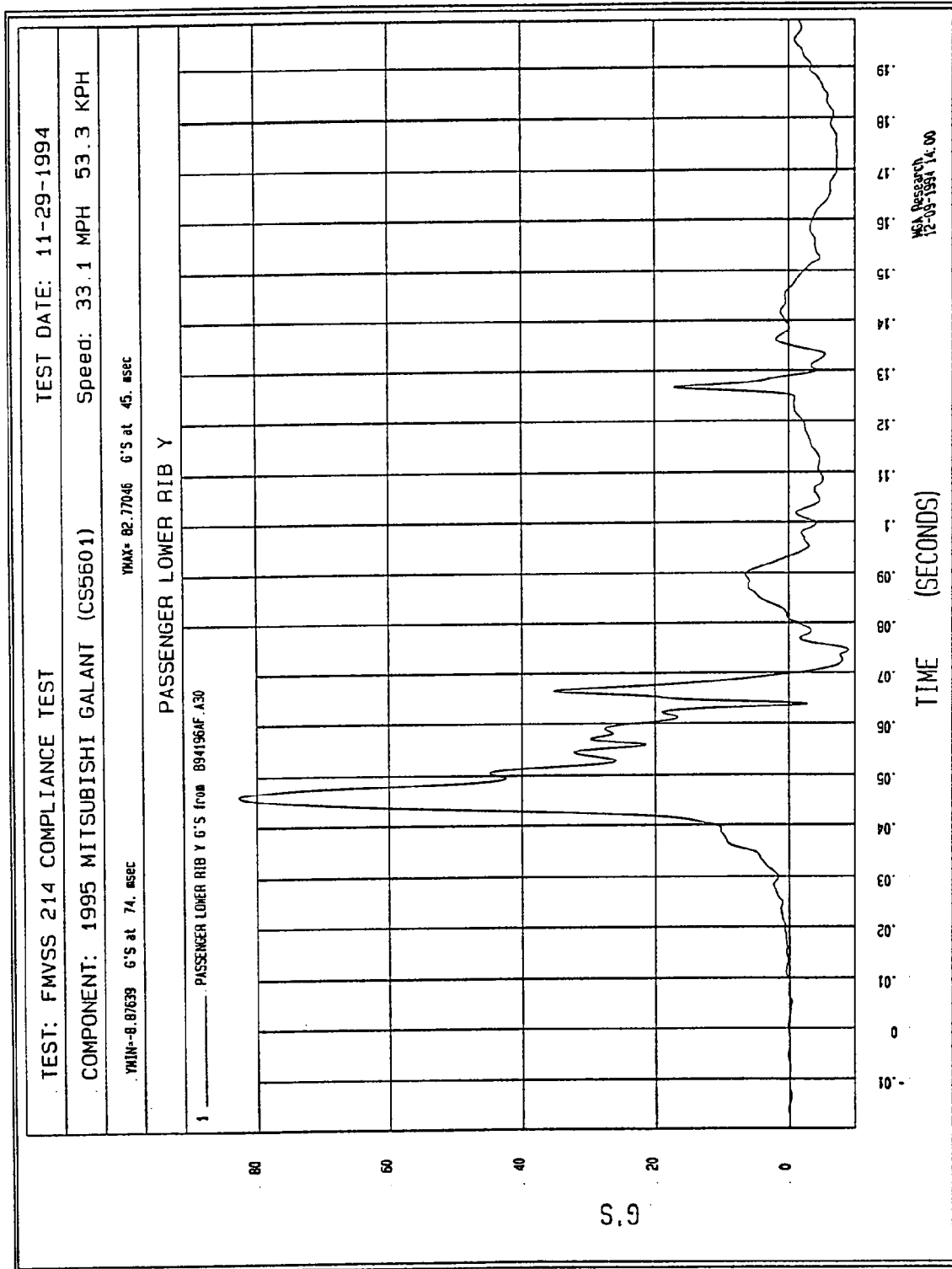


Figure B-11 - Passenger Lower Rib Y Acceleration vs. Time

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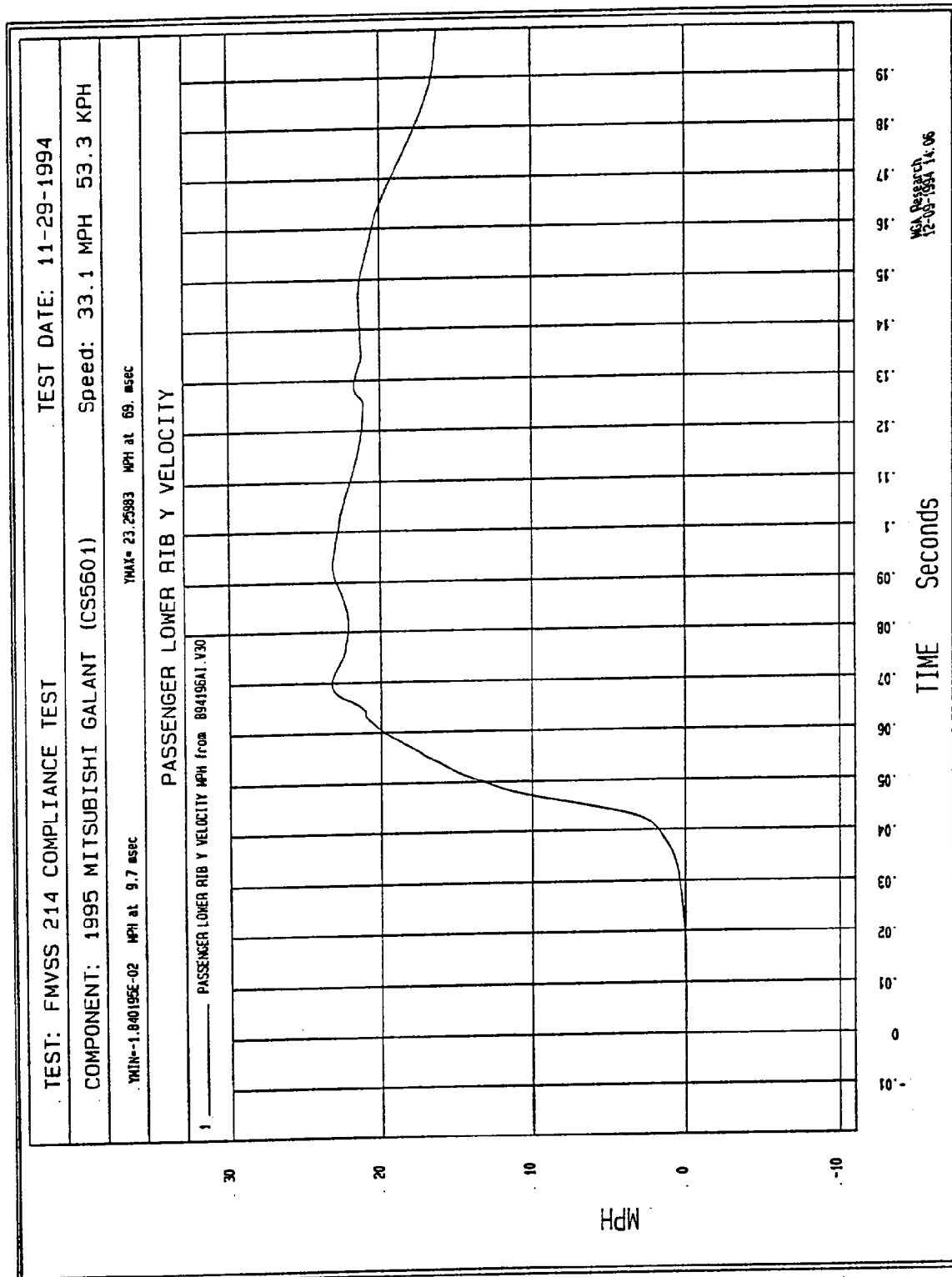


Figure B-12 - Passenger Lower Rib Y Velocity vs. Time

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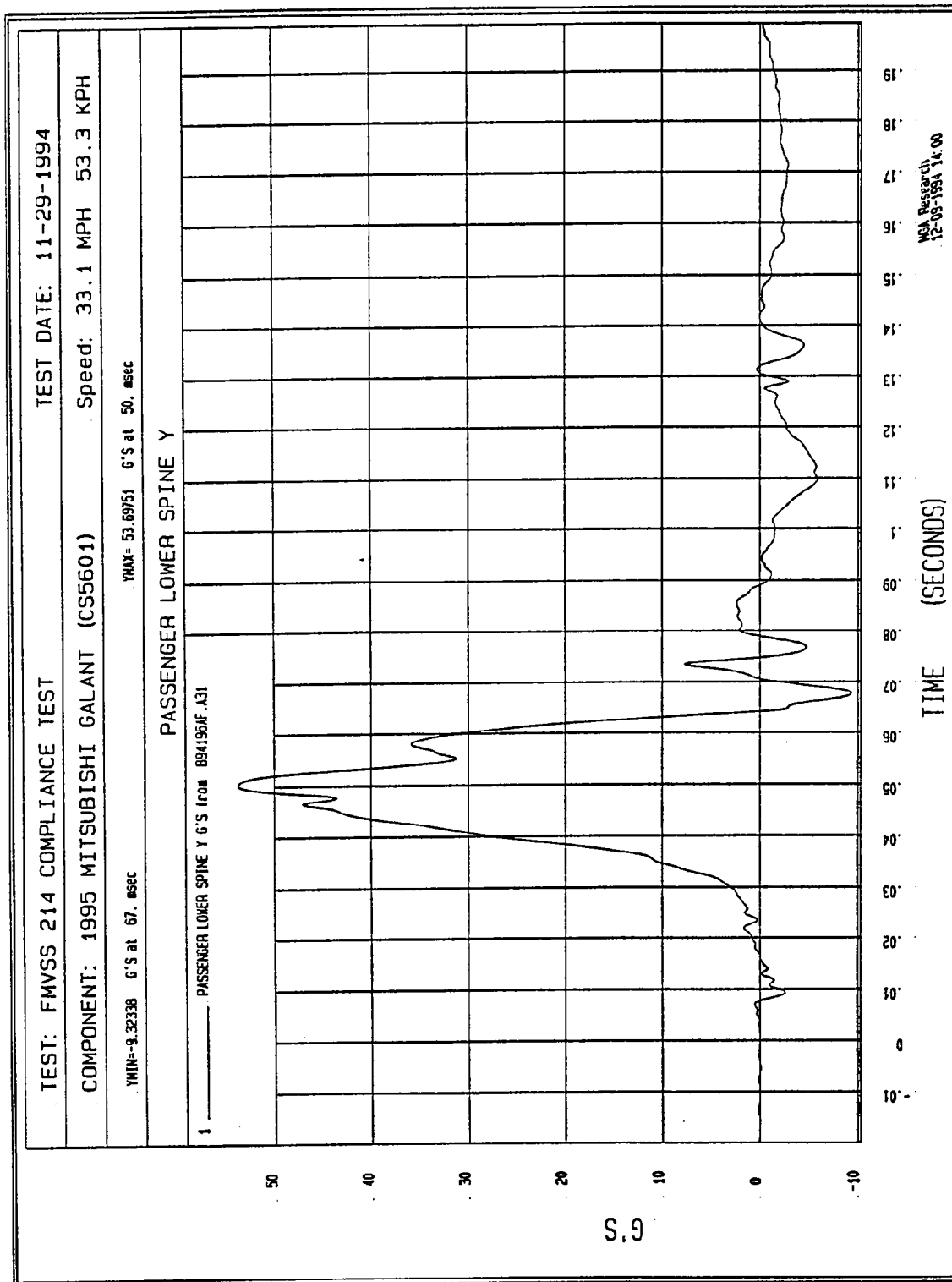


Figure B-13 - Passenger Lower Spine Y Acceleration vs. Time

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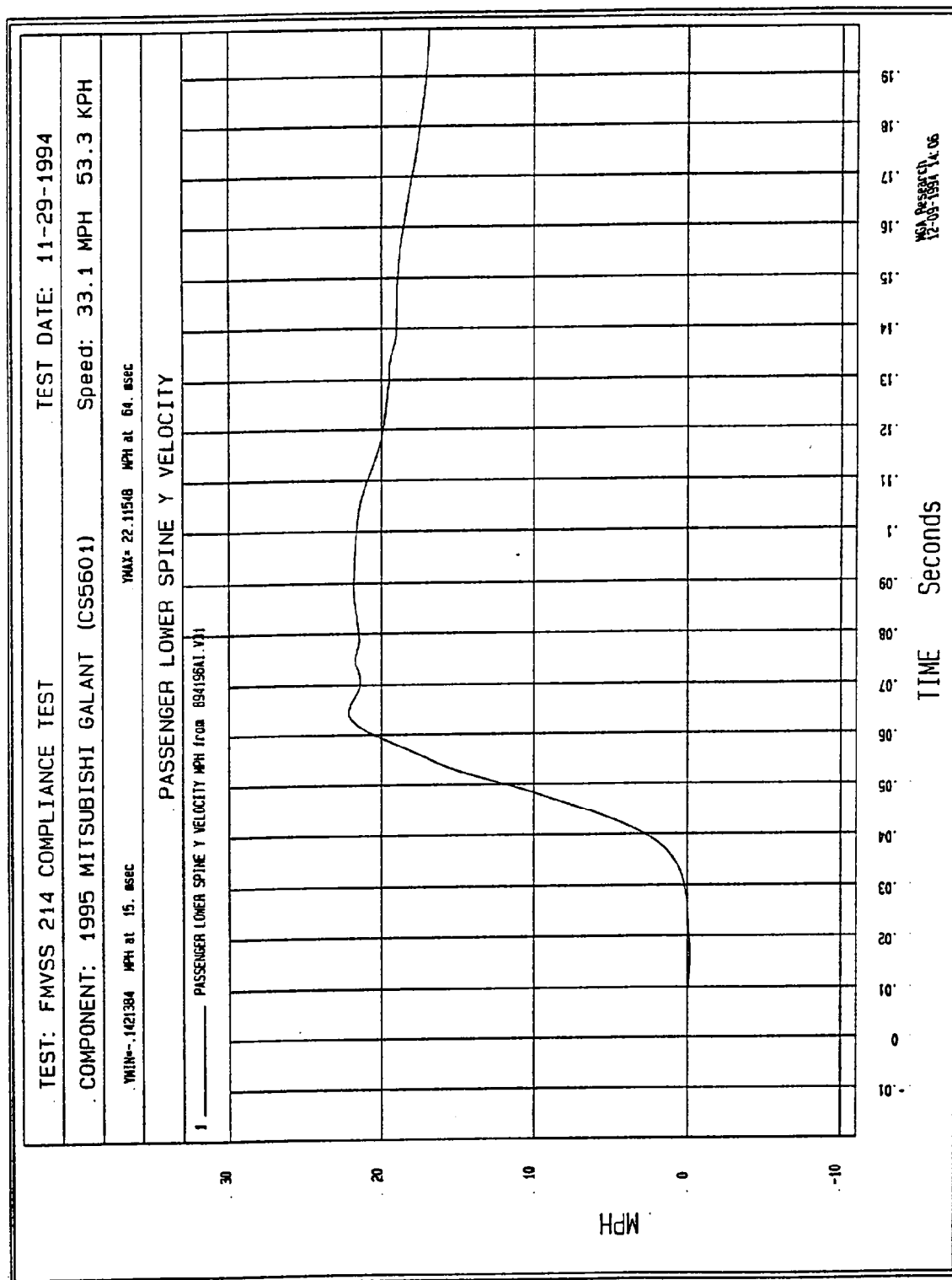


Figure B-14 - Passenger Lower Spine Y Velocity vs. Time

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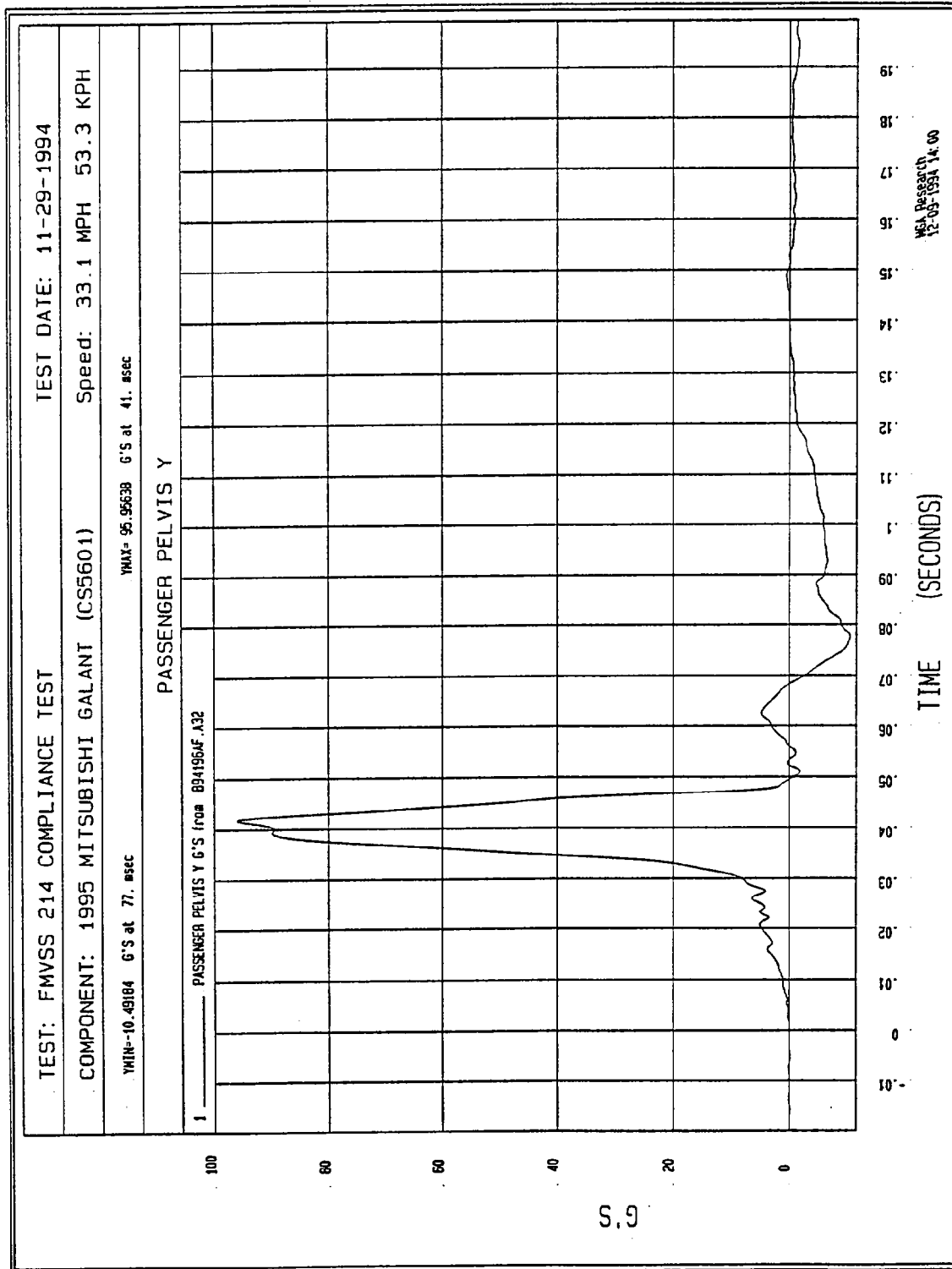


Figure B-15 - Passenger Pelvis Y Acceleration vs. Time

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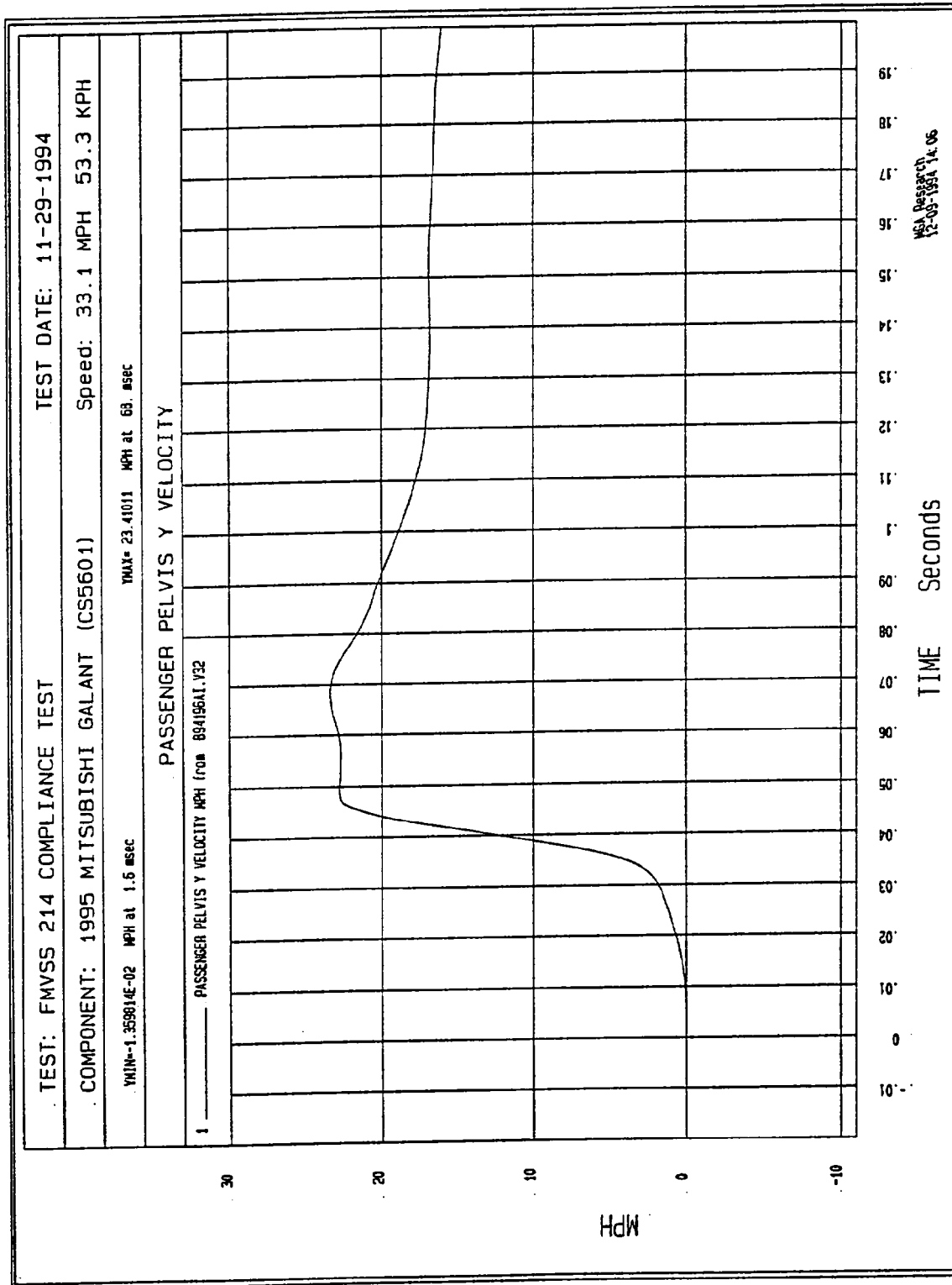


Figure B-16 - Passenger Pelvis Y Velocity vs. Time

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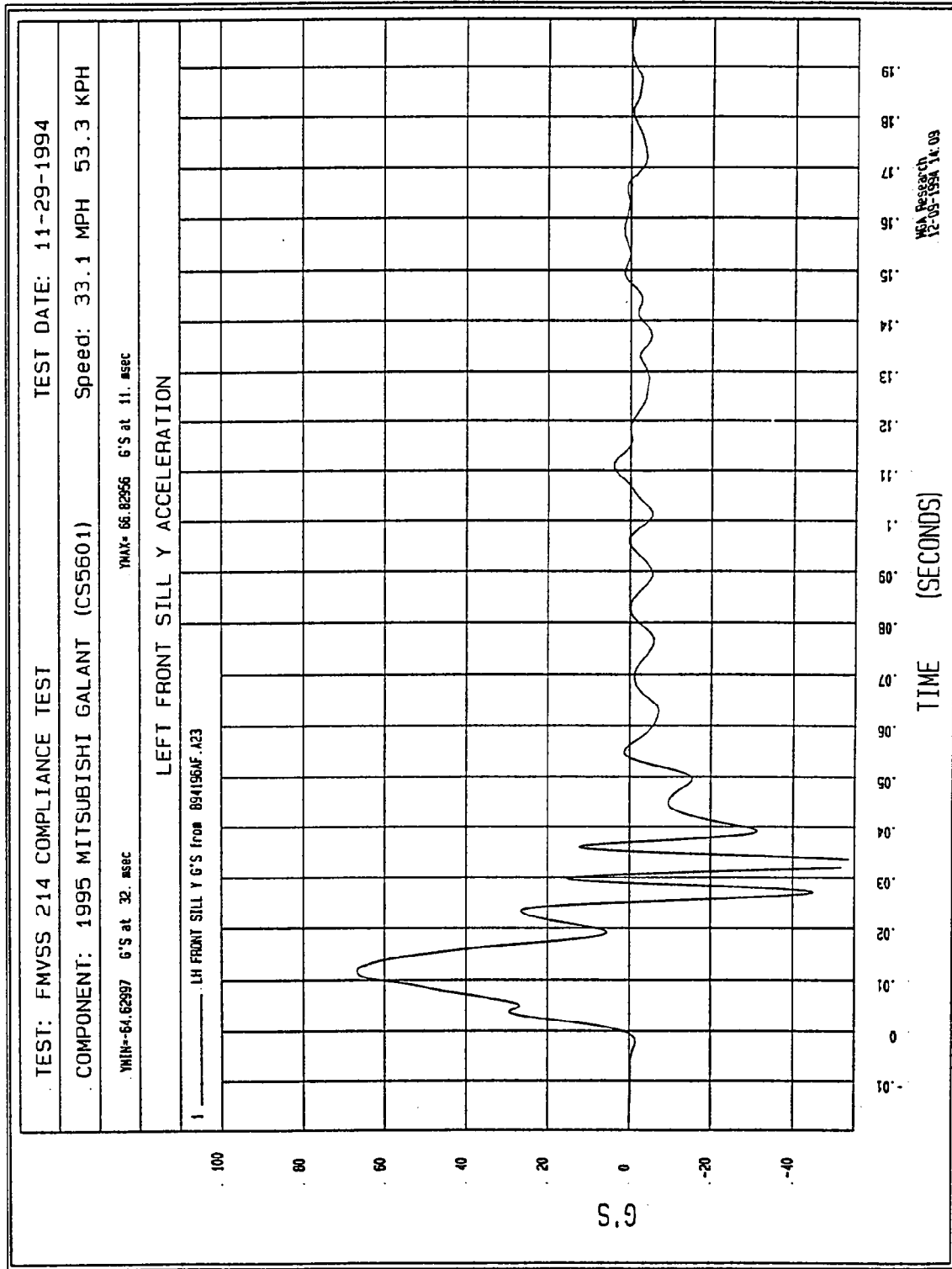


Figure B-17 - Left Front Sill Y Acceleration vs. Time

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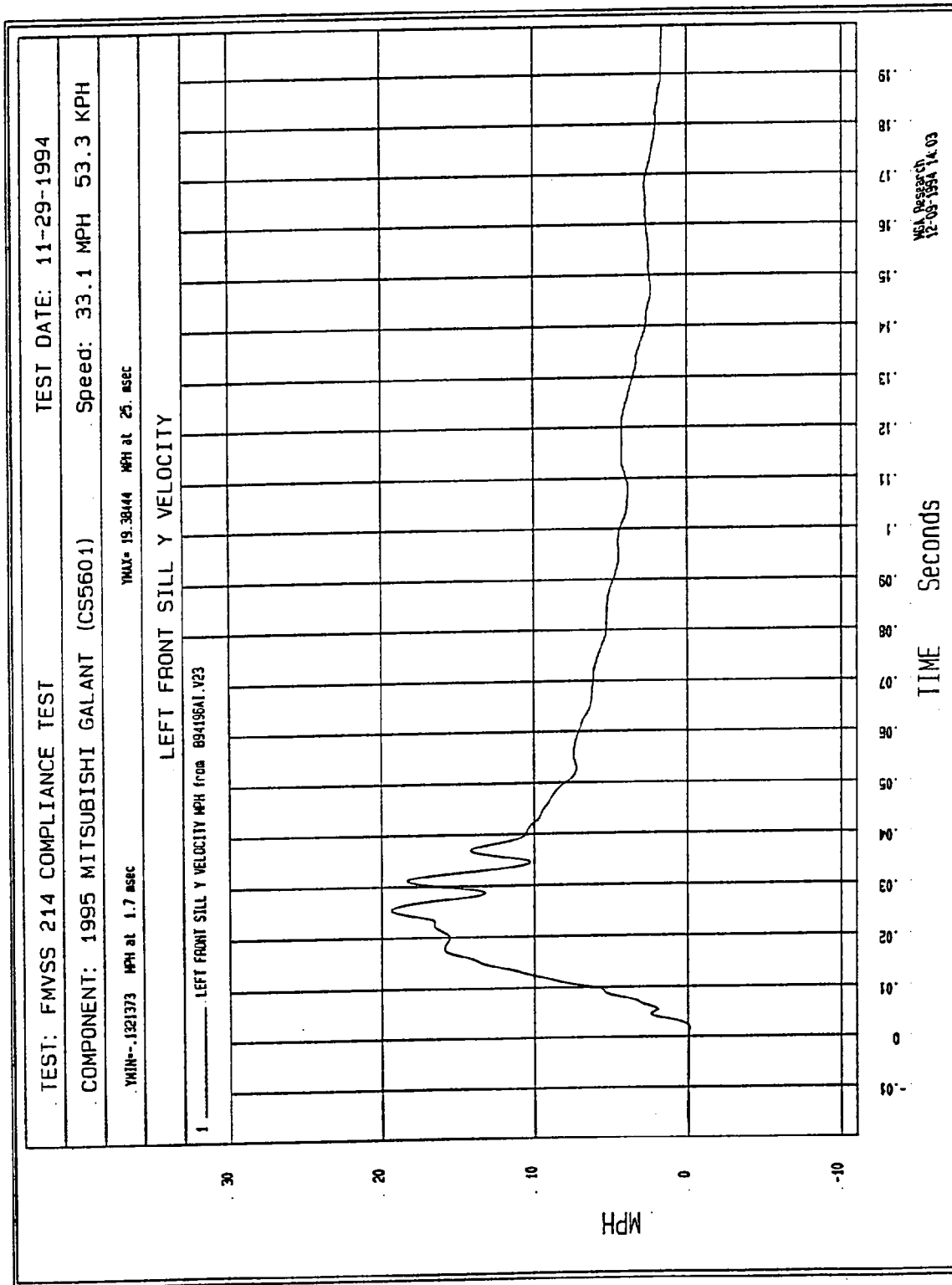


Figure B-18 - Left Front Sill Y Velocity vs. Time

Filter: Class 60 (100 Hz)

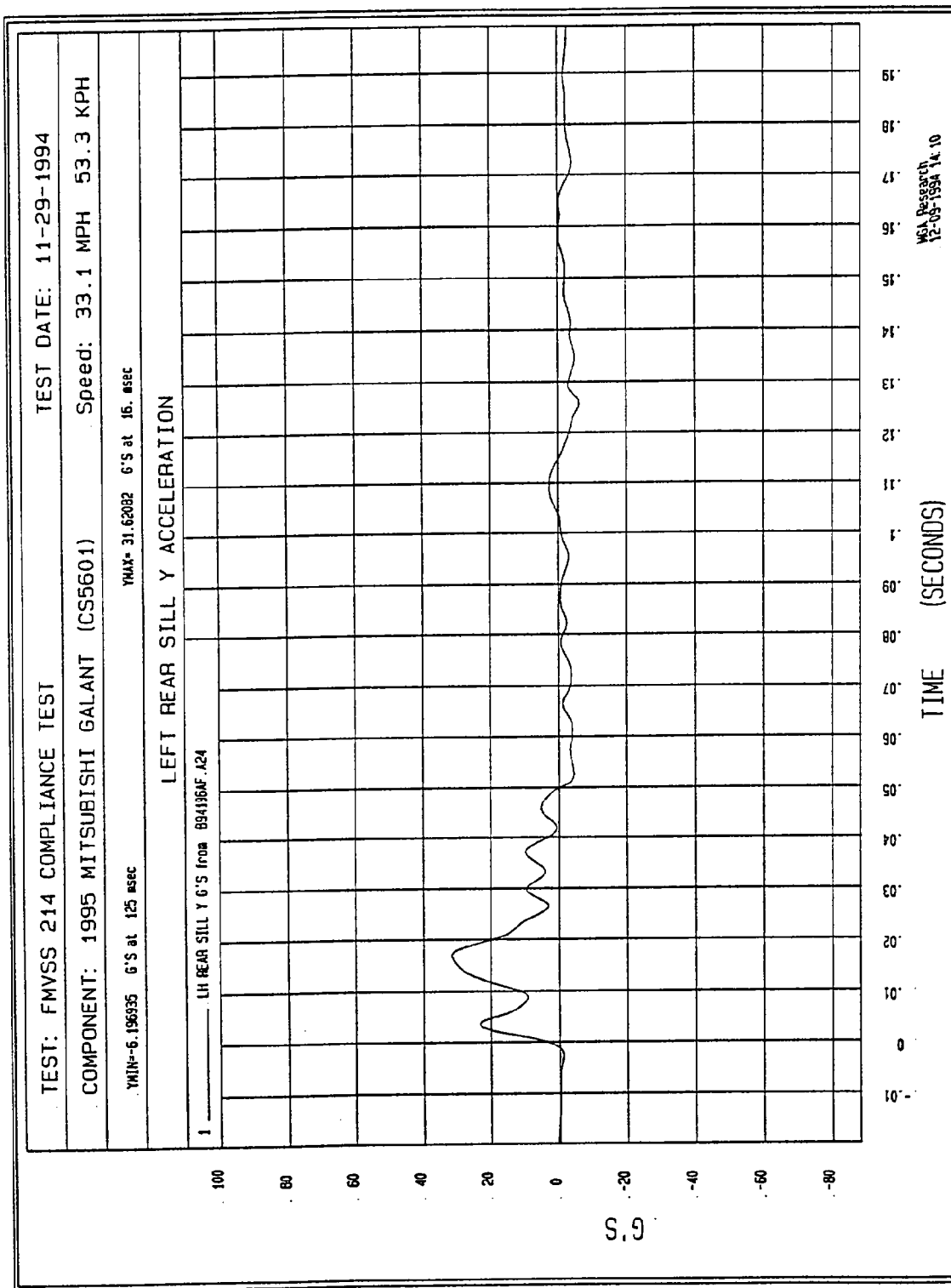
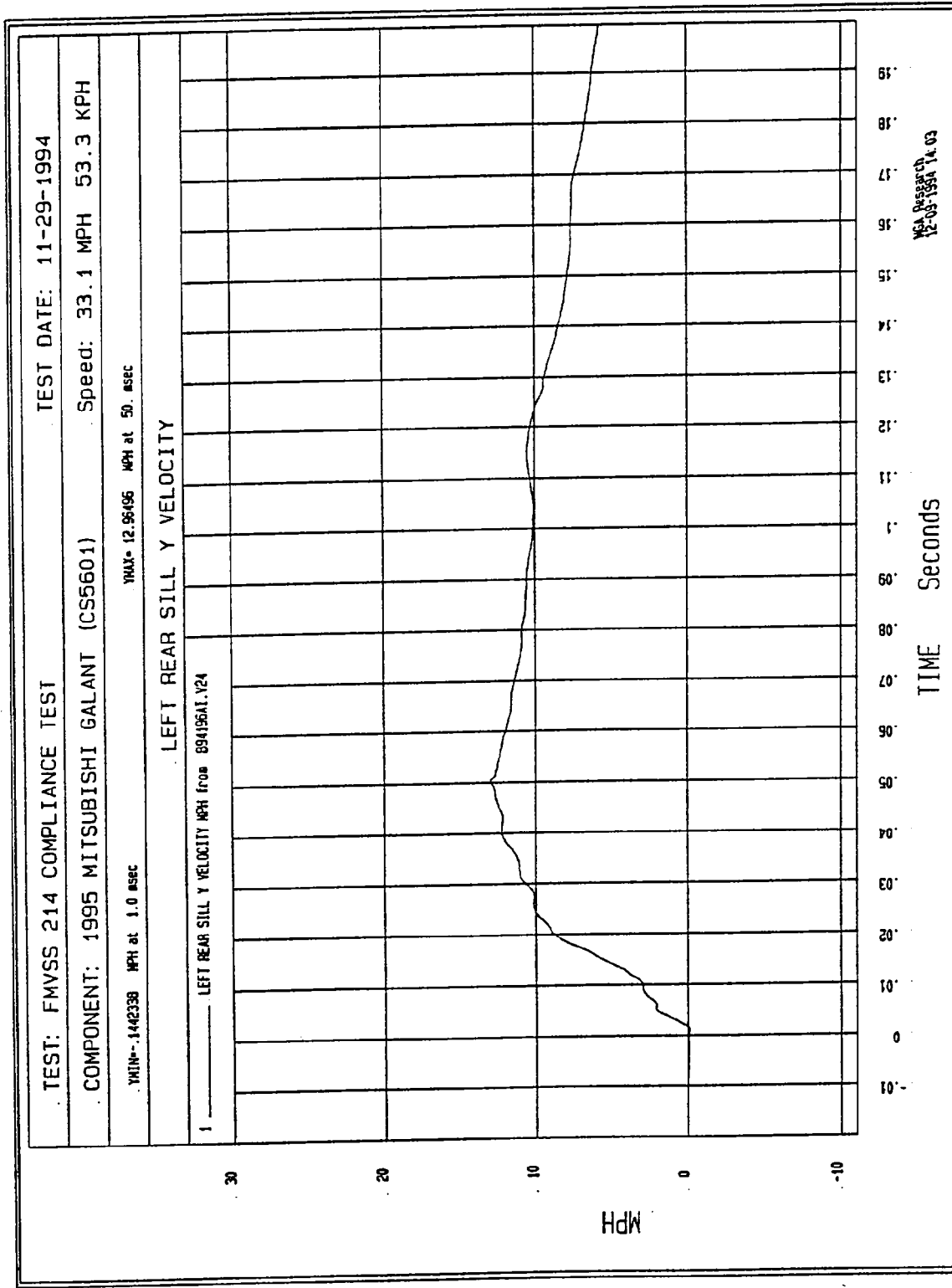


Figure B-19 - Left Rear Sill Y Acceleration vs. Time

Filter: Class 180 (300 Hz)



B-20

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

Filter: Class 60 (100 Hz)

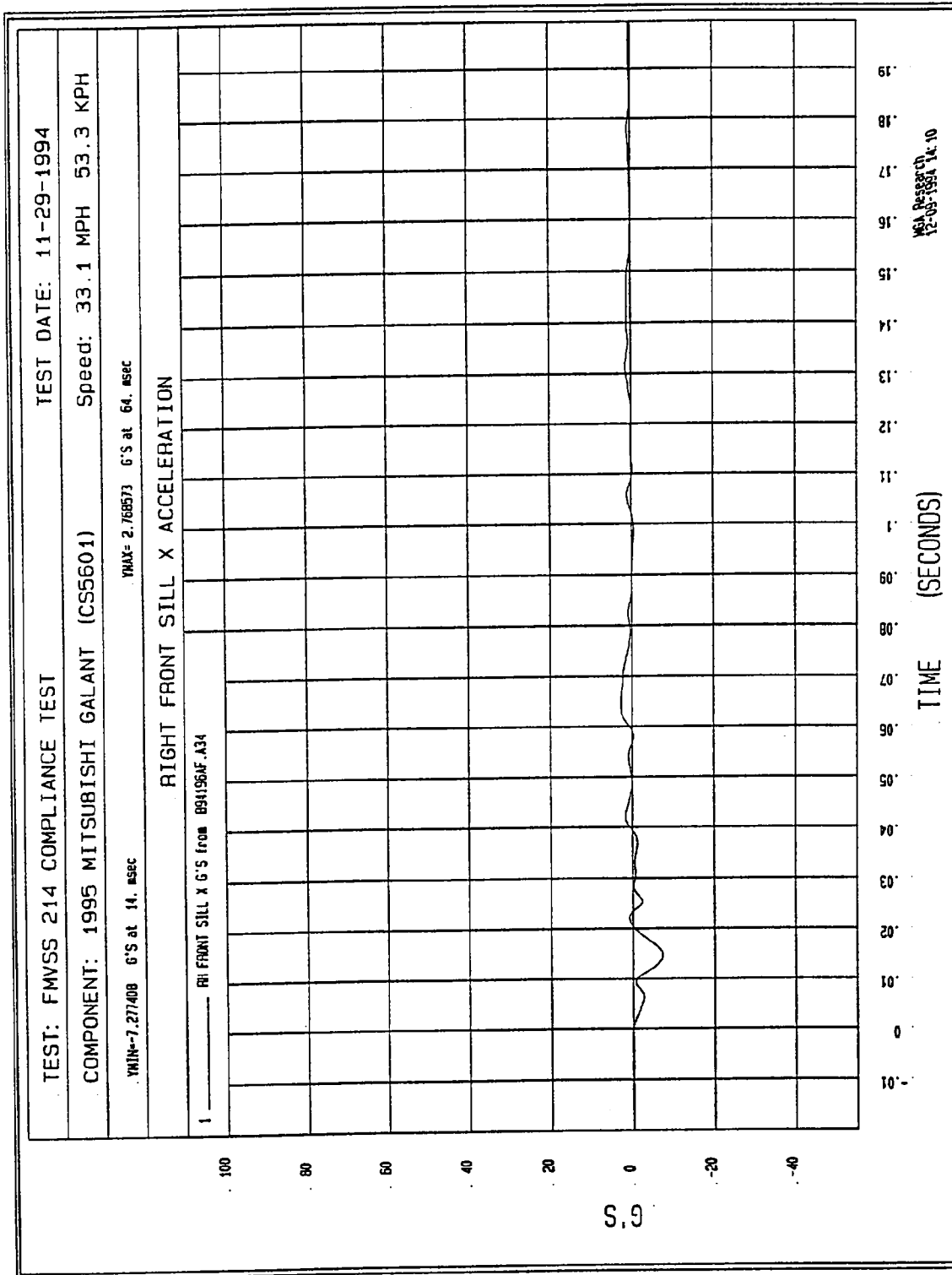


Figure B-21 - Right Front Sill X Acceleration vs. Time

Filter: Class 180 (300 Hz)

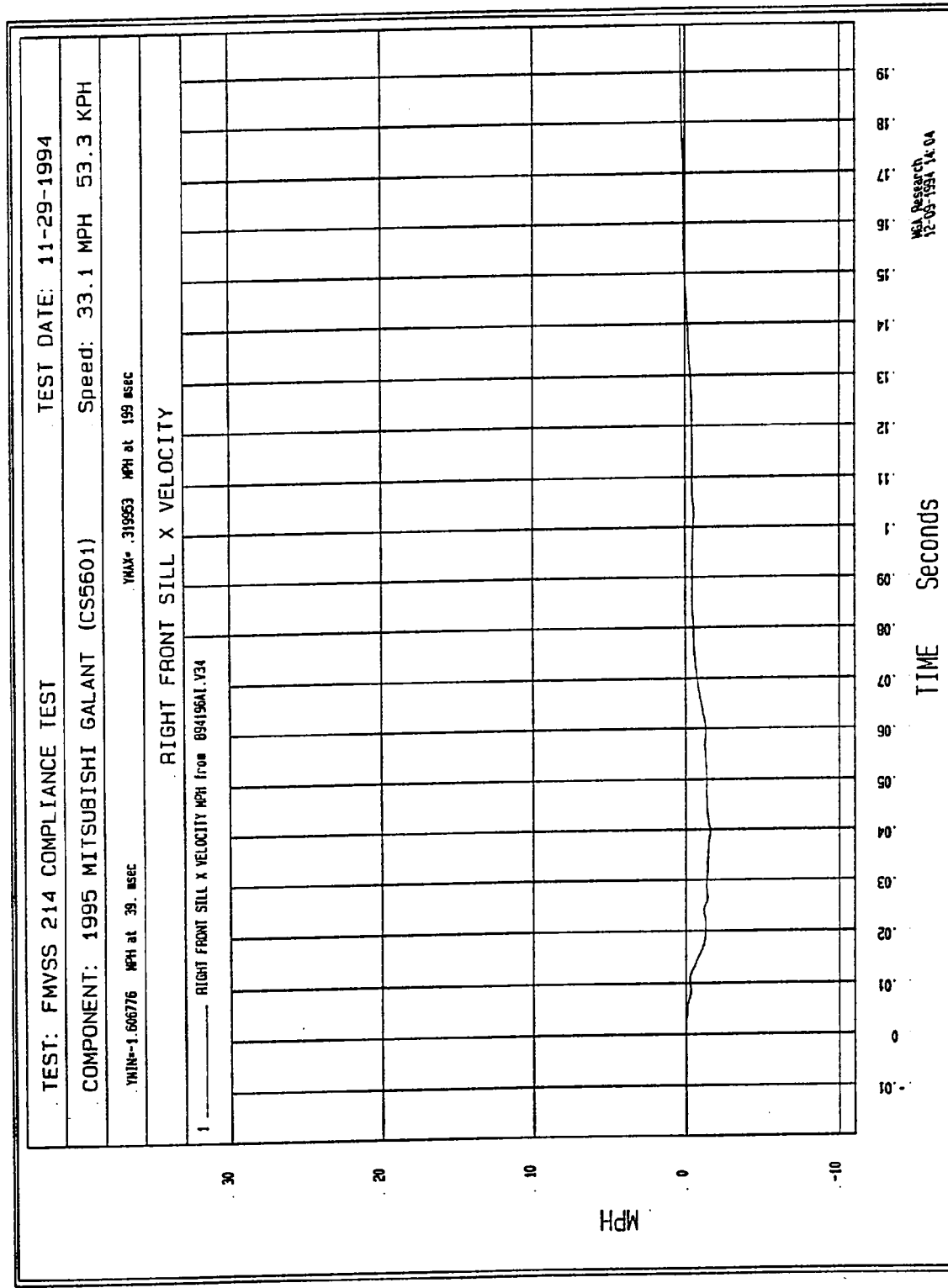


Figure B-22 - Right Front Sill X Velocity vs. Time

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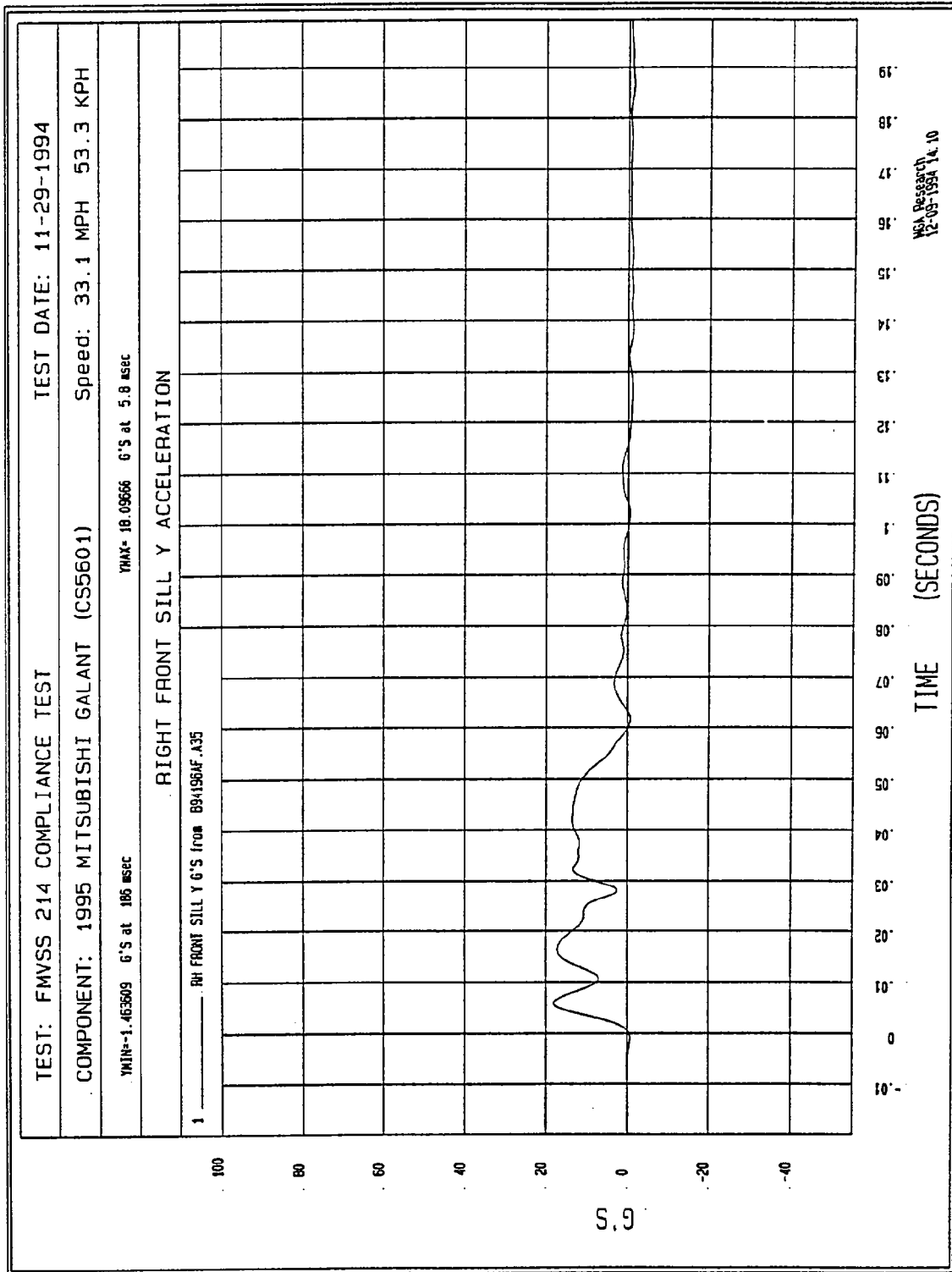


Figure B-23 - Right Front Sill Y Acceleration vs. Time

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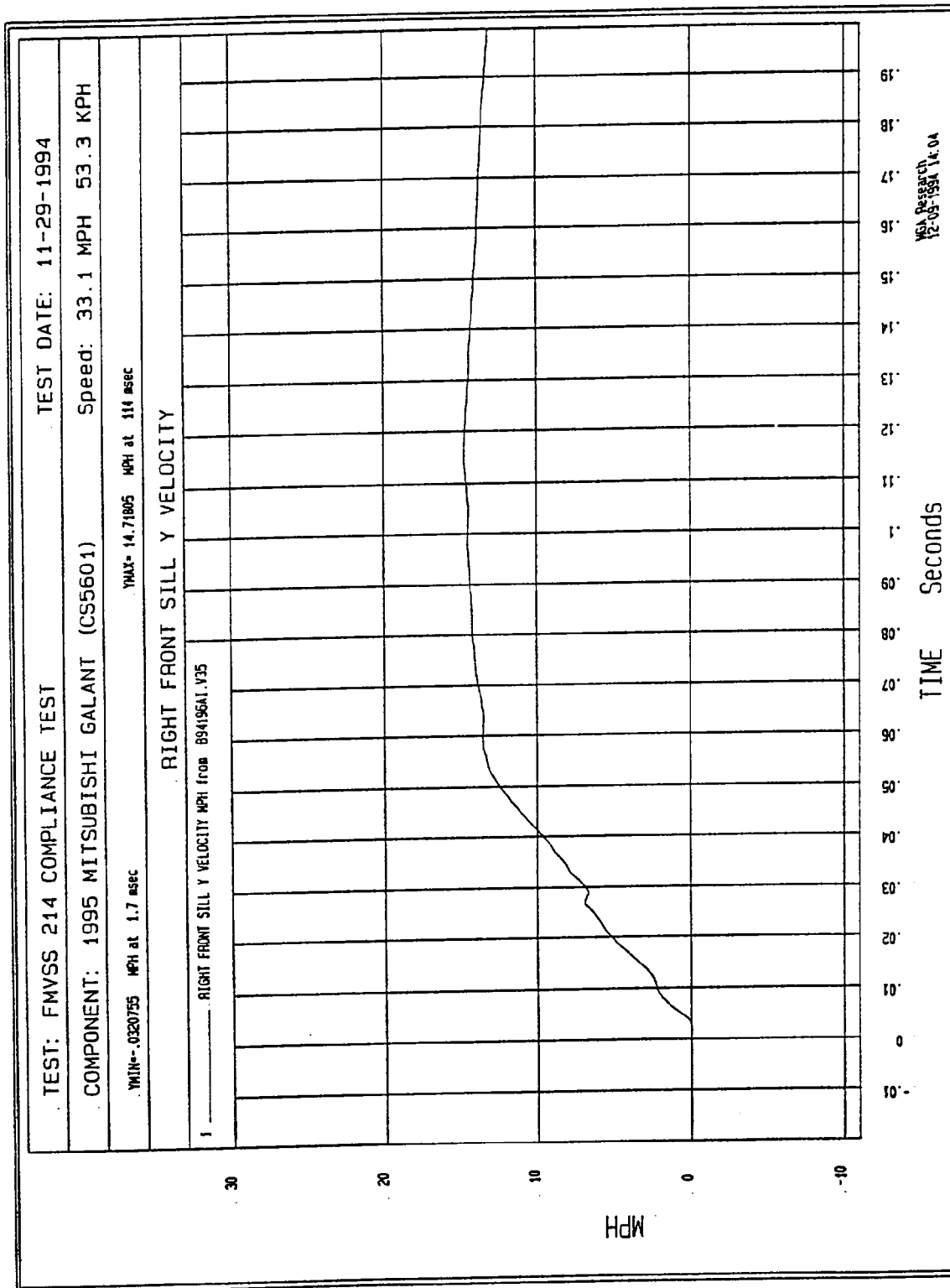


Figure B-24 - Right Front Sill Y Velocity vs. Time

Filter: Class 60 (100 Hz)

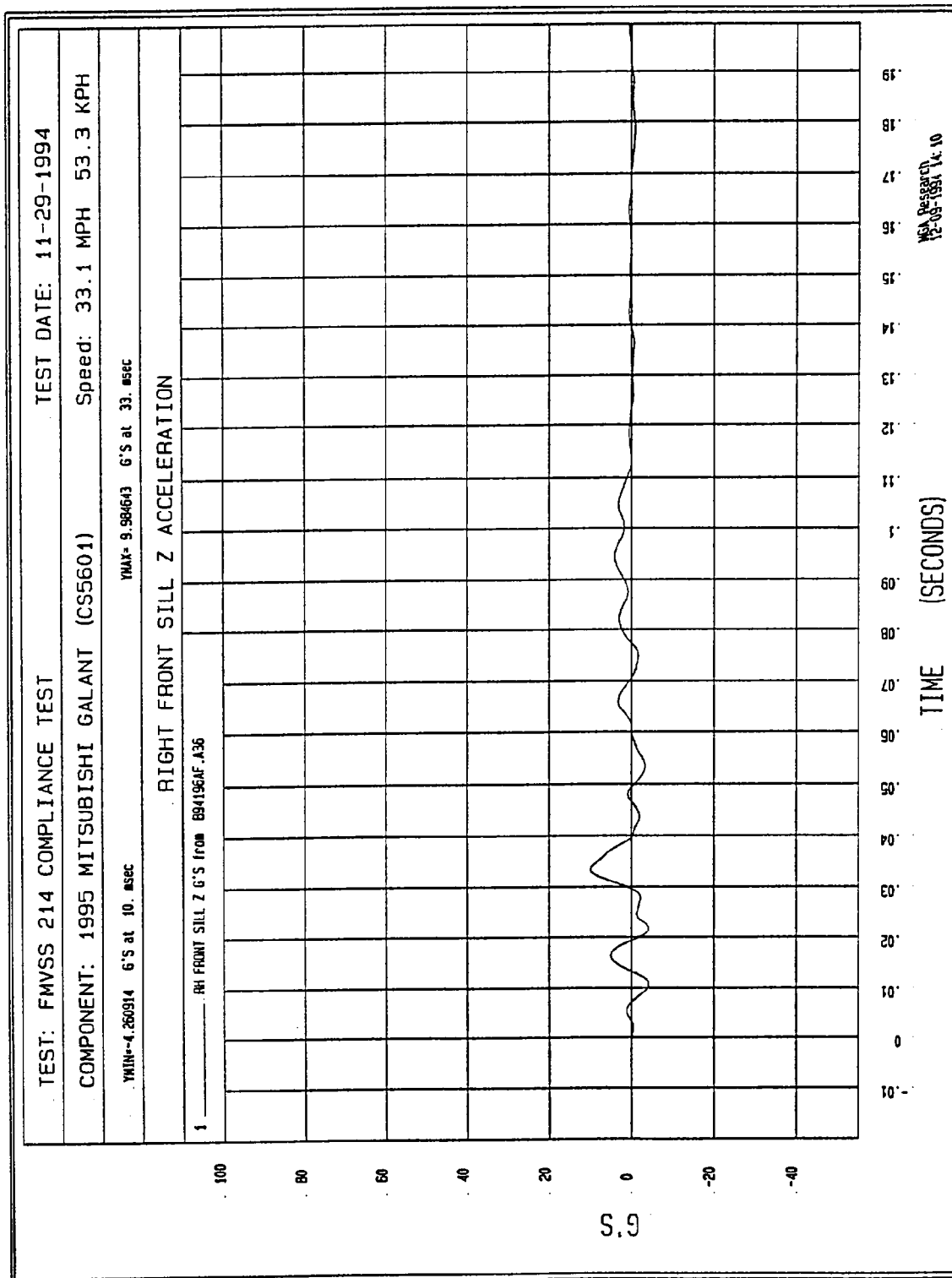


Figure B-25 - Right Front Sill Z Acceleration vs. Time

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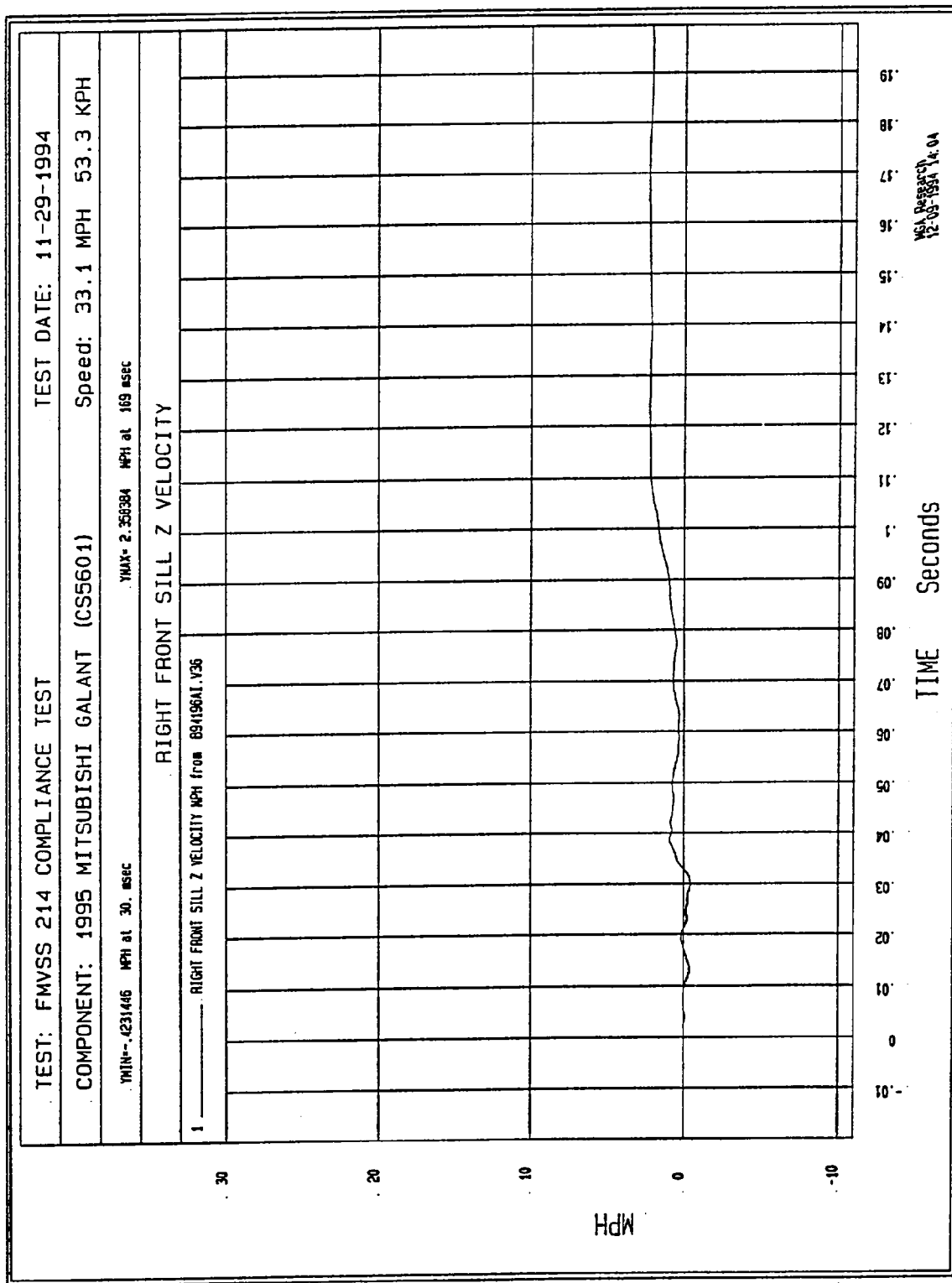


Figure B-26 - Right Front Sill Z Velocity vs. Time

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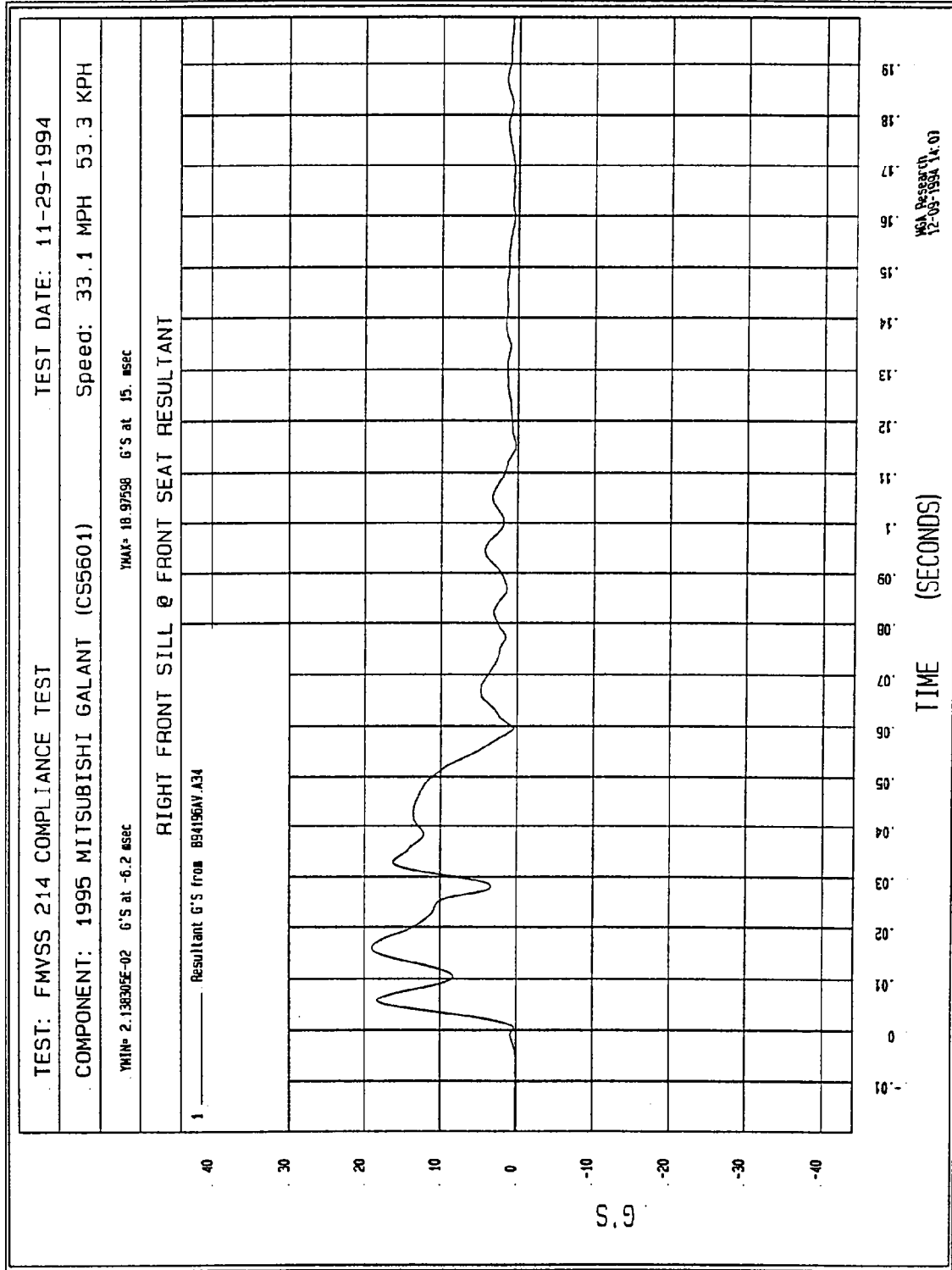


Figure B-27 - Right Front Sill at Front Seat Resultant vs. Time

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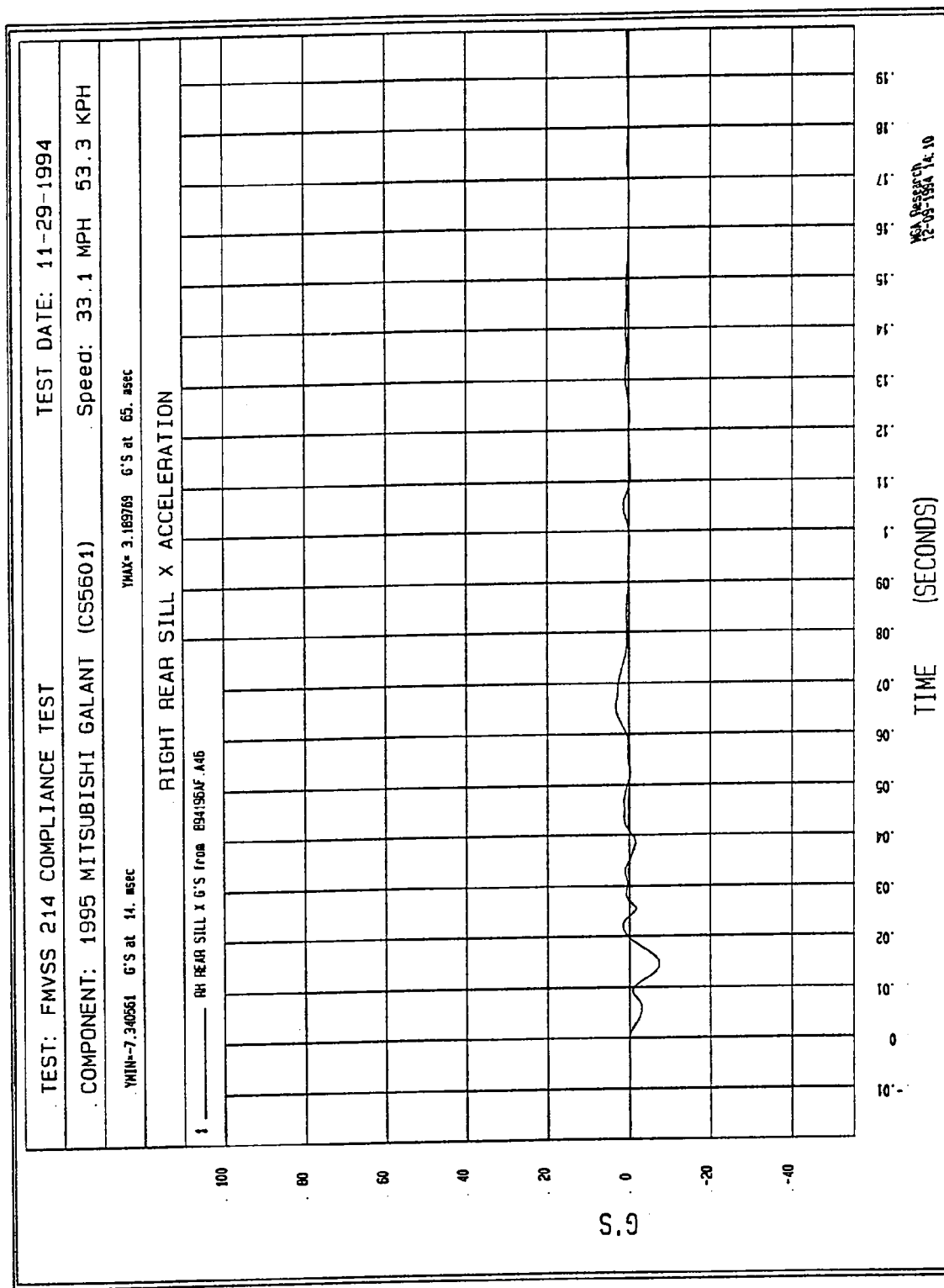


Figure B-28 - Right Rear Sill X Acceleration vs. Time

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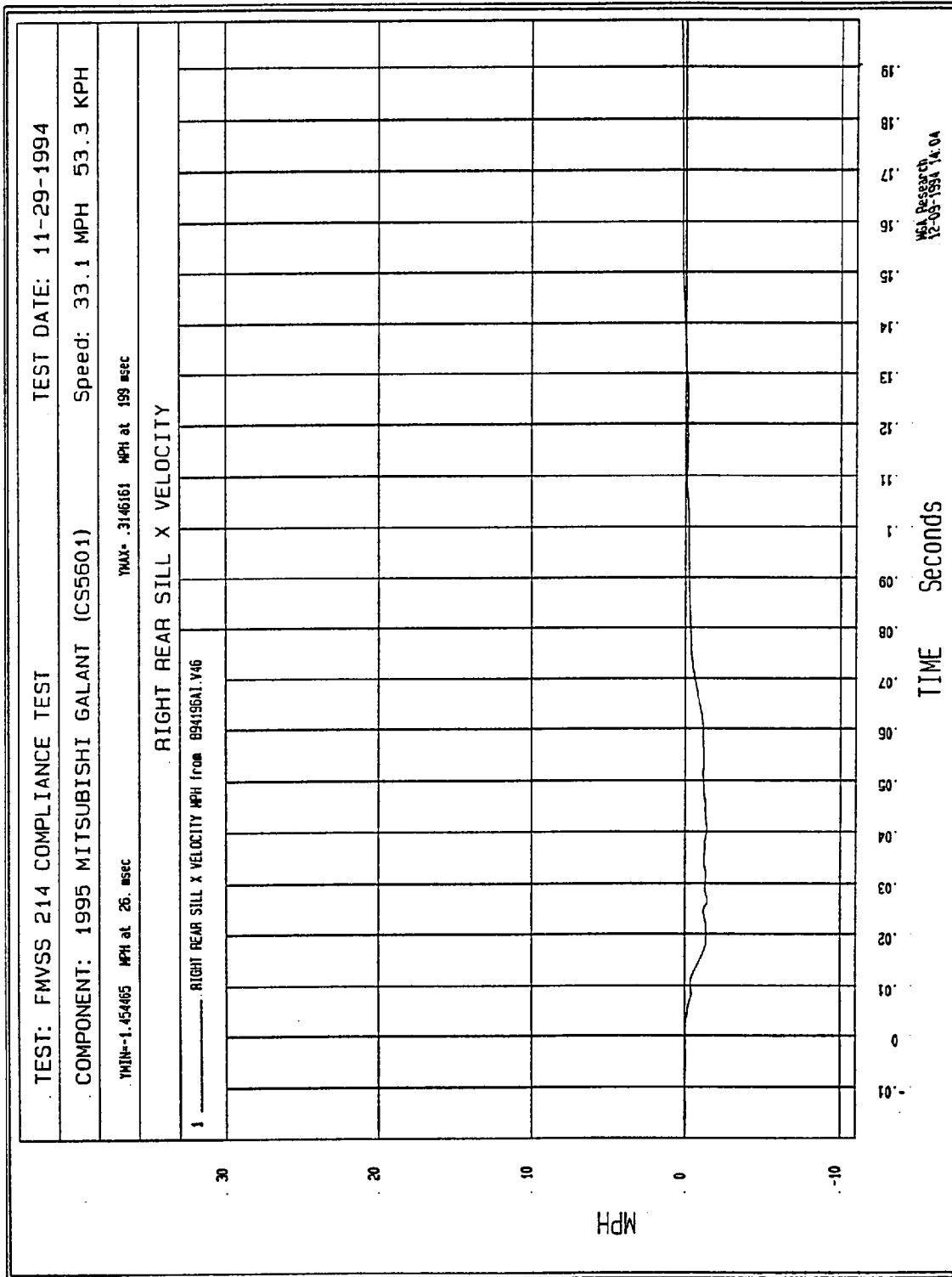


Figure B-29 - Right Rear Sill X Velocity vs. Time

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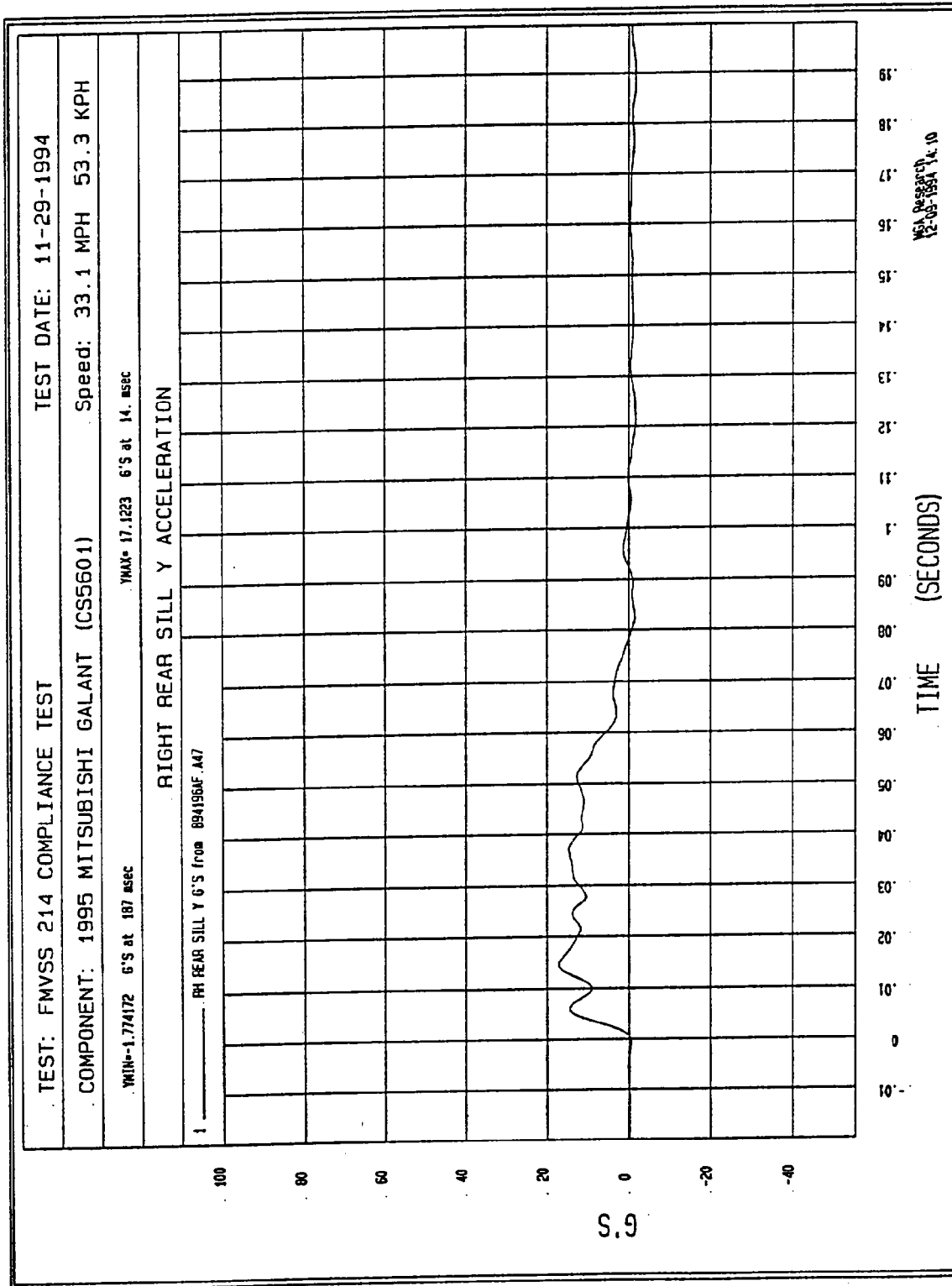
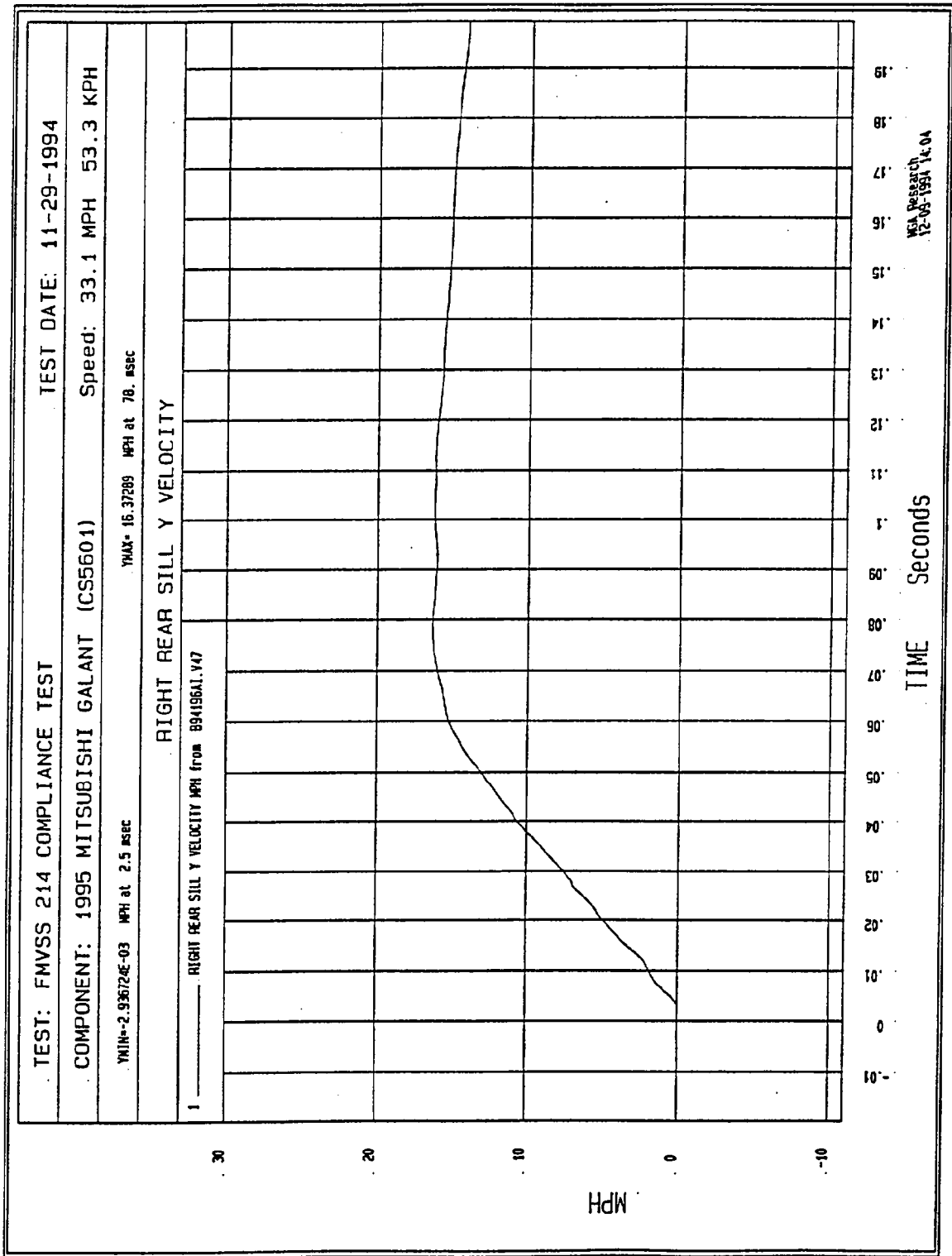


Figure B-30 - Right Rear Sill Y Acceleration vs. Time

Filter: Class 180 (300 Hz)



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

Filter: Class 60 (100 Hz)

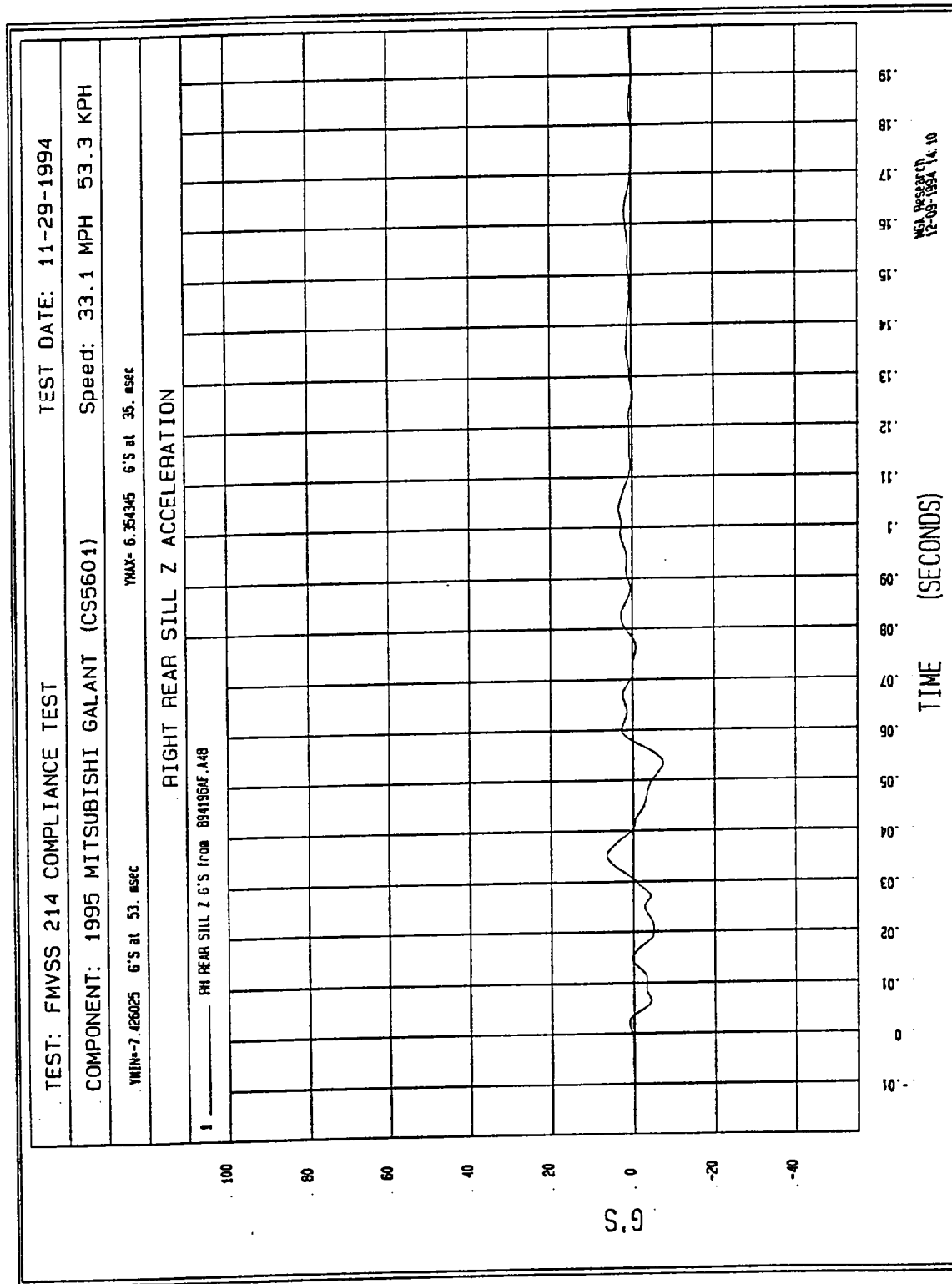


Figure B-32 - Right Rear Sill Z Acceleration vs. Time

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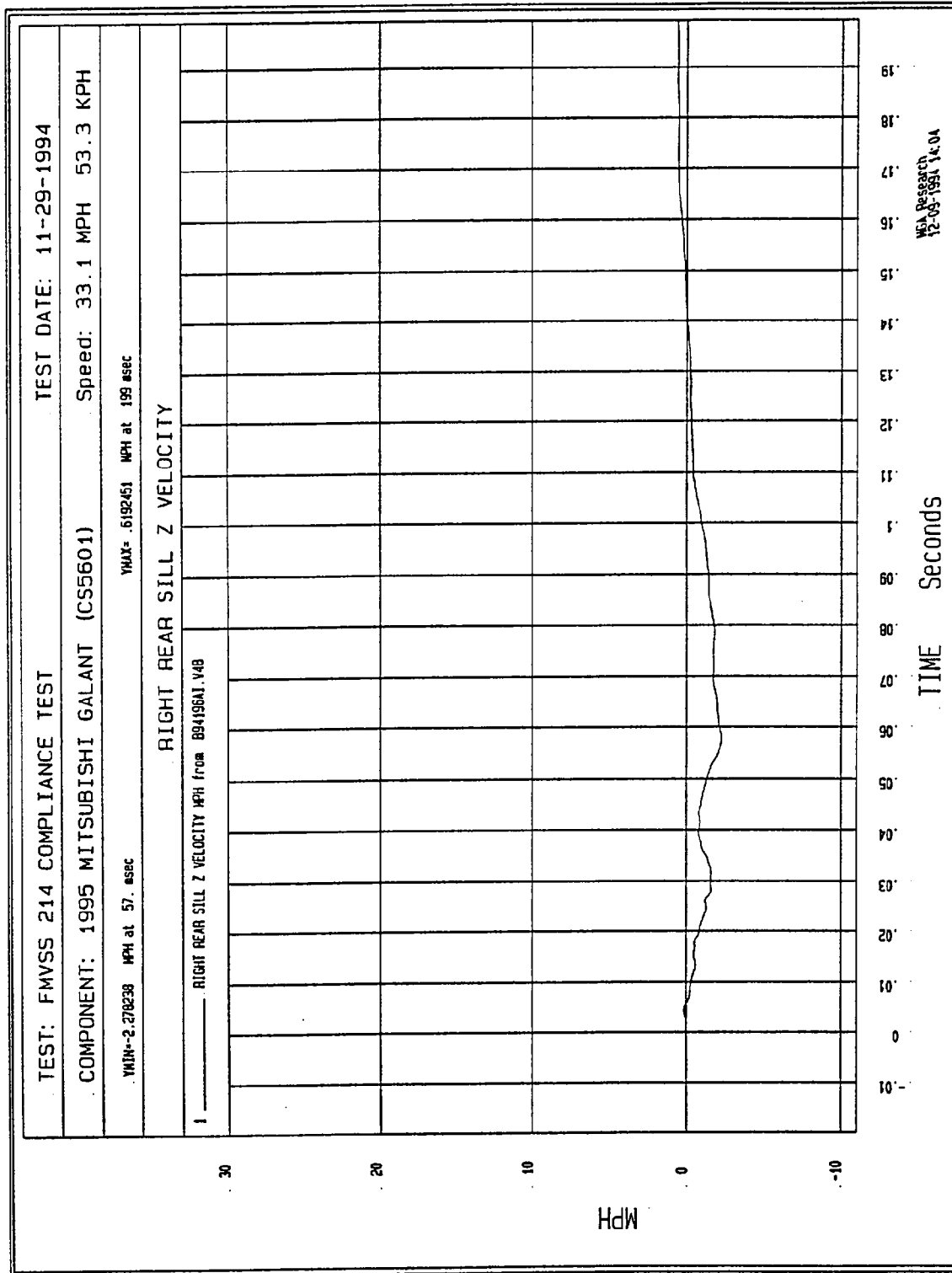
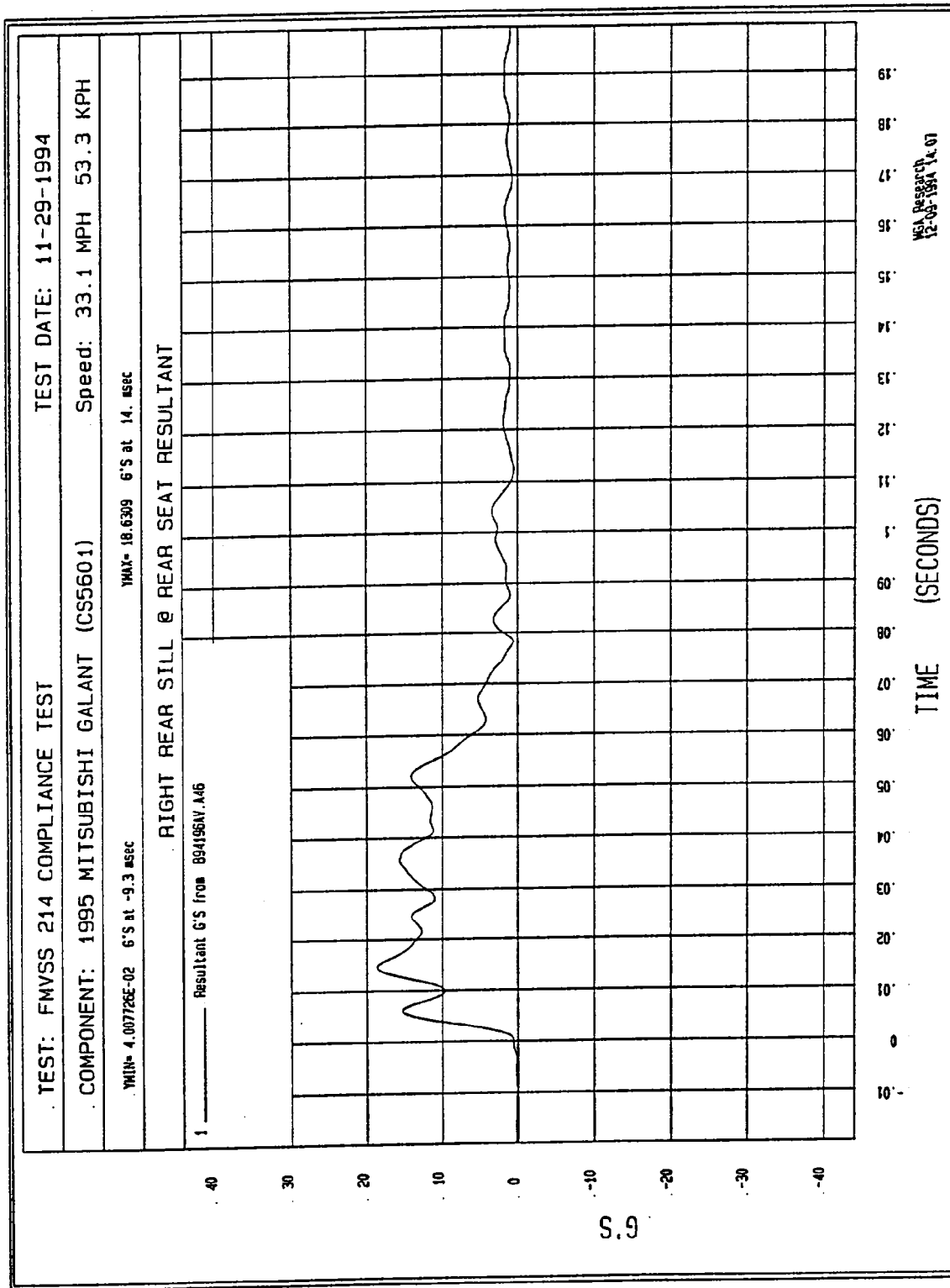


Figure B-33 - Right Rear Sill Z Velocity vs. Time

Filter: Class 60 (100 Hz)



B-34

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

Filter: Class 60 (100 Hz)

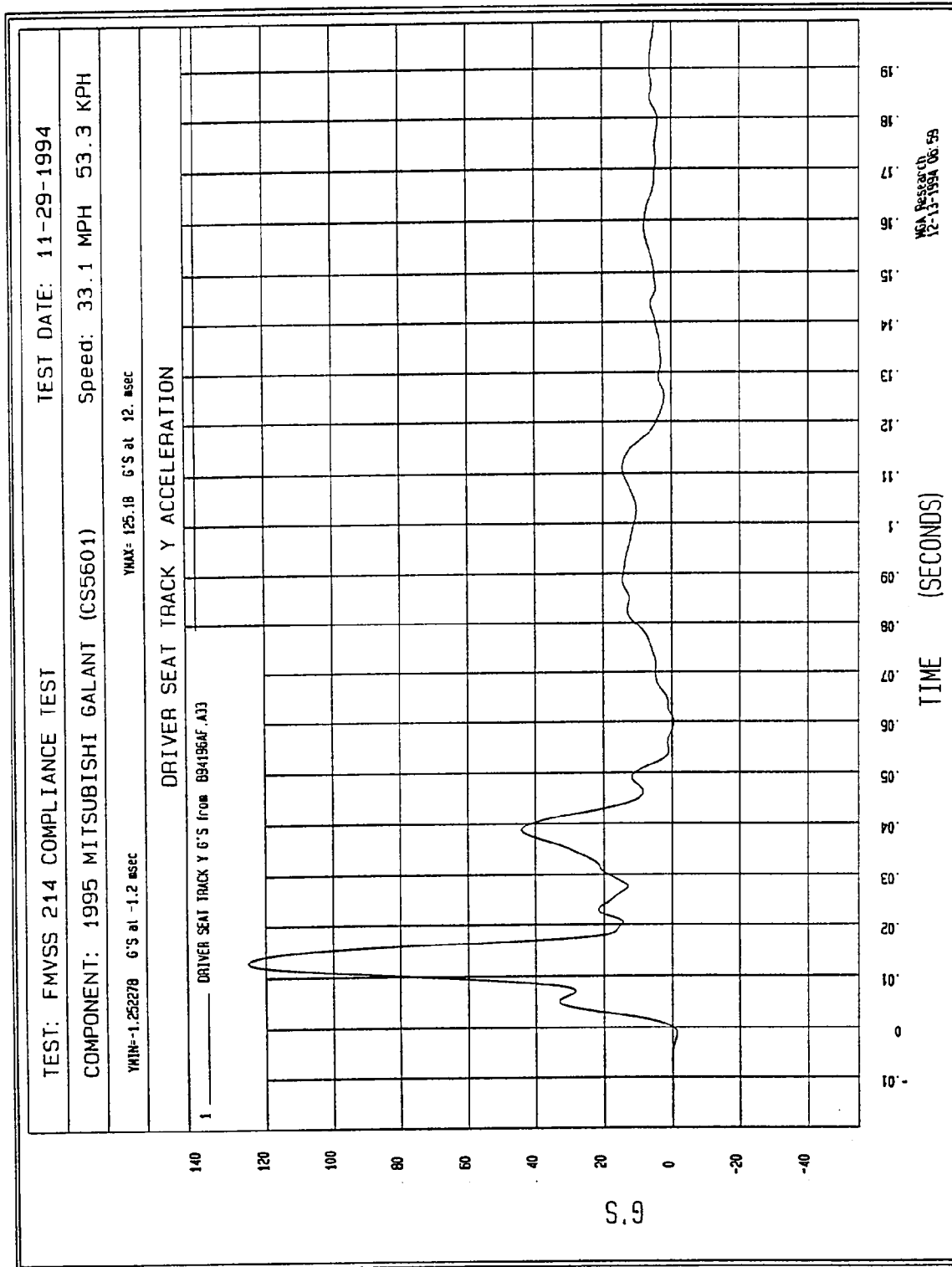


Figure B-35 - Driver Seat Track Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

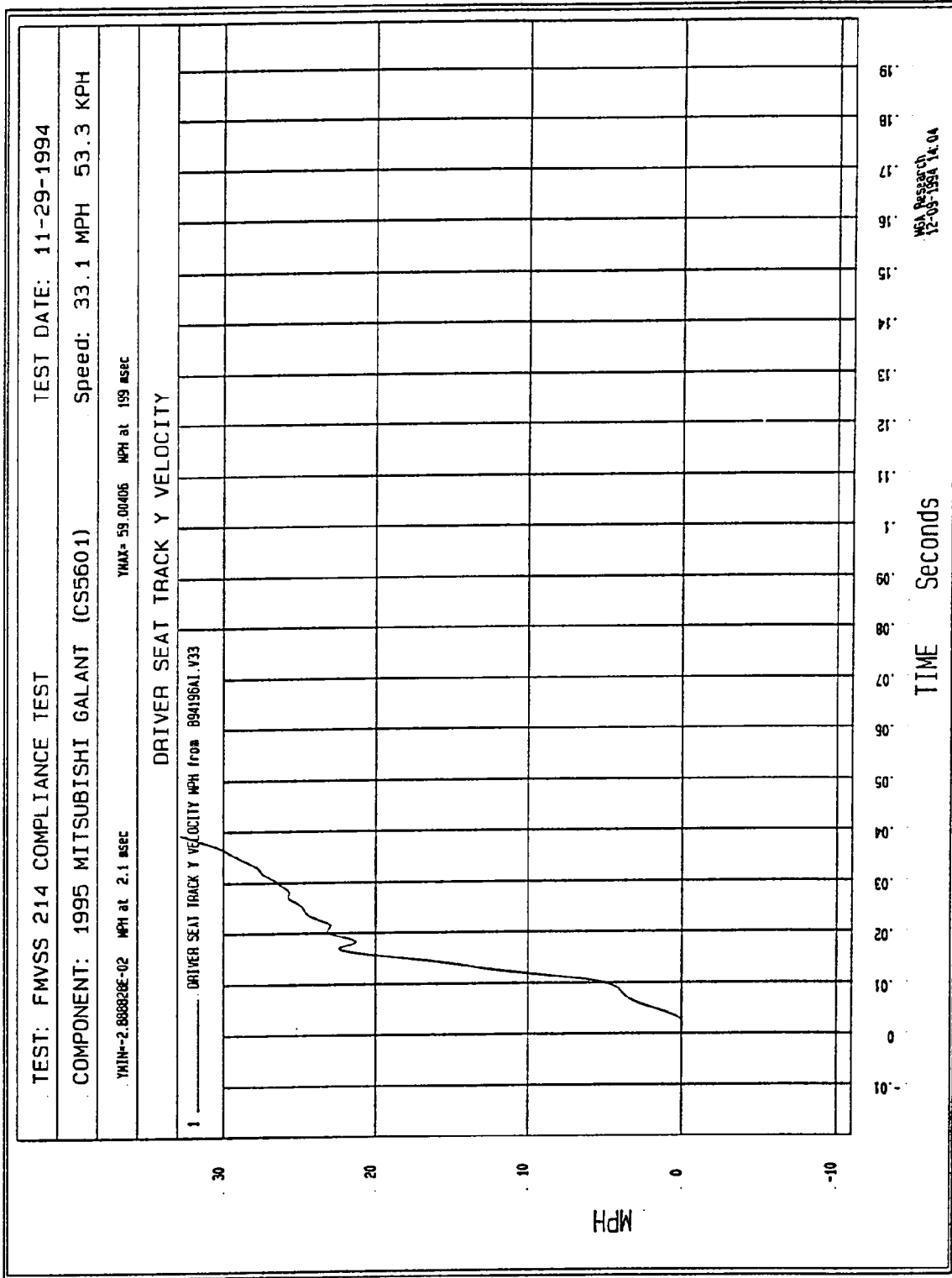


Figure B-36 - Driver Seat Track Y Velocity vs. Time

Filter: Class 60 (100 Hz)

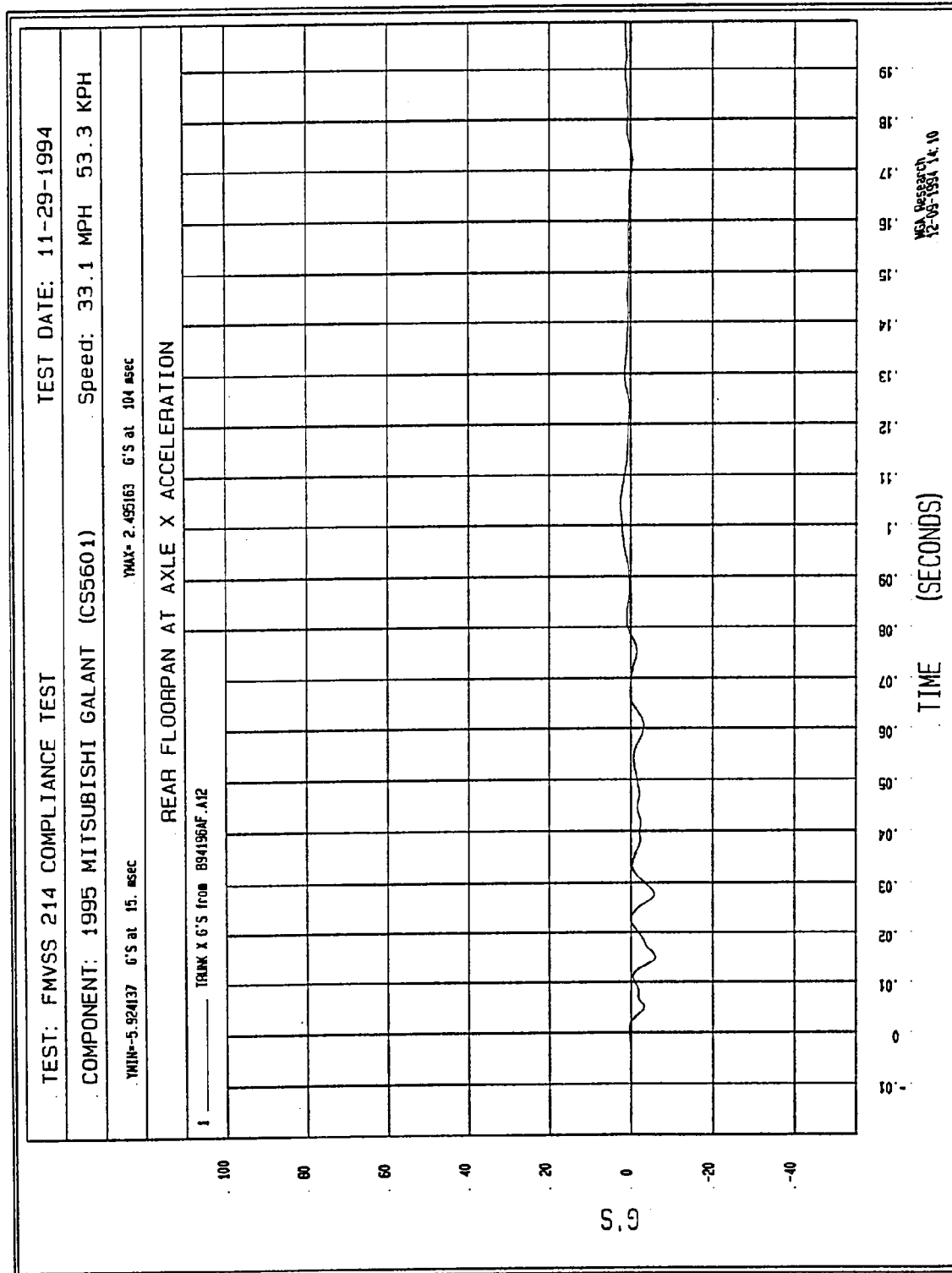


Figure B-37 - Rear Floorpan at Axle X Acceleration vs. Time

Filter: Class 180 (300 Hz)

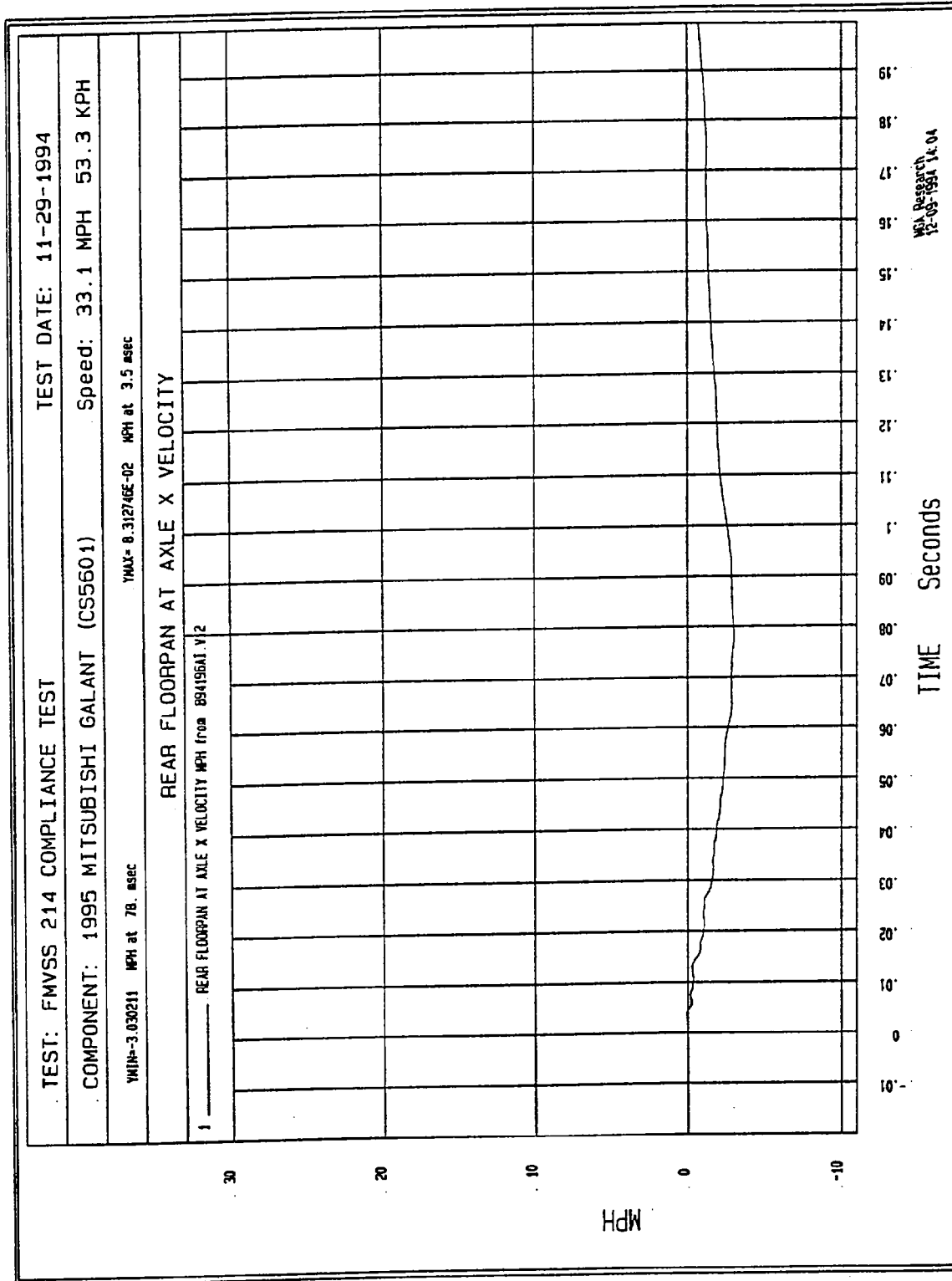


Figure B-38 - Rear Floorpan at Axle X Velocity vs. Time

TEST: FMVSS 214 COMPLIANCE TEST TEST DATE: 11-29-1994

COMPONENT: 1995 MITSUBISHI GALANT (CS55601) Speed: 33.1 MPH 53.3 KPH

YMIN=-1.595495 G'S at 190 msec YMAX= 17.72976 G'S at 30. msec

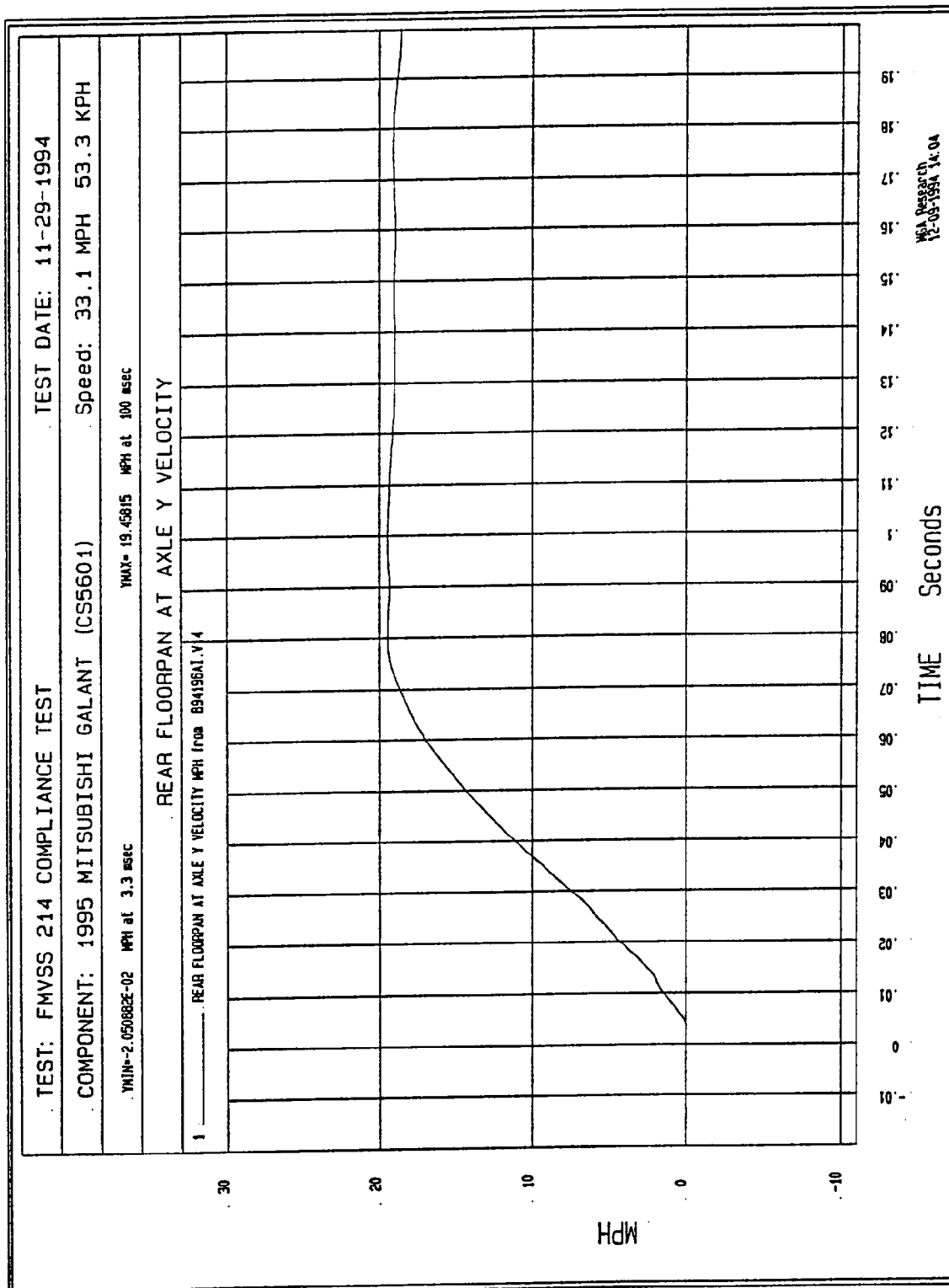
REAR FLOORPAN AT AXLE Y ACCELERATION

1 TRUNK Y G'S from B94156AF.A14

TIME (SECONDS)	ACCELERATION (G'S)
0.00	0
0.03	18
0.05	0
0.10	0
0.19	-16
0.20	0
0.25	0
0.30	0
0.35	0
0.40	0
0.45	0
0.50	0
0.55	0
0.60	0
0.65	0
0.70	0
0.75	0
0.80	0
0.85	0
0.90	0
0.95	0
1.00	0

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

Filter: Class 180 (300 Hz)



B-40

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

Filter: Class 60 (100 Hz)

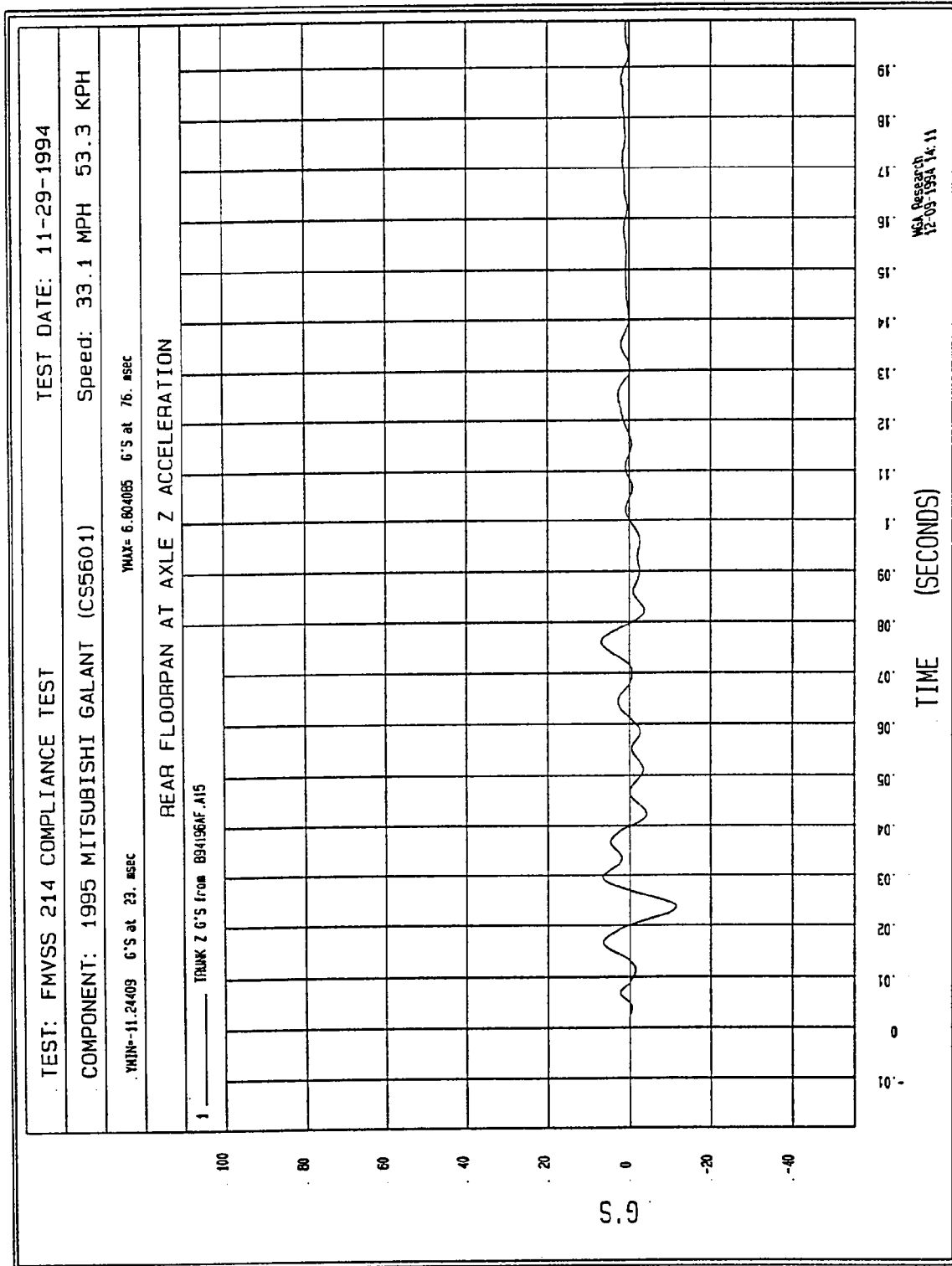


Figure B-41 - Rear Floorpan at Axle Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

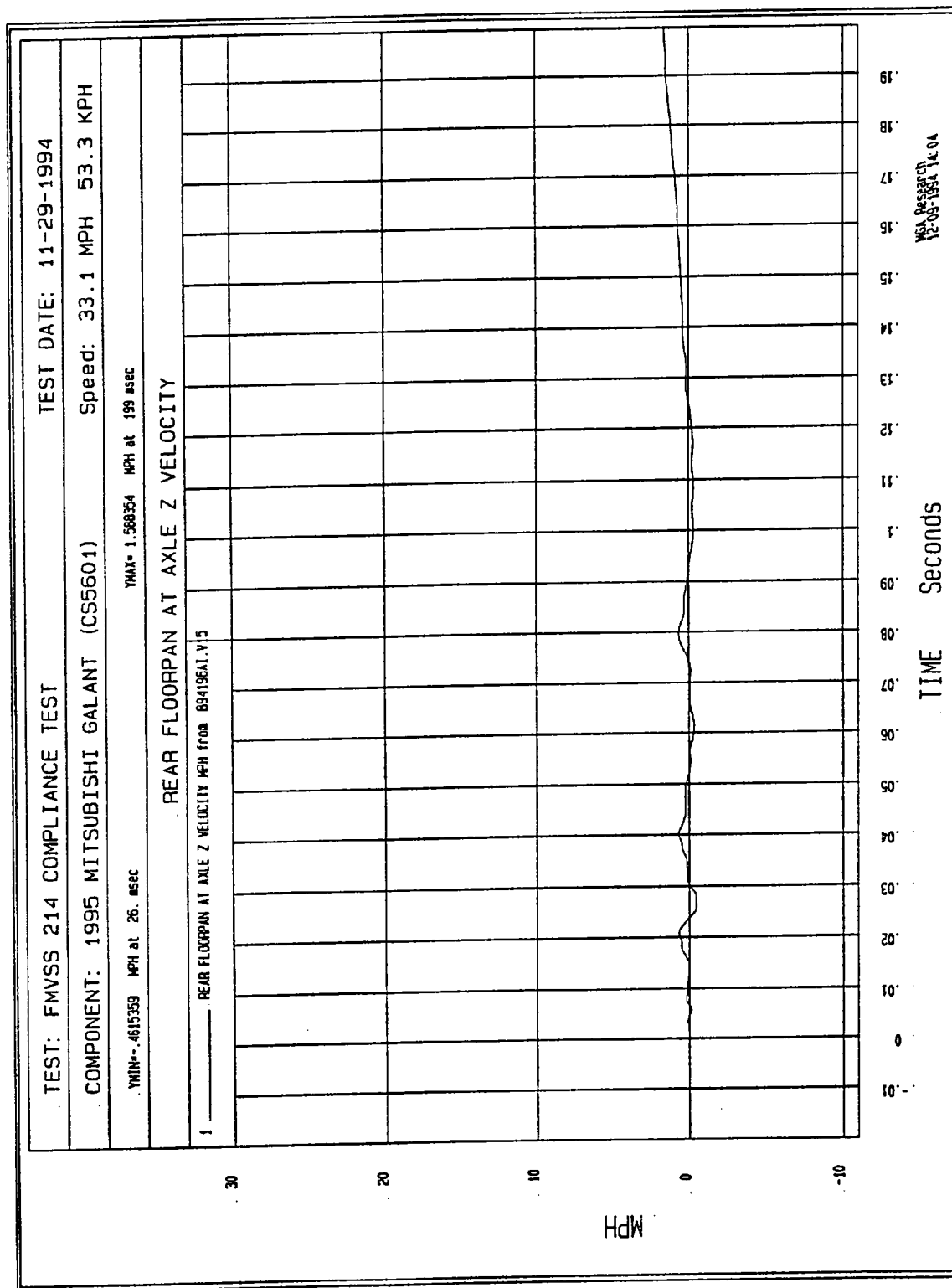


Figure B-42 - Rear Floorpan at Axle Z Velocity vs. Time

Filter: Class 60 (100 Hz)

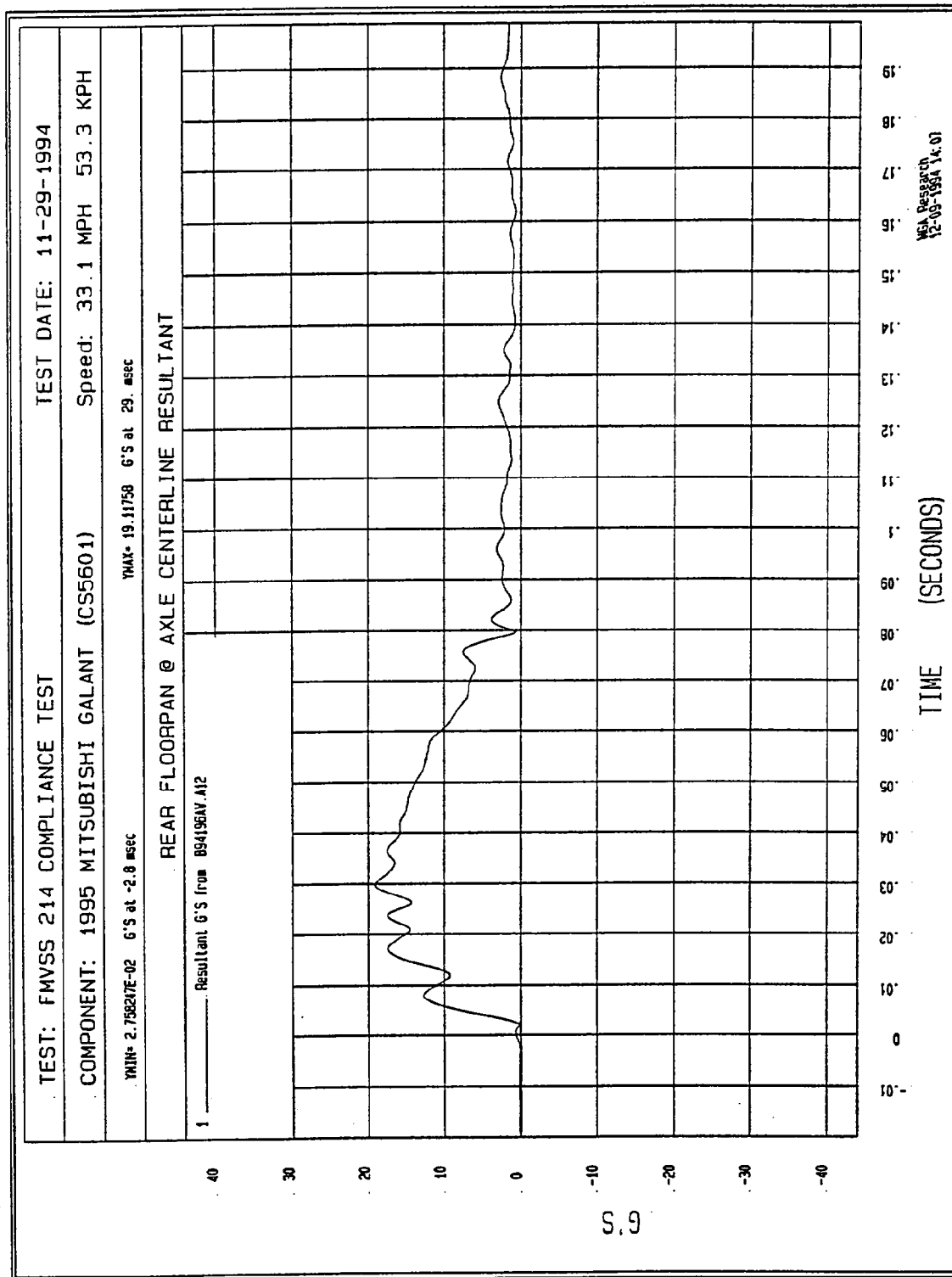


Figure B-43 - Rear Floorpan at Axle Centerline Resultant vs. Time

TEST: FMVSS 214 COMPLIANCE TEST TEST DATE: 11-29-1994

COMPONENT: 1995 MITSUBISHI GALANT (CS5601) Speed: 33.1 MPH 53.3 KPH

YMIN=-1.673723 6'S at 191 msec YMAX= 19.0886 6'S at 14. msec

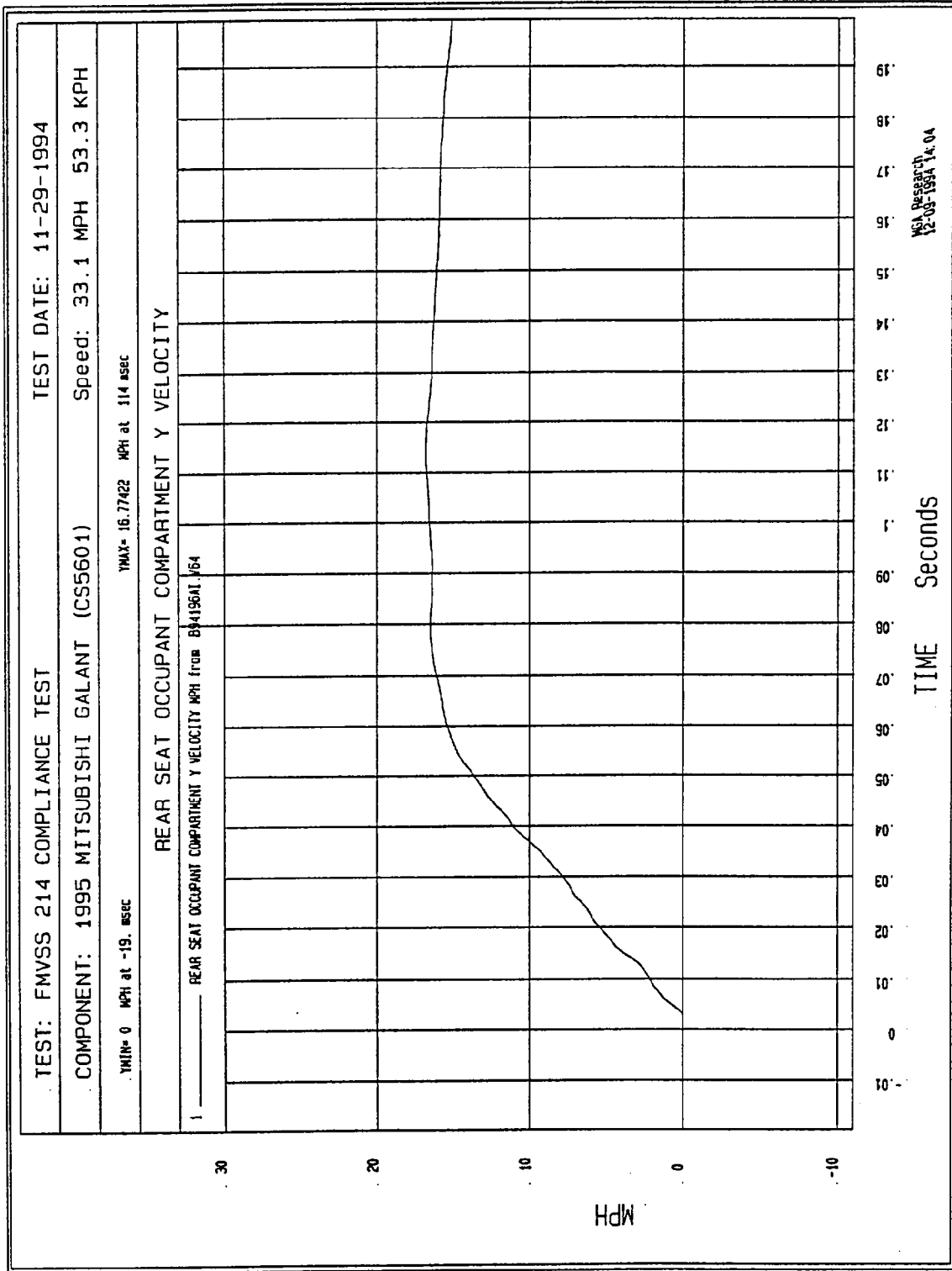
REAR SEAT OCCUPANT COMPARTMENT Y ACCELERATION

1 REAR SEAT OCCUPANT COMPARTMENT Y 6'S from 884196AF.A44

TIME (SECONDS)

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

Filter: Class 180 (300 Hz)



B-45

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

Filter: Class 60 (100 Hz)

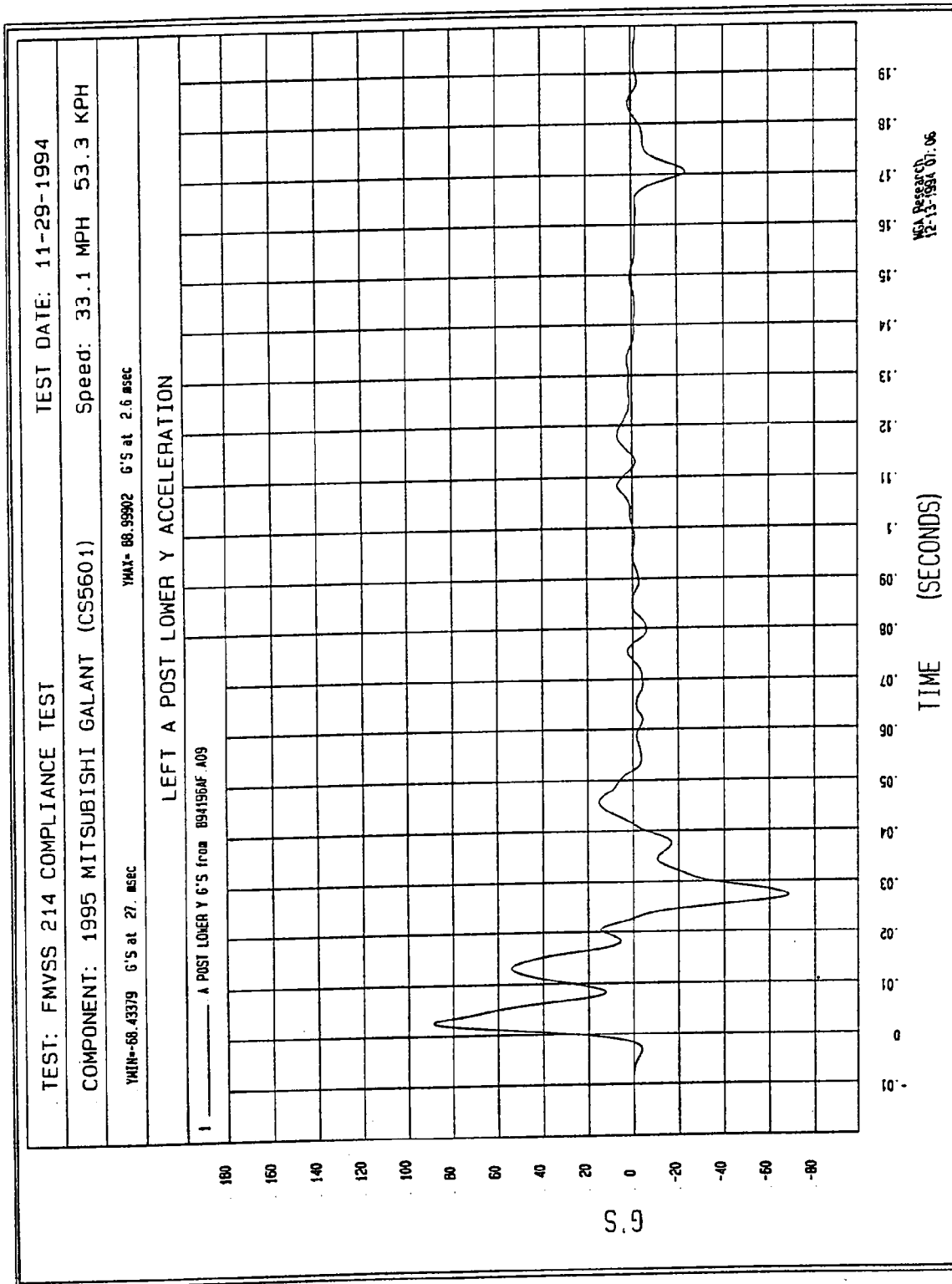


Figure B-46 - Left A Post Lower Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

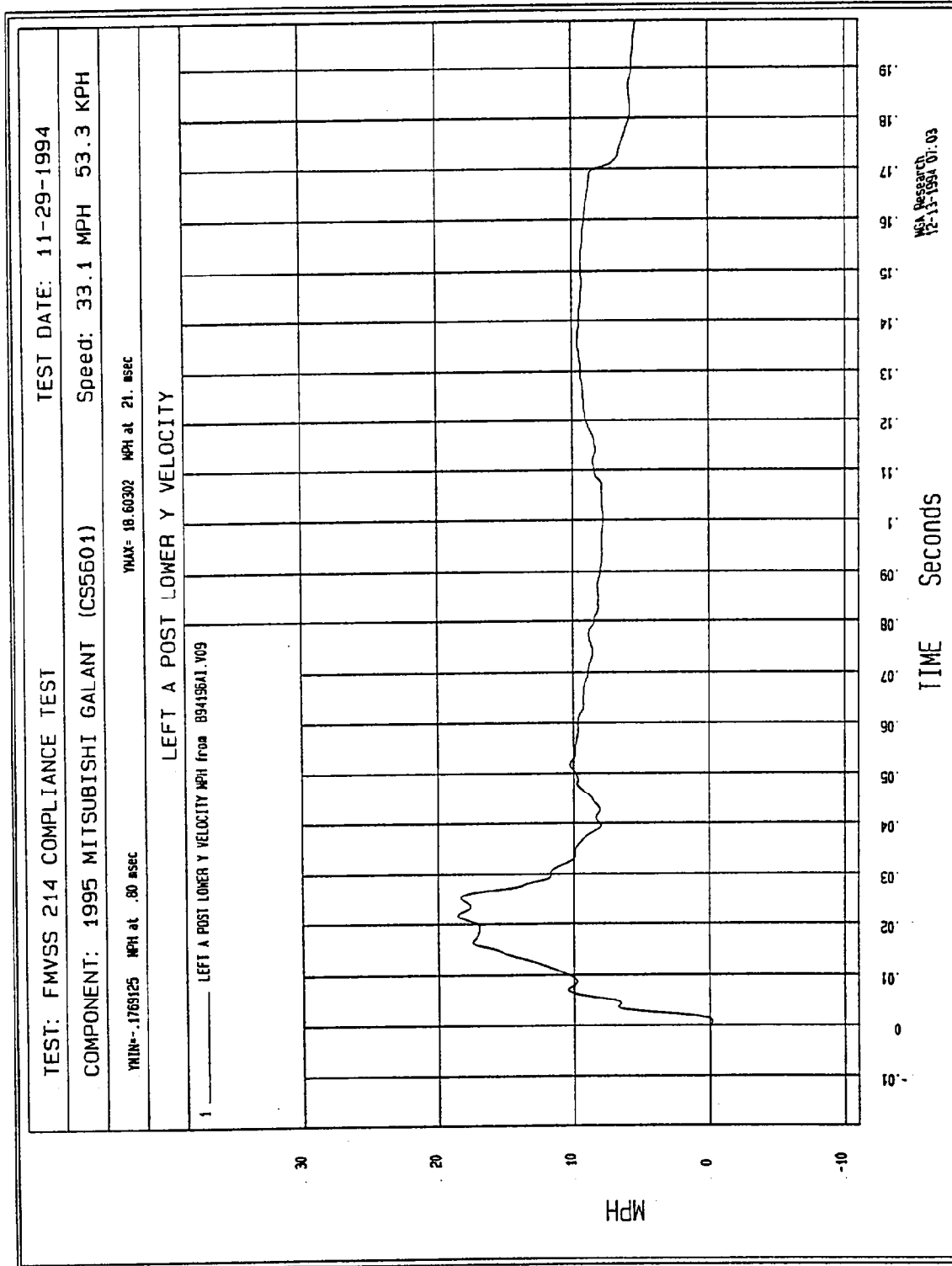


Figure B-47 - Left A Post Lower Y Velocity vs. Time

NO VALID DATA COLLECTED

B-48

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

Filter: Class 60 (100 Hz)

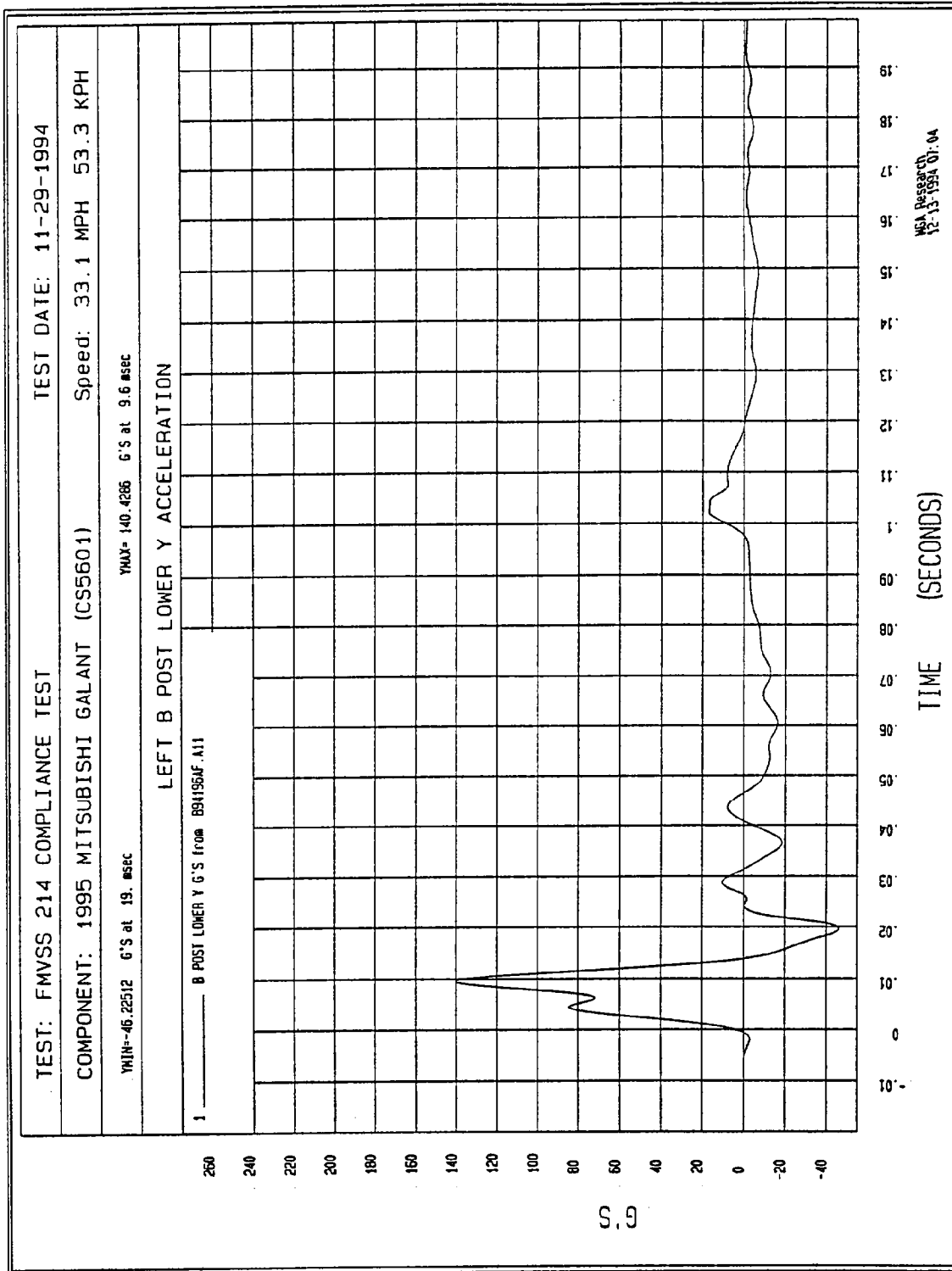
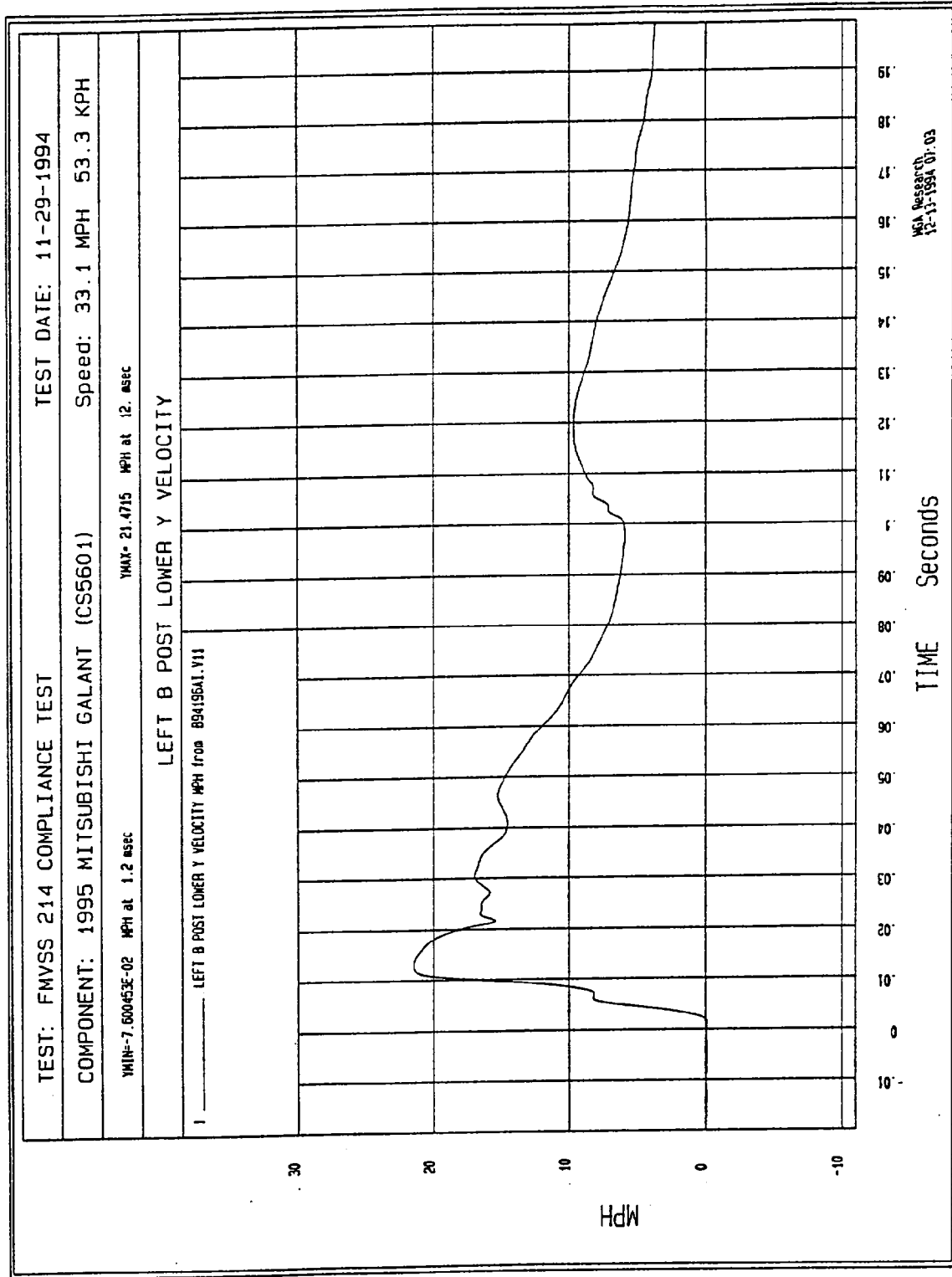


Figure B-49 - Left B Post Lower Y Acceleration vs. Time

Filter: Class 180 (300 Hz)



B-50

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

Filter: Class 60 (100 Hz)

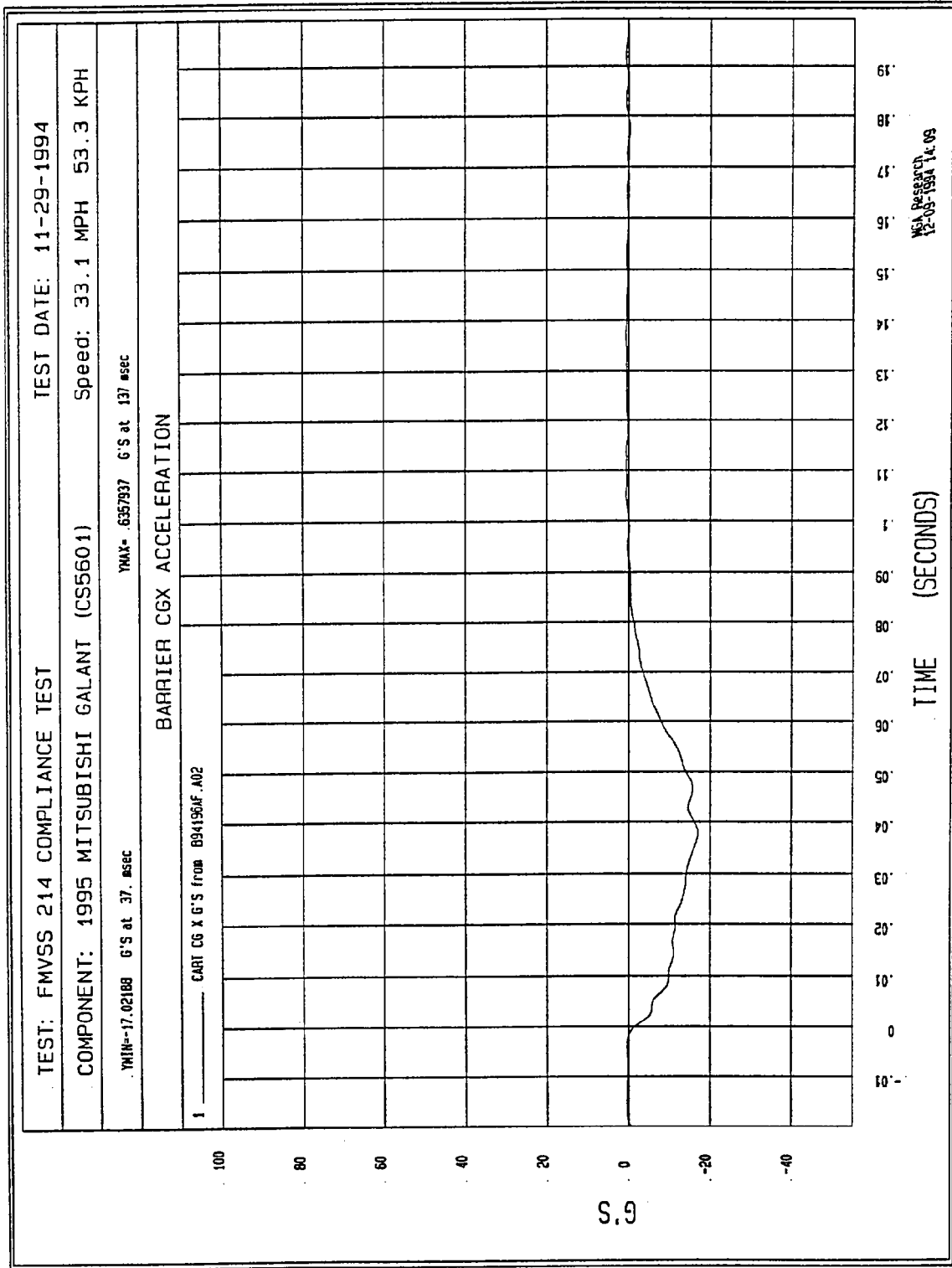


Figure B-51 - Moving Barrier Center of Gravity X Acceleration vs. Time

Filter: Class 180 (300 Hz)

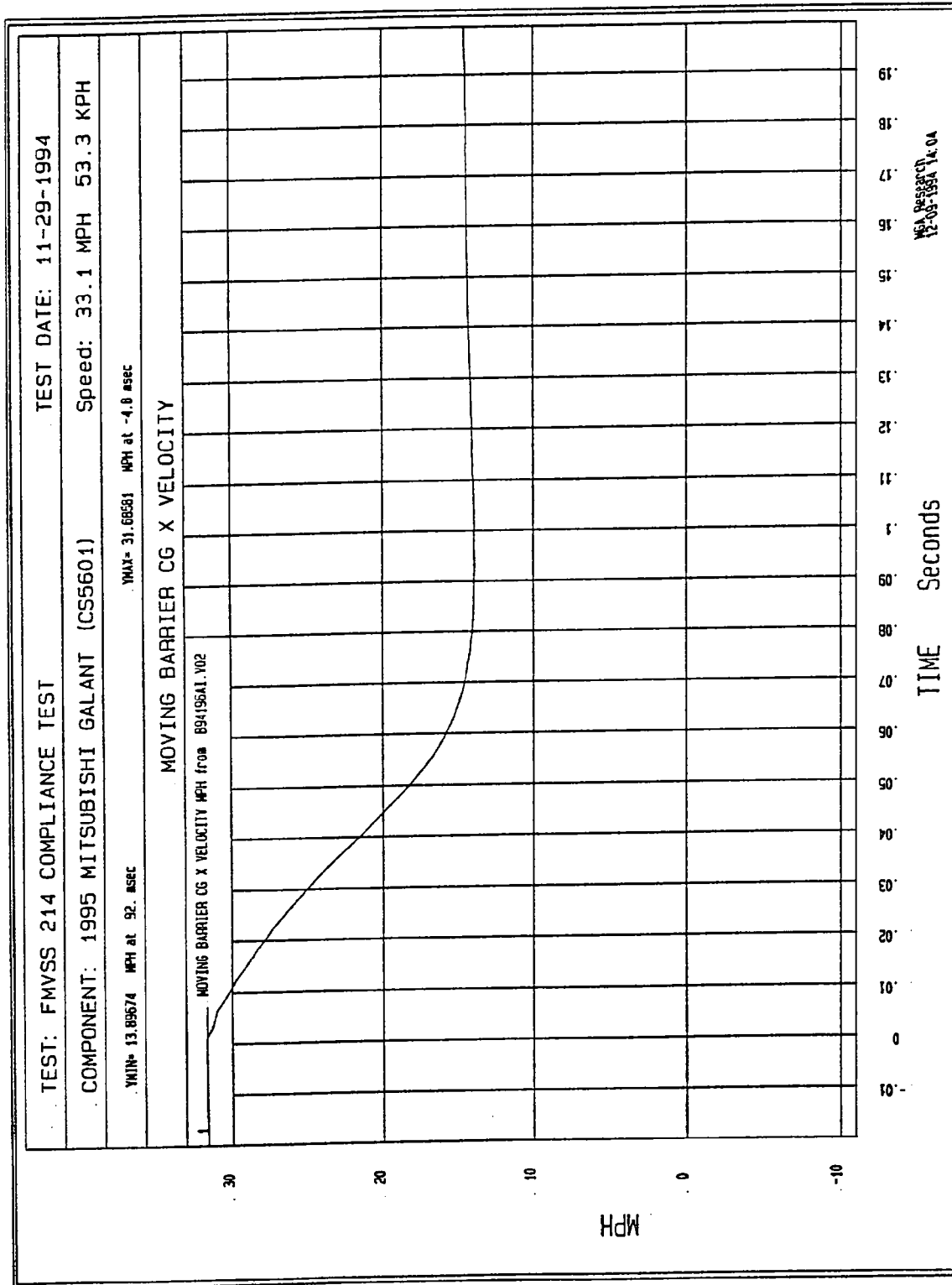


Figure B-52 - Moving Barrier Center of Gravity X Velocity vs. Time

Filter: Class 60 (100 Hz)

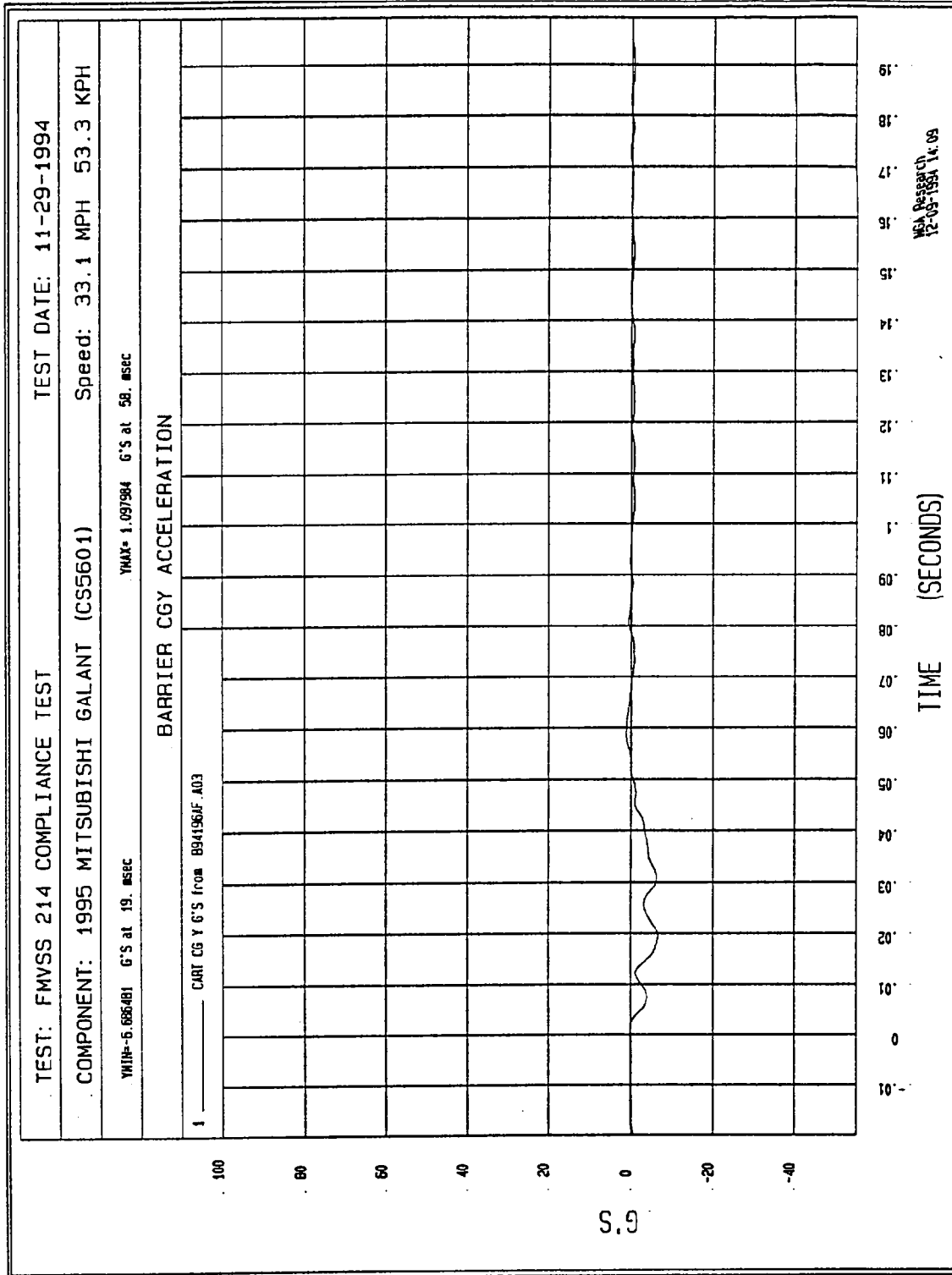


Figure B-53 - Moving Barrier Center of Gravity Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

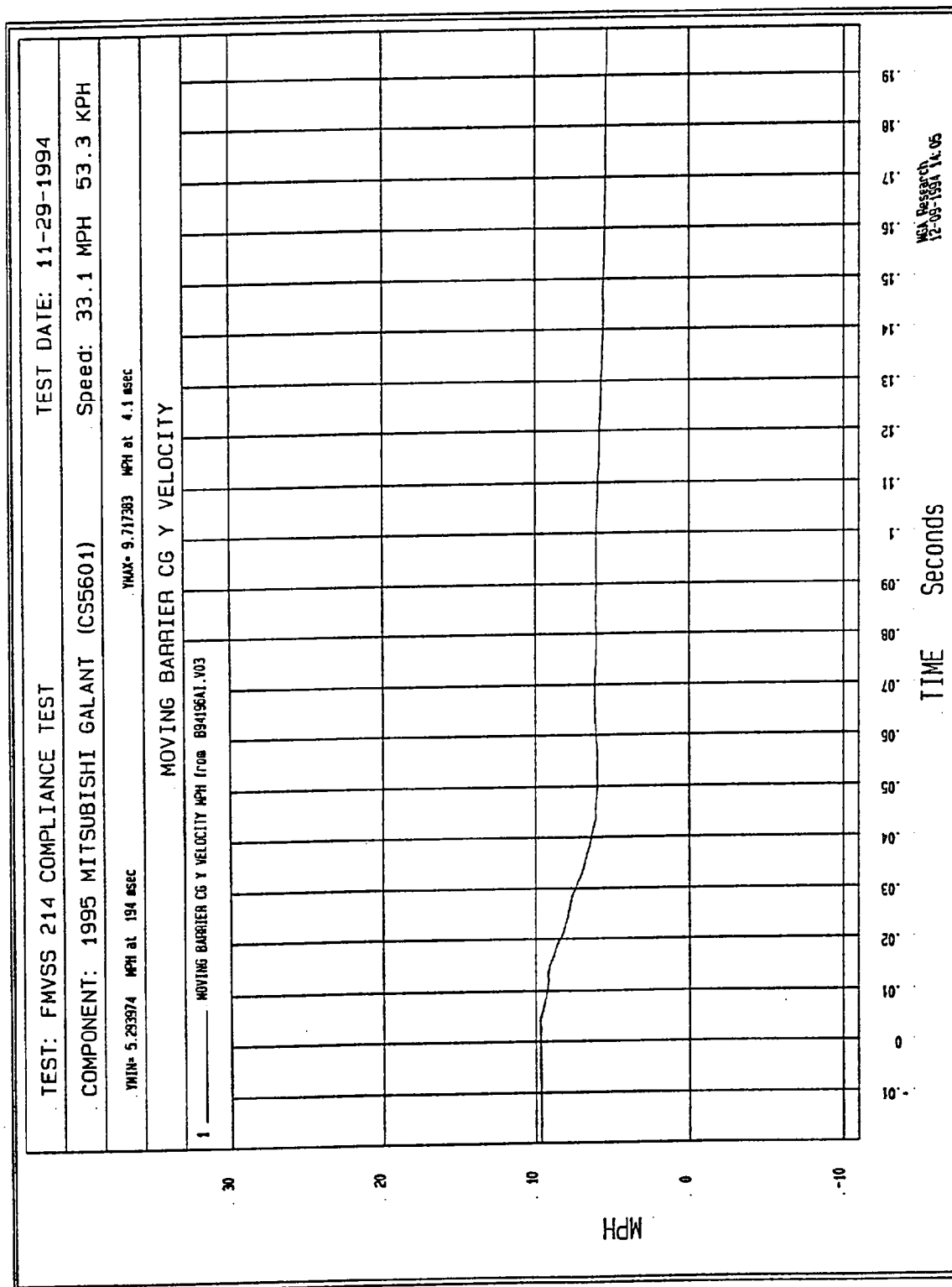


Figure B-54 - Moving Barrier Center of Gravity Y Velocity vs. Time

Filter: Class 60 (100 Hz)

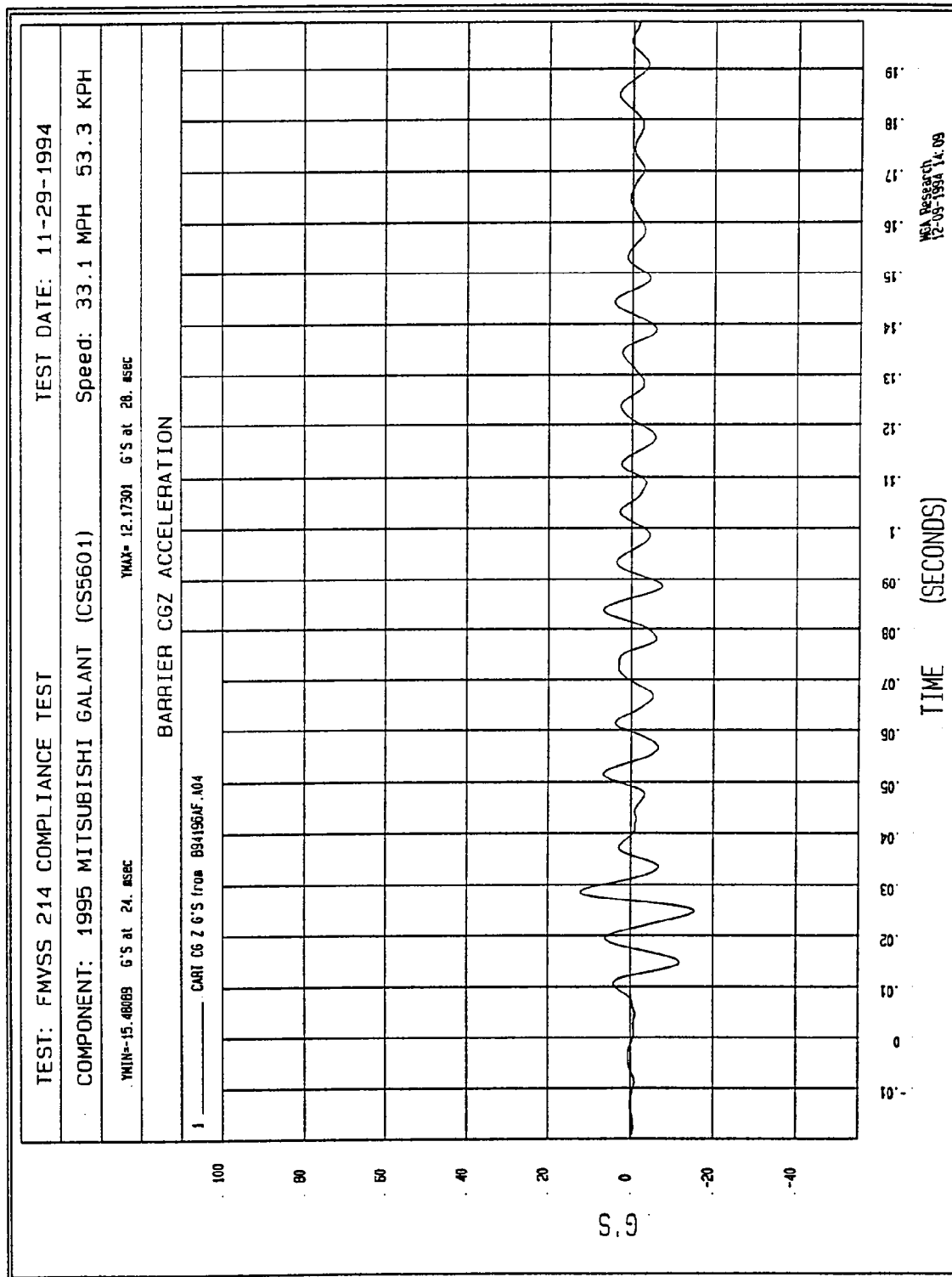


Figure B-55 - Moving Barrier Center of Gravity Z Acceleration vs. Time

Filter: Class 180 (300 Hz)

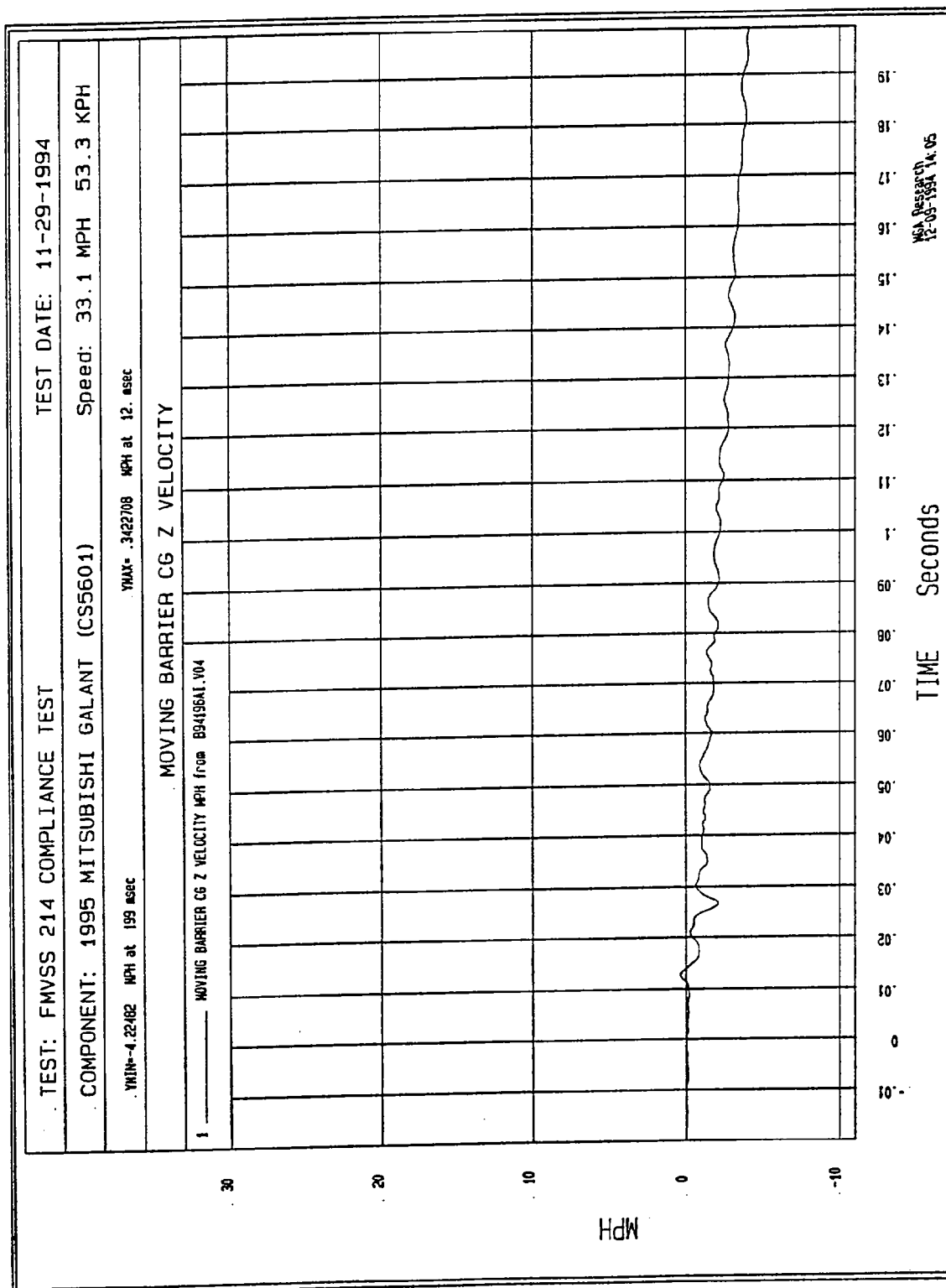


Figure B-56 - Moving Barrier Center of Gravity Z Velocity vs. Time

Filter: Class 60 (100 Hz)

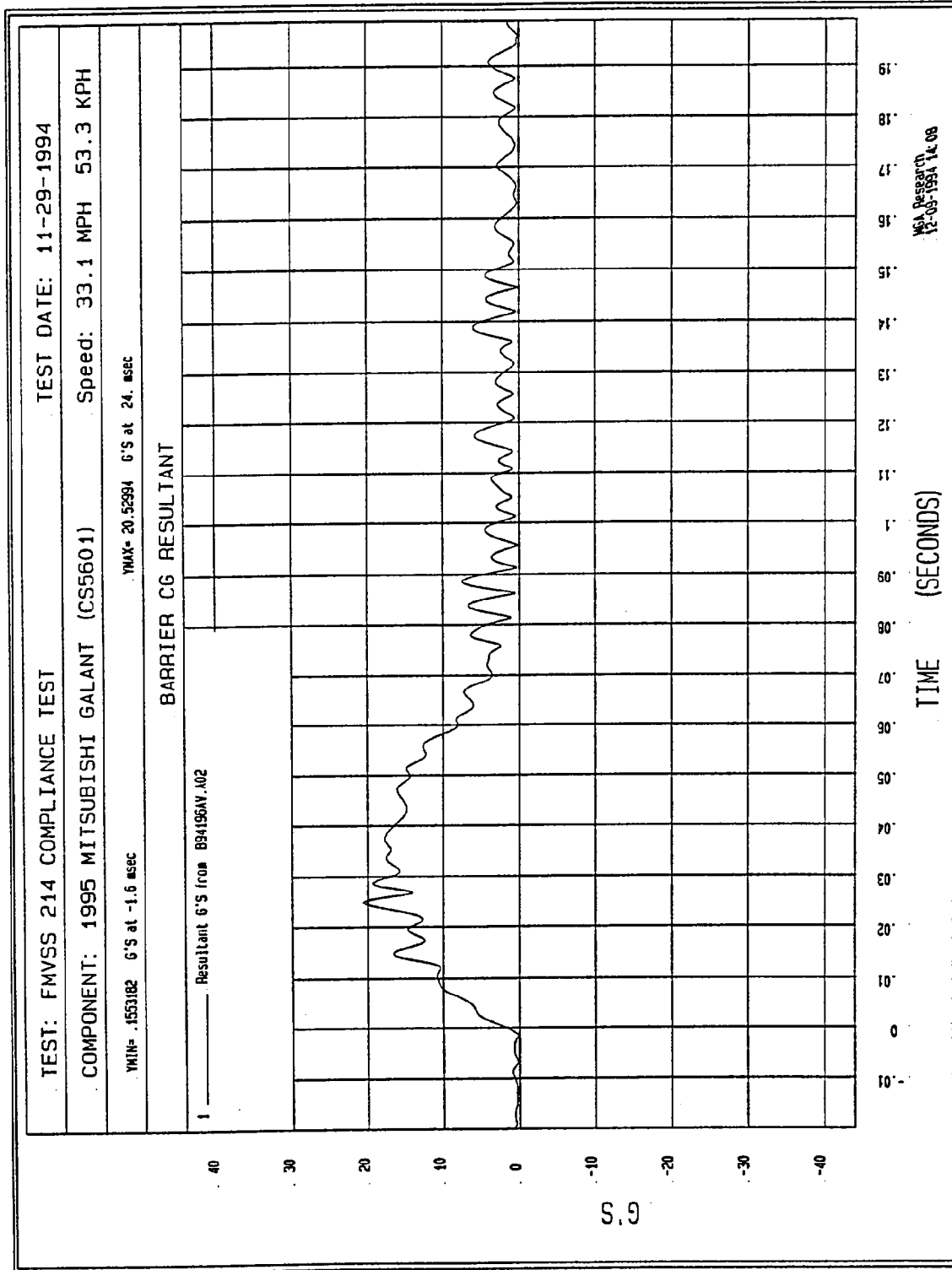


Figure B-57 - Moving Barrier Center of Gravity Resultant vs. Time

Filter: Class 60 (100 Hz)

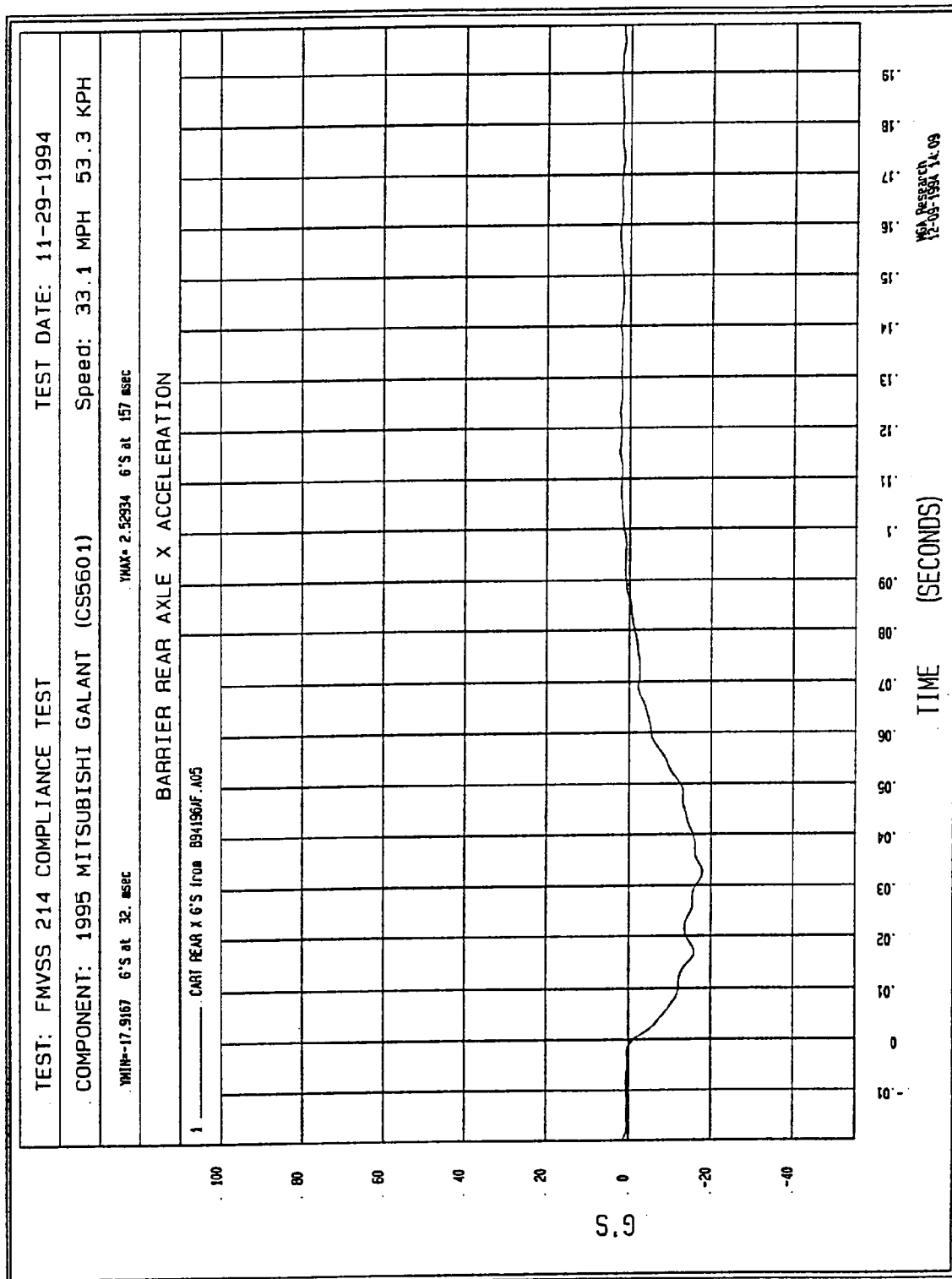


Figure B-58 - Moving Barrier Rear Axle X Acceleration vs. Time

Filter: Class 180 (300 Hz)

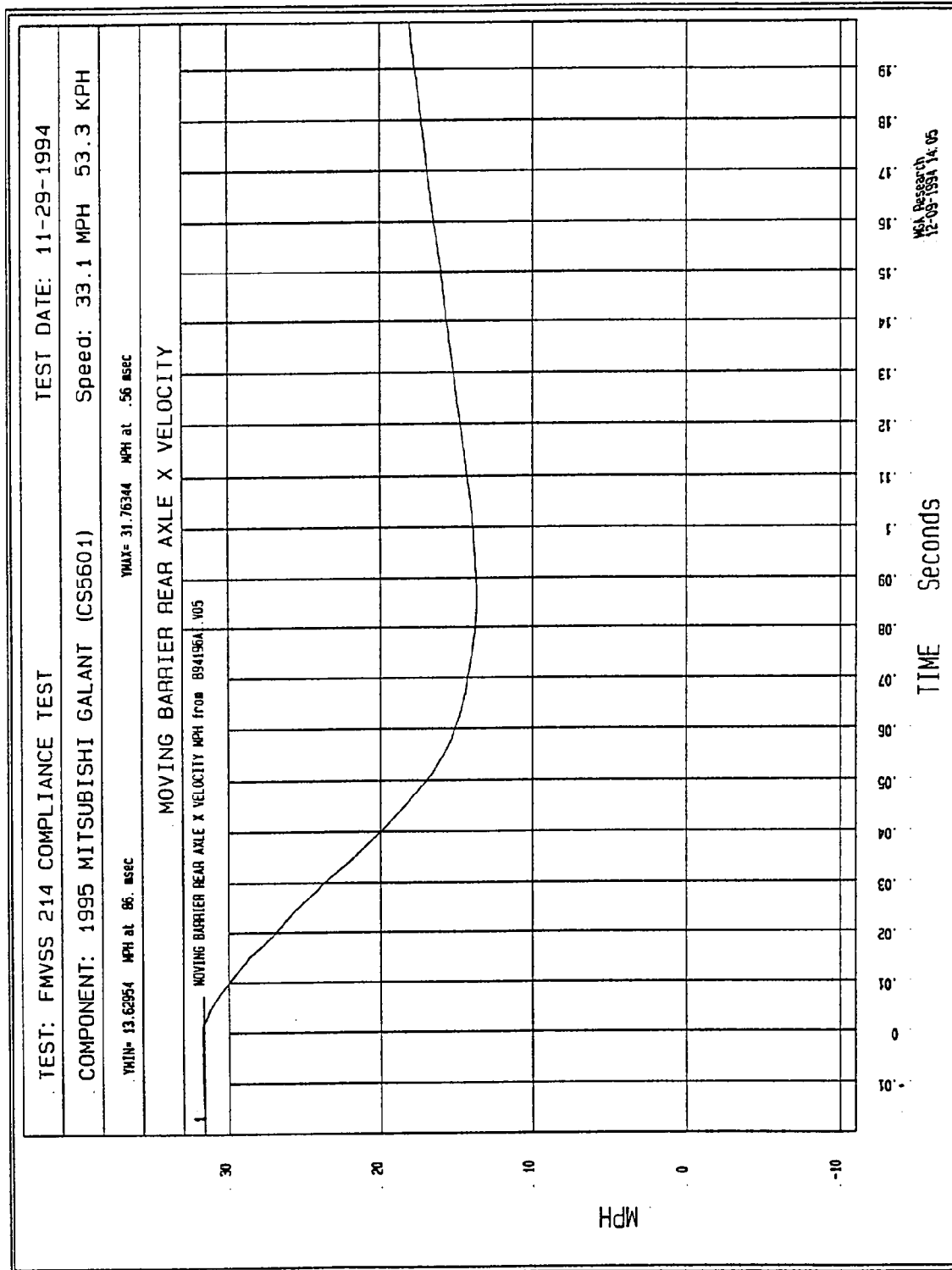


Figure B-59 - Moving Barrier Rear Axle X Velocity vs. Time

Filter: Class 60 (100 Hz)

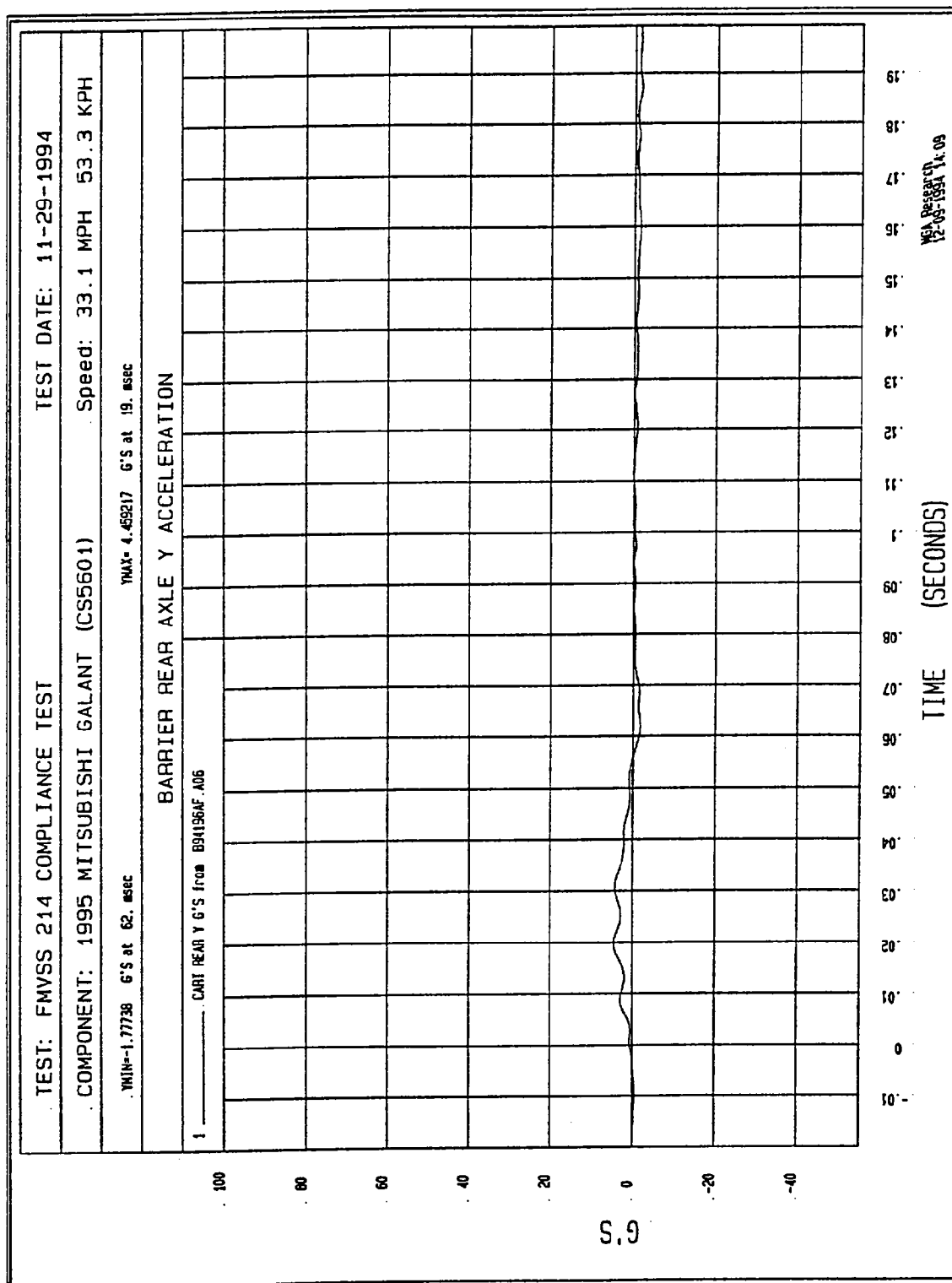


Figure B-60 - Moving Barrier Rear Axle Y Acceleration vs. Time

Filter: Class 180 (300 Hz)

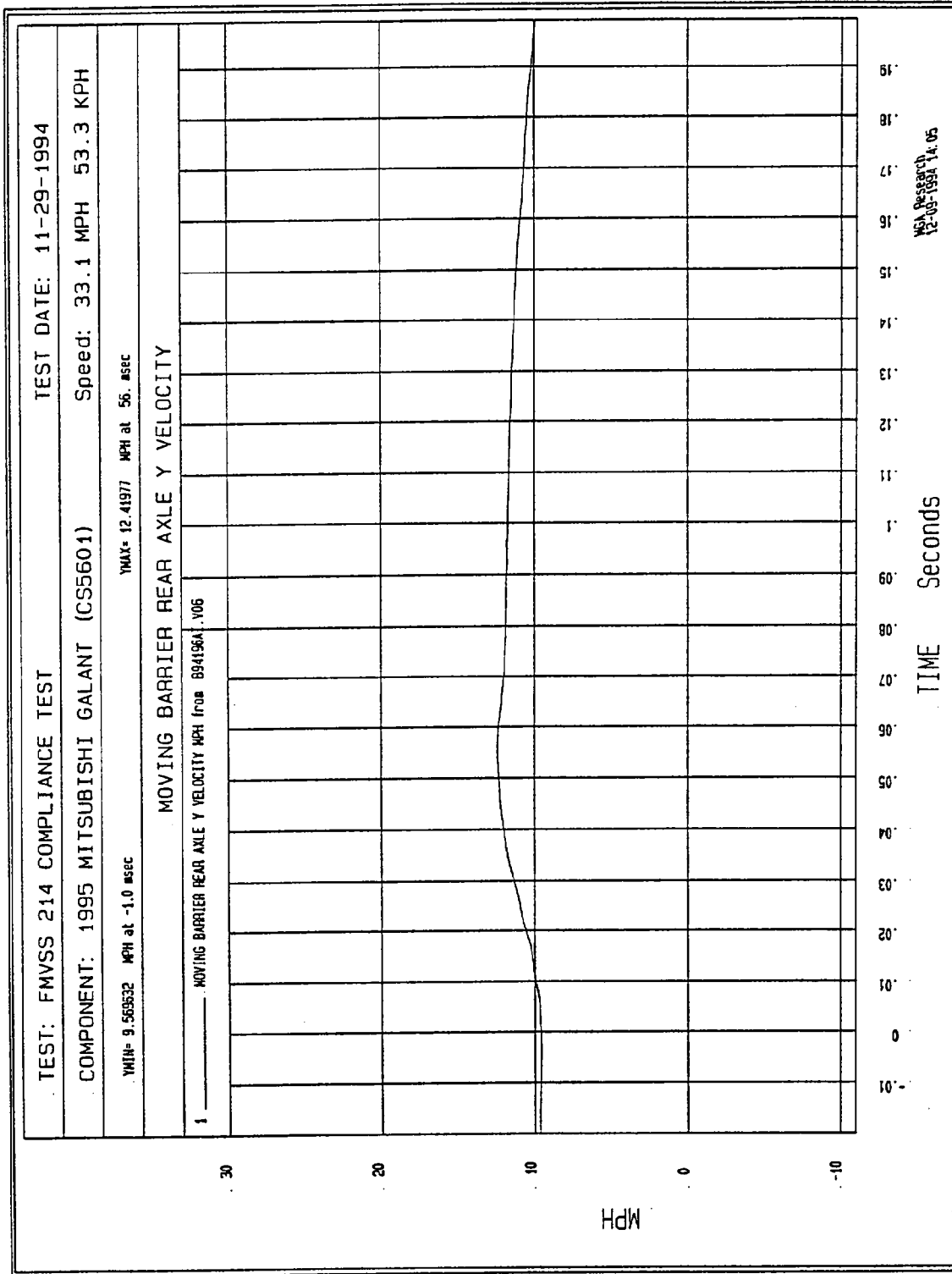


Figure B-61 - Moving Barrier Rear Axle Y Velocity vs. Time

Filter: Class 100 (1650 Hz)

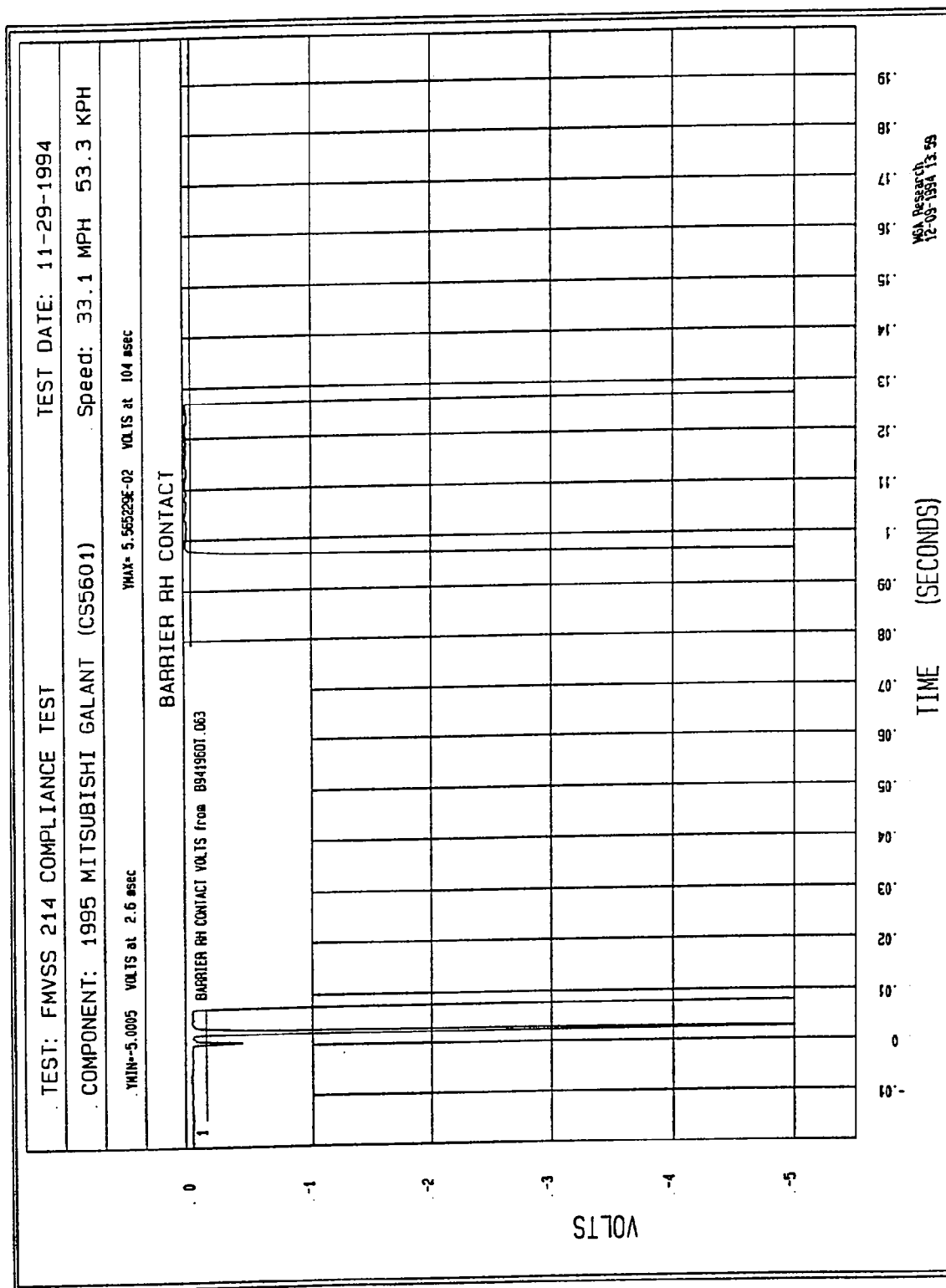


Figure B-62 - Right Hand Barrier Contact

Filter: Class 1000 (1650 Hz)

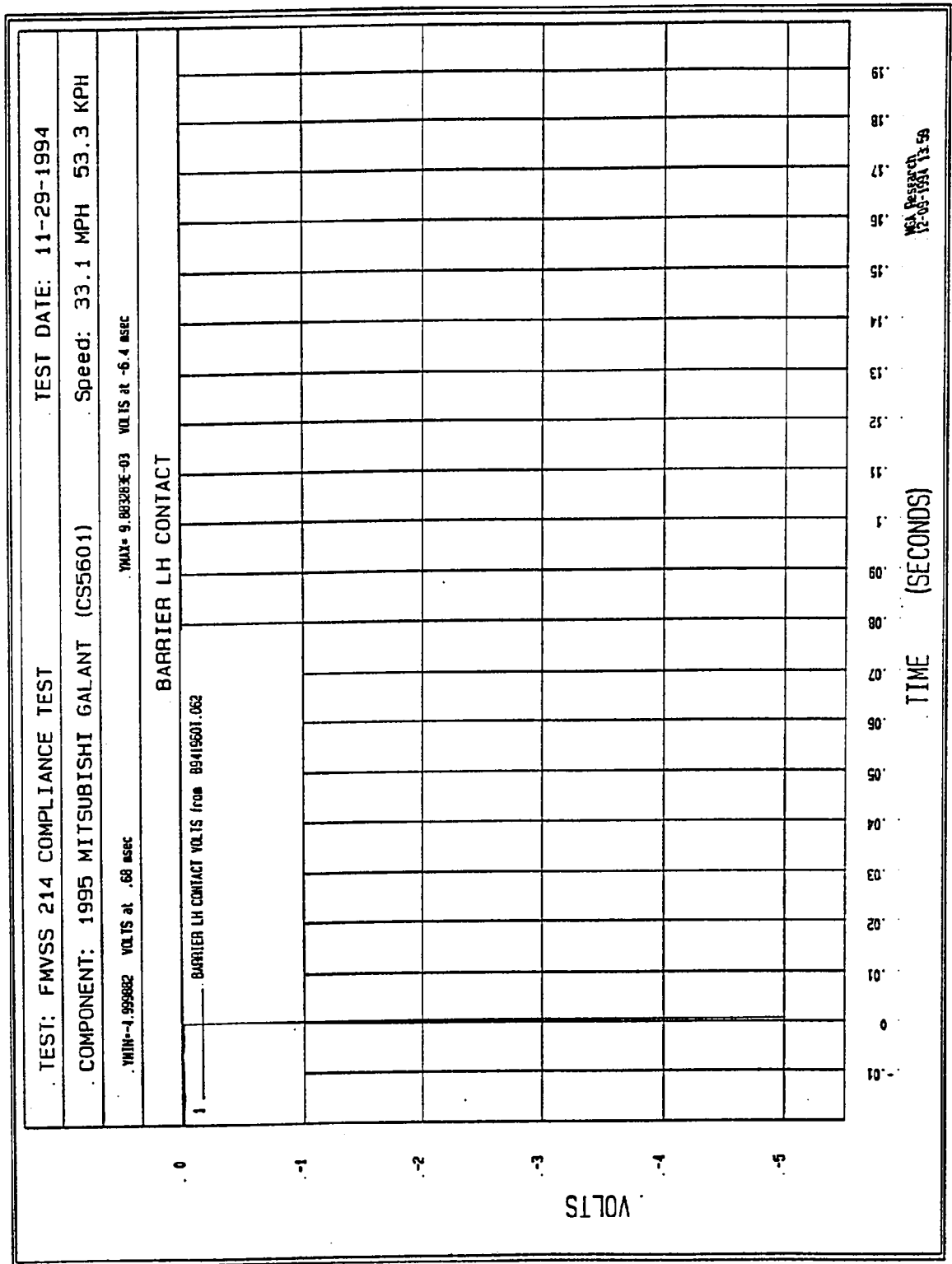


Figure B-63 - Left Hand Barrier Contact

Filter: Class 180 (300 Hz)

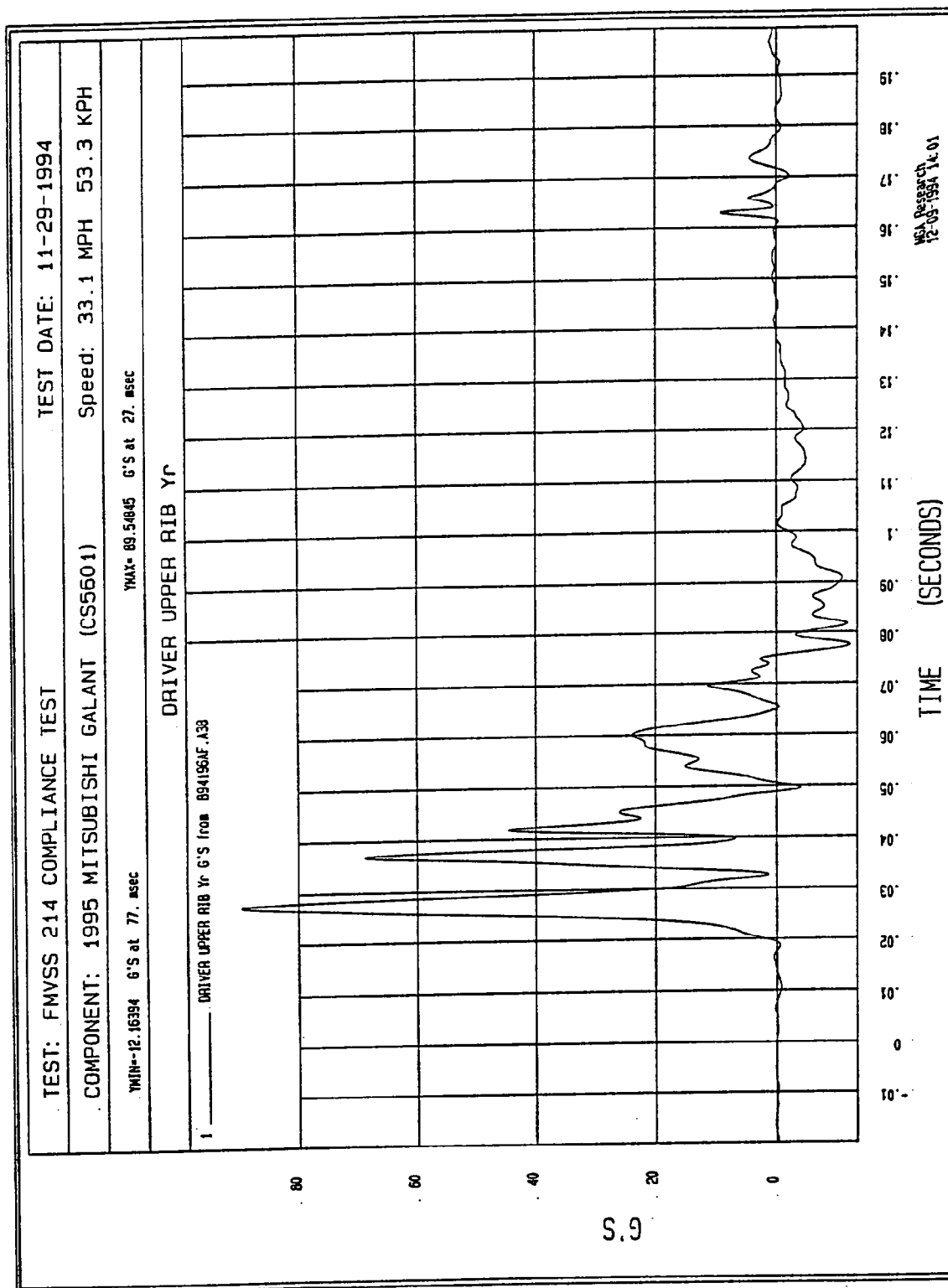


Figure B-64 - Driver Upper Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

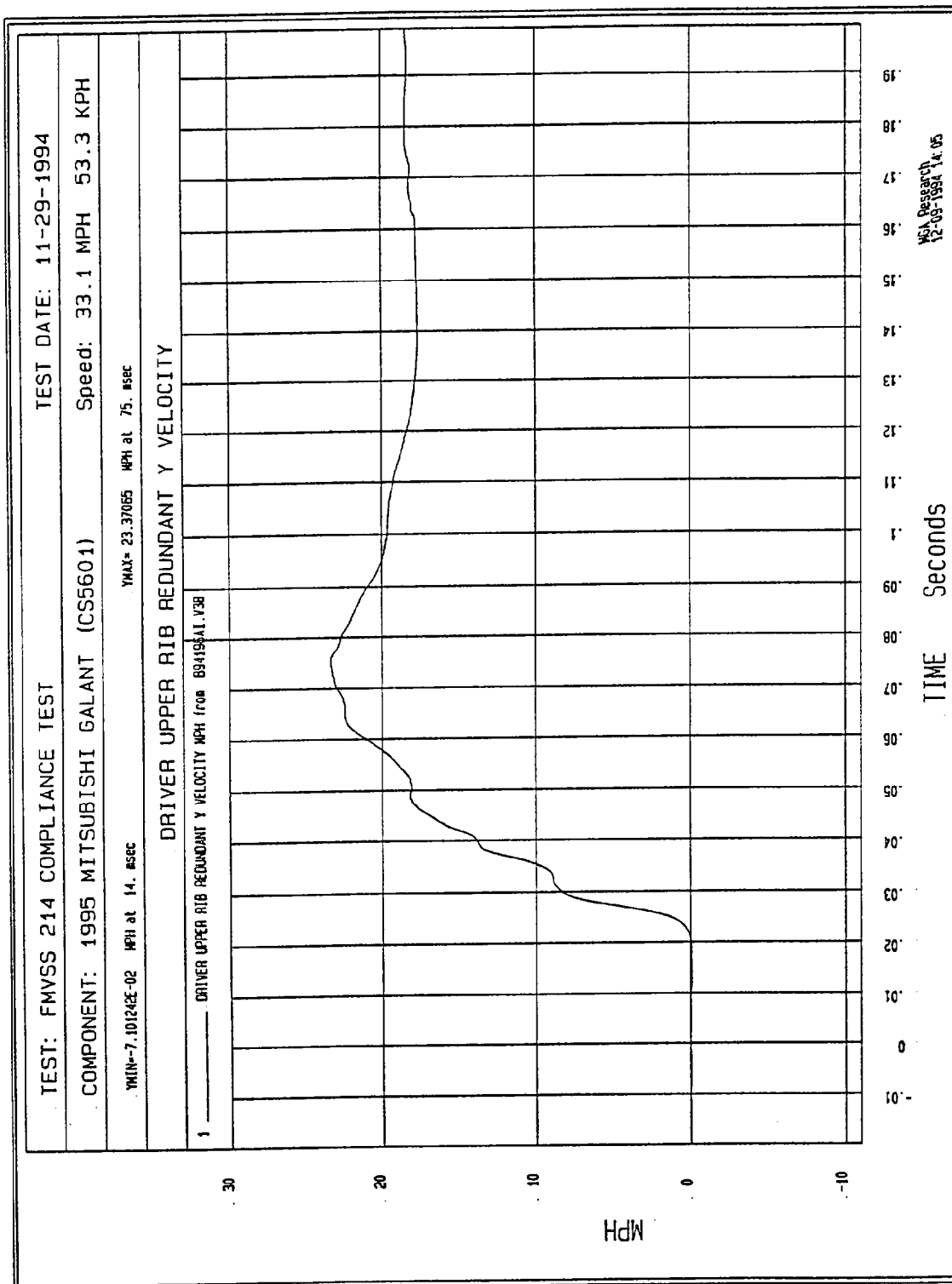
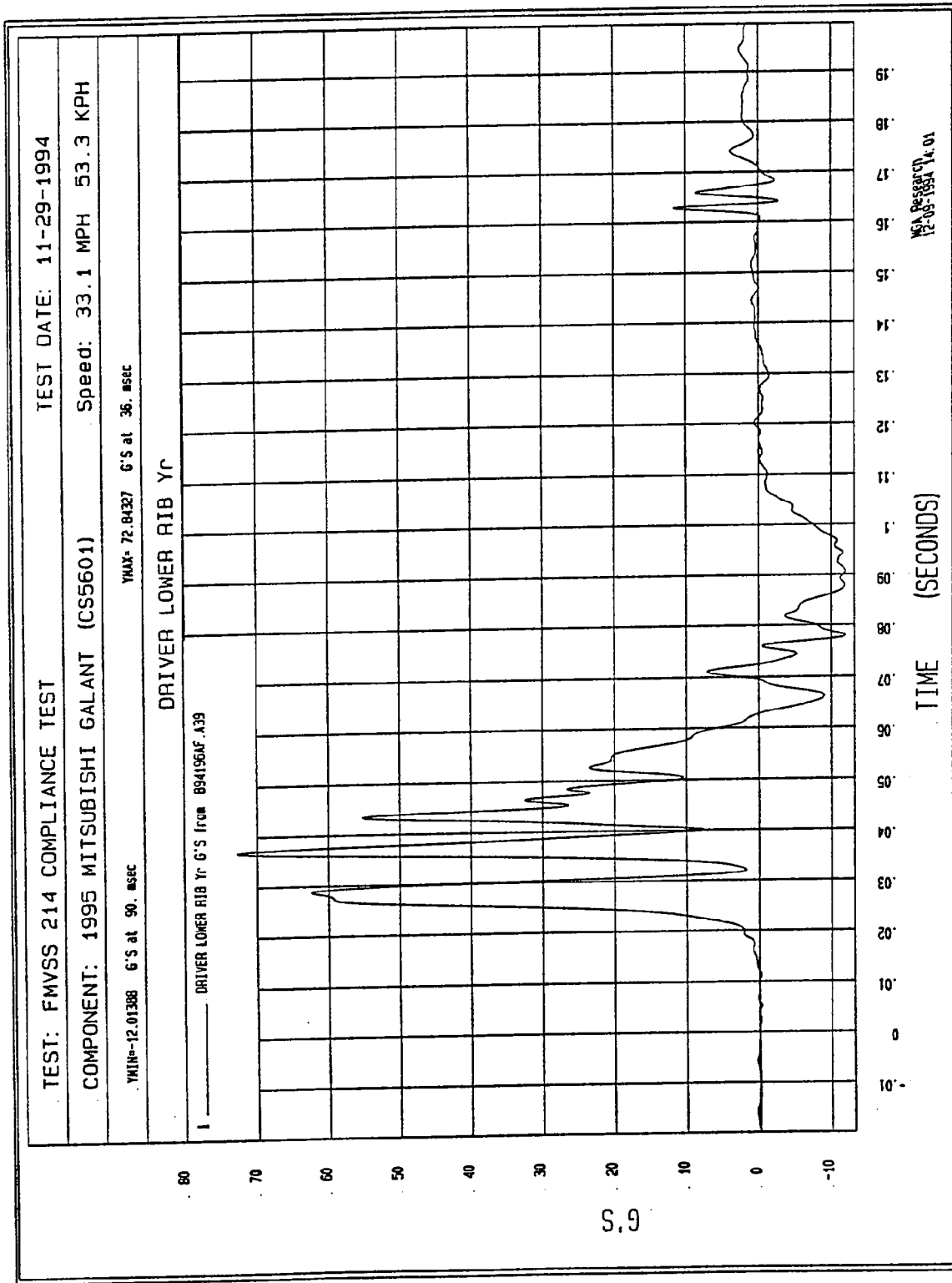


Figure B-65 - Driver Upper Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)



B-66

Figure B-66 - Driver Lower Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

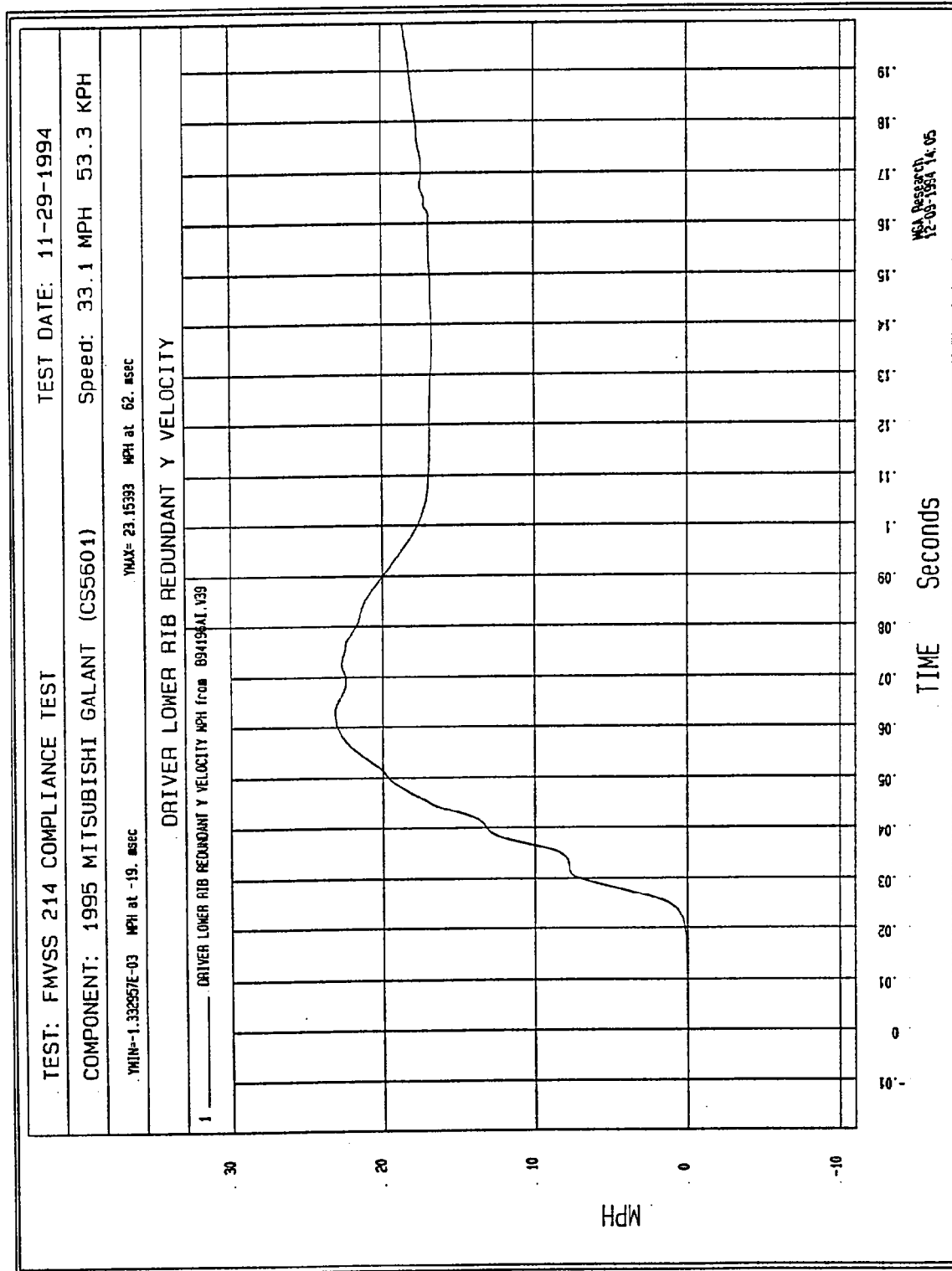
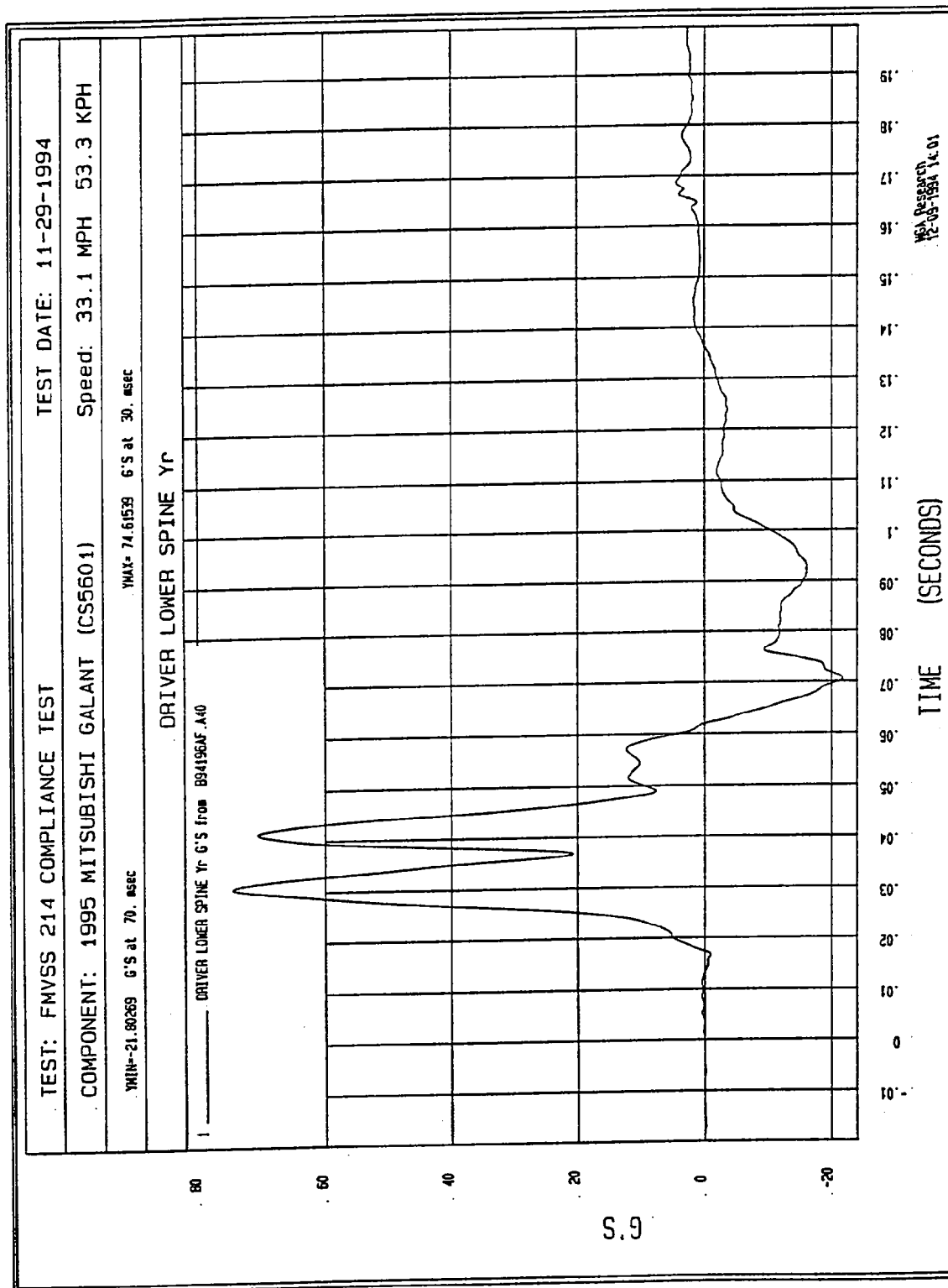


Figure B-67 - Driver Lower Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)



B-68

Figure B-68 - Driver Lower Spine Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

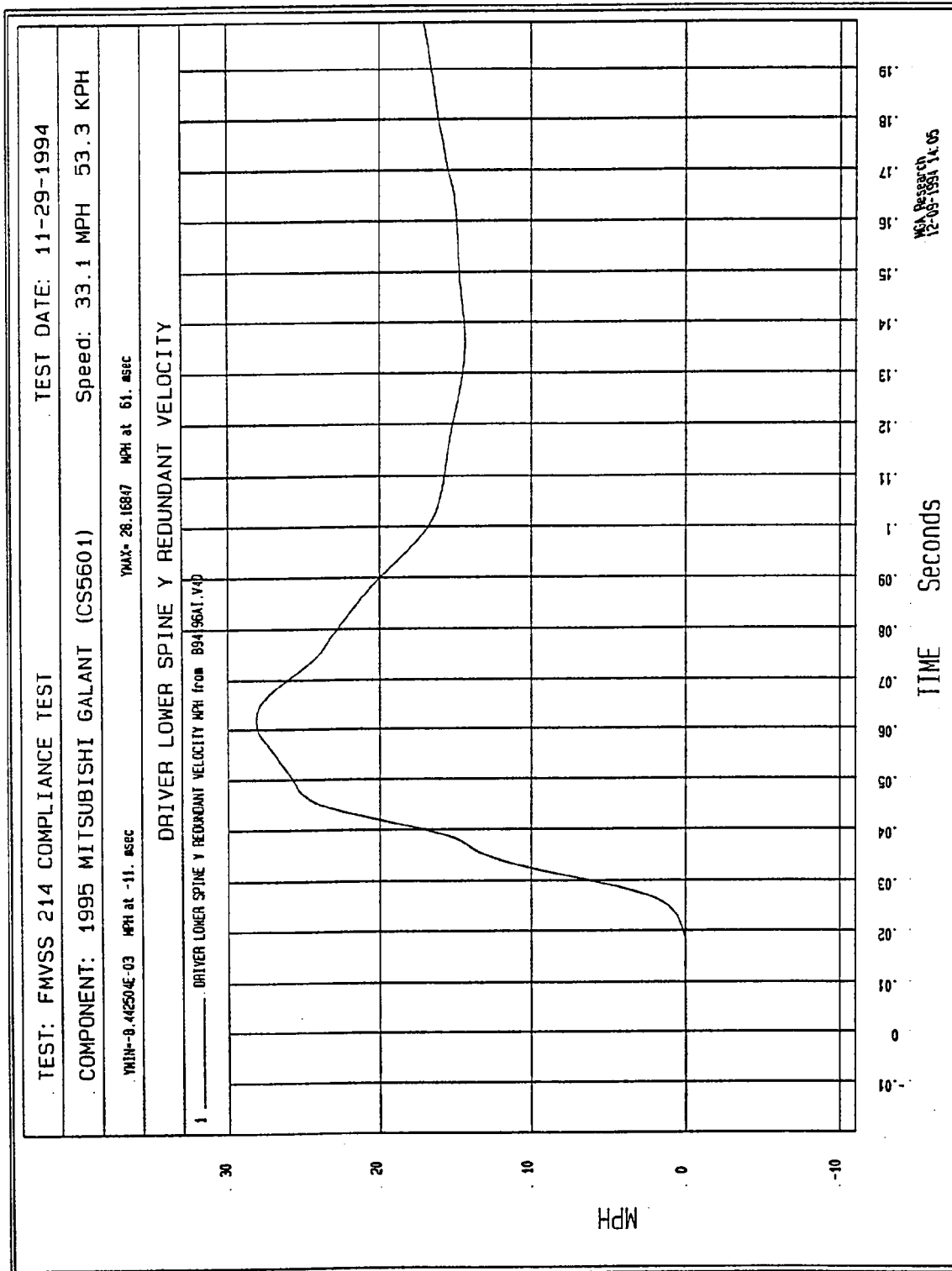
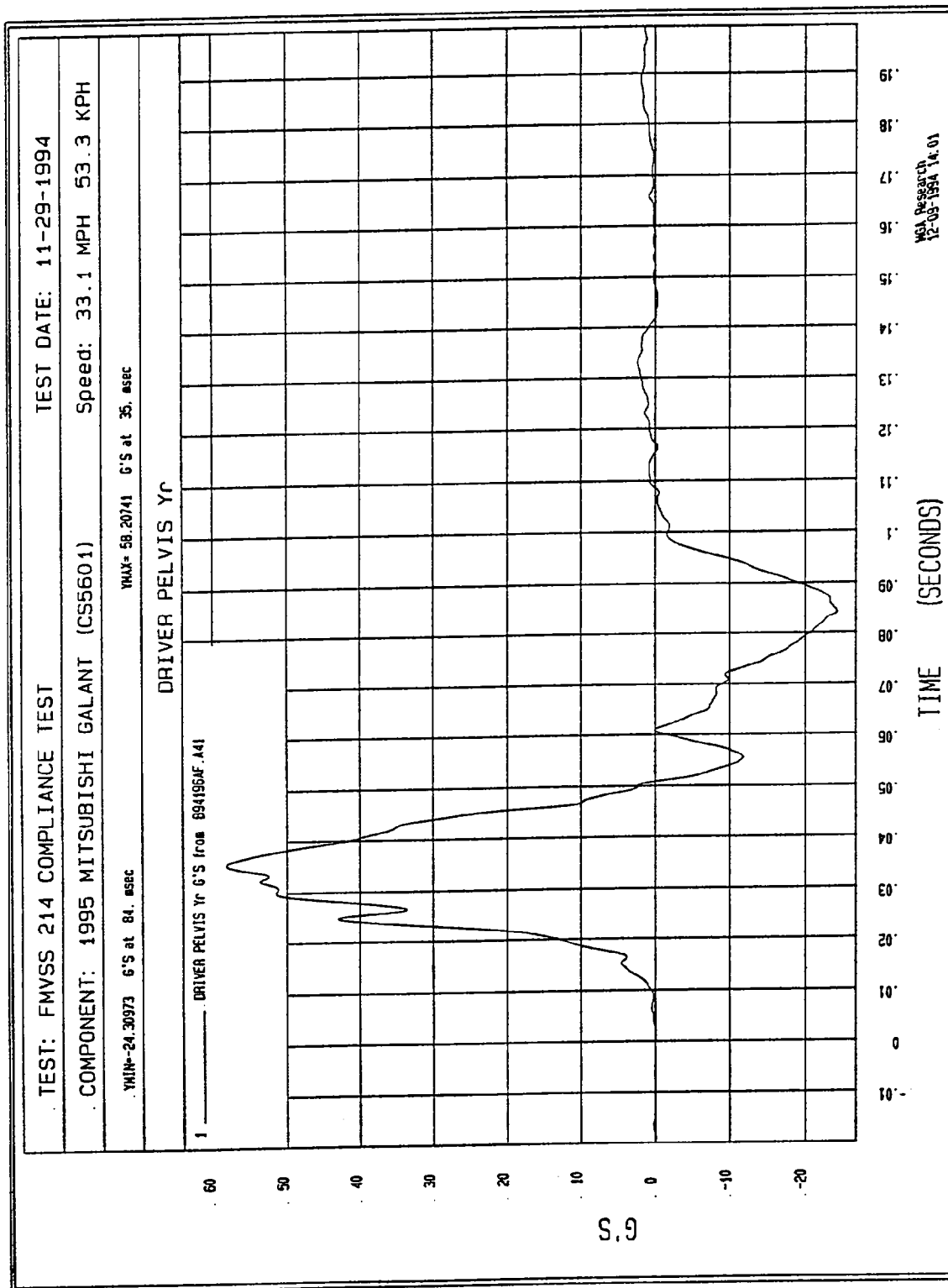


Figure B-69 - Driver Lower Spine Y Redundant Velocity vs. Time

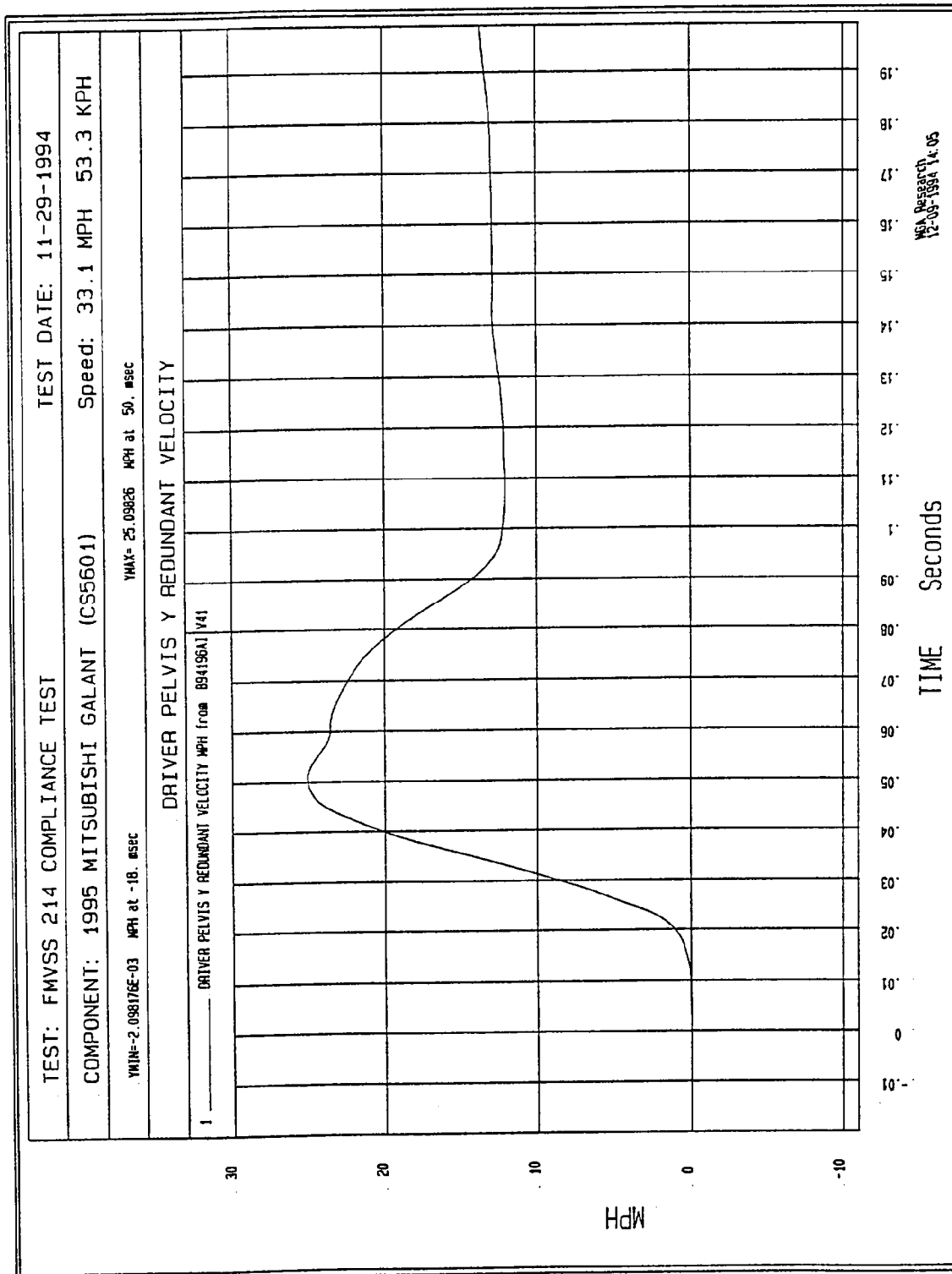
Filter: Class 180 (300 Hz)



B-70

Figure B-70 - Driver Pelvis Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)



B-71

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

Filter: Class 180 (300 Hz)

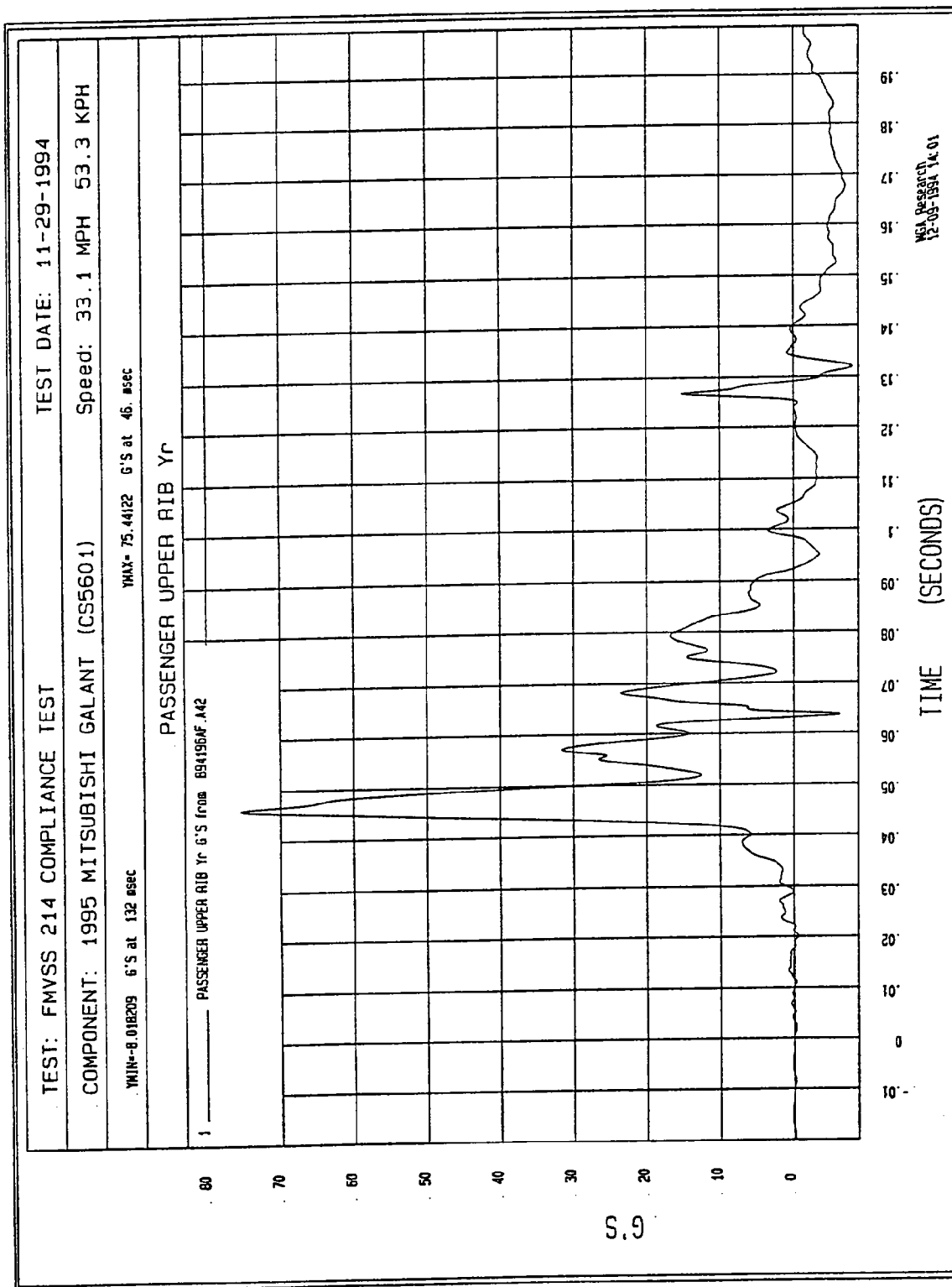


Figure B-72 - Passenger Upper Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

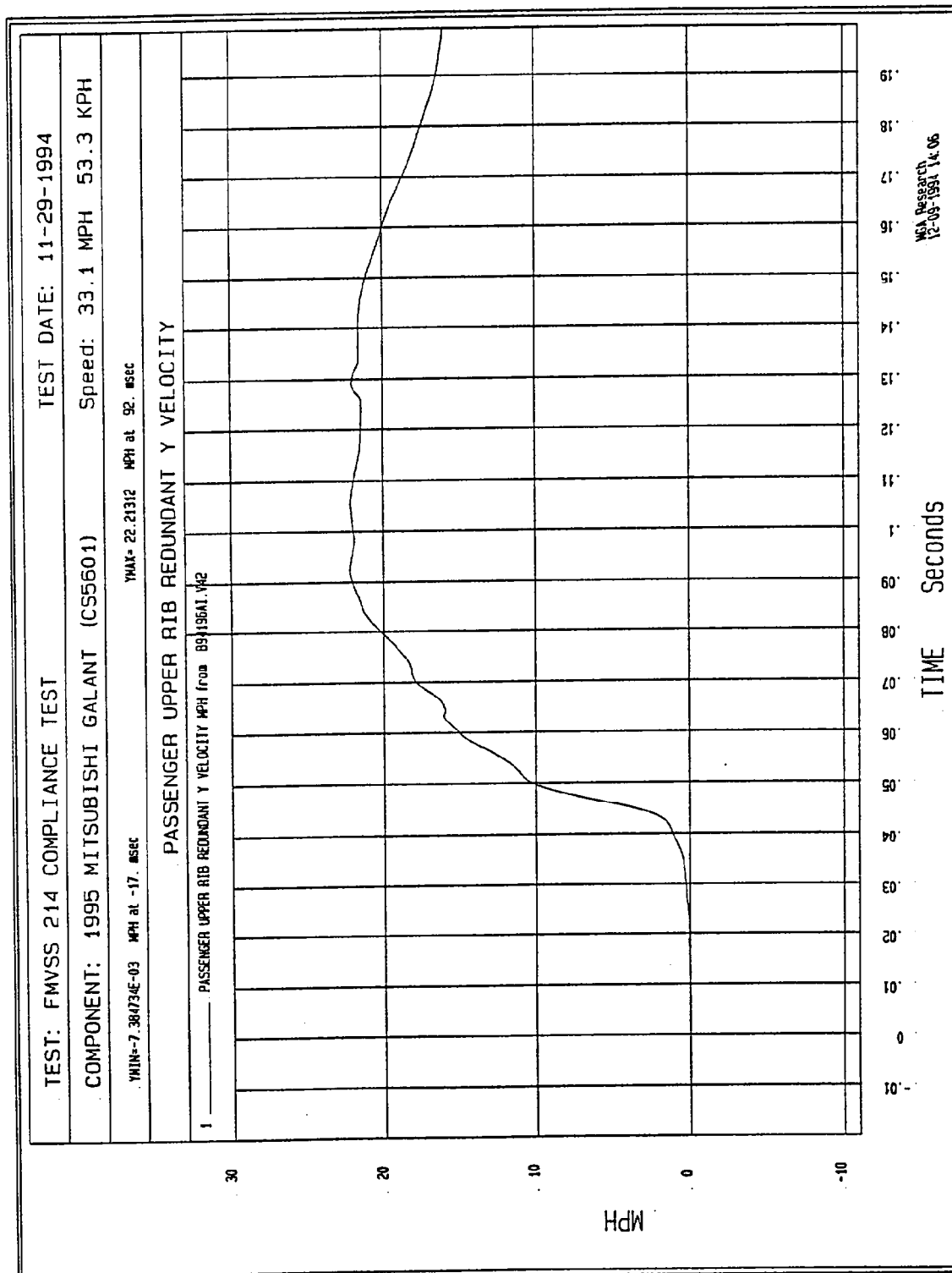


Figure B-73 - Passenger Upper Rib Y Redundant Velocity vs. Time

Filter: Class 180 (300 Hz)

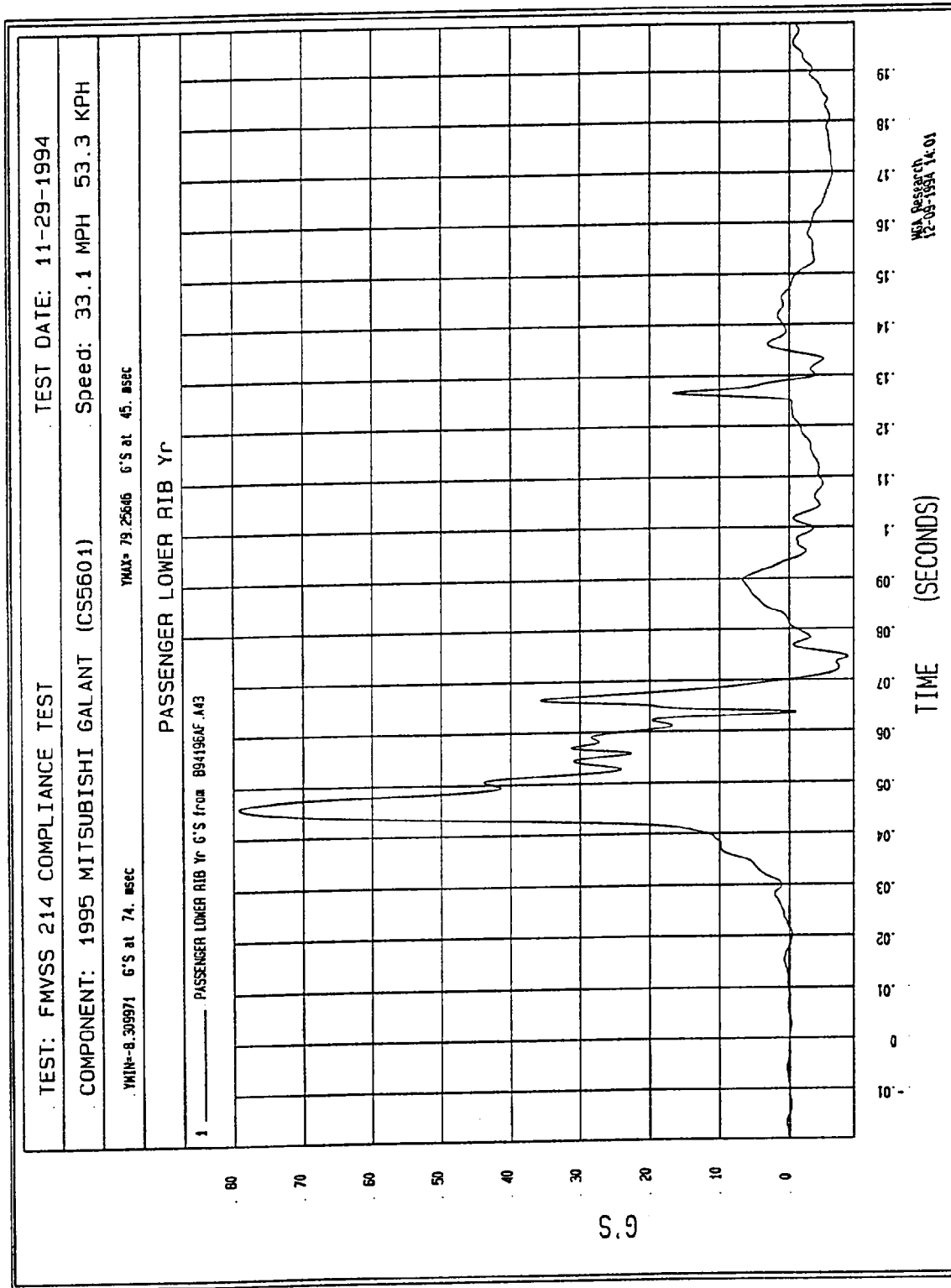
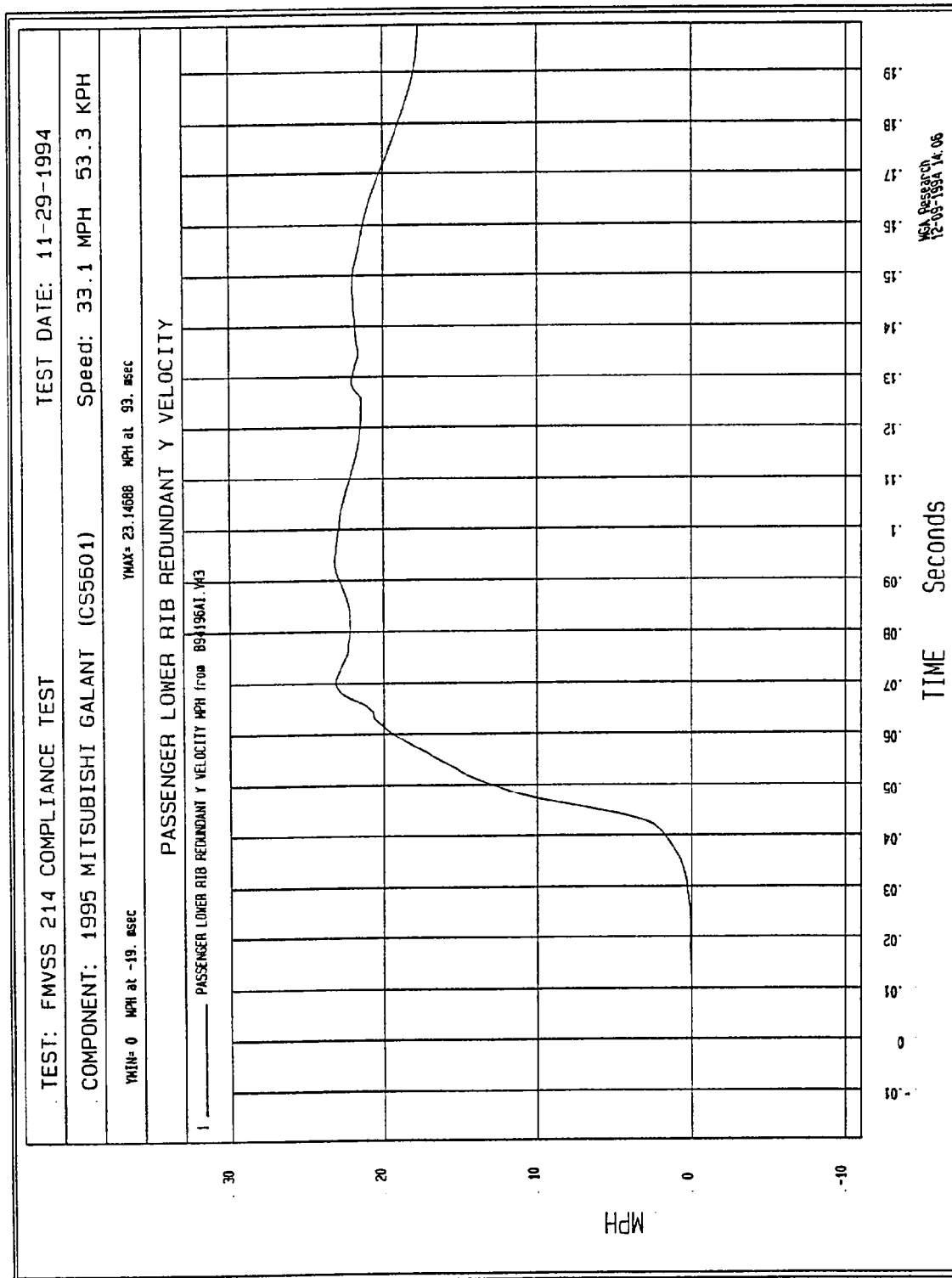


Figure B-74 - Passenger Lower Rib Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)



B-75

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

Filter: Class 180 (300 Hz)

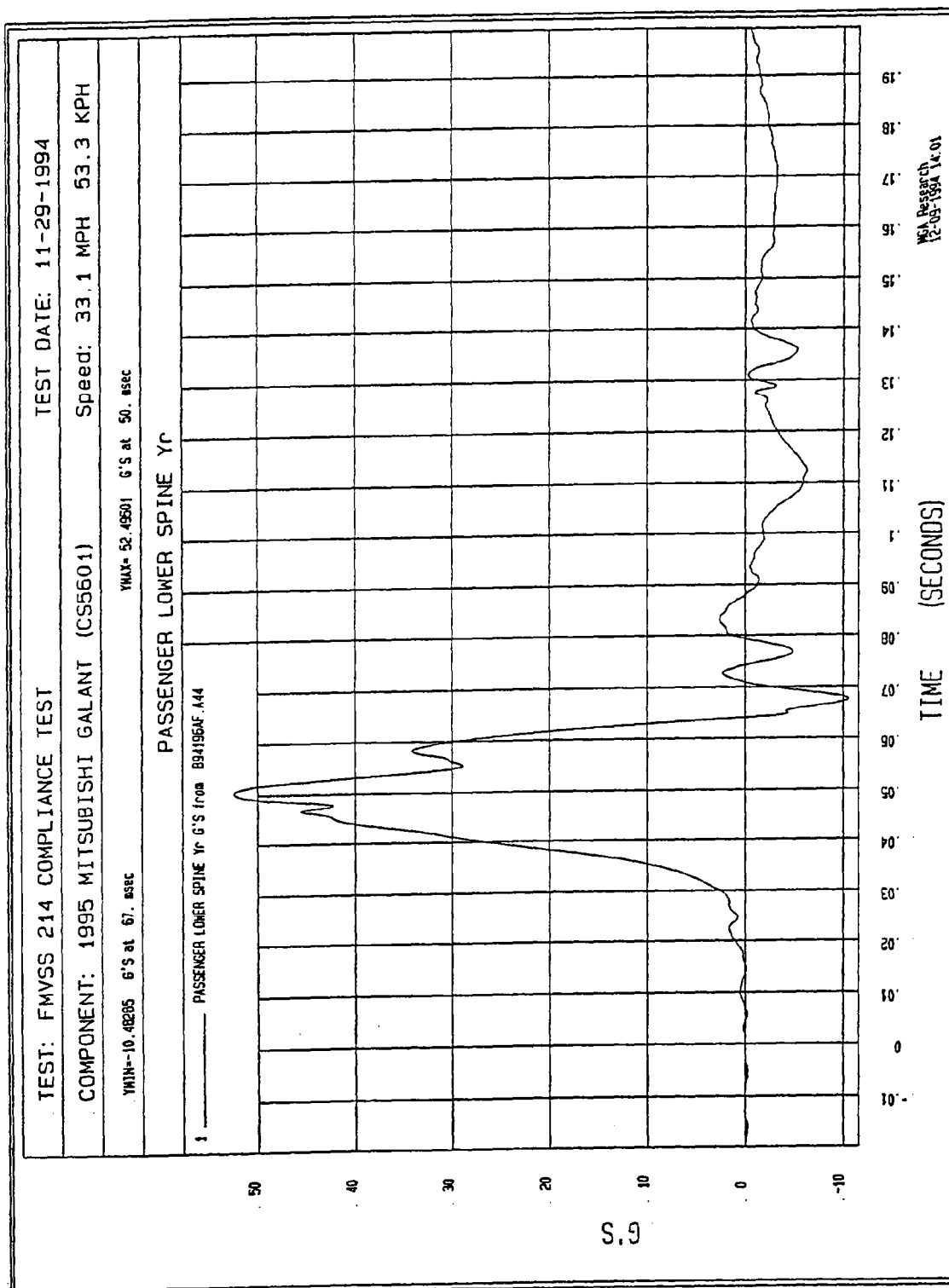
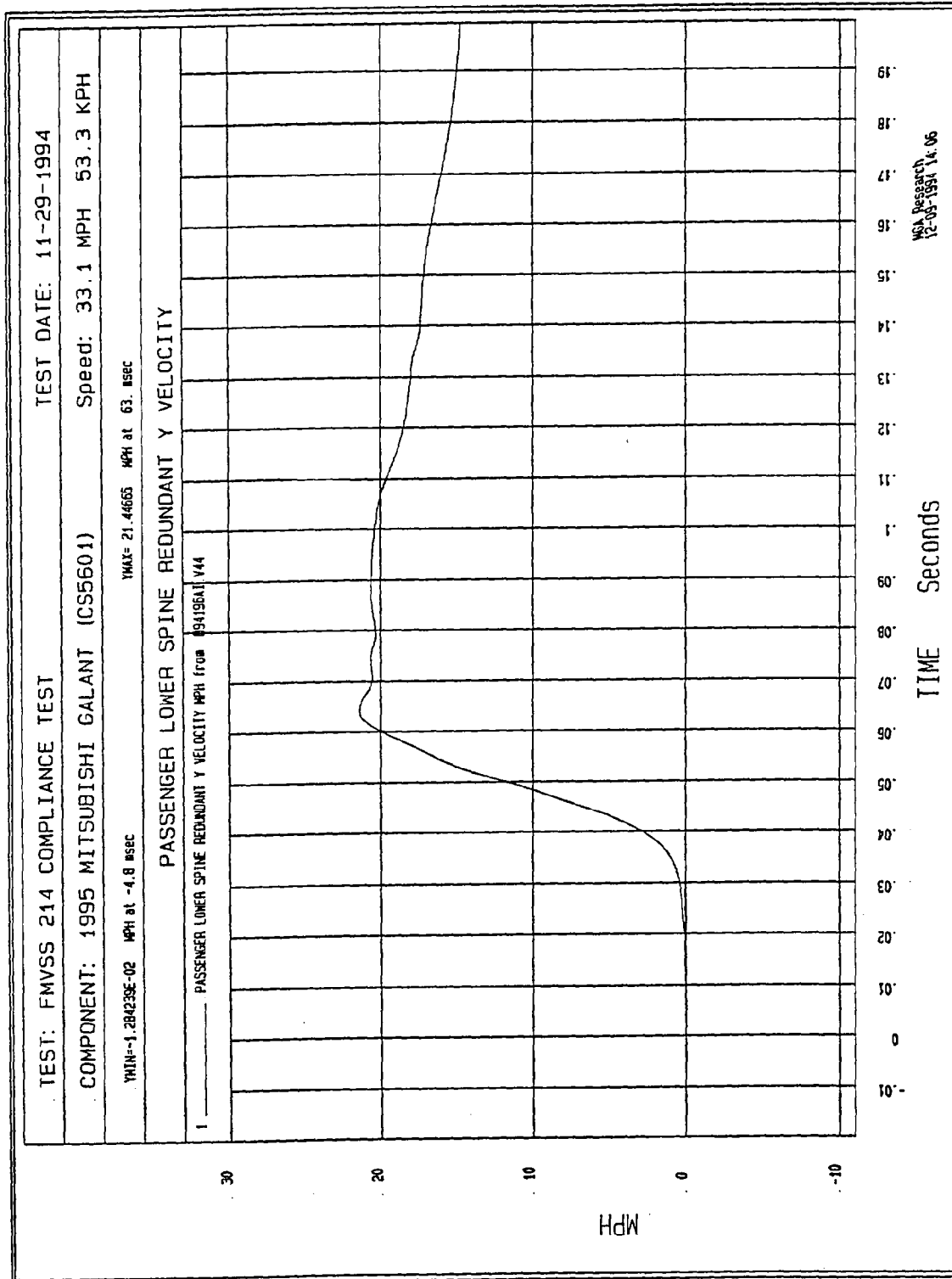


Figure B-76 - Passenger Lower Spine Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)



B-77

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

Filter: Class 180 (300 Hz)

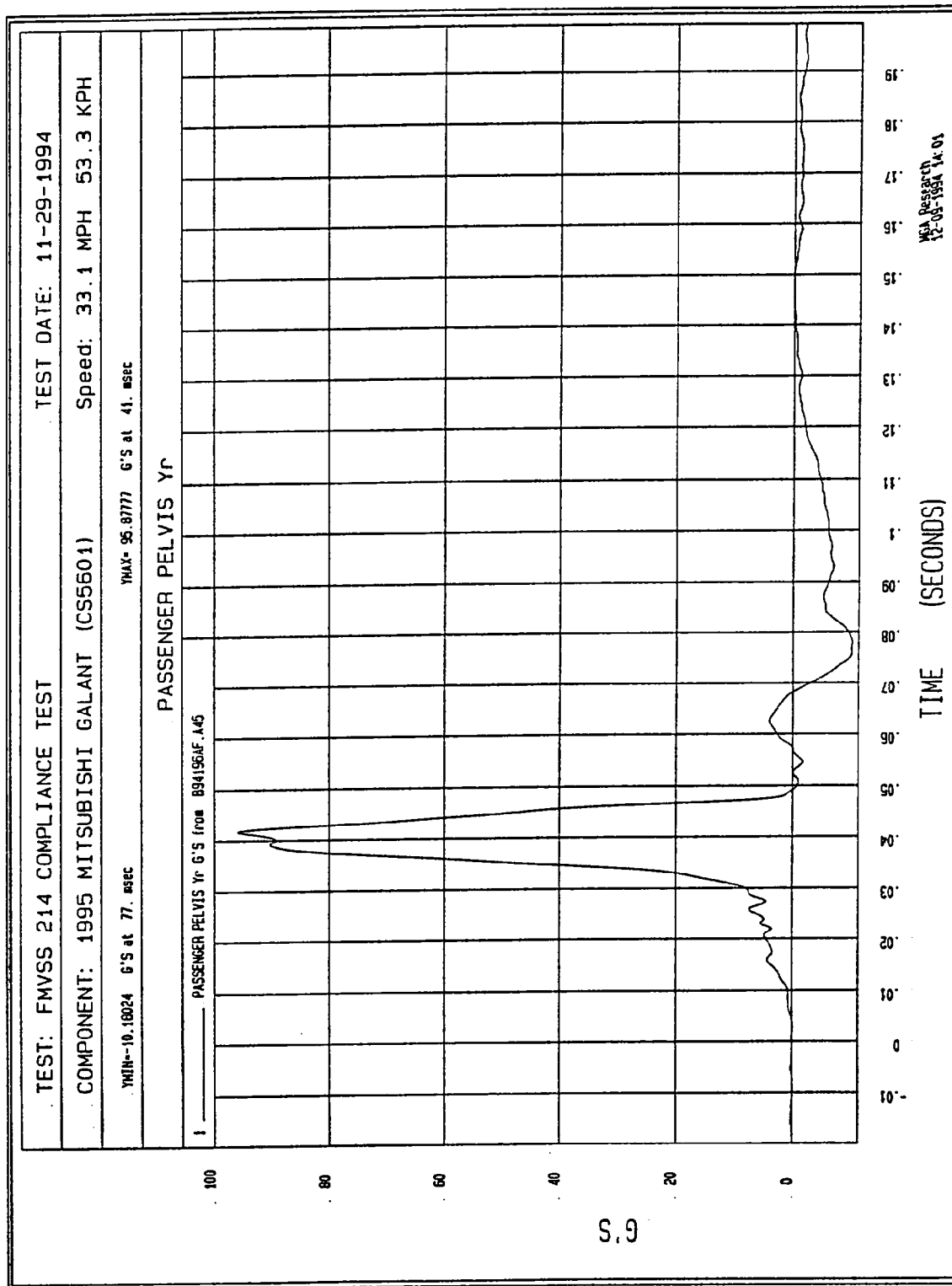


Figure B-78 - Passenger Pelvis Y Redundant Acceleration vs. Time

Filter: Class 180 (300 Hz)

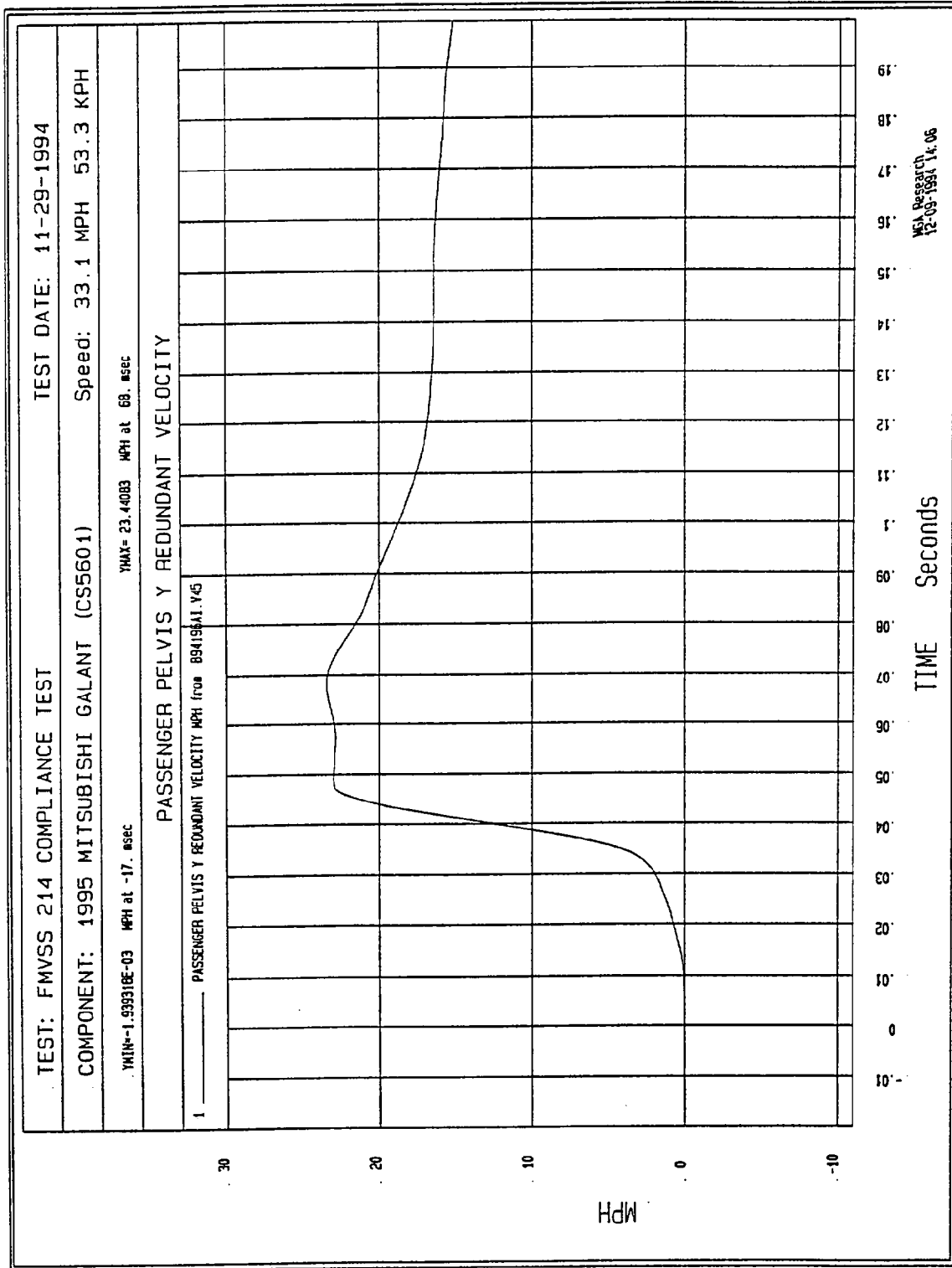


Figure B-79 - Passenger Pelvis Y Redundant Velocity vs. Time

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA

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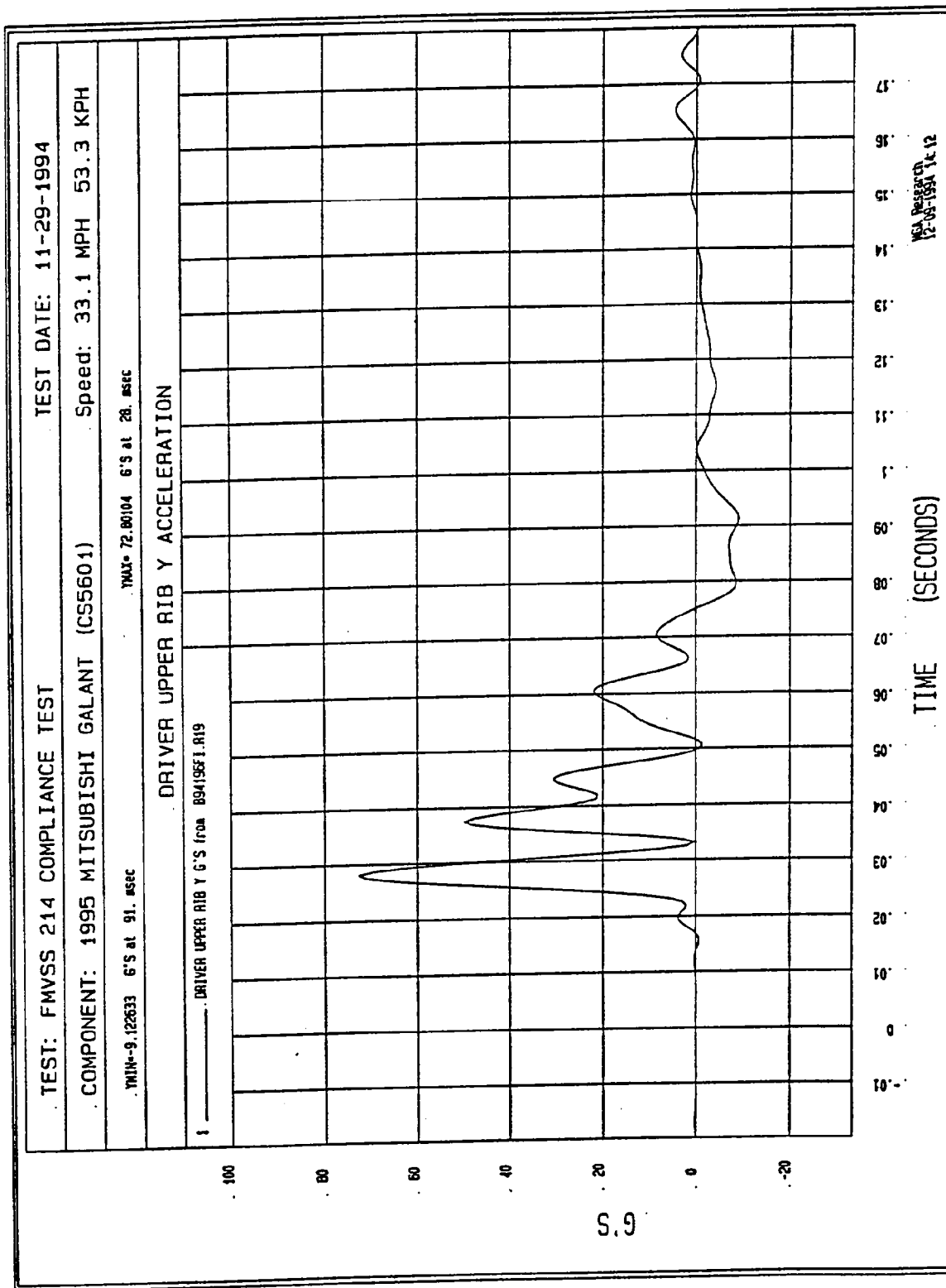


Figure B-80 - Driver Upper Rib Y Acceleration vs. Time

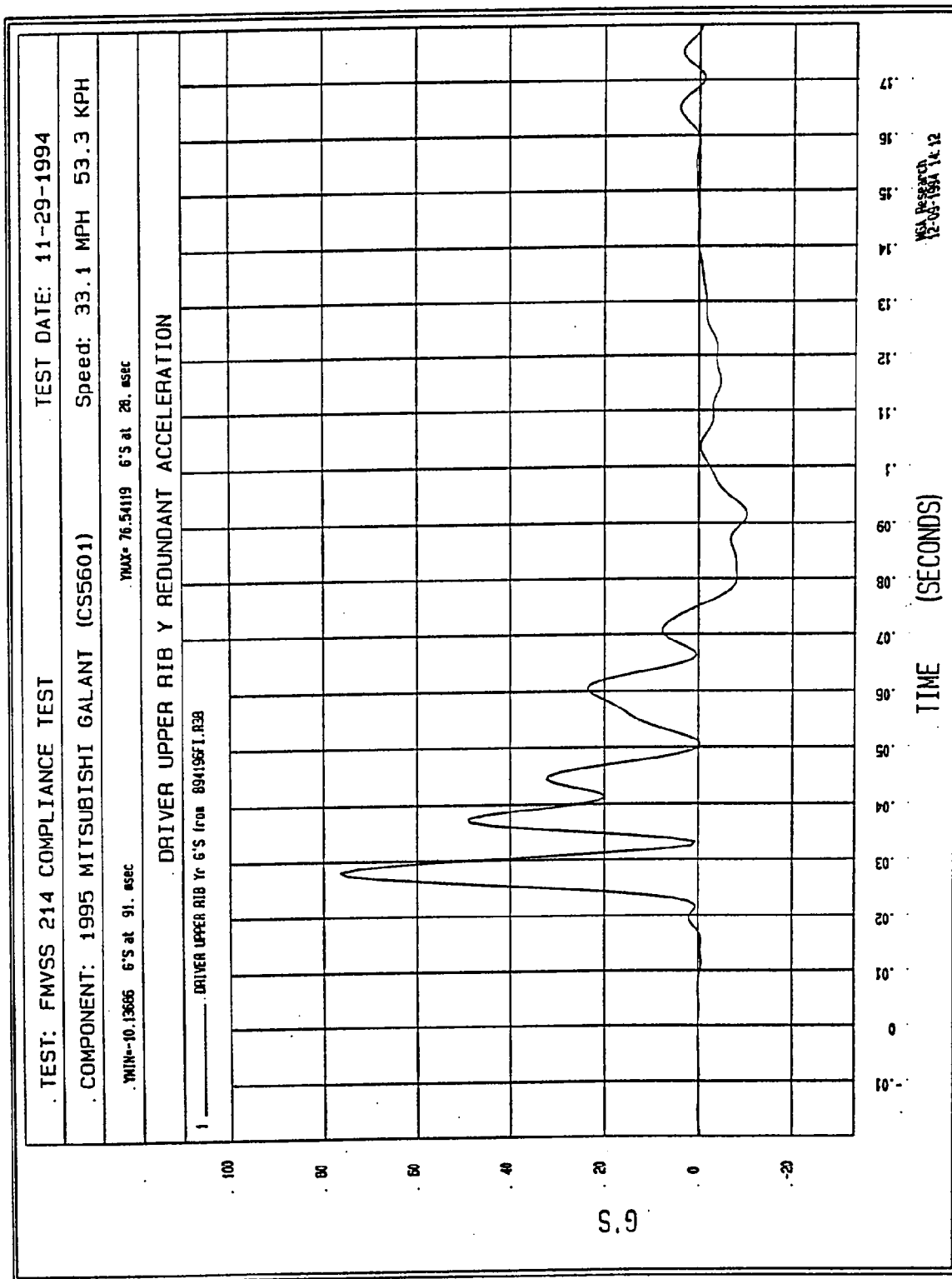


Figure B-81 - Driver Upper Rib Y Redundant Acceleration vs. Time

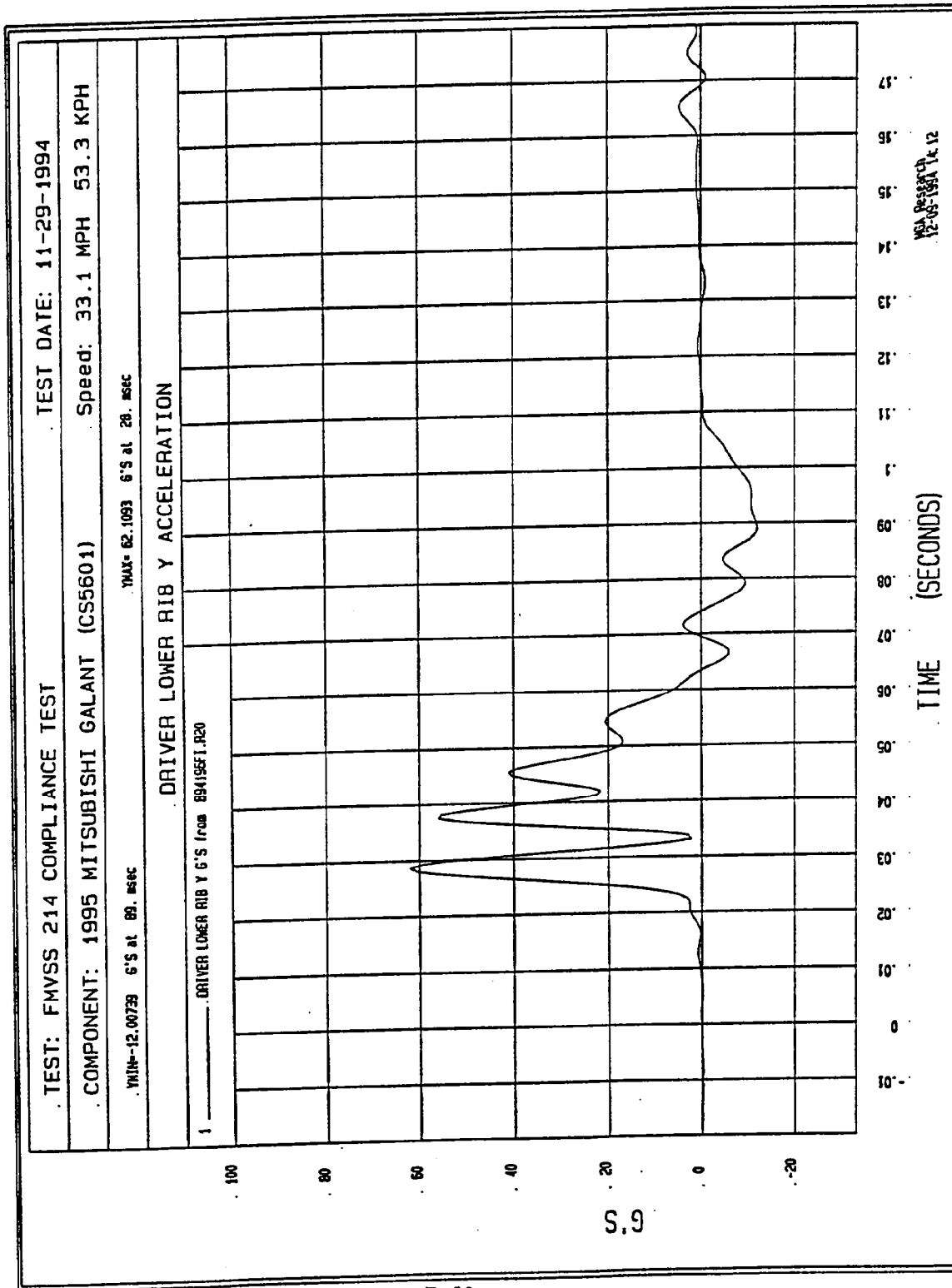


Figure B-82 - Driver Lower Rib Y Acceleration vs. Time

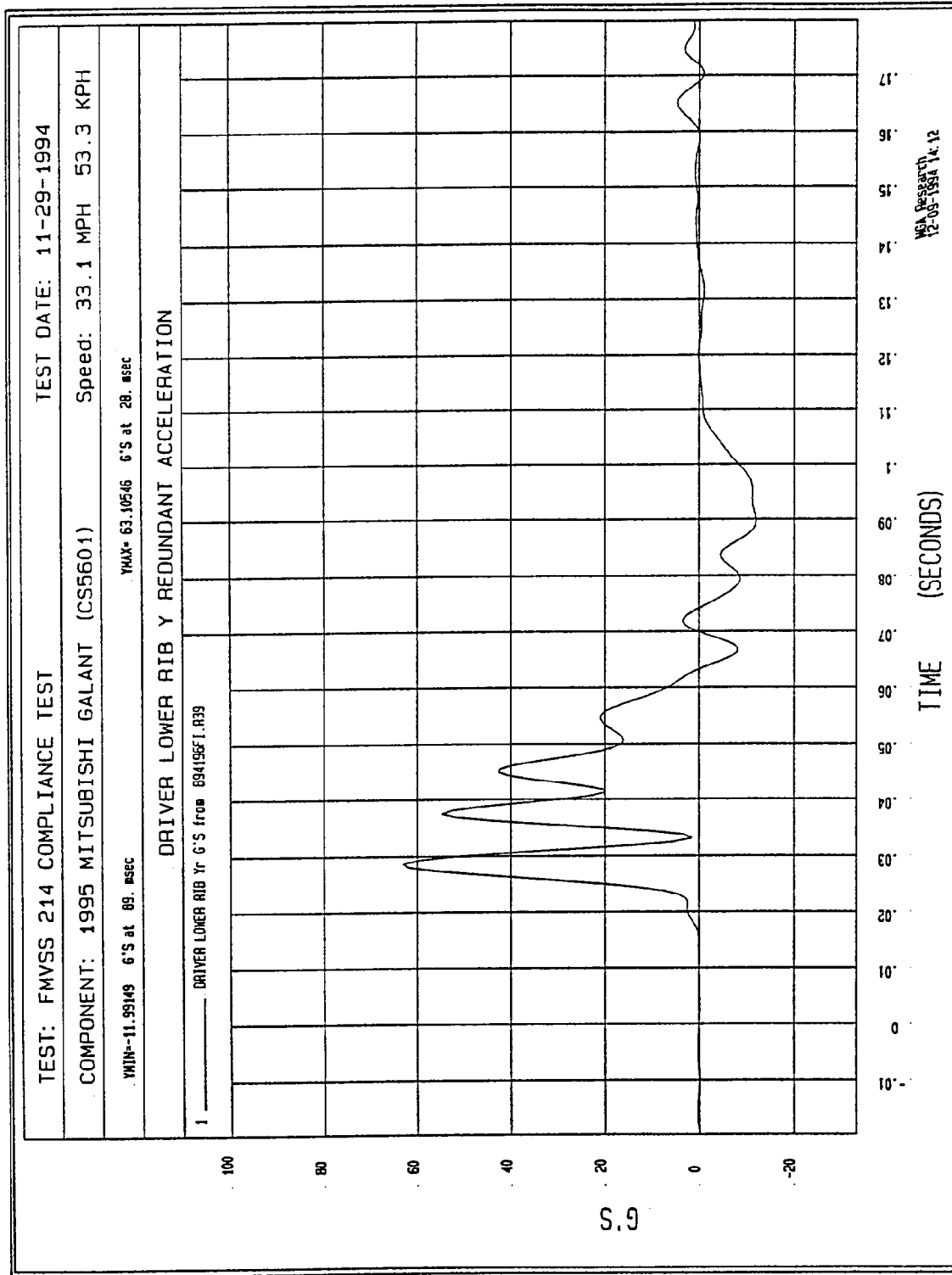
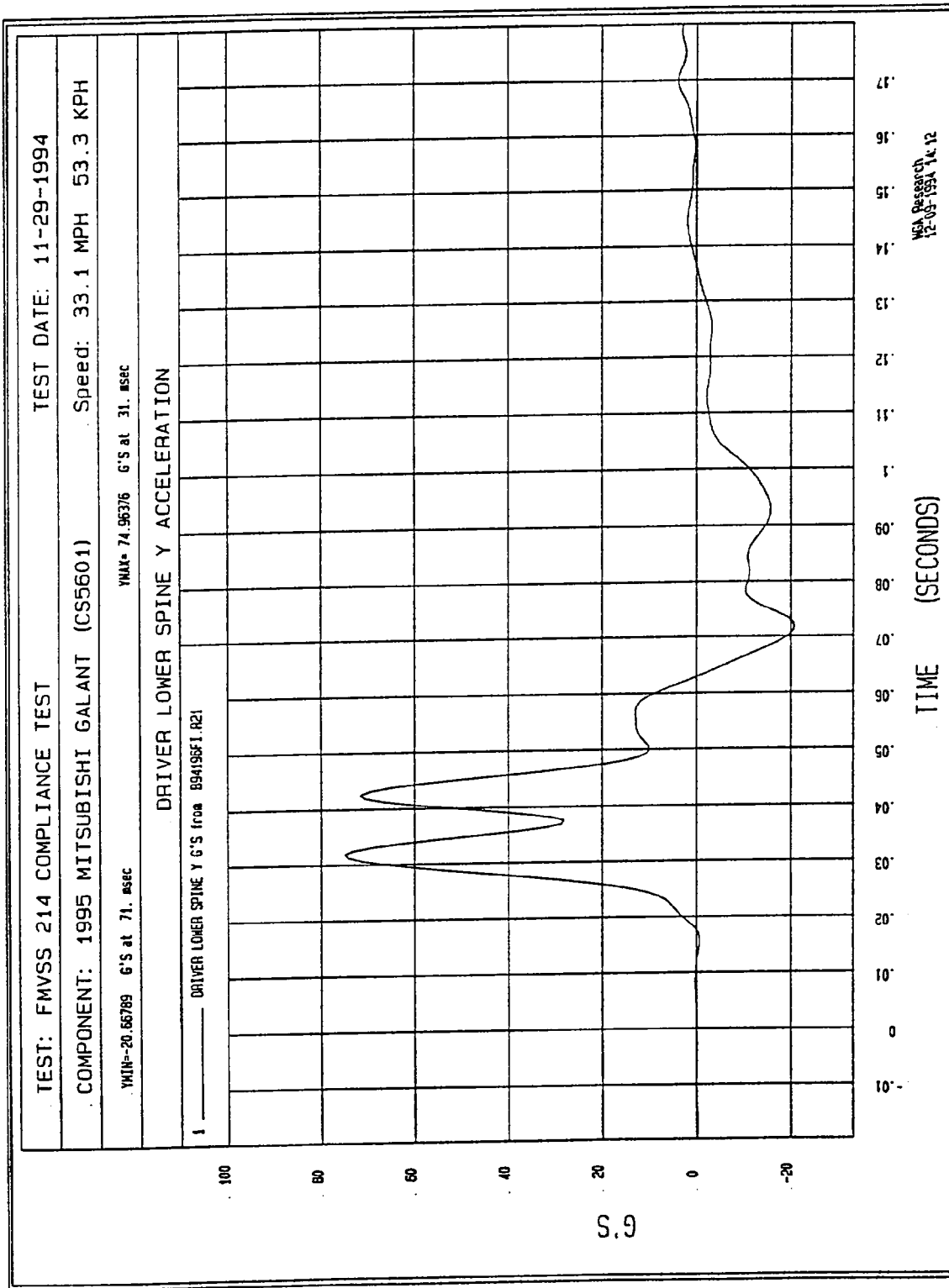


Figure B-83 - Driver Lower Rib Y Redundant Acceleration vs. Time



B-84

Figure B-84 - Driver Lower Spine Y Acceleration vs. Time

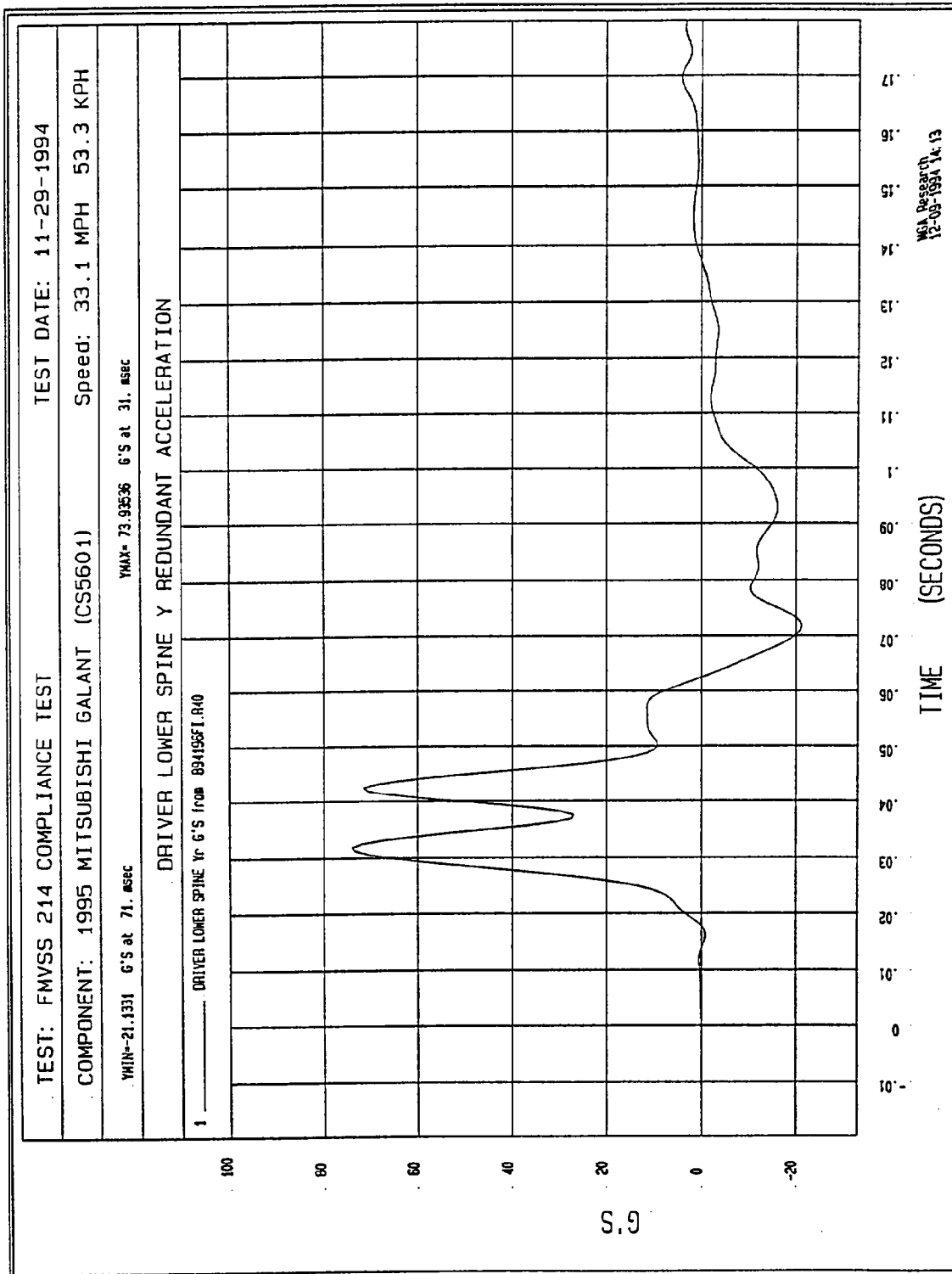


Figure B-85 - Driver Lower Spine Y Redundant Acceleration vs. Time

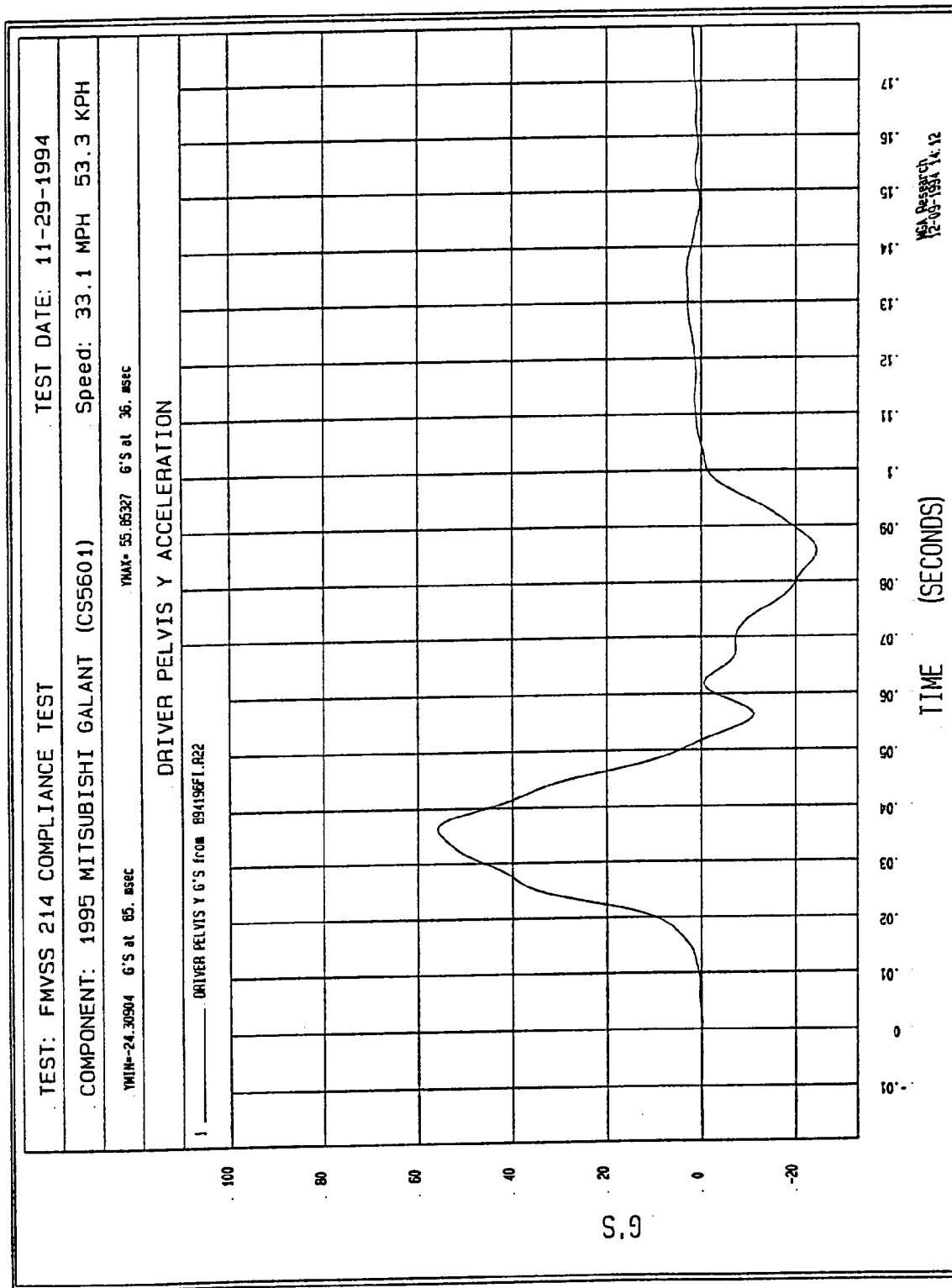


Figure B-86 - Driver Pelvis Y Acceleration vs. Time

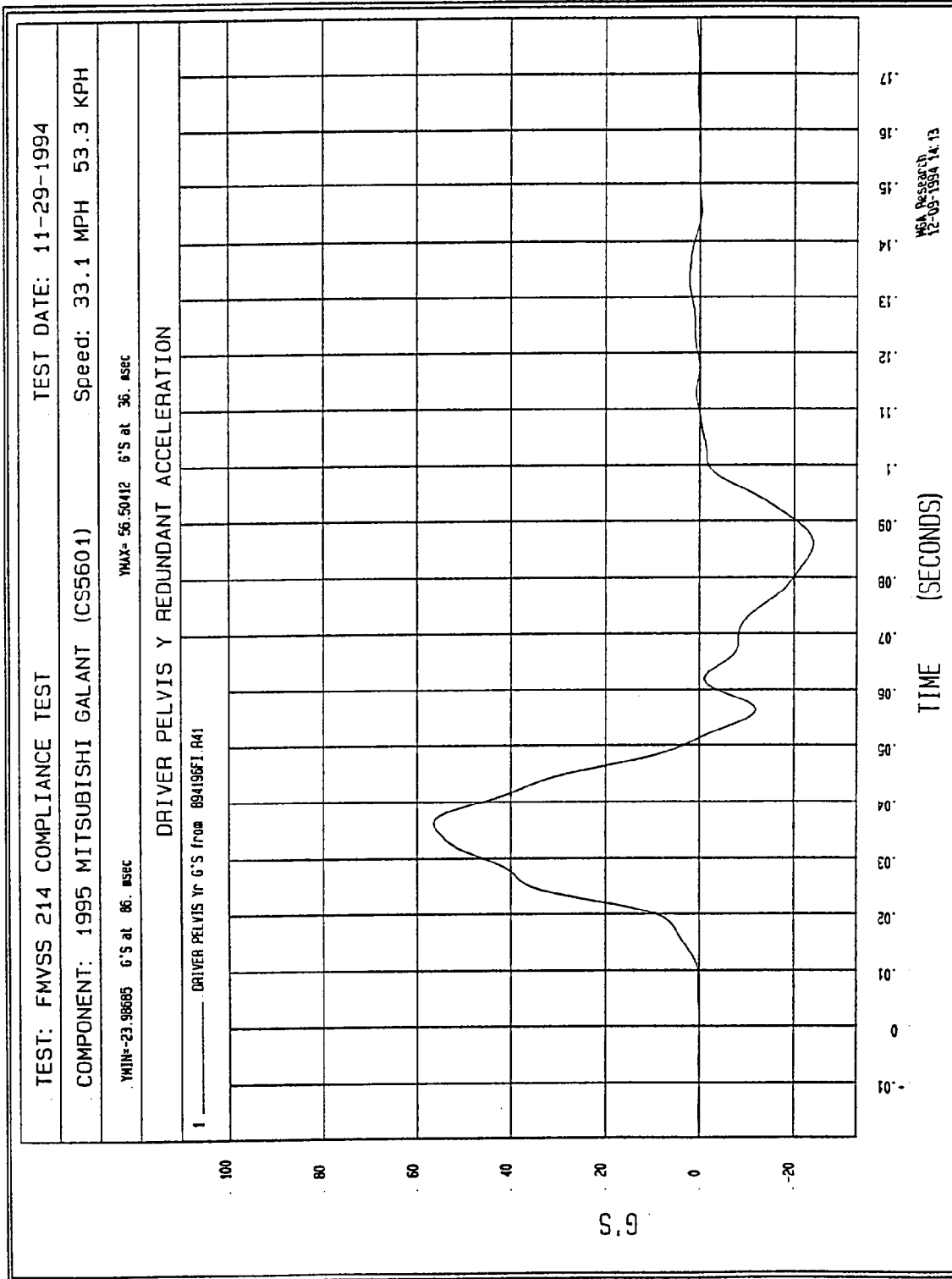


Figure B-87 - Driver Pelvis Y Redundant Acceleration vs. Time

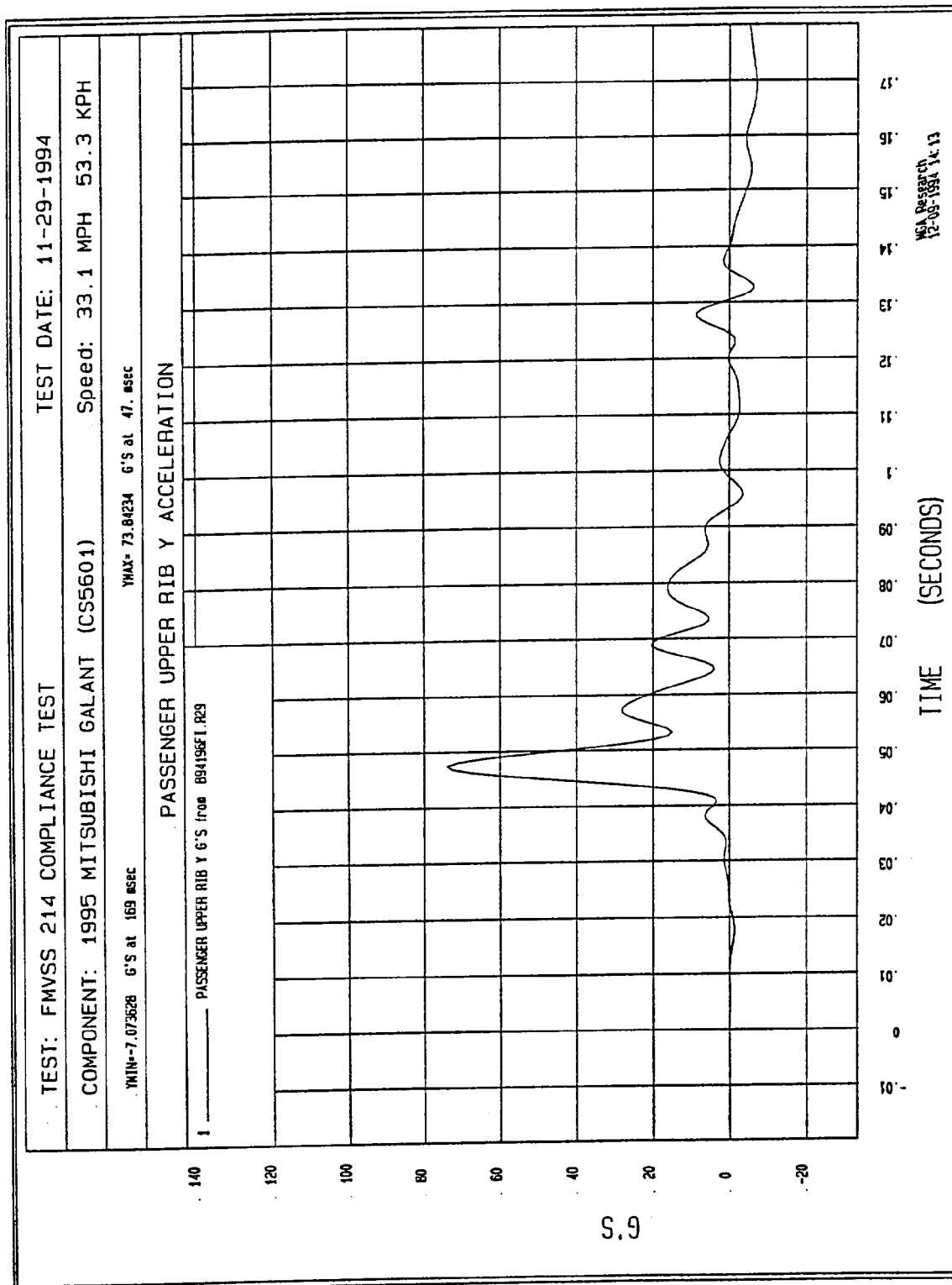


Figure B-88 - Passenger Upper Rib Y Acceleration vs. Time

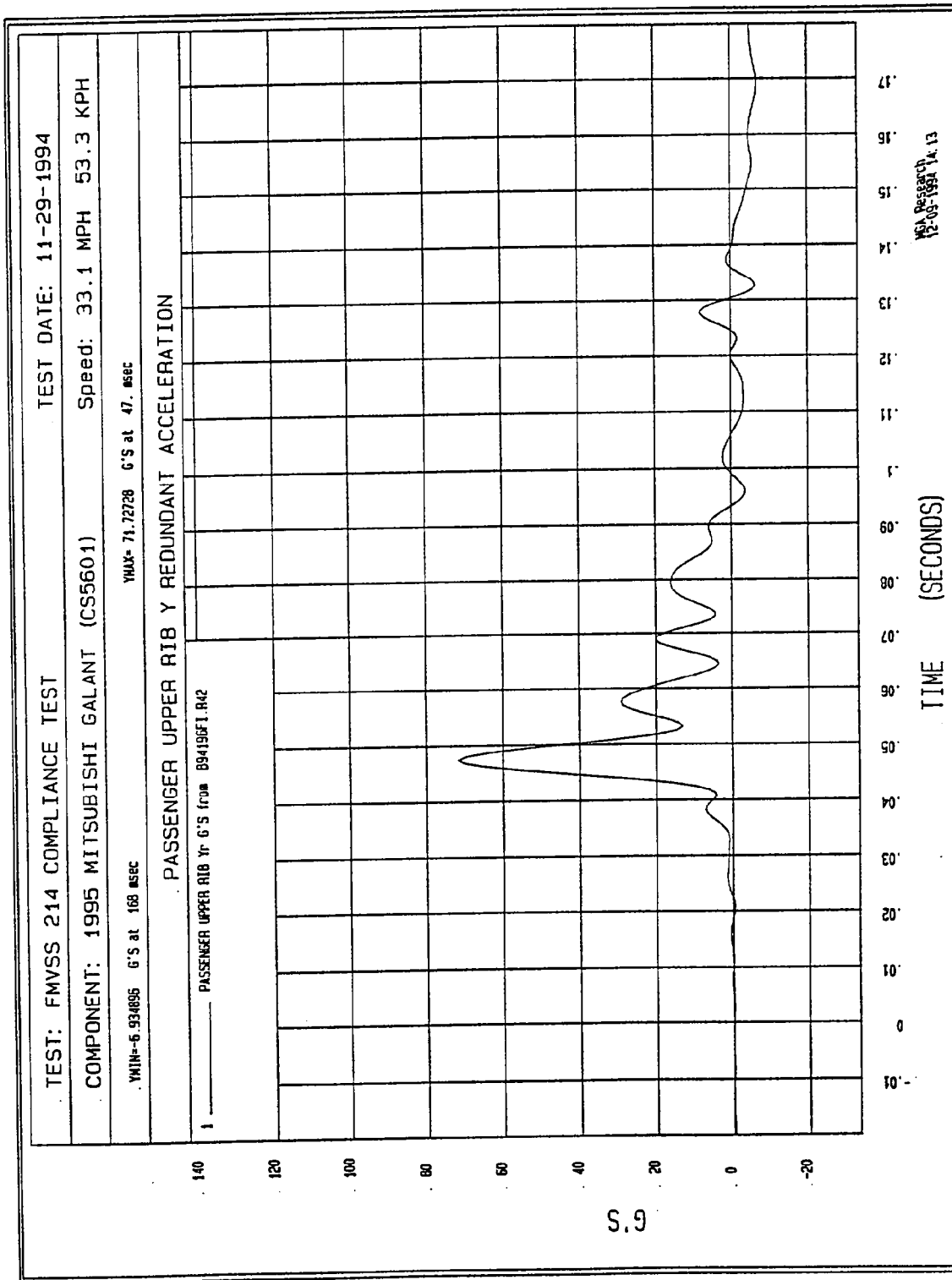


Figure B-89 - Passenger Upper Rib Y Redundant Acceleration vs. Time

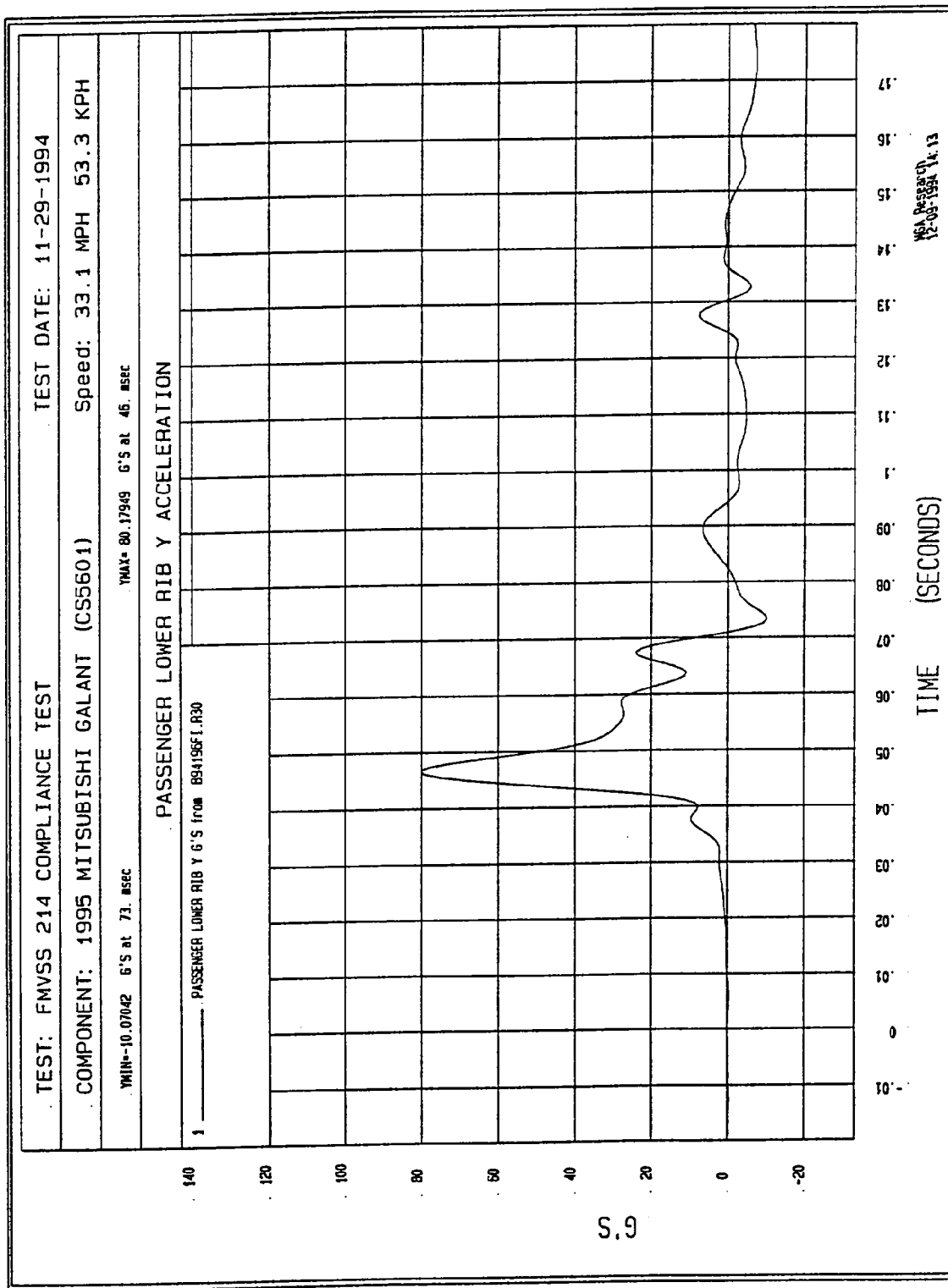


Figure B-90 - Passenger Lower Rib Y Acceleration vs. Time

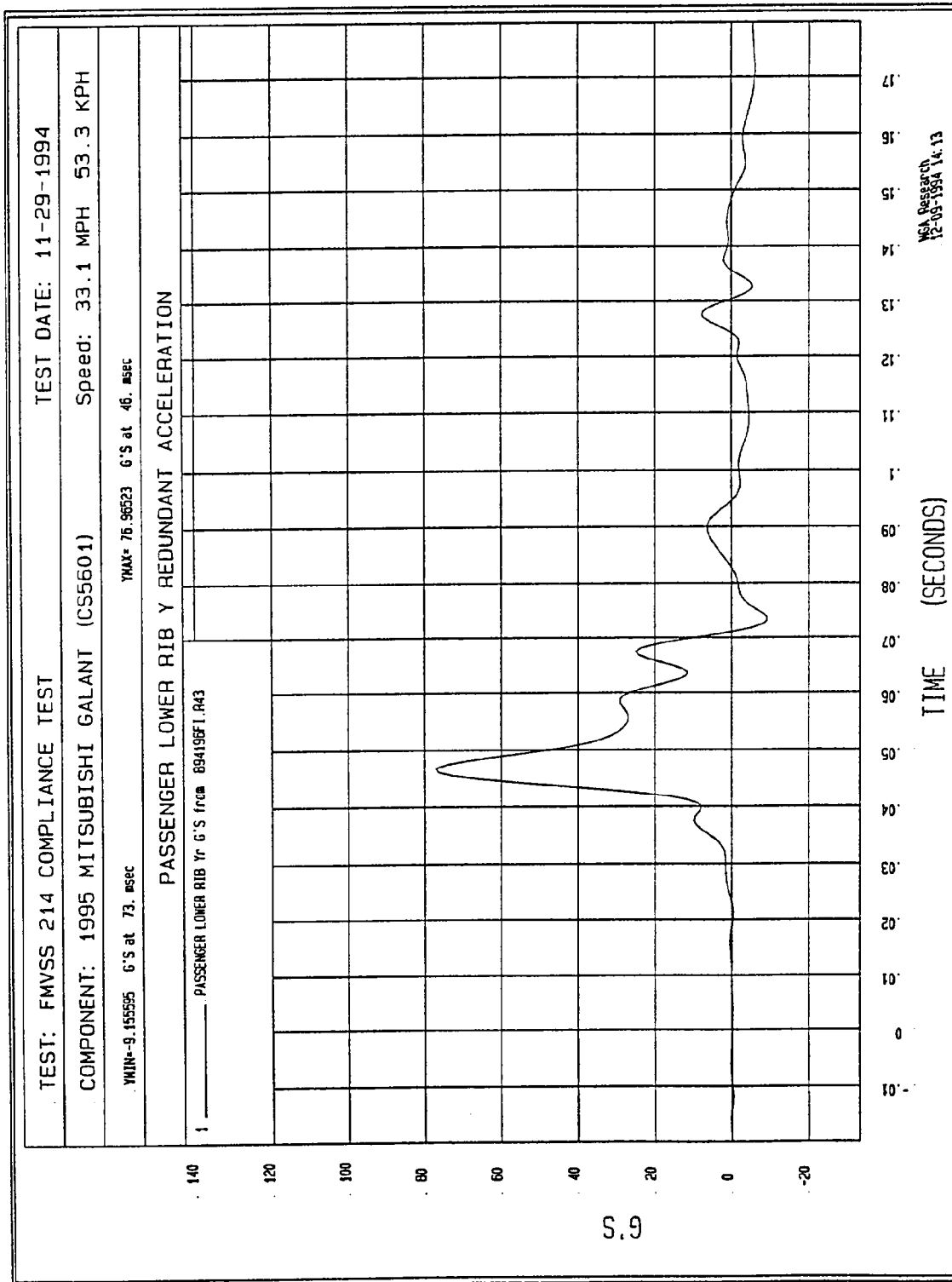


Figure B-91 - Passenger Lower Rib Y Redundant Acceleration vs. Time

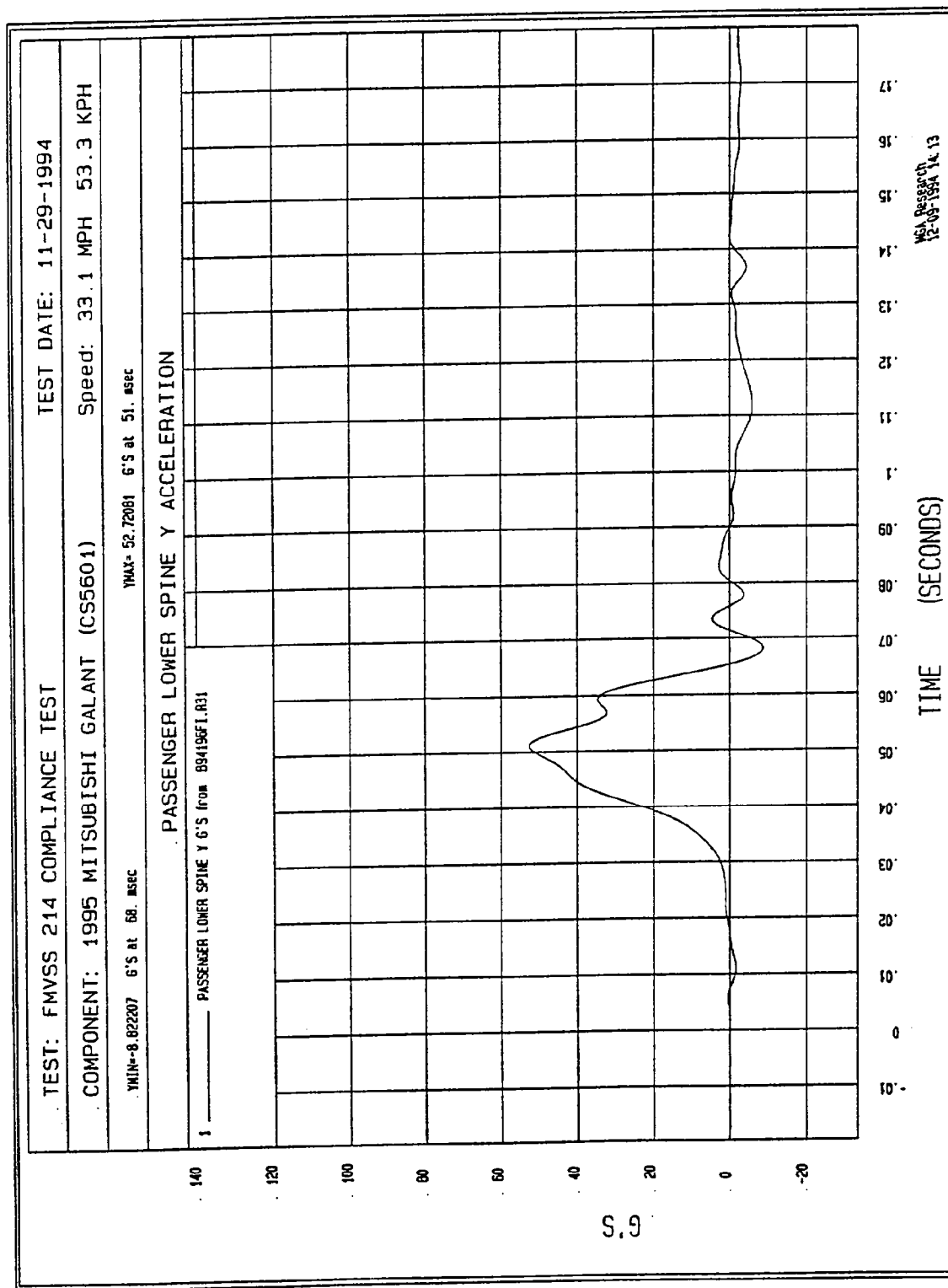


Figure B-92 - Passenger Lower Spine Y Acceleration vs. Time

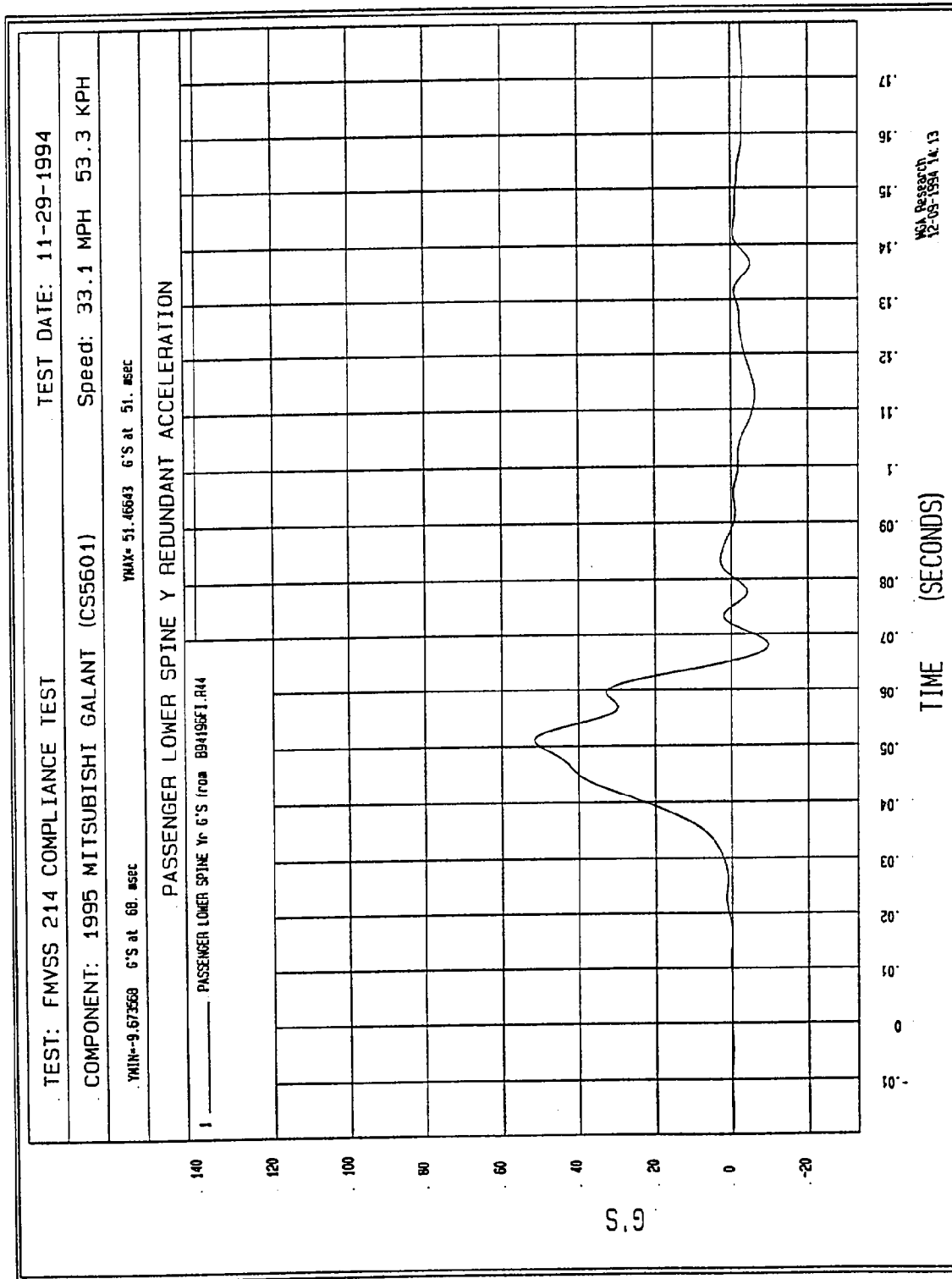


Figure B-93 - Passenger Lower Spine Y Redundant Acceleration vs. Time

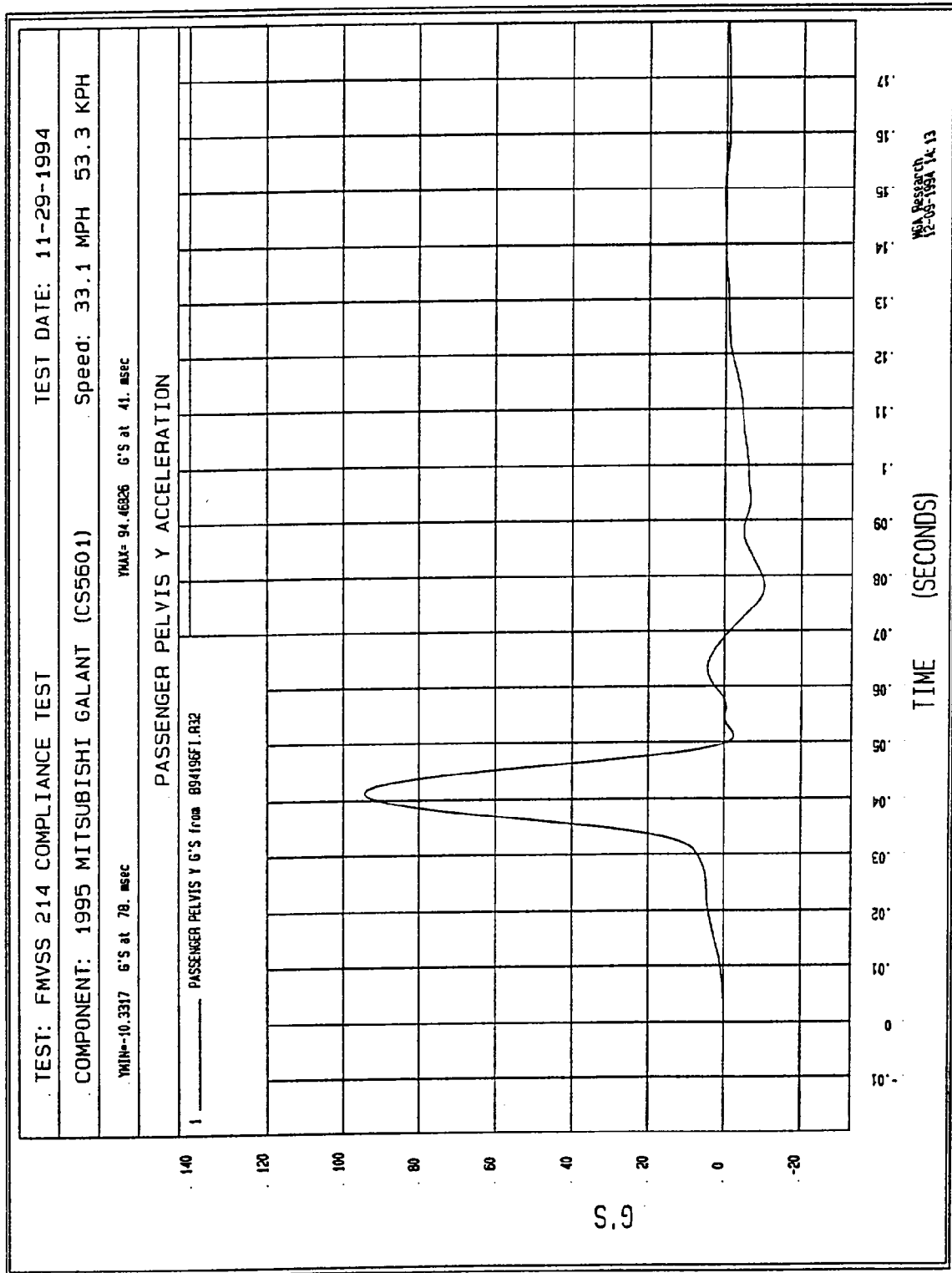


Figure B-94 - Passenger Pelvis Y Acceleration vs. Time

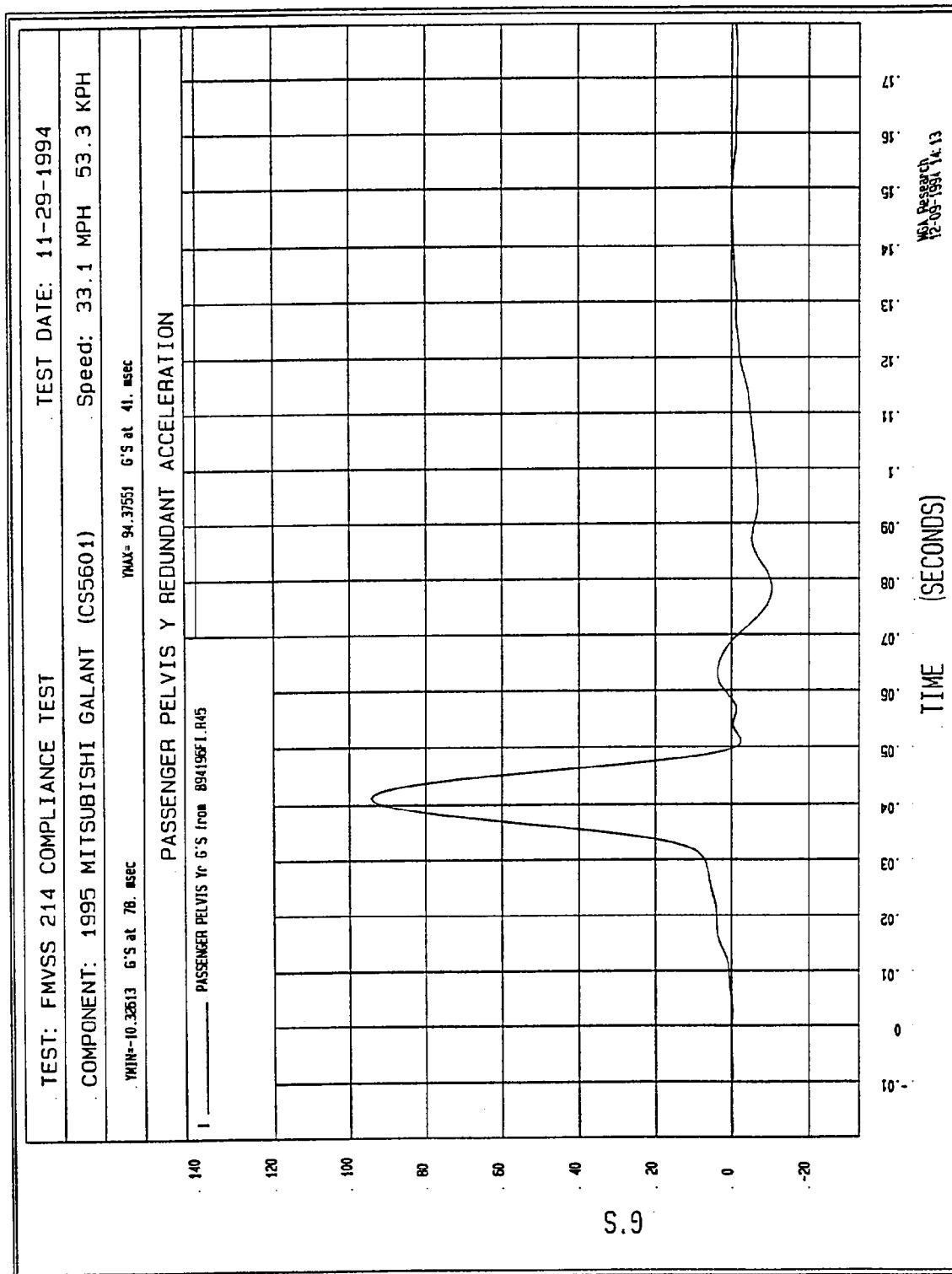


Figure B-95 - Passenger Pelvis Y Redundant Acceleration vs. Time

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-95-DC007

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

MITSUBISHI MOTORS
1995 MITSUBISHI GALANT 4 DOOR
NHTSA NO. CS5601

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: November 29, 1994

Report Date: December 20, 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: 271

Calibration Test Results Summary

Dummy Serial Number: 271

Pre-Test Calibration

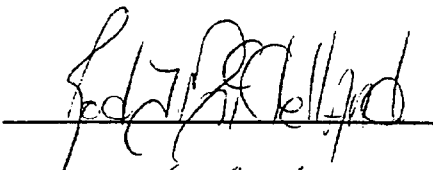
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

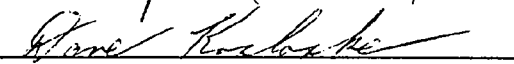
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 271

DATE OF VERIFICATION: November 23, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
RH - Rib Height	19.75" - 20.50"	20.25
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.5
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST
SIDE IMPACT DUMMY (SID)

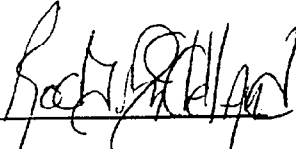
DATE: November 23, 1994

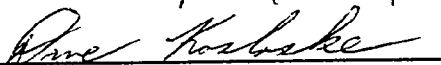
DUMMY NUMBER: 271

TEST NUMBER: D94222

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	45
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN 

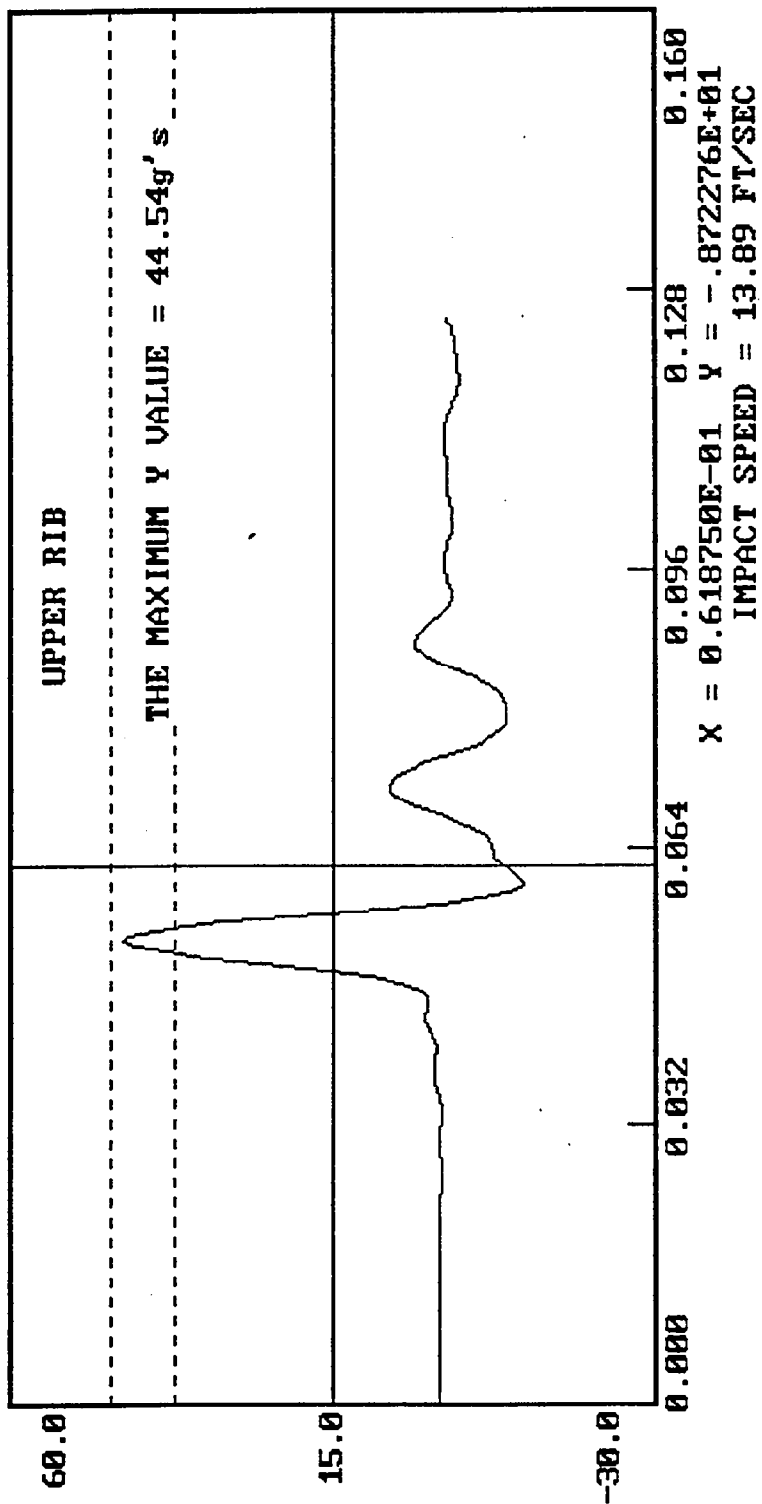
APPROVED BY 

11-23-1994 10:50

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

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

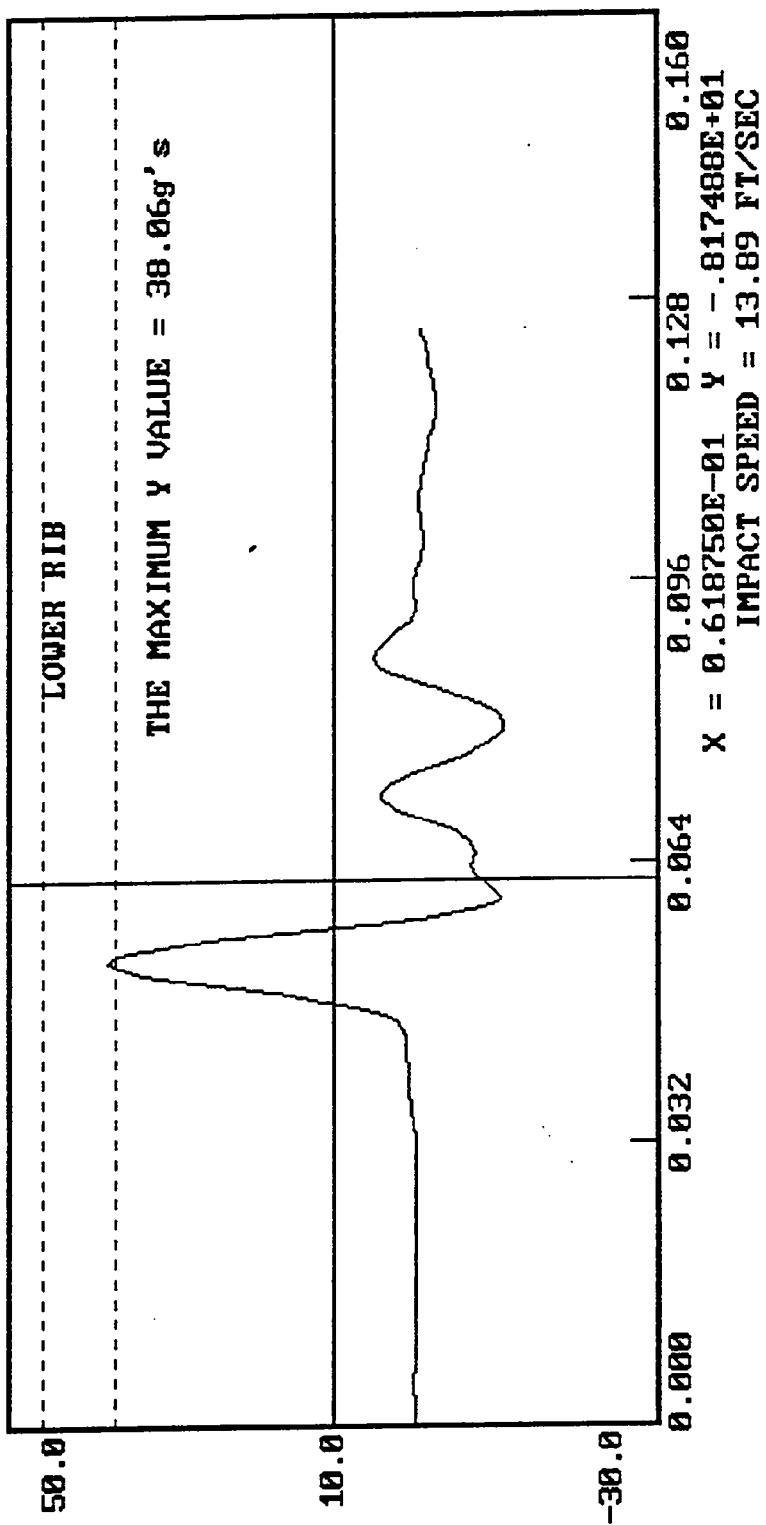


11-23-1994 10:50

DUMMY CALIBRATION - THORAX IMPACT

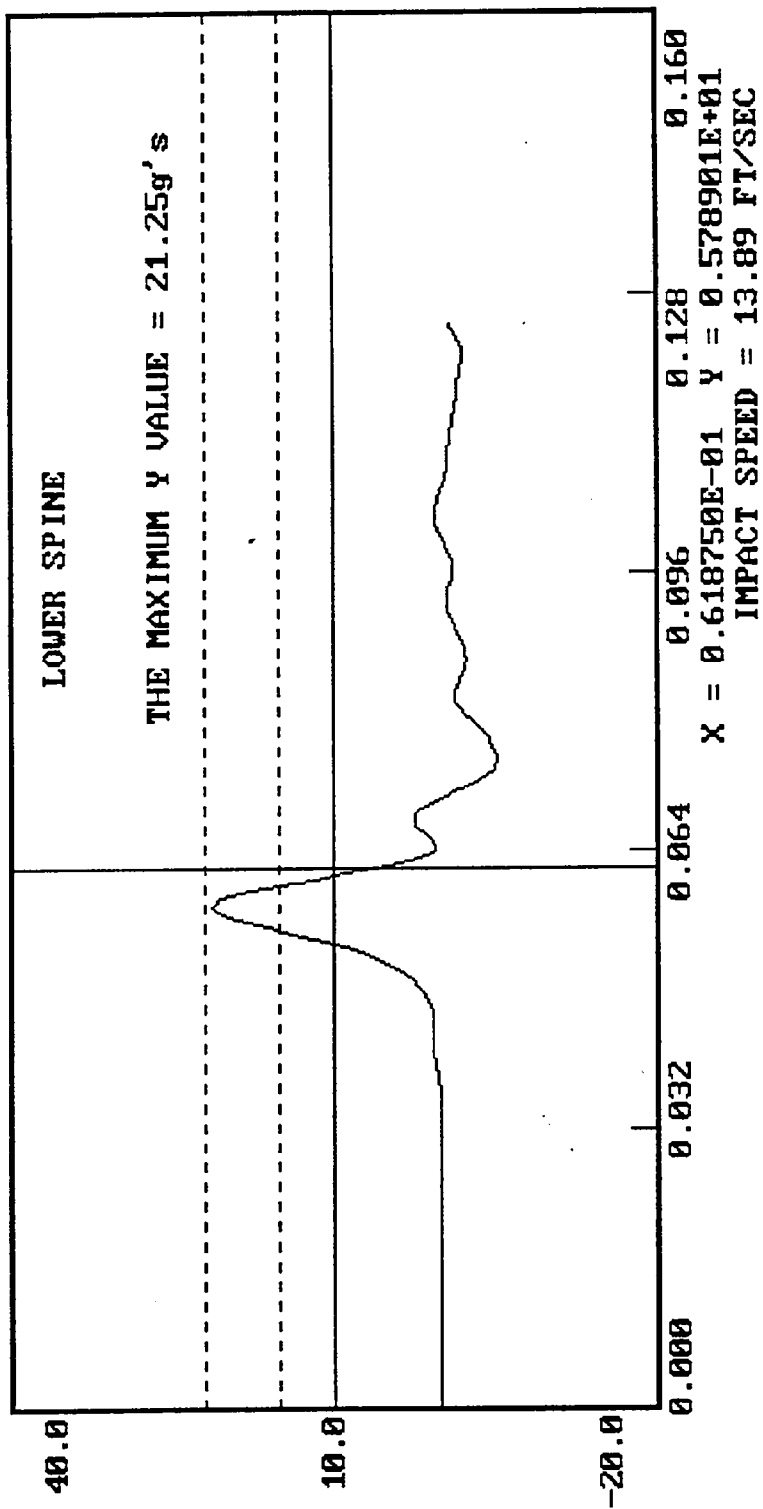
DUMMY # 271

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



11-23-1994 10:50

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 23, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94223

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	53

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

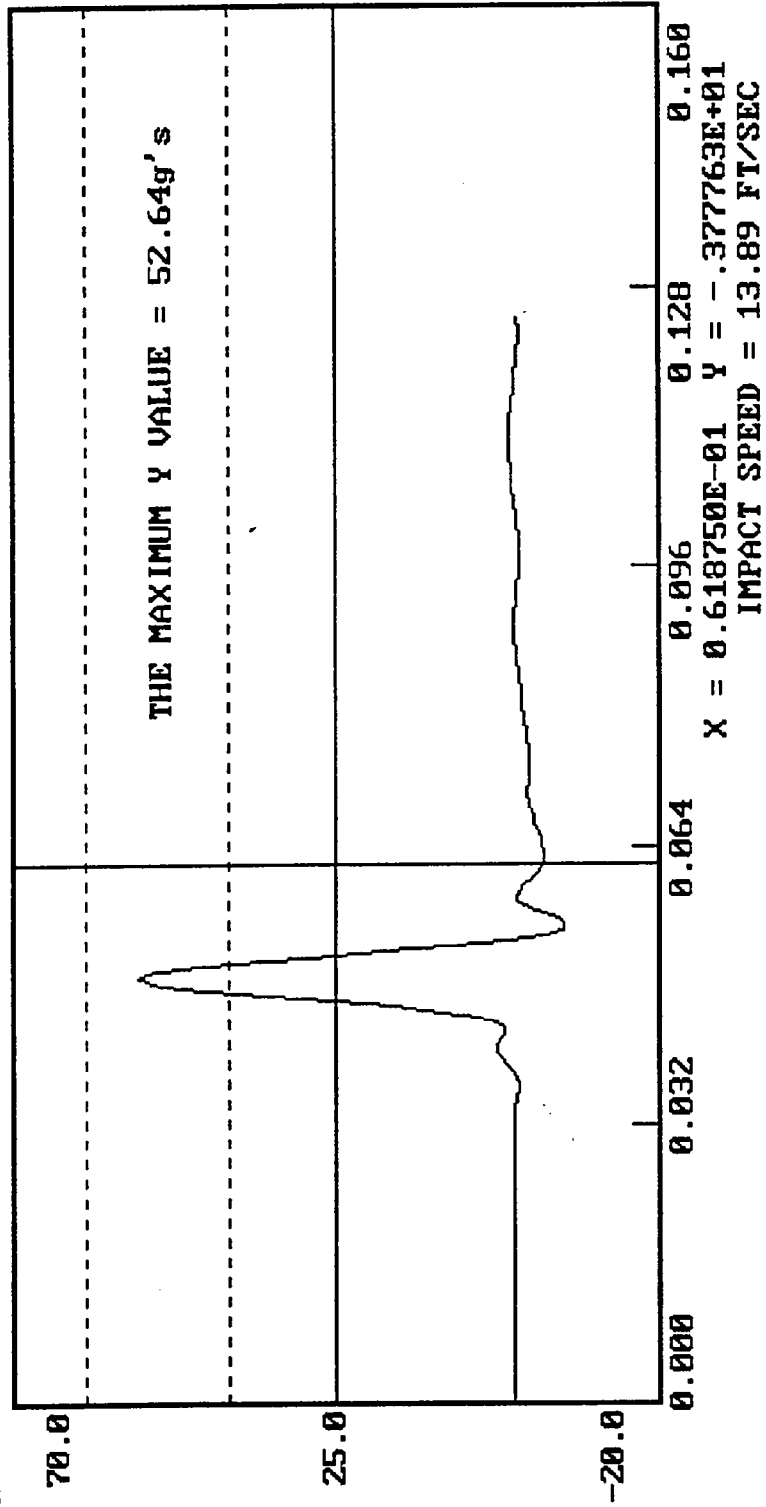


11-23-1994 10:05

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: November 23, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94224

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0.5 in	23.3 - 36.5 lbs	29.3
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.8
FORCE @ 1.0 in	50 - 63 lbs	56
FORCE @ 1.3 in	73 - 88 lbs	76

TEST MEETS SPECIFICATIONS

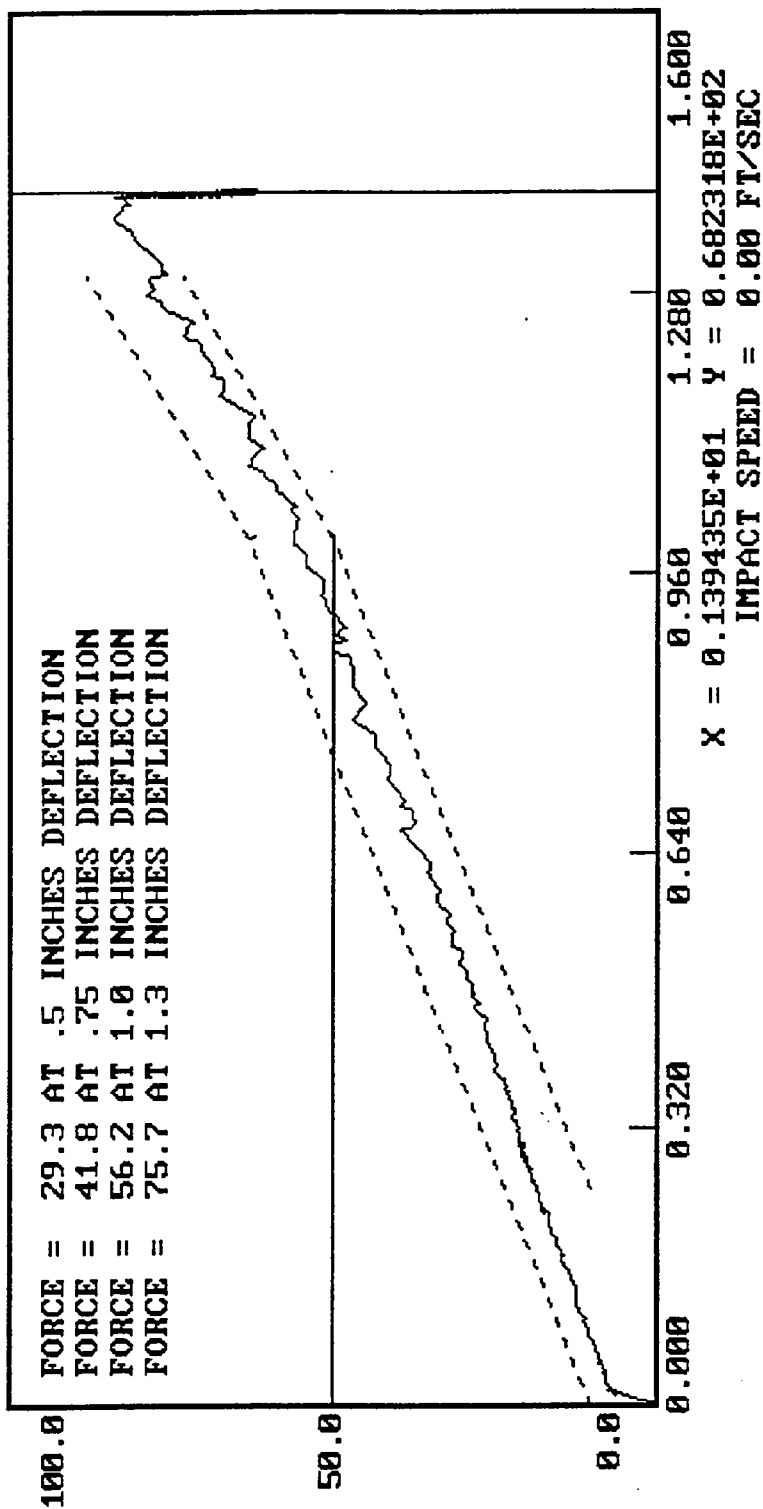
TECHNICIAN

Robert J. McCall

APPROVED BY

Steve Kabeke

DUMMY CALIBRATION -- ABDOMEN COMPRESSION
 DUMMY # 271
 11-23-1994 12:45
 ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 23, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94225

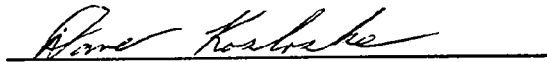
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	29
FORCE @ 30°	34 - 46 lbs	43
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	5°

TEST MEETS SPECIFICATIONS

TECHNICIAN



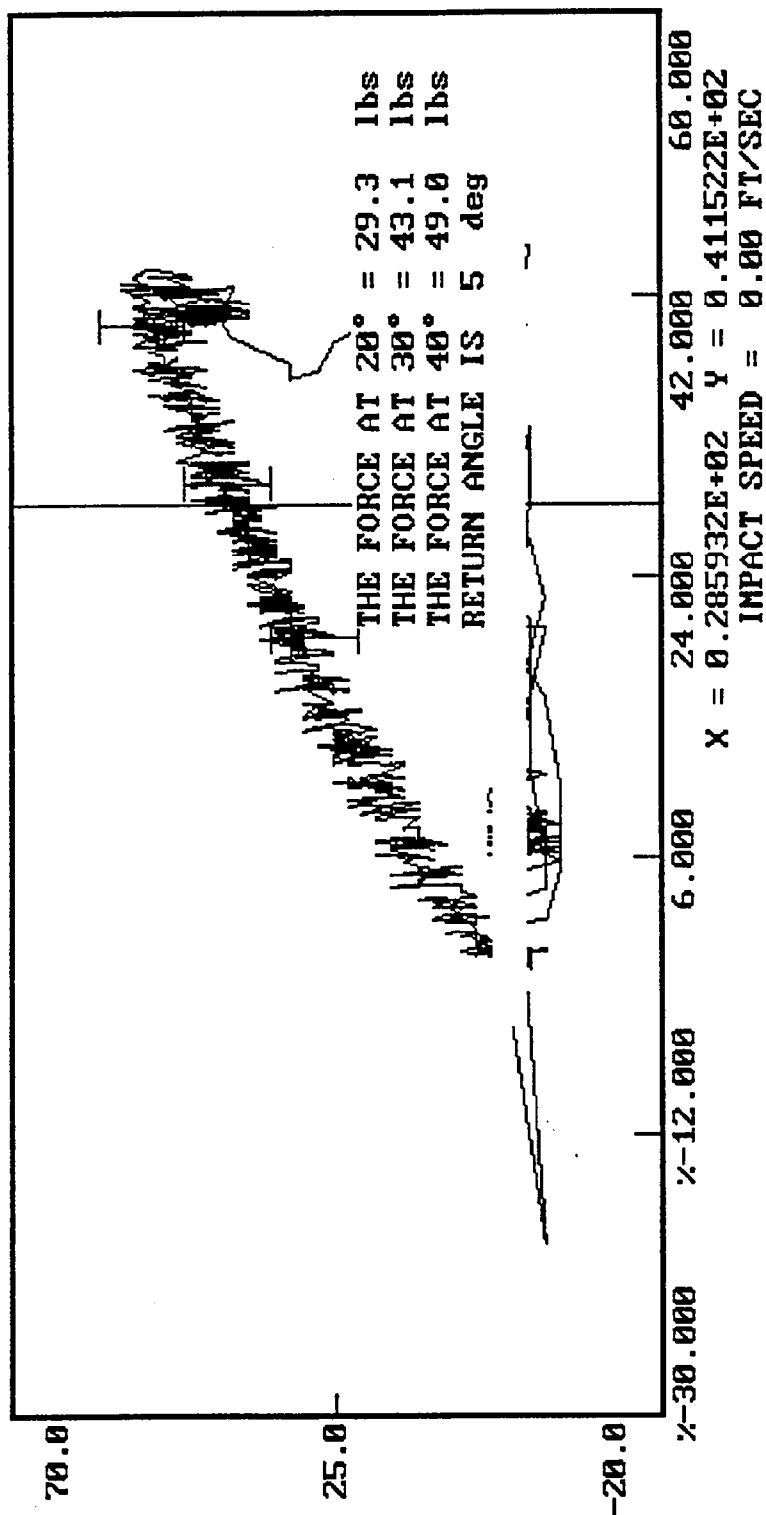
APPROVED BY



DUMMY CALIBRATION - LUMBAR FLEXION

DUMMY # 271

FORCE () VS. TORSO ROTATION (DEGREES)



PRE-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 269

Calibration Test Results Summary

Passenger 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: November 23, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
RH - Rib Height	19.75" - 20.50"	20.25
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: _____

[Signature]

APPROVED BY: _____

[Signature]

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

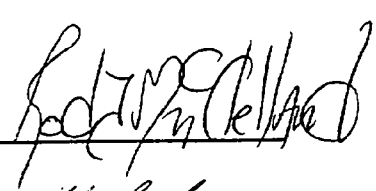
DATE: November 23, 1994

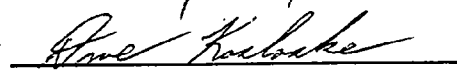
DUMMY NUMBER: 269

TEST NUMBER: D94212

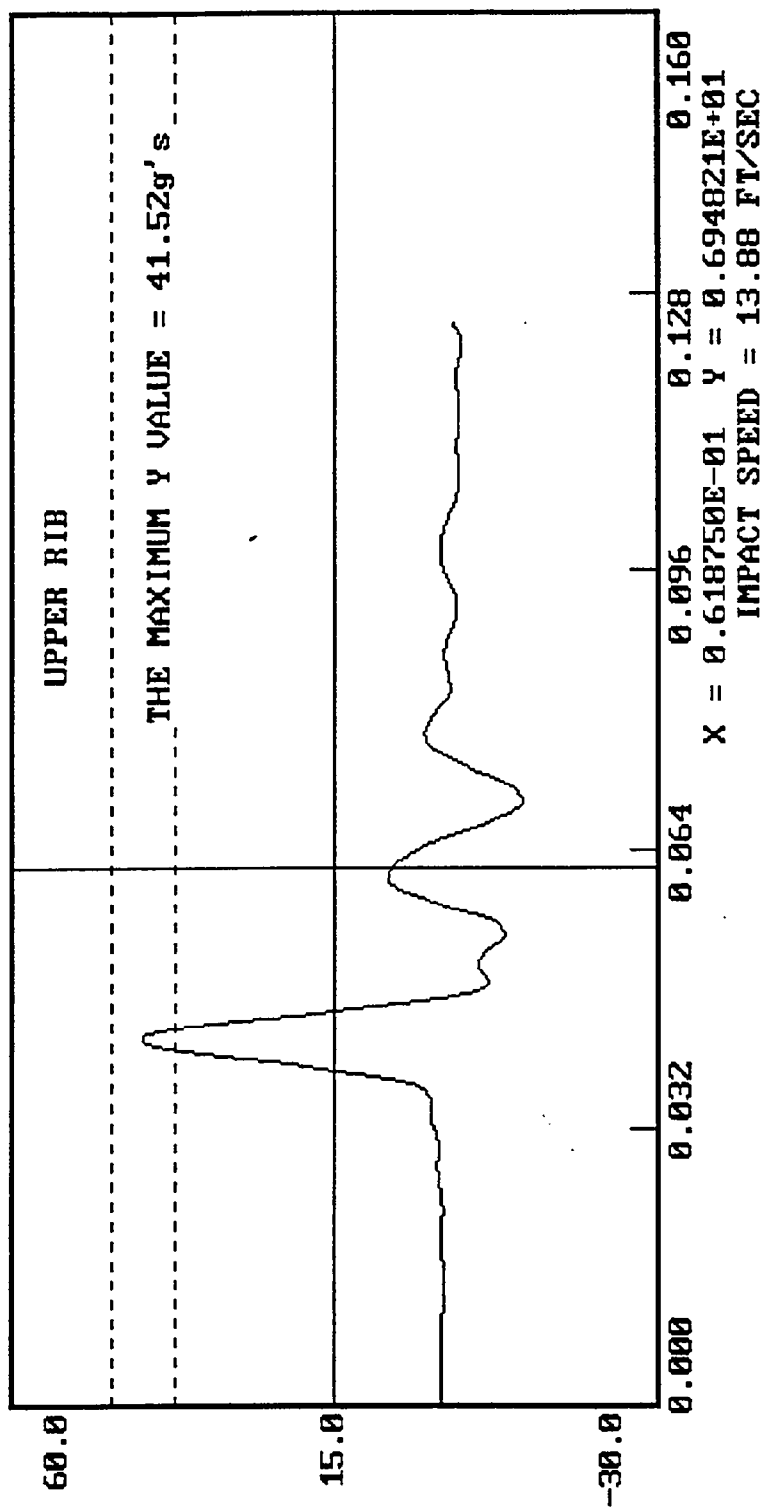
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

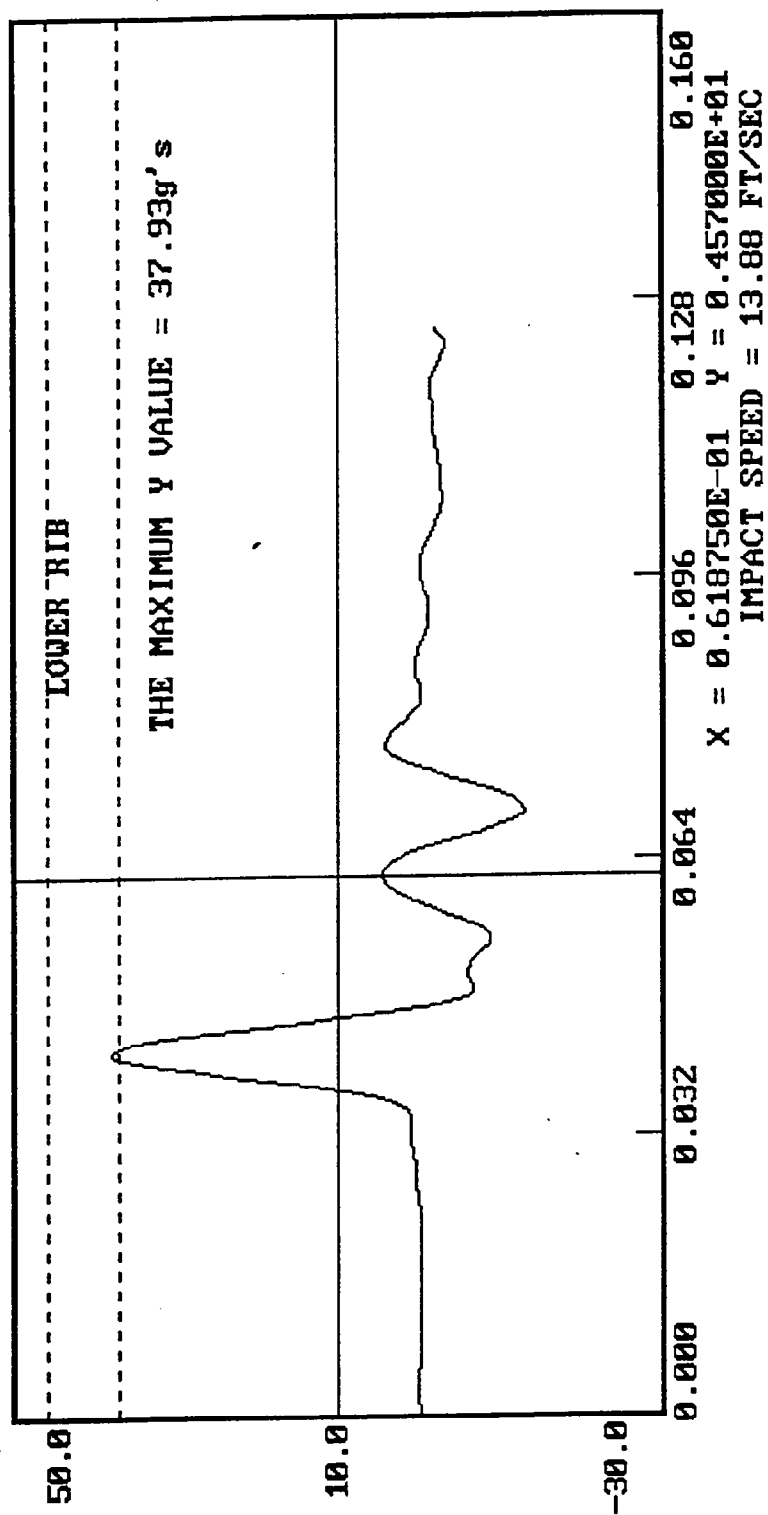
TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 269
 11-23-1994 11:25
 ACCELERATION (G'S) VS. TIME ((SECONDS))



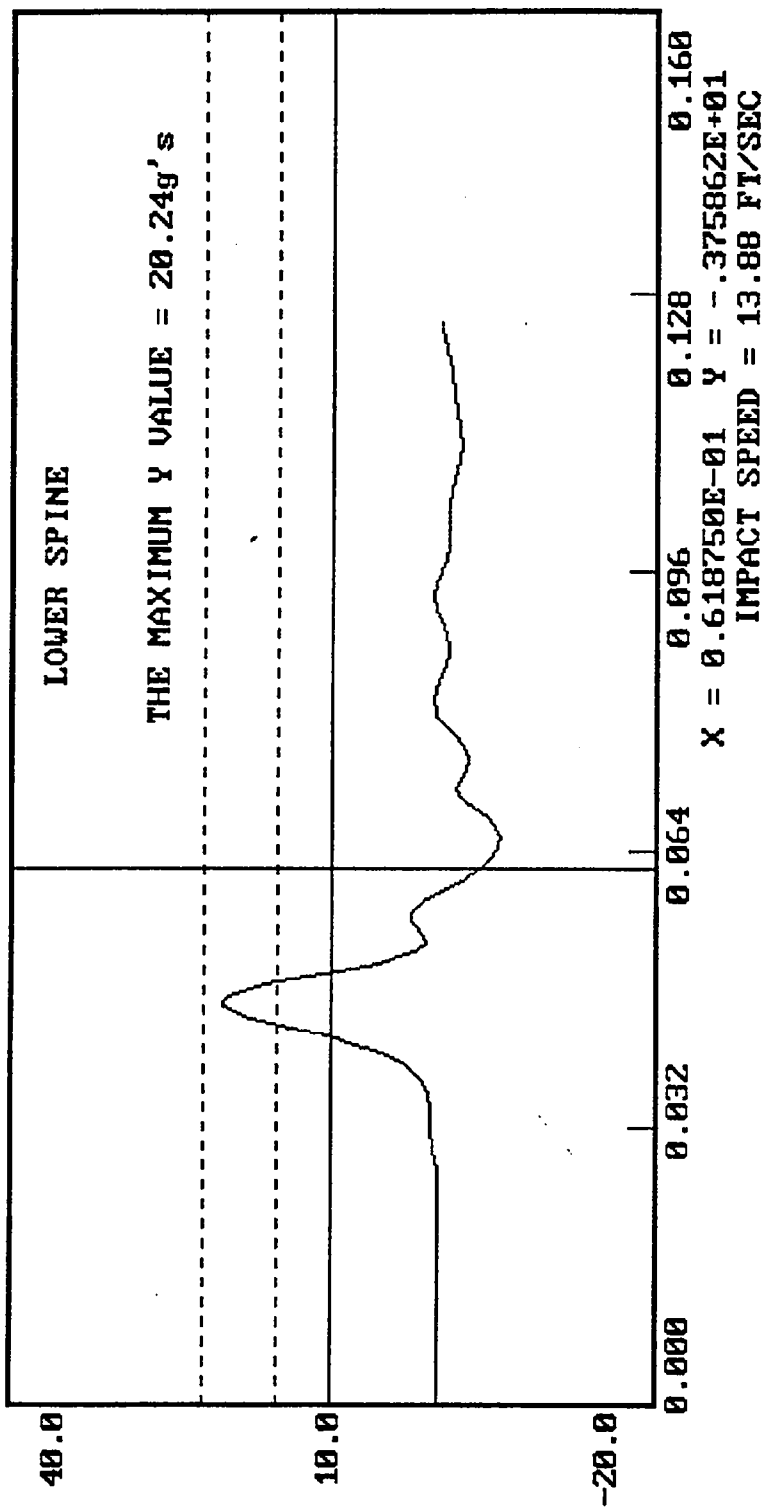
DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 269
 11-23-1994 11:25
 ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 269

11-23-1994 11:25

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 23, 1994

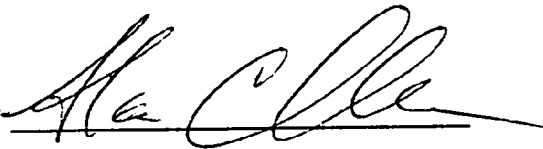
DUMMY NUMBER: 269

TEST NUMBER: D94213

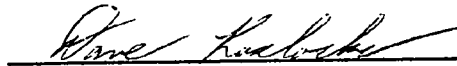
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	59

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

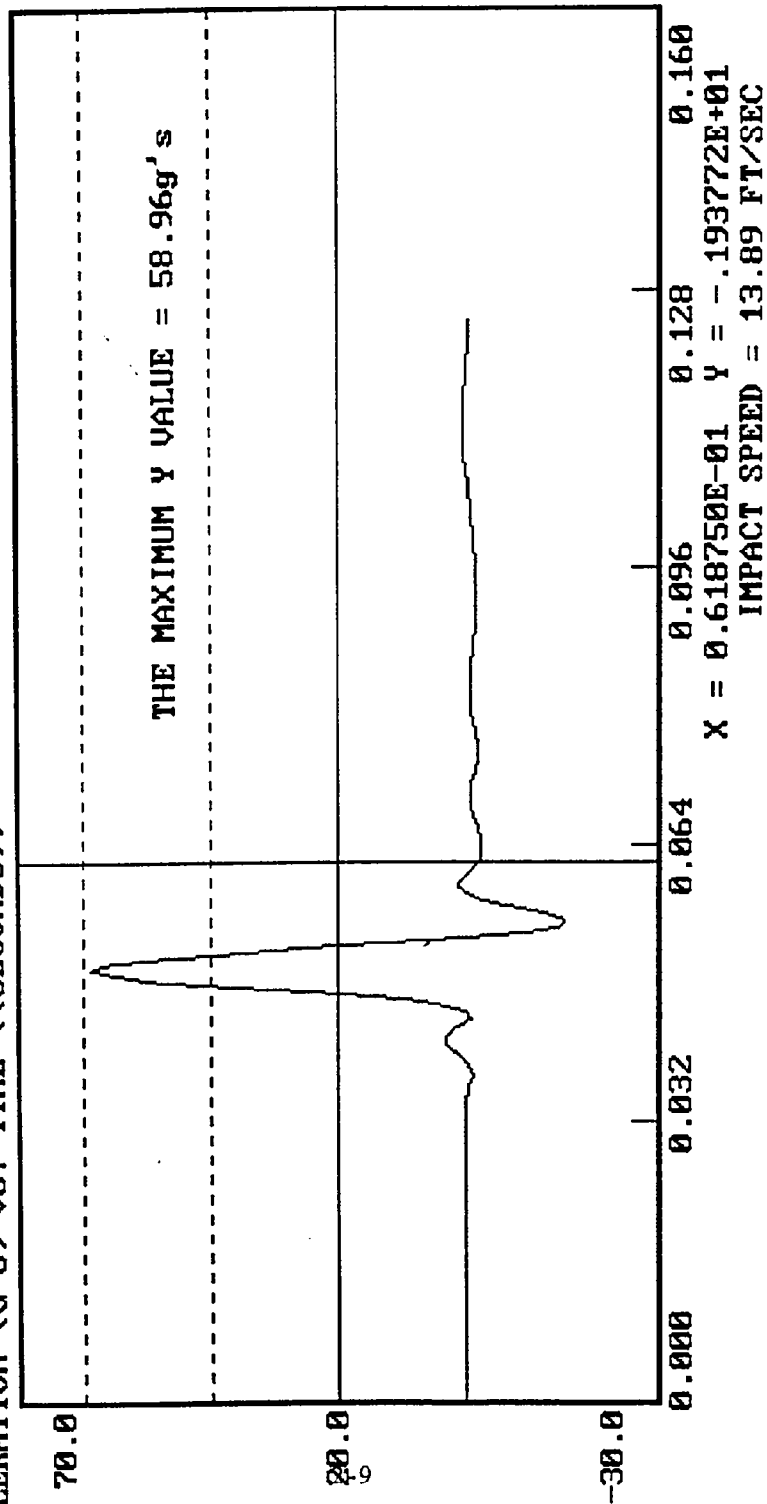


11-23-1994 09:33

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)

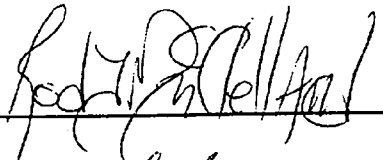
DATE: November 23, 1994

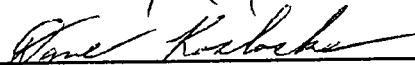
DUMMY NUMBER: 269

TEST NUMBER: D94214

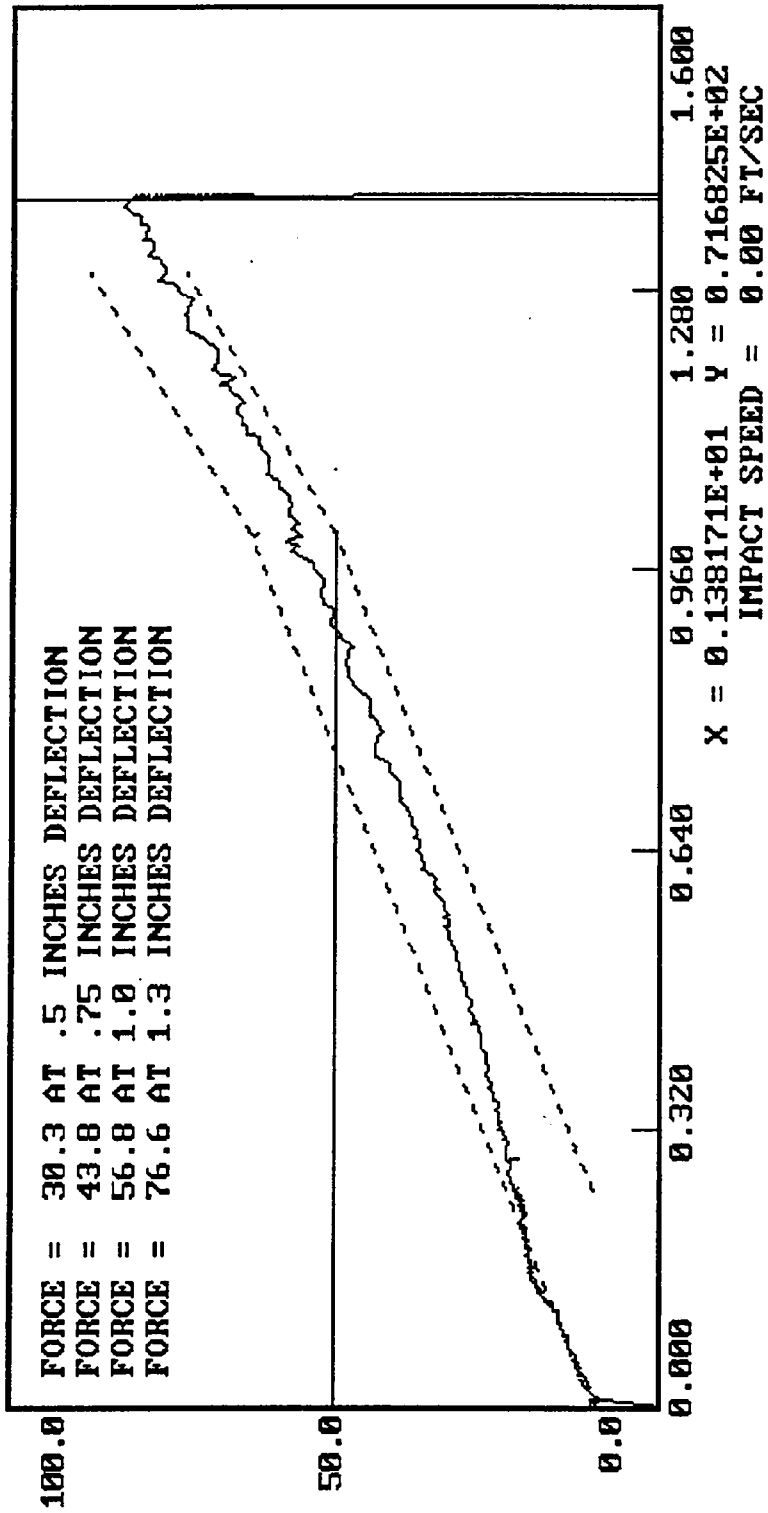
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0.5 in	23.3 - 36.5 lbs	30.3
FORCE @ 0.75 in	36.7 - 49.8 lbs	43.8
FORCE @ 1.0 in	50 - 63 lbs	57
FORCE @ 1.3 in	73 - 88 lbs	77

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 269
 11-23-1994 12:27
 ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

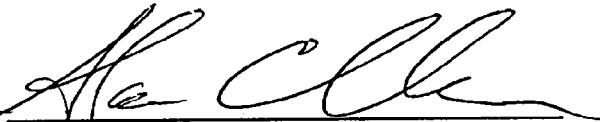
DATE: November 23, 1994

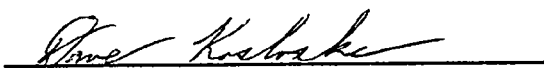
DUMMY NUMBER: 269

TEST NUMBER: D94215

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

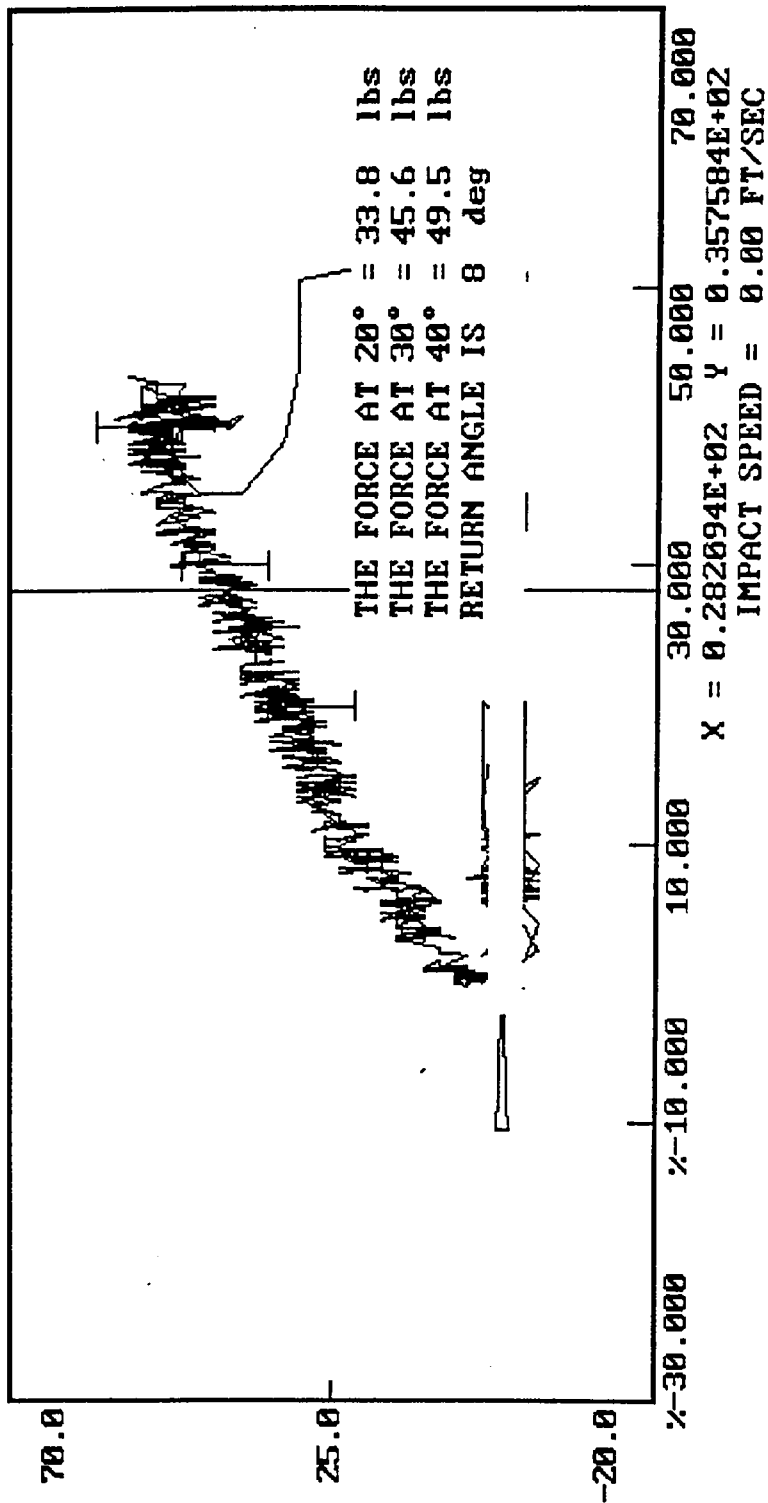
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

11-23-1994 13:34



POST-TEST CERTIFICATION DATA

Driver 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 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: November 30, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
RH - Rib Height	19.75" - 20.50"	20.25
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.5
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: _____

APPROVED BY: _____

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 30, 1994

DUMMY NUMBER: 271

TEST NUMBER: D94282

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	45
LOWER RIB	37 - 46 g's	39
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN 

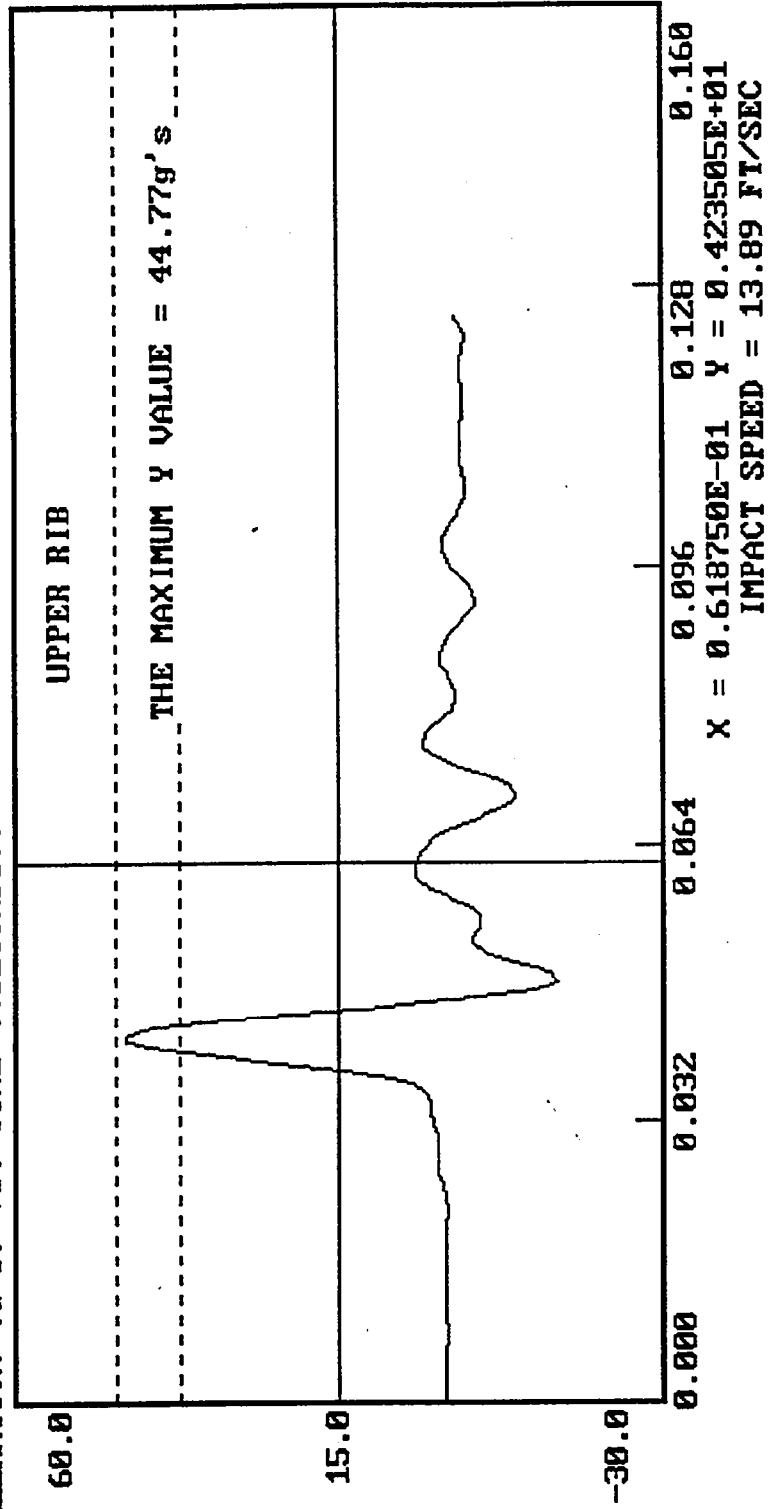
APPROVED BY 

11-30-1994 13:04

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

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

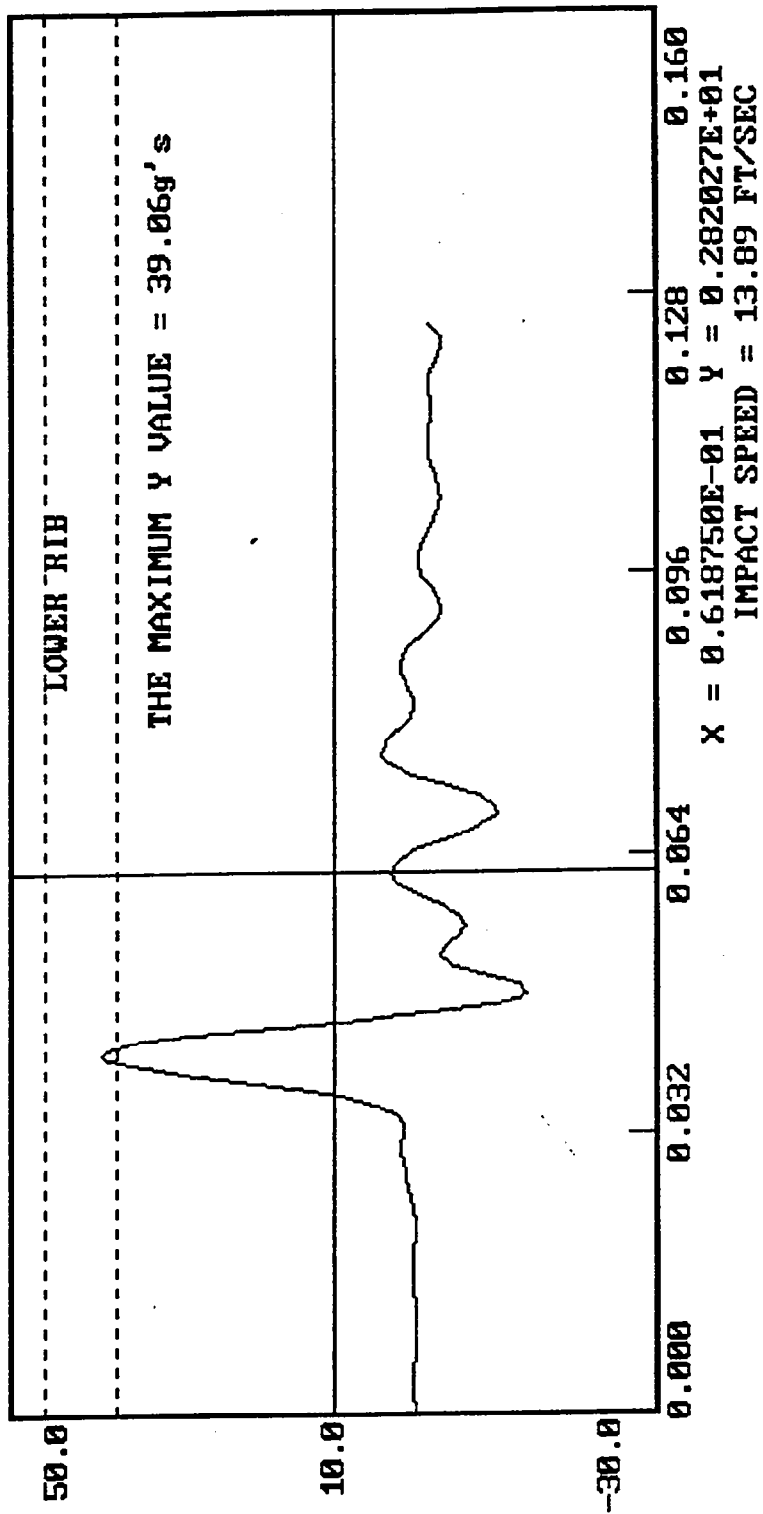


11-30-1994 13:04

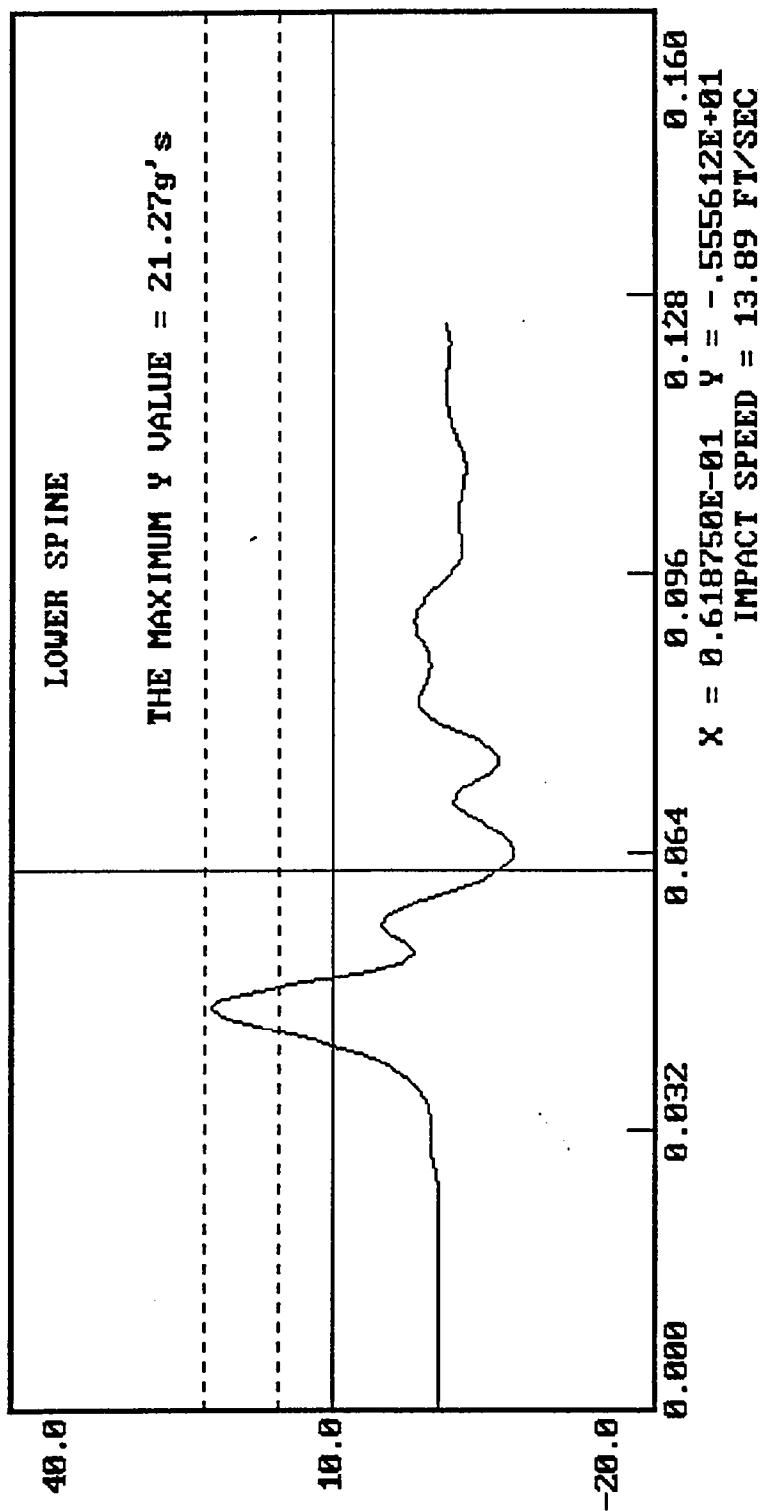
DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

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



DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 271
11-30-1994 13:04
ACCELERATION (G'S) VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 30, 1994

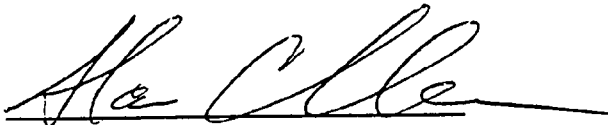
DUMMY NUMBER: 271

TEST NUMBER: D94283

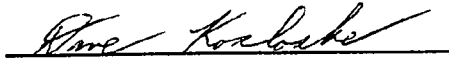
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	59

TEST MEETS SPECIFICATIONS

TECHNICIAN

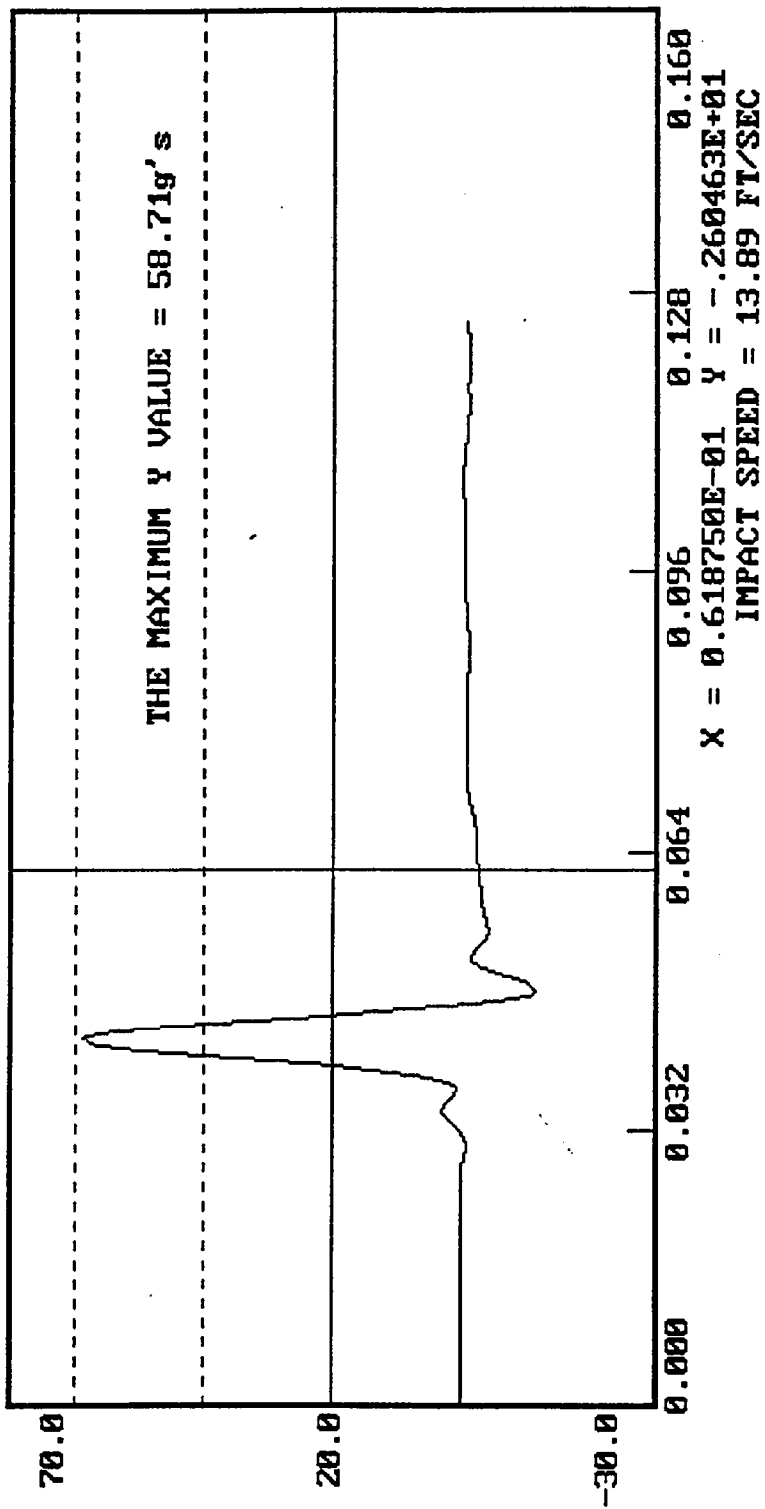


APPROVED BY



11-30-1994 15:27

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)

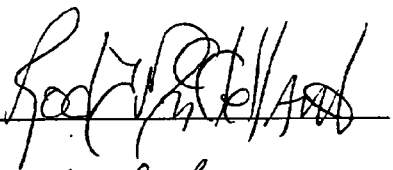
DATE: November 30, 1994

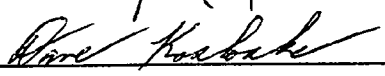
DUMMY NUMBER: 271

TEST NUMBER: D94284

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0.5 in	23.3 - 36.5 lbs	29.2
FORCE @ 0.75 in	36.7 - 49.8 lbs	43.1
FORCE @ 1.0 in	50 - 63 lbs	55
FORCE @ 1.3 in	73 - 88 lbs	76

TEST MEETS SPECIFICATIONS

TECHNICIAN 

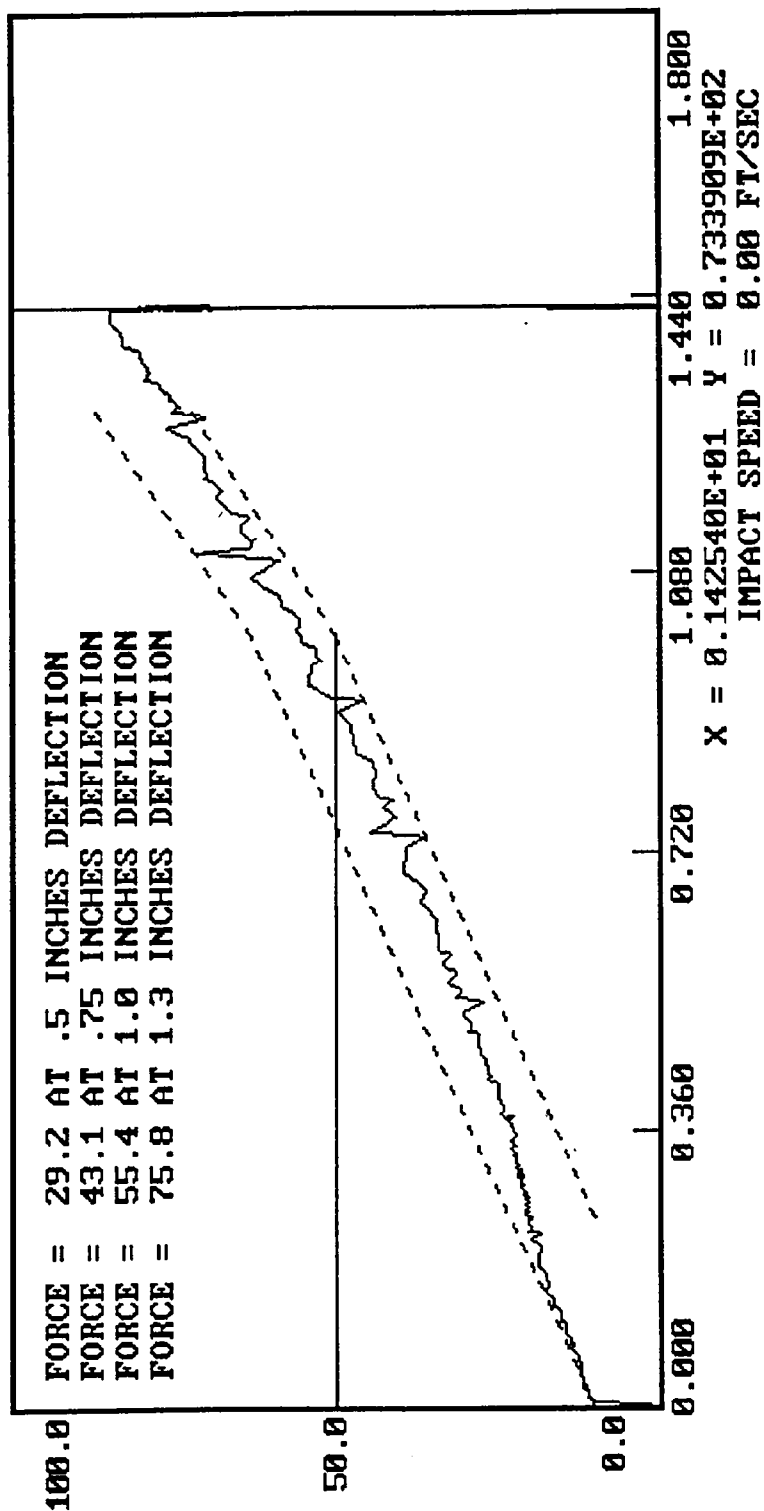
APPROVED BY 

11-30-1994 16:23

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 271

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 30, 1994

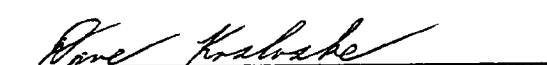
DUMMY NUMBER: 271

TEST NUMBER: D94285

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	29
FORCE @ 30°	34 - 46 lbs	37
FORCE @ 40°	46 - 58 lbs	50
RETURN ANGLE	12° maximum	6°

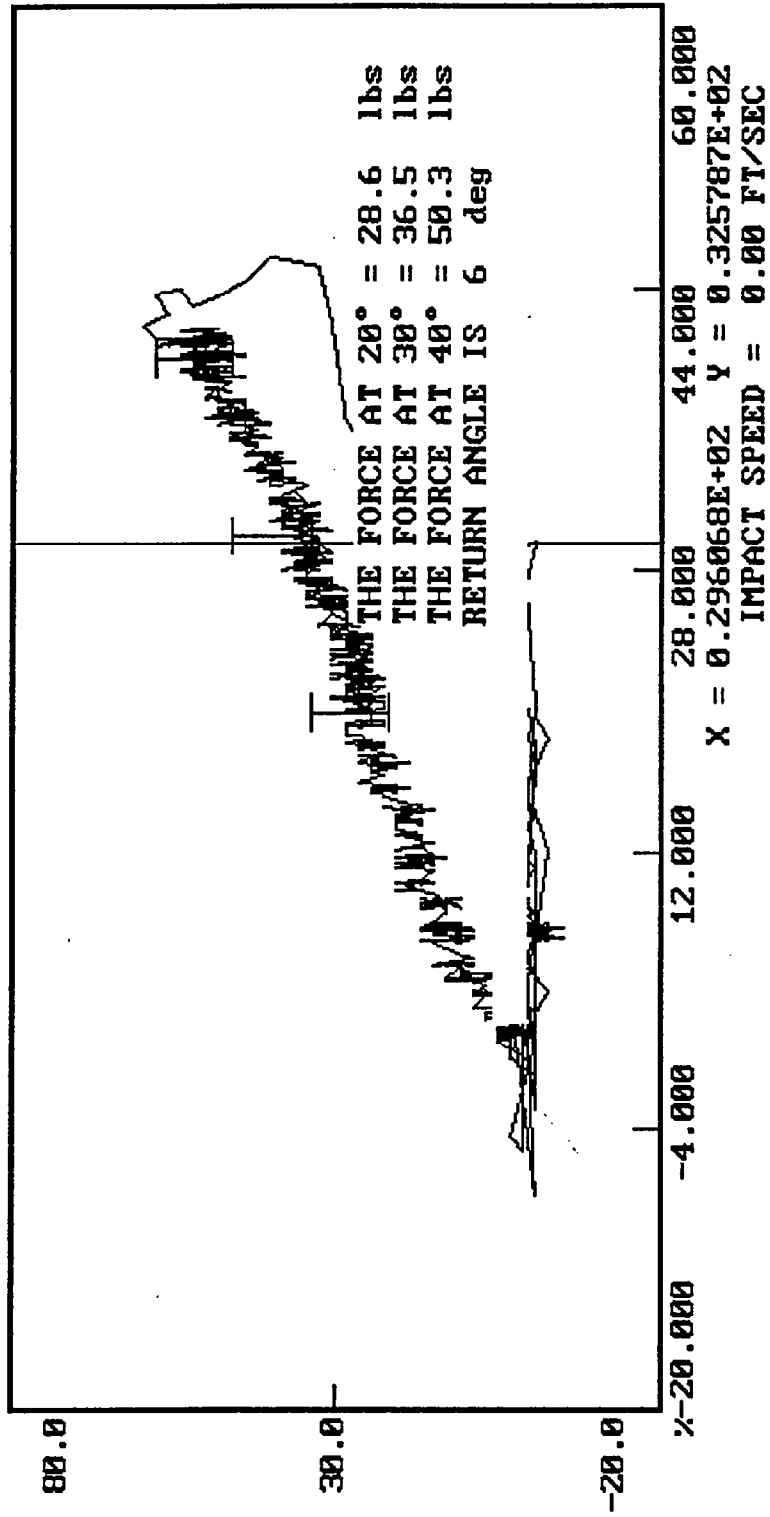
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

11-30-1994 16:14



POST-TEST CERTIFICATION DATA

Passenger 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: November 30, 1994

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
RH - Rib Height	19.75" - 20.50"	20.25
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: _____



APPROVED BY: _____



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

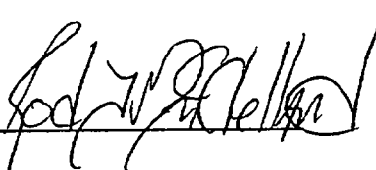
DATE: November 30, 1994

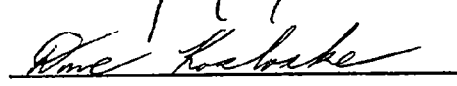
DUMMY NUMBER: 269

TEST NUMBER: D94272

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	21

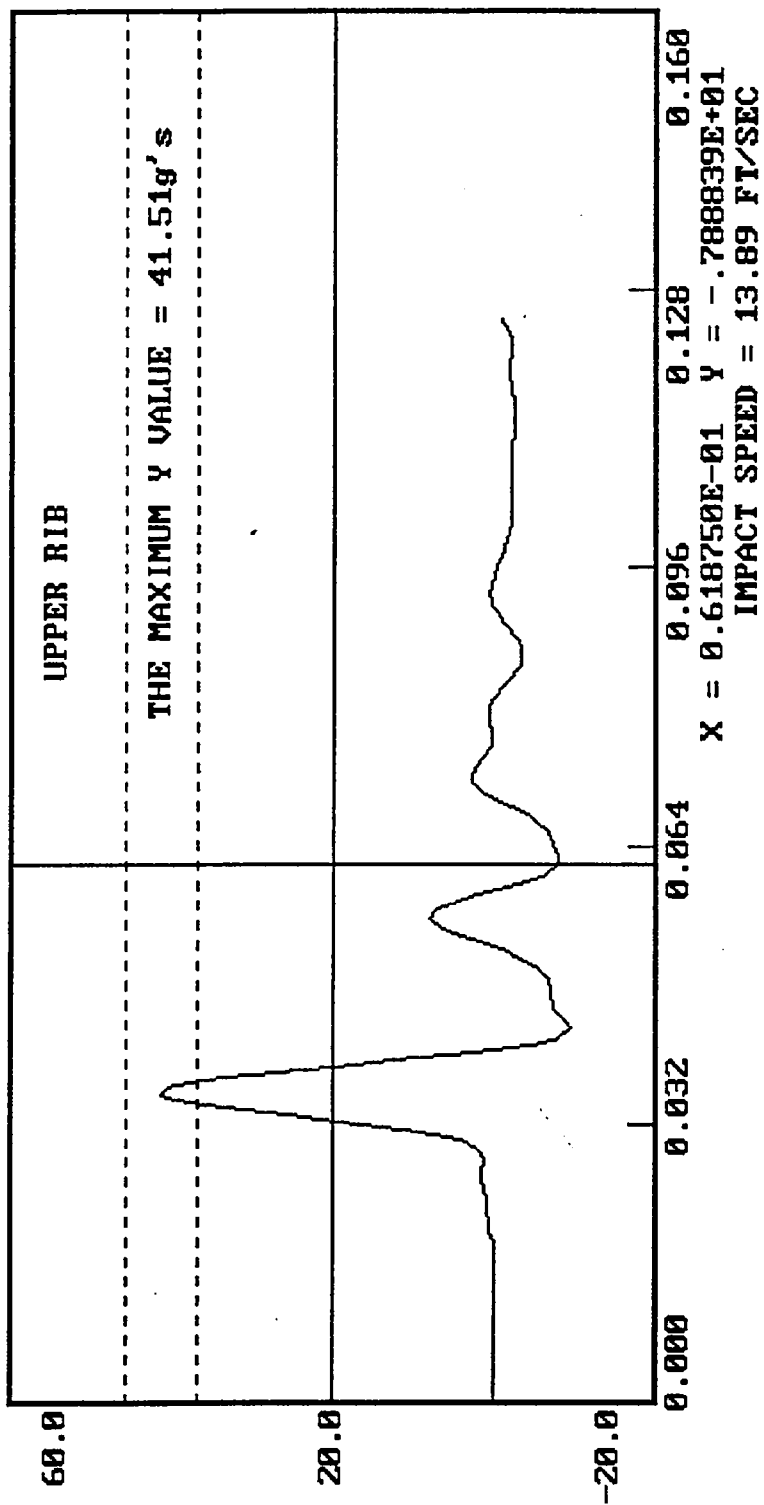
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

11-30-1994 12:22

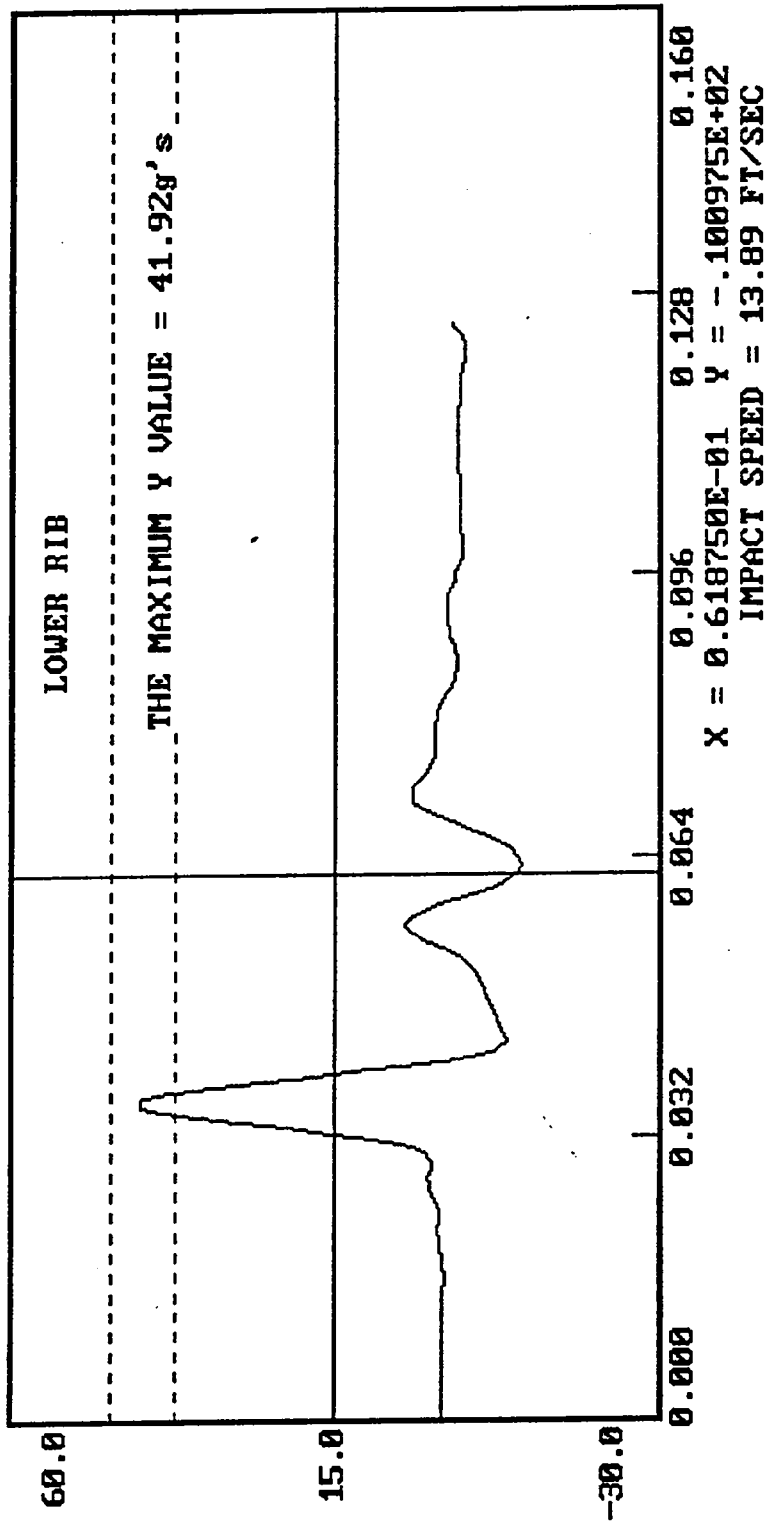
DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 269
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 269

11-30-1994 12:22

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

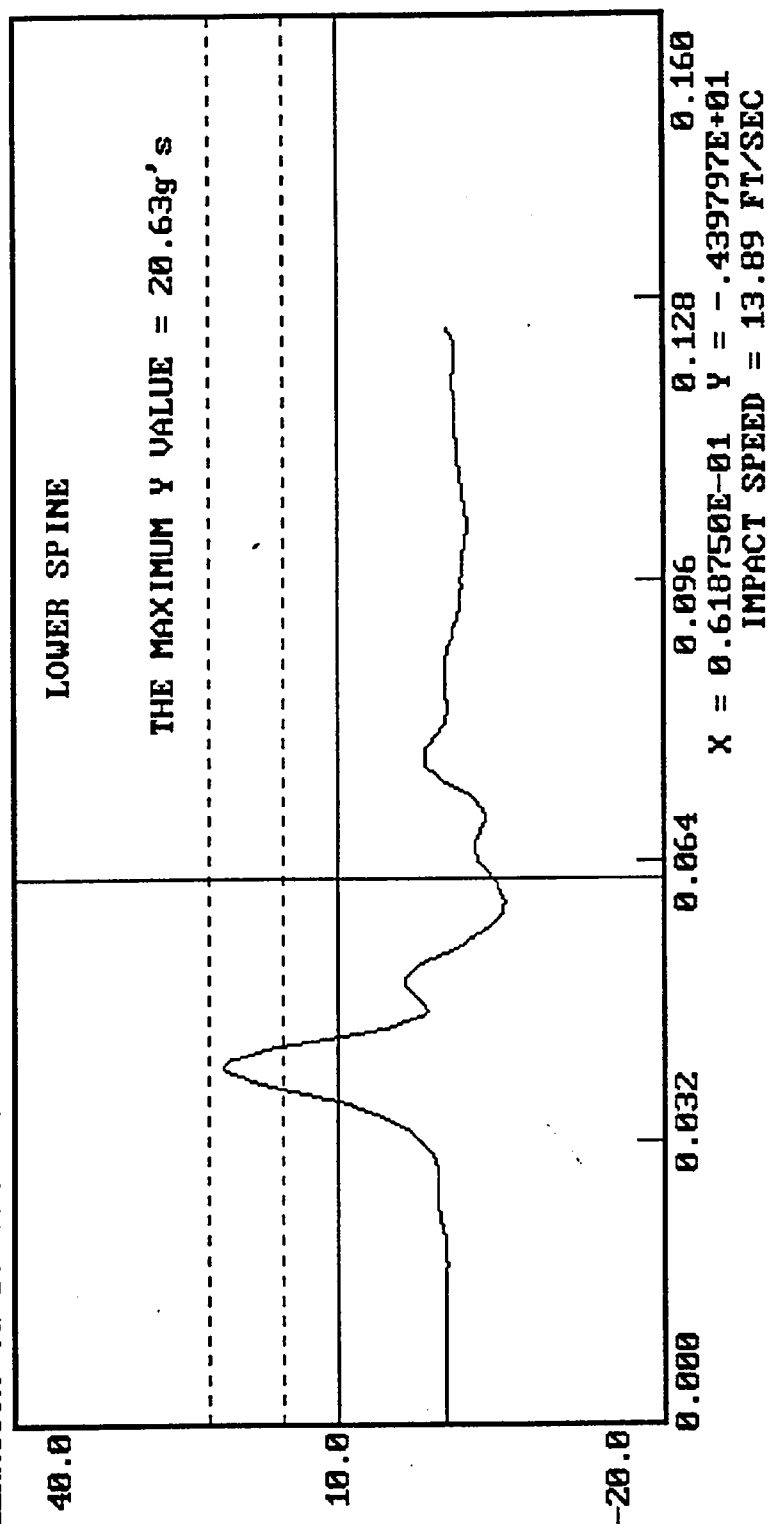


11-30-1994 12:22

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 30, 1994

DUMMY NUMBER: 269

TEST NUMBER: D94273

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	53

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

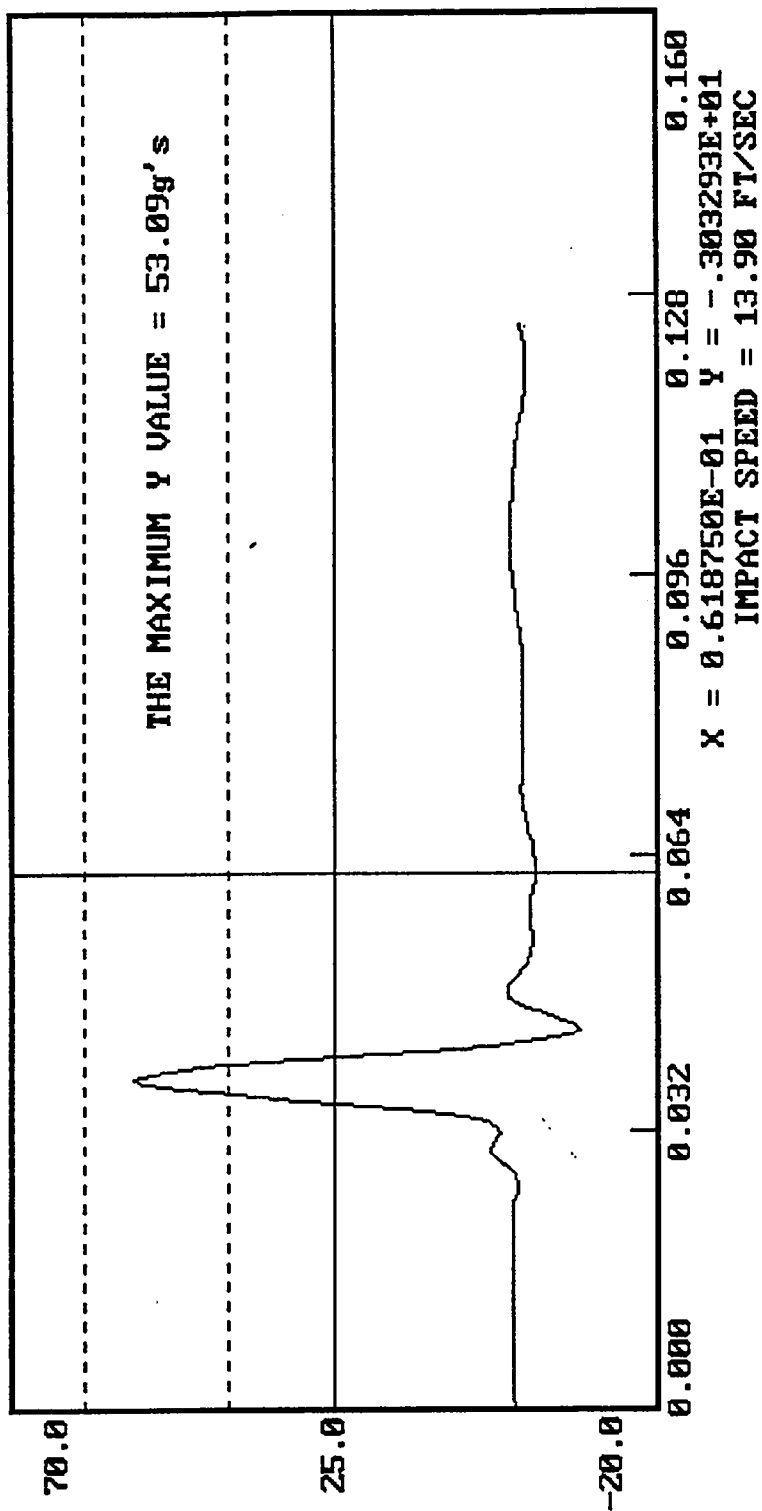


11-30-1994 15:42

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)

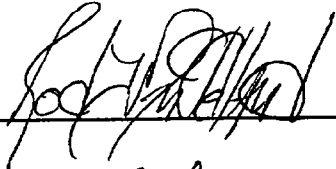
DATE: November 30, 1994

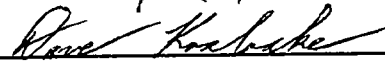
DUMMY NUMBER: 269

TEST NUMBER: D94274

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.2
FORCE @ 0.75 in	36.7 - 49.8 lbs	42.9
FORCE @ 1.0 in	50 - 63 lbs	59
FORCE @ 1.3 in	73 - 88 lbs	84

TEST MEETS SPECIFICATIONS

TECHNICIAN 

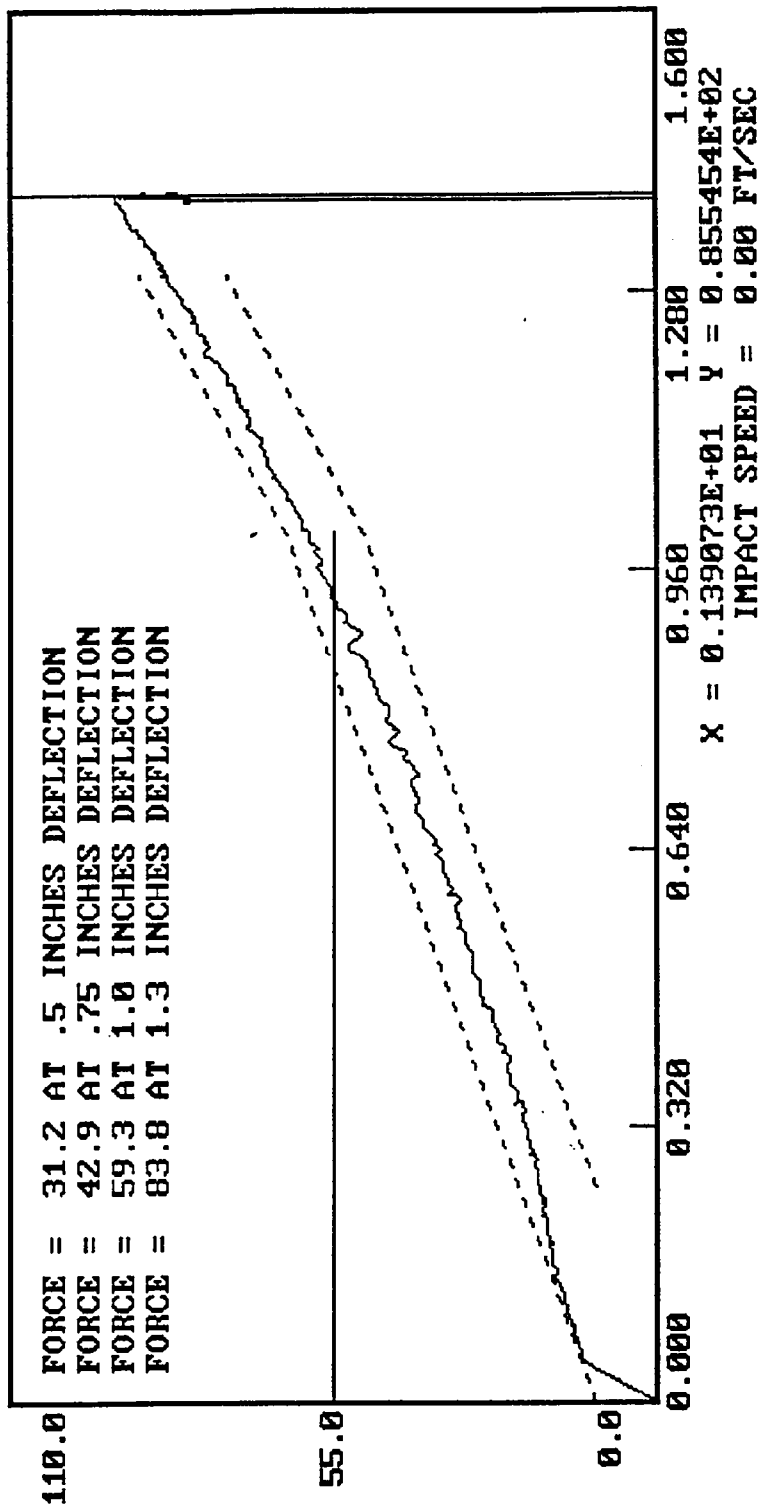
APPROVED BY 

11-30-1994 04:51

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 269

ABDOMEN FORCE () VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

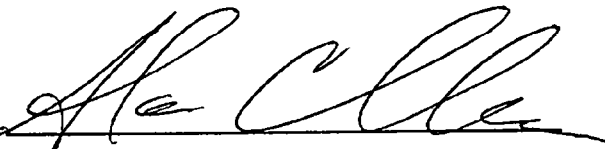
DATE: November 30, 1994

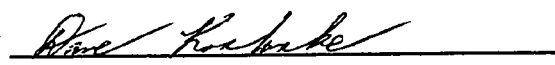
DUMMY NUMBER: 269

TEST NUMBER: D94275

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

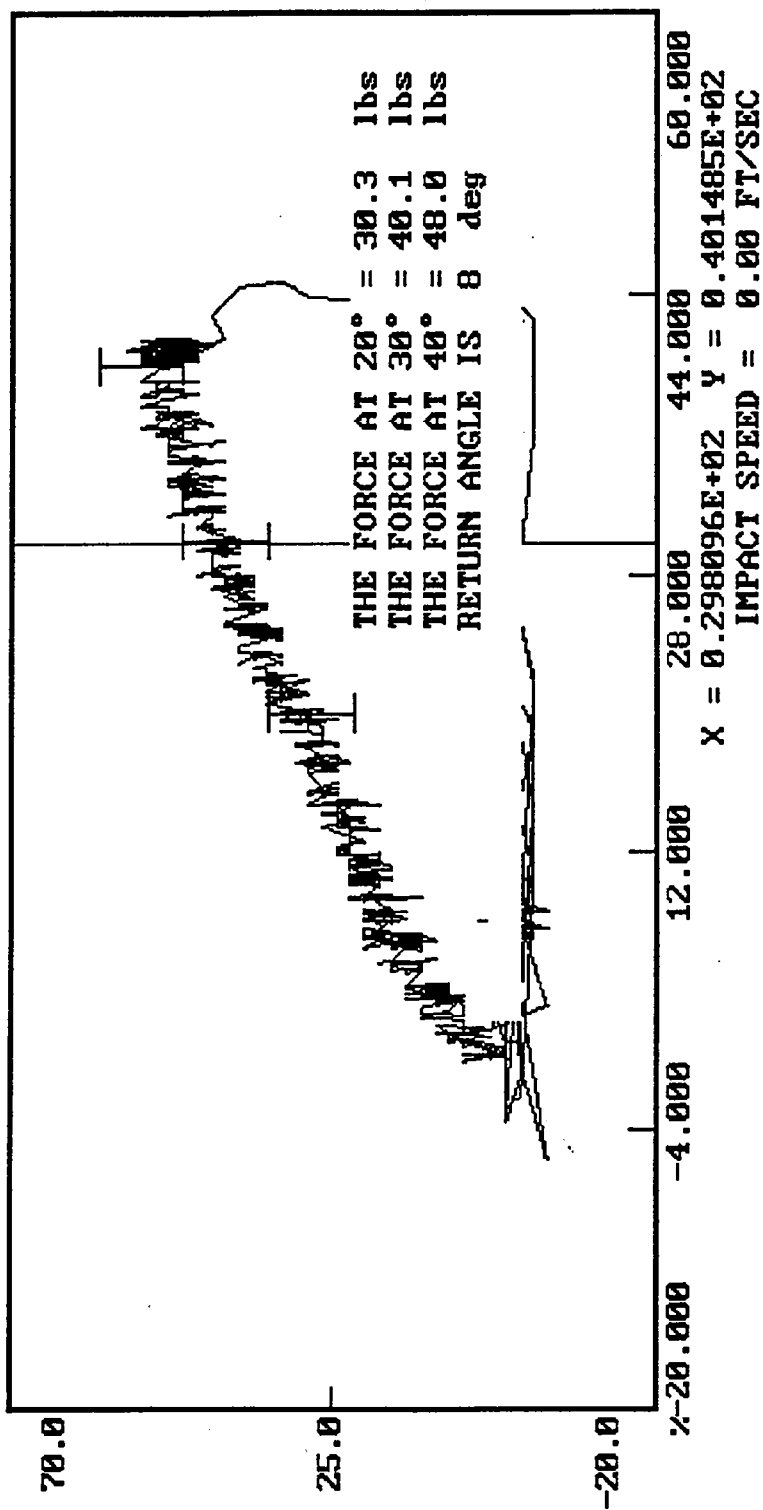
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

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

11-30-1994 16:07



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 271

Inspected By: Rod McClelland

Date: November 30, 1994

<u>Part</u>	<u>Items Checked</u>	<u>Comments</u>
Skin	visual inspection	OK
Head	visual, ballast, accelerometer mount	OK
Neck	visual, cable torque	OK
Spine box	visual, ballast, weldment, accelerometer mount	OK
Rib cage	visual, measure, stiffeners	OK
Sternum	visual	OK
Lumbar spine	visual	OK
Abdomen	visual	OK
Pelvis	visual, palpate, accelerometer mount	OK
Upper legs	visual	OK
Knees	visual, stops, inserts	OK
Lower legs	visual, range of motion	OK
Ankles	visual, range of motion	OK
Feet	visual, range of motion	OK
Joints	1 to 2 g range	OK
Other		

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

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

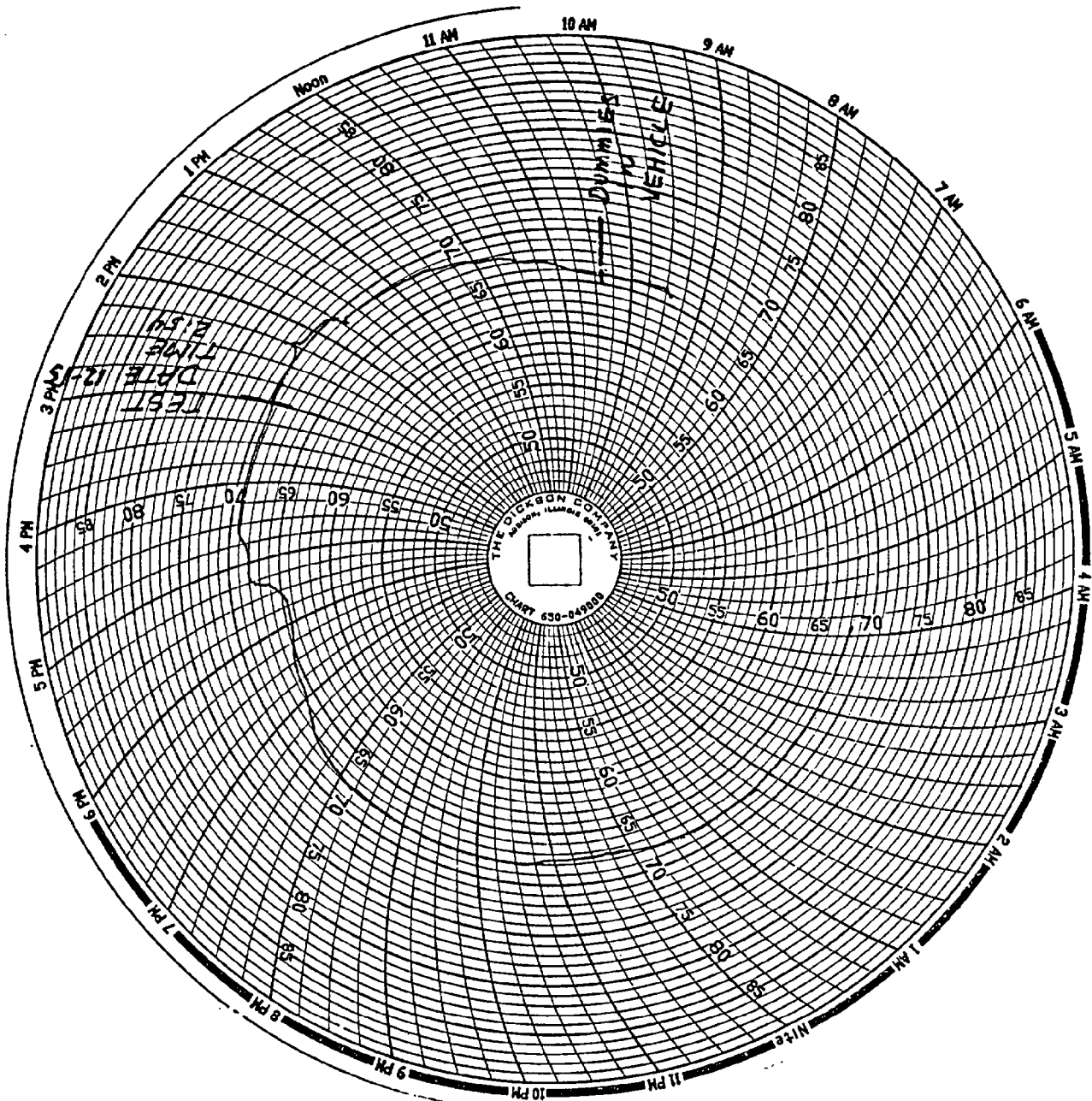
Inspected By: Al Chalmers

Date: November 30, 1994

<u>Part</u>	<u>Items Checked</u>	<u>Comments</u>
Skin	visual inspection	OK
Head	visual, ballast, accelerometer mount	OK
Neck	visual, cable torque	OK
Spine box	visual, ballast, weldment, accelerometer mount	OK
Rib cage	visual, measure, stiffeners	OK
Sternum	visual	OK
Lumbar spine	visual	OK
Abdomen	visual	OK
Pelvis	visual, palpate, accelerometer mount	OK
Upper legs	visual	OK
Knees	visual, stops, inserts	OK
Lower legs	visual, range of motion	OK
Ankles	visual, range of motion	OK
Feet	visual, range of motion	OK
Joints	1 to 2 g range	OK
Other		

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

VEHICLE AND DUMMY TEMPERATURE



Temperature (degrees F)

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	AGTM8	Endevco	September 01, 1994
Lower Rib	AHY21	Endevco	September 02, 1994
Lower Spine	AJ417	Endevco	October 10, 1994
Pelvis	AGTM2	Endevco	September 16, 1994
Upper Rib Redundant	AJ411	Endevco	July 12, 1994
Lower Rib Redundant	AGTG8	Endevco	September 16, 1994
Lower Spine Redundant	AGP20	Endevco	October 10, 1994
Pelvis Redundant	AC8J4	Endevco	June 10, 1994

INSTRUMENTS FOR PASSENGER DUMMY NO. 269

	LEFT REAR PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib	AC913	Endevco	September 12, 1994
Lower Rib	AJ436	Endevco	July 12, 1994
Lower Spine	AH0D1	Endevco	September 01, 1994
Pelvis	AHWK8	Endevco	September 01, 1994
Upper Rib Redundant	AH0M0	Endevco	September 16, 1994
Lower Rib Redundant	AGT81	Endevco	September 16, 1994
Lower Spine Redundant	AH1G2	Endevco	September 16, 1994
Pelvis Redundant	AJ606	Endevco	November 07, 1994

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
MDB CG X	AHTA5	Endevco	October 17, 1994
MDB CG Y	AJAE8	Endevco	October 14, 1994
MDB CG Z	AJ9T5	Endevco	October 17, 1994
MDB Rear Axle X	MGA119	Endevco	October 12, 1994
MDB Rear Axle Y	MGA014	Endevco	October 17, 1994
Lower Left A-Post Y	MGA035	Endevco	November 07, 1994
Lower Left B-Post Y	MGA021	Endevco	October 12, 1994
Mid Left A-Post Y	MGA130	Entran	June 14, 1994
Trunk Centerline X	AHYR2	Endevco	July 12, 1994
Trunk Centerline Y	X14	Endevco	October 30, 1994
Trunk Centerline Z	AH0P9	Endevco	November 12, 1994
Driver Seat Track Y	A03	Endevco	November 07, 1994
Right Front Sill X	AJ4R1	Endevco	November 14, 1994
Right Front Sill Y	AHYY5	Endevco	November 14, 1994
Right Front Sill Z	X02	Endevco	November 04, 1994
Right Rear Sill X	AJ956	Endevco	October 12, 1994
Right Rear Sill Y	AJ660	Endevco	October 14, 1994
Right Rear Sill Z	AJ9F0	Endevco	October 12, 1994
Left Front Sill Y	MGA076	Entran	November 18, 1994
Left Rear Sill Y	MGA157	Entran	May 16, 1994
Right Rear Seat Occupant Compartment Y	AHTA5	Endevco	July 12, 1994

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