V2411

REPORT NO.: 214-MGA-96-015
SAFETY COMPLIANCE TESTING FOR
FMVSS 214 "SIDE IMPACT PROTECTION -
PASSENGER CARS"

HYUNDAI MOTOR AMERICA
1996 HYUNDAI ACCENT 4 DOOR
NHTSA NO: CT0506

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105

Test Date: February 28, 1996

Report Date: March 5, 1996

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

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 214-MGA-96-015	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 Hyundai Accent 4 Door NHTSA No. CT0506		5. Report Date March 5, 1996 6. Performing Organization Code MGA
7. Author(s) Dave Kosloske, Project Engineer		8. Performing Organization Report No. MGA-DOT-214-015
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 February 28 to March 5, 1996 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 Hyundai Accent 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 February 28, 1996.

The impact velocity of the Moving Deformable Barrier (MDB) was 52.9 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 20°C. The target vehicle post test maximum crush was 312 mm at level 2. The test vehicle's performance follows:

	DRIVER	PASS.
Left Upper Rib (LUR) Accel., g	60	52
Left Lower Rib (LLR) Accel., g	57	63
Lower Spine (T_{12}) Accel., g	67	50
Thoracic Trauma Index (TTI)	63	56
Pelvis (PEV) Accel., g	82	89

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.

17. Key Words	18. Distribution Statement
Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID)	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)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified		

Form DOT F 1700.7 (8-69)

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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FINAL REPORT ACCEPTED BY (OVSC):

Accepted By: _____
Contract Technical Manager

Acceptance Date: 4-4-96

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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 of a 1996 Hyundai Accent 4 Door Sedan.

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 Hyundai Accent 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 32.9 mph (52.9 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 February 28, 1996. 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 (T_{12}) 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)	63.4	56.4
Pelvis (g)	81.6	88.8

TEST NOTES

1. 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

2. The vehicle C.G. X Acceleration data is not valid after 41 milliseconds.

3. The driver dummy and both the driver's side and passenger's side airbags interfered with the string potentiometer used to measure from seating position intrusion.

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/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 VIN: KMHVF14NXTU227768

Vehicle Body Color: Green Build Date: 8-95

Engine Data: 4 Cylinders; __ CID; 1.5 Liter; ___cc

Placement __ Longitudinal; X Lateral

Transmission: 3 speed;__ Manual; X Automatic; X Overdrive

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

Odometer Reading 122 miles

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

__Cruise Control;__Tilt Wheel;__Power Door Locks;

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 32 Psi FRONT

32 Psi REAR

Recommended Tire Size: P175/70R13

Tires on Test Vehicle: P175/70R13 Manufacturer: Uniroyal

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; __ 3rd Seat 5 Total

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

Type of Front Seat Back: __ Fixed; X Adjustable with X Knob

Vehicle Maximum Capacity Loading = 385.6 kg (A)

No. of Occupants x 68.04 kg. = 340.2 kg (B)

Cargo Capacity (A-B) = 45.4 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	= 319.8 kg	Right Rear	= 198.7 kg
Left Front	= 338.8 kg	Left Rear	= 195.5 kg
TOTAL FRONT =	658.6 kg	TOTAL REAR =	394.2 kg

% of Total Vehicle Weight = 62.6 %; % of Total Weight = 37.4 %

TOTAL WEIGHT = 1052.8 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	= 1052.8 kg
Cargo Carrying Capacity of Test Vehicle	= 45.4 kg
Weight of 2 Side Impact Dummies (2 x 80.7 kg.)	= 161.4 kg
TEST VEHICLE TARGET WEIGHT	= 1259.6 kg

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front	= 323.9 kg	Right Rear	= 254.7 kg
Left Front	= 389.2 kg	Left Rear	= 286.7 kg
TOTAL FRONT	= 713.1 kg	TOTAL REAR	= 541.6 kg
% of Total Weight	= 56.8 %	% of Total Weight	= 43.2 %
TOTAL TEST WEIGHT	= 1254.7 kg		

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 630 mm Left Front 622 mm Right Rear 619 mm Left Rear 614 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 627 mm Left Front 606 mm Right Rear 589 mm Left Rear 568 mm

TEST ATTITUDE:

Right Front 625 mm Left Front 611 mm Right Rear 593 mm Left Rear 572 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2400 mm

C.G. = 979 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 3784 mm

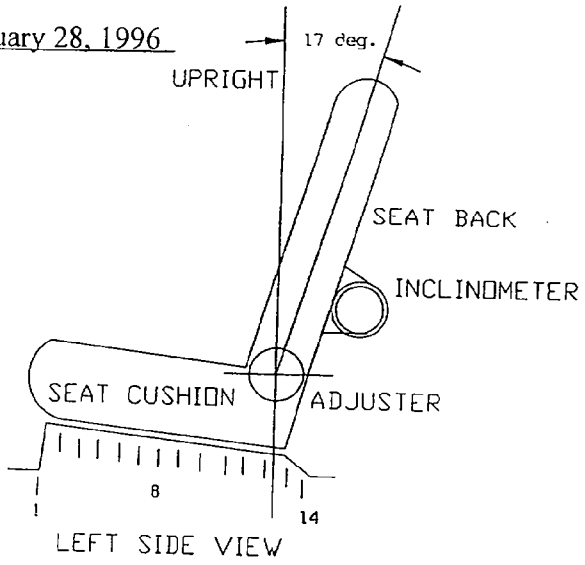
Centerline = 4122 mm

Left Side = 3784 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996



FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 205 mm

Test Position: 8th detent forward out of 14 total

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 17°

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: Non-Adjustable

ADJUSTABLE STEERING COLUMN POSITION: Non-Adjustable

WINDOW POSITIONS: Left Front Closed Left Rear Closed

Right Front Open Right Rear Removed

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 45.0 liters

Test Volume: 41.6 liters 92 % of capacity

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

Wheelbase: = 2400 mm

Impact Point is 260 mm rearward of front axle centerline

DATA SHEET NO. 2

TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

Overall Length = 4122 mm; Overall Width = 1620 mm

TEST WEIGHT:

Right Front =	347.0 kg	Right Rear =	244.5 kg
Left Front =	394.2 kg	Left Rear =	265.8 kg
TOTAL FRONT =	741.2 kg	TOTAL REAR =	510.3 kg
% of Total Weight =	59.2 %	% of Total Weight =	40.8 %

TOTAL VEHICLE WEIGHT = 1251.5 kg

Wheelbase = 2400 mm

Longitudinal C.G. from Center of Front Axle = 979 mm

Impact Angle with Respect to Impactor = 90° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (242 mm above ground) = 179 mm
2. LEVEL 2 (460 mm above ground) = 312 mm
3. LEVEL 3 (566 mm above ground) = 291 mm
4. LEVEL 4 (852 mm above ground) = 220 mm
5. LEVEL 5 (1287 mm above ground) = 64 mm

Maximum Post-Test Intrusion = 312 mm

OCCUPANTS:	Left Front Passenger	Left Rear Passenger
Type of Dummy	SID	SID
Restraints Used	type II belt with airbag	type II belt

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)

INSTRUMENTATION:

Number of Vehicle Data Channels:		= 22
Number of Cameras:	Onboard Vehicle	= 3
	Offboard Vehicle	= 4
	Deformable Barrier	= 2
	TOTAL	= 9

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

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

MDB WEIGHT:

Left Front	= 496.7 kg	Left Rear	= 187.3 kg
Right Front	= 283.0 kg	Right Rear	= 389.2 kg
TOTAL FRONT = 779.7 kg		TOTAL REAR = 576.5 kg	

TOTAL MDB WEIGHT = 1356.2 kg

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

Impact Speed = Primary: 32.9 mph (52.9 kph) Secondary: 33.1 mph (53.3 kph)

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A Top of Stack (813 mm) = 129 mm
2. Row B Mid Stack (686 mm) = 87 mm
3. Row C Top of Bumper (533 mm) = 55 mm
4. Row D Center of Bumper (432 mm) = 73 mm

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET NO. 4

POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

VISIBLE DUMMY CONTACT POINTS:

	LEFT FRONT SID	LEFT REAR SID
Head	to header, B-post, side window	to C Post
Arm	to door panel	to side window
Pelvis	to door panel	to door panel
Left Knee	to door panel	to door panel
Right Knee	to left knee	to left knee

DOOR OPENING:

	LEFT SIDE	RIGHT SIDE
Front	did not open	opened
Rear	opened	opened

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 15 mm forward Vertical: 5 mm high

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 10 mm Front Seat Cushion: 36 mm

Left Rear Seat Back: 25 mm Rear Seat Cushion: 122 mm

GLAZING DAMAGE:

Windshield cracked, driver and left rear passenger side windows broke

PILLAR PERFORMANCE:

No failure noted

SILL SEPARATION:

No failure noted

OTHER NOTABLE IMPACT EFFECTS:

Driver and right front passenger airbags deployed

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

SIDE IMPACT DUMMY (SID) INSTRUMENTATION DATA

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

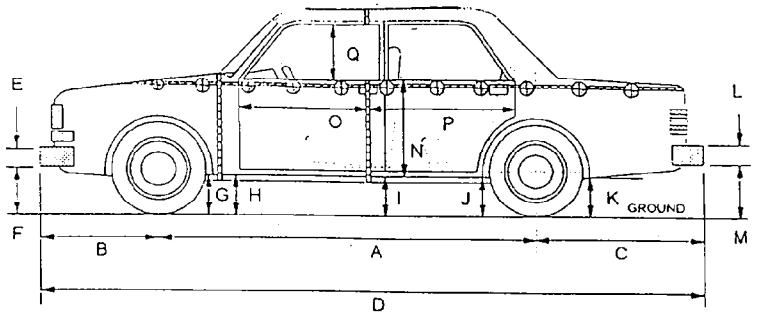
	Front Dummy ID #272				Rear Dummy ID #271			
	Pos. Direct.		Neg. Direct		Pos. Direct.		Neg. Direct	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS								
Left Upper Rib (LUR) Y	59.8	42	-12.2	76	51.6	47	-13.7	103
Left Lower Rib (LLR) Y	56.8	42	-11.5	93	63.1	48	-16.1	71
SPINE ACCELERATIONS								
Lower Lateral Y	67.0	28	-18.9	70	49.8	49	-11.8	107
PELVIS ACCELERATIONS								
Lateral Y	81.6	31	-7.7	75	88.8	37	-8.4	72

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



LEFT SIDE VIEW

D = Length at Centerline
R = Right Side Length
S = Left Side Length
T = Width at B Post
E & L = Bumper Thickness
J1 = To Pinch Weld
J2 = To Sill

ALL MEASUREMENTS IN (mm)

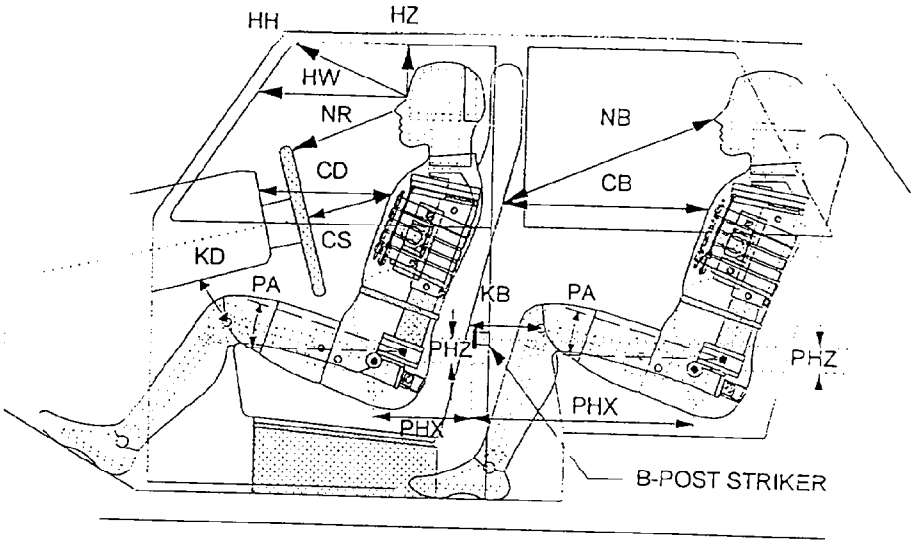
	PRE-TEST	POST-TEST	Δ CHANGE
A	2400	2363	37
B	812	783	29
C	910	876	34
D	4122	4022	100
E	115	116	-1
F	375	393	-18
G	193	200	-7
H	173	195	-22
I	187	196	-9
J1/J2	198/169	213/174	-15/-5
K	261	269	-8
L	175	176	-1
M	385	397	-12
N	605	533	72
O	641	637	4
P	1110	1054	56
Q	398	398	0
R	3784	3790	-6
S	3784	3730	54
T	1620	1356	264

DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

NHTSA NO.: CT0506 Test Date: February 28, 1996



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

	FRONT SID ID #272
HH	394
HW	560
HZ	154
NR	507
CD	557
CS	377
KDL(KDA°)	216 (9.6)
KDR(KDA°)	218 (15.0)
PA°	23.2
PHX	141
PHZ	135

	REAR PASSENGER SID ID #271
HZ	159
NB	587
CB	490
KBL (KBA)	160 (5.2)
KBR (KBA)	145 (3.1)
PA°	24.6
PHX	240
PHZ	290

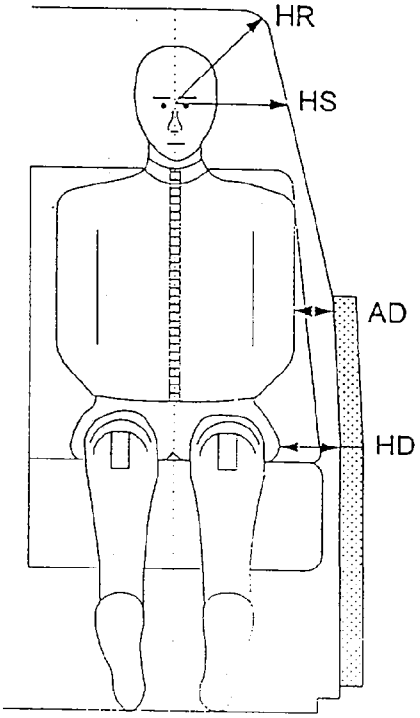
NOTE: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as reference point.

DATA SHEET NO. 8

SIDE IMPACT DUMMY (SID) LATERAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

NHTSA NO.: CT0506 Test Date: February 28, 1996



NOTE: All dimensions are in mm

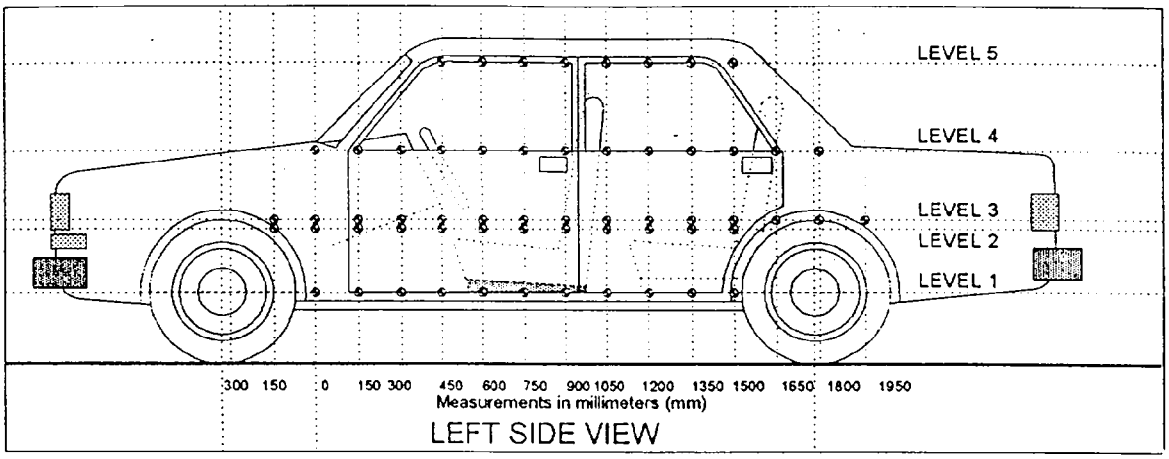
	DRIVER ID #272	LEFT REAR PASSENGER ID #271
HR	216	250
HS	282	206
AD	121	142
HD	178	204

DATA SHEET NO. 9

VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

NHTSA NO.: CT0506 Test Date: February 28, 1996



LEVEL 5 - WINDOW TOP
LEVEL 4 - WINDOW SILL
LEVEL 3 - MID-DOOR
LEVEL 2 - OCCUPANT H-POINT
LEVEL 1 - AXLE CENTERLINE HEIGHT or SILL TOP HEIGHT

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	= 1287 mm
Level 4 @ Window Sill	= 852 mm
Level 3 @ Mid Door	= 566 mm
Level 2 @ Occupant H-Point	= 460 mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	= 242 mm

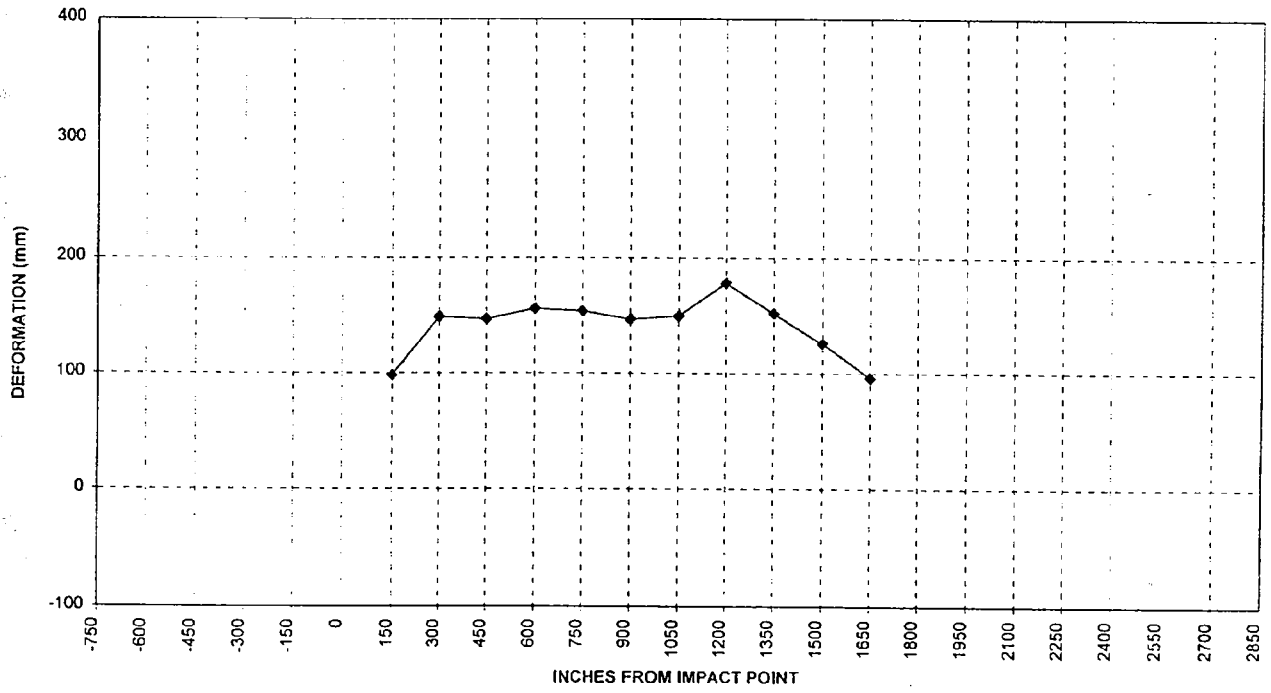
DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Year/Make/Model/Body Style: 1996 Hyundai/Accent/4 Door
NHTSA No.: CT0506 Test Date: February 28, 1996

	Level 1 - Axle Centerline		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150	815	913	98
300	824	973	149
450	822	969	147
600	820	976	156
750	825	979	154
900	822	969	147
1050	823	973	150
1200	821	1000	179
1350	821	973	152
1500	818	944	126
1650	815	911	96
1800			
1950			
2100			
2250			
2400			
2550			
2700			
2850			

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 1 - AXLE CENTERLINE

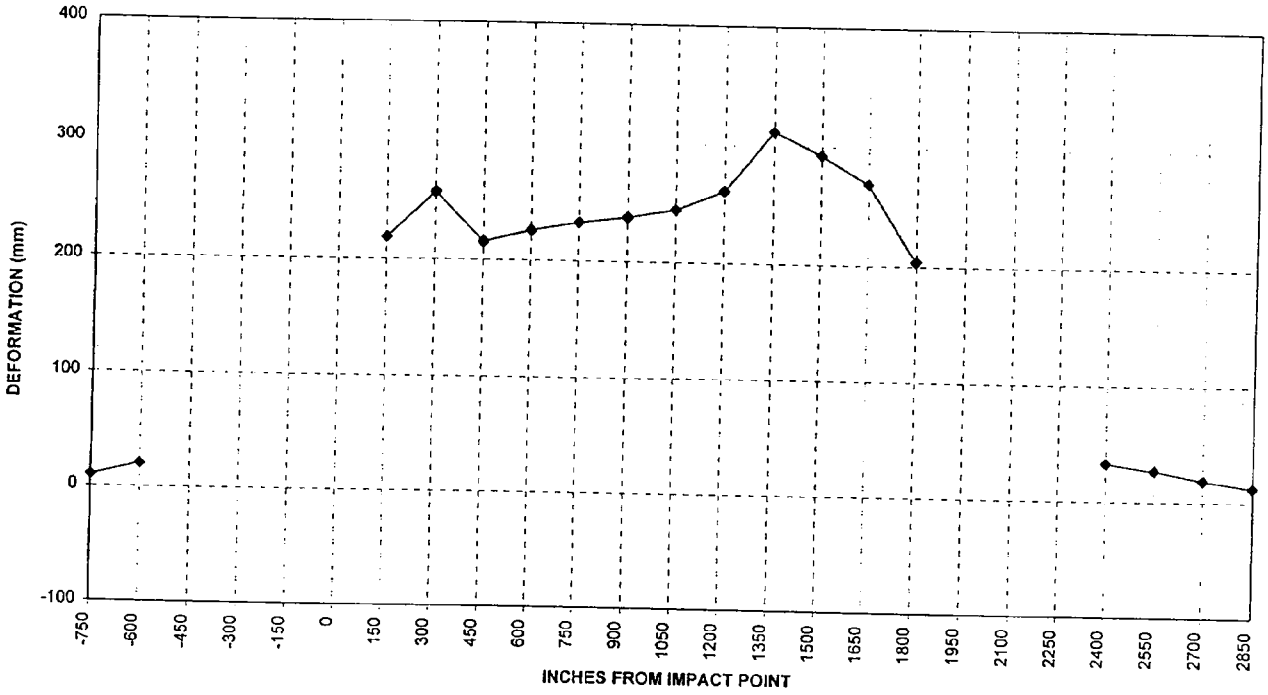
DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Year/Make/Model/Body Style: 1996 Hyundai/Accent/4 Door
NHTSA No.: CT0506 Test Date: February 28, 1996

	Level 2 - Occupant H Point		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-750	820	830	10
-600	790	810	20
-450			
-300			
-150			
0 (impact point)			
150	775	994	219
300	777	1034	257
450	831	1047	216
600	830	1056	226
750	830	1063	233
900	830	1068	238
1050	830	1075	245
1200	830	1091	261
1350	779	1091	312
1500	778	1071	293
1650	776	1045	269
1800	773	977	204
1950			
2100			
2250			
2400	771	804	33
2550	786	813	27
2700	804	823	19
2850	833	846	13
3000			

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

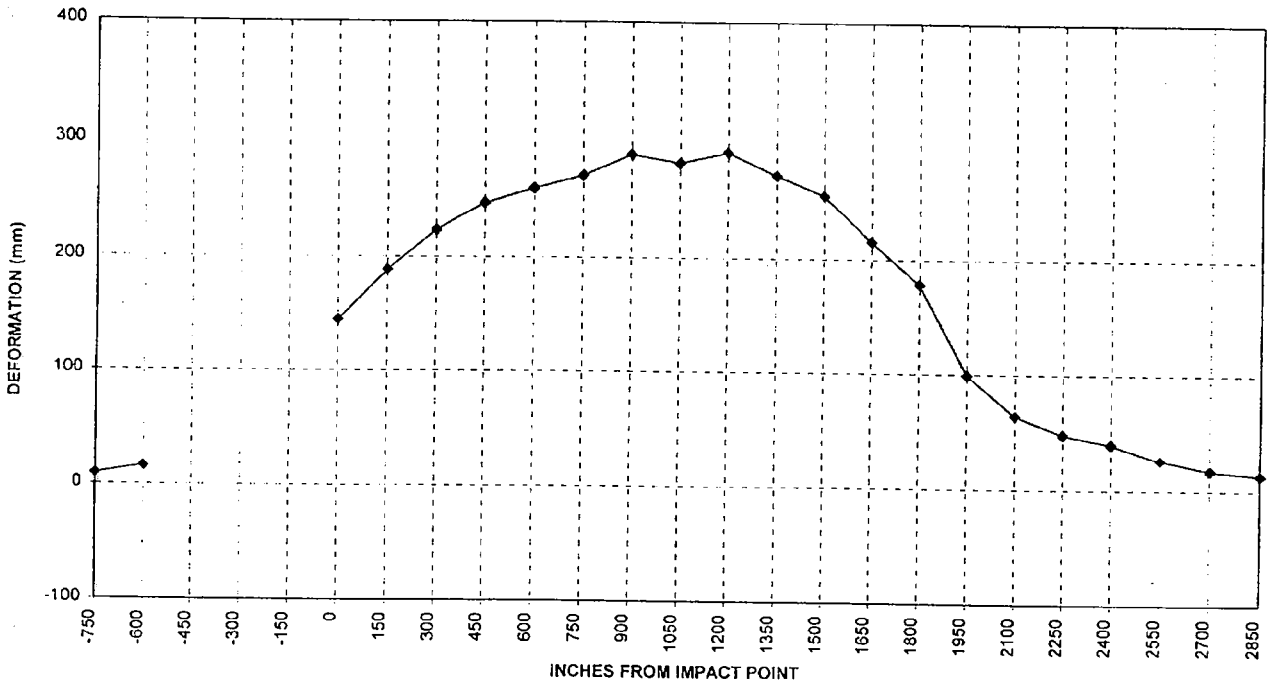
DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Year/Make/Model/Body Style: 1996 Hyundai/Accent/4 Door
NHTSA No.: CT0506 Test Date: February 28, 1996

	Level 3 - Mid Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-750	830	839	9
-600	798	814	16
-450			
-300			
-150			
0 (impact point)	774	919	145
150	777	966	189
300	778	1001	223
450	780	1027	247
600	778	1038	260
750	777	1048	271
900	778	1067	289
1050	778	1060	282
1200	777	1068	291
1350	778	1050	272
1500	776	1031	255
1650	777	991	215
1800	776	955	179
1950	770	869	99
2100	762	826	64
2250	763	811	48
2400	778	818	40
2550	795	821	26
2700	817	834	17
2850	866	879	13
3000			

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 3 - MID DOOR

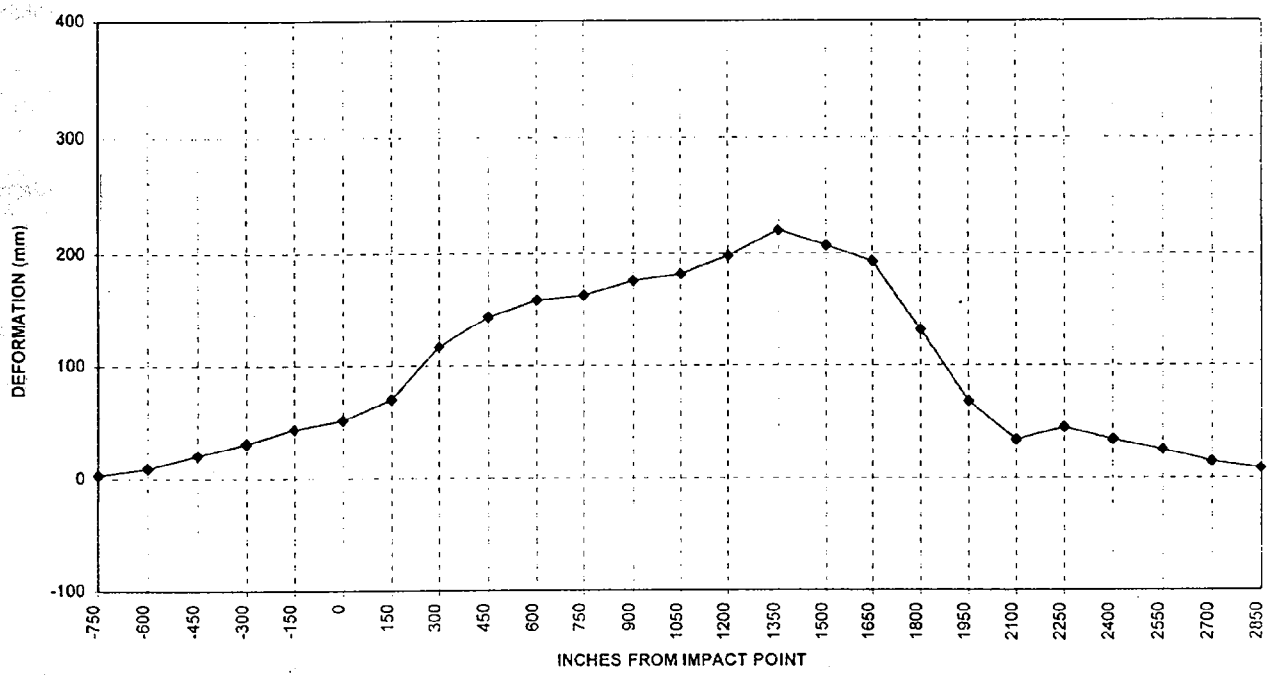
DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Year/Make/Model/Body Style: 1996 Hyundai/Accent/4 Door
NHTSA No.: CT0506 Test Date: February 28, 1996

	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-750	911	914	3
-600	891	900	9
-450	875	895	20
-300	866	897	31
-150	853	897	44
0 (impact point)	845	897	52
150	837	907	70
300	834	951	117
450	832	976	144
600	828	987	159
750	829	992	163
900	826	1002	176
1050	826	1008	182
1200	826	1024	198
1350	825	1045	220
1500	826	1033	207
1650	827	1020	193
1800	826	958	132
1950	826	894	68
2100	830	864	34
2250	834	879	45
2400	838	872	34
2550	843	868	25
2700	862	876	14
2850	895	903	8
3000			

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 Hyundai/Accent/4 Door

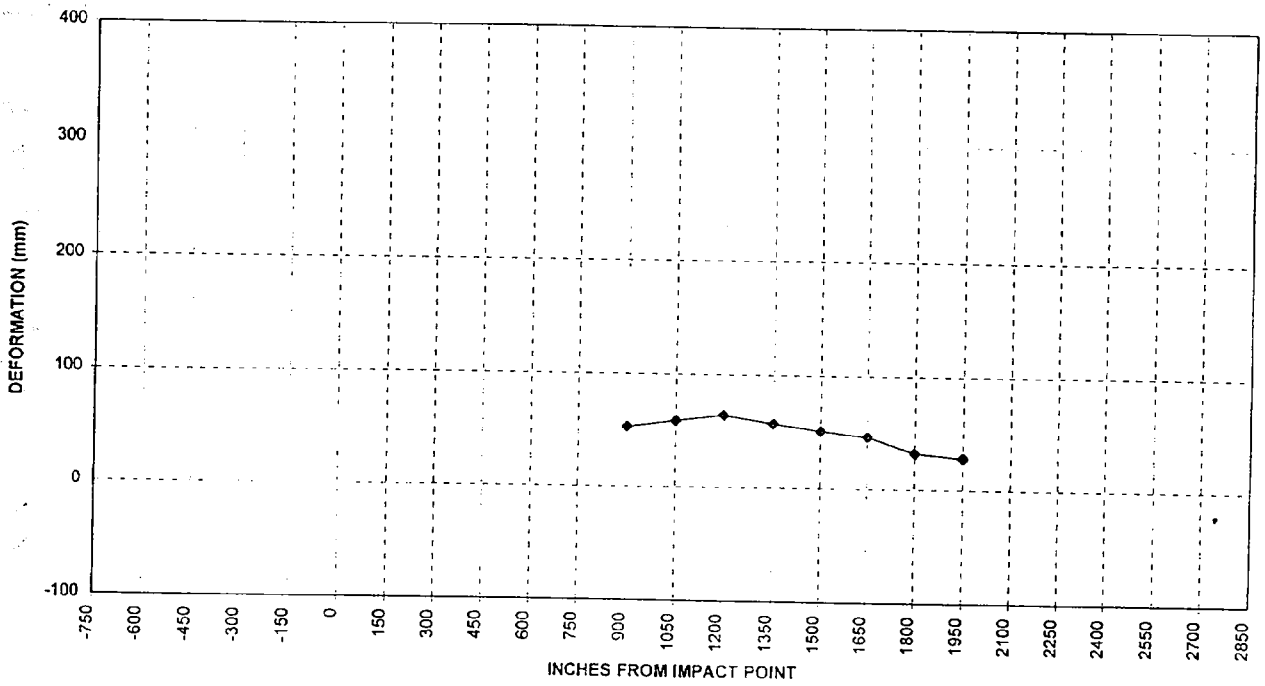
NHTSA No.: CT0506 Test Date: February 28, 1996

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750			
900	1055	1108	53
1050	1055	1114	59
1200	1056	1120	64
1350	1057	1114	57
1500	1059	1110	51
1650	1062	1108	46
1800	1067	1099	32
1950	1076	1104	28
2100			
2250			
2400			
2550			
2700			
2850			
3000			

Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

VEHICLE EXTERIOR STATIC CRUSH



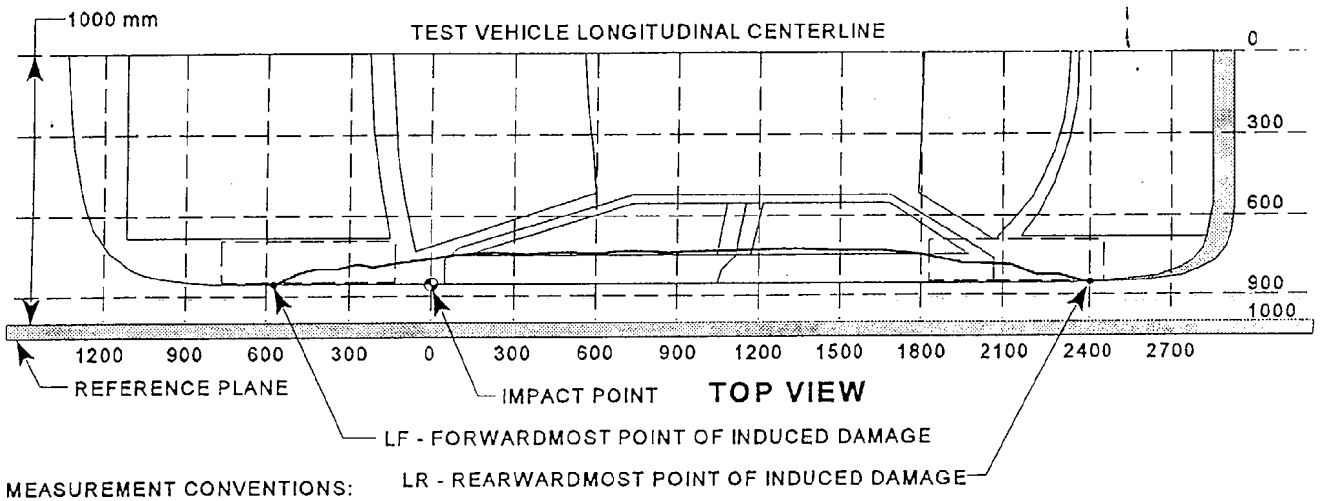
LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

NHTSA NO.: CT0506 Test Date: February 28, 1996



MEASUREMENT CONVENTIONS:
Forward of the impact point (towards front of vehicle) is considered negative (—).
Rearward of the impact point (toward rearend of vehicle) is considered positive (+).

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = -750 mm)	911	911	0
2. -39 mm	930	777	153
3. 647 mm	1070	830	240
4. 1388 mm	1084	779	305
5. 2137 mm	847	827	20
6. (LR = 2850 mm)	898	898	0

DATA SHEET NO. 12

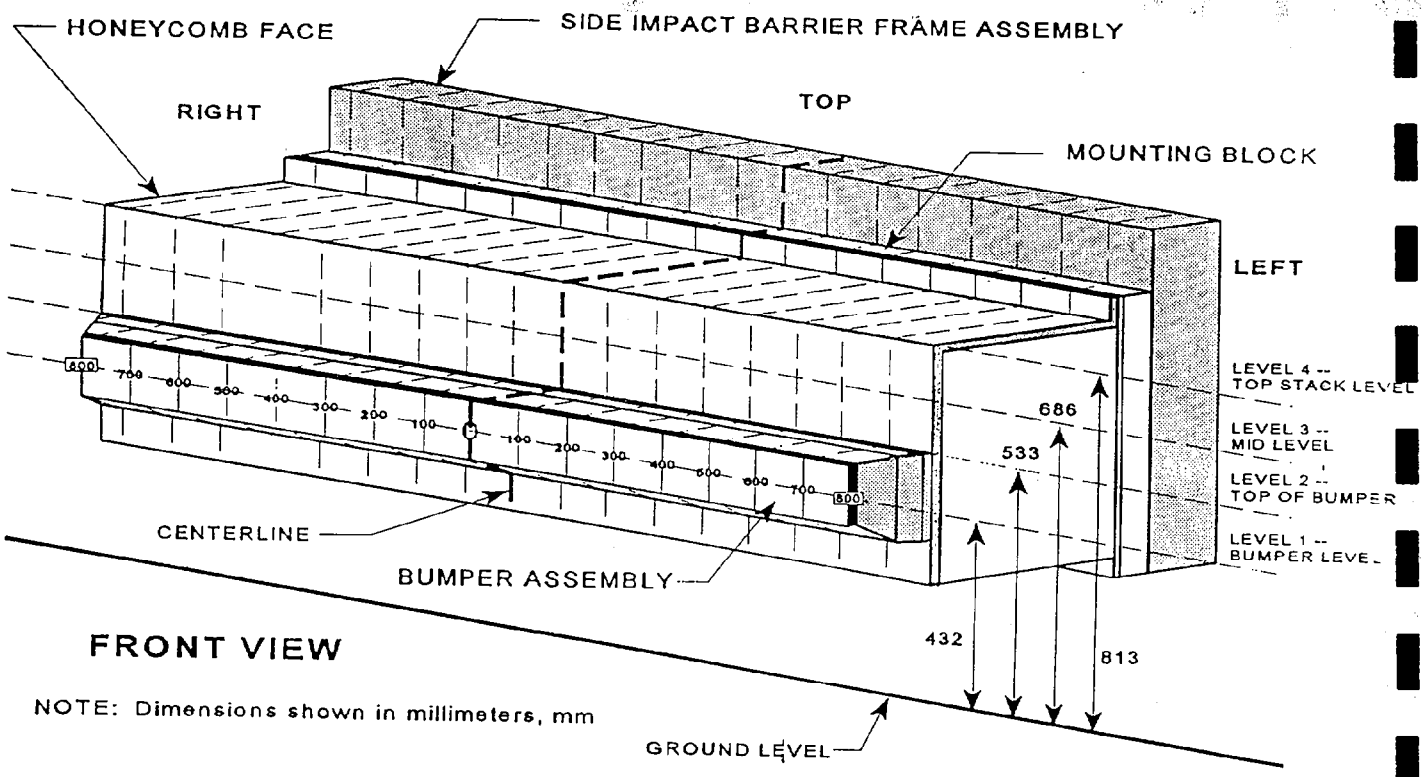
EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

		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	32	-6	-5	-5	-3	-5	-4	-4	-1	1	4	11	20	42	65	96	129
Mid Level Level 3	686 mm	15	-4	-5	-1	-4	-4	-2	-4	-3	-1	0	1	3	6	33	81	87
Top Bumper Level 2	533 mm	29	13	2	0	0	1	3	4	6	6	9	10	11	15	24	36	55
Mid Bumper Level 1	432 mm	80	60	42	33	27	23	22	22	22	23	26	28	29	35	49	64	73

See next page for Barrier Face Graphic

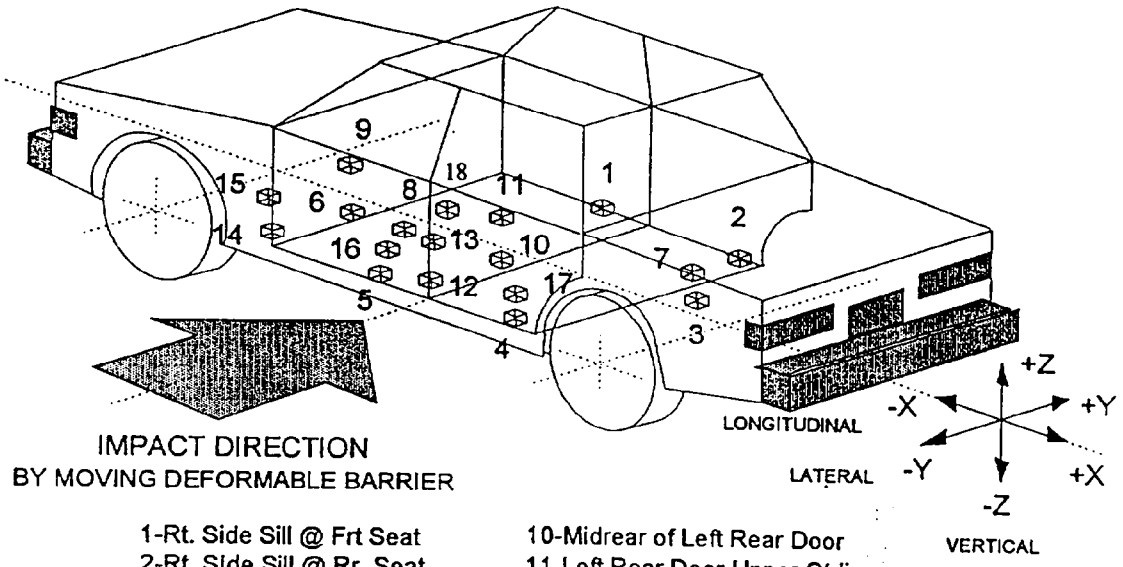

HONEYCOMB FACE
SIDE IMPACT BARRIER FRAME ASSEMBLY
RIGHT
TOP
MOUNTING BLOCK
LEFT
LEVEL 4 -- TOP STACK LEVEL
LEVEL 3 -- MID LEVEL
LEVEL 2 -- TOP OF BUMPER
LEVEL 1 -- BUMPER LEVEL
686
533
432
813
CENTERLINE
BUMPER ASSEMBLY
FRONT VIEW
NOTE: Dimensions shown in millimeters, mm
GROUND LEVEL

DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996



IMPACT DIRECTION
BY MOVING DEFORMABLE BARRIER

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

DATA SHEET NO. 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

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.	Max.
1	Rt. Side Sill @ Front Seat	2403	644	184	4.0	-8.0	23.0	-2.3	6.8	-5.7	24.5
2	Rt. Side Sill @ Rear Seat	1562	640	180	5.9	-7.3	26.6	-3.5	7.7	-5.6	27.5
3	Rr. Floorpan Above Axle	922	-31	282	4.5	-8.6	28.7	-5.1	8.4	-9.6	30.1
4	Left Side Sill @ Rr. Seat	1539	-634	176	---	---	48.6	-3.9	---	---	---
5	Left Side Sill @ Frt. Seat	2425	-634	179	---	---	31.8	-6.9	---	---	---
7	Right Rear Occupant Compartment	1631	265	323	---	---	26.5	-2.5	---	---	---
12	Left Lower B-Post	1763	-632	297	---	---	94.5	-28.1	---	---	---
13	Left Mid B-Post	1848	-628	808	---	---	184.4	-53.9	---	---	---
14	Left Lower A-Post	2704	-612	354	---	---	133.3	-52.8	---	---	---
15	Left Mid A-Post	2819	-638	830	---	---	56.0	-42.6	---	---	---
16	Driver Left Seat Track	2051	-550	325	---	---	102.9	-40.3	---	---	---
18	Vehicle CG**	2256	-5	292	1.8	-10.1	27.7	-1.6	16.4	-17.8	33.1

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

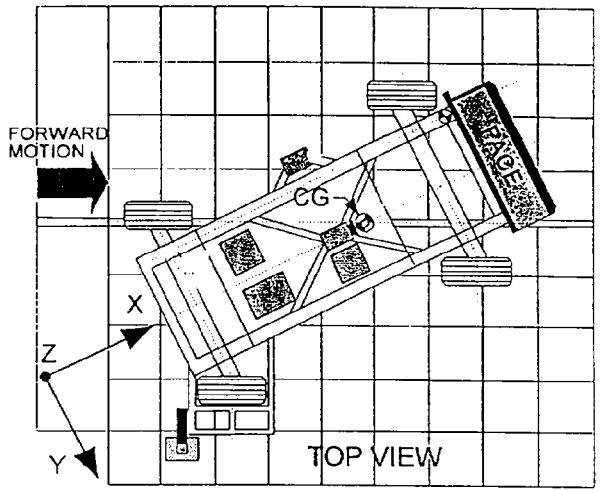
** X data invalid after 41 msec.

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996



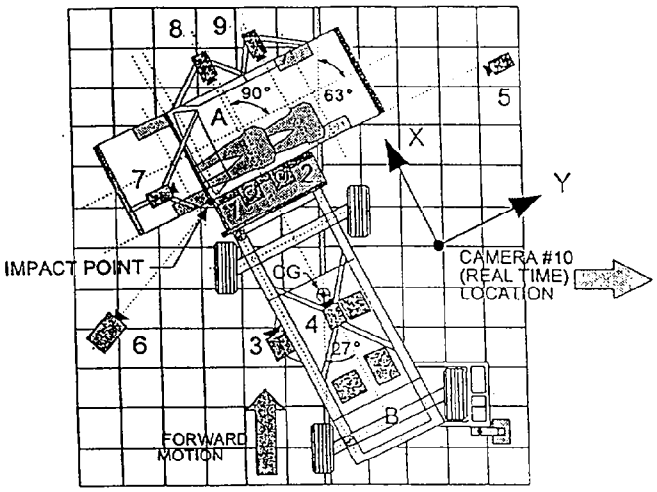
Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	1.4	121	-16.4	29
	Lateral (Y)	---	---	---	1.0	56	-6.8	22
	Vertical (Z)	---	---	---	11.3	11	-9.7	24
	Resultant (R)	---	---	---	18.0	38	---	---
2	Rear Frame Member	-2591	-625	622				
	Longitudinal (X)	---	---	---	1.6	187	-23.7	29
	Lateral (Y)	---	---	---	5.6	35	-0.4	192

*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/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996



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	NT
2	Top Wide	700	0	-5130		8	1111
3	Cart Pointer					35	1020
4	Cart					13	1042
5	Right Impact	3400	8100	1960	90°	25	1070
6	Left Overall	3000	2520	1680	90°	13	976
7	Onboard Driver					8	1026
8	Onboard Hood					13	1031
9	Onboard Passenger					8	990

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

NT = No timing available

DATA SHEET 16

FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

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 32.9 mph (52.9 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

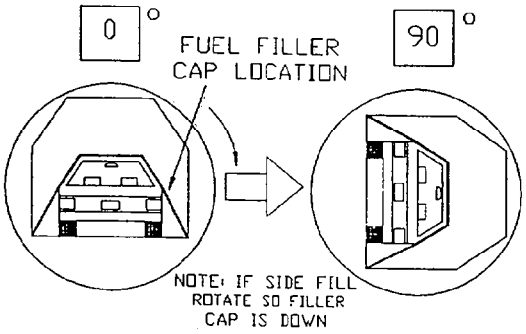
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 55 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 55 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

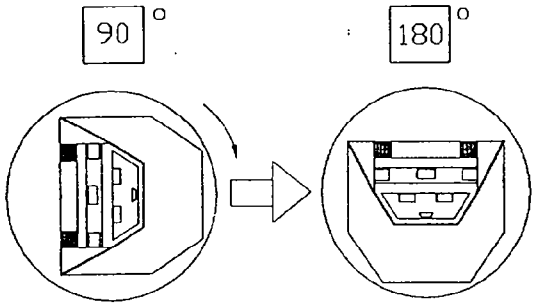
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

TEST PHASE: 90° - 180°



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:

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

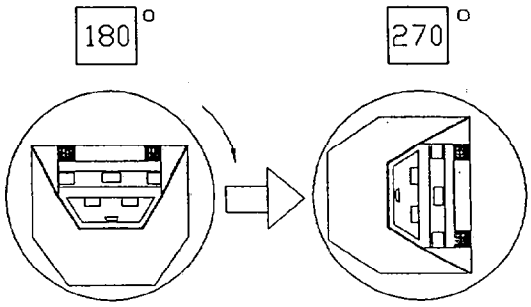
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 15 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 15 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

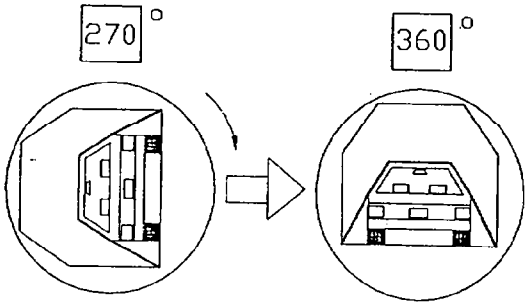
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1996/Hyundai/Accent/4 Door

Vehicle NHTSA No.: CT0506 Test Date: February 28, 1996

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

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

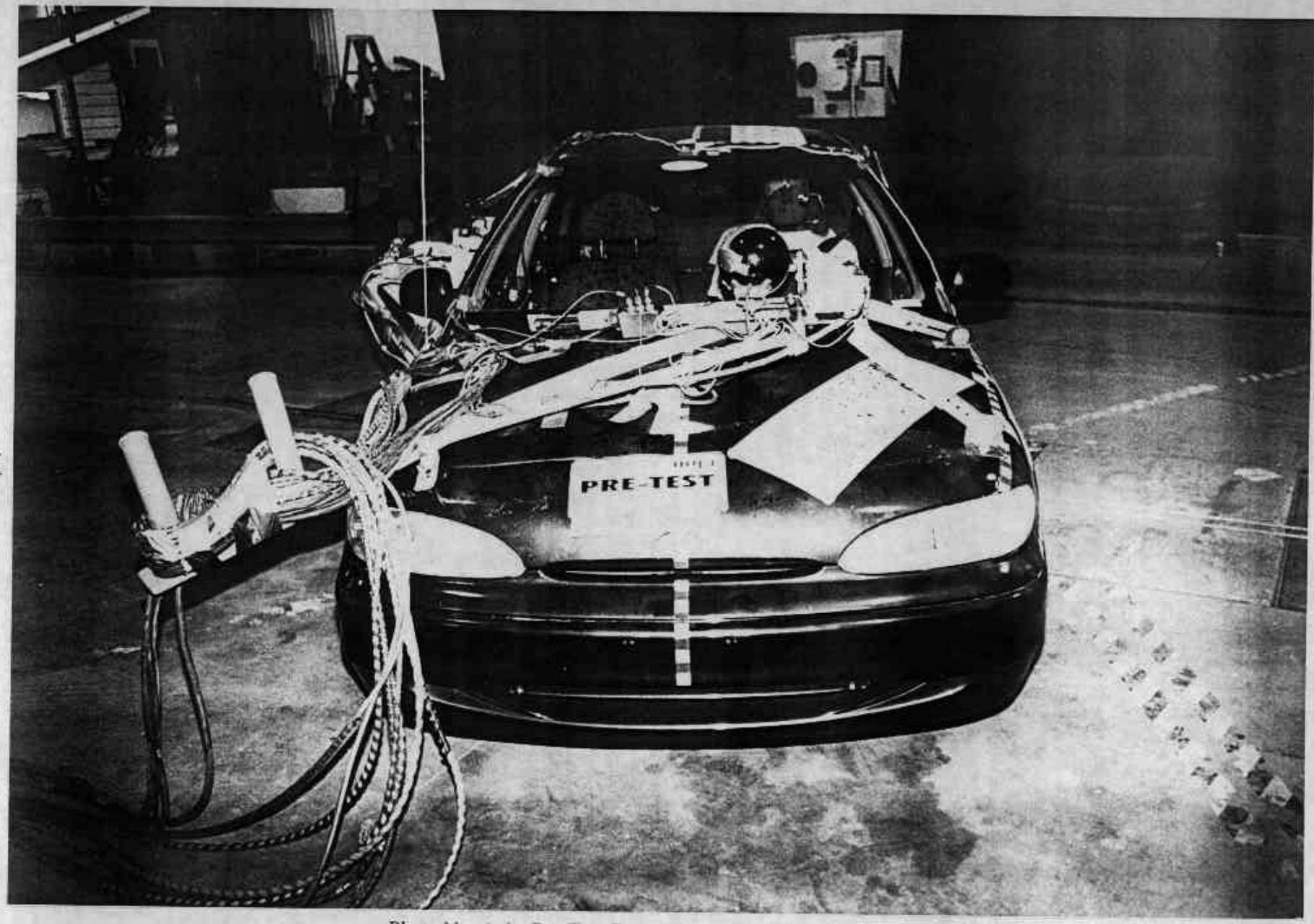


Photo No. A-1 - Pre-Test Front View of Test Vehicle

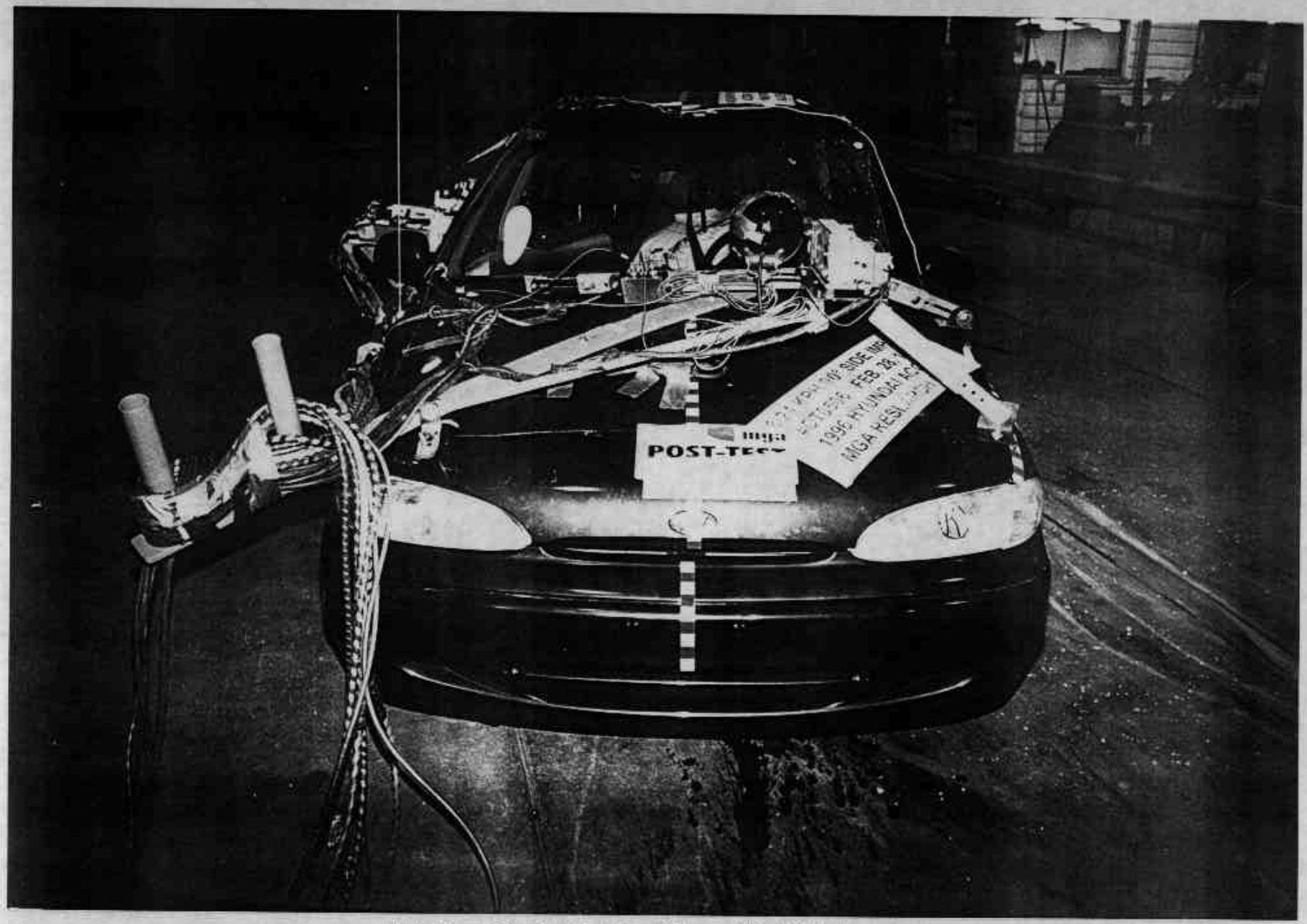


Photo No. A-2 - Post-Test Front View of Test Vehicle

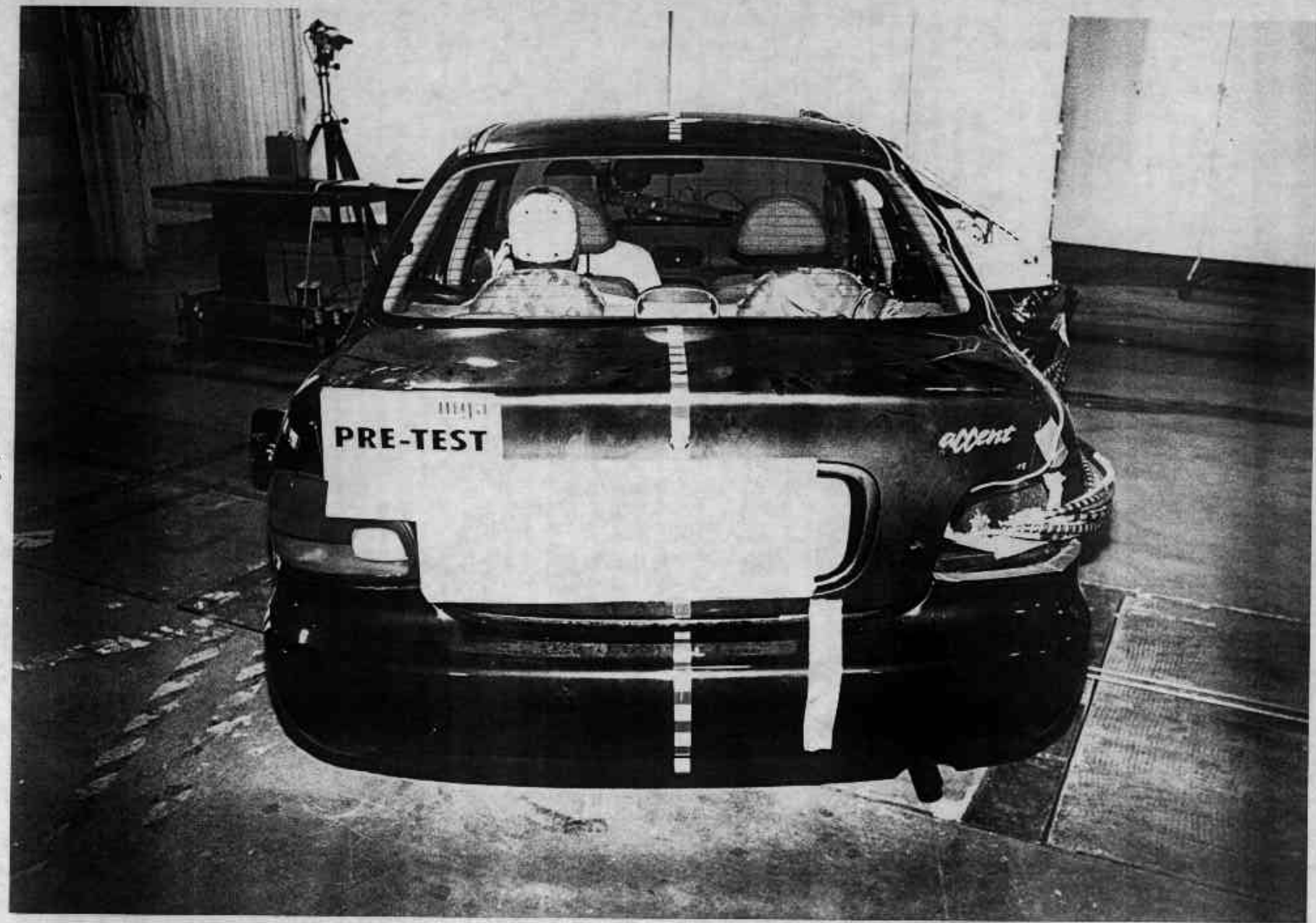


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

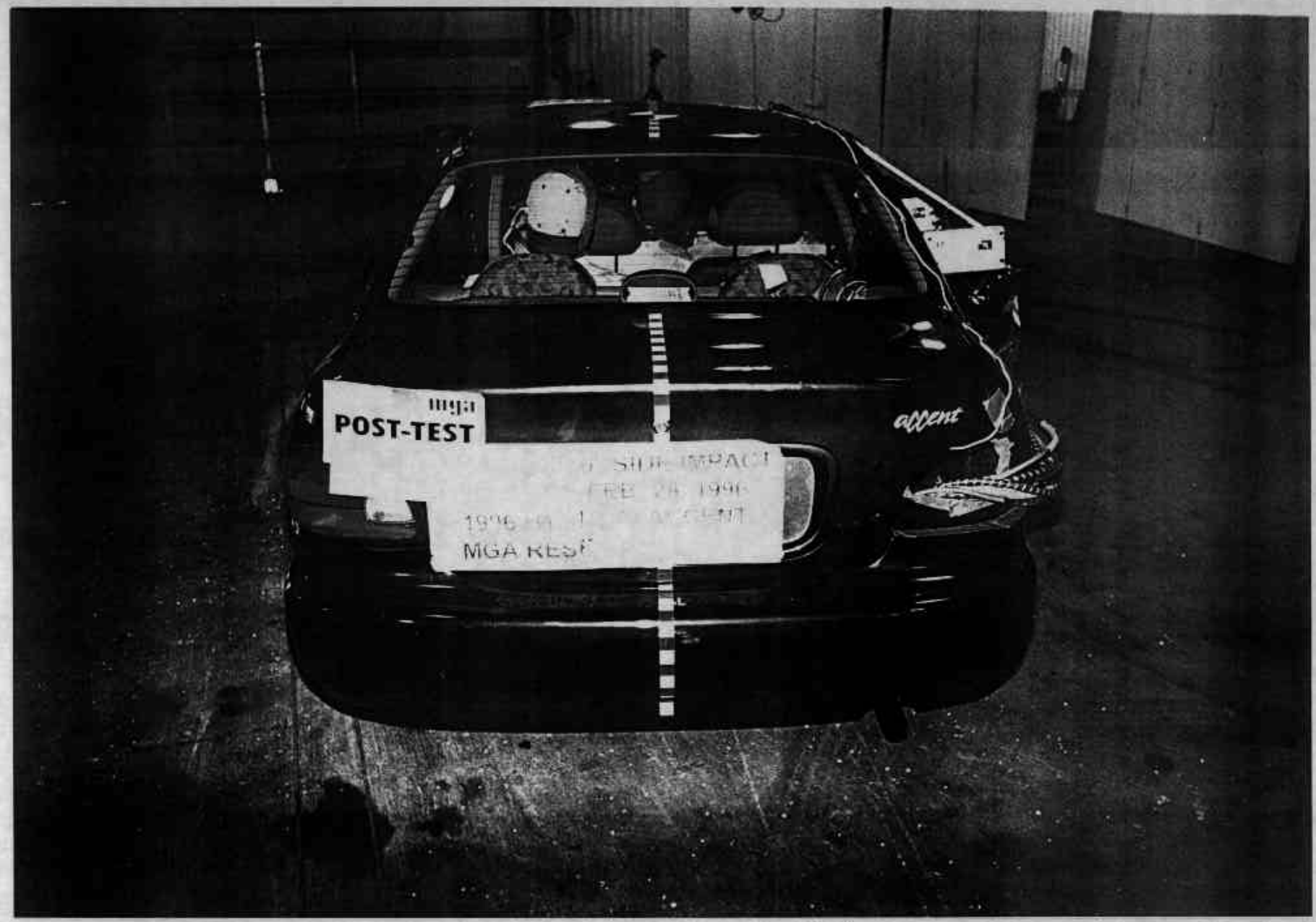


Photo No. A-4 - Post-Test Rear View of Test Vehicle

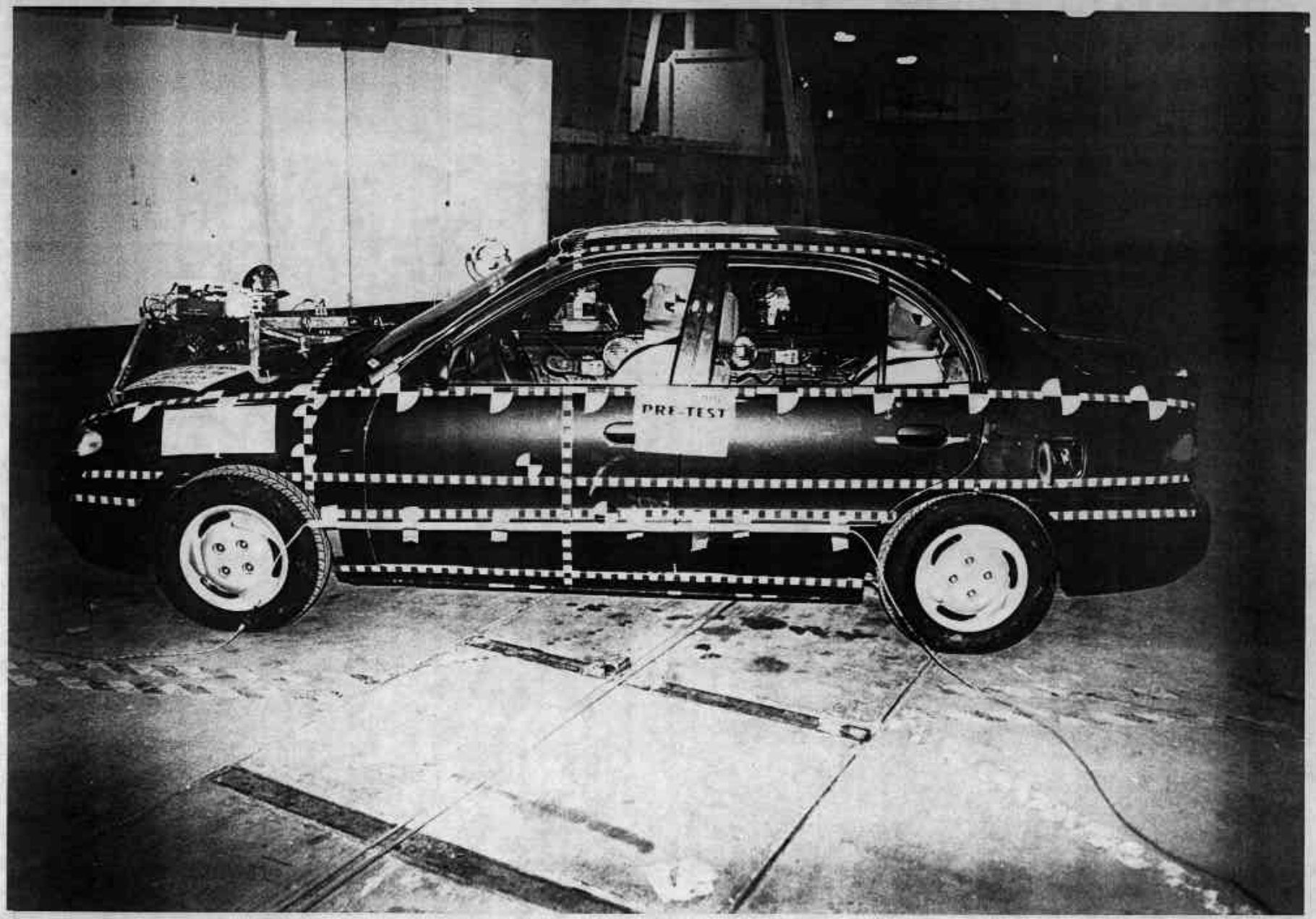


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

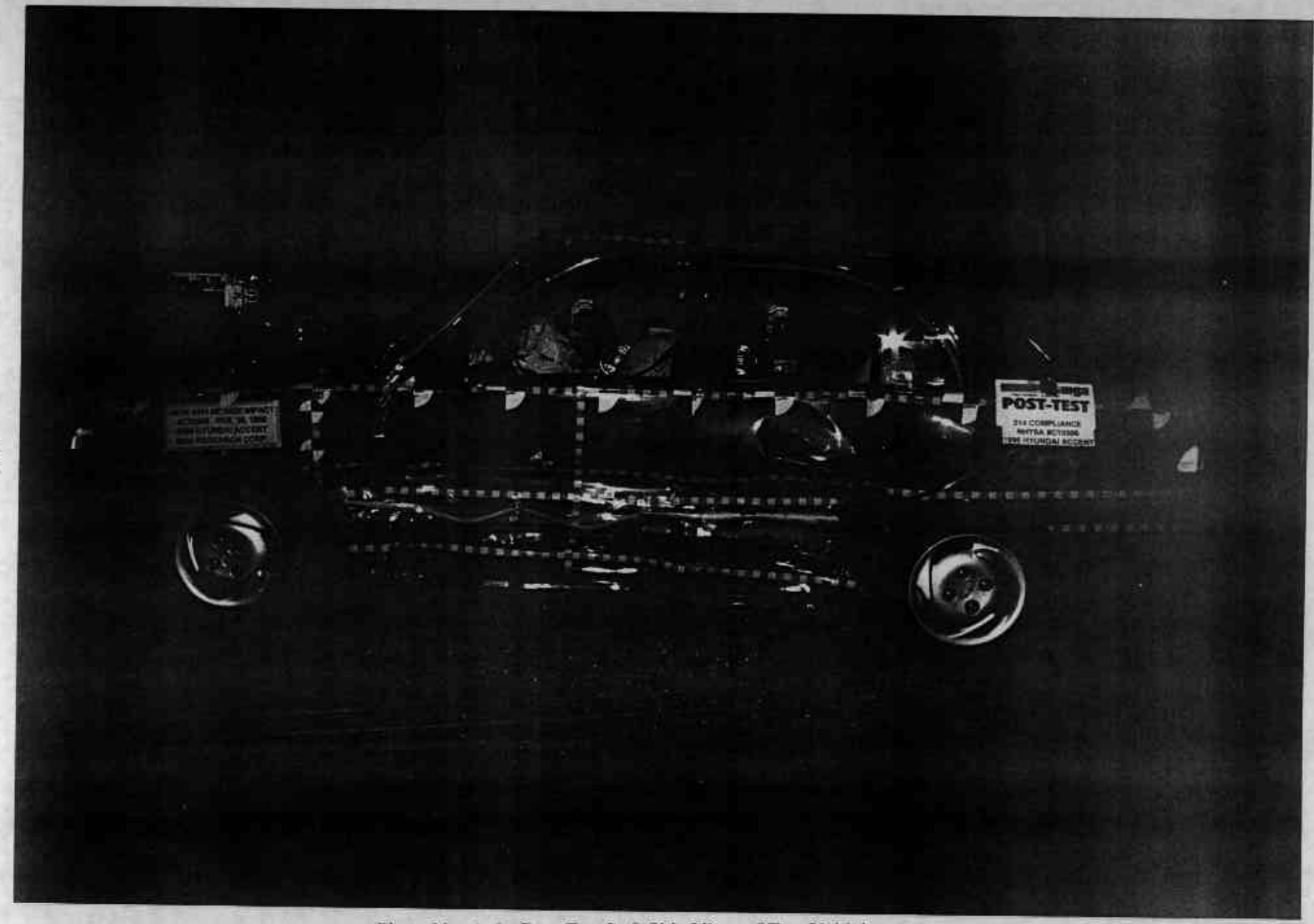


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

A-7

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

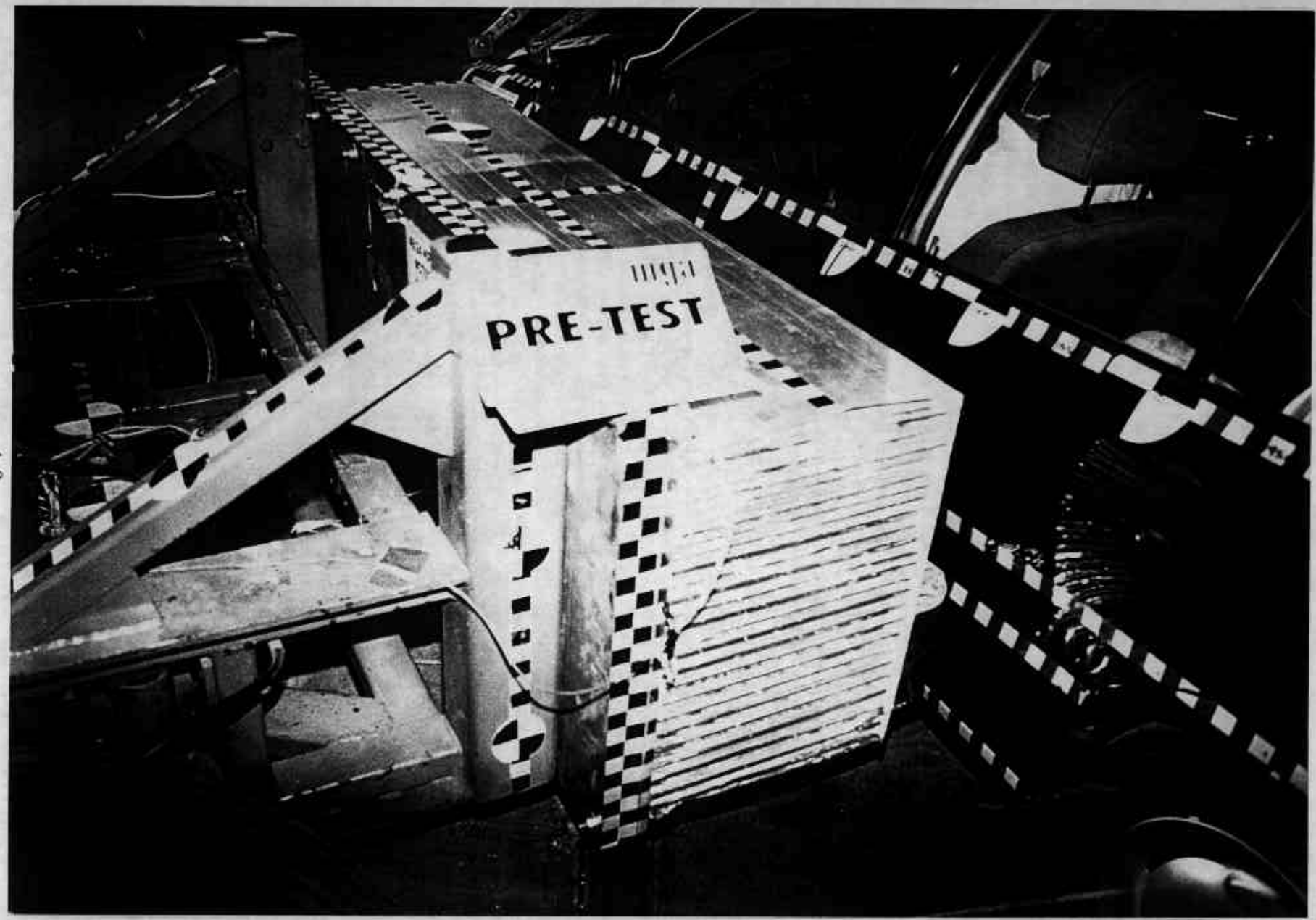


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)

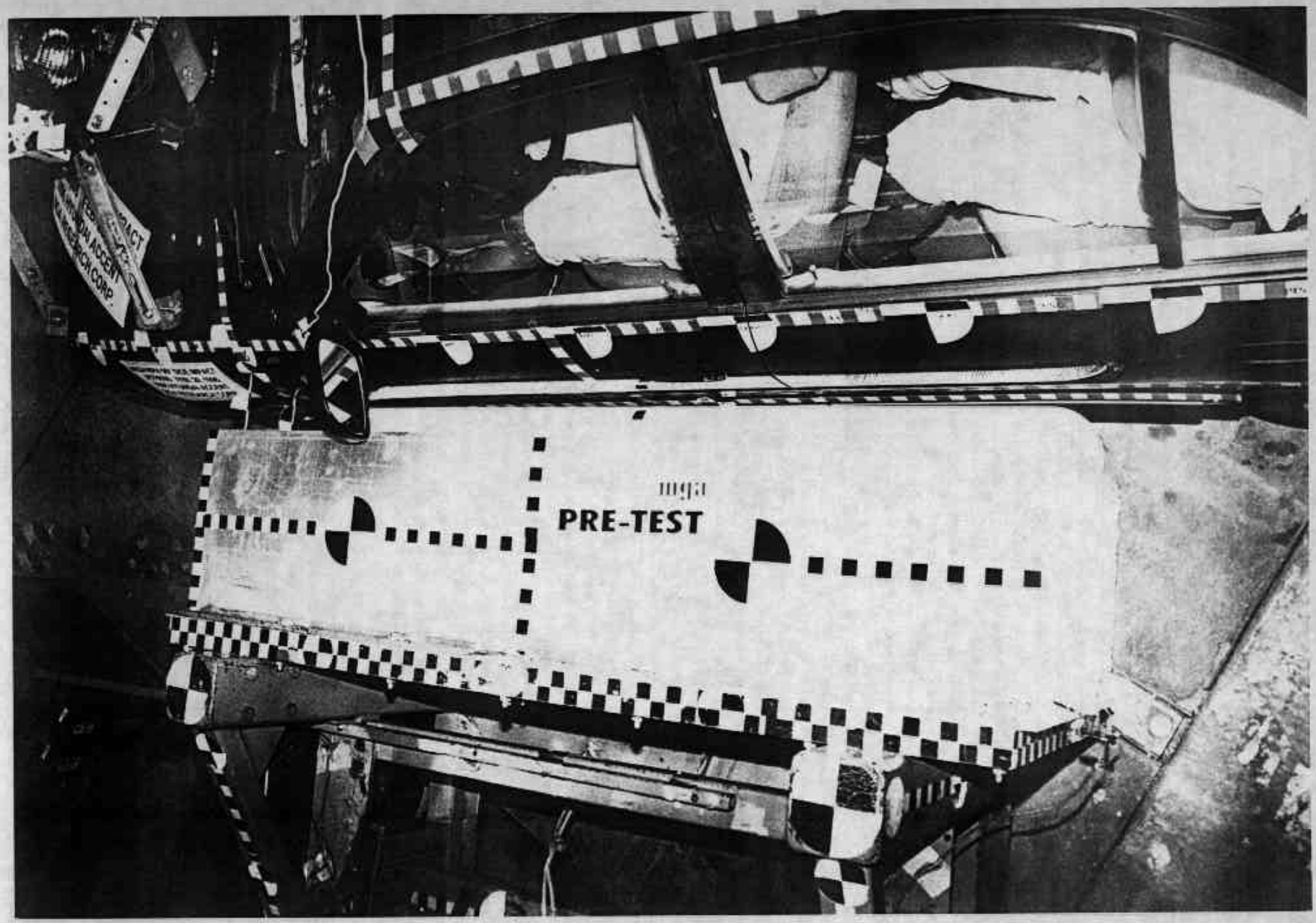


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View

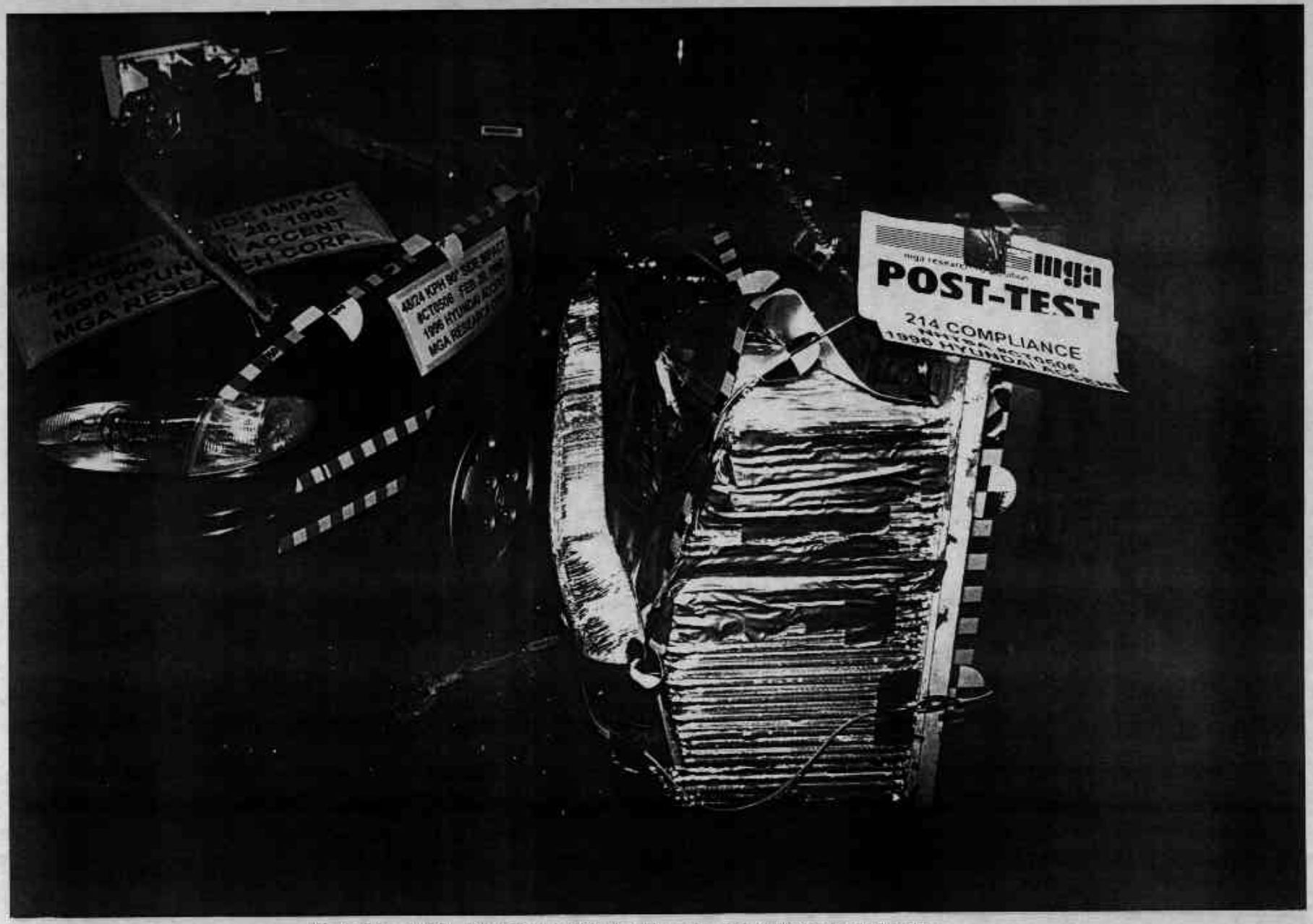


Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (left side)

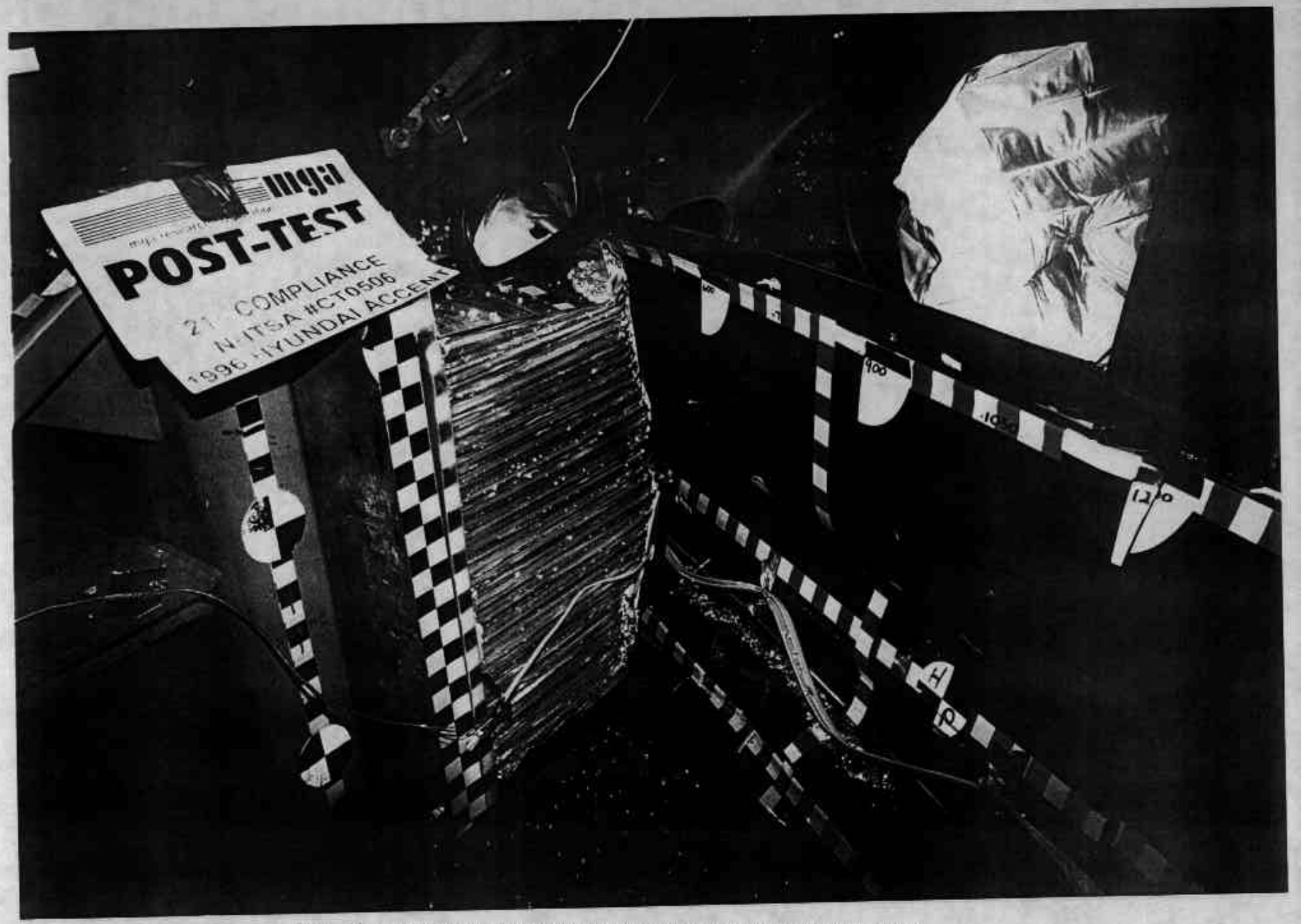


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)

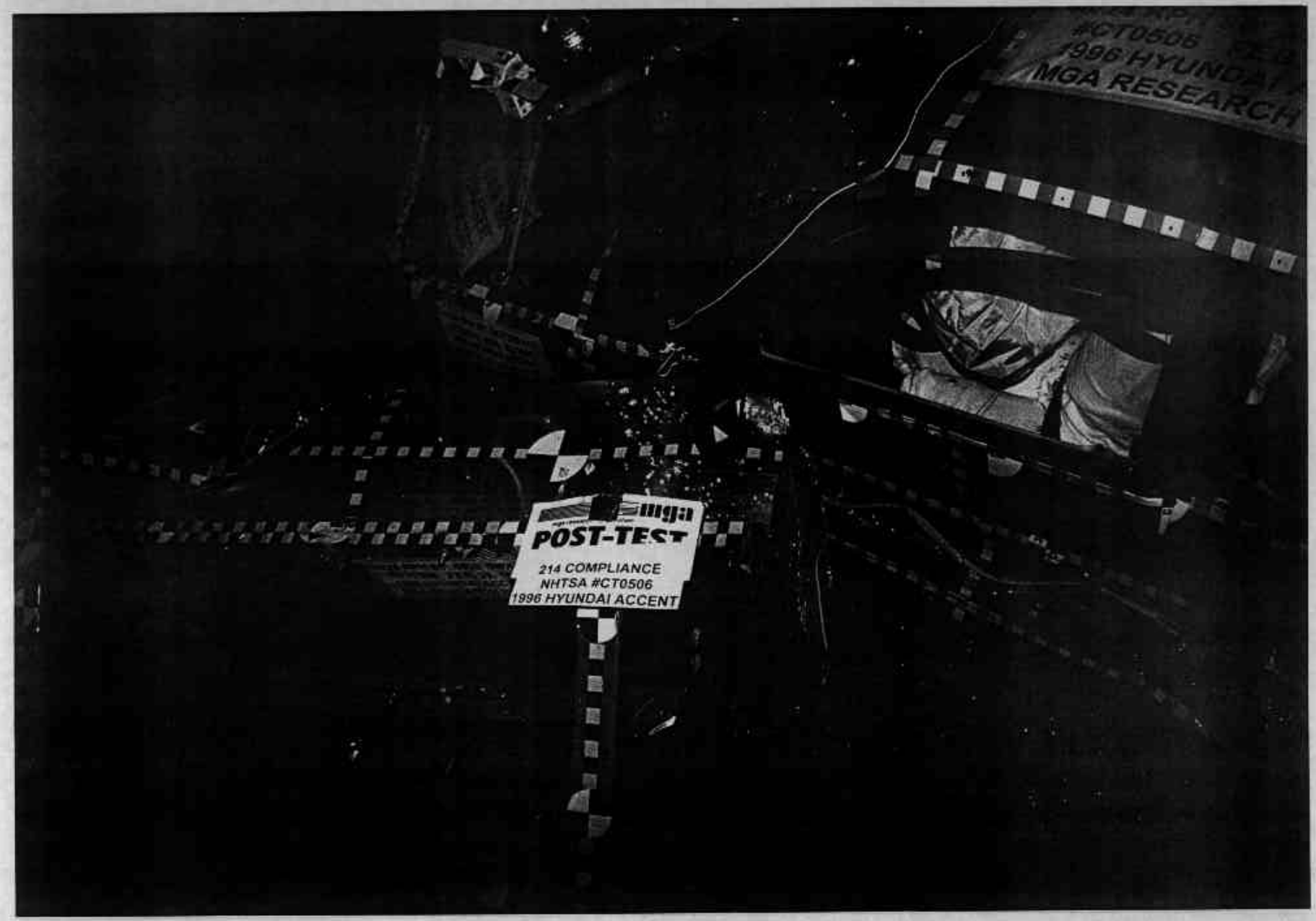


Photo No. A-12 - Post-Test MDB Positioned Against Vehicle Overhead View

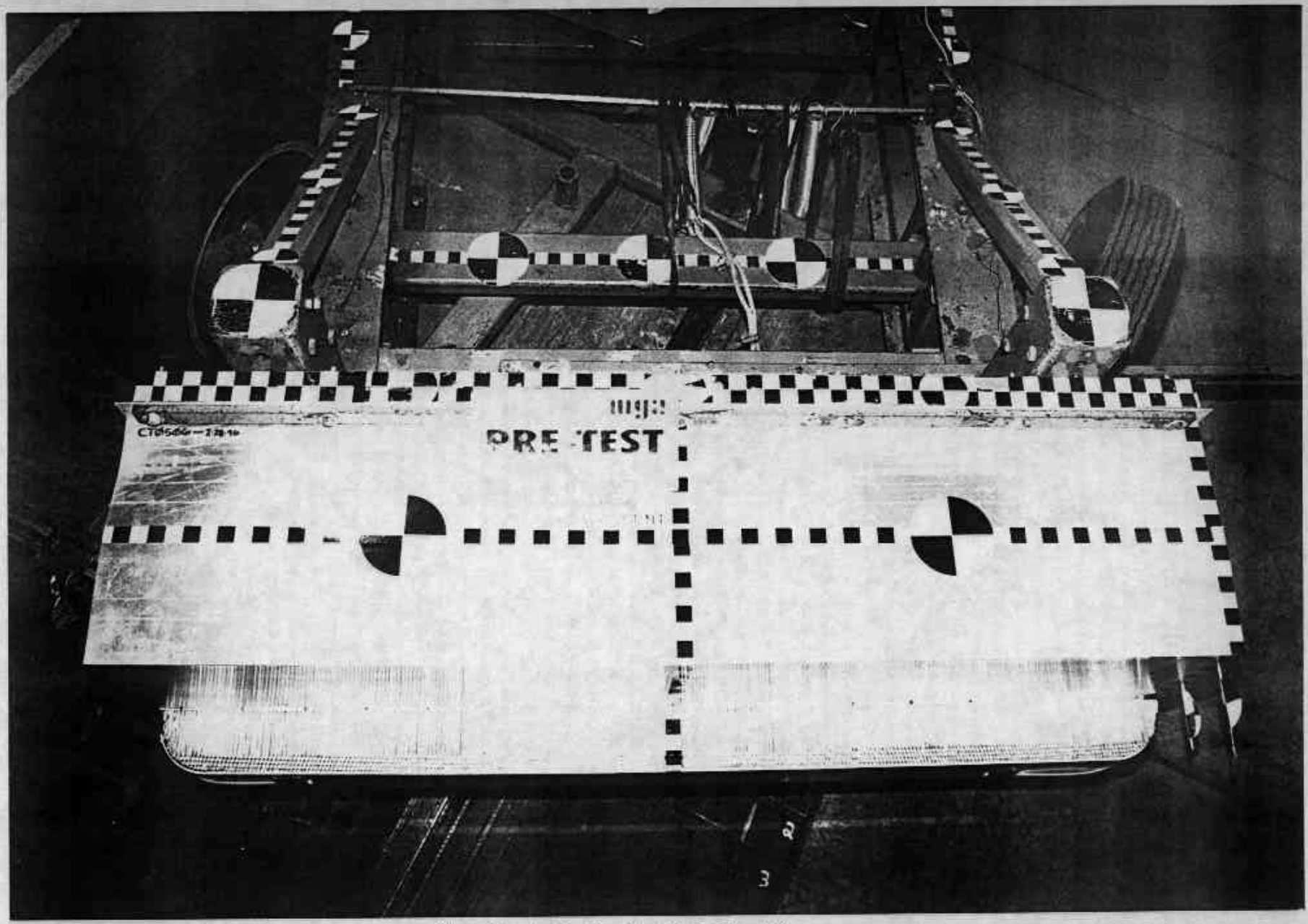


Photo No. A-13 - Pre-Test MDB Top View

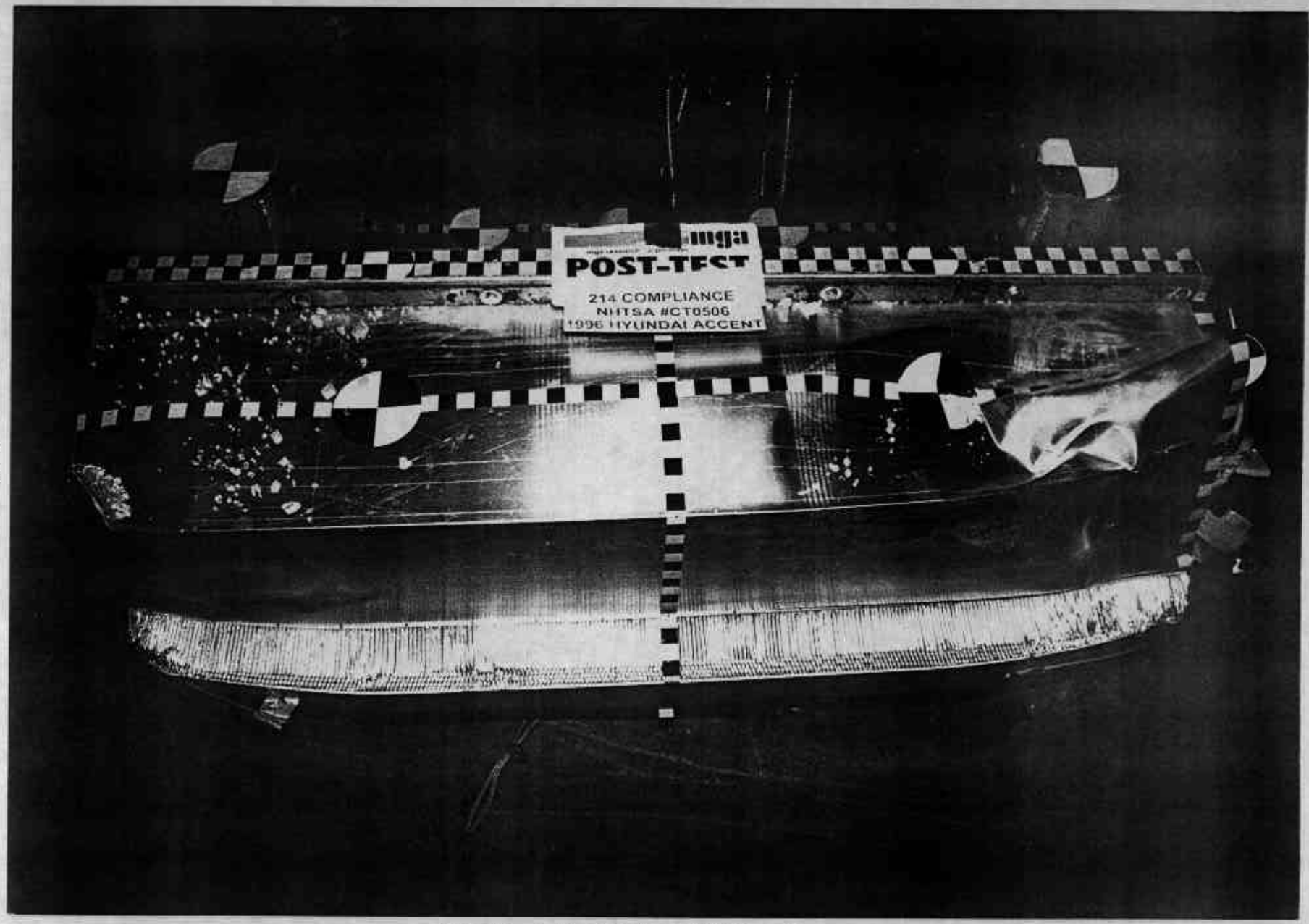


Photo No. A-14 - Post-Test MDB Top View

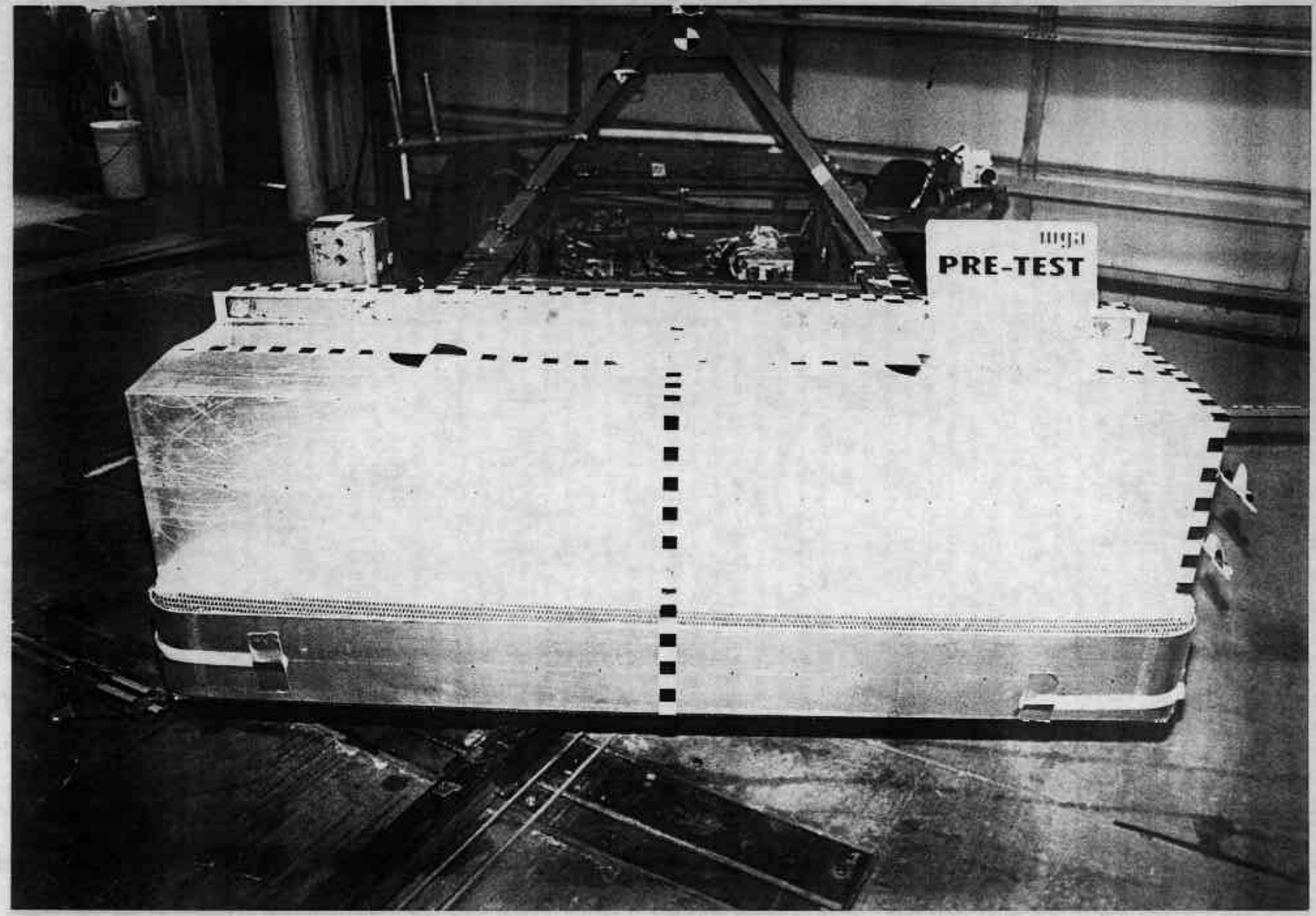


Photo No. A-15 - Pre-Test MDB Front View

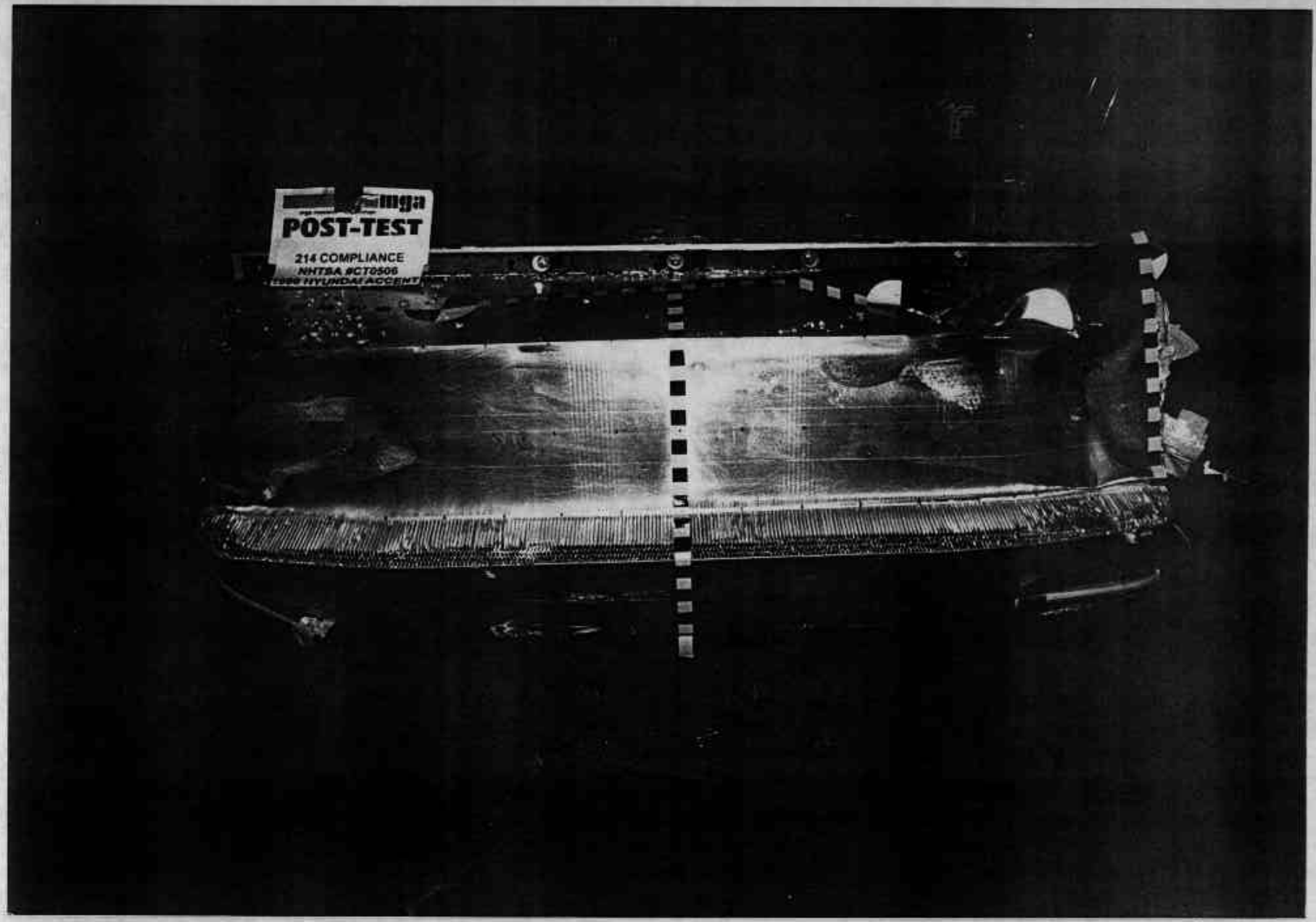


Photo No. A-16 - Post-Test MDB Front View

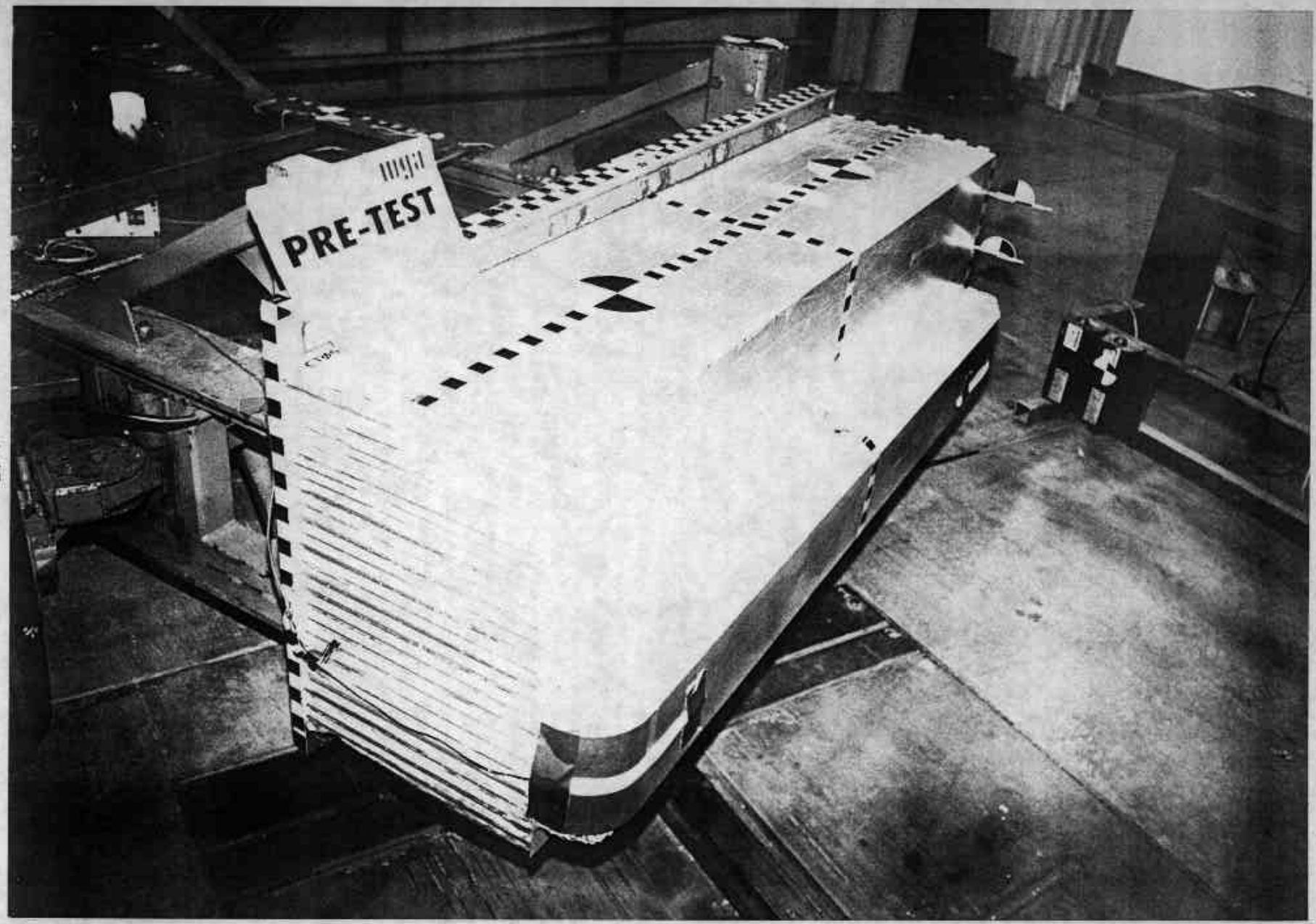


Photo No. A-17 - Pre-Test MDB Right Side View

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

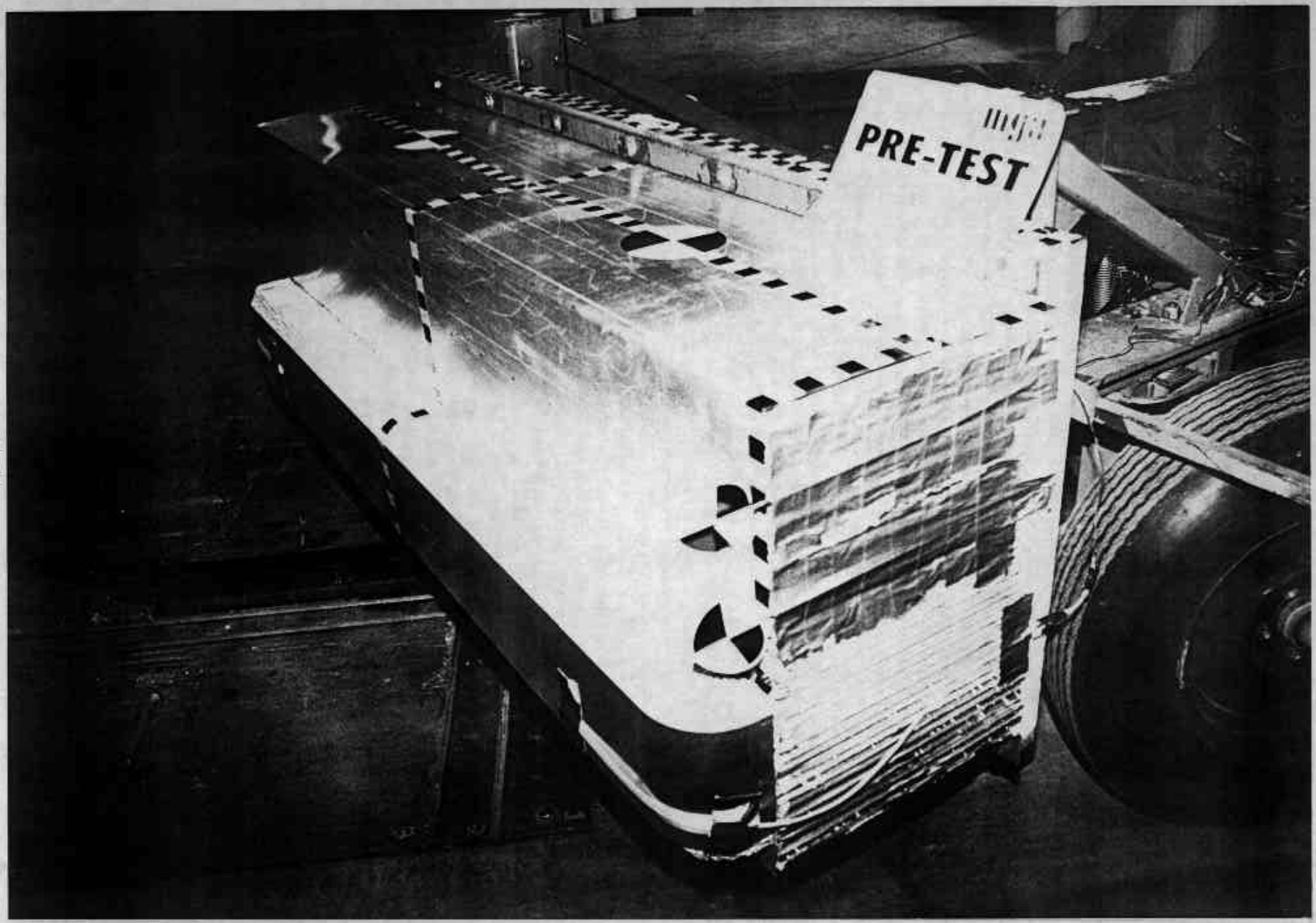
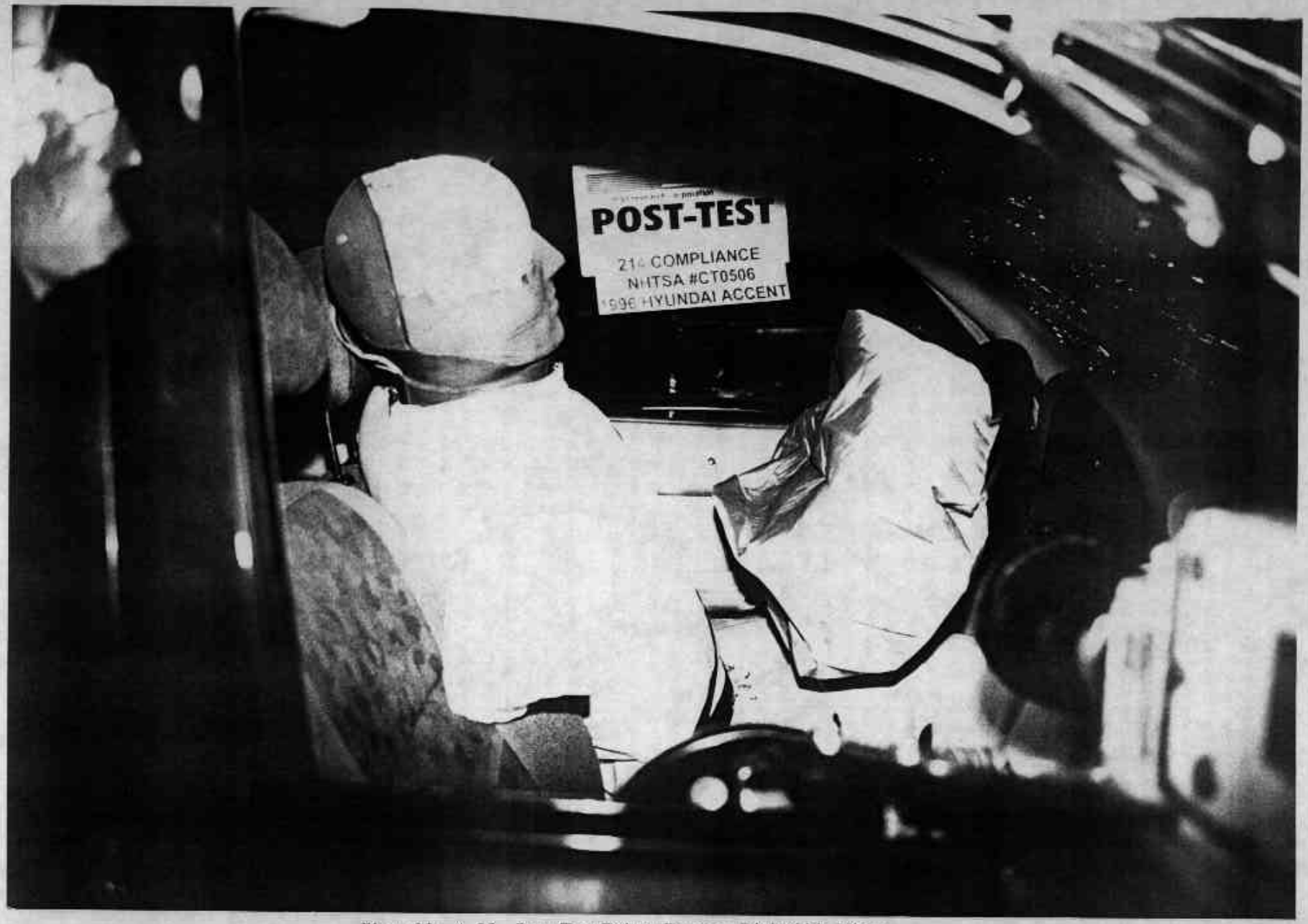


Photo No. A-19 - Pre-Test MDB Left Side View

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

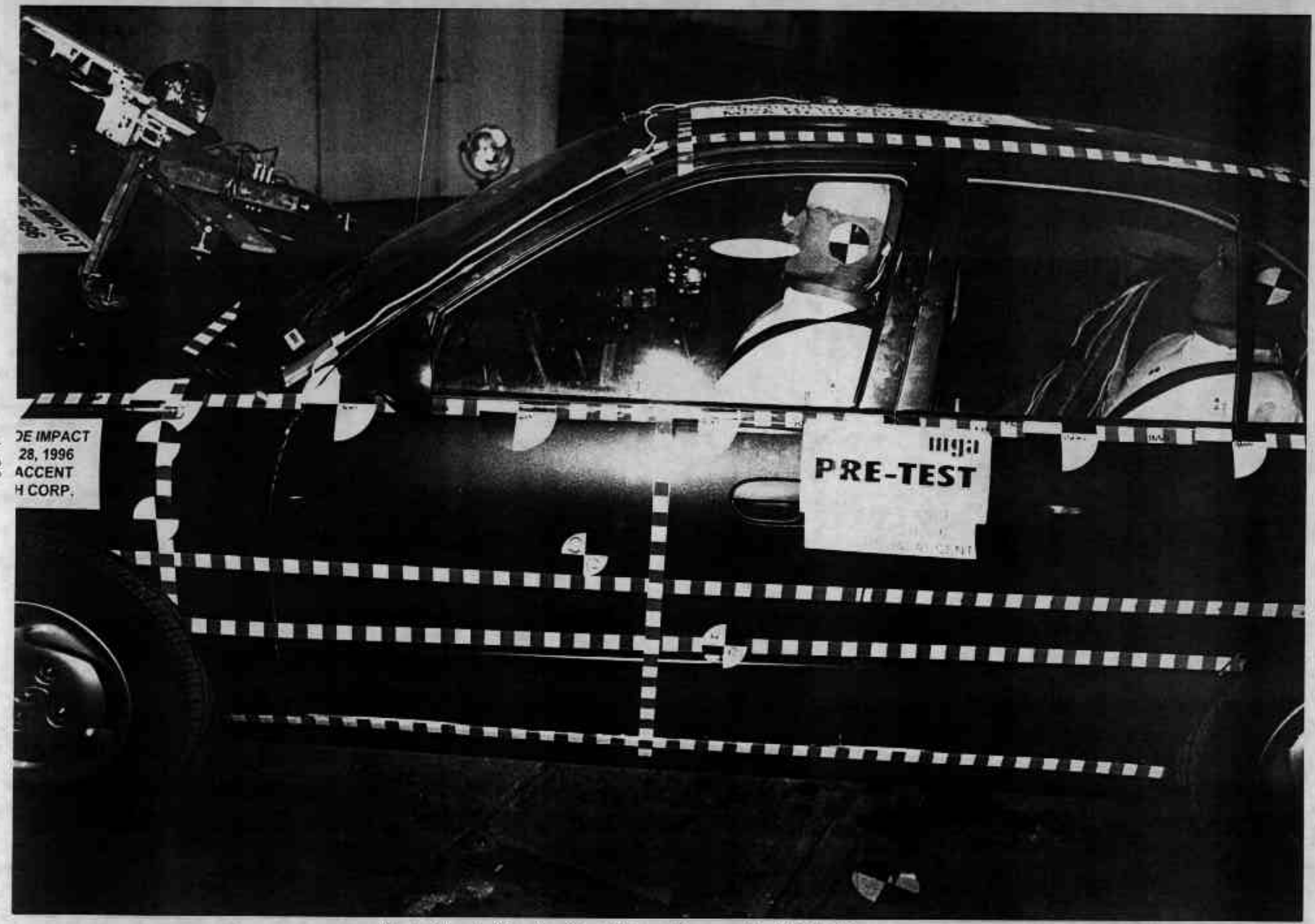
A-21

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



A-22

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



A-23

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

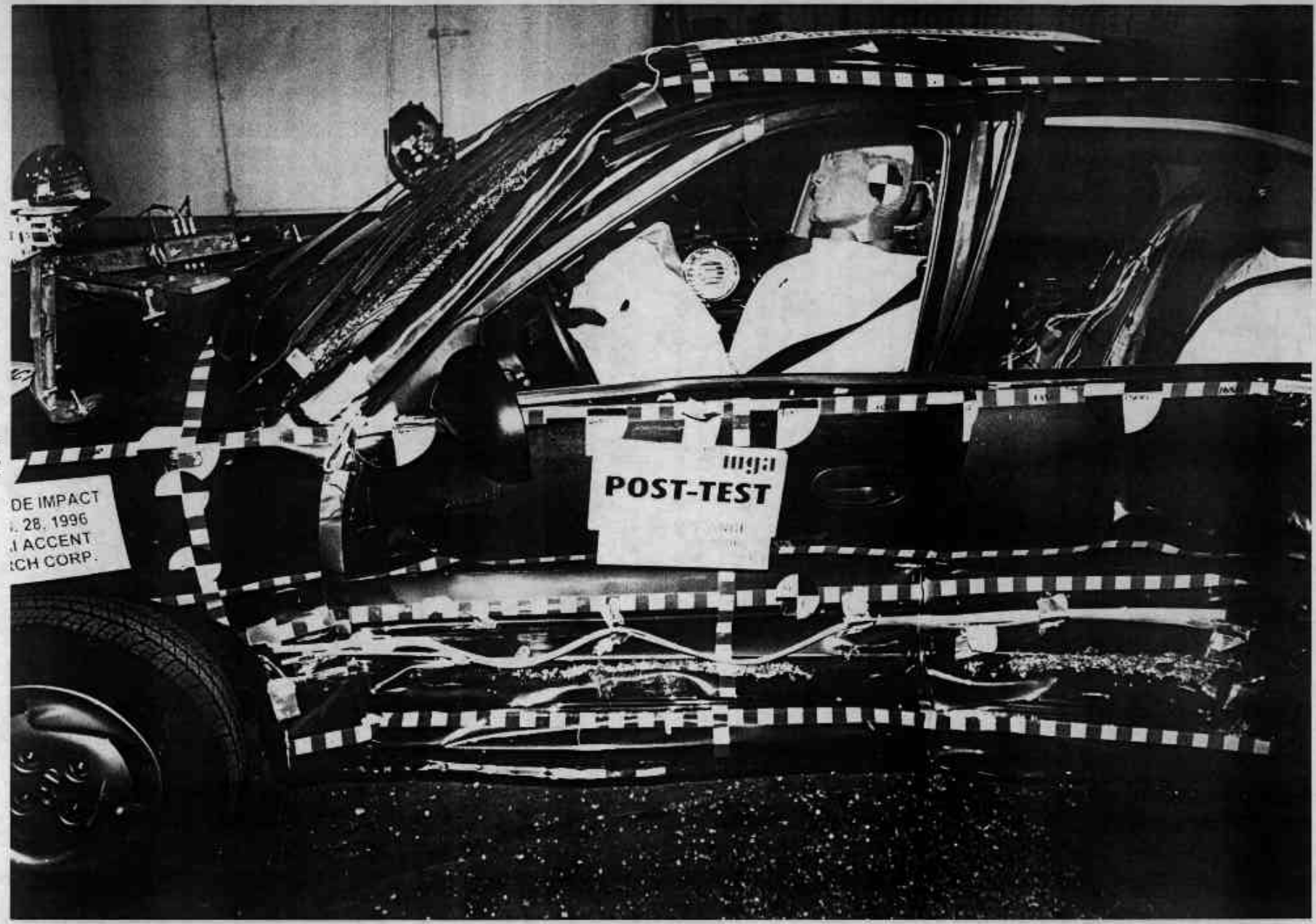


Photo No. A-24 - Post-Test Driver Dummy Left Side View

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

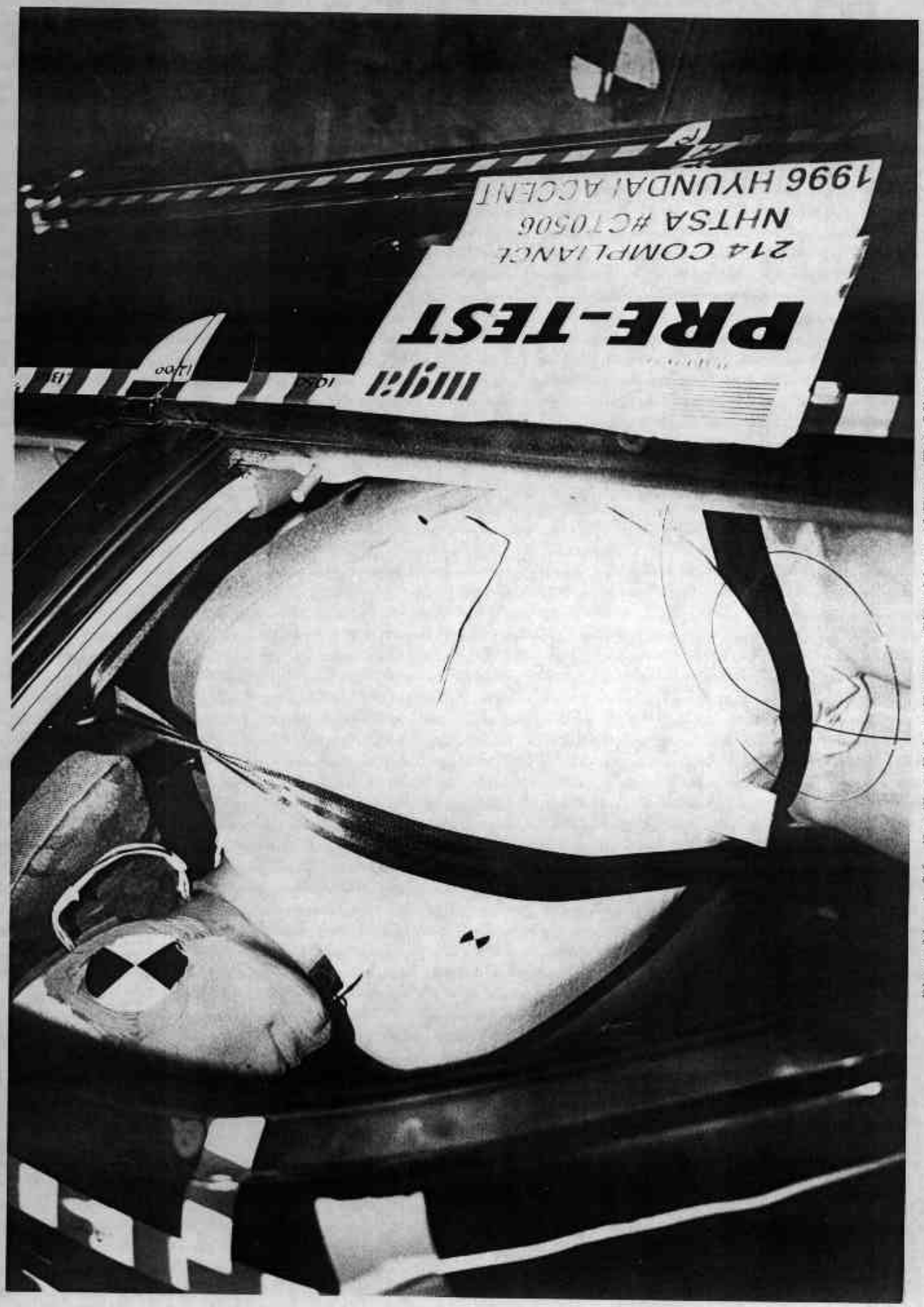


Photo No. A-26 - Pre-Test Driver Dummy Shoulder and Door Top View

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

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

A-29

Photo No. A-29 - Post-Test Driver Dummy Head Contact

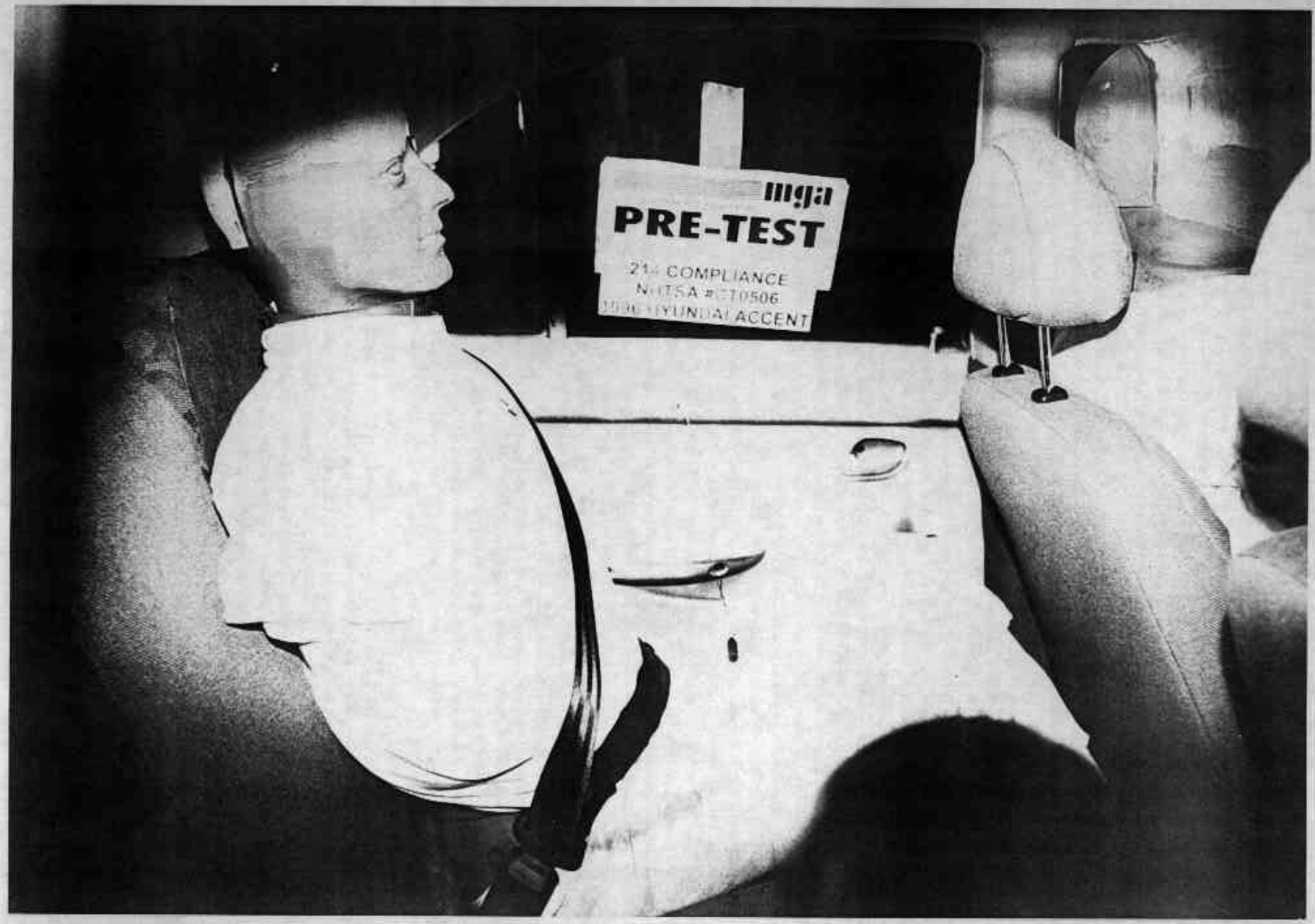
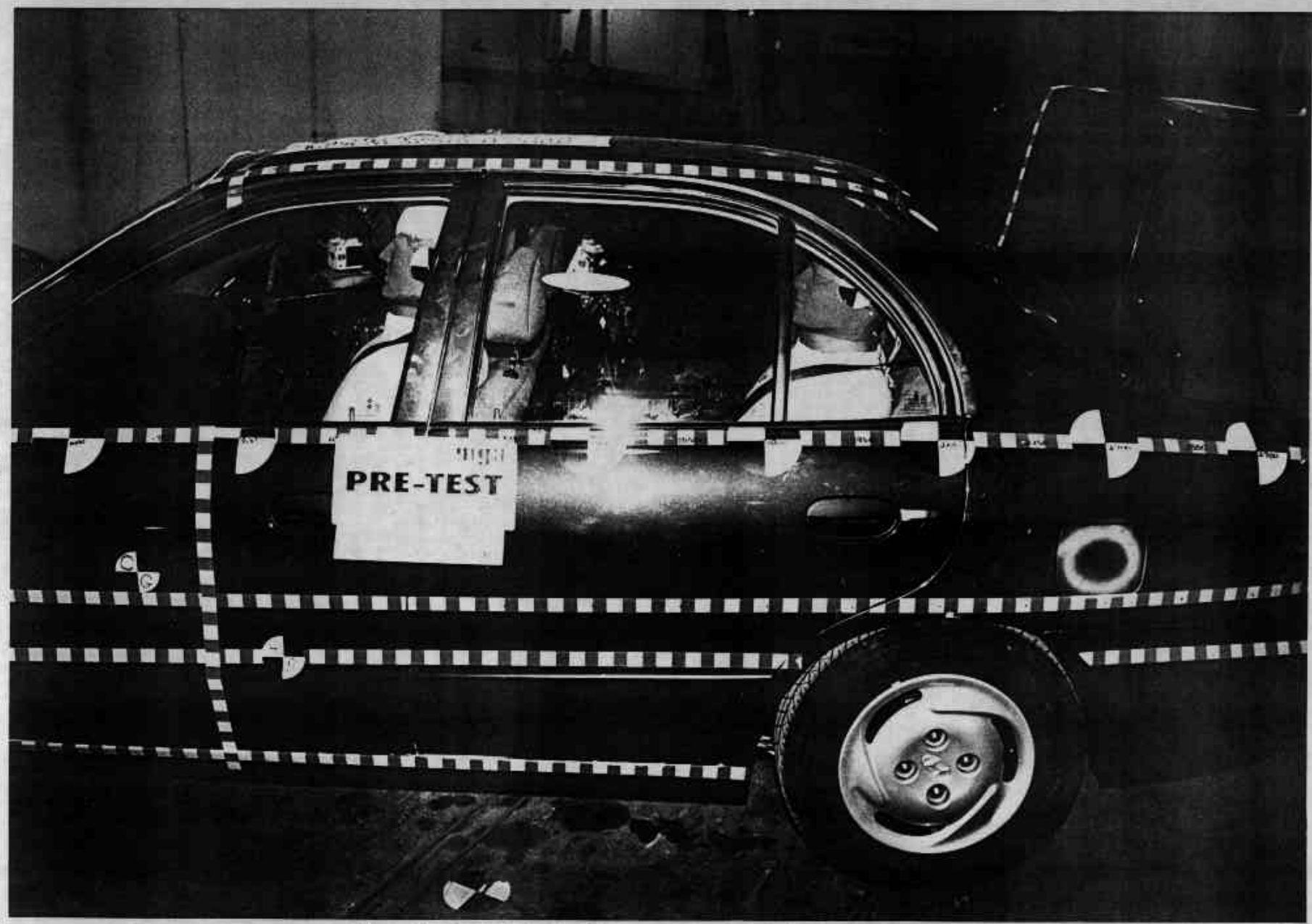


Photo No. A-30 - Pre-Test Passenger Dummy Right Side View

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



A-32

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

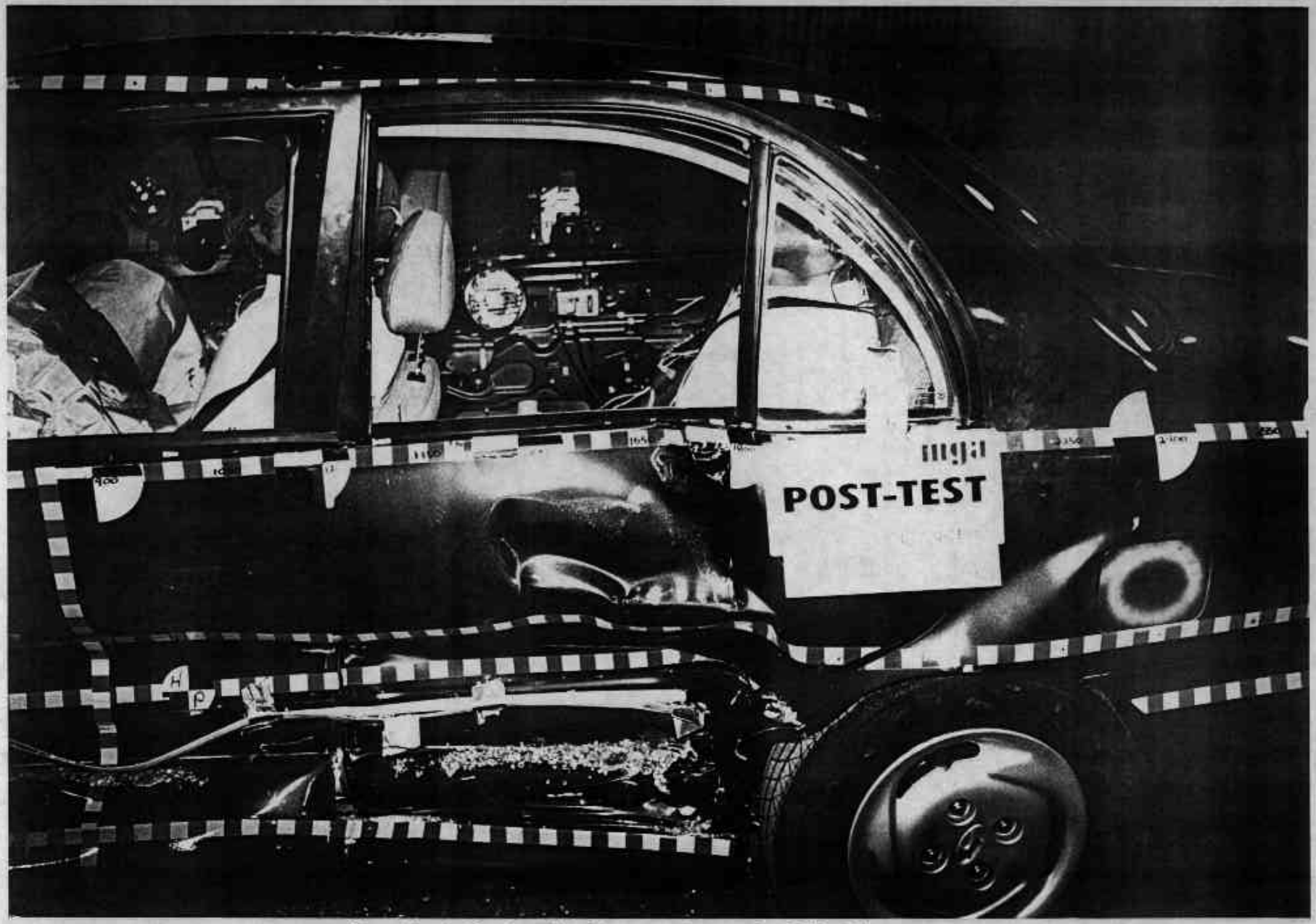


Photo No. A-33 - Post-Test Passenger Dummy Left Side View

A-34

Photo No. A-34 - Pre-Test Passenger Dummy Left Side View (Door Open)

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

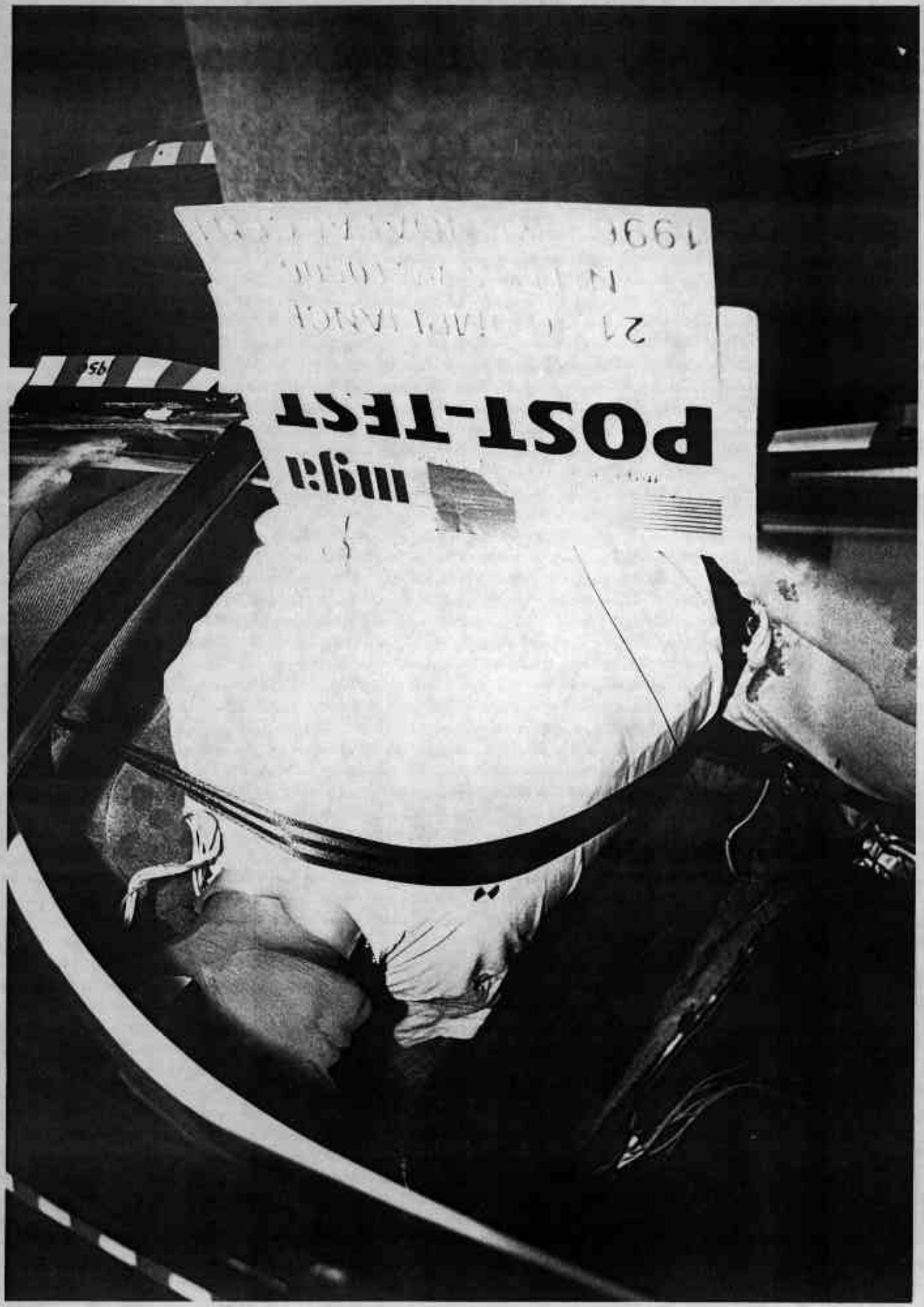
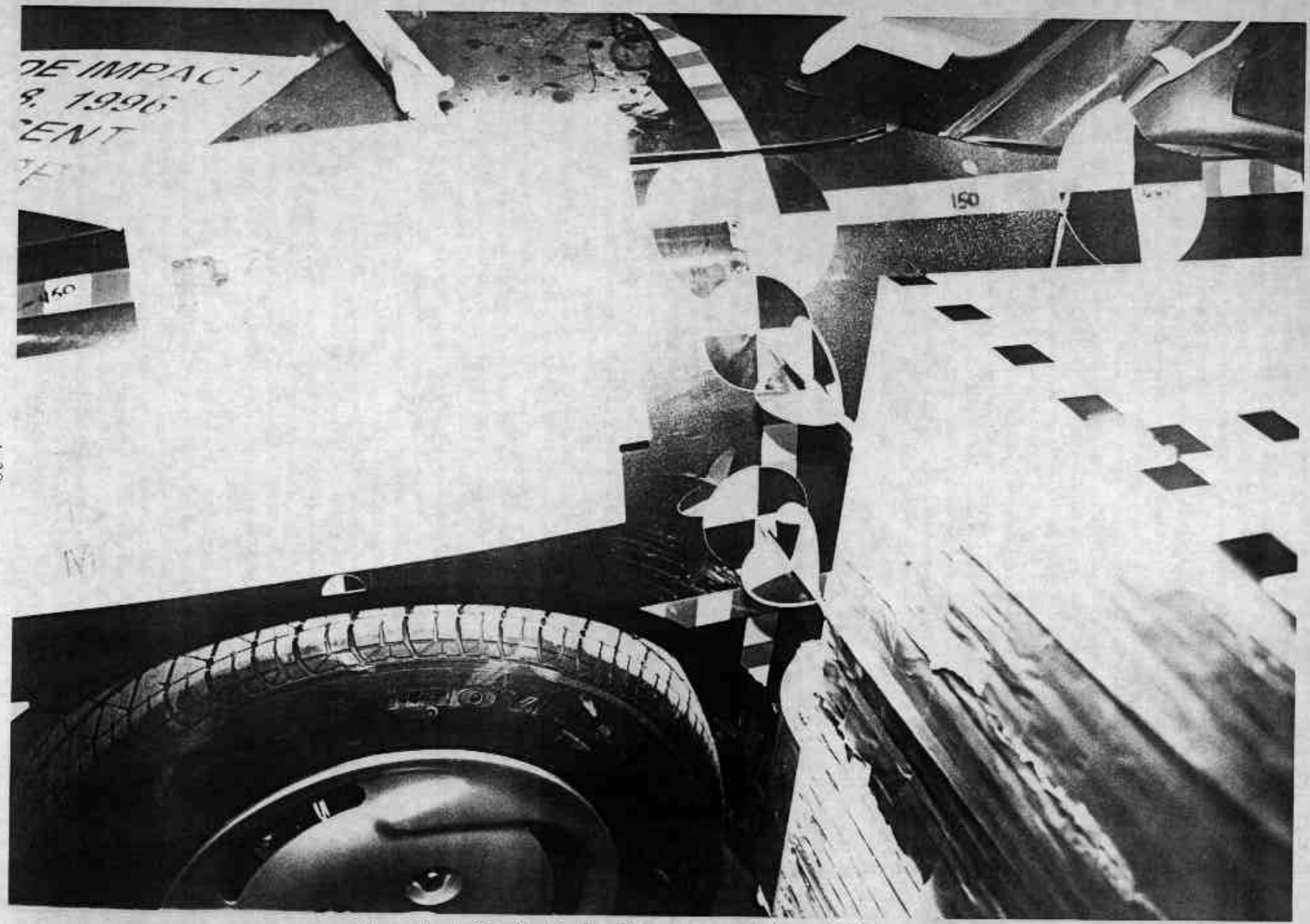


Photo No. A-36 - Post-Test Passenger Dummy Shoulder and Door Top View

Photo No. A-37 - Post-Test Passenger Dummy Contact

Photo No. A-38 – Post-Test Passenger Dummy Head Contact

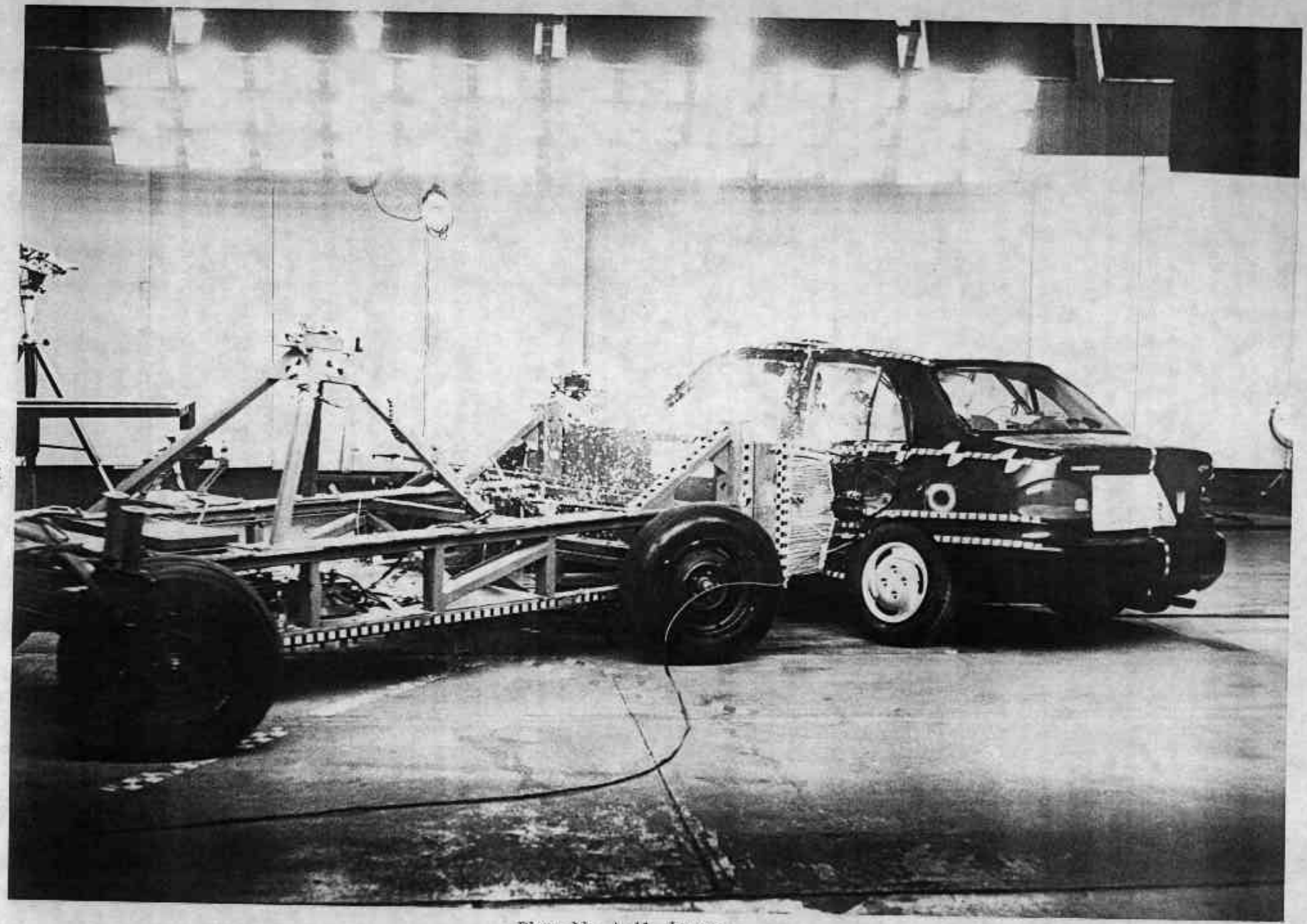


A-39

Photo No. A-39 - Pre-Test Left Front Impact Point on Vehicle

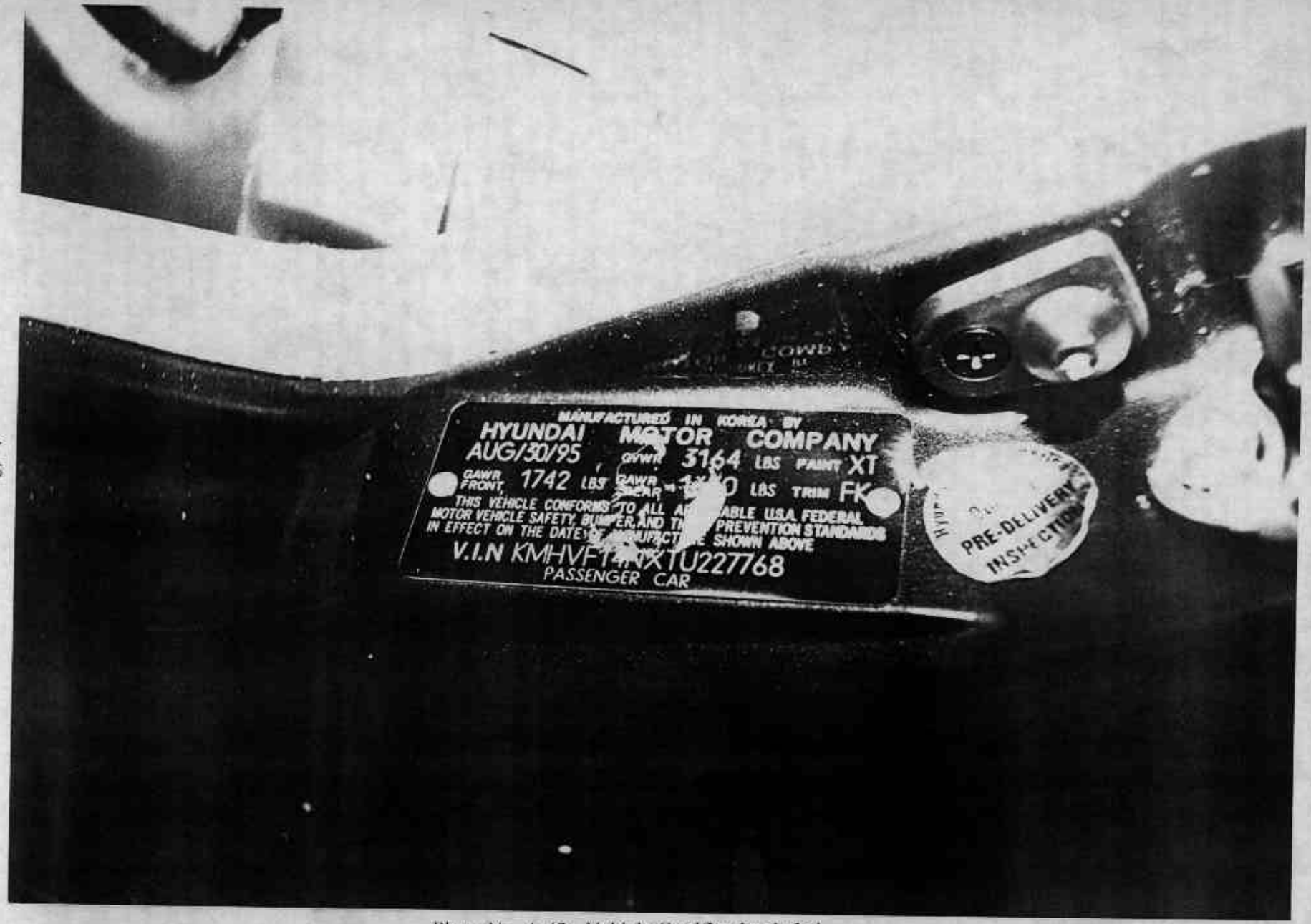
A-40

Photo No. A-40 - Post-Test Left Front Impact Point on Vehicle



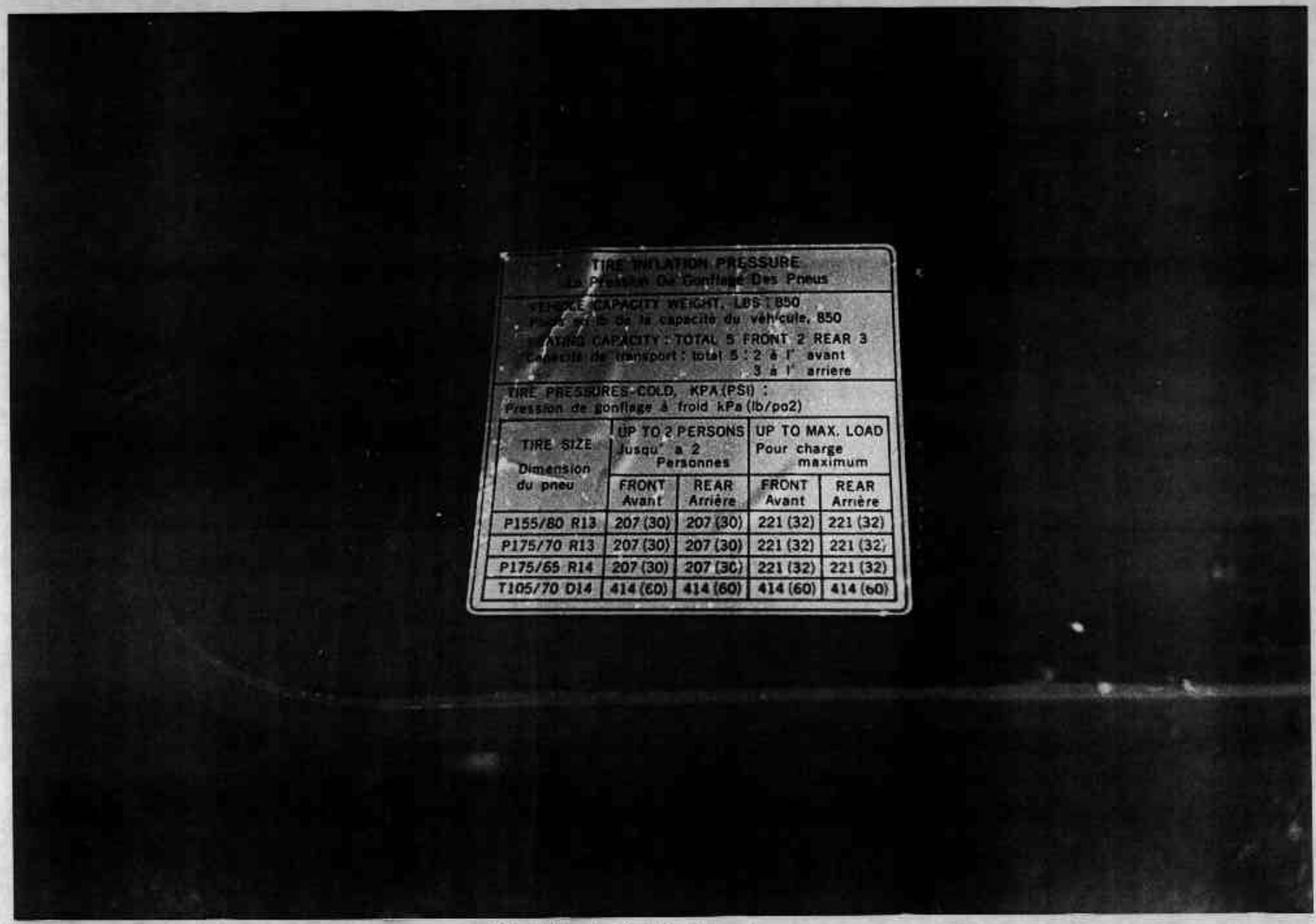
A-41

Photo No. A-41 - Impact



A-42

Photo No. A-42 - Vehicle Certification Label



TIRE SIZE Dimension du pneu	UP TO 2 PERSONS Jusqu' a 2 Personnes		UP TO MAX. LOAD Pour charge maximum	
	FRONT Avant	REAR Arrière	FRONT Avant	REAR Arrière
P155/80 R13	207 (30)	207 (30)	221 (32)	221 (32)
P175/70 R13	207 (30)	207 (30)	221 (32)	221 (32)
P175/65 R14	207 (30)	207 (30)	221 (32)	221 (32)
T105/70 D14	414 (60)	414 (60)	414 (60)	414 (60)

Photo No. A-43 - Tire Placard

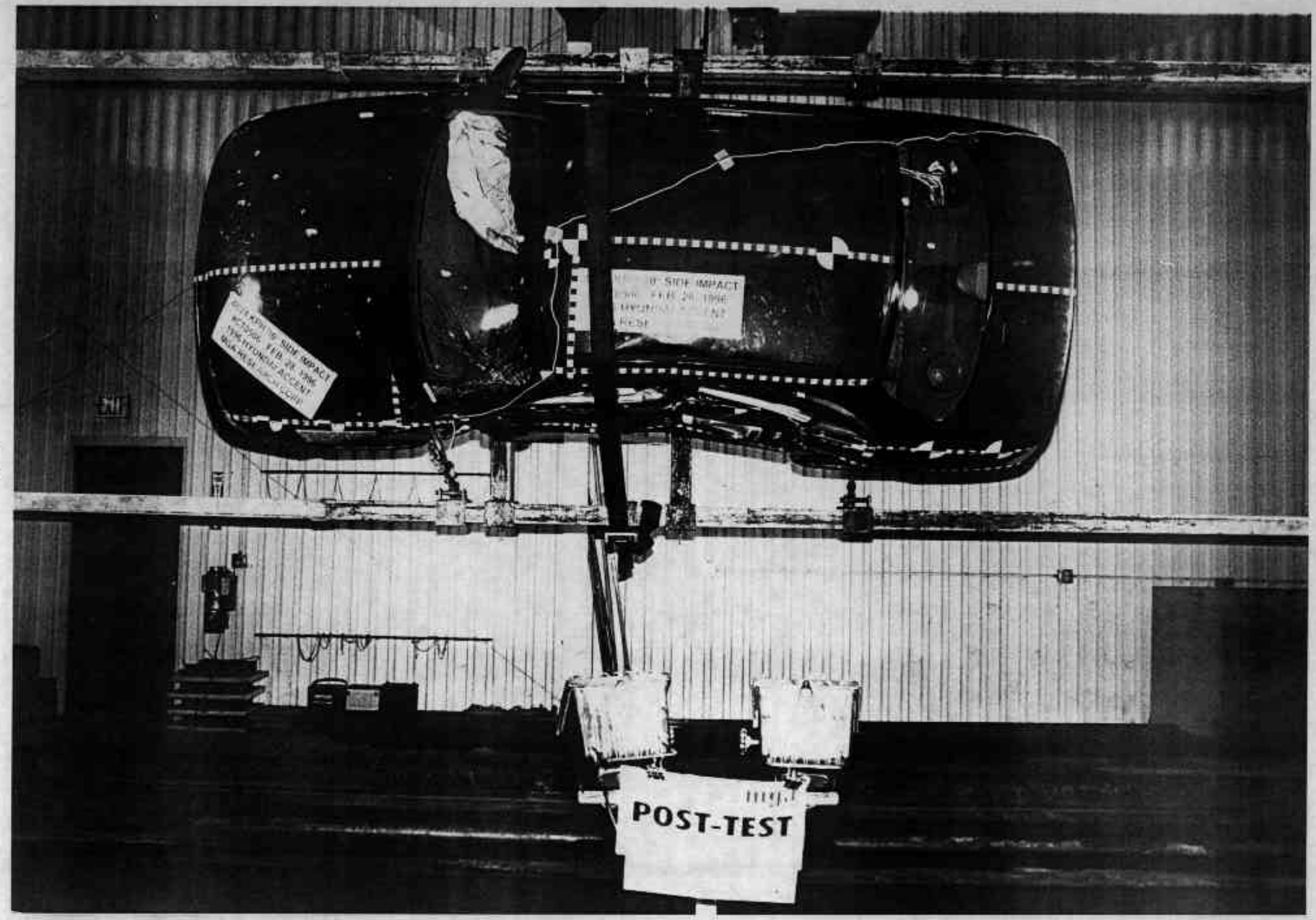


Photo No. A-44 - Rollover 90°

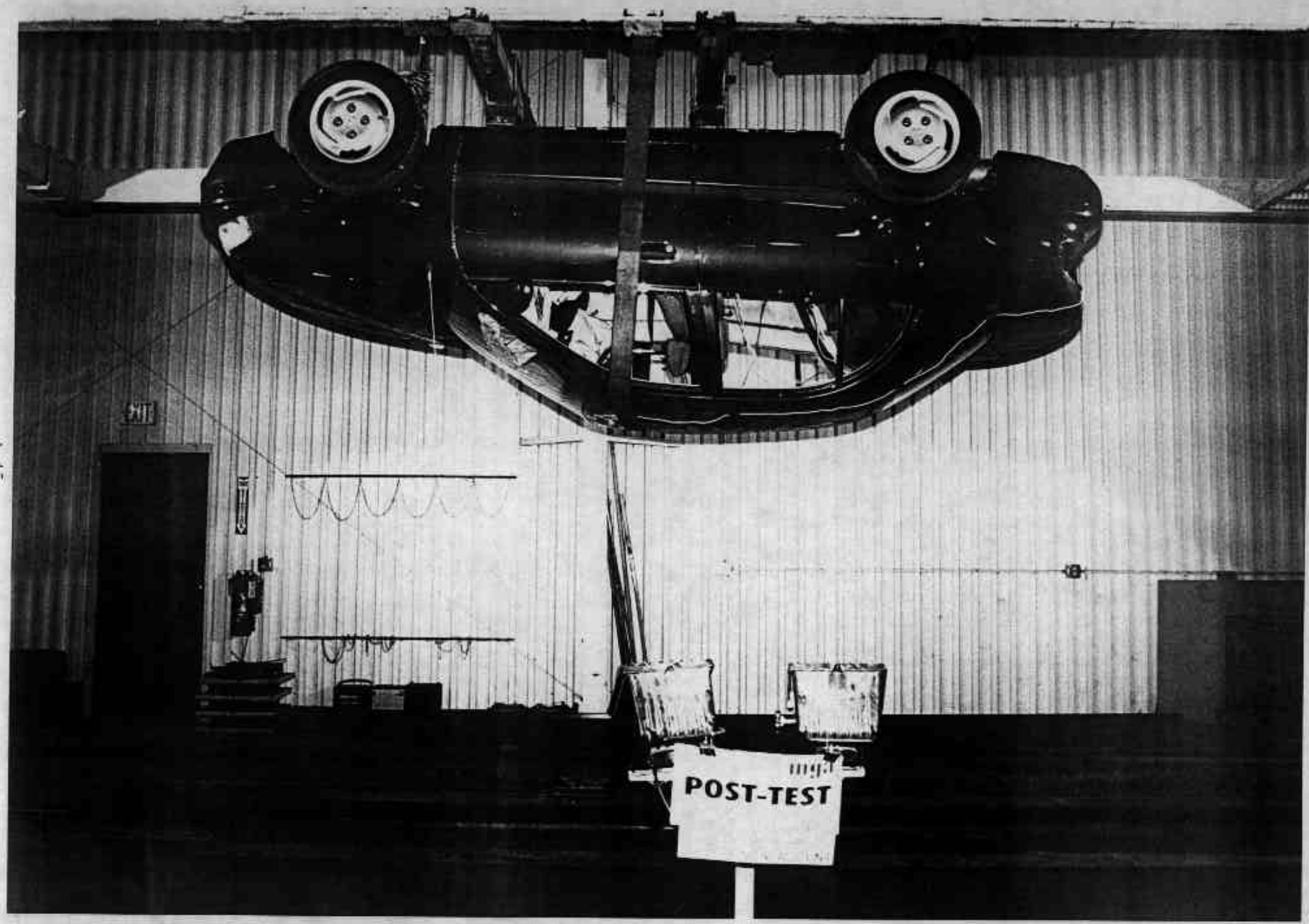
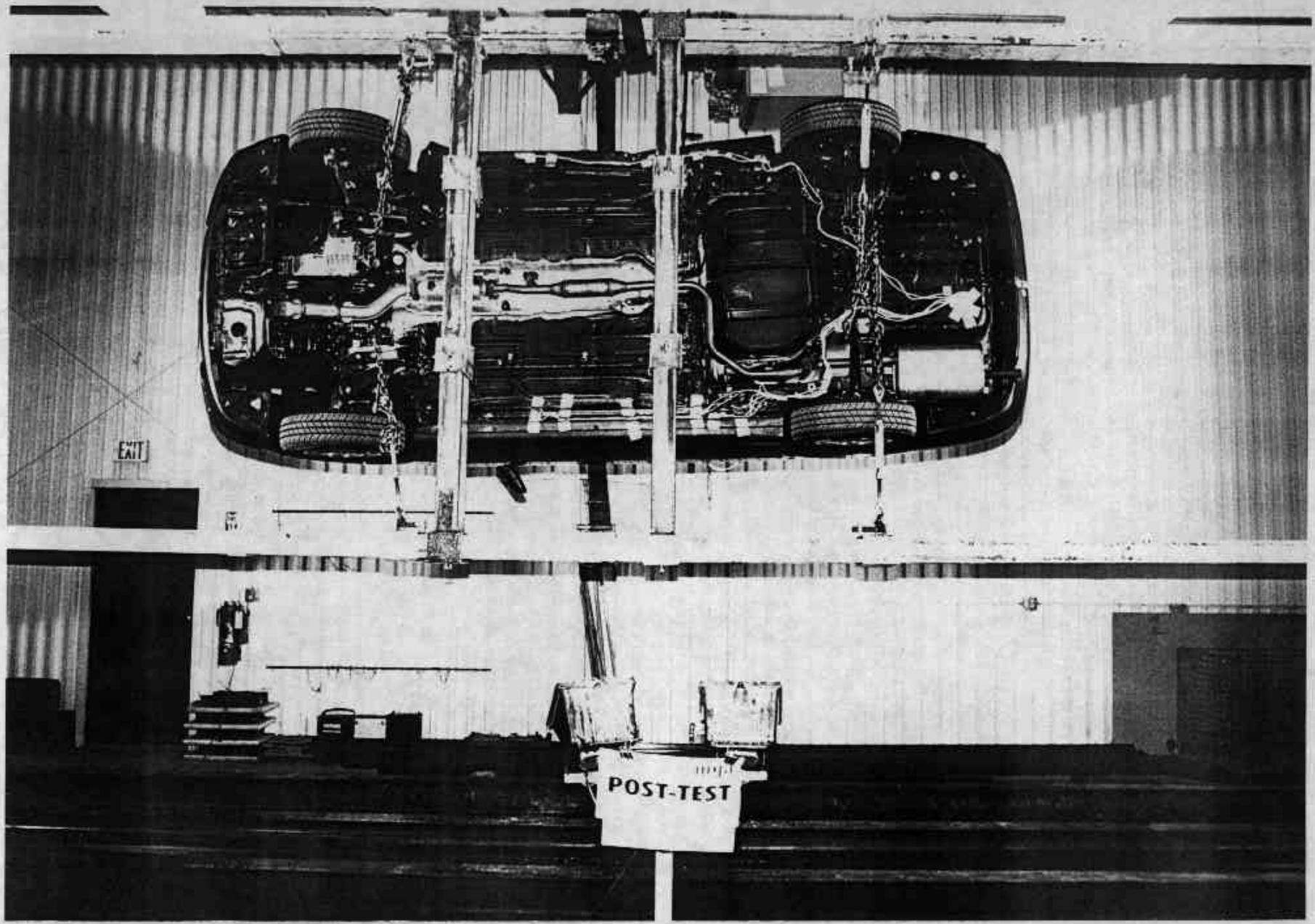


Photo No. A-46 - Rollover 180°



A-46

Photo No. A-46 - Rollover 270°

A-47

Photo No. A-47 - Rollover 360°

Photo No. A-48 - Left Front Attitude Point

Photo No. A-49 - Right Front Attitude Point

A-50

Photo No. A-50 - Left Rear Attitude Point

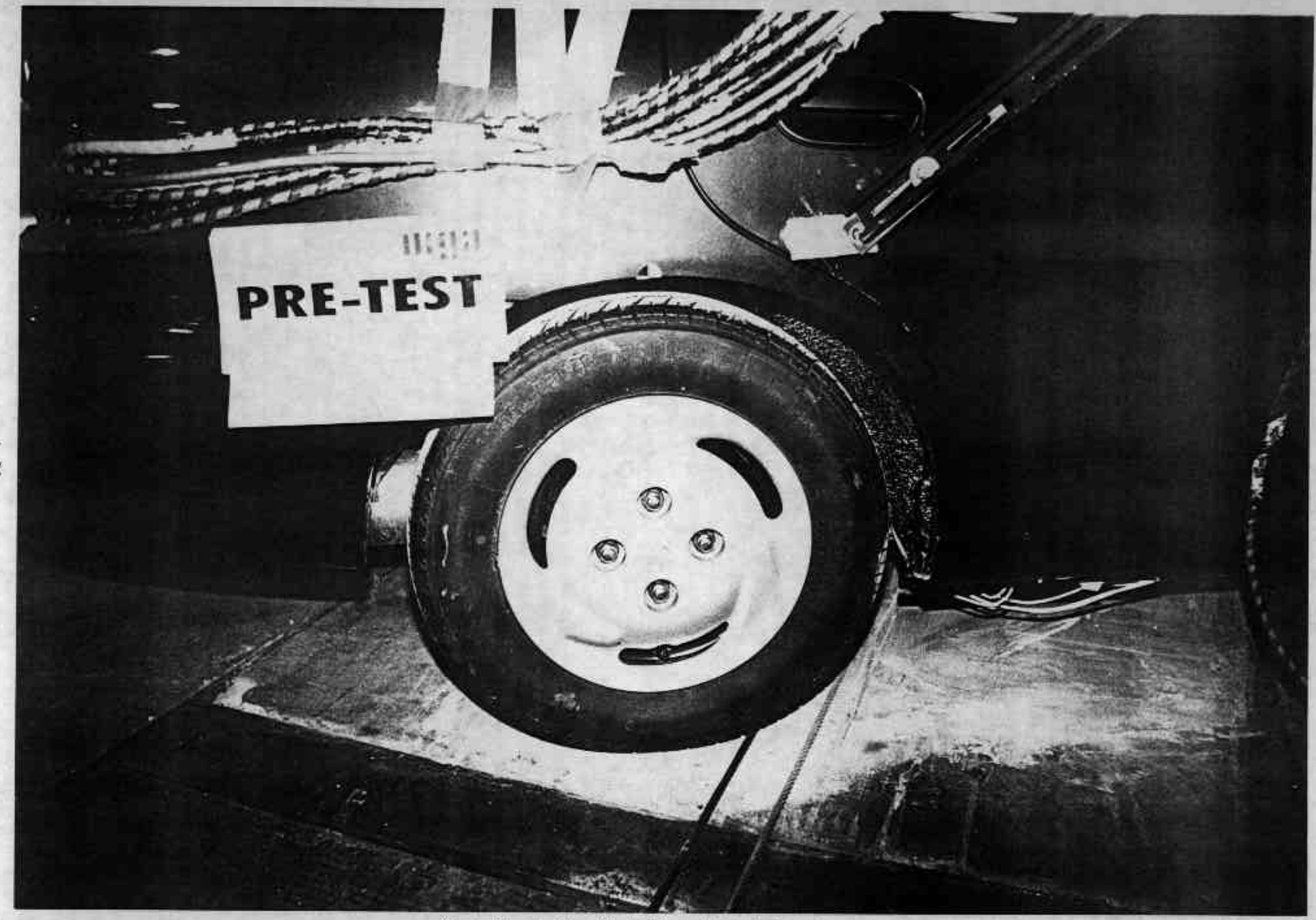


Photo No. A-51 - Right Rear Attitude Point

APPENDIX B - VEHICLE AND SID RESPONSE DATA

Table of Data Plots

Table of Data Plots

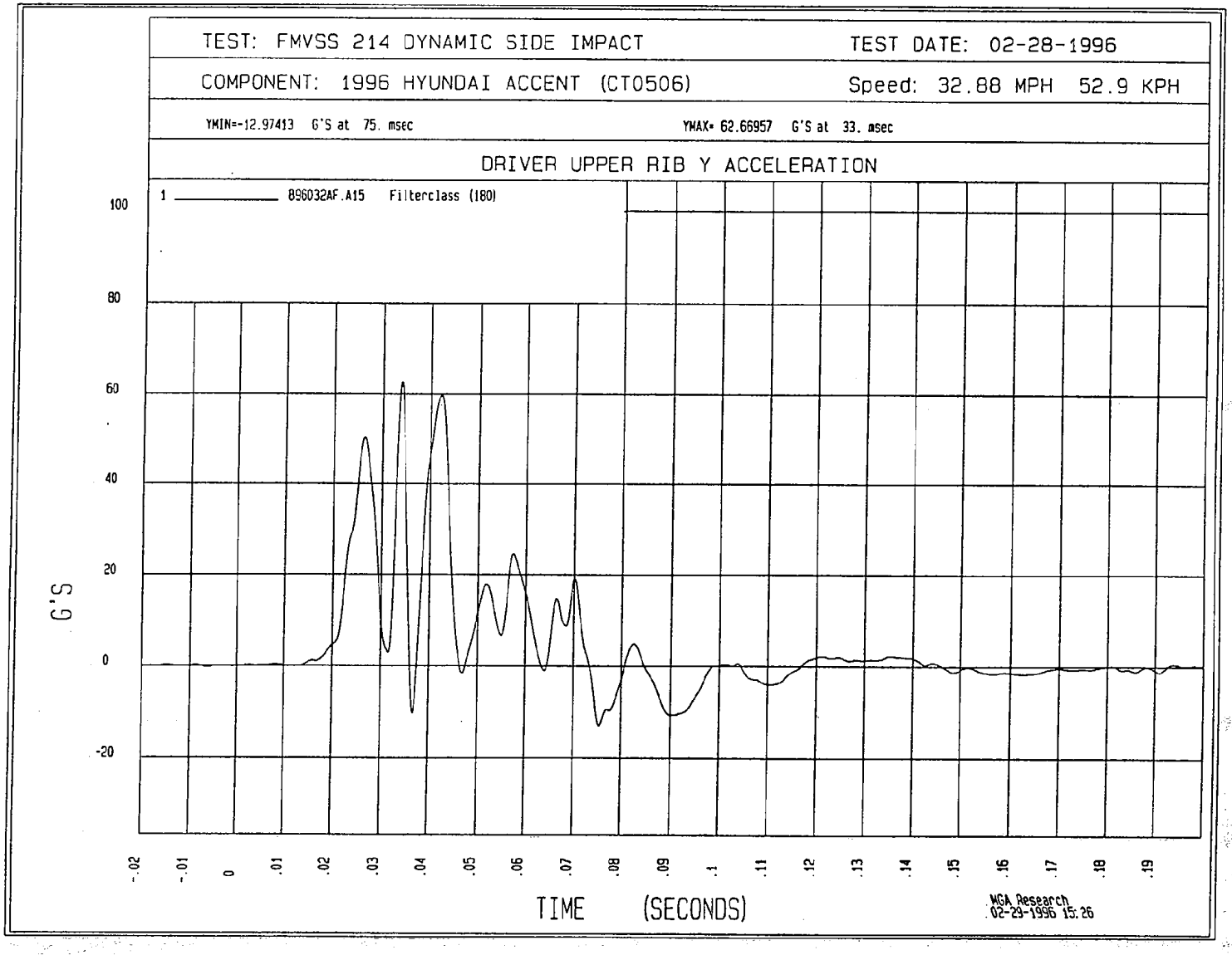
Table of Data Plots

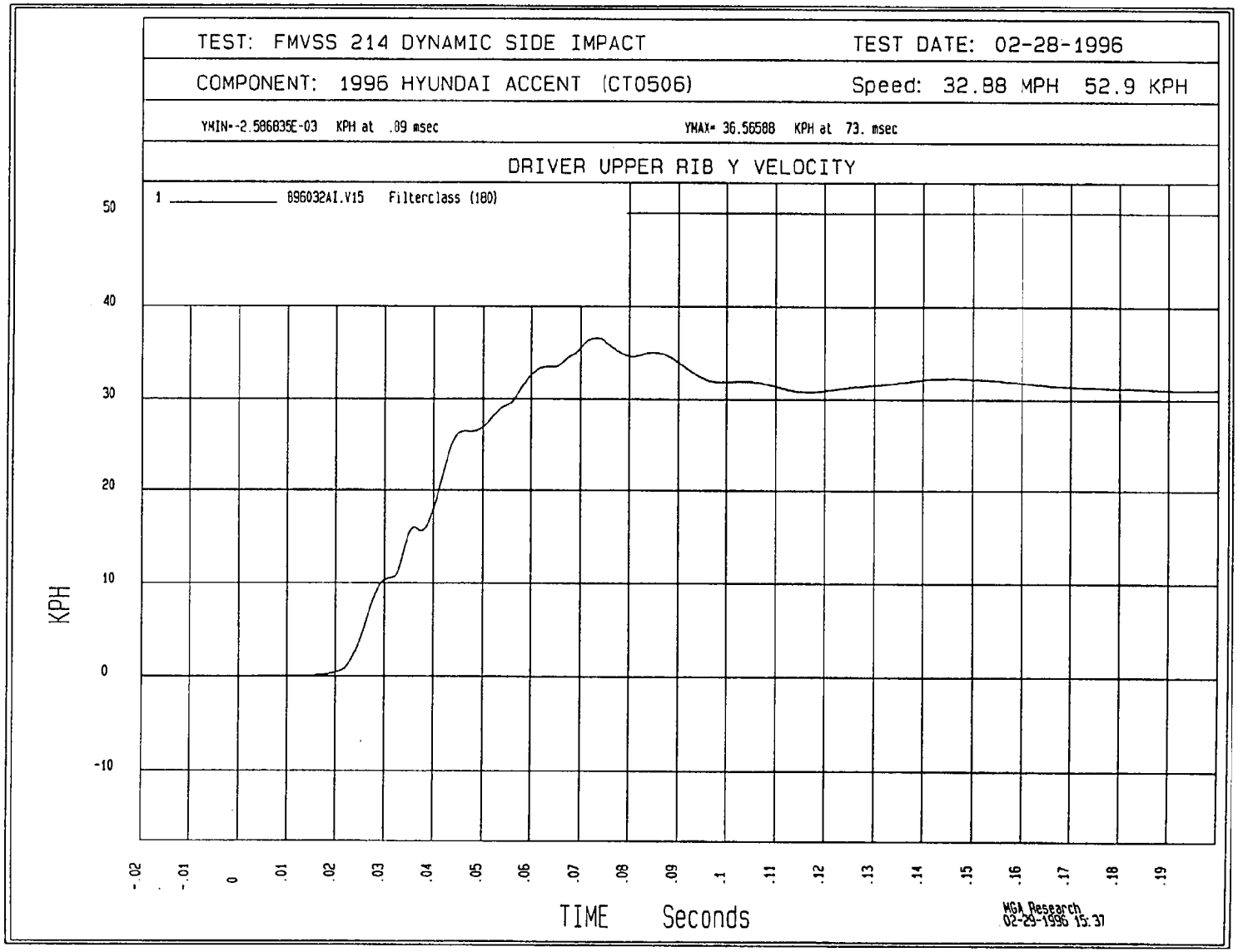
* Data not valid after 41 msec.

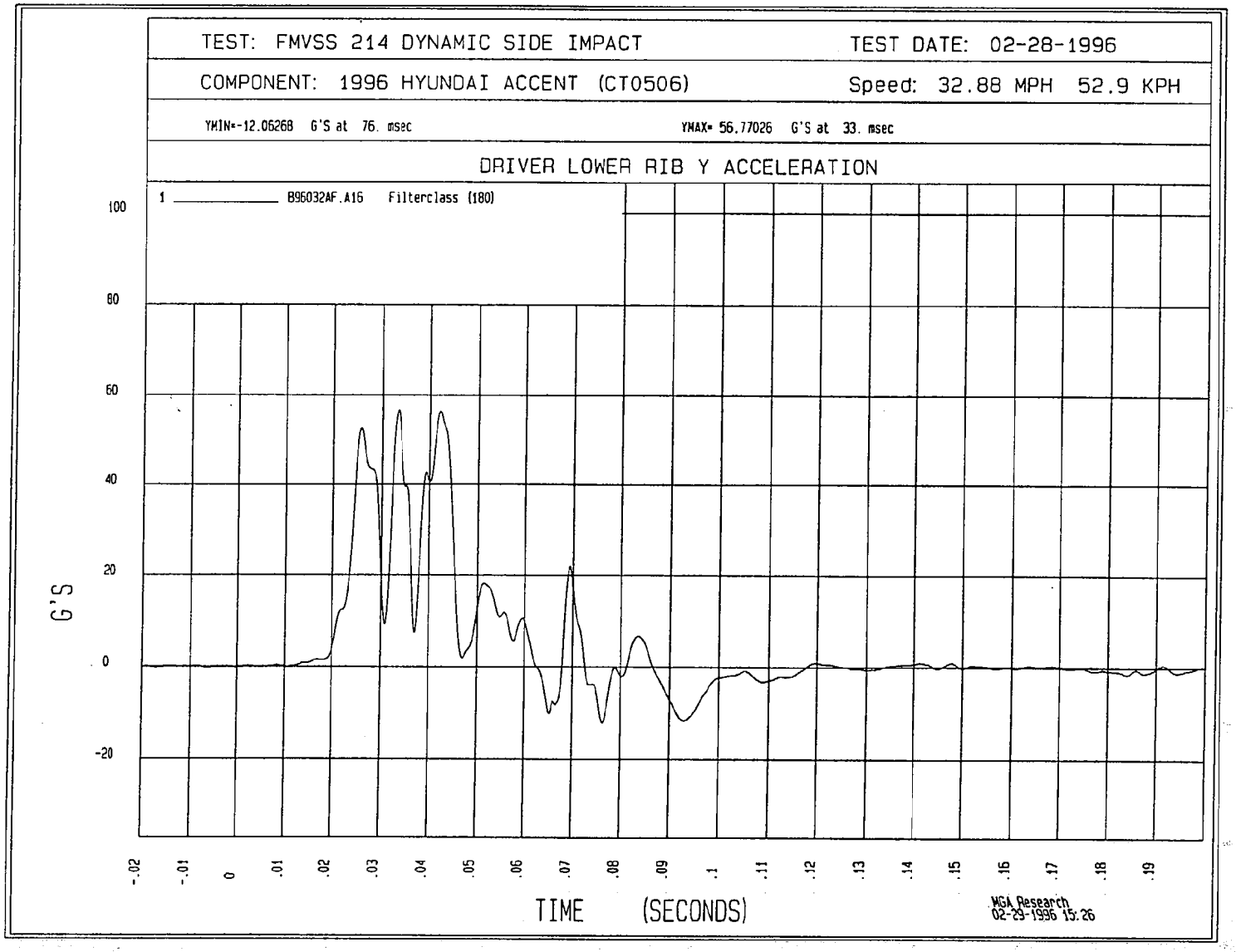
** Calculated up to 41 msec. due to X Acceleration

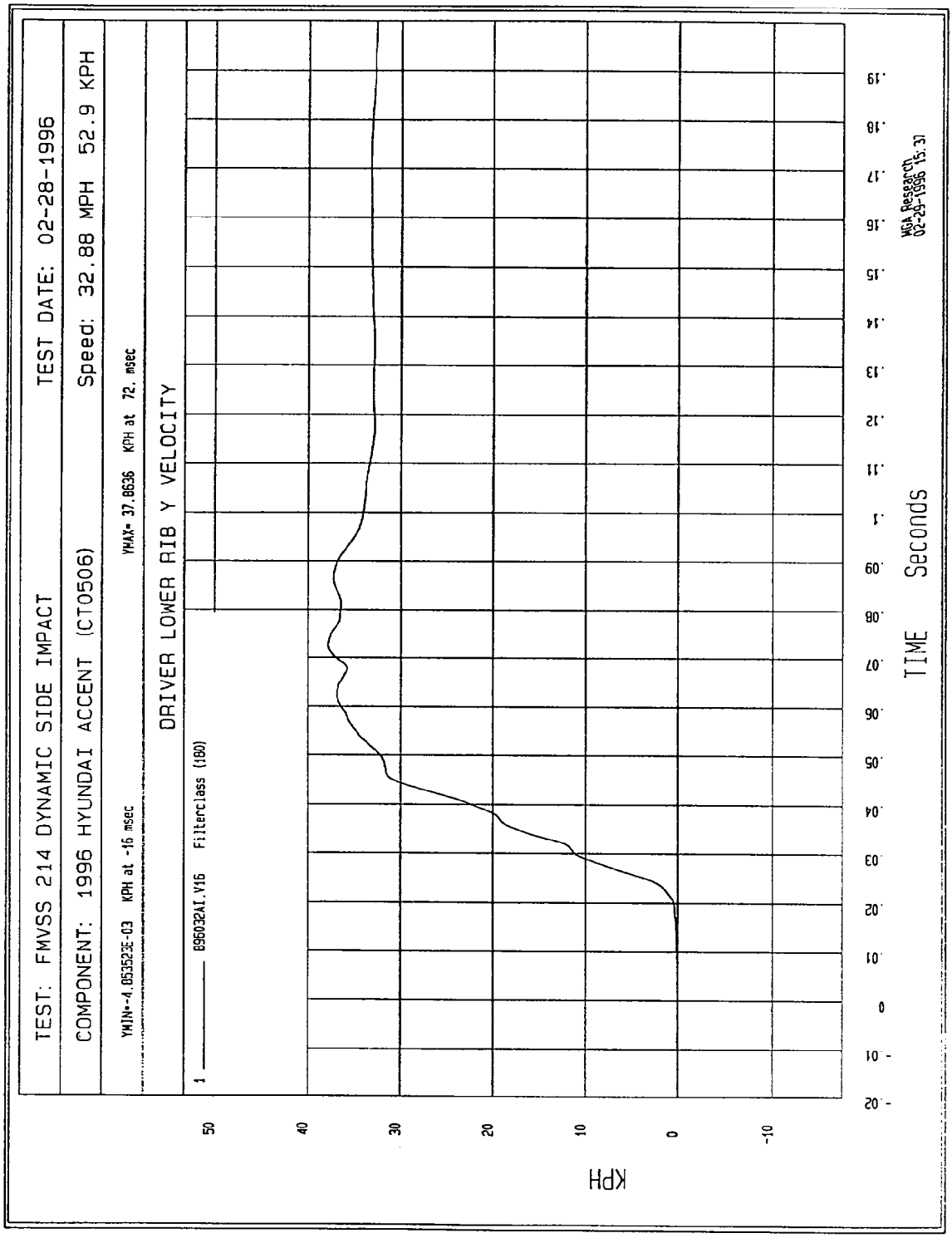
Table of Data Plots

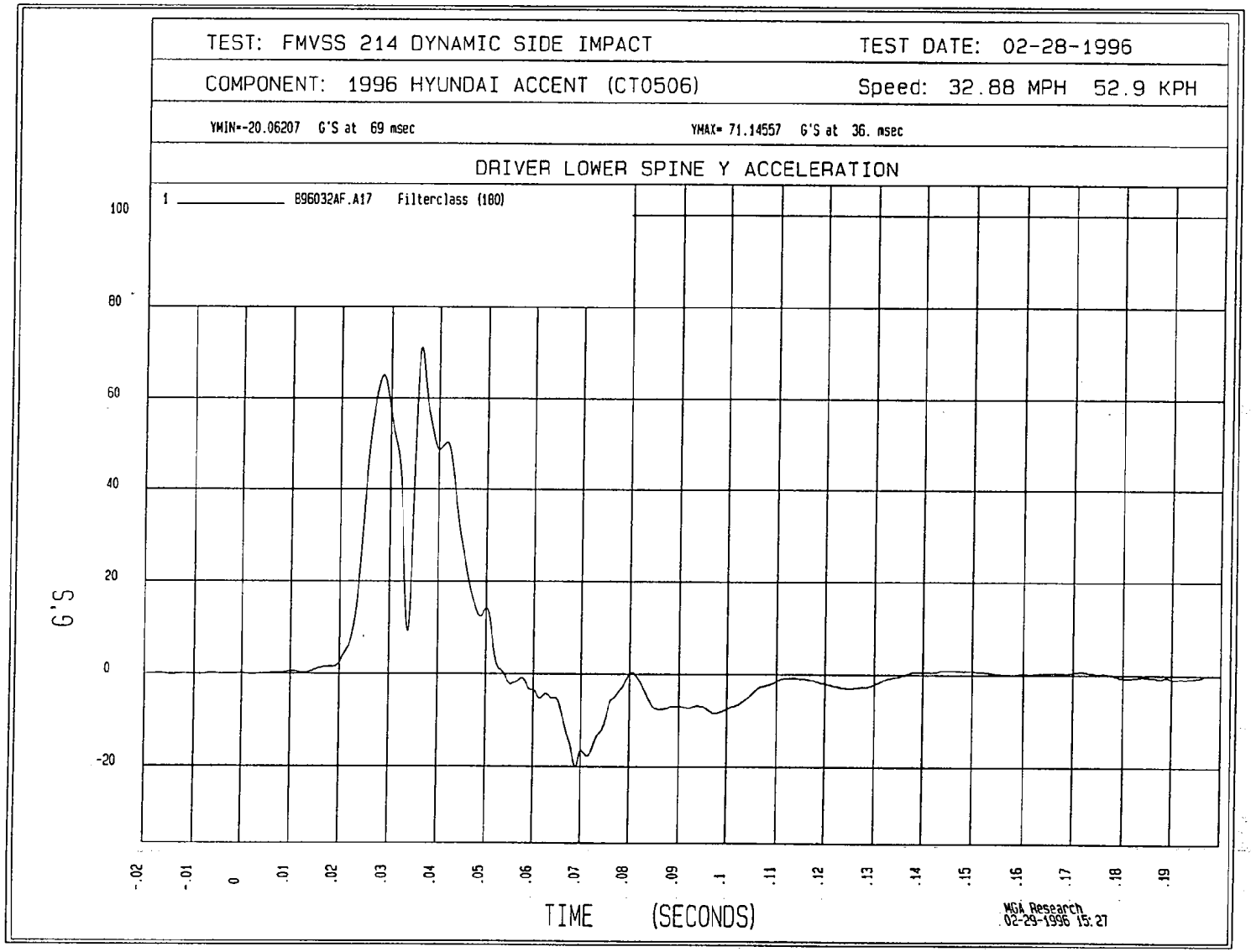
Table of Data Plots

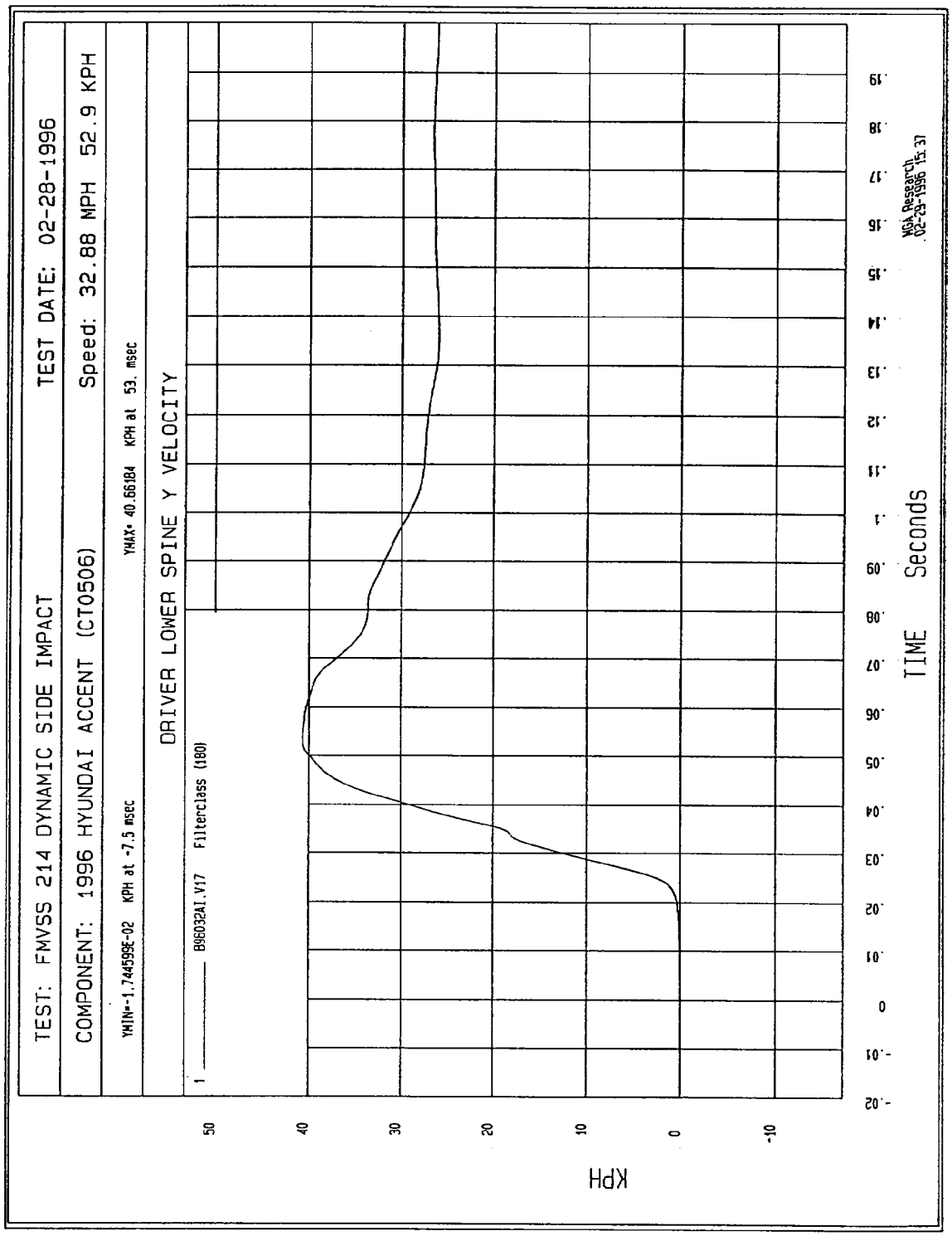

TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-12.97413 G'S at 75. msec
YMAX= 62.66957 G'S at 33. msec
DRIVER UPPER RIB Y ACCELERATION
1 896032AF.A15 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:26

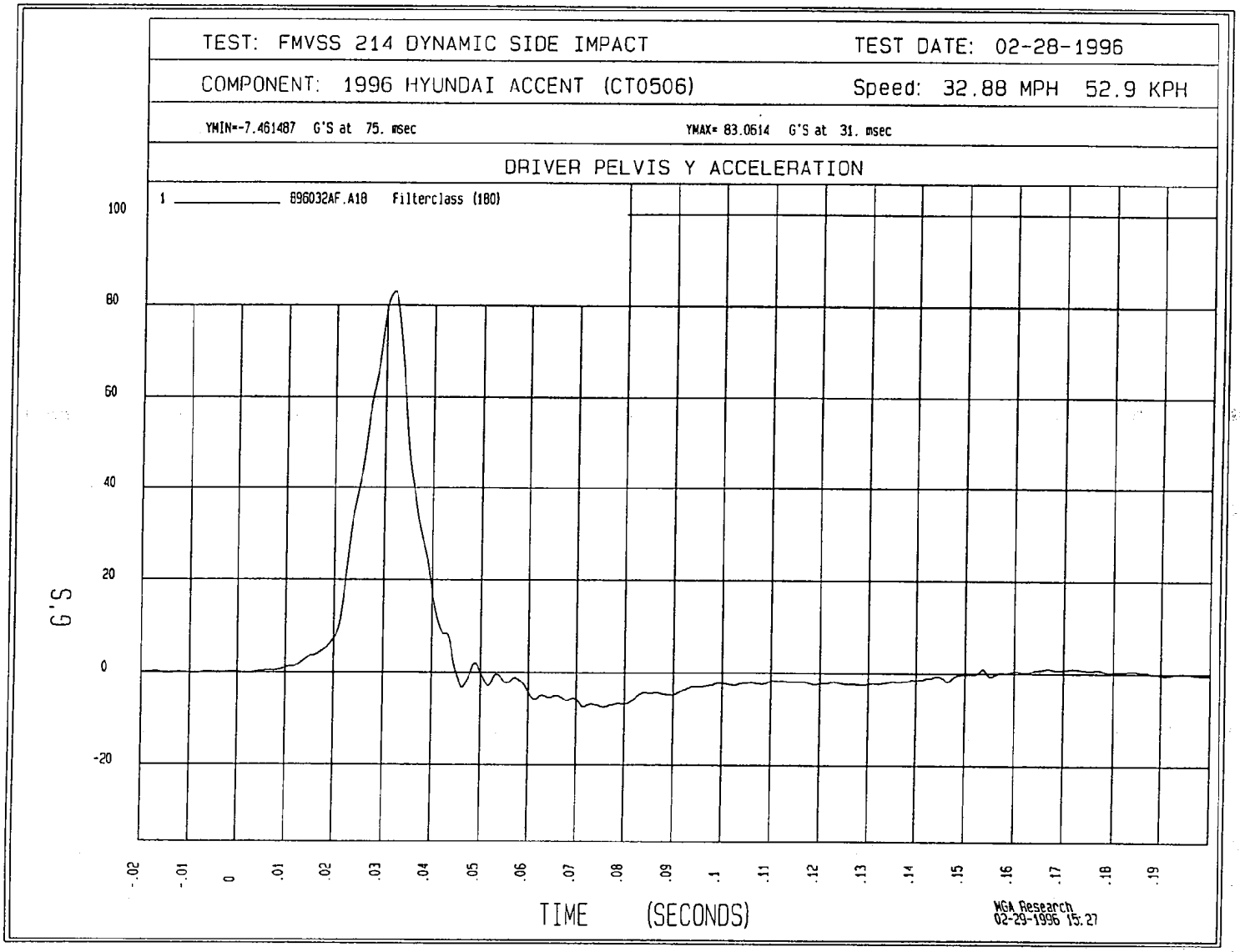

TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-2.586835E-03 KPH at .89 msec
YMAX= 36.56588 KPH at 73. msec
DRIVER UPPER RIB Y VELOCITY
1 896032AI.V15 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
02-29-1996 15:37

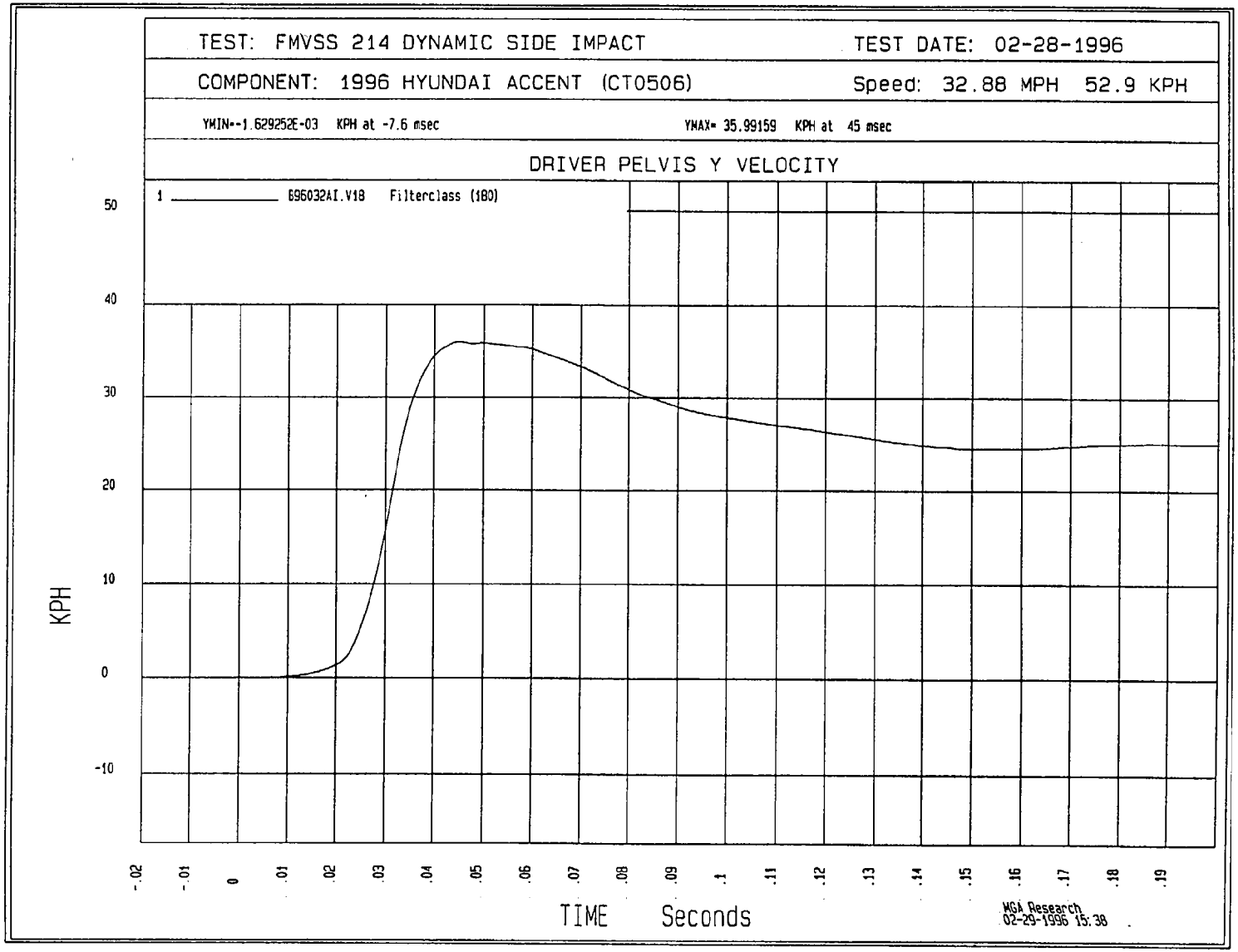

TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-12.06268 G'S at 76. msec
YMAX= 56.77026 G'S at 33. msec
DRIVER LOWER RIB Y ACCELERATION
1 B96032AF.A16 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:26

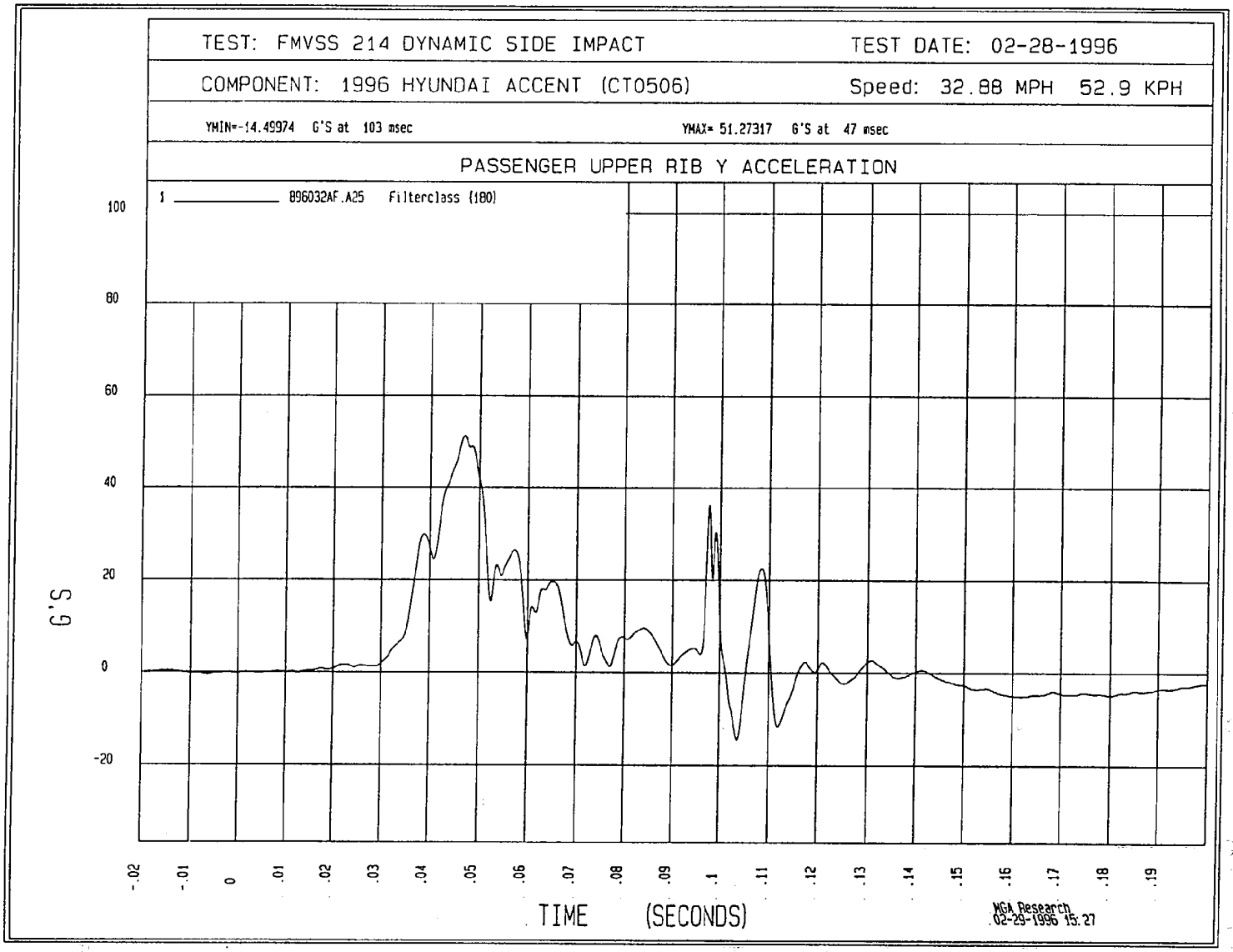

TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-4.0635235E-03 KPH at -16 msec
YMAX= 37.8636 KPH at 72. msec
DRIVER LOWER RIB Y VELOCITY
1 _____ 896032AI.Y16 Filterclass (180)
KPH
TIME Seconds
MGA Research
02-29-1996 15:31

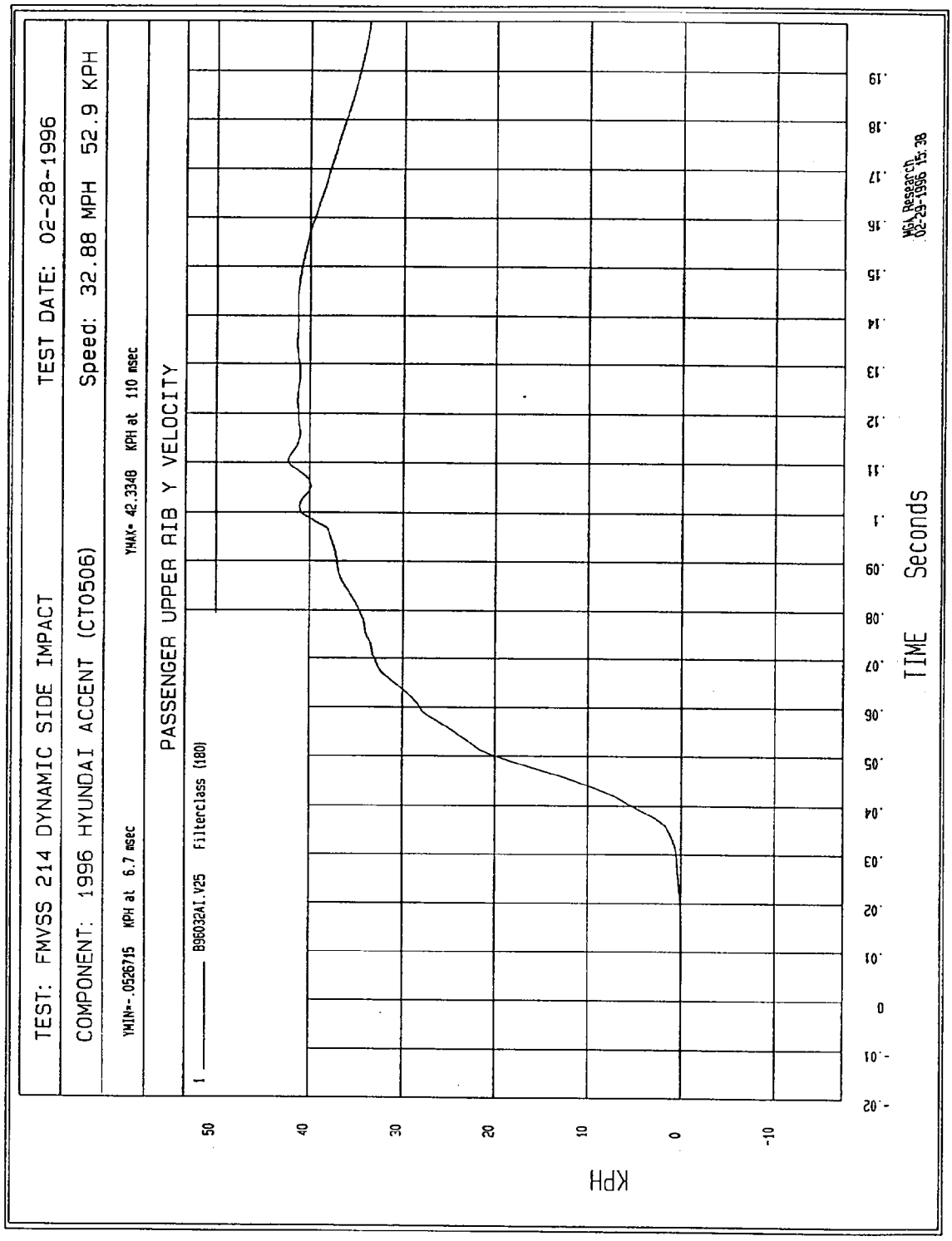

TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-20.06207 G'S at 69 msec
YMAX= 71.14557 G'S at 36. msec
DRIVER LOWER SPINE Y ACCELERATION
1 B96032AF.A17 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:27

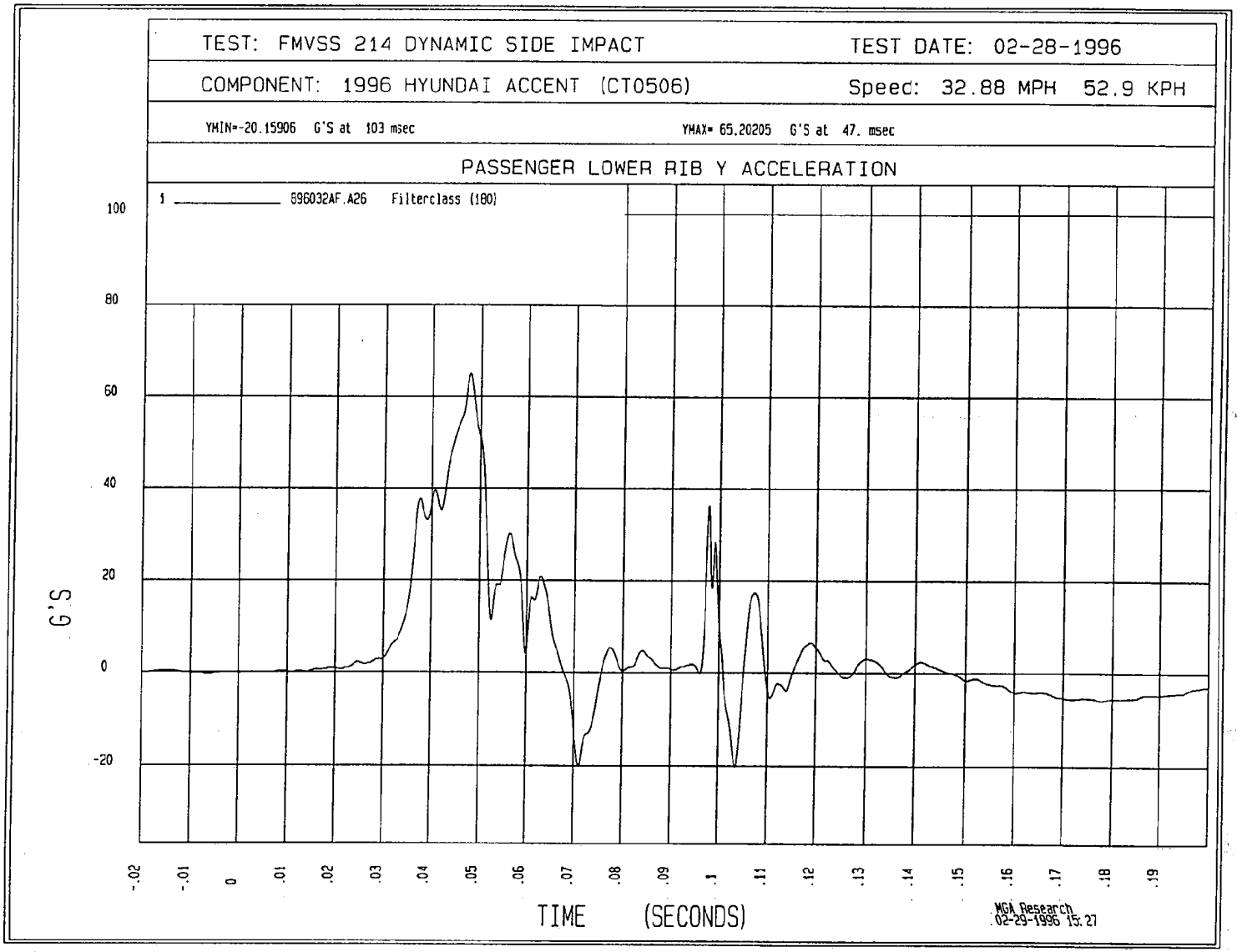

TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.744599E-02 KPH at -7.5 msec
YMAX= 40.66184 KPH at 53. msec
DRIVER LOWER SPINE Y VELOCITY
1 ——— B96032AI.V17 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
02-29-1996 15:37

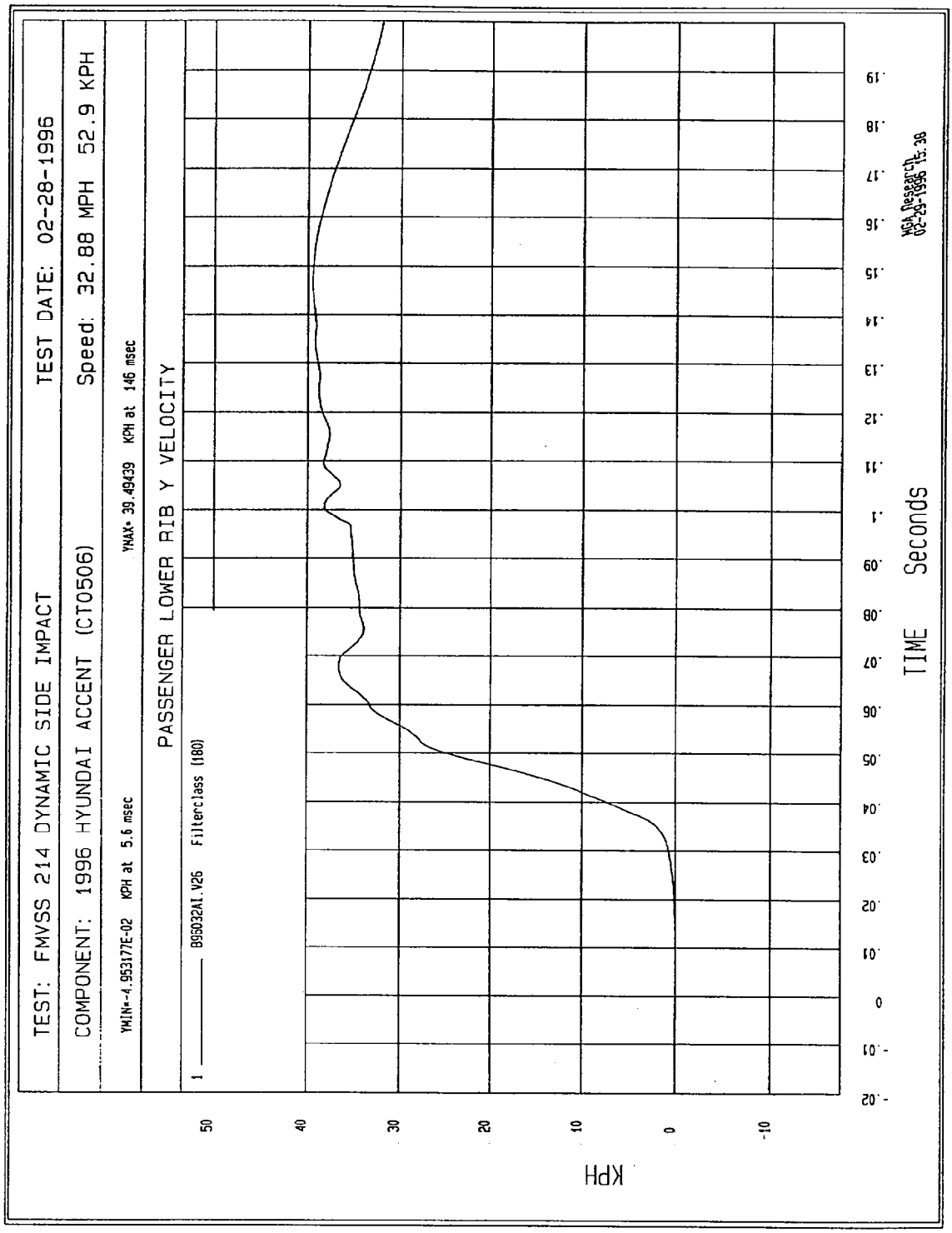

TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-7.461487 G'S at 75. msec
YMAX= 83.0614 G'S at 31. msec
DRIVER PELVIS Y ACCELERATION
1 896032AF.A10 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:27

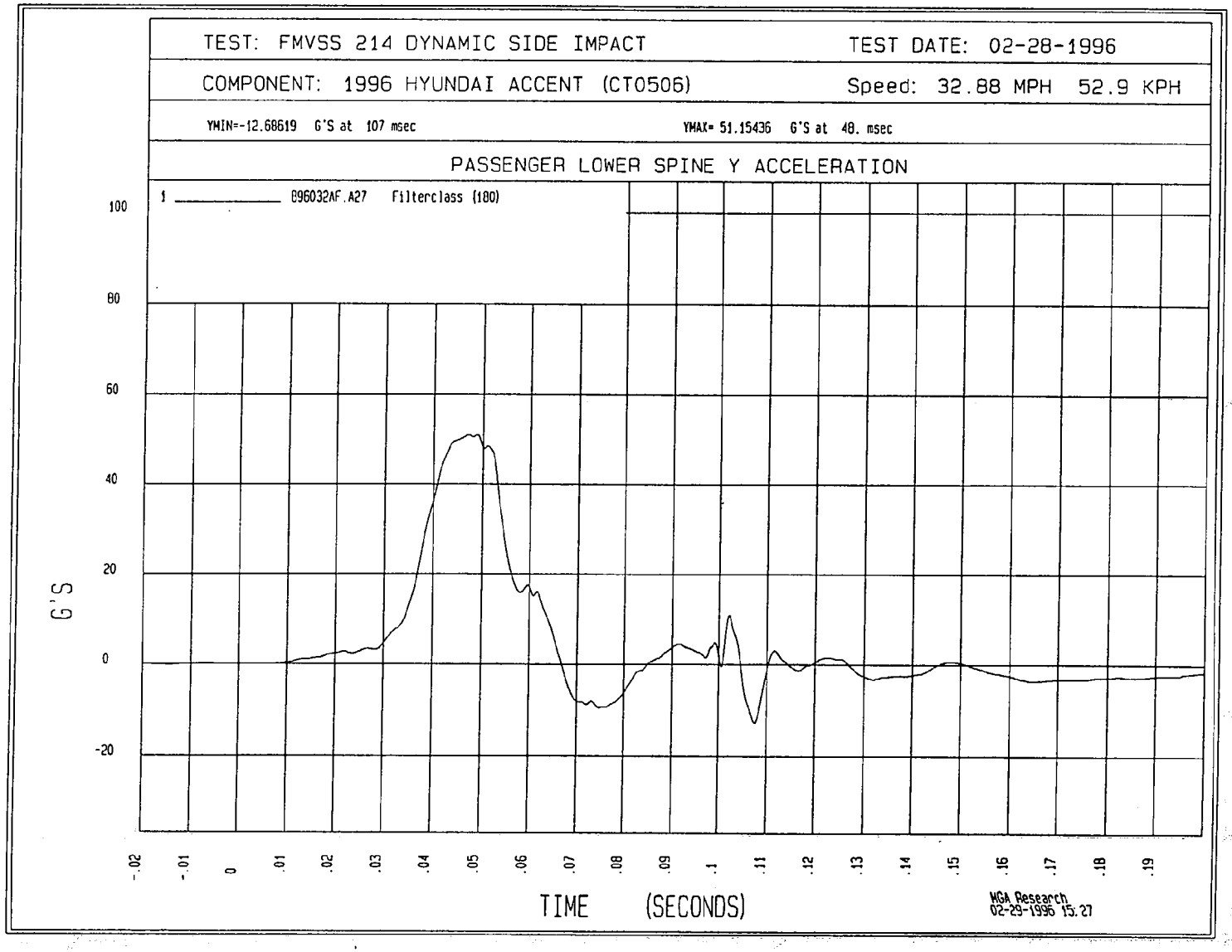

TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.629252E-03 KPH at -7.6 msec
YMAX= 35.99159 KPH at 45 msec
DRIVER PELVIS Y VELOCITY
1 696032AI.V18 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
02-29-1996 15:38

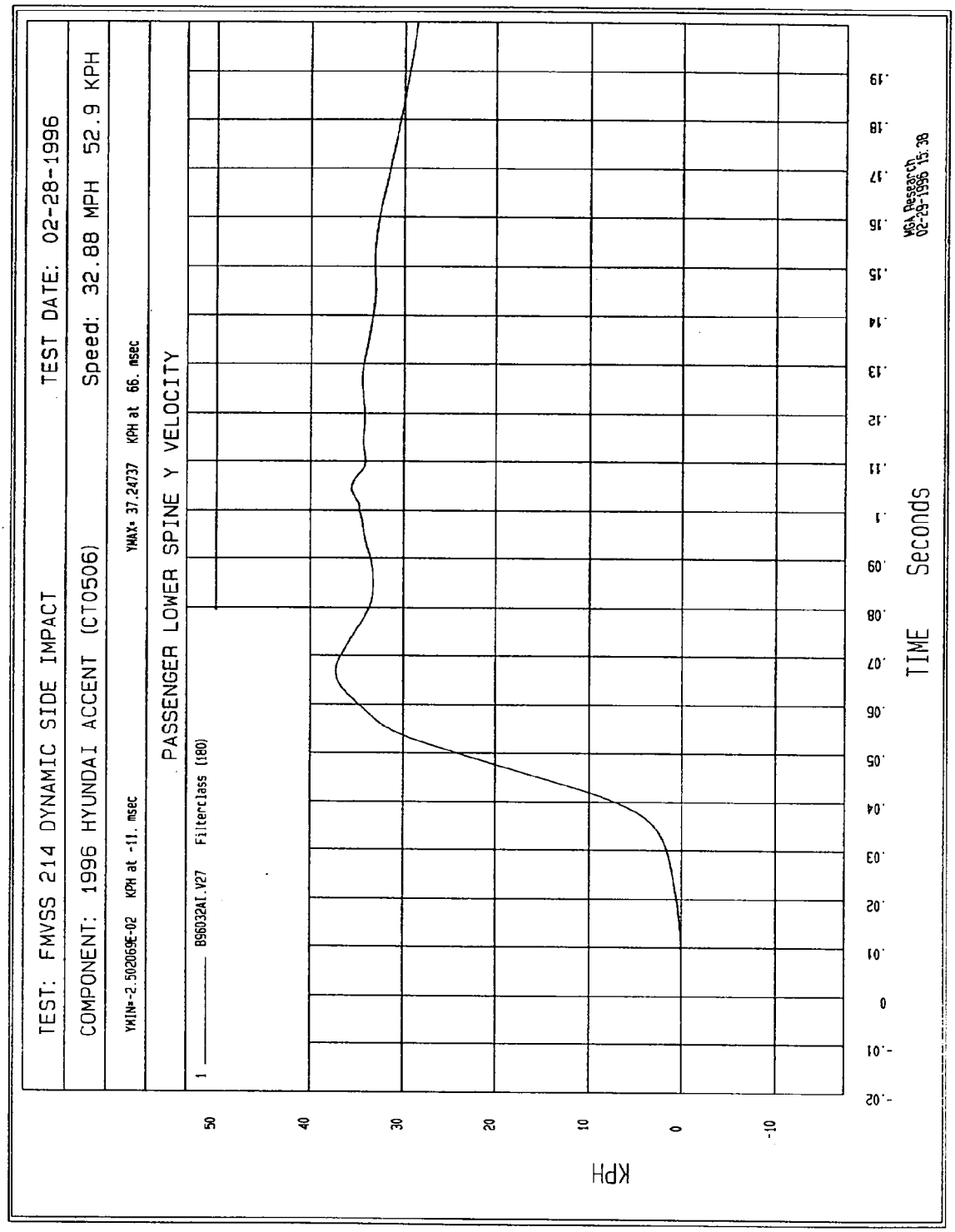

TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-14.49974 G'S at 103 msec
YMAX= 51.27317 G'S at 47 msec
PASSENGER UPPER RIB Y ACCELERATION
1 896032AF.A25 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:27


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-.0526715 KPH at 6.7 msec
YMAX= 42.3348 KPH at 110 msec
PASSENGER UPPER RIB Y VELOCITY
1 B96032AI.V25 Filterclass (180)
KPH
50
40
30
20
10
0
-10
TIME Seconds
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
MGA Research
02-29-1996 15:38


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-20.15906 G'S at 103 msec
YMAX= 65.20205 G'S at 47. msec
PASSENGER LOWER RIB Y ACCELERATION
1 896032AF.A26 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:27


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-4.953177E-02 KPH at 5.6 msec
YMAX= 39.49439 KPH at 146 msec
PASSENGER LOWER RIB Y VELOCITY
1 B96032AI.V26 Filterclass (180)
KPH
TIME Seconds
MGA Research
02-28-1996 15:38


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-12.68619 G'S at 107 msec
YMAX= 51.15436 G'S at 48. msec
PASSENGER LOWER SPINE Y ACCELERATION
1 ——— 896032AF.A27 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:27


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-2.502065E-02 KPH at -11. msec
YMAX= 37.24737 KPH at 66. msec
PASSENGER LOWER SPINE Y VELOCITY
1 B96032AT.V27 Filterclass (180)
KPH
50
40
30
20
10
0
-10
.19
.18
.17
.16
.15
.14
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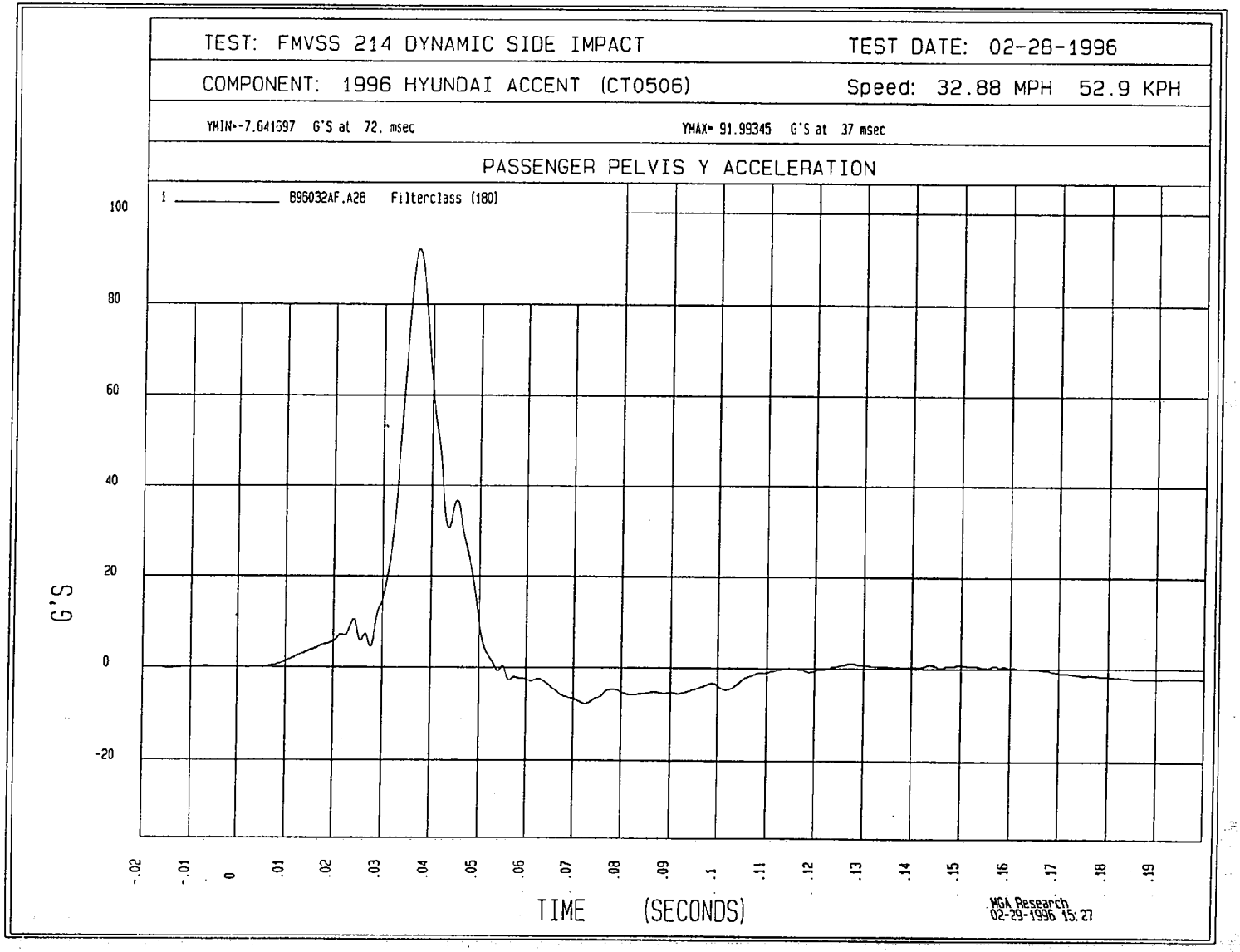
TIME Seconds
MGA Research
02-29-1996 15:38


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-7.641697 G'S at 72. msec
YMAX= 91.99345 G'S at 37 msec
PASSENGER PELVIS Y ACCELERATION
1 B96032AF.A26 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
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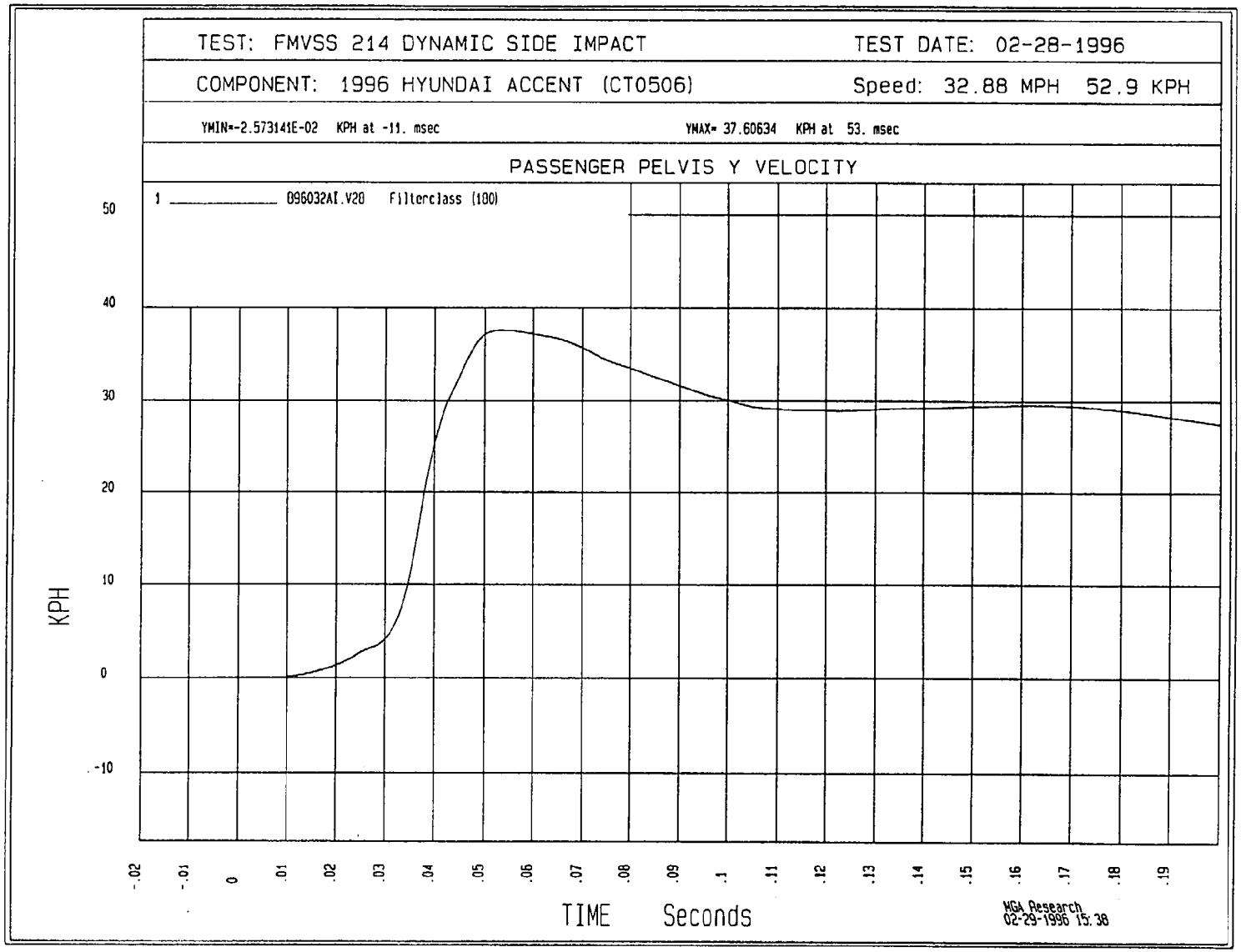
TIME (SECONDS)
MGA Research
02-29-1996 15:27


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-2.573141E-02 KPH at -11. msec
YMAX= 37.60634 KPH at 53. msec
PASSENGER PELVIS Y VELOCITY
1 096032AI.V20 Filterclass (180)
KPH
50
40
30
20
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0
-10
-.02
-.01
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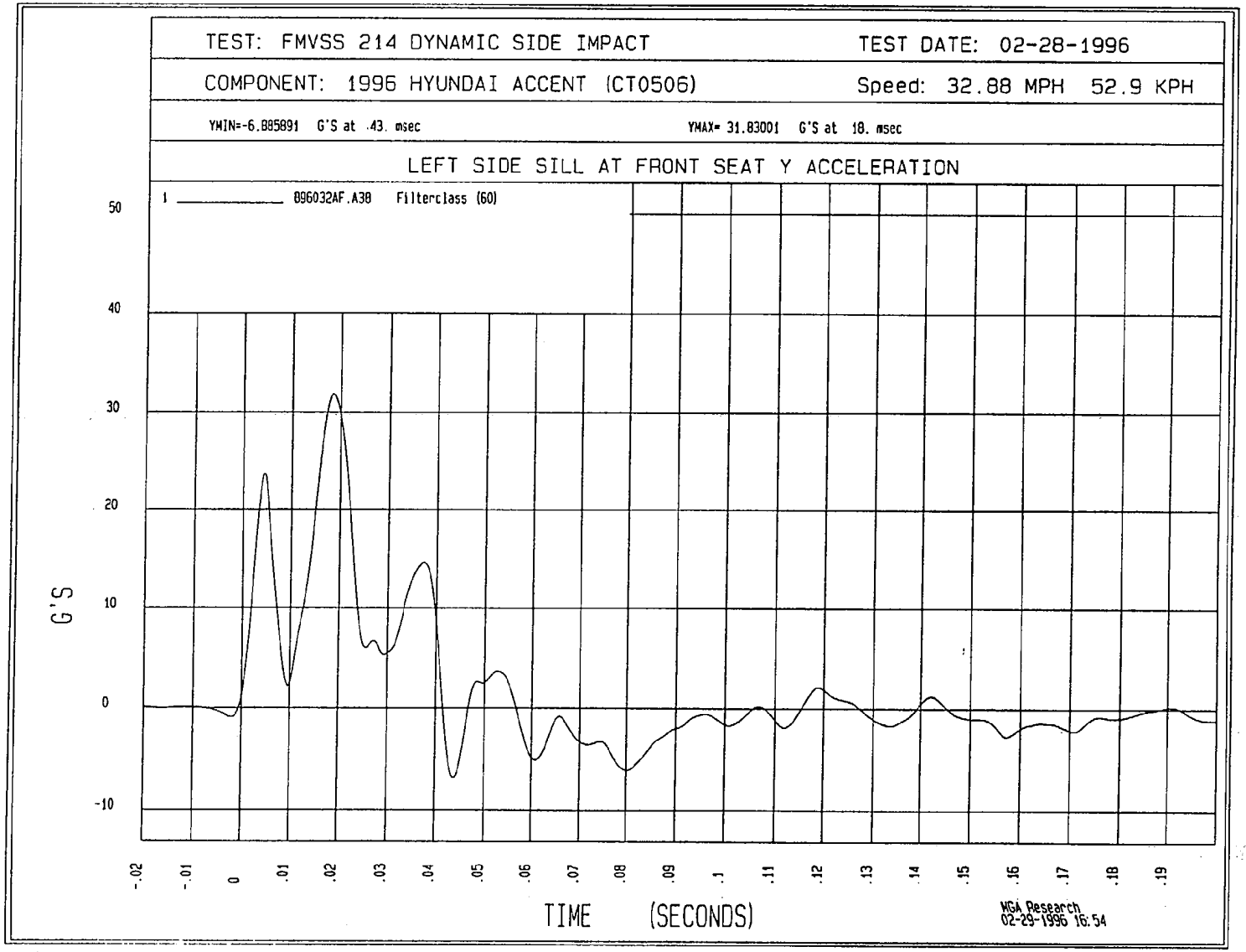
TIME Seconds
MGA Research
02-29-1996 15:38


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-6.885891 G'S at .43. msec
YMAX= 31.83001 G'S at 18. msec
LEFT SIDE SILL AT FRONT SEAT Y ACCELERATION
1 ——— 896032AF.A38 Filterclass (60)
50
40
30
20
10
0
-10
G'S
-.02
-.01
0
.01
.02
.03
.04
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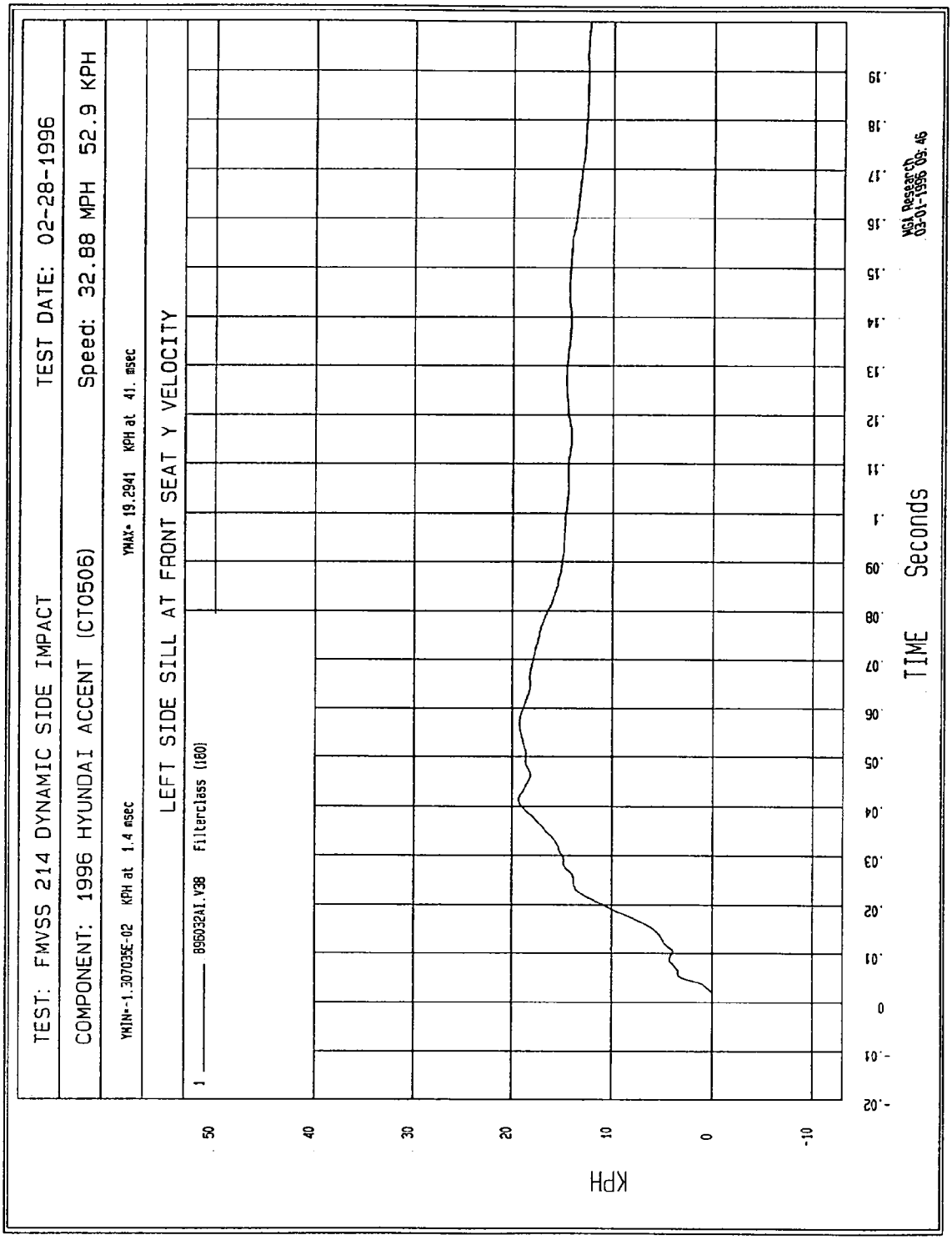
TIME (SECONDS)
NGA Research
02-29-1996 16:54


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.307035E-02 KPH at 1.4 msec
YMAX= 19.2941 KPH at 41. msec
LEFT SIDE SILL AT FRONT SEAT Y VELOCITY
1 ——— 896032AI.Y3B Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
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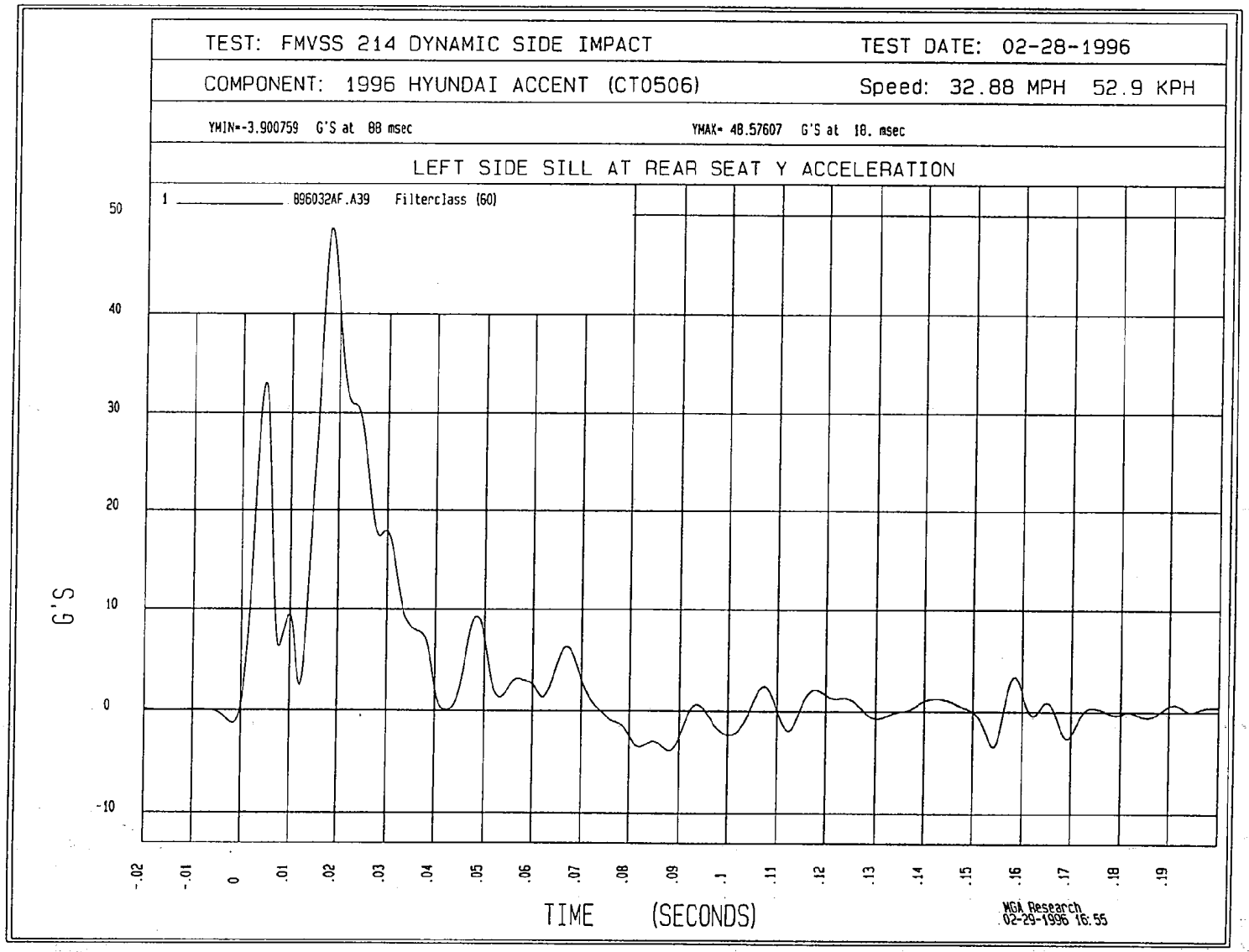
TIME Seconds
MGA Research
03-01-1996 09:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-3.900759 G'S at 88 msec
YMAX= 48.57607 G'S at 18. msec
LEFT SIDE SILL AT REAR SEAT Y ACCELERATION
1 896032AF.A39 Filterclass (60)
50
40
30
20
10
0
-10
G'S
-.02
-.01
0
.01
.02
.03
.04
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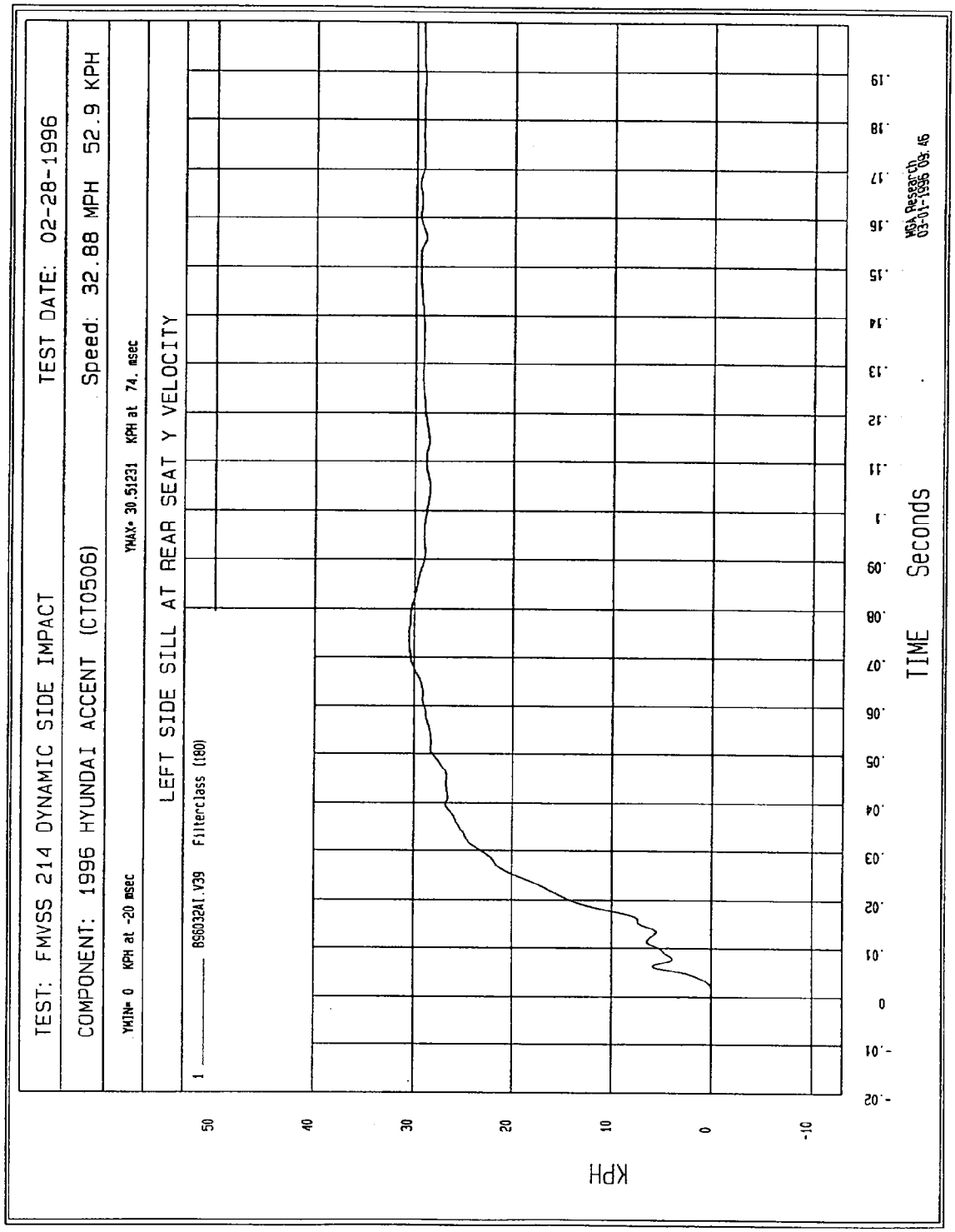
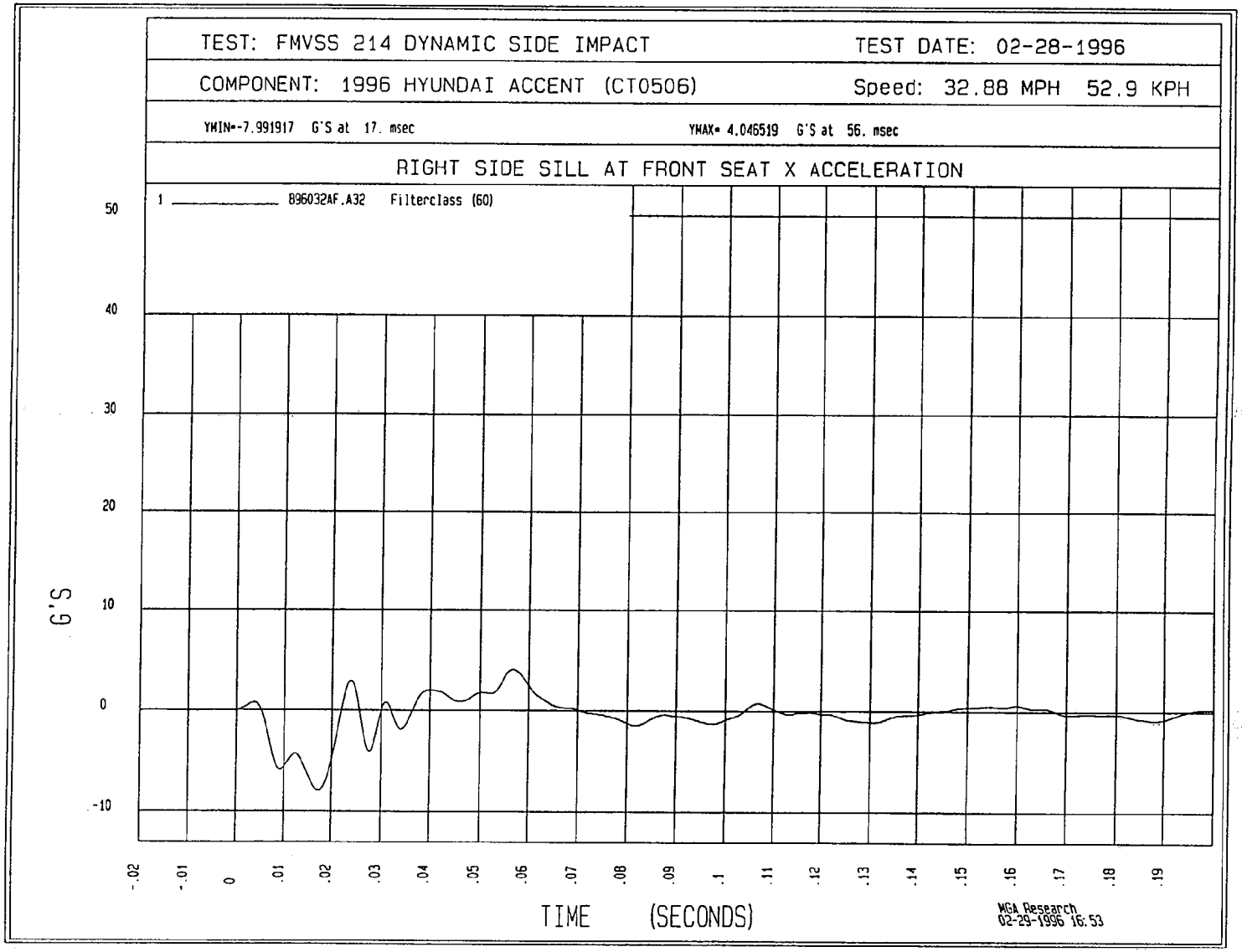
TIME (SECONDS)
MGA Research
02-29-1996 16:55


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN= 0 KPH at -20 msec
YMAX= 30.51231 KPH at 74. msec
LEFT SIDE SILL AT REAR SEAT Y VELOCITY
1 ——— 896032AI.V39 Filterclass (180)
KPH
TIME Seconds
MGA Research
03-01-1996 09: 46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-7.991917 G'S at 17. msec
YMAX= 4.046519 G'S at 56. msec
RIGHT SIDE SILL AT FRONT SEAT X ACCELERATION
1 896032AF.A32 Filterclass (60)
50
40
30
20
10
0
-10
G'S
-.02
-.01
0
.01
.02
.03
.04
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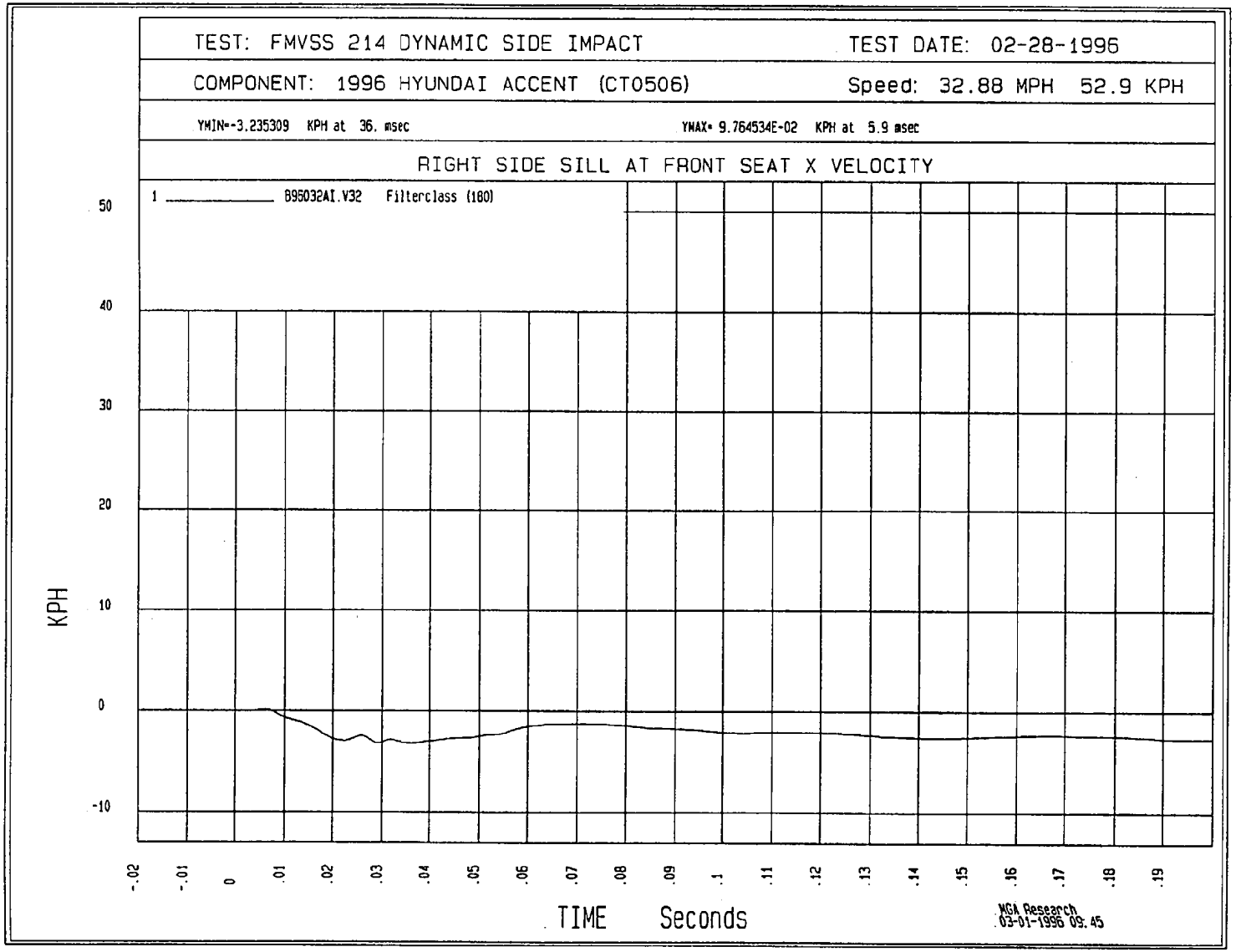
TIME (SECONDS)
MGA Research
02-29-1996 16:53


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-3.235309 KPH at 36. msec
YMAX= 9.764534E-02 KPH at 5.9 msec
RIGHT SIDE SILL AT FRONT SEAT X VELOCITY
1 B95032AI.V32 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
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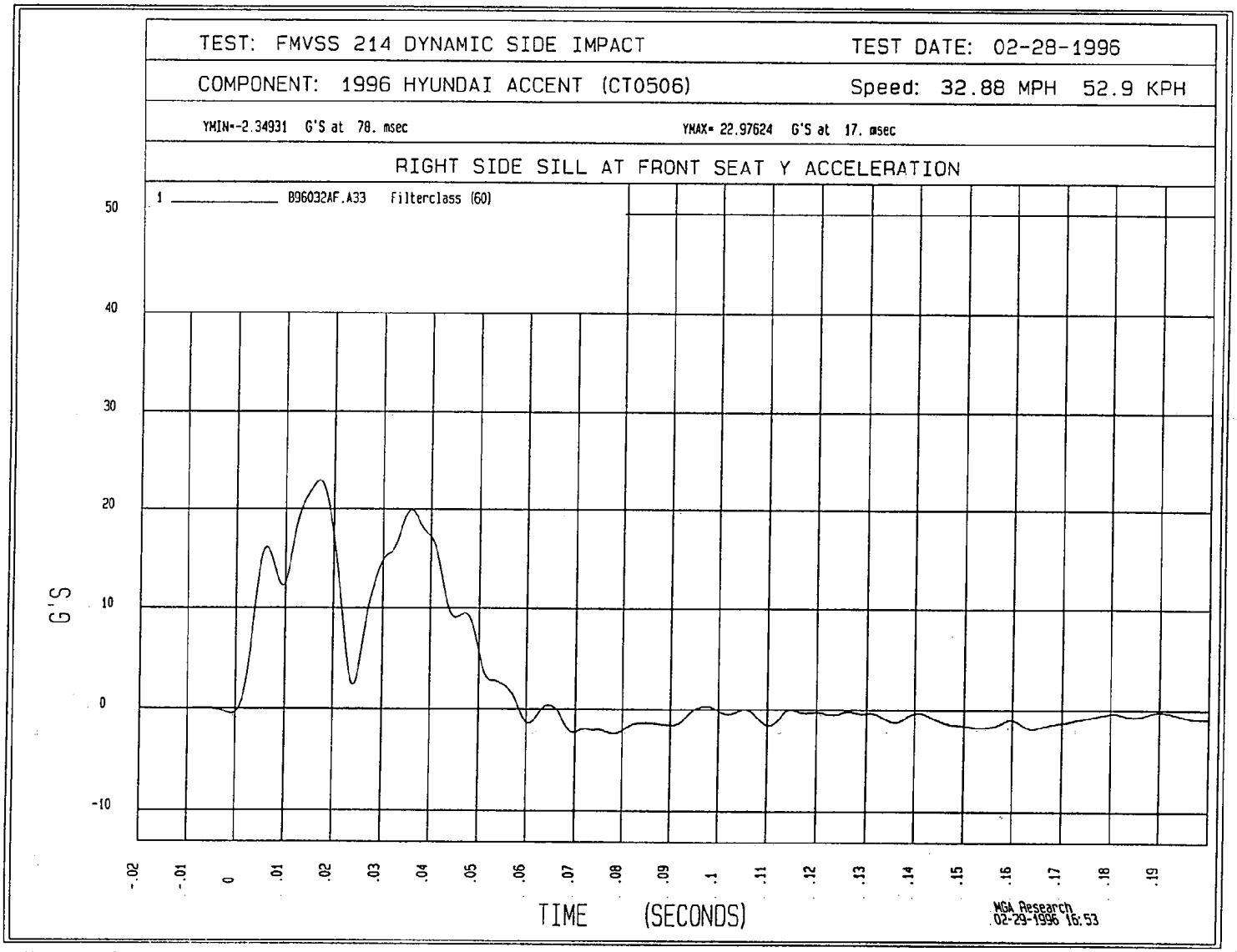
TIME Seconds
MGA Research
03-01-1996 09:45


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-2.34931 G'S at 78. msec
YMAX= 22.97624 G'S at 17. msec
RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION
1 B96032AF.A33 Filterclass (60)
50
40
30
20
10
0
-10
G'S
-.02
-.01
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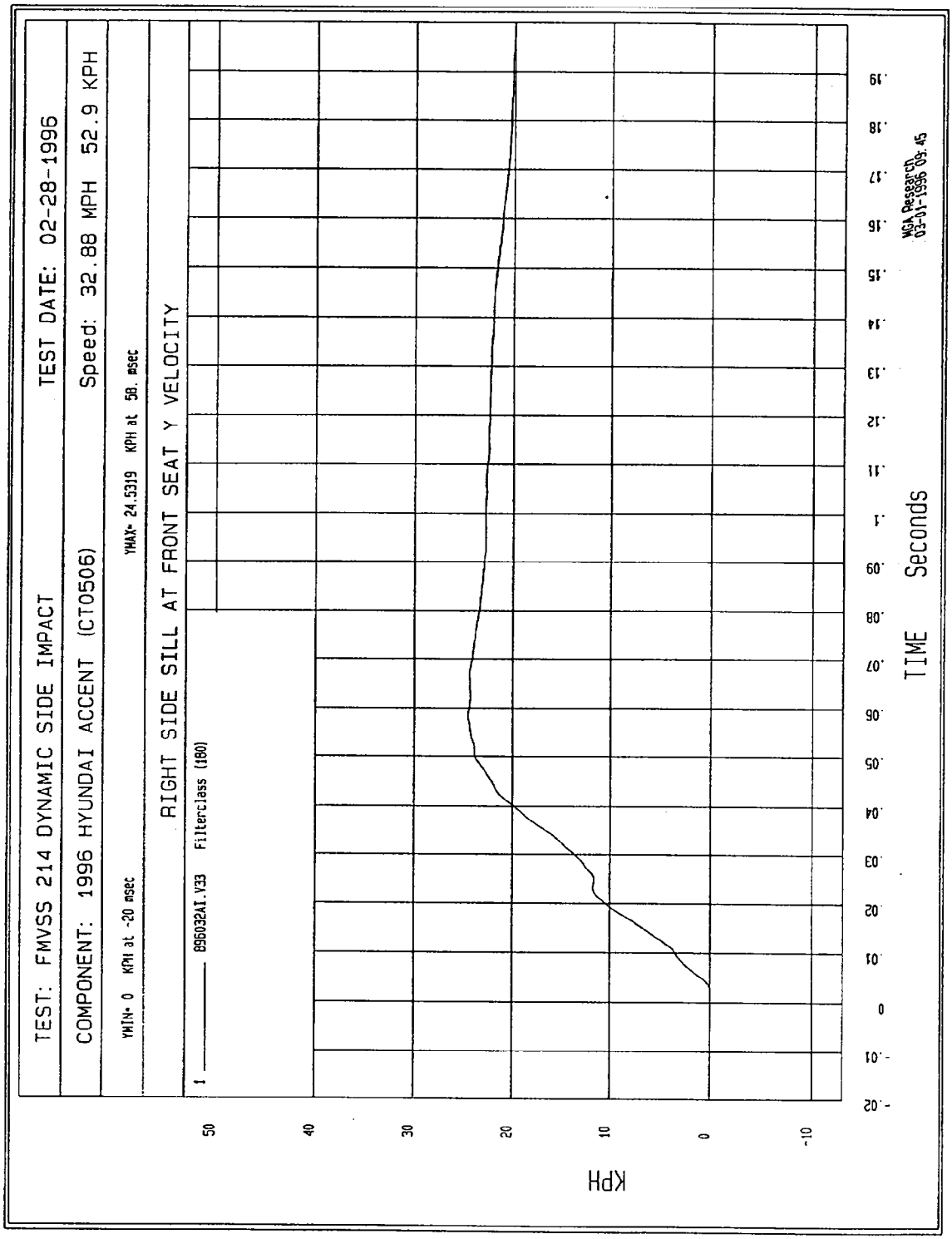
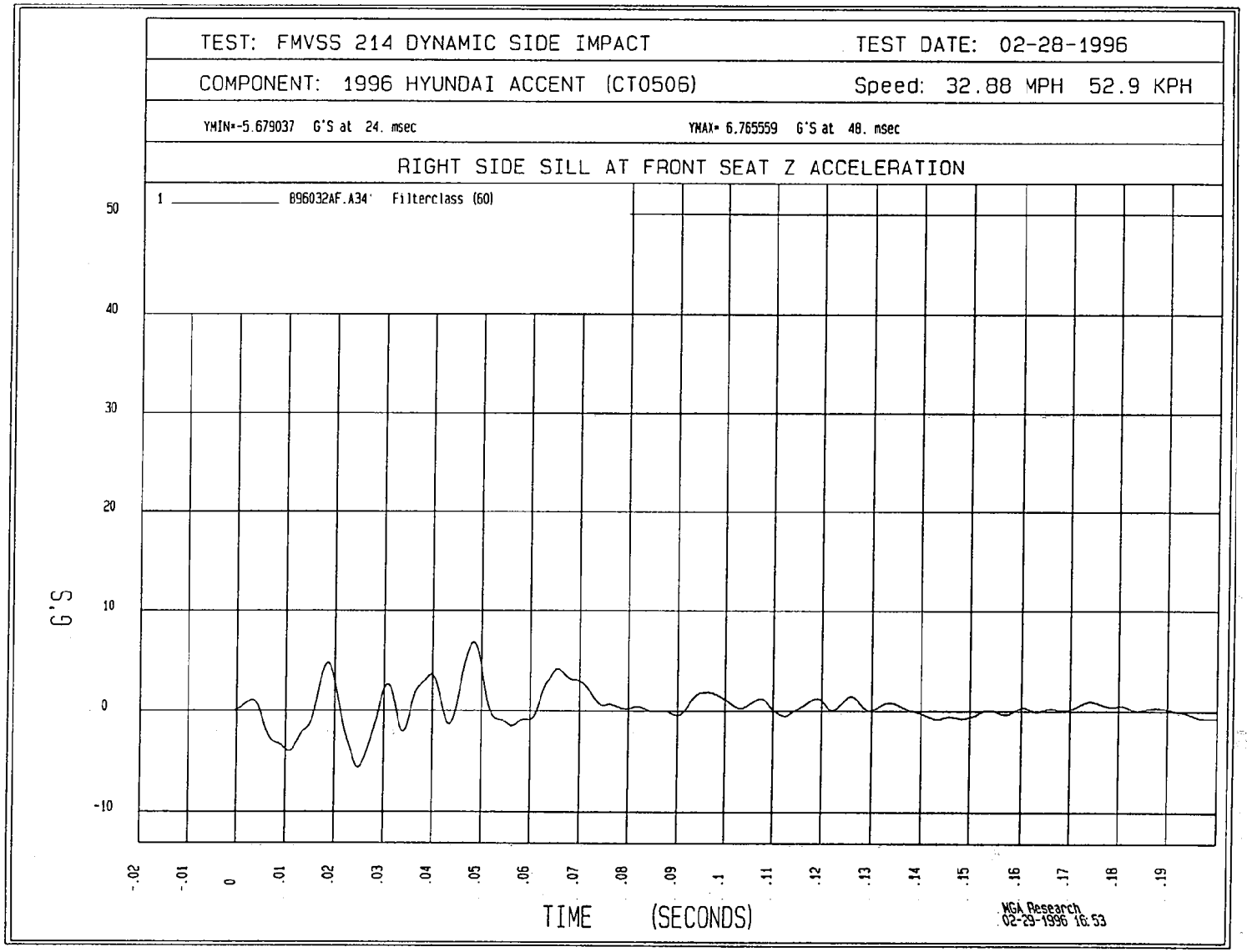
TIME (SECONDS)
MGA Research
02-29-1996 16:53


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN= 0 KPH at -20 msec
YMAX= 24.5319 KPH at 58. msec
RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY
1 _____ 896032AI.V33 Filterclass (180)
KPH
TIME Seconds
MGA Research
02-01-1996 09:45


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-5.679037 G'S at 24. msec
YMAX= 6.765559 G'S at 48. msec
RIGHT SIDE SILL AT FRONT SEAT Z ACCELERATION
1 B96032AF.A34' Filterclass (60)
50
40
30
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10
0
-10
G'S
-.02
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.03
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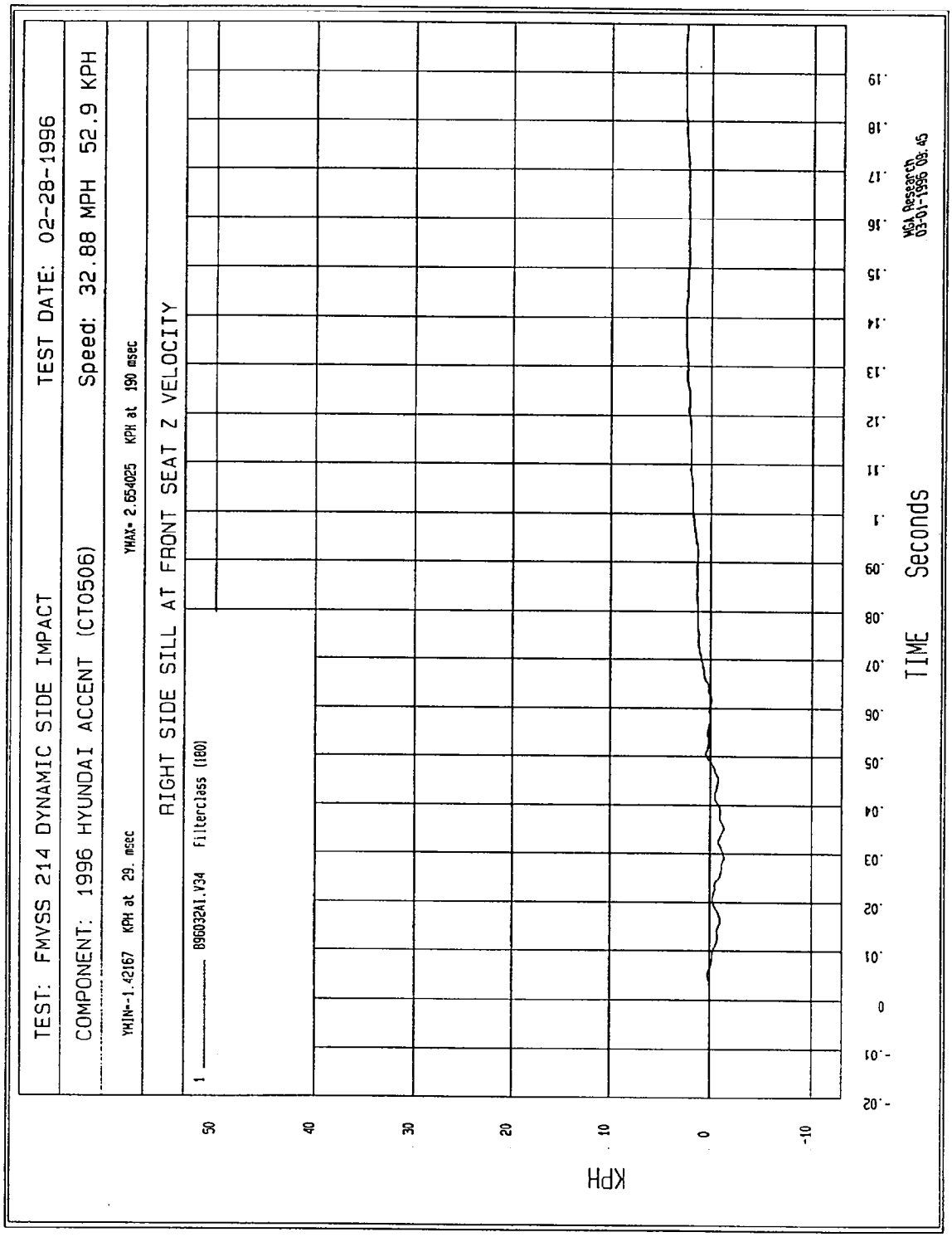
TIME (SECONDS)
MGA Research
02-29-1996 16:53


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.42167 KPH at 29. msec
YMAX= 2.654025 KPH at 190 msec
RIGHT SIDE SILL AT FRONT SEAT Z VELOCITY
1 B96032AI.V34 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
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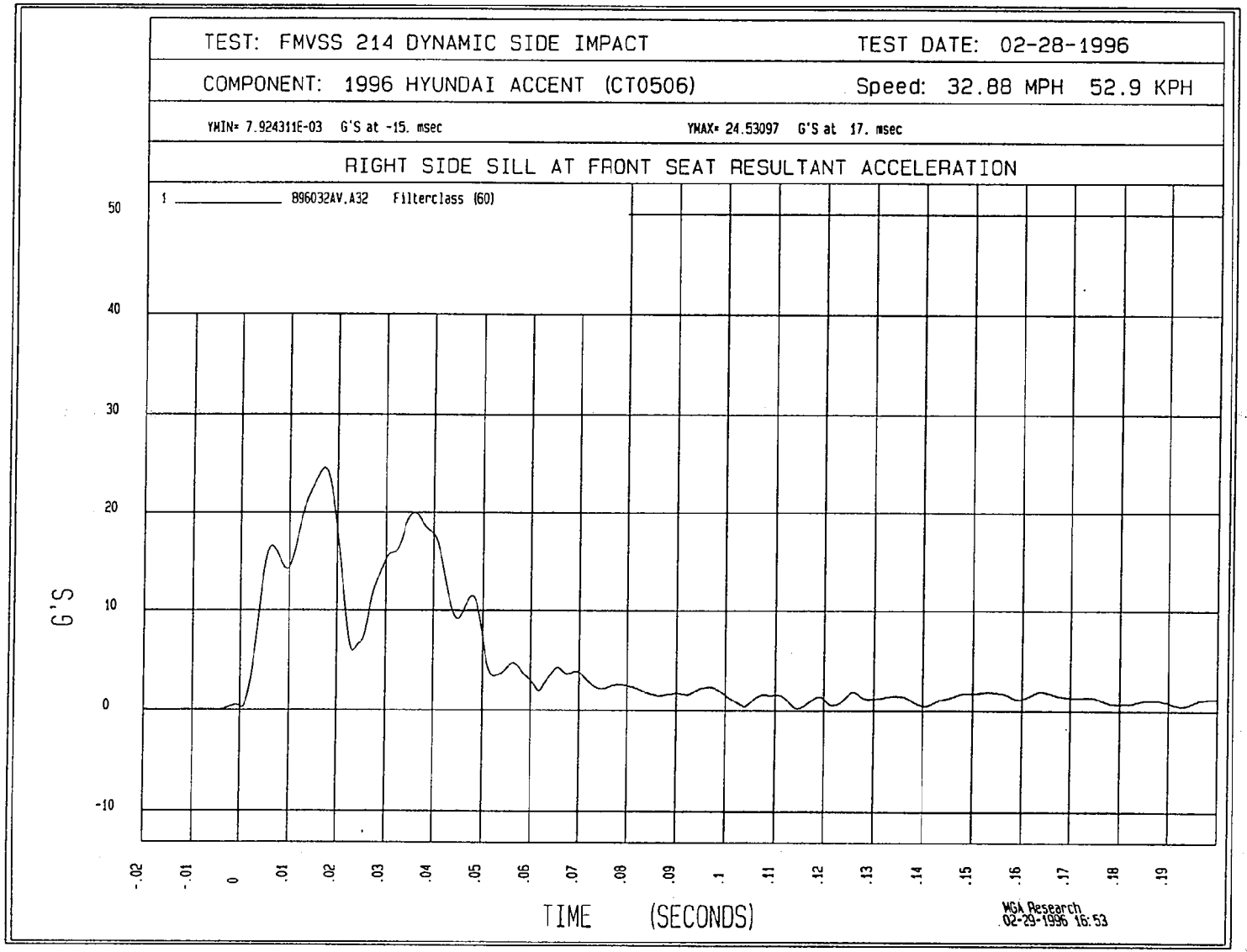
TIME Seconds
MGA Research
03-01-1996 08:45


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN= 7.924311E-03 G'S at -15. msec
YMAX= 24.53097 G'S at 17. msec
RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION
1 B96032AV.A32 Filterclass (60)
50
40
30
20
10
0
-10
G'S
-.02
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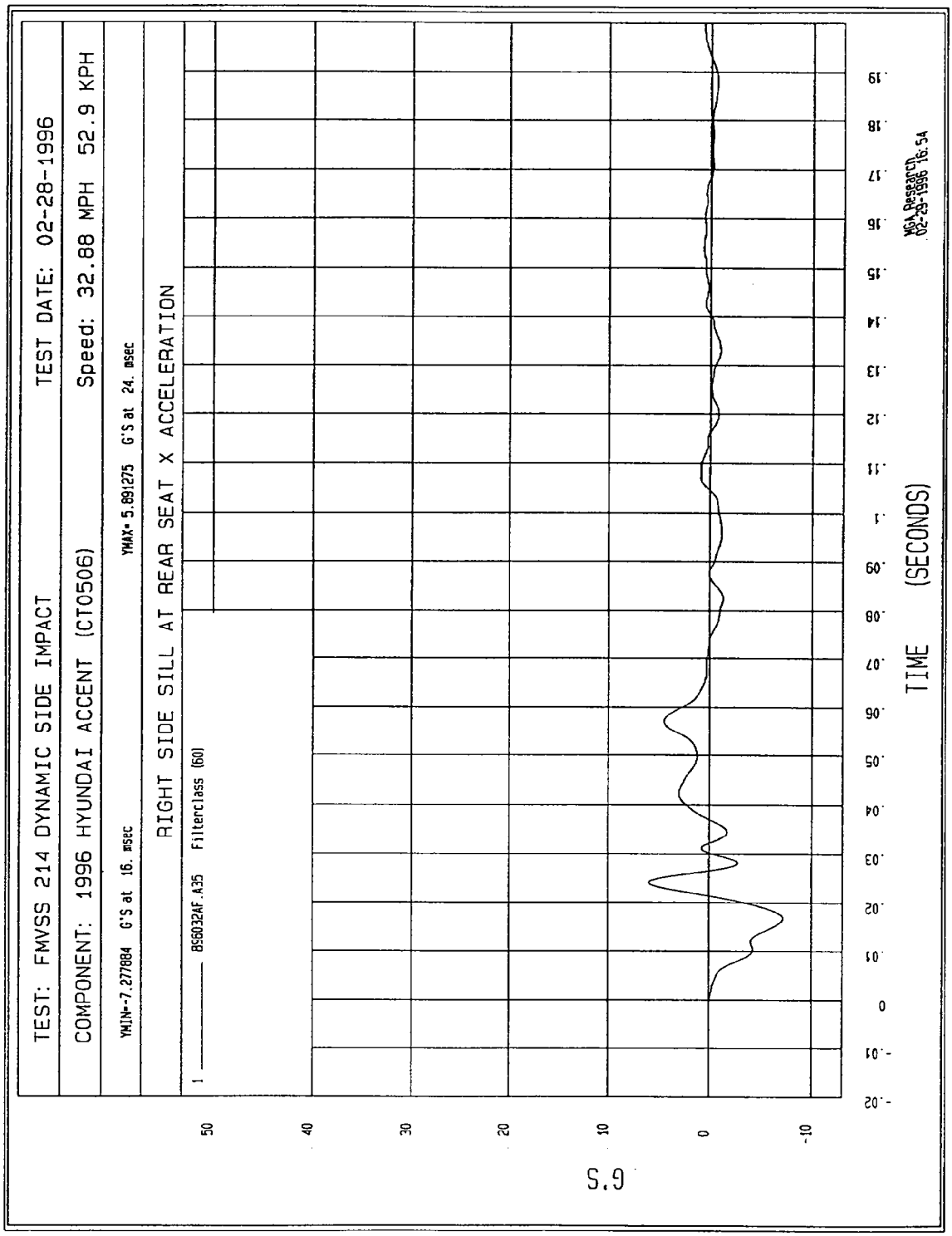
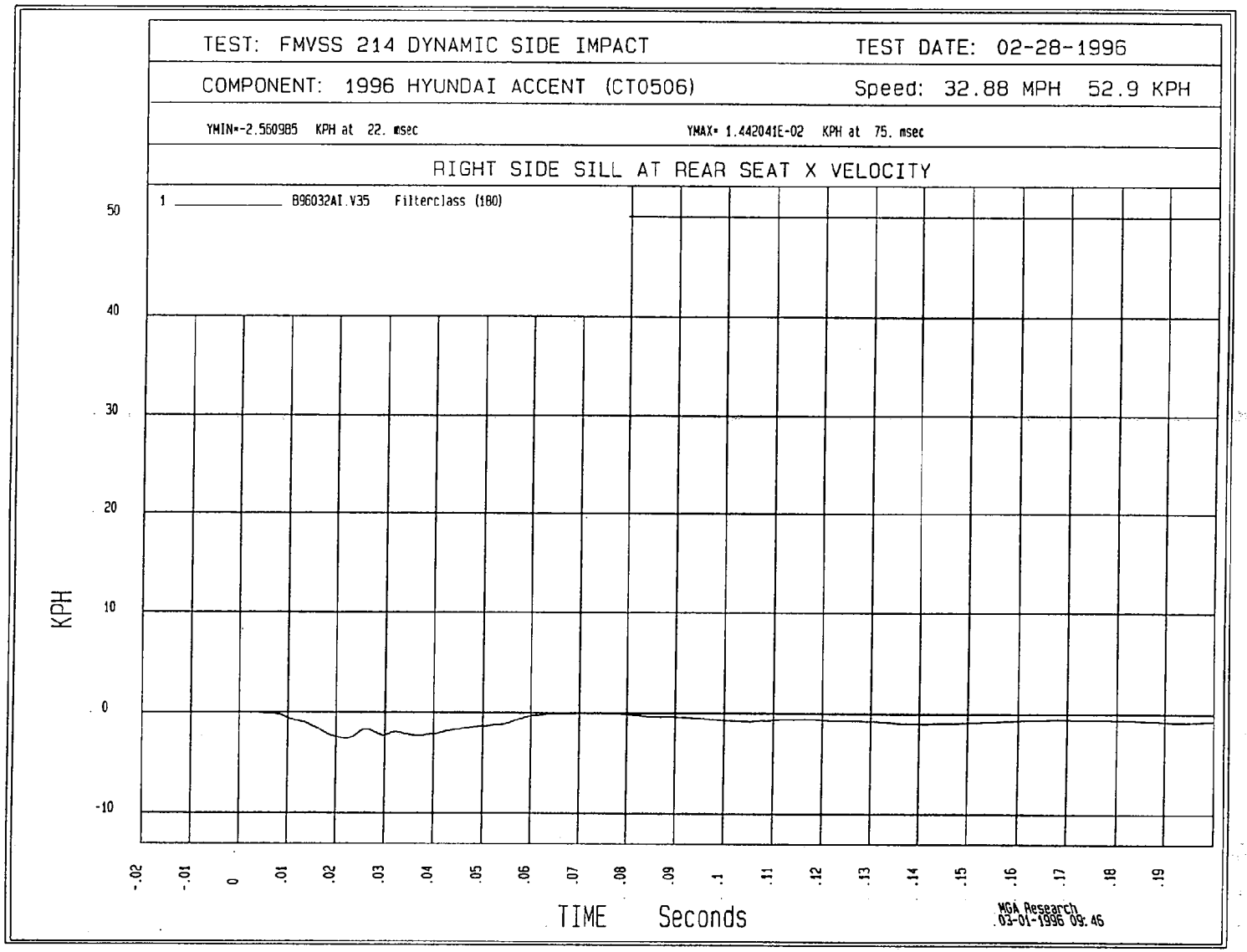
TIME (SECONDS)
MGA Research
02-29-1996 16:53


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-7.277684 G'S at 16. msec
YMAX= 5.691275 G'S at 24. msec
RIGHT SIDE SILL AT REAR SEAT X ACCELERATION
1 B56032AF.A35 Filterclass (60)
MGA Research
02-29-1996 16:54
TIME (SECONDS)
G'S


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-2.560985 KPH at 22. msec
YMAX= 1.442041E-02 KPH at 75. msec
RIGHT SIDE SILL AT REAR SEAT X VELOCITY
1 B96032AI.V35 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
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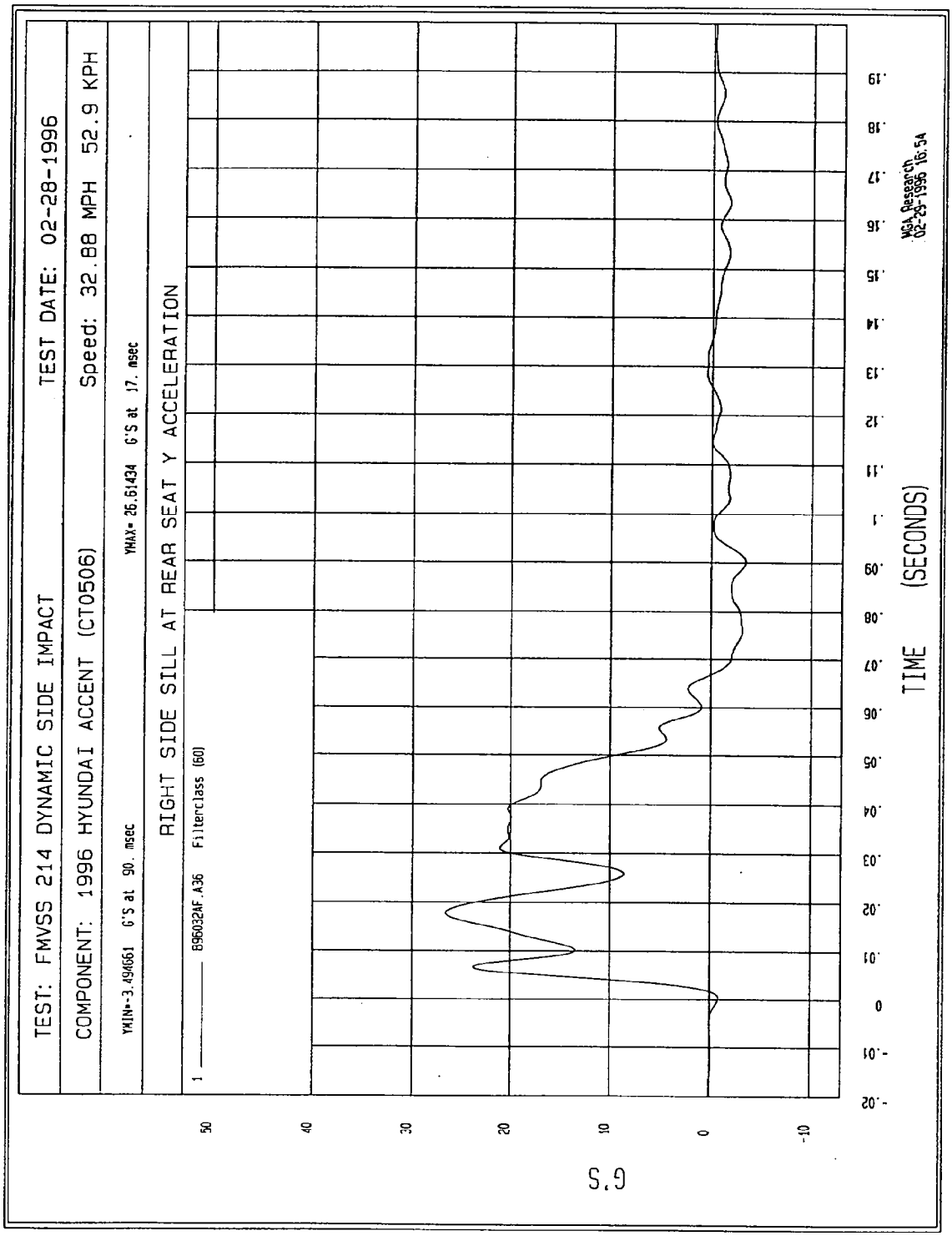
TIME Seconds
MGA Research
03-01-1996 09:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-3.494661 G'S at 90. msec
YMAX= 26.61434 G'S at 17. msec
RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION
1 896032AF.A36 Filterclass (60)
50
40
30
20
10
0
-10
G's
-.02
-.01
0
.01
.02
.03
.04
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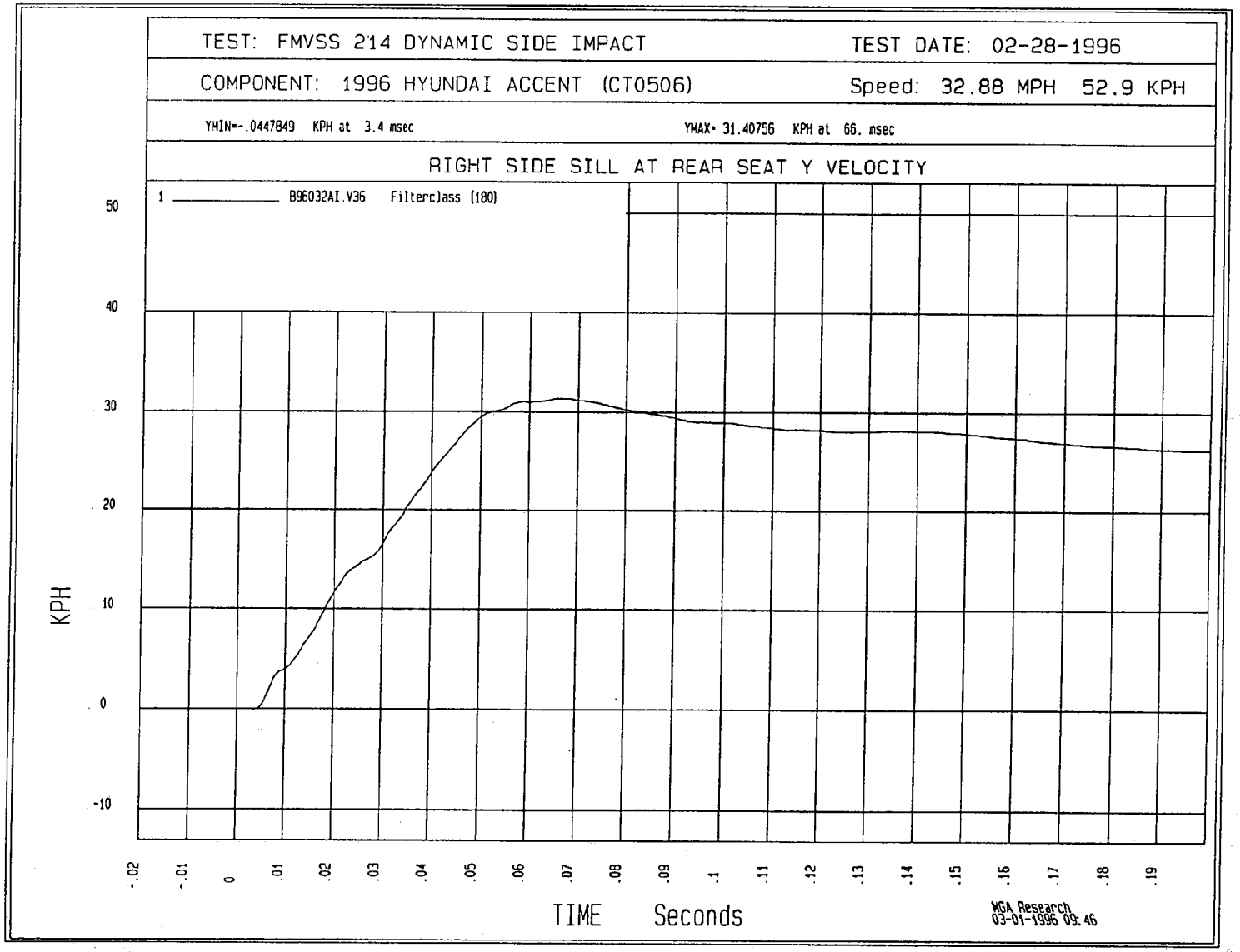
TIME (SECONDS)
MGA Research
02-29-1996 16:54


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-.0447849 KPH at 3.4 msec
YMAX= 31.40756 KPH at 66. msec
RIGHT SIDE SILL AT REAR SEAT Y VELOCITY
1 B96032AI.V36 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
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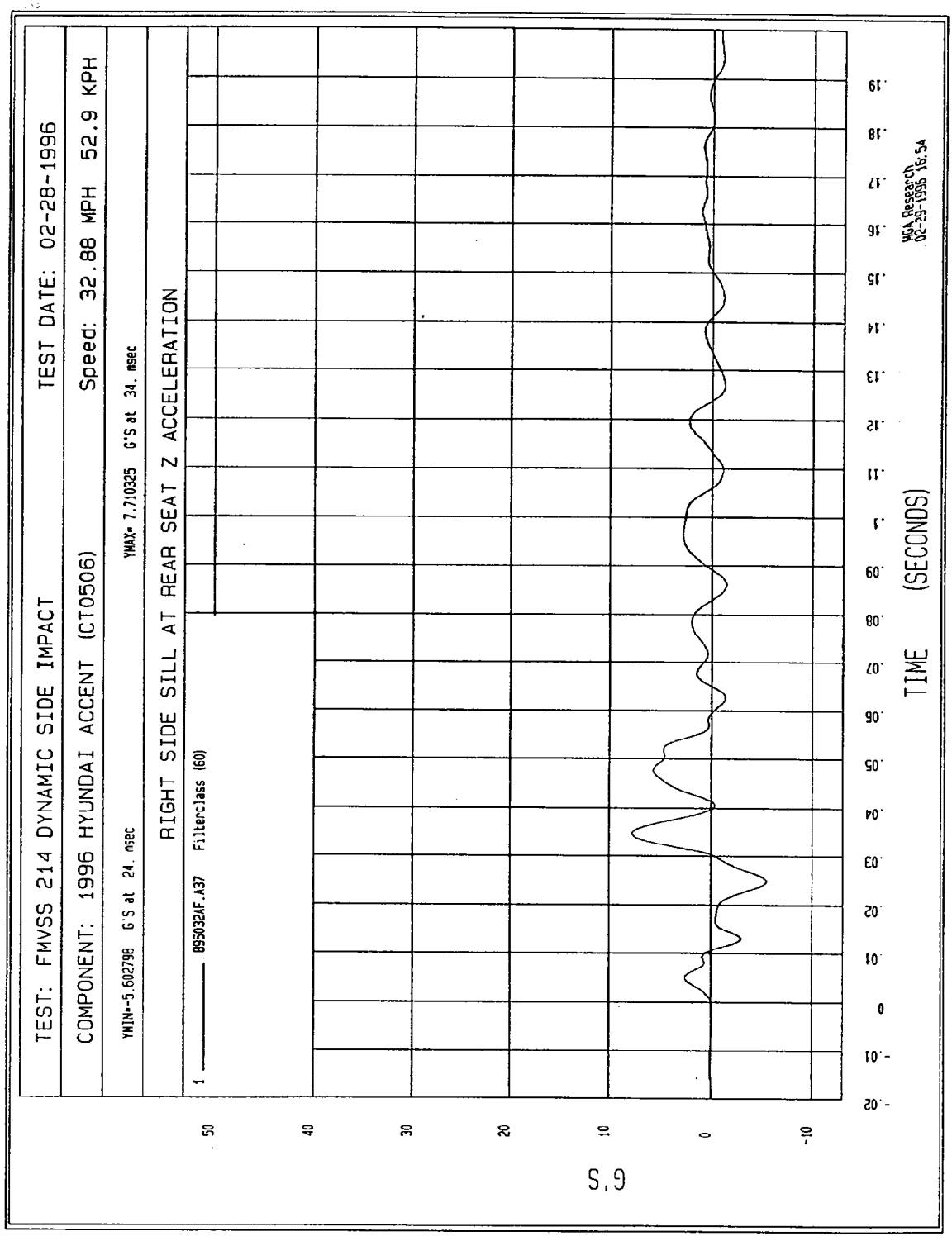
TIME Seconds
MGA Research
03-01-1996 09:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-5.602798 G'S at 24. msec
YMAX= 7.710325 G'S at 34. msec
RIGHT SIDE SILL AT REAR SEAT Z ACCELERATION
1 ——— 895032AF.A37 Filterclass (60)
50
40
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20
10
0
-10
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-.01
0
.01
.02
.03
.04
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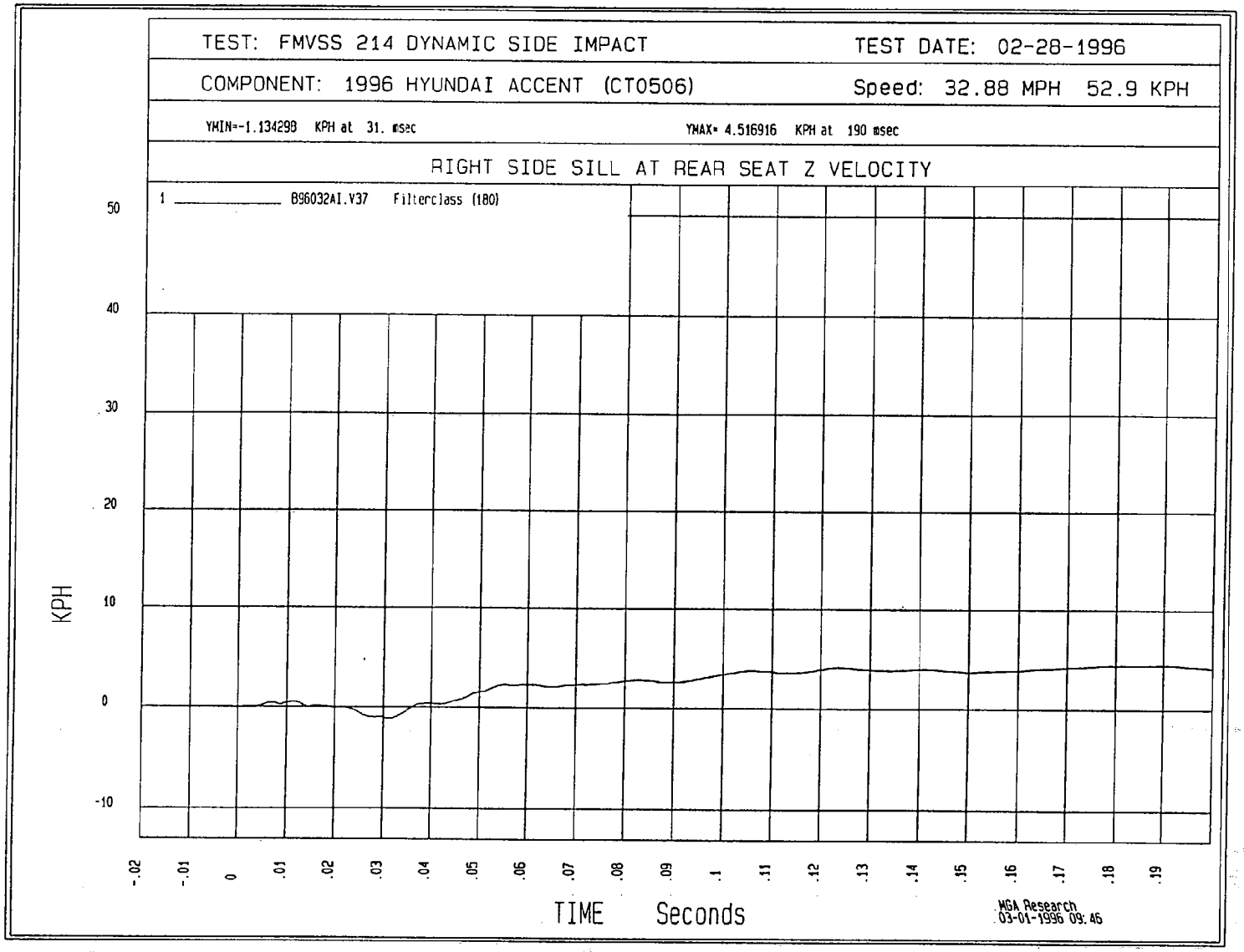
TIME (SECONDS)
MGA Research
02-29-1996 16:54
G's


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.134298 KPH at 31. msec
YMAX= 4.516916 KPH at 190 msec
RIGHT SIDE SILL AT REAR SEAT Z VELOCITY
1 B96032AI.V37 Filterclass (180)
KPH
50
40
30
20
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0
-10
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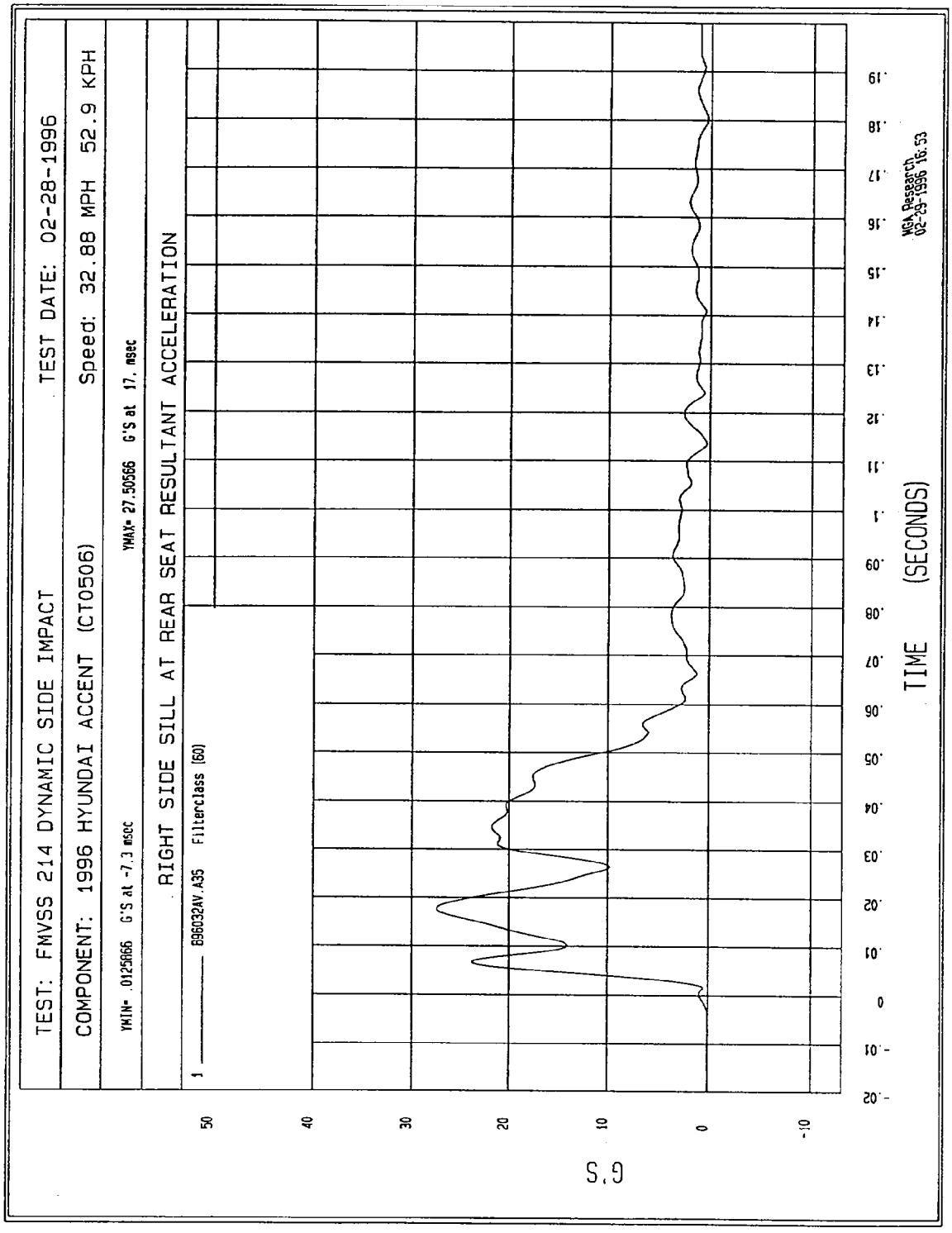
TIME Seconds
MGA Research
03-01-1996 09:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN= .0125866 G'S at -7.3 msec
YMAX= 27.50566 G'S at 17. msec
RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION
1 ——— 896032AV.A35 Filterclass (60)
50
40
30
20
10
0
-10
-20
G'S
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.01
.02
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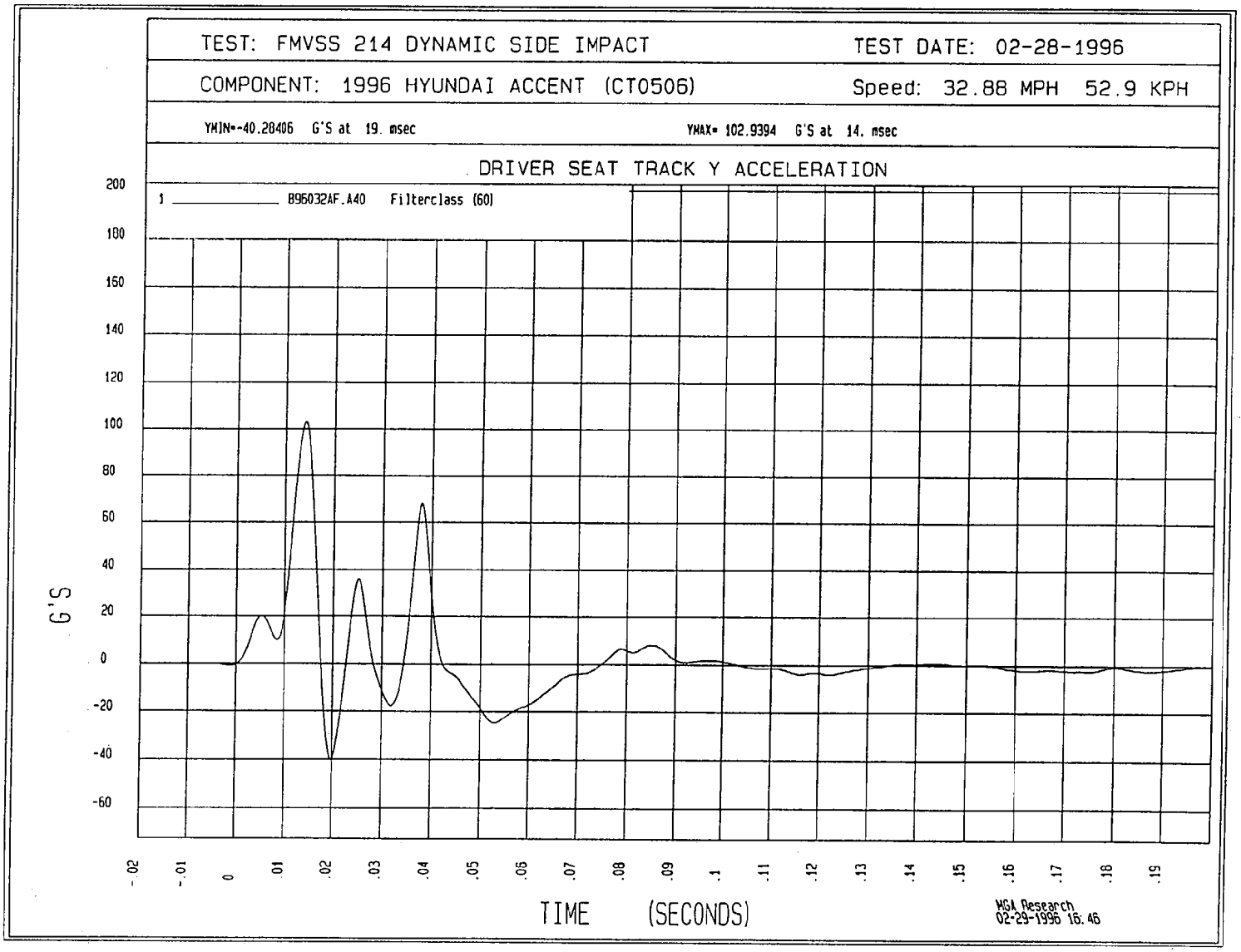
TIME (SECONDS)
MGA Research
02-29-1996 16:53


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-40.28406 G'S at 19. msec
YMAX= 102.9394 G'S at 14. msec
DRIVER SEAT TRACK Y ACCELERATION
1 B96032AF.A40 Filterclass (60)
200
180
160
140
120
100
80
60
40
20
0
-20
-40
-60
G'S
-.02
-.01
0
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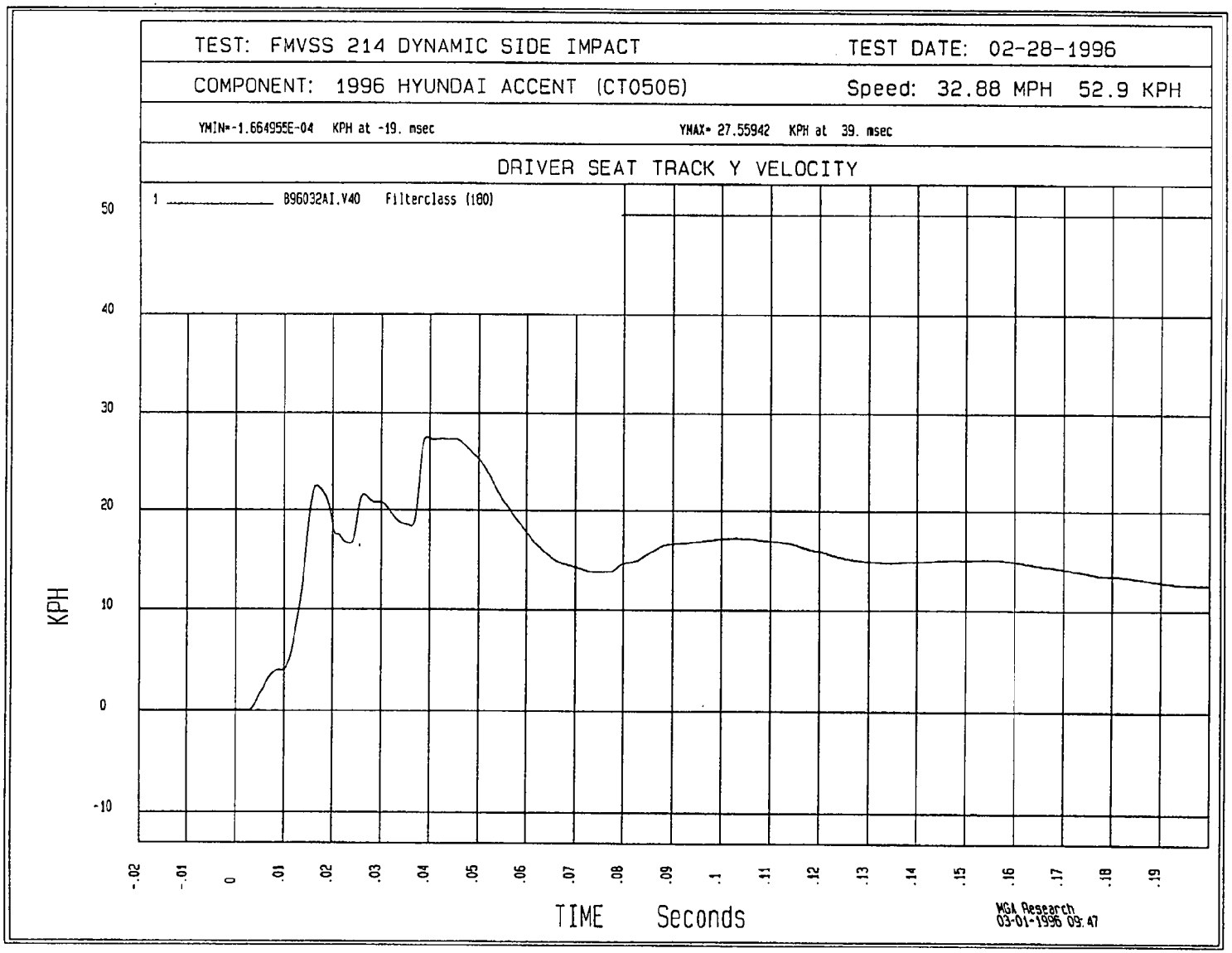
TIME (SECONDS)
MGA Research
02-29-1996 16:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.664955E-04 KPH at -19. msec
YMAX= 27.55942 KPH at 39. msec
DRIVER SEAT TRACK Y VELOCITY
1 B96032AI.V40 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
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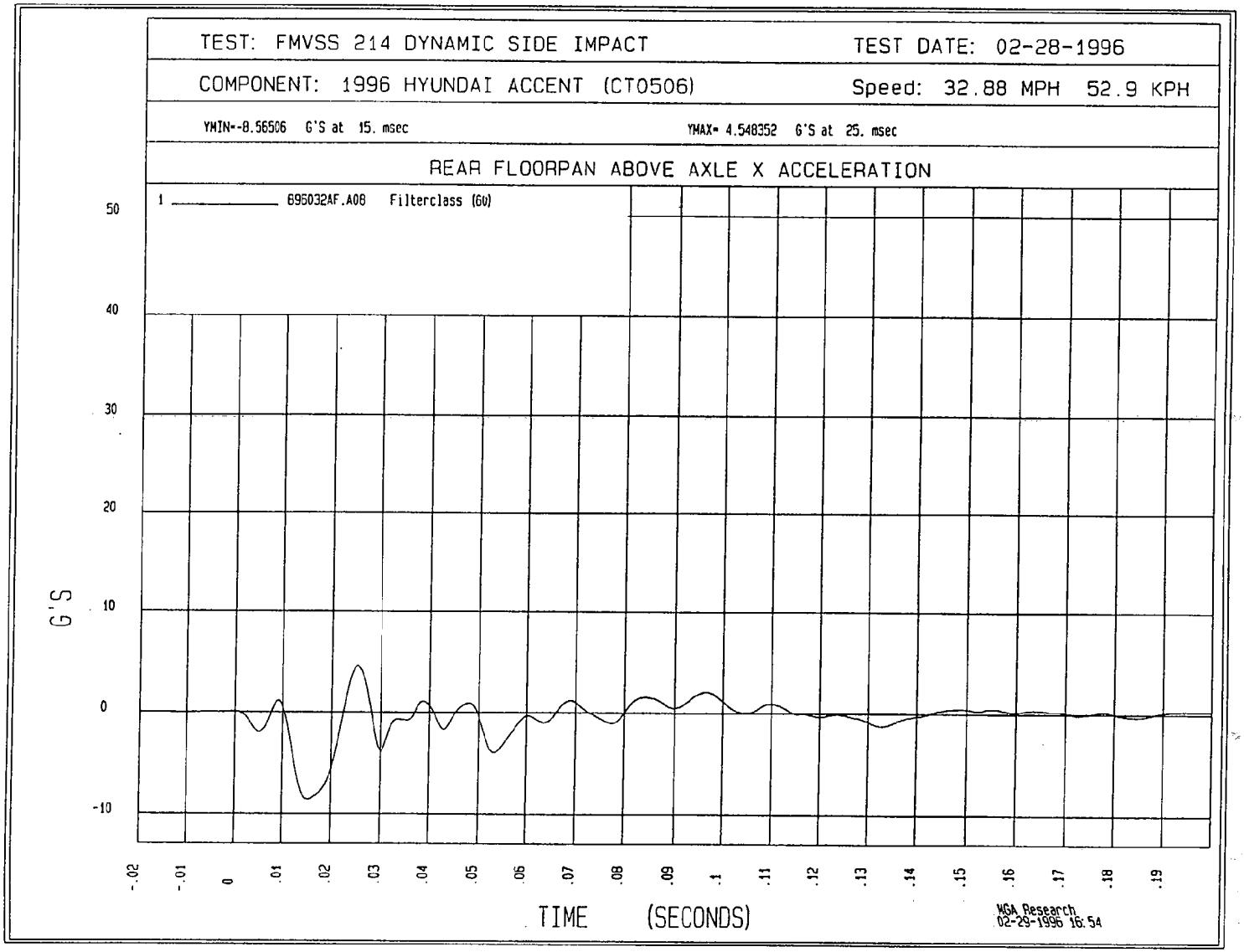
TIME Seconds
MGA Research
03-01-1996 09:47


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-8.56506 G'S at 15. msec
YMAX= 4.548352 G'S at 25. msec
REAR FLOORPAN ABOVE AXLE X ACCELERATION
1 695032AF.A08 Filterclass (60)
50
40
30
20
10
0
-10
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
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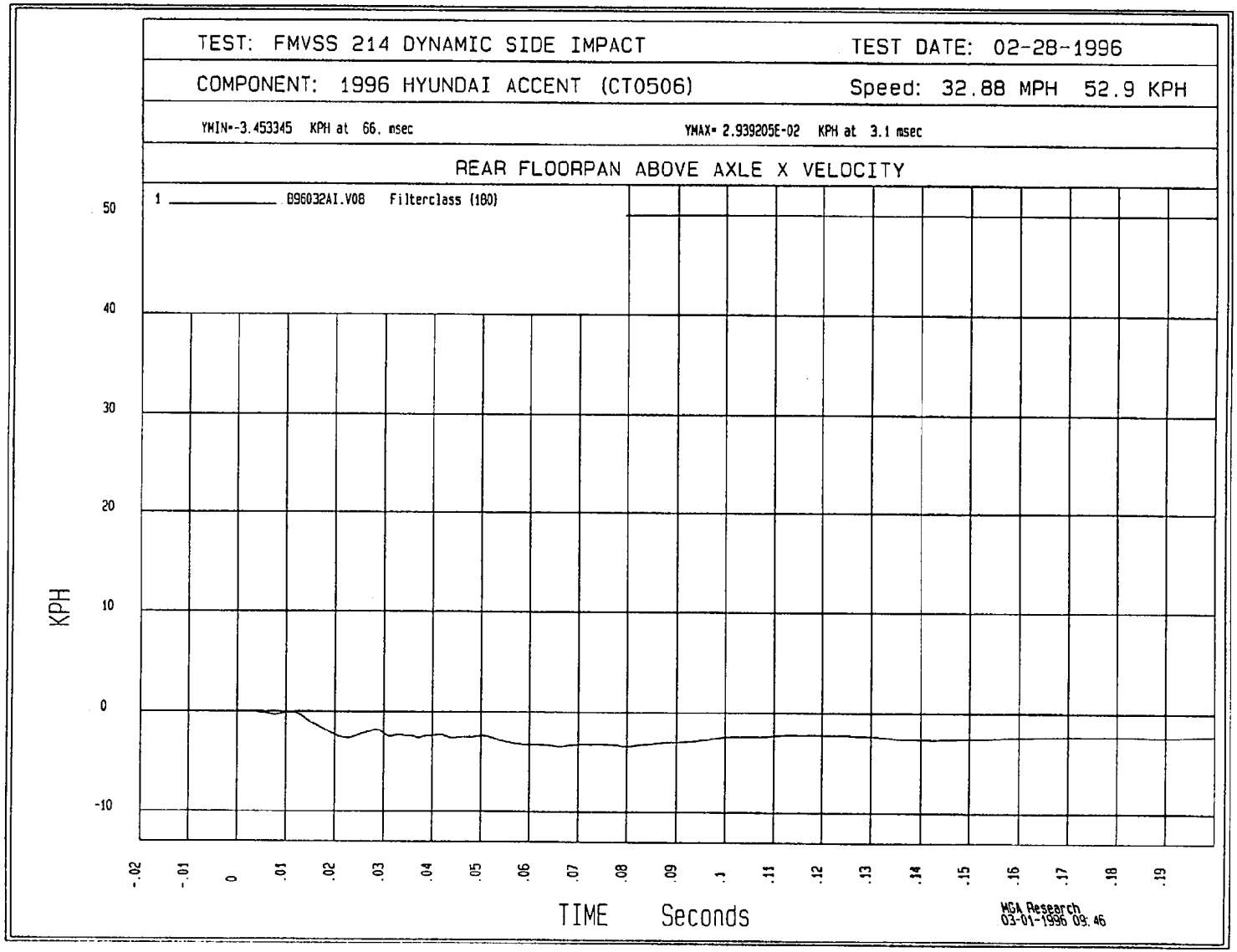
TIME (SECONDS)
MGA Research
02-29-1996 16:54


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-3.453345 KPH at 66. msec
YMAX= 2.939205E-02 KPH at 3.1 msec
REAR FLOORPAN ABOVE AXLE X VELOCITY
1 B96032AI.V08 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
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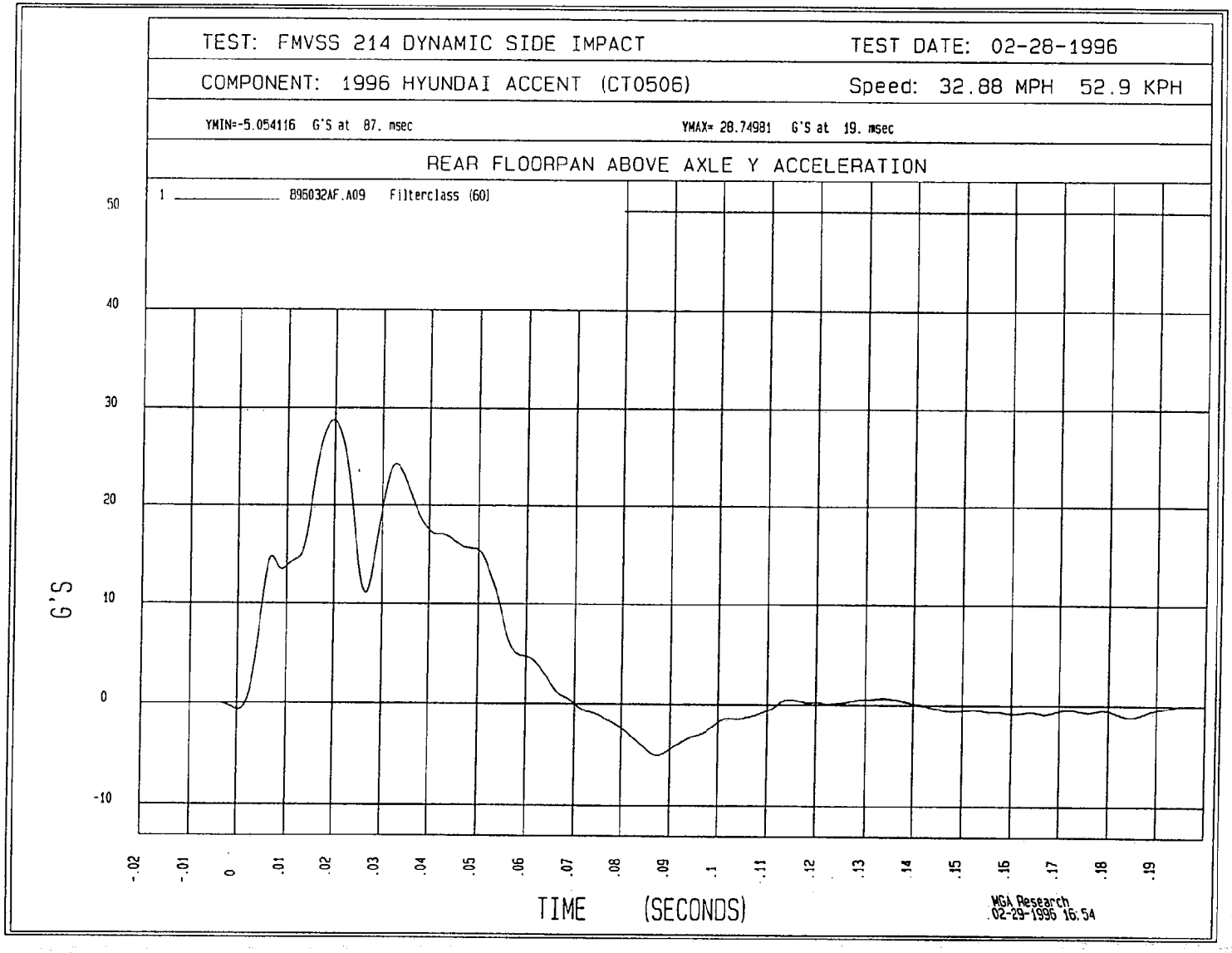
TIME Seconds
MGA Research
03-01-1996 09:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-5.054116 G'S at 87. msec
YMAX= 28.74981 G'S at 19. msec
REAR FLOORPAN ABOVE AXLE Y ACCELERATION
1 B95032AF.A09 Filterclass (60)
50
40
30
20
10
0
-10
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
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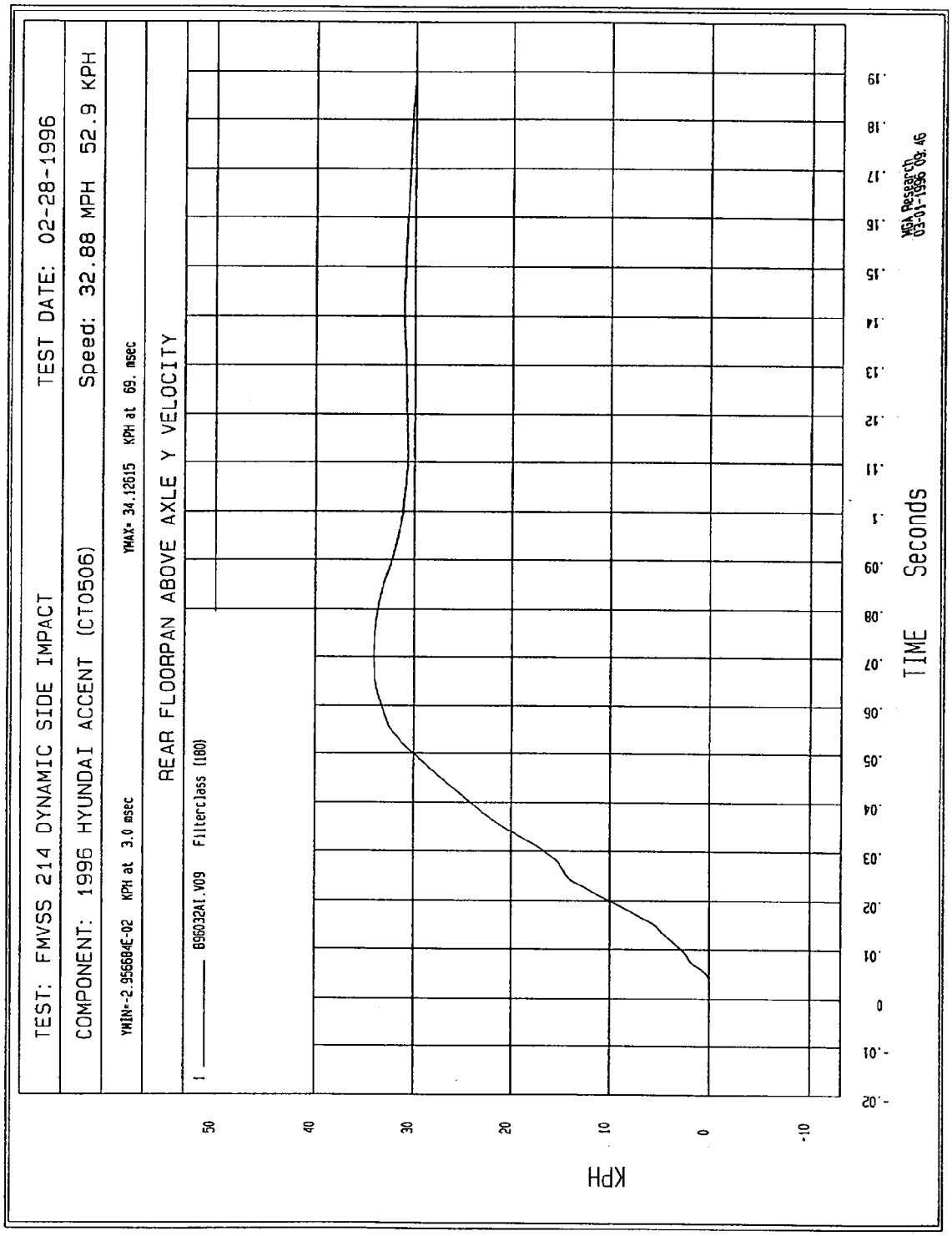
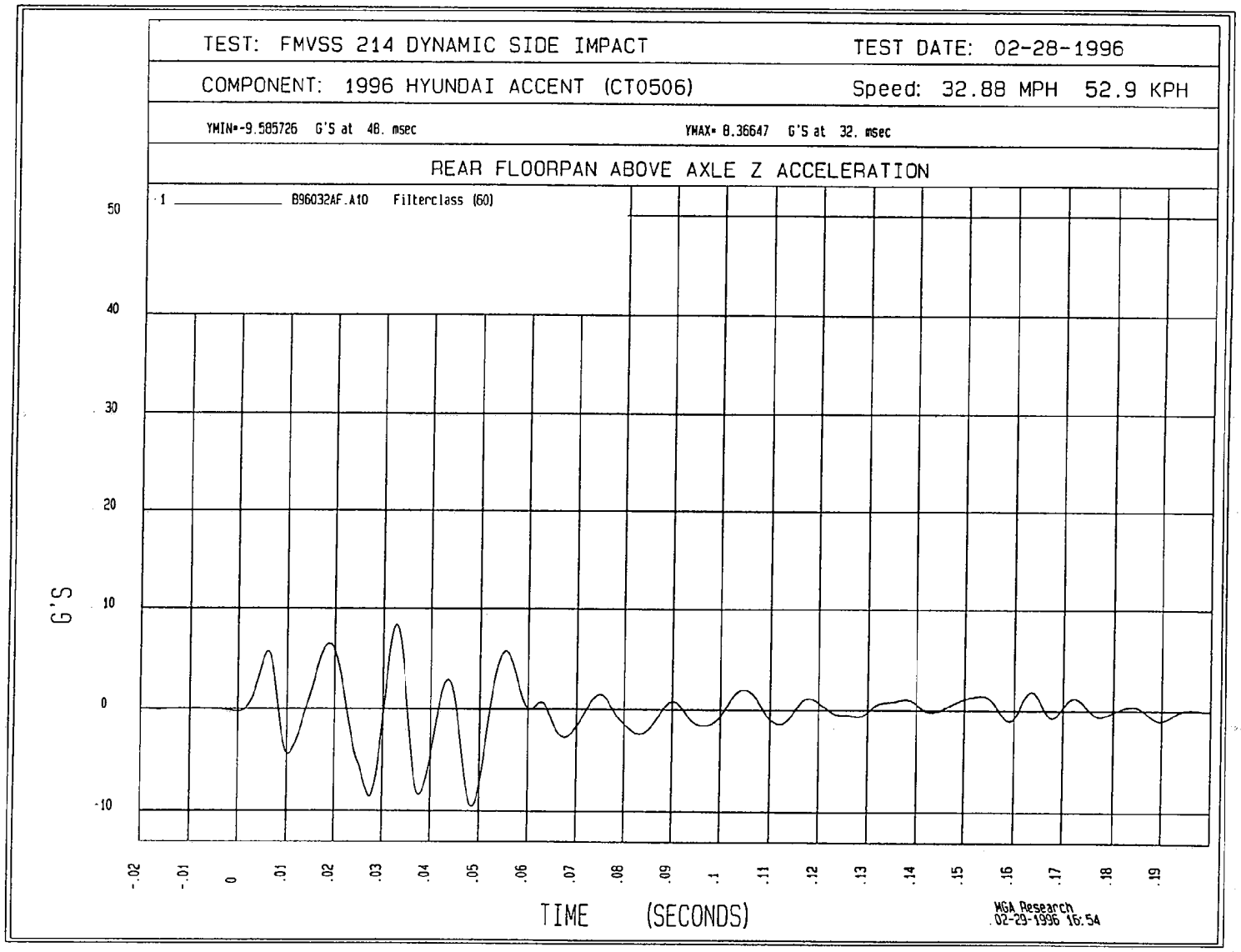
TIME (SECONDS)
MGA Research
02-29-1996 16:54


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-2.956684E-02 KPH at 3.0 msec
YMAX= 34.12615 KPH at 69. msec
REAR FLOORPAN ABOVE AXLE Y VELOCITY
1 ——— 896032AI.V09 Filterclass (180)
KPH
TIME Seconds
MGA Research
03-01-1996 09:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-9.585726 G'S at 48. msec
YMAX= 8.36647 G'S at 32. msec
REAR FLOORPAN ABOVE AXLE Z ACCELERATION
1 B96032AF.A10 Filterclass (60)
G'S
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
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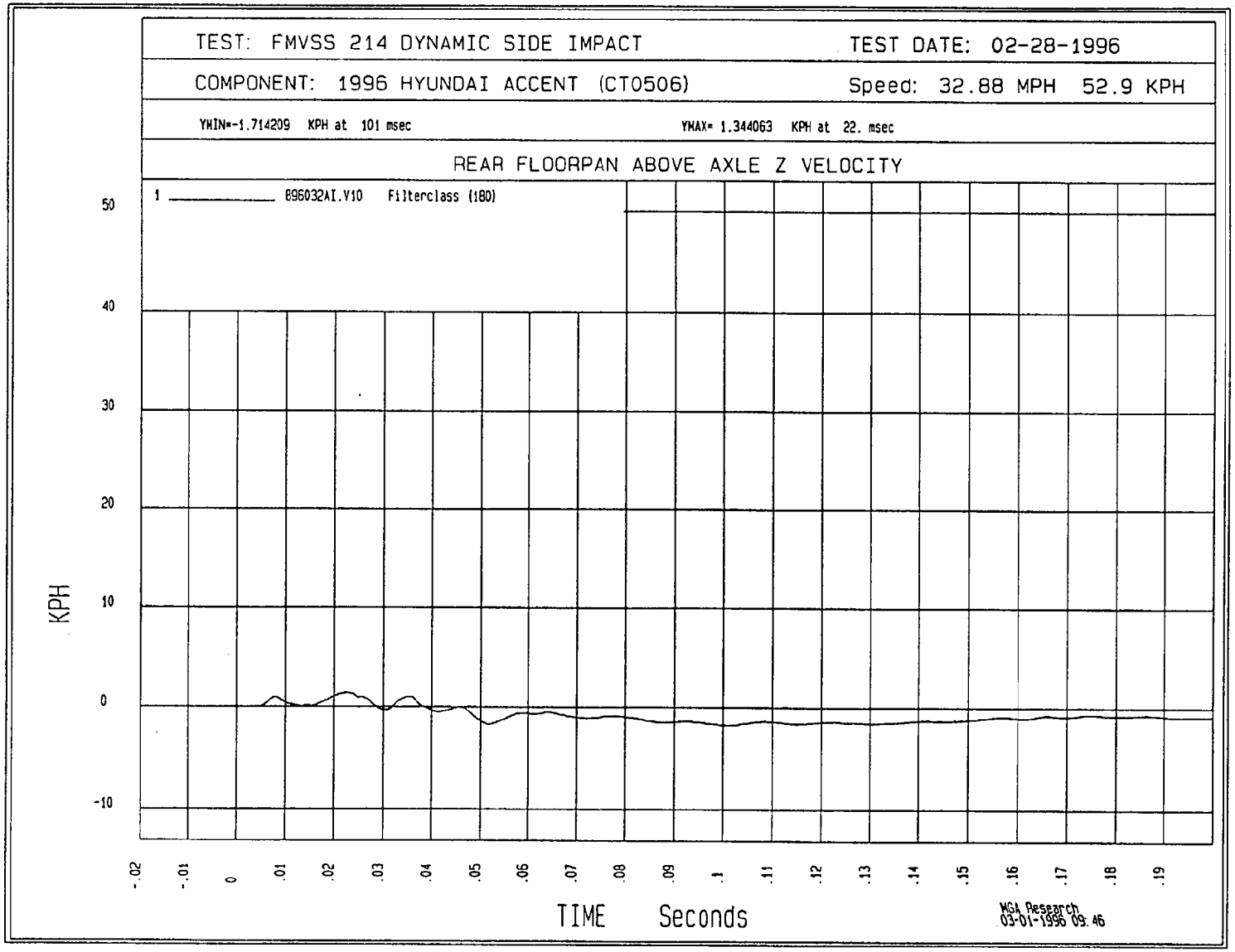
TIME (SECONDS)
MGA Research
02-29-1996 16:54


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.714209 KPH at 101 msec
YMAX= 1.344063 KPH at 22. msec
REAR FLOORPAN ABOVE AXLE Z VELOCITY
1 896032AI.V10 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
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.02
.03
.04
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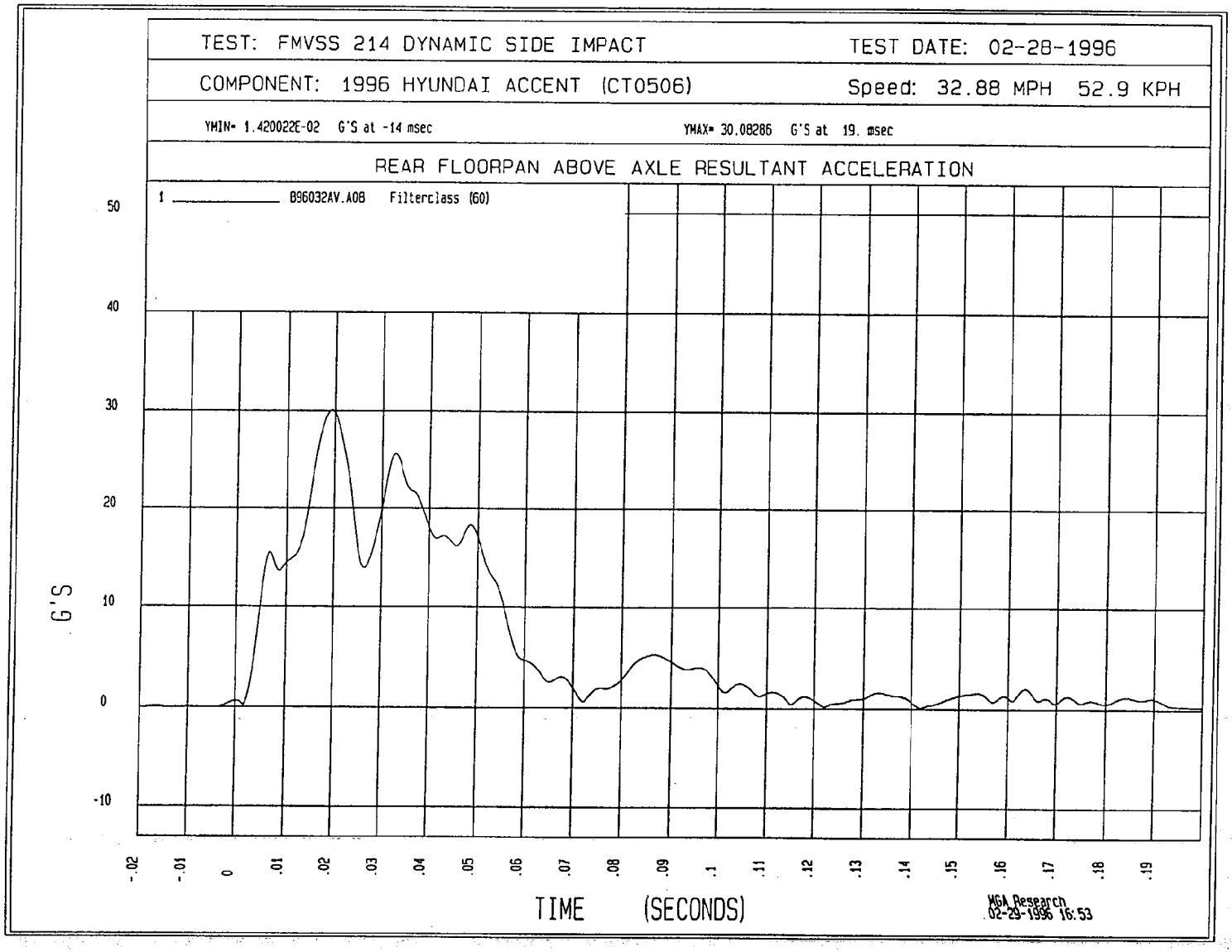
TIME Seconds
MGA Research
03-01-1996 09:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN= 1.420022E-02 G'S at -14 msec
YMAX= 30.08286 G'S at 19. msec
REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION
1 B96032AV.A08 Filterclass (60)
G'S
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
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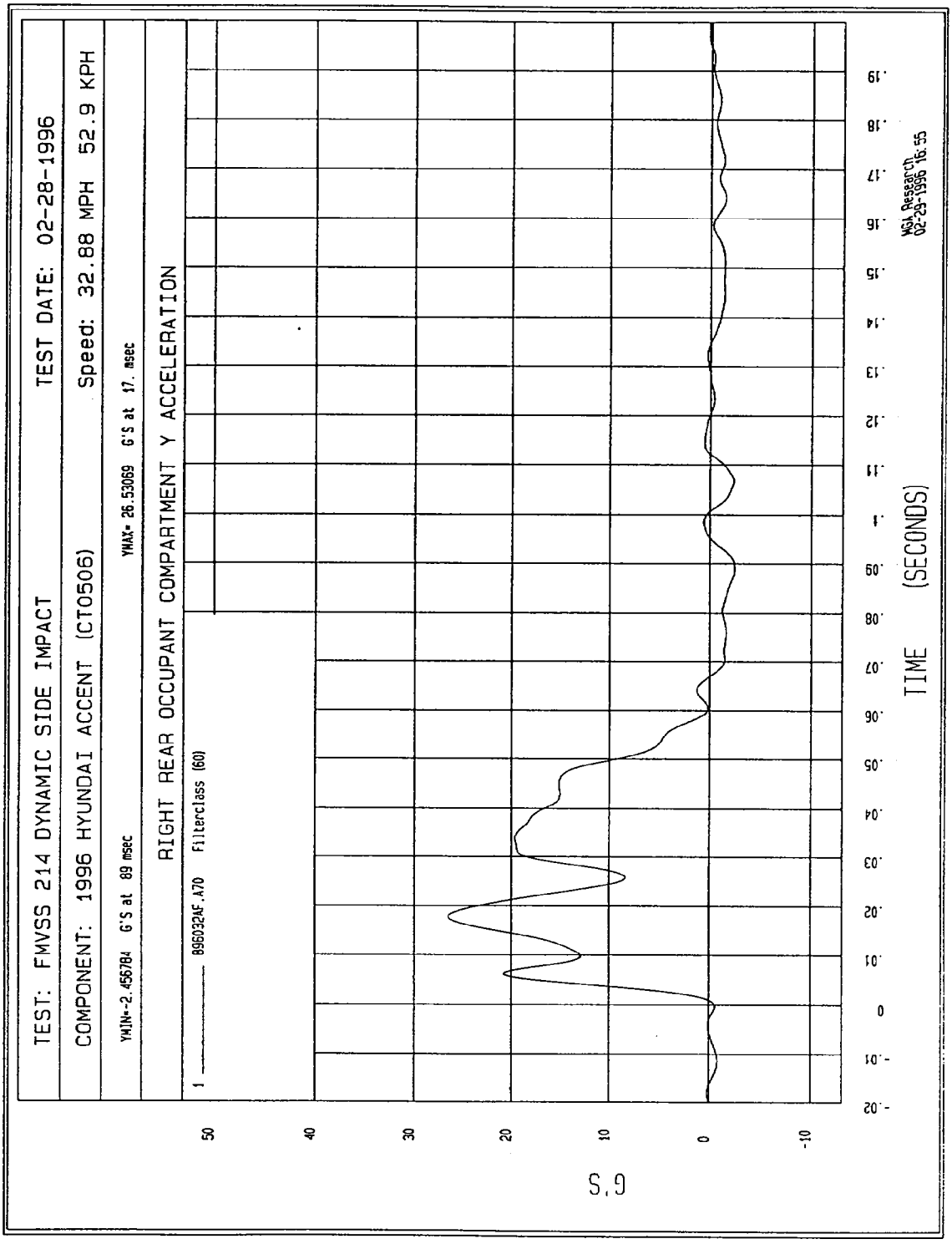
TIME (SECONDS)
MGA Research
02-29-1996 16:53


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-2.456784 G'S at 89 msec
YMAX= 26.53069 G'S at 17. msec
RIGHT REAR OCCUPANT COMPARTMENT Y ACCELERATION
1 ——— 960032AF.A70 Filterclass (60)
50
40
30
20
10
0
-10
G'S
.19
.18
.17
.16
.15
.14
.13
.12
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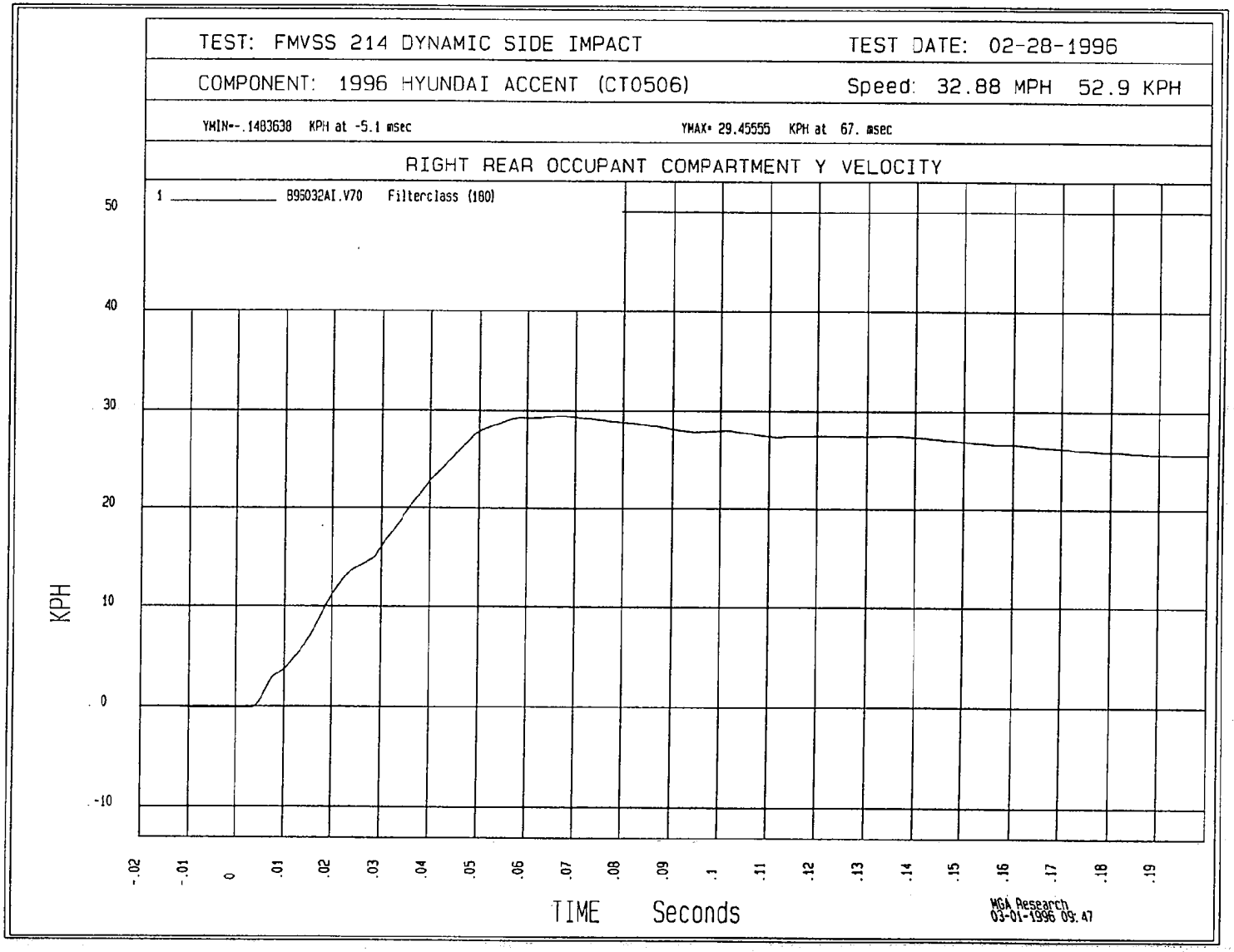
0
-.01
-.02
TIME (SECONDS)
MGA Research
02-29-1996 16:55


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-.1483638 KPH at -5.1 msec
YMAX= 29.45555 KPH at 67. msec
RIGHT REAR OCCUPANT COMPARTMENT Y VELOCITY
1 B95032AI.V70 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
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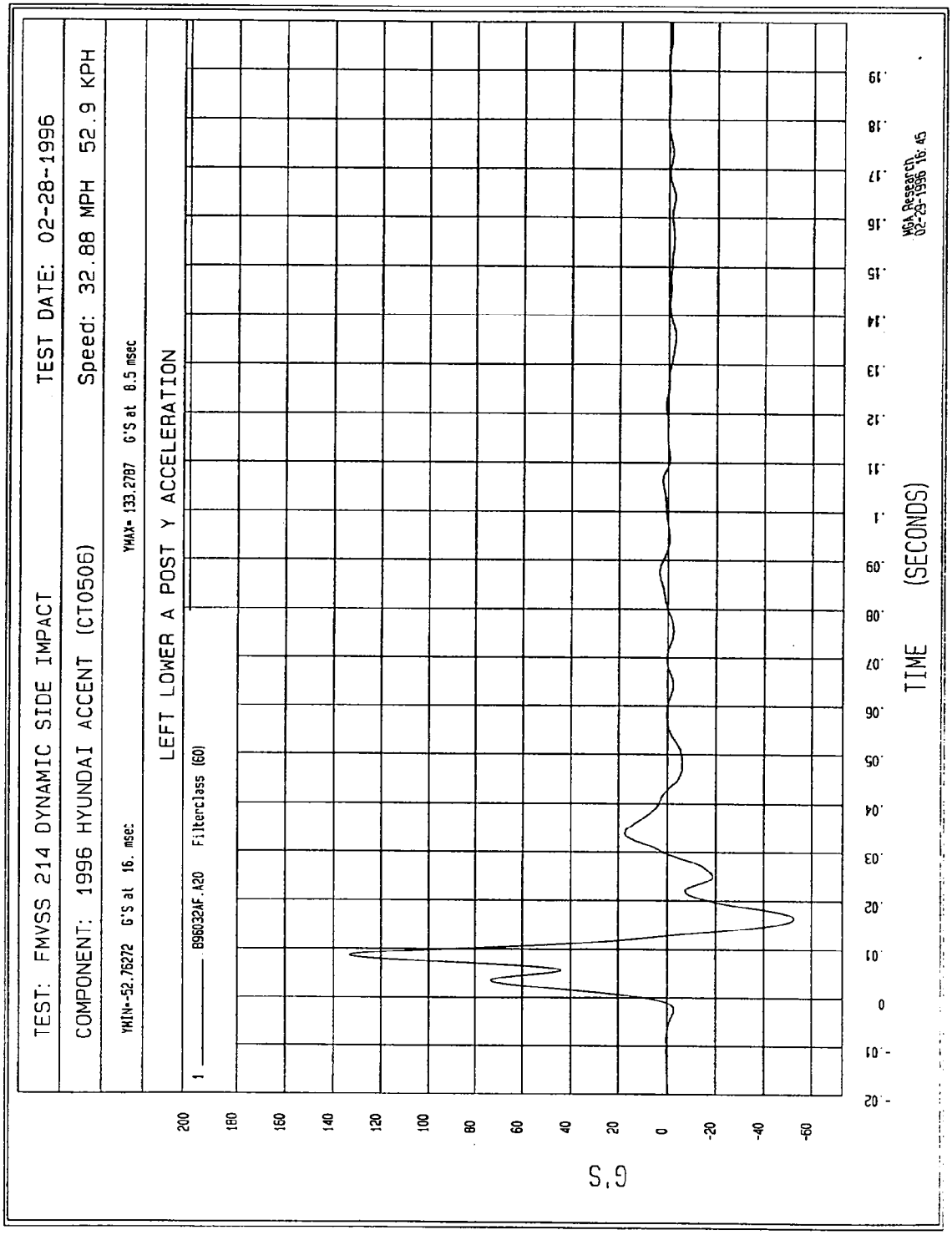
TIME Seconds
MGA Research
03-01-1996 09:47


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-52.76272 G'S at 16. msec
YMAX= 133.2787 G'S at 8.5 msec
LEFT LOWER A POST Y ACCELERATION
1 B96032AF.A20 Filterclass (60)
200
180
160
140
120
100
80
60
40
20
0
-20
-40
-60
G'S
.02
.01
0
.01
.02
.03
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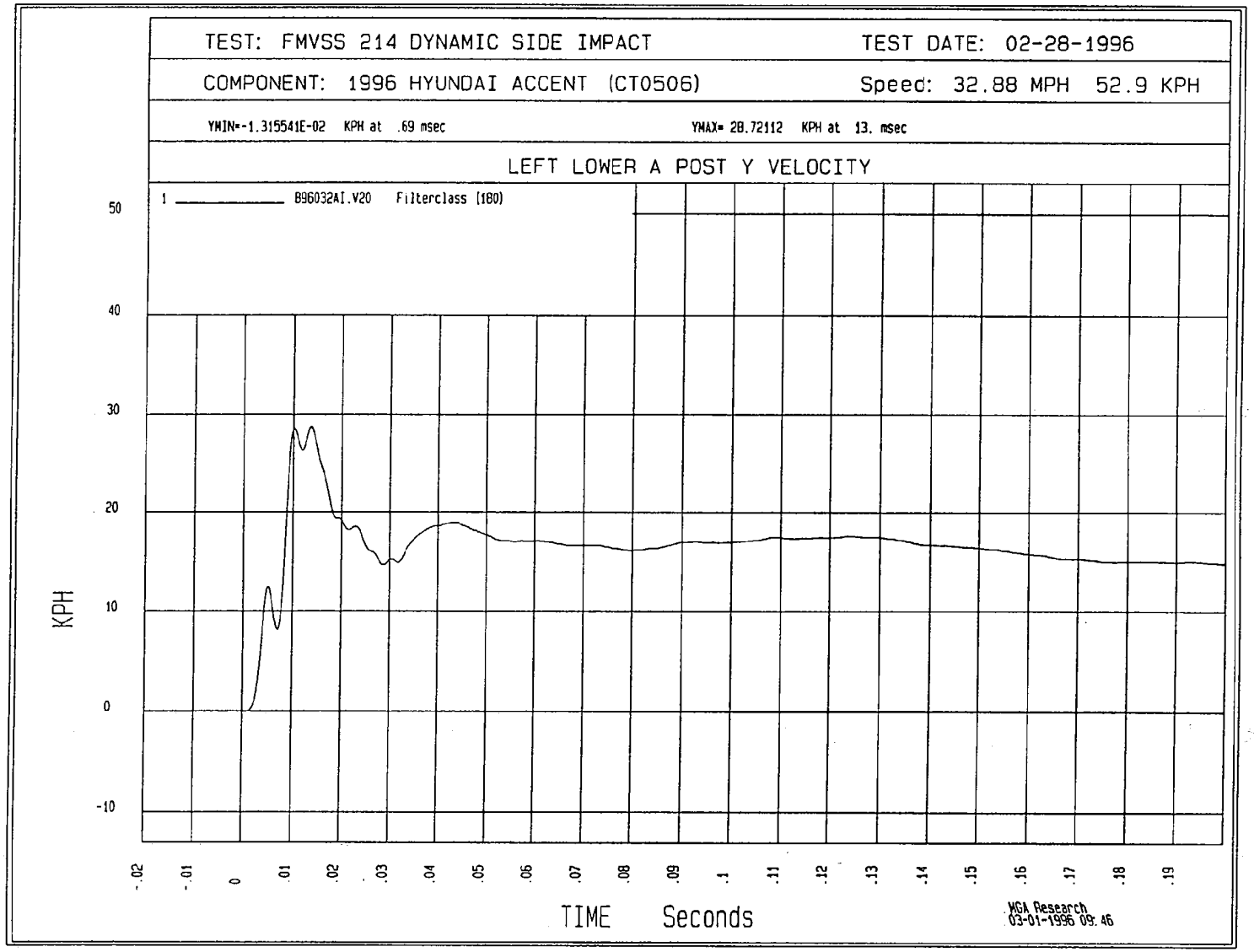
TIME (SECONDS)
MGA Research
02-29-1996 16:45


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.315541E-02 KPH at .69 msec
YMAX= 28.72112 KPH at 13. msec
LEFT LOWER A POST Y VELOCITY
1 B96032AI.V20 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
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.04
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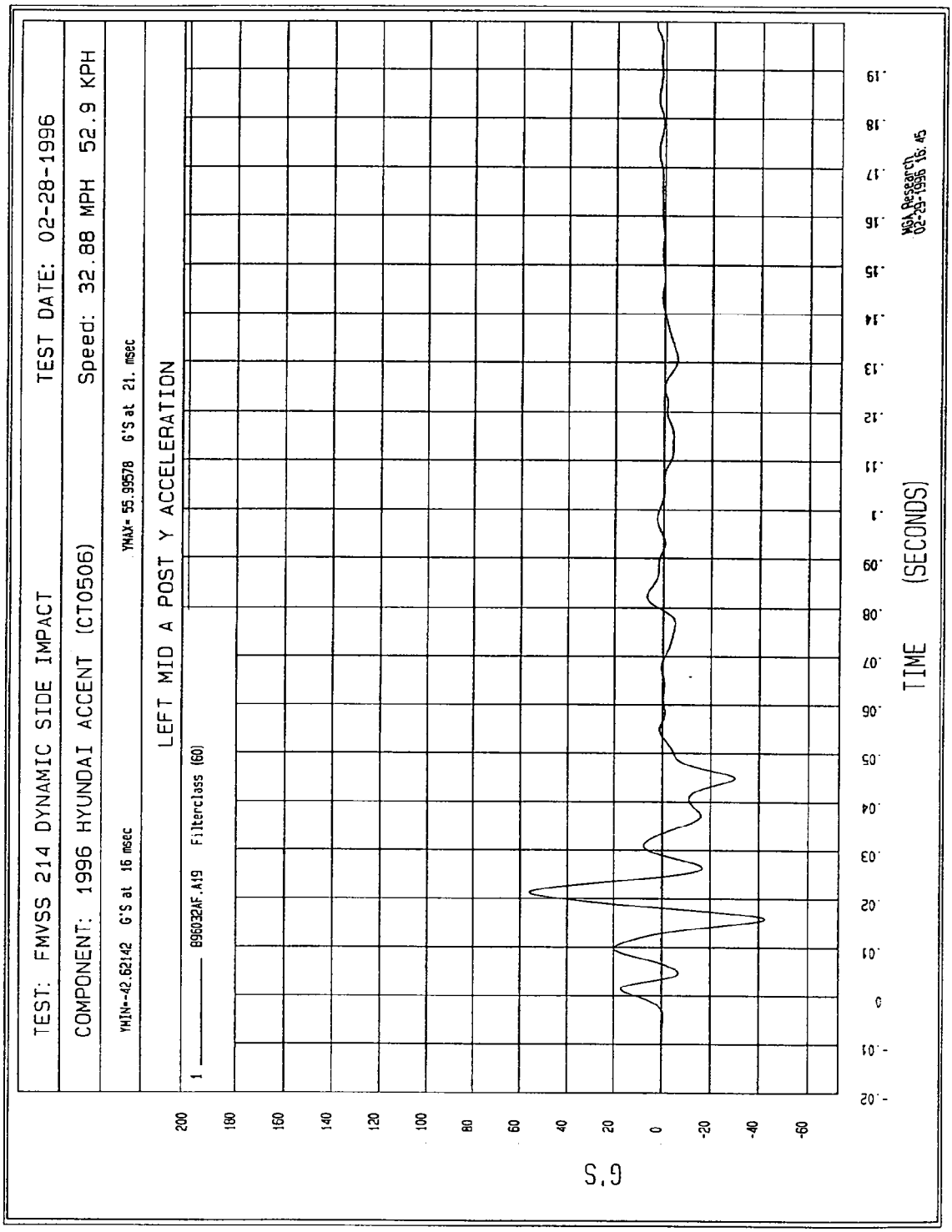
TIME Seconds
MGA Research
03-01-1996 09:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-42.62142 G'S at 16 msec
YMAX= 55.99578 G'S at 21. msec
LEFT MID A POST Y ACCELERATION
1 B96032AF.A19 Filterclass (60)
200
180
160
140
120
100
80
60
40
20
0
-20
-40
-60
G'S
.02
.01
0
.01
.02
.03
.04
.05
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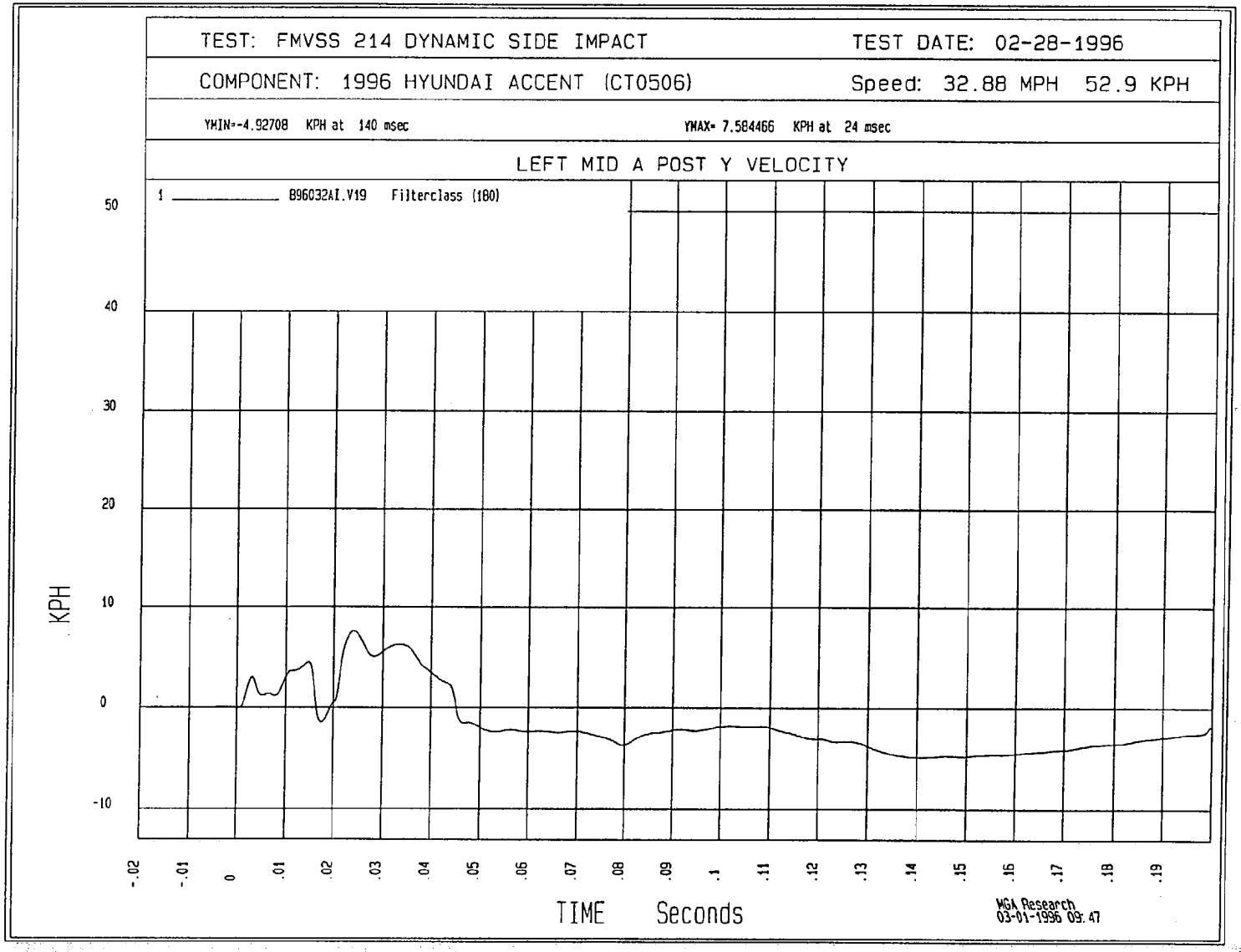
TIME (SECONDS)
MGA Research
02-29-1996 16:45


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-4.92708 KPH at 140 msec
YMAX= 7.584466 KPH at 24 msec
LEFT MID A POST Y VELOCITY
1 B96032AI.V19 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
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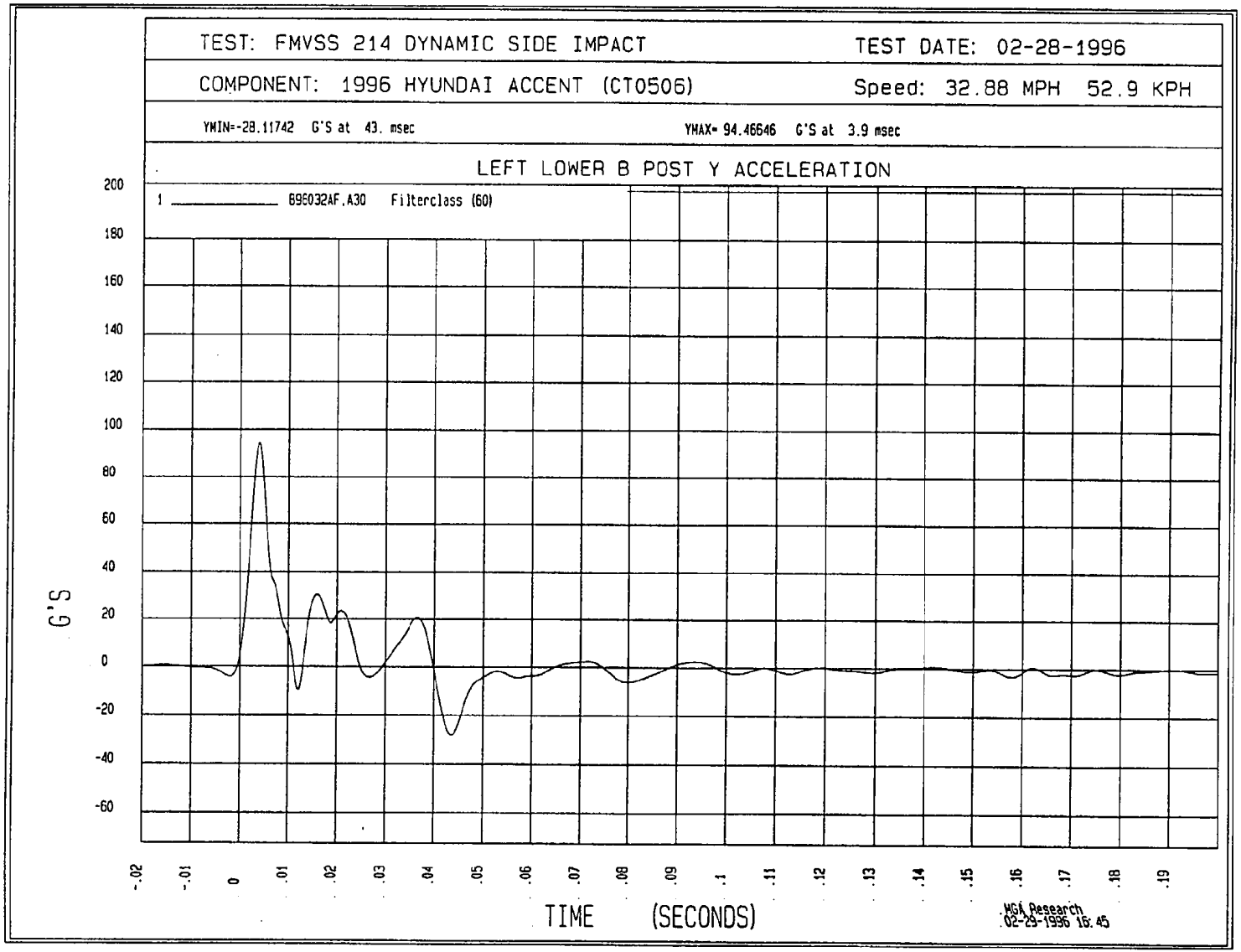
TIME Seconds
MGA Research
03-01-1996 09:47


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-28.11742 G'S at 43. msec
YMAX= 94.46646 G'S at 3.9 msec
LEFT LOWER B POST Y ACCELERATION
1 B96032AF.A30 Filterclass (60)
200
180
160
140
120
100
80
60
40
20
0
-20
-40
-60
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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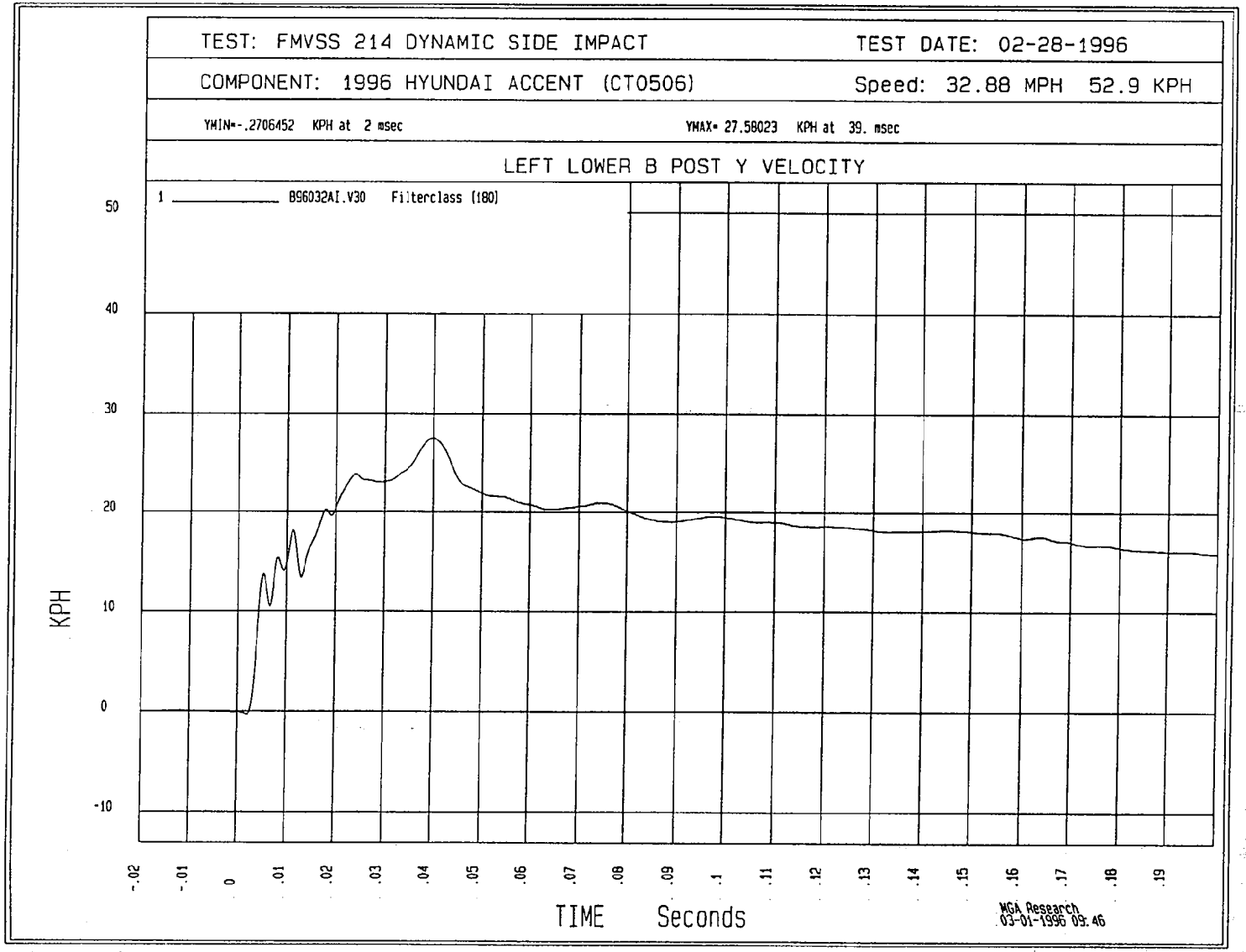
TIME (SECONDS)
MGA Research
02-29-1996 16:45


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-.2706452 KPH at 2 msec
YMAX= 27.58023 KPH at 39. msec
LEFT LOWER B POST Y VELOCITY
1 B96032AI.V30 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
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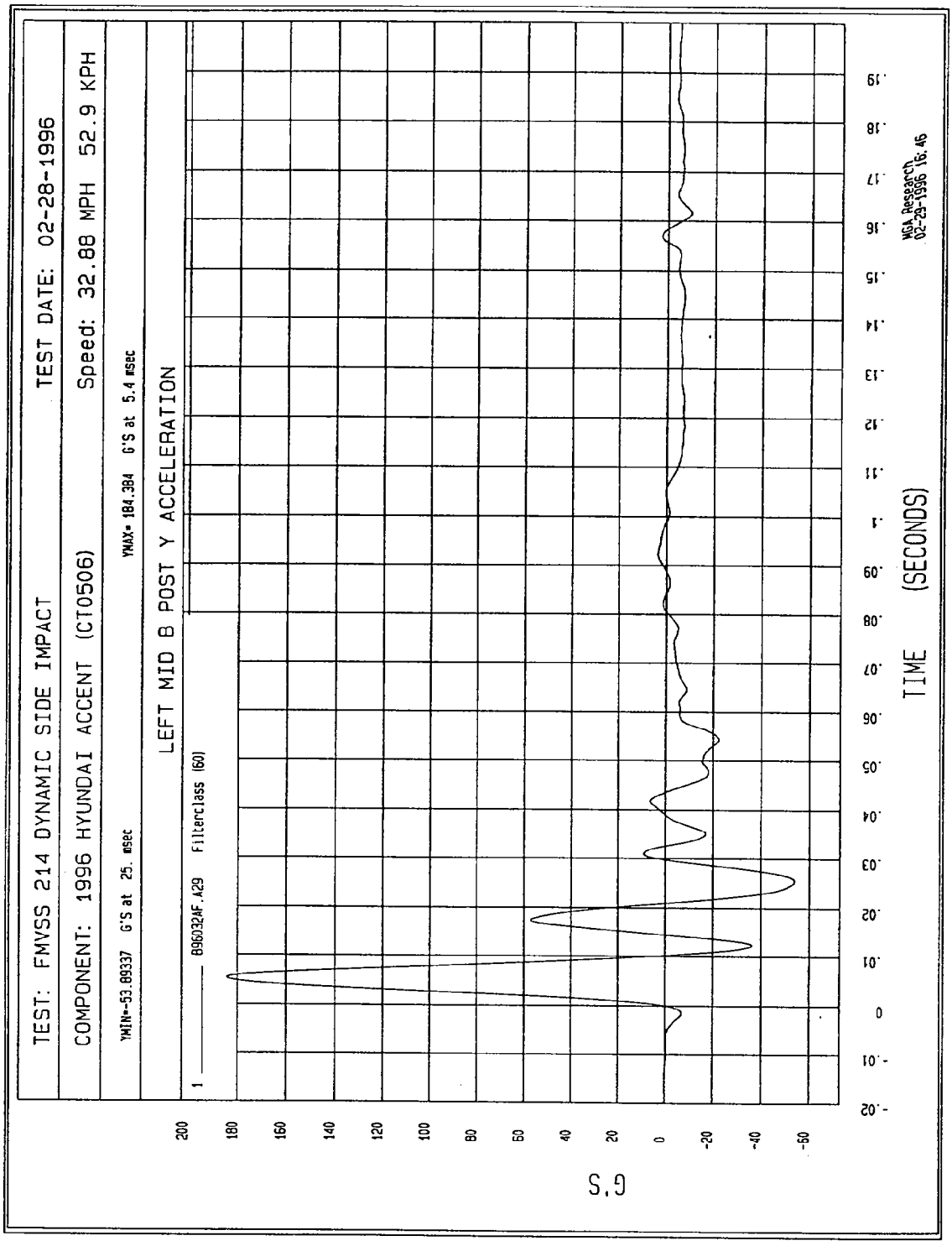
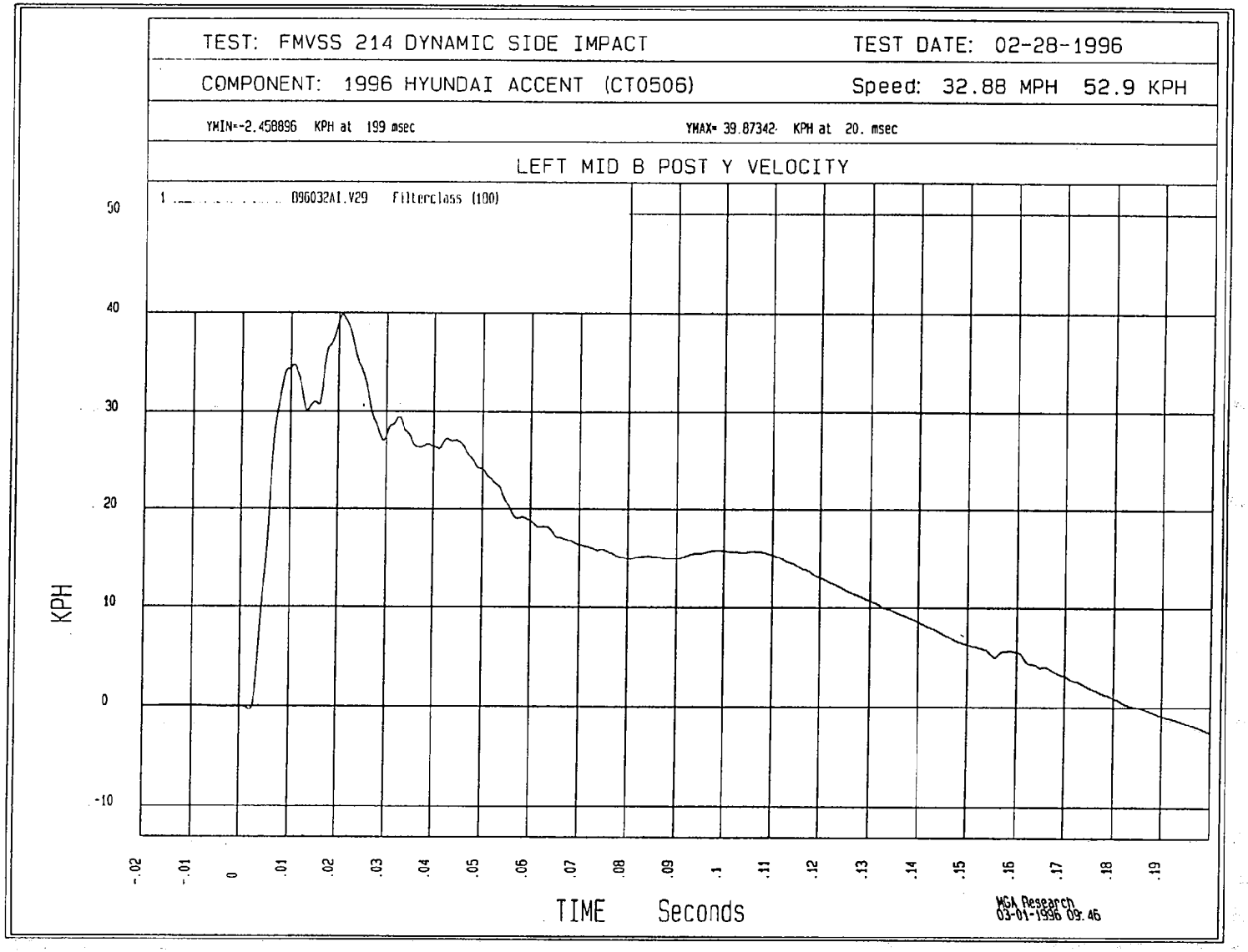
TIME Seconds
MGA Research
03-01-1996 09:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-53.89337 G'S at 25. msec
YMAX= 184.384 G'S at 5.4 msec
LEFT MID B POST Y ACCELERATION
1 _____ 896032AF.A29 Filterclass (60)
200
180
160
140
120
100
80
60
40
20
0
-20
-40
-60
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
NGA Research
02-29-1996 16:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-2.458896 KPH at 199 msec
YMAX= 39.87342 KPH at 20. msec
LEFT MID B POST Y VELOCITY
1 ..... 096032AI.V29 Filterclass (100)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
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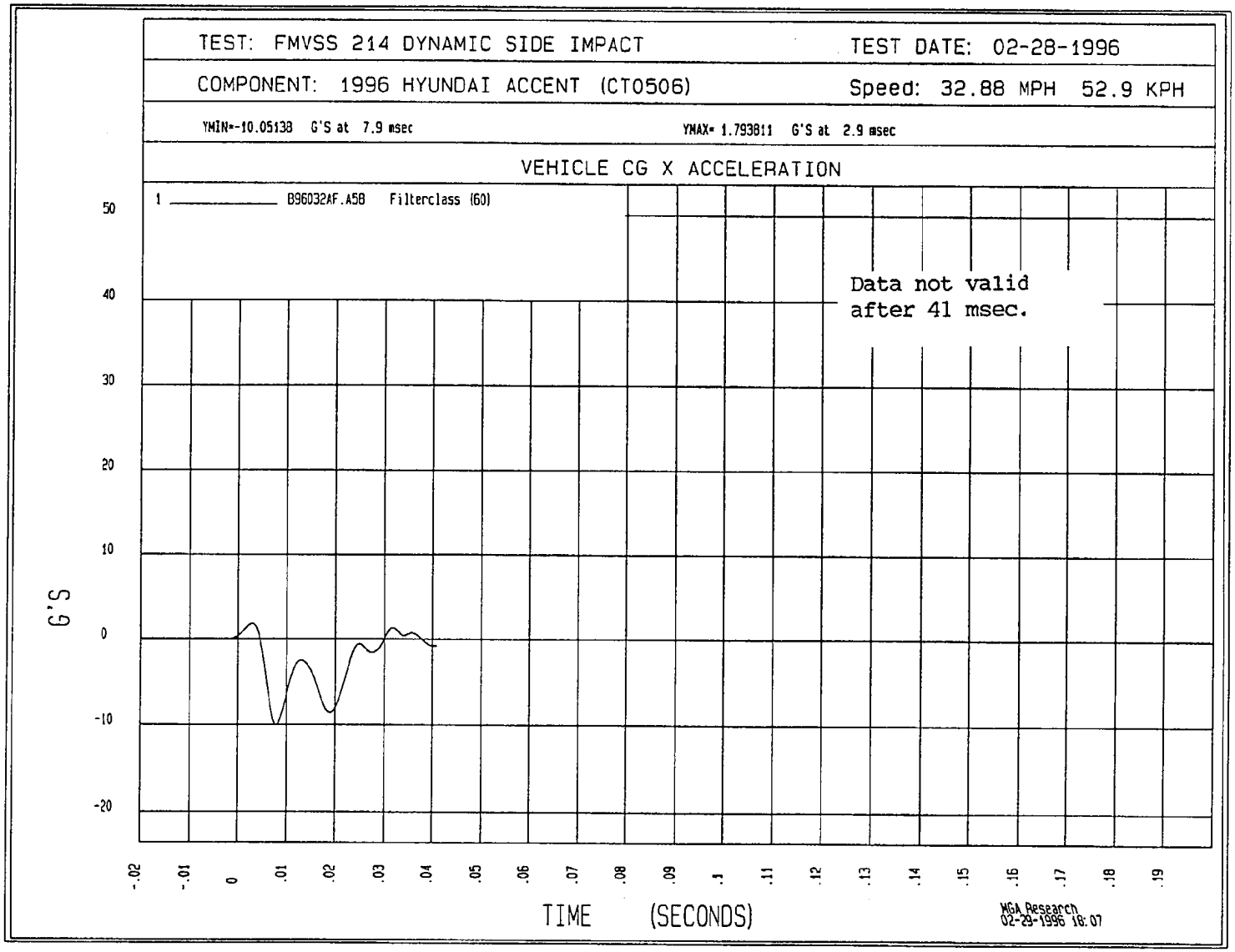
TIME Seconds
MGA Research
03-01-1996 09:46


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-10.05138 G'S at 7.9 msec
YMAX= 1.793811 G'S at 2.9 msec
VEHICLE CG X ACCELERATION
1 B96032AF.A58 Filterclass (60)
Data not valid
after 41 msec.
G'S
50
40
30
20
10
0
-10
-20
-.02
-.01
0
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.02
.03
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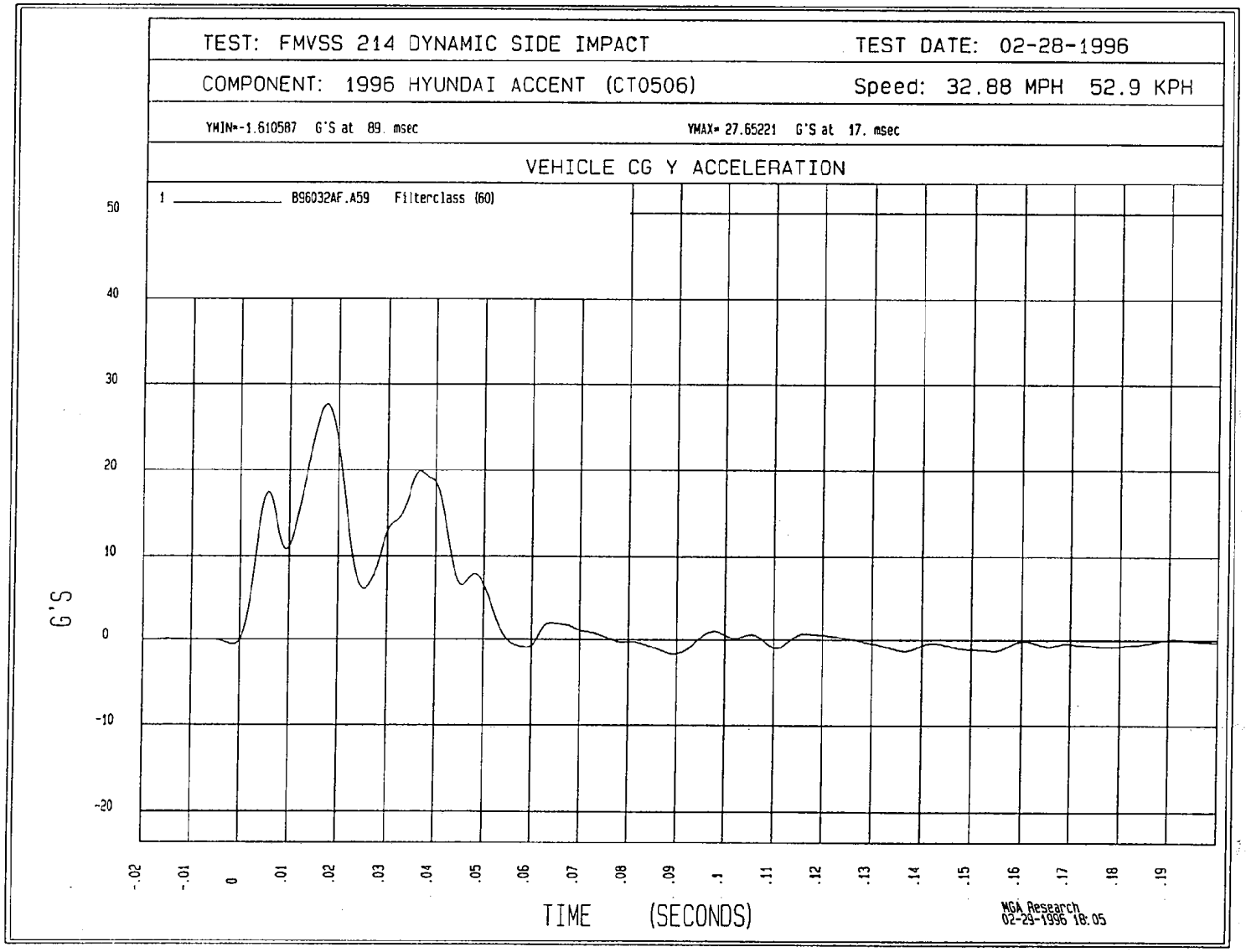
TIME (SECONDS)
MGA Research
02-29-1996 18:07


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.610587 G'S at 89. msec
YMAX= 27.65221 G'S at 17. msec
VEHICLE CG Y ACCELERATION
1 B96032AF.A59 Filterclass (60)
G'S
50
40
30
20
10
0
-10
-20
-.02
-.01
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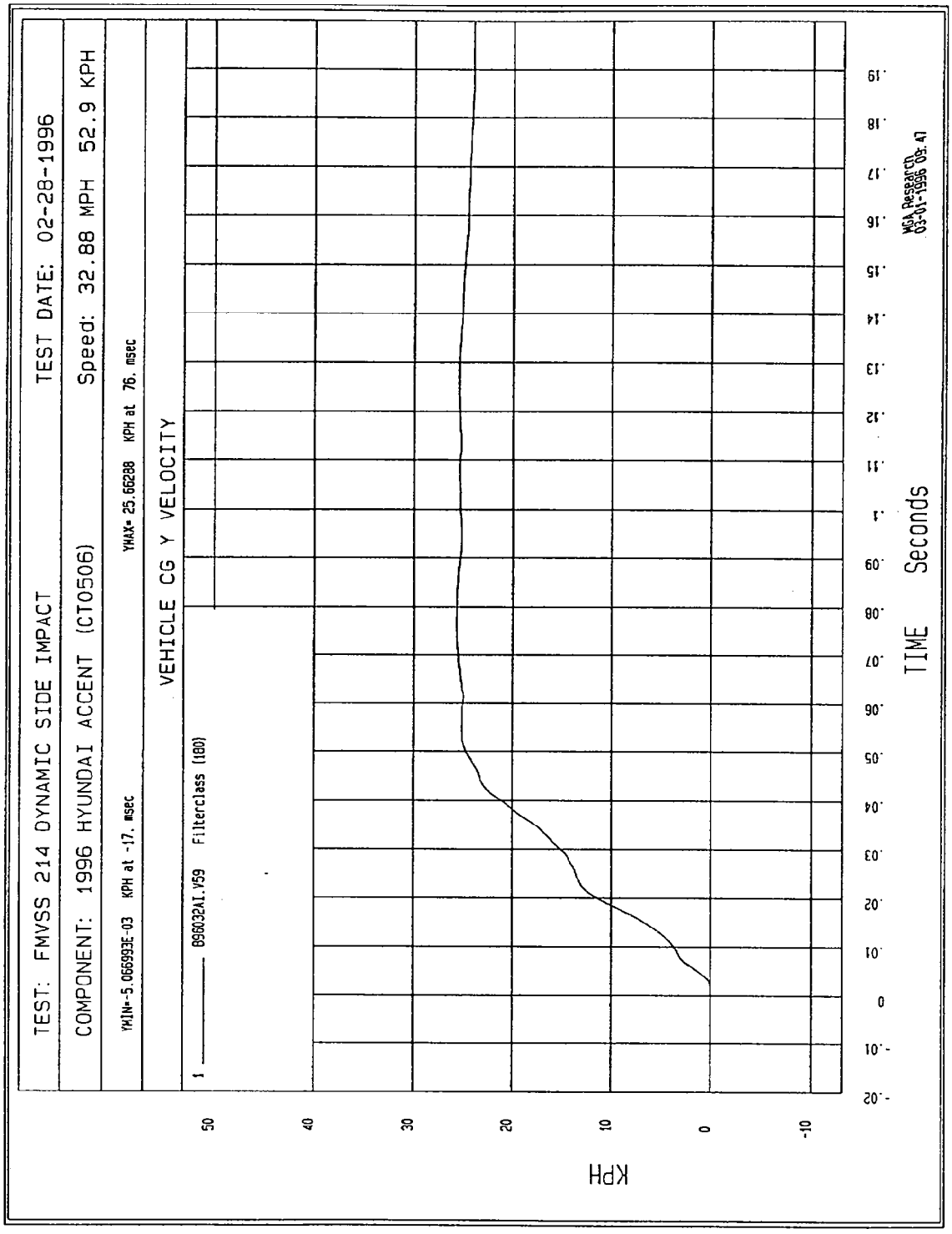
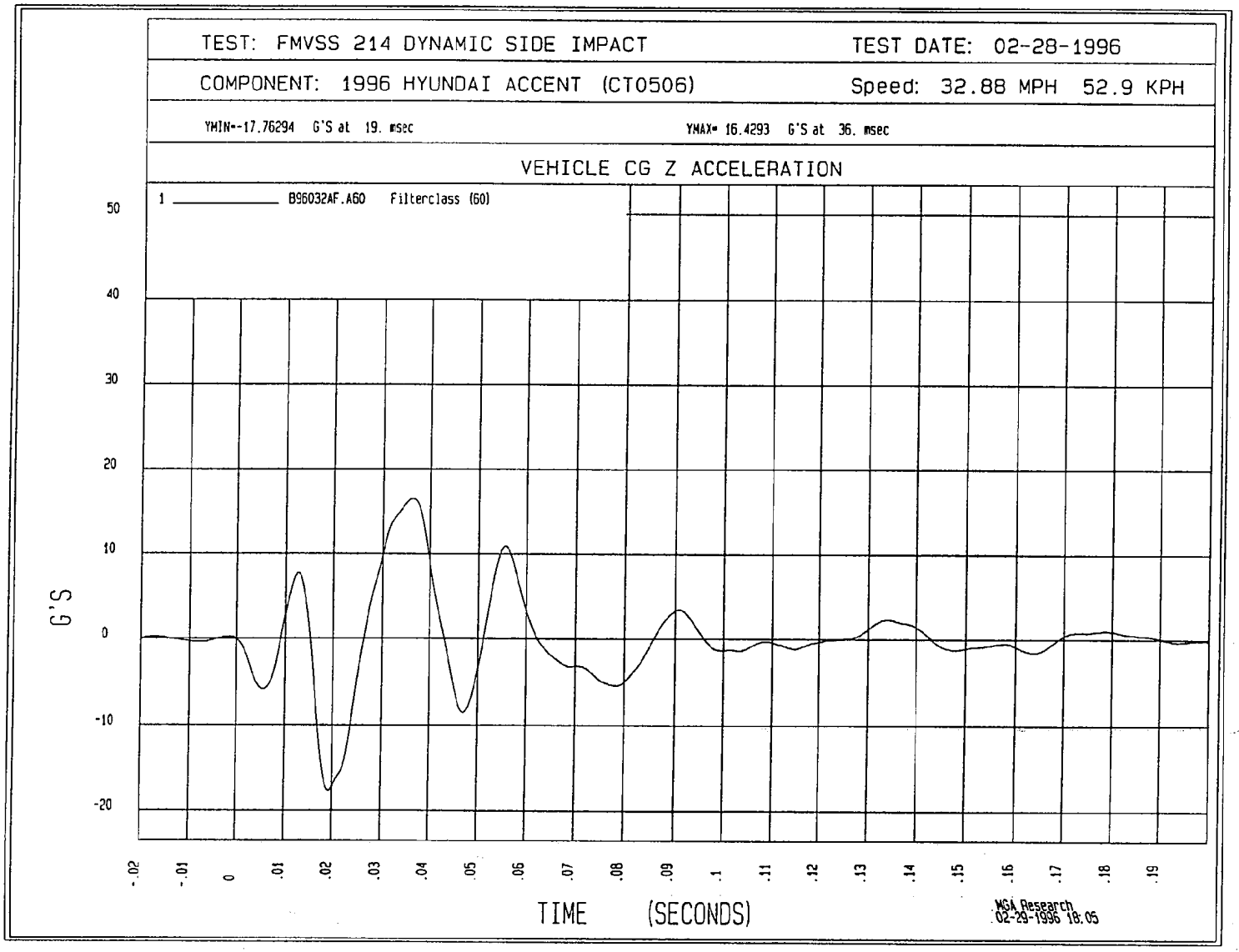
TIME (SECONDS)
MGA Research
02-29-1996 18:05


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-5.0669935-03 KPH at -17. msec
YMAX= 25.66288 KPH at 76. msec
VEHICLE CG Y VELOCITY
1 B96032AI.V59 Filterclass (180)
KPH
TIME Seconds
MGA Research
03-01-1996 08:47


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-17.76294 G'S at 19. msec
YMAX= 16.4293 G'S at 36. msec
VEHICLE CG Z ACCELERATION
1 B96032AF.A60 Filterclass (60)
G'S
50
40
30
20
10
0
-10
-20
-.02
-.01
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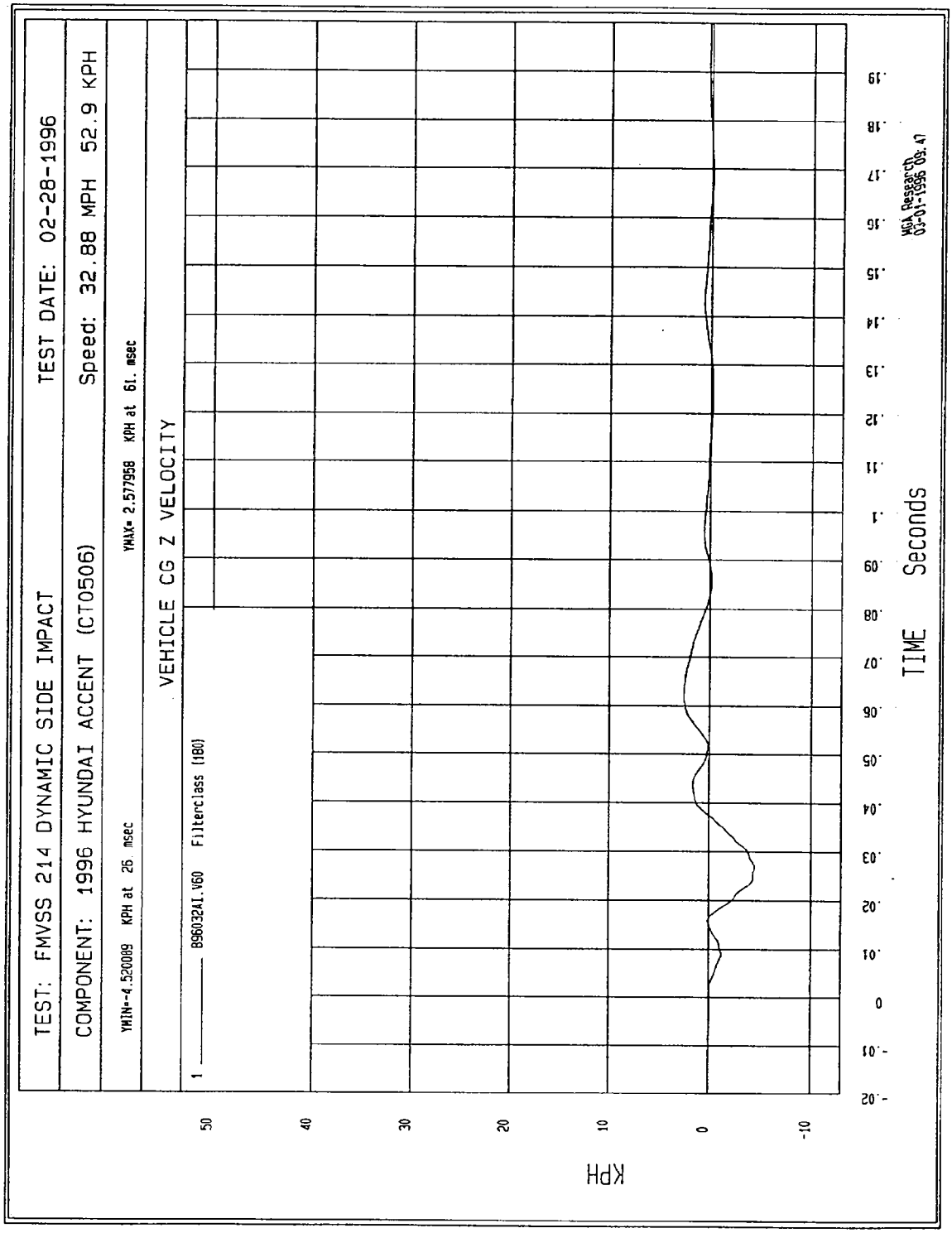
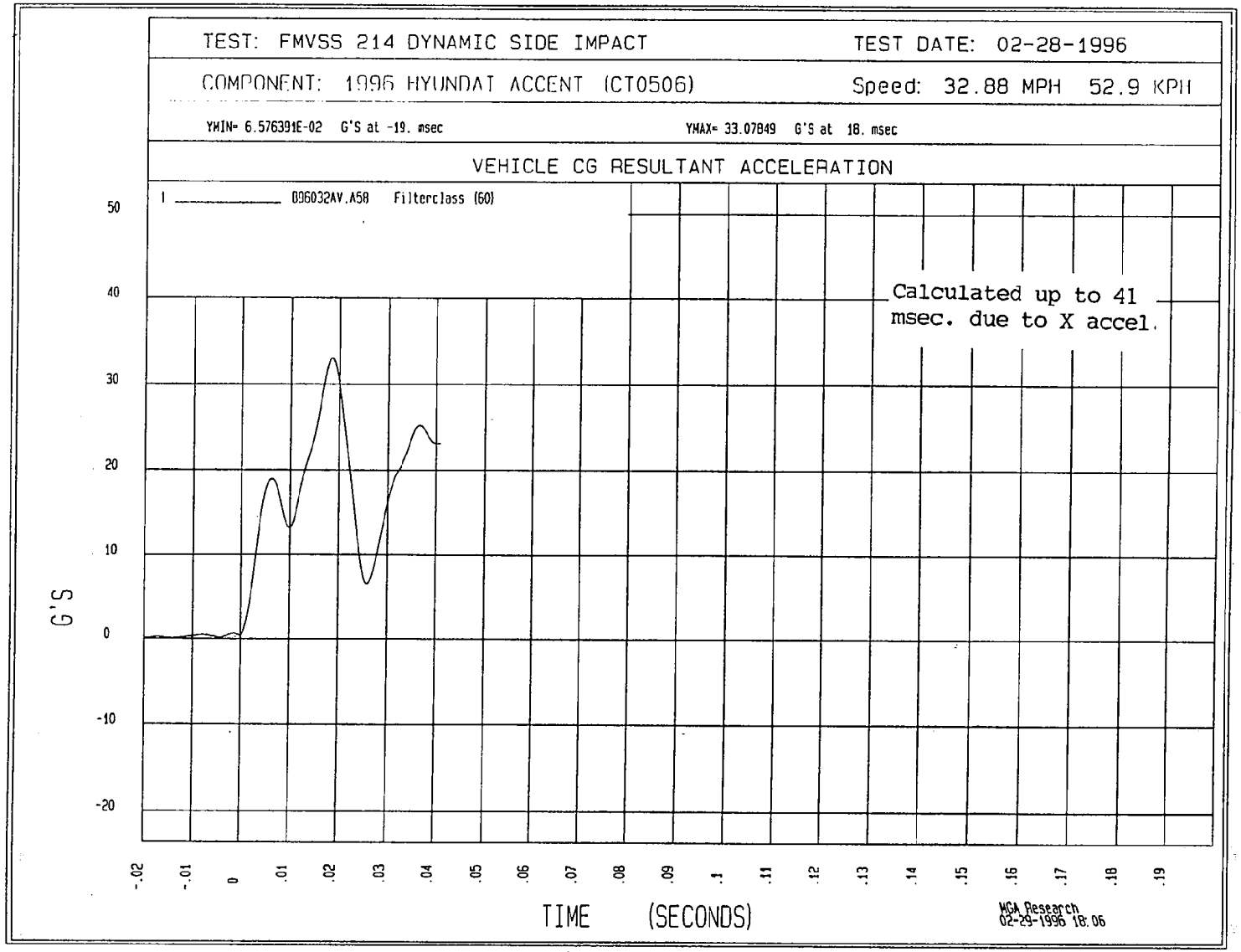
TIME (SECONDS)
MGA Research
02-29-1996 18:05


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-4.520009 KPH at 26. msec
YMAX= 2.577958 KPH at 61. msec
VEHICLE CG Z VELOCITY
1 B960328AI.V60 Filterclass (180)
KPH
TIME Seconds
MGA Research
03-01-1996 09:47


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN= 6.576391E-02 G'S at -19. msec
YMAX= 33.07849 G'S at 18. msec
VEHICLE CG RESULTANT ACCELERATION
1 ——— 096032AV.A58 Filterclass (60)
Calculated up to 41 msec. due to X accel.
G'S
50
40
30
20
10
0
-10
-20
-.02
-.01
0
.01
.02
.03
.04
.05
.06
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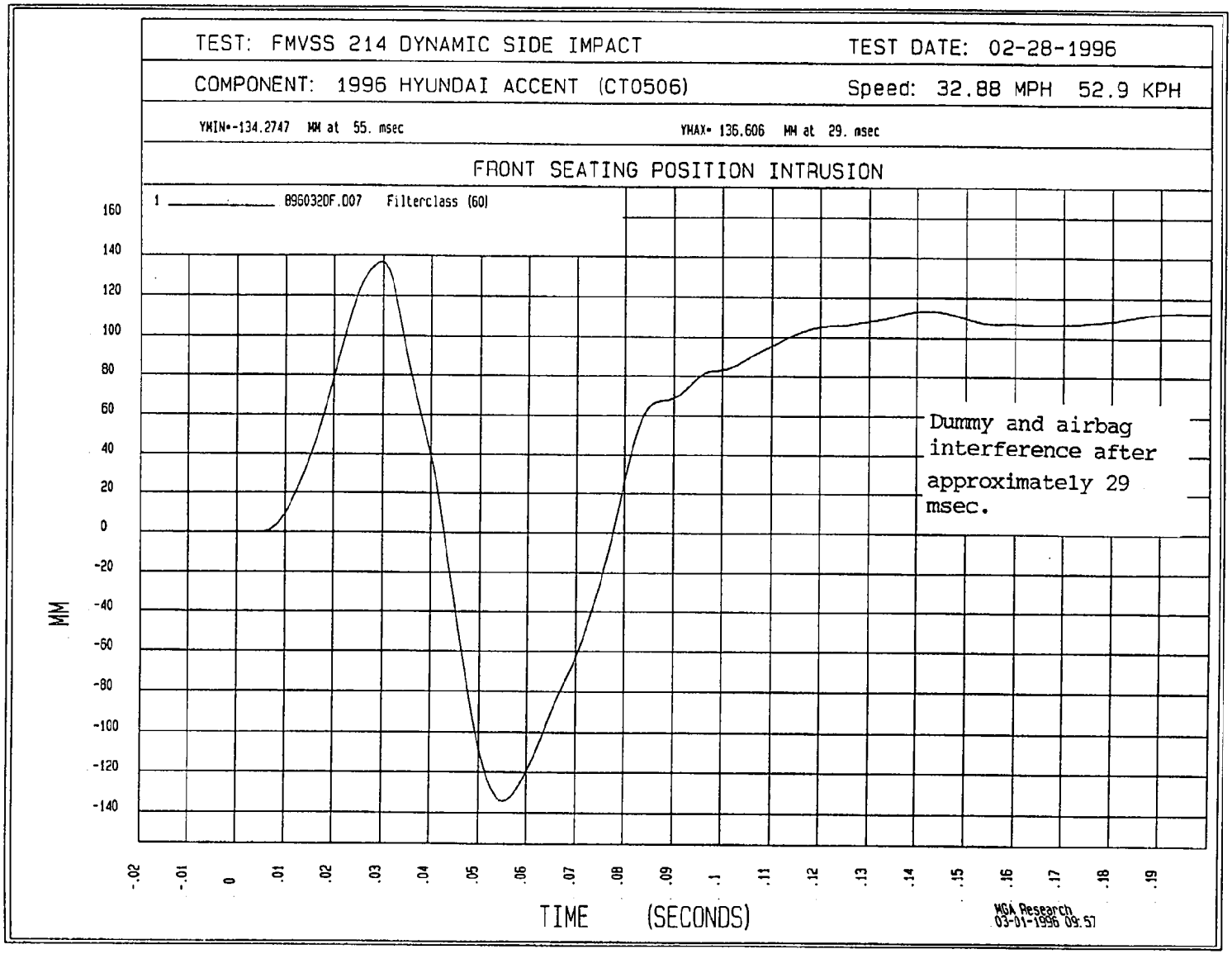
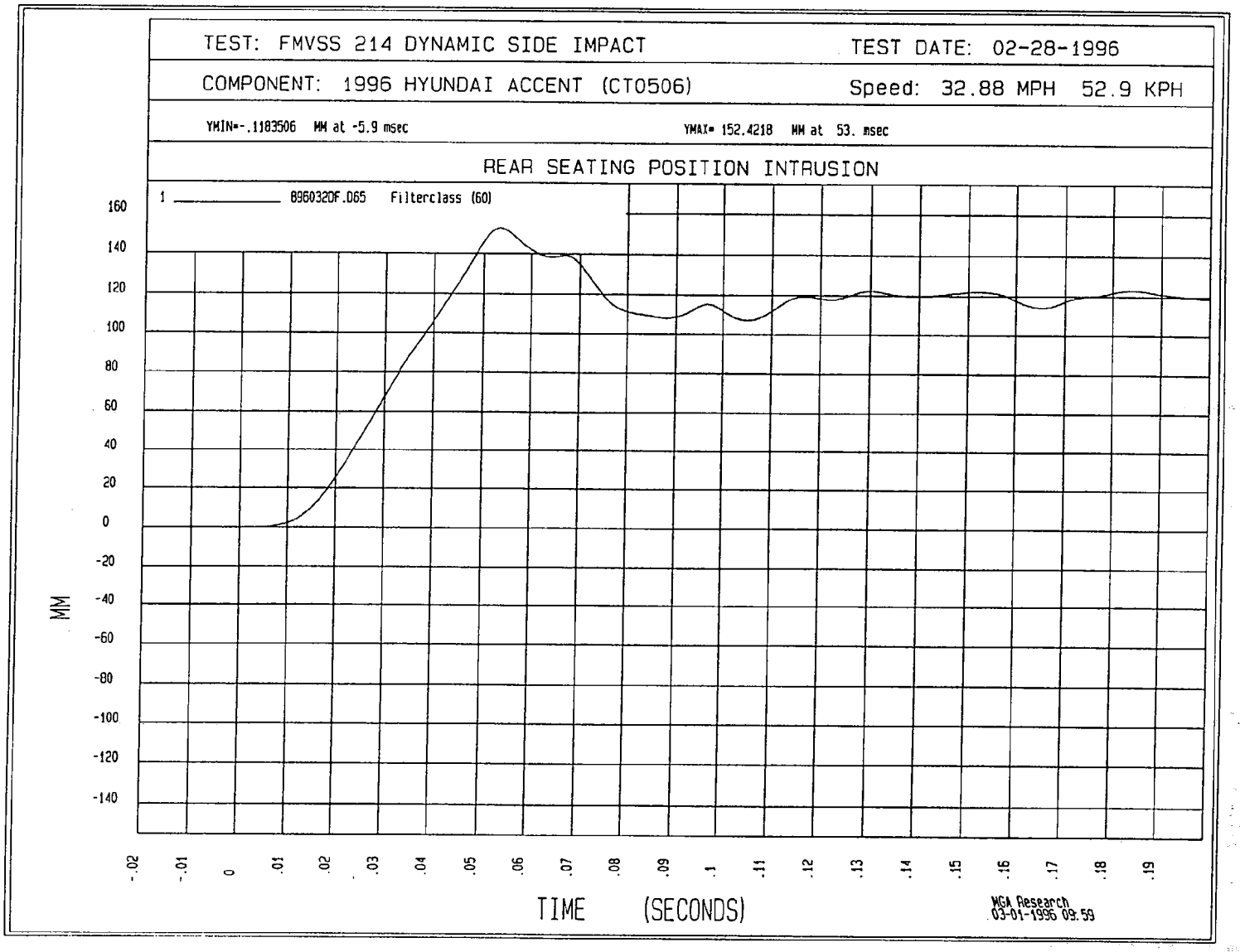
TIME (SECONDS)
MGA Research
02-29-1996 18:06


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-134.2747 MM at 55. msec
YMAX= 136.606 MM at 29. msec
FRONT SEATING POSITION INTRUSION
1 ——— 896032DF.007 Filterclass (60)
Dummy and airbag interference after approximately 29 msec.
MM
TIME (SECONDS)
MGA Research 03-01-1996 09:57


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-.1183506 MM at -5.9 msec
YMAX= 152.4218 MM at 53. msec
REAR SEATING POSITION INTRUSION
1 8960320F.065 Filterclass (60)
160
140
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
MM
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
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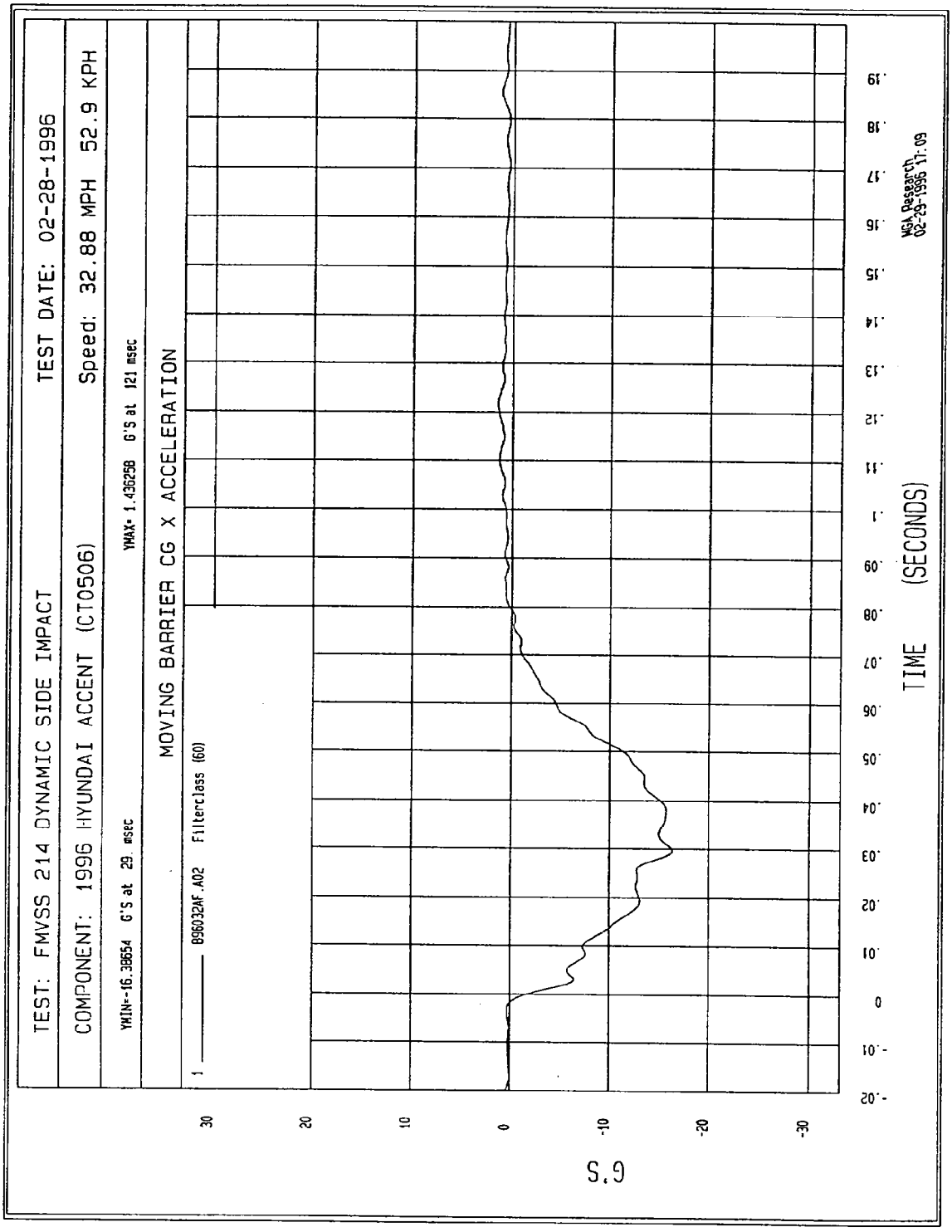
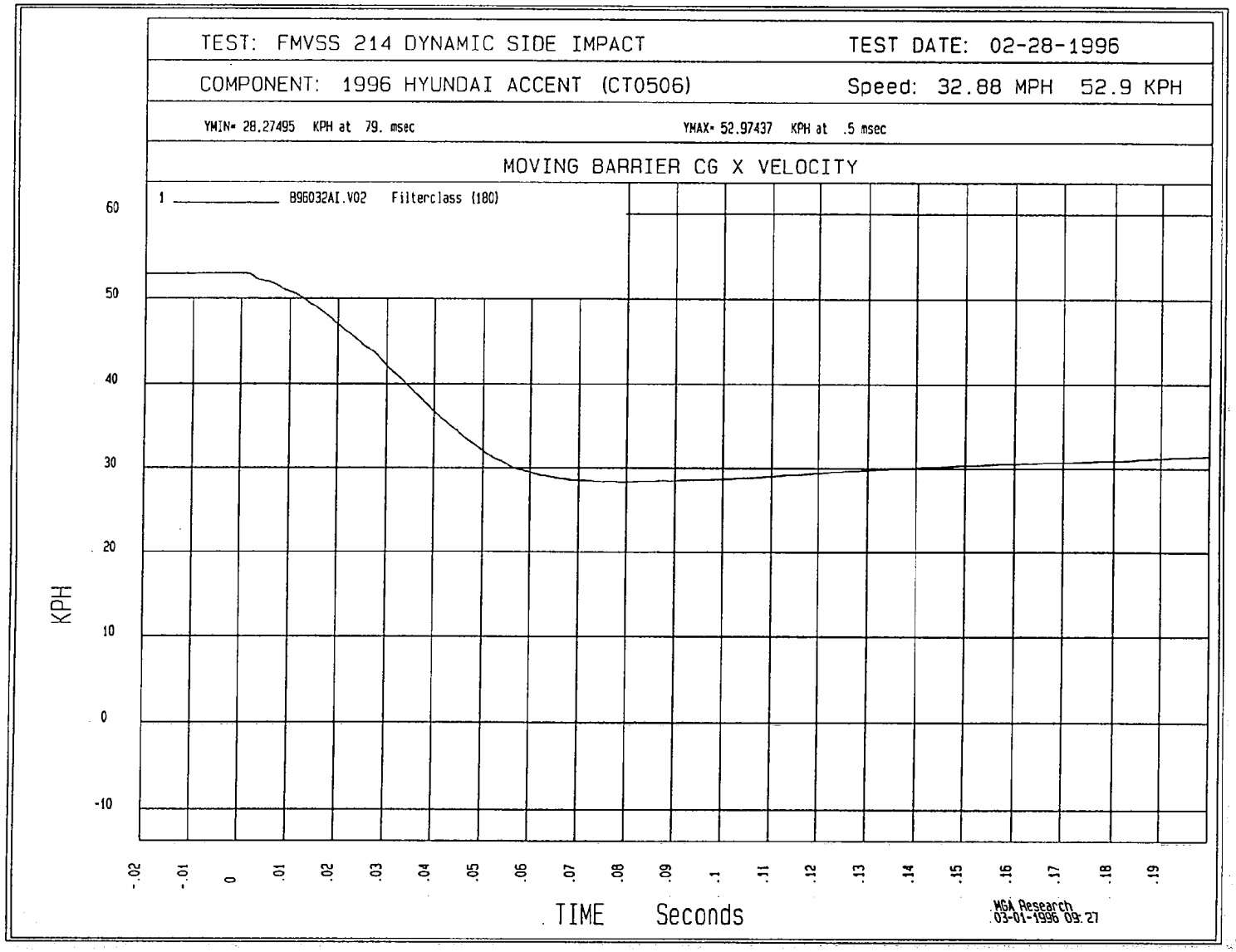
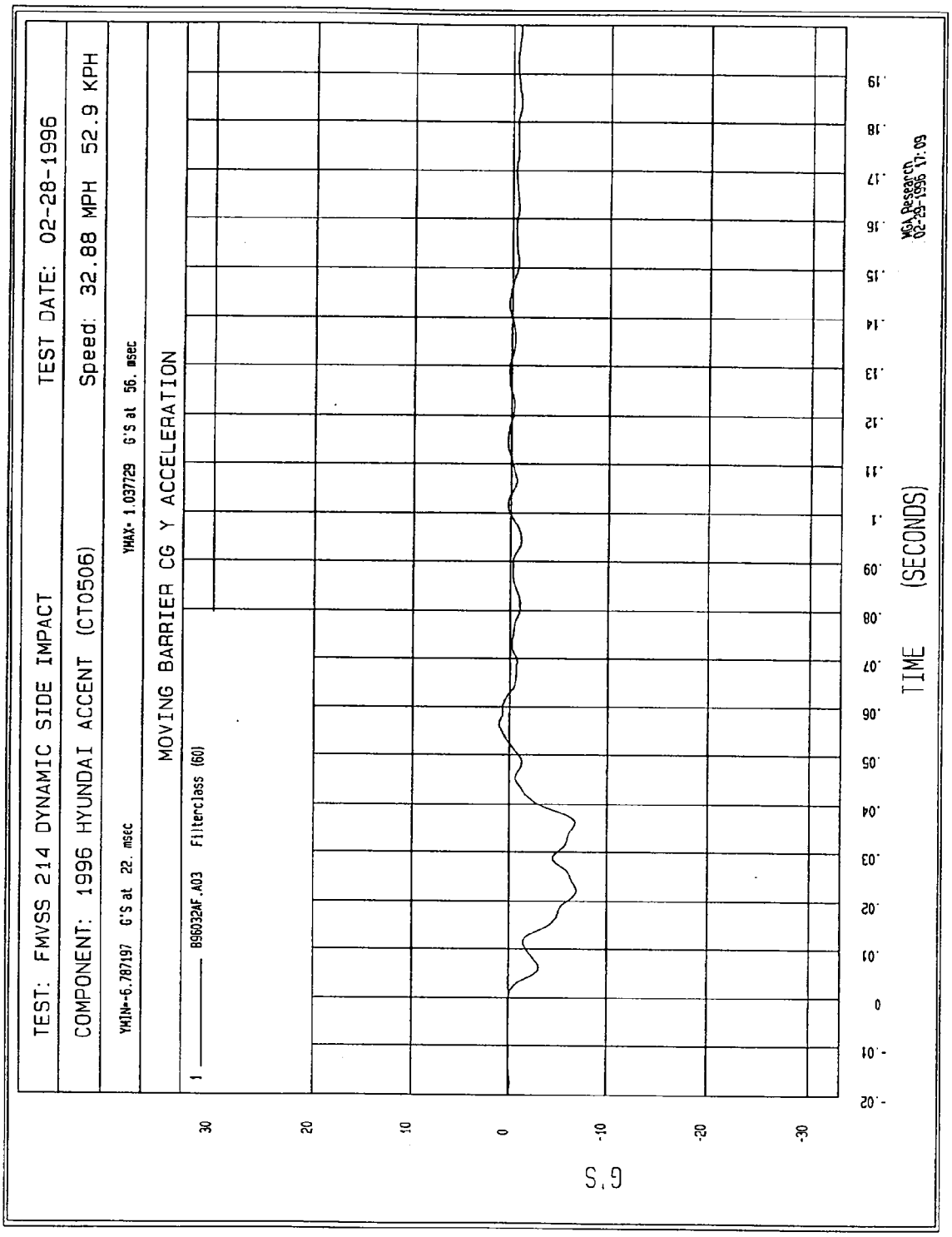
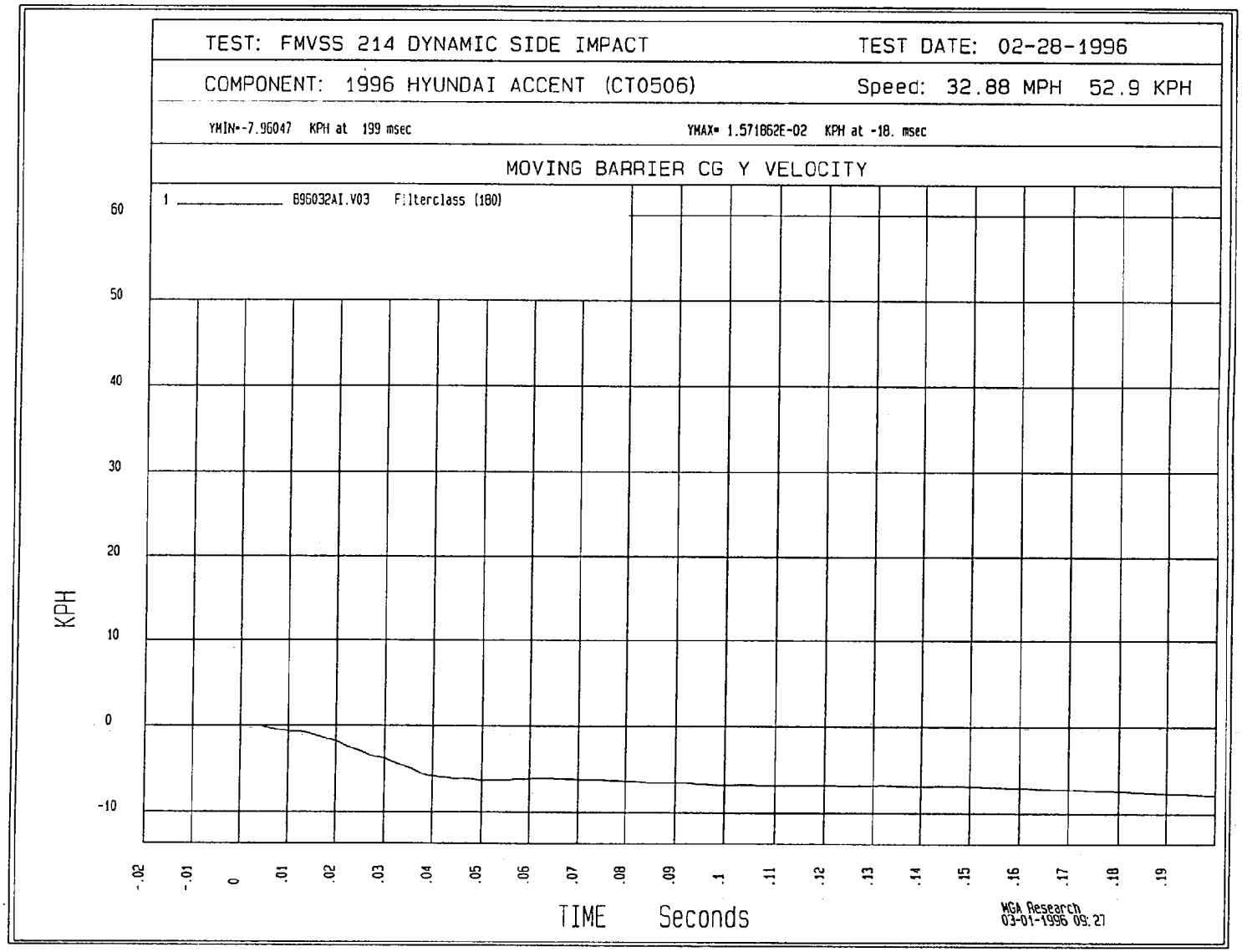
TIME (SECONDS)
MGA Research
03-01-1996 09:59


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-16.38654 G'S at 29. msec
YMAX= 1.43625B G'S at 121 msec
MOVING BARRIER CG X ACCELERATION
1 _____ B96032AF.A02 Filterclass (60)
30
20
10
0
-10
-20
-30
G'S
TIME (SECONDS)
MGA Research
02-29-1996 11:09


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN= 28.27495 KPH at 79. msec
YMAX= 52.97437 KPH at .5 msec
MOVING BARRIER CG X VELOCITY
1 B96032AI.V02 Filterclass (180)
60
50
40
30
20
10
0
-10
KPH
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
03-01-1996 09:27


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-6.787197 G'S at 22. msec
YMAX= 1.037729 G'S at 56. msec
MOVING BARRIER CG Y ACCELERATION
1 B96032AF.A03 Filterclass (60)
30
20
10
0
-10
-20
-30
G'S
TIME (SECONDS)
MGA Research
02-29-1996 17:09


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-7.96047 KPH at 199 msec
YMAX= 1.571862E-02 KPH at -18. msec
MOVING BARRIER CG Y VELOCITY
1 B96032AI.V03 Filterclass (180)
KPH
60
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
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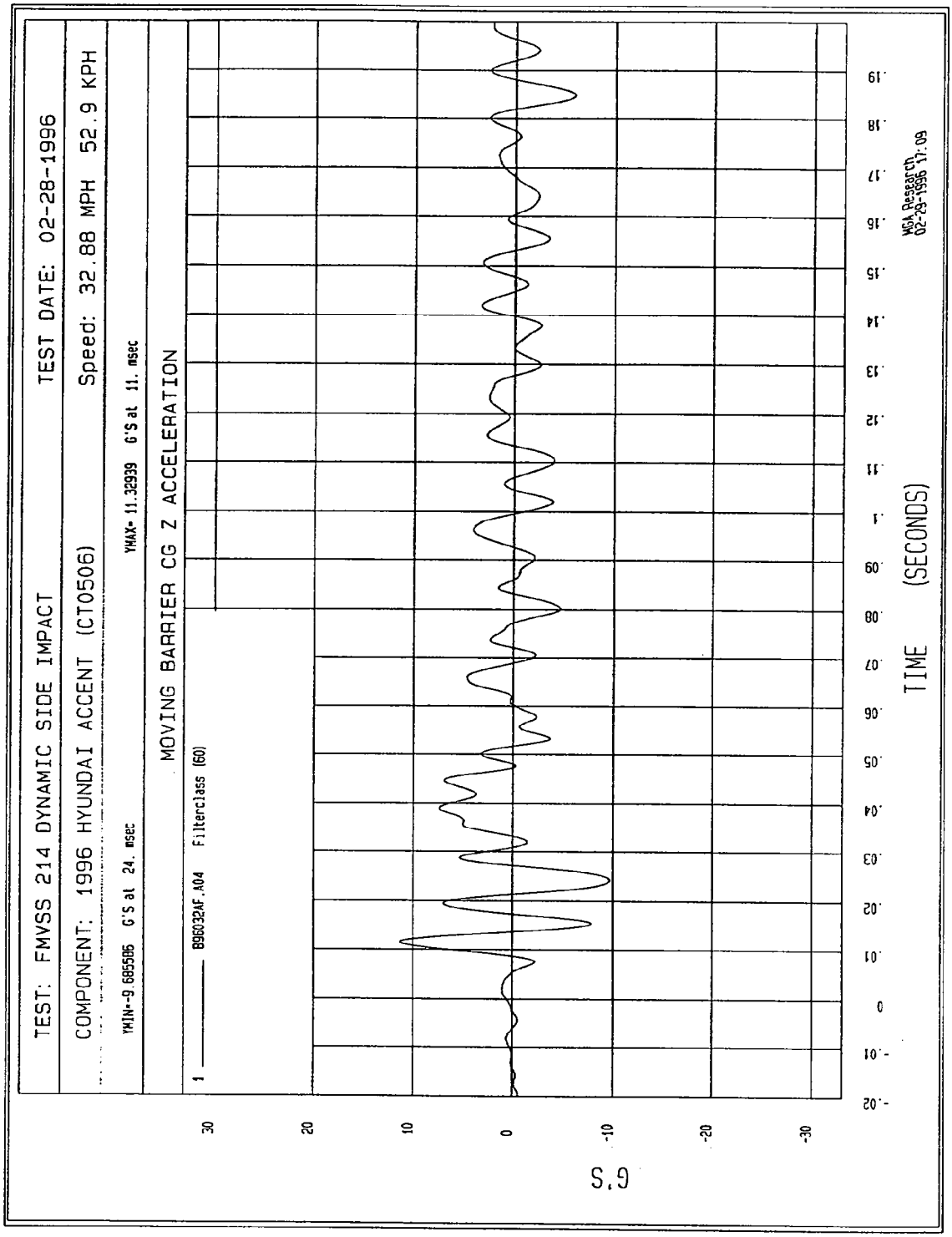
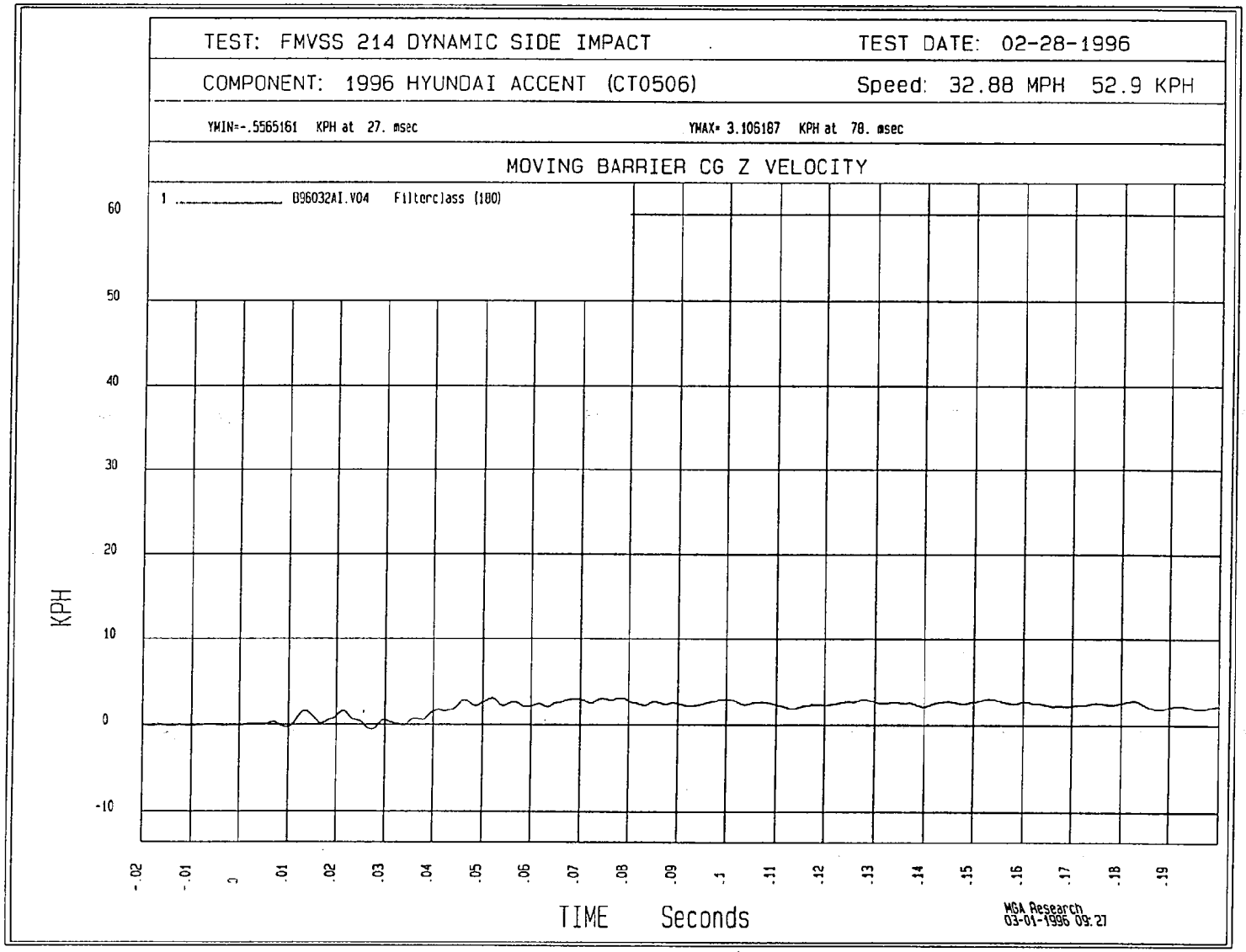
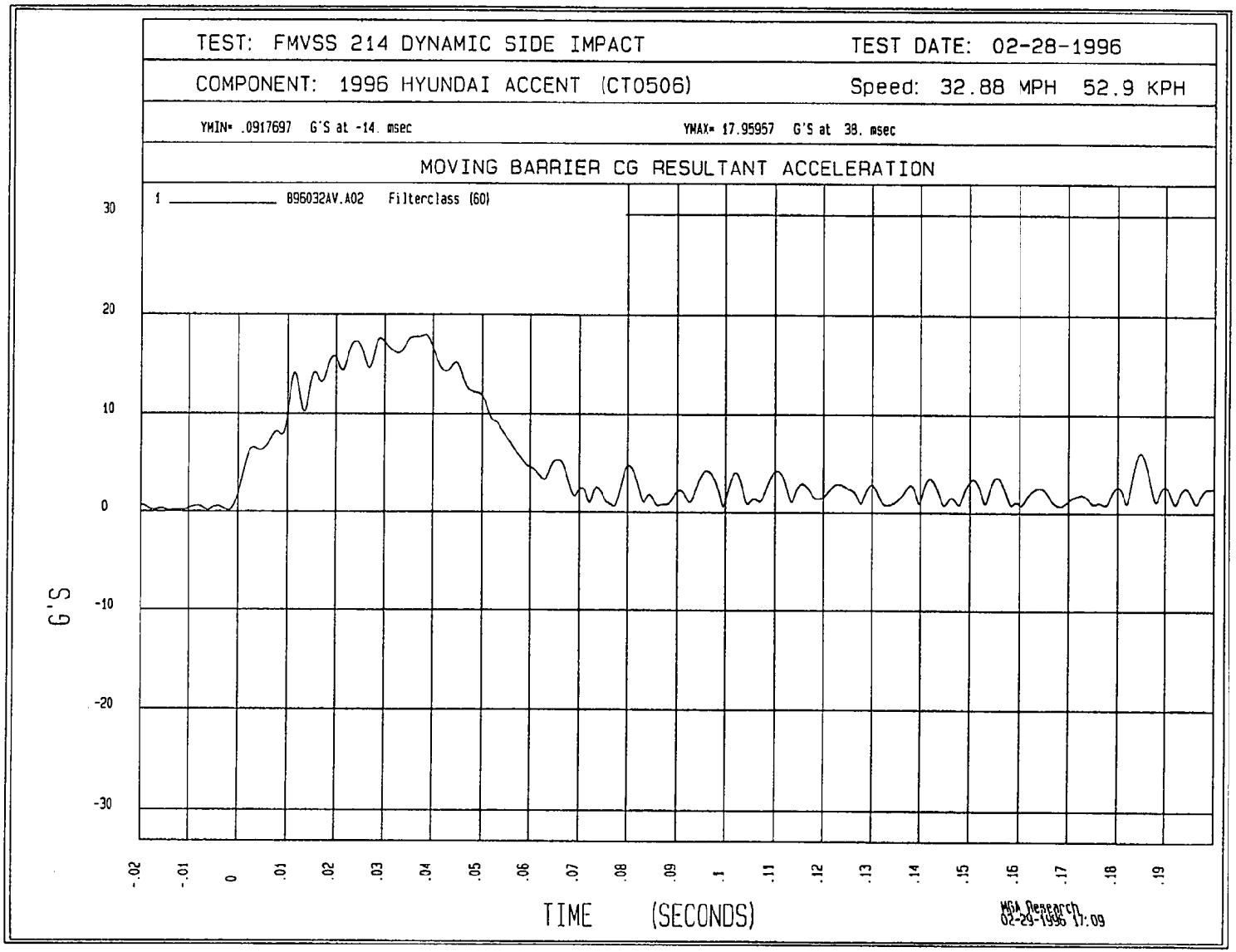
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
03-01-1996 09:27


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-9.685586 G'S at 24. msec
YMAX= 11.32939 G'S at 11. msec
MOVING BARRIER CG Z ACCELERATION
1 B96032AF.A04 Filterclass (60)
G's
TIME (SECONDS)
MGA Research
02-29-1996 17:09


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-.5565161 KPH at 27. msec
YMAX= 3.105187 KPH at 78. msec
MOVING BARRIER CG Z VELOCITY
1 D96032AI.V04 FilterClass (180)
KPH
60
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
03-01-1996 09:27


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN= .0917697 G'S at -14. msec
YMAX= 17.95957 G'S at 38. msec
MOVING BARRIER CG RESULTANT ACCELERATION
1 B96032AV.A02 Filterclass (60)
30
20
10
0
-10
-20
-30
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
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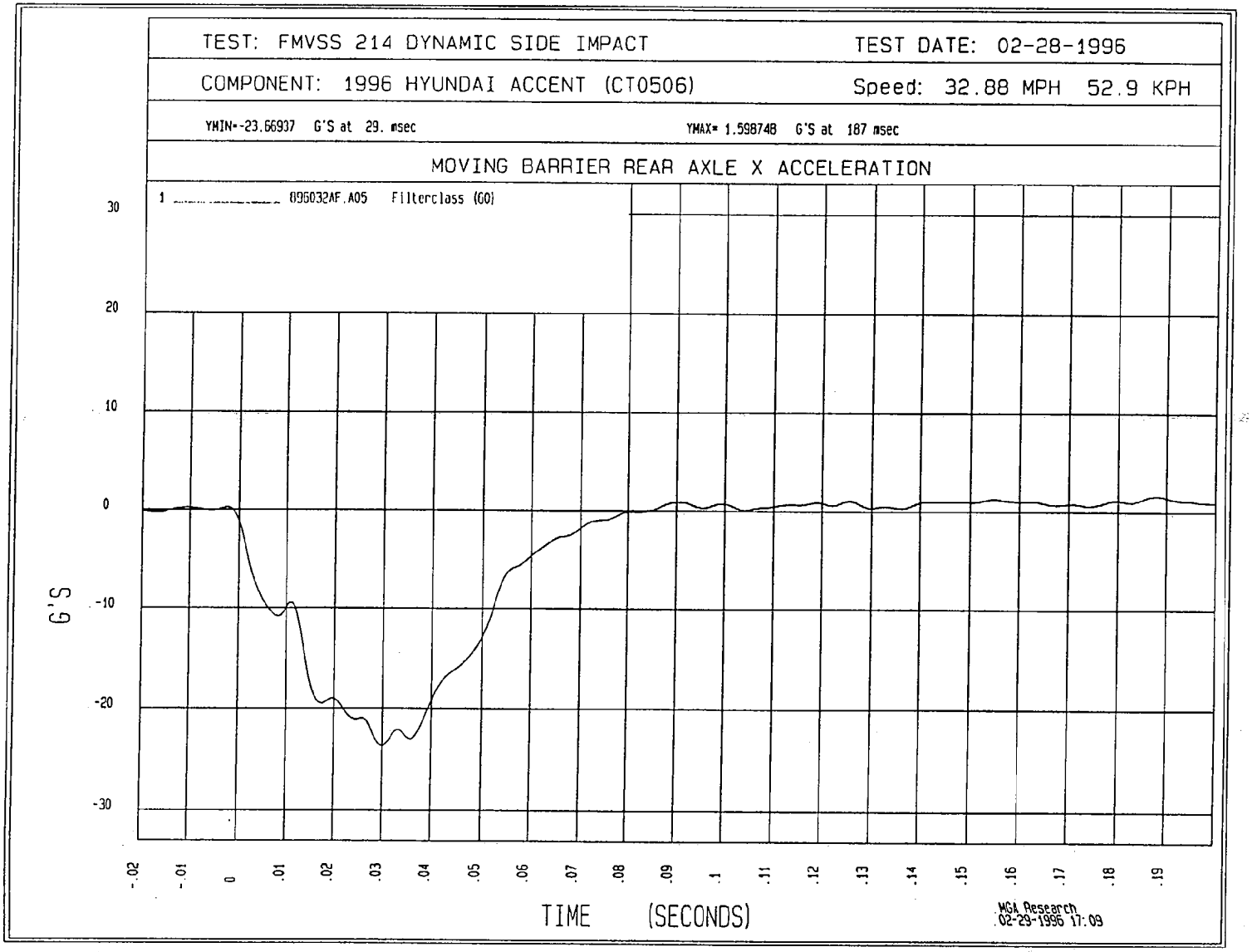
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 17:09


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-23.66937 G'S at 29. msec
YMAX= 1.598748 G'S at 187 msec
MOVING BARRIER REAR AXLE X ACCELERATION
1 096032AF.A05 Filterclass (60)
30
20
10
0
-10
-20
-30
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
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.14
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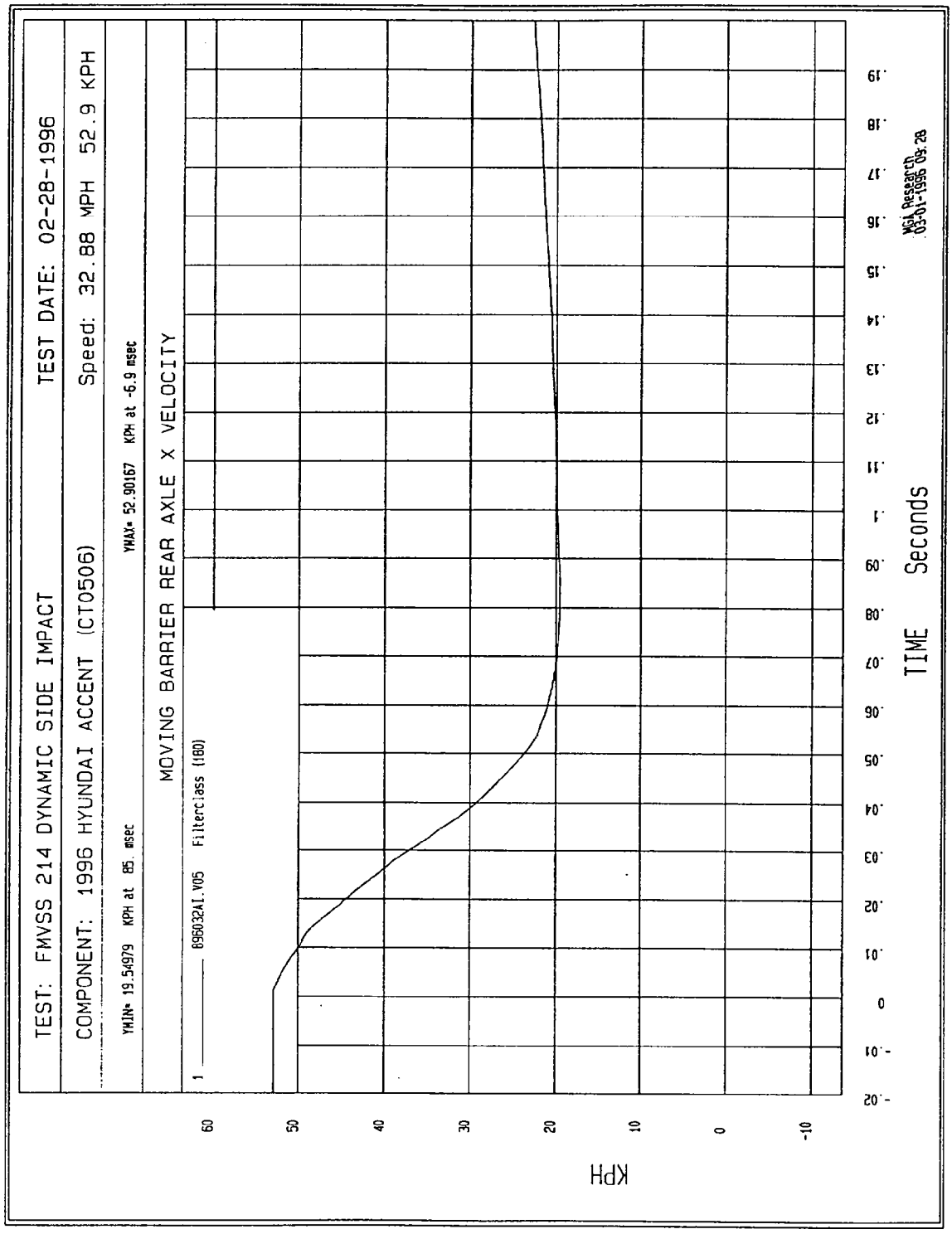
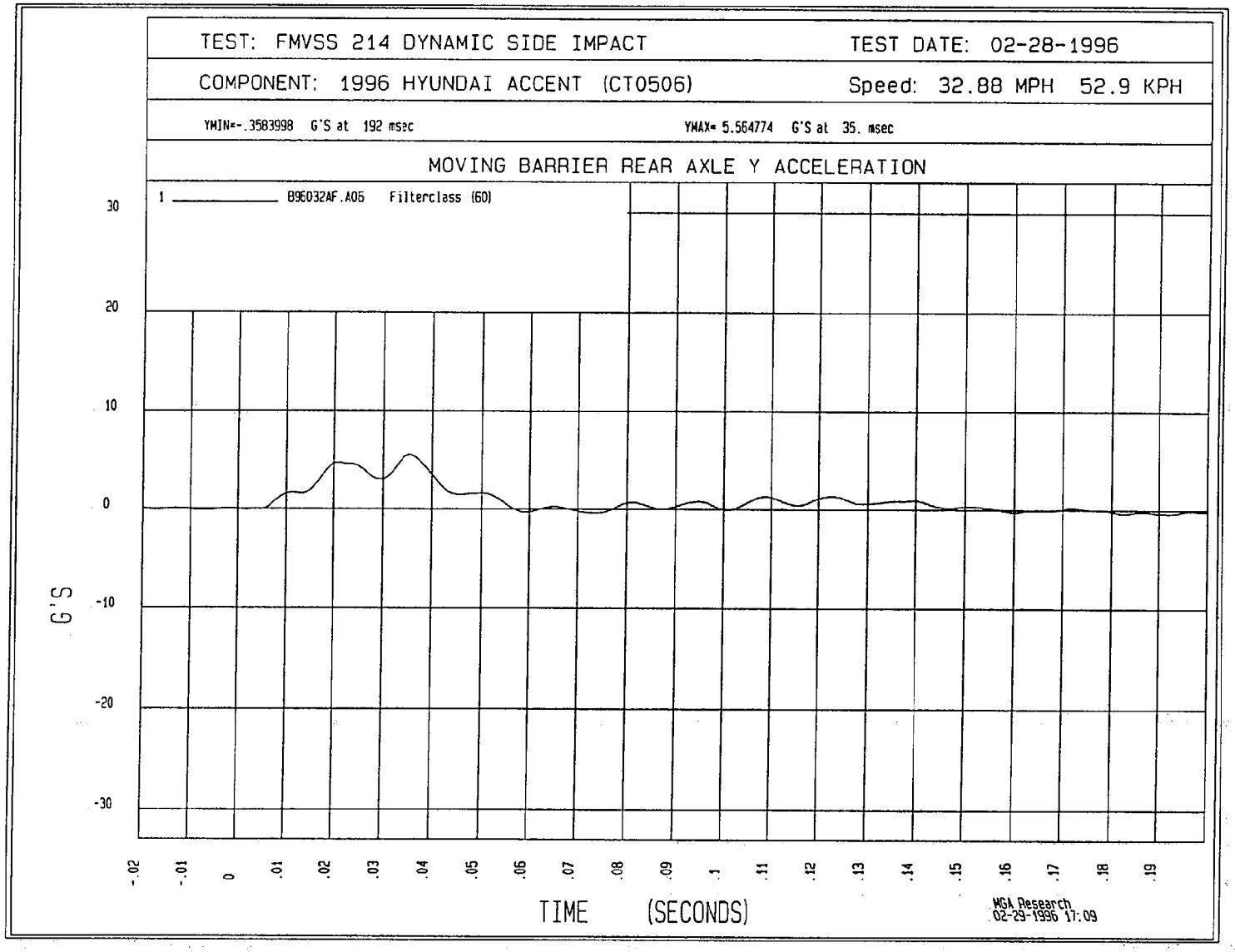
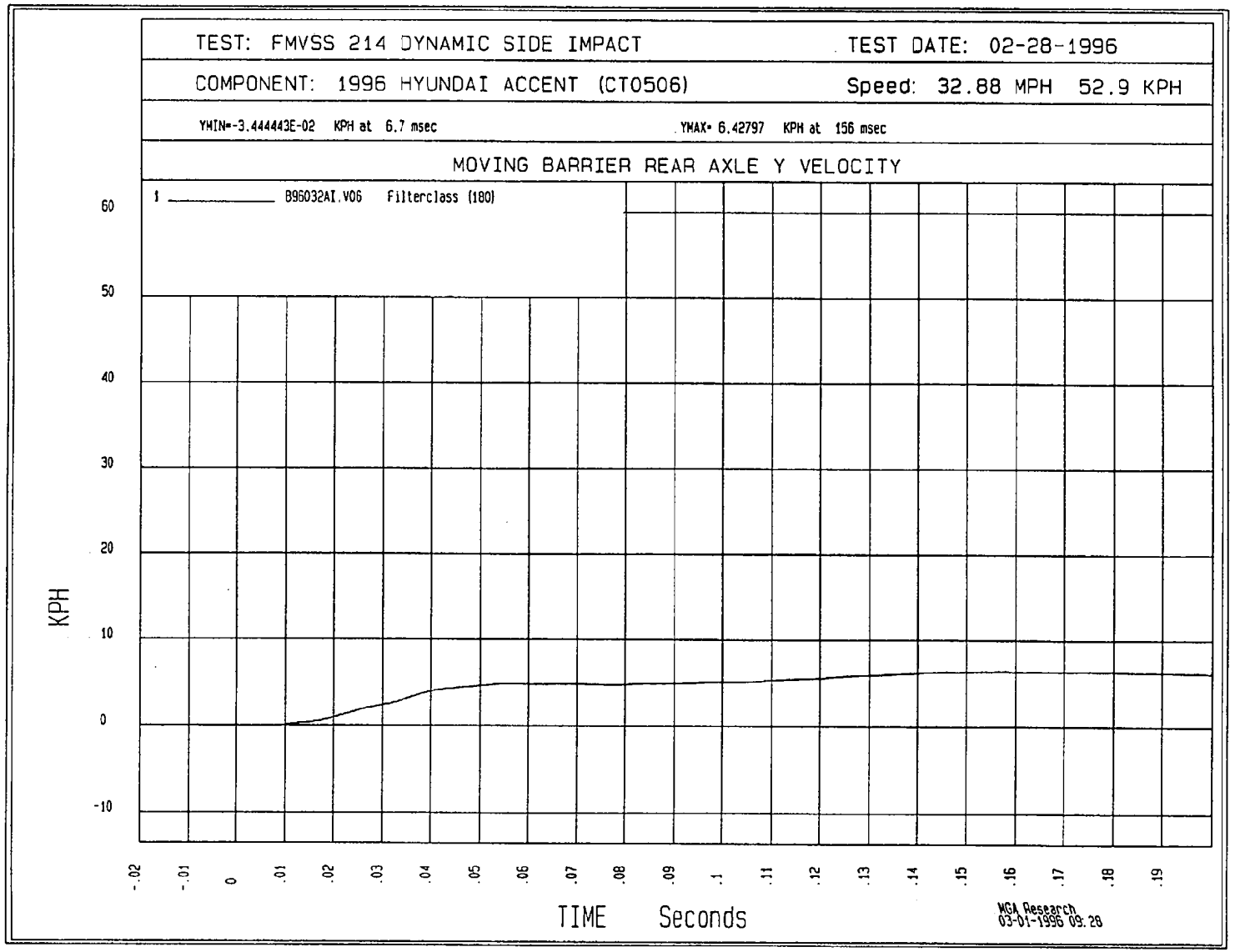
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 17:09


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN= 19.54979 KPH at 85. msec
YMAX= 52.90167 KPH at -6.9 msec
MOVING BARRIER REAR AXLE X VELOCITY
1 _____ 896032AI.V05 Filterclass (180)
KPH
TIME Seconds
MGA Research
03-01-1996 09:28


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-.3583998 G'S at 192 msec
YMAX= 5.564774 G'S at 35. msec
MOVING BARRIER REAR AXLE Y ACCELERATION
1 B9E032AF.A05 Filterclass (60)
30
20
10
0
-10
-20
-30
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 17:09


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-3.444443E-02 KPH at 6.7 msec
YMAX= 6.42797 KPH at 156 msec
MOVING BARRIER REAR AXLE Y VELOCITY
1 B96032AI.V06 Filterclass (180)
KPH
60
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
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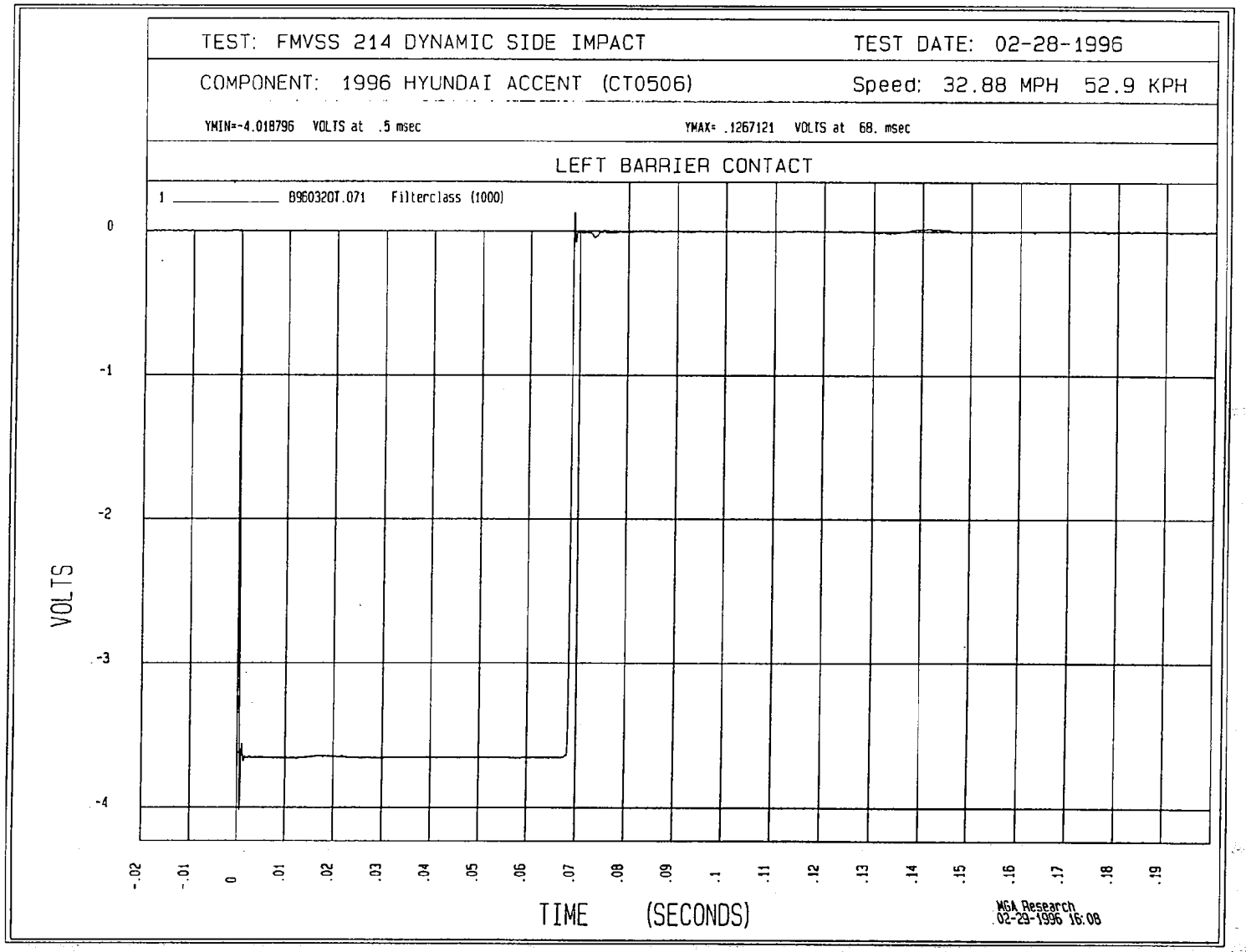
TIME Seconds
MGA Research
03-01-1996 09:28


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-4.018796 VOLTS at .5 msec
YMAX= .1267121 VOLTS at 68. msec
LEFT BARRIER CONTACT
1 B960320T.071 Filterclass (1000)
VOLTS
0
-1
-2
-3
-4
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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.13
.14
.15
.16
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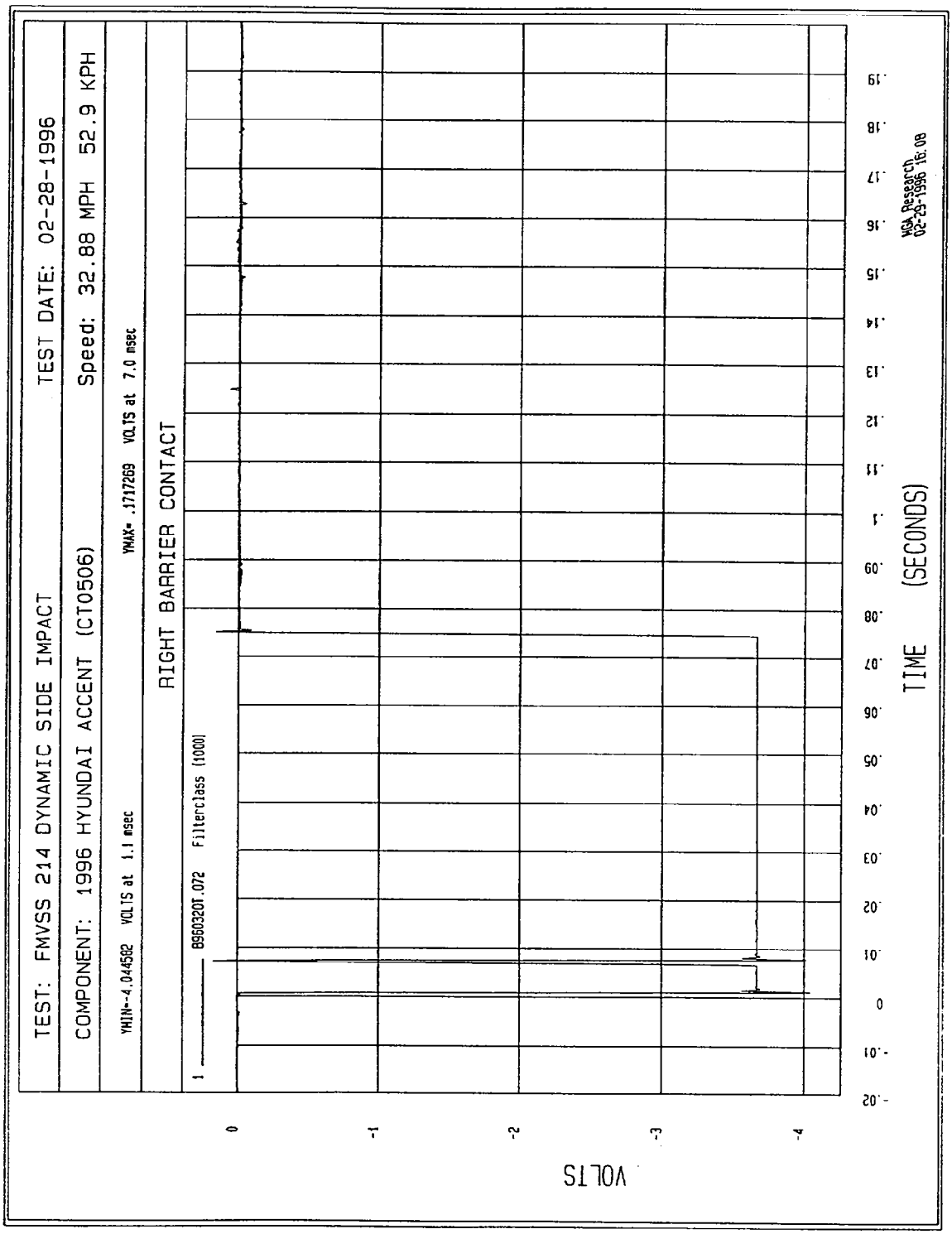
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 16:08


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-4.044582 VOLTS at 1.1 msec
YMAX= .1717269 VOLTS at 7.0 msec
RIGHT BARRIER CONTACT
1 B960320F.072 Filterclass (1000)
VOLTS
0
-1
-2
-3
-4
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
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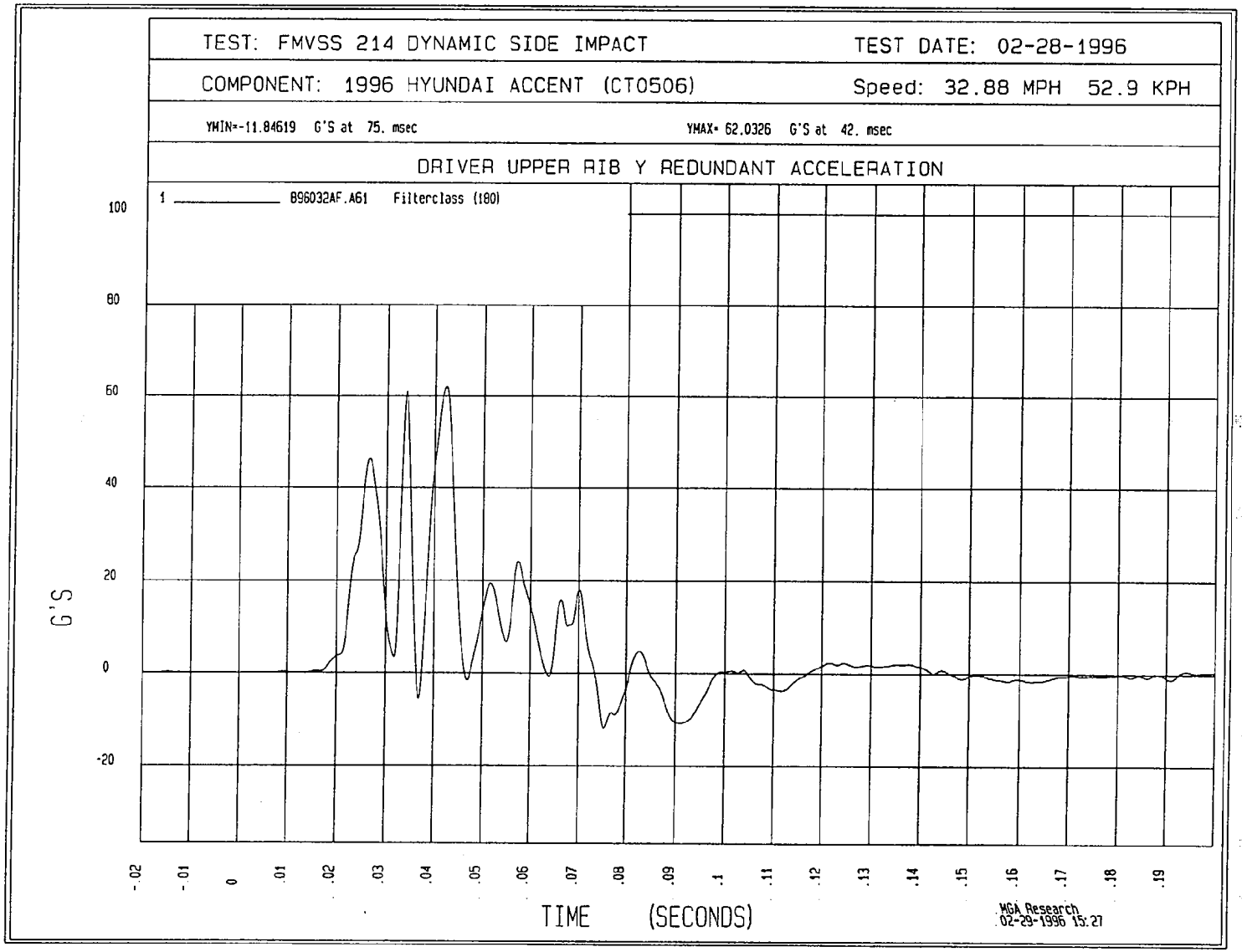
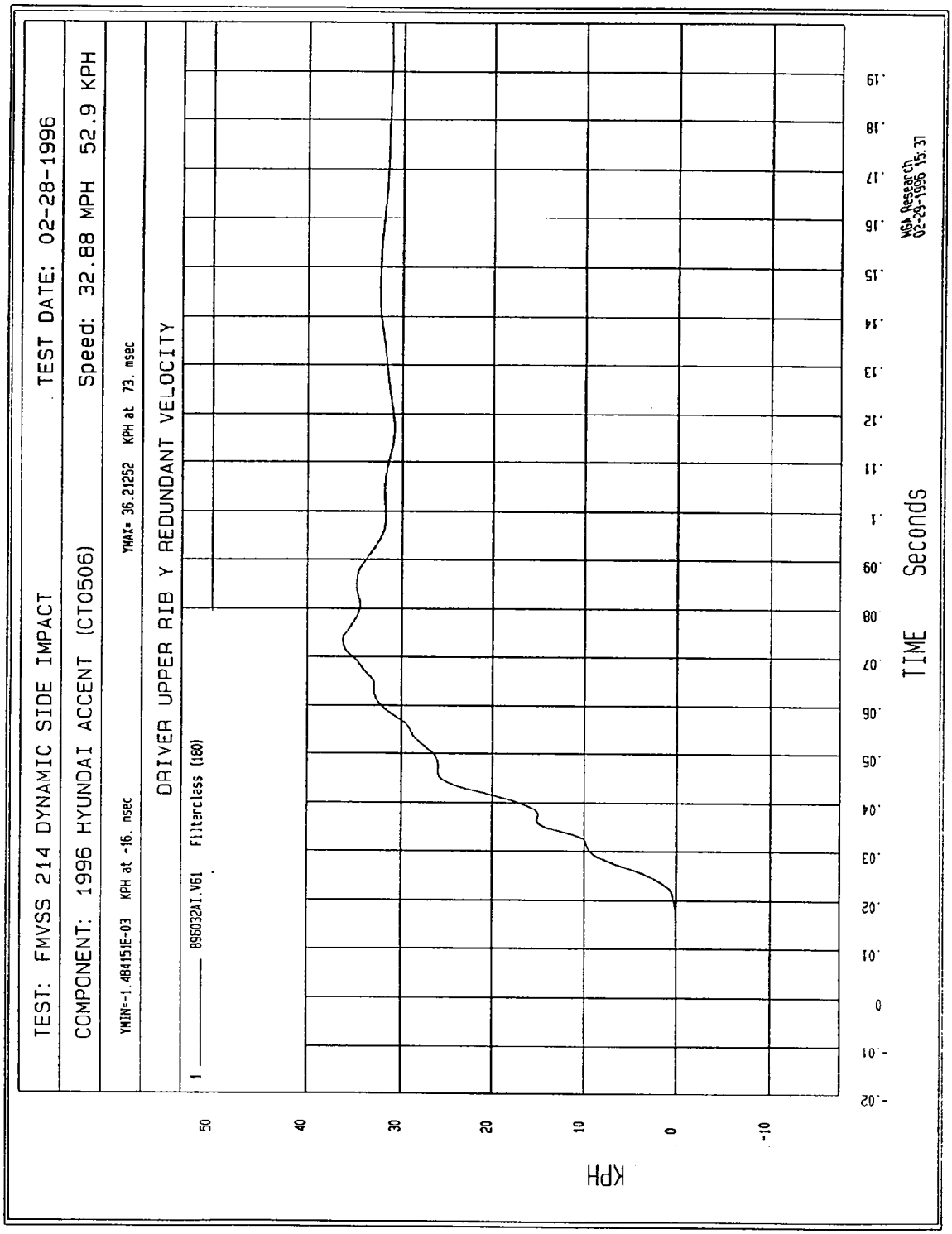
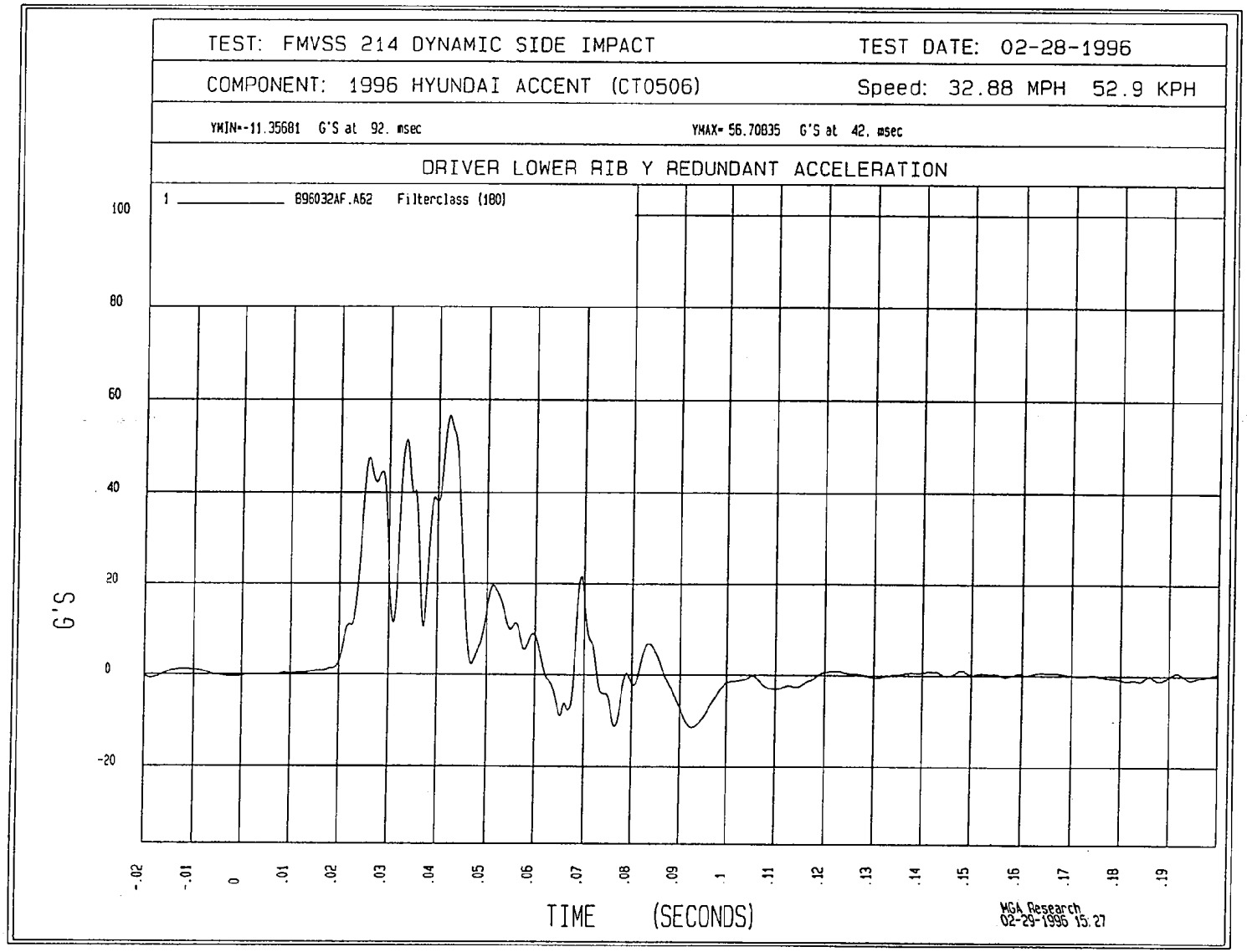
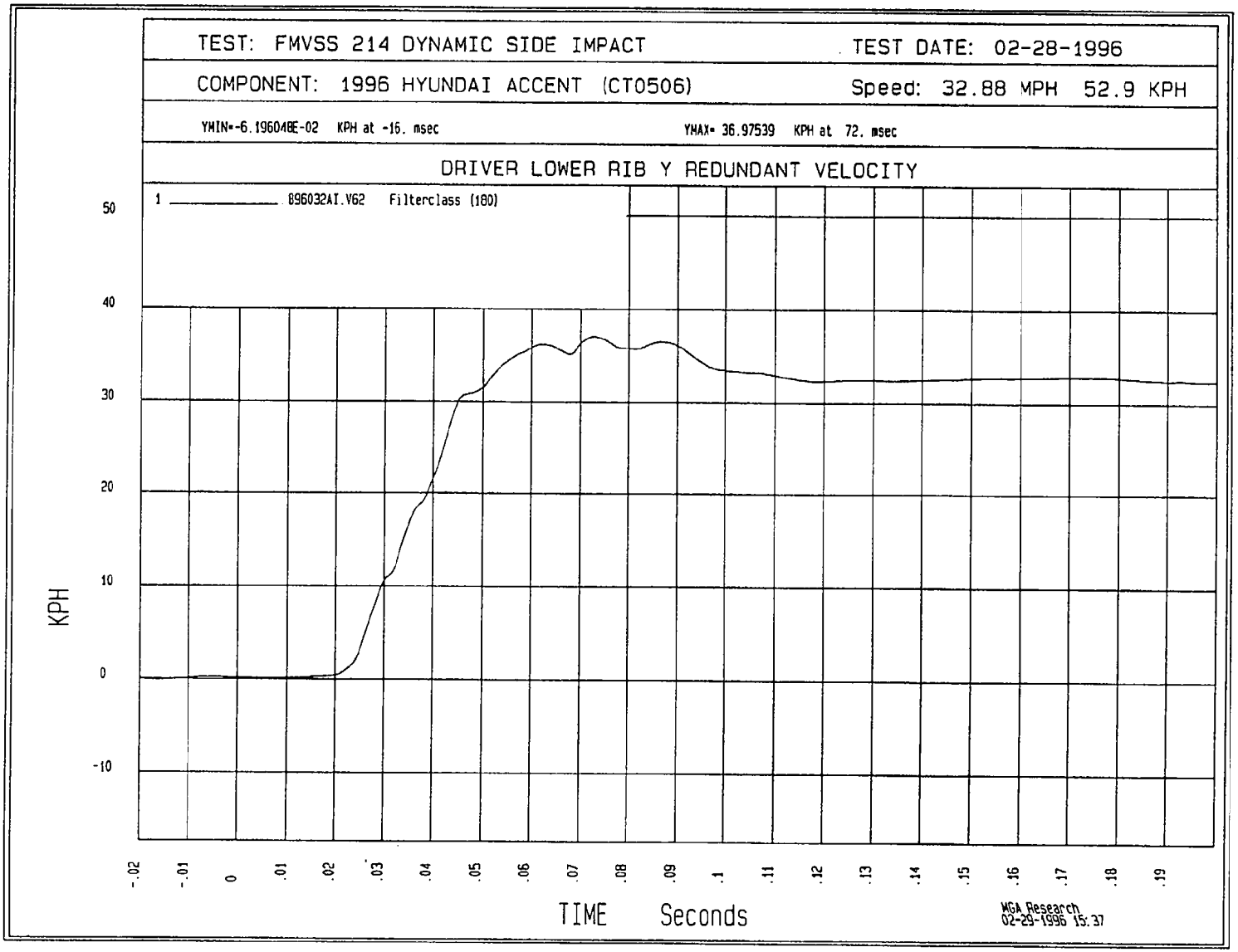
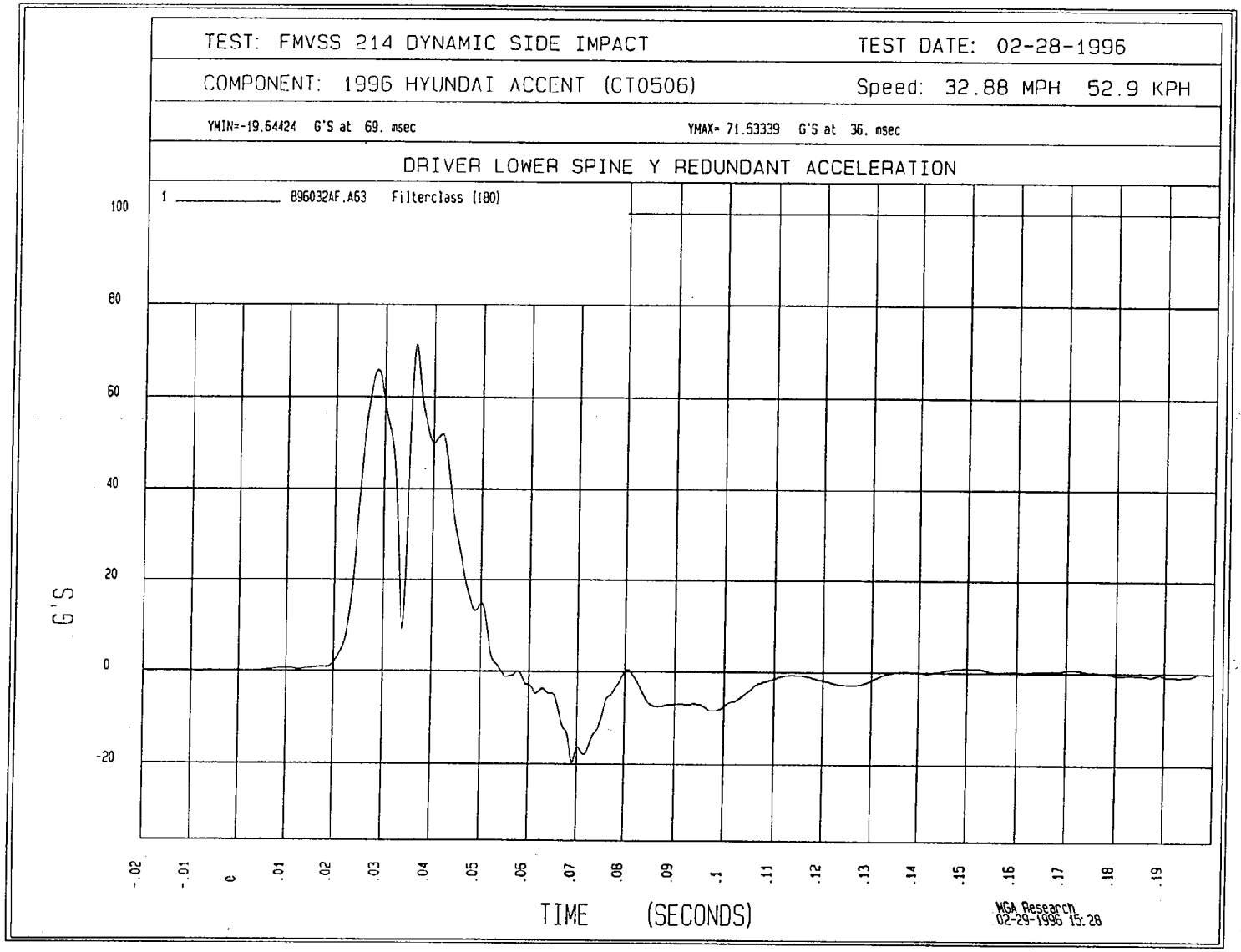
.19
MGA Research
02-29-1996 16:08

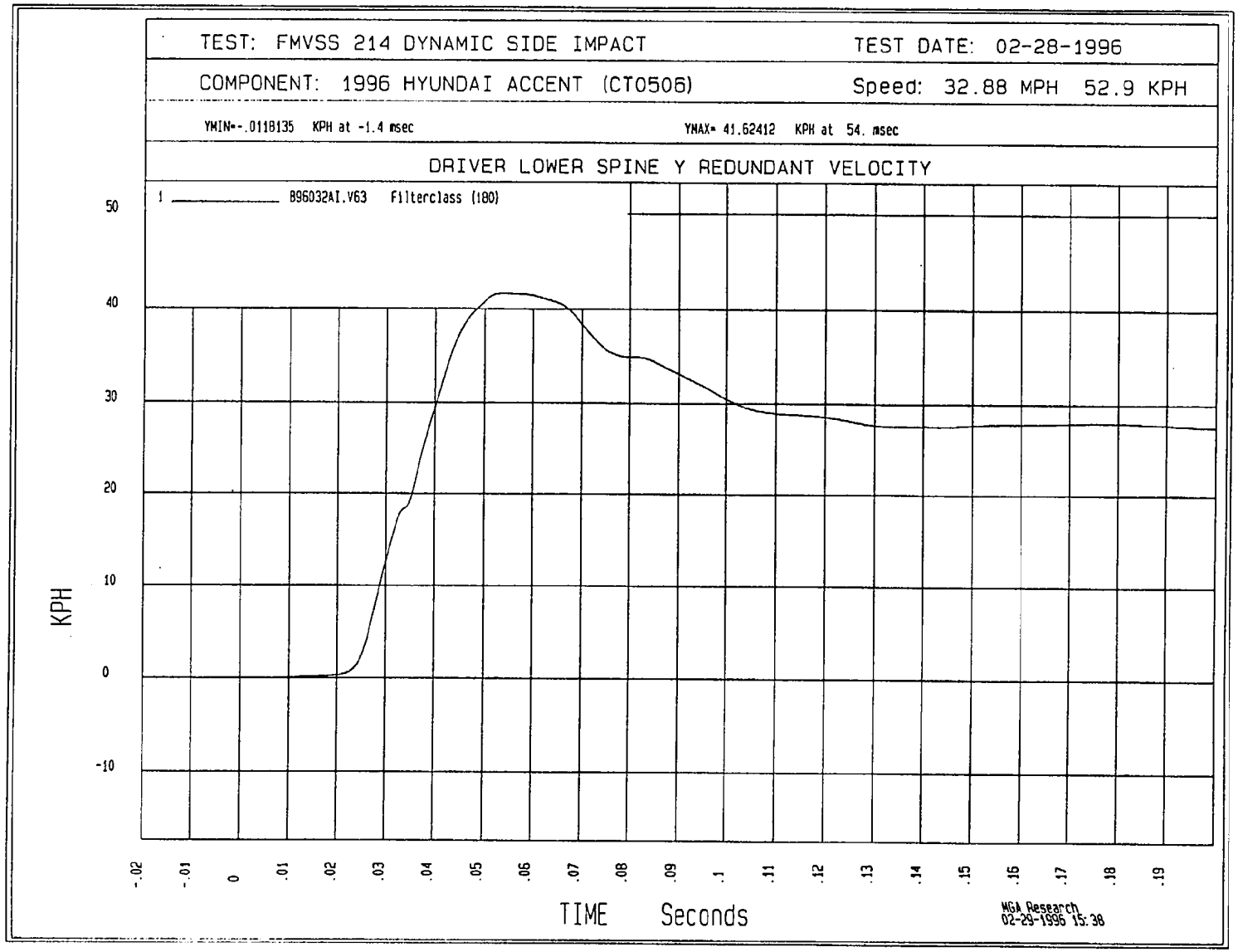

TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-11.84619 G'S at 75. msec
YMAX= 62.0326 G'S at 42. msec
DRIVER UPPER RIB Y REDUNDANT ACCELERATION
1 B96032AF.A61 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:27


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.4B4151E-03 KPH at -16. msec
YMAX= 36.21252 KPH at 73. msec
DRIVER UPPER RIB Y REDUNDANT VELOCITY
1 ——— 896032AI.V61 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
02-29-1996 15:31


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-11.35681 G'S at 92. msec
YMAX= 56.70835 G'S at 42. msec
DRIVER LOWER RIB Y REDUNDANT ACCELERATION
1 B96032AF.A62 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:27


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-6.196048E-02 KPH at -16. msec
YMAX= 36.97539 KPH at 72. msec
DRIVER LOWER RIB Y REDUNDANT VELOCITY
1 896032AI.V62 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
02-29-1996 15:37


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-19.64424 G'S at 69. msec
YMAX= 71.53339 G'S at 36. msec
DRIVER LOWER SPINE Y REDUNDANT ACCELERATION
1 ——— 896032AF.A63 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:28


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-.0118135 KPH at -1.4 msec
YMAX= 41.62412 KPH at 54. msec
DRIVER LOWER SPINE Y REDUNDANT VELOCITY
1 B96032AI.V63 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
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.07
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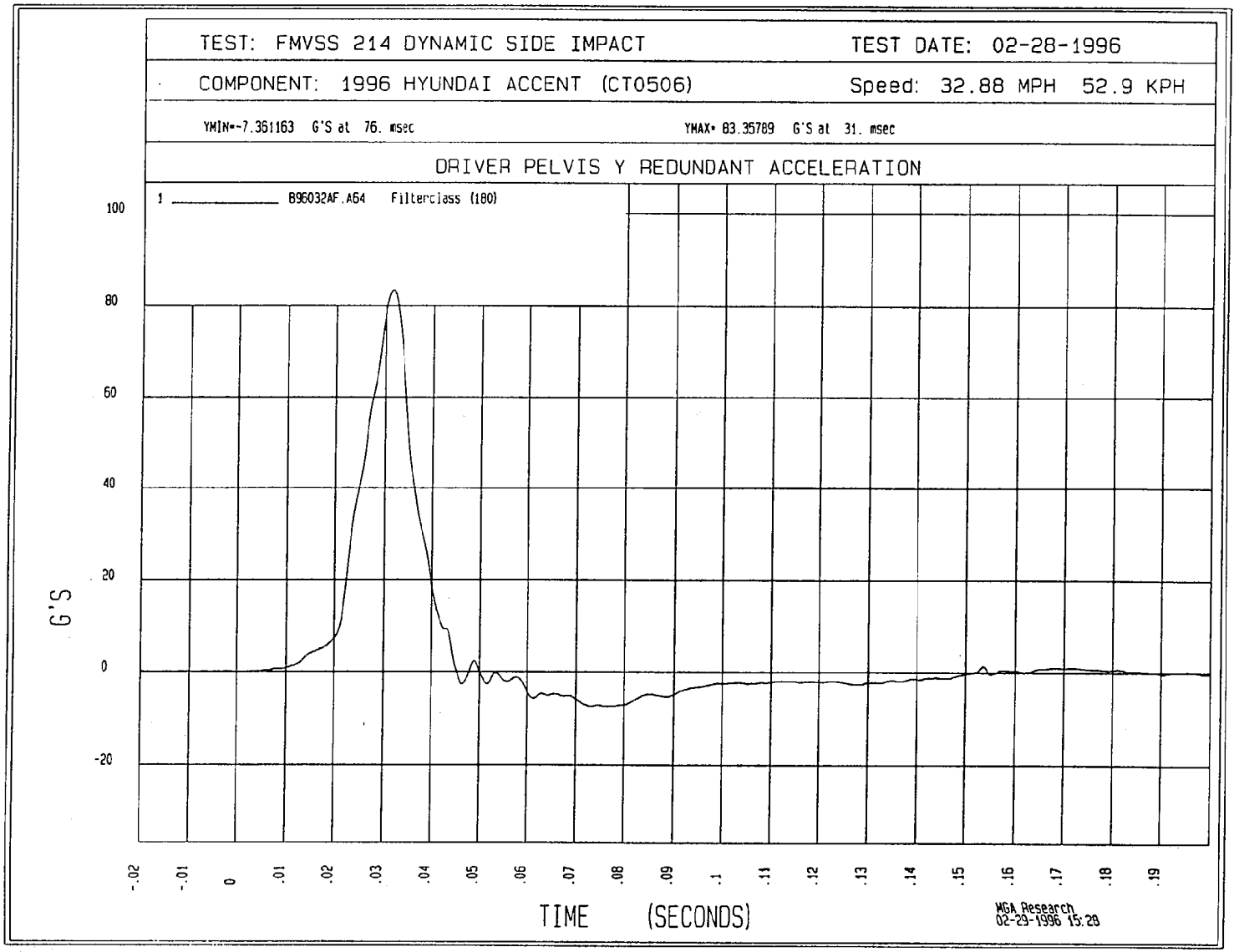
.18
.19
TIME Seconds
MGA Research
02-29-1996 15:38


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-7.361163 G'S at 76. msec
YMAX= 83.35789 G'S at 31. msec
DRIVER PELVIS Y REDUNDANT ACCELERATION
1 B96032AF.A64 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
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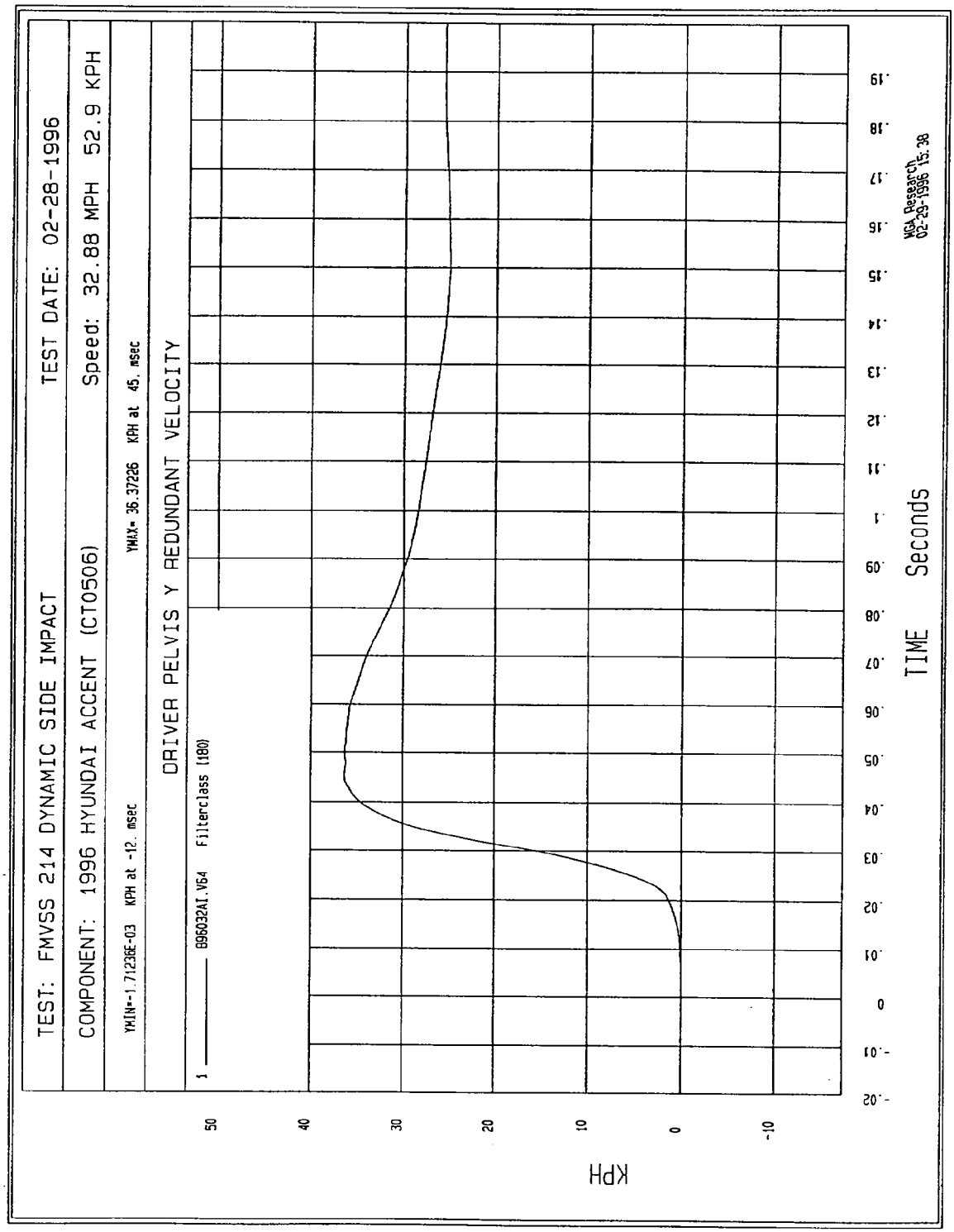
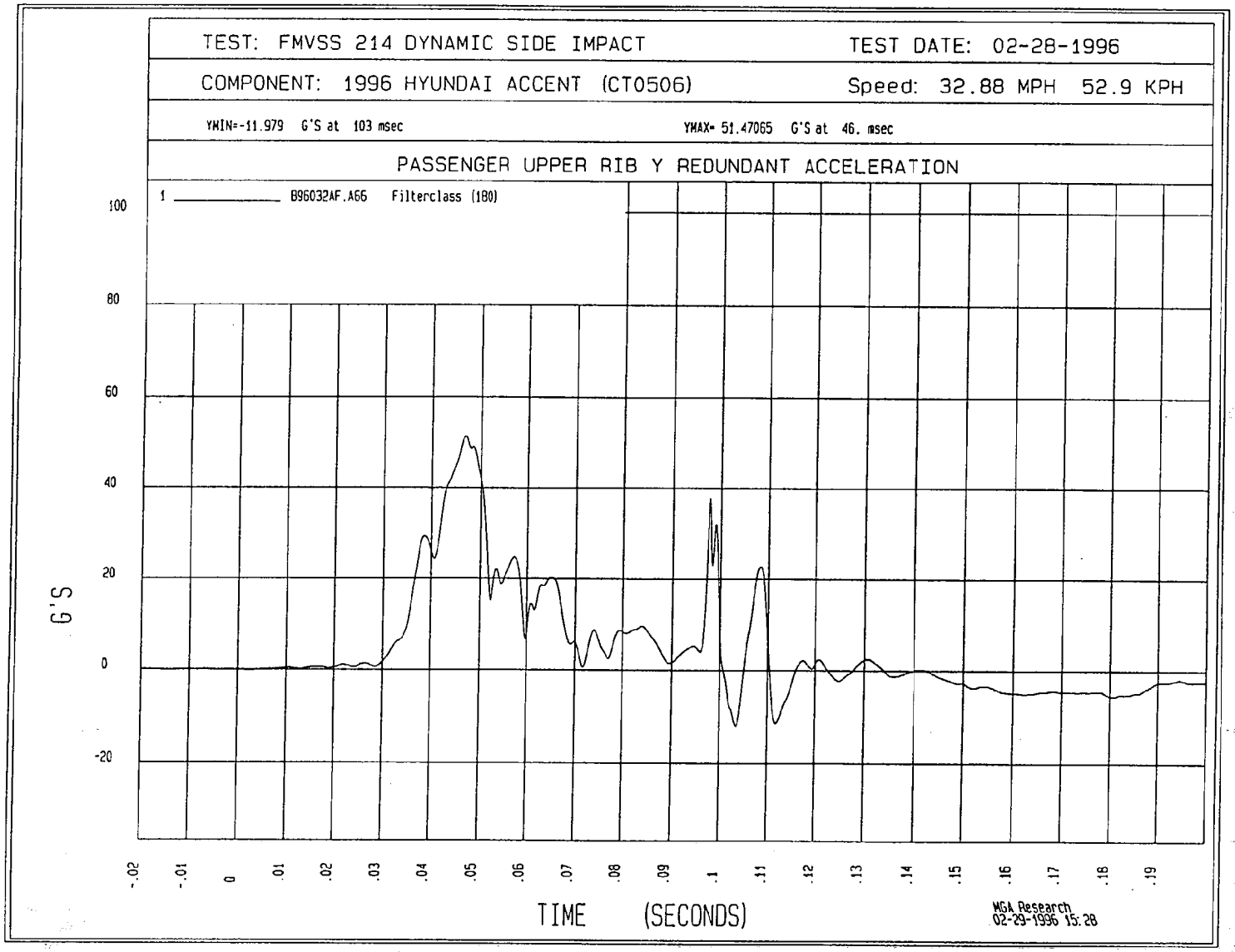
TIME (SECONDS)
MGA Research
02-29-1996 15:28


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.71236E-03 KPH at -12. msec
YMAX= 36.37226 KPH at 45. msec
DRIVER PELVIS Y REDUNDANT VELOCITY
1 ——— 896032AI.VG4 Filterclass (180)
KPH
TIME Seconds
MGA Research
02-28-1996 15:38


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-11.979 G'S at 103 msec
YMAX= 51.47065 G'S at 46. msec
PASSENGER UPPER RIB Y REDUNDANT ACCELERATION
1 B96032AF.A66 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
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.09
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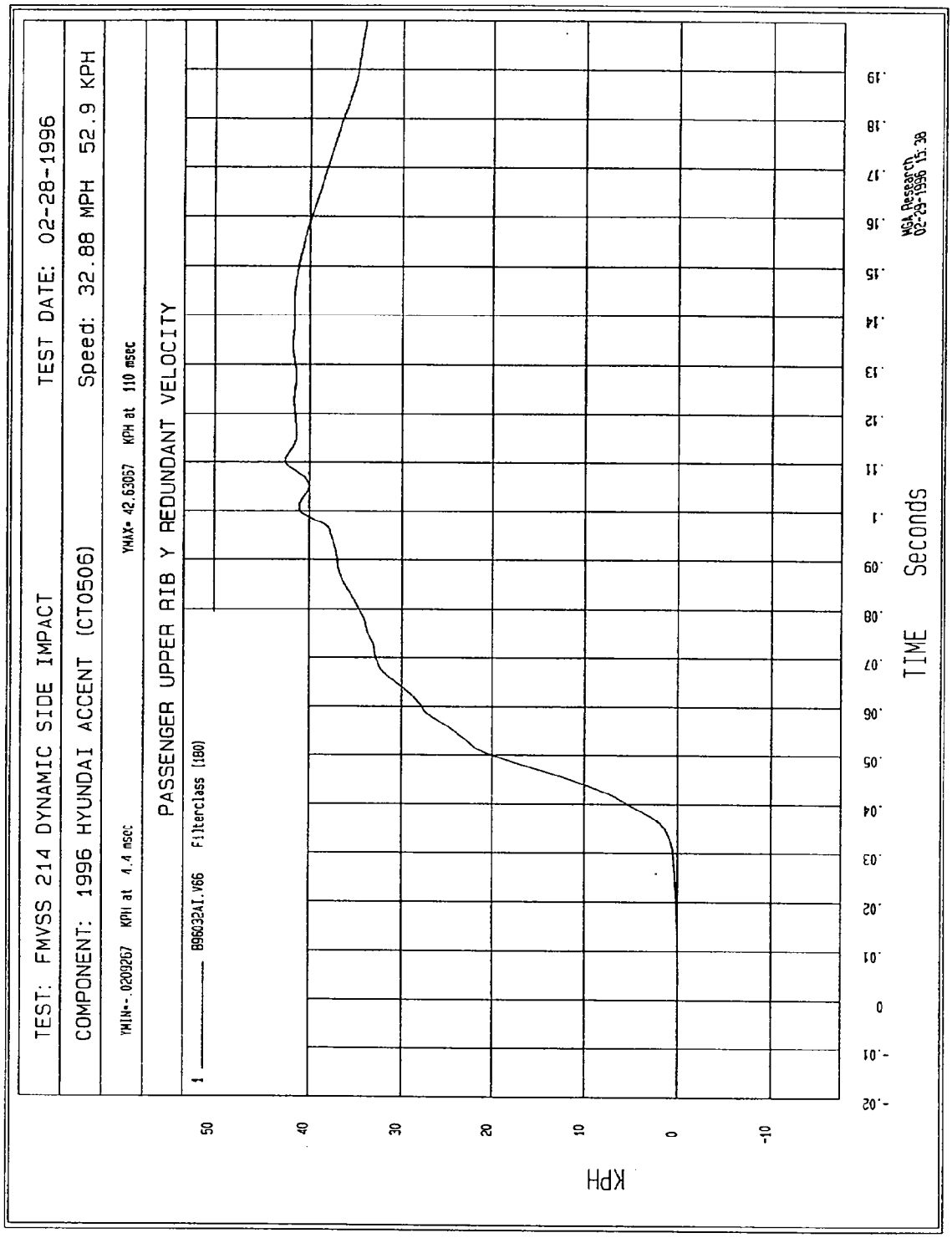
TIME (SECONDS)
MGA Research
02-29-1996 15:28


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-.0209267 KPH at 4.4 msec
YMAX= 42.63057 KPH at 110 msec
PASSENGER UPPER RIB Y REDUNDANT VELOCITY
1 B96032AI.V66 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
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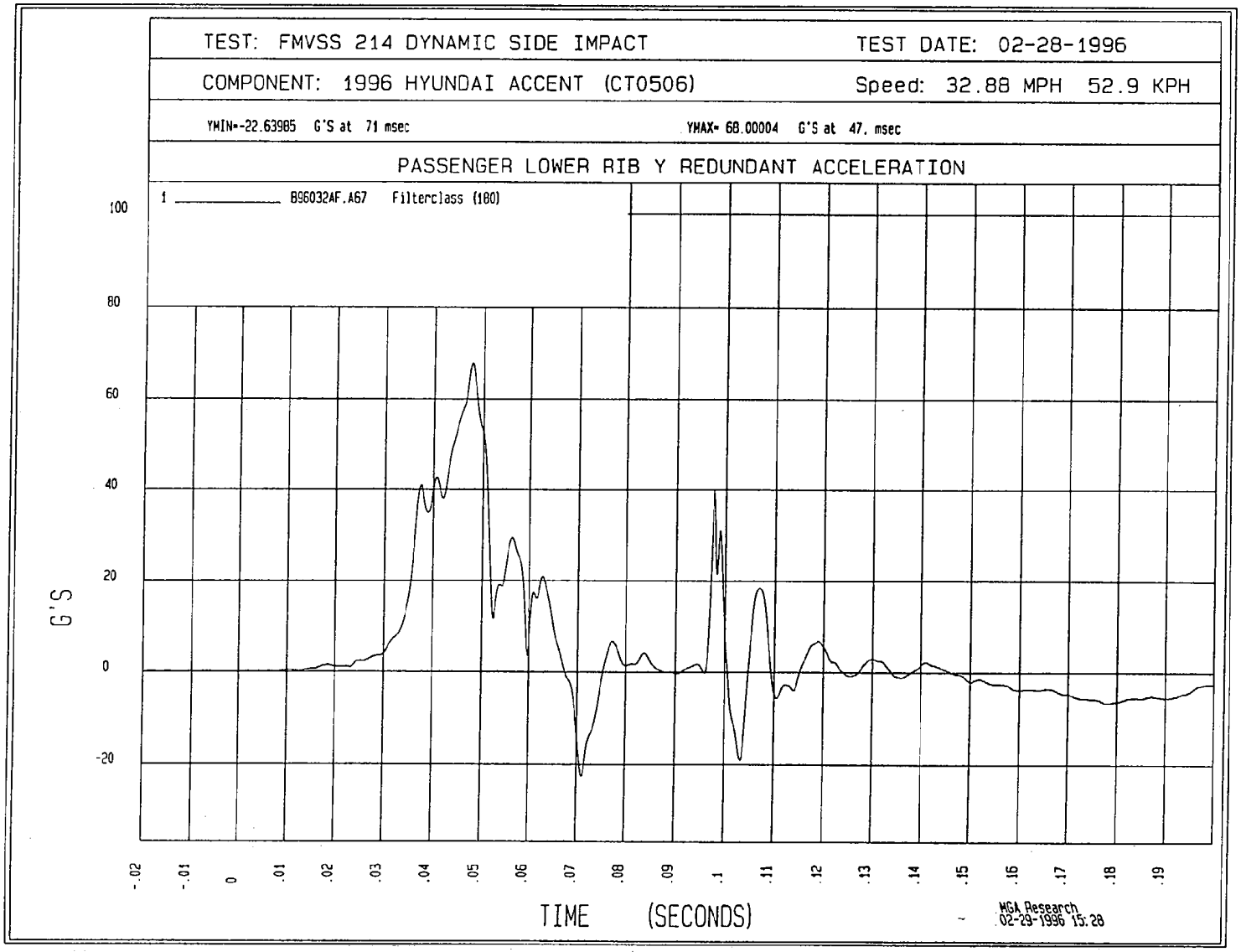
TIME Seconds
MGA Research
02-29-1996 15:38


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-22.63985 G'S at 71 msec
YMAX= 68.00004 G'S at 47. msec
PASSENGER LOWER RIB Y REDUNDANT ACCELERATION
1 B96032AF.A67 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
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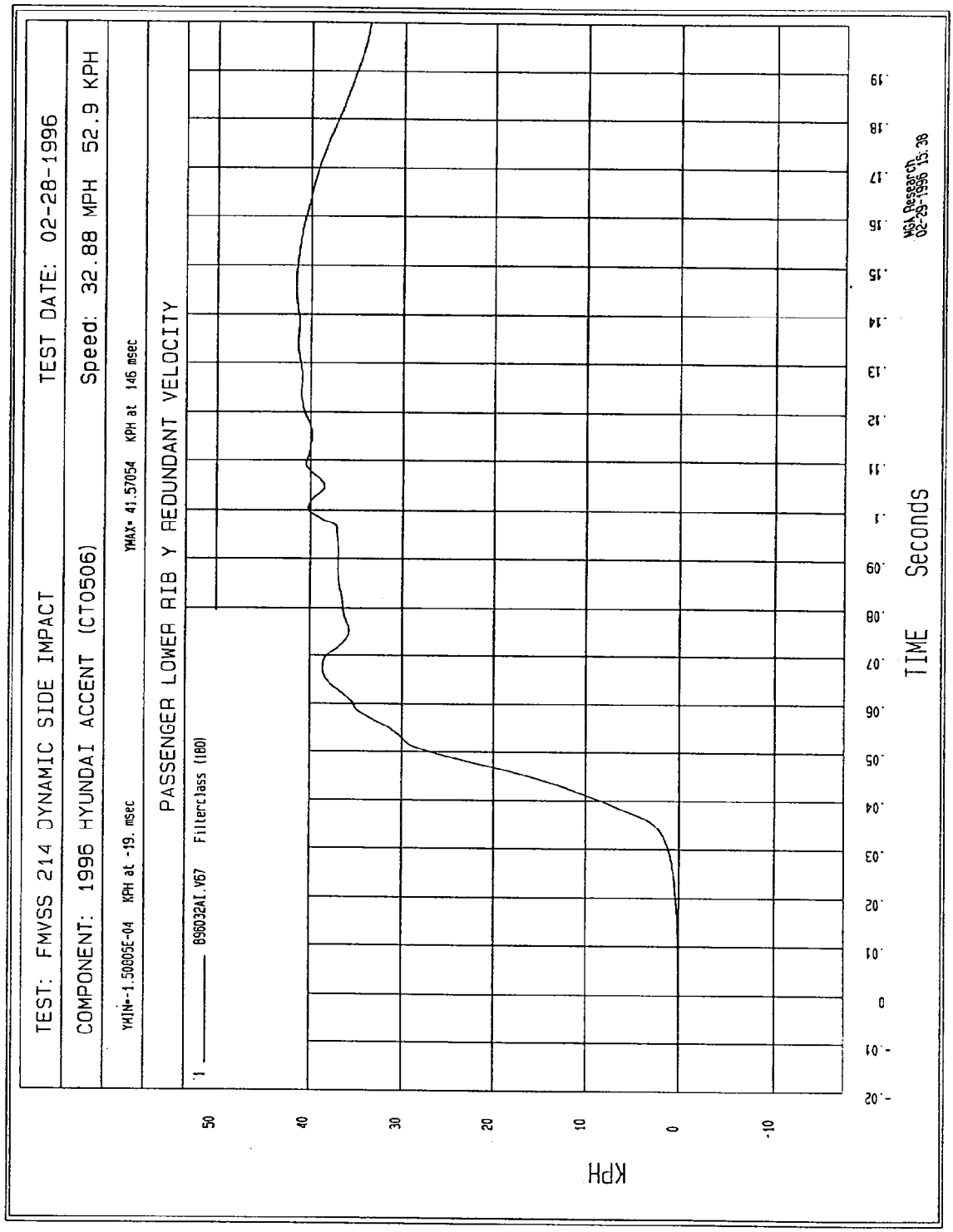
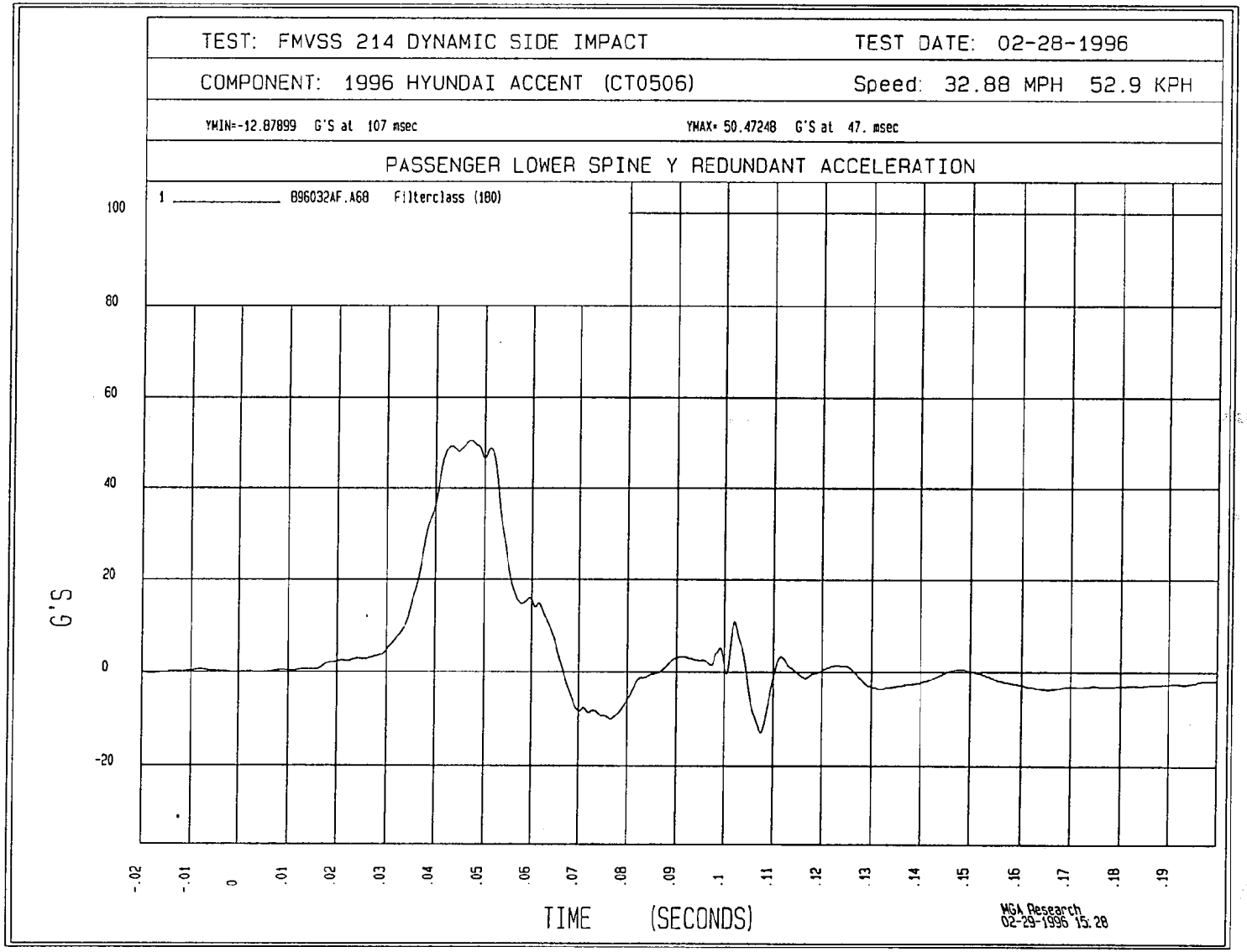
TIME (SECONDS)
MGA Research
02-29-1996 15:28


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-1.508055-04 KPH at -19. msec
YMAX= 41.57054 KPH at 146 msec
PASSENGER LOWER RIB Y REDUNDANT VELOCITY
1 _____ 896032AI.V67 Filterclass (180)
KPH
TIME Seconds
MGA Research
02-29-1996 15:38


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-12.87899 G'S at 107 msec
YMAX= 50.47248 G'S at 47. msec
PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION
1 B96032AF.A68 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
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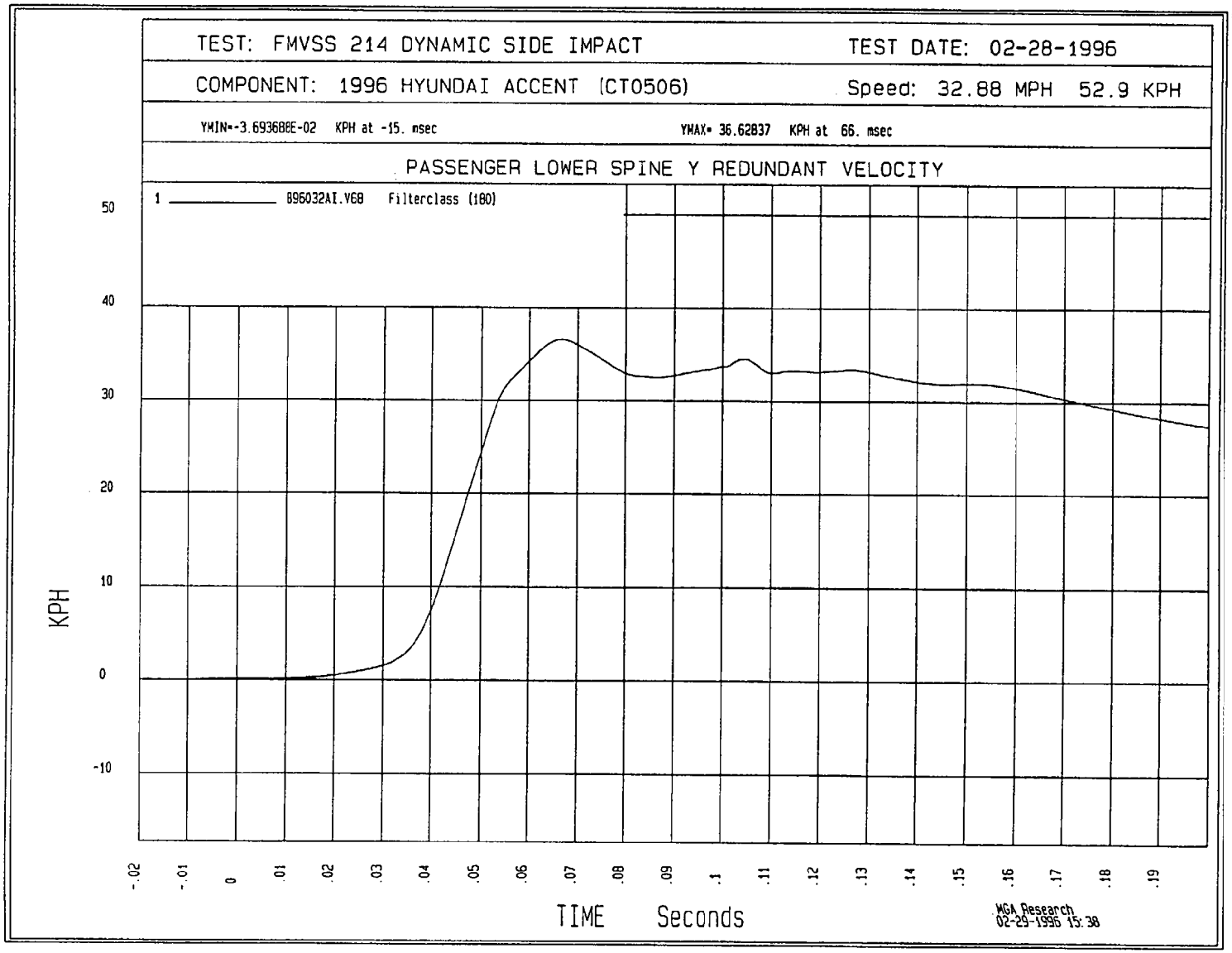
TIME (SECONDS)
MGA Research
02-29-1996 15:28


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-3.693688E-02 KPH at -15. msec
YMAX= 36.62837 KPH at 66. msec
PASSENGER LOWER SPINE Y REDUNDANT VELOCITY
1 B96032AI.V68 Filterclass (180)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
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.07
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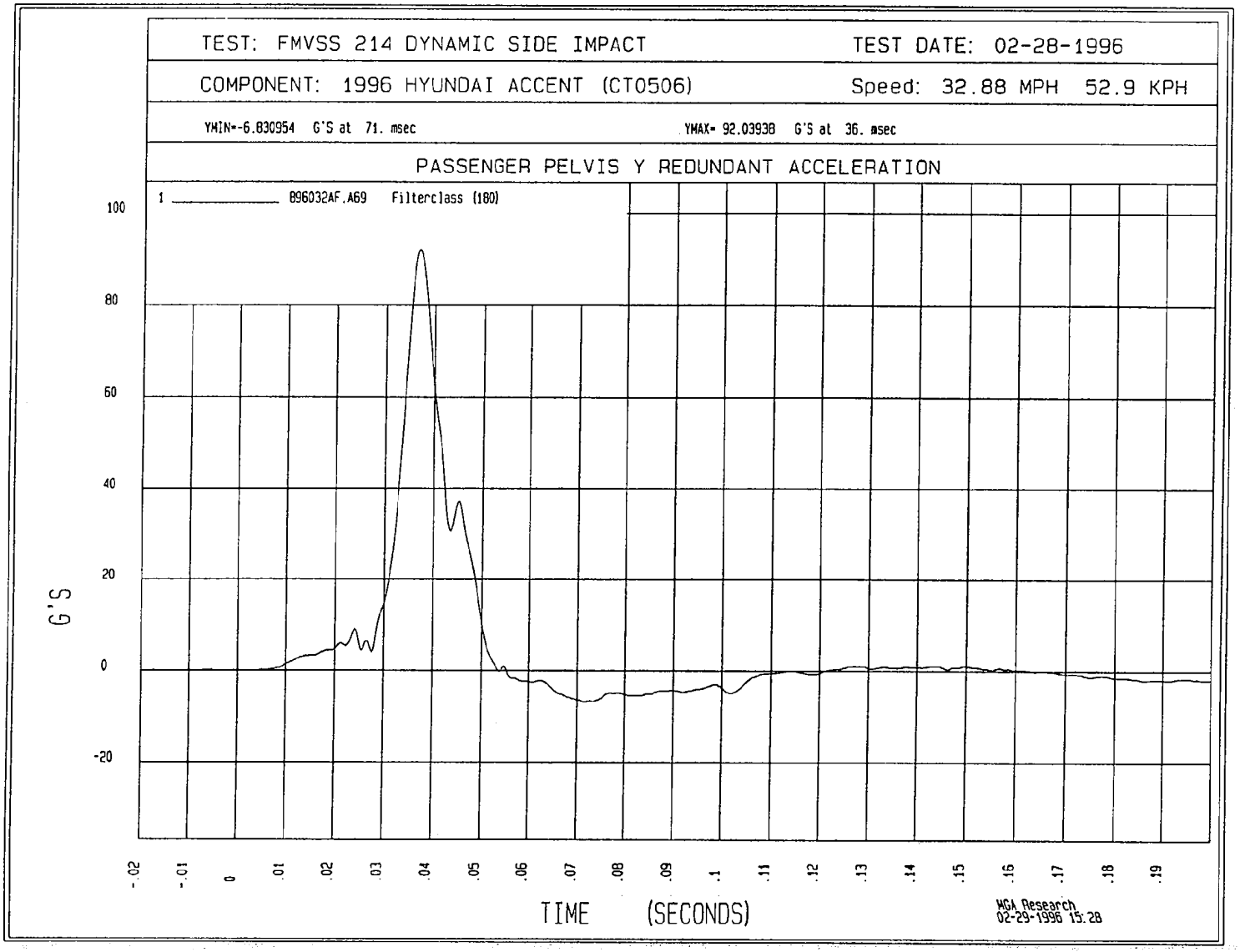
TIME Seconds
MGA Research
02-29-1996 15:38


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-6.830954 G'S at 71. msec
YMAX= 92.03938 G'S at 36. msec
PASSENGER PELVIS Y REDUNDANT ACCELERATION
1 896032AF.A69 Filterclass (180)
100
80
60
40
20
0
-20
G'S
-.02
-.01
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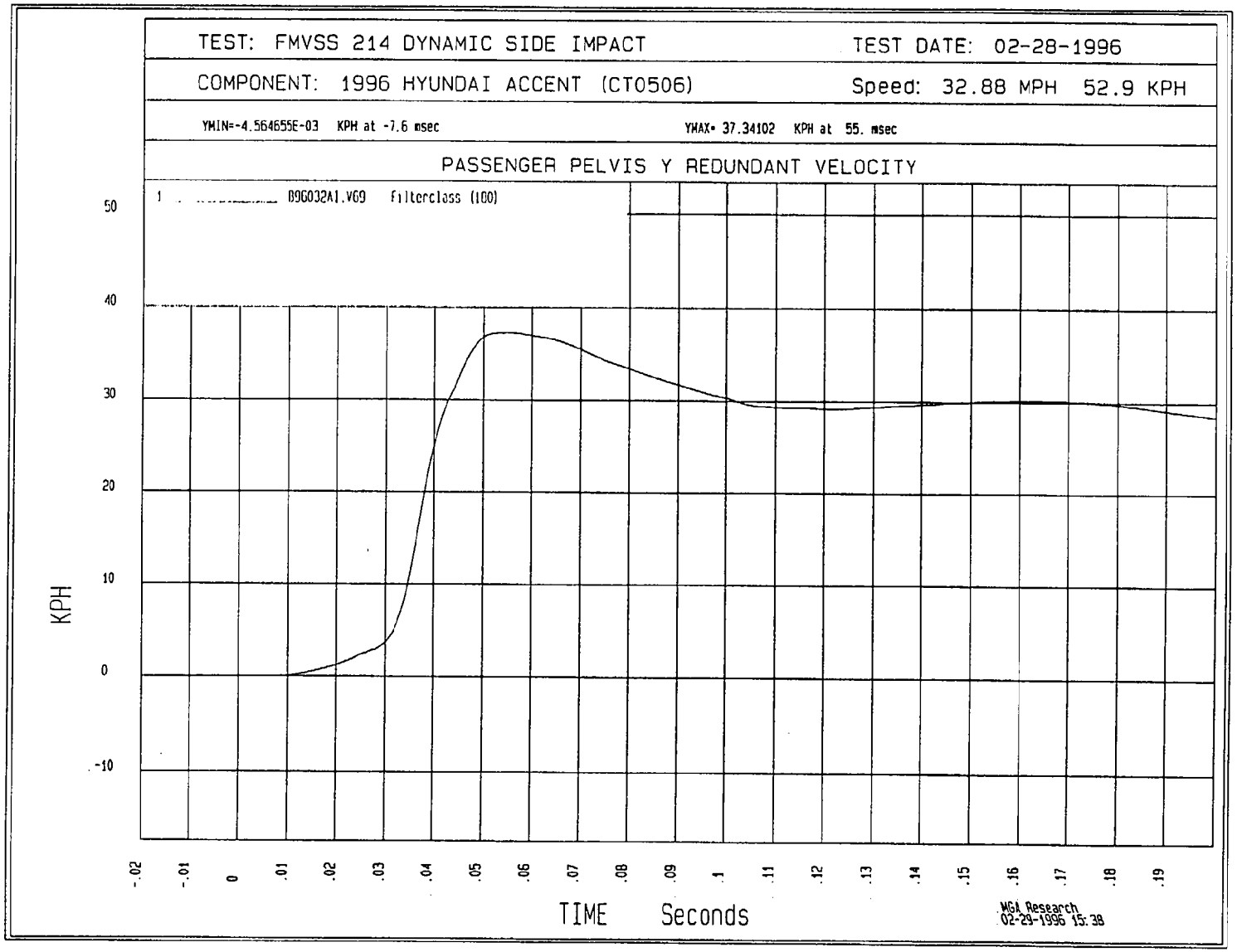
TIME (SECONDS)
MGA Research
02-29-1996 15:28


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-4.564655E-03 KPH at -7.6 msec
YMAX= 37.34102 KPH at 55. msec
PASSENGER PELVIS Y REDUNDANT VELOCITY
1 B96032A1.V69 filterclass (100)
KPH
50
40
30
20
10
0
-10
-.02
-.01
0
.01
.02
.03
.04
.05
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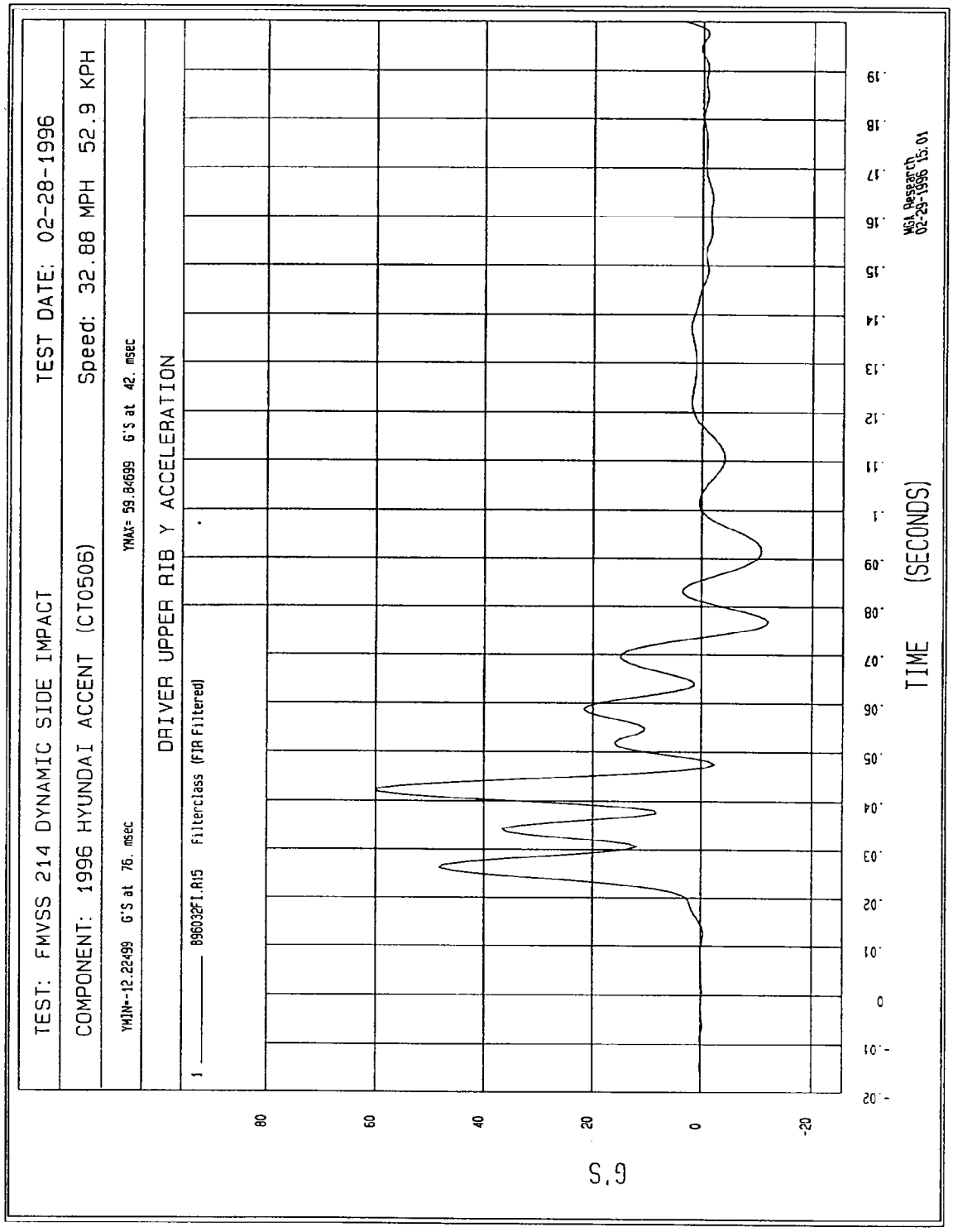
TIME Seconds
MGA Research
02-29-1996 15:38

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-12.22499 G'S at 76. msec
YMAX= 59.84699 G'S at 42. msec
DRIVER UPPER RIB Y ACCELERATION
1 _____ B96032FI.R15 Filterclass (FIA Filtered)
G'S
80
60
40
20
0
-20
.02
.01
0
.01
.02
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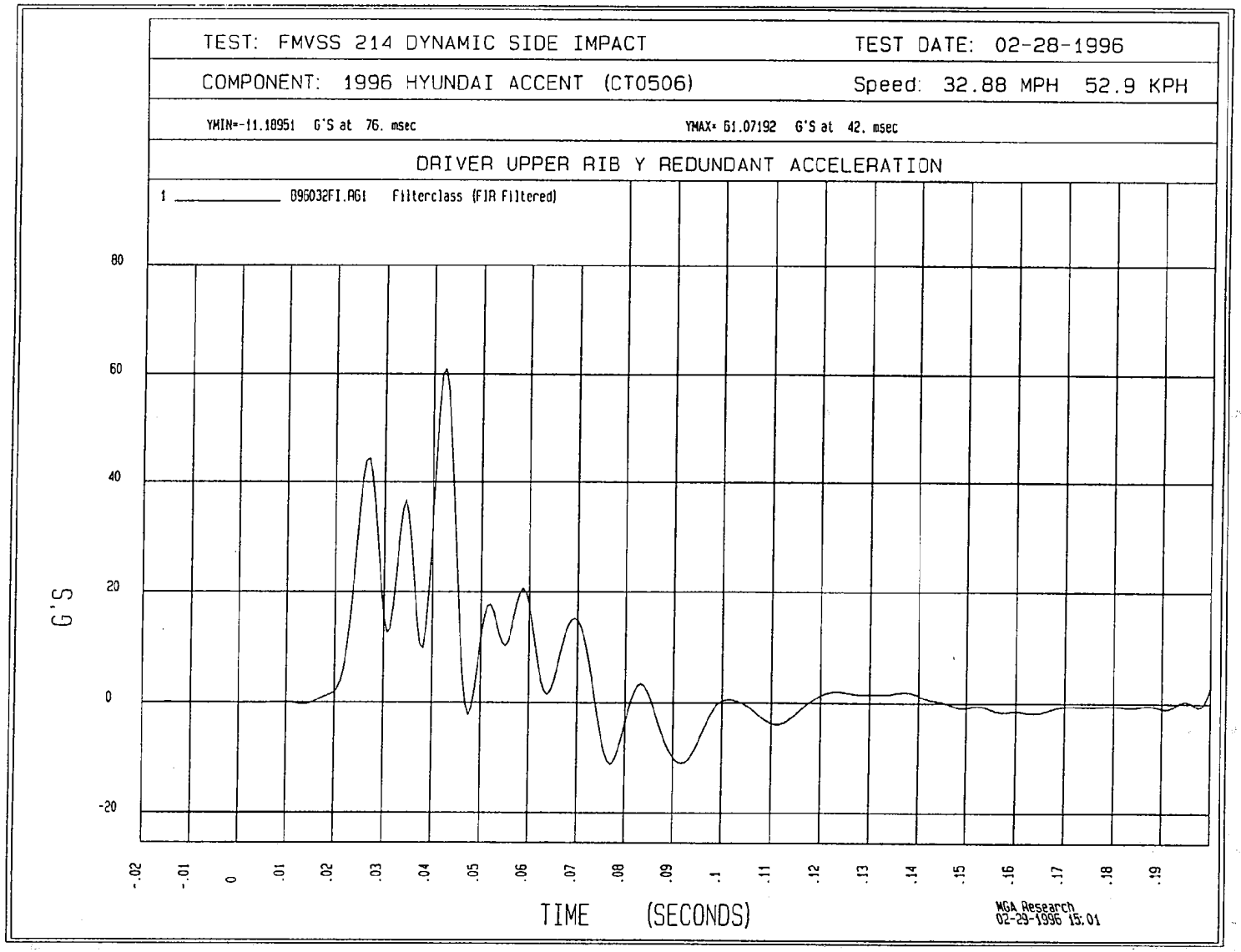
TIME (SECONDS)
MGA Research
02-28-1996 15:01


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-11.18951 G'S at 76. msec
YMAX= 61.07192 G'S at 42. msec
DRIVER UPPER RIB Y REDUNDANT ACCELERATION
1 B96032FI.AG1 Filterclass (FIR Filtered)
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
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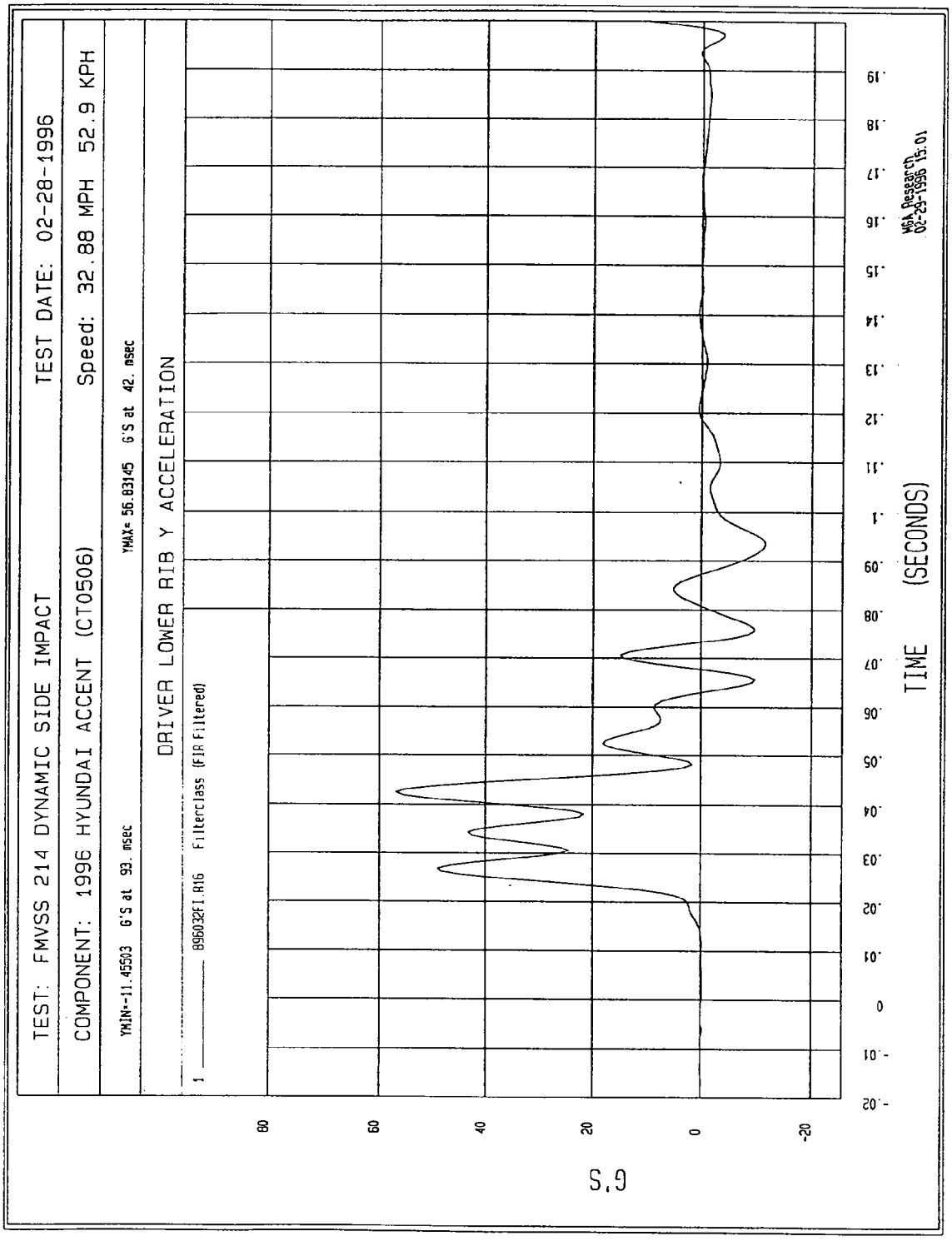
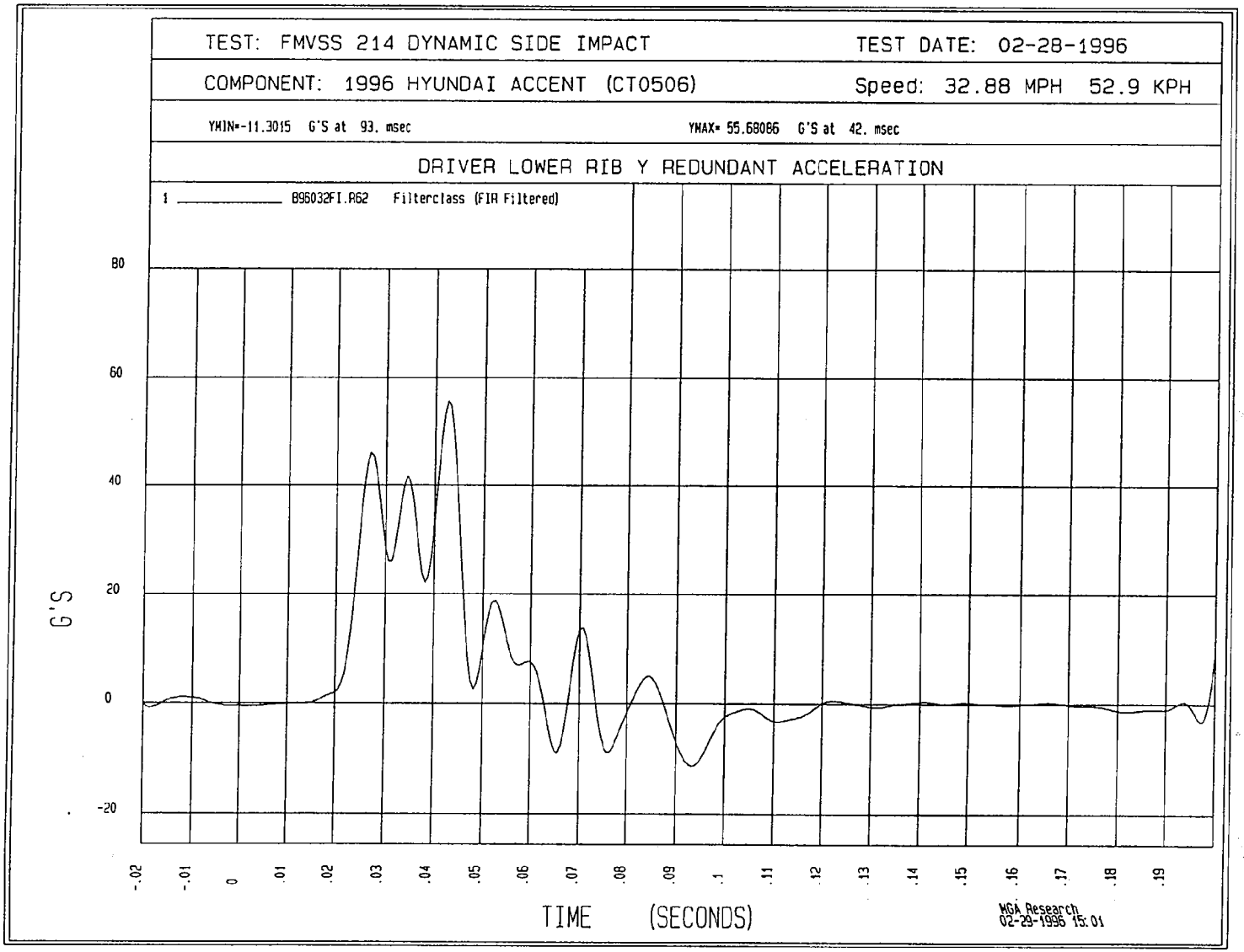
TIME (SECONDS)
MGA Research
02-29-1996 15:01


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-11.45503 G'S at 93. msec
YMAX= 56.83145 G'S at 42. msec
DRIVER LOWER RIB Y ACCELERATION
1 _____ 896032FI.A16 FilterClass (FIR Filtered)
G's
TIME (SECONDS)
MGA Research
02-29-1996 15:01


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-11.3015 G'S at 93. msec
YMAX= 55.68086 G'S at 42. msec
DRIVER LOWER RIB Y REDUNDANT ACCELERATION
1 B96032FI.A62 Filterclass (FIR Filtered)
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
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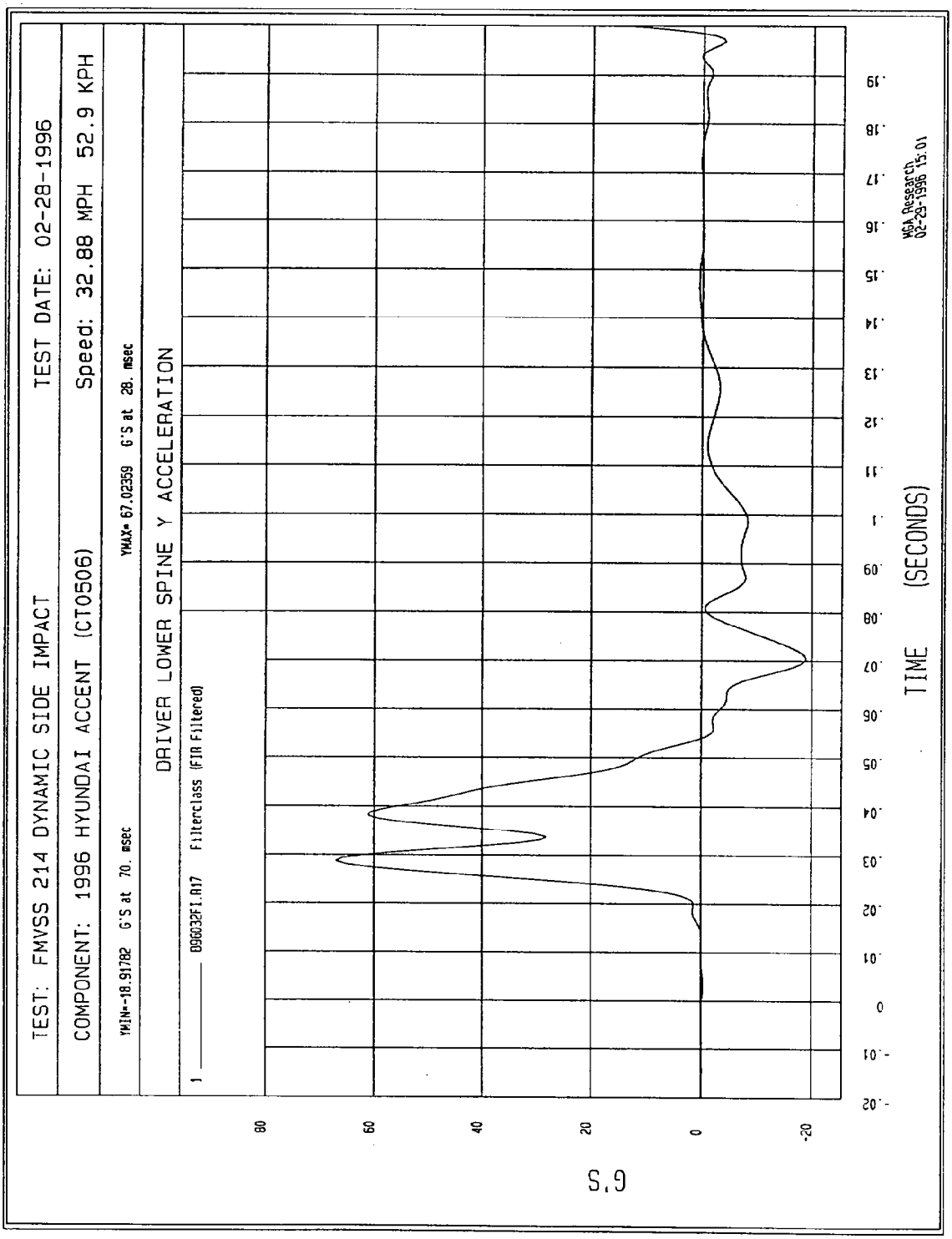
TIME (SECONDS)
MGA Research
02-29-1996 15:01


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-18.91782 G'S at 70. msec
YMAX= 67.02359 G'S at 28. msec
DRIVER LOWER SPINE Y ACCELERATION
1 _____ B9603FI.A17 Filterclass (FIR Filtered)
G'S
80
60
40
20
0
-20
TIME (SECONDS)
.02
-.01
0
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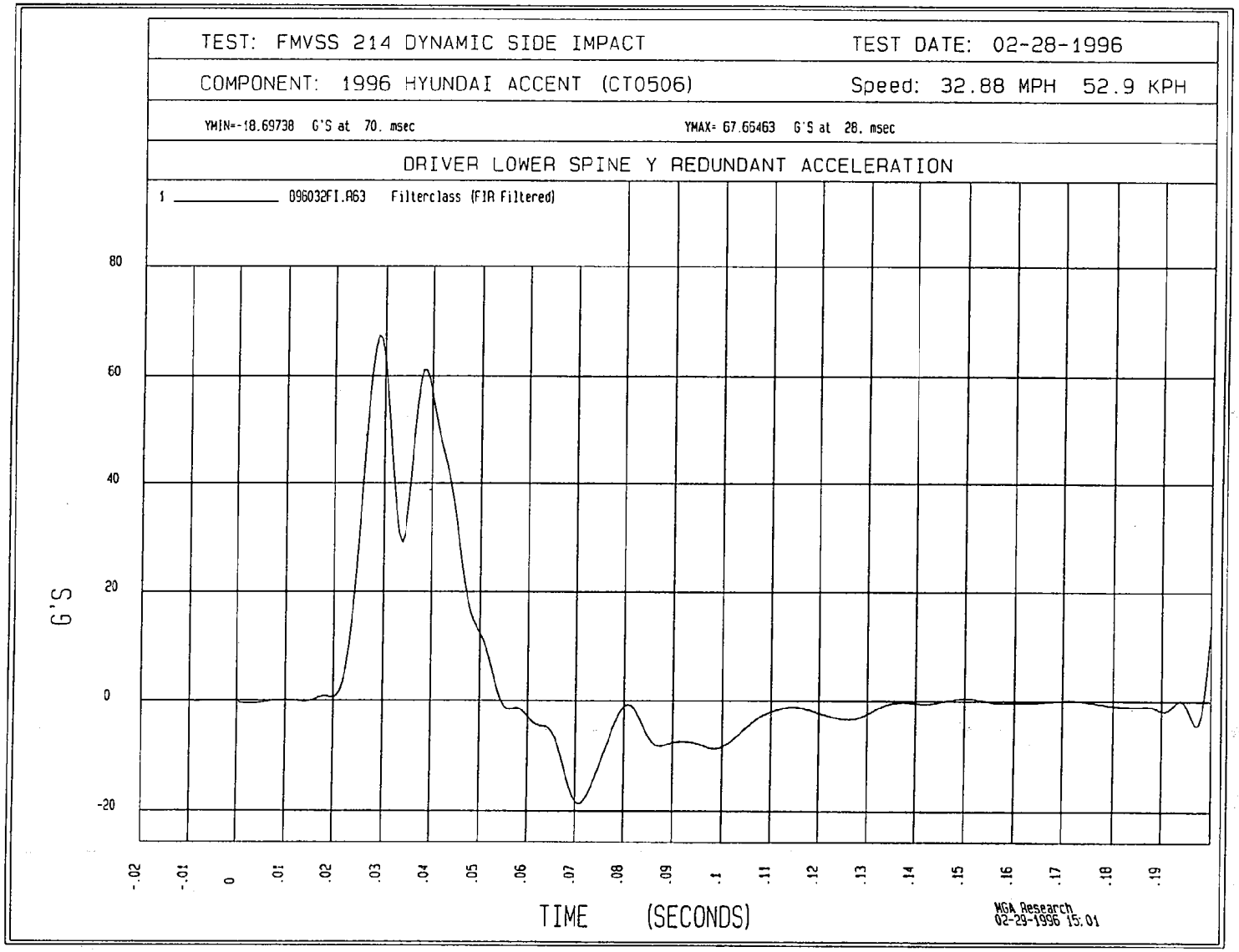
MGA Research
02-29-1996 15:01


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-18.69738 G'S at 70. msec
YMAX= 67.65463 G'S at 28. msec
DRIVER LOWER SPINE Y REDUNDANT ACCELERATION
1 096032FI.A63 Filterclass (FIR Filtered)
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
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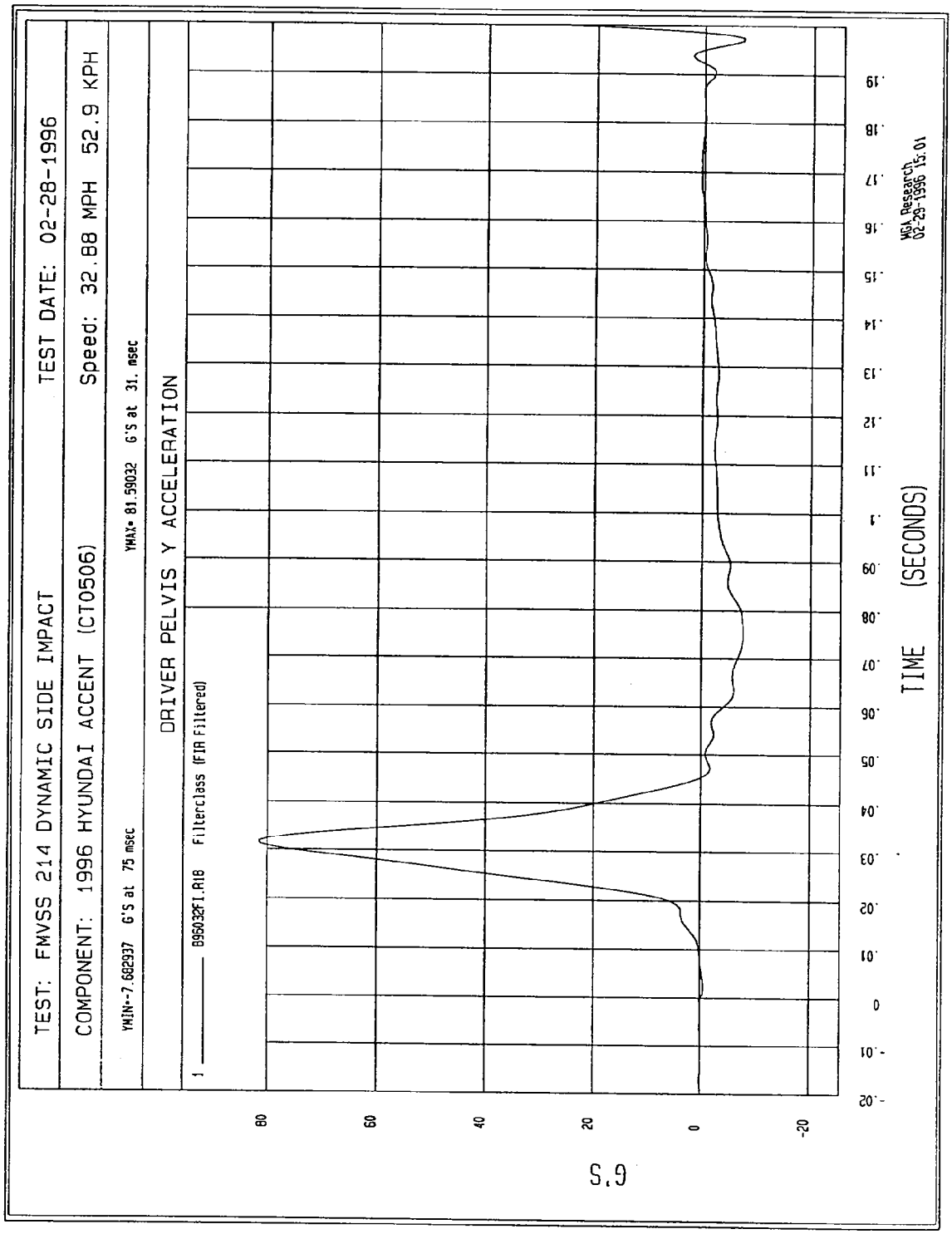
TIME (SECONDS)
MGA Research
02-29-1996 15:01


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-7.682937 G'S at 75 msec
YMAX= 81.59032 G'S at 31. msec
DRIVER PELVIS Y ACCELERATION
1 B96032FI.A1B Filterclass (FIA Filtered)
80
60
40
20
0
-20
G'S
.19
.18
.17
.16
.15
.14
.13
.12
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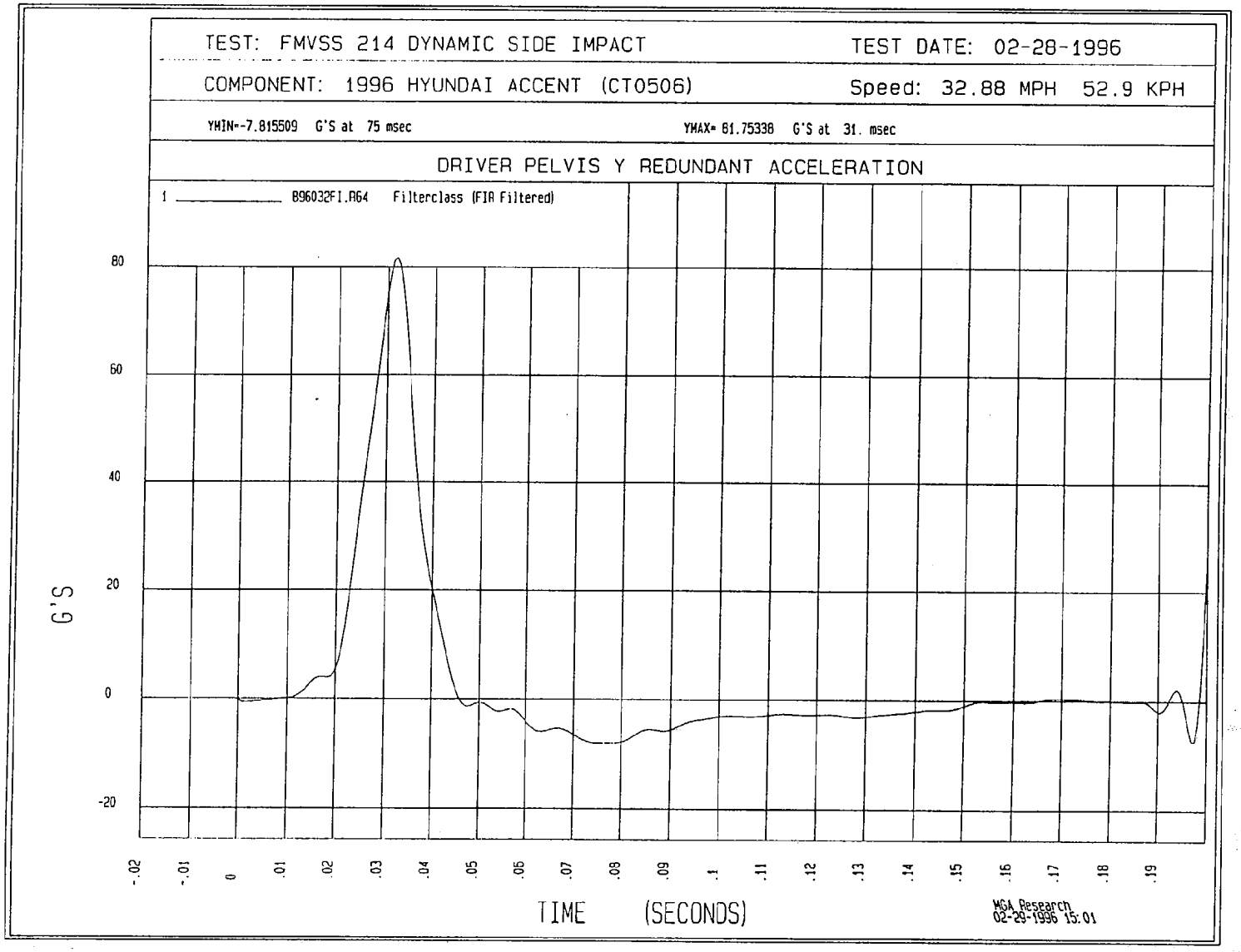
-.01
-.02
TIME (SECONDS)
MGA Research
02-29-1996 15:01


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-7.815509 G'S at 75 msec
YMAX= 61.75338 G'S at 31. msec
DRIVER PELVIS Y REDUNDANT ACCELERATION
1 B96032FI.R64 Filterclass (FIR Filtered)
80
60
40
20
0
-20
G'S
-.02
-.01
0
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.02
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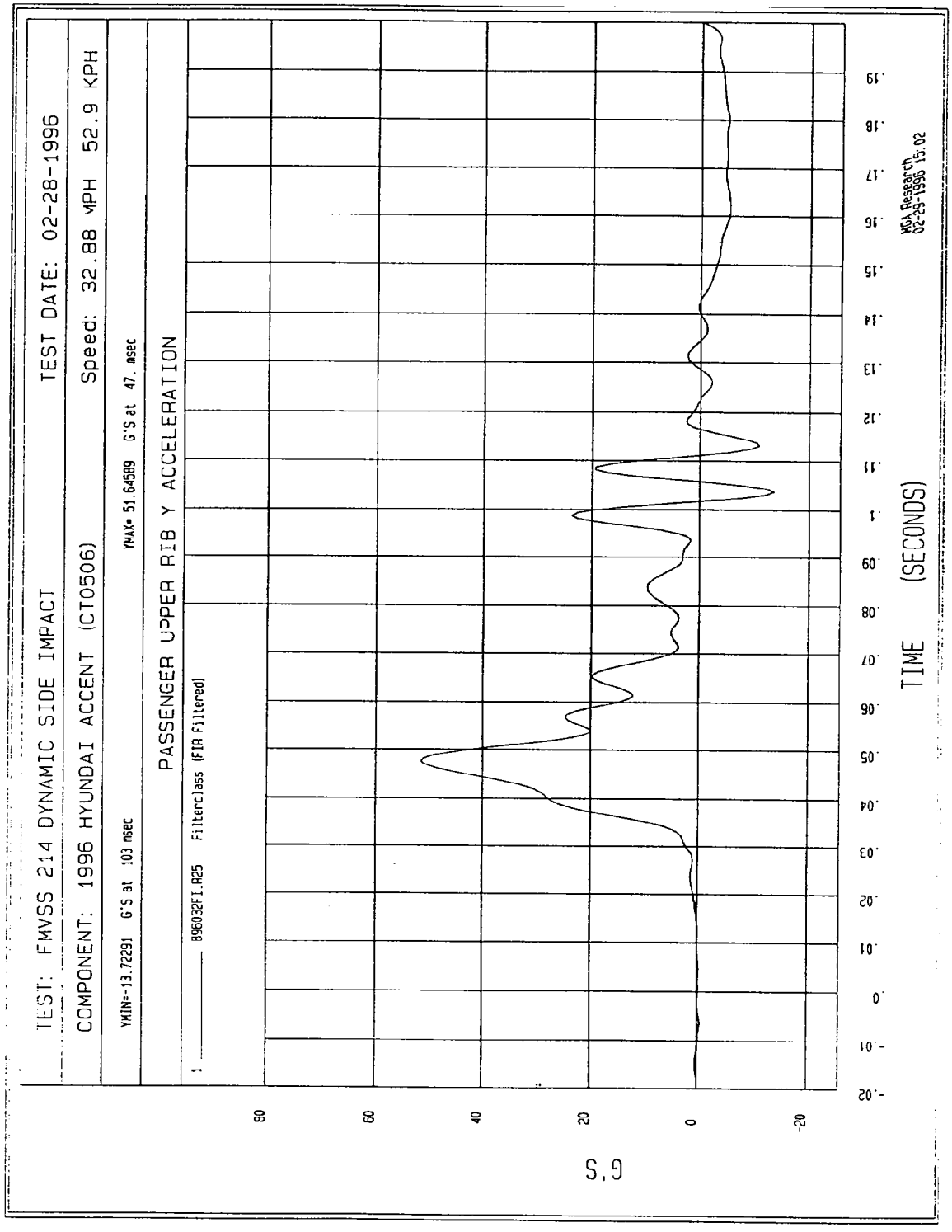
TIME (SECONDS)
MGA Research
02-29-1996 15:01


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-13.72291 G'S at 103 msec
YMAX= 51.64589 G'S at 47. msec
PASSENGER UPPER RIB Y ACCELERATION
1 ——— 896032FI.A25 Filterclass (FIR Filtered)
G'S
80
60
40
20
0
-20
-.02
-.01
0
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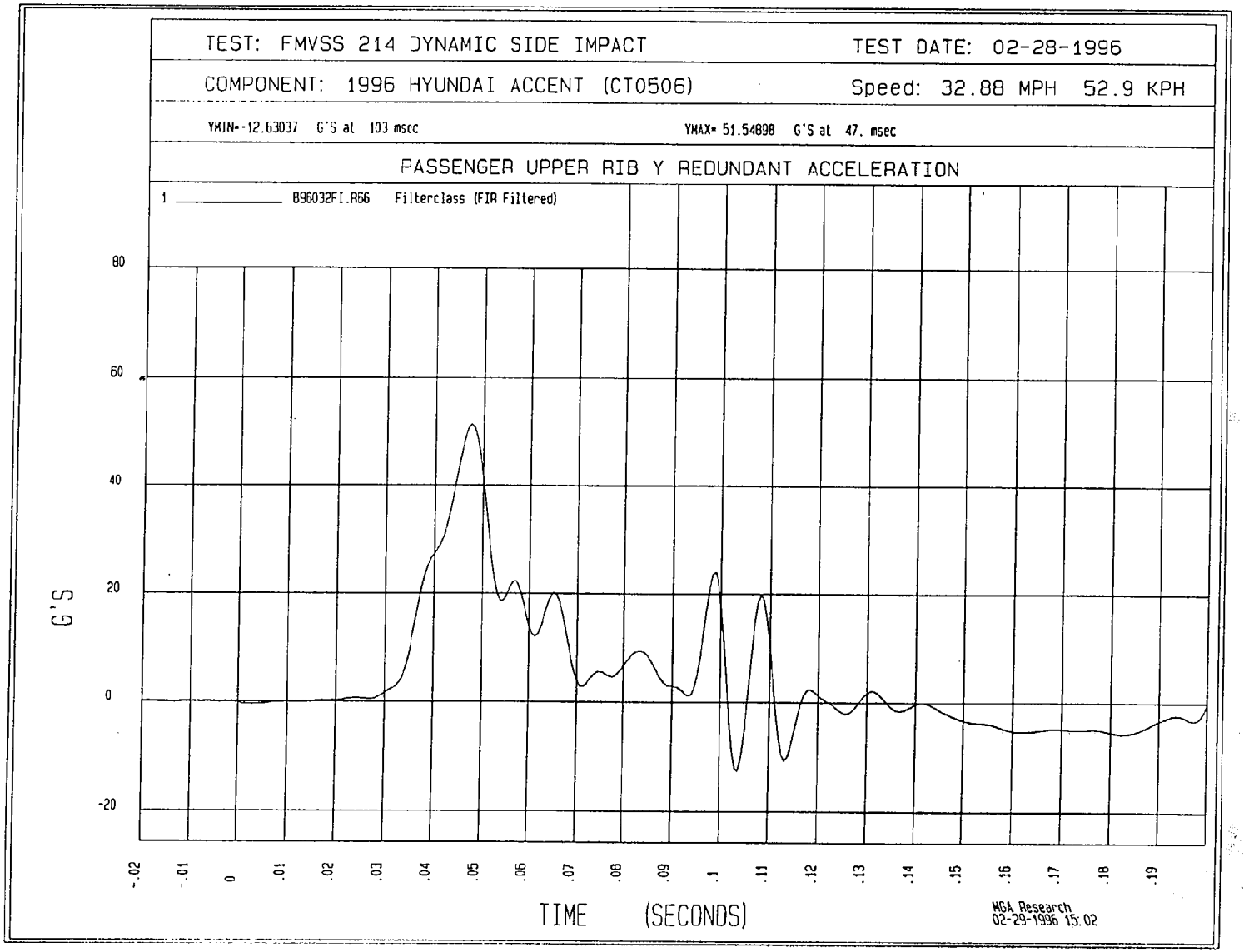
TIME (SECONDS)
MGA Research
02-29-1996 15:02


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-12.63037 G'S at 103 mscc
YMAX= 51.54898 G'S at 47. msec
PASSENGER UPPER RIB Y REDUNDANT ACCELERATION
1 B96032FI.R66 Filterclass (FIR Filtered)
80
60
40
20
0
-20
G'S
-.02
-.01
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.01
.02
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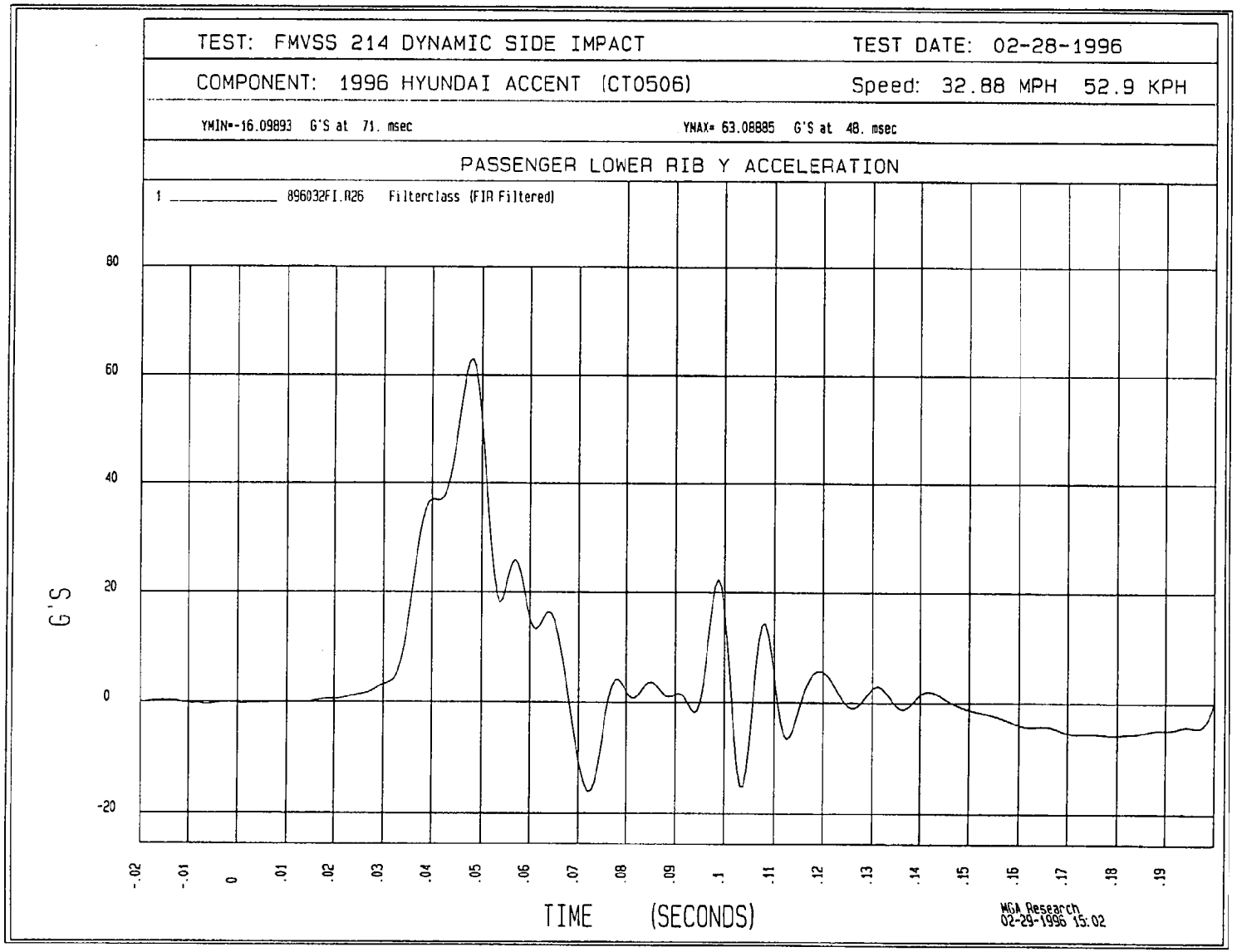
TIME (SECONDS)
MGA Research
02-29-1996 15:02


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-16.09893 G'S at 71. msec
YMAX= 63.08885 G'S at 48. msec
PASSENGER LOWER RIB Y ACCELERATION
1 896032FI.R26 Filterclass (FIR Filtered)
80
60
40
20
0
-20
G'S
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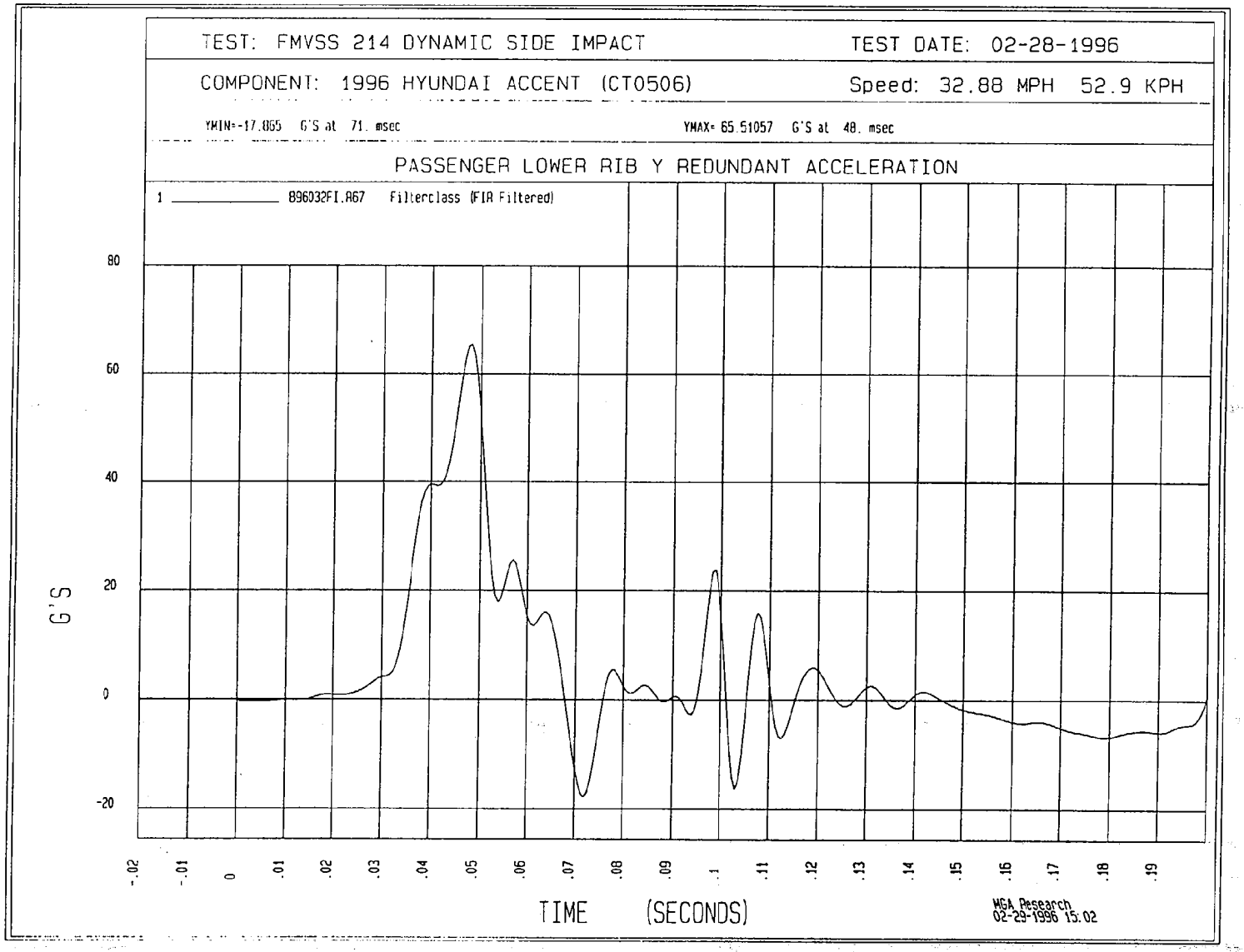
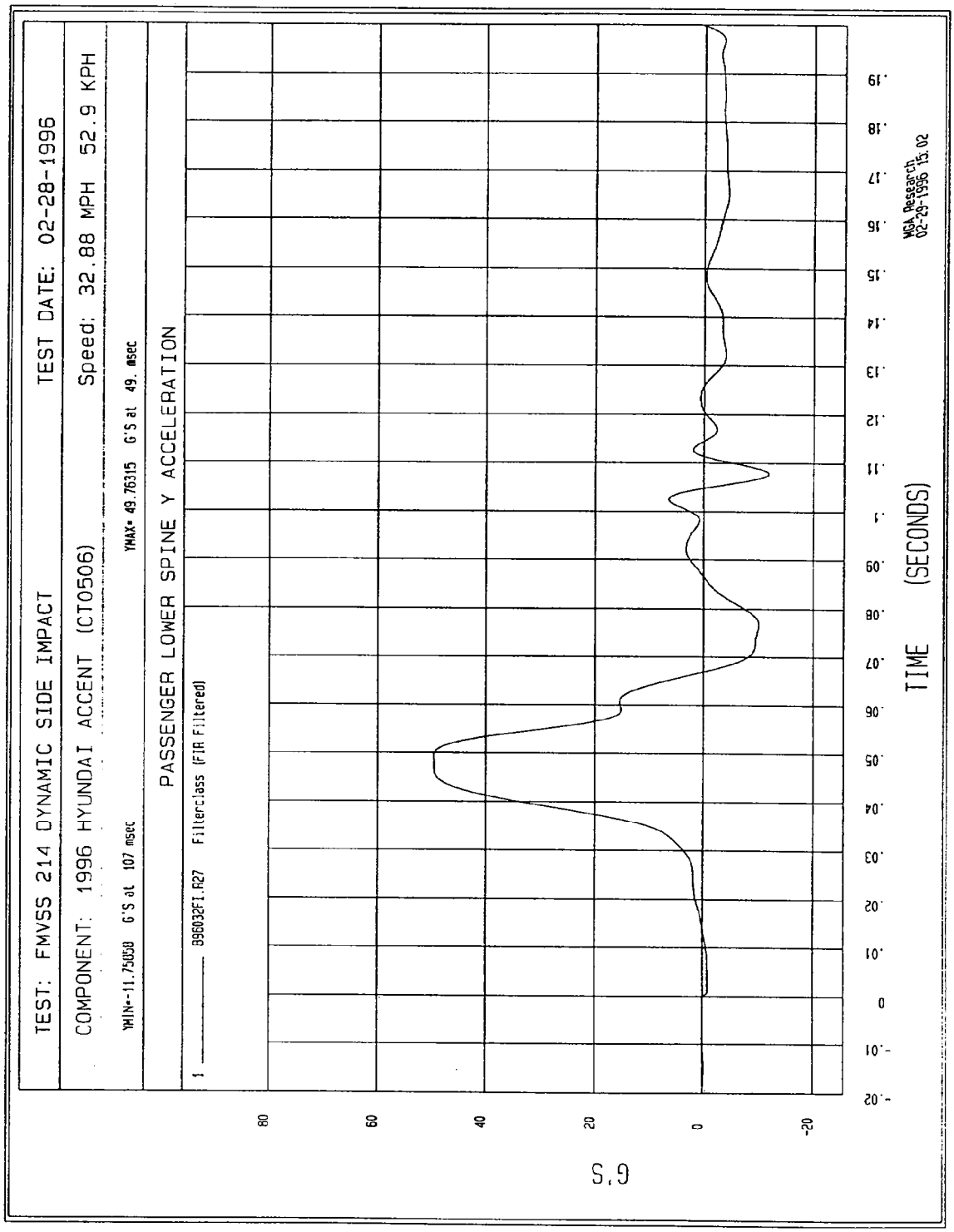
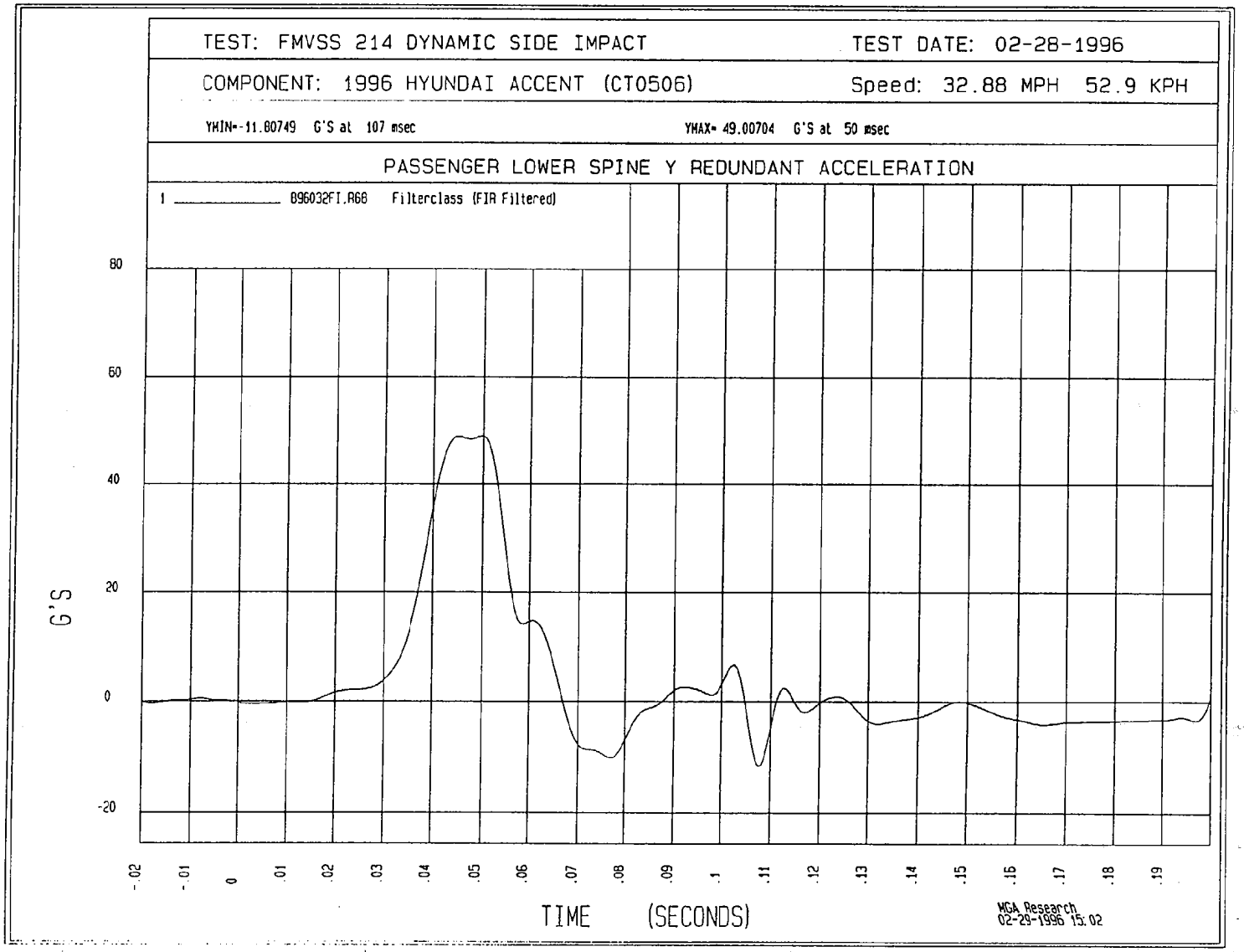
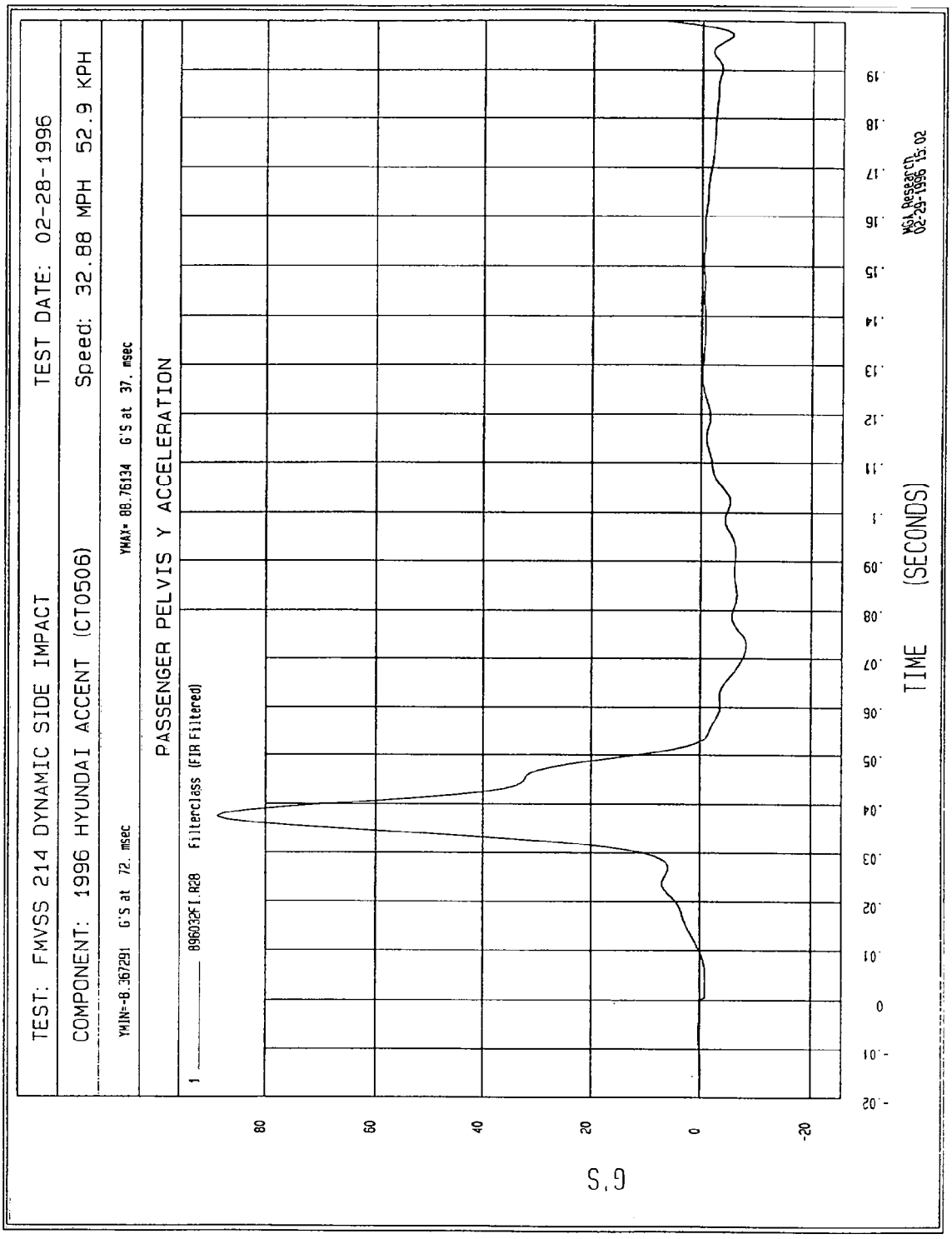
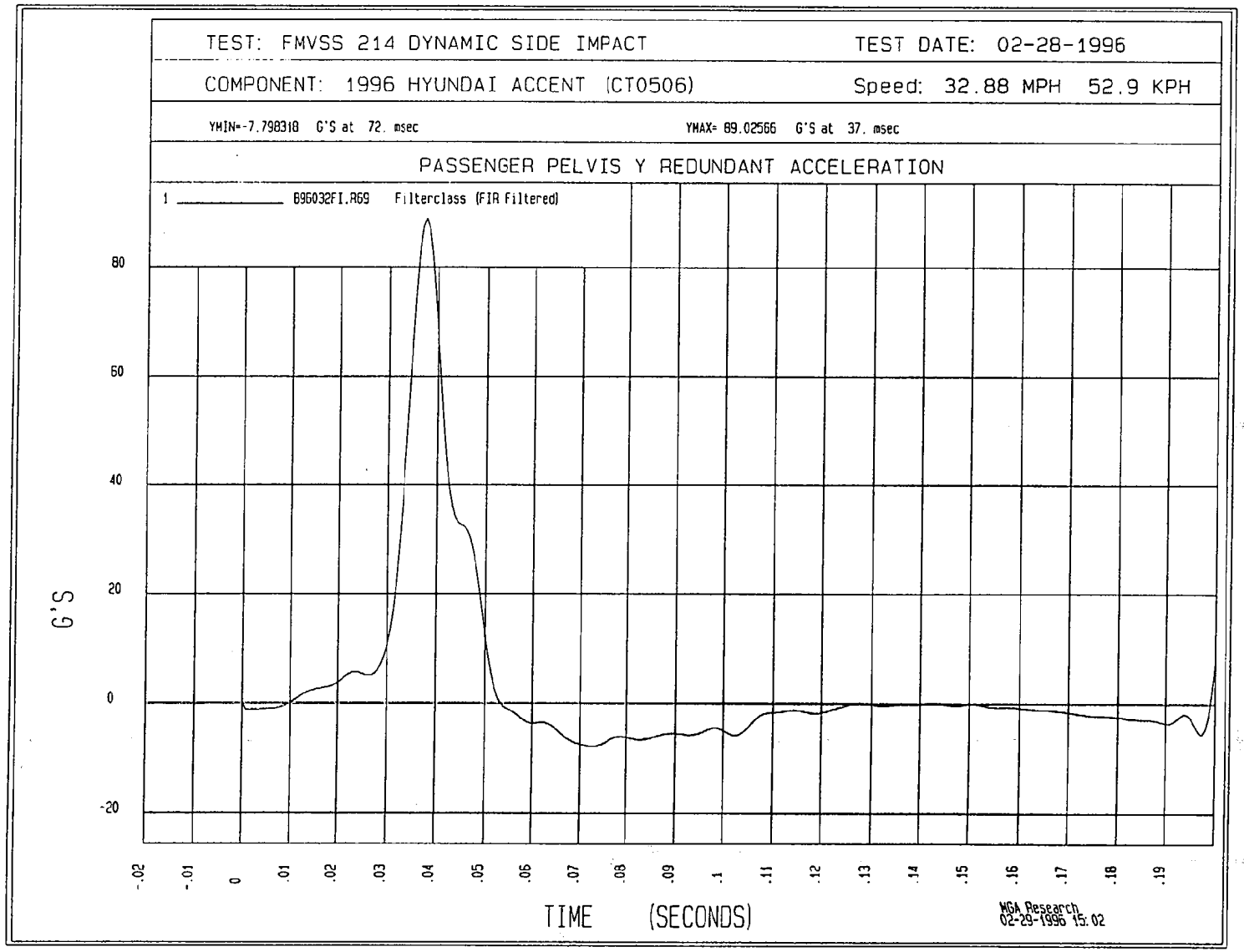
TIME (SECONDS)
MGA Research
02-29-1996 15:02


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-17.865 G'S at 71. msec
YMAX= 65.51057 G'S at 48. msec
PASSENGER LOWER RIB Y REDUNDANT ACCELERATION
1 896032FI.A67 Filterclass (FIR Filtered)
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:02


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-11.75058 G'S at 107 msec
YMAX= 49.76315 G'S at 49. msec
PASSENGER LOWER SPINE Y ACCELERATION
1 _____ 960032FI.A27 Filterclass (FIR Filtered)
G's
TIME (SECONDS)
MGA Research
02-29-1996 15:02


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-11.80749 G'S at 107 msec
YMAX= 49.00704 G'S at 50 msec
PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION
1 _____ 896032FI.A68 Filterclass (FIR Filtered)
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:02


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-8.367291 G'S at 72. msec
YMAX= 88.76134 G'S at 37. msec
PASSENGER PELVIS Y ACCELERATION
1 _____ 896032FI.A08 Filterclass (FIR Filtered)
MGA Research
02-28-1996 15:02
TIME (SECONDS)
G'S


TEST: FMVSS 214 DYNAMIC SIDE IMPACT
TEST DATE: 02-28-1996
COMPONENT: 1996 HYUNDAI ACCENT (CT0506)
Speed: 32.88 MPH 52.9 KPH
YMIN=-7.798318 G'S at 72. msec
YMAX= 89.02566 G'S at 37. msec
PASSENGER PELVIS Y REDUNDANT ACCELERATION
1 ——— 896032FI.R69 Filterclass (FIR Filtered)
80
60
40
20
0
-20
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
02-29-1996 15:02

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-96-DC15

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

HYUNDAI MOTOR AMERICA
1996 HYUNDAI ACCENT 4 DOOR
NHTSA NO. CT0506

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105

Test Date: February 28, 1996

Report Date: March 5, 1996

FINAL REPORT

Prepared For:

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

TABLE OF CONTENTS

PRE-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 272

Calibration Test Results Summary

Dummy 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: February 20, 1996

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: _____

APPROVED BY: _____

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

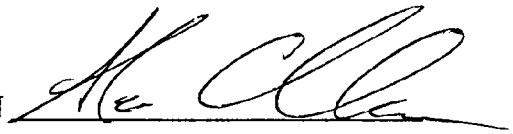
SIDE IMPACT DUMMY (SID)

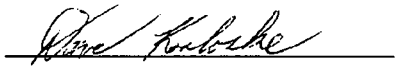
DATE: February 20, 1996

DUMMY NUMBER: 272 TEST NUMBER: D96362

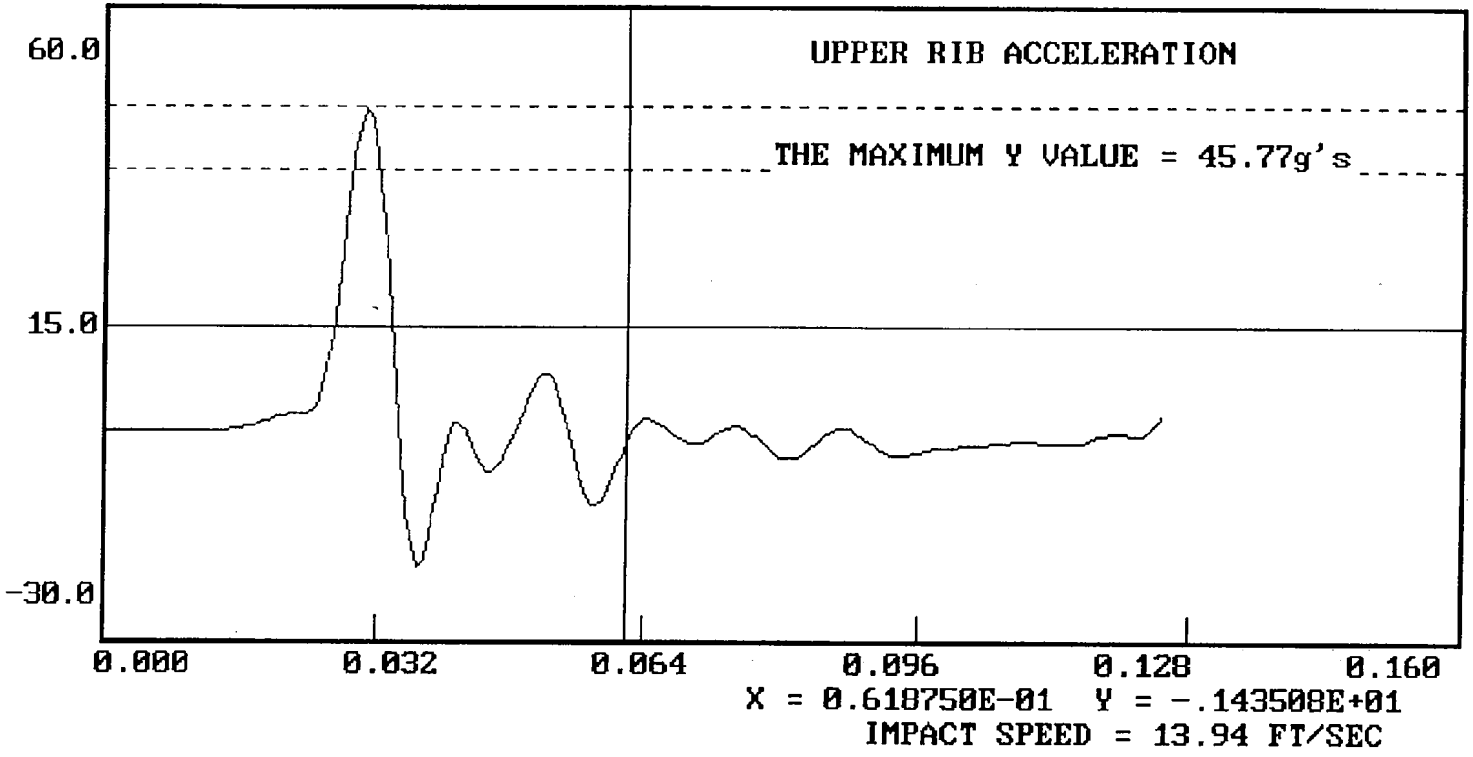
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	46
LOWER RIB	37 - 46 g's	45
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN 

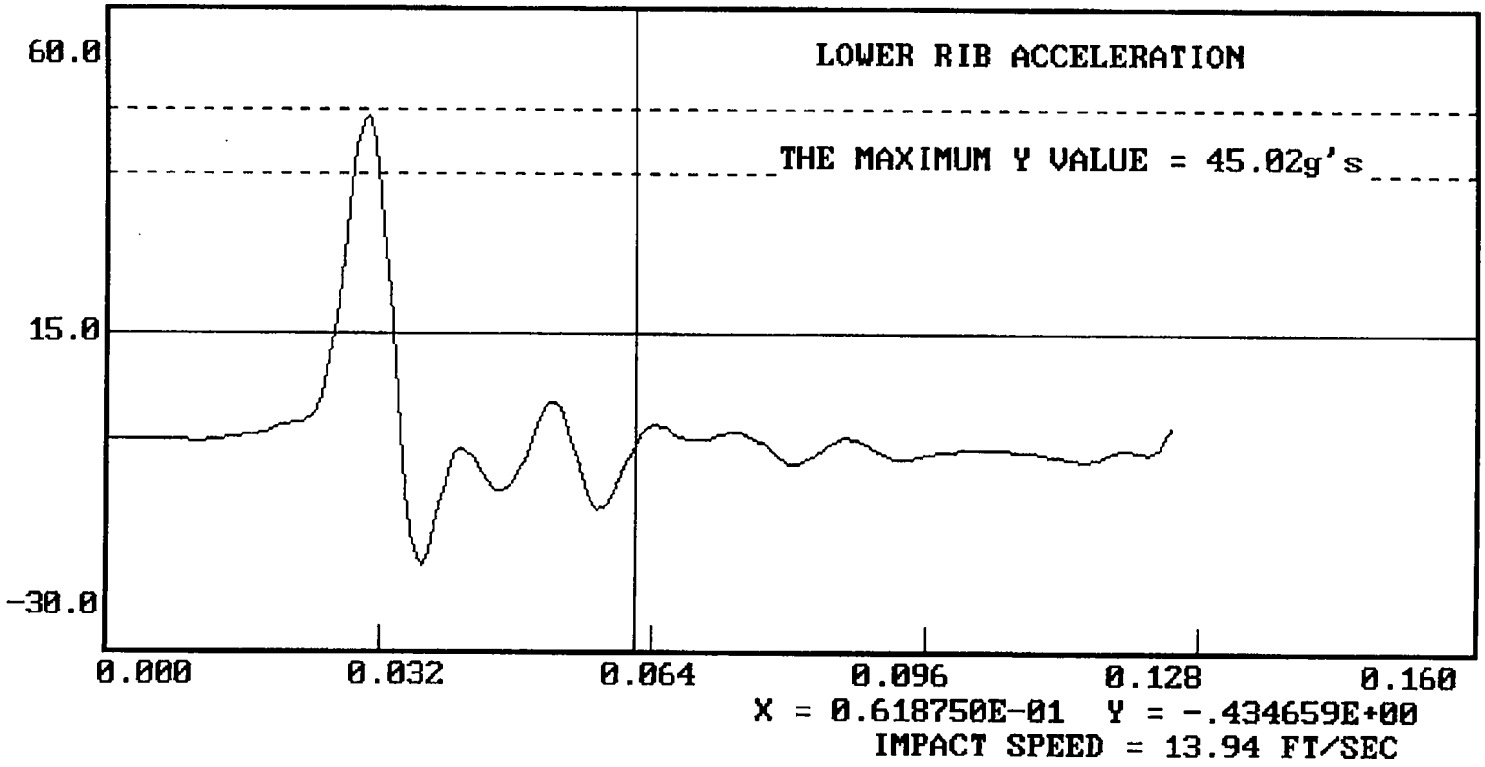
APPROVED BY 

DUMMY CALIBRATION - THORAX IMPACT 02-20-1996 08:08
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))



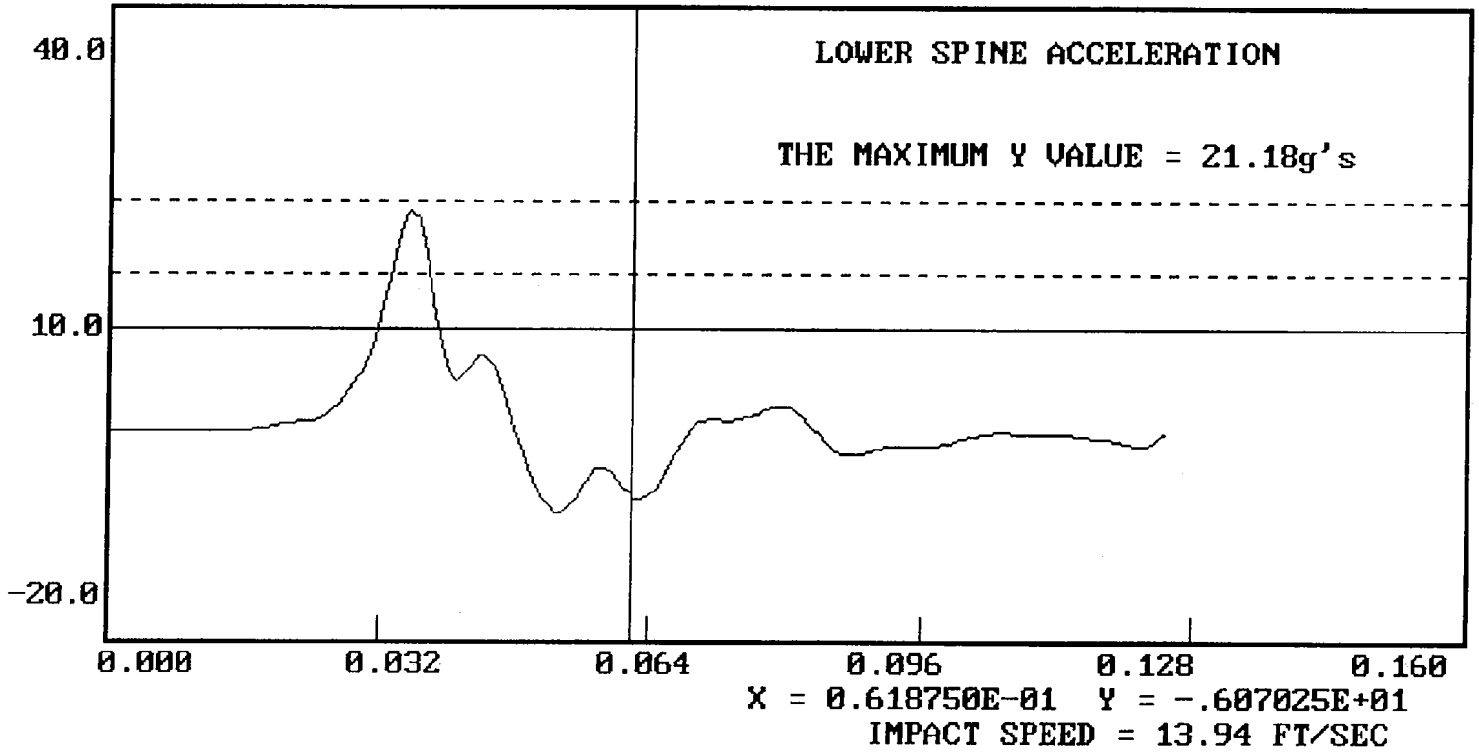
DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))

02-20-1996 08:04



X = 0.618750E-01 Y = -.434659E+00
IMPACT SPEED = 13.94 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT 02-20-1996 08:04
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.607025E+01
IMPACT SPEED = 13.94 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

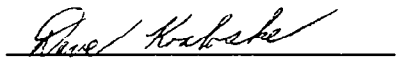
DATE: February 20, 1996

DUMMY NUMBER: 272 TEST NUMBER: D96363

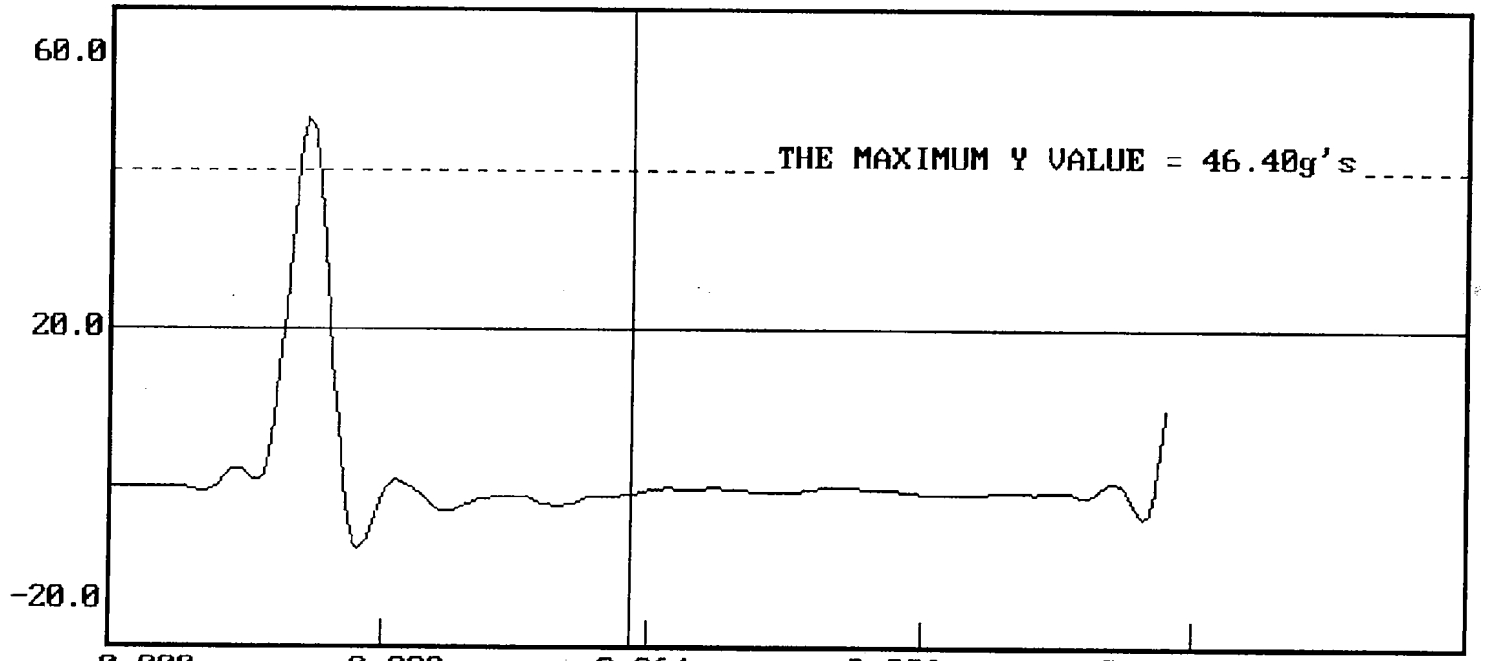
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	46

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - PELVIS IMPACT 02-20-1996 08:27
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.946679E+00
IMPACT SPEED = 13.87 FT/SEC

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

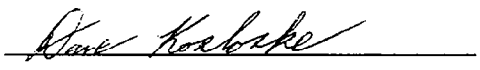
DATE: February 20, 1996

DUMMY NUMBER: 272 TEST NUMBER: D96364

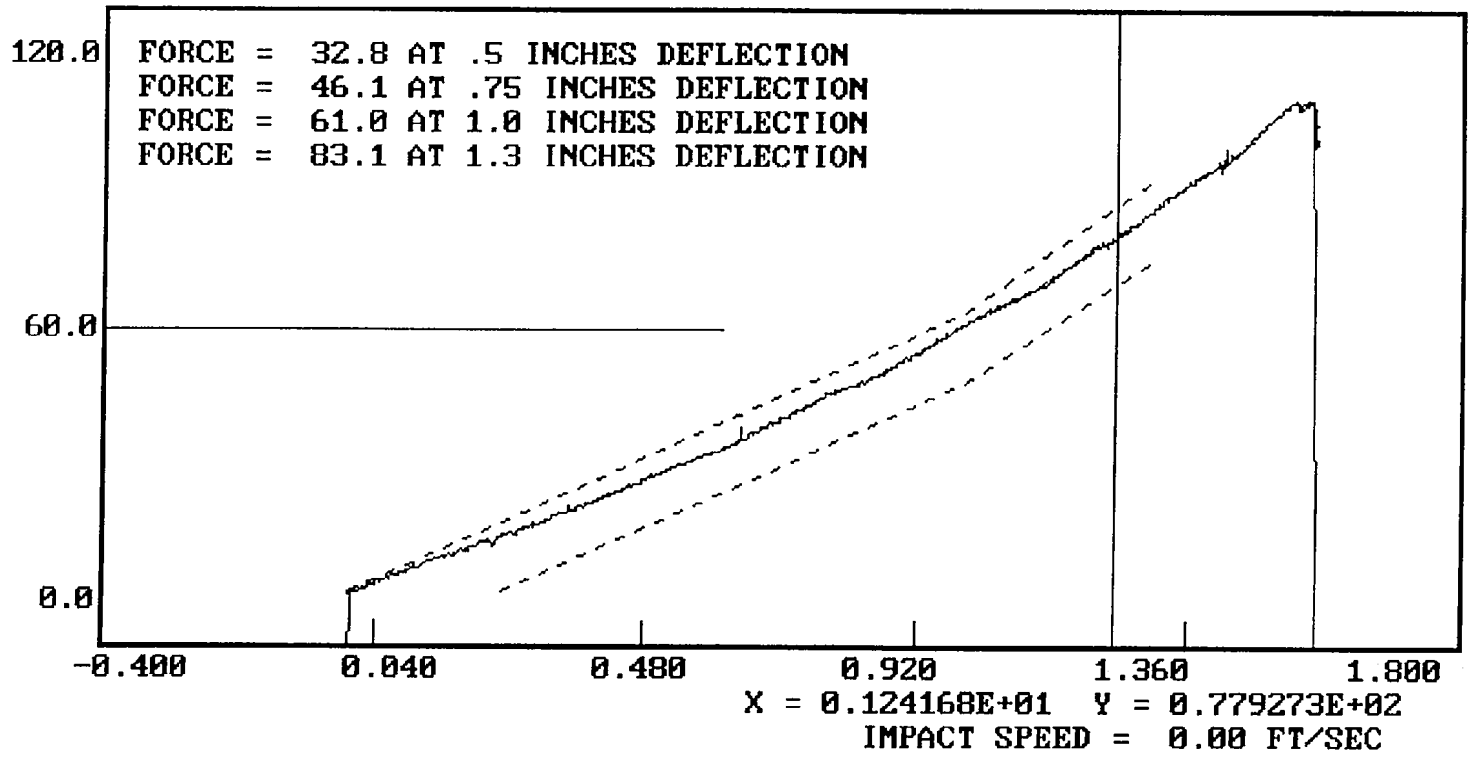
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0.5 in	23.3 - 36.5 lbs	32.8
FORCE @ 0.75 in	36.7 - 49.8 lbs	46.1
FORCE @ 1.0 in	50 - 63 lbs	61
FORCE @ 1.3 in	73 - 88 lbs	83

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION 02-20-1996 18:05
DUMMY # 272
ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: February 20, 1996

DUMMY NUMBER: 272 TEST NUMBER: D96365

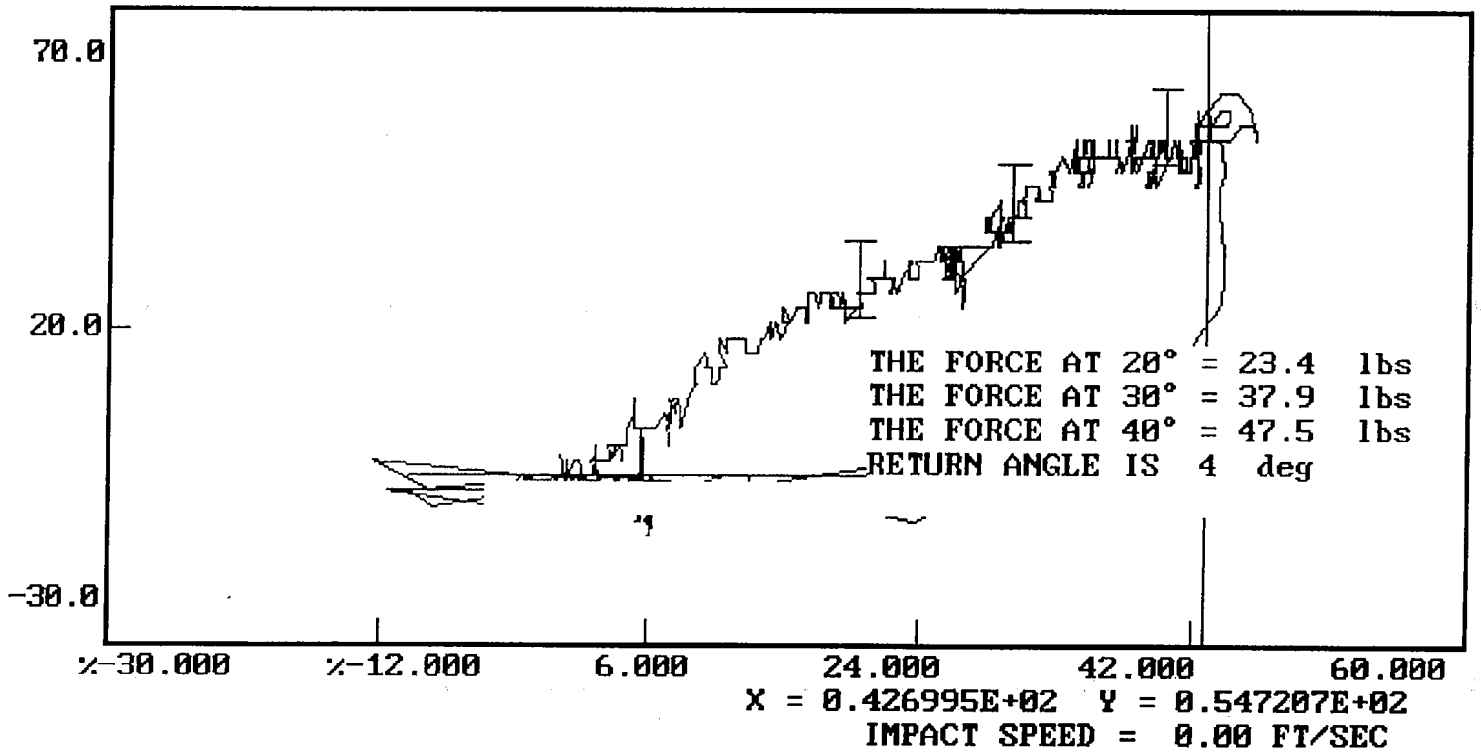
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	23
FORCE @ 30°	34 - 46 lbs	38
FORCE @ 40°	46 - 58 lbs	48
RETURN ANGLE	12° maximum	4°

TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY

DUMMY CALIBRATION - LUMBAR FLEXION 02-20-1996 11:35
DUMMY # 272
FORCE () VS. TORSO ROTATION (DEGREES)



X = 0.426995E+02 Y = 0.547207E+02
IMPACT SPEED = 0.00 FT/SEC

PRE-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 271

Calibration Test Results Summary

Passenger Serial Number: 271

Pre-Test Calibration

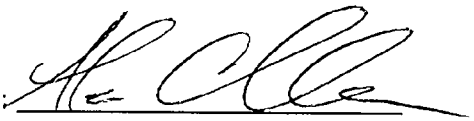
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

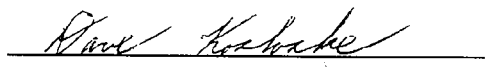
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 271

DATE OF VERIFICATION: February 20, 1996

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: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

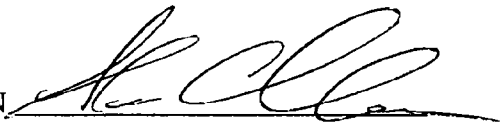
SIDE IMPACT DUMMY (SID)

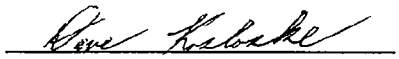
DATE: February 20, 1996

DUMMY NUMBER: 271 TEST NUMBER: D96352

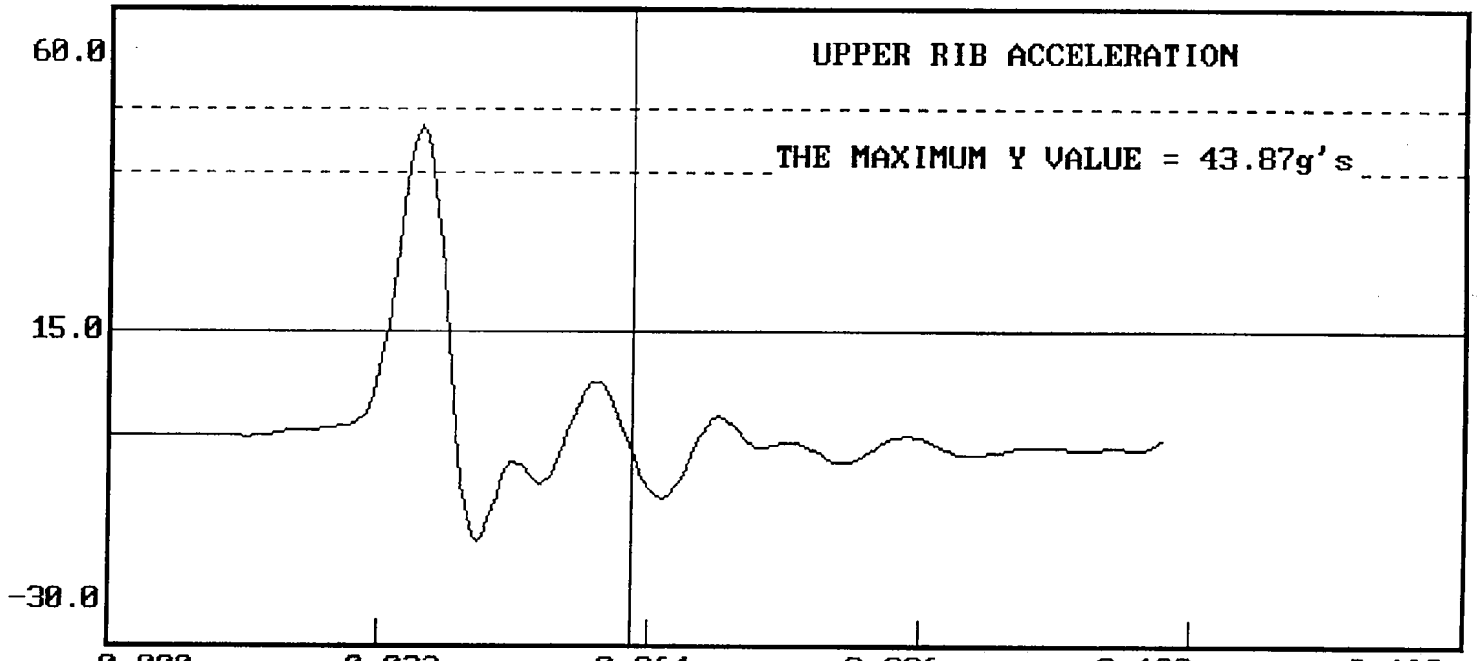
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	44
LOWER RIB	37 - 46 g's	41
LOWER SPINE	15 - 22 g's	22

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

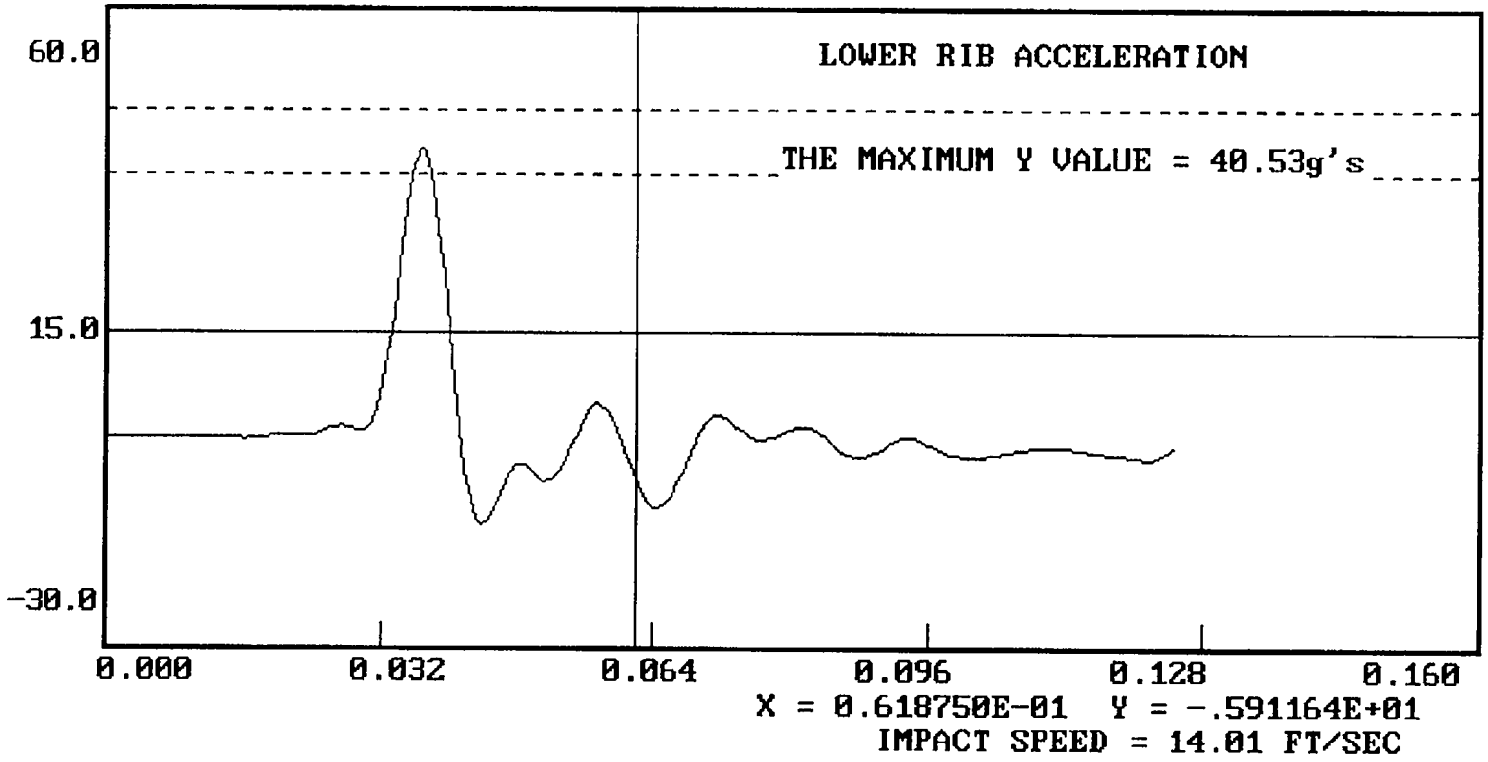
DUMMY CALIBRATION - THORAX IMPACT 02-20-1996 13:38
DUMMY # 271
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.247816E+01
IMPACT SPEED = 14.01 FT/SEC

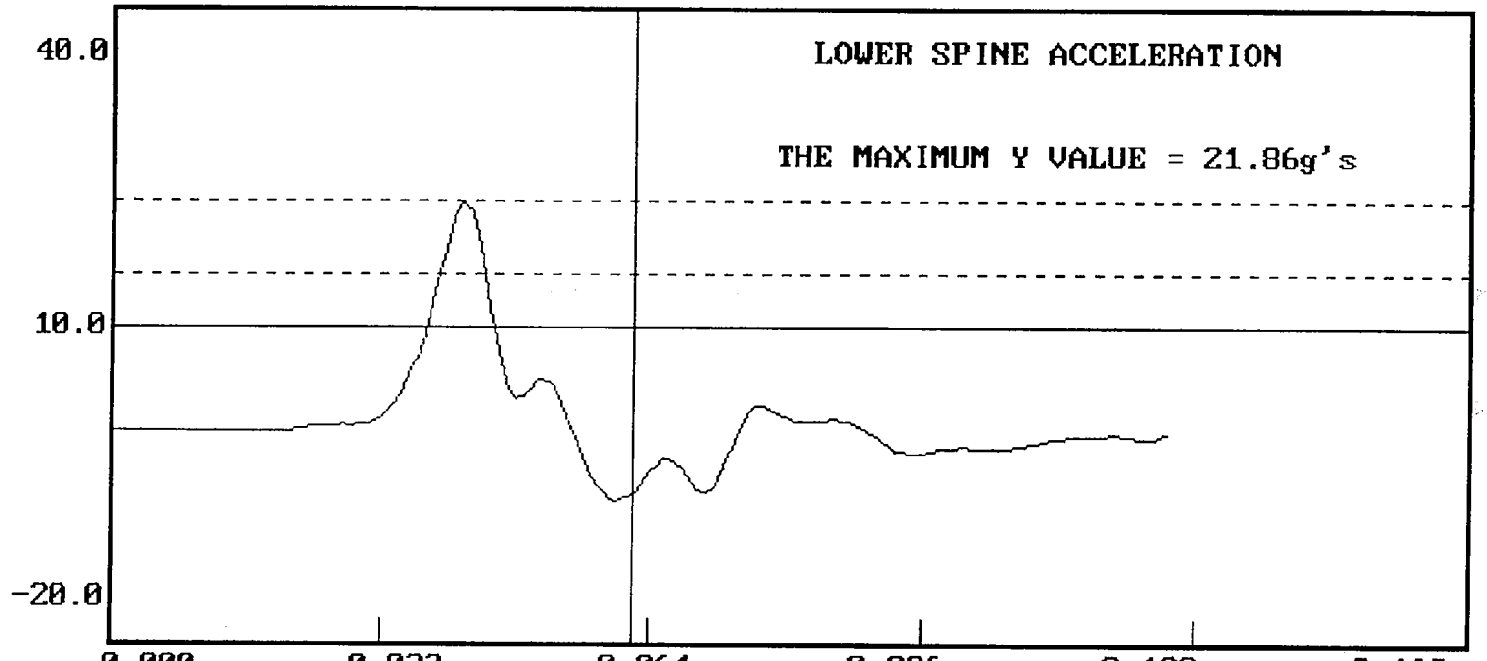
DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 271
ACCELERATION (G'S) VS. TIME ((SECONDS))

02-20-1996 13:38



X = 0.618750E-01 Y = -.591164E+01
IMPACT SPEED = 14.01 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT 02-20-1996 13:38
DUMMY # 271
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.580876E+01
IMPACT SPEED = 14.01 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: February 20, 1996

DUMMY NUMBER: 271 TEST NUMBER: D96353

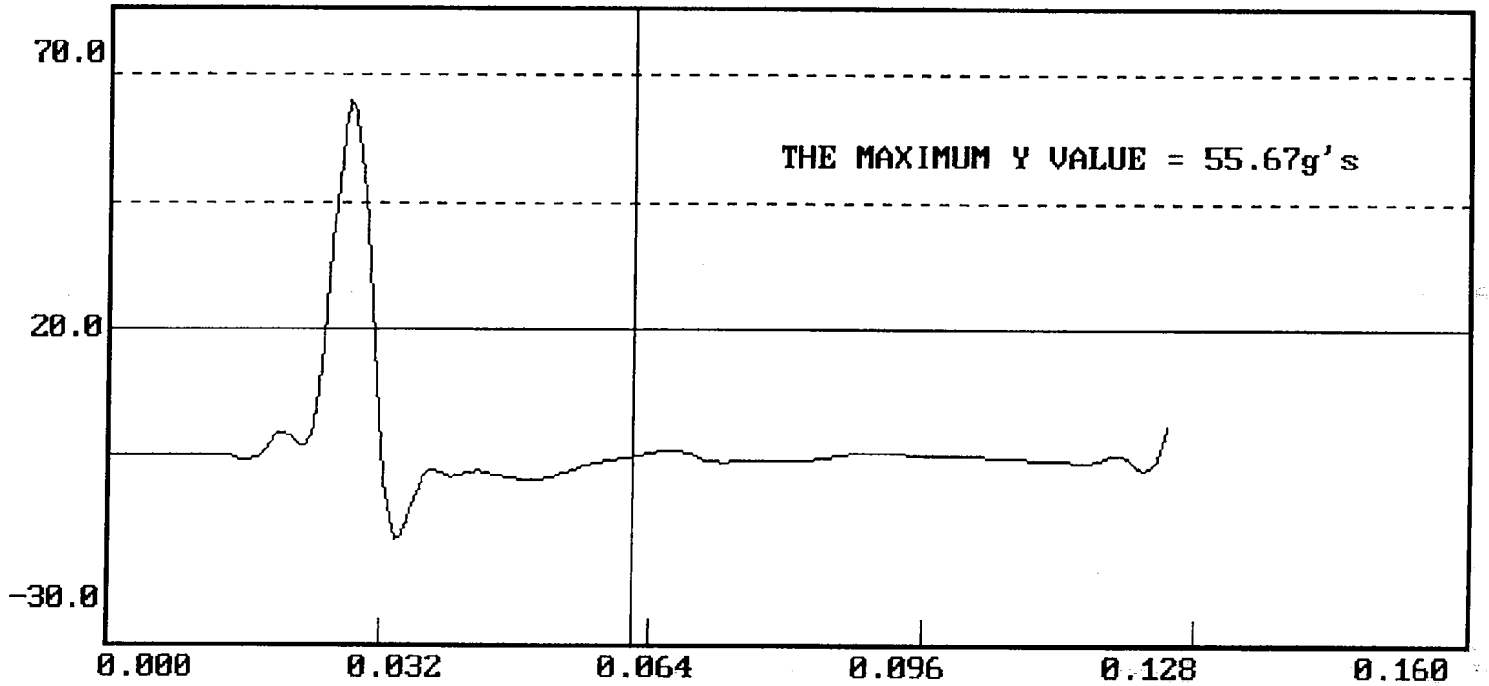
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	56

TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY

DUMMY CALIBRATION - PELVIS IMPACT 02-20-1996 13:47
DUMMY # 271
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.265965E+00
IMPACT SPEED = 14.05 FT/SEC

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

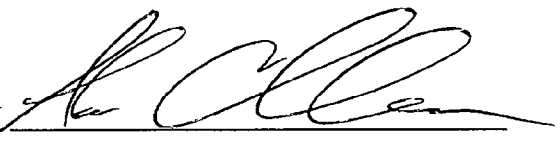
SIDE IMPACT DUMMY (SID)

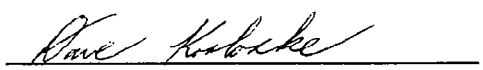
DATE: February 20, 1996

DUMMY NUMBER: 271 TEST NUMBER: D96354

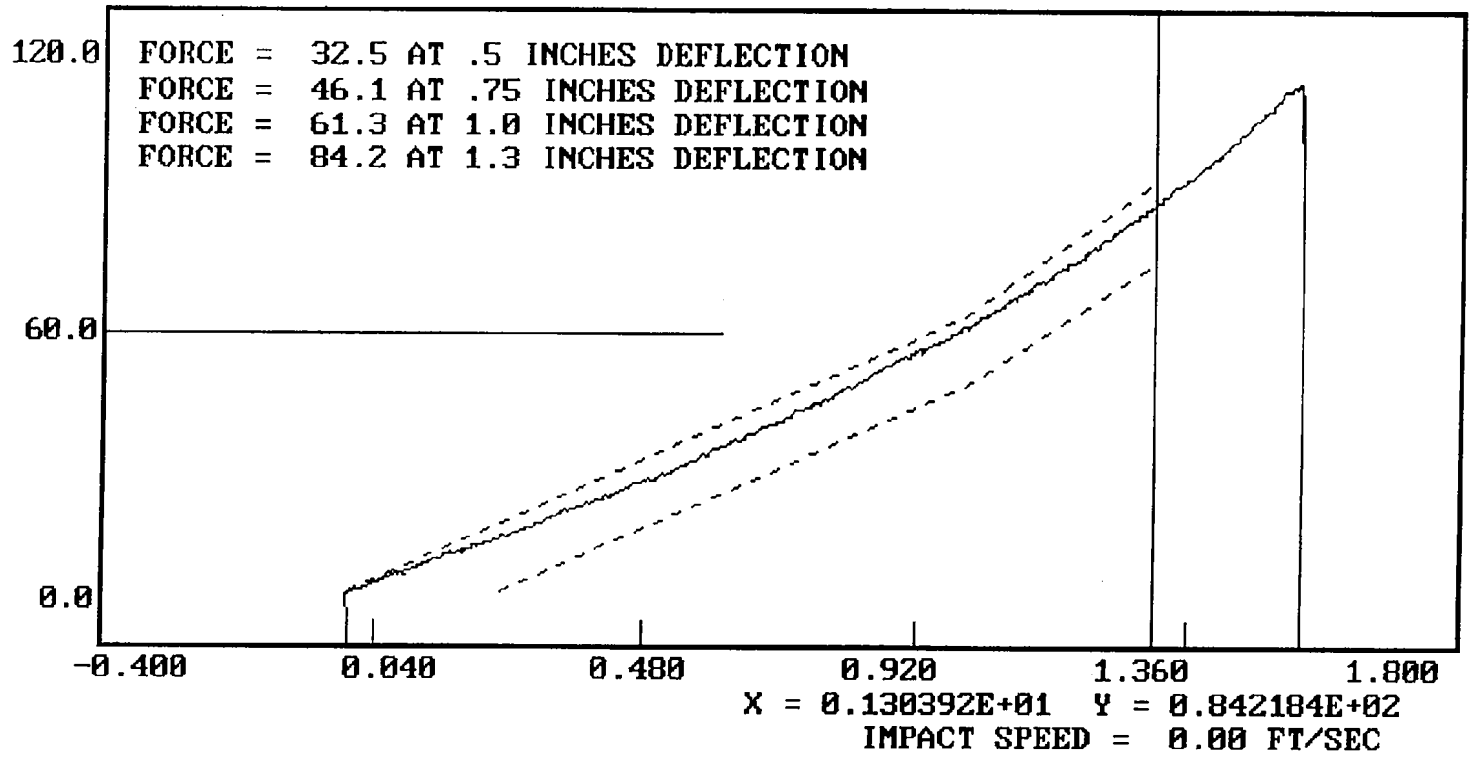
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0.5 in	23.3 - 36.5 lbs	32.5
FORCE @ 0.75 in	36.7 - 49.8 lbs	46.1
FORCE @ 1.0 in	50 - 63 lbs	61
FORCE @ 1.3 in	73 - 88 lbs	84

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION 02-20-1996 17:49
DUMMY # 271
ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

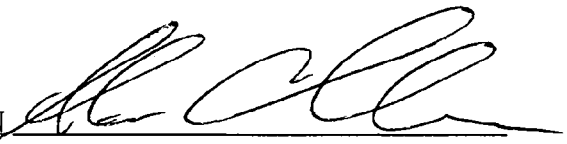
SIDE IMPACT DUMMY (SID)

DATE: February 20, 1996

DUMMY NUMBER: 271 TEST NUMBER: D96355

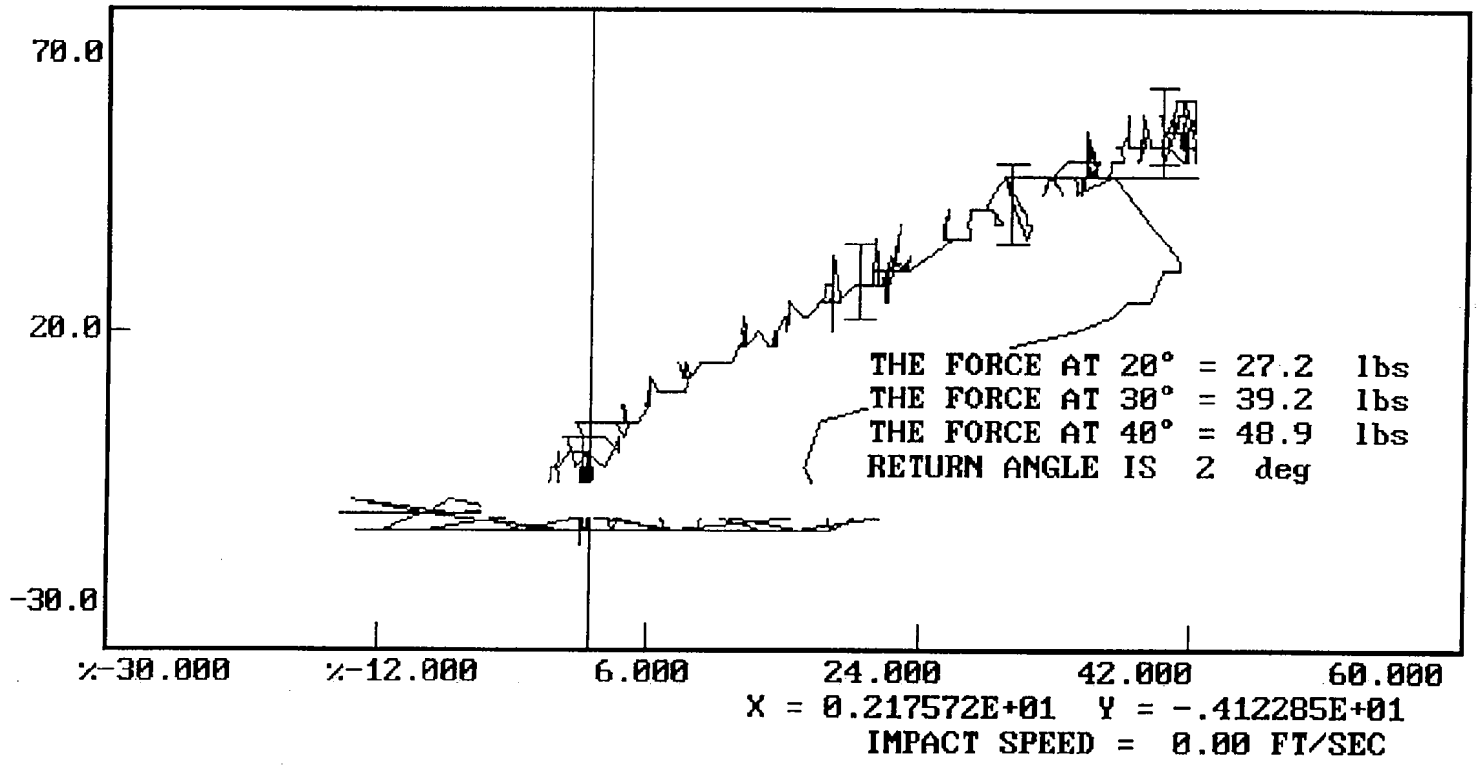
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	27
FORCE @ 30°	34 - 46 lbs	39
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	2°

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY Steve Kobeke

DUMMY CALIBRATION - LUMBAR FLEXION 02-20-1996 14:47
DUMMY # 271
FORCE (LBS) VS. TORSO ROTATION (DEGREES)



X = 0.217572E+01 Y = -.412285E+01
IMPACT SPEED = 0.00 FT/SEC

POST-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 272

Calibration Test Results Summary

Dummy Serial Number: 272

Post-Test Calibration

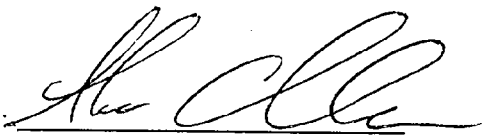
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 272

DATE OF VERIFICATION: March 6, 1996

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
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"	9.4
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: 

APPROVED BY: Dave Kuhnke

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 5, 1996

DUMMY NUMBER: 272 TEST NUMBER: D96442

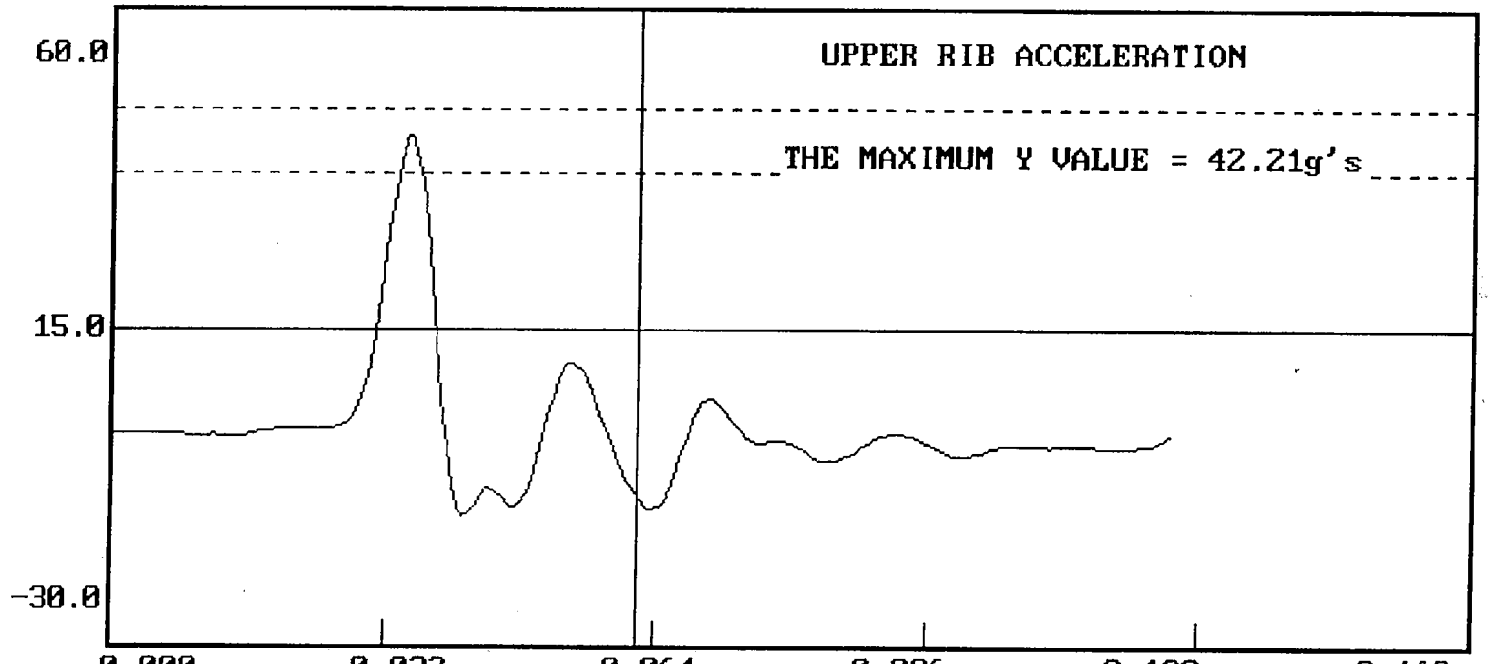
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	22

TEST MEETS SPECIFICATIONS

TECHNICIAN

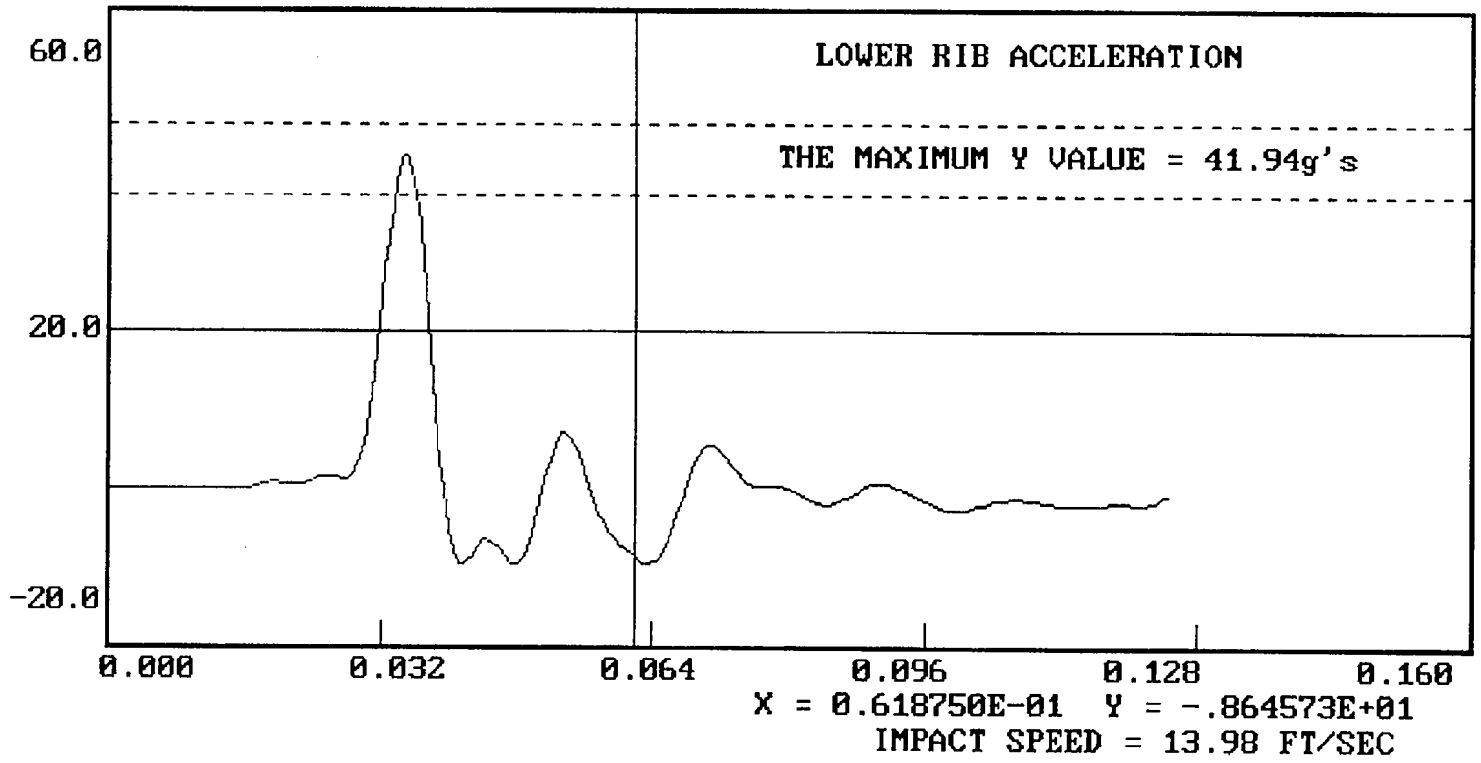
APPROVED BY Dave Kozlosky

DUMMY CALIBRATION - THORAX IMPACT 03-05-1996 18:08
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))



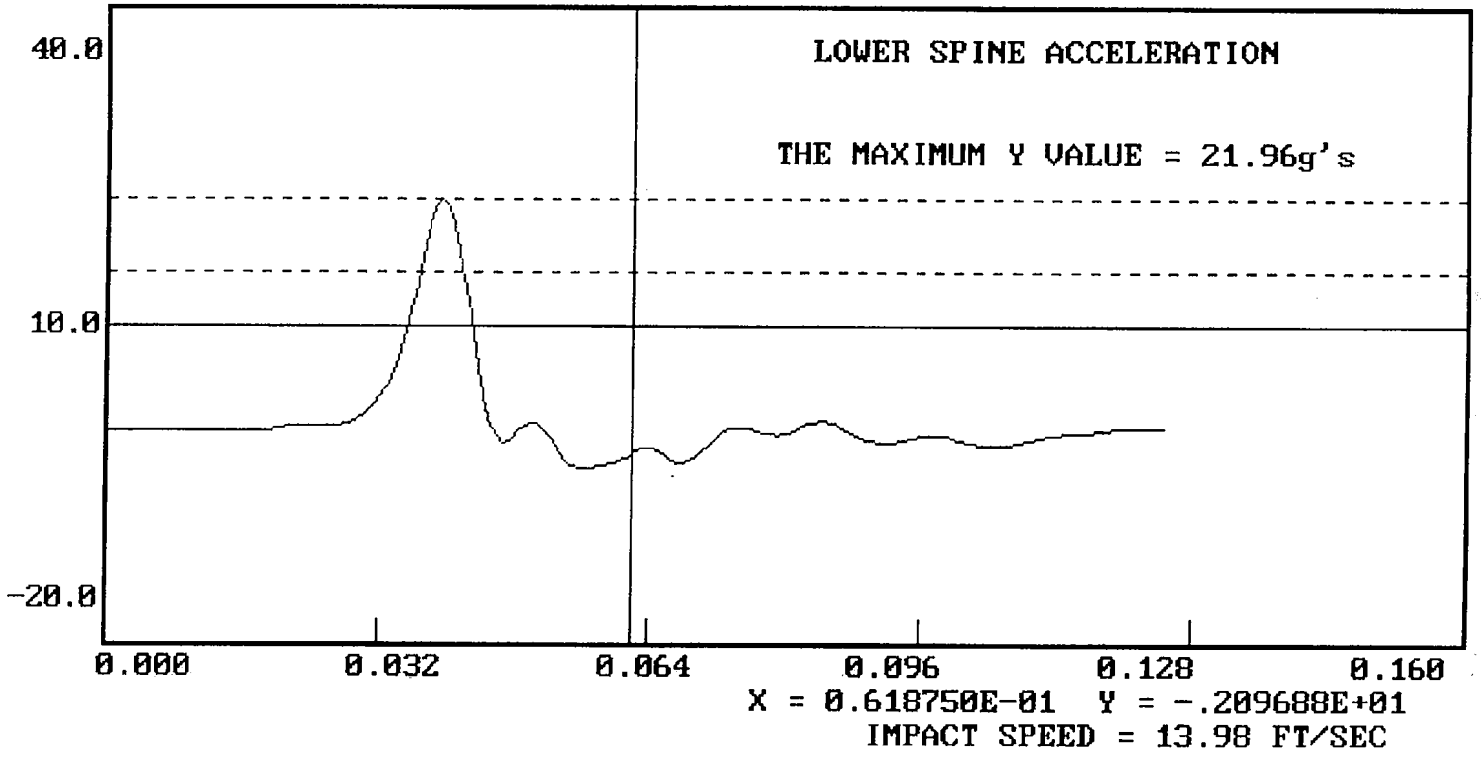
X = 0.618750E-01 Y = -.896951E+01
IMPACT SPEED = 13.98 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT 03-05-1996 18:08
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.864573E+01
IMPACT SPEED = 13.98 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT 03-05-1996 18:08
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.209688E+01
IMPACT SPEED = 13.98 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 6, 1996

DUMMY NUMBER: 272 TEST NUMBER: D96443

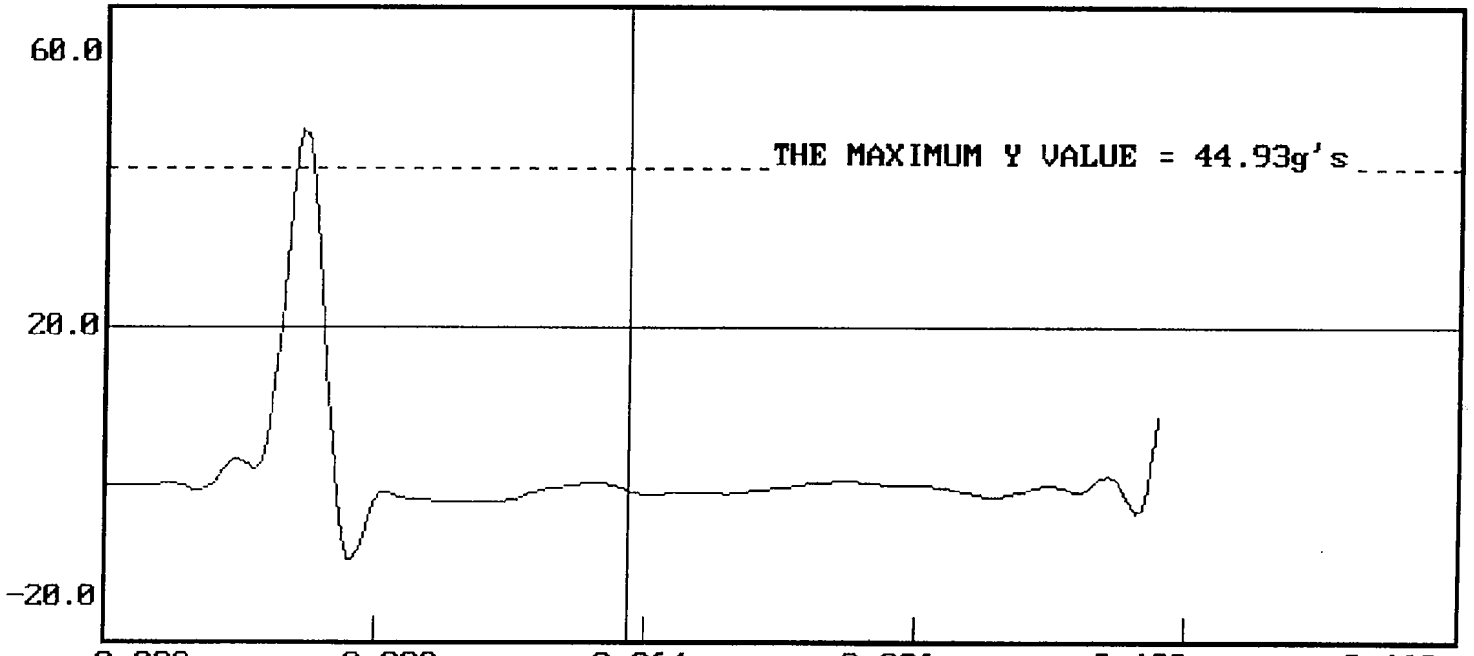
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	28%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	45

TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY

DUMMY CALIBRATION - PELVIS IMPACT 03-06-1996 08:36
DUMMY # 272
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.601353E+00
IMPACT SPEED = 14.01 FT/SEC

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: March 4, 1996

DUMMY NUMBER: 272 TEST NUMBER: D96444

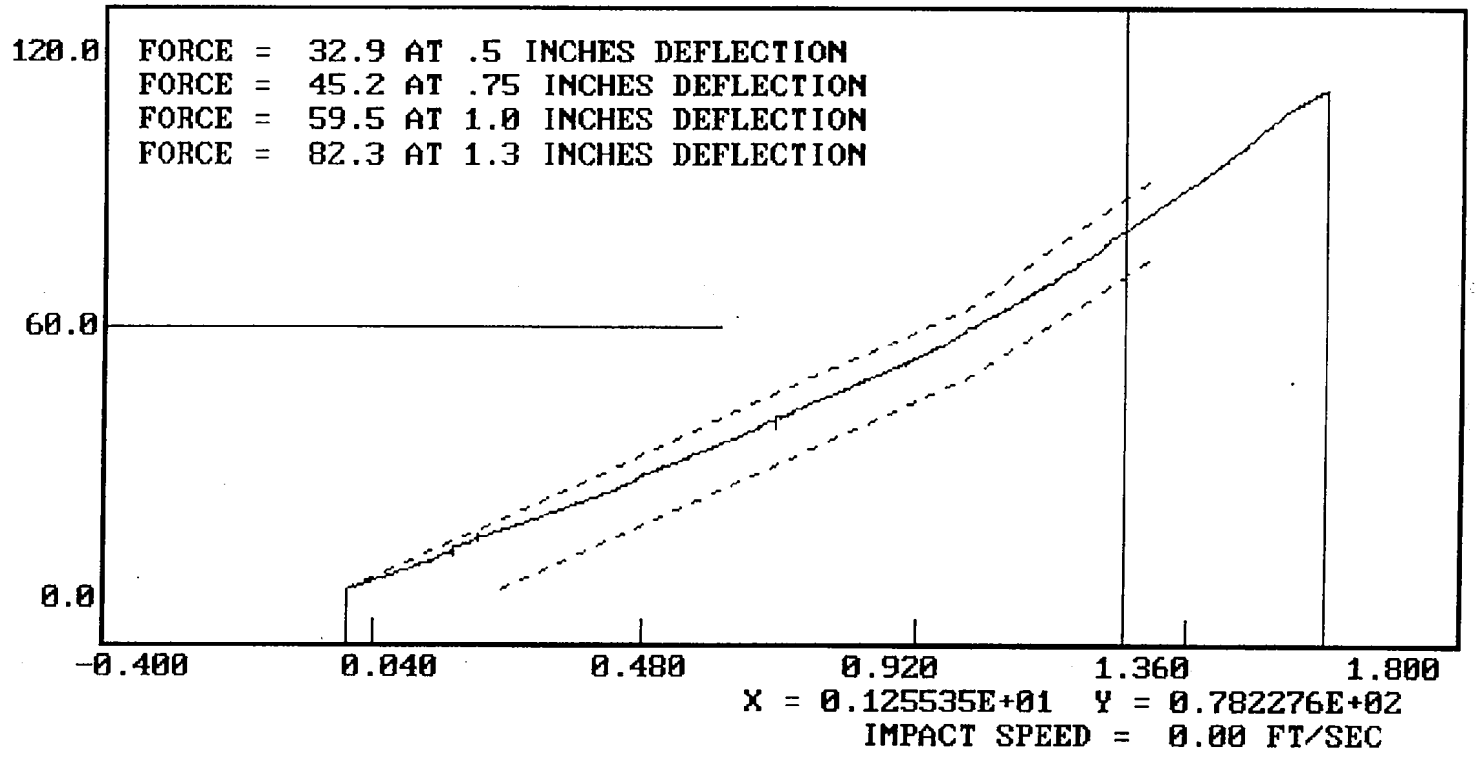
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0.5 in	23.3 - 36.5 lbs	32.9
FORCE @ 0.75 in	36.7 - 49.8 lbs	45.2
FORCE @ 1.0 in	50 - 63 lbs	60
FORCE @ 1.3 in	73 - 88 lbs	82

TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY

DUMMY CALIBRATION - ABDOMEN COMPRESSION 03-04-1996 15:50
DUMMY # 272
ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

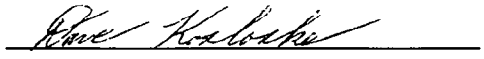
DATE: March 4, 1996

DUMMY NUMBER: 272 TEST NUMBER: D96445

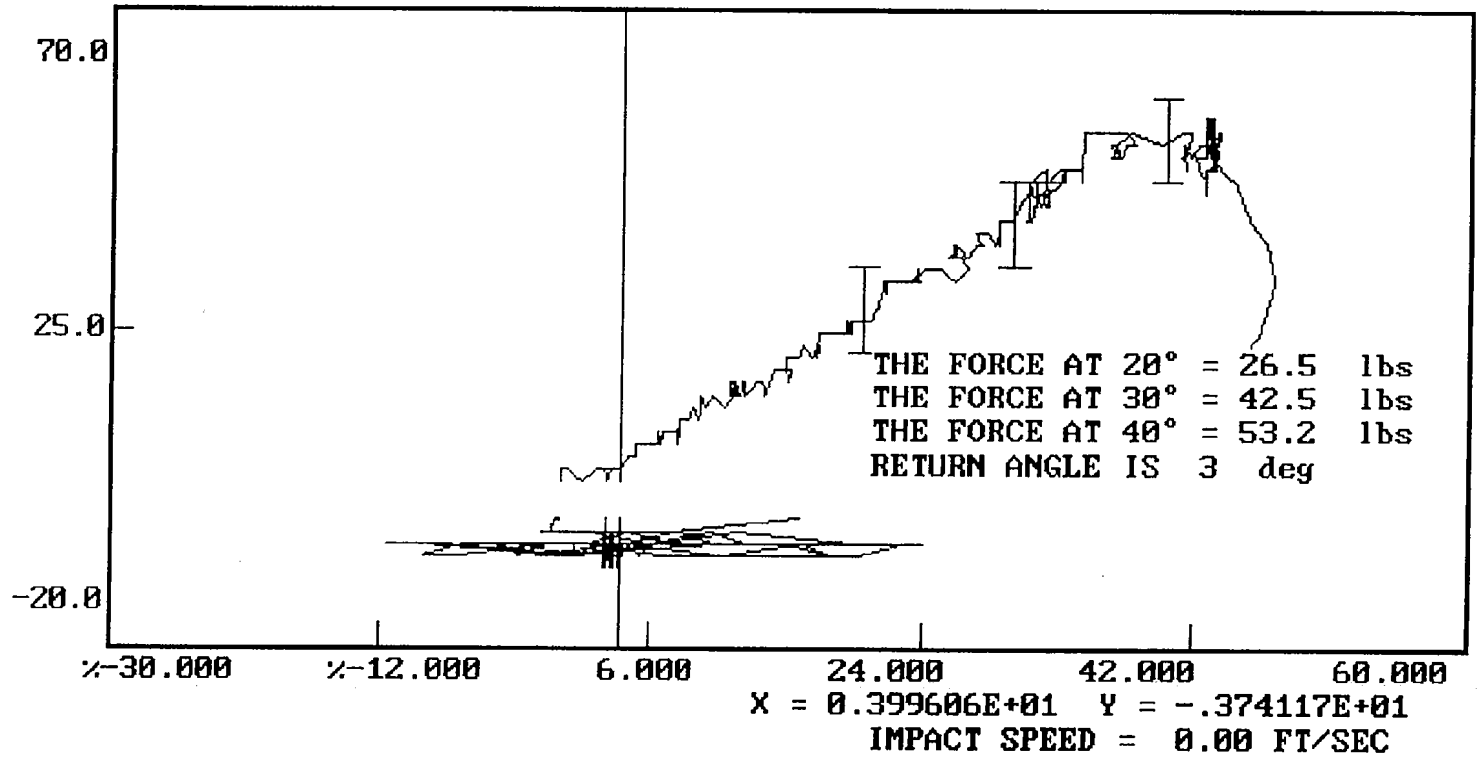
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	27
FORCE @ 30°	34 - 46 lbs	43
FORCE @ 40°	46 - 58 lbs	53
RETURN ANGLE	12° maximum	3°

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - LUMBAR FLEXION 03-04-1996 17:22
DUMMY # 272
FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 271

Calibration Test Results Summary

Dummy Serial Number: 271

Post-Test Calibration

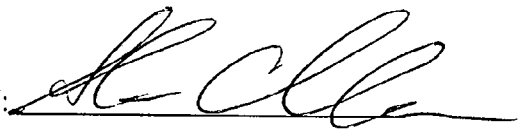
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 271

DATE OF VERIFICATION: March 4, 1996

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: Dave Kokoske

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 1, 1996

DUMMY NUMBER: 271 TEST NUMBER: D96432

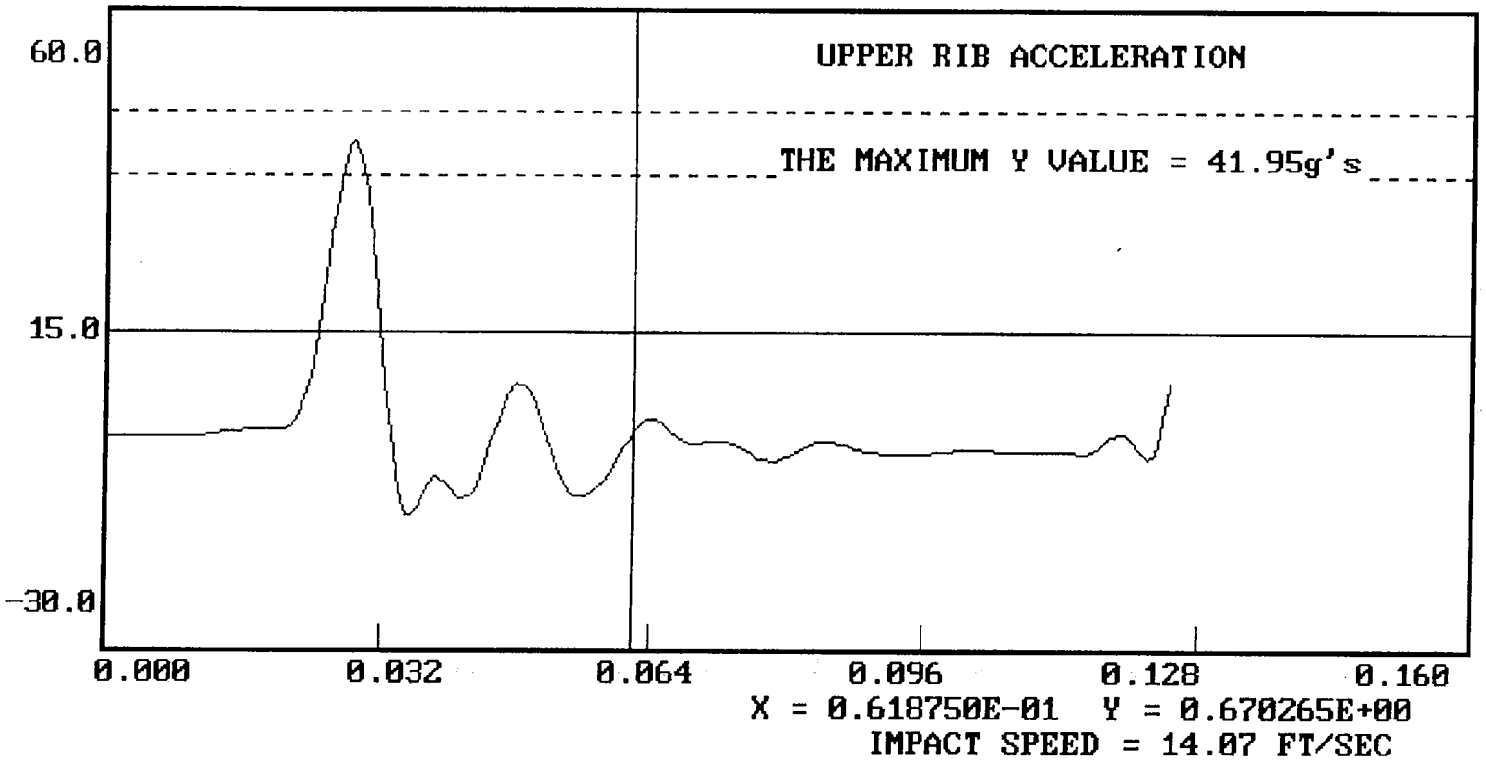
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
PROBE SPEED	13.8 - 14.2 fps	14.1
UPPER RIB	37 - 46 g's	42
LOWER RIB	37 - 46 g's	42
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN

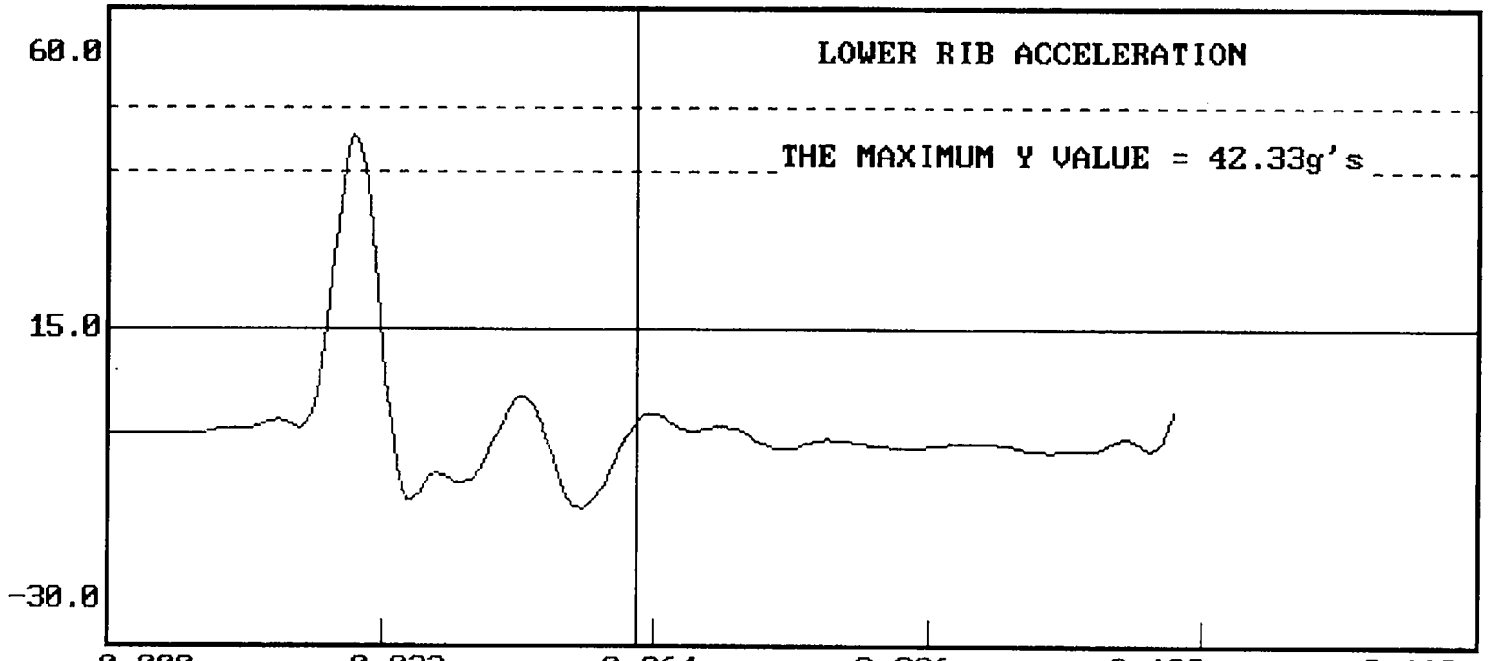
APPROVED BY

DUMMY CALIBRATION - THORAX IMPACT 03-01-1996 15:13
DUMMY # 271
ACCELERATION (G'S) VS. TIME ((SECONDS))



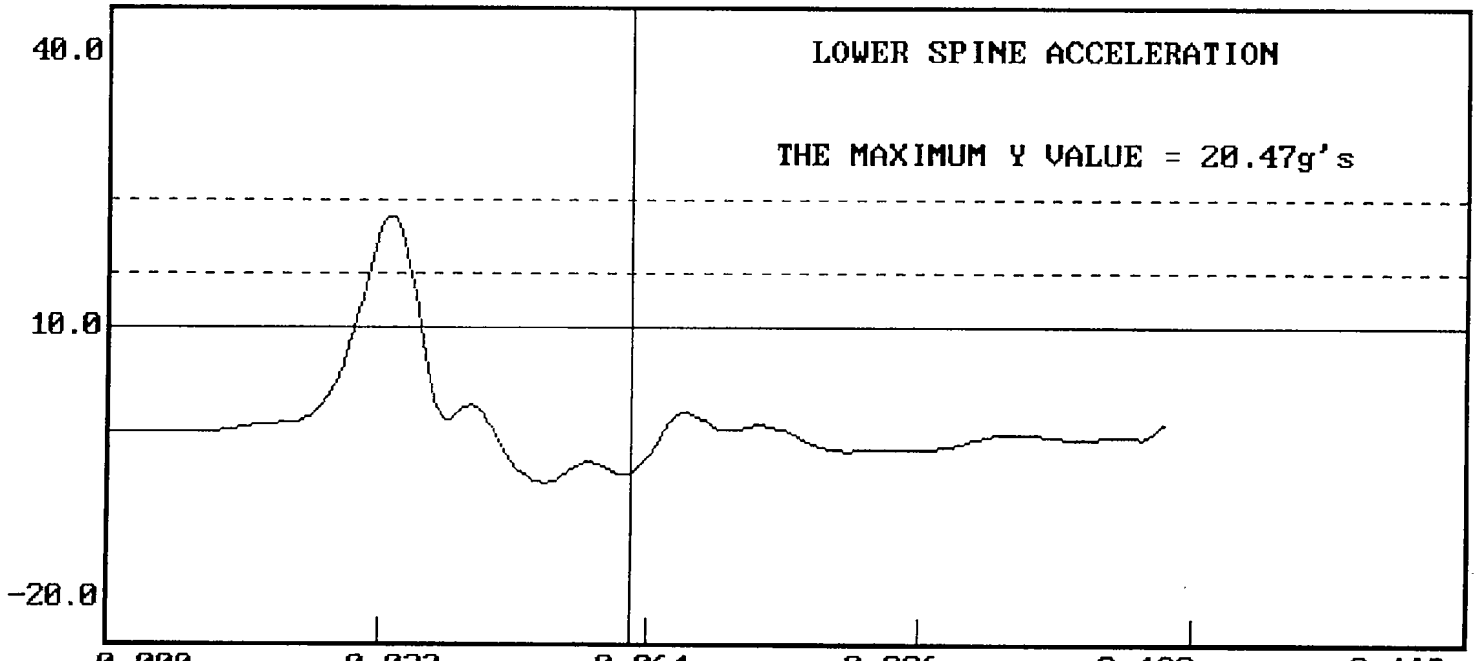
X = 0.618750E-01 Y = 0.670265E+00
IMPACT SPEED = 14.07 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT 03-01-1996 15:13
DUMMY # 271
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = 0.177267E+01
IMPACT SPEED = 14.07 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT 03-01-1996 15:13
DUMMY # 271
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.377460E+01
IMPACT SPEED = 14.07 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 1, 1996

DUMMY NUMBER: 271 TEST NUMBER: D96433

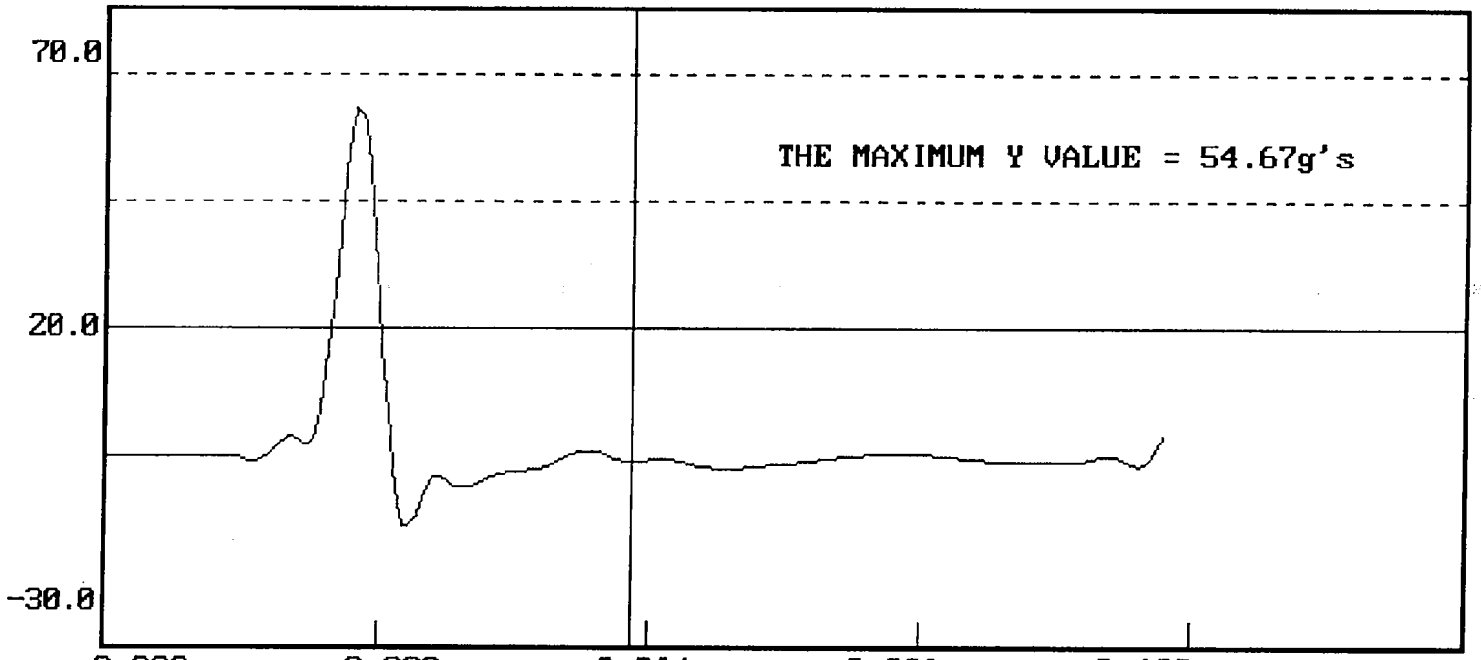
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
PROBE SPEED	13.8 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	55

TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY Dave Krabske

DUMMY CALIBRATION - PELVIS IMPACT 03-01-1996 15:21
DUMMY # 271
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.756438E+00
IMPACT SPEED = 14.09 FT/SEC

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

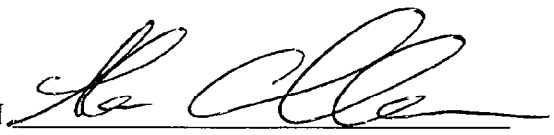
SIDE IMPACT DUMMY (SID)

DATE: March 4, 1996

DUMMY NUMBER: 271 TEST NUMBER: D96434

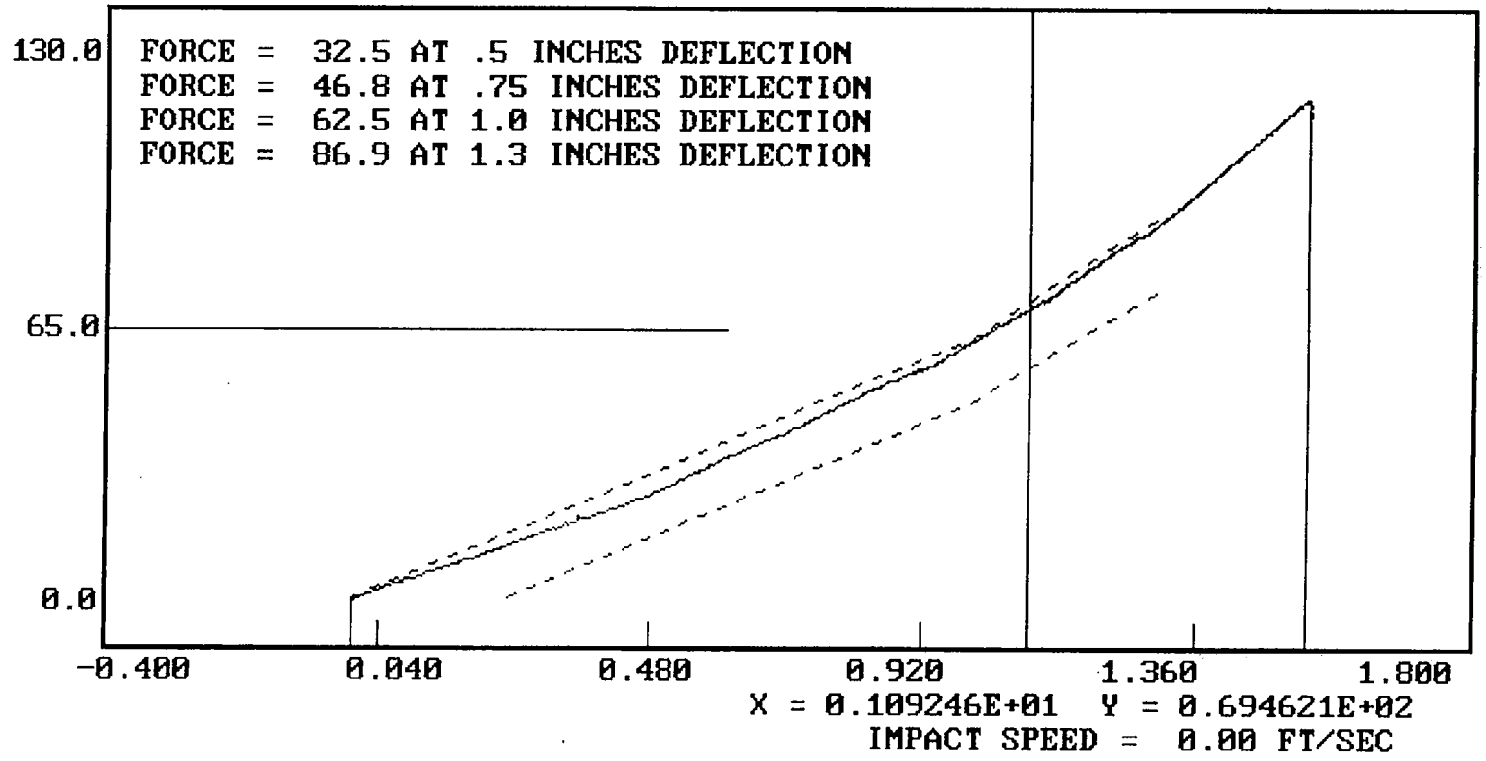
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0.5 in	23.3 - 36.5 lbs	32.5
FORCE @ 0.75 in	36.7 - 49.8 lbs	46.8
FORCE @ 1.0 in	50 - 63 lbs	63
FORCE @ 1.3 in	73 - 88 lbs	87

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY Steve Kabeke

DUMMY CALIBRATION - ABDOMEN COMPRESSION 03-04-1996 14:39
DUMMY # 271
ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: March 4, 1996

DUMMY NUMBER: 271 TEST NUMBER: D96435

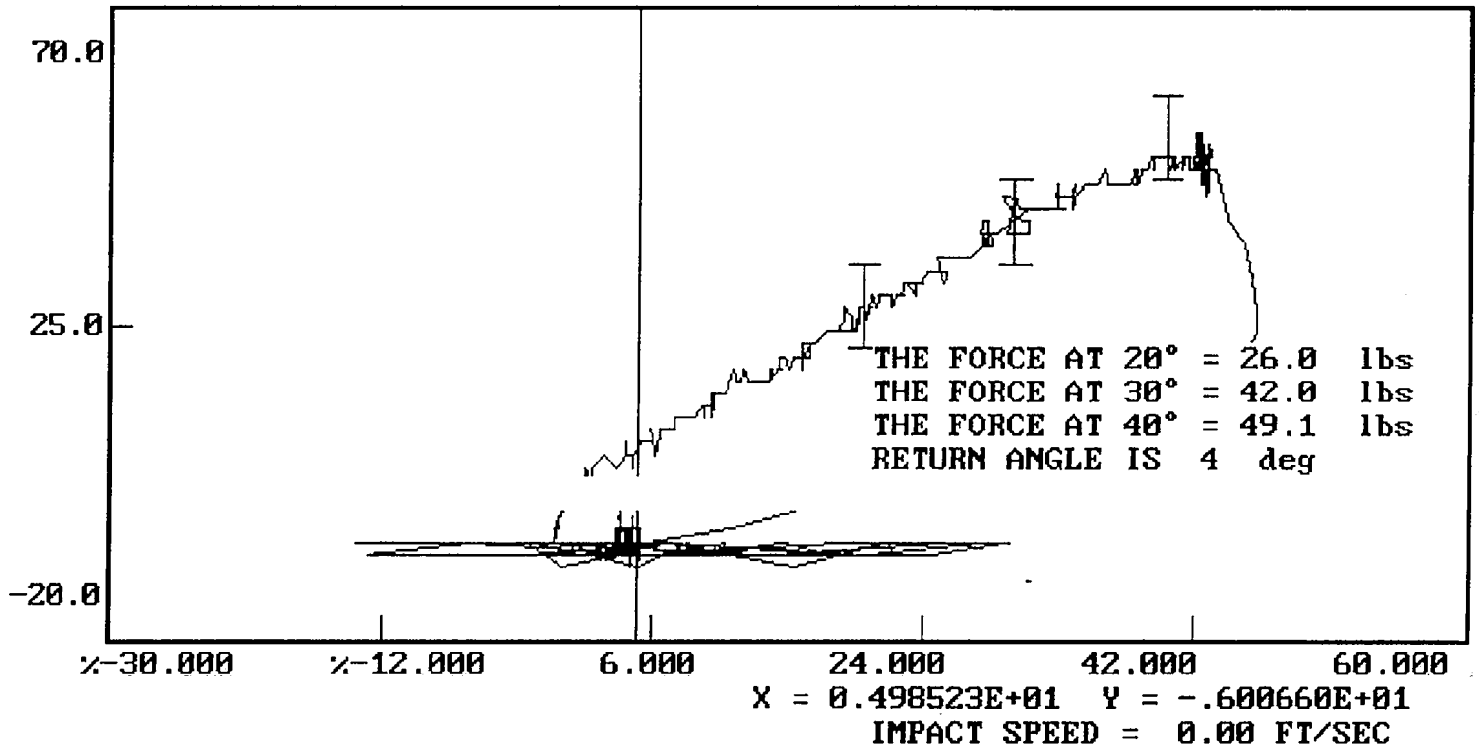
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	26
FORCE @ 30°	34 - 46 lbs	42
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	4°

TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY

DUMMY CALIBRATION - LUMBAR FLEXION 03-04-1996 17:11
DUMMY # 271
FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 272

Inspected By: Al Chalmers

Date: March 4, 1996

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

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

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 271

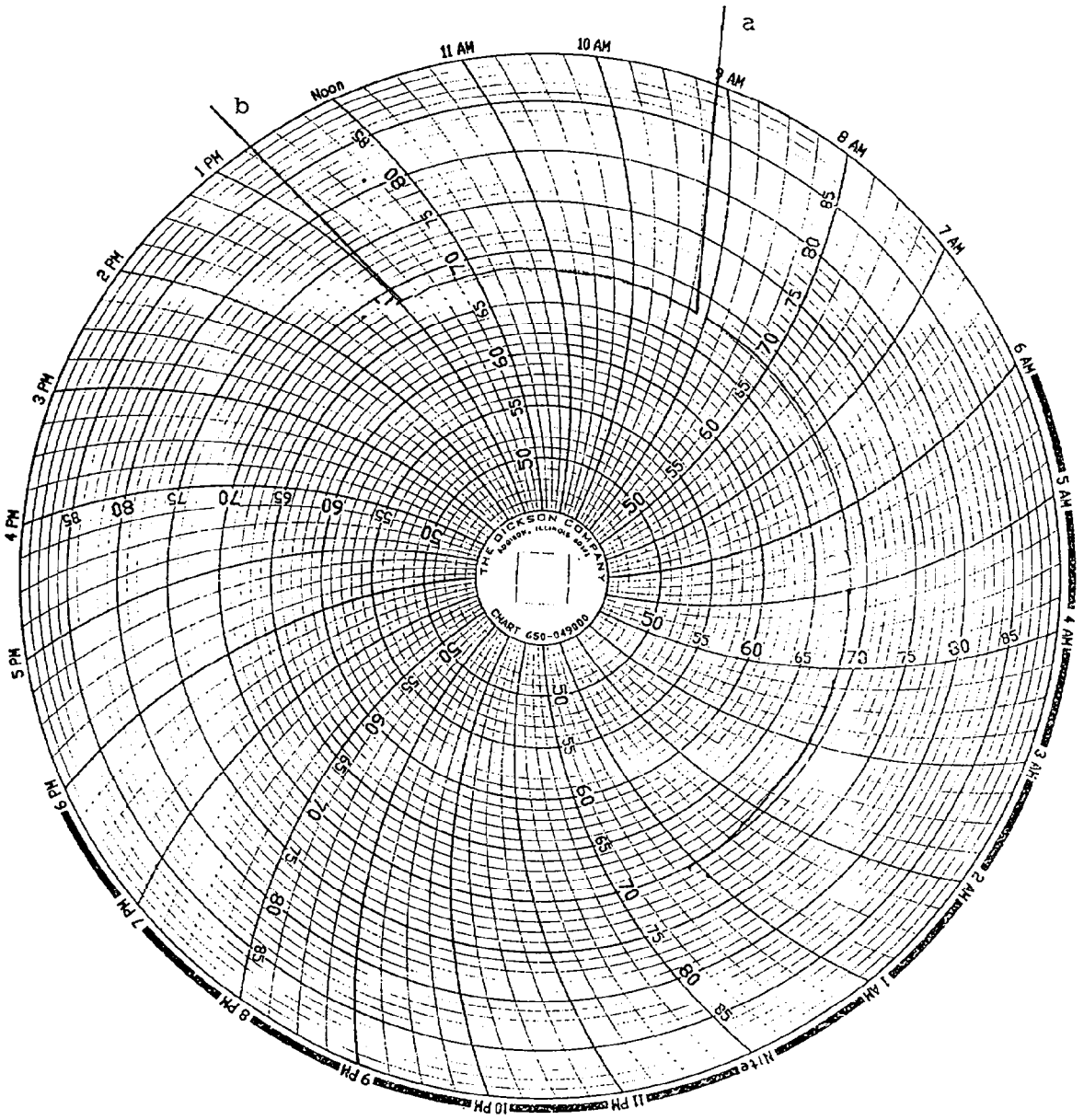
Inspected By: Al Chalmers

Date: March 4, 1996

Part	Items Checked	Comments
Skin	visual inspection	OK
Head	visual, ballast, accelerometer mount	OK
Neck	visual	OK
Spine box	visual, ballast, weldment, accelerometer mount	OK
Rib cage	visual, measure	OK
Sternum	visual	OK
Lumbar spine	visual	OK
Abdomen	visual	OK
Pelvis	visual, palpate, accelerometer mount	OK
Upper legs	visual	OK
Knees	visual	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. 272

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AGTM8	Endevco	February 20, 1996
Lower Rib Y	11166	Endevco	January 29, 1996
Lower Spine Y	AP0H4	Endevco	February 20, 1996
Pelvis Y	APY15	Endevco	February 20, 1996
Upper Rib Redundant Y	AJ411	Endevco	February 20, 1996
Lower Rib Redundant Y	11630	Endevco	January 29, 1996
Lower Spine Redundant Y	AP0F6	Endevco	February 20, 1996
Pelvis Redundant Y	APY16	Endevco	February 20, 1996

INSTRUMENTS FOR PASSENGER DUMMY NO. 271

	LEFT REAR PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AP2A4	Endevco	February 21, 1996
Lower Rib Y	AP1B3	Endevco	February 21, 1996
Lower Spine Y	ANAP1	Endevco	February 21, 1996
Pelvis Y	AHTC3	Endevco	February 21, 1996
Upper Rib Redundant Y	AP2D8	Endevco	February 21, 1996
Lower Rib Redundant Y	AP1C6	Endevco	February 21, 1996
Lower Spine Redundant Y	ANAT6	Endevco	February 21, 1996
Pelvis Redundant Y	AGP53	Endevco	February 21, 1996

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	L18-E02	Entran	October 23, 1995
Moving Barrier CG Y	H07-A03	Entran	September 15, 1995
Moving Barrier CG Z	F10-D05	Entran	February 02, 1996
Moving Barrier Rear Axle X	L18-E13	Entran	January 22, 1996
Moving Barrier Rear Axle Y	H16-X16	Entran	September 21, 1995
Left Mid A-Post Y	D06-A15	Entran	October 23, 1995
Left Lower A-Post Y	J10-E08	Entran	January 22, 1996
Left Mid B-Post Y	J10-E16	Entran	January 22, 1996
Left Lower B-Post Y	L14-D19	Entran	October 24, 1995
Rear Floorpan Above Axle X	J23-E07	Entran	January 22, 1996
Rear Floorpan Above Axle Y	L14-D07	Entran	January 22, 1996
Rear Floorpan Above Axle Z	J23-E05	Entran	January 22, 1996
Driver Seat Track Y	J10-E09	Entran	January 22, 1996
Right Side Sill at Front Seat X	J10-E04	Entran	January 22, 1996
Right Side Sill at Front Seat Y	J06-D20	Entran	January 22, 1996
Right Side Sill at Front Seat Z	J23-E02	Entran	January 22, 1996
Right Side Sill at Rear Seat X	J10-E14	Entran	January 26, 1996
Right Side Sill at Rear Seat Y	J10-E15	Entran	January 26, 1996
Right Side Sill at Rear Seat Z	L14-D08	Entran	December 13, 1995
Left Side Sill at Front Seat Y	E13-D18	Entran	October 23, 1995

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Rear Seat Y	L18-E10	Entran	October 23, 1995
Right Rear Occupant Compartment Y	J06-D15	Entran	December 13, 1995
Vehicle CG X	L14-D15	Entran	October 23, 1995
Vehicle CG Y	H0-A06	Entran	September 05, 1995
Vehicle CG Z	E24-G02	Entran	February 02, 1996

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