V2533

REPORT NO.: 214-MGA-97-18
SAFETY COMPLIANCE TESTING FOR
FMVSS 214 "SIDE IMPACT PROTECTION -
PASSENGER CARS"

MAZDA MOTOR COMPANY
1997 MAZDA MIATA 2 DOOR
NHTSA NO: CV5400

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105

Test Date: January 7, 1997

Report Date: January 21, 1997

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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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
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15. Supplementary Notes		

16. Abstract

A 48/24 kph 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject 1997 Mazda Miata 2 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 January 7, 1997.

The impact velocity of the Moving Deformable Barrier (MDB) was 53.4 kph, and the ambient temperature at the struck side of the target vehicle at the time of impact was 22°C. The target vehicle post test maximum crush was 215 mm at level 3. The test vehicle's performance follows:

RIGHT FRONT PASS.

Right Upper Rib (RUR) Accel., g	61
Right Lower Rib (RLR) Accel., g	63
Lower Spine (T_{12}) Accel., g	71
Thoracic Trauma Index (TTI)	67
Pelvis (PEV) Accel., g	91

The door on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite door 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

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Approved By: John Fleck
John Fleck, Facility Director

Approval Date: 1-23-97

FINAL REPORT ACCEPTED BY (OVSC):

Accepted By: [signature]
Contract Technical Manager

Acceptance Date: 4/16/97

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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 1997 Mazda Miata 2 Door.

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 1997 Mazda Miata 2 Door was impacted on the right side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 33.2 mph (53.4 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 January 7, 1997. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in Appendix A.

One Side Impact Dummy (SID) was placed in the right front 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 eight high speed cameras. Camera locations and other pertinent camera information can be found in this report.

The SID was instrumented with the following accelerometers.

1. Right Upper Rib (RUR) uniaxial accelerometer (Y-direction)
2. Right Lower Rib (RLR) 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 FMVSS 214 Right Side Impact test:

Injury Criteria	Front SID
TTI (g)	67
Pelvis (g)	91

TEST NOTES

1. The following accelerometers were not used for this test:

   Right Front Door on Centerline

   Midrear of Right Front Door

   Right Front Door Upper Centerline

   Midrear of Right Rear Door

   Right Rear Door Upper Centerline

   Rear Seat Track

   Right Mid B Post

   Right Rear Occupant Compartment

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: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 VIN: JM1NA3530V0720006

Vehicle Body Color: Blue Build Date: 8/96

Engine Data: 4 Cylinders; __ CID; 1.8 Liter; ___cc

Placement X Longitudinal; __ Lateral

Transmission: 5 speed; X Manual; _ Automatic; _ Overdrive

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

Odometer Reading 63 miles

Options: _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): 26 Psi FRONT

26 Psi REAR

Recommended Tire Size: P185/60R14 82H

Tires on Test Vehicle: P185/60R14 82H Manufacturer: Bridgestone

Vehicle Capacity Data:

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

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

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

Vehicle Maximum Capacity Loading	= 154.2 kg	(A)
No. of Occupants x 68.04 kg.	= 136.1 kg	(B)
Cargo Capacity (A-B)	= 18.1 kg	

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	= 266.2 kg	Right Rear	= 255.8 kg
Left Front	= 269.4 kg	Left Rear	= 242.2 kg
TOTAL FRONT = 535.6 kg		TOTAL REAR = 498.0 kg	

% of Total Vehicle Weight = 52.0 %; % of Total Weight = 48.0 %

TOTAL WEIGHT = 1033.6 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	= 1033.6 kg
Cargo Carrying Capacity of Test Vehicle	= 18.1 kg
Weight of 1 Side Impact Dummies (1 x 80.7 kg.)	= 80.7 kg
TEST VEHICLE TARGET WEIGHT	= 1132.4 kg

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front	= 295.7 kg	Right Rear	= 295.3 kg
Left Front	= 271.7 kg	Left Rear	= 264.9 kg
TOTAL FRONT	= 567.4 kg	TOTAL REAR	= 560.2 kg
% of Total Weight	= 50.3 %	% of Total Weight	= 49.7 %
TOTAL TEST WEIGHT	= 1127.6 kg		

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 635 mm Left Front 636 mm Right Rear 656 mm Left Rear 650 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 622 mm Left Front 632 mm Right Rear 623 mm Left Rear 638 mm

TEST ATTITUDE:

Right Front 624 mm Left Front 625 mm Right Rear 639 mm Left Rear 646 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2264 mm

C.G. = 1076 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 3653 mm

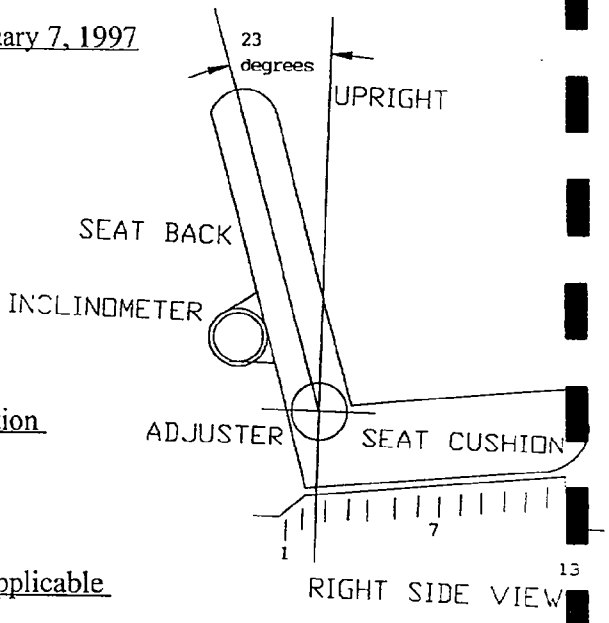
Centerline = 3924 mm

Left Side = 3653 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997



FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 125 mm

Test Position: 7th position rearward out of 13 total

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 23° - 8th notch from full up position

REAR POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: Not-Applicable

Seat Back Adjustment Position: Not-Applicable

ADJUSTABLE STEERING COLUMN POSITION: Non-adjustable

WINDOW POSITIONS: Left Front Open Left Rear N/A

Right Front Closed Right Rear N/A

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 12.26 gallons

Test Volume: 11.4 gallons 93 % of capacity

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

Wheelbase: = 2264 mm

Impact Point is 192 mm rearward of front axle centerline

DATA SHEET NO. 2

TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

Overall Length = 3924 mm; Overall Width = 1662 mm

TEST WEIGHT:

Right Front = 302.6 kg Right Rear = 275.8 kg

Left Front = 288.9 kg Left Rear = 259.9 kg

TOTAL FRONT = 591.5 kg TOTAL REAR = 535.7 kg

% of Total Weight = 52.0 % % of Total Weight = 48.0 %

TOTAL VEHICLE WEIGHT = 1127.2 kg

Wheelbase = 2264 mm

Longitudinal C.G. from Center of Front Axle = 1076 mm

Impact Angle with Respect to Impactor = 90° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (252 mm above ground) = 65 mm
2. LEVEL 2 (381 mm above ground) = 187 mm
3. LEVEL 3 (520 mm above ground) = 215 mm
4. LEVEL 4 (780 mm above ground) = 110 mm
5. LEVEL 5 (N/A mm above ground) = 33 mm

Maximum Post-Test Intrusion = 215 mm

OCCUPANTS:	Right Front Passenger	Right Rear Passenger
Type of Dummy	SID	N/A
Restraints Used	type II belt with frontal airbag	N/A

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)

INSTRUMENTATION:

Number of Vehicle Data Channels:		= 18
Number of Cameras:	Onboard Vehicle	= 2
	Offboard Vehicle	= 4
	Deformable Barrier	= 2
	TOTAL	= 8

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to right

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	= 1107 mm
C.G. Location From Center Line	= 4 mm
C.G. Location Above Ground Level	= 506 mm

MDB WEIGHT:

Left Front	= 399.0 kg	Left Rear	= 276.3 kg
Right Front	= 378.8 kg	Right Rear	= 304.3 kg
TOTAL FRONT = 777.8 kg		TOTAL REAR = 580.6 kg	

TOTAL MDB WEIGHT = 1358.4 kg

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

Impact Speed = Primary: 33.16 mph (53.4 kph) Secondary: 33.20 mph (53.4 kph)

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A Top of Stack (813 mm) = 34 mm
2. Row B Mid Stack (686 mm) = 74 mm
3. Row C Top of Bumper (533 mm) = 143 mm
4. Row D Center of Bumper (432 mm) = 174 mm

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET NO. 4

POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

VISIBLE DUMMY CONTACT POINTS:

	RIGHT FRONT SID	RIGHT REAR SID
Head	to side header	N/A
Arm	to door trim panel	N/A
Pelvis	to door trim panel	N/A
Left Knee	to right knee	N/A
Right Knee	to door trim panel	N/A

DOOR OPENING:

	LEFT SIDE	RIGHT SIDE
Front	remained closed	remained closed
Rear	N/A	N/A

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 11 mm forward Vertical: 17 mm high

ARM REST LOCATIONS:

Front: 265 mm from bottom of window

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 81 mm Front Seat Cushion: 27 mm

GLAZING DAMAGE:

Door glass broken and windshield cracked

PILLAR PERFORMANCE:

No separation noted

SILL SEPARATION:

No separation noted

OTHER NOTABLE IMPACT EFFECTS:

Both front airbags deployed

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

SIDE IMPACT DUMMY (SID) INSTRUMENTATION DATA

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

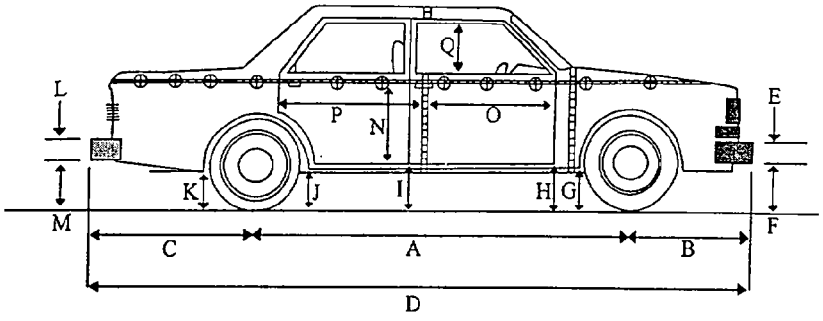
Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

	Front SID ID #274				Rear SID ID # N/A			
	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								
Right Upper Rib (RUR) Y	11.2	62	-61.3	25	N/A	N/A	N/A	N/A
Right Lower Rib (RLR) Y	14.4	59	63.3	26	N/A	N/A	N/A	N/A
SPINE ACCELERATIONS								
Lower Lateral Y	18.1	60	-71.2	31	N/A	N/A	N/A	N/A
PELVIS ACCELERATIONS								
Lateral Y	7.7	198	-90.7	32	N/A	N/A	N/A	N/A

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

DATA SHEET NO. 6

VEHICLE PRE AND POST-TEST MEASUREMENTS



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

J1 = To Pinch Weld
J2 = To Sill

ALL MEASUREMENTS IN (mm)

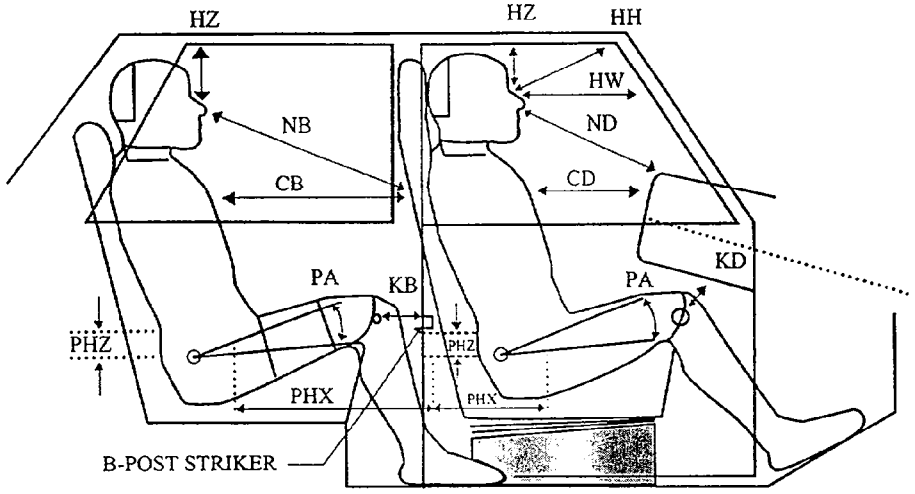
	PRE-TEST	POST-TEST	Δ CHANGE
A	2264	2246	18
B	780	780	0
C	880	885	5
D	3924	3911	13
E	273	280	7
F	384	370	14
G	220	224	4
H	168	190	22
I	150	138	12
J1/J2	153/150	143/139	10/11
K	251	154	97
L	275	272	3
M	262	278	16
N	633	632	1
O	420	413	7
P	707	695	12
Q	345	342	3
R	3653	3658	5
S	3653	3655	2
T	1662	1574	88

DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

NHTSA NO.: CV5400 Test Date: January 7, 1997



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

	FRONT PASSENGER ID #274
HH	451
HW	525
HZ	111
ND	650
CD	528
CS	N/A
KDL(KDA°)	159 (46.3°)
KDR(KDA°)	157 (39.3°)
PA°	23.4°
PHX	278
PHZ	154

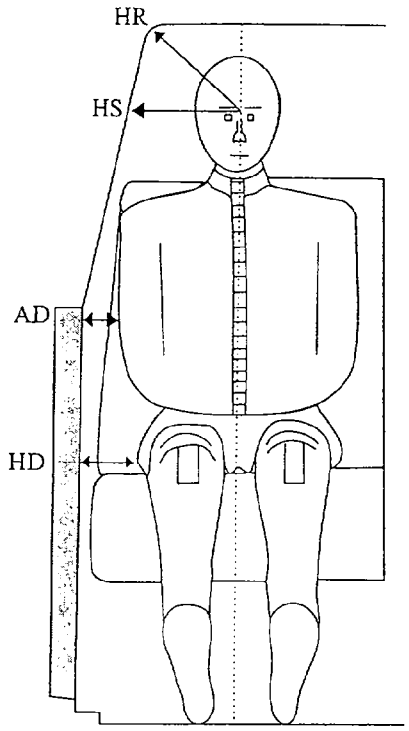
	REAR PASSENGER SID ID # N/A
HZ	N/A
NB	N/A
CB	N/A
KBL (KBA)	N/A
KBR (KBA)	N/A
PA°	N/A
PHX	N/A
PHZ	N/A

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: 1997/Mazda/Miata/2 Door

NHTSA NO.: CV5400 Test Date: January 7, 1997



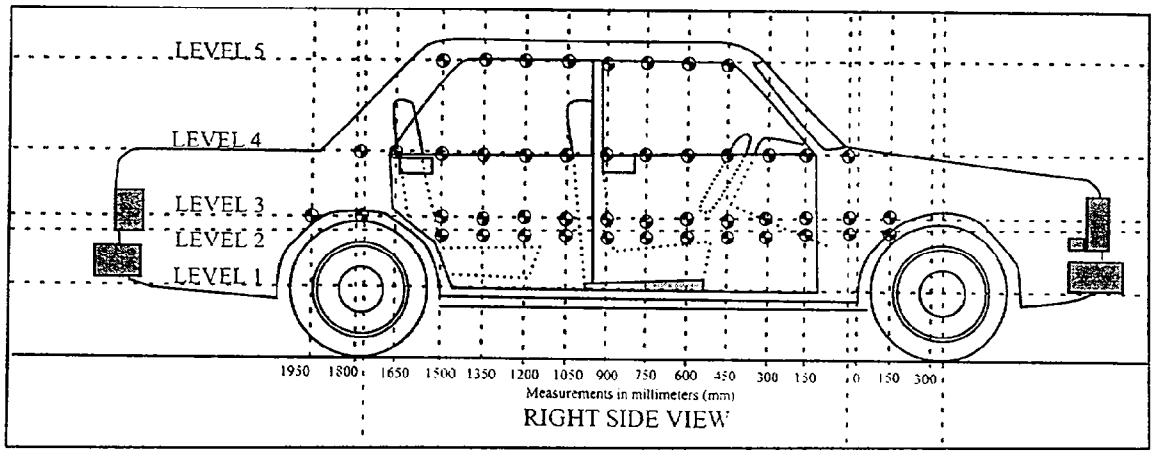
NOTE: All dimensions are in mm

	FRONT PASSENGER ID #274	REAR PASSENGER ID # N/A
HR	171	N/A
HS	207	N/A
AD	43	N/A
HD	123	N/A

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

NHTSA NO.: CV5400 Test Date: January 7, 1997



RIGHT SIDE VIEW

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

MEASUREMENTS ALONG THE VERTICAL 750 mm. LINE SHOWN ABOVE

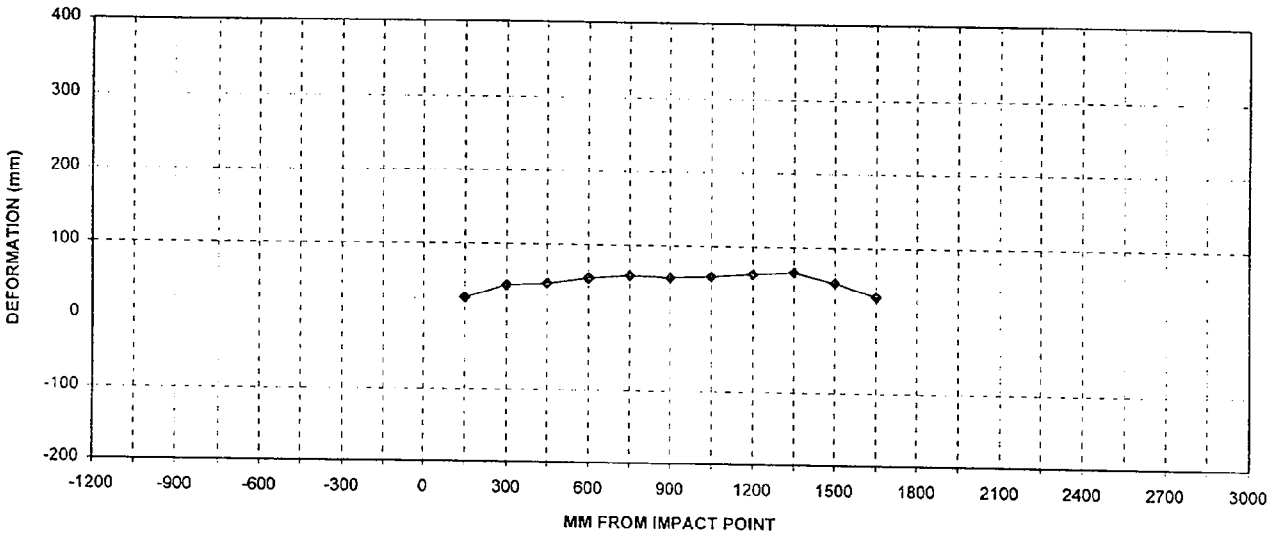
Level 1 @ Axle Centerline Height (or Sill Top Height)	= 252 mm
Level 2 @ Occupant H-Point	= 381 mm
Level 3 @ Mid Door	= 520 mm
Level 4 @ Window Sill	= 780 mm
Level 5 @ Window Top	= N/A mm

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 1 - Axle Centerline		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150	776	801	25
300	760	803	43
450	770	816	46
600	775	829	54
750	777	835	58
900	780	836	56
1050	781	839	58
1200	782	844	62
1350	781	846	65
1500	780	831	51
1650	777	809	32
1800			
1950			
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 (Cont'd)



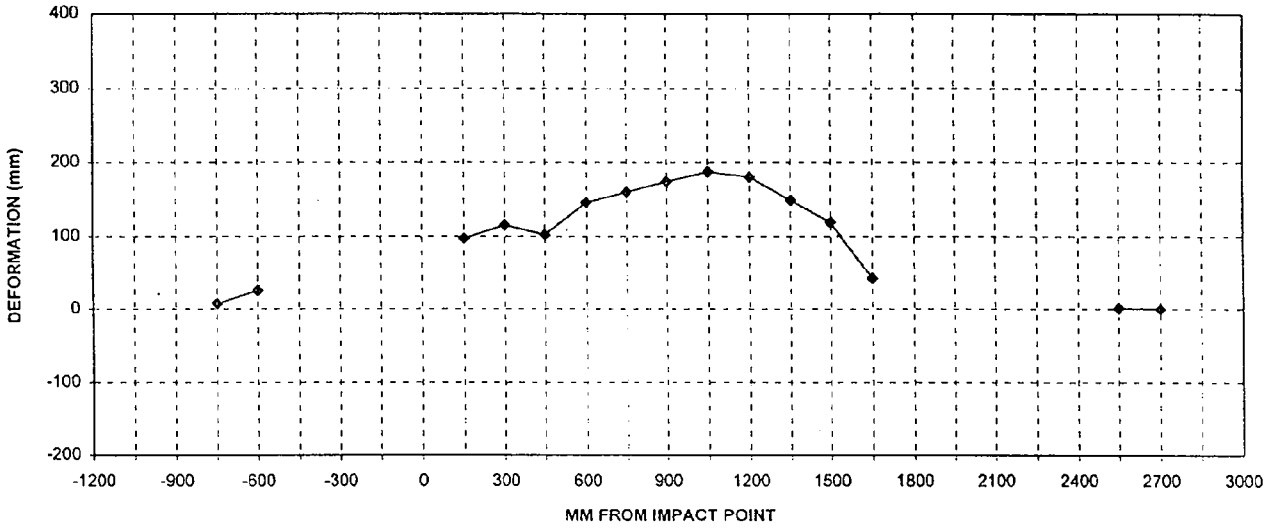
LEVEL 1 - AXLE CENTERLINE

DATA SHEET NO. 10 (Cont'd)
VEHICLE EXTERIOR CRUSH PROFILES

	Level 2 - Occupant H Point		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750	853	860	7
-600	784	809	25
-450			
-300			
-150			
0 (impact point)			
150	727	824	97
300	723	838	115
450	729	831	102
600	732	878	146
750	737	897	160
900	738	912	174
1050	740	927	187
1200	742	922	180
1350	744	893	149
1500	743	862	119
1650	741	782	41
1800			
1950			
2100			
2250			
2400			
2550	825	826	1
2700	870	870	0
2850			
3000			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



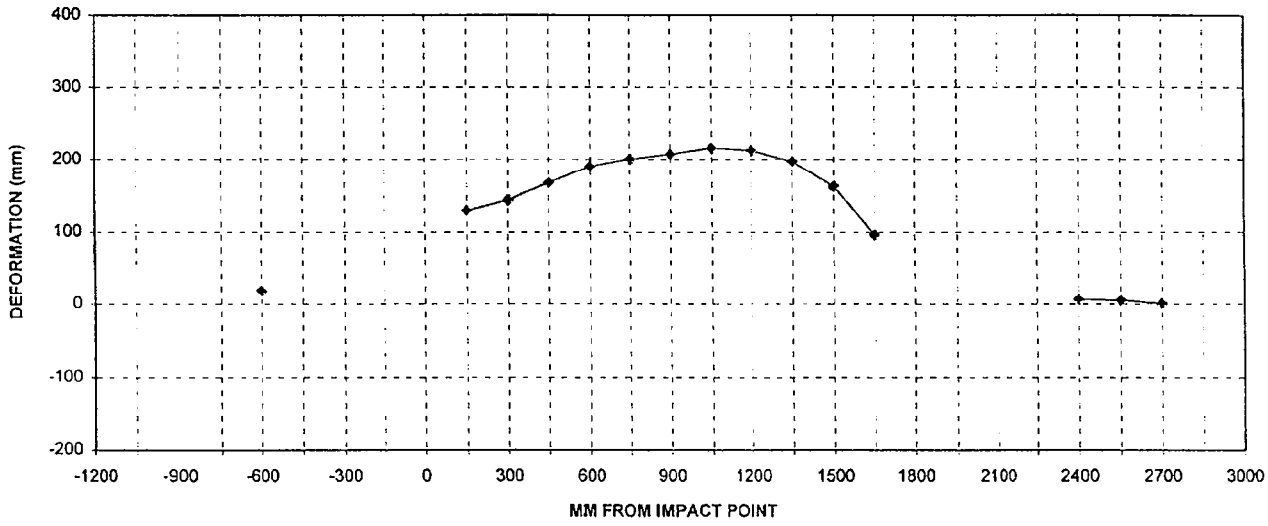
LEVEL 2 - OCCUPANT H-POINT

DATA SHEET NO. 10 (Cont'd)
VEHICLE EXTERIOR CRUSH PROFILES

	Level 3 - Mid Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600	781	800	19
-450			
-300			
-150			
0 (impact point)			
150	705	834	129
300	705	848	143
450	711	878	167
600	714	904	190
750	717	917	200
900	720	927	207
1050	721	936	215
1200	722	934	212
1350	721	918	197
1500	721	883	162
1650	719	815	96
1800			
1950			
2100			
2250			
2400	769	775	6
2550	807	812	5
2700	854	855	1
2850			
3000			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



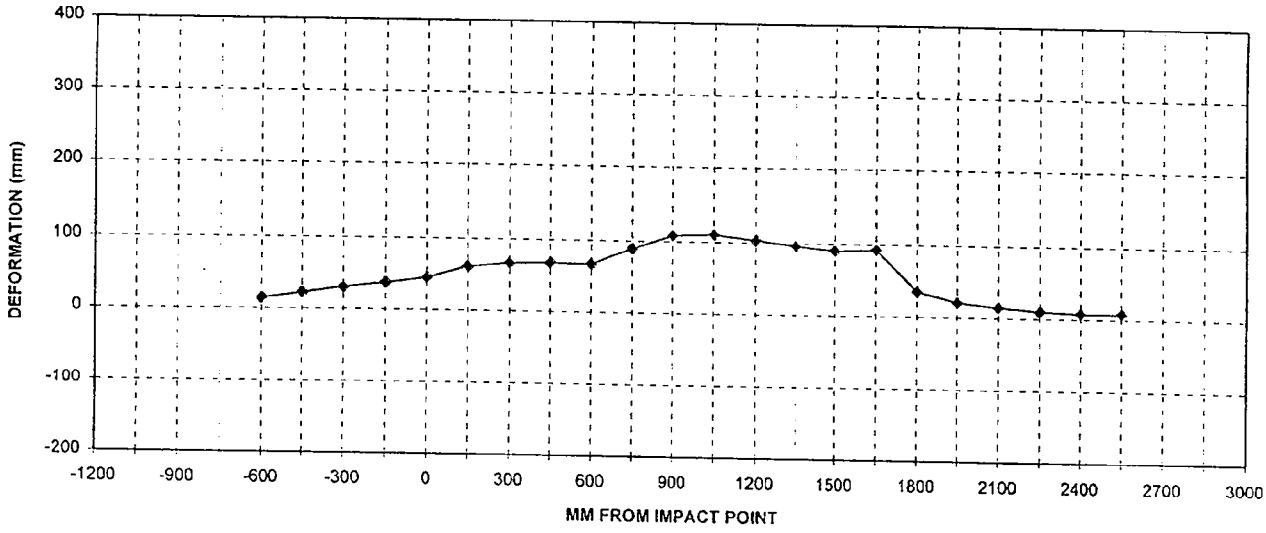
LEVEL 3 - MID DOOR

DATA SHEET NO. 10 (Cont'd)
VEHICLE EXTERIOR CRUSH PROFILES

	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600	857	871	14
-450	836	858	22
-300	816	846	30
-150	804	841	37
0 (impact point)	798	842	44
150	793	853	60
300	789	855	66
450	795	862	67
600	802	868	66
750	803	892	89
900	804	912	108
1050	804	914	110
1200	804	907	103
1350	801	897	96
1500	799	889	90
1650	795	887	92
1800	795	830	35
1950	797	818	21
2100	803	818	15
2250	815	825	10
2400	839	847	8
2550	874	882	8
2700			
2850			
3000			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



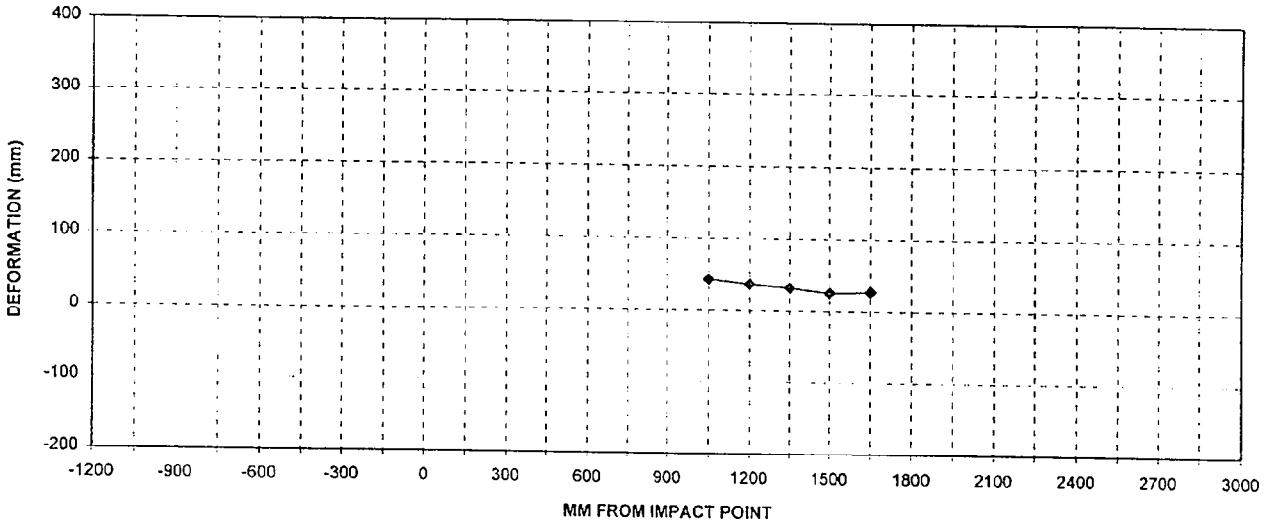
LEVEL 4 - WINDOW SILL

DATA SHEET NO. 10 (Cont'd)
VEHICLE EXTERIOR CRUSH PROFILES

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750			
900			
1050	976	1020	44
1200	973	1011	38
1350	967	1000	33
1500	966	992	26
1650	987	1015	28
1800			
1950			
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 (Cont'd)



LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

NHTSA NO.: CV5400 Test Date: January 7, 1997

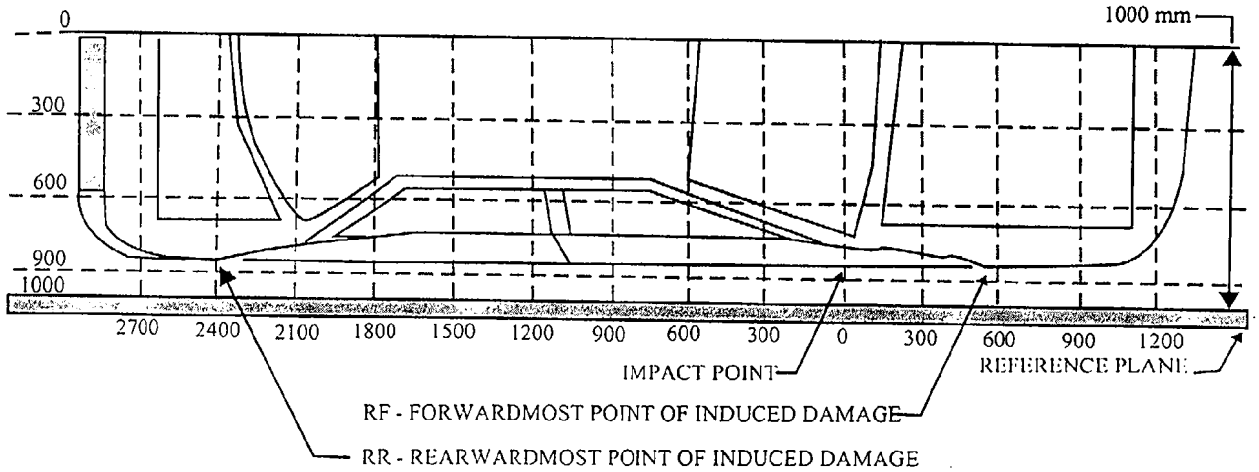


Figure is not representative of the actual test configuration

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (RF = -750 mm)	860	860	0
2. -60 mm	Wheel Opening	---	---
3. 630 mm	878	732	146
4. 1320 mm	893	744	149
5. 2010 mm	Wheel Opening	---	---
6. (RR = 2700 mm)	870	870	0

DATA SHEET NO. 12

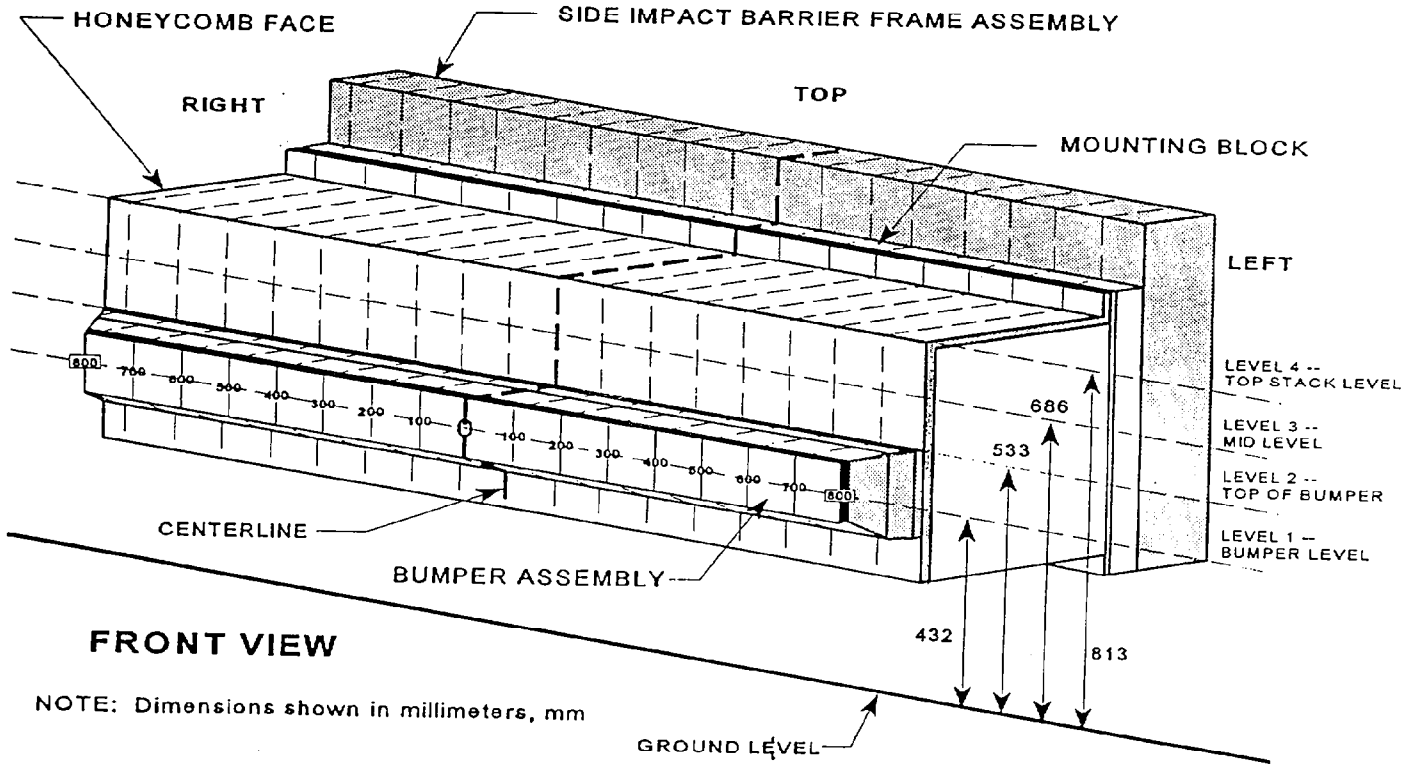
EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

		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	34	31	27	23	18	15	12	9	8	6	3	1	0	1	-2	-5	19
Mid Level Level 3	686 mm	61	58	61	59	41	21	14	11	9	7	4	2	4	9	27	57	74
Top Bumper Level 2	533 mm	143	134	126	116	98	76	60	48	36	28	21	14	17	37	81	111	134
Mid Bumper Level 1	432 mm	174	65	52	145	131	100	82	70	58	46	39	39	49	69	100	138	170

See next page for Barrier Face Graphic

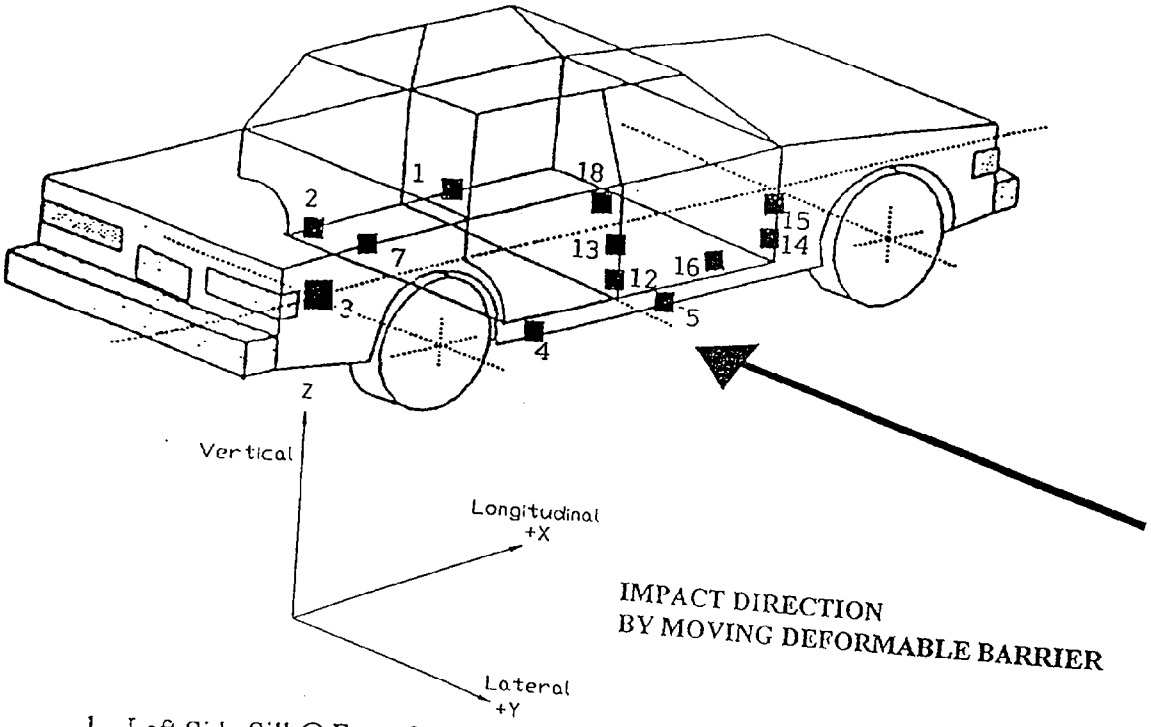

HONEYCOMB FACE
SIDE IMPACT BARRIER FRAME ASSEMBLY
RIGHT
TOP
MOUNTING BLOCK
LEFT
LEVEL 4 -- TOP STACK LEVEL
LEVEL 3 -- MID LEVEL
LEVEL 2 -- TOP OF BUMPER
LEVEL 1 -- BUMPER LEVEL
686
533
432
813
CENTERLINE
BUMPER ASSEMBLY
FRONT VIEW
NOTE: Dimensions shown in millimeters, mm
GROUND LEVEL

DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997



1 - Left Side Sill @ Front Seat
2 - Left Side Sill @ Rear Seat
3 - Rear Floorpan Above Axle
4 - Right Side Sill @ Rear Seat
5 - Right Side Sill @ Front Seat
7 - Left Rear Occupant Compartment

12 - Right Lower B-Post
13 - Right Mid B-Post
14 - Right Lower A-Post
15 - Right Mid A-Post
16 - Front Seat Track
18 - Vehicle C.G.

DATA SHEET NO. 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

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	Left Side Sill @ Front Seat	2185	-658	175	3.5	-11.8	5.5	-23.9	8.1	-9.8	26.8
2	Left Side Sill @ Rear Seat	1320	-662	185	9.5	-18.6	4.0	-25.3	5.7	-3.1	31.0
3	Rr. Floorpan Above Axle	824	0	710	3.4	9.2	4.0	-30.3	17.2	-12.0	31.6
4	Right Side Sill @ Rr. Seat	1321	662	185	---	---	4.7	-40.8	---	---	---
5	Right Side Sill @ Frt. Seat	2192	656	170	---	---	7.7	-41.0	---	---	---
12	Right Lower B-Post①	1508	612	265	---	---	1.6	-31.4	---	---	---
14	Right Lower A-Post	2510	620	253	---	---	8.3	-42.6	---	---	---
15	Right Mid A-Post①	2479	748	744	---	---	.7	-47.7	---	---	---
16	Right Front Passenger Seat Track	1648	510	260	---	---	6.4	-31.7	---	---	---
18	Vehicle CG	1814	0	470	7.3	-13.8	22.0	-39.3	40.6	-47.0	50.7

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

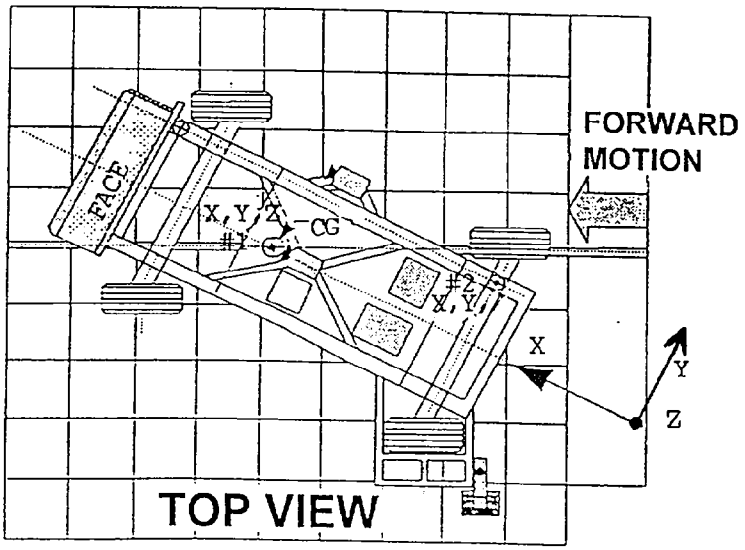
① Wire cut at approximately 19 msec.

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997



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)	---	---	---	.9	94	-18.9	32
	Lateral (Y)	---	---	---	5.6	18	-.6	69
	Vertical (Z)	---	---	---	13.6	22	-11.2	40
	Resultant (R)	---	---	---	22.0	40	---	---
2	Rear Frame Member	-2591	625	622				
	Longitudinal (X)	---	---	---	1.8	68	-22.8	31
	Lateral (Y)	---	---	---	6.0	17	-1.9	70

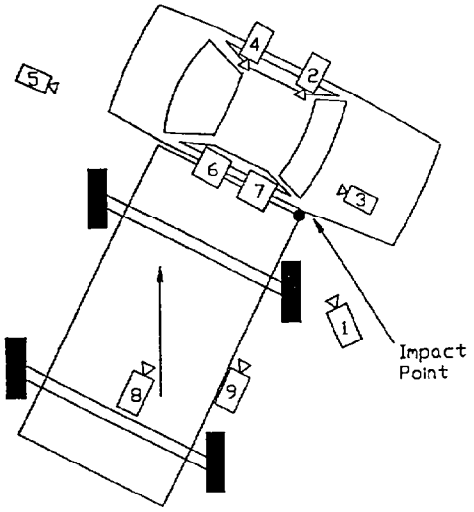
*Reference: X - Front Axle (+ Forward)
Y - Vehicle Centerline (+ To right)
Z - Ground Level (+ Up)

DATA SHEET NO. 15

HIGH SPEED CAMERA LOCATIONS AND DATA

Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
	Real Time					13	24
1	Right Impact	-1230	2280	1630	90°	13	781
2	Onboard Front Passenger					8	976
4	Onboard Rear Passenger	N/A	N/A	N/A	N/A	N/A	N/A
3	Onboard Hood					13	1020
5	Left Impact	-30	-8960	160	90°	25	980
6	Top Overall	-180	-1120	5000		8	1036
7	Top Impact	260	160	5000		13	784
8	Cart Wide					13	935
9	Cart Impact					35	1015

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

DATA SHEET 16

FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

TEST REQUIREMENTS:

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

TEST VEHICLE IMPACT TYPE: X Side Impact MDB 33.16 mph (53.4 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

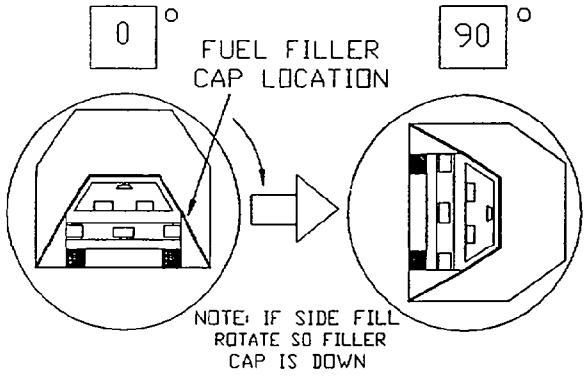
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 51 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 51 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	0 oz	1 oz

FUEL SPILLAGE LOCATIONS(S): None

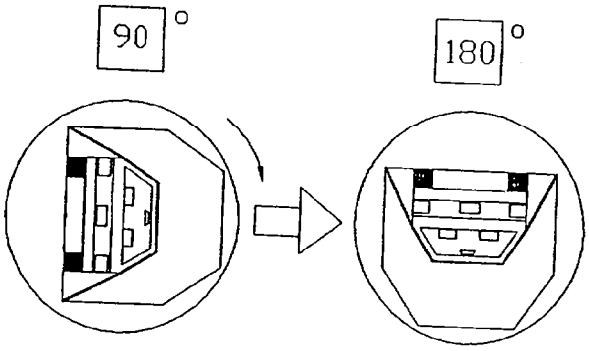
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 36 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 36 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	0 oz	1 oz

FUEL SPILLAGE LOCATIONS(S): None

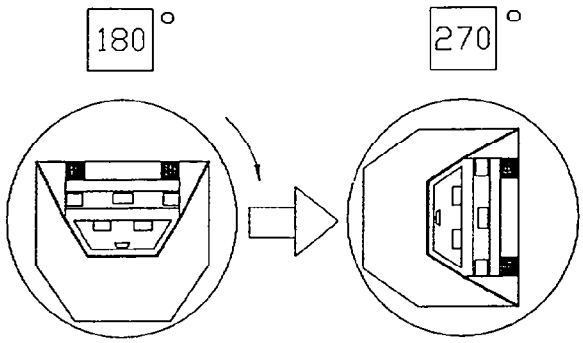
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

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	0 oz	1 oz

FUEL SPILLAGE LOCATIONS(S): None

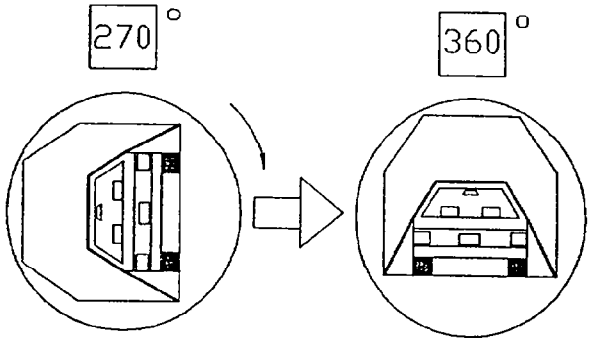
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1997/Mazda/Miata/2 Door

Vehicle NHTSA No.: CV5400 Test Date: January 7, 1997

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 43 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 43 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	0 oz	1 oz

FUEL SPILLAGE LOCATIONS(S): None

APPENDIX A - PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

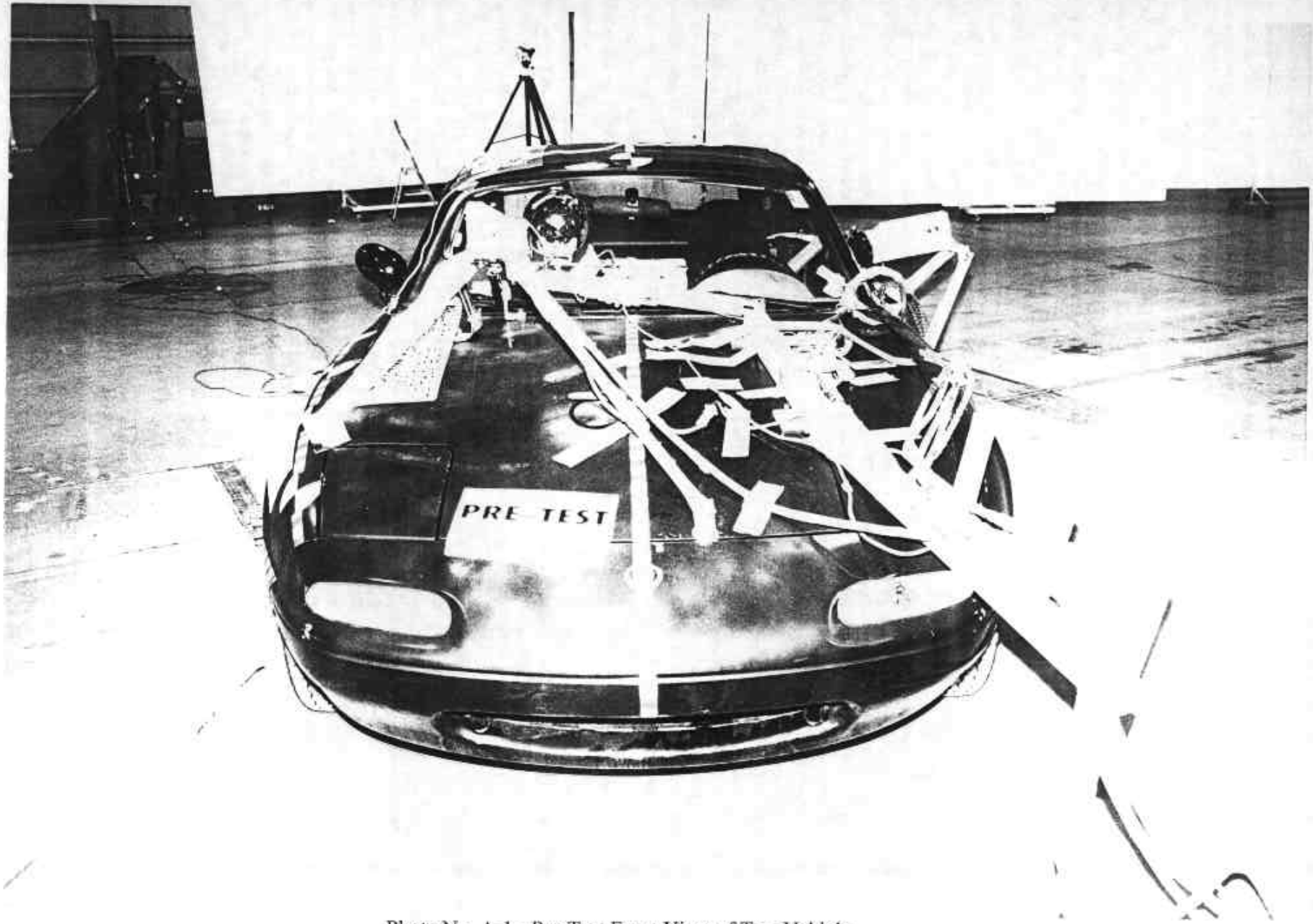


Photo No. A-1 - Pre-Test Front View of Test Vehicle

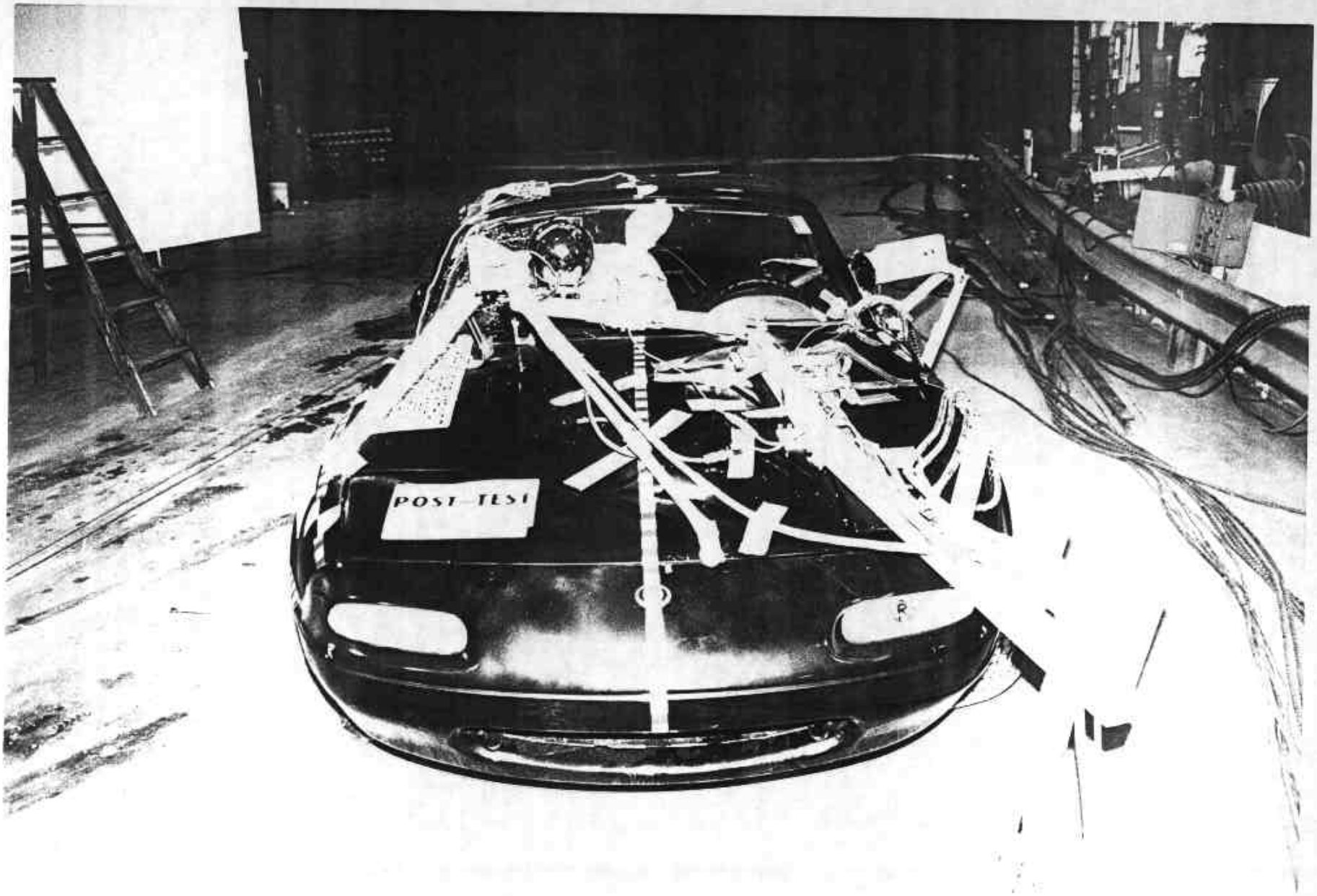


Photo No. A-2 - Post-Test Front View of Test Vehicle

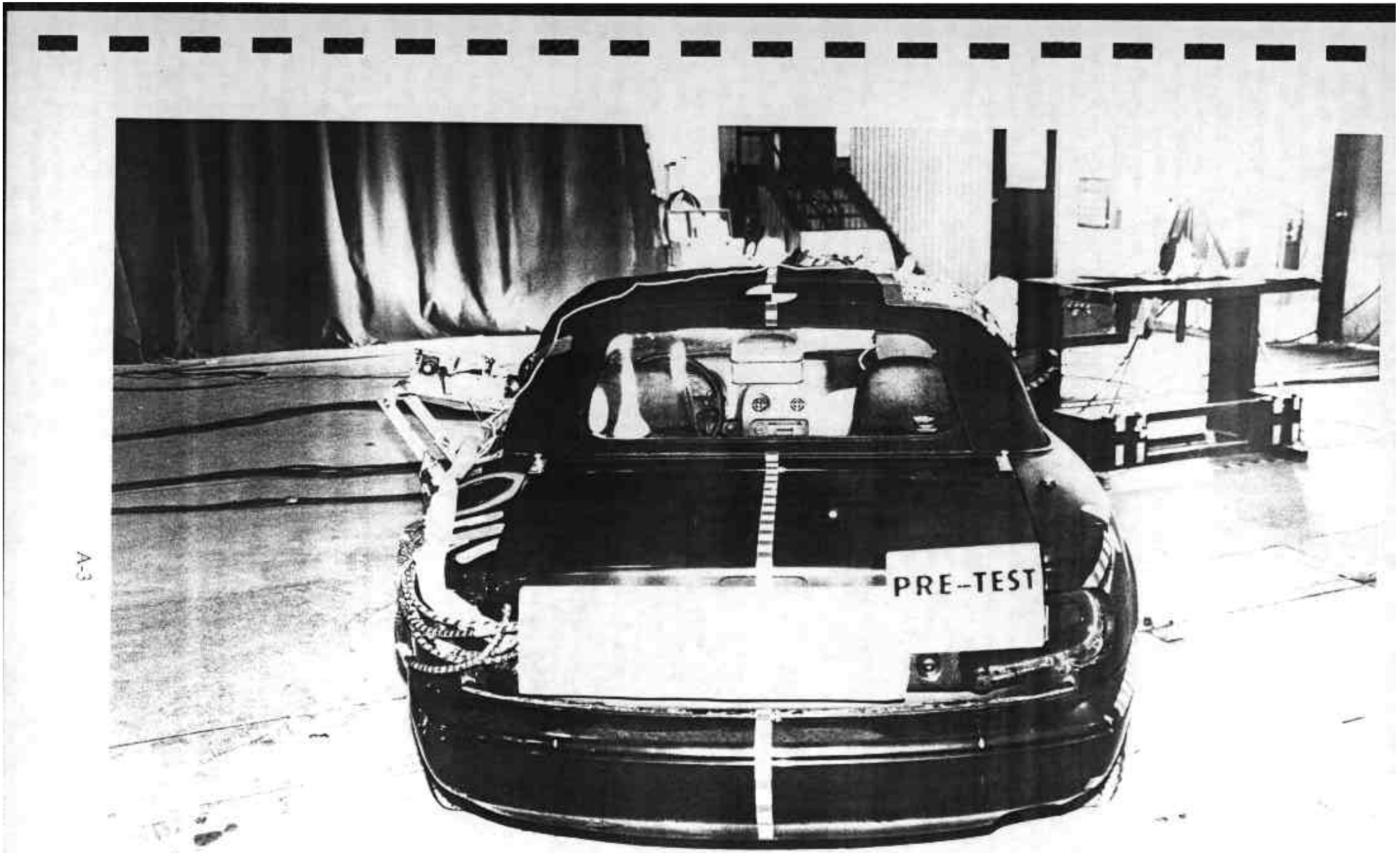


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

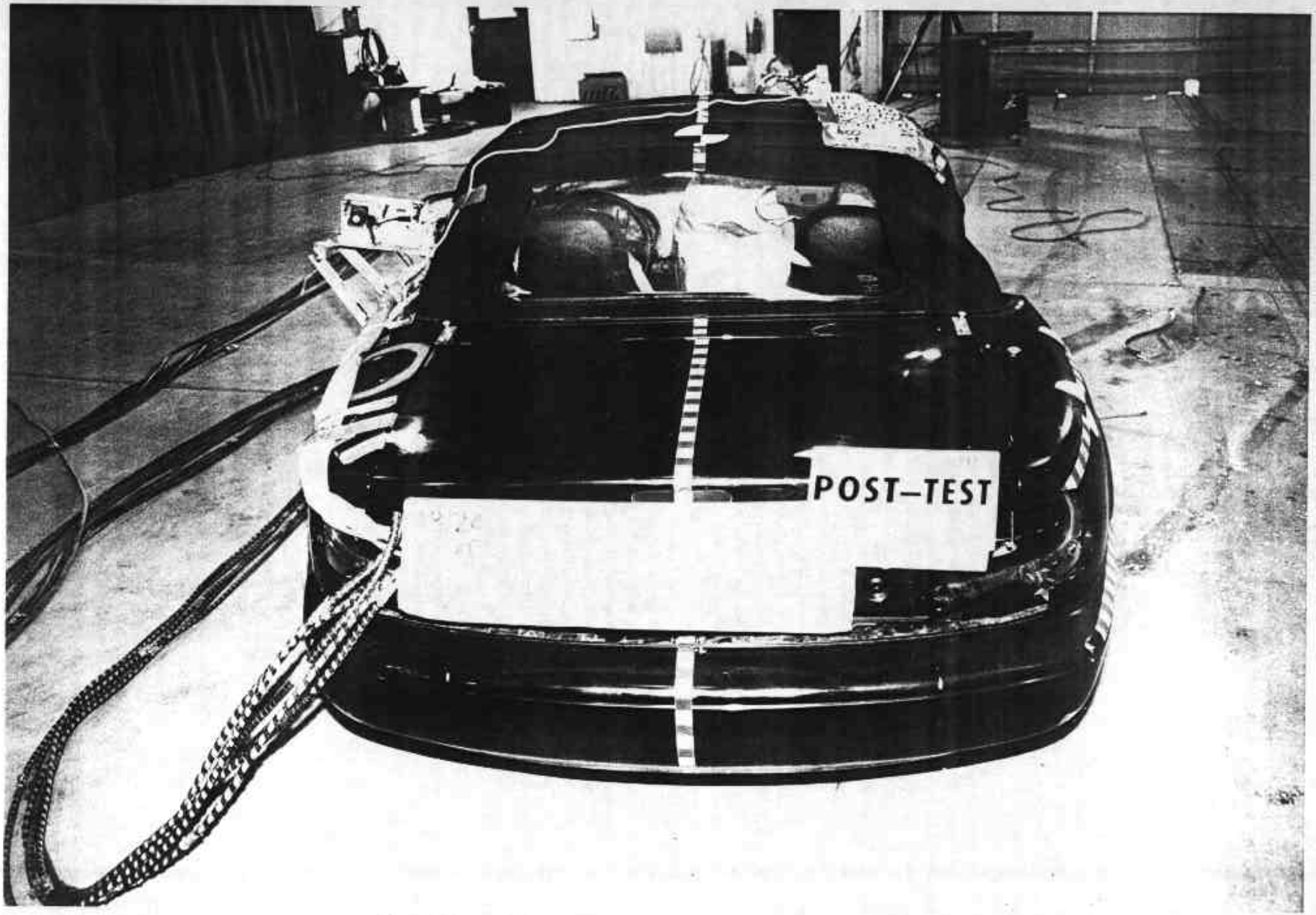


Photo No. A-4 - Post-Test Rear View of Test Vehicle

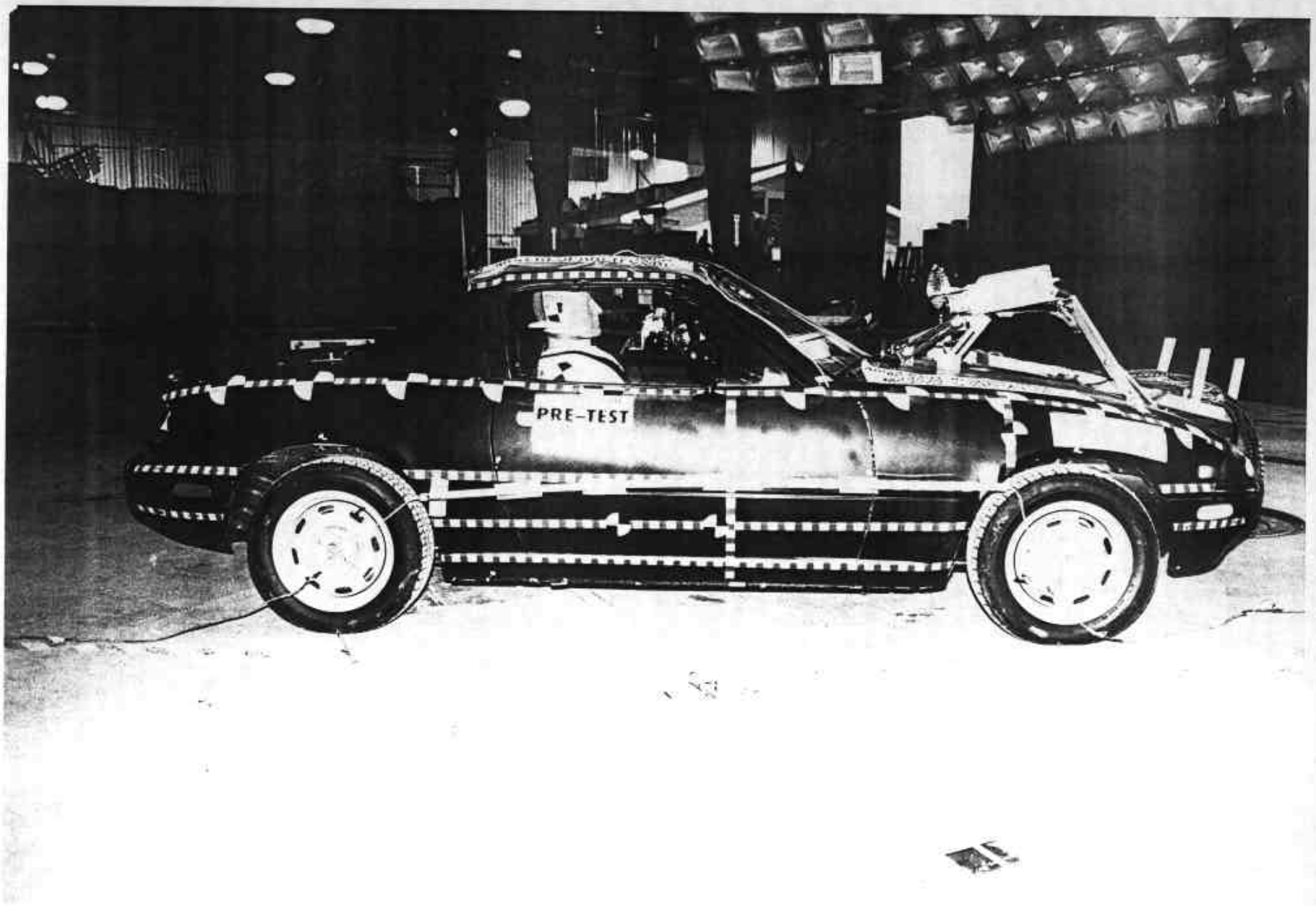


Photo No. A-5 - Pre-Test Right Side View of Test Vehicle

A-6

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

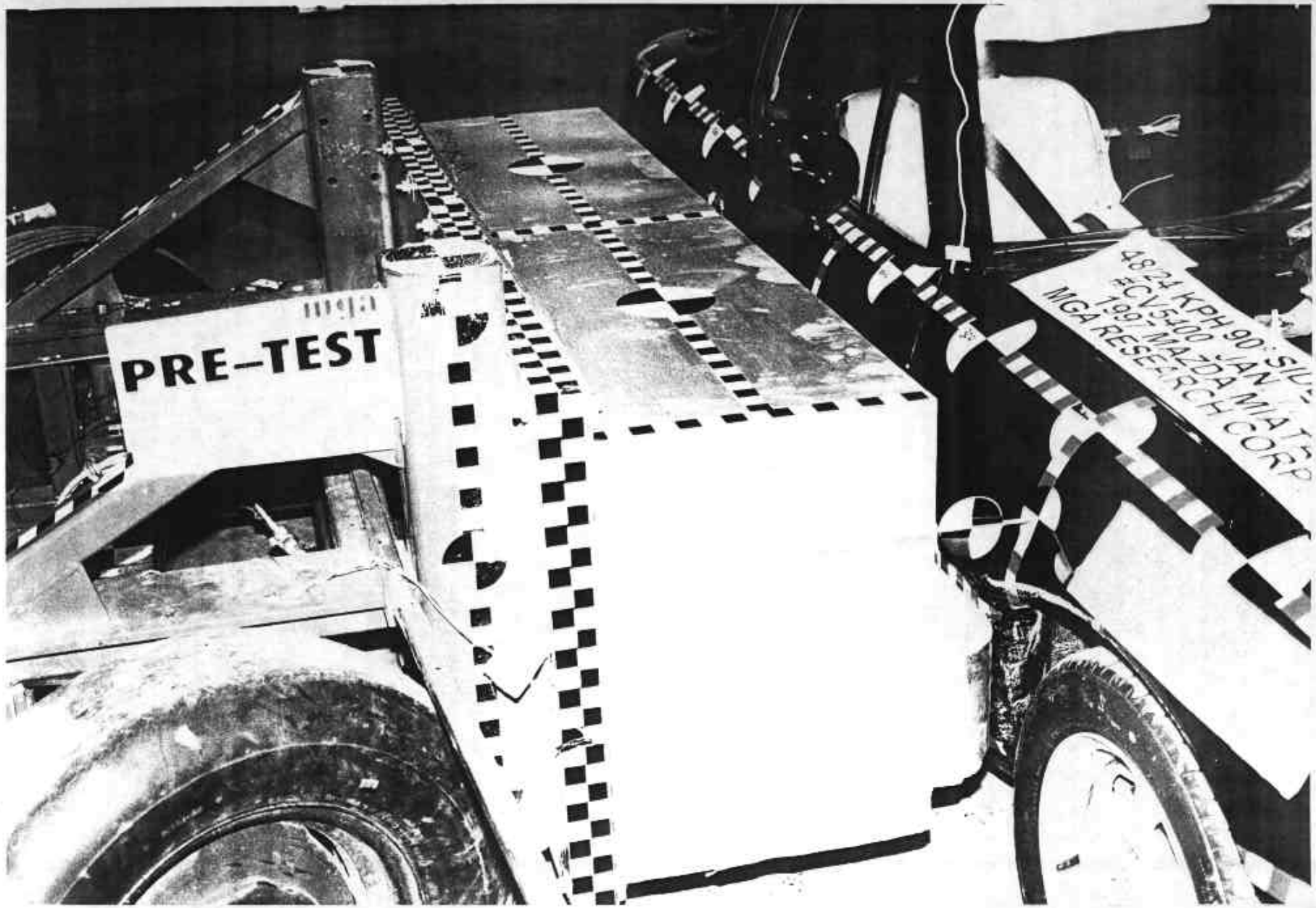


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (right side)

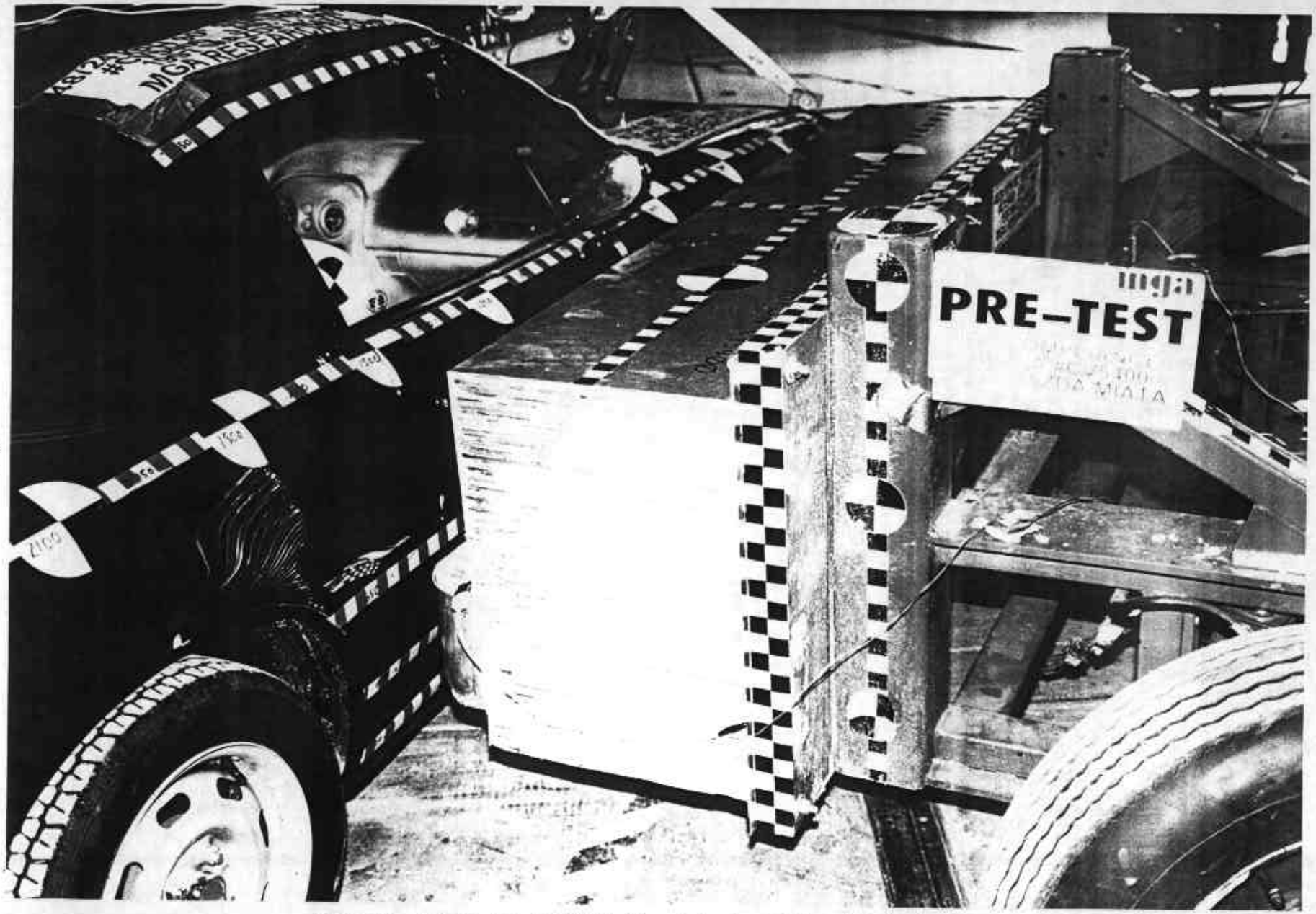


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (left side)

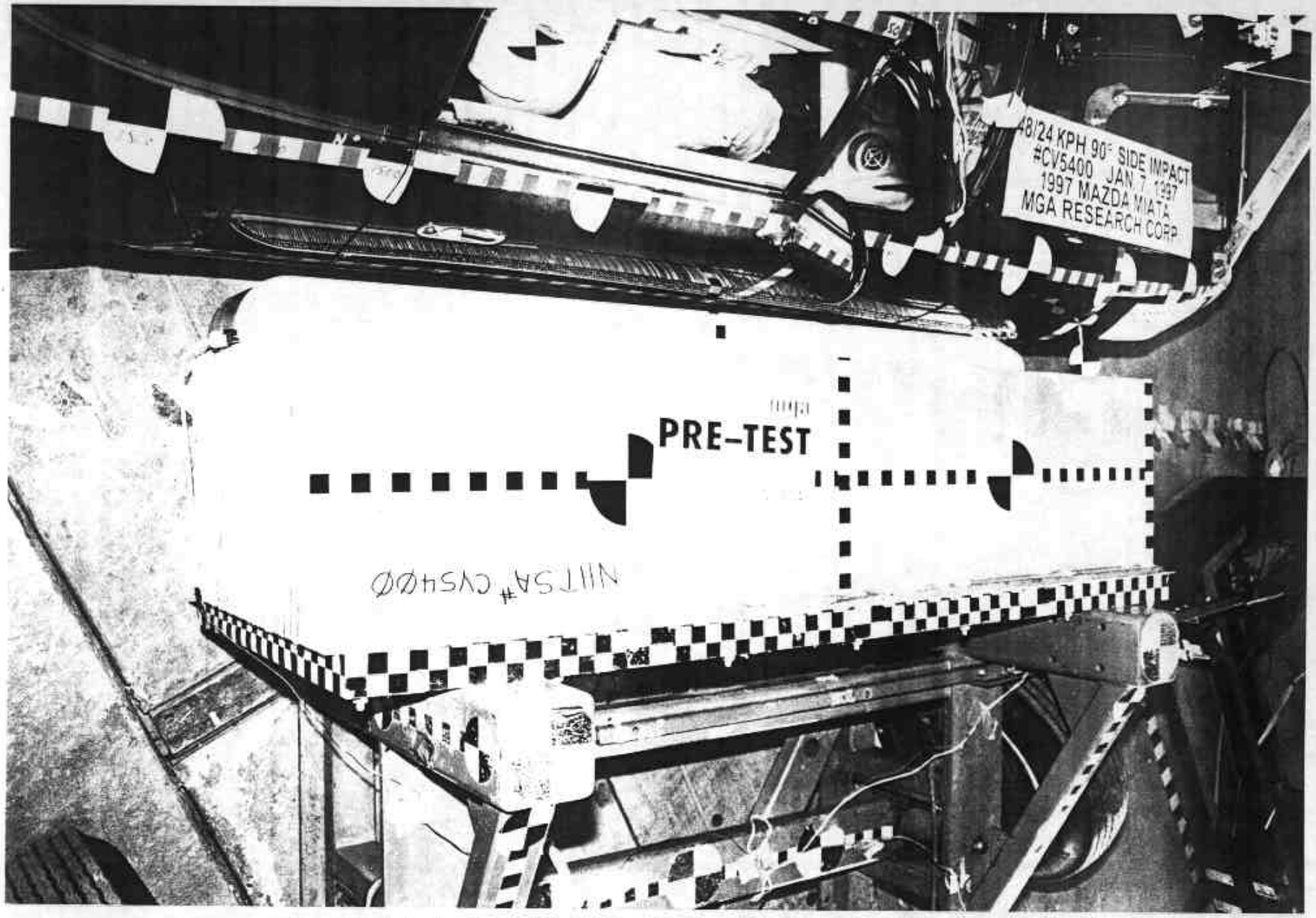


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View

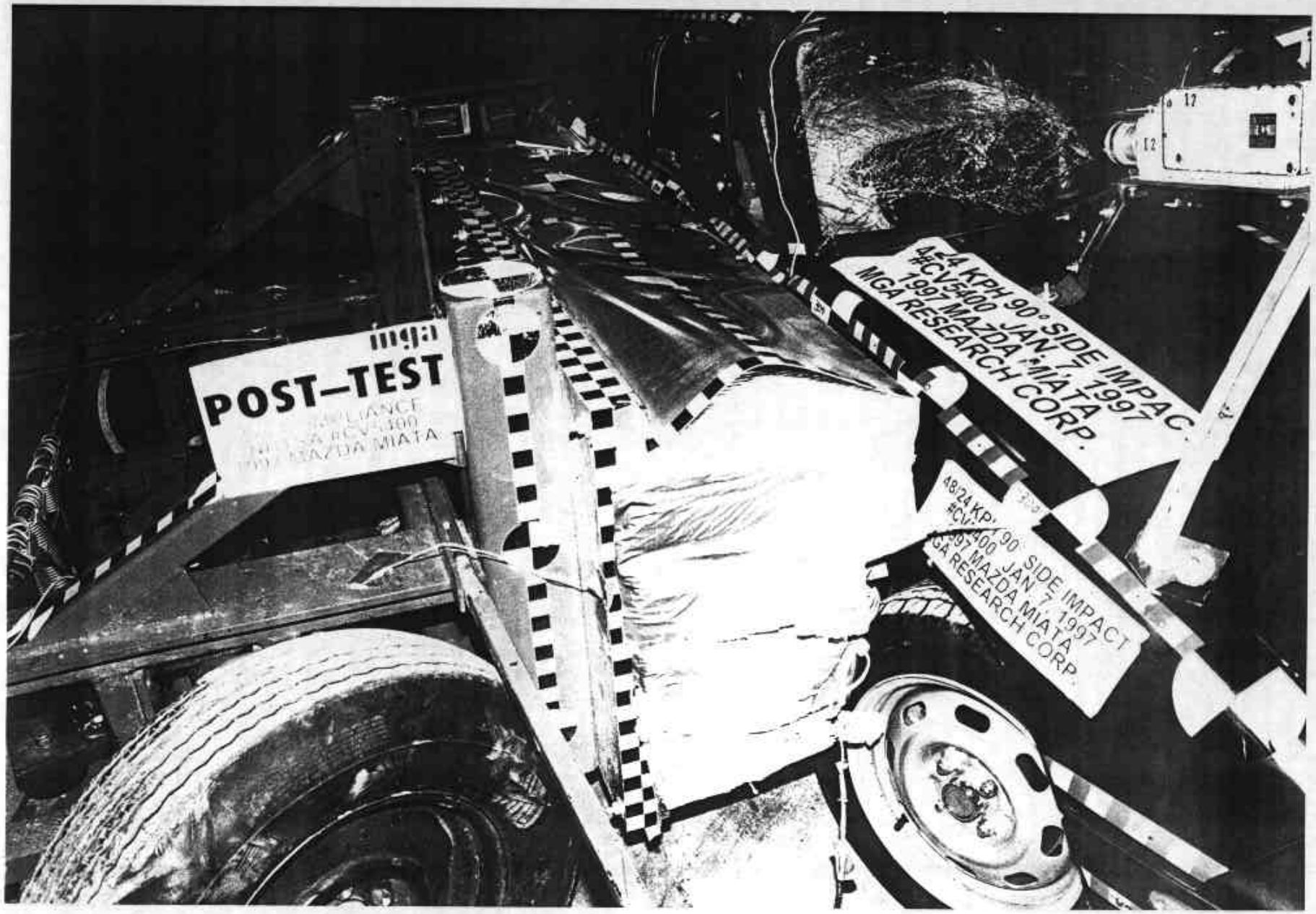


Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (right side)

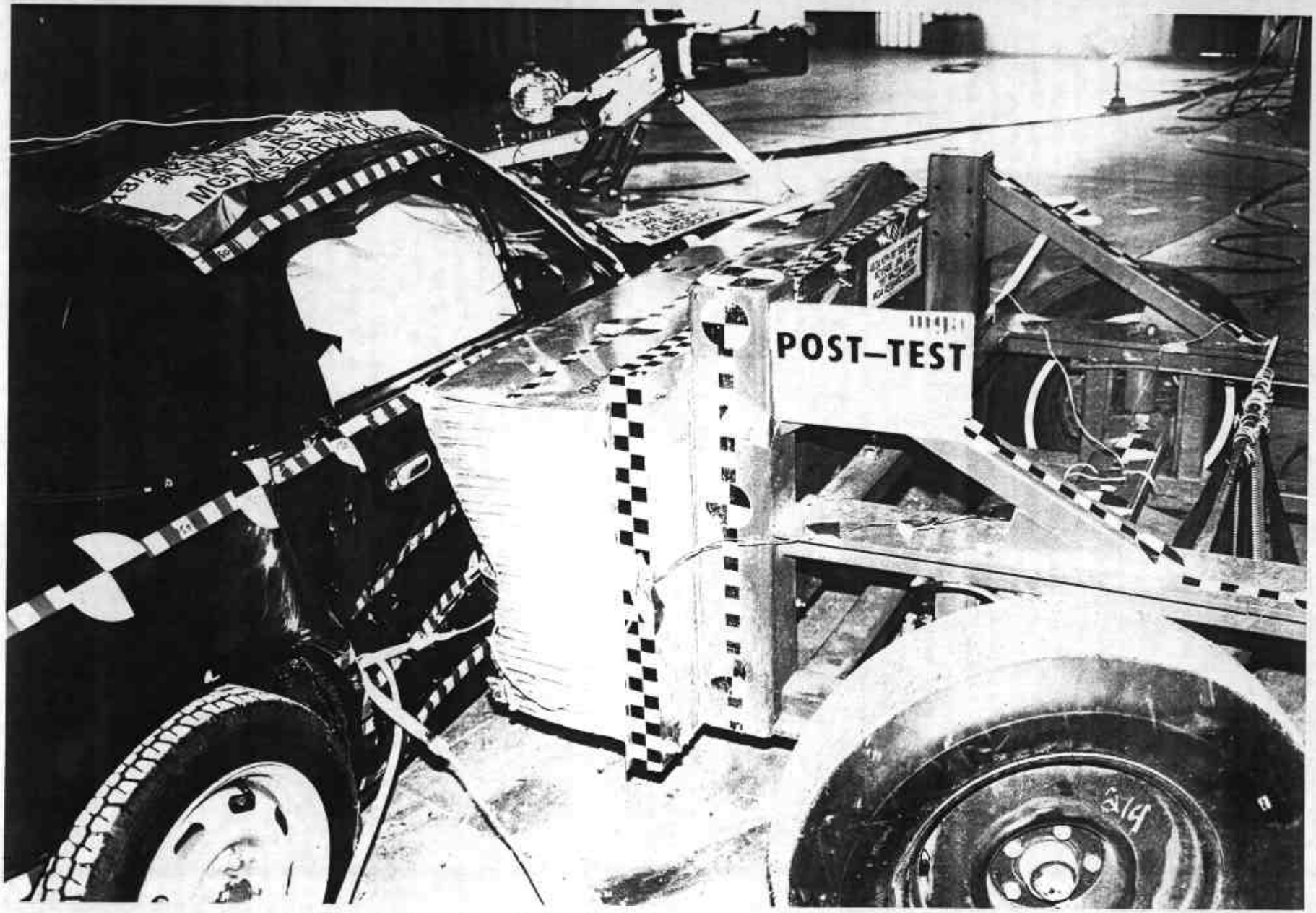


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (left side)

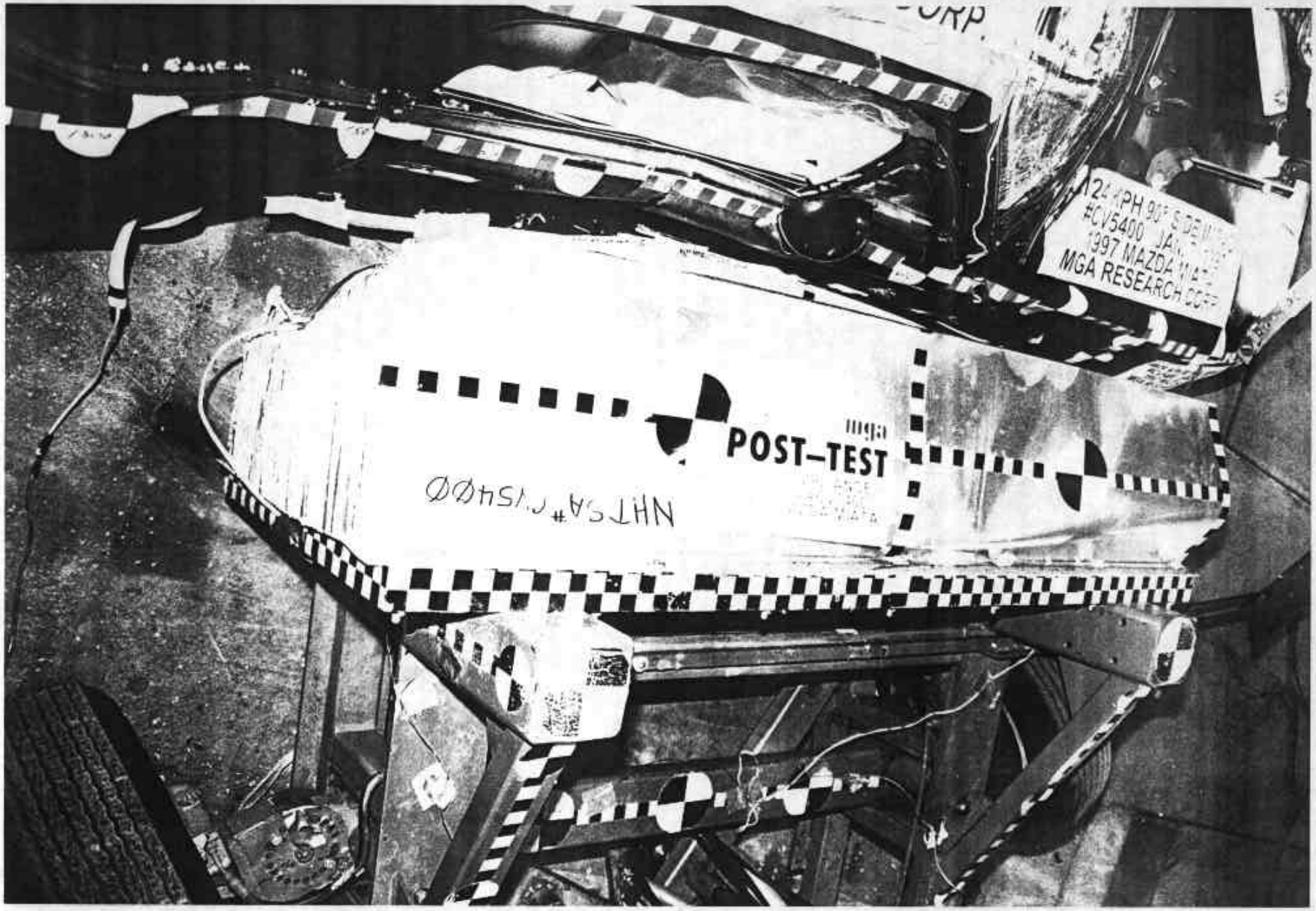


Photo No. A-12 - Post-Test MDB Positioned Against Vehicle Overhead View

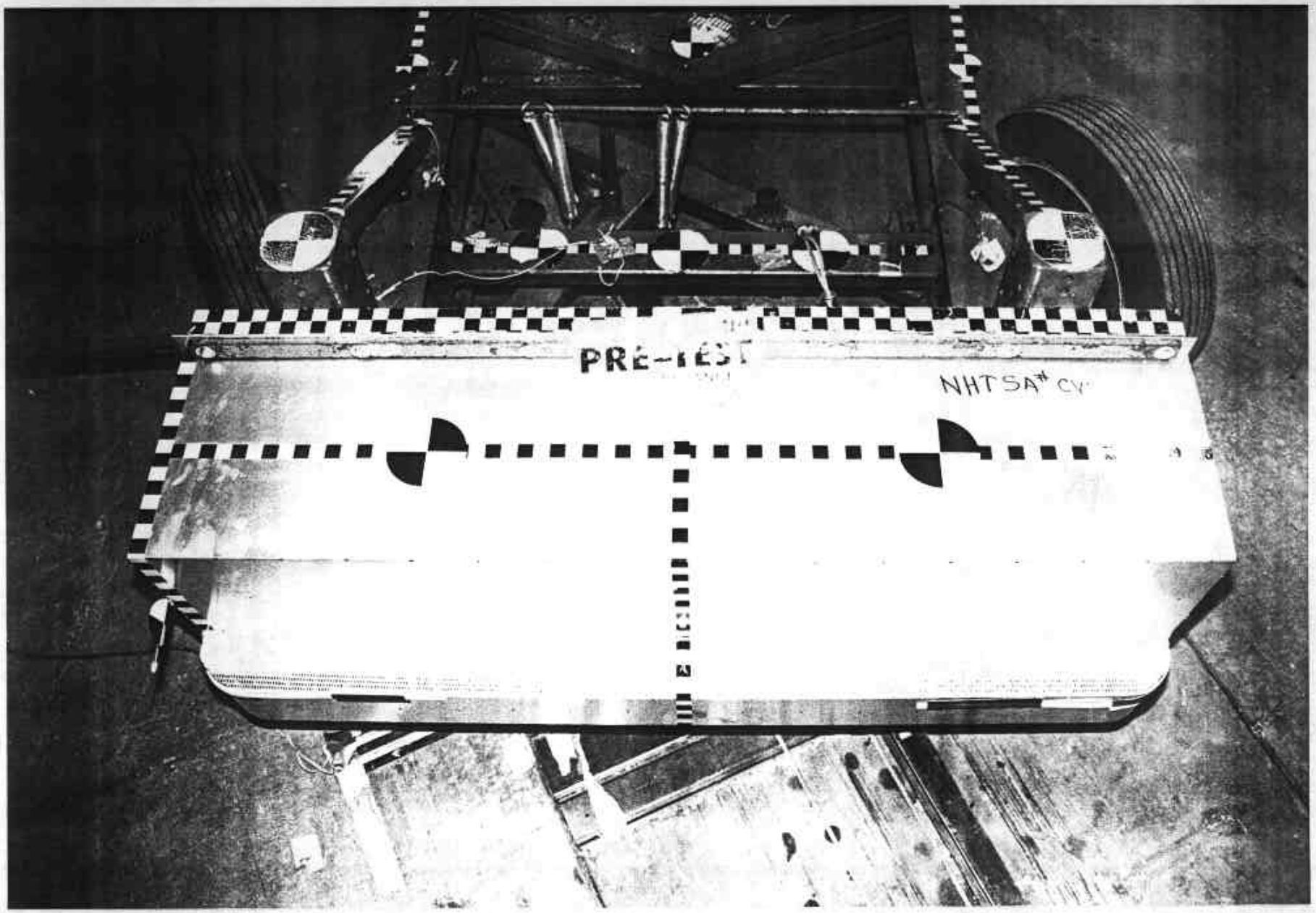


Photo No. A-13 - Pre-Test MDB Top View

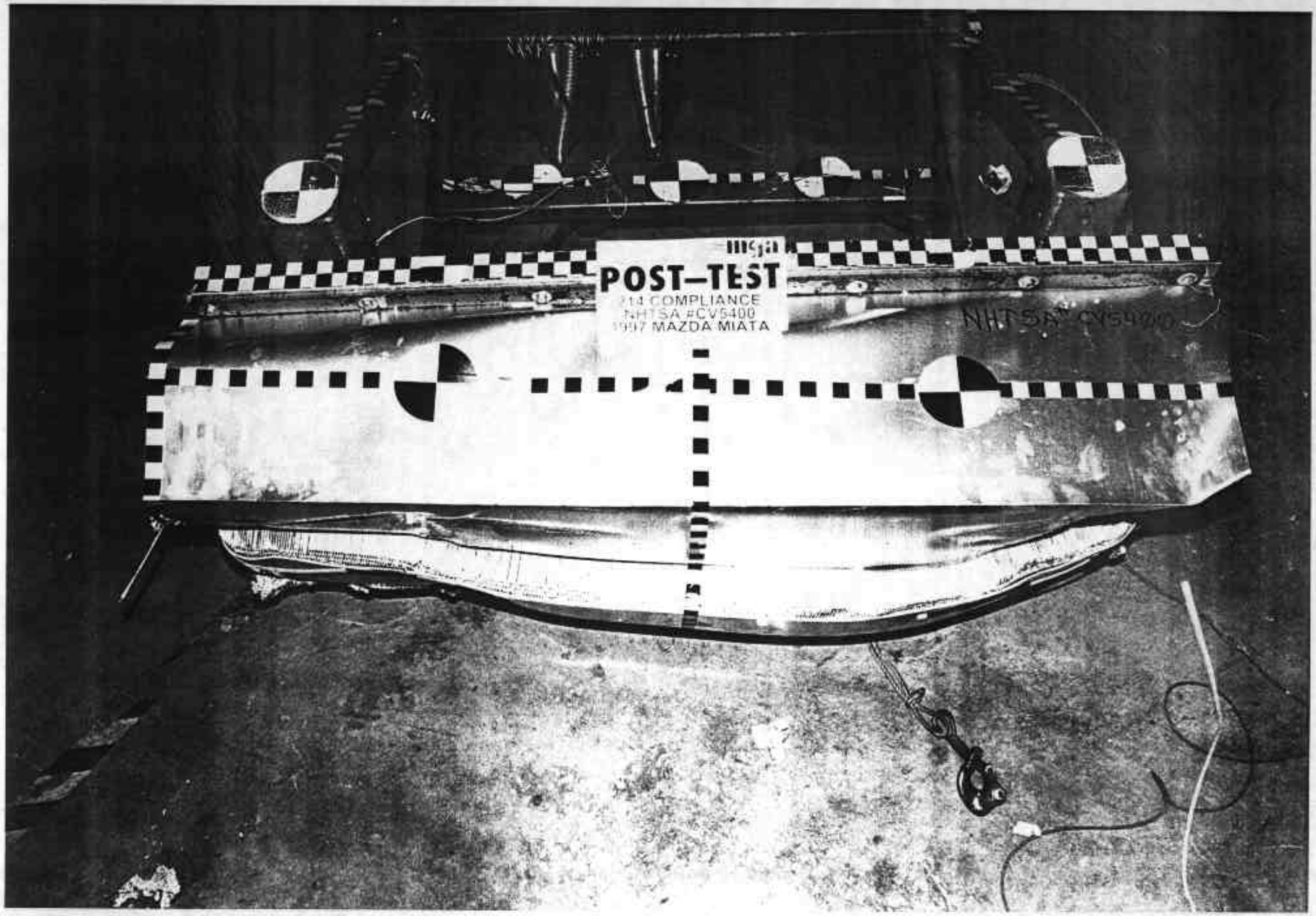


Photo No. A-14 - Post-Test MDB Top View

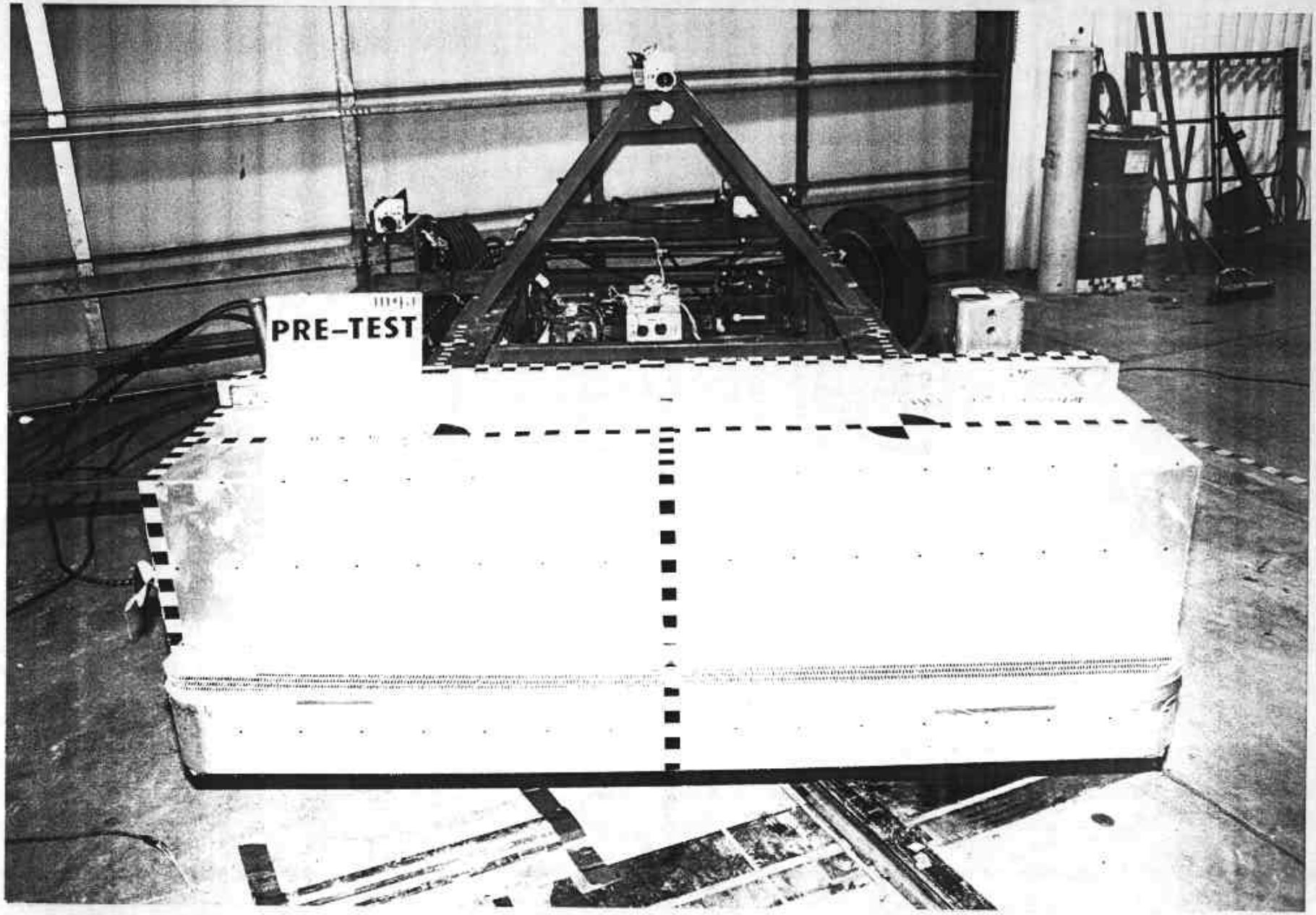


Photo No. A-15 - Pre-Test MDB Front View

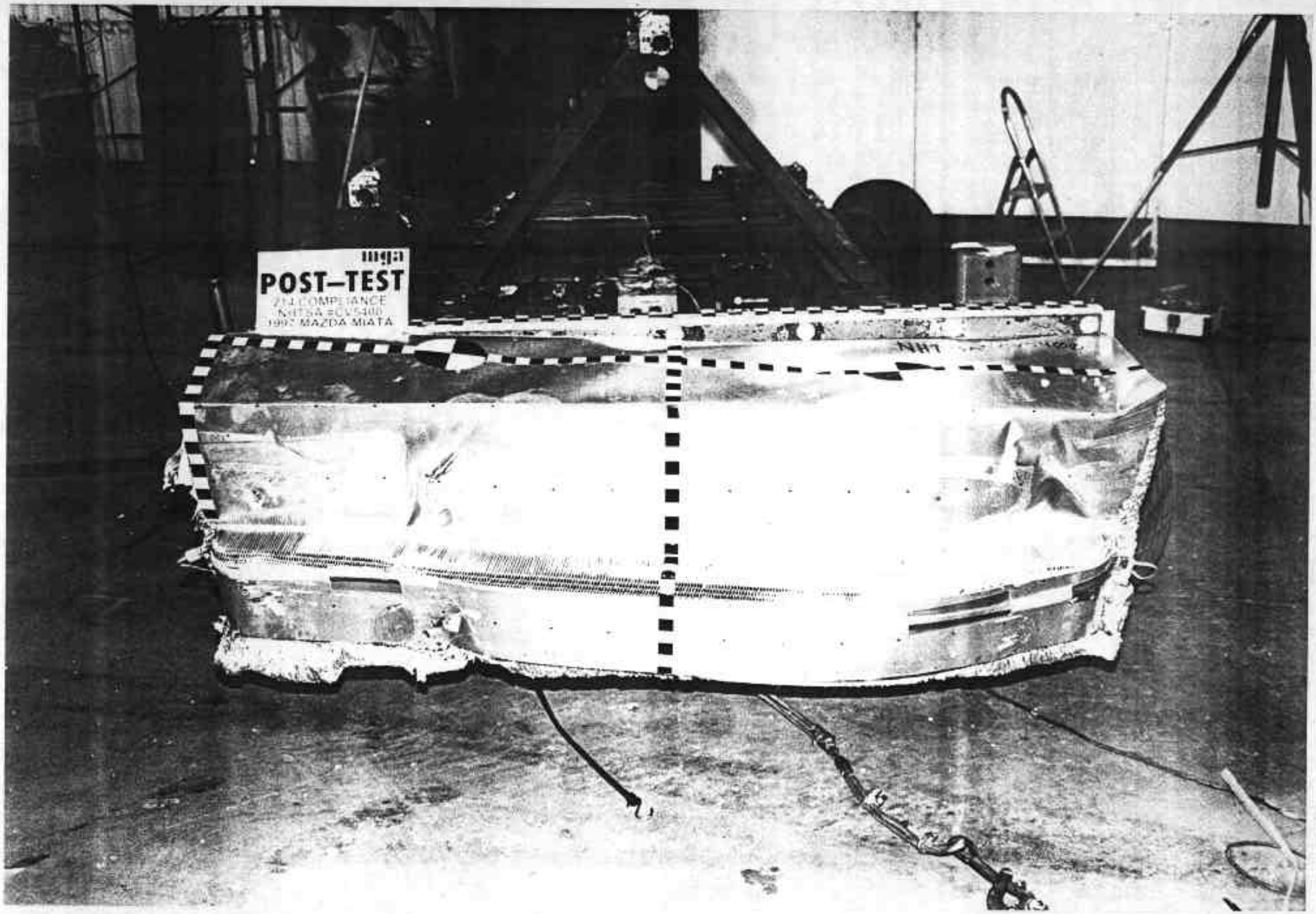


Photo No. A-16 - Post-Test MDB Front View

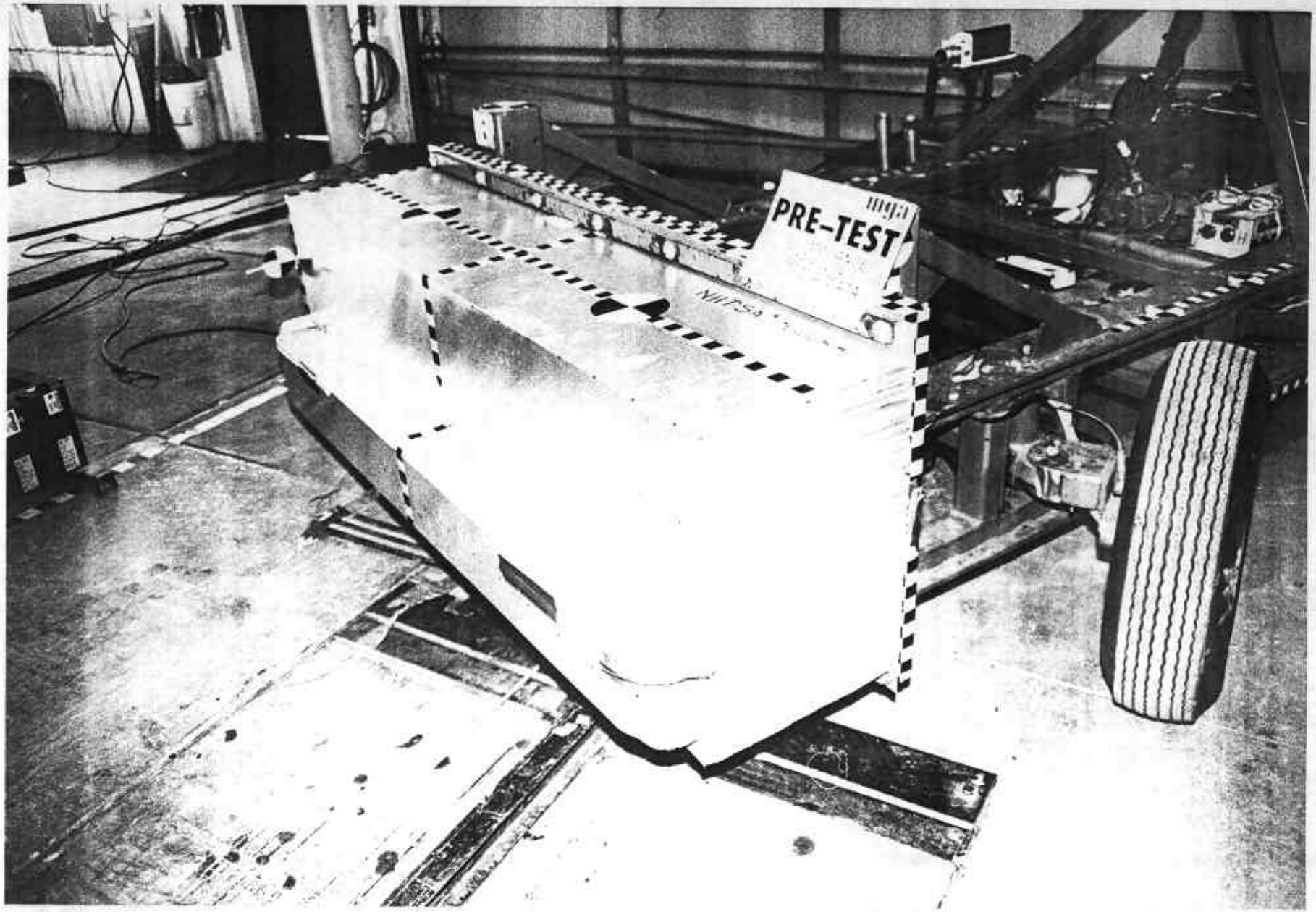


Photo No. A-17 - Pre-Test MDB Left Side View

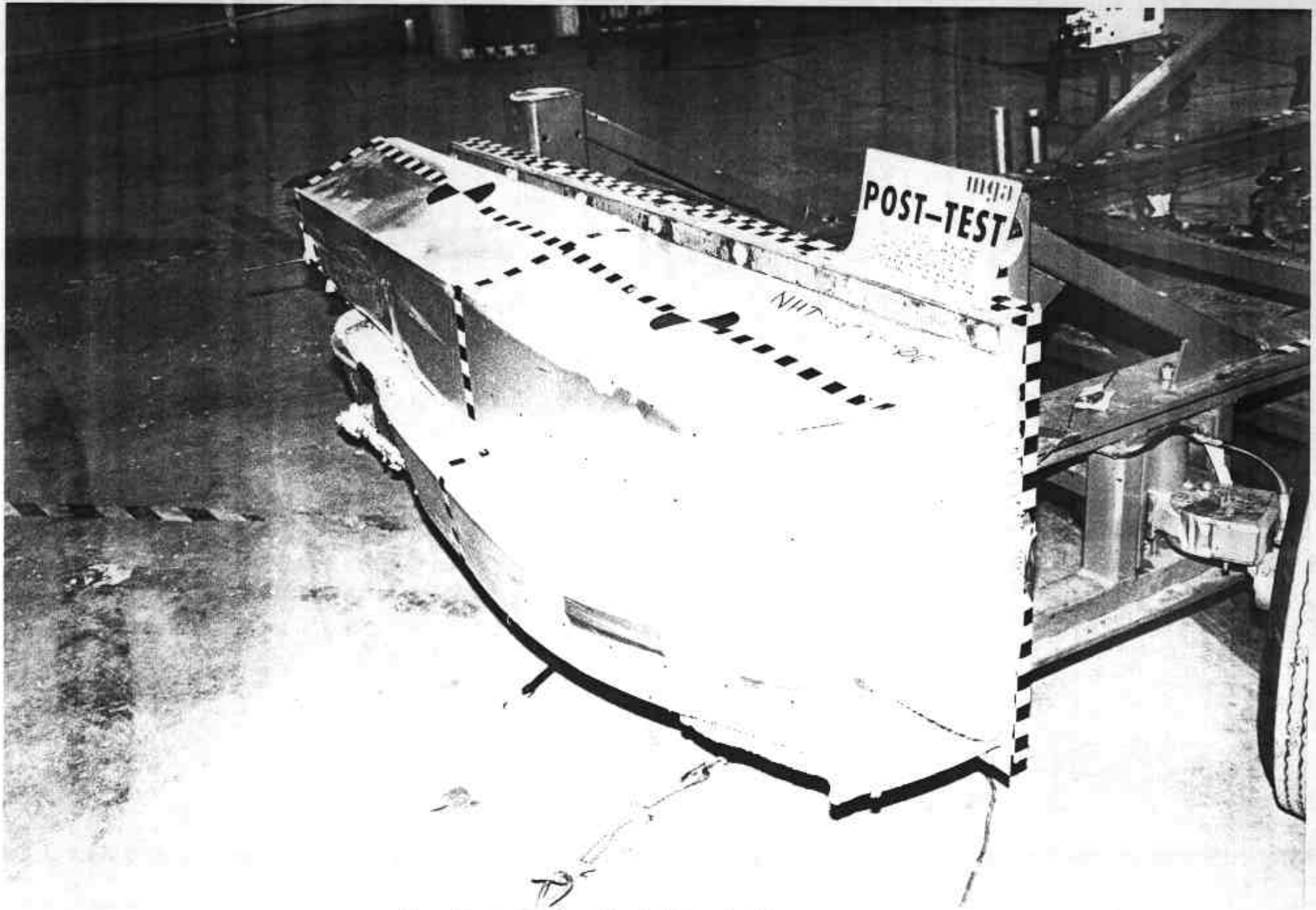


Photo No. A-18 - Post-Test MDB Left Side View

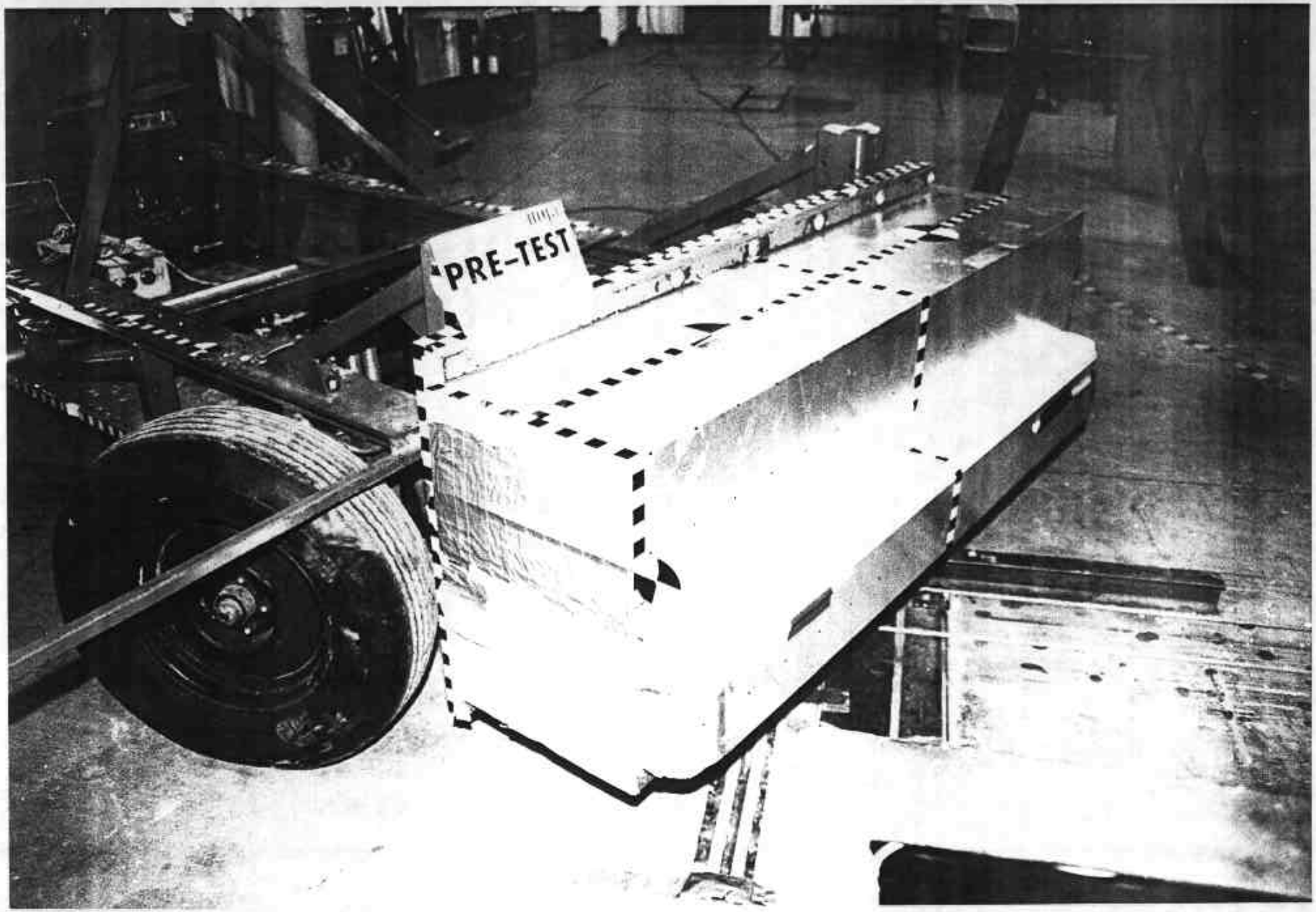


Photo No. A-19 - Pre-Test MDB Right Side View

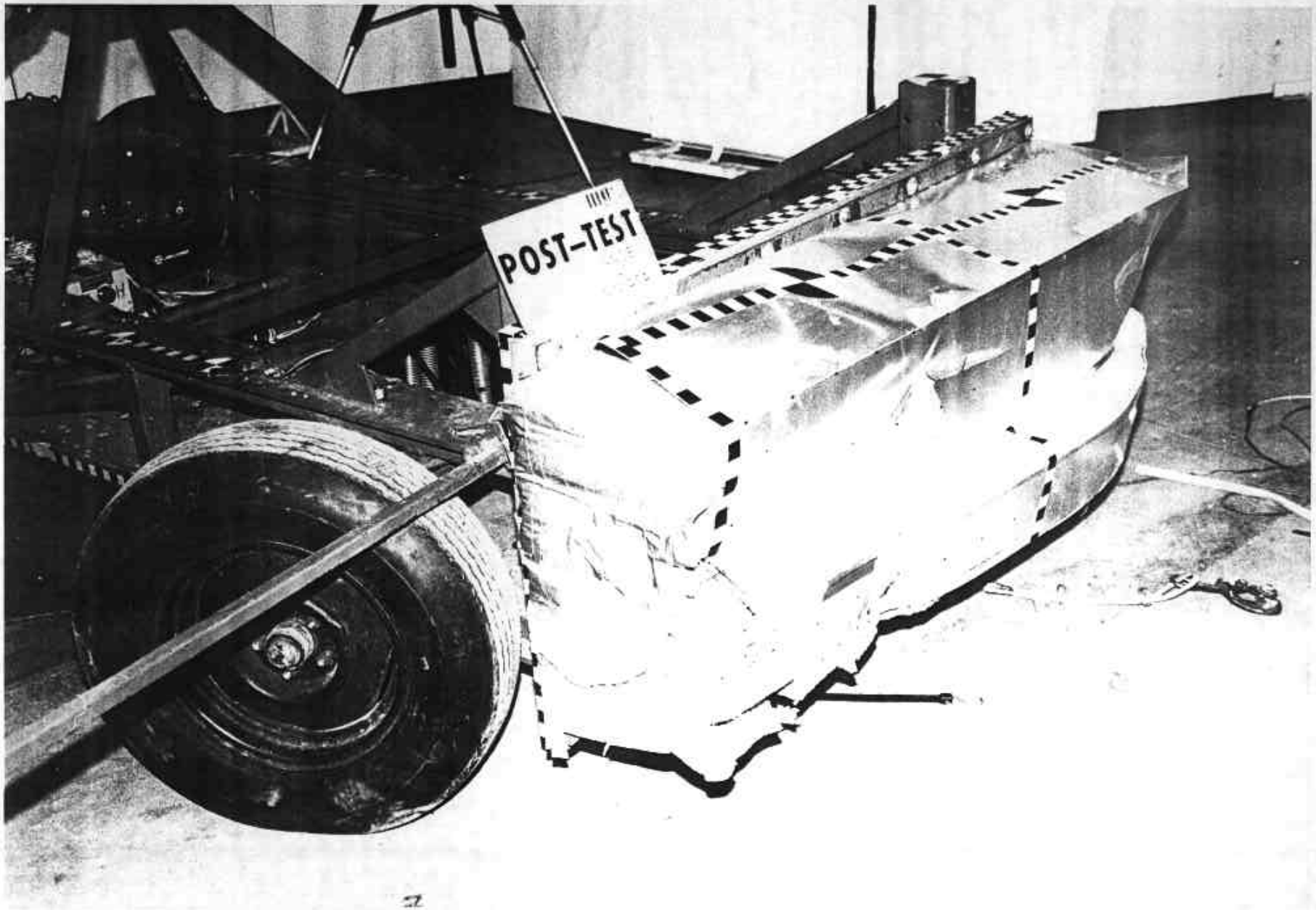


Photo No. A-20 - Post-Test MDB Right Side View

Photo No. A-21 - Pre-Test Right Front Seat Position View

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

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

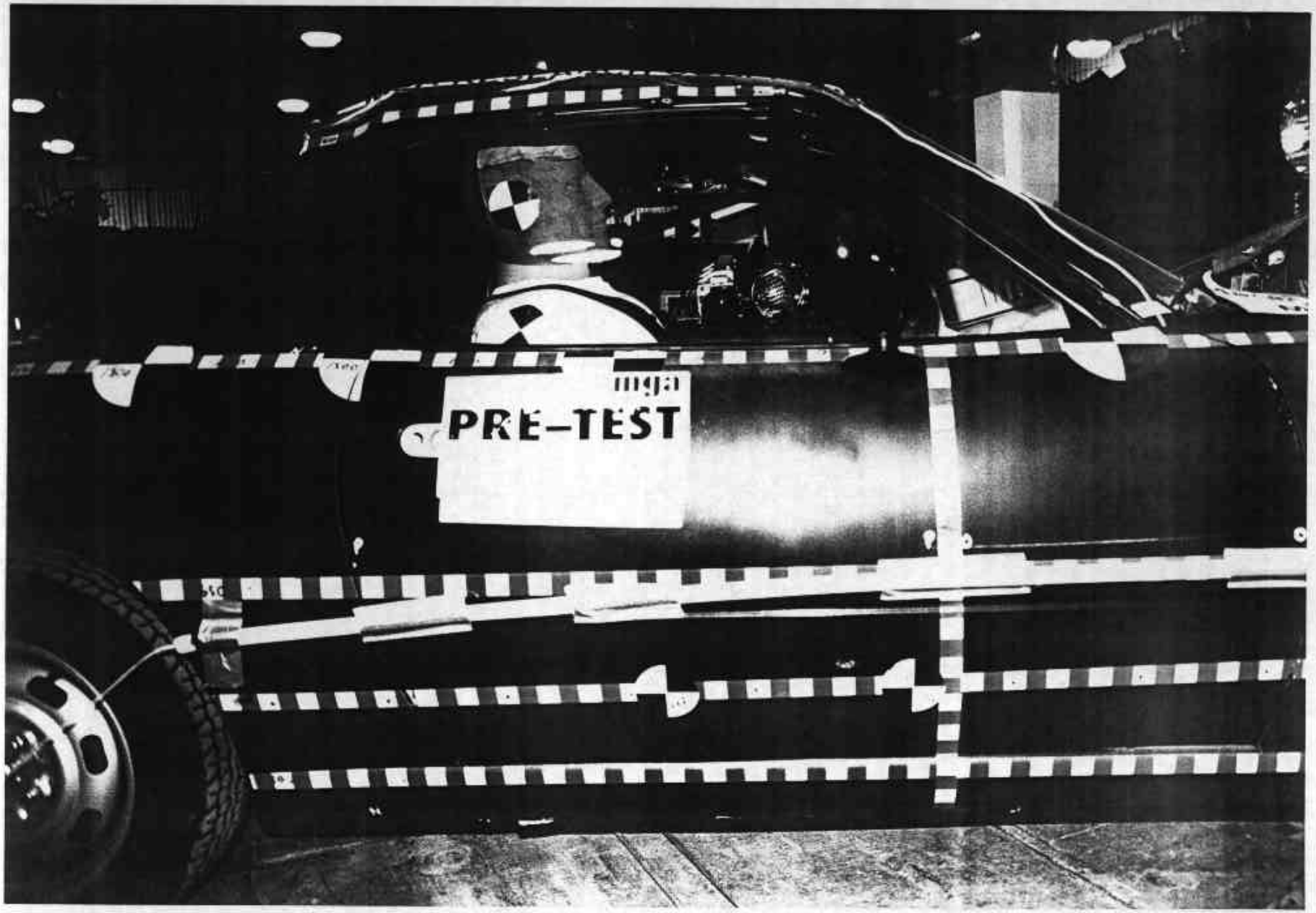


Photo No. A-24 - Pre-Test Front Passenger Dummy Right Side View

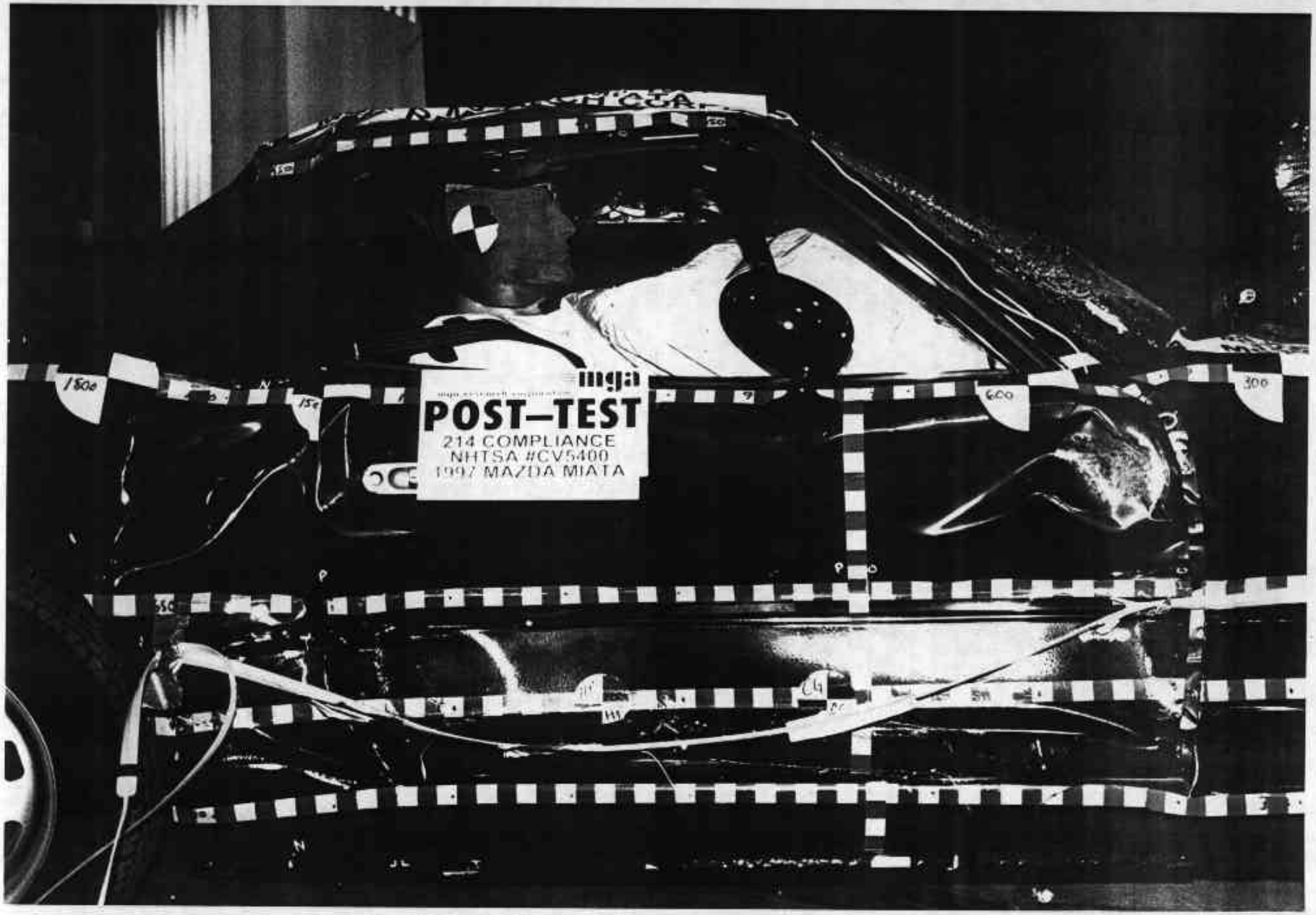


Photo No. A-25 - Post-Test Front Passenger Dummy Right Side View

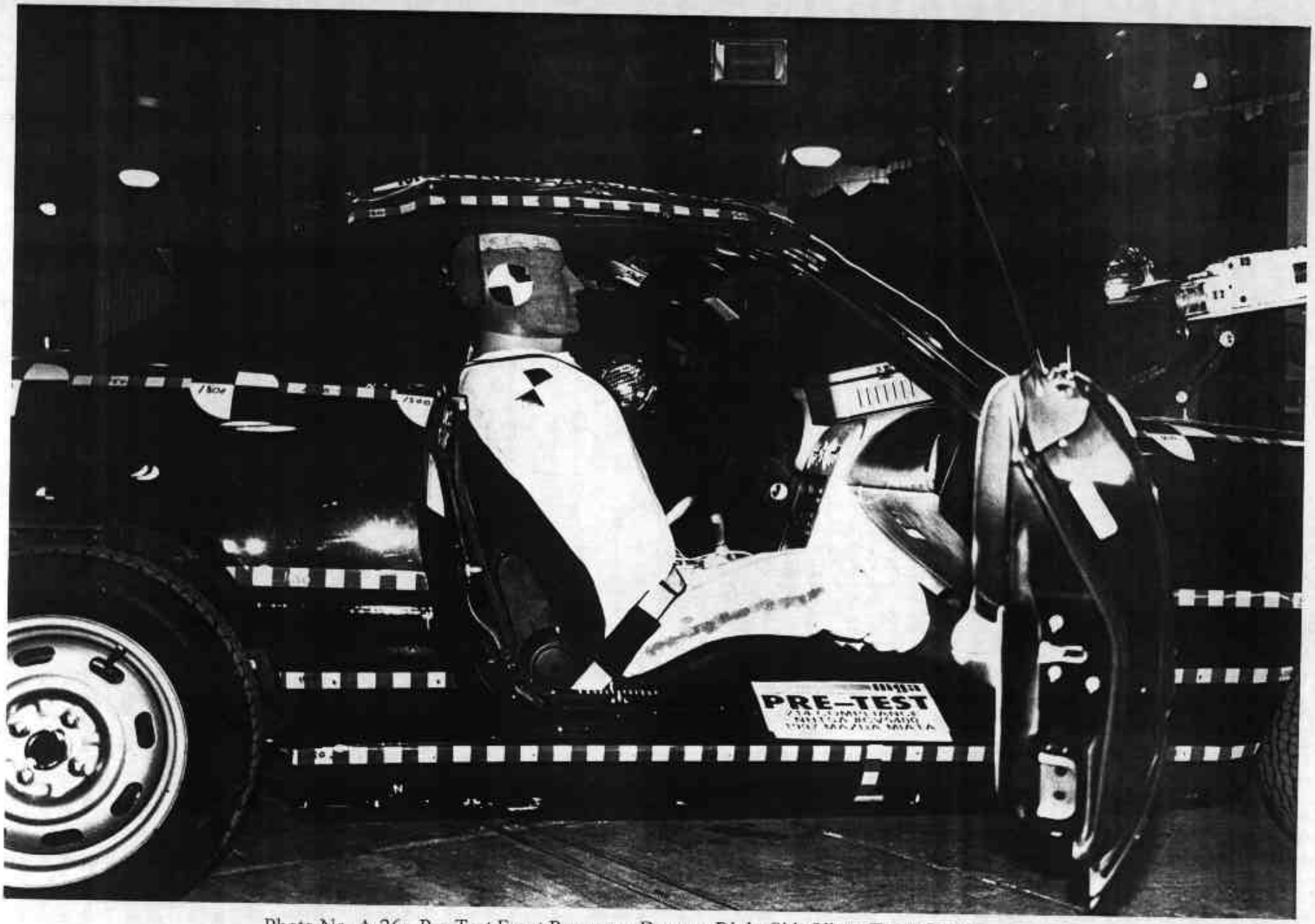
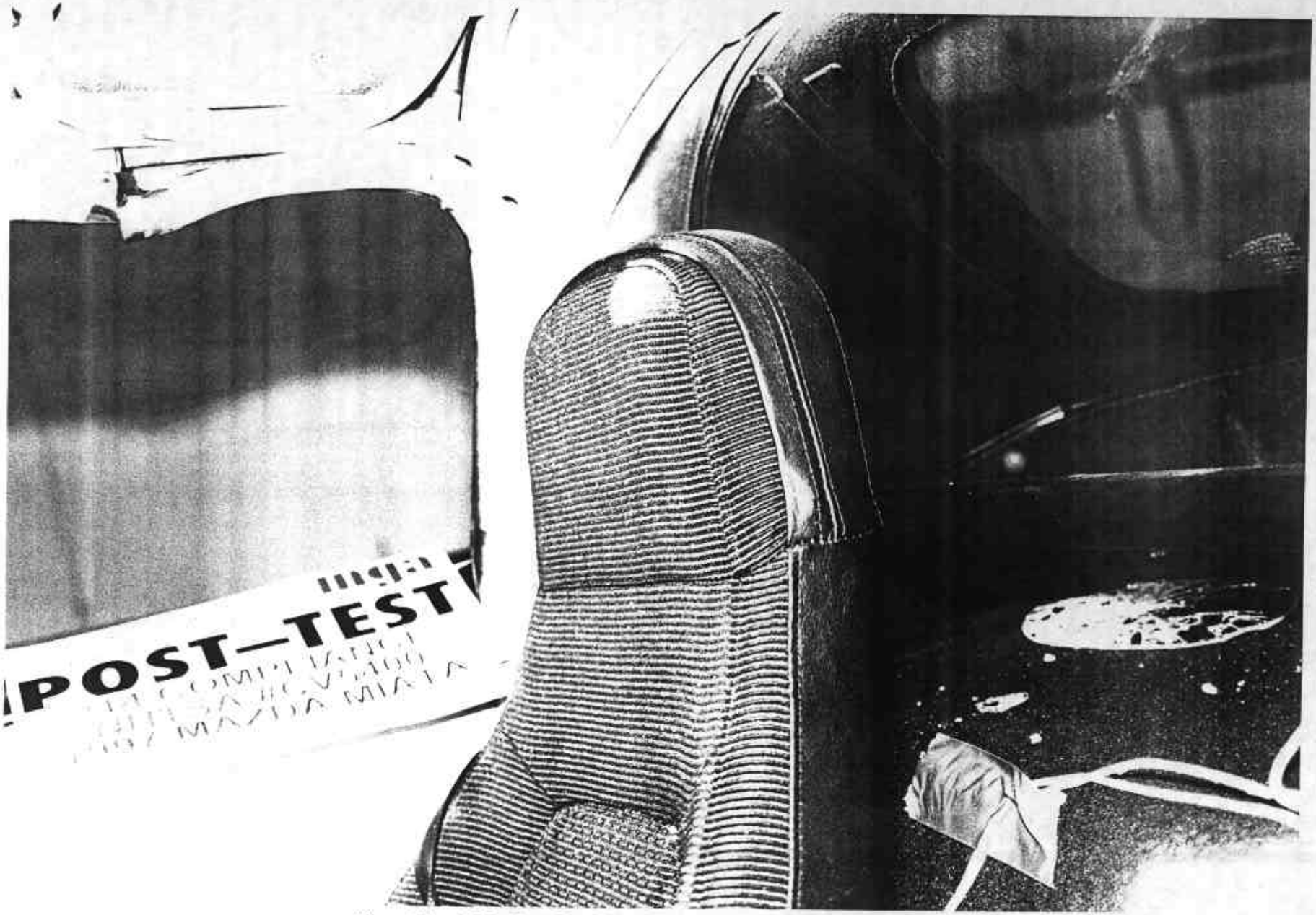


Photo No. A-26 - Pre-Test Front Passenger Dummy Right Side View (Door Open)

Photo No. A-27 - Pre-Test Front Passenger Shoulder and Door Top View

Photo No. A-28 - Post-Test Front Passenger Shoulder and Door Top View

Photo No. A-29 - Post-Test Front Passenger Dummy Contact



A-30

Photo No. A-30 - Post-Test Front Passenger Head Contact

A-31

Photo No. A-31 - Pre-Test Right Front Impact Point on Vehicle

Photo No. A-32 - Post-Test Right Front Impact Point on Vehicle

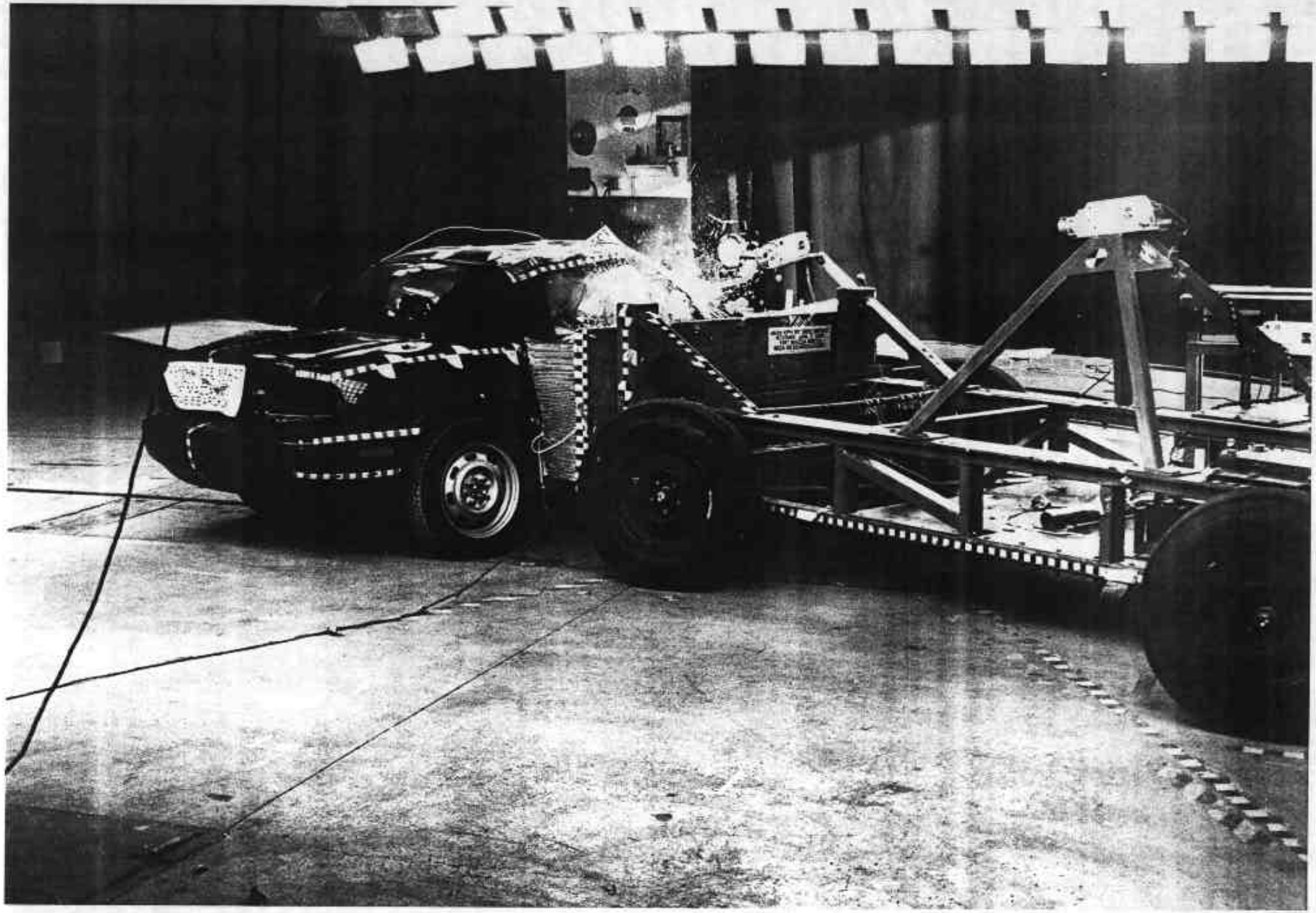
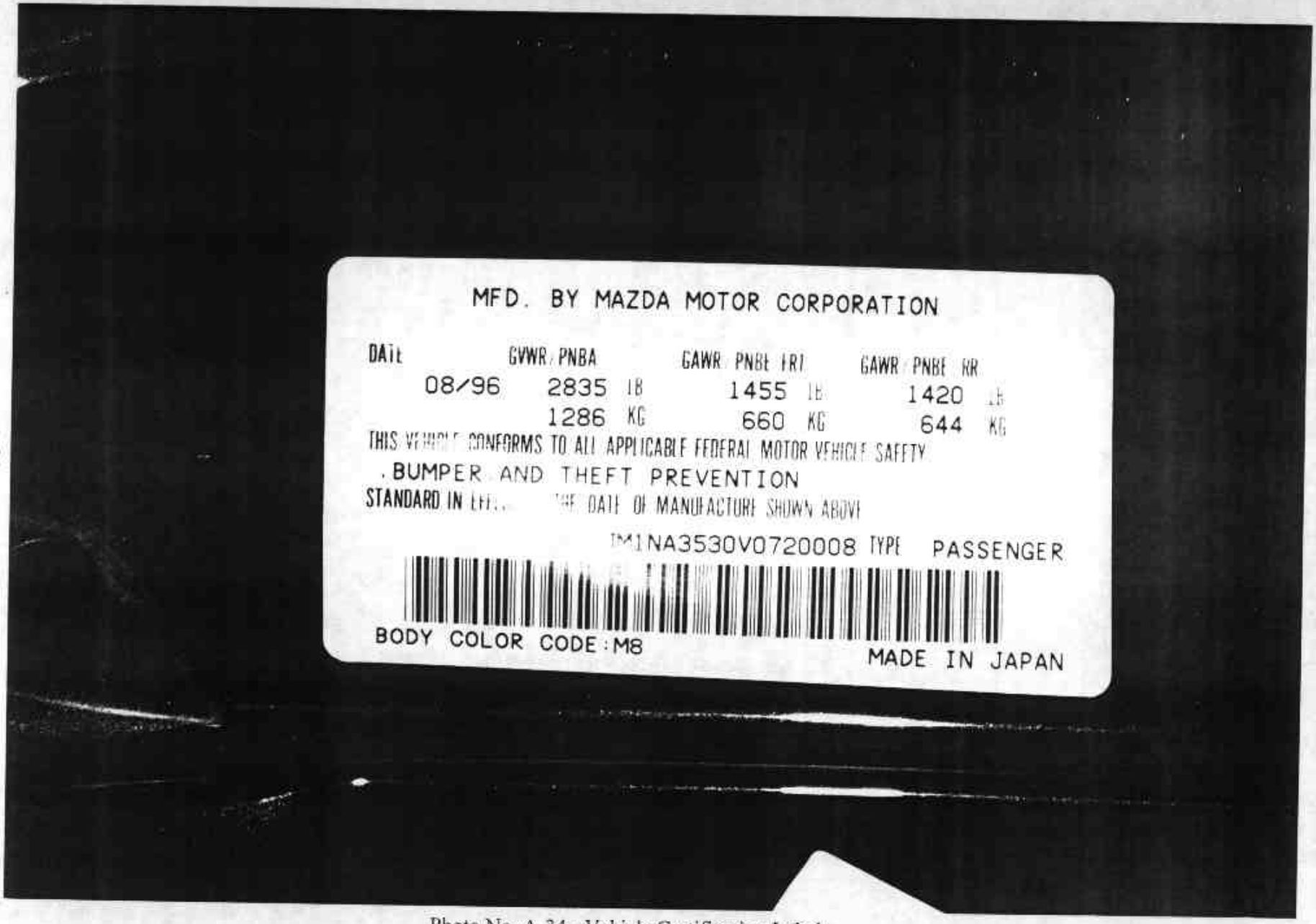


Photo No. A-33 - Impact



A-34

Photo No. A-34 - Vehicle Certification Label

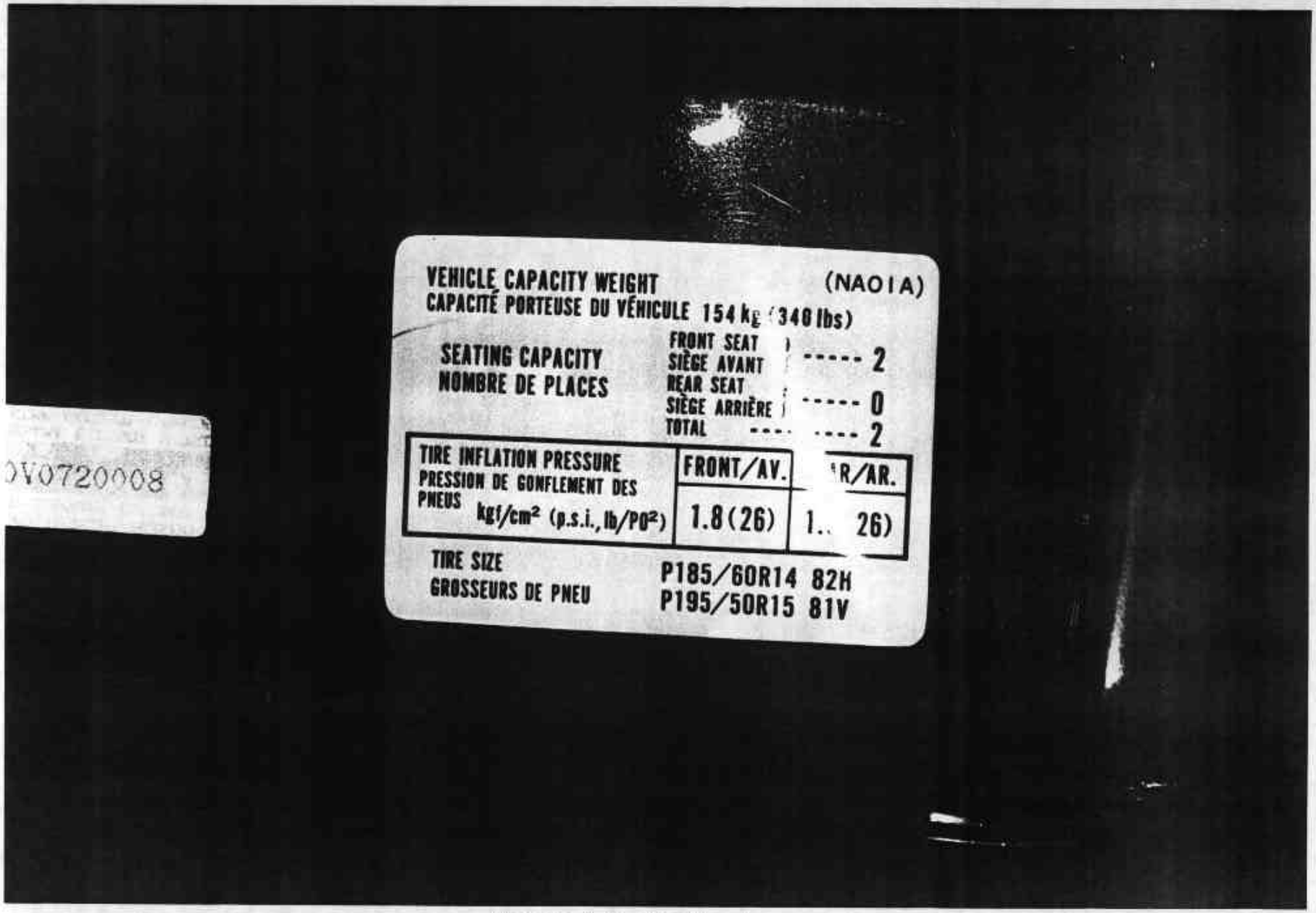


Photo No. A-35 - Tire Placard

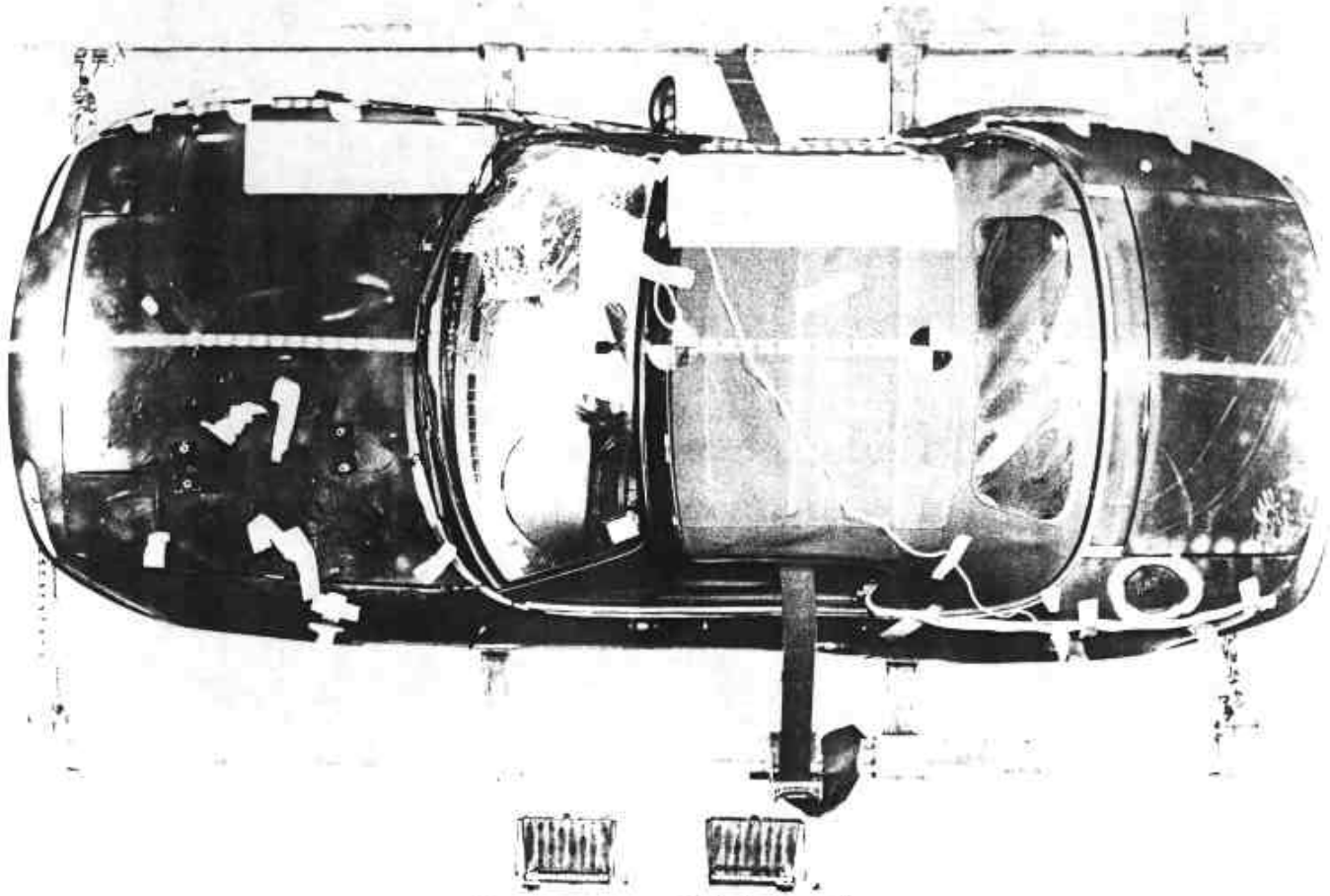
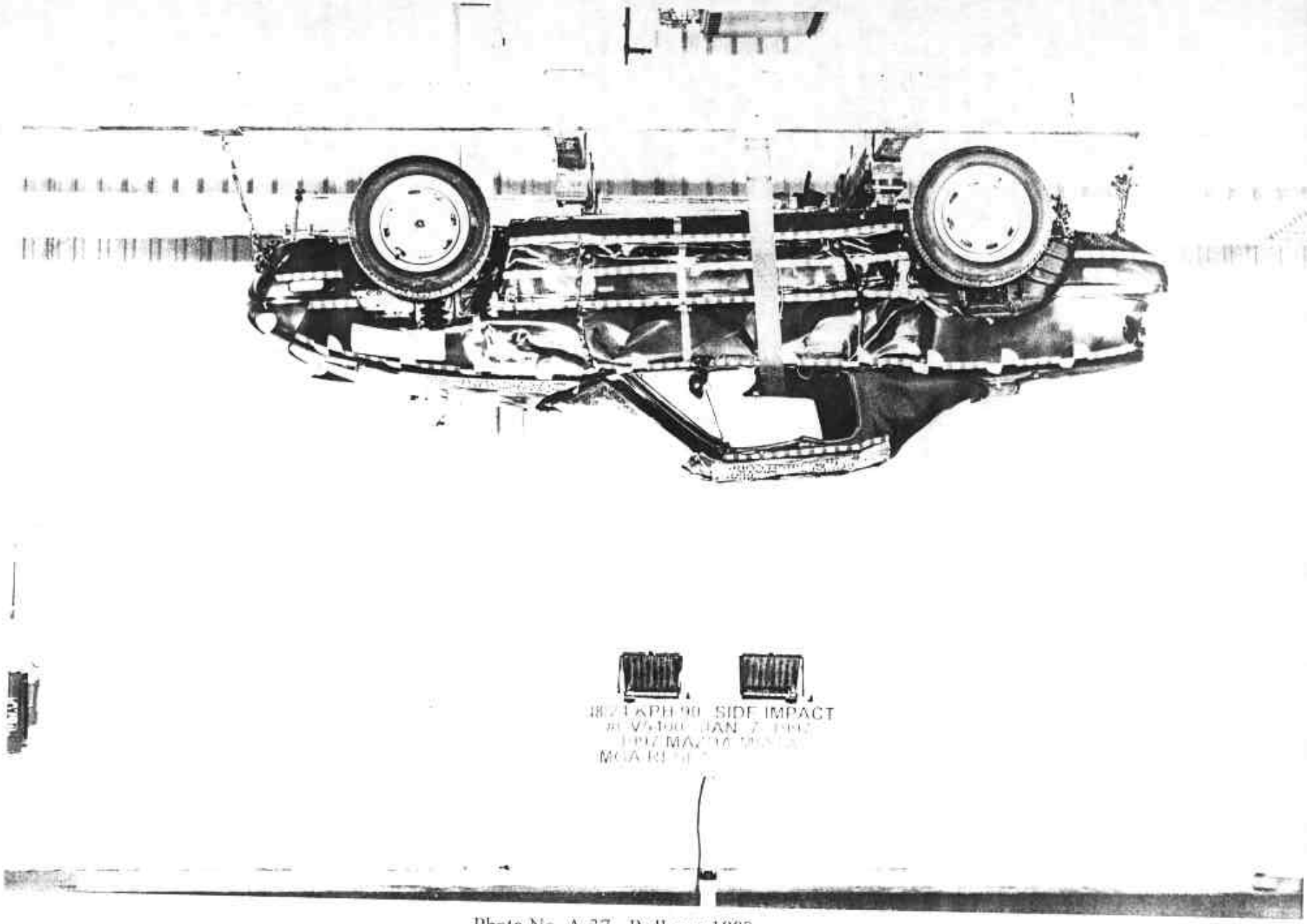


Photo No. A-36 - Rollover 90°



A-37

Photo No. A-37 - Rollover 180°

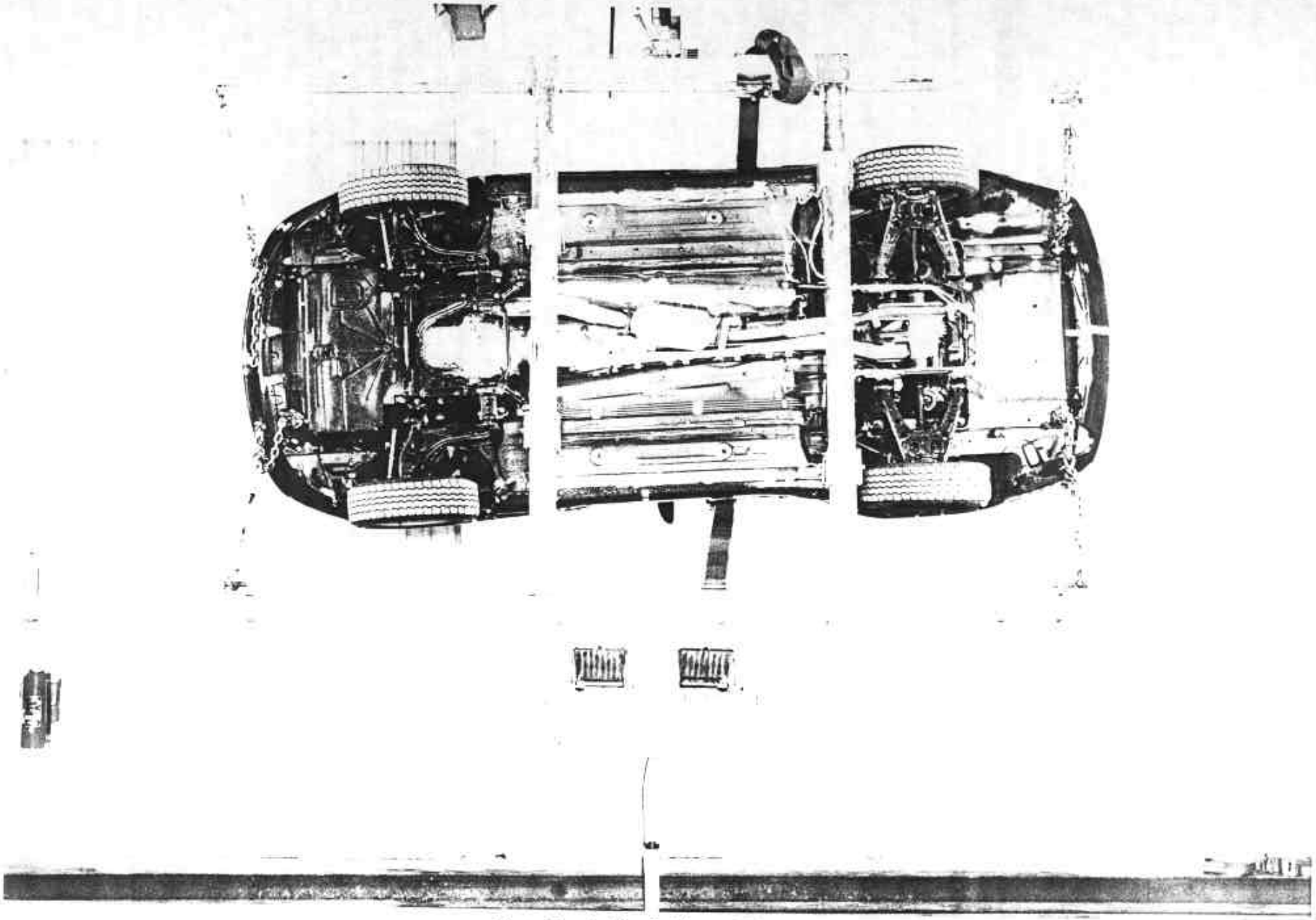


Photo No. A-38 - Rollover 270°

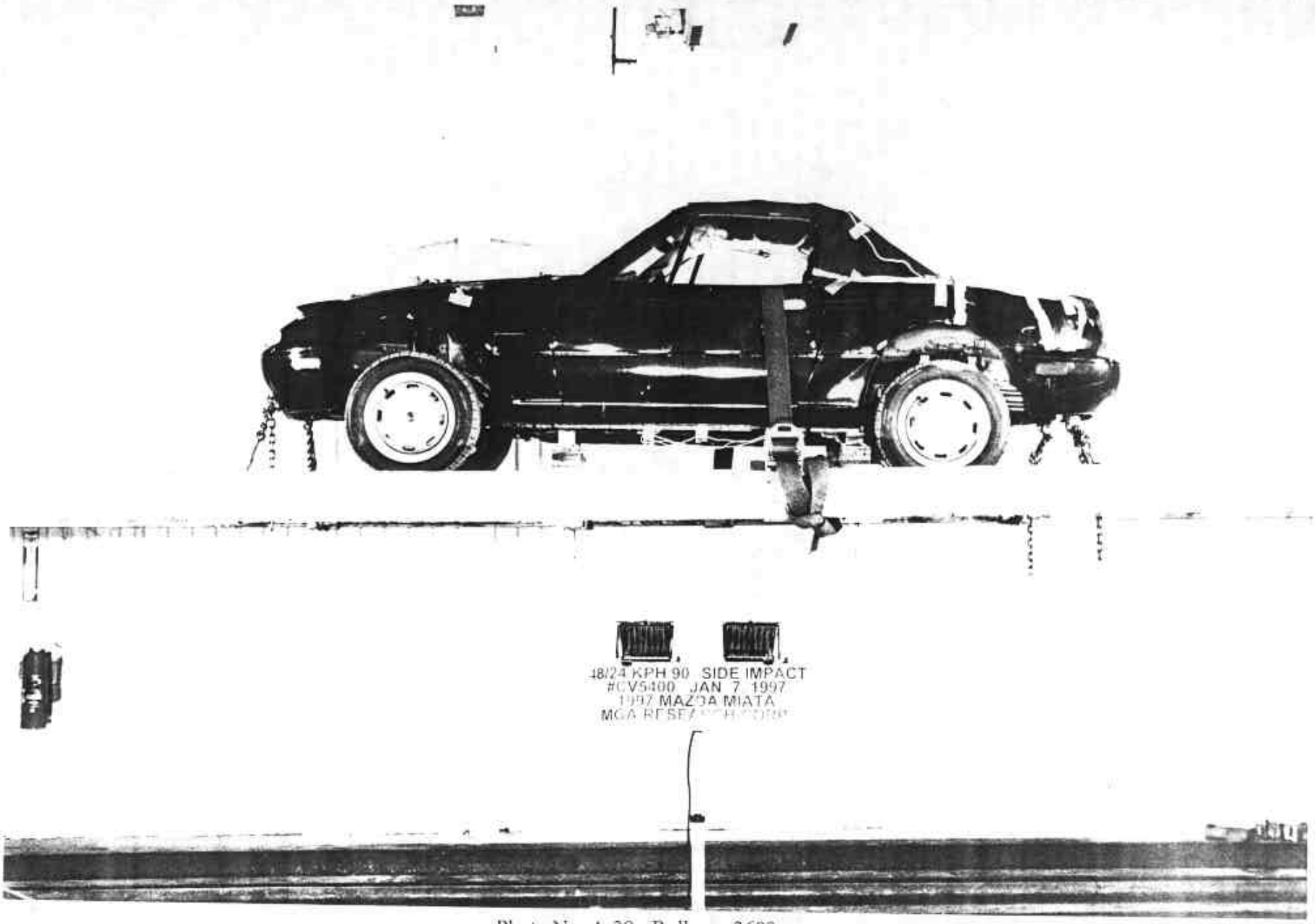


Photo No. A-39 - Rollover 360°

A-40

Photo No. A-40 - Right Front Attitude Point

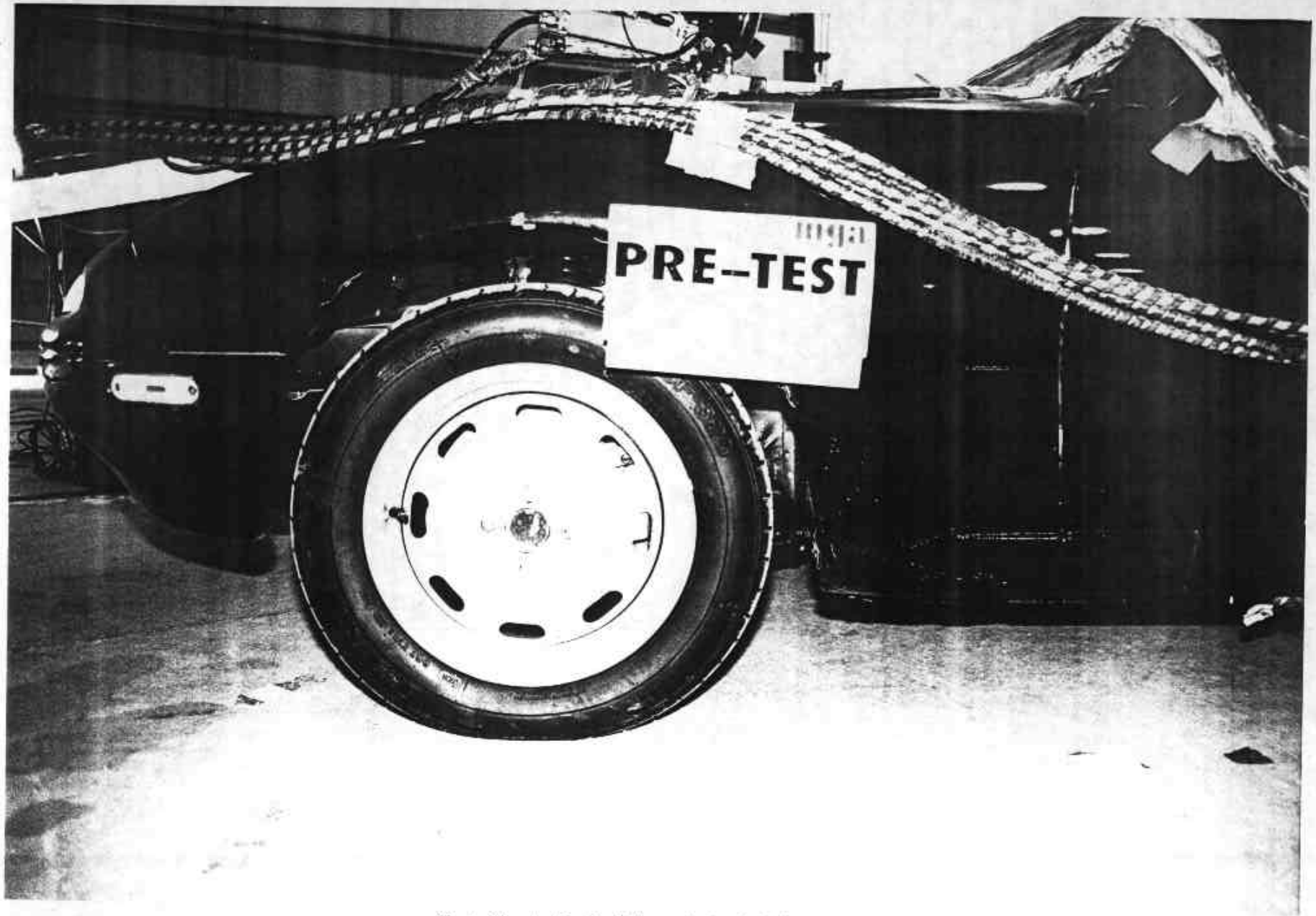
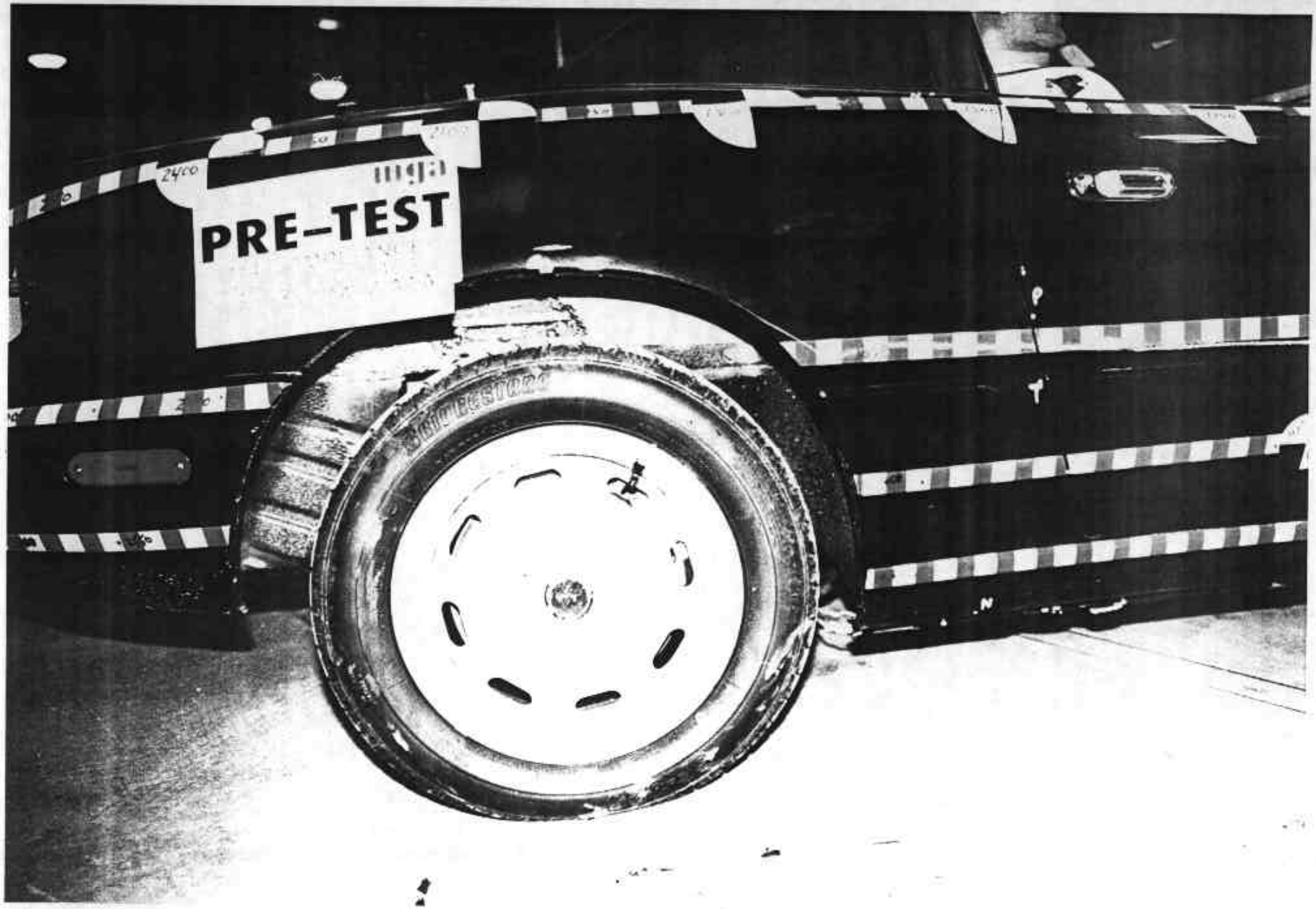


Photo No. A-41 - Left Front Attitude Point



A-42

Photo No. A-42 - Right Rear Attitude Point

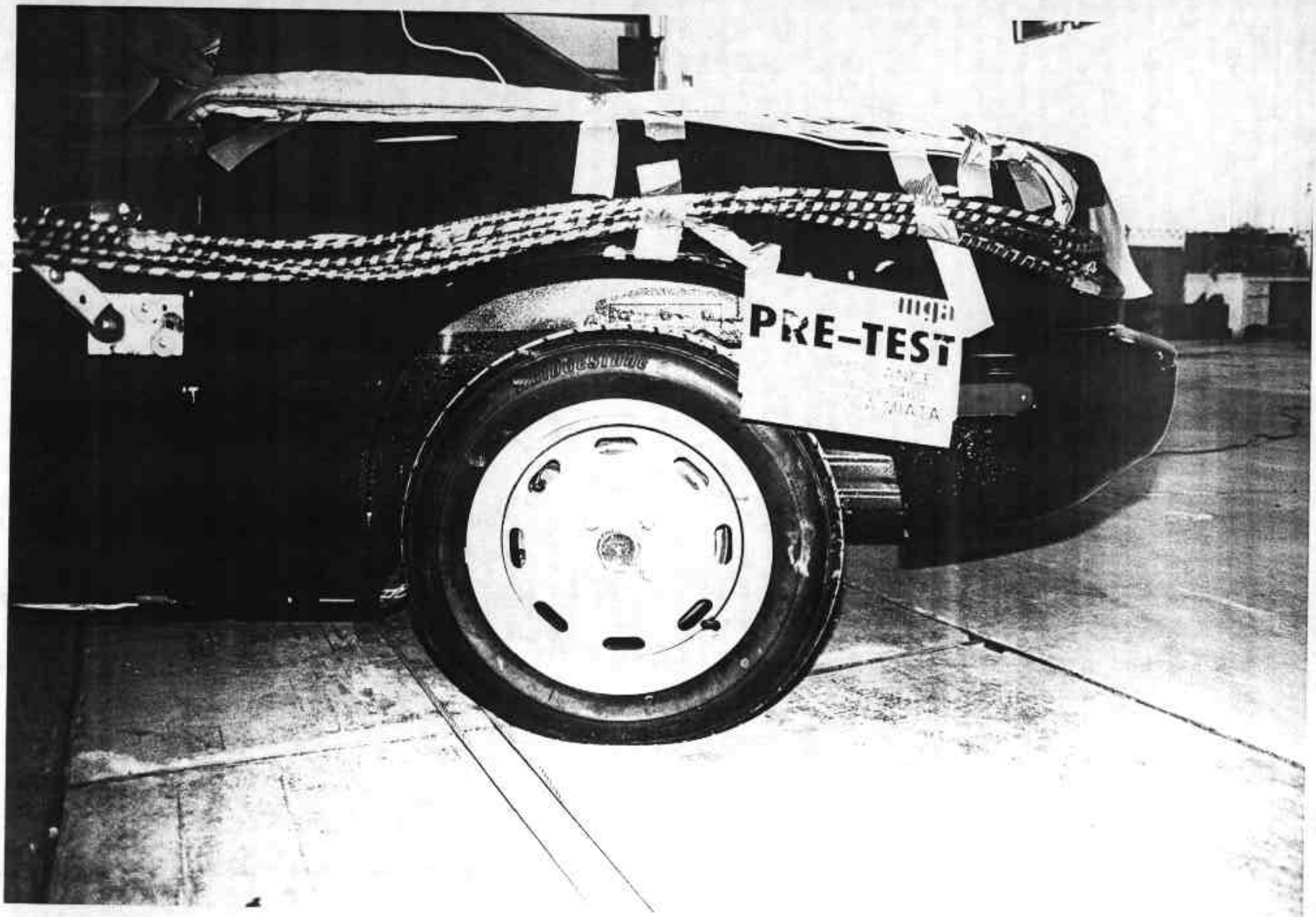


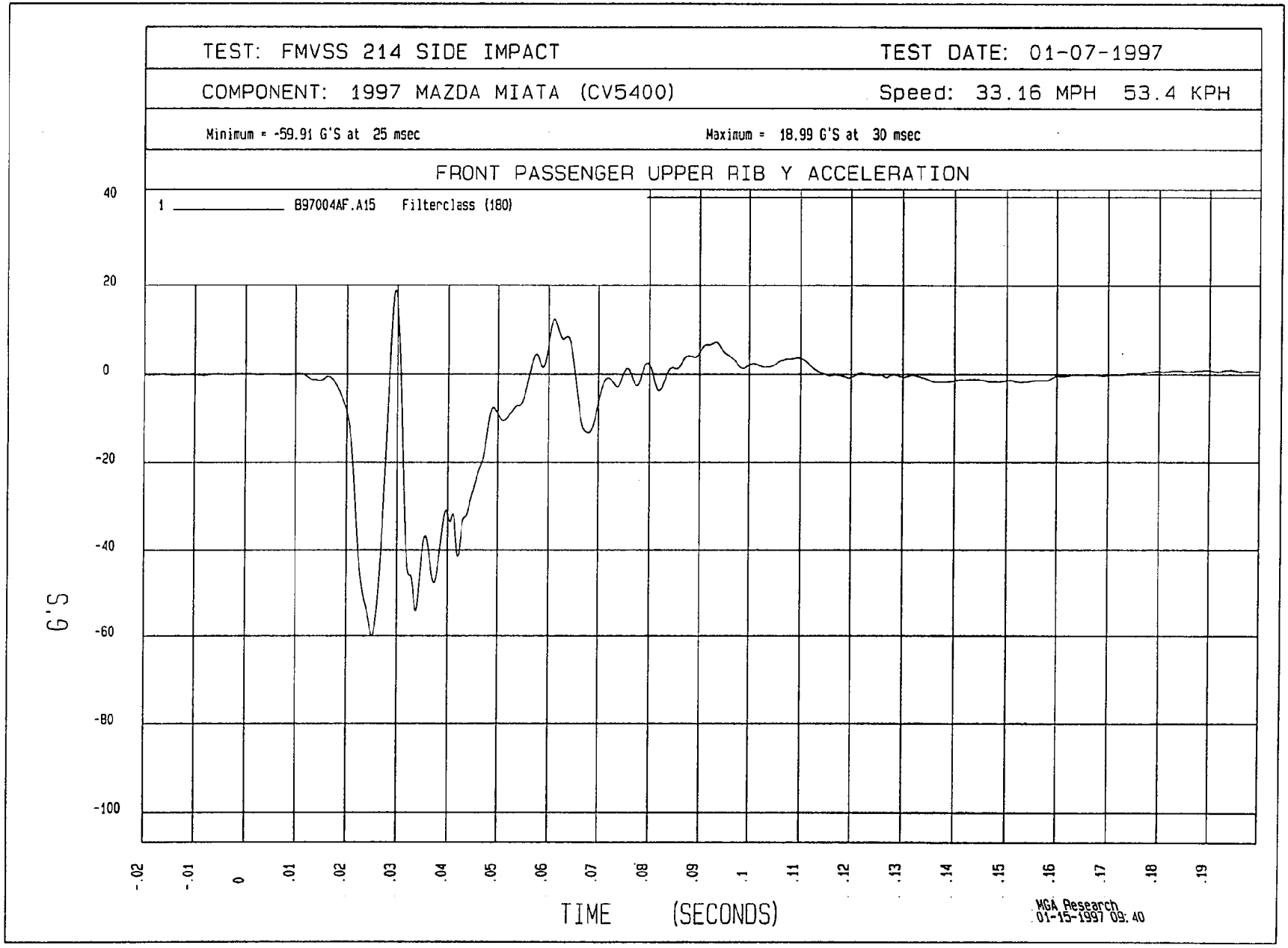
Photo No. A-43 - Left Rear Attitude Point

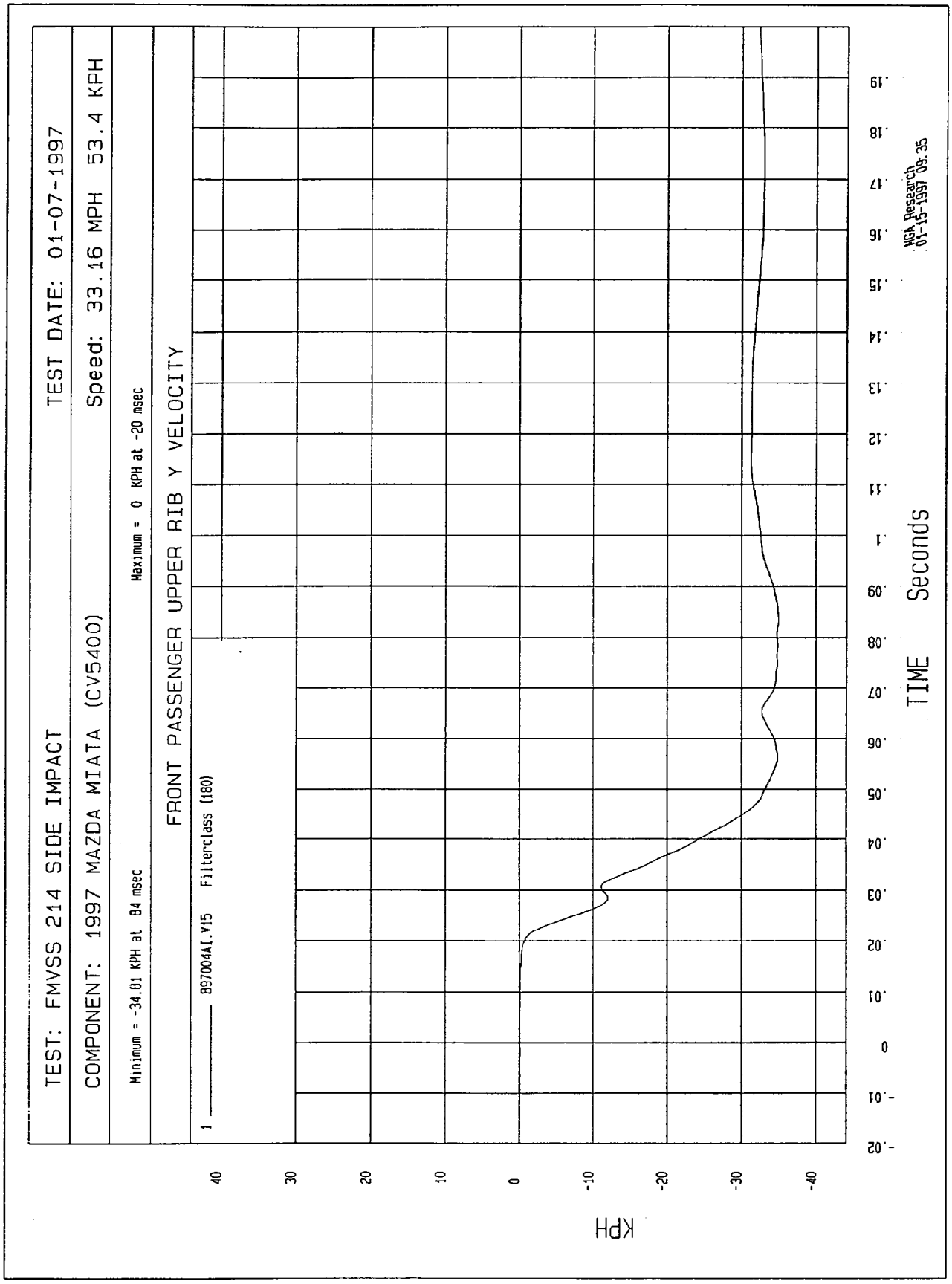
APPENDIX B - VEHICLE AND SID RESPONSE DATA

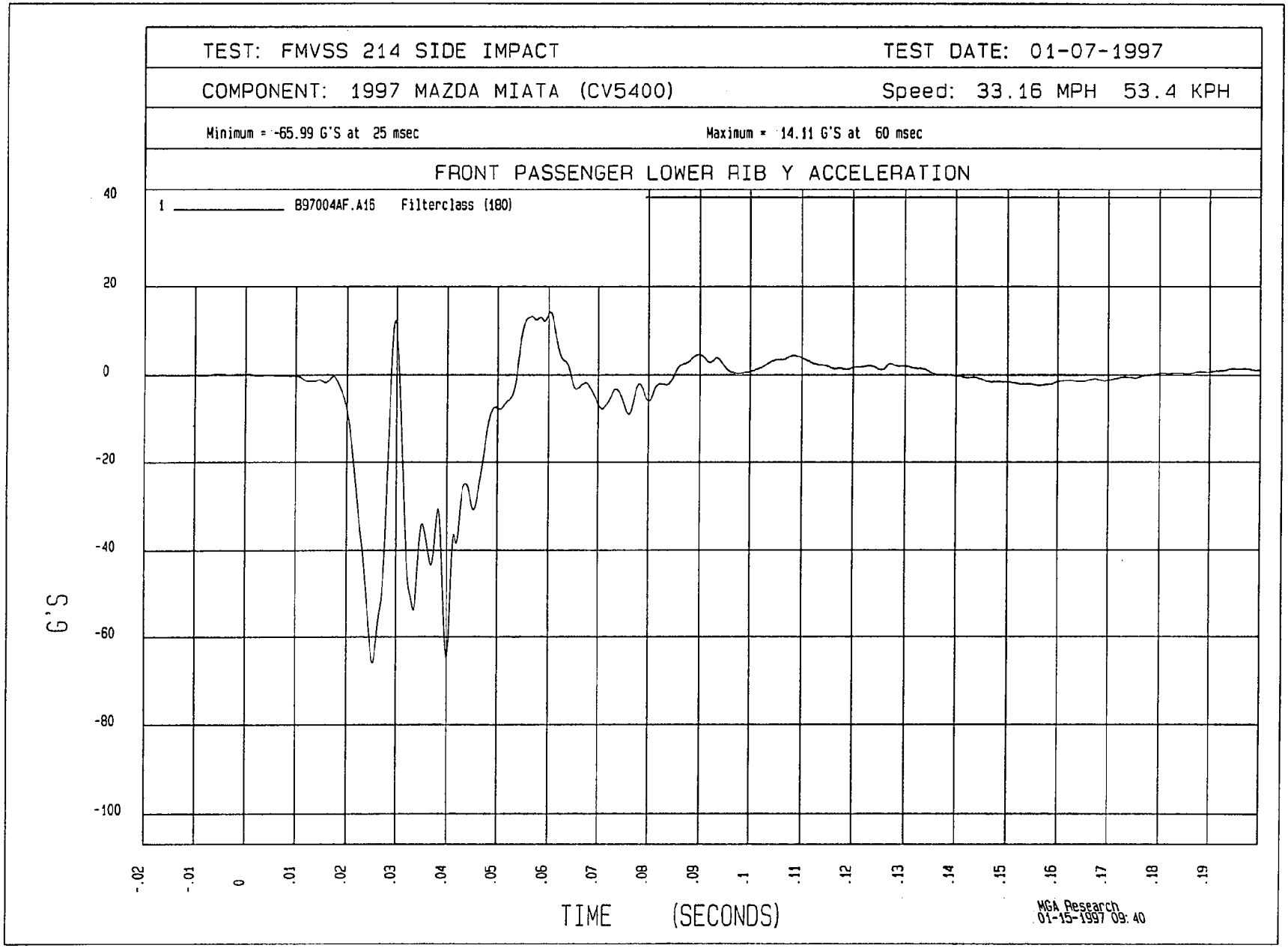
Table of Data Plots

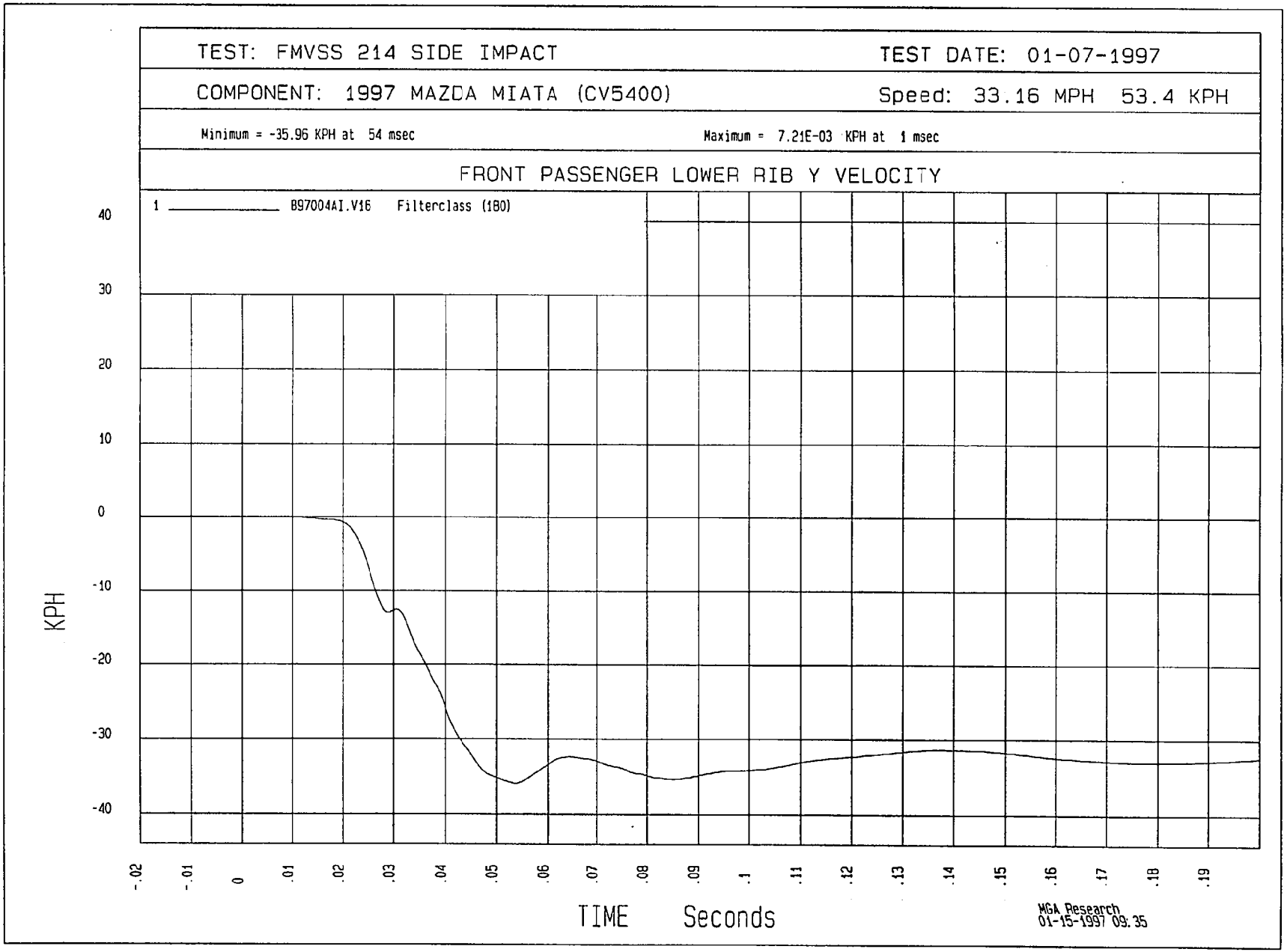
Table of Data Plots

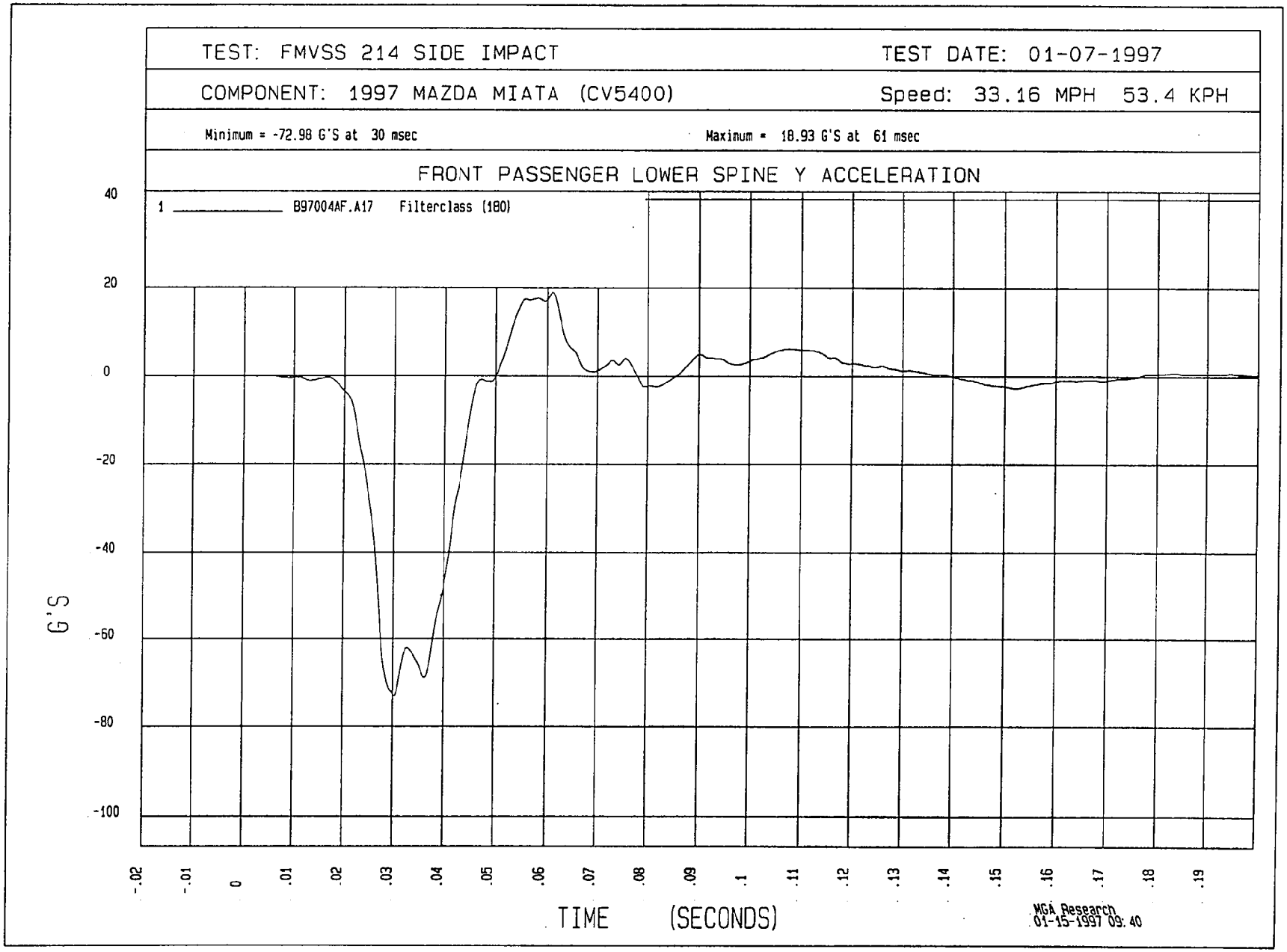
Table of Data Plots

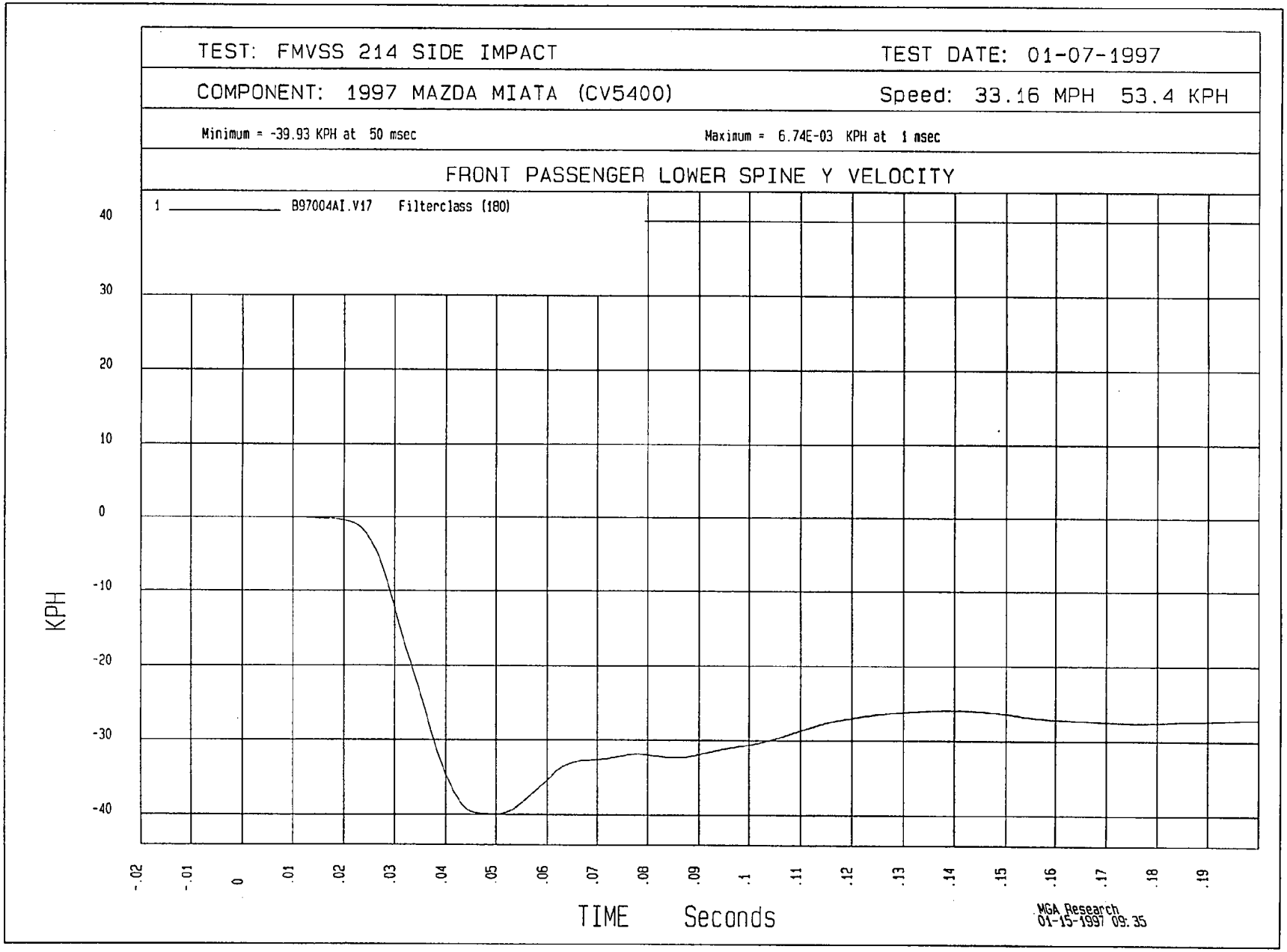

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -59.91 G'S at 25 msec
Maximum = 18.99 G'S at 30 msec
FRONT PASSENGER UPPER RIB Y ACCELERATION
1 B97004AF.A15 Filterclass (180)
40
20
0
-20
-40
-60
-80
-100
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:40

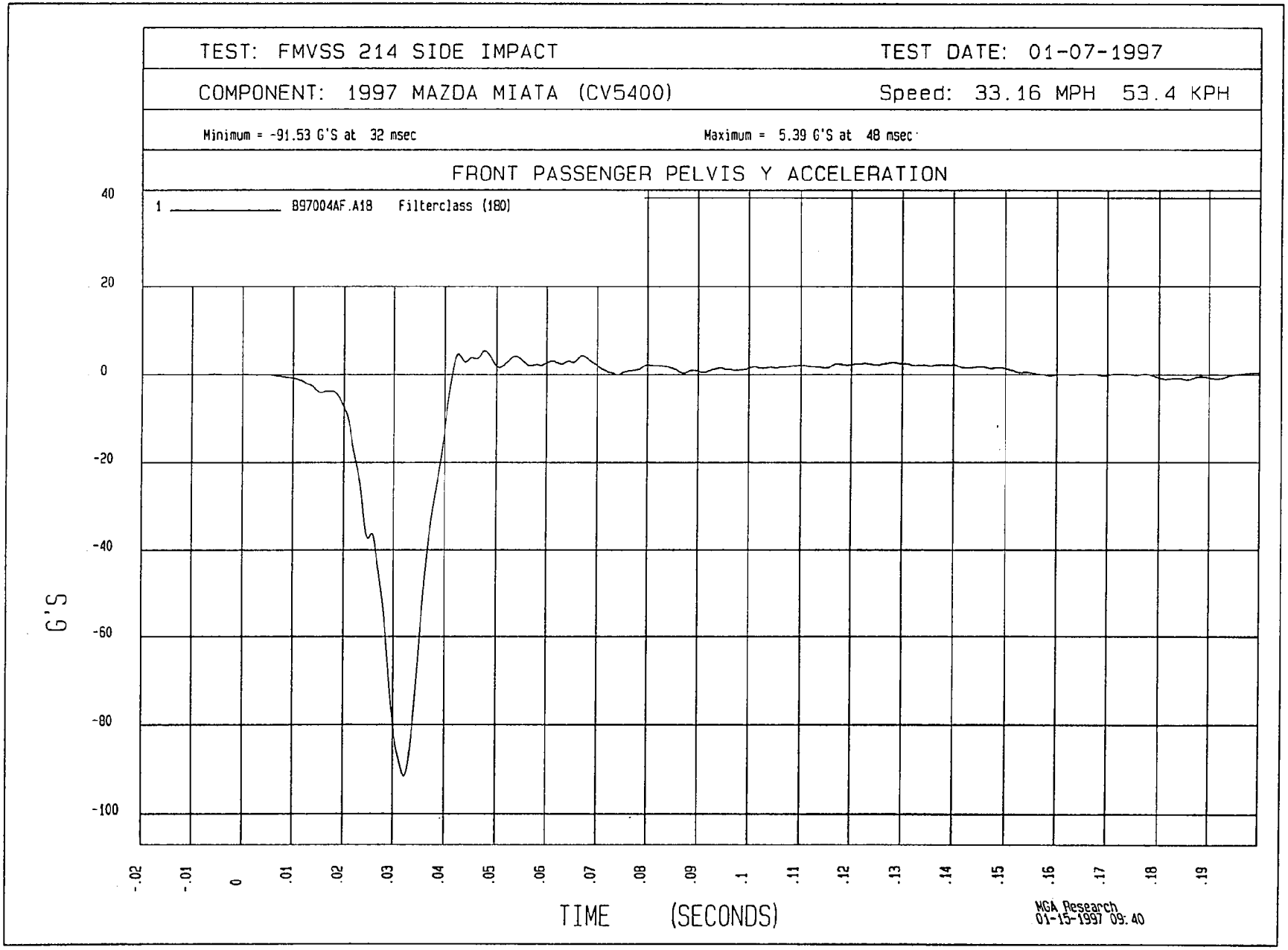

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -34.01 KPH at 84 msec
Maximum = 0 KPH at -20 msec
FRONT PASSENGER UPPER RIB Y VELOCITY
1 B97004AI.Y15 Filterclass (180)
KPH
TIME Seconds
NGA Research
01-15-1997 09:35

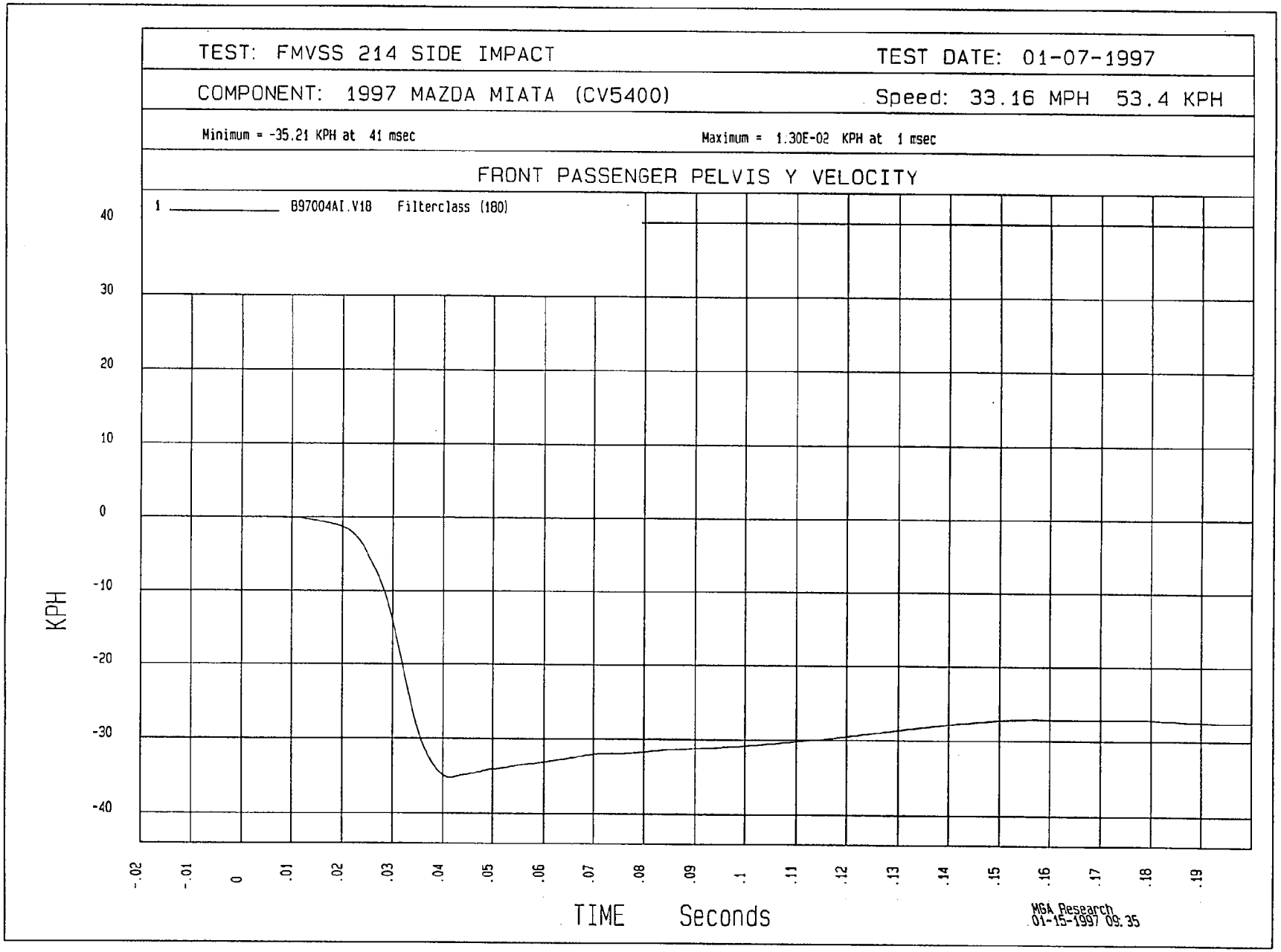

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -65.99 G'S at 25 msec
Maximum = 14.11 G'S at 60 msec
FRONT PASSENGER LOWER RIB Y ACCELERATION
1 B97004AF.A15 Filterclass (180)
40
20
0
-20
-40
-60
-80
-100
G's
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:40

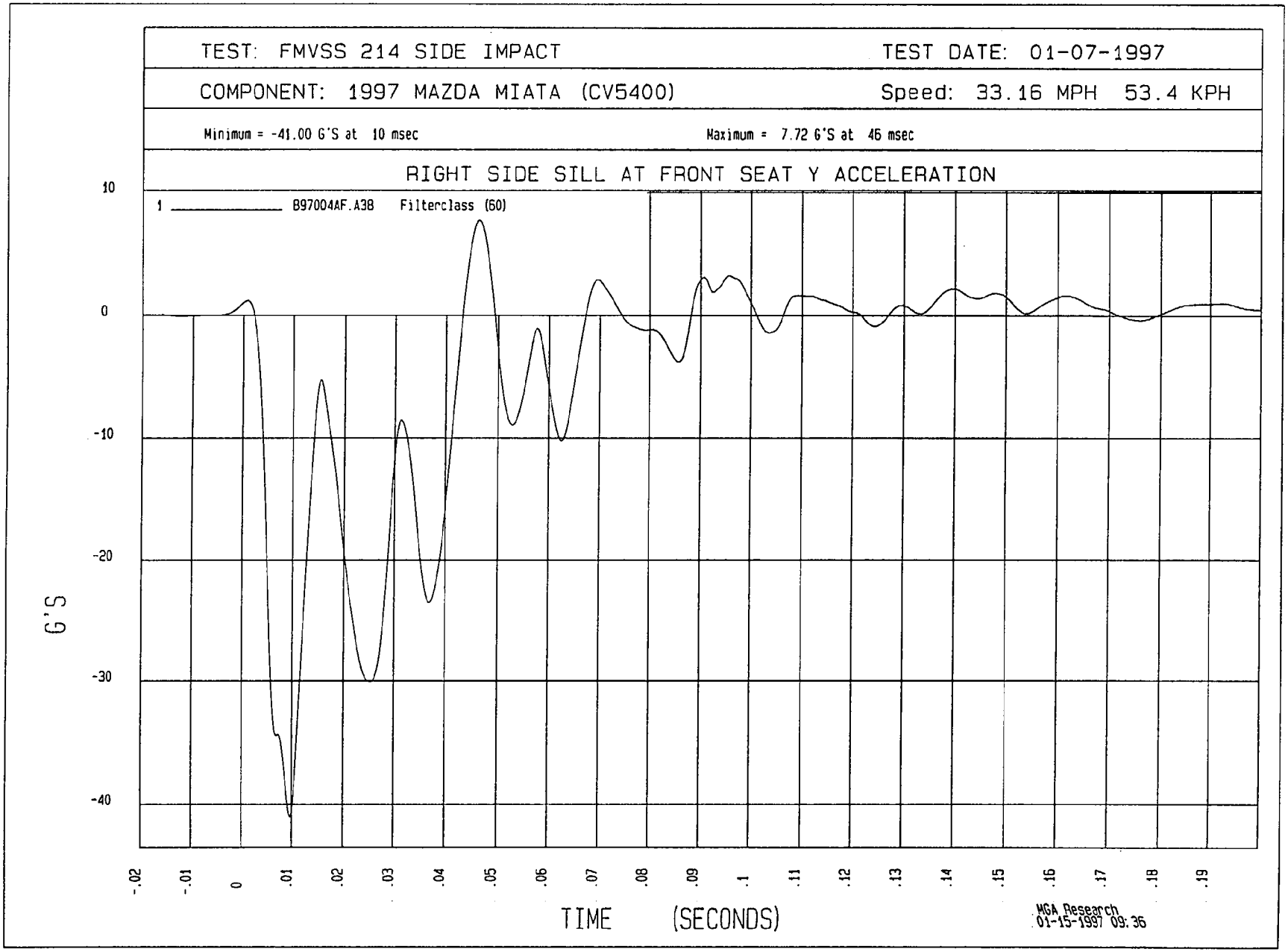

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -35.96 KPH at 54 msec
Maximum = 7.21E-03 KPH at 1 msec
FRONT PASSENGER LOWER RIB Y VELOCITY
1 B97004AI.V16 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:35

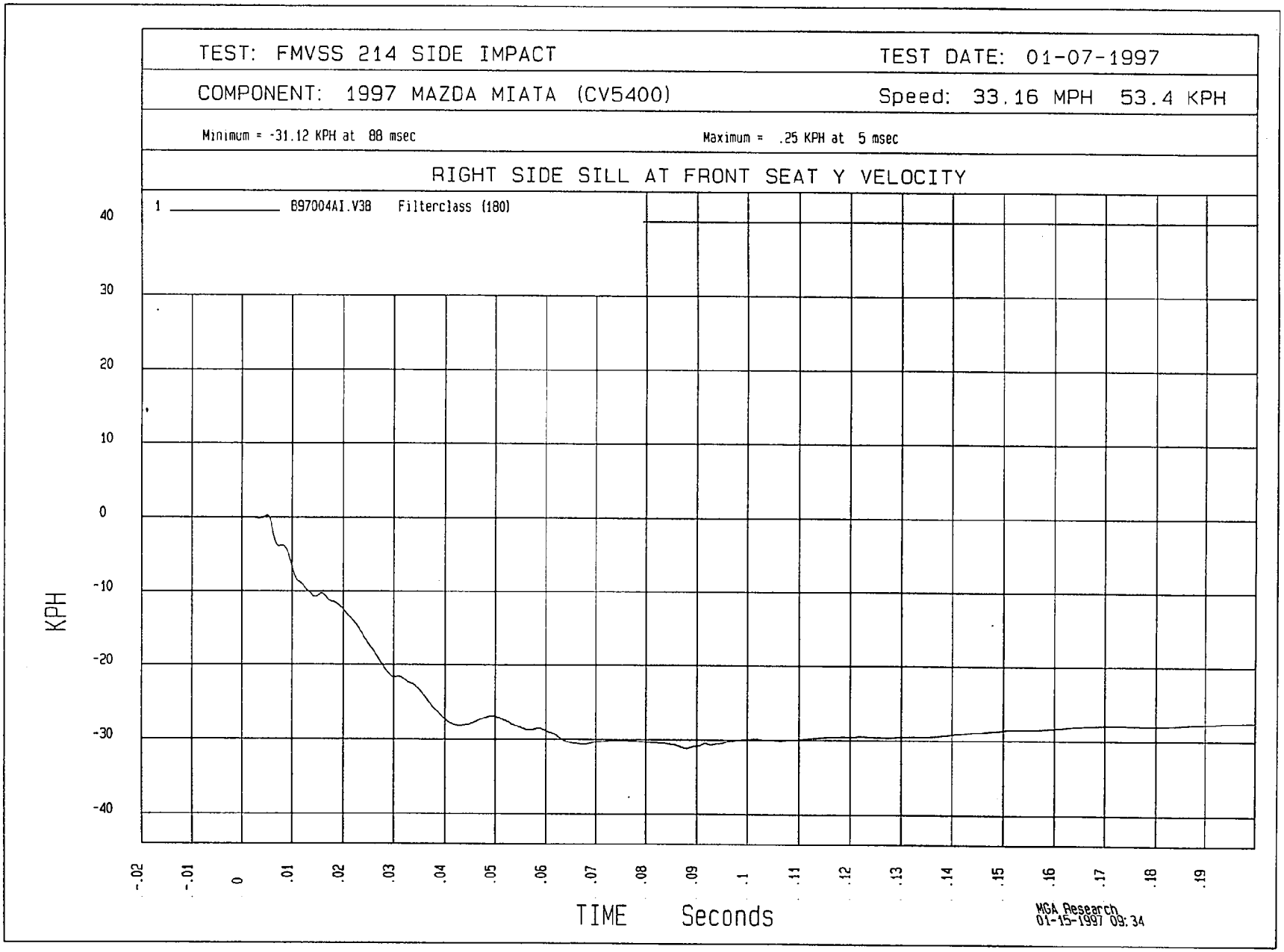

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -72.98 G'S at 30 msec
Maximum = 18.93 G'S at 61 msec
FRONT PASSENGER LOWER SPINE Y ACCELERATION
1 B97004AF.A17 Filterclass (180)
40
20
0
-20
-40
-60
-80
-100
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:40

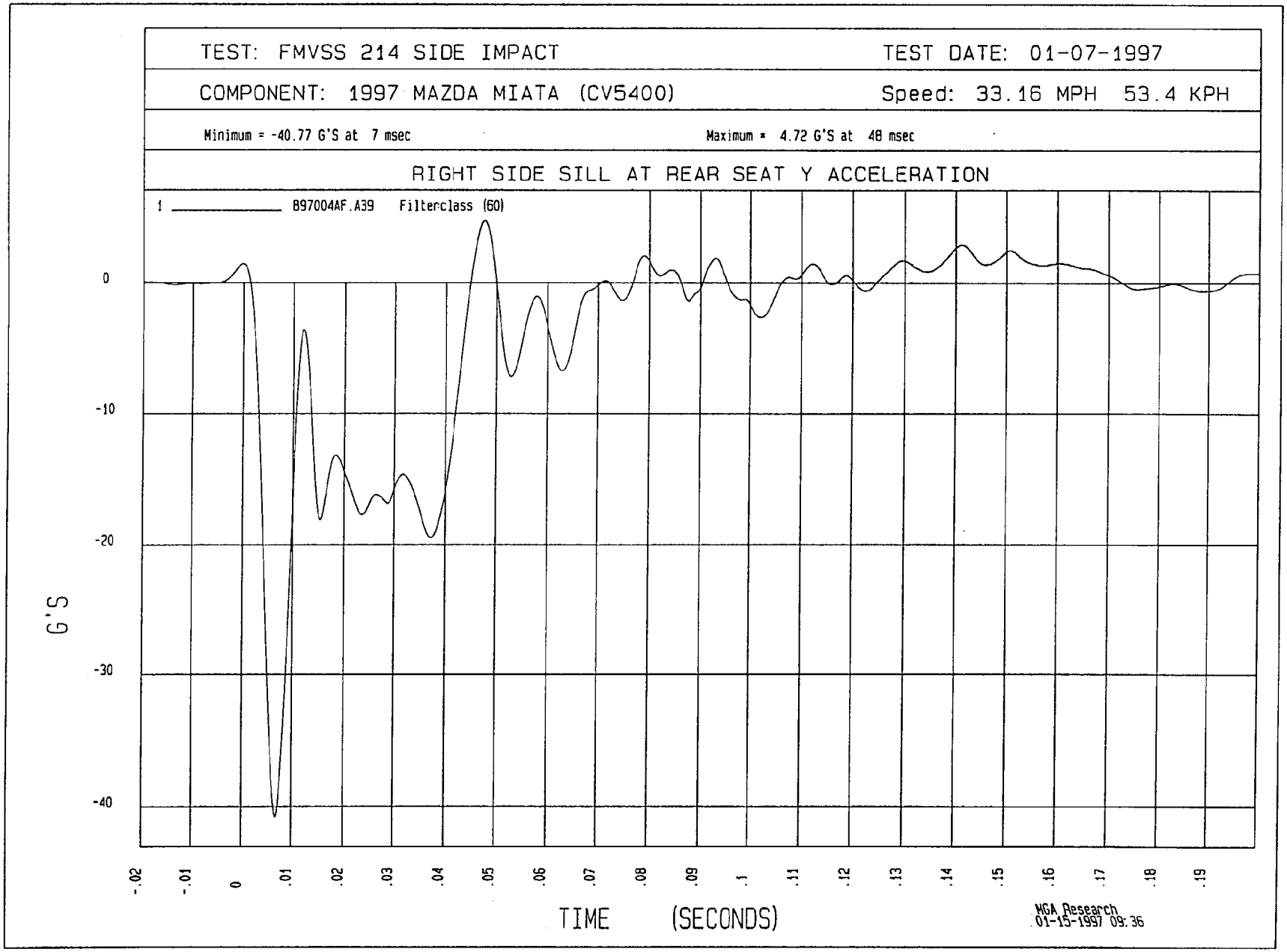

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -39.93 KPH at 50 msec
Maximum = 6.74E-03 KPH at 1 msec
FRONT PASSENGER LOWER SPINE Y VELOCITY
1 B97004AI.V17 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:35

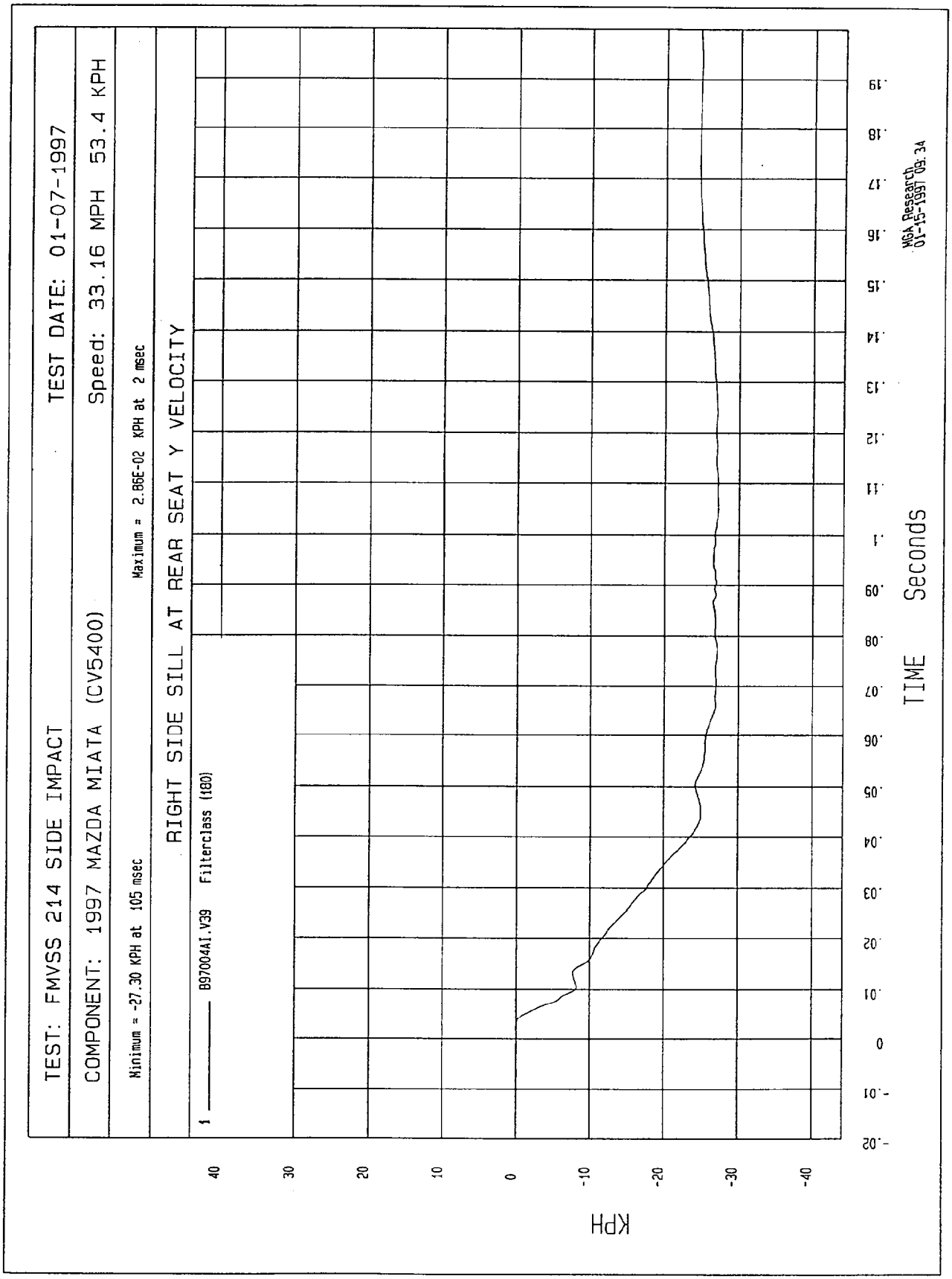

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -91.53 G'S at 32 msec
Maximum = 5.39 G'S at 48 msec
FRONT PASSENGER PELVIS Y ACCELERATION
1 B97004AF.A18 Filterclass (180)
40
20
0
-20
-40
-60
-80
-100
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:40

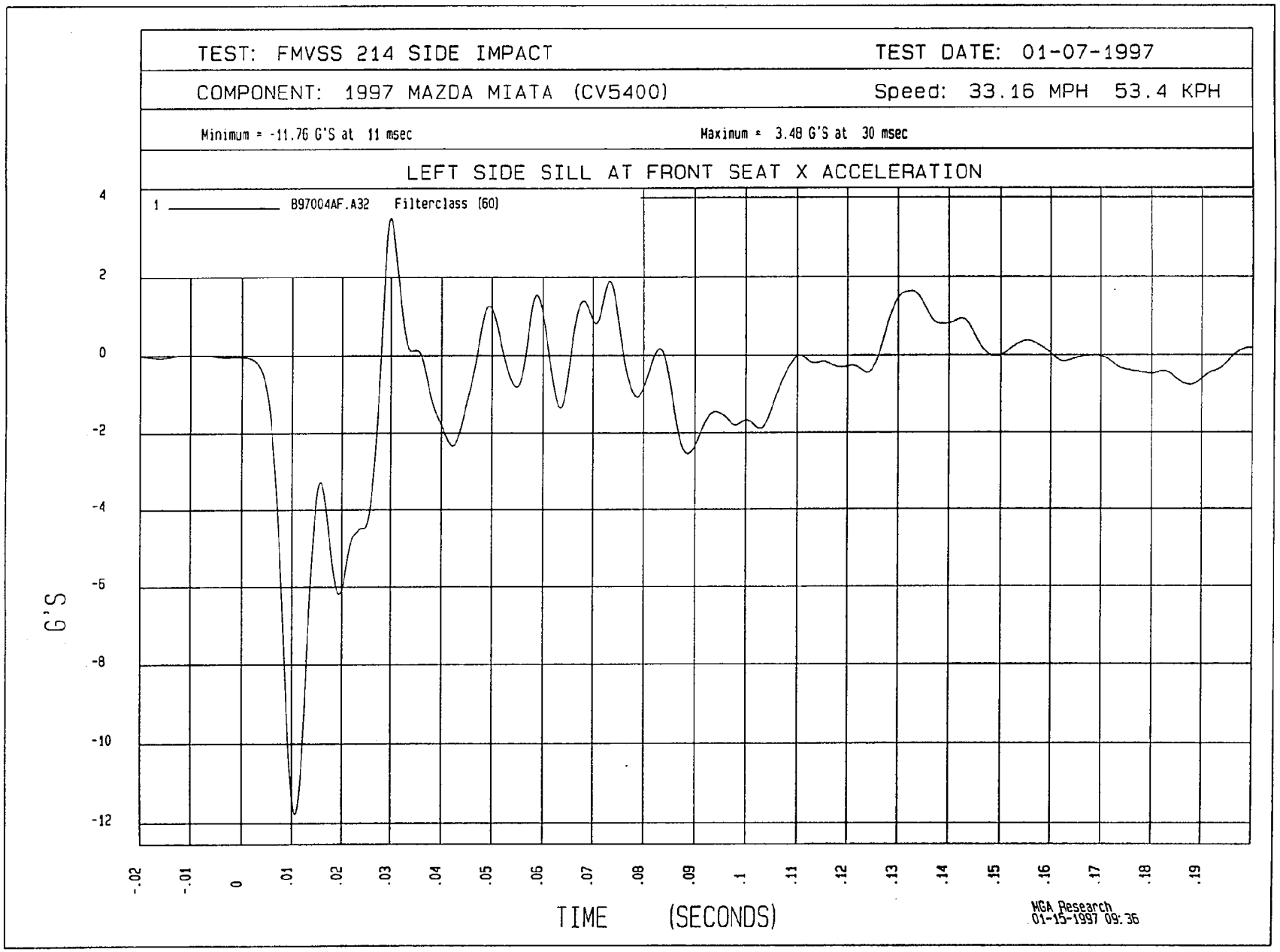

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -35.21 KPH at 41 msec
Maximum = 1.30E-02 KPH at 1 msec
FRONT PASSENGER PELVIS Y VELOCITY
1 B97004AI.V18 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:35

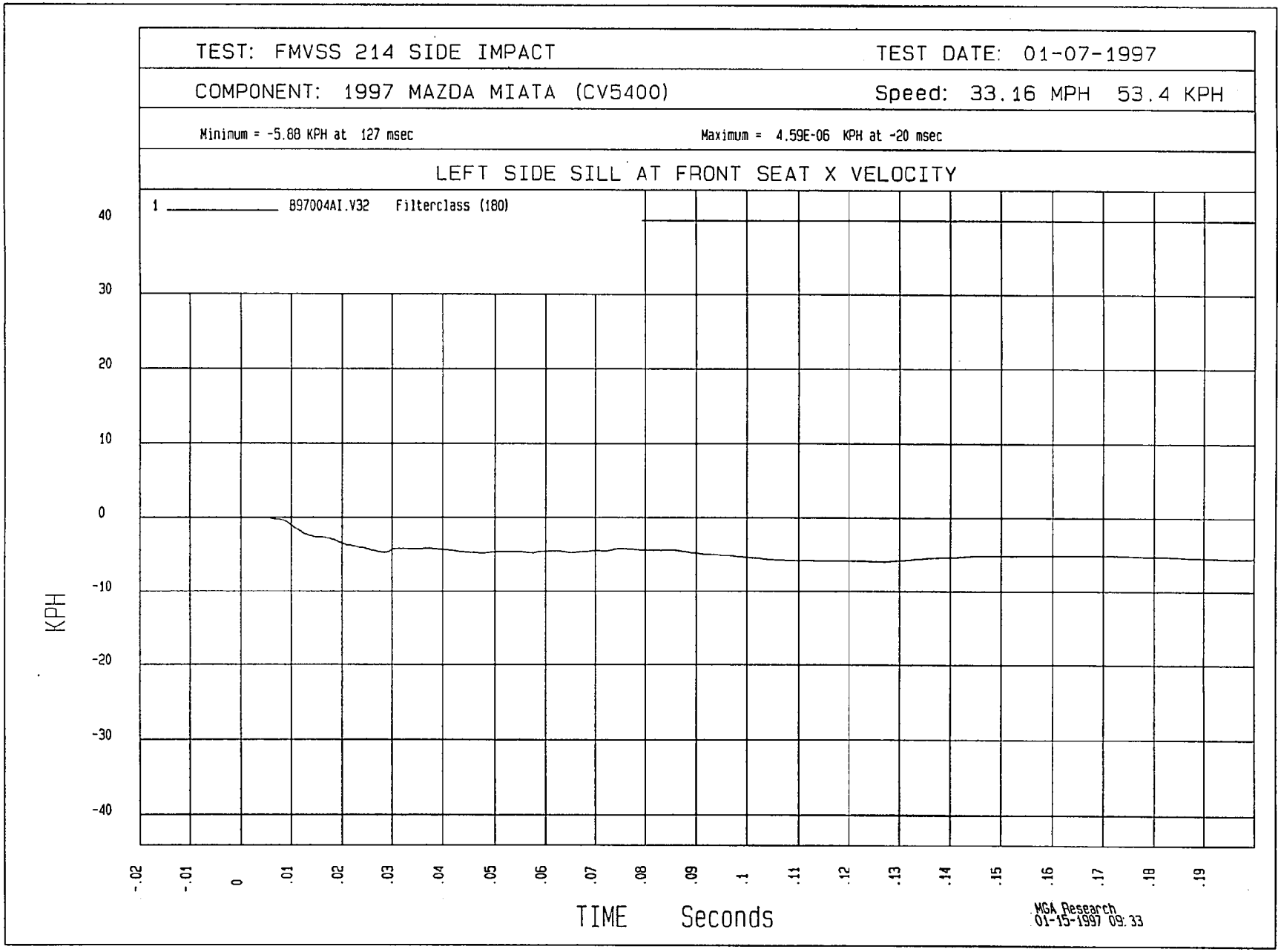

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -41.00 G'S at 10 msec
Maximum = 7.72 G'S at 46 msec
RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION
1 B97004AF.A3B Filterclass (60)
10
0
-10
-20
-30
-40
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:36

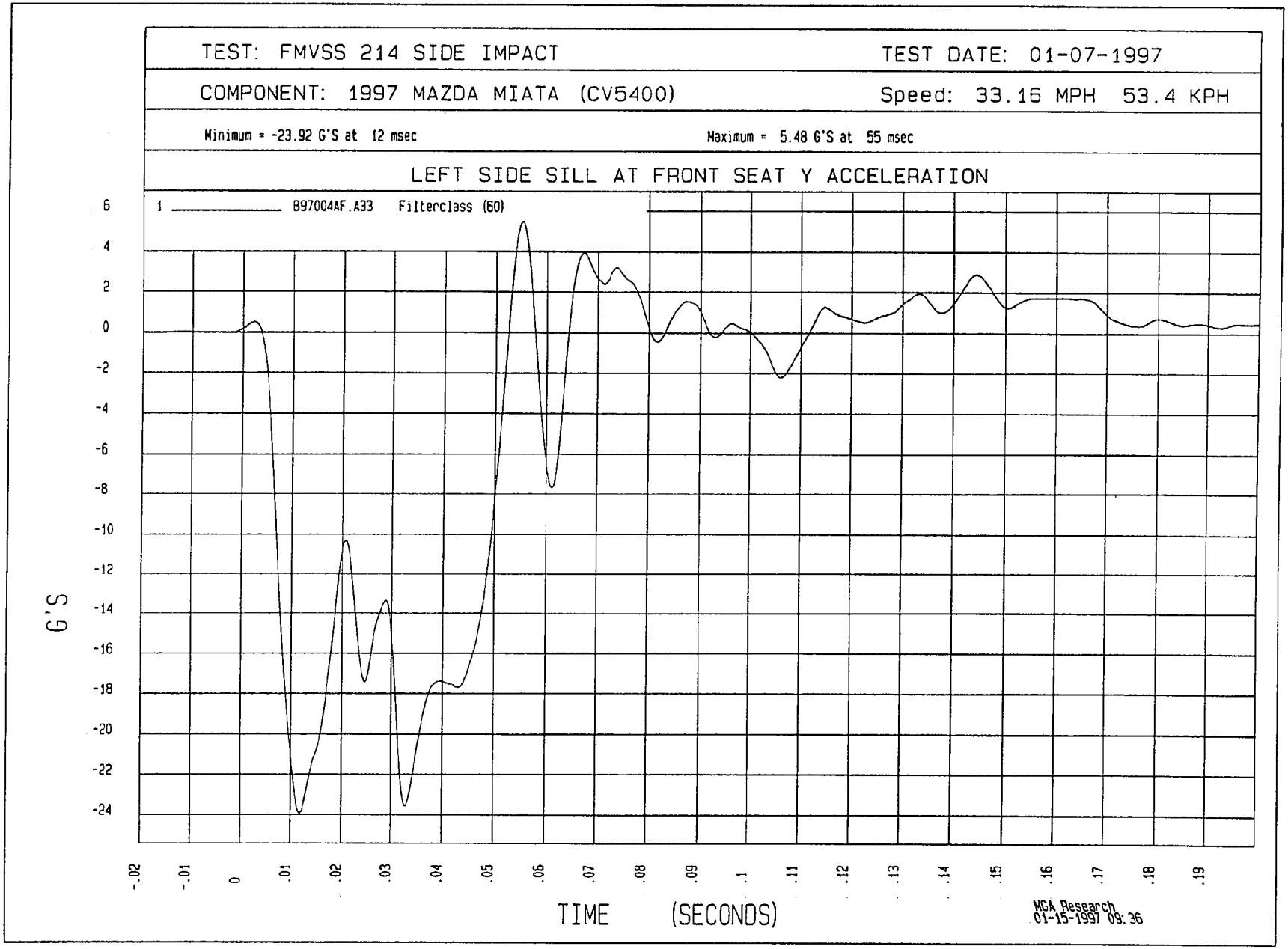

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -31.12 KPH at 88 msec
Maximum = .25 KPH at 5 msec
RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY
1 B97004AI.V3B Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:34

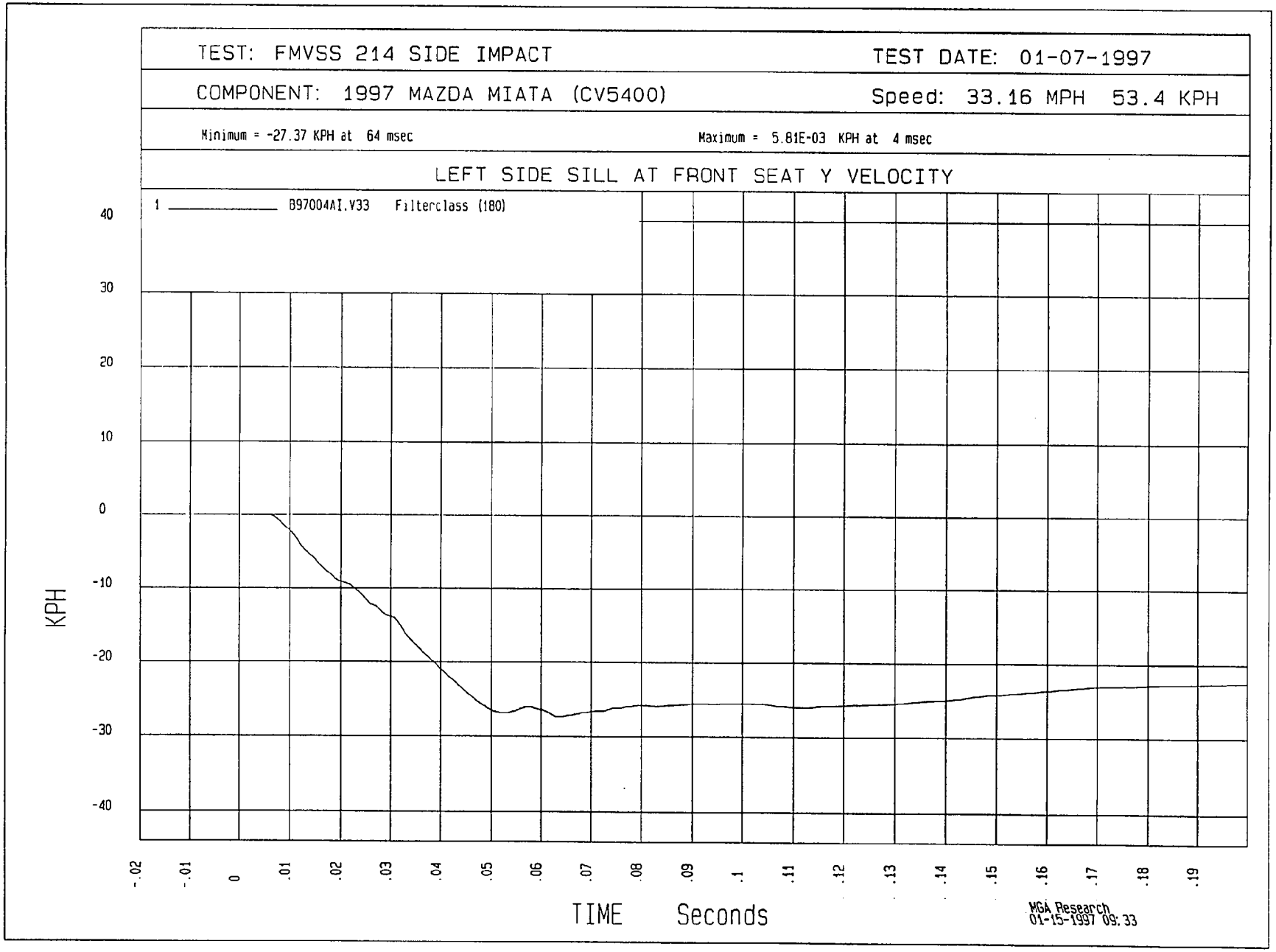

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -40.77 G'S at 7 msec
Maximum = 4.72 G'S at 48 msec
RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION
1 B97004AF.A39 Filterclass (60)
0
-10
-20
-30
-40
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:36

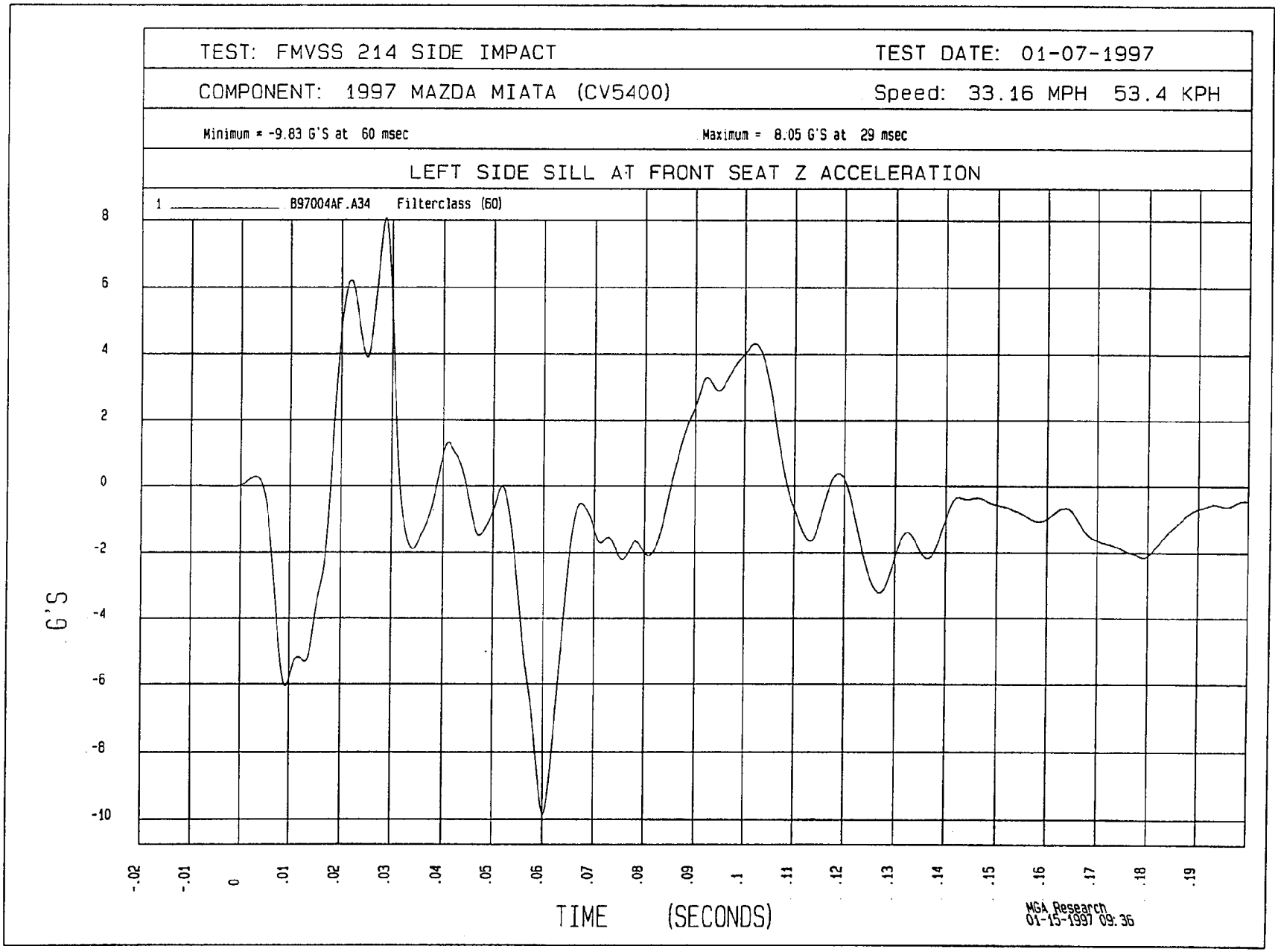

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -27.30 KPH at 105 msec
Maximum = 2.86E-02 KPH at 2 msec
RIGHT SIDE SILL AT REAR SEAT Y VELOCITY
1 B970044I.V39 Filterclass (180)
KPH
TIME Seconds
MGA Research
01-15-1997 09:34

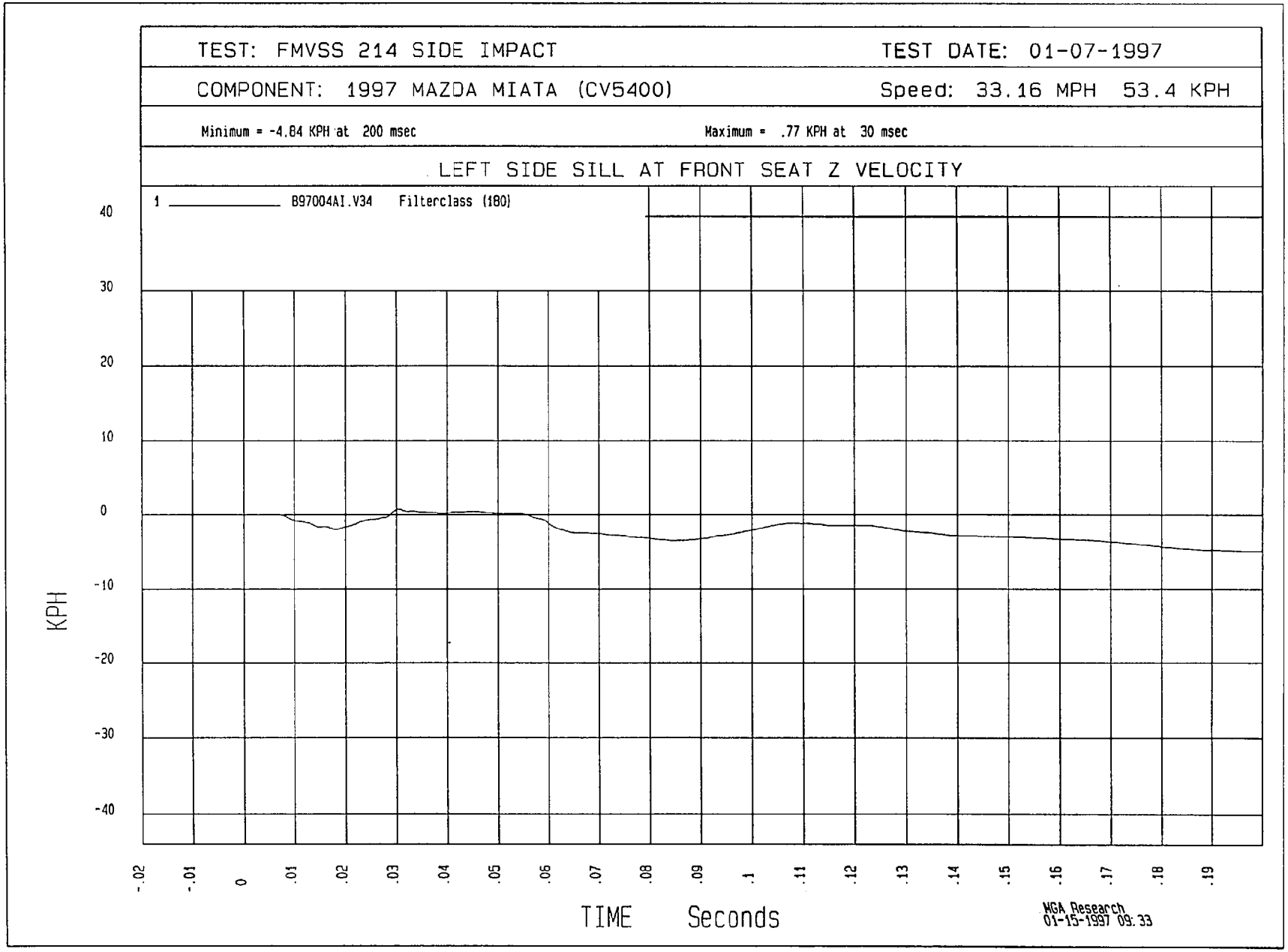

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -11.76 G'S at 11 msec
Maximum = 3.48 G'S at 30 msec
LEFT SIDE SILL AT FRONT SEAT X ACCELERATION
1 B97004AF.A32 Filterclass (60)
4
2
0
-2
-4
-6
-8
-10
-12
G's
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:36

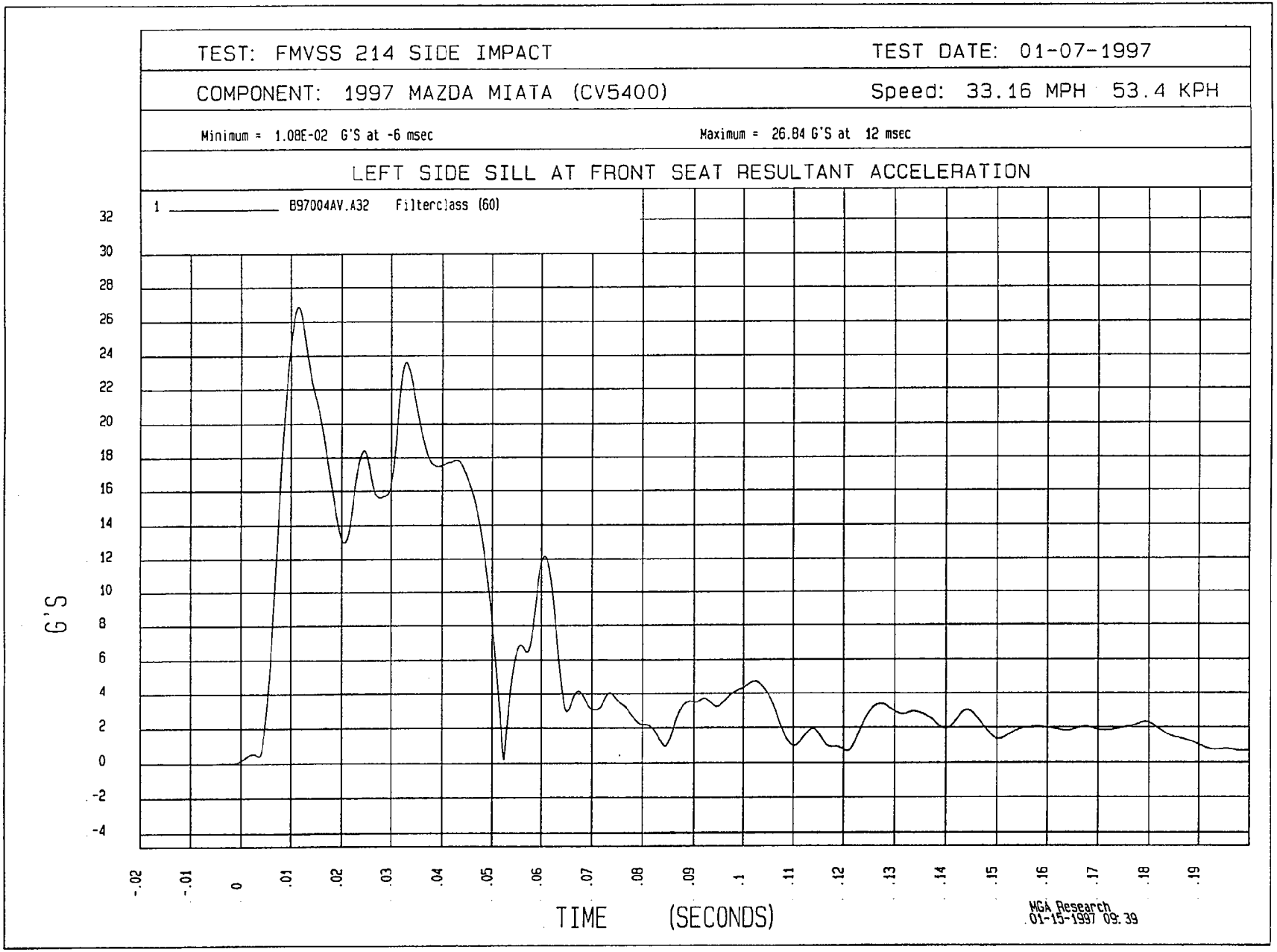

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -5.68 KPH at 127 msec
Maximum = 4.59E-06 KPH at -20 msec
LEFT SIDE SILL AT FRONT SEAT X VELOCITY
1 B97004AI.V32 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:33

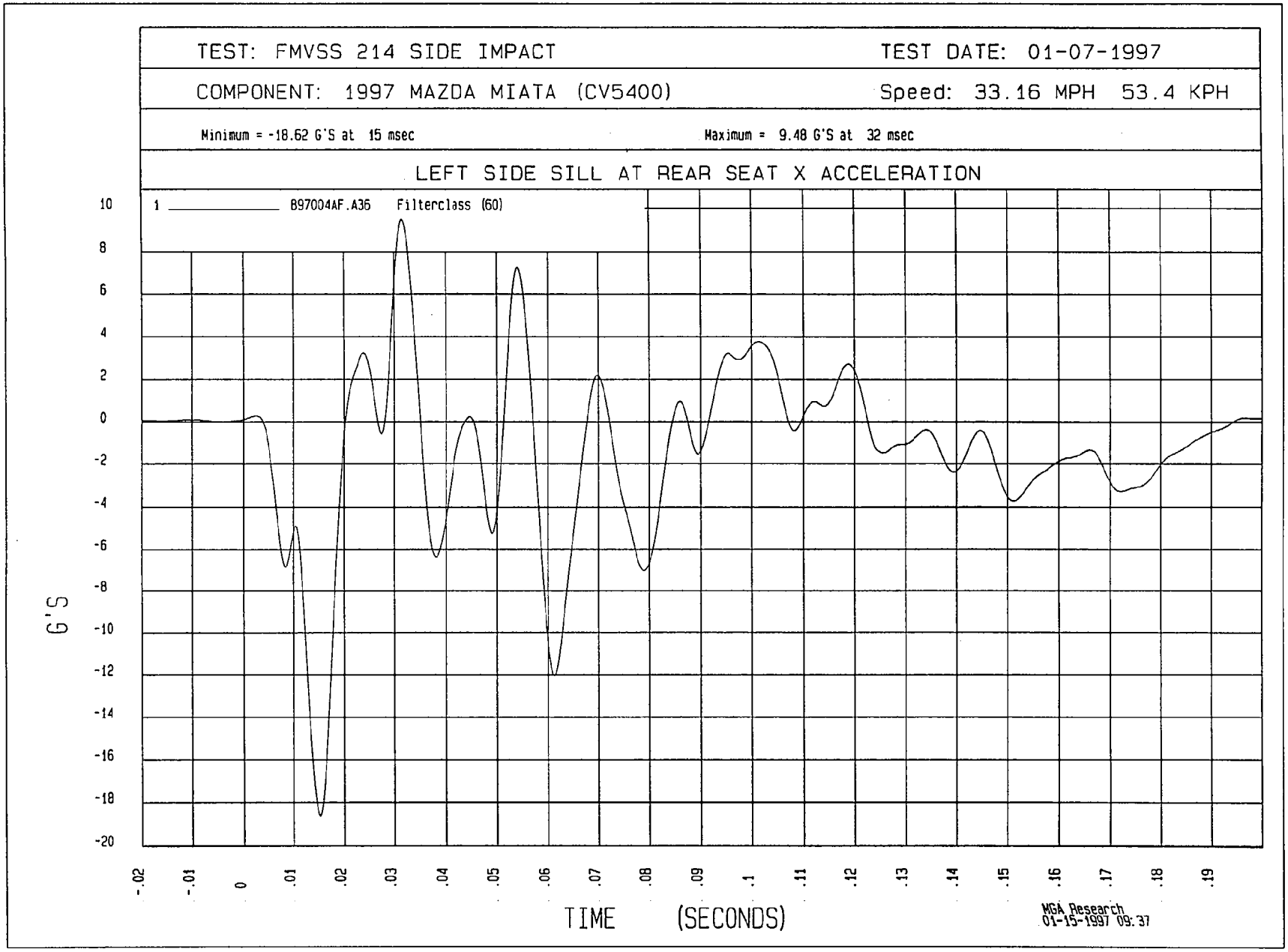

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -23.92 G'S at 12 msec
Maximum = 5.48 G'S at 55 msec
LEFT SIDE SILL AT FRONT SEAT Y ACCELERATION
1 B97004AF.A33 Filterclass (60)
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
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
01-15-1997 09:36

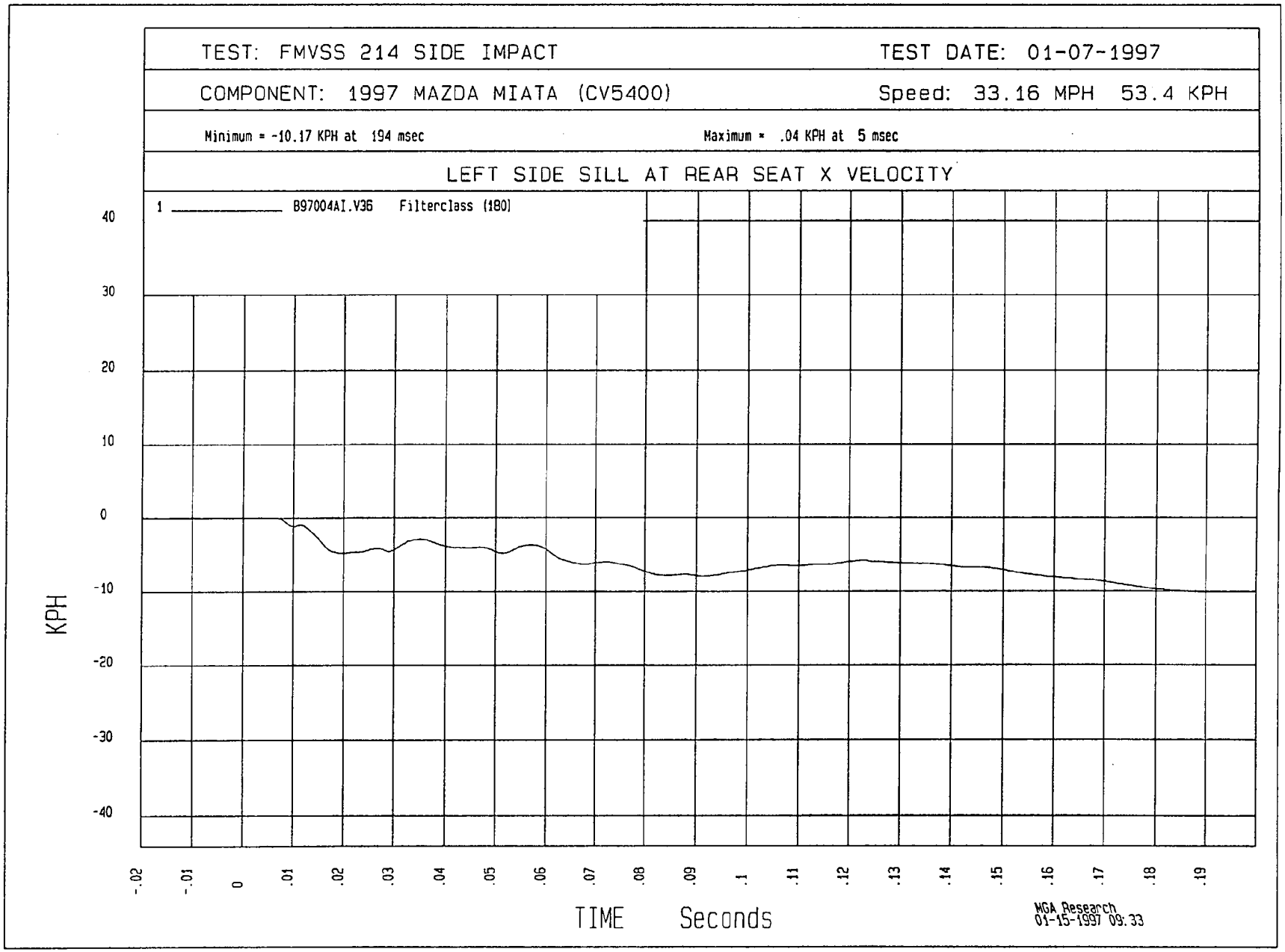

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -27.37 KPH at 64 msec
Maximum = 5.81E-03 KPH at 4 msec
LEFT SIDE SILL AT FRONT SEAT Y VELOCITY
1 B97004AI.V33 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:33

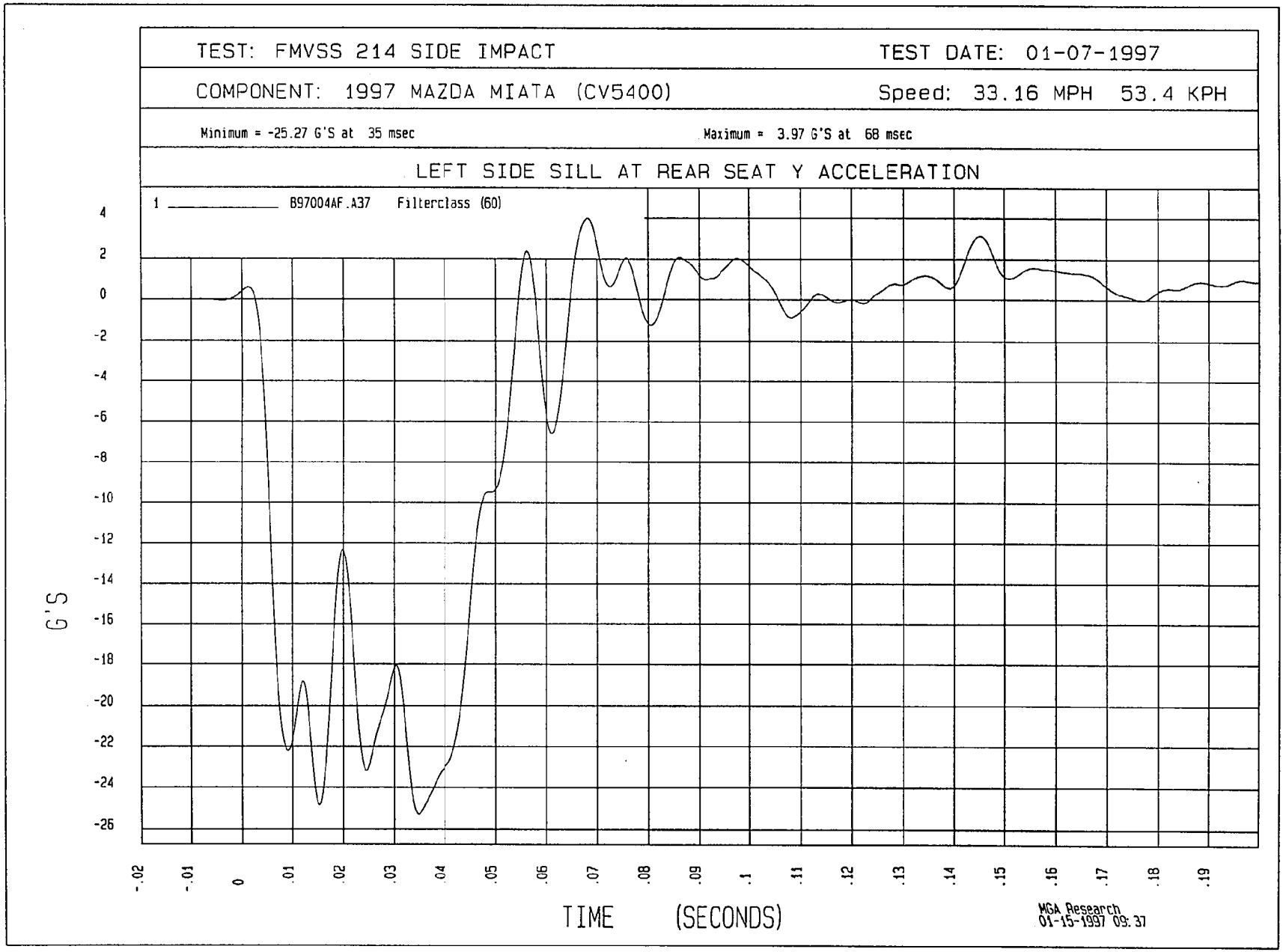

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -9.83 G'S at 60 msec
Maximum = 8.05 G'S at 29 msec
LEFT SIDE SILL AT FRONT SEAT Z ACCELERATION
1 B97004AF.A34 Filterclass (60)
8
6
4
2
0
-2
-4
-6
-8
-10
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:36

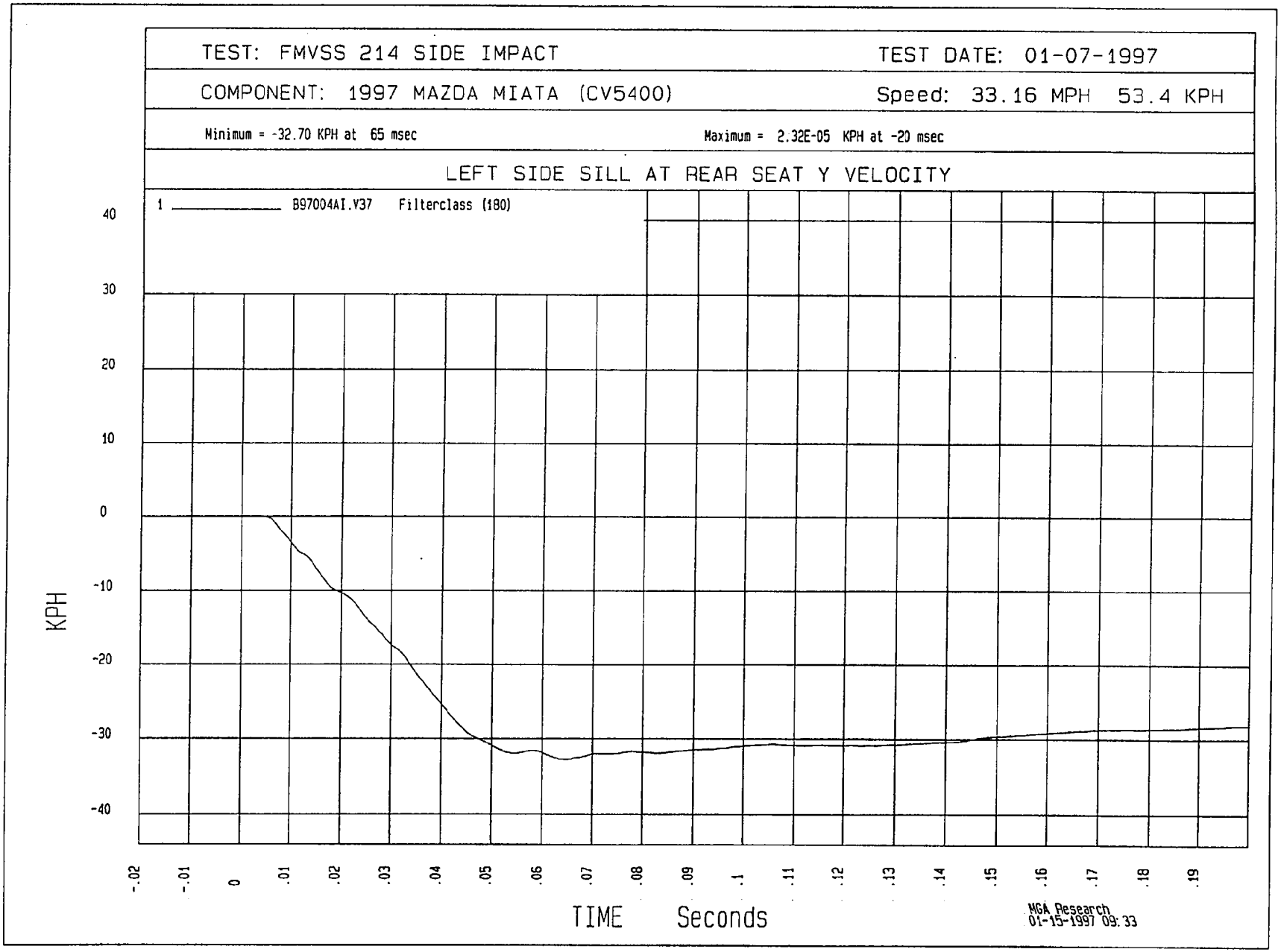

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -4.84 KPH at 200 msec
Maximum = .77 KPH at 30 msec
LEFT SIDE SILL AT FRONT SEAT Z VELOCITY
1 B97004AI.V34 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:33

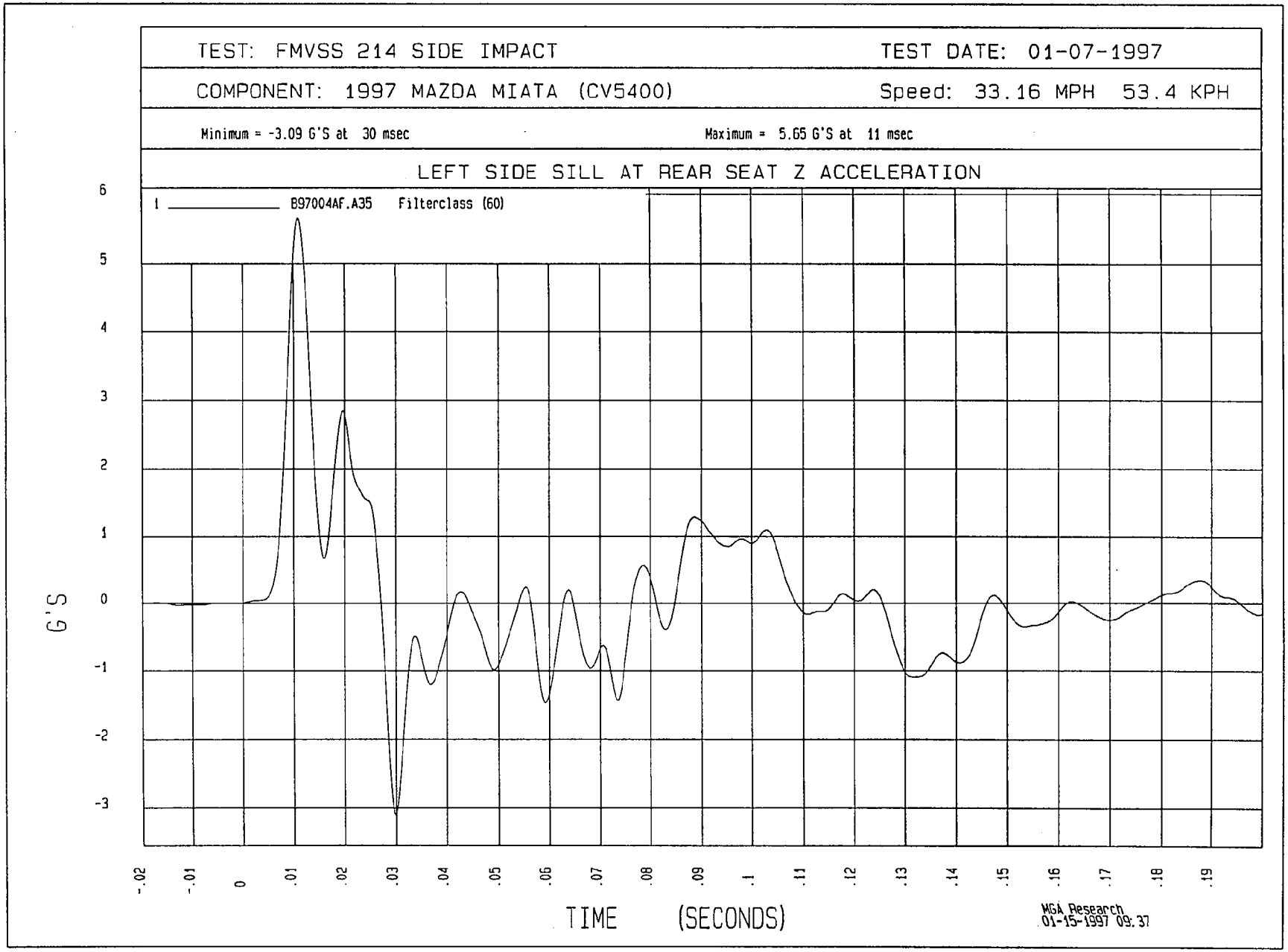

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = 1.08E-02 G'S at -6 msec
Maximum = 26.84 G'S at 12 msec
LEFT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION
1 B97004AV.A32 Filterclass (60)
G'S
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-.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
01-15-1997 09:39

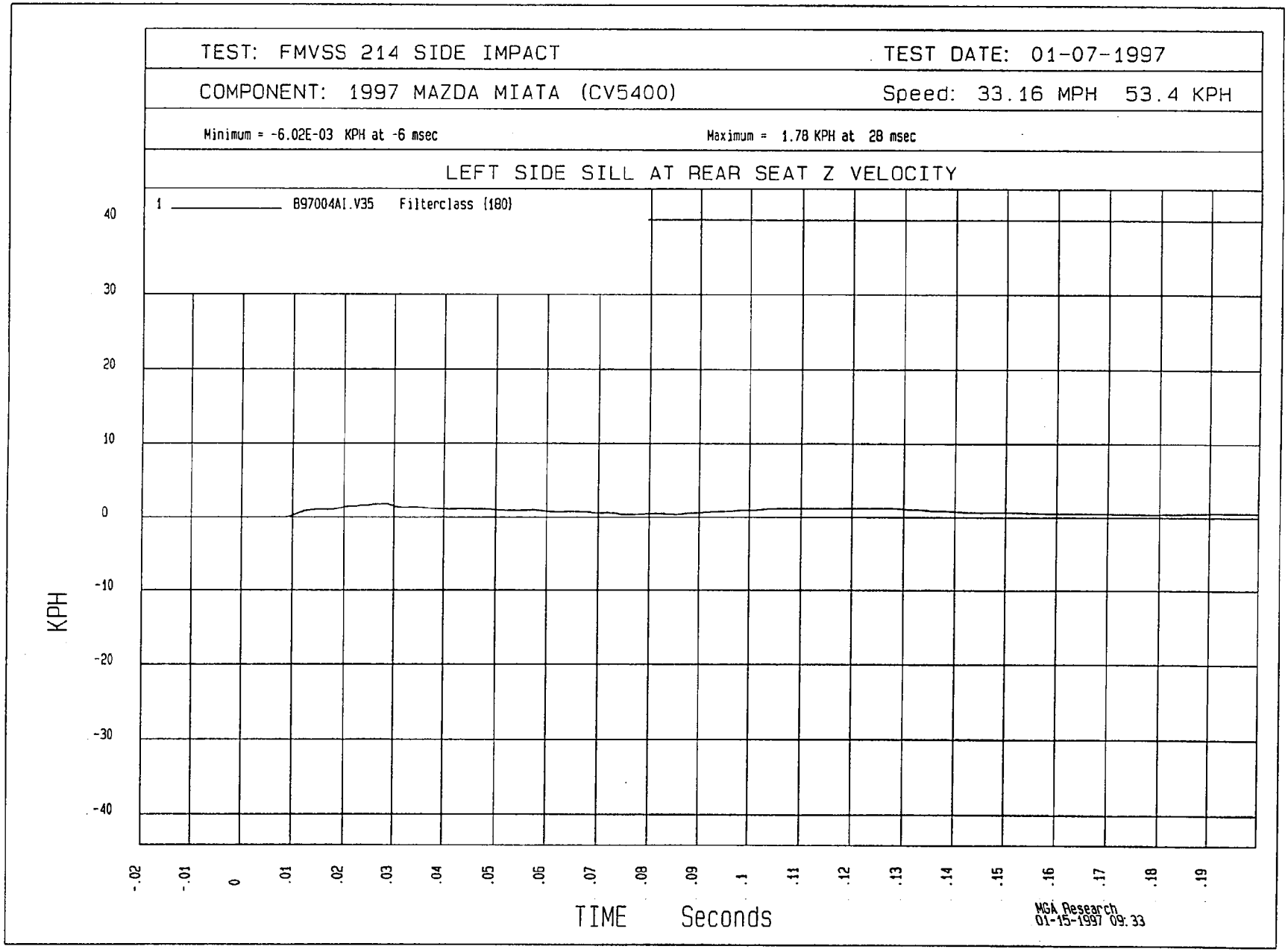

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -18.62 G'S at 15 msec
Maximum = 9.48 G'S at 32 msec
LEFT SIDE SILL AT REAR SEAT X ACCELERATION
1 B97004AF.A36 Filterclass (60)
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
G'S
-.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
01-15-1997 09:37

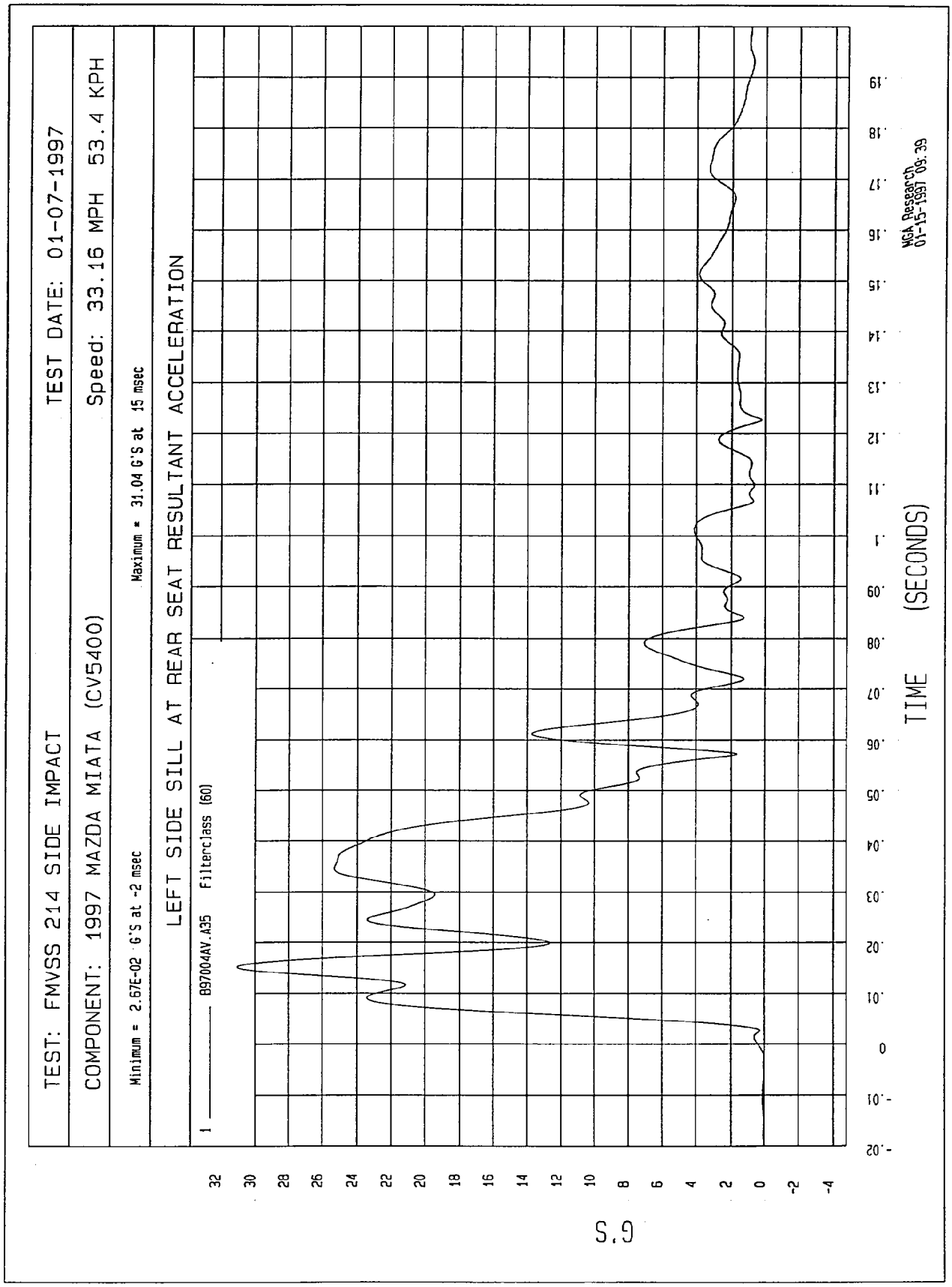

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -10.17 KPH at 194 msec
Maximum = .04 KPH at 5 msec
LEFT SIDE SILL AT REAR SEAT X VELOCITY
1 B97004AI.V36 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
NGA Research
01-15-1997 09:33

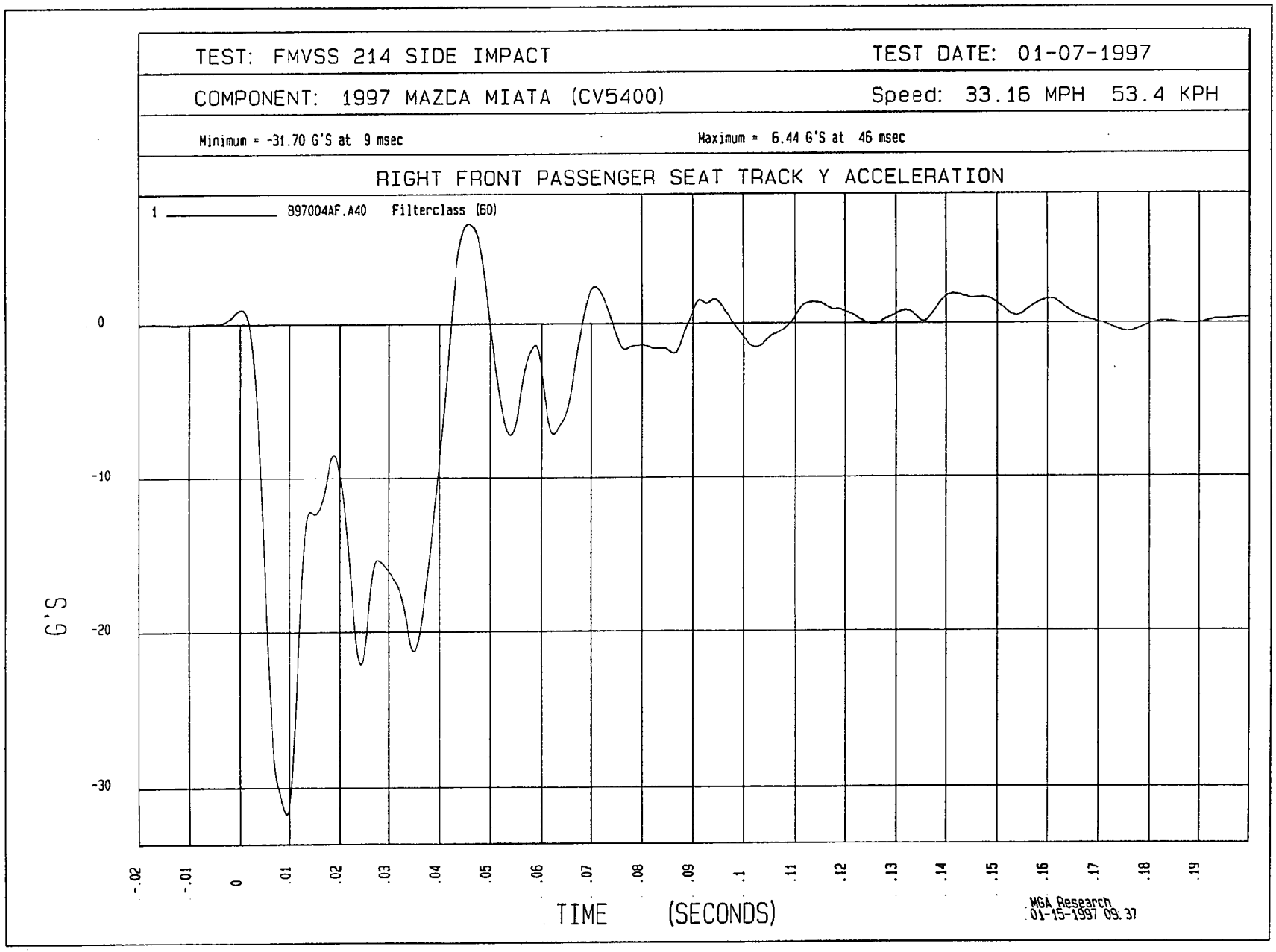

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -25.27 G'S at 35 msec
Maximum = 3.97 G'S at 68 msec
LEFT SIDE SILL AT REAR SEAT Y ACCELERATION
1 B97004AF.A37 Filterclass (60)
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
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
01-15-1997 09:37

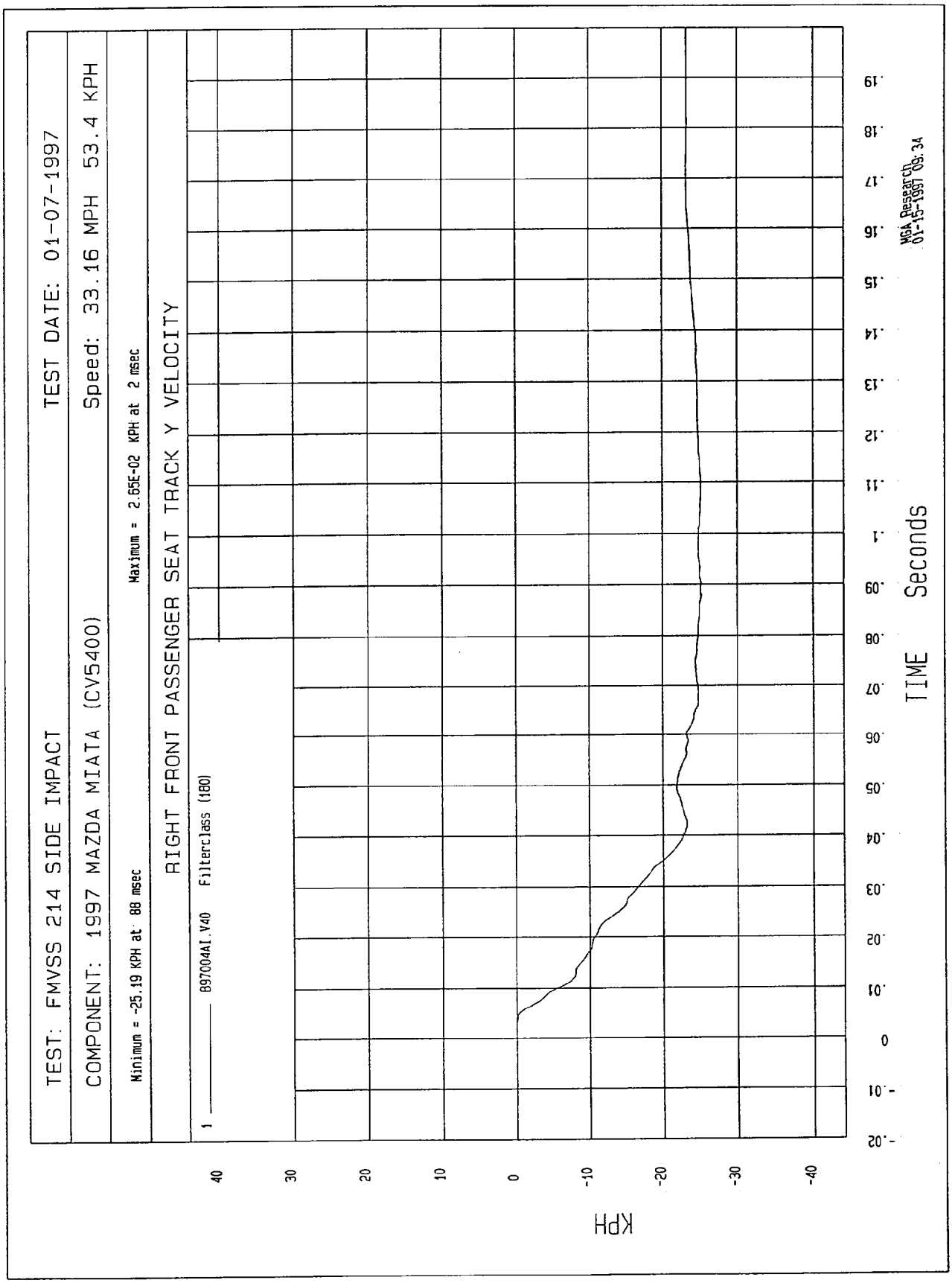

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -32.70 KPH at 65 msec
Maximum = 2.32E-05 KPH at -20 msec
LEFT SIDE SILL AT REAR SEAT Y VELOCITY
1 B97004AI.V37 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:33

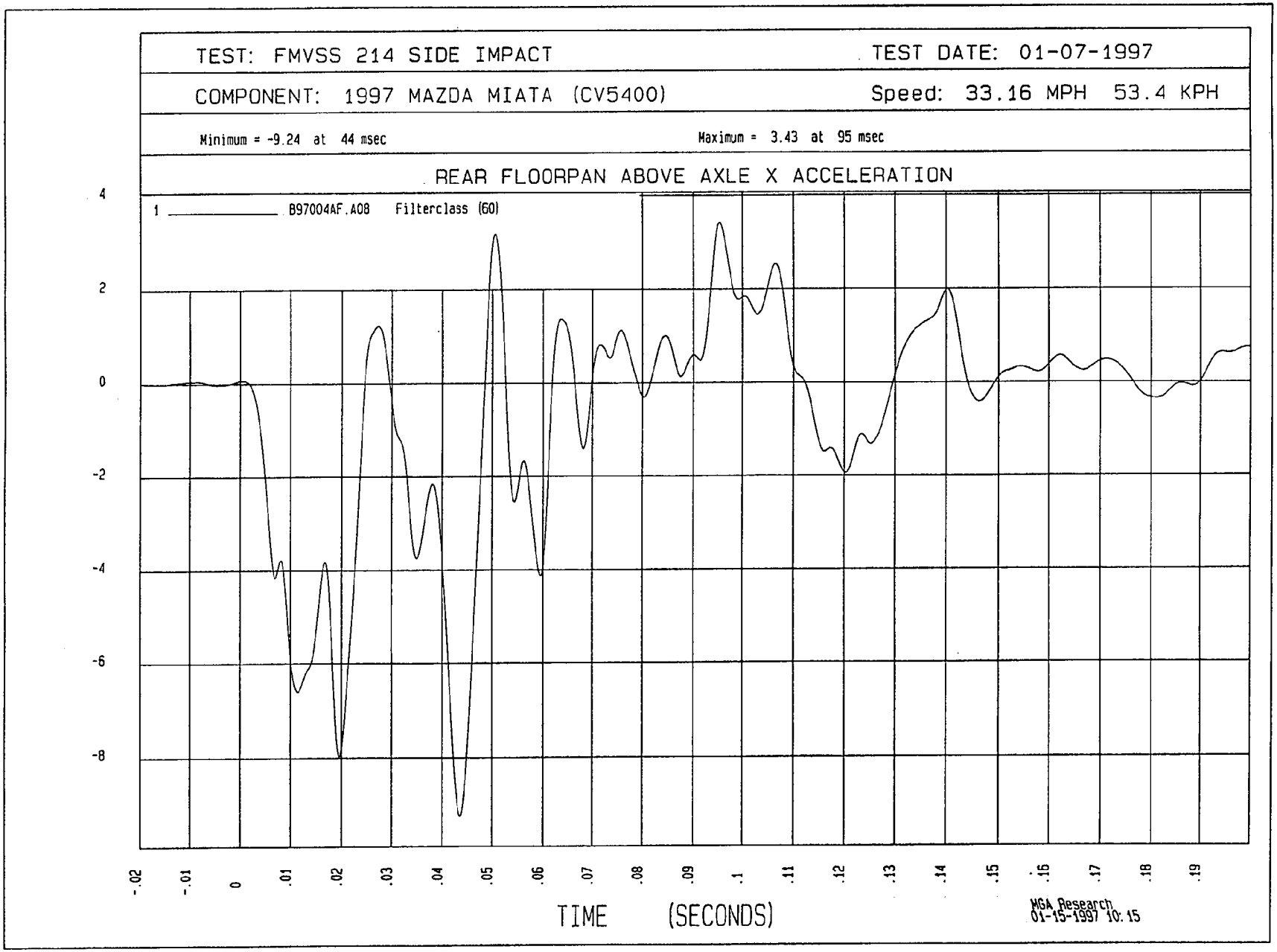

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -3.09 G'S at 30 msec
Maximum = 5.65 G'S at 11 msec
LEFT SIDE SILL AT REAR SEAT Z ACCELERATION
1 B97004Af.A35 Filterclass (60)
G'S
6
5
4
3
2
1
0
-1
-2
-3
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:37

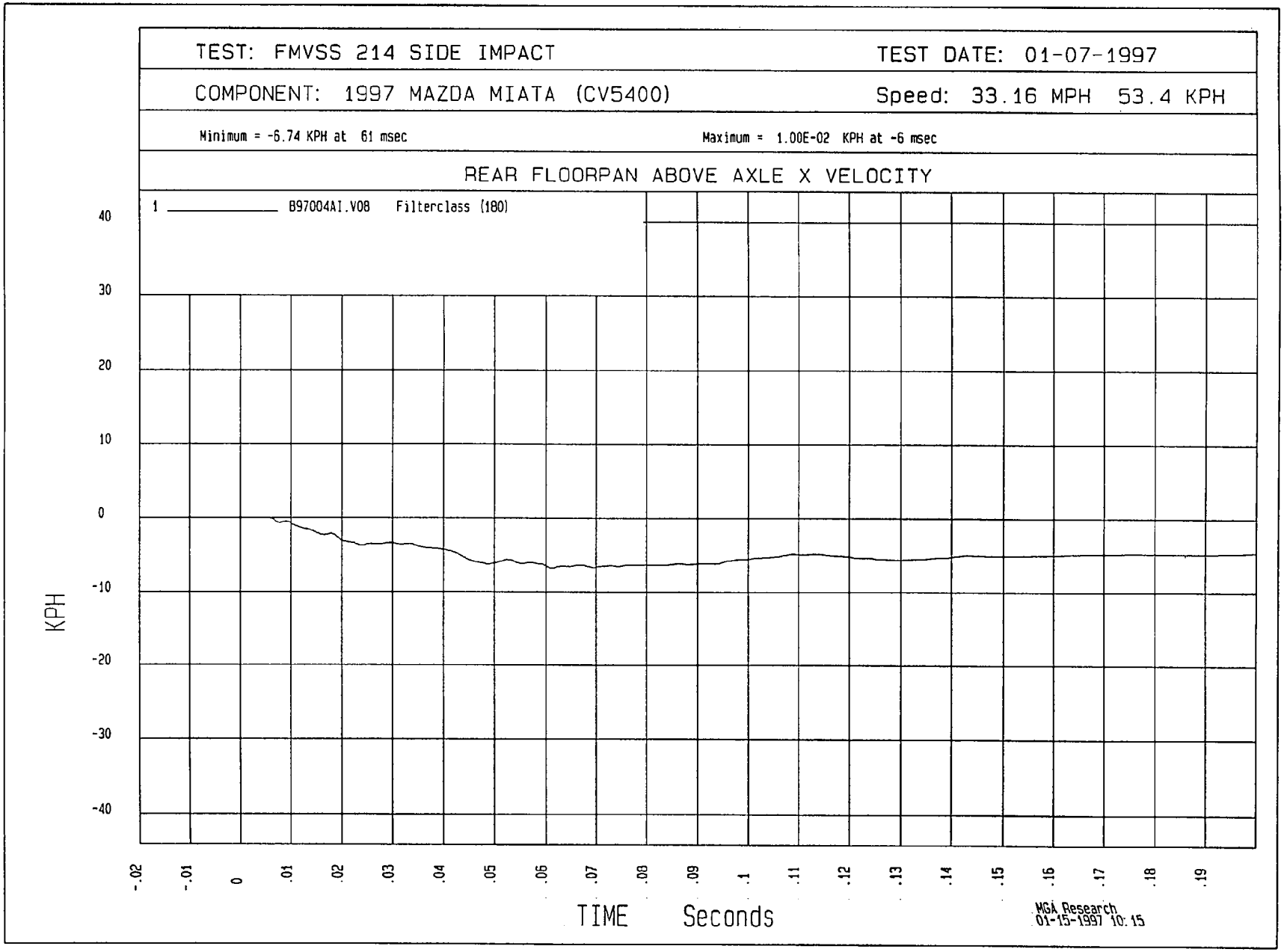

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -6.02E-03 KPH at -6 msec
Maximum = 1.78 KPH at 28 msec
LEFT SIDE SILL AT REAR SEAT Z VELOCITY
1 B97004AI.V35 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:33

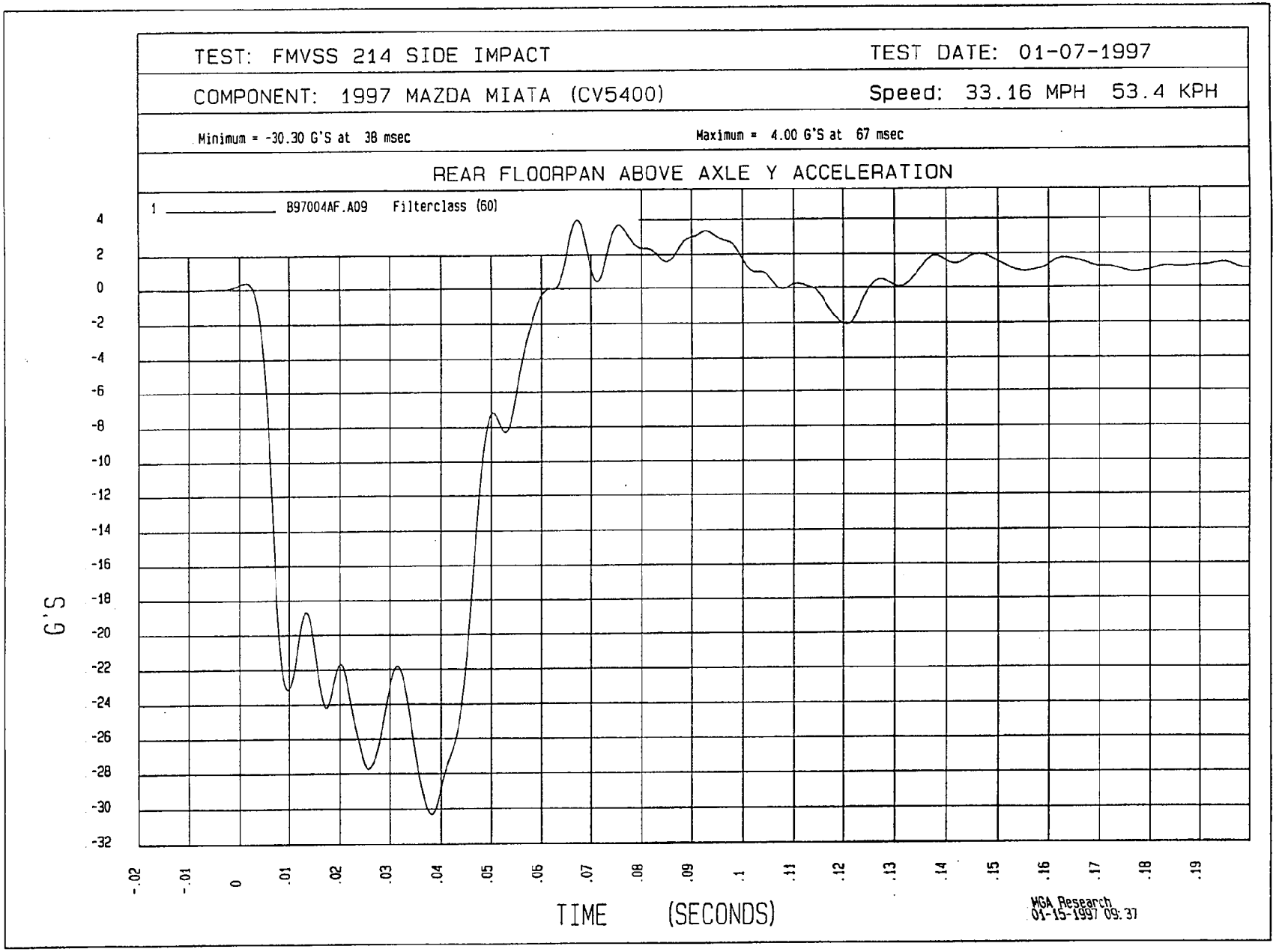

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = 2.67E-02 G'S at -2 msec
Maximum = 31.04 G'S at 15 msec
LEFT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION
1 B97004AV.A35 Filterclass (60)
32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0 -2 -4
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)
NGA Research
01-15-1997 09:39

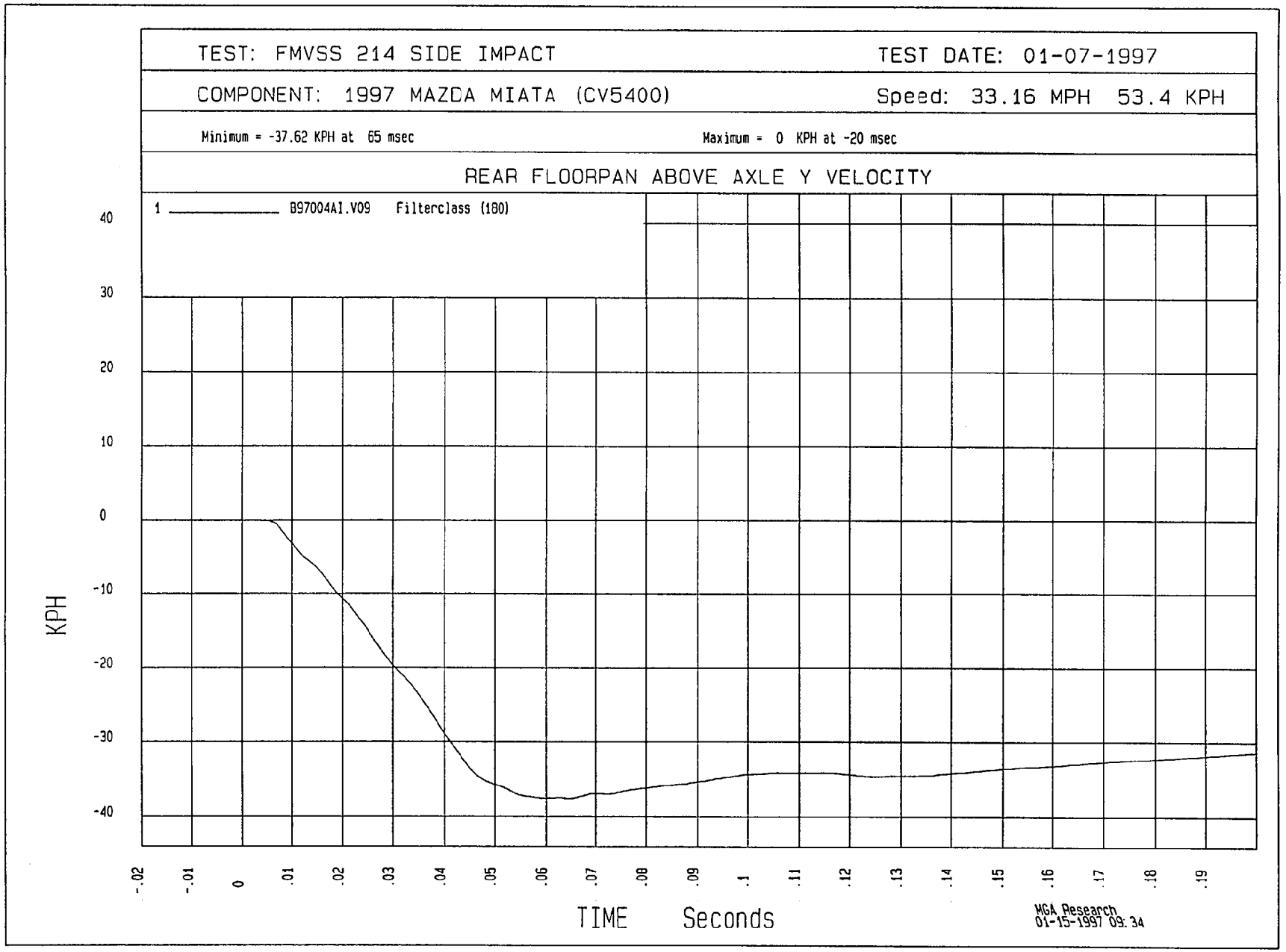

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -31.70 G'S at 9 msec
Maximum = 6.44 G'S at 46 msec
RIGHT FRONT PASSENGER SEAT TRACK Y ACCELERATION
1 897004AF.A40 Filterclass (60)
0
-10
-20
-30
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:37

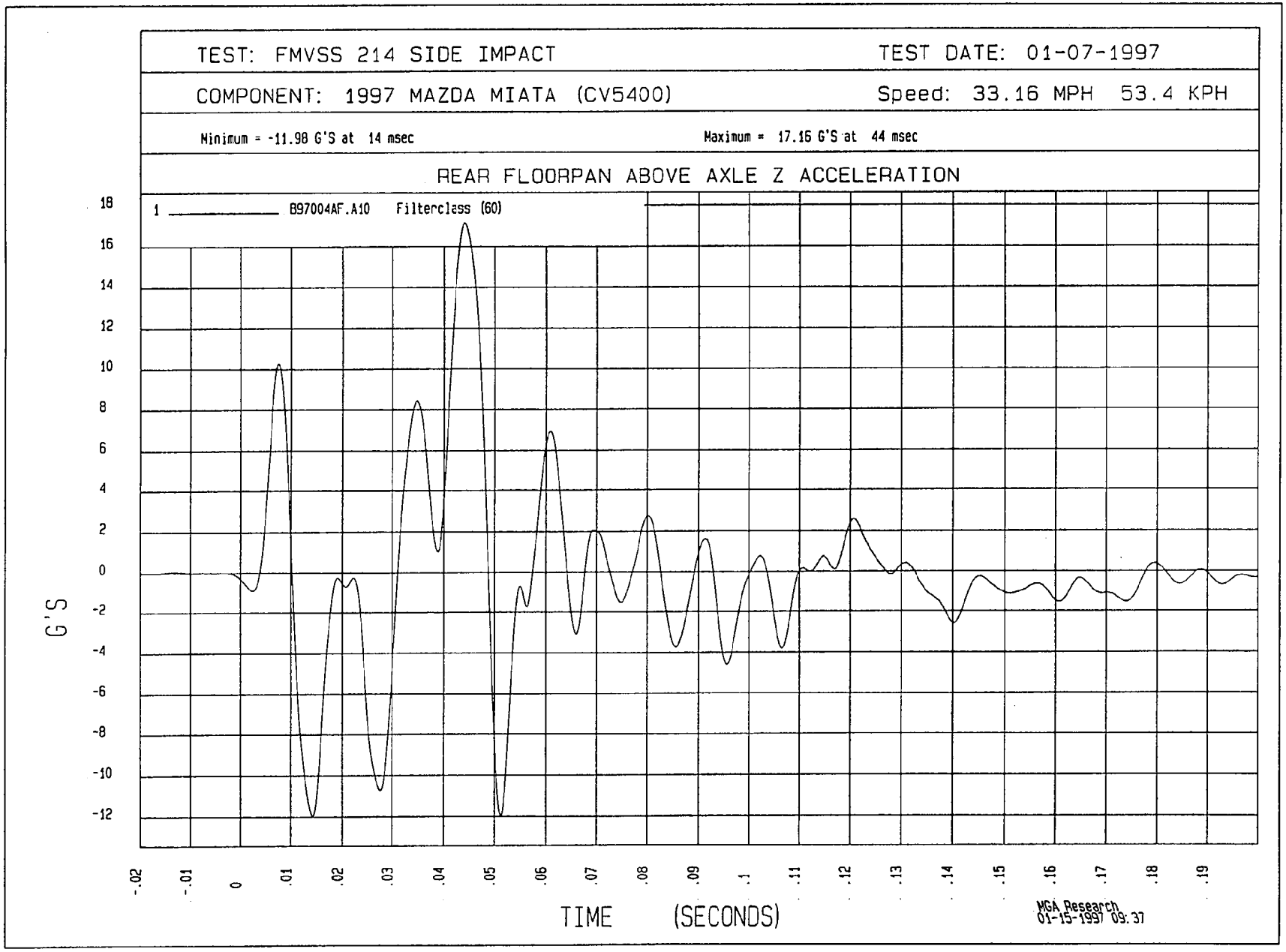

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -25.19 KPH at 88 msec
Maximum = 2.65E-02 KPH at 2 msec
RIGHT FRONT PASSENGER SEAT TRACK Y VELOCITY
1 B97004AI.V40 Filterclass (180)
KPH
TIME Seconds
MGA Research
01-15-1997 08:34

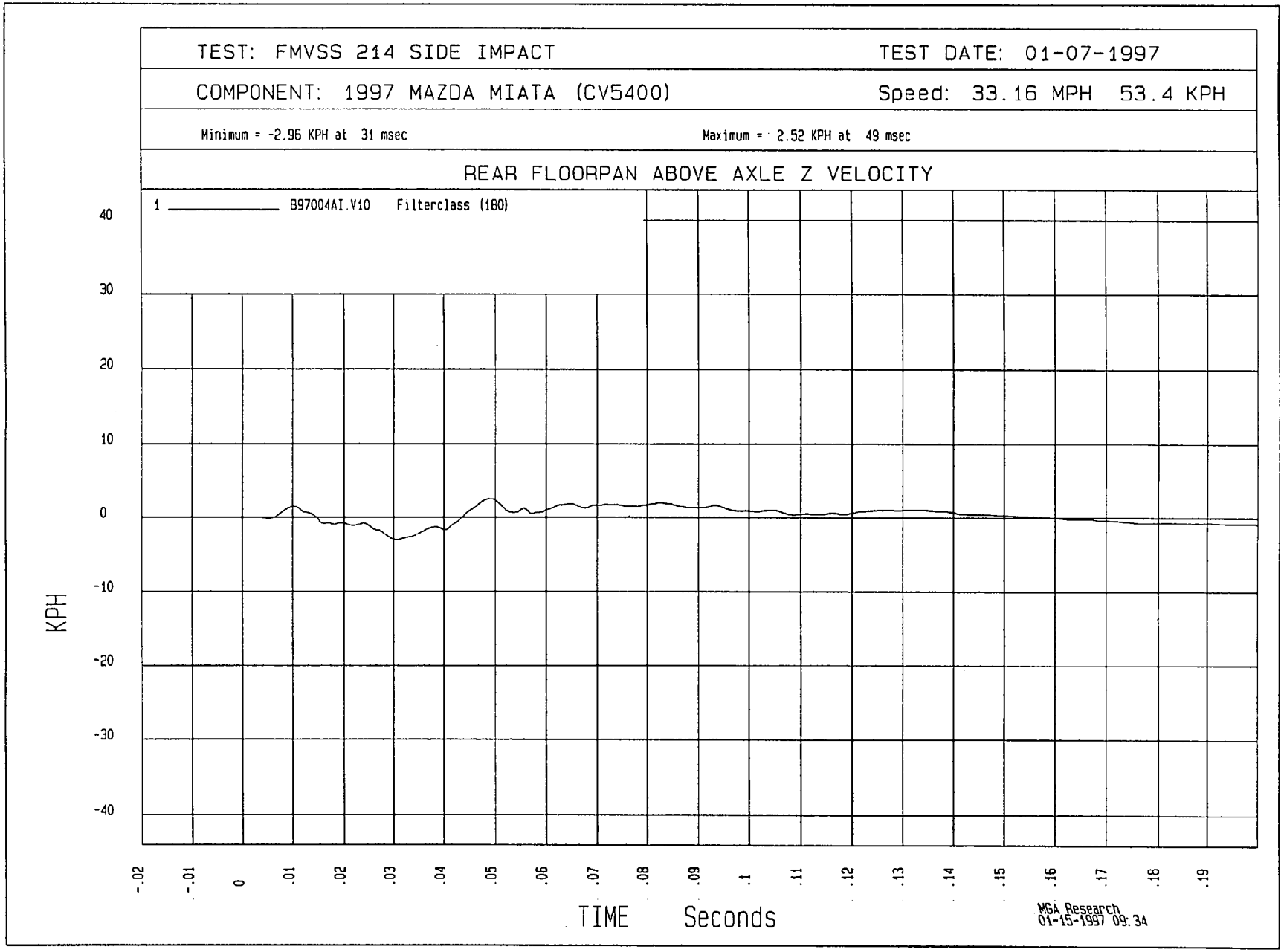

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -9.24 at 44 msec
Maximum = 3.43 at 95 msec
REAR FLOORPAN ABOVE AXLE X ACCELERATION
1 B97004AF.A08 Filterclass (60)
4
2
0
-2
-4
-6
-8
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 10:15

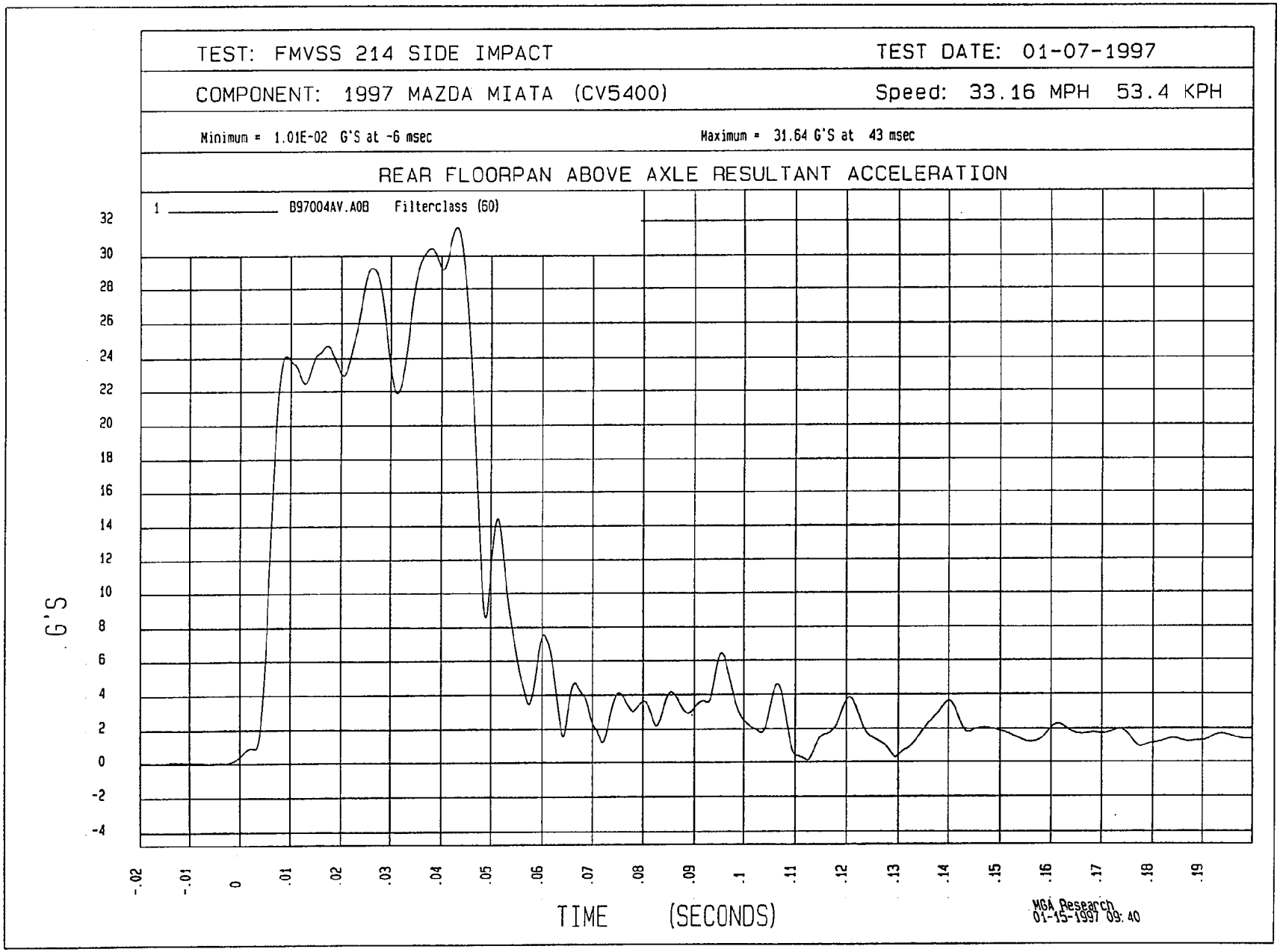

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -6.74 KPH at 61 msec
Maximum = 1.00E-02 KPH at -6 msec
REAR FLOORPAN ABOVE AXLE X VELOCITY
1 B97004AI.V08 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 10:15

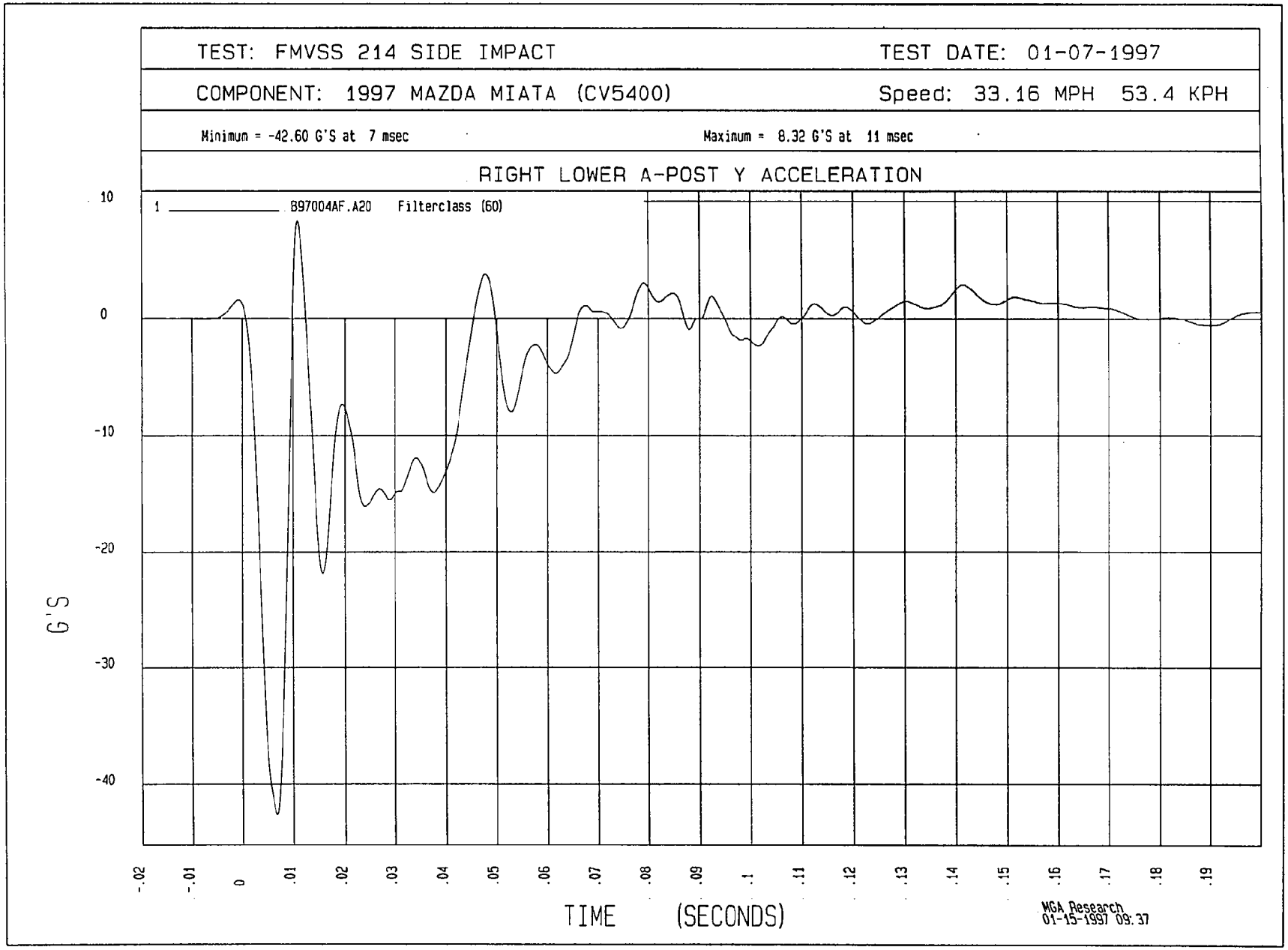

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -30.30 G'S at 38 msec
Maximum = 4.00 G'S at 67 msec
REAR FLOORPAN ABOVE AXLE Y ACCELERATION
1 B97004AF.A09 Filterclass (60)
G'S
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
-28
-30
-32
-.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
01-15-1997 09:37

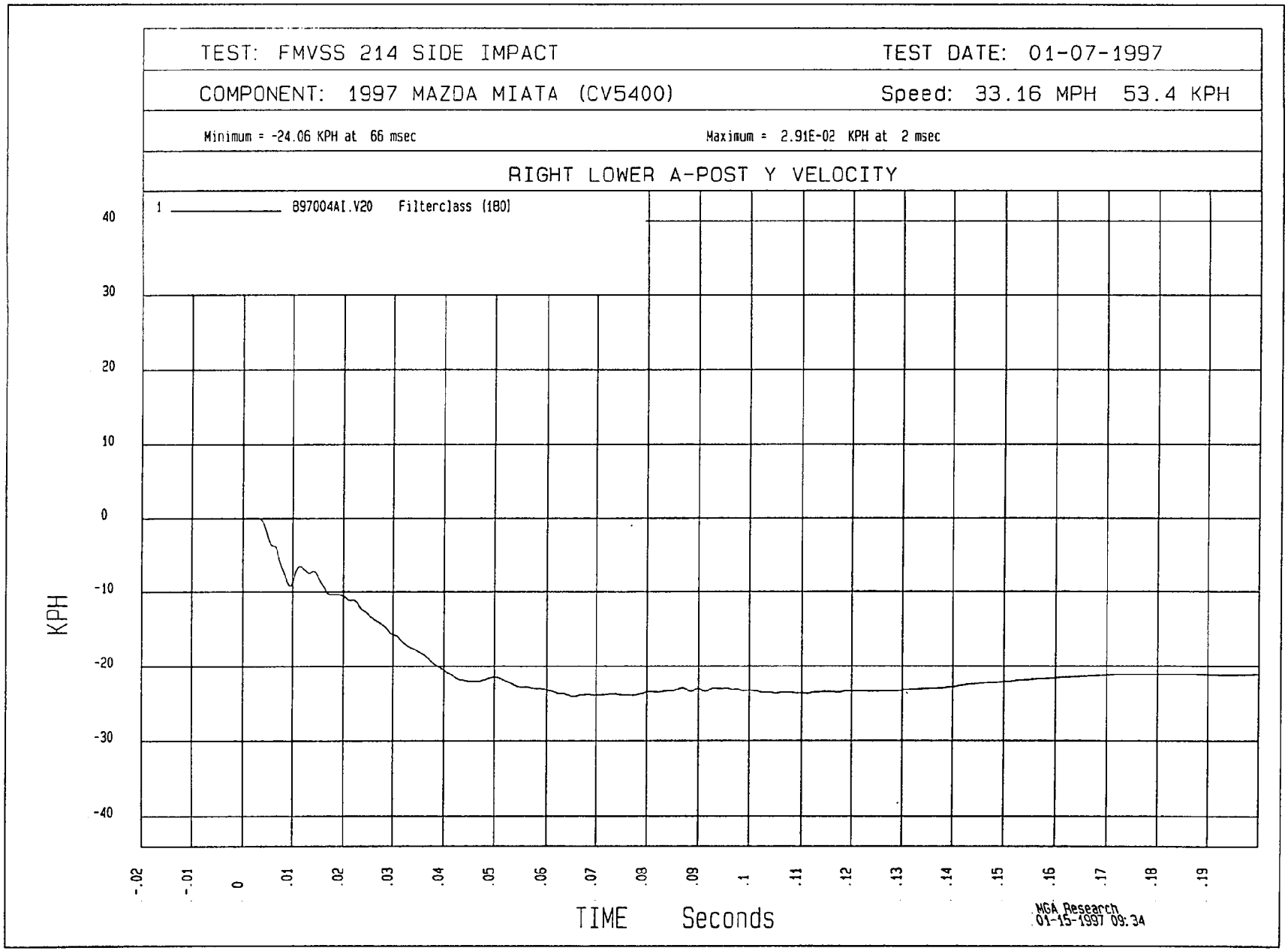

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -37.62 KPH at 65 msec
Maximum = 0 KPH at -20 msec
REAR FLOORPAN ABOVE AXLE Y VELOCITY
1 B97004A1.V09 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:34

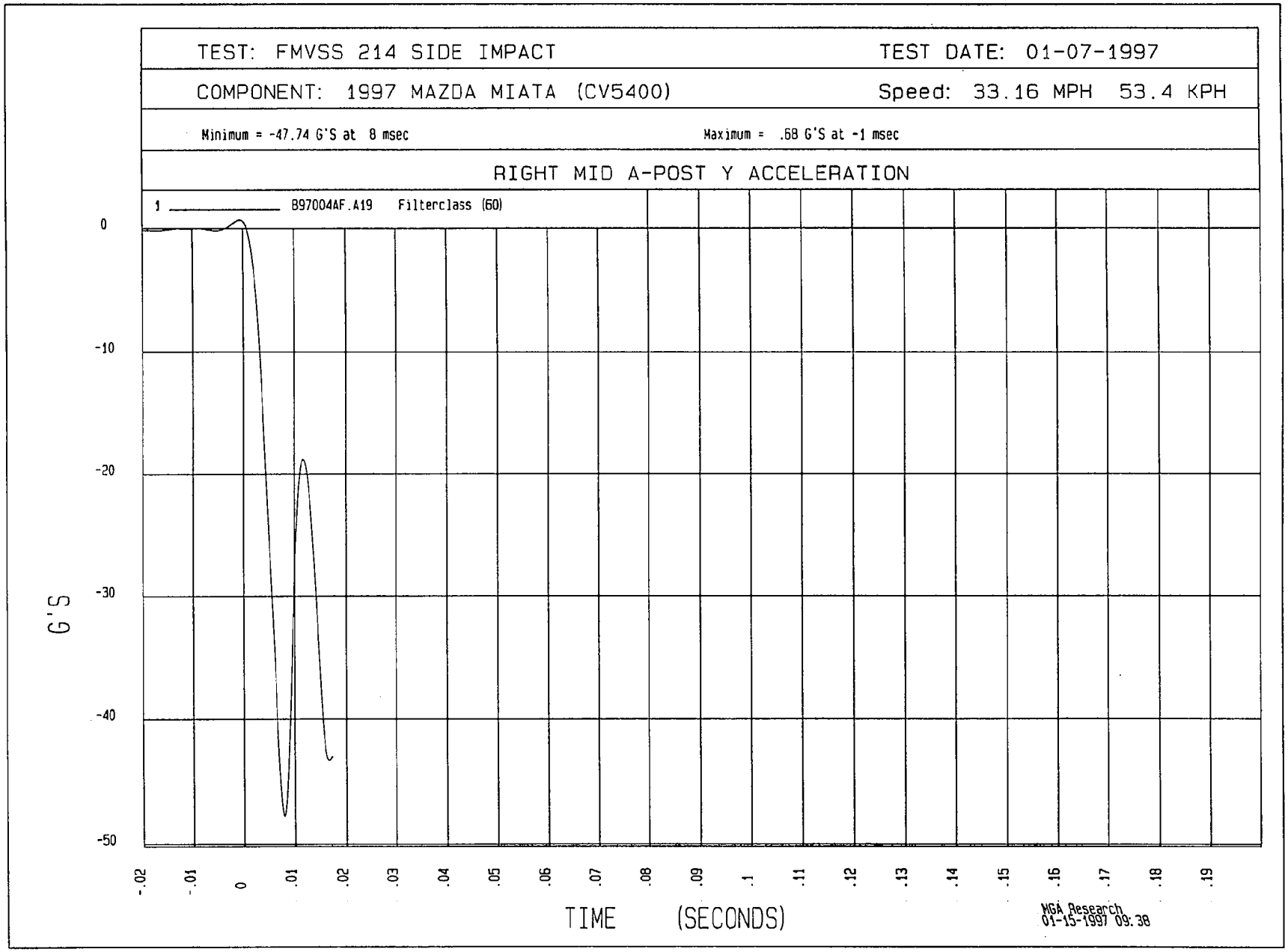

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -11.98 G'S at 14 msec
Maximum = 17.16 G'S at 44 msec
REAR FLOORPAN ABOVE AXLE Z ACCELERATION
1 B97004AF.A10 Filterclass (60)
G'S
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-.02
-.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
01-15-1997 09:37


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -2.96 KPH at 31 msec
Maximum = 2.52 KPH at 49 msec
REAR FLOORPAN ABOVE AXLE Z VELOCITY
1 B97004AI.V10 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.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
01-15-1997 09:34


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = 1.01E-02 G'S at -6 msec
Maximum = 31.64 G'S at 43 msec
REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION
1 B97004AV.A0B Filterclass (60)
G'S
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-.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
01-15-1997 09:40


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -42.60 G'S at 7 msec
Maximum = 8.32 G'S at 11 msec
RIGHT LOWER A-POST Y ACCELERATION
1 B97004AF.A20 Filterclass (60)
10
0
-10
-20
-30
-40
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
01-15-1997 09:37


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -24.06 KPH at 66 msec
Maximum = 2.91E-02 KPH at 2 msec
RIGHT LOWER A-POST Y VELOCITY
1 B97004AI.V20 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.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
01-15-1997 09:34


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -47.74 G'S at 8 msec
Maximum = .68 G'S at -1 msec
RIGHT MID A-POST Y ACCELERATION
1 B97004AF.A19 Filterclass (60)
0
-10
-20
-30
-40
-50
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
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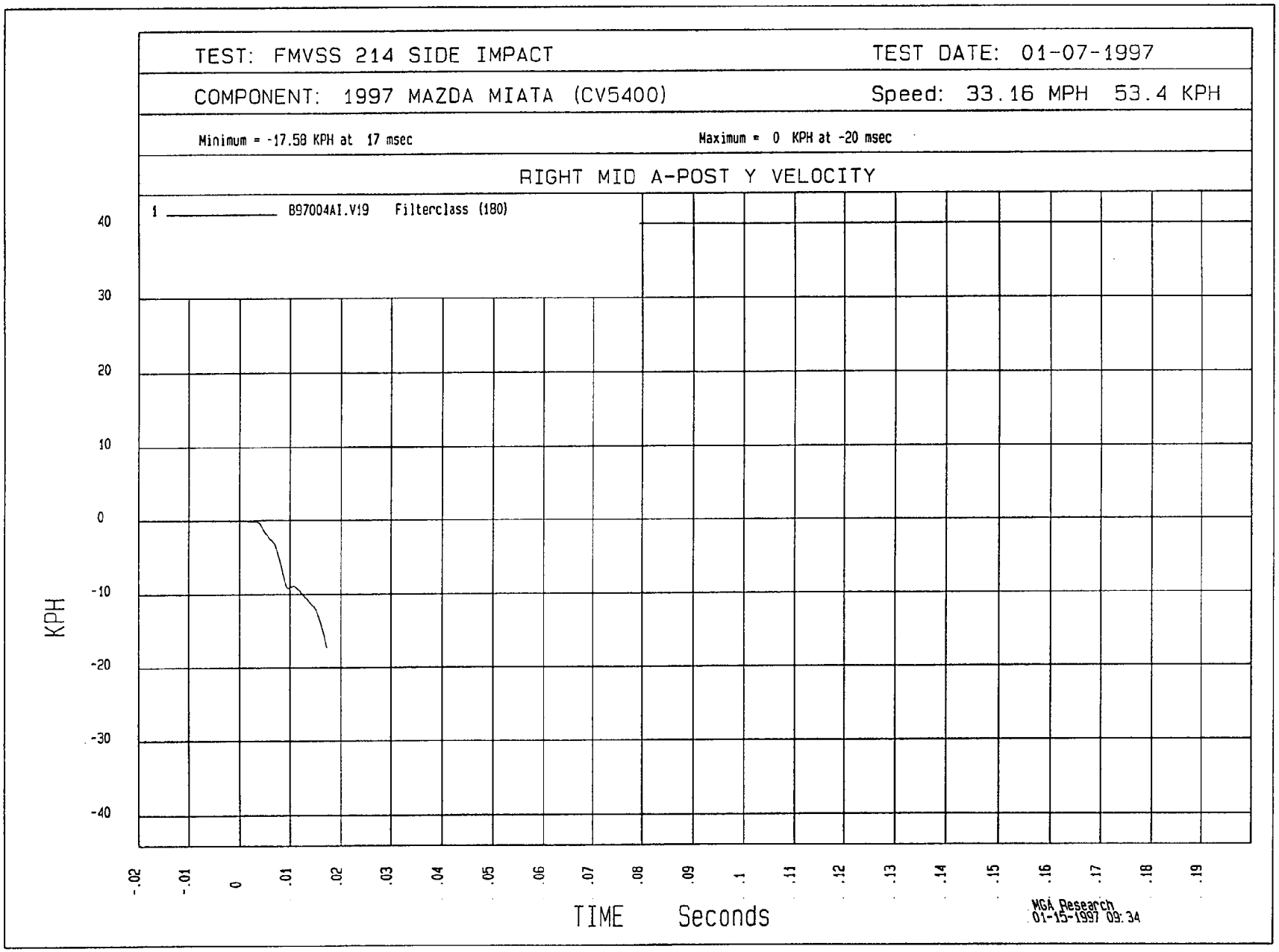
TIME (SECONDS)
NGA Research
01-15-1997 09:38


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -17.58 KPH at 17 msec
Maximum = 0 KPH at -20 msec
RIGHT MID A-POST Y VELOCITY
1 B97004AI.V19 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
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.1
.11
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.14
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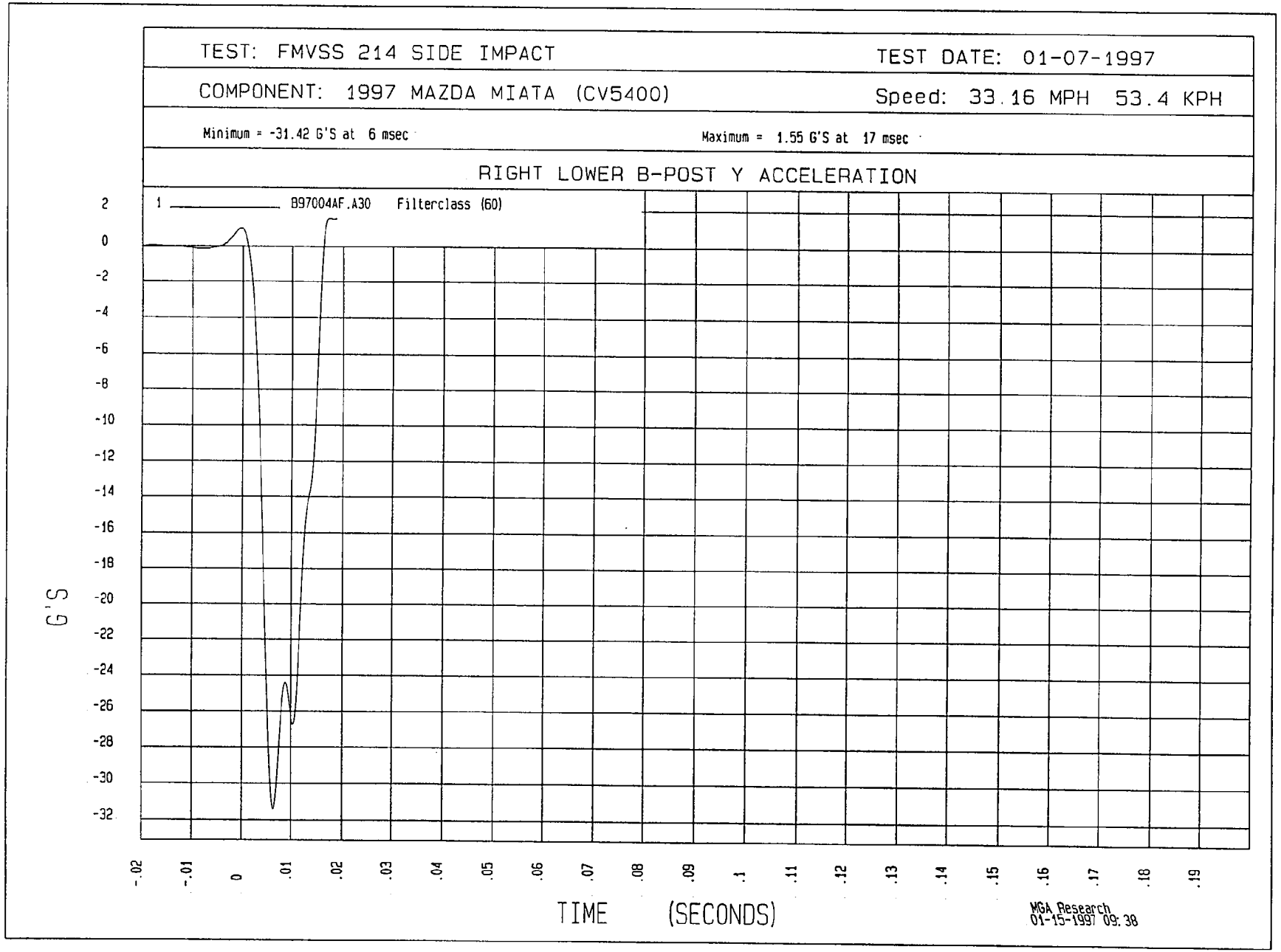
.16
.17
.18
.19
TIME Seconds
MGA Research
01-15-1997 09:34


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -31.42 G'S at 6 msec
Maximum = 1.55 G'S at 17 msec
RIGHT LOWER B-POST Y ACCELERATION
1 B97004AF.A30 Filterclass (60)
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
-28
-30
-32
G's
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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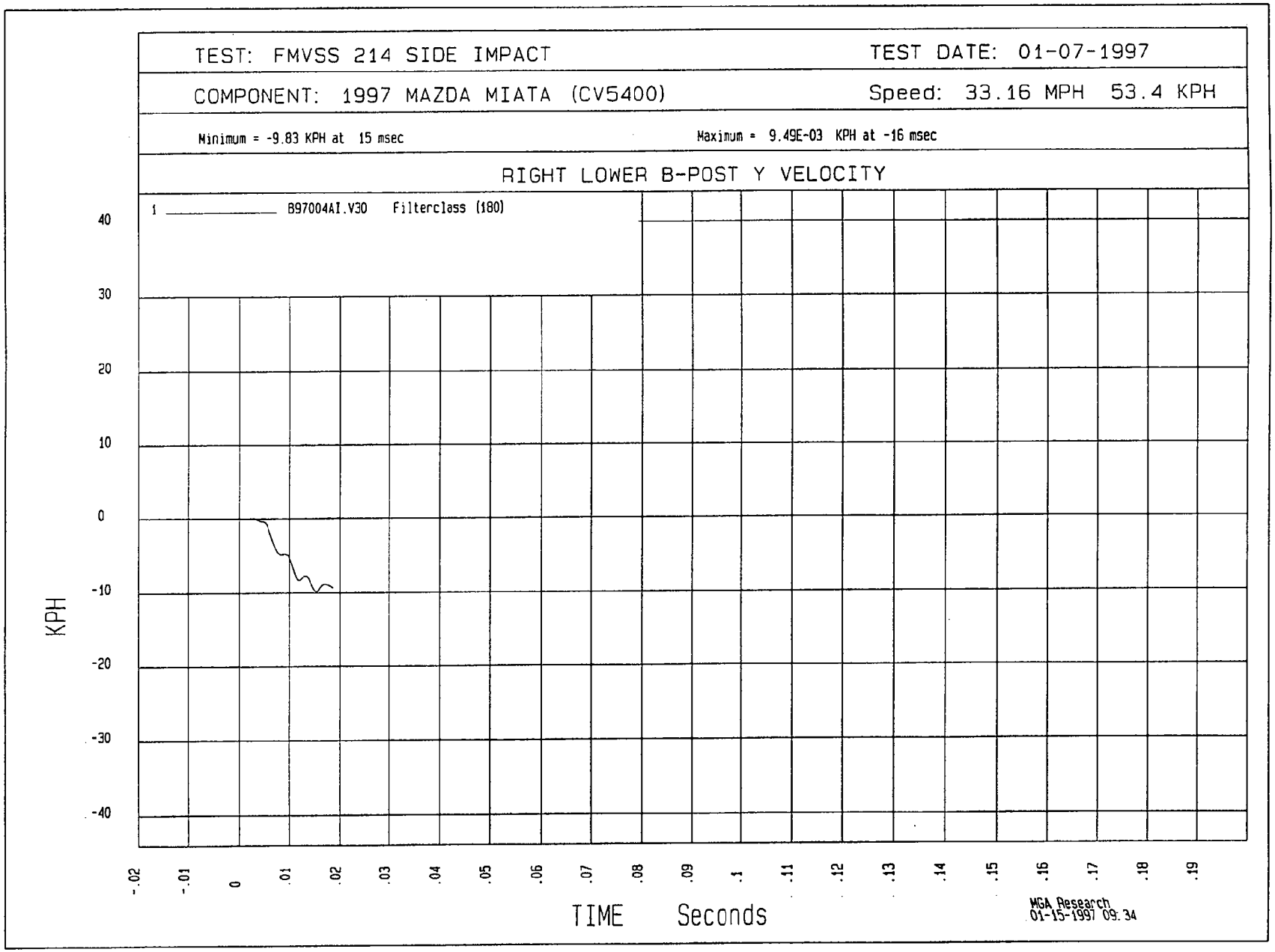
TIME (SECONDS)
MGA Research
01-15-1997 09:38


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -9.83 KPH at 15 msec
Maximum = 9.49E-03 KPH at -16 msec
RIGHT LOWER B-POST Y VELOCITY
1 B97004AI.V30 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
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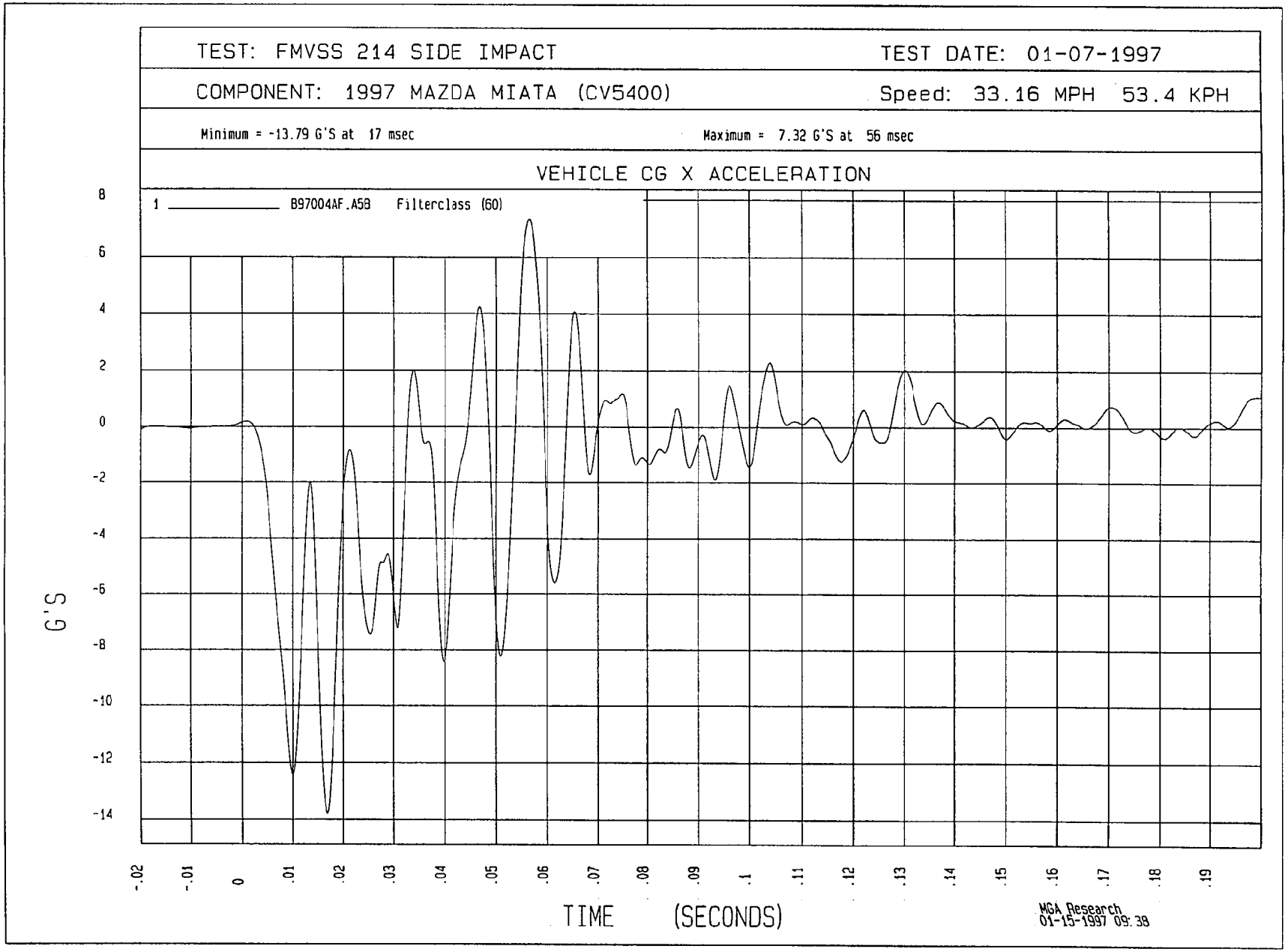
TIME Seconds
MGA Research
01-15-1997 09:34


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -13.79 G'S at 17 msec
Maximum = 7.32 G'S at 56 msec
VEHICLE CG X ACCELERATION
1 B97004AF.A5B Filterclass (60)
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
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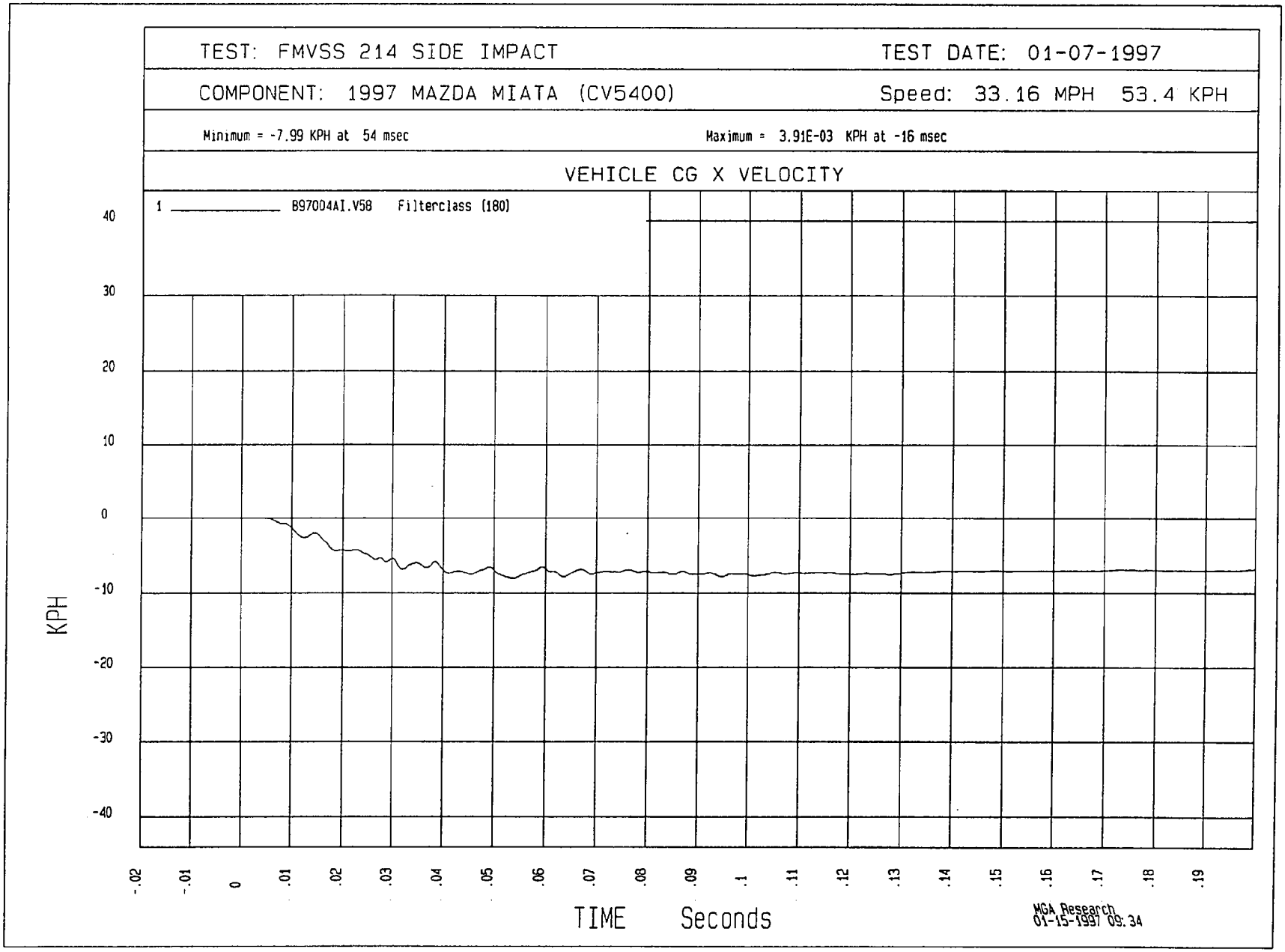
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:38


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -7.99 KPH at 54 msec
Maximum = 3.91E-03 KPH at -16 msec
VEHICLE CG X VELOCITY
1 B97004AI.V58 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
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.12
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.14
.15
.16
.17
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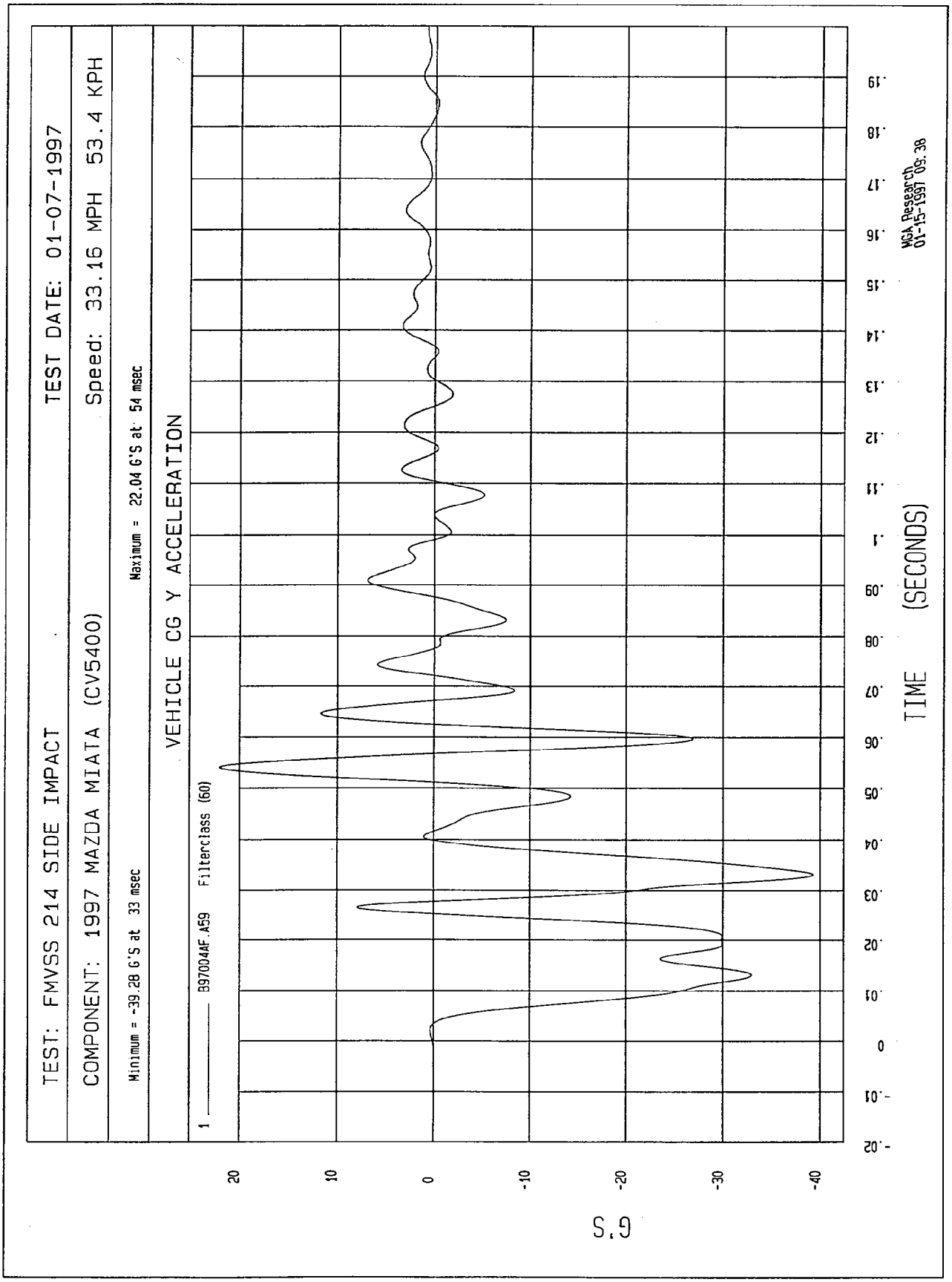
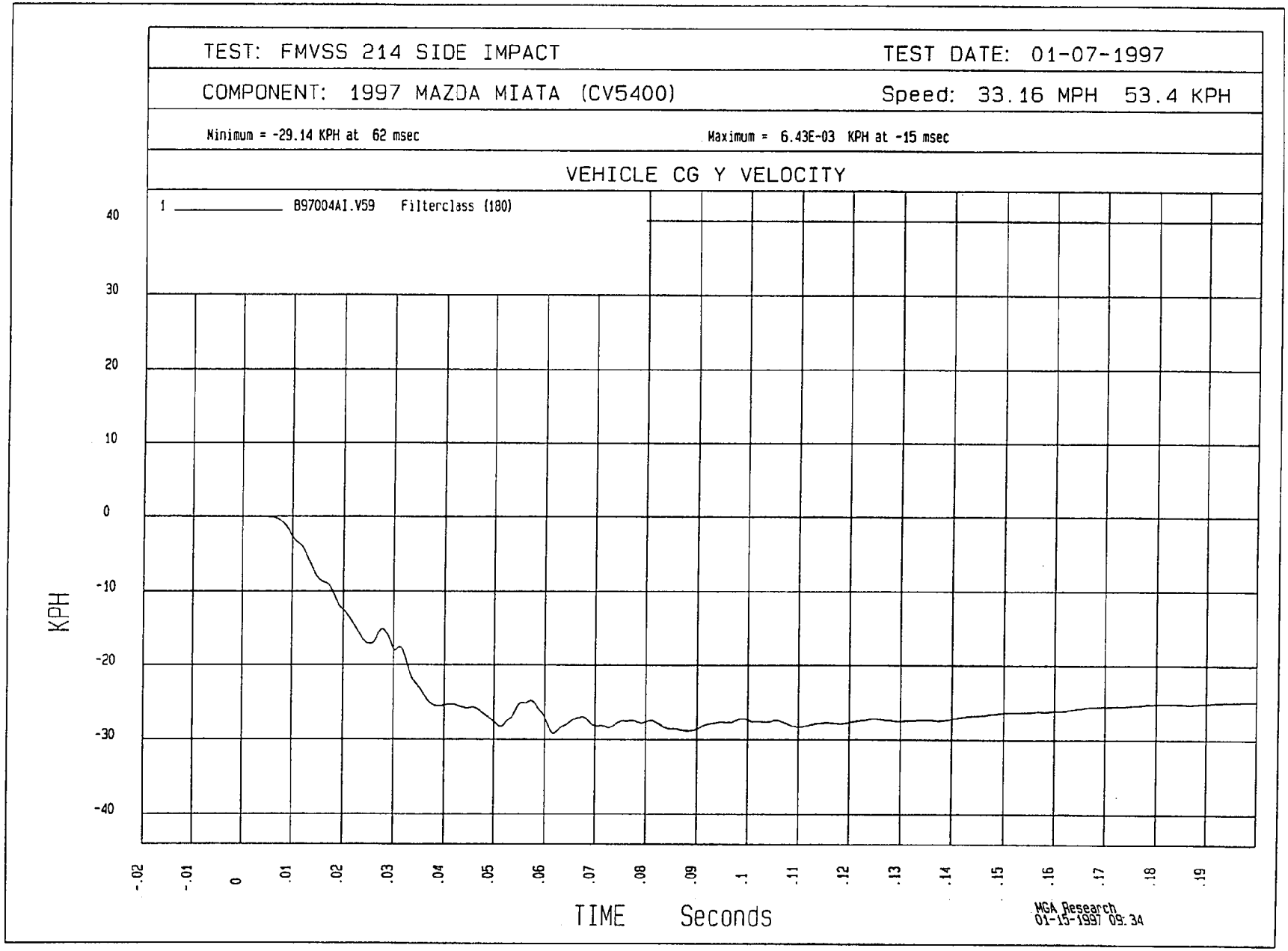
TIME Seconds
MGA Research
01-15-1997 09:34


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -39.28 G'S at 33 msec
Maximum = 22.04 G'S at 54 msec
VEHICLE CG Y ACCELERATION
1 B970004AF.A59 Filterclass (60)
20
10
0
-10
-20
-30
-40
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)
MGA Research
01-15-1997 09:38


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -29.14 KPH at 62 msec
Maximum = 6.43E-03 KPH at -15 msec
VEHICLE CG Y VELOCITY
1 B97004AI.V59 Filterclass (180)
40
30
20
10
0
-10
-20
-30
-40
KPH
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
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.12
.13
.14
.15
.16
.17
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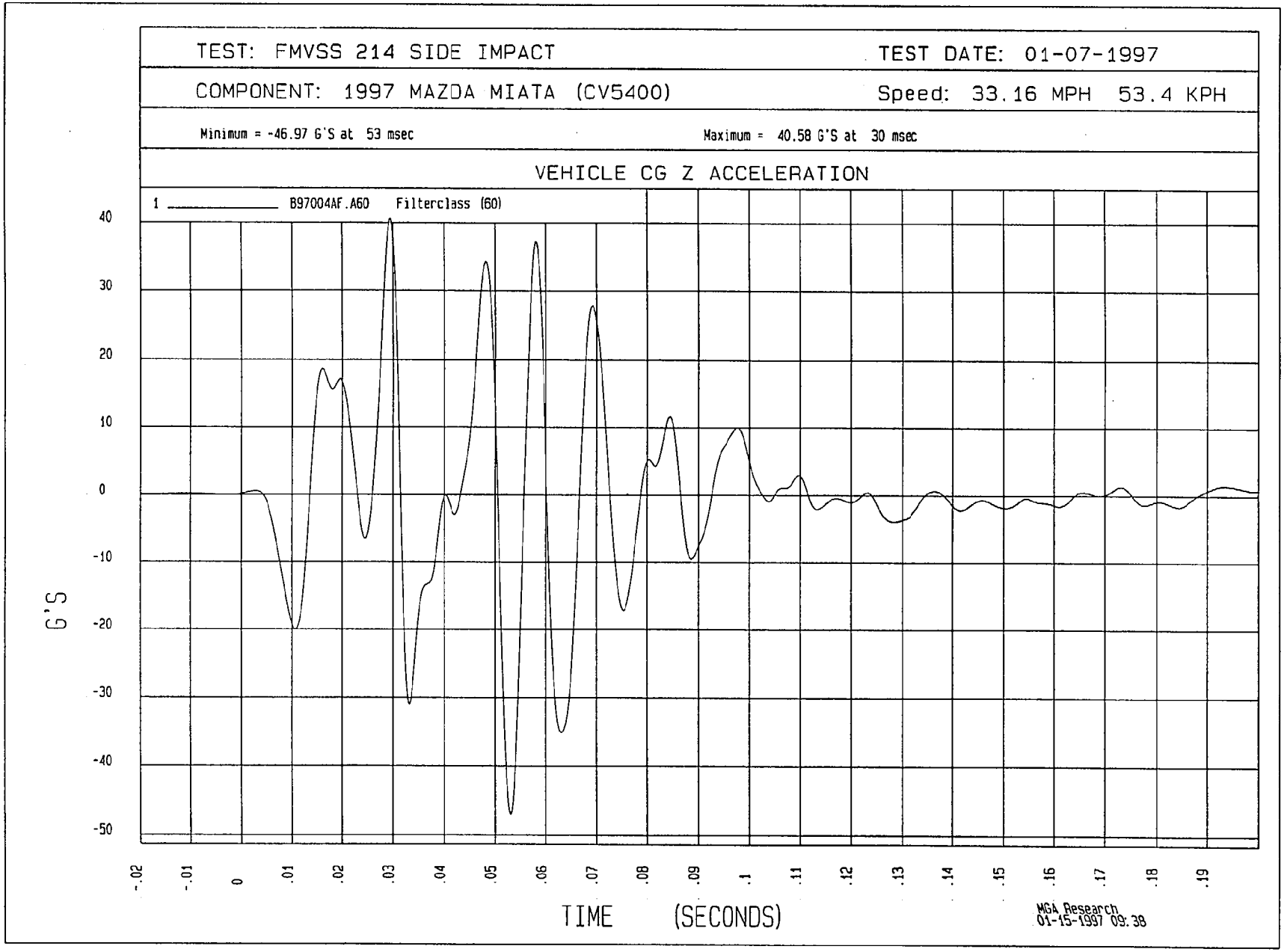
.19
TIME Seconds
MGA Research
01-15-1997 09:34


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -46.97 G'S at 53 msec
Maximum = 40.58 G'S at 30 msec
VEHICLE CG Z ACCELERATION
1 B97004AF.A60 Filterclass (60)
G'S
40
30
20
10
0
-10
-20
-30
-40
-50
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
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.14
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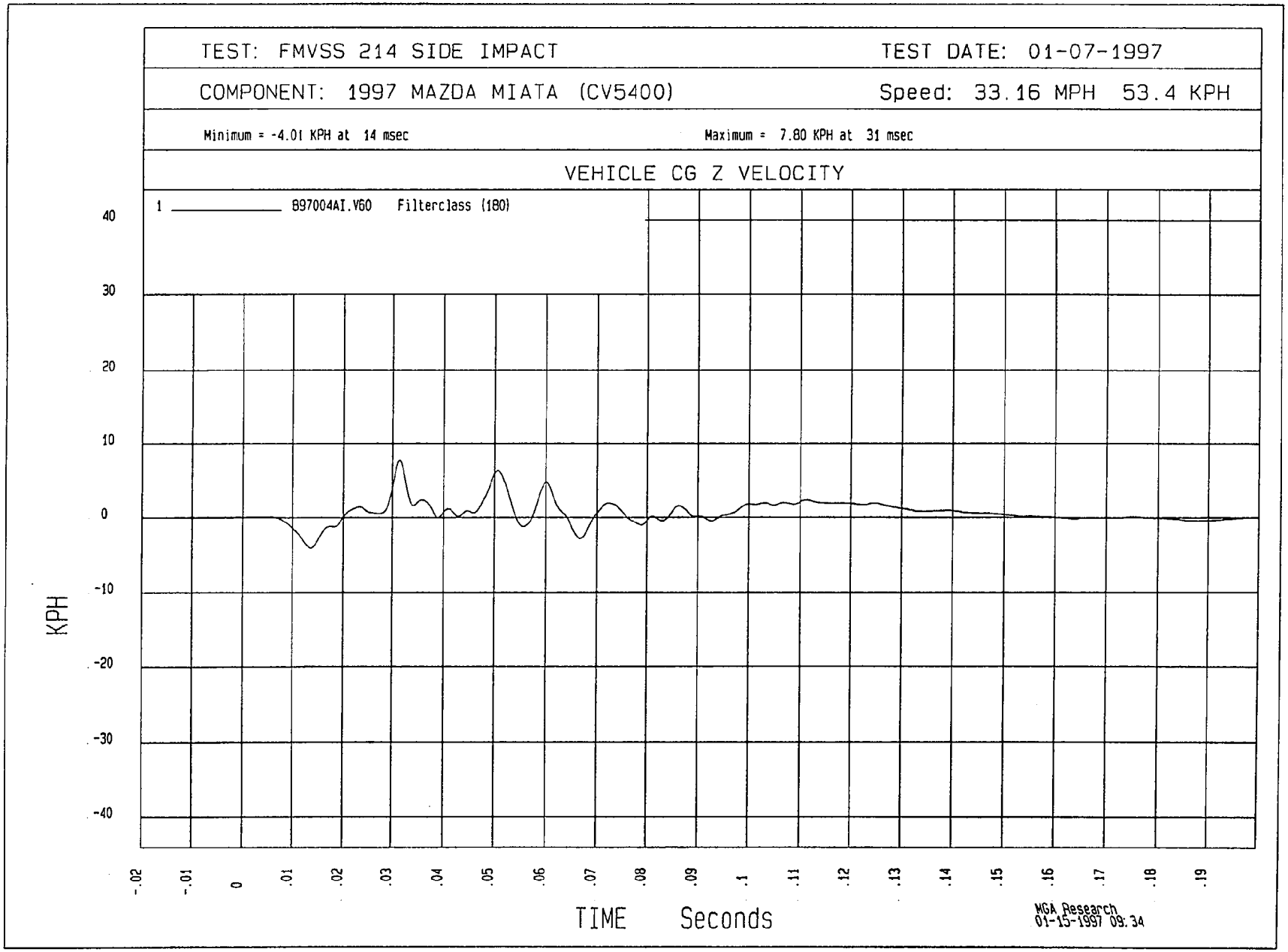
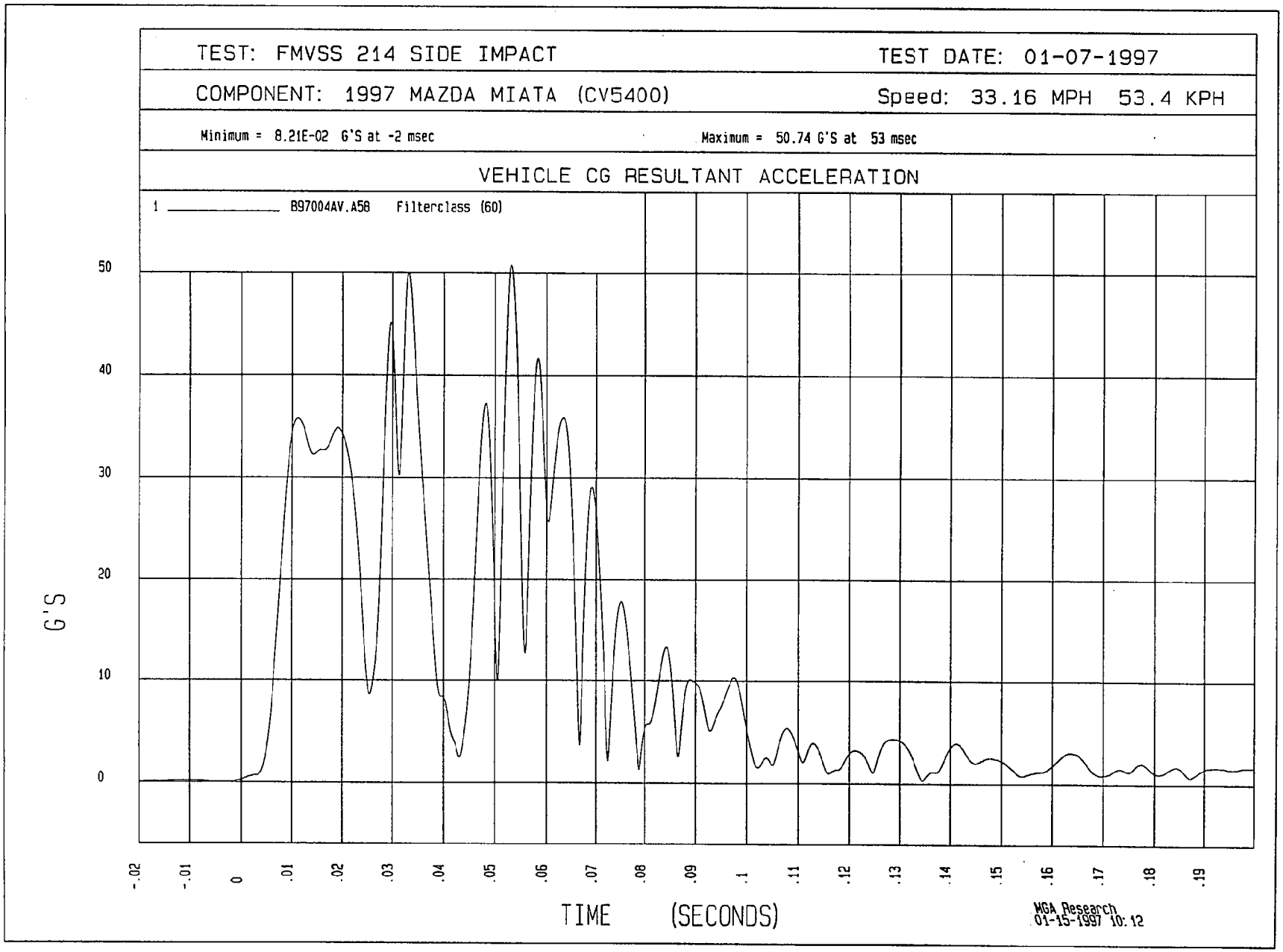
TIME (SECONDS)
MGA Research
01-15-1997 09:38


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -4.01 KPH at 14 msec
Maximum = 7.80 KPH at 31 msec
VEHICLE CG Z VELOCITY
1 B97004AI.V60 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.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
01-15-1997 09:34


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = 8.21E-02 G'S at -2 msec
Maximum = 50.74 G'S at 53 msec
VEHICLE CG RESULTANT ACCELERATION
1 B97004AV.A58 Filterclass (60)
G'S
50
40
30
20
10
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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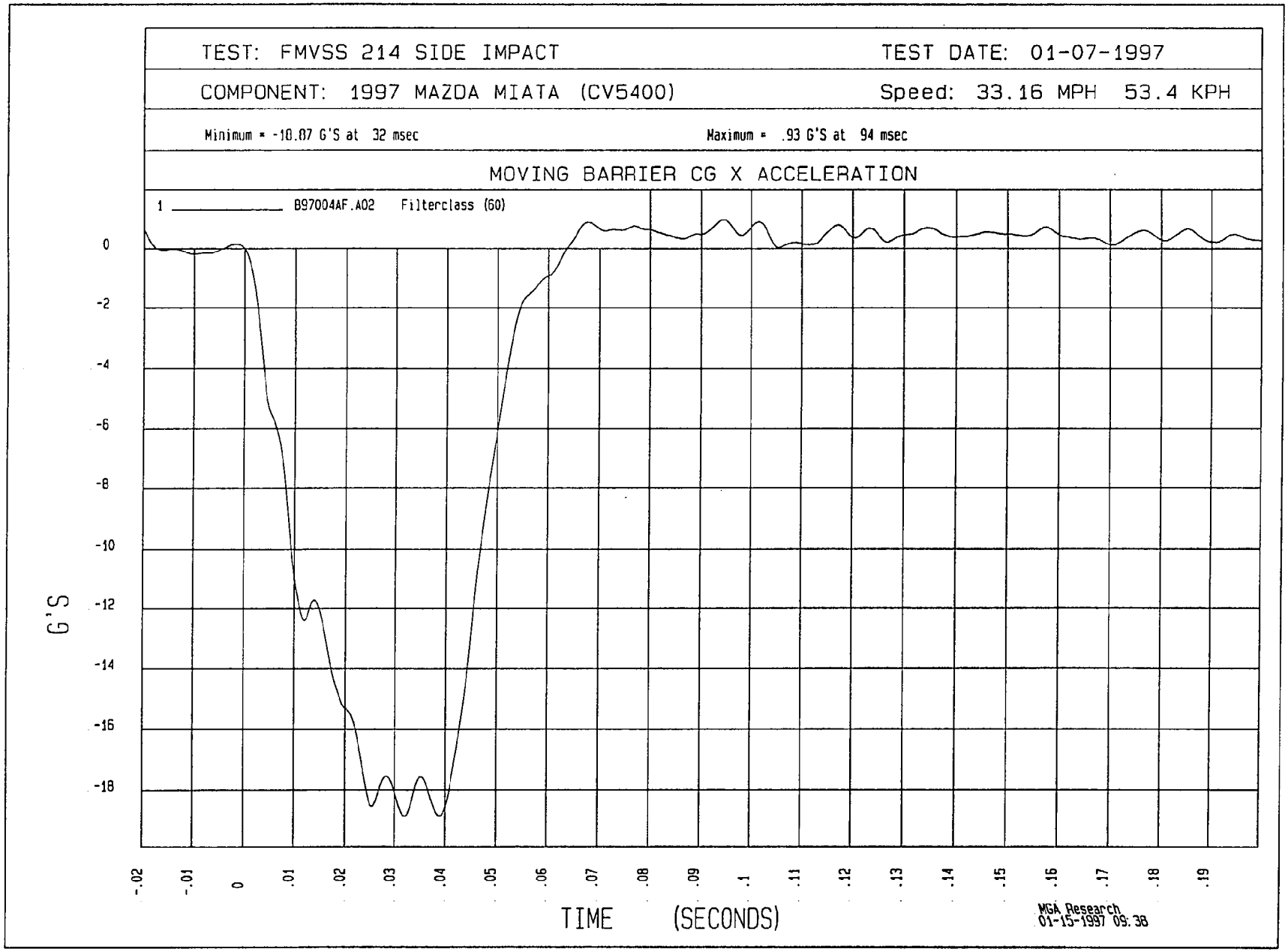
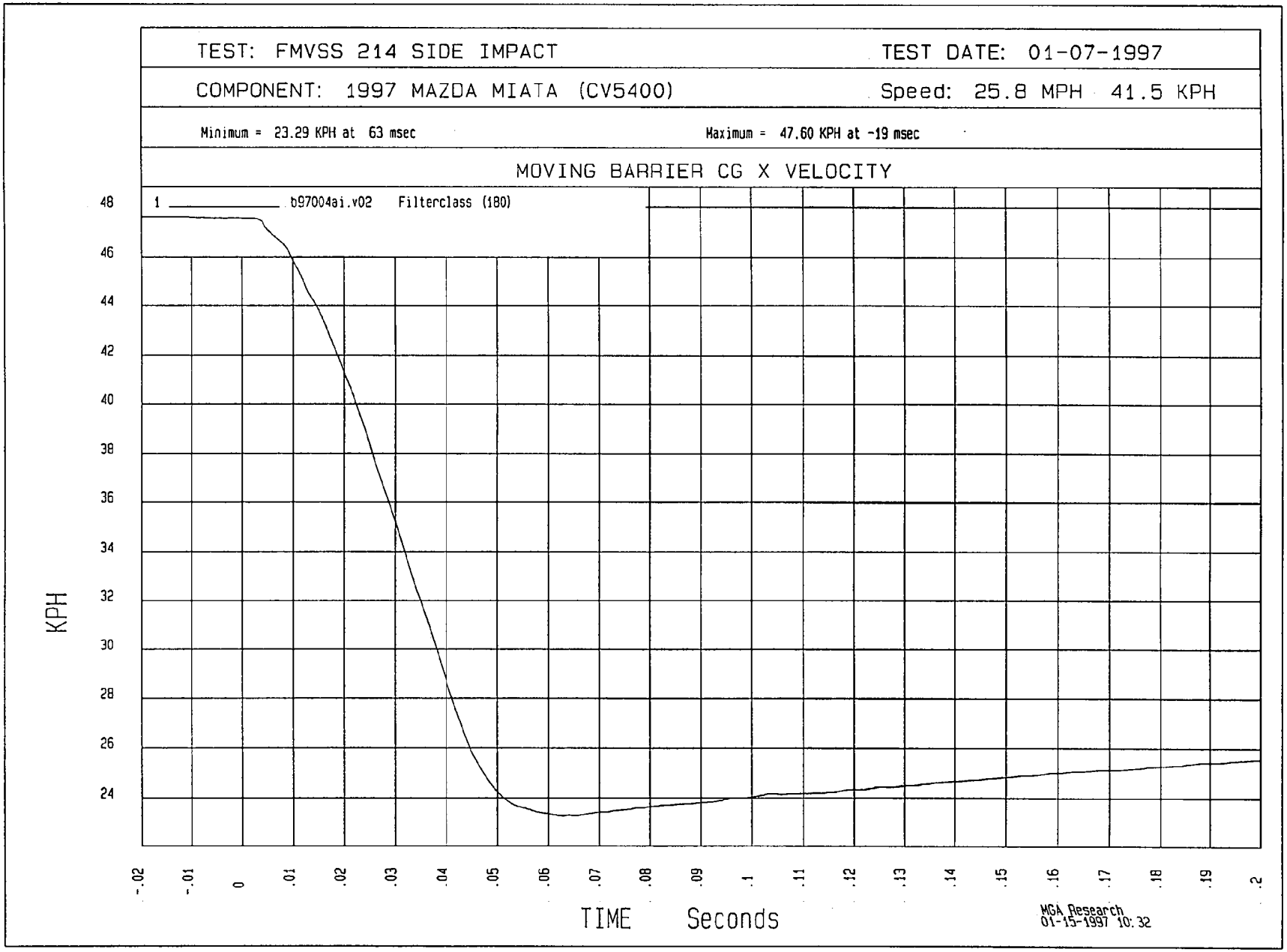
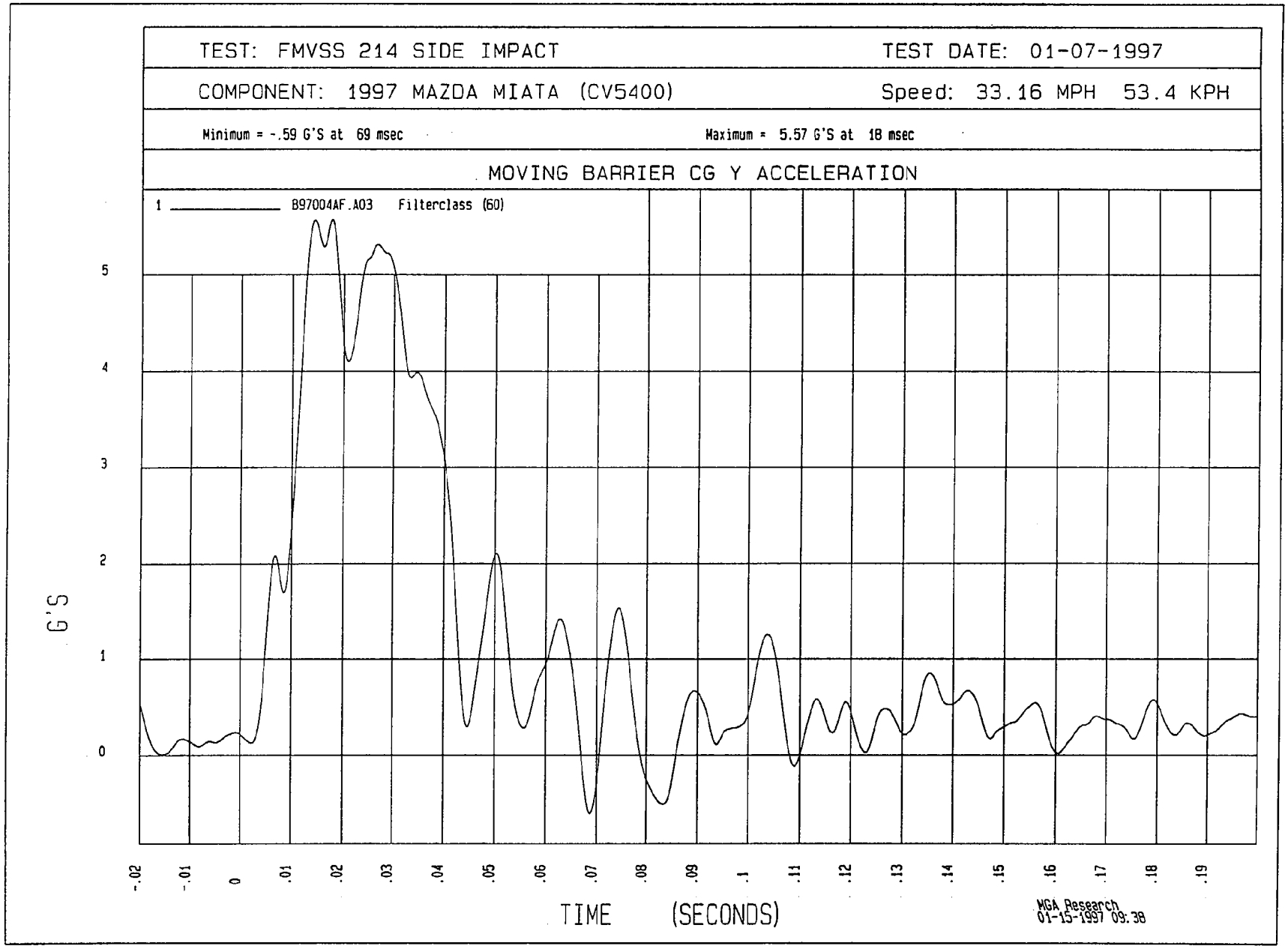
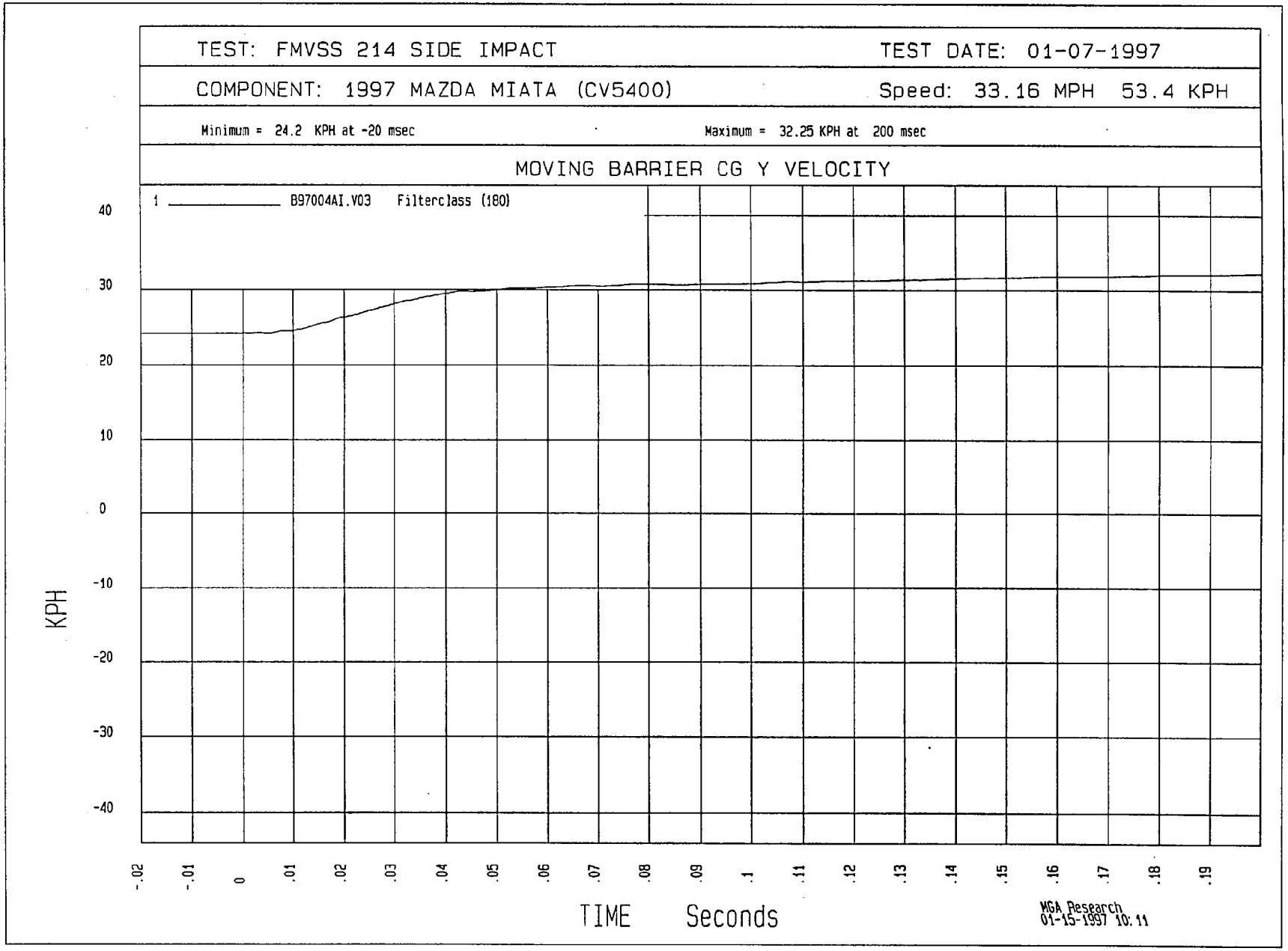
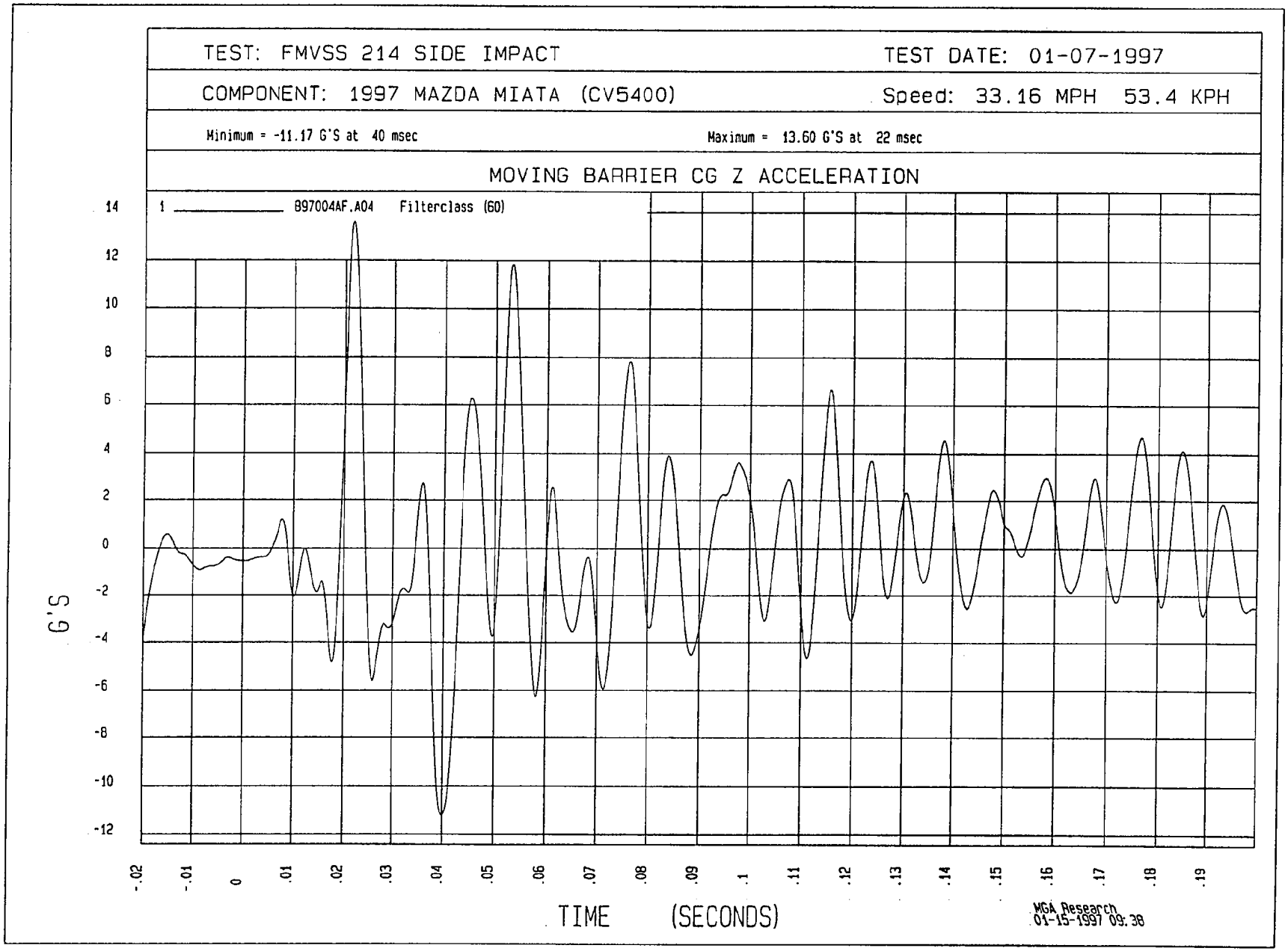
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 10:12

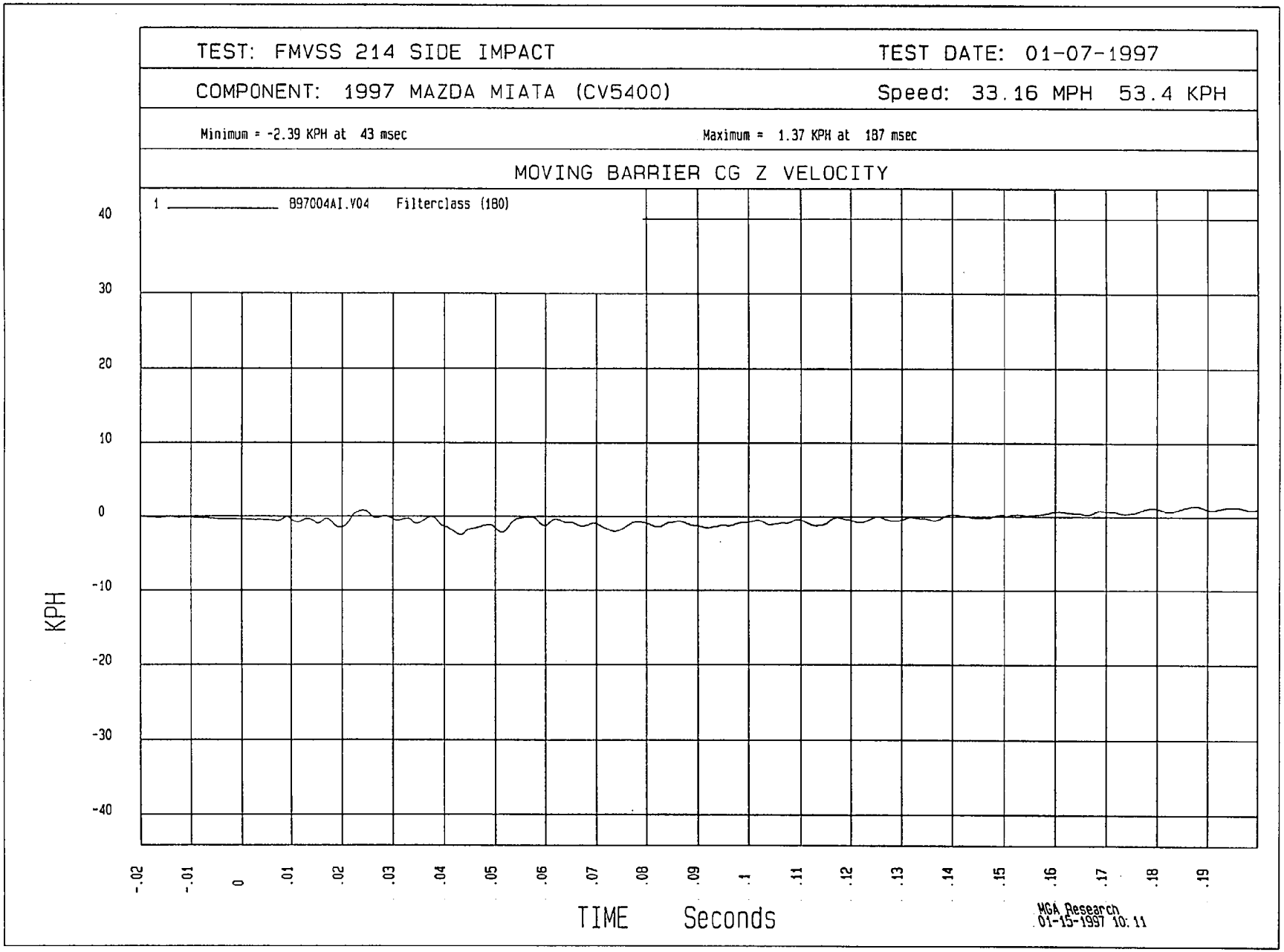

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -18.87 G'S at 32 msec
Maximum = .93 G'S at 94 msec
MOVING BARRIER CG X ACCELERATION
1 B97004AF.A02 Filterclass (60)
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:38

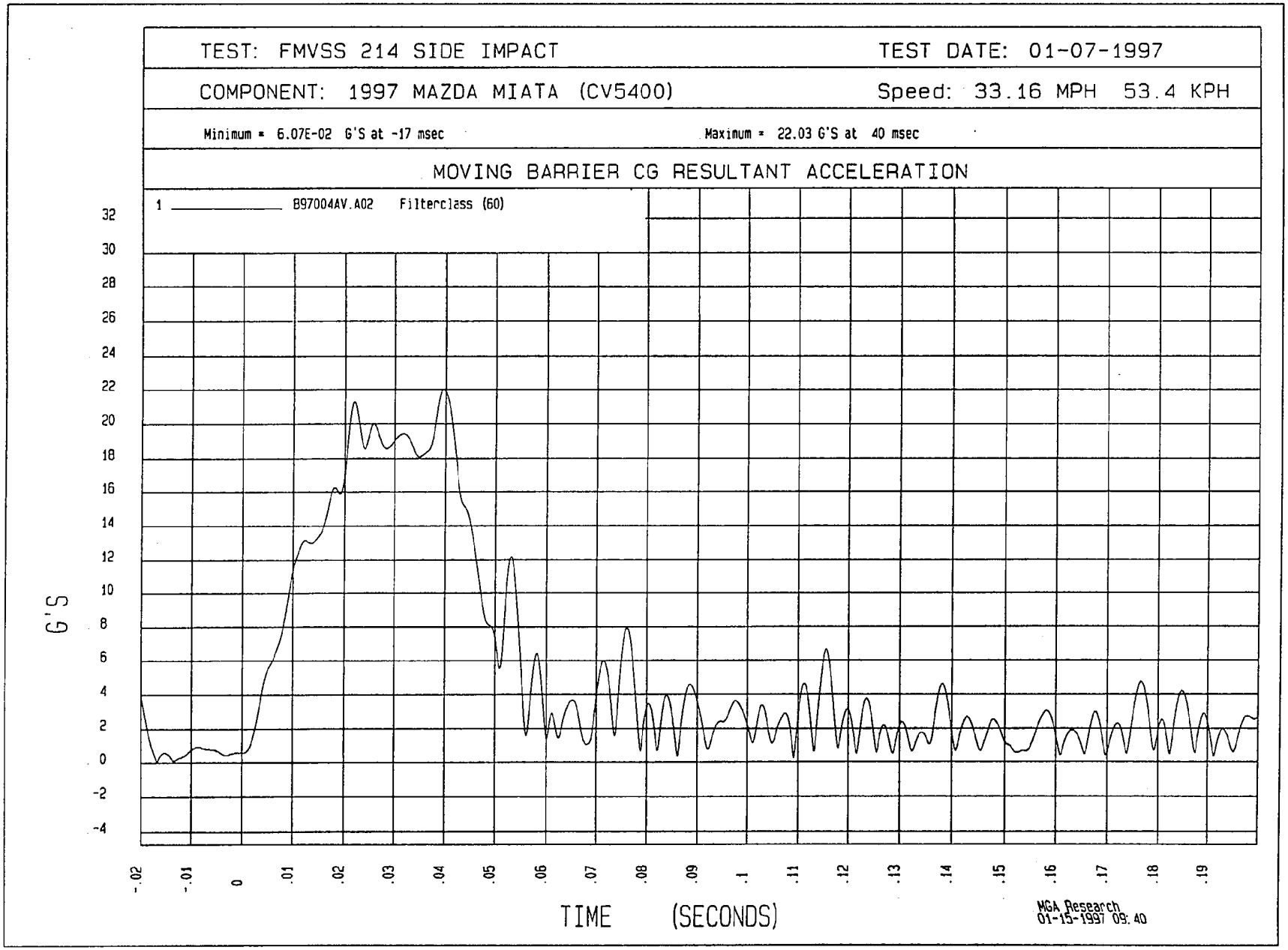

TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 25.8 MPH 41.5 KPH
Minimum = 23.29 KPH at 63 msec
Maximum = 47.60 KPH at -19 msec
MOVING BARRIER CG X VELOCITY
1 b97004ai.v02 Filterclass (180)
KPH
48
46
44
42
40
38
36
34
32
30
28
26
24
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
.2
TIME Seconds
MGA Research
01-15-1997 10:32


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -.59 G'S at 69 msec
Maximum = 5.57 G'S at 18 msec
MOVING BARRIER CG Y ACCELERATION
1 B97004AF.A03 Filterclass (60)
G'S
5
4
3
2
1
0
-.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
01-15-1997 09:38


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = 24.2 KPH at -20 msec
Maximum = 32.25 KPH at 200 msec
MOVING BARRIER CG Y VELOCITY
1 B97004AI.V03 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.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
01-15-1997 10:11


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -11.17 G'S at 40 msec
Maximum = 13.60 G'S at 22 msec
MOVING BARRIER CG Z ACCELERATION
1 897004AF.A04 Filterclass (60)
G'S
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-.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
01-15-1997 09:38


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -2.39 KPH at 43 msec
Maximum = 1.37 KPH at 187 msec
MOVING BARRIER CG Z VELOCITY
1 B97004AI.V04 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.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
01-15-1997 10:11


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = 6.07E-02 G'S at -17 msec
Maximum = 22.03 G'S at 40 msec
MOVING BARRIER CG RESULTANT ACCELERATION
1 B97004AV.A02 Filterclass (60)
G'S
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
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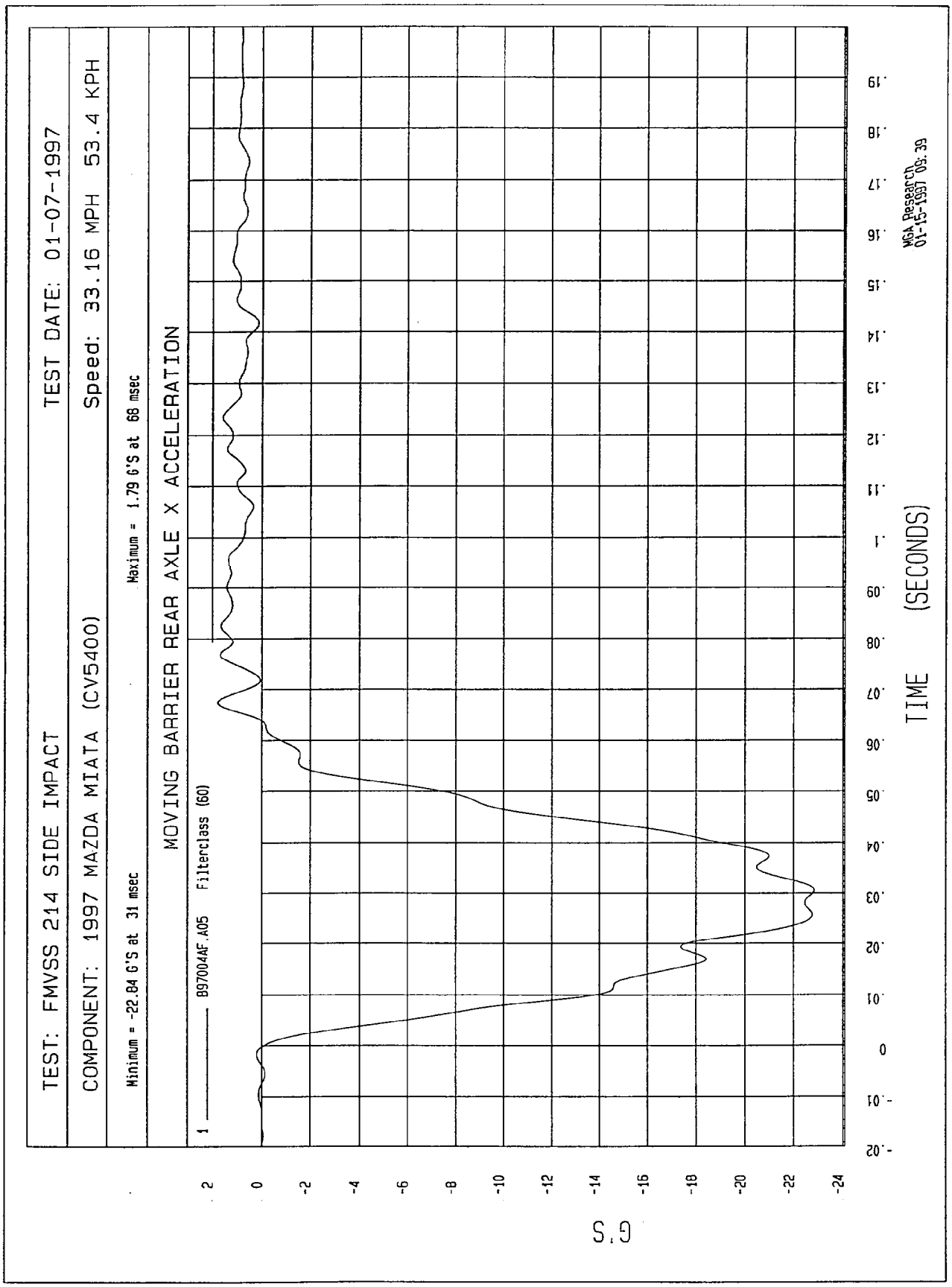
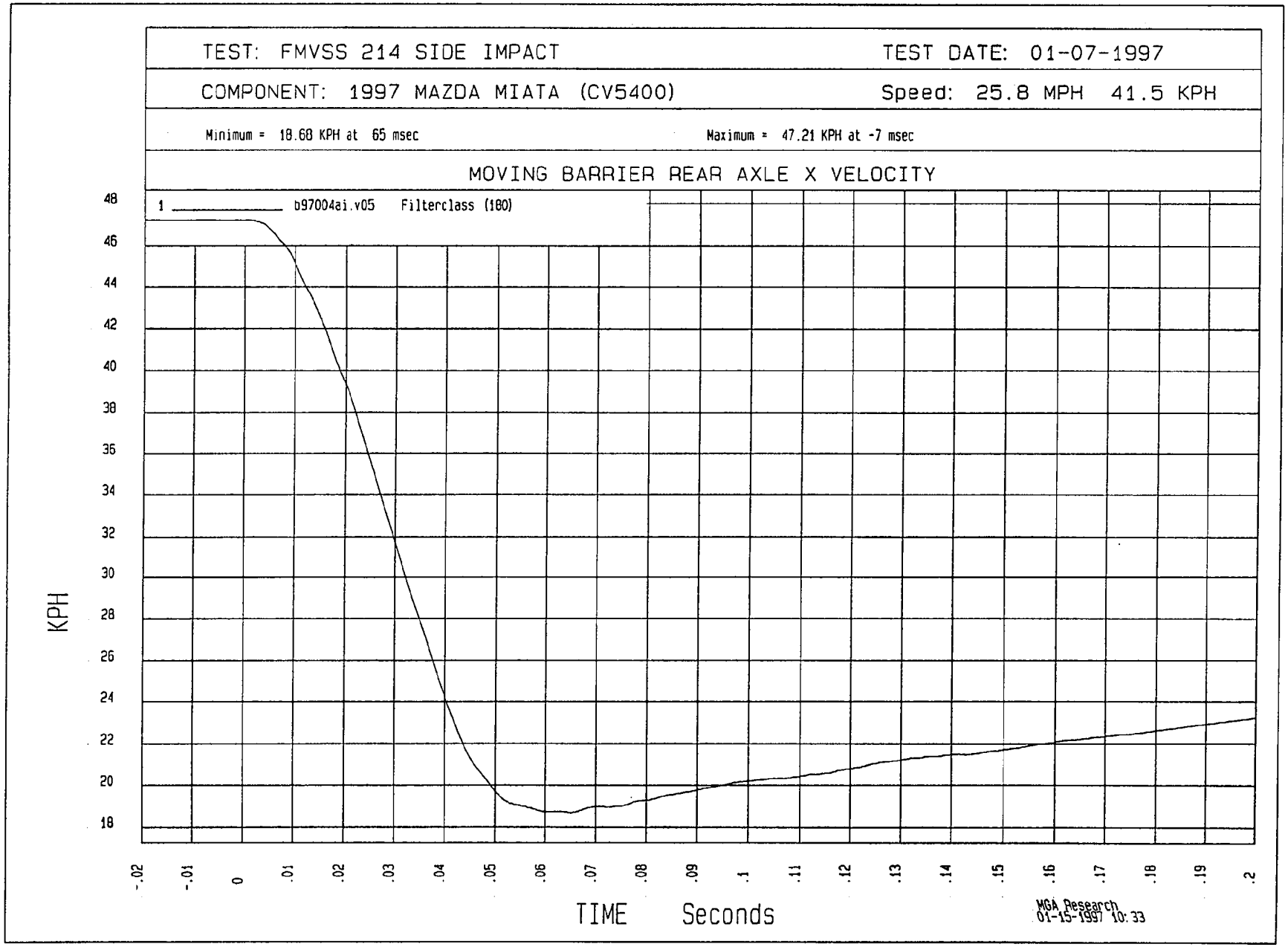
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:40


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -22.84 G'S at 31 msec
Maximum = 1.79 G'S at 66 msec
MOVING BARRIER REAR AXLE X ACCELERATION
1 B970044F.A05 Filterclass (60)
G's
TIME (SECONDS)
MGA Research
01-15-1997 09:39


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 25.8 MPH 41.5 KPH
Minimum = 18.68 KPH at 65 msec
Maximum = 47.21 KPH at -7 msec
MOVING BARRIER REAR AXLE X VELOCITY
1 b97004ai.v05 Filterclass (180)
KPH
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
-.02
-.01
0
.01
.02
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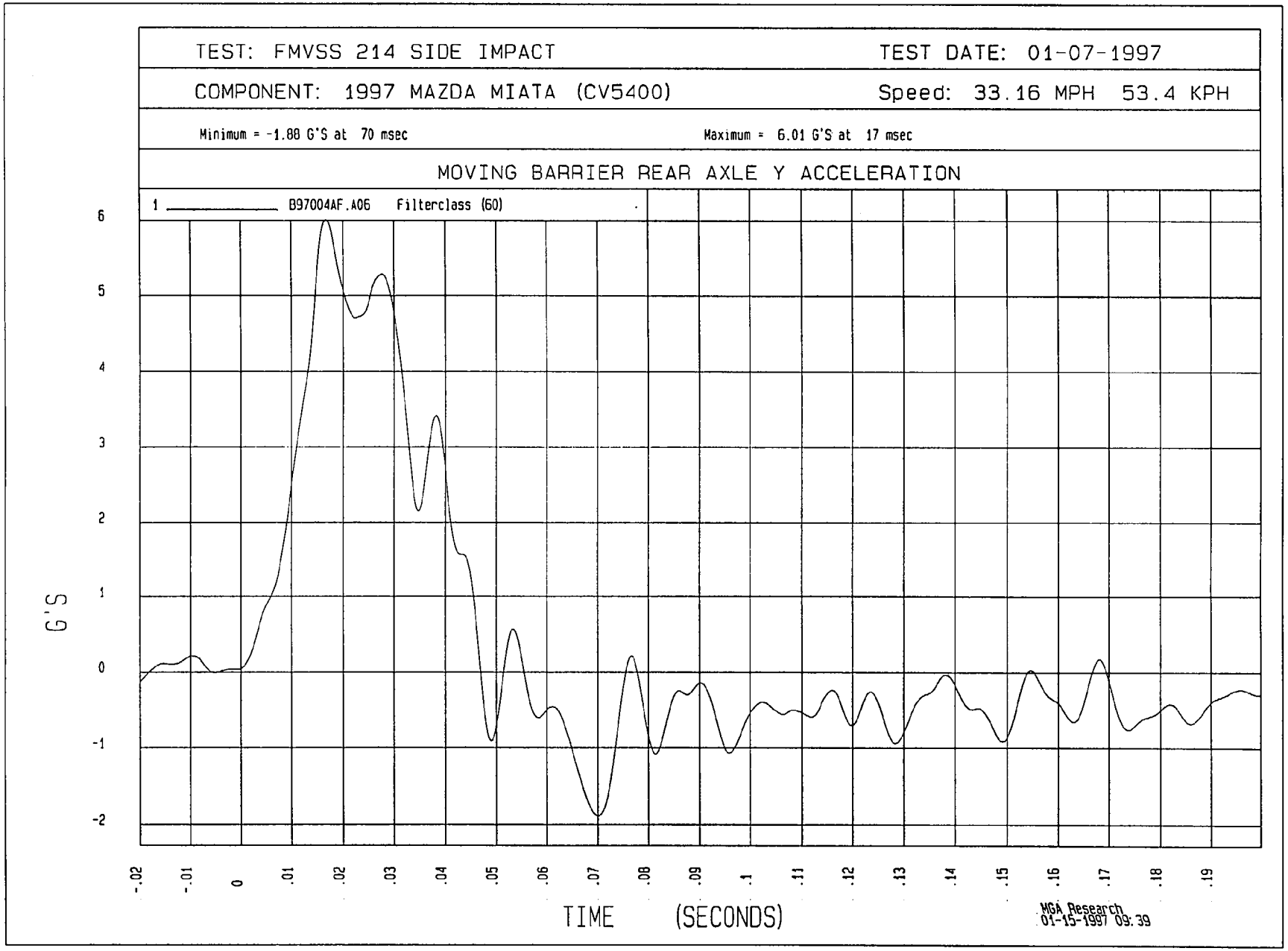
.16
.17
.18
.19
.2
TIME Seconds
MGA Research
01-15-1997 10:33


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -1.88 G'S at 70 msec
Maximum = 6.01 G'S at 17 msec
MOVING BARRIER REAR AXLE Y ACCELERATION
1 B97004AF.A06 Filterclass (60)
G'S
6
5
4
3
2
1
0
-1
-2
-.02
-.01
0
.01
.02
.03
.04
.05
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.18
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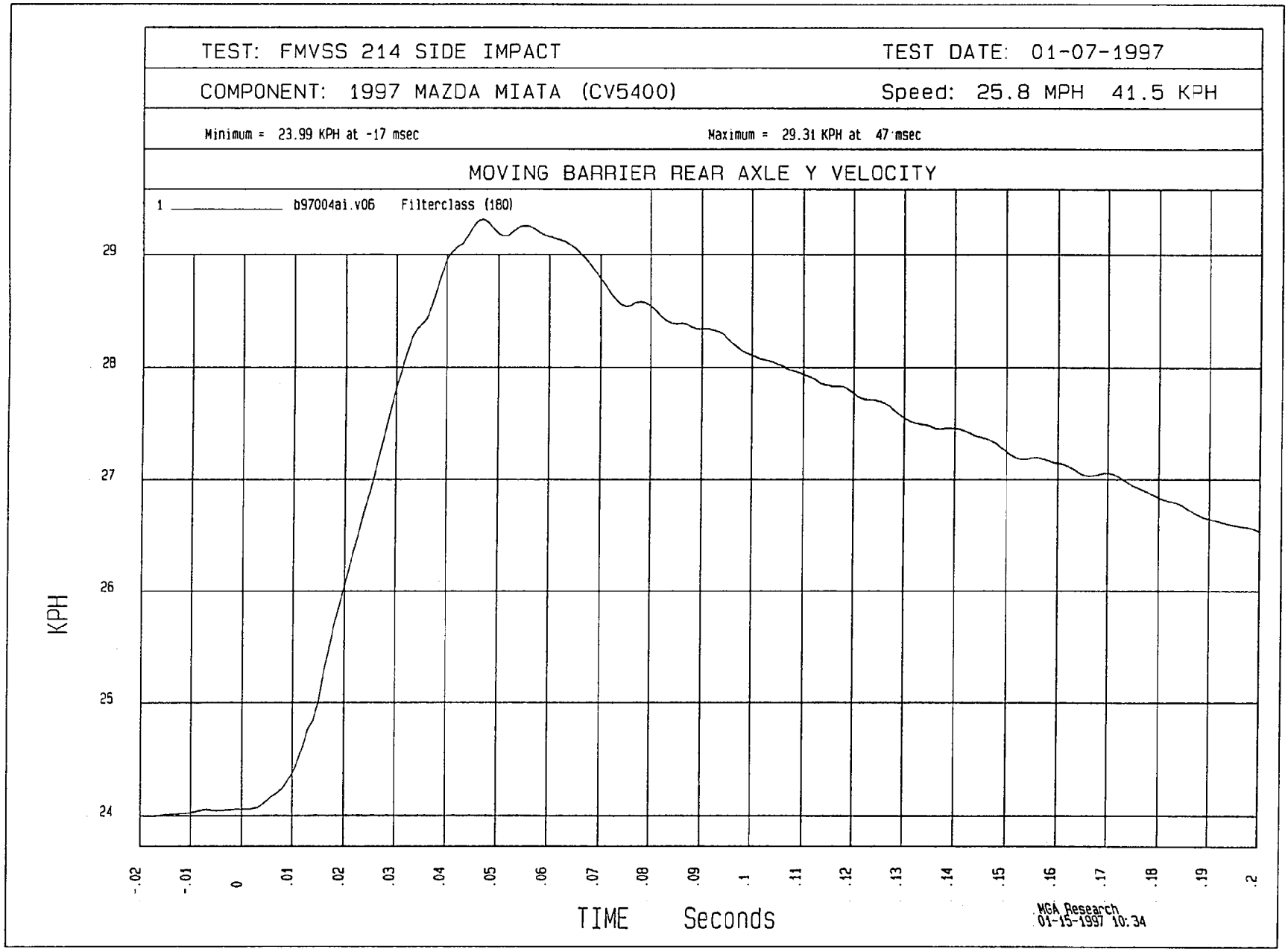
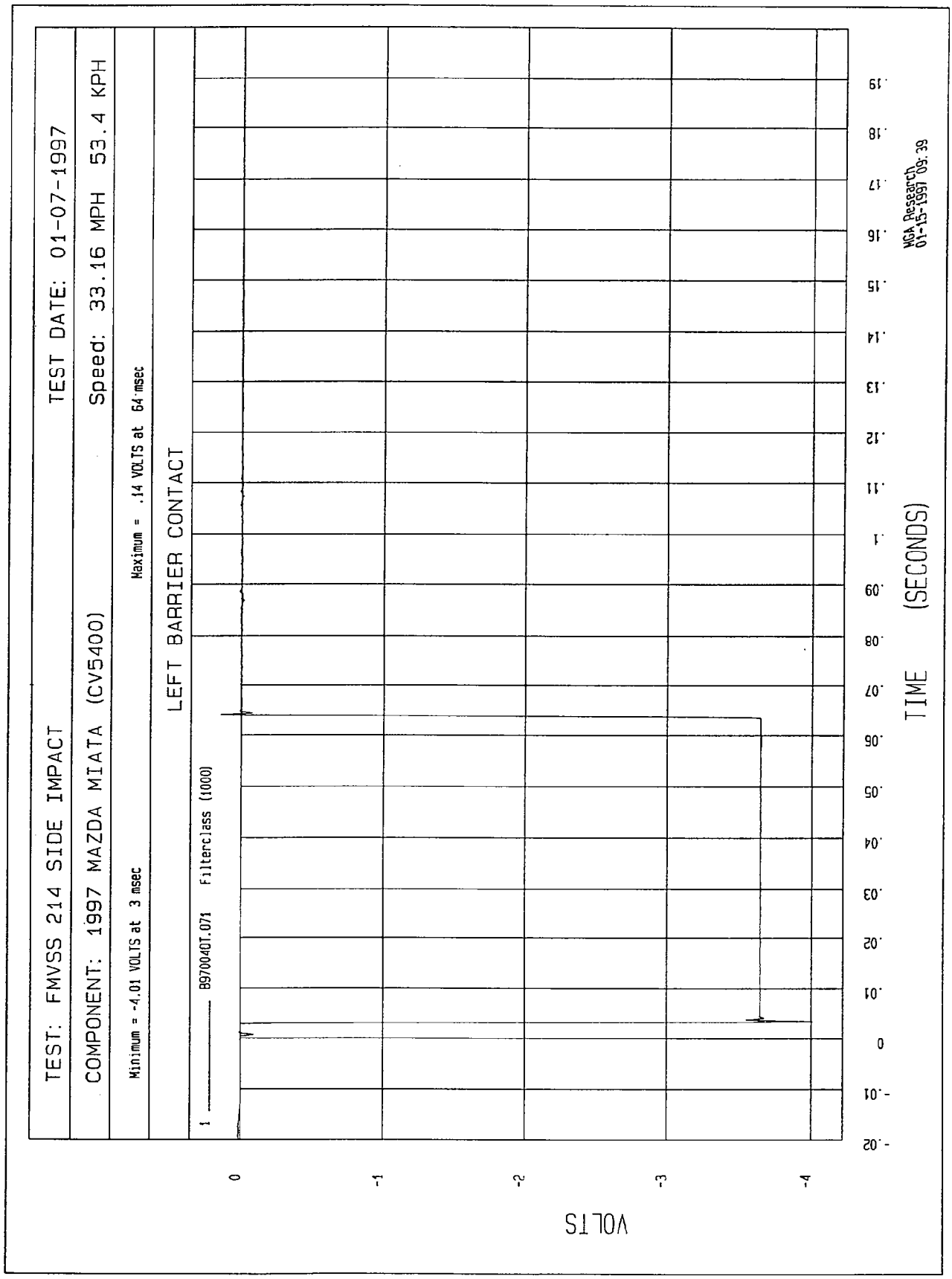
TIME (SECONDS)
MGA Research
01-15-1997 09:39


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 25.8 MPH 41.5 KPH
Minimum = 23.99 KPH at -17 msec
Maximum = 29.31 KPH at 47 msec
MOVING BARRIER REAR AXLE Y VELOCITY
1 b97004ai.v06 Filterclass (180)
KPH
29
28
27
26
25
24
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
.2
TIME Seconds
MGA Research
01-15-1997 10:34


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -4.01 VOLTS at 3 msec
Maximum = .14 VOLTS at 64 msec
LEFT BARRIER CONTACT
1 B9700401.071 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
.13
.14
.15
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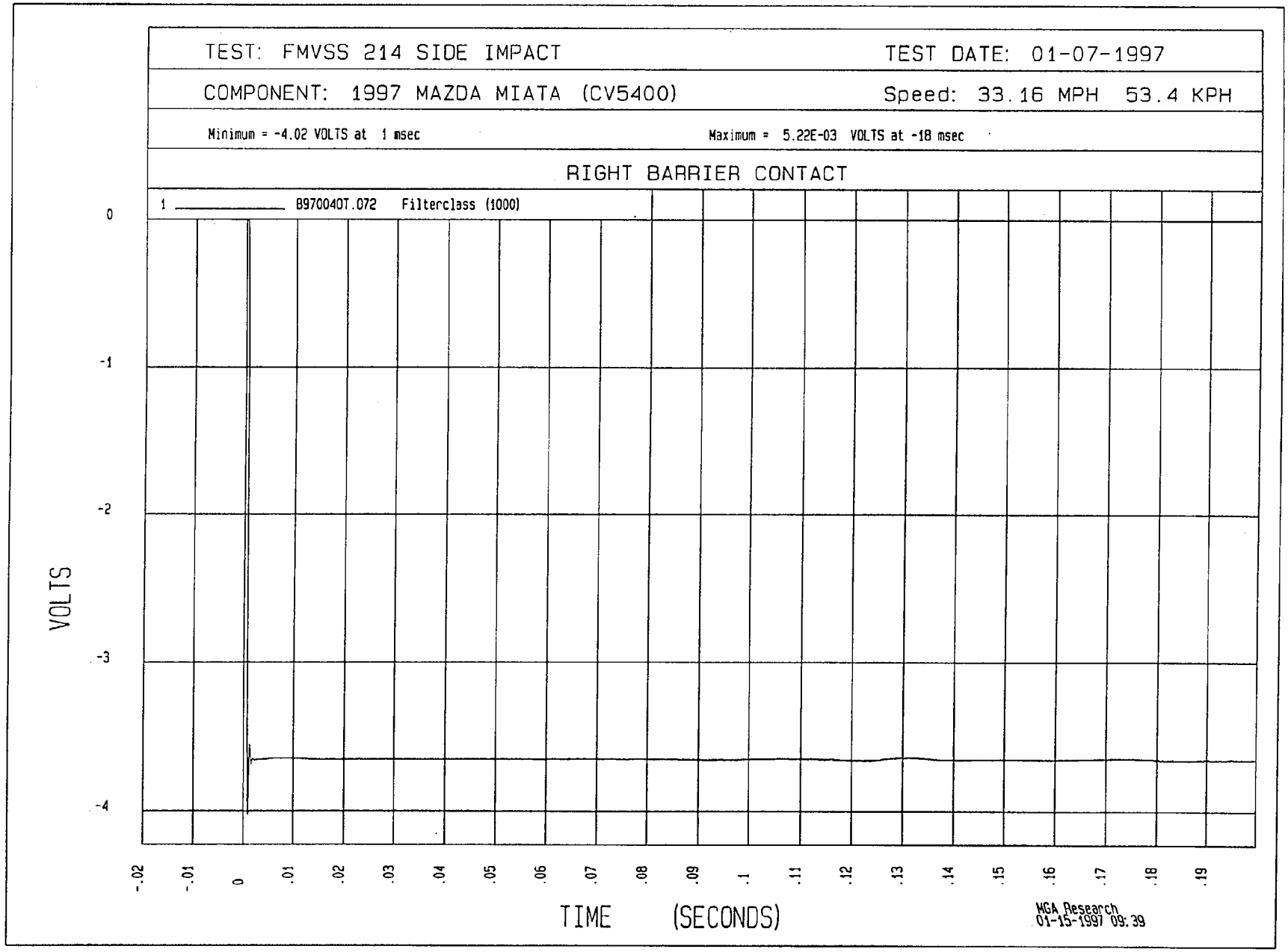
.17
.18
.19
MGA Research
01-15-1997 09:39


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -4.02 VOLTS at 1 msec
Maximum = 5.22E-03 VOLTS at -18 msec
RIGHT BARRIER CONTACT
1 B970040T.072 Filterclass (1000)
0
-1
-2
-3
-4
VOLTS
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
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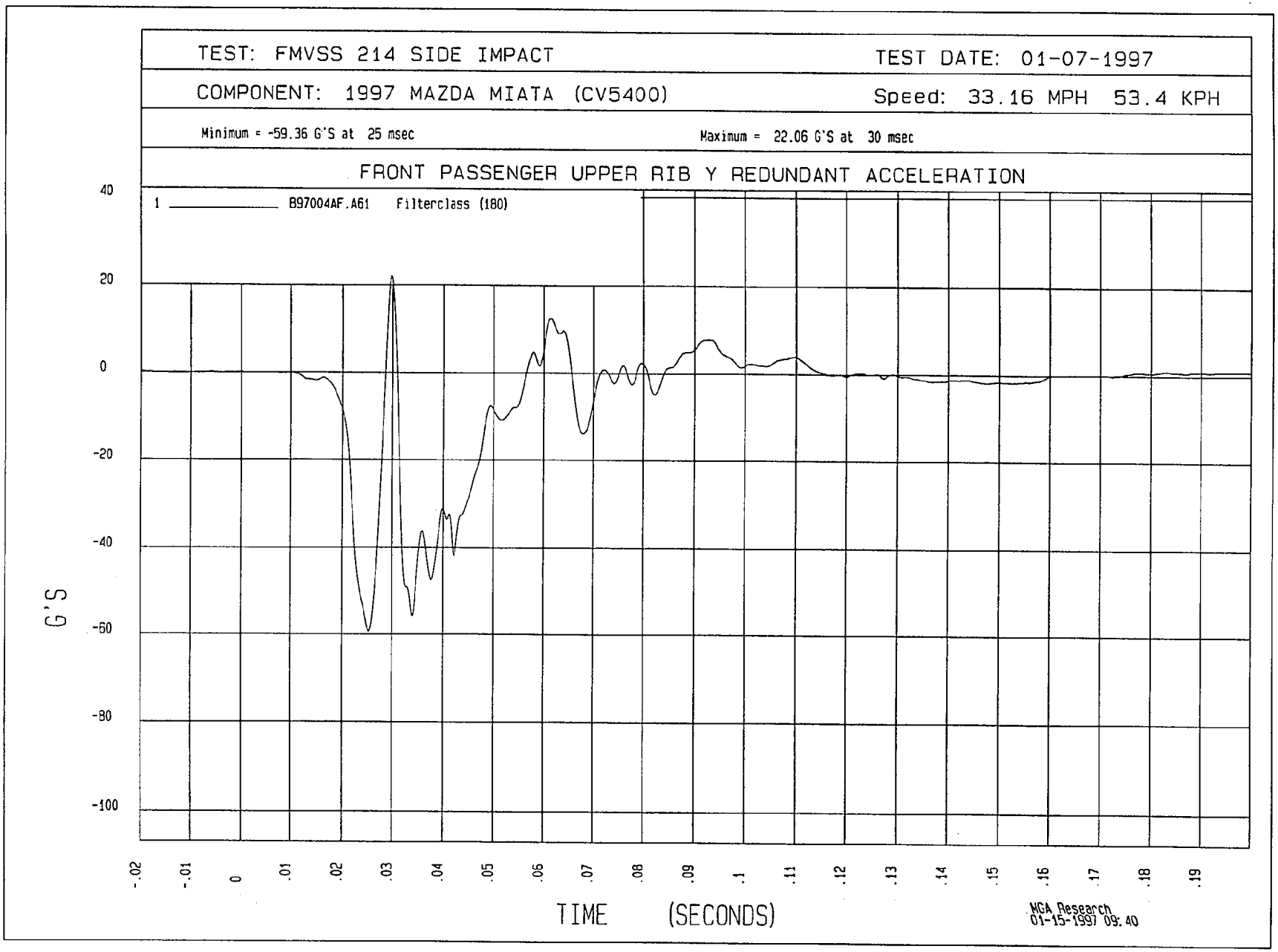
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:39


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -59.36 G'S at 25 msec
Maximum = 22.06 G'S at 30 msec
FRONT PASSENGER UPPER RIB Y REDUNDANT ACCELERATION
1 B97004AF.A61 Filterclass (180)
40
20
0
-20
-40
-60
-80
-100
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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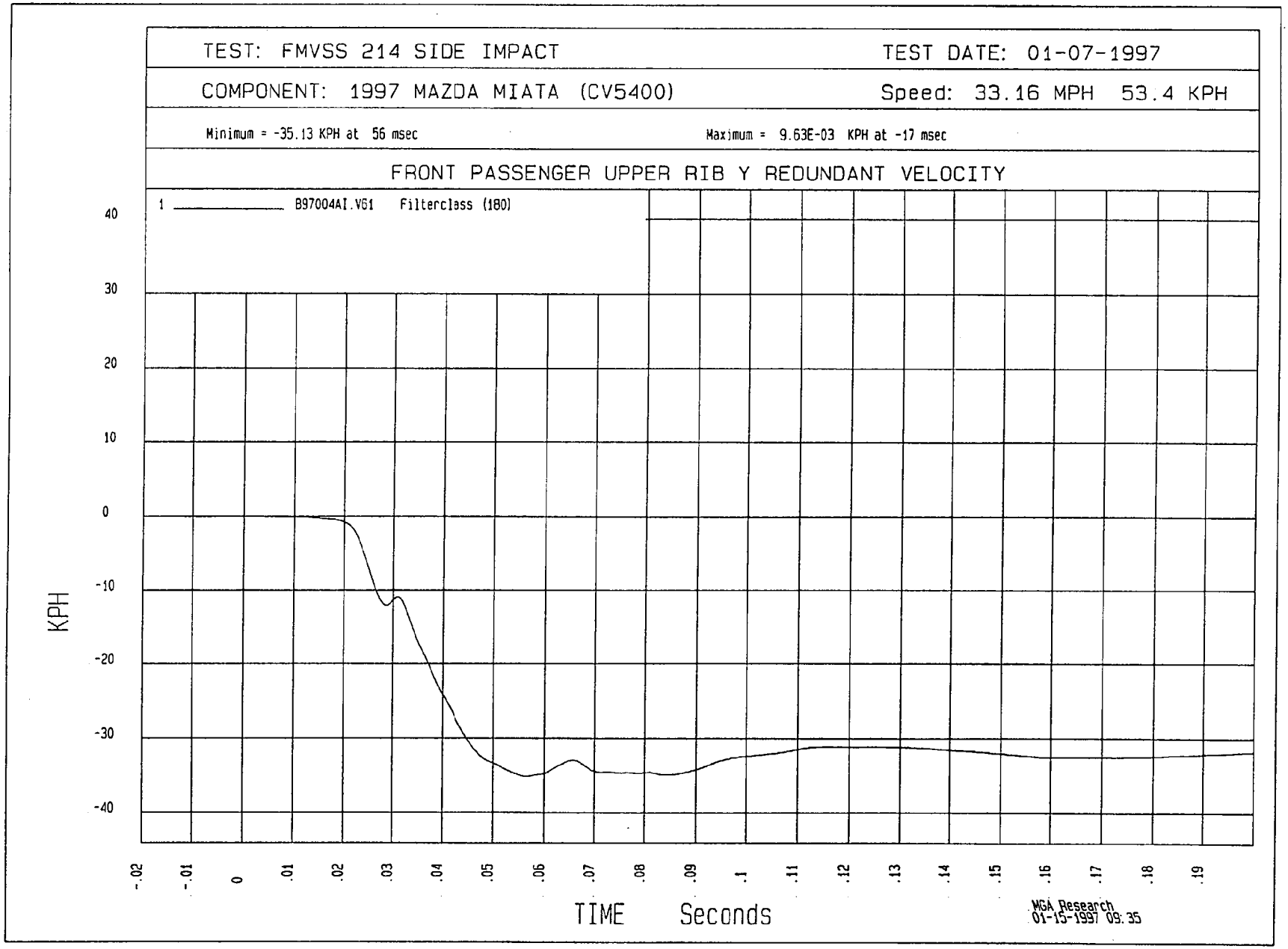
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:40


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -35.13 KPH at 56 msec
Maximum = 9.63E-03 KPH at -17 msec
FRONT PASSENGER UPPER RIB Y REDUNDANT VELOCITY
1 B97004AI.V61 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
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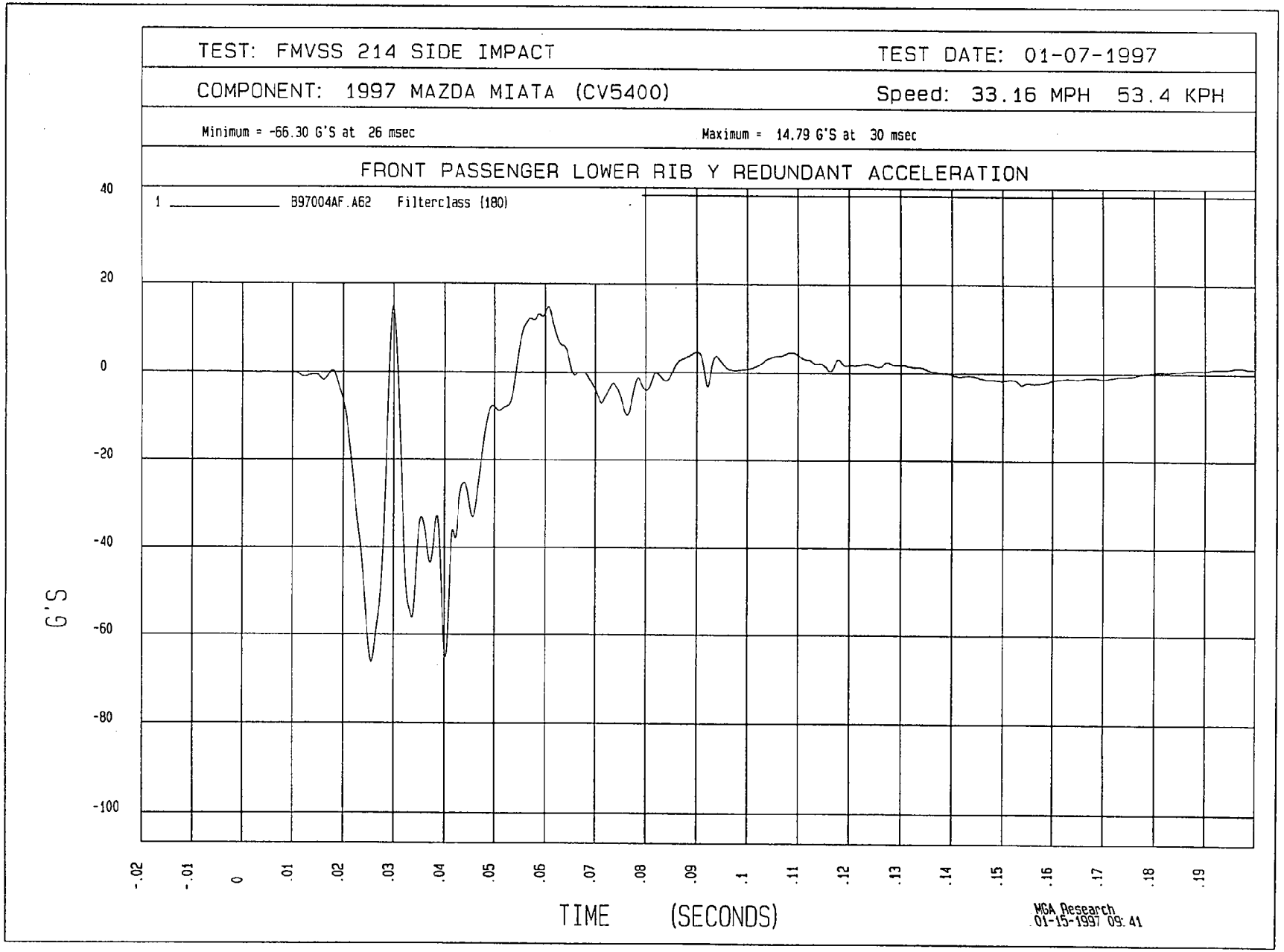
TIME Seconds
MGA Research
01-15-1997 09:35


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -66.30 G'S at 26 msec
Maximum = 14.79 G'S at 30 msec
FRONT PASSENGER LOWER RIB Y REDUNDANT ACCELERATION
1 B97004AF.A62 Filterclass (180)
40
20
0
-20
-40
-60
-80
-100
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
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.13
.14
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.16
.17
.18
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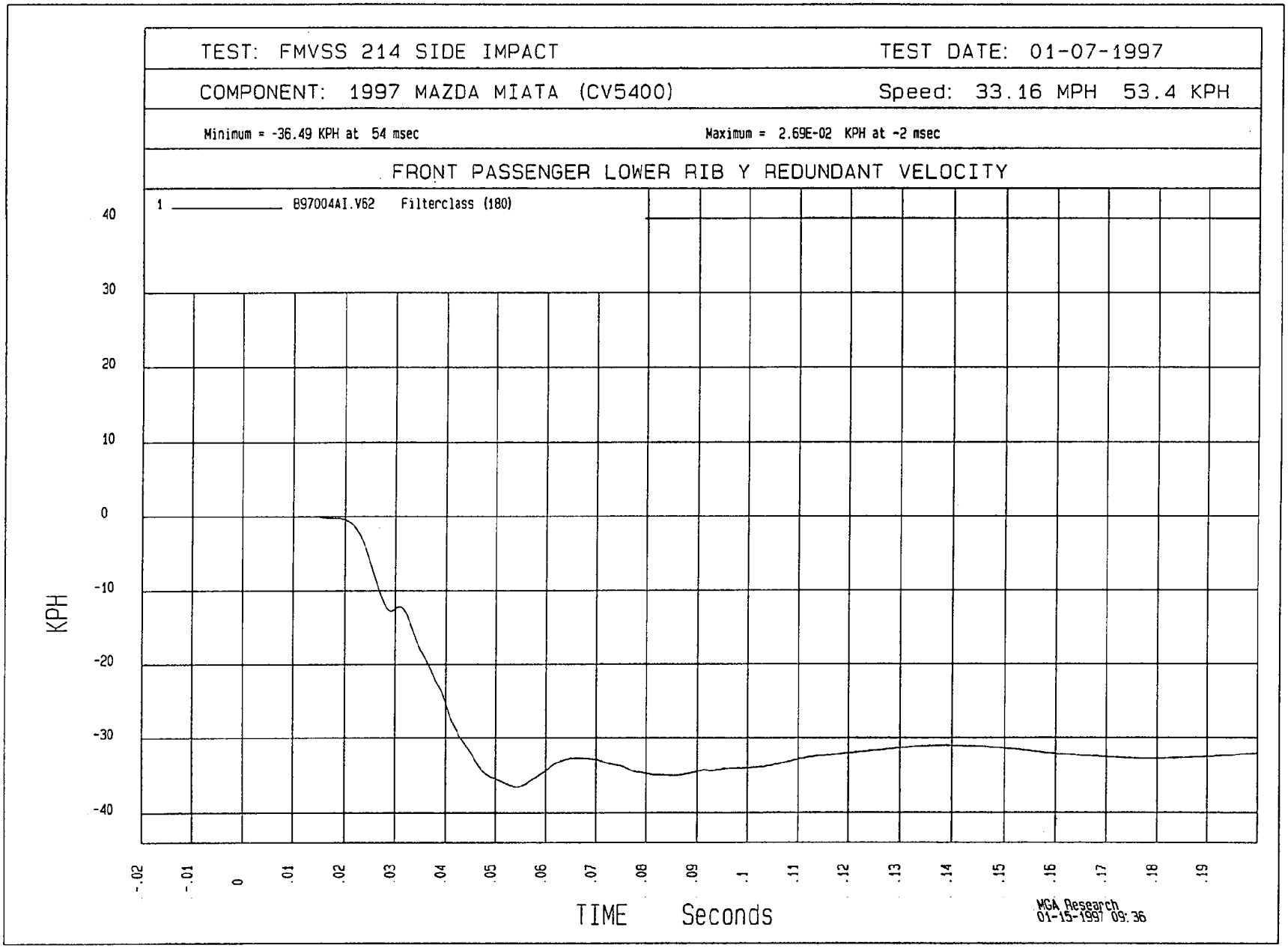
TIME (SECONDS)
MGA Research
01-15-1997 09:41


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -36.49 KPH at 54 msec
Maximum = 2.69E-02 KPH at -2 msec
FRONT PASSENGER LOWER RIB Y REDUNDANT VELOCITY
1 B97004AI.V62 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
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.15
.16
.17
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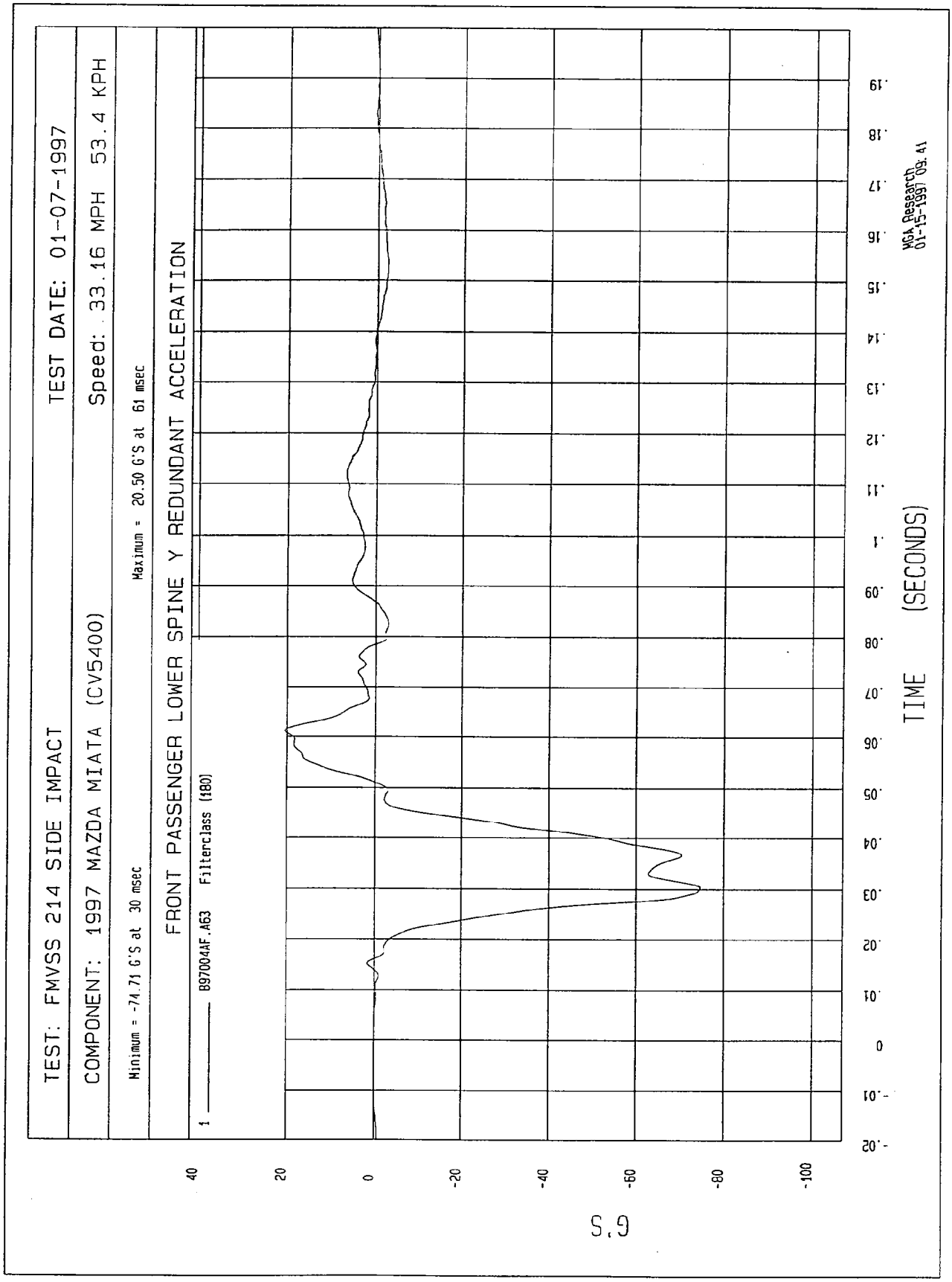
TIME Seconds
MGA Research
01-15-1997 09:36


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -74.71 G'S at 30 msec
Maximum = 20.50 G'S at 61 msec
FRONT PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION
1 B970044F.A63 Filterclass (180)
40
20
0
-20
-40
-60
-80
-100
G'S
.02
.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
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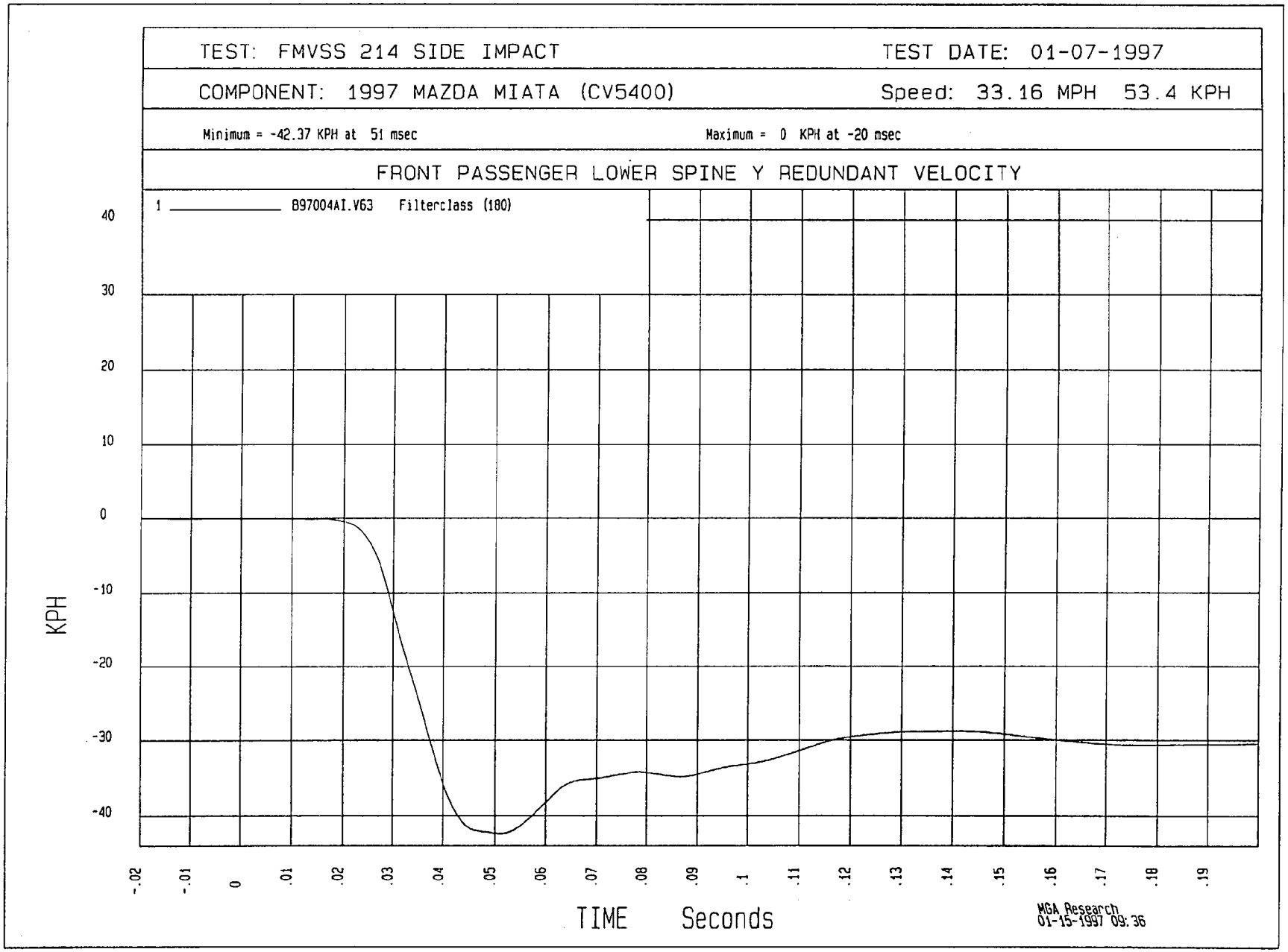
TIME (SECONDS)
MGA Research
01-15-1997 09:41


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -42.37 KPH at 51 msec
Maximum = 0 KPH at -20 msec
FRONT PASSENGER LOWER SPINE Y REDUNDANT VELOCITY
1 B97004AI.V63 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
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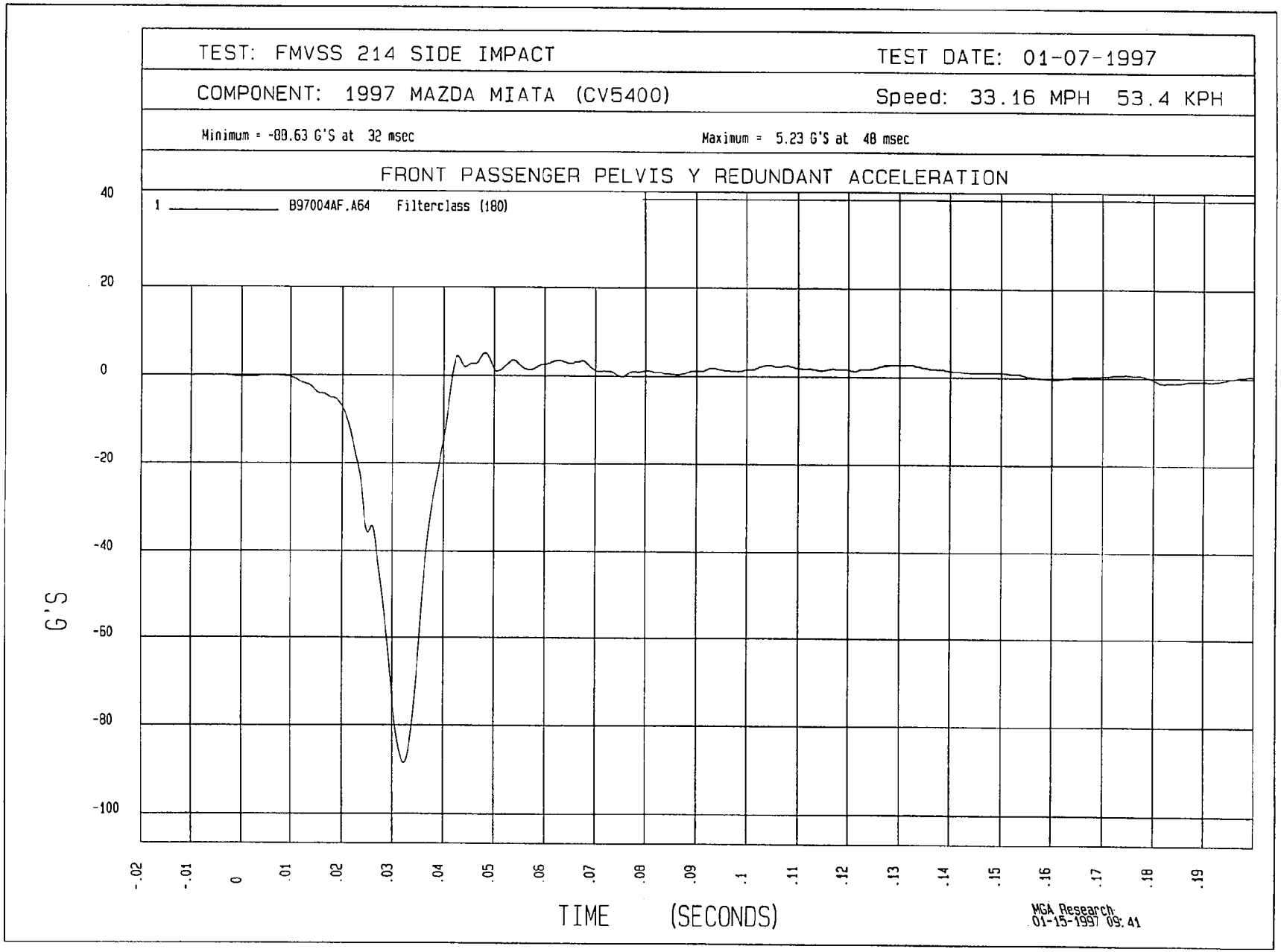
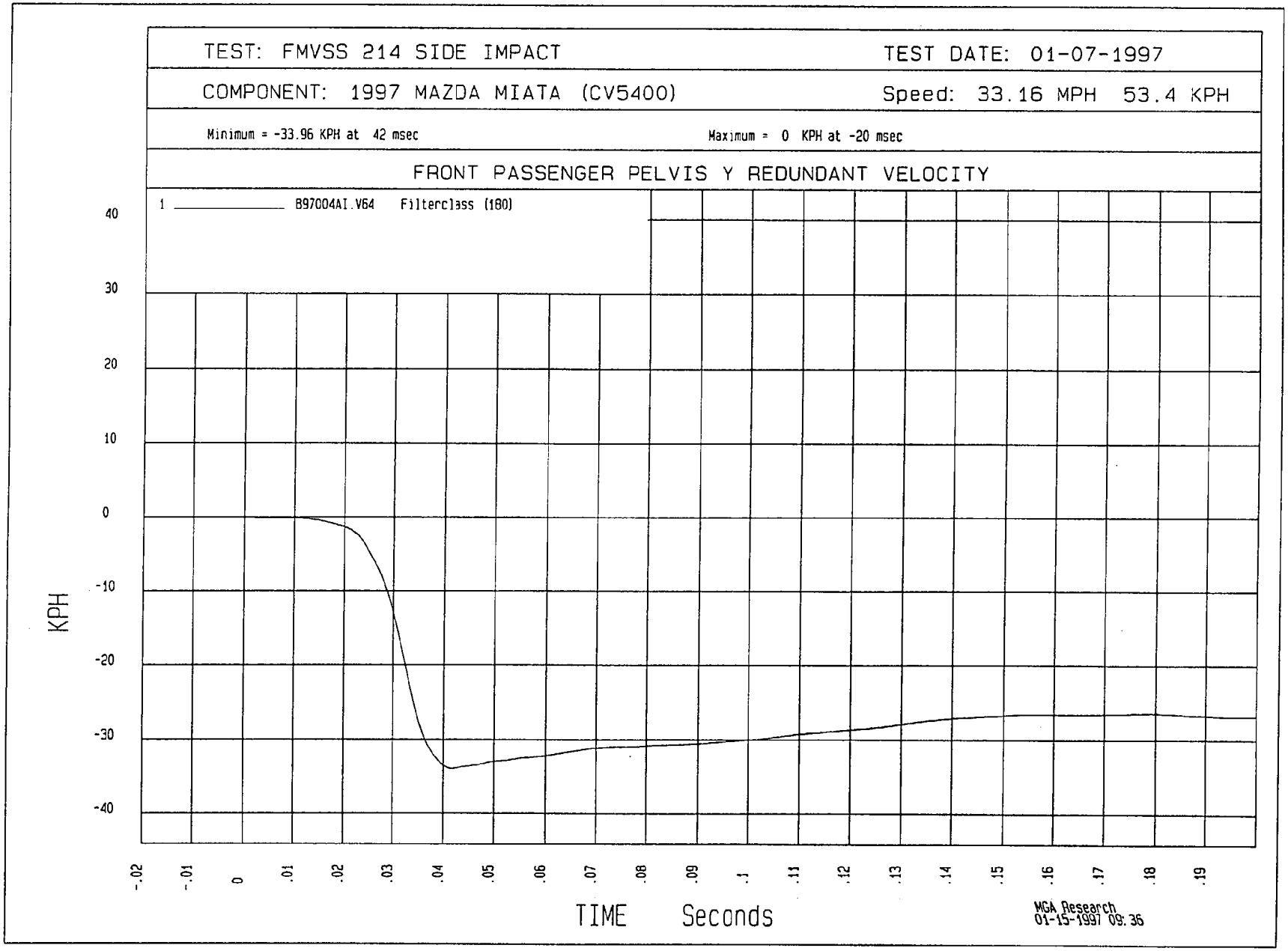
TIME Seconds
MGA Research
01-15-1997 09:36


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -88.63 G'S at 32 msec
Maximum = 5.23 G'S at 48 msec
FRONT PASSENGER PELVIS Y REDUNDANT ACCELERATION
1 B97004AF.A64 Filterclass (180)
40
20
0
-20
-40
-60
-80
-100
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
01-15-1997 09:41


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -33.96 KPH at 42 msec
Maximum = 0 KPH at -20 msec
FRONT PASSENGER PELVIS Y REDUNDANT VELOCITY
1 B97004AI.V64 Filterclass (180)
KPH
40
30
20
10
0
-10
-20
-30
-40
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
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.14
.15
.16
.17
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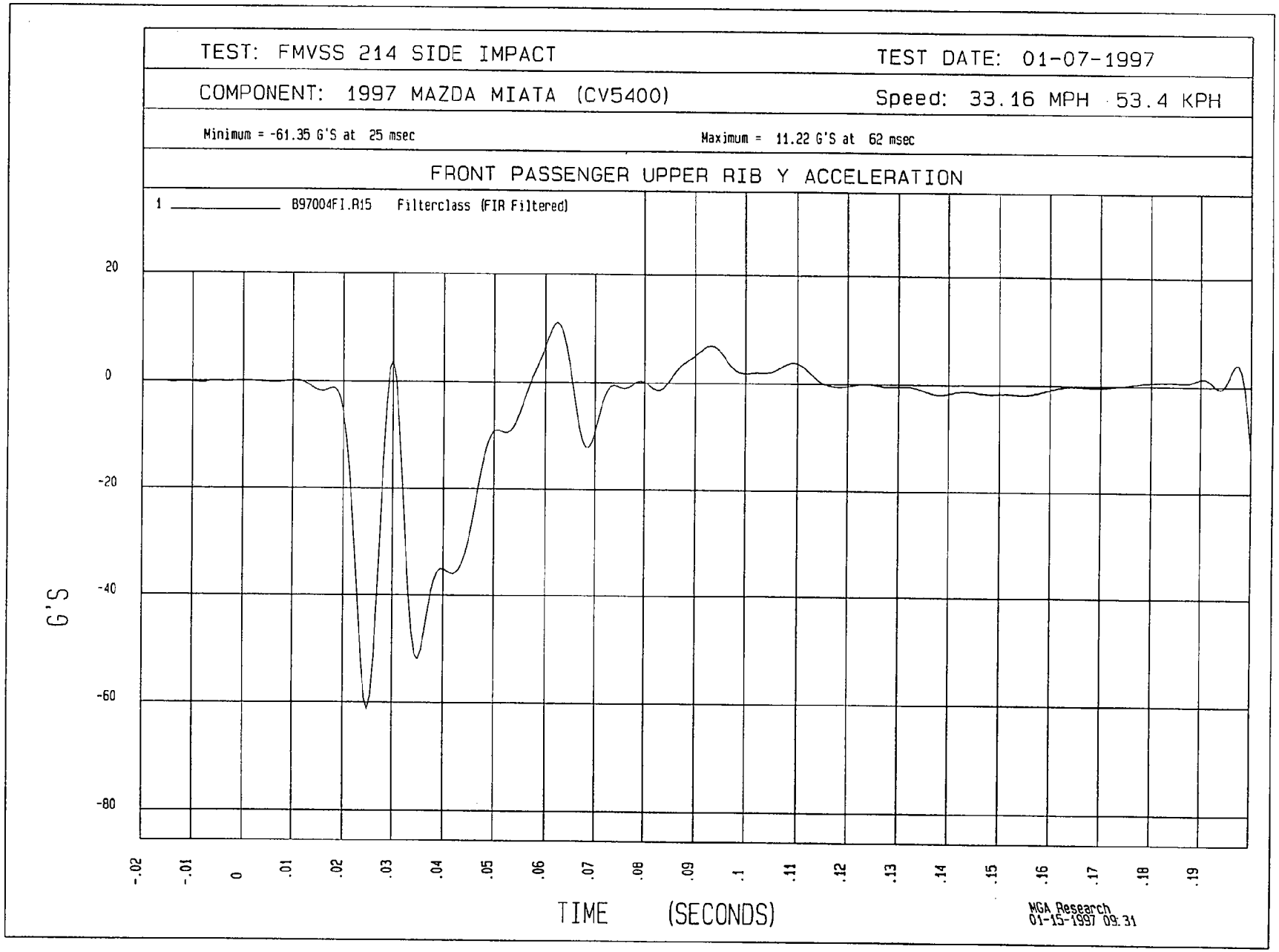
.19
TIME Seconds
MGA Research
01-15-1997 09:36

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -61.35 G'S at 25 msec
Maximum = 11.22 G'S at 62 msec
FRONT PASSENGER UPPER RIB Y ACCELERATION
1 B97004F1.R15 Filterclass (FIR Filtered)
20
0
-20
-40
-60
-80
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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.14
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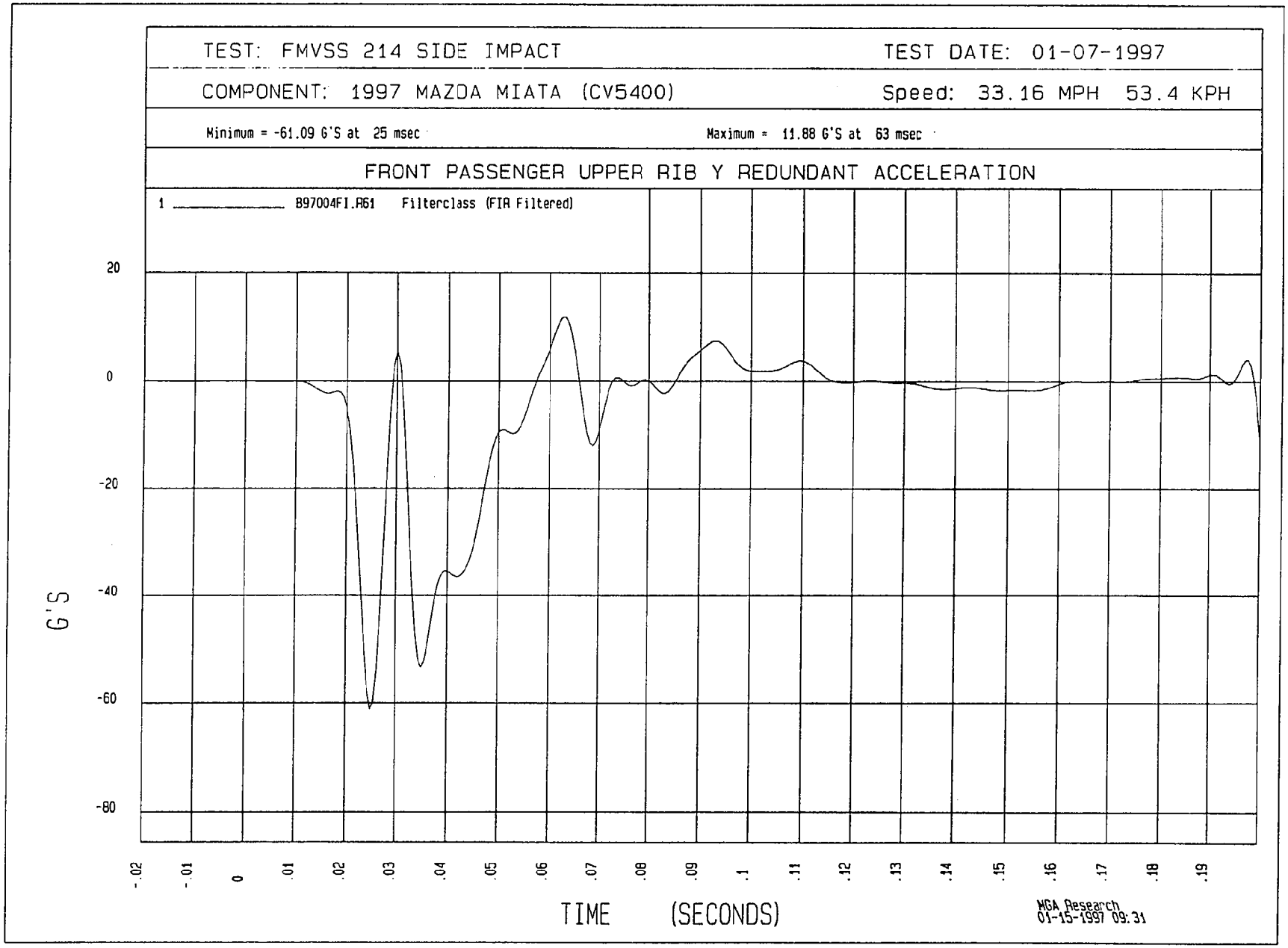
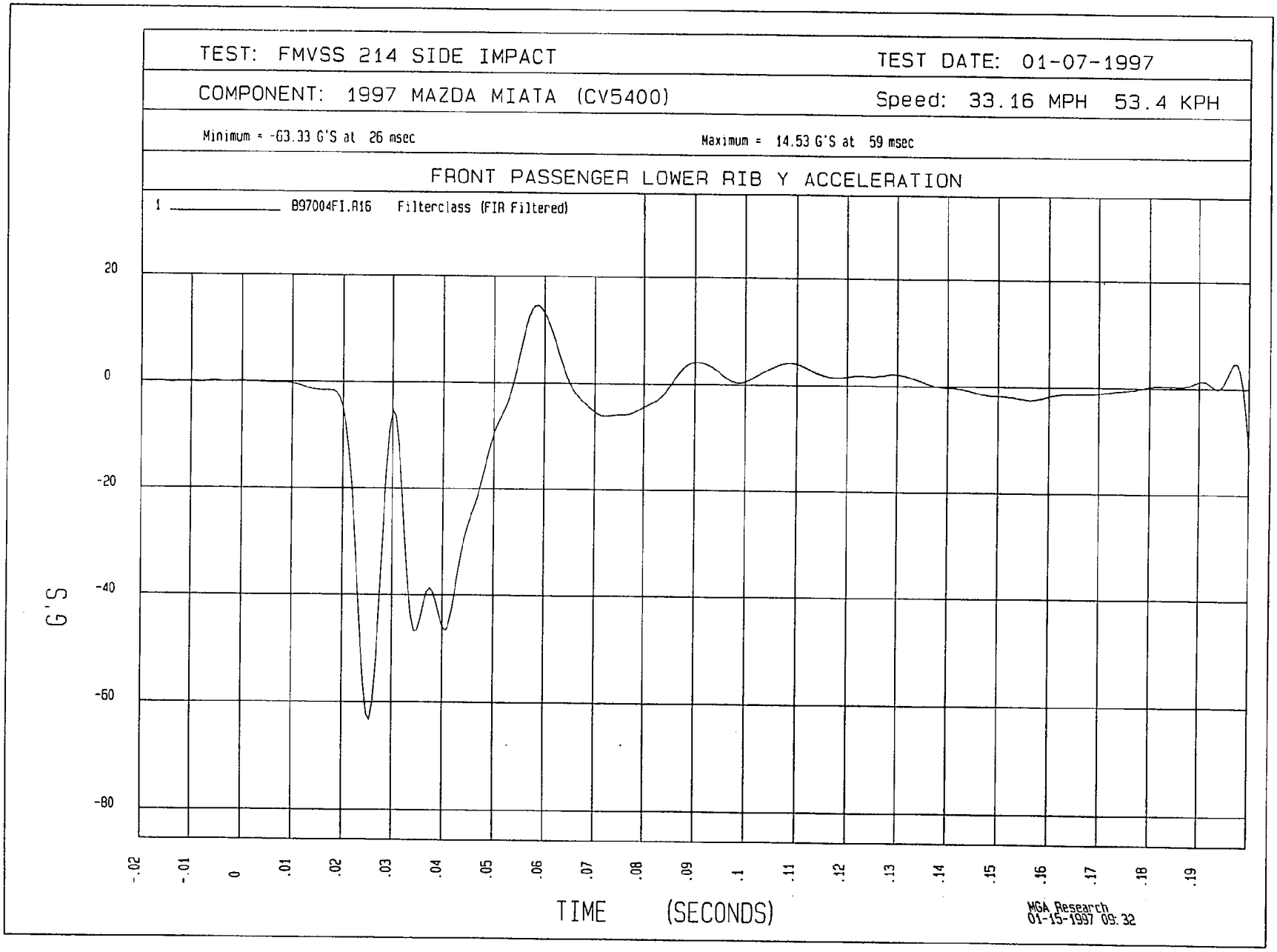
TIME (SECONDS)
MGA Research
01-15-1997 09:31


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -61.09 G'S at 25 msec
Maximum = 11.88 G'S at 63 msec
FRONT PASSENGER UPPER RIB Y REDUNDANT ACCELERATION
1 B97004FI.A61 Filterclass (FIR Filtered)
20
0
-20
-40
-60
-80
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
01-15-1997 09:31


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -63.33 G'S at 26 msec
Maximum = 14.53 G'S at 59 msec
FRONT PASSENGER LOWER RIB Y ACCELERATION
1 B97004F1.A16 Filterclass (FIR Filtered)
20
0
-20
-40
-60
-80
G's
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
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.13
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.16
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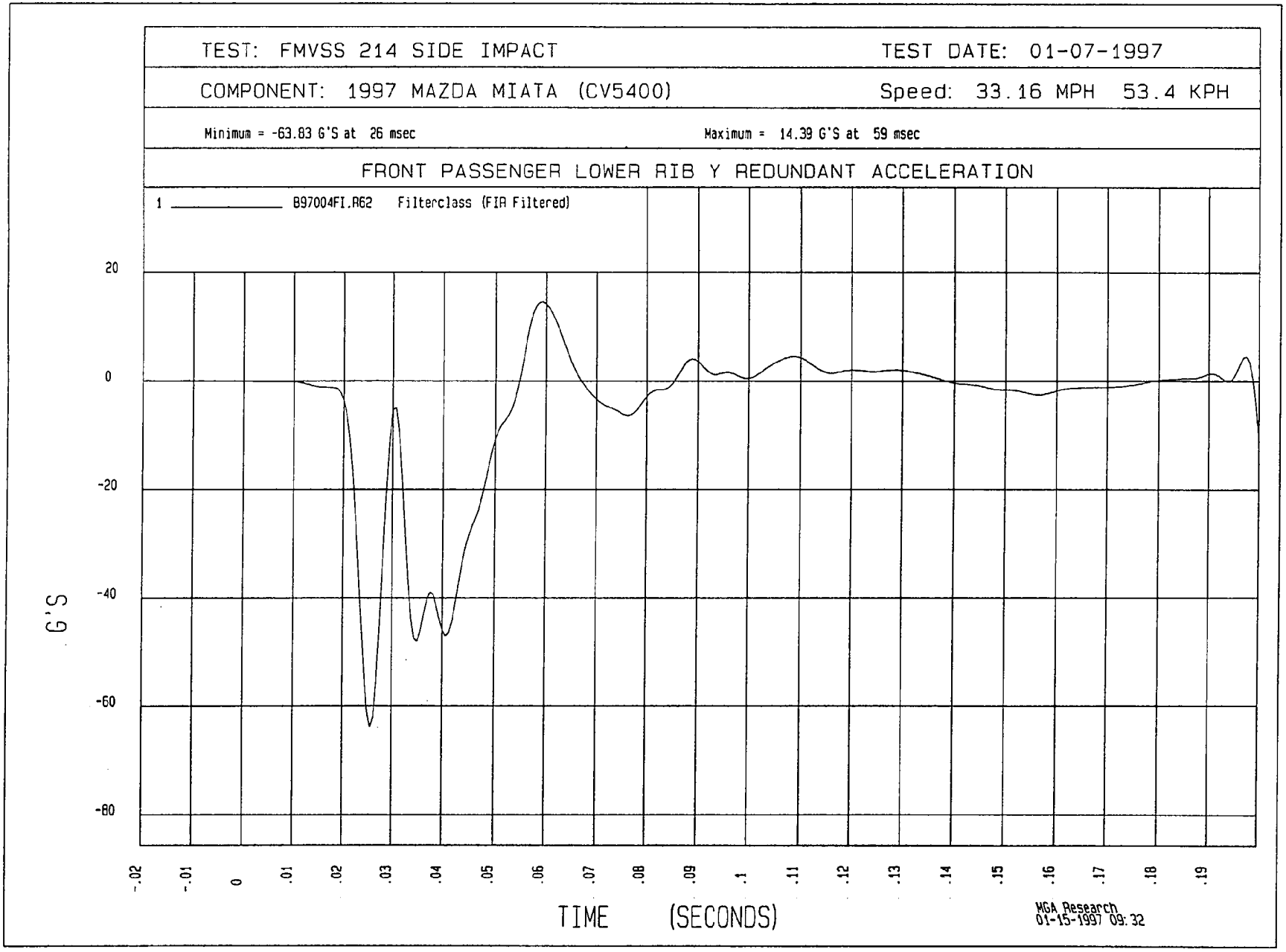
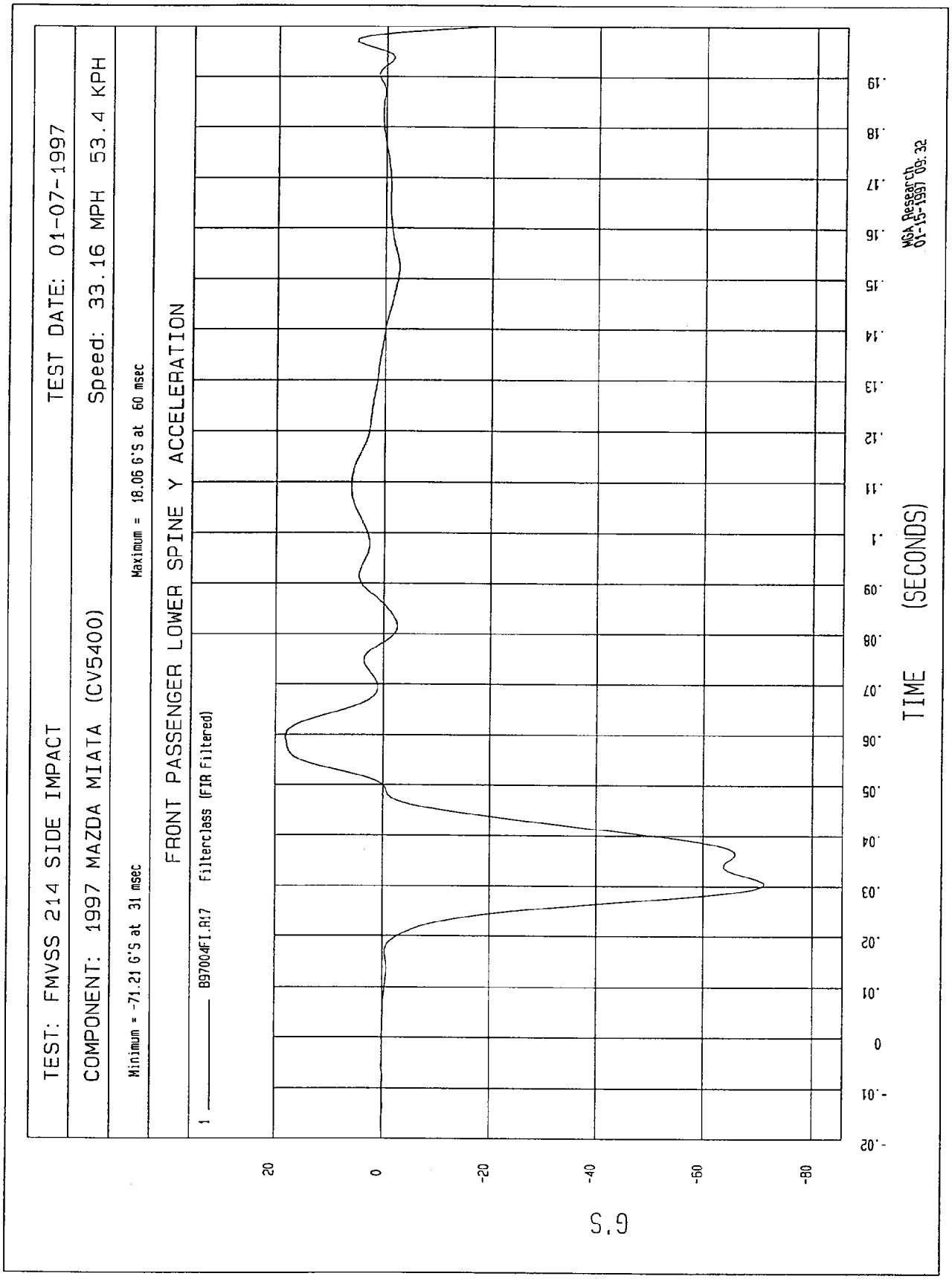
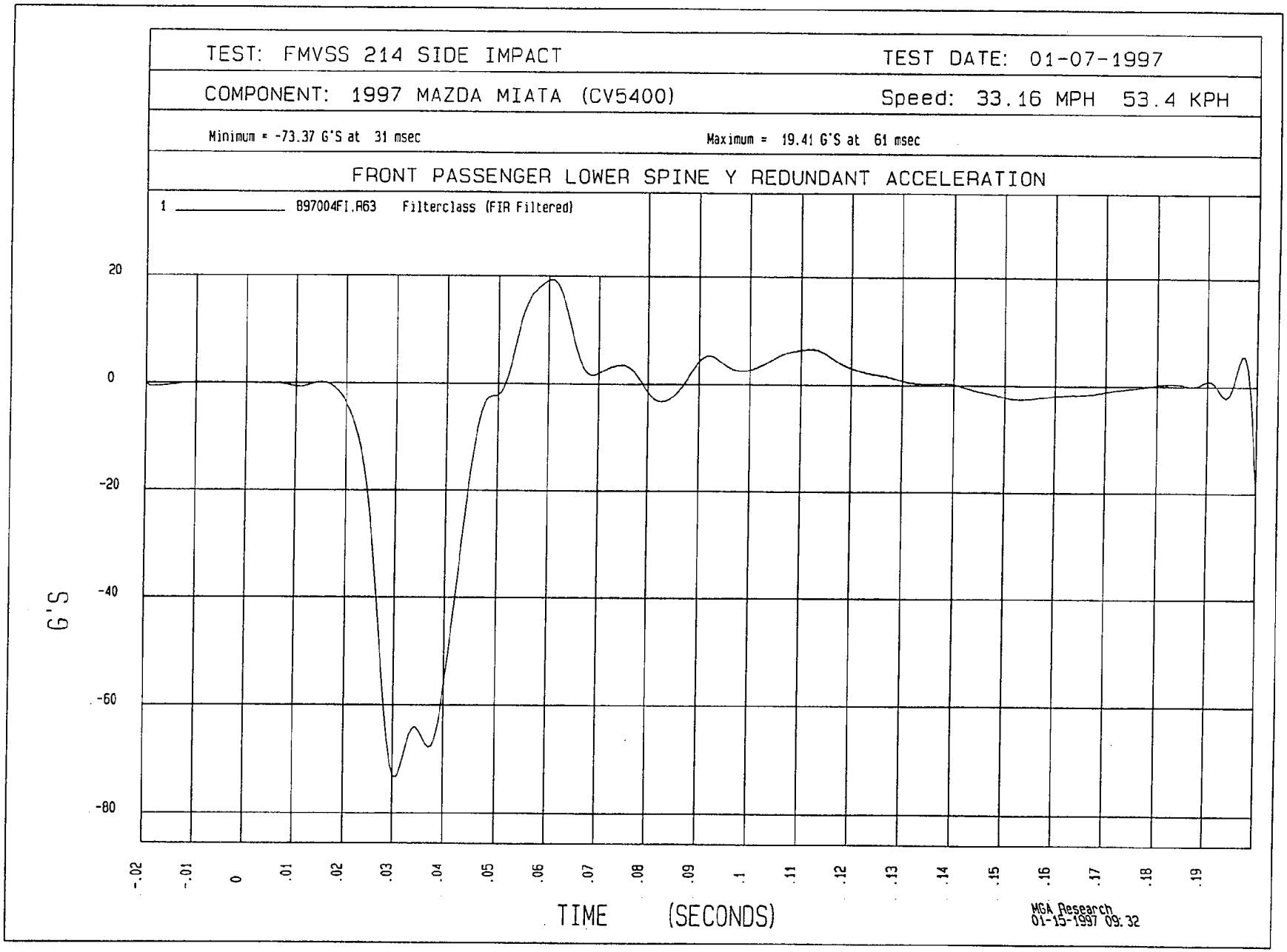
.19
TIME (SECONDS)
MGA Research
01-15-1997 09:32


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -63.83 G'S at 26 msec
Maximum = 14.39 G'S at 59 msec
FRONT PASSENGER LOWER RIB Y REDUNDANT ACCELERATION
1 B97004FI.A62 Filterclass (FIA Filtered)
20
0
-20
-40
-60
-80
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
01-15-1997 09:32


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -71.21 G'S at 31 msec
Maximum = 18.06 G'S at 60 msec
FRONT PASSENGER LOWER SPINE Y ACCELERATION
1 B97004FI.A17 Filterclass (FIR Filtered)
20
0
-20
-40
-60
-80
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)
MGA Research
01-15-1997 08:32


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -73.37 G'S at 31 msec
Maximum = 19.41 G'S at 61 msec
FRONT PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION
1 B97004FI.A63 Filterclass (FIR Filtered)
20
0
-20
-40
-60
-80
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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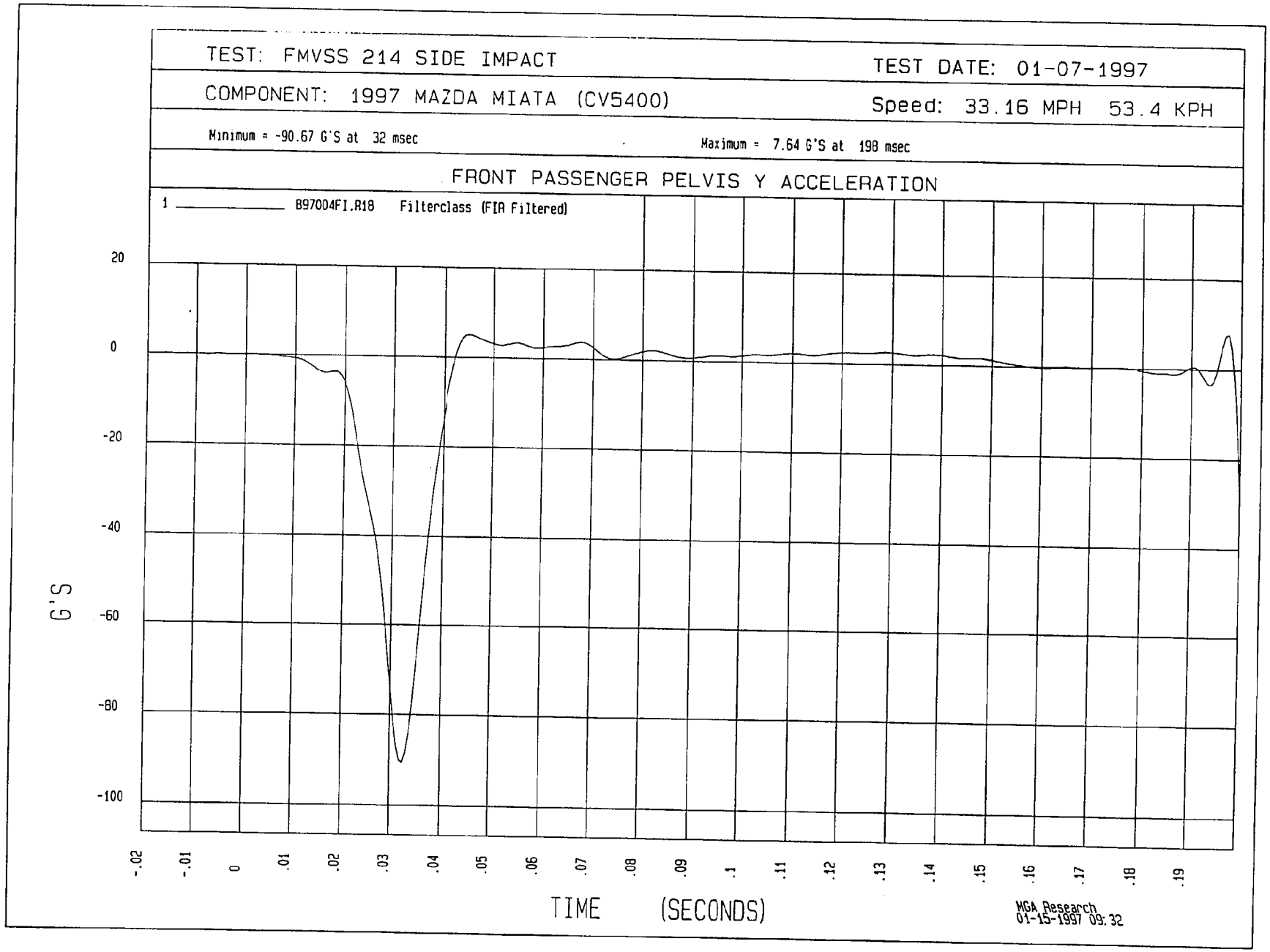
TIME (SECONDS)
MGA Research
01-15-1997 09:32


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -90.67 G'S at 32 msec
Maximum = 7.64 G'S at 198 msec
FRONT PASSENGER PELVIS Y ACCELERATION
1 B97004FI.R18 Filterclass (FIA Filtered)
20
0
-20
-40
-60
-80
-100
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
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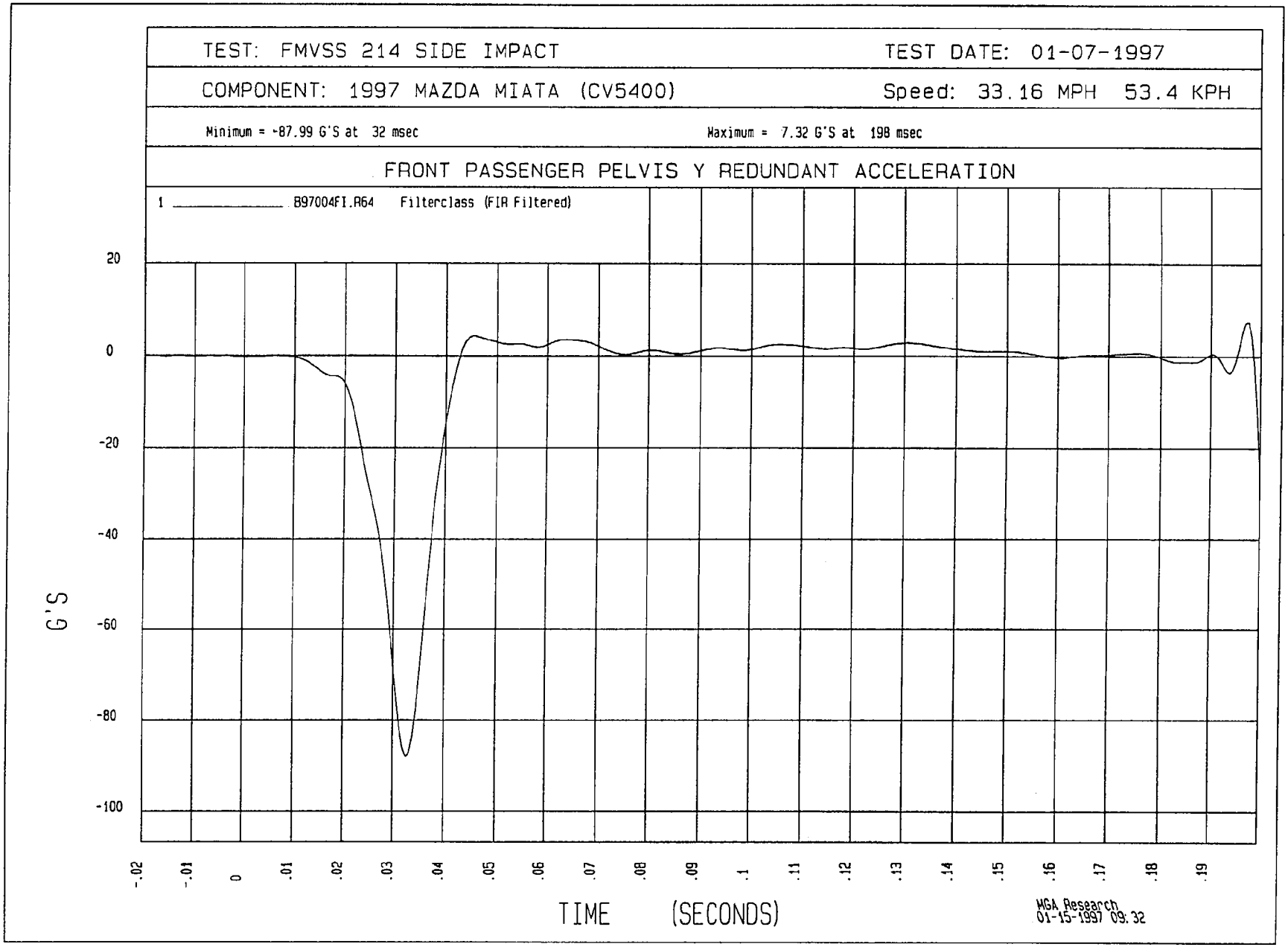
TIME (SECONDS)
MGA Research
01-15-1997 09:32


TEST: FMVSS 214 SIDE IMPACT
TEST DATE: 01-07-1997
COMPONENT: 1997 MAZDA MIATA (CV5400)
Speed: 33.16 MPH 53.4 KPH
Minimum = -87.99 G'S at 32 msec
Maximum = 7.32 G'S at 198 msec
FRONT PASSENGER PELVIS Y REDUNDANT ACCELERATION
1 B97004FI.A64 Filterclass (FIR Filtered)
20
0
-20
-40
-60
-80
-100
G'S
-.02
-.01
0
.01
.02
.03
.04
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TIME (SECONDS)
MGA Research
01-15-1997 09:32

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-96-DC18

DUMMY PERFORMANCE CALIBRATIONS

FMVSS 214 - SIDE IMPACT TEST

MAZDA MOTOR CORPORATION
1997 MAZDA MIATA 2 DOOR
NHTSA NO. CV5400

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105

Test Date: January 7, 1997

Report Date: January 21, 1997

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

Front Dummy Serial Number: 274

Calibration Test Results Summary

Dummy Serial Number: 274

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.: 274 DATE OF VERIFICATION: January 6, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
RH - Rib Height	19.75" - 20.50"	20.25
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.1
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.5
SW - Knee Pivot to Floor	19.3" - 19.9"	19.6
HW - Hip Width	14.0" - 15.4"	14.6

MEASUREMENTS BY: _____

APPROVED BY: _____

MGA RESEARCH CORPORATION

THORACIC SHOCK ABSORBER TEST

SIDE IMPACT DUMMY (SID)

DATE: January 3, 1997

DUMMY NUMBER: 274 TEST NUMBER: D9700678

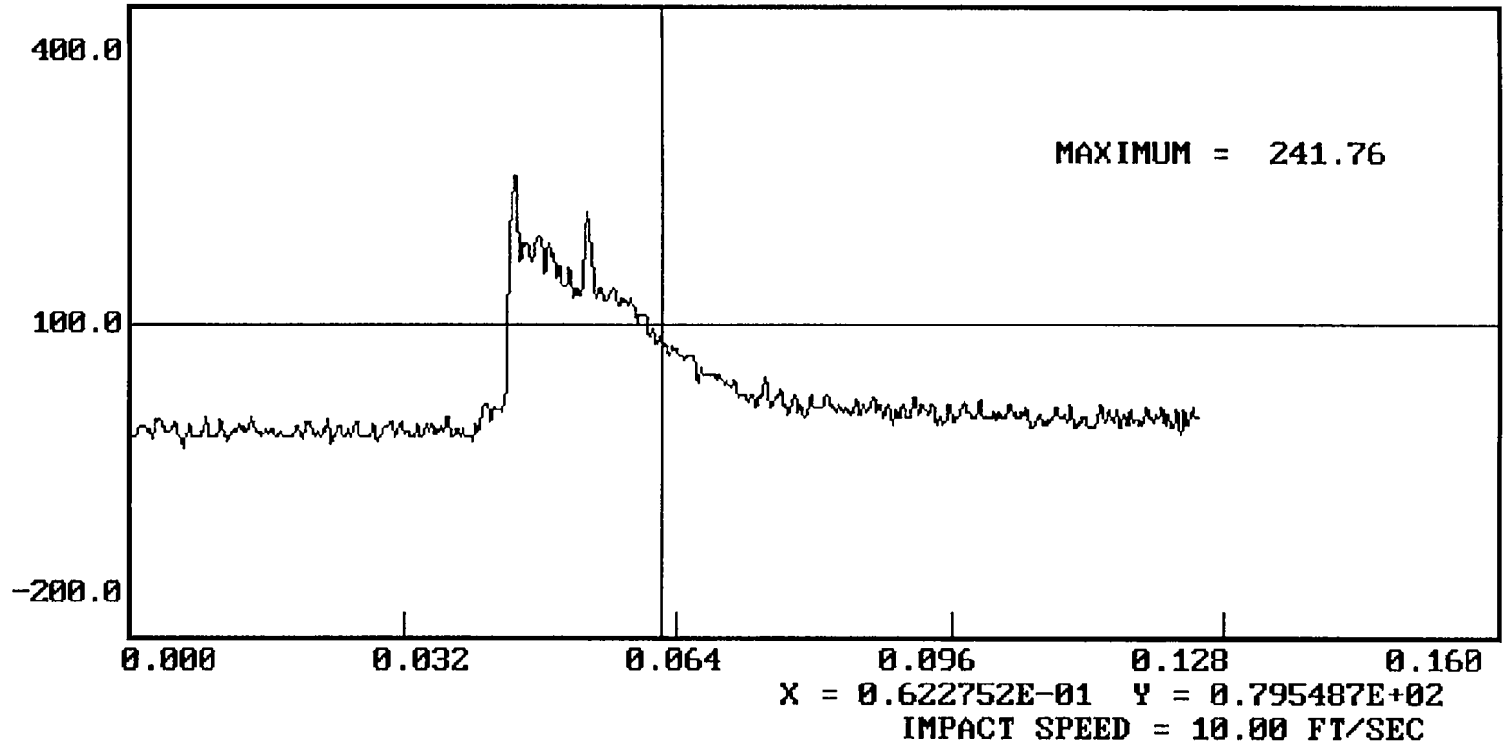
TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		66° - 78° F	70°
RELATIVE HUMIDITY		10 - 70%	26%
VELOCITY 10 ft/s	FORCE (lb.)	188 - 253	242
	DISPLACEMENT (in.)	1.18 - 1.38	1.35
VELOCITY 14 ft/s	FORCE (lb.)	389 - 472	448
	DISPLACEMENT (in.)	1.26 - 1.47	1.44
VELOCITY 20 ft/s	FORCE (lb.)	841 - 1000	923
	DISPLACEMENT (in.)	1.30 - 1.57	1.50

TEST MEETS SPECIFICATIONS

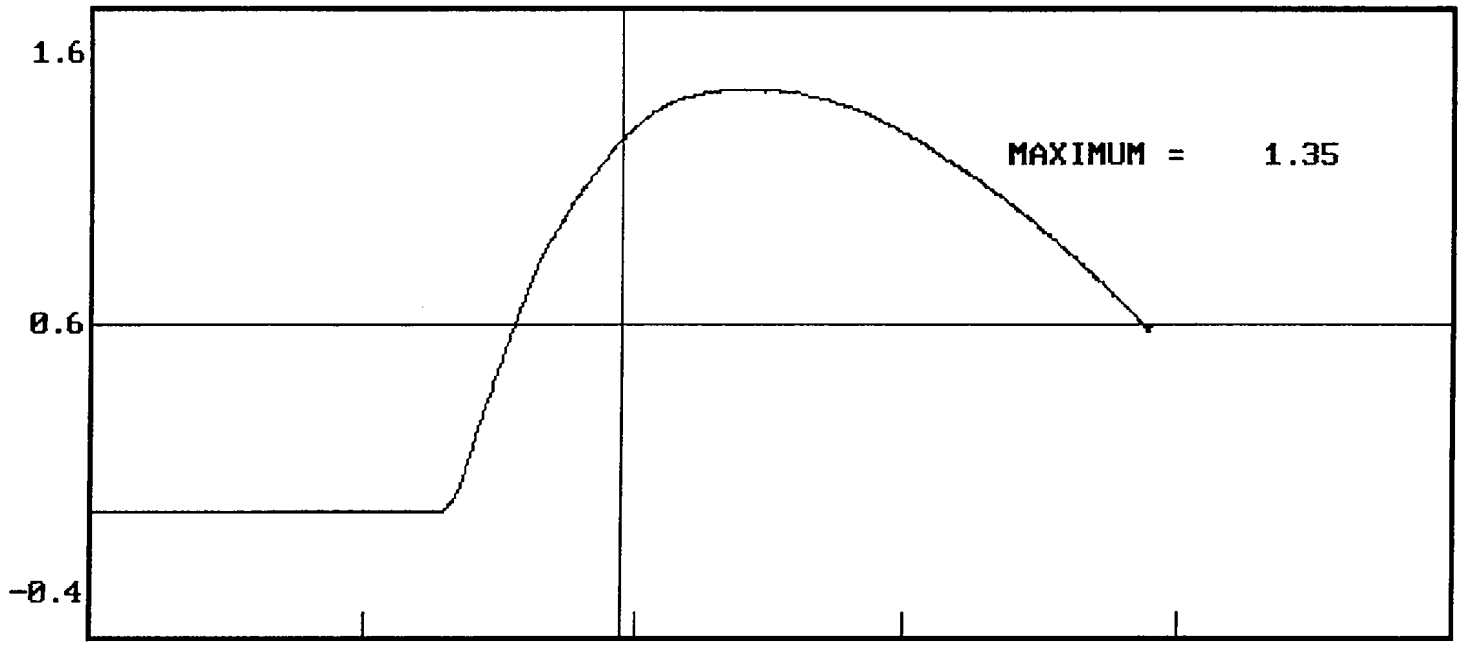
TECHNICIAN

APPROVED BY

DUMMY CALIBRATION - DAMPENER BENCH TEST 01-03-1997 08:56
DUMMY # 274
FORCE (LBS) VS. TIME ((SECONDS))

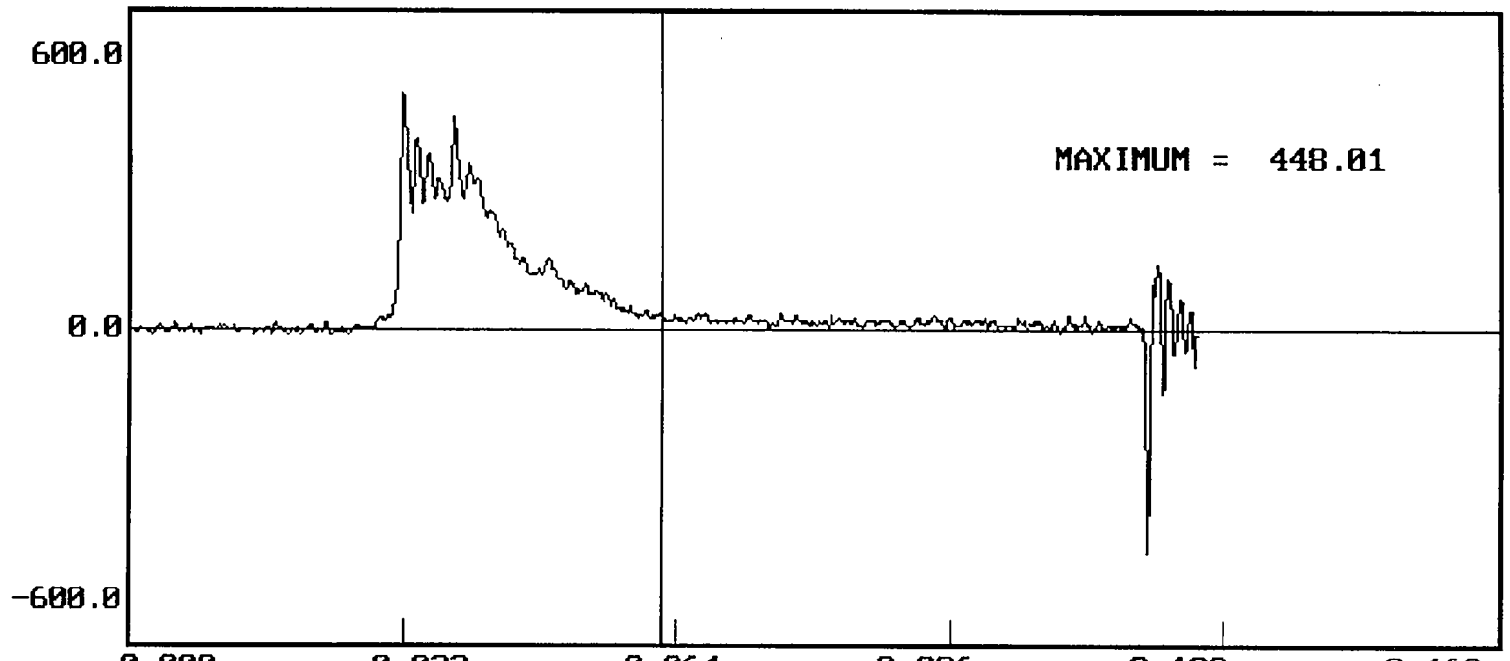


DUMMY CALIBRATION - DAMPENER BENCH TEST 01-03-1997 08:56
DUMMY # 274
DISPLACEMENT (IN) VS. TIME ((SECONDS))



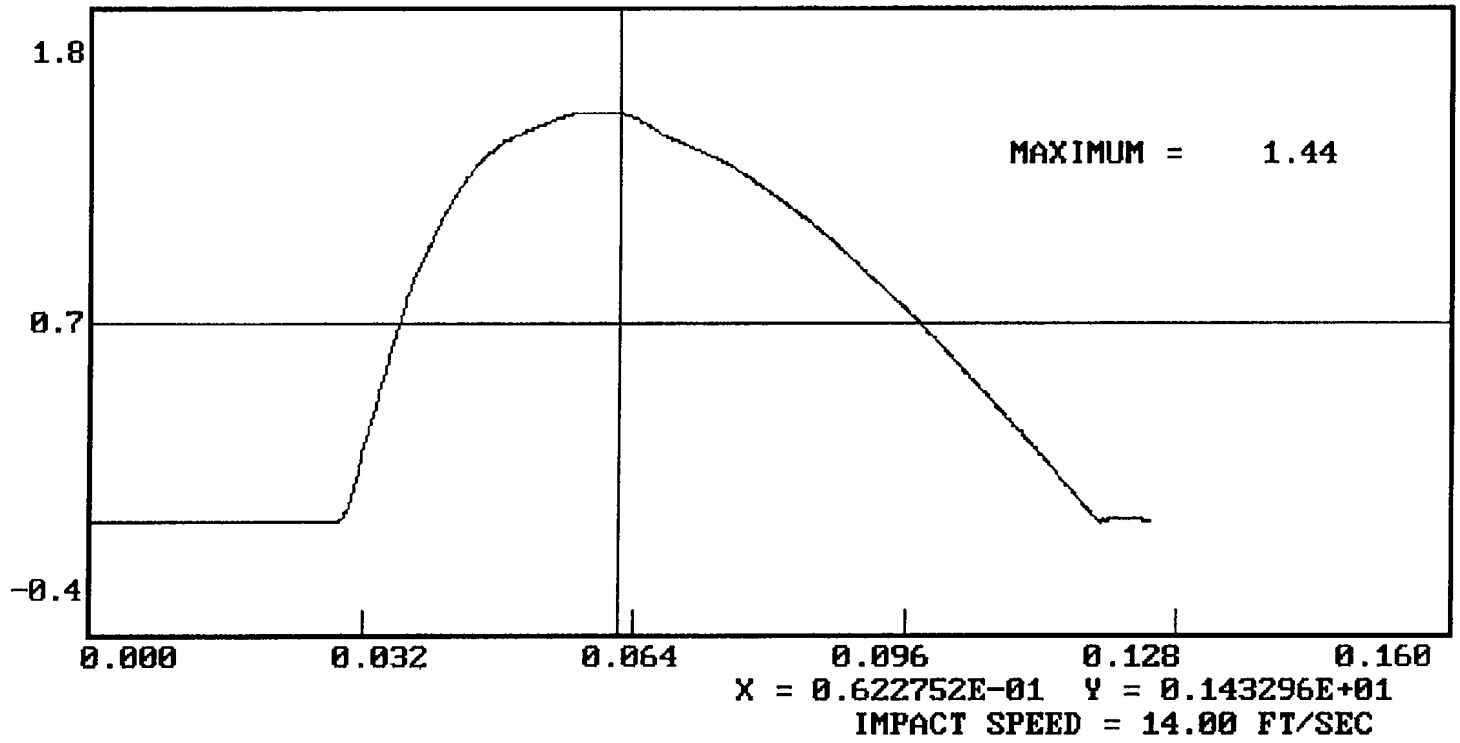
X = 0.622752E-01 Y = 0.119266E+01
IMPACT SPEED = 10.00 FT/SEC

DUMMY CALIBRATION - DAMPENER BENCH TEST 01-03-1997 09:49
DUMMY # 274
FORCE (LBS) VS. TIME ((SECONDS))

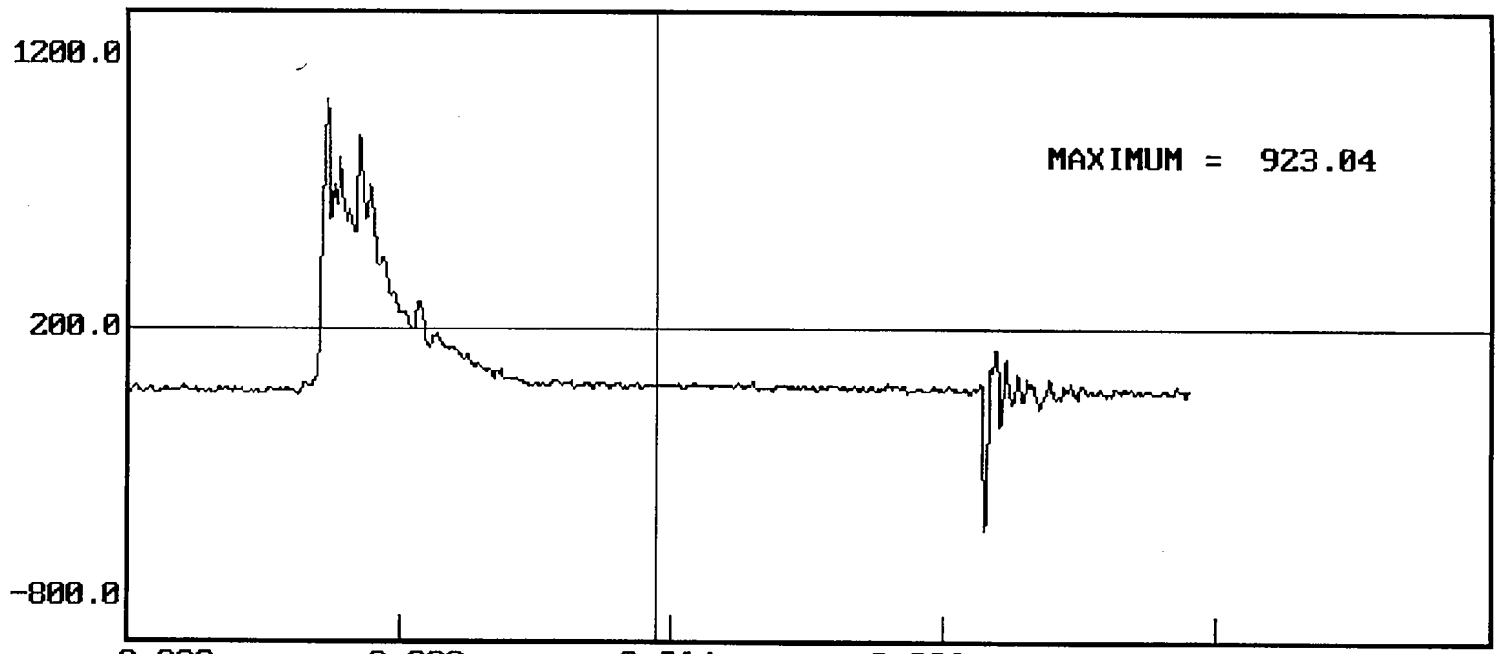


X = 0.622752E-01 Y = 0.249296E+02
IMPACT SPEED = 14.00 FT/SEC

DUMMY CALIBRATION - DAMPENER BENCH TEST 01-03-1997 09:49
DUMMY # 274
DISPLACEMENT (IN) VS. TIME ((SECONDS))

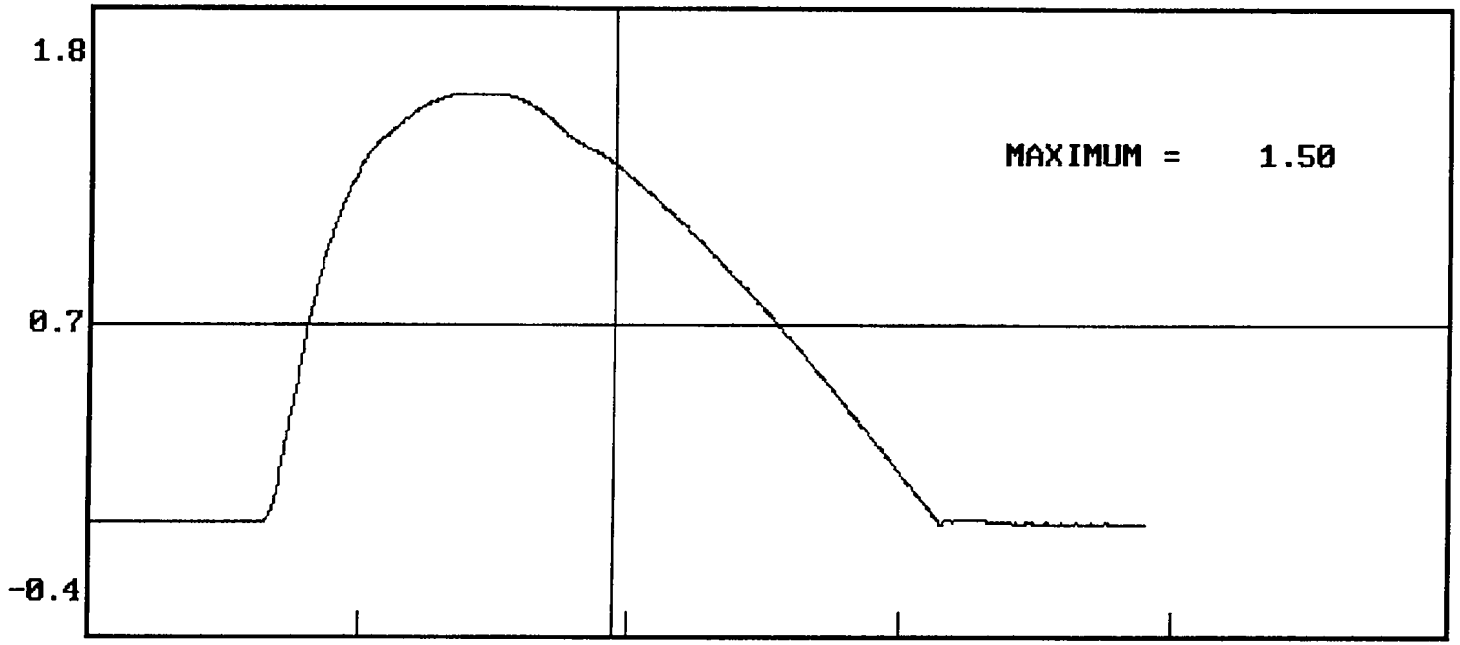


DUMMY CALIBRATION - DAMPENER BENCH TEST 01-03-1997 09:56
DUMMY # 274
FORCE (LBS) VS. TIME ((SECONDS))



X = 0.622752E-01 Y = 0.108066E+02
IMPACT SPEED = 20.00 FT/SEC

DUMMY CALIBRATION - DAMPENER BENCH TEST 01-03-1997 09:56
DUMMY # 274
DISPLACEMENT (IN) VS. TIME ((SECONDS))



X = 0.622752E-01 Y = 0.126064E+01
IMPACT SPEED = 20.00 FT/SEC

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 6, 1997

DUMMY NUMBER: 274 TEST NUMBER: D97002

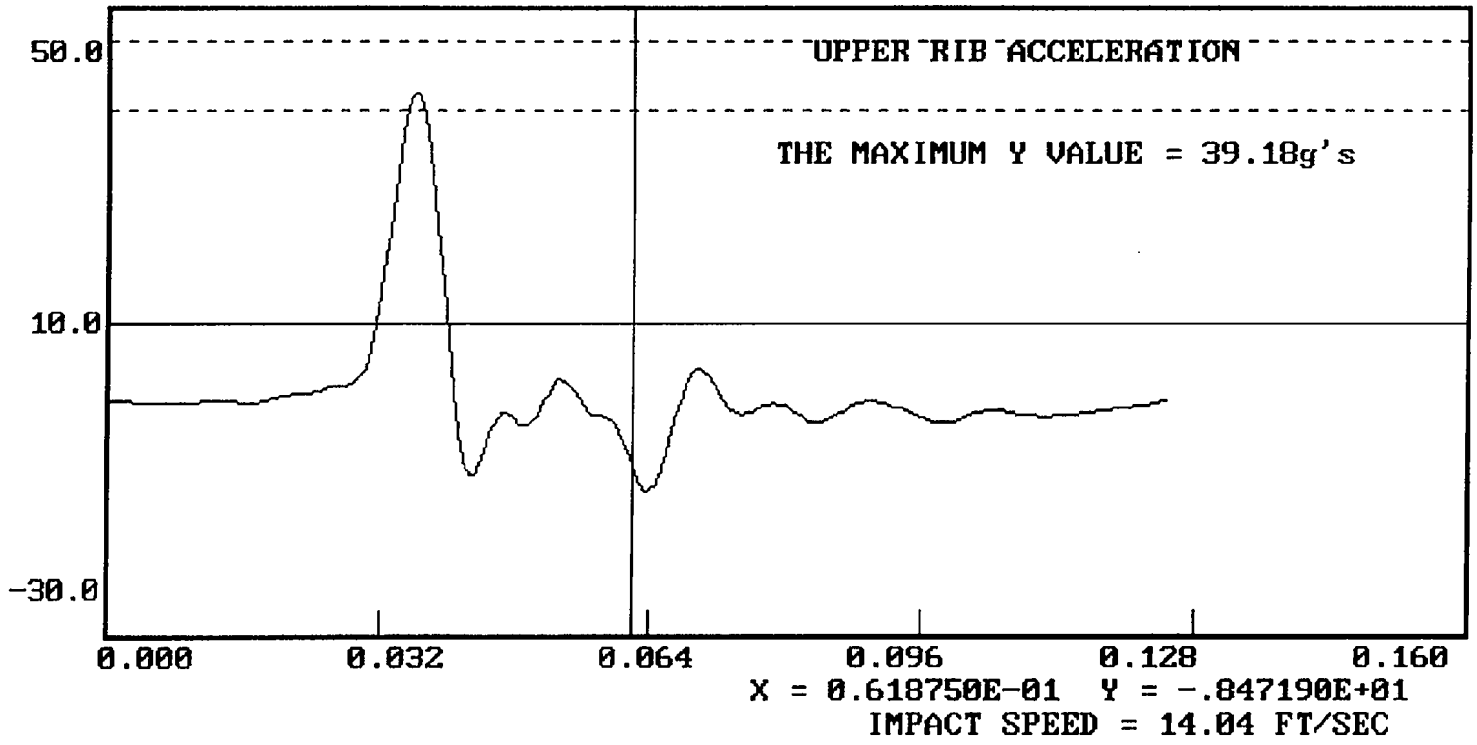
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	39
LOWER RIB	37 - 46 g's	37
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

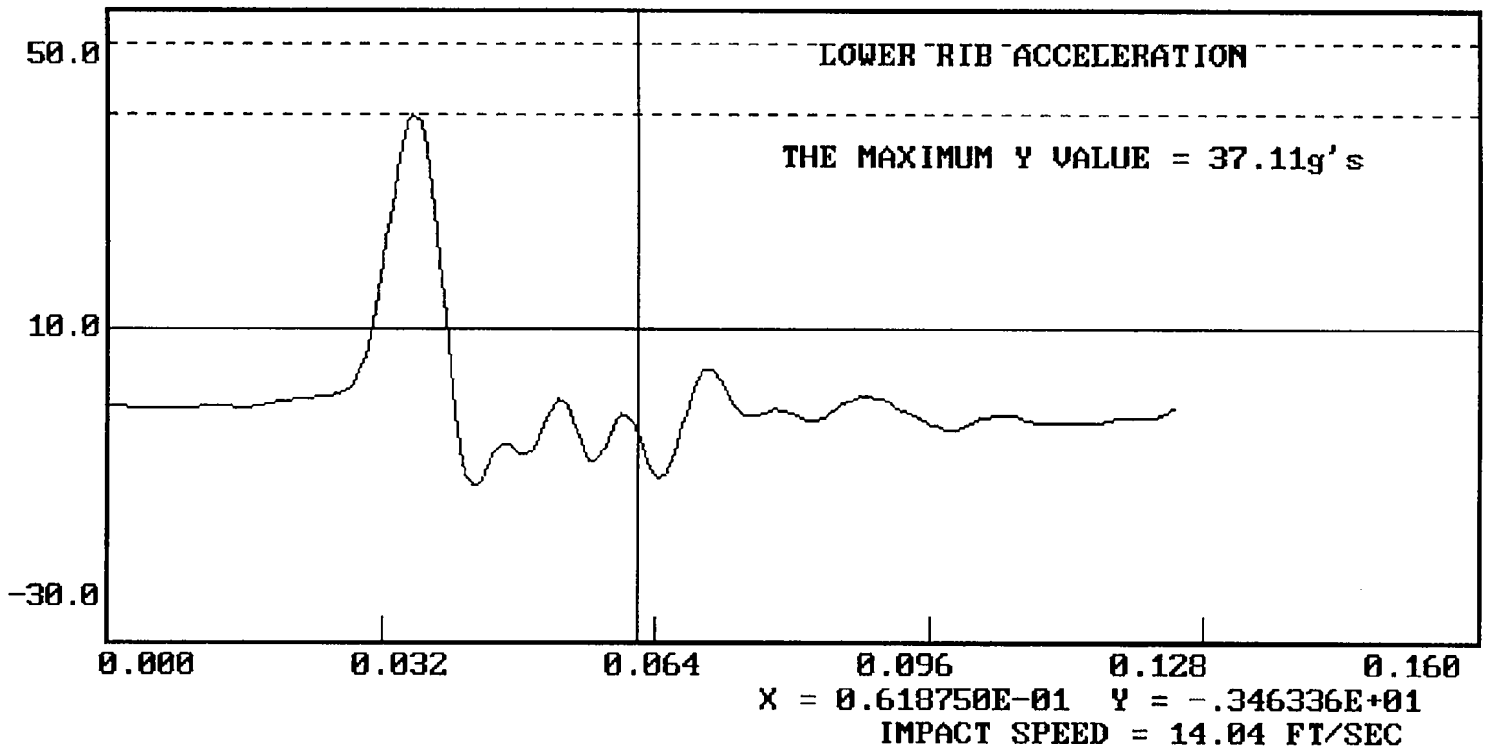
TECHNICIAN _____

APPROVED BY _____

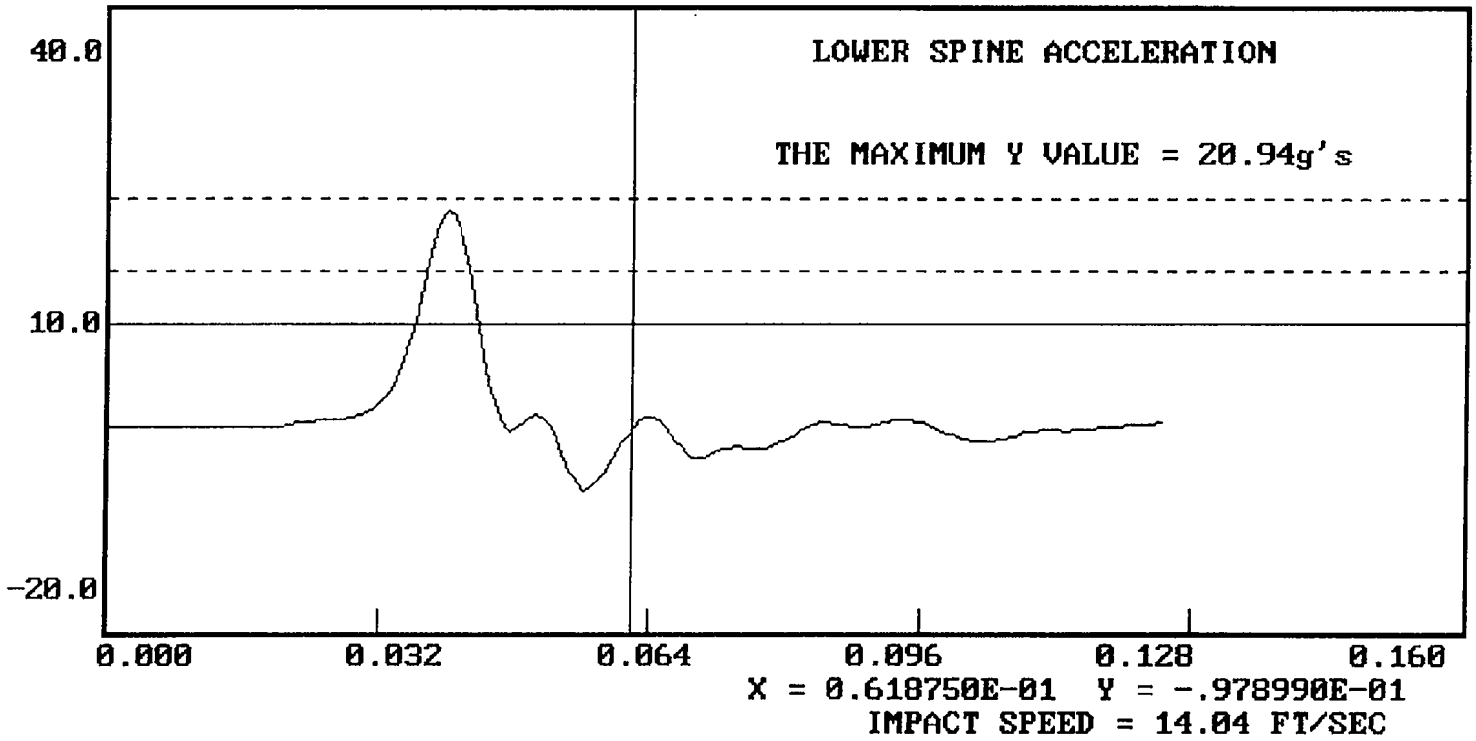
DUMMY CALIBRATION - THORAX IMPACT 01-06-1997 16:13
DUMMY # 274
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT 01-06-1997 16:17
DUMMY # 274
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT 01-06-1997 16:13
DUMMY # 274
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = -.978990E-01
IMPACT SPEED = 14.04 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 6, 1997

DUMMY NUMBER: 274 TEST NUMBER: D97003

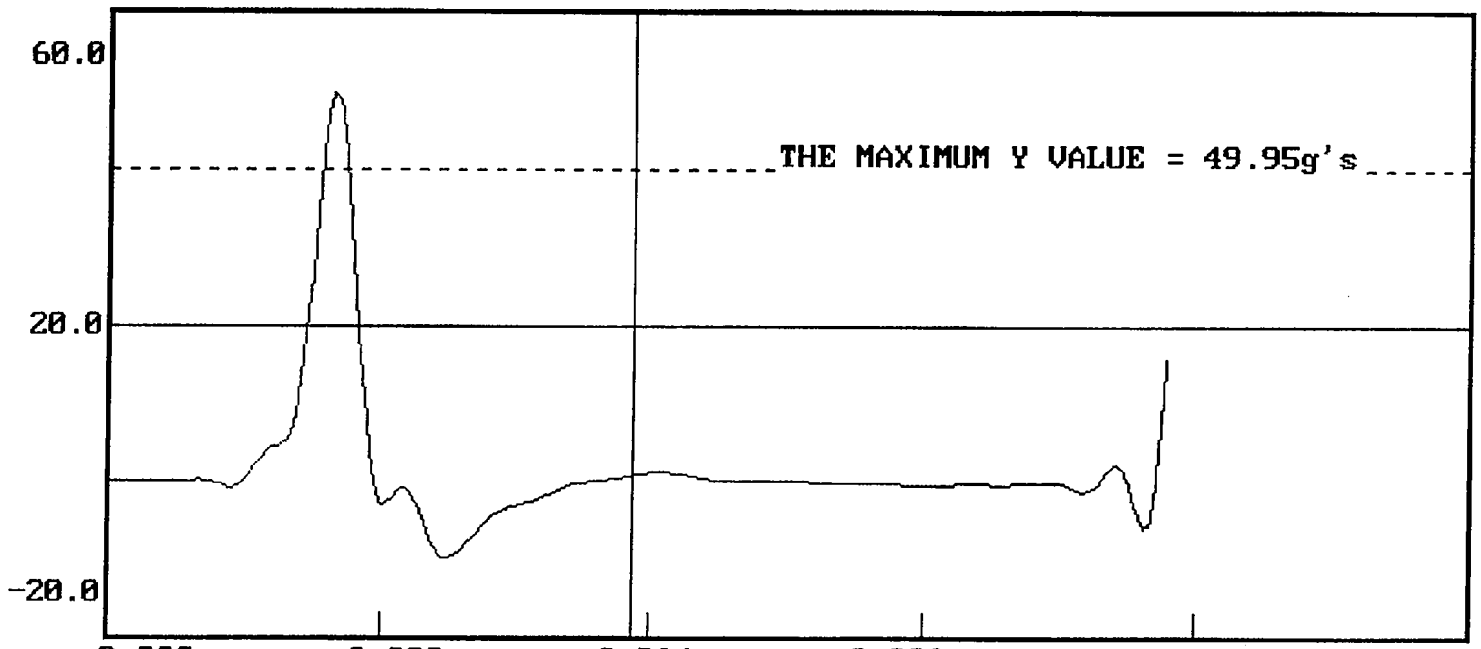
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	12%
PROBE SPEED	13.8 - 14.2 f/s	14.2
PELVIS ACCELERATION	40 - 60 g's	50

TEST MEETS SPECIFICATIONS

TECHNICIAN _____

APPROVED BY _____

DUMMY CALIBRATION - PELVIS IMPACT 01-06-1997 18:34
DUMMY # 274
ACCELERATION (G'S) VS. TIME ((SECONDS))



X = 0.618750E-01 Y = 0.636361E+00
IMPACT SPEED = 14.20 FT/SEC

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: January 6, 1997

DUMMY NUMBER: 274 TEST NUMBER: D97004

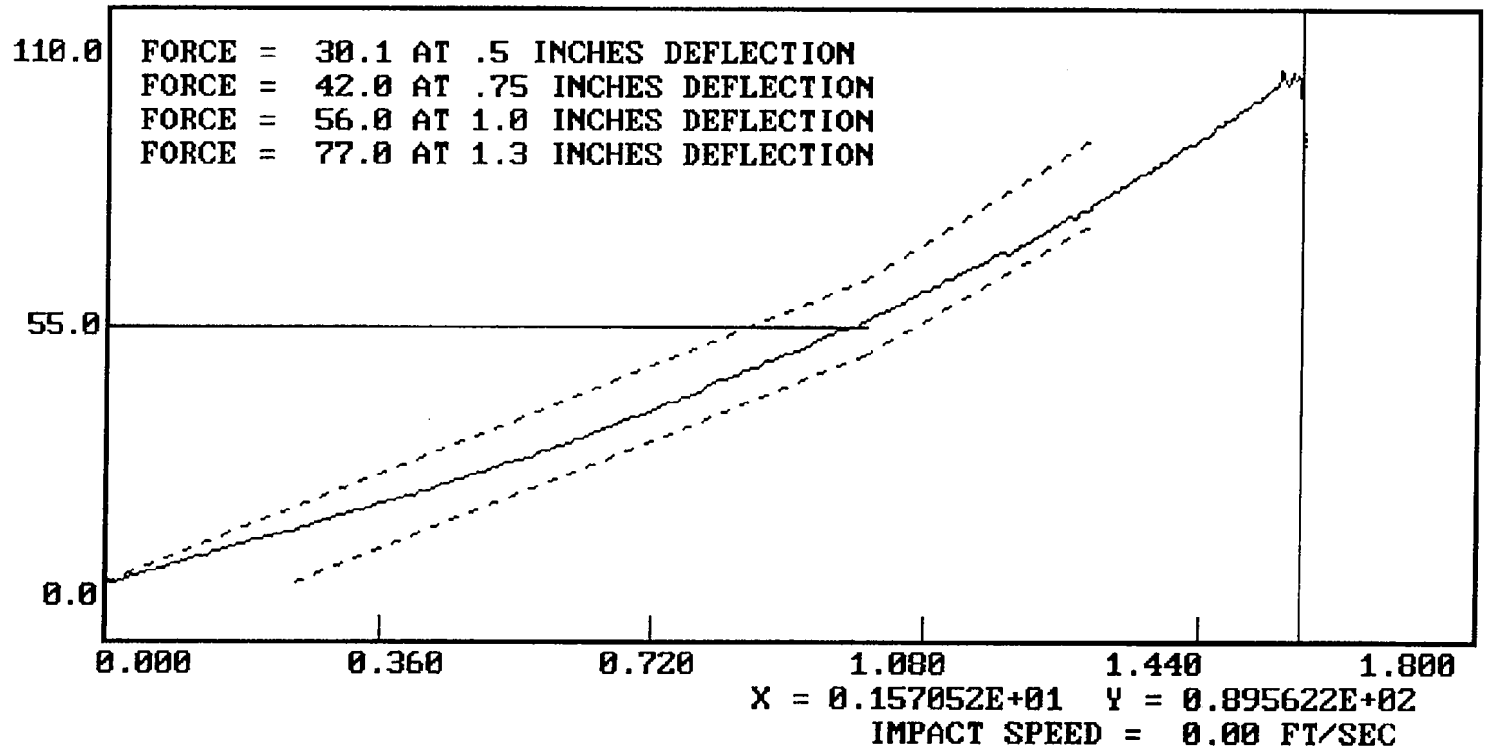
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
FORCE @ 0.5 in	23.3 - 36.5 lbs	30.1
FORCE @ 0.75 in	36.7 - 49.8 lbs	42.0
FORCE @ 1.0 in	50 - 63 lbs	56
FORCE @ 1.3 in	73 - 88 lbs	77

TEST MEETS SPECIFICATIONS

TECHNICIAN _____

APPROVED BY _____

DUMMY CALIBRATION - ABDOMEN COMPRESSION 01-06-1997 19:12
DUMMY # 274
ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: January 6, 1997

DUMMY NUMBER: 274 TEST NUMBER: D97005

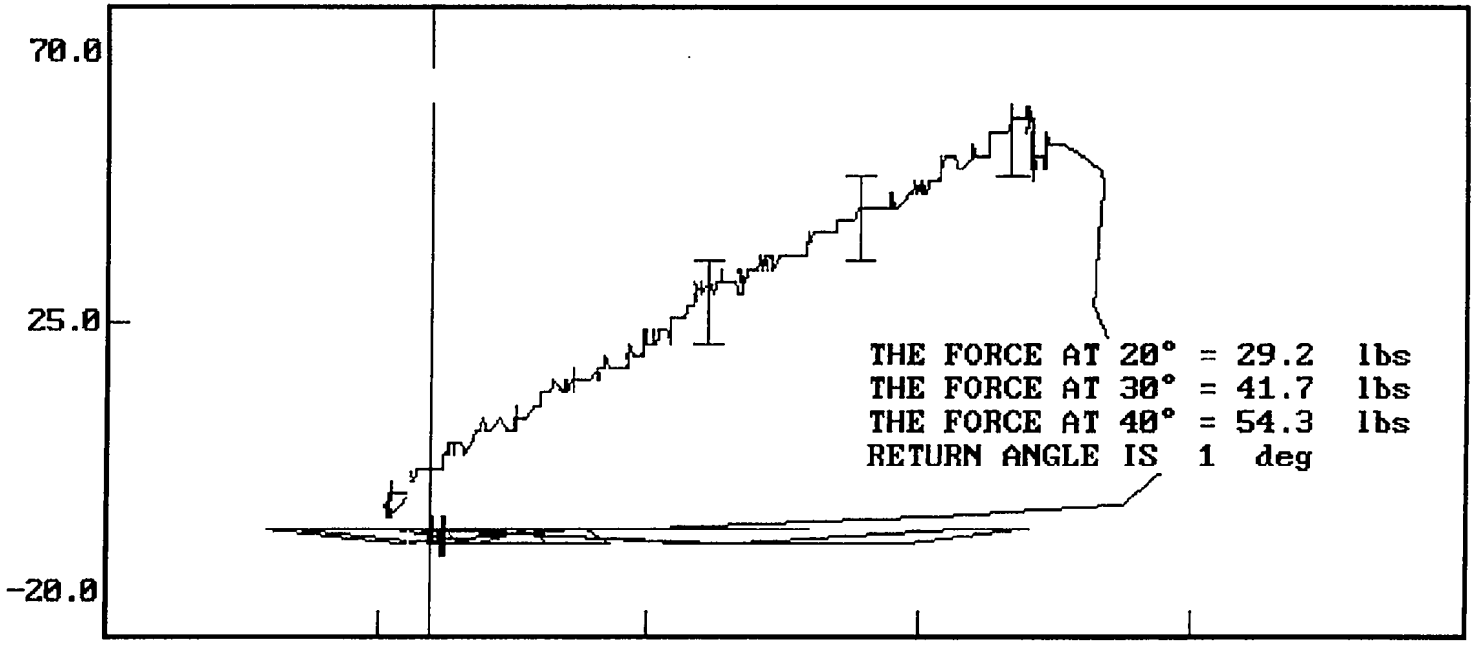
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	29
FORCE @ 30°	34 - 46 lbs	42
FORCE @ 40°	46 - 58 lbs	54
RETURN ANGLE	12° maximum	1°

TEST MEETS SPECIFICATIONS

TECHNICIAN _____

APPROVED BY _____

DUMMY CALIBRATION - LUMBAR FLEXION 01-06-1997 20:35
DUMMY # 274
FORCE (LBS) VS. TORSO ROTATION (DEGREES)



X = 0.136595E+01 Y = 0.000000E+00
IMPACT SPEED = 0.00 FT/SEC

POST-TEST CERTIFICATION DATA

Front Dummy Serial Number: 274

Calibration Test Results Summary

Dummy Serial Number: 274

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.: 274 DATE OF VERIFICATION: January 7, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
RH - Rib Height	19.75" - 20.50"	20.25
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.1
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.5
SW - Knee Pivot to Floor	19.3" - 19.9"	19.6
HW - Hip Width	14.0" - 15.4"	14.6

MEASUREMENTS BY: _____

APPROVED BY: _____

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 7, 1997

DUMMY NUMBER: 274 TEST NUMBER: D97042

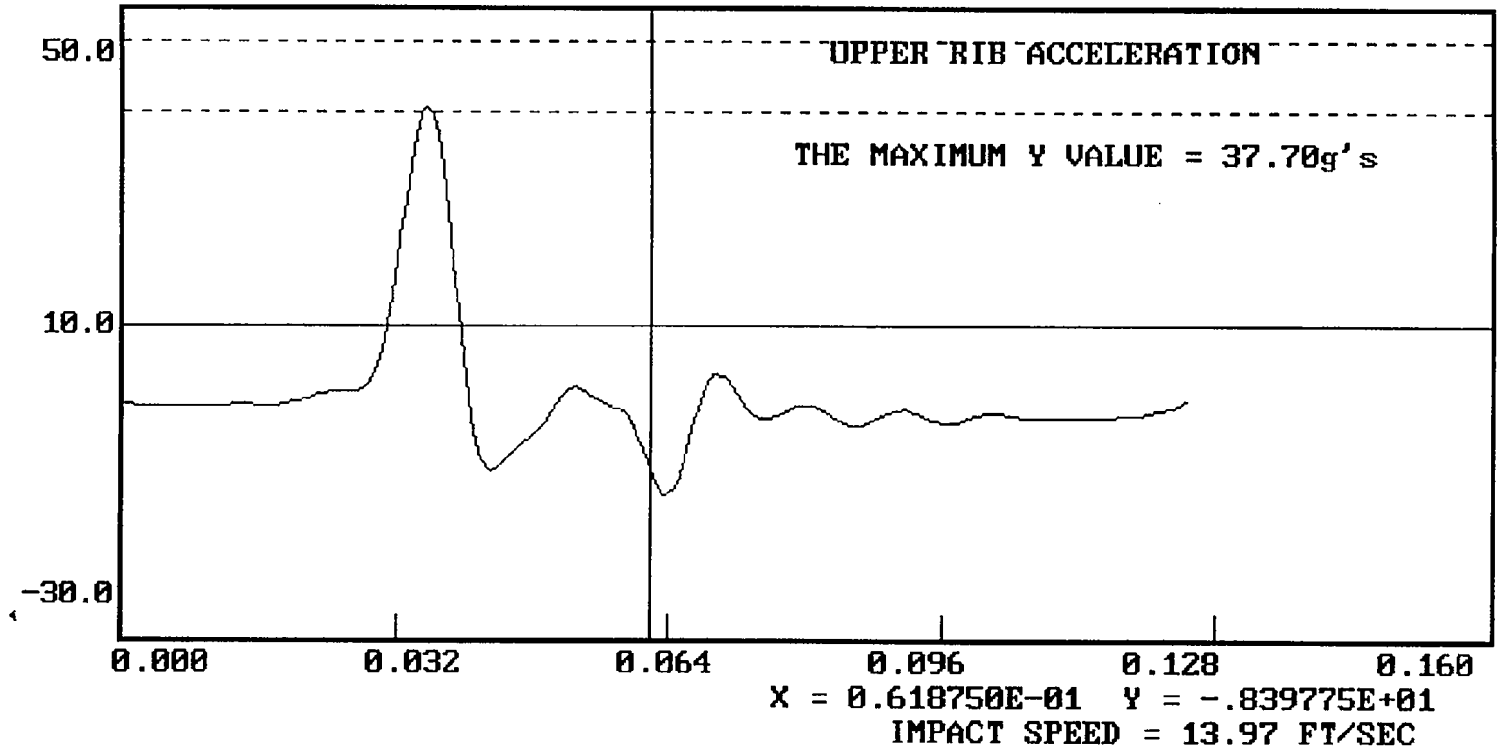
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	38
LOWER RIB	37 - 46 g's	37
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

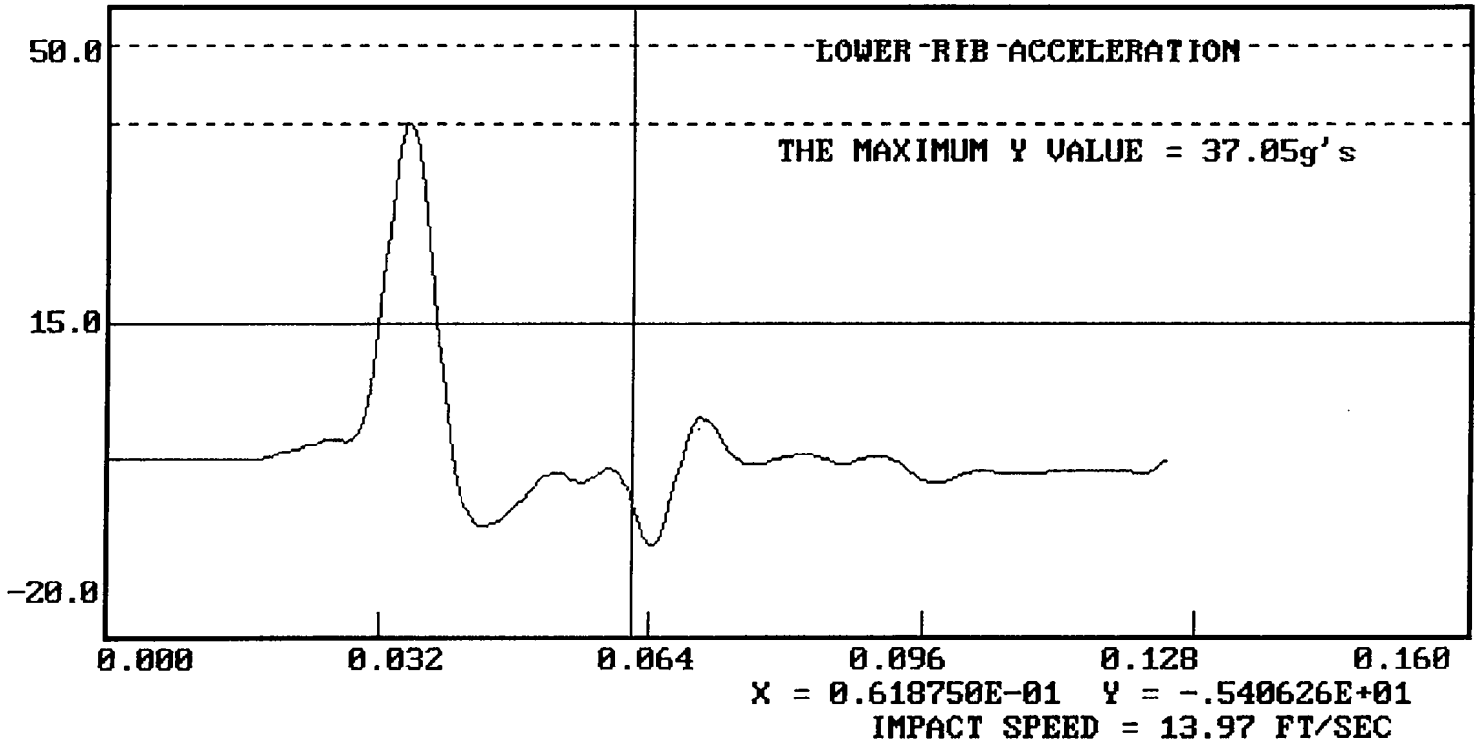
TECHNICIAN

APPROVED BY

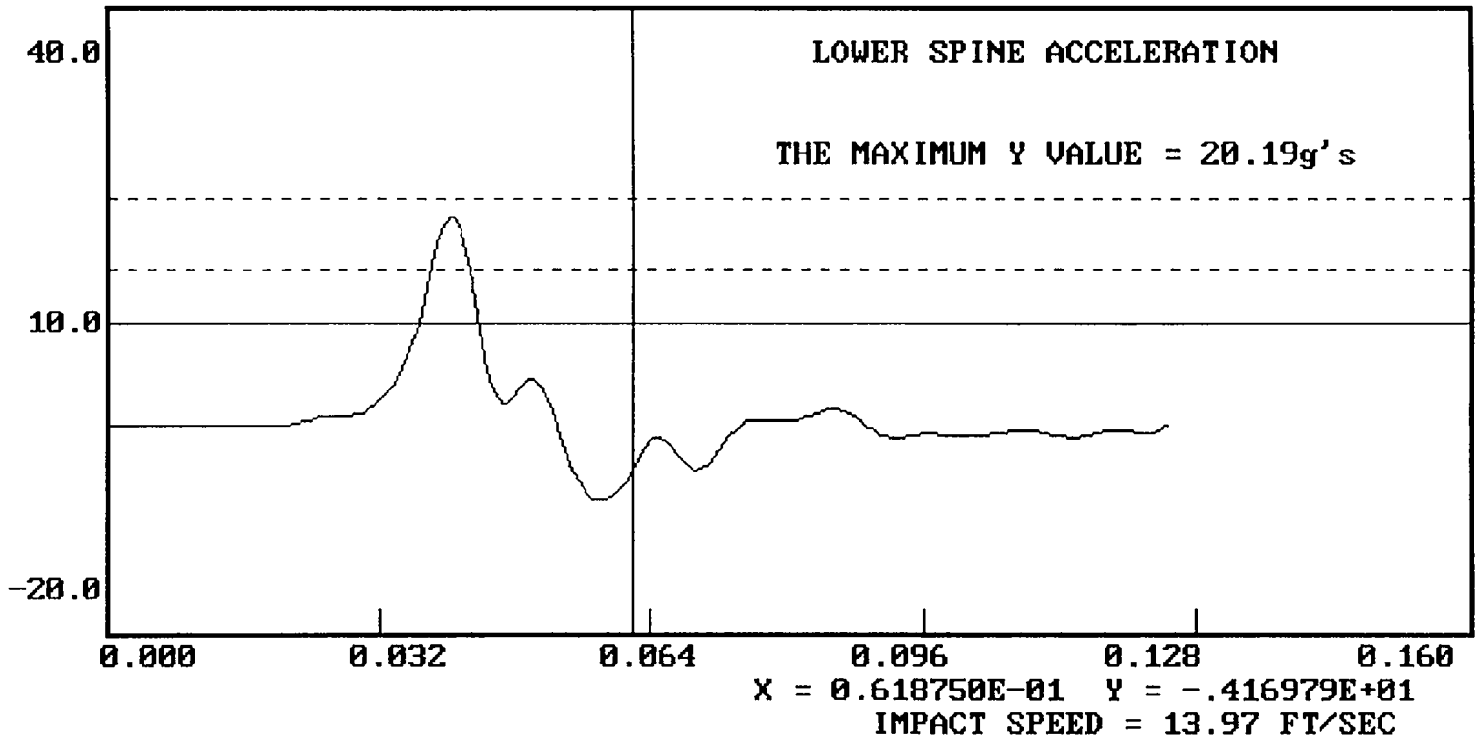
DUMMY CALIBRATION - THORAX IMPACT 01-07-1997 16:57
DUMMY # 274
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT 01-07-1997 16:57
DUMMY # 274
ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT 01-07-1997 16:57
DUMMY # 274
ACCELERATION (G'S) VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: January 7, 1997

DUMMY NUMBER: 274 TEST NUMBER: D97043

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	47

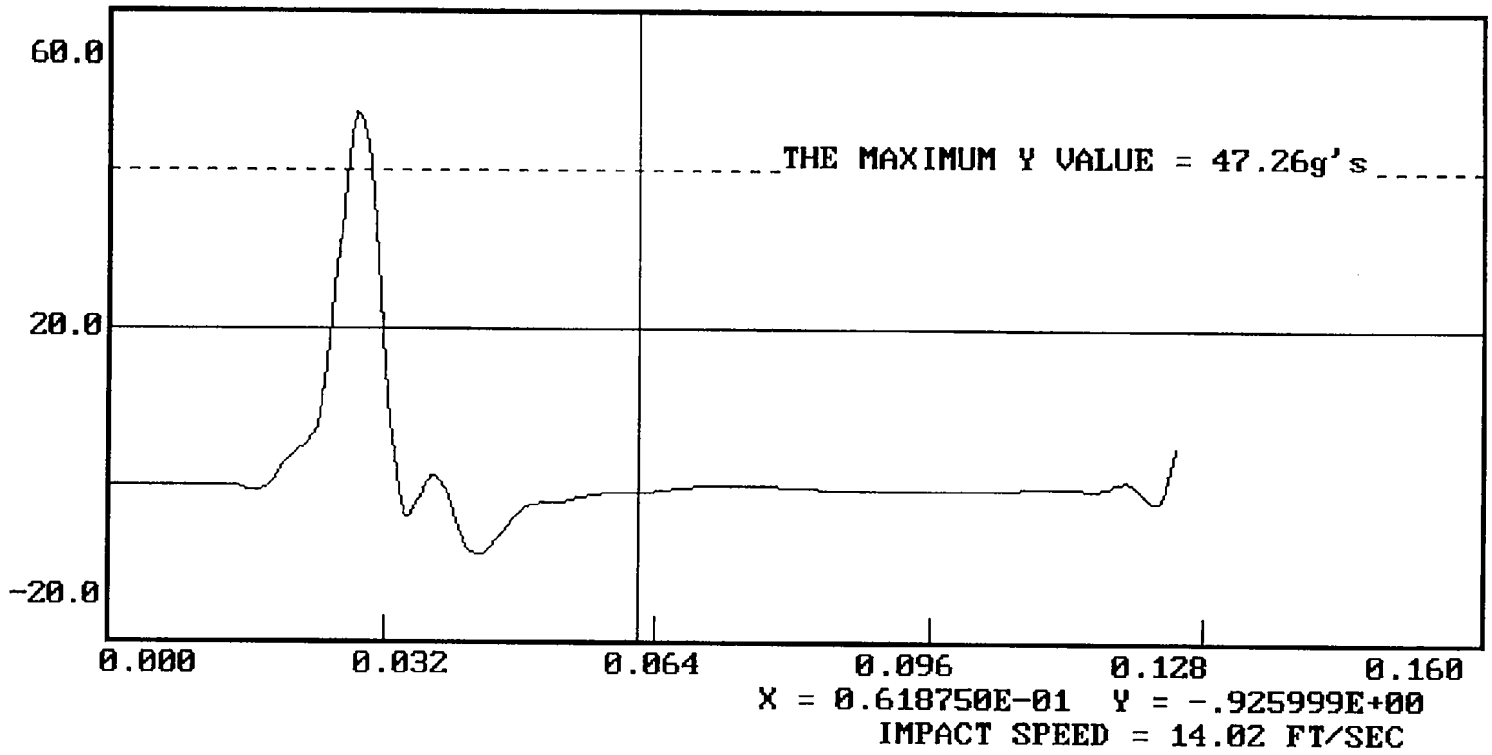
TEST MEETS SPECIFICATIONS

TECHNICIAN

APPROVED BY

DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 274
ACCELERATION (G'S) VS. TIME ((SECONDS))

01-07-1997 17:09



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: January 7, 1997

DUMMY NUMBER: 274 TEST NUMBER: D97044

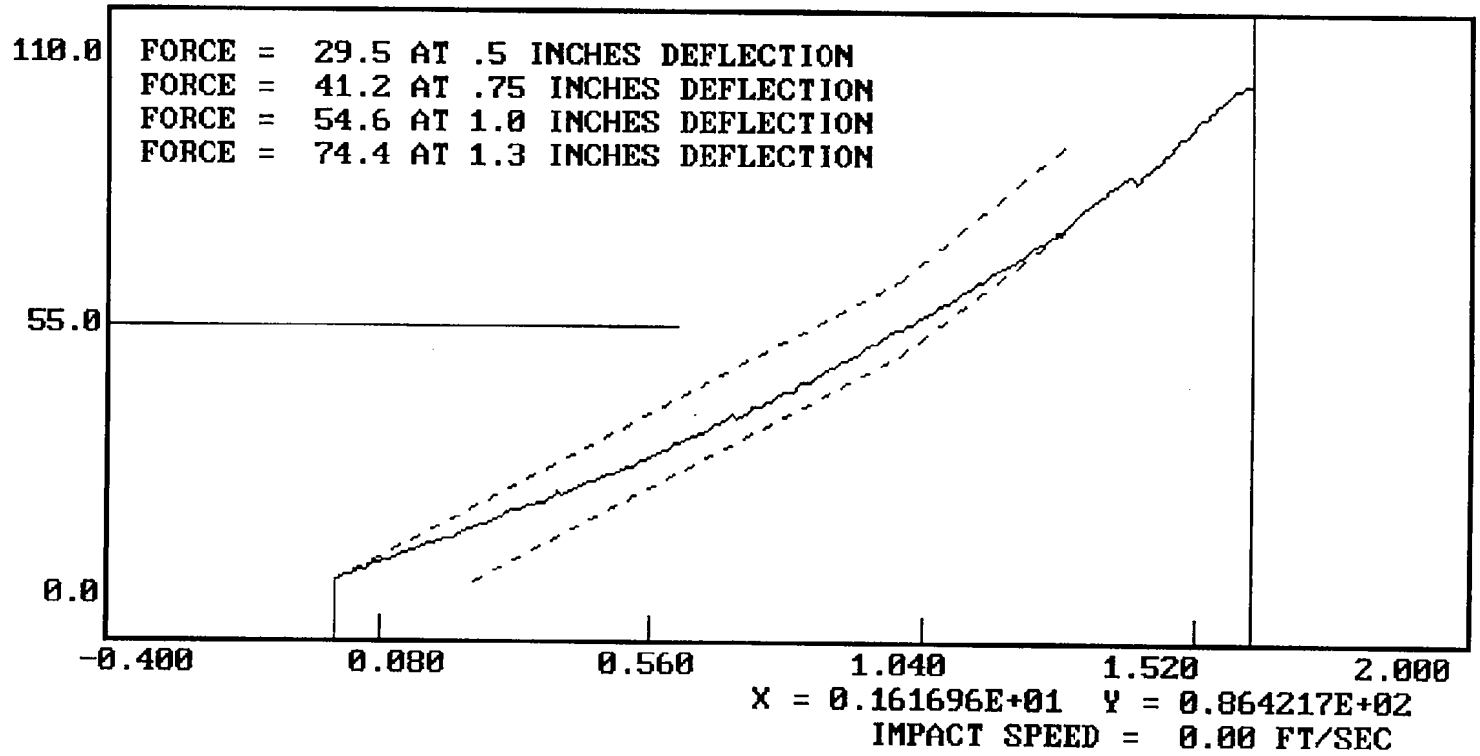
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	29.5
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.2
FORCE @ 1.0 in	50 - 63 lbs	55
FORCE @ 1.3 in	73 - 88 lbs	74

TEST MEETS SPECIFICATIONS

TECHNICIAN _____

APPROVED BY _____

DUMMY CALIBRATION - ABDOMEN COMPRESSION 01-07-1997 17:45
DUMMY # 274
ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: January 7, 1997

DUMMY NUMBER: 274 TEST NUMBER: D97045

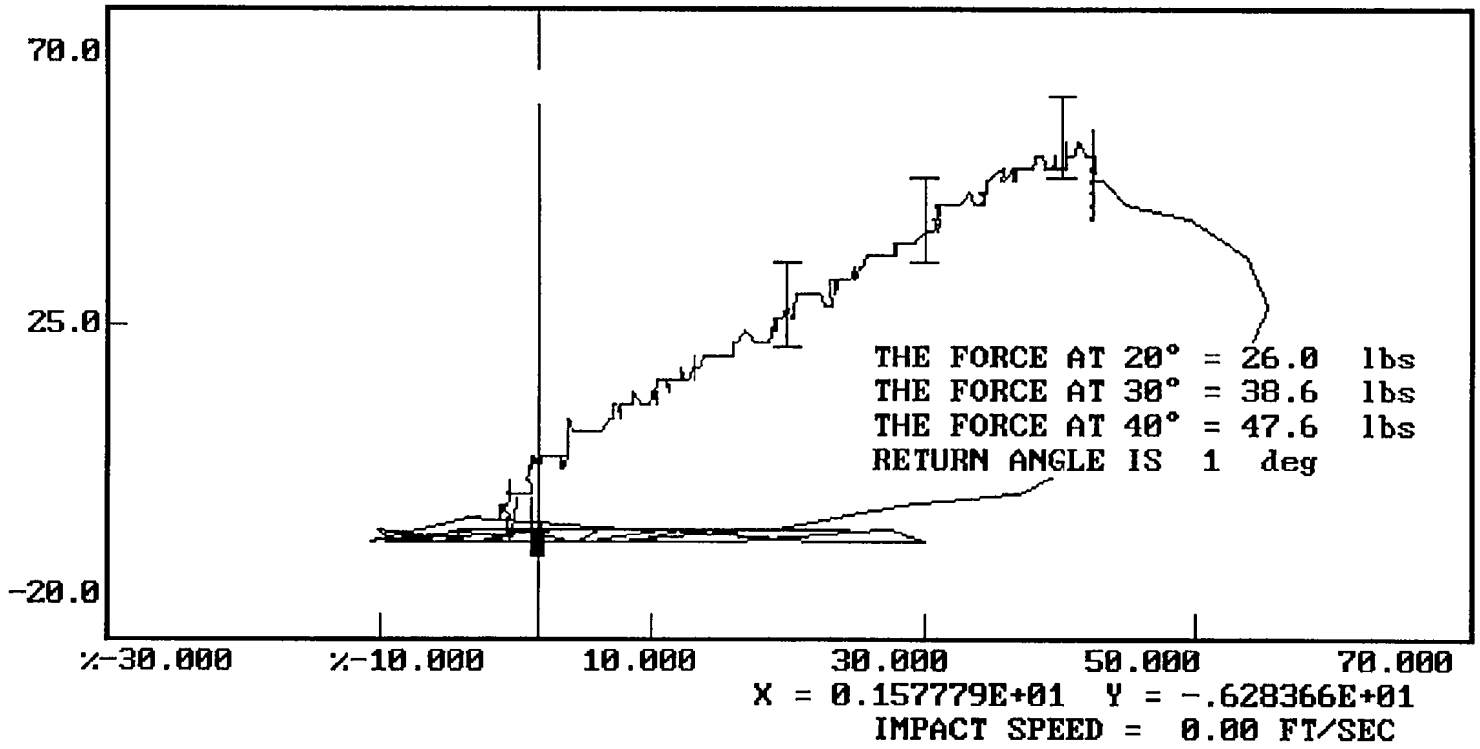
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	26
FORCE @ 30°	34 - 46 lbs	39
FORCE @ 40°	46 - 58 lbs	48
RETURN ANGLE	12° maximum	1°

TEST MEETS SPECIFICATIONS

TECHNICIAN _____

APPROVED BY _____

DUMMY CALIBRATION - LUMBAR FLEXION 01-07-1997 17:32
DUMMY # 274
FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 274

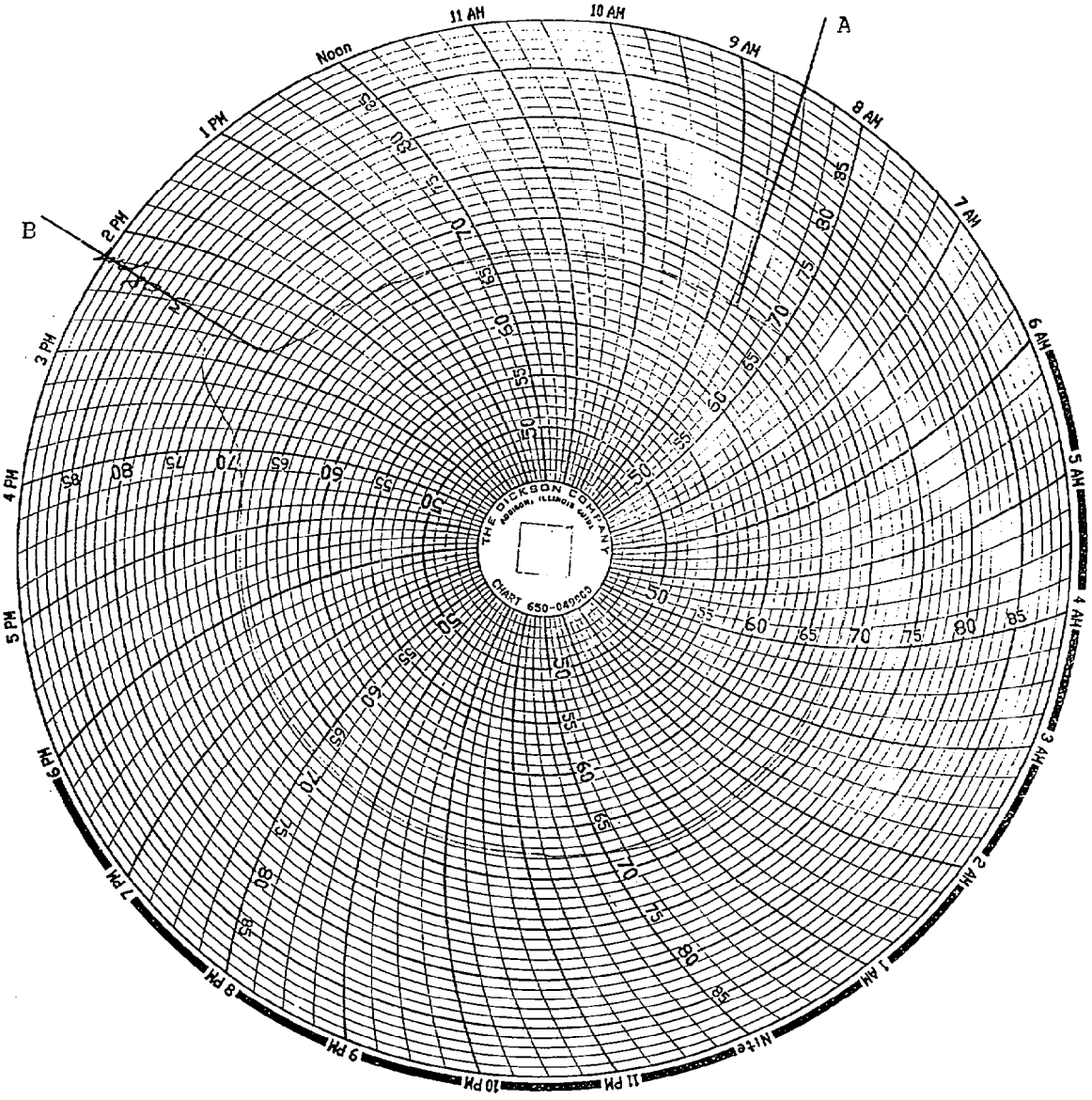
Inspected By: Tim Michnay

Date: January 7, 1997

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 installed in vehicle
B = Test conducted

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

DUMMY AND VEHICLE CALIBRATION DATA

INSTRUMENTS FOR RIGHT FRONT PASSENGER DUMMY NO. 274

	RIGHT FRONT PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AN8L6	Endevco	January 2, 1997
Lower Rib Y	J12465	Endevco	January 2, 1997
Lower Spine Y	J12450	Endevco	January 2, 1997
Pelvis Y	AGTP7	Endevco	January 2, 1997
Upper Rib Redundant Y	APY13	Endevco	January 2, 1997
Lower Rib Redundant Y	J11361	Endevco	January 2, 1997
Lower Spine Redundant Y	J12461	Endevco	January 2, 1997
Pelvis Redundant Y	AGT04	Endevco	January 2, 1997

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE AND MDB ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	C14-Z10	Entran	July 12, 1996
Moving Barrier CG Y	B14-R01	Entran	July 15, 1996
Moving Barrier CG Z	B13-Z05	Entran	July 11, 1996
Moving Barrier Rear Axle X	B14-R03	Entran	July 11, 1996
Moving Barrier Rear Axle Y	B14-R13	Entran	July 15, 1996
Right Mid A-Post Y	J23-E08	Entran	January 2, 1997
Right Lower A-Post Y	L18-G02	Entran	January 2, 1997
Right Lower B-Post Y	A09-G07	Entran	January 2, 1997
Rear Floorpan Above Axle X	L14-D19	Entran	December 4, 1996
Rear Floorpan Above Axle Y	D05-R09	Entran	January 2, 19997
Rear Floorpan Above Axle Z	L14-D17	Entran	December 3, 1996
Left Side Sill at Front Seat X	B28-B03	Entran	January 2, 1997
Left Side Sill at Front Seat Y	C14-Z15	Entran	January 2, 1997
Left Side Sill at Front Seat Z	L22-G05	Entran	January 2, 1997
Left Side Sill at Rear Seat X	C20-J10	Entran	January 2, 1997
Left Side Sill at Rear Seat Y	MGA095	Entran	January 2, 1997
Left Side Sill at Rear Seat Z	D06-A09	Entran	January 2, 1997
Right Side Sill at Front Seat Y	C25-A17	Entran	January 2, 1997

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE AND MDB ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Right Side Sill at Rear Seat Y	C25-A11	Entran	December 3, 1996
Vehicle CG X	D05-R20	Entran	January 2, 1997
Vehicle CG Y	D05-R19	Entran	January 2, 1997
Vehicle CG Z	A10-G03	Entran	January 2, 1997

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