

V2340

REPORT NO.: 214-MGA-96-003
SAFETY COMPLIANCE TESTING FOR
FMVSS 214 "SIDE IMPACT PROTECTION -
PASSENGER CARS"

FORD MOTOR CORPORATION
1996 FORD TAURUS GL 4 DOOR
NHTSA NO: CT0203

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: October 31, 1995

Report Date: November 14, 1995

FINAL REPORT

Prepared For:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
MAIL CODE: NSA-30
400 SEVENTH STREET, SW ROOM 6115
WASHINGTON, D.C. 20590

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

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Acceptance Date: 12/20/95

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 214-MGA-96-003		2. Government Accession No.		3. Recipient's Catalog No.																			
4. Title and Subtitle Final Report of FMVSS No.214 Compliance Side Impact Protection Testing of a 1996 Ford Taurus GL 4 Door NHTSA No. CT0203				5. Report Date October 31, 1995																			
				6. Performing Organization Code MGA																			
7. Author(s) John Fleck, Project Manager David Winkelbauer, Project Engineer				8. Performing Organization Report No. MGA-DOT-214-003																			
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105				10. Work Unit No.																			
				11. Contract or Grant No. DTNH22-93-C-02047																			
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (Mail Code: NSA-30) 400 Seventh St., S.W., Room 6115 Washington, D.C. 20590				13. Type of Report and Period Covered Final Test Report October 31, to November 14, 1995																			
				14. Sponsoring Agency Code NSA-30																			
15. Supplementary Notes																							
16. Abstract A 48/24 kph 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject 1996 Ford Taurus GL 4 Door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-04 for the determination of FMVSS No. 214 Side Impact Protection compliance. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on October 31, 1995. The impact velocity of the Moving Deformable Barrier (MDB) was 53.3 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 21°C. The target vehicle post test maximum crush was 390 mm at level 3. The test vehicle's performance follows: <table border="1"> <thead> <tr> <th></th> <th>DRIVER</th> <th>PASS.</th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td>40</td> <td>54</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td>43</td> <td>61</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td>57</td> <td>52</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>50</td> <td>57</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>61</td> <td>65</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.							DRIVER	PASS.	Left Upper Rib (LUR) Accel., g	40	54	Left Lower Rib (LLR) Accel., g	43	61	Lower Spine (T ₁₂) Accel., g	57	52	Thoracic Trauma Index (TTI)	50	57	Pelvis (PEV) Accel., g	61	65
	DRIVER	PASS.																					
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17. Key Words Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID)				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5108 (NAD-52) 400 Seventh Street, S.W. Washington, D.C. 20590 Telephone No. 202-366-4946 Attn: Robert Hornickle																			
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages																			
				22. Price																			

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SECTION 1

PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 96 FMVSS 214 Side Impact Protection 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 1996 Ford Taurus GL.

This side impact test was conducted in accordance with the Vehicle Safety Compliance's FMVSS 214 test procedure (TP-214D-04, dated September 1, 1995).

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 1996 Ford Taurus GL 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 tow road guidance system at a velocity of 33.1 mph (53.3 kph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin, on October 31, 1995. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in Appendix A.

Two Side Impact Dummies (SIDs) were placed in the driver and left rear designated seating positions according to instructions specified in the OVSC Side Impact Laboratory Test Procedure which is dated September 1, 1995. The side impact event was documented by nine high speed cameras. Camera locations and other pertinent camera information can be found in this report.

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)

Appendix B contains the vehicle and dummy response data traces. A summary of the side impact dummy (SID) configuration and performance verification test data is shown in Appendix C. Dummy and vehicle calibration data can be found in Appendix D of this report.

The following table summarizes the results of the test:

Injury Criteria	Front SID	Rear SID
TTI (g)	50	57
Pelvis (g)	61	65

TEST NOTES

The following accelerometers were not used for this test:

Left Front Door on Centerline

Midrear of Left Front Door

Left Front Door Upper Centerline

Midrear of Left Rear Door

Left Rear Door Upper Centerline

Rear Seat Track

SECTION 3
SIDE IMPACT DUMMY (SID) AND
VEHICLE TEST DATA

DATA SHEET NO. 1

GENERAL VEHICLE TEST PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 VIN: 1FALP52UXTG106771

Vehicle Body Color: Gold Build Date: 8/95

Engine Data: 6 Cylinders; CID; 3.0 Liter; cc

Placement Longitudinal; X Lateral

Transmission: 4 speed; Manual; X Automatic; X Overdrive

Final Drive: Rear Wheel Drive; X Frt. Wheel Drive; Four Wheel Drive

Odometer Reading 125 miles

Options: X A/C; X Pwr. Steering; X Pwr. Brakes; X Pwr. Windows;

 X Cruise Control; X Tilt Wheel; X Power Door Locks;

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 33 Psi FRONT

33 Psi REAR

Recommended Tire Size: P205/65R15

Tires on Test Vehicle: P205/65R15 Manufacturer: General

Vehicle Capacity Data:

Number of Occupants: 3 Front; 3 Rear; 3rd Seat 6 Total

Type of Front Seats: Bucket; Bench; X Split Bench

Type of Front Seat Back: Fixed; X Adjustable with X Lever

Vehicle Maximum Capacity Loading = 499 kg (A)

No. of Occupants x 68.04 kg. = 408 kg (B)

Cargo Capacity (A-B) = 91 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>493.5</u> kg	Right Rear	=	<u>270.3</u> kg
Left Front	=	<u>490.3</u> kg	Left Rear	=	<u>277.1</u> kg
TOTAL FRONT	=	<u>983.8</u> kg	TOTAL REAR	=	<u>547.4</u> kg
% of Total Vehicle Weight = <u>64</u> %; % of Total Weight = <u>36</u> %					
TOTAL WEIGHT = <u>1531.2</u> kg					

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids = 1531.2 kg
Cargo Carrying Capacity of Test Vehicle = 91.0 kg
Weight of 2 Side Impact Dummies (2 x 80.7 kg.) = 161.4 kg
TEST VEHICLE TARGET WEIGHT = 1783.6 kg

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front = 539.3 kg Right Rear = 347.5 kg
Left Front = 511.7 kg Left Rear = 376.9 kg
TOTAL FRONT = 1051.0 kg TOTAL REAR = 724.4 kg
% of Total Weight = 59 % % of Total Weight = 41 %
TOTAL TEST WEIGHT = 1775.4 kg

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 705 mm Left Front 704 mm Right Rear 686 mm Left Rear 682 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 704 mm Left Front 694 mm Right Rear 643 mm Left Rear 629 mm

TEST ATTITUDE:

Right Front 693 mm Left Front 694 mm Right Rear 648 mm Left Rear 634 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2760 mm

C.G. = 1126 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4686 mm

Centerline = 4984 mm

Left Side = 4686 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 230 mm

Test Position: 7th detent rearward out of 13 total

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 27.2° degrees

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: Non-Adjustable

ADJUSTABLE STEERING COLUMN POSITION: Mid-Position

WINDOW POSITIONS: Left Front Closed Left Rear Closed
Right Front Open Right Rear Open

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

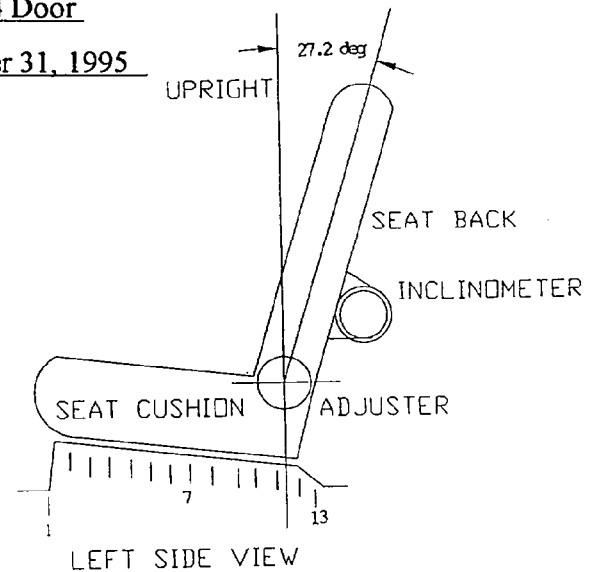
Fuel system usable capacity = 61 liters

Test Volume: 56 liters 92 % of capacity

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

Wheelbase: = 2760 mm

Impact Point is 440 mm rearward of front axle centerline



DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

Overall Length = 4984 mm; Overall Width = 1856 mm

TEST WEIGHT:

Right Front = 539.3 kg Right Rear = 347.5 kg
Left Front = 511.7 kg Left Rear = 376.9 kg
TOTAL FRONT = 1051.0 kg TOTAL REAR = 724.4 kg
% of Total Weight = 59 % % of Total Weight = 41 %
TOTAL VEHICLE WEIGHT = 1775.4 kg
Wheelbase = 2760 mm
Longitudinal C.G. from Center of Front Axle = 1126 mm
Impact Angle with Respect to Impactor = 90° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (209 mm above ground) = 185 mm
 2. LEVEL 2 (480 mm above ground) = 375 mm
 3. LEVEL 3 (550 mm above ground) = 390 mm
 4. LEVEL 4 (890 mm above ground) = 253 mm
 5. LEVEL 5 (1321 mm above ground) = 65 mm
- Maximum Post-Test Intrusion = 390 mm

OCCUPANTS:

	<u>Left Front Passenger</u>	<u>Left Rear Passenger</u>
Type of Dummy	<u>SID</u>	<u>SID</u>
Restraints Used	<u>type II belts</u> <u>with airbag</u>	<u>type II belt</u> <u>system</u>

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)

INSTRUMENTATION:

Number of Vehicle Data Channels:	=	<u>20</u>
Number of Cameras: Onboard Vehicle	=	<u>3</u>
Offboard Vehicle	=	<u>4</u>
Deformable Barrier	=	<u>2</u>
TOTAL	=	<u>9</u>

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

Overall Width of Framework Carriage	= <u>1252 mm</u>
Overall Length of MDB (incl. honeycomb impact face)	= <u>4115 mm</u>
Wheelbase of Framework Carriage	= <u>2591 mm</u>
Tread of Framework Carriage (Front & Rear)	= <u>1880 mm</u>
C.G. Location Rearward of Front Axle	= <u>1102 mm</u>
C.G. Location From Center Line	= <u>-8 mm</u>
C.G. Location Above Ground Level	= <u>488 mm</u>

MDB WEIGHT:

Left Front	= <u>496.7 kg</u>	Left Rear	= <u>187.3 kg</u>
Right Front	= <u>283.0 kg</u>	Right Rear	= <u>389.2 kg</u>
TOTAL FRONT = <u>779.7 kg</u>		TOTAL REAR = <u>576.5 kg</u>	
TOTAL MDB WEIGHT = <u>1356.2 kg</u>			

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

Impact Speed = Primary: 33.1 mph (53.3 kph) Secondary: 33.0 mph (53.1 kph)

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

- | | | |
|----|---------------------------------|-----------------|
| 1. | Row A Top of Stack (813 mm) | = <u>103</u> mm |
| 2. | Row B Mid Stack (686 mm) | = <u>53</u> mm |
| 3. | Row C Top of Bumper (533 mm) | = <u>85</u> mm |
| 4. | Row D Center of Bumper (432 mm) | = <u>309</u> mm |

INSTRUMENTATION:

Number of MDB Data Channels = 7

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to shoulder</u>	<u>to header, C Post</u>
Arm	<u>to shoulder, B-Post, door</u>	<u>to door</u>
Pelvis	<u>to door</u>	<u>to door</u>
Left Knee	<u>to left knee</u>	<u>to left knee</u>
Right Knee	<u>to left knee</u>	<u>to left knee</u>

DOOR OPENING:

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

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 5 mm rearward Vertical: 0 mm

ARM REST LOCATIONS:

Front: 227 mm Below window opening
Rear: 218 mm Below window opening

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 24 mm Front Seat Cushion: 21 mm

Left Rear Seat Back: 24 mm Rear Seat Cushion: 142 mm

GLAZING DAMAGE:

Driver side windows broke

PILLAR PERFORMANCE:

No separation noted

SILL SEPARATION:

No separation noted

OTHER NOTABLE IMPACT EFFECTS:

Barrier face bumper fell off

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

SIDE IMPACT DUMMY (SID) INSTRUMENTATION DATA

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

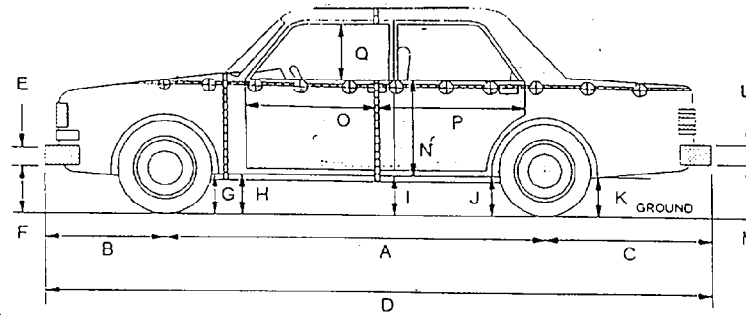
Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

	Front Dummy ID #271			Rear Dummy ID #272		
	Pos. Direct.		Neg. Direct	Pos. Direct.		Neg. Direct
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS						
Left Upper Rib (LUR) Y	39.9	41	21.2	84	53.8	44
Left Lower Rib (LLR) Y	43.2	35	14.8	84	61.4	46
SPINE ACCELERATIONS						
Lower Lateral Y	57.1	42	19.4	73	52.4	47
PELVIS ACCELERATIONS						
Lateral Y	60.8	36	13.9	88	65.2	40
					11.6	95

REFERENCE: Positive Direction - Longitudinal (X) = forward
 Lateral (Y) = to right
 Vertical (Z) = down

Negative Direction - Longitudinal (X) = rearward
 Lateral (Y) = to left
 Vertical (Z) = up

DATA SHEET NO. 6
VEHICLE 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

ALL MEASUREMENTS IN (mm)

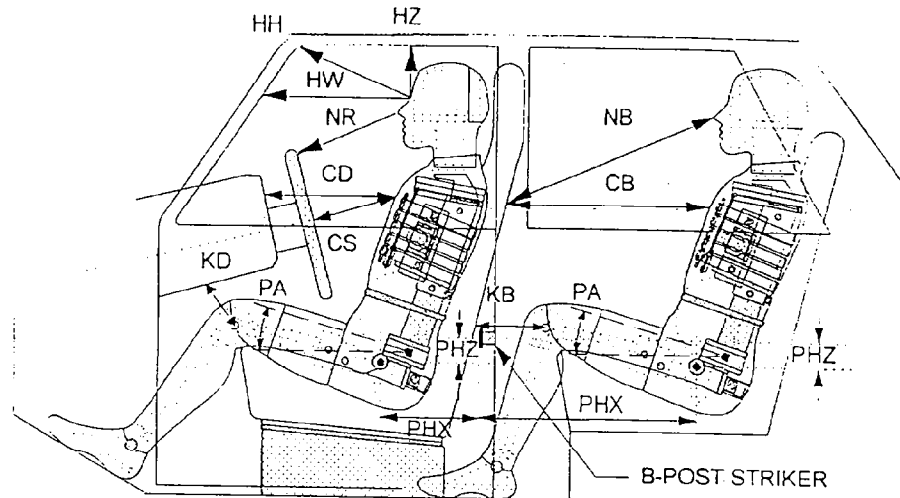
	PRE-TEST	POST-TEST	Δ CHANGE
A	2760	2729	31
B	1032	1072	40
C	1192	1172	20
D	4984	4973	11
E	235	235	0
F	280	285	5
G	190	213	23
H	172	200	28
I	171	182	11
J1/J2	160/150	235/189	75/39
K	232	297	65
L	305	305	0
M	256	333	77
N	680	660	20
O	774	729	45
P	1165	1056	109
Q	465	420	45
R	4686	4696	10
S	4686	4630	56
T	1856	1600	256

DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

NHTSA NO.: CT0203 Test Date: October 31, 1995



NOTE: All dimensions are in mm with tolerance of ± 3 mm

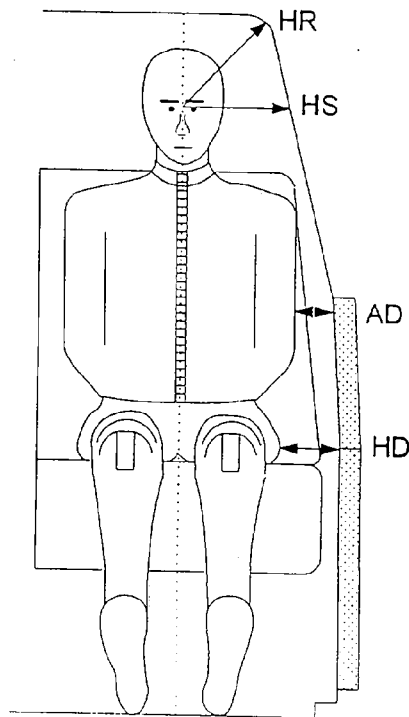
	FRONT SID ID #271		REAR PASSENGER SID ID #272
HH	317	HZ	134
HW	598	NB	695
HZ	159	CB	612
NR	398	KBL (KBA)	290 (12)
CD	522	KBR (KBA)	292 (11)
CS	298	PA°	23.8
KDL(KDA°)	161 (34.3)	PHX	260
KDR(KDA°)	145 (29.1)	PHZ	320
PA°	24.5		
PHX	196		
PHZ	108		

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

DATA SHEET NO. 8
SIDE IMPACT DUMMY (SID) LATERAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

NHTSA NO.: CT0203 Test Date: October 31, 1995



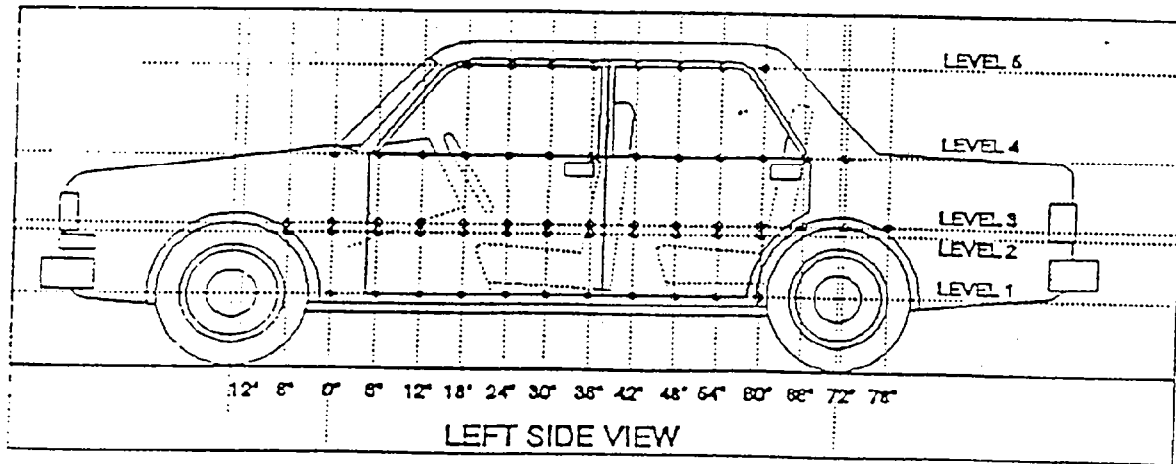
NOTE: All dimensions are in mm

	DRIVER ID #271	LEFT REAR PASSENGER ID #272
HR	209	210
HS	327	249
AD	68	72
HD	158	148

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

NHTSA NO.: CT0203 Test Date: October 31, 1995



MEASUREMENTS ARE TAKEN WHEN THE VEHICLE IS IN THE "AS TESTED"
CONFIGURATION

MEASUREMENTS ALONG THE VERTICAL 750 mm. LINE SHOWN ABOVE

Level 5 @ Window Top	=	<u>1321</u> mm
Level 4 @ Window Sill	=	<u>890</u> mm
Level 3 @ Mid Door	=	<u>550</u> mm
Level 2 @ Occupant H-Point	=	<u>480</u> mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>209</u> mm

DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

NHTSA NO.: CT0203 Test Date: October 31, 1995

	Level 1 - Axle Centerline		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050	---	---	---
-900	---	---	---
-750	---	---	---
-600	---	---	---
-450	---	---	---
-300	---	---	---
-150	---	---	---
0 (impact point)	695	738	43
150	681	739	58
300	683	761	78
450	694	790	96
600	700	811	111
750	699	830	131
900	699	851	152
1050	699	867	168
1200	699	884	185
1350	693	863	170
1500	684	812	128
1650	676	761	85
1800	673	723	50
1950	695	709	14

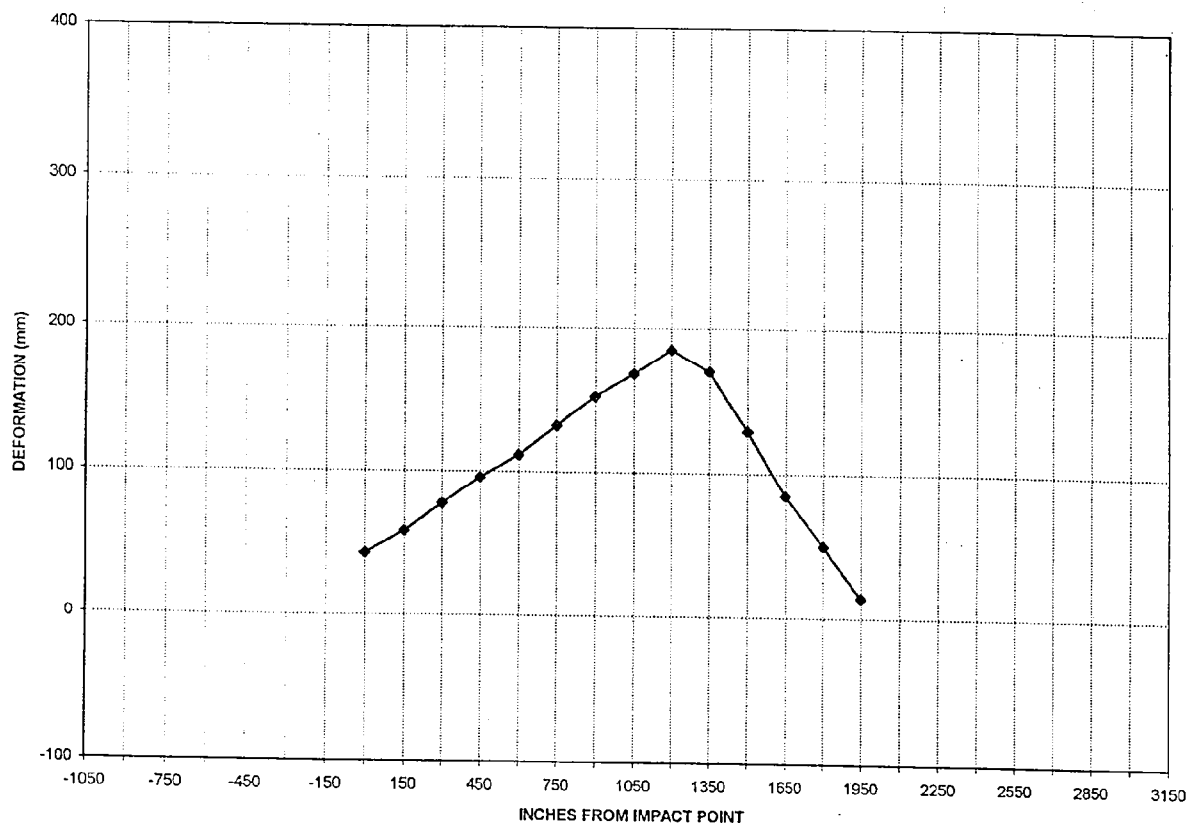
DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS (Cont'd)

Longitudinal Distance (mm)	Level 1 - Axle Centerline		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
2100	---	---	---
2250	---	---	---
2400	---	---	---
2550	---	---	---
2700	---	---	---
2850	---	---	---
3000	---	---	---
3150	---	---	---

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 1 - AXLE CENTERLINE

DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

NHTSA NO.: CT0203 Test Date: October 31, 1995

Longitudinal Distance (mm)	Level 2 - Occupant H-Point		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050	---	---	---
-900	---	---	---
-750	---	---	---
-600	---	---	---
-450	---	---	---
-300	---	---	---
-150	---	---	---
0 (impact point)	631	829	198
150	627	830	203
300	622	877	255
450	618	895	277
600	615	909	294
750	611	912	301
900	610	913	303
1050	607	915	308
1200	607	982	375
1350	607	970	363
1500	607	939	332
1650	608	899	291
1800	608	822	214
1950	609	689	80

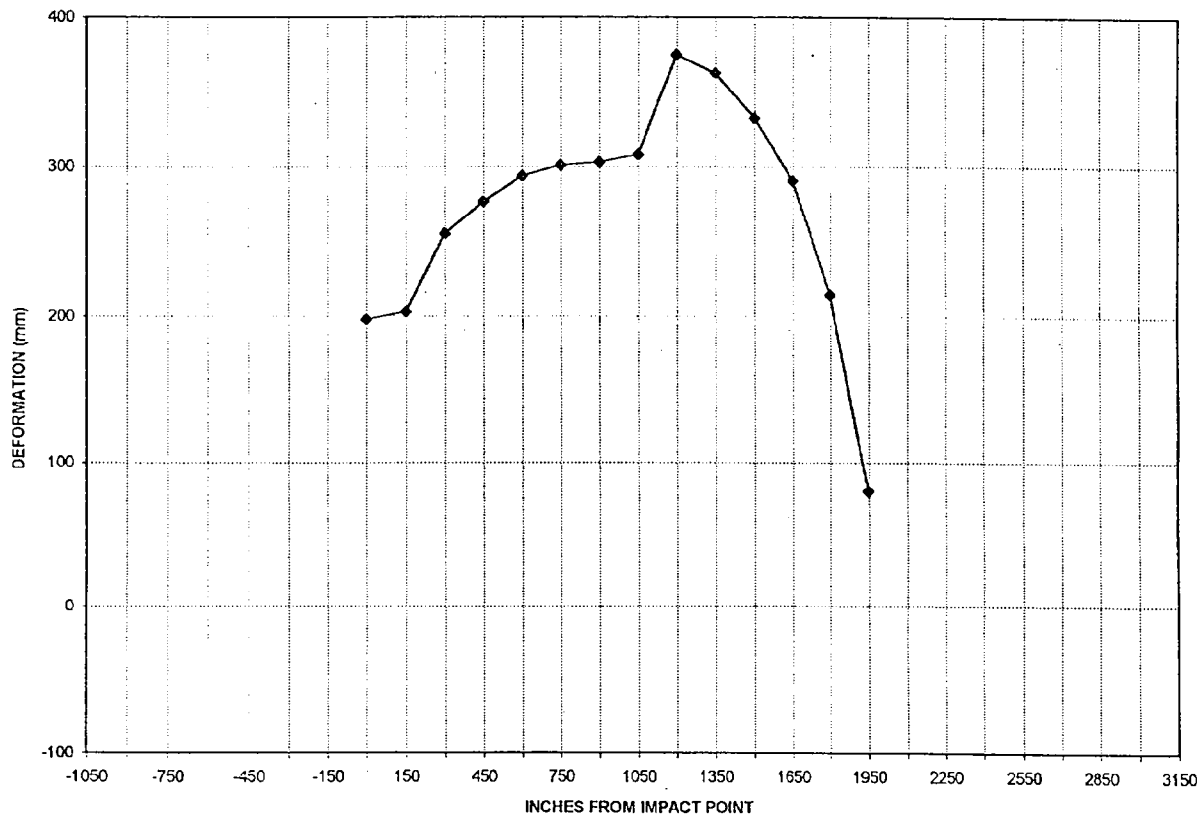
DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS (Cont'd)

	Level 2 - Occupant H-Point		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
2100	---	---	---
2250	---	---	---
2400	---	---	---
2550	---	---	---
2700	---	---	---
2850	---	---	---
3000	---	---	---
3150	---	---	---

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 2 - OCCUPANT H-POINT

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

NHTSA NO.: CT0203 Test Date: October 31, 1995

	Level 3 - Mid Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050	---	---	---
-900	---	---	---
-750	---	---	---
-600	---	---	---
-450	---	---	---
-300	---	---	---
-150	---	---	---
0 (impact point)	632	710	78
150	622	806	184
300	622	880	258
450	621	887	266
600	618	901	283
750	615	907	292
900	613	909	296
1050	613	908	295
1200	612	1002	390
1350	611	985	374
1500	611	962	351
1650	611	917	306
1800	610	850	240
1950	609	728	119

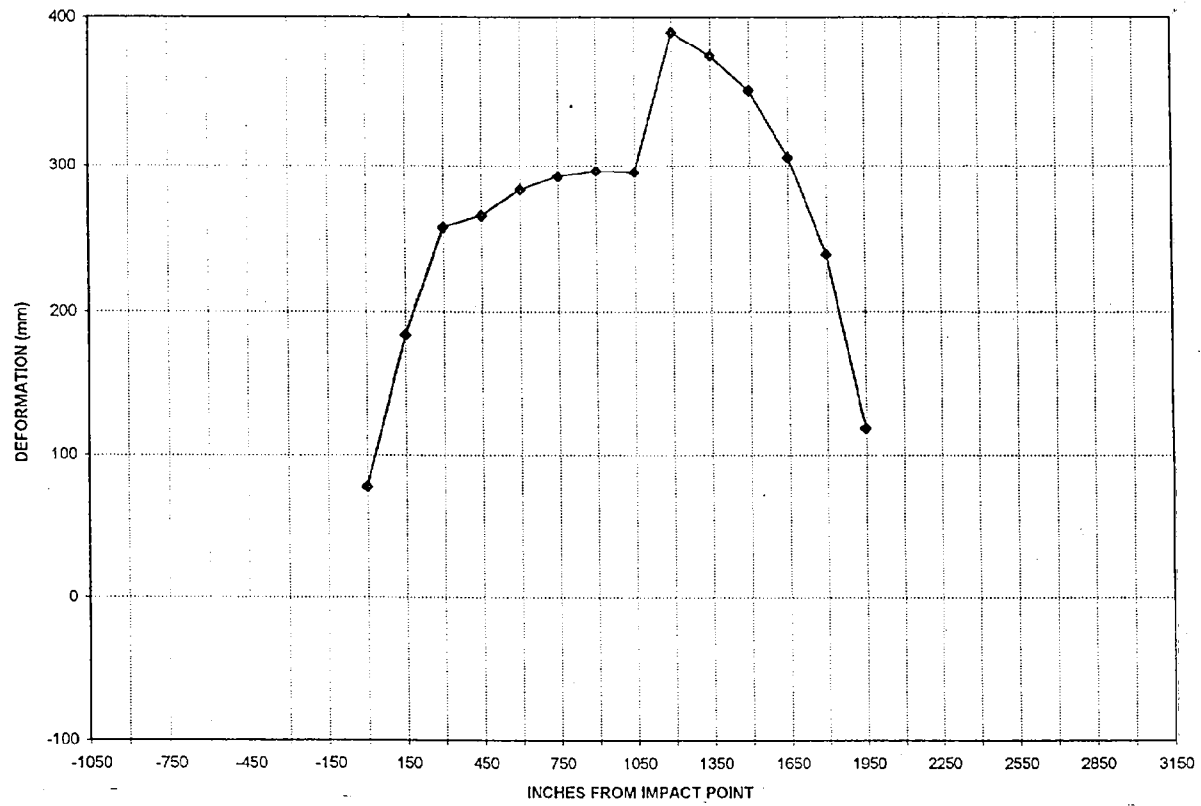
DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS (Cont'd)

	Level 3 - Mid Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
2100	---	---	---
2250	---	---	---
2400	---	---	---
2550	---	---	---
2700	---	---	---
2850	---	---	---
3000	---	---	---
3150	---	---	---

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 3 - MID DOOR

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

NHTSA NO.: CT0203 Test Date: October 31, 1995

	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050	795	803	8
-900	772	782	10
-750	751	767	16
-600	734	753	19
-450	726	744	18
-300	709	735	26
-150	701	727	26
0 (impact point)	692	724	32
150	687	763	76
300	682	789	107
450	678	826	148
600	669	850	181
750	669	858	189
900	660	867	207
1050	659	883	224
1200	655	908	253
1350	656	903	247
1500	655	896	241
1650	655	891	236
1800	656	859	203
1950	658	765	107

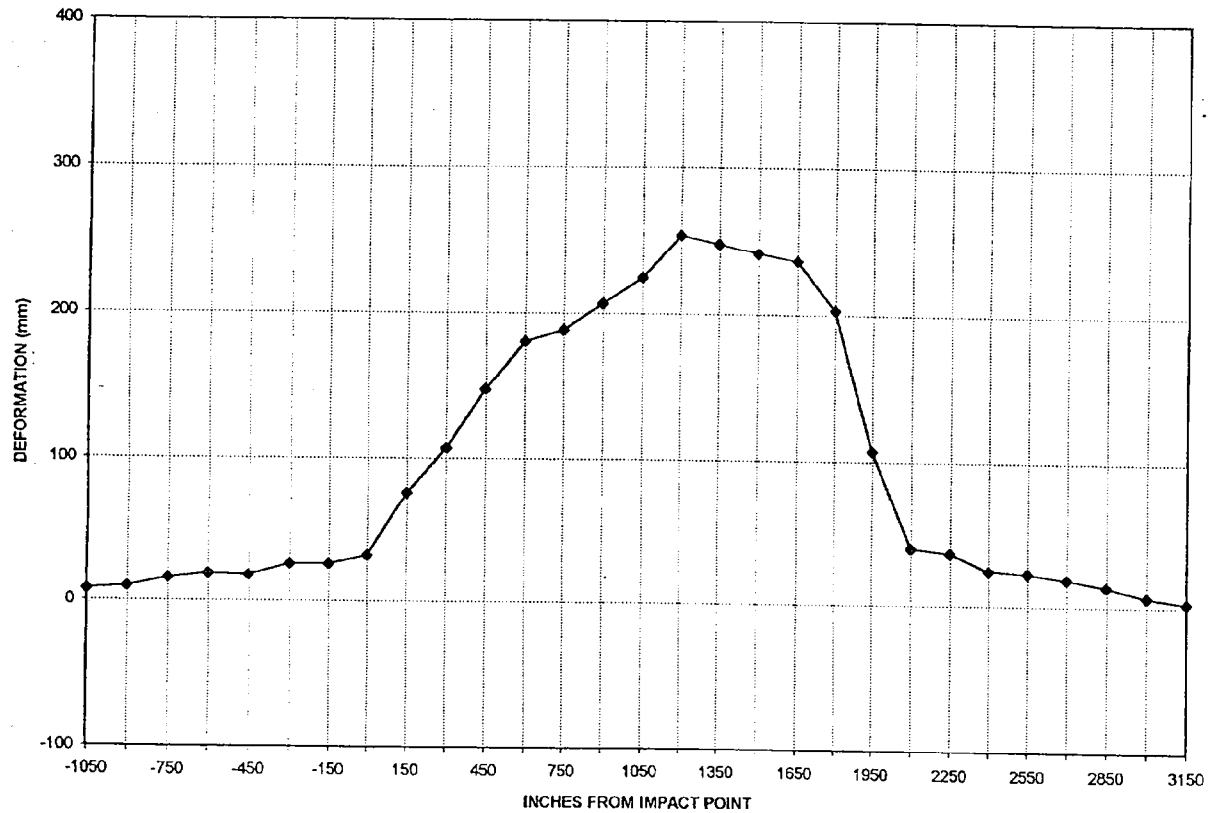
DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS (Cont'd)

	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
2100	659	699	40
2250	662	699	37
2400	666	691	25
2550	680	703	23
2700	695	714	19
2850	720	734	14
3000	752	759	7
3150	799	802	3

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 4 - WINDOW SILL

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

NHTSA NO.: CT0203 Test Date: October 31, 1995 ,

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050	---	---	---
-900	---	---	---
-750	---	---	---
-600	---	---	---
-450	---	---	---
-300	---	---	---
-150	---	---	---
0 (impact point)	---	---	---
150	---	---	---
300	---	---	---
450	---	---	---
600	---	---	---
750	933	973	40
900	930	973	43
1050	927	983	56
1200	927	991	64
1350	928	993	65
1500	929	982	53
1650	929	971	42
1800	939	973	34
1950	949	980	31

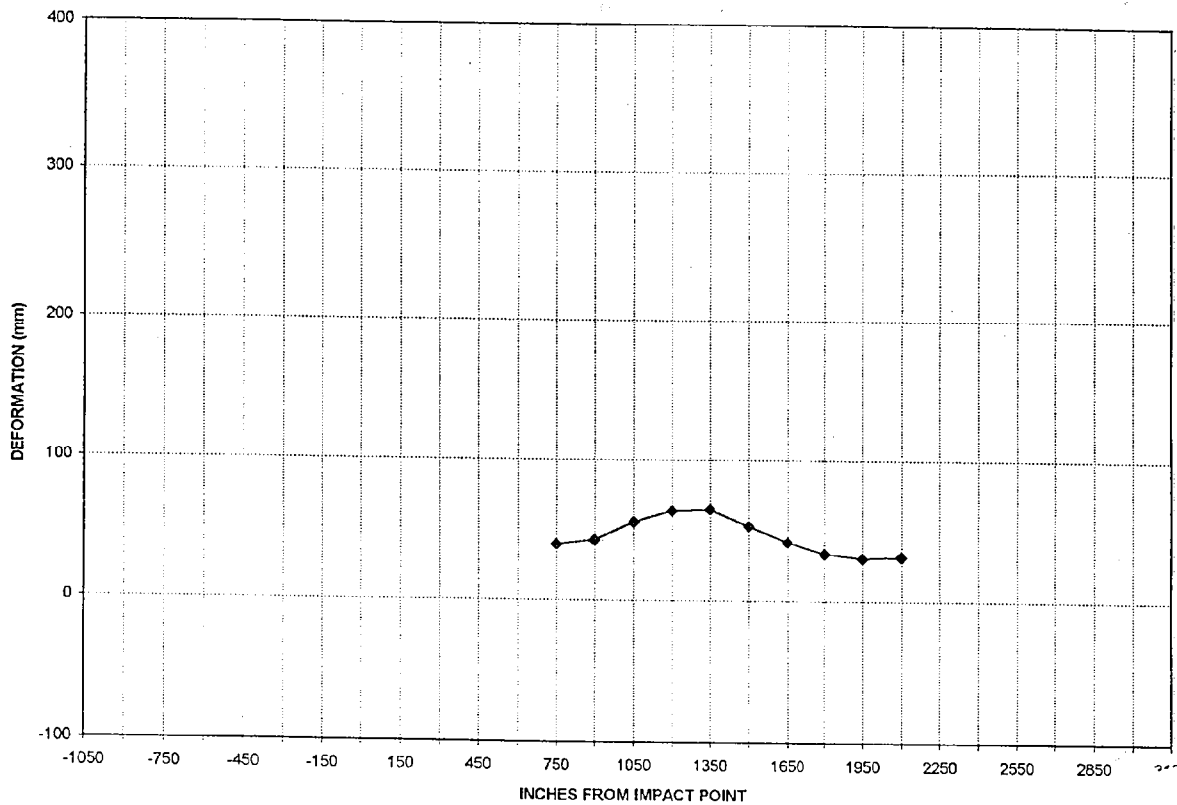
DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS (Cont'd)

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
2100	961	993	32
2550	---	---	---
2700	---	---	---
2850	---	---	---
3000	---	---	---
3150	---	---	---

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

VEHICLE EXTERIOR STATIC CRUSH



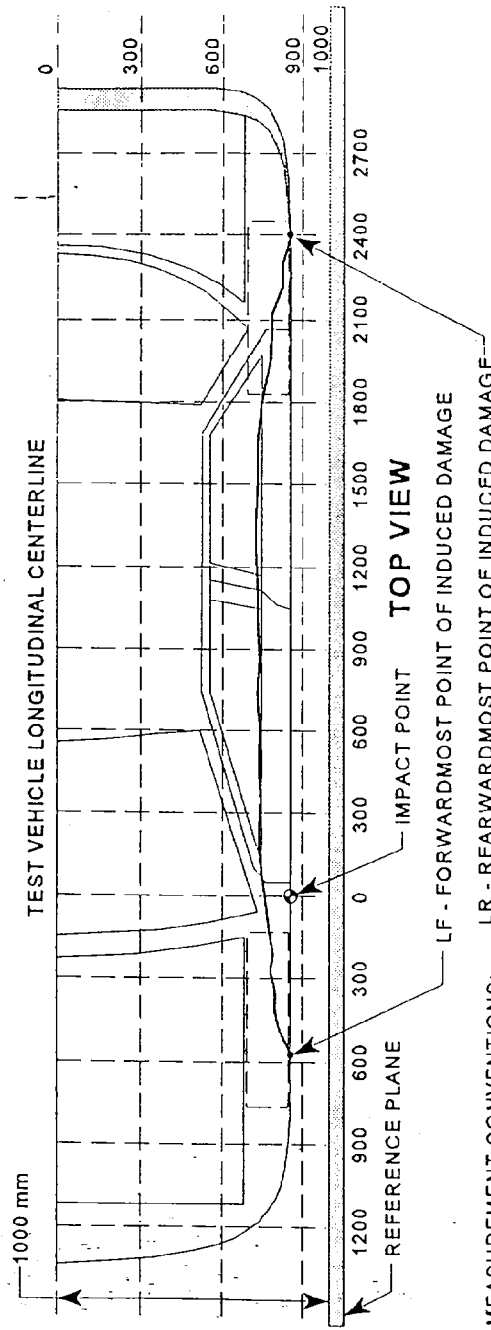
LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

NHTSA NO.: CT0203 Test Date: October 31, 1995



DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = -300 mm)	828	828	0
2. 142 mm	954	830	124
3. 584 mm	1122	907	215
4. 1026 mm	1151	914	237
5. 1468 mm	1198	930	268
6. (LR = 1910 mm)	840	840	0

DATA SHEET NO. 12

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

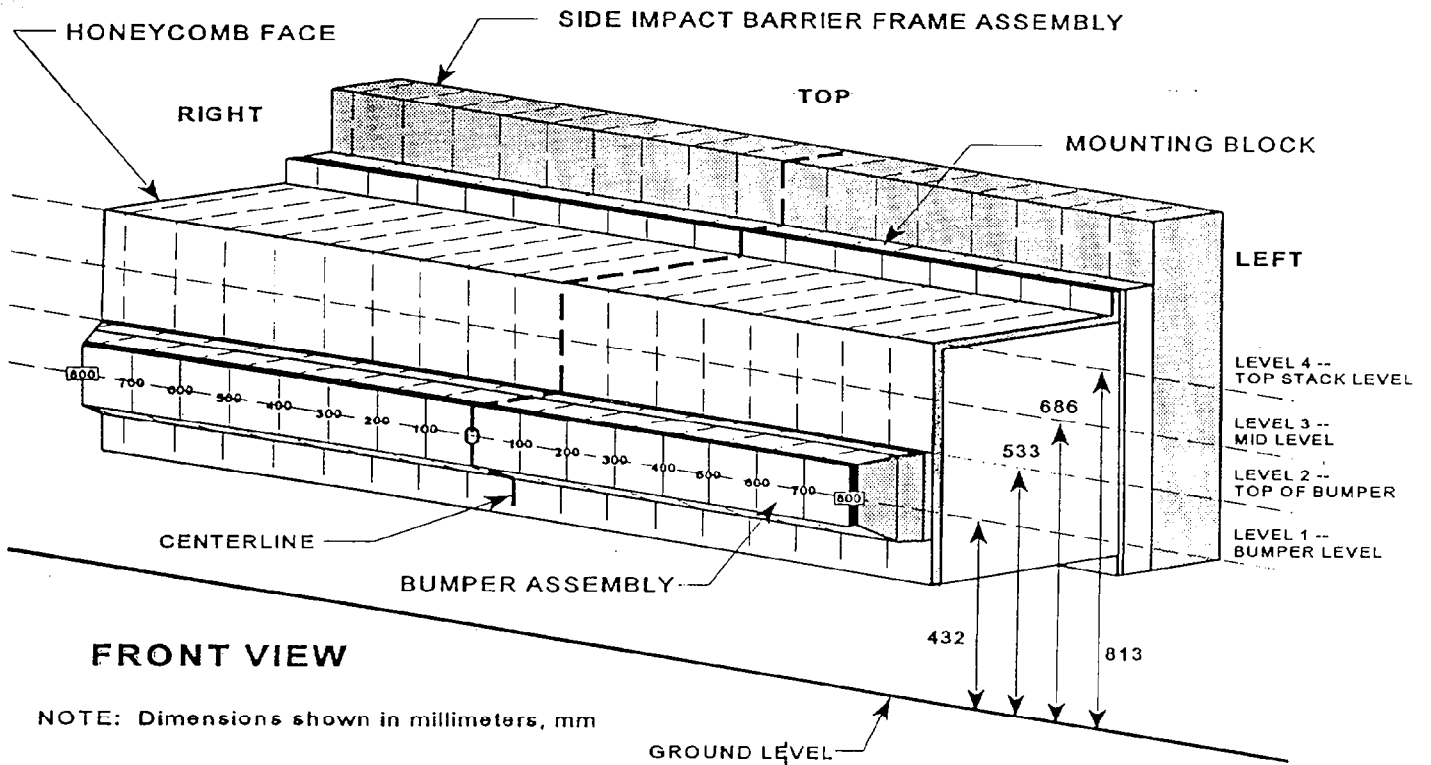
Year/Make/Model/Body Style: 1996/Ford/Taurus/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

		Distance Right of Center (mm)									Distance Left of Center (mm)							
Location	Height at CL*	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level 4	813 mm	45	-1	-2	-3	-3	-3	-3	-3	-2	-1	-9	4	9	10	29	54	103
Mid Level Level 3	686 mm	16	0	-3	-4	-4	-4	-4	-4	-4	-4	-4	-2	-2	0	2	7	53
Top Bumper Level 2	533 mm	85	53	25	3	-5	-6	-3	-1	2	3	9	16	25	34	49	62	75
Mid Bumper Level 1	432 mm	309	286	245	222	197	193	196	98	201	211	212	230	246	263	283	287	262

See next page for Barrier Face Graphic

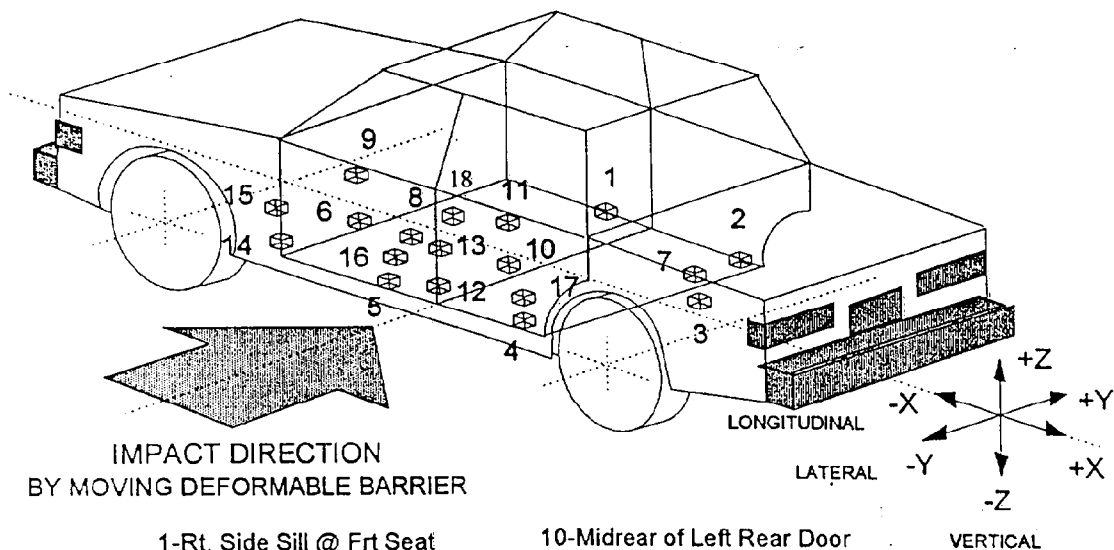
DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995



- | | |
|--------------------------------|---------------------------------|
| 1-Rt. Side Sill @ Frt Seat | 10-Midrear of Left Rear Door |
| 2-Rt. Side Sill @ Rr. Seat | 11-Left Rear Door Upper Ctrline |
| 3-Rr. Floorpan Above Axle | 12-Left Lower B-Post |
| 4-Left Side Sill @ Rr. Seat | 13-Left Middle B-Post |
| 5-Left Side Sill @ Frt. Seat | 14-Left Lower A-Post |
| 6-Left Frt. Door On Centerline | 15-Left Middle A-Post |
| 7-Rt. Rr. Occ Compartment | 16-Front Seat Track |
| 8-Midrear of Left Frt. Door | 17-Rear Seat Track |
| 9-Left Frt. Door Upper Ctrline | 18-Vehicle C.G. |

DATA SHEET NO. 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

Accel. No.	Description	Coordinates (mm)*			Long. (X) Maximums (g's)		Lat. (Y) Maximums (g's)		Vert. (Z) Maximums (g's)		Resultant (g's)
		X	Y	Z	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
1	Rt. Side Sill @ Front Seat	2461	705	180	3.8	4.1	38.2	7.7	8.1	4.6	38.3
2	Rt. Side Sill @ Rear Seat	1640	725	169	4.1	6.0	31.0	2.0	7.7	2.7	31.5
3	Rr. Floorpan Above Axle	993	415	394	2.2	6.8	17.2	2.6	6.2	5.5	18.4
4	Left Side Sill @ Rr. Seat	1645	-725	197	---	---	41.1	2.8	---	---	---
5	Left Side Sill @ Frt. Seat	2459	-705	181	---	---	82.2	14.5	---	---	---
7	Right Rear Occupant Compartment	2003	488	317	---	---	27.1	1.3	---	---	---
12	Left Lower B-Post	2278	-740	390	---	---	142.0	17.0	---	---	---
13	Left Mid B-Post	2294	-752	894	---	---	141.7	30.2	---	---	---
14	Left Lower A-Post	3315	-657	320	---	---	42.2	3.4	---	---	---
15	Left Mid A-Post	3391	-810	835	---	---	27.7	6.6	---	---	---
16	Driver Left Seat Track	2491	-558	244	---	---	109.4	11.7	---	---	---
18	Vehicle CG	2534	23	377	7.4	8.0	28.4	8.3	8.0	8.8	29.3

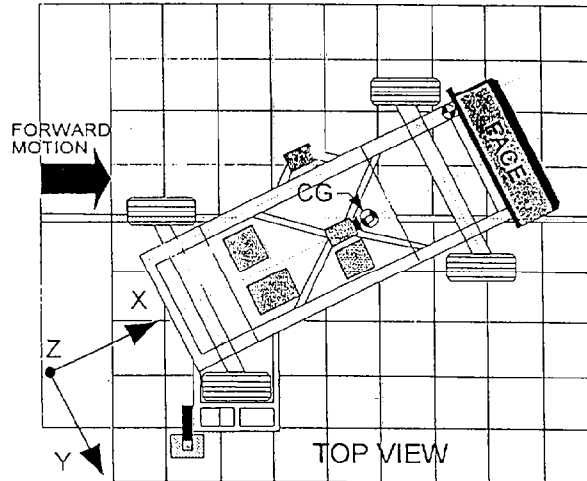
*Reference: X - Rear Bumper (+ Forward)
Y - Vehicle Centerline (+ To right)
Z - Ground Level (+ Up)

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1996/Ford/Taurus/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995



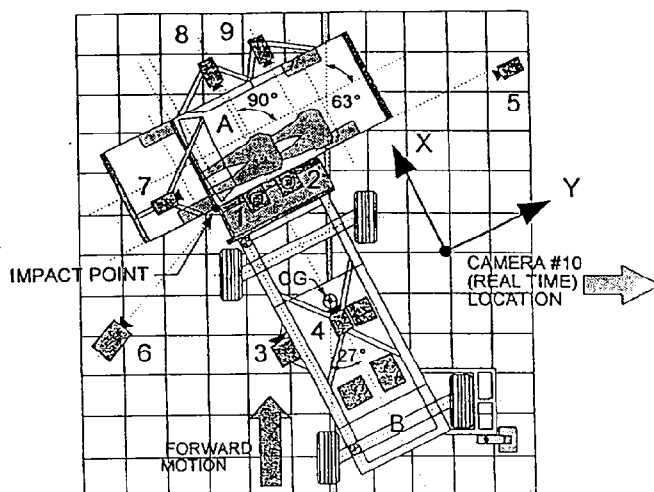
Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Neg.
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	1.0	113	14.5	36
	Lateral (Y)	---	---	---	.4	72	6.5	42
	Vertical (Z)	---	---	---	5.7	51	6.3	170
	Resultant (R)	---	---	---	16.3	38	---	---
2	Rear Frame Member	-2591	-625	622				
	Longitudinal (X)	---	---	---	2.0	121	18.5	38
	Lateral (Y)	---	---	---	5.2	41	1.6	174

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

DATA SHEET NO. 15
HIGH SPEED CAMERA LOCATIONS AND DATA

Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
	Real Time					13	24
1	Top Impact	-350	850	5400		13	870
2	Top Wide	-700	0	5130		8	1136
3	Cart Pointer					35	1010
4	Cart					13	1000
5	Right Impact	3670	8210	7660	90°	25	1020
6	Left Overall	-2740	2450	1660	90°	13	1020
7	Onboard Driver					13	990
8	Onboard Hood					8	1053
9	Onboard Passenger					8	1010

* Reference: (from point of impact)

+X = Forward

+Y = To Right

+Z = Upward

DATA SHEET 16
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

TEST REQUIREMENTS:

Drain the test vehicle's fuel system and operate the engine until the fuel system is dry. Add Stoddard solvent, which has been dyed purple, until 92-94% of the stated usable capacity is reached. Operate the engine to assure the Stoddard solvent is present throughout the entire fuel system.

TEST VEHICLE IMPACT TYPE: X Side Impact MDB 33.1 mph (53.3 kph)

FUEL SPILLAGE MEASUREMENT:

POST IMPACT TEST	TEST RESULTS	MAXIMUM ALLOWABLE
1. From impact until vehicle motion ceases	0	1 oz
2. For 5 minute period after vehicle motion ceases	0	5 oz
3. For next 25 minutes	0	1 oz./1 min

FUEL SPILLAGE LOCATION(S): None

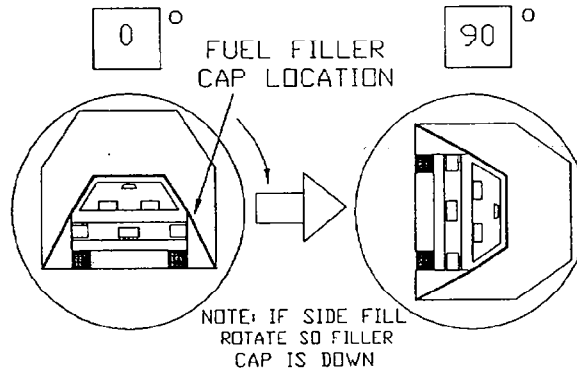
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 40 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 40 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

0° TO 90° ROTATION (FILLER CAP DOWN)	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz	5 oz
2. Sixth Minute From Onset of Rotation	0 oz	1 oz
3. Seventh Minute From Onset of Rotation	0 oz	1 oz
4. Eighth Minute if Required	N/R	1 oz

FUEL SPILLAGE LOCATIONS(S): None

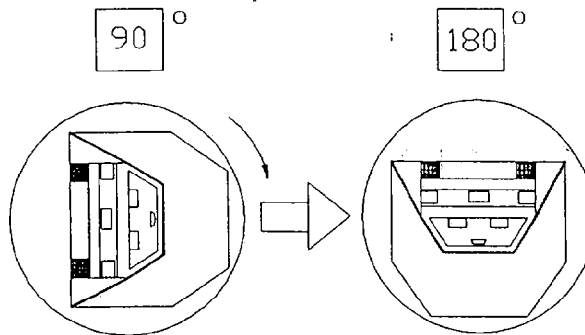
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 20 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 20 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

90° TO 180° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz	5 oz
2. Sixth Minute From Onset of Rotation	0 oz	1 oz
3. Seventh Minute From Onset of Rotation	0 oz	1 oz
4. Eighth Minute if Required	N/R	1 oz

FUEL SPILLAGE LOCATIONS(S): None

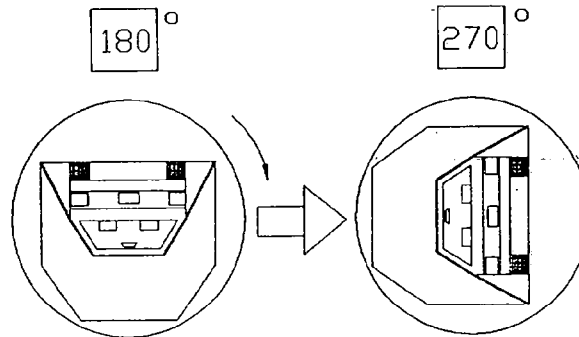
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1996/Ford/Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 25 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 25 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

180° TO 270° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz	5 oz
2. Sixth Minute From Onset of Rotation	0 oz	1 oz
3. Seventh Minute From Onset of Rotation	0 oz	1 oz
4. Eighth Minute if Required	N/R	1 oz

FUEL SPILLAGE LOCATIONS(S): None

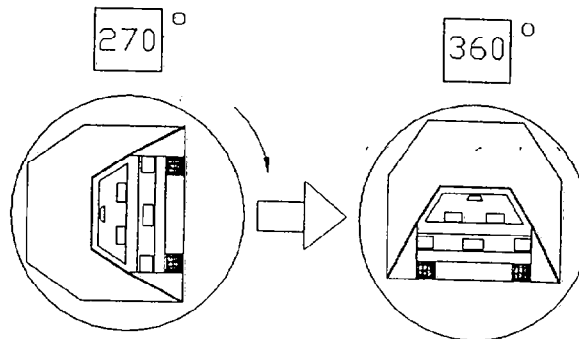
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1996/Ford Taurus GL/4 Door

Vehicle NHTSA No.: CT0203 Test Date: October 31, 1995

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 40 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 40 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

270° TO 360° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz	5 oz
2. Sixth Minute From Onset of Rotation	0 oz	1 oz
3. Seventh Minute From Onset of Rotation	0 oz	1 oz
4. Eighth Minute if Required	N/R	1 oz

FUEL SPILLAGE LOCATIONS(S): None

APPENDIX A - PHOTOGRAPHS

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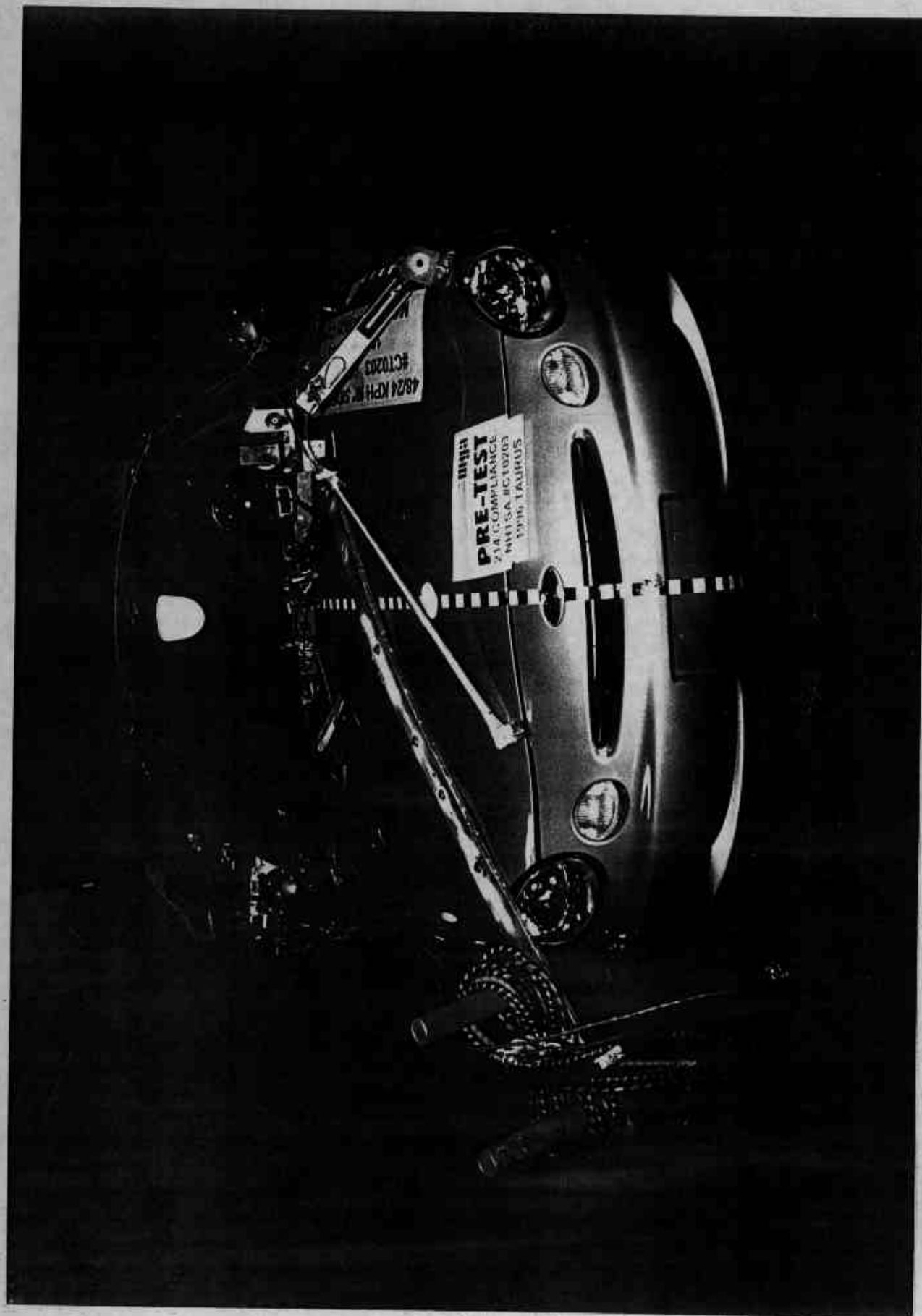


Photo No. A-1 - Pre-Test Front View of Test Vehicle

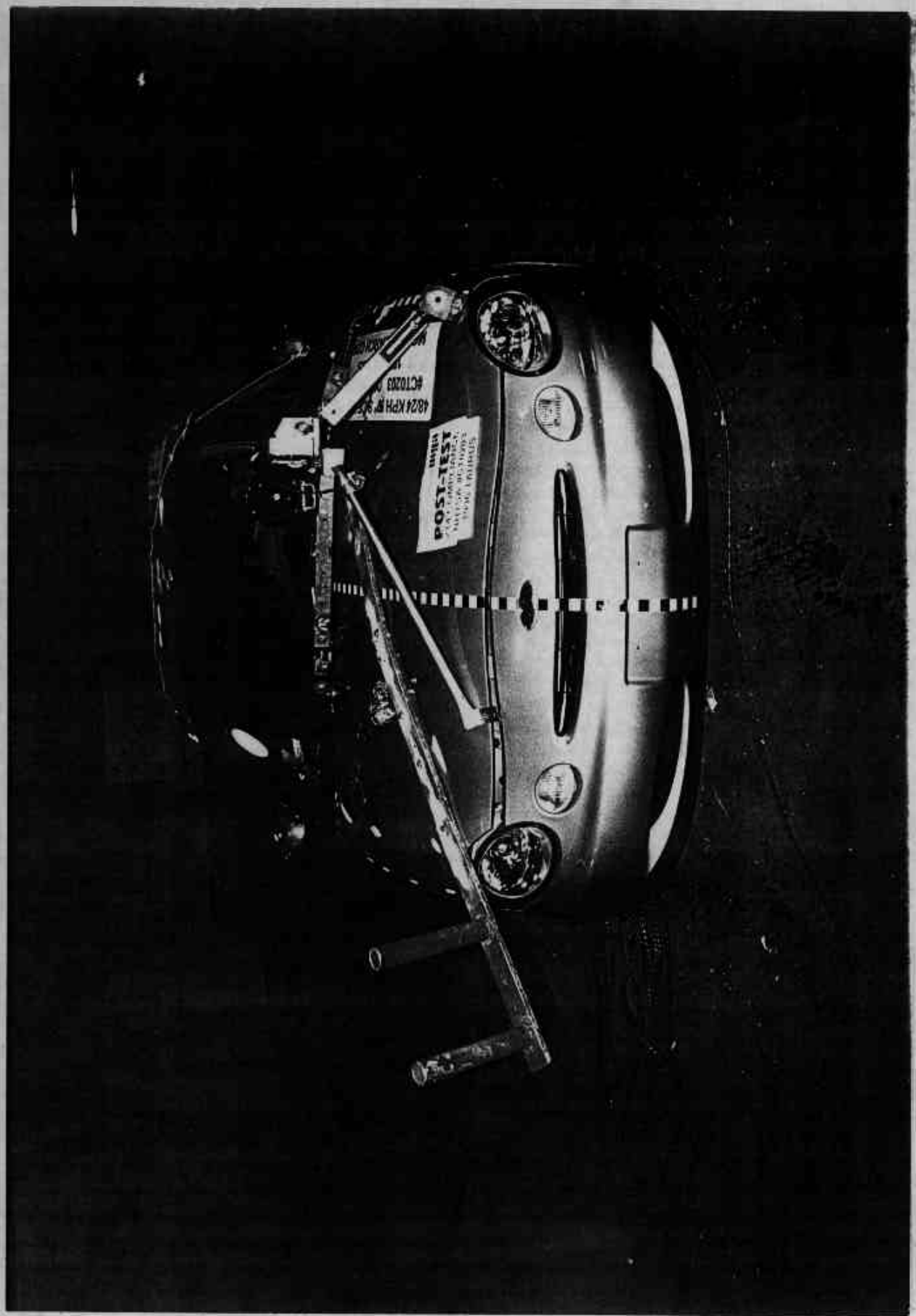


Photo No. A-2 - Post-Test Front View of Test Vehicle



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

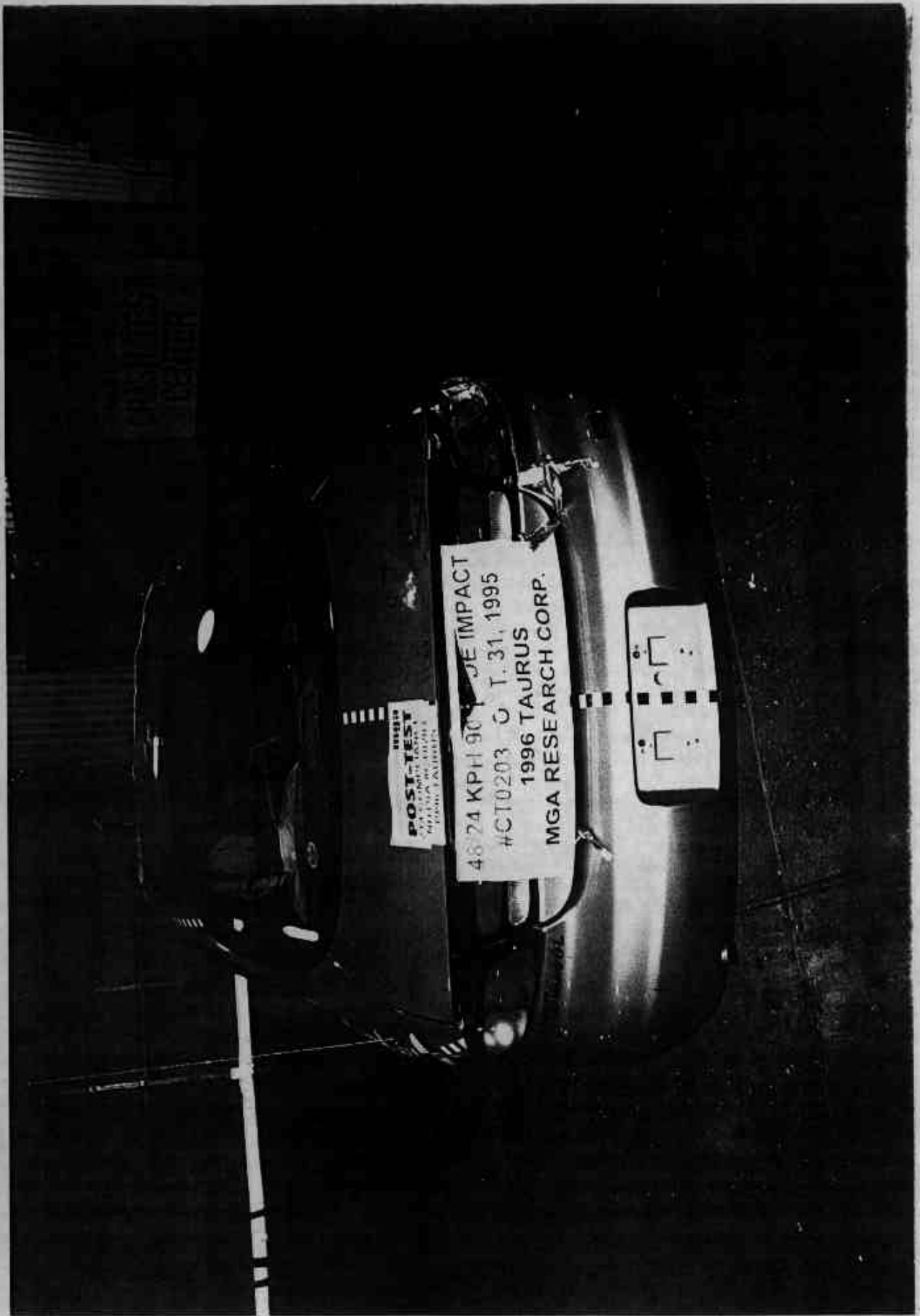


Photo No. A-4 - Post-Test Rear View of Test Vehicle

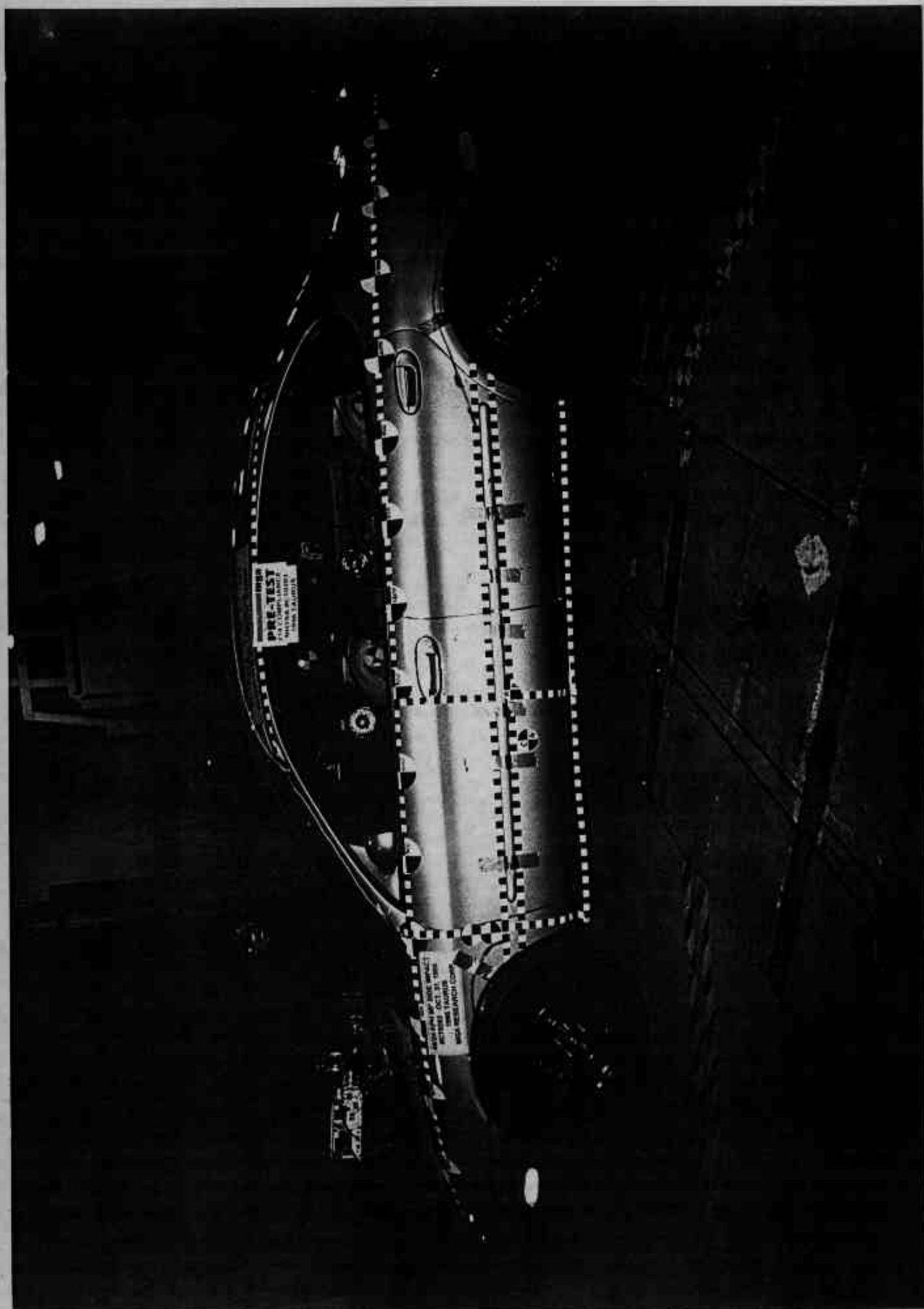


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

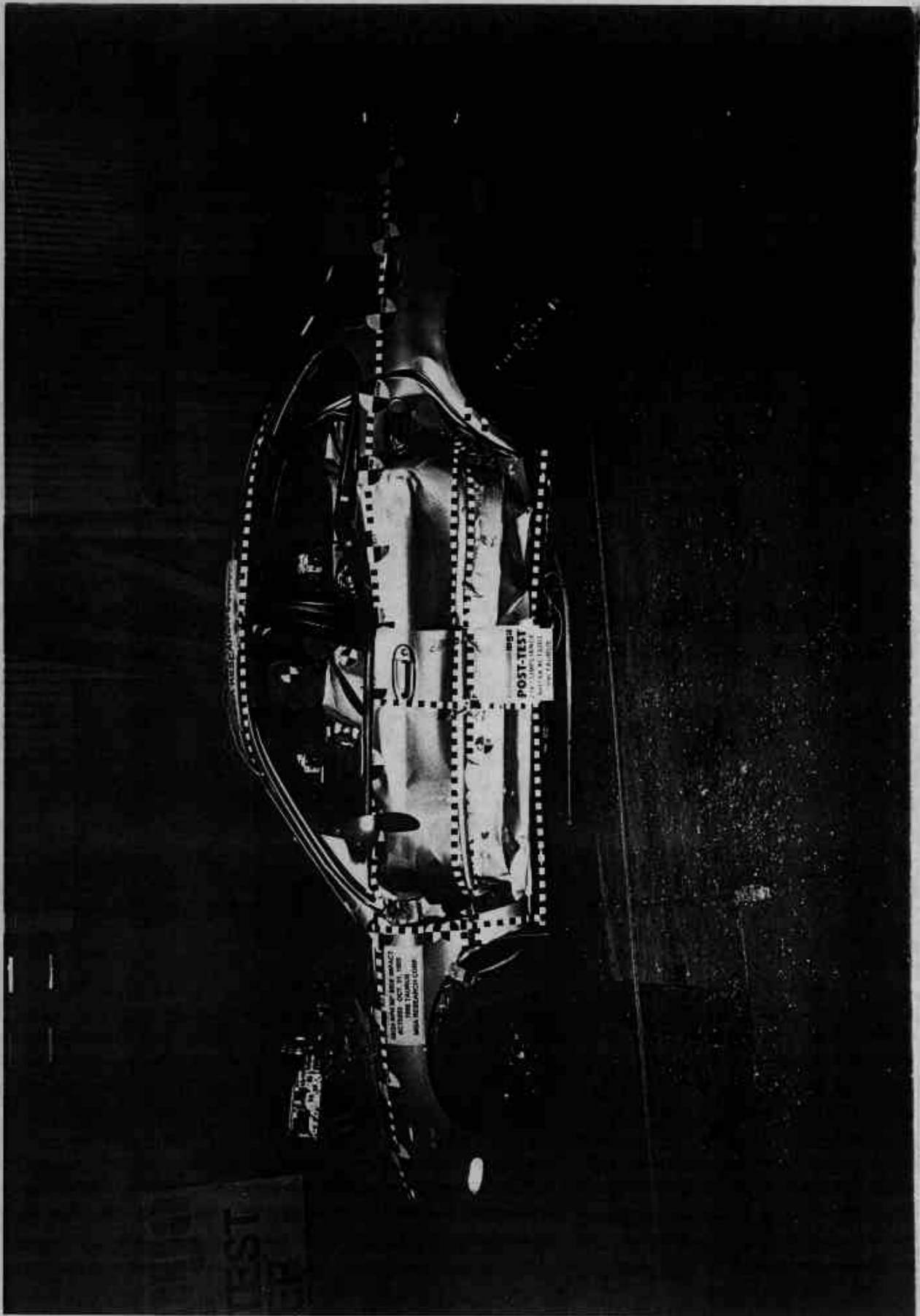


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

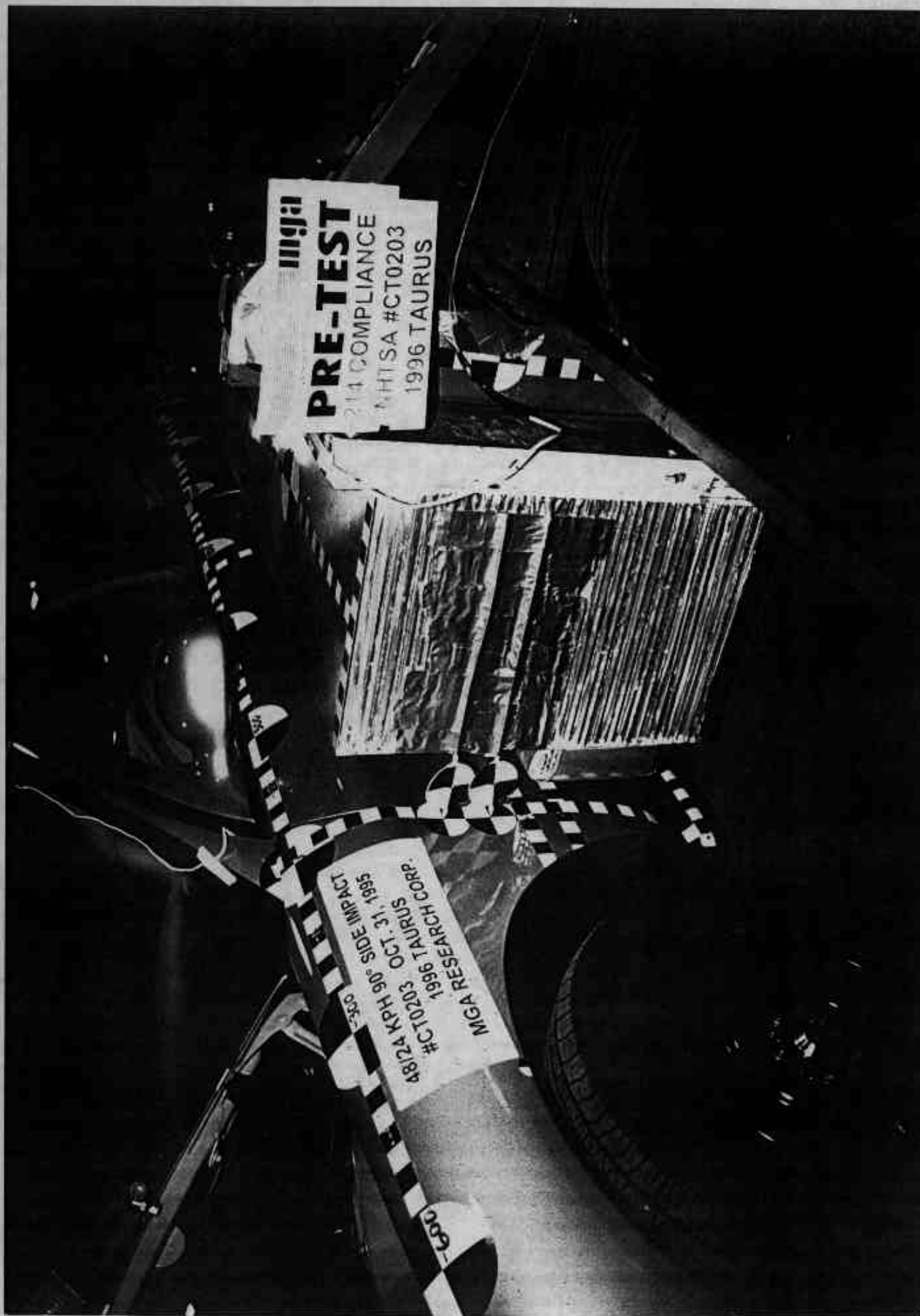


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)



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

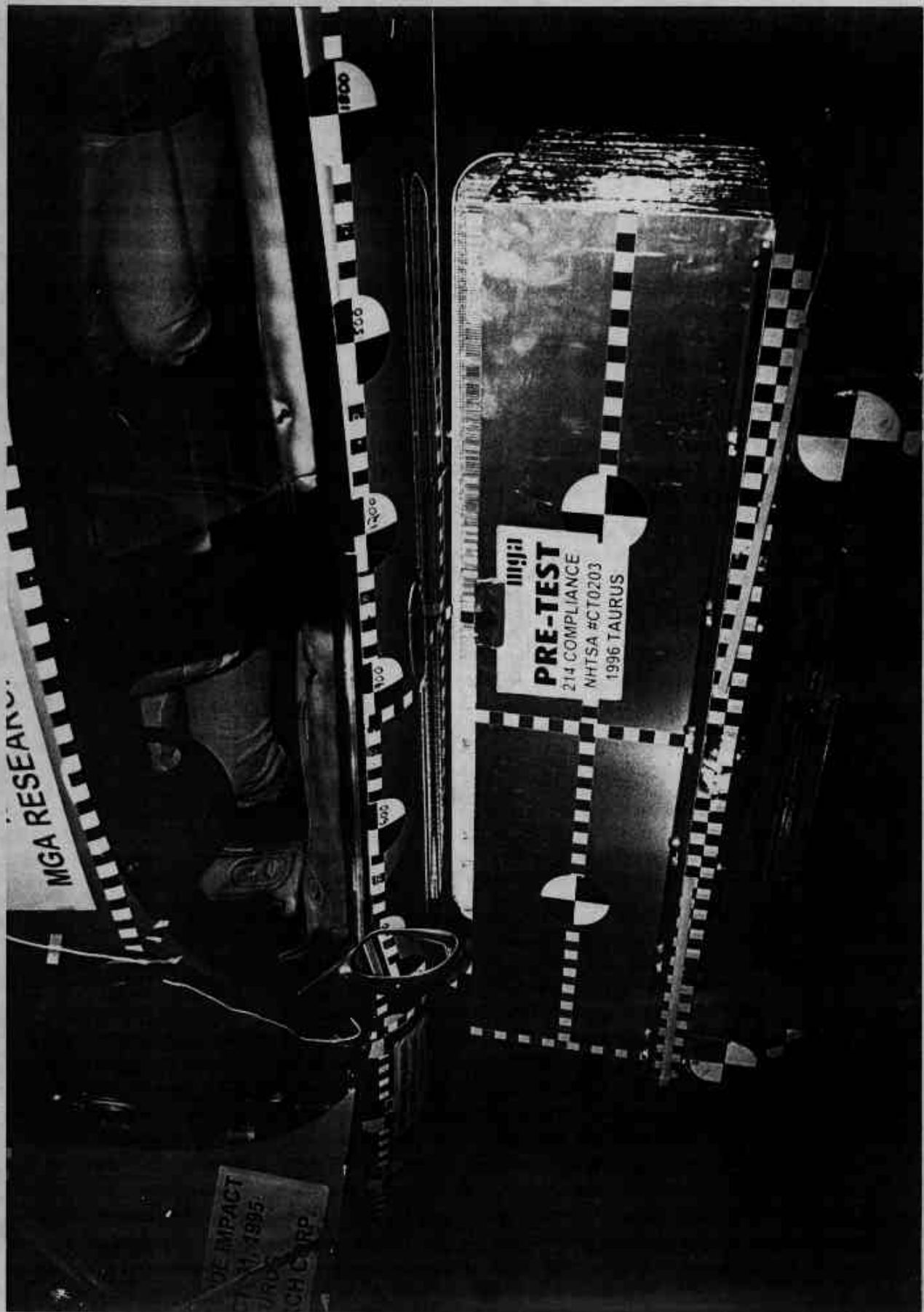


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View

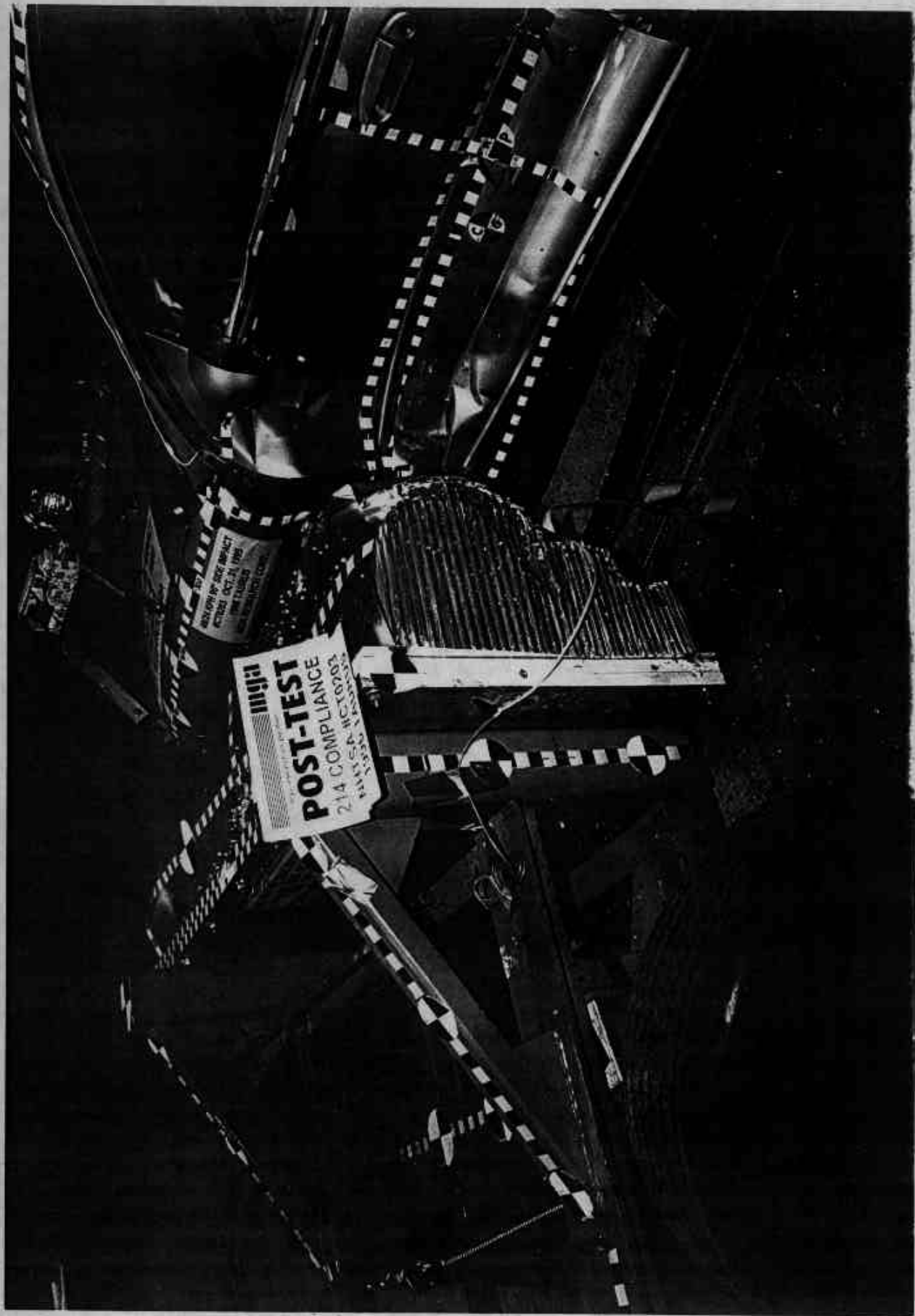


Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (left side)

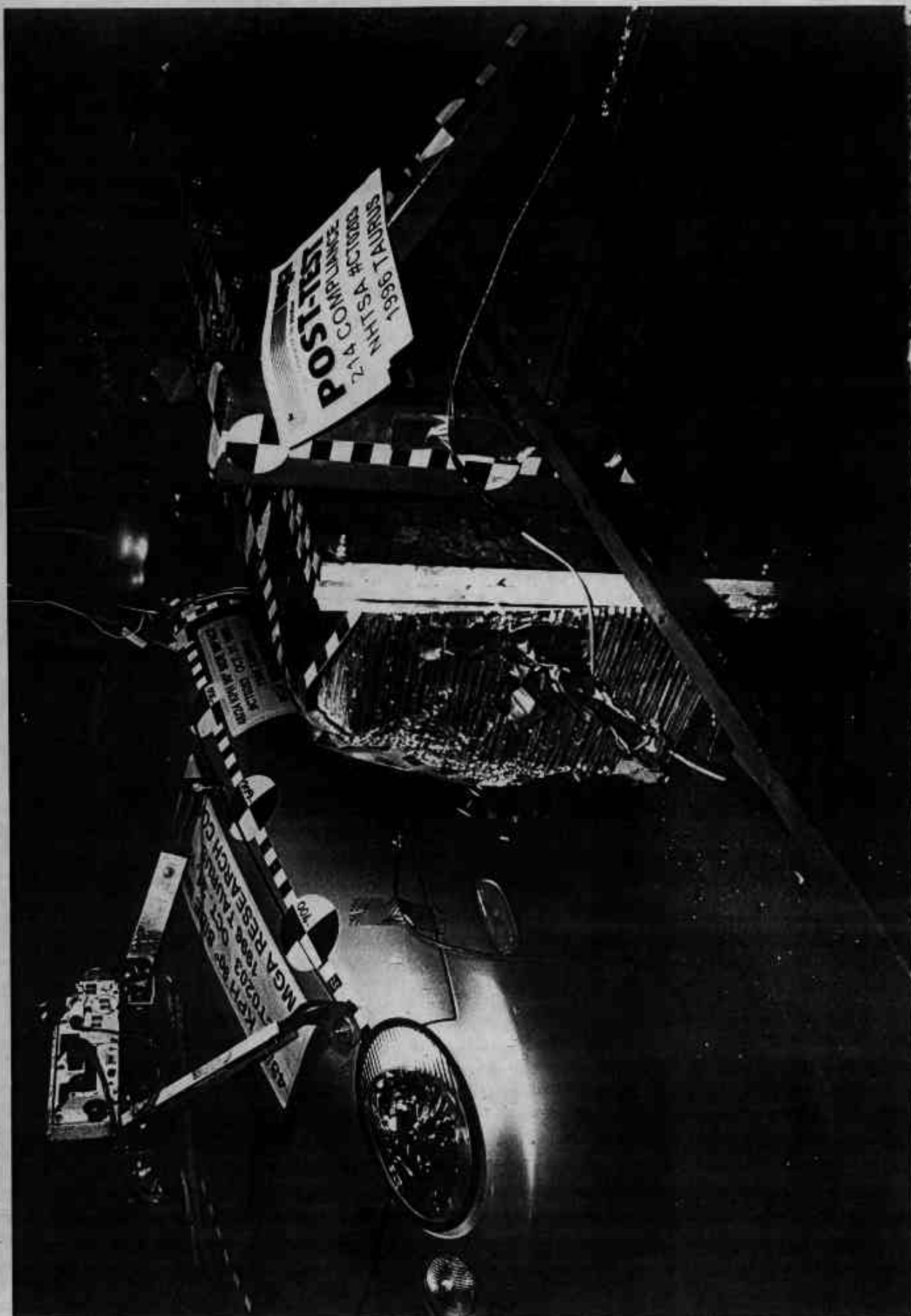


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)



Photo No. A-12 - Post-Test MDB Positioned Against Vehicle Overhead View

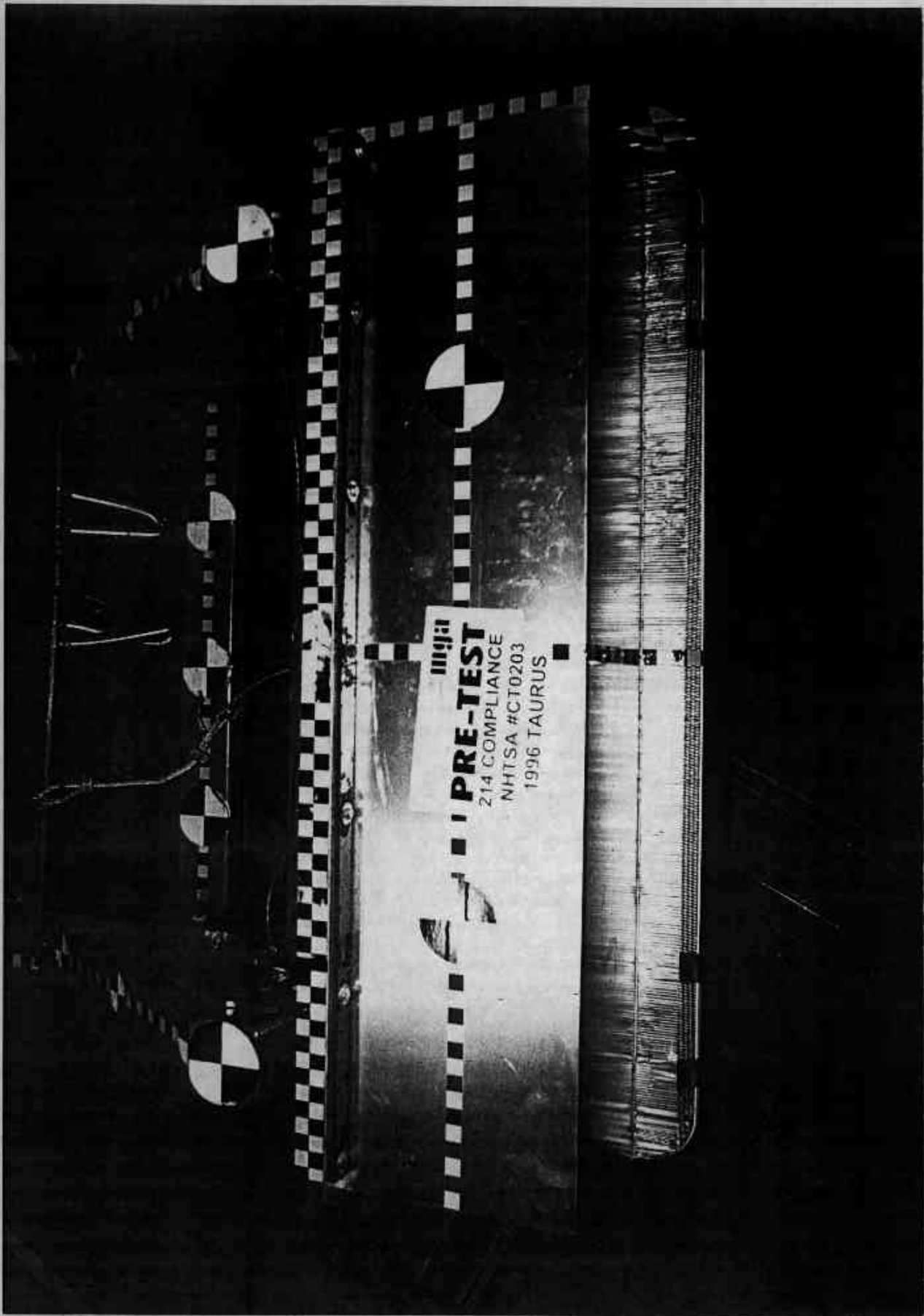


Photo No. A-13 - Pre-Test MDB Top View

POST-TEST
214 COMPLIANCE
NHTSA #CT0203
1996 TAURUS

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

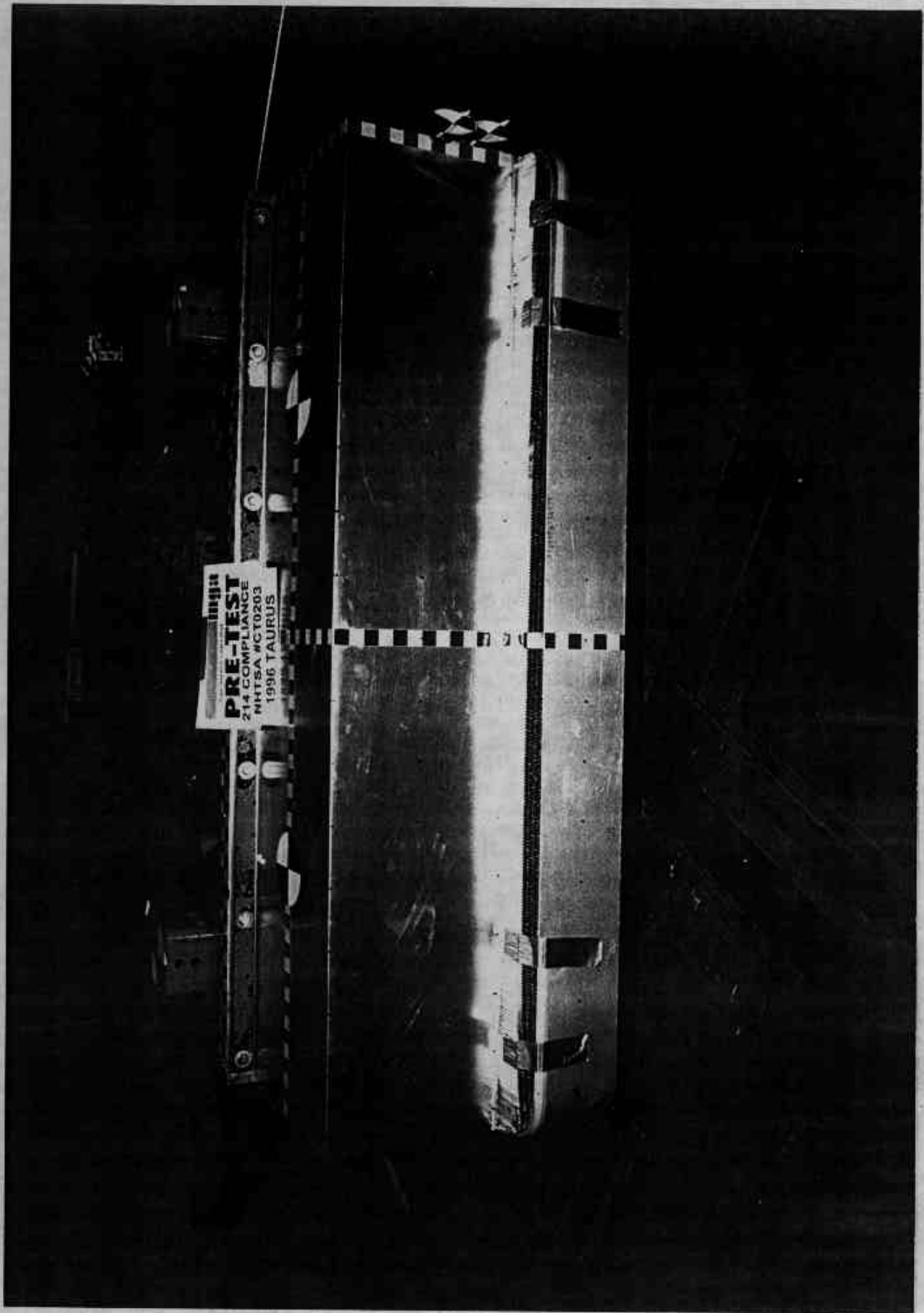


Photo No. A-15 - Pre-Test MDB Front View

A-15

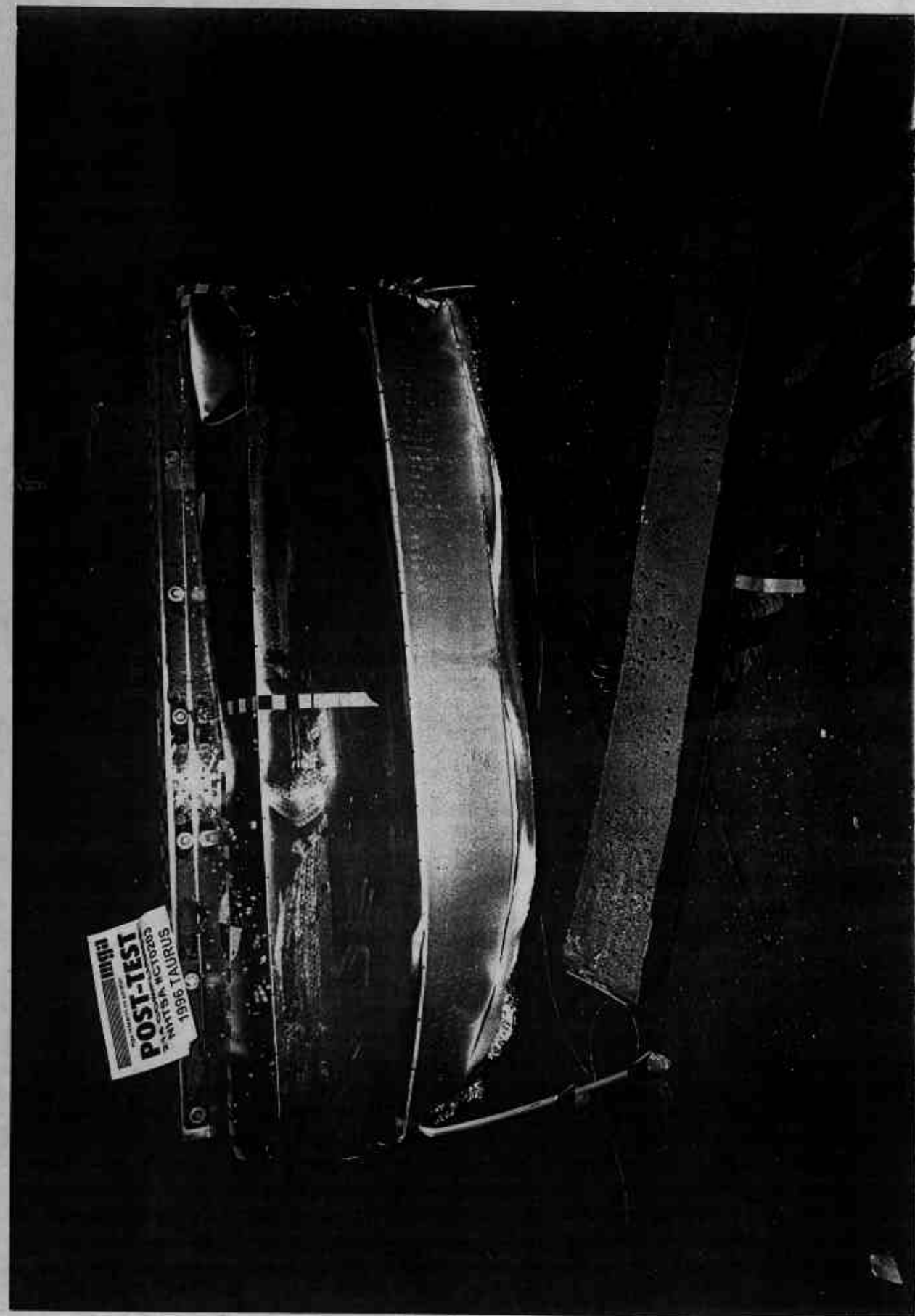


Photo No. A-16 - Post-Test MDB Front View



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

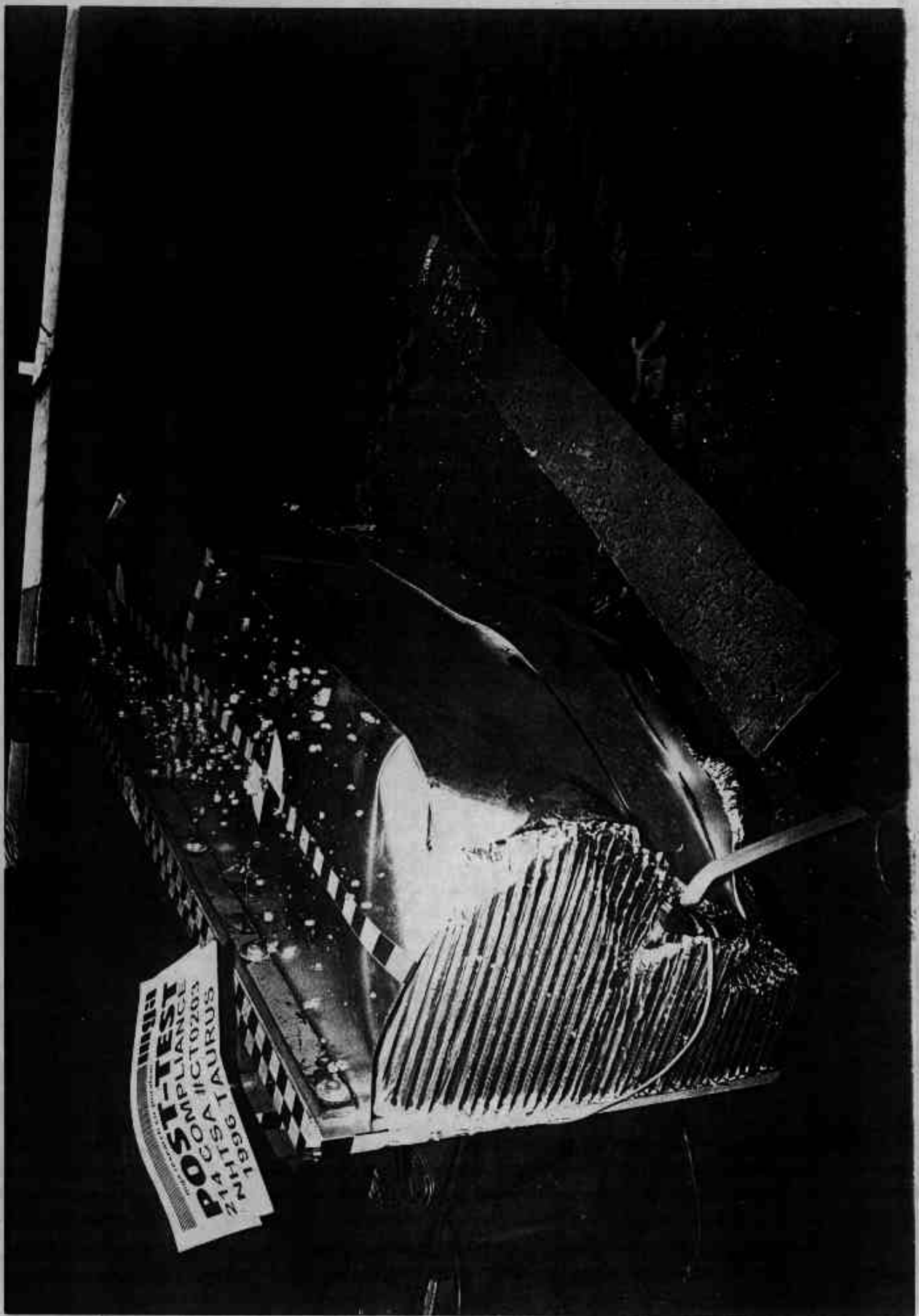


Photo No. A-18 - Post-Test MDB Right Side View

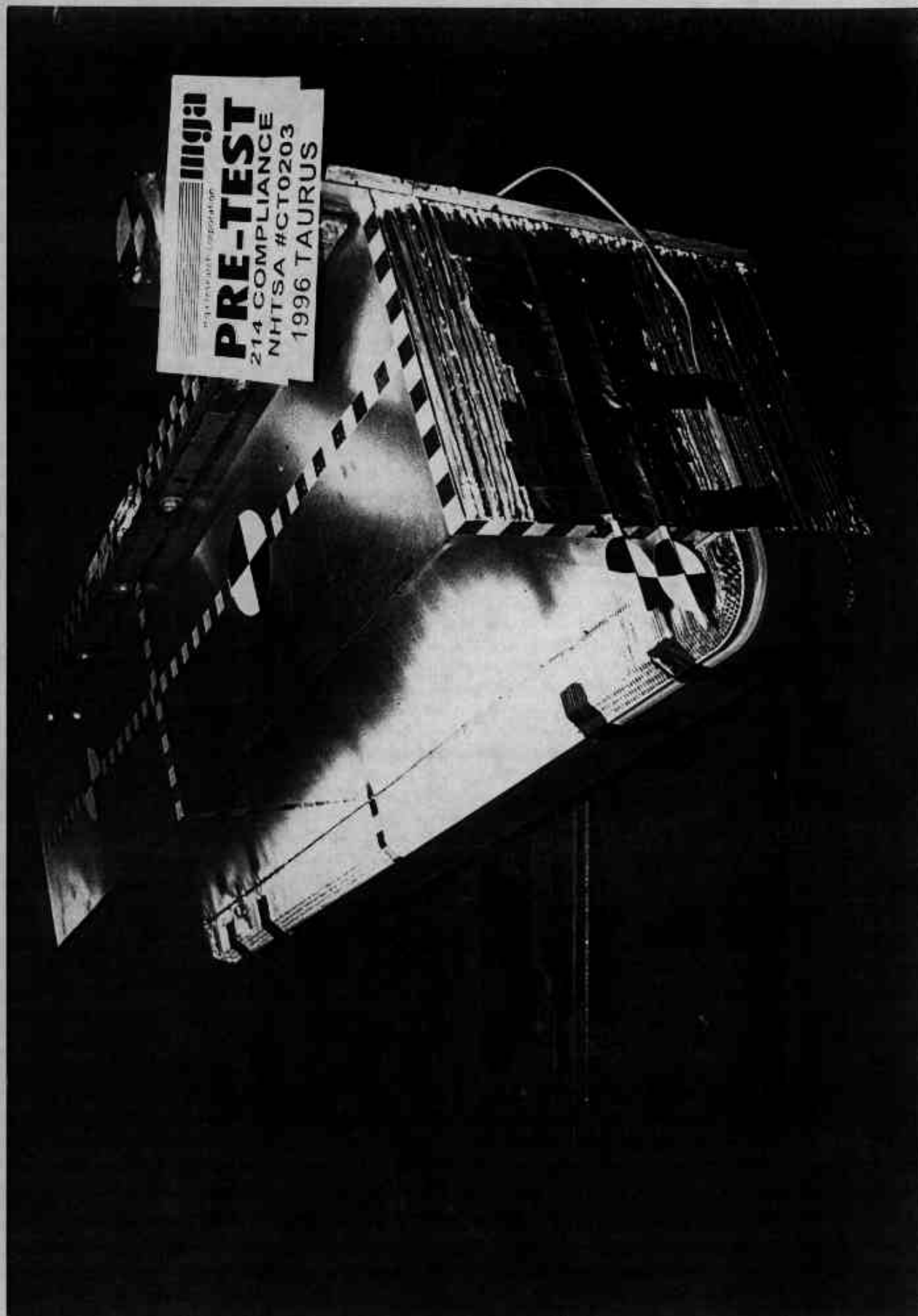


Photo No. A-19 - Pre-Test MDB Left Side View



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



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

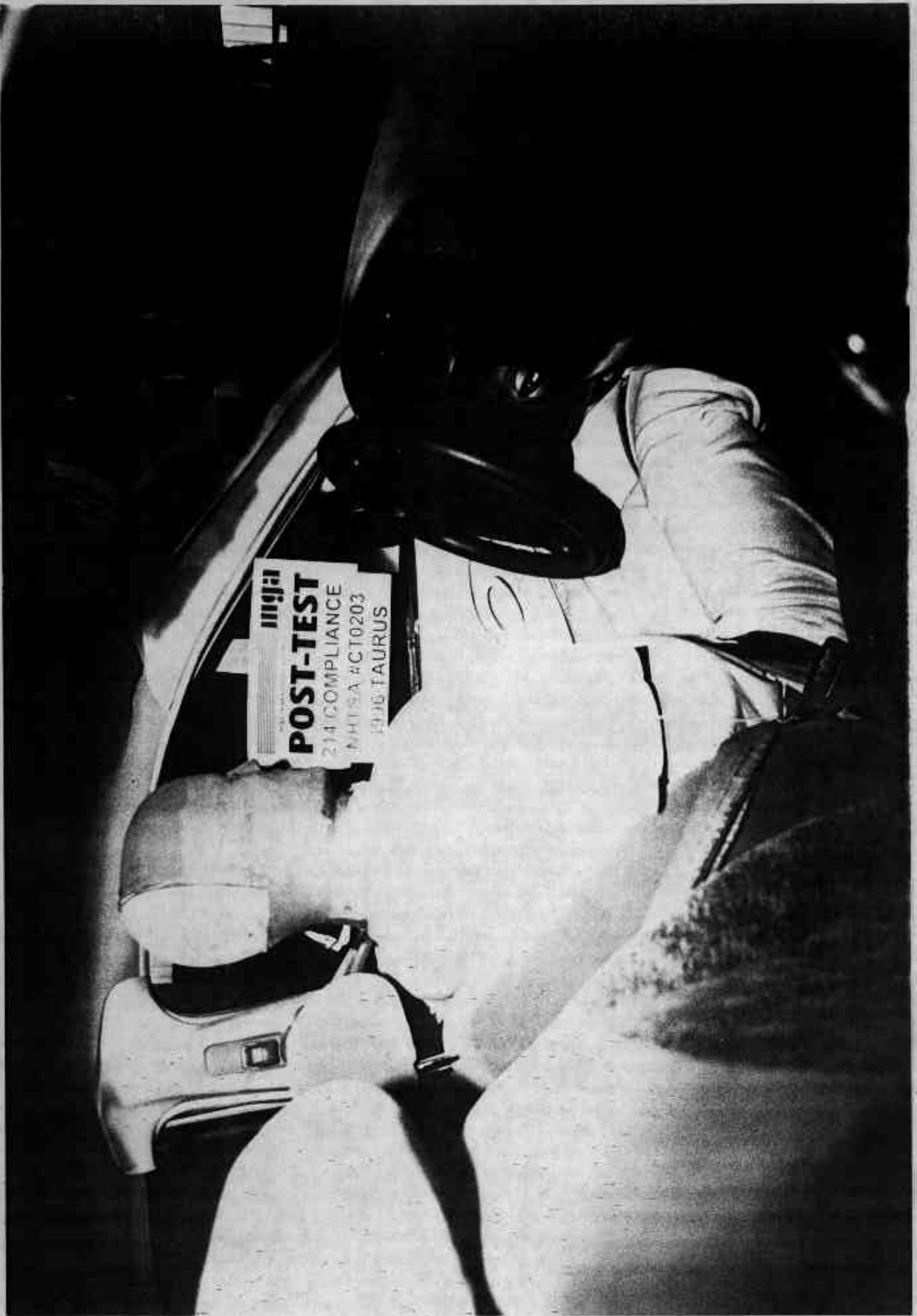
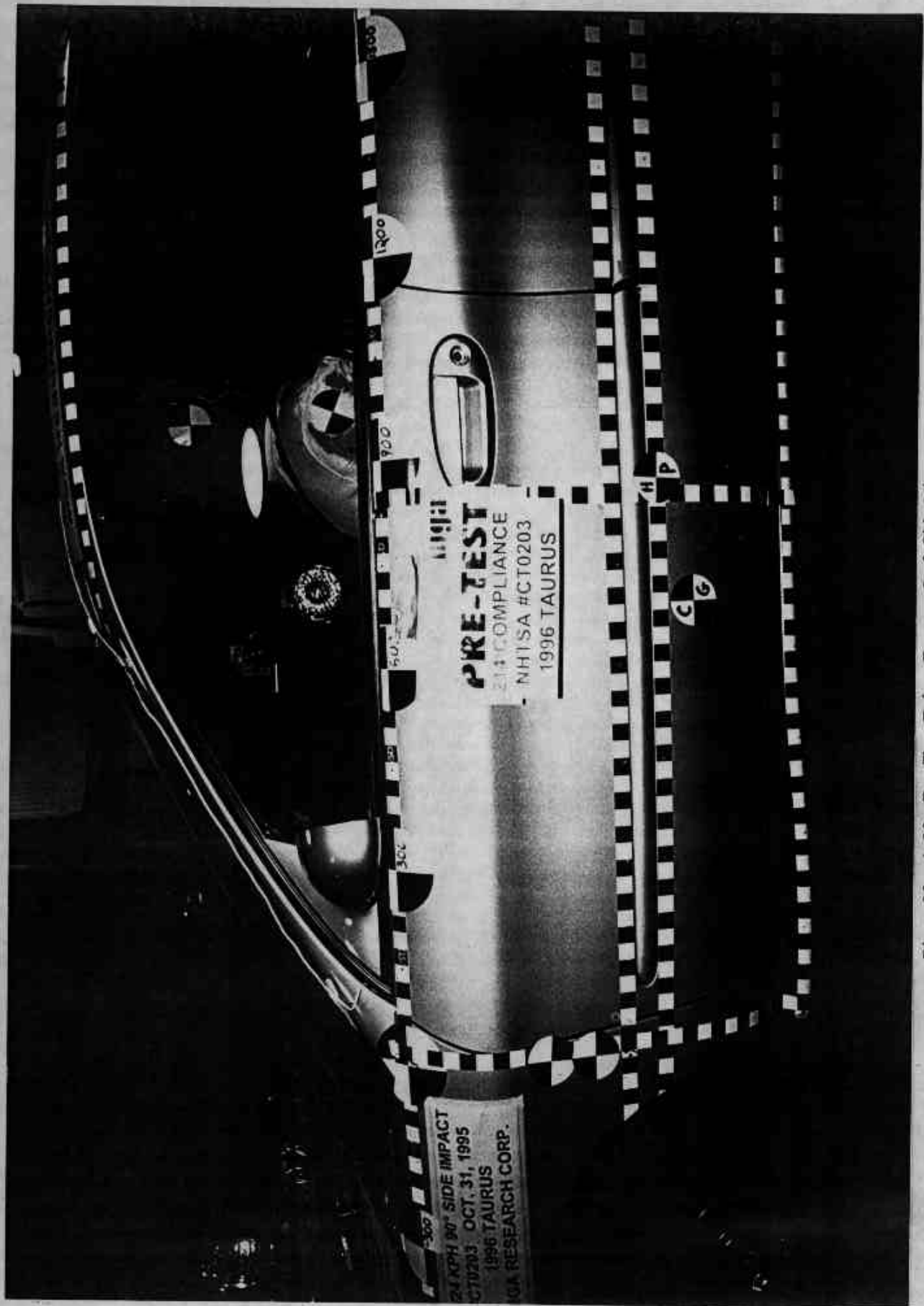


Photo No. A-22 - Post-Test Driver Dummy Right Side View



A-23

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

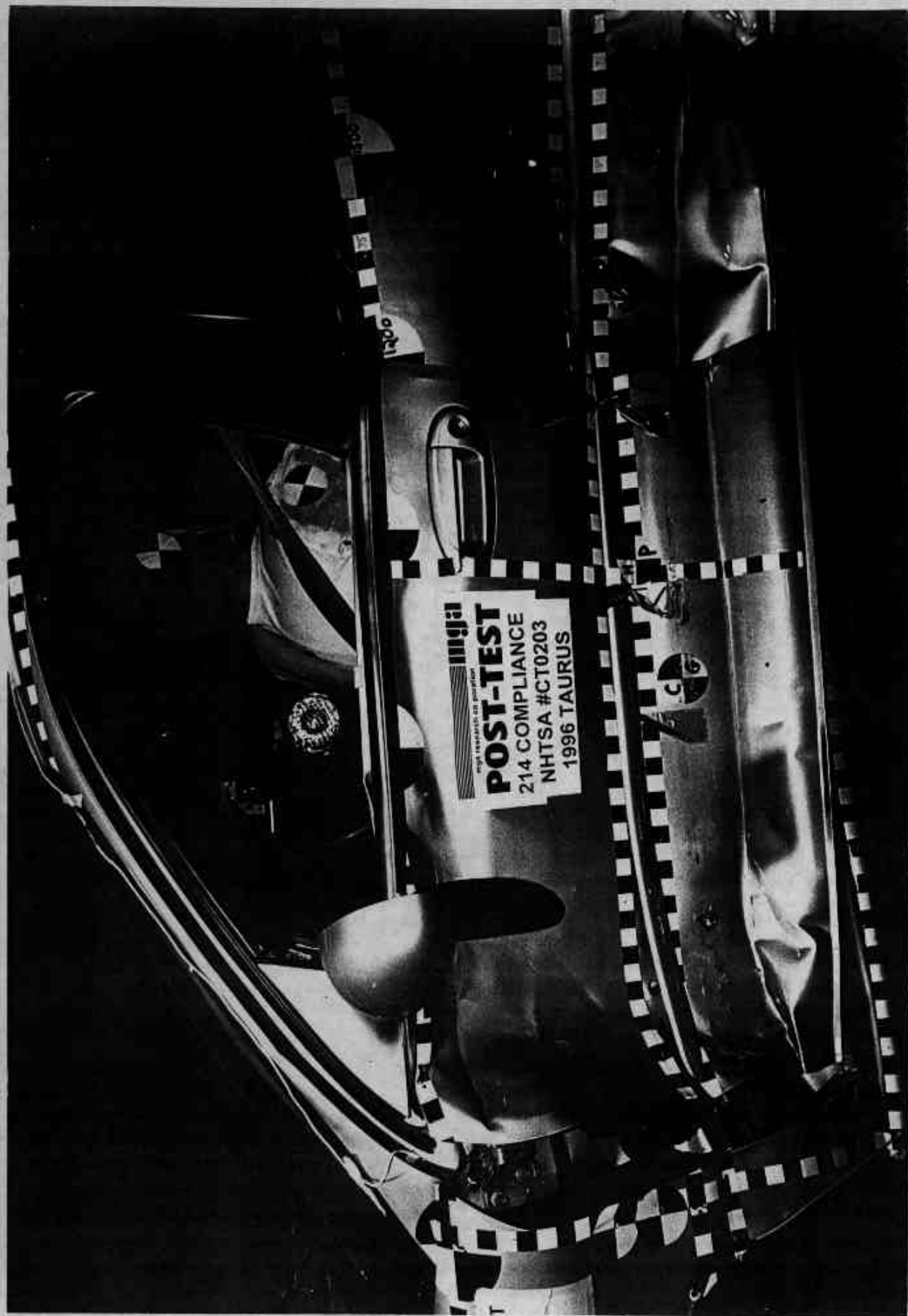


Photo No. A-24 - Post-Test Driver Dummy Left Side View



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

A-25



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



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



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



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

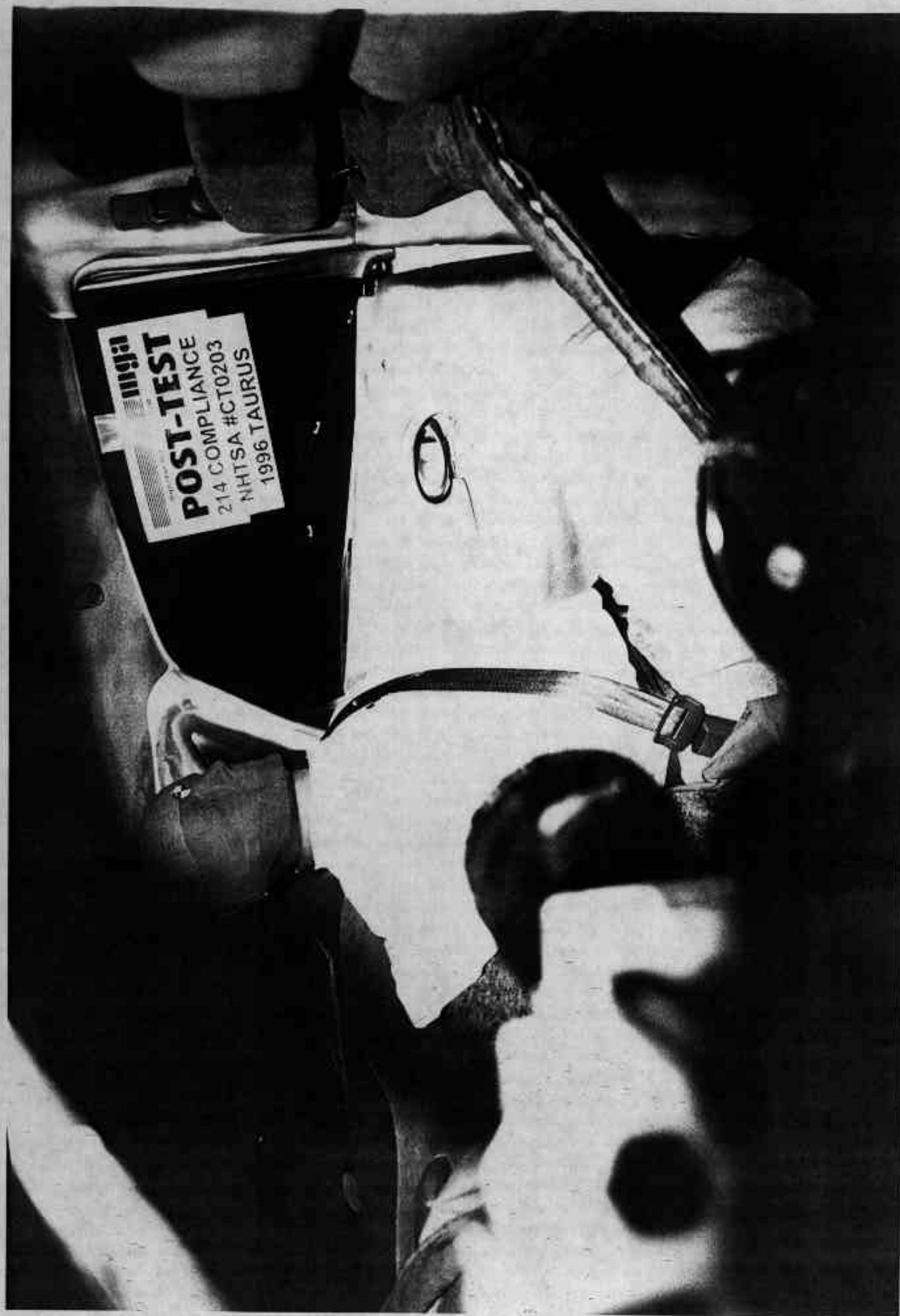


Photo No. A-30 - Post-Test Passenger Dummy Right Side View

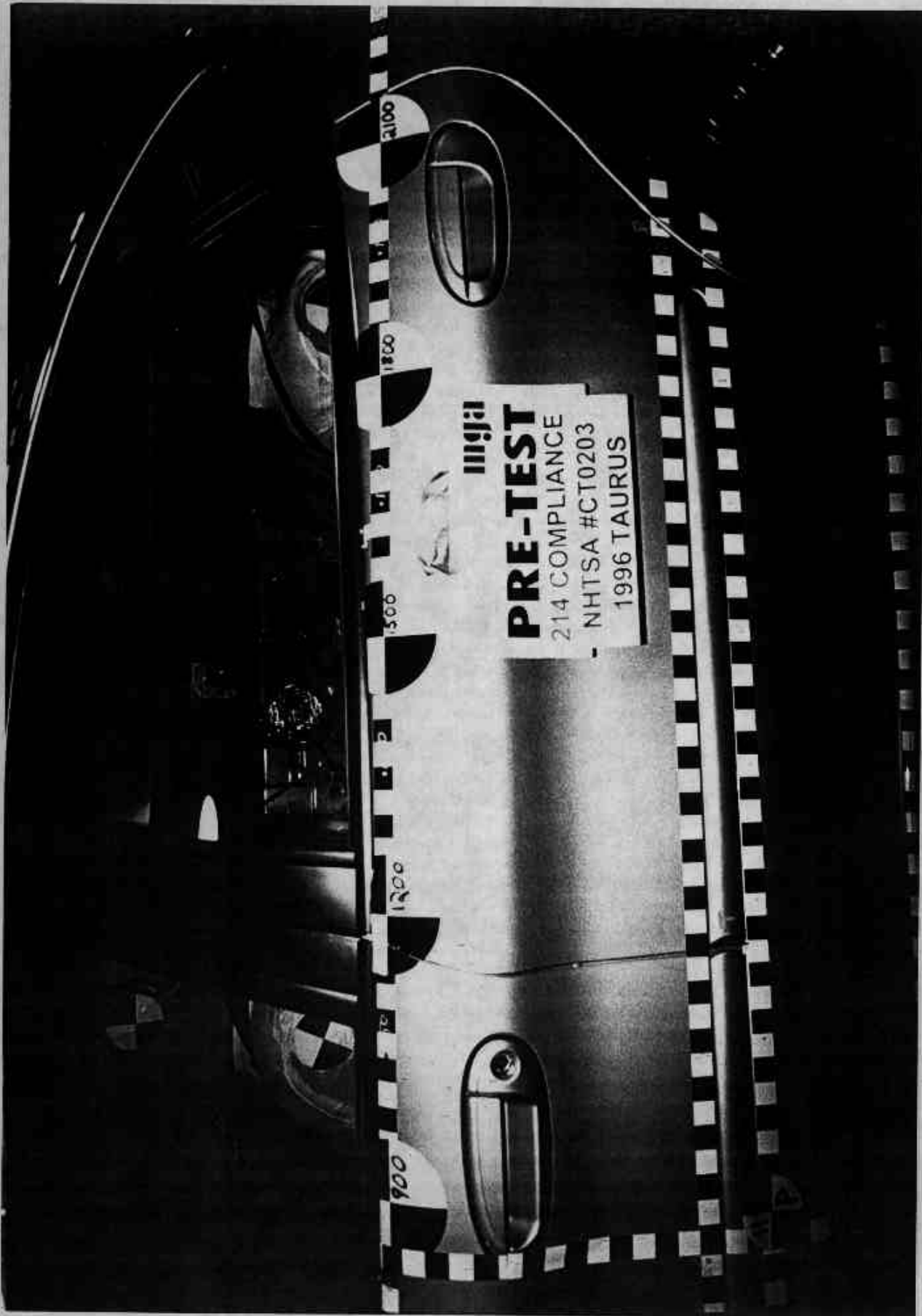


Photo No. A-31 - Pre-Test Passenger Dummy Left Side View

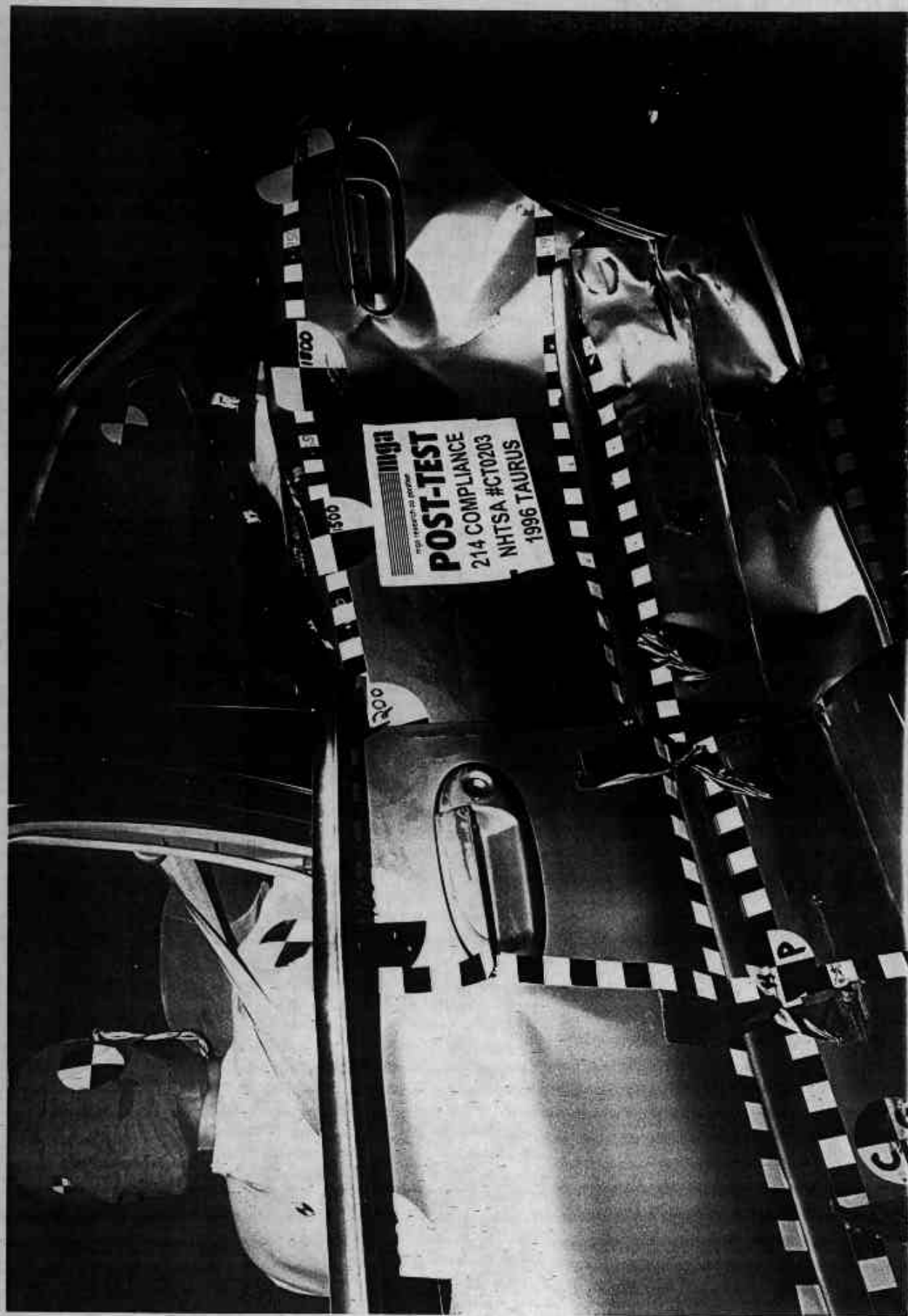


Photo No. A-32 - Post-Test Passenger Dummy Left Side View

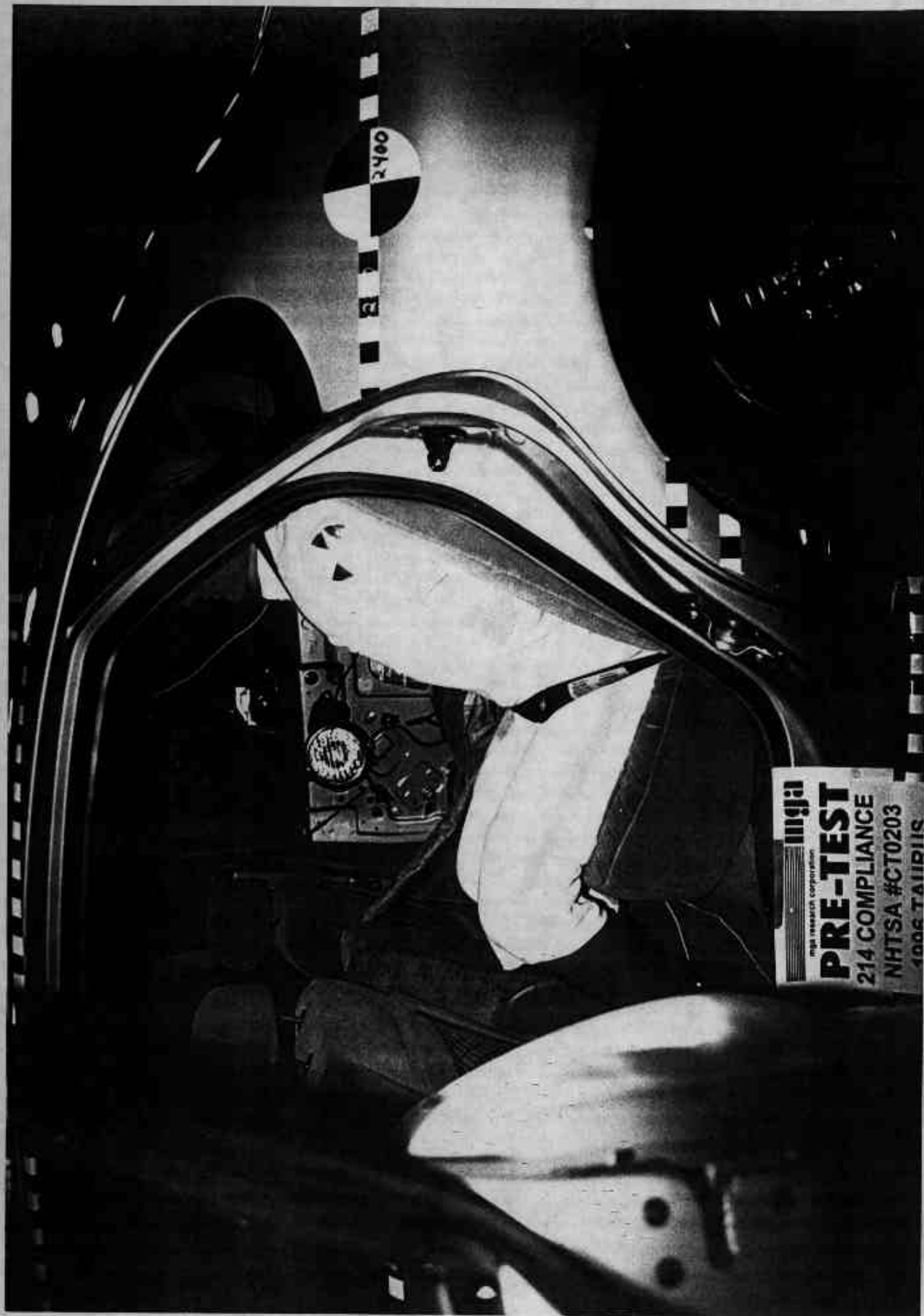


Photo No. A-33 - Pre-Test Passenger Dummy Left Side View (Door Open)

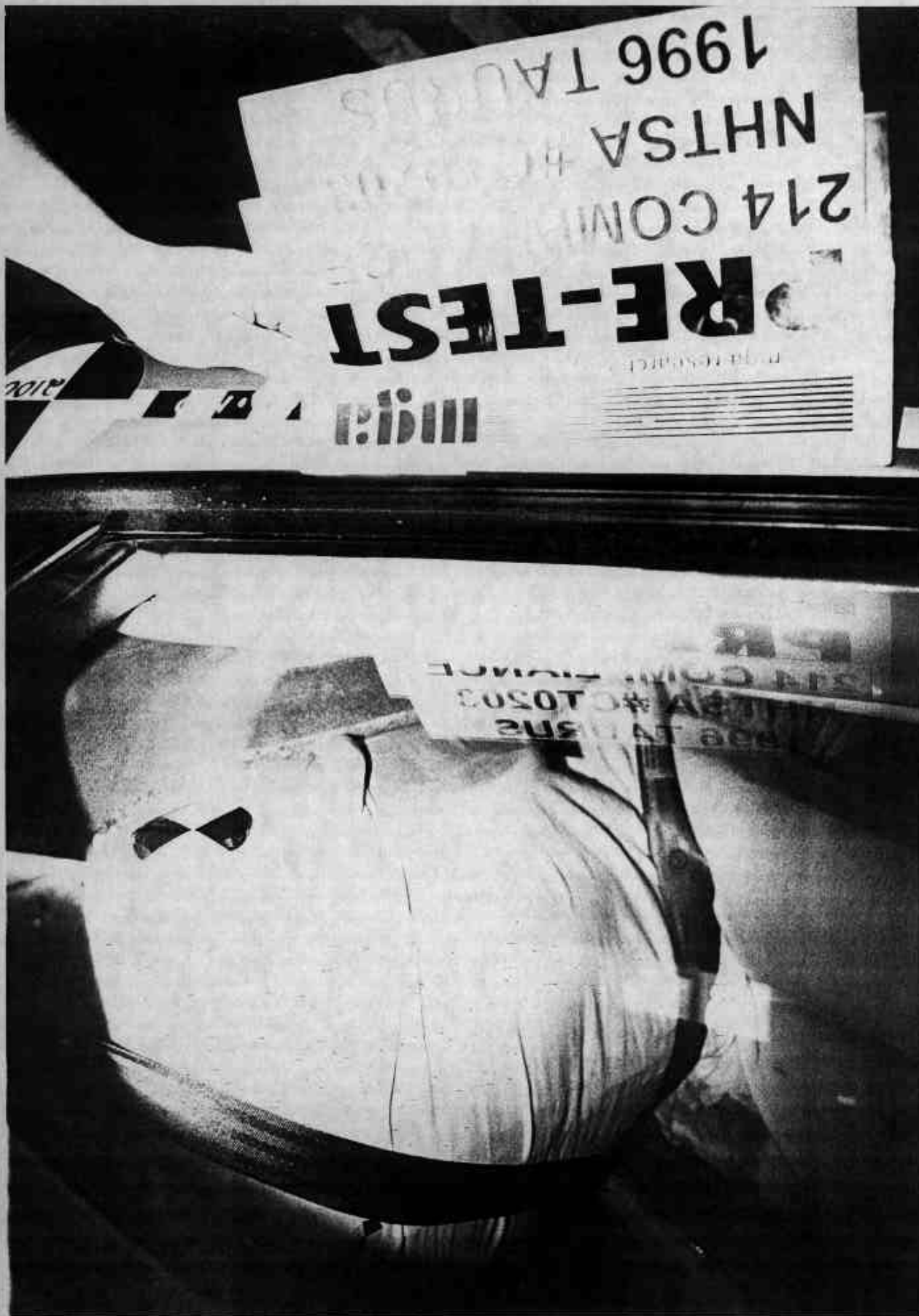


Photo No. A-34 - Pre-Test Passenger Dummy Shoulder and Door Top View



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



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



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



Photo No. A-38 - Post-Test Left Front Impact Point on Vehicle

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE: 08/95

FRONT GAWR: 2647LB

REAR GAWR: 2065LB

GVWR: 4687LB/2125KG

1200KG

936KG

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

VIN: 1FALP52UXTG106771

TYPE: PASSENGER

F0157
R0038



DZ

EXTERIOR PAINT COLORS

BODY | BRK | MLCG.

FC4 | A | CC

INT TRIN

DS

TAPE

R

S

AX

DS0

TR

R

LLLKK

VF0EB-58204A10-AB

LA GARDE DU COUP DE POIGNARD ET DES ACCIDENTS D'ARMES À FEU

USAGES DES PNEUS	ANNUALITES	PRESSION DES PNEUS
P205/65R15 92T*	33 lit/par	228 kPa
P225/55R16 94V*	35 lit/par	240 kPa
PNEU DE SECOURS PROVISIONNEL		
T135/90R15 T135/70R15	60 lit/par	415 kPa
T135/80R16		

[illegible]

Photo No. A-40 - Tire Placard

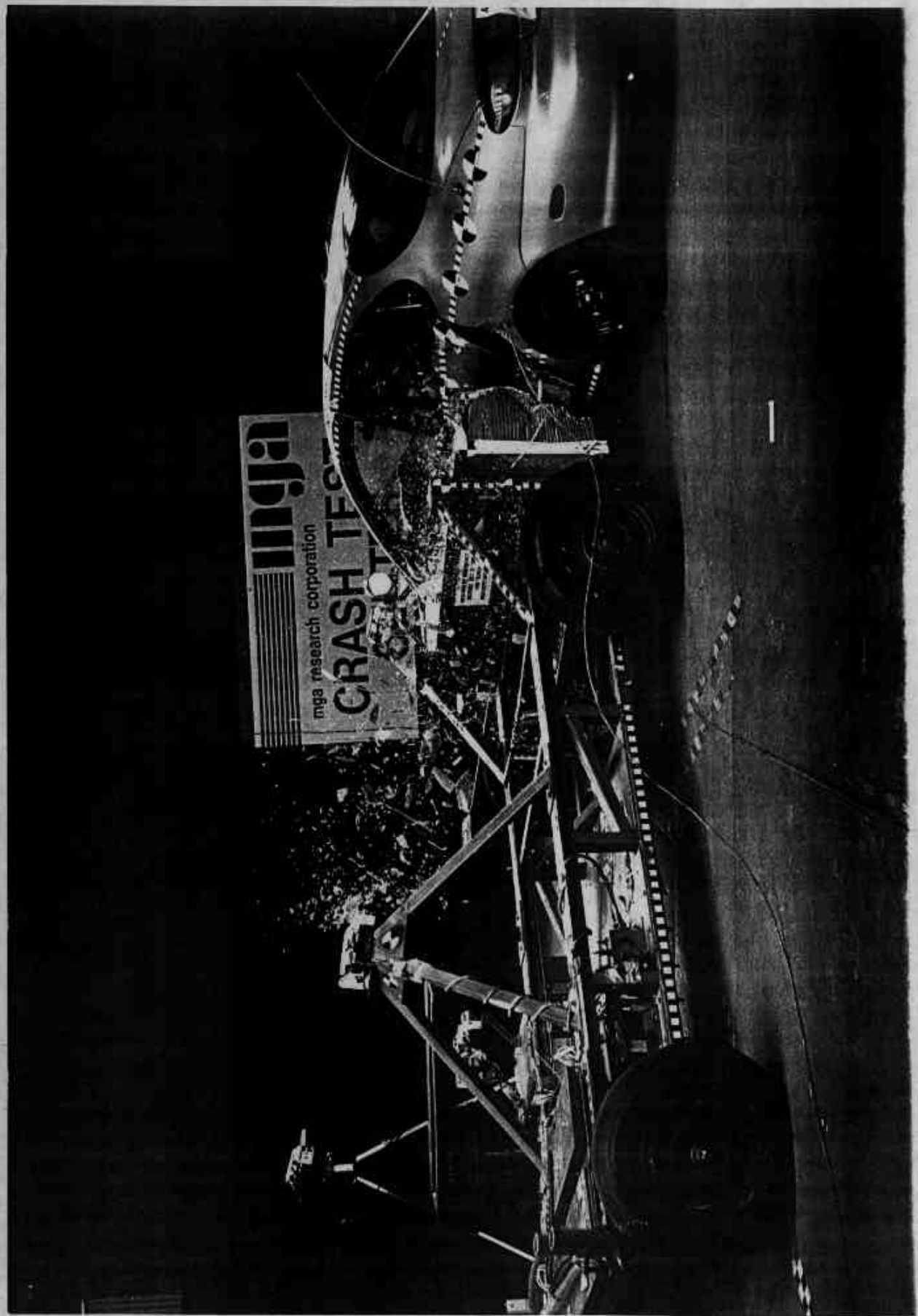


Photo No. A-41 - Impact

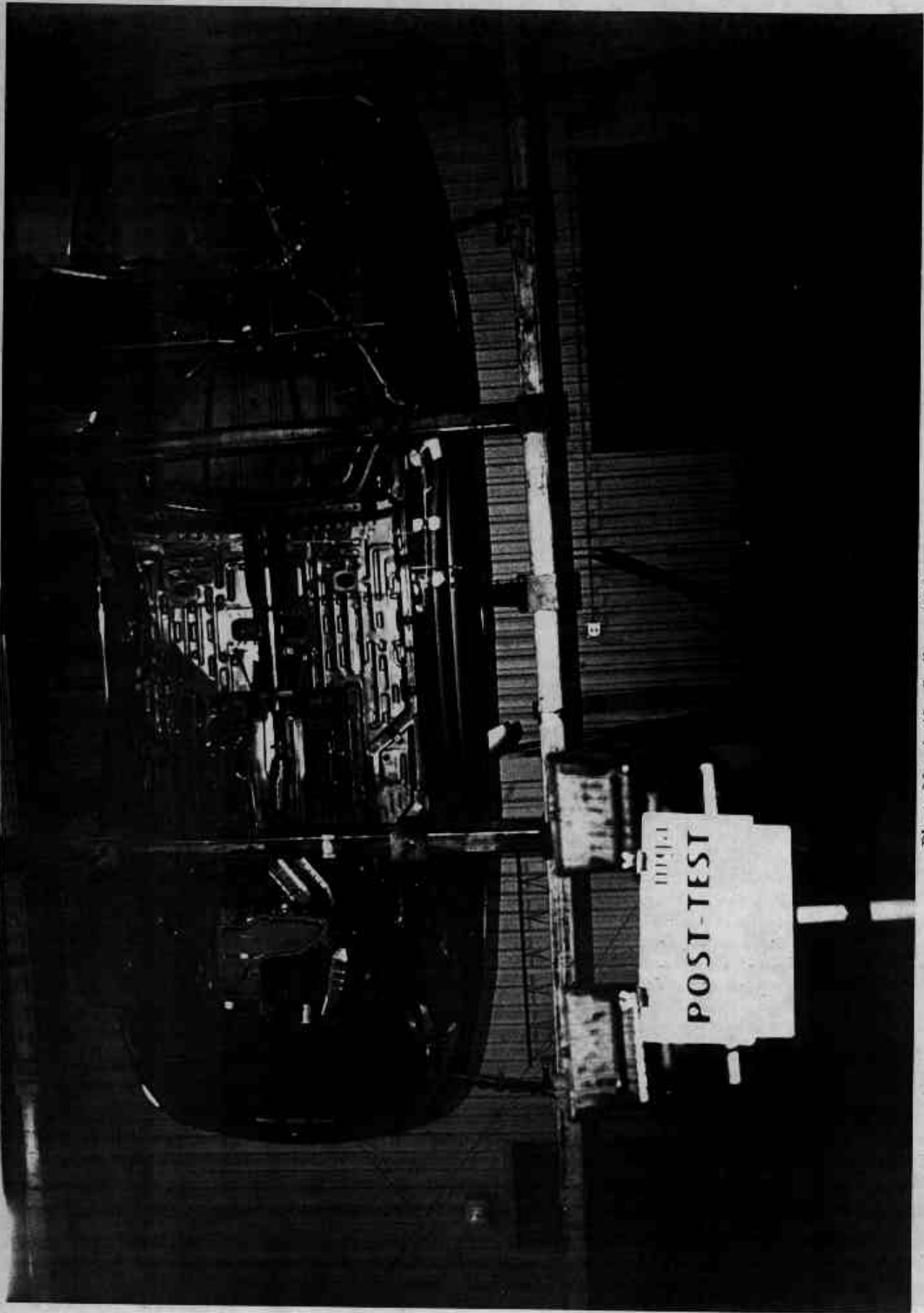


Photo No. A-42 - Rollover 90°

A-42

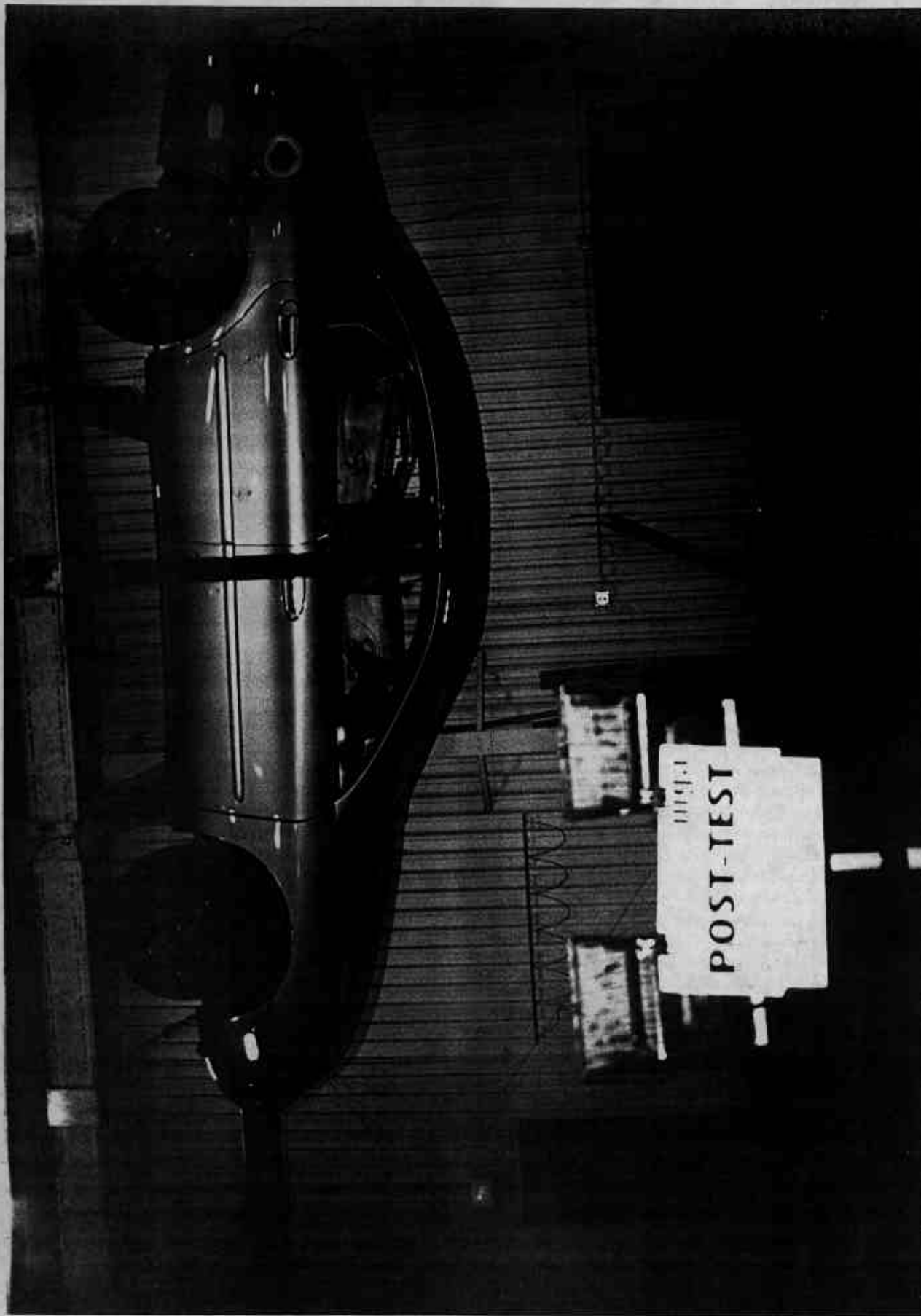


Photo No. A-43 - Rollover 180°

A-43

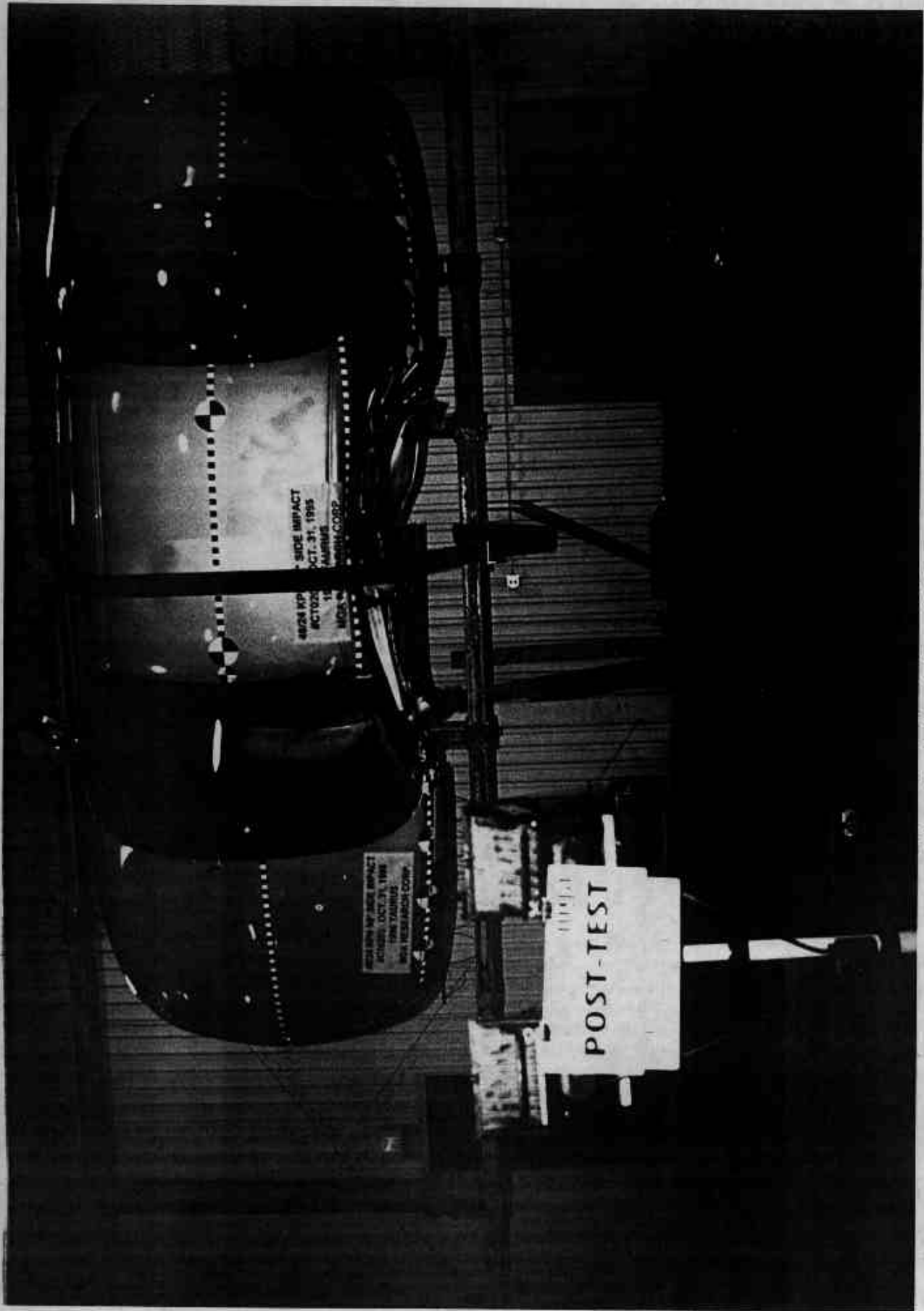


Photo No. A-44 - Rollover 270°

A-44



Photo No. A-45 - Rollover 360°



Photo No. A-46 - Left Front Attitude Point

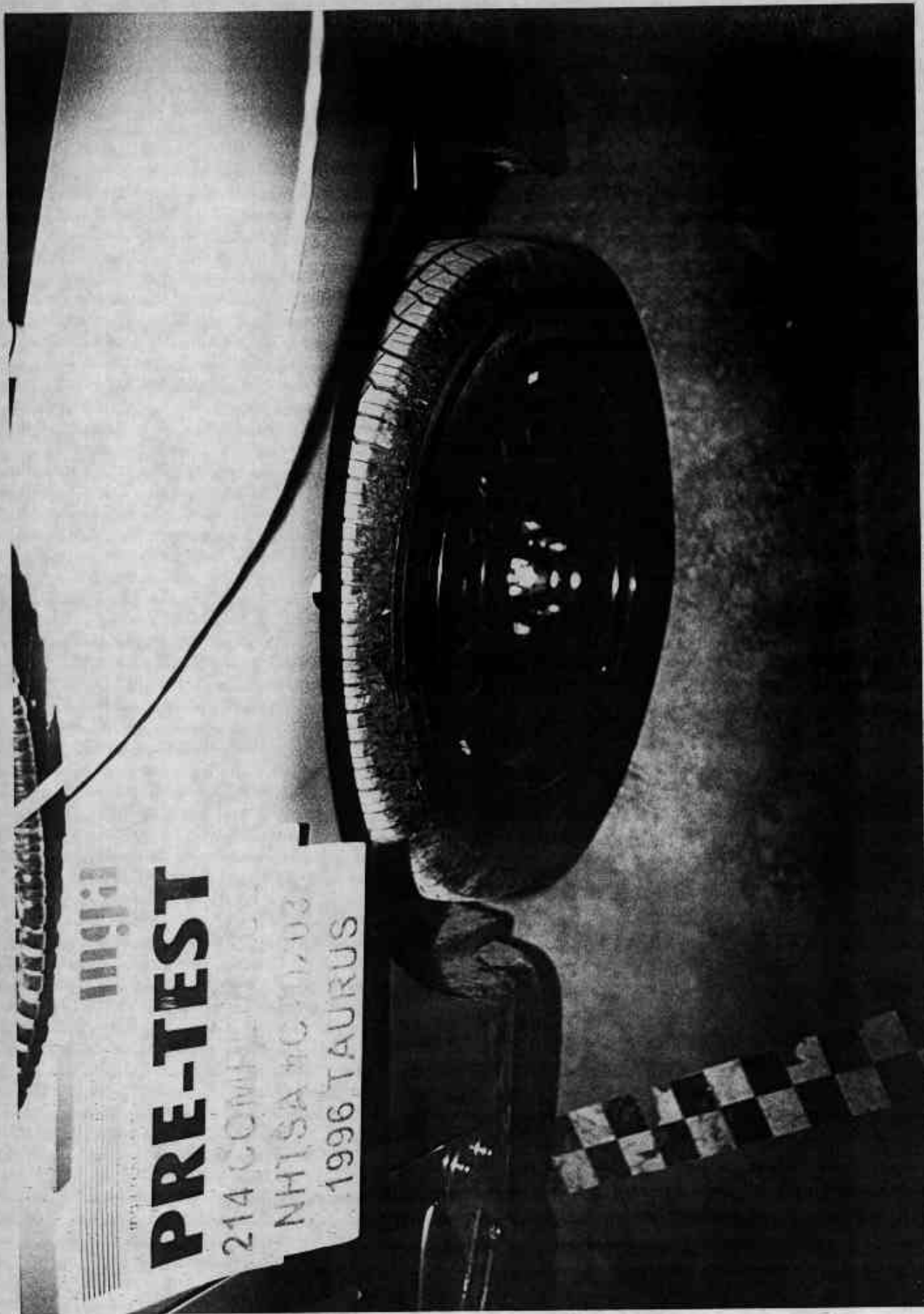


Photo No. A-47 - Right Front Attitude Point

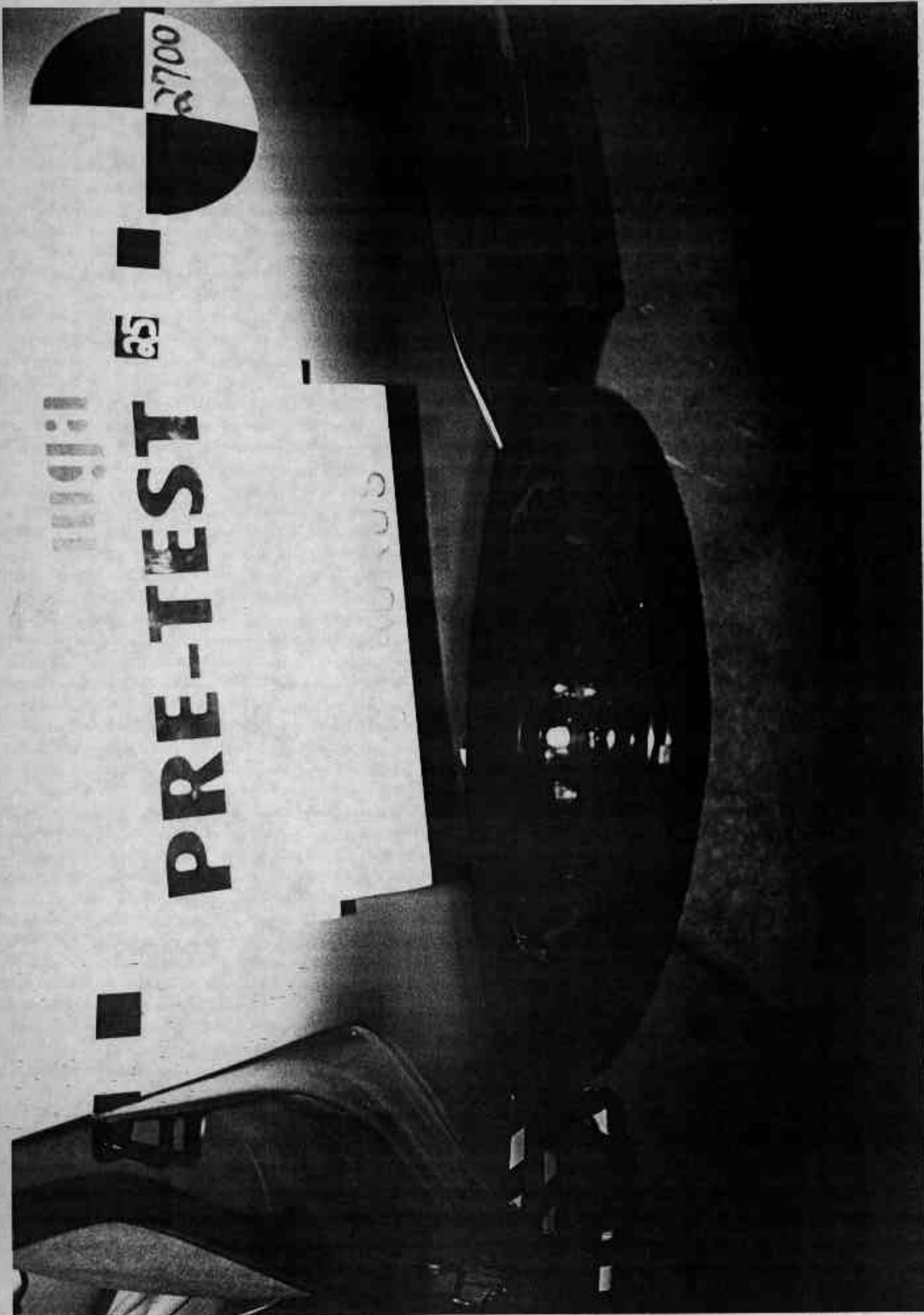


Photo No. A-48 - Left Rear Attitude Point

PRE-TEST

AURUS

Photo No. A-49 - Right Rear Attitude Point

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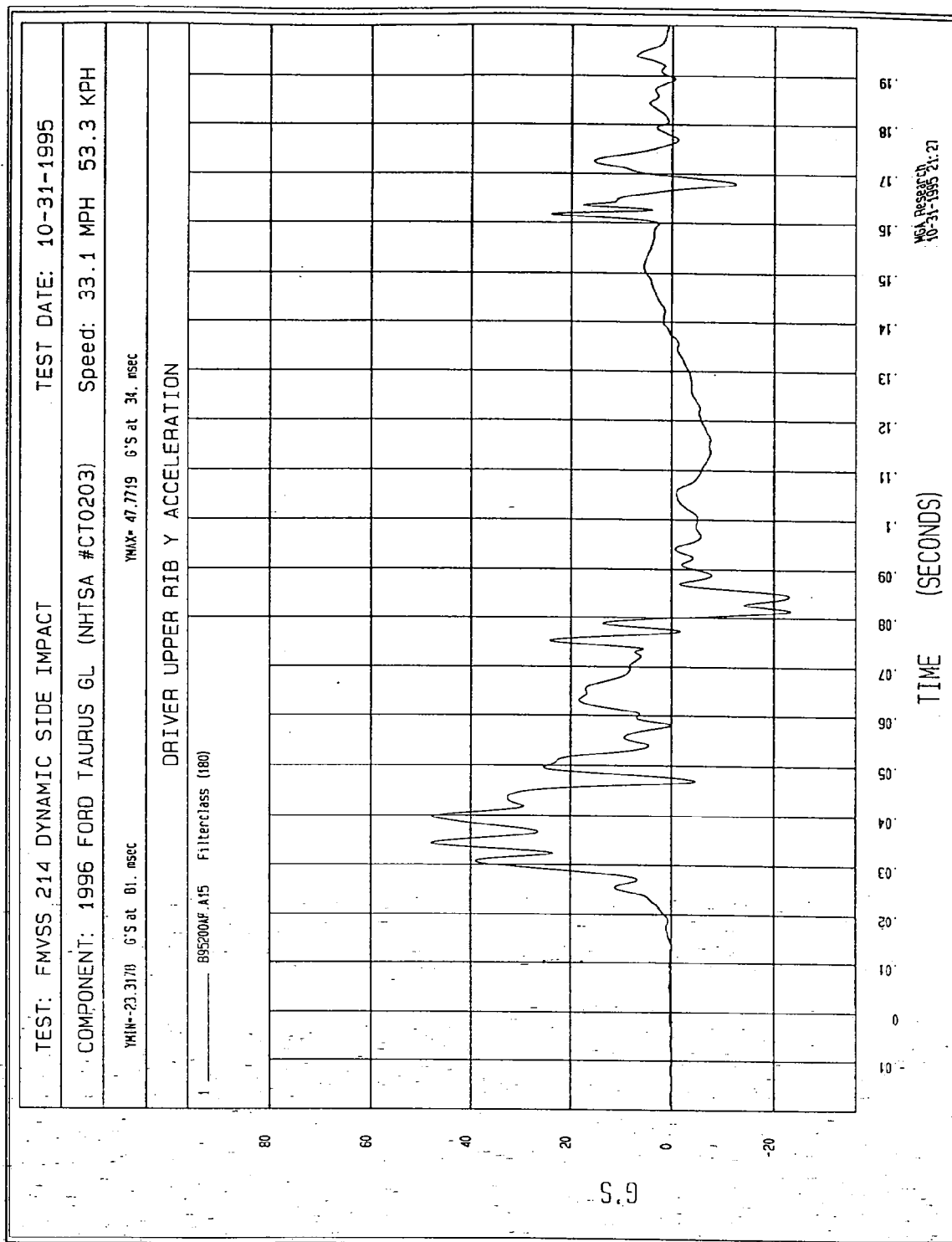


Figure B-1 - Driver Upper Rib Y Acceleration vs. Time

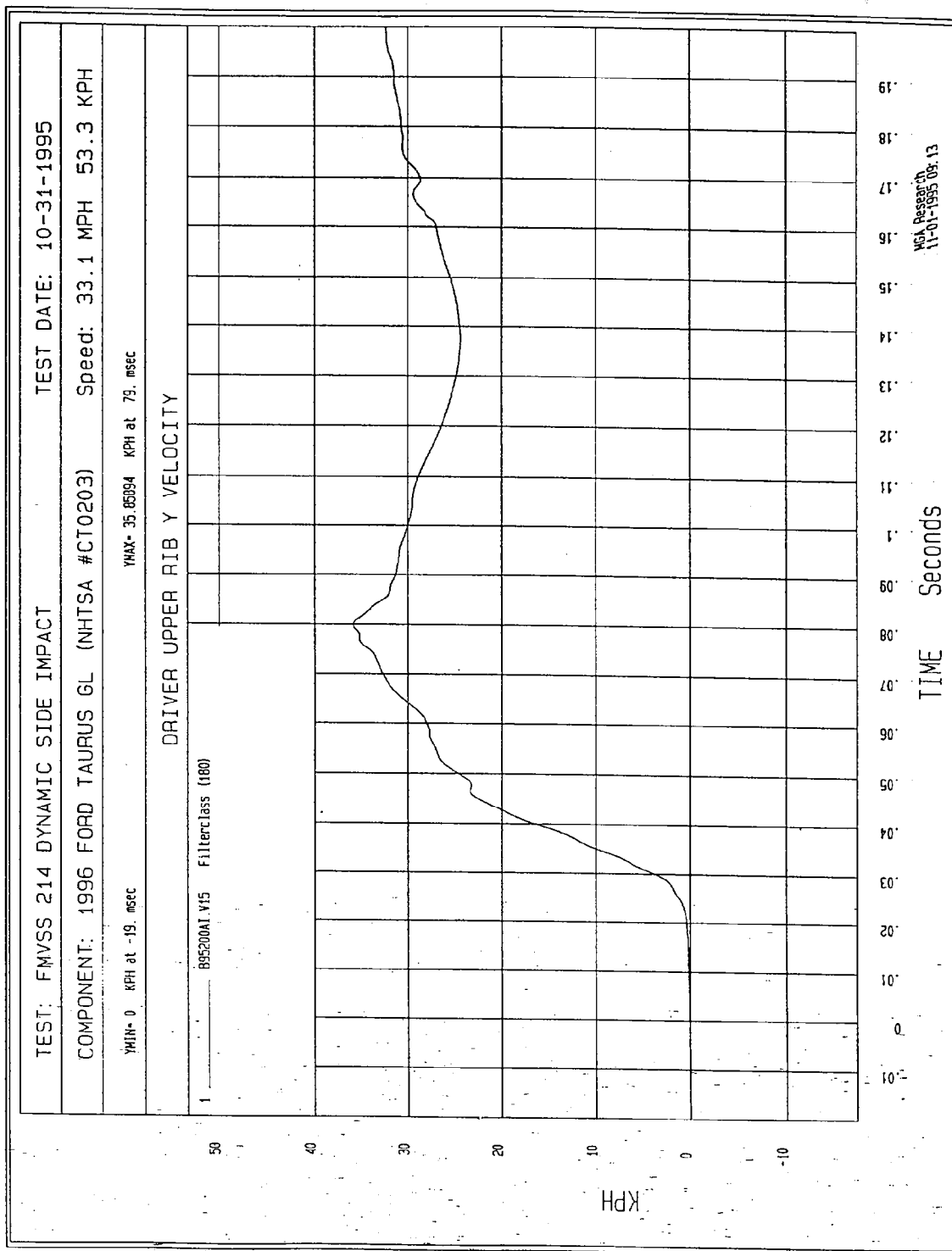


Figure B-2 - Driver Upper Rib Y Velocity vs. Time

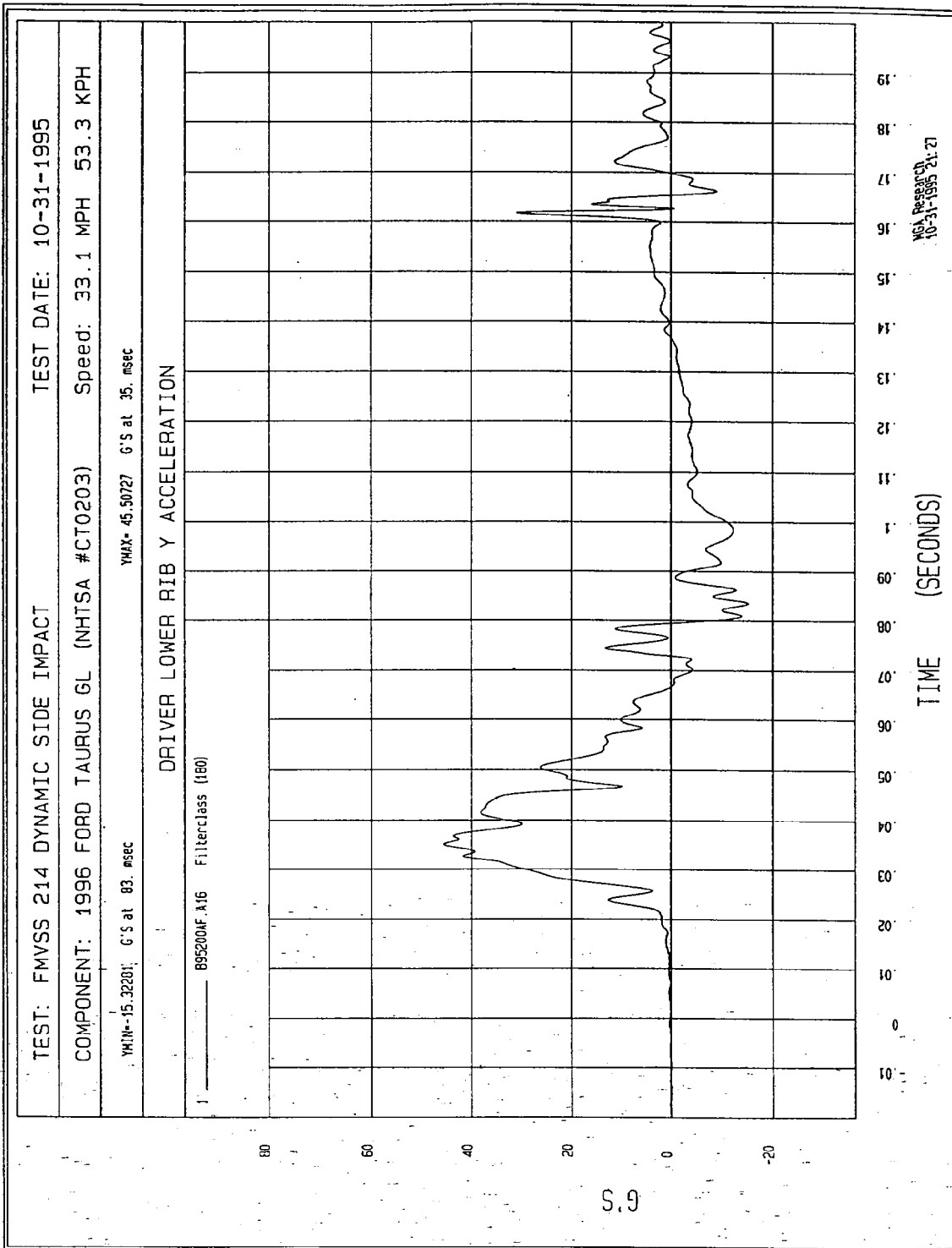


Figure B-3 - Driver Lower Rib Y Acceleration vs. Time

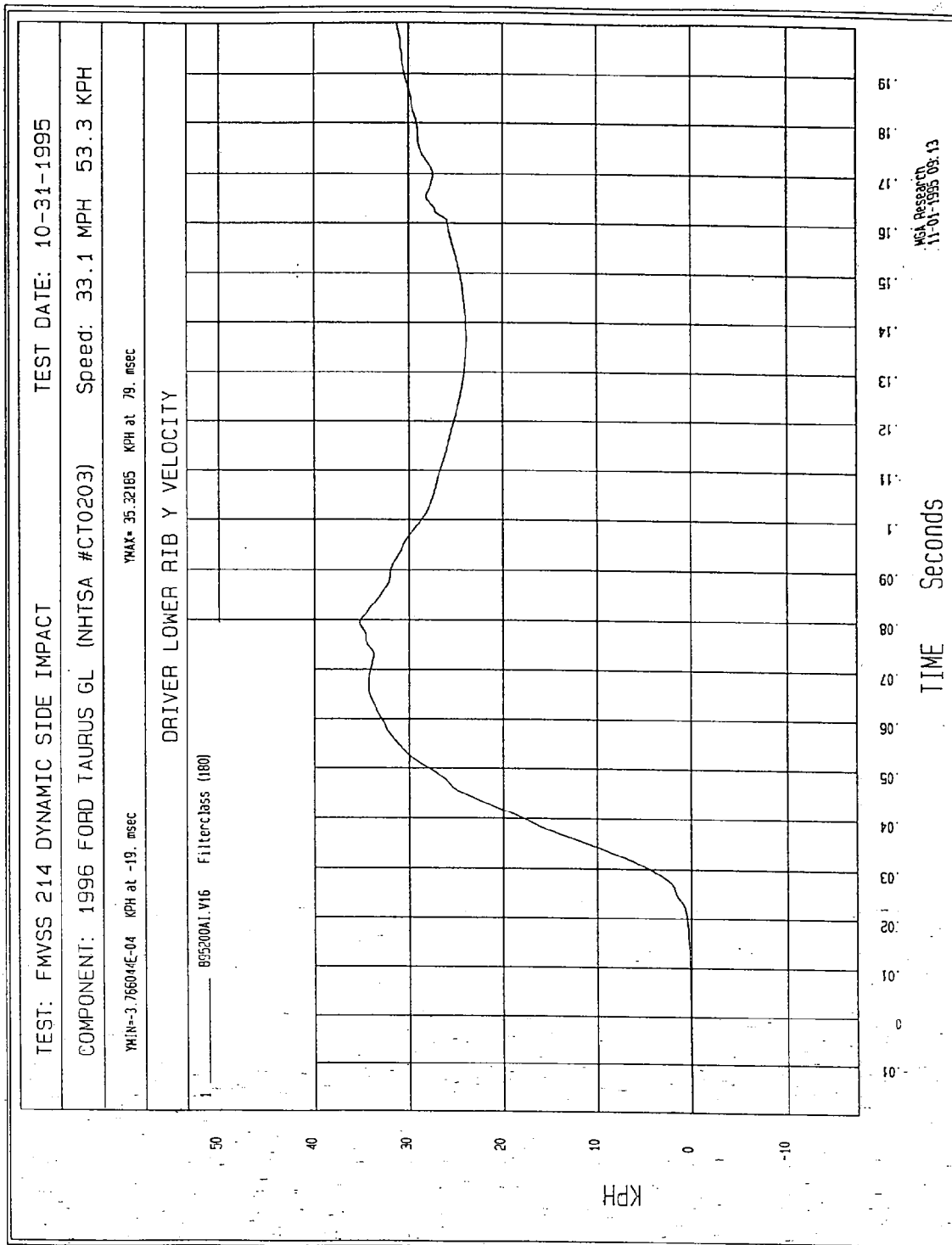


Figure B-4 - Driver Lower Rib Y Velocity vs. Time

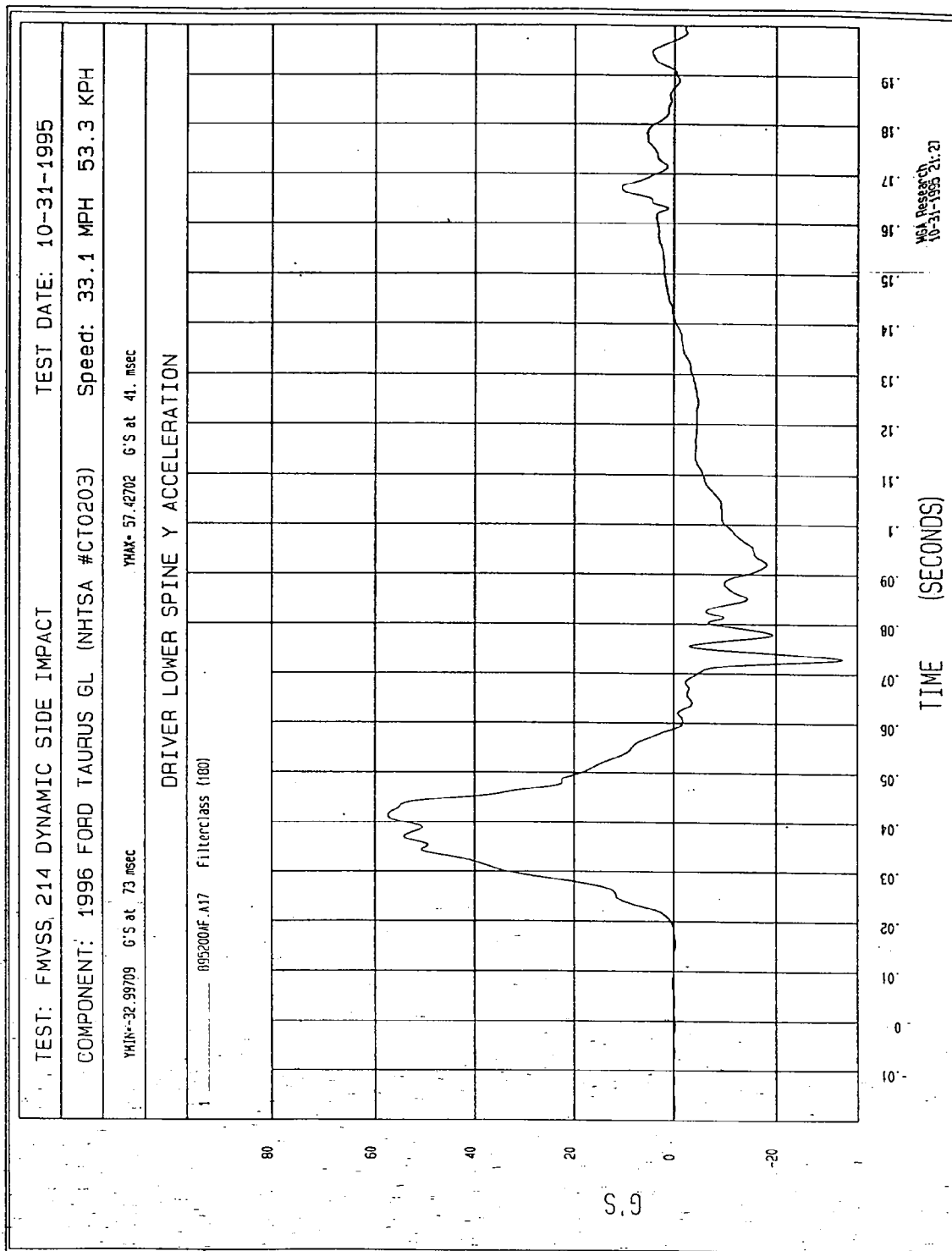


Figure B-5 - Driver Lower Spine Y Acceleration vs. Time

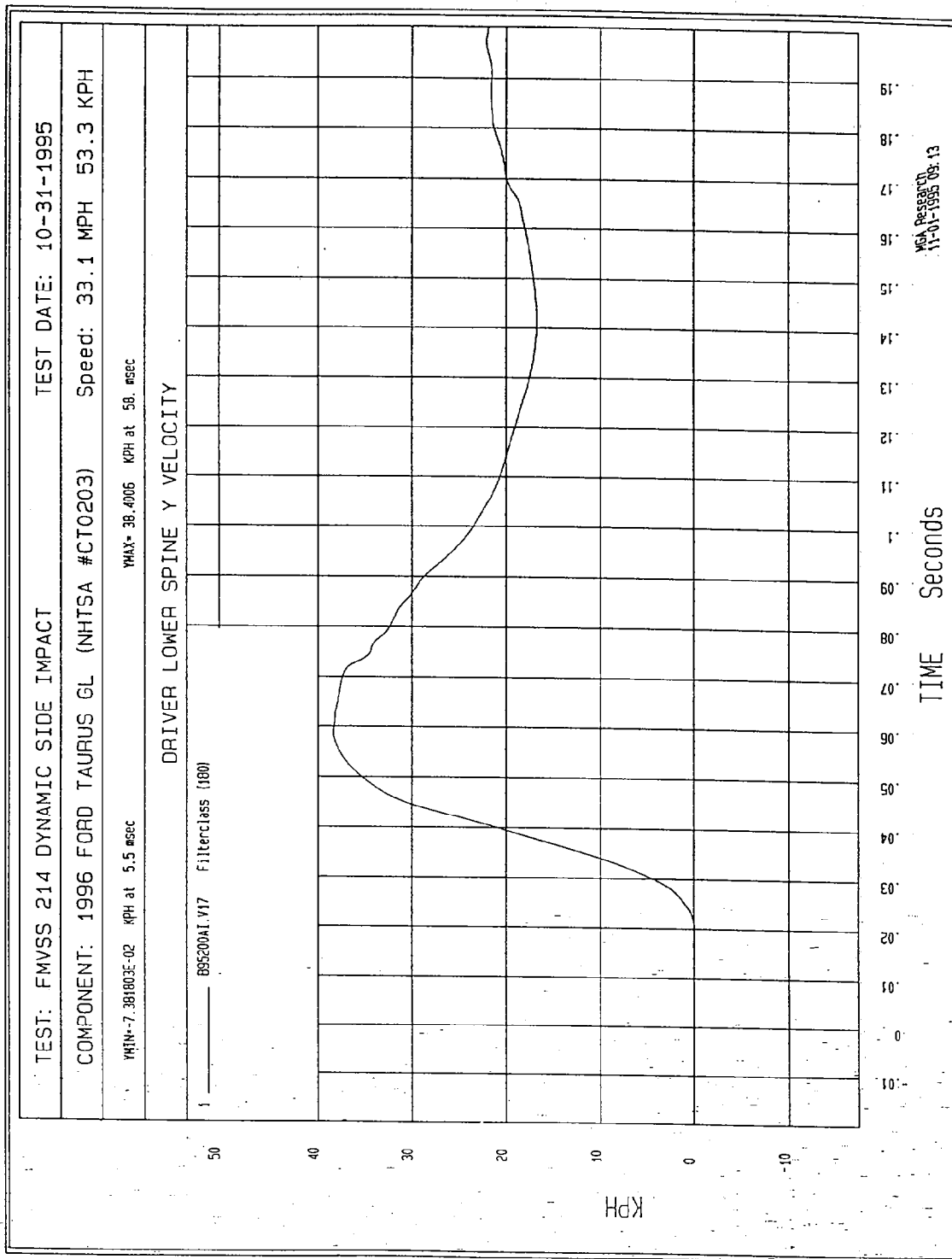


Figure B-6 - Driver Lower Spine Y Velocity vs. Time

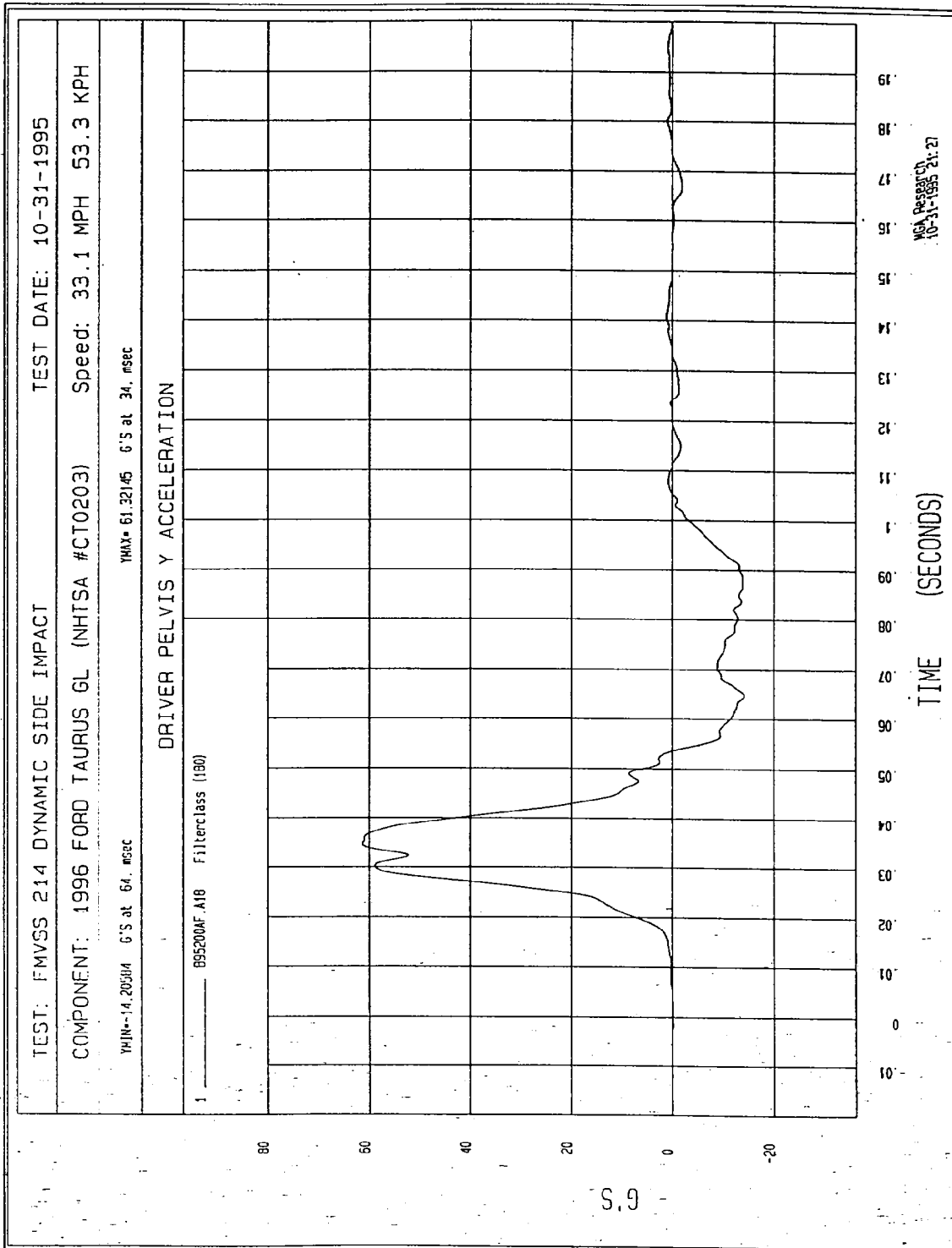


Figure B-7 - Driver Pelvis Y Acceleration vs. Time

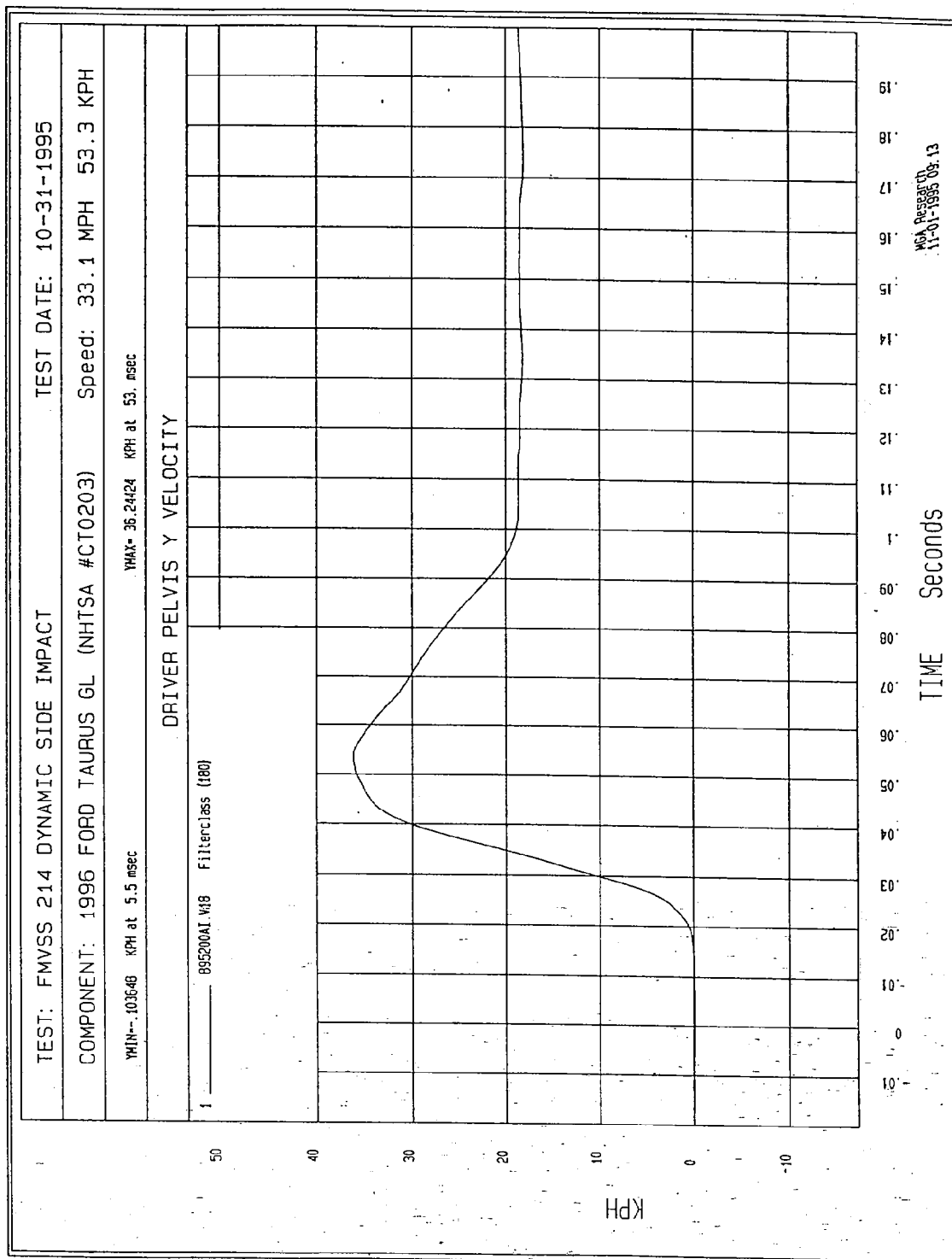


Figure B-8 - Driver Pelvis Y Velocity vs. Time

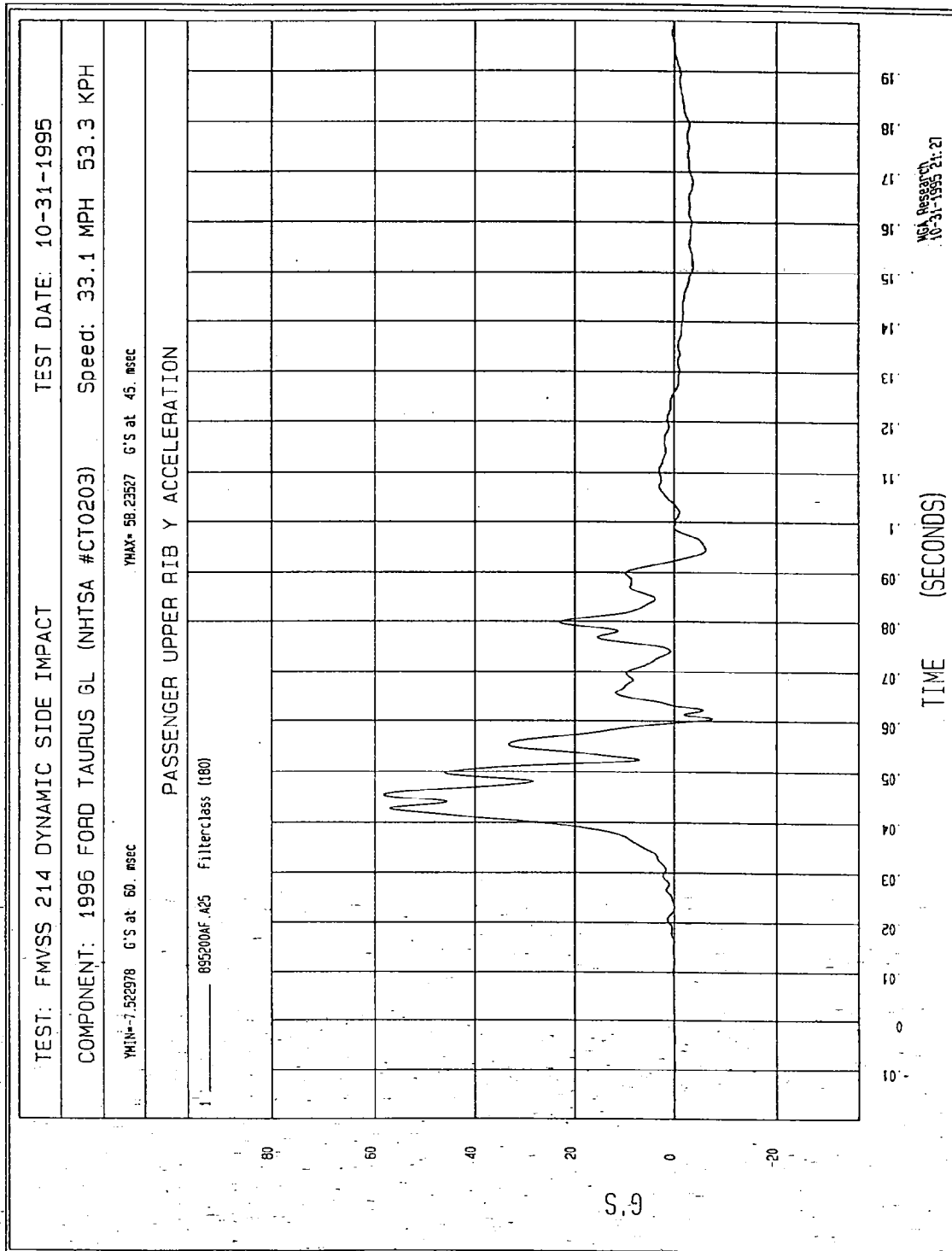


Figure B-9 - Passenger Upper Rib Y Acceleration vs. Time

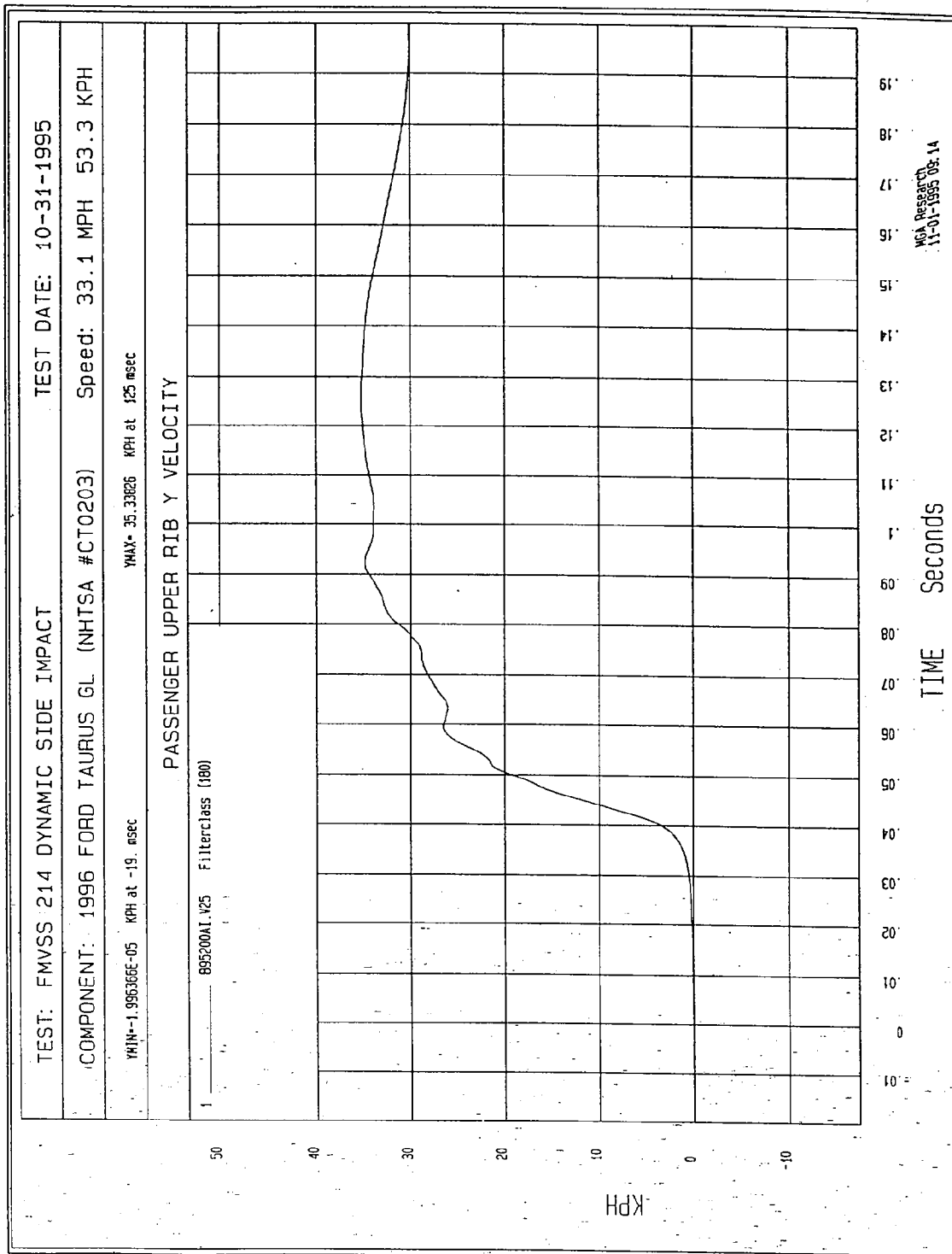


Figure B-10 - Passenger Upper Rib Y Velocity vs. Time

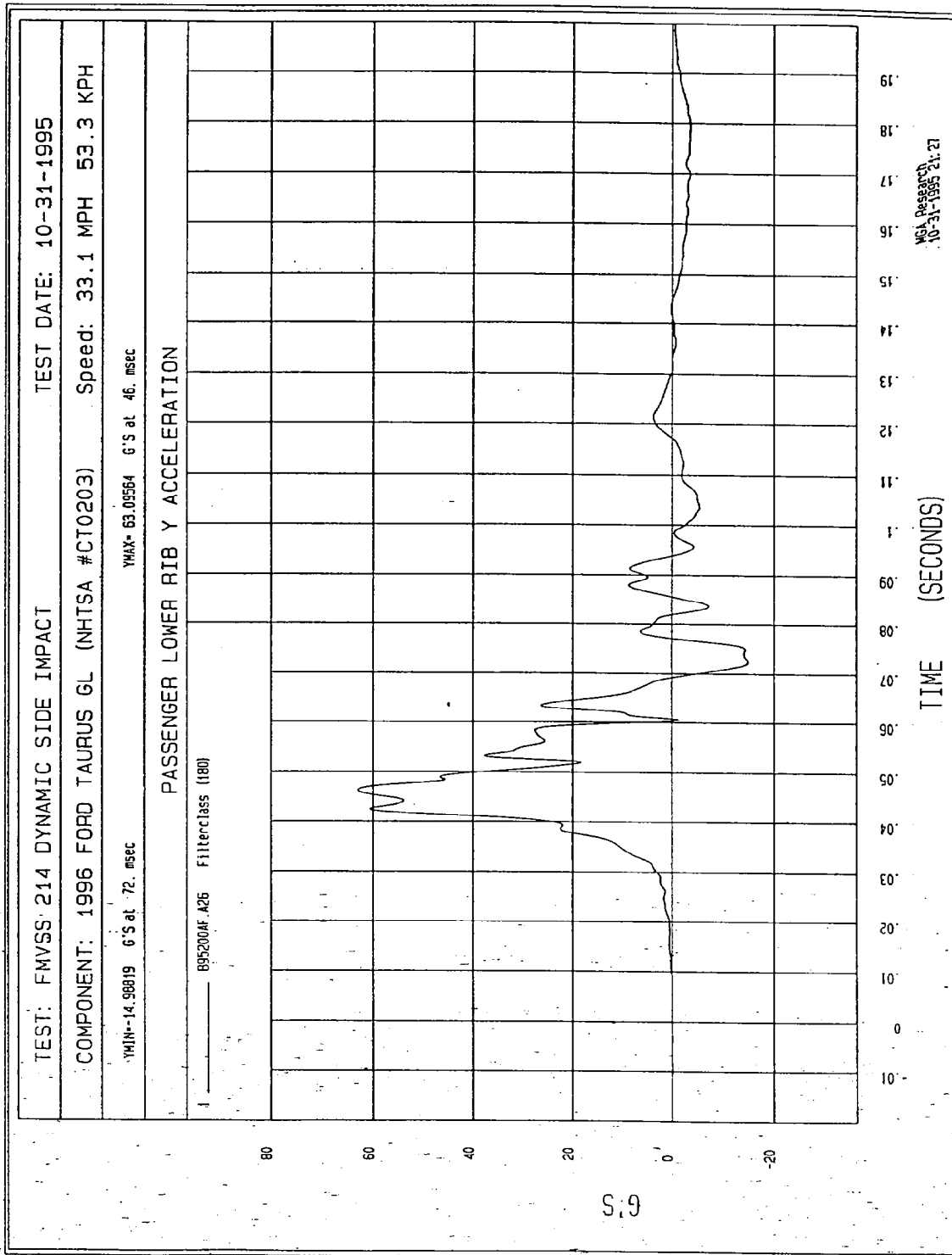


Figure B-11 - Passenger Lower Rib Y Acceleration vs. Time

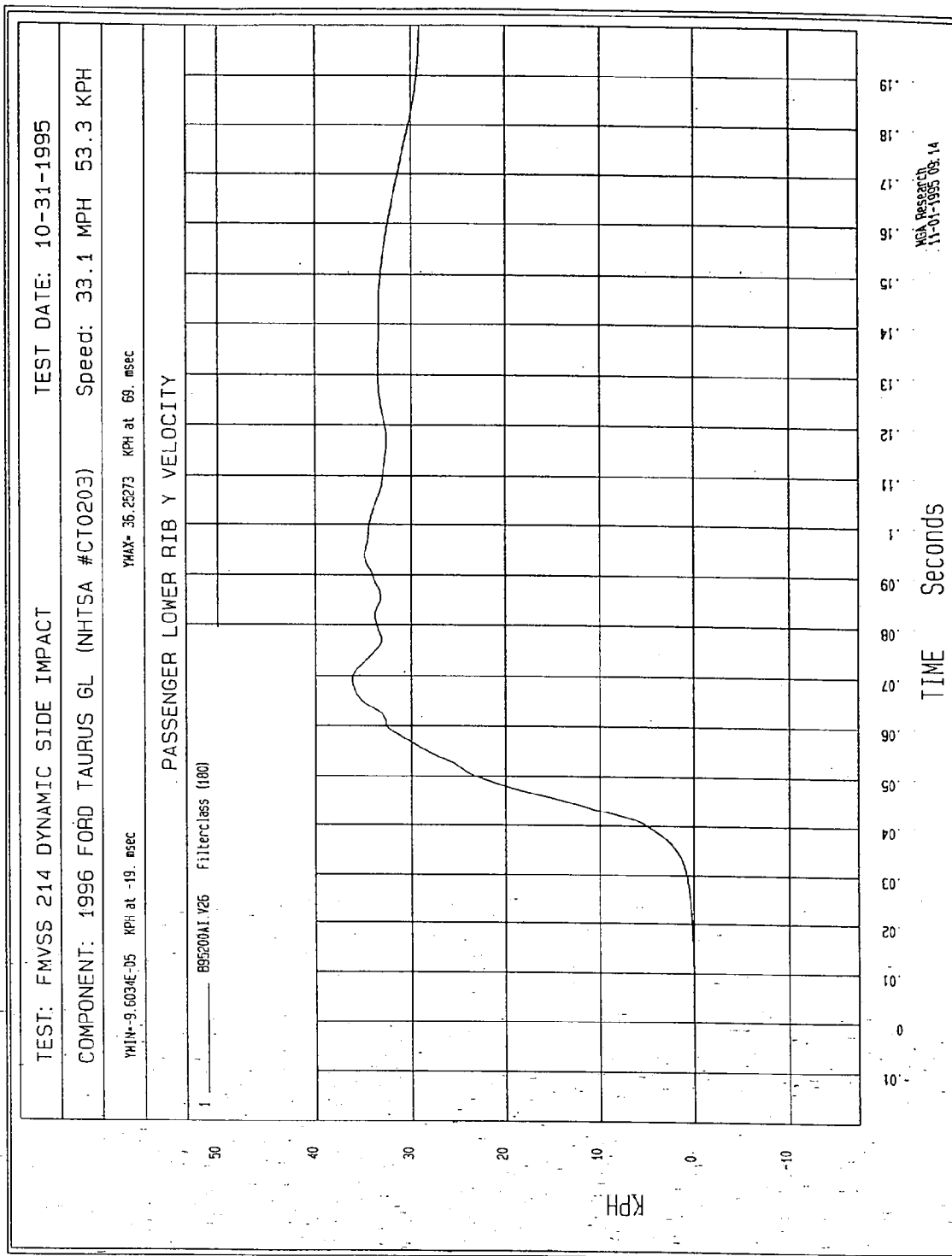


Figure B-12 - Passenger Lower Rib Y Velocity vs. Time

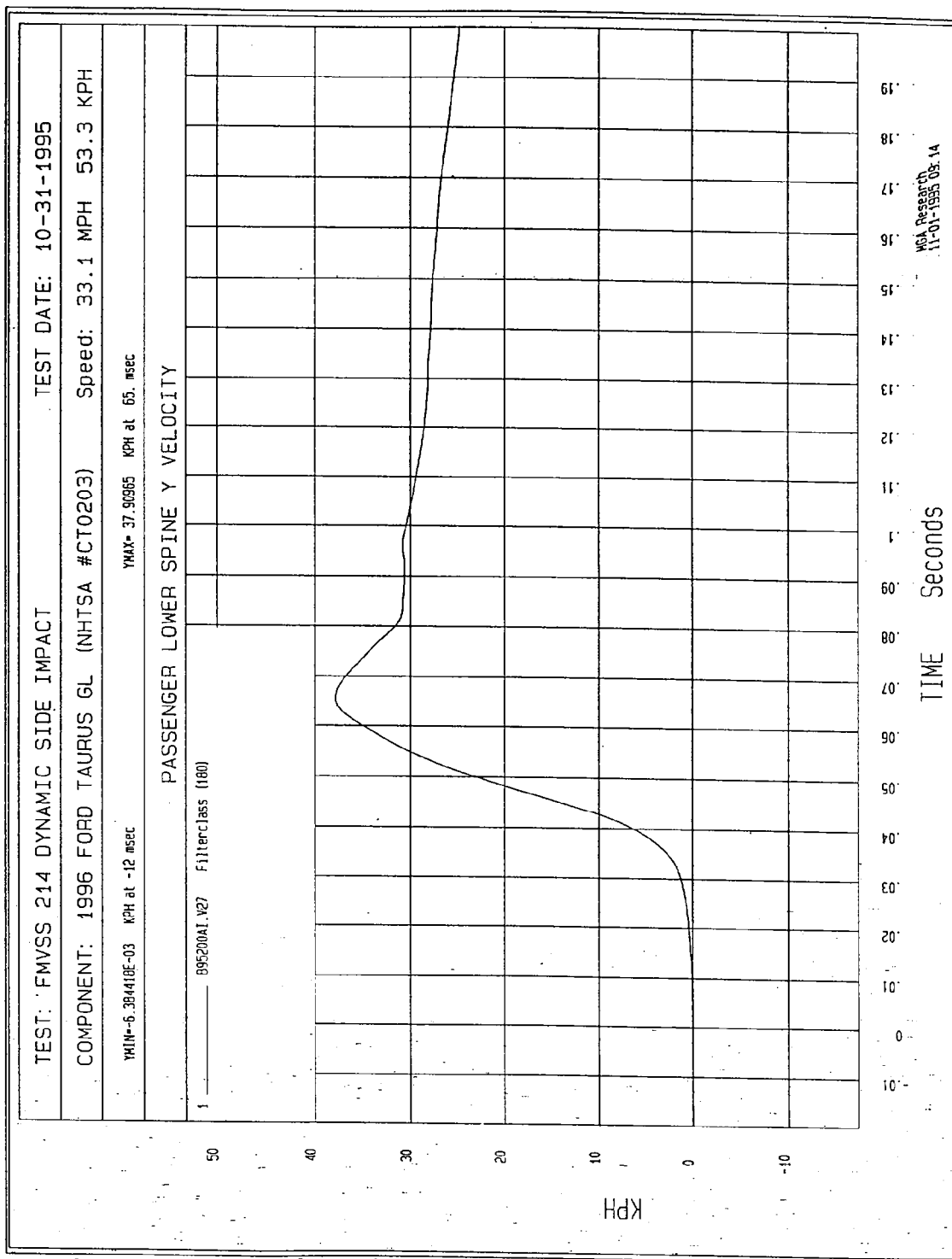


Figure B-14 - Passenger Lower Spine Y Velocity vs. Time

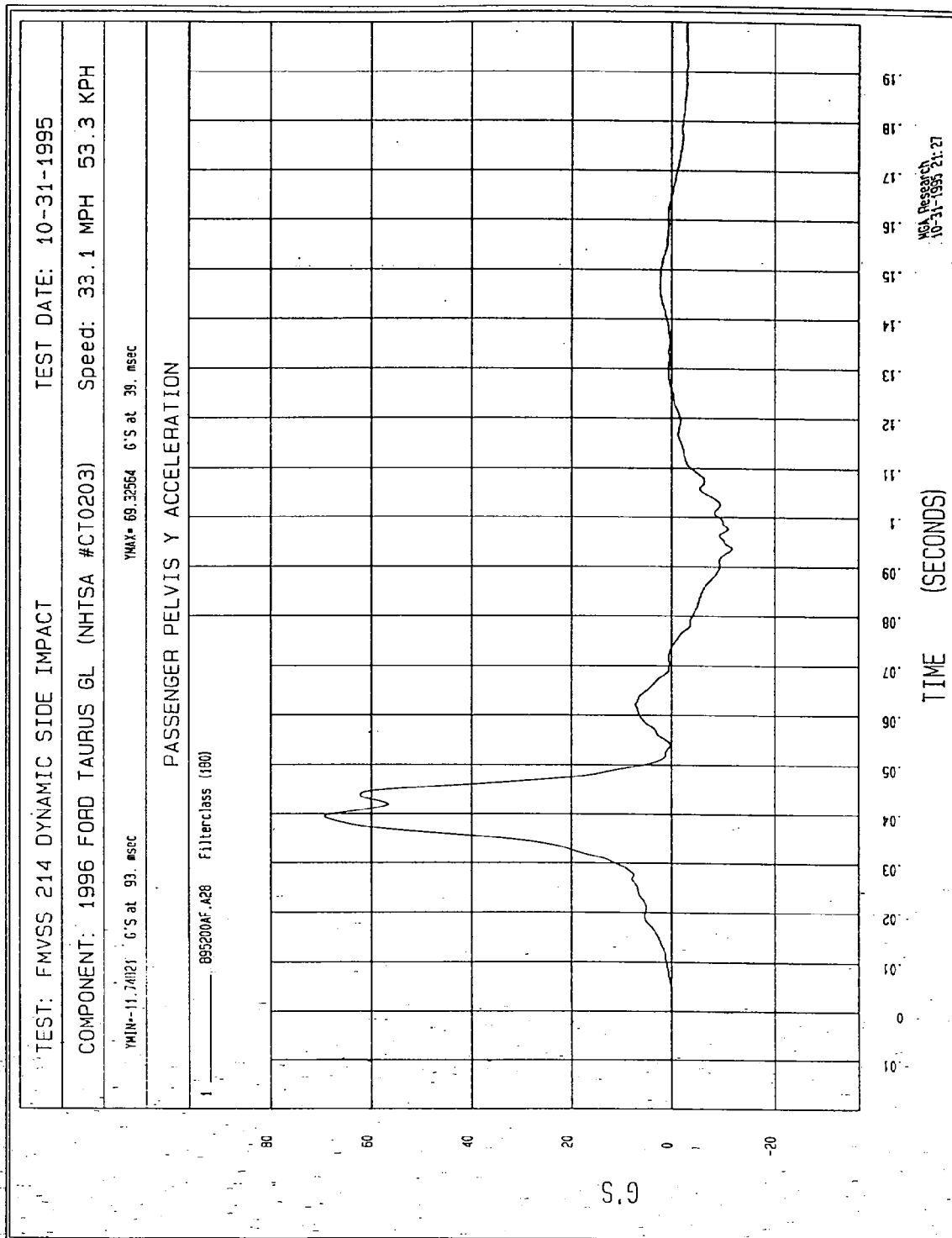


Figure B-15 - Passenger Pelvis Y Acceleration vs. Time

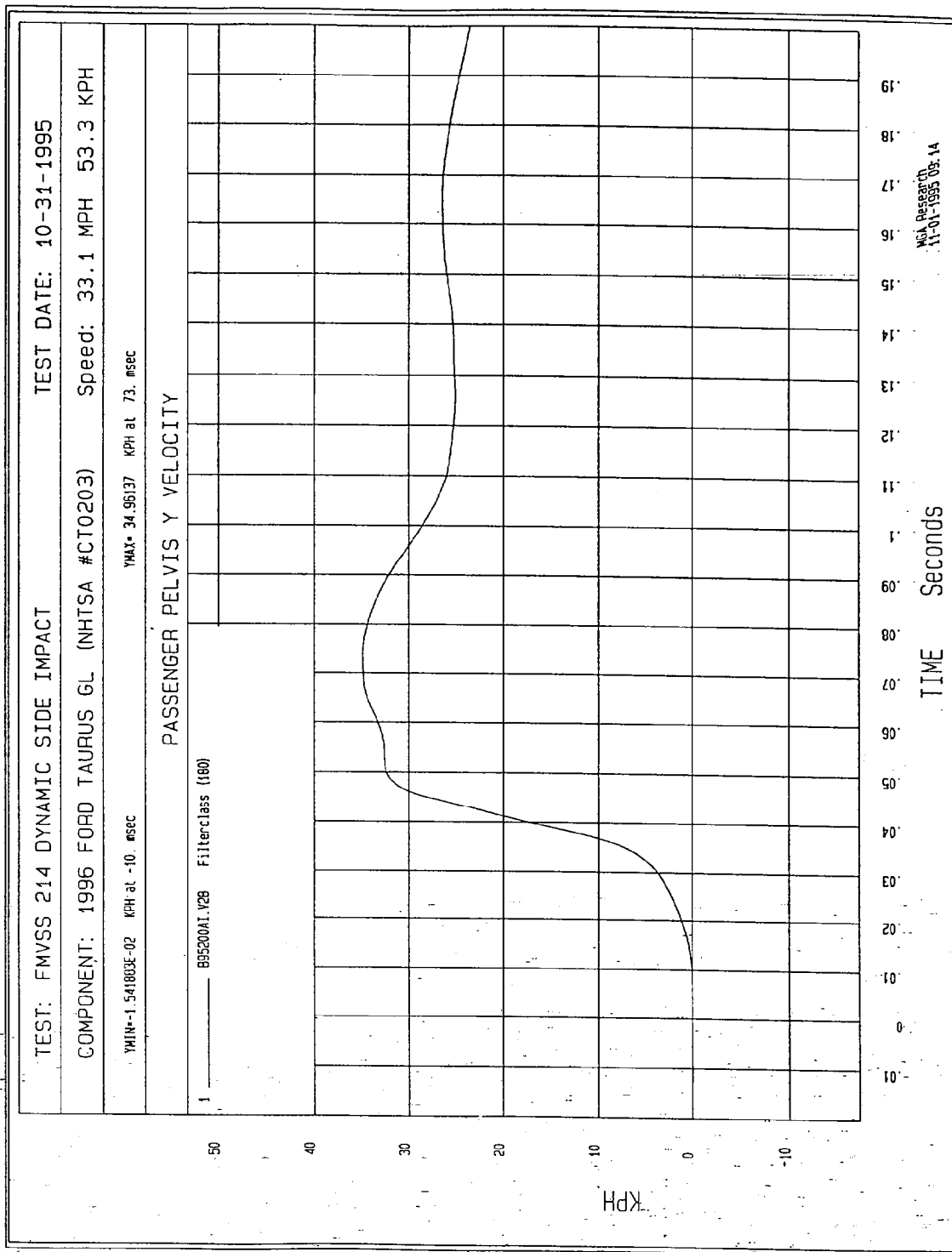


Figure B-16 - Passenger Pelvis Y Velocity vs. Time

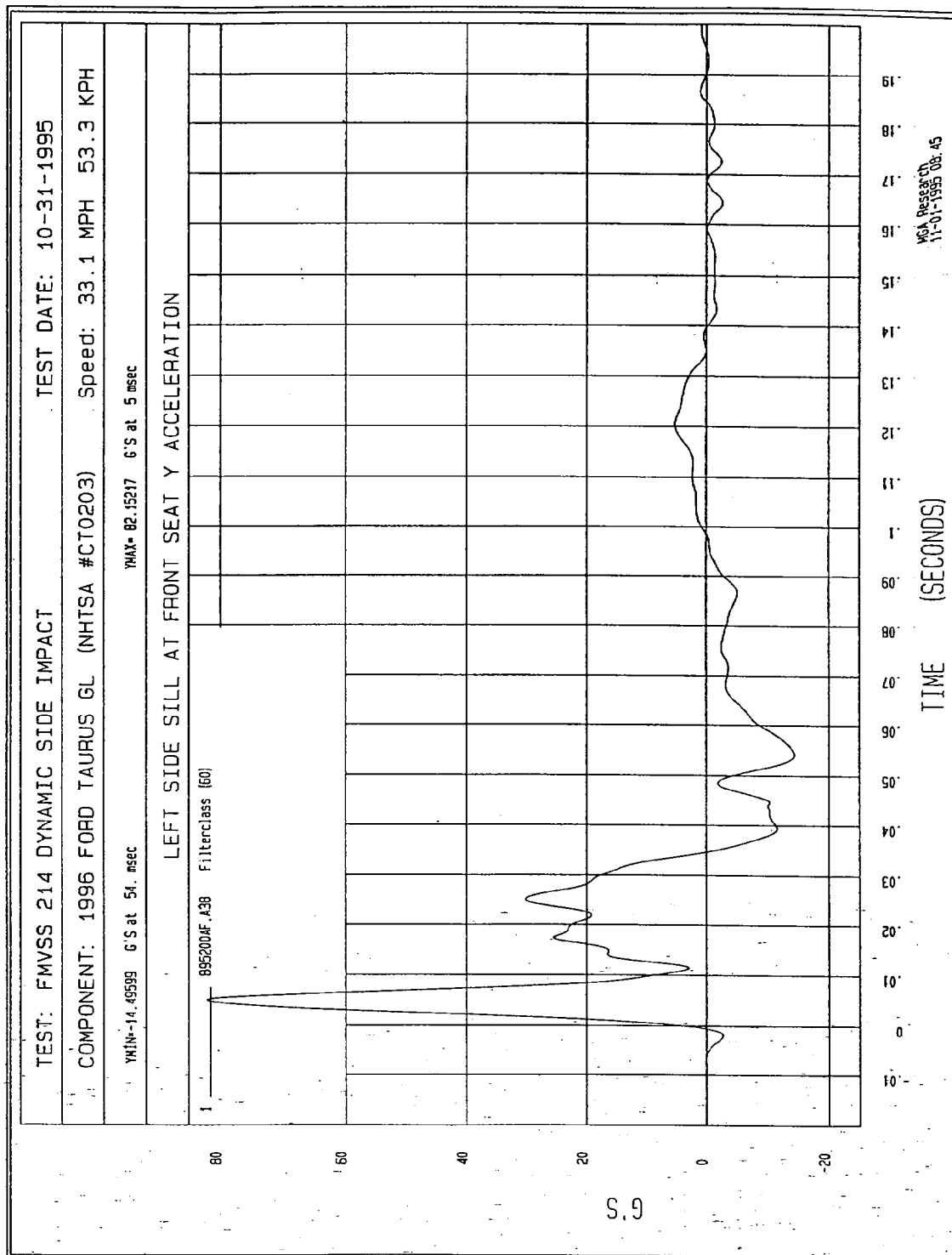


Figure B-17 - Left Side Sill at Front Seat Y Acceleration vs. Time

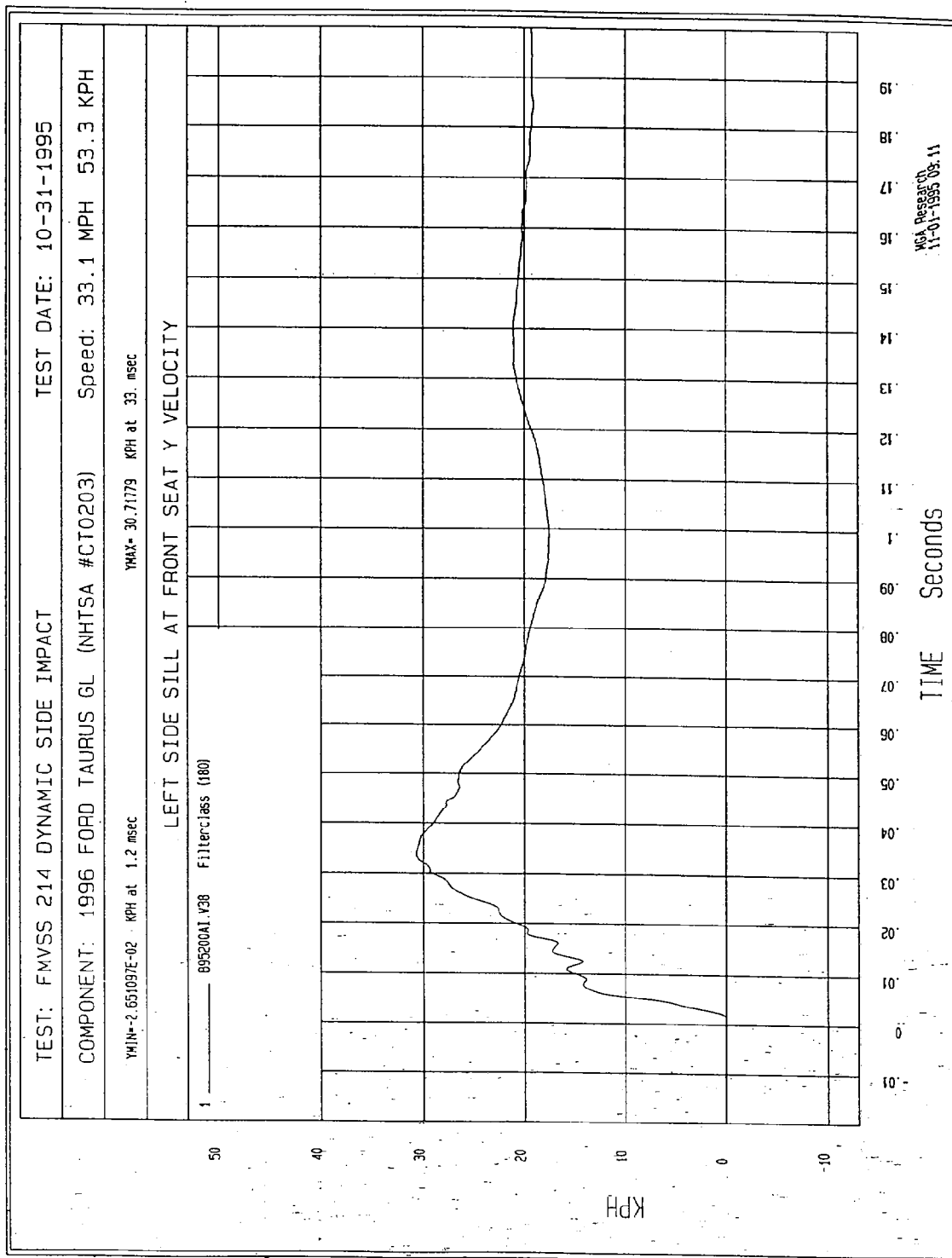


Figure B-18 - Left Side Sill at Front Seat Y Velocity vs. Time

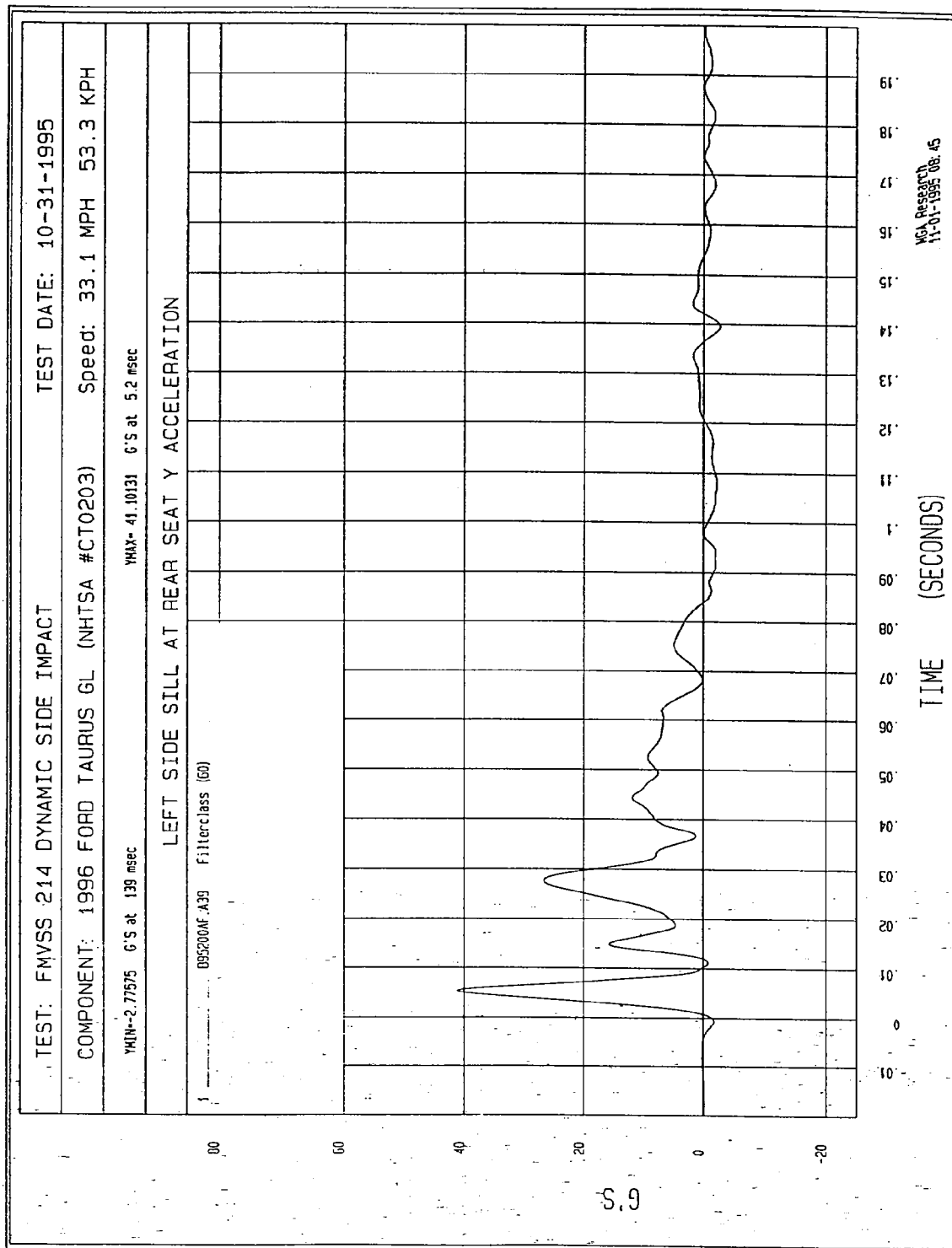


Figure B-19 - Left Side Sill at Rear Seat Y Acceleration vs. Time

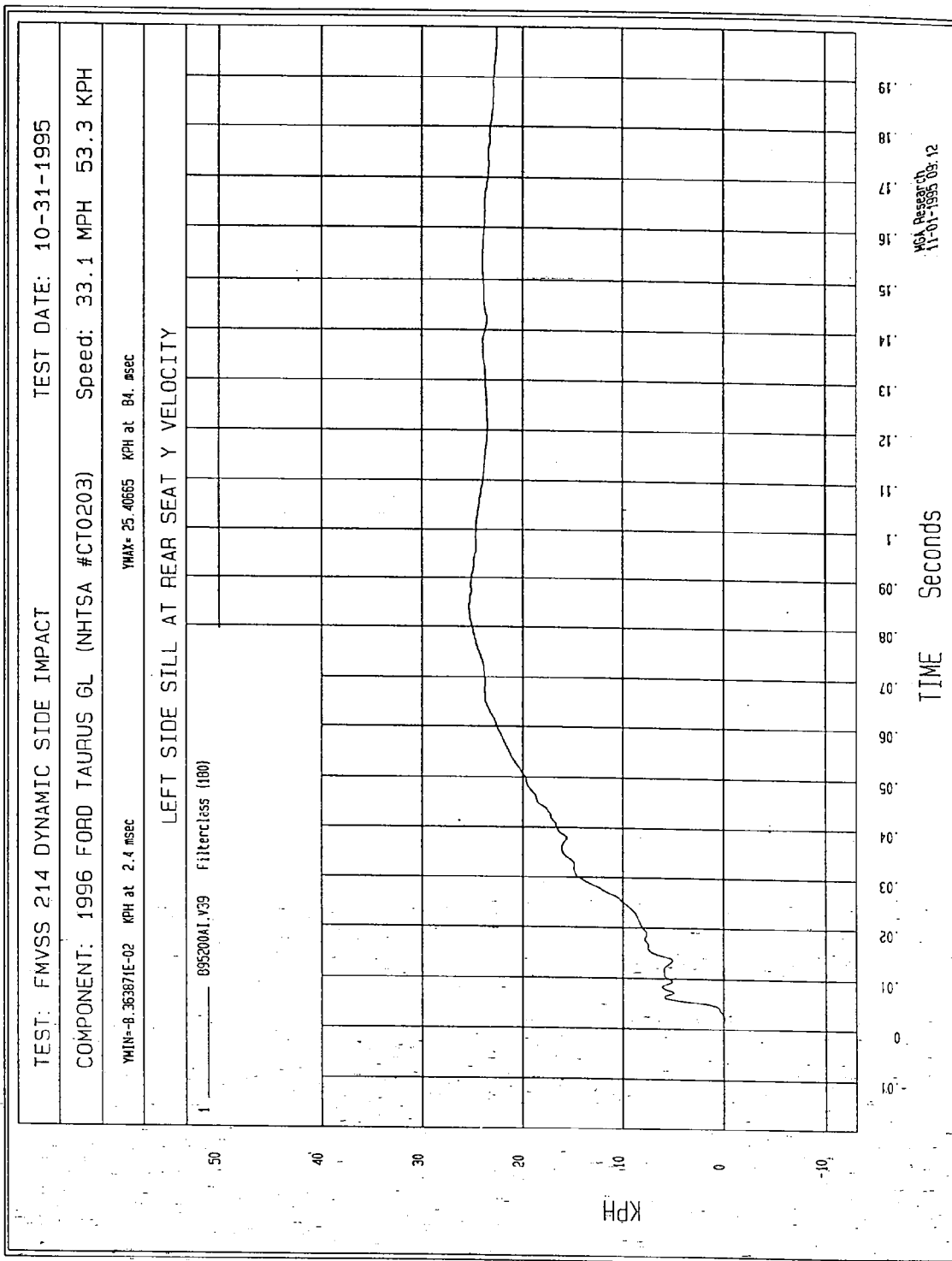


Figure B-20 - Left Side Sill at Rear Seat Y Velocity vs. Time

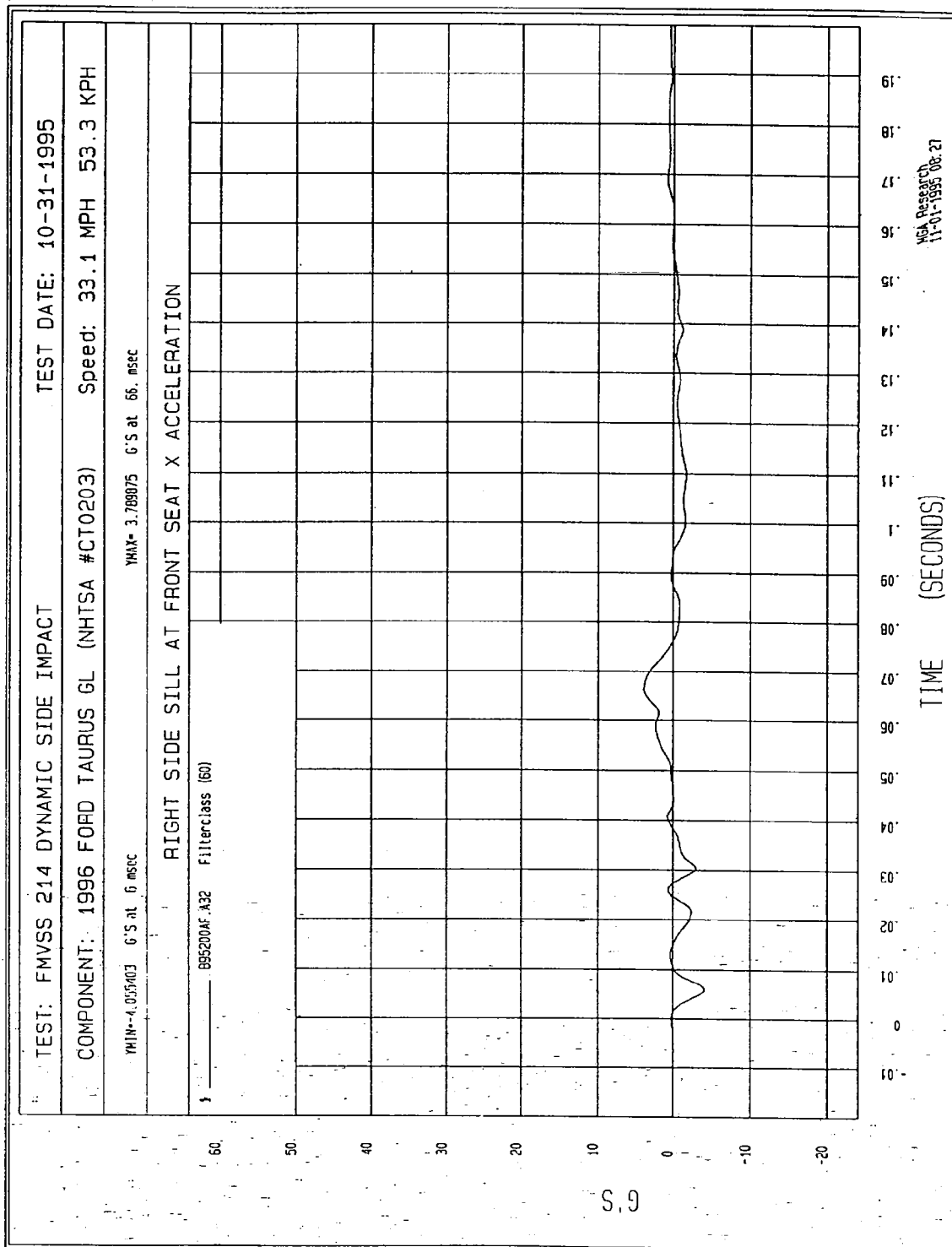


Figure B-21 - Right Side Sill at Front Seat X Acceleration vs. Time

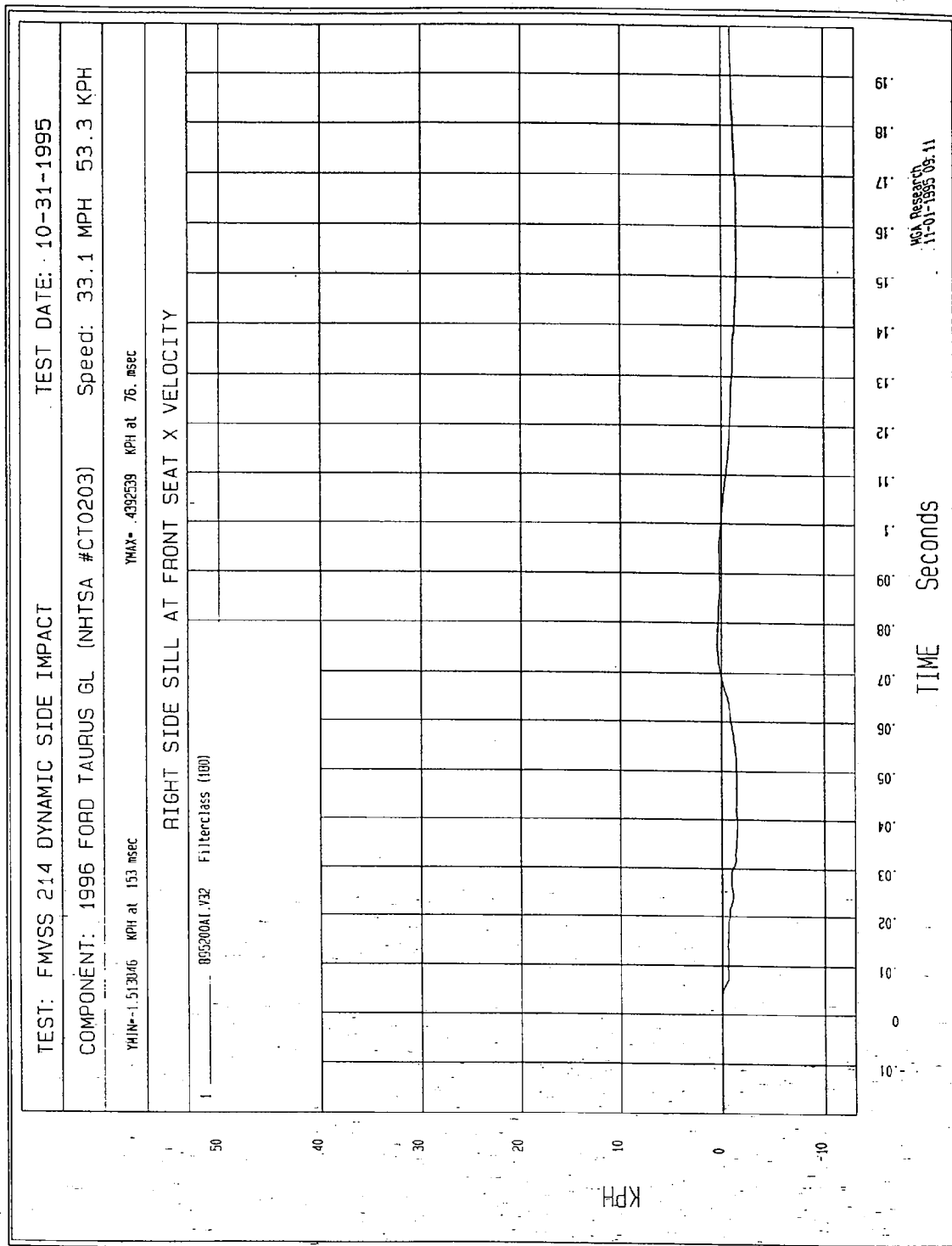


Figure B-22 - Right Side Sill at Front Seat X Velocity vs. Time

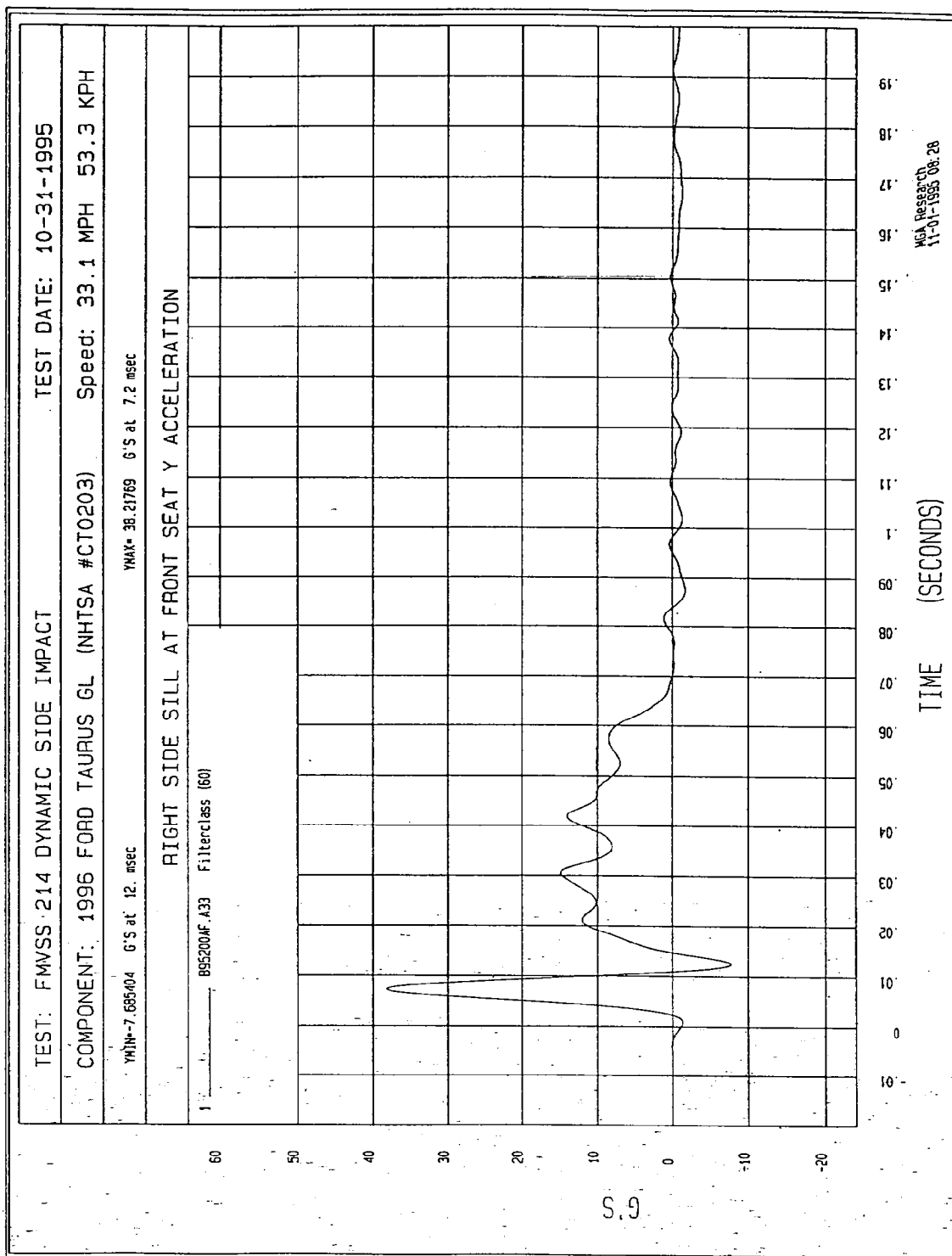


Figure B-23 - Right Side Sill at Front Seat Y Acceleration vs. Time

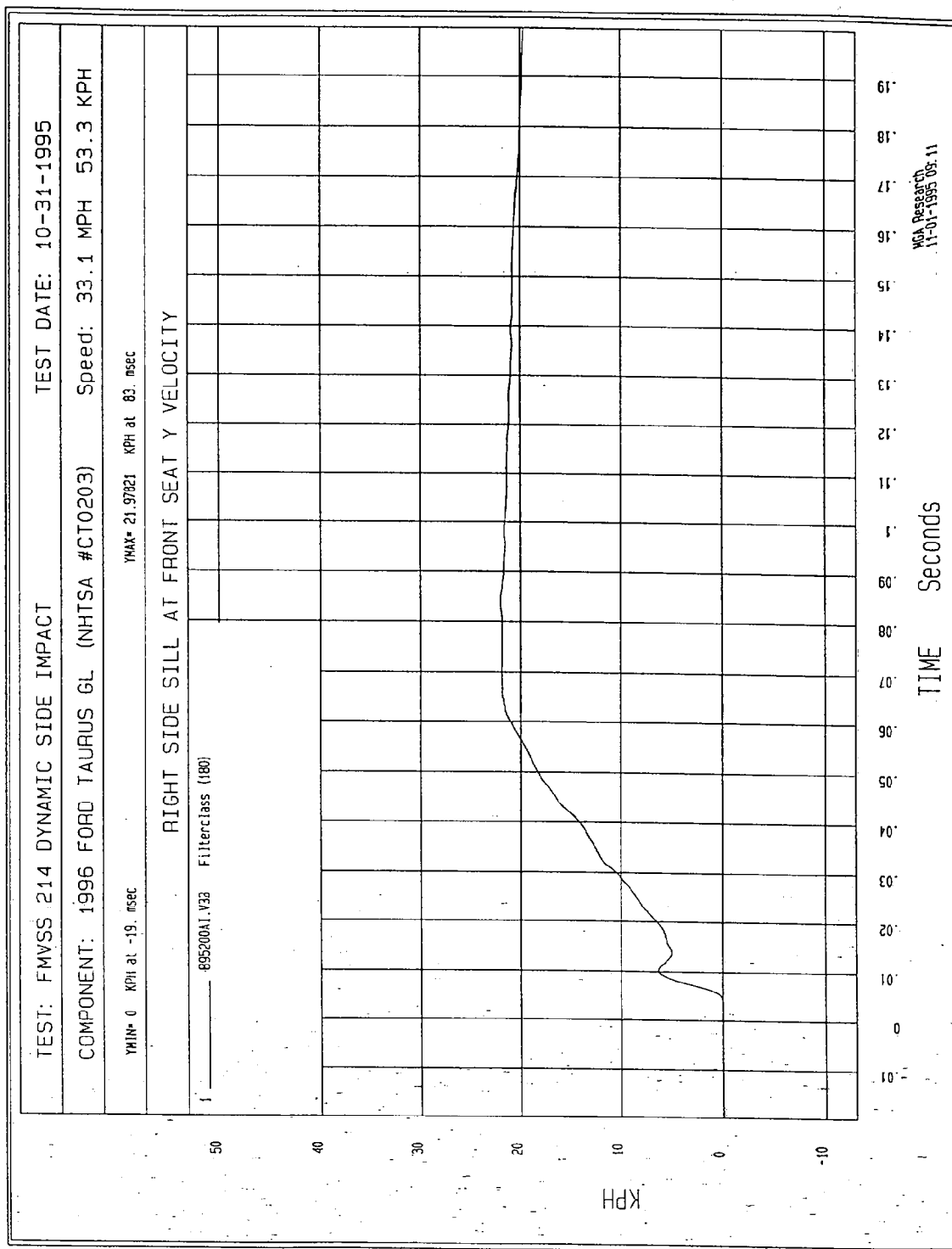


Figure B-24 - Right Side Sill at Front Seat Y Velocity vs. Time

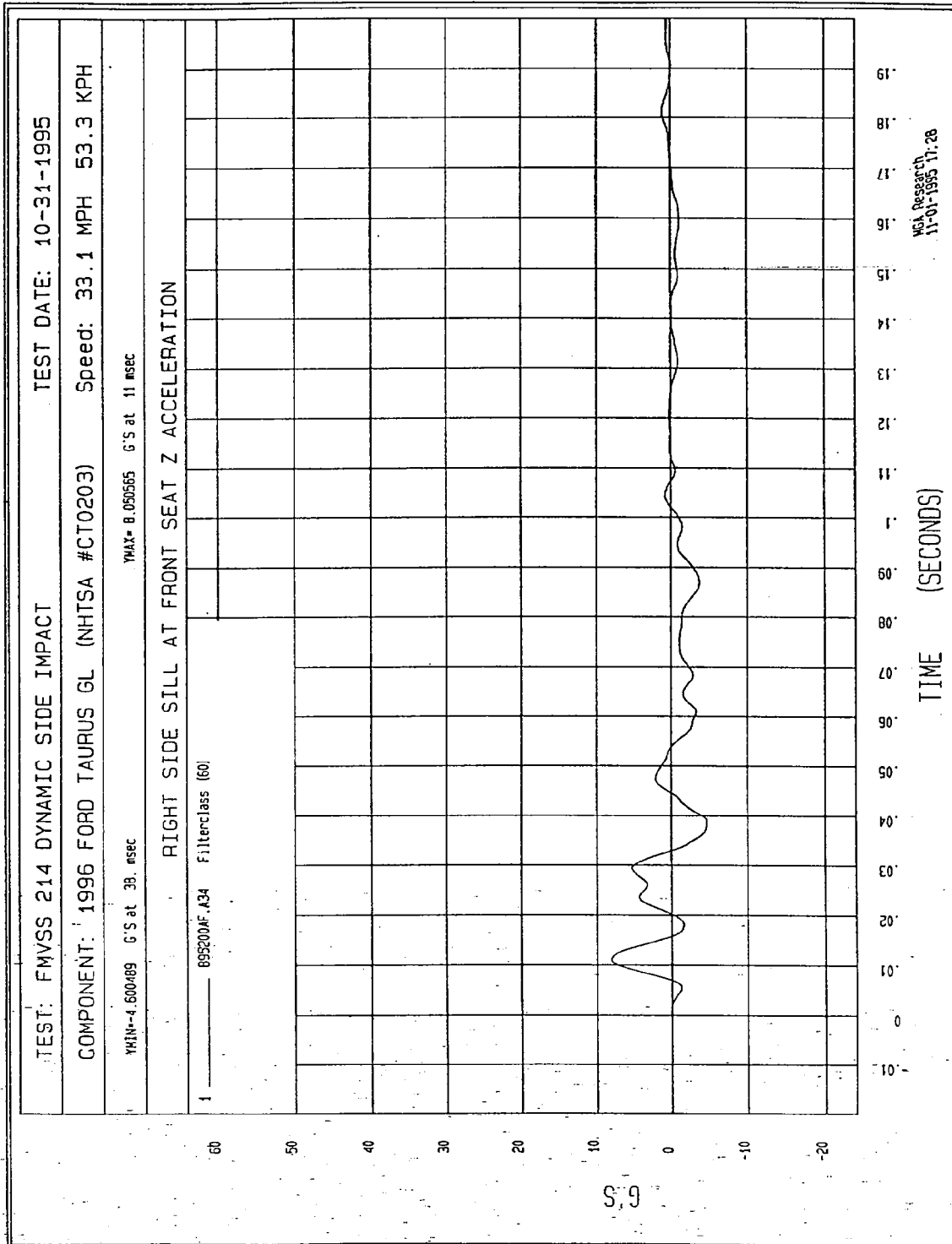


Figure B-25 - Right Side Sill at Front Seat Z Acceleration vs. Time

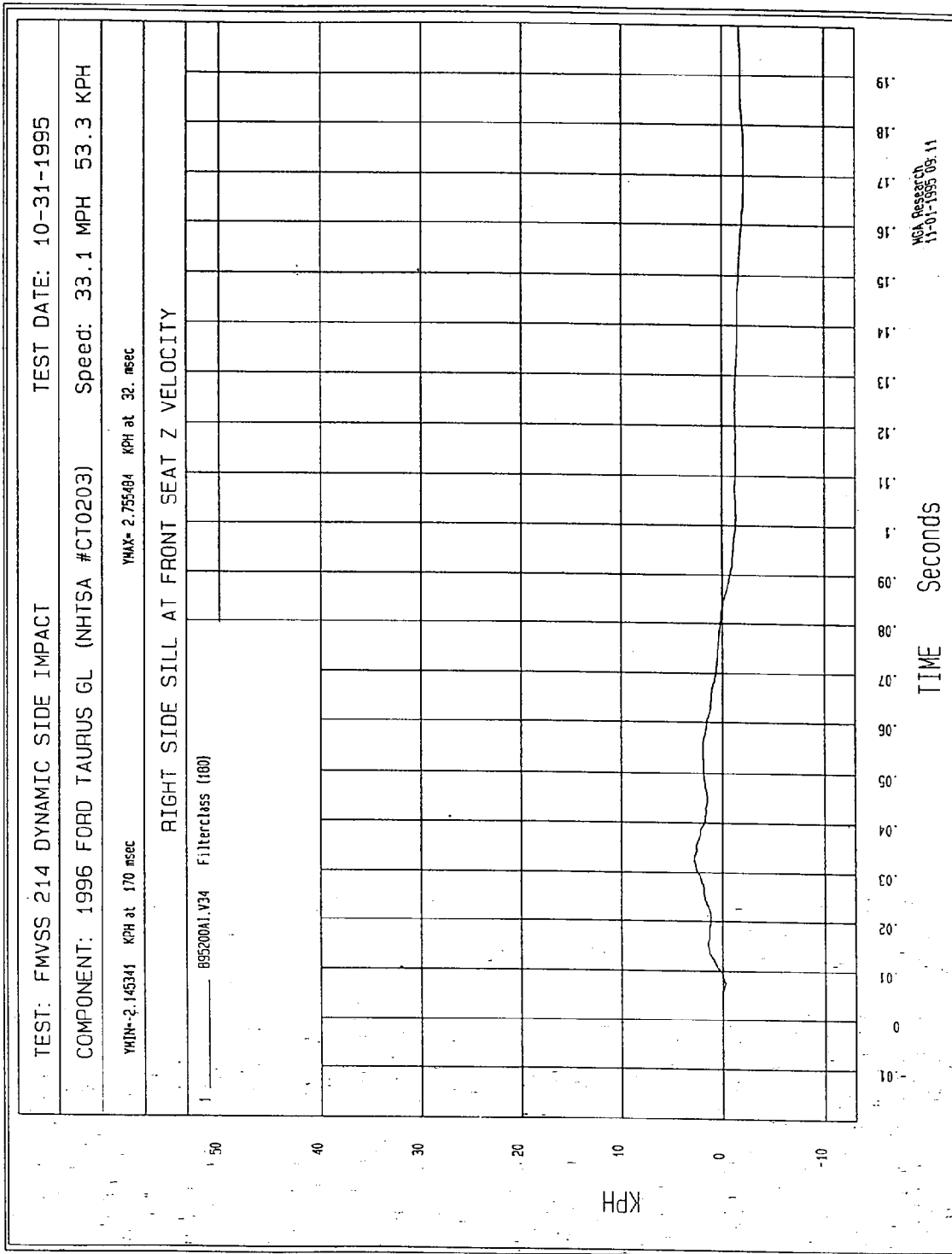


Figure B-26 - Right Side Sill at Front Seat Z Velocity vs. Time

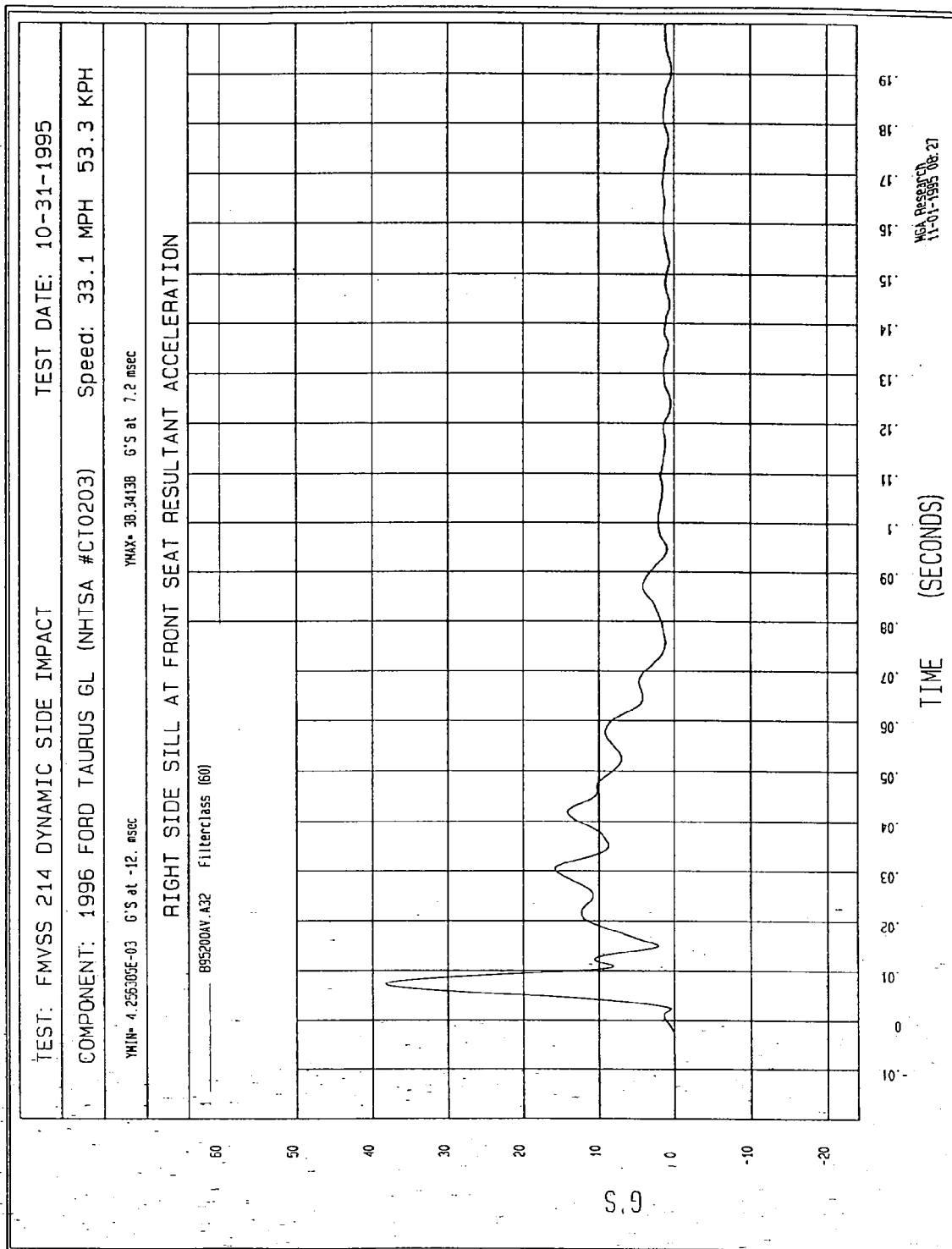


Figure B-27 - Right Side Sill at Front Seat Resultant Acceleration vs. Time

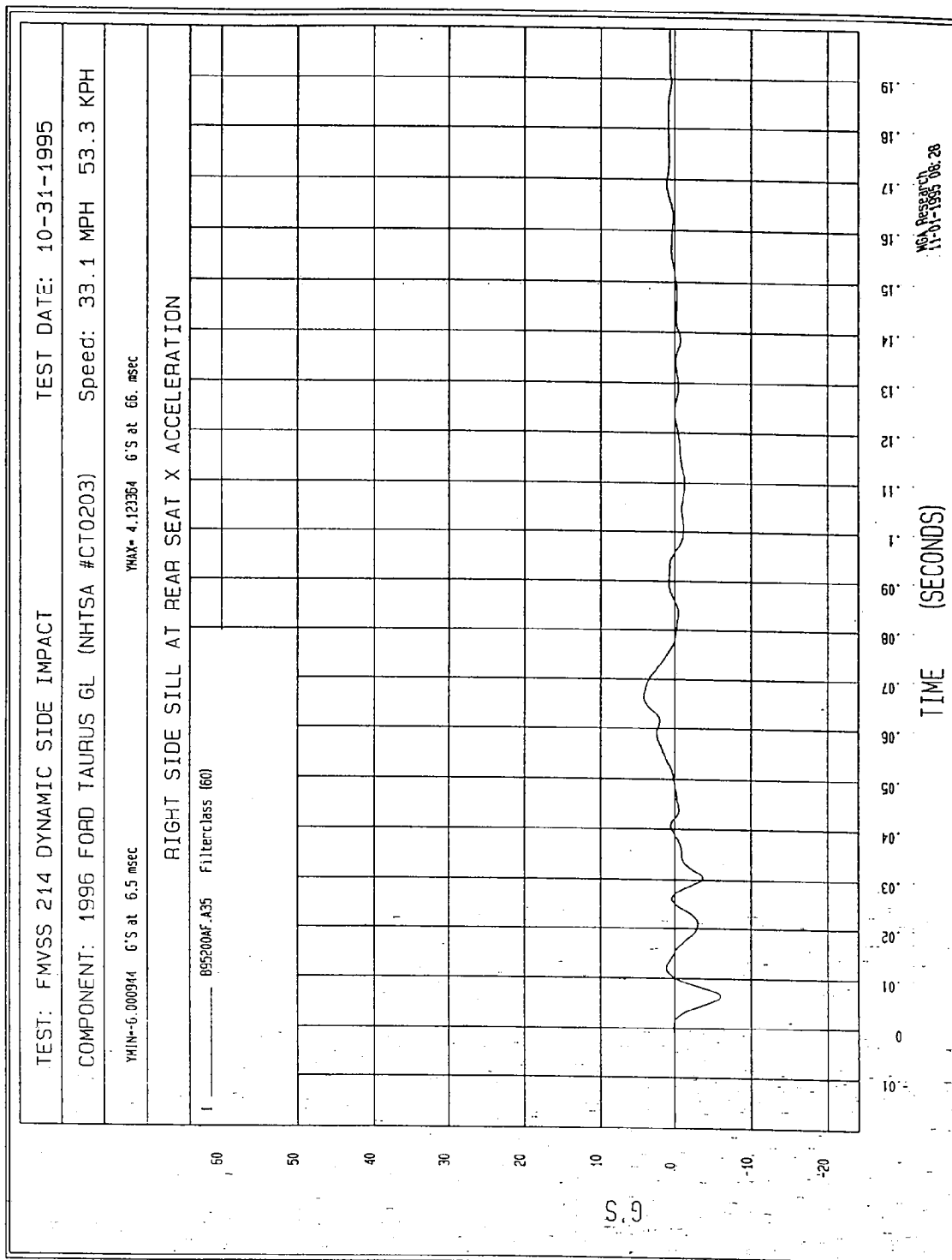


Figure B-28 - Right Side Sill at Rear Seat X Acceleration vs. Time

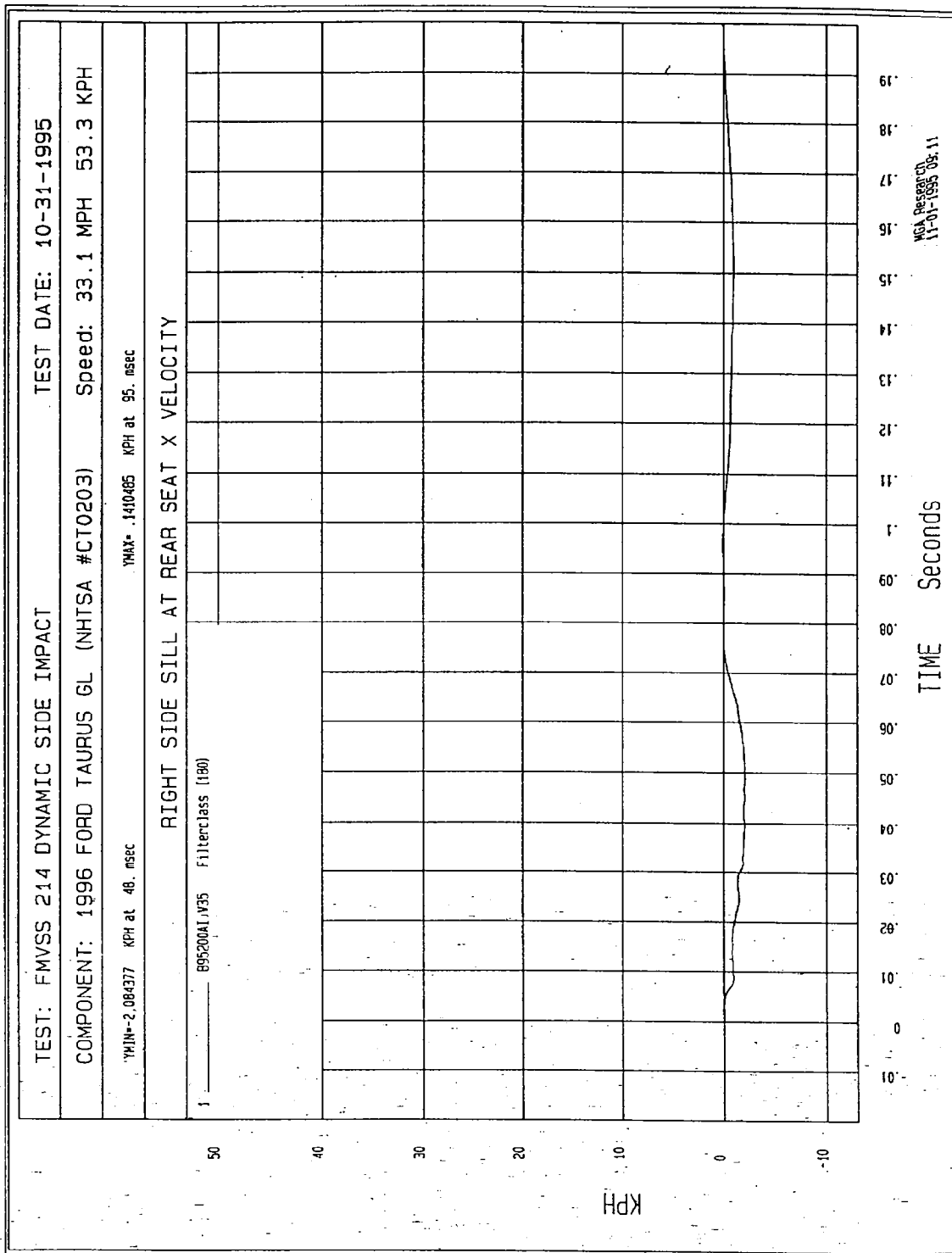


Figure B-29 - Right Side Sill at Rear Seat X Velocity vs. Time

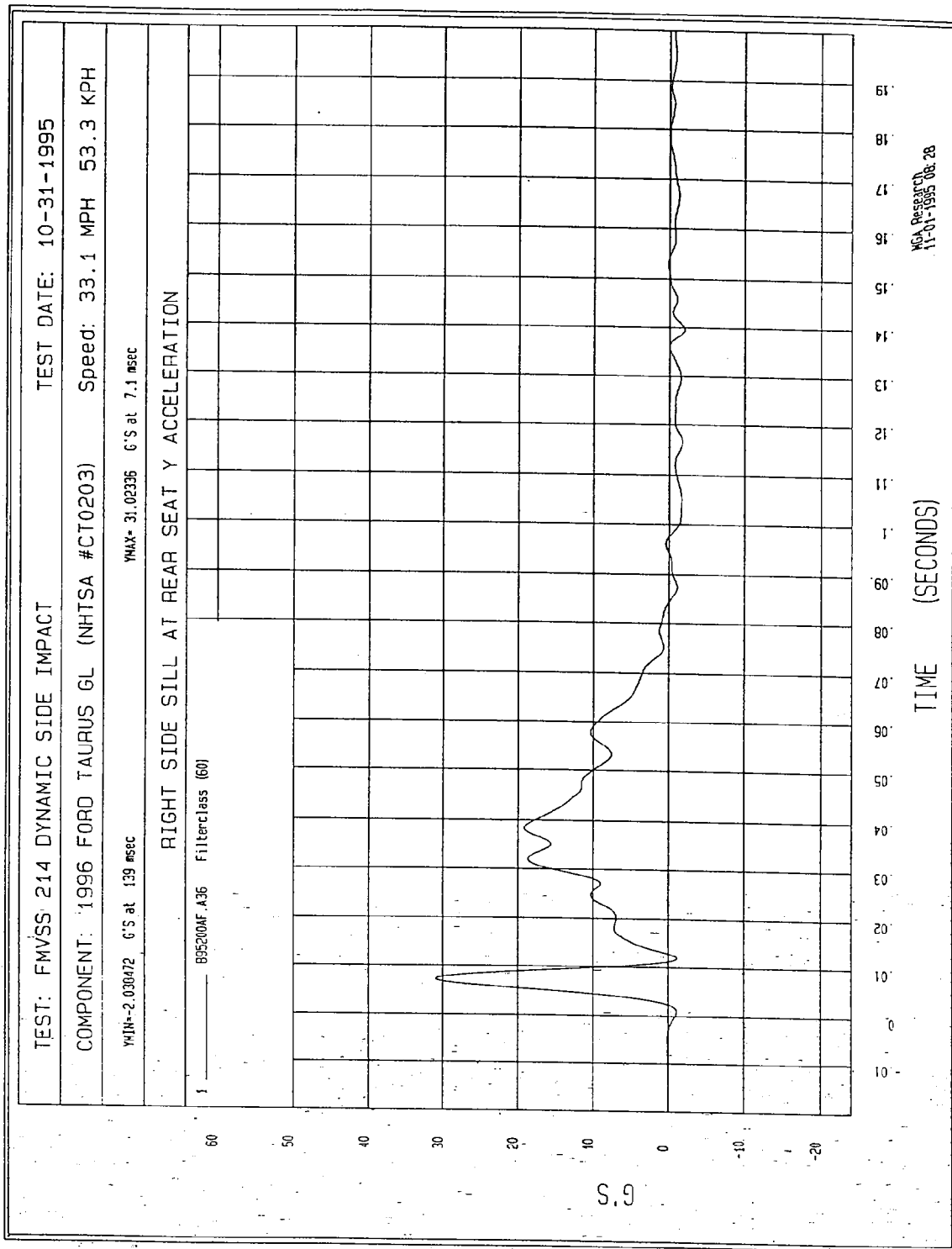


Figure B-30 - Right Side Sill at Rear Seat Y Acceleration vs. Time

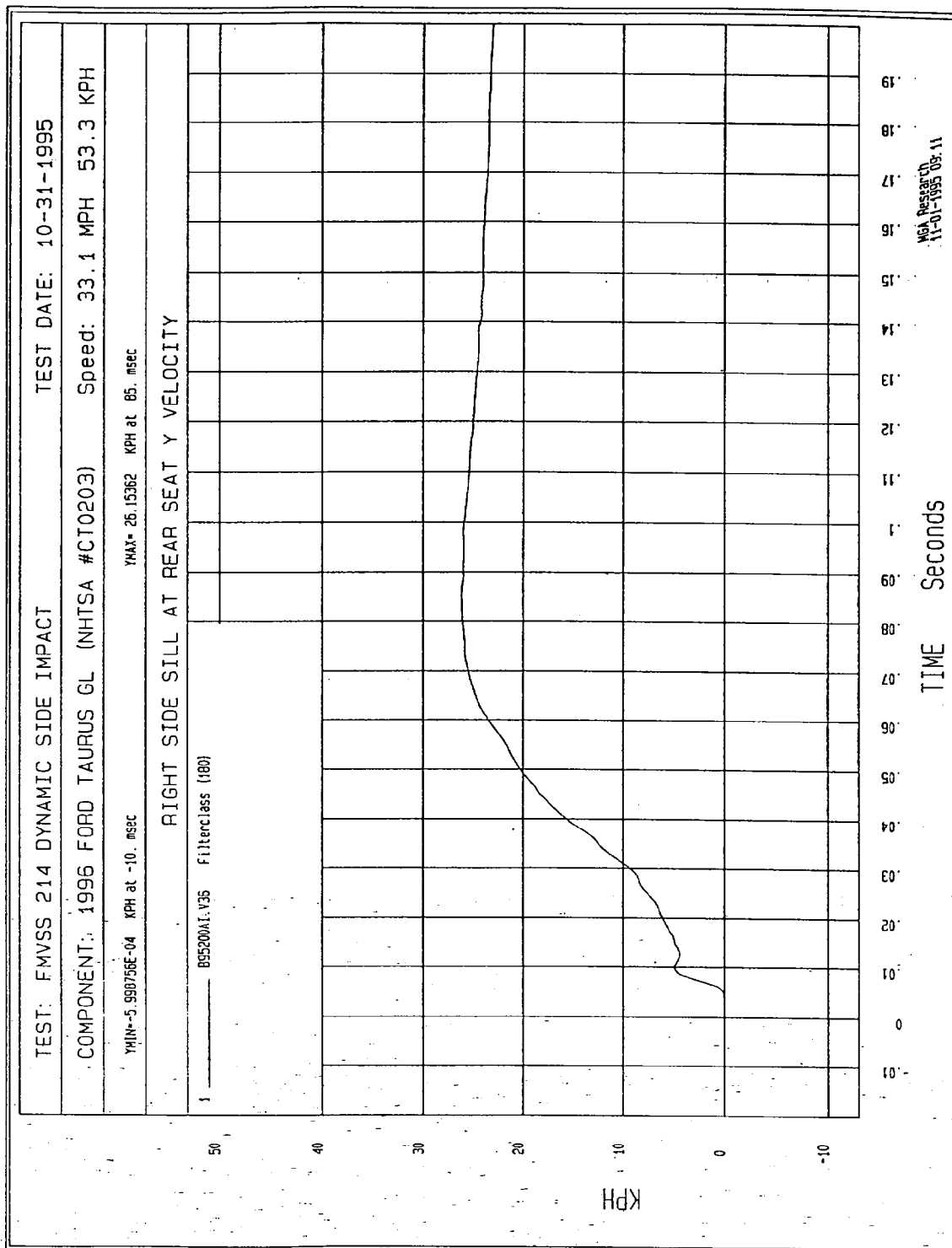


Figure B-31 - Right Side Sill at Rear Seat Y Velocity vs. Time

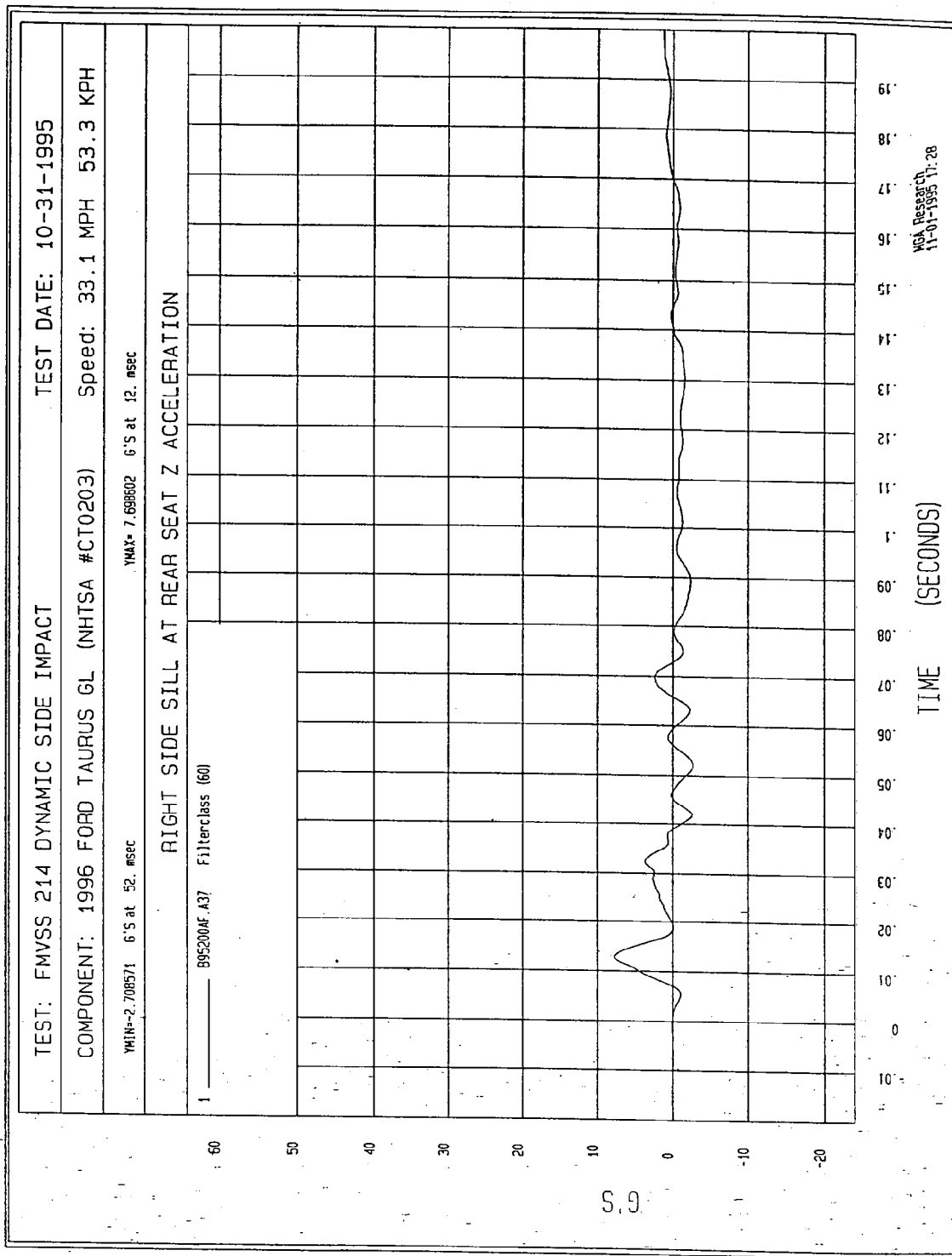


Figure B-32 - Right Side Sill at Rear Seat Z Acceleration vs. Time

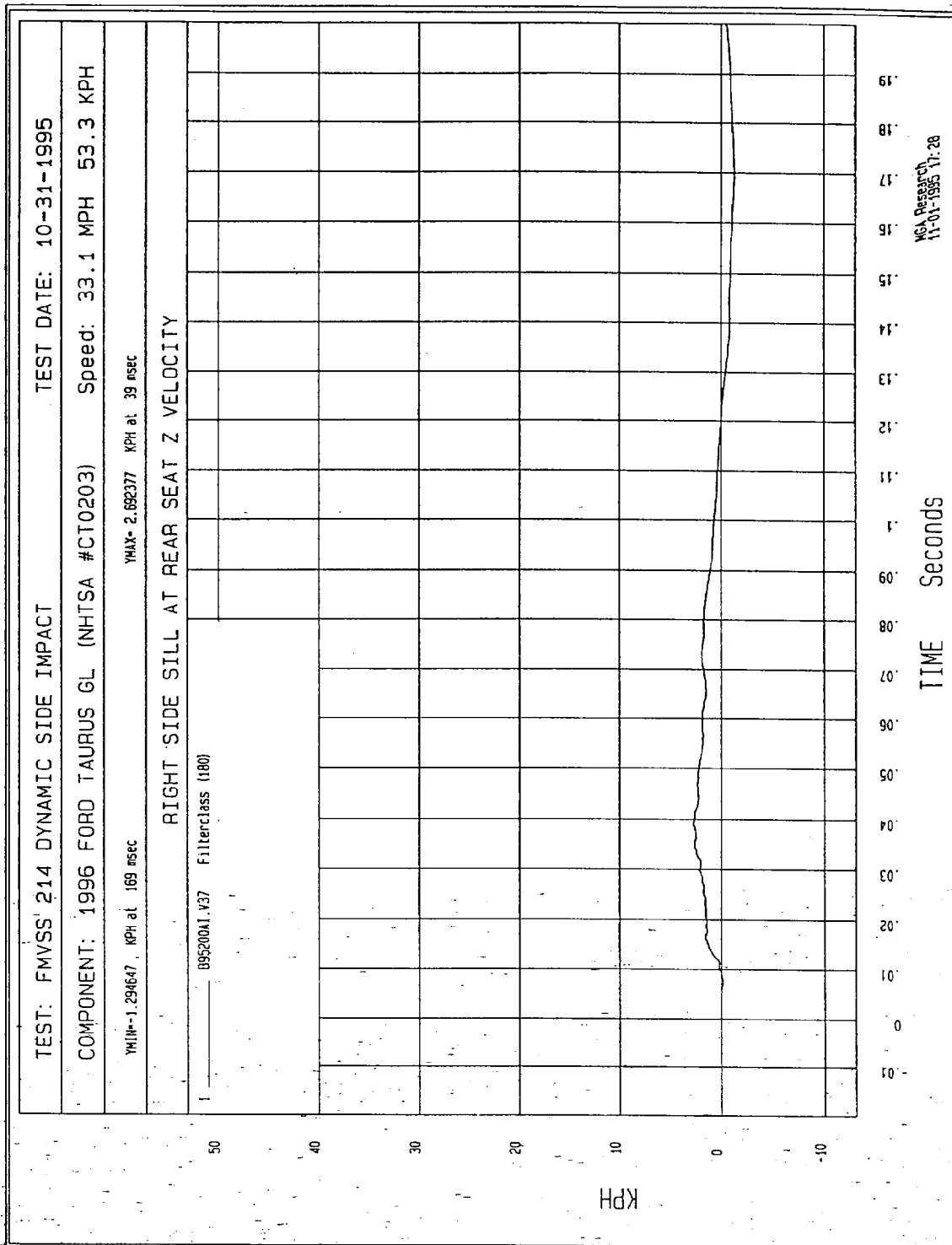


Figure B-33 - Right Side Sill at Rear Seat Z Velocity vs. Time

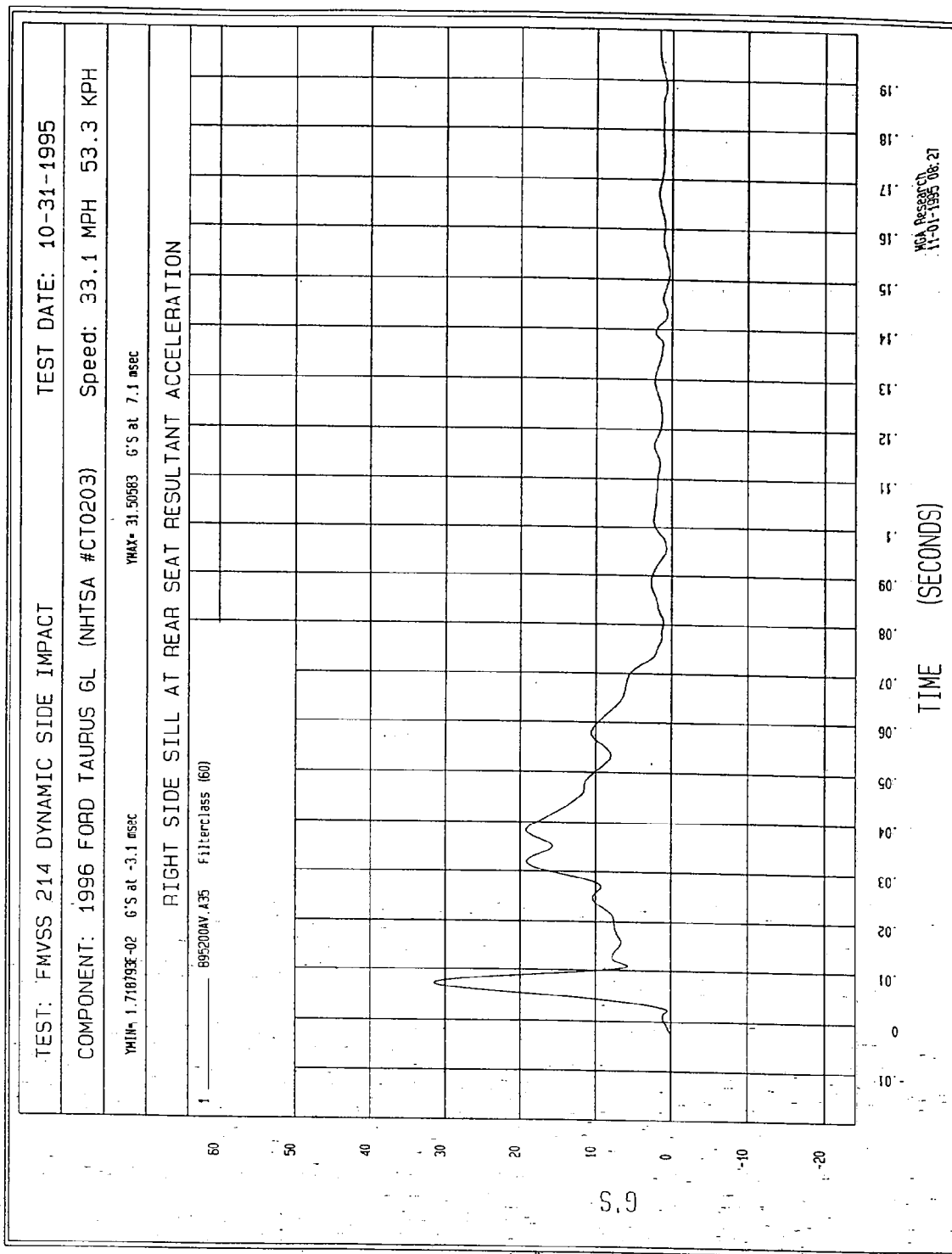


Figure B-34 - Right Side Sill at Rear Seat Resultant Acceleration vs. Time

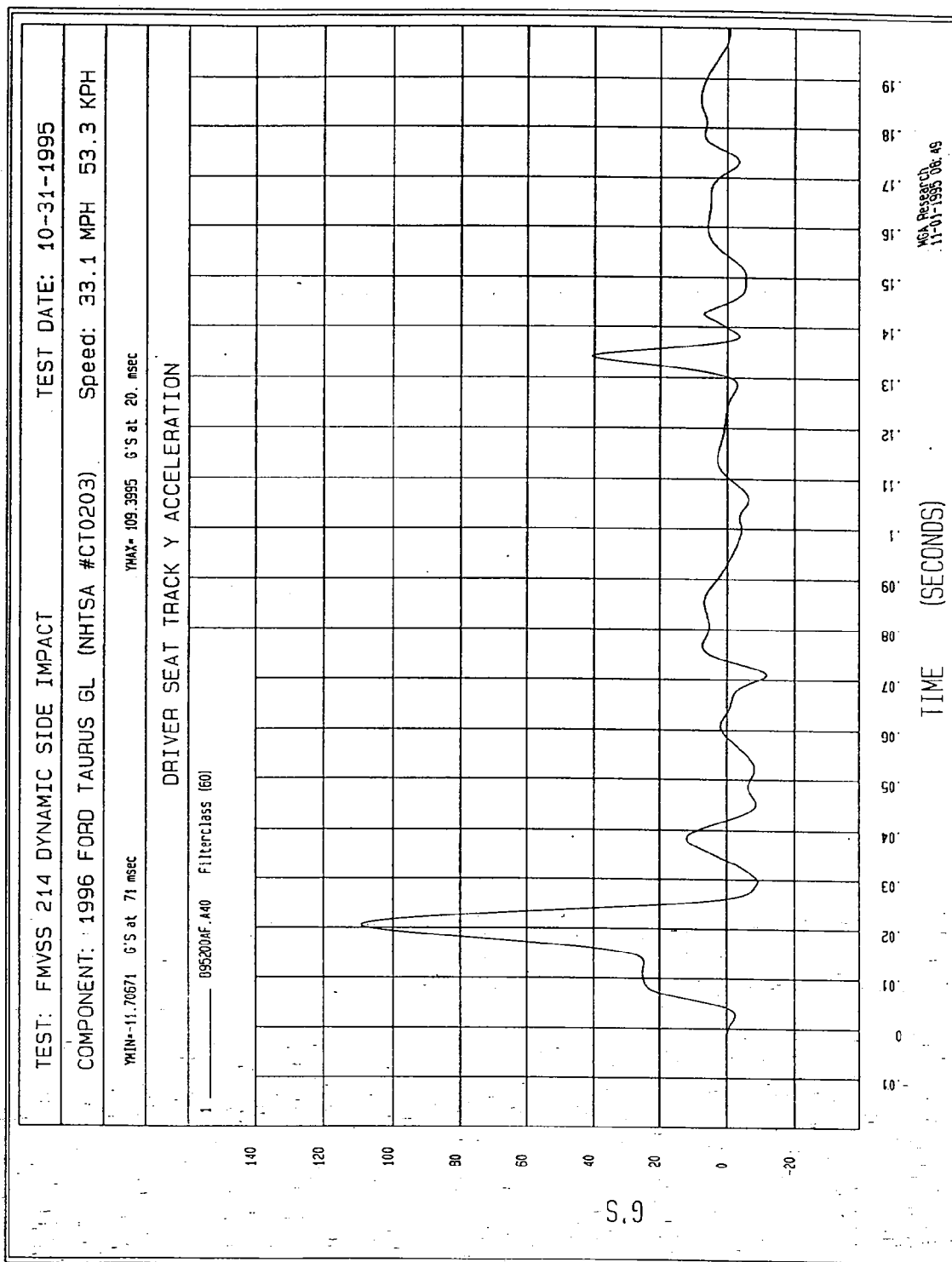


Figure B-35 - Driver Seat Track Y Acceleration vs. Time

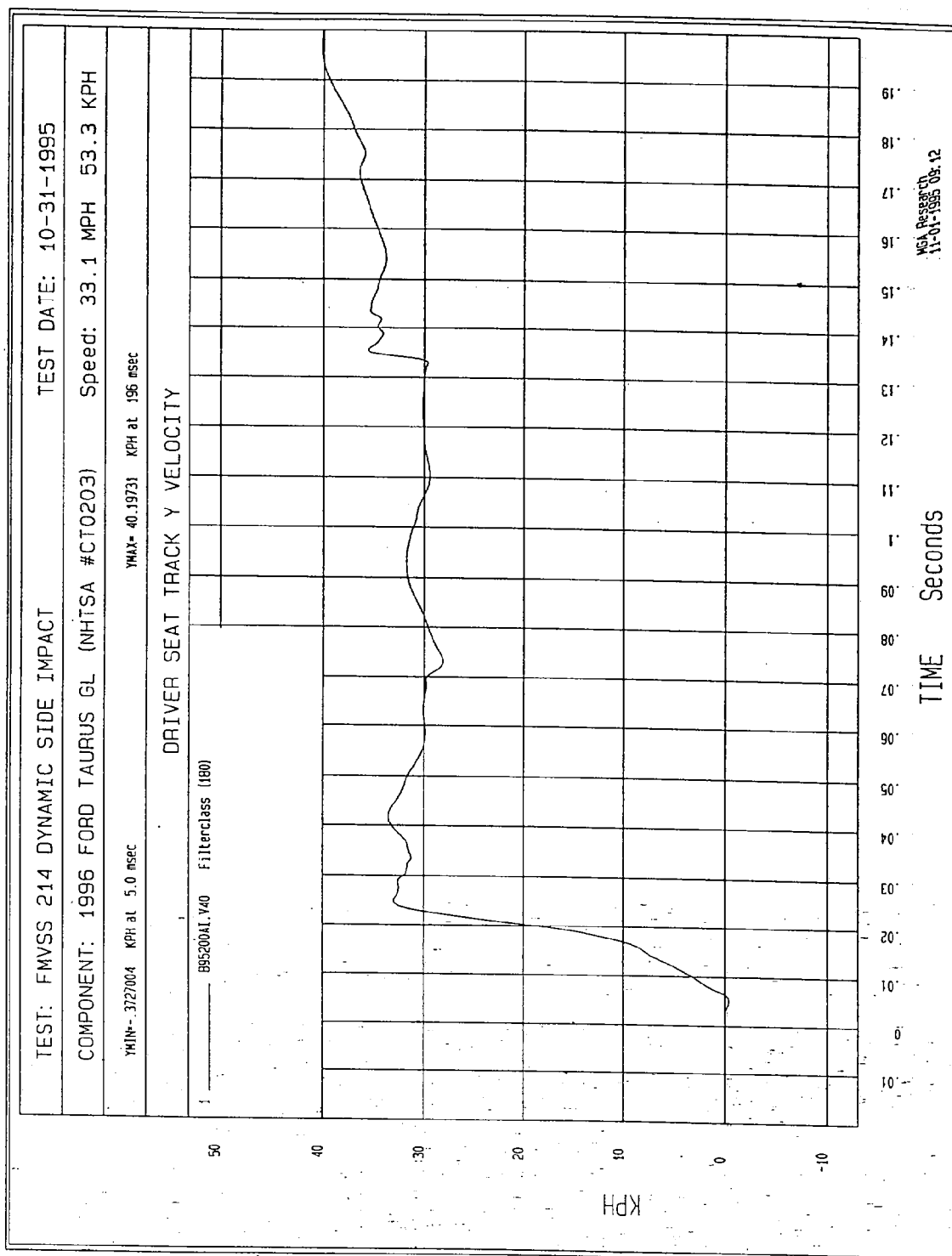


Figure B-36 - Driver Seat Track Y Velocity vs. Time

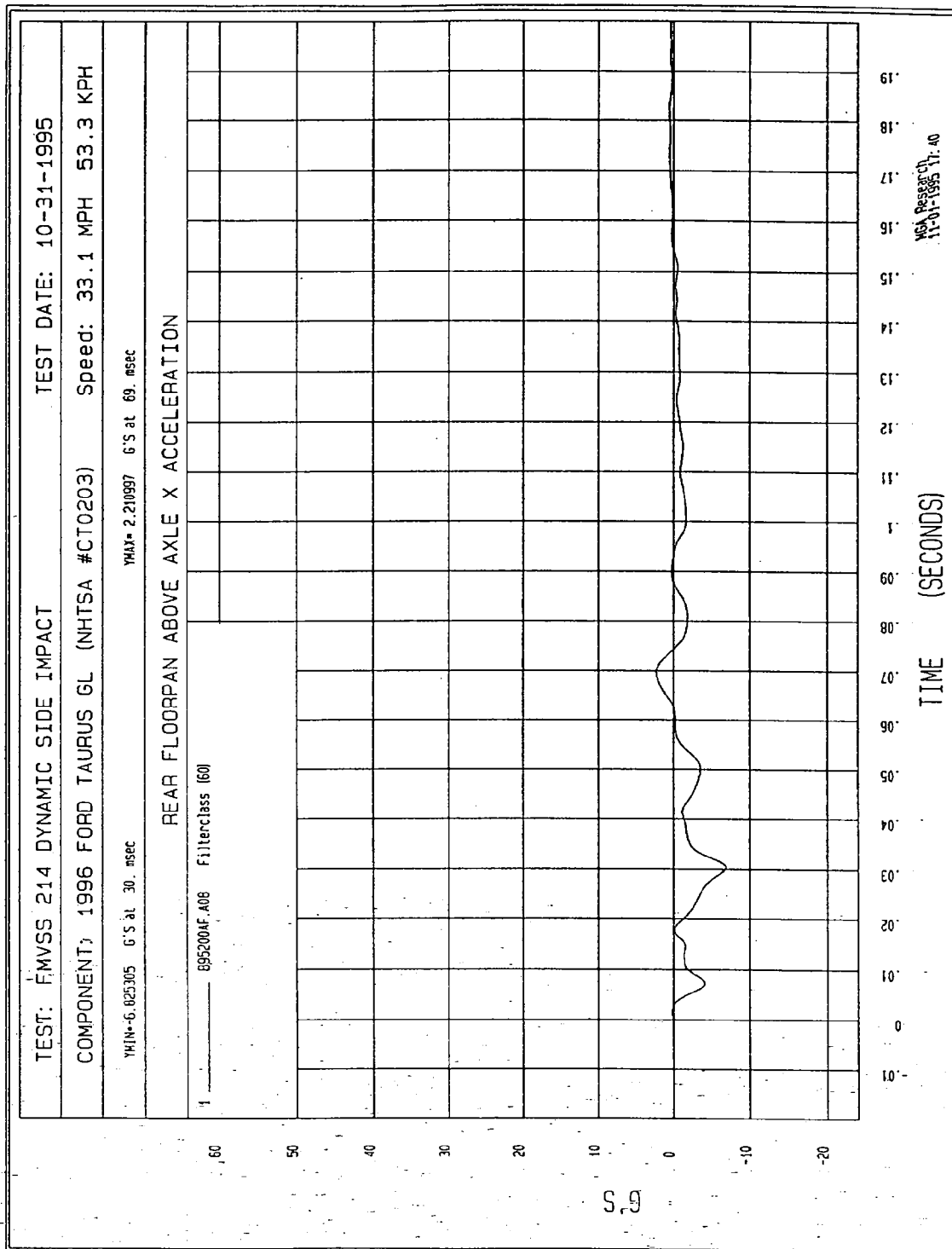


Figure B-37 - Rear Floorpan above Axle X Acceleration vs. Time

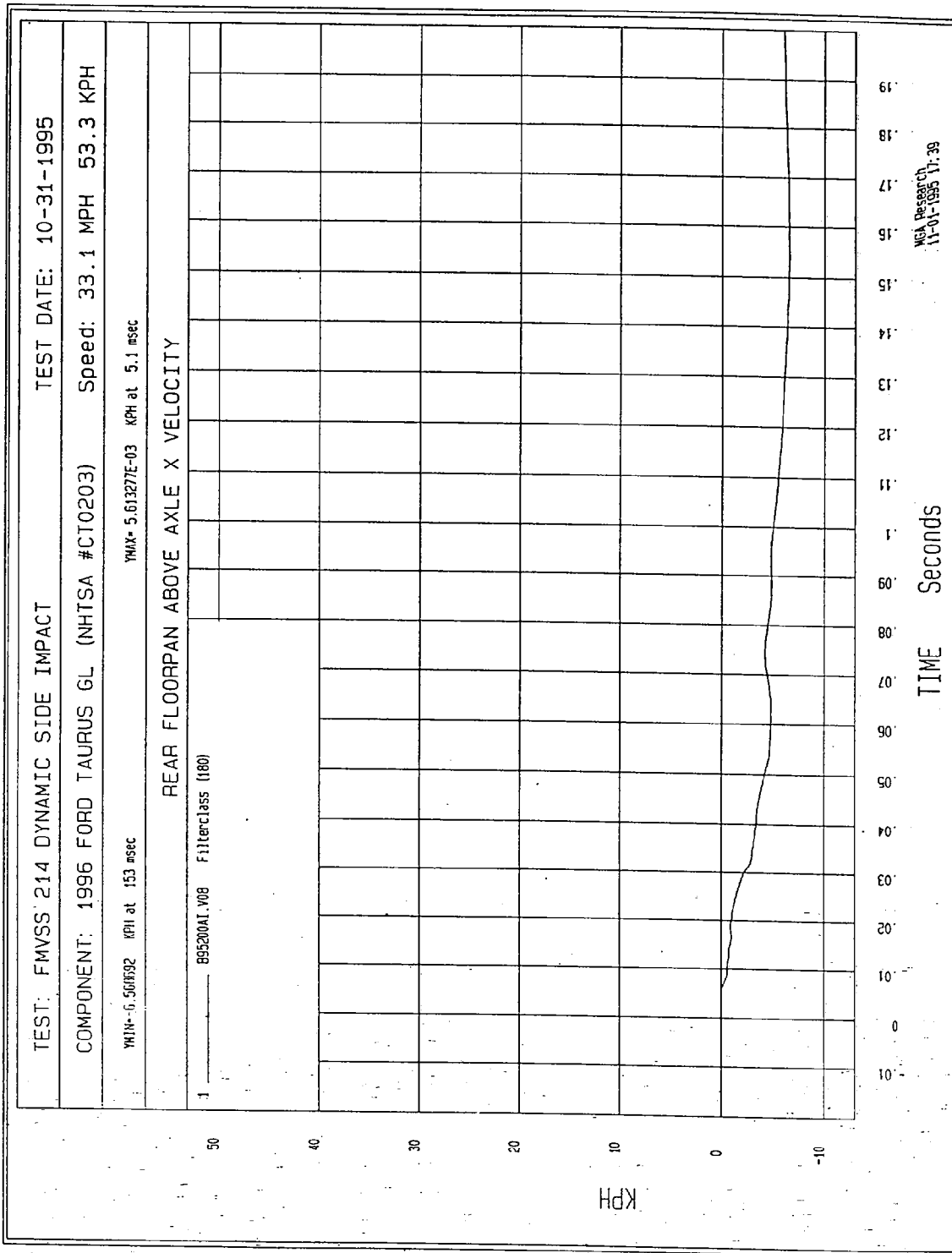


Figure B-38 - Rear Floorpan above Axle X Velocity vs. Time

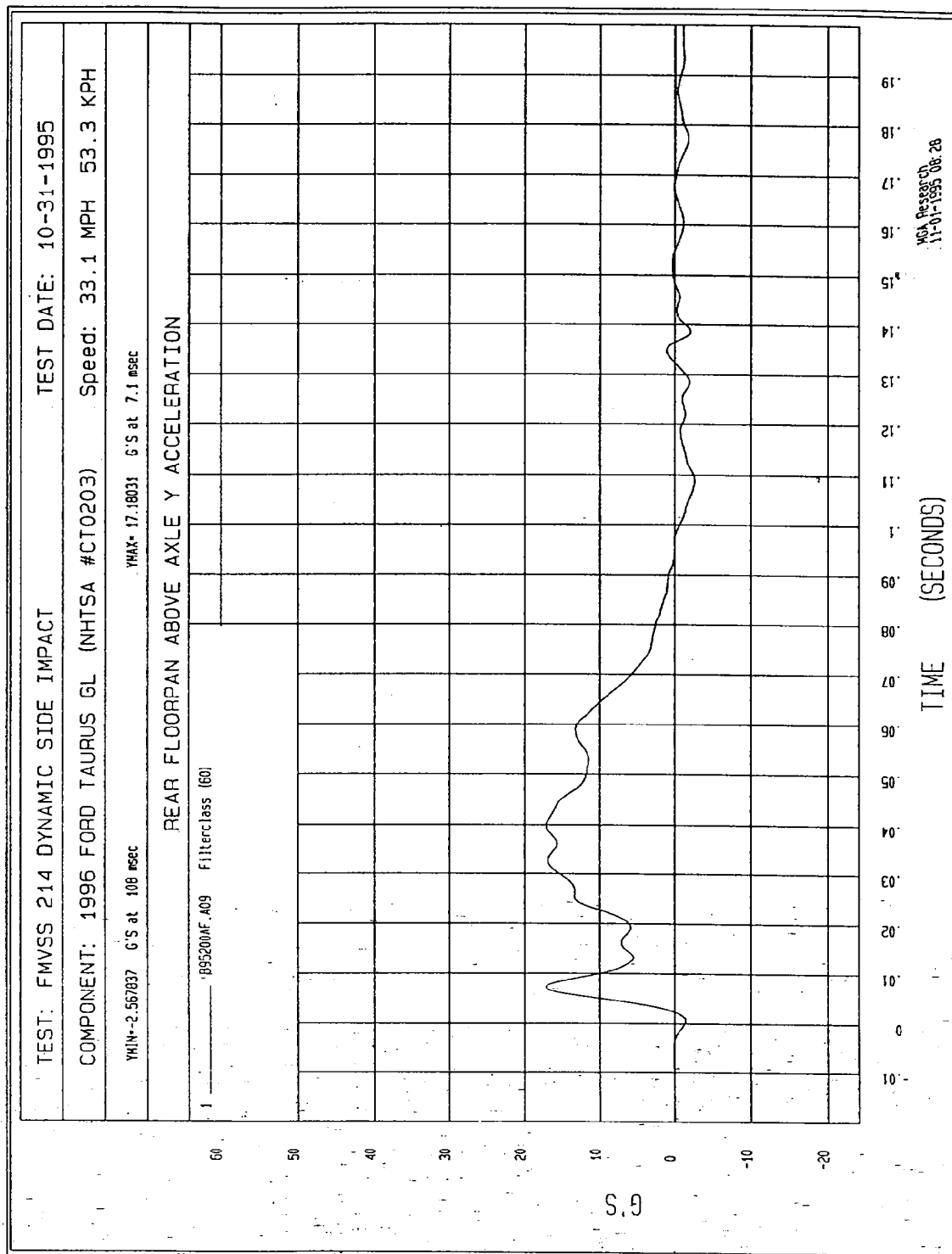


Figure B-39 - Rear Floorpan above Axle Y Acceleration vs. Time

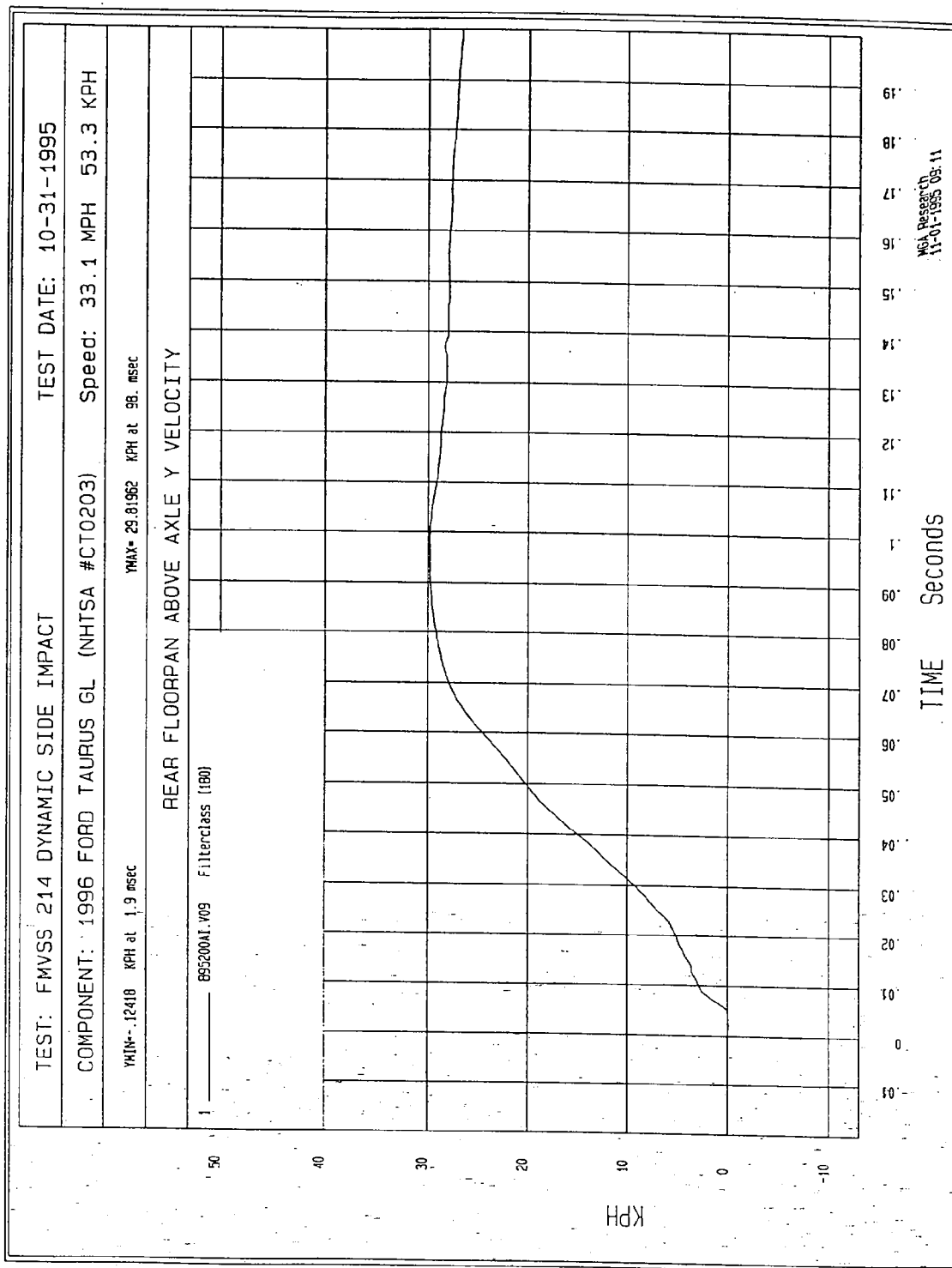


Figure B-40 - Rear Floorpan above Axle Y Velocity vs. Time

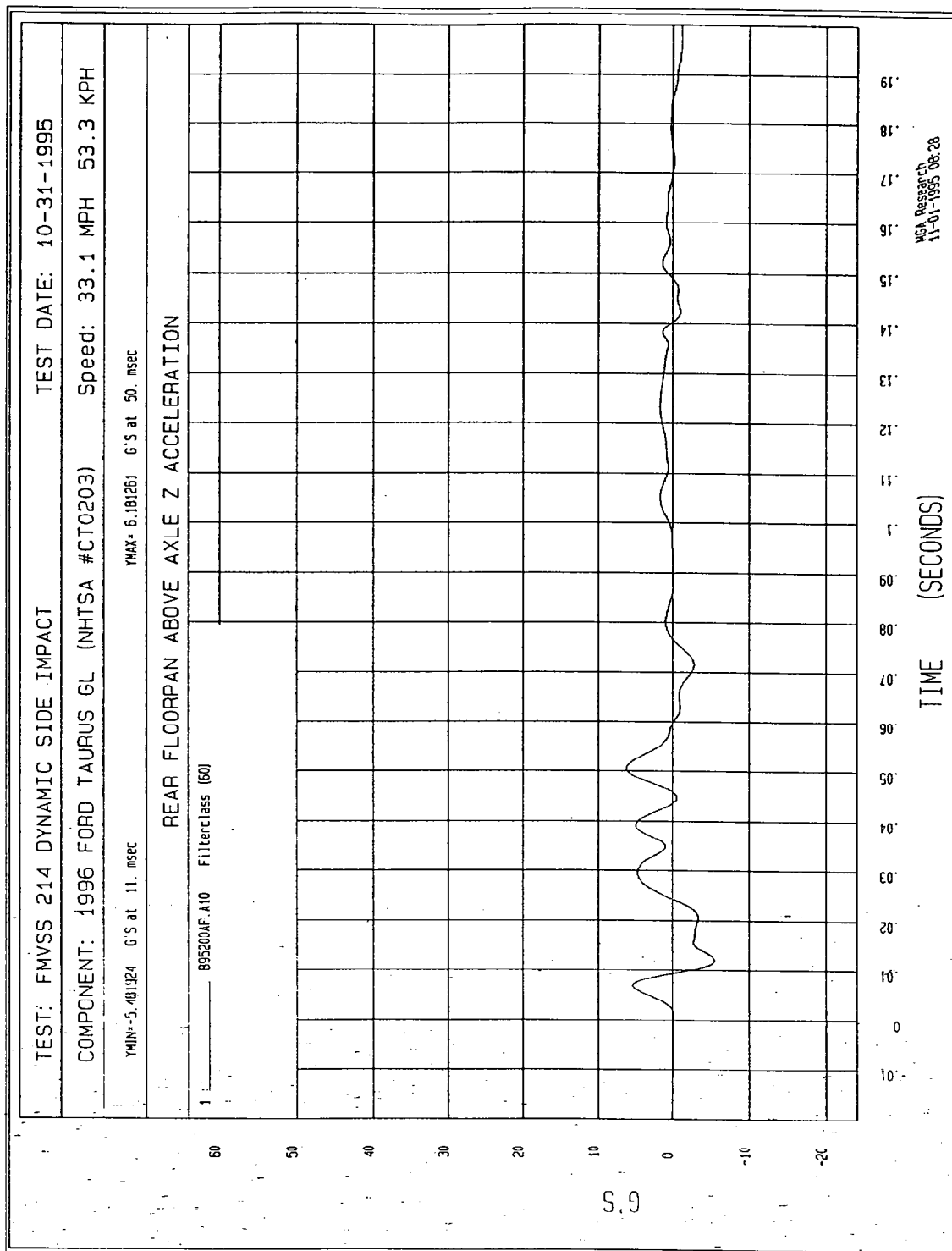


Figure B-41 - Rear Floorpan above Axle Z Acceleration vs. Time

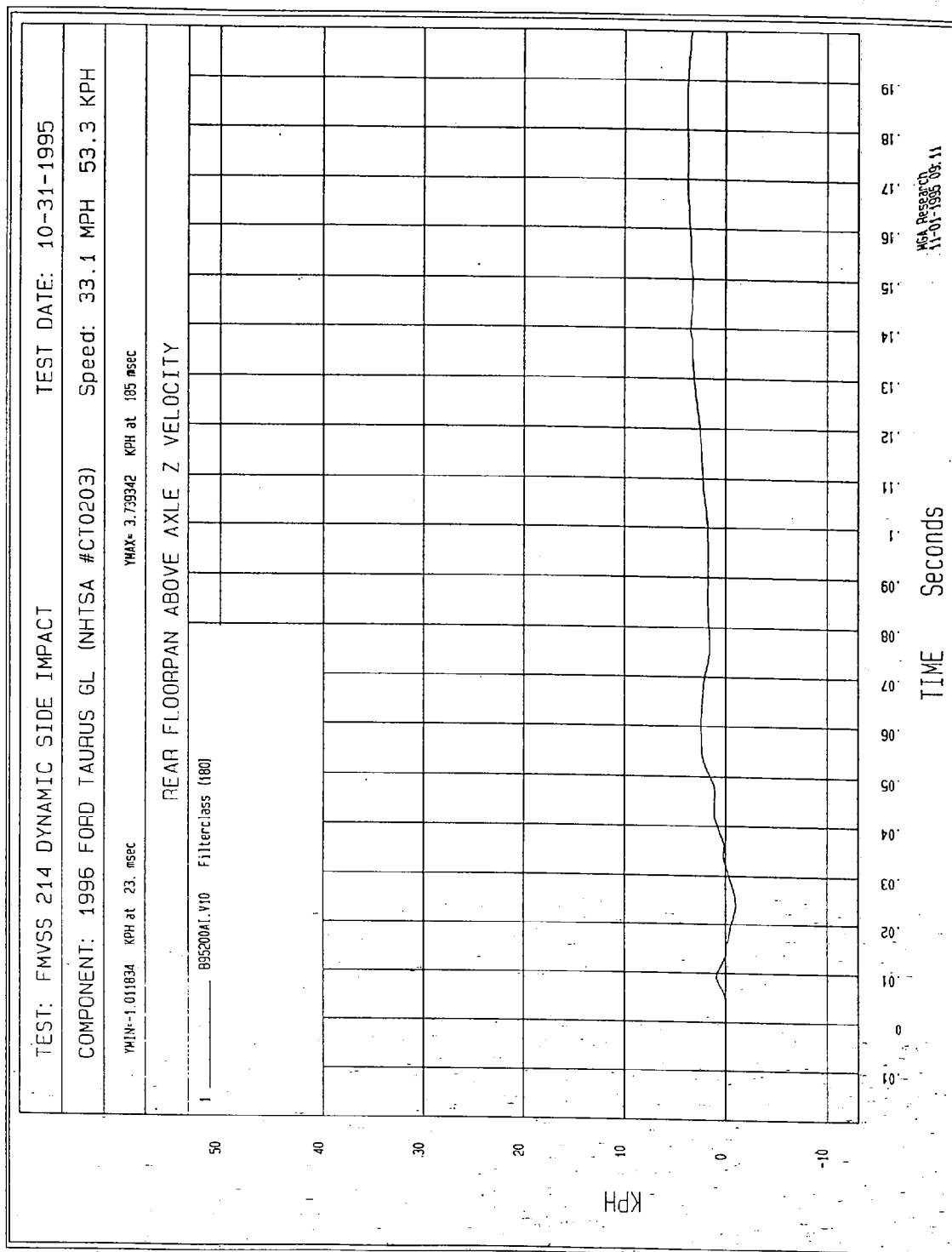


Figure B-42 - Rear Floorpan above Axle Z Velocity vs. Time

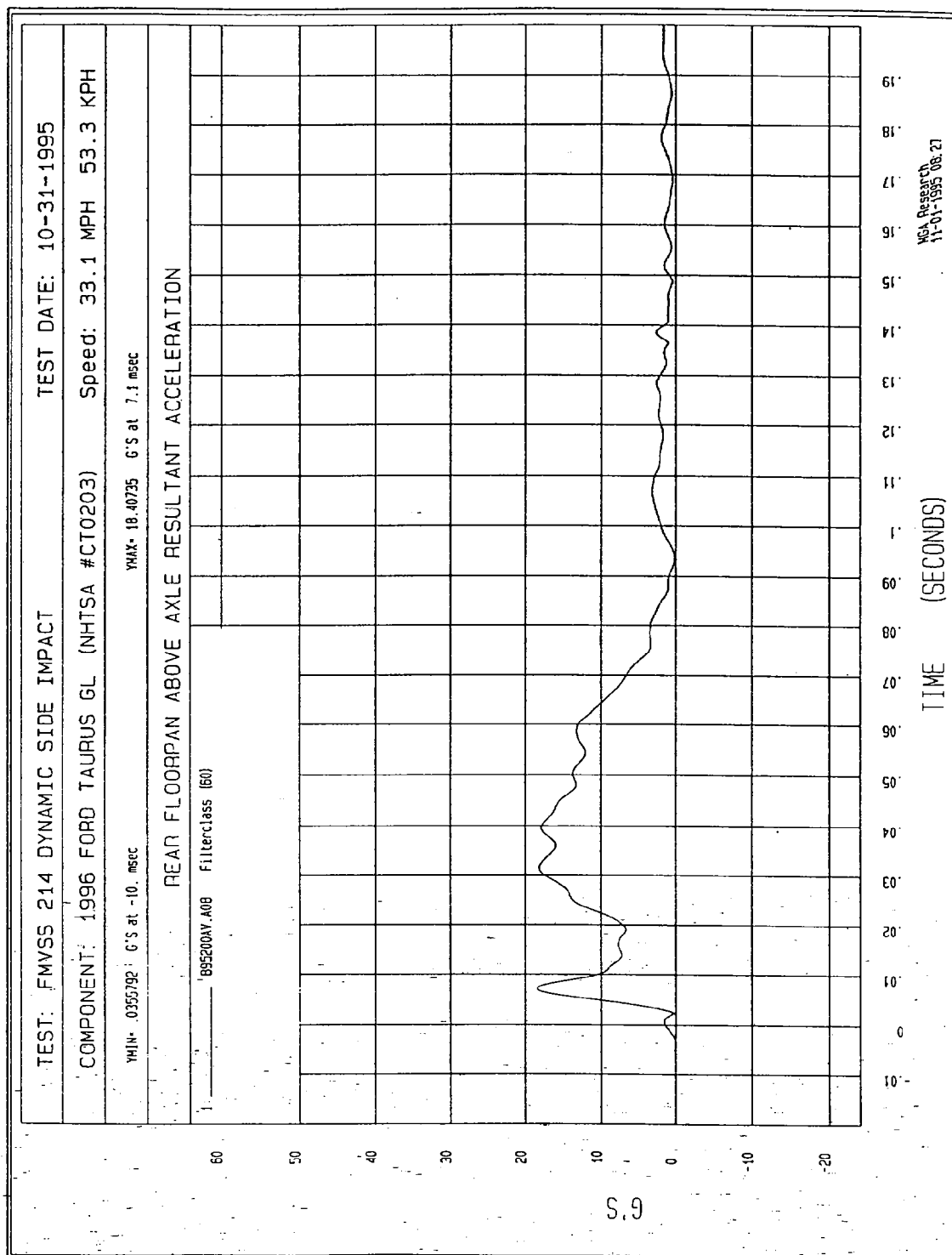


Figure B-43 - Rear Floorpan above Axle Resultant Acceleration vs. Time

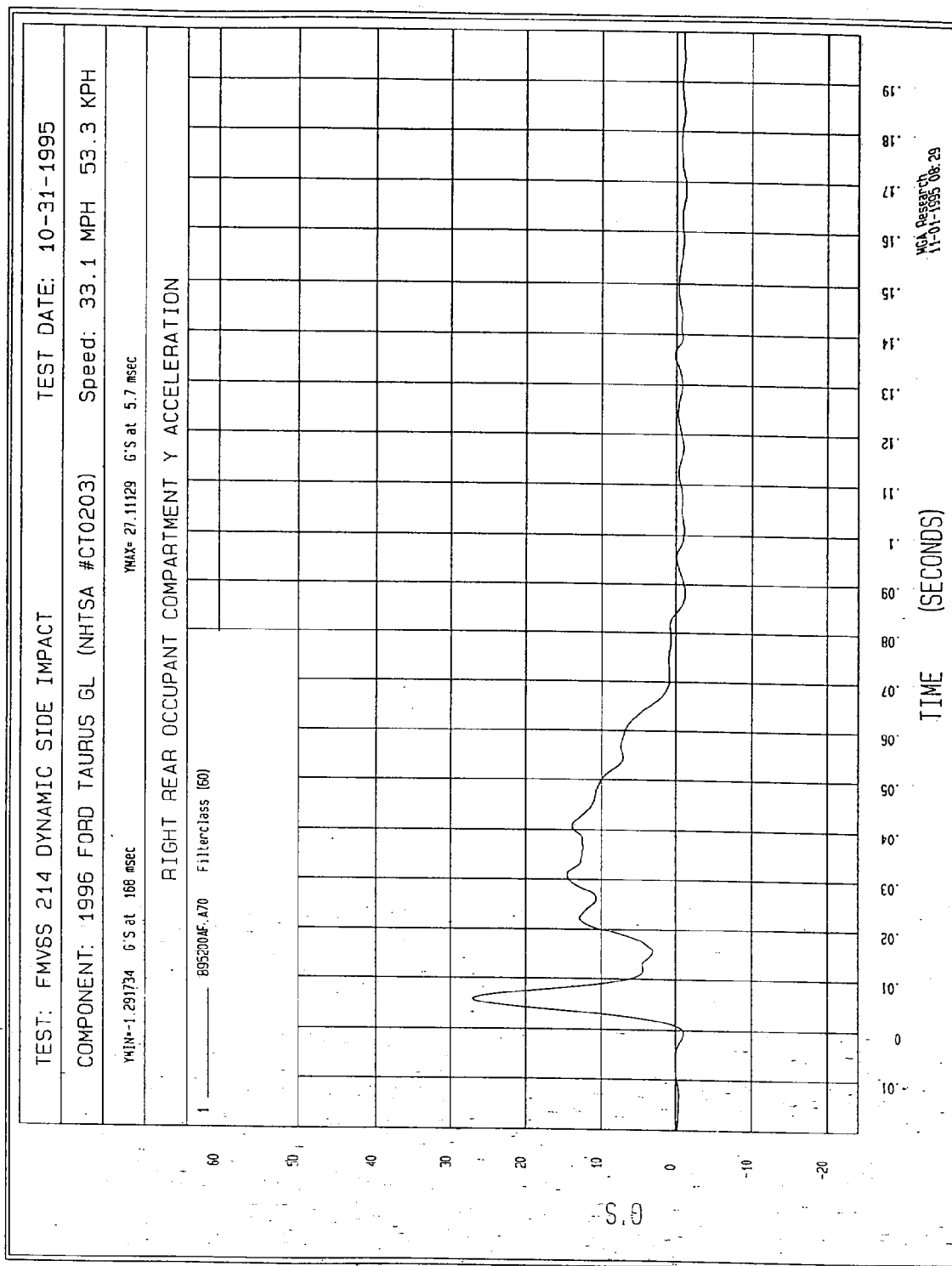


Figure B-44 - Right Rear Occupant Compartment Y Acceleration vs. Time

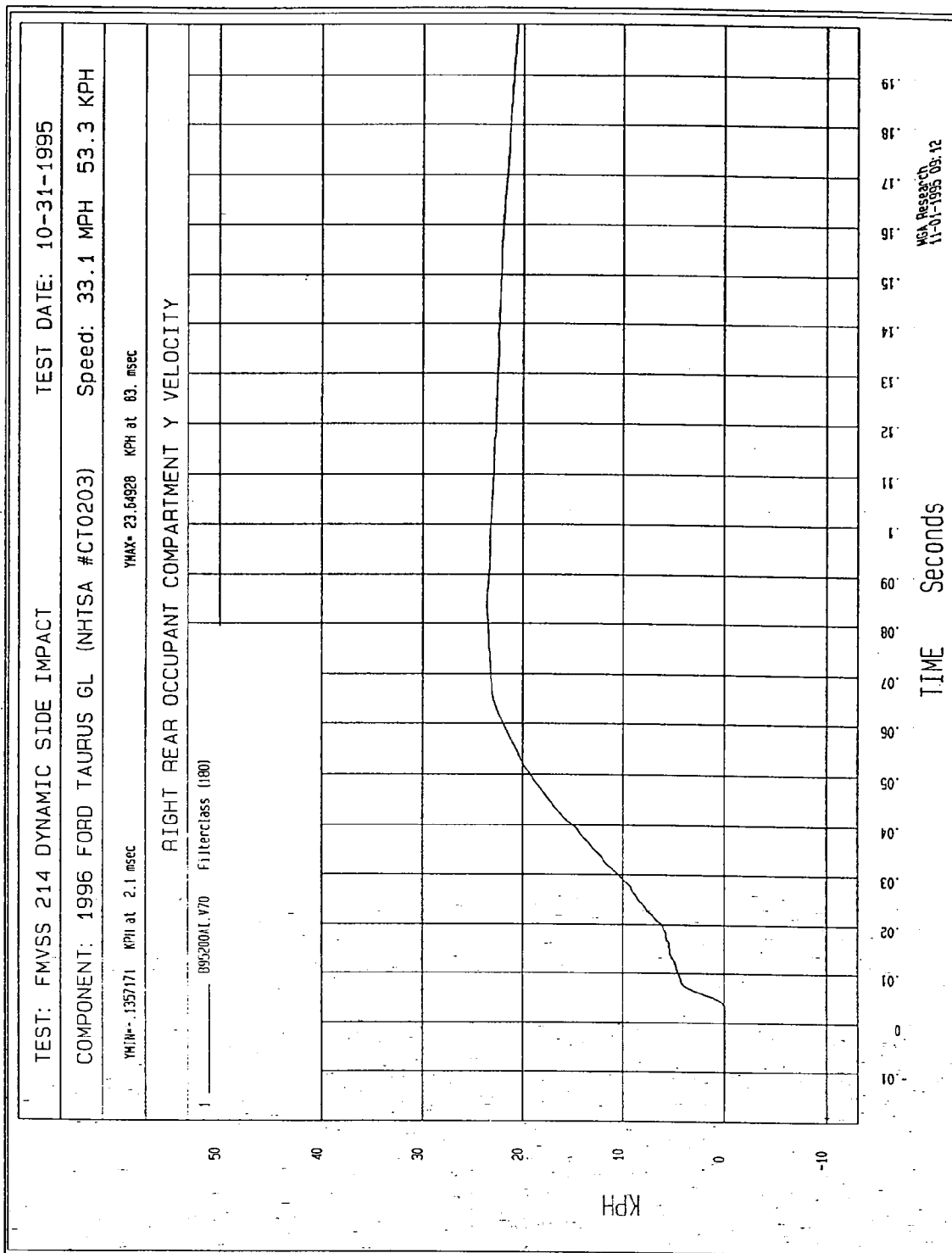


Figure B-45 - Right Rear Occupant Compartment Y Velocity vs. Time

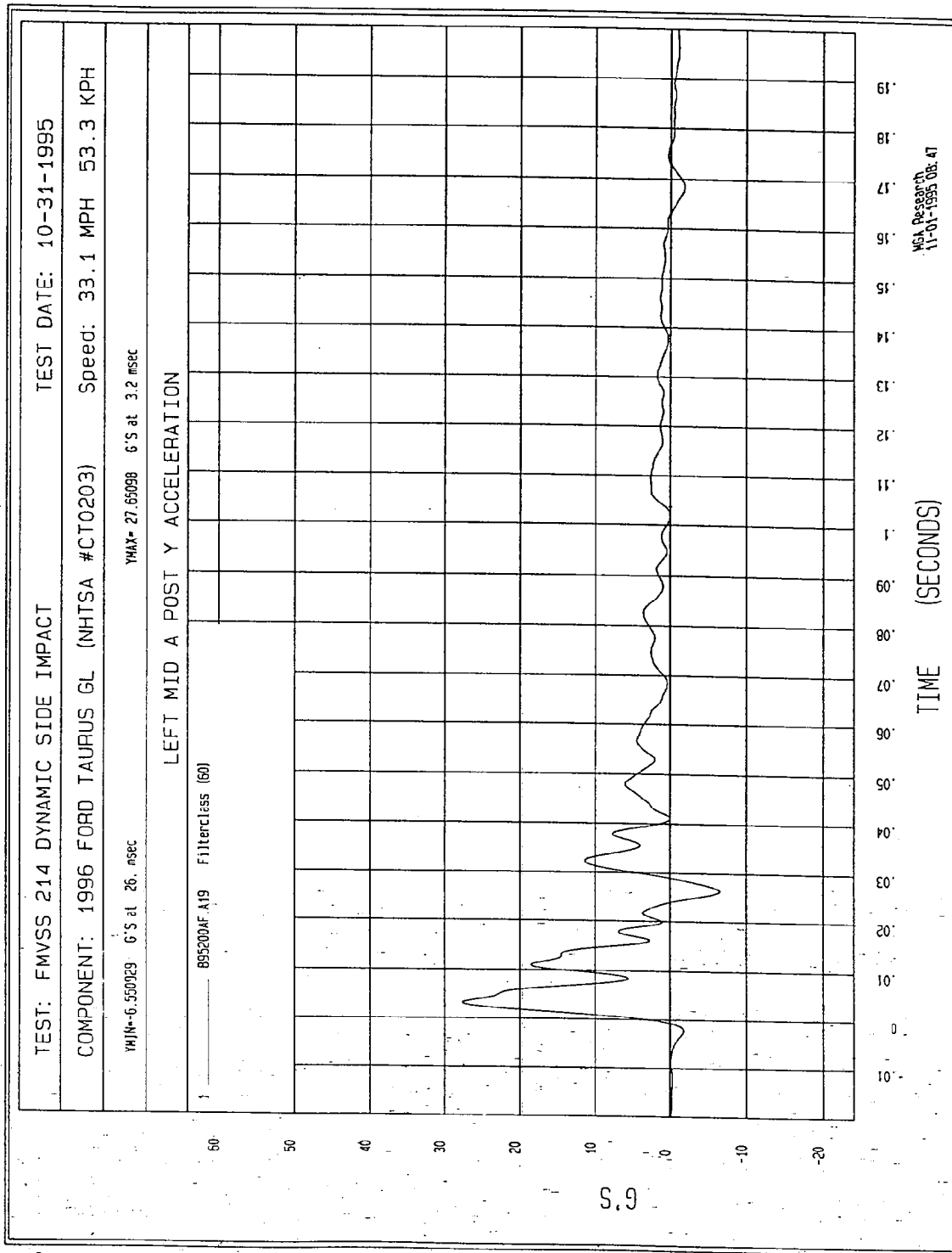


Figure B-46 - Left Mid A Post Y Acceleration vs. Time

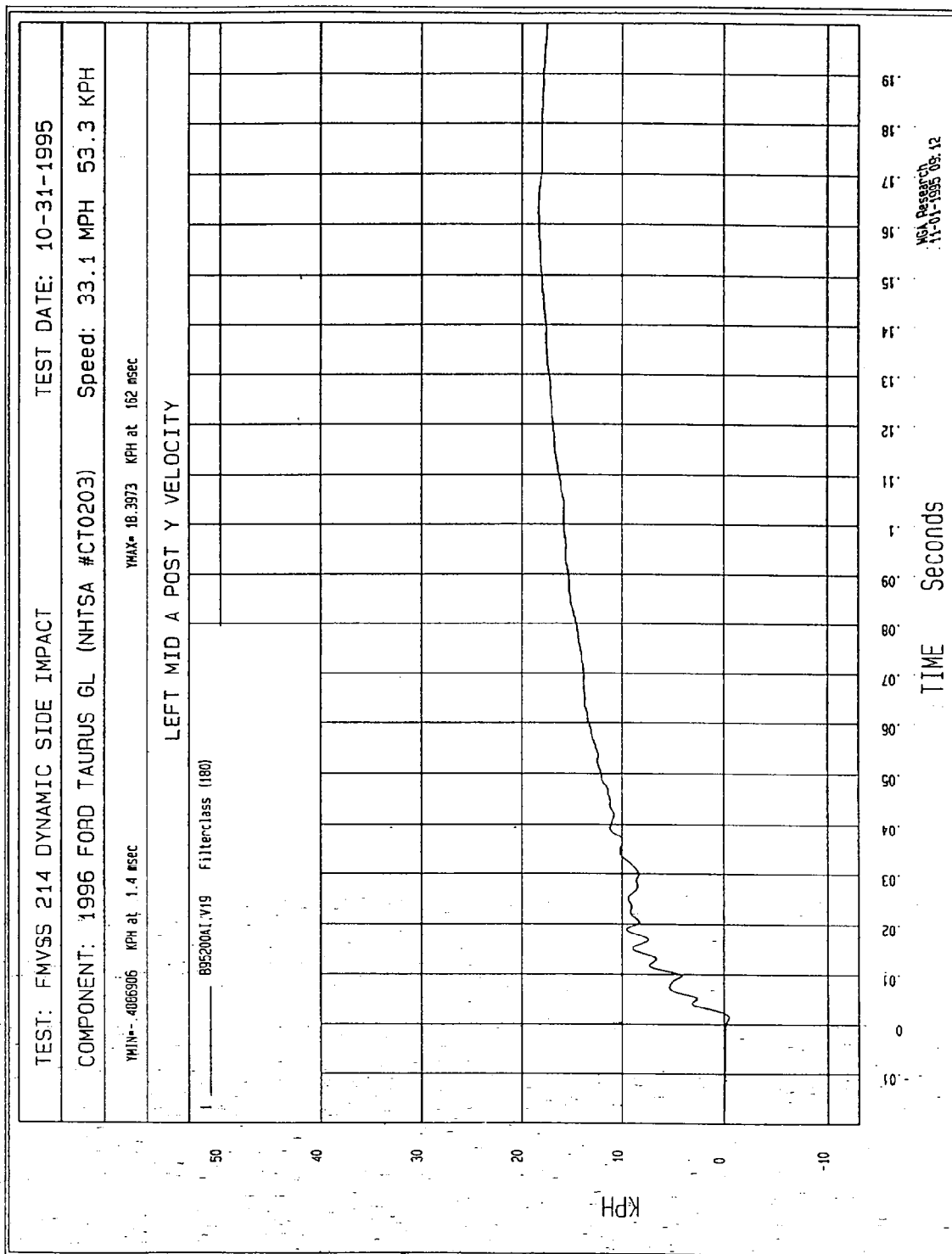


Figure B-47 - Left Mid A Post Y Velocity vs. Time

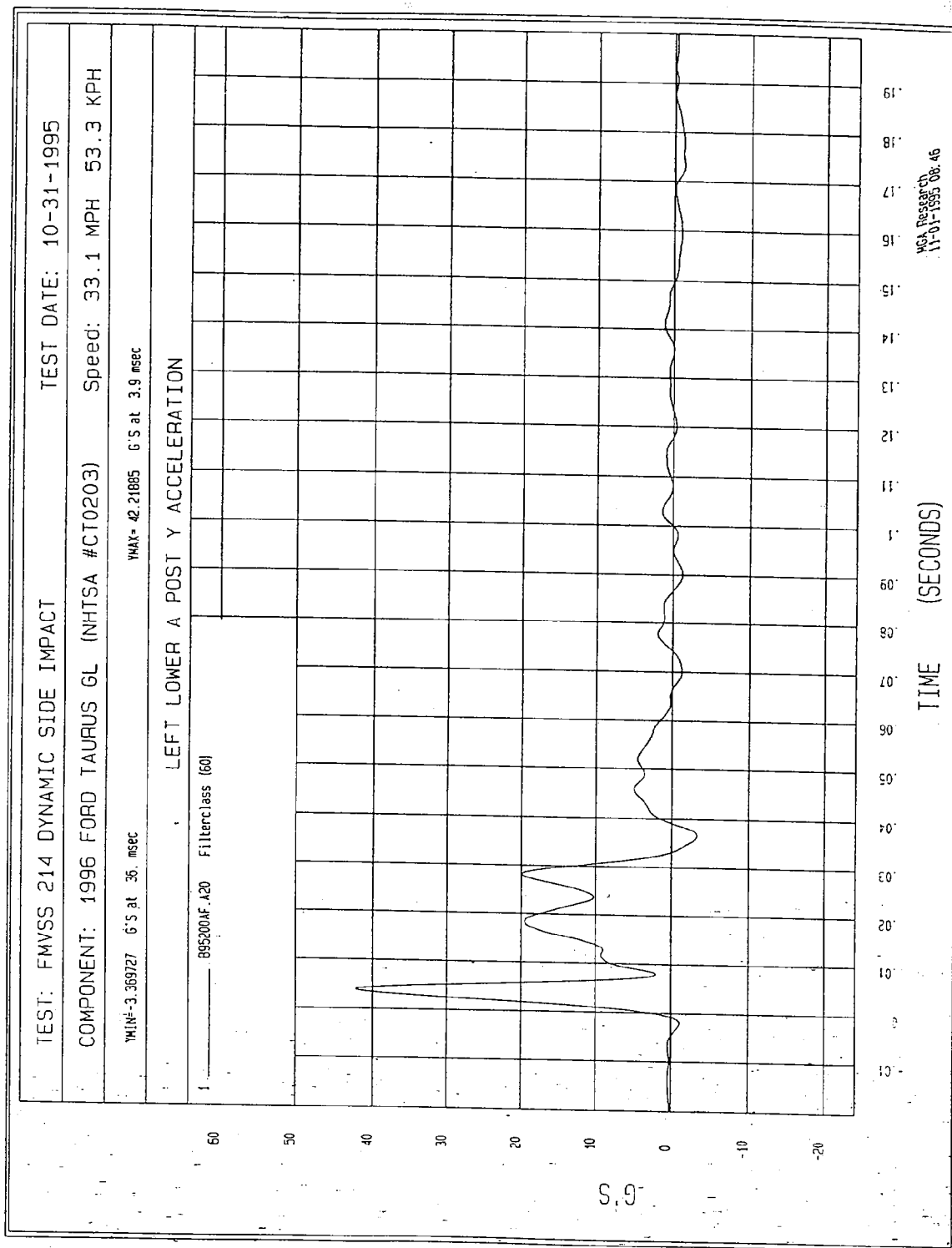


Figure B-48 - Left Lower A Post Y Acceleration vs. Time

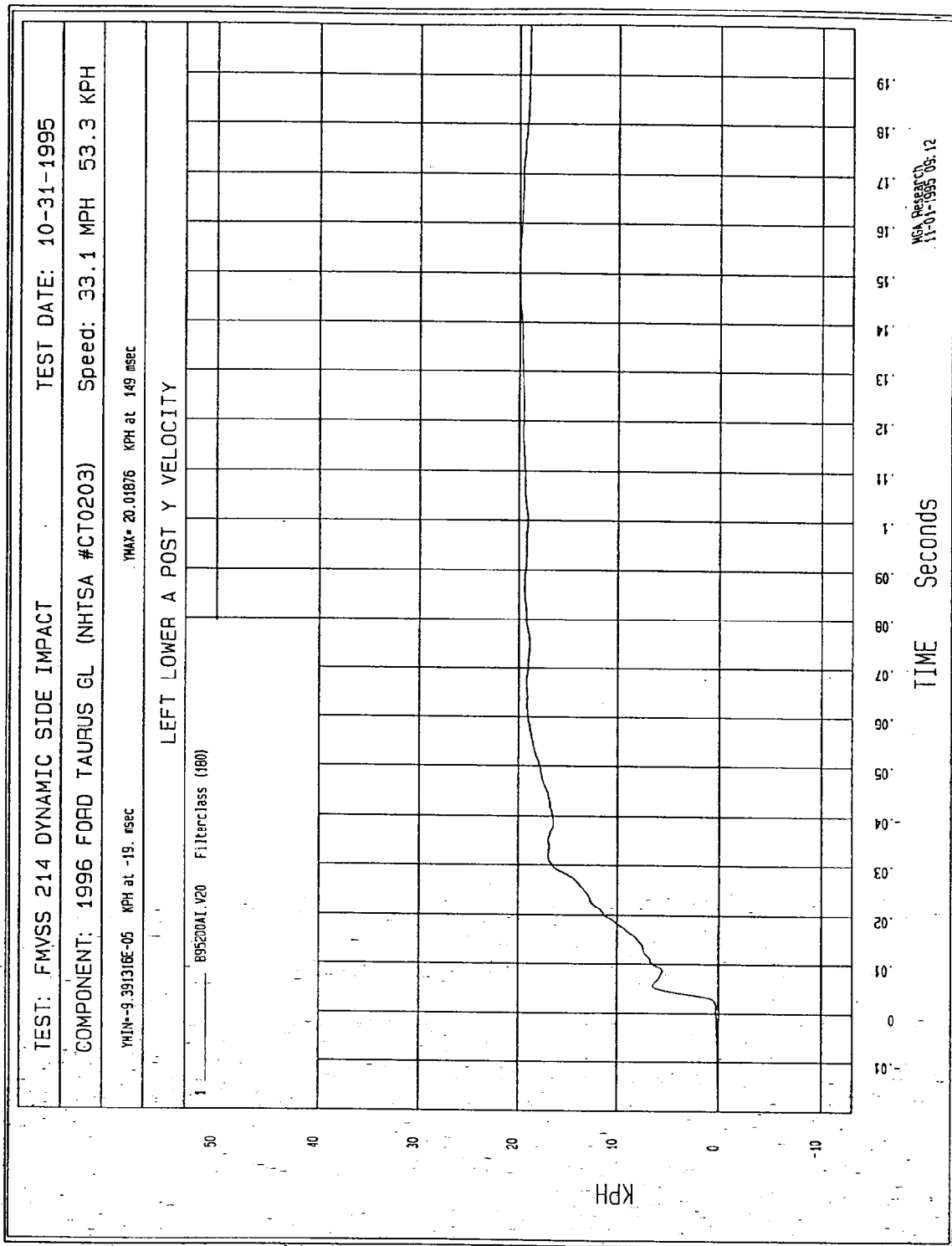


Figure B-49 - Left Lower A Post Y Velocity vs. Time

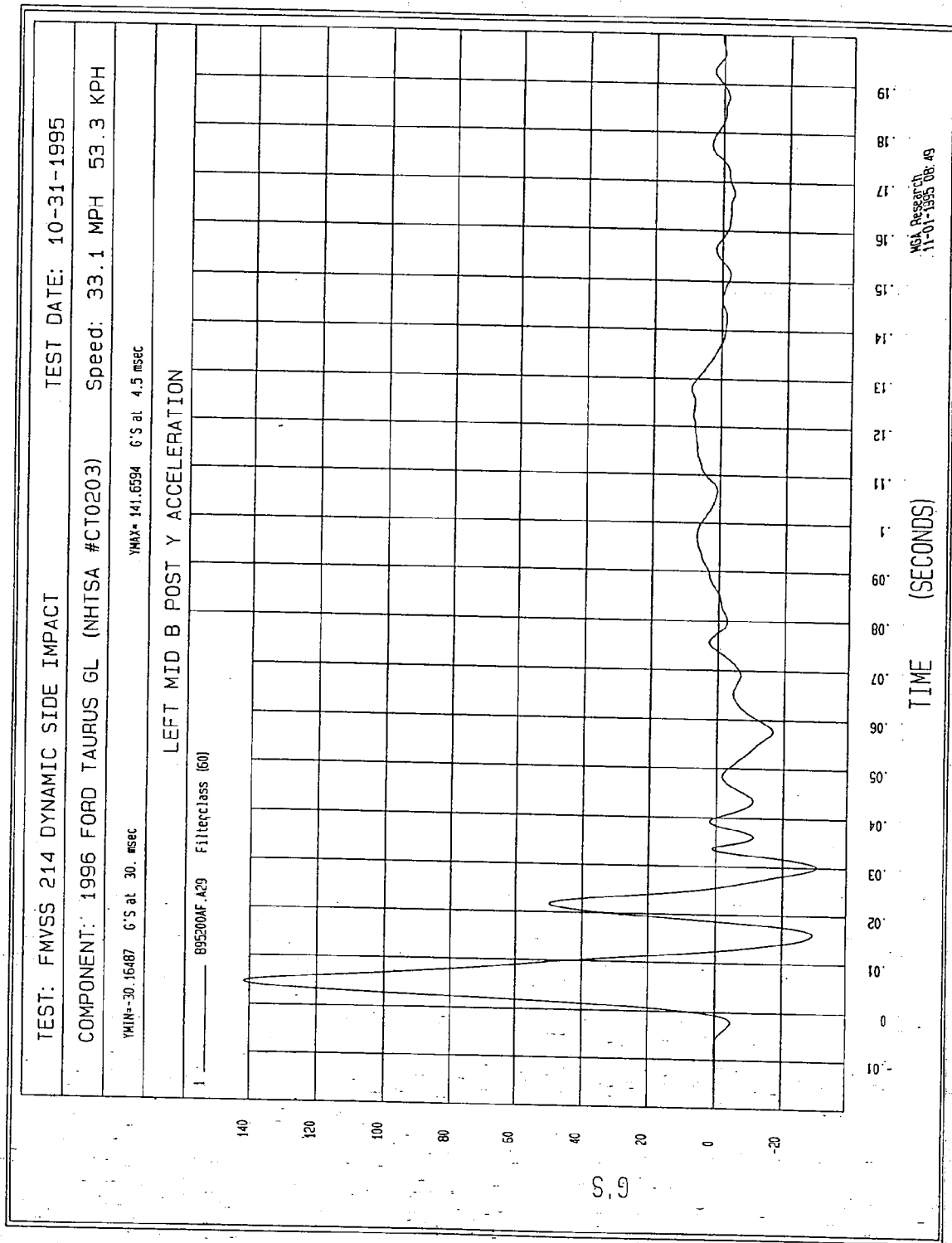


Figure B-50 - Left Mid B Post Y Acceleration vs. Time

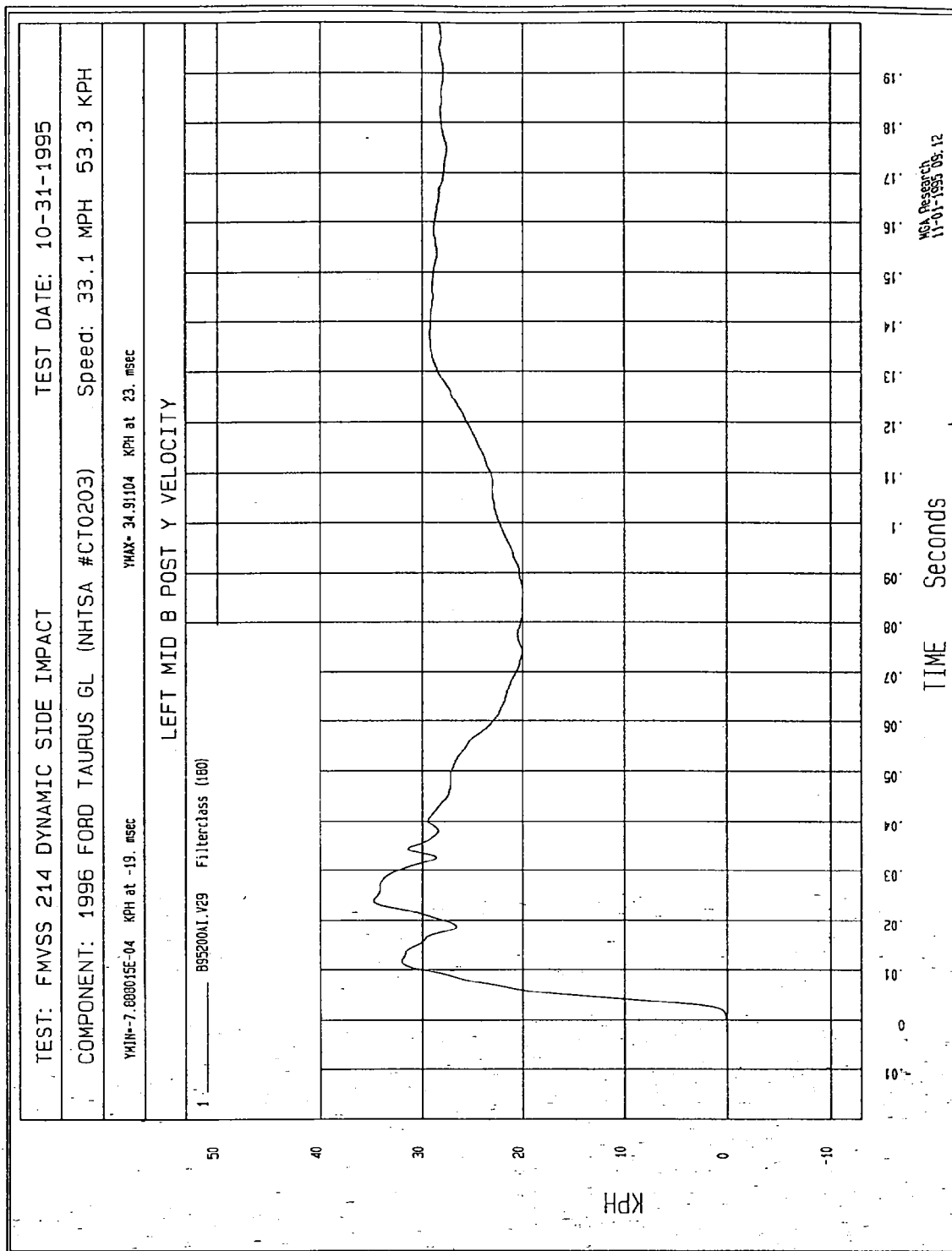


Figure B-51 - Left Mid B Post Y Velocity vs. Time

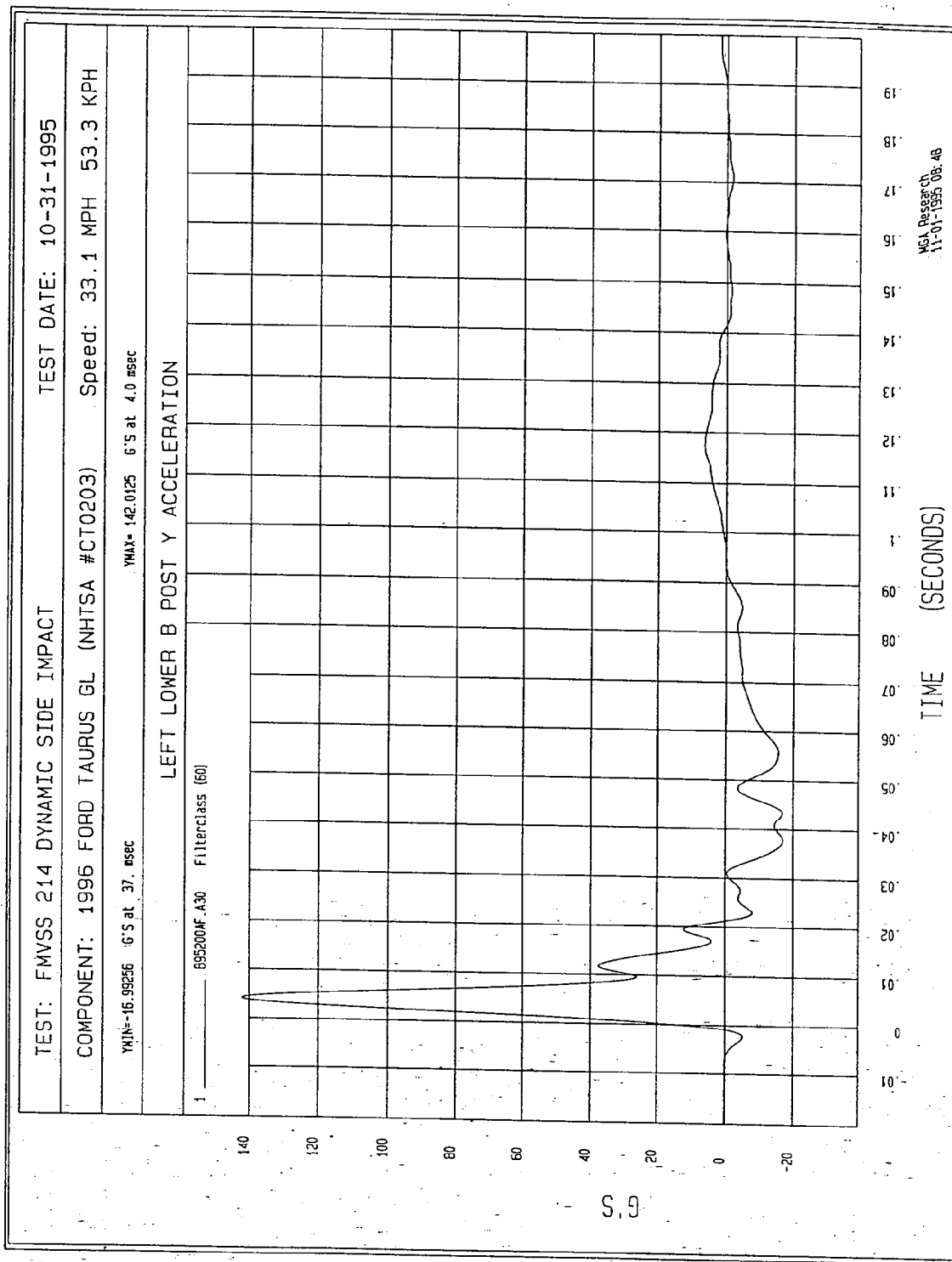


Figure B-52 - Left Lower B Post Y Acceleration vs. Time

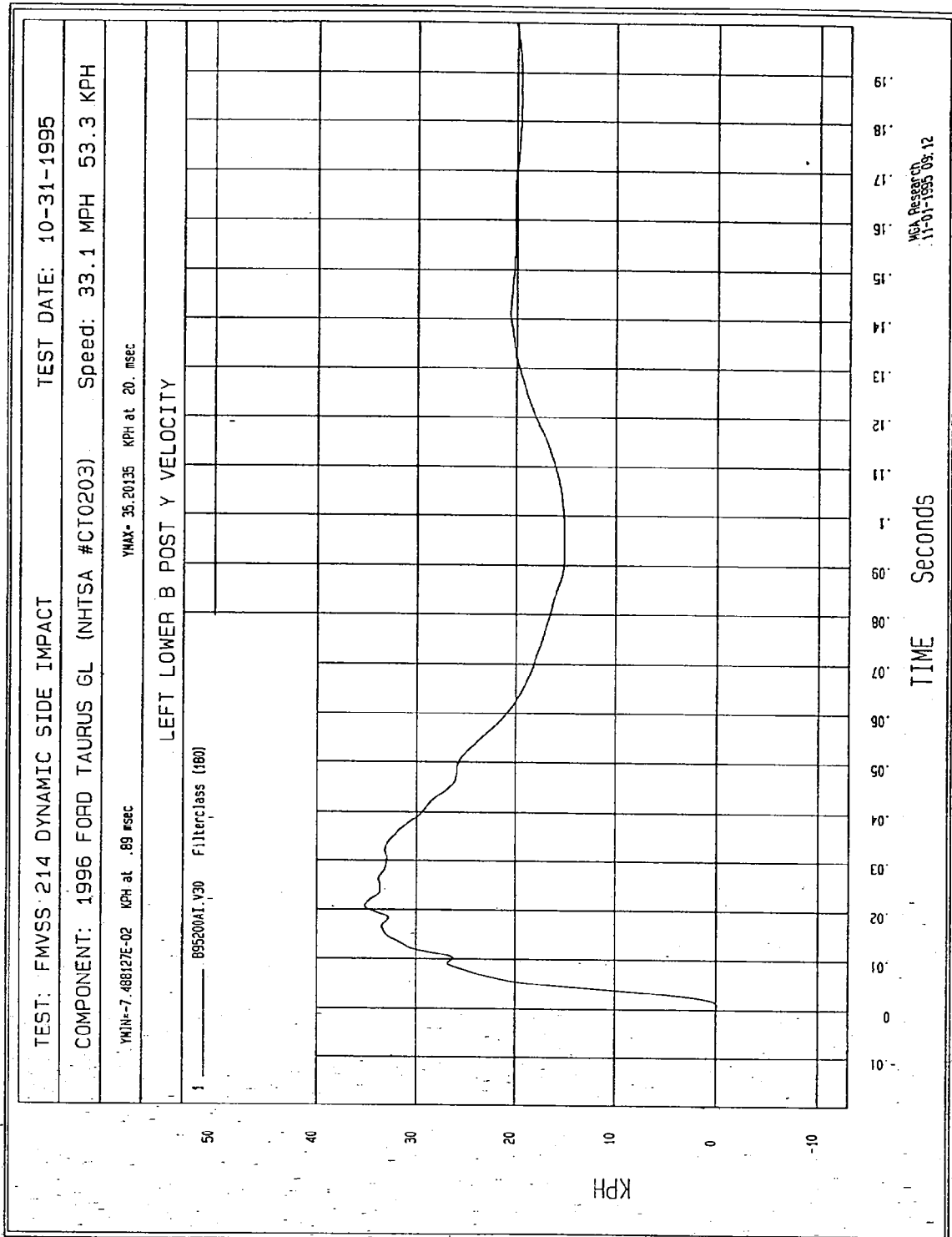


Figure B-53 - Left Lower B Post Y Velocity vs. Time

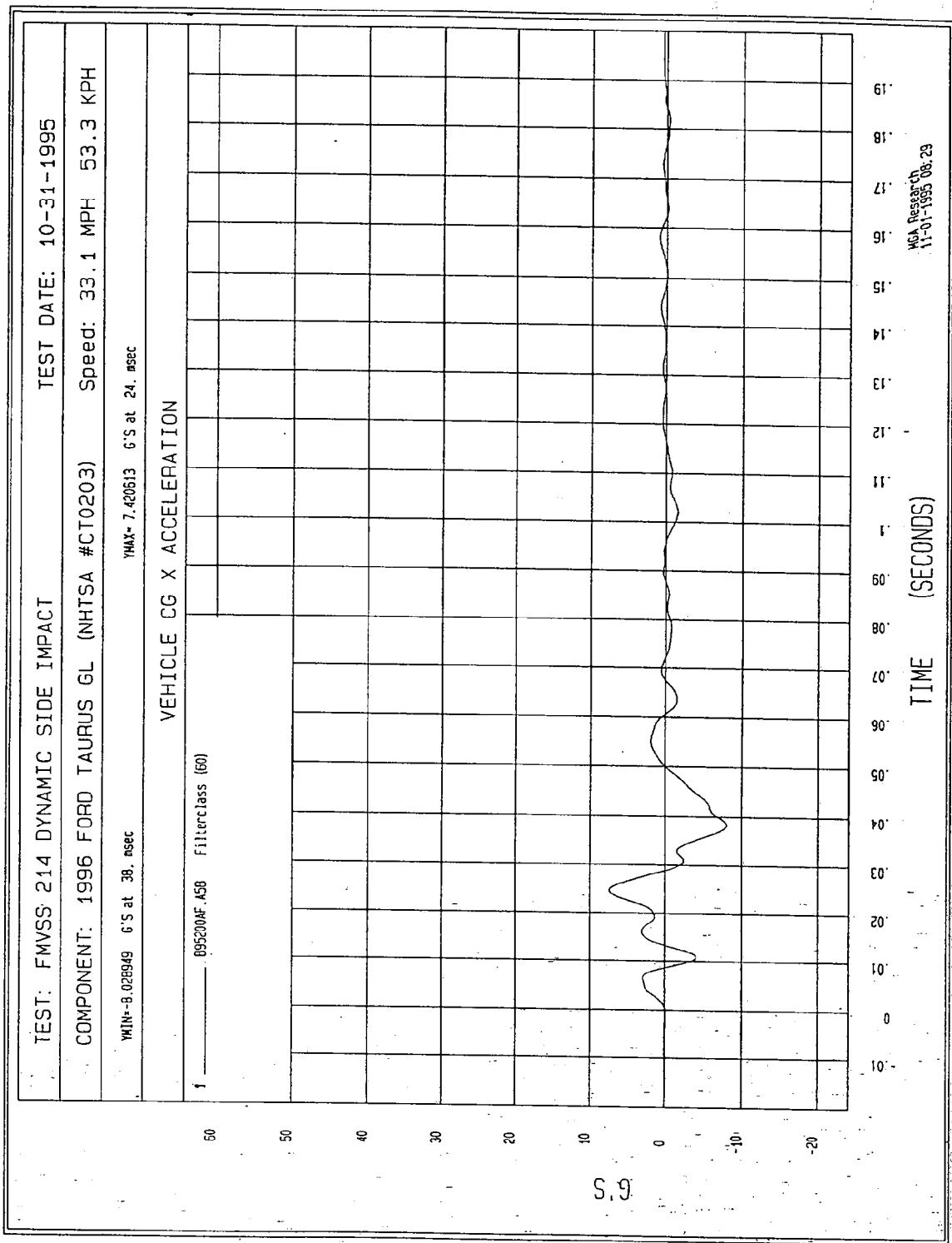


Figure B-54 - Vehicle Center of Gravity X Acceleration vs. Time

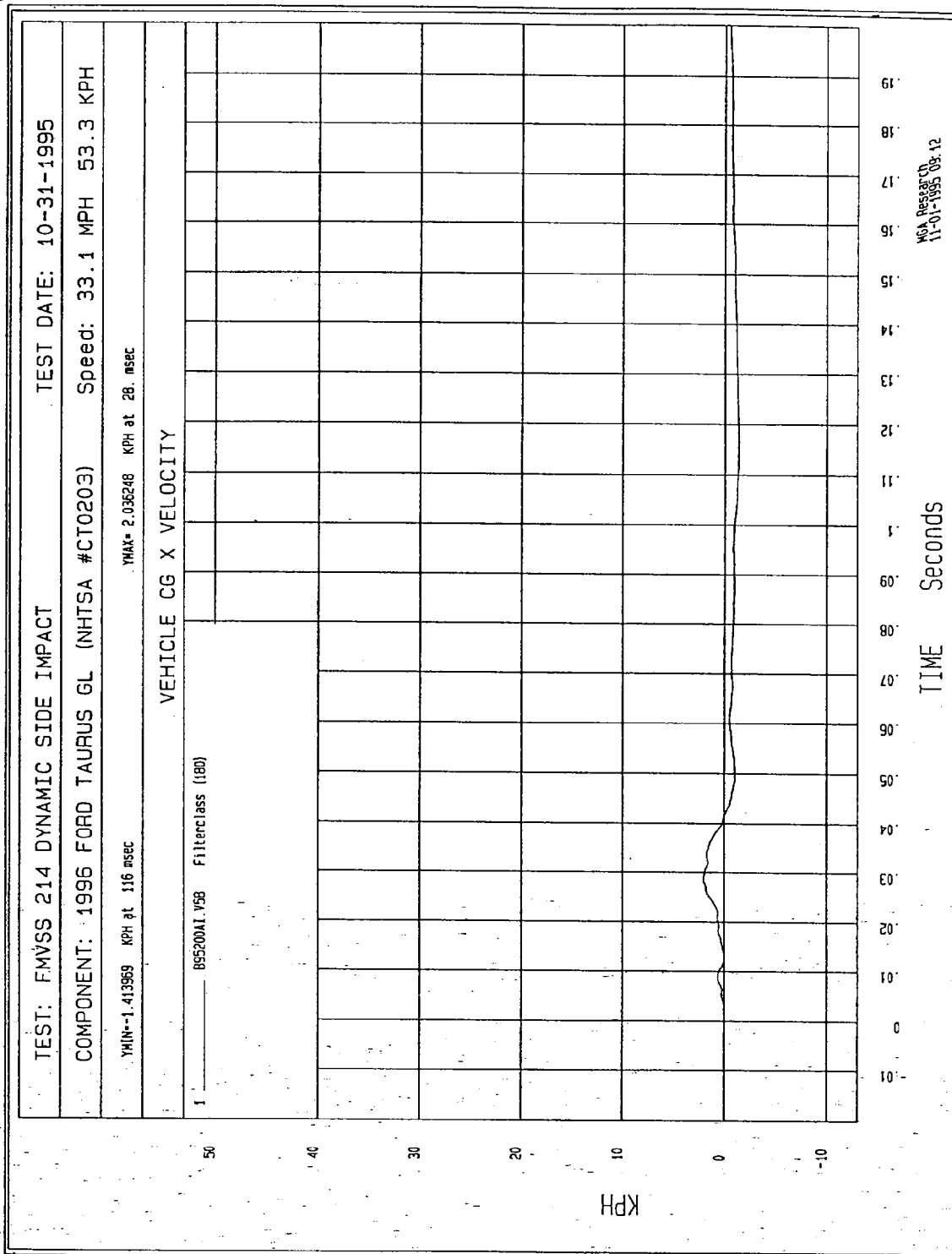


Figure B-55 - Vehicle Center of Gravity X Velocity vs. Time

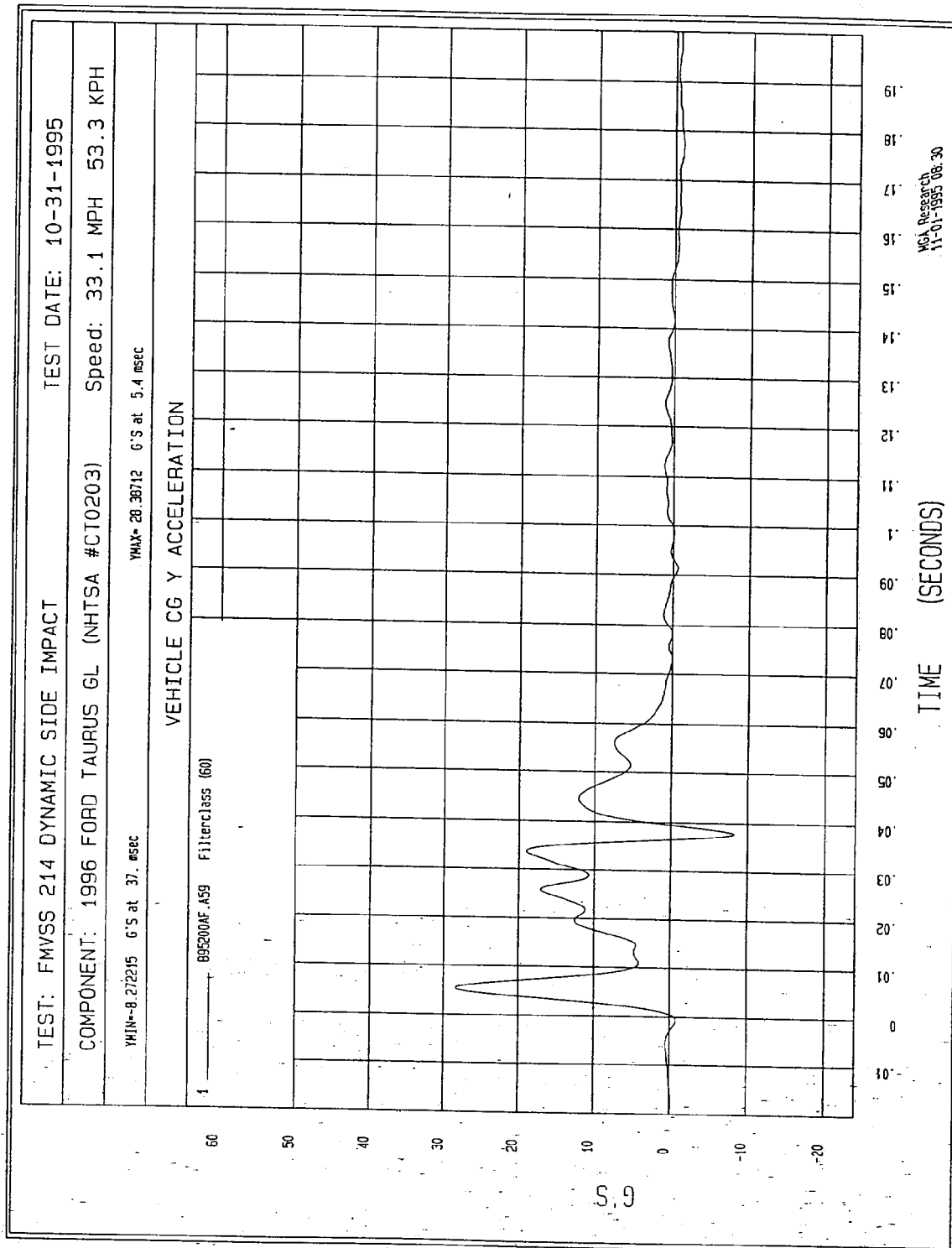


Figure B-56 - Vehicle Center of Gravity Y Acceleration vs. Time

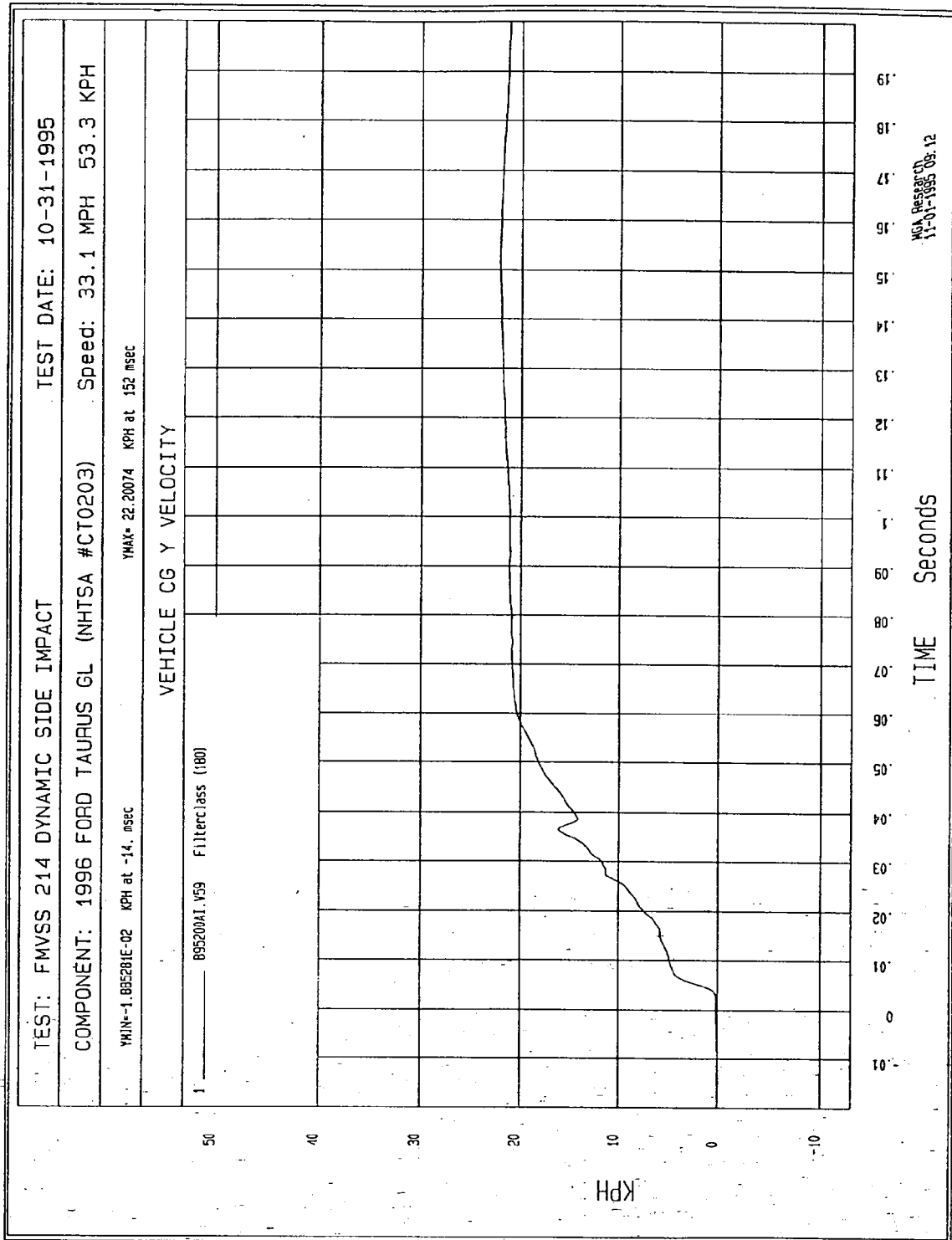


Figure B-57 - Vehicle Center of Gravity Y Velocity vs. Time

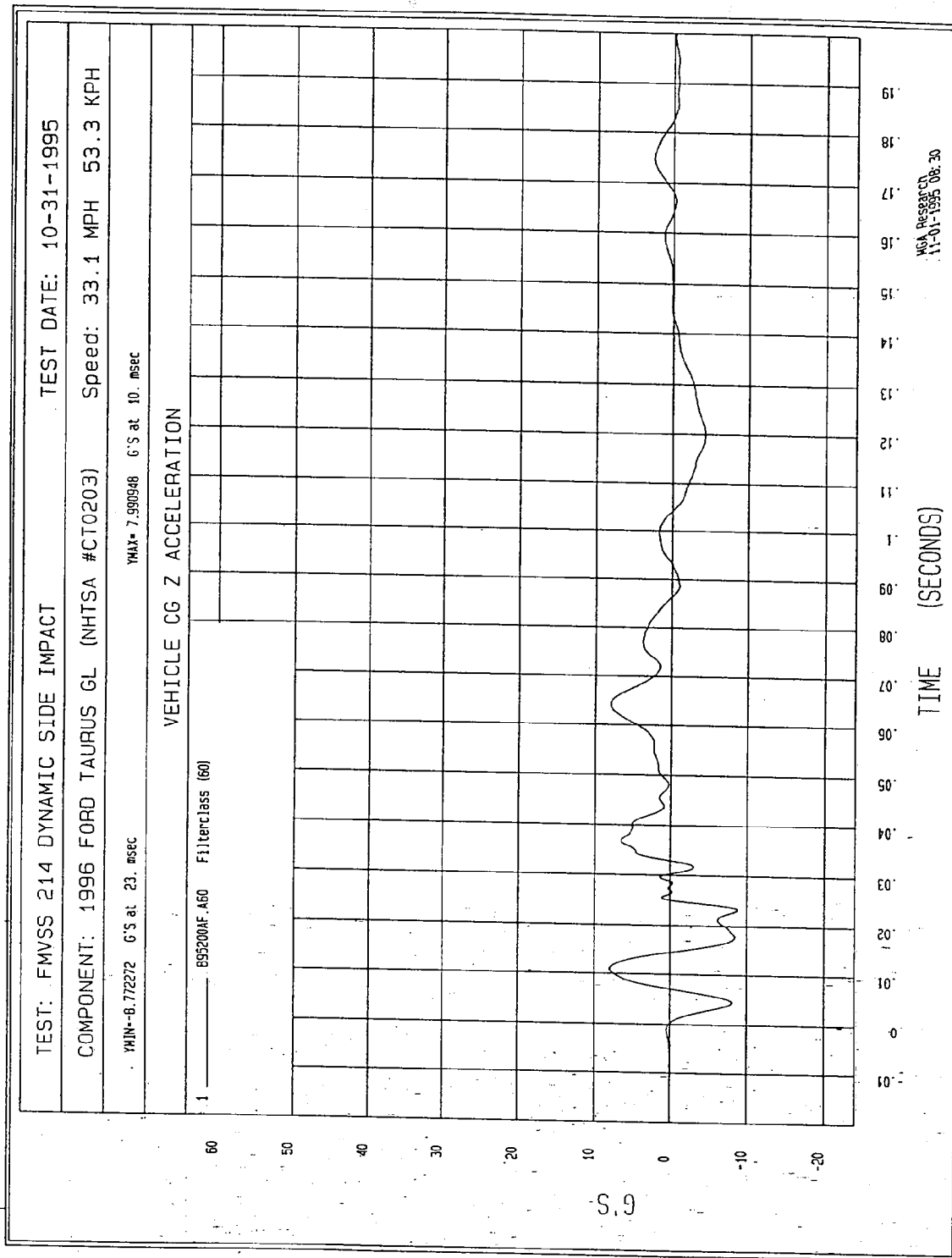


Figure B-58 - Vehicle Center of Gravity Z Acceleration vs. Time

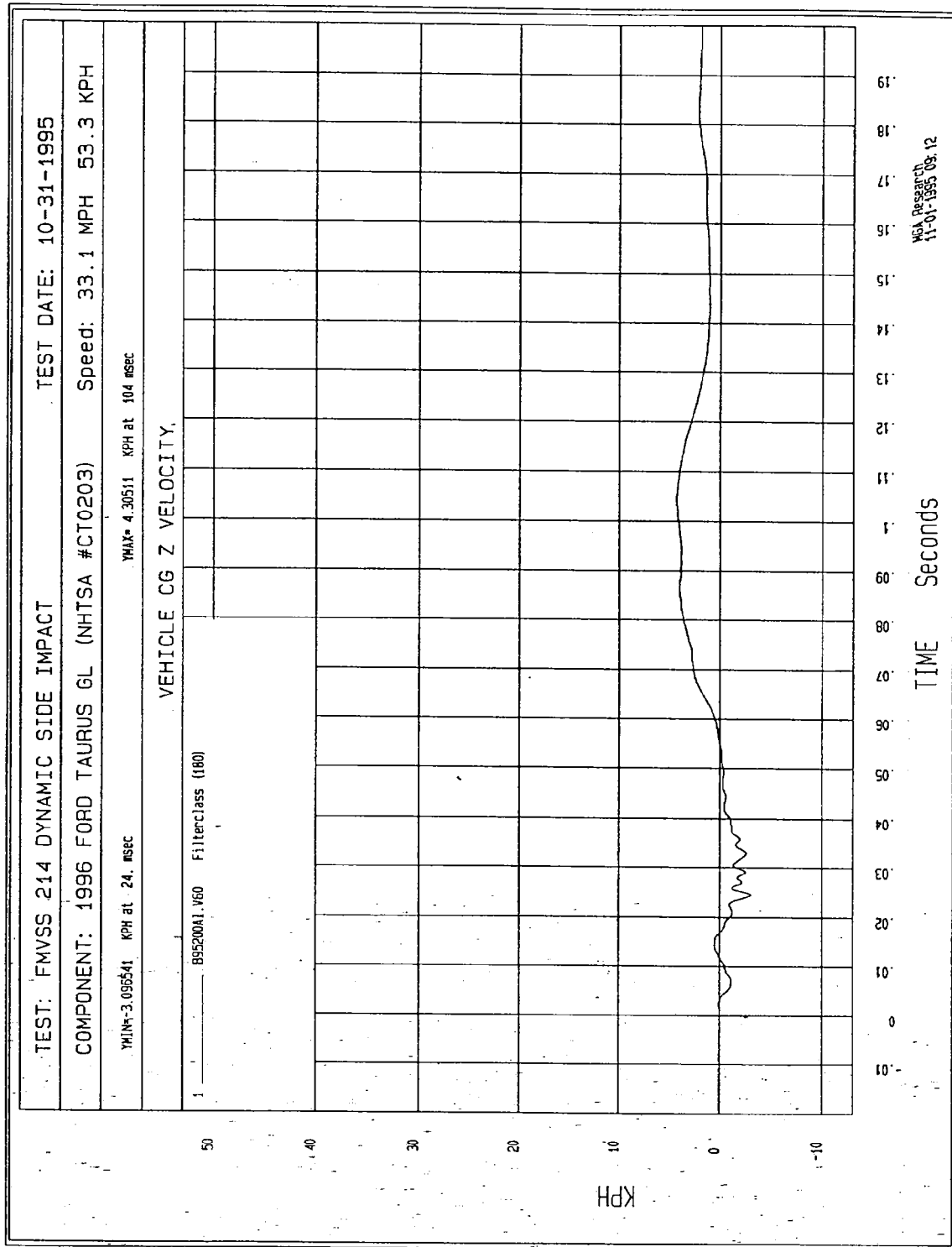


Figure B-59 - Vehicle Center of Gravity Z Velocity vs. Time

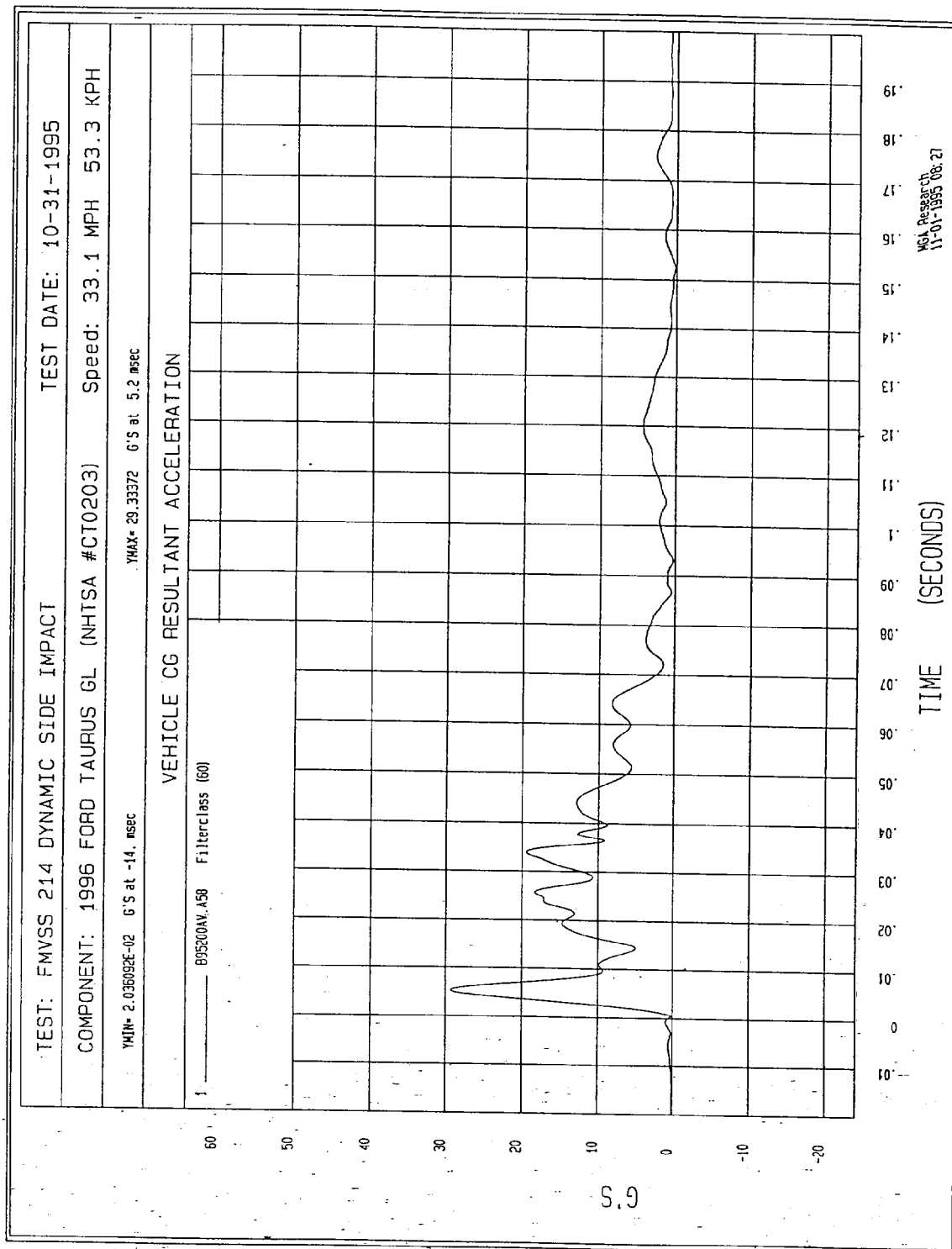


Figure B-60 - Vehicle Center of Gravity Resultant Acceleration vs. Time

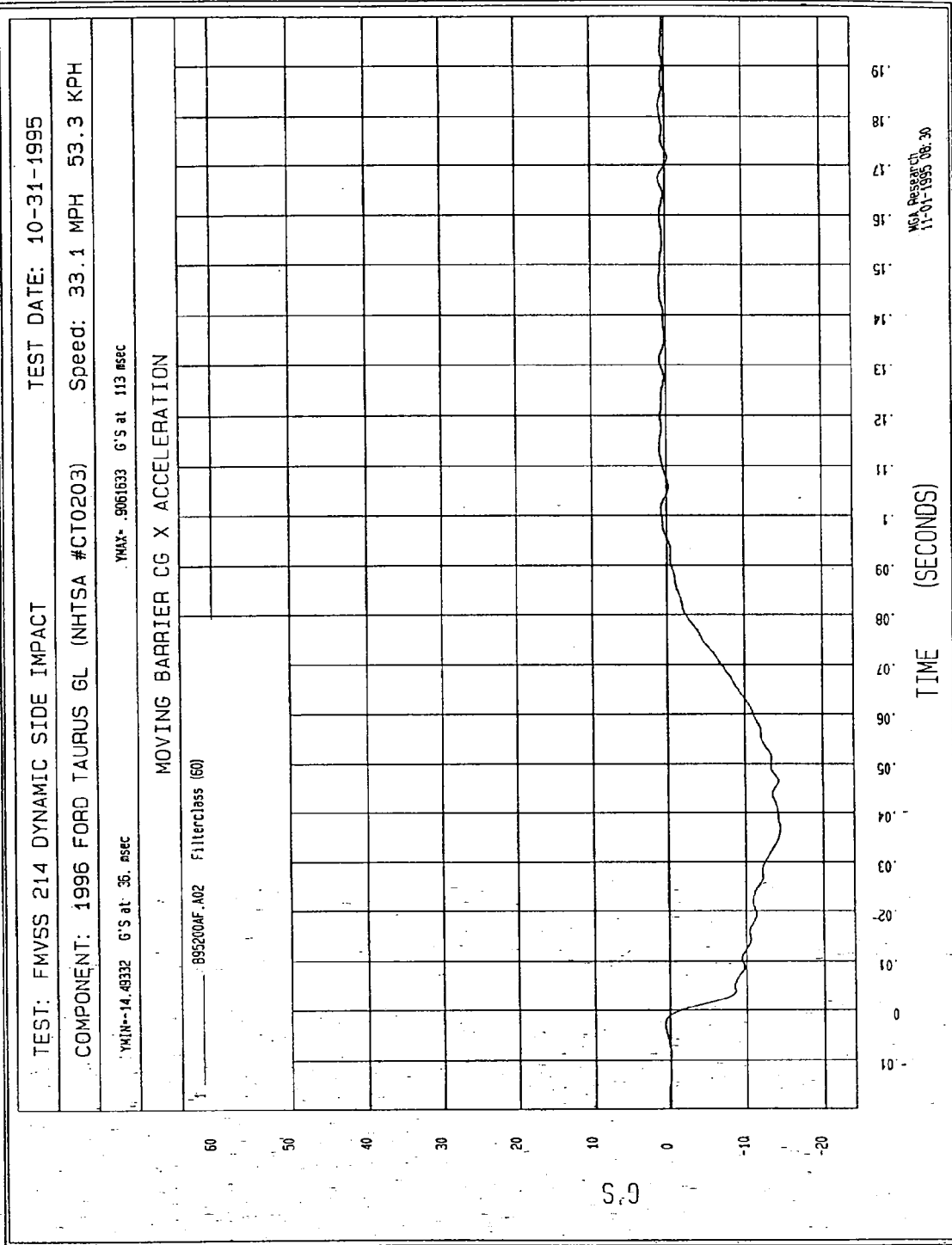


Figure B-61 - Moving Barrier Center of Gravity X Acceleration vs. Time

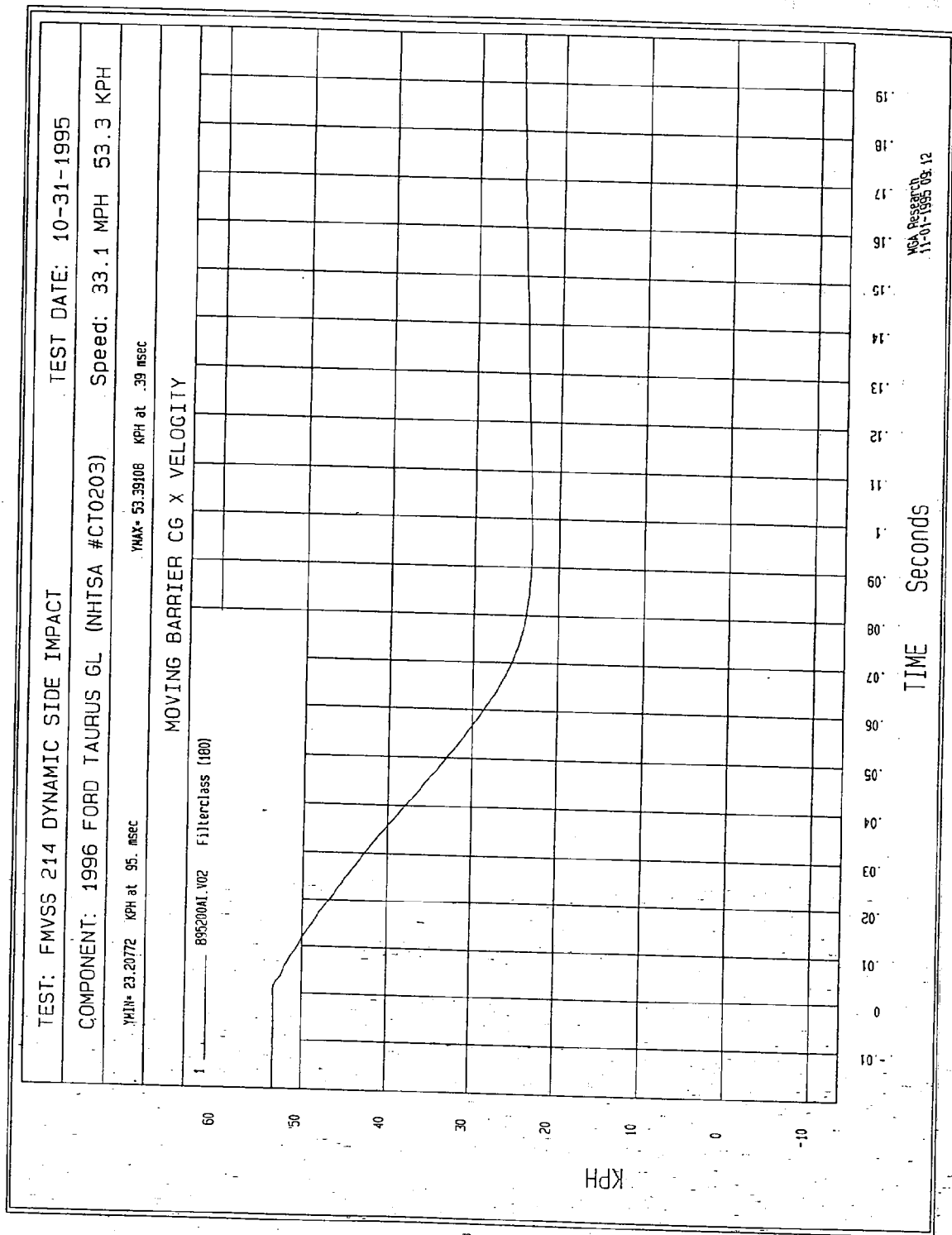


Figure B-62 - Moving Barrier Center of Gravity X Velocity vs. Time

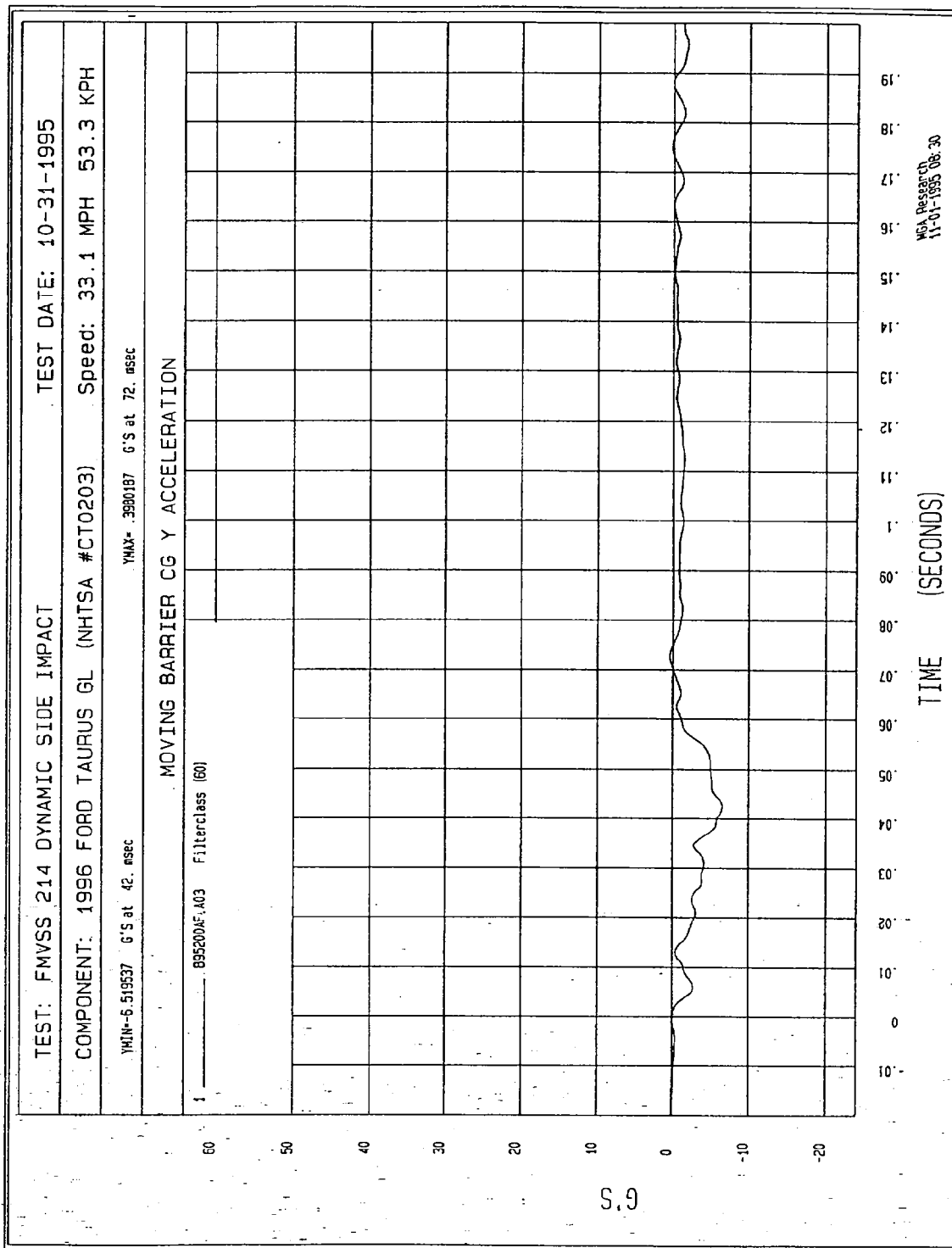


Figure B-63 - Moving Barrier Center of Gravity Y Acceleration vs. Time

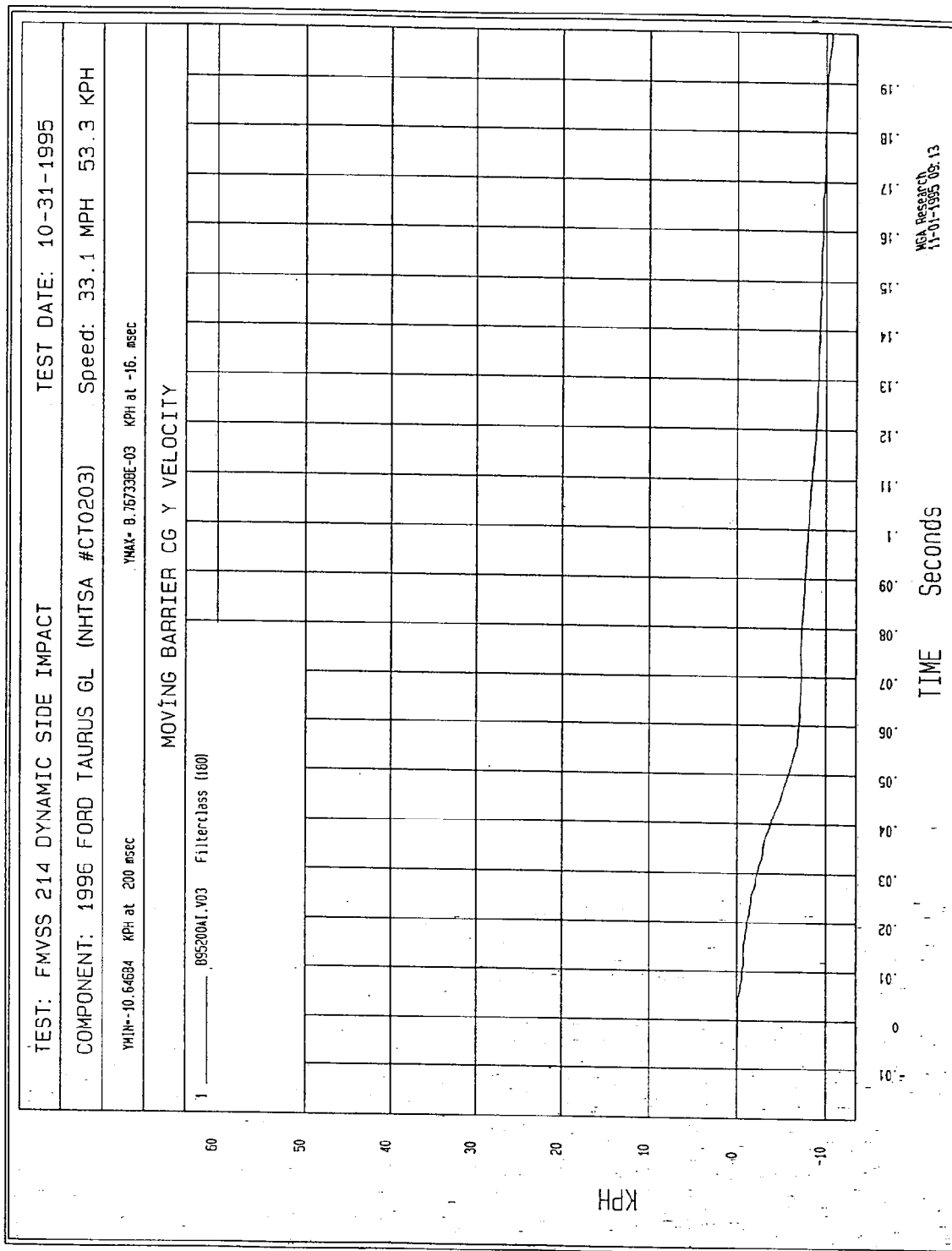


Figure B-64 - Moving Barrier Center of Gravity Y Velocity vs. Time

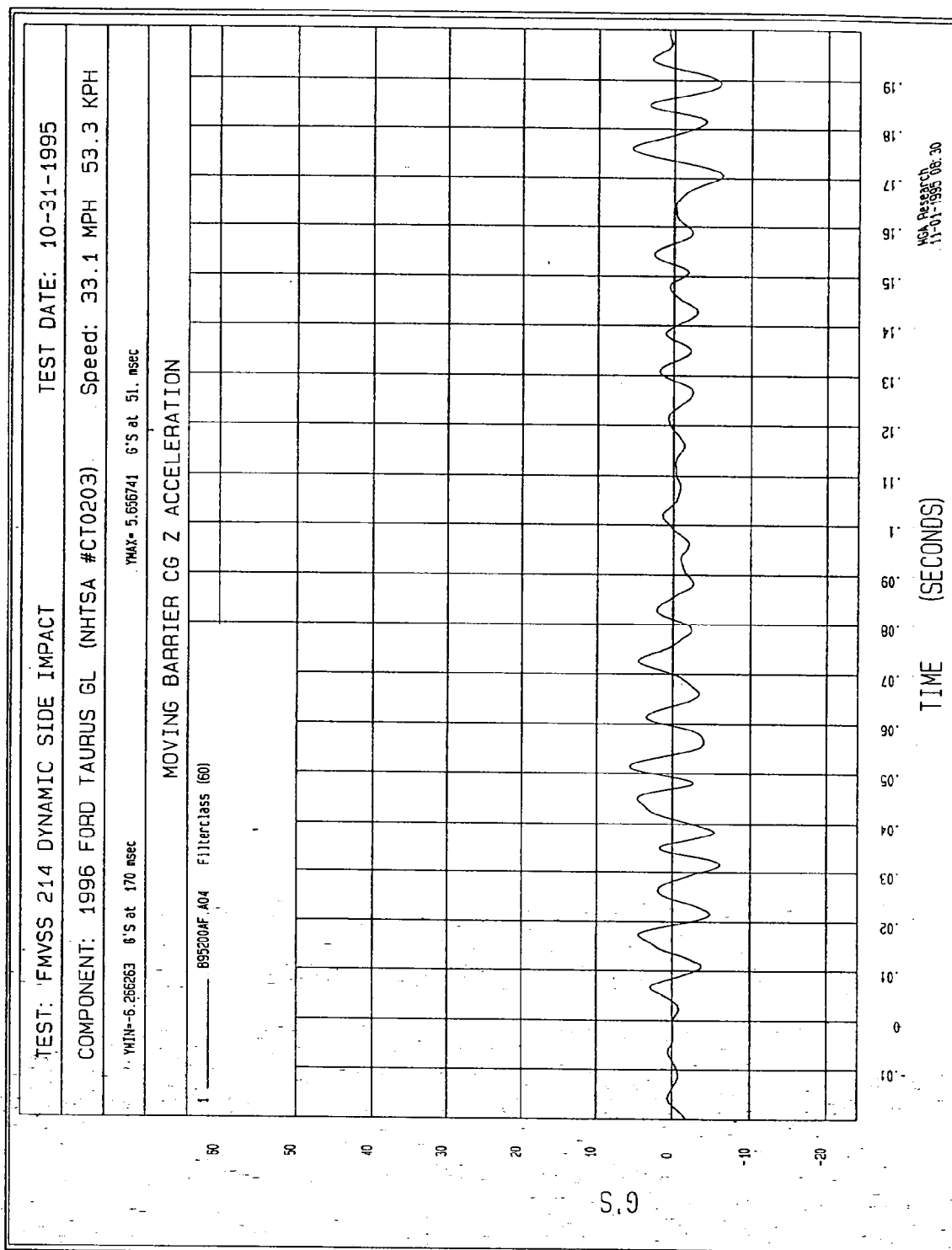


Figure B-65 - Moving Barrier Center of Gravity Z Acceleration vs. Time

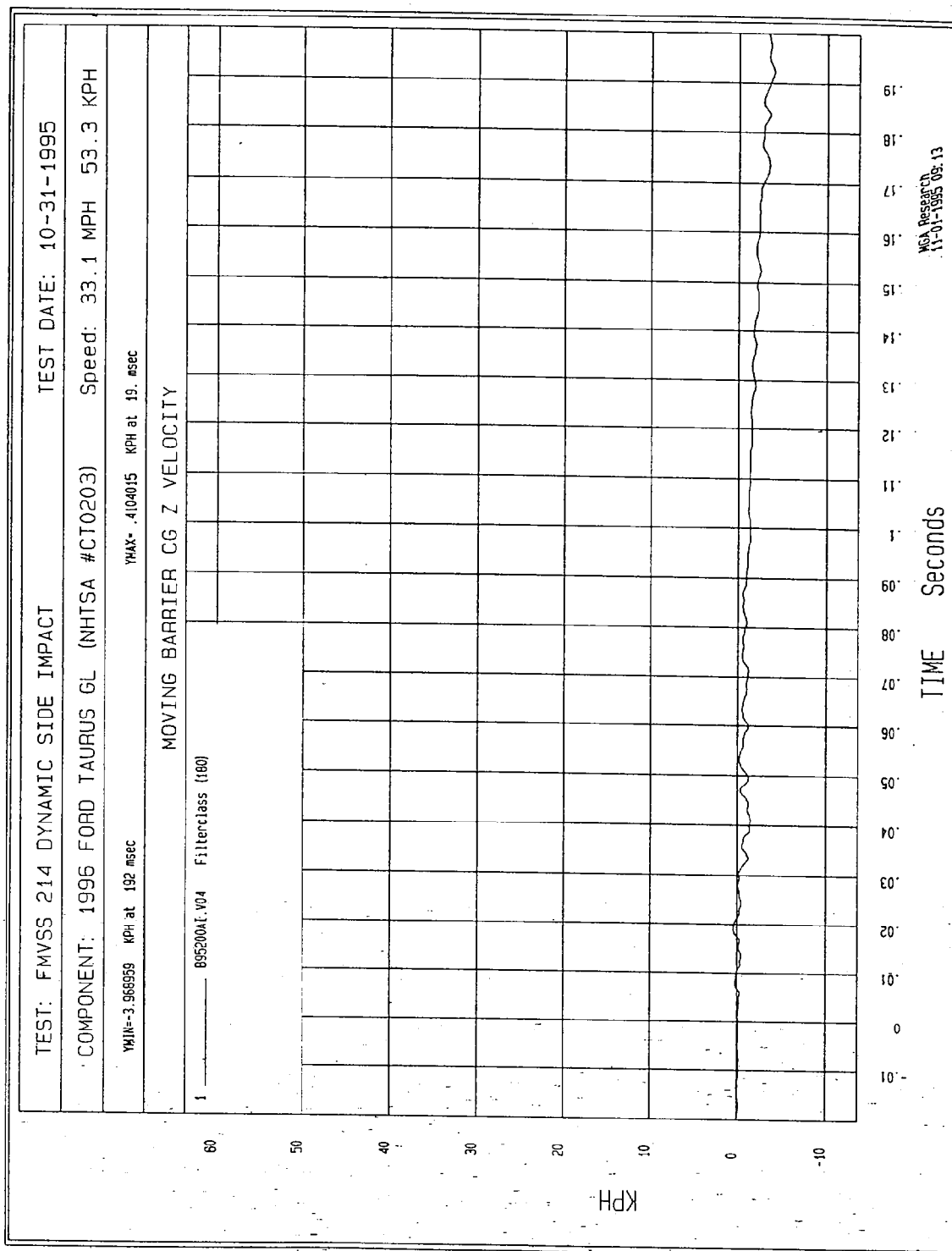


Figure B-66 - Moving Barrier Center of Gravity Z Velocity vs. Time

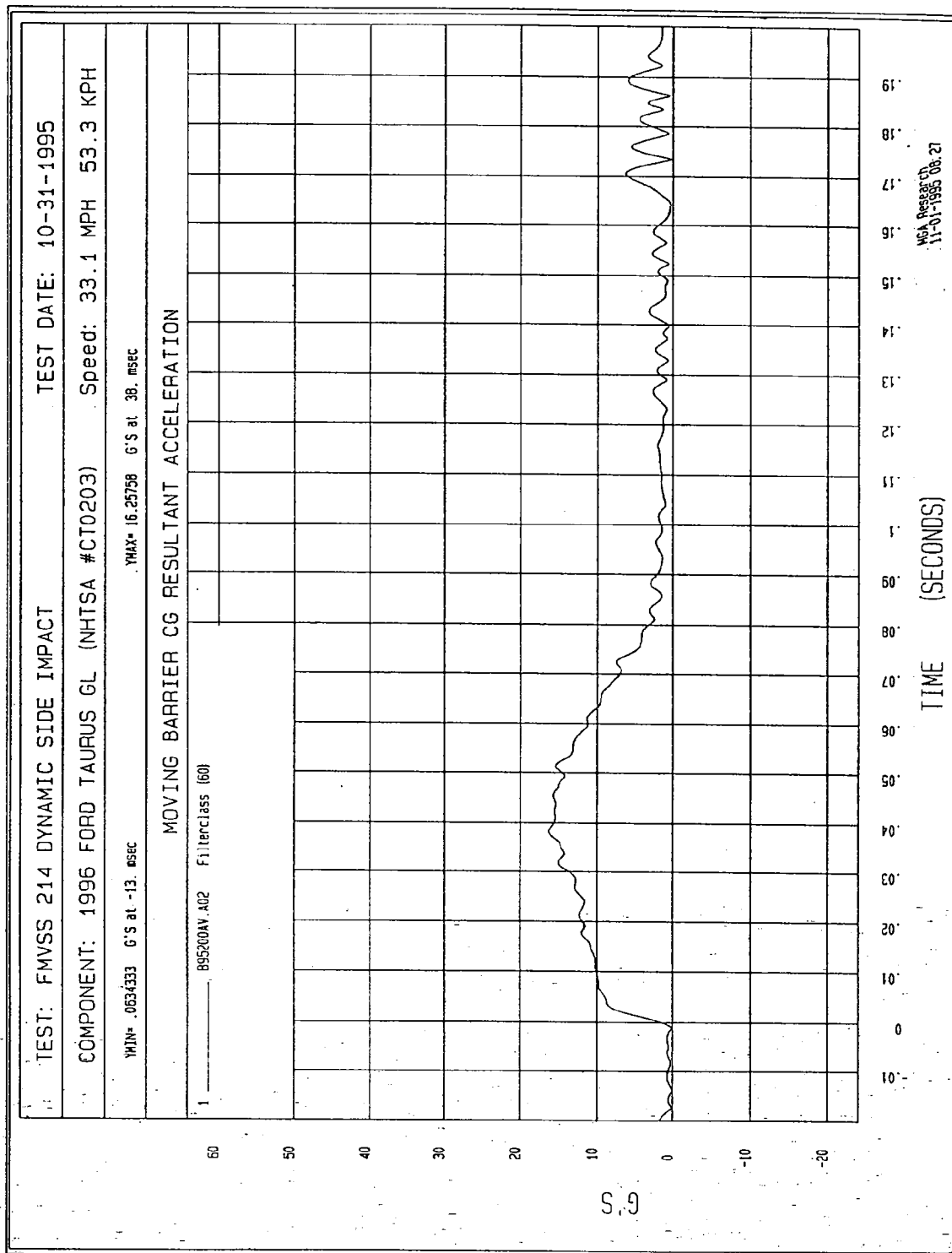


Figure B-67 - Moving Barrier Center of Gravity Resultant Acceleration vs. Time

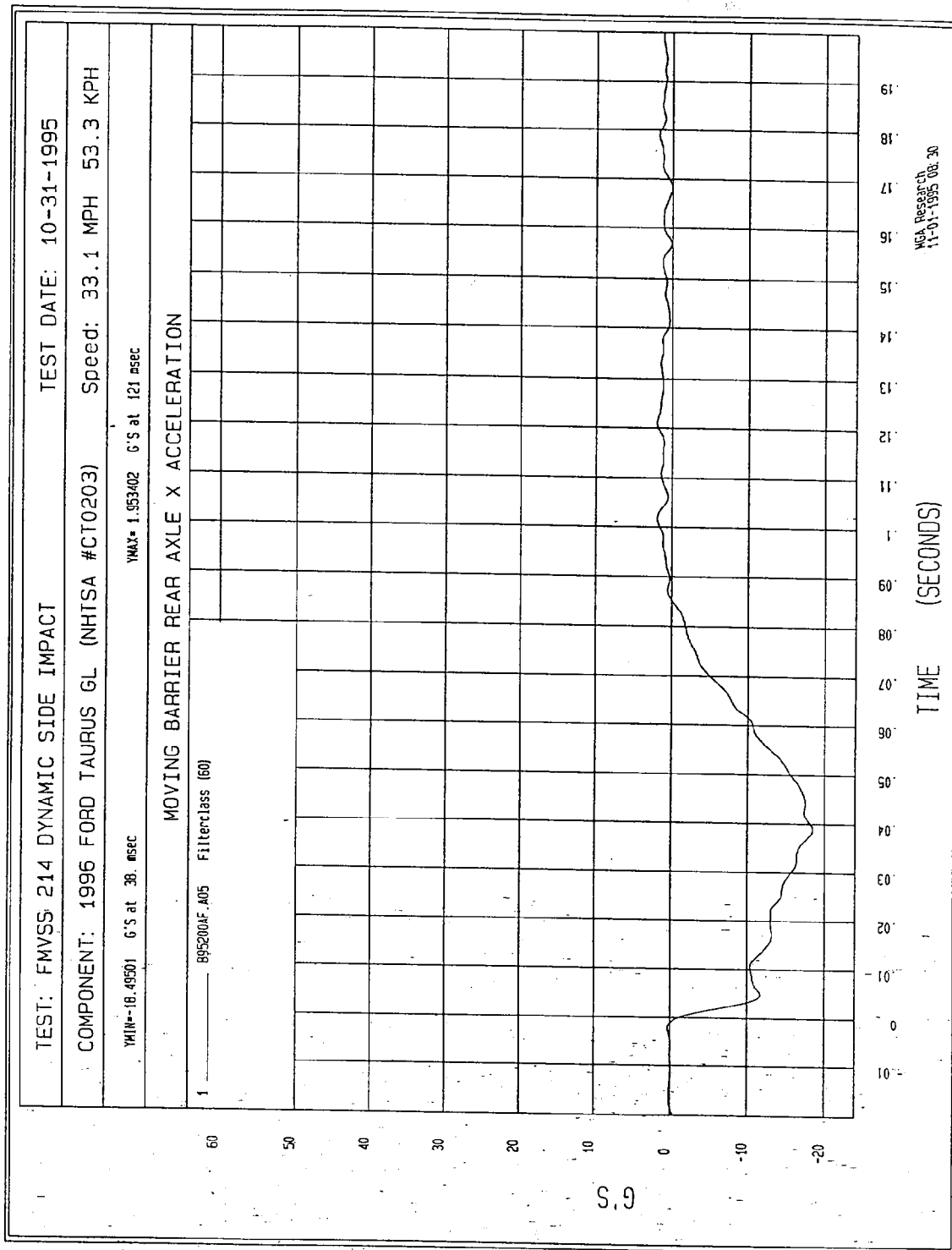


Figure B-68 - Moving Barrier Rear Axle X Acceleration vs. Time

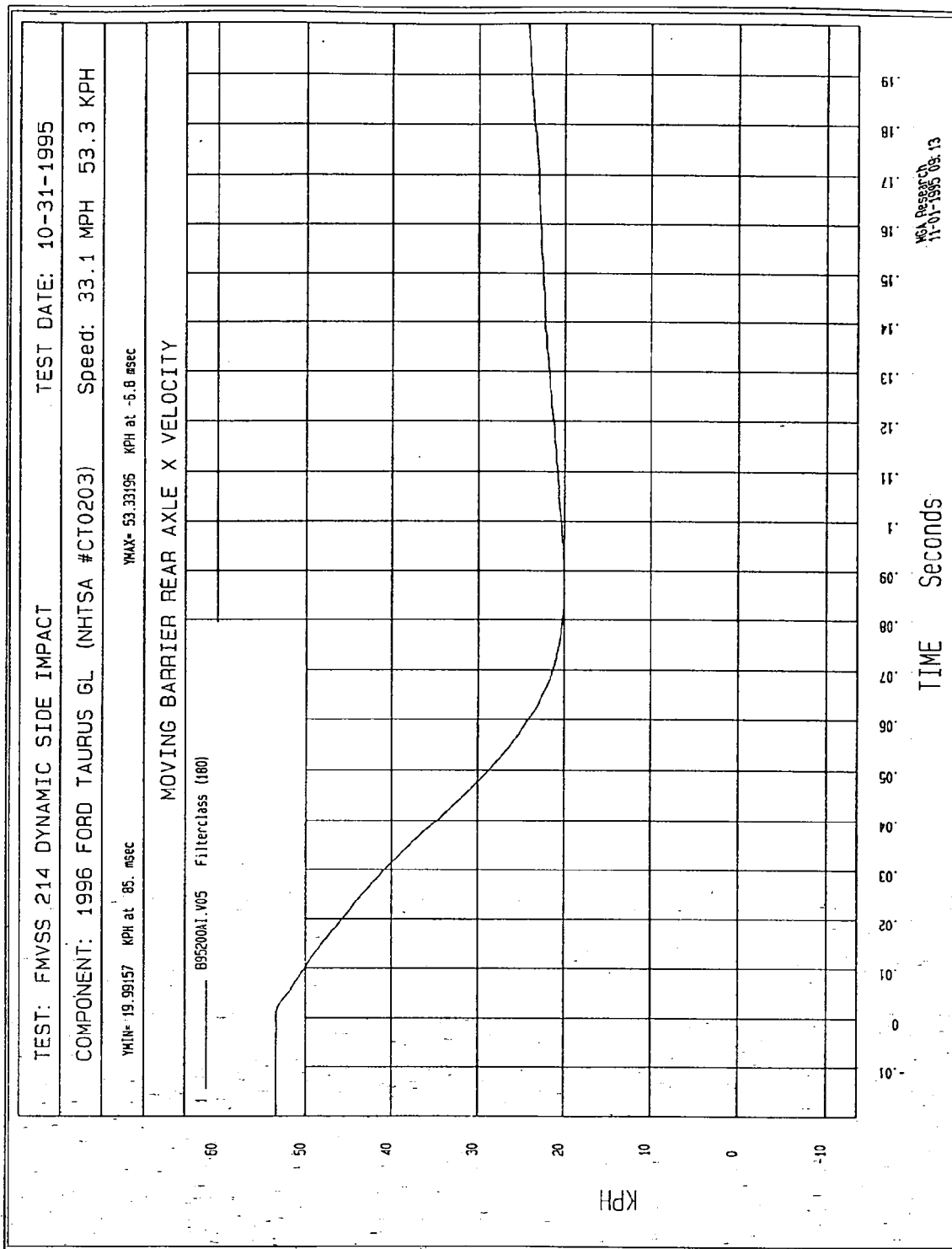


Figure B-69 - Moving Barrier Rear Axle X Velocity vs. Time

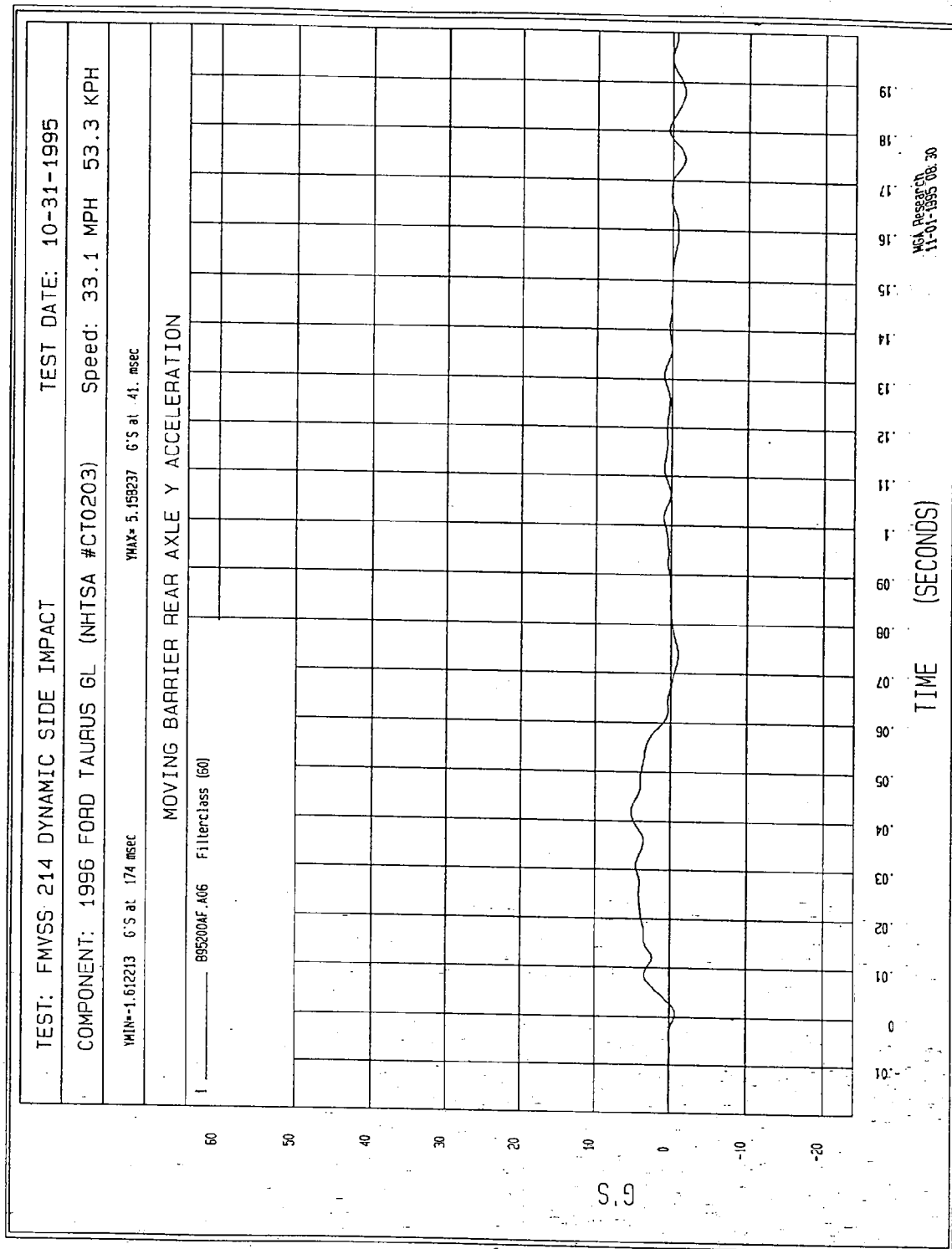


Figure B-70 - Moving Barrier Rear Axle Y Acceleration vs. Time

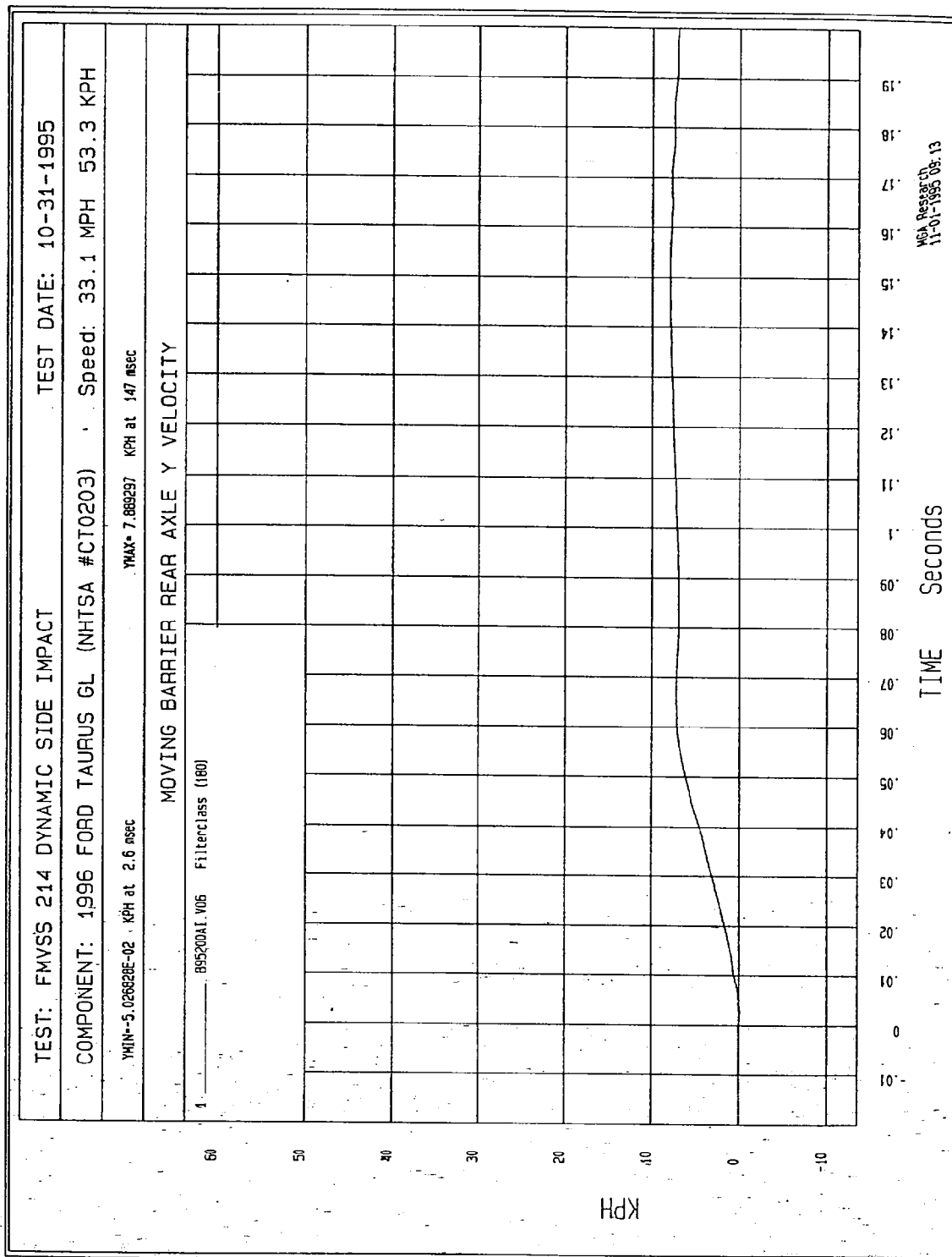


Figure B-71 - Moving Barrier Rear Axle Y Velocity vs. Time

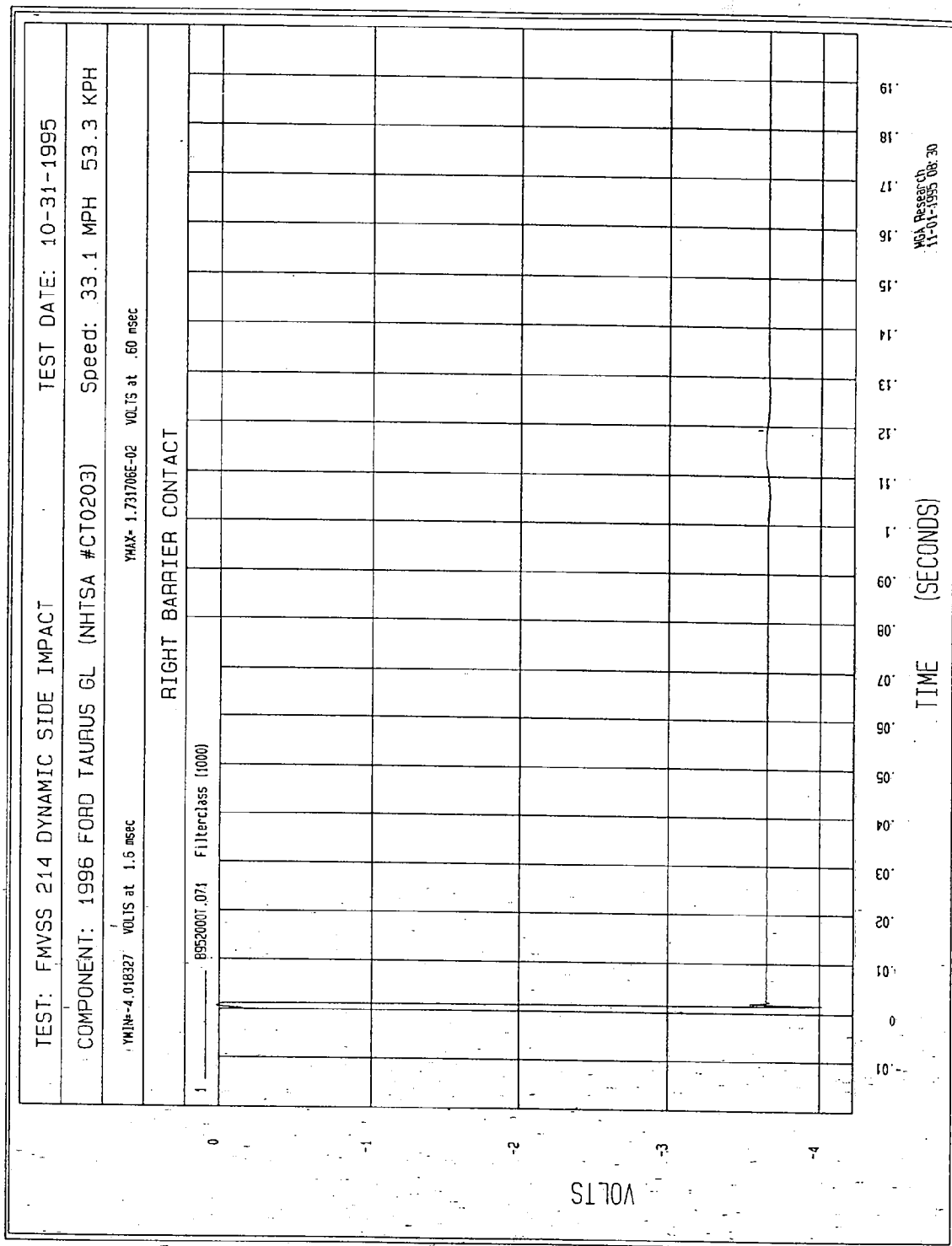


Figure B-72 - Right Barrier Contact

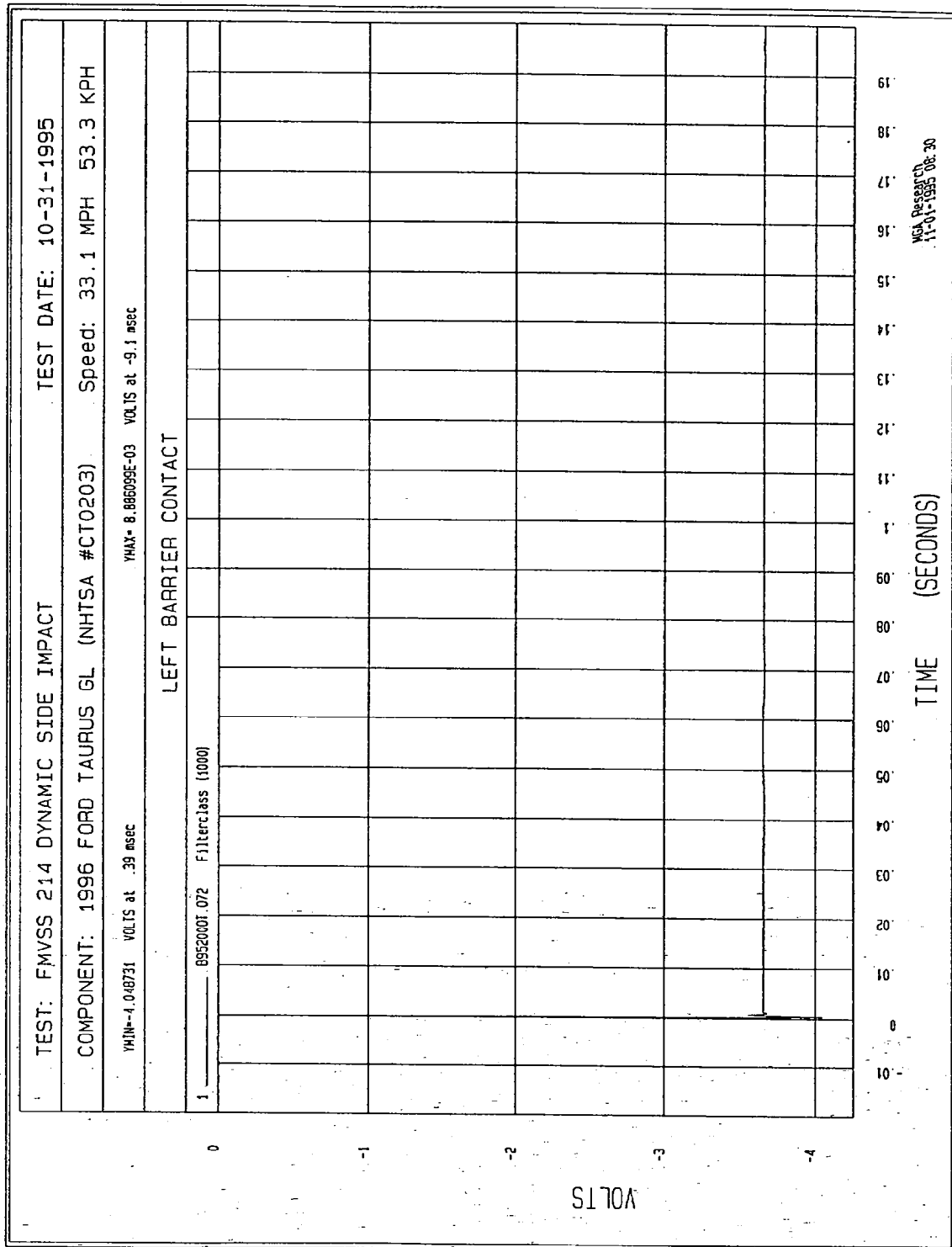


Figure B-73 - Left Barrier Contact

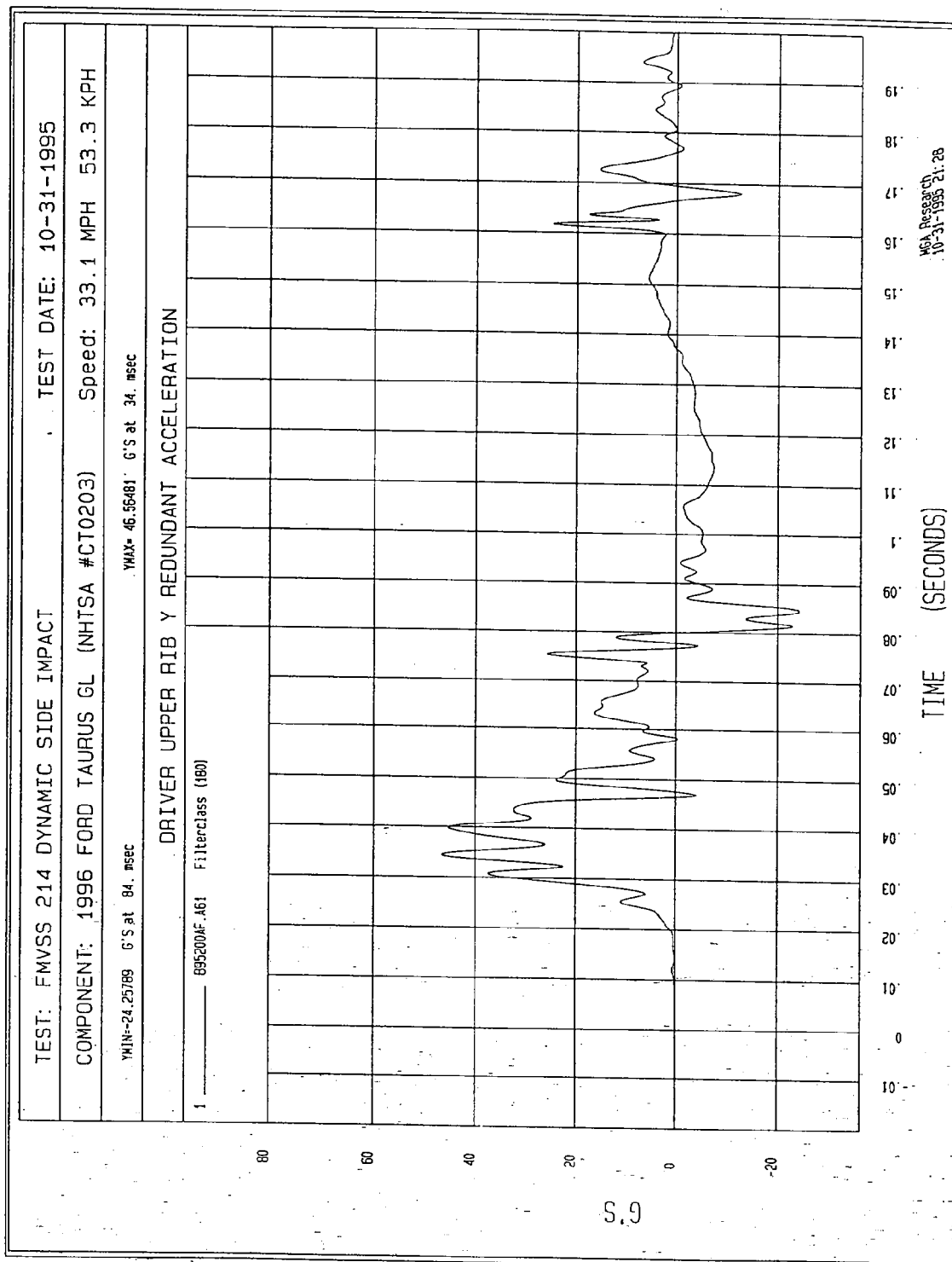


Figure B-74 - Driver Upper Rib Y Redundant Acceleration vs. Time

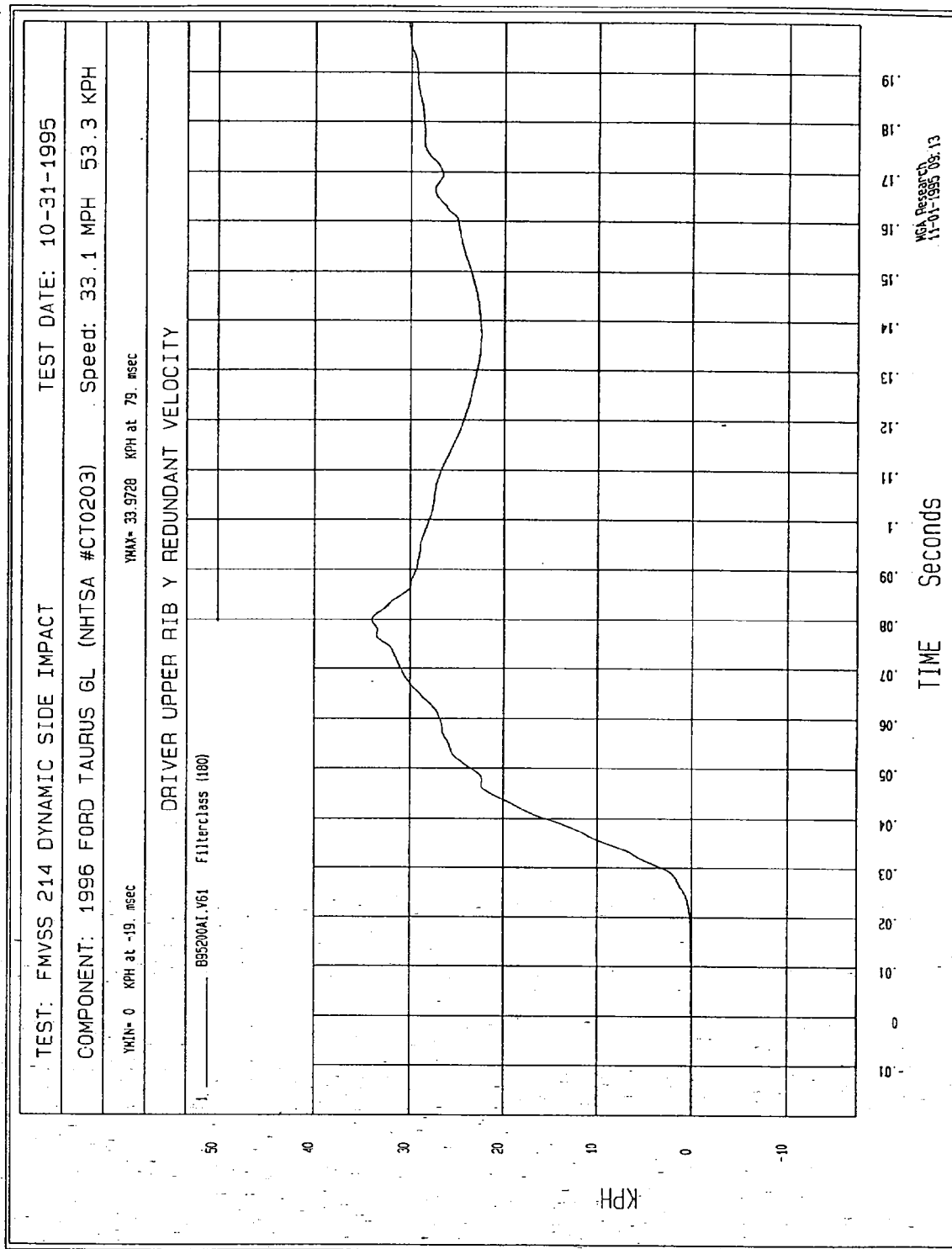


Figure B-75 - Driver Upper Rib Y Redundant Velocity vs. Time

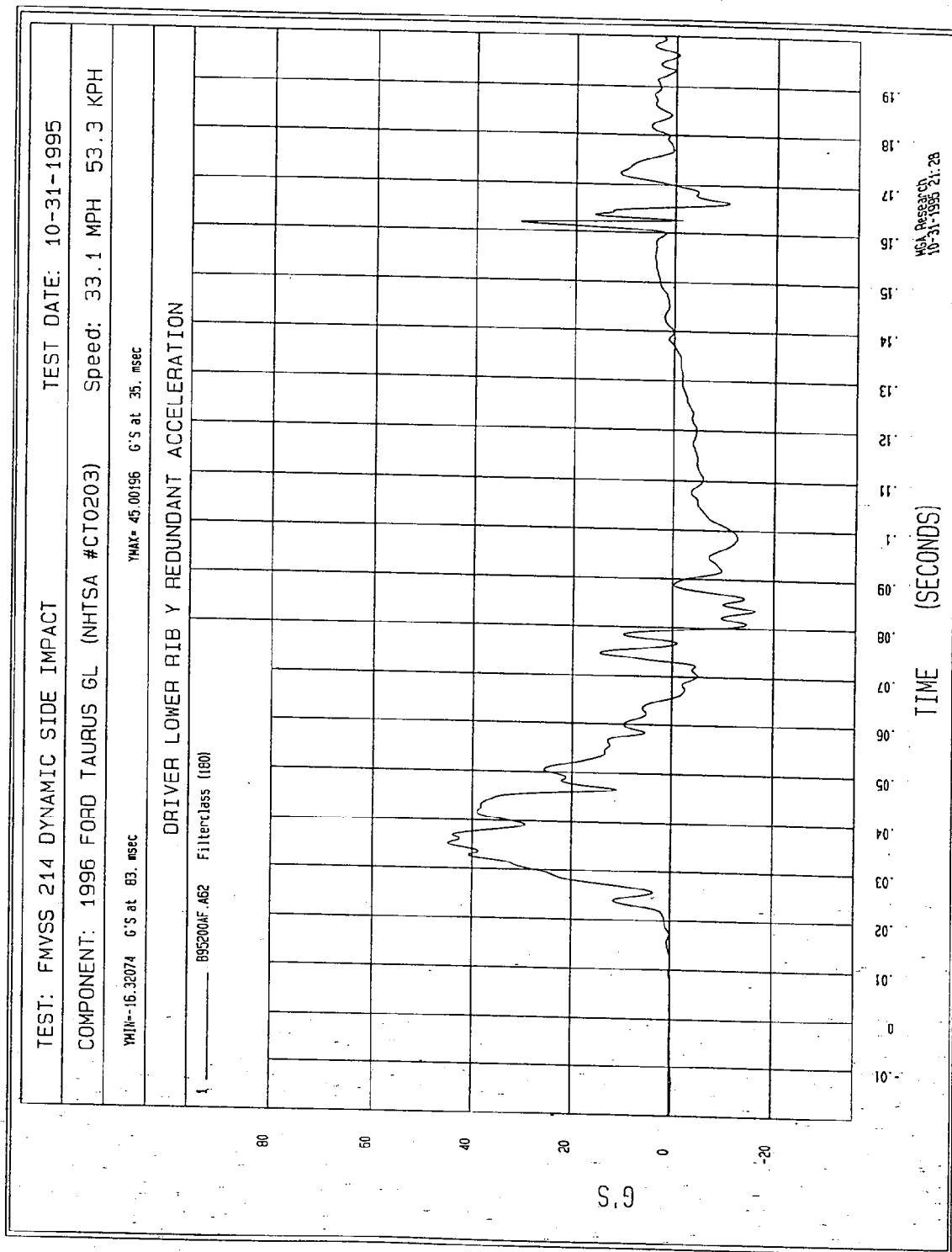


Figure B-76 - Driver Lower Rib Y Redundant Acceleration vs. Time

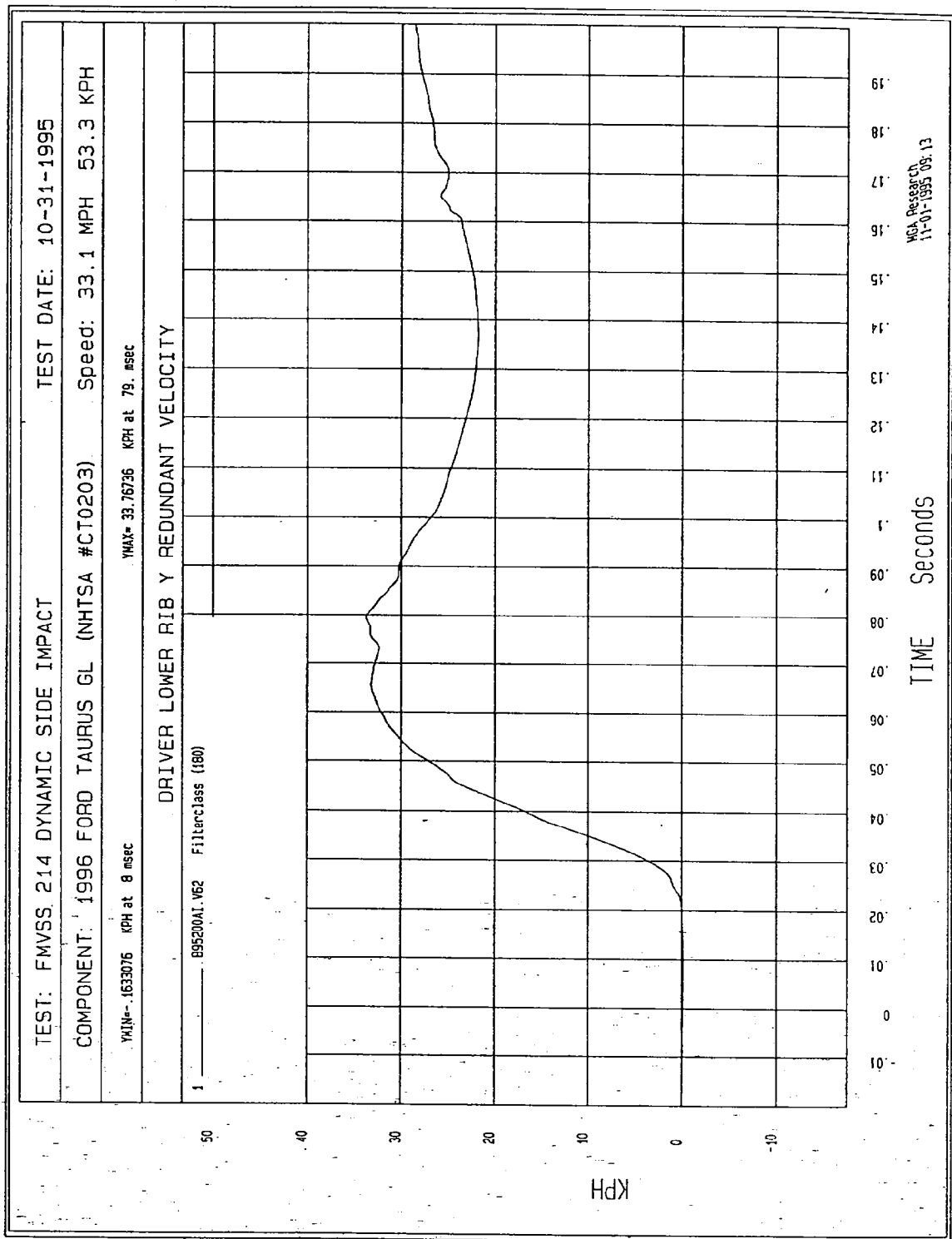


Figure B-77 - Driver Lower Rib Y Redundant Velocity vs. Time

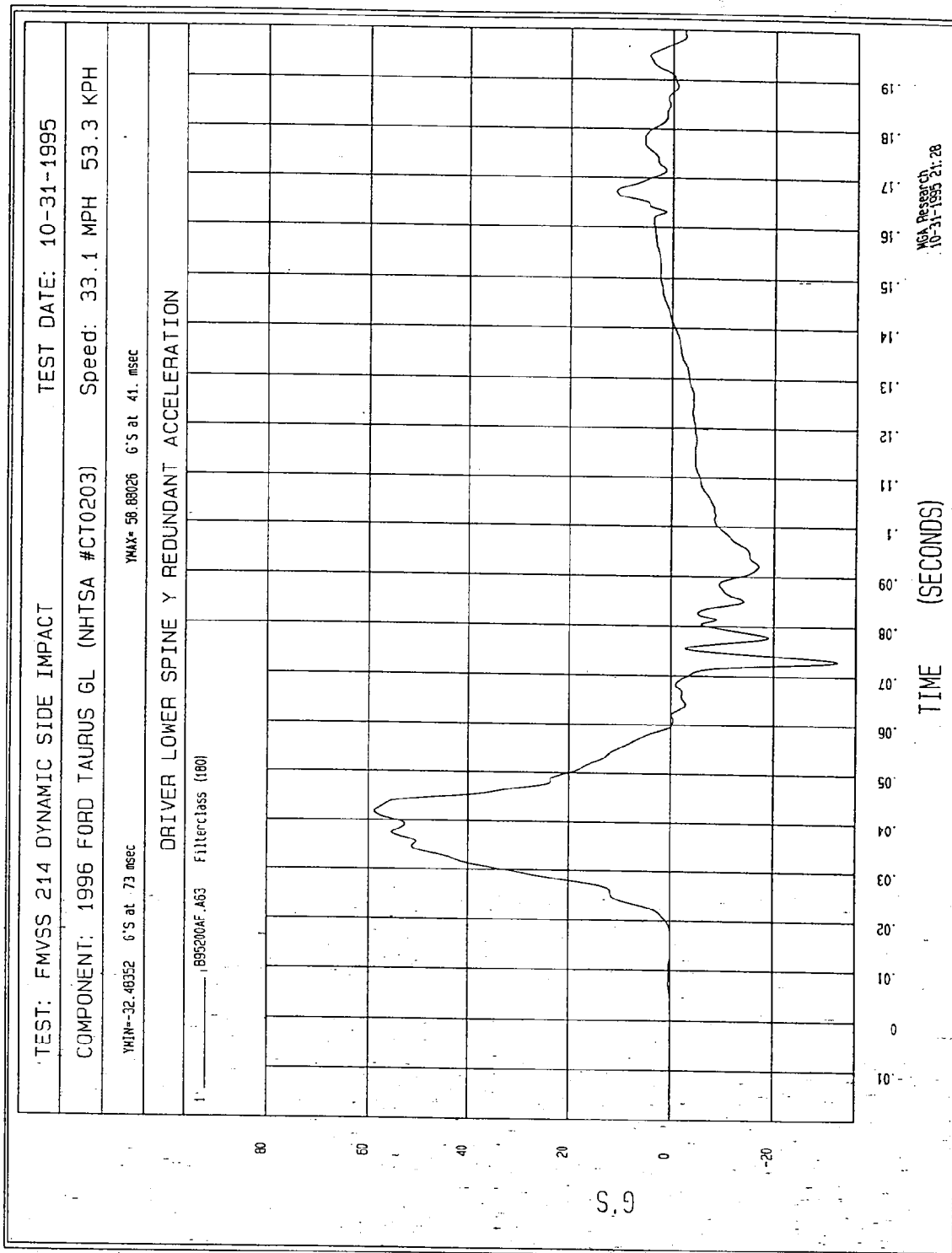


Figure B-78 - Driver Lower Spine Y Redundant Acceleration vs. Time

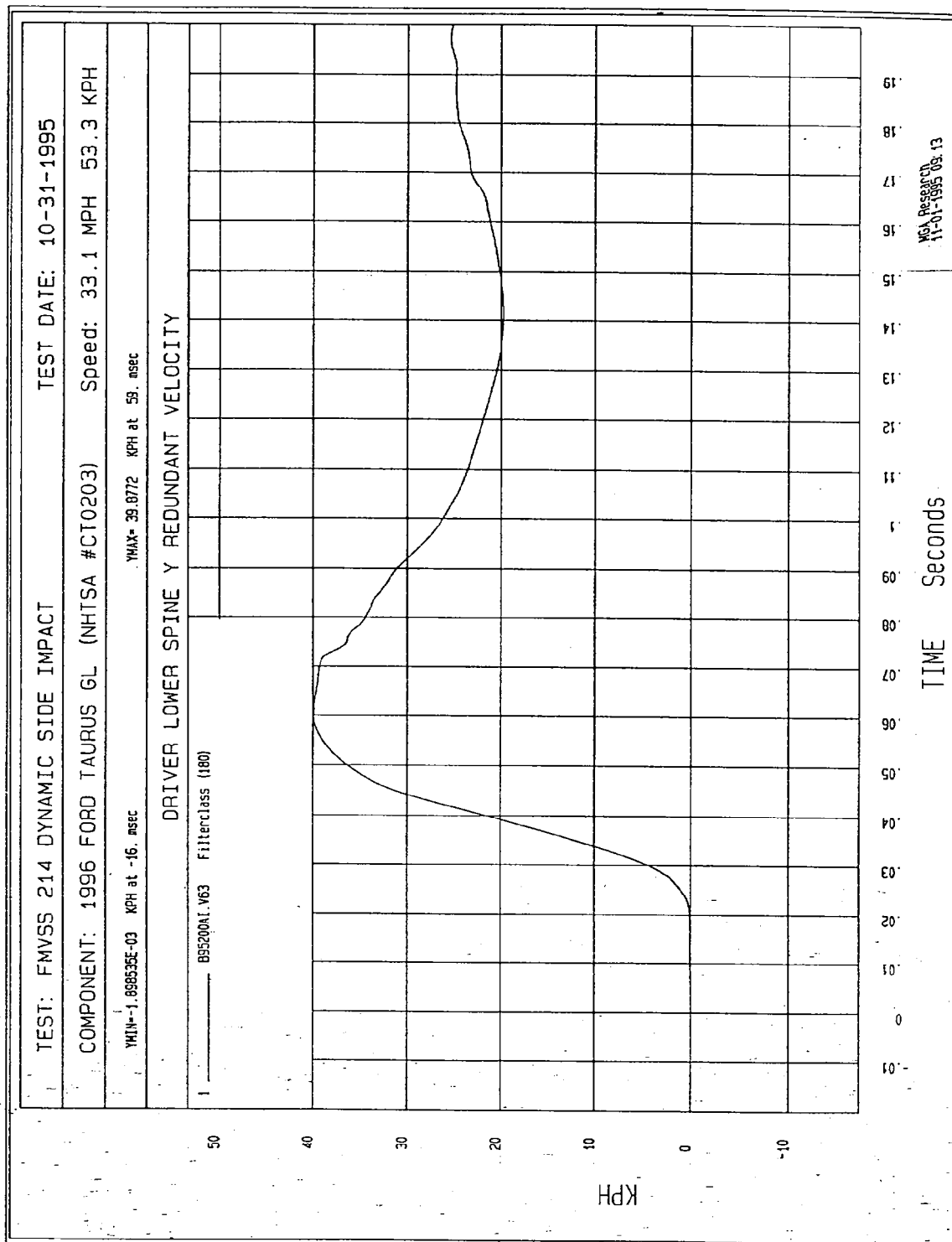


Figure B-79 - Driver Lower Spine Y Redundant Velocity vs. Time

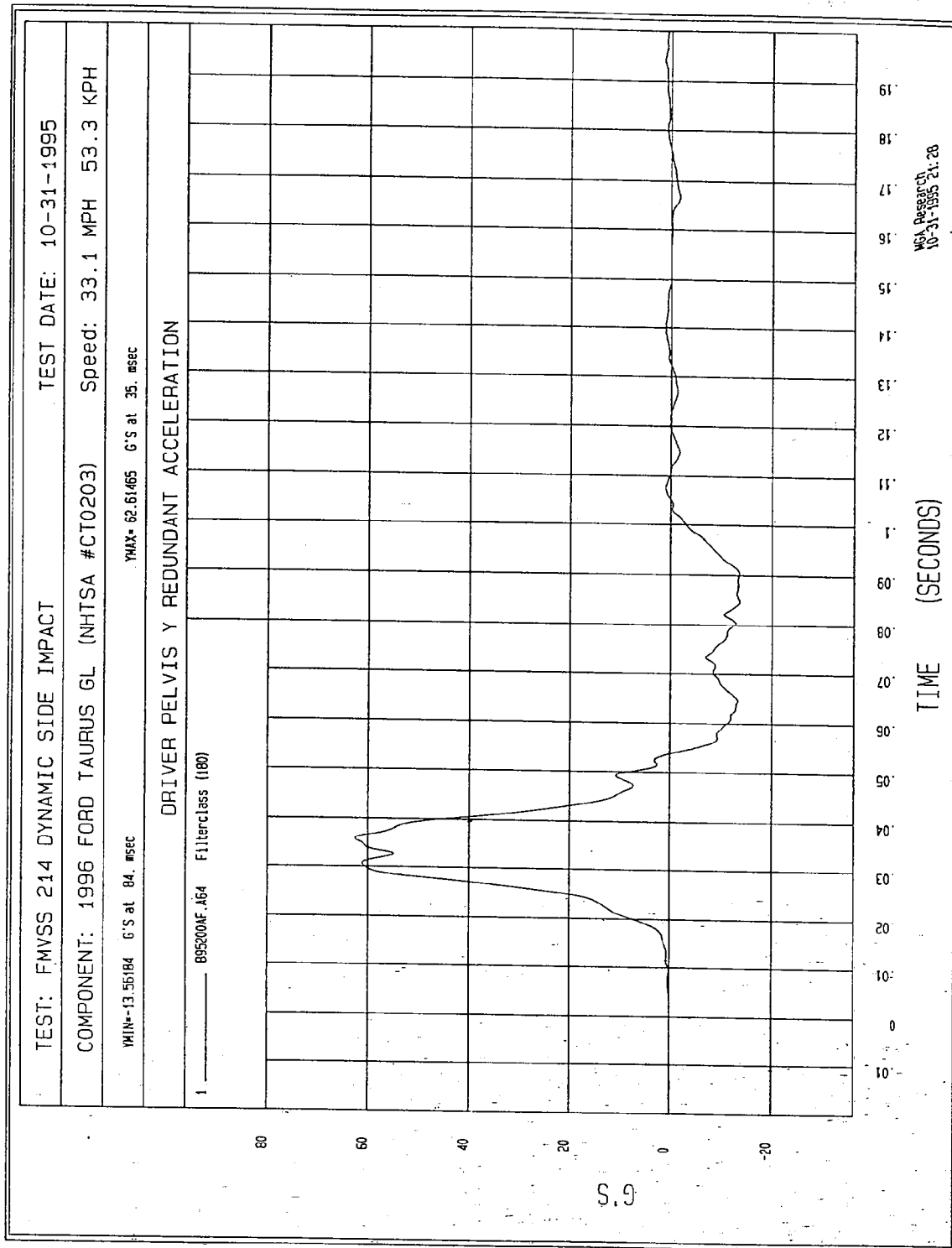


Figure B-80 - Driver Pelvis Y Redundant Acceleration vs. Time

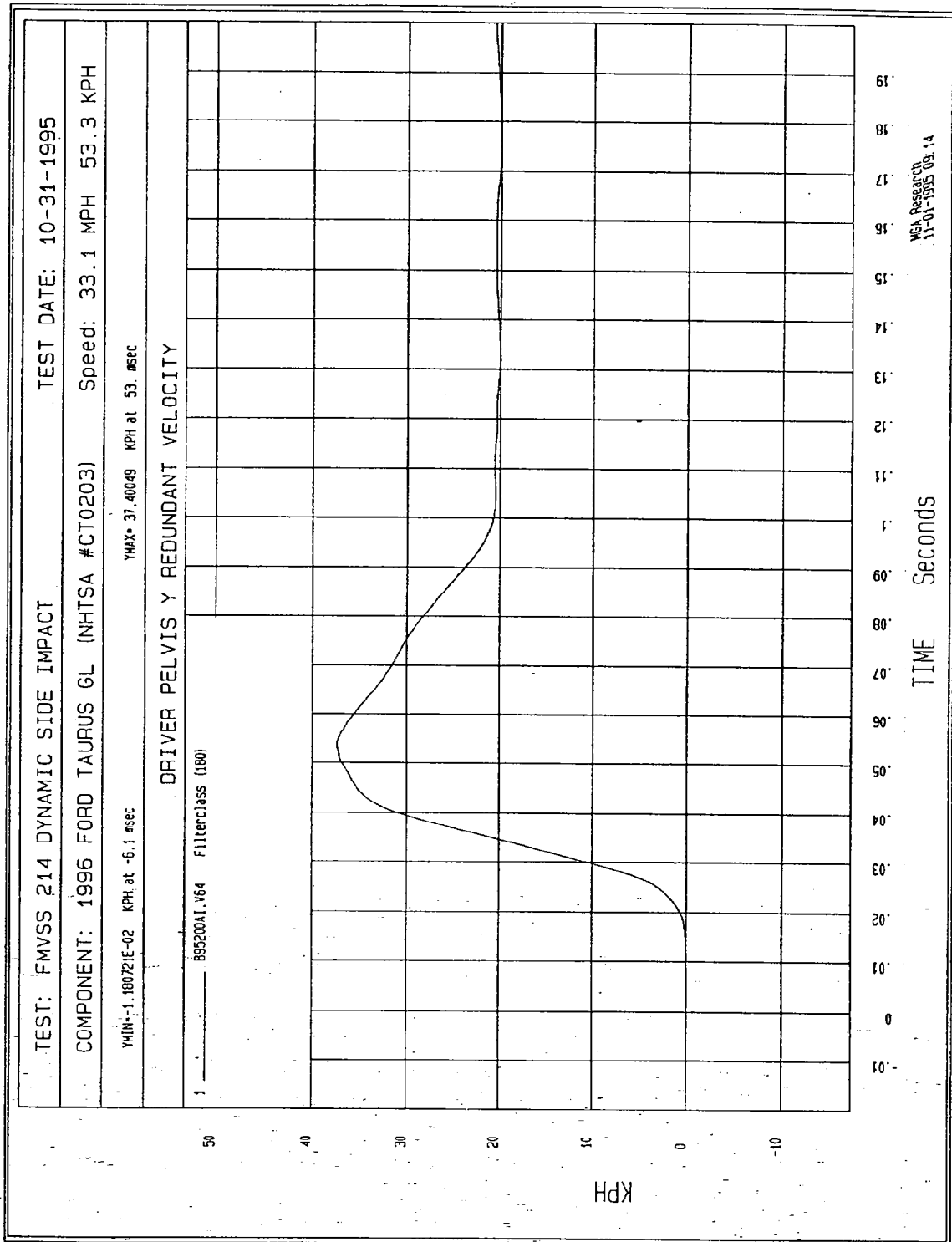


Figure B-81 - Driver Pelvis Y Redundant Velocity vs. Time

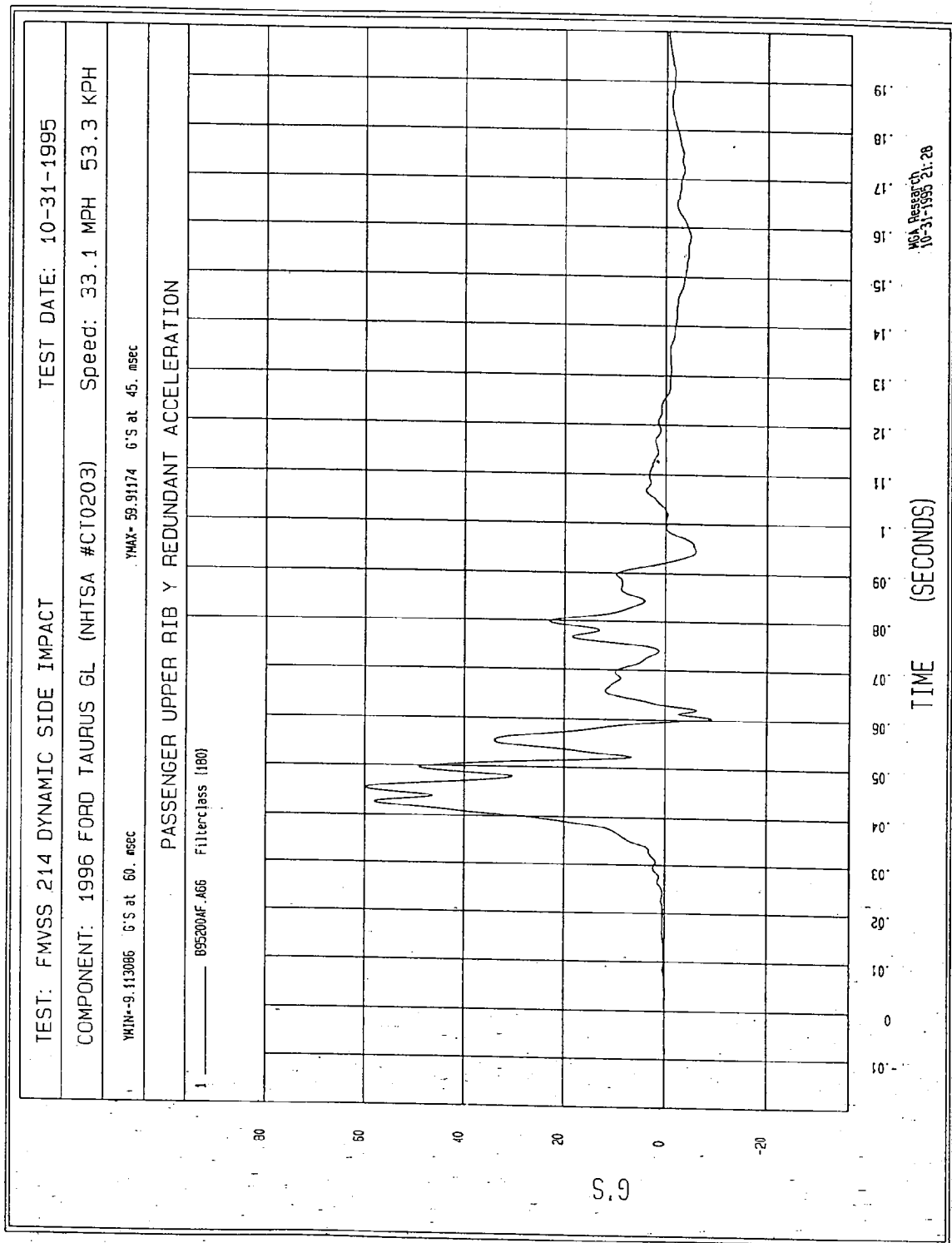


Figure B-82 - Passenger Upper Rib Y Redundant Acceleration vs. Time

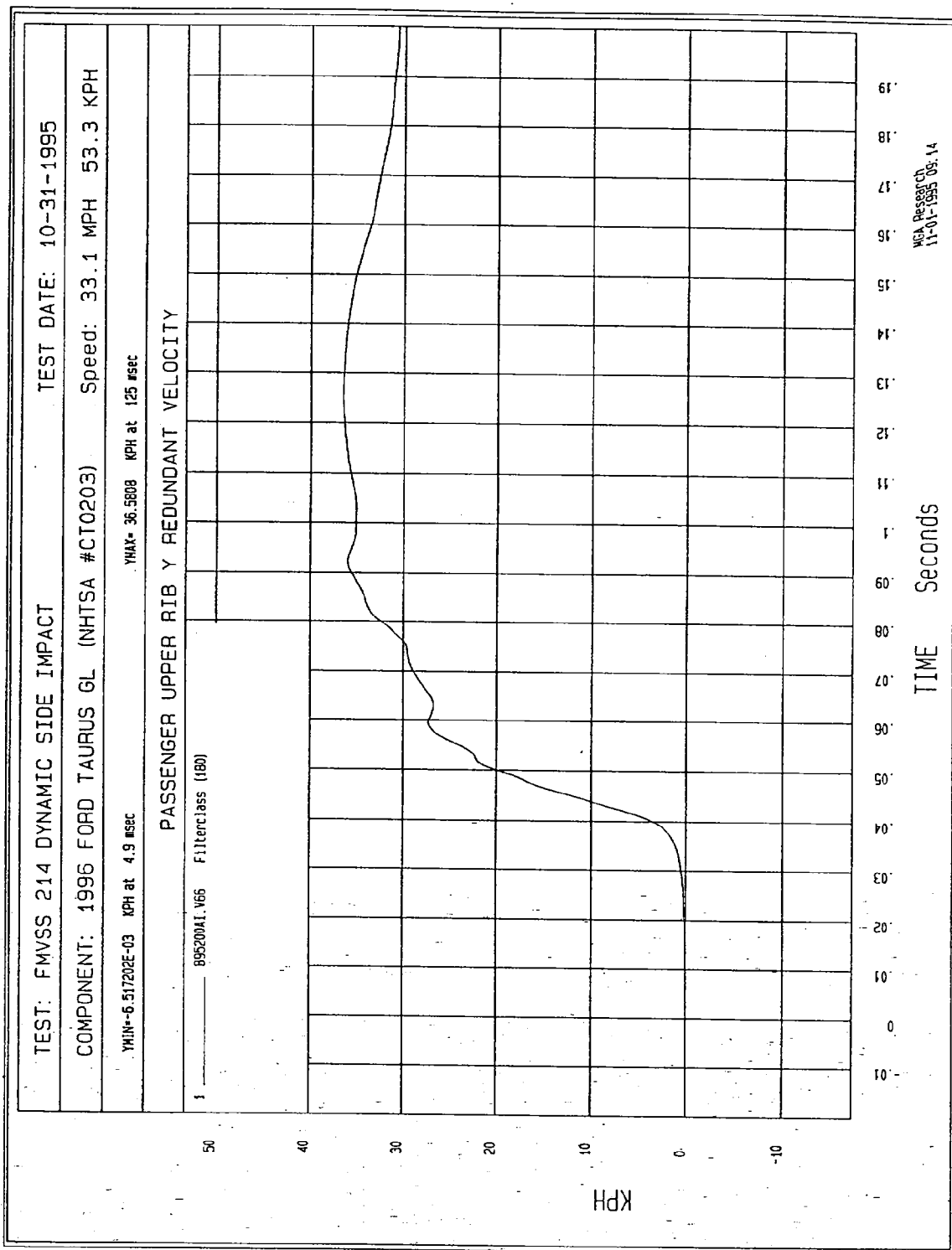


Figure B-83 - Passenger Upper Rib Y Redundant Velocity vs. Time

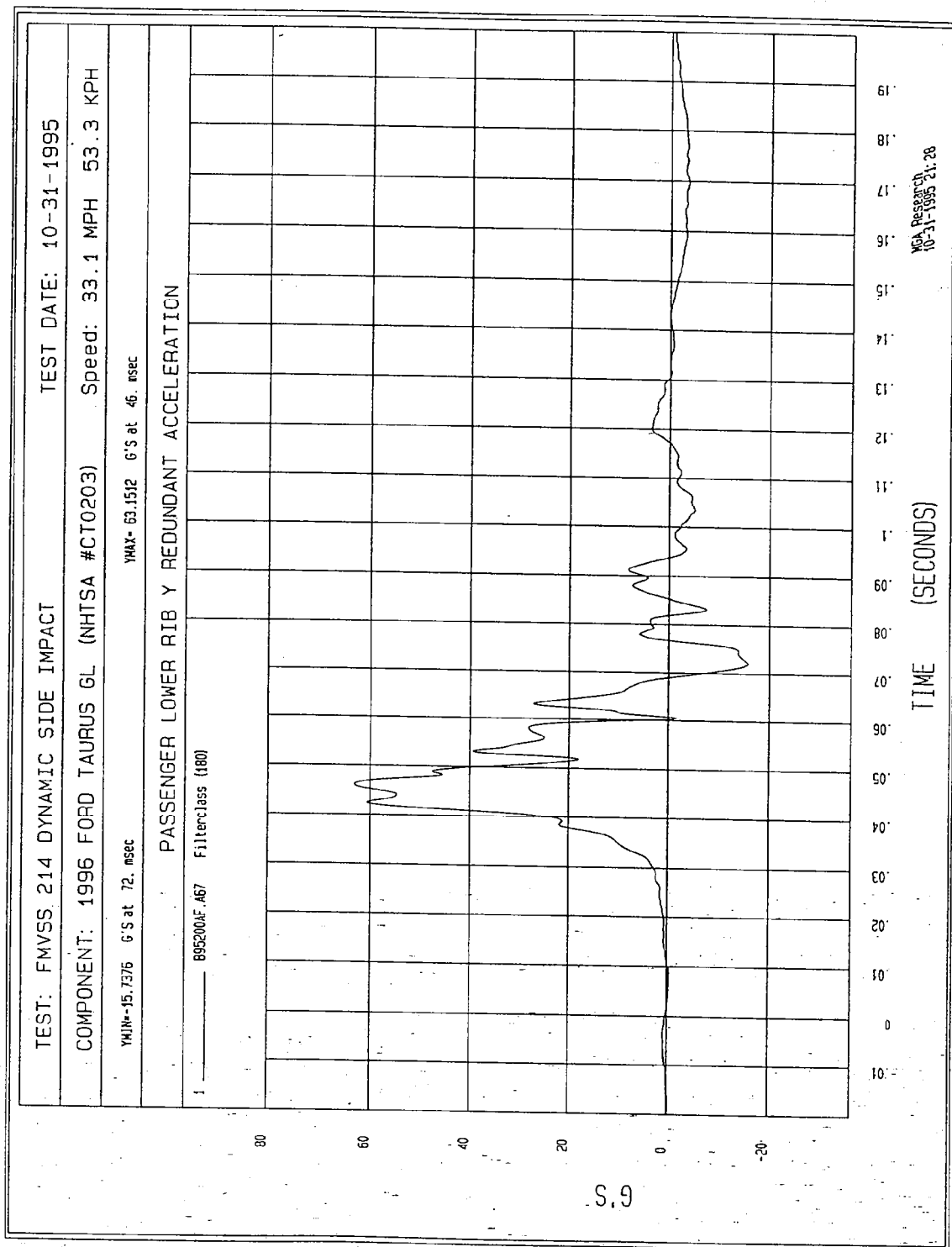


Figure B-84 - Passenger Lower Rib Y Redundant Acceleration vs. Time

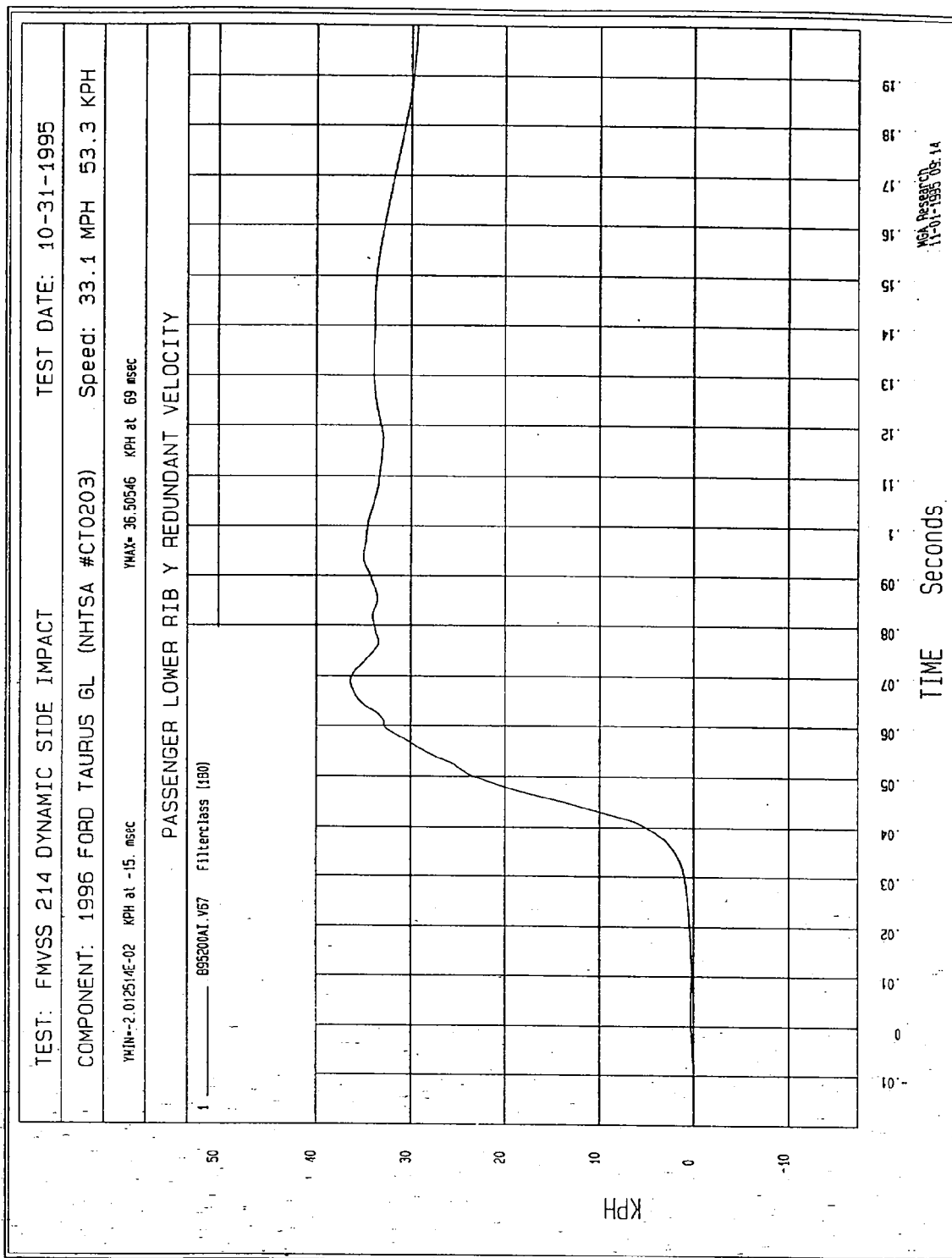

 MCA Research
 11-01-1995 08:14

Figure B-85 - Passenger Lower Rib Y Redundant Velocity vs. Time

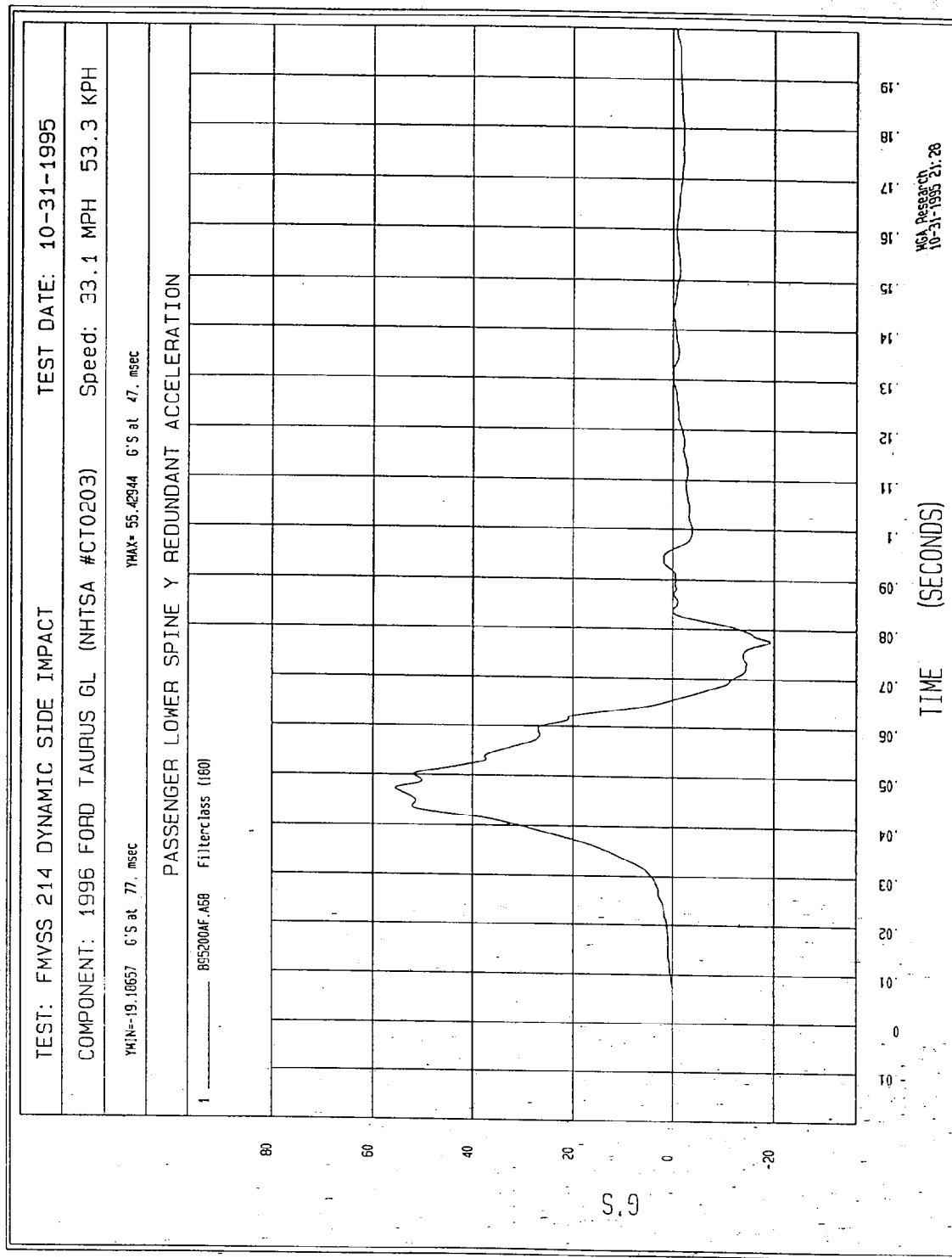


Figure B-86 - Passenger Lower Spine Y Redundant Acceleration vs. Time

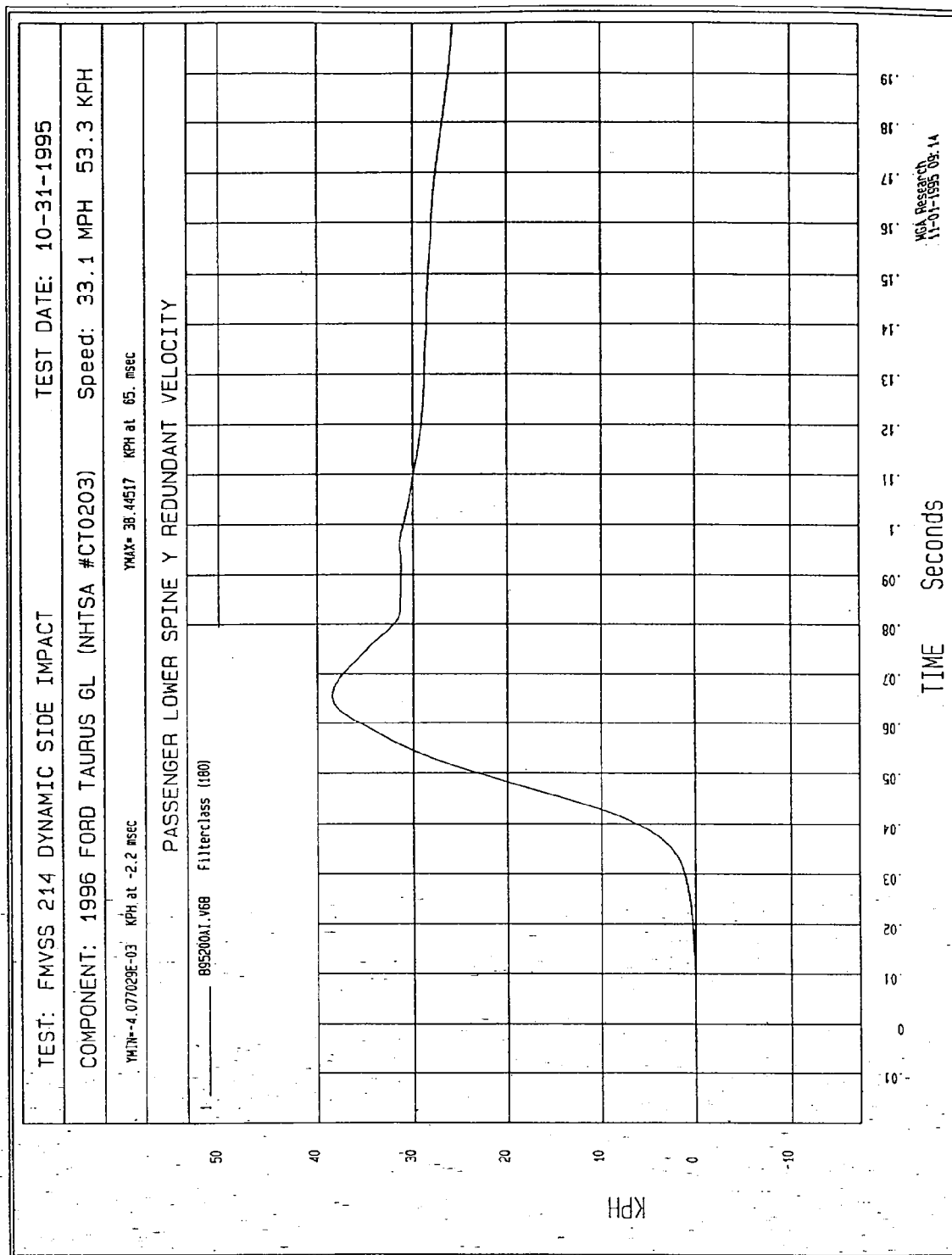


Figure B-87 - Passenger Lower Spine Y Redundant Velocity vs. Time

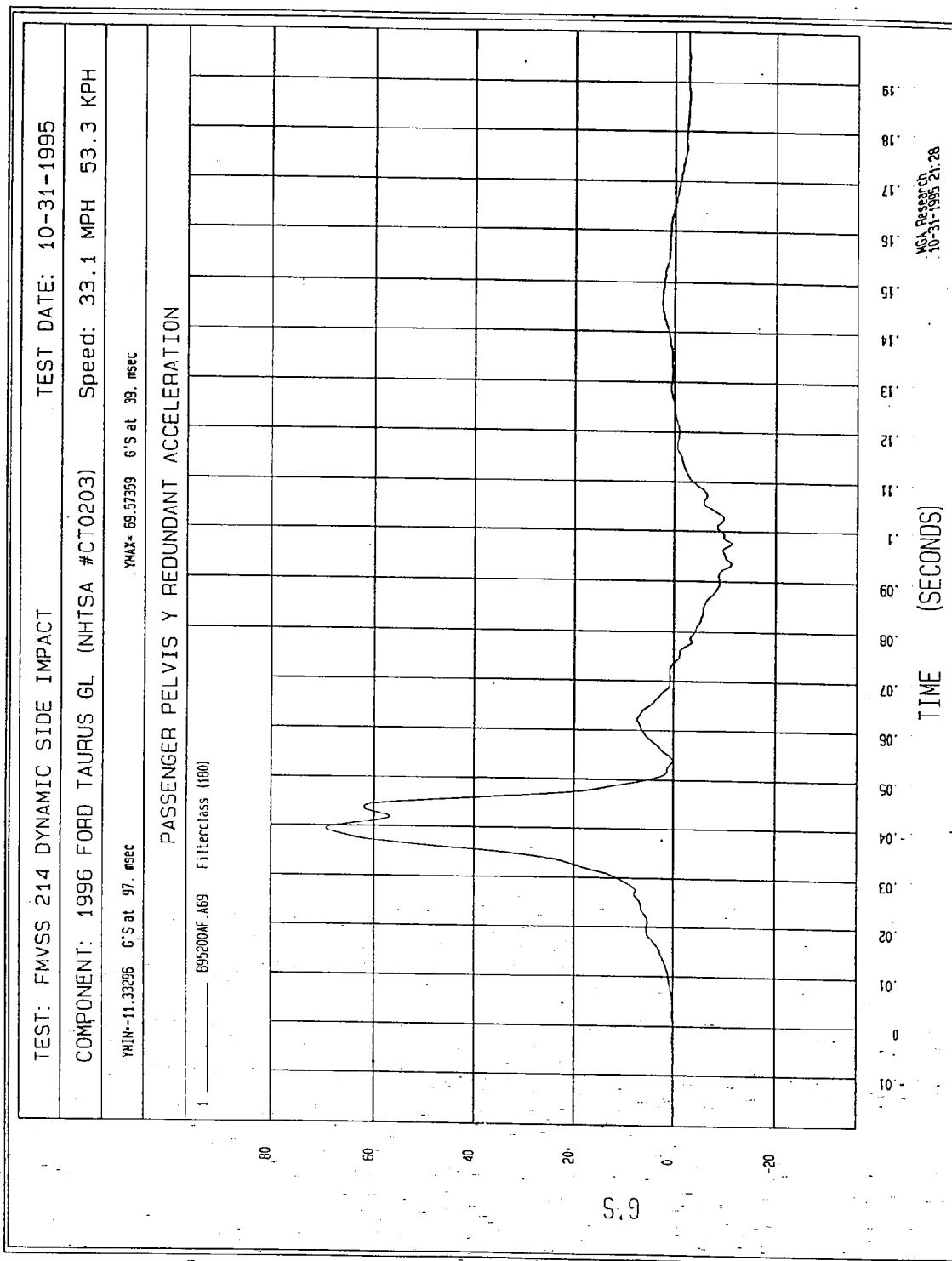


Figure B-88 - Passenger Pelvis Y Redundant Acceleration vs. Time

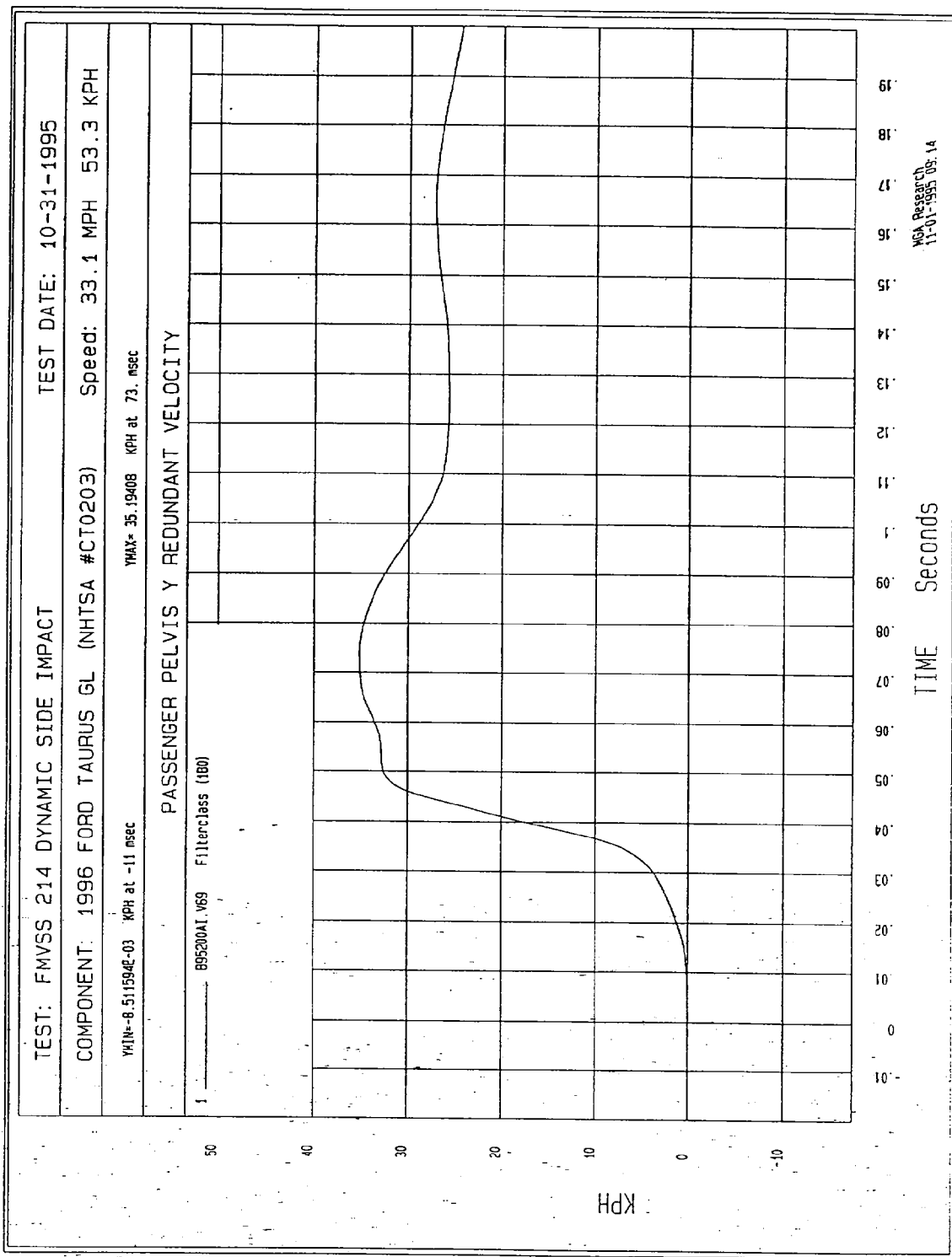


Figure B-89 - Passenger Pelvis Y Redundant Velocity vs. Time

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA

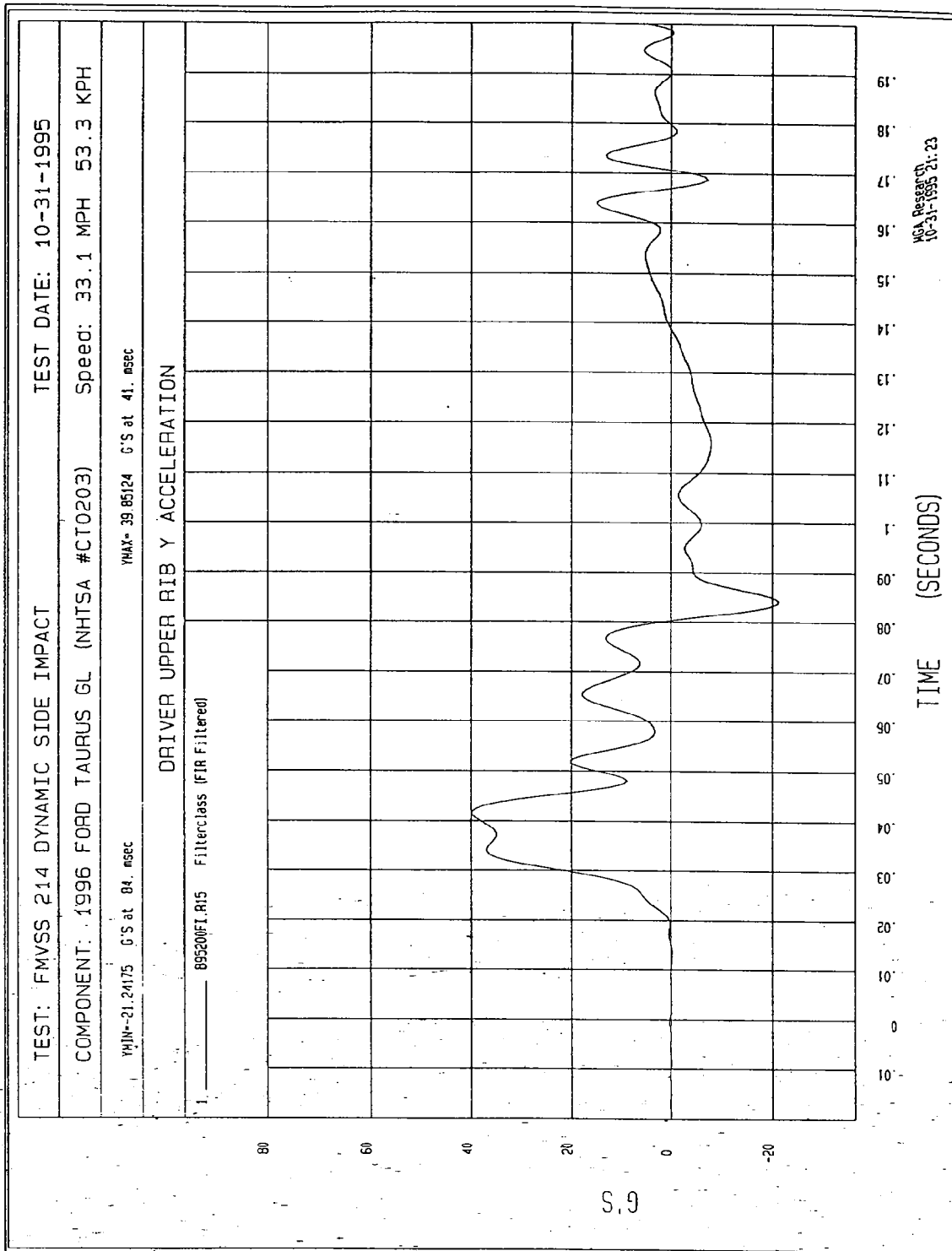


Figure B-90 - Driver Upper Rib Y Acceleration vs. Time

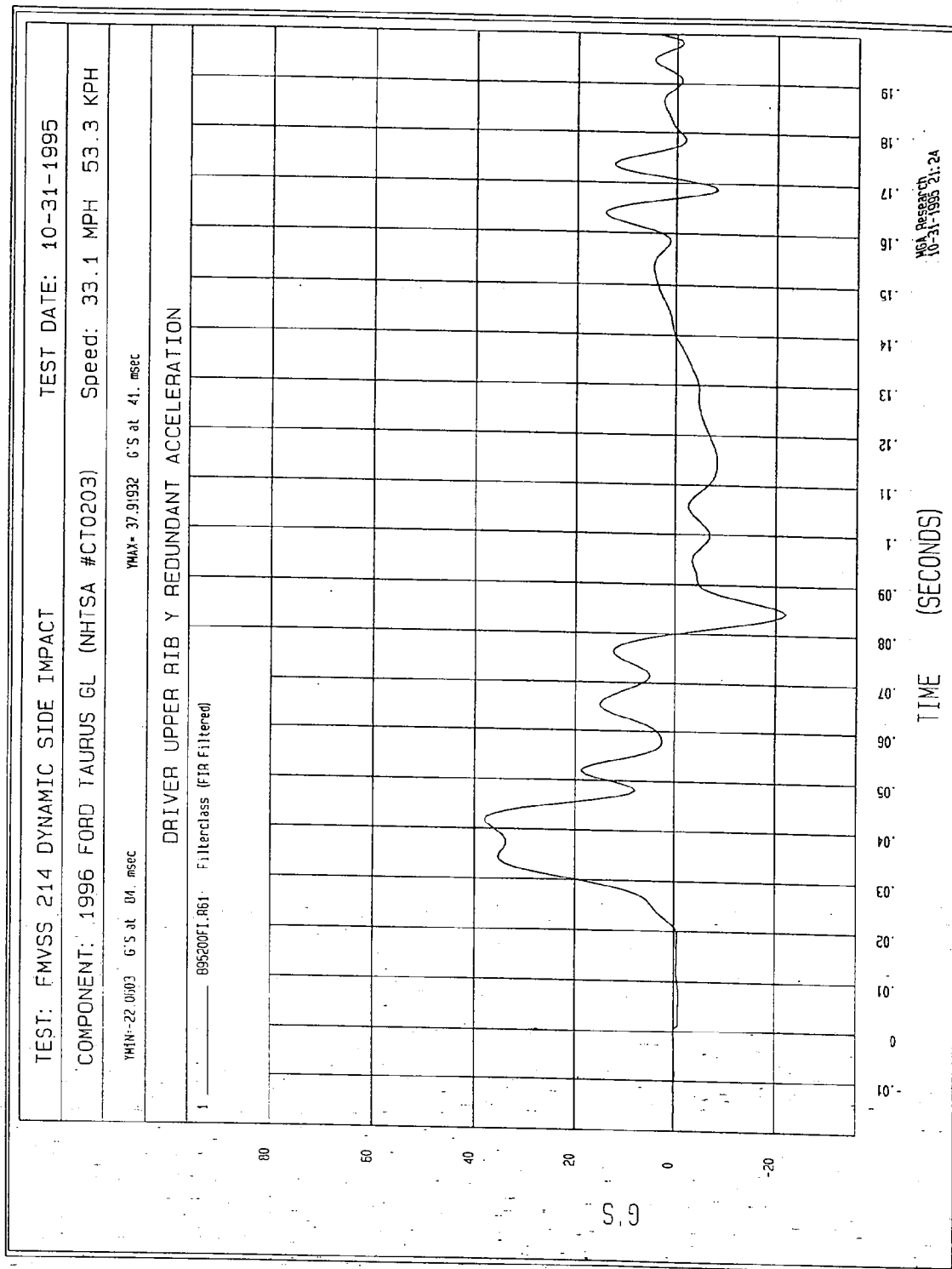


Figure B-91 - Driver Upper Rib Y Redundant Acceleration vs. Time

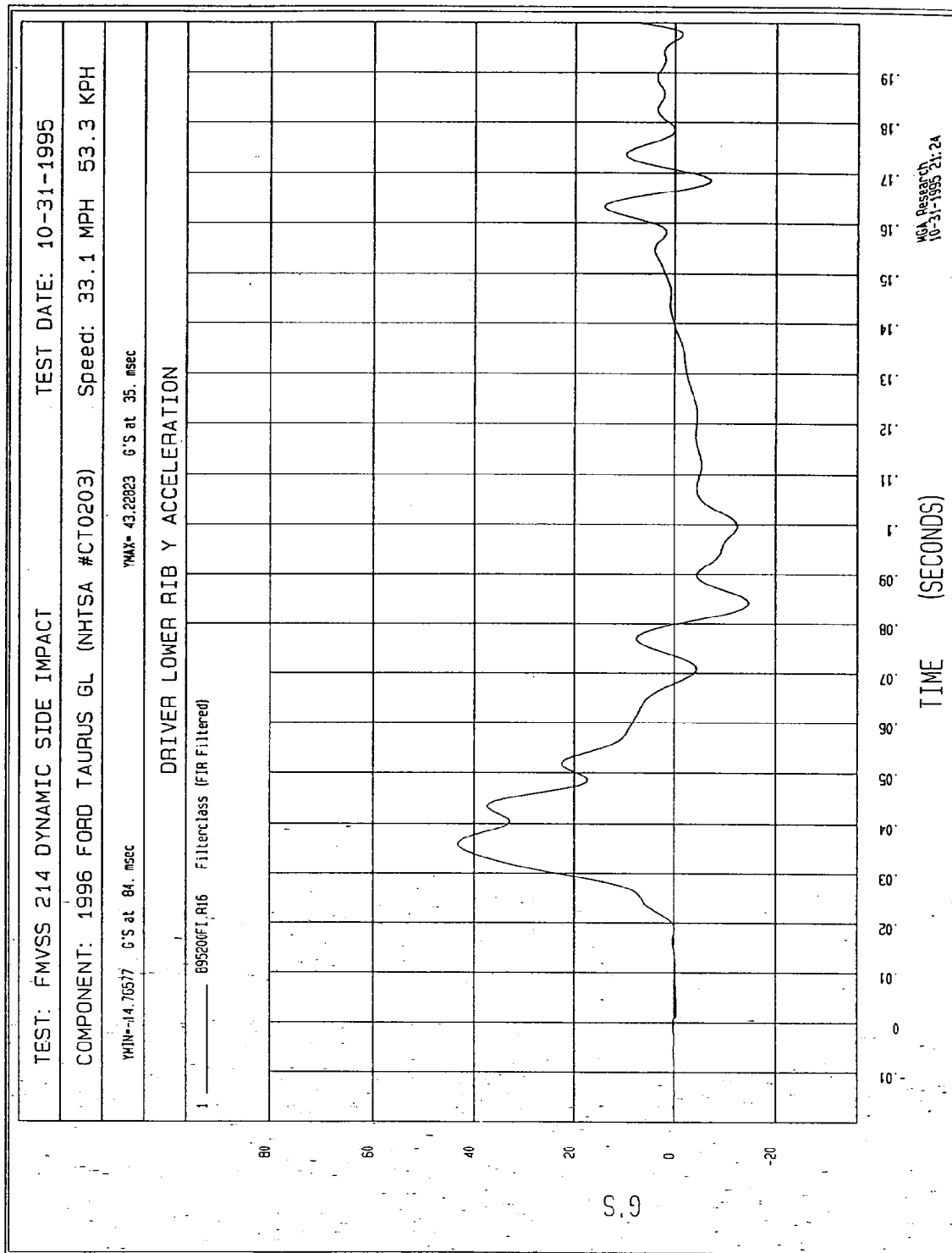


Figure B-92 - Driver Lower Rib Y Acceleration vs. Time

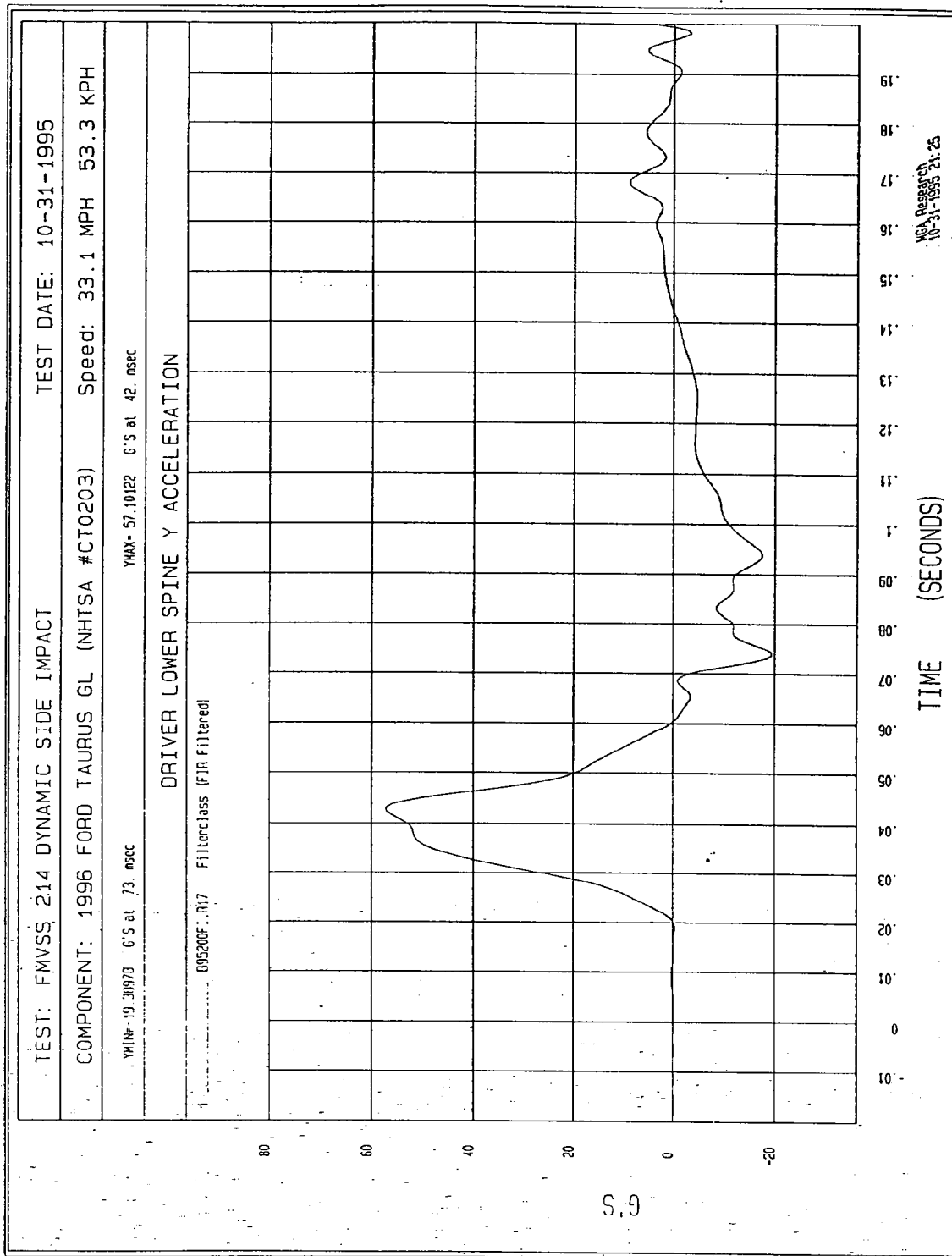


Figure B-94 - Driver Lower Spine Y Acceleration vs. Time

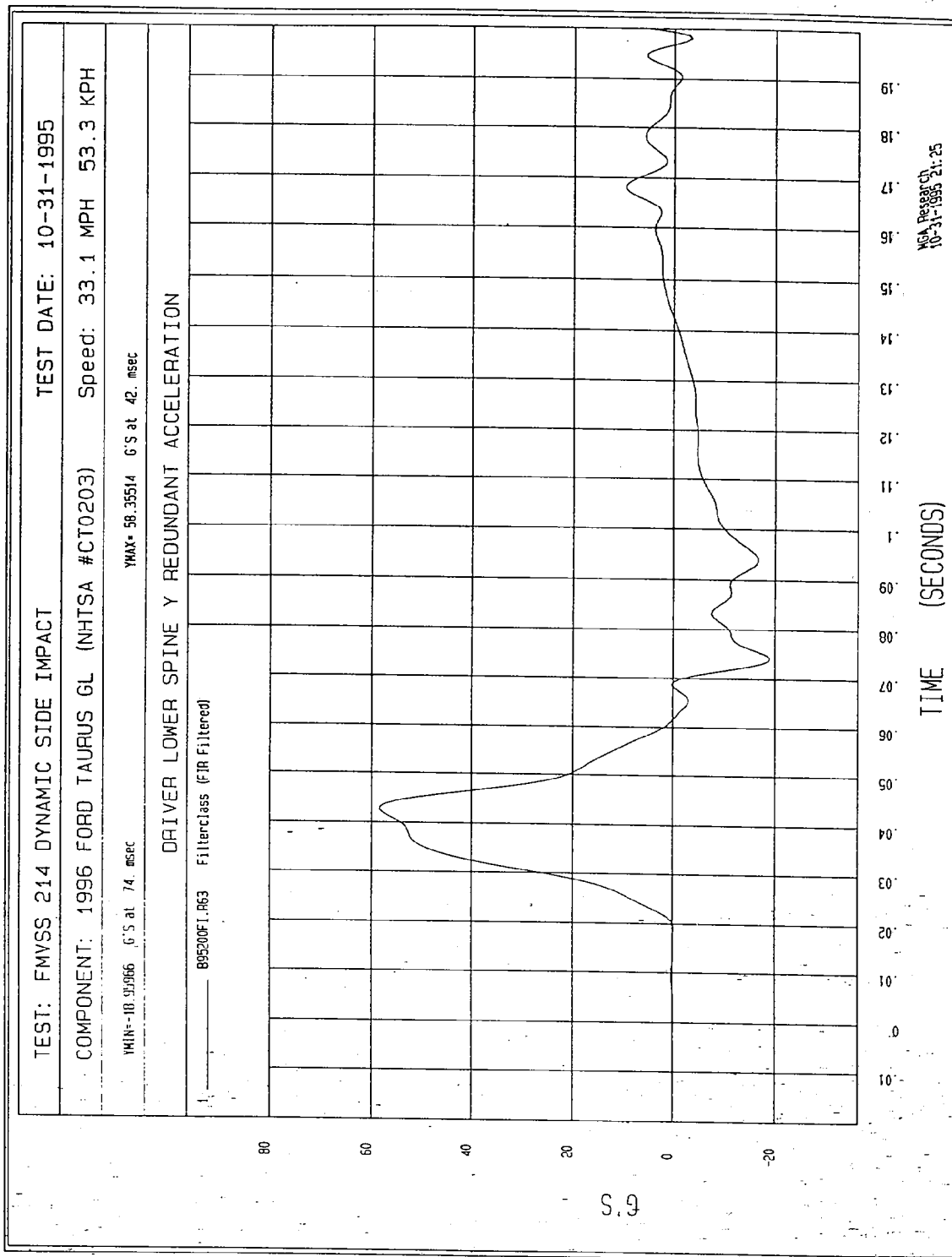


Figure B-95 - Driver Lower Spine Y Redundant Acceleration vs. Time

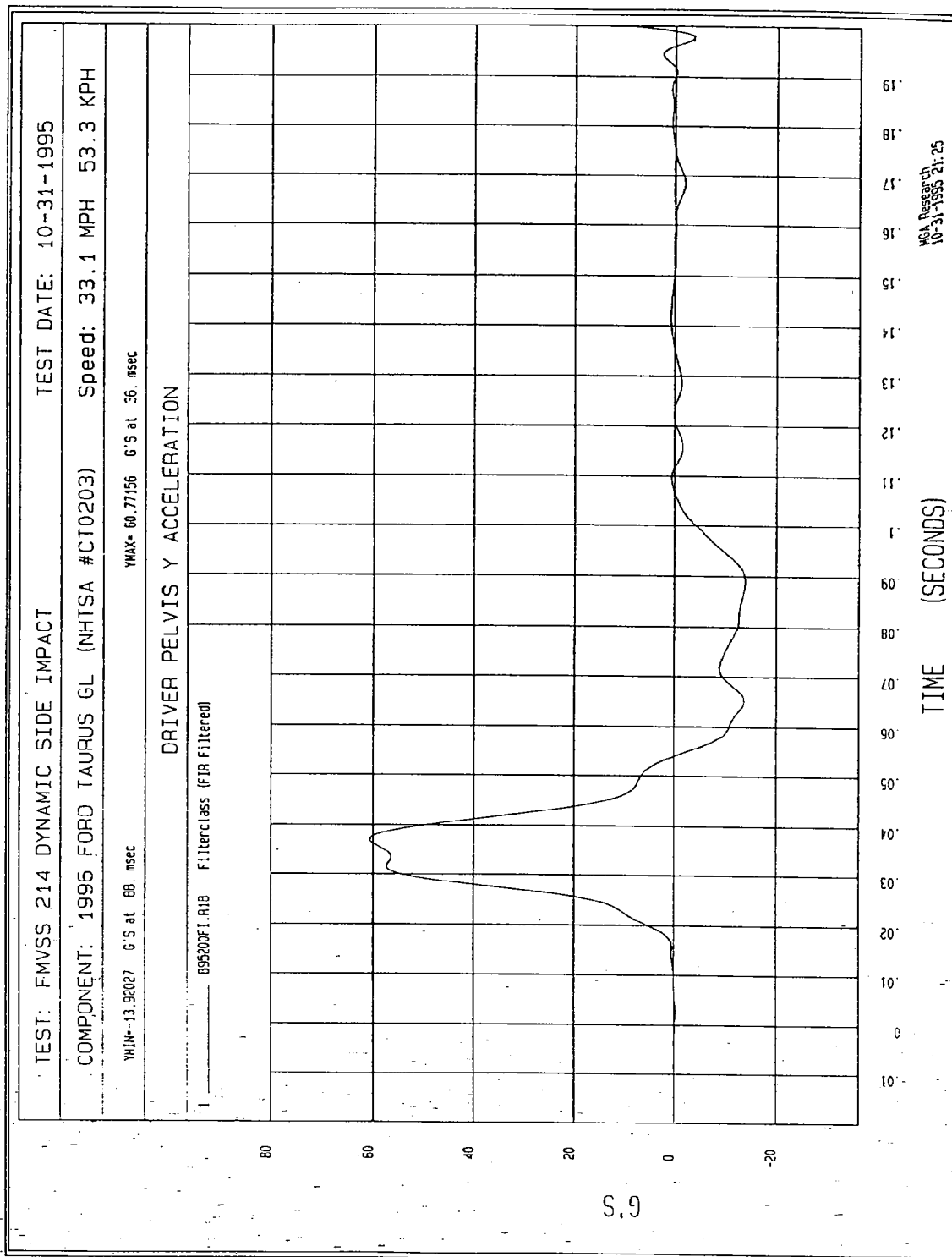


Figure B-96 - Driver Pelvis Y Acceleration vs. Time

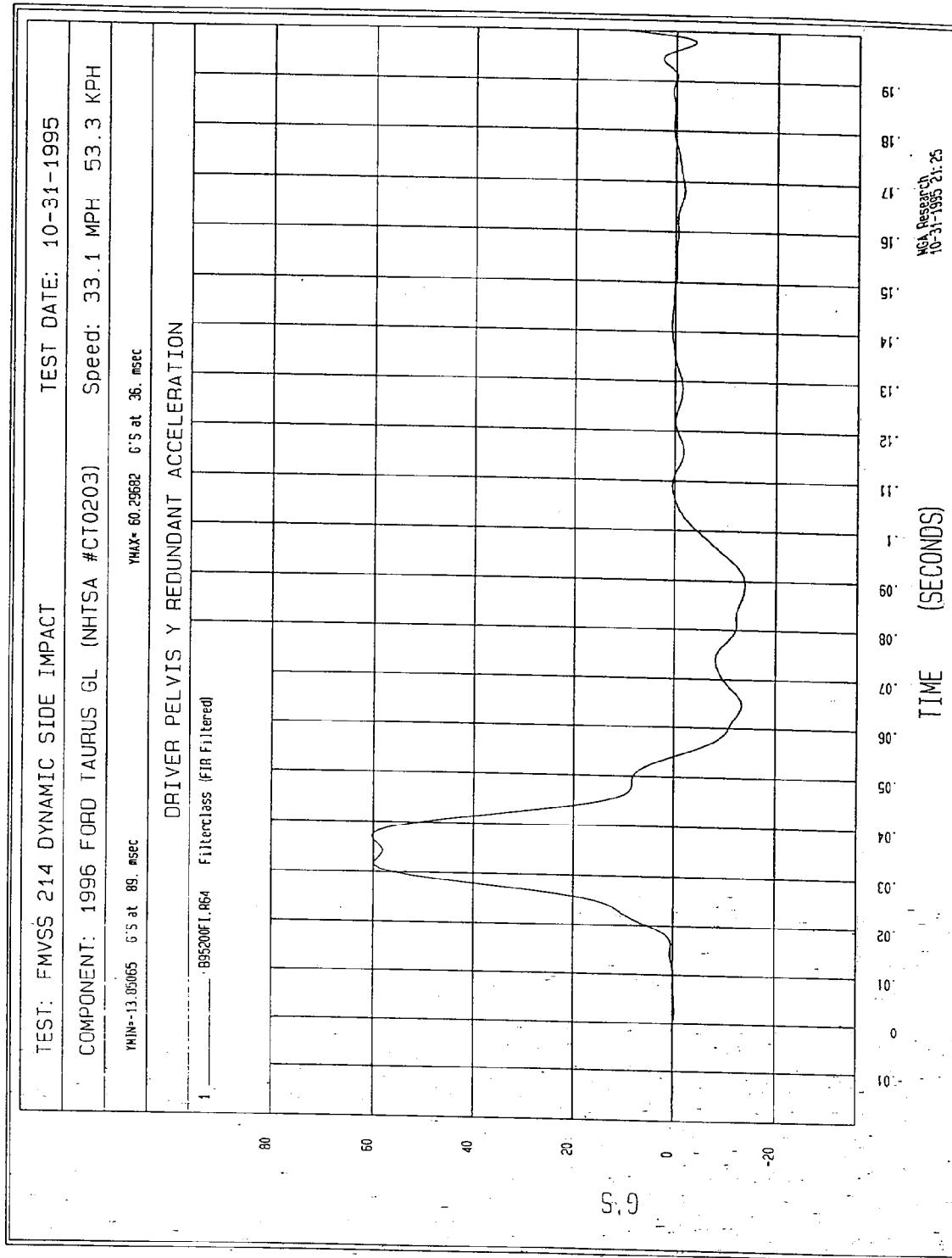


Figure B-97 --Driver Pelvis Y Redundant Acceleration vs. Time

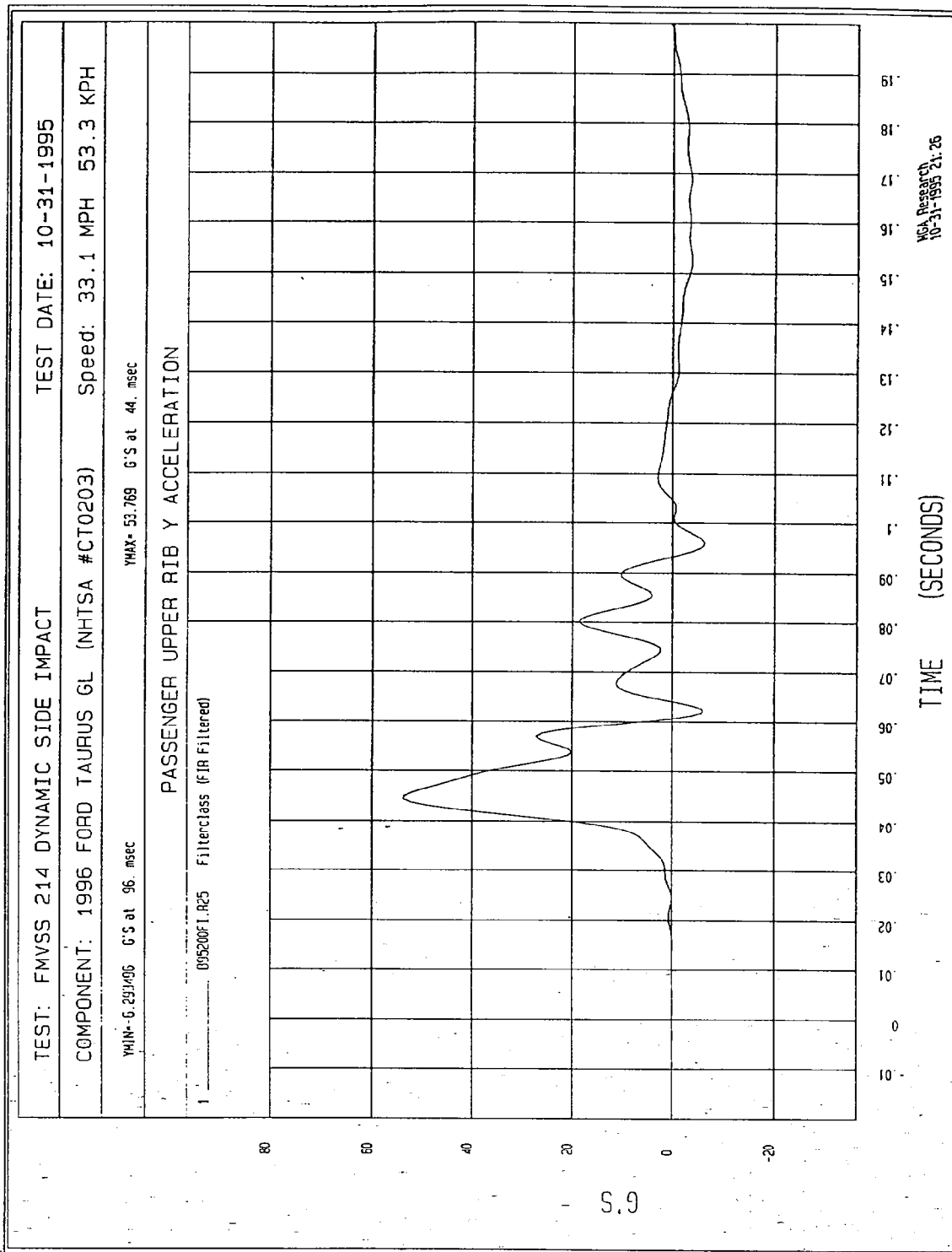


Figure B-98 - Passenger Upper Rib Y Acceleration vs. Time

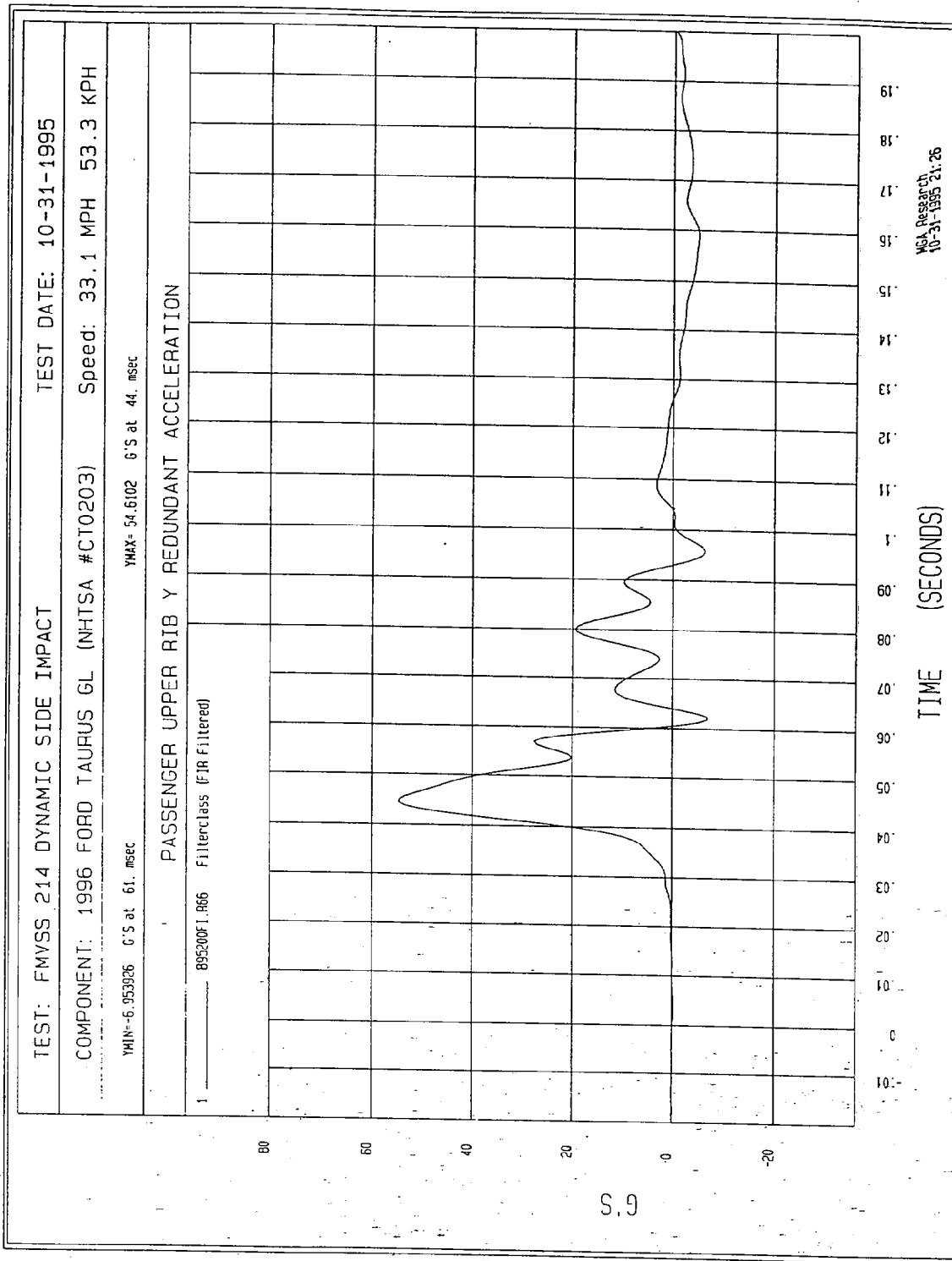
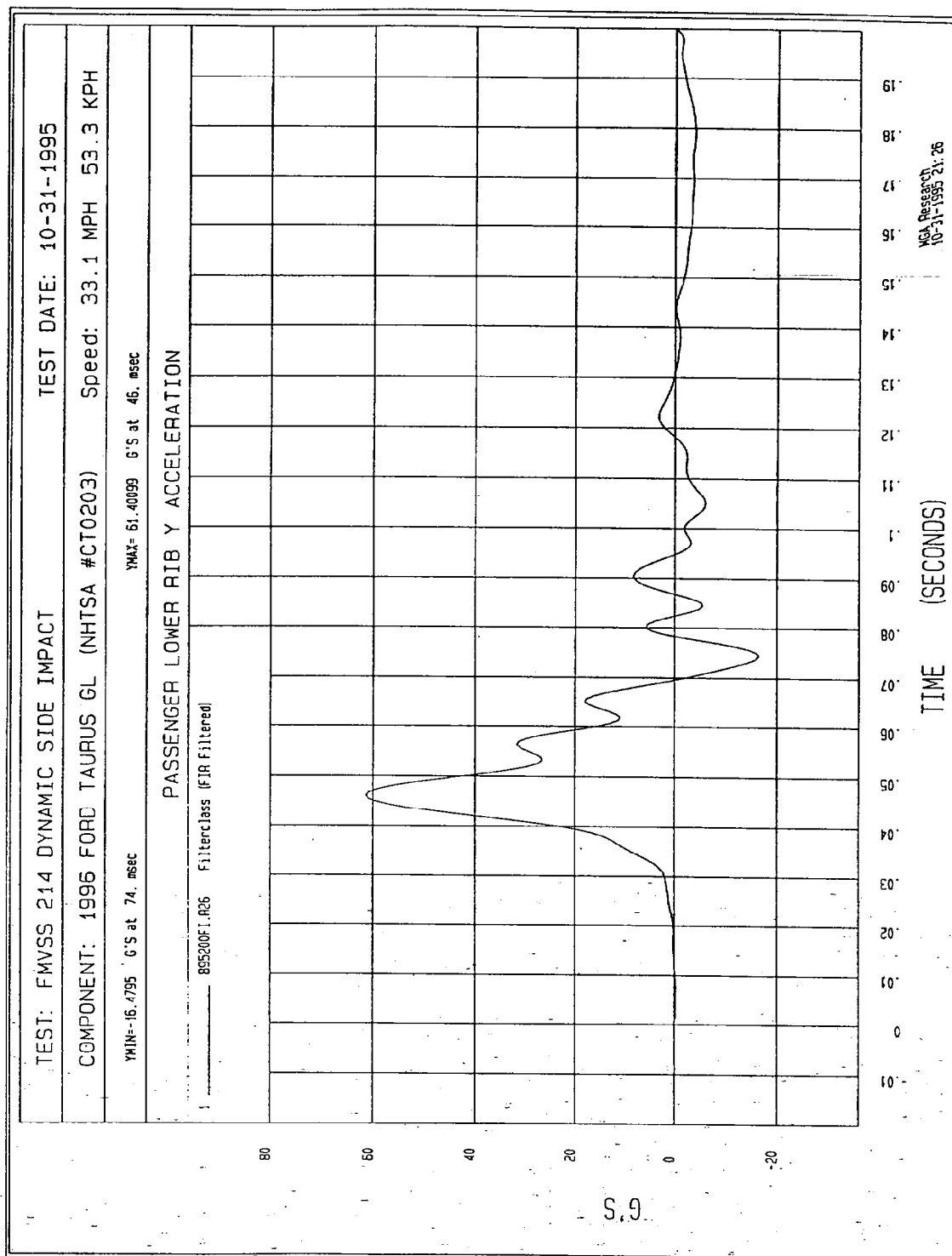


Figure B-99 - Passenger Upper Rib Y Redundant Acceleration vs. Time



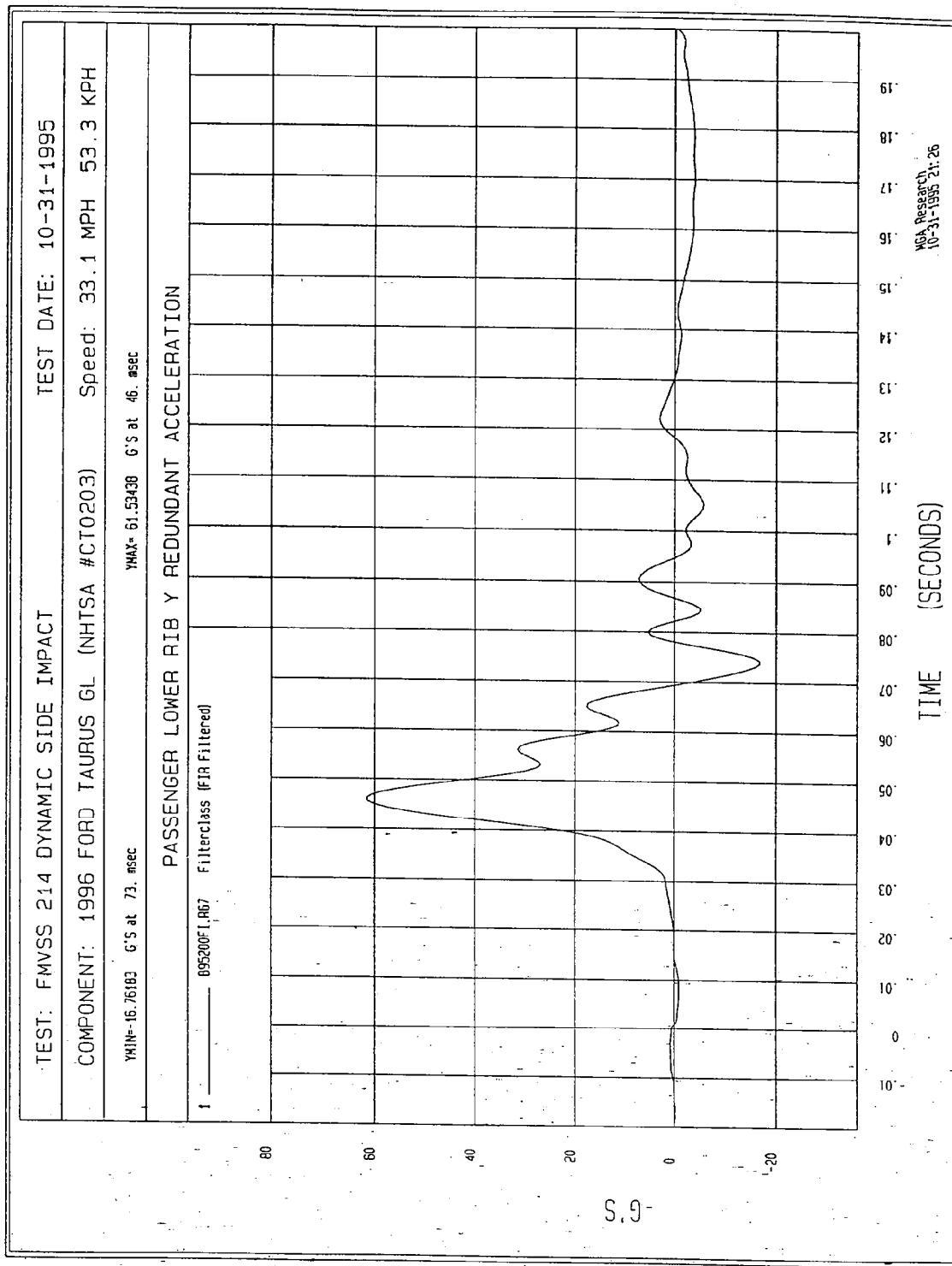


Figure B-101 - Passenger Lower Rib Y Redundant Acceleration vs. Time

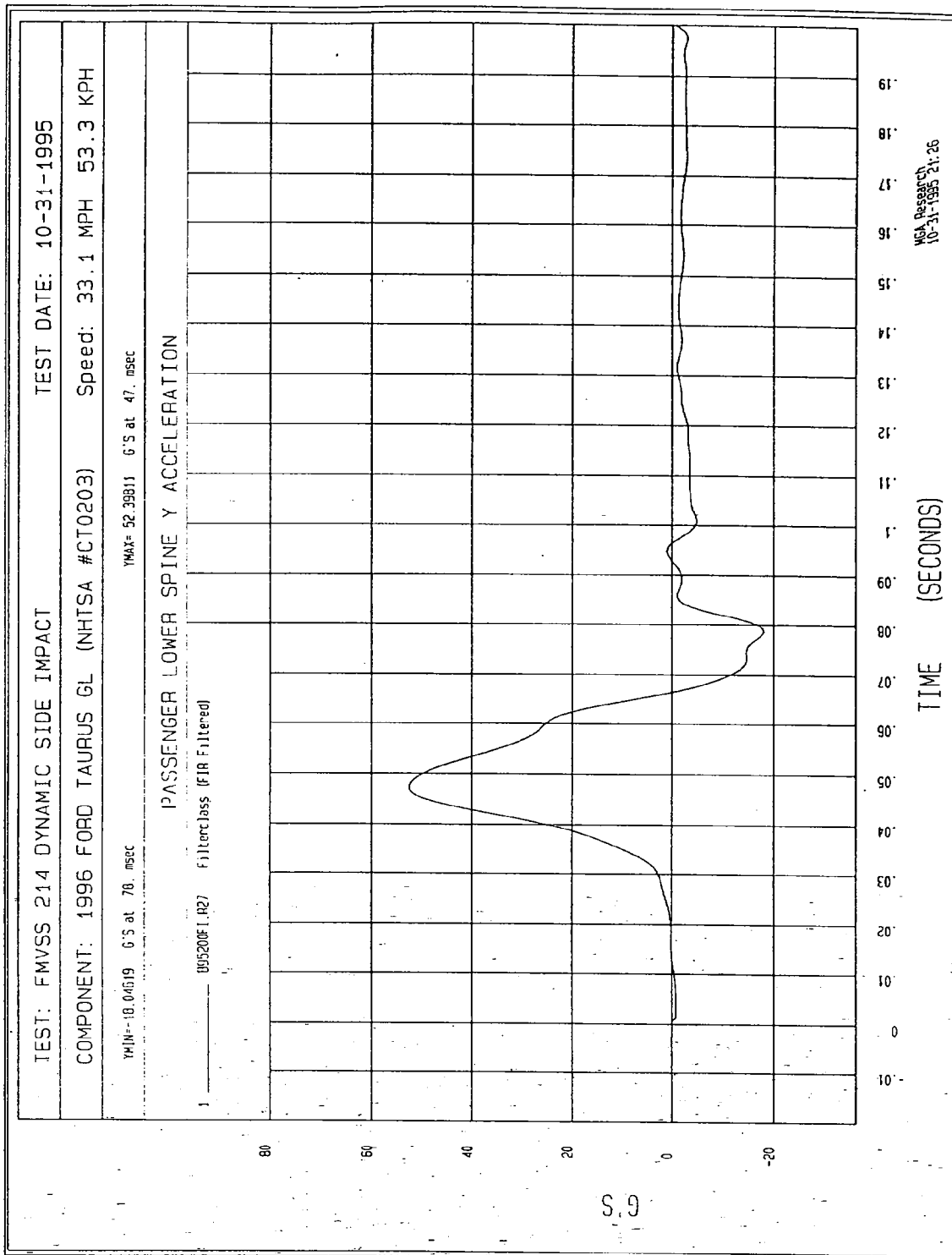


Figure B-102 - Passenger Lower Spine Y Acceleration vs. Time

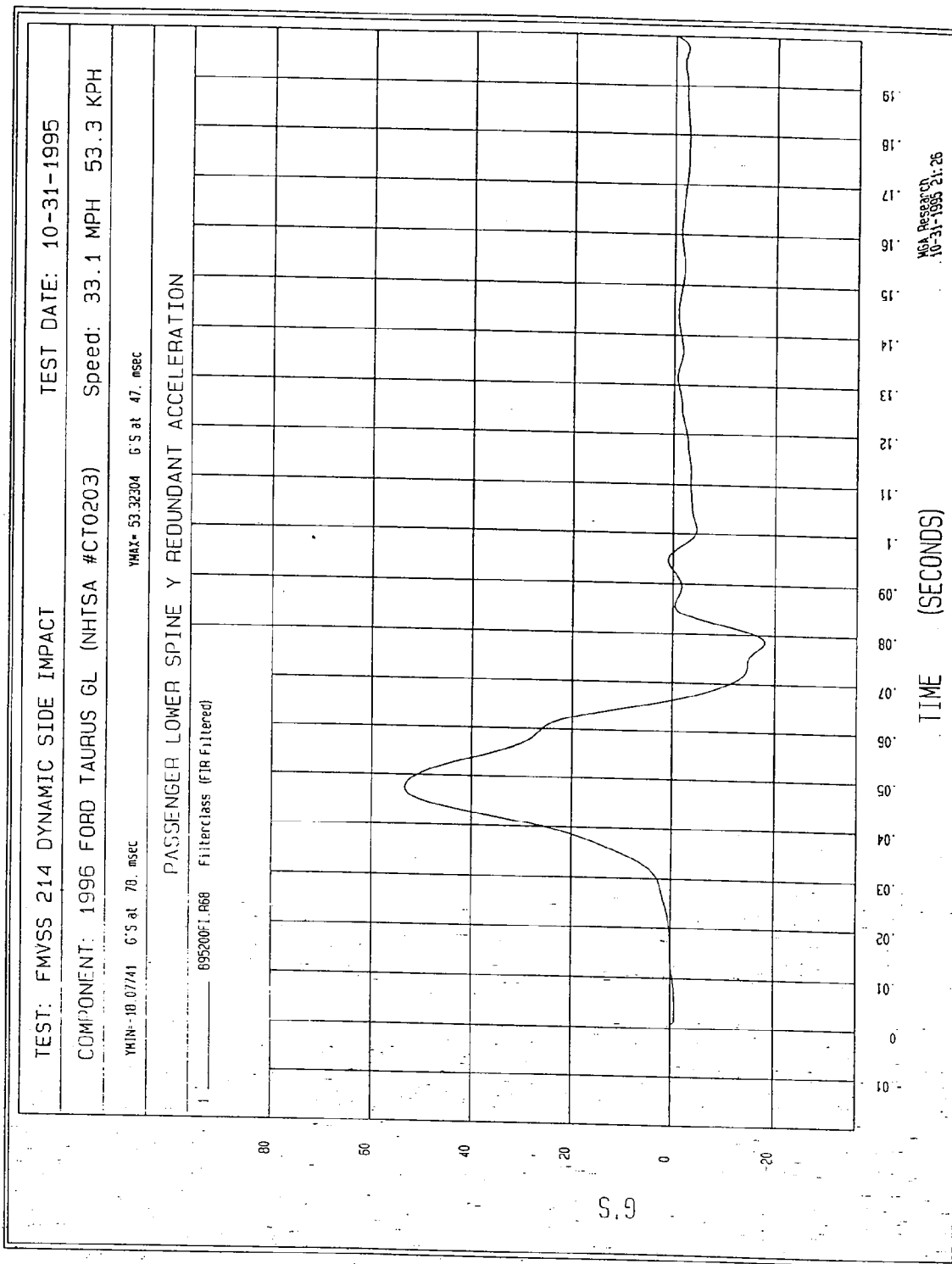


Figure B-103 - Passenger Lower Spine Y Redundant Acceleration vs. Time

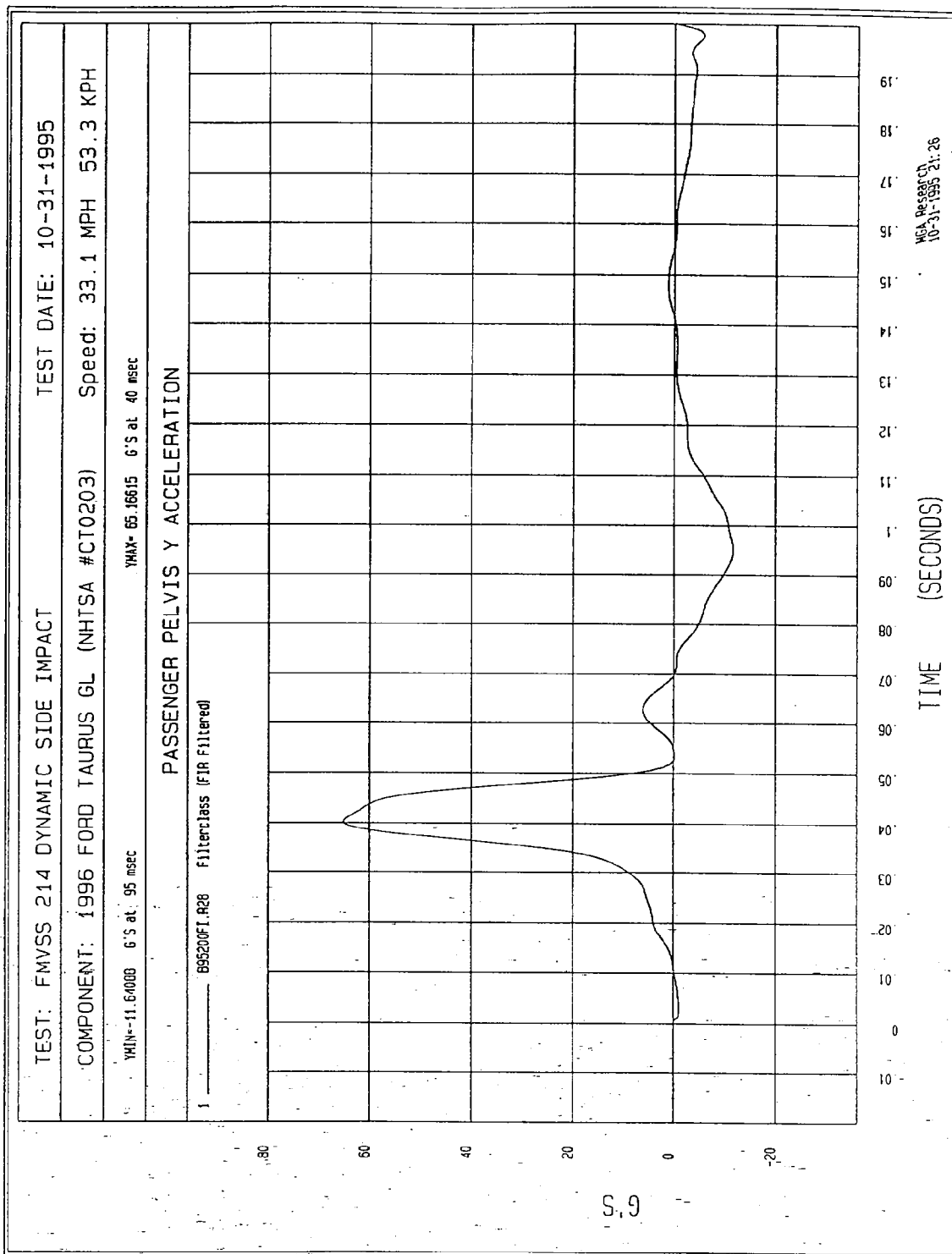


Figure B-104 - Passenger Pelvis Y Acceleration vs. Time

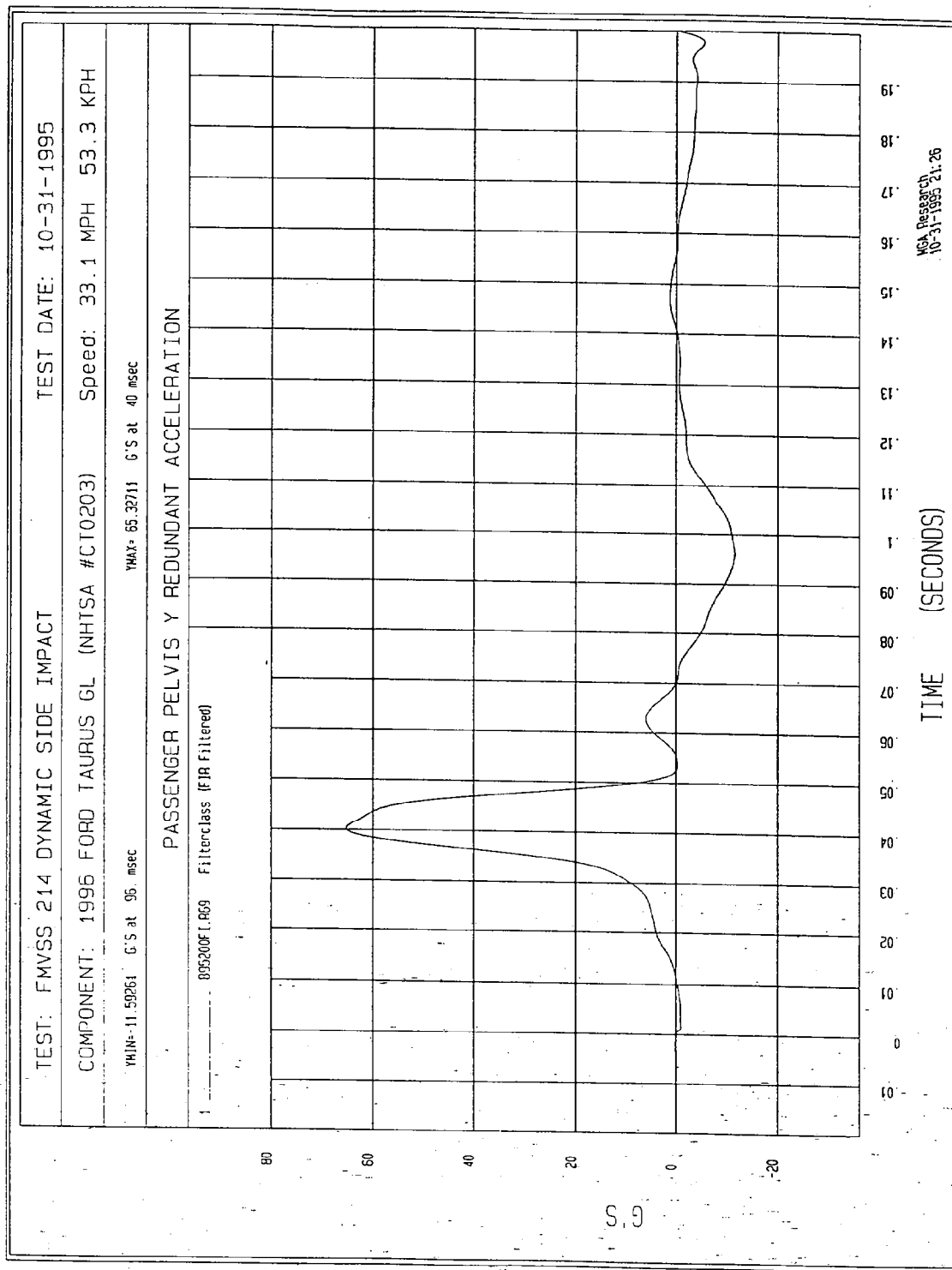


Figure B-105 - Passenger Pelvis Y Redundant Acceleration vs. Time

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-96-DC03

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

FORD MOTOR COMPANY
1996 FORD TAURUS GL 4-DOOR
NHTSA NO. CT0203

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: October 31, 1995

Report Date: November 14, 1995

FINAL REPORT

Prepared For:

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
MAIL CODE: NSA-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: October 17, 1995

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
RH - Rib Height	19.75" - 20.50"	20.4
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.4
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY:

David Winkelbauer

APPROVED BY:

David Winkelbauer

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

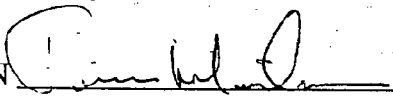
DATE: October 17, 1995

DUMMY NUMBER: 271

TEST NUMBER: D951442

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	40%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	43
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN 

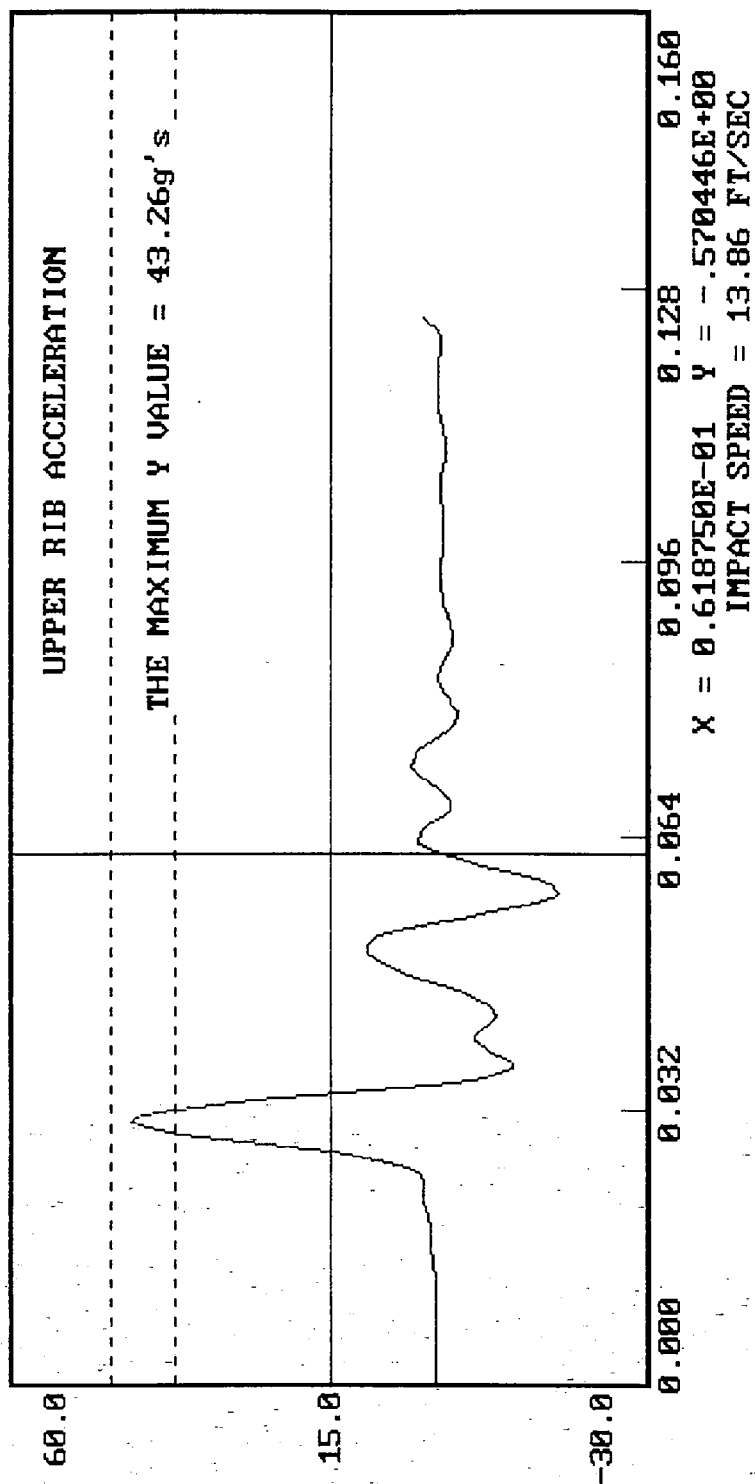
APPROVED BY 

10-17-1995 09:06

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

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

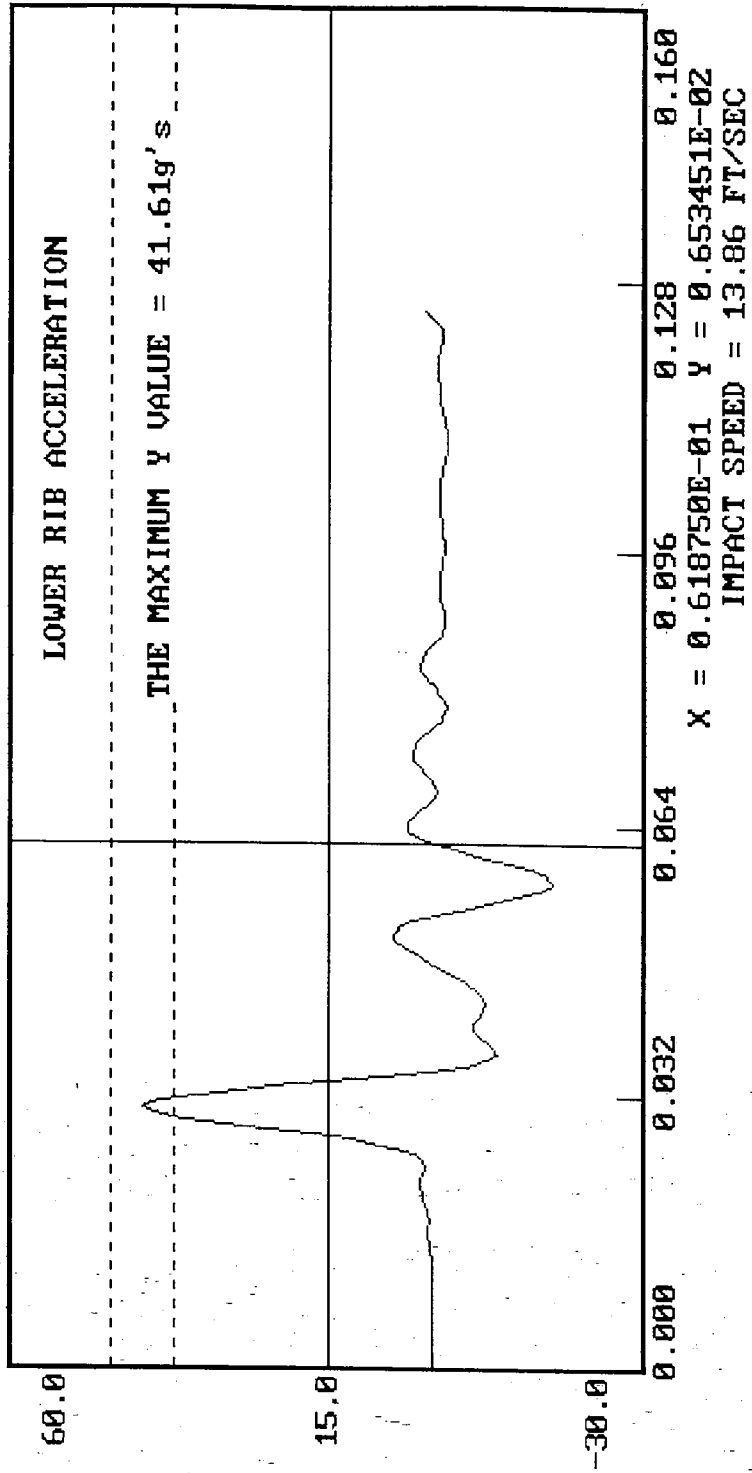


10-17-1995 09:06

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

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

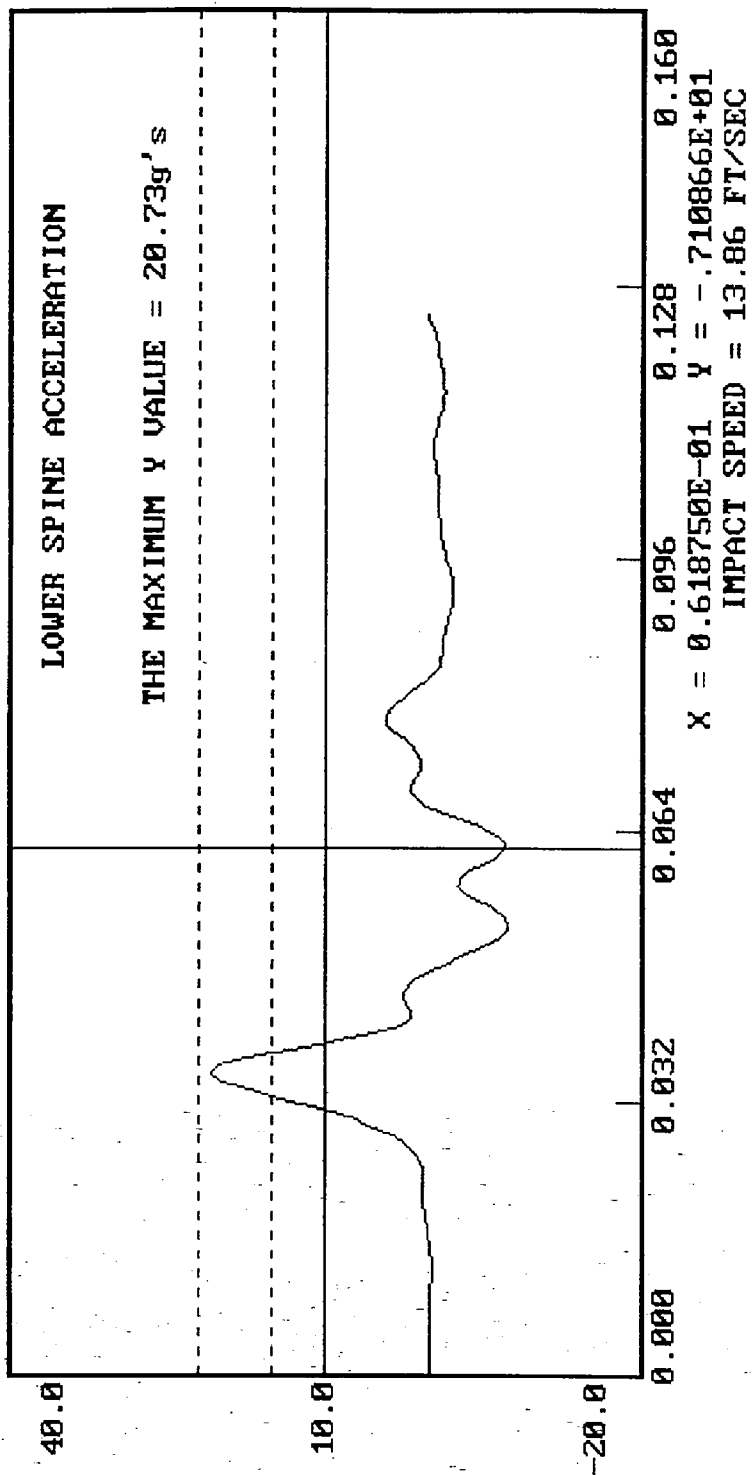


10-17-1995 09:06

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 271

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: October 17, 1995

DUMMY NUMBER: 271

TEST NUMBER: D951443

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

TEST MEETS SPECIFICATIONS

TECHNICIAN

Tim Belcher

APPROVED BY

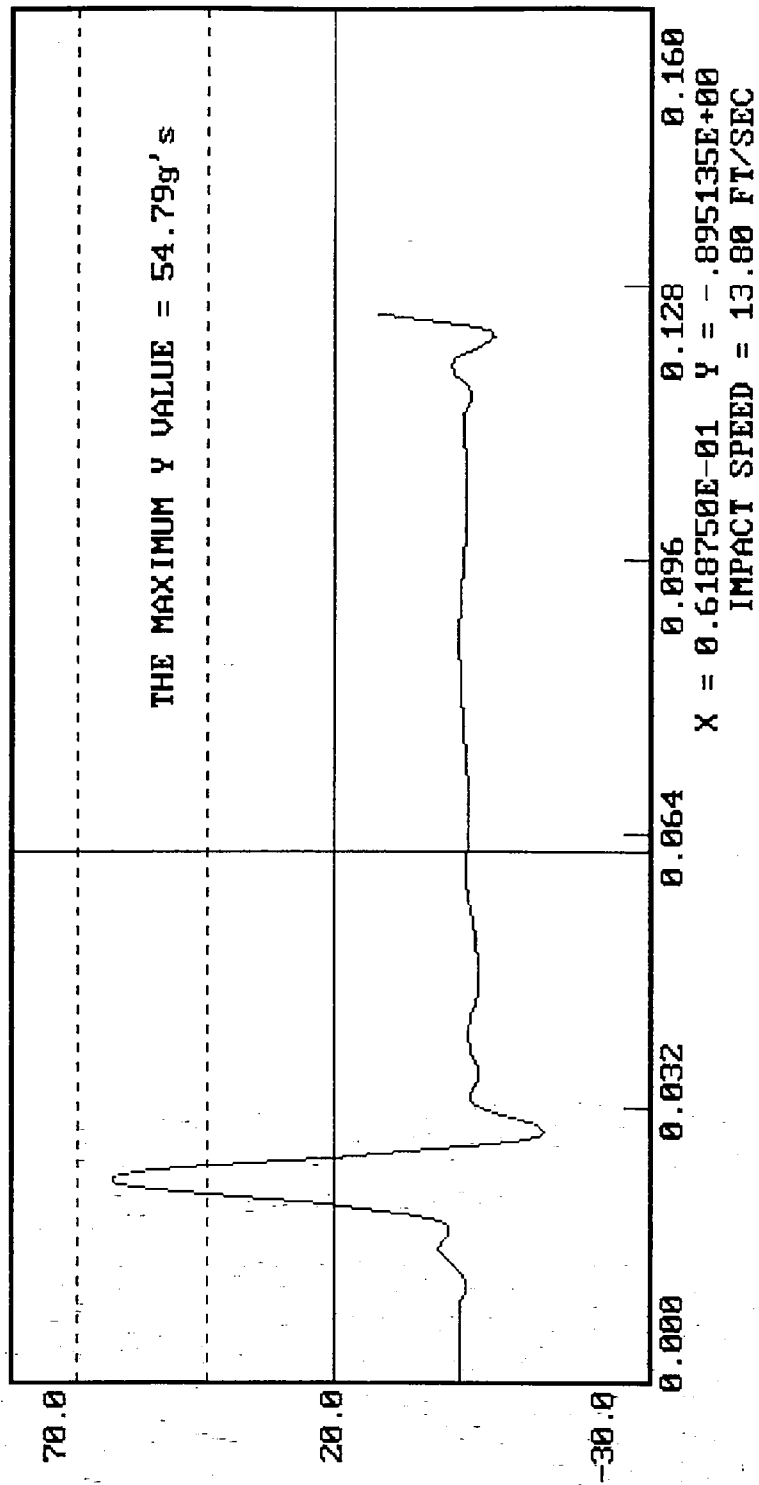
David Winckbauer

10-17-1995 09:30

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)

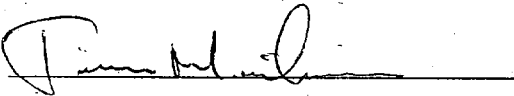
DATE: October 17, 1995

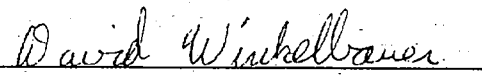
DUMMY NUMBER: 271

TEST NUMBER: D951444

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	40%
FORCE @ 0.5 in	23.3 - 36.5 lbs	34.1
FORCE @ 0.75 in	36.7 - 49.8 lbs	48.3
FORCE @ 1.0 in	50 - 63 lbs	63
FORCE @ 1.3 in	73 - 88 lbs	84

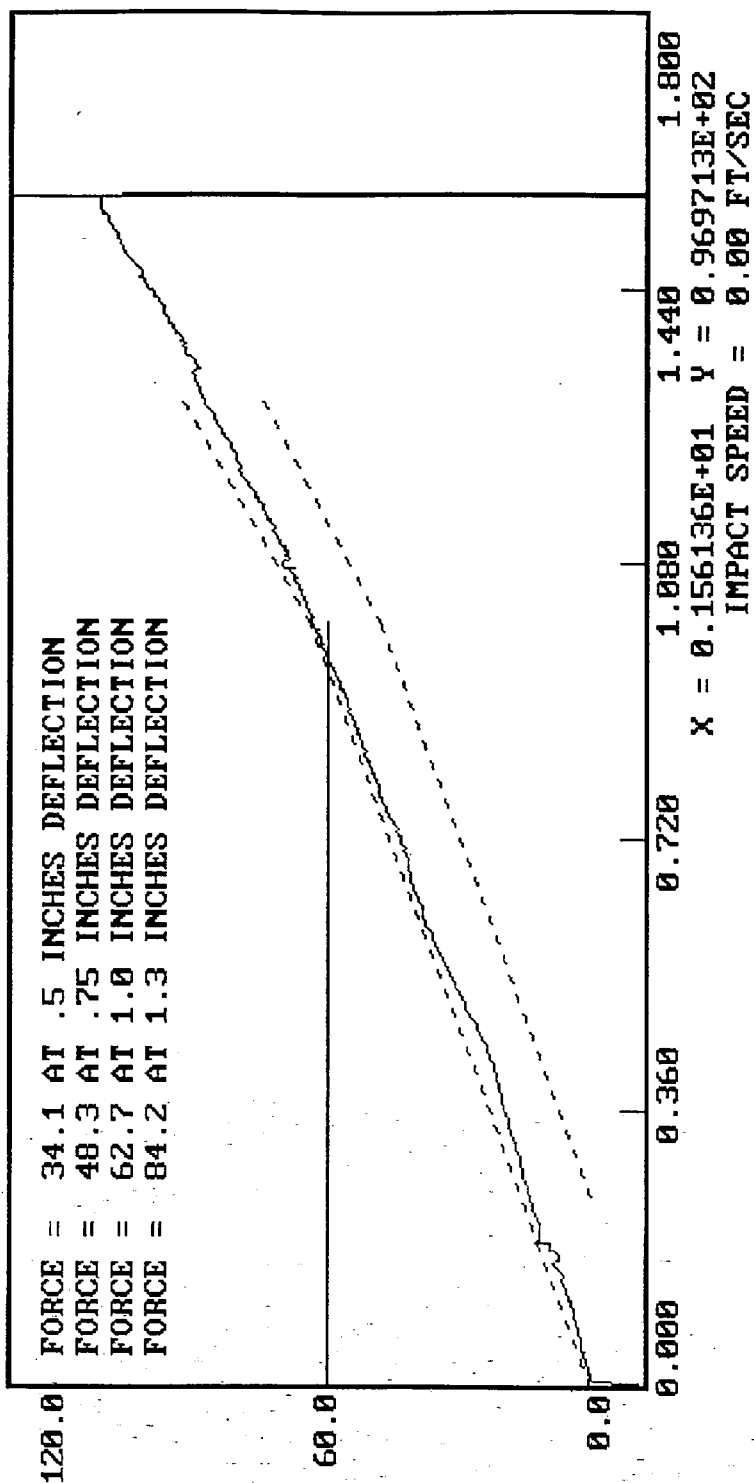
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 271
 10-17-1995 13:02

ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: October 17, 1995

DUMMY NUMBER: 271

TEST NUMBER: D951445

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	42%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	24
FORCE @ 30°	34 - 46 lbs	39
FORCE @ 40°	46 - 58 lbs	53
RETURN ANGLE	12° maximum	4°

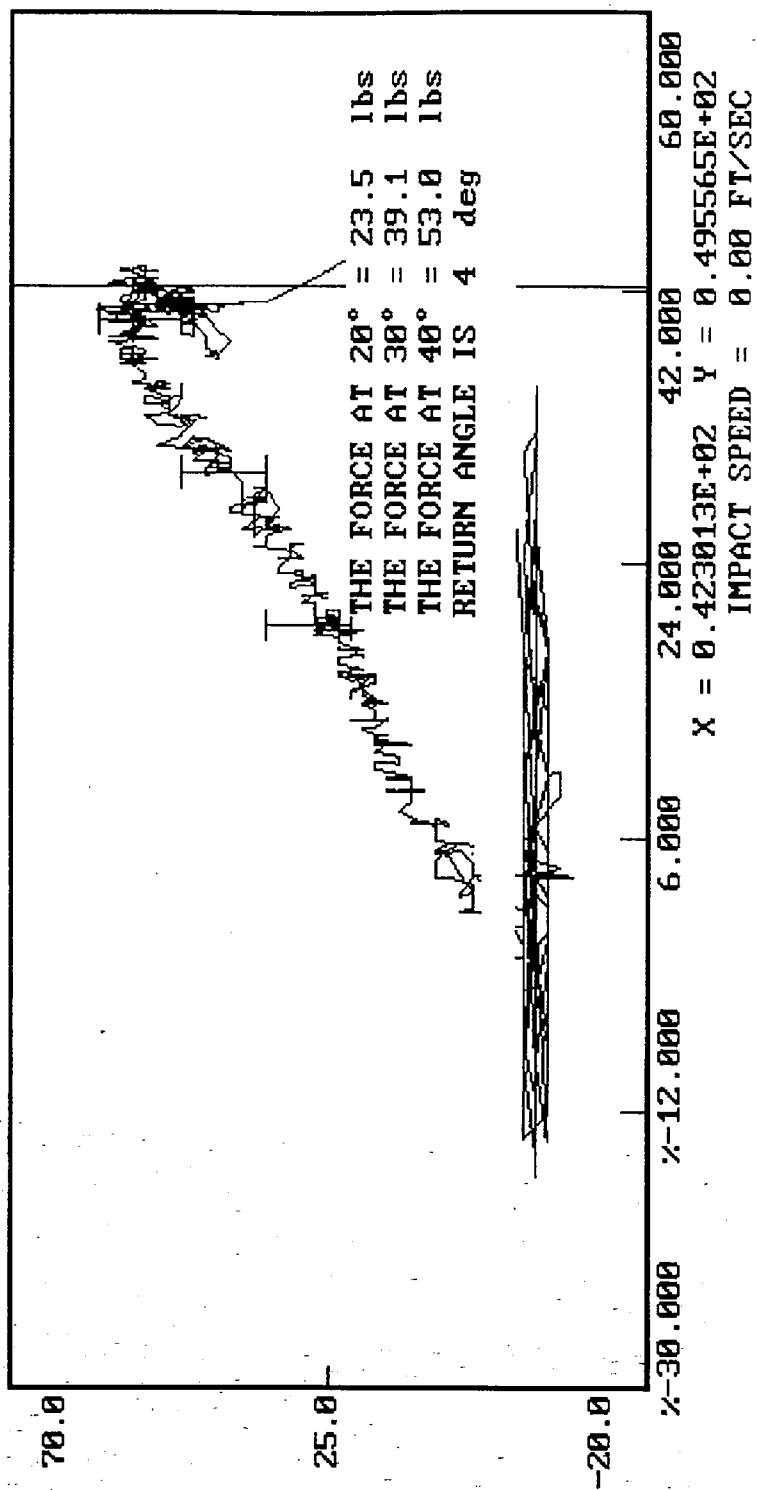
TEST MEETS SPECIFICATIONS

TECHNICIAN Jim [Signature]

APPROVED BY David Winkelbauer

10-17-1995 10:08

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



PRE-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 272

Calibration Test Results Summary

Passenger Serial Number: 272

Pre-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 272

DATE OF VERIFICATION: October 19, 1995

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
RH - Rib Height	19.75" - 20.50"	20.20
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"	20.7
SW - Knee Pivot to Floor	19.3" - 19.9"	19.6
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: David Winkelbauer

APPROVED BY: David Winkelbauer

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: October 17, 1995

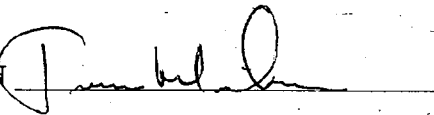
DUMMY NUMBER: 272

TEST NUMBER: D951452

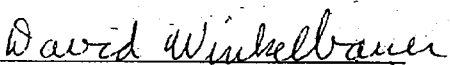
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	40%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	43
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

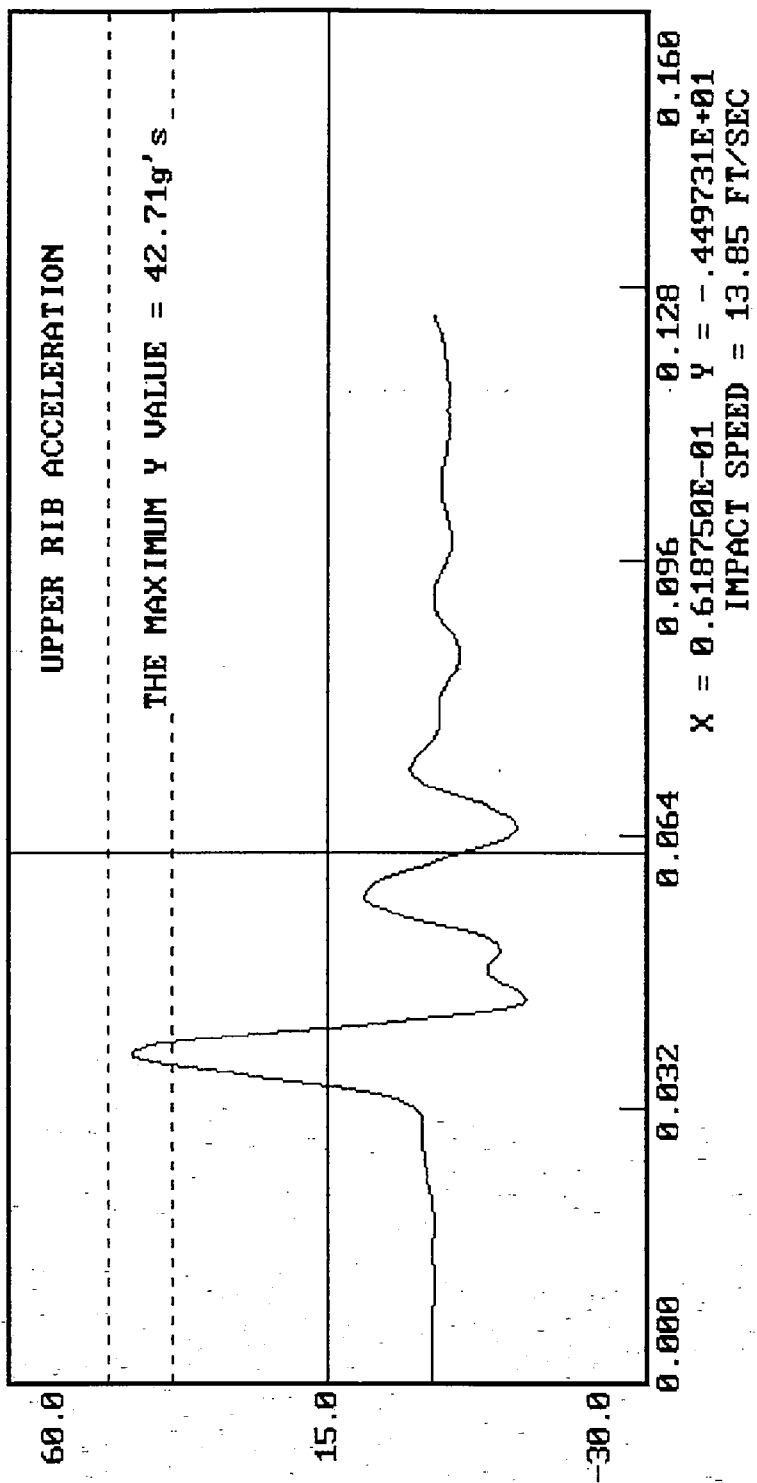
TECHNICIAN



APPROVED BY



DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 272
 10-17-1995 10:00
 ACCELERATION (G'S) VS. TIME ((SECONDS))

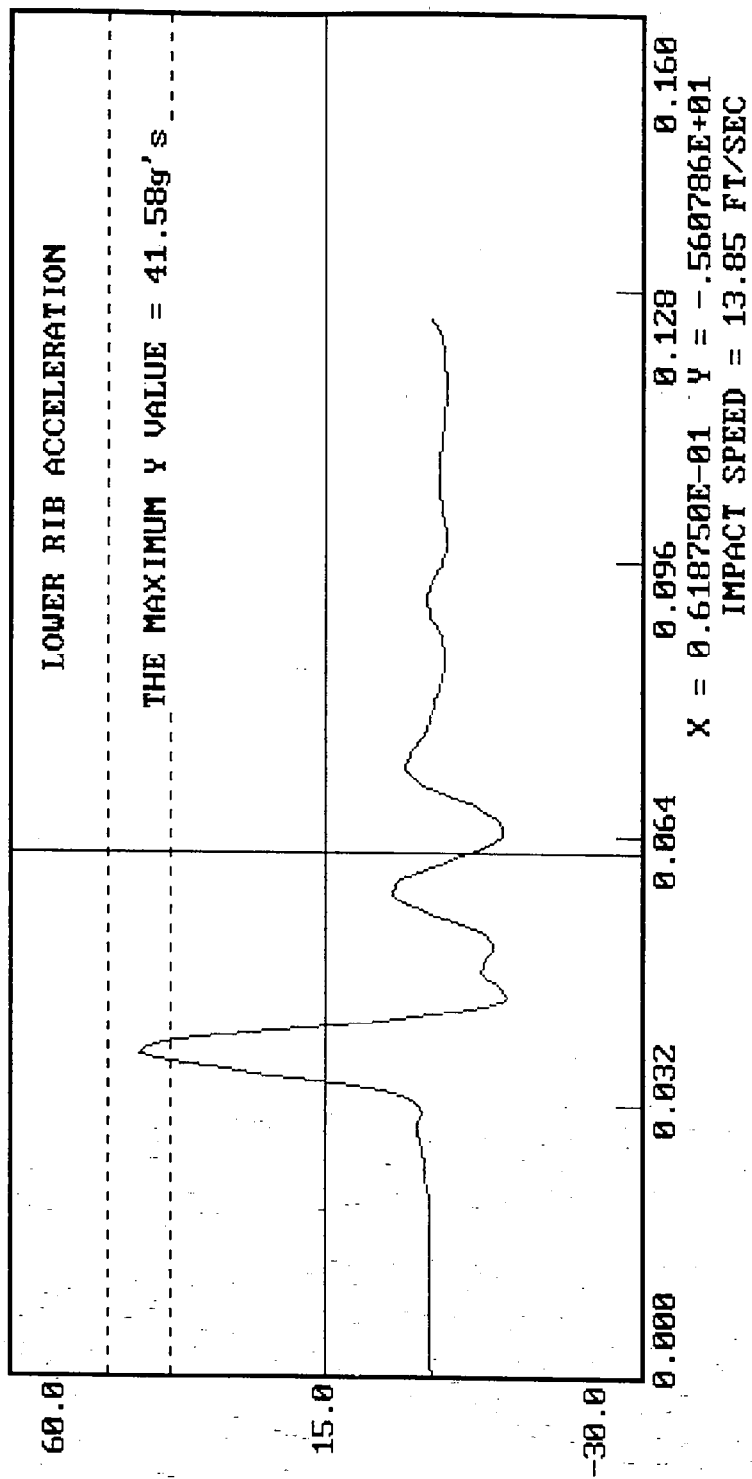


10-17-1995 10:00

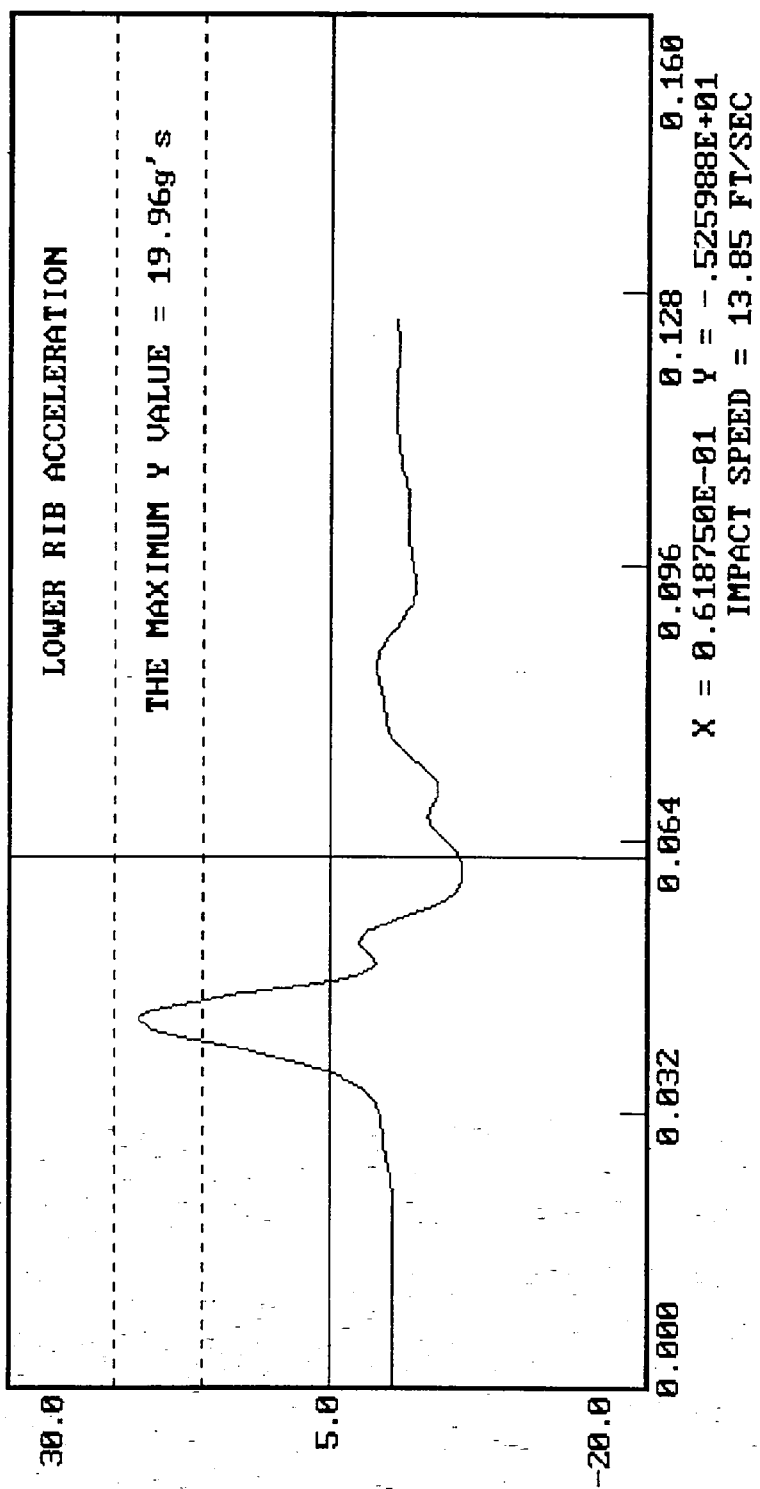
DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 272

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



DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 272
 10-17-1995 10:00
 ACCELERATION (G'S) VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: October 19, 1995

DUMMY NUMBER: 272

TEST NUMBER: D951453

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

TEST MEETS SPECIFICATIONS

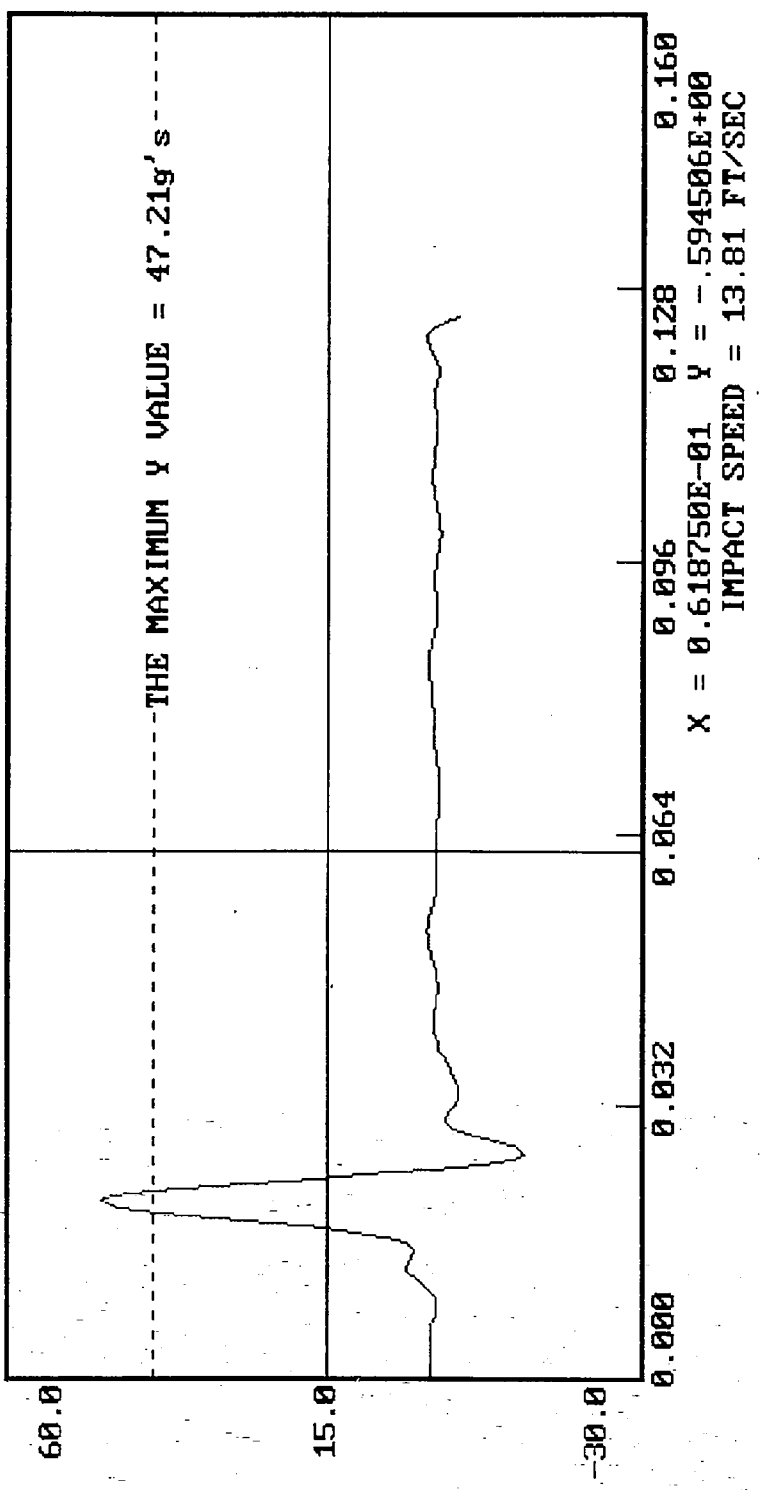
TECHNICIAN

David Winkelbrauer

APPROVED BY

David Winkelbrauer

DUMMY CALIBRATION - PELVIS IMPACT
 DUMMY # 272
 10-19-1995 14:30
 ACCELERATION (G'S) VS. TIME ((SECONDS))



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

DATE: October 17, 1995

DUMMY NUMBER: 272

TEST NUMBER: D951454

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	40%
FORCE @ 0.5 in	23.3 - 36.5 lbs	36.5
FORCE @ 0.75 in	36.7 - 49.8 lbs	49.2
FORCE @ 1.0 in	50 - 63 lbs	63
FORCE @ 1.3 in	73 - 88 lbs	85

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim Miller

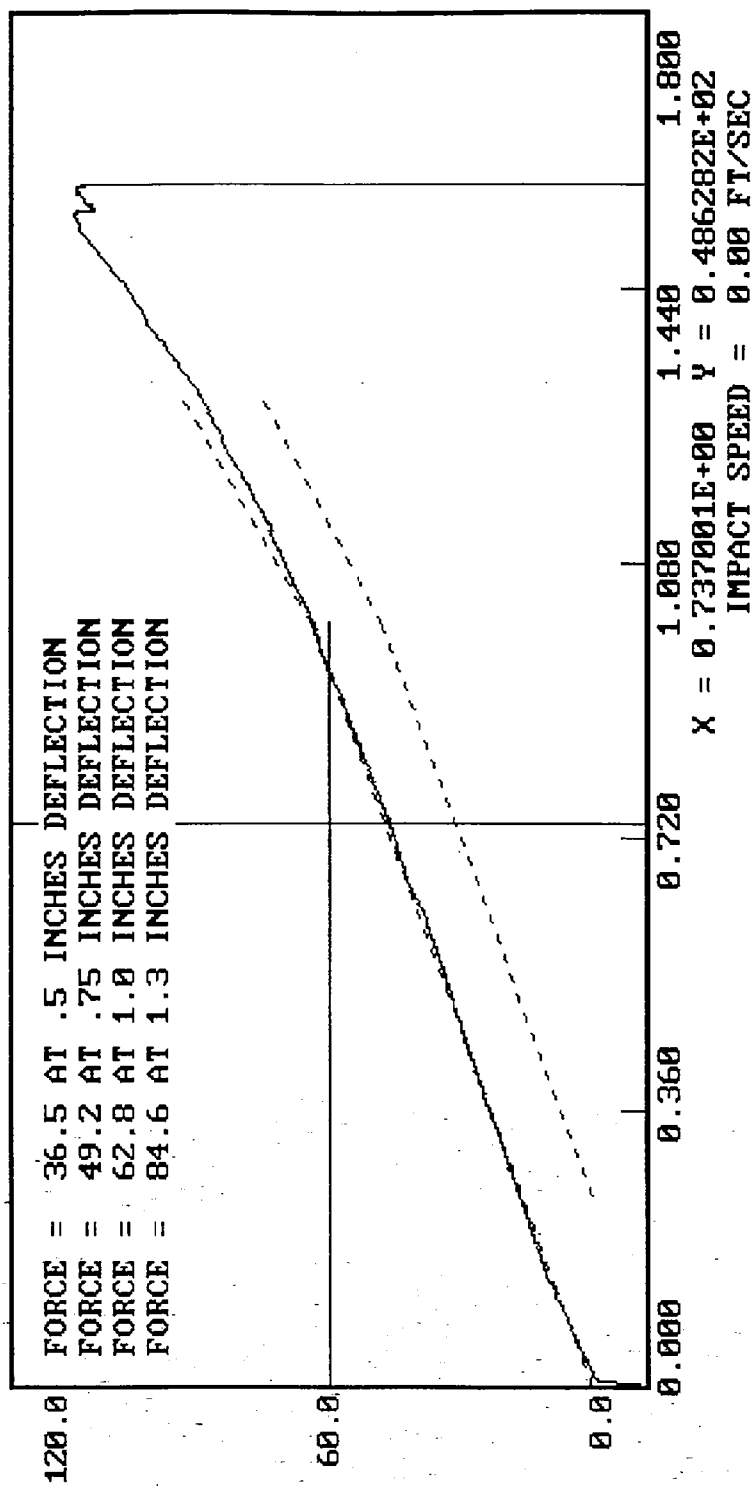
APPROVED BY David Winkelbauer

DUMMY CALIBRATION - ABDOMEN COMPRESSION

10-17-1995 13:12

DUMMY # 272

ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: October 19, 1995

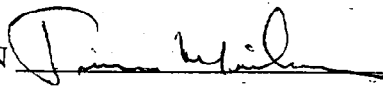
DUMMY NUMBER: 272

TEST NUMBER: D951455

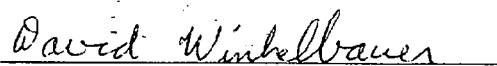
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	40%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	24
FORCE @ 30°	34 - 46 lbs	43
FORCE @ 40°	46 - 58 lbs	46
RETURN ANGLE	12° maximum	6°

TEST MEETS SPECIFICATIONS

TECHNICIAN

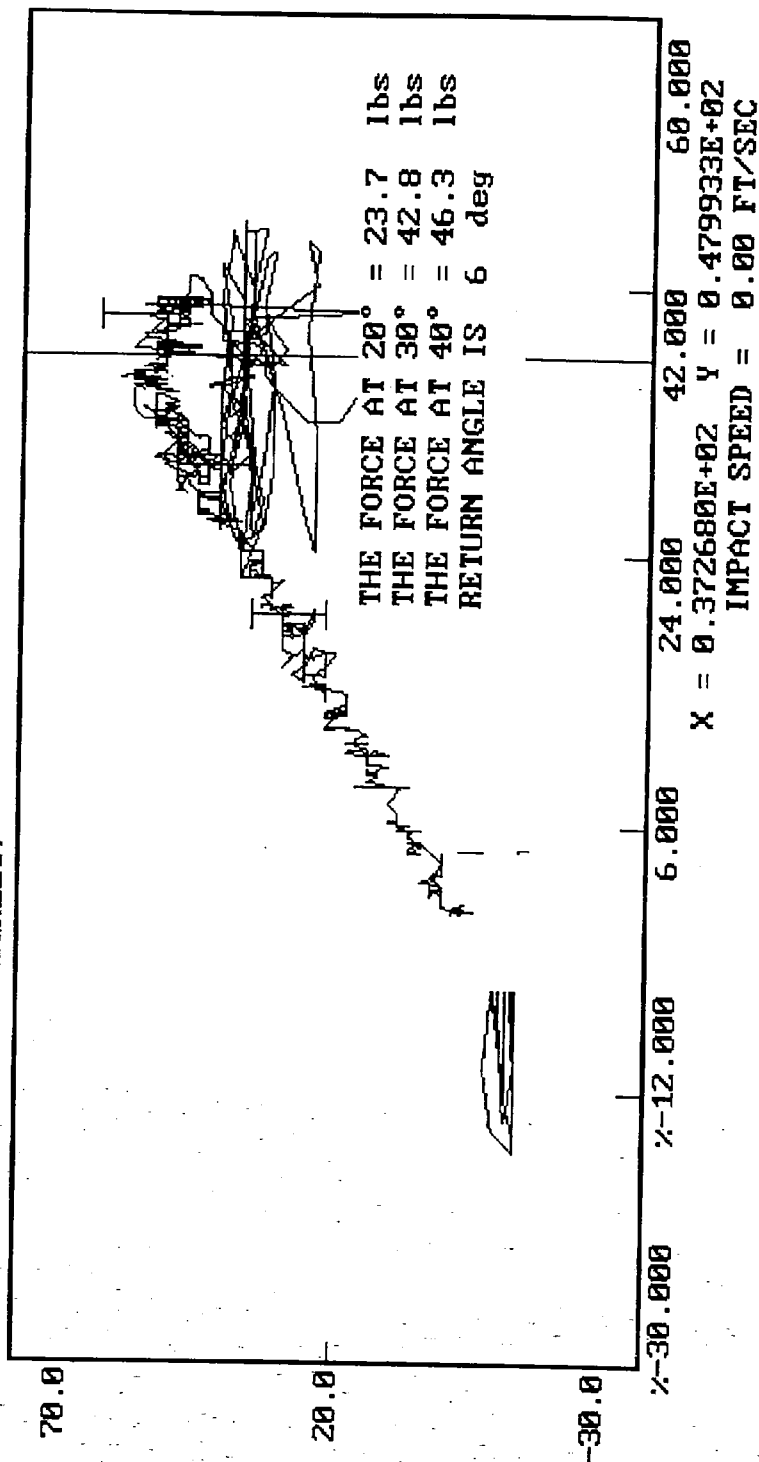


APPROVED BY



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

10-19-1995 14:51



POST-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 271

Calibration Test Results Summary

Dummy Serial Number: 271

Post-Test Calibration

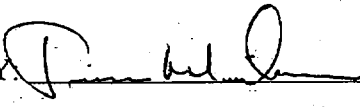
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 271

DATE OF VERIFICATION: November 14, 1995

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
RH - Rib Height	19.75" - 20.50"	20.40
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.4
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: 

APPROVED BY: David Winkelbauer

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 8, 1995

DUMMY NUMBER: 271

TEST NUMBER: D951682

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	12%
PROBE SPEED	13.8 - 14.2 fps	13.8
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	20

* Denotes Failure

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim Wilson

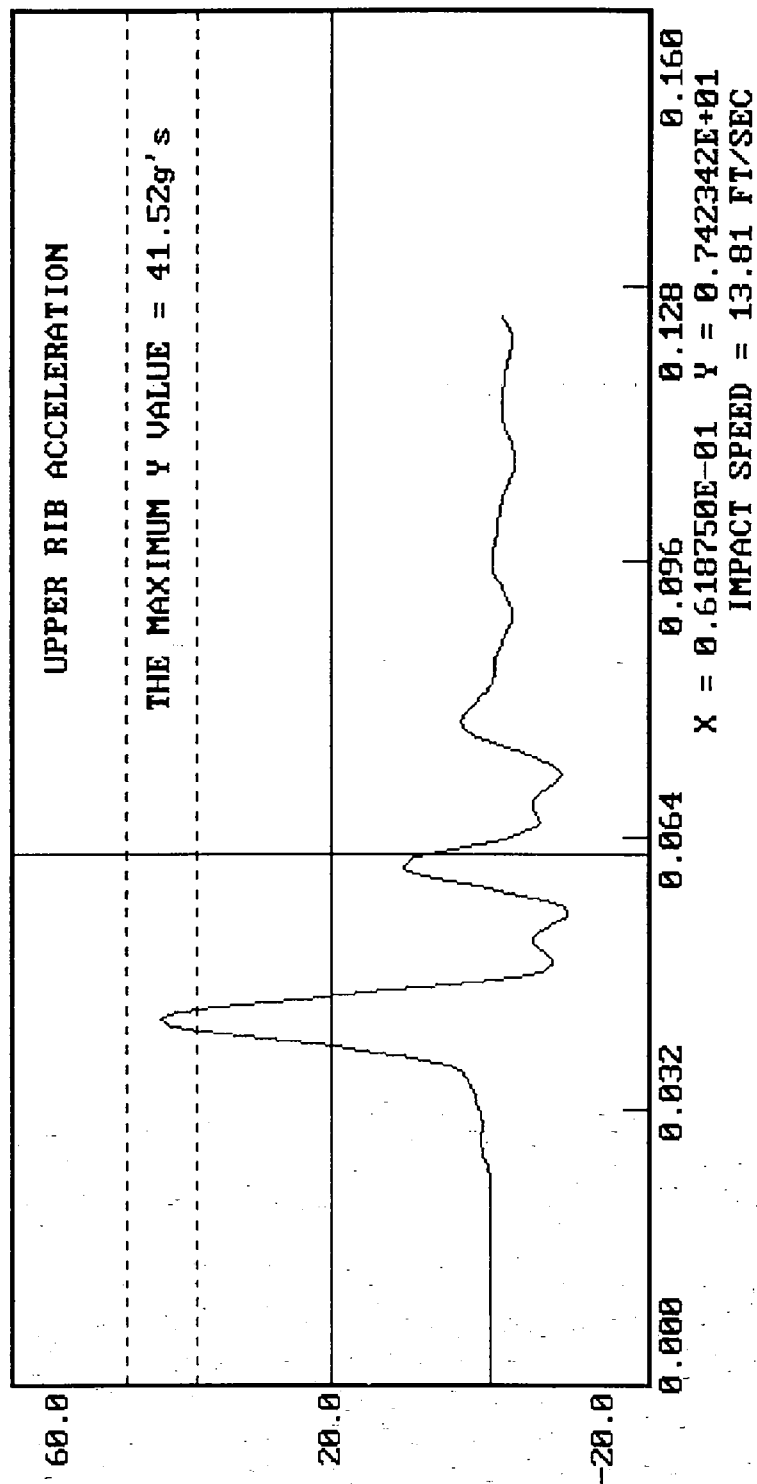
APPROVED BY David Winkelbauer

DUMMY CALIBRATION - THORAX IMPACT

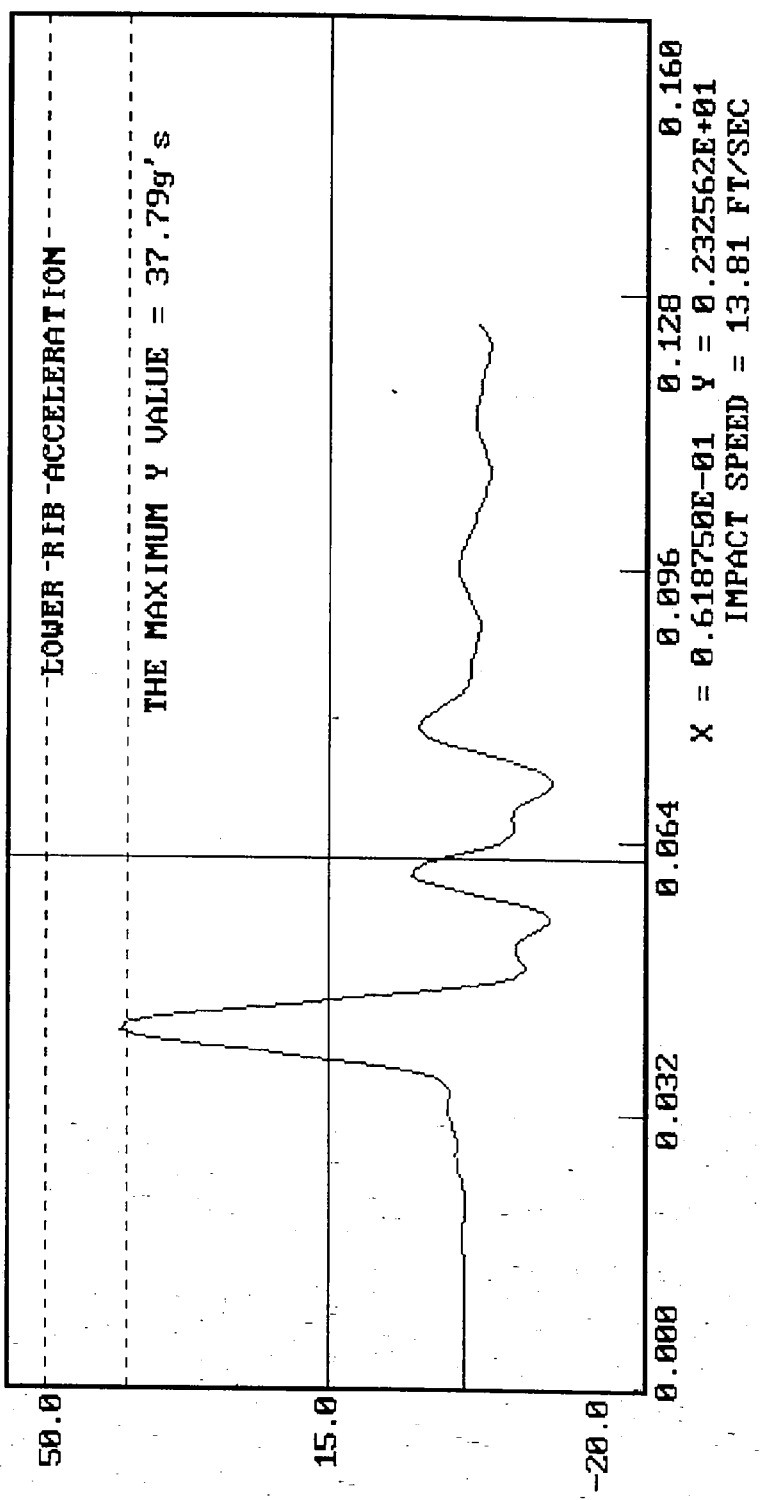
11-08-1995 11:46

DUMMY # 271

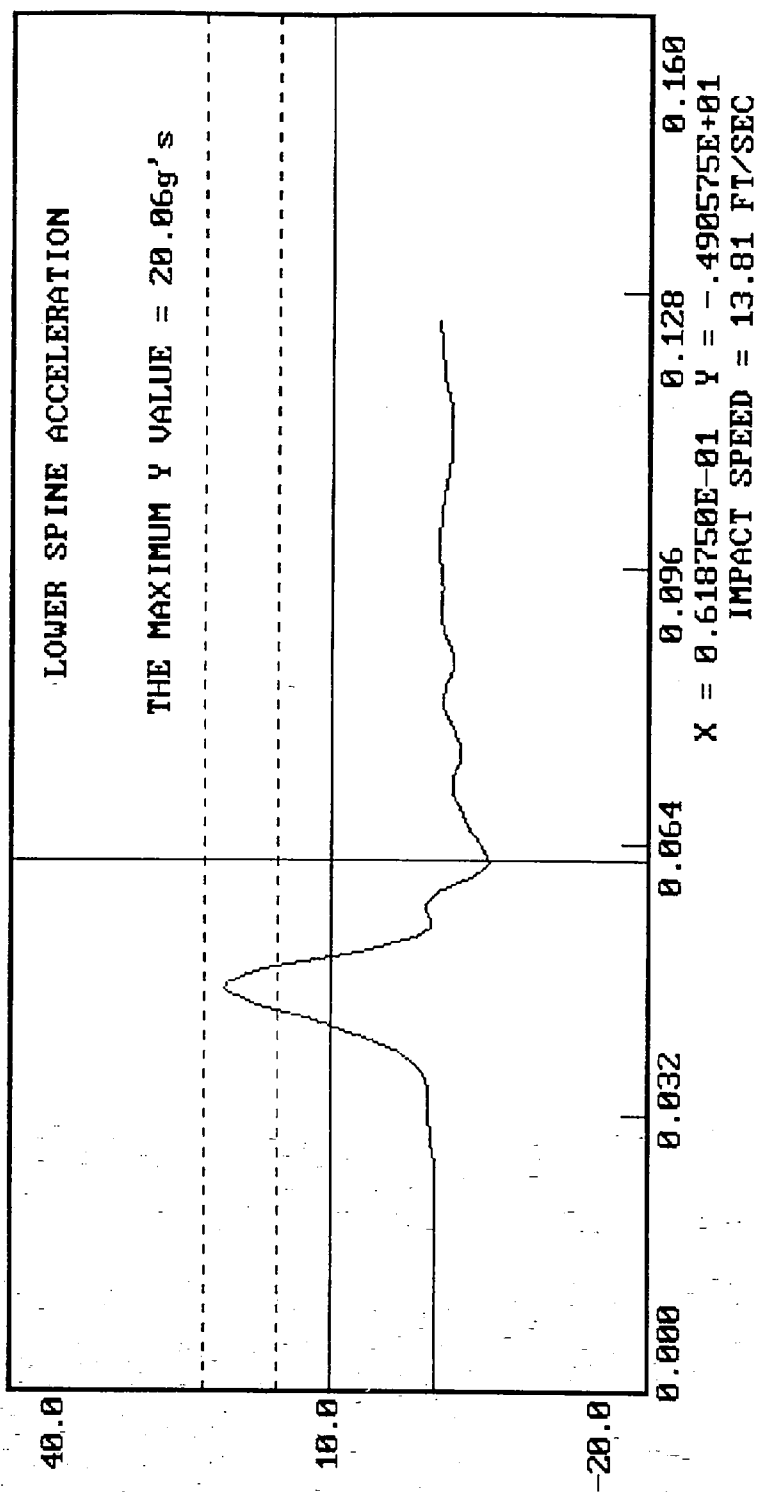
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 271
 11-08-1995 11:46
 ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 271
 11-08-1995 11:46
 ACCELERATION (G'S) VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 8, 1995

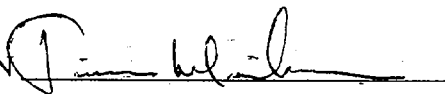
DUMMY NUMBER: 271

TEST NUMBER: D951683

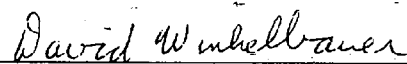
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	12%
PROBE SPEED	13.8 - 14.2 f/s	13.8
PELVIS ACCELERATION	40 - 60 g's	48

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

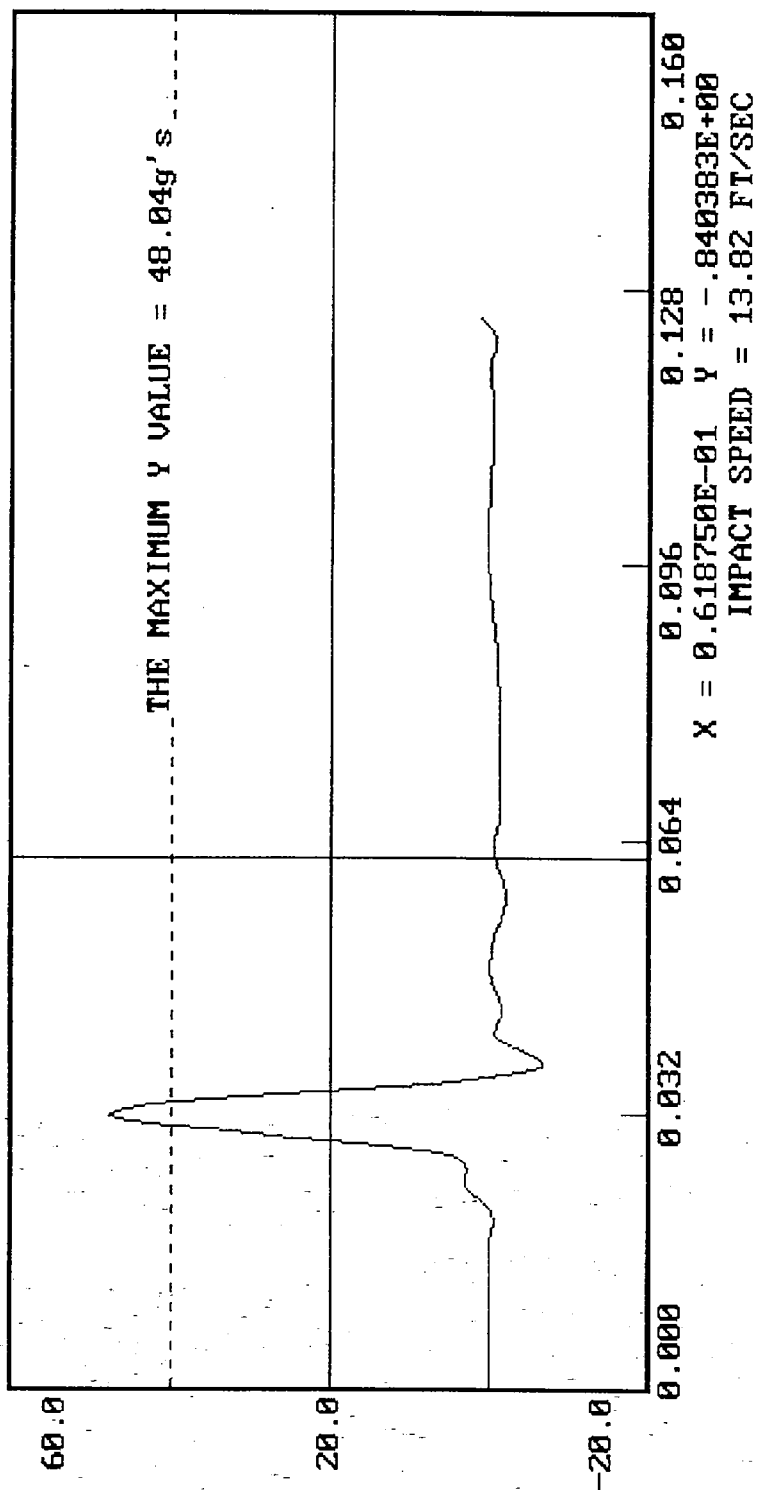


11-08-1995 11:53

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)

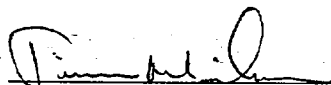
DATE: November 14, 1995

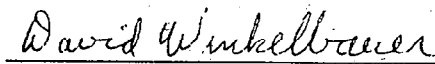
DUMMY NUMBER: 271

TEST NUMBER: D951684

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	32.2
FORCE @ 0.75 in	36.7 - 49.8 lbs	45.1
FORCE @ 1.0 in	50 - 63 lbs	60
FORCE @ 1.3 in	73 - 88 lbs	83

TEST MEETS SPECIFICATIONS

TECHNICIAN 

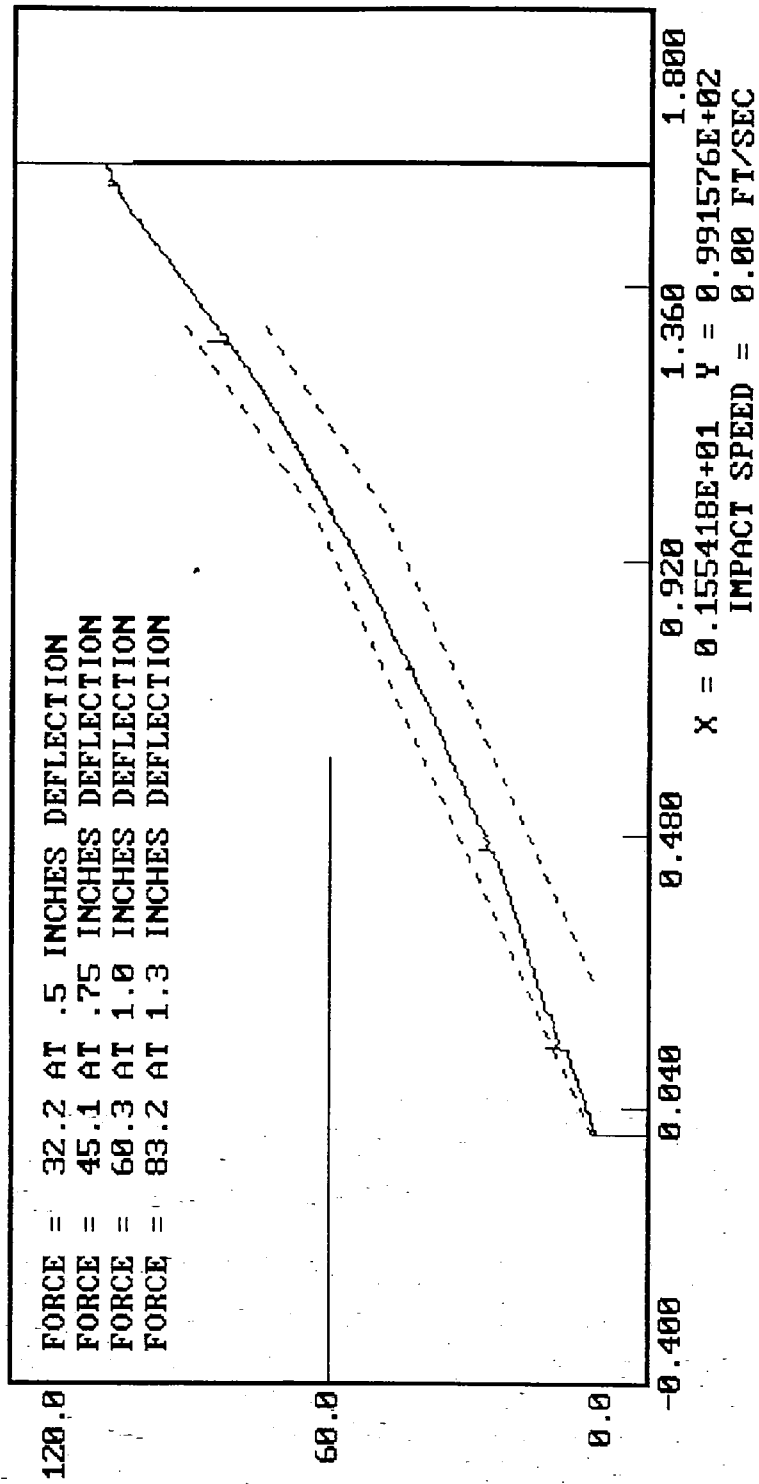
APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 271

ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)

11-14-1995 08:57



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 13, 1995

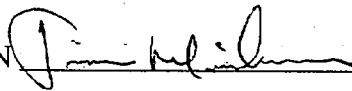
DUMMY NUMBER: 271

TEST NUMBER: D9516845

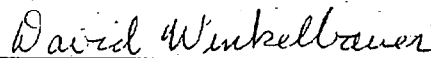
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	24
FORCE @ 30°	34 - 46 lbs	34
FORCE @ 40°	46 - 58 lbs	50
RETURN ANGLE	12° maximum	5°

TEST MEETS SPECIFICATIONS

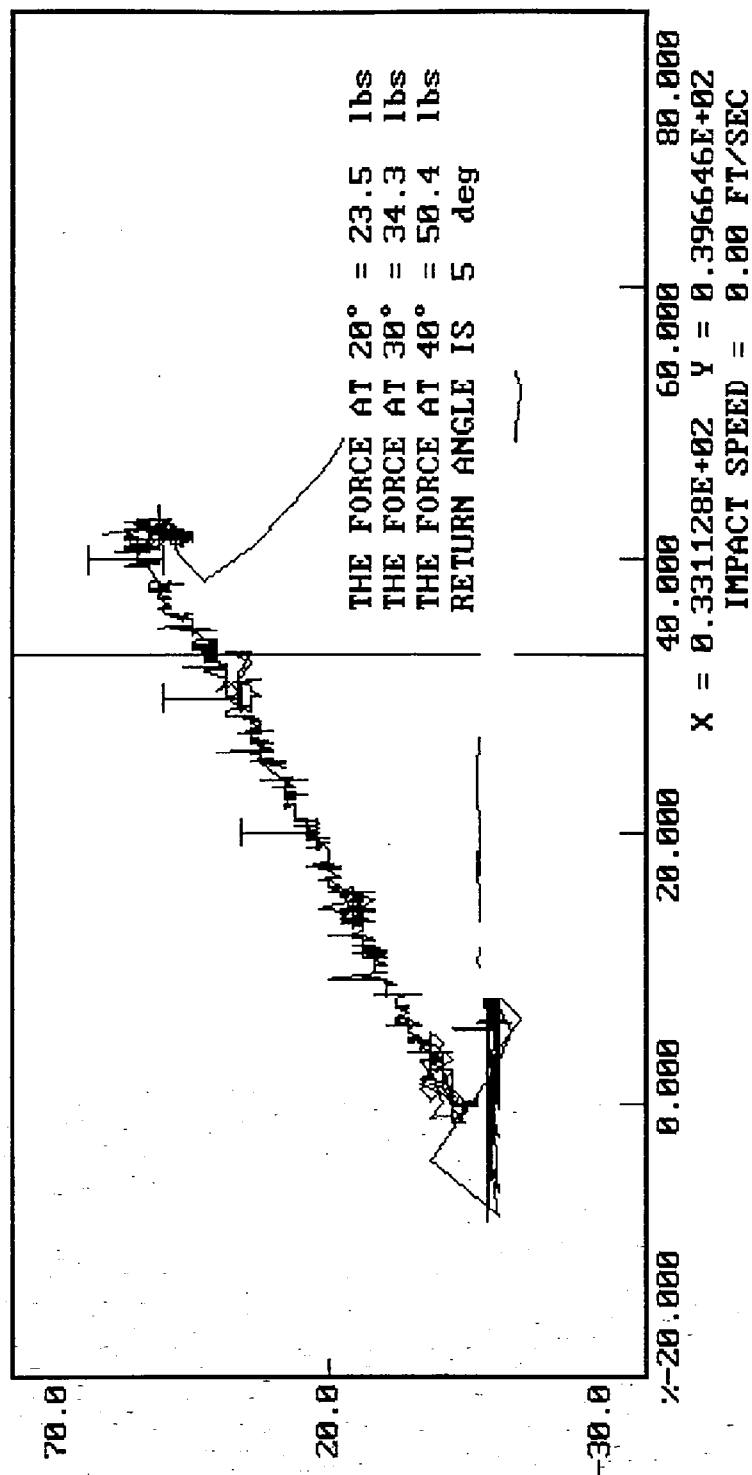
TECHNICIAN



APPROVED BY



DUMMY CALIBRATION - LUMBAR FLEXION
 DUMMY # 271
 11-13-1995 09:52
 FORCE () VS. TORSO ROTATION (DEGREES)



POST-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 272

Calibration Test Results Summary

Dummy Serial Number: 272

Post-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 272

DATE OF VERIFICATION: November 8, 1995

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.3
RH - Rib Height	19.75" - 20.50"	20.2
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"	20.7
SW - Knee Pivot to Floor	19.3" - 19.9"	19.6
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: Tim Hilborn

APPROVED BY: David Winkelbauer

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 8, 1995

DUMMY NUMBER: 272

TEST NUMBER: D951692

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	12%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	41
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN *Jim Belcher*

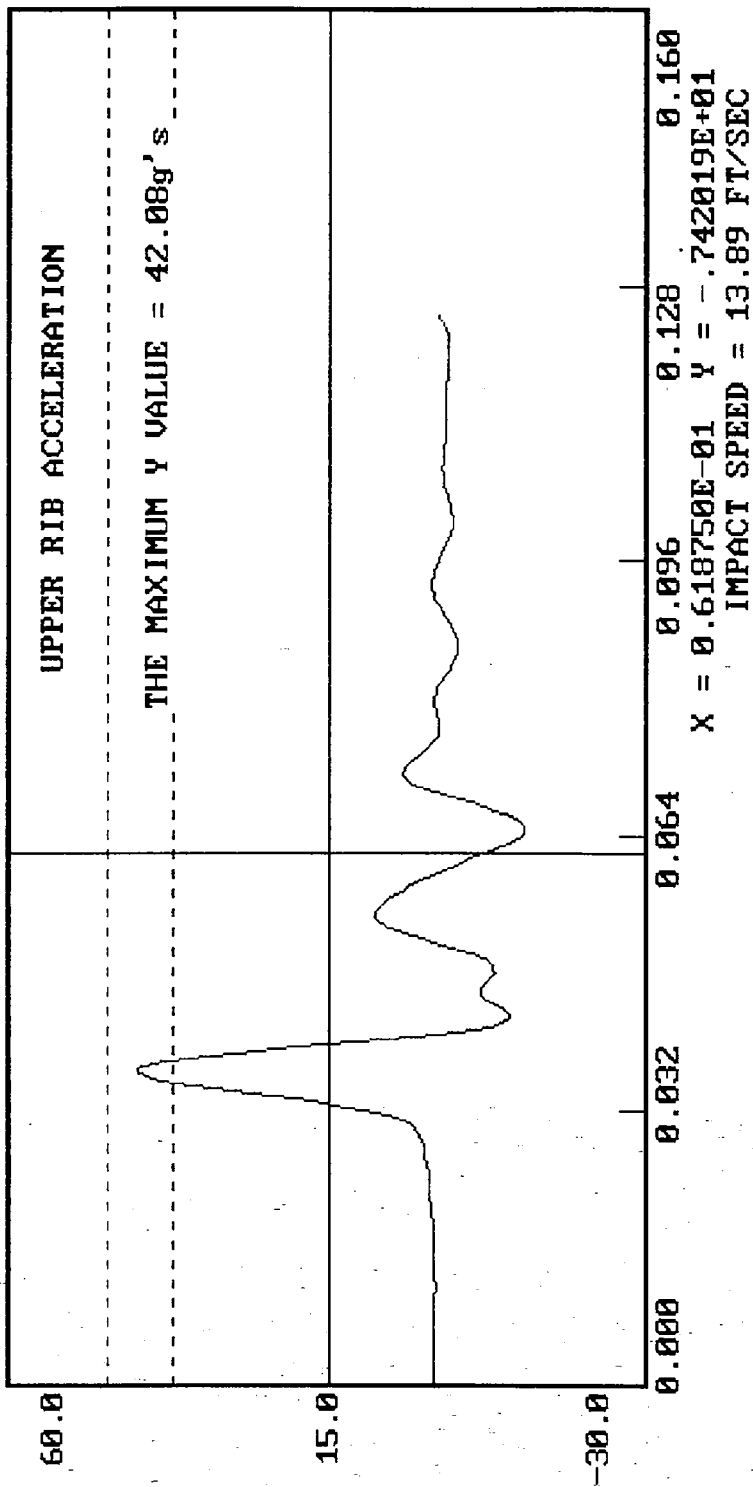
APPROVED BY *David Winkelbauer*

11-08-1995 16:00

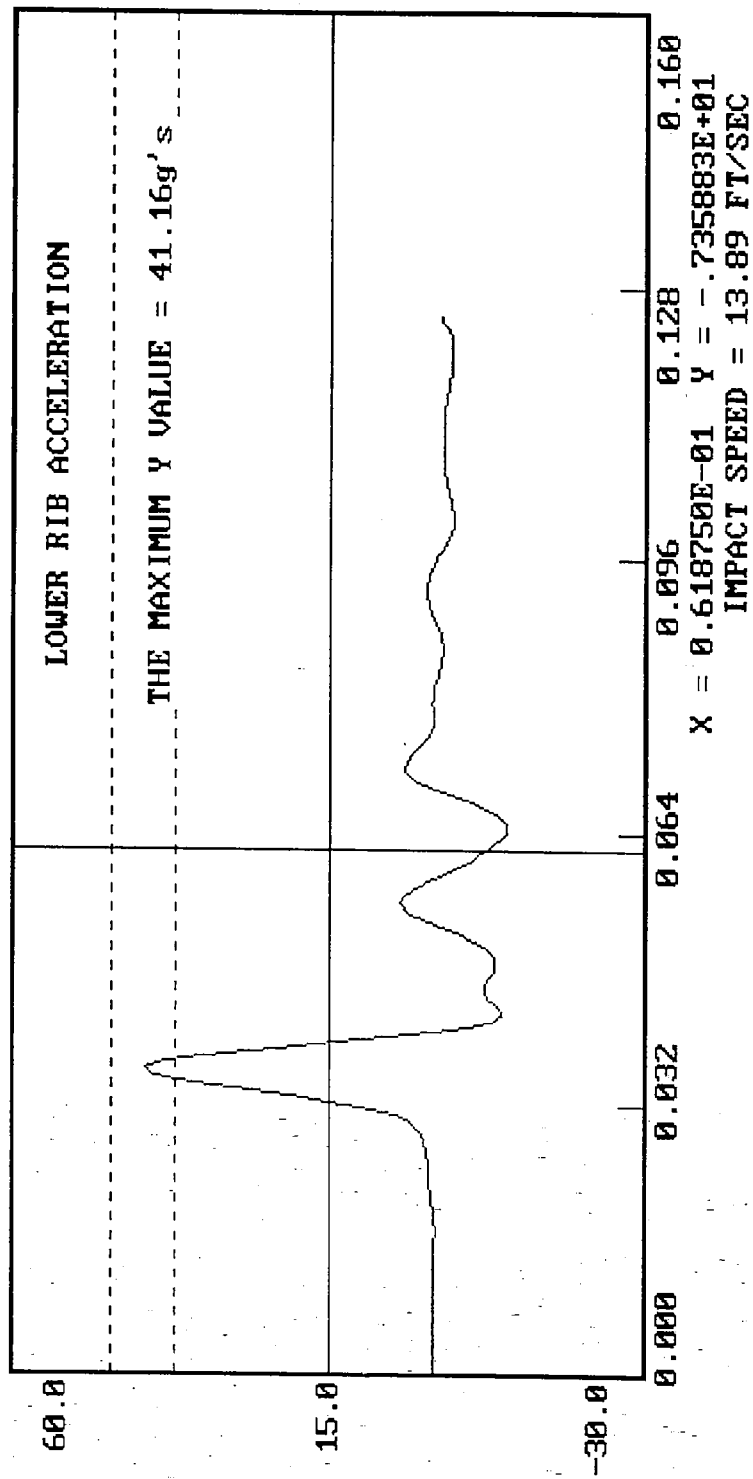
DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 272

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



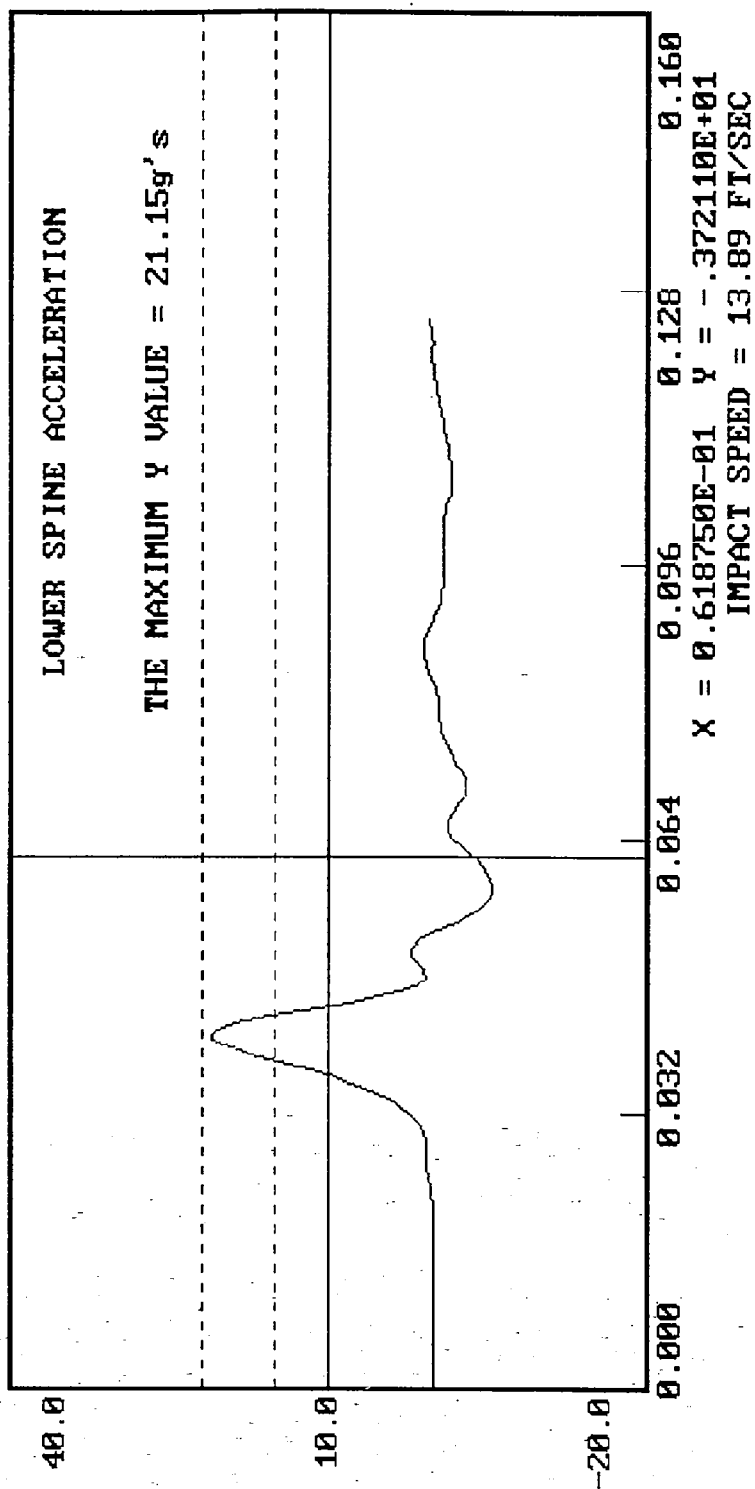
DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 272
 11-08-1995 16:00
 ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 272

11-08-1995 16:00

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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

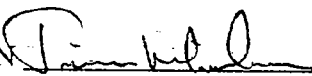
DATE: November 9, 1995

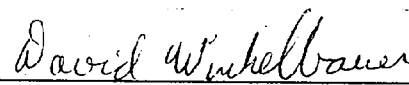
DUMMY NUMBER: 272

TEST NUMBER: D951693

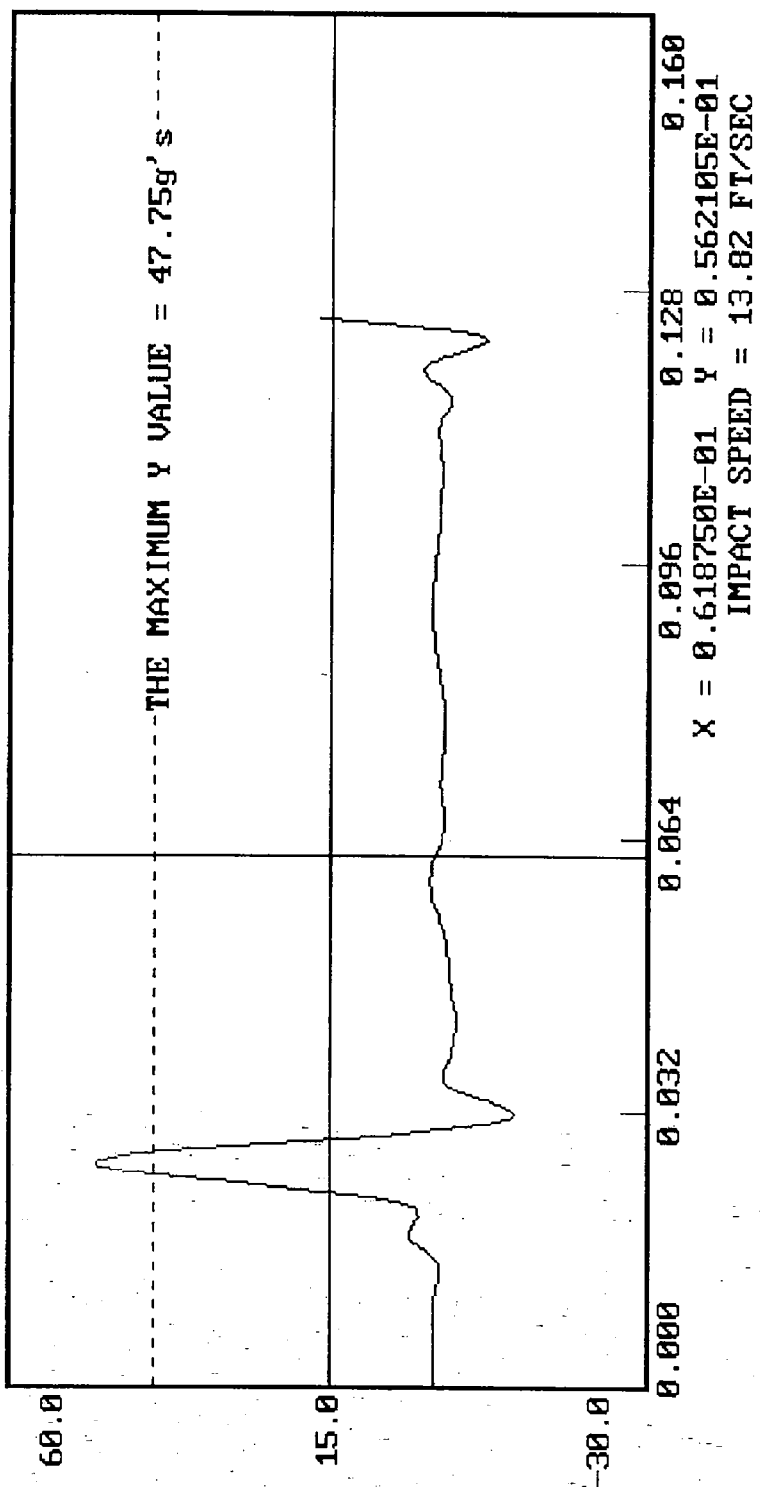
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 f/s	13.8
PELVIS ACCELERATION	40 - 60 g's	48

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 272
11-09-1995 08:32
ACCELERATION (G'S) VS. TIME ((SECONDS))



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

DATE: November 14, 1995

DUMMY NUMBER: 272

TEST NUMBER: D951694

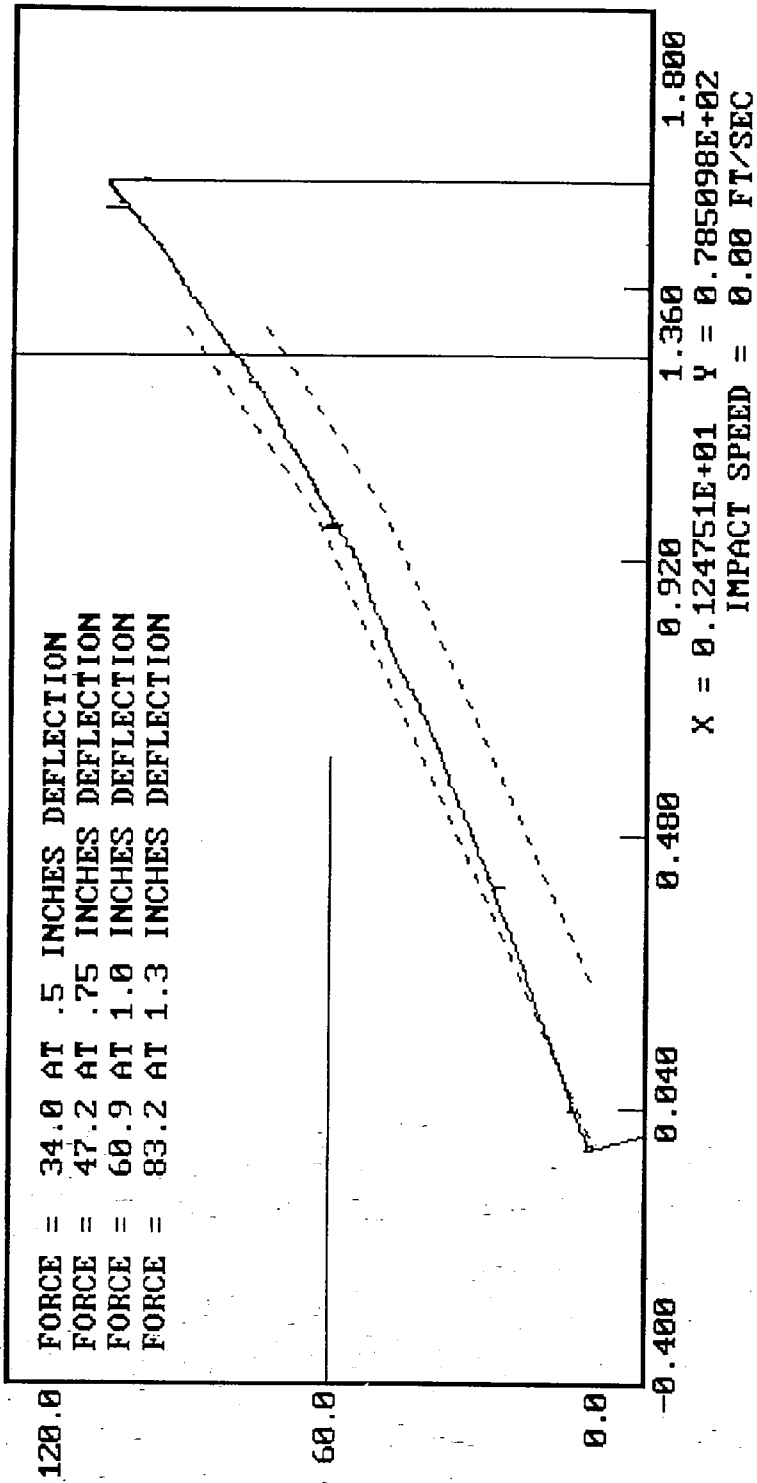
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	34.0
FORCE @ 0.75 in	36.7 - 49.8 lbs	47.2
FORCE @ 1.0 in	50 - 63 lbs	61
FORCE @ 1.3 in	73 - 88 lbs	83

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim Wilkins

APPROVED BY David W. Wilkins

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 272
 11-14-1995 09:06
 ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 13, 1995

DUMMY NUMBER: 272

TEST NUMBER: D951695

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	24
FORCE @ 30°	34 - 46 lbs	40
FORCE @ 40°	46 - 58 lbs	58
RETURN ANGLE	12° maximum	4°

TEST MEETS SPECIFICATIONS

TECHNICIAN

David Winhelbauer

APPROVED BY

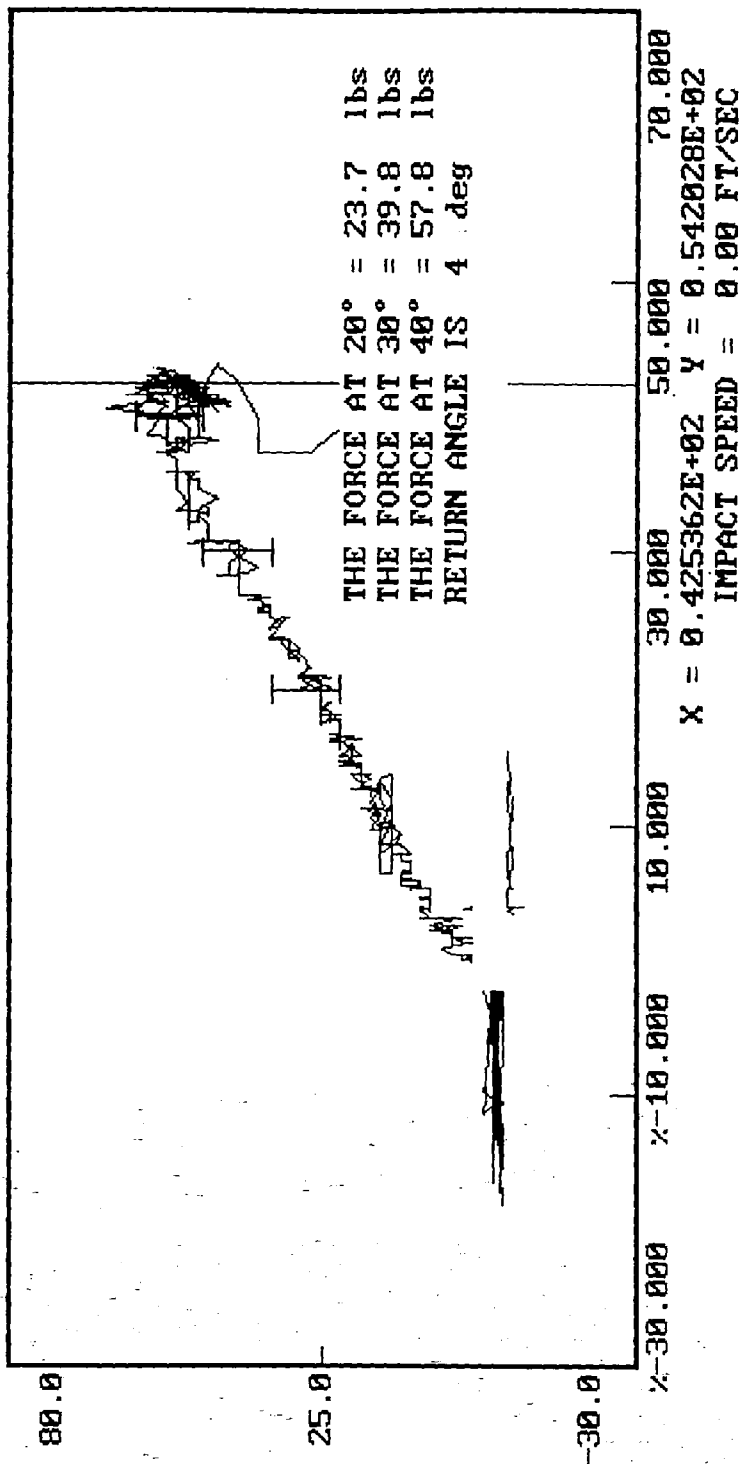
David Winhelbauer

DUMMY CALIBRATION - LUMBAR FLEXION

DUMMY # 272

FORCE () VS. TORSO ROTATION (DEGREES)

11-13-1995 10:09



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 271

Inspected By: Al Chalmers

Date: November 13, 1995

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

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

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 272

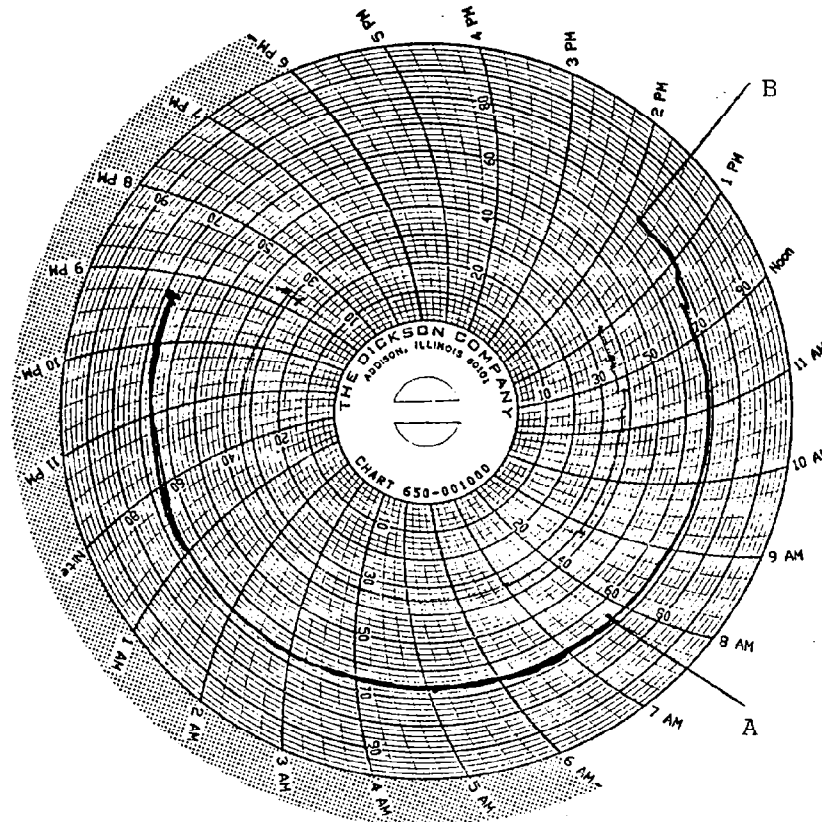
Inspected By: Al Chalmers

Date: October 13, 1995

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

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

VEHICLE AND DUMMY TEMPERATURE



A = Dummies placed in vehicle
B = Test conducted

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

DUMMY AND VEHICLE CALIBRATION DATA
INSTRUMENTS FOR DRIVER DUMMY NO. 271

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AP2A4	Endevco	September 14, 1995
Lower Rib Y	AP1B3	Endevco	September 25, 1995
Lower Spine Y	ANAP1	Endevco	May 23, 1995
Pelvis Y	AJ417	Endevco	July 10, 1995
Upper Rib Redundant Y	AP2D8	Endevco	September 14, 1995
Lower Rib Redundant Y	AP1C6	Endevco	September 25, 1995
Lower Spine Redundant Y	ANAT6	Endevco	May 23, 1995
Pelvis Redundant Y	AGP20	Endevco	July 10, 1995

INSTRUMENTS FOR PASSENGER DUMMY NO. 272

LEFT REAR PASSENGER			
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AN8L6	Endevco	June 13, 1995
Lower Rib Y	APYR7	Endevco	September 06, 1995
Lower Spine Y	AP0H4	Endevco	September 06, 1995
Pelvis Y	APY15	Endevco	September 06, 1995
Upper Rib Redundant Y	APY13	Endevco	September 06, 1995
Lower Rib Redundant Y	AJ8T5	Endevco	June 27, 1995
Lower Spine Redundant Y	AP0F6	Endevco	September 06, 1995
Pelvis Redundant Y	APY16	Endevco	September 06, 1995

VEHICLE INSTRUMENT CALIBRATION

VEHICLE ACCELEROMETERS		
	SERIAL NO.	CALIBRATION DATE
Moving Barrier CG X	H07-A10	September 05, 1995
Moving Barrier CG Y	D06-A19	June 09, 1995
Moving Barrier CG Z	C06-G19	September 05, 1995
Moving Barrier Rear Axle X	E24-G02	September 05, 1995
Moving Barrier Rear Axle Y	L15-G10	July 20, 1995
Left Mid A-Post Y	B02-G06	October 05, 1995
Left Lower A-Post Y	E25-G05	September 29, 1995
Left Mid B-Post Y	B12-G14	October 24, 1995
Left Lower B-Post Y	C16-F01	October 19, 1995
Rear Floorpan Above Axle X	C25-A01	October 05, 1995
Rear Floorpan Above Axle Y	B12-G09	April 24, 1995
Rear Floorpan Above Axle Z	C06-G17	April 27, 1995
Driver Seat Track Y	H16-X11	September 21, 1995
Right Side Sill at Front Seat X	H07-A11	September 05, 1995
Right Side Sill at Front Seat Y	H07-A15	September 05, 1995
Right Side Sill at Front Seat Z	H07-A25	September 05, 1995
Right Side Sill at Rear Seat X	F07-A17	October 19, 1995
Right Side Sill at Rear Seat Y	F07-A20	August 02, 1995
Right Side Sill at Rear Seat Z	F10-D04	August 02, 1995
Left Side Sill at Front Seat Y	F12-X03	August 02, 1995

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Rear Seat Y	L15-G19	Entran	July 19, 1995
Right Rear Occupant Compartment Y	C25-A08	Entran	October 24, 1995
Vehicle CG X	E24-G04	Entran	June 26, 1995
Vehicle CG Y	F12-X10	Entran	August 01, 1995
Vehicle CG Z	E25-G04	Entran	June 28, 1995

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