

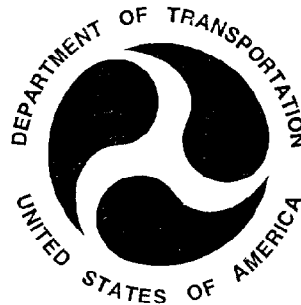
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REPORT NO.: 214-MGA-99-02
SAFETY COMPLIANCE TESTING FOR FMVSS NO. 214
"SIDE IMPACT PROTECTION"

Ford Motor Company
1999 Ford Taurus 4 Door
NHTSA NO: CX0202

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: December 14, 1998

Report Date: December 21, 1998

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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WASHINGTON, D.C. 20590

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16. Abstract A 48/24 kph 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject 1999 Ford Taurus 4 Door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP- 214D-04 for the determination of FMVSS No. 214 Side Impact Protection compliance. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on December 14, 1998. The impact velocity of the Moving Deformable Barrier (MDB) was 52.9 kph, and the ambient temperature at the struck side of the target vehicle at the time of impact was 21° C. The target vehicle post test maximum crush was 410 mm at level 3. The test vehicle's performance follows: <table border="0"> <thead> <tr> <th></th> <th><u>DRIVER.</u></th> <th><u>LEFT REAR PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td>59</td> <td>51</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td>56</td> <td>59</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td>60</td> <td>57</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>60</td> <td>58</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>83</td> <td>68</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					<u>DRIVER.</u>	<u>LEFT REAR PASS.</u>	Left Upper Rib (LUR) Accel., g	59	51	Left Lower Rib (LLR) Accel., g	56	59	Lower Spine (T ₁₂) Accel., g	60	57	Thoracic Trauma Index (TTI)	60	58	Pelvis (PEV) Accel., g	83	68
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17. Key Words Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID)		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5108 (NAD-52) 400 Seventh Street, S.W. Washington, D.C. 20590 Telephone No. 202-366-4946																			
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SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 99 FMVSS 214 Side Impact Protection Compliance Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-97-C-11033. The purpose of this test was to evaluate side impact protection of a 1999 Ford Taurus 4 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 1999 Ford Taurus 4 Door was impacted on the left side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 32.9 mph (52.9 kph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin, on December 14, 1998. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in Appendix A.

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

The SIDs were instrumented with the following accelerometers.

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

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

The following table summarizes the results of the FMVSS 214 Left Side Impact test:

Injury Criteria	Front SID	Rear SID
TTI (g)	60	58
Pelvis (g)	83	68

TEST NOTES

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

Left Front Door on Centerline
Midrear of Left Front Door
Left Front Door Upper Centerline
Midrear of Left Rear Door
Left Rear Door Upper Centerline
Rear Seat Track

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: 1999/Ford/Taurus/4 Door
 Vehicle NHTSA No.: CX0202 VIN: 1FAFP52U4XG137372
 Vehicle Body Color: Red Build Date: 10/98
 Engine Data: 6 Cylinders; CID; 3.0 Liter; cc
 Placement Longitudinal; X Lateral
 Transmission: 4 speed; Manual; X Automatic; Overdrive
 Final Drive: Rear Wheel Drive; X Frt. Wheel Drive; Four Wheel Drive

 Odometer Reading 53 miles
 Options: X A/C; X Pwr. Steering; X Pwr. Brakes; X Pwr. Windows;
 X Cruise Control; X Tilt Wheel; Power Door Locks;

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 33 Psi FRONT
 33 Psi REAR
 Recommended Tire Size: P205/65R15
 Tires on Test Vehicle: P205/65R15 Manufacturer: General

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; 3rd Seat 5 Total
 Type of Front Seats: X Bucket; Bench; Split Bench
 Type of Front Seat Back: Fixed; X Adjustable with X Lever Knob Power
 Vehicle Maximum Capacity Loading = 499.0 kg (A)
 No. of Occupants x 68.04 kg. = 340.2 kg (B)
 Cargo Capacity (A-B) = 158.8 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:Right Front = 485.3 kgRight Rear = 254.5 kgLeft Front = 480.4 kgLeft Rear = 261.7 kgTOTAL FRONT = 965.7 kgTOTAL REAR = 516.2 kg% of Total Weight = 65.2 %;% of Total Weight = 34.8 %TOTAL WEIGHT = 1481.9 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)Year/Make/Model/Body Style: 1999/Ford/Taurus/4 DoorVehicle NHTSA No.: CX0202 Test Date: December 14, 1998CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	= <u>1481.9</u> kg
Cargo Carrying Capacity of Test Vehicle	= <u>158.8</u> kg
Weight of 2 Side Impact Dummies (2 x <u>80.7</u> kg.)	= <u>161.4</u> kg
TEST VEHICLE TARGET WEIGHT	= <u>1802.1</u> kg

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO: (FULLY LOADED)

Right Front = <u>482.6</u> kg	Right Rear = <u>372.9</u> kg
Left Front = <u>537.5</u> kg	Left Rear = <u>408.2</u> kg
TOTAL FRONT = <u>1020.1</u> kg	TOTAL REAR = <u>781.1</u> kg
% of Total Weight = <u>56.6</u> %	% of Total Weight = <u>43.4</u> %
TOTAL TEST WEIGHT = <u>1801.2</u> kg	

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 710 mm Left Front 707 mm Right Rear 700 mm Left Rear 683 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 702 mm Left Front 690 mm Right Rear 644 mm Left Rear 612 mm

TEST ATTITUDE:

Right Front 704 mm Left Front 694 mm Right Rear 645 mm Left Rear 618 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2764 mm

C.G. As Tested = 1178 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4300 mm

Centerline = 4988 mm

Left Side = 4300 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)Year/Make/Model/Body Style: 1999/Ford/Taurus/4 DoorVehicle NHTSA No.: CX0202 Test Date: December 14, 1998FRONT SEAT CUSHION PLACEMENT:Total Length of Adjustment Travel: 228 mmTest Position: Mid position (7th of 13 detents)FRONT SEAT BACK ADJUSTMENT POSITION:Seat Back Angle = 23.1°REAR POSITION SEAT:Total Length of Fore/Aft Adjustment Travel: Non-adjustableSeat Back Adjustment Position: Non-adjustableADJUSTABLE STEERING COLUMN POSITION: Mid position (3rd of 5 positions)WINDOW POSITIONS: Left Front Closed Left Rear Closed
Right Front Open Right Rear OpenAMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 16.0 gallons

Test Volume: 14.9 gallons 93% of capacityLOCATIONS OF IMPACT POINT ON TEST VEHICLE SIDE TO BE IMPACTED:Wheelbase: = 2764 mmImpact Point is 442 mm rearward of front axle centerline

DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1999/Ford/Taurus/4 Door

Vehicle NHTSA No.: CX0202 Test Date: December 14, 1998

Overall Length = 4988 mm; Overall Width = 1850 mm

TEST WEIGHT:

Right Front = 504.4 kg Right Rear = 366.5 kg

Left Front = 526.6 kg Left Rear = 397.8 kg

TOTAL FRONT = 1031.0 kg TOTAL REAR = 764.3 kg

% of Total Weight = 57.4 % % of Total Weight = 42.6 %

TOTAL VEHICLE WEIGHT = 1795.3 kg

Wheelbase = 2764 mm

Longitudinal C.G. from Center of Front Axle = 1178 mm

Impact Angle with Respect to Impactor = 90° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (256 mm above ground) = 210 mm

2. LEVEL 2 (510 mm above ground) = 406 mm

3. LEVEL 3 (551 mm above ground) = 410 mm

4. LEVEL 4 (882 mm above ground) = 267 mm

5. LEVEL 5 (1322 mm above ground) = 40 mm

Maximum Post-Test Intrusion = 410 mm

OCCUPANTS:

	<u>Driver</u>	<u>Left Rear</u>
Type of Dummy	<u>SID</u>	<u>SID</u>
Restraints Used	<u>type II belt</u>	<u>type II belt</u>
	<u>with frontal airbag</u>	

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)INSTRUMENTATION:

Number of Vehicle Data Channels: = 20

Number of Cameras: Onboard Vehicle = 3

Offboard Vehicle = 4

Deformable Barrier = 2

TOTAL = 9

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTSYear/Make/Model/Body Style: 1999/Ford/Taurus/4 DoorVehicle NHTSA No.: CX0202 Test Date: December 14, 1998POSITION OF IMPACT (MDB) ON MONORAIL:Crabbed 27° to leftMDB DETAILS:

Overall Width of Framework Carriage	= <u>1252</u> mm
Overall Length of MDB (incl. honeycomb impact face)	= <u>4115</u> mm
Wheelbase of Framework Carriage	= <u>2591</u> mm
Tread of Framework Carriage (Front & Rear)	= <u>1880</u> mm
C.G. Location Rearward of Front Axle	= <u>1098</u> mm
C.G. Location From Center Line	= <u>-15</u> mm
C.G. Location Above Ground Level	= <u>485</u> mm

MDB WEIGHT:

Left Front	= <u>457.7</u> kg	Left Rear	= <u>235.1</u> kg
Right Front	= <u>328.1</u> kg	Right Rear	= <u>342.6</u> kg
TOTAL FRONT	= <u>785.5</u> kg	TOTAL REAR	= <u>577.7</u> kg
TOTAL MDB WEIGHT = <u>1363.5</u> kg			
Impact Angle (MDB C/L to Target Vehicle C/L) = <u>90°</u> degrees			
Impact Speed = Primary: <u>32.9</u> mph (52.9 kph) Secondary: <u>32.9</u> mph (52.9 kph)			

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

- | | | | | |
|----|---------------------------------|---|------------|----|
| 1. | Row A Top of Stack (813 mm) | = | <u>109</u> | mm |
| 2. | Row B Mid Stack (686 mm) | = | <u>54</u> | mm |
| 3. | Row C Top of Bumper (533 mm) | = | <u>53</u> | mm |
| 4. | Row D Center of Bumper (432 mm) | = | <u>97</u> | mm |

INSTRUMENTATION:

Number of MDB Data Channels = 7

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1999/Ford/Taurus/4 Door

Vehicle NHTSA No.: CX0202 Test Date: December 14, 1998

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to left shoulder</u>	<u>to C-Post/header</u>
Arm	<u>to rear of door above armrest</u>	<u>to rear of door above armrest</u>
Pelvis	<u>to armrest</u>	<u>to armrest</u>
Left Knee	<u>to mid-door below armrest</u>	<u>to mid-door below armrest</u>
Right Knee	<u>to left knee</u>	<u>to left knee</u>

DOOR OPENING:

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

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 5 mm forward

Vertical: 3 mm high

ARM REST LOCATIONS:

Front: 240 mm from bottom of window

Rear: 220 mm from bottom of window

POST-TEST OBSERVATIONS (Cont'd)SEAT CRUSH:Front Seat Back: 46 mm Front Seat Cushion: 99 mmLeft Rear Seat Back: 146 mm Rear Seat Cushion: 231 mmGLAZING DAMAGE:Windshield cracked/left side windows brokePILLAR PERFORMANCE:No failure notedSILL SEPARATION:None notedFRONTAL AIRBAGS:Driver Deployed: No Passenger Deployed: NoOTHER NOTABLE IMPACT EFFECTS:Left front tire deflated

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

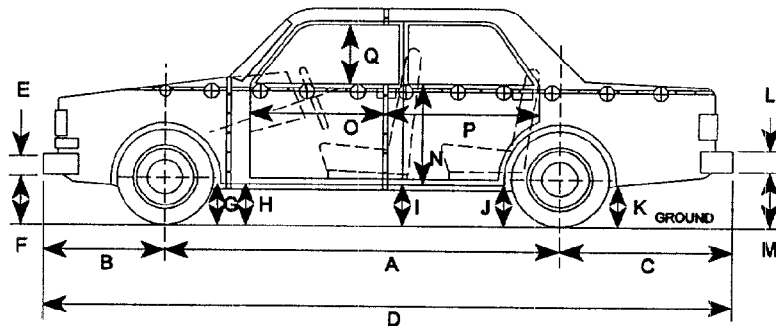
DATA SHEET NO. 5
SIDE IMPACT DUMMY (SID) INSTRUMENTATION DATA

Year/Make/Model/Body Style: 1999/Ford/Taurus/4 Door
Vehicle NHTSA No.: CX0202 Test Date: December 14, 1998

	Front SID ID #049			Rear SID ID #048		
	Pos. Direct.		Neg. Direct	Pos. Direct.		Neg. Direct
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS						
Left Upper Rib (LUR) Y	59.0	41	-17.4	77	50.8	-6.0 94
Left Lower Rib (LLR) Y	56.5	41	-16.9	78	58.8	-15.7 70
SPINE ACCELERATIONS						
Lower Lateral Y	60.4	35	-12.9	94	57.5	-28.0 75
PELVIS ACCELERATIONS						
Lateral Y	83.4	34	-12.2	57	67.7	-11.7 86

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

DATA SHEET NO. 6
VEHICLE PRE AND POST-TEST MEASUREMENTS



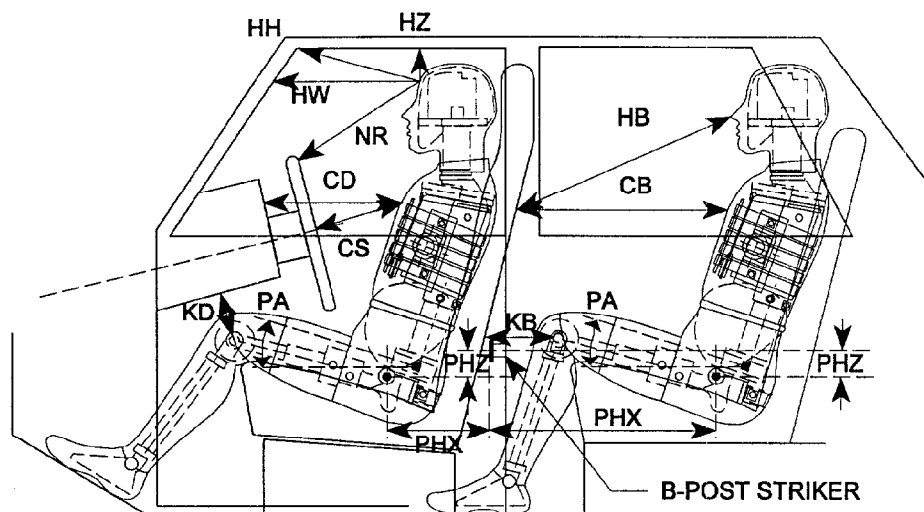
LEFT SIDE VIEW

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

ALL MEASUREMENTS IN (mm)

	PRE-TEST	POST-TEST	Δ CHANGE
A	2764	2736	28
B	1044	1050	6
C	1180	1186	6
D	4988	4972	16
E	110	110	0
F	425	408	17
G	170	116	54
H	169	114	55
I	149	108	41
J1/J2	136/129	130/116	6/13
K	206	212	6
L	240	240	0
M	288	308	20
N	670	645	25
O	803	725	78
P	1176	1019	157
Q	490	462	28
R	4300	4307	7
S	4300	4257	43
T	1850	1467	383

DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONSYear/Make/Model/Body Style: 1999/Ford/Taurus/4 DoorNHTSA NO.: CX0202 Test Date: December 14, 1998NOTE: All dimensions are in mm with tolerance of ± 3 mm

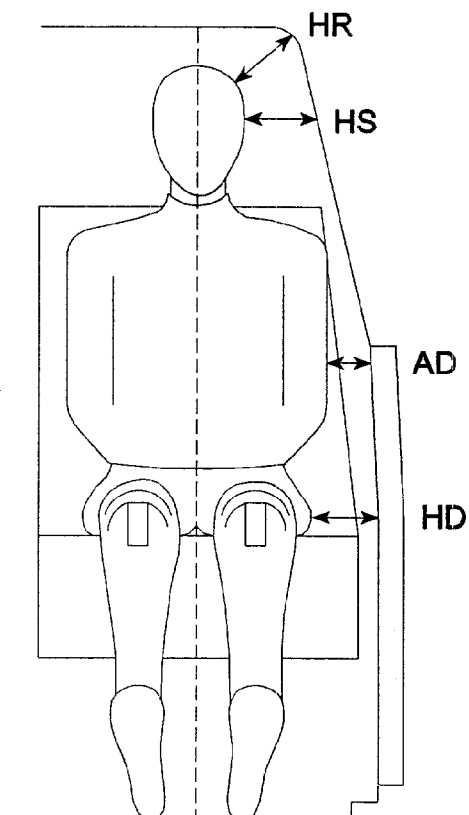
	DRIVER ID #049		REAR PASSENGER SID ID #048
HH	301	HZ	114
HW	544	NB	707
HZ	128	CB	653
NR	376	KBL (KBA)	314 (0.0°)
CD	497	KBR (KBA)	334 (0.0°)
CS	293	PA°	24.3°
KDL (KDA°)	136 (36.1°)	PHX	263
KDR (KDA°)	122 (37.9°)	PHZ	317
PA°	23.2°		
PHX	224		
PHZ	122		

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: 1999/Ford/Taurus/4 Door

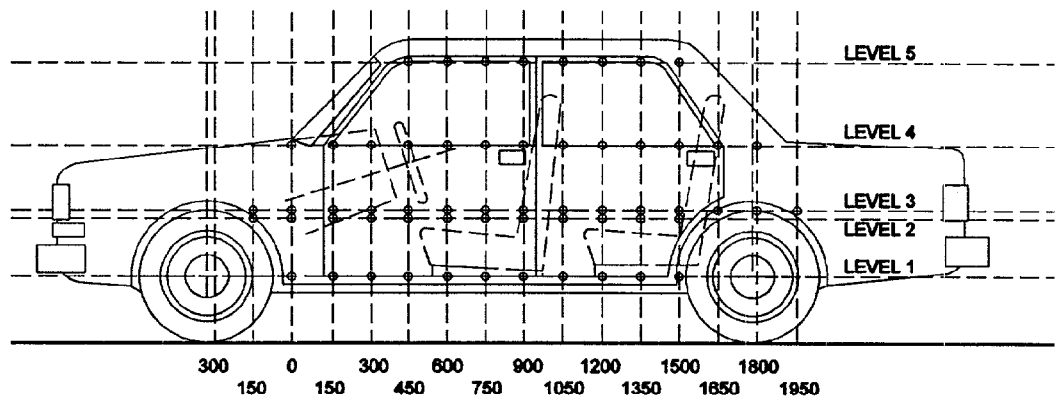
NHTSA NO.: CX0202 Test Date: December 14, 1998



NOTE: All dimensions are in mm

	DRIVER ID #049	REAR PASSENGER ID #048
HR	230	166
HS	296	212
AD	114	88
HD	163	154

DATA SHEET NO. 9

VEHICLE SIDE MEASUREMENTSYear/Make/Model/Body Style: 1999/Ford/Taurus/4 DoorNHTSA NO.: CX0202 Test Date: December 14, 1998**LEFT SIDE VIEW**

NOTE: All measurements are in millimeters (mm)

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

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

MEASUREMENTS ALONG THE VERTICAL 750 mm. LINE SHOWN ABOVE

Level 1 @ Axle Centerline Height

(or Sill Top Height) = 256 mm

Level 2 @ Occupant H-Point = 510 mm

Level 3 @ Mid Door = 551 mm

Level 4 @ Window Sill = 882 mm

Level 5 @ Window Top = 1322 mm

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

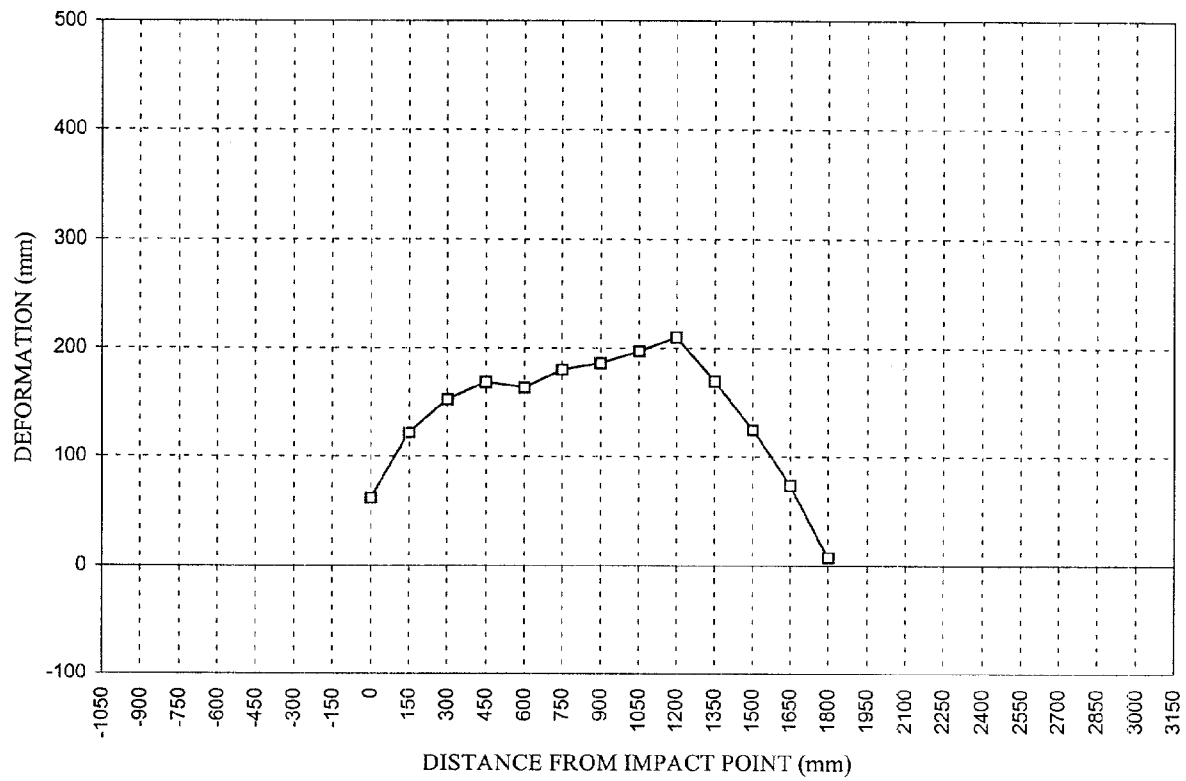
	Level 1 - Axle Centerline		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)	706	768	62
150	706	828	122
300	703	856	153
450	703	872	169
600	704	868	164
750	700	880	180
900	700	886	186
1050	700	897	197
1200	695	905	210
1350	695	865	170
1500	696	821	125
1650	696	770	74
1800	696	704	8
1950			
2100			
2250			
2400			

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

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

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

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)

LEVEL 1 - AXLE CENTERLINE

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

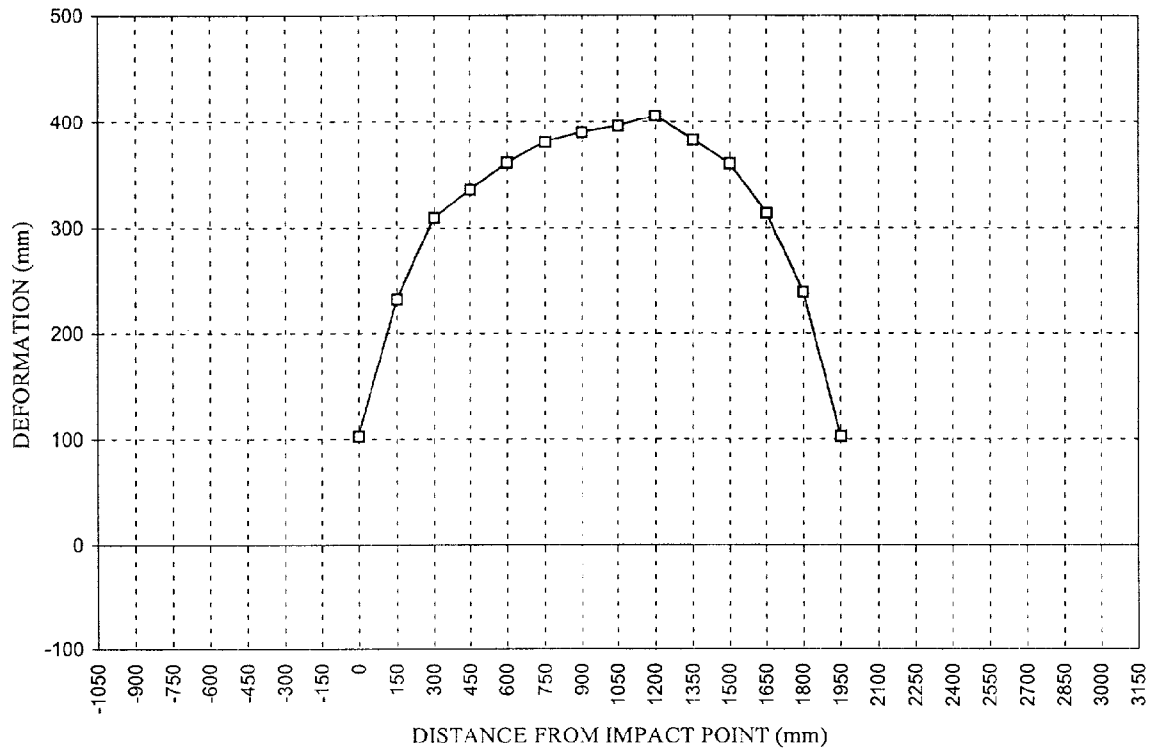
	Level 2 - Occupant H Point		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)	641	744	103
150	631	863	232
300	627	937	310
450	623	959	336
600	619	981	362
750	616	997	381
900	613	1003	390
1050	609	1005	396
1200	607	1013	406
1350	607	990	383
1500	608	969	361
1650	607	921	314
1800	606	845	239
1950	611	719	103
2100			
2250			
2400			

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

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)
2550			
2700			
2850			
3000			
3150			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)

LEVEL 2 - OCCUPANT H-POINT

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

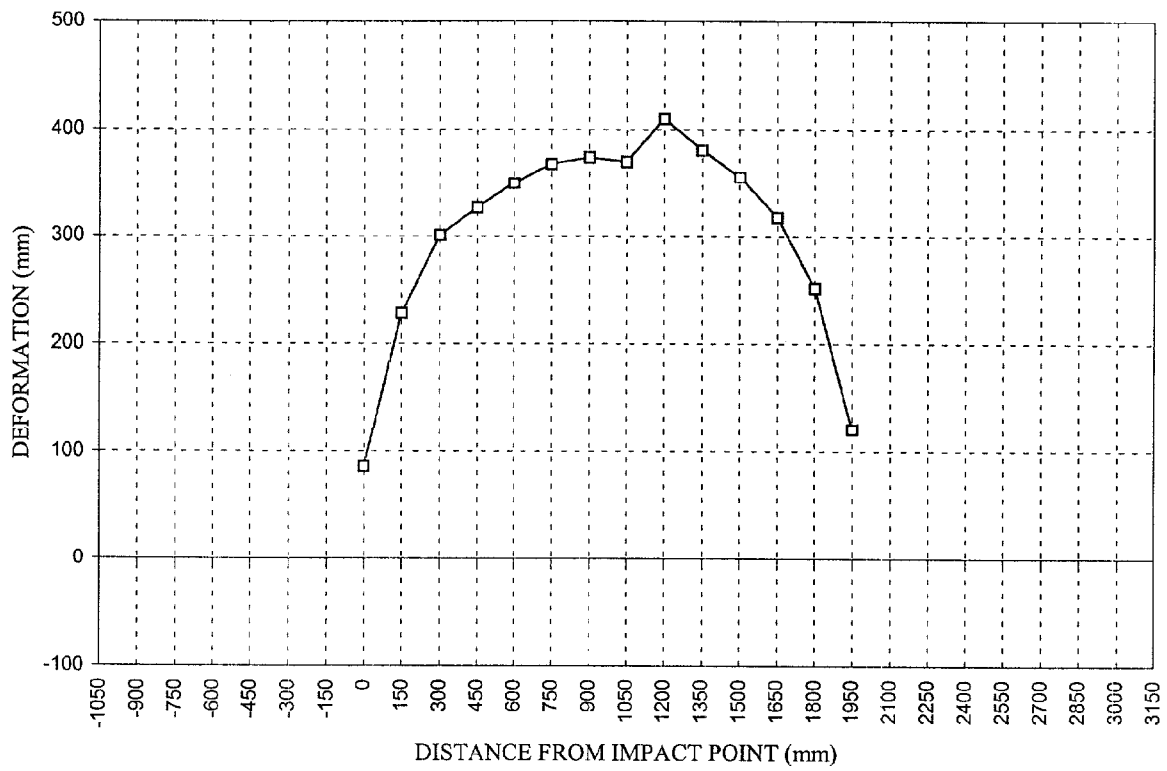
	Level 3 - Mid Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)	641	727	86
150	637	865	228
300	634	935	301
450	633	960	327
600	630	980	350
750	627	995	368
900	623	997	374
1050	618	988	370
1200	617	1027	410
1350	617	998	381
1500	616	972	356
1650	615	933	318
1800	613	865	252
1950	611	732	121
2100			
2250			
2400			

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

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)
2550			
2700			
2850			
3000			
3150			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)

LEVEL 3 - MID DOOR

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

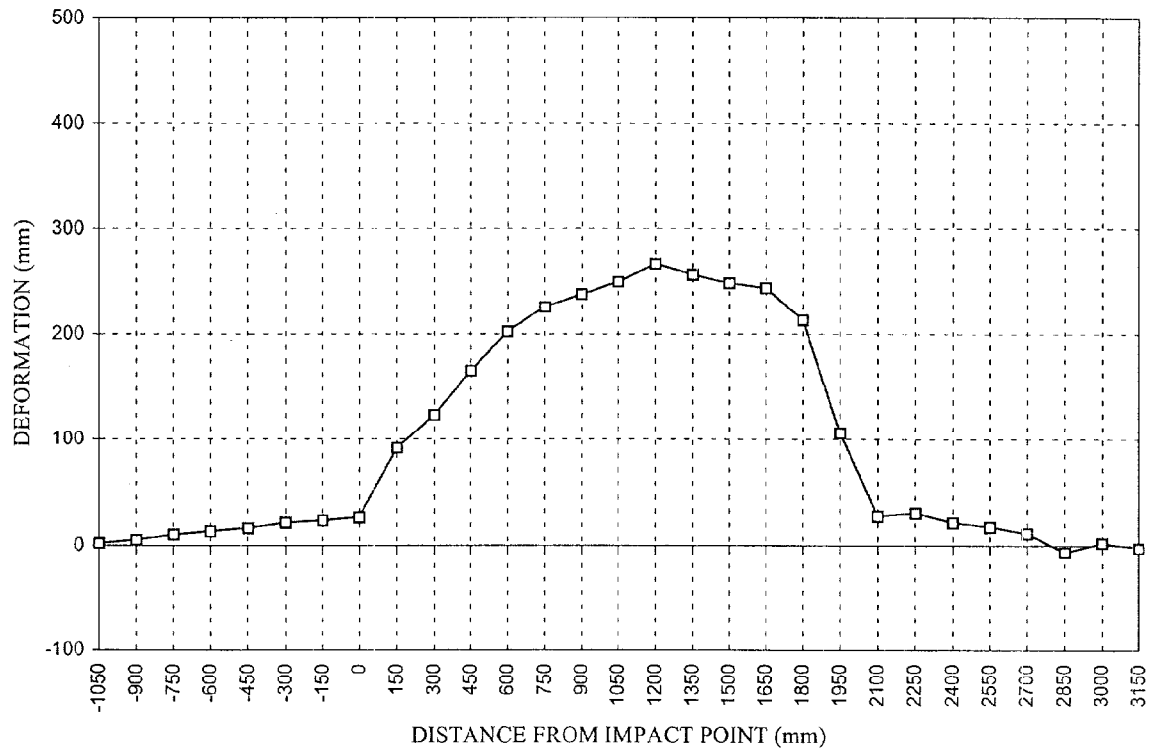
	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050	811	813	2
-900	785	790	5
-750	763	773	10
-600	744	757	13
-450	728	744	16
-300	714	735	21
-150	703	726	23
0 (impact point)	694	720	26
150	687	778	91
300	682	805	123
450	674	839	165
600	672	874	202
750	667	893	226
900	665	903	238
1050	664	914	250
1200	663	930	267
1350	663	920	257
1500	663	912	249
1650	663	907	244
1800	664	877	213
1950	664	770	106
2100	668	695	27
2250	674	704	30
2400	680	701	21

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

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)
2550	690	707	17
2700	710	721	11
2850	733	740	7
3000	766	768	2
3150	802	799	-3

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

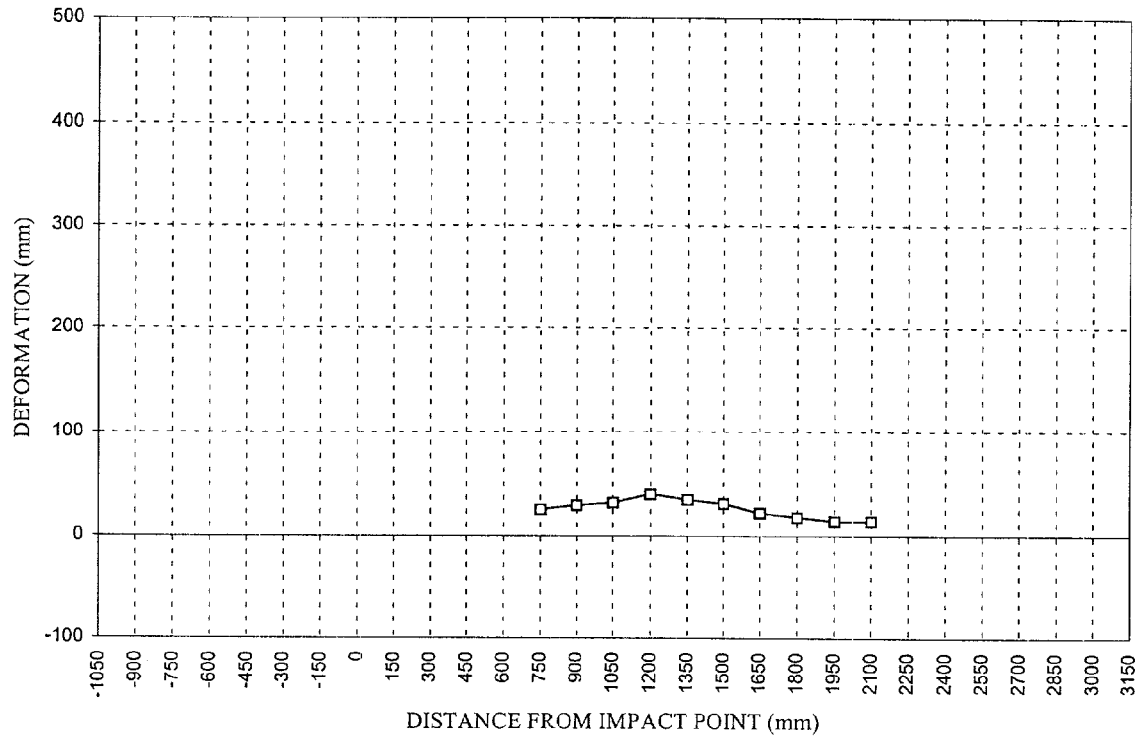
	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750	952	977	25
900	945	974	29
1050	942	974	32
1200	942	982	40
1350	938	973	35
1500	935	966	31
1650	936	958	22
1800	937	955	18
1950	944	958	14
2100	956	970	14
2250			
2400			

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

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)
2550			
2700			
2850			
3000			
3150			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)

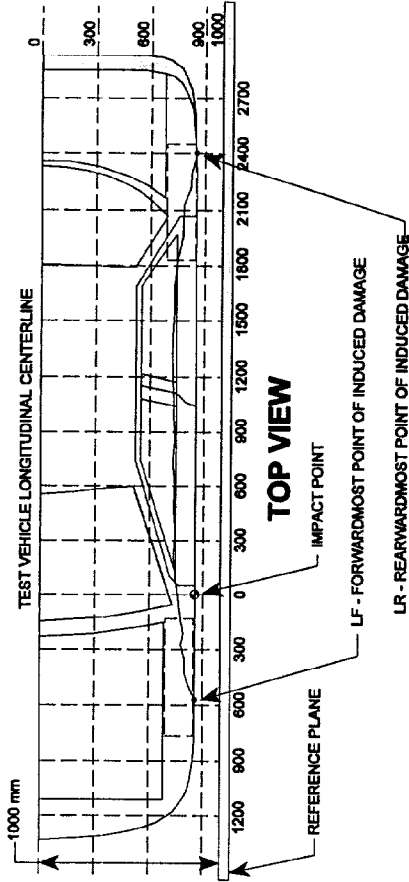
LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1999/Ford/Taurus/4 Door

NHTSA NO.: CX0202 Test Date: December 14, 1998



MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (-).

Rearward of the impact point (toward rearward of vehicle) is considered positive (+).

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = <u>-1050</u> mm)	813	811	2
2. <u>-213</u> mm	732	684	48
3. <u>600</u> mm	981	619	362
4. <u>1401</u> mm	987	607	380
5. <u>2325</u> mm	700	677	23
6. (LR = <u>3150</u> mm)	799	802	-3

DATA SHEET NO. 12

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

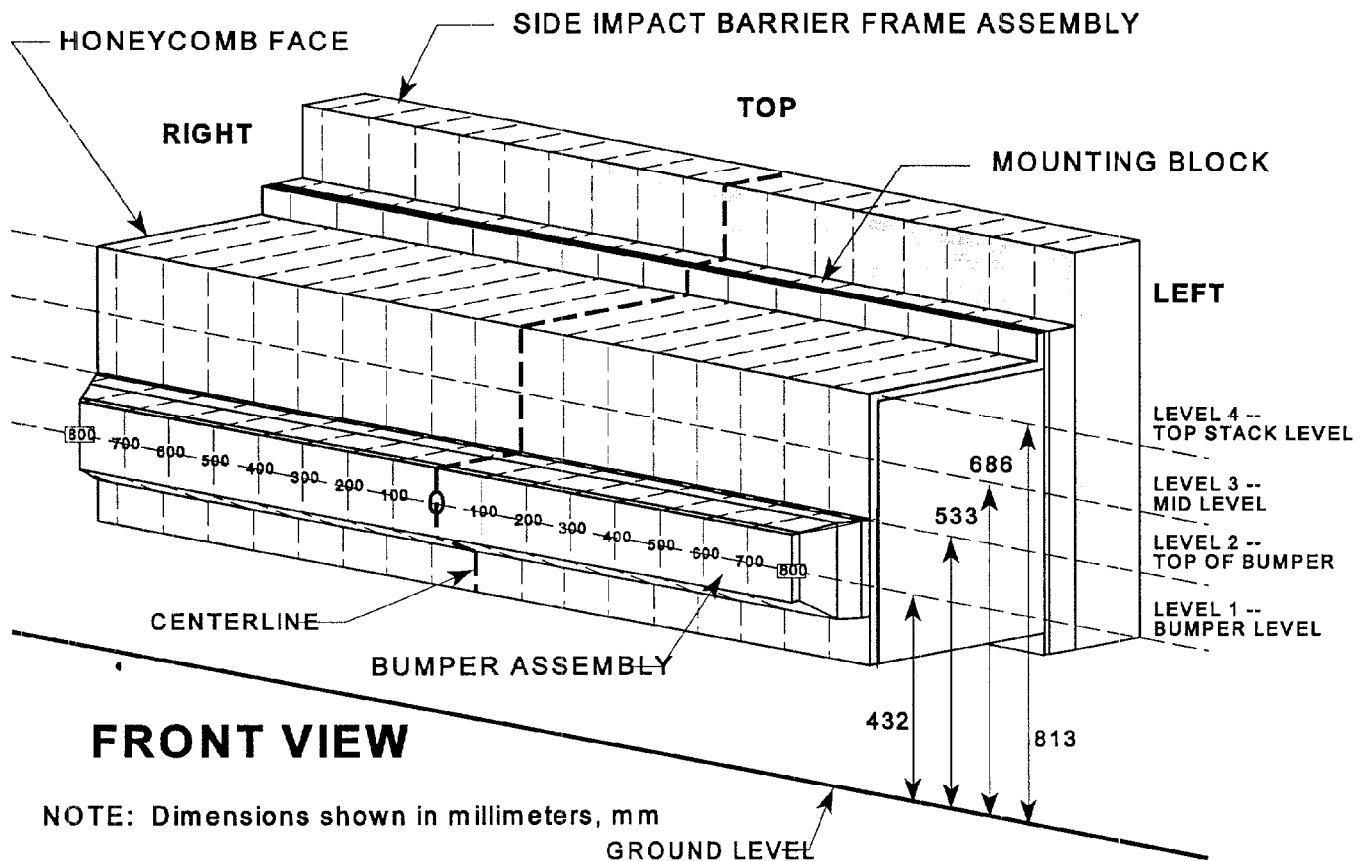
Year/Make/Model/Body Style: 1999/Ford/Ranger/HLT Pick-up

Vehicle NHTSA No.: CX0203 Test Date: December 16, 1998

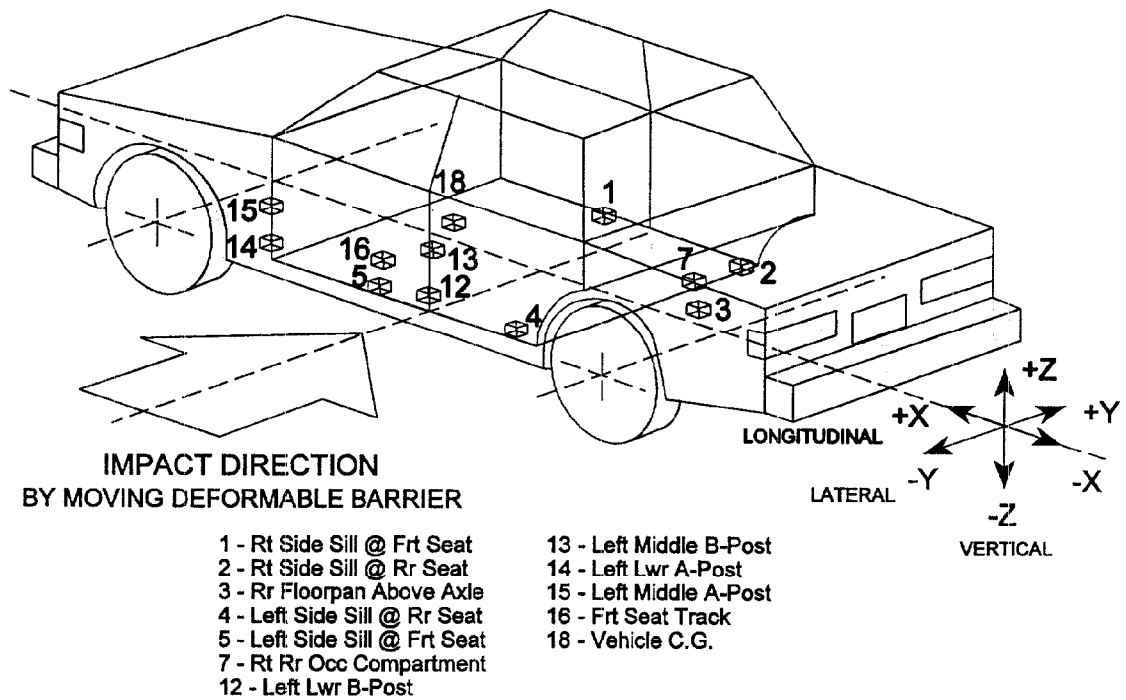
Location	Height at CL*	Distance Right of Center (mm)									Distance Left of Center (mm)							
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level 4	813 mm	161	99	54	37	12	15	10	3	3	3	9	19	28	43	63	93	136
Mid Level Level 3	686 mm	107	46	15	-3	-3	-3	-4	-3	-2	-2	-2	-2	-2	2	12	29	67
Top Bumper Level 2	533 mm	29	23	19	19	19	18	15	13	12	13	14	14	14	15	17	21	30
Mid Bumper Level 1	432 mm	20	17	13	12	10	9	8	7	8	10	9	9	9	10	15	24	27

See next page for Barrier Face Graphic

DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARYYear/Make/Model/Body Style: 1999/Ford/Taurus/4 DoorVehicle NHTSA No.: CX0202 Test Date: December 14, 1998

DATA SHEET NO. 13 (Cont'd)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARYYear/Make/Model/Body Style: 1999/Ford/Taurus/4 DoorVehicle NHTSA No.: CX0202 Test Date: December 14, 1998

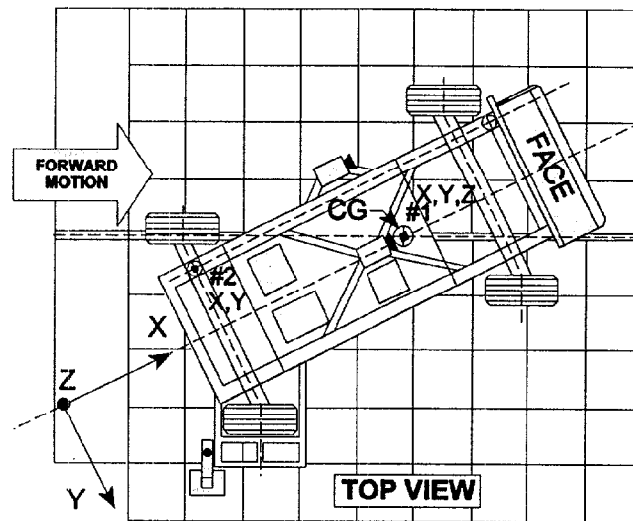
Accel. No.	Description	Coordinates (mm)*			Long. (X) Maximums (g's)		Lat. (Y) Maximums (g's)		Vert. (Z) Maximums (g's)		Resultant (g's)
		X	Y	Z	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
1	Right Side Sill @ Front Seat	2591	662	178	3.7	-4.8	31.2	-3.7	3.7	-5.1	31.5
2	Right Side Sill @ Rear Seat	1908	668	156	3.2	-4.1	28.2	-2.5	4.8	-6.3	28.5
3	Rear Floorpan Above Axle	1180	0	450	3.0	-9.9	15.2	-2.3	4.7	-6.0	15.8
4	Left Side Sill @ Rear Seat	1906	-668	145	---	---	51.4	-14.8	---	---	---
5	Left Side Sill @ Front Seat	2948	-662	180	---	---	54.3	-5.0	---	---	---
7	Right Rear Occupant Compartment	2029	326	272	---	---	23.4	-1.8	---	---	---
12	Left Lower B-Post	2302	-690	265	---	---	66.5	-12.3	---	---	---
13	Left Mid B-Post	2287	-755	850	---	---	151.9	-40.4	---	---	---
14	Left Lower A-Post	3403	-742	345	---	---	39.5	-2.4	---	---	---
15	Left Mid A-Post	3415	-784	832	---	---	32.5	-31.5	---	---	---
16	Driver Seat Track	2552	-765	350	---	---	71.9	-36.5	---	---	---
18	Vehicle CG	2719	0	365	7.8	-15.8	24.1	-2.5	40.4	-24.3	42.1

*Reference: X - Rear Bumper (+ Forward)

Y - Vehicle Centerline (+ To right)

Z - Ground Level (+ Up)

DATA SHEET NO. 14

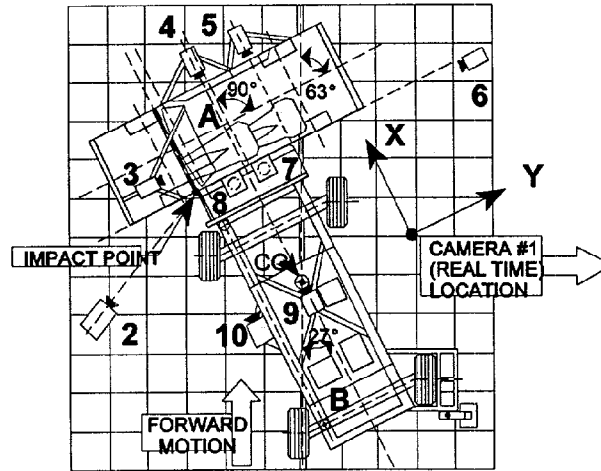
MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARYYear/Make/Model/Body Style: 1999/Ford/Taurus/4 DoorVehicle NHTSA No.: CX0202 Test Date: December 14, 1998

Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	1.0	107	-14.9	42
	Lateral (Y)	---	---	---	1.5	0	-7.2	46
	Vertical (Z)	---	---	---	9.7	62	-9.0	68
	Resultant (R)	---	---	---	17.7	43	---	---
2	Rear Frame Member	-2591	-625	622				
	Longitudinal (X)	---	---	---	1.6	179	-17.5	36
	Lateral (Y)	---	---	---	5.7	40	-1.2	195

*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: 1999/Ford/Taurus/4 Door
 Vehicle NHTSA No.: CX0202 Test Date: December 14, 1998



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
1	Real Time					10	24
2	Left Impact	-250	-2590	1650		13	1005
3	Onboard Hood					13	1000
4	Onboard Front Occupant					8	1111
5	Onboard Rear Occupant					8	957
6	Right Impact	-670	10460	1640		25	1010
7	Top Overall	-190	1225	5000		8	962
8	Top Impact	-265	40	5000		13	962
9	Cart Overall					13	1020
10	Cart Impact					35	1010

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

DATA SHEET 16

FUEL SYSTEM INTEGRITY POST IMPACT TEST DATAVehicle Year/Make/Model/Body Style: 1999/Ford/Taurus/4 DoorVehicle NHTSA No.: CX0202 Test Date: December 14, 1998TEST 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 Left Side Impact MDB 32.9 mph (52.9 kph)

FUEL SPILLAGE MEASUREMENT:

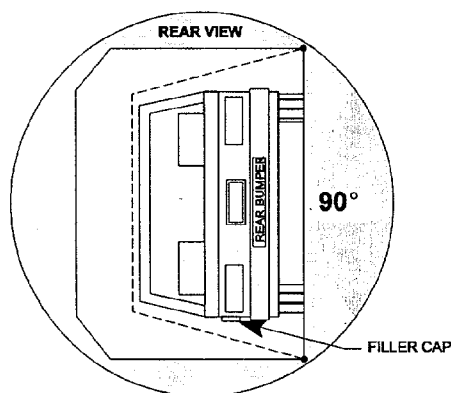
POST IMPACT TEST	TEST RESULTS	MAXIMUM ALLOWABLE
1. From impact until vehicle motion ceases	0	1 oz
2. For 5 minute period after vehicle motion ceases	0	5 oz
3. For next 25 minutes	0	1 oz./1 min

FUEL SPILLAGE LOCATION(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1999/Ford/Taurus/4 Door
 Vehicle NHTSA No.: CX0202 Test Date: December 14, 1998

TEST PHASE: 0° - 90°



DETERMINATION OF
SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 54 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 54 seconds

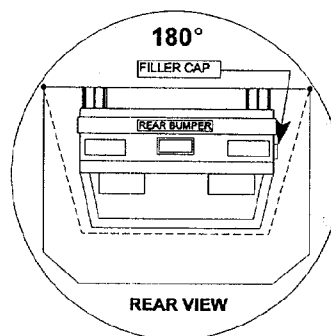
Next Whole Minute Interval = 8 minutes

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: 1999/Ford/Taurus/4 DoorVehicle NHTSA No.: CX0202 Test Date: December 14, 1998TEST PHASE: 90° - 180°DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 38 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 38 seconds

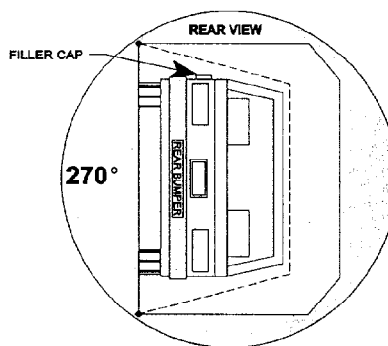
Next Whole Minute Interval = 8 minutes

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: 1999/Ford/Taurus/4 DoorVehicle NHTSA No.: CX0202 Test Date: December 14, 1998TEST PHASE: 180° - 270°DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90° Rotation Time = 2 minutes 9 seconds

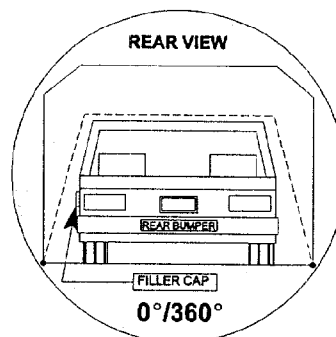
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 secondsTOTAL TIME = 7 minutes 9 secondsNext Whole Minute Interval = 8 minutesFUEL 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 DATAVehicle Year/Make/Model/Body Style: 1999 Ford Taurus 4 DoorVehicle NHTSA No.: CX0202 Test Date: December 14, 1998TEST PHASE: 270° - 360°DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90° Rotation Time = 2 minutes 39 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 secondsTOTAL TIME = 7 minutes 39 secondsNext Whole Minute Interval = 8 minutesFUEL 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

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APPENDIX B - VEHICLE AND SID RESPONSE DATA

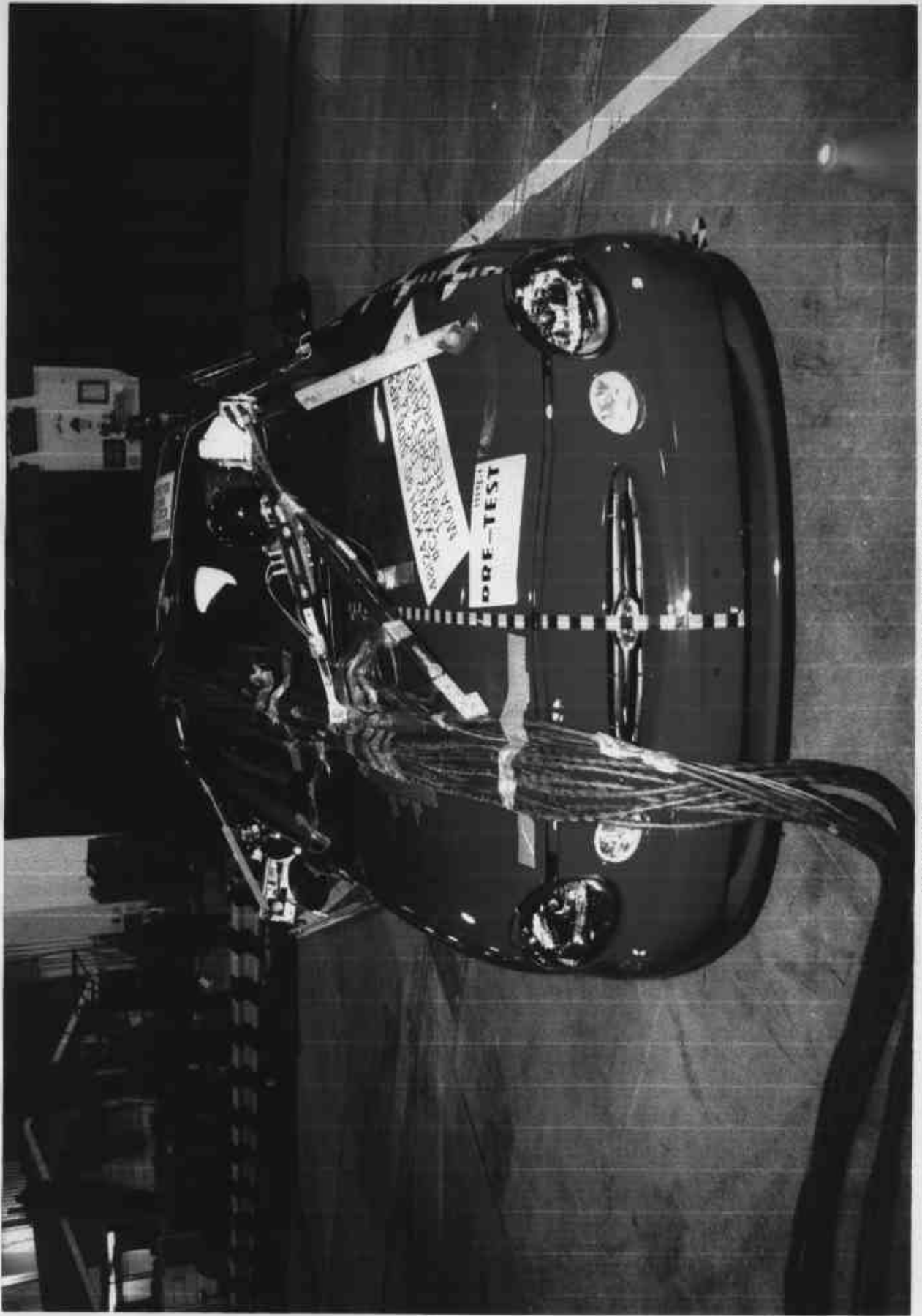


Photo No. A-1 - Pre-Test Front View of Test Vehicle



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

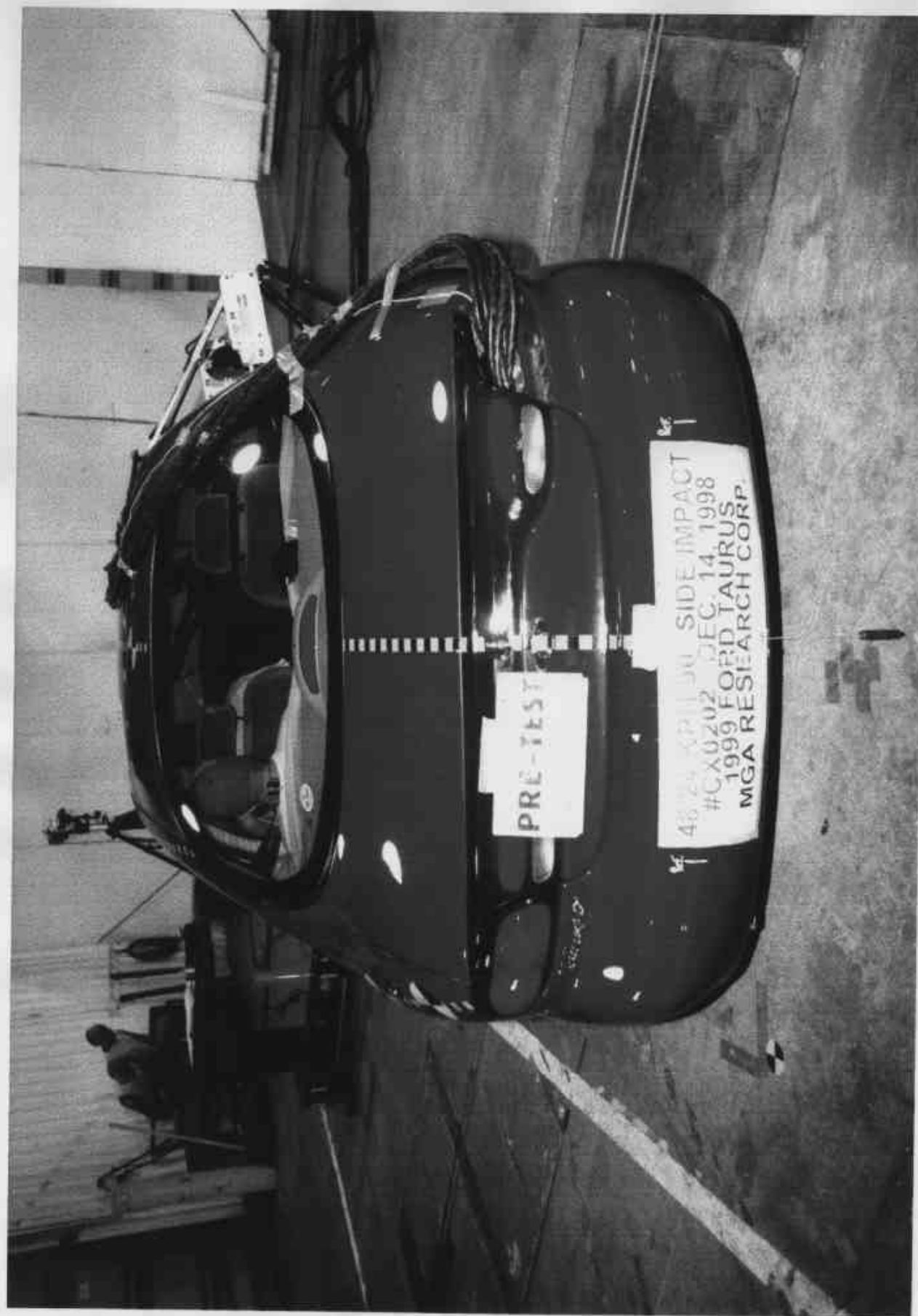


Photo No. A-3 - Pre-Test Rear View of Test Vehicle



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

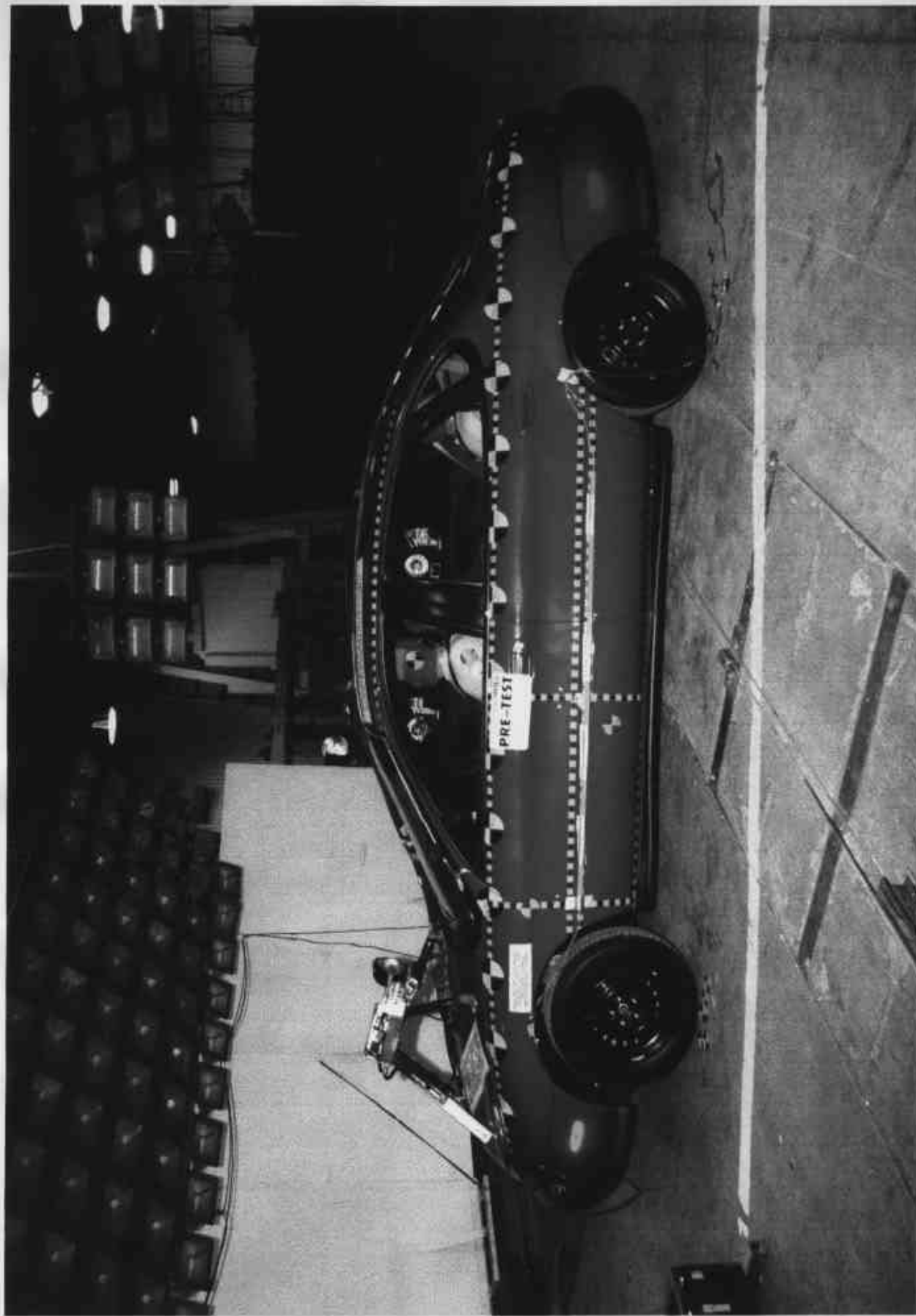


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

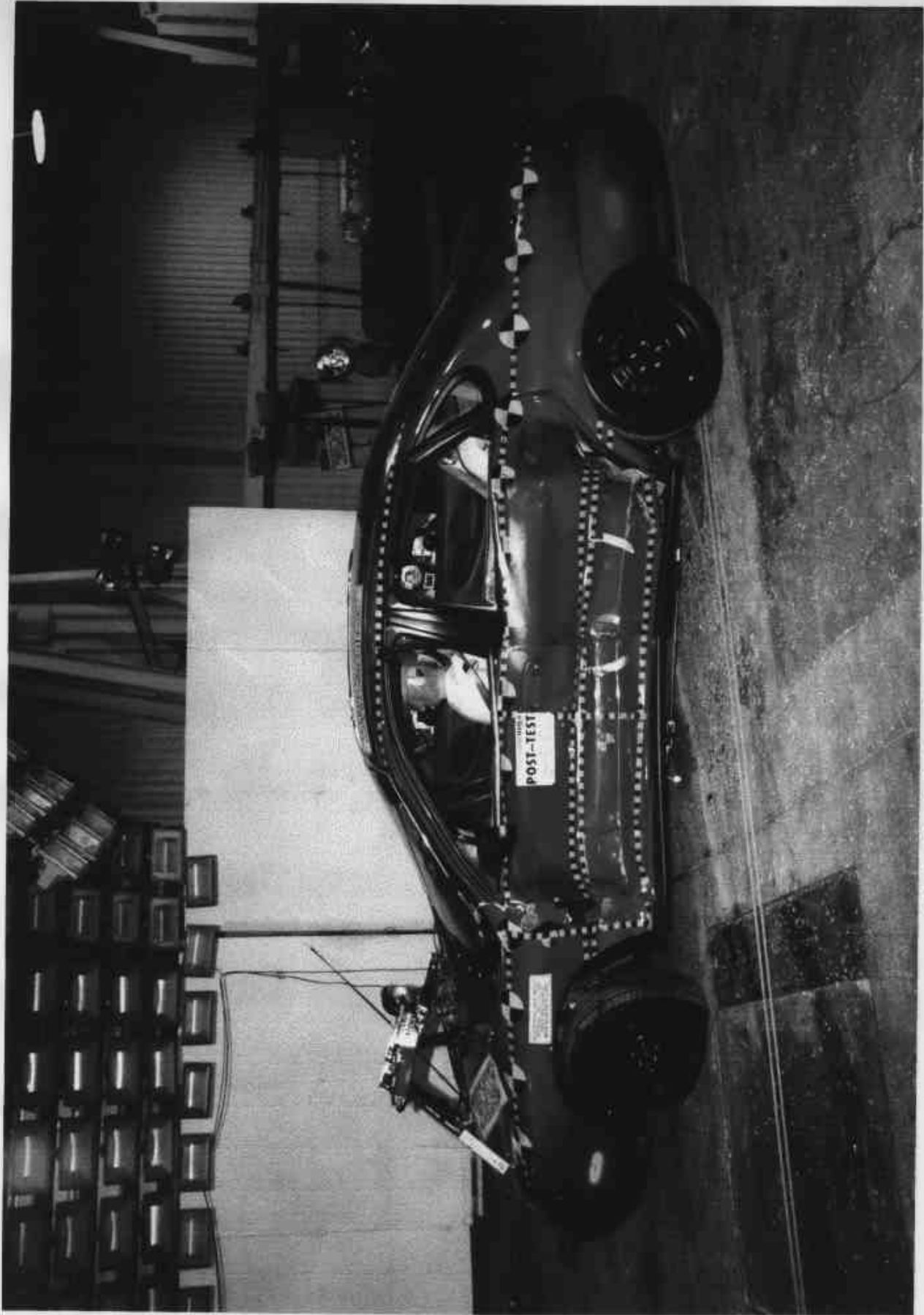


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

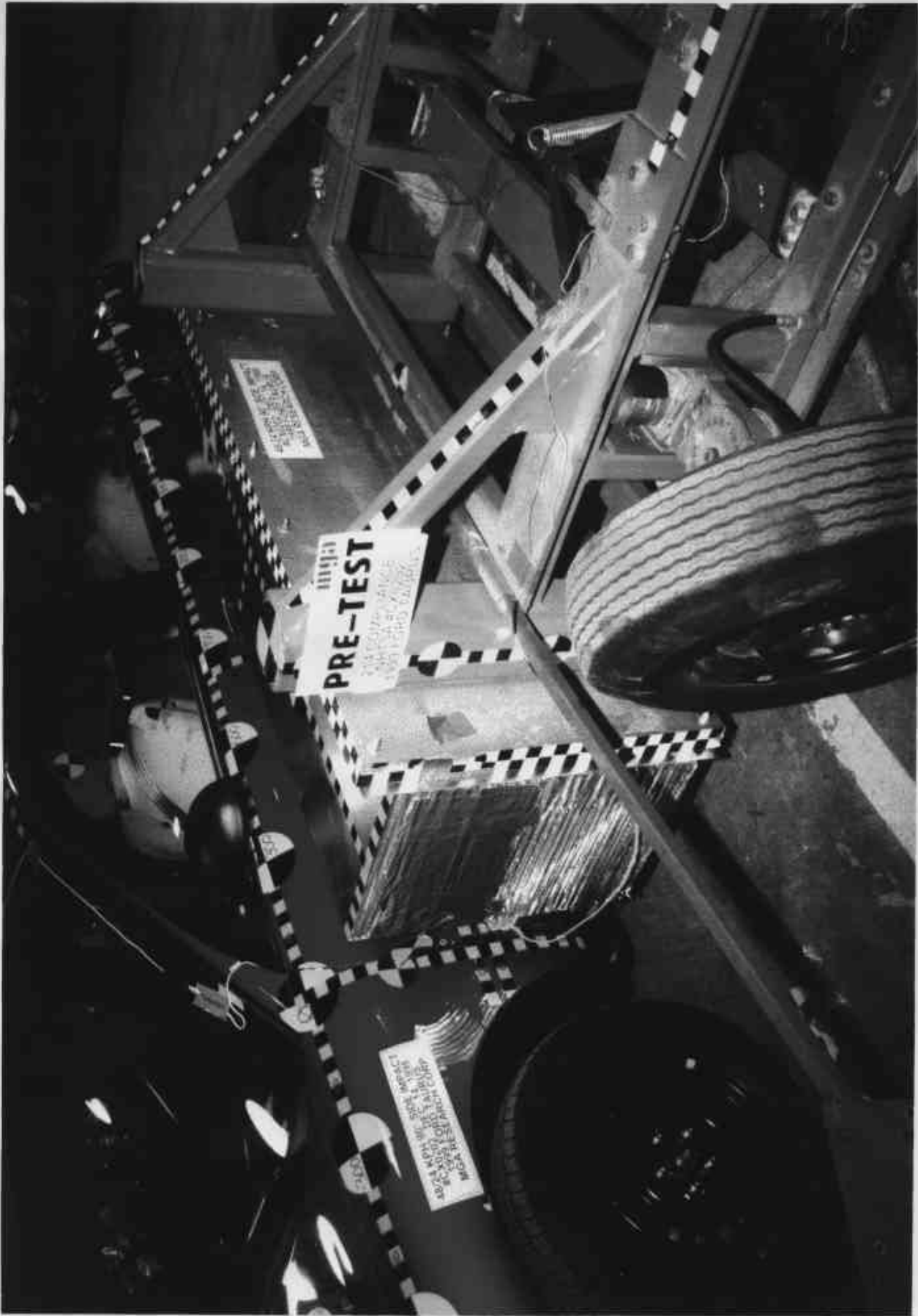


Photo No. A-7.- Pre-Test MDB Positioned Against Vehicle (left side)

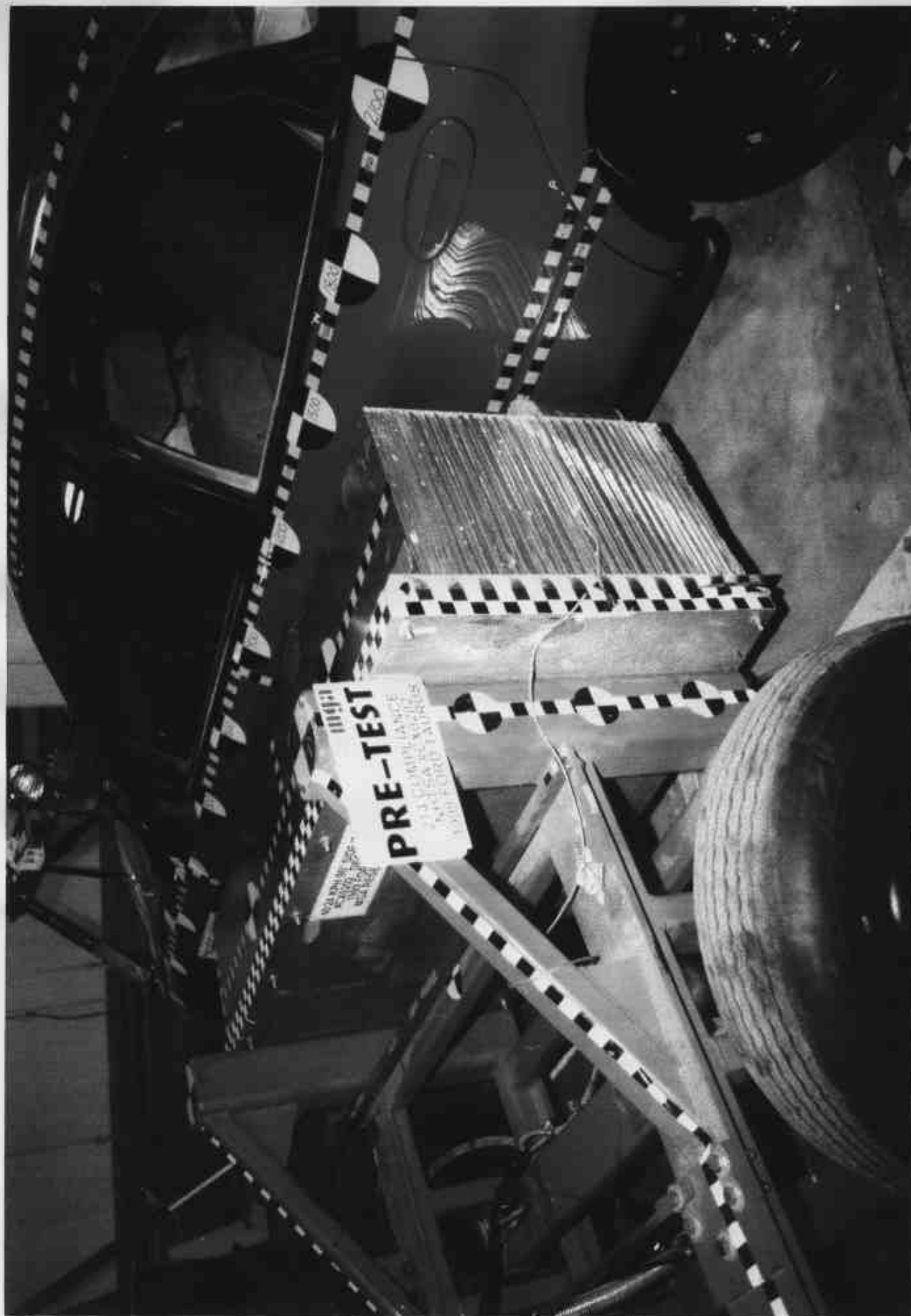


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)

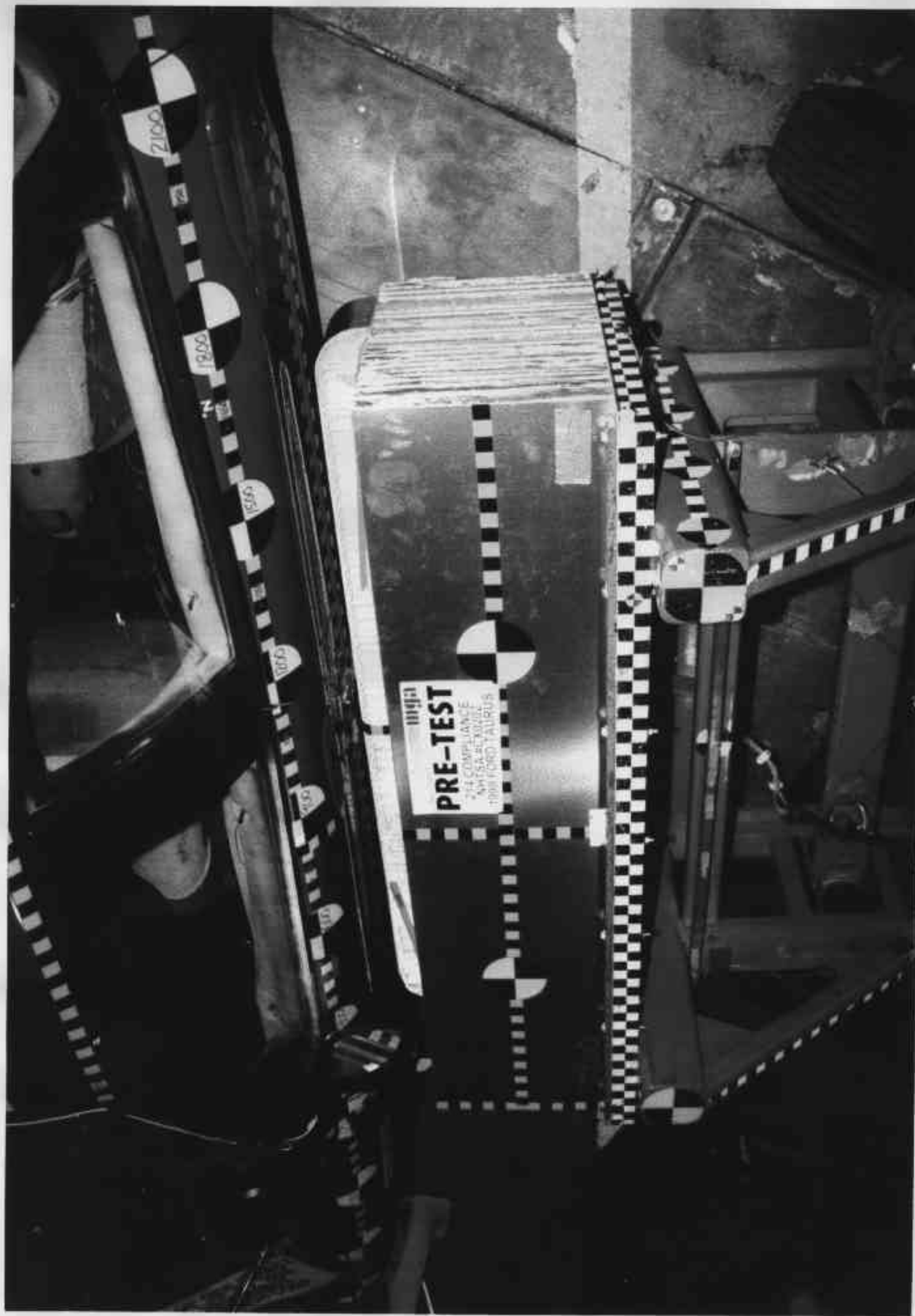


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View

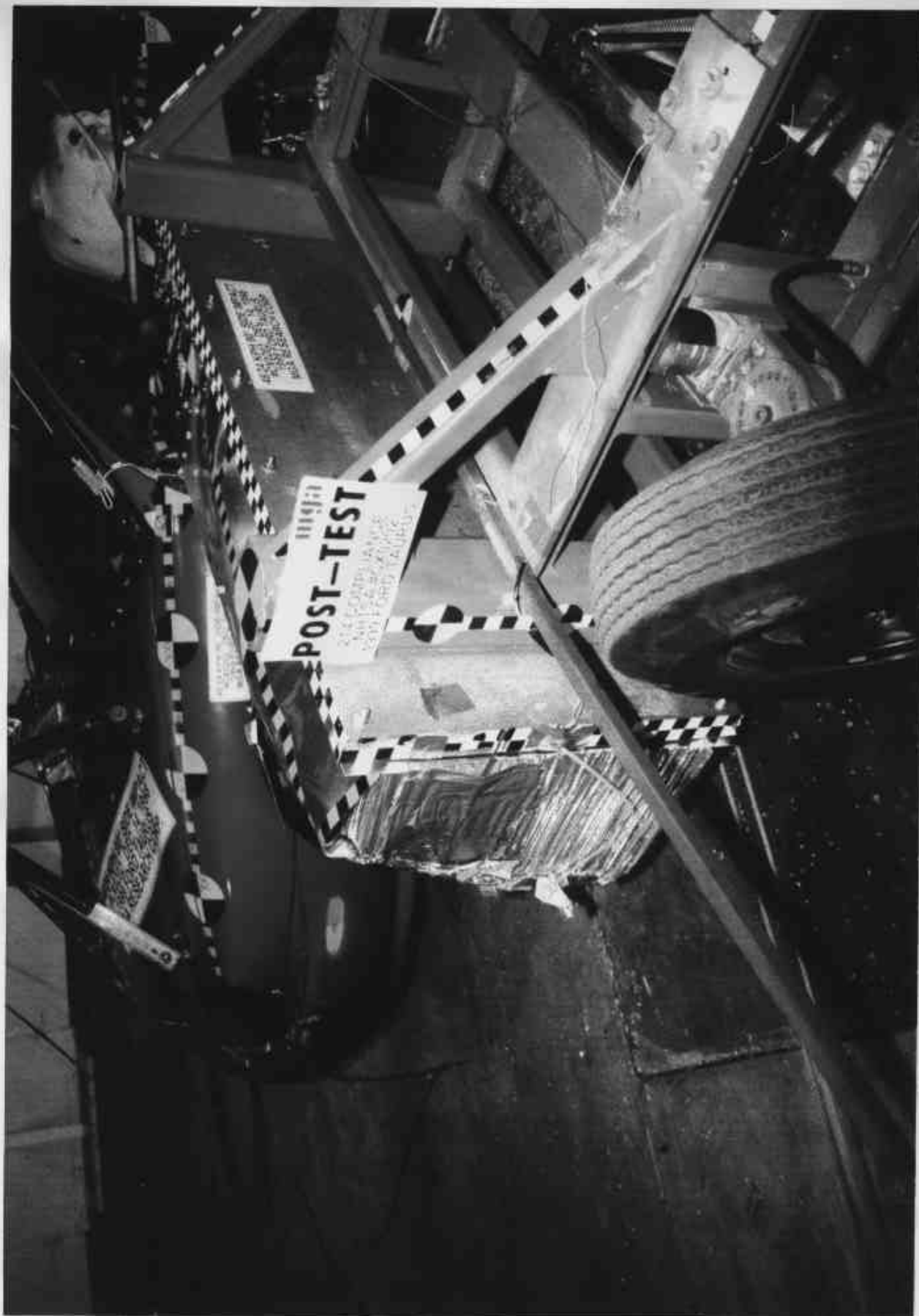


Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (left side)

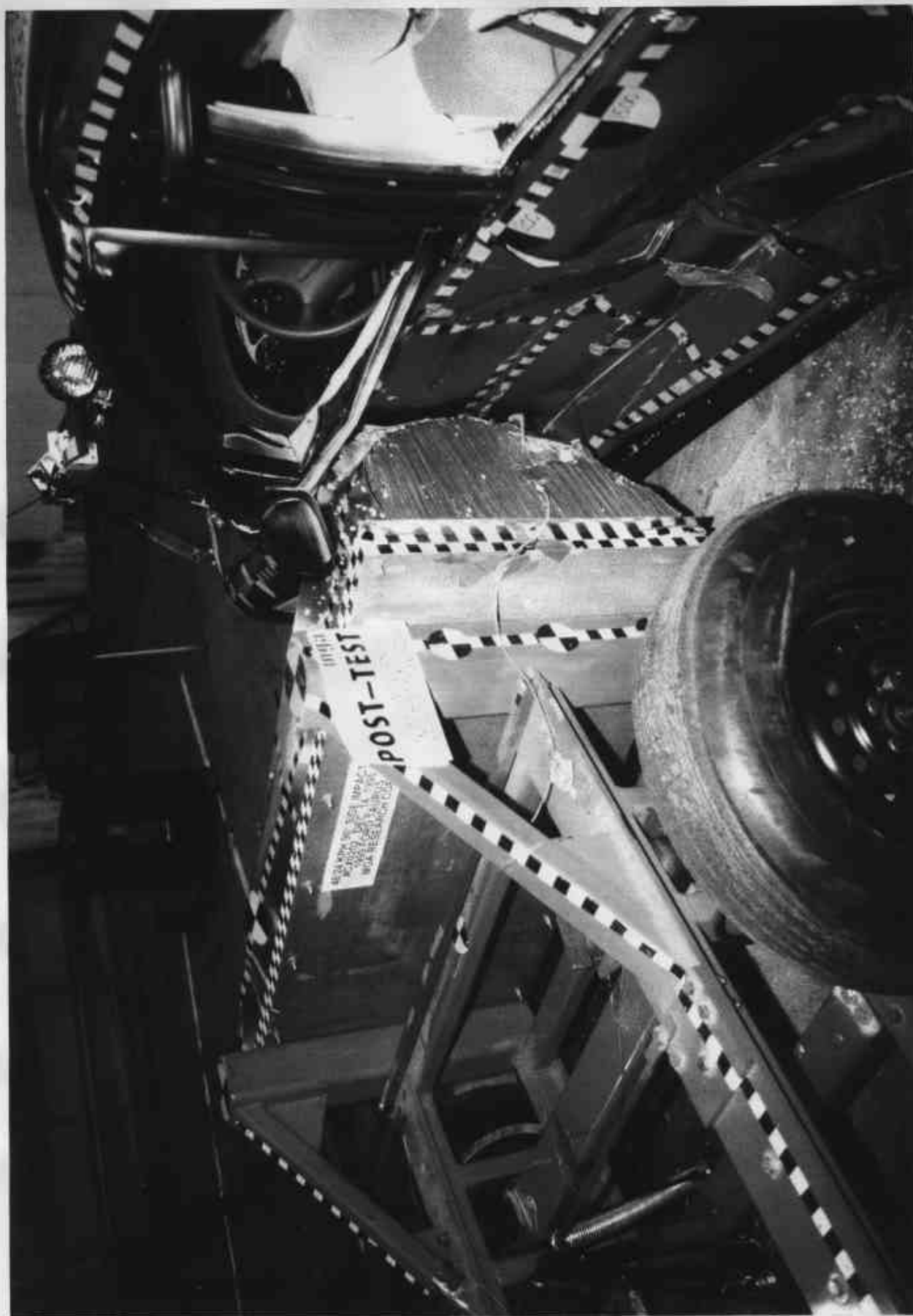


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)



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

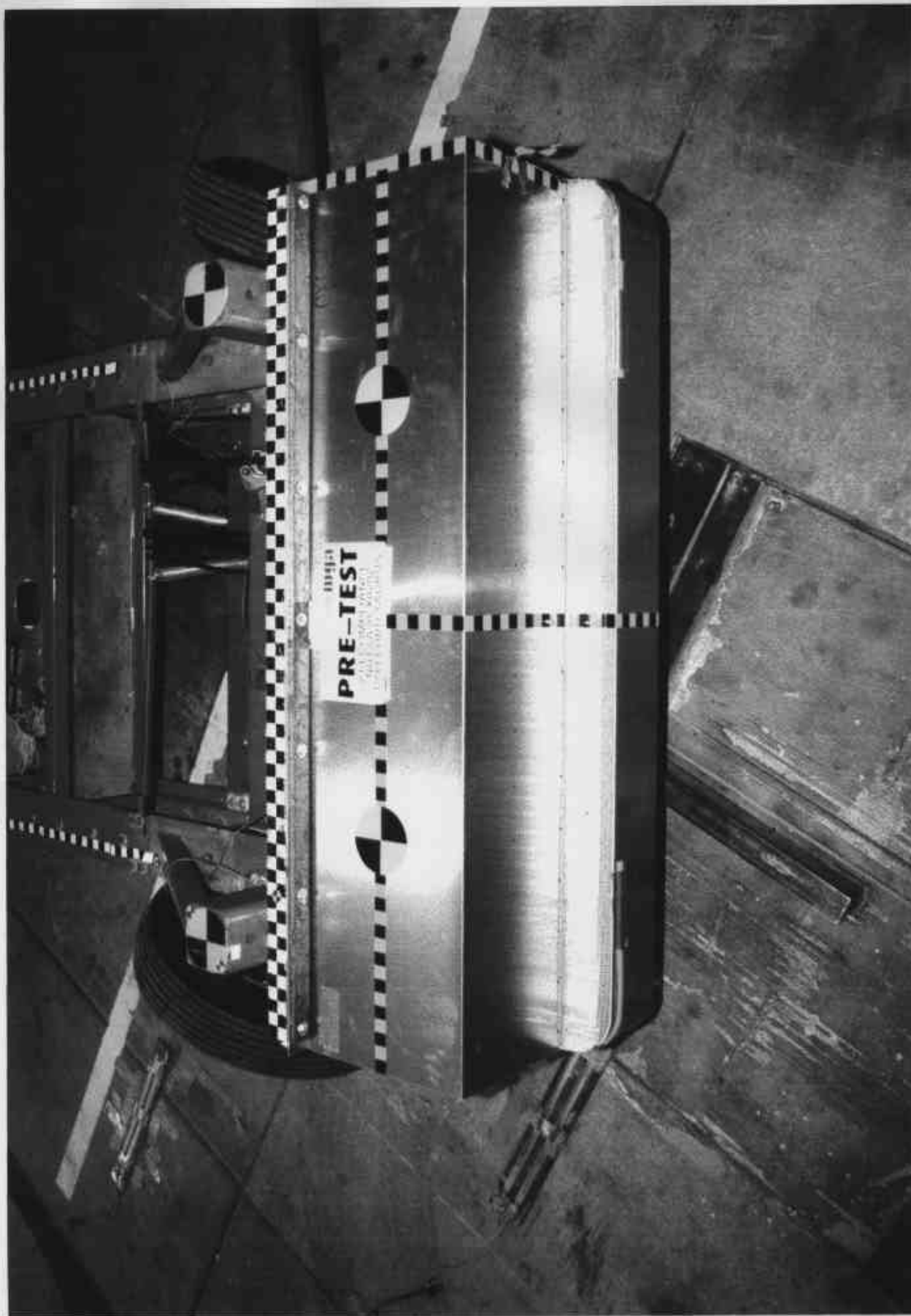


Photo No. A-13 - Pre-Test MDB Top View

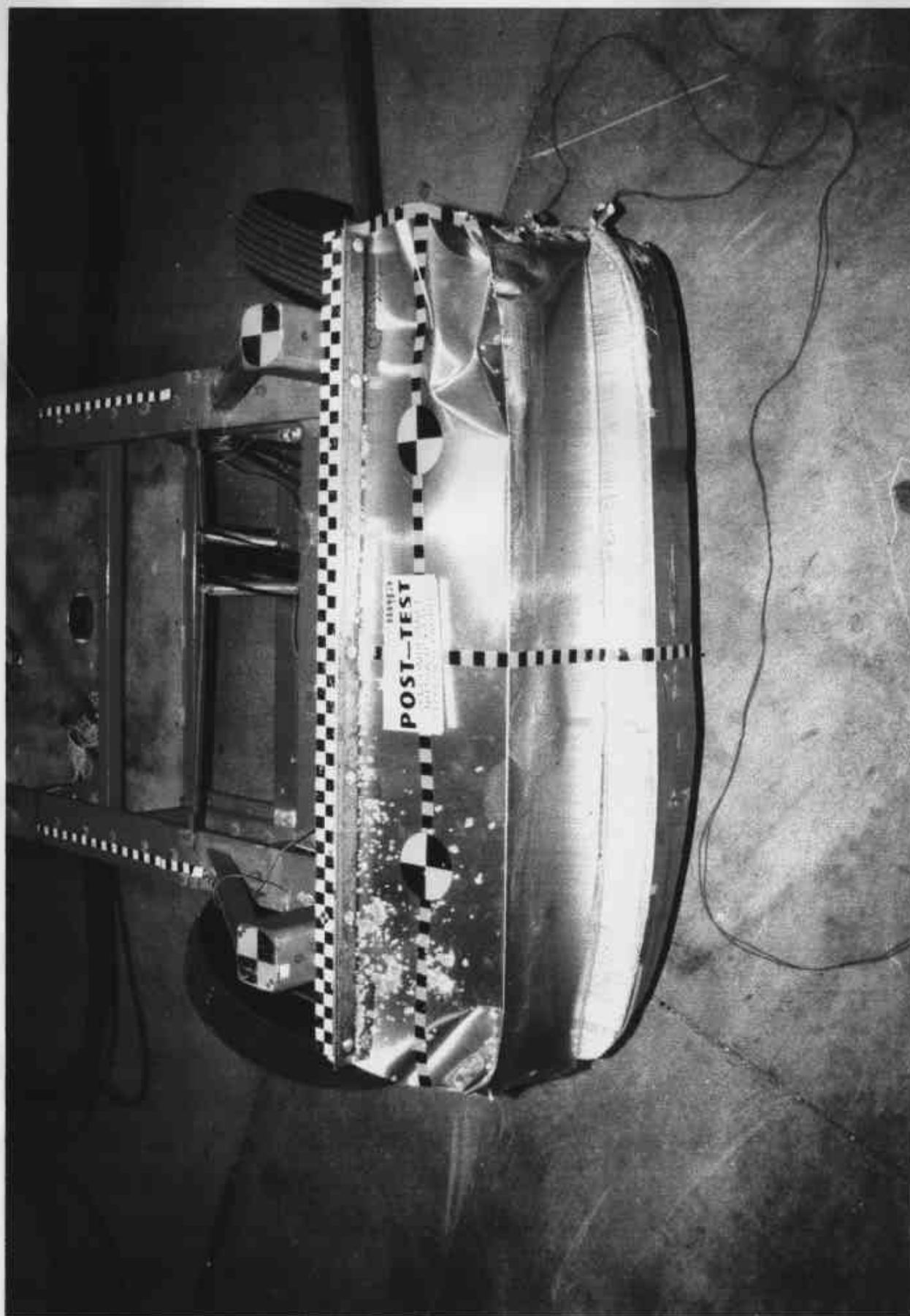


Photo No. A-14 - Post-Test MDB Top View



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



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

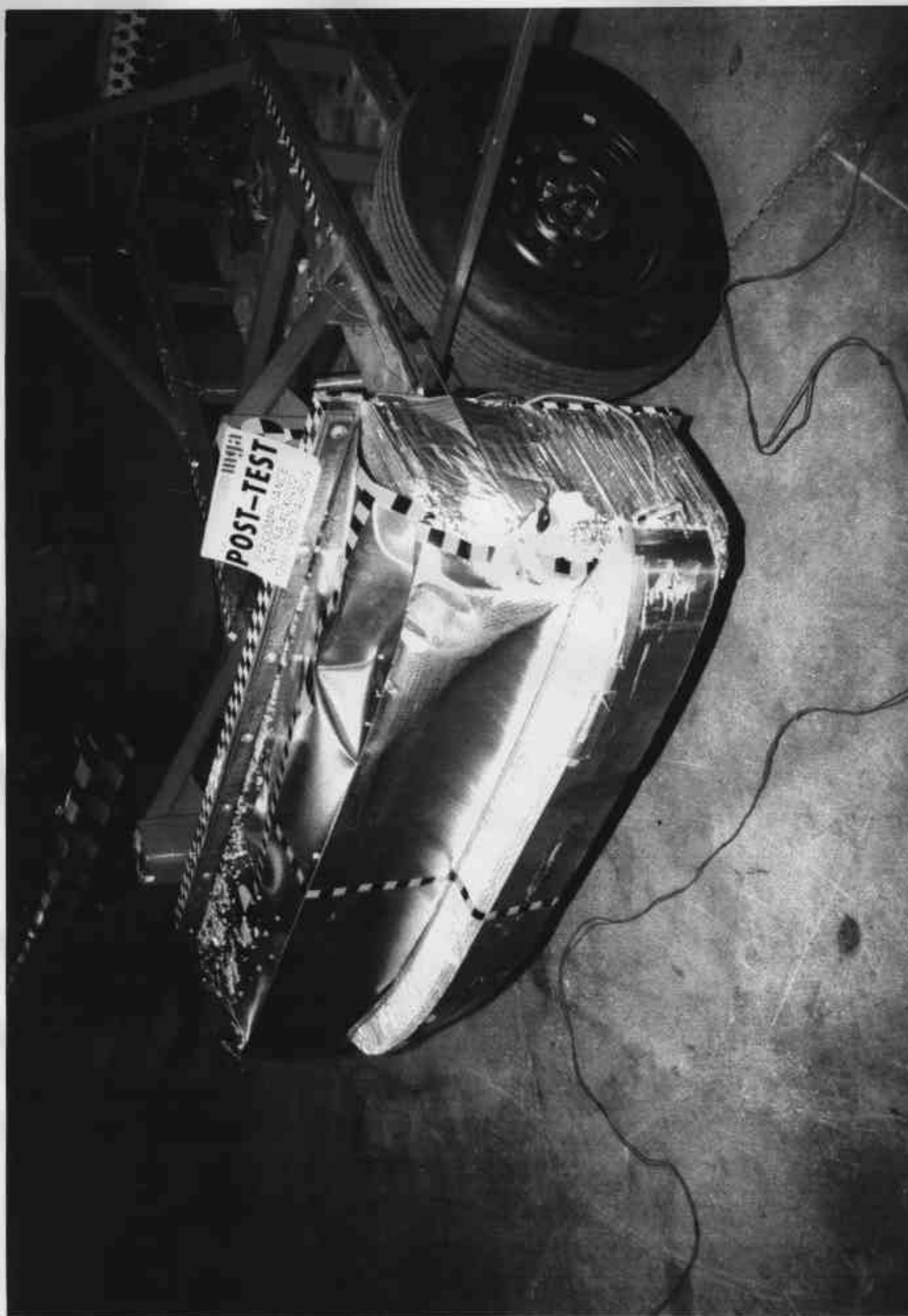


Photo No. A-18 - Post-Test MDB Left Side View



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 Driver Dummy Right Side View



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



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



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



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



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



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



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



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



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

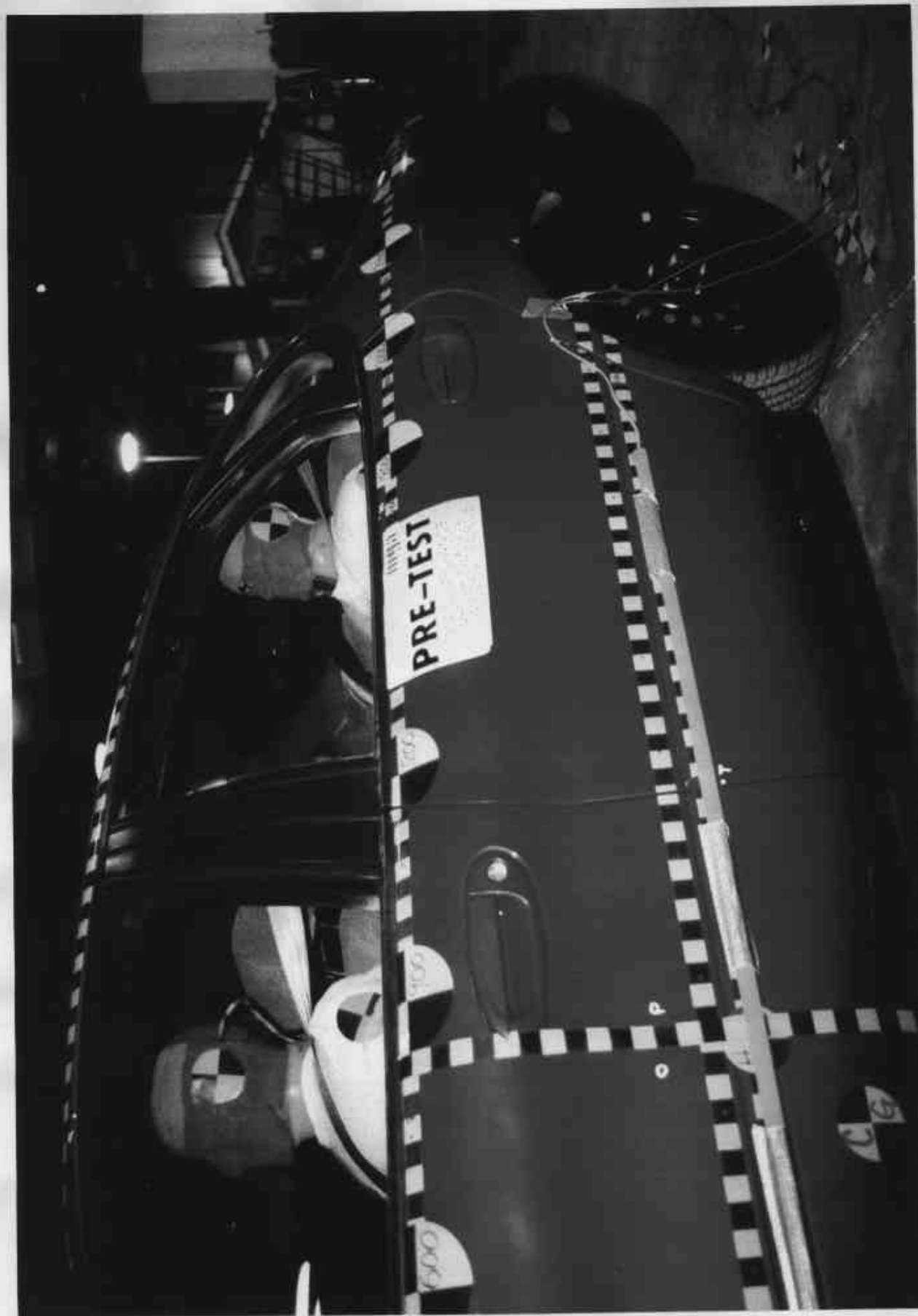


Photo No. A-31 - Pre-Test Rear Passenger Dummy Left Side View



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



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



Photo No. A-34 - Pre-Test Rear Passenger Dummy Shoulder View



Photo No. A-35 - Post-Test Rear Passenger Dummy Shoulder View



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



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



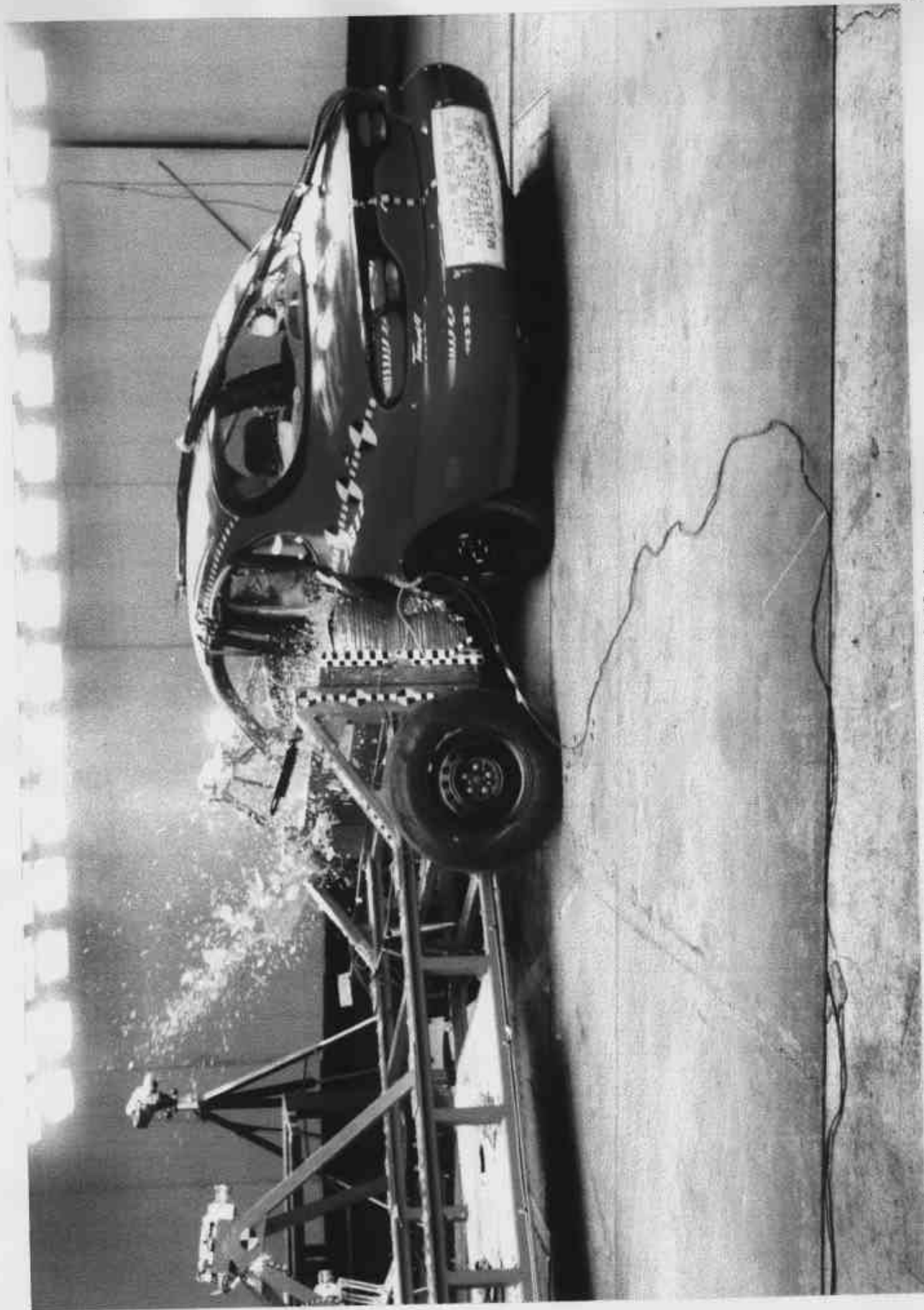
Photo No. A-38 - Pre-Test Right Front Impact Point on Vehicle

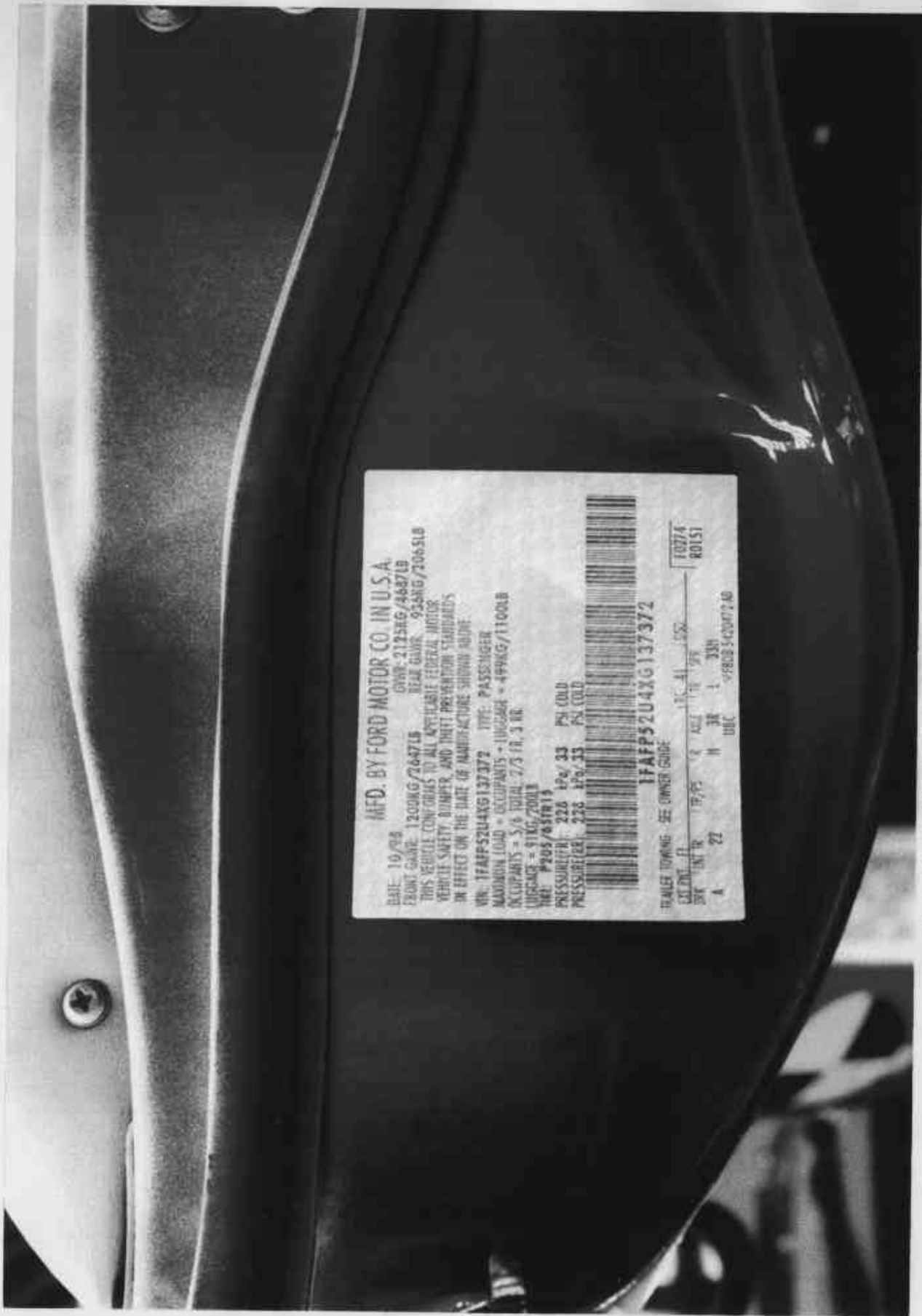


Photo No. A-39 - Post-Test Right Front Impact Point on Vehicle

A-40

Photo No. A-40 - Impact





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

DATE: 10/98 GWT: 2125KG/4687LB
 FRONT GAWD: 1200KG/2647LB REAR GAWD: 935KG/2065LB
 THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR
 VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS
 IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN: 1FAFP52U4XG137372 TYPE: PASSENGER
 MAXIMUM LOAD - OCCUPANTS - 1100KG - 4994G/1100LB
 OCCUPANTS - 5/6 TOTAL: 2/3 FR. 3 RR.
 LUGGAGE - 91KG/200LB

WGT: 208/457113
 PRESSURE: 220 kPa/33 PSI COLD
 PRESSURE: 220 kPa/33 PSI COLD

1FAFP52U4XG137372

TRAILER TOWING - SEE OWNER GUIDE

EXC. ENT. 1	17/PS	3	AGE	10	152	10274
SR	INT	TR	17/PS	3	AGE	10
A	22	H	38	1	33H	10151
TWC						10151
1-PRC 5420472 AD						

Photo No. A-41 - Vehicle Certification Label and Tire Placard



Photo No. A-42 - Rollover 90°

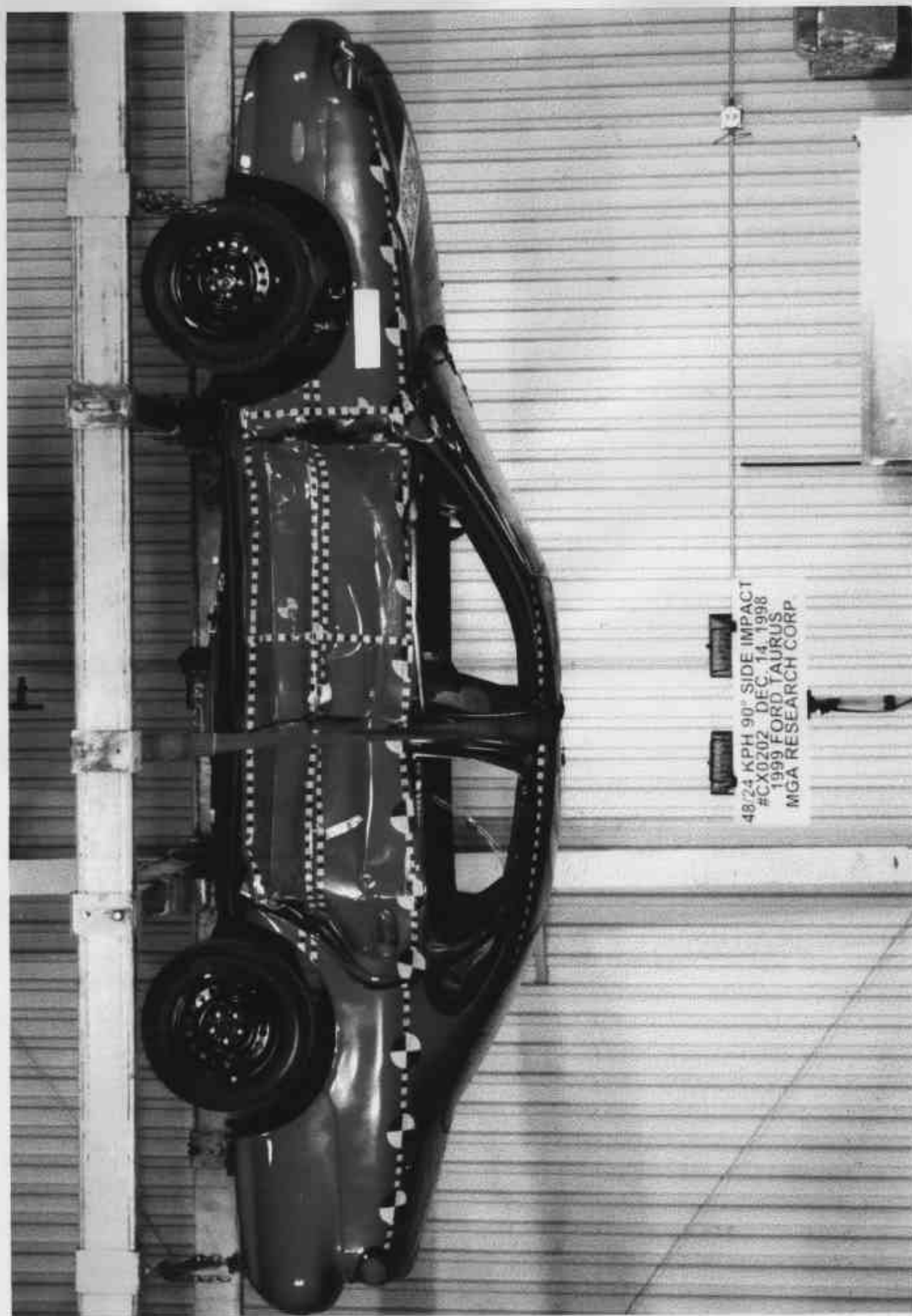


Photo No. A-43 - Rollover 180°

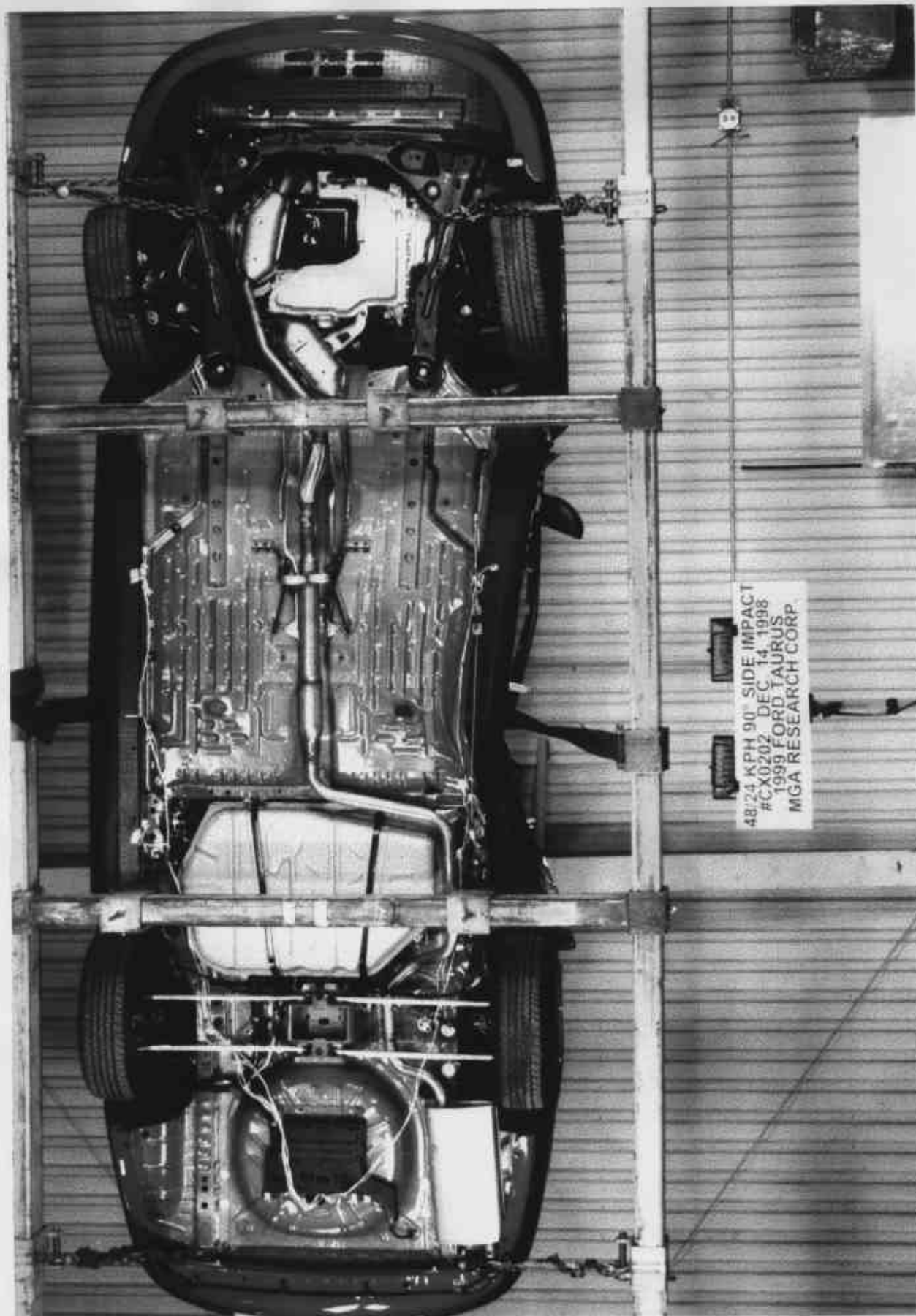


Photo No. A-44 - Rollover 270°

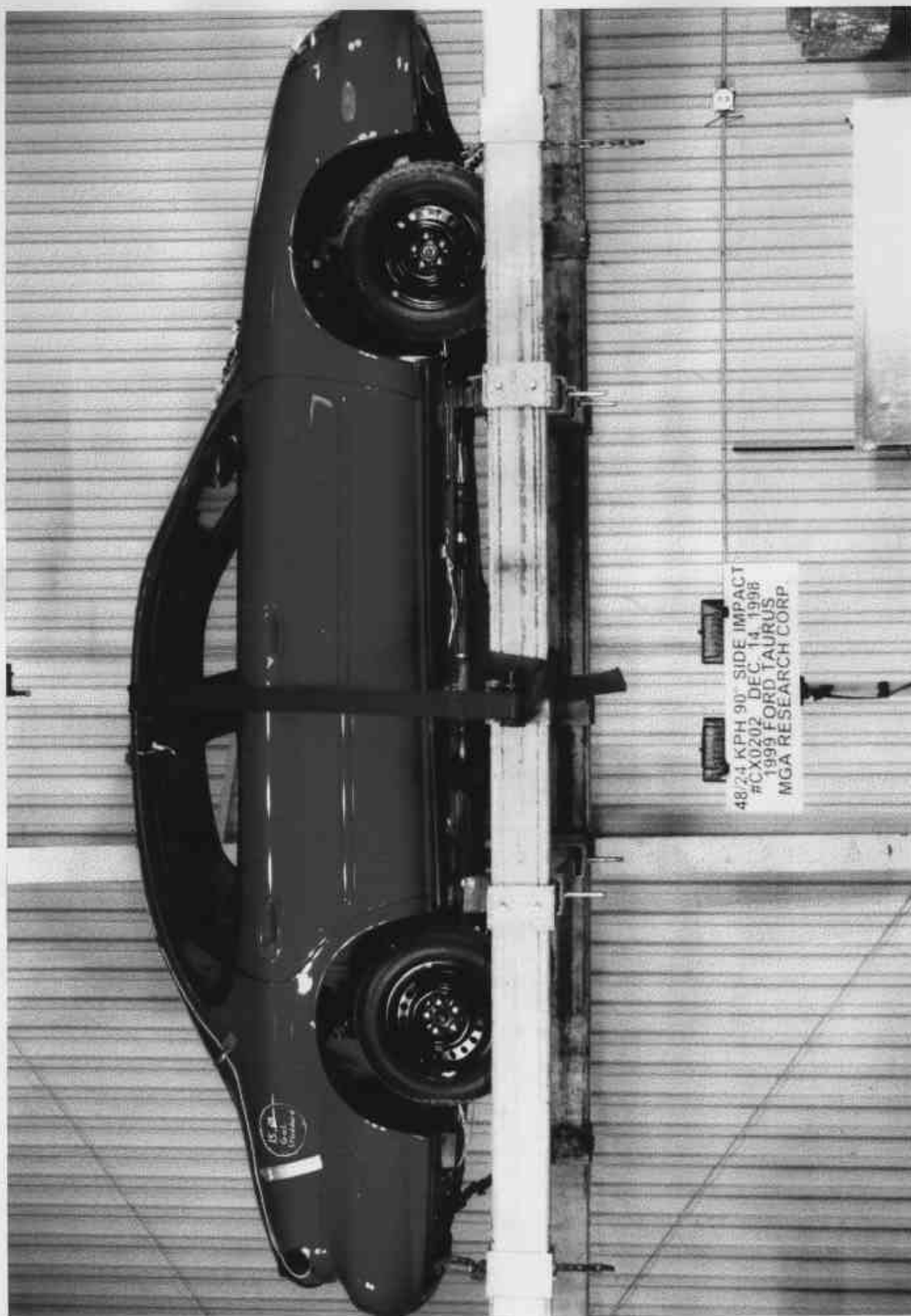


Photo No. A-45 - Rollover 360°

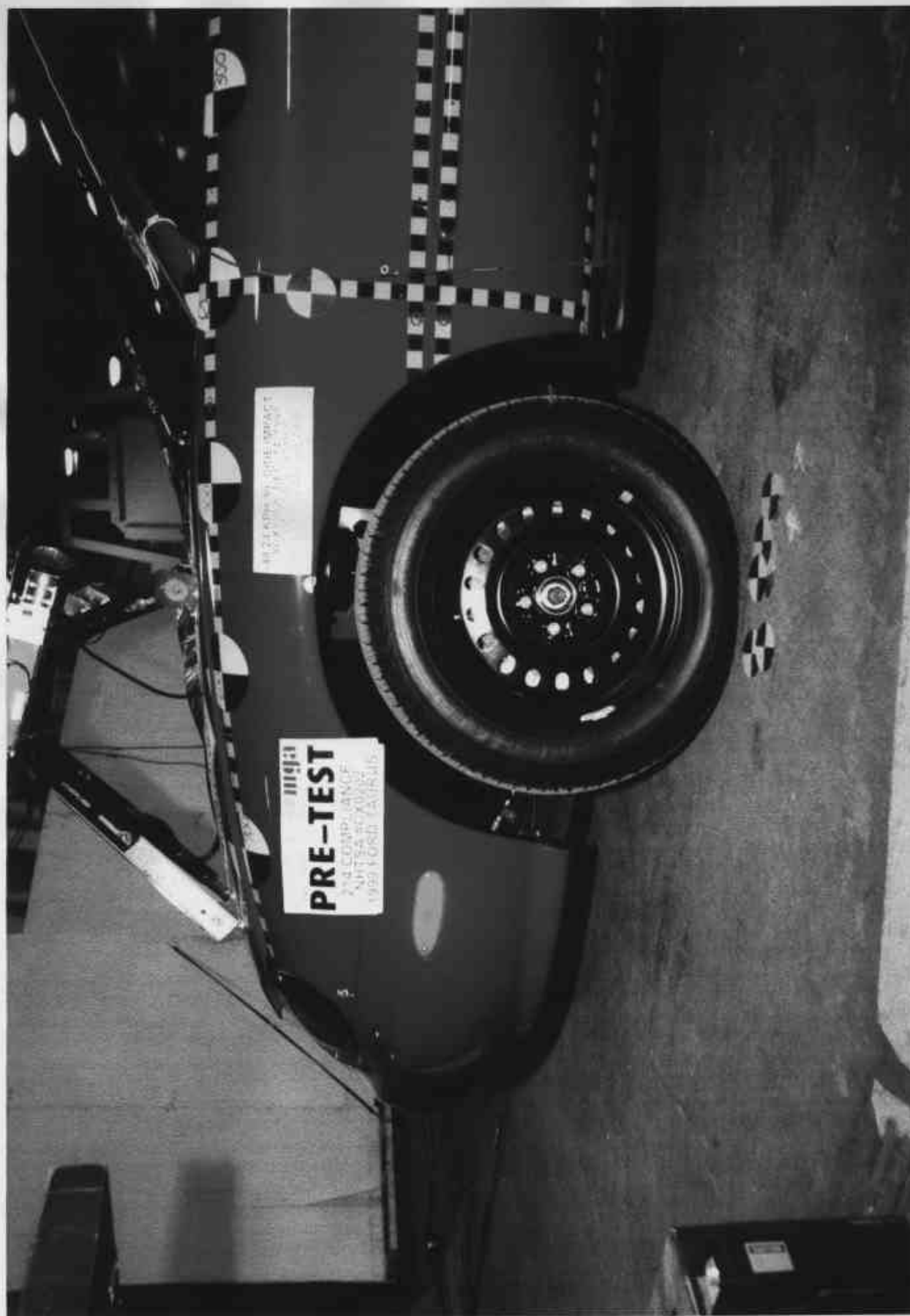


Photo No. A-46 - Left Front Attitude Point



Photo No. A-47 - Right Front Attitude Point



Photo No. A-48 - Left Rear Attitude Point



Photo No. A-49 - Right Rear Attitude Point

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* Data not valid after approximately 62 msec.

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TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202)

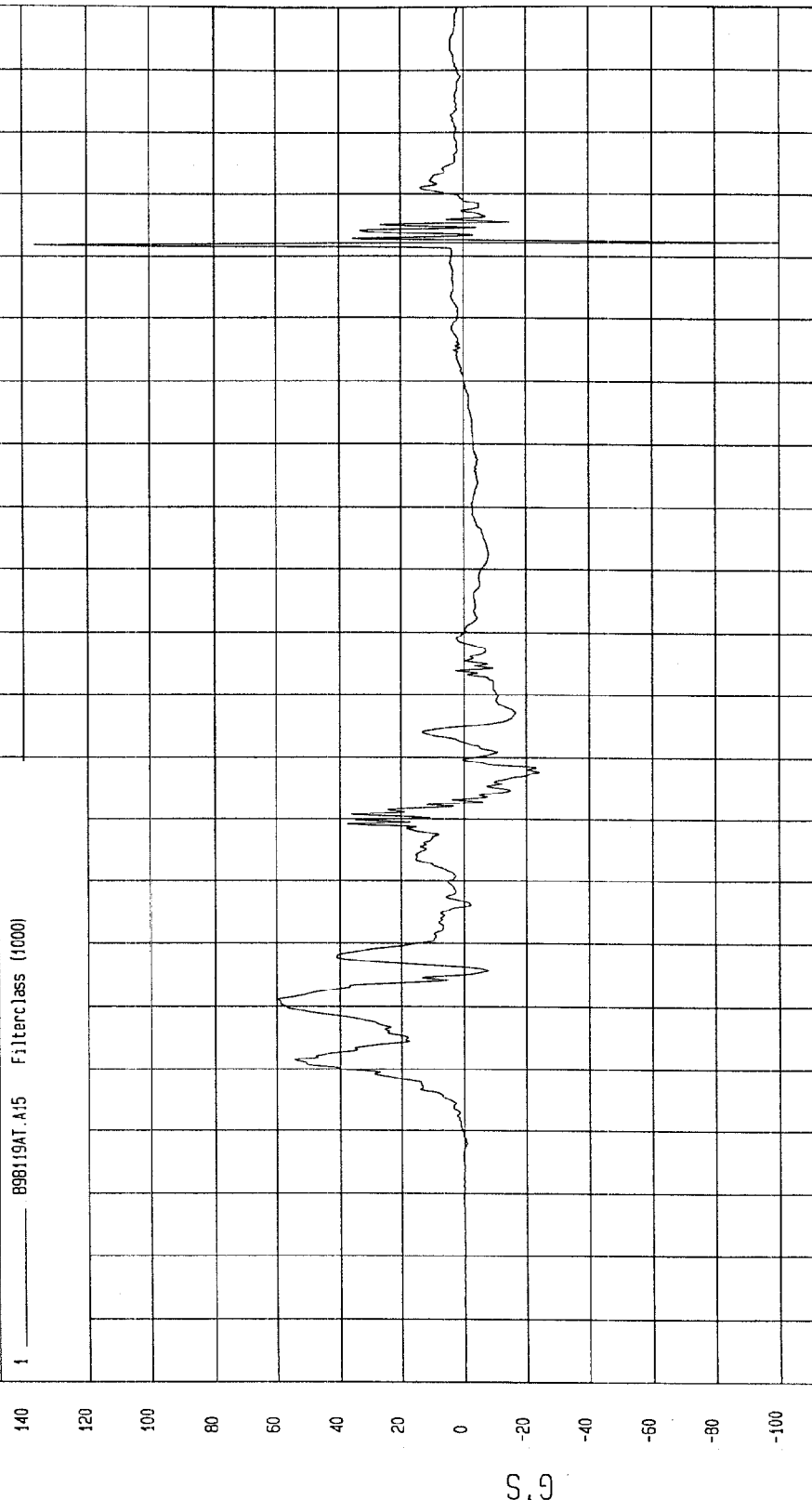
Speed: 32.9 MPH 52.9 KPH

Minimum = -99.95 G'S at 162 msec

Maximum = 136.22 G'S at 162 msec

DRIVER UPPER RIB Y ACCELERATION

1 _____ 898119AT.A15 FilterClass (1000)



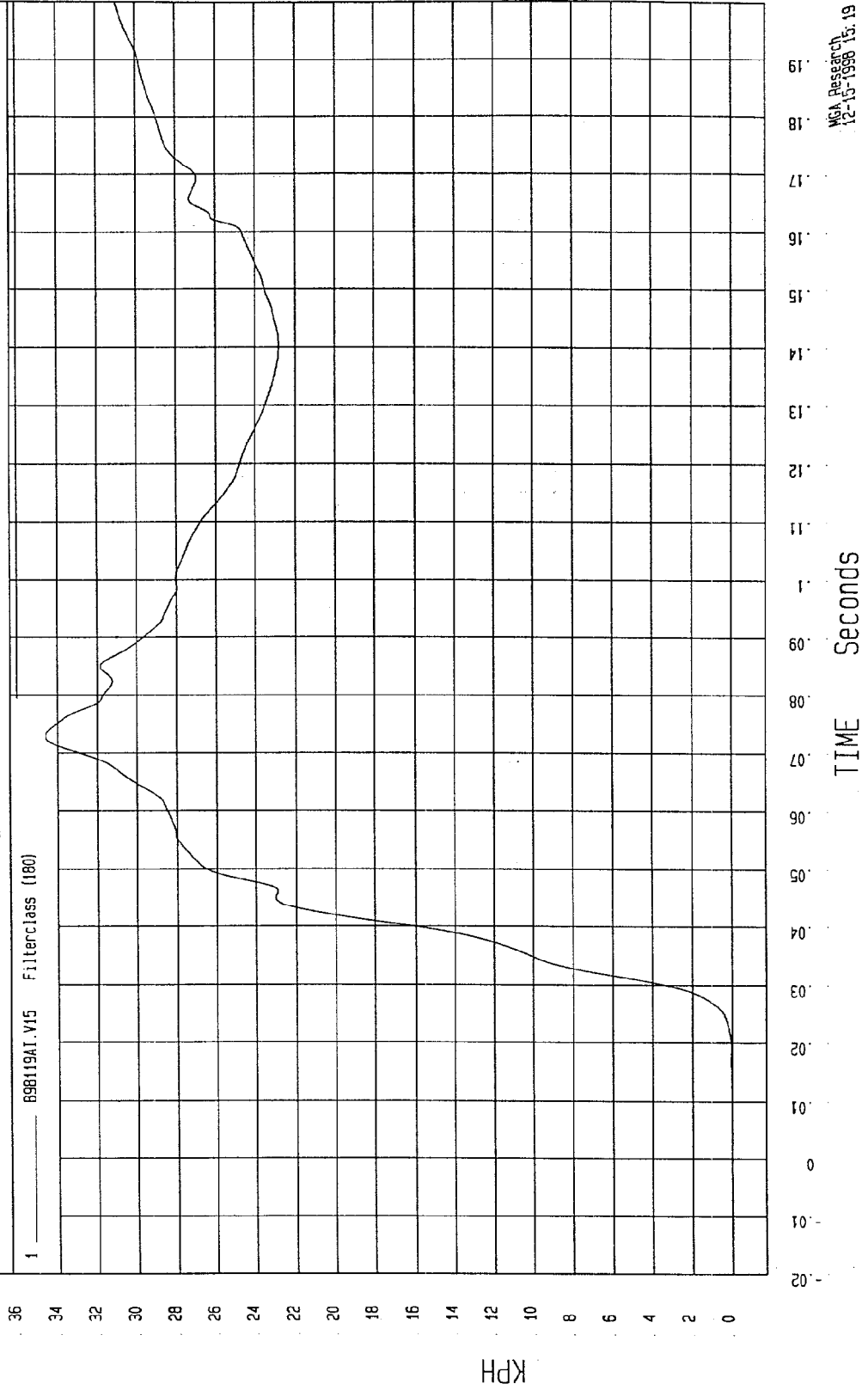
NSA Research
12-15-1998 14:51

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -1.39E-02 KPH at -8 msec Maximum = 34.6 KPH at 73 msec

DRIVER UPPER RIB Y VELOCITY



MCA Research
12-15-1998 15.19

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

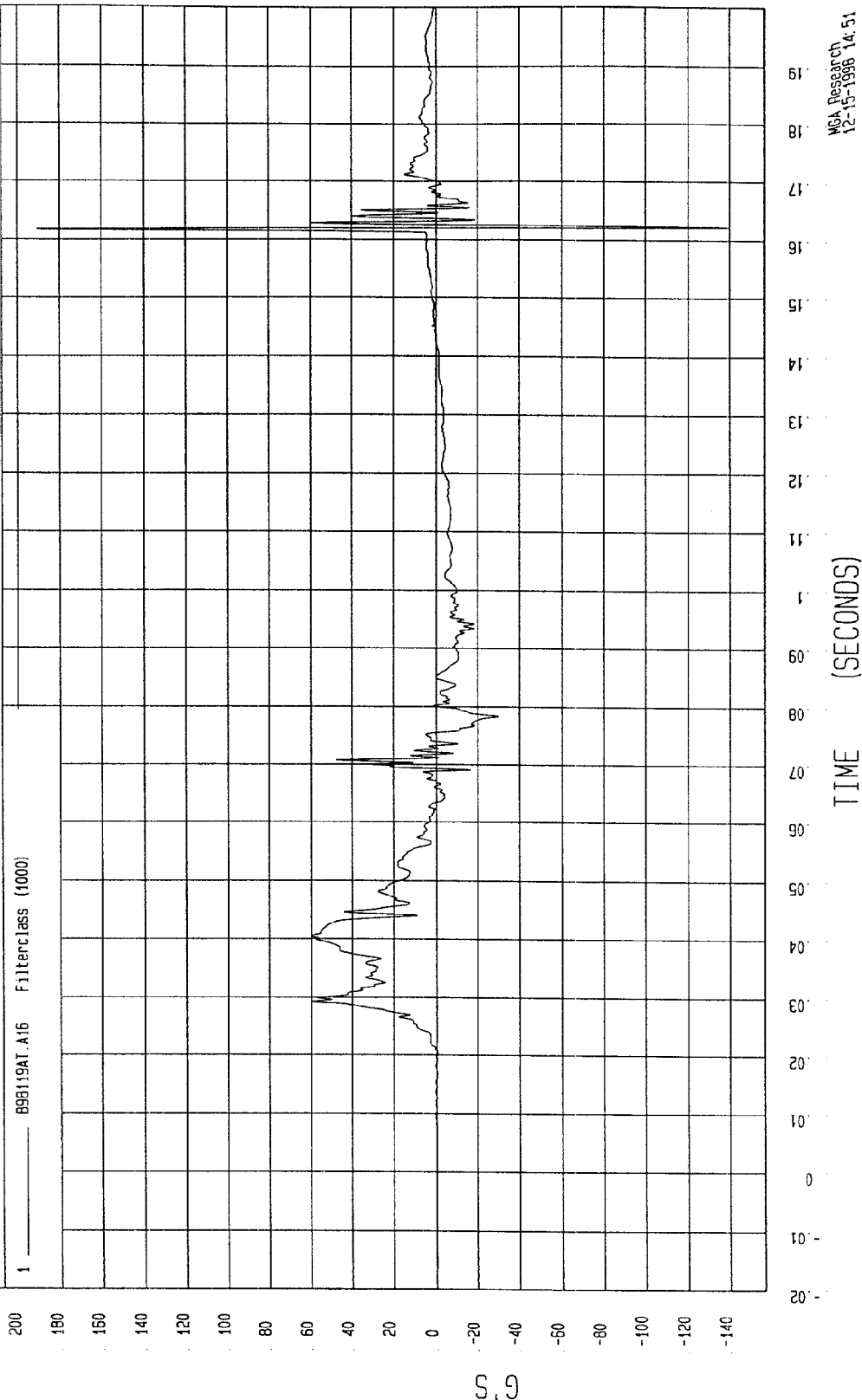
Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 190.73 G'S at 162 msec

Minimum = -139.95 G'S at 162 msec

DRIVER LOWER RIB Y ACCELERATION



TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

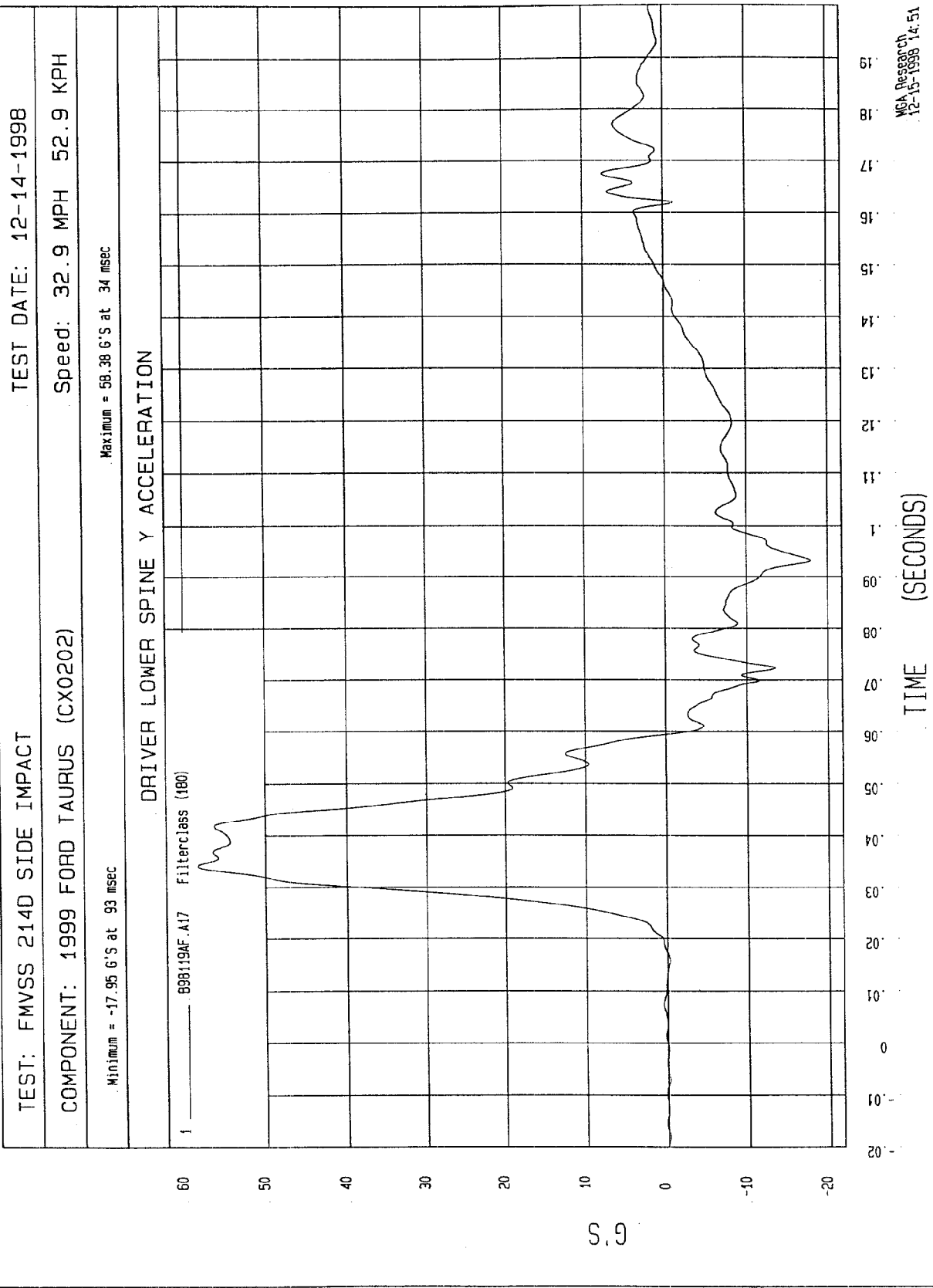
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -1.05E-02 KPH at -8 msec Maximum = 35.77 KPH at 75 msec

DRIVER LOWER RIB Y VELOCITY



NCA Research
12-15-1998 15.19



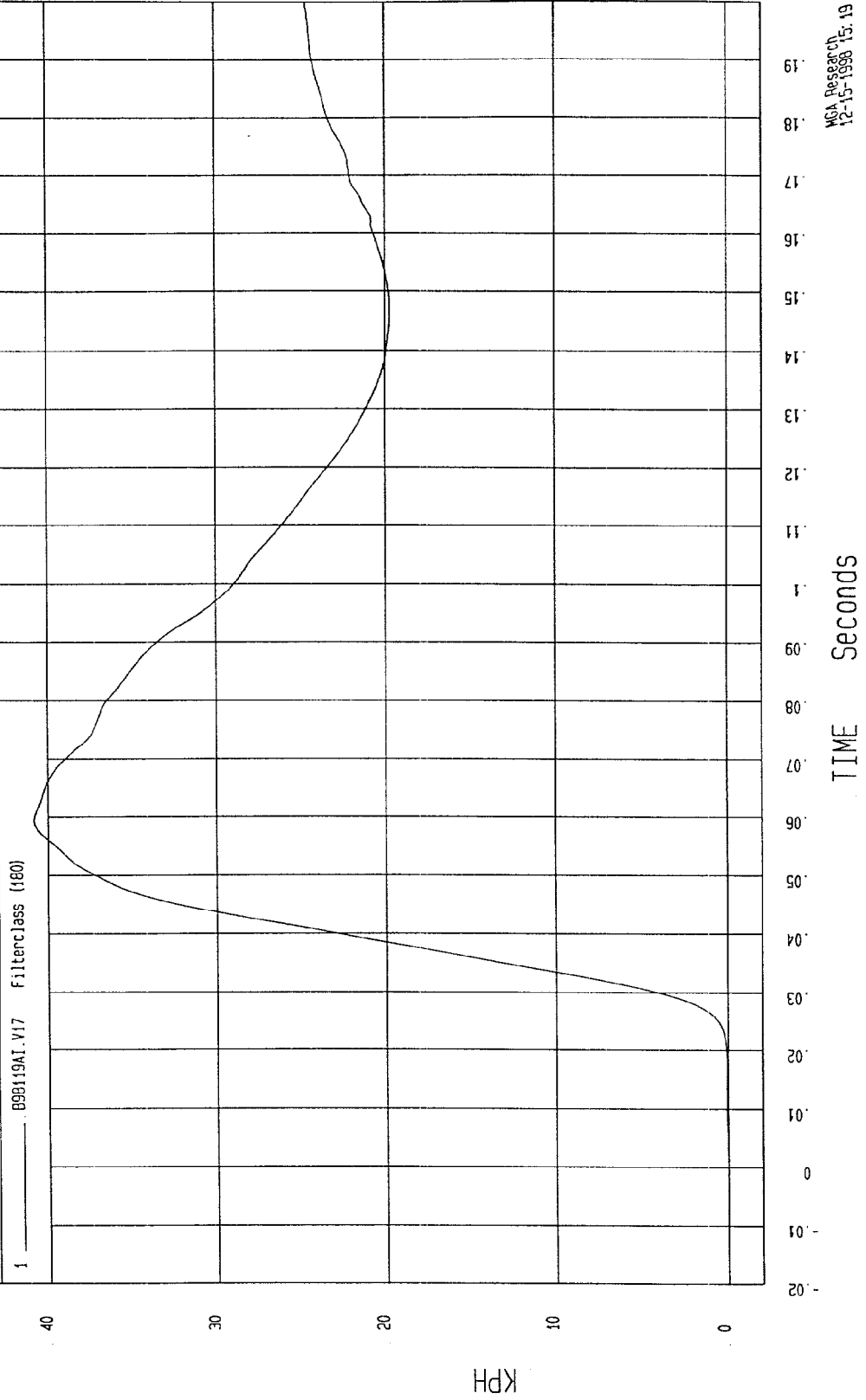
MCA Research
12-15-1998 14:51

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -8.32E-03 KPH at -17 msec Maximum = 40.83 KPH at 59 msec

DRIVER LOWER SPINE Y VELOCITY

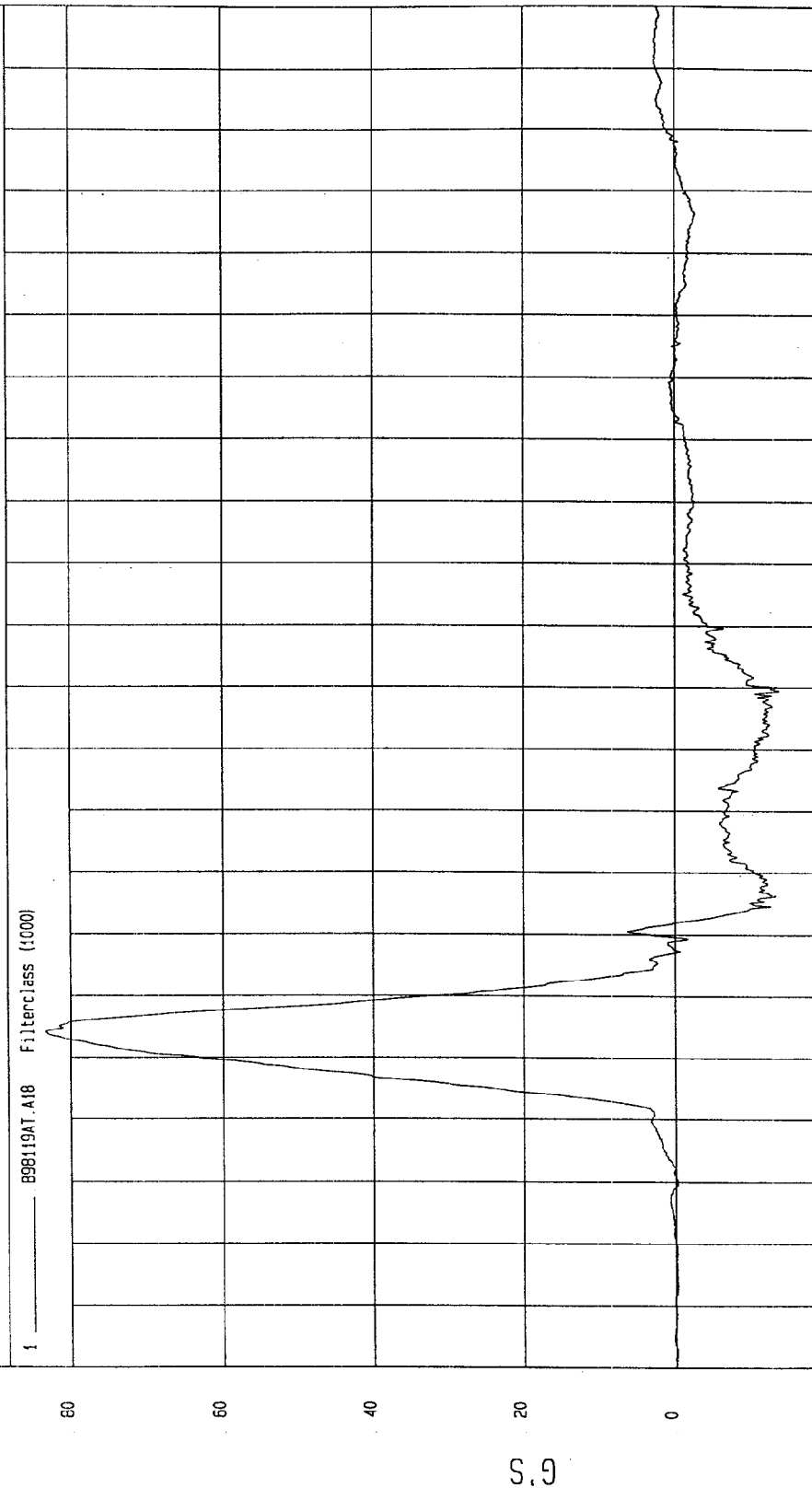


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -13.57 G'S at 89 msec Maximum = 83.29 G'S at 34 msec

DRIVER PELVIS Y ACCELERATION



TIME (SECONDS)

0.19 0.18 0.17 0.16 0.15 0.14 0.13 0.12 0.11 0.1 0.09 0.08 0.07 0.06 0.05 0.04 0.03 0.02 0.01 0 -0.01 -0.02

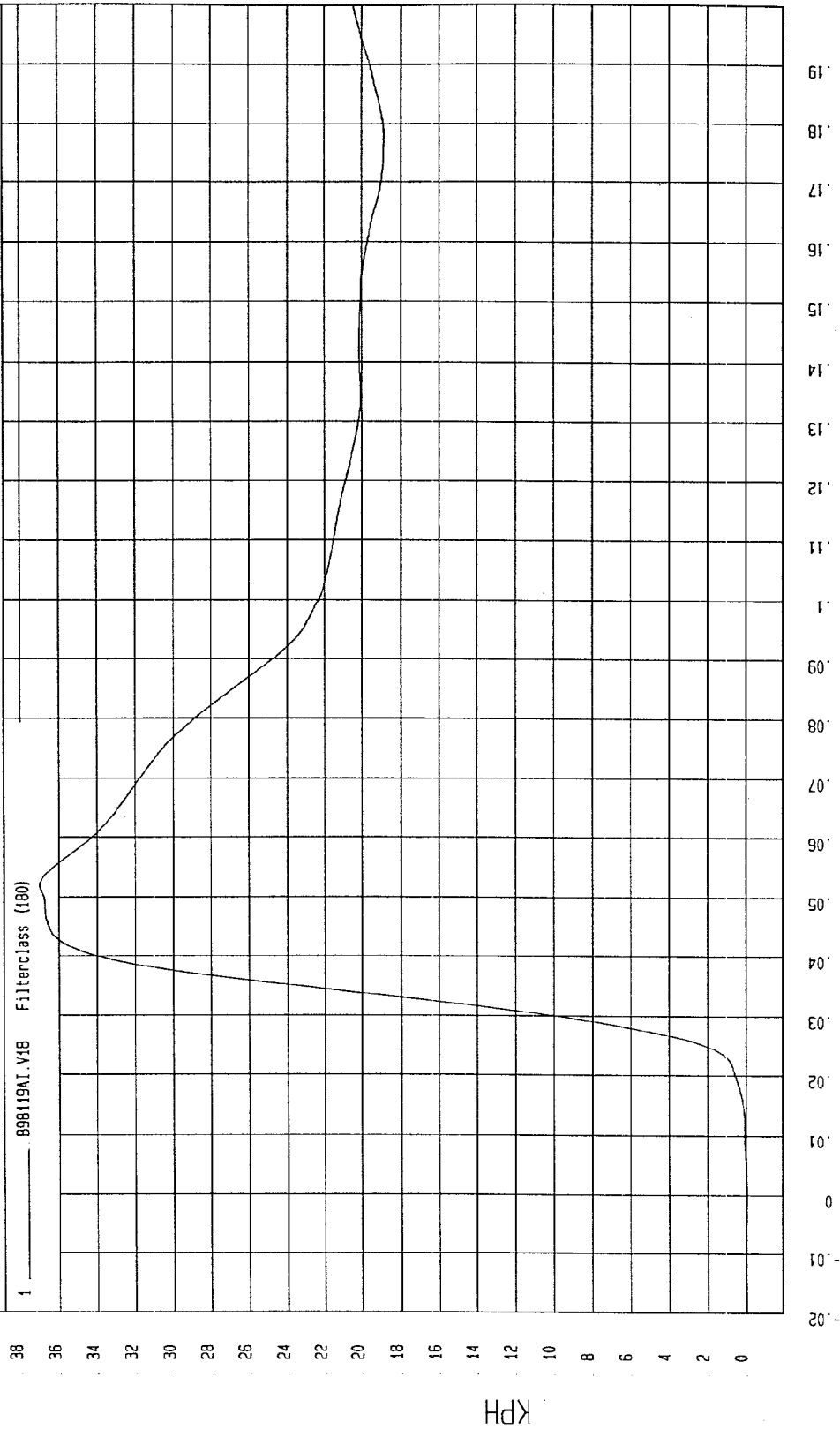
NCA Research
12-15-1998 14:51

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -3.67E-02 KPH at 0 msec Maximum = 37 KPH at 52 msec

DRIVER PELVIS Y VELOCITY



MSA Research
12-15-1998 15:19

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

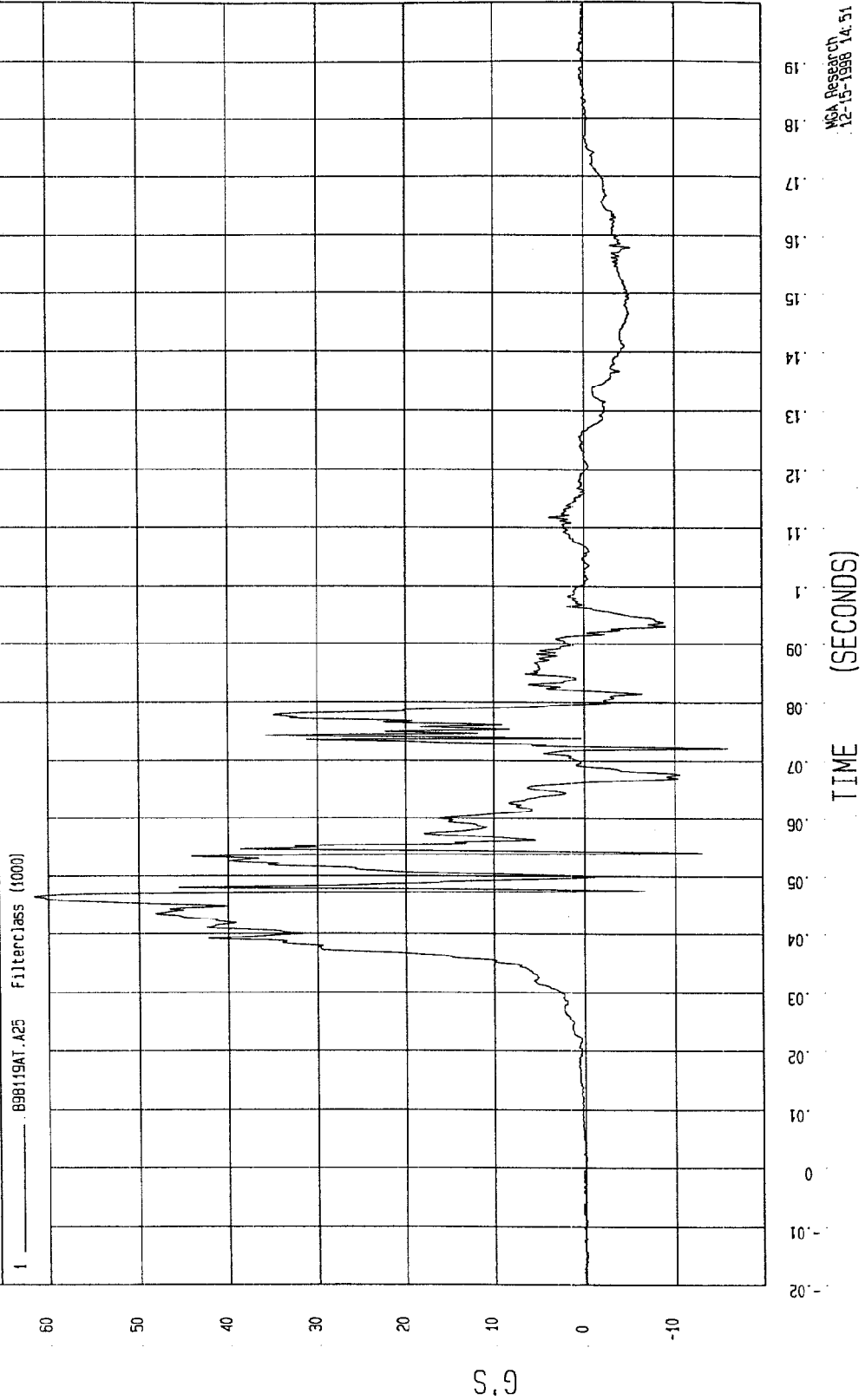
Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 61.51 G'S at 46 msec

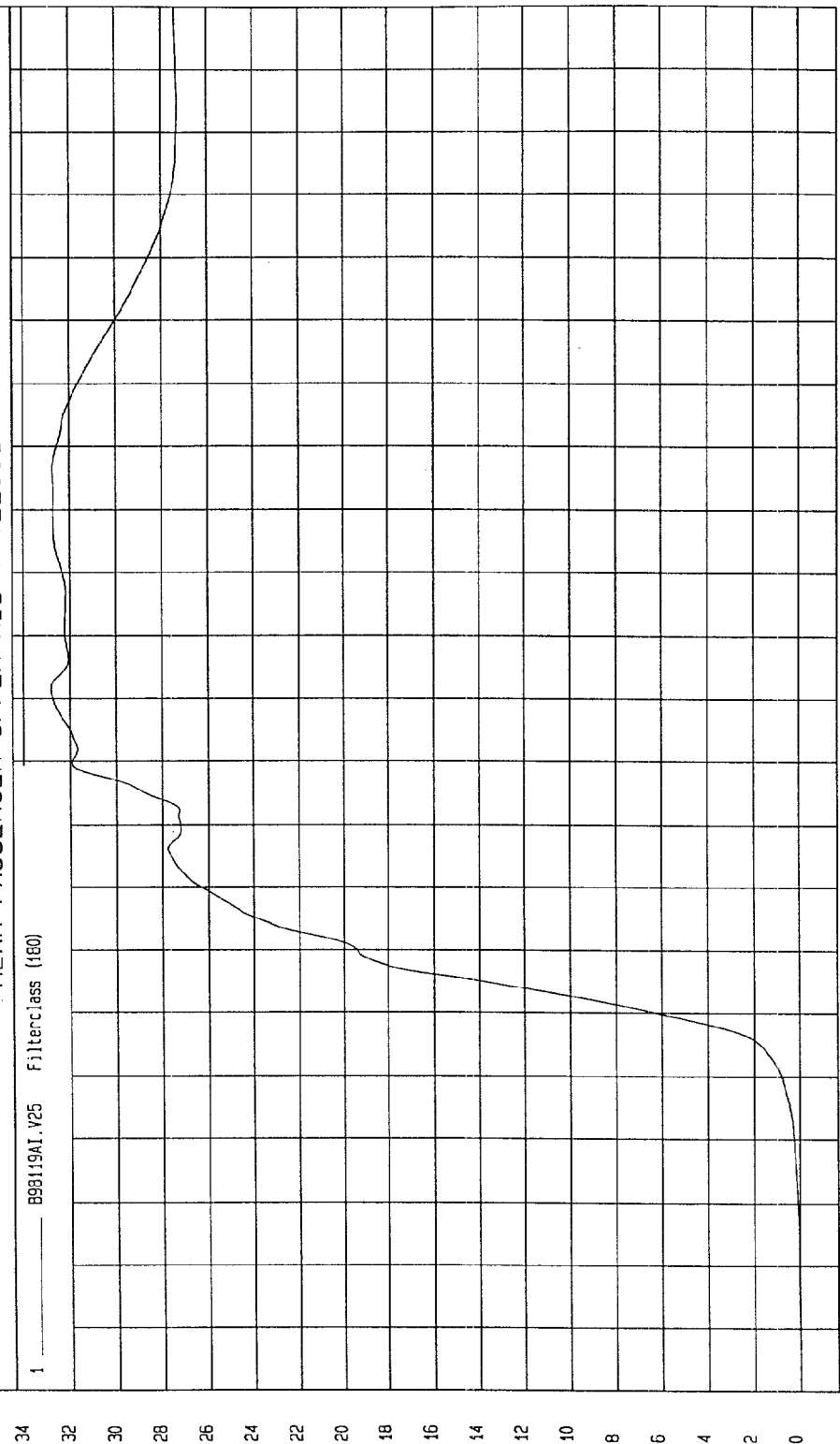
Minimum = -15.88 G'S at 72 msec

REAR PASSENGER UPPER RIB Y ACCELERATION



TEST: FMVSS 214D SIDE IMPACT
 COMPONENT: 1999 FORD TAURUS (CX0202)
 TEST DATE: 12-14-1998
 Speed: 32.9 MPH 52.9 KPH
 Minimum = 0 KPH at -20 msec
 Maximum = 32.84 KPH at 92 msec

REAR PASSENGER UPPER RIB Y VELOCITY



NCA Research
 12-15-1998 15:19

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

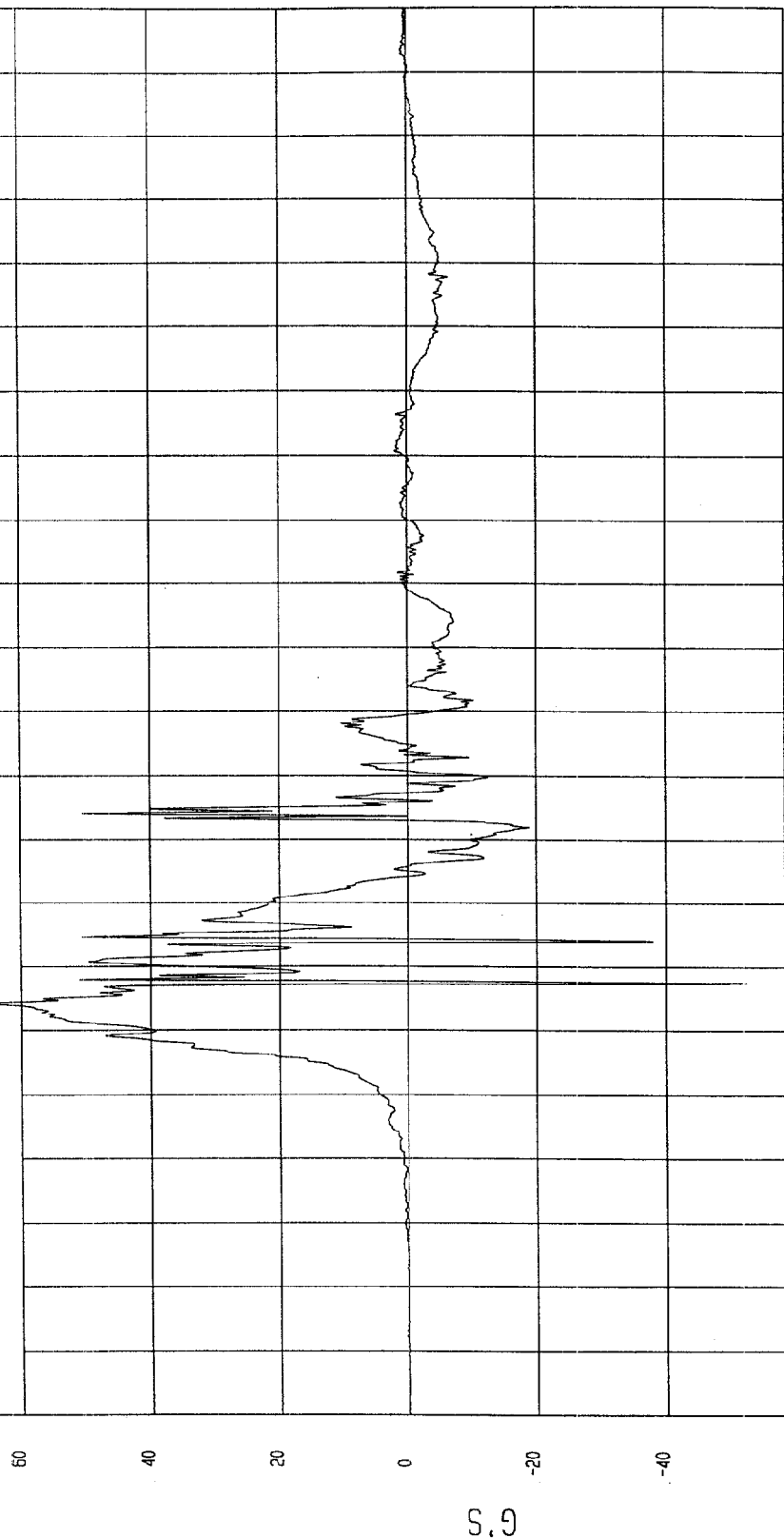
COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 65.33 G'S at 44 msec

Minimum = -52.54 G'S at 48 msec

REAR PASSENGER LOWER RIB Y ACCELERATION

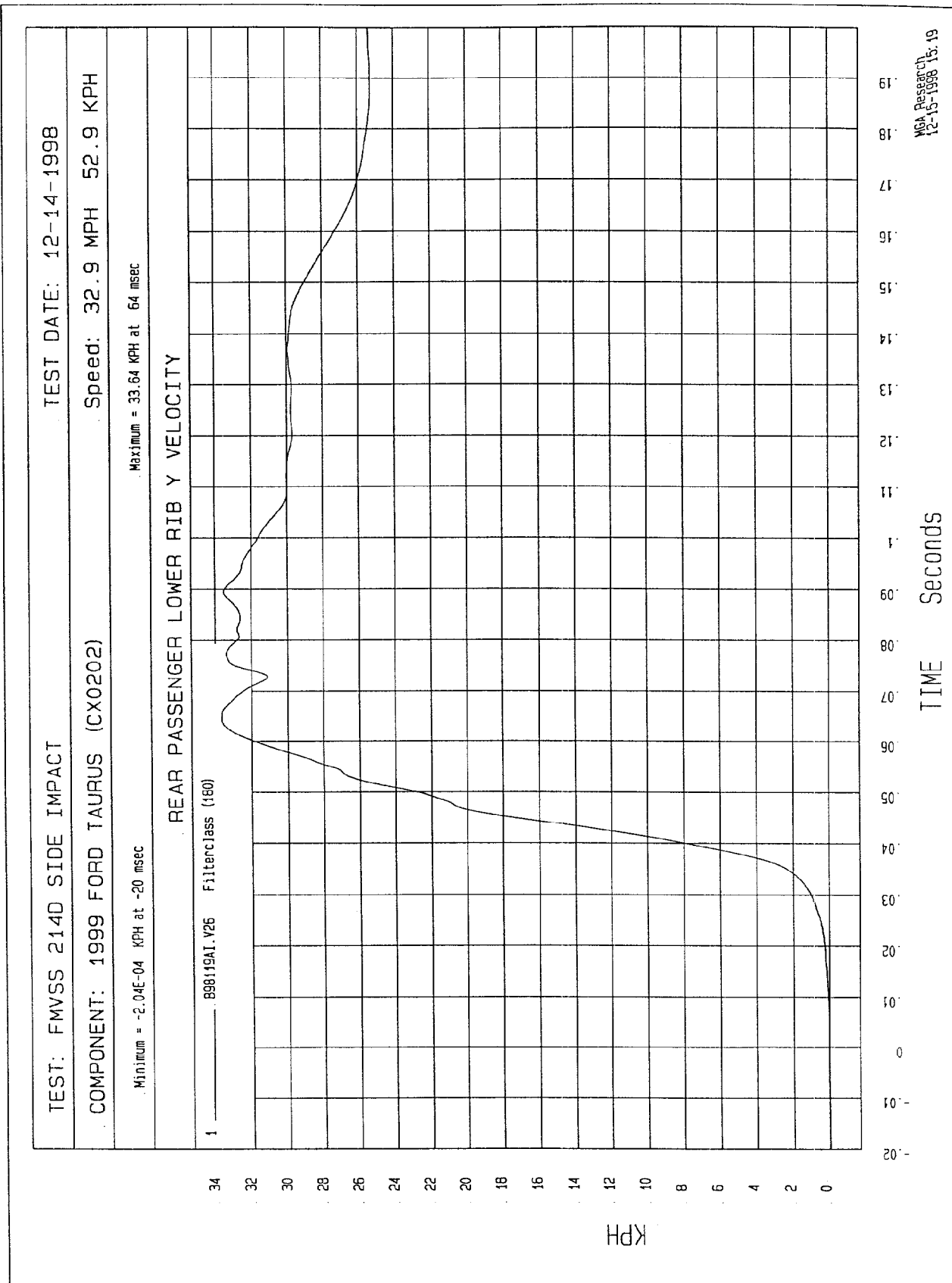
1 ——— 898119AT.A25 Filterclass (1000)



TIME (SECONDS)

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0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
-0.01
-0.02

NGA Research
12-15-1998 14: 51



MGA Research
12-15-1998 15:19

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

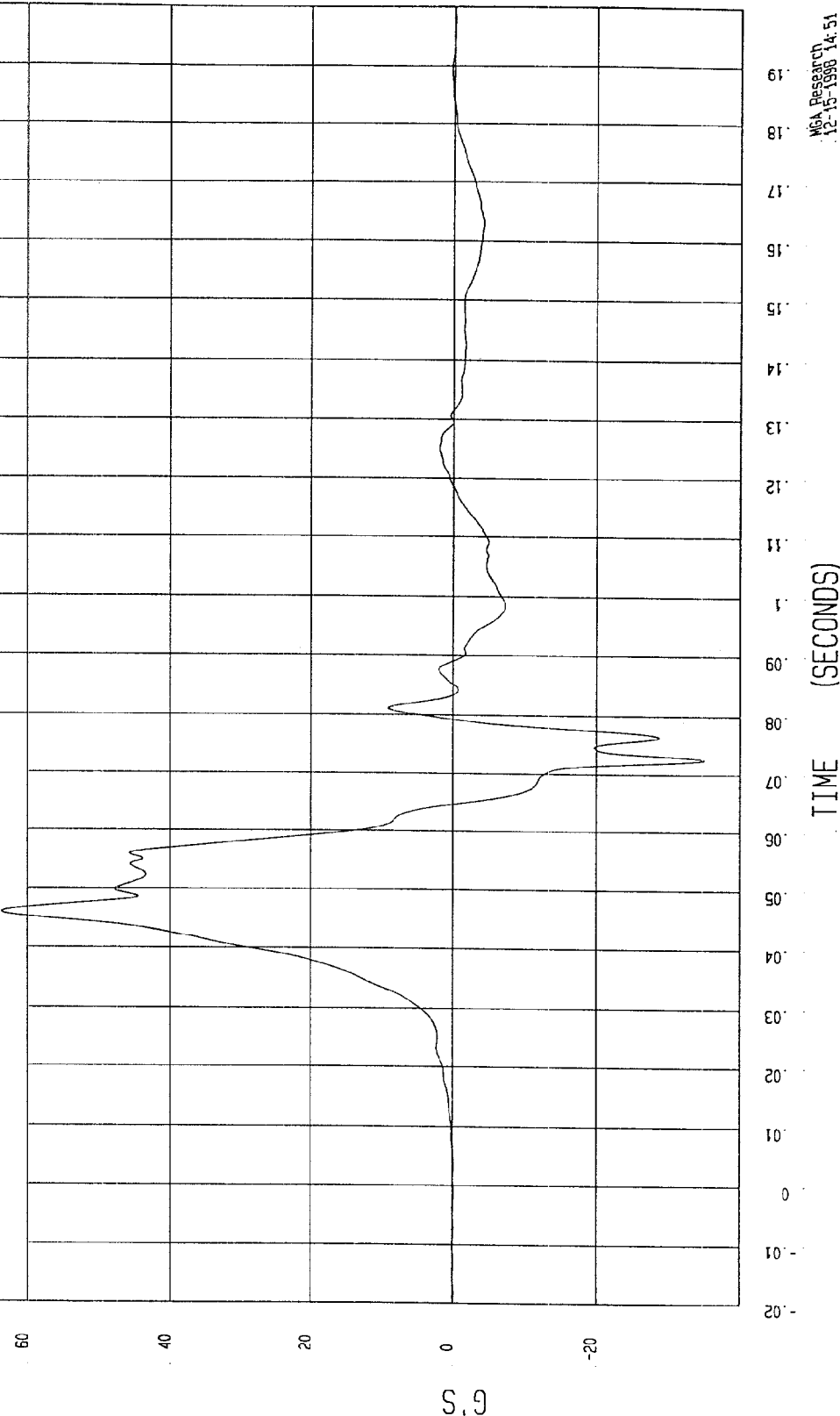
COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 63.67 G'S at 46 msec

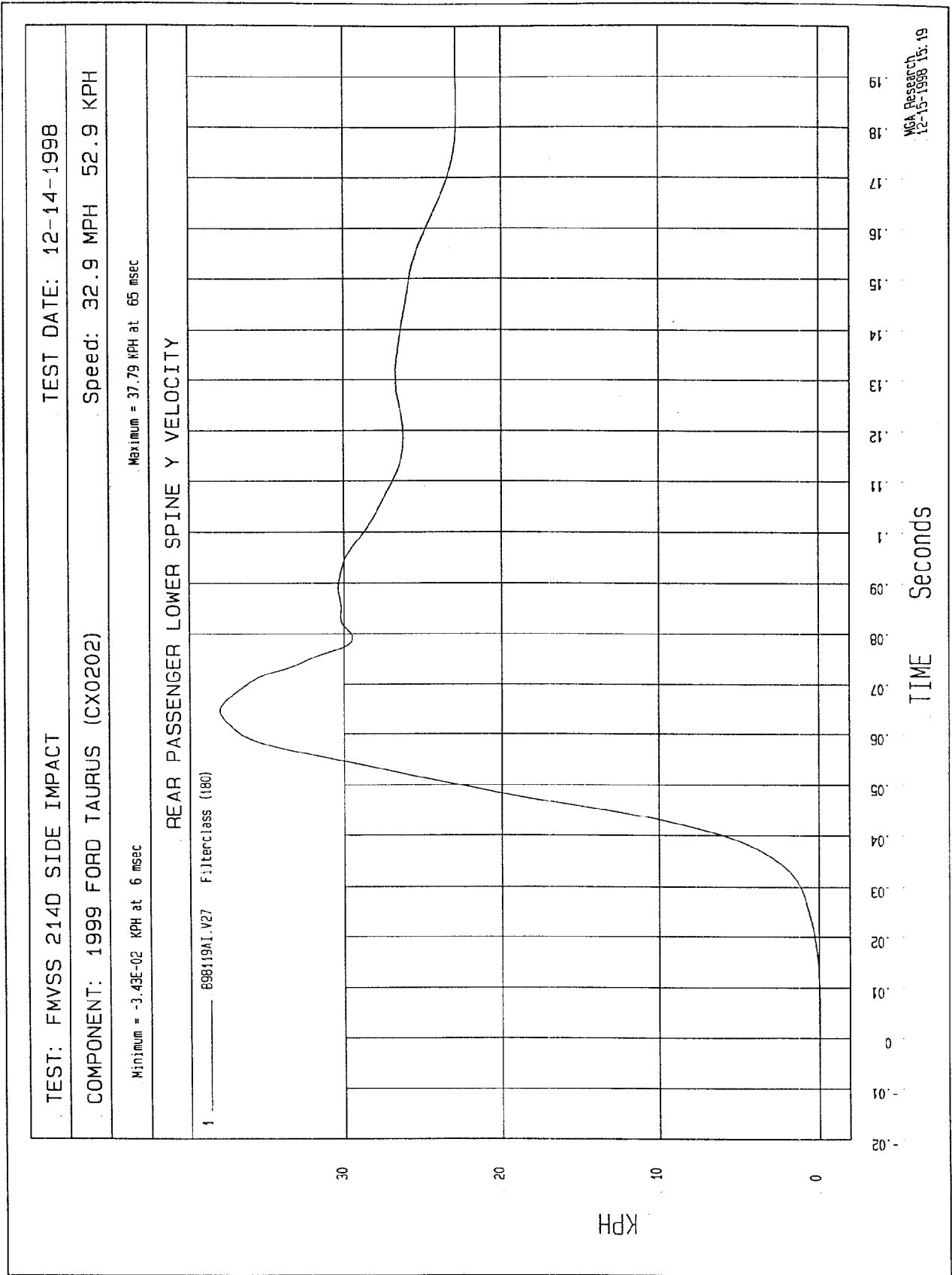
Minimum = -35.06 G'S at 72 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION

1 _____ 898119AF.A27 Filterclass (180)



NSA Research
12-15-1998 14:51



TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

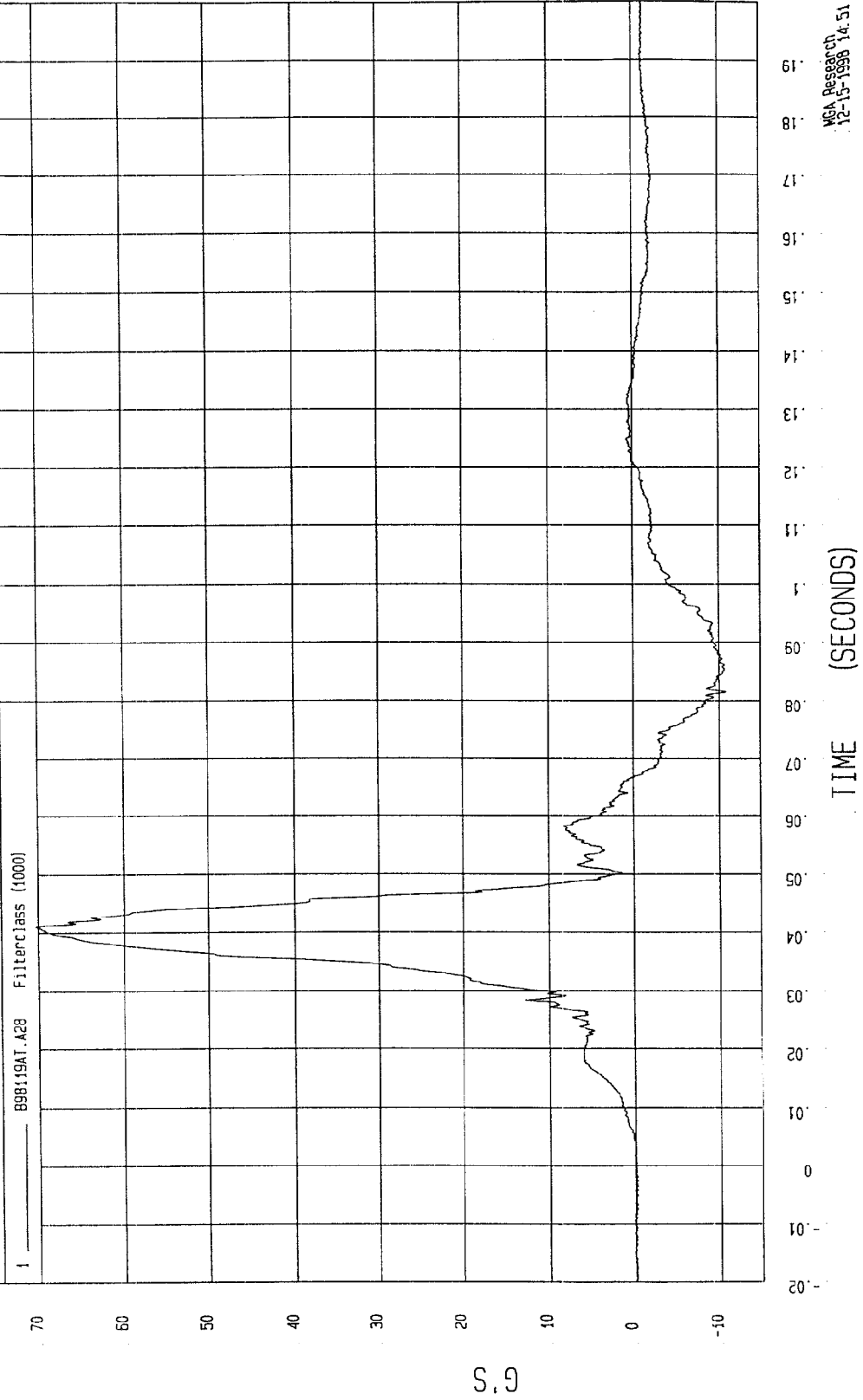
Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 70.28 G'S at 41 msec

Minimum = -10.8 G'S at 82 msec

REAR PASSENGER PELVIS Y ACCELERATION

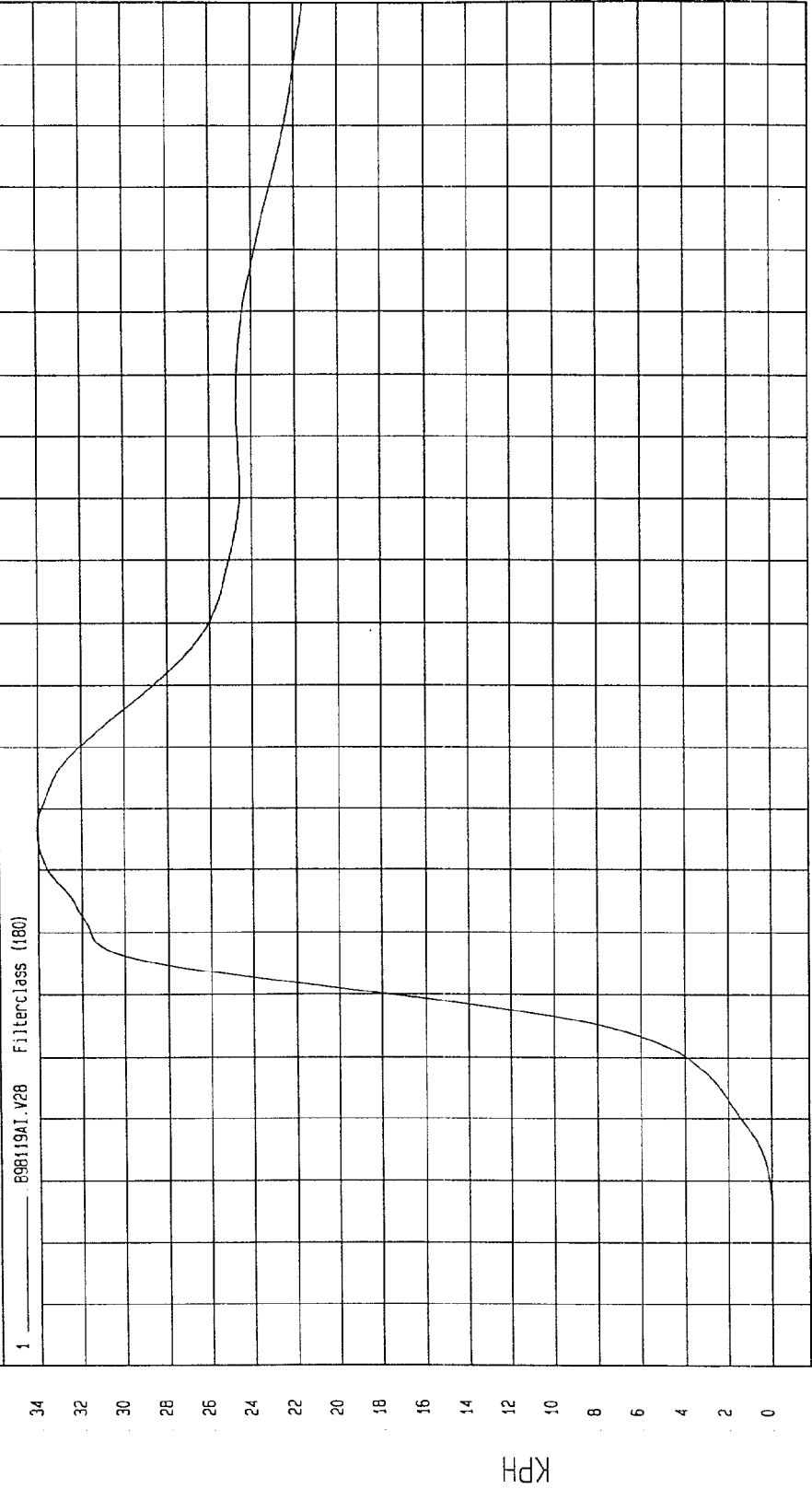


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

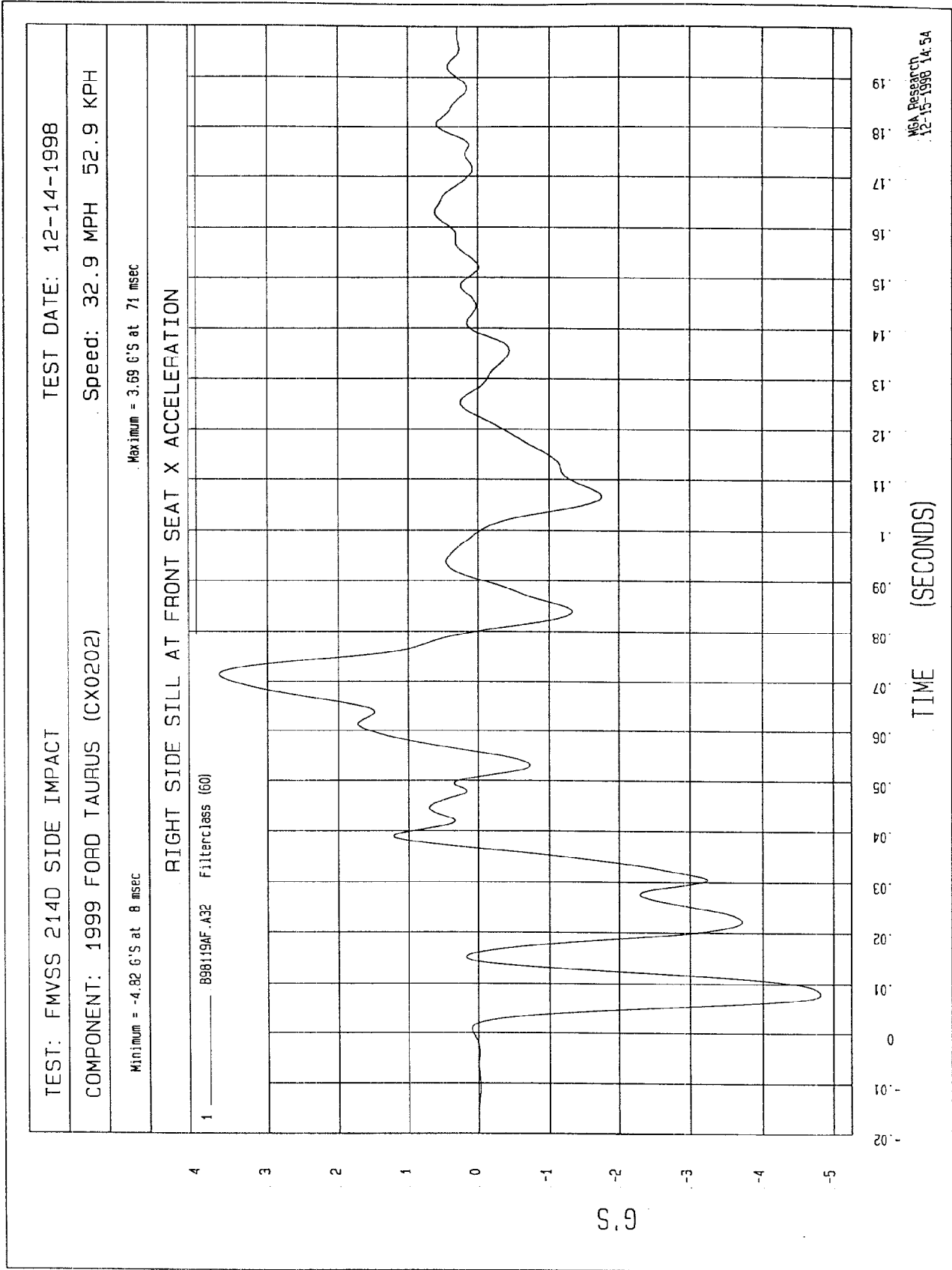
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

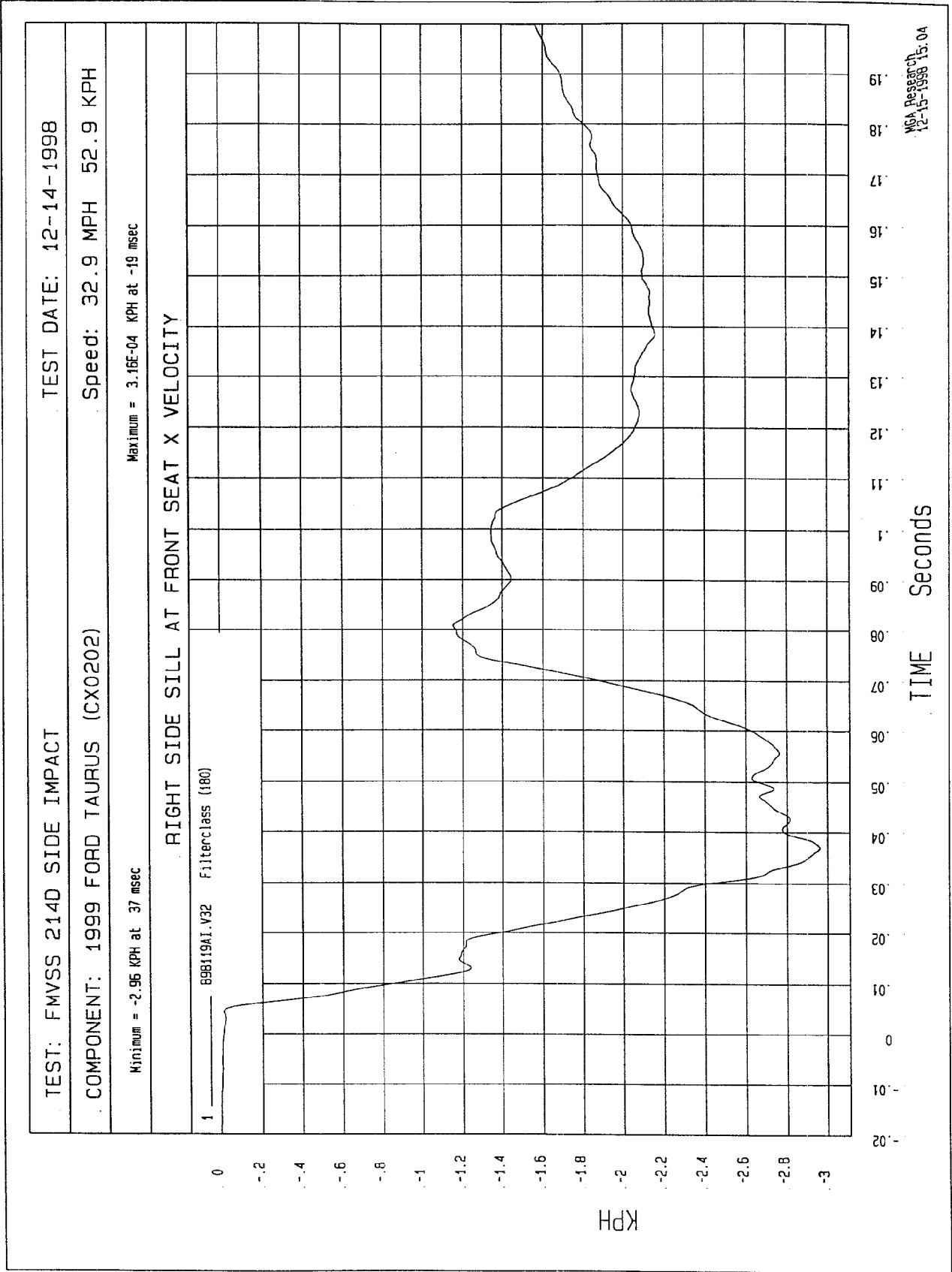
Minimum = -3.7BE-02 KPH at 3 msec Maximum = 34.08 KPH at 67 msec

REAR PASSENGER PELVIS Y VELOCITY



WEA Research
12-15-1998 15:19





TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

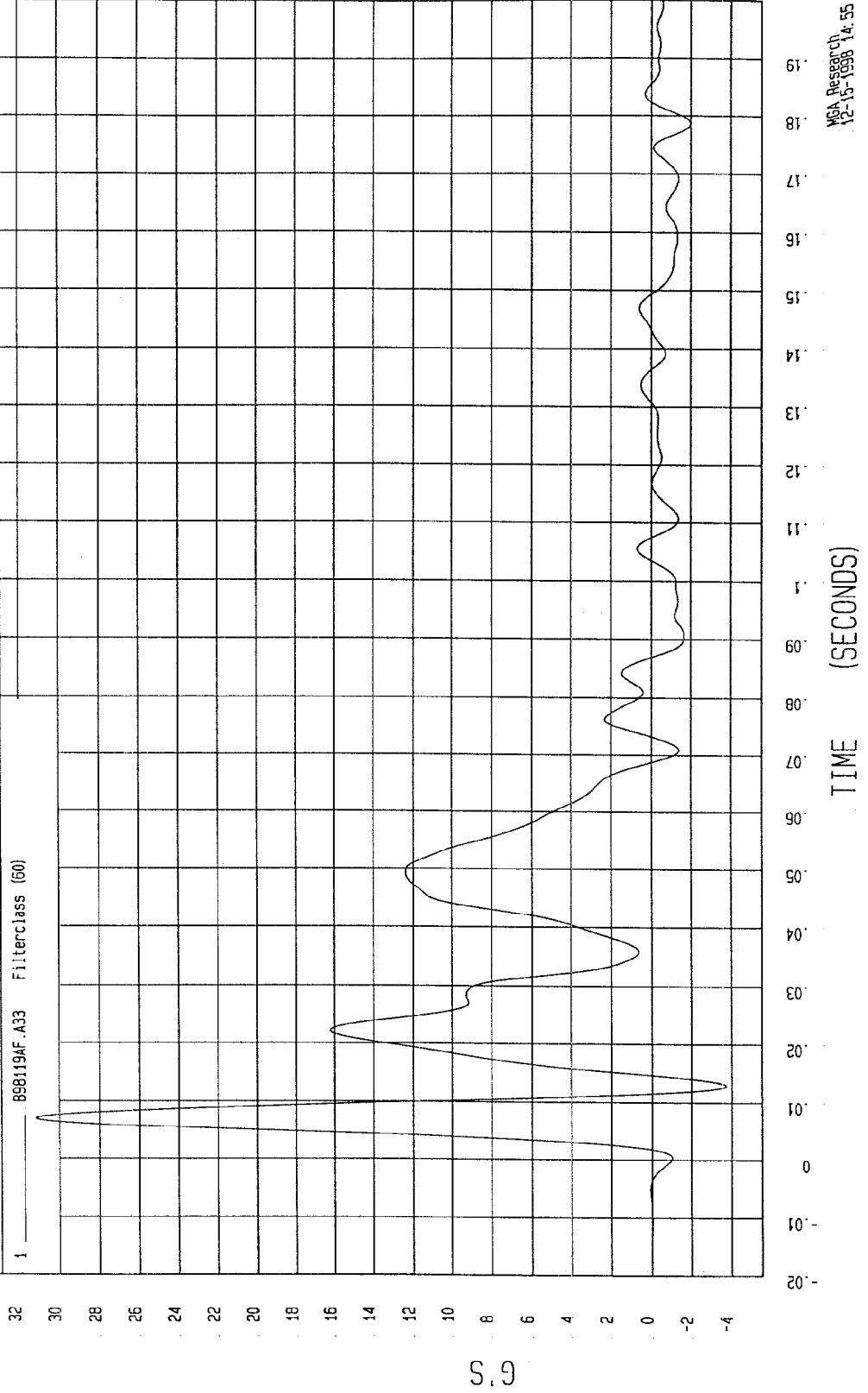
Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 31.15 G'S at 7 msec

Minimum = -3.74 G'S at 13 msec

RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION

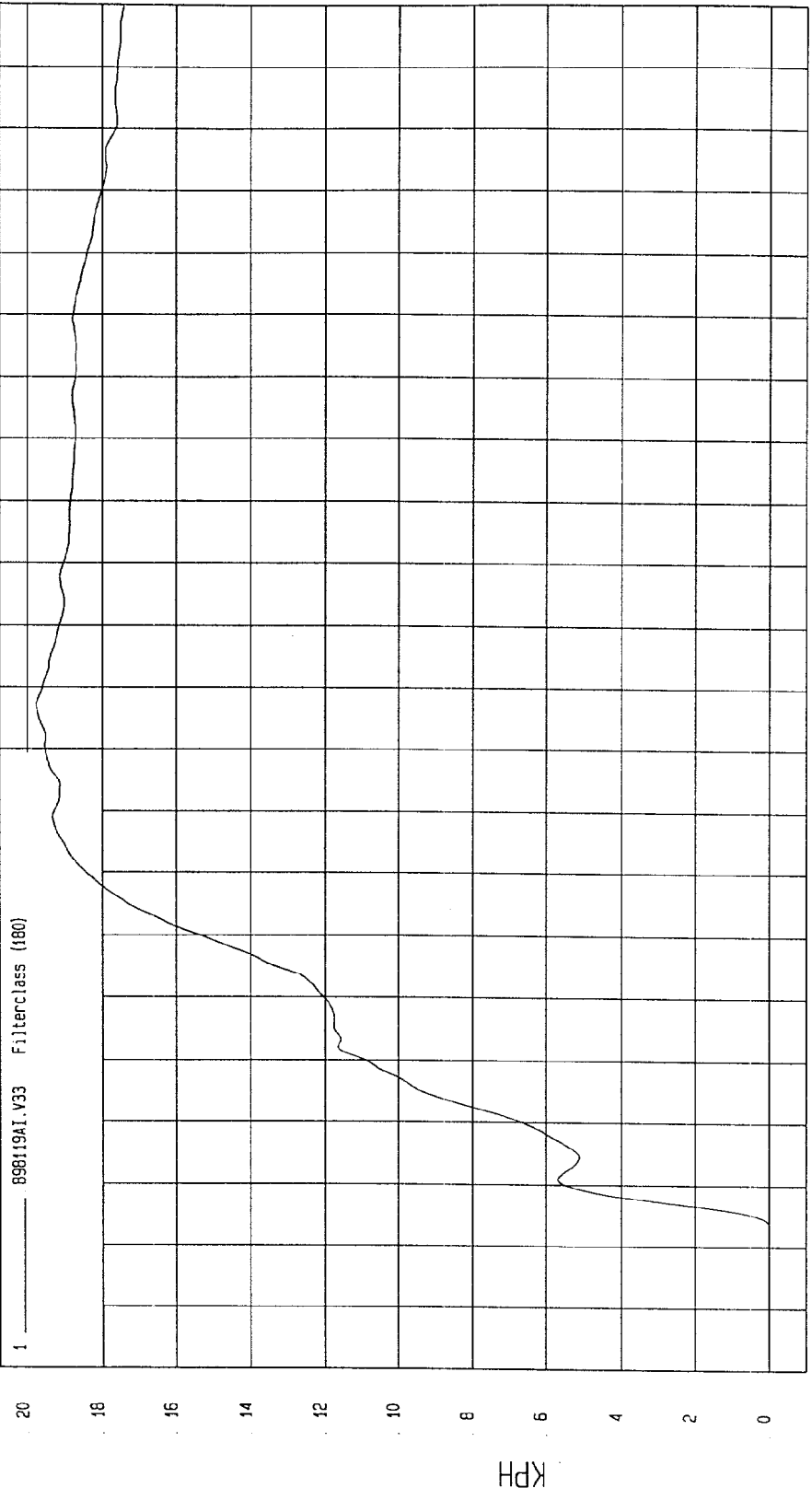


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -2.35E-03 KPH at -7 msec Maximum = 19.76 KPH at 87 msec

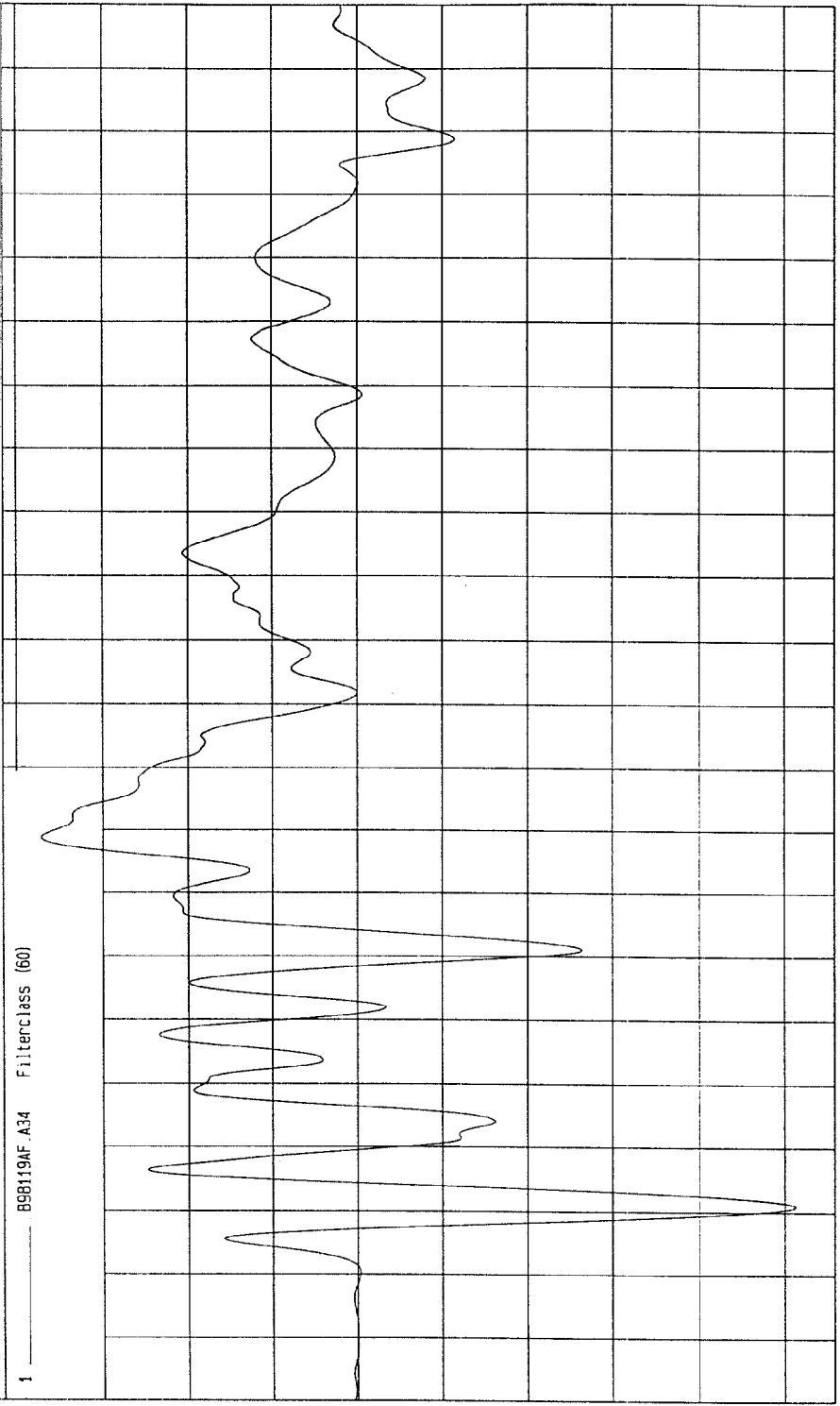
RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY



NCA Research
12-15-1998 15.04

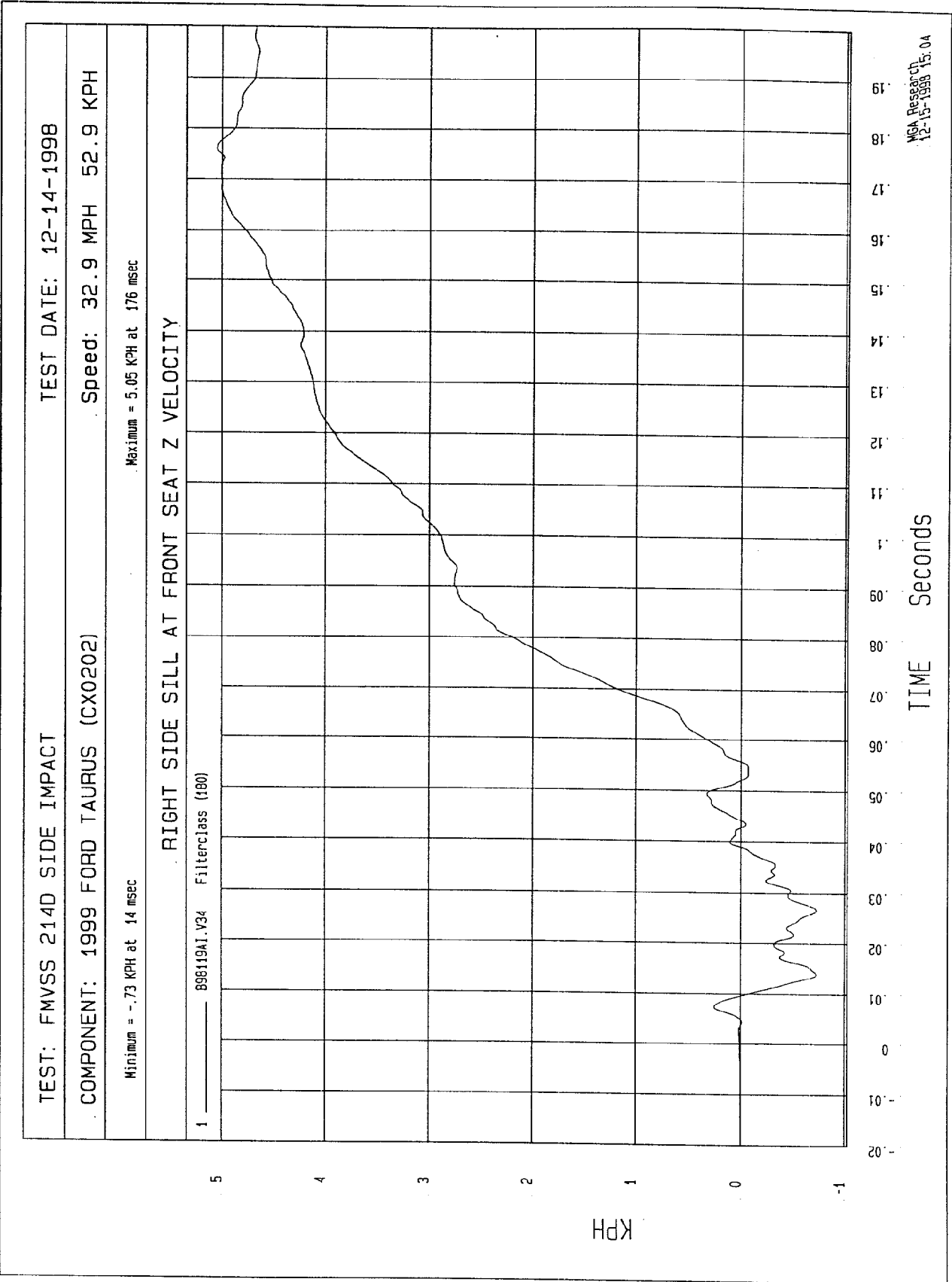
TEST: FMVSS 214D SIDE IMPACT
TEST DATE: 12-14-1998
COMPONENT: 1999 FORD TAURUS (CX0202)
Speed: 32.9 MPH 52.9 KPH
Minimum = -5.13 G'S at 11 msec
Maximum = 3.71 G'S at 69 msec

RIGHT SIDE SILL AT FRONT SEAT Z ACCELERATION



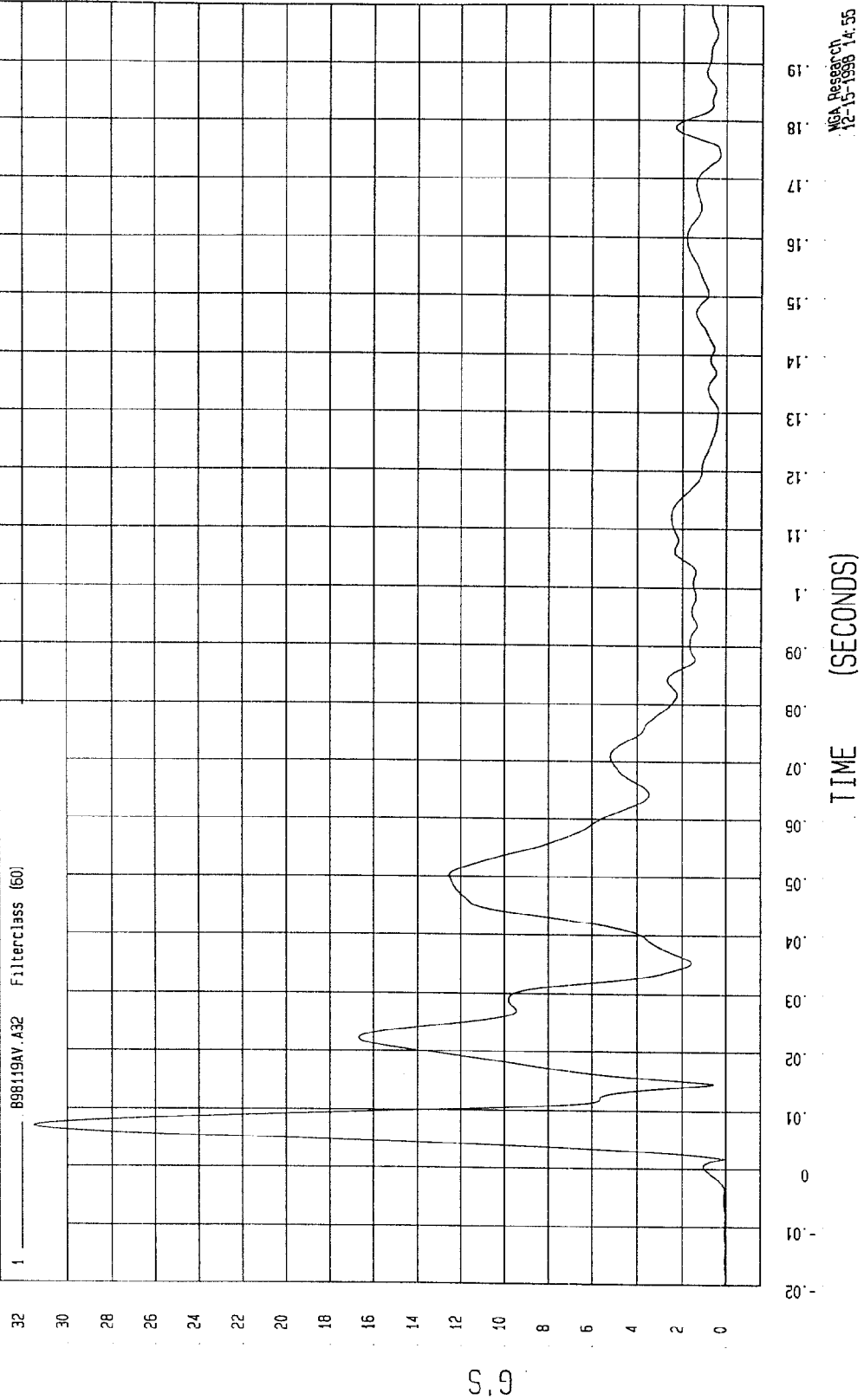
MCA Research
12-15-1998 14:55

TIME (SECONDS)



TEST: FMVSS 214D SIDE IMPACT
TEST DATE: 12-14-1998
COMPONENT: 1999 FORD TAURUS (CX0202)
Speed: 32.9 MPH 52.9 KPH
Minimum = 1.63E-02 G'S at -14 msec
Maximum = 31.5 G'S at 7 msec

RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION



TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202)

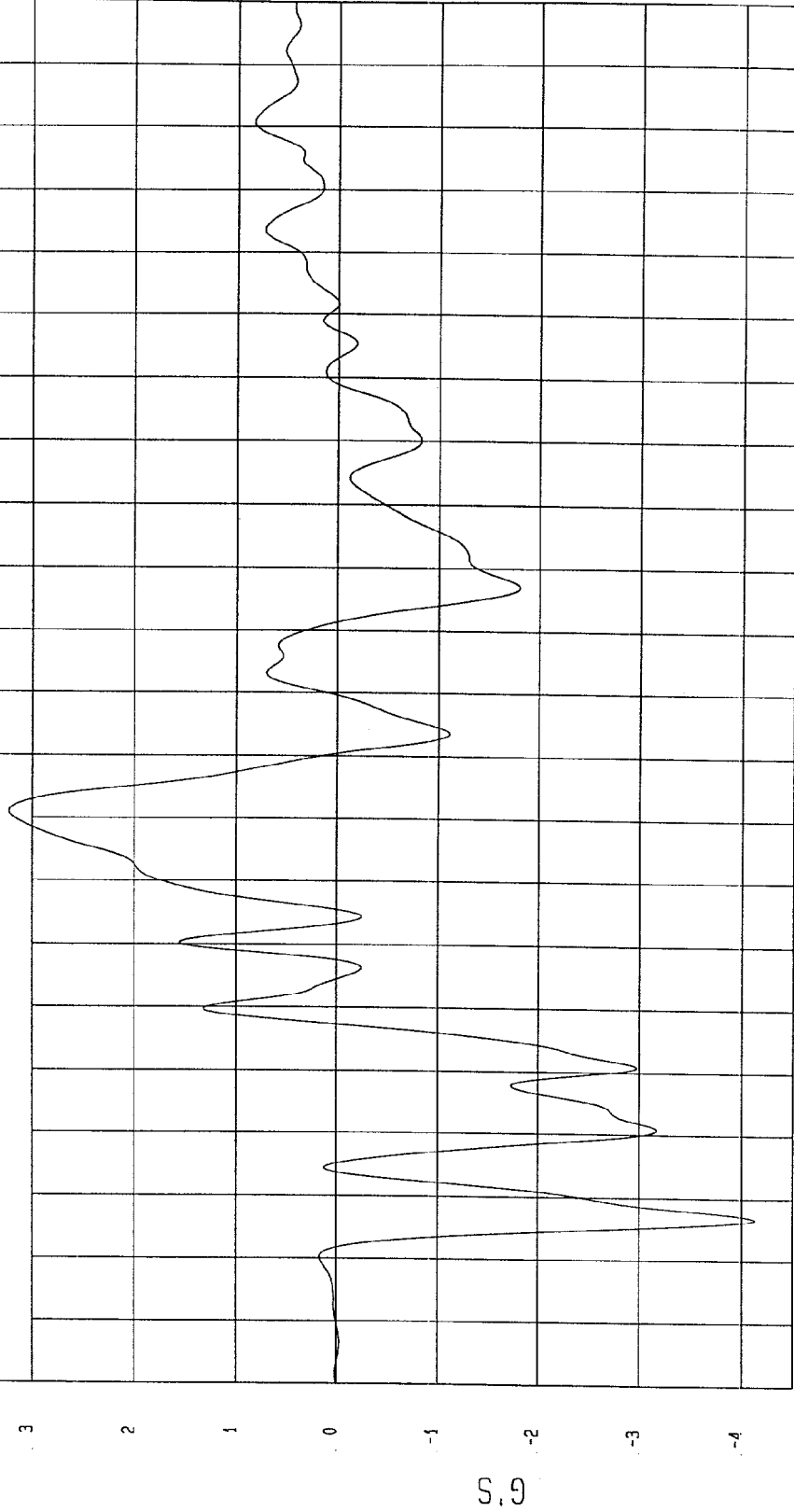
Speed: 32.9 MPH 52.9 KPH

Minimum = -4.13 G'S at 7 msec

Maximum = 3.23 G'S at 71 msec

RIGHT SIDE SILL AT REAR SEAT X ACCELERATION

1 B98119AF.A35 Filterclass (50)



MSA Research
12-15-1998 14:55

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

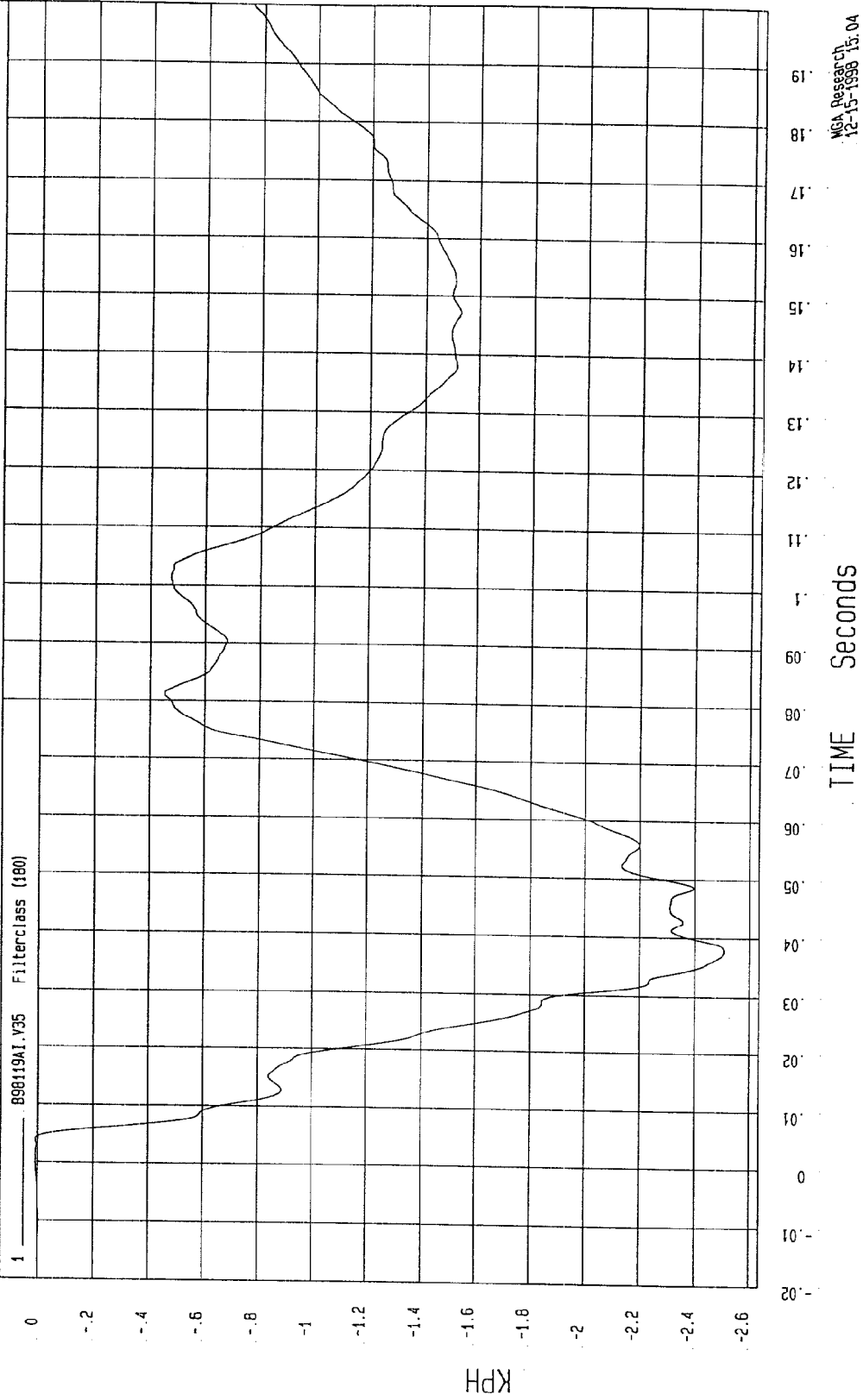
COMPONENT: 1999 FORD TAURUS (CX0202)

Speed: 32.9 MPH 52.9 KPH

Minimum = -2.51 KPH at 38 msec

Maximum = 1.05E-02 KPH at 4 msec

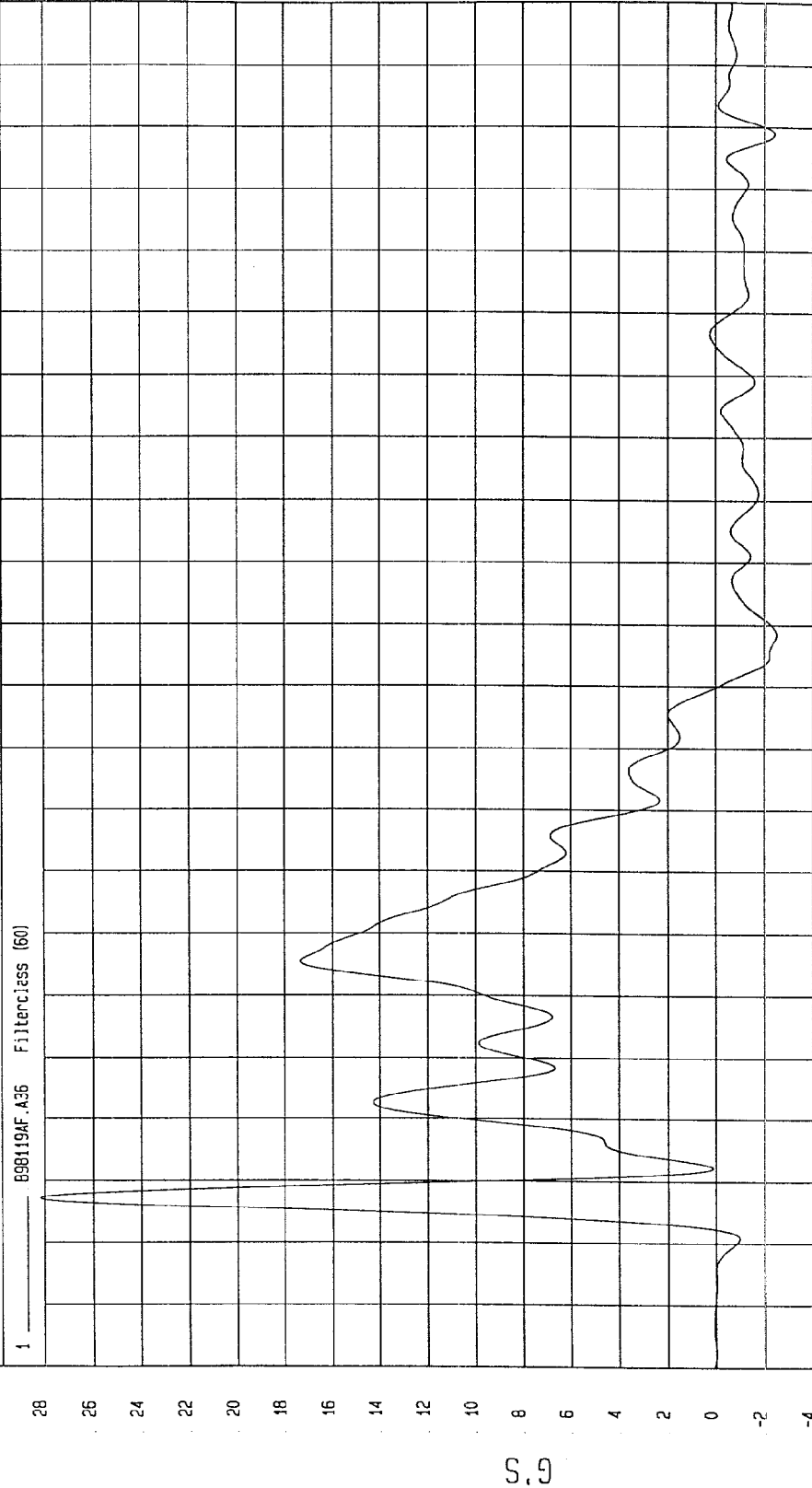
RIGHT SIDE SILL AT REAR SEAT X VELOCITY



TEST: FMVSS 214D SIDE IMPACT
 TEST DATE: 12-14-1998
 COMPONENT: 1999 FORD TAURUS (CX0202)
 Speed: 32.9 MPH 52.9 KPH

Minimum = -2.5 G'S at 98 msec
 Maximum = 28.19 G'S at 7 msec

RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION



WCA Research
 12-15-1998 14:55

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

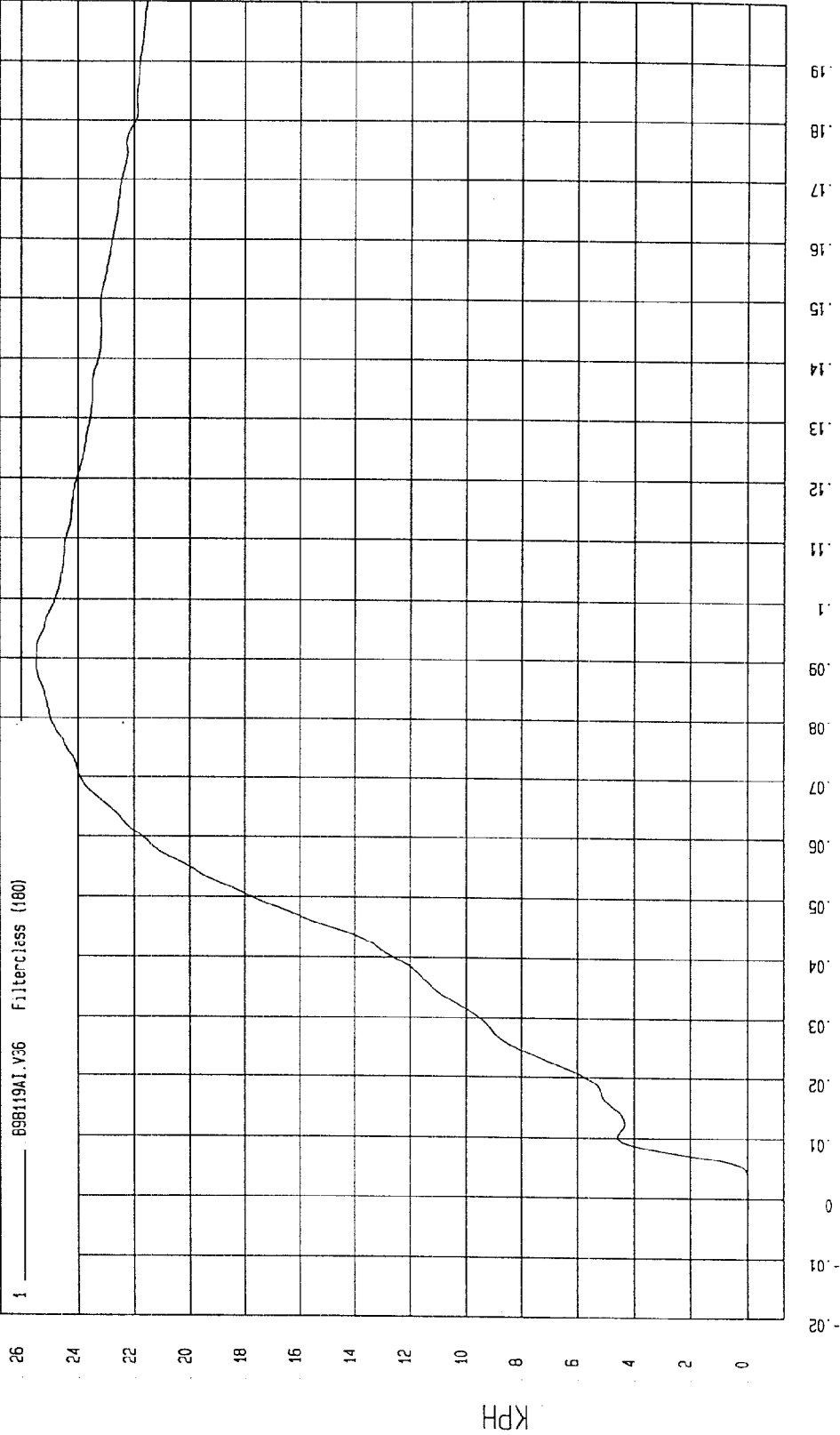
Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

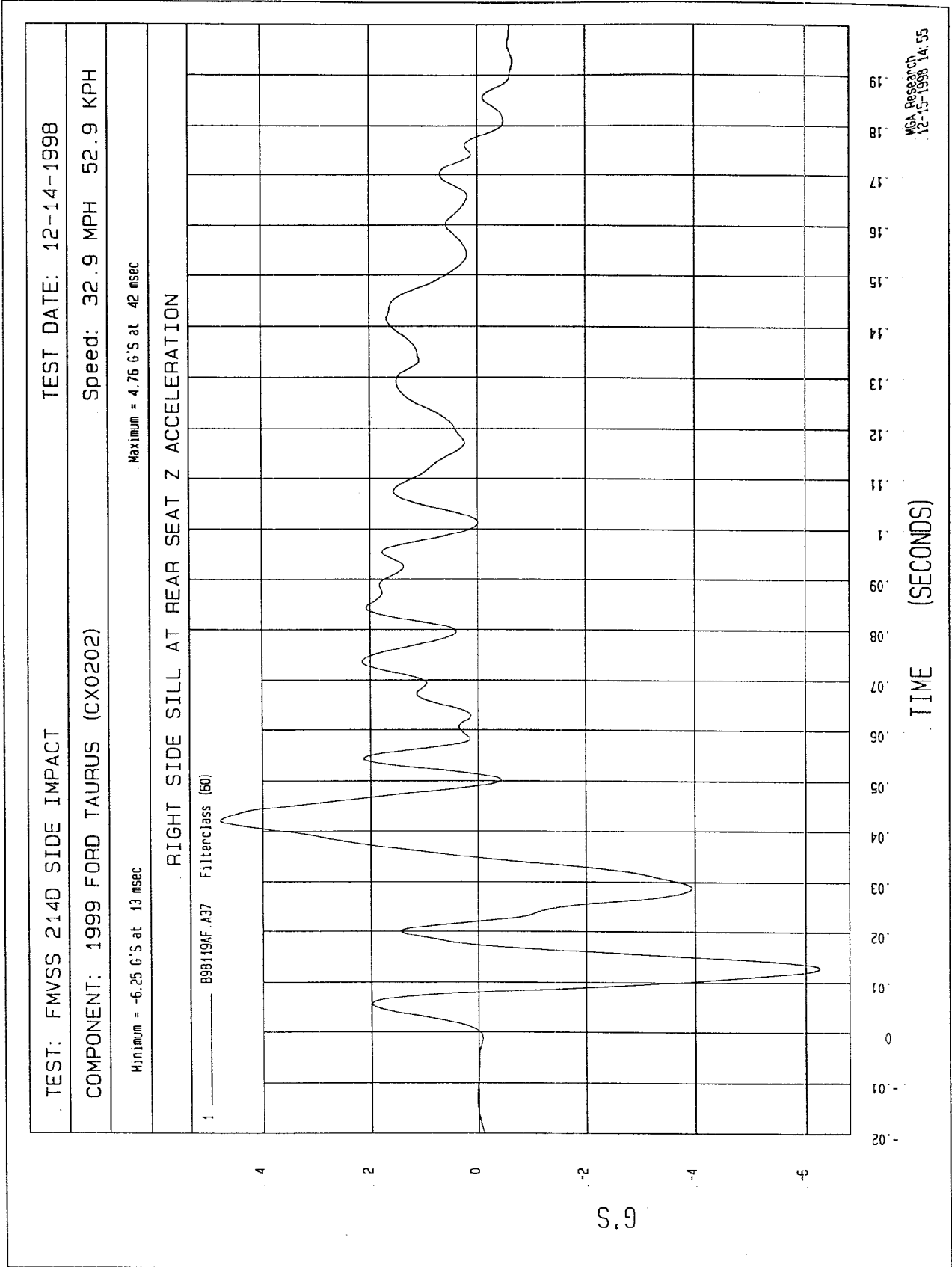
Maximum = 25.48 KPH at 89 msec

Minimum = -1.24E-02 KPH at 0 msec

RIGHT SIDE SILL AT REAR SEAT Y VELOCITY



MSA Research
12-15-1998 15.04



TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

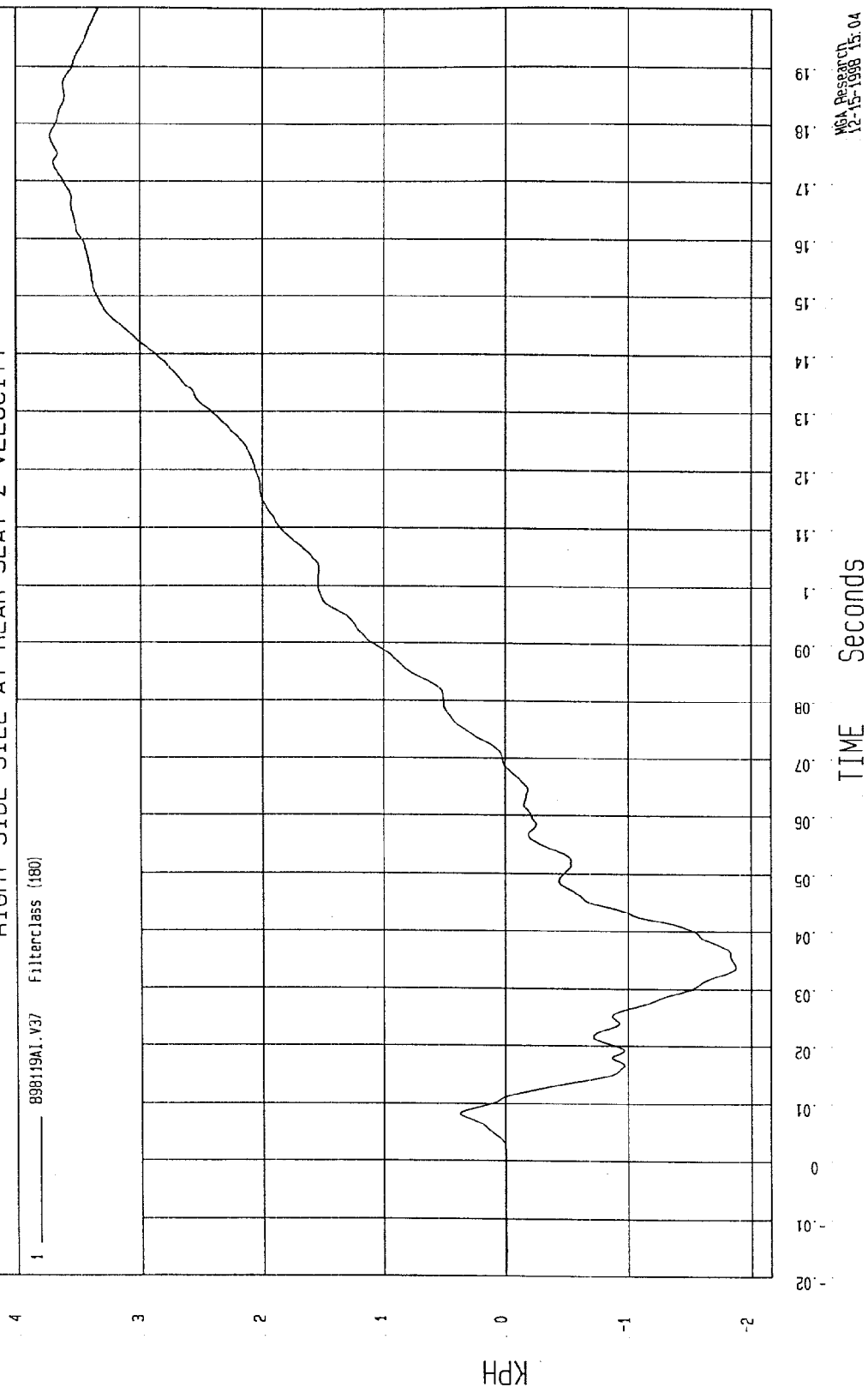
COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 3.72 KPH at 178 msec

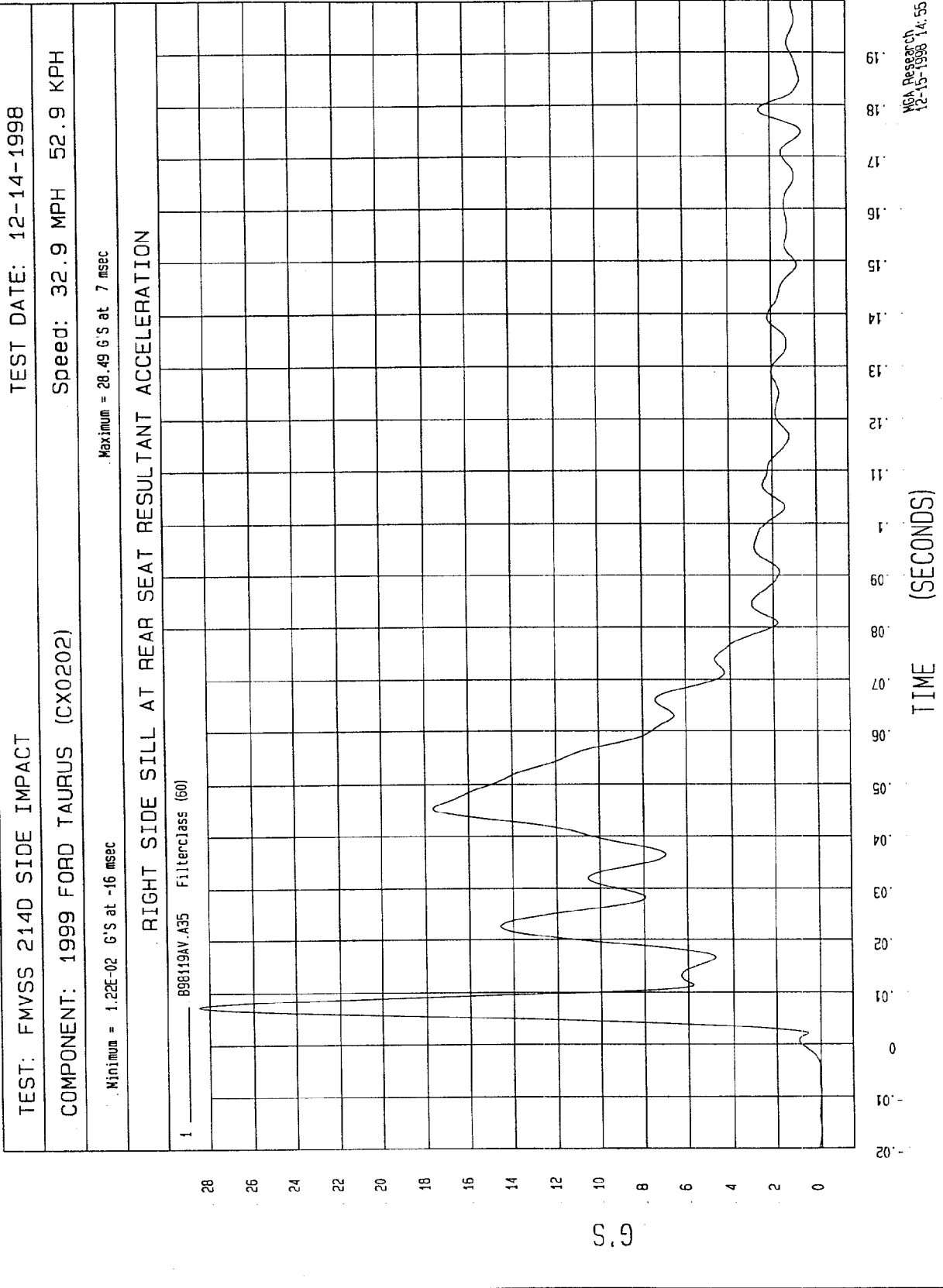
Minimum = -1.88 KPH at 34 msec

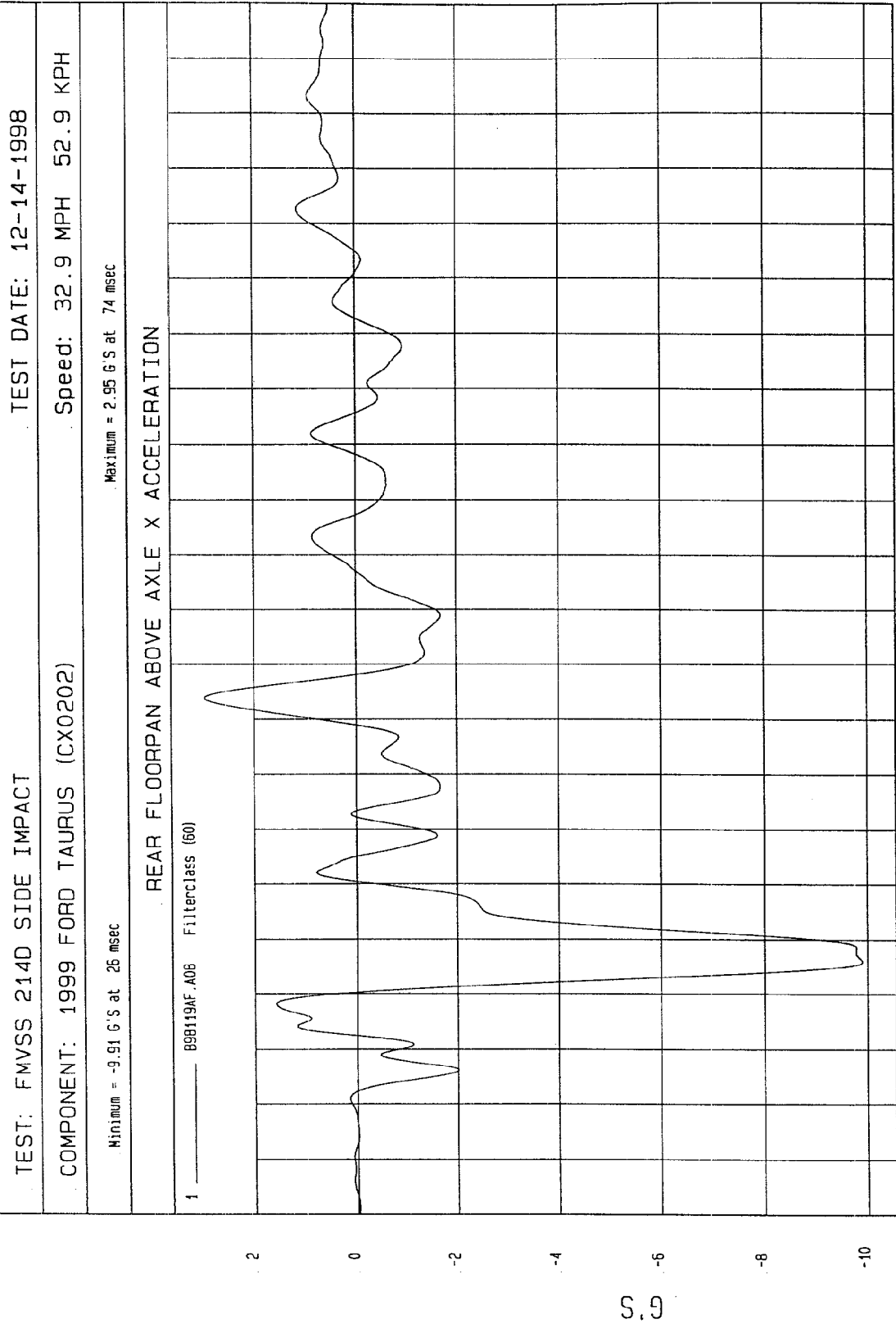
RIGHT SIDE SILL AT REAR SEAT Z VELOCITY

1 898119A1.V37 Filterclass (180)



MOA Research
12-15-1998 15:04





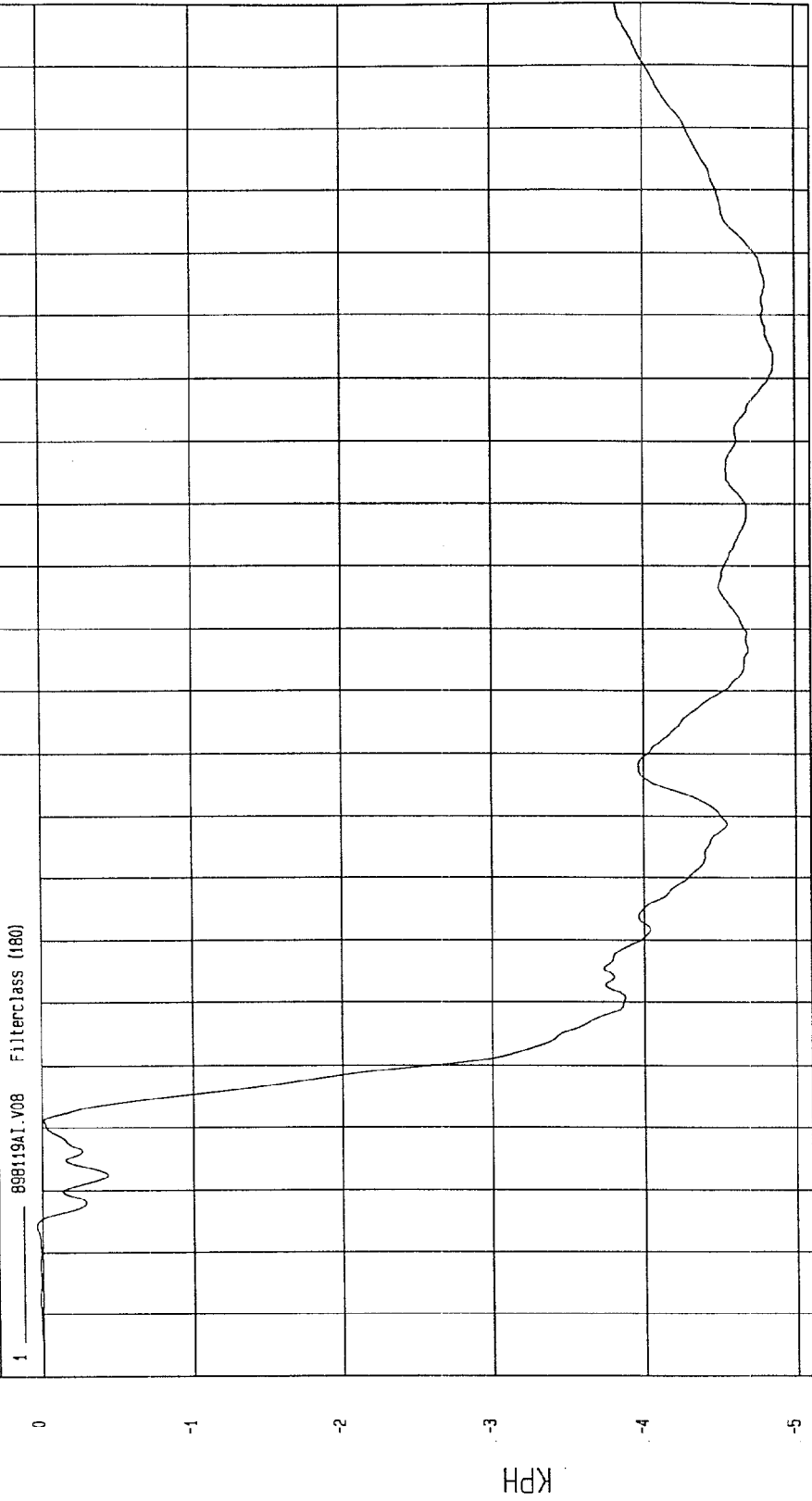
WCA Research
12-15-1998 14:55

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

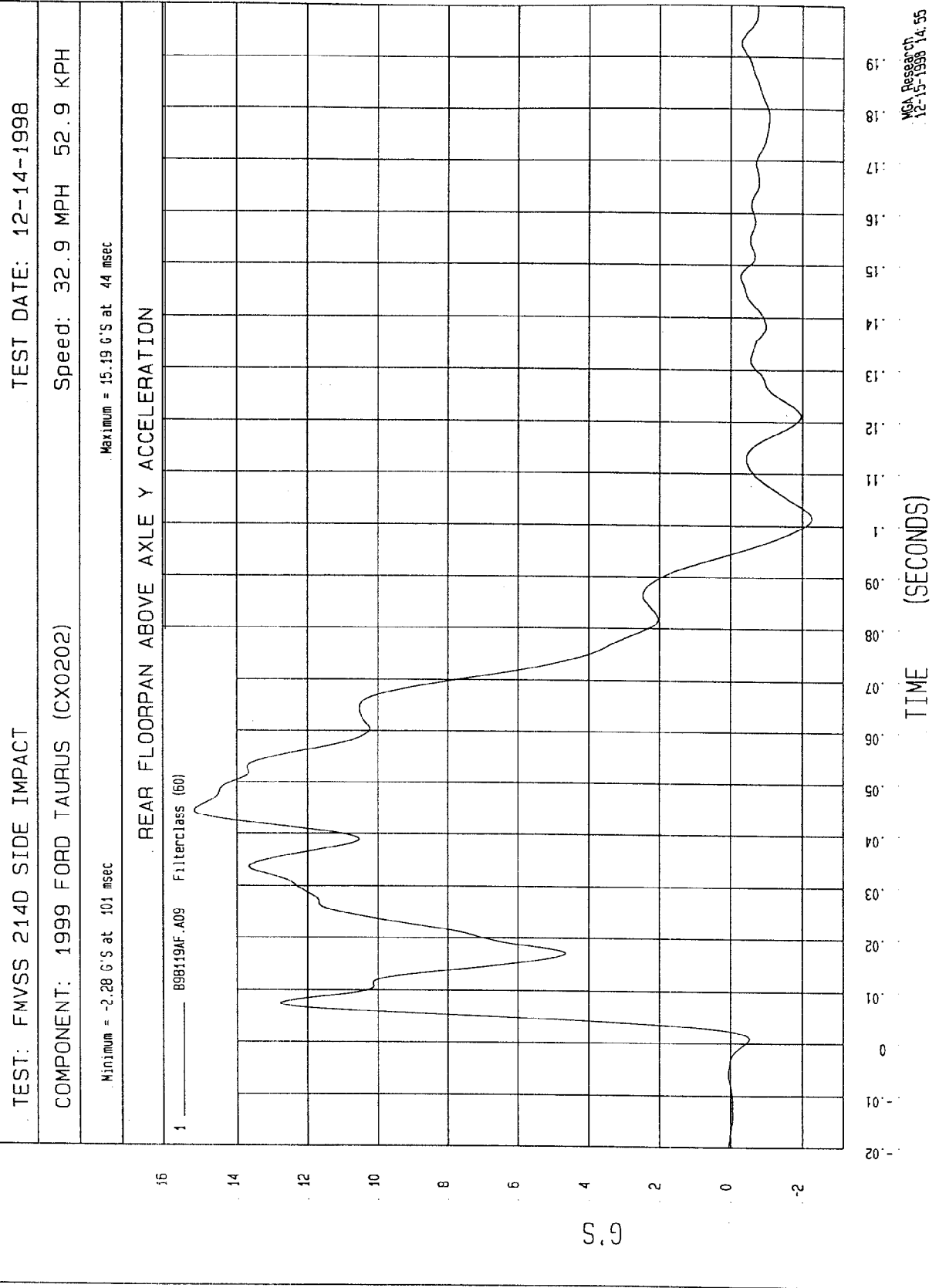
Minimum = -4.86 KPH at 143 msec Maximum = 3.87E-02 KPH at 4 msec

REAR FLOORPAN ABOVE AXLE X VELOCITY



TIME Seconds

NCI Research
12-15-1998 15:04

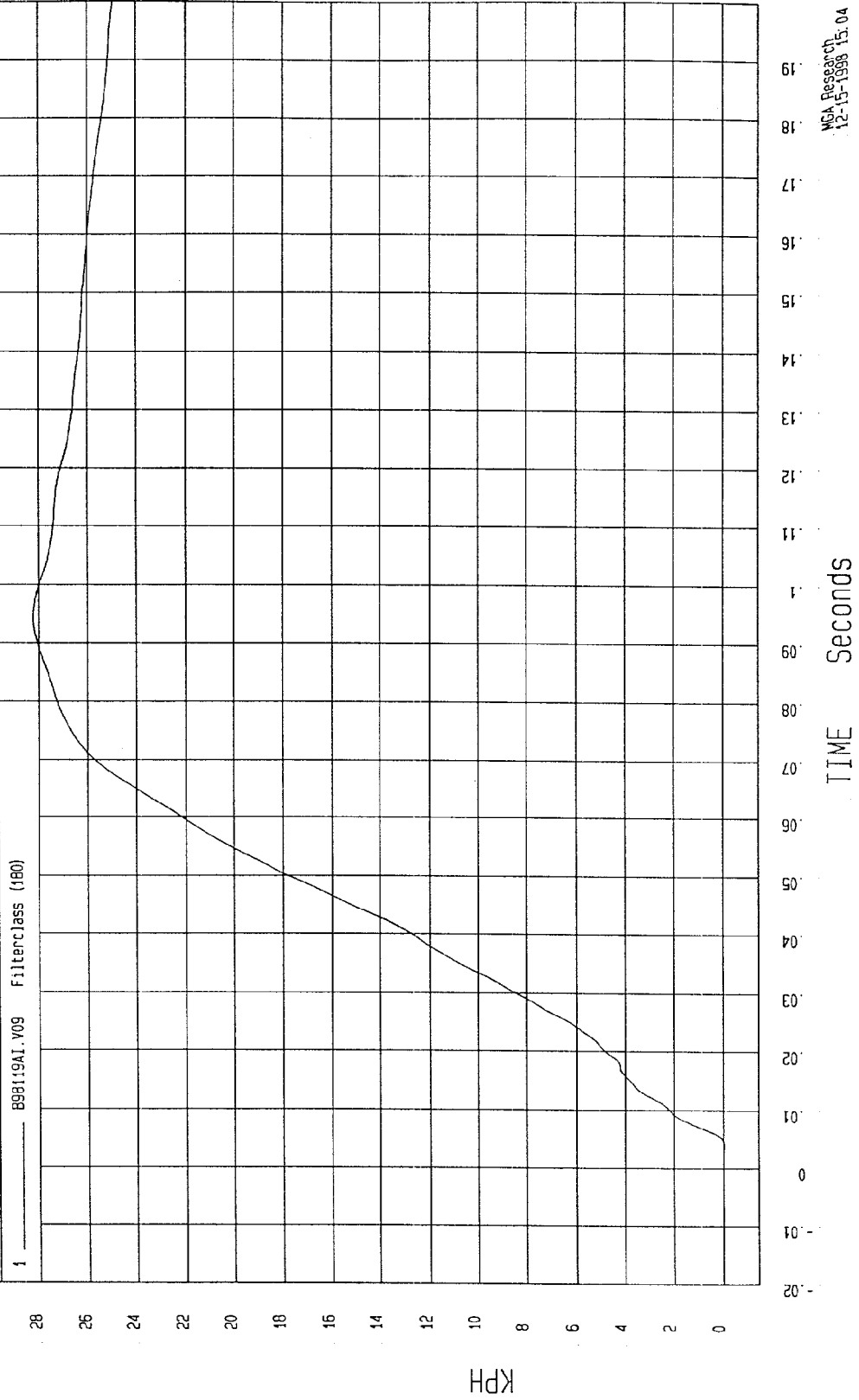


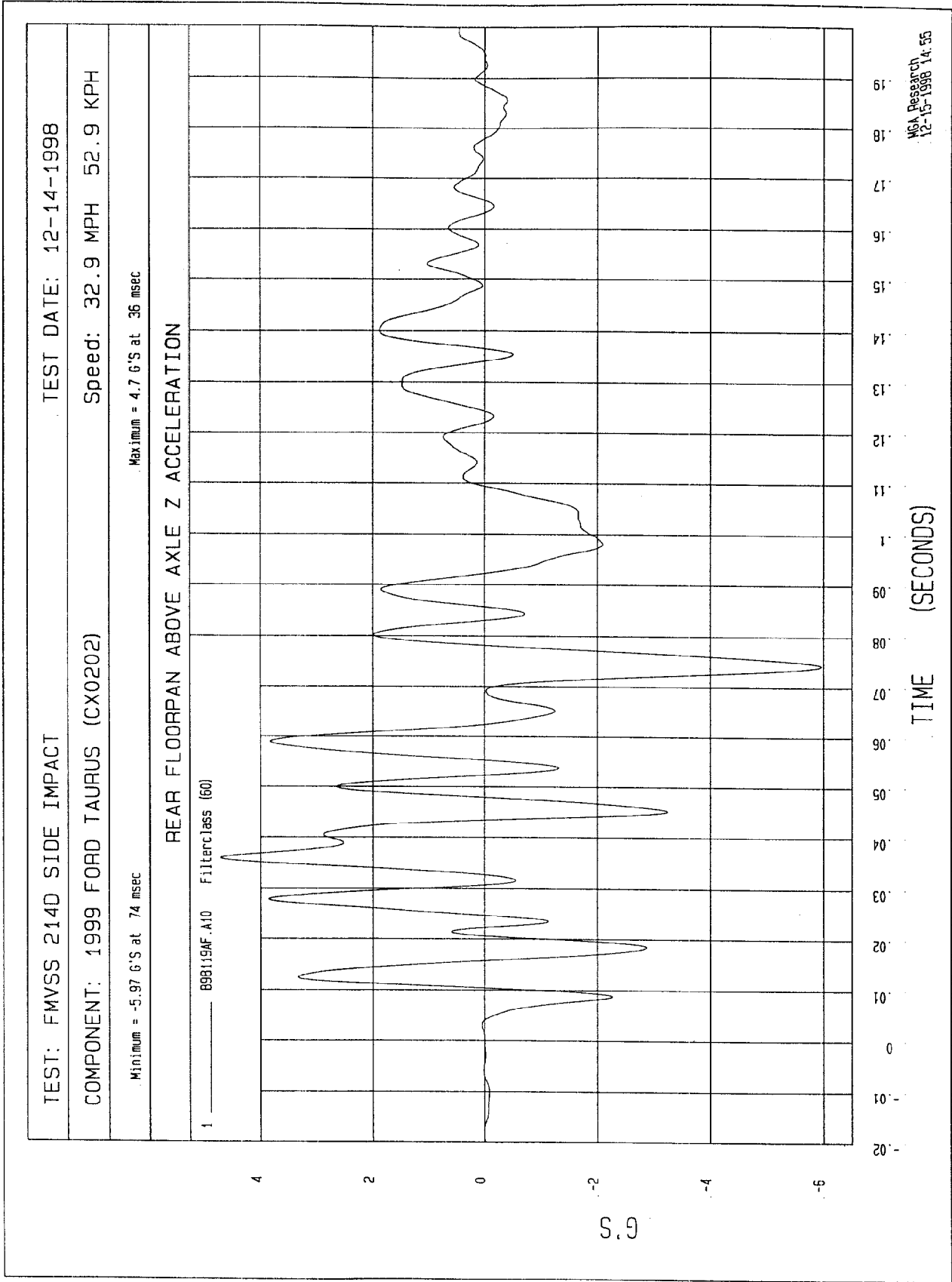
TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

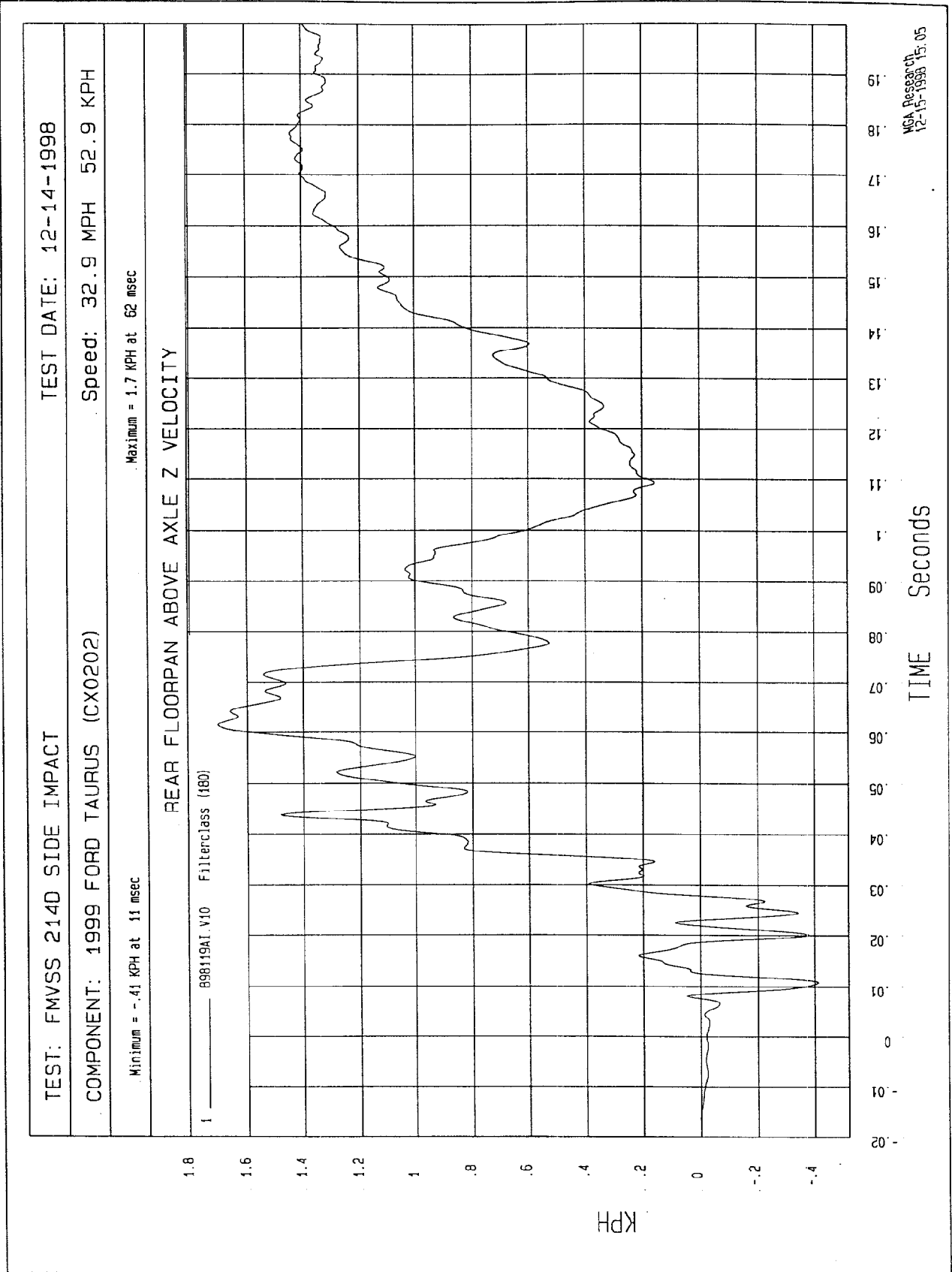
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -2.96E-02 KPH at 4 msec Maximum = 28.22 KPH at 94 msec

REAR FLOORPAN ABOVE AXLE Y VELOCITY





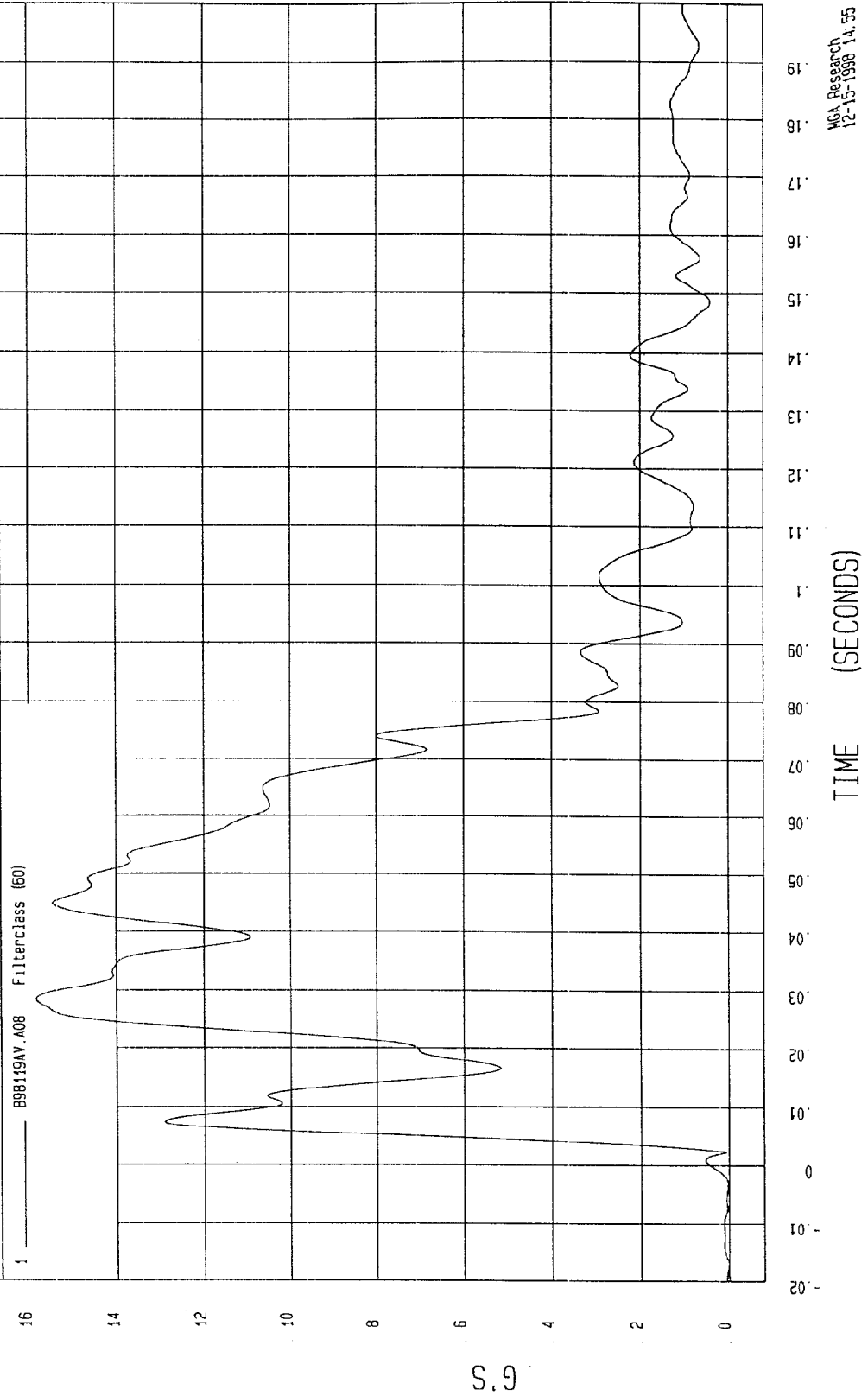


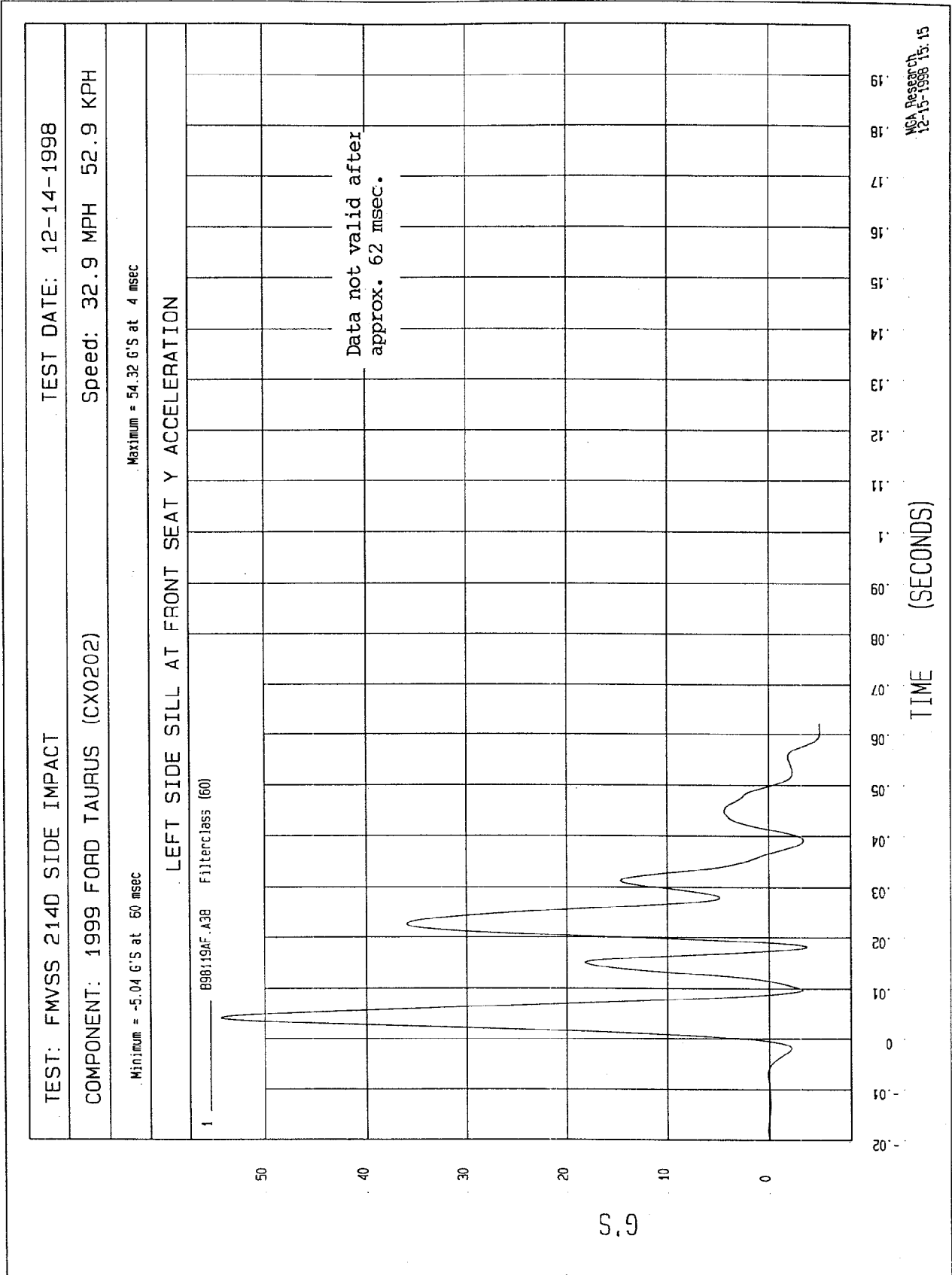
TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

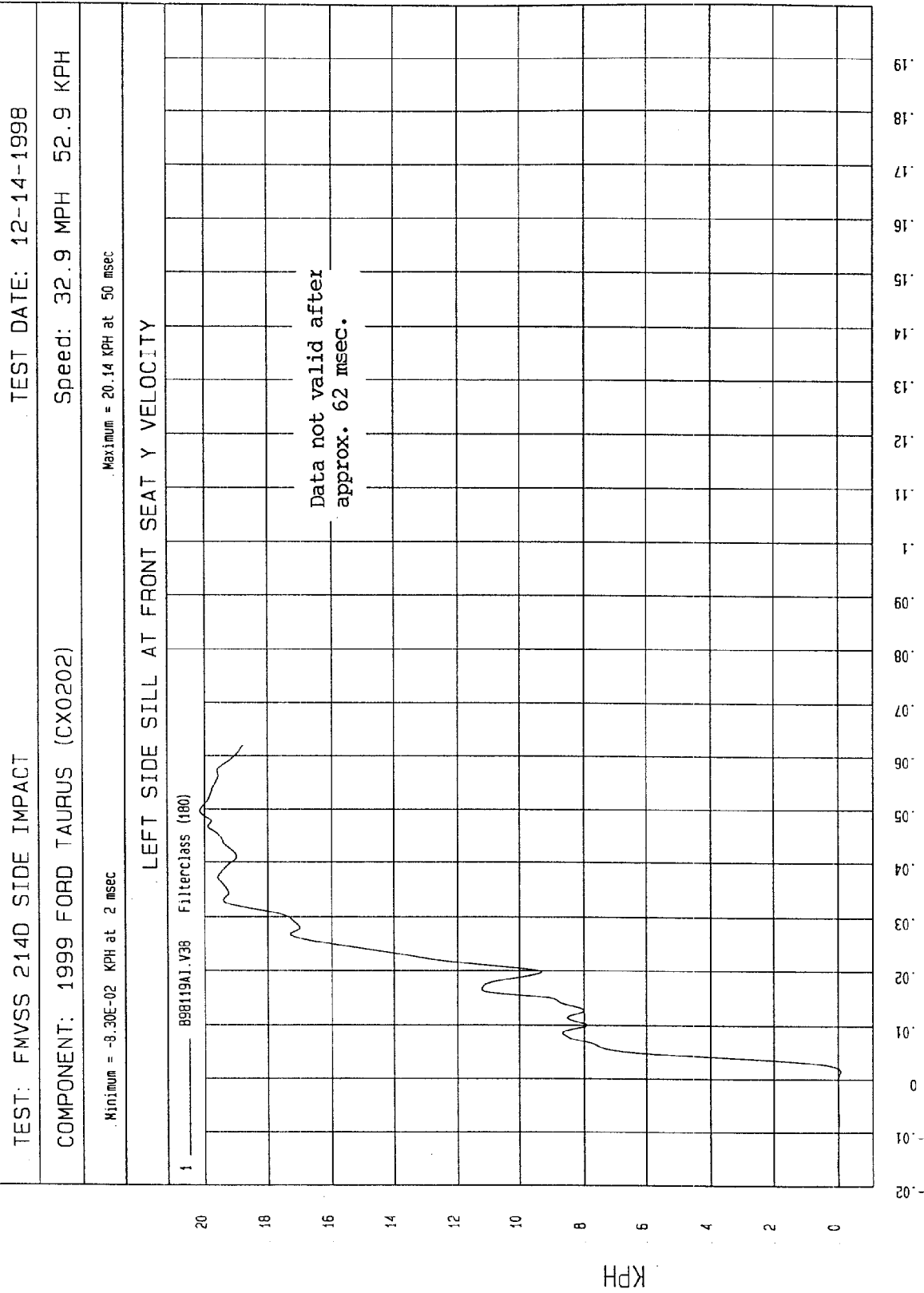
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = 7.28E-03 G'S at -17 msec Maximum = 15.84 G'S at 28 msec

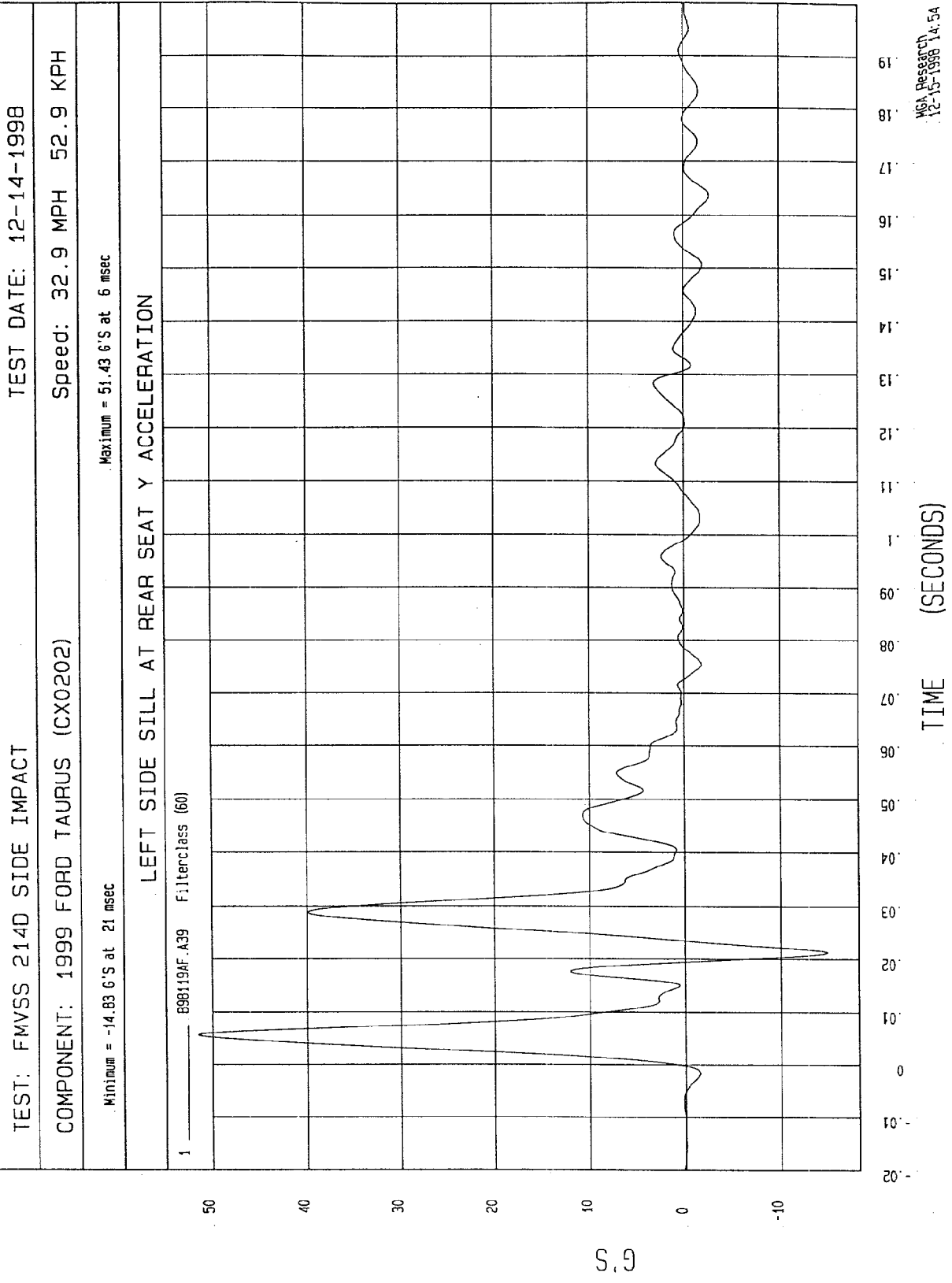
REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

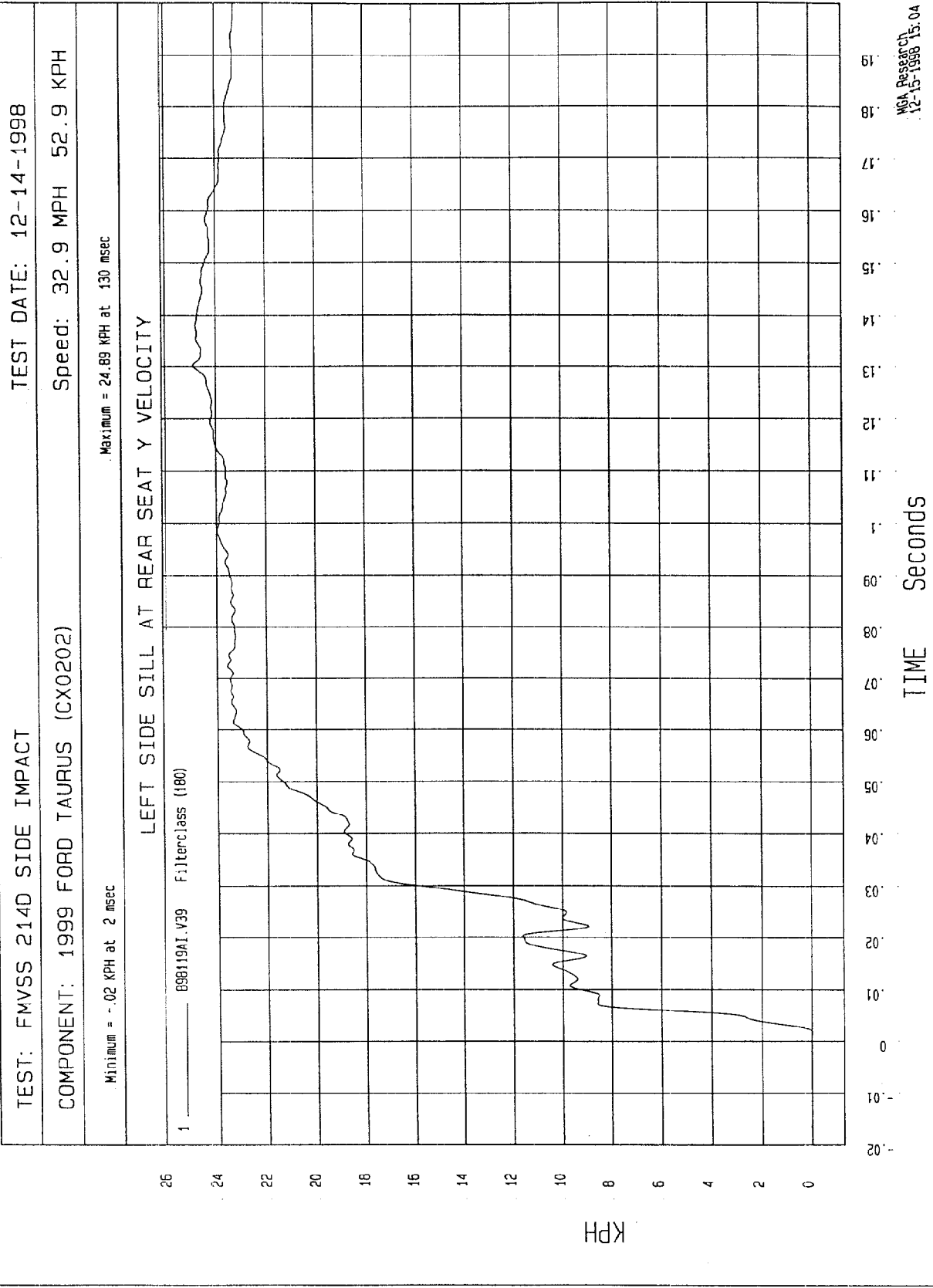


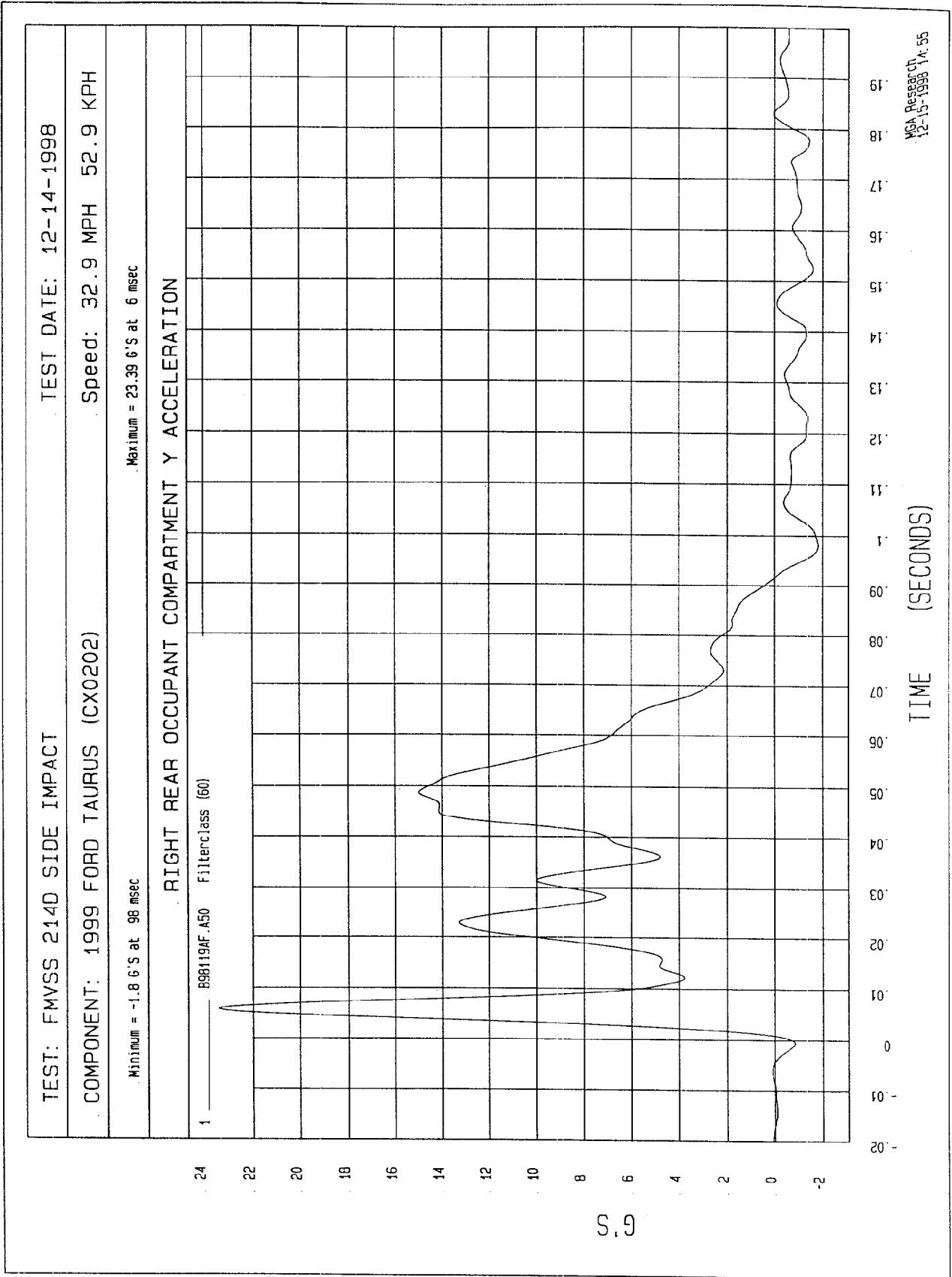


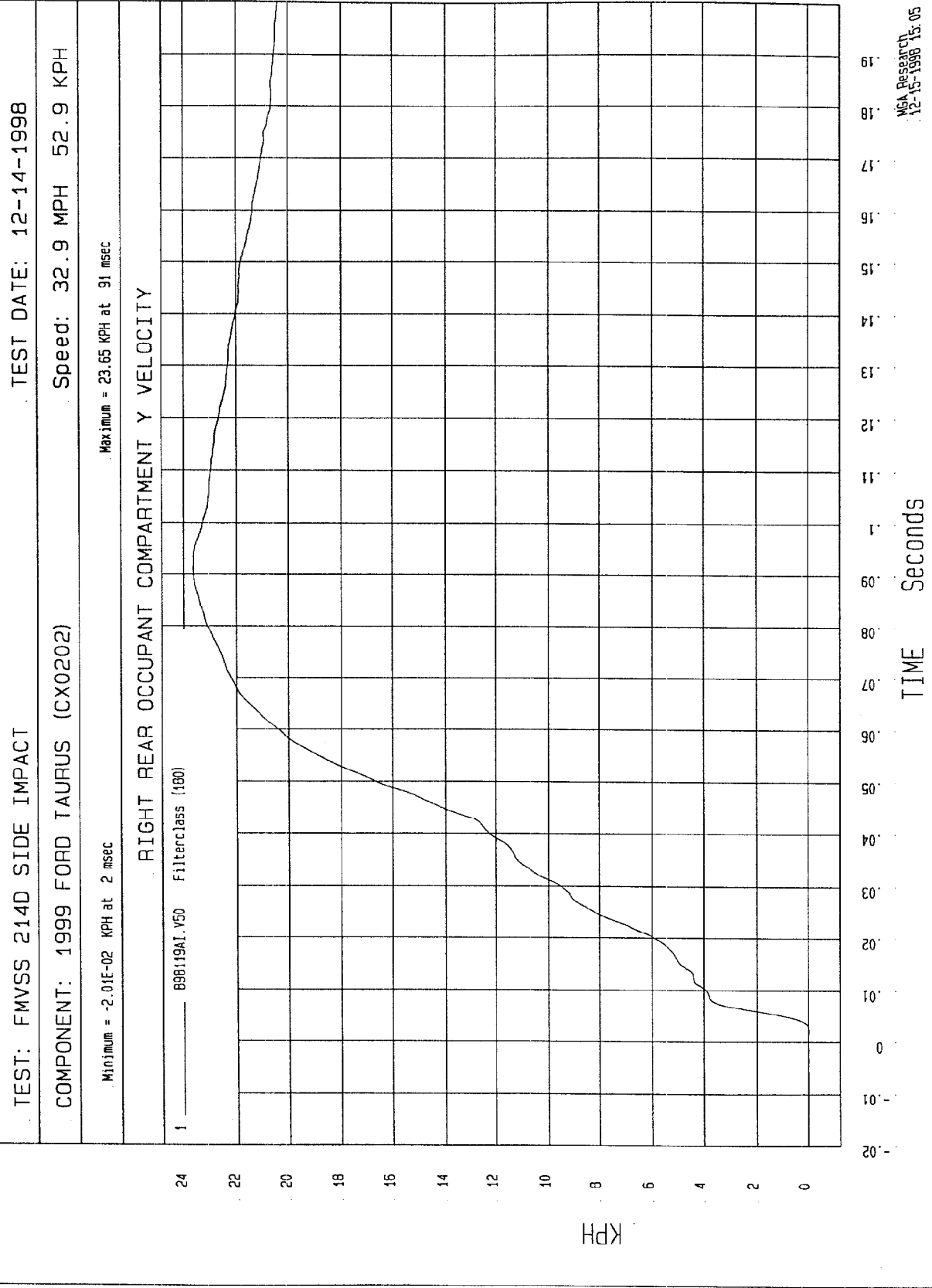


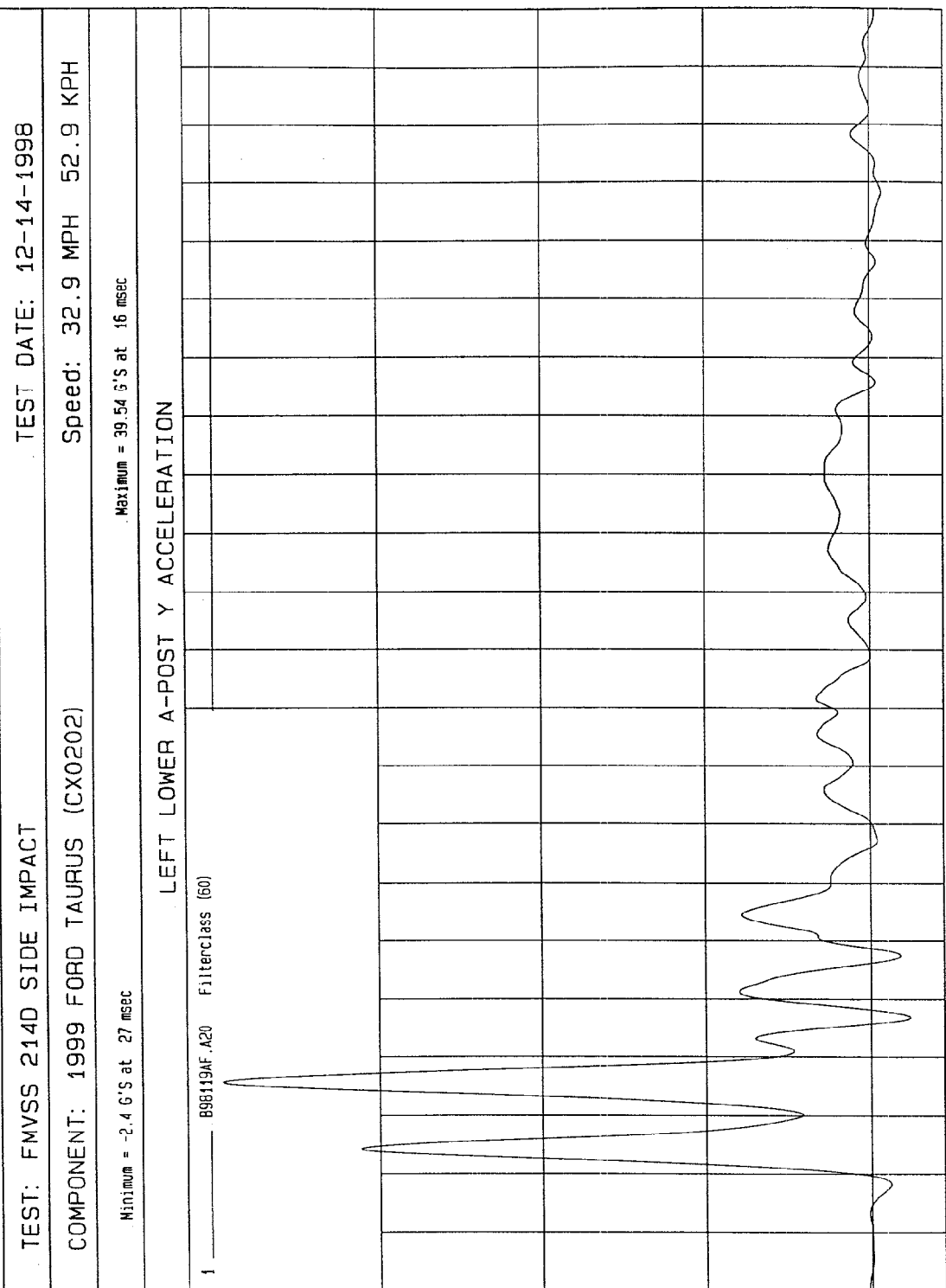
WGA Research
12-15-1998 15:17











TIME (SECONDS)

MCA Research
12-15-1998 14:55

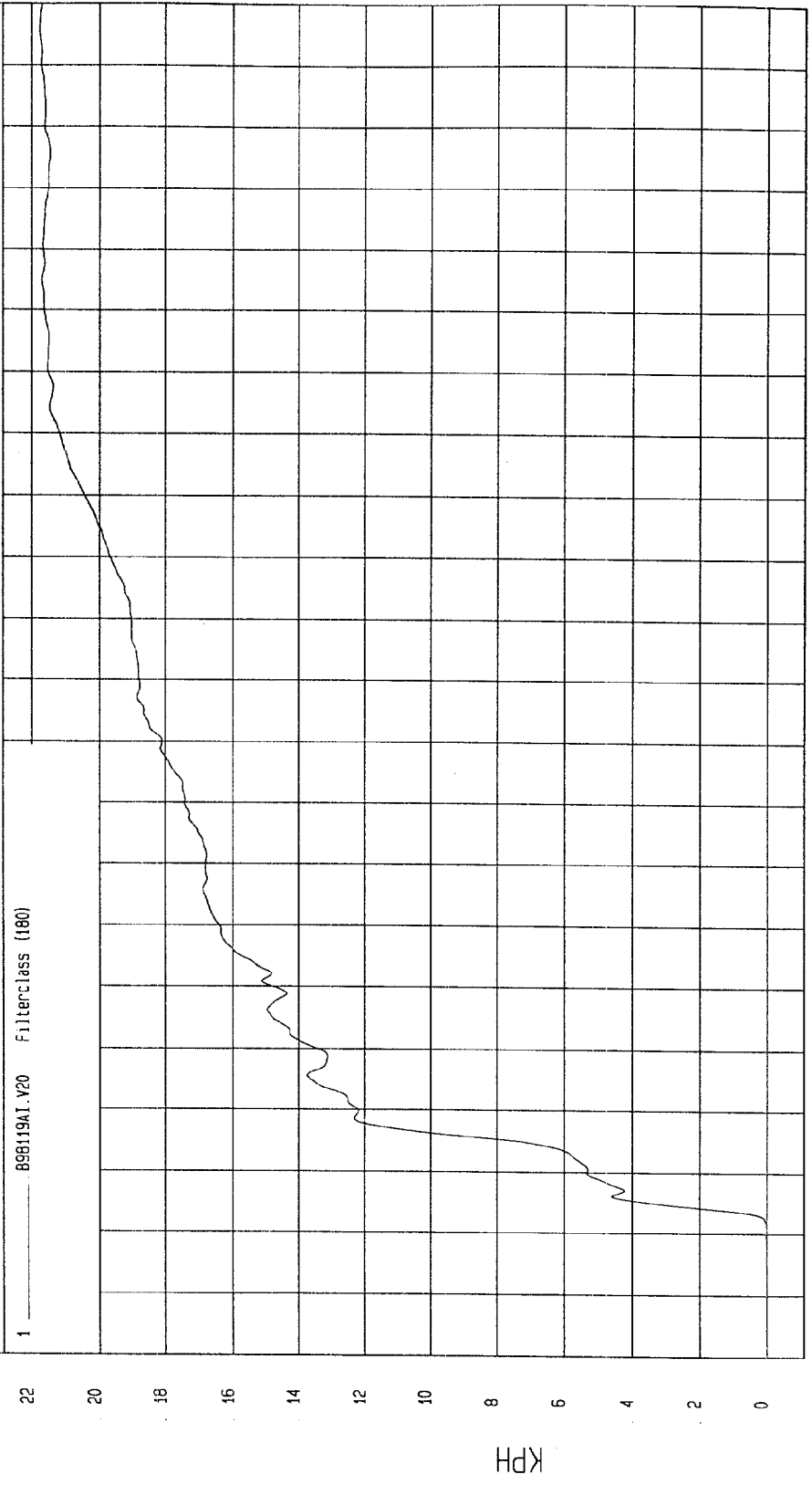
G.S

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

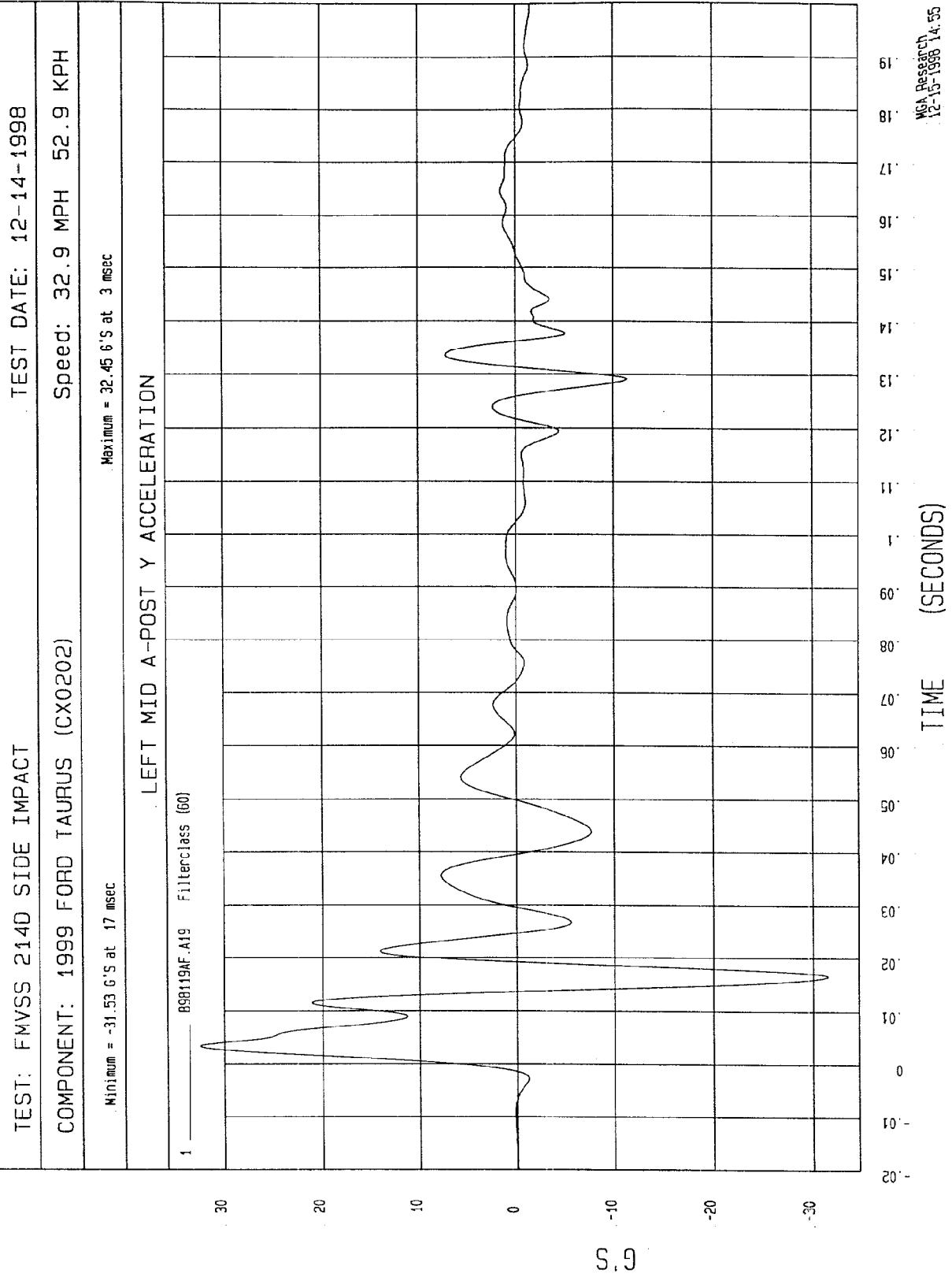
Minimum = -4.03E-03 KPH at -8 msec Maximum = 21.76 KPH at 196 msec

LEFT LOWER A-POST Y VELOCITY



TIME Seconds

MCA Research
12-15-1998 15:05



TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

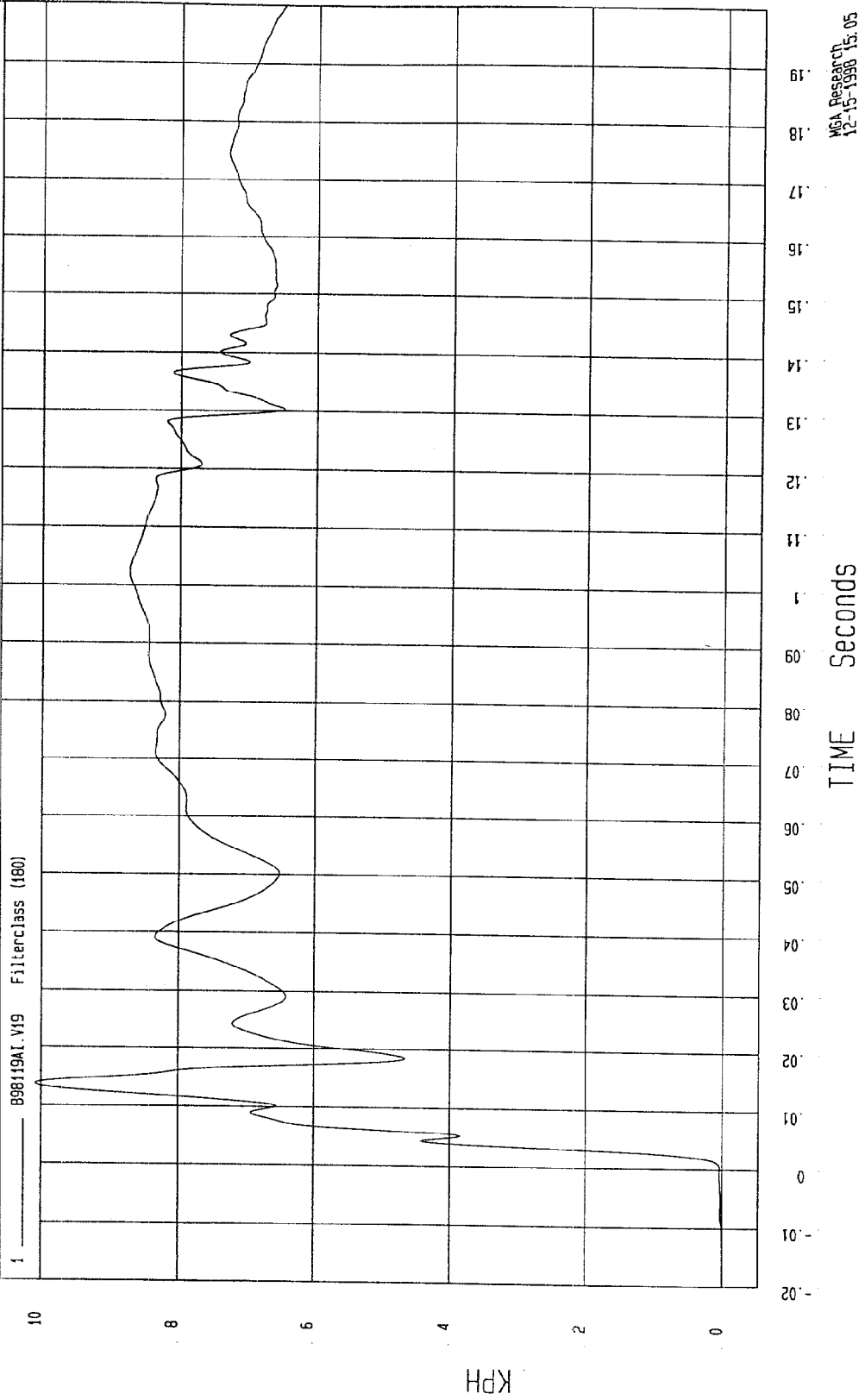
Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 10.09 KPH at 14 msec

Minimum = -7.16E-03 KPH at -16 msec

LEFT MID A-POST Y VELOCITY

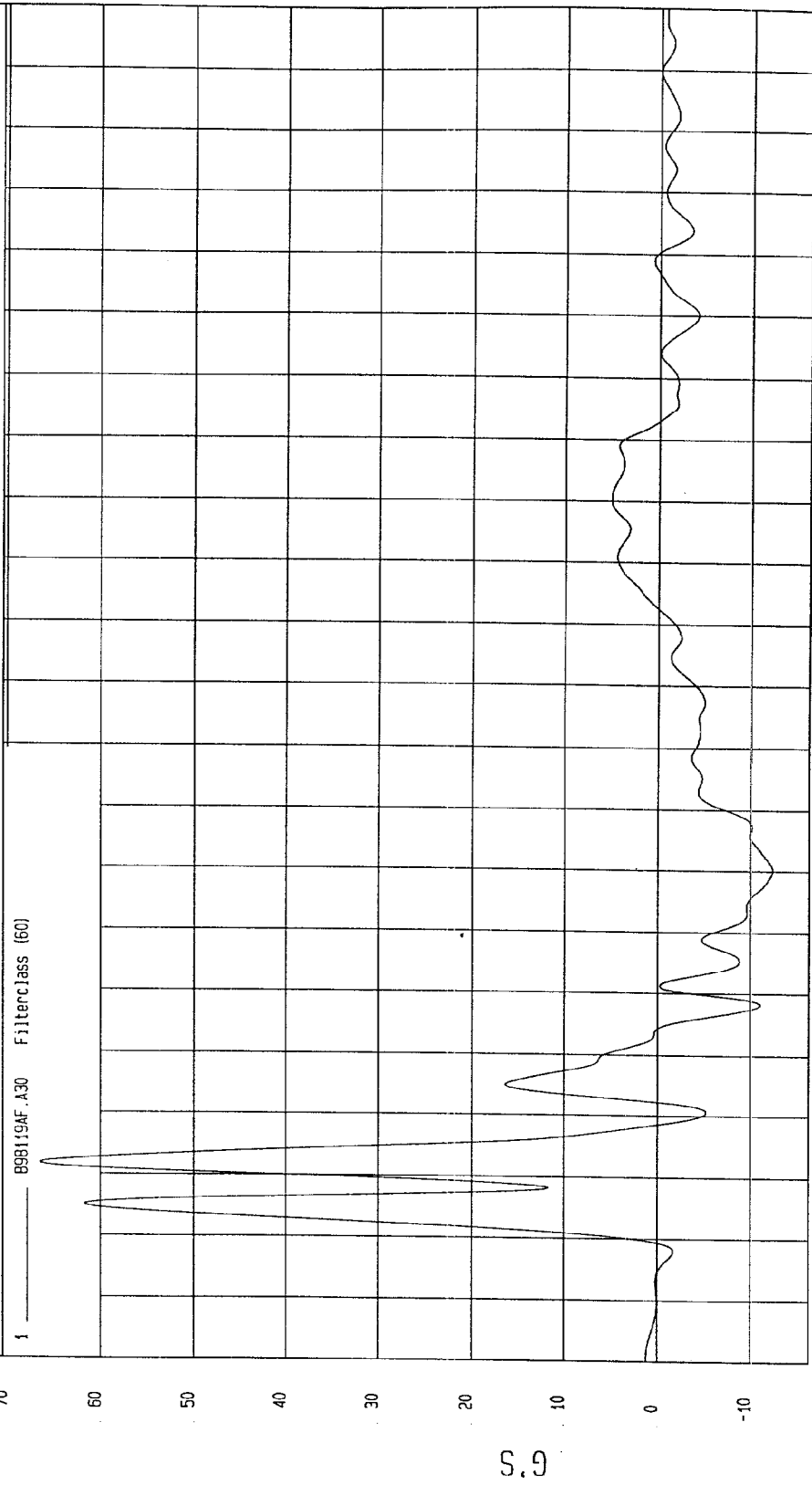


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -12.34 G'S at 60 msec Maximum = 66.54 G'S at 12 msec

LEFT LOWER B-POST Y ACCELERATION



MCA Research
12-15-1998 14:55

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

Minimum = 0 KPH at -20 msec

Maximum = 24.9 KPH at 36 msec

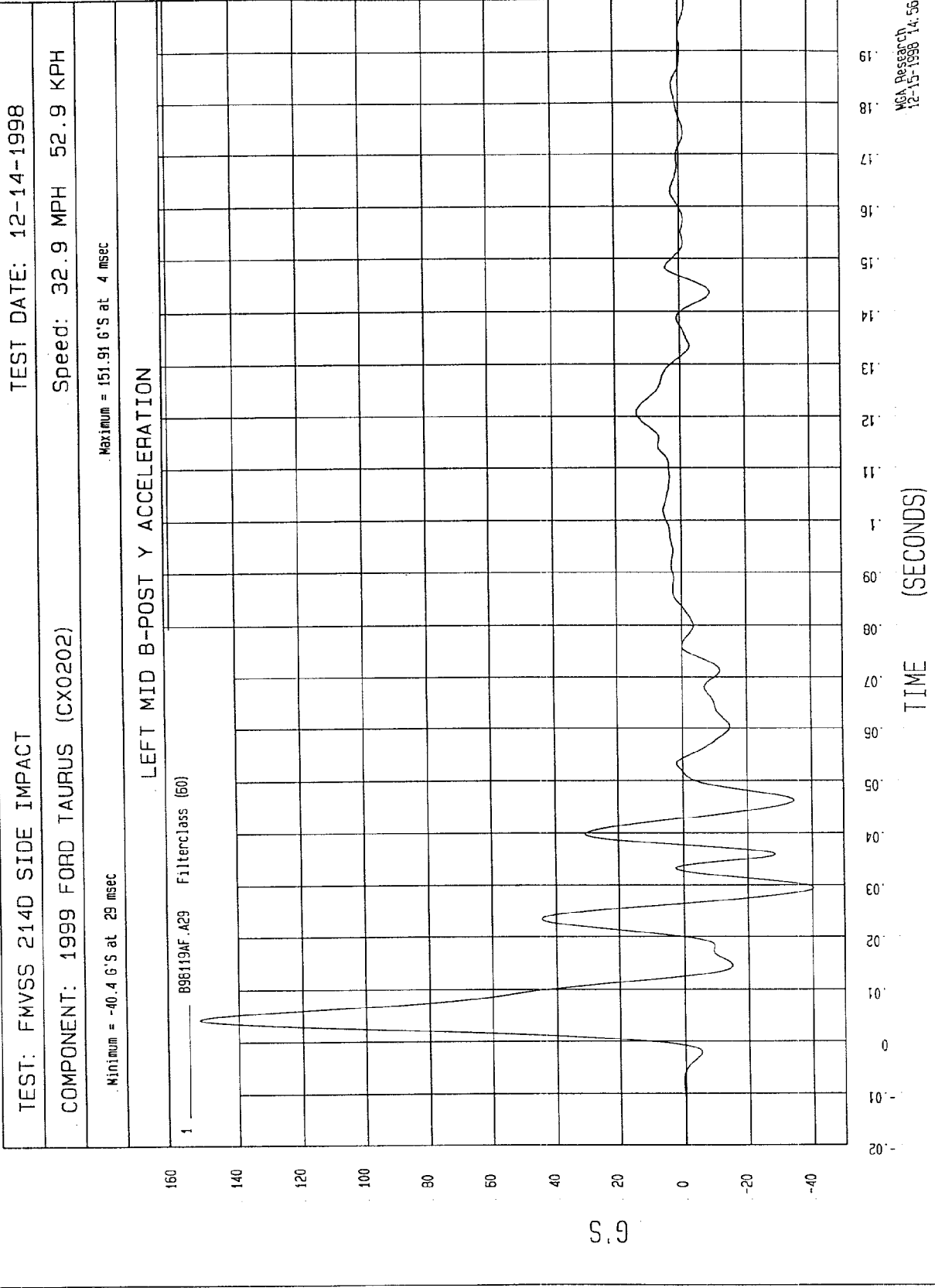
LEFT LOWER B-POST Y VELOCITY

1 ——— B98119A1.V30 Filterclass (180)



WCA Research
12-15-1998 15:05

TIME Seconds

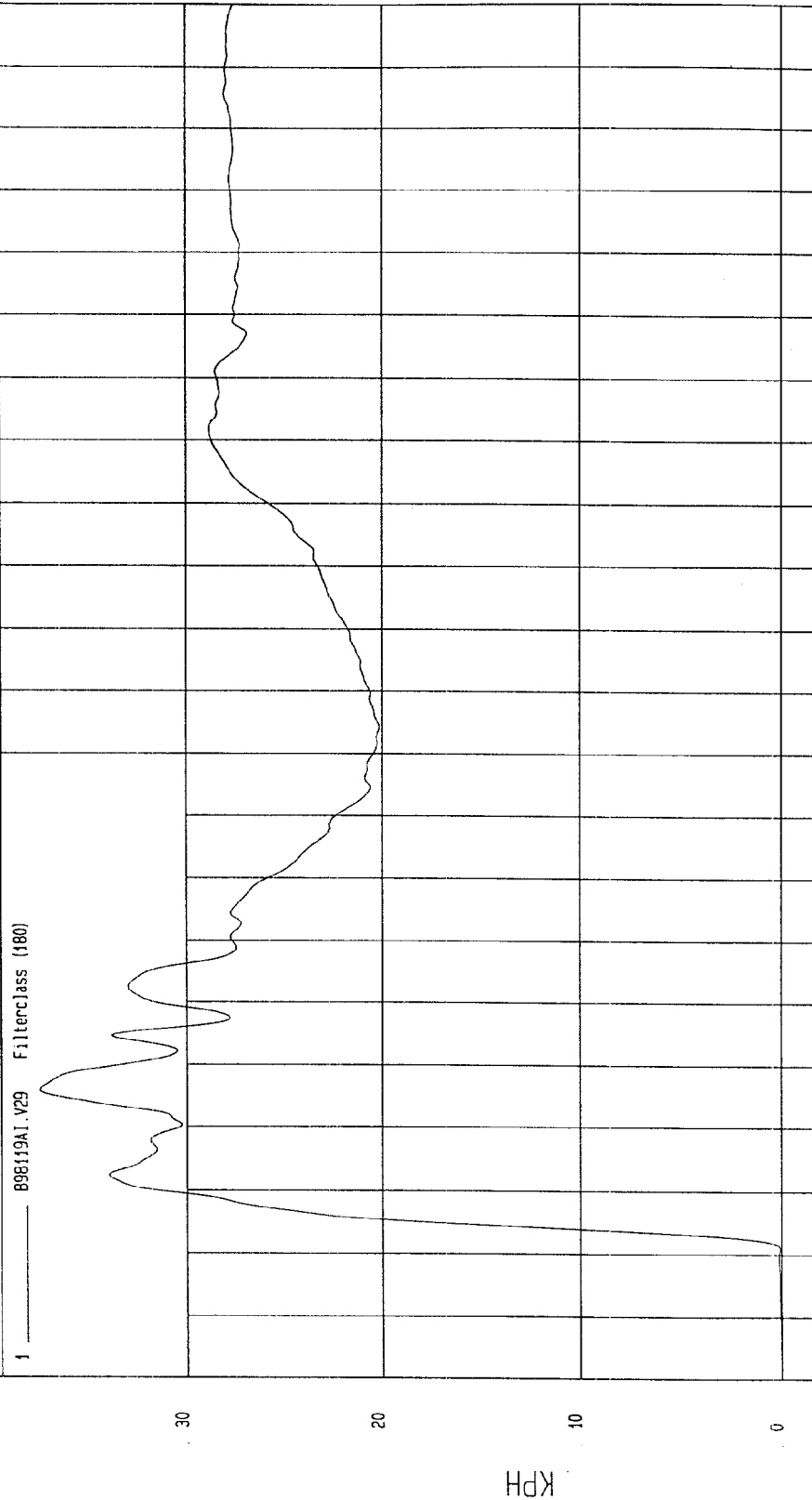


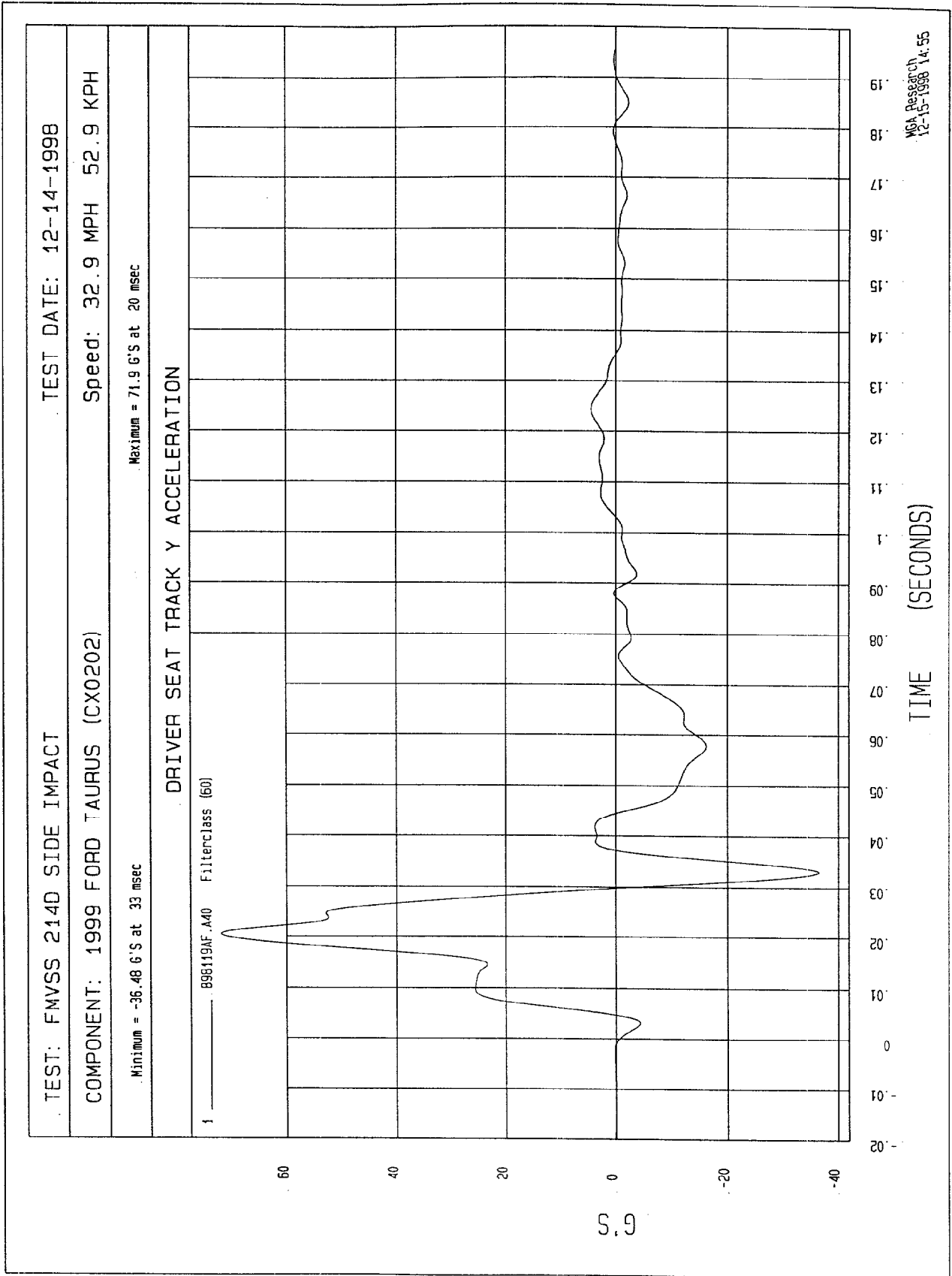
TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = 0 KPH at -20 msec Maximum = 37.37 KPH at 26 msec

LEFT MID B-POST Y VELOCITY



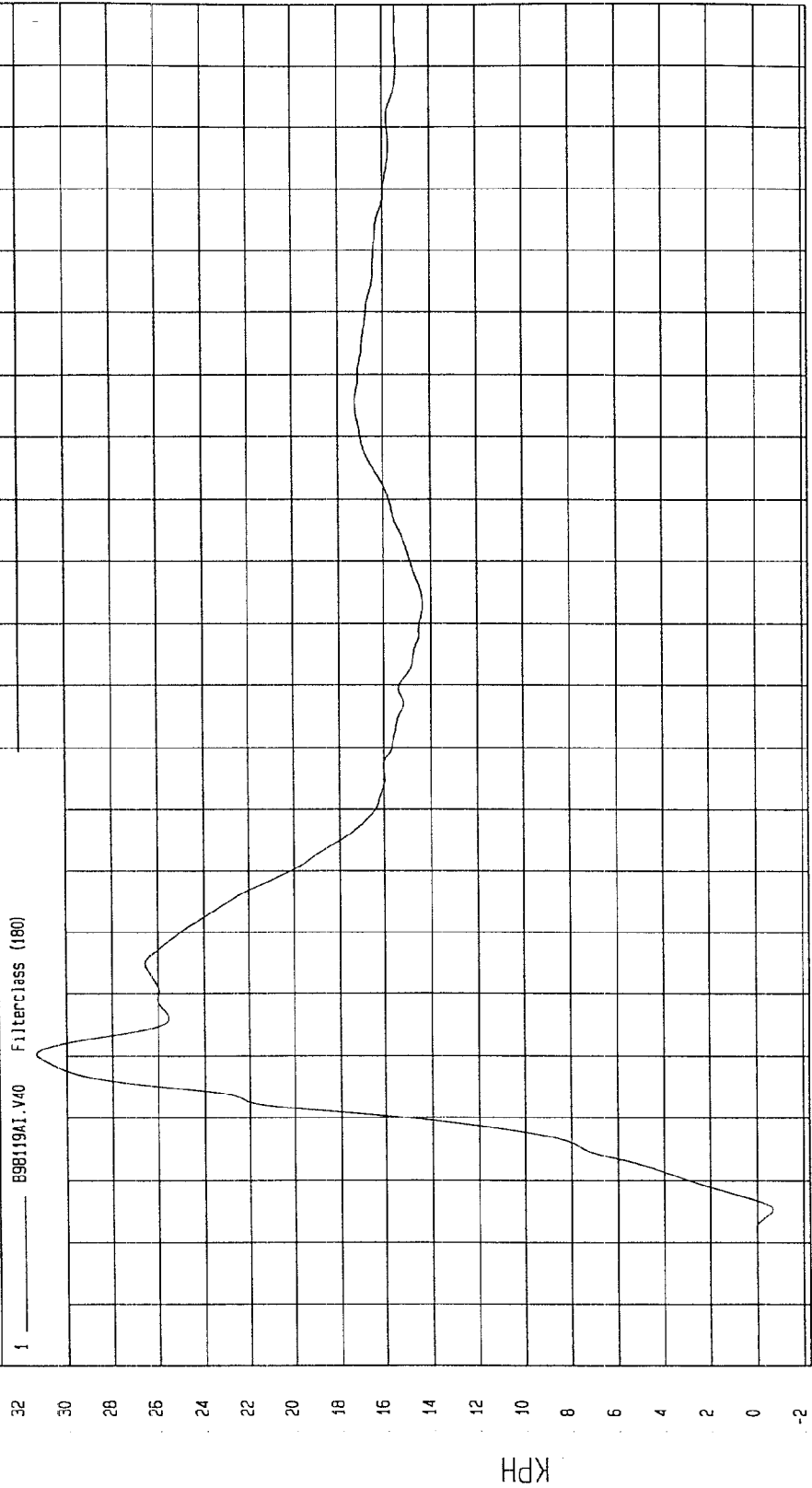


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

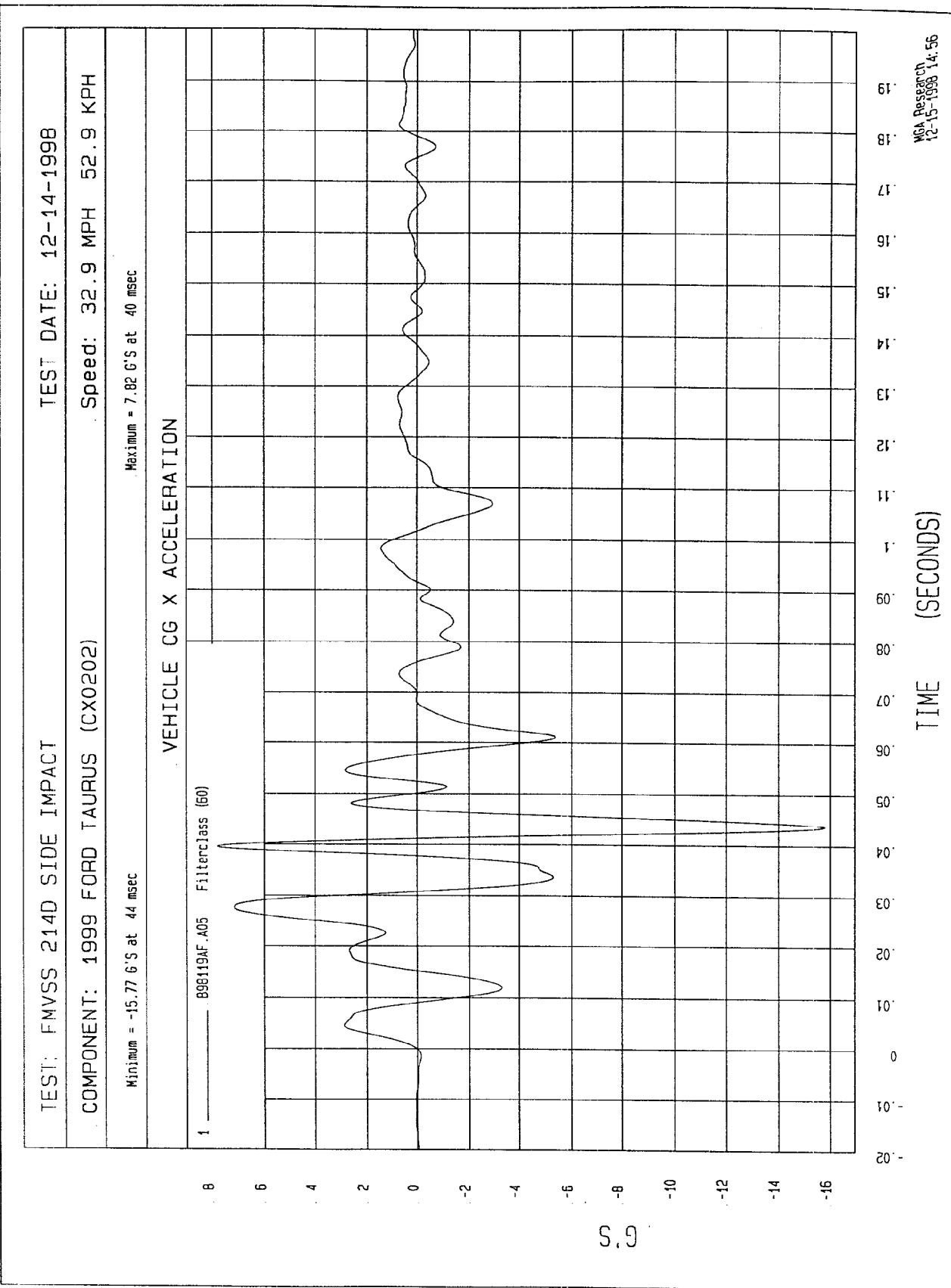
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -1.66 KPH at 5 msec Maximum = 31.31 KPH at 30 msec

DRIVER SEAT TRACK Y VELOCITY



MCA Research
12-15-1998 15:04



TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

Minimum = -1.35 KPH at 116 msec

Maximum = 2.12 KPH at 30 msec

VEHICLE CG X VELOCITY

1 B98119A1.V05 Filterclass (180)

2.2

2

1.8

1.6

1.4

1.2

1

.8

.6

.4

.2

0

-.2

-.4

-.6

-.8

-1

-1.2

-1.4

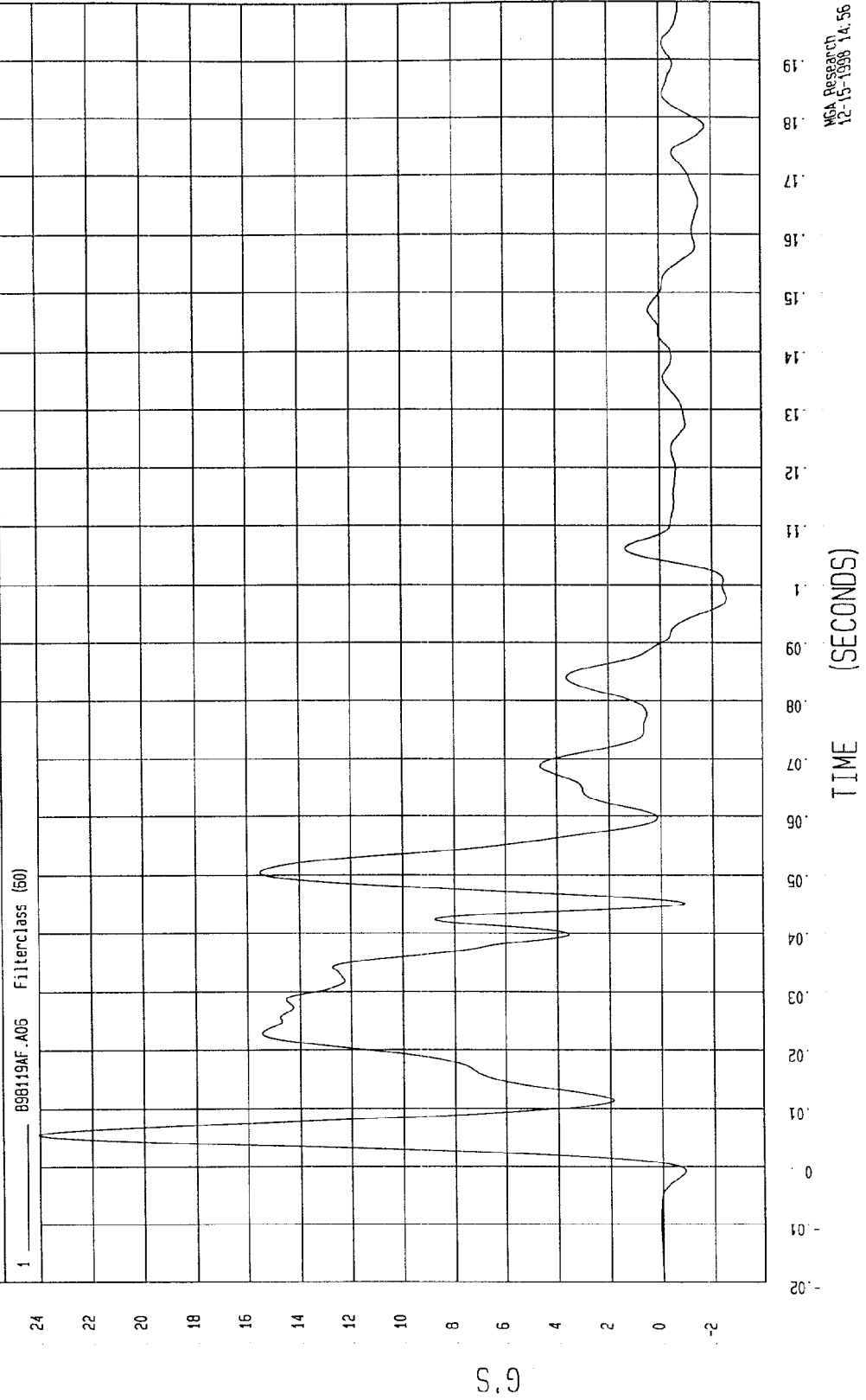
KPH

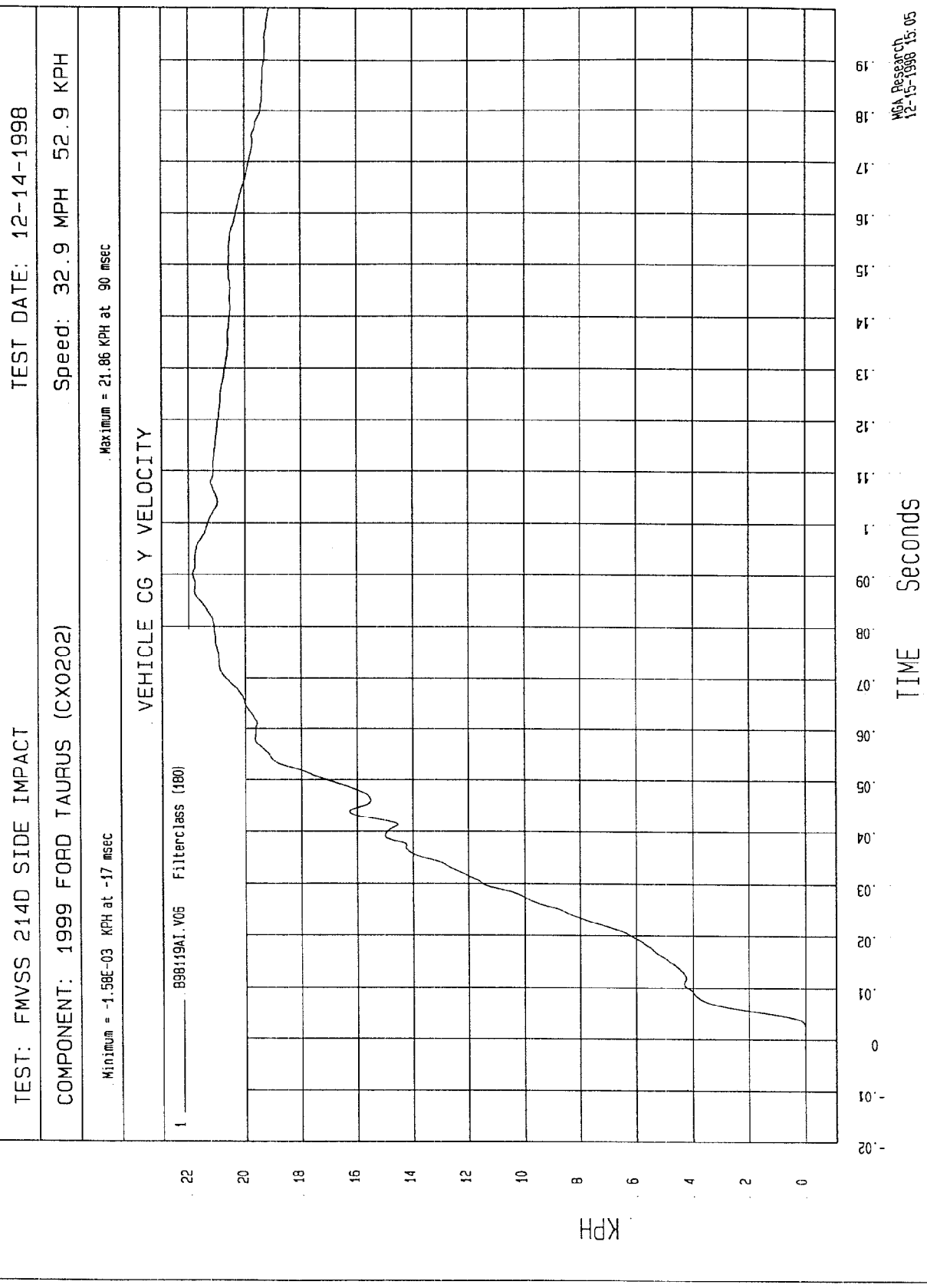
TIME Seconds

WCA Research
12-15-1998 15:05

TEST: FMVSS 214D SIDE IMPACT
TEST DATE: 12-14-1998
COMPONENT: 1999 FORD TAURUS (CX0202)
Speed: 32.9 MPH 52.9 KPH
Minimum = -2.54 G'S at 98 msec
Maximum = 24.05 G'S at 6 msec

VEHICLE CG Y ACCELERATION





TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

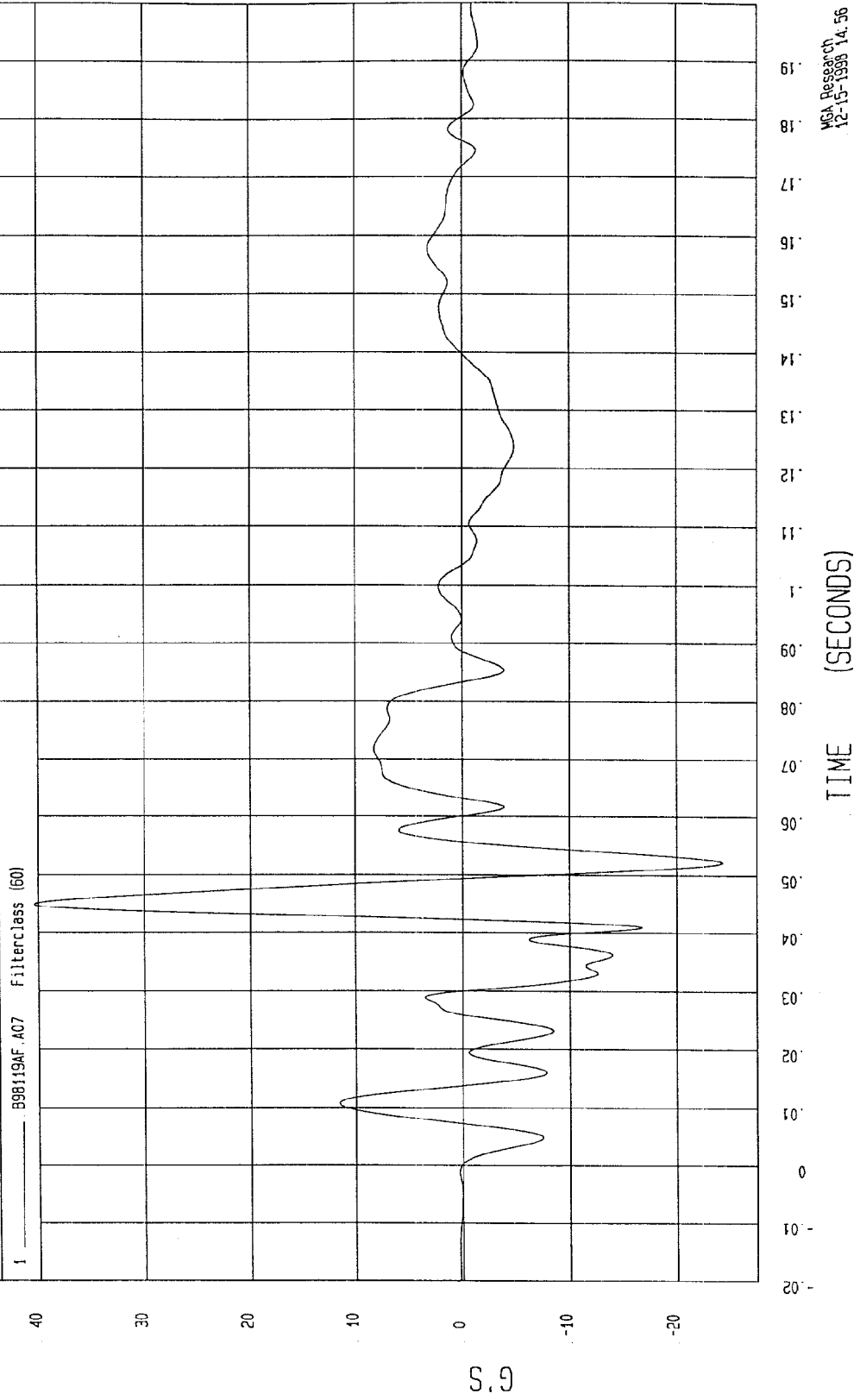
Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 40.41 G'S at 45 msec

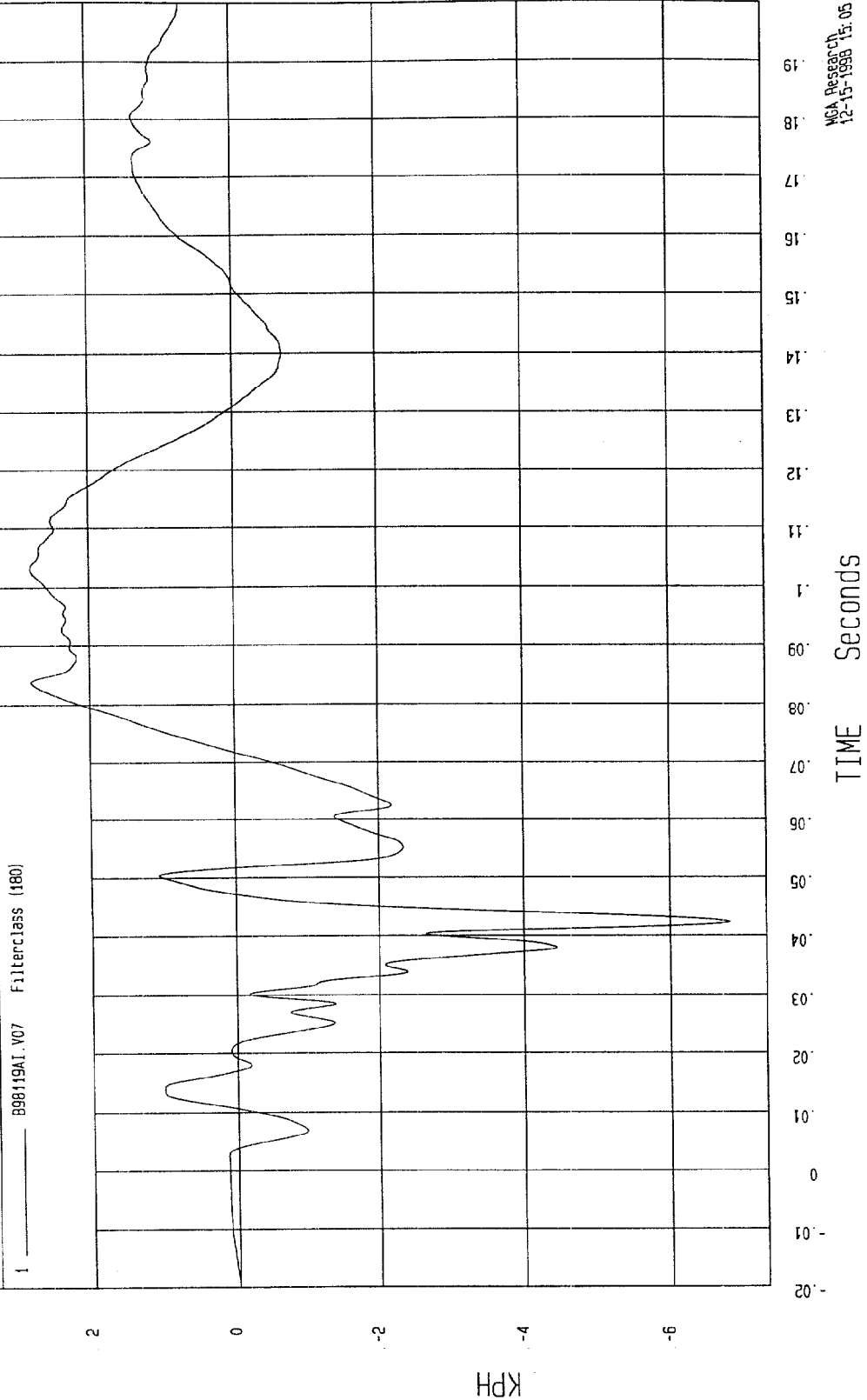
Minimum = -24.32 G'S at 52 msec

VEHICLE CG Z ACCELERATION



TEST: FMVSS 214D SIDE IMPACT
 TEST DATE: 12-14-1998
 COMPONENT: 1999 FORD TAURUS (CX0202)
 Speed: 32.9 MPH 52.9 KPH
 Minimum = -6.83 KPH at 42 msec
 Maximum = 2.81 KPH at 103 msec

VEHICLE CG Z VELOCITY



NCA Research
 12-15-1998 15:05

TEST DATE: 12-14-1998

TEST: FMVSS 214D SIDE IMPACT

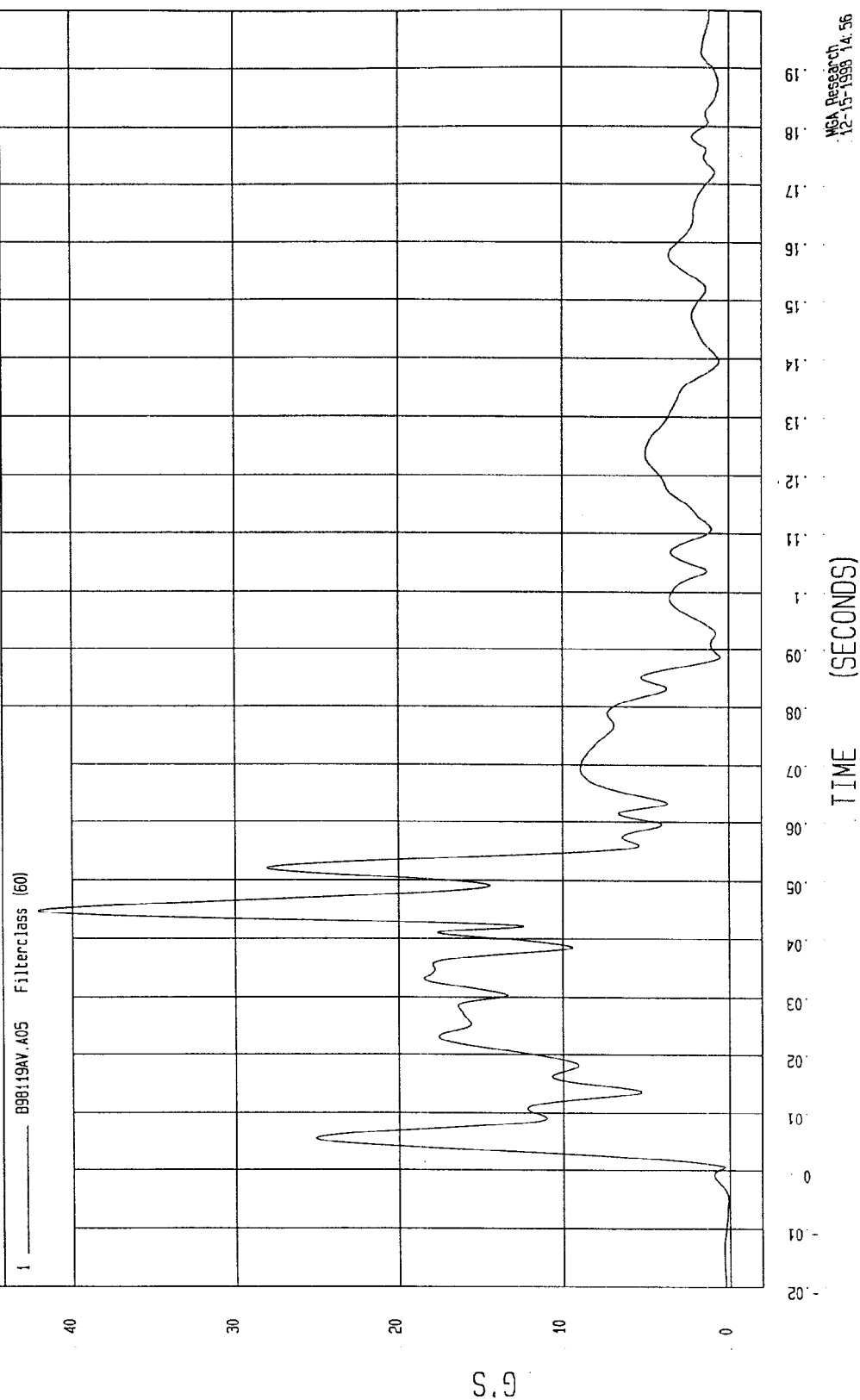
Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

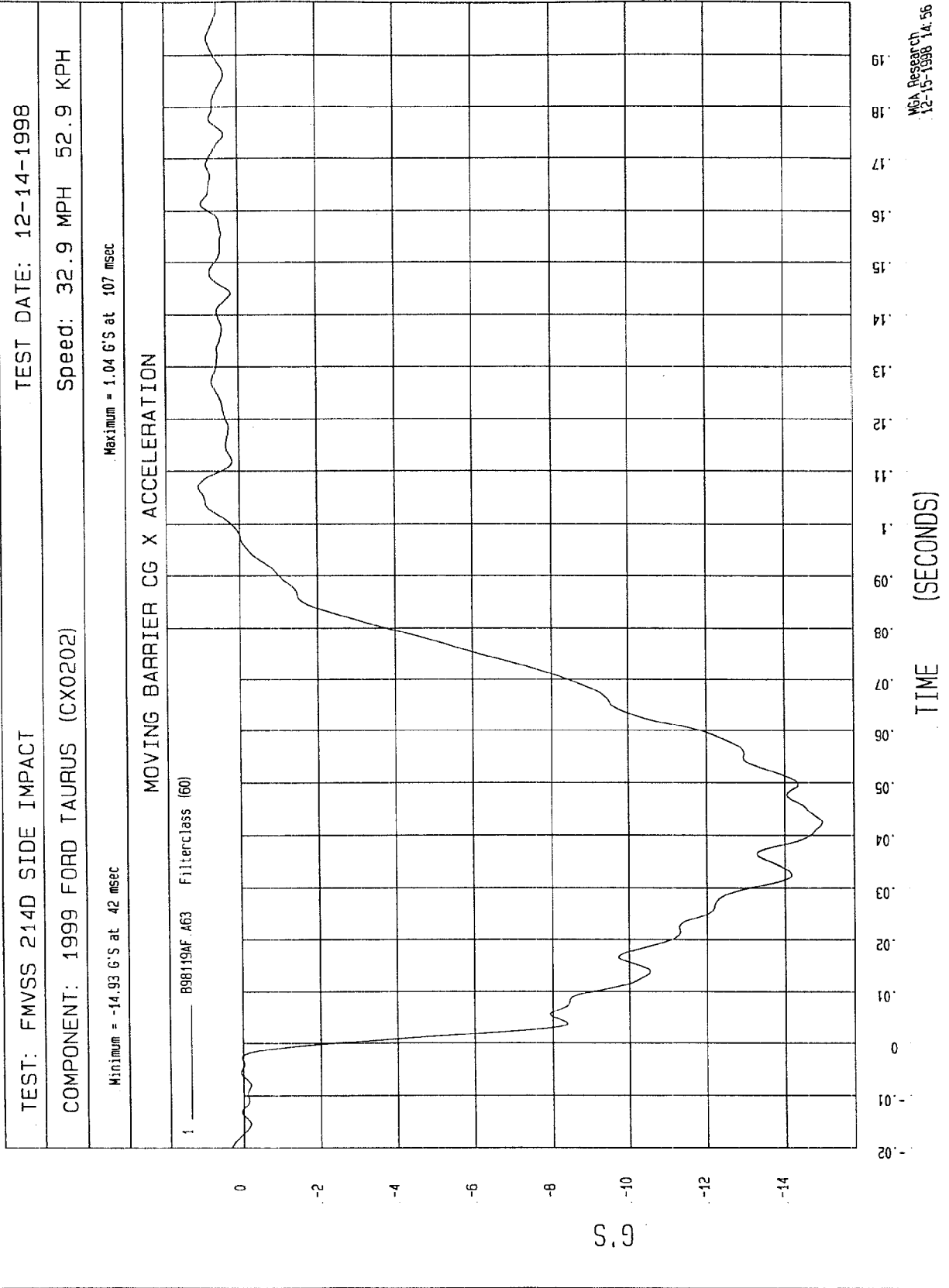
Maximum = 42.08 G'S at 45 msec

Minimum = 8.77E-02 G'S at -5 msec

VEHICLE CG RESULTANT ACCELERATION



MGA Research
12-15-1998 14:56

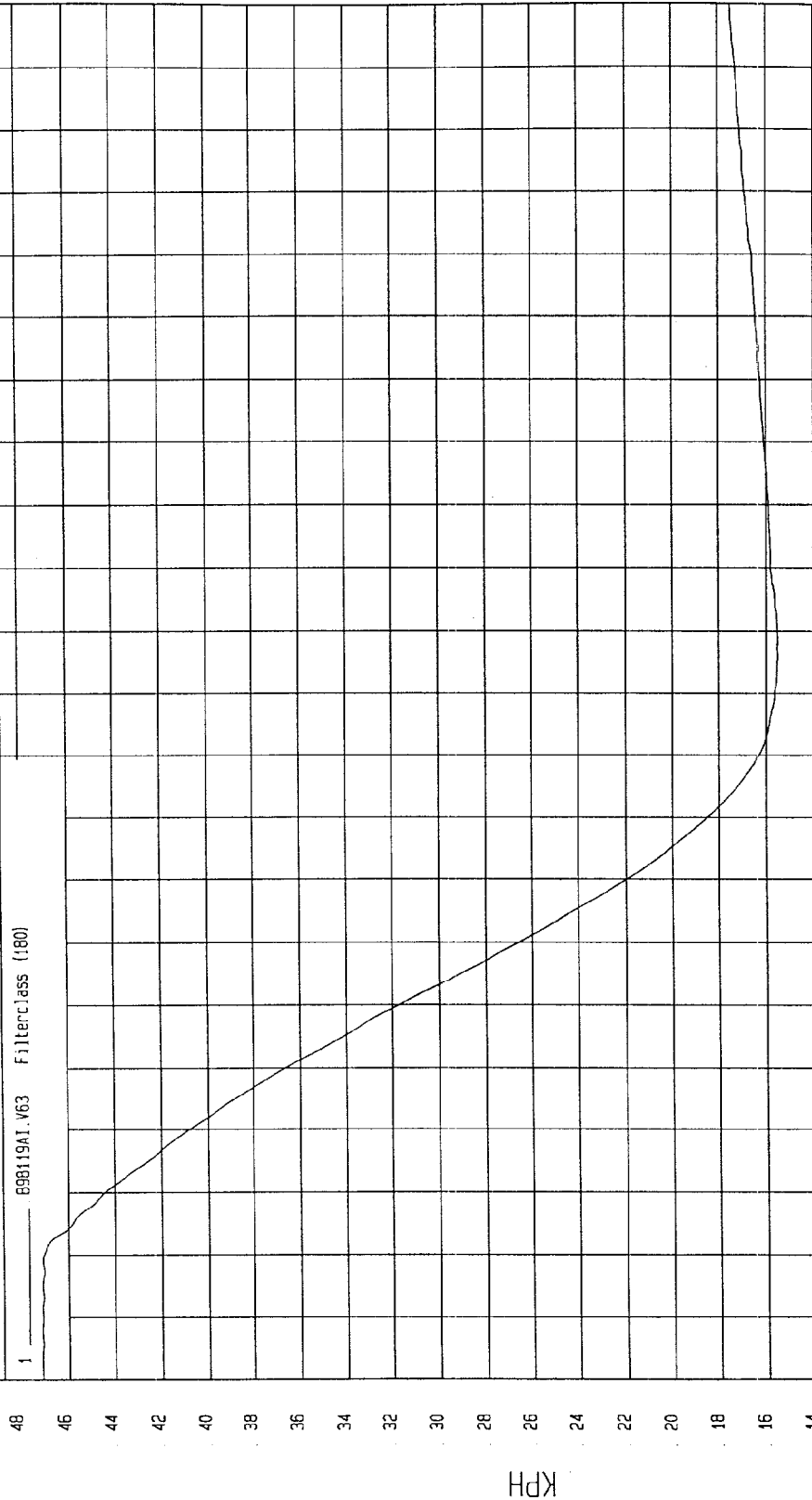


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

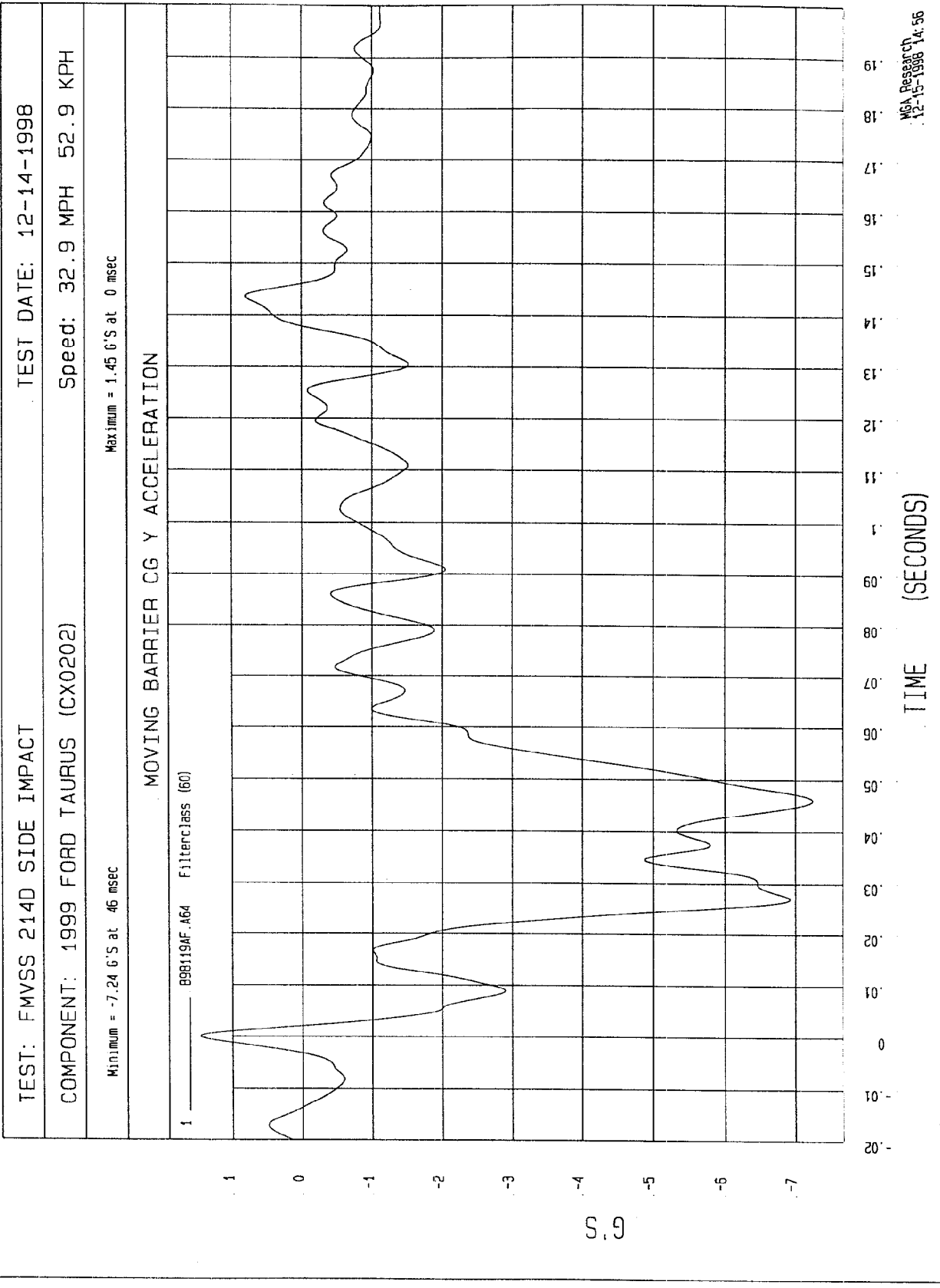
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = 15.52 KPH at 96 msec Maximum = 47.13 KPH at -12 msec

MOVING BARRIER CG X VELOCITY



MECA Research
12-15-1998 15:05

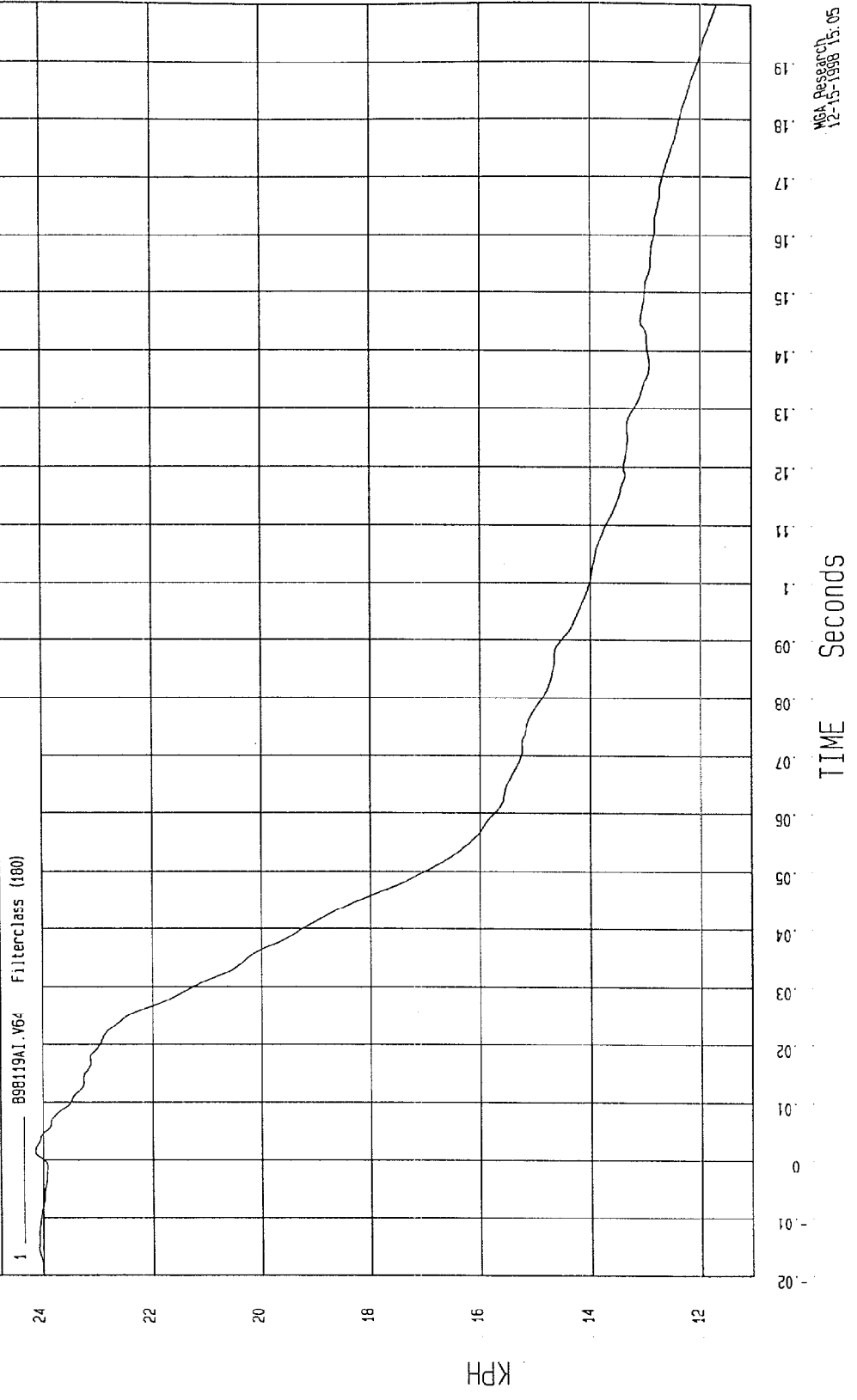


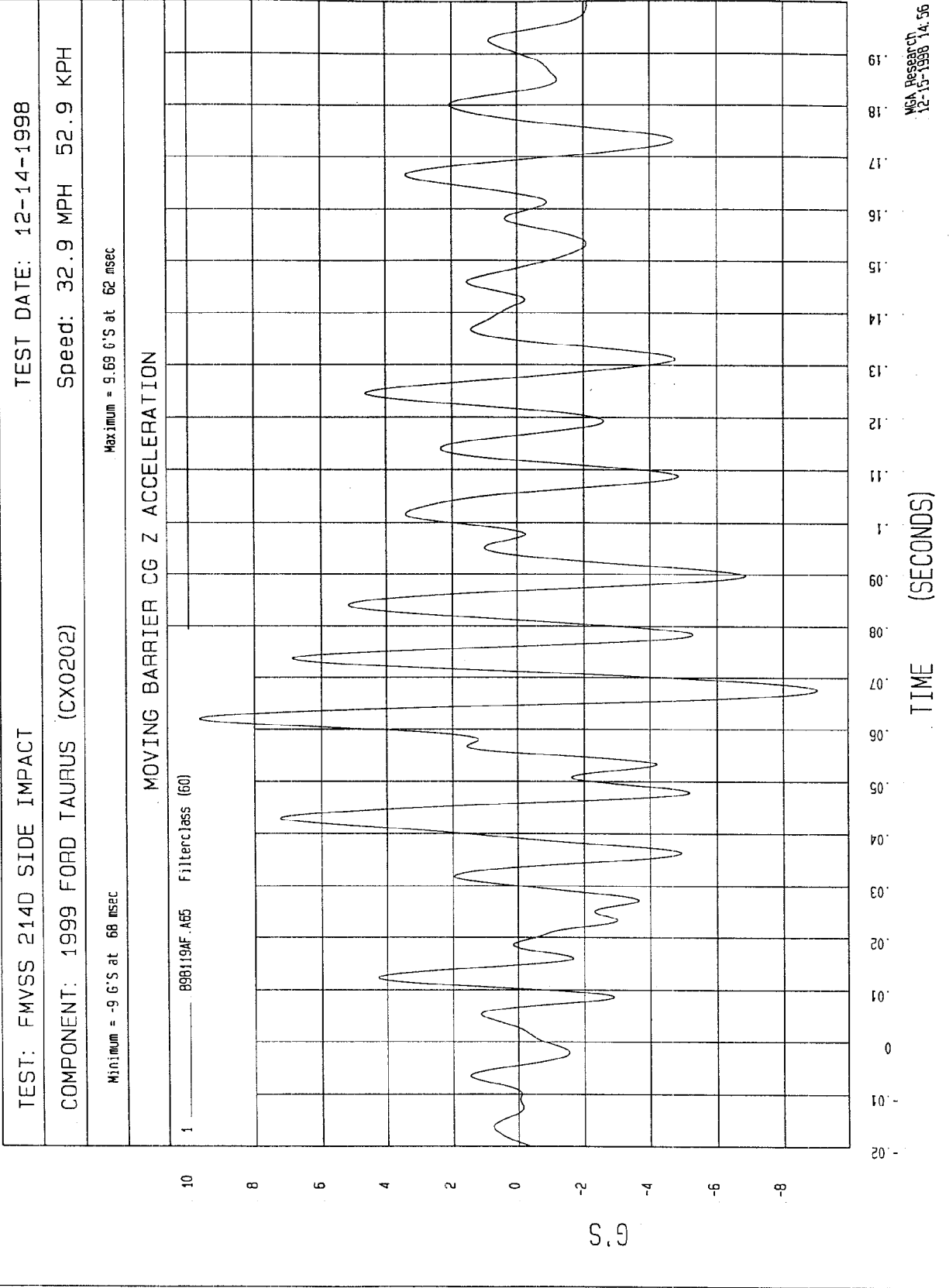
TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

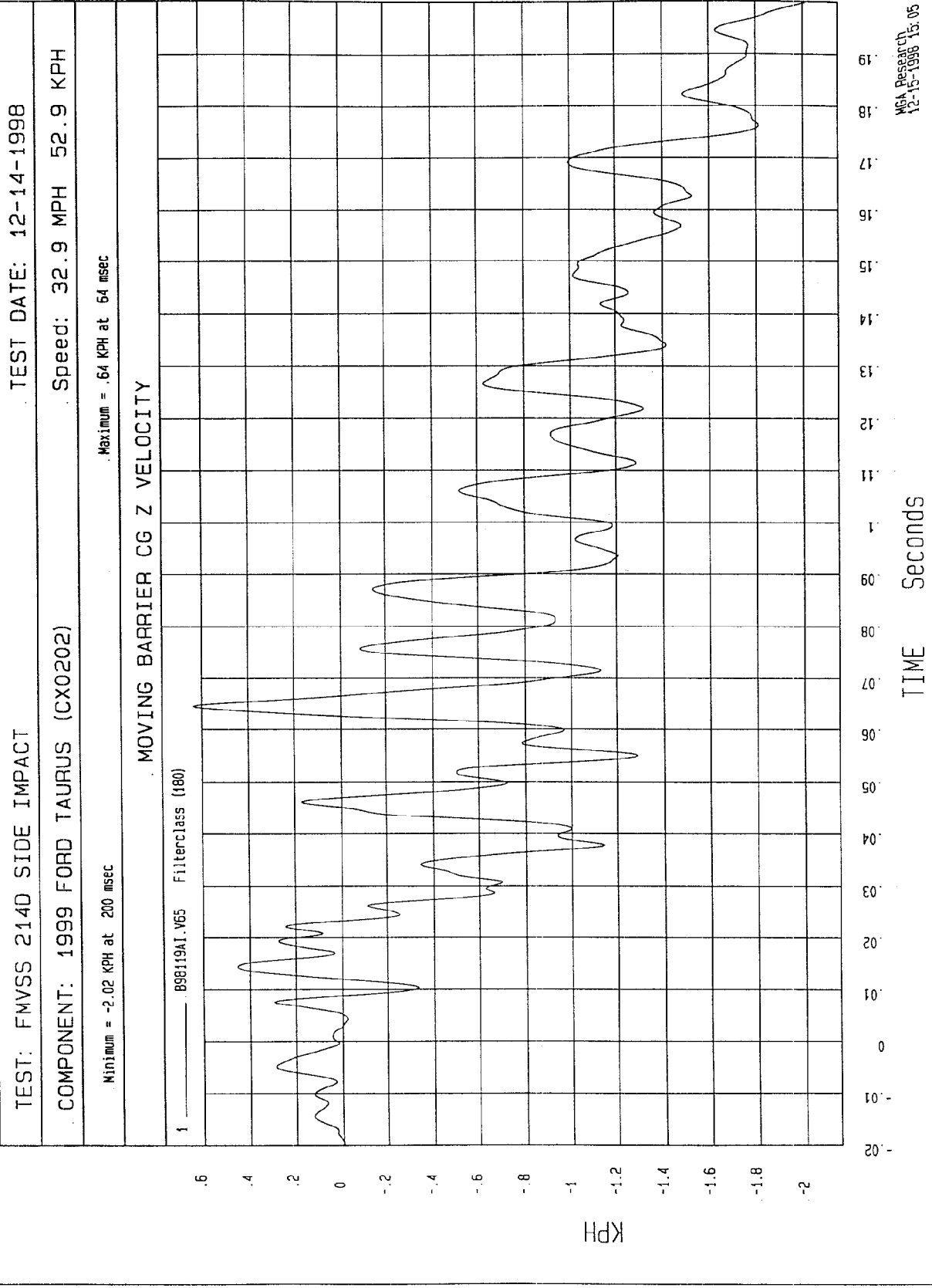
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

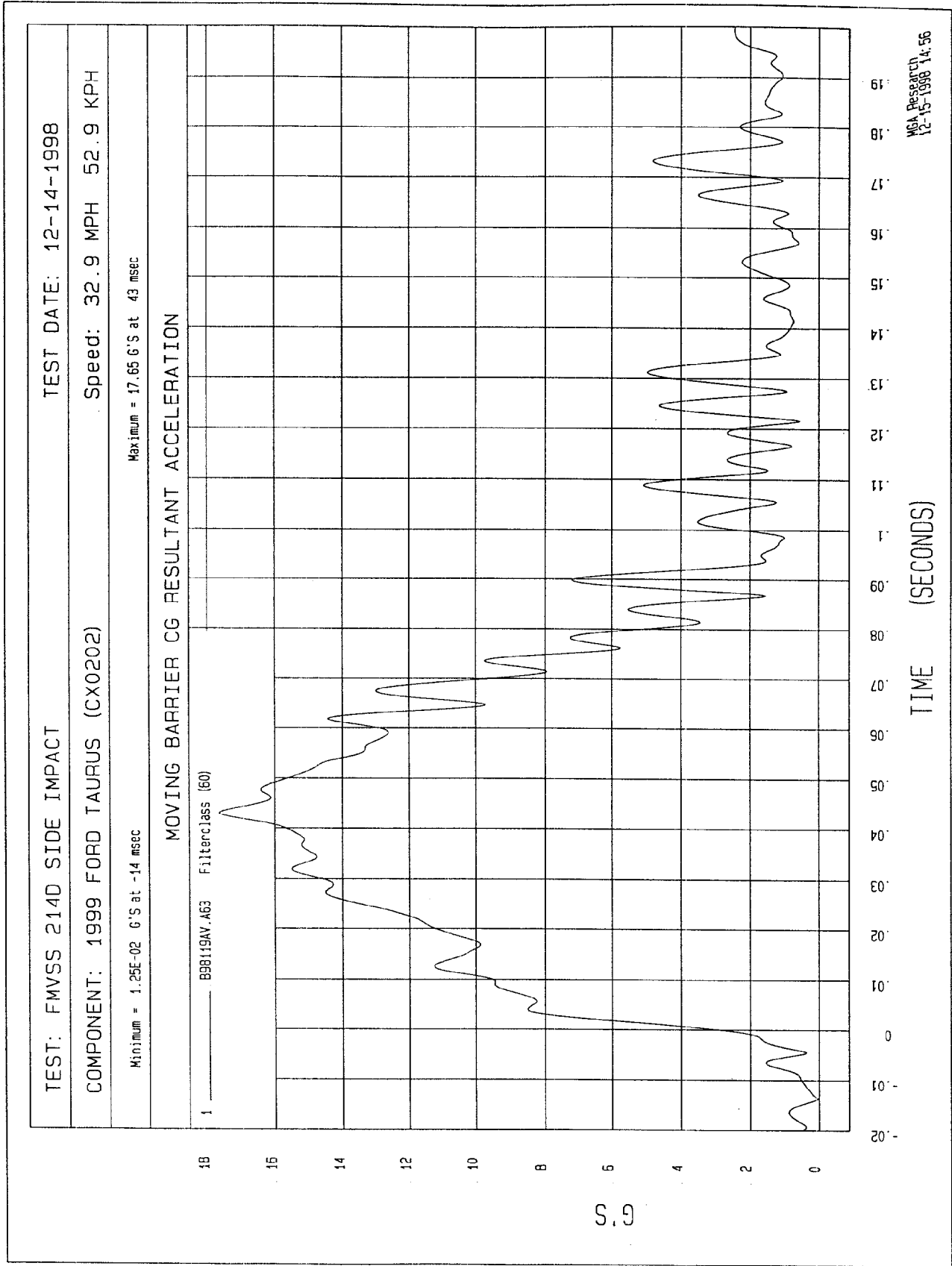
Minimum = 11.71 KPH at 200 msec Maximum = 24.14 KPH at 1 msec

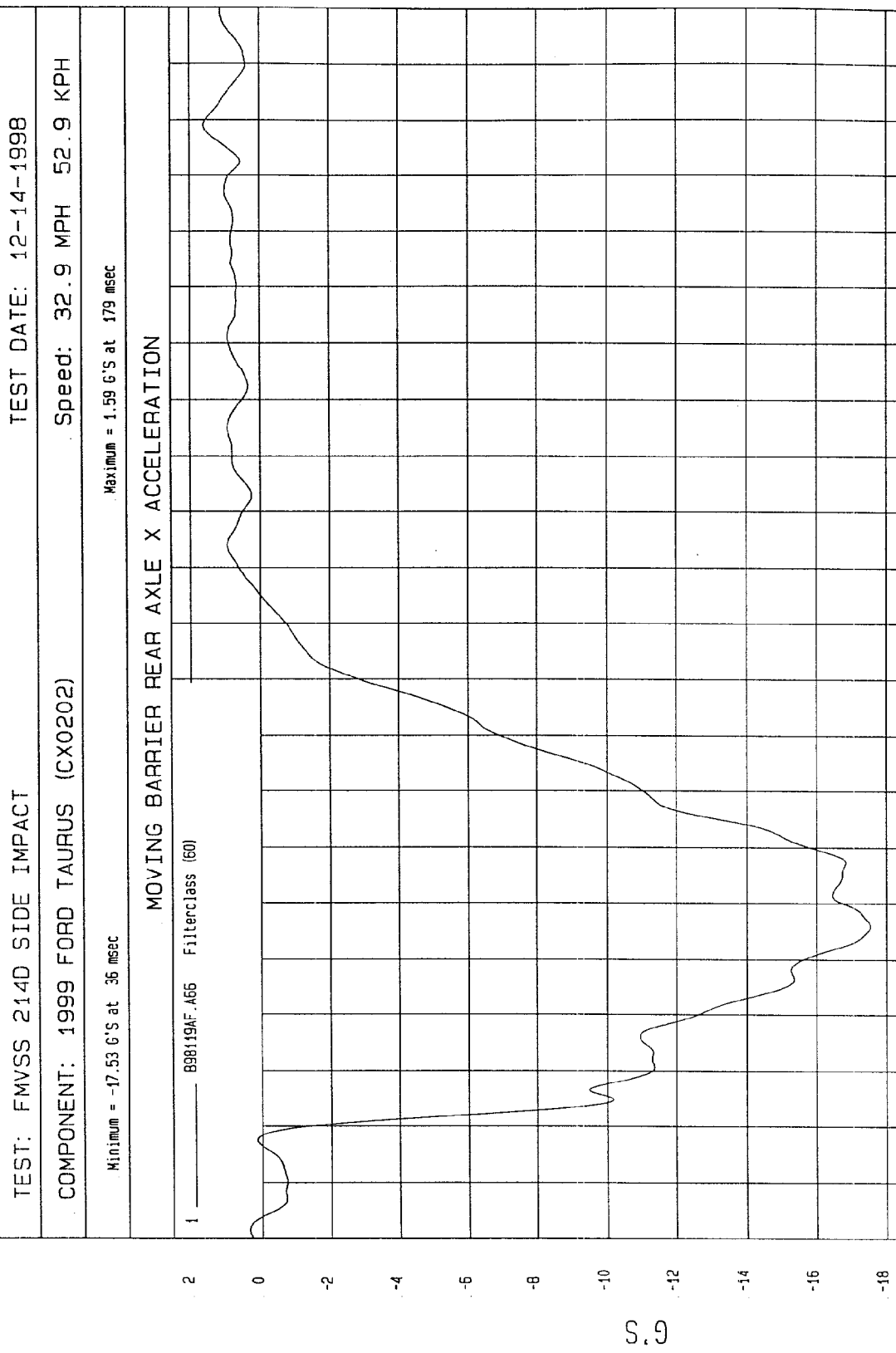
MOVING BARRIER CG Y VELOCITY











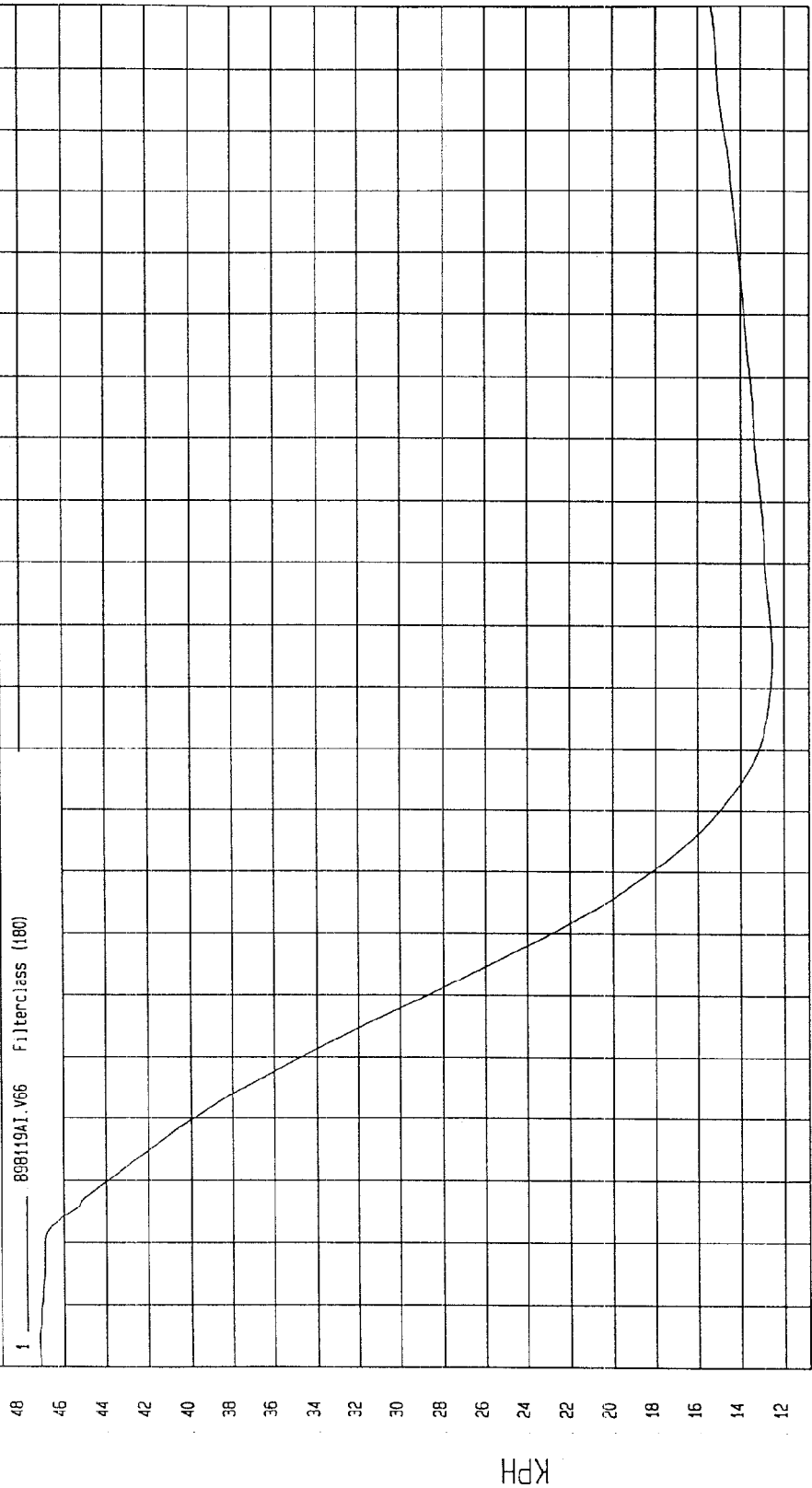
MCA Research
12-15-1998 14:56

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

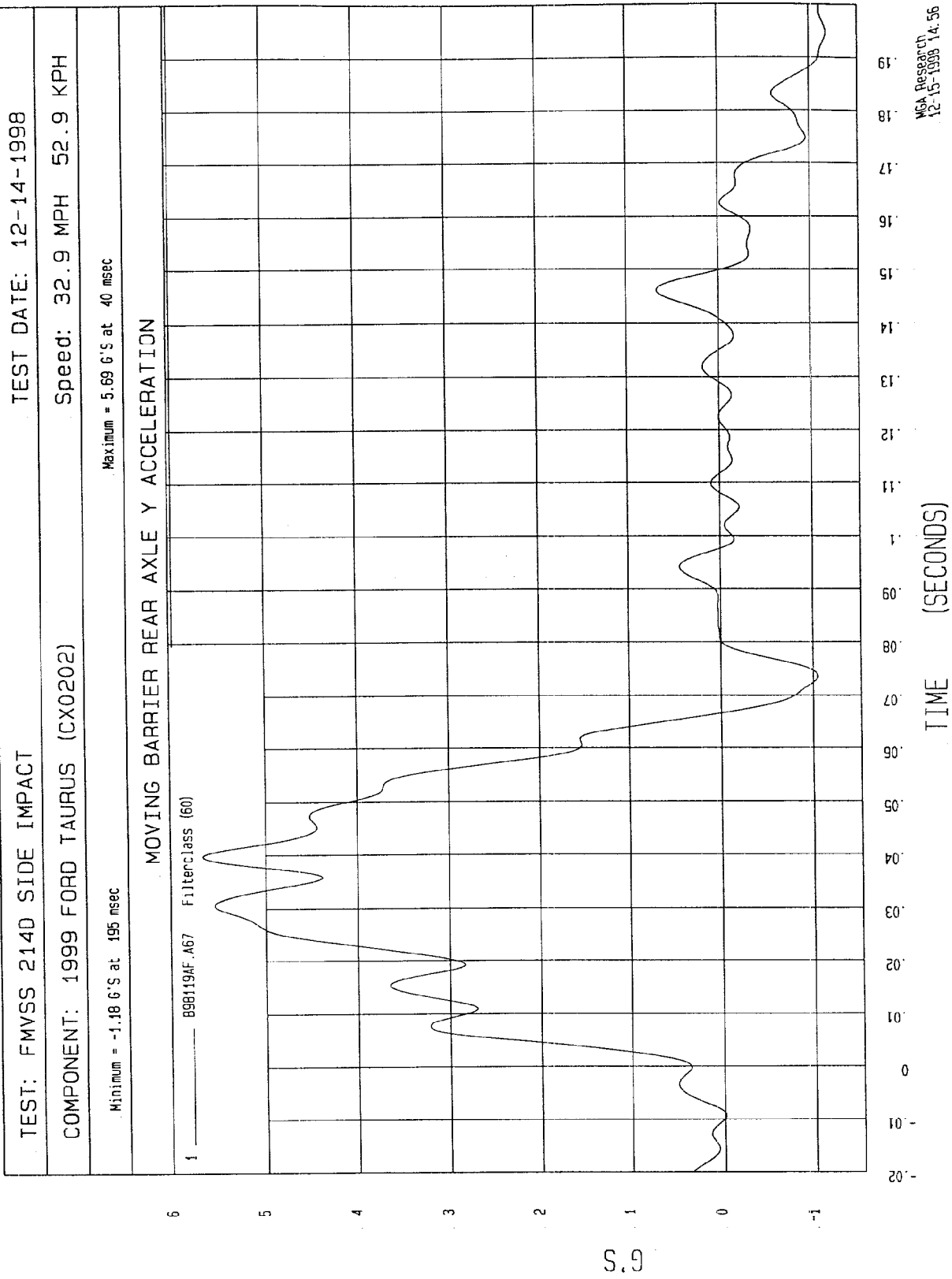
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = 12.58 KPH at 94 msec Maximum = 47.16 KPH at -16 msec

MOVING BARRIER REAR AXLE X VELOCITY



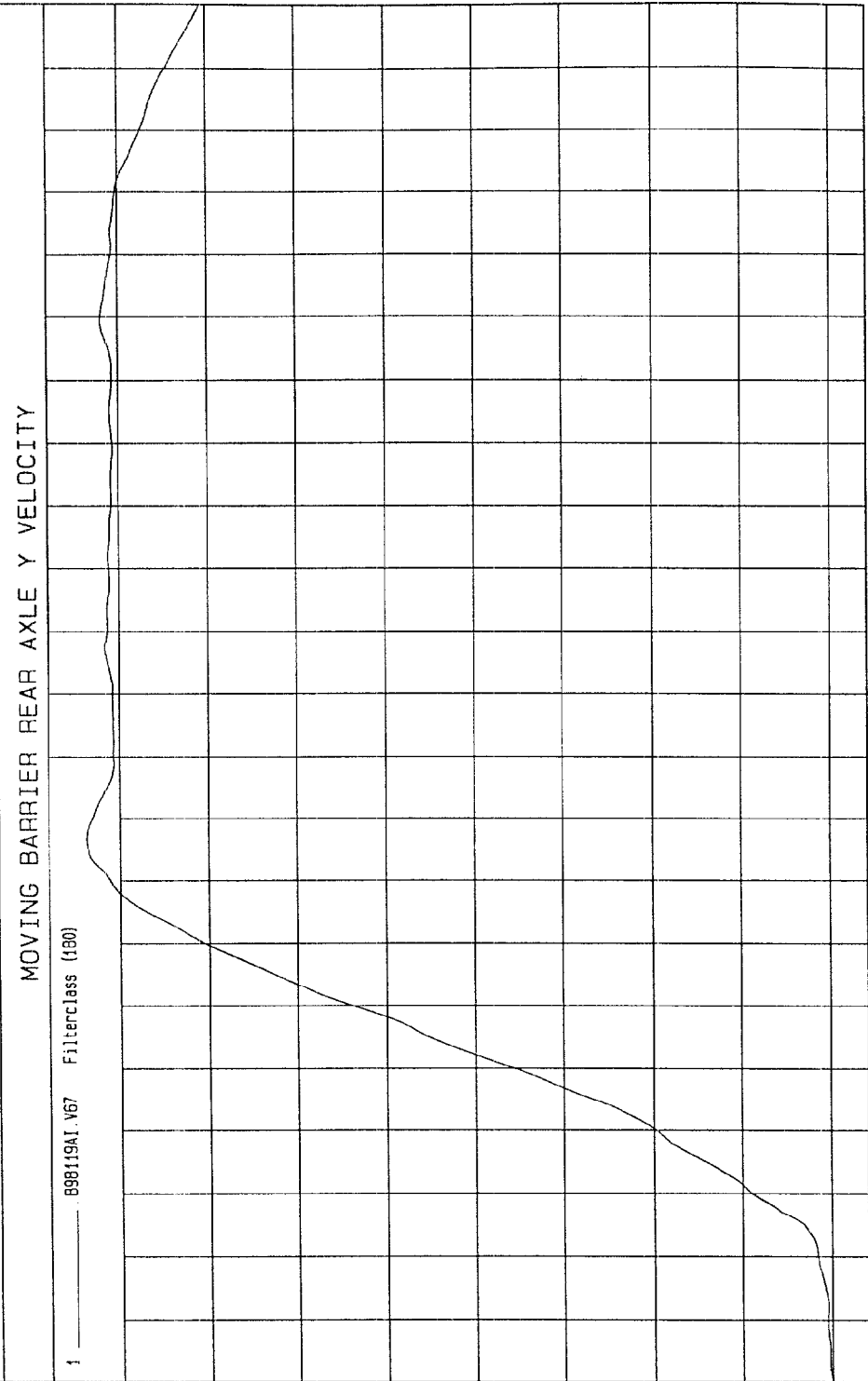
MCA Research
12-15-1998 15:05



TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

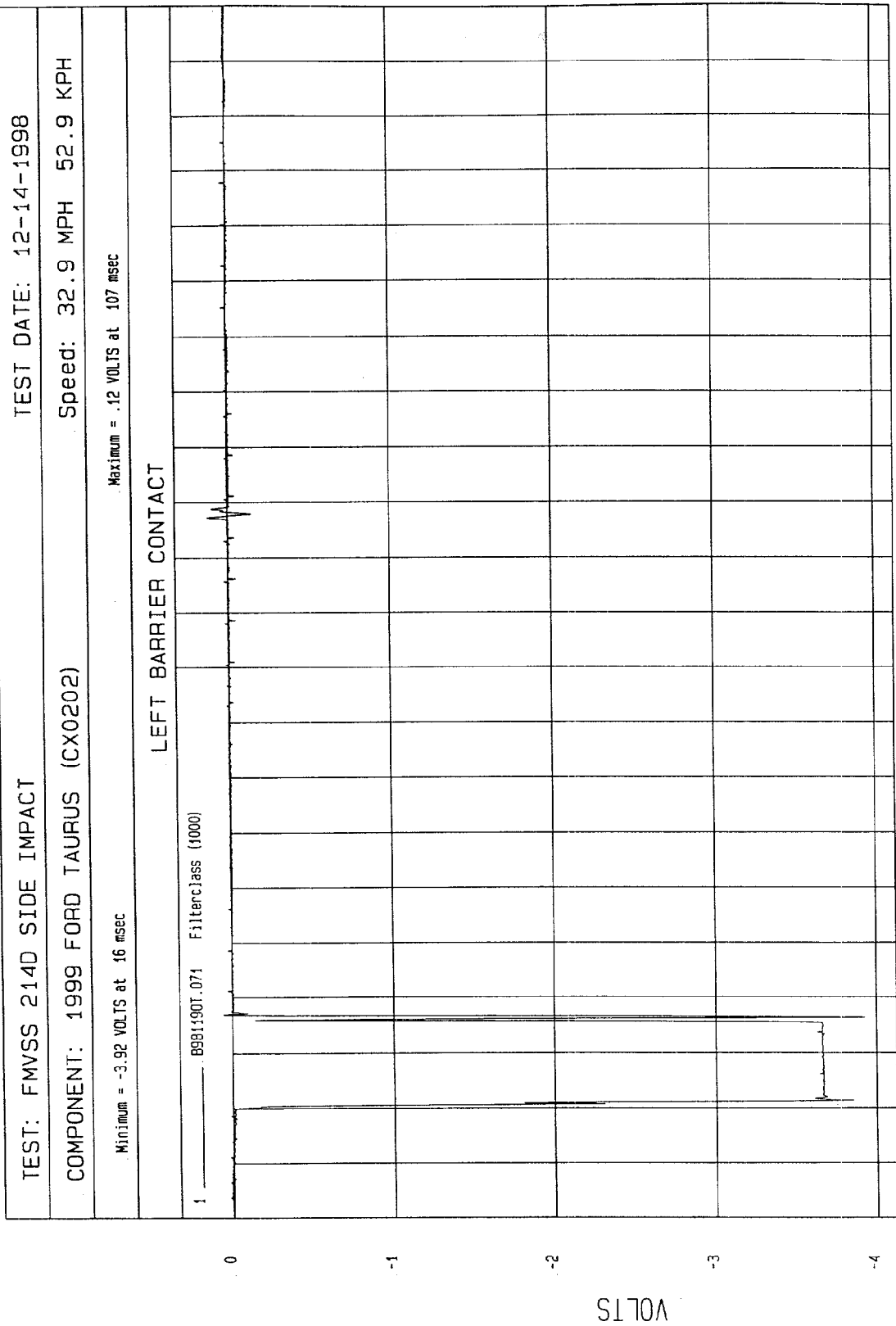
Minimum = 24 KPH at -20 msec Maximum = 32.38 KPH at 67 msec



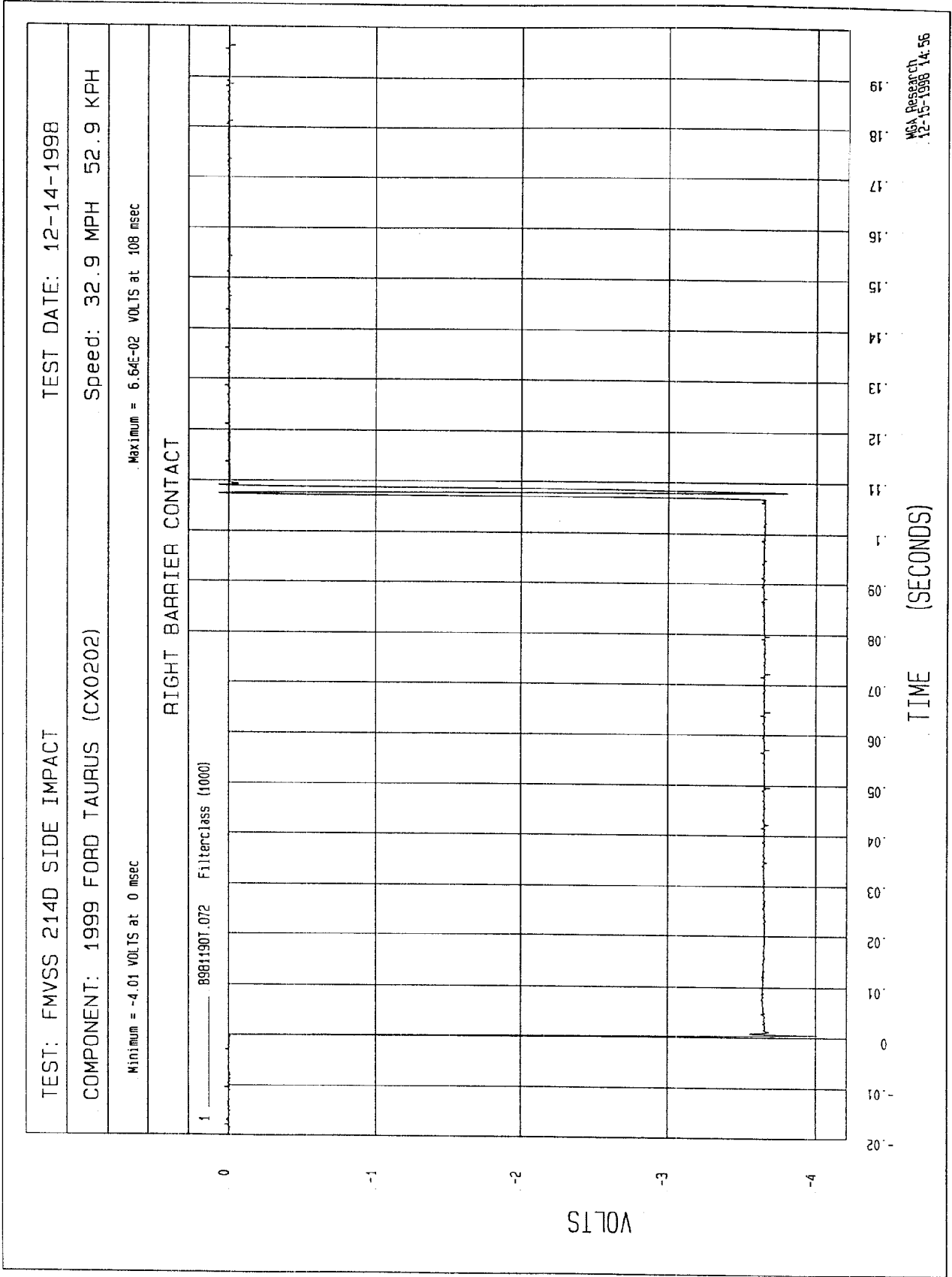
MSA Research
12-15-1998 13:05

TIME Seconds

KPH

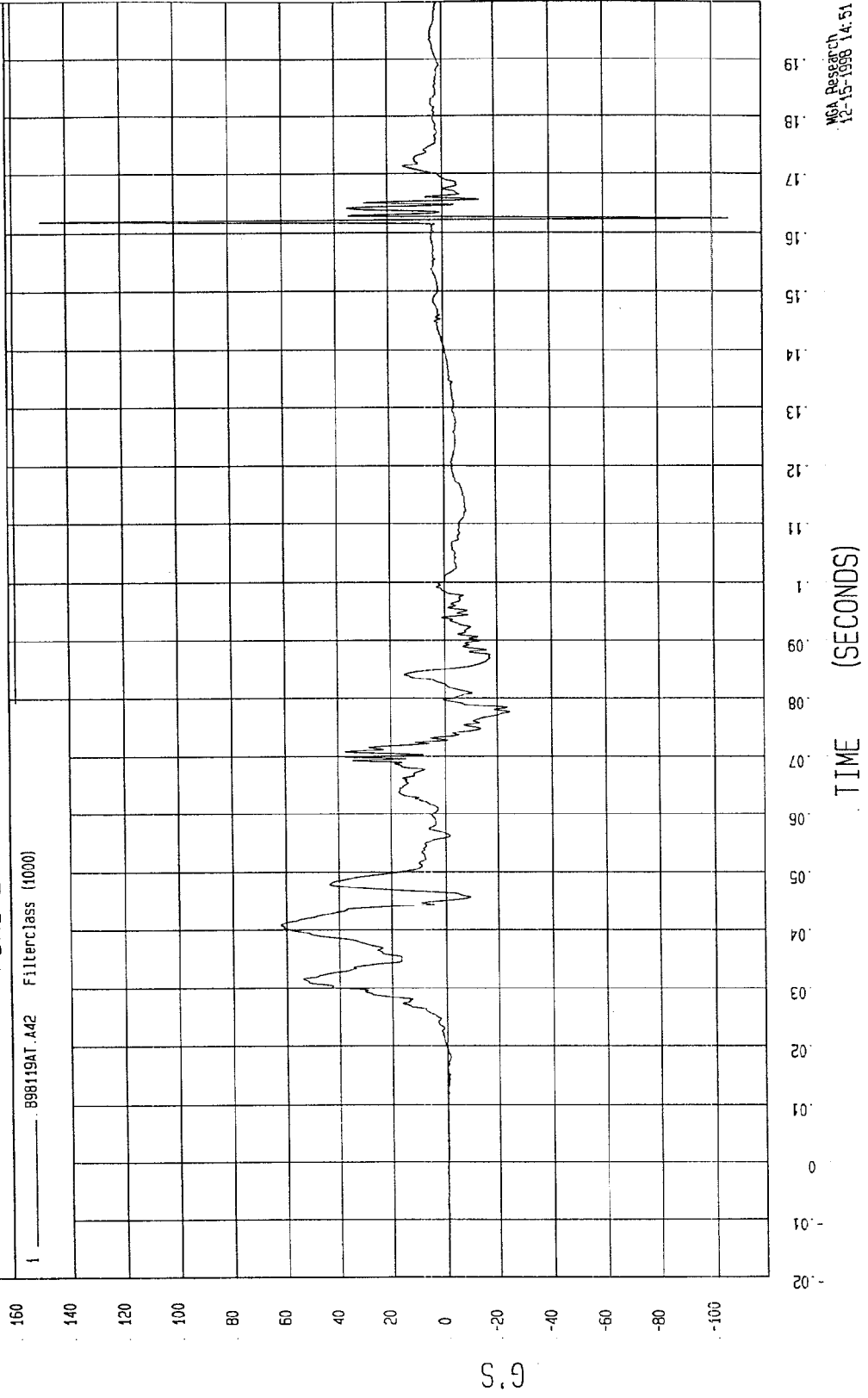


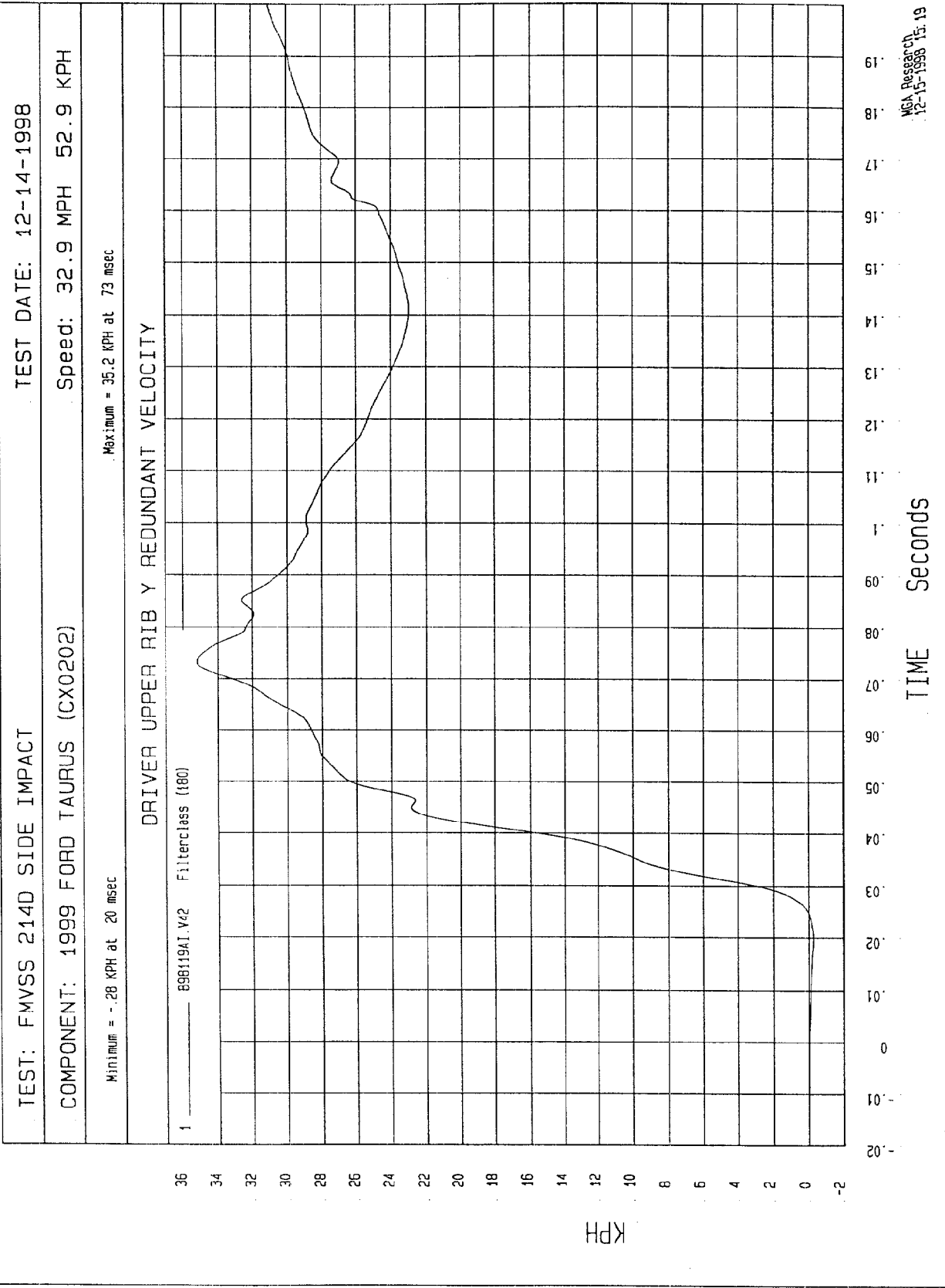
WCA Research
12-15-1998 14:56

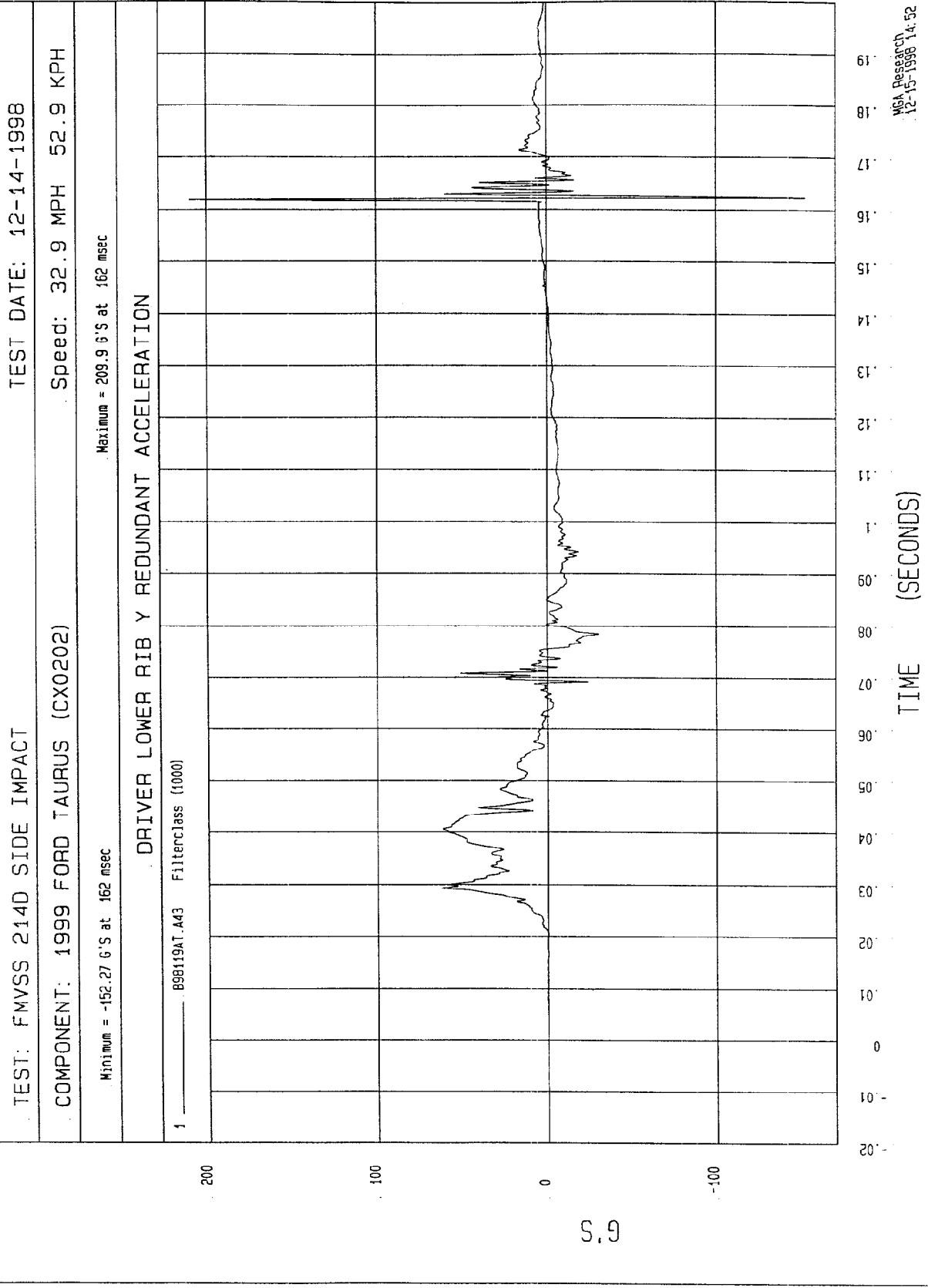


TEST: FMVSS 214D SIDE IMPACT
TEST DATE: 12-14-1998
COMPONENT: 1999 FORD TAURUS (CX0202)
Speed: 32.9 MPH 52.9 KPH
Minimum = -106.01 G's at 162 msec
Maximum = 149.49 G's at 162 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION





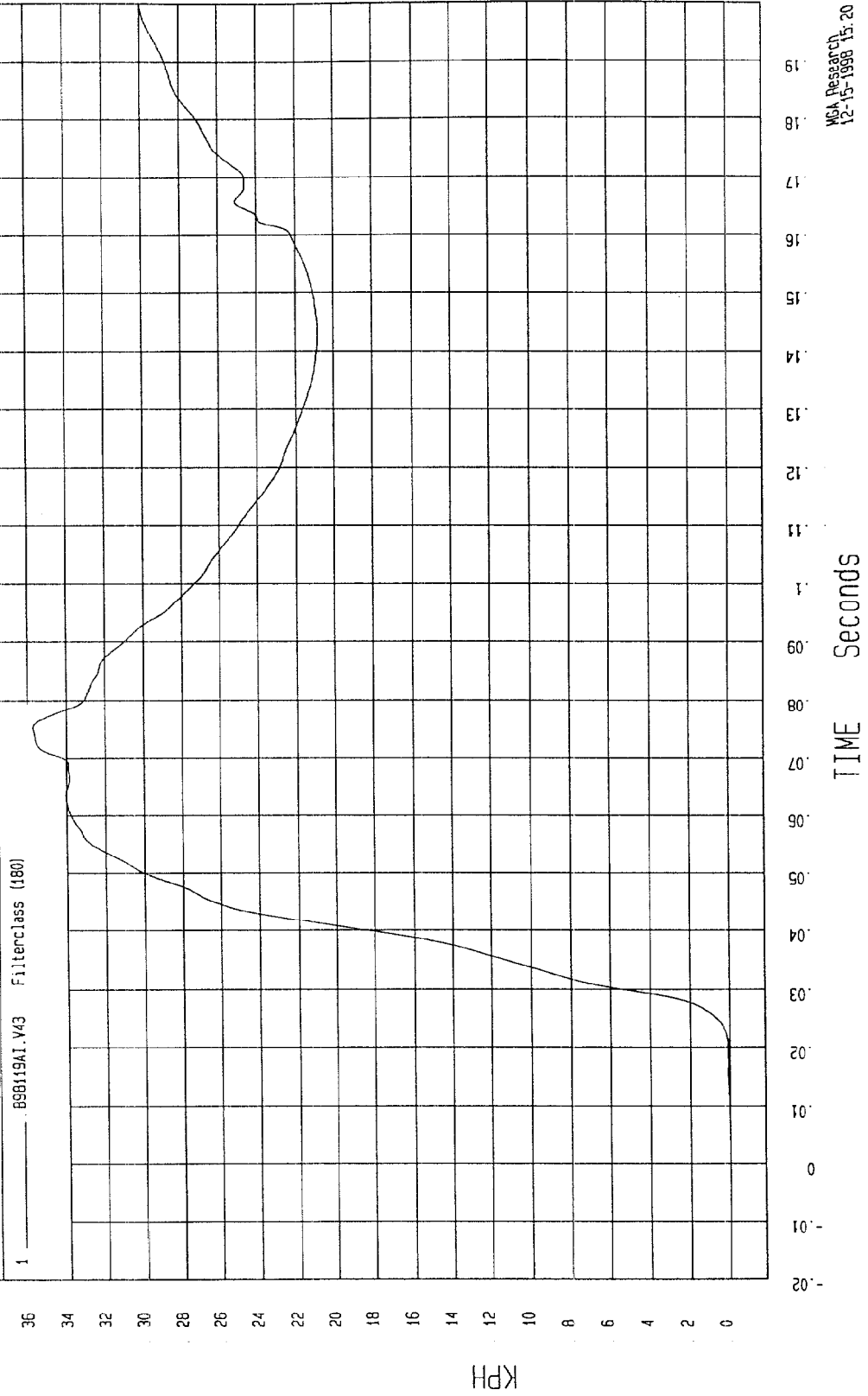


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -8.38E-03 KPH at 4 msec Maximum = 35.73 KPH at 75 msec

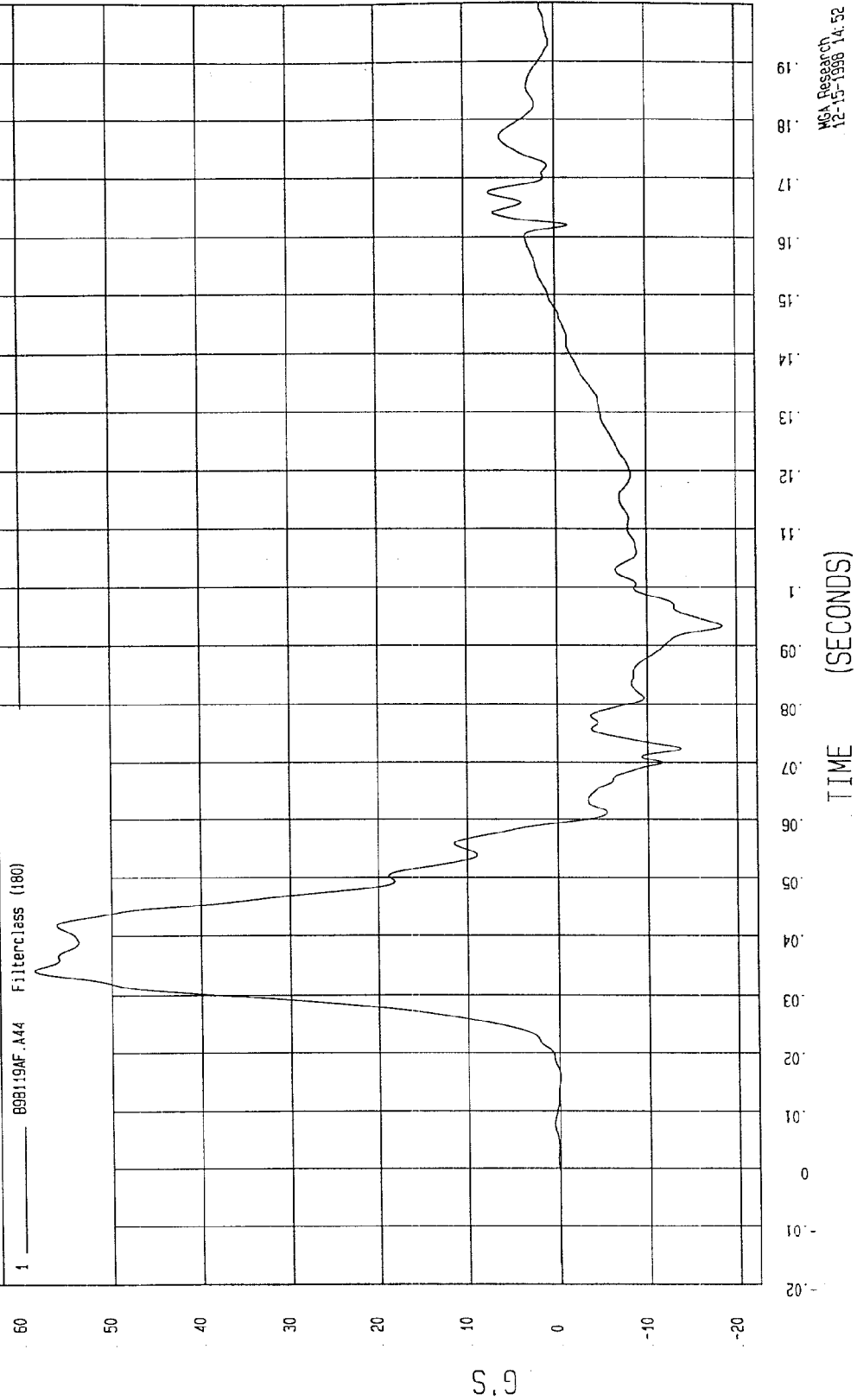
DRIVER LOWER RIB Y REDUNDANT VELOCITY



MGA Research
12-15-1998 15:20

TEST: FMVSS 214D SIDE IMPACT
 COMPONENT: 1999 FORD TAURUS (CX0202)
 TEST DATE: 12-14-1998
 Speed: 32.9 MPH 52.9 KPH
 Minimum = -18.38 G'S at 93 msec
 Maximum = 58.52 G'S at 34 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION

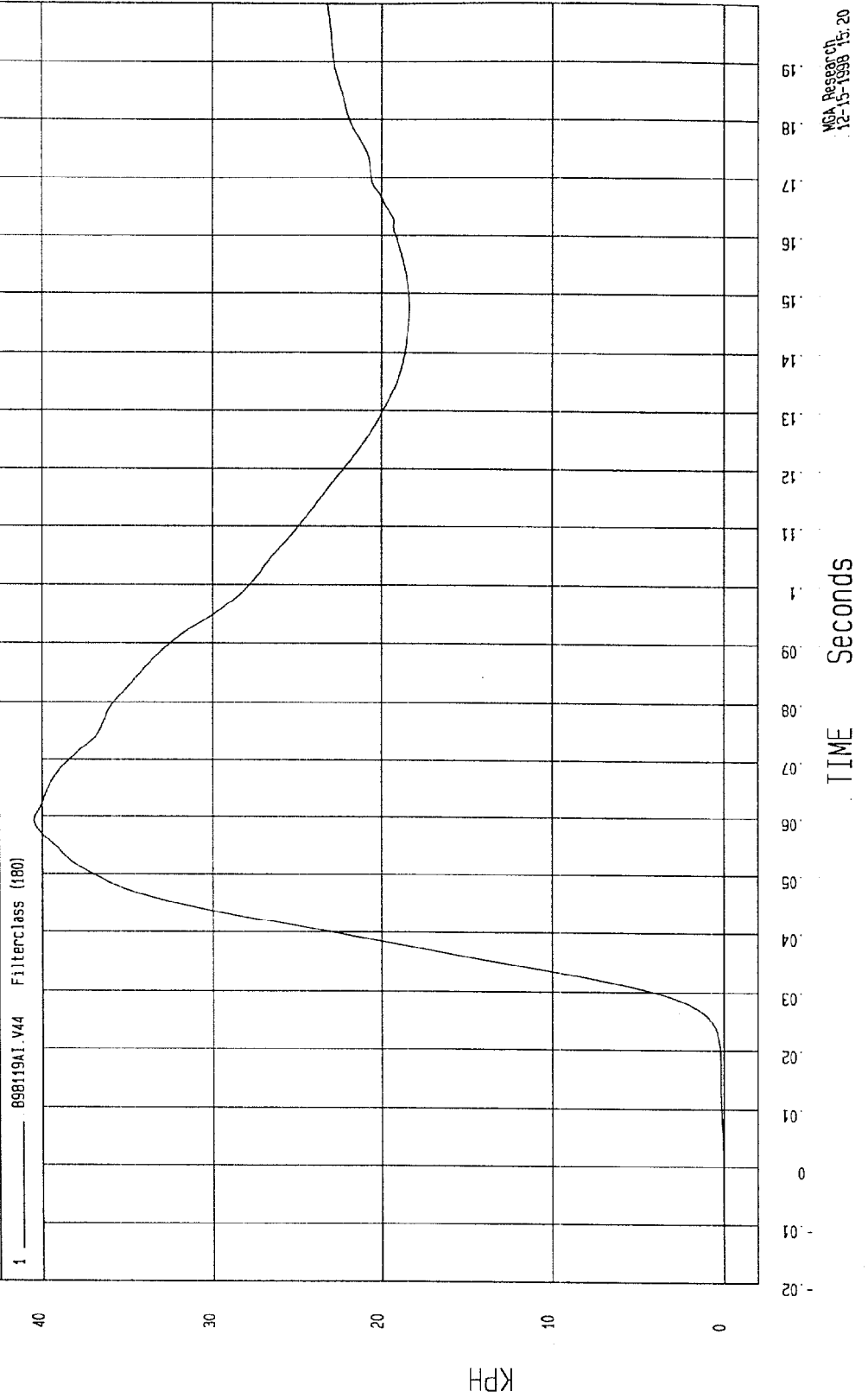


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

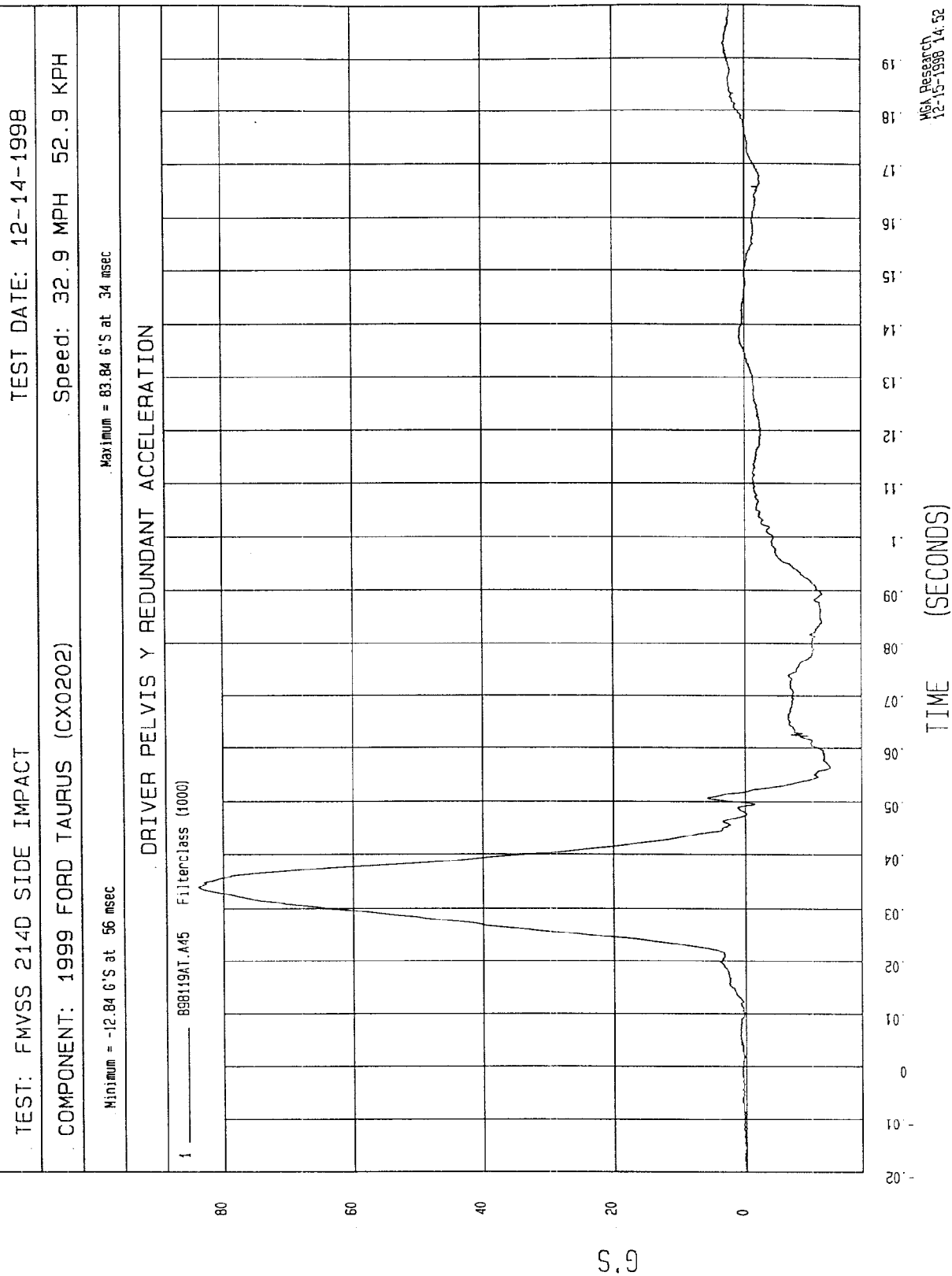
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -1.10E-03 KPH at -17 msec Maximum = 40.47 KPH at 59 msec

DRIVER LOWER SPINE Y REDUNDANT VELOCITY



MCA Research
12-15-1998 15:20



TEST: FMVSS 214D SIDE IMPACT
 COMPONENT: 1999 FORD TAURUS (CX0202)

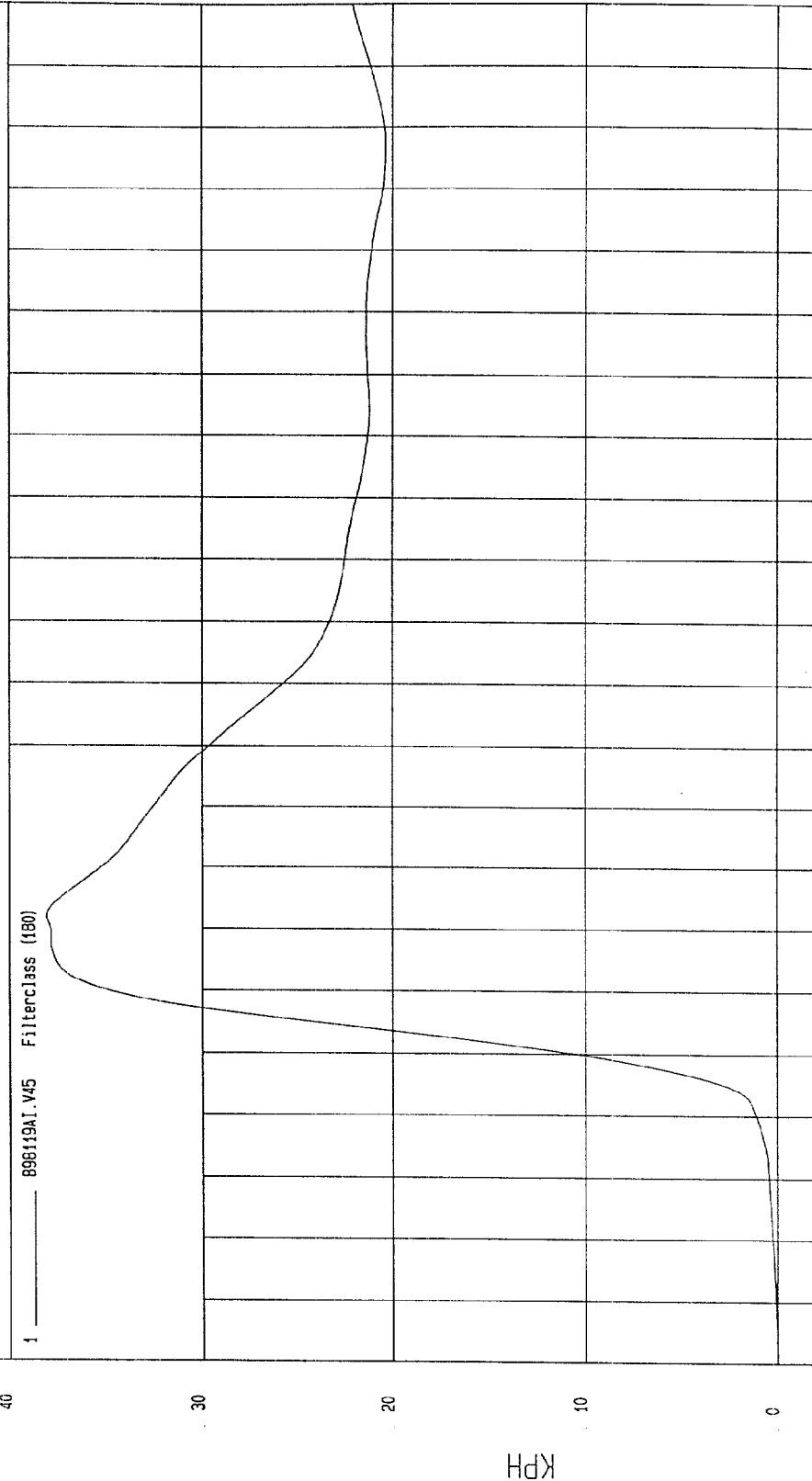
TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

Minimum = 0 KPH at -20 msec

Maximum = 38.1 KPH at 52 msec

DRIVER PELVIS Y REDUNDANT VELOCITY



TIME Seconds

0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
-0.01
-0.02

MCA Research
12-15-1998 15:20

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

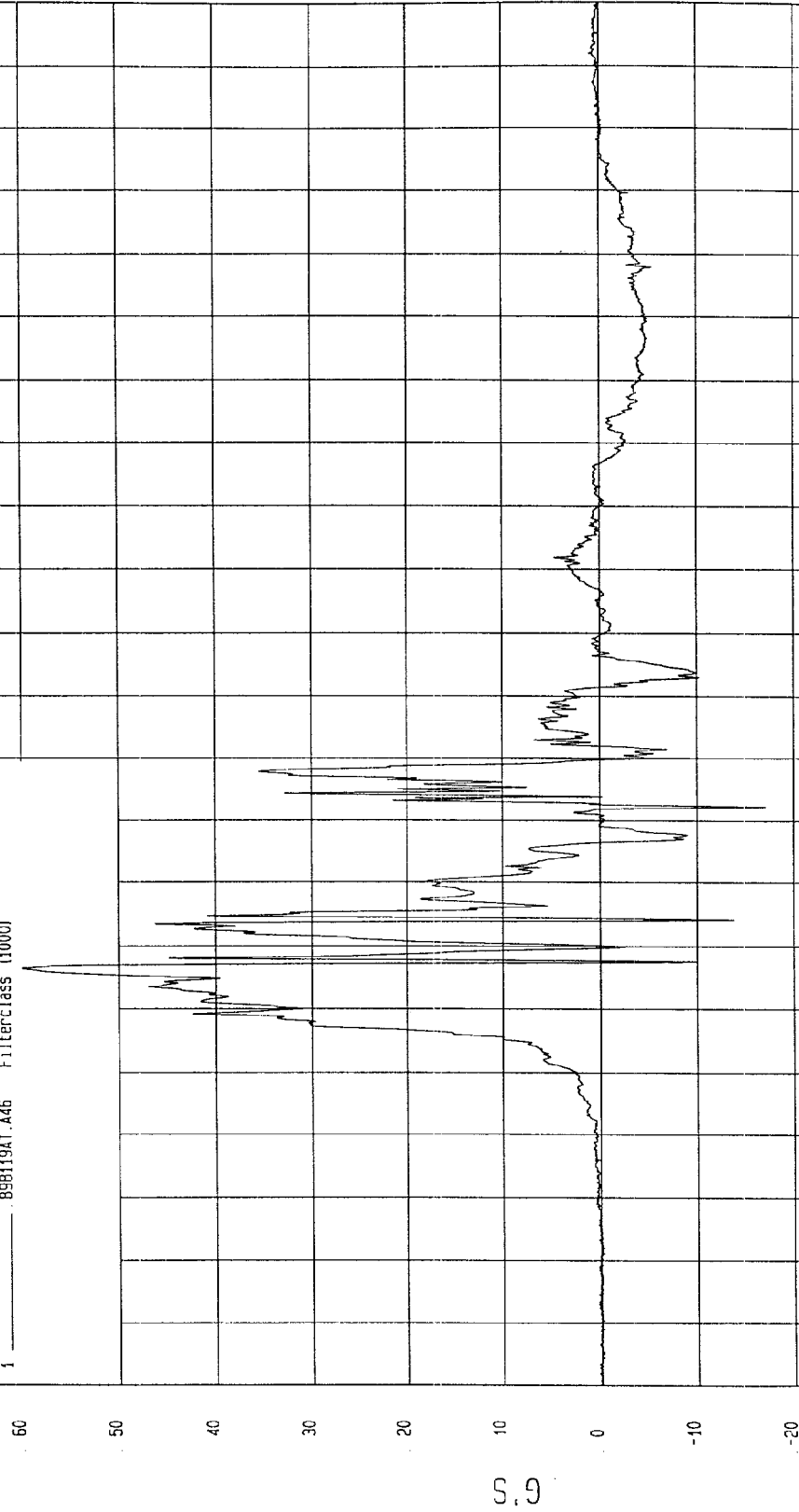
COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 59.94 G'S at 46 msec

Minimum = -17.09 G'S at 72 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 898119AT.A46 Filterclass (1000)



MECA Research
12-15-1998 14:52

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202)

Speed: 32.9 MPH 52.9 KPH

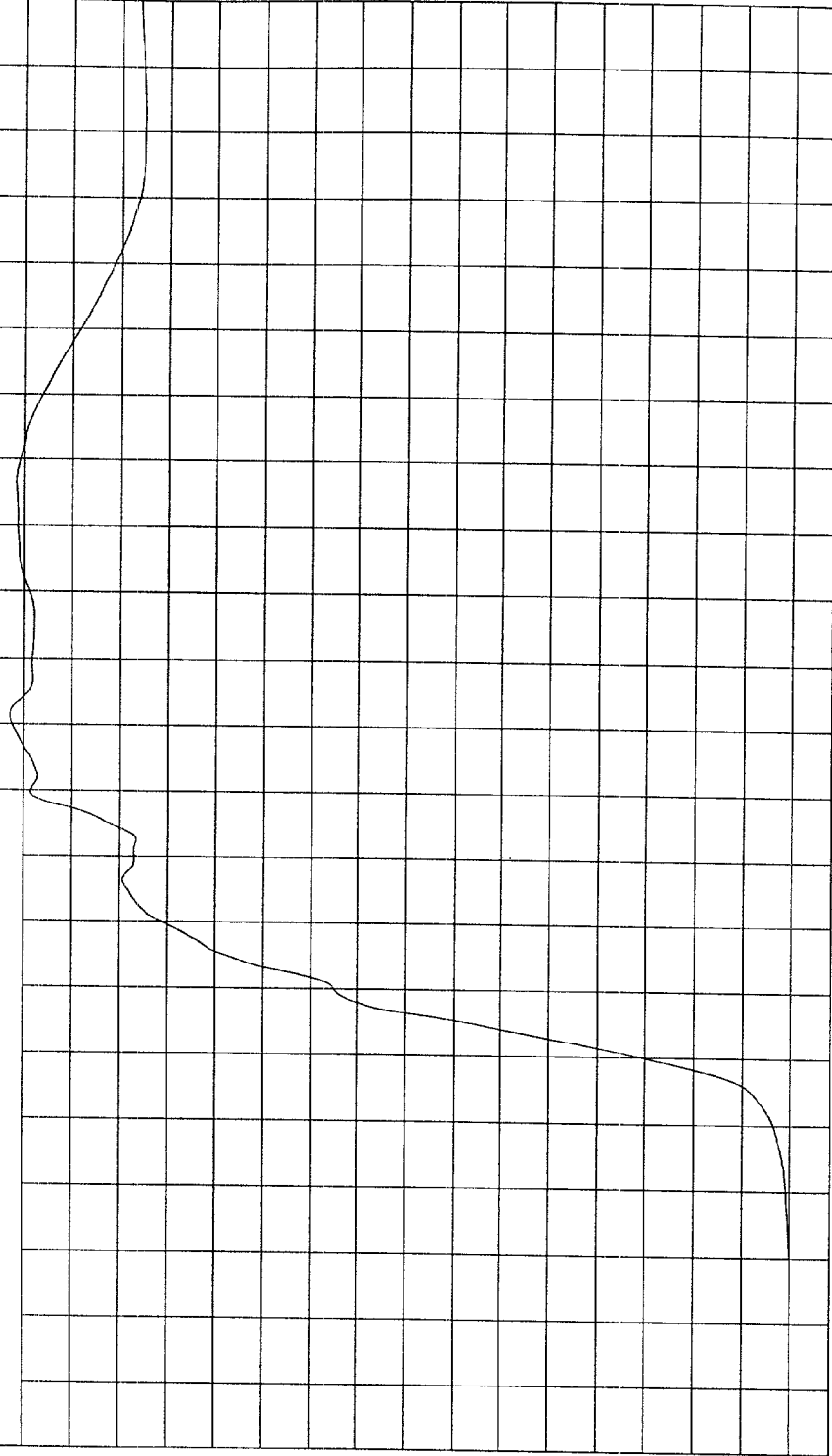
Minimum = -7.32E-03 KPH at -9 msec

Maximum = 32.59 KPH at 92 msec

REAR PASSENGER UPPER RIB Y REDUNDANT VELOCITY

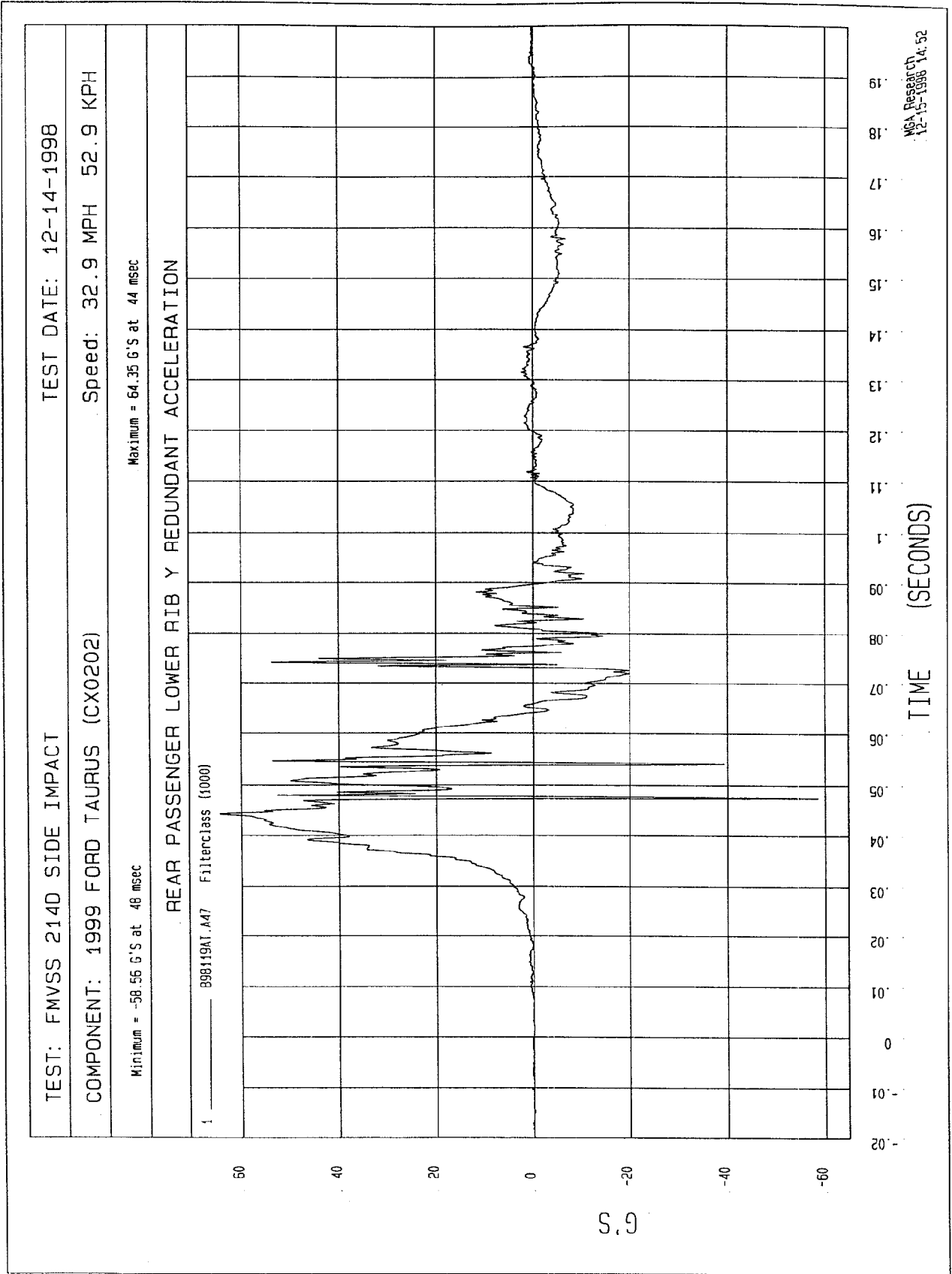
34

1 B9819A1.V46 FilterClass (180)



NSA Research
12-15-1998 15:20

TIME Seconds



TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

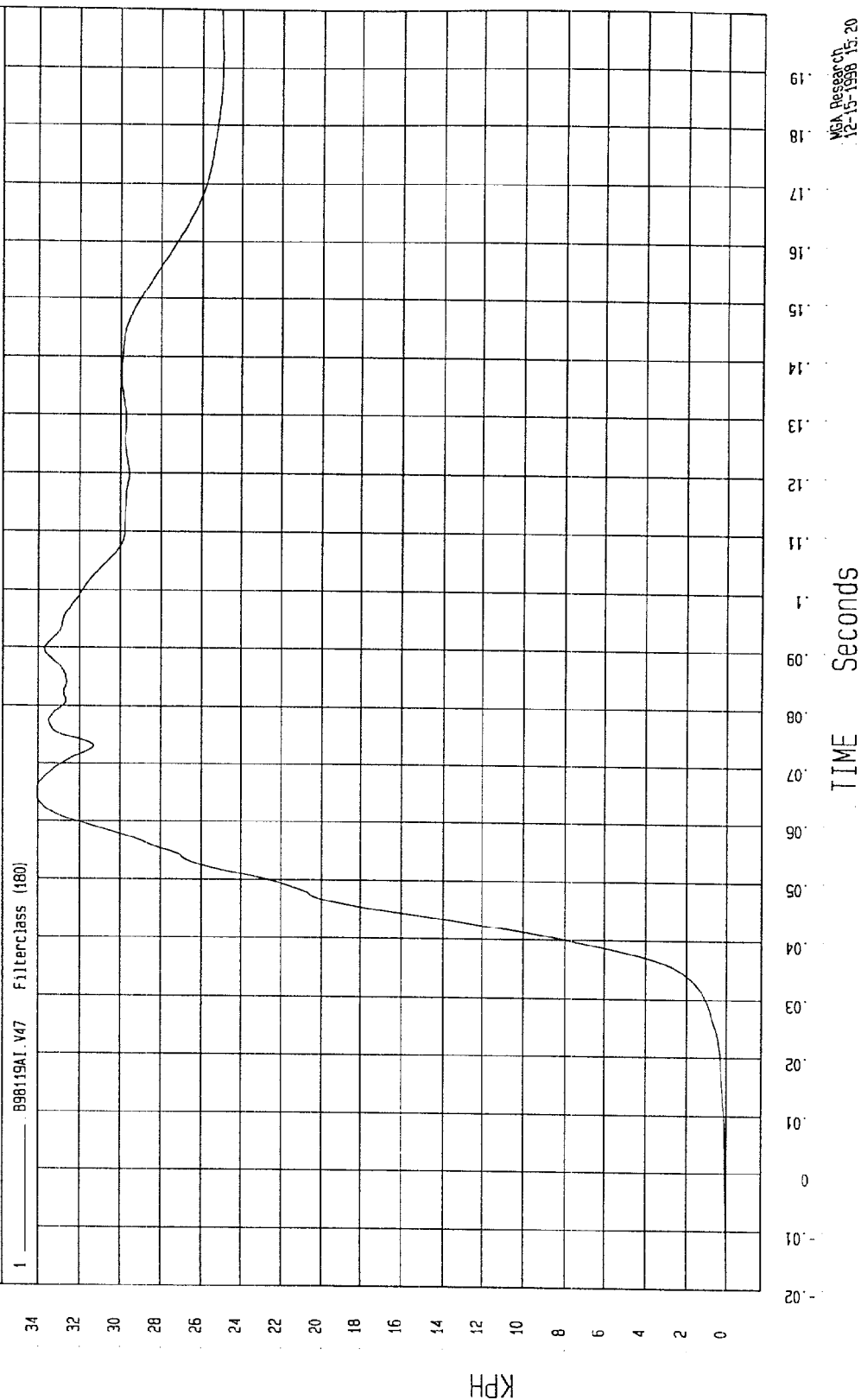
COMPONENT: 1999 FORD TAURUS (CX0202)

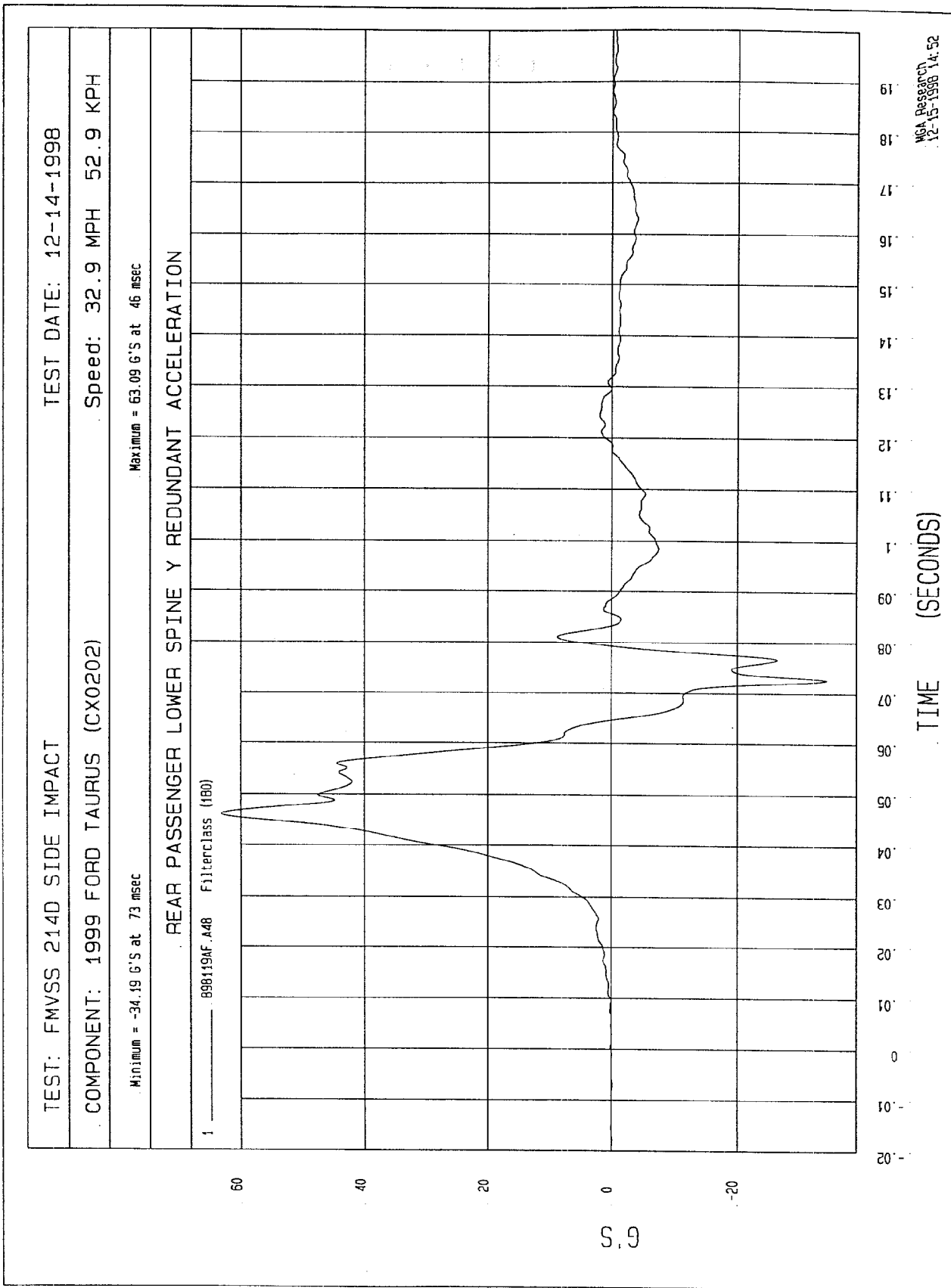
Speed: 32.9 MPH 52.9 KPH

Minimum = -7.94E-05 KPH at -20 msec

Maximum = 34.04 KPH at 64 msec

REAR PASSENGER LOWER RIB Y REDUNDANT VELOCITY





TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

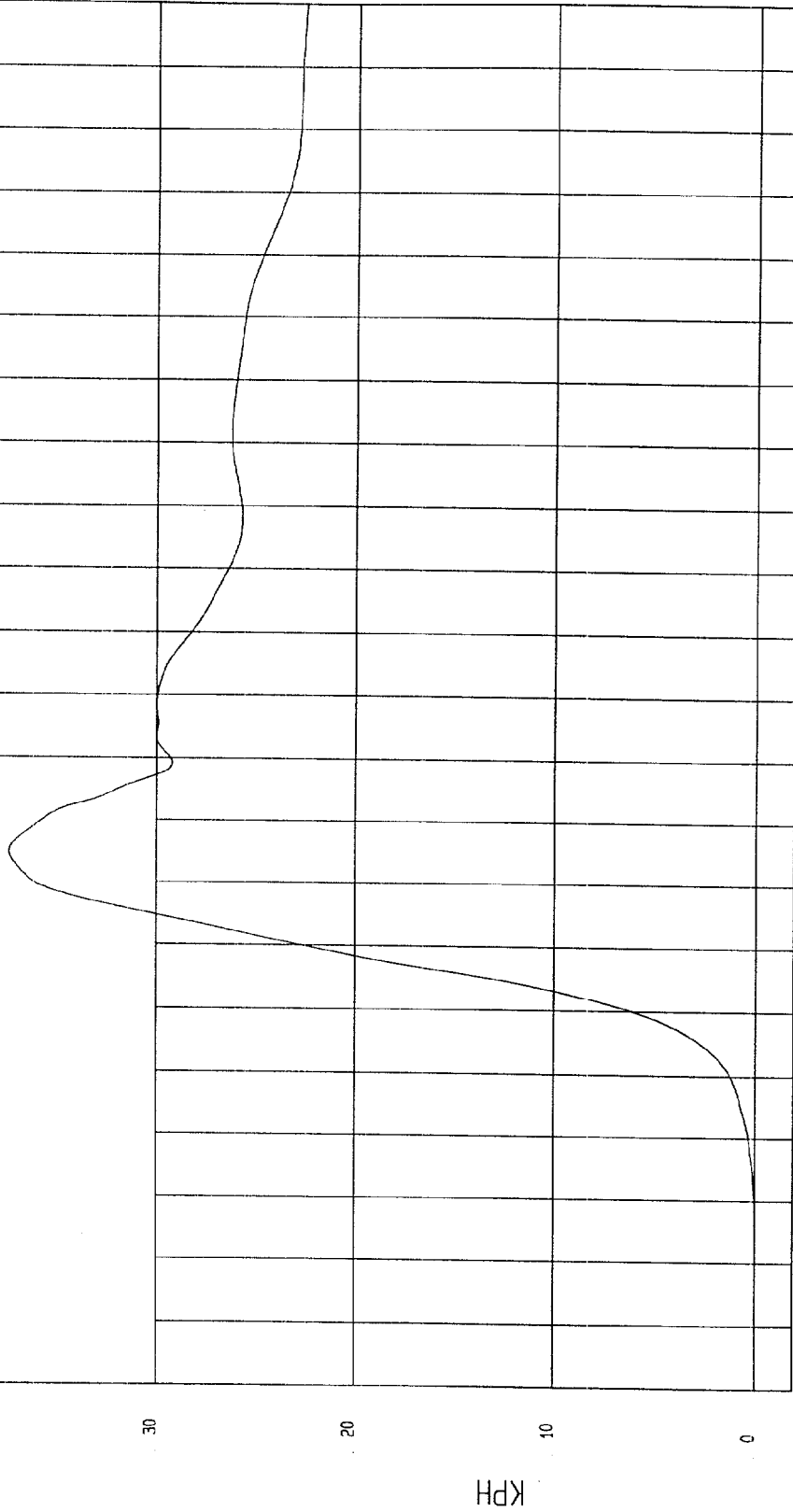
COMPONENT: 1999 FORD TAURUS (CX0202)

Minimum = -4.86E-03 KPH at -17 msec

Maximum = 37.27 KPH at 65 msec

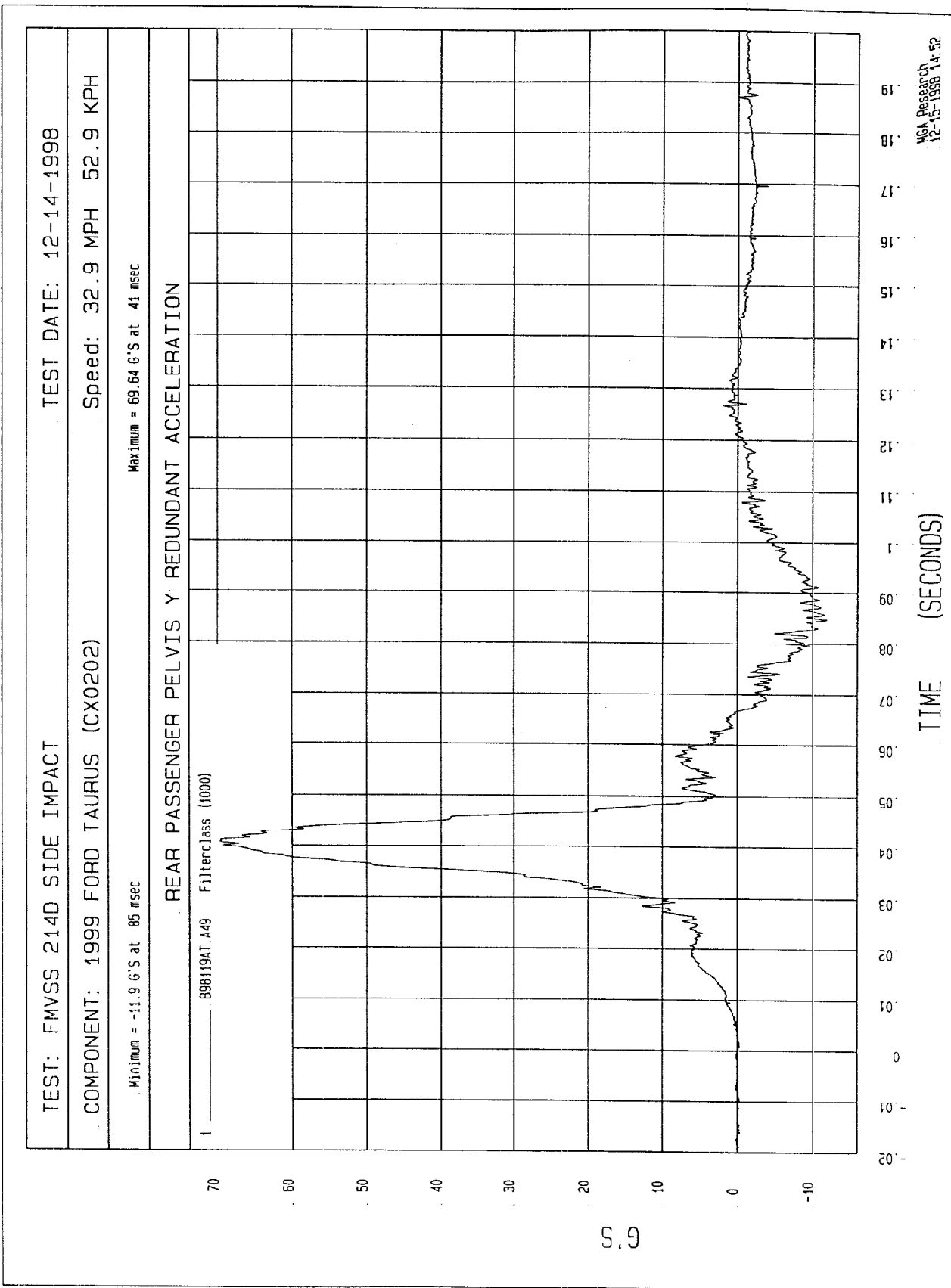
REAR PASSENGER LOWER SPINE Y REDUNDANT VELOCITY

1 898119A1.V48 Filterclass (180)



WSA Research
12-15-1998 15:20

TIME Seconds



TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

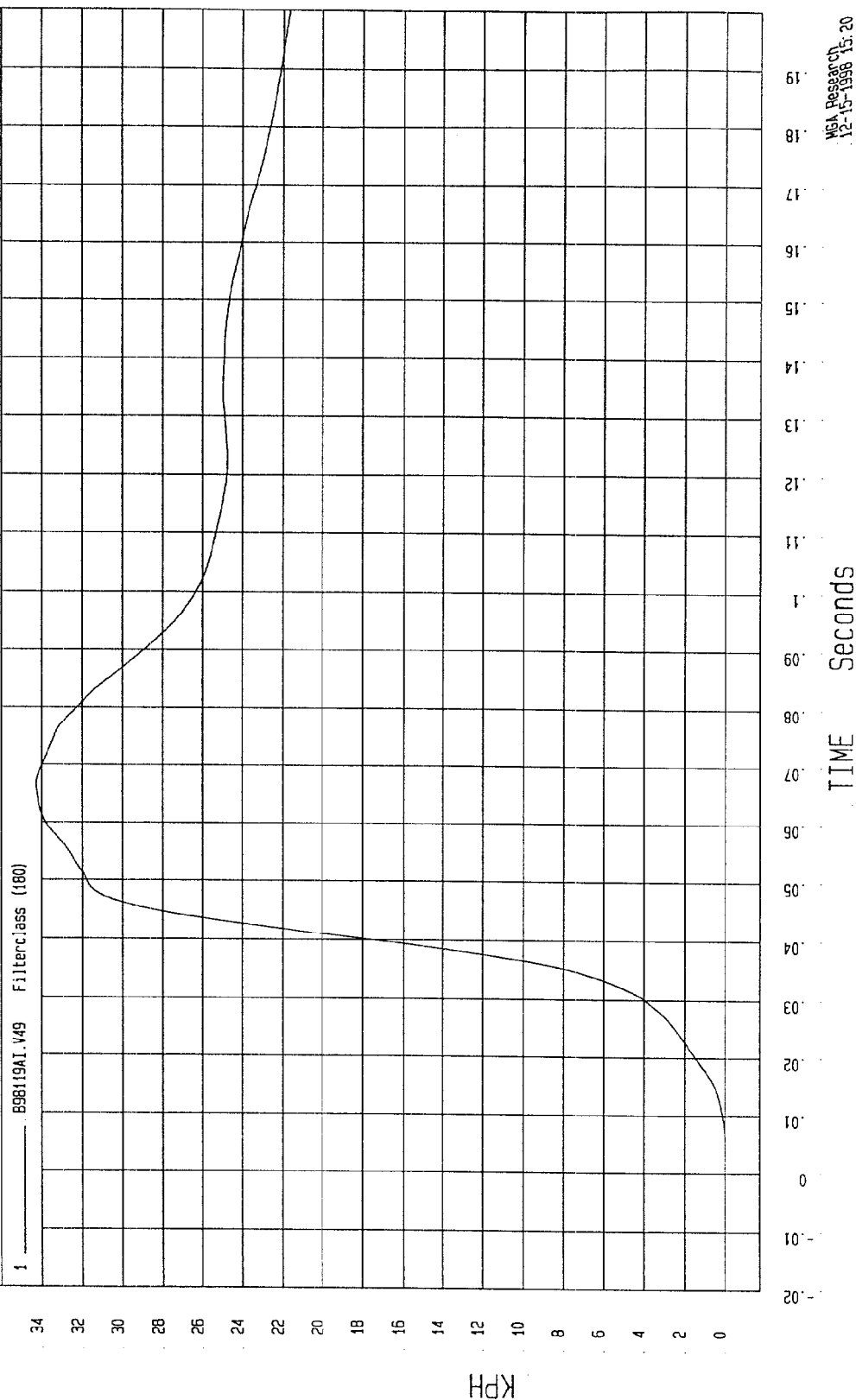
TEST: FMVSS 214D SIDE IMPACT

COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 34.27 KPH at 67 msec

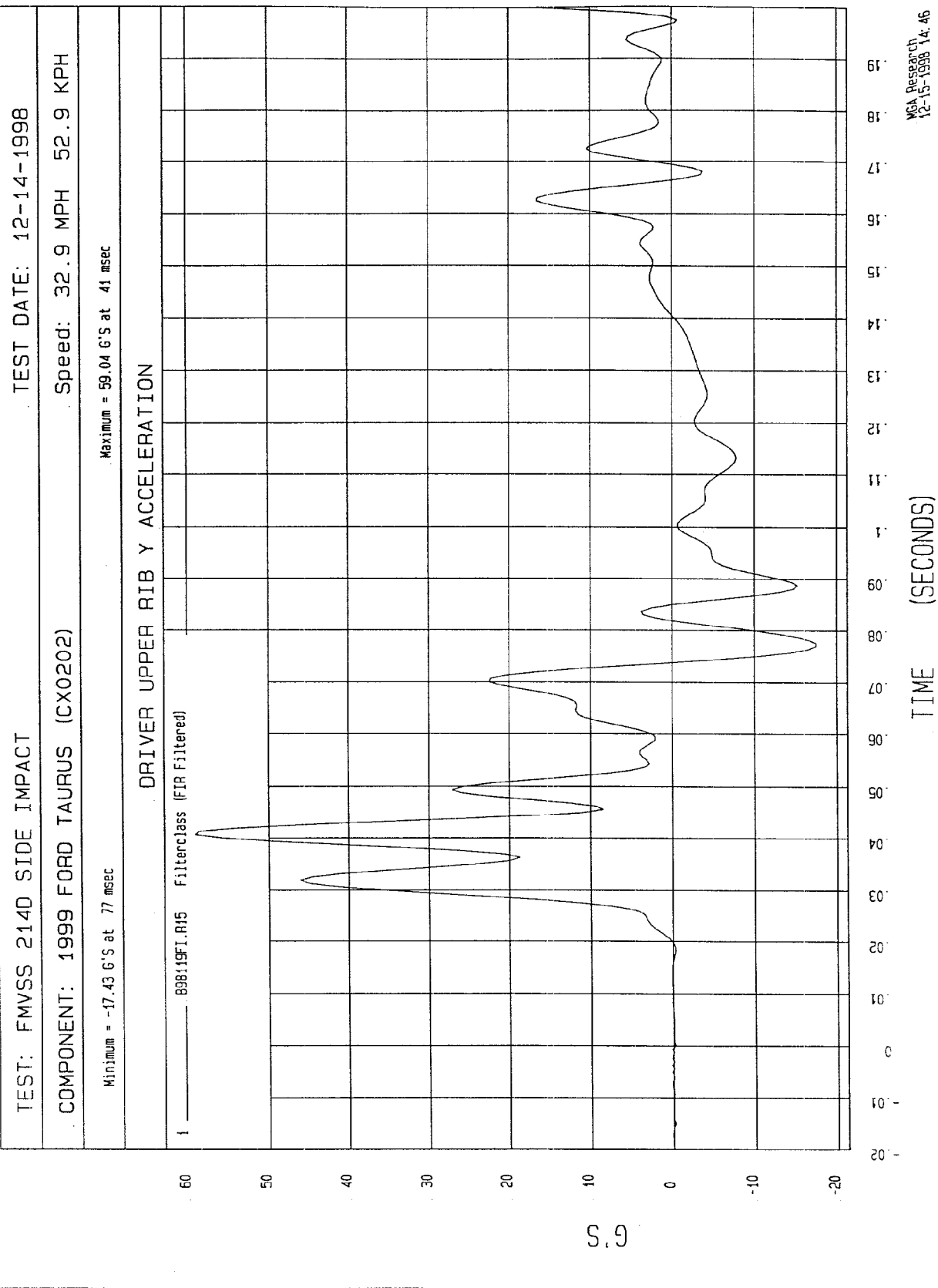
Minimum = -.01 KPH at -8 msec

REAR PASSENGER PELVIS Y REDUNDANT VELOCITY



MGA Research
12-15-1998 15:20

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA



TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

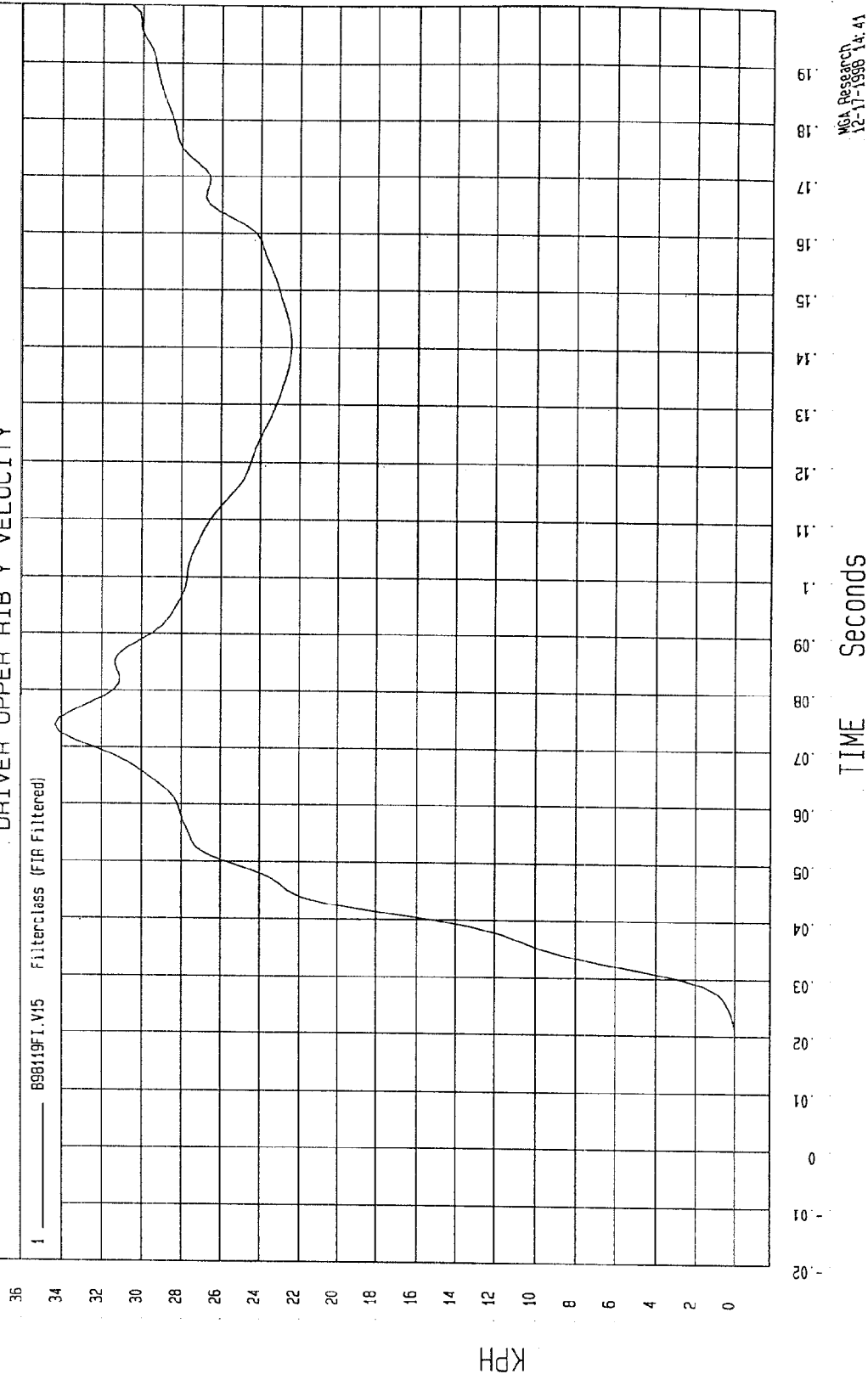
COMPONENT: 1999 FORD TAURUS (CX0202)

Speed: 32.9 MPH 52.9 KPH

Minimum = -.02 KPH at 7 msec

Maximum = 34.34 KPH at 74 msec

DRIVER UPPER RIB Y VELOCITY



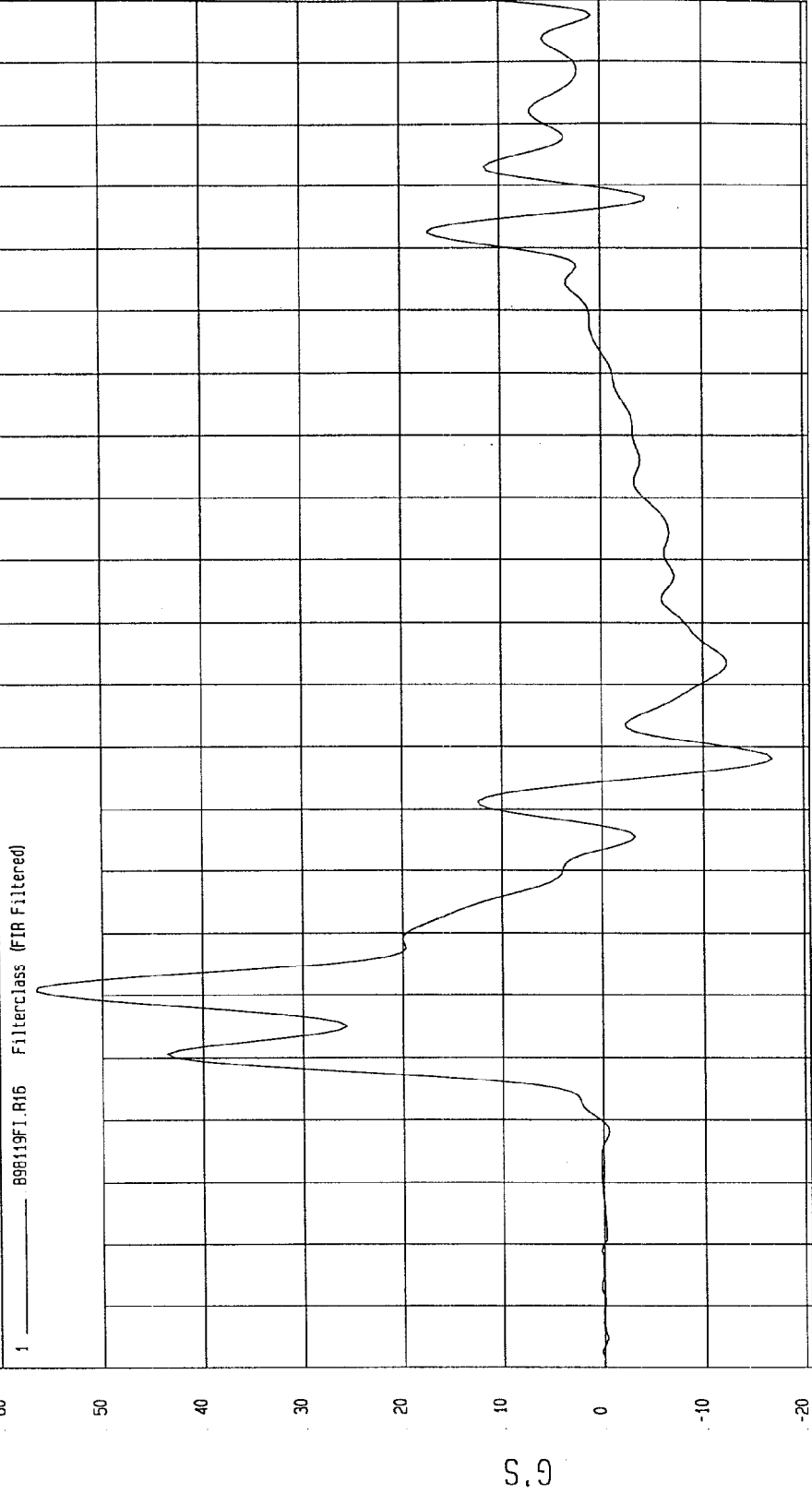
MCA Research
12-17-1998 14:41

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

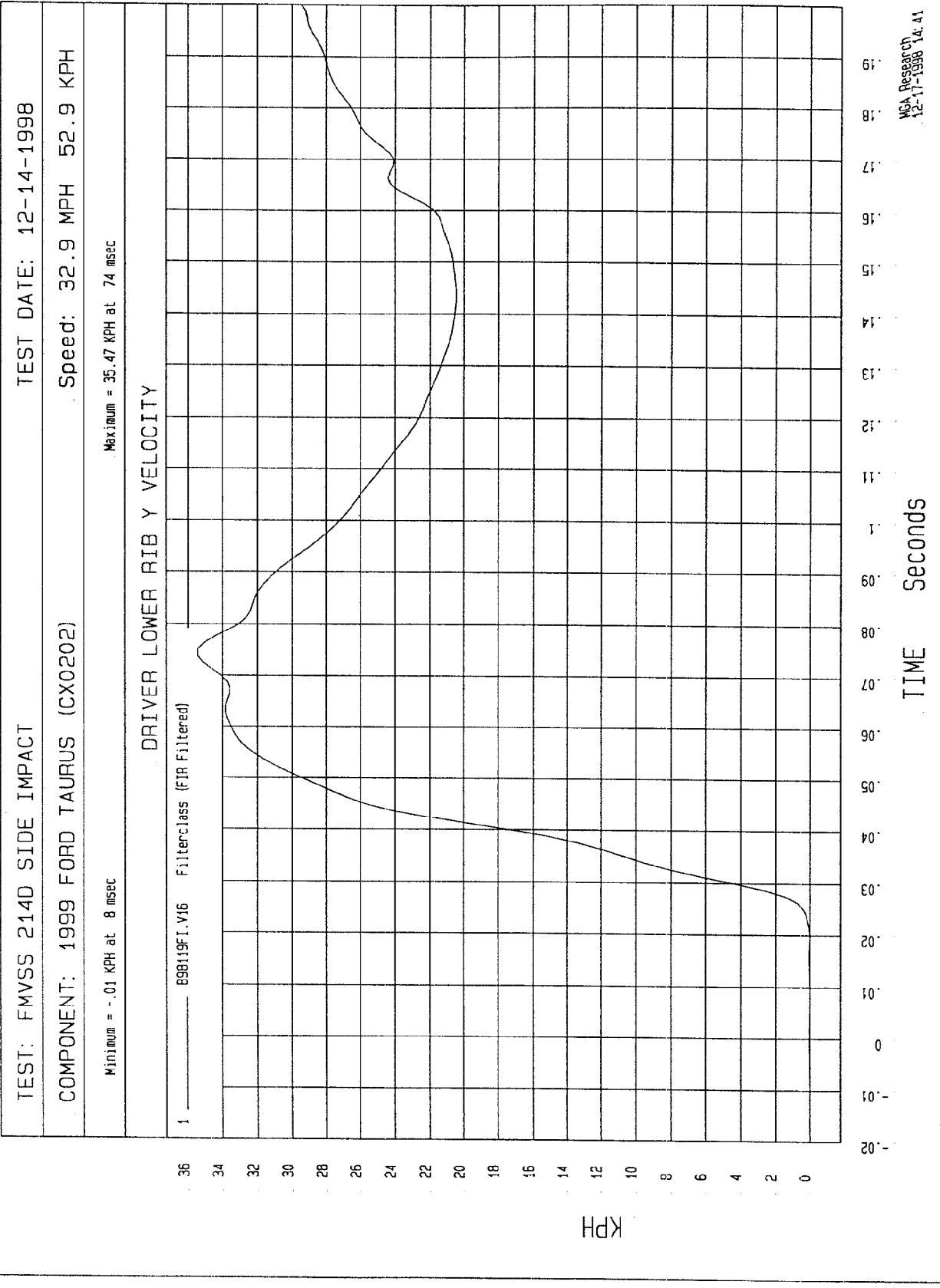
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -16.92 G'S at 78 msec Maximum = 56.48 G'S at 41 msec

DRIVER LOWER RIB Y ACCELERATION

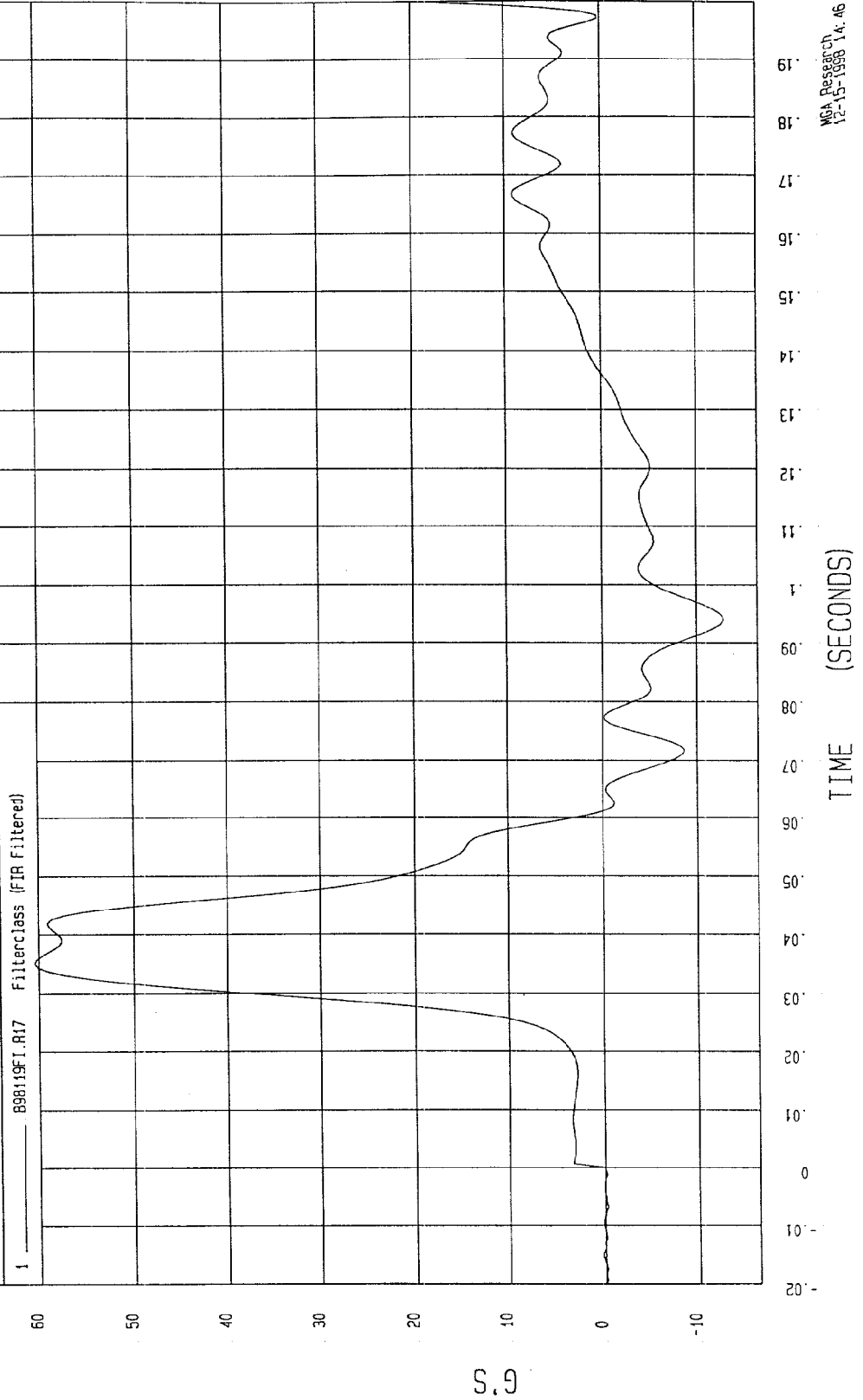


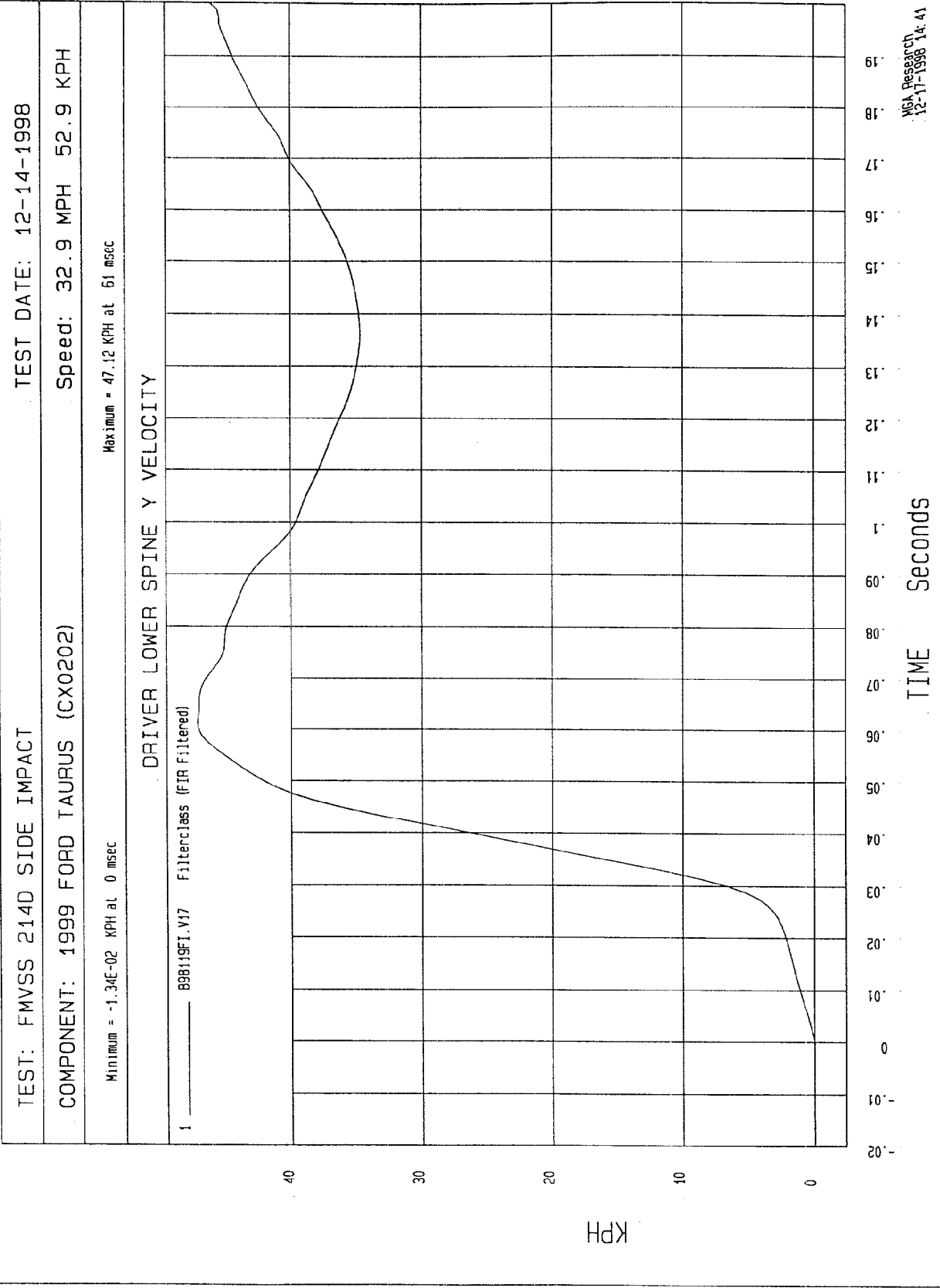
MCA Research
12-15-1998 14:46



TEST: FMVSS 214D SIDE IMPACT
 TEST DATE: 12-14-1998
 COMPONENT: 1999 FORD TAURUS (CX0202)
 Speed: 32.9 MPH 52.9 KPH
 Minimum = -12.87 G'S at 94 msec
 Maximum = 60.44 G'S at 35 msec

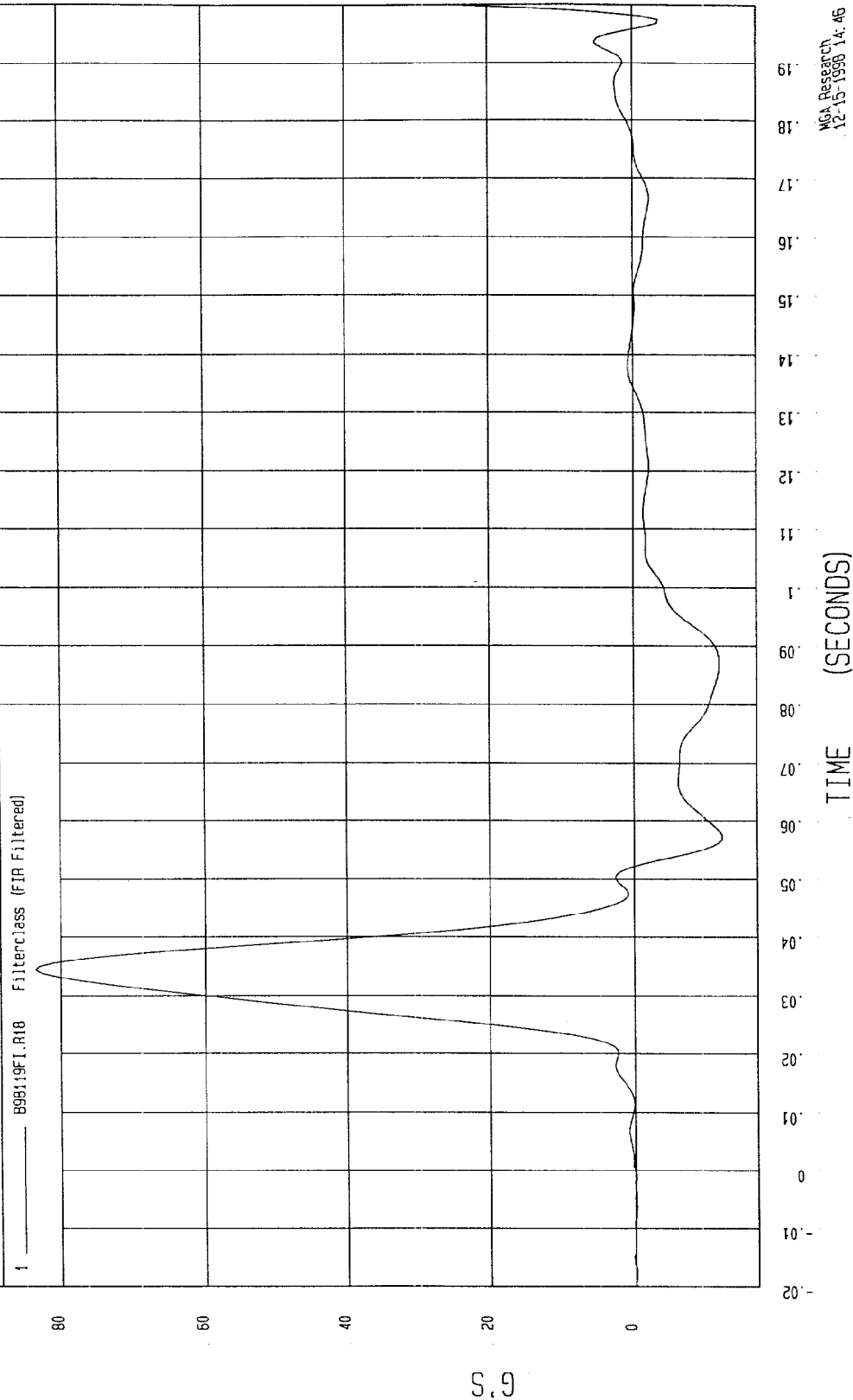
DRIVER LOWER SPINE Y ACCELERATION





TEST: FMVSS 214D SIDE IMPACT
 COMPONENT: 1999 FORD TAURUS (CX0202)
 TEST DATE: 12-14-1998
 Speed: 32.9 MPH 52.9 KPH
 Minimum = -12.22 G'S at 57 msec
 Maximum = 83.44 G'S at 34 msec

DRIVER PELVIS Y ACCELERATION

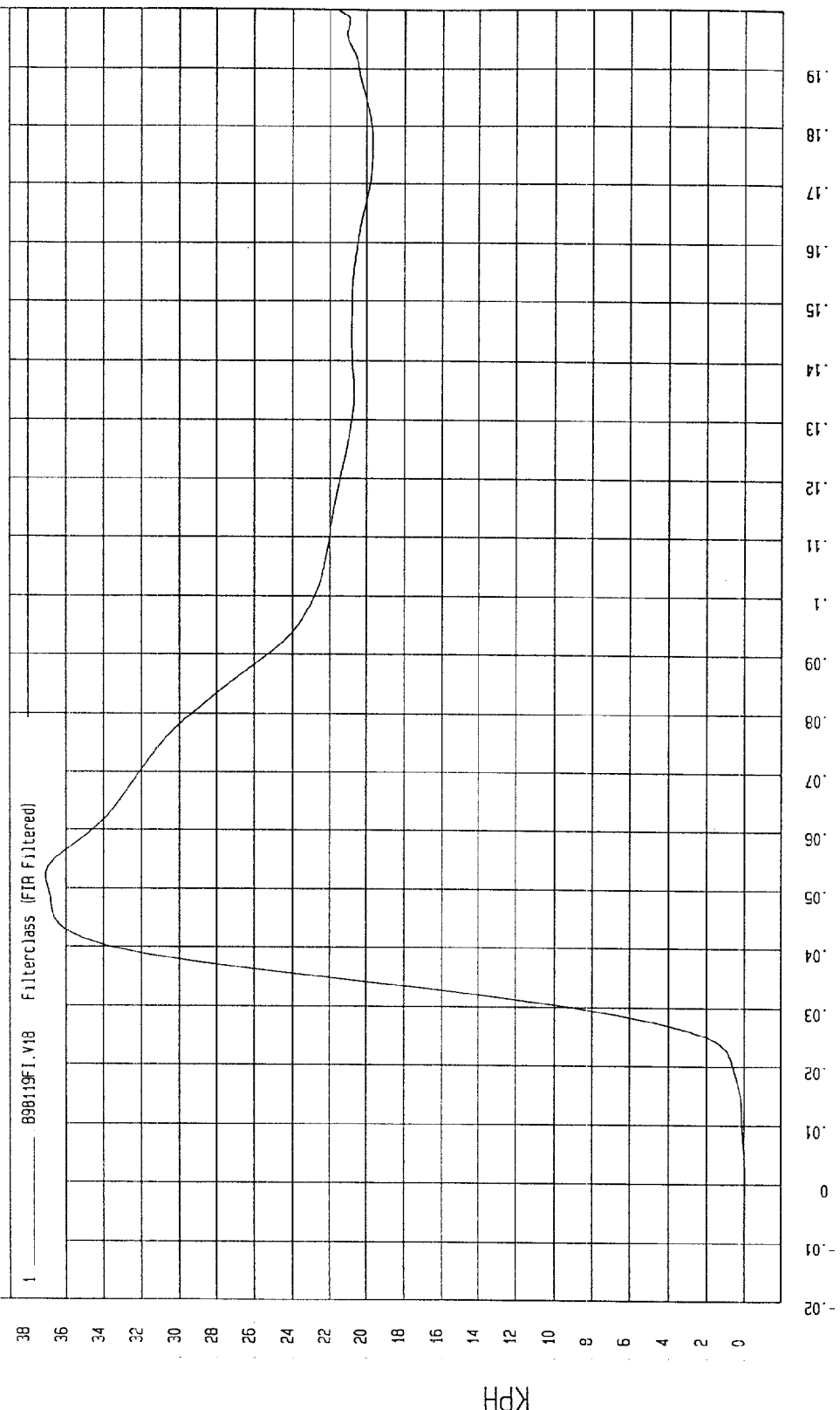


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -4.06E-02 KPH at 0 msec Maximum = 37.09 KPH at 52 msec

DRIVER PELVIS Y VELOCITY



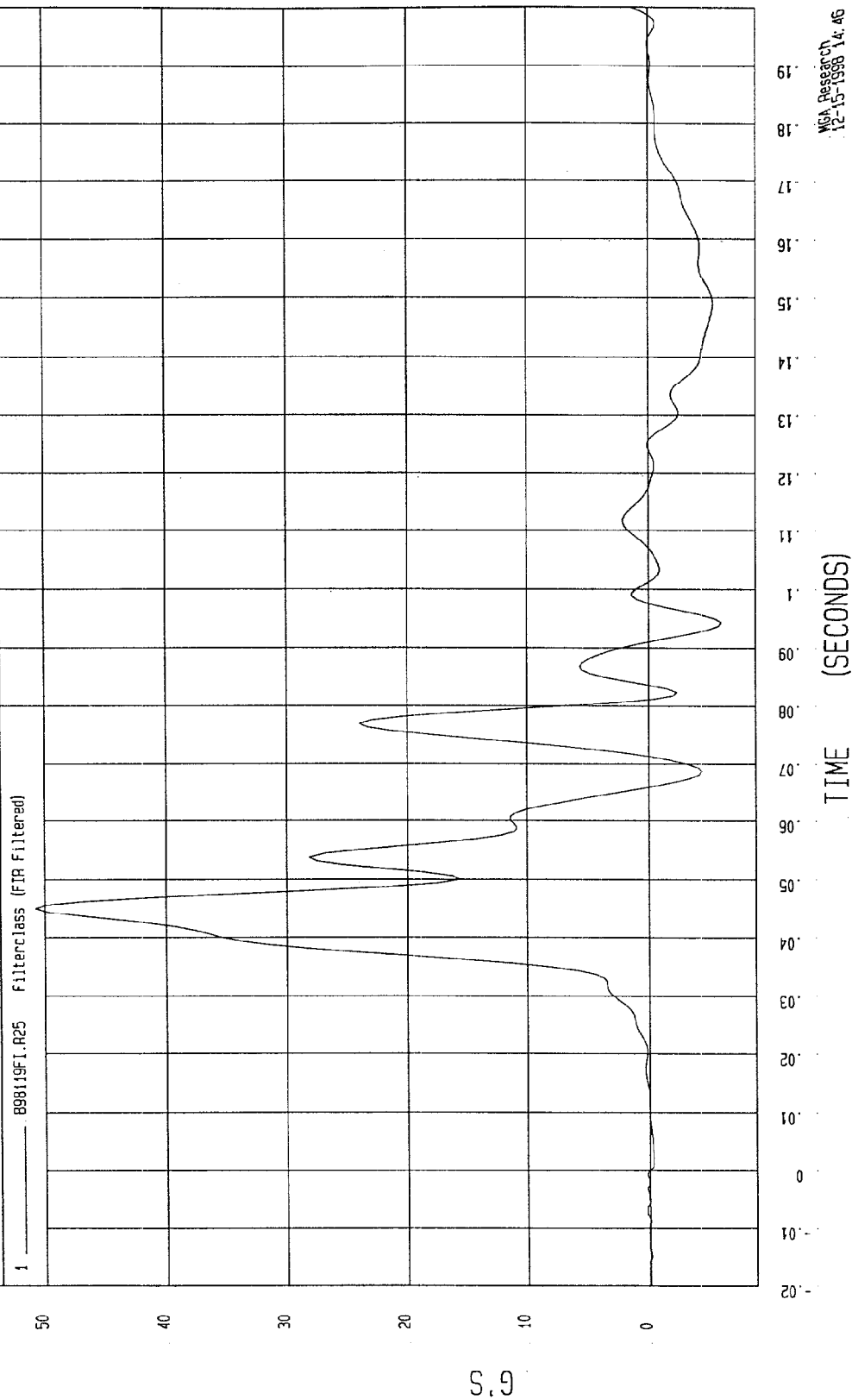
MOA Research
12-17-1998 14:42

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -5.95 G'S at 94 msec Maximum = 50.78 G'S at 45 msec

REAR PASSENGER UPPER RIB Y ACCELERATION



TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

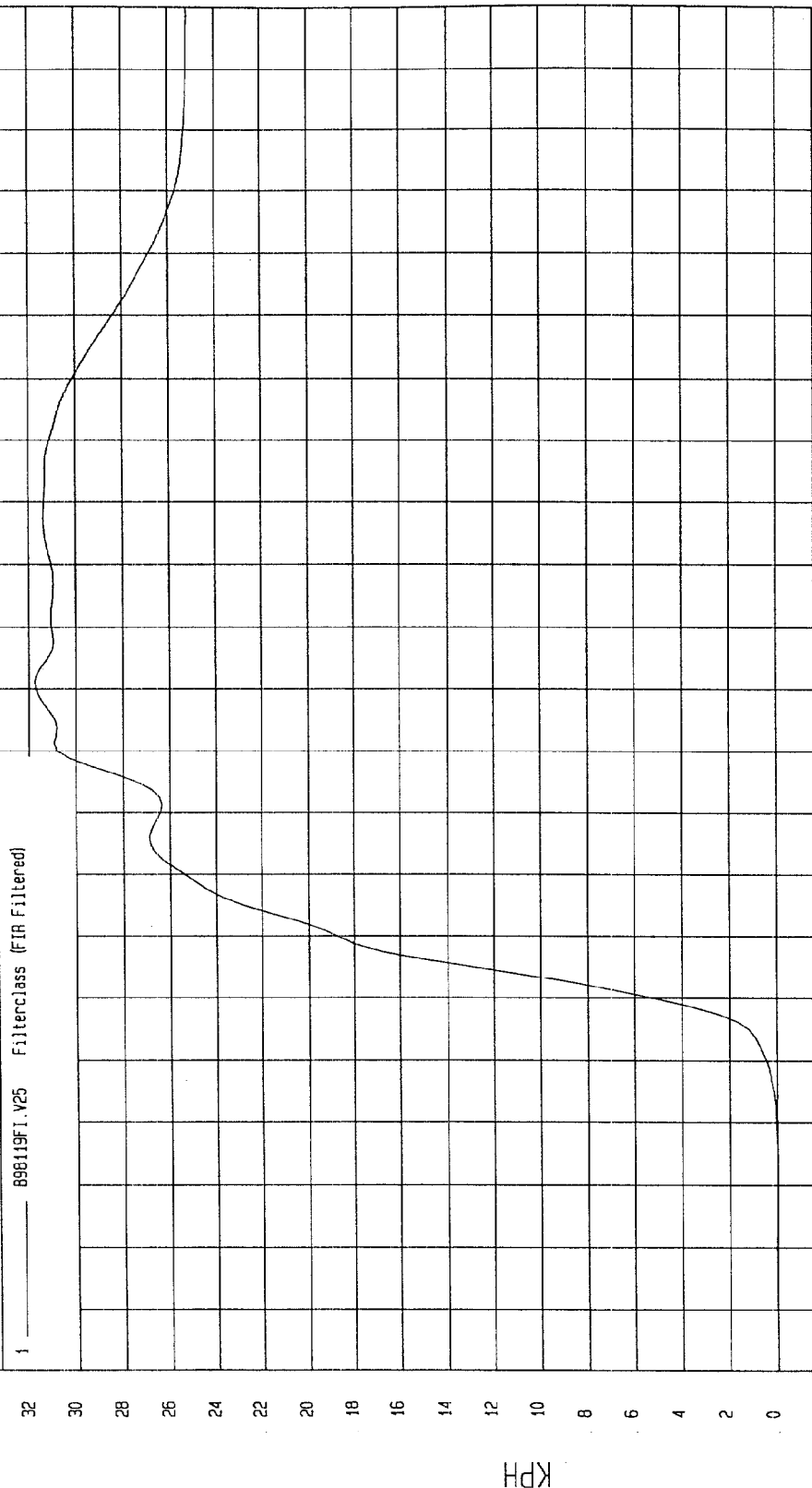
Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 31.75 KPH at 91 msec

Minimum = -.01 KPH at 12 msec

REAR PASSENGER UPPER RIB Y VELOCITY



MECA Research
12-17-1998 14:42

TIME Seconds

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

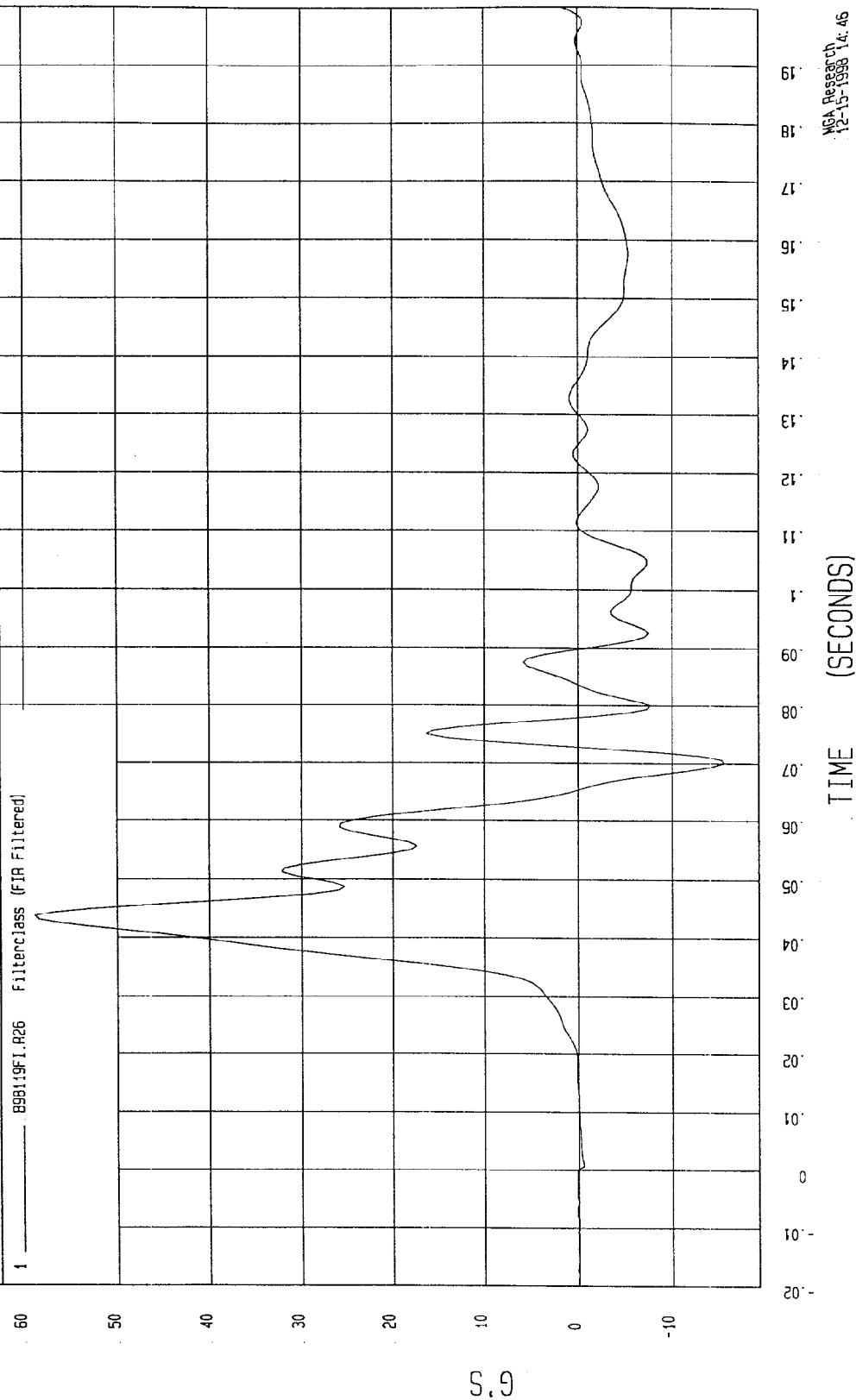
COMPONENT: 1999 FORD TAURUS (CX0202)

Speed: 32.9 MPH 52.9 KPH

Maximum = 58.82 G'S at 44 msec

Minimum = -15.66 G'S at 70 msec

REAR PASSENGER LOWER RIB Y ACCELERATION



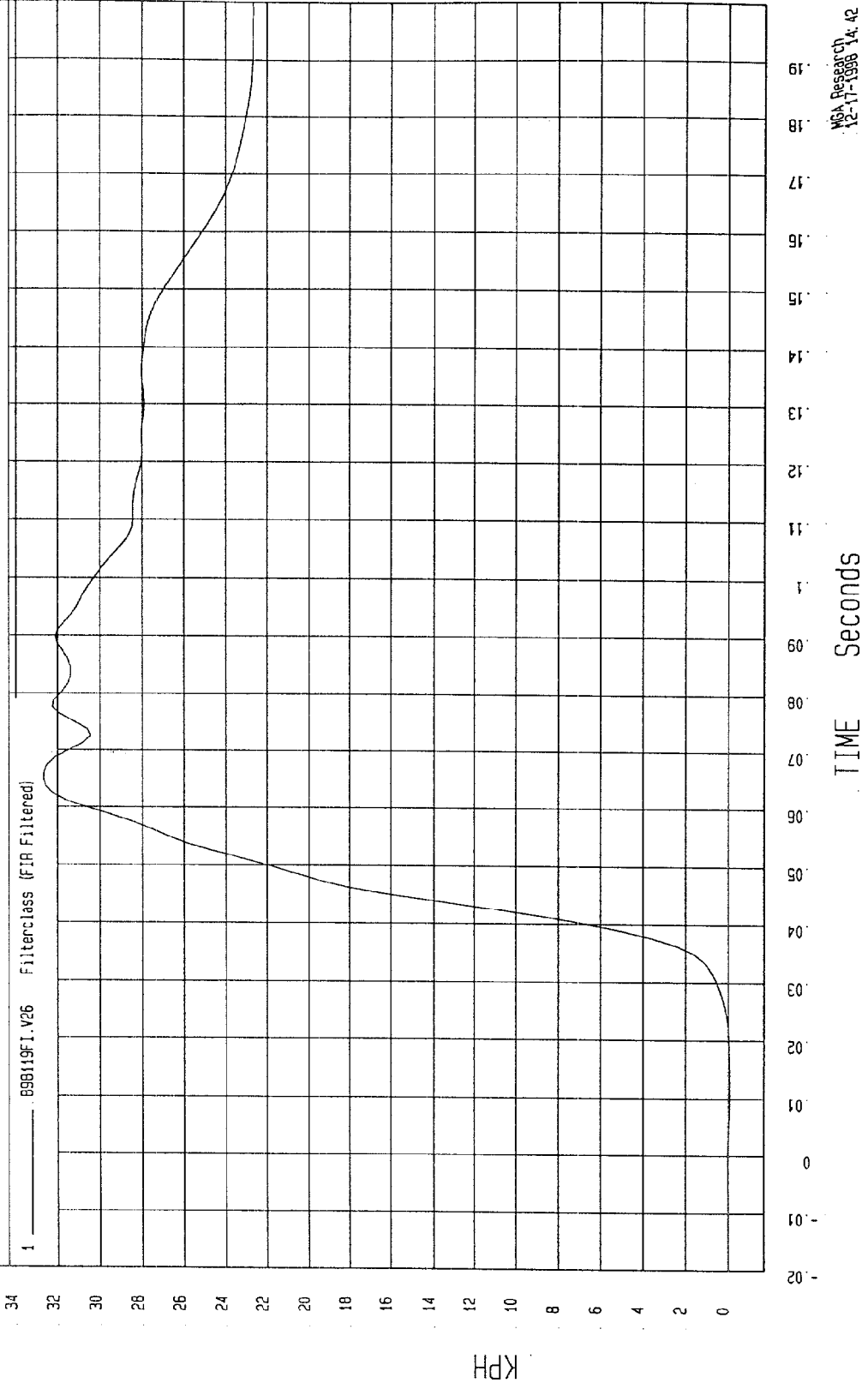
MGA Research
12-15-1998 14:46

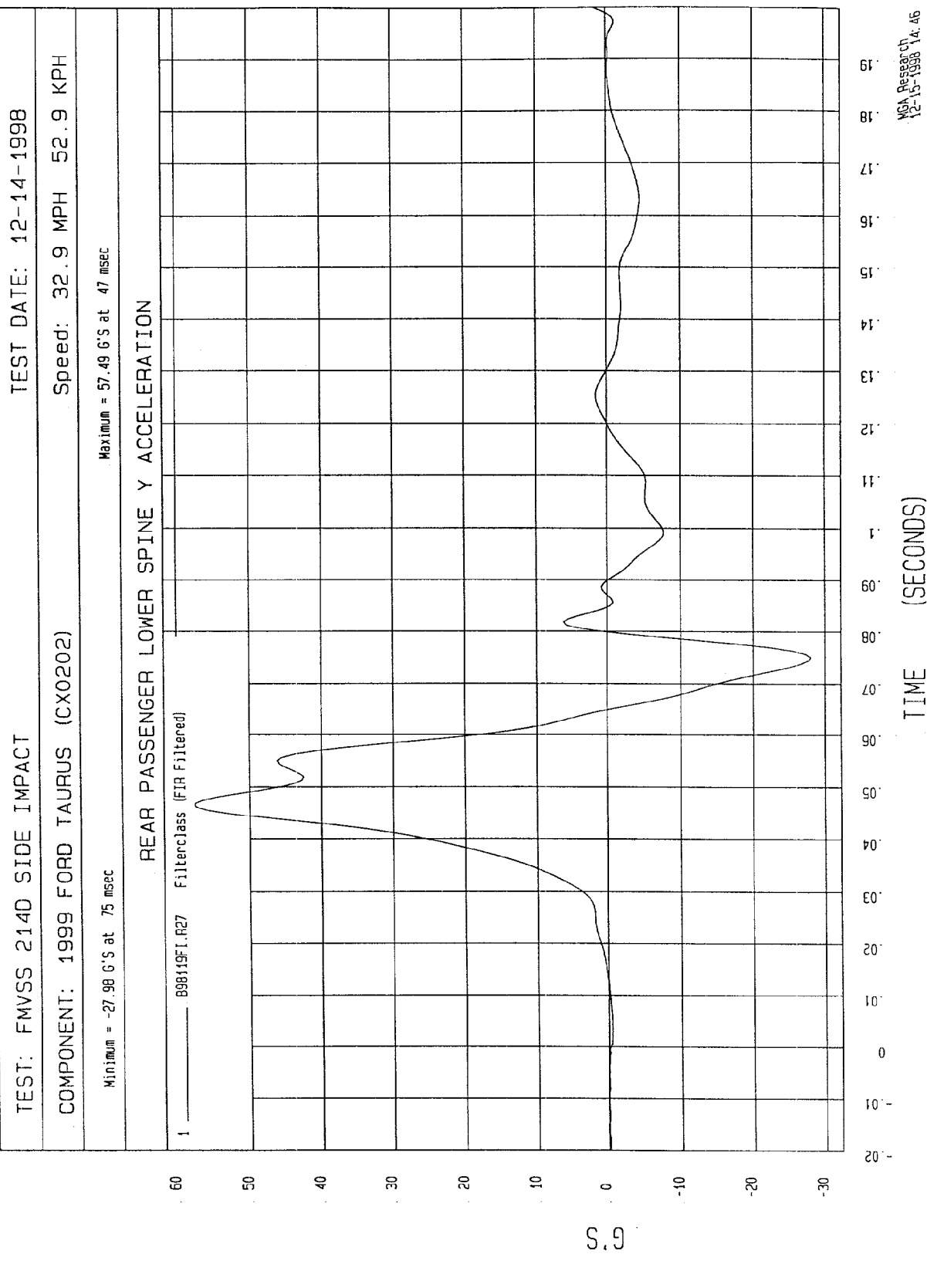
TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -6.00E-02 KPH at 12 msec Maximum = 32.68 KPH at 66 msec

REAR PASSENGER LOWER RIB Y VELOCITY



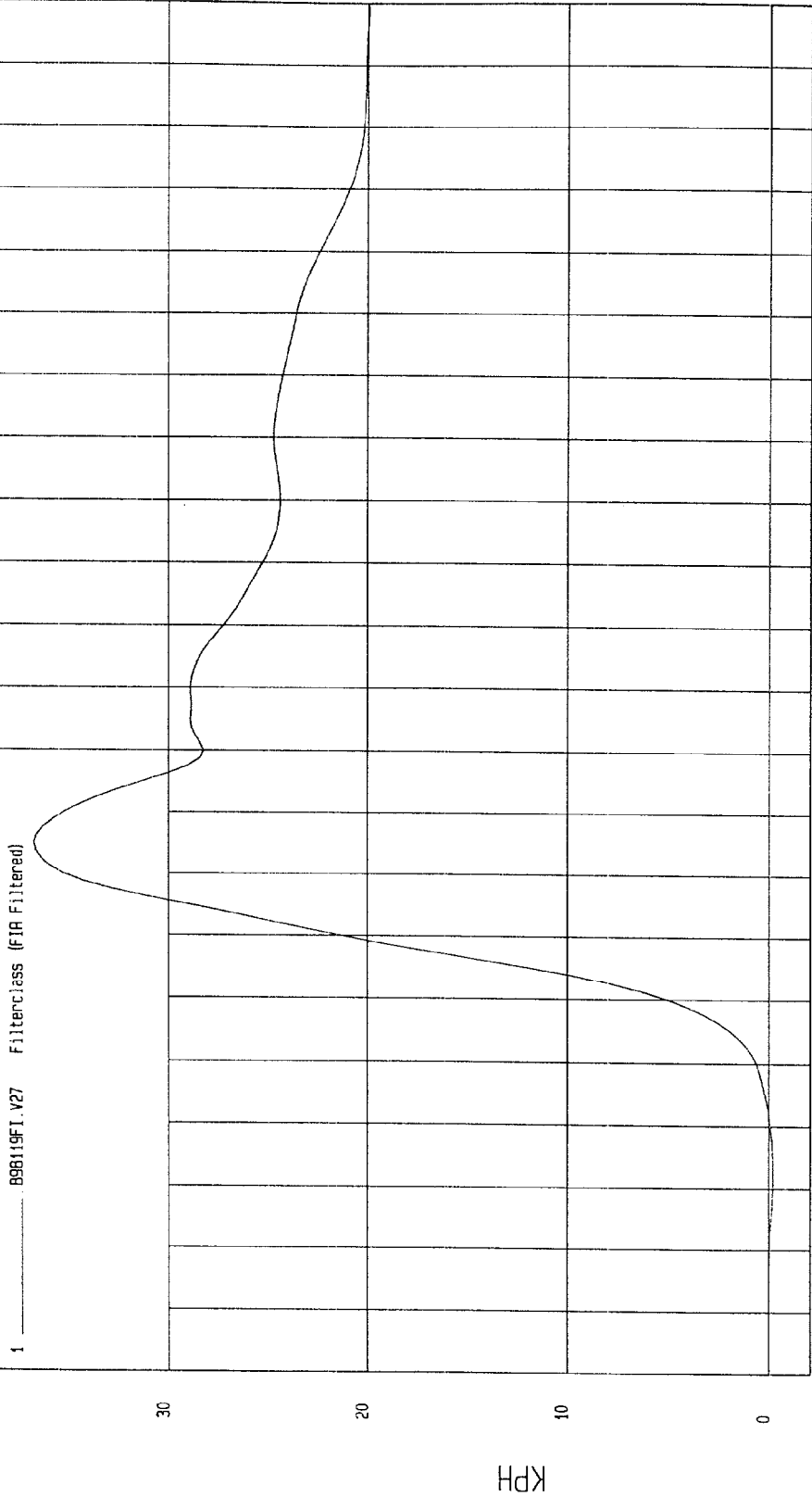


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

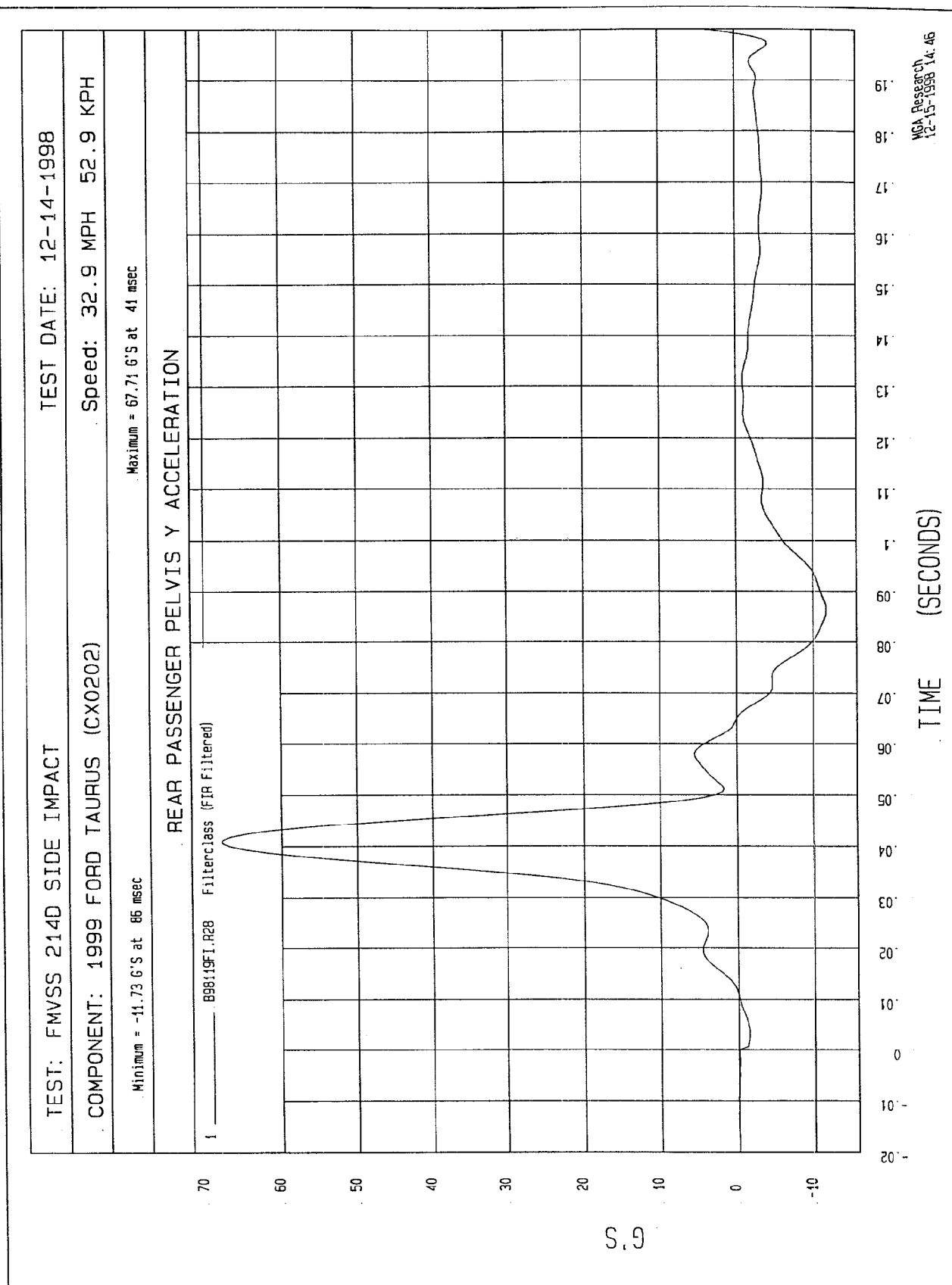
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -.18 KPH at 12 msec Maximum = 36.67 KPH at 65 msec

REAR PASSENGER LOWER SPINE Y VELOCITY



MEA Research
12-17-1999 14:42



TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

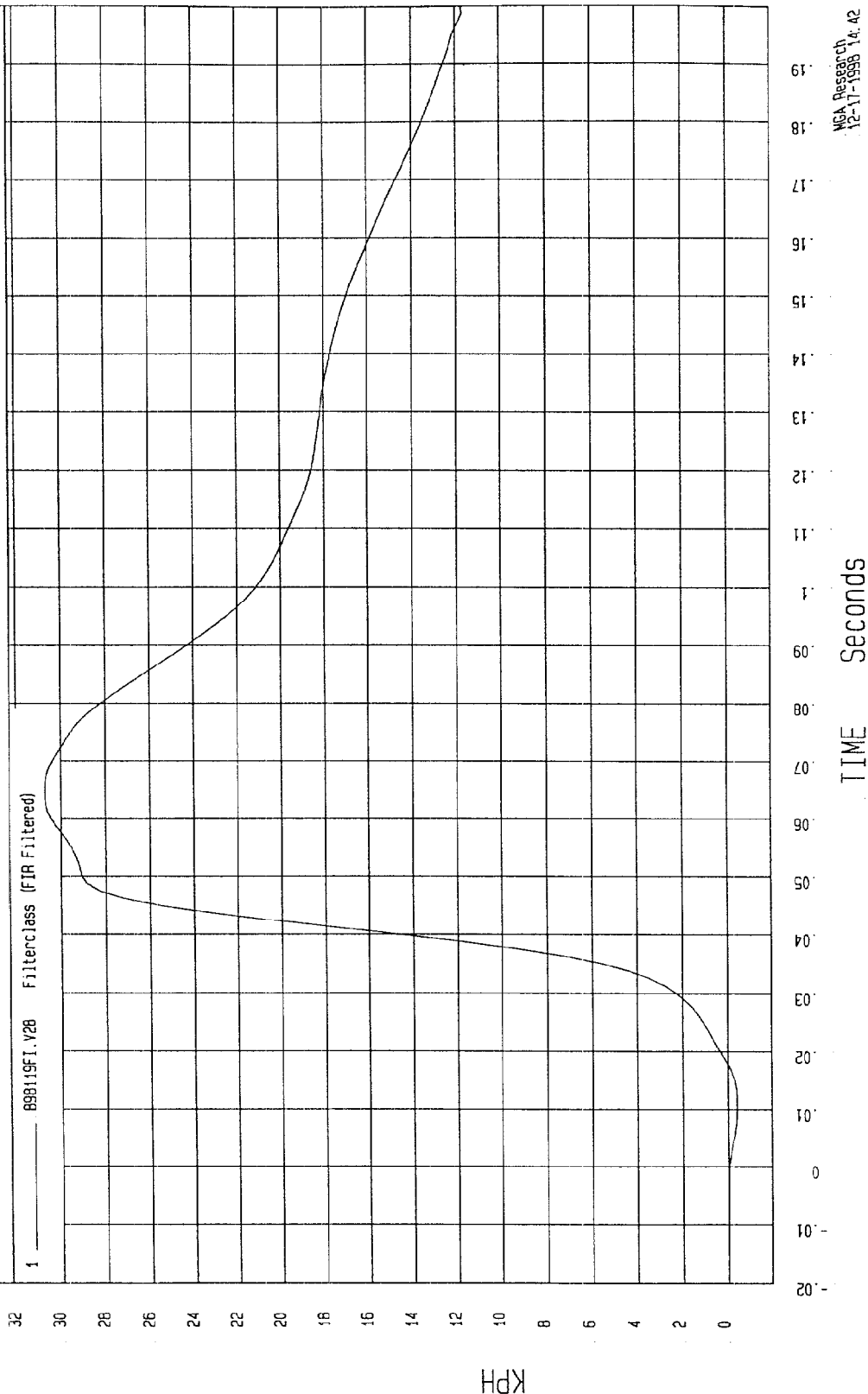
COMPONENT: 1999 FORD TAURUS (CX0202)

Speed: 32.9 MPH 52.9 KPH

Minimum = -4 KPH at 11 msec

Maximum = 30.71 KPH at 65 msec

REAR PASSENGER PELVIS Y VELOCITY

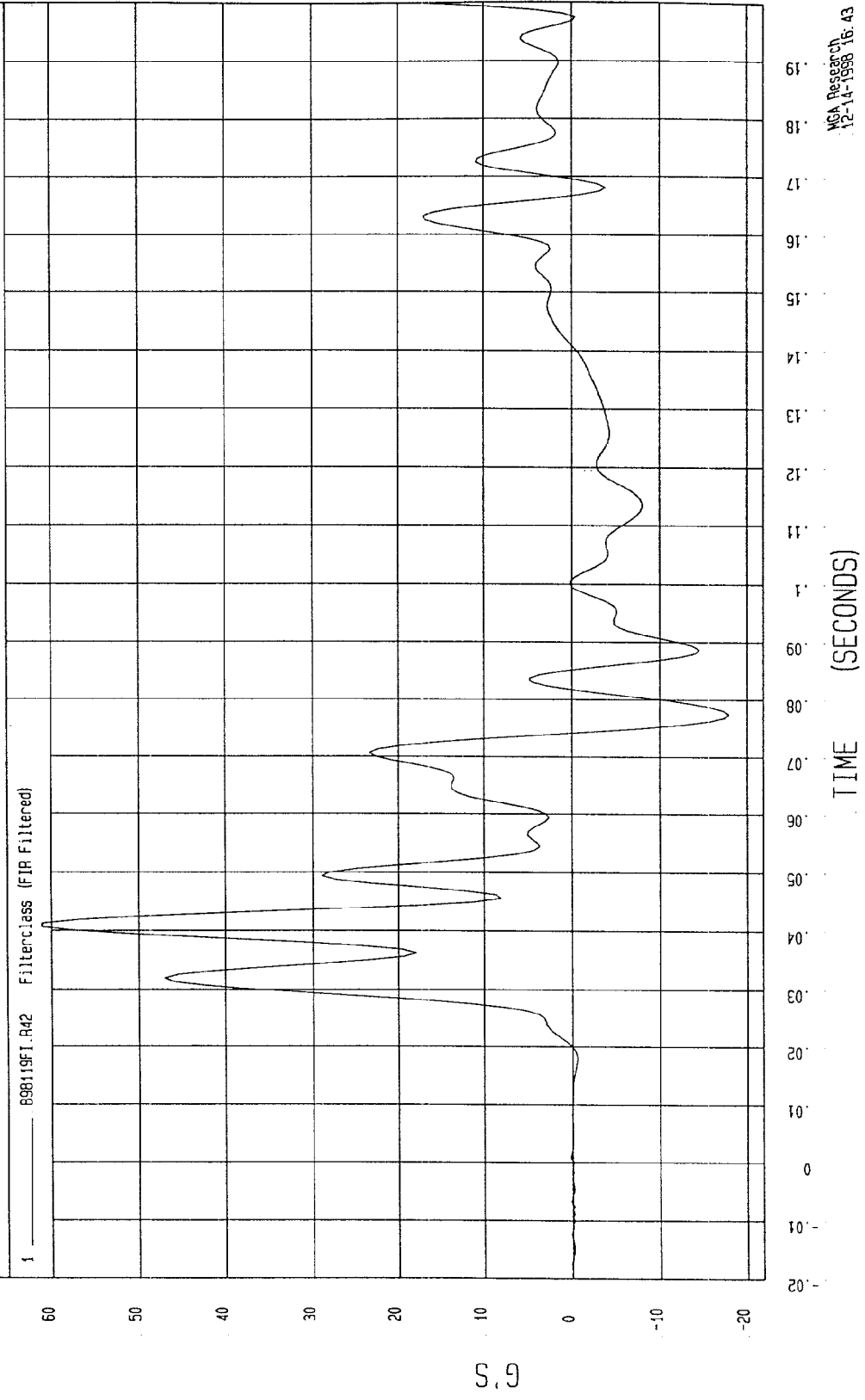


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -17.9 G's at 78 msec Maximum = 61.09 G's at 41 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION

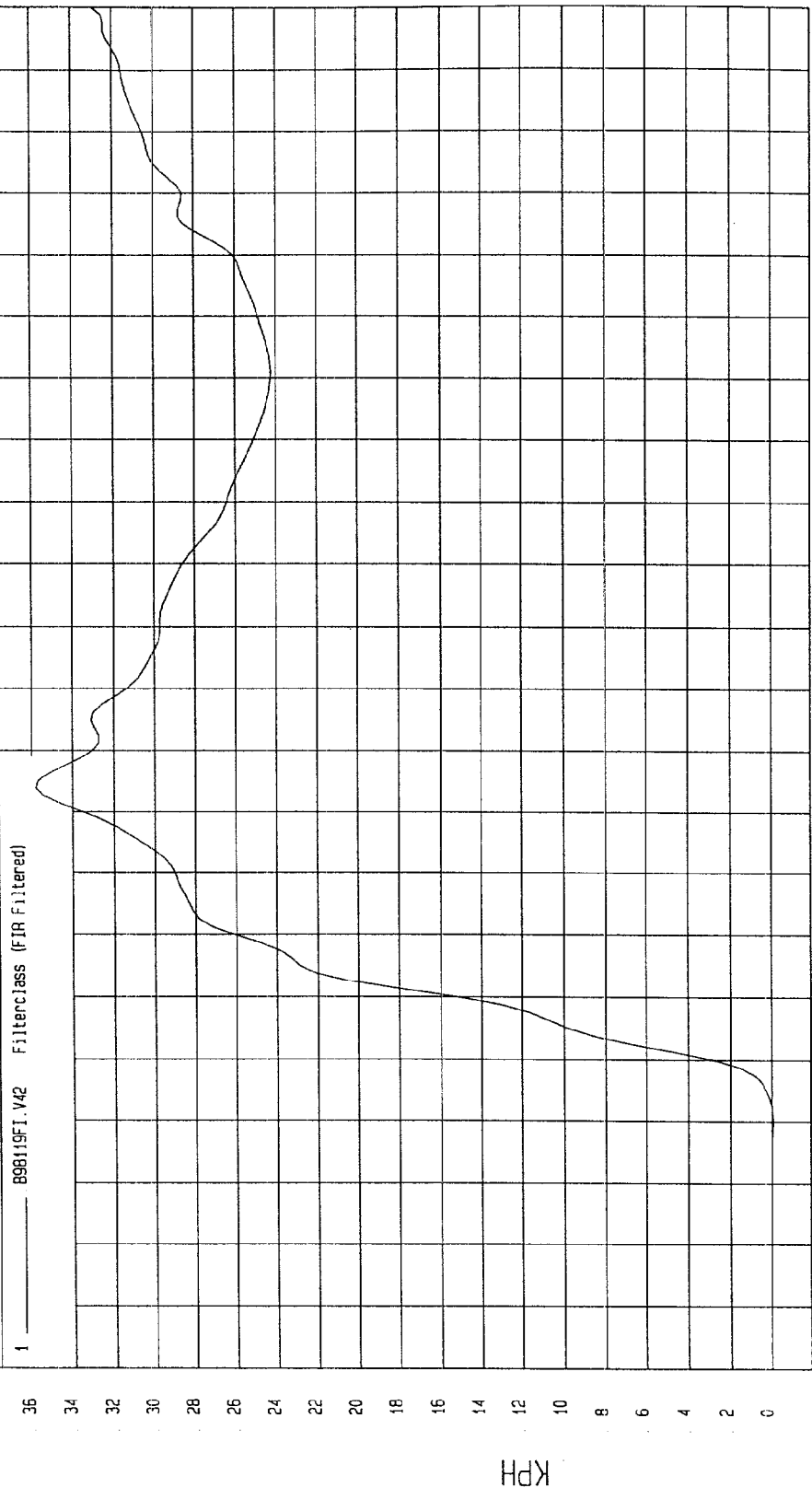


TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = .1 KPH at 20 msec Maximum = 35.8 KPH at 74 msec

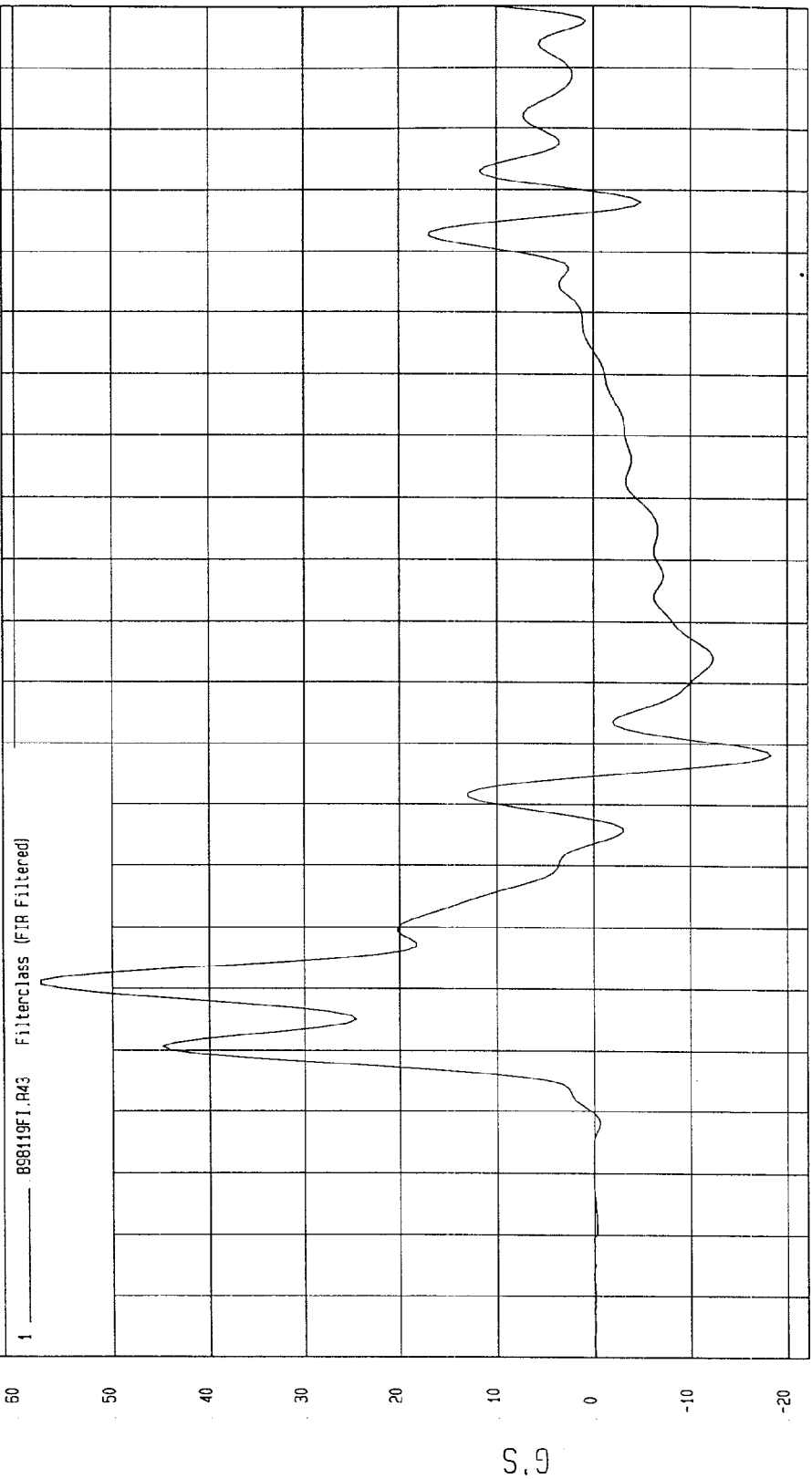
DRIVER UPPER RIB Y REDUNDANT VELOCITY



NSA Research
12-17-1998 14:42

TEST: FMVSS 214D SIDE IMPACT
 COMPONENT: 1999 FORD TAURUS (CX0202)
 TEST DATE: 12-14-1998
 Speed: 32.9 MPH 52.9 KPH
 Minimum = -18.33 G'S at 78 msec
 Maximum = 57.45 G'S at 41 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION



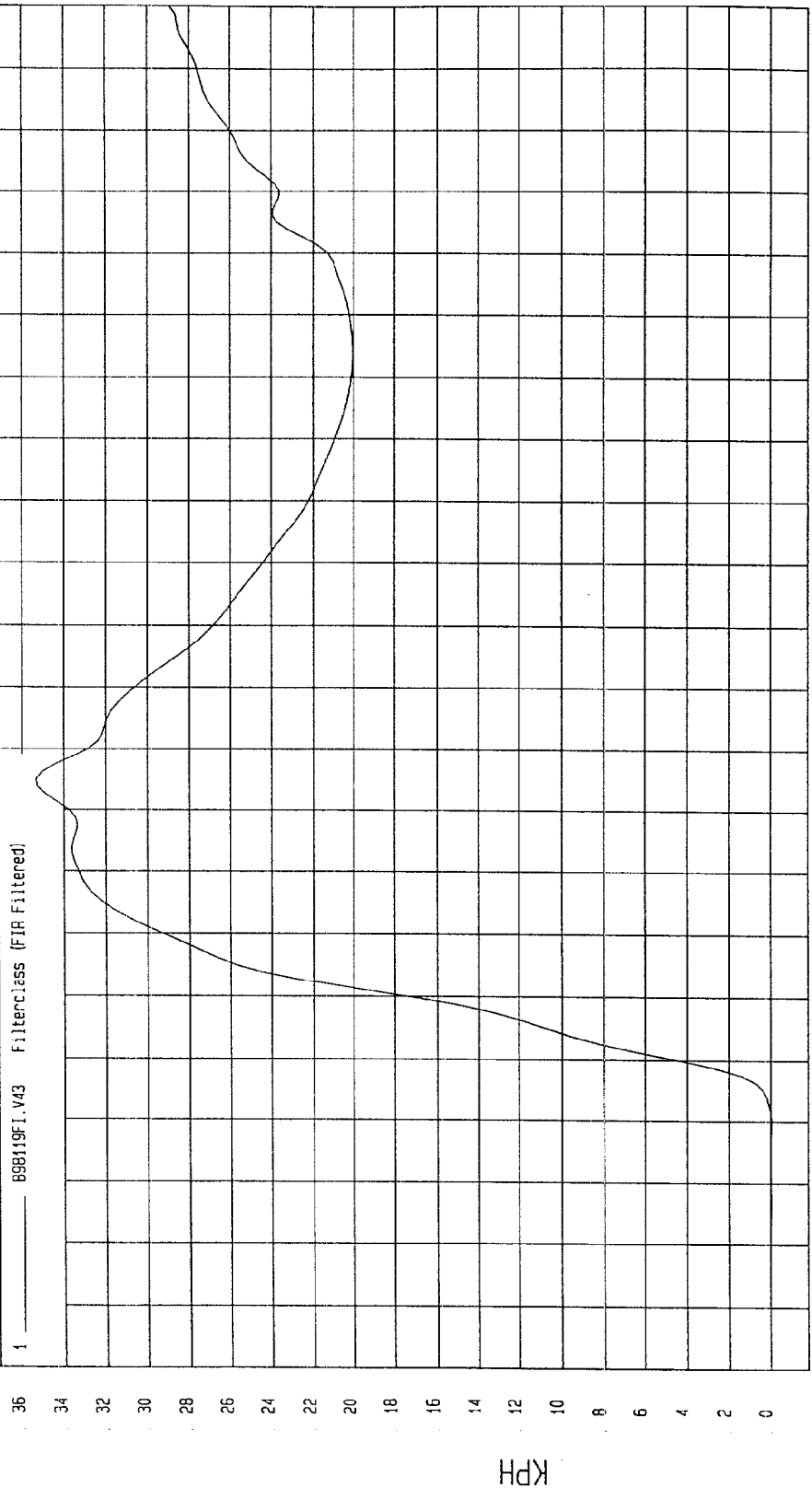
MCA Research
 12-14-1998 16.43

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

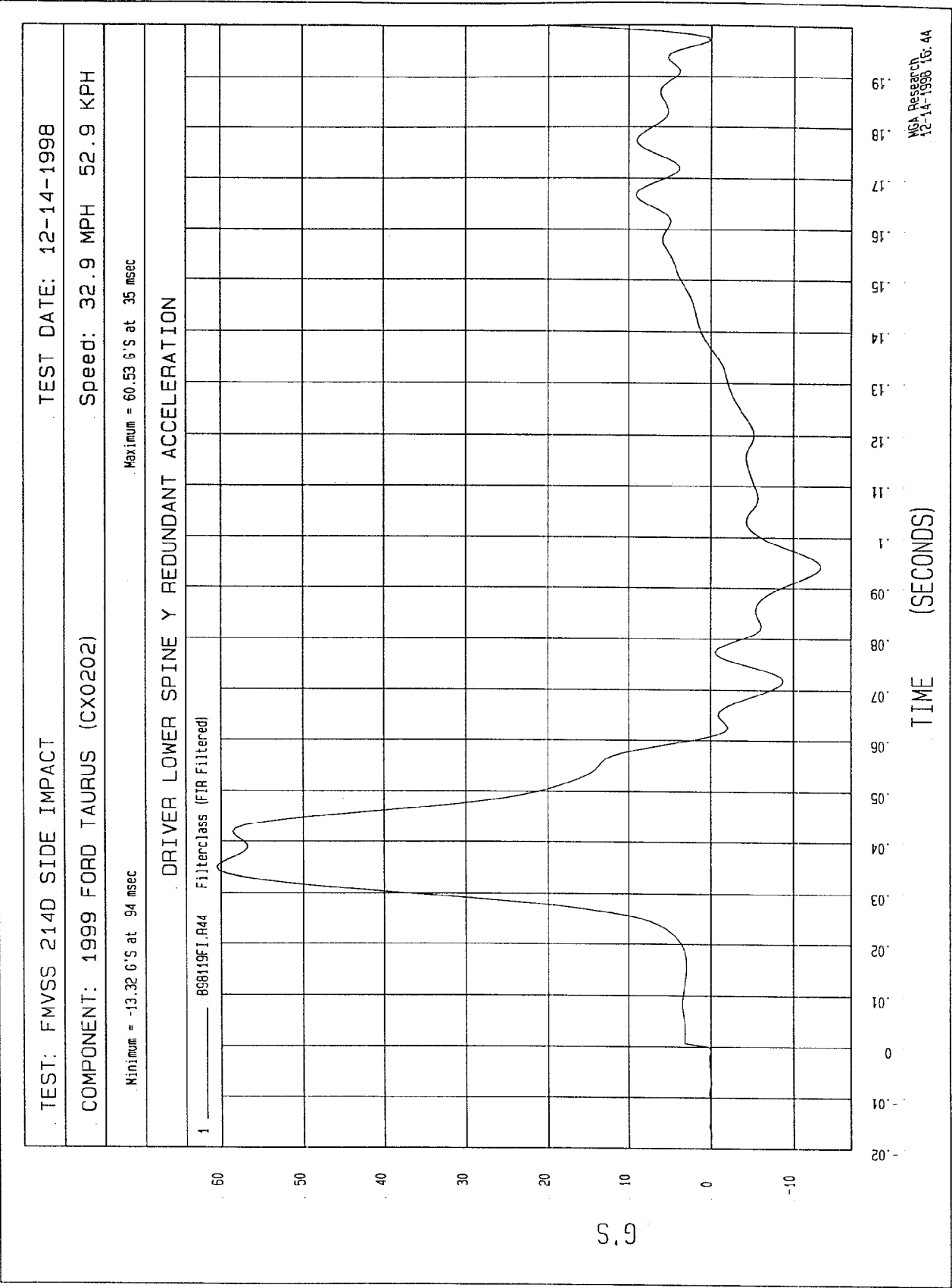
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -5.44E-02 KPH at 19 msec Maximum = 35.35 KPH at 74 msec

DRIVER LOWER RIB Y REDUNDANT VELOCITY



MSA Research
12-17-1998 14:42

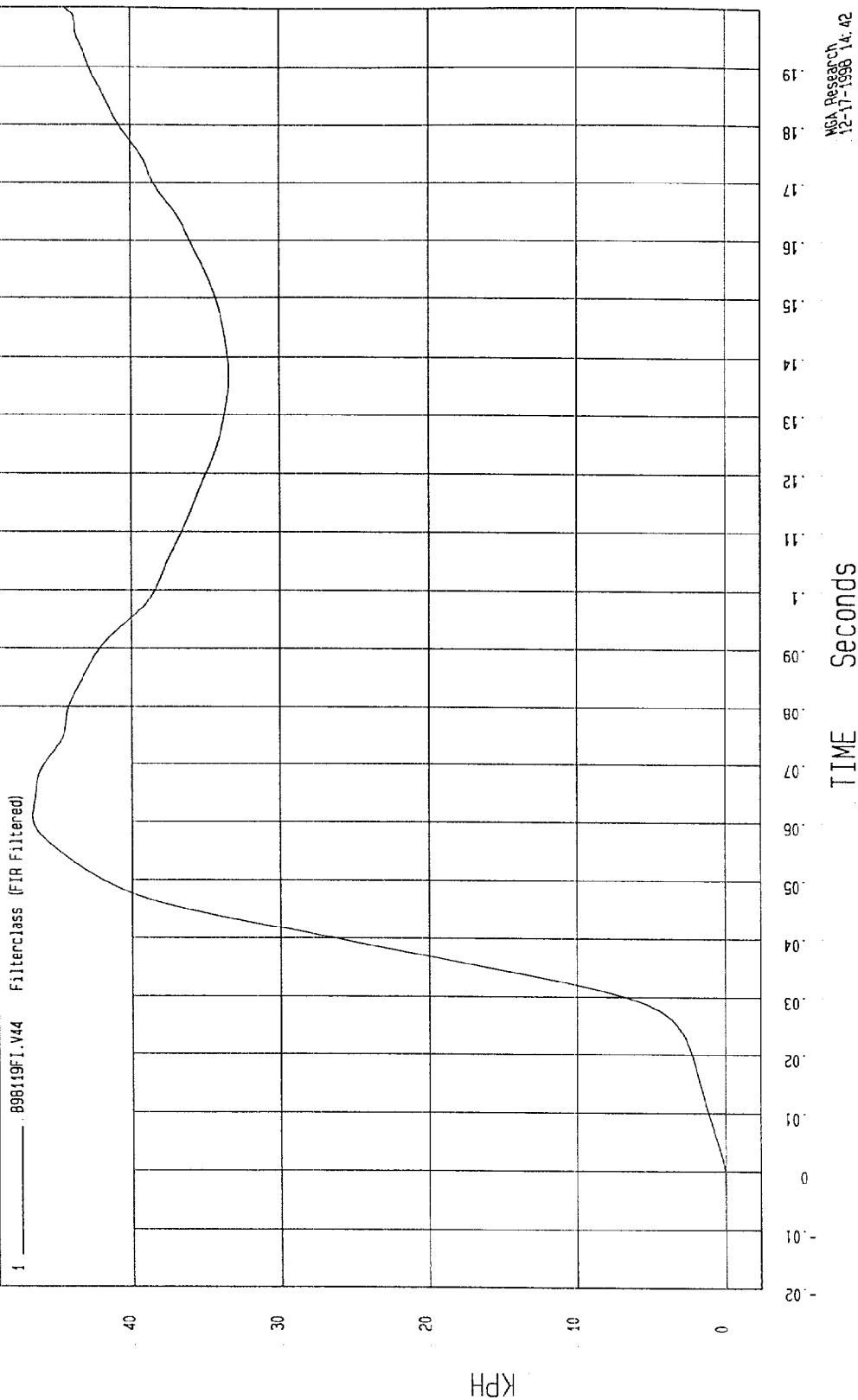


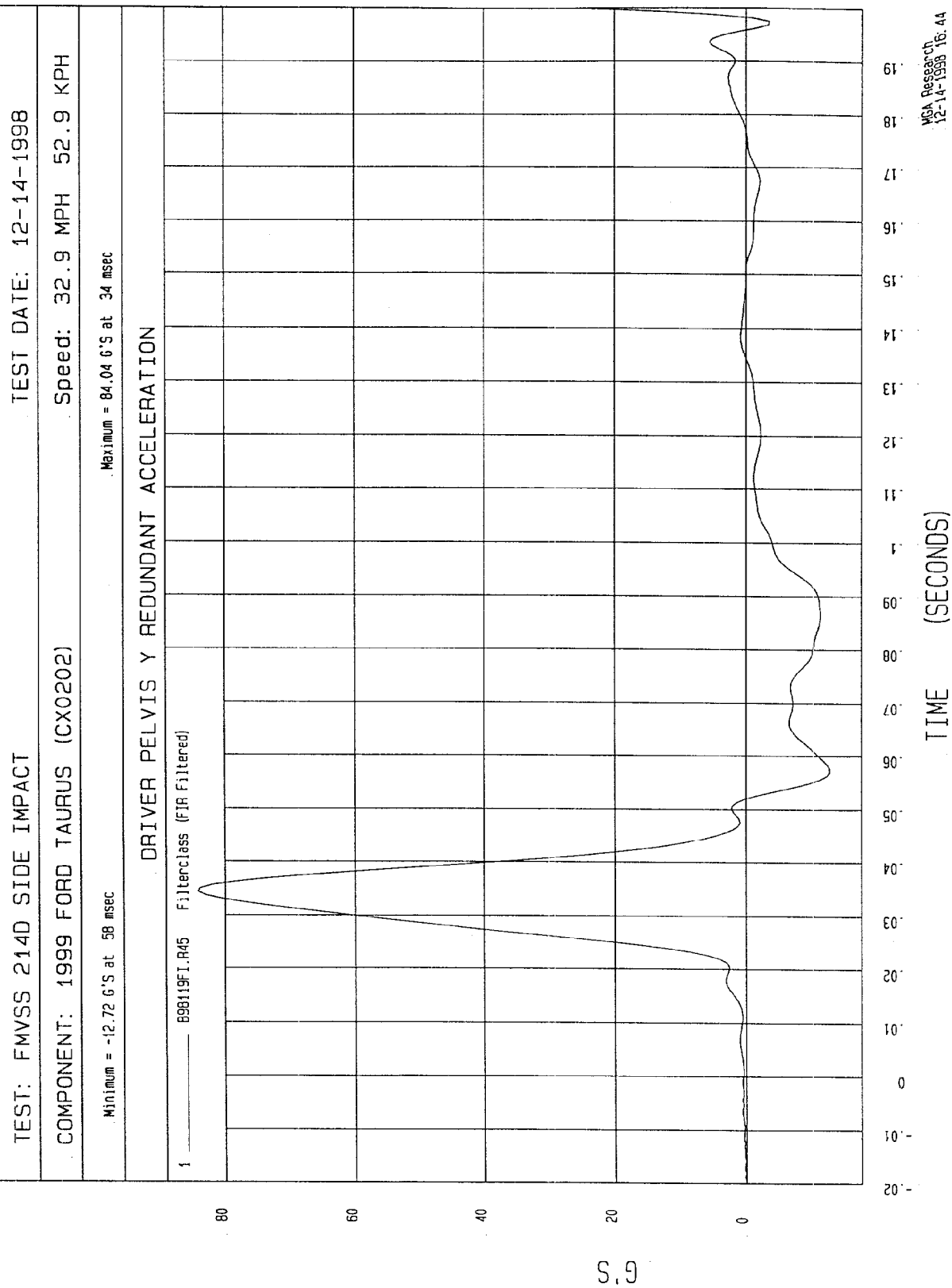
TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

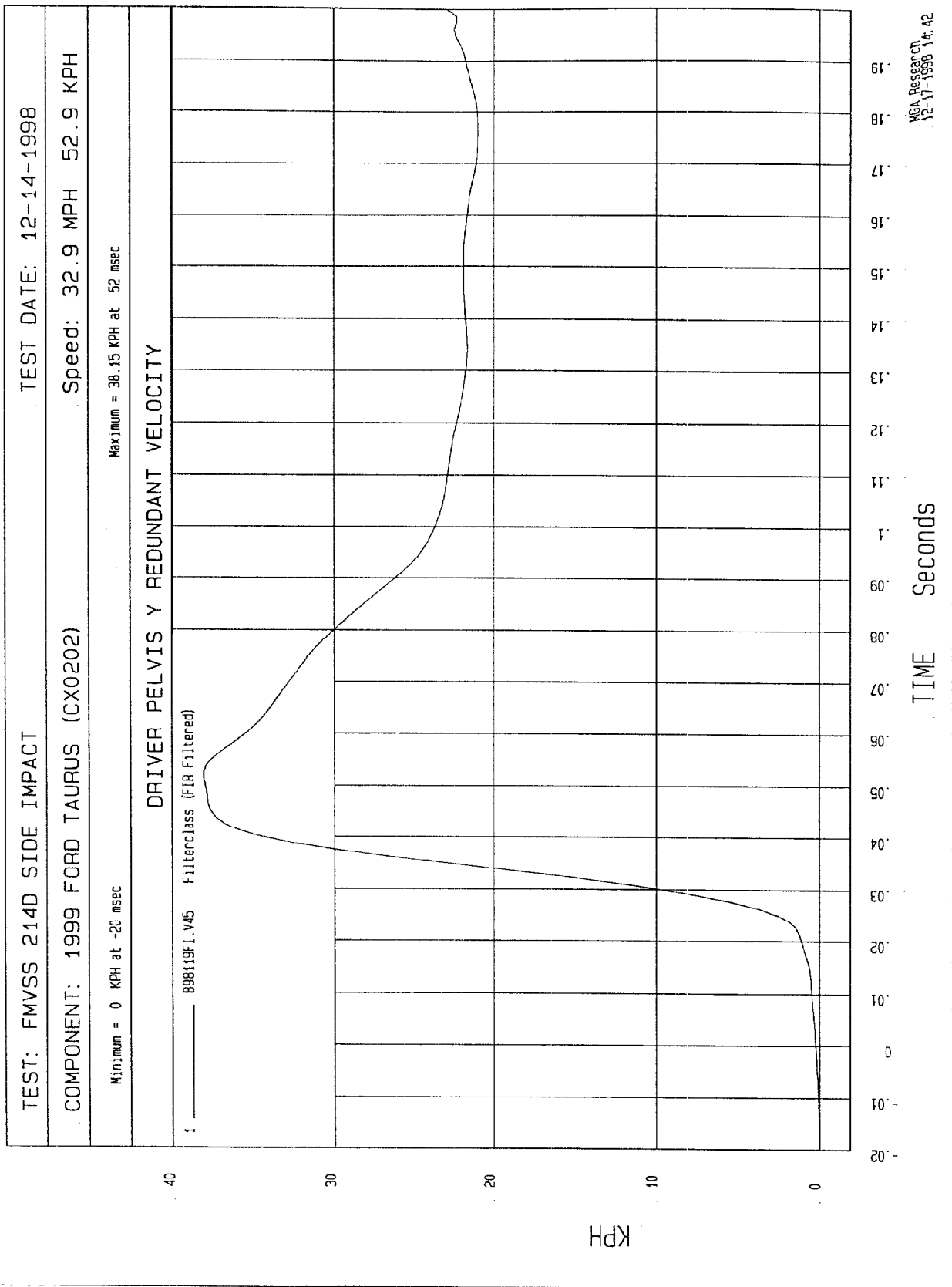
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -3.95E-03 KPH at -17 msec Maximum = 46.69 KPH at 61 msec

DRIVER LOWER SPINE Y REDUNDANT VELOCITY







TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

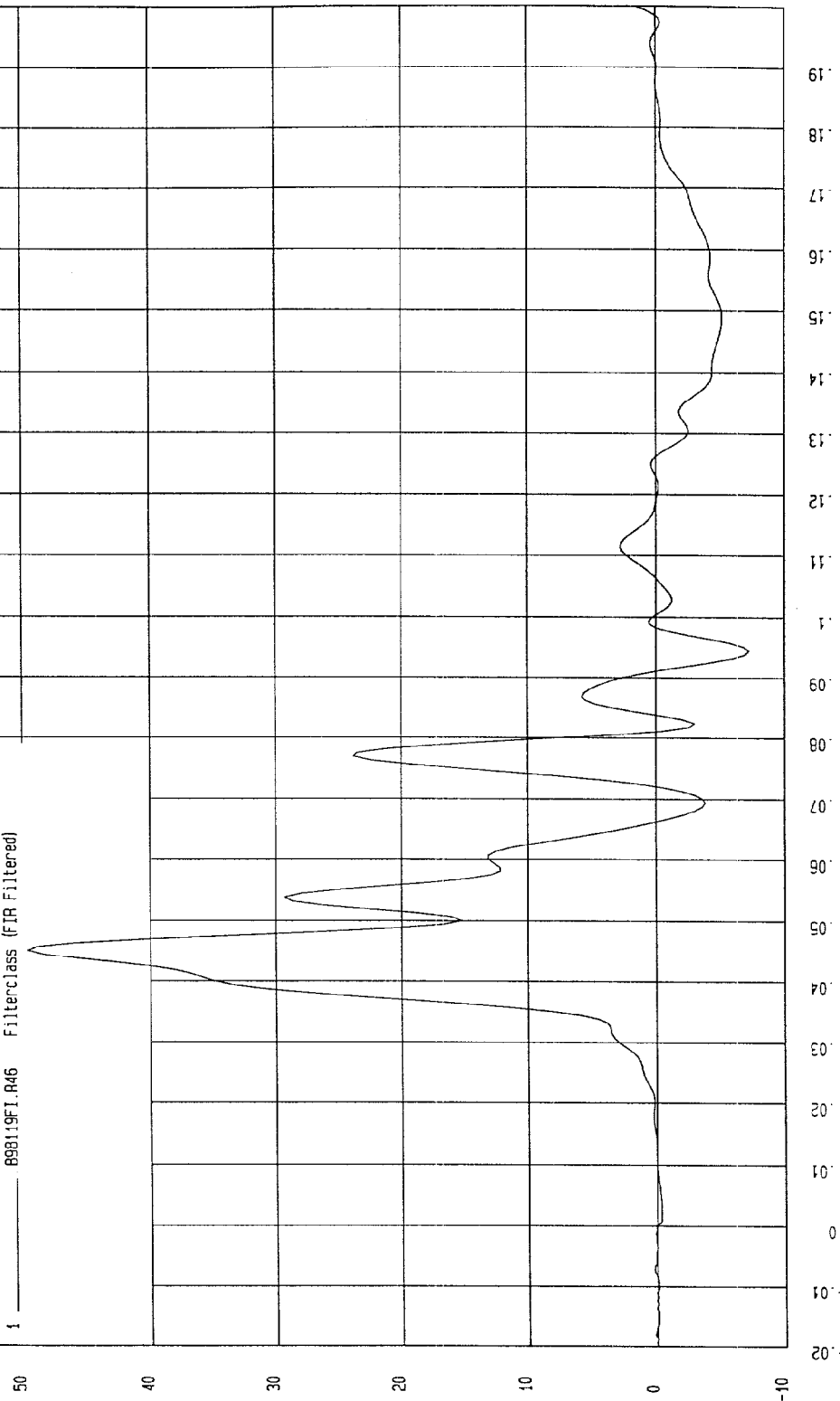
COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 49.61 G'S at 45 msec

Minimum = -7.18 G'S at 94 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

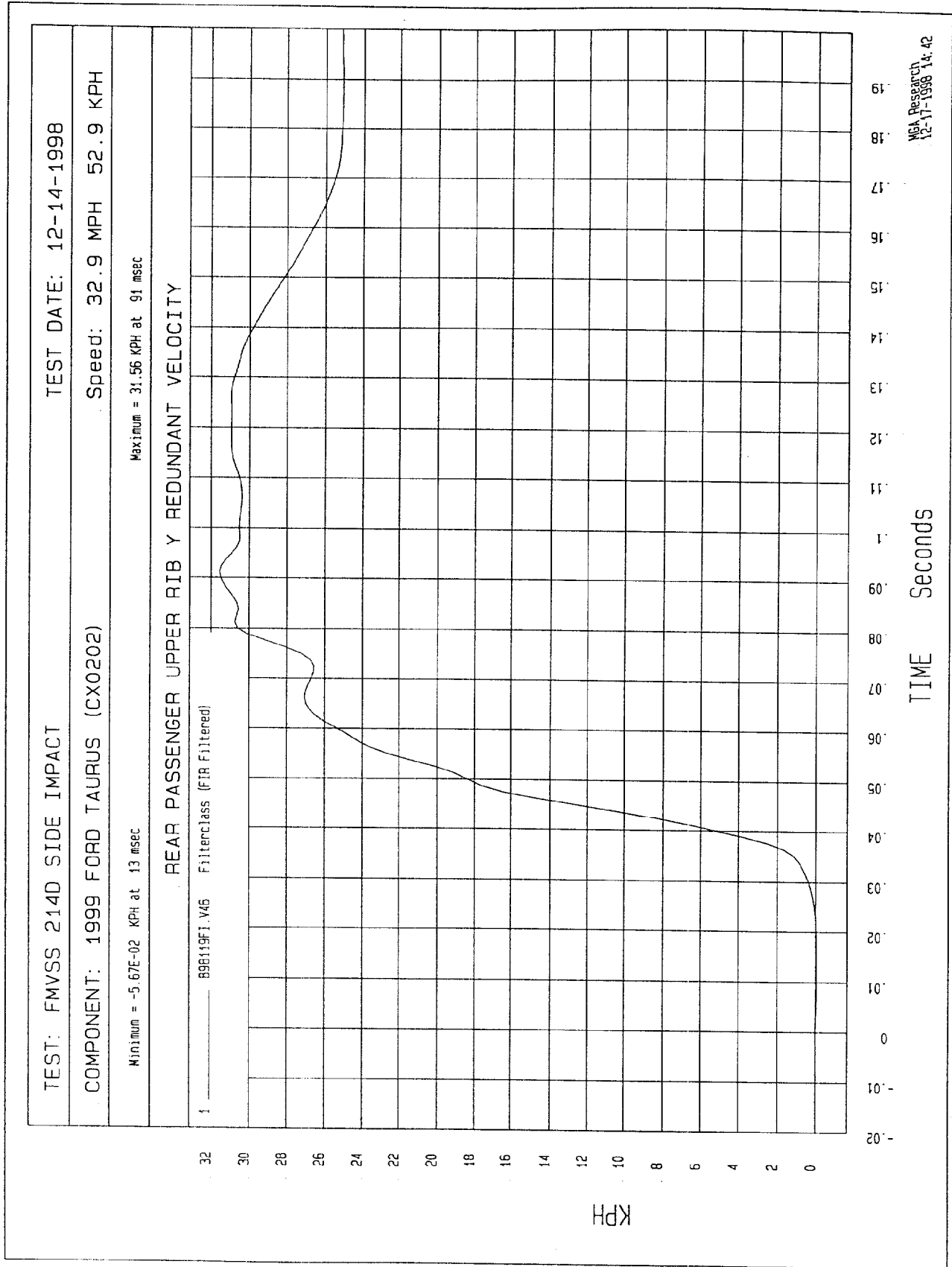
1 898119FT.R46 FilterClass (FIR Filtered)



MCA Research
12-14-1998 16:44

TIME (SECONDS)

5.9



MEA Research
12-17-1998 14:42

TEST: FMVSS 214D SIDE IMPACT

TEST DATE: 12-14-1998

Speed: 32.9 MPH 52.9 KPH

COMPONENT: 1999 FORD TAURUS (CX0202)

Maximum = 57.49 G's at 44 msec

Minimum = -17 G's at 71 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

1 898119F1.R47 Filterclass (FIR Filtered)

G.S.

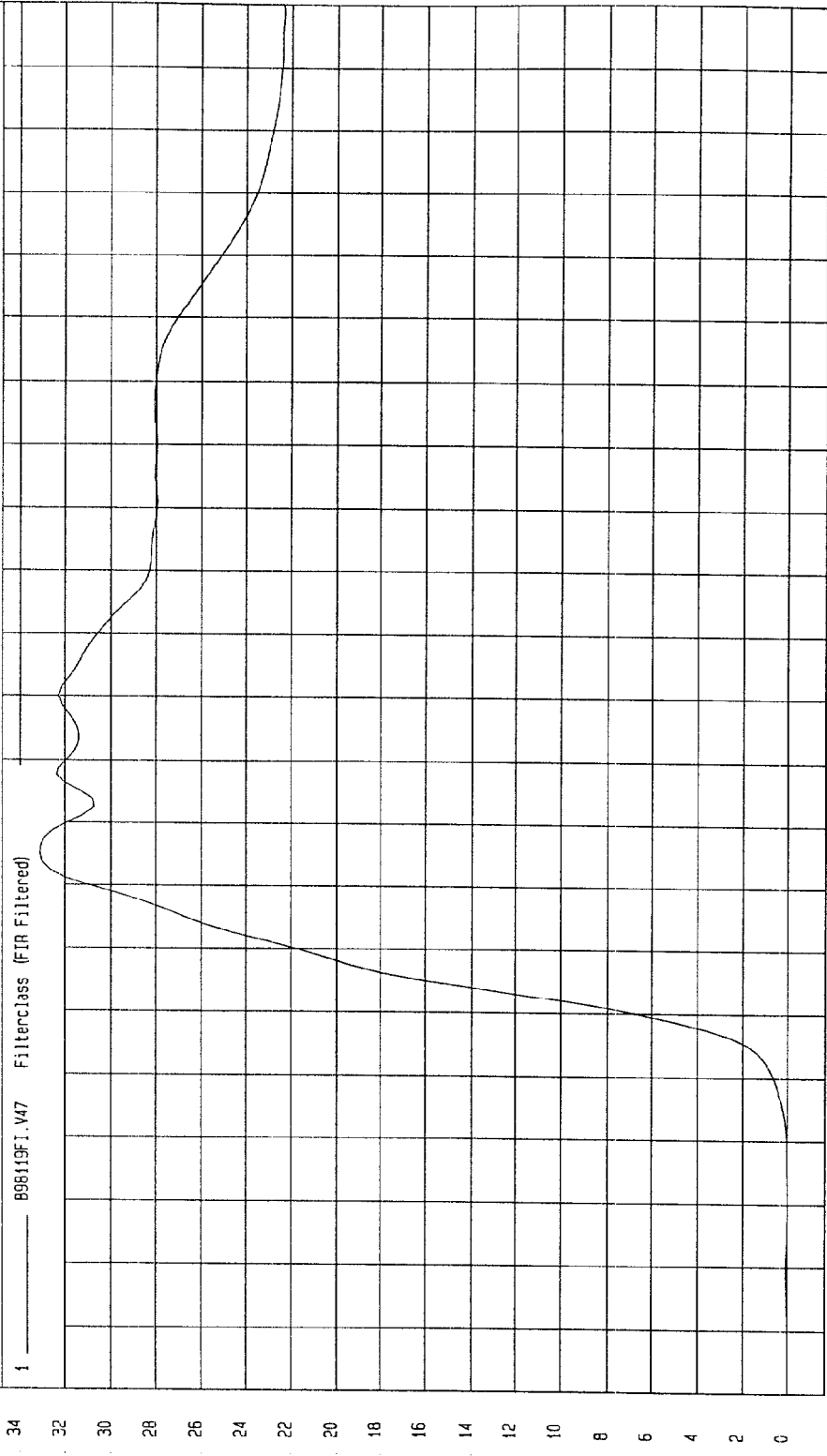
60
50
40
30
20
10
0
-10
-20TIME (SECONDS)
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
0.11
0.12
0.13
0.14
0.15
0.16
0.17
0.18
0.19MSA Research
12-14-1998 16:44

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = 0 KPH at -20 msec Maximum = 33.11 KPH at 66 msec

REAR PASSENGER LOWER RIB Y REDUNDANT VELOCITY

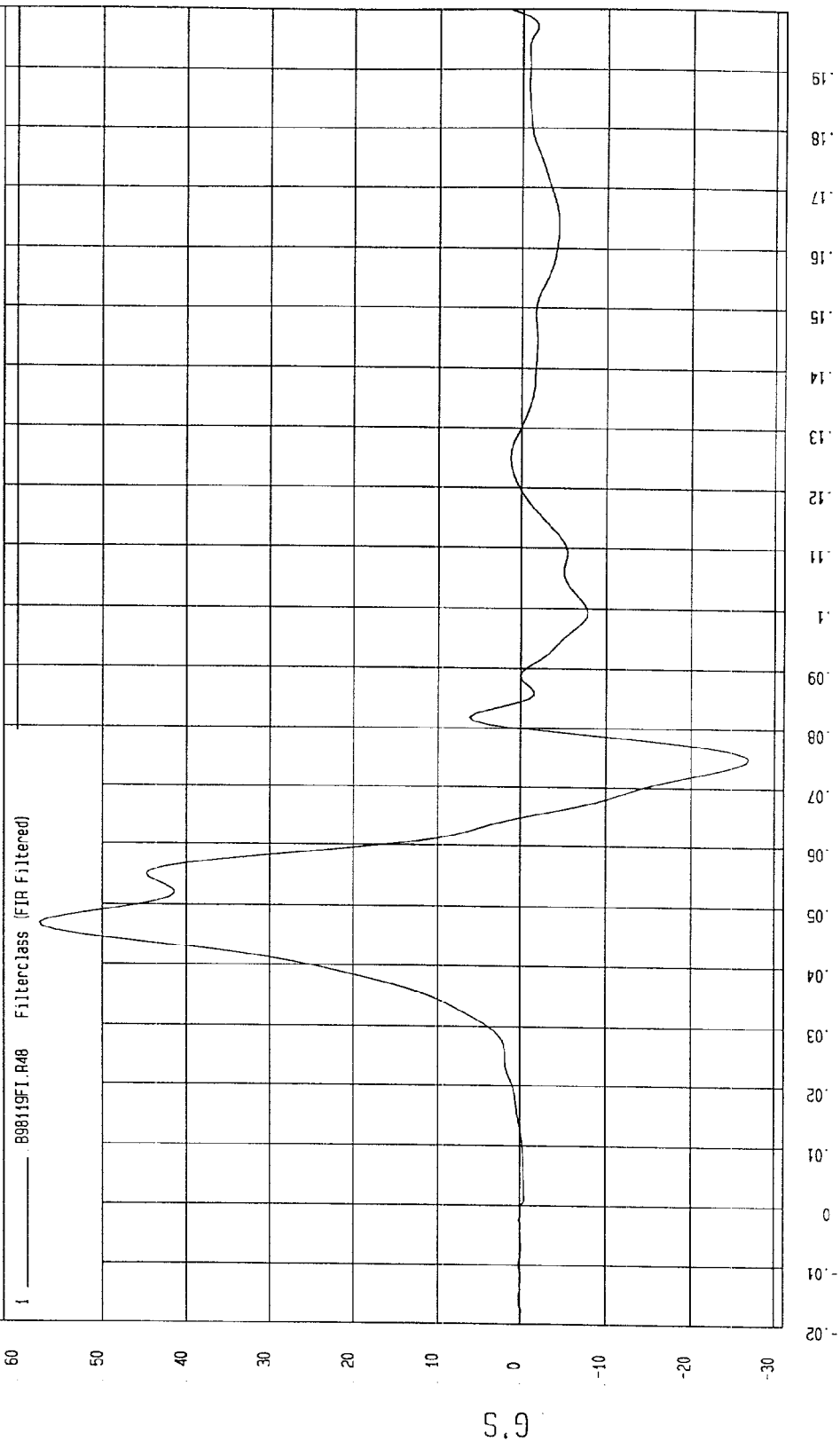


TIME Seconds

NSA Research
12-17-1998 14: 42

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH
Minimum = -26.89 G'S at 75 msec Maximum = 57.4 G'S at 47 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION



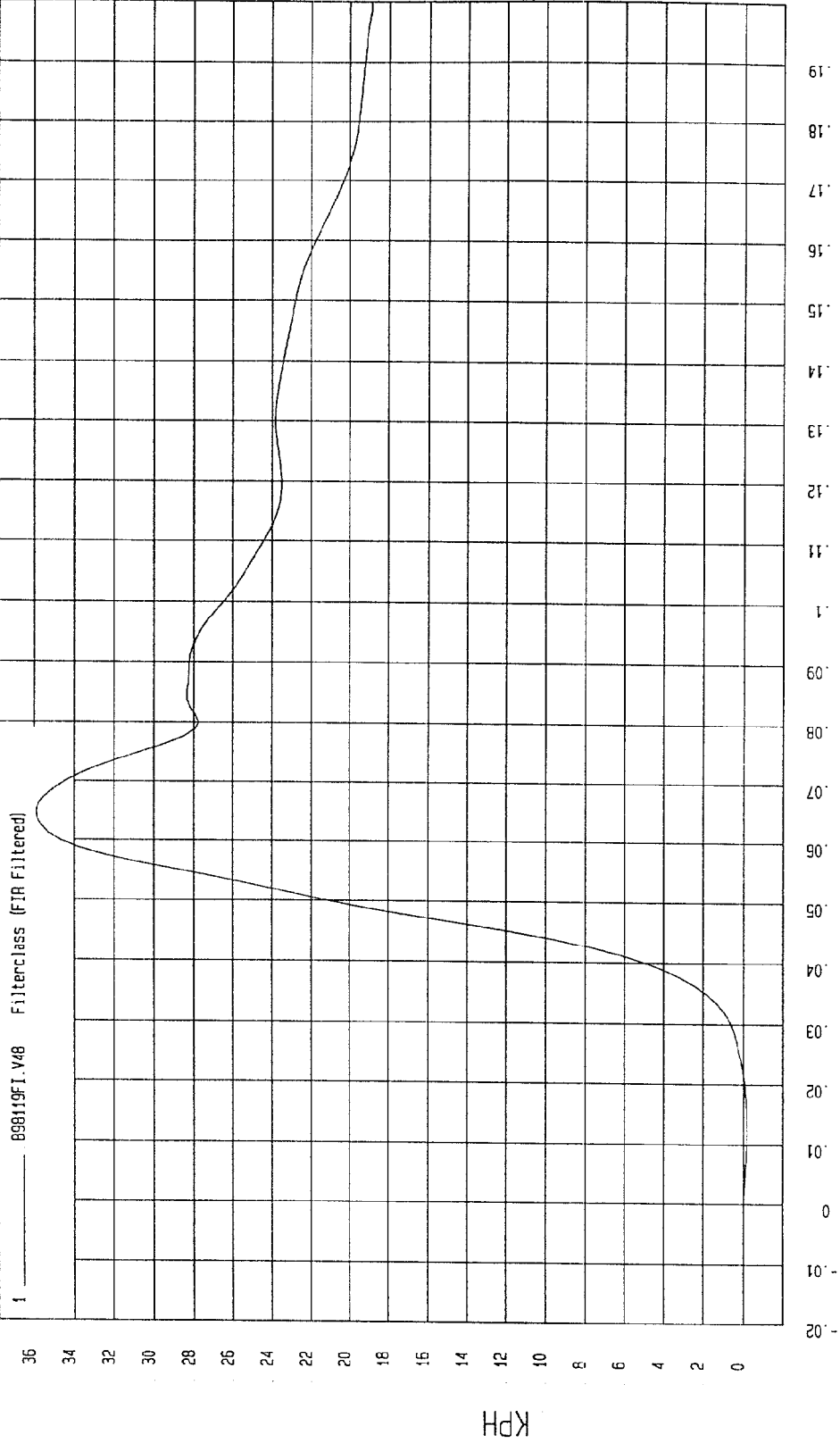
NCA Research
12-14-1998 16:44

TEST: FMVSS 214D SIDE IMPACT TEST DATE: 12-14-1998

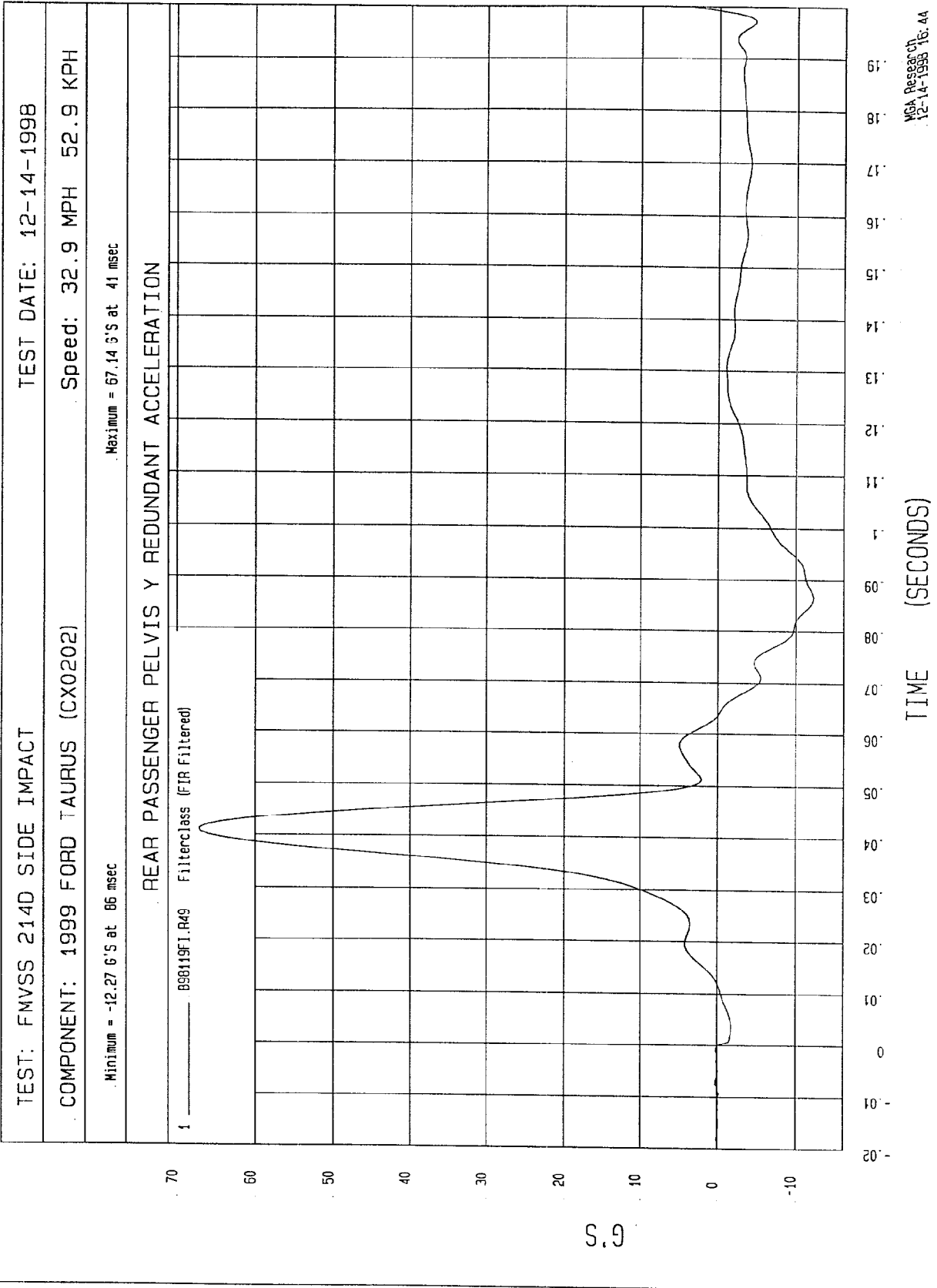
COMPONENT: 1999 FORD TAURUS (CX0202) Speed: 32.9 MPH 52.9 KPH

Minimum = -.17 KPH at .12 msec Maximum = 35.91 KPH at .65 msec

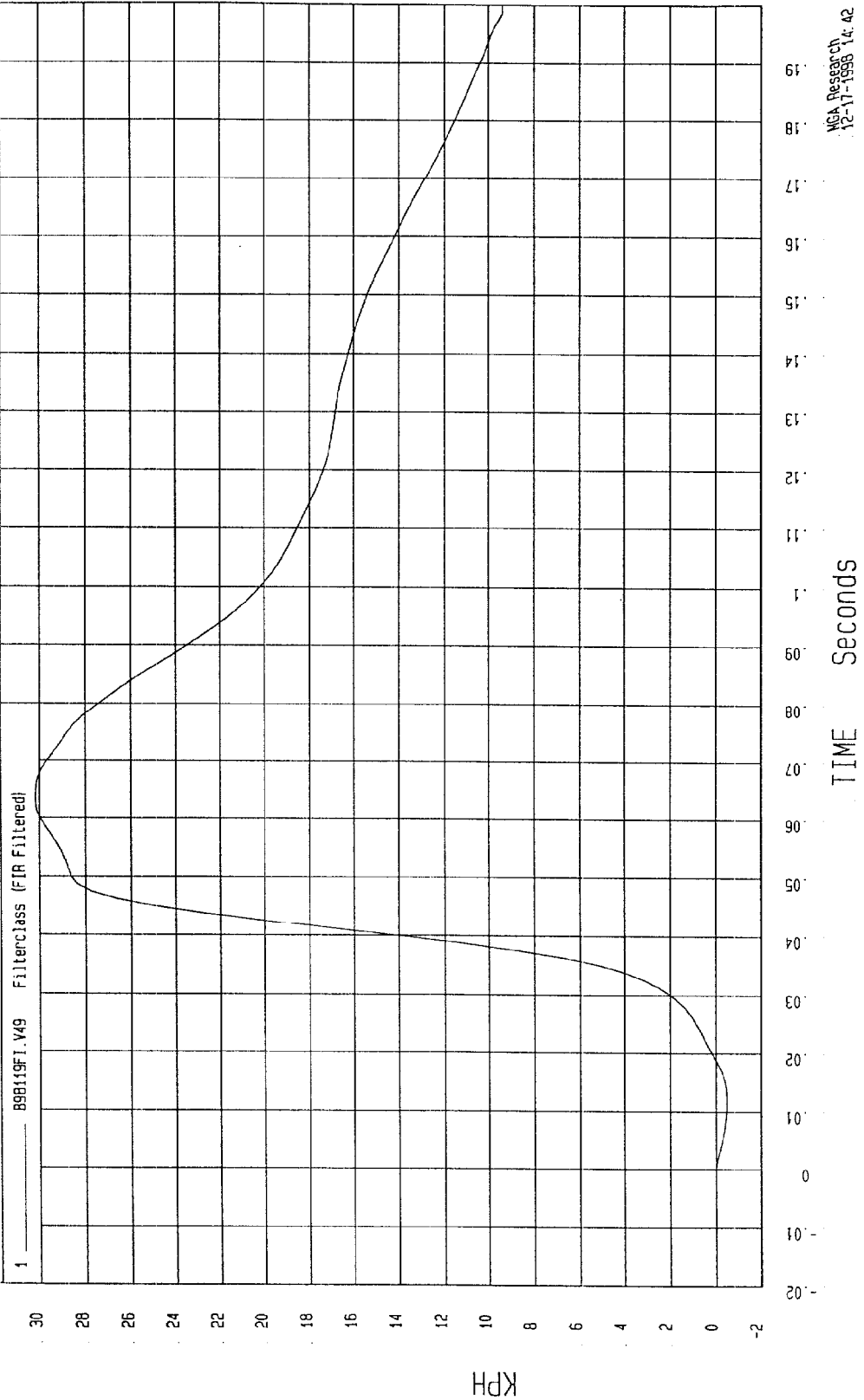
REAR PASSENGER LOWER SPINE Y REDUNDANT VELOCITY



MOA Research
12-17-1998 14:42



TEST: FMVSS 214D SIDE IMPACT	TEST DATE: 12-14-1998
COMPONENT: 1999 FORD TAURUS (CX0202)	Speed: 32.9 MPH 52.9 KPH
Minimum = -.49 KPH at 12 msec	
Maximum = 30.17 KPH at 64 msec	
REAR PASSENGER PELVIS Y REDUNDANT VELOCITY	



APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION

PRE-TEST CERTIFICATION DATA

Dummy Serial Number: 049

Calibration Test Results Summary

Dummy Serial Number: 049

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.

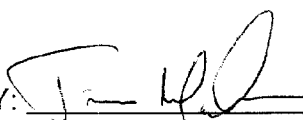
Lumbar Flexion Test: The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

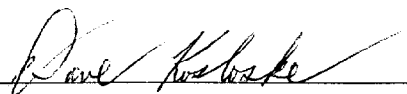
DUMMY SERIAL NO.: 049DATE OF VERIFICATION: December 11, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	904
RH - Rib Height (mm)	501 - 521	518
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	231
KV - Knee Pivot From Back Line (mm)	511 - 526	524
SW - Knee Pivot to Floor (mm)	490 - 505	493
HW - Hip Width (mm)	356 - 391	373

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

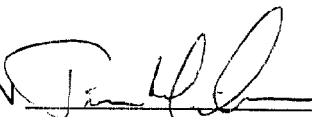
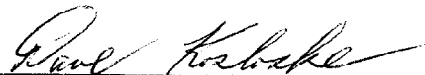
THORAX IMPACT TEST

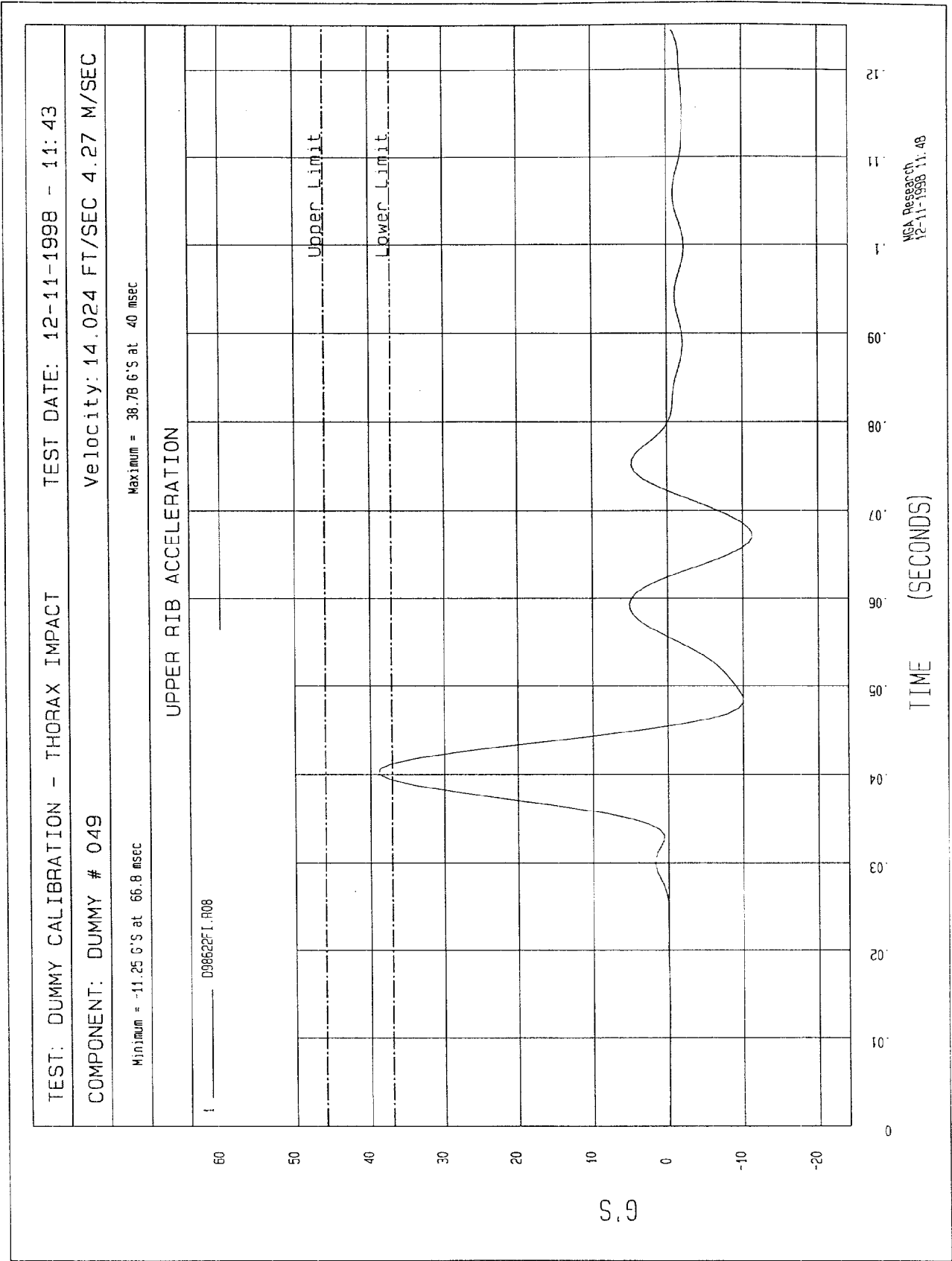
SIDE IMPACT DUMMY (SID)

DATE: December 11, 1998DUMMY SERIAL NUMBER: 049TEST NUMBER: D981622

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33	4.27
UPPER RIB (g's)	37 - 46 g's	39
LOWER RIB (g's)	37 - 46 g's	42
LOWER SPINE (g's)	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 



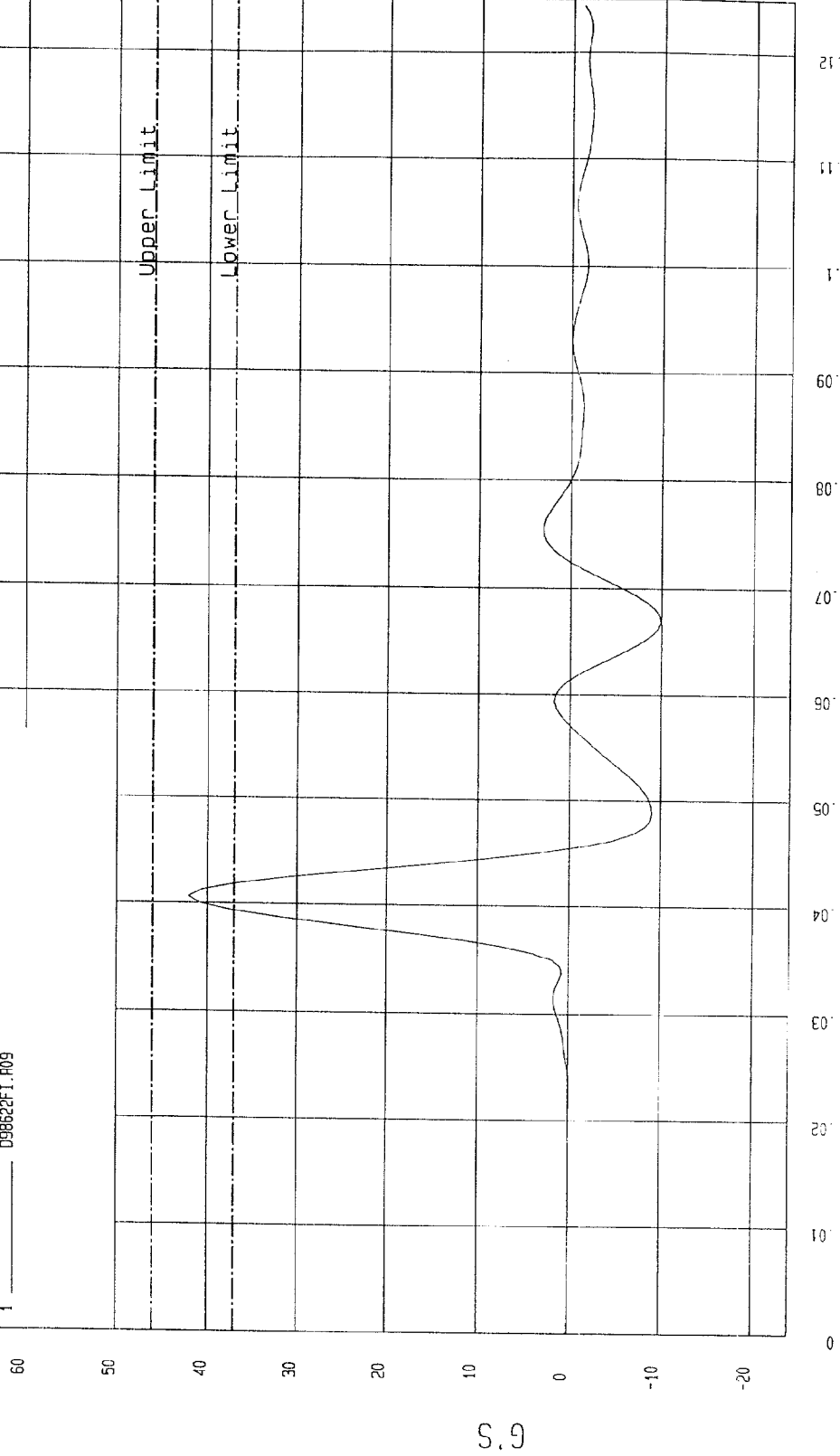
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-11-1998 - 11:43

COMPONENT: DUMMY # 049 Velocity: 14.024 FT/SEC 4.27 M/SEC

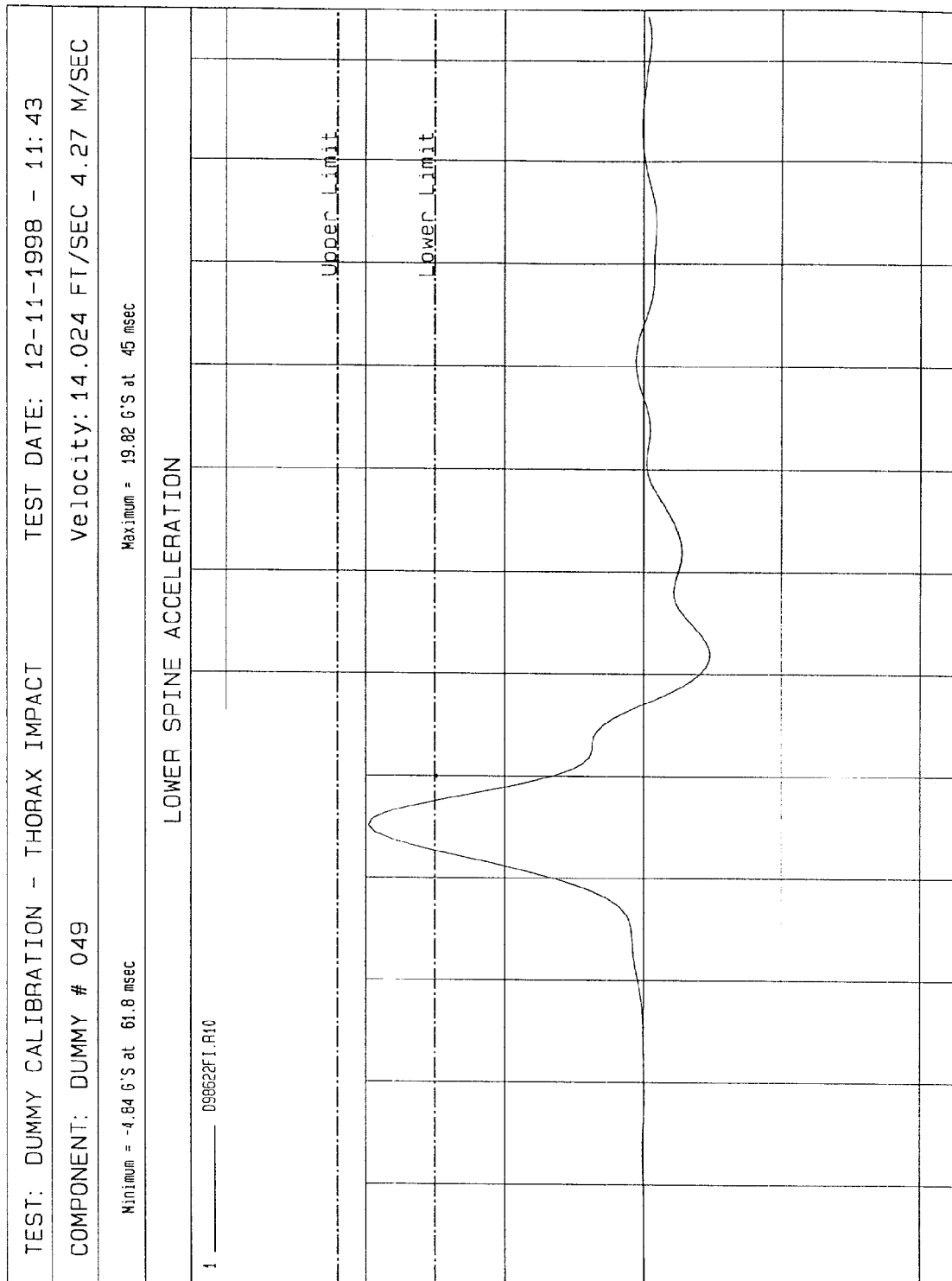
Minimum = -9.92 G'S at 66.8 msec Maximum = 42.07 G'S at 40.6 msec

LOWER RIB ACCELERATION

1 _____ D98622F1.R09



NCA Research
12-11-1998 11:48



TIME (SECONDS)

NCA Research
12-11-1998 11:48

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

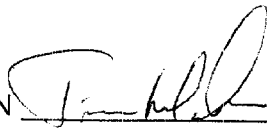
SIDE IMPACT DUMMY (SID)

DATE: December 11, 1998DUMMY SERIAL NUMBER: 049TEST NUMBER: D981623

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33	4.28
PELVIS ACCELERATION (g's)	40 - 60	51

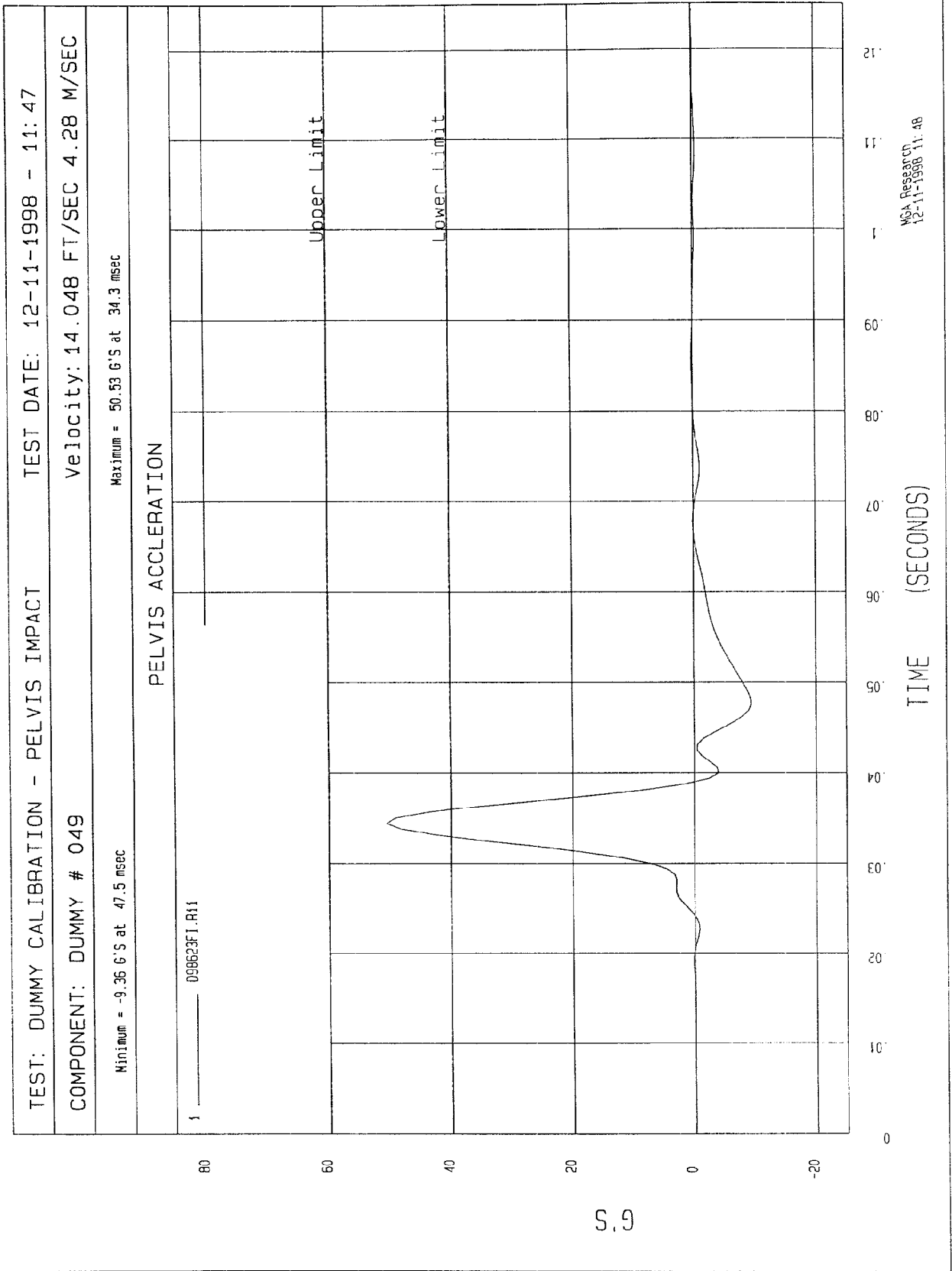
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY





MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

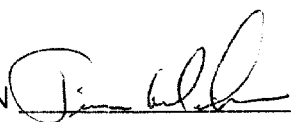
SIDE IMPACT DUMMY (SID)

DATE: December 10, 1998DUMMY SERIAL NUMBER: 049TEST NUMBER: D981624

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	23
FORCE @ 12.7 mm	104 - 162	145
FORCE @ 19.0 mm	163 - 222	202
FORCE @ 25.4 mm	222 - 280	267
FORCE @ 33 mm	325 - 391	365

TEST MEETS SPECIFICATIONS

TECHNICIAN



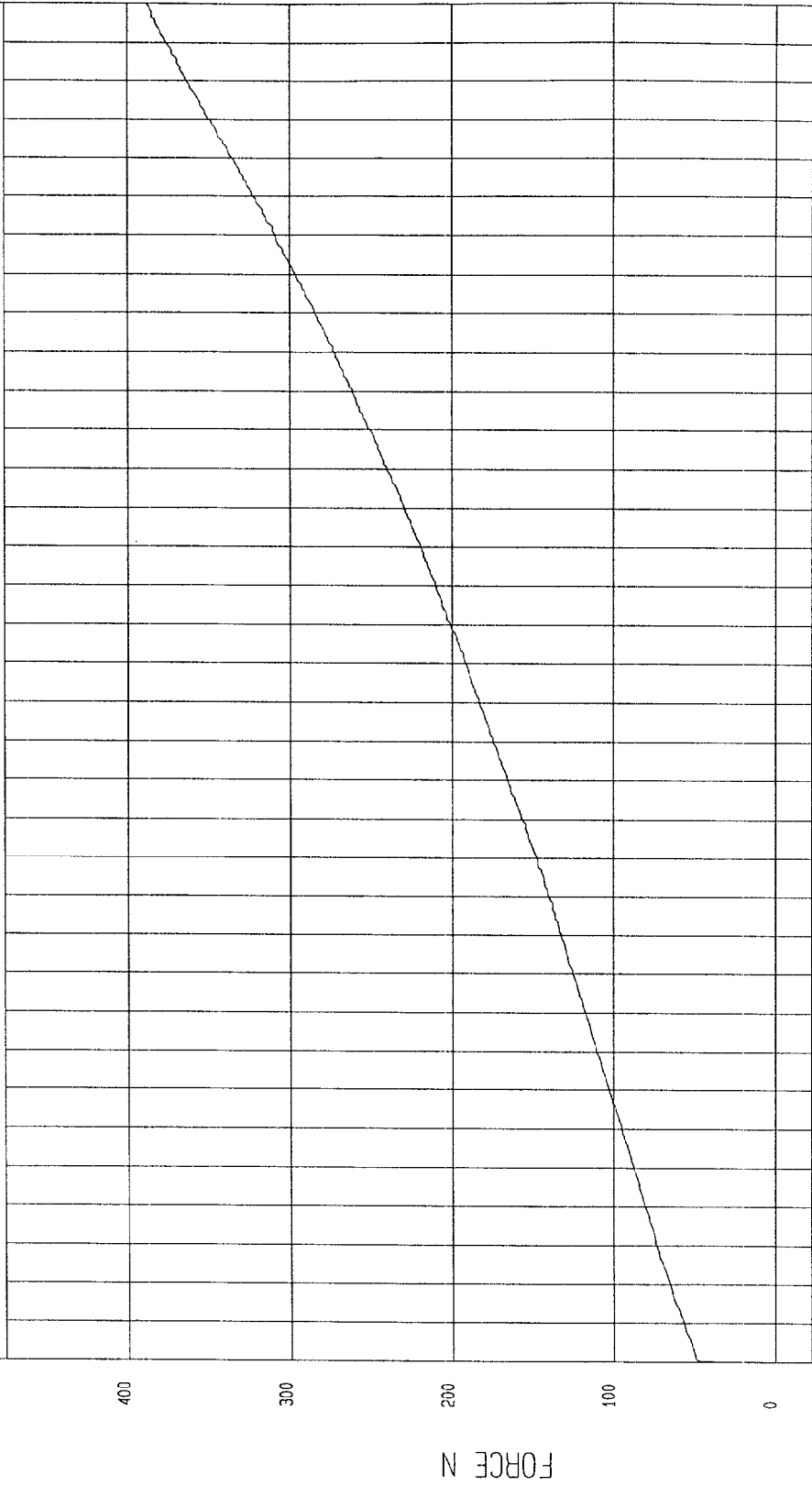
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 12-10-1998 - 14:01:50

COMPONENT: DUMMY # 049

FORCE as a function of DISPLACEMENT



MGA Research
12-10-1998 14:03

DISPLACEMENT mm

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

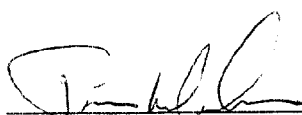
SIDE IMPACT DUMMY (SID)

DATE: December 10, 1998DUMMY SERIAL NUMBER: 049TEST NUMBER: D981625

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	24
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	104.0
FORCE @ 30°	151.2 - 204.6	160.2
FORCE @ 40°	204.6 - 258.0	224.4
RETURN ANGLE	12° maximum	1

TEST MEETS SPECIFICATIONS

TECHNICIAN



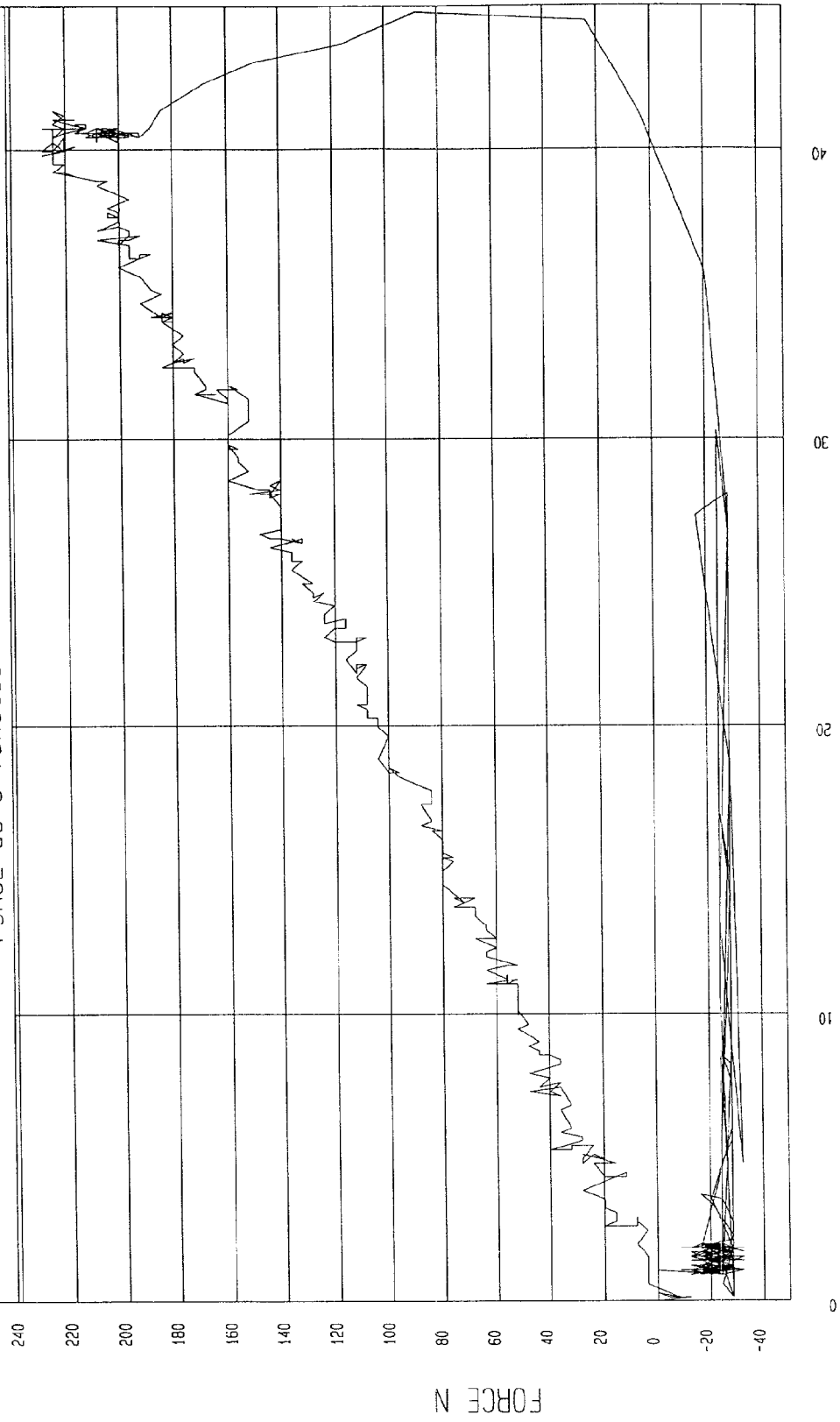
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 12-10-1998 - 11:53:34

COMPONENT: DUMMY # 049

FORCE as a function of TORSO ROTATION



MGA Research
12-10-1998 11:55

PRE-TEST CERTIFICATION DATA

Dummy Serial Number: 048

Calibration Test Results Summary

Dummy Serial Number: 048

Pre-Test Calibration

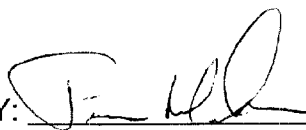
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

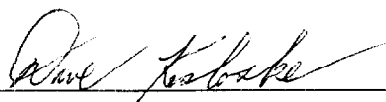
DUMMY SERIAL NO.: 048DATE OF VERIFICATION: December 11, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	904
RH - Rib Height (mm)	501 - 521	516
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	233
KV - Knee Pivot From Back Line (mm)	511 - 526	524
SW - Knee Pivot to Floor (mm)	490 - 505	493
HW - Hip Width (mm)	356 - 391	371

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

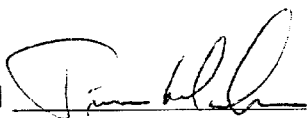
SIDE IMPACT DUMMY (SID)

DATE: December 11, 1998DUMMY SERIAL NUMBER: 048TEST NUMBER: D981612

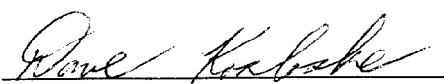
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33	4.29
UPPER RIB (g's)	37 - 46	42
LOWER RIB (g's)	37 - 46	41
LOWER SPINE (g's)	15 - 22	21

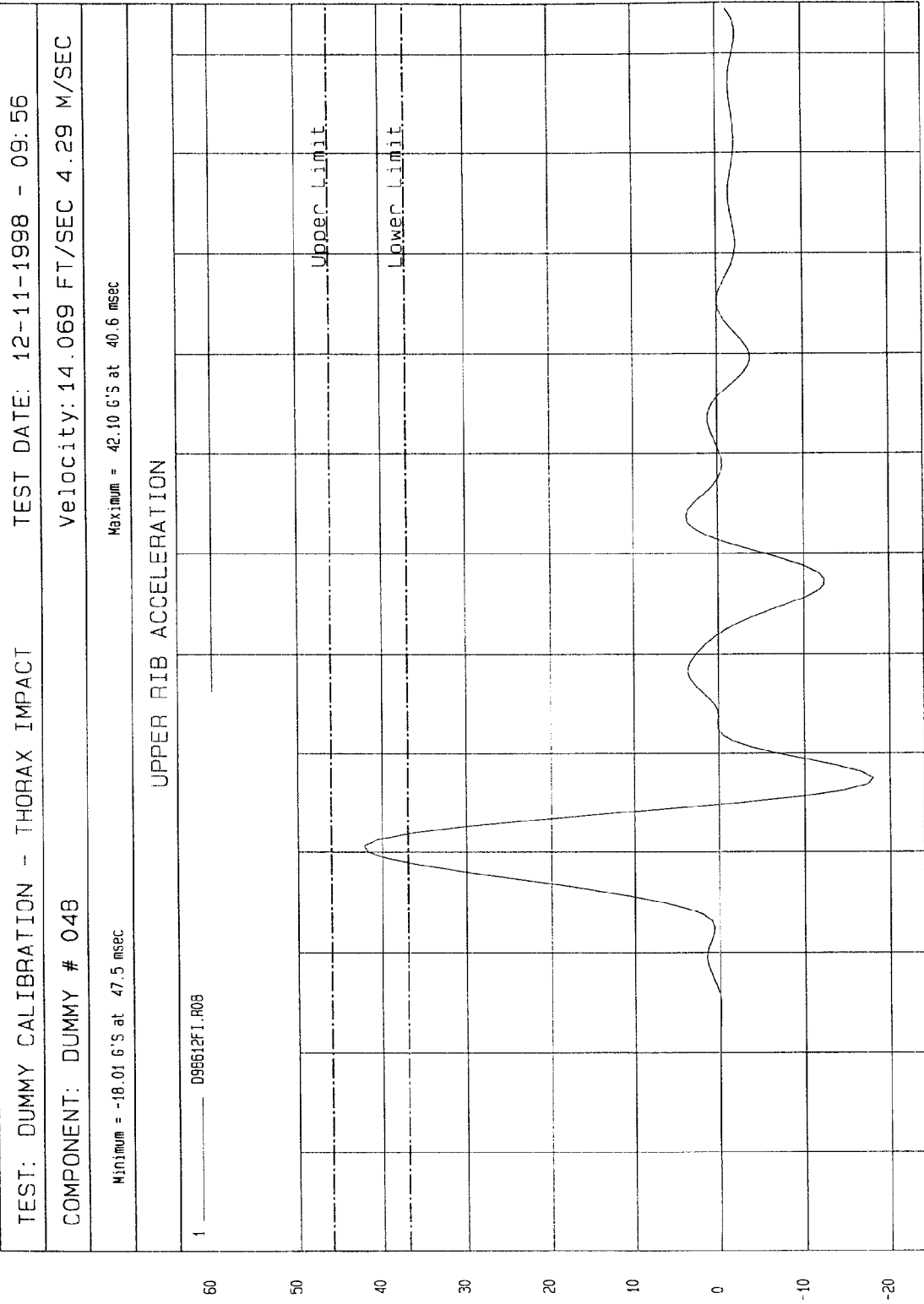
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY





NSA Research
12-11-1998 10:02

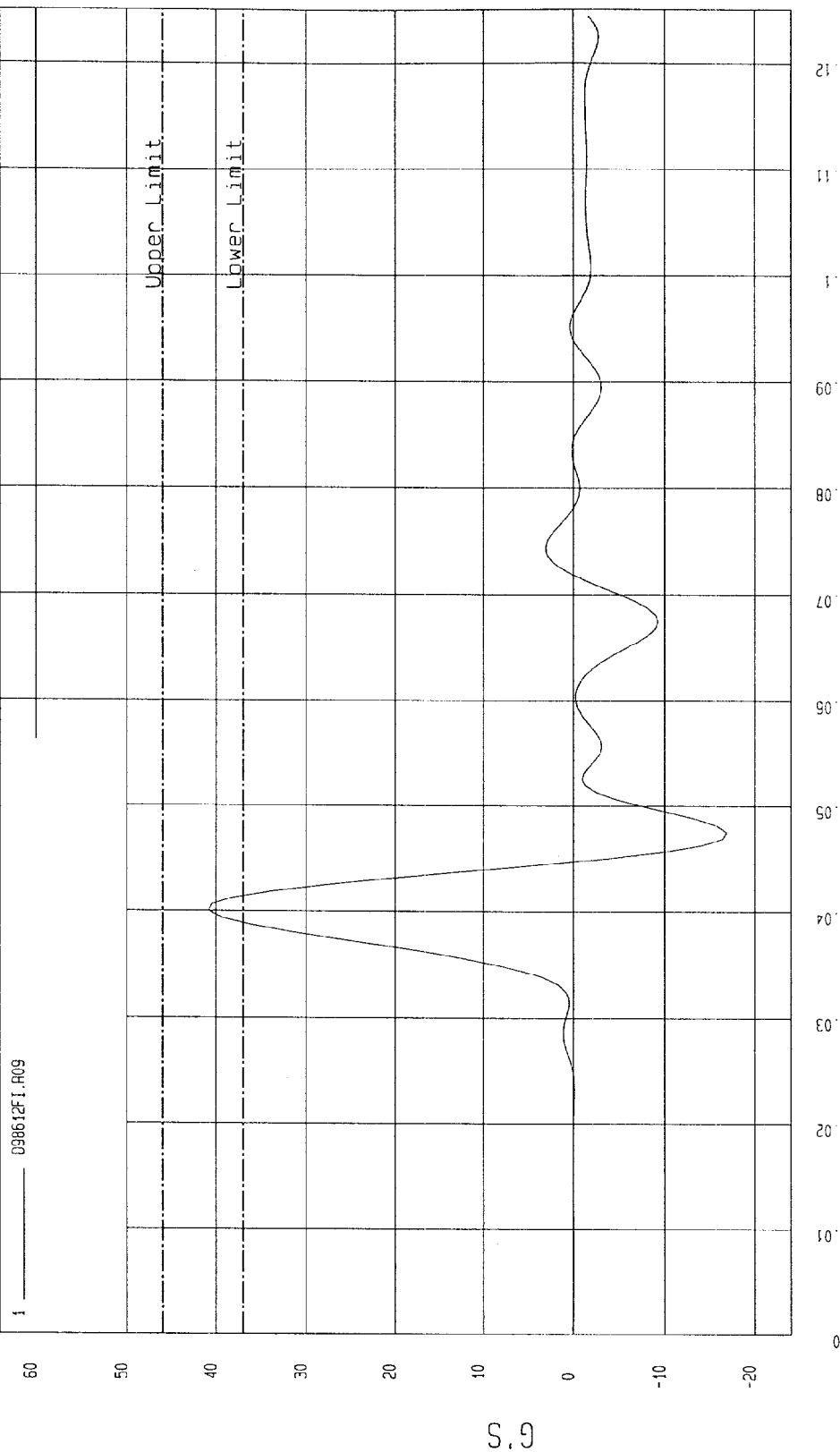
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-11-1998 - 09:56

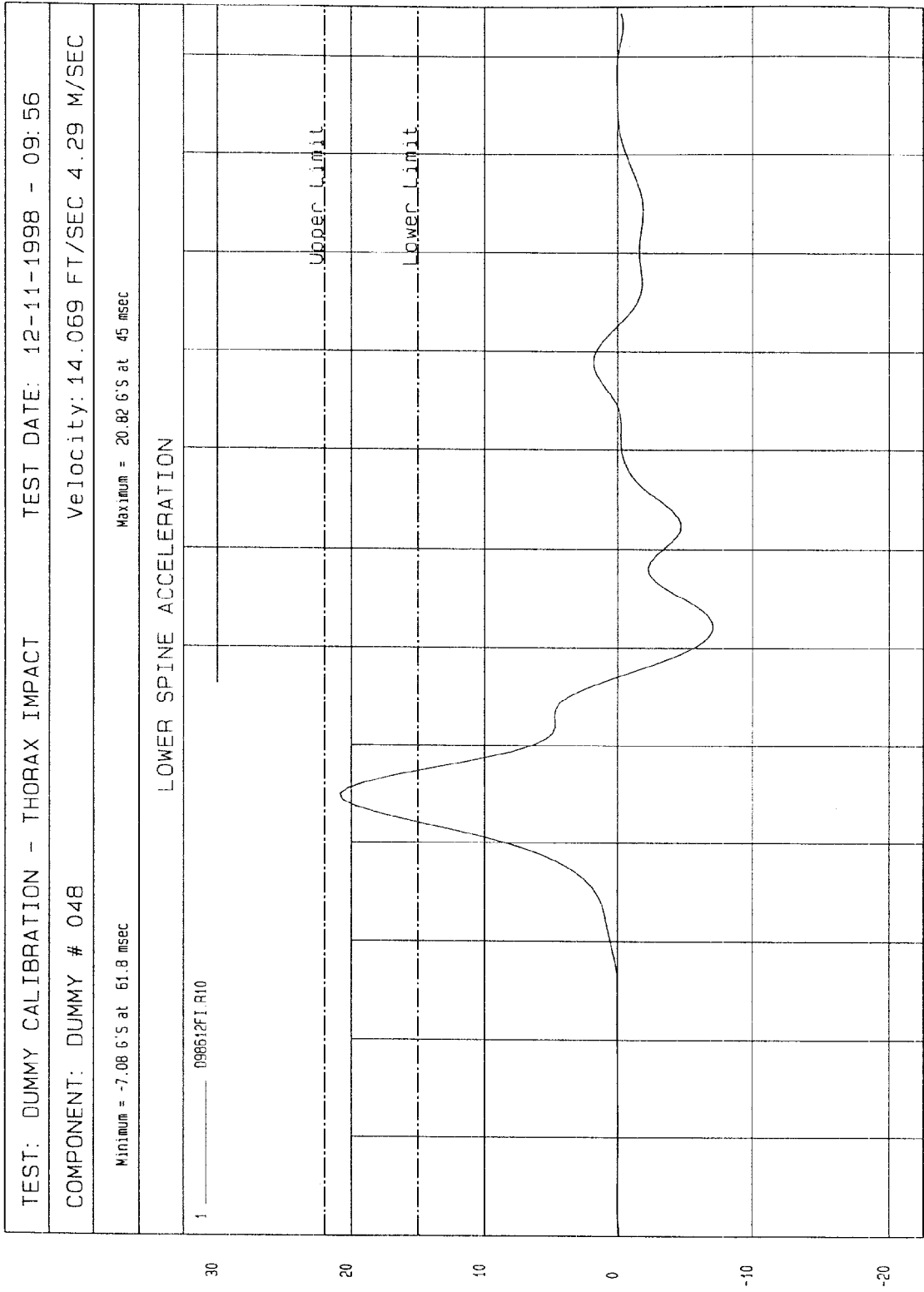
COMPONENT: DUMMY # 048 Velocity: 14.069 FT/SEC 4.29 M/SEC

Maximum = 40.85 G'S at 40 msec

Minimum = -16.89 G'S at 47.5 msec

LOWER RIB ACCELERATION

MSA Research
12-11-1998 10:02



TIME (SECONDS)

MGA Research
12-11-1998 10:02

G.S

MGA RESEARCH CORPORATION

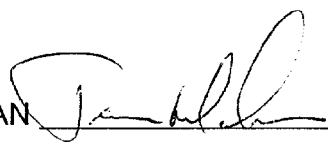
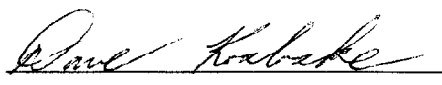
PELVIS IMPACT TEST

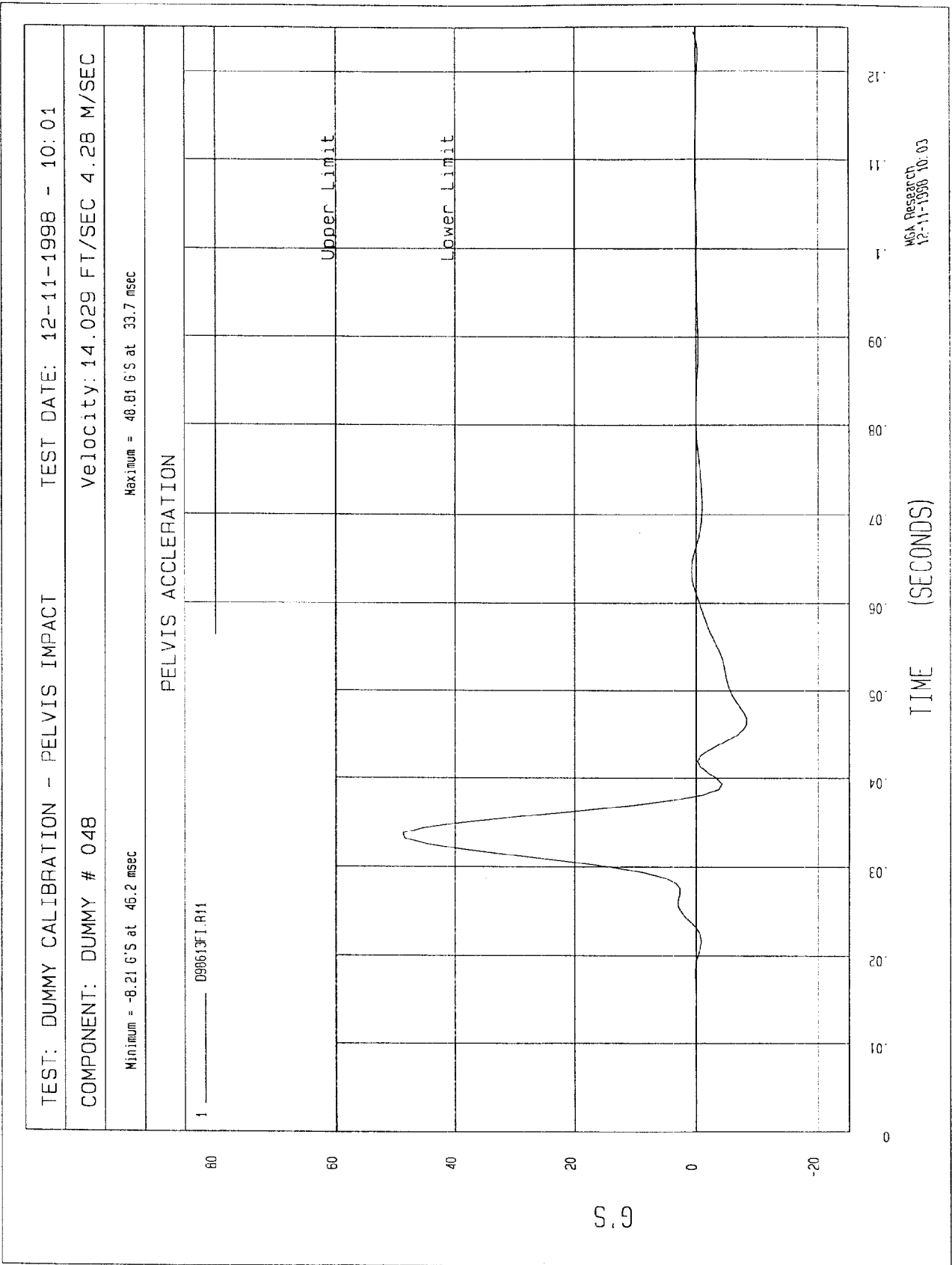
SIDE IMPACT DUMMY (SID)

DATE: December 11, 1998DUMMY SERIAL NUMBER: 048TEST NUMBER: D981613

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33	4.28
PELVIS ACCELERATION (g's)	40 - 60	49

TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST

(PRELOAD = 10 LBS)

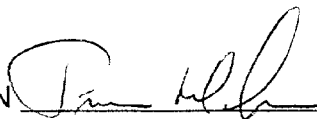
SIDE IMPACT DUMMY (SID)

DATE: December 10, 1998DUMMY SERIAL NUMBER: 049TEST NUMBER: D981614

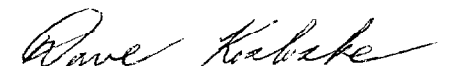
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	23
FORCE @ 12.7 mm	104 - 162	144
FORCE @ 19.0 mm	163 - 222	200
FORCE @ 25.4 mm	222 - 280	266
FORCE @ 33 mm	325 - 391	372

TEST MEETS SPECIFICATIONS

TECHNICIAN



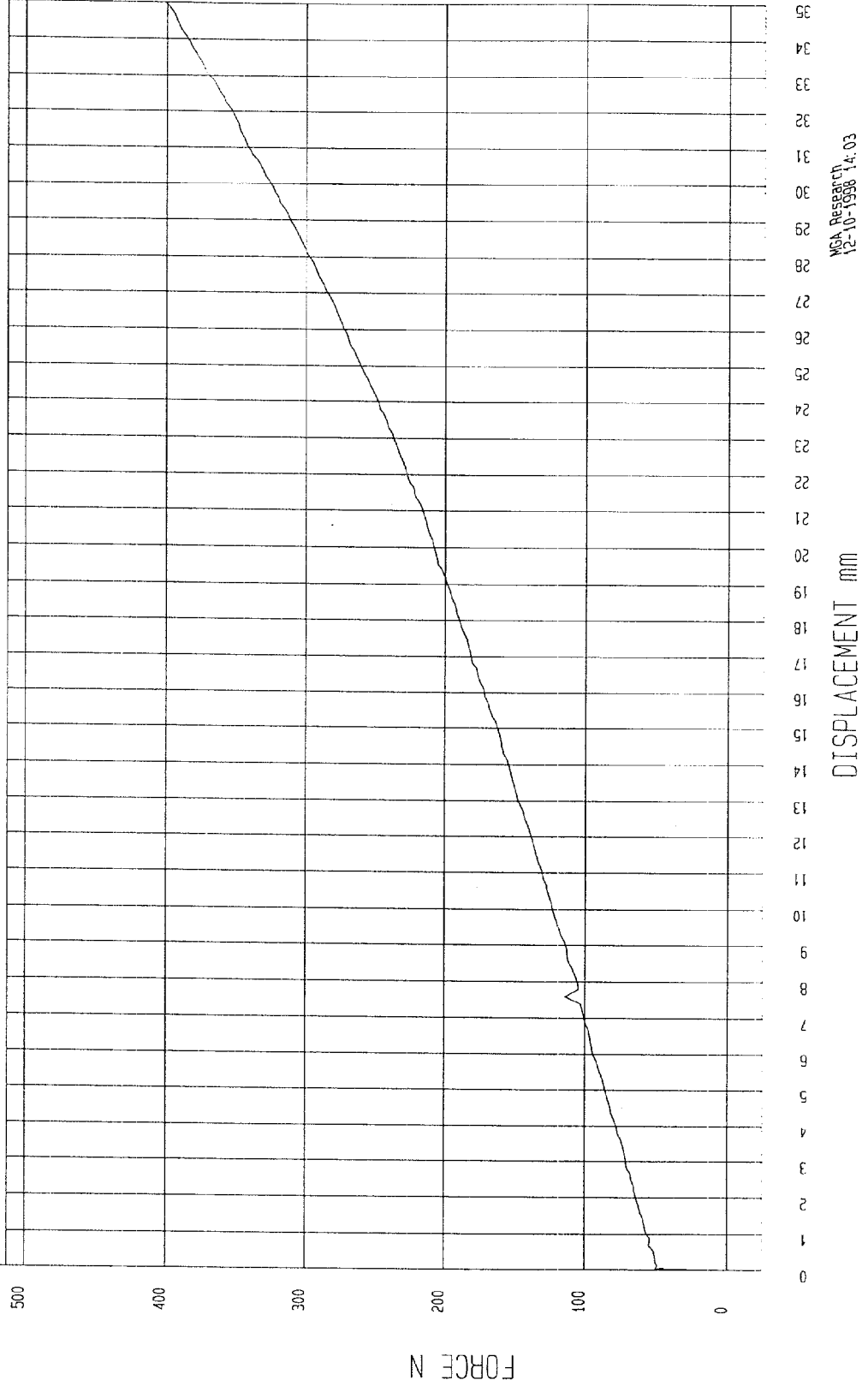
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 12-10-1998 - 13:52:36

COMPONENT: DUMMY # 048

FORCE as a function of DISPLACEMENT



MCA Research
12-10-1998 14:03

MGA RESEARCH CORPORATION

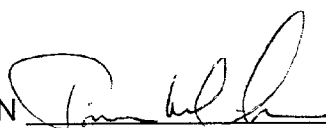
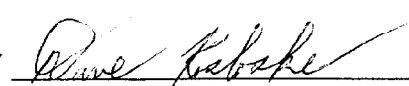
LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: December 10, 1998DUMMY SERIAL NUMBER: 048TEST NUMBER: D981615

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	24
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	112.9
FORCE @ 30°	151.2 - 204.6	181.2
FORCE @ 40°	204.6 - 258.0	237.3
RETURN ANGLE	12° maximum	3

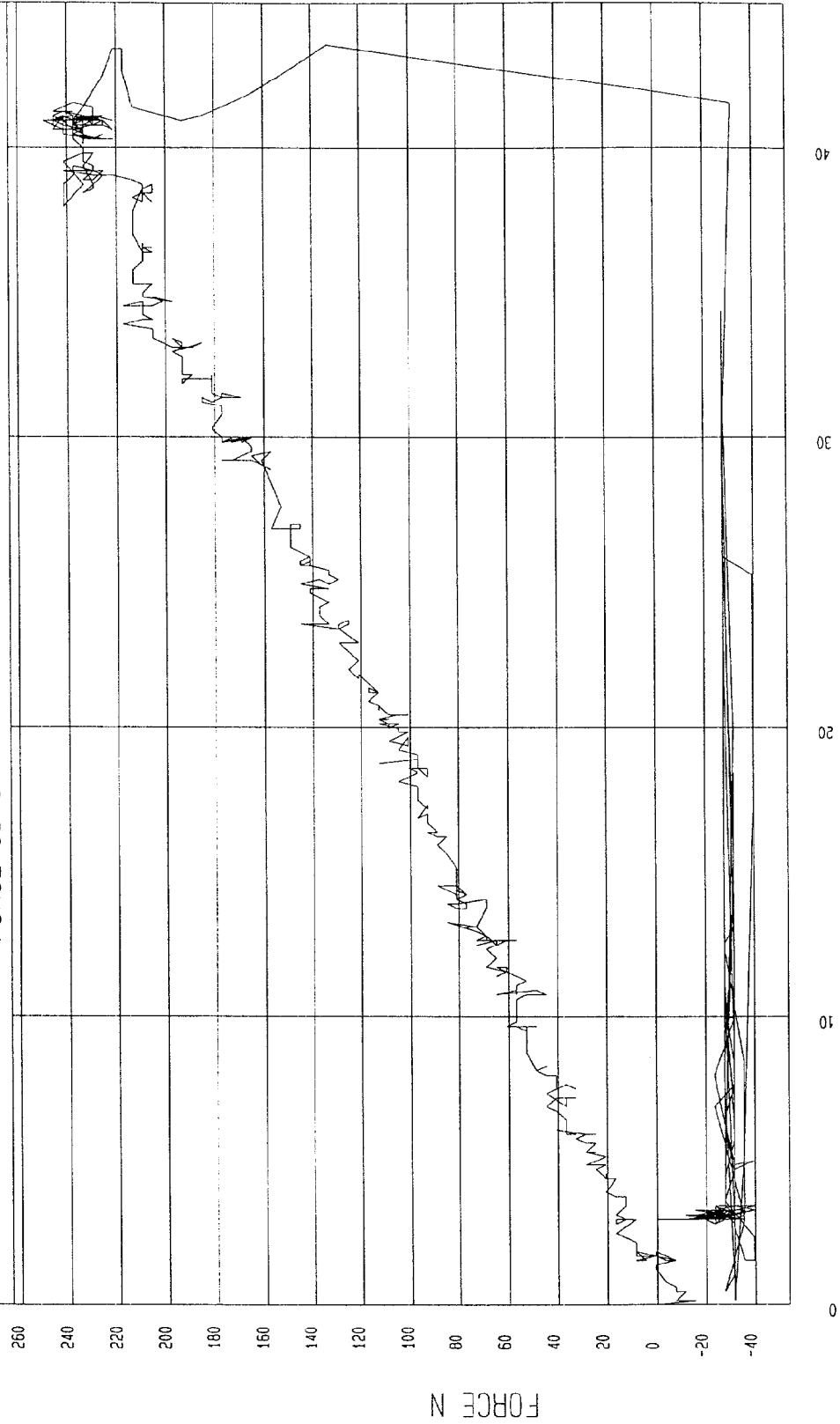
TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 12-10-1998 - 11:39:38

COMPONENT: DUMMY # 048

FORCE as a function of TORSO ROTATION



MEA Research
12-10-1998 11:54

POST-TEST CERTIFICATION DATA

Dummy Serial Number: 049

Calibration Test Results Summary

Dummy Serial Number: 049

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 SERIAL NO.: 049DATE OF VERIFICATION: December 15, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	904
RH - Rib Height (mm)	501 - 521	518
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	231
KV - Knee Pivot From Back Line (mm)	511 - 526	524
SW - Knee Pivot to Floor (mm)	490 - 505	493
HW - Hip Width (mm)	356 - 391	373

MEASUREMENTS BY: Jim H. H.APPROVED BY: Dave Kabske

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

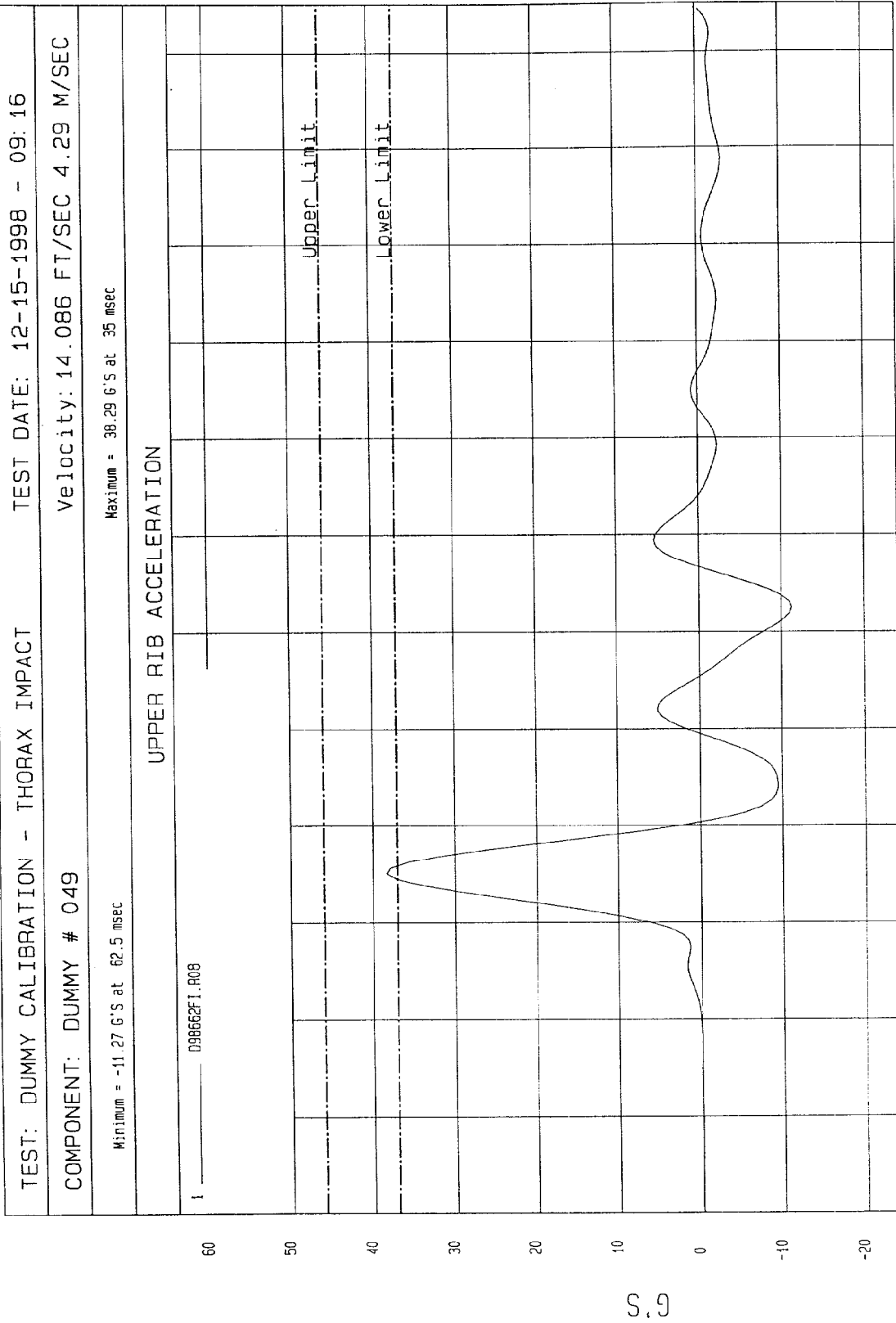
DATE: December 15, 1998DUMMY SERIAL NUMBER: 049TEST NUMBER: D981662

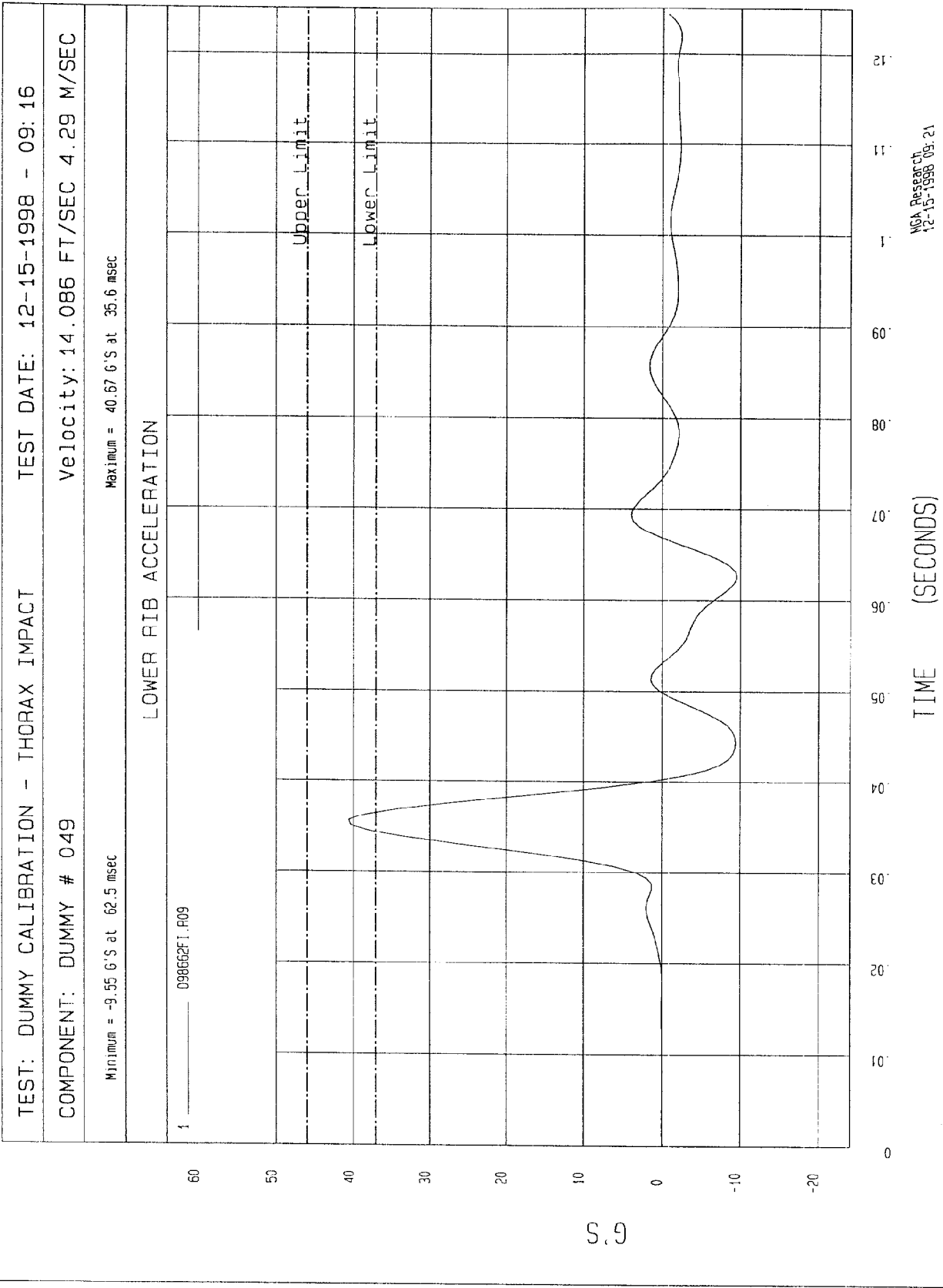
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33 fps	4.29
UPPER RIB (g's)	37 - 46 g's	38
LOWER RIB (g's)	37 - 46 g's	41
LOWER SPINE (g's)	15 - 22 g's	21

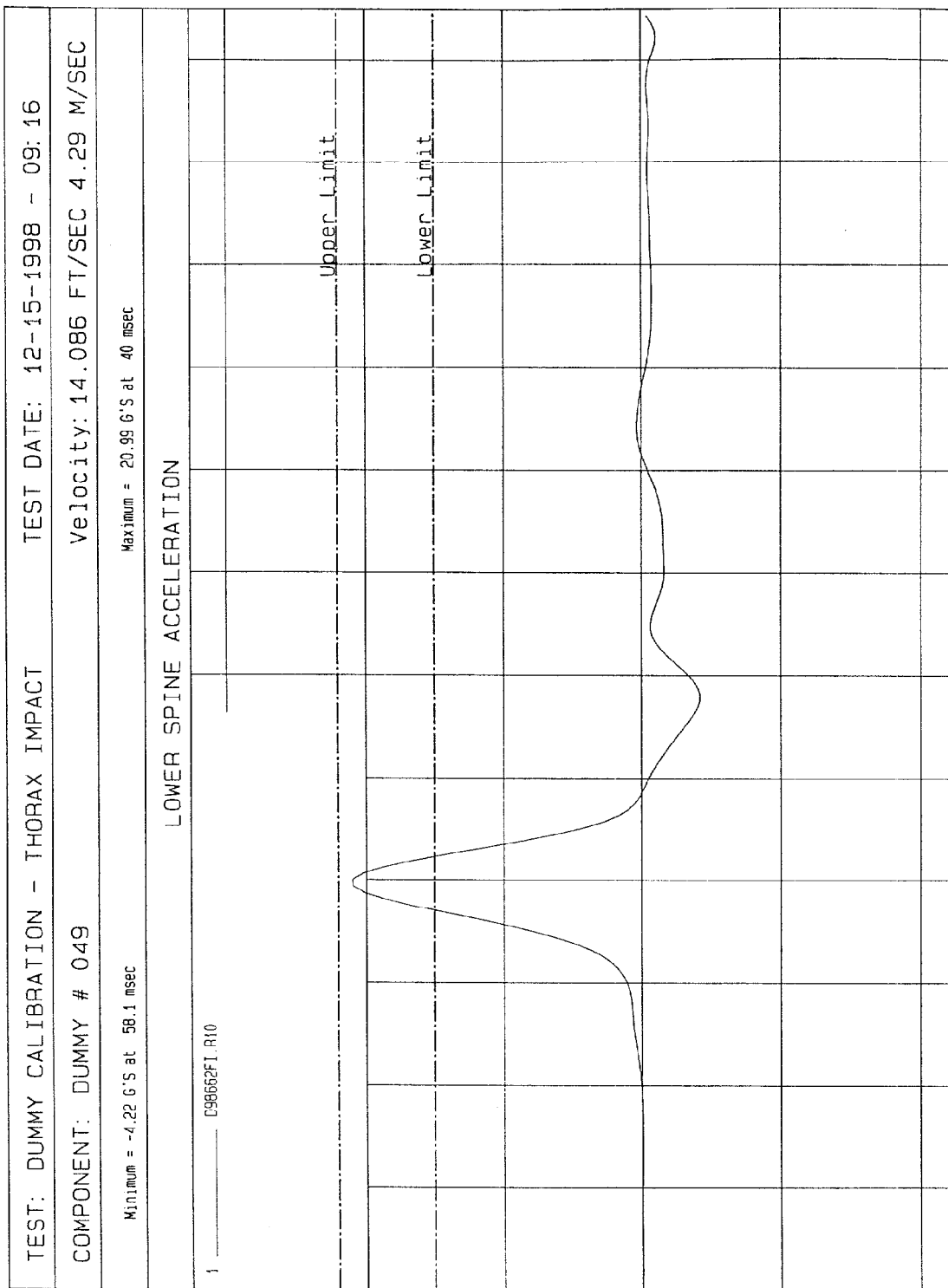
TEST MEETS SPECIFICATIONS

TECHNICIAN _____

APPROVED BY *Dave Korbake*







WGA Research
12-15-1998 09:21

TIME (SECONDS)

G.S

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

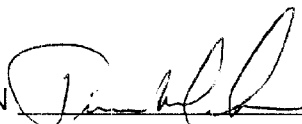
SIDE IMPACT DUMMY (SID)

DATE: December 15, 1998DUMMY SERIAL NUMBER: 049TEST NUMBER: D981663

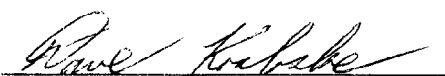
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5° F	21.0
RELATIVE HUMIDITY (%)	10 - 70%	22
PROBE SPEED (m/s)	4.27 - 4.33 f/s	4.29
PELVIS ACCELERATION (g's)	40 - 60 g's	48

TEST MEETS SPECIFICATIONS

TECHNICIAN

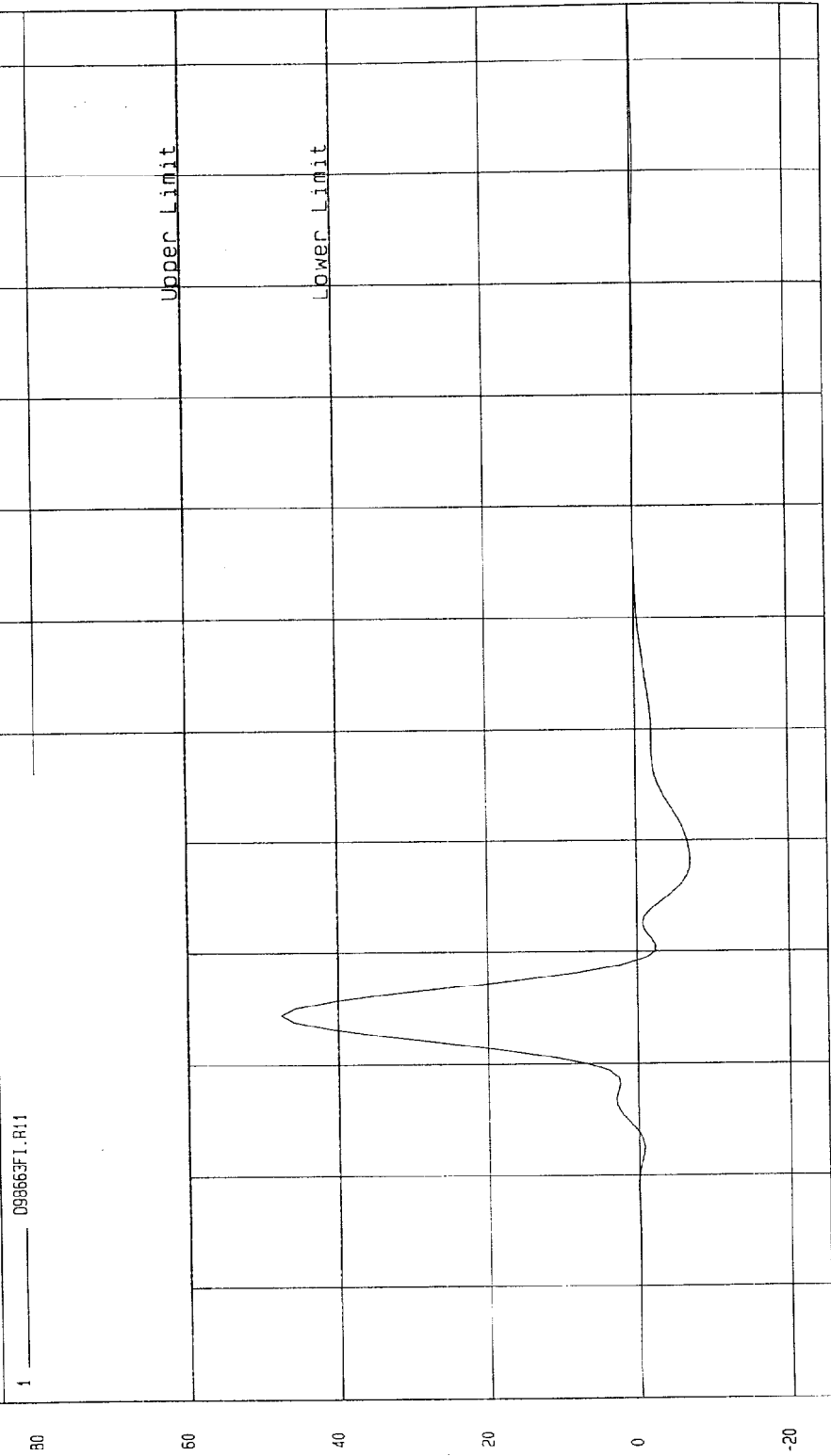


APPROVED BY



TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 12-15-1998 - 09:20
 COMPONENT: DUMMY # 049 Velocity: 14.068 FT/SEC 4.29 M/SEC
 Minimum = -6.99 G'S at 48.1 msec Maximum = 47.54 G'S at 34.3 msec

PELVIS ACCELERATION



MSA Research
 12-15-1998 09:21

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST

(PRELOAD = 10 LBS)

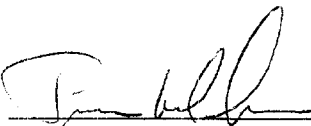
SIDE IMPACT DUMMY (SID)

DATE: December 15, 1998DUMMY SERIAL NUMBER: 049TEST NUMBER: D981664

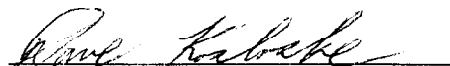
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
FORCE @ 12.7 mm	104 - 162	140
FORCE @ 19.0 mm	163 - 222	193
FORCE @ 25.4 mm	222 - 280	251
FORCE @ 33 mm	325 - 391	347

TEST MEETS SPECIFICATIONS

TECHNICIAN



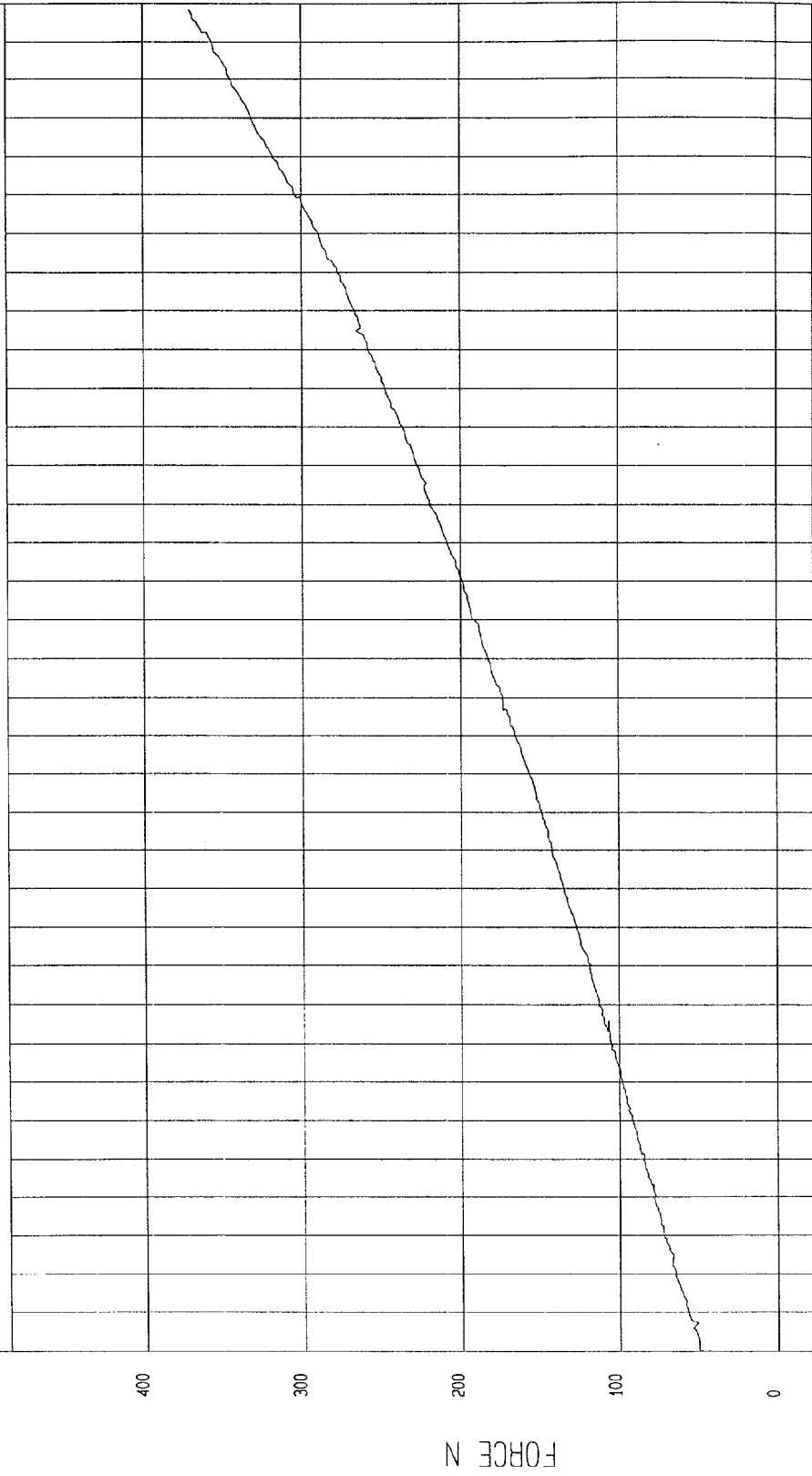
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 12-15-1998 - 14:12:10

COMPONENT: DUMMY # 049

FORCE as a function of DISPLACEMENT



MSA Research
12-15-1998 14:13

DISPLACEMENT mm

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

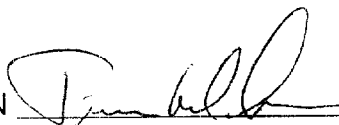
SIDE IMPACT DUMMY (SID)

DATE: December 15, 1998DUMMY SERIAL NUMBER: 049TEST NUMBER: D981665

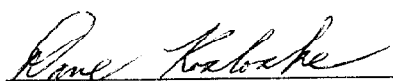
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	102.3
FORCE @ 30°	151.2 - 204.6	170.6
FORCE @ 40°	204.6 - 258.0	210.7
RETURN ANGLE	12° maximum	1

TEST MEETS SPECIFICATIONS

TECHNICIAN



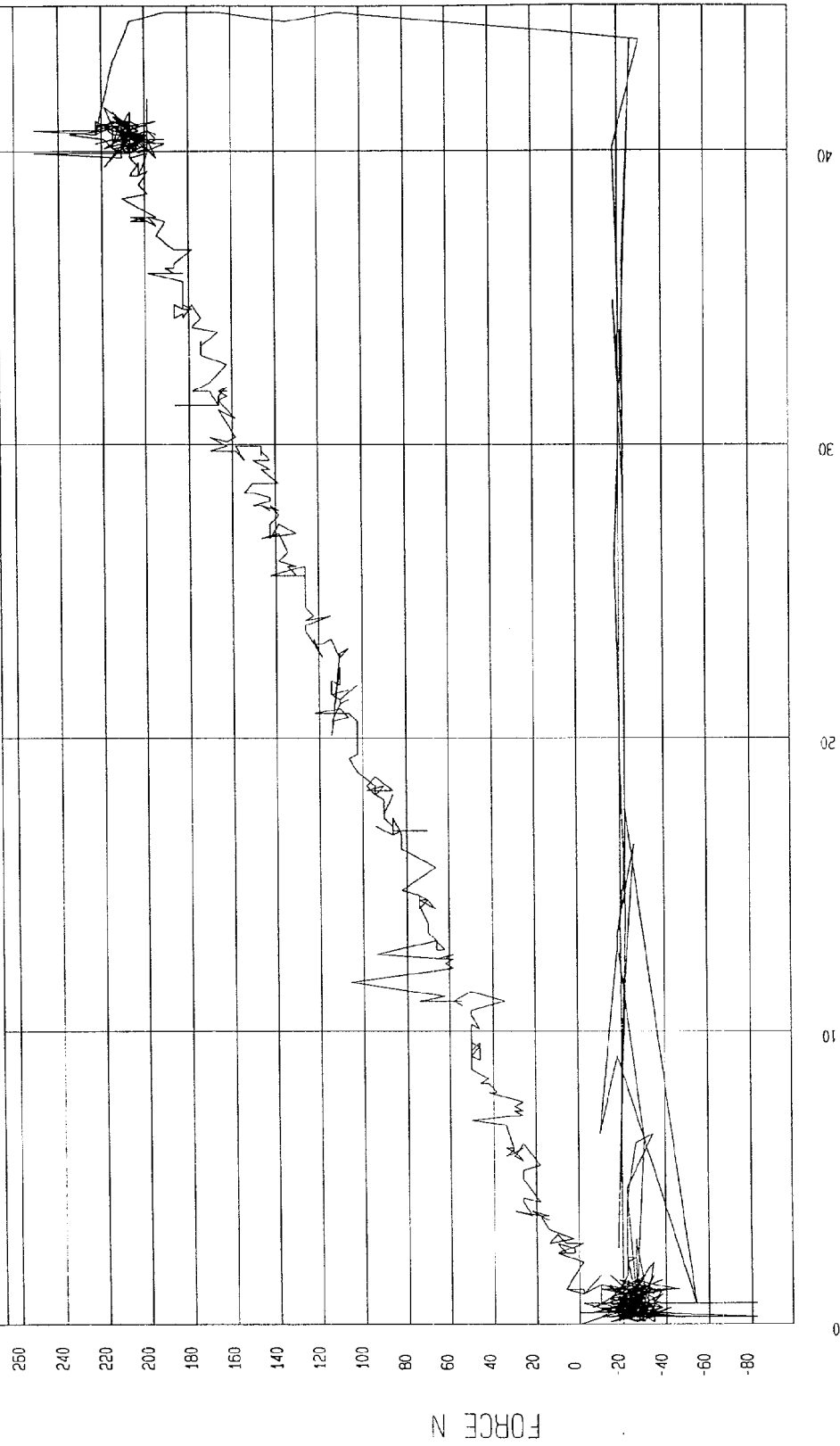
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 12-15-1998 - 13:57:13

COMPONENT: DUMMY # 049

FORCE as a function of TORSO ROTATION



WGA Research
12-15-1998 14:16

POST-TEST CERTIFICATION DATA

Dummy Serial Number: 048

Calibration Test Results Summary

Dummy Serial Number: 048

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.

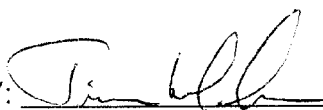
Lumbar Flexion Test: The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

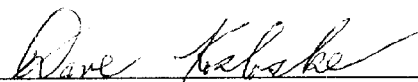
DUMMY SERIAL NO.: 048DATE OF VERIFICATION: December 15, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	904
RH - Rib Height (mm)	501 - 521	516
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	233
KV - Knee Pivot From Back Line (mm)	511 - 526	524
SW - Knee Pivot to Floor (mm)	490 - 505	493
HW - Hip Width (mm)	356 - 391	371

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

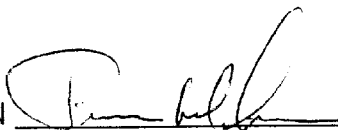
THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

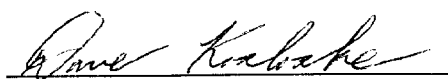
DATE: December 15, 1998DUMMY SERIAL NUMBER: 048TEST NUMBER: D981652

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33	4.28
UPPER RIB (g's)	37 - 46 g's	44
LOWER RIB (g's)	37 - 46 g's	40
LOWER SPINE (g's)	15 - 22 g's	22

TECHNICIAN



APPROVED BY



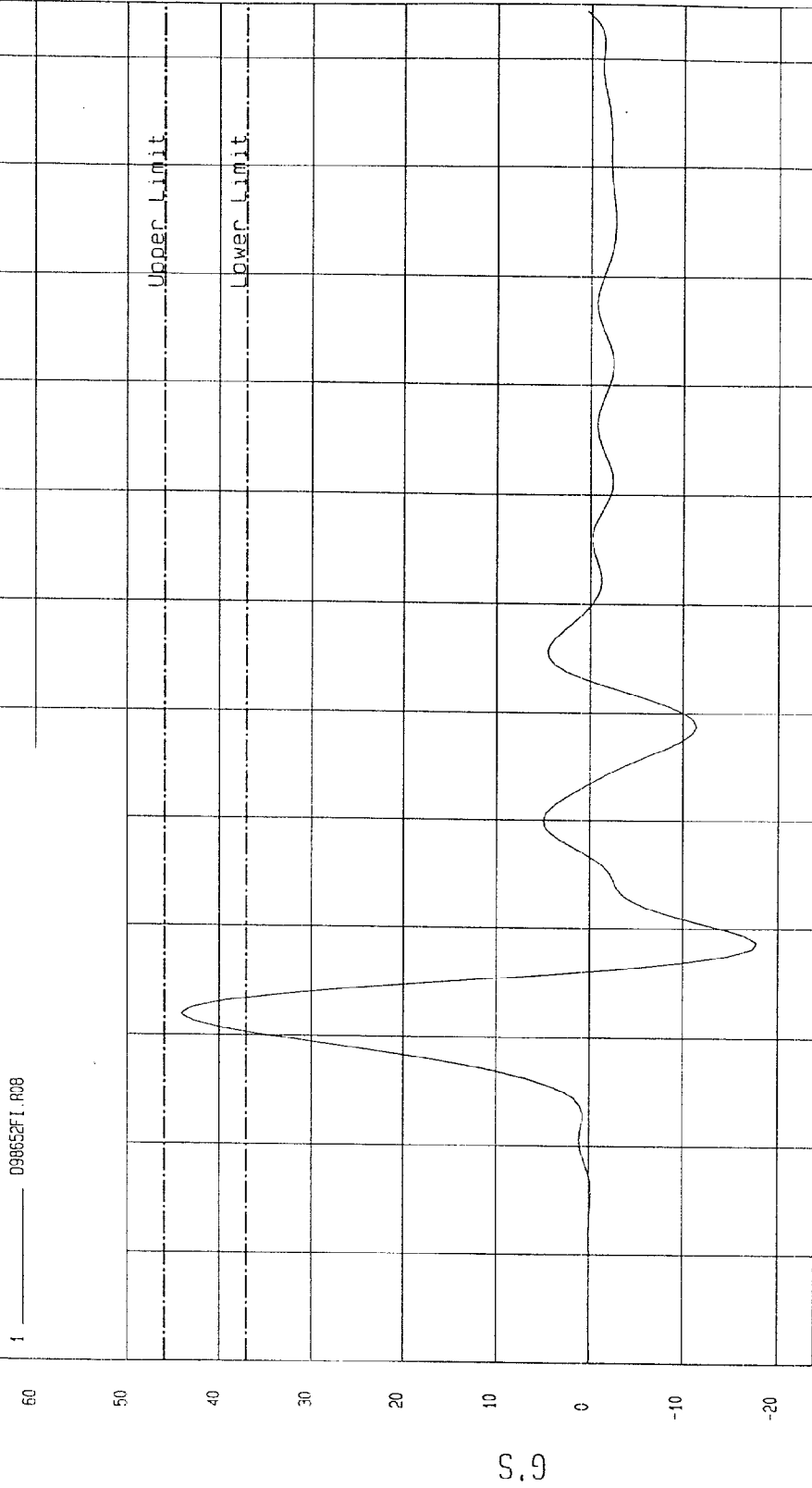
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-15-1998 - 08:49

COMPONENT: DUMMY # 048 Velocity: 14.058 FT/SEC 4.28 M/SEC

Minimum = -17.72 G'S at 38.7 msec

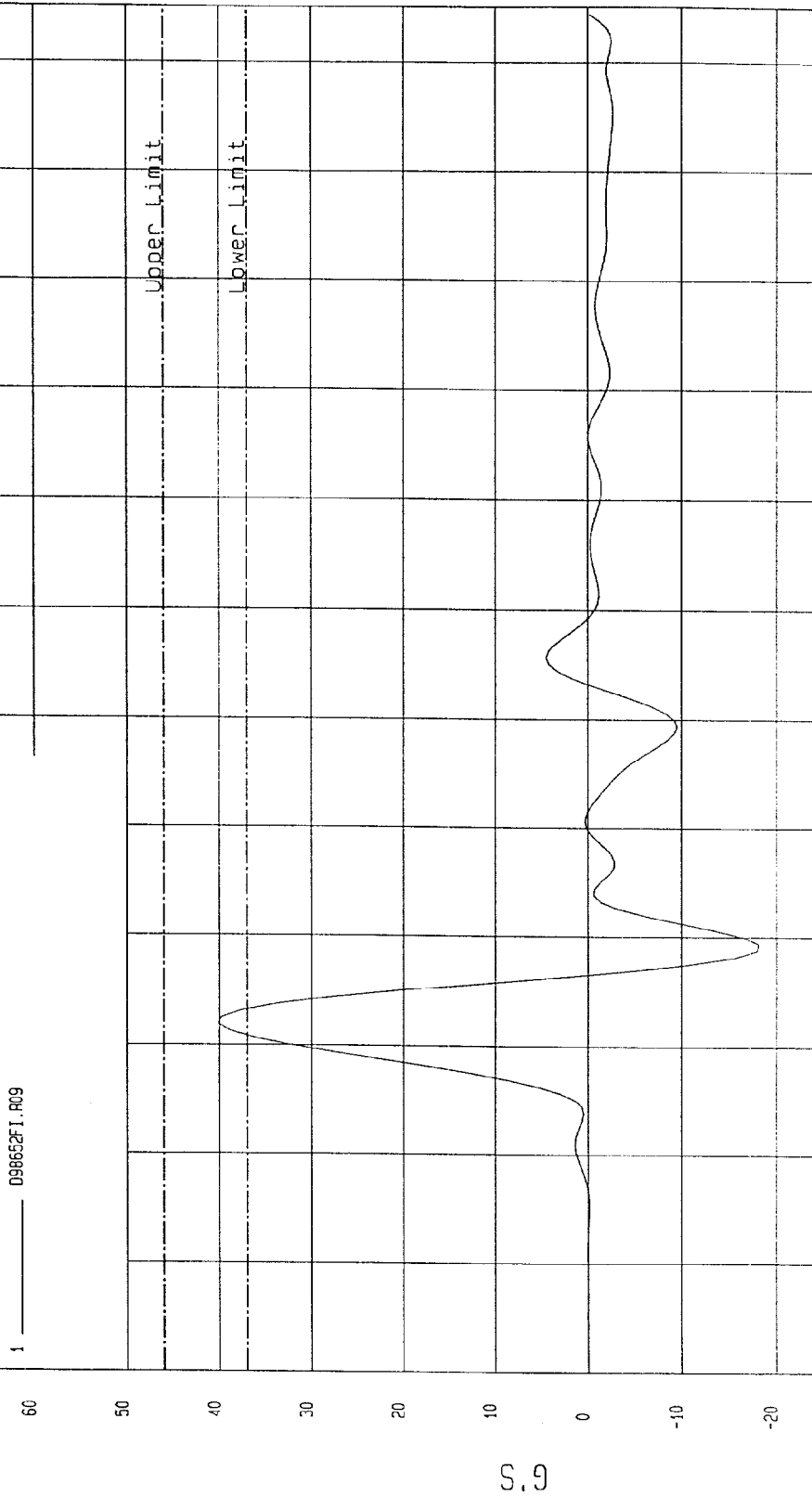
Maximum = 44.23 G'S at 31.8 msec

UPPER RIB ACCELERATION



TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-15-1998 - 08:49
COMPONENT: DUMMY # 048 Velocity: 14.058 FT/SEC 4.28 M/SEC
Minimum = -18.18 G'S at 39.3 msec Maximum = 40.12 G'S at 31.8 msec

LOWER RIB ACCELERATION



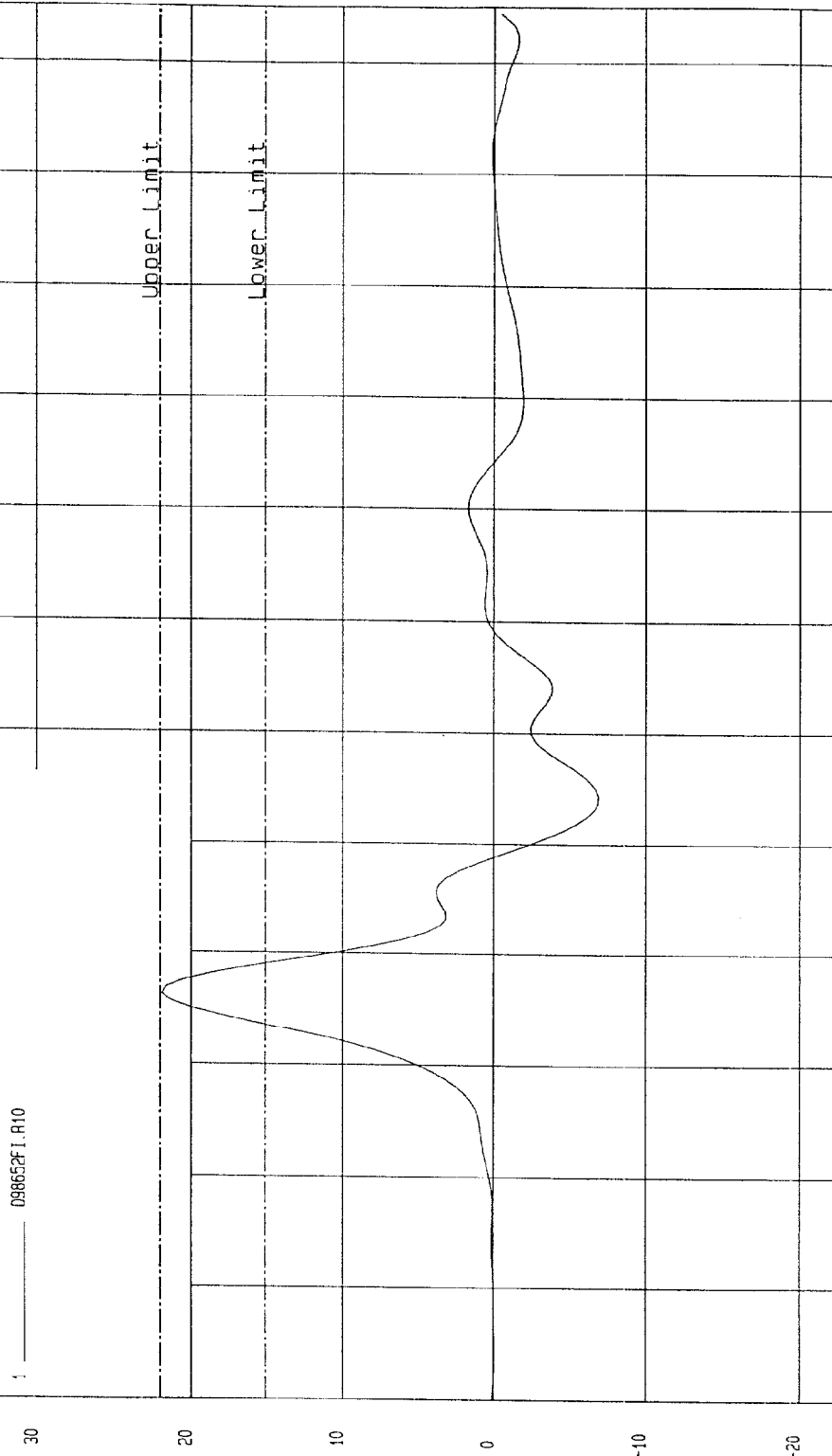
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-15-1998 - 08:49

COMPONENT: DUMMY # 048 Velocity: 14.058 FT/SEC 4.28 M/SEC

Minimum = -6.95 G'S at 54.3 msec Maximum = 21.87 G'S at 36.2 msec

LOWER SPINE ACCELERATION

1 ——— D98652F1.R10



TIME (SECONDS)

MCA Research
12-15-1998 08:57

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

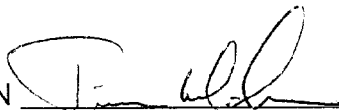
SIDE IMPACT DUMMY (SID)

DATE: December 15, 1998DUMMY SERIAL NUMBER: 048TEST NUMBER: D981653

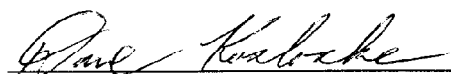
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33	4.28
PELVIS ACCELERATION (g's)	40 - 60	53

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

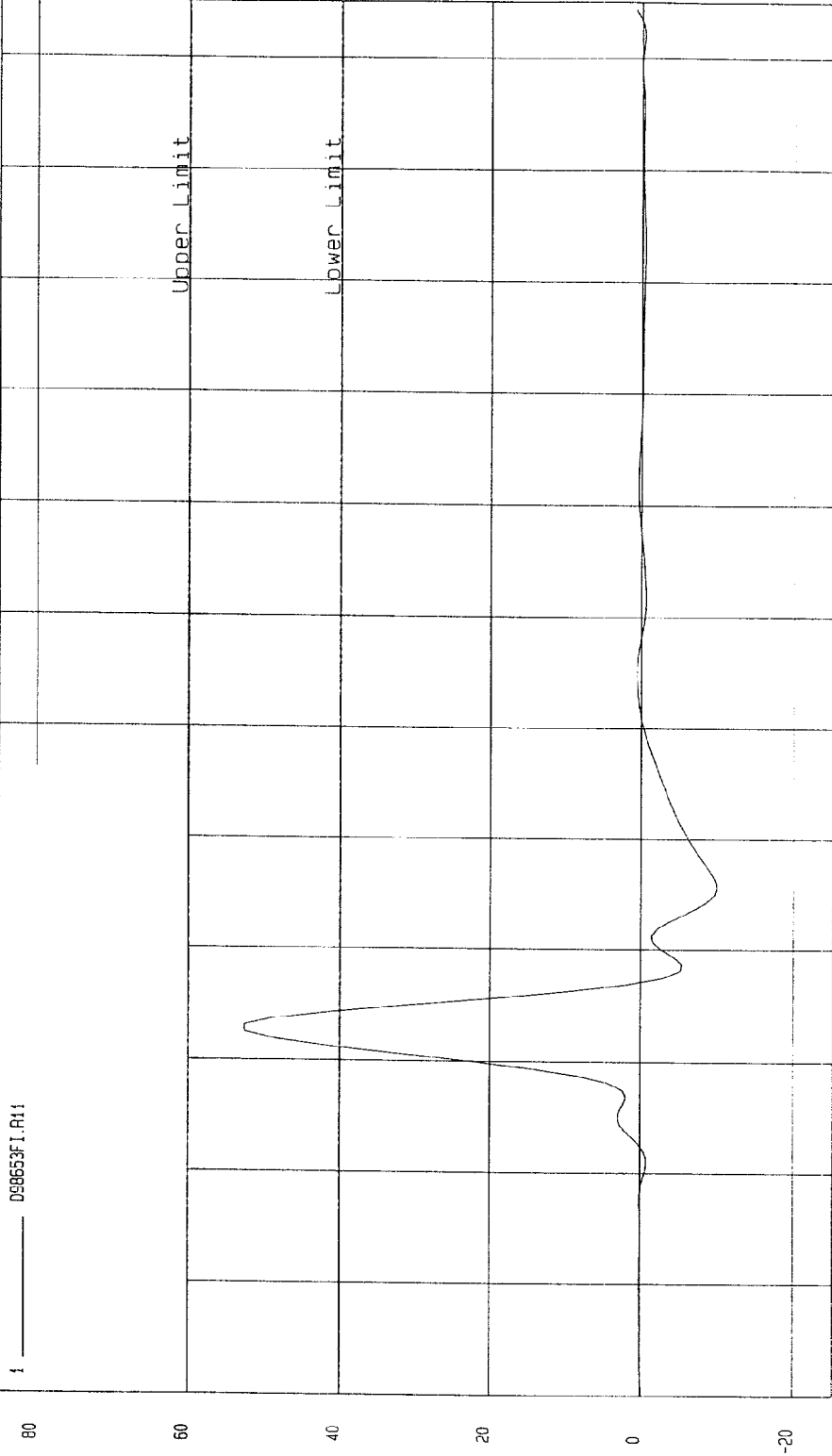


TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 12-15-1998 - 08:55

COMPONENT: DUMMY # 048 Velocity: 14.054 FT/SEC 4.28 M/SEC

Minimum = -9.94 G'S at 45.6 msec
Maximum = 52.67 G'S at 33.1 msec

PELVIS ACCELERATION



TIME (SECONDS)

MOA Research
12-15-1998 08:57

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST

(PRELOAD = 10 LBS)

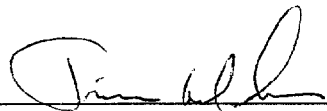
SIDE IMPACT DUMMY (SID)

DATE: December 15, 1998DUMMY SERIAL NUMBER: 049TEST NUMBER: D981654

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
FORCE @ 12.7 mm	104 - 162	139
FORCE @ 19.0 mm	163 - 222	190
FORCE @ 25.4 mm	222 - 280	246
FORCE @ 33 mm	325 - 391	341

TEST MEETS SPECIFICATIONS

TECHNICIAN



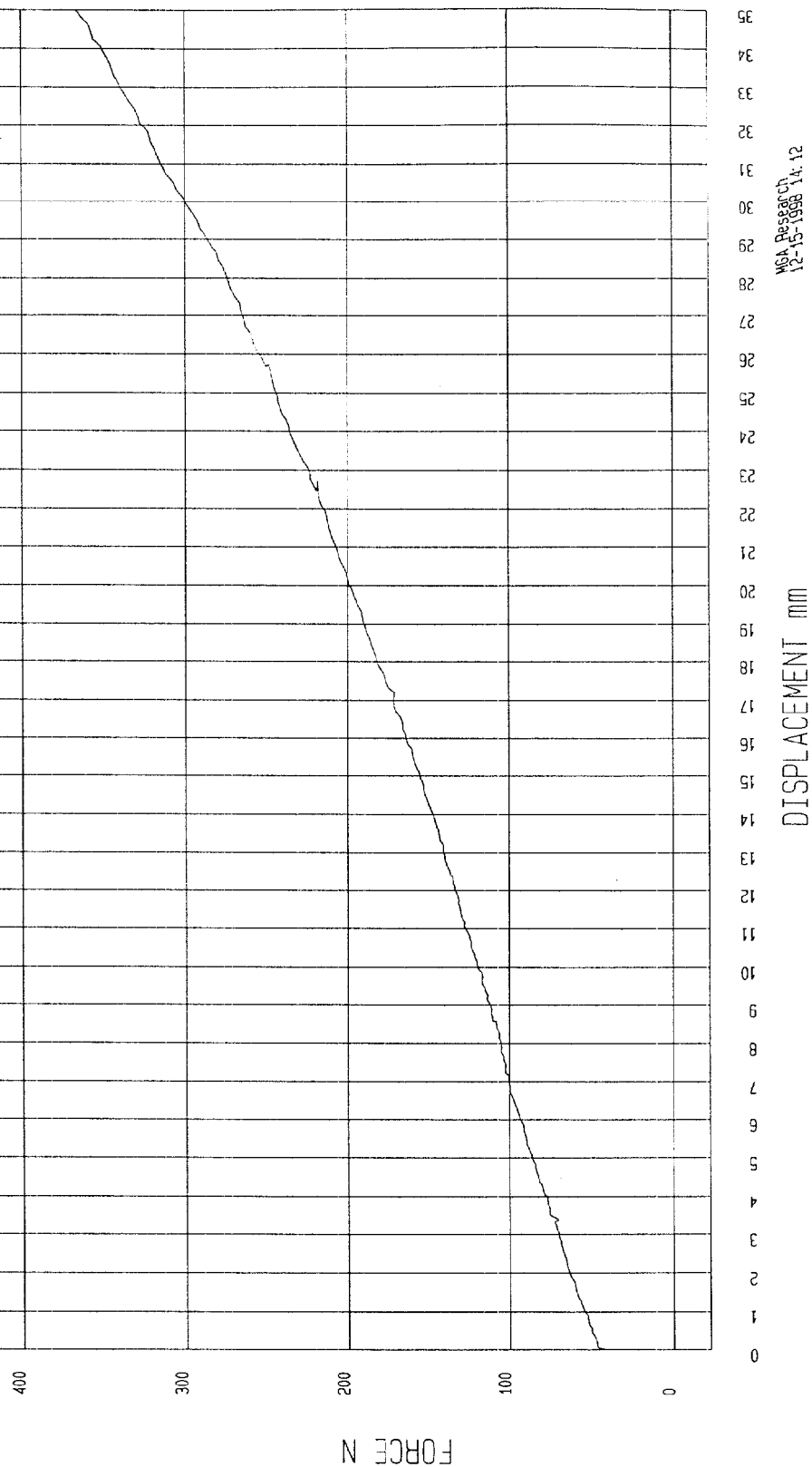
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 12-15-1998 - 14:08:31

COMPONENT: DUMMY # 04B

FORCE as a function of DISPLACEMENT



MECA Research
12-15-1998 14:12

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

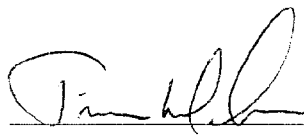
SIDE IMPACT DUMMY (SID)

DATE: December 15, 1998DUMMY SERIAL NUMBER: 048TEST NUMBER: D981655

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0
RELATIVE HUMIDITY (%)	10 - 70	22
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	106.6
FORCE @ 30°	151.2 - 204.6	174.8
FORCE @ 40°	204.6 - 258.0	255.1
RETURN ANGLE	12° maximum	3

TEST MEETS SPECIFICATIONS

TECHNICIAN



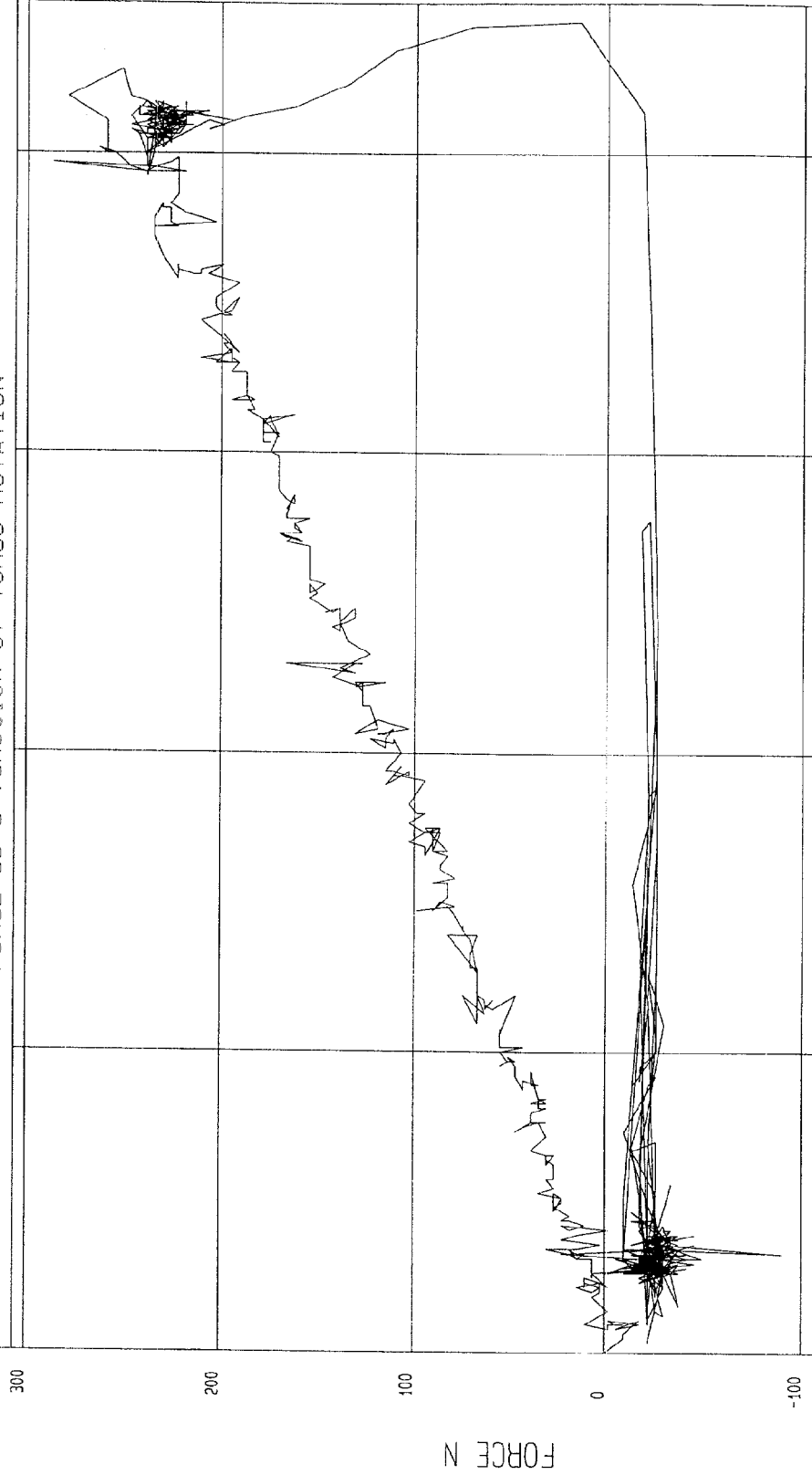
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 12-15-1998 - 13:36:33

COMPONENT: DUMMY # 04B

FORCE as a function of TORSO ROTATION



TORSO ROTATION DEGREES

NCA Research
12-15-1998 14:16

POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Dummy Serial Number: 049

Inspected By: Tim Michnay

Date: December 15, 1998

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

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

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

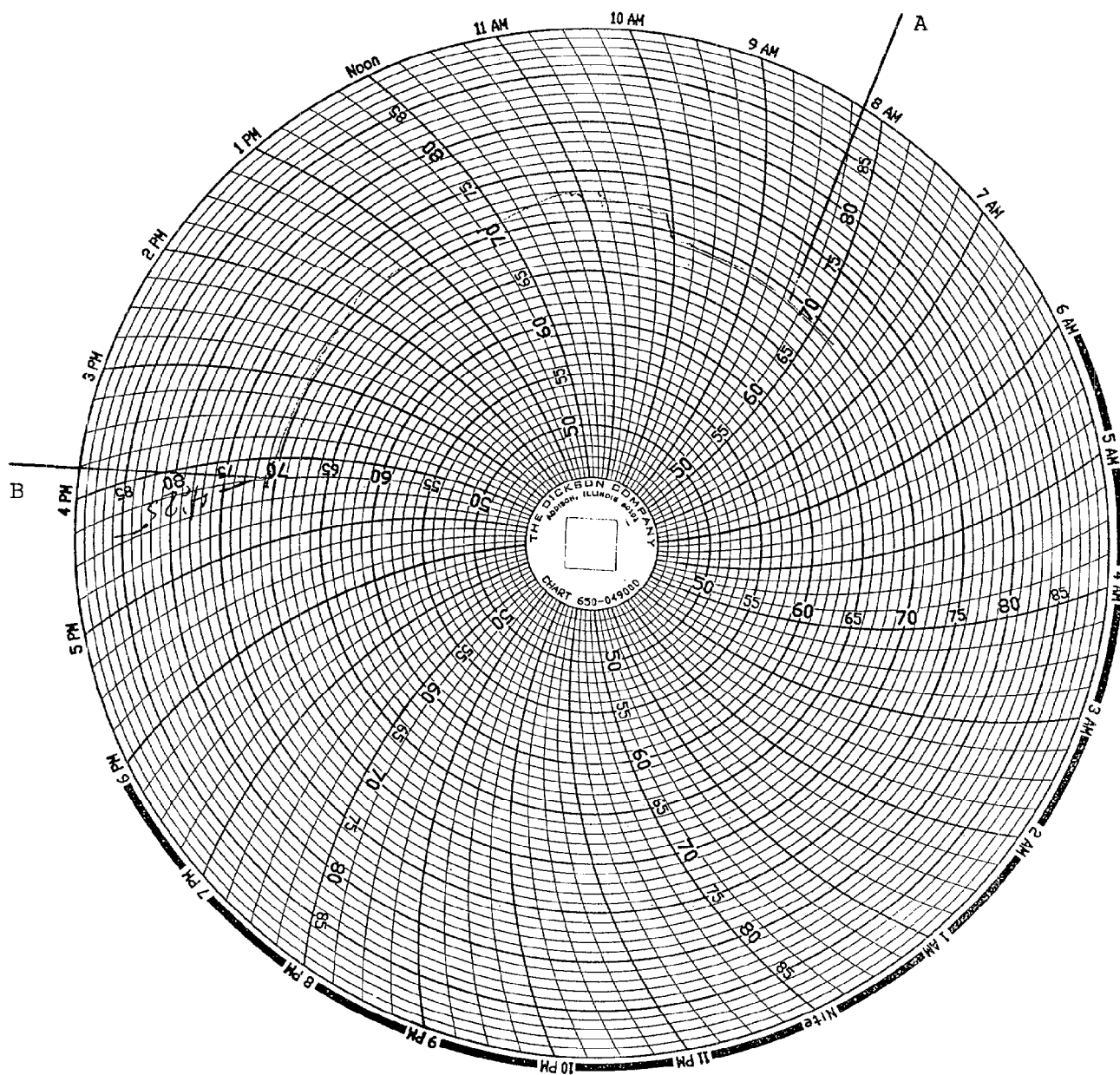
Dummy Serial Number: 048

Inspected By: Tim Michnay

Date: December 15, 1998

<u>Part</u>	<u>Items Checked</u>	<u>Comments</u>
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 DRIVER DUMMY NO. 049

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AHRP6	Endevco	December 8, 1998
Lower Rib Y	J12465	Endevco	December 8, 1998
Lower Spine Y	AN8L6	Endevco	December 8, 1998
Pelvis Y	AKAD6	Endevco	December 8, 1998
Upper Rib Redundant Y	AJ412	Endevco	December 8, 1998
Lower Rib Redundant Y	J11361	Endevco	December 8, 1998
Lower Spine Redundant Y	APY13	Endevco	December 8, 1998
Pelvis Redundant Y	AJ9A7	Endevco	December 8, 1998

INSTRUMENTS FOR LEFT REAR PASSENGER DUMMY NO. 048

LEFT REAR PASSENGER			
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AKAC4	Endevco	December 8, 1998
Lower Rib Y	J11630	Endevco	December 8, 1998
Lower Spine Y	J10431	Endevco	December 8, 1998
Pelvis Y	AJ9P7	Endevco	December 8, 1998
Upper Rib Redundant Y	J13642	Endevco	December 8, 1998
Lower Rib Redundant Y	J11166	Endevco	December 8, 1998
Lower Spine Redundant Y	AN9E3	Endevco	December 8, 1998
Pelvis Redundant Y	AJ462	Endevco	December 8, 1998

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE AND MDB ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	J06-D22	Entran	June 22, 1998
Moving Barrier CG Y	I18-E18	Entran	September 16, 1998
Moving Barrier CG Z	F12-G02	Entran	June 28, 1998
Moving Barrier Rear Axle X	J10-E14	Entran	June 16, 1998
Moving Barrier Rear Axle Y	F07-A14	Entran	June 16, 1998
Left Mid A-Post Y	J06-D20	Entran	June 16, 1998
Left Lower A-Post Y	I25-J07	Entran	June 28, 1998
Left Mid B-Post Y	G13-B01	Entran	June 16, 1998
Left Lower B-Post Y	J23-E13	Entran	June 16, 1998
Rear Floorpan Above Axle X	E13-D07	Entran	June 25, 1998
Rear Floorpan Above Axle Y	F12-G09	Entran	June 16, 1998
Rear Floorpan Above Axle Z	B14-R16	Entran	September 16, 1998
Driver Seat Track Y	B13-Z05	Entran	June 18, 1998
Right Side Sill at Front Seat X	I26-D11	Entran	June 25, 1998
Right Side Sill at Front Seat Y	G01-J03	Entran	June 28, 1998
Right Side Sill at Front Seat Z	I14-D13	Entran	June 25, 1998
Right Side Sill at Rear Seat X	E10-F03	Entran	June 18, 1998
Right Side Sill at Rear Seat Y	I25-J05	Entran	September 24, 1998
Right Side Sill at Rear Seat Z	F11-G08	Entran	June 18, 1998
Left Side Sill at Front Seat Y	B12-G06	Entran	June 22, 1998

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE AND MDB ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Rear Seat Y	B13-Z02	Entran	June 16, 1998
Rear Occupant Compartment Y	I26-D14	Entran	June 17, 1998
Vehicle CG X	I25-J14	Entran	December 8, 1998
Vehicle CG Y	J23-E07	Entran	December 8, 1998
Vehicle CG Z	J23-E10	Entran	December 8, 1998

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