

REPORT NO.: 214D-MGA-99-10

V2991

NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TESTING
PASSENGER CARS

FORD MOTOR COMPANY

1999 FORD F-150 XL PICK-UP

NHTSA NO: MX0203

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: December 11, 1998

Report Date: January 4, 1999

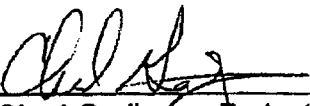
FINAL REPORT

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Prepared By: 
Chad Gadberry, Project Engineer

Approved By: 
Dave Kosloske, Program Manager

Approval Date: 1-7-99

Technicians: Al Chalmers
Wayne Dahlke
Chris Kulis
Erik Nelson
Chris Novak
Paul Schlimmer
Kyle Shelton
Todd Stevenson
John Wistert

Secretary: Carol Beck

FINAL REPORT ACCEPTED BY (OCWS):

Accepted By:  (COTR)

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12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards 400 Seventh St., S.W. Washington, D.C. 20590		13. Type of Report and Period Covered Final Test Report December 11, 1998 to January 4, 1999											
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15. Supplementary Notes													
16. Abstract A 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 1999 Ford F-150 XL Pick-Up to obtain new car assessment and research data indicant of FMVSS No. 214D performance. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on December 11, 1998. The impact velocity of the Moving Deformable Barrier (MDB) was 62.1 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 22 °C. The target vehicle post test maximum crush was 474 mm at level 1. The test vehicle's performance follows: <u>DRIVER</u> <table style="margin-left: auto; margin-right: auto;"> <tr><td>Left Upper Rib (LUR) Accel., g</td><td>26</td></tr> <tr><td>Left Lower Rib (LLR) Accel., g</td><td>33</td></tr> <tr><td>Lower Spine (T₁₂) Accel., g</td><td>34</td></tr> <tr><td>Thoracic Trauma Index (TTI)</td><td>33</td></tr> <tr><td>Pelvis (PEV) Accel., g</td><td>45</td></tr> </table> The door on the struck side of the vehicle did not separate from the body at the hinges or latch and the opposite door did not open during the side impact event.				Left Upper Rib (LUR) Accel., g	26	Left Lower Rib (LLR) Accel., g	33	Lower Spine (T ₁₂) Accel., g	34	Thoracic Trauma Index (TTI)	33	Pelvis (PEV) Accel., g	45
Left Upper Rib (LUR) Accel., g	26												
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Pelvis (PEV) Accel., g	45												
17. Key Words New Car Assessment Program (NCAP) FMVSS No. 214D Side Impact Dummy (SID) Occupant Side Impact Protection		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											
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SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY99 NCAP Side Impact Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-97-D-22001. The purpose of this test was to evaluate side impact protection of a 1999 Ford F-150 XL Pick-Up.

This side impact test was conducted in accordance with the New Car Assessment Program Side Impact Testing Procedure dated October 1996.

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 1999 Ford F-150 XL Pick-Up was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 38.6 mph (62.1 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 11, 1998. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummy (SID) are included in Appendix A.

One Side Impact Dummy (SID) was placed in the driver seating position according to instructions specified in the New Car Assessment Program Side Impact Laboratory Test Procedure which is dated October 1996. The side impact event was documented by eight high speed cameras. Camera locations and other pertinent camera information can be found in this report.

The SID was instrumented with the following accelerometers.

1. 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)
5. Head Center of Gravity triaxial accelerometers (X, Y, and Z-direction)

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

The following table summarizes the results of the test:

Injury Criteria	Front SID
TTI (g)	33
Pelvis (g)	45

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

DATA SHEET NO. 1

GENERAL VEHICLE TEST PARAMETER DATATEST VEHICLE INFORMATION:Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-UpVehicle NHTSA No.: MX0203 VIN: 1FTZF1728XKA25844Vehicle Body Color: Red Build Date: 10/98Engine Data: 6 Cylinders; CID; 4.2 Liter; ccPlacement X Longitudinal; LateralTransmission: 5 Speed; X Manual; Automatic; X OverdriveFinal Drive: X Rear Wheel Drive; Frt. Wheel Drive; Four Wheel DriveOdometer Reading 25 milesOptions: X A/C; X Pwr. Steering; X Pwr. Brakes; Pwr. Windows; Cruise Control; Tilt Wheel; Power Door Locks;DATA FROM TIRE PLACARD:Tire Pressure (at capacity): 32 Psi FRONT35 Psi REARRecommended Tire Size: P235/70R16Tires on Test Vehicle: P235/70R16 Manufacturer: General

Vehicle Capacity Data:

Number of Occupants: 3 Front; Rear; 3rd Seat, 3 TotalType of Front Seats: Bucket; X Bench; Split BenchType of Front Seat Back: X Fixed; Adjustable with LeverVehicle Maximum Capacity Loading = 340.2 kg (A)No. of Occupants x 68.04 kg. = 204.1 kg (B)Cargo Capacity (A-B) = 136.1 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:Right Front = 525.7 kgRight Rear = 393.3 kgLeft Front = 553.8 kgLeft Rear = 390.1 kgTOTAL FRONT = 1079.5 kgTOTAL REAR = 783.4 kg% of Total Vehicle Weight = 57.9 %; % of Total Weight = 42.1 %TOTAL WEIGHT = 1862.9 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-UpVehicle NHTSA No.: MX0203 Test Date: December 11, 1998CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	=	<u>1862.9</u> kg
Cargo Carrying Capacity of Test Vehicle	=	<u>136.1</u> kg
Weight of 1 Side Impact Dummy	=	<u>80.7</u> kg
TEST VEHICLE TARGET WEIGHT	=	<u>2079.7</u> kg

ACTUAL WEIGHT OF TEST VEHICLE WITH 1 DUMMY AND CARGO (Fully Loaded):

Right Front	=	<u>542.0</u> kg	Right Rear	=	<u>461.8</u> kg
Left Front	=	<u>602.4</u> kg	Left Rear	=	<u>473.6</u> kg
TOTAL FRONT	=	<u>1144.4</u> kg	TOTAL REAR	=	<u>935.4</u> kg
% of Total Weight	=	<u>55.4</u> %	% of Total Weight	=	<u>44.6</u> %
TOTAL WEIGHT	=	<u>2079.8</u> kg			

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 861 mm Left Front 848 mm Right Rear 922 mm Left Rear 898 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 850 mm Left Front 836 mm Right Rear 898 mm Left Rear 871 mm

TEST ATTITUDE:

Right Front 852 mm Left Front 838 mm Right Rear 899 mm Left Rear 874 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 3520 mm

C.G. = 1620 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 5248 mm

Centerline = 5708 mm

Left Side = 5248 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-UpVehicle NHTSA No.: MX0203 Test Date: December 11, 1998FRONT SEAT CUSHION PLACEMENT:Total Length of Adjustment Travel: 180 mmTest Position: 10th detent of 19 (Mid-position)FRONT SEAT BACK ADJUSTMENT POSITION:Seat Back Angle = Non-adjustableSECOND POSITION SEAT:Total Length of Fore/Aft Adjustment Travel: N/ASeat Back Adjustment Position: N/AADJUSTABLE STEERING COLUMN POSITION: Non-adjustable

<u>WINDOW POSITIONS:</u>	Left Front <u>Closed</u>	Left Rear <u>N/A</u>
	Right Front <u>Open</u>	Right Rear <u>N/A</u>

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:Fuel system usable capacity = 30.0 gallonsTest Volume: 27.9 gallons 93 % of capacityLOCATIONS OF IMPACT POINT ON TEST VEHICLE SIDE TO BE IMPACTED:Wheelbase: = 3520 mmImpact Point is 508 mm rearward of front axle centerline

DATA SHEET NO. 2

TEST VEHICLE SUMMARY OF RESULTSYear/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-UpVehicle NHTSA No.: MX0203 Test Date: December 11, 1998Overall Length = 5708 mm; Overall Width = 1906 mmTEST WEIGHT:Right Front = 561.5 kgRight Rear = 454.5 kgLeft Front = 598.3 kgLeft Rear = 459.9 kgTOTAL FRONT = 1159.8 kgTOTAL REAR = 914.4 kg% of Total Weight = 55.9 %% of Total Weight = 44.1 %TOTAL VEHICLE WEIGHT = 2074.2 kgWheelbase = 3520 mmLongitudinal C.G. from Center of Front Axle = 1620 mmImpact Angle with Respect to Impactor = 90 ° degreesMAXIMUM EXTERIOR STATIC CRUSH:1. LEVEL 1 (408 mm above ground) = 474 mm2. LEVEL 2 (786 mm above ground) = 331 mm3. LEVEL 3 (884 mm above ground) = 307 mm4. LEVEL 4 (1175 mm above ground) = 124 mm5. LEVEL 5 (1715 mm above ground) = 131 mmMaximum Post-Test Intrusion = 474 mmOCCUPANTS:Driver

Type of Dummy

SID

Restraints Used

Type II belt with
frontal airbag

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

Number of Vehicle Data Channels:		=	<u>22</u>
Number of Cameras:	Onboard Vehicle	=	<u>2</u>
	Offboard Vehicle	=	<u>4</u>
	Deformable Barrier	=	<u>2</u>
	TOTAL	=	<u>8</u>

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTSYear/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-UpVehicle NHTSA No.: MX0203 Test Date: December 11, 1998POSITION OF IMPACT (MDB) ON MONORAIL:Crabbed 27° to leftMDB DETAILS:

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

MDB WEIGHT:

Left Front	=	<u>457.7 kg</u>	Left Rear	=	<u>235.1 kg</u>
Right Front	=	<u>328.1 kg</u>	Right Rear	=	<u>342.6 kg</u>
TOTAL FRONT	=	<u>785.8 kg</u>	TOTAL REAR	=	<u>577.7 kg</u>
TOTAL MDB WEIGHT = <u>1363.5 kg</u>					

Impact Angle (MDB C/L to Target Vehicle C/L) = 90° degreesImpact Speed = Primary: 38.6 mph (62.1 kph) Secondary: 38.6 mph (62.1 kph)

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

- | | | | |
|----|---------------------------------|---|---------------|
| 1. | Row A Top of Stack (813 mm) | = | <u>172</u> mm |
| 2. | Row B Mid Stack (686 mm) | = | <u>108</u> mm |
| 3. | Row C Top of Bumper (533 mm) | = | <u>52</u> mm |
| 4. | Row D Center of Bumper (432 mm) | = | <u>55</u> mm |

INSTRUMENTATION:

Number of MDB Data Channels = 7

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up

Vehicle NHTSA No.: MX0203 Test Date: December 11, 1998

VISIBLE DUMMY CONTACT POINTS:

	<u>DRIVER</u>
Head	<u>Header/headrest/side window</u>
Arm	<u>Rear of door/armrest</u>
Pelvis	<u>Seat cushion</u>
Left Knee	<u>Door panel</u>
Right Knee	<u>Left knee</u>

DOOR OPENING:

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

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 26 mm rearward Vertical: 4 mm high

ARM REST LOCATIONS:

Front: 156 mm from bottom of window
 Rear: N/A

POST-TEST OBSERVATIONS (Cont'd)SEAT CRUSH:

Front Seat Back: 20 mm Front Seat Cushion: 15 mm
Left Rear Seat Back: N/A mm Rear Seat Cushion: N/A mm

GLAZING DAMAGE:

Windshield cracked (lower left corner)

PILLAR PERFORMANCE:

No failure noted

SILL SEPARATION:

None noted

OTHER NOTABLE IMPACT EFFECTS:

None noted

AIRBAG DEPLOYMENT STATUS:

	<u>DRIVER</u>	<u>PASSENGER</u>
Frontal	<u>No</u>	<u>No</u>
Side	<u>N/A</u>	<u>N/A</u>

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up

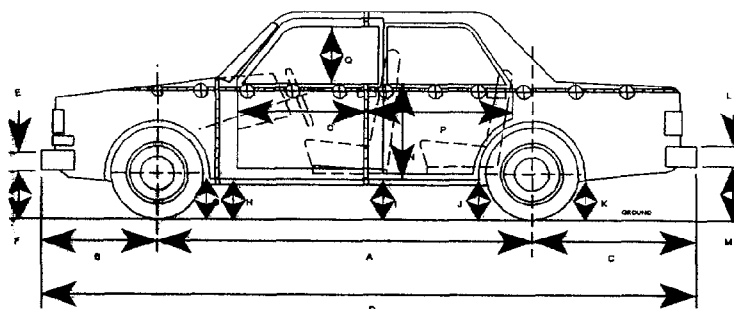
Vehicle NHTSA No.: MX0203
Test Date: December 11, 1998

Driver SID ID # 269				
	Pos. Direct.		Neg. Direct	
	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS				
Left Upper Rib (LUR) Y	25.6	59	-5.4	111
Left Lower Rib (LLR) Y	32.6	41	-4.9	89
SPINE ACCELERATIONS				
Lower Lateral Y	34.3	45	-9.1	80
PELVIS ACCELERATIONS				
Lateral Y	44.6	39	-14.3	83

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

E & L = Bumper Thickness

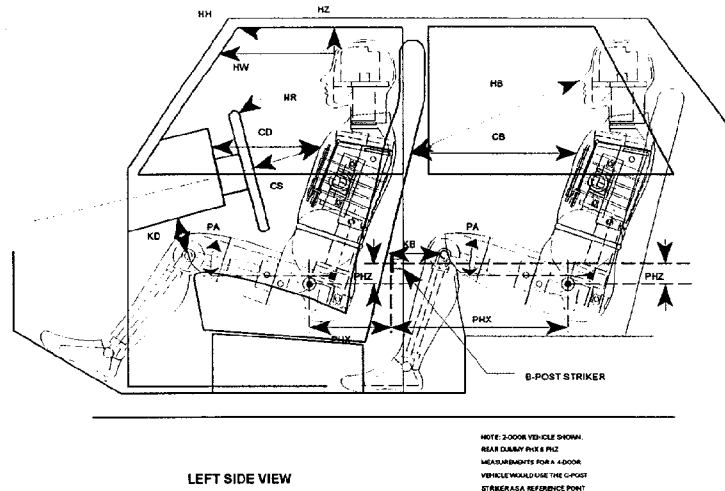
J1 = To Pinch Weld

J2 = To Sill

ALL MEASUREMENTS IN (mm)

	PRE-TEST	POST-TEST	Δ CHANGE
A	3518	3495	23
B	1005	979	26
C	1185	1209	24
D	5708	5683	25
E	130	130	0
F	492	487	5
G	320	341	21
H	327	335	8
I	338	458	120
J1/J2	388/385	435/447	47/62
K	414	448	34
L	215	215	0
M	455	427	28
N	812	790	22
O	747	697	50
P	512	502	10
Q	550	550	0
R	5248	5227	21
S	5248	5214	34
T	1906	1597	309

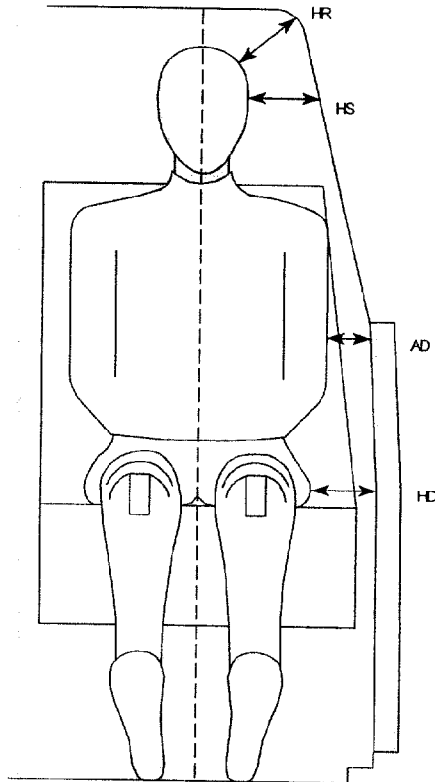
DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONSYear/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-UpNHTSA NO.: MX0203 Test Date: December 11, 1998NOTE: All dimensions are in mm with tolerance of ± 3 mm

	DRIVER SID ID # 269
HH	471
HW	662
HZ	233
NR	462
CD	616
CS	381
KDL(KDA°)	156 (25.2°)
KDR(KDA°)	177 (28.8°)
PA°	24.9°
PHX	352
PHZ	46

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 DIMENSIONSYear/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-UpNHTSA NO.: MX0203 Test Date: December 11, 1998

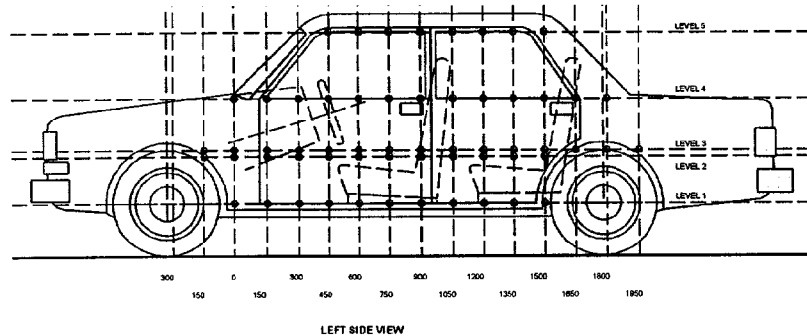
NOTE: All dimensions are in mm

DRIVER SID ID # 269	
HR	279
HS	349
AD	124
HD	183

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up

NHTSA NO.: MX0203 Test Date: December 11, 1998



NOTE: All measurements are in millimeters (mm)

LEVEL 5 - WINDOW TOP
LEVEL 4 - WINDOW SILL
LEVEL 3 - OCCUPANT H-POINT
LEVEL 2 - MID-DOOR
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) = 408 mm

Level 2 @ Mid Door = 786 mm

Level 3 @ Occupant H Point = 884 mm

Level 4 @ Window Sill = 1175 mm

Level 5 @ Window Top = 1715 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)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)	654	888	234
150	653	950	297
300	653	1060	407
450	651	1070	419
600	651	1080	429
750	649	1089	440
900	651	1090	439
1050	650	1095	445
1200	648	1104	456
1350	654	1102	448
1500	652	1126	474
1650	650	1123	473
1800	648	1121	473

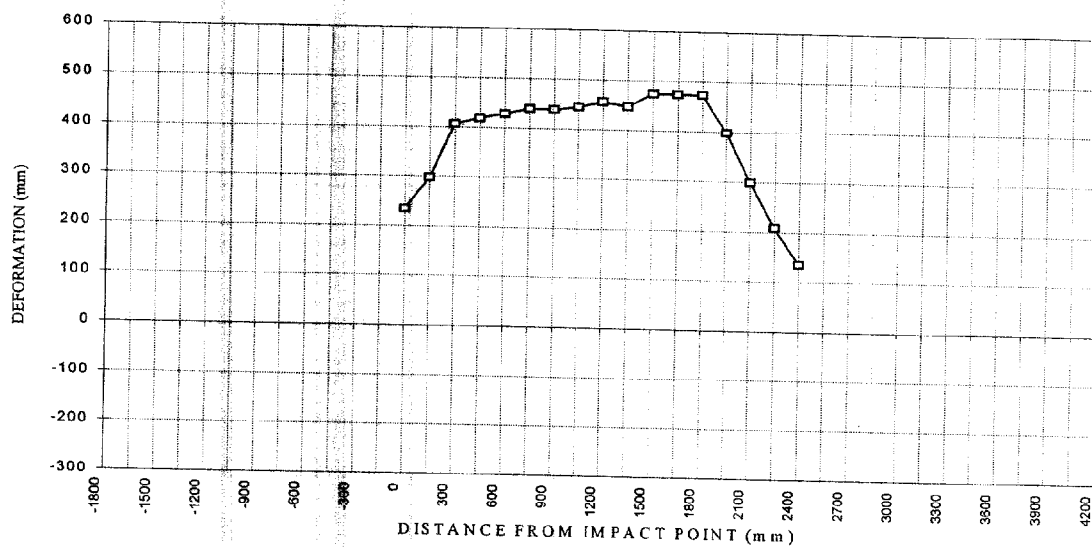
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 1 - Axle Centerline		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	648	1046	398
2100	645	944	299
2250	645	854	209
2400	644	779	135
2550			
2700			
2850			
3000			
3150			
3300			
3450			
3600			
3750			
3900			
4050			

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 1 - AXLE CENTERLINE

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 2 - Mid Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900	670	705	35
-750			
-600			
-450			
-300			
-150	621	770	149
0 (impact point)	634	787	153
150	630	824	194
300	626	940	314
450	622	945	323
600	621	946	325
750	619	947	328
900	618	948	330
1050	617	947	330
1200	615	946	331
1350	615	923	308
1500	630	918	288
1650	627	922	295
1800	625	955	330

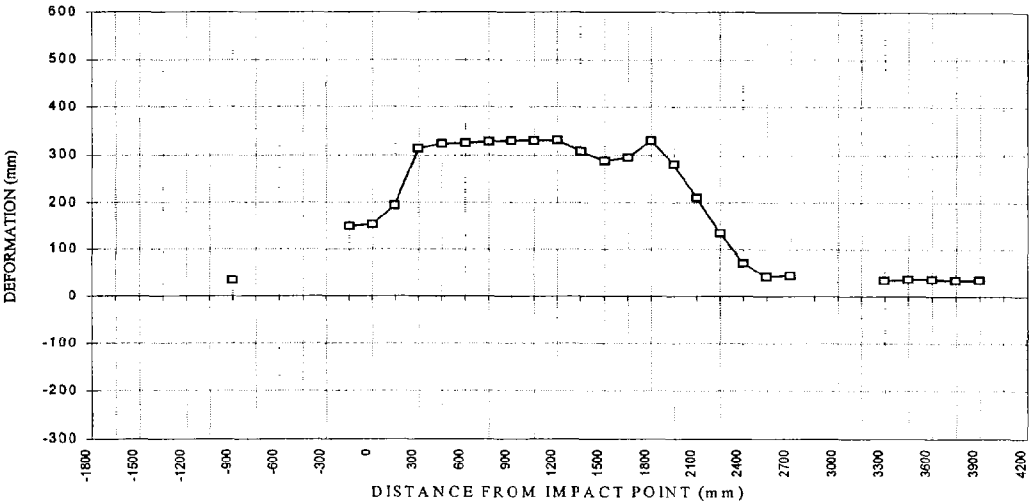
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 2 - Mid Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	622	903	281
2100	618	828	210
2250	616	751	135
2400	616	687	71
2550	616	659	43
2700	598	643	45
2850			
3000			
3150			
3300	611	646	35
3450	628	665	37
3600	635	672	37
3750	640	675	35
3900	645	681	36
4050			

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 2 - MID DOOR

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 3 - Occupant H Point		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900	683	714	31
-750	649	700	51
-600	632	710	78
-450	623	725	102
-300	622	742	120
-150	634	766	132
0 (impact point)	634	773	139
150	630	822	192
300	625	920	295
450	622	920	298
600	620	907	287
750	618	898	280
900	617	907	290
1050	614	921	307
1200	614	900	286
1350	613	873	260
1500	628	857	229
1650	626	894	268
1800	622	902	280

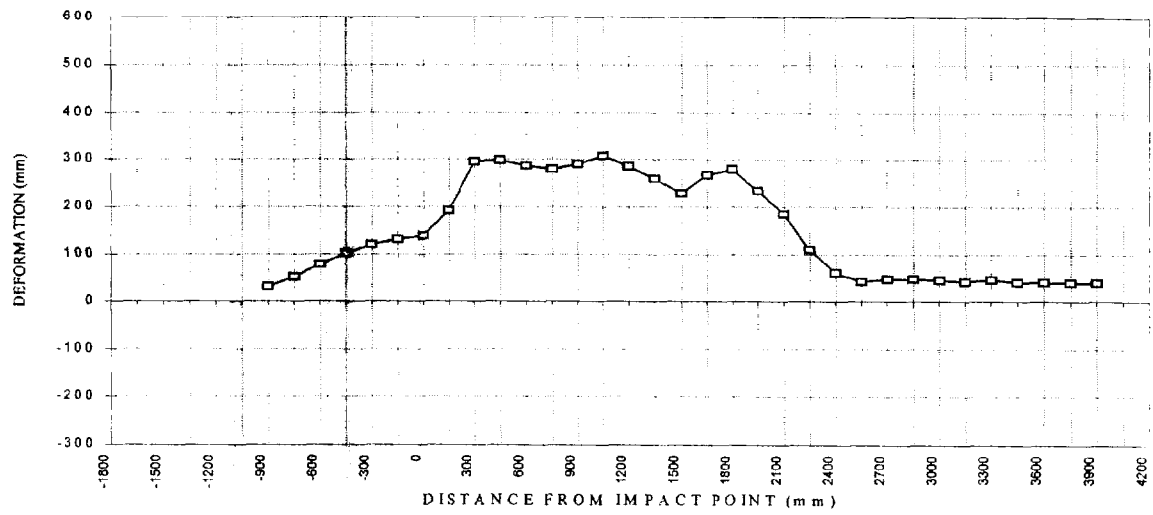
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 3 - Occupant H Point		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	620	855	235
2100	615	800	185
2250	613	723	110
2400	613	673	60
2550	613	655	42
2700	609	656	47
2850	598	645	47
3000	595	640	45
3150	603	645	42
3300	613	659	46
3450	626	667	41
3600	630	671	41
3750	637	677	40
3900	642	682	40
4050			

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 3 - OCCUPANT H POINT

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050	787	787	0
-900	763	772	9
-750	745	765	20
-600	732	762	30
-450	717	758	41
-300	704	760	56
-150	699	762	63
0 (impact point)	693	768	75
150	687	774	87
300	685	795	110
450	680	787	107
600	677	788	111
750	677	787	110
900	675	787	112
1050	670	786	116
1200	666	790	124
1350	665	788	123
1500	669	783	114
1650	662	764	102
1800	659	746	87

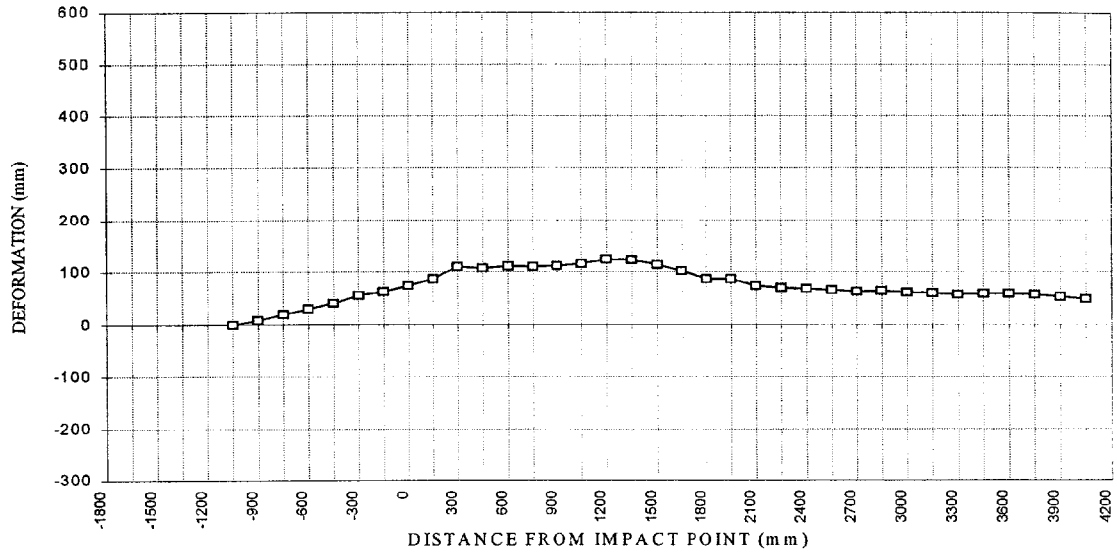
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 4 - Window Sill		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	657	744	87
2100	653	727	74
2250	652	722	70
2400	651	719	68
2550	651	717	66
2700	653	716	63
2850	653	717	64
3000	657	718	61
3150	661	721	60
3300	665	722	57
3450	665	724	59
3600	671	730	59
3750	675	732	57
3900	682	735	53
4050	691	740	49

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

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 4 - WINDOW SILL

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750	891	655	-236
900	890	656	-234
1050	886	657	-229
1200	887	662	-225
1350	890	1021	131
1500			
1650			
1800			

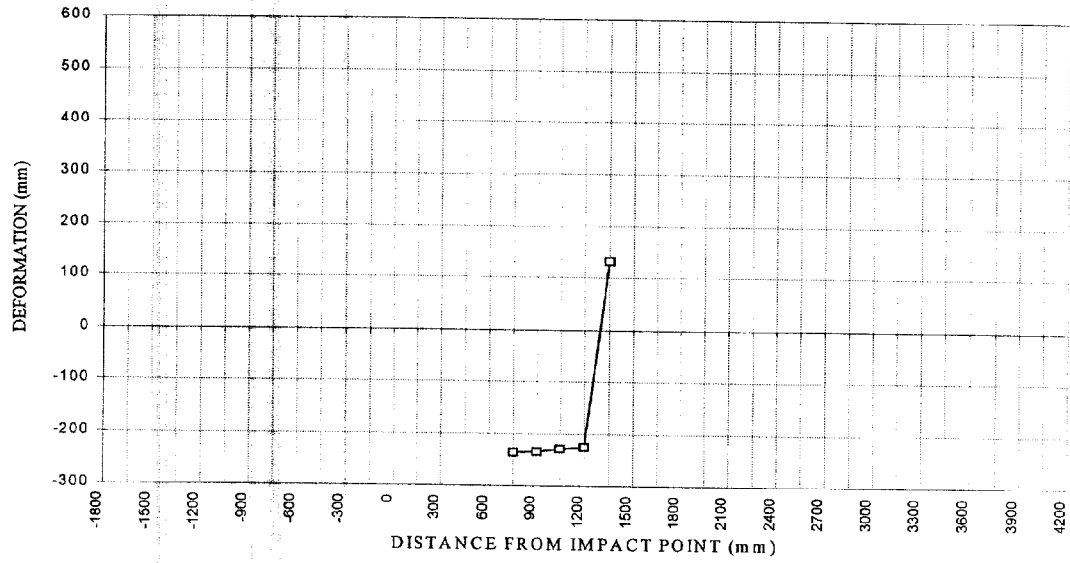
Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to car body

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950			
2100			
2250			
2400			
2550			
2700			
2850			
3000			
3150			
3300			
3450			
3600			
3750			
3900			
4050			

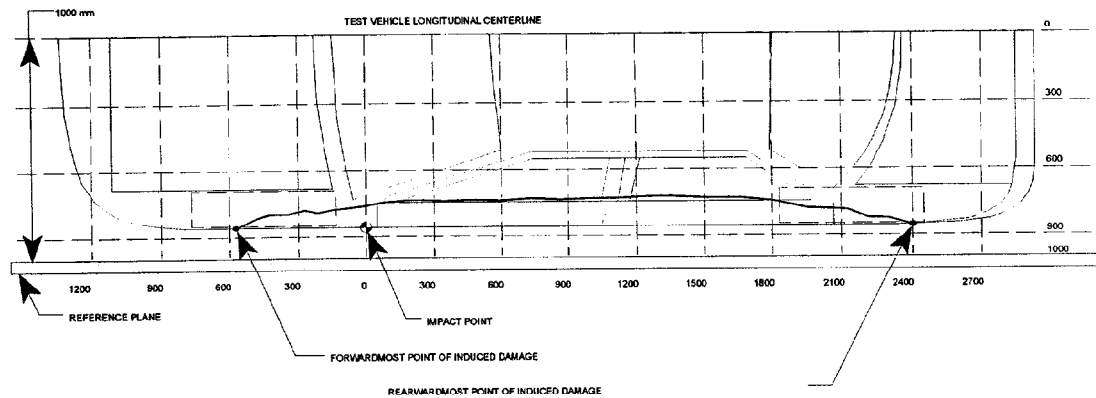
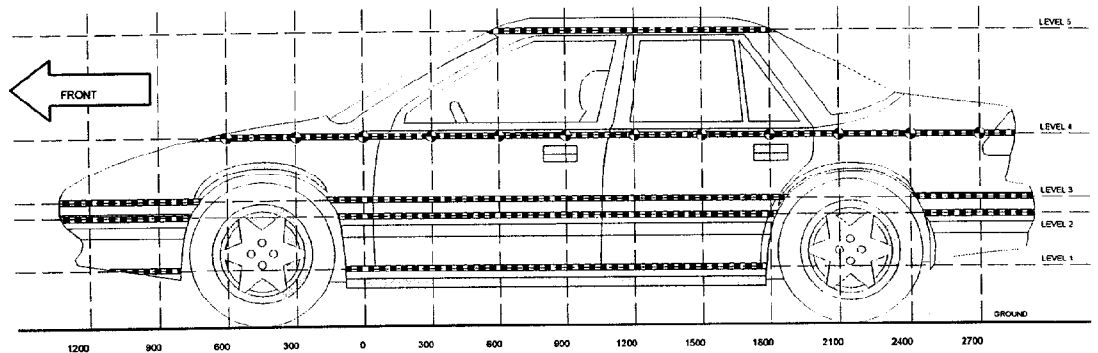
Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to car body

VEHICLE EXTERIOR STATIC CRUSH



LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCESYear/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-UpNHTSA NO.: MX0203 Test Date: December 11, 1998

NOTE: All measurements are in millimeters (mm)

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = <u>-1050</u> mm)	787	787	0
2. <u>-43</u> mm	790	630	160
3. <u>942</u> mm	1098	651	447
4. <u>1928</u> mm	1065	648	417
5. <u>3050</u> mm	720	658	62
6. (LR = <u>4050</u> mm)	740	691	49

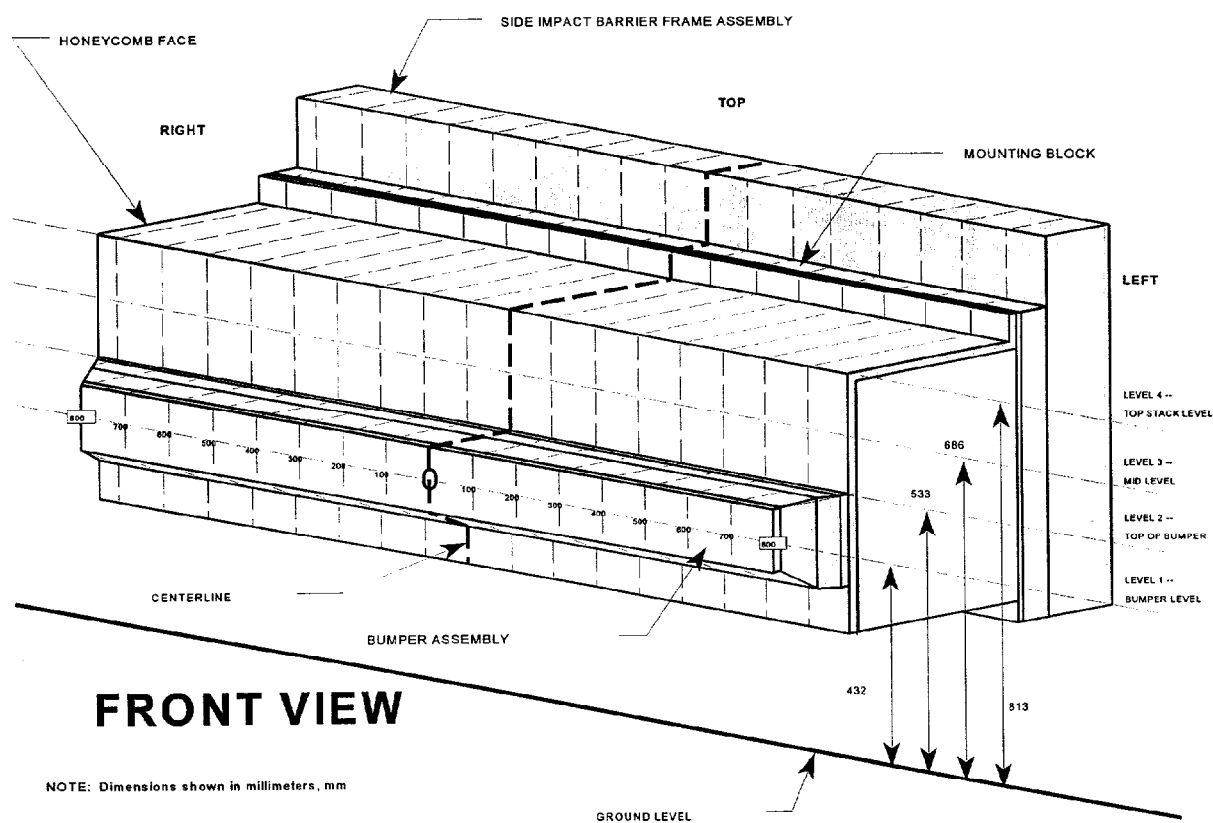
DATA SHEET NO. 12
EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up
Vehicle NHTSA No.: MX0203 Test Date: December 11, 1998

		Distance Right of Center (mm)									Distance Left of Center (mm)							
Location	Height at CL	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level 4	813 mm	123	93	149	172	158	142	115	87	68	63	59	59	59	61	68	76	92
Mid Level Level 3	686 mm	73	82	108	88	76	75	49	28	21	16	17	17	13	8	5	8	40
Top Bumper Level 2	533 mm	35	26	25	28	7	41	40	34	34	31	31	35	36	39	42	43	52
Mid Bumper Level 1	432 mm	11	17	17	18	18	22	23	25	26	30	32	35	37	42	44	49	55

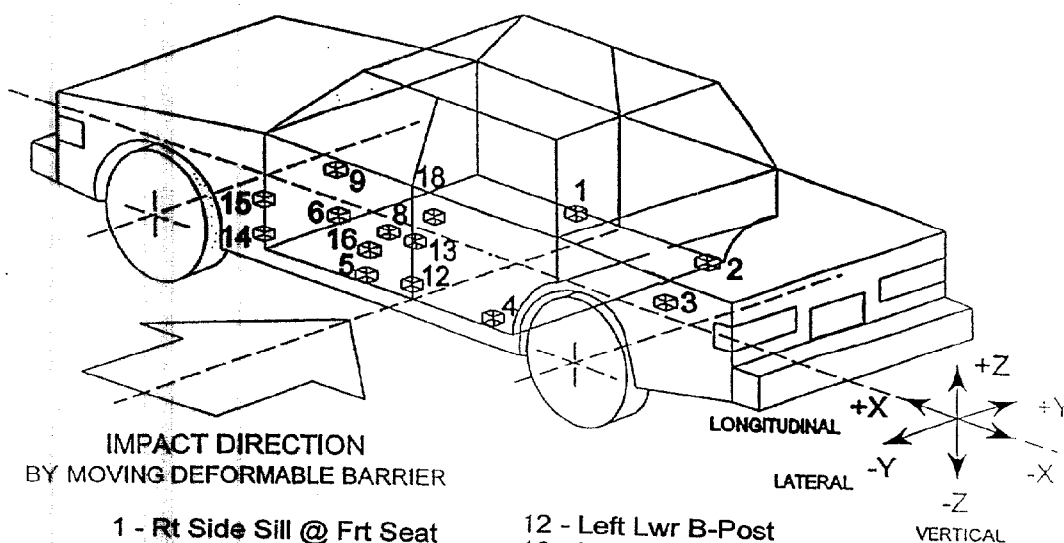
See next page for Barrier Face Graphic

DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up
 Vehicle NHTSA No.: MX0203 Test Date: December 11, 1998



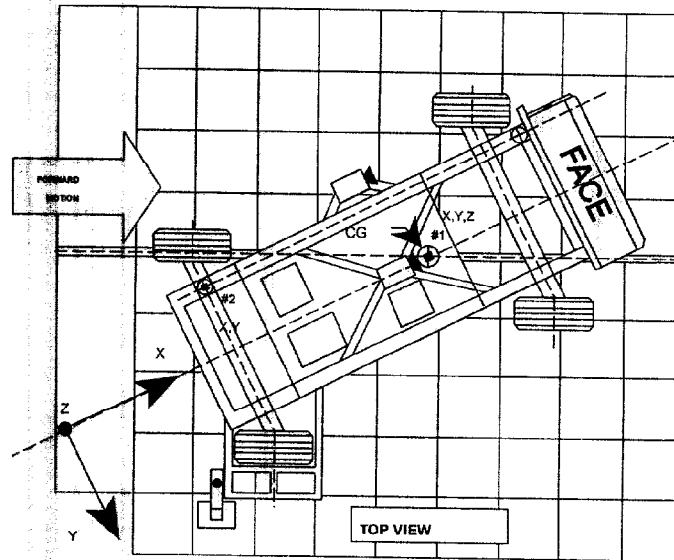
- | | |
|---------------------------------|-------------------------|
| 1 - Rt Side Sill @ Frt Seat | 12 - Left Lwr B-Post |
| 2 - Rt Side Sill @ Rr Seat | 13 - Left Middle B-Post |
| 3 - Rr Floorpan Above Axle | 14 - Left Lwr A-Post |
| 4 - Left Side Sill @ Rr Seat | 15 - Left Middle A-Post |
| 5 - Left Side Sill @ Frt Seat | 16 - Frt Seat Track |
| 6 - Left Frt Door on Centerline | 18 - Vehicle C.G. |
| 8 - Midrear of Left Frt Door | |
| 9 - Left Frt Door Up C/Line | |

DATA SHEET NO. 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY
 Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up
 Vehicle NHTSA No.: MX0203 Test Date: December 11, 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	Rt. Side Sill @ Front Seat	3645	835	352	9.0	-9.7	24.6	-8.4	5.3	-15.8	25.2
2	Rt. Side Sill @ Rear Seat	2818	840	400	8.9	-19.2	47.2	-13.9	9.7	-14.2	49.3
3	Rr. Floorpan Above Axle	1221	0	765	6.3	-4.5	14.7	-1.8	23.1	-24.2	24.3
4	Left Side Sill @ Rr. Seat	2765	-840	395	---	---	348.9	-188.7	---	---	---
5	Left Side Sill @ Frt. Seat	3655	-835	352	---	---	249.2	-228.2	---	---	---
6	Left Front Door Centerline	3533	-832	855	---	---	122.2	-137.3	---	---	---
8	Mid Rear of Left Front Door	3030	-837	867	---	---	147.9	-71.6	---	---	---
9	Left Front Door Upper Centerline	1328	-828	1094	---	---	154.4	-89.7	---	---	---
12	Left Lower B-Post	2858	-732	679	---	---	76.6	-50.4	---	---	---
13	Left Mid B-Post	2820	-810	1227	---	---	39.3	-12.1	---	---	---
14	Left Lower A-Post	4162	-840	494	---	---	161.9	-108.2	---	---	---
15	Left Mid A-Post	4122	-828	1203	---	---	28.1	-4.2	---	---	---
16	Driver Left Seat Track	3193	-595	695	---	---	83.8	-17.4	---	---	---
18	Vehicle CG	3116	0	603	14.4	-14.6	39.6	-7.8	30.1	-32.8	47.1

*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/F-150/XL Pick-UpVehicle NHTSA No.: MX0203 Test Date: December 11, 1998

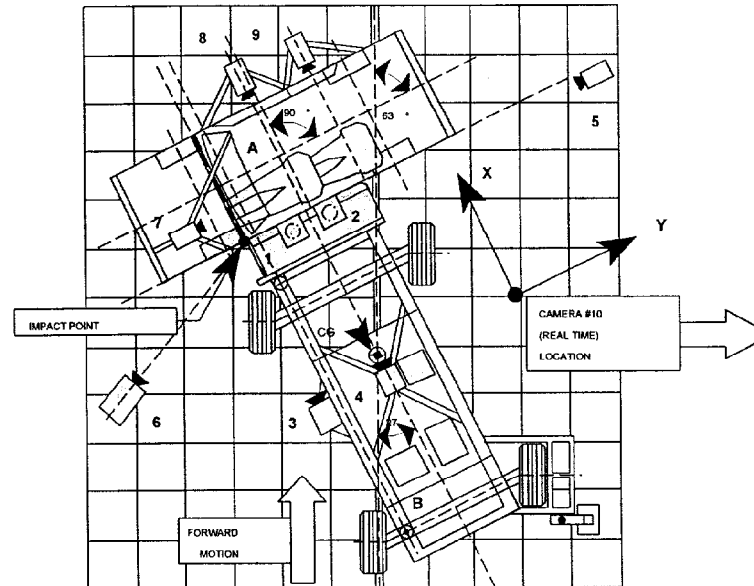
Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	0.8	131	-20.4	35
	Lateral (Y)	---	---	---	0.2	171	-7.7	24
	Vertical (Z)	---	---	---	11.9	71	-17.1	56
	Resultant (R)	---	---	---	22.3	56	----	----
2	Rear Frame Member	-2501	-625	622				
	Longitudinal (X)	---	---	---	2.4	170	-22.1	42
	Lateral (Y)	---	---	---	5.4	30	-1.9	187

*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/F-150/XL Pick-Up

Vehicle NHTSA No.: MX0203 Test Date: December 11, 1998



Camera No.	View	Coordinates (mm)*			Lens (mm)	Film Speed (fps)
		X	Y	Z		
	Real Time					
1	Top Overall	-180	1240	5000	8	952
2	Top Impact	-220	50	5000	13	893
3	Cart Pointer				35	1005
4	Cart Overall				13	1010
5	Right Impact	-195	10930	1635	25	1010
6	Left Impact	-405	-3125	1660	13	1000
7	Onboard Hood				13	1005
8	Onboard Driver				8	962

* Reference: (from point of impact)

+X = Forward

+Y = To Right

+Z = Upward

DATA SHEET 16
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up

Vehicle NHTSA No.: MX0203 Test Date: December 11, 1998

TEST REQUIREMENTS:

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

TEST VEHICLE IMPACT TYPE: X Side Impact MDB 38.6 mph (62.1 kph)

FUEL SPILLAGE MEASUREMENT:

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

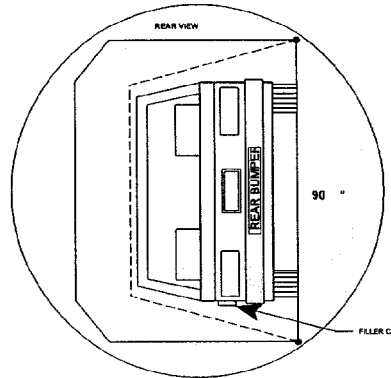
FUEL SPILLAGE LOCATION(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up

Vehicle NHTSA No.: MX0203 Test Date: December 11, 1998

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 51 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 51 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

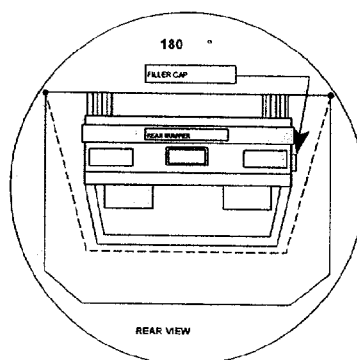
FUEL SPILLAGE LOCATIONS(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up

Vehicle NHTSA No.: MX0203 Test Date: December 11, 1998

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 34 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 34 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

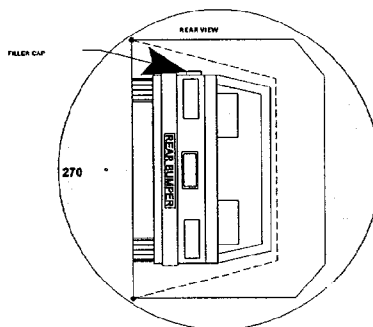
FUEL SPILLAGE LOCATIONS(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up

Vehicle NHTSA No.: MX0203 Test Date: December 11, 1998

TEST 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 seconds

TOTAL TIME = 7 minutes 9 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

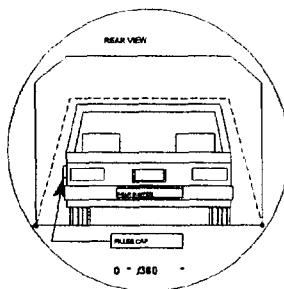
FUEL SPILLAGE LOCATIONS(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1999/Ford/F-150/XL Pick-Up

Vehicle NHTSA No.: MX0203 Test Date: December 11, 1998

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 49 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 49 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

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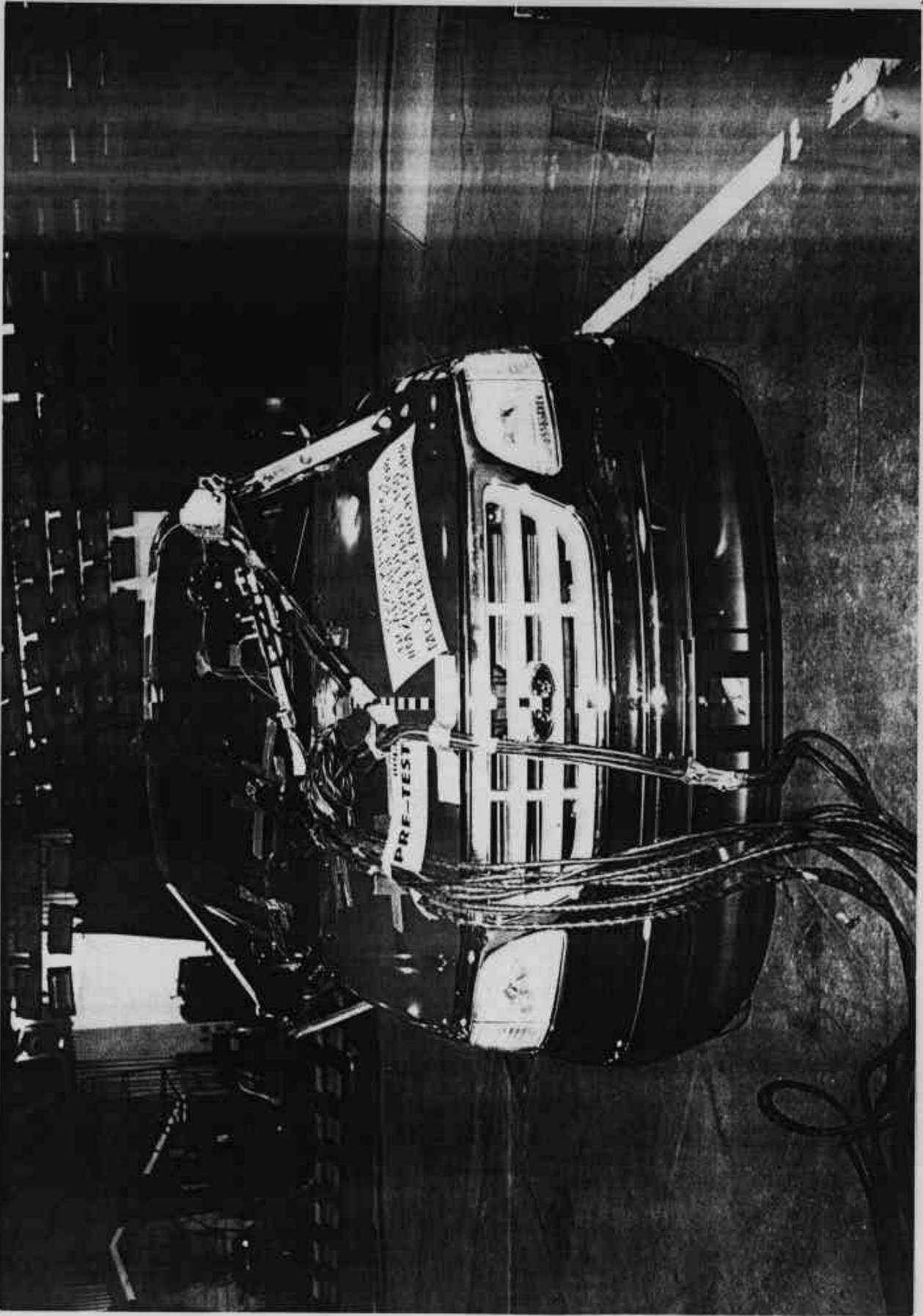


Photo No. A-1 - Pre-Test Front View of Test Vehicle

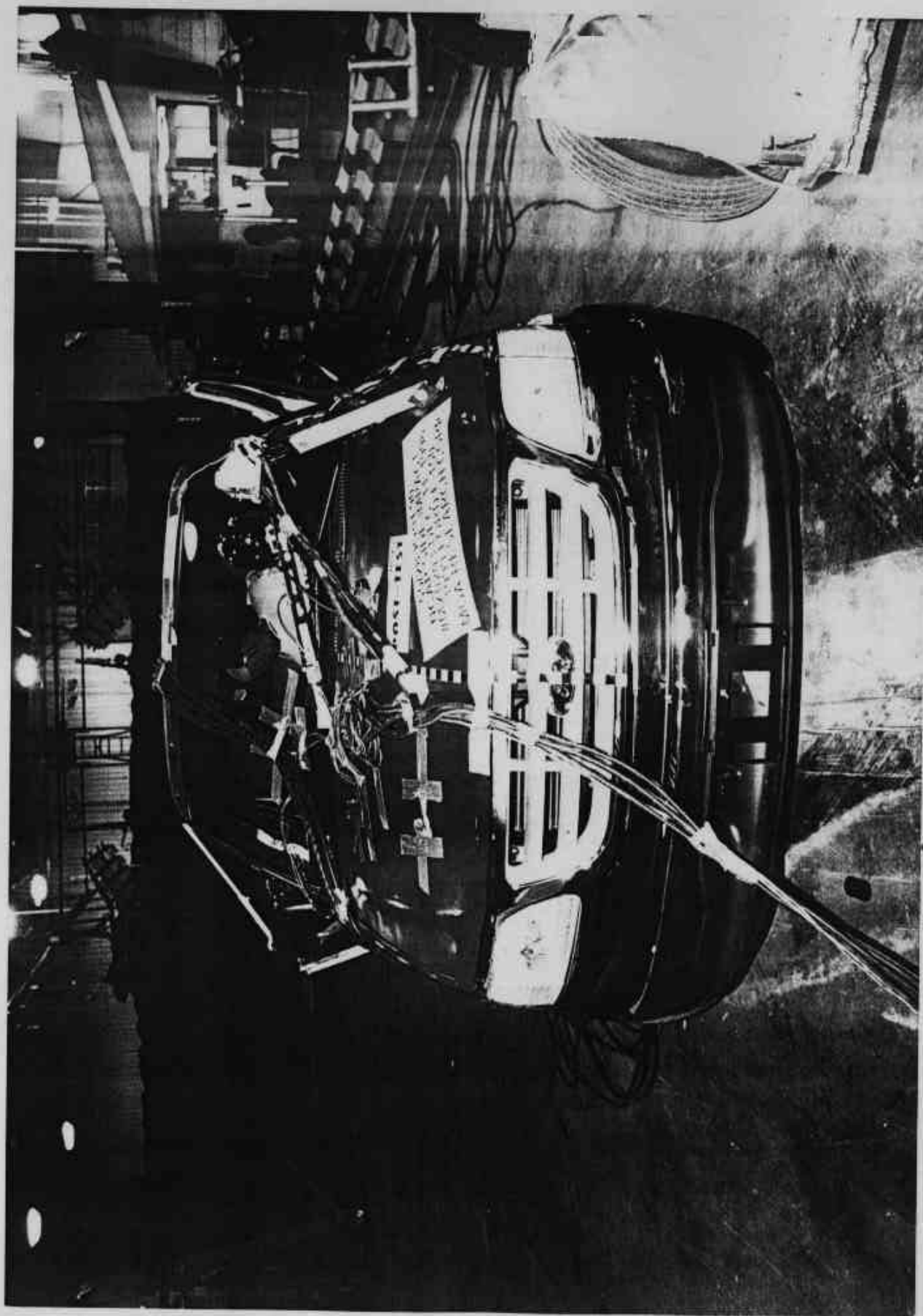


Photo No. A-2 - Post-Test Front View of Test Vehicle

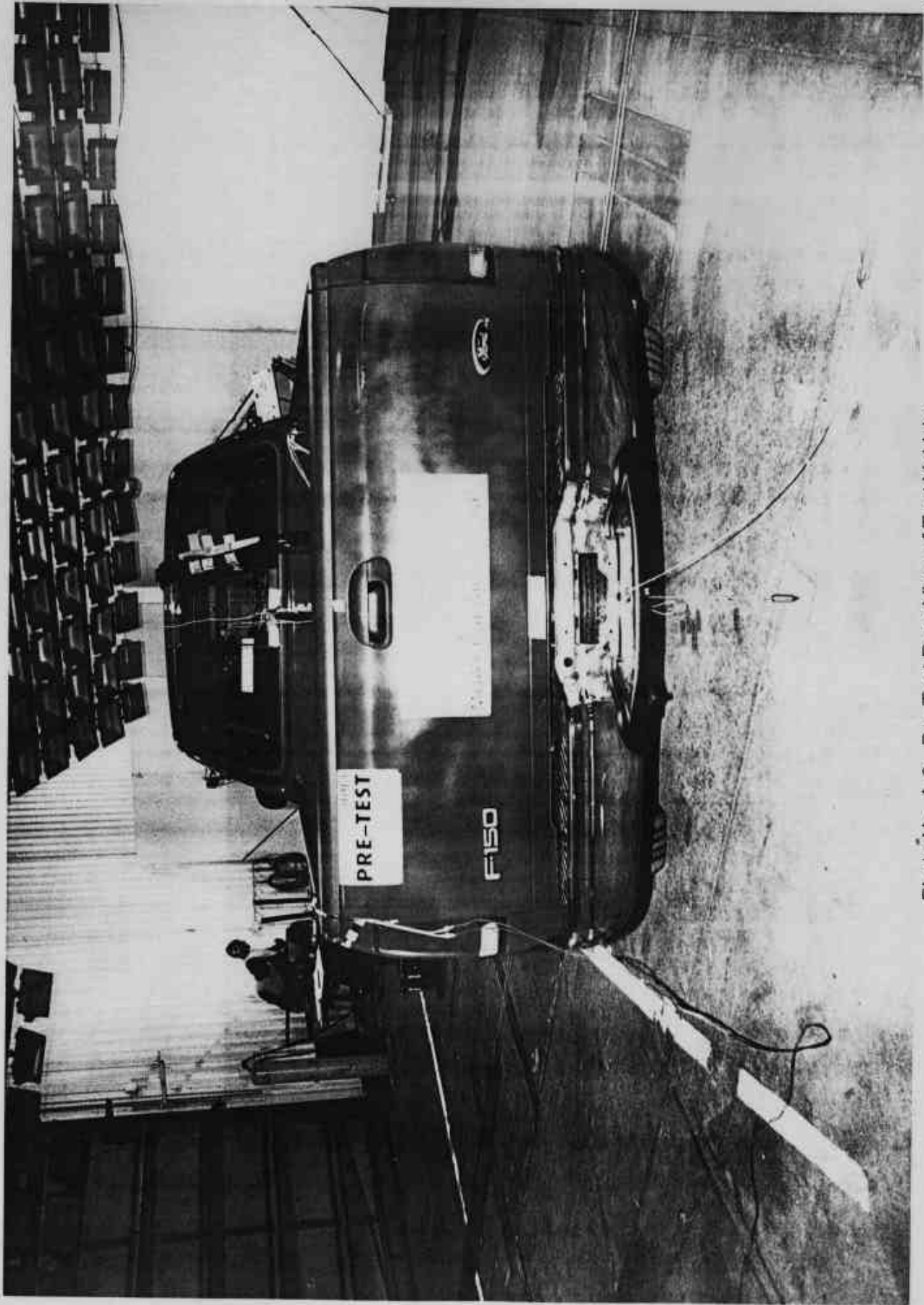


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

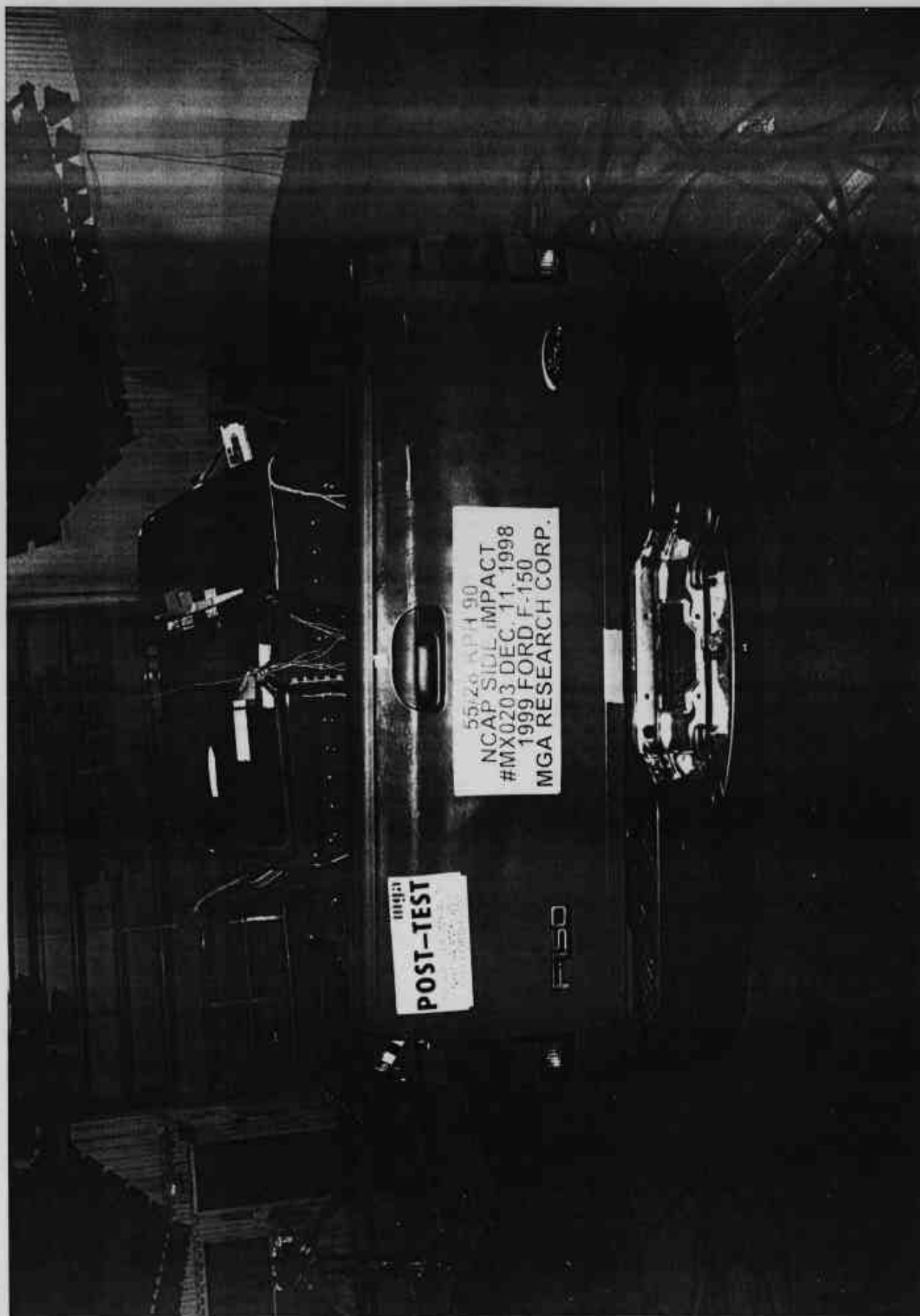


Photo No. A-4 - Post-Test Rear View of Test Vehicle

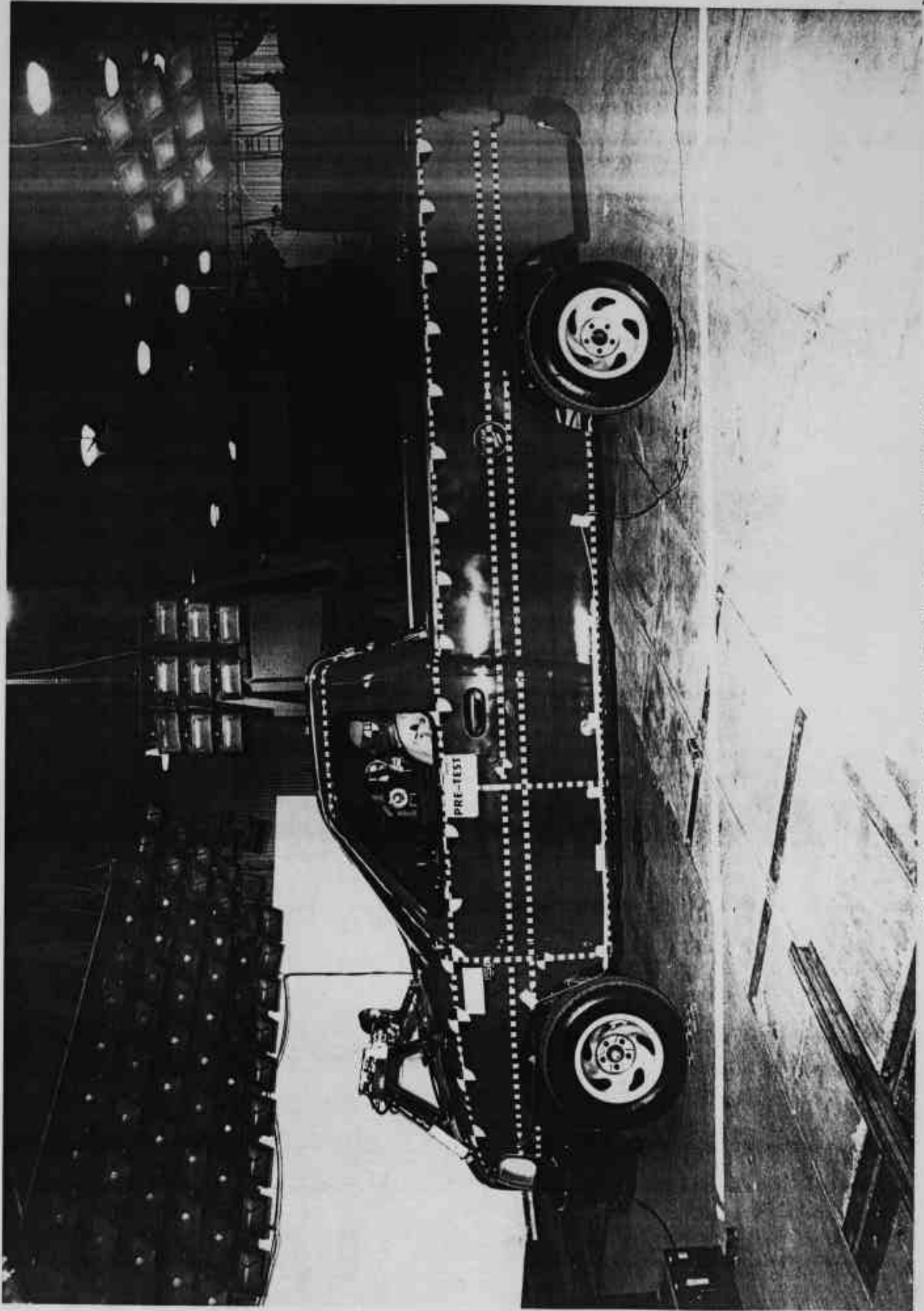


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

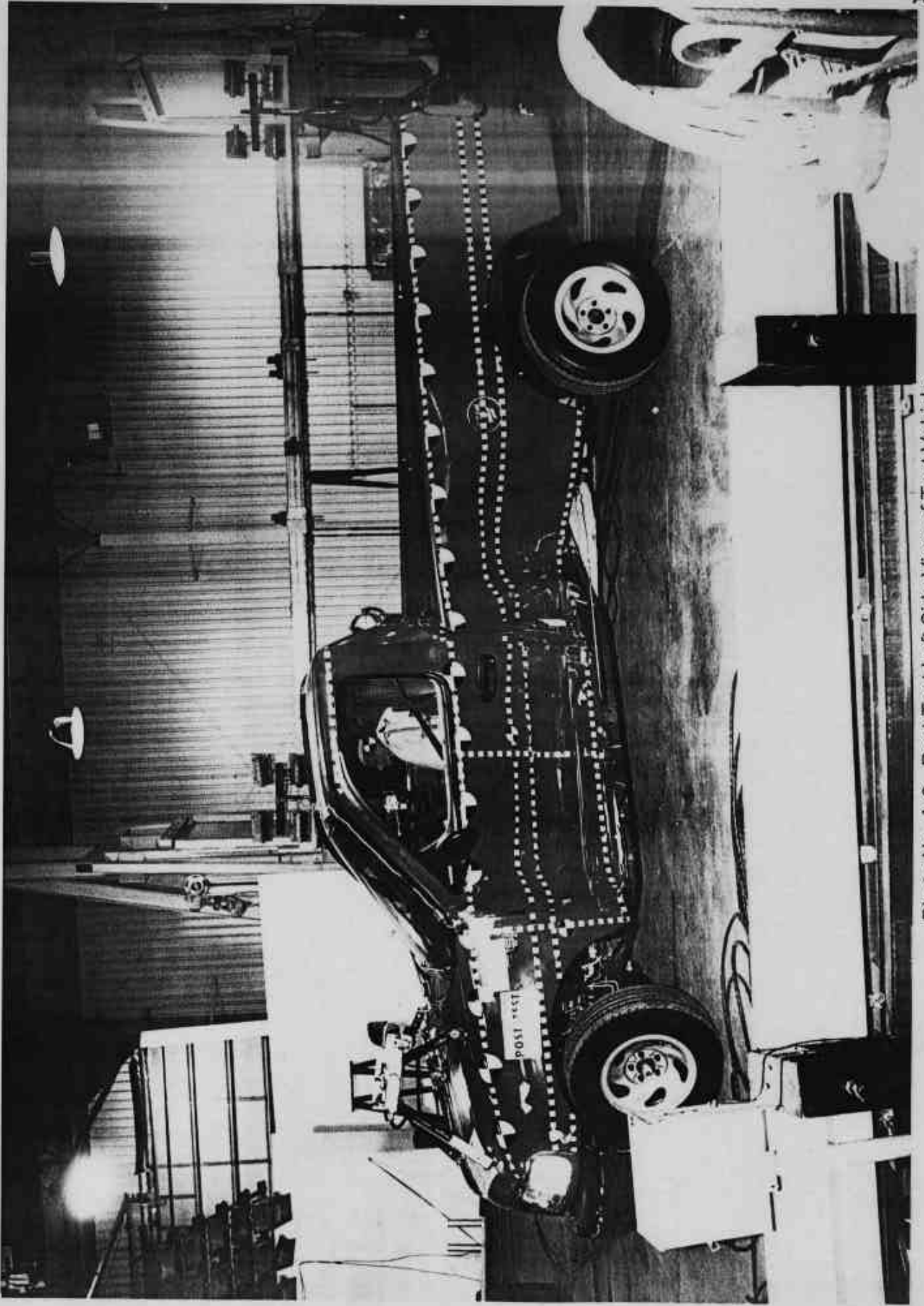


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

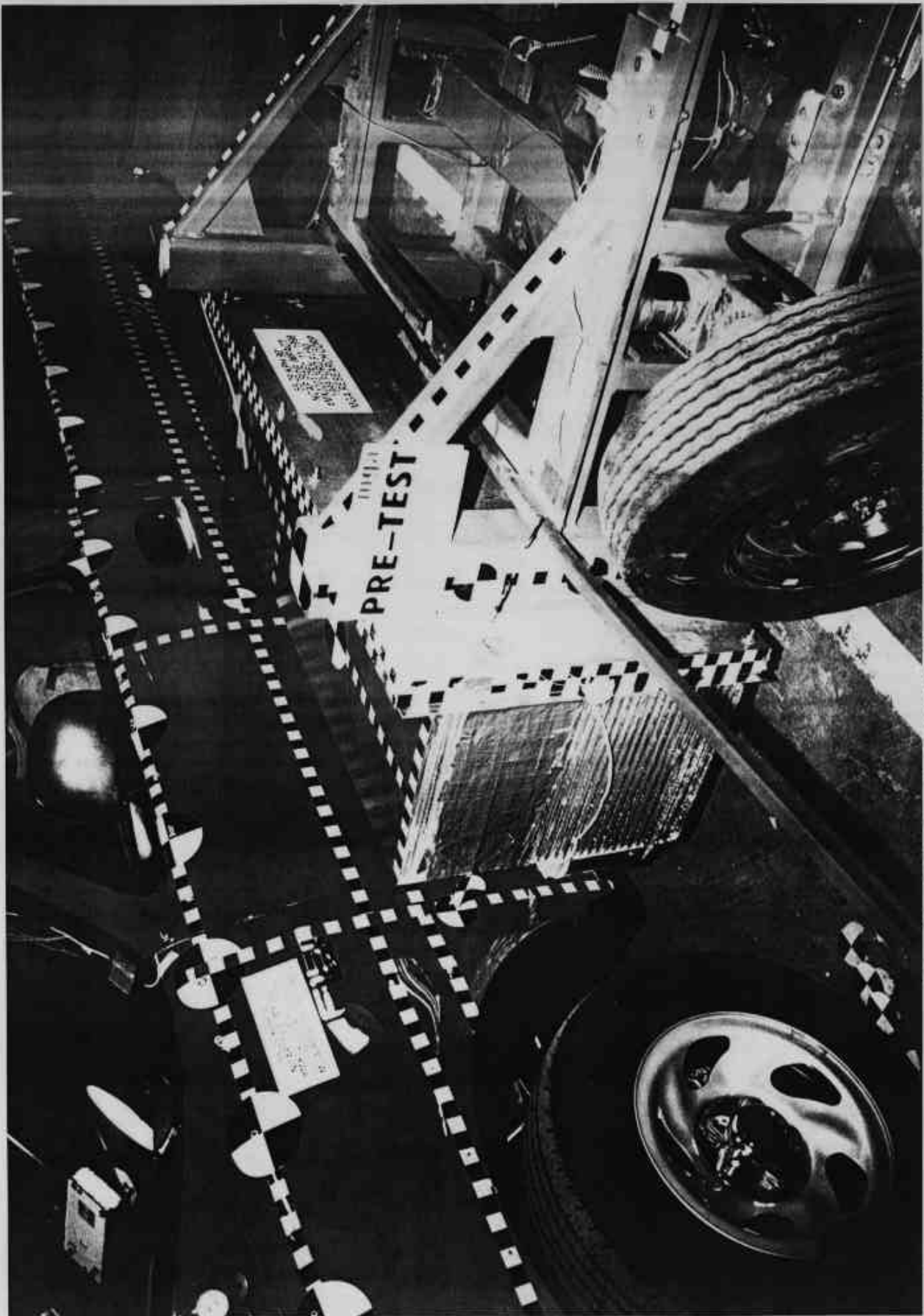


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

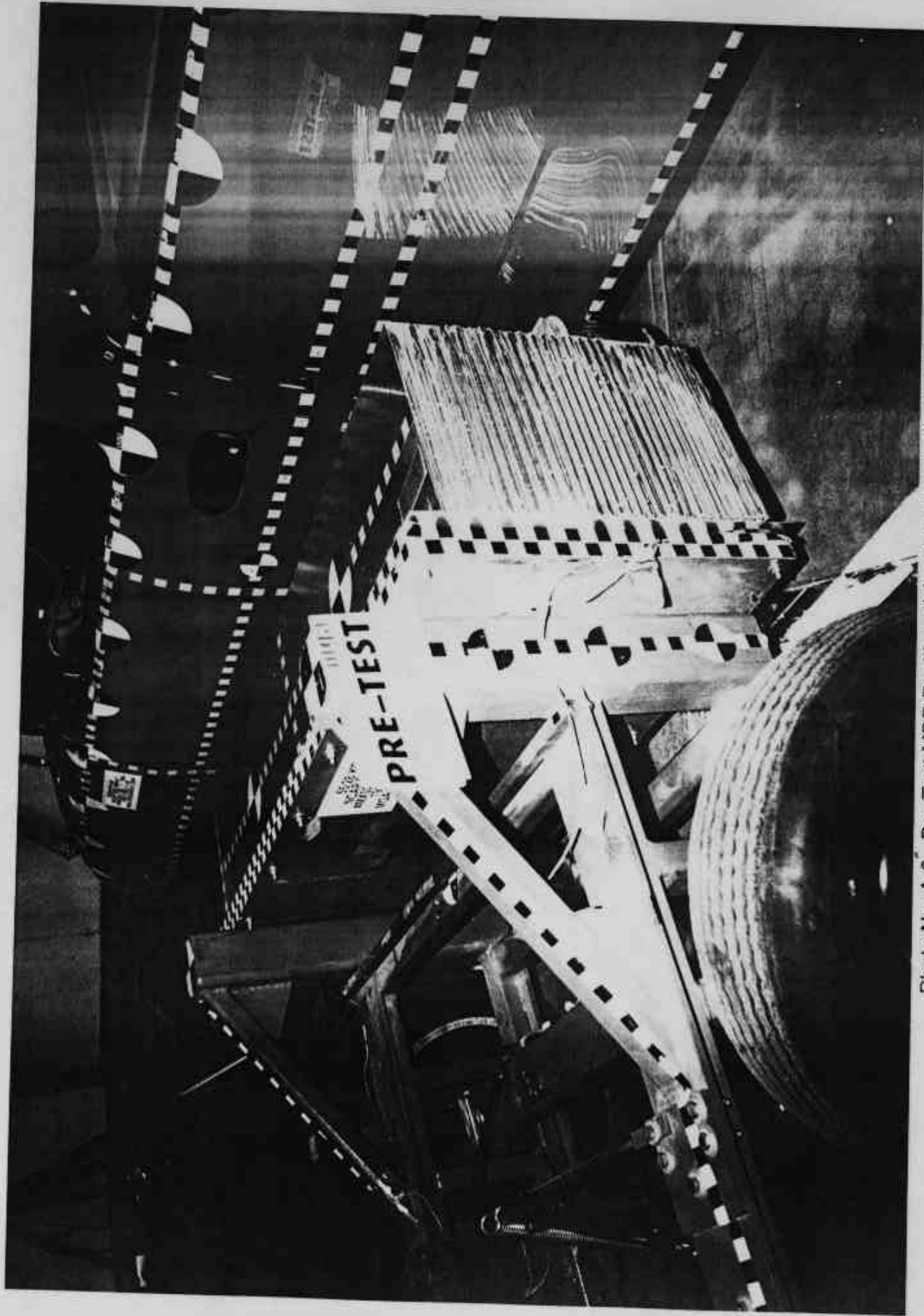


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)

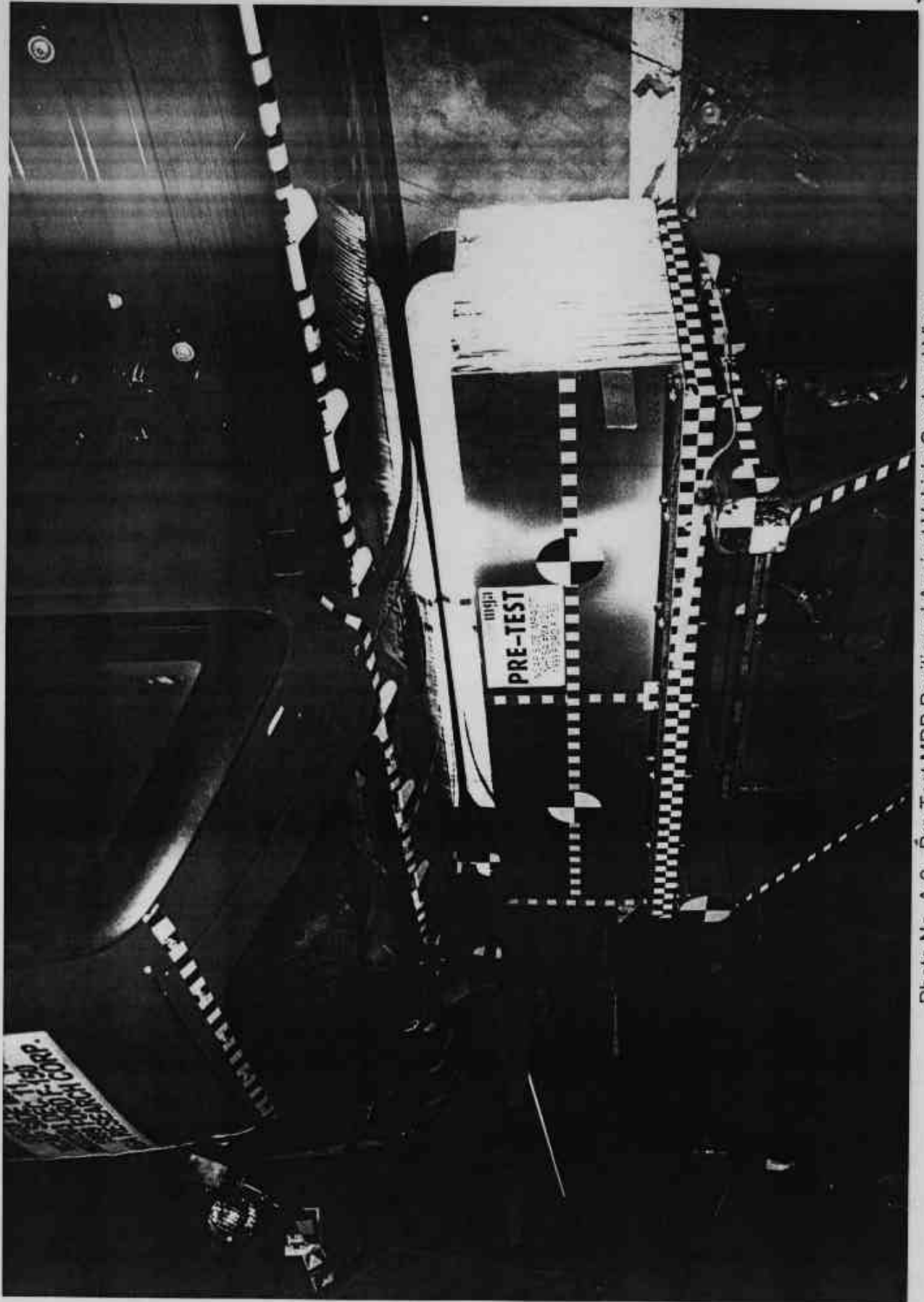


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View

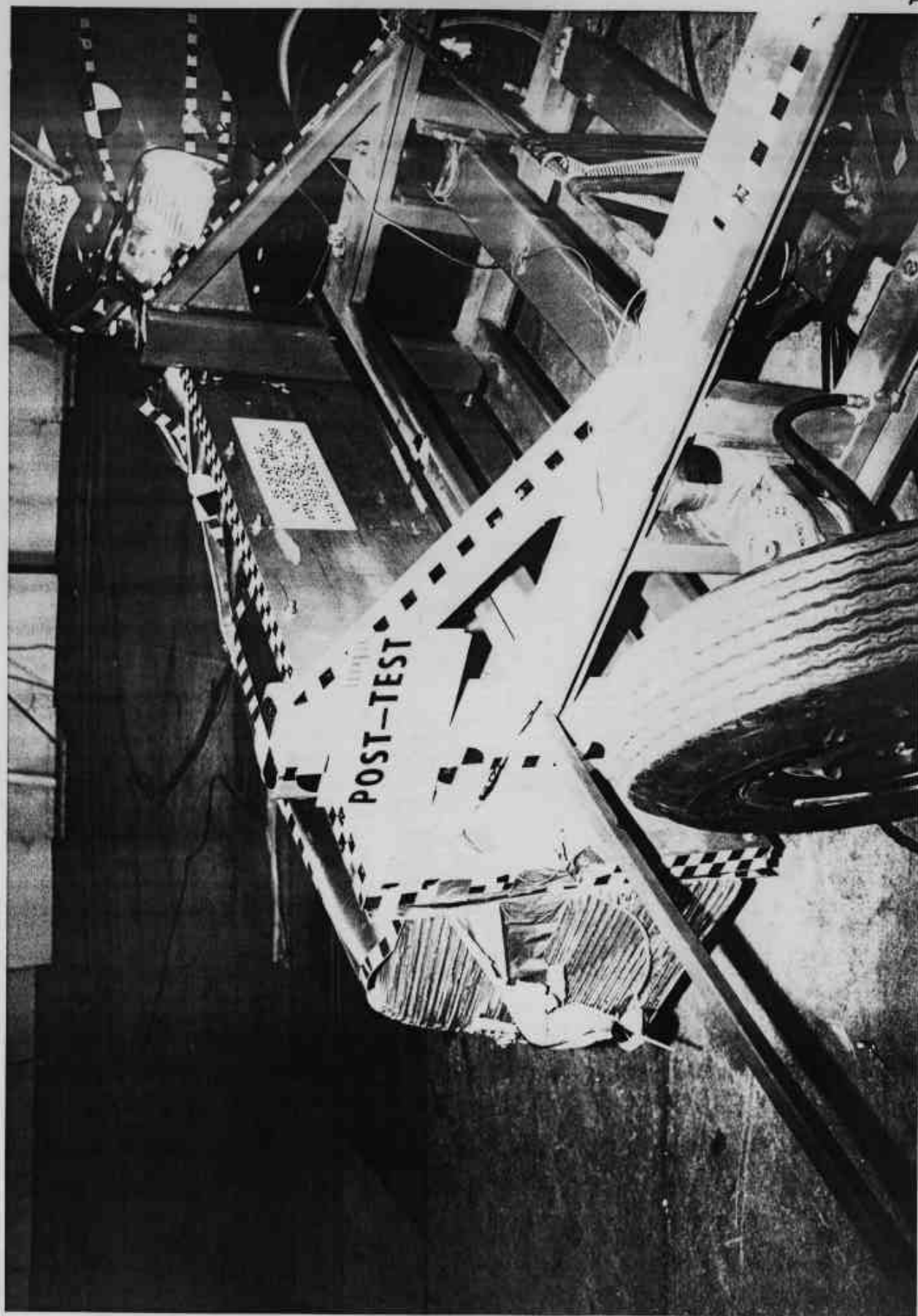


Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (left side)

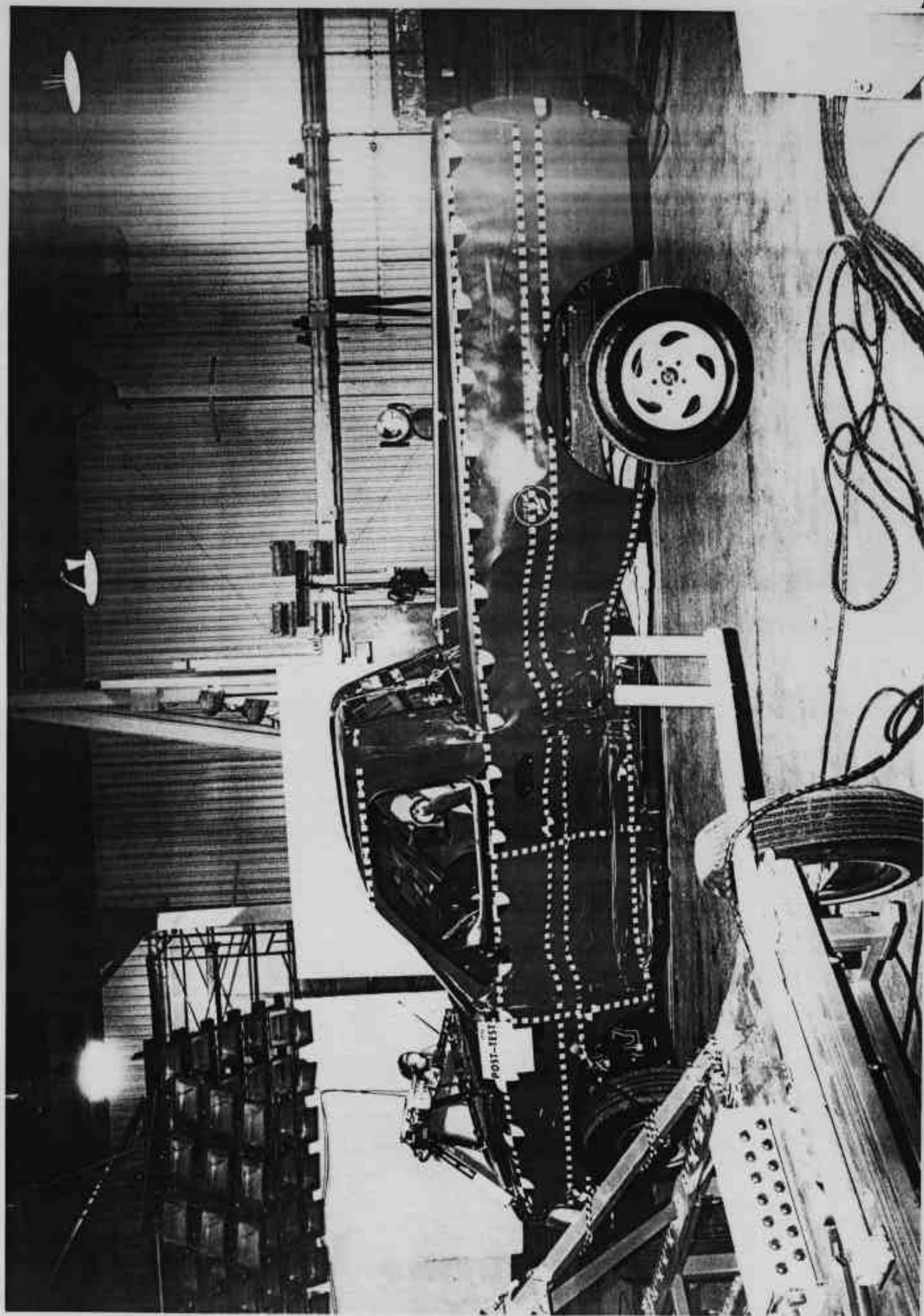


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)

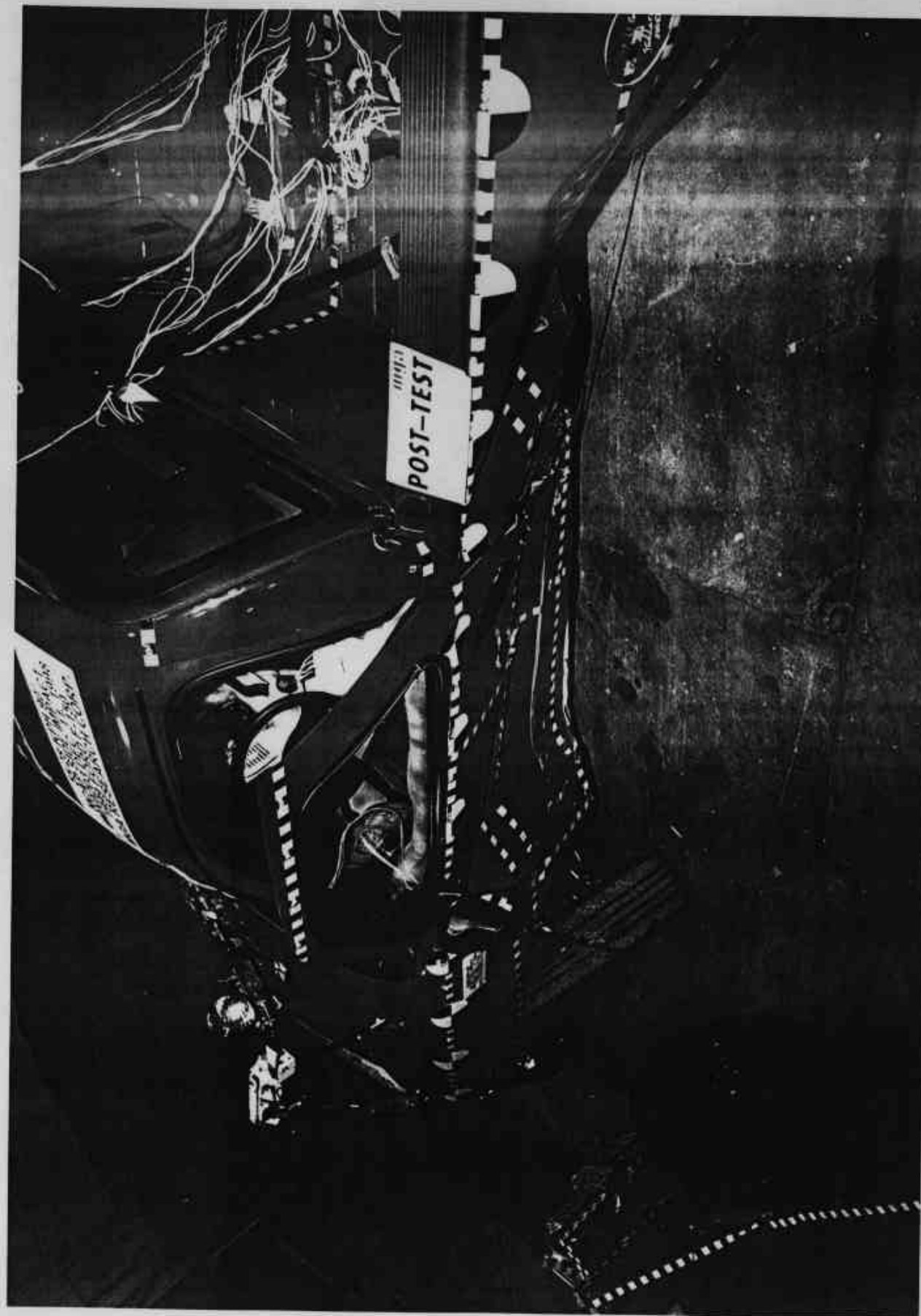


Photo No. A-12 - Post-Test MDB Positioned Against Vehicle Overhead View

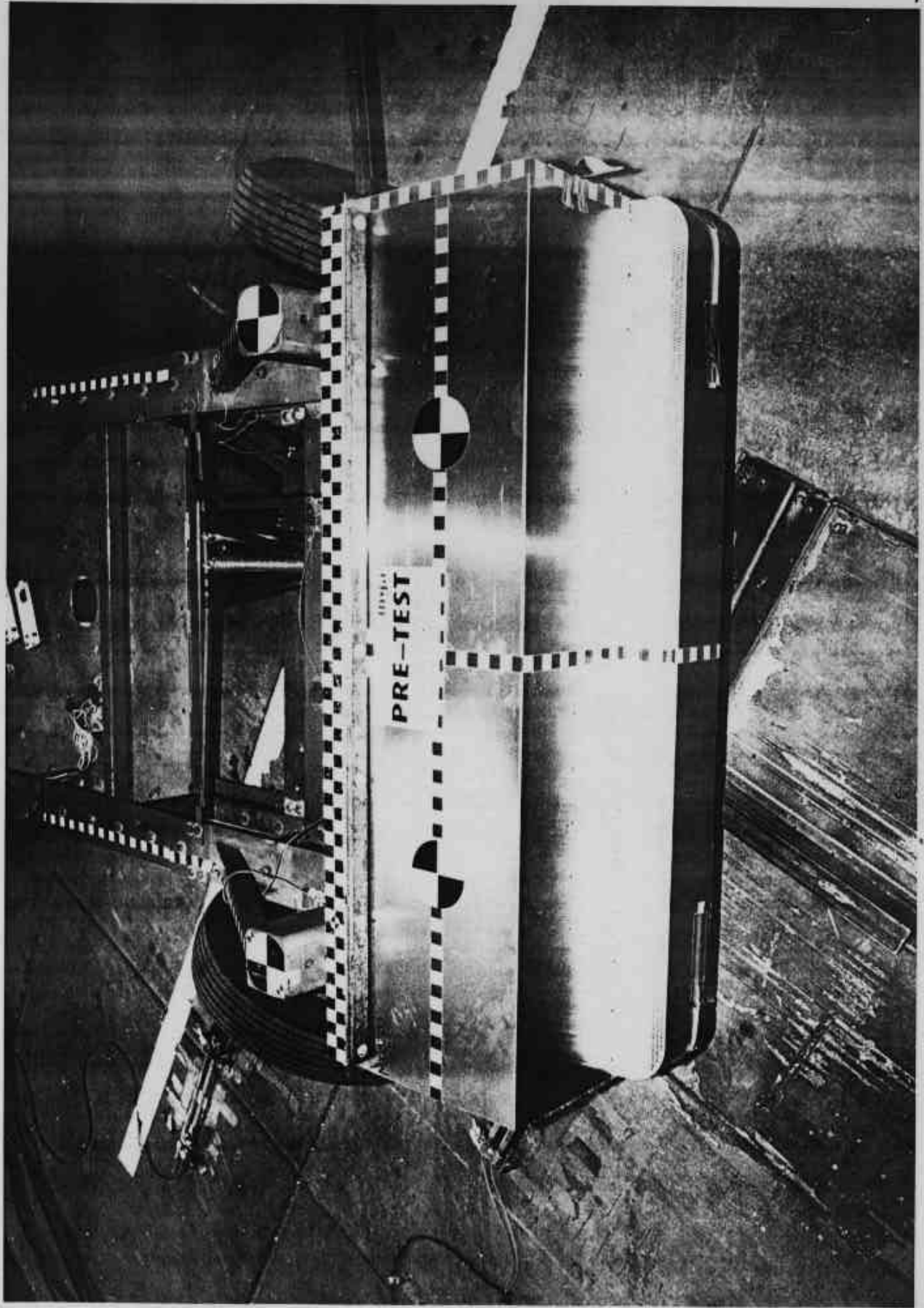


Photo No. A-13 - Pre-Test MDB Top View

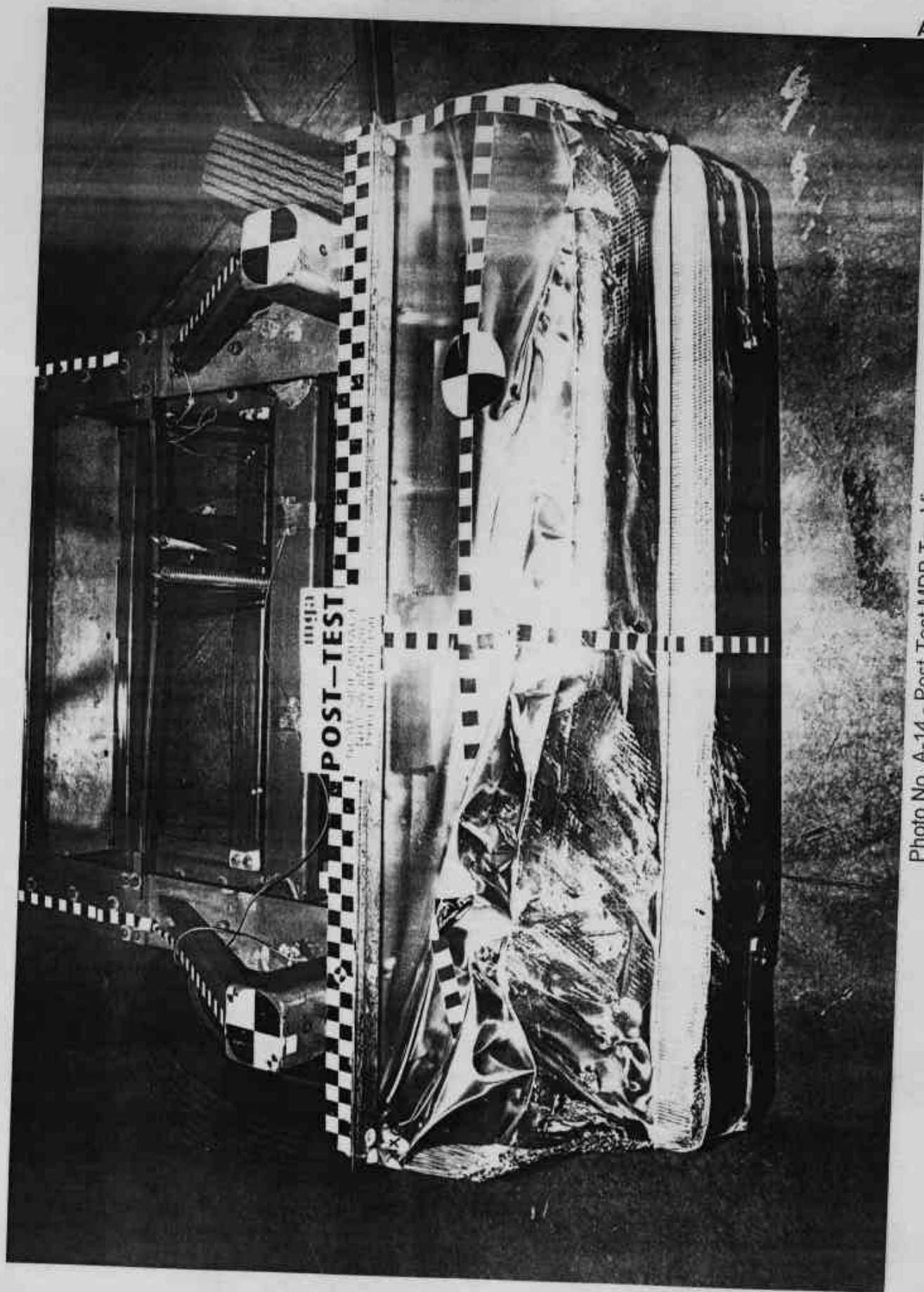


Photo No. A-14 - Post-Test MDB Top View

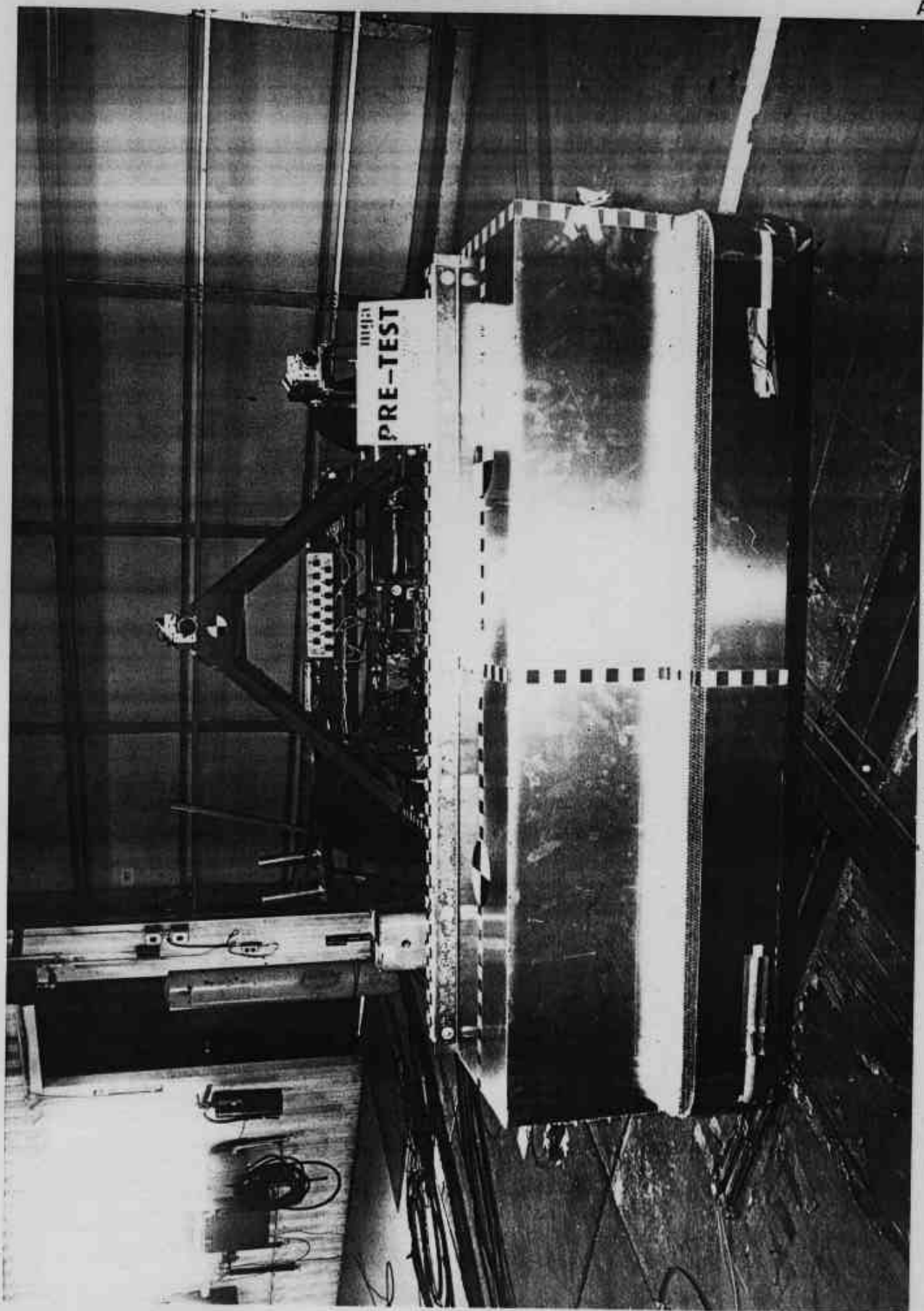


Photo No. A-15 - Pre-Test MDB Front View

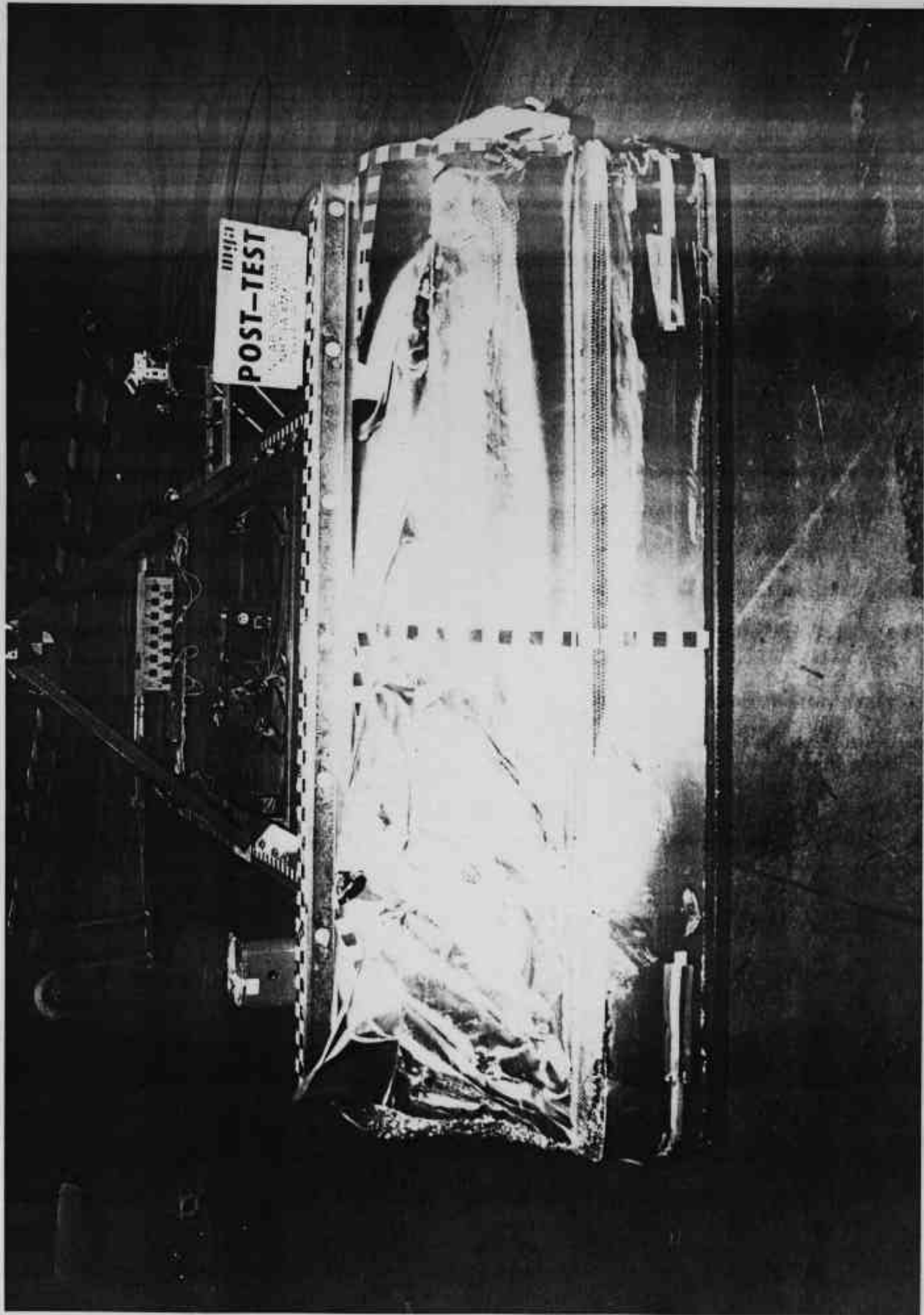


Photo No. A-16 - Post-Test MDB Front View

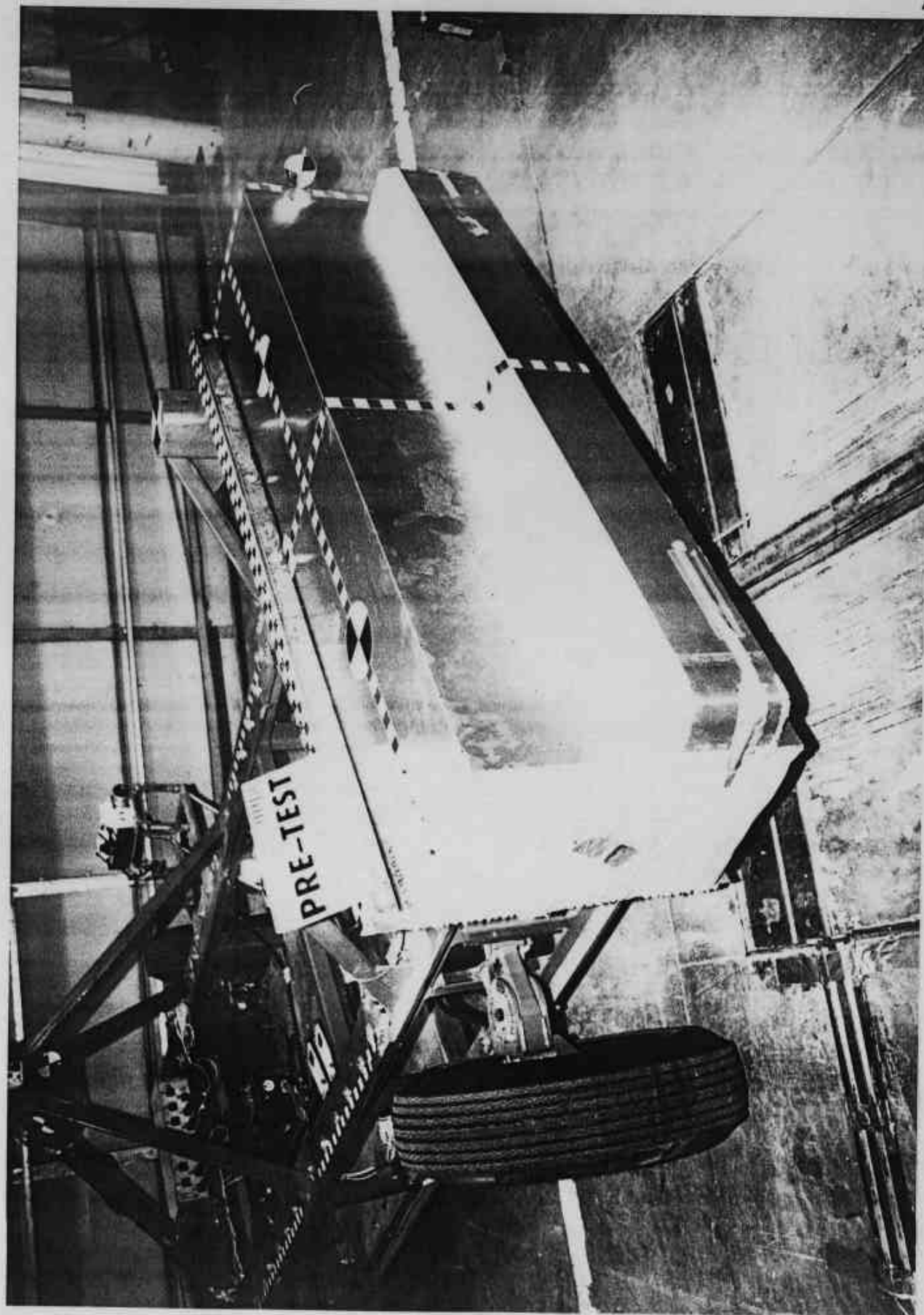


Photo No. A-17 - Pre-Test MDB Right Side View

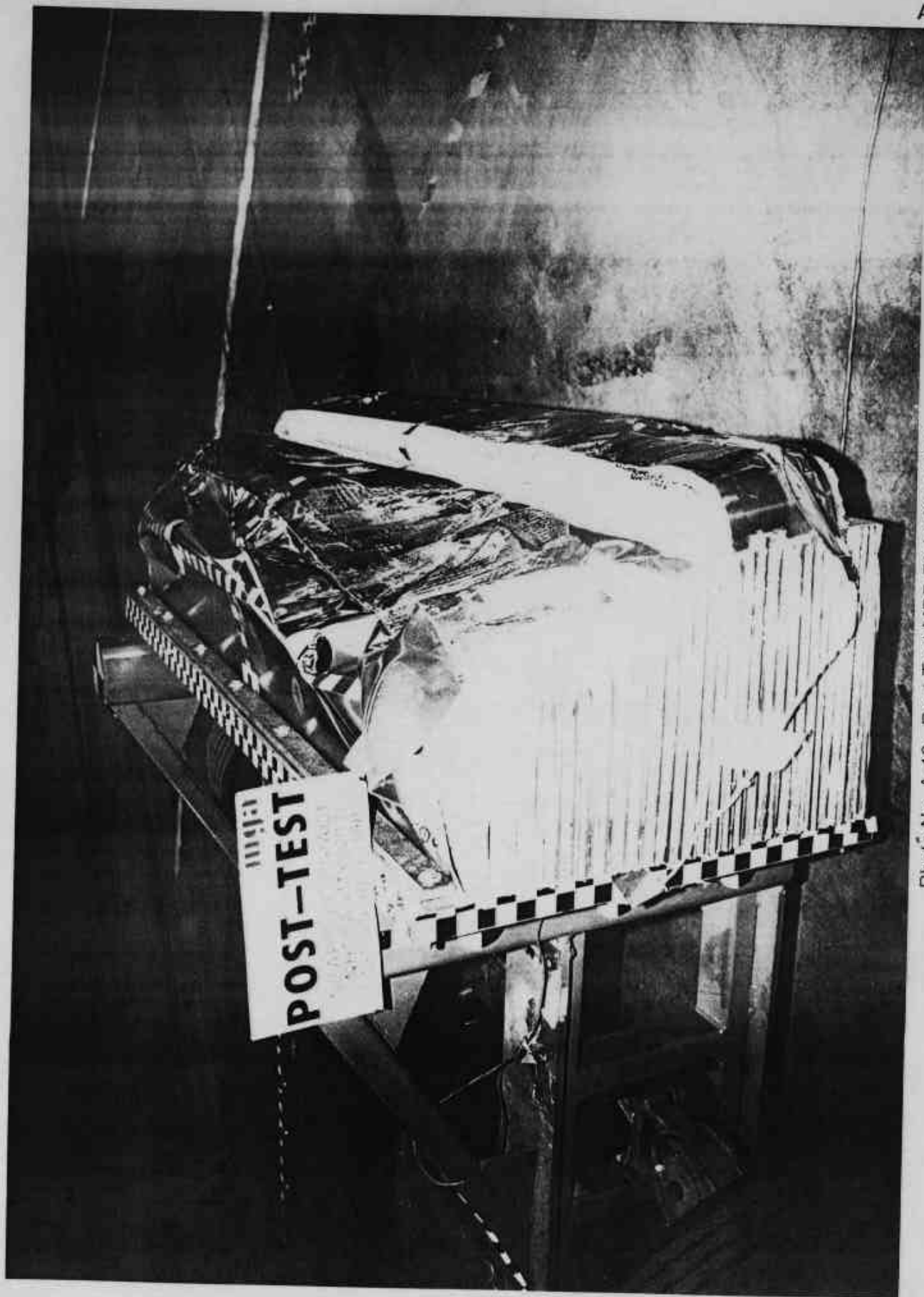


Photo No. A-18 - Post-Test MDB Right Side View

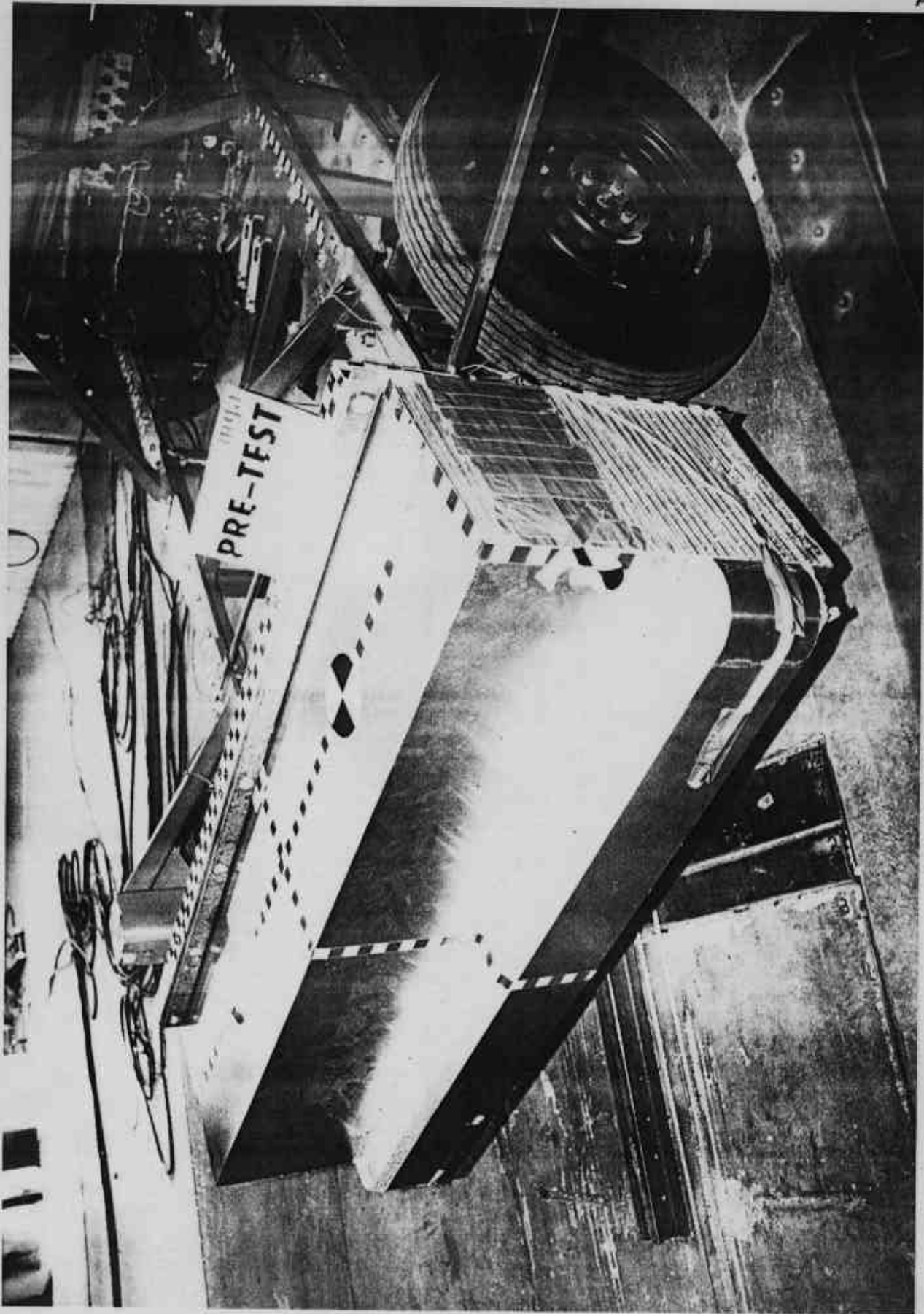


Photo No. A-19 - Pre-Test MDB Left Side View

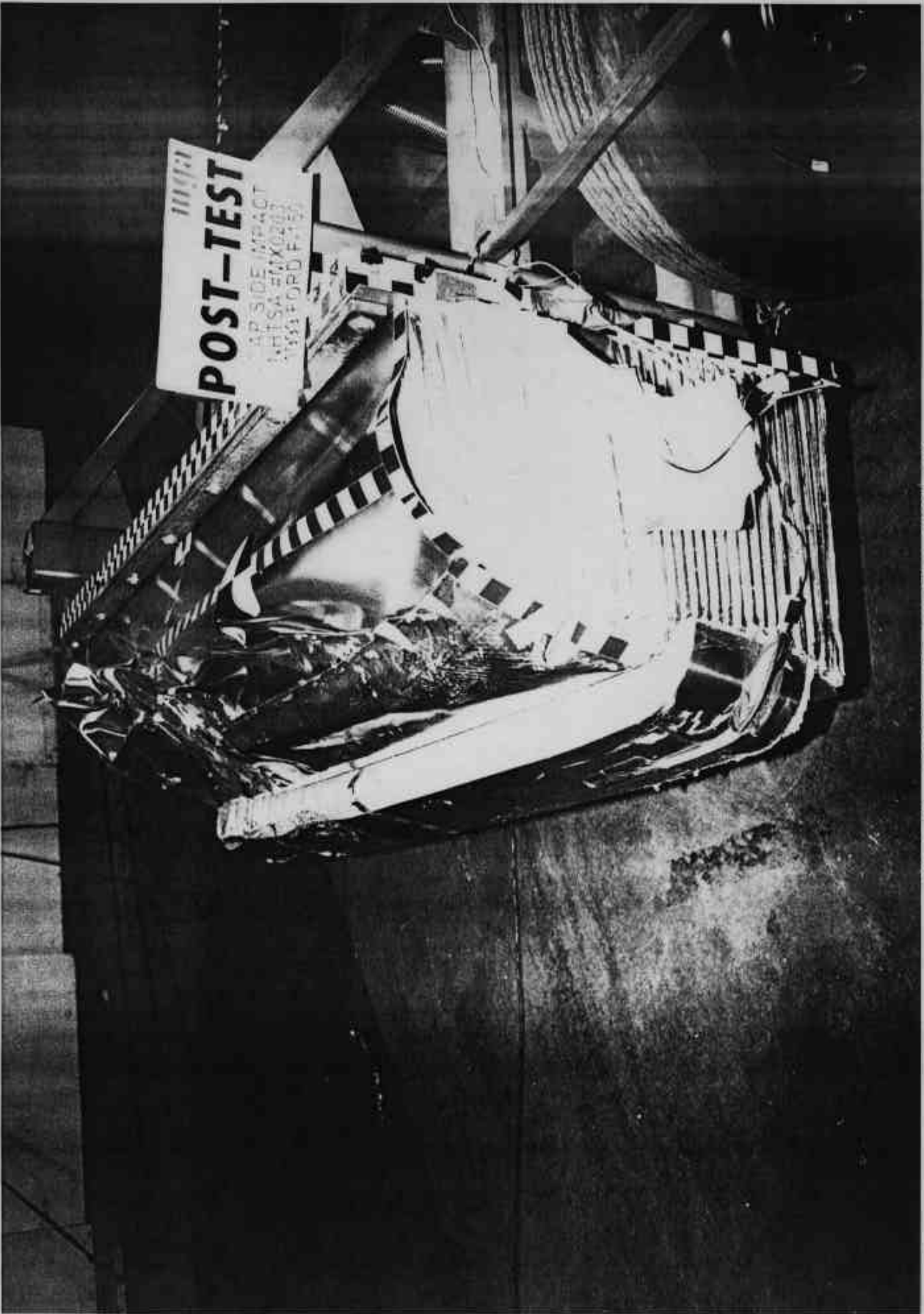


Photo No. A-20 - Post-Test MDB Left Side View



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



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

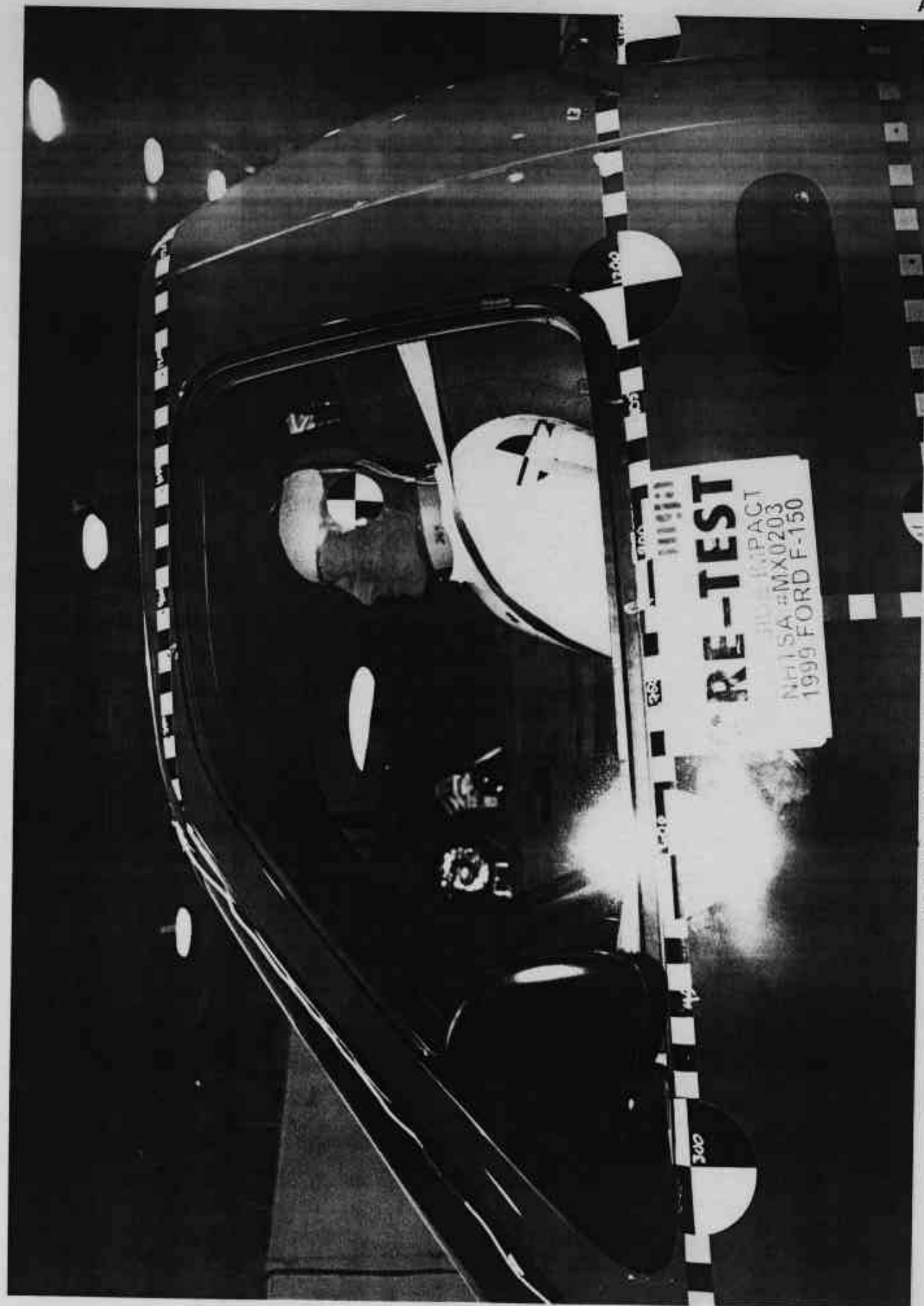


Photo No. A-23 - Pre-Test Driver Dummy Left Side View

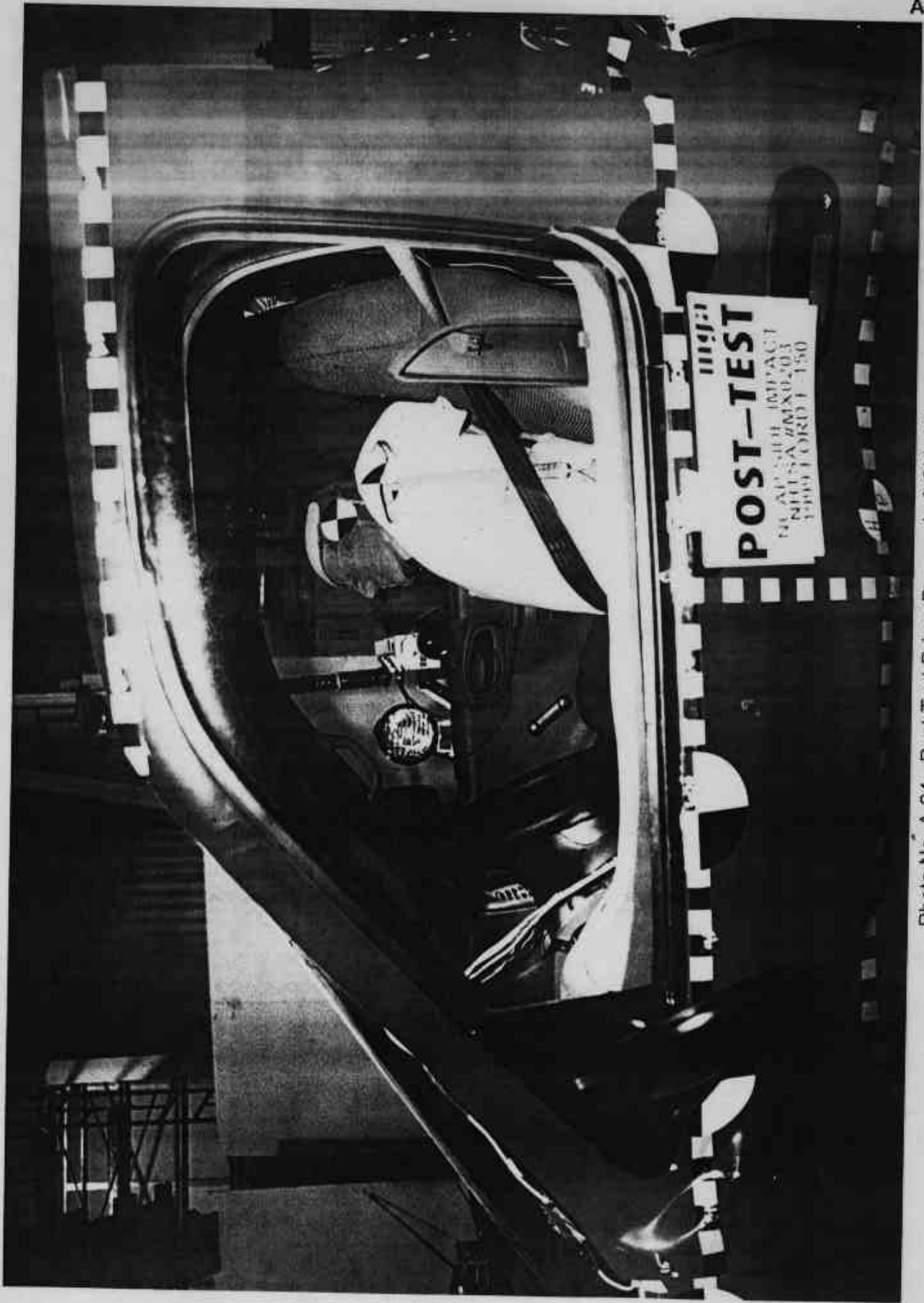


Photo No. A-24 - Post-Test Driver Dummy Left Side View

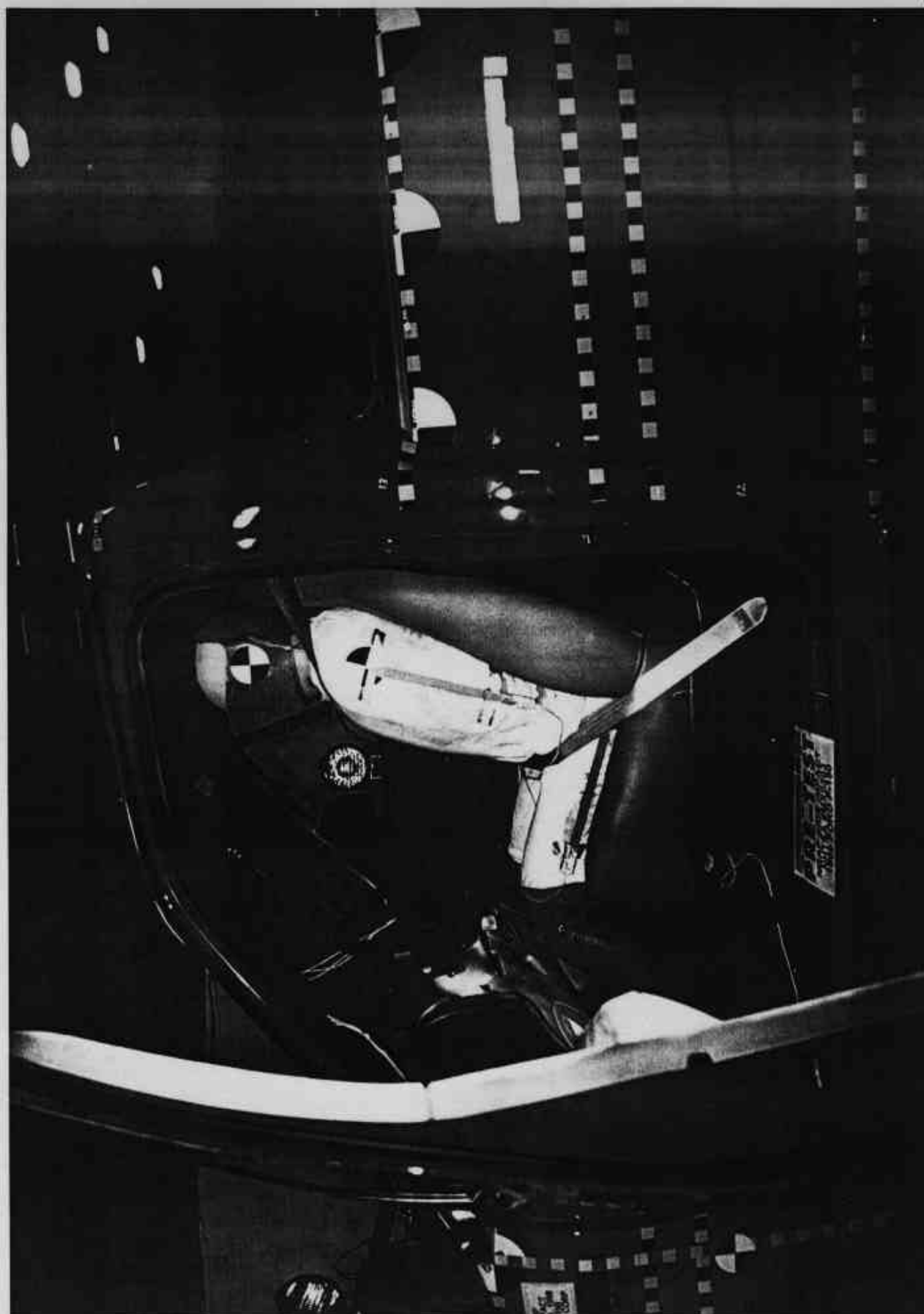


Photo No. A-25 - Pre-Test Driver Dummy Left Side View (Door Open)

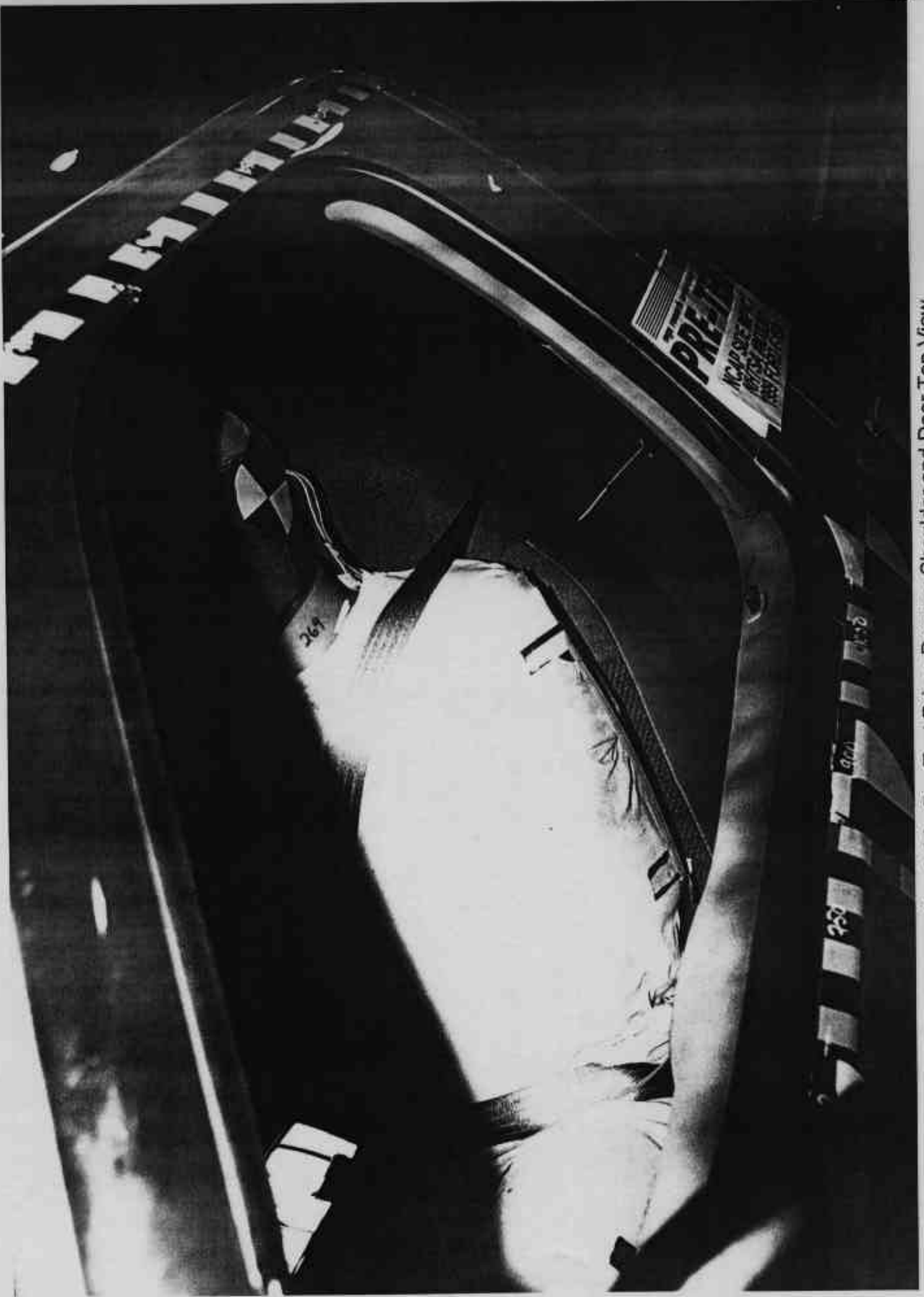


Photo No. A-26 - Pre-Test Driver Dummy Shoulder and Door Top View



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



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



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



Photo No. A-30 - Pre-Test Left Front Impact Point on Vehicle



Photo No. A-31 - Post-Test Left Front Impact Point on Vehicle

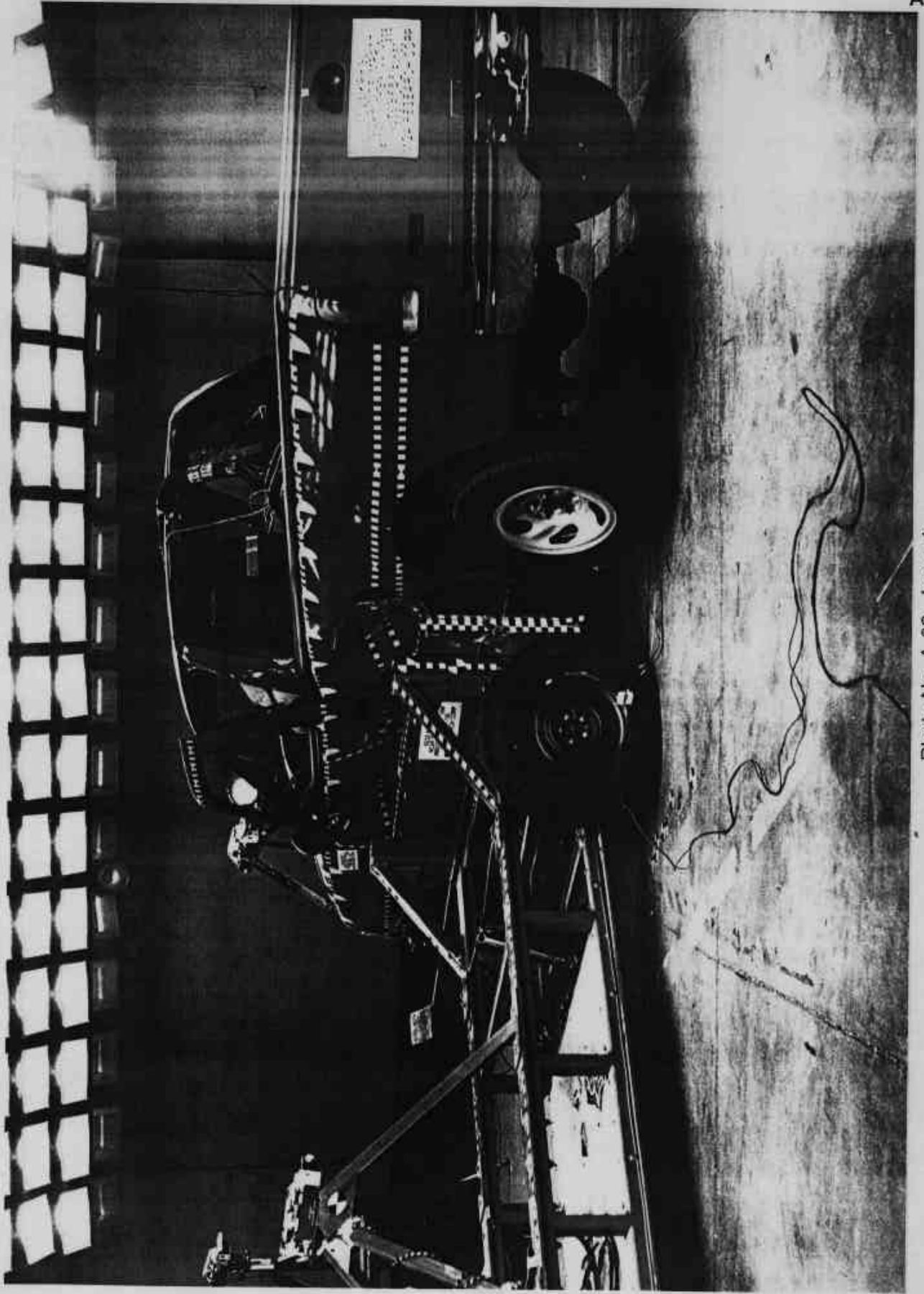


Photo No. A-32 - Impact

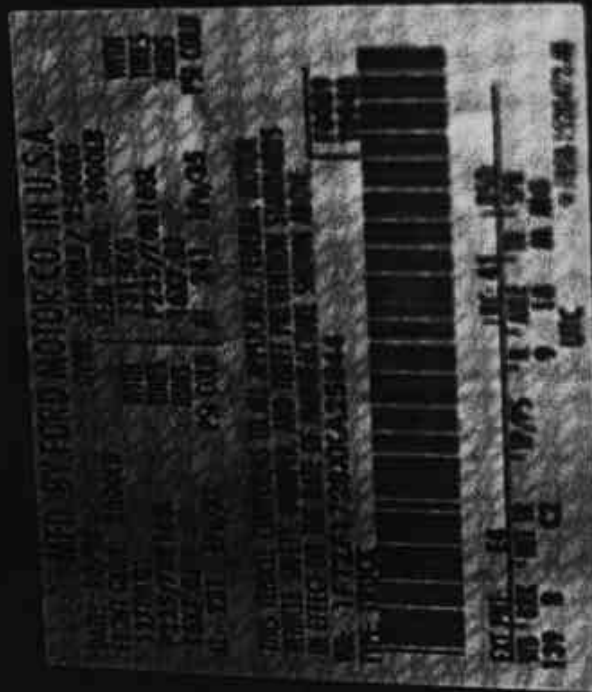


Photo No. A-33 - Vehicle Certification Label and Tire Placard

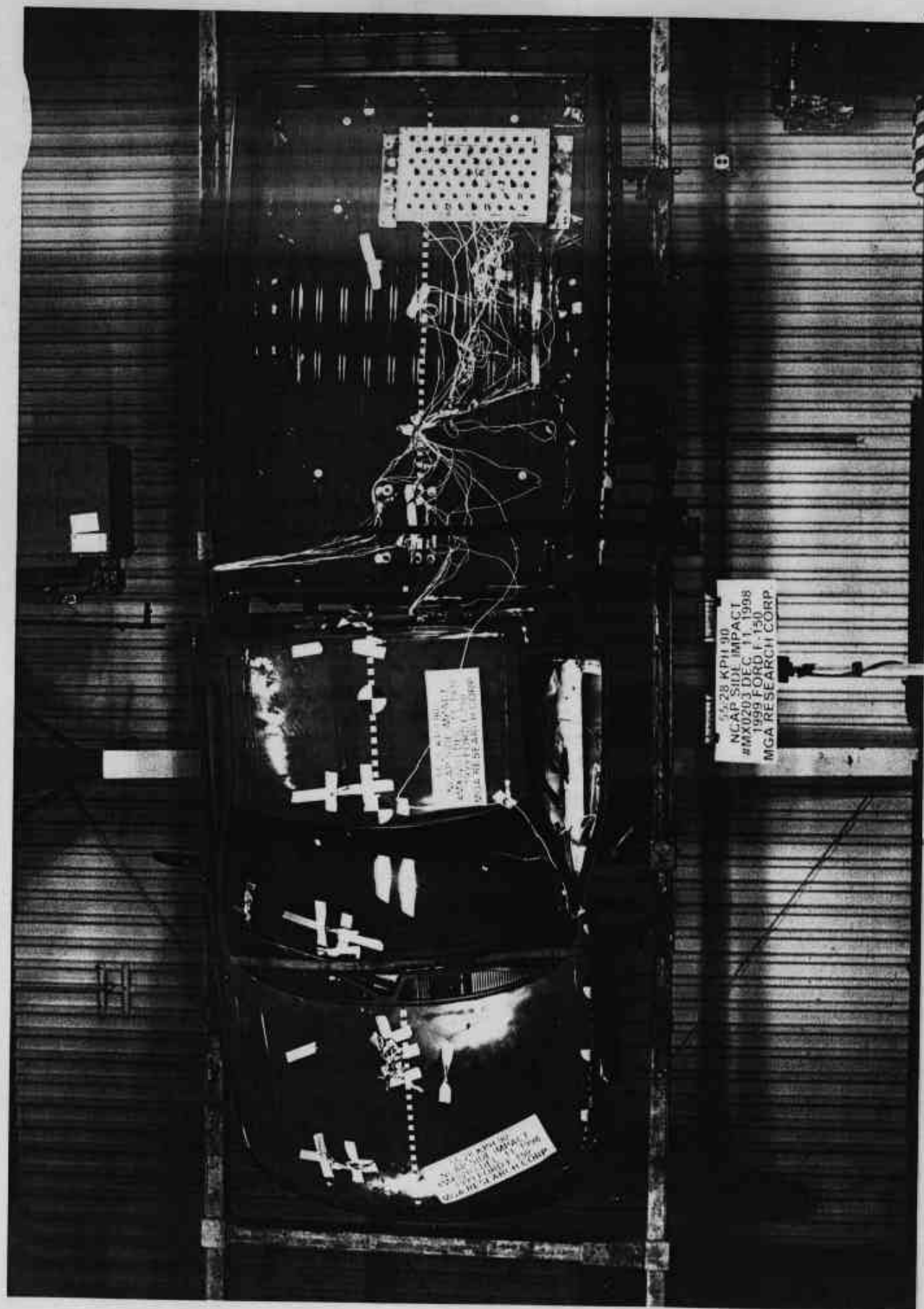


Photo No. A-34 - Rollover 90°

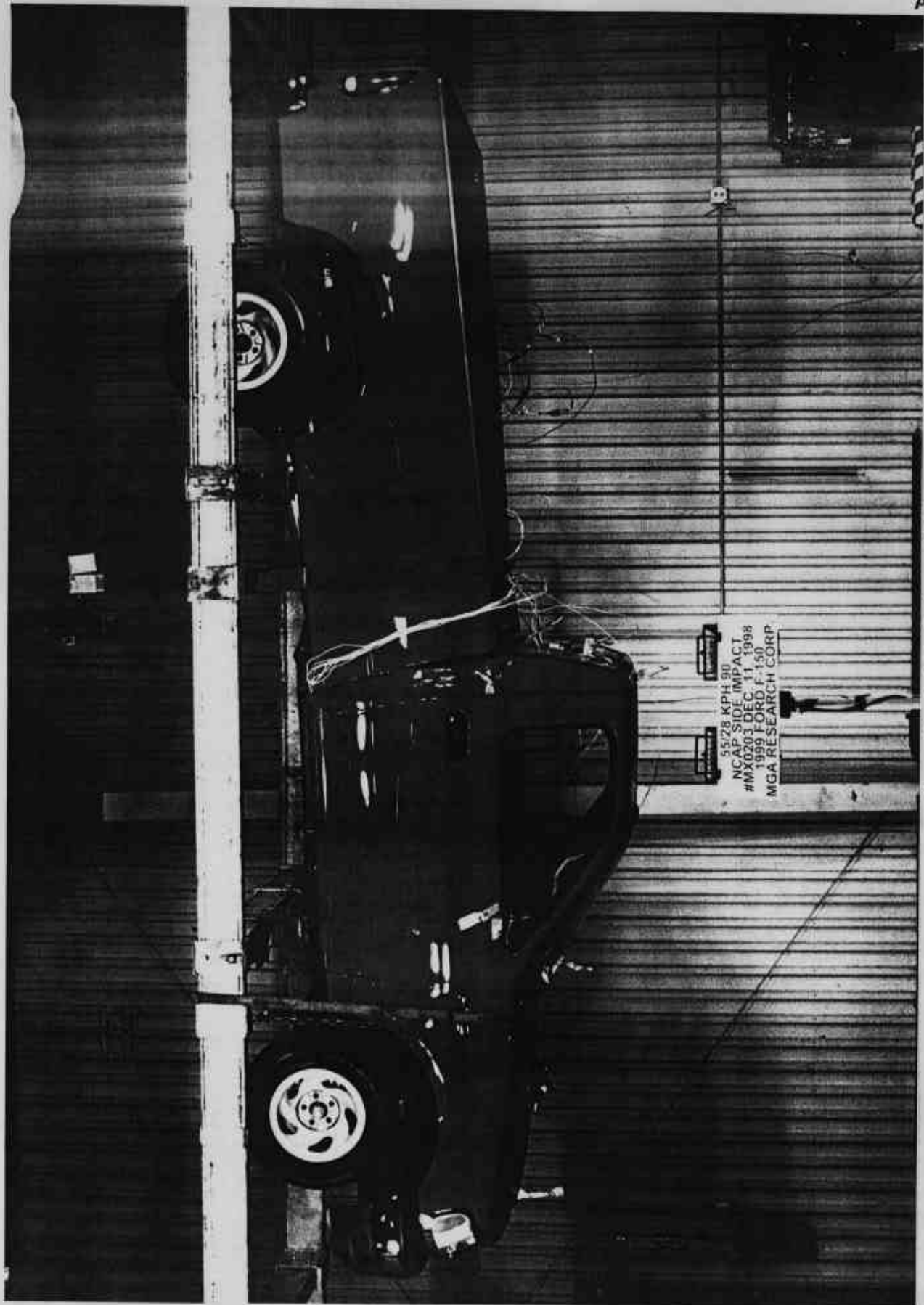


Photo No. A-35 - Rollover 180°

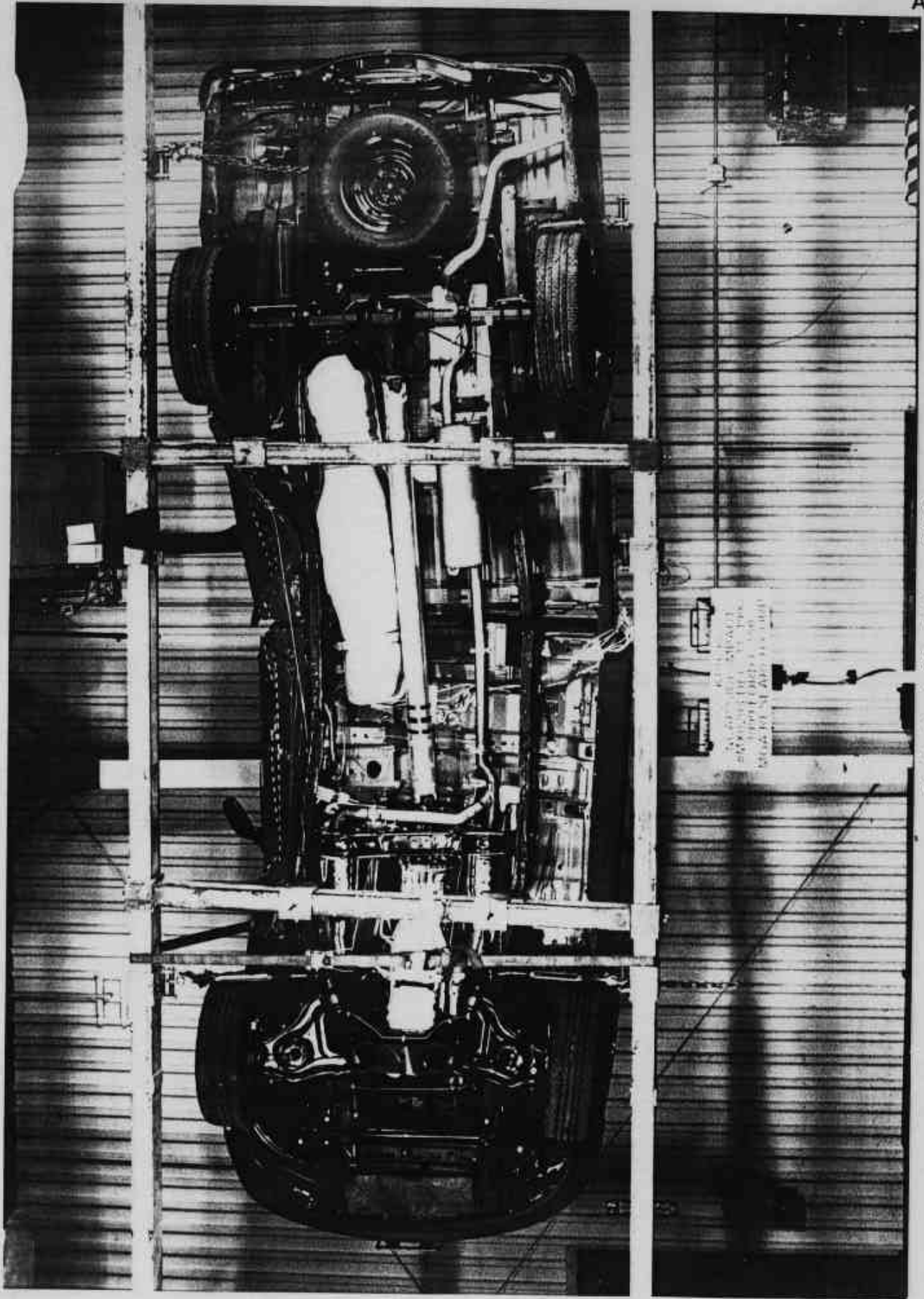


Photo No. A-36 - Rollover 270°

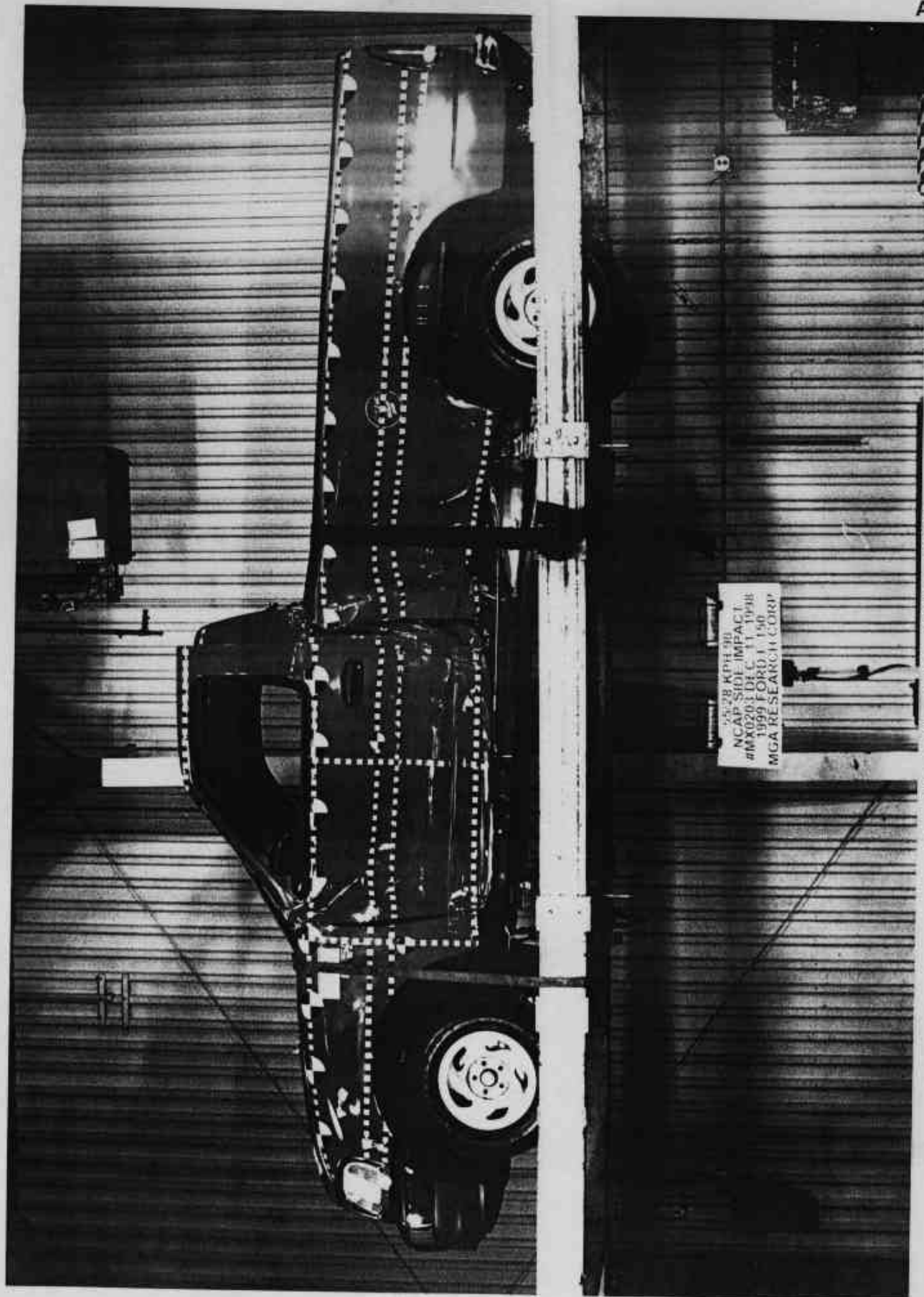


Photo No. A-37 - Rollover 360°

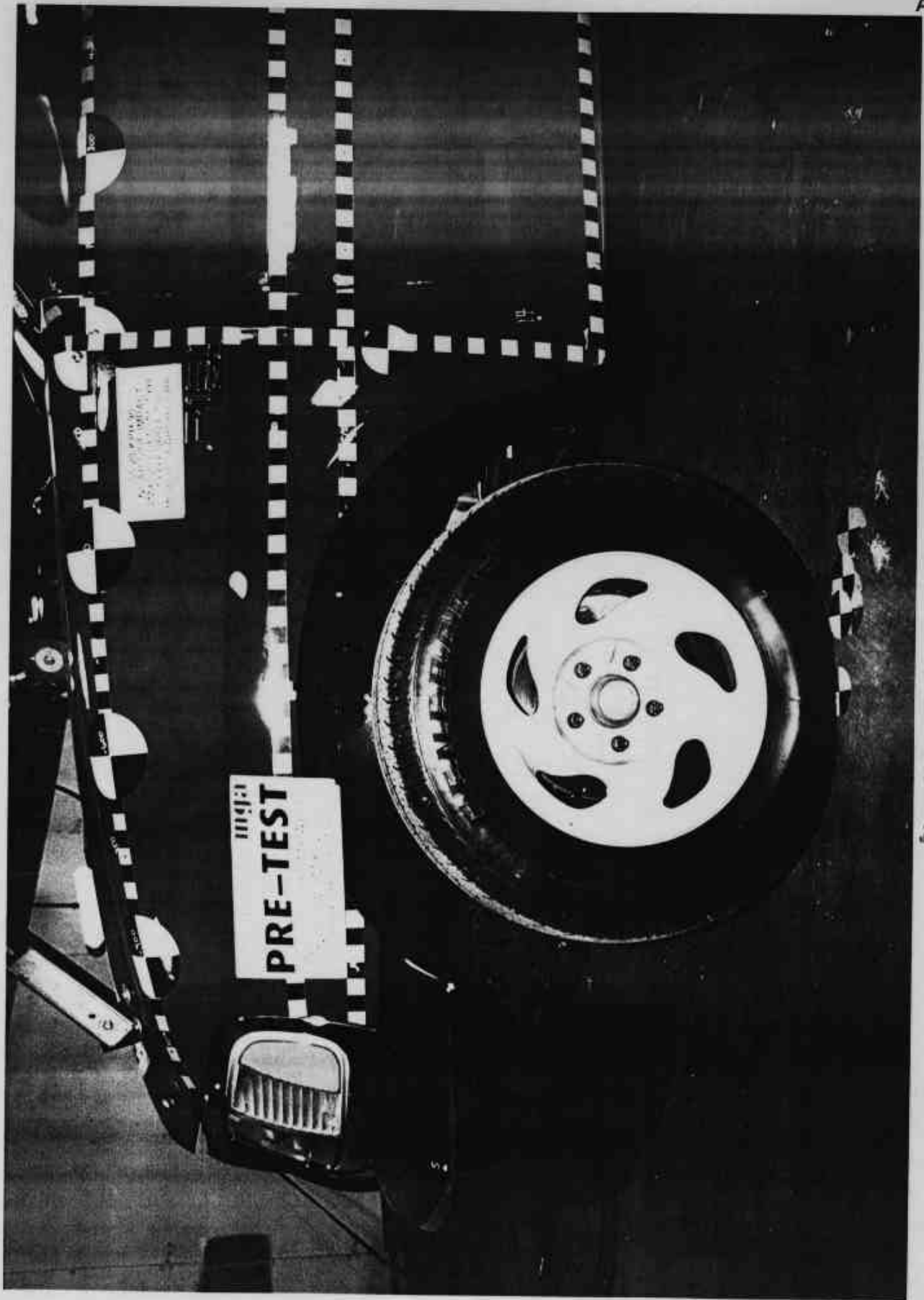


Photo No. A-38 - Left Front Attitude Point

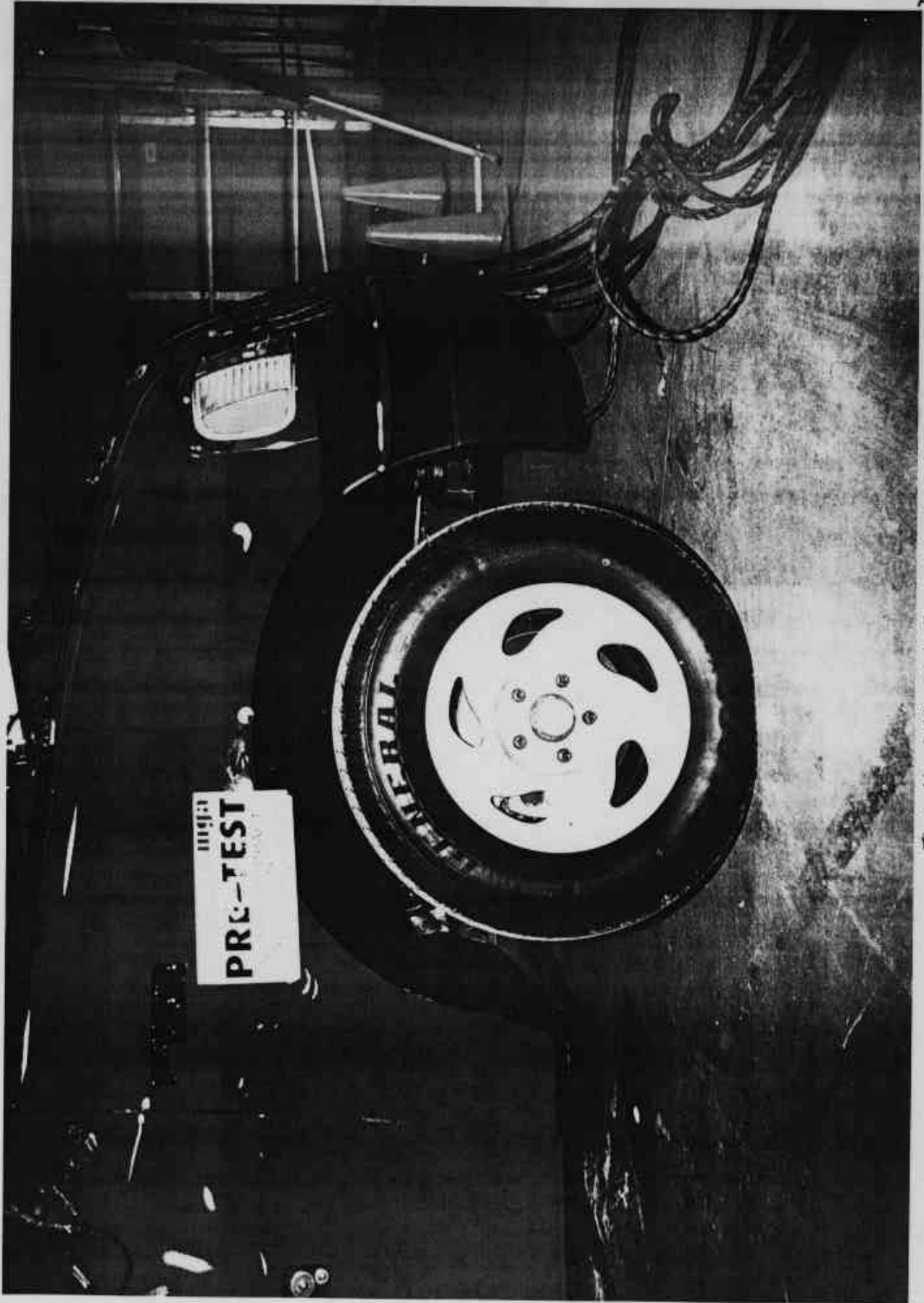


Photo No. A-39 - Right Front Attitude Point

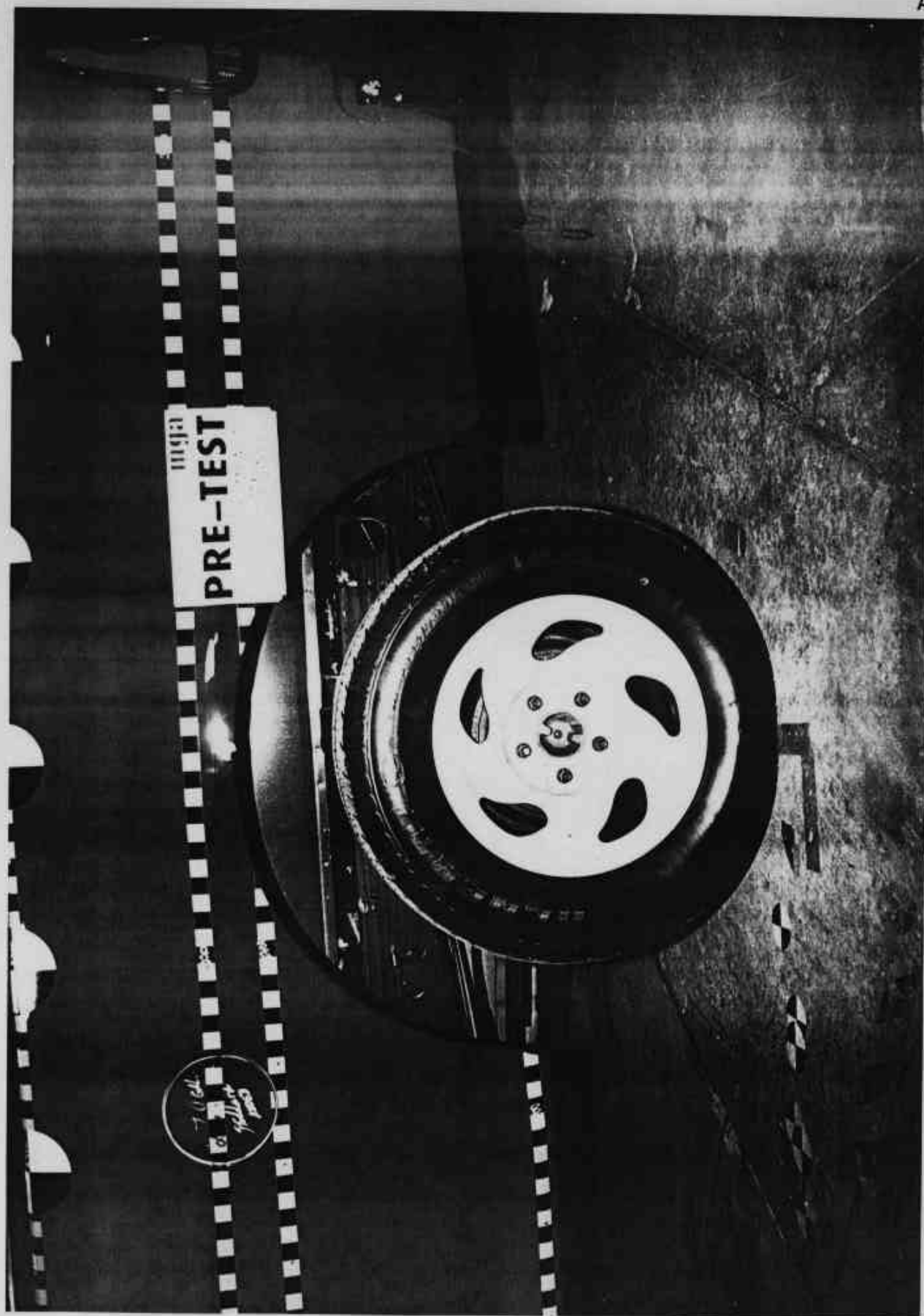


Photo No. A-40 - Left Rear Attitude Point

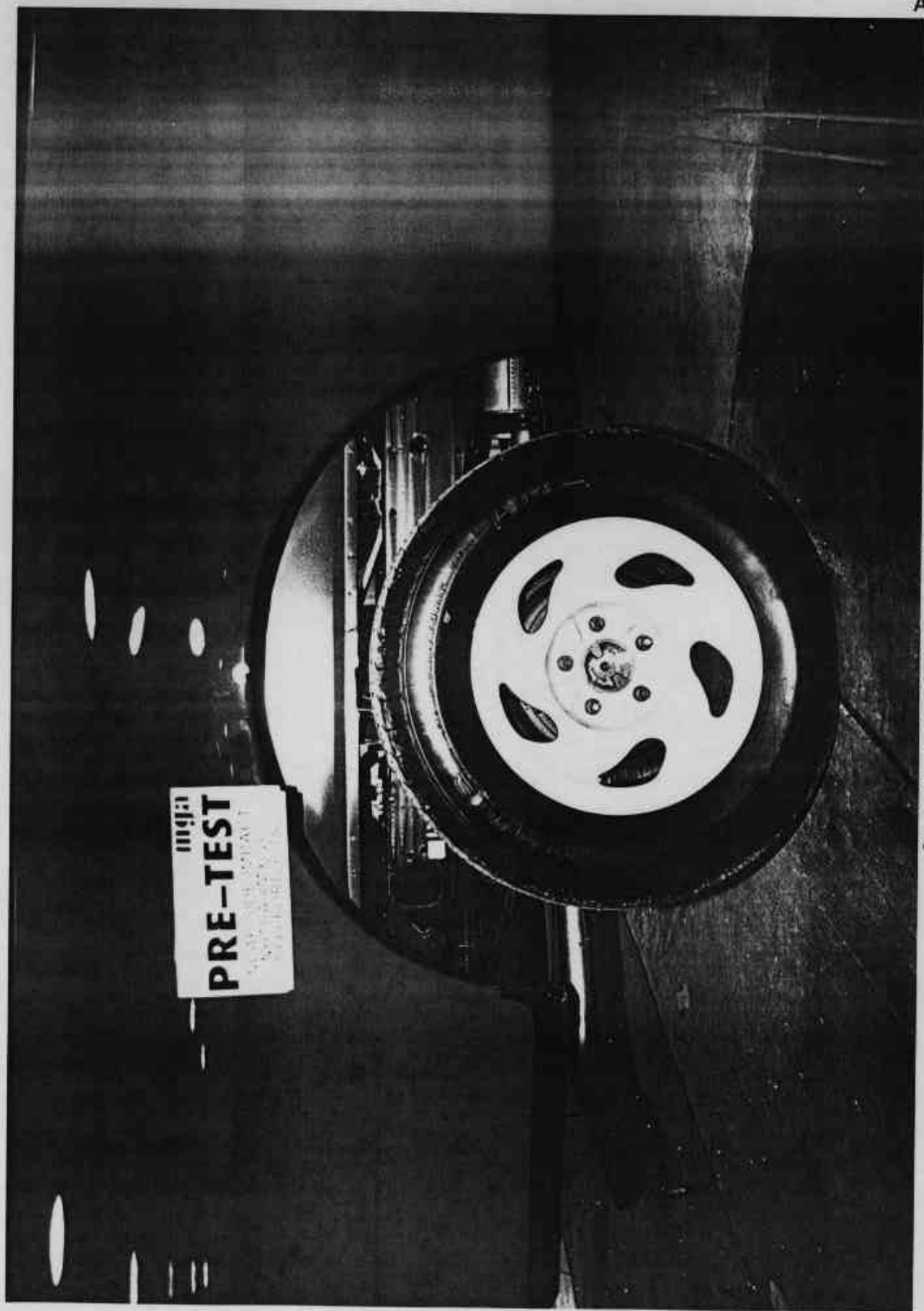


Photo No. A-41 - Right Rear Attitude Point

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FIR Filtered

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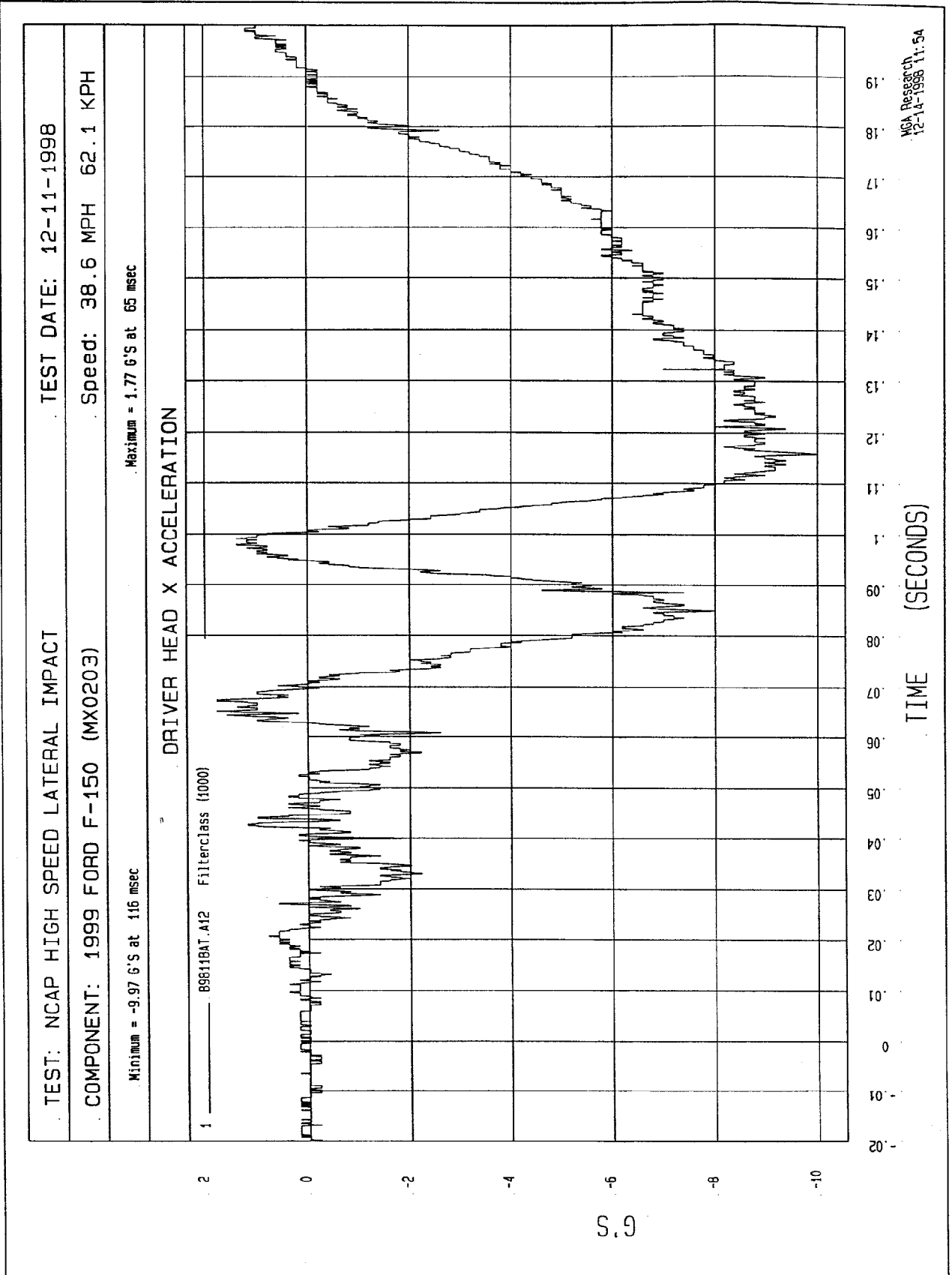
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Figure B-93 - Driver Pelvis Y Acceleration vs. Time

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Figure B-94 - Driver Pelvis Y Redundant Acceleration vs. Time

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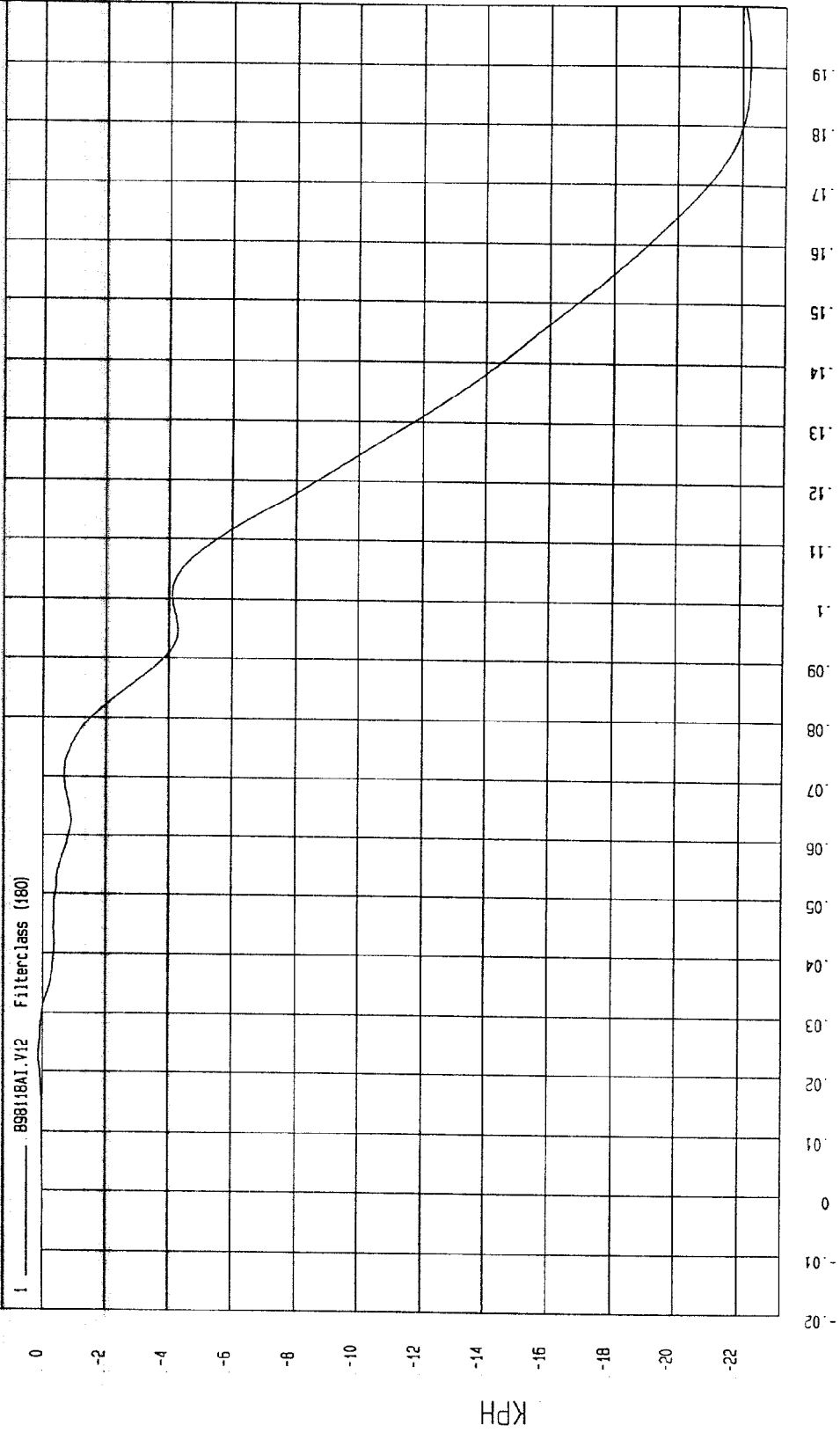


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

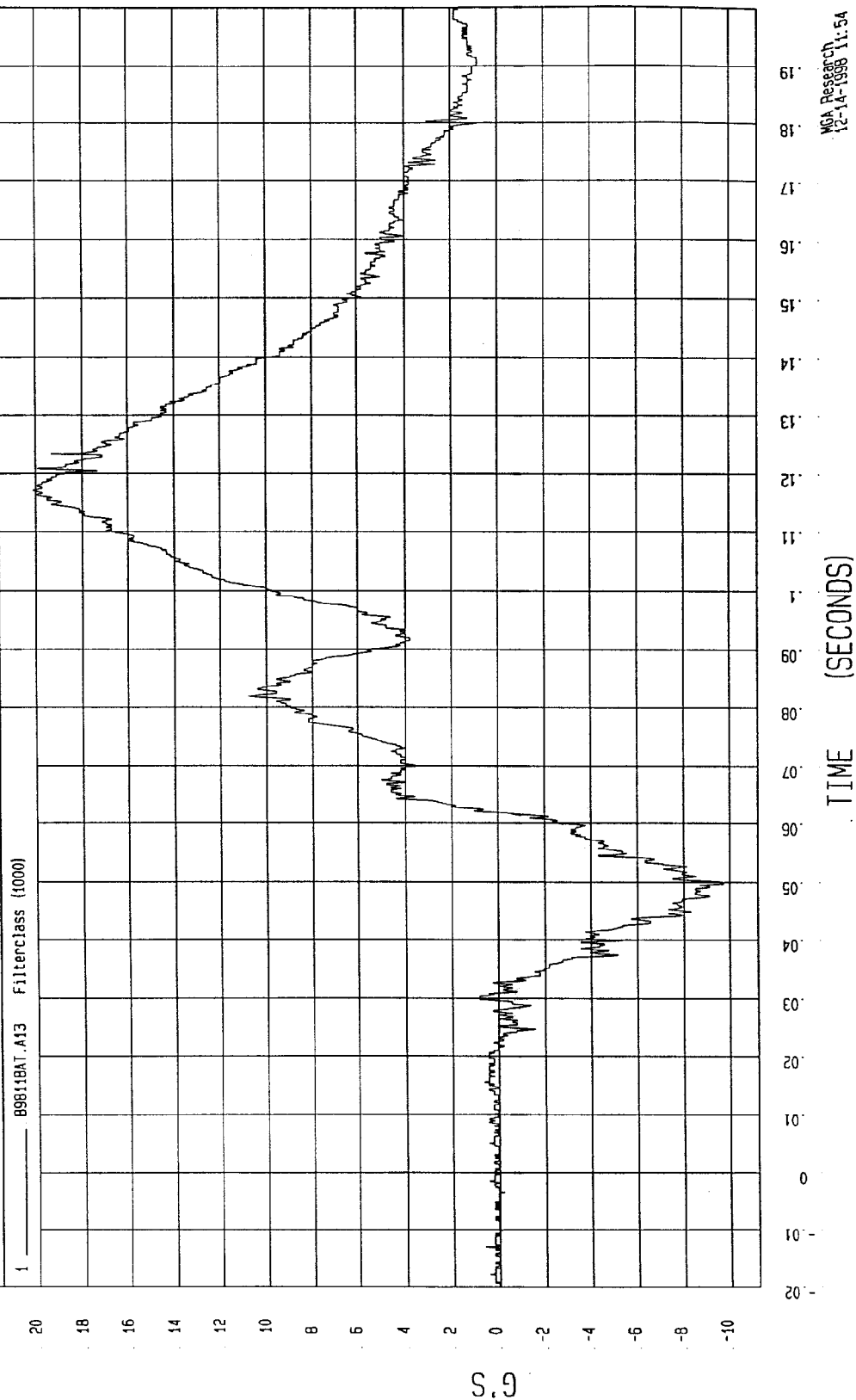
Minimum = -22.25 KPH at 192 msec Maximum = 13 KPH at 23 msec

DRIVER HEAD X VELOCITY



TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998
COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH
Minimum = -9.71 G'S at 50 msec Maximum = 20.11 G'S at 117 msec

DRIVER HEAD Y ACCELERATION



TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -5.17 KPH at 62 msec Maximum = 33.05 KPH at 200 msec

DRIVER HEAD Y VELOCITY

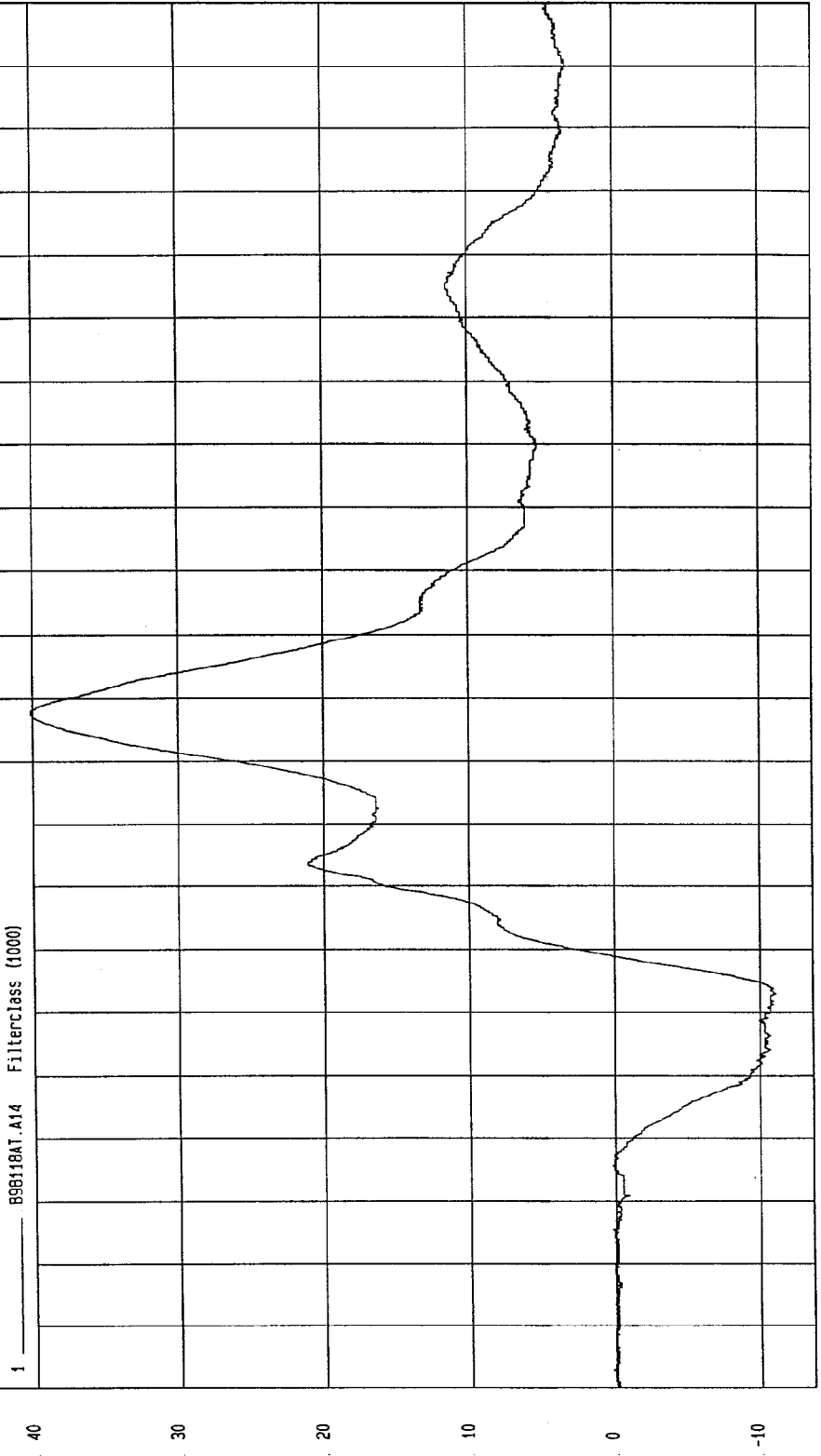
1 _____ B96118A1.V13 Filterclass (180)



WCA Research
12-15-1998 14:41

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998
COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH
Minimum = -11.14 G'S at 43 msec Maximum = 40.21 G'S at 88 msec

DRIVER HEAD Z ACCELERATION



TIME (SECONDS)

MCA Research
12-14-1998 11:54

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203)

Speed: 38.6 MPH 62.1 KPH

Minimum = -8.18 KPH at 49 msec

Maximum = 55.74 KPH at 200 msec

DRIVER HEAD Z VELOCITY

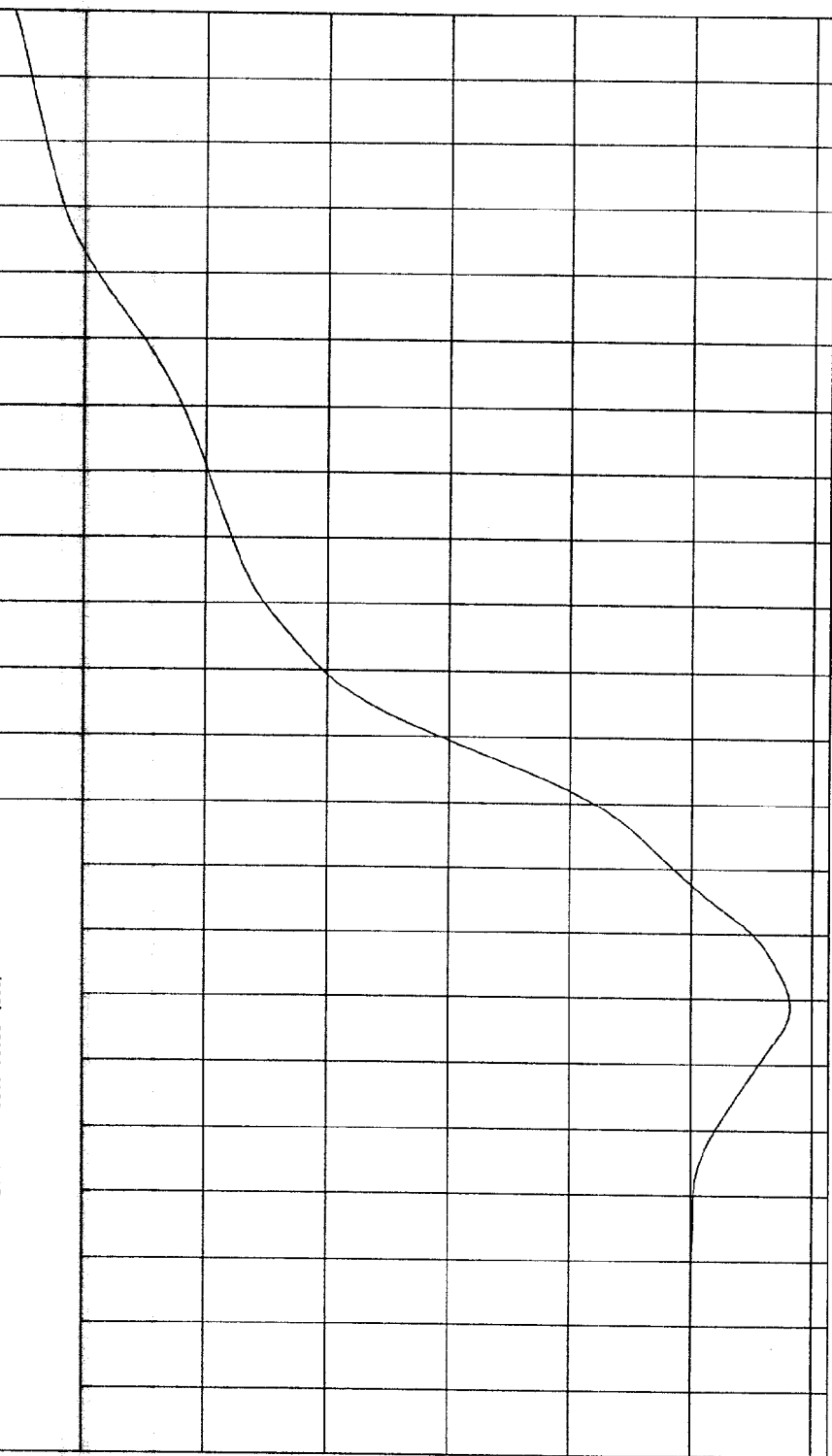
1 ——— 898118A1.V14 Filterclass (180)

KPH

50
40
30
20
10
0
-10

TIME Seconds

WCA Research
12-15-1998 14: 41

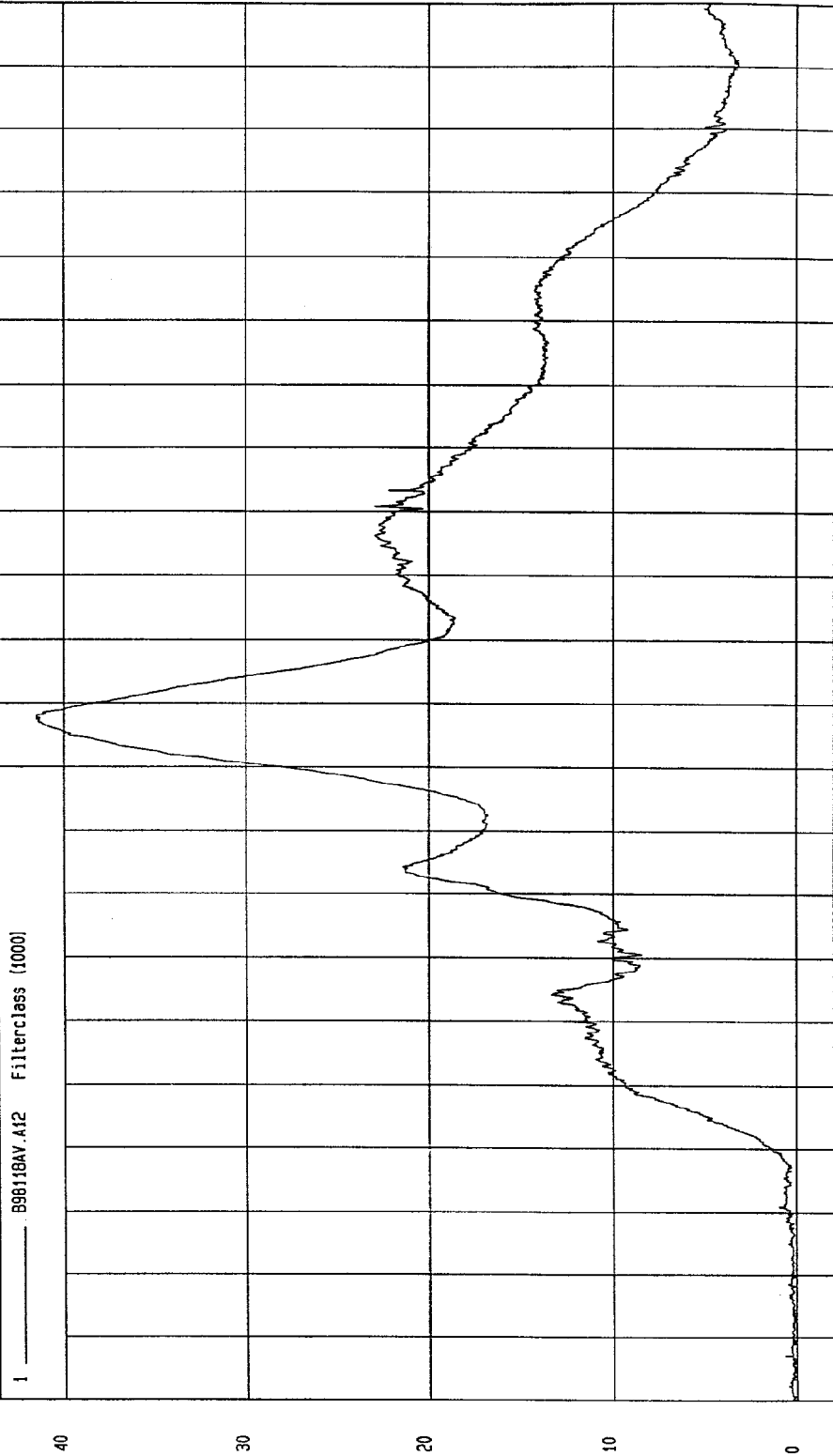


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = 7.77E-02 G'S at -19 msec Maximum = 41.55 G'S at 88 msec

DRIVER HEAD RESULTANT ACCELERATION



TIME (SECONDS)

MGA Research
12-14-1998 11:54

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

Speed: 38.6 MPH 62.1 KPH

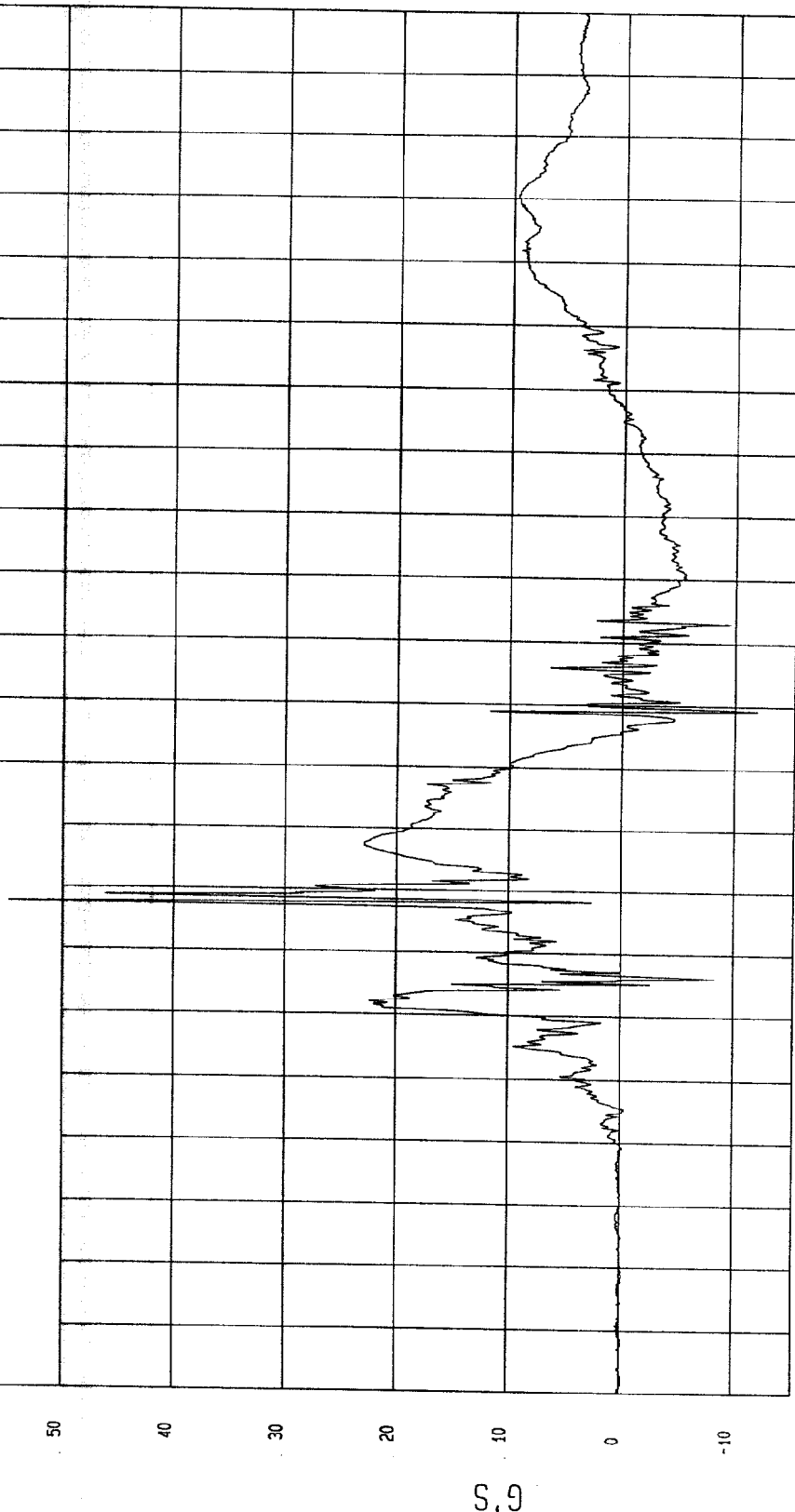
COMPONENT: 1999 FORD F-150 (MX0203)

Maximum = 54.84 G'S at 58 msec

Minimum = -11.96 G'S at 89 msec

DRIVER UPPER RIB Y ACCELERATION

1 — 898118AT.A15 Filterclass (1000)



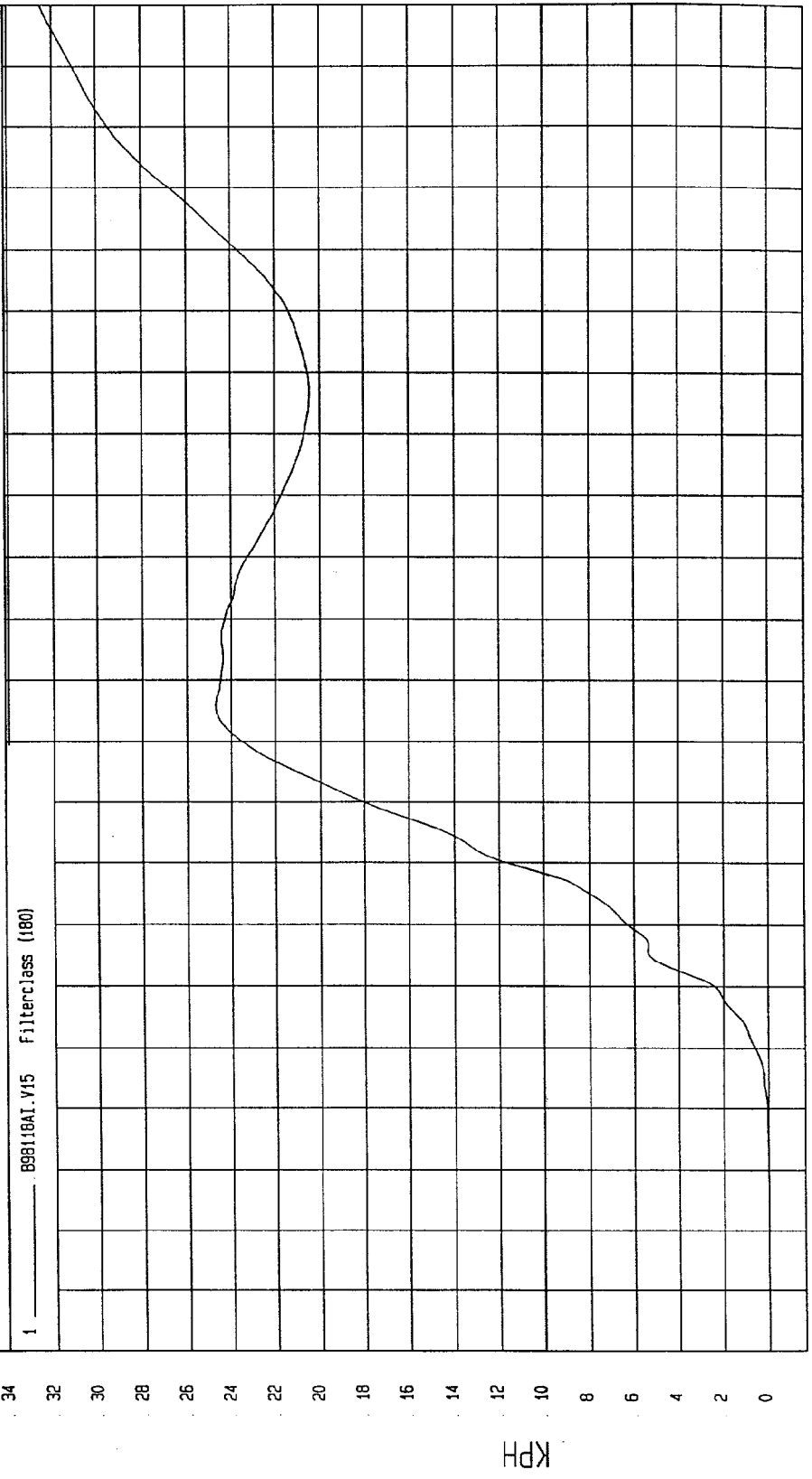
W&A Research
12-14-1998 11:56

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -1.19E-02 KPH at -11 msec Maximum = 32.52 KPH at 200 msec

DRIVER UPPER RIB Y VELOCITY



TIME Seconds

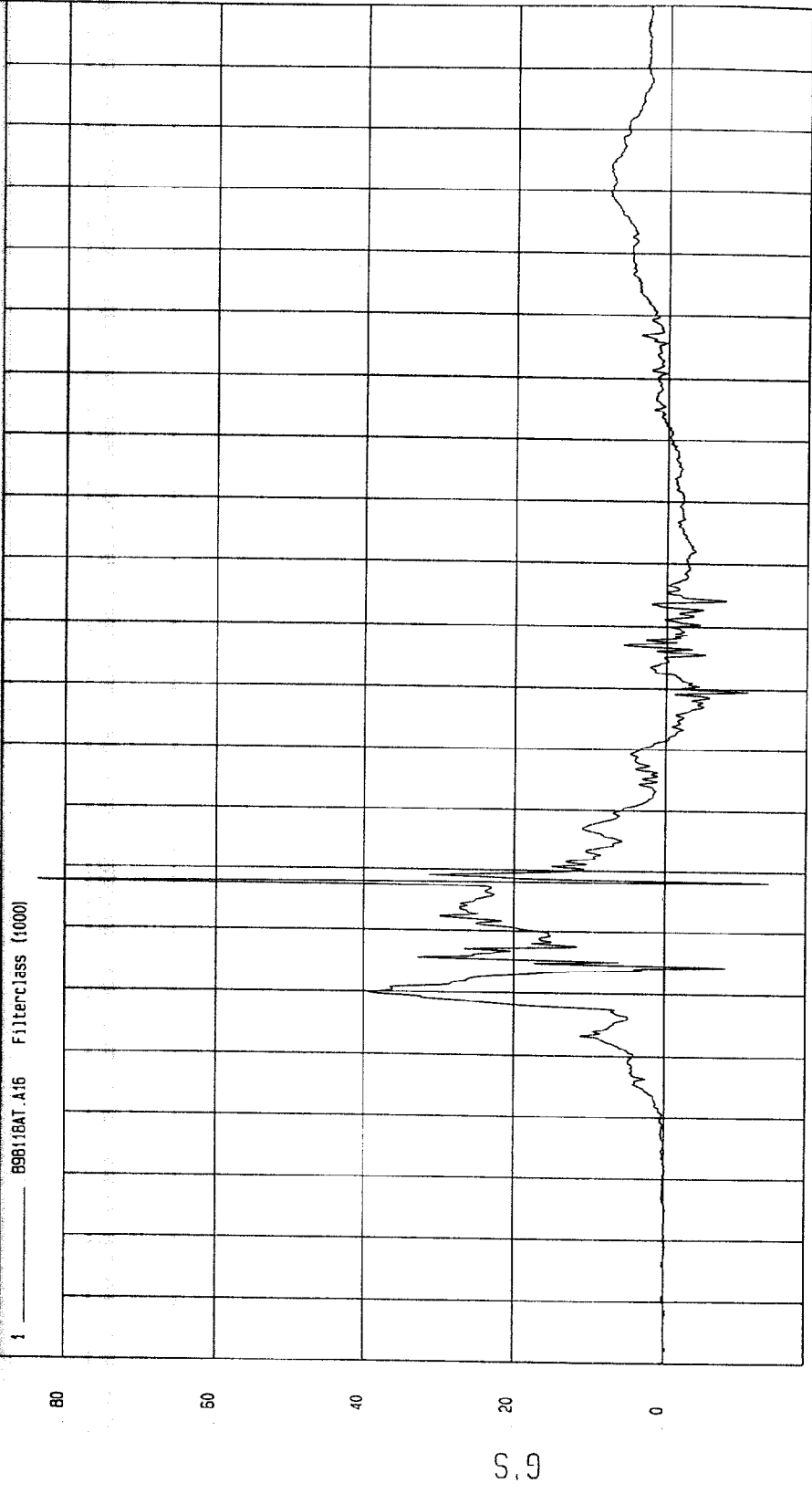
MCA Research
12-15-1998 14: 41

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -13.67 G'S at 58 msec Maximum = 83.61 G'S at 58 msec

DRIVER LOWER RIB Y ACCELERATION



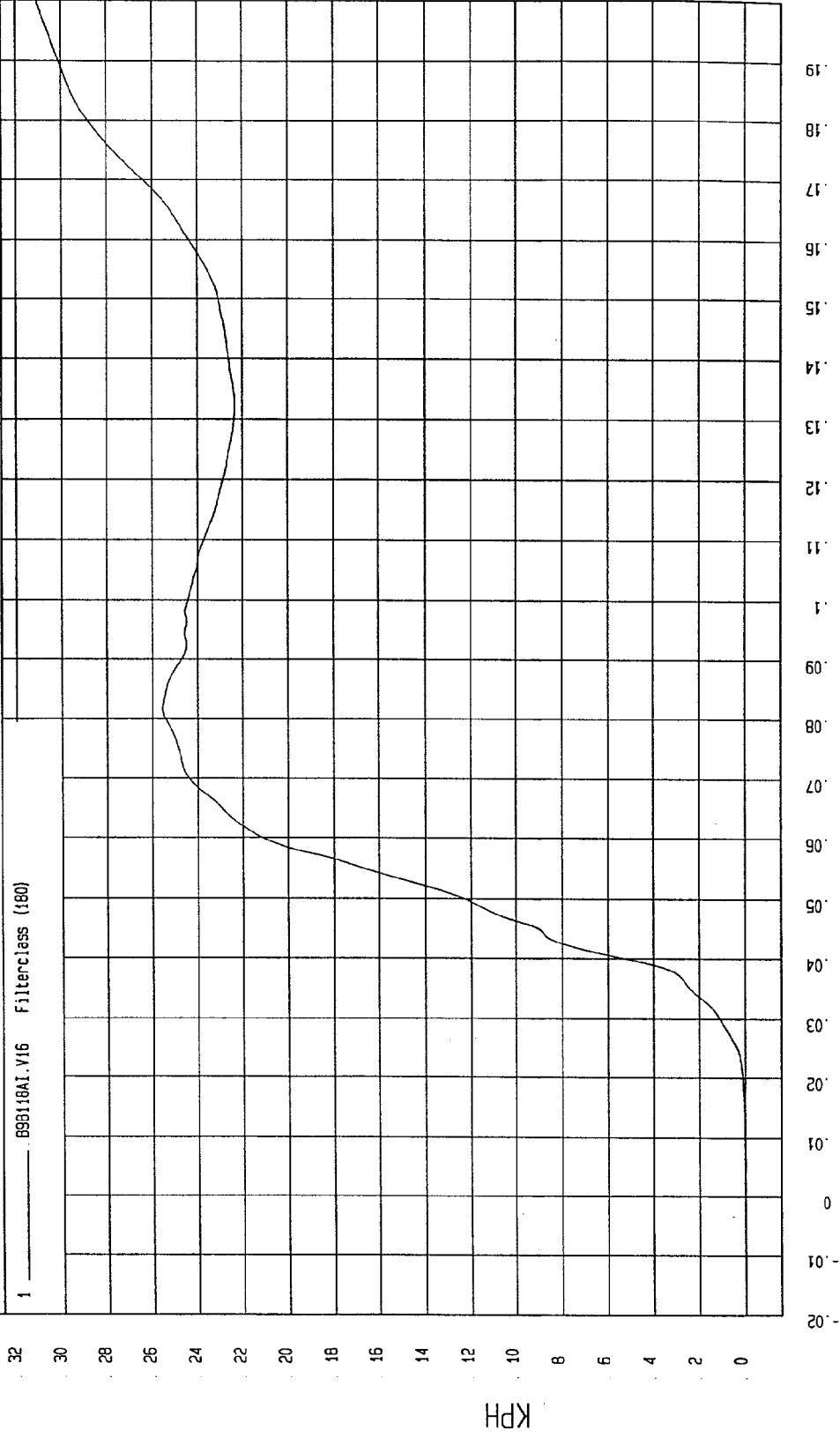
MOA Research
12-14-1998 11:56

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -1.68E-02 KPH at -11 msec Maximum = 31.09 KPH at 200 msec

DRIVER LOWER RIB Y VELOCITY



NSA Research
12-15-1998 14: 41

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

Speed: 38.6 MPH 62.1 KPH

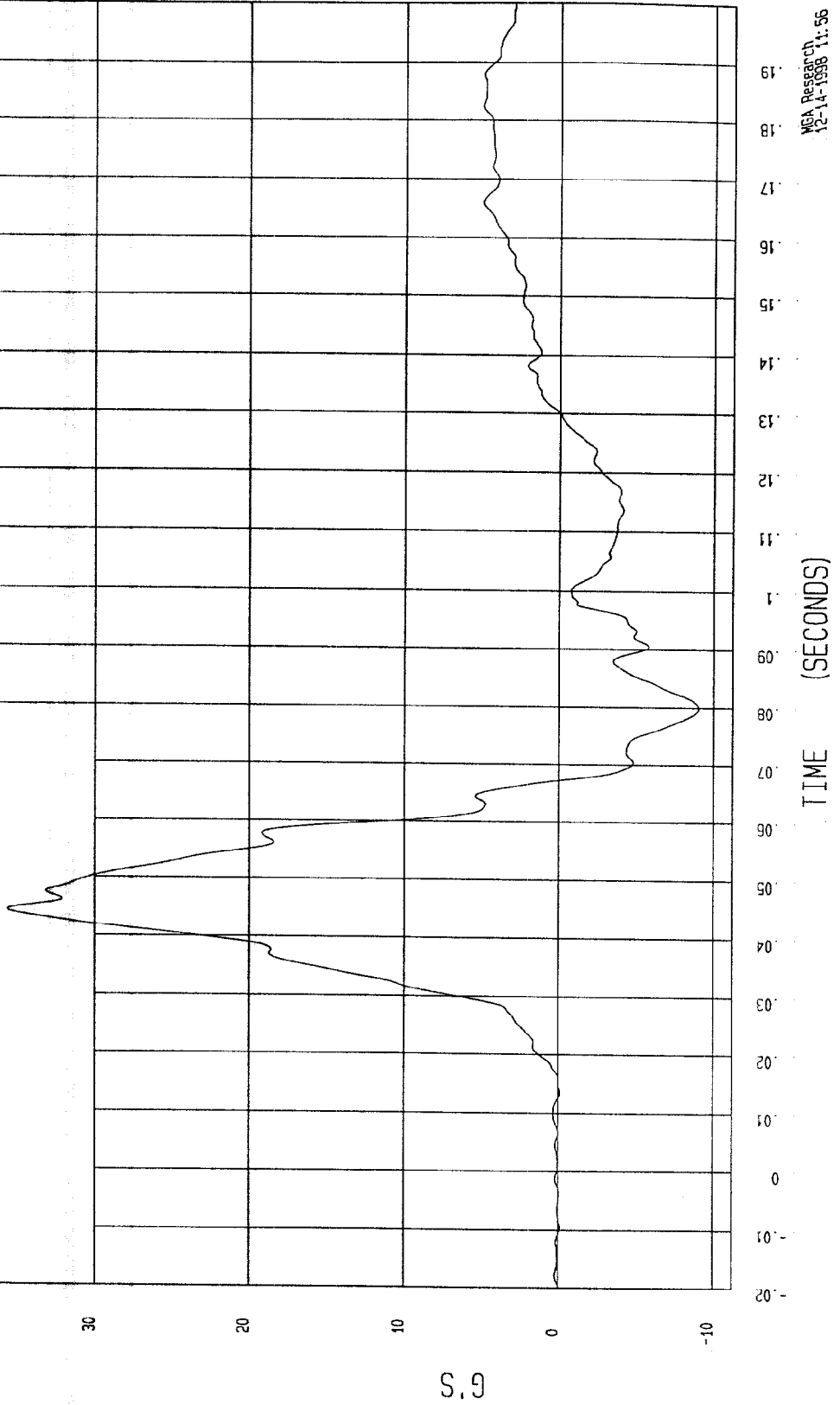
COMPONENT: 1999 FORD F-150 (MX0203)

Maximum = 35.66 G's at 44 msec

Minimum = -9 G's at 80 msec

DRIVER LOWER SPINE Y ACCELERATION

1 ——— B98130AF.A17 Filterclass (100)



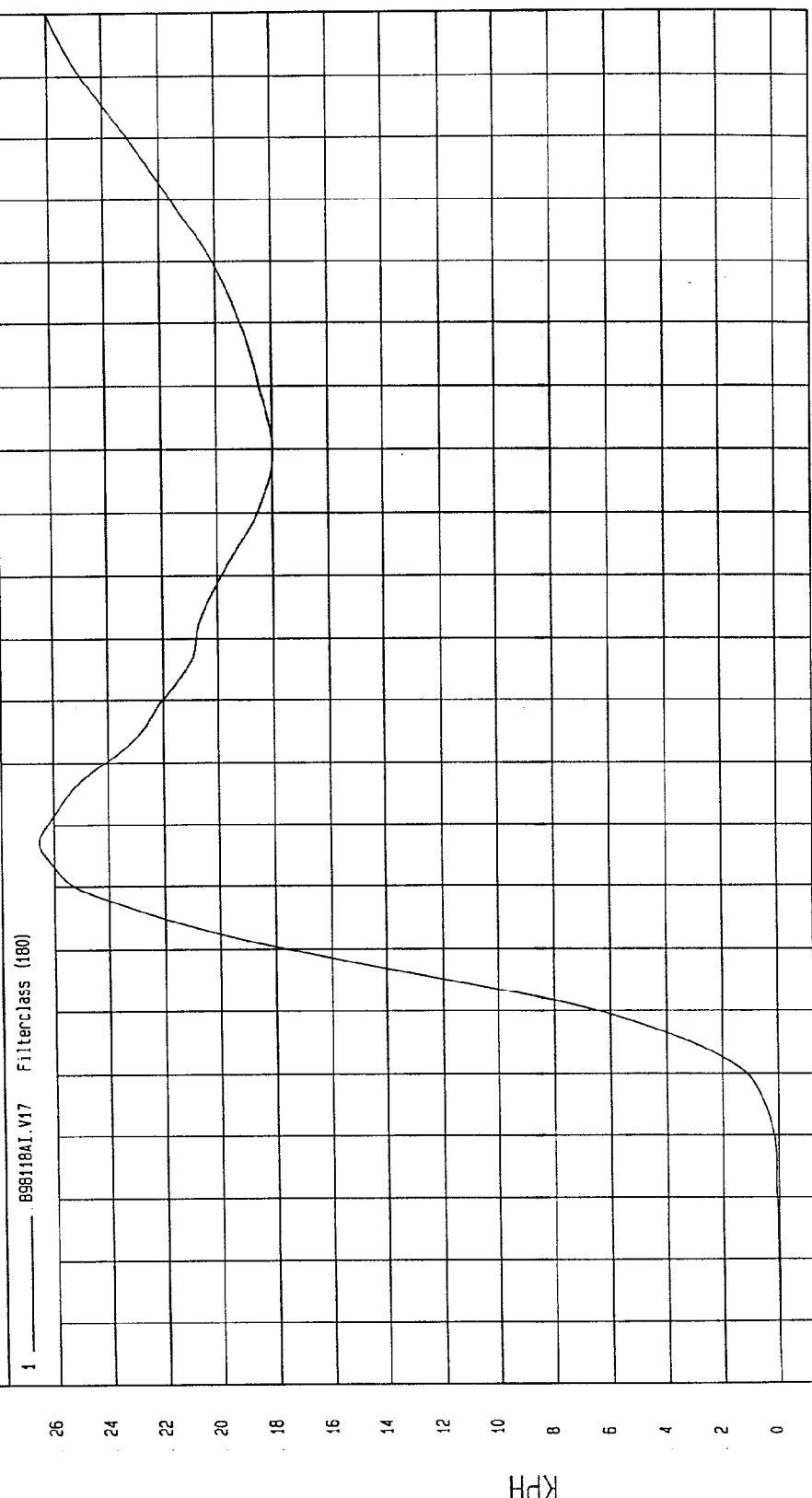
WCA Research
12-14-1998 11:56

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -2.85E-04 KPH at -20 msec Maximum = 26.54 KPH at 67 msec

DRIVER LOWER SPINE Y VELOCITY



WGA Research
12-15-1998 14:41

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203)

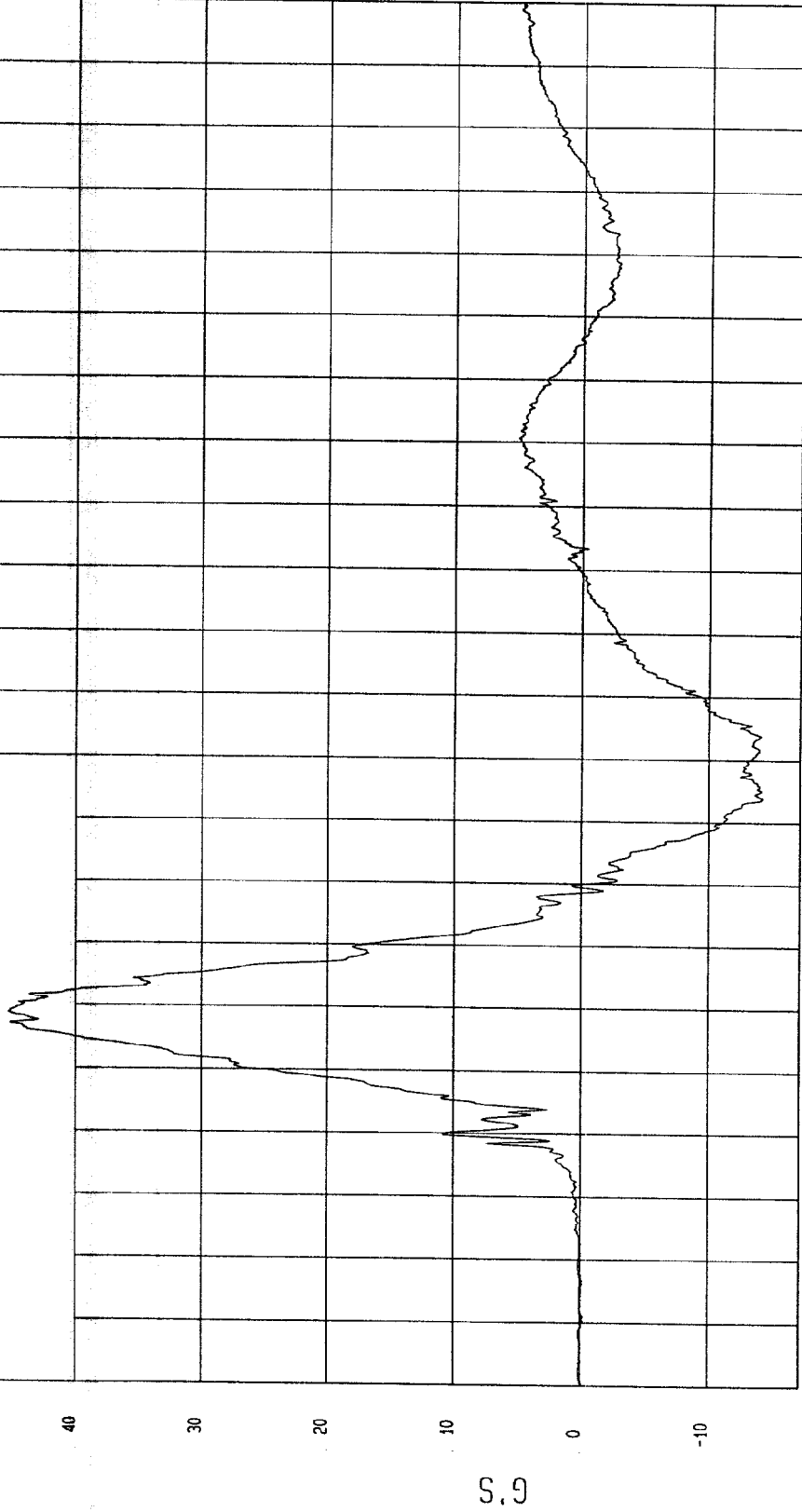
Speed: 38.6 MPH 62.1 KPH

Minimum = -14.18 G'S at 74 msec

Maximum = 45.37 G'S at 39 msec

DRIVER PELVIS Y ACCELERATION

1 ——— B881BAT.A18 Filterclass (1000)



MSA Research
12-14-1998 11:56

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

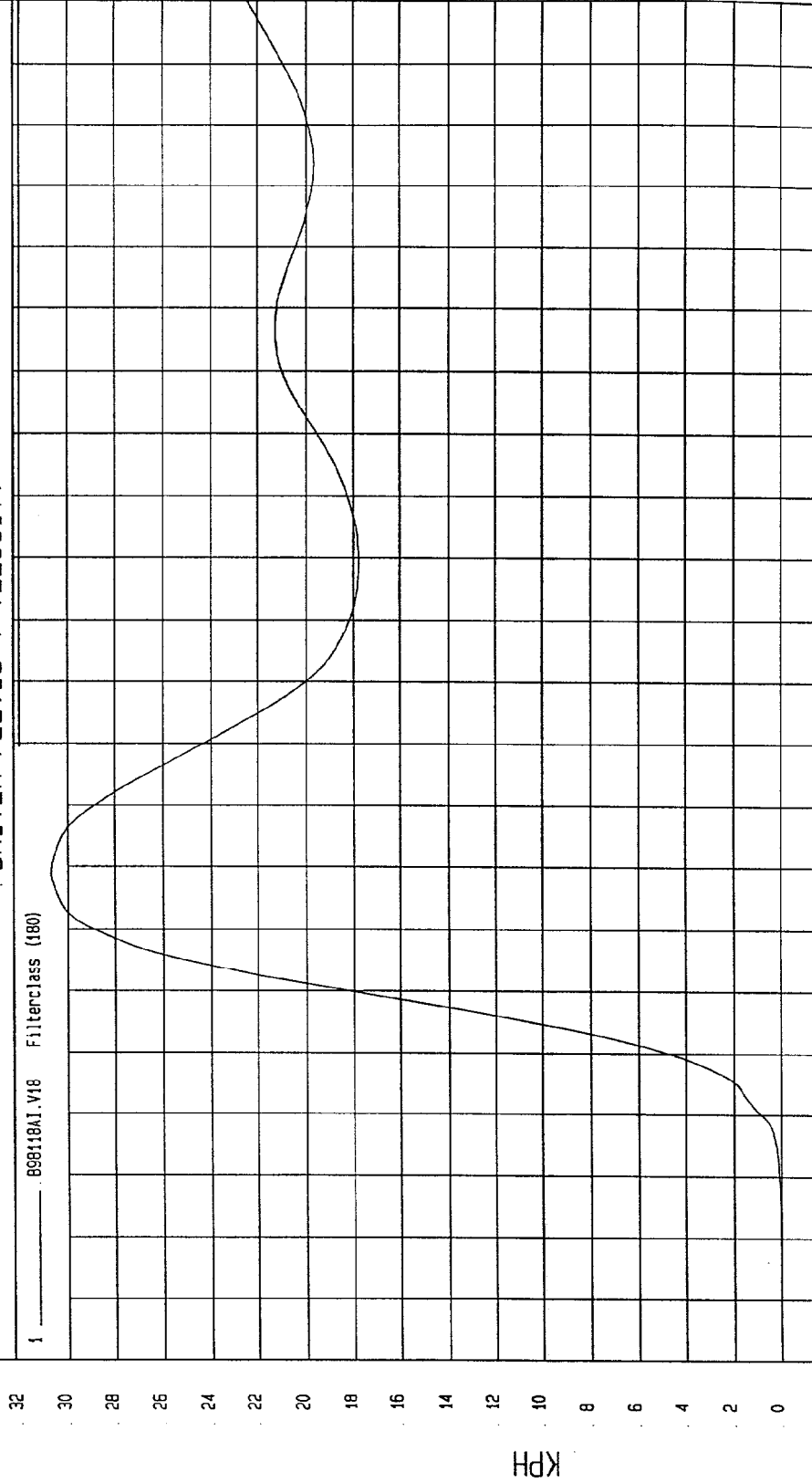
SPEED: 38.6 MPH 62.1 KPH

COMPONENT: 1999 FORD F-150 (MX0203)

Maximum = 30.71 KPH at 59 msec

Minimum = -1.52E-03 KPH at -19 msec

DRIVER PELVIS Y VELOCITY



NSA Research
12-15-1998 14: 41

TIME Seconds

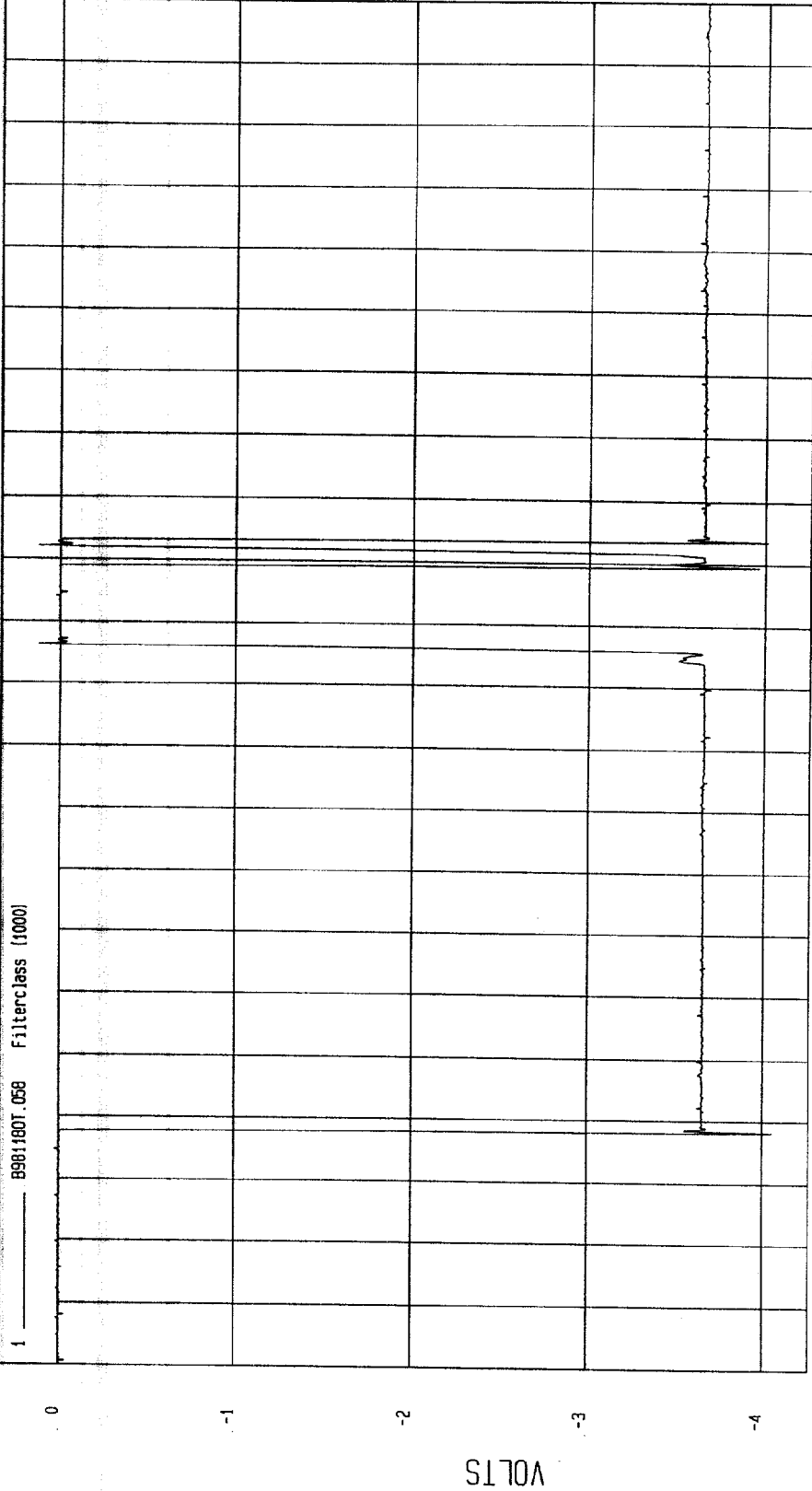
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

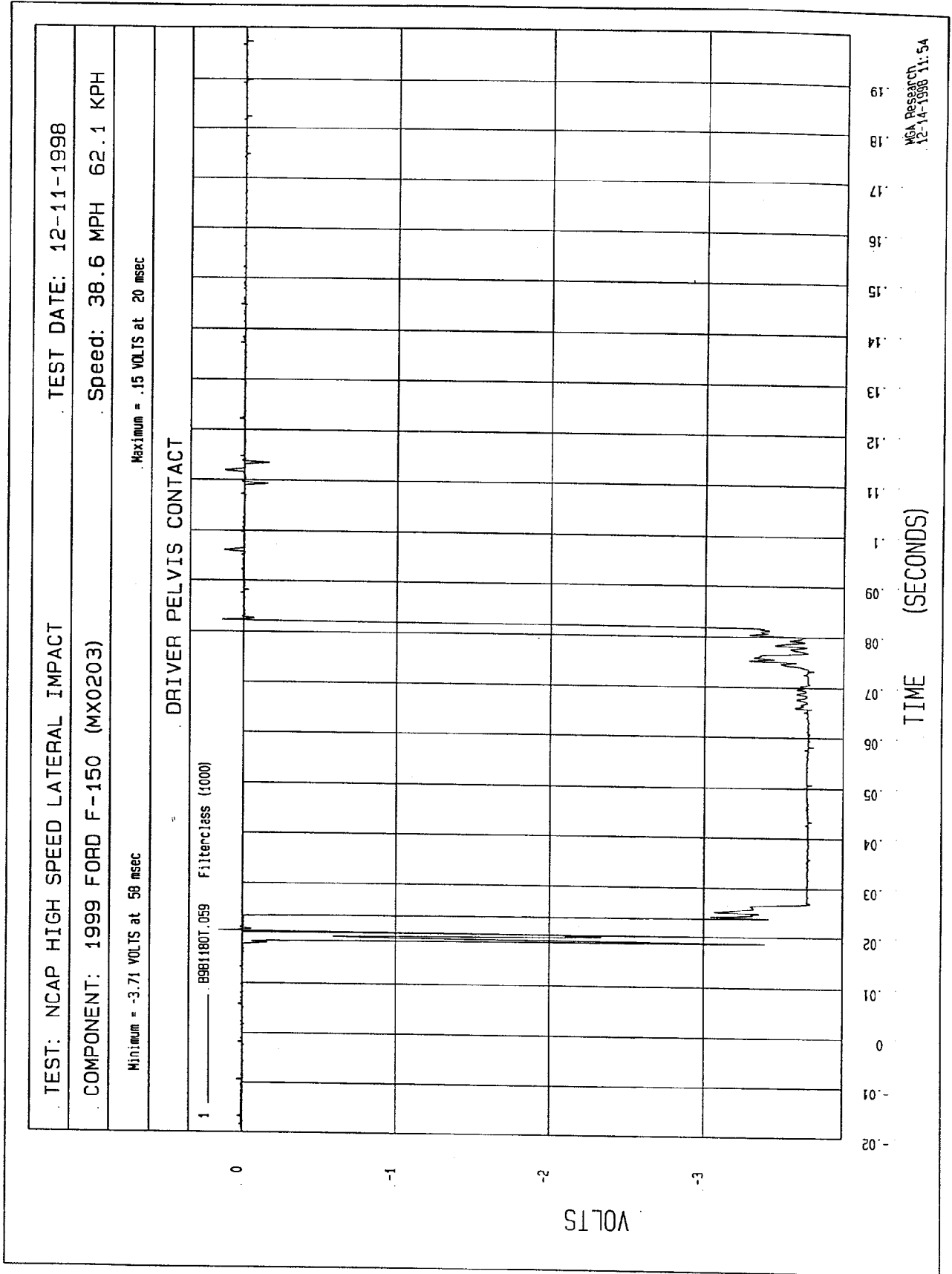
Minimum = -4.05 VOLTS at 18 msec Maximum = .13 VOLTS at 112 msec

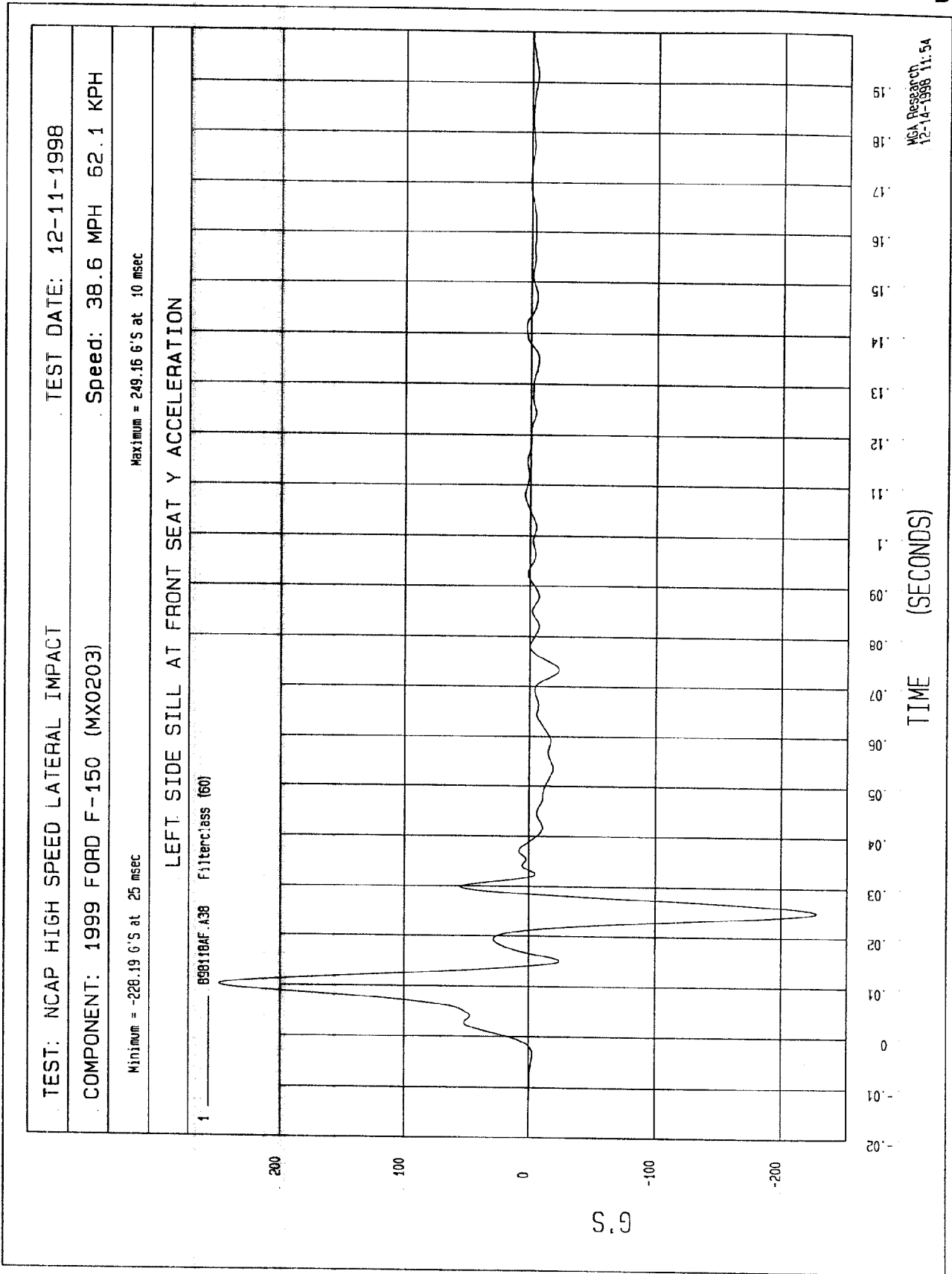
DRIVER SHOULDER CONTACT

1 9981807.058 Filterclass (1000)



MGA Research
12-14-1998 11:54



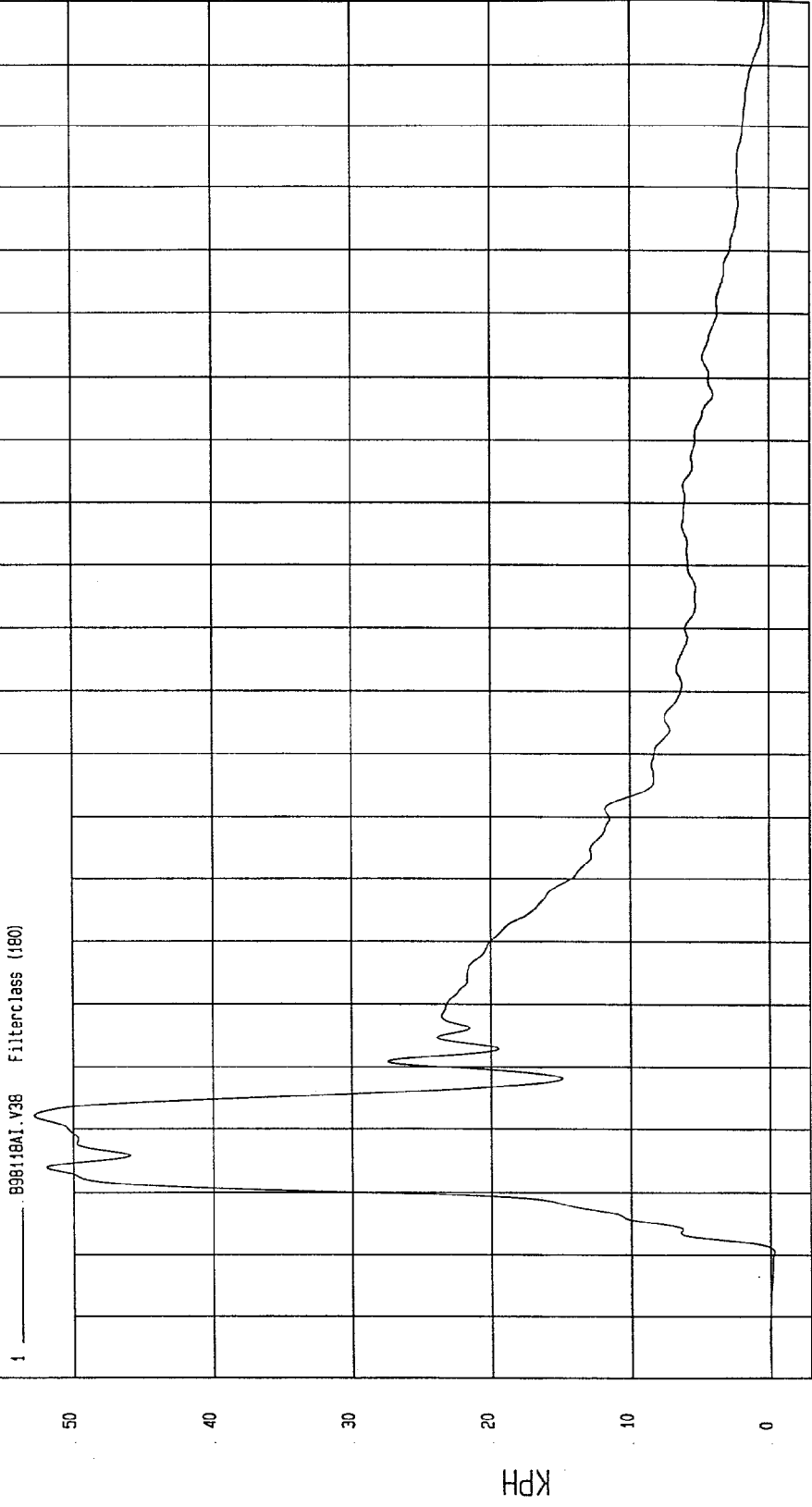


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -.31 KPH at 0 msec Maximum = 52.95 KPH at 22 msec

LEFT SIDE SILL AT FRONT SEAT Y VELOCITY



McA Research
12-15-1998 14:29

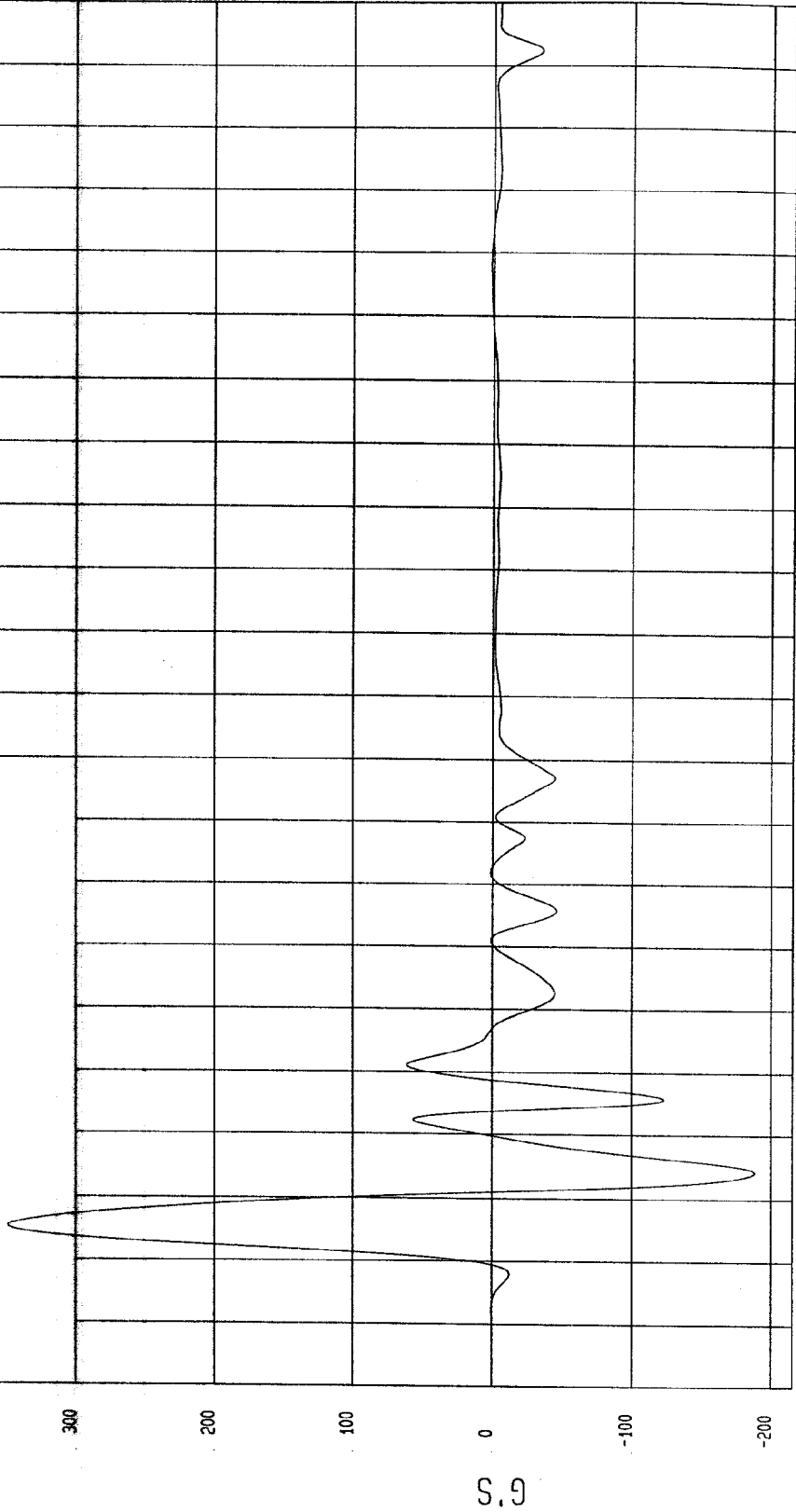
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -188.65 G'S at 14 msec Maximum = 348.89 G'S at 5 msec

LEFT SIDE SILL AT REAR SEAT Y ACCELERATION

1 — 898184F.A39 Filterclass (60)



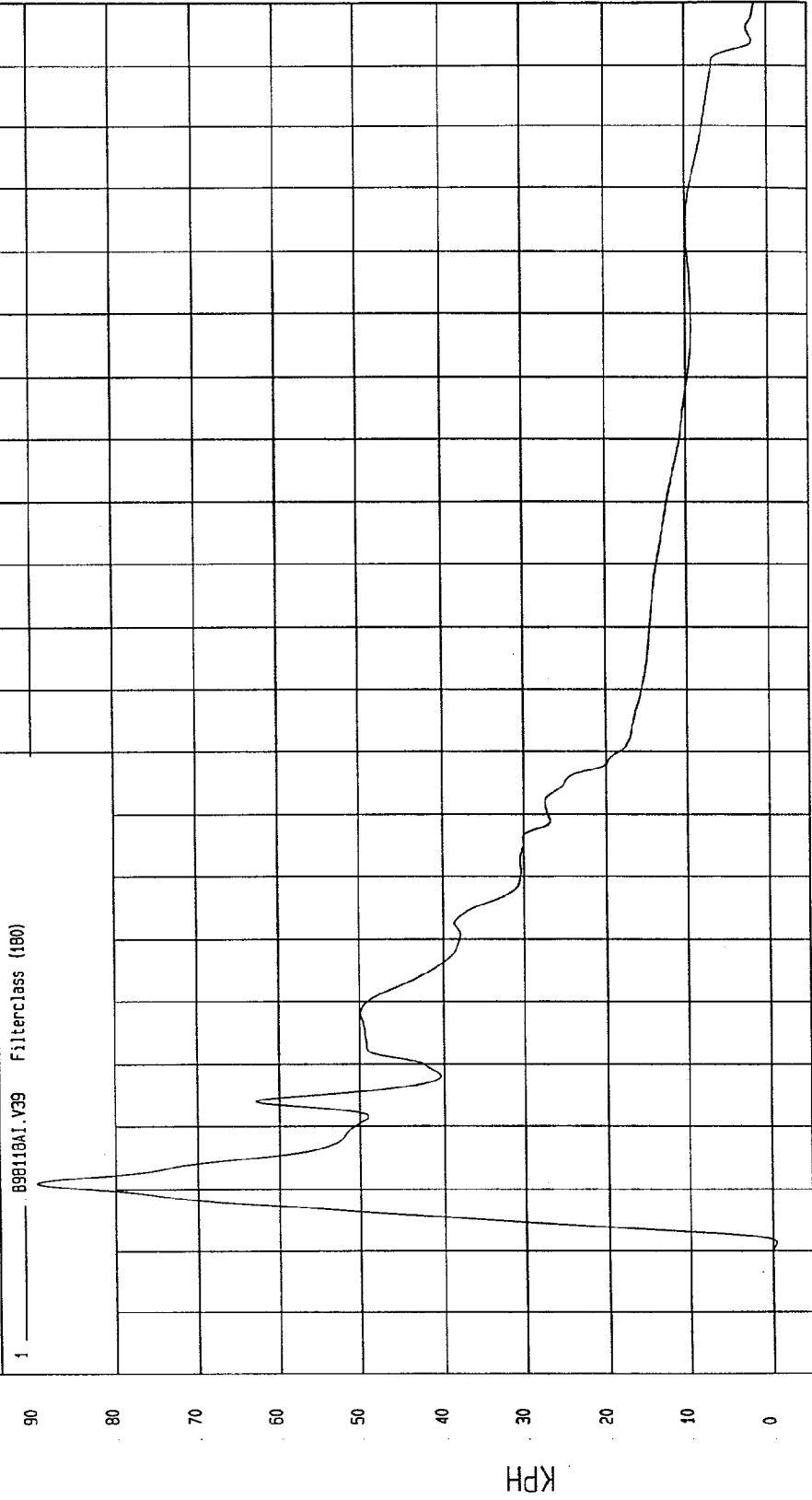
MCA Research
12-14-1998 11:54

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -44 KPH at 1 msec Maximum = 89.63 KPH at 11 msec

LEFT SIDE SILL AT REAR SEAT Y VELOCITY



TIME Seconds

MCA Research
12-15-1998 14:29

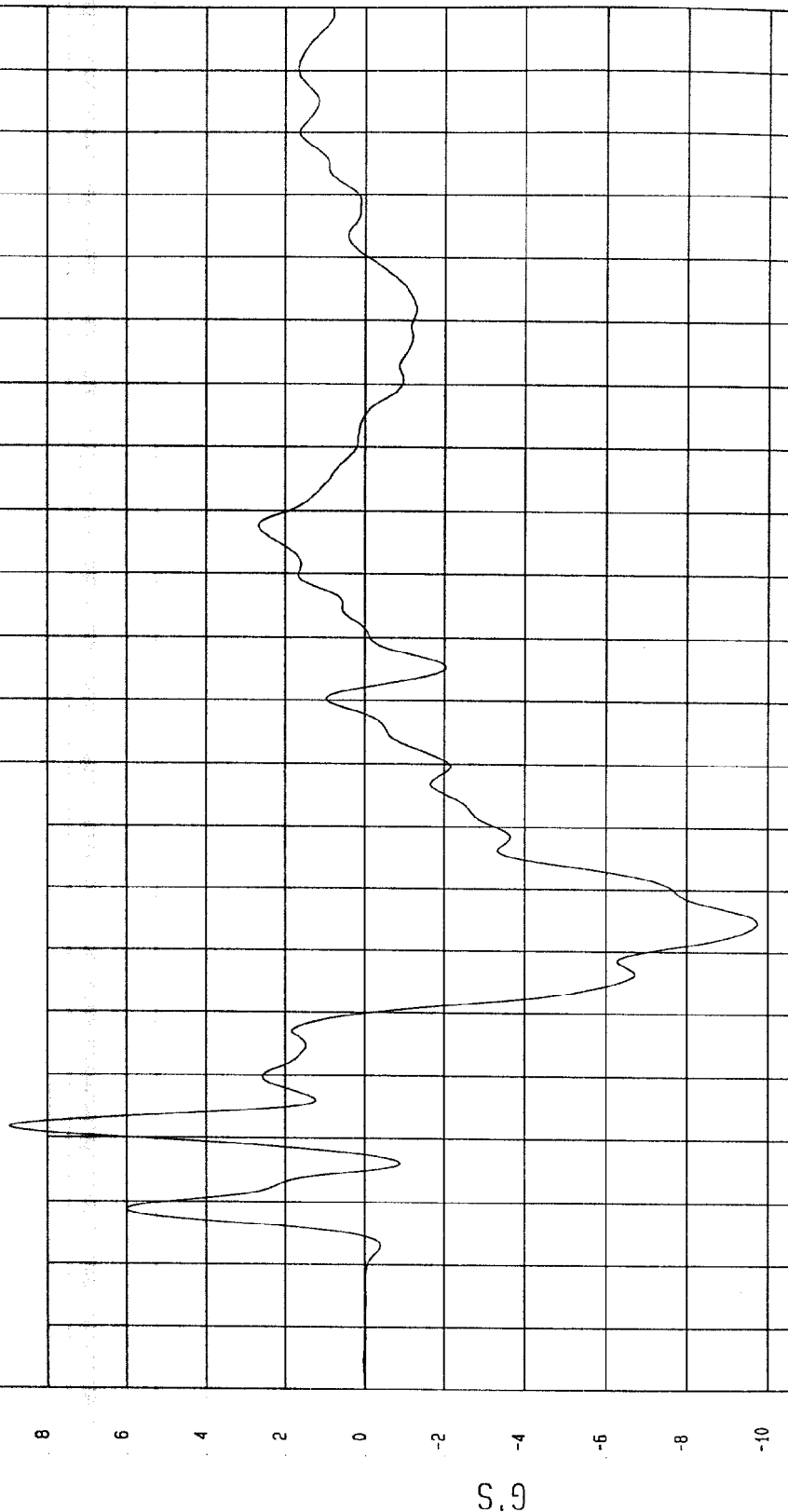
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -9.74 G'S at 55 msec Maximum = 8.95 G'S at 22 msec

RIGHT SIDE SILL AT FRONT SEAT X ACCELERATION

1 B98118AF.A32 Filterclass (60)



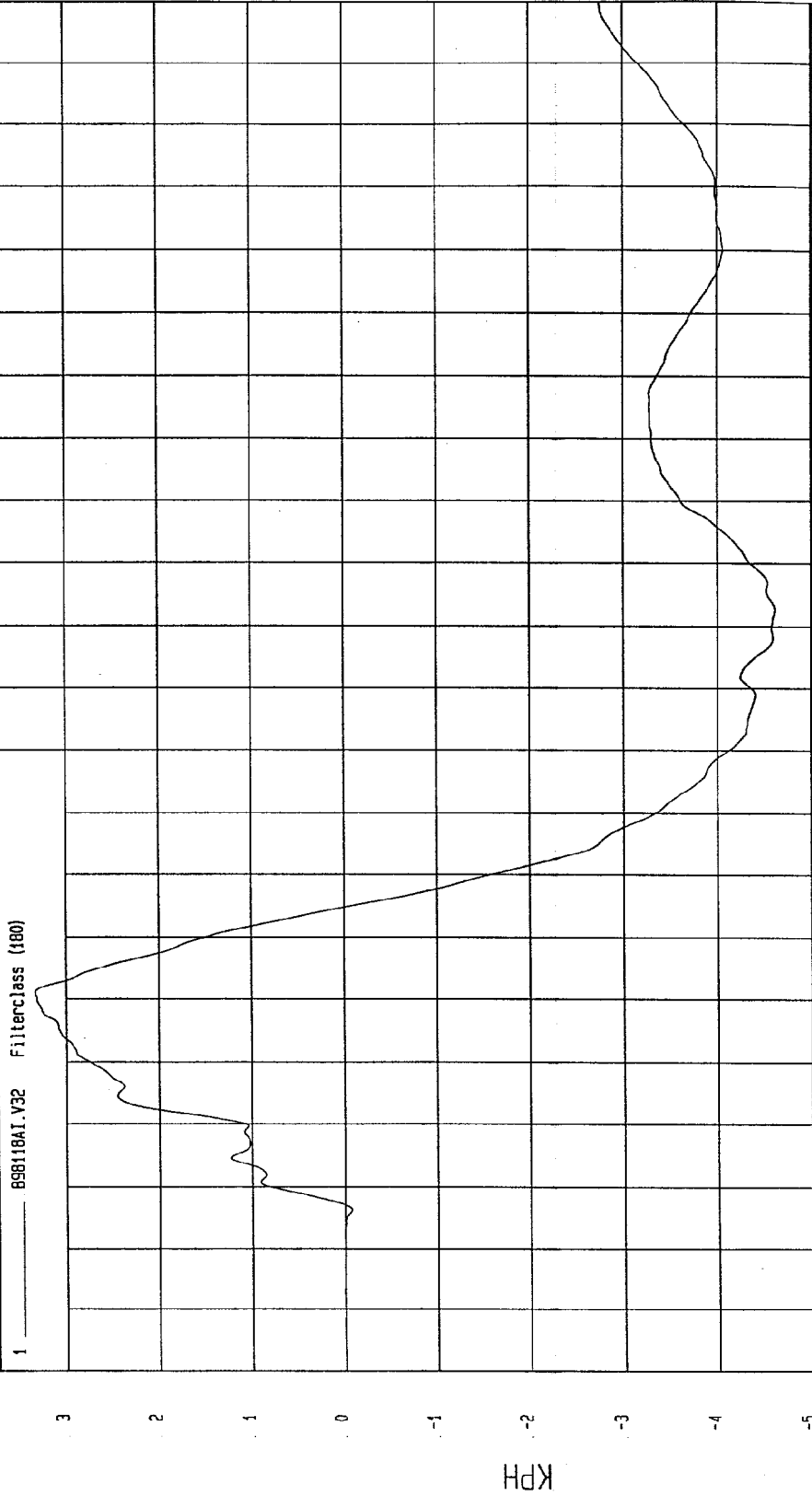
MGA Research
12-14-1998 11:54

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -4.62 KPH at 103 msec Maximum = 3.33 KPH at 41 msec

RIGHT SIDE SILL AT FRONT SEAT X VELOCITY



TIME Seconds

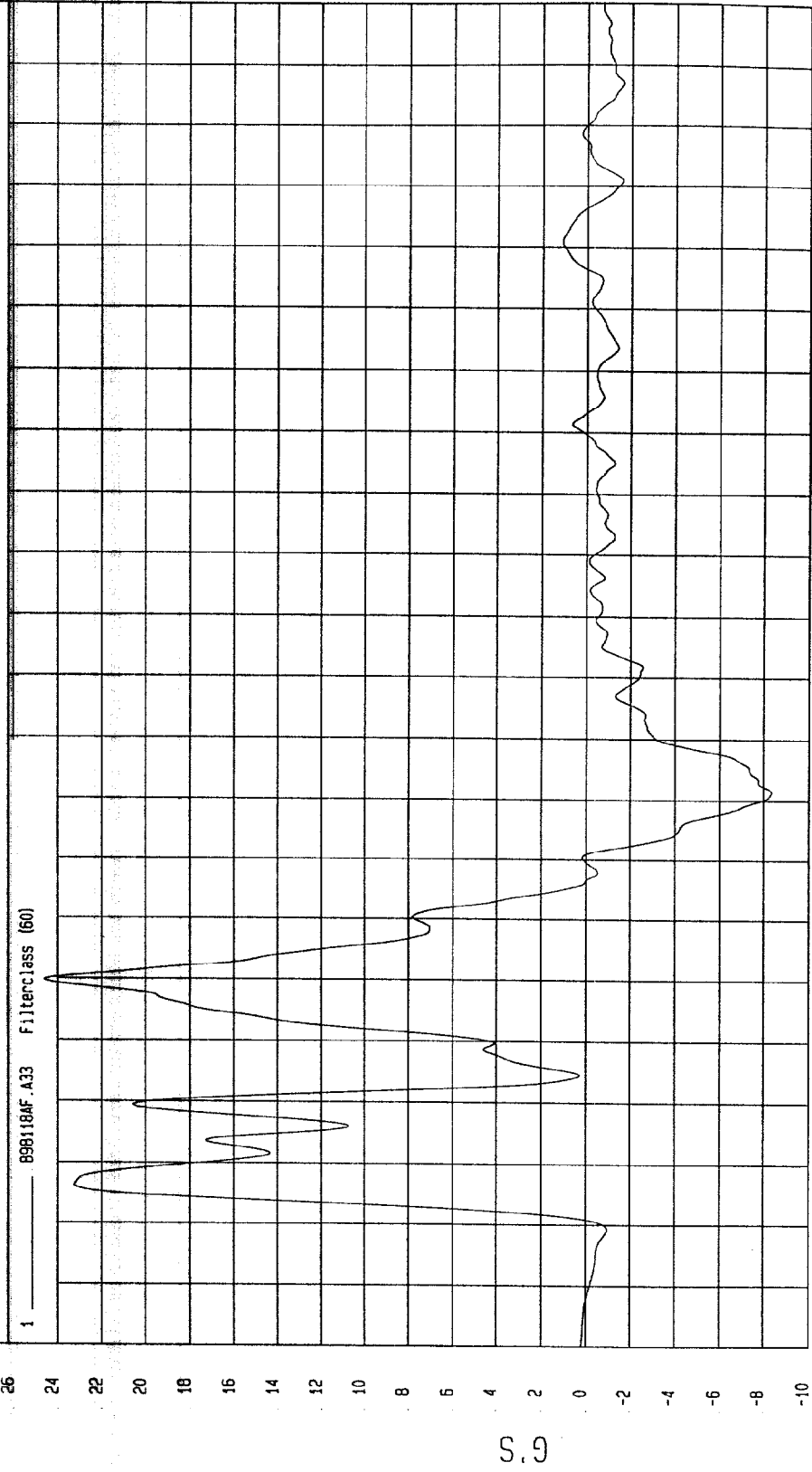
MCA Research
12-15-1998 14:29

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -8.37 G'S at 71 msec Maximum = 24.58 G'S at 40 msec

RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION



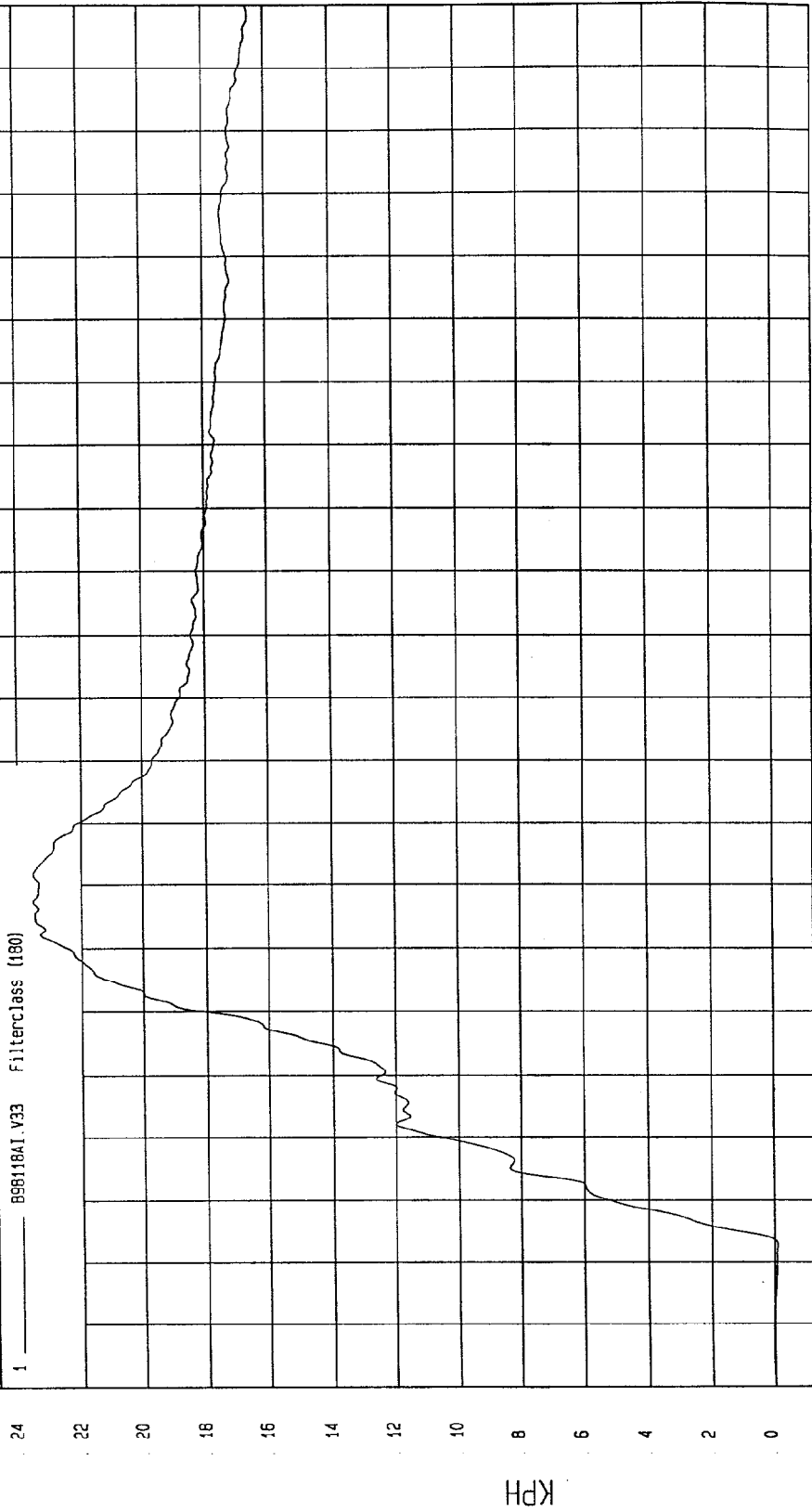
MSA Research
12-14-1998 11:54

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -.1 KPH at 3 msec Maximum = 23.51 KPH at 57 msec

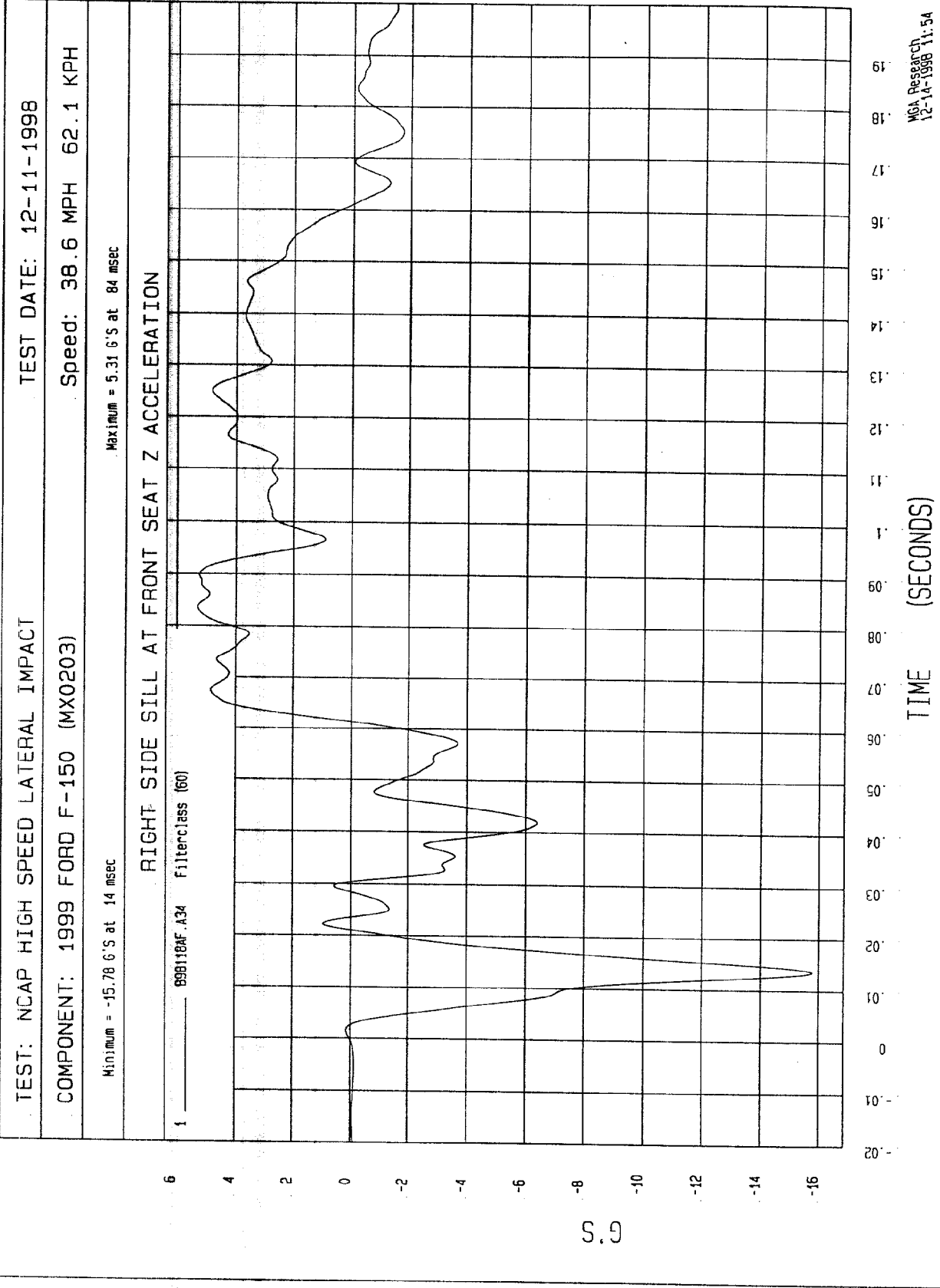
RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY



TIME Seconds

19
18
17
16
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4
3
2
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MECA Research
12-15-1998 14:29

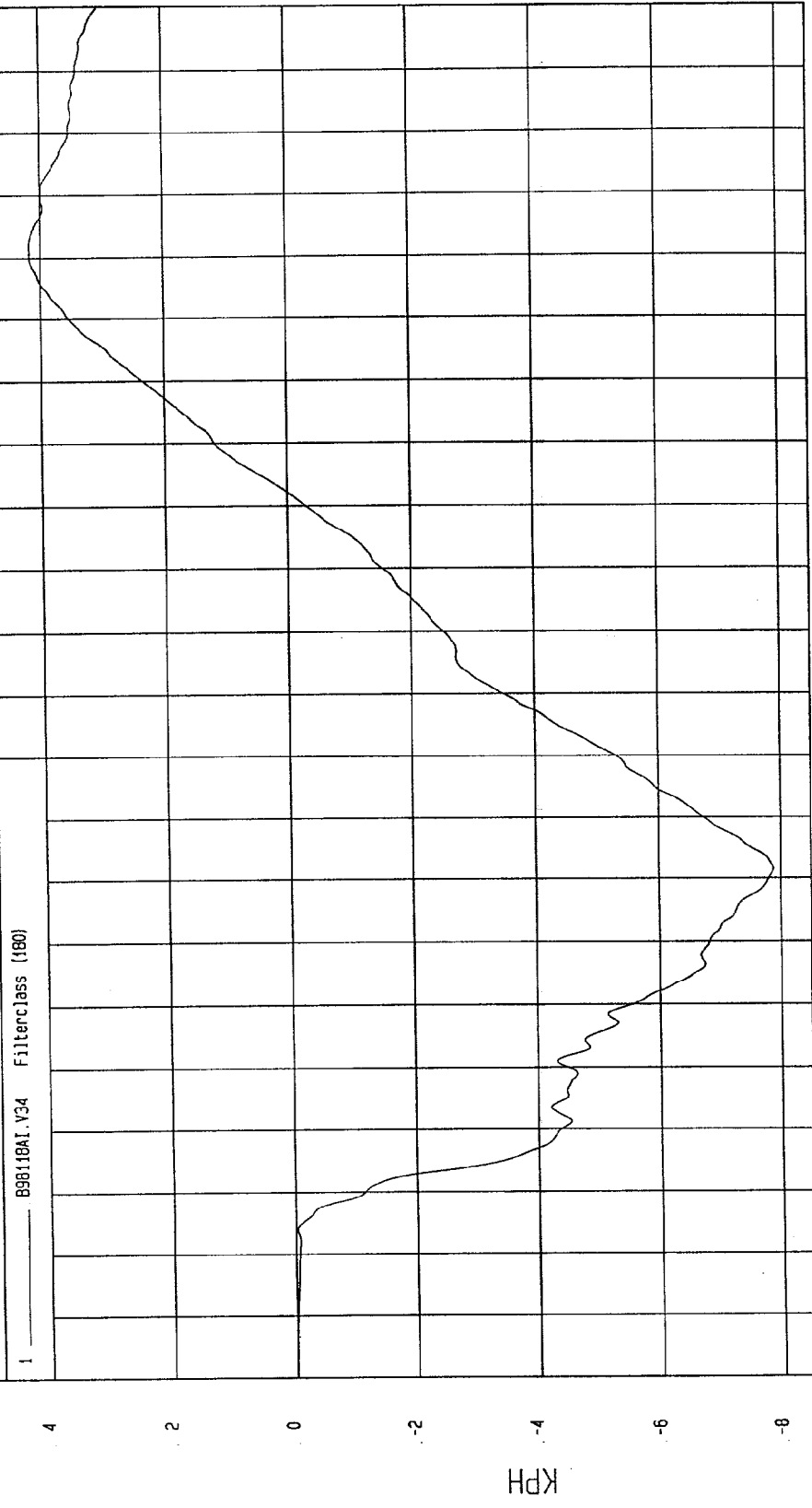


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -7.88 KPH at 62 msec Maximum = 4.18 KPH at 160 msec

RIGHT SIDE SILL AT FRONT SEAT Z VELOCITY



TIME Seconds

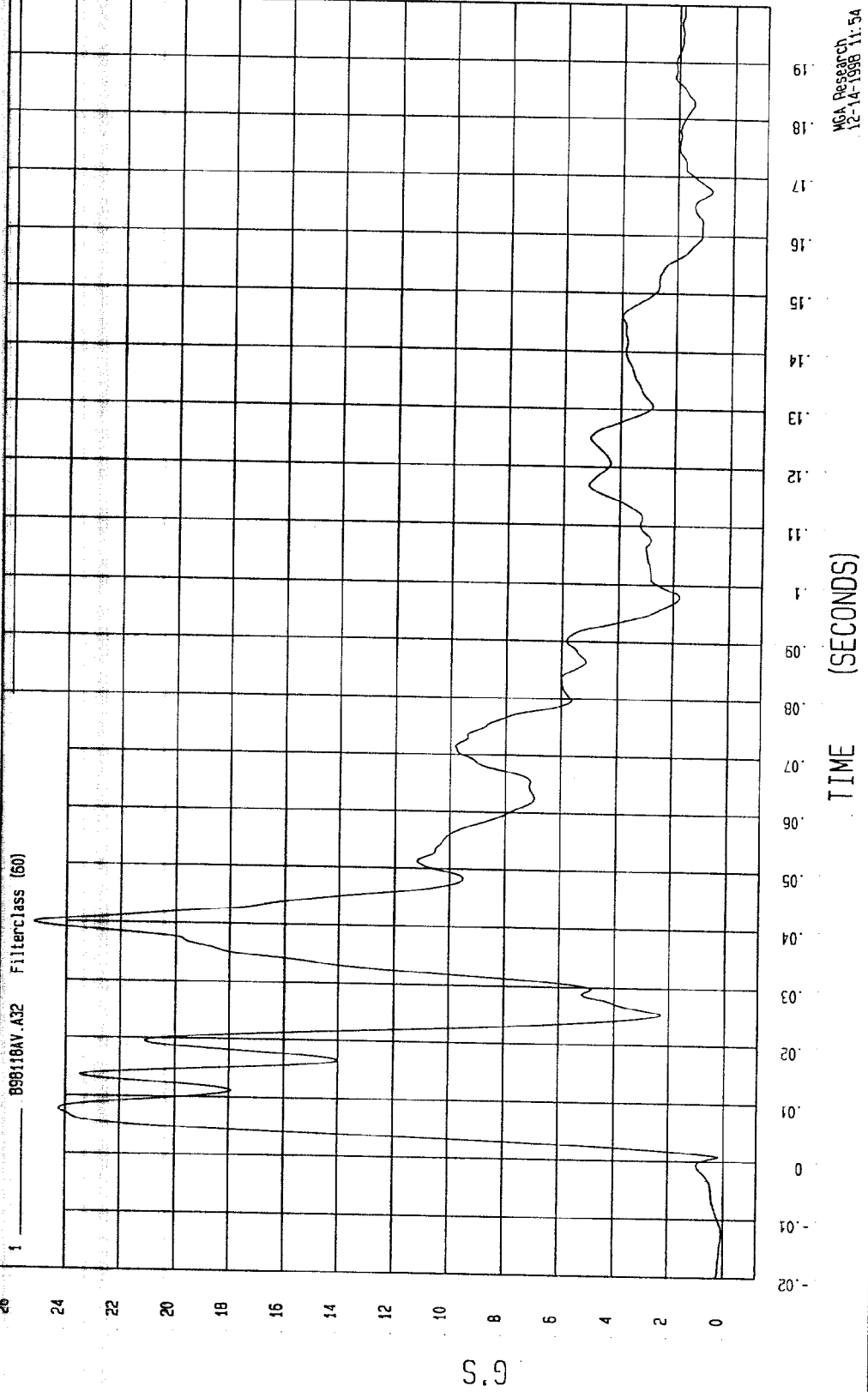
MCA Research
12-15-1998 14:29

TEST: NCAP HIGH SPEED LATERAL IMPACT
TEST DATE: 12-11-1998
SPEED: 38.6 MPH 62.1 KPH

COMPONENT: 1999 FORD F-150 (MX0203)

Minimum = 6.36E-02 G'S at -12 msec
Maximum = 25.15 G'S at 40 msec

RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

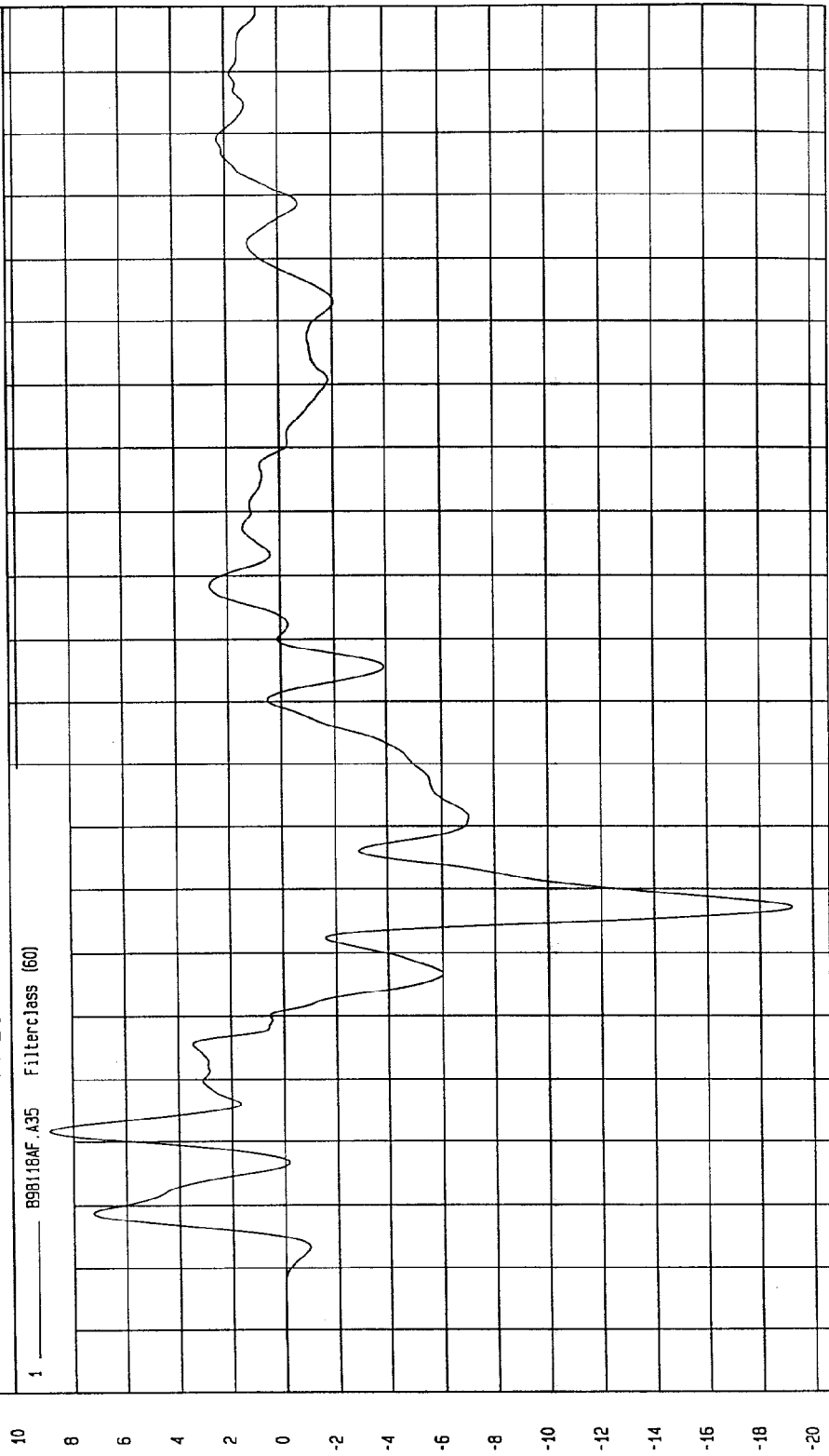


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -19.23 G'S at 57 msec Maximum = 8.87 G'S at 22 msec

RIGHT SIDE SILL AT REAR SEAT X ACCELERATION



NSA Research
12-14-1998 11:54

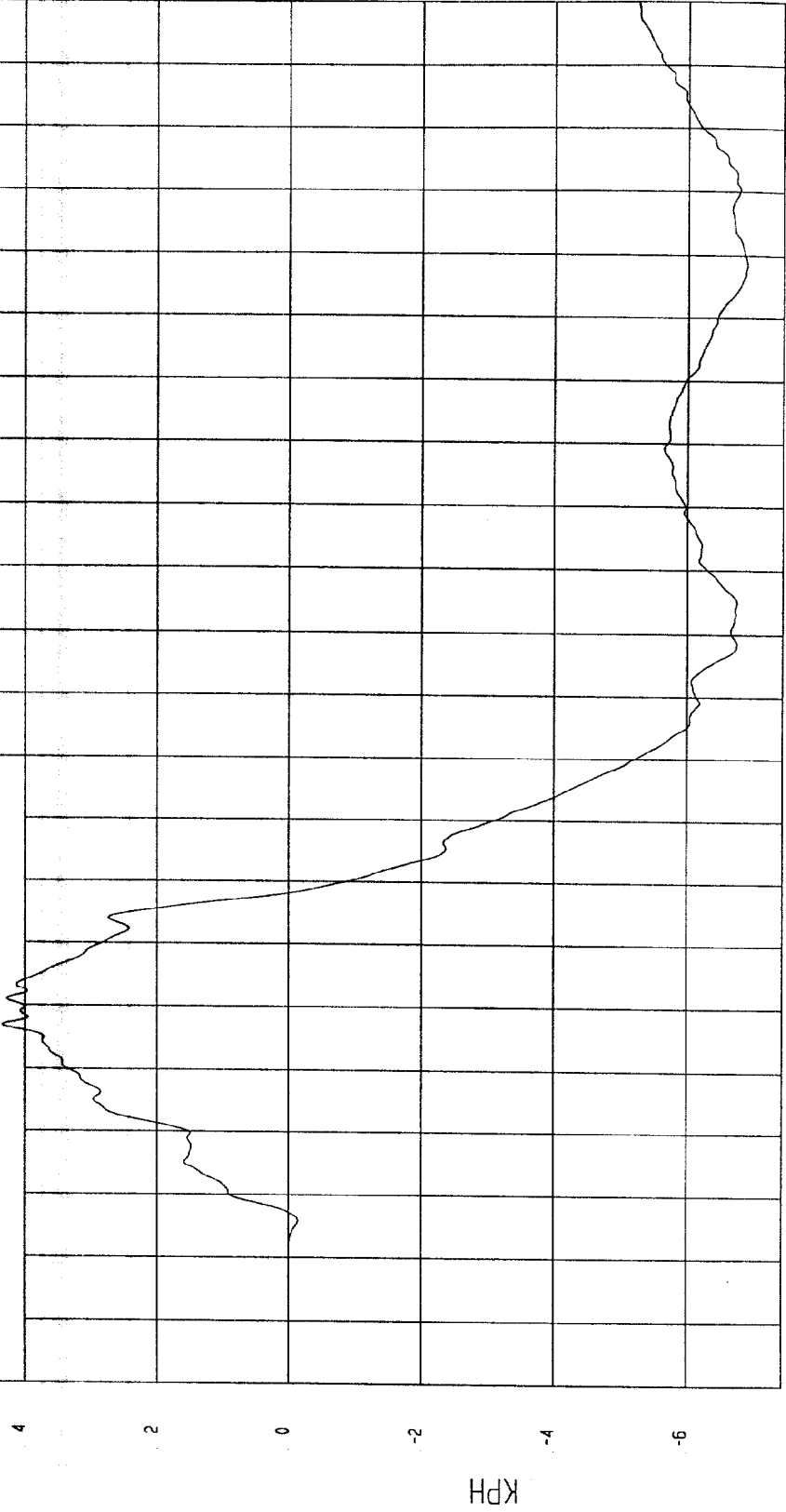
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

SPEED: 38.6 MPH 62.1 KPH

Minimum = -6.88 KPH at 158 msec

RIGHT SIDE SILL AT REAR SEAT X VELOCITY

1 898118A1.V35 Filterclass (180)



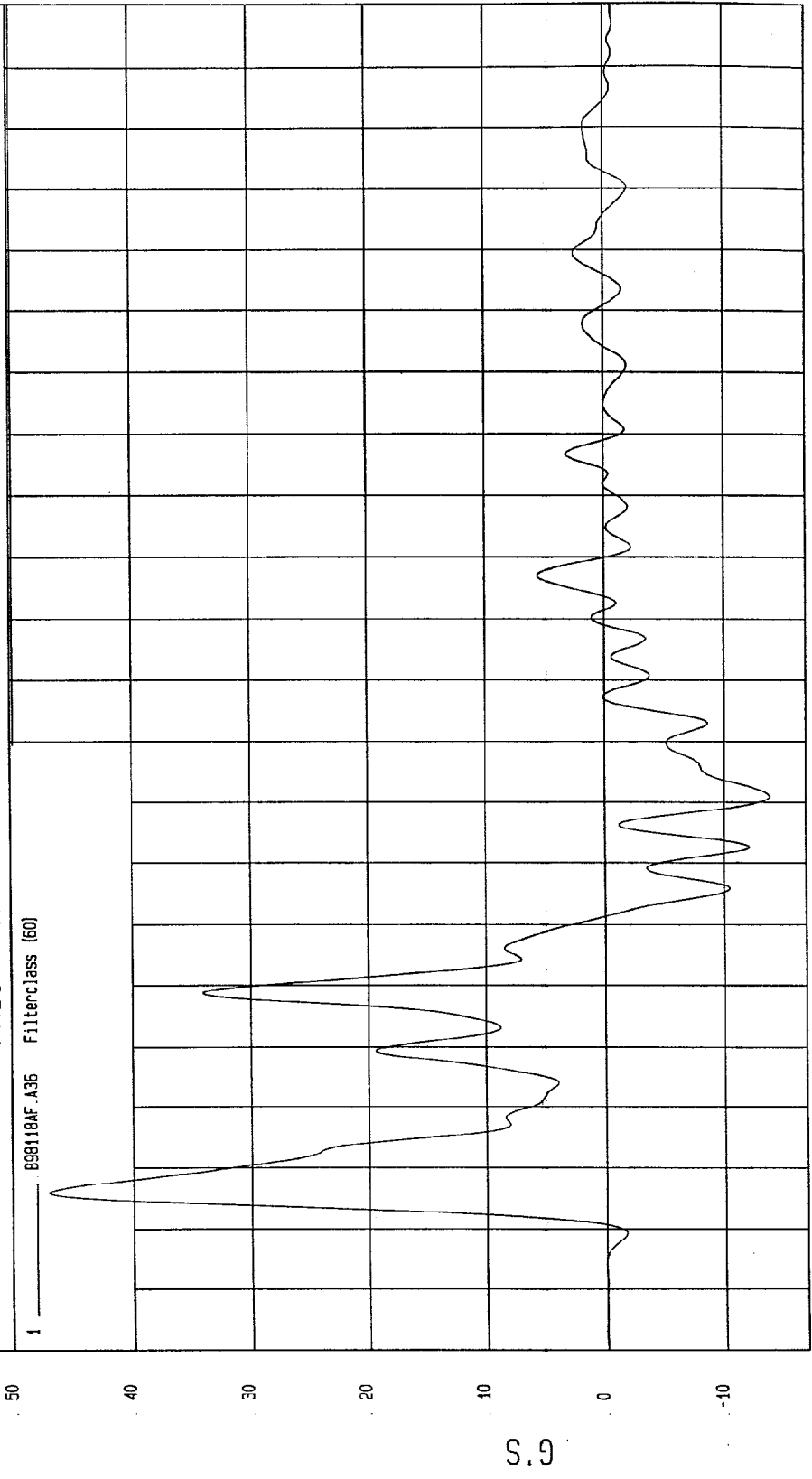
MGA Research
12-15-1998 14: 29

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -13.91 G'S at 71 msec Maximum = 47.17 G'S at 6 msec

RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION



MGA Research
12-14-1998 11:55

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

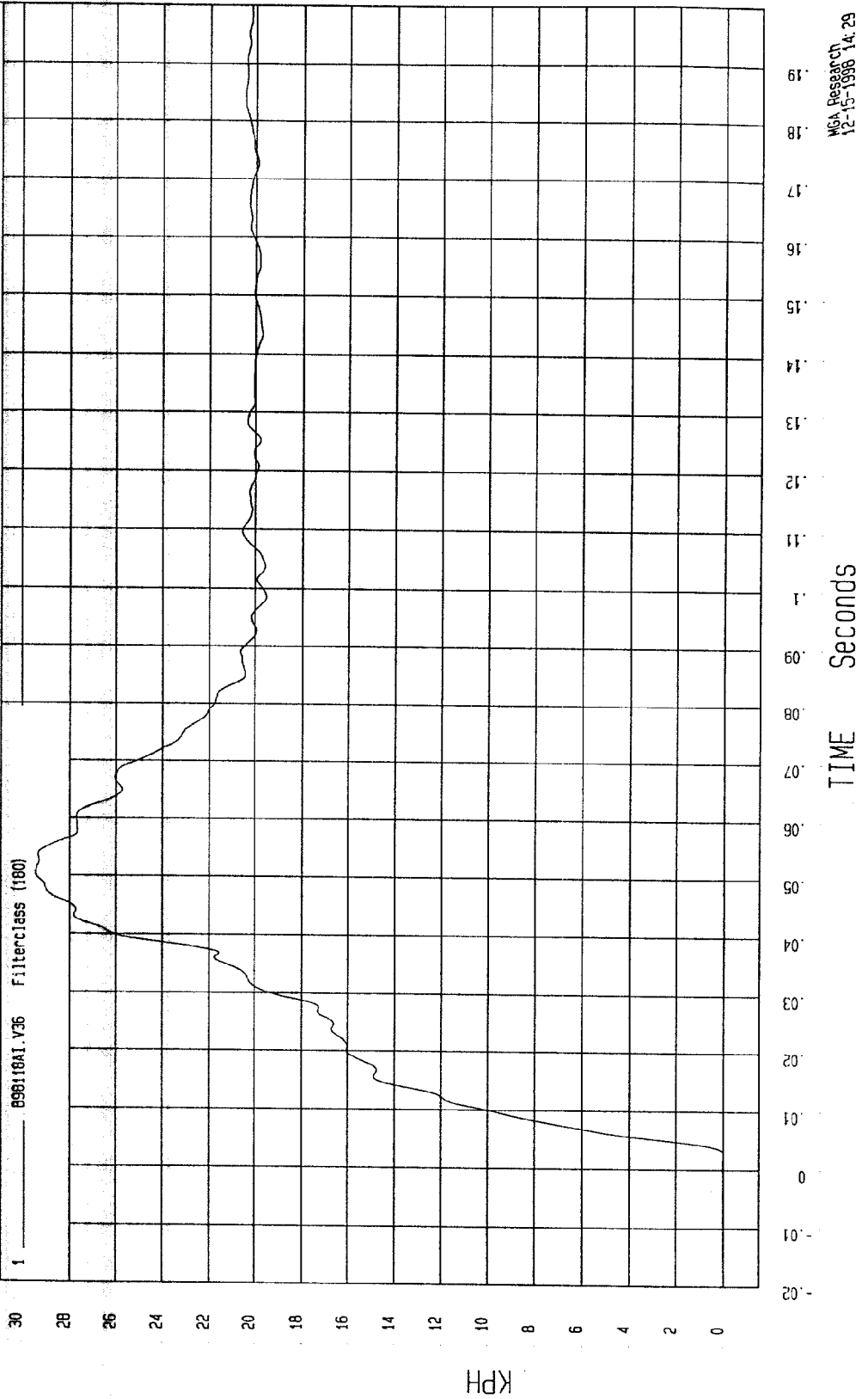
Speed: 38.6 MPH 62.1 KPH

COMPONENT: 1999 FORD F-150 (MX0203)

Maximum = 29.41 KPH at 50 msec

Minimum = -2.87E-02 KPH at 3 msec

RIGHT SIDE SILL AT REAR SEAT Y VELOCITY

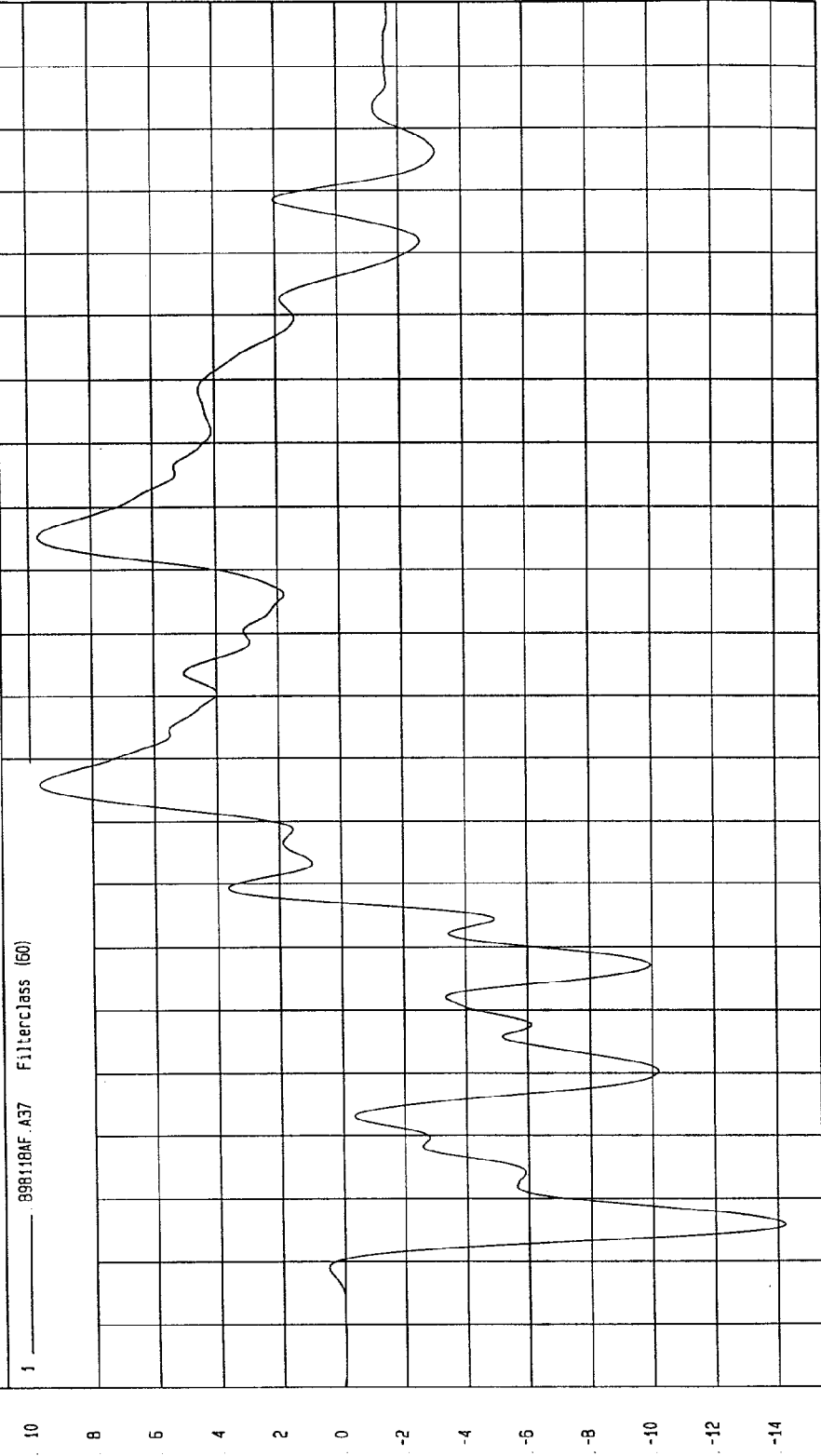


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -14.24 G'S at 6 msec Maximum = 9.7 G'S at 115 msec

RIGHT SIDE SILL AT REAR SEAT Z ACCELERATION



MCA Research
12-14-1998 11:55

TIME (SECONDS)

G's

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

Speed: 38.6 MPH 62.1 KPH

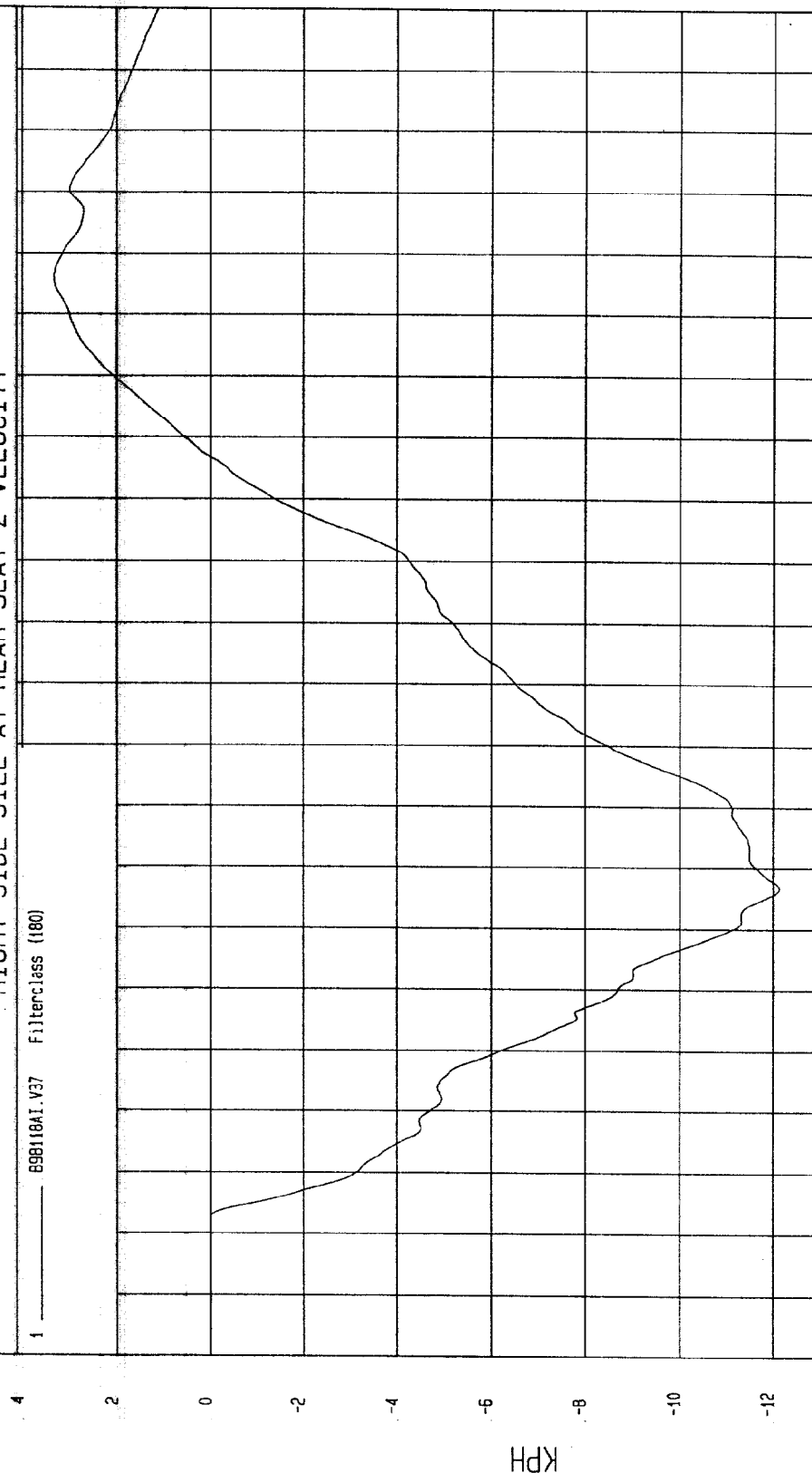
COMPONENT: 1999 FORD F-150 (MX0203)

Maximum = 3.34 KPH at 156 msec

Minimum = -12.13 KPH at 57 msec

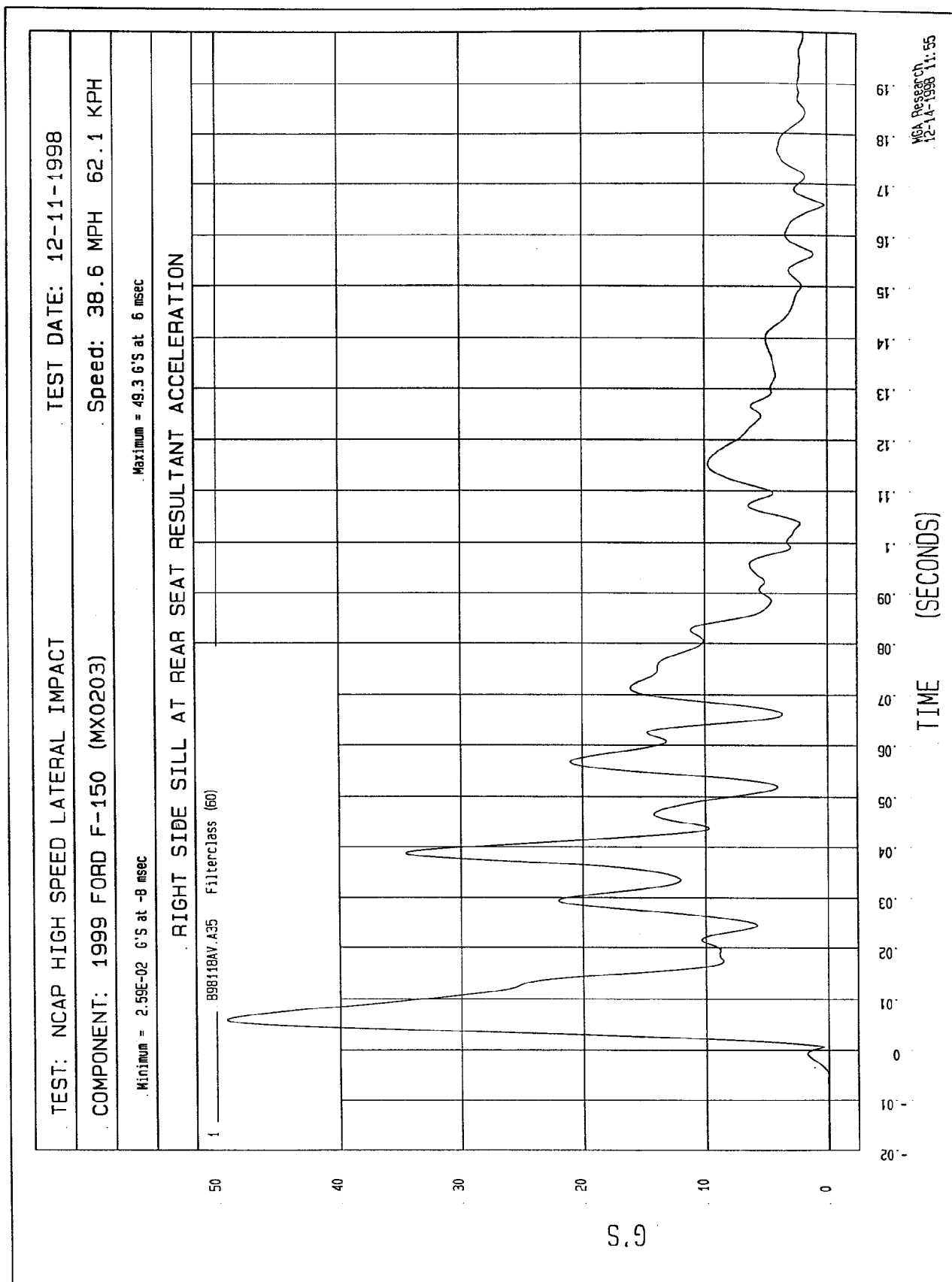
RIGHT SIDE SILL AT REAR SEAT Z VELOCITY

1 — 898118A1.V37 Filterclass (180)



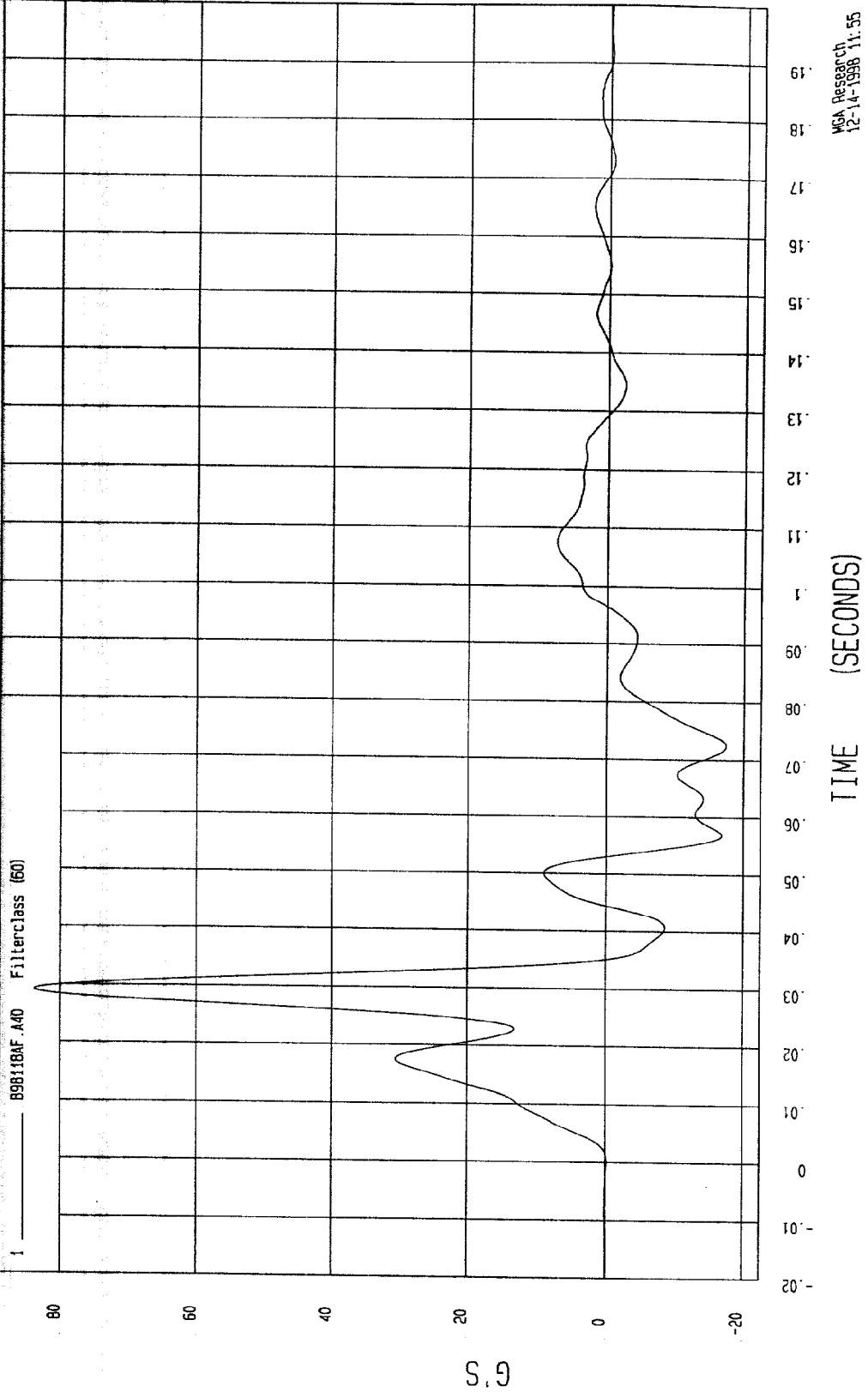
WCA Research
12-15-1998 14:29

TIME Seconds



TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998
COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH
Minimum = -17.44 G'S at 72 msec Maximum = 83.79 G'S at 29 msec

DRIVER SEAT TRACK Y ACCELERATION

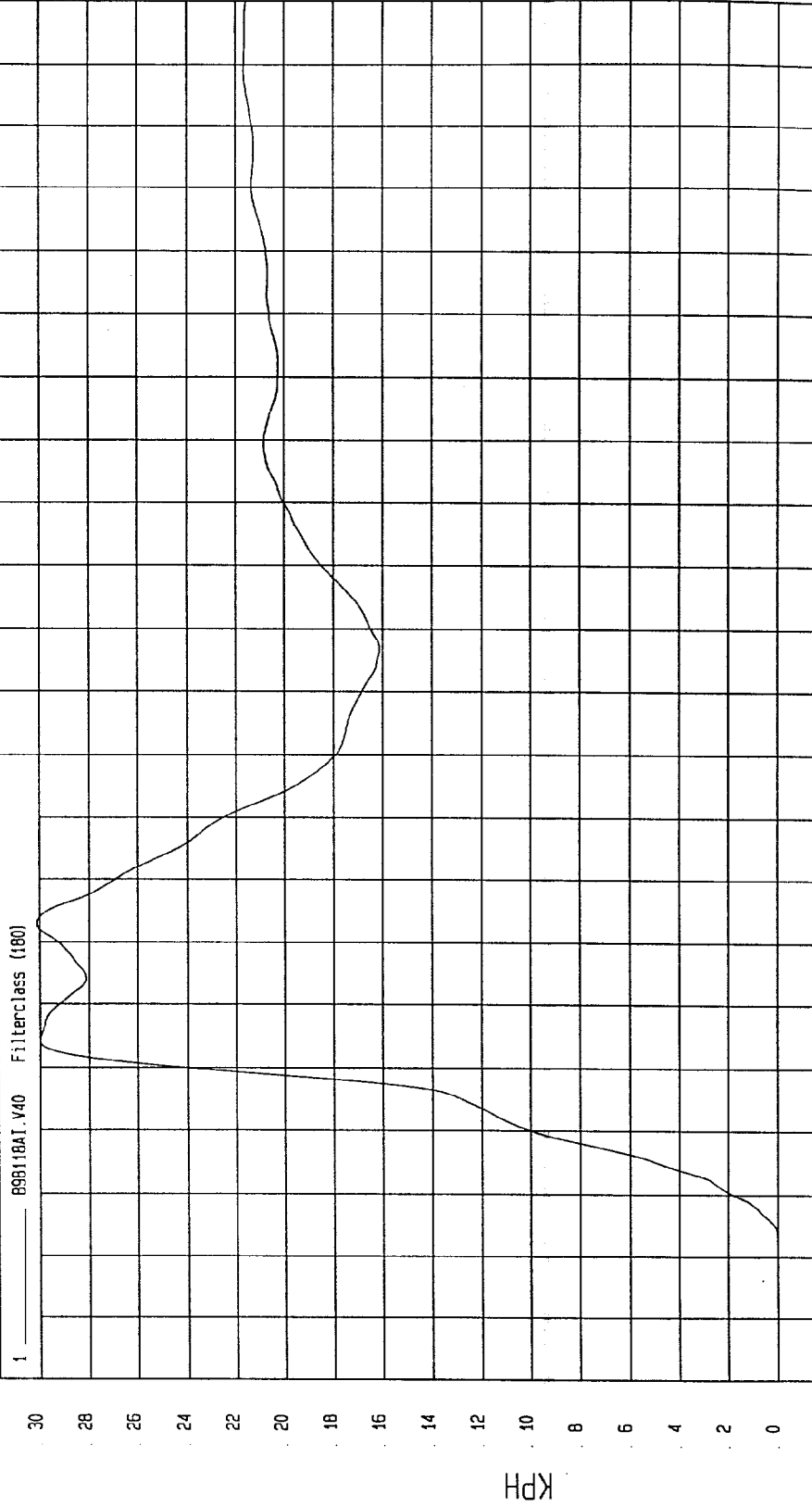


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -1.65E-02 KPH at -11 msec Maximum = 30.12 KPH at 53 msec

DRIVER SEAT TRACK Y VELOCITY



MSA Research
12-15-1998 14:29

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

Speed: 38.6 MPH 62.1 KPH

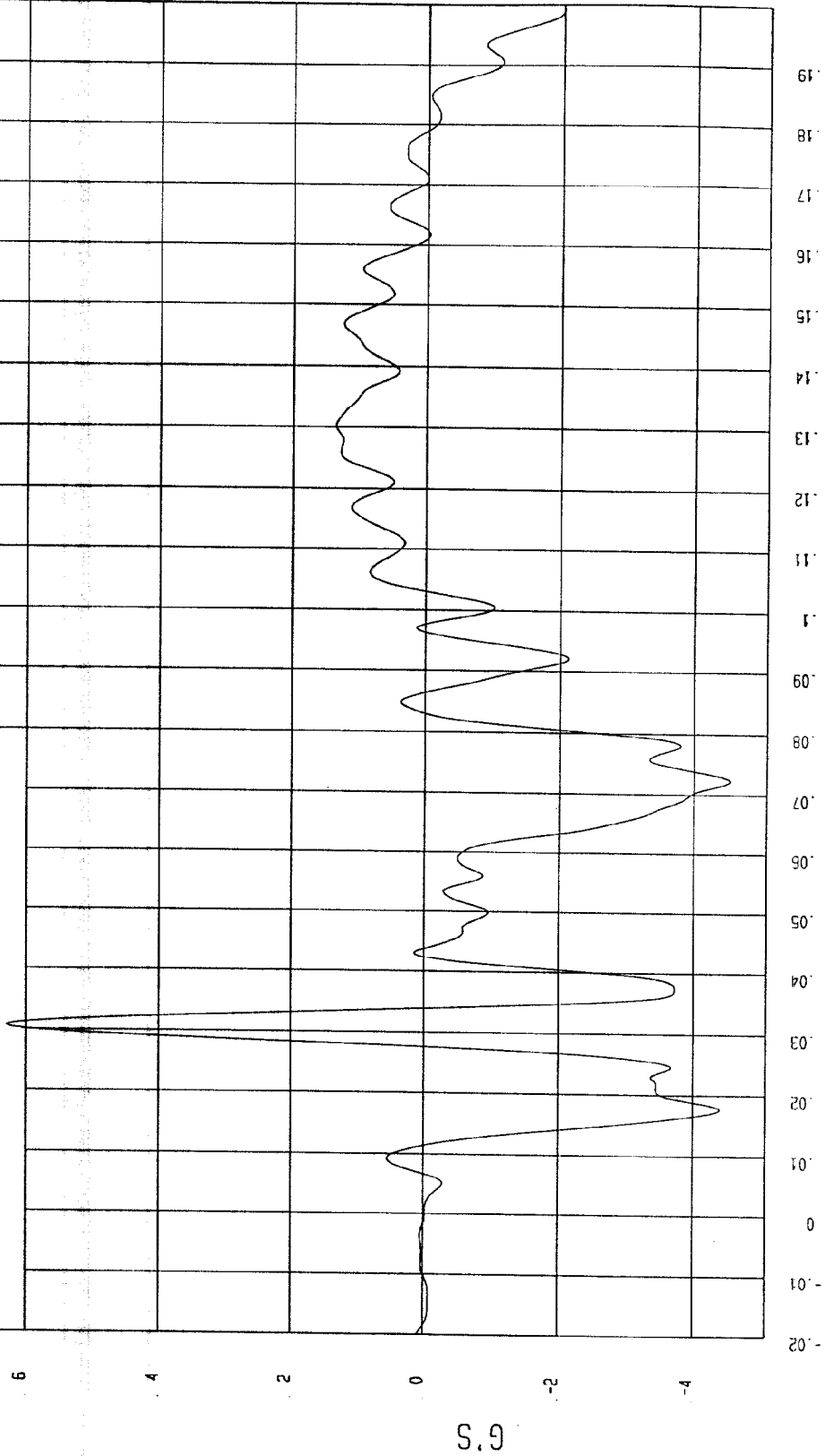
COMPONENT: 1999 FORD F-150 (MX0203)

Maximum = 6.28 G'S at 31 msec

Minimum = -4.54 G'S at 72 msec

REAR FLOORPAN ABOVE AXLE X ACCELERATION

1 B98118AF.A08 Filterclass (60)



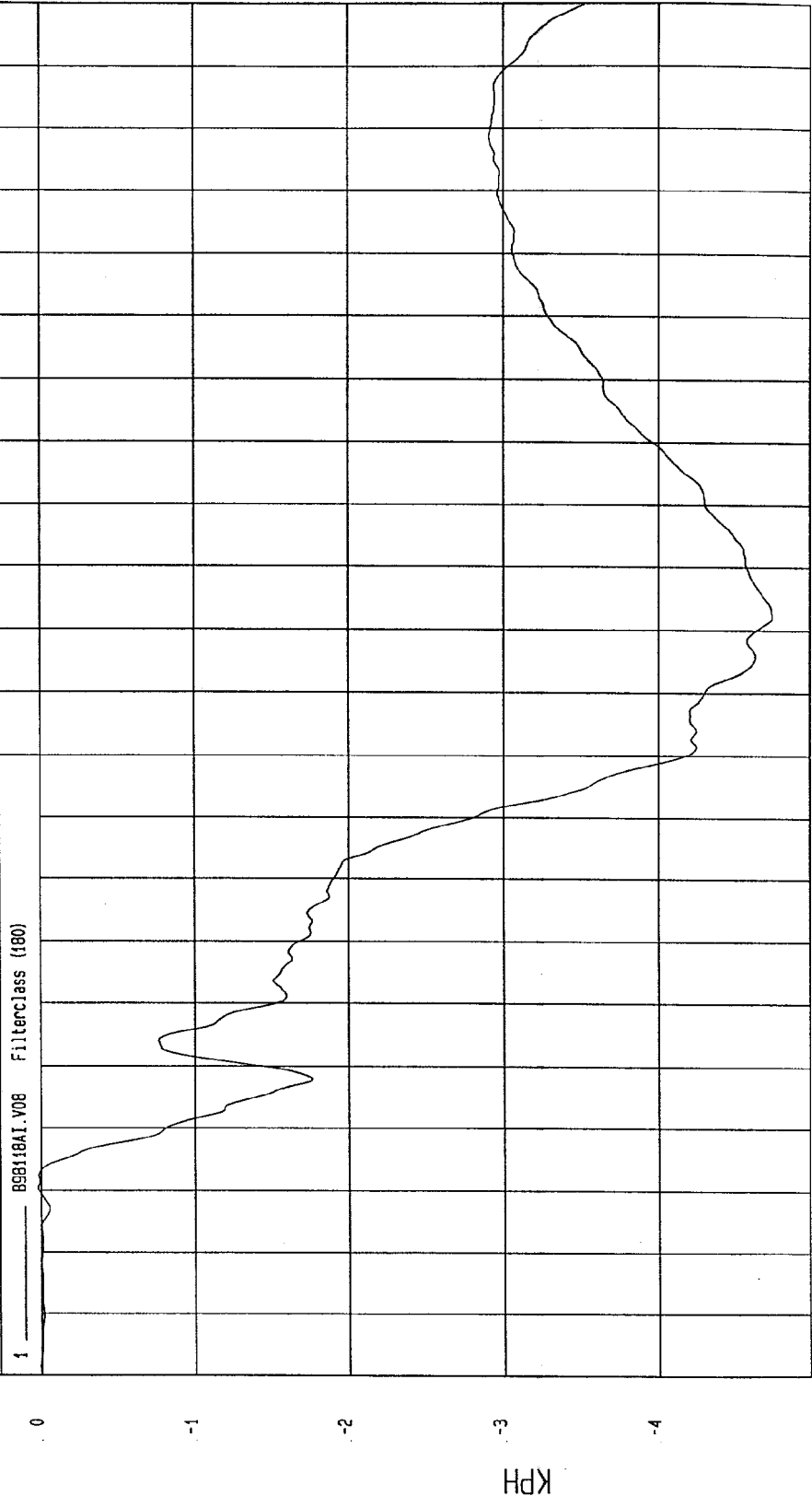
MSA Research
12-14-1998 11:55

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -4.74 KPH at 102 msec Maximum = 2.34E-02 KPH at 10 msec

REAR FLOORPAN ABOVE AXLE X VELOCITY



MSA Research
12-15-1998 14:29

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

Speed: 38.6 MPH 62.1 KPH

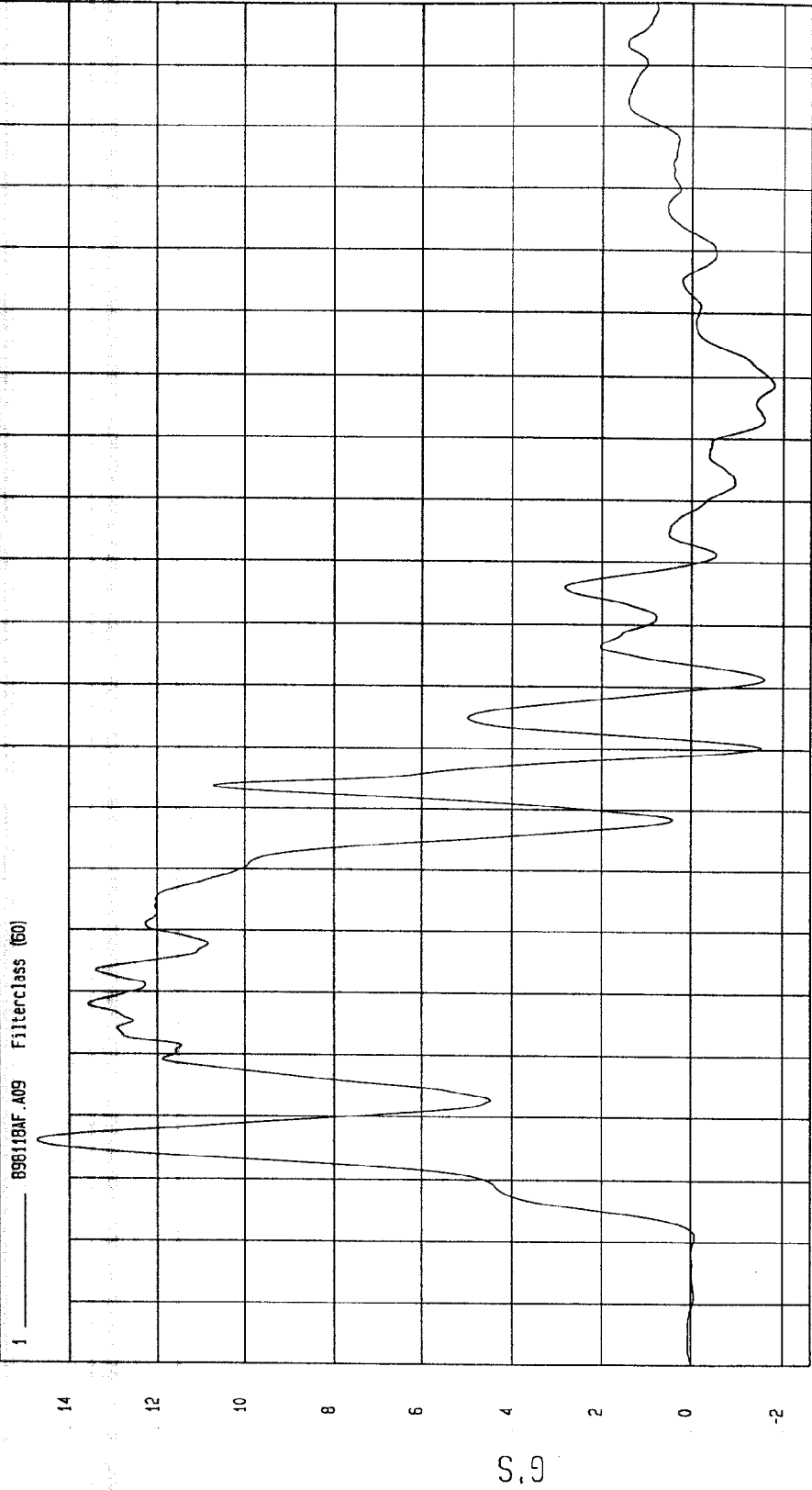
COMPONENT: 1999 FORD F-150 (MX0203)

Maximum = 14.73 G'S at 16 msec

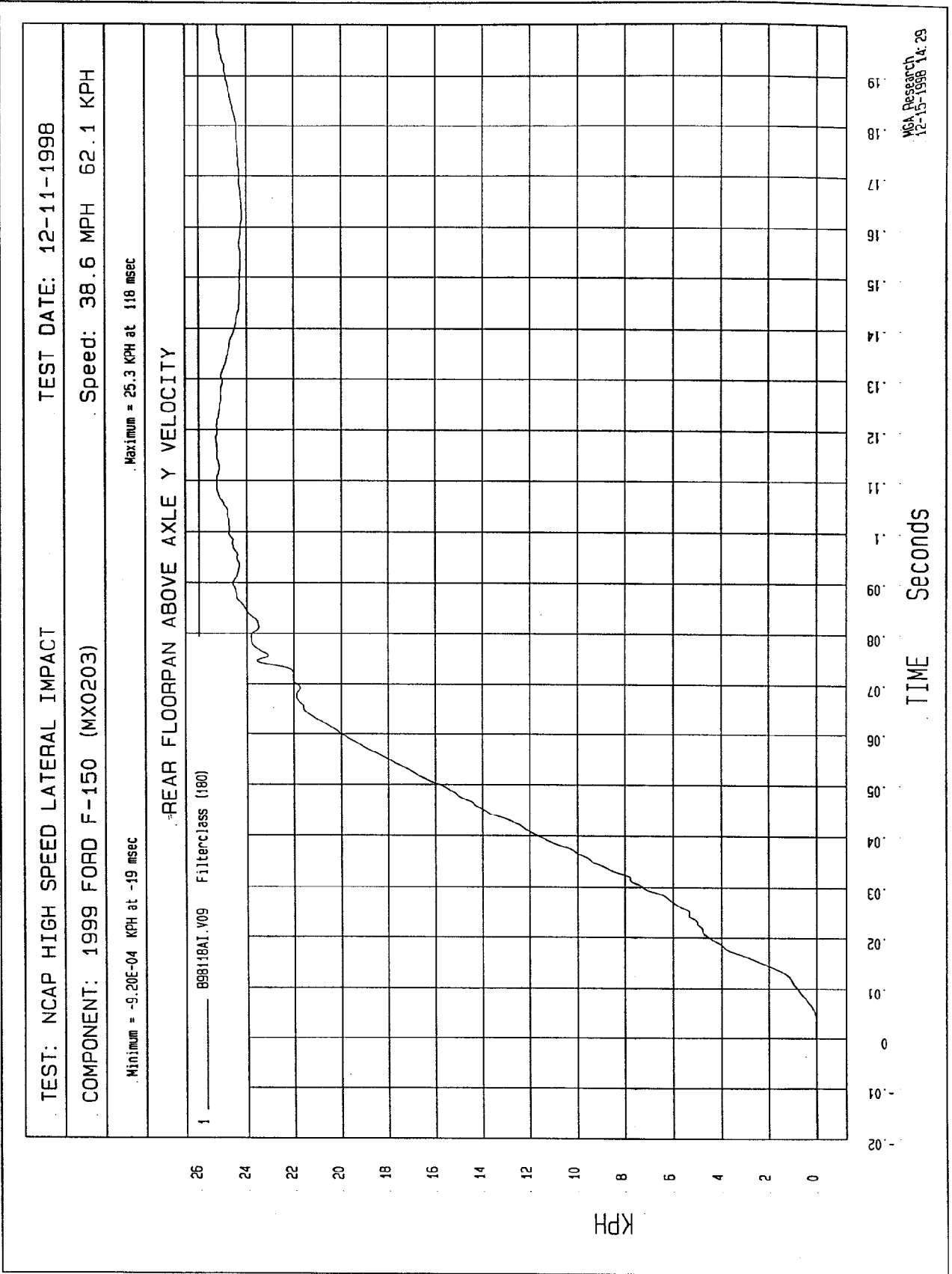
Minimum = -1.8 G'S at 139 msec

REAR FLOORPAN ABOVE AXLE Y ACCELERATION

1 898118AF.A09 Filterclass (60)



MSA Research
12-14-1998 11:55



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203)

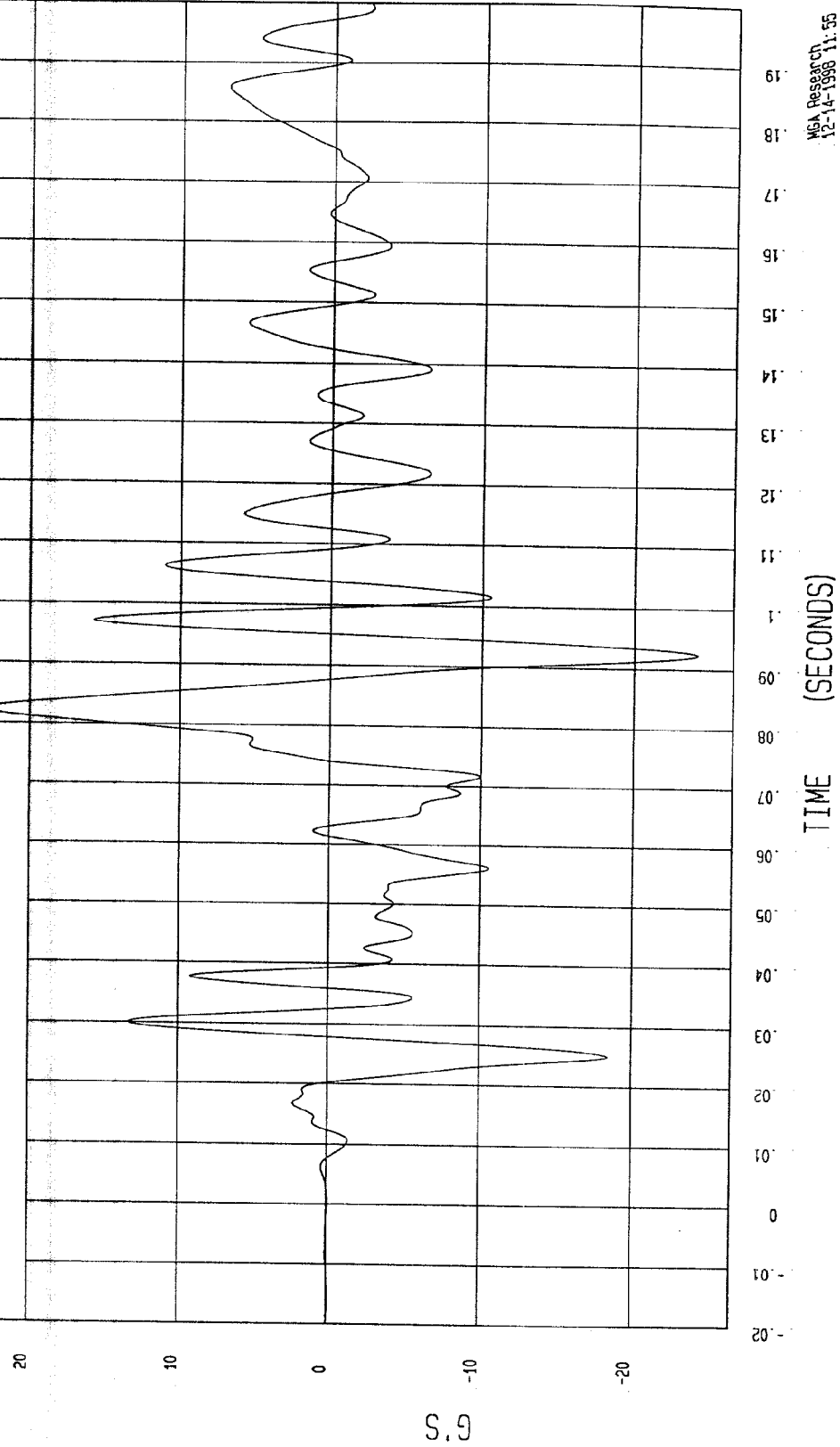
Speed: 38.6 MPH 62.1 KPH

Minimum = -24.17 G'S at 92 msec

Maximum = 23.06 G'S at 82 msec

REAR FLOORPAN ABOVE AXLE Z ACCELERATION

1 B9B18AF.A10 FilterClass (60)



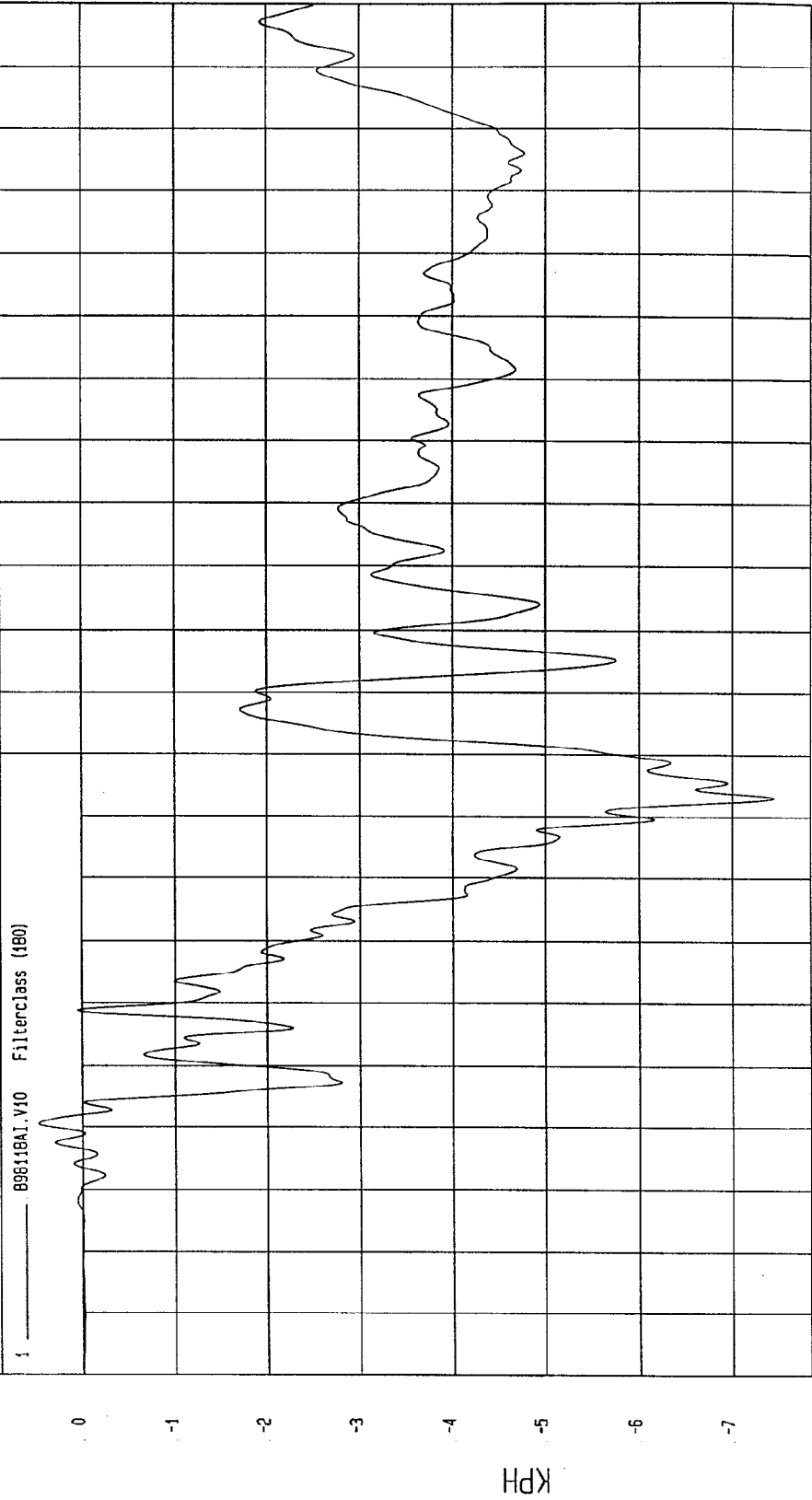
MSA Research
12-14-1998 11:55

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -7.44 KPH at 73 msec Maximum = .48 KPH at 20 msec

REAR FLOORPAN ABOVE AXLE Z VELOCITY



TIME Seconds

NGA Research
12-15-1998 14:29

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

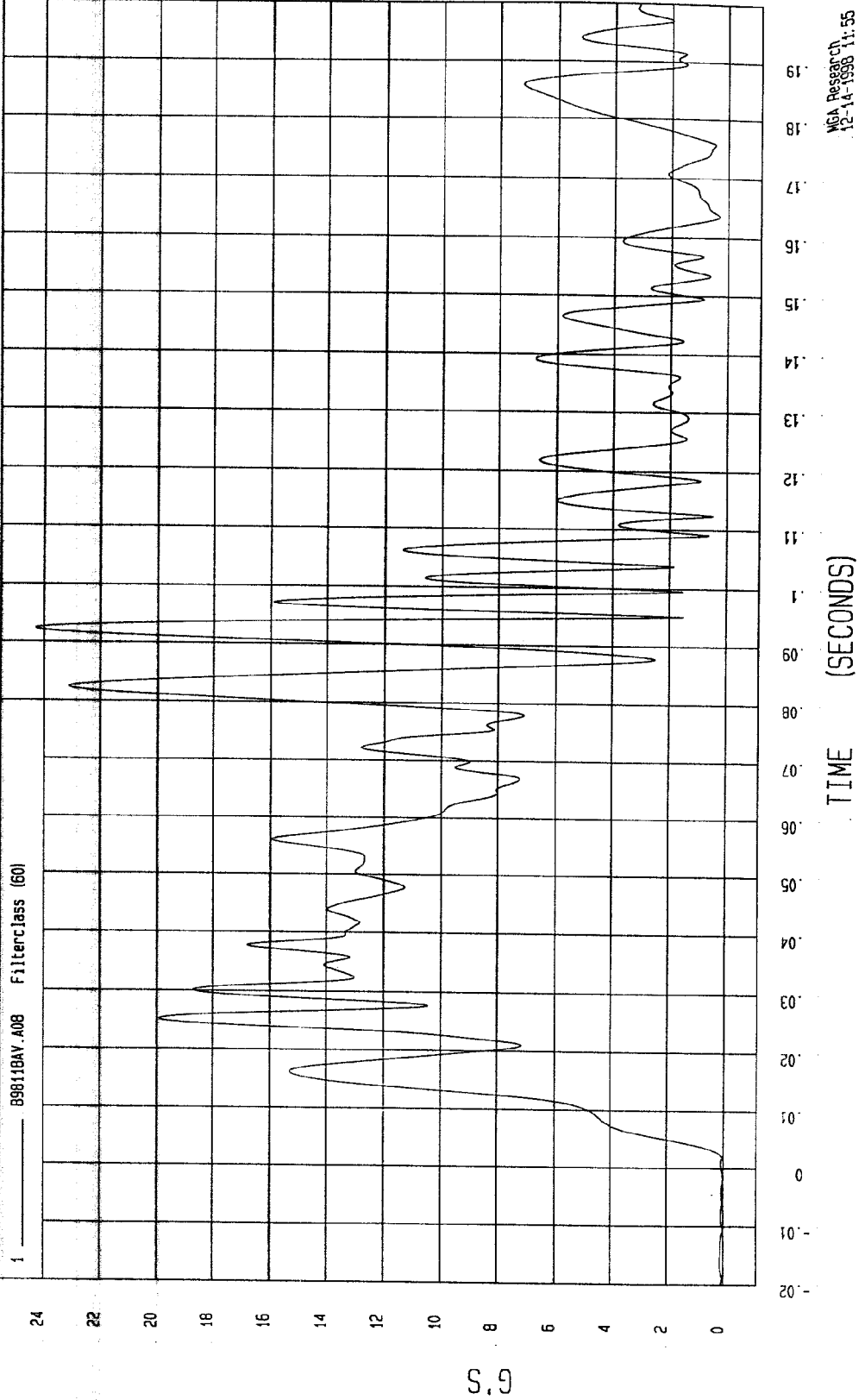
SPEED: 38.6 MPH 62.1 KPH

COMPONENT: 1999 FORD F-150 (MX0203)

Minimum = 1.45E-02 G'S at -2 msec

Maximum = 24.3 G'S at 92 msec

REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

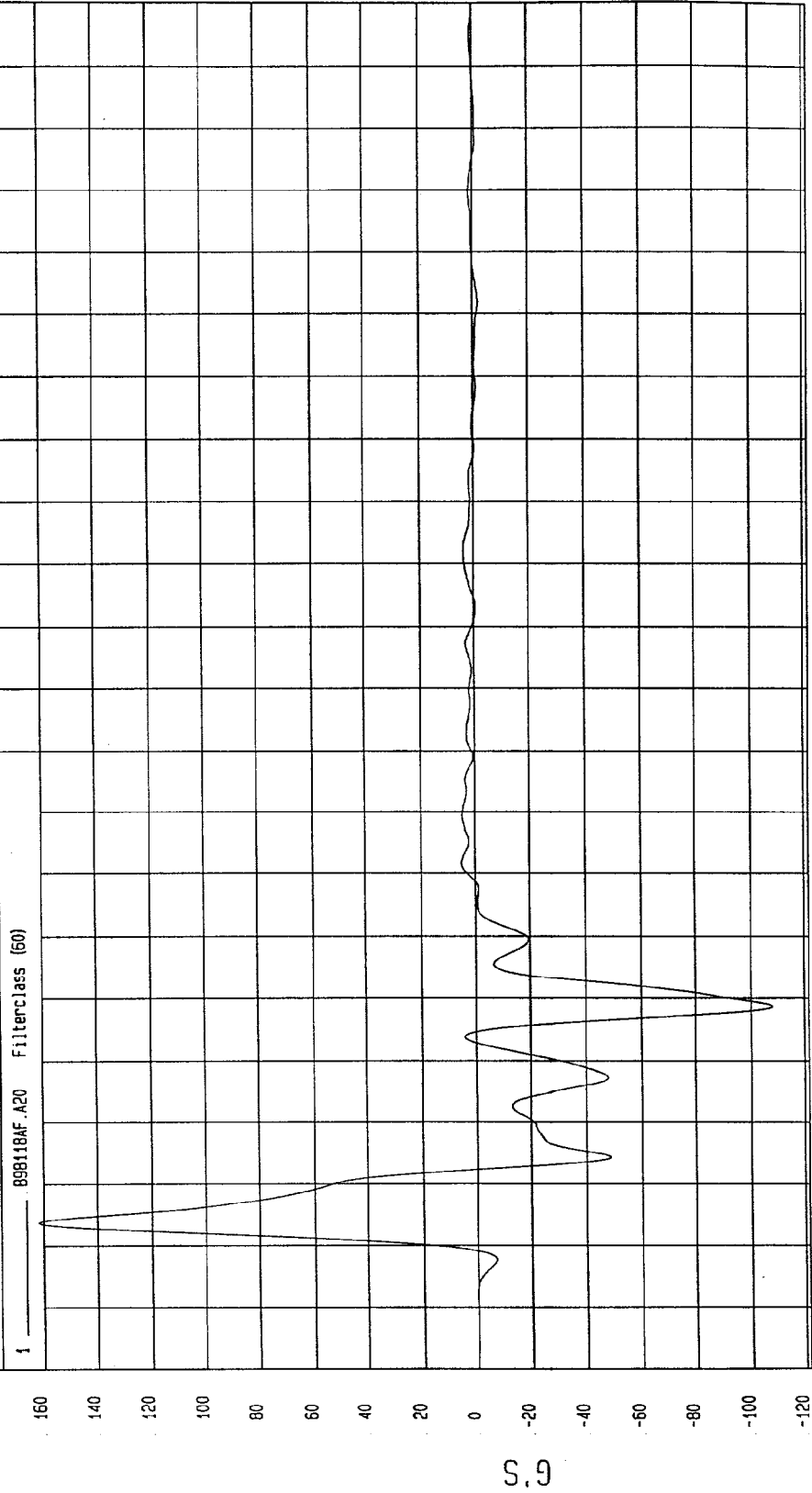


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -108.17 G'S at 39 msec Maximum = 161.85 G'S at 4 msec

LEFT LOWER A-POST Y ACCELERATION

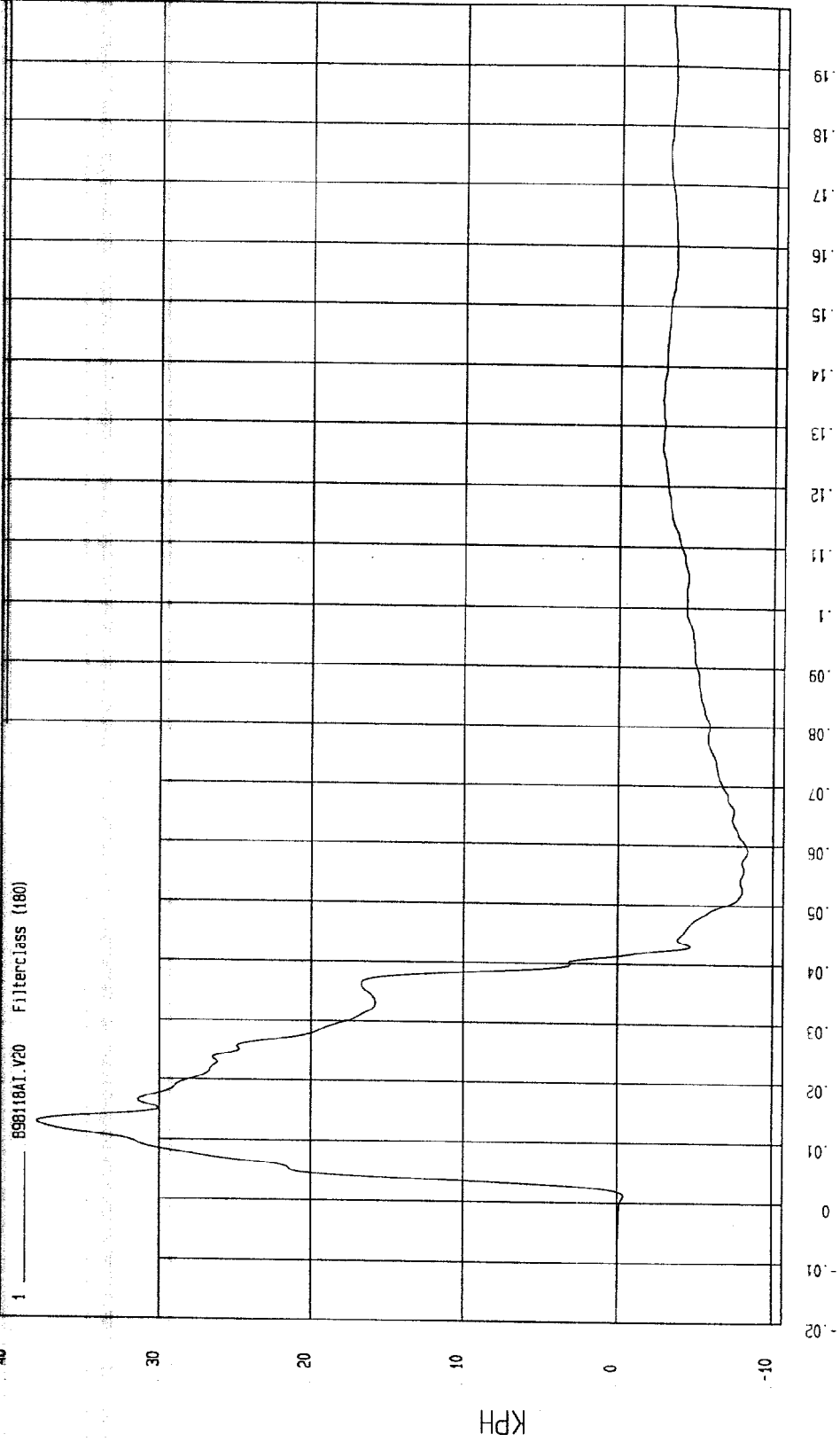


TIME (SECONDS)

MSA Research
12-11-1998 11:55

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998
COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH
Minimum = -8.36 KPH at 59 msec Maximum = 38.01 KPH at 13 msec

LEFT LOWER A-POST Y VELOCITY



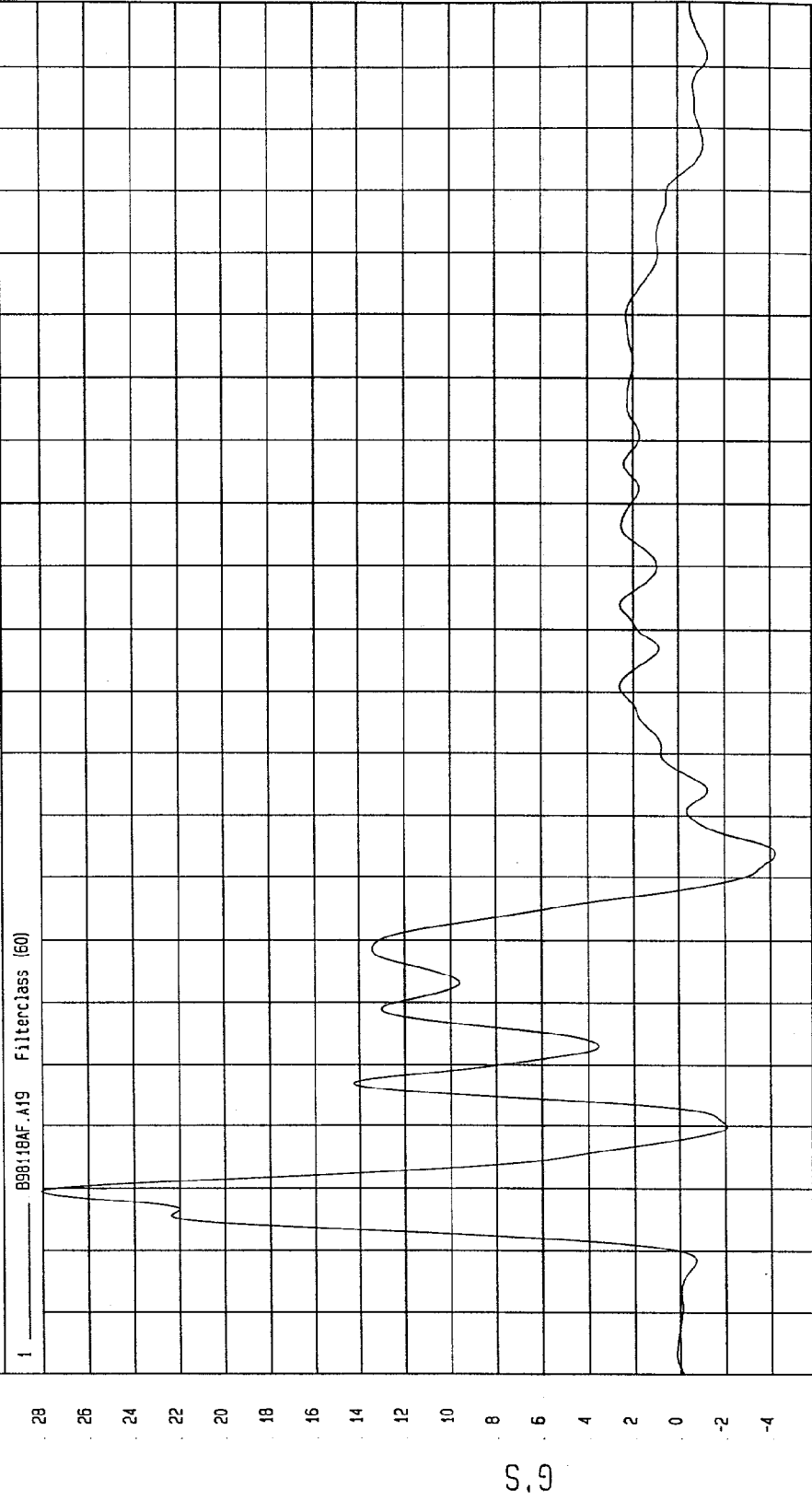
WGA Research
12-15-1998 14:30

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -4.23 G'S at 64 msec Maximum = 28.1 G'S at 10 msec

LEFT MID A-POST Y ACCELERATION



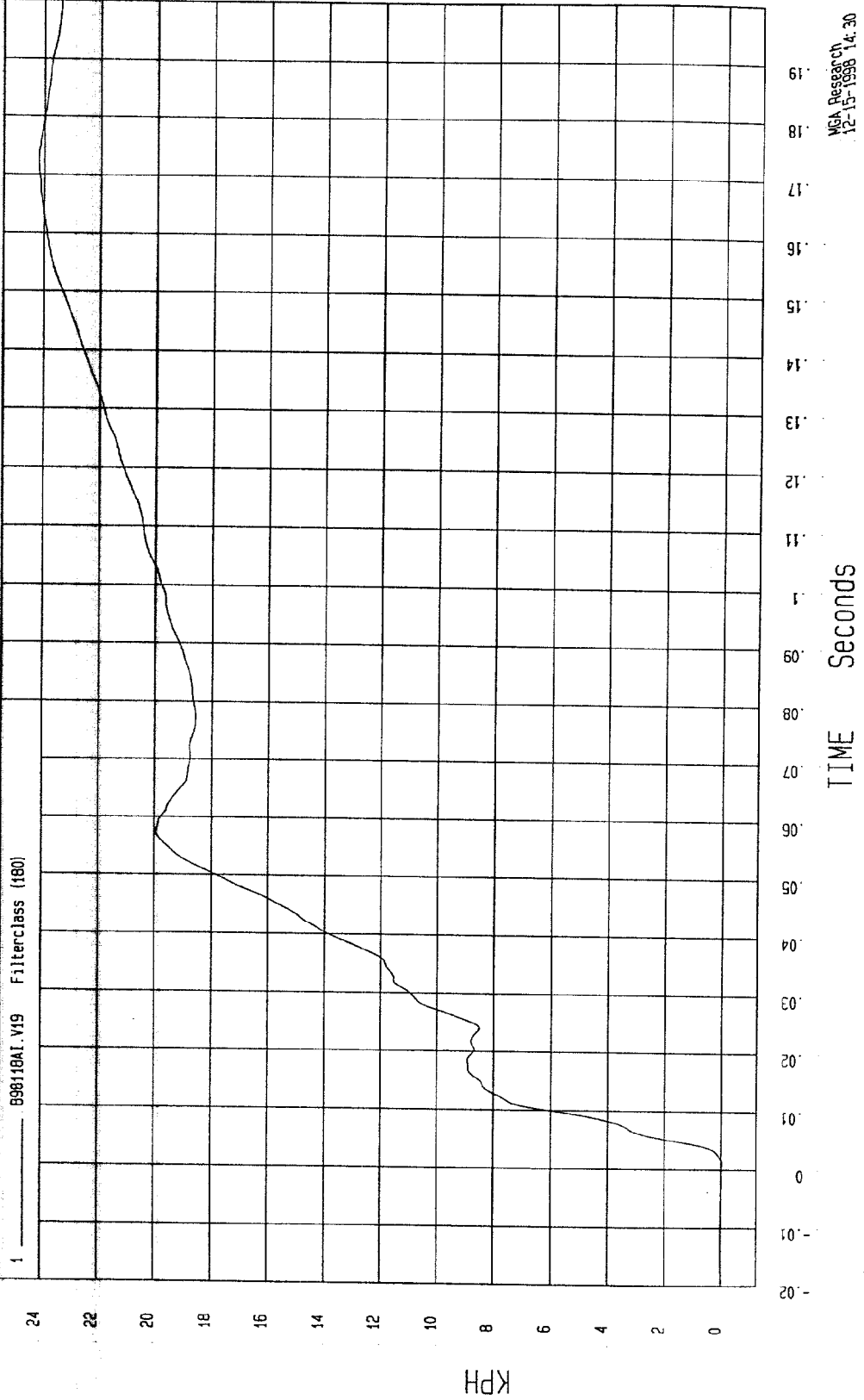
MCA Research
12-14-1998 11:55

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -2.75E-02 KPH at 1 msec
Maximum = 24.2 KPH at 173 msec

LEFT MID A-POST Y VELOCITY

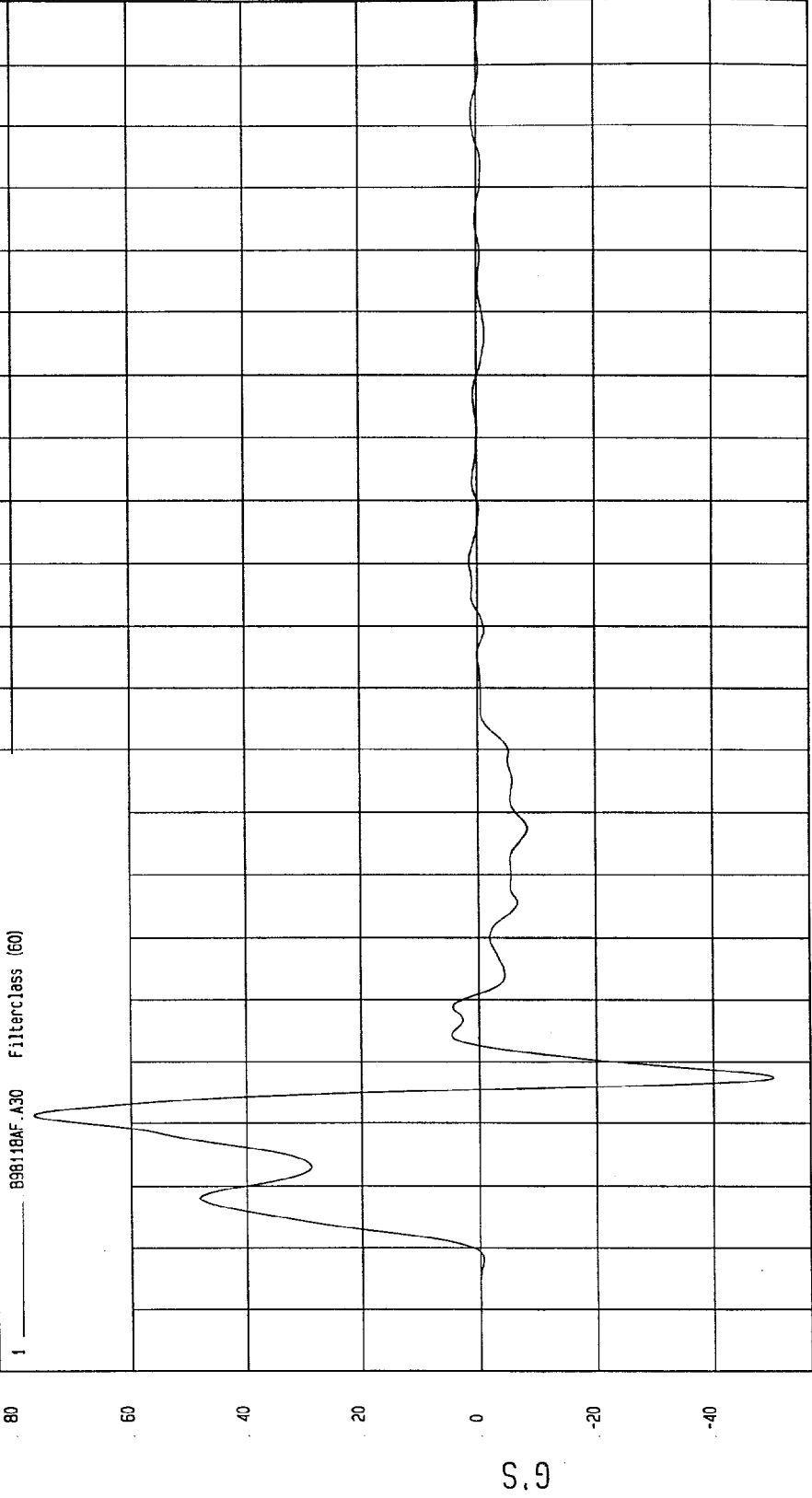


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -50.37 G'S at 27 msec Maximum = 76.59 G'S at 21 msec

LEFT LOWER B-POST Y ACCELERATION



TIME (SECONDS)

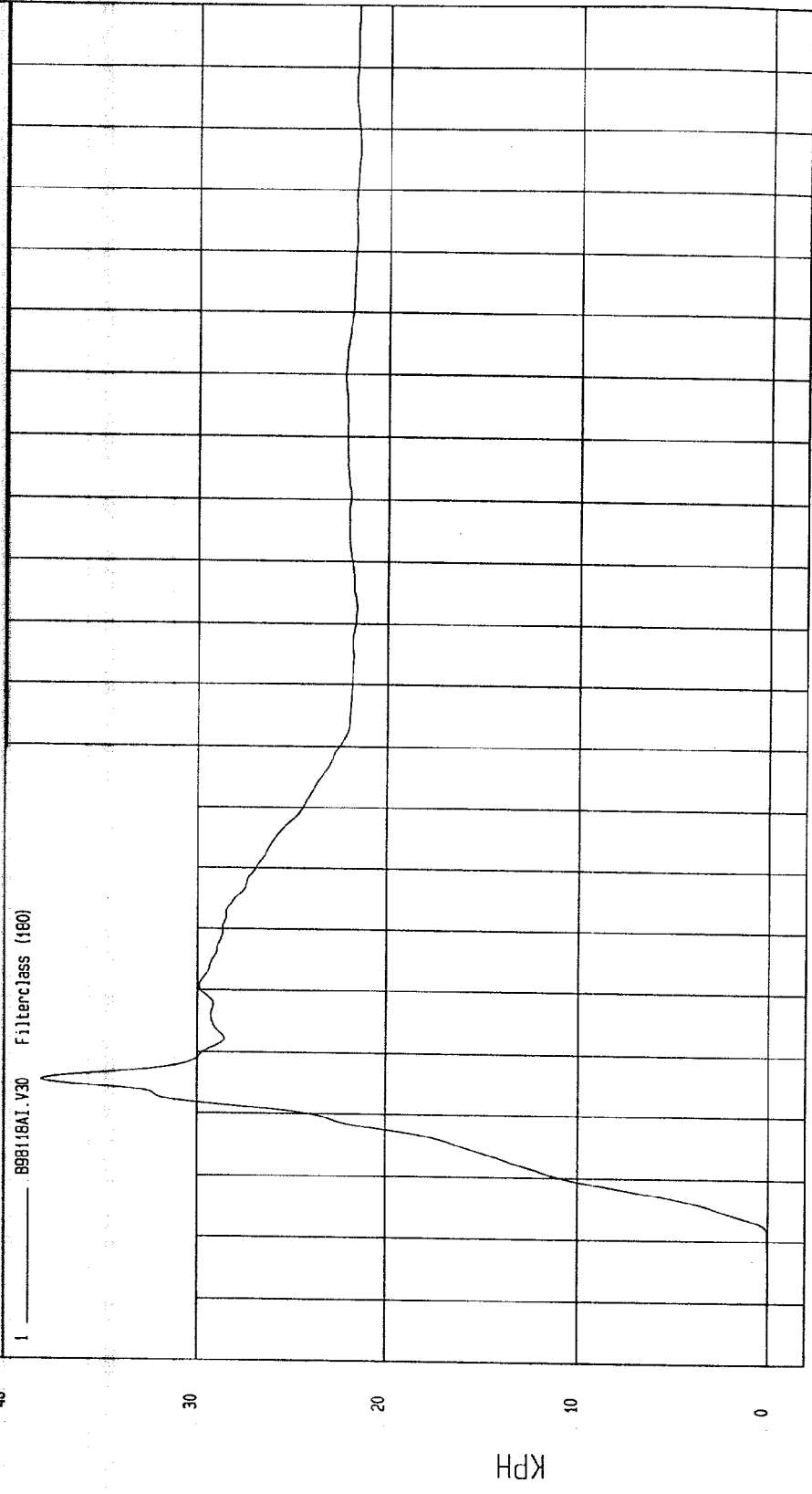
MECA Research
12-11-1998 11:55

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -2.14E-02 KPH at -5 msec Maximum = 38.19 KPH at 25 msec

LEFT LOWER B-POST Y VELOCITY



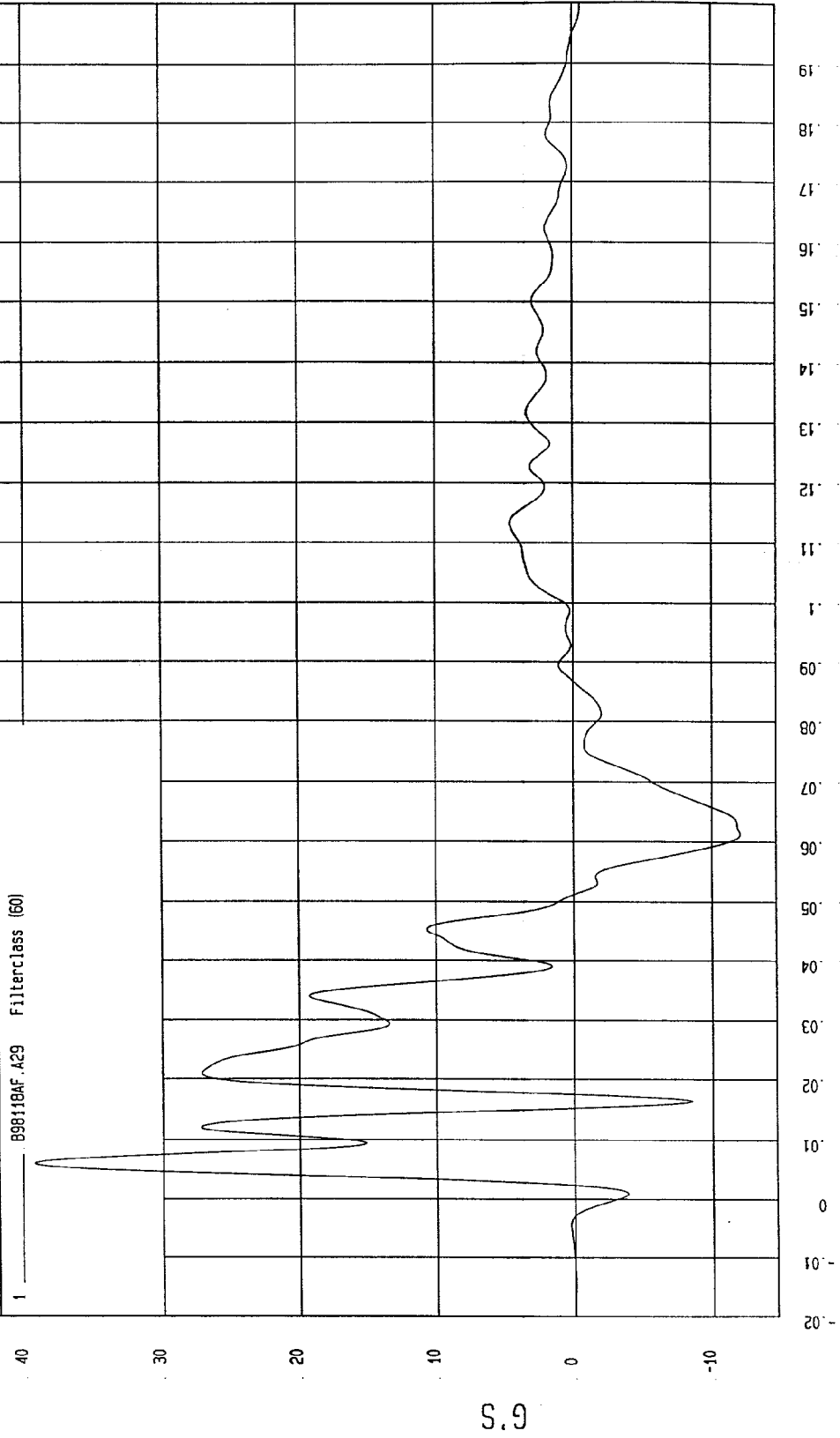
MOA Research
12-15-1998 14:30

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -12.05 G'S at 61 msec Maximum = 39.32 G'S at 6 msec

LEFT MID B-POST Y ACCELERATION



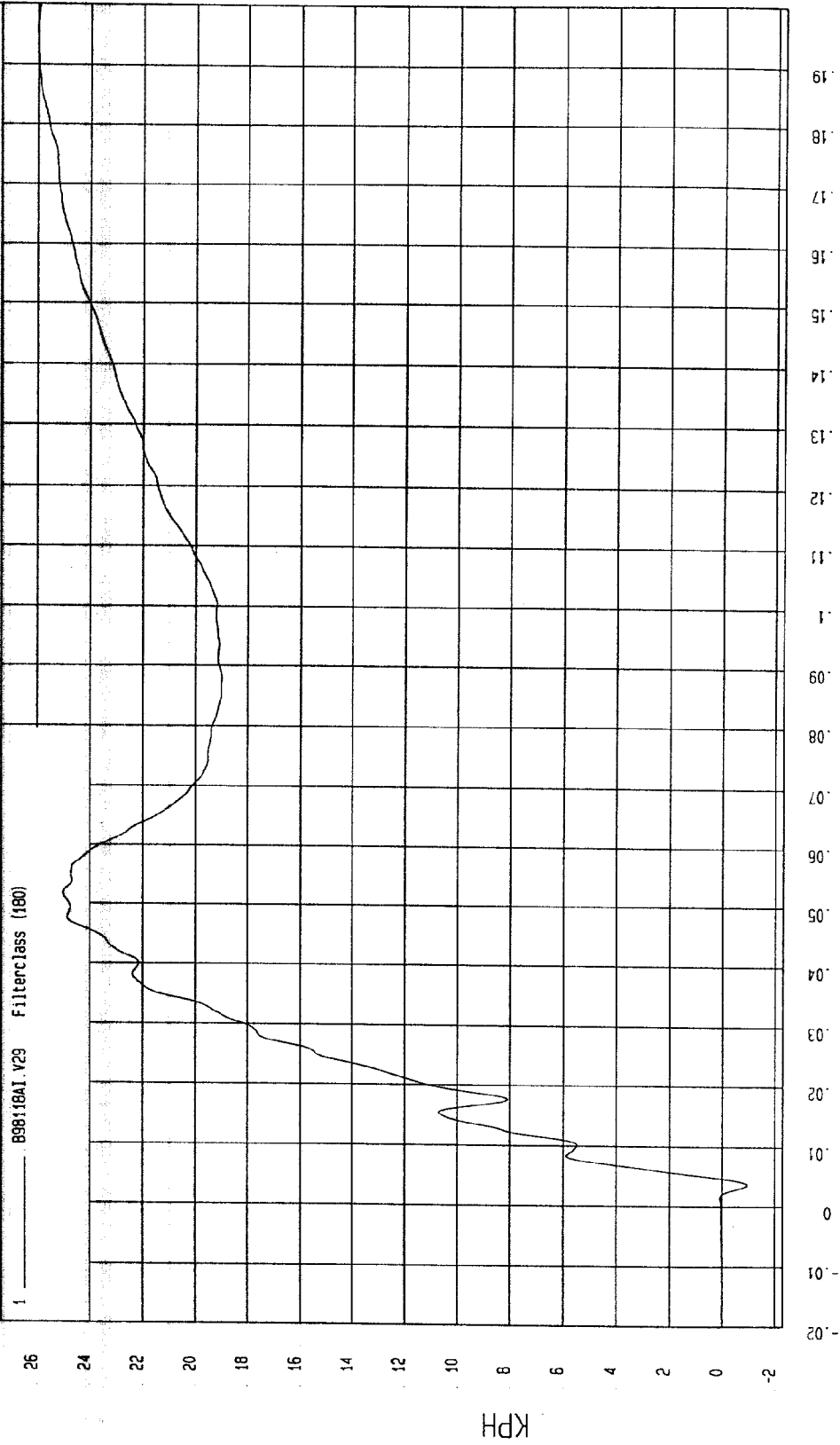
MEA Research
12-14-1998 11:55

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -.95 KPH at 4 msec Maximum = 26.01 KPH at 196 msec

LEFT MID B-POST Y VELOCITY



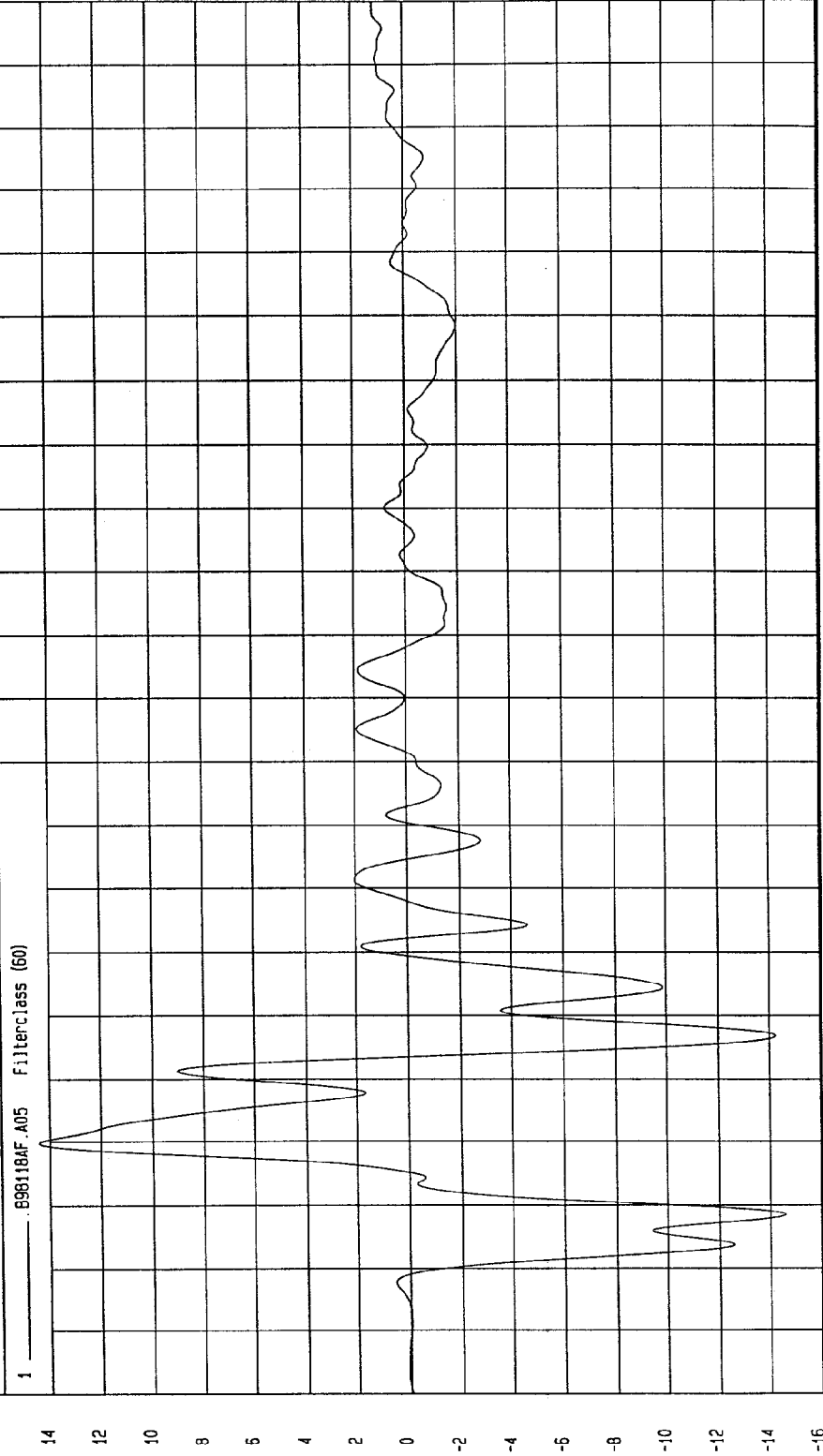
WCA Research
12-15-1998 14:30

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -14.62 G'S at 8 msec Maximum = 14.41 G'S at 20 msec

VEHICLE CG X ACCELERATION



TIME (SECONDS)

61
18
17
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MCA Research
12-11-1998 11:55

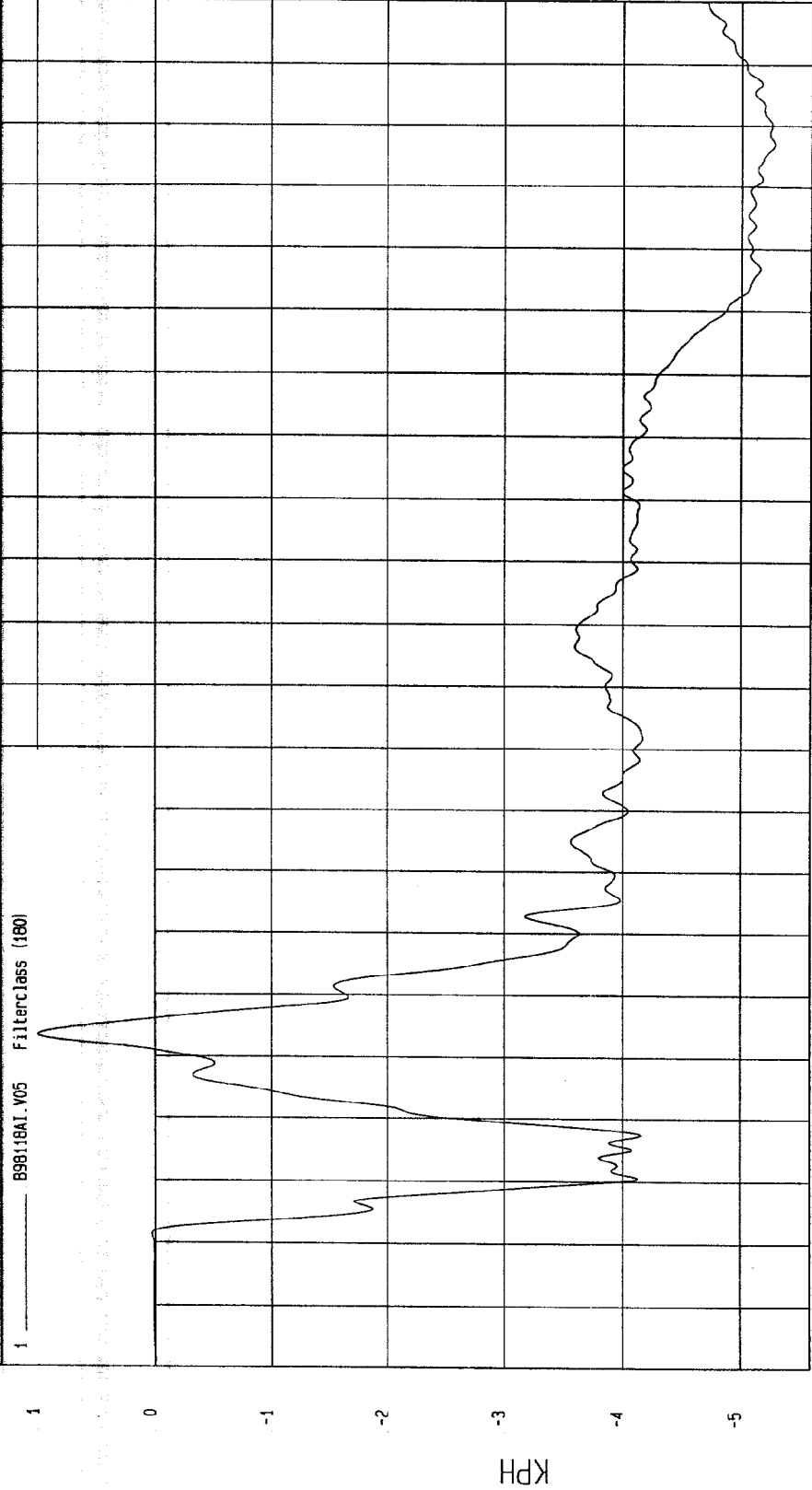
G.S

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -5.28 KPH at 177 msec Maximum = 1 KPH at 33 msec

VEHICLE CG X VELOCITY



TIME Seconds

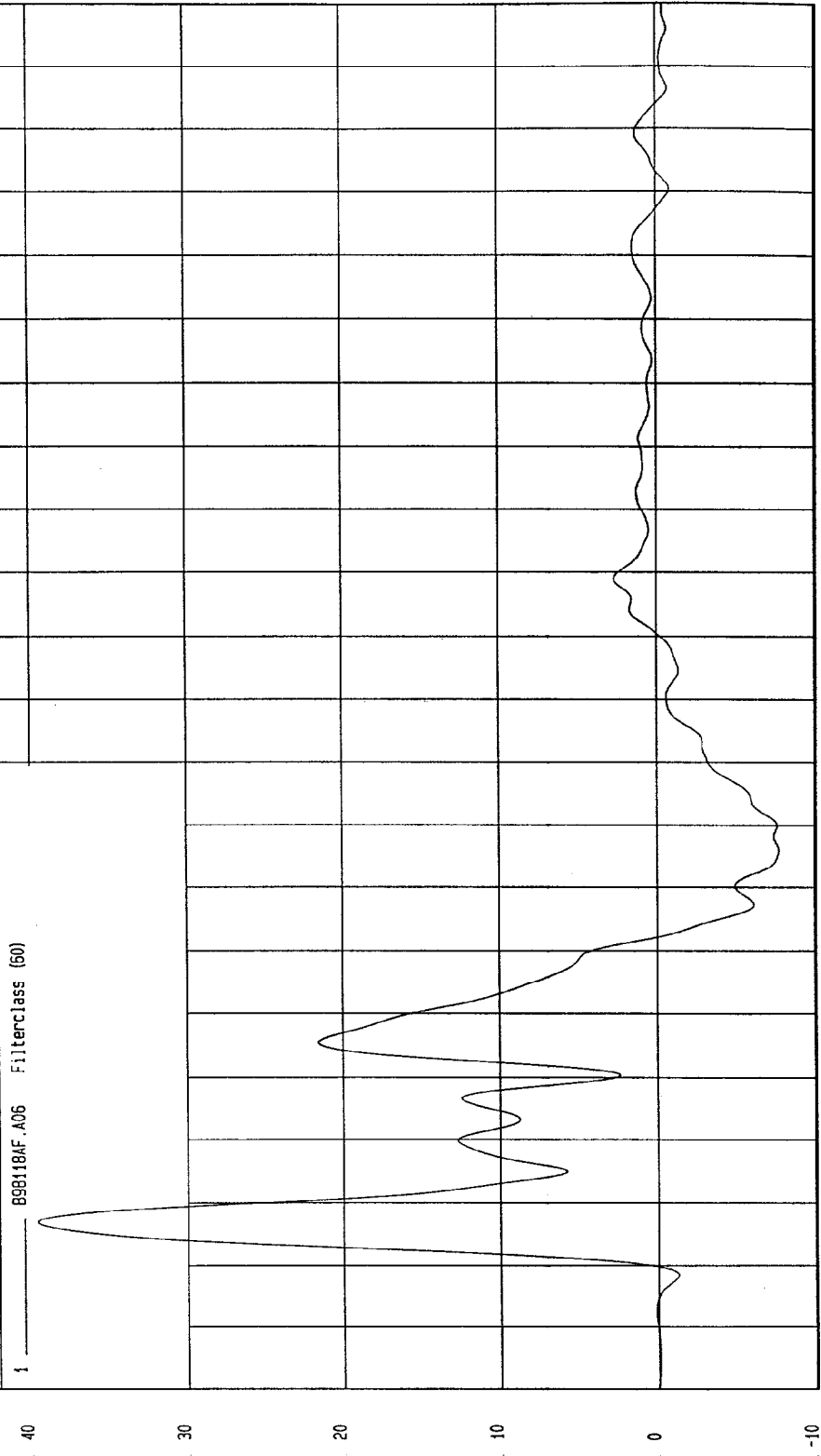
NSA Research
12-15-1998 14:30

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -7.75 G'S at 66 msec Maximum = 39.64 G'S at 7 msec

VEHICLE CG Y ACCELERATION



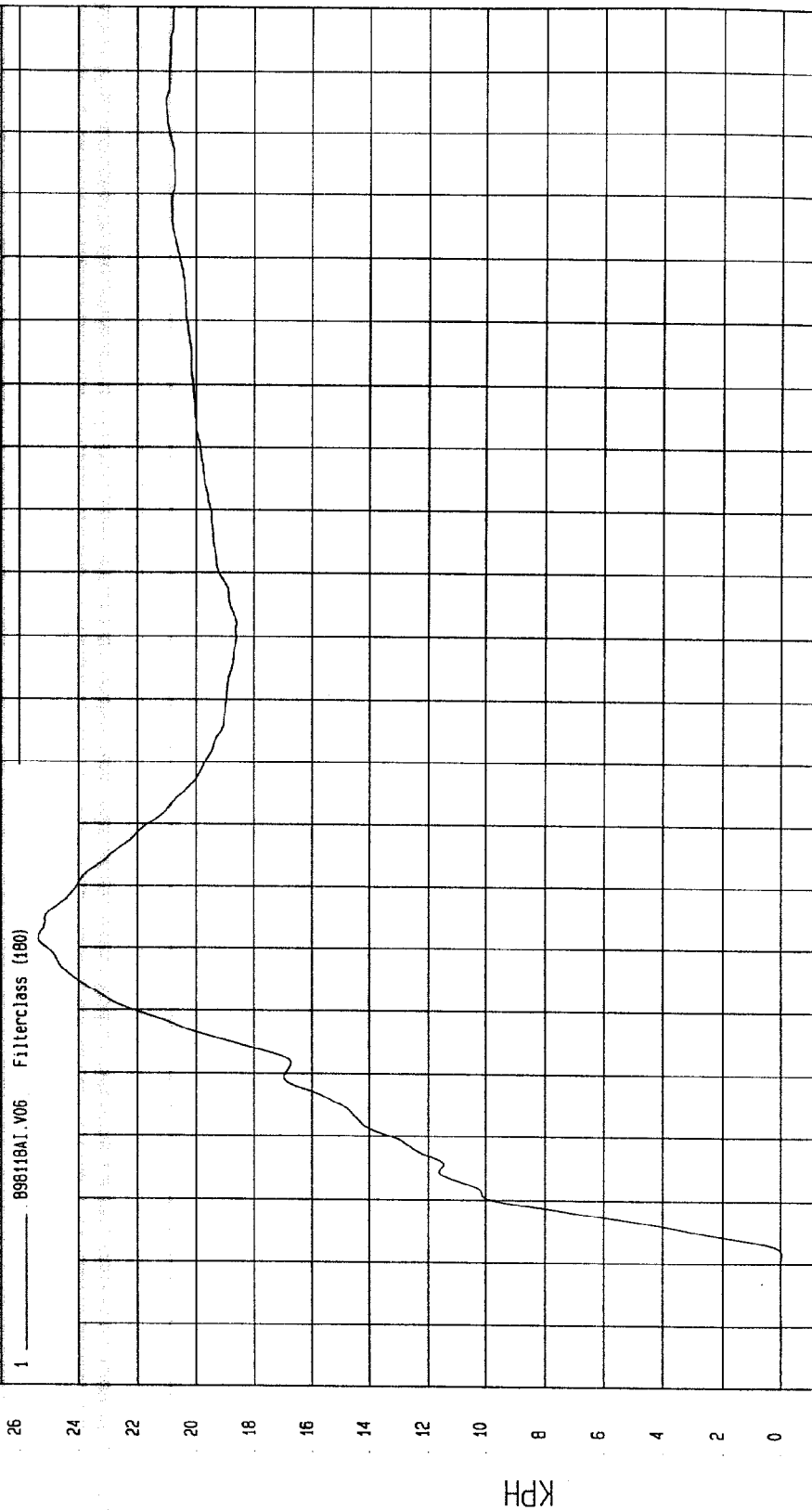
MGA Research
12-14-1998 11:55

TIME (SECONDS)

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998
 COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -3.20E-02 KPH at 2 msec
 Maximum = 25.36 KPH at 51 msec

VEHICLE CG Y VELOCITY

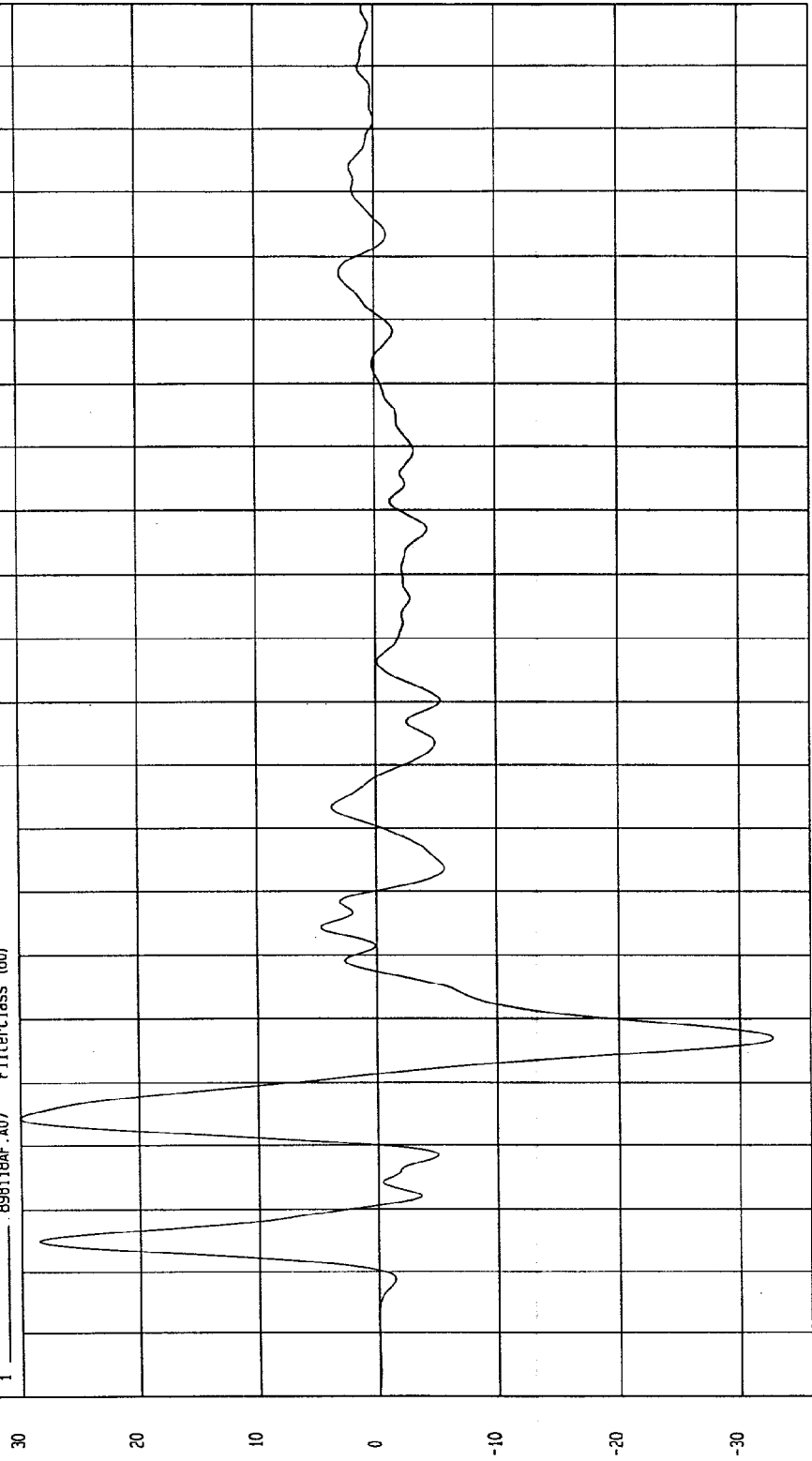


MGA Research
 12-15-1998 14:30

TEST: NCAP HIGH SPEED LATERAL IMPACT
 TEST DATE: 12-11-1998
 COMPONENT: 1999 FORD F-150 (MX0203)
 Speed: 38.6 MPH 62.1 KPH
 Minimum = -32.8 G'S at 37 msec
 Maximum = 30.06 G'S at 24 msec

VEHICLE CG Z ACCELERATION

1 898118AF.A07 Filterclass (60)



TIME (SECONDS)

NCA Research
 12-14-1998 11:55

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

Speed: 38.6 MPH 62.1 KPH

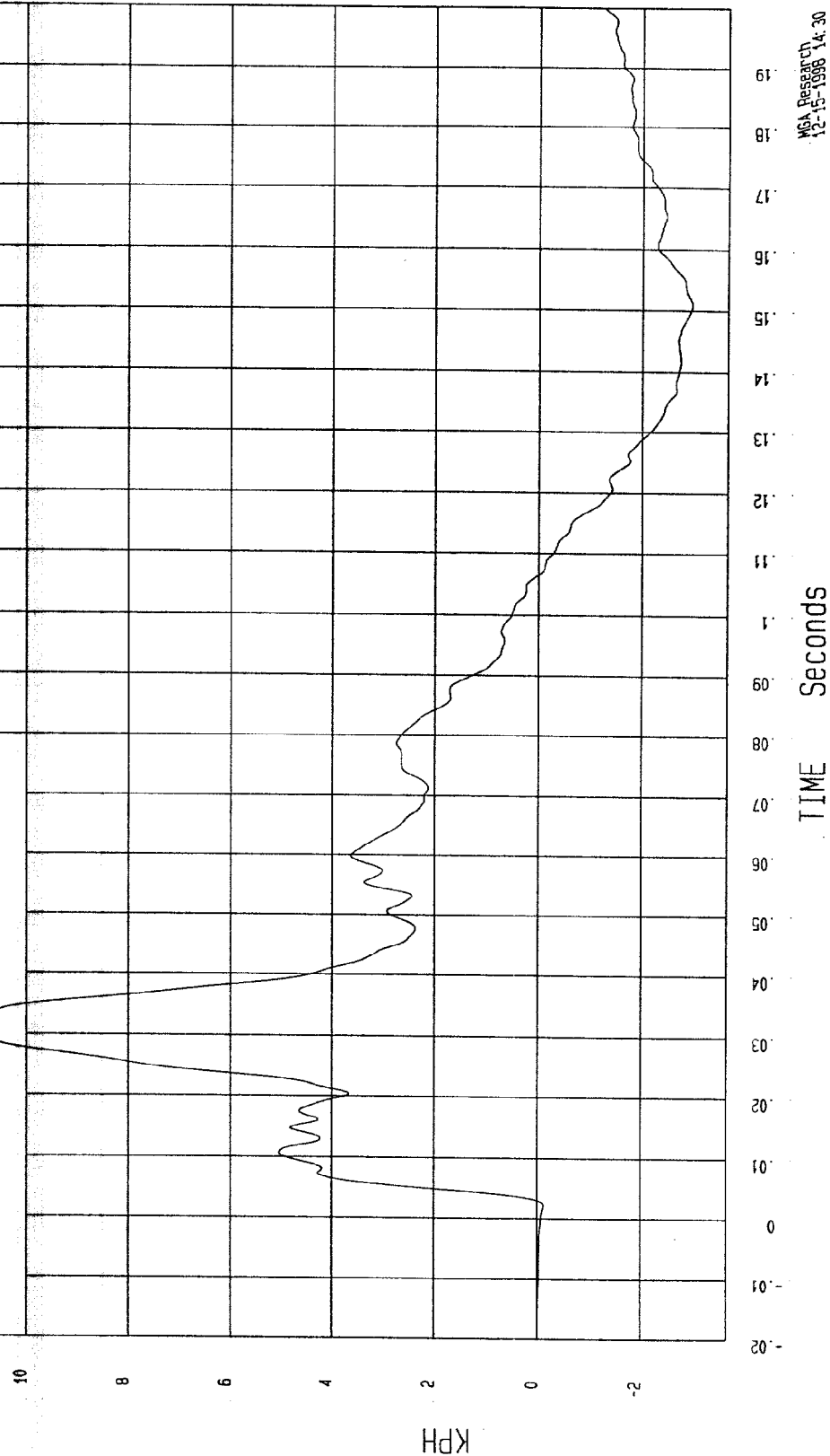
COMPONENT: 1999 FORD F-150 (MX0203)

Maximum = 11.07 KPH at 31 msec

Minimum = -2.98 KPH at 151 msec

VEHICLE CG Z VELOCITY

1 898118A1.V07 Filterclass (180)

MCA Research
12-15-1998 14:30

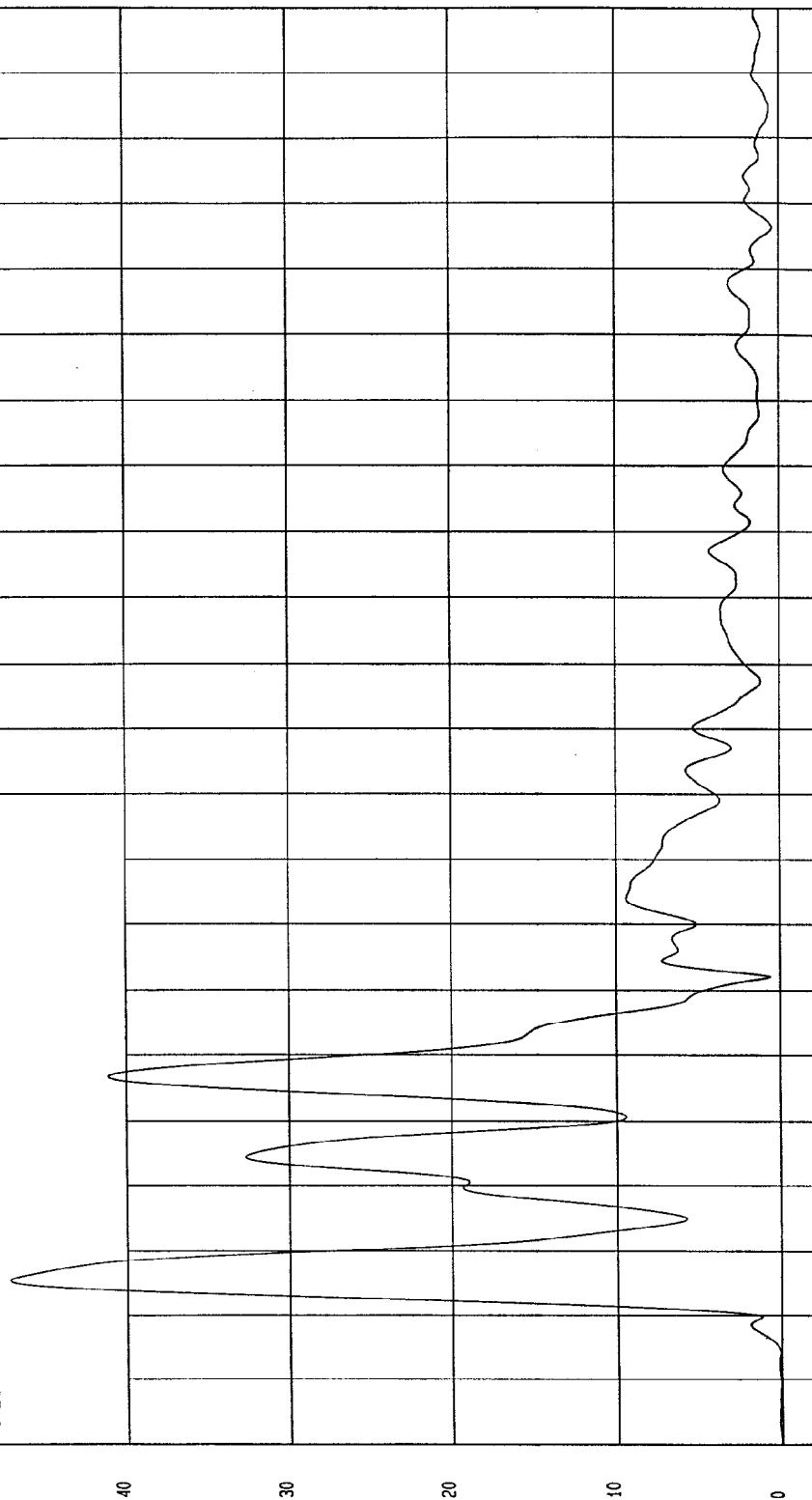
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = 3.42E-02 G'S at -19 msec Maximum = 47.1 G'S at 5 msec

VEHICLE CG RESULTANT ACCELERATION

1 B98118AV.A05 Filterclass (60)

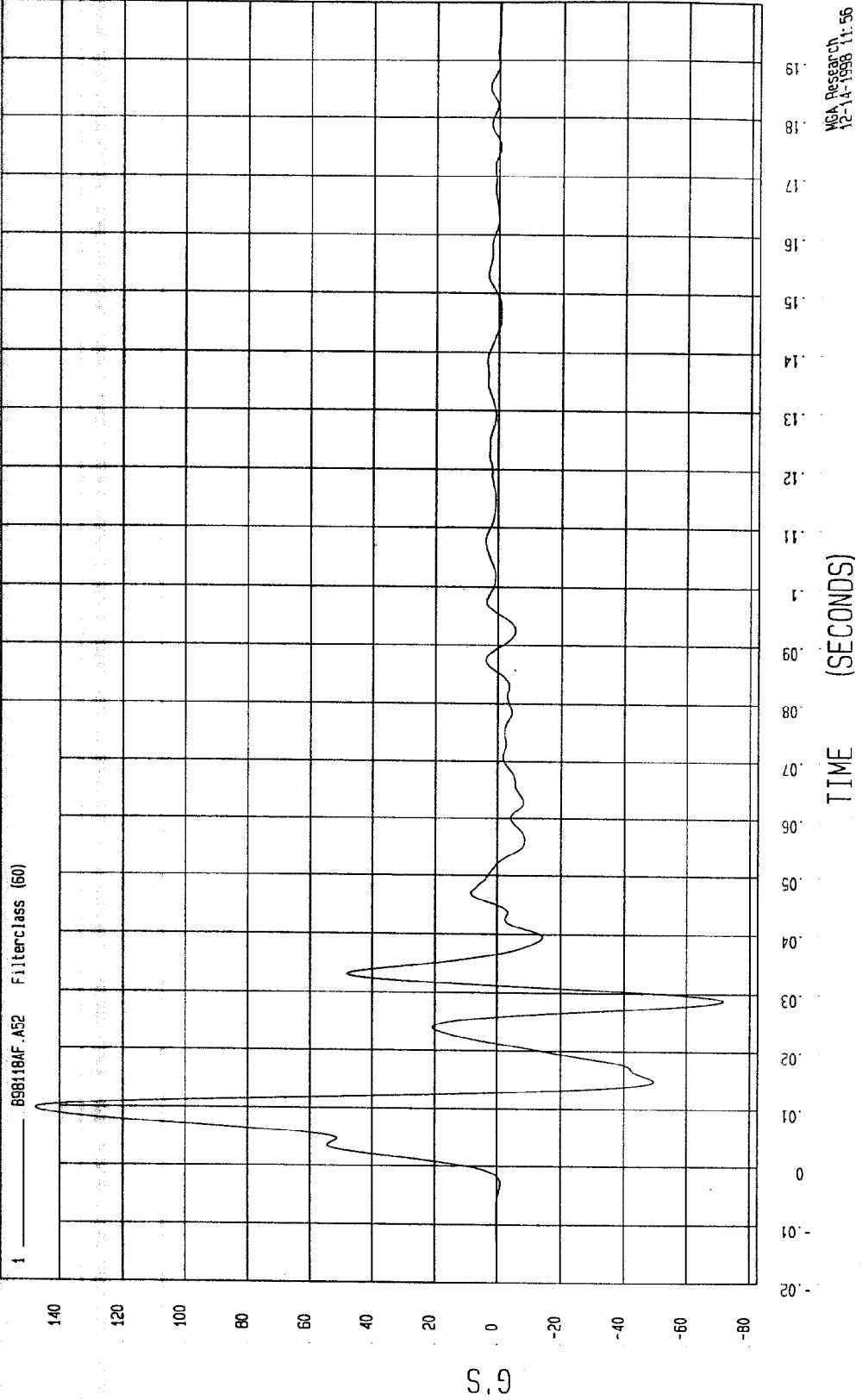


MCA Research
12-14-1998 11:55

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998
COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -71.58 G'S at 29 msec Maximum = 147.86 G'S at 10 msec

LEFT FRONT DOOR MIDREAR Y ACCELERATION

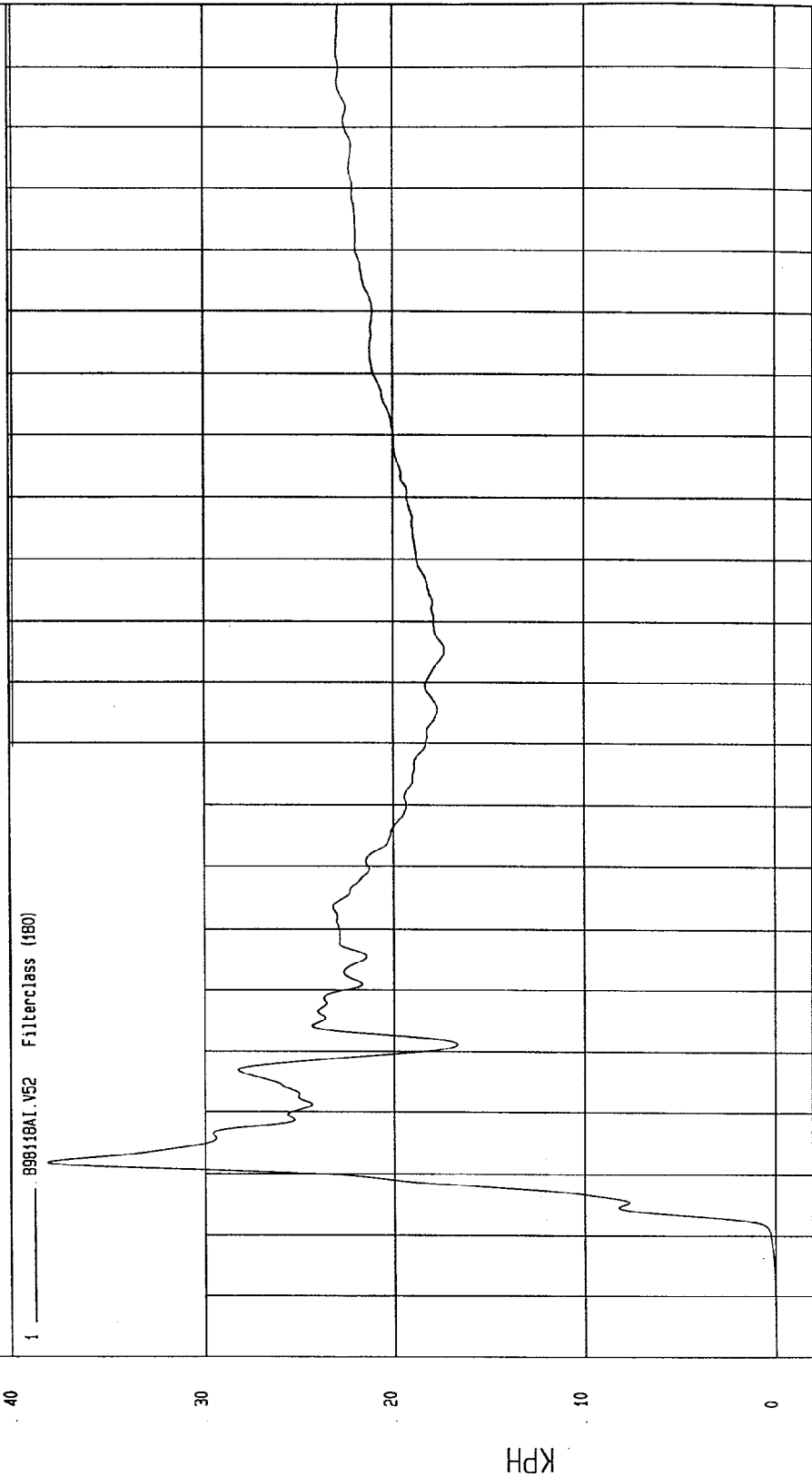


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -2.7E-03 KPH at -16 msec Maximum = 38.27 KPH at 12 msec

LEFT FRONT DOOR MIDREAR Y VELOCITY



MGA Research
12-15-1998 14:30

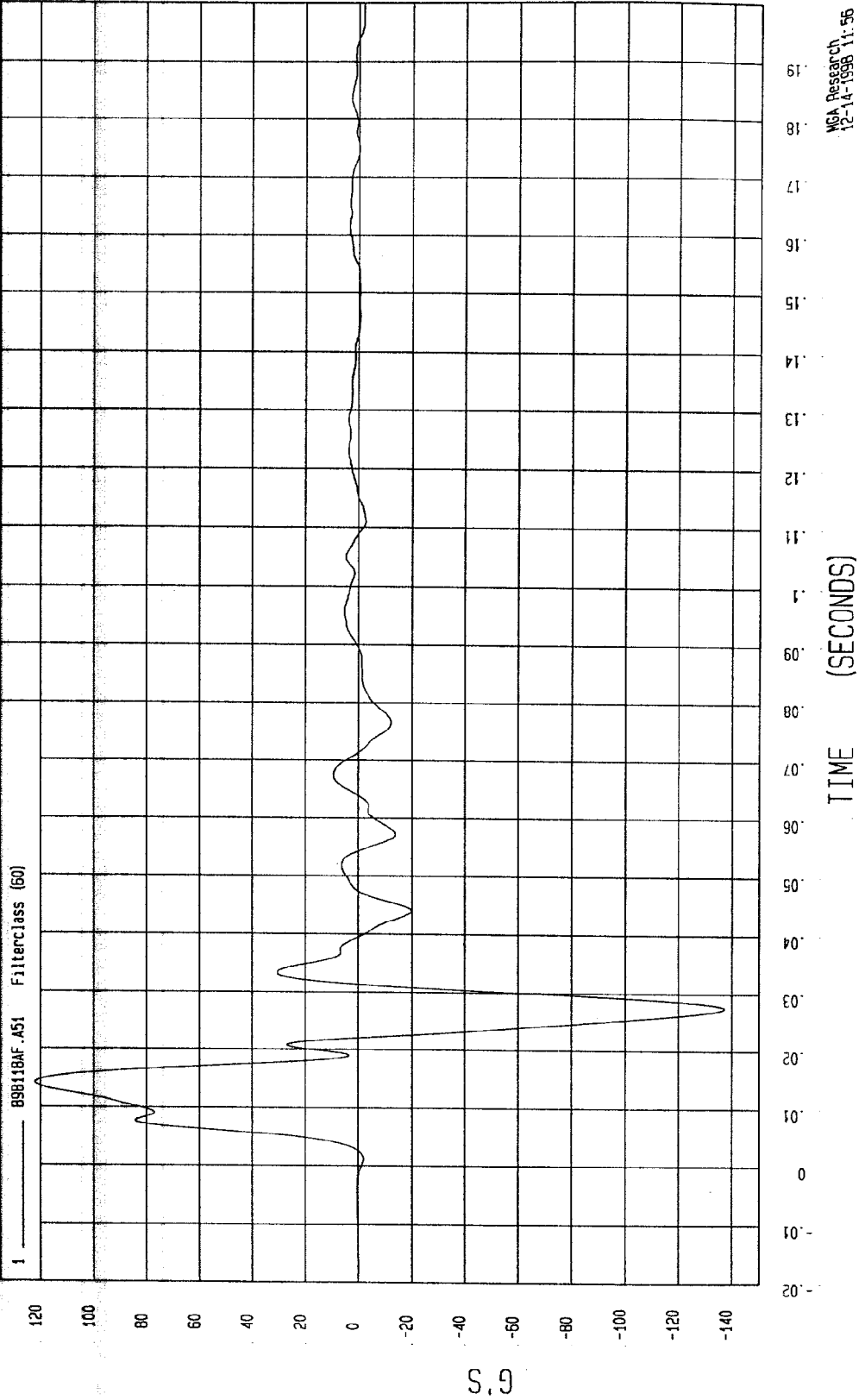
TIME Seconds

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -137.31 G'S at 28 msec Maximum = 122.16 G'S at 14 msec

LEFT FRONT DOOR CENTERLINE Y ACCELERATION



TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

SPEED: 38.6 MPH 62.1 KPH

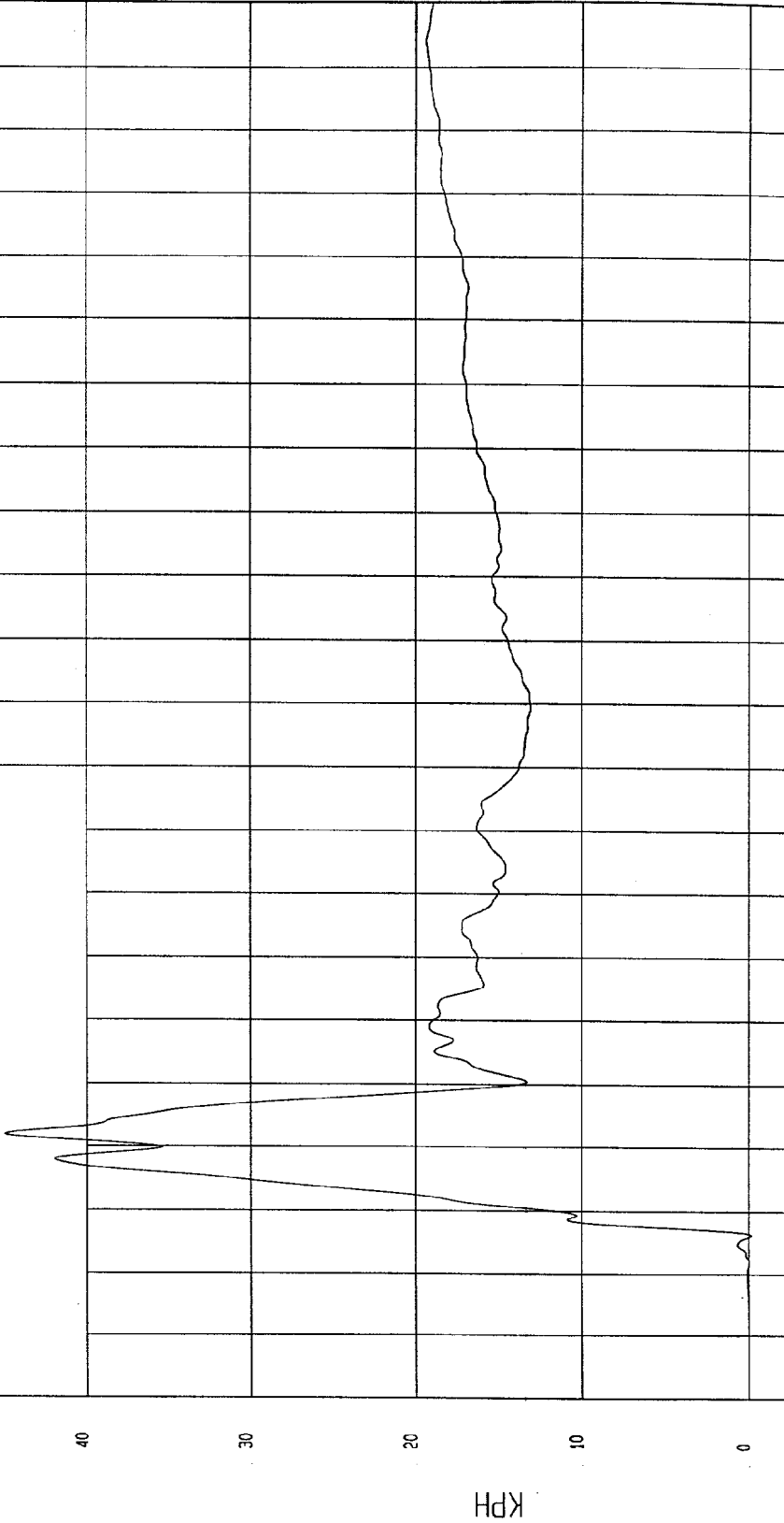
COMPONENT: 1999 FORD F-150 (MX0203)

Minimum = -19 KPH at 6 msec

Maximum = 45.02 KPH at 22 msec

LEFT FRONT DOOR CENTERLINE Y VELOCITY

1 898118A1.V51 Filterclass (180)



MGA Research
12-15-1998 14:30

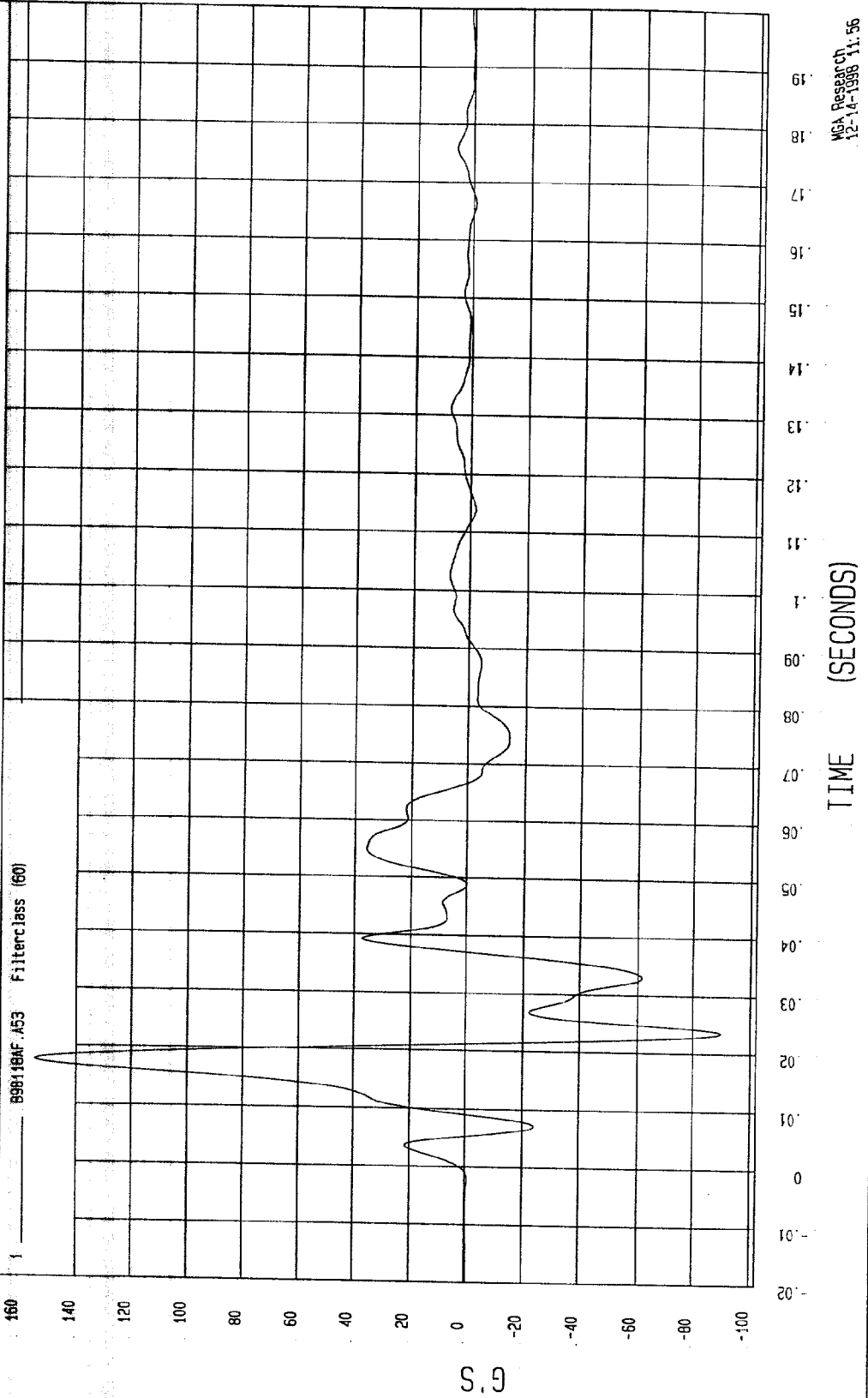
TIME Seconds

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -89.71 G'S at 24 msec Maximum = 154.43 G'S at 18 msec

LEFT FRONT DOOR UPPER CENTERLINE Y ACCELERATION

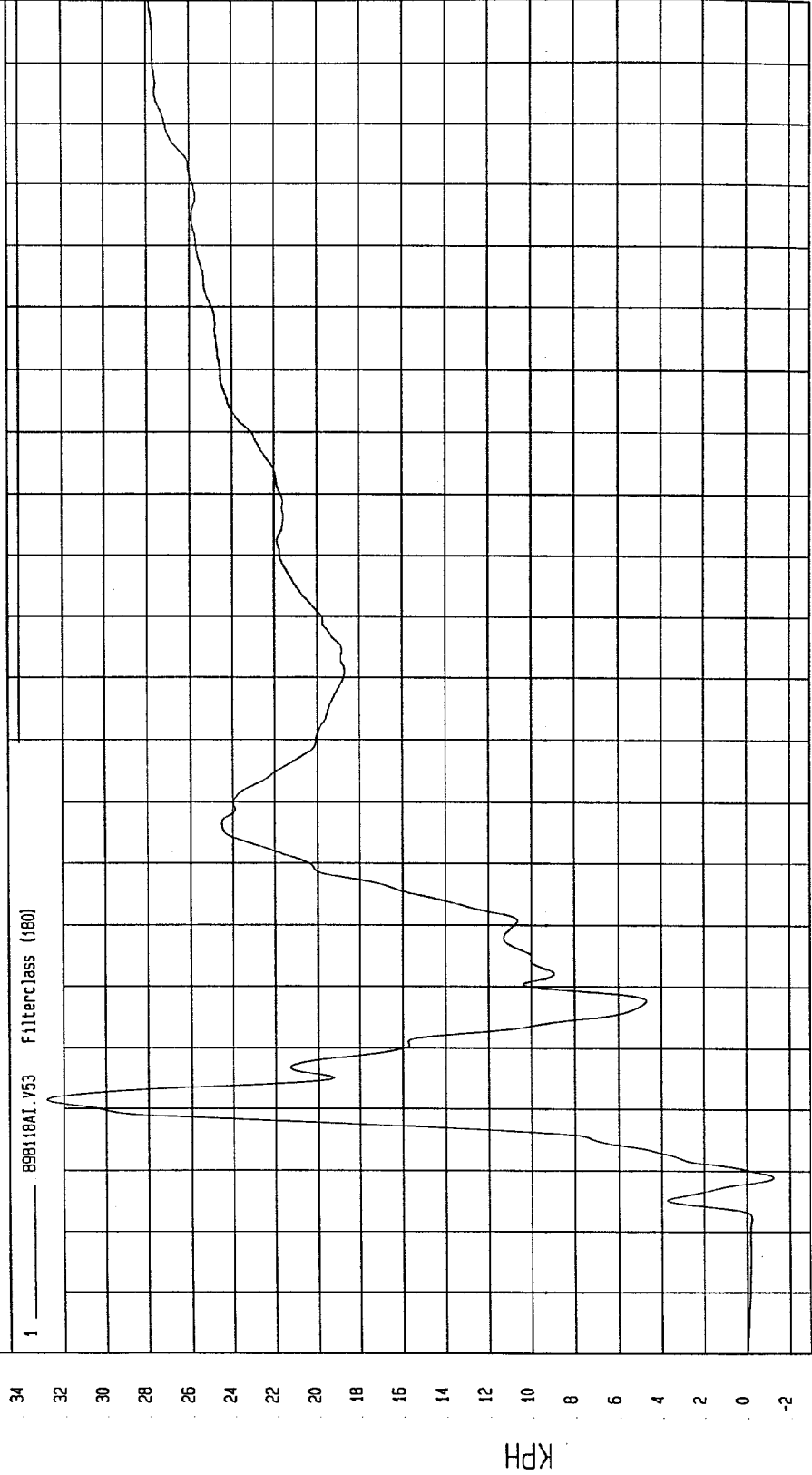


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -1.25 KPH at 9 msec Maximum = 32.8 KPH at 21 msec

LEFT FRONT DOOR UPPER CENTERLINE Y VELOCITY



MSA Research
12-15-1998 14:30

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203)

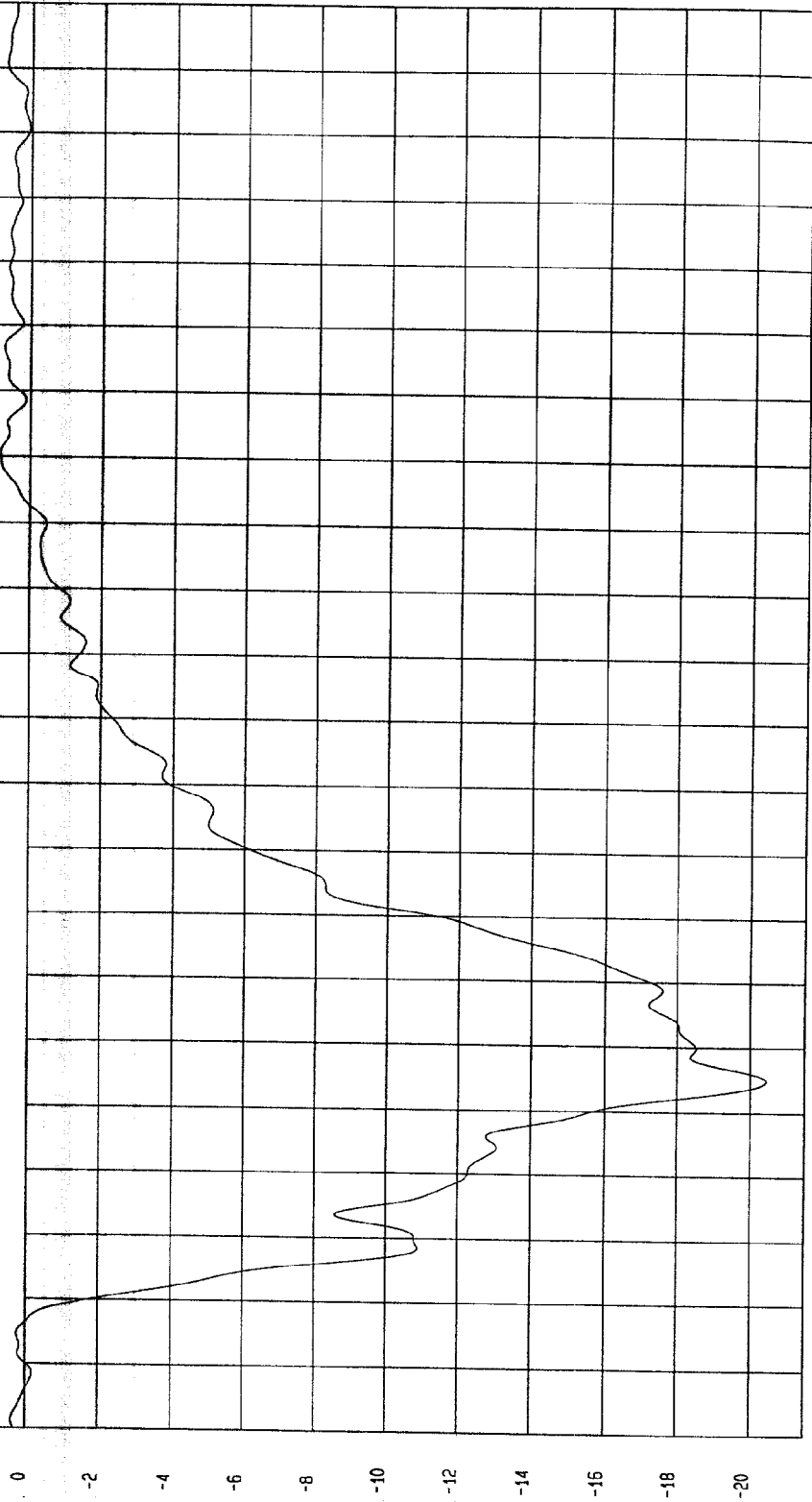
Speed: 38.6 MPH 62.1 KPH

Minimum = -20.44 G'S at 35 msec

Maximum = .82 G'S at 131 msec

MOVING BARRIER CG X ACCELERATION

1 — 898104F.A63 Filterclass (60)



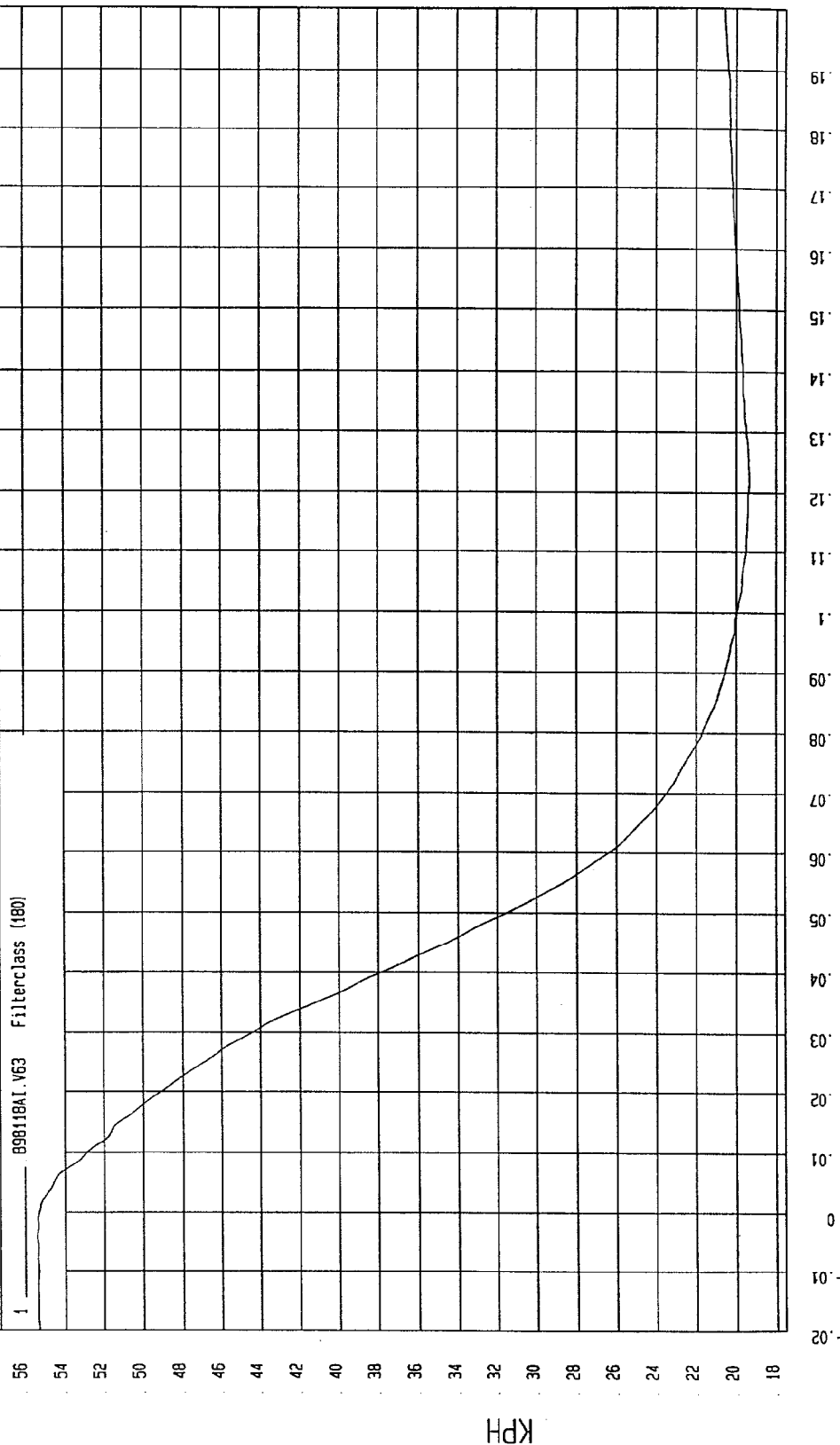
MCA Research
12-11-1998 11:56

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = 19.35 KPH at 122 msec Maximum = 55.4 KPH at -4 msec

MOVING BARRIER CG X VELOCITY



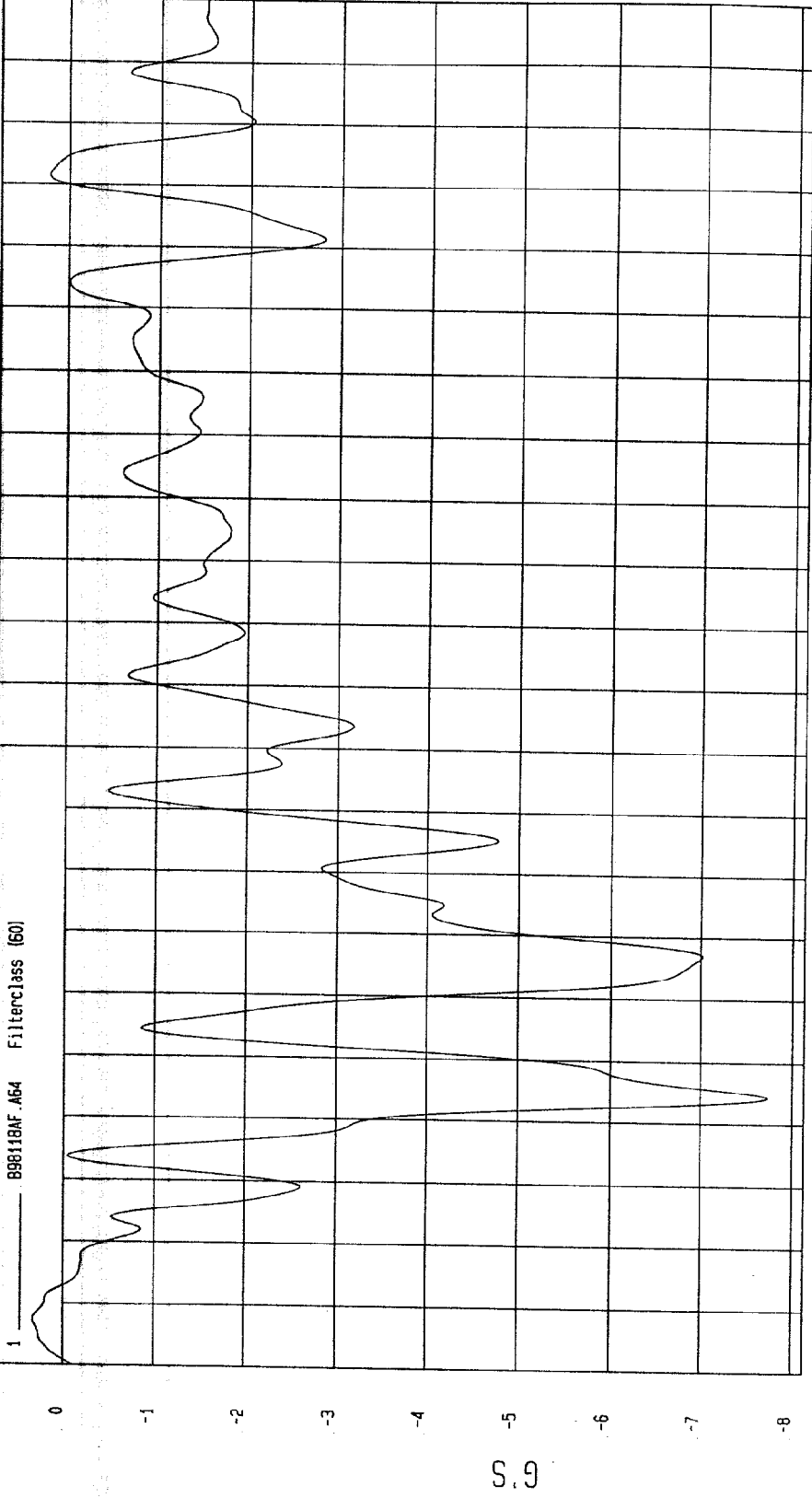
MCA Research
12-15-1998 14:30

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -7.72 G's at 24 msec Maximum = .33 G's at -13 msec

MOVING BARRIER CG Y ACCELERATION



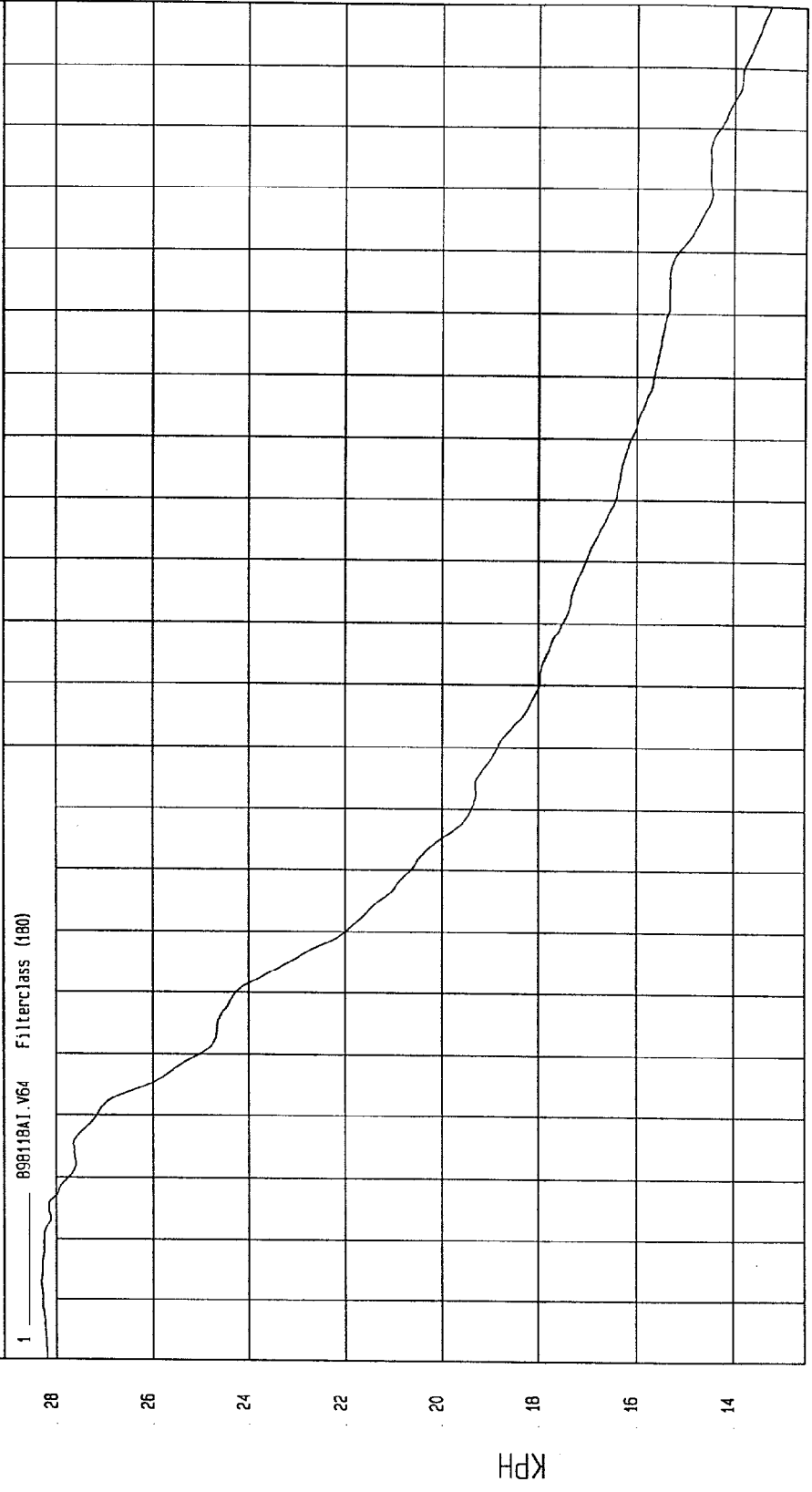
MOA Research
12-14-1998 11:56

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = 13.27 KPH at 200 msec Maximum = 28.3 KPH at -7 msec

MOVING BARRIER CG Y VELOCITY



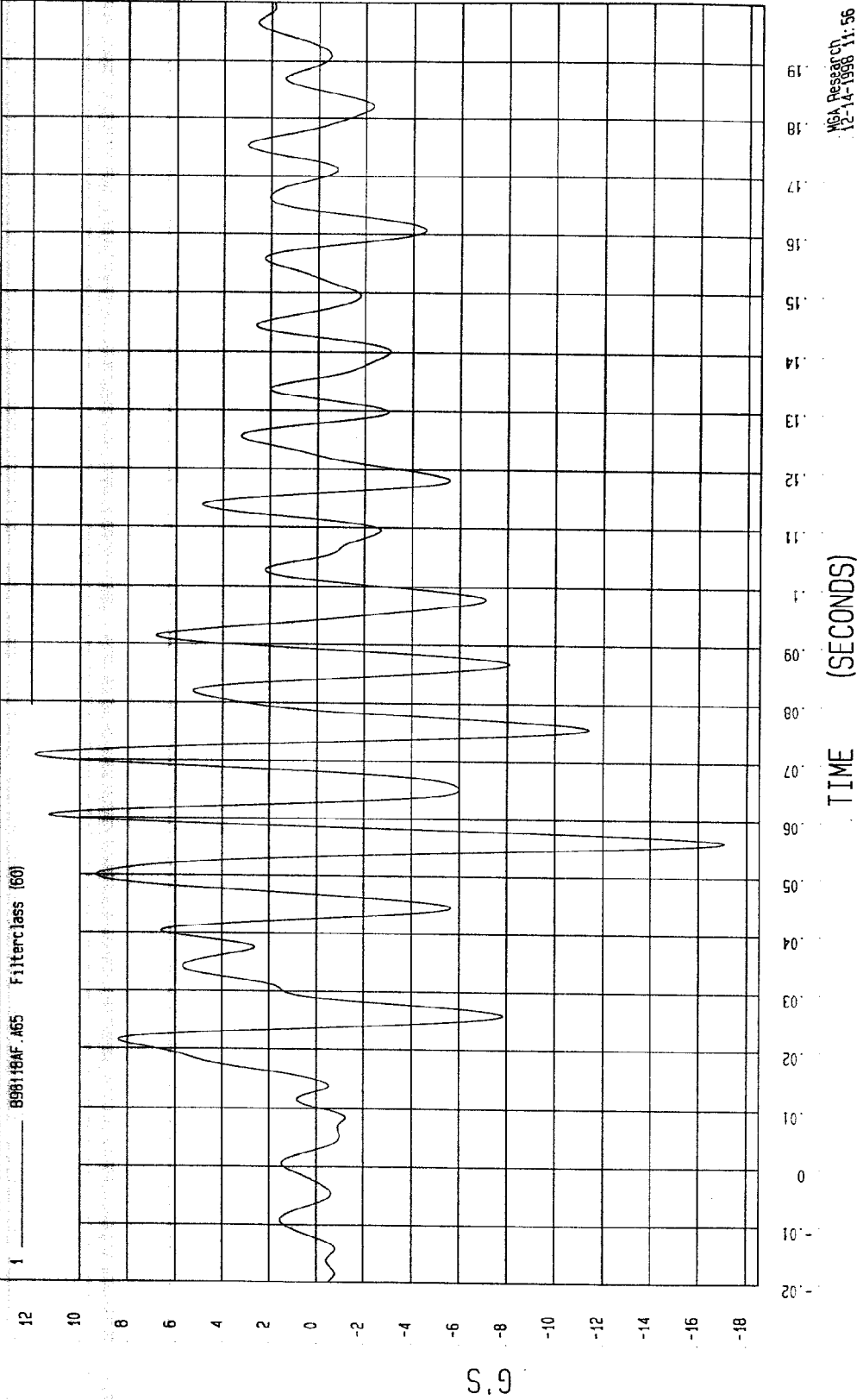
MSA Research
12-15-1998 14:30

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -17.08 G'S at 56 msec
Maximum = 11.07 G'S at 71 msec

MOVING BARRIER CG Z ACCELERATION

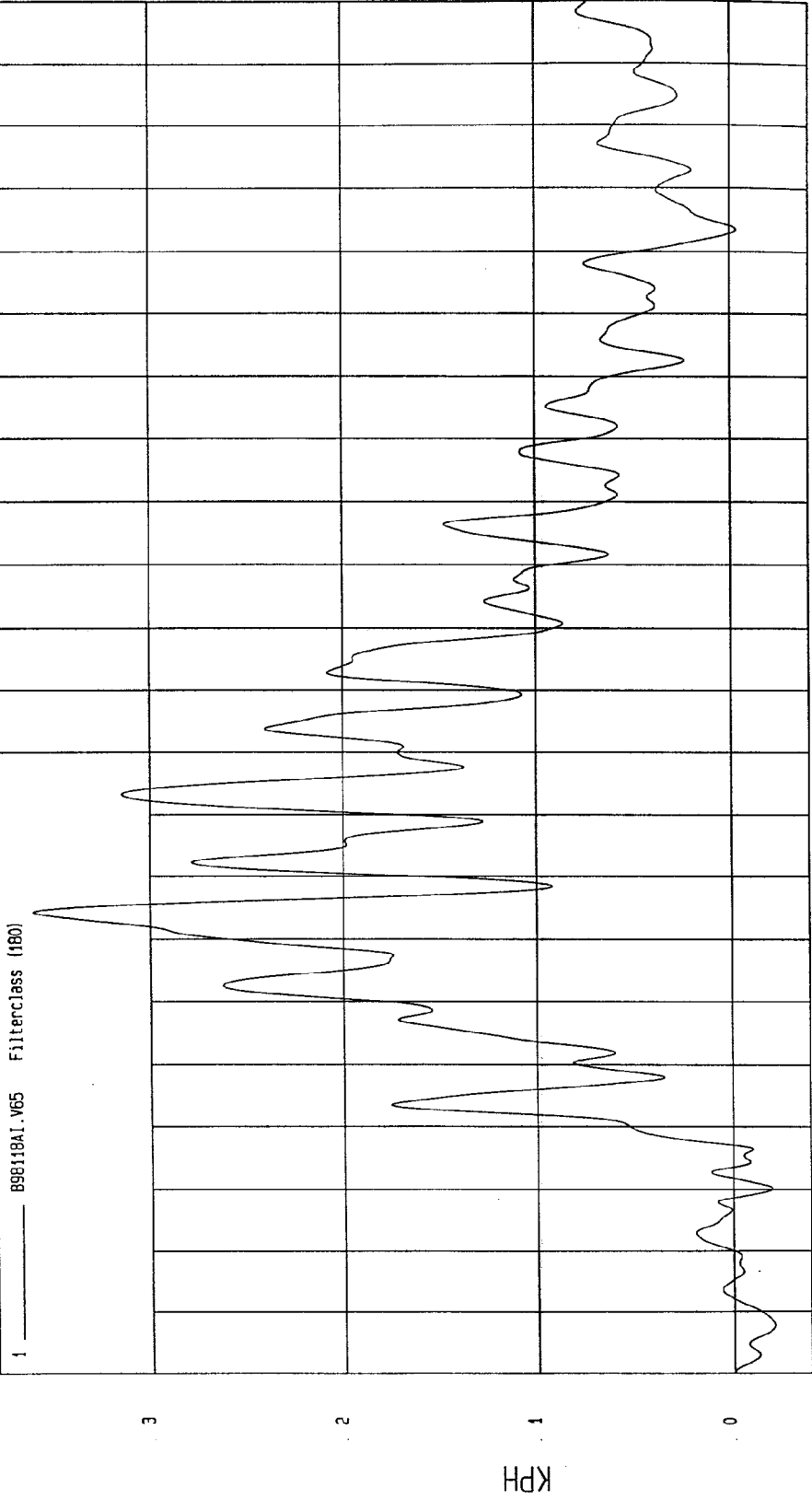


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -12 KPH at -12 msec Maximum = 3.61 KPH at 54 msec

MOVING BARRIER CG Z VELOCITY



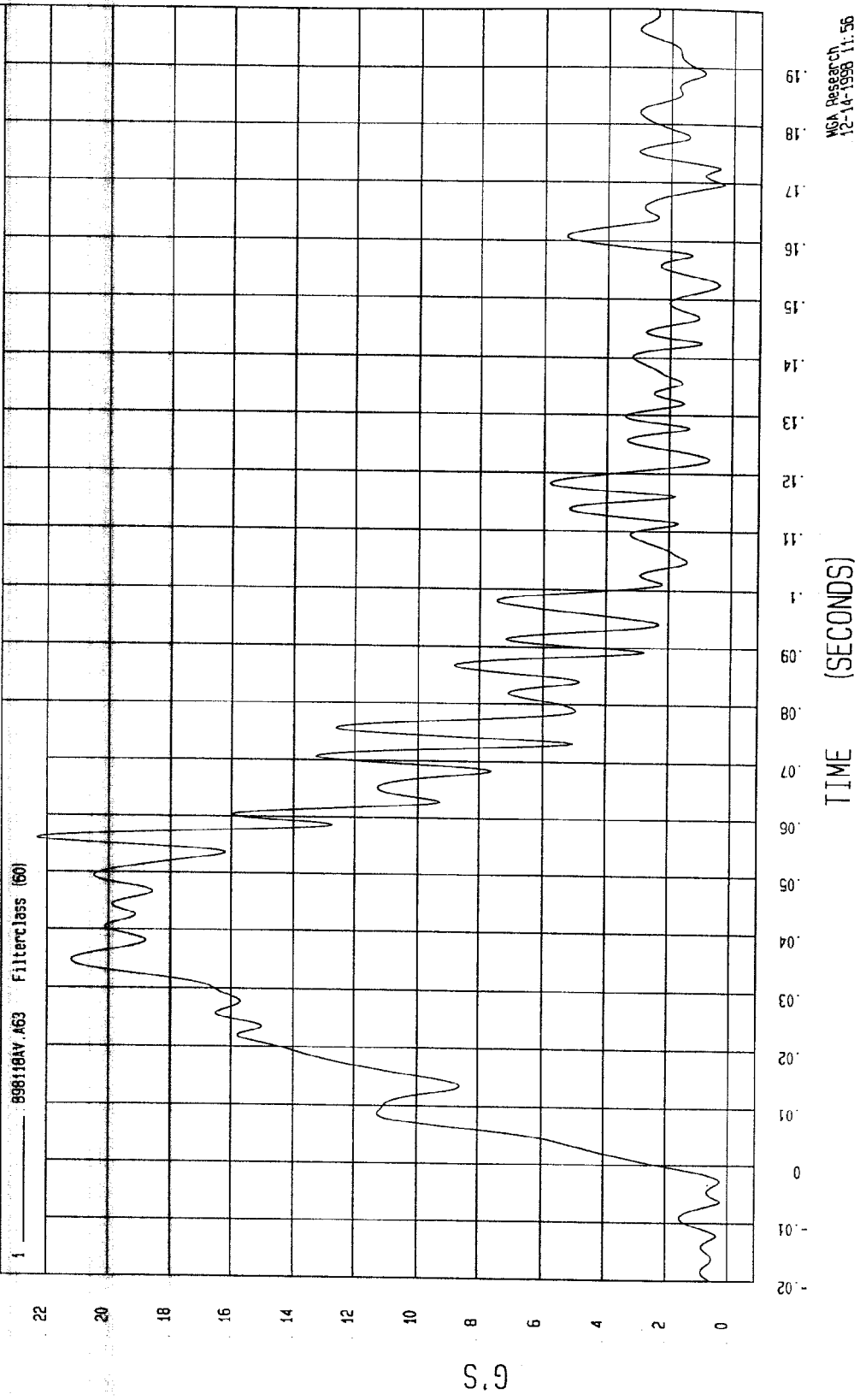
MEA Research
12-15-1998 14:30

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = .23 G'S at -6 msec Maximum = 22.34 G'S at 56 msec

MOVING BARRIER CG RESULTANT ACCELERATION



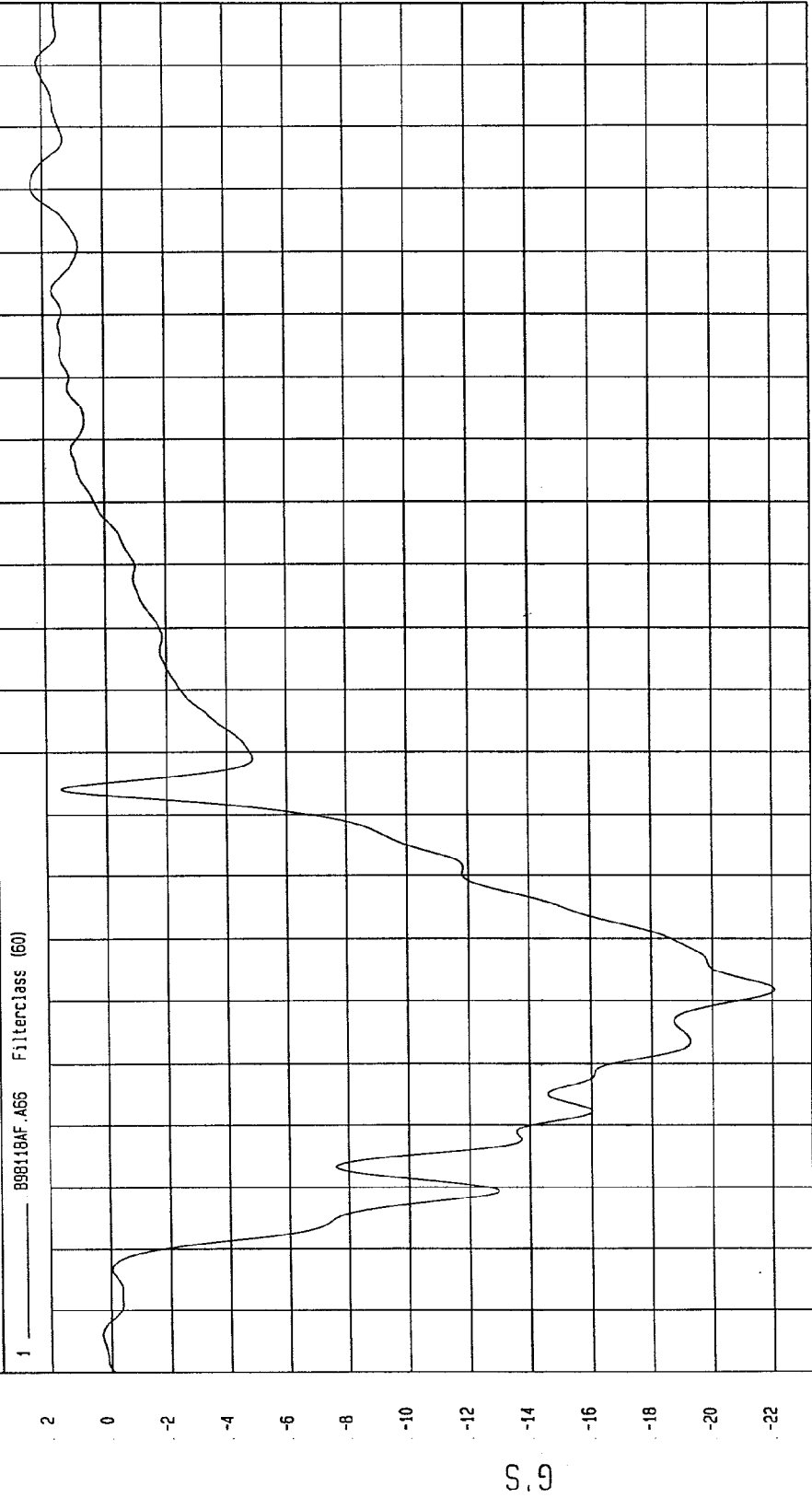
MGA Research
12-14-1998 11:56

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -22.08 G'S at 42 msec Maximum = 2.38 G'S at 170 msec

MOVING BARRIER REAR AXLE X ACCELERATION



MSA Research
12-14-1998 11:56

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

Speed: 38.6 MPH 62.1 KPH

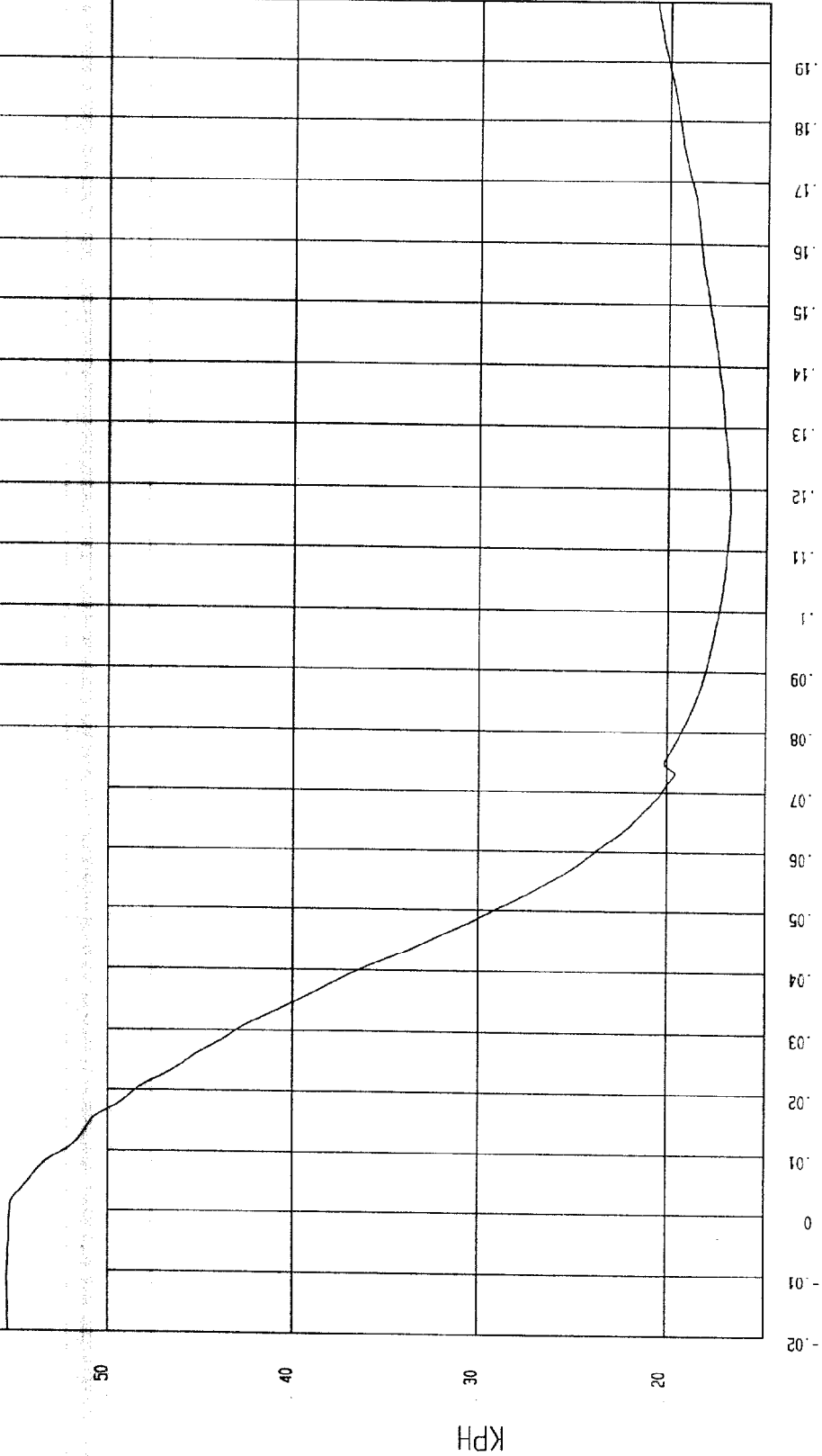
COMPONENT: 1999 FORD F-150 (MX0203)

Minimum = 16.7 KPH at 117 msec

Maximum = 55.37 KPH at -12 msec

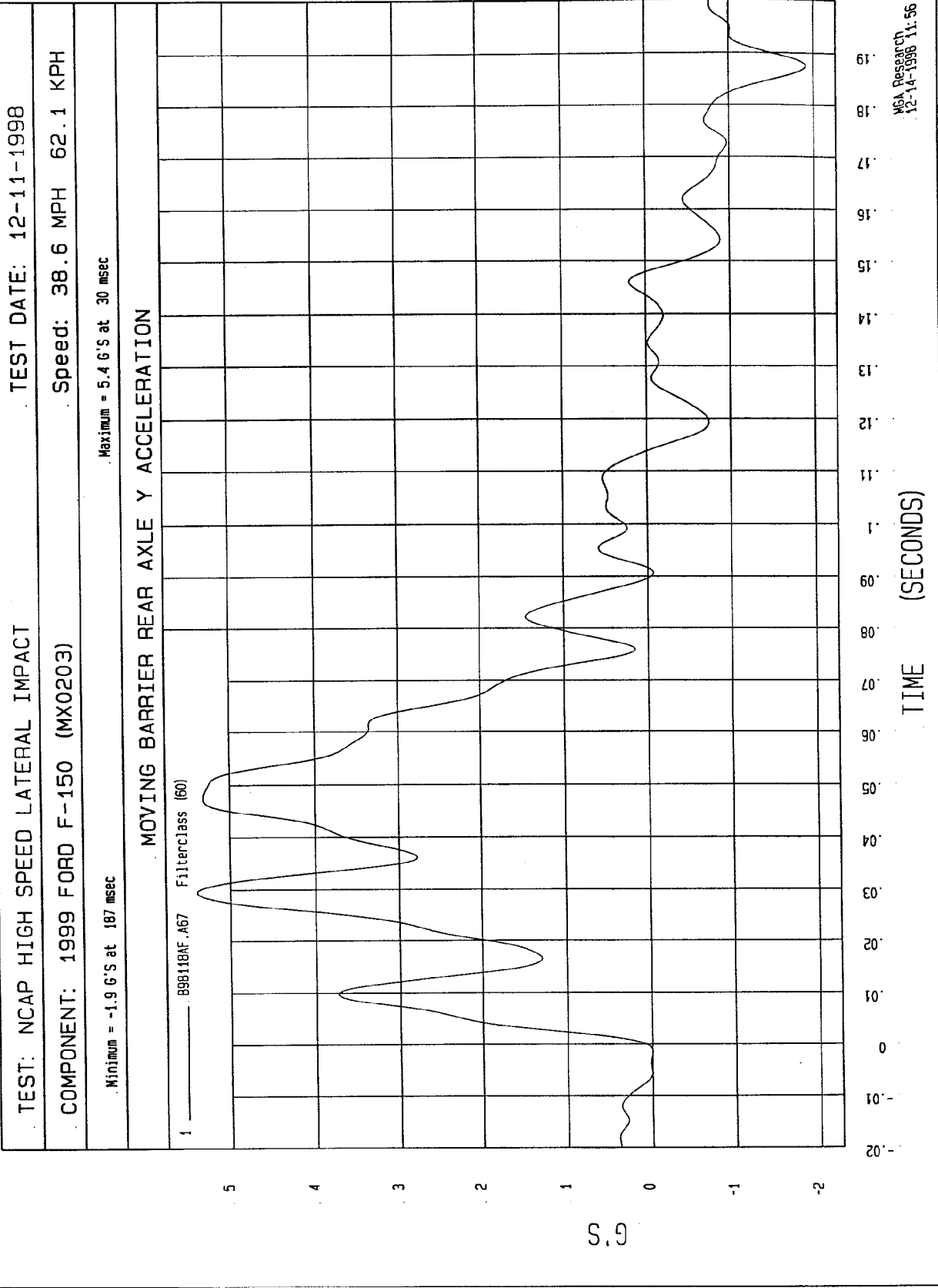
MOVING BARRIER REAR AXLE X VELOCITY

1 8901641.V66 Filterclass (100)



WGA Research
12-15-1998 14:30

TIME Seconds



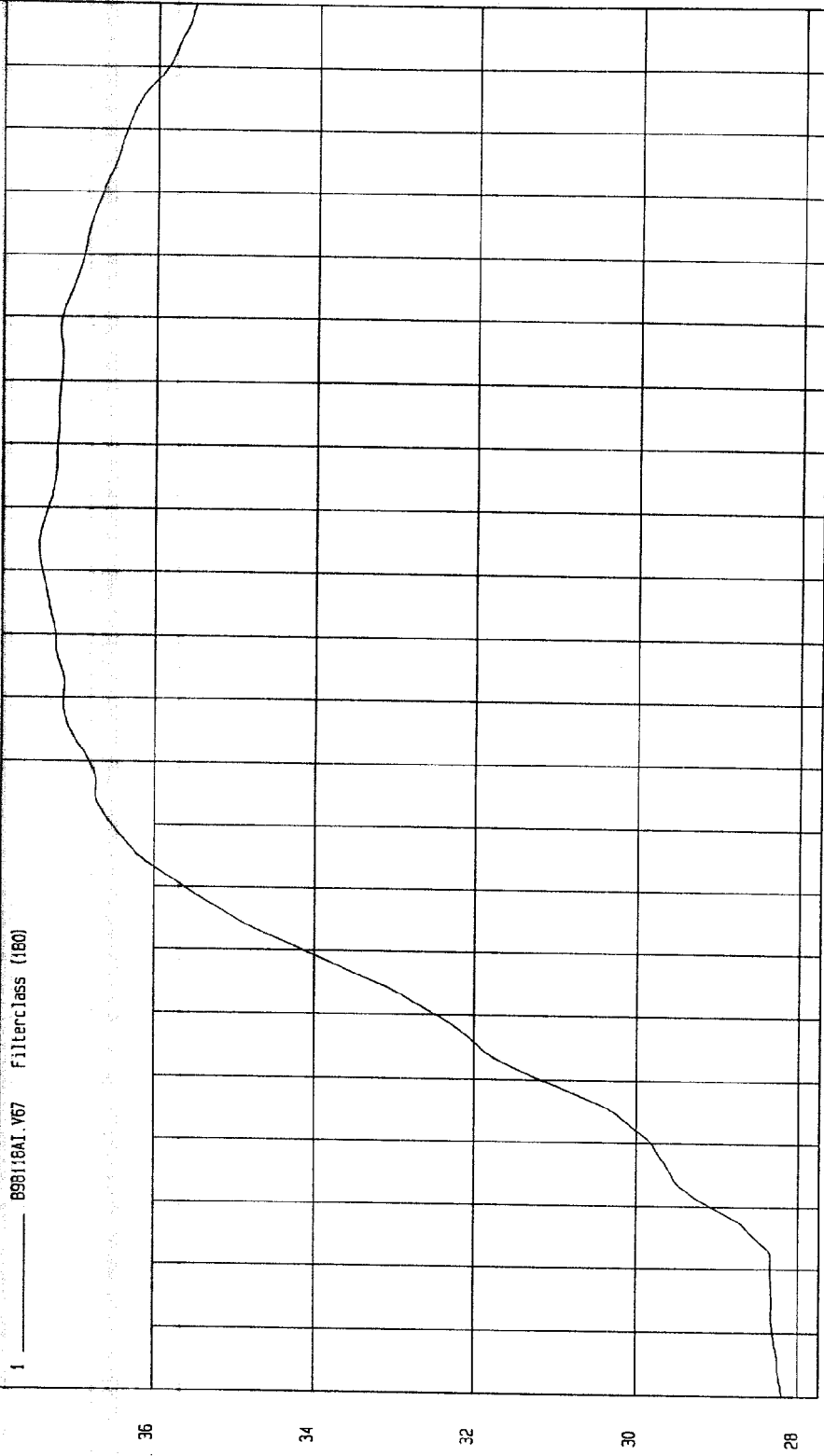
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = 28.2 KPH at -20 msec Maximum = 37.43 KPH at 114 msec

MOVING BARRIER REAR AXLE Y VELOCITY

1 ——— 898118A1.V67 Filterclass (180)



WGA Research
12-15-1998 14:30

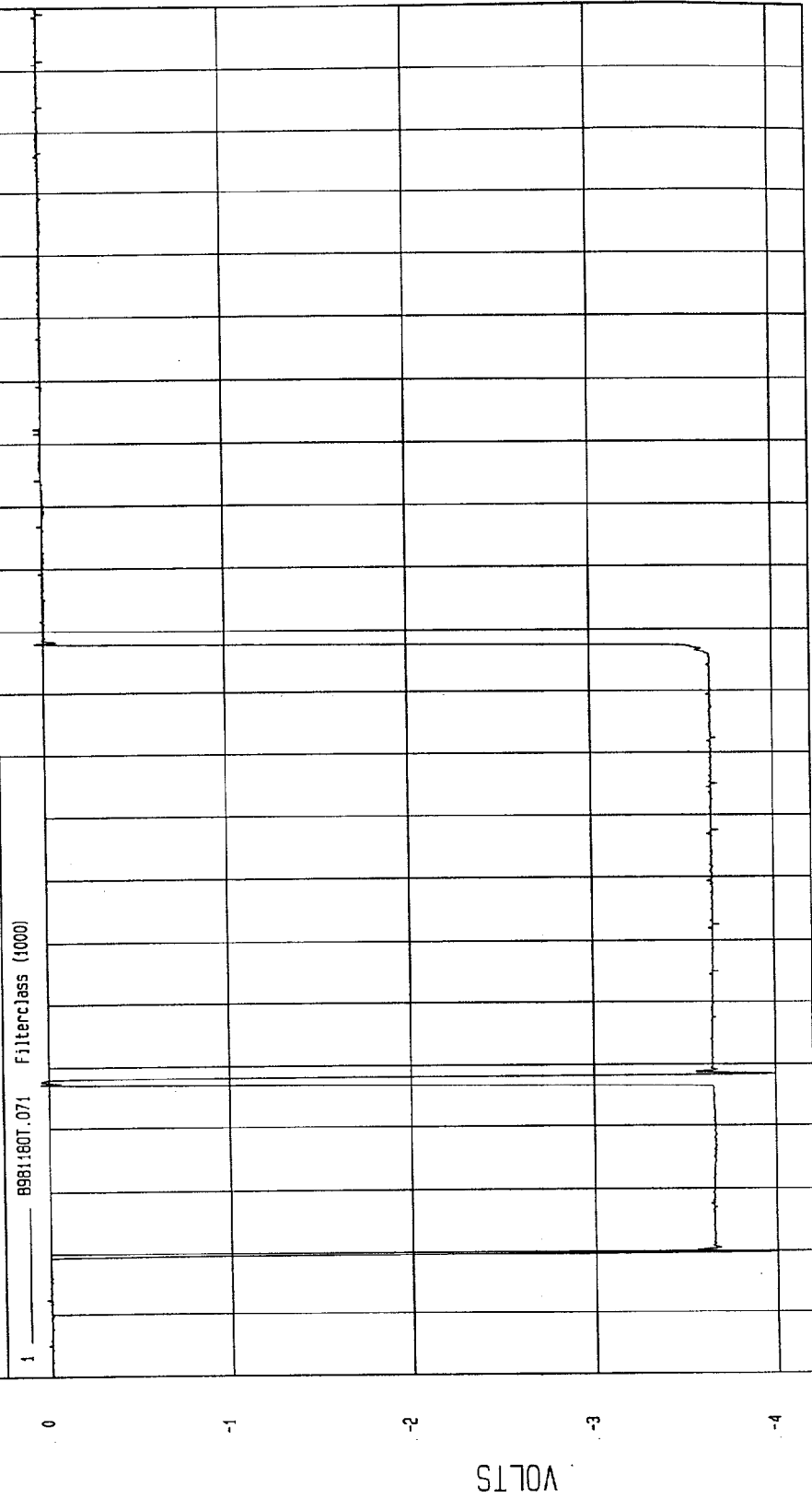
TIME Seconds

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -4 VOLTS at 0 msec Maximum = 4.67E-02 VOLTS at 98 msec

LEFT BARRIER CONTACT



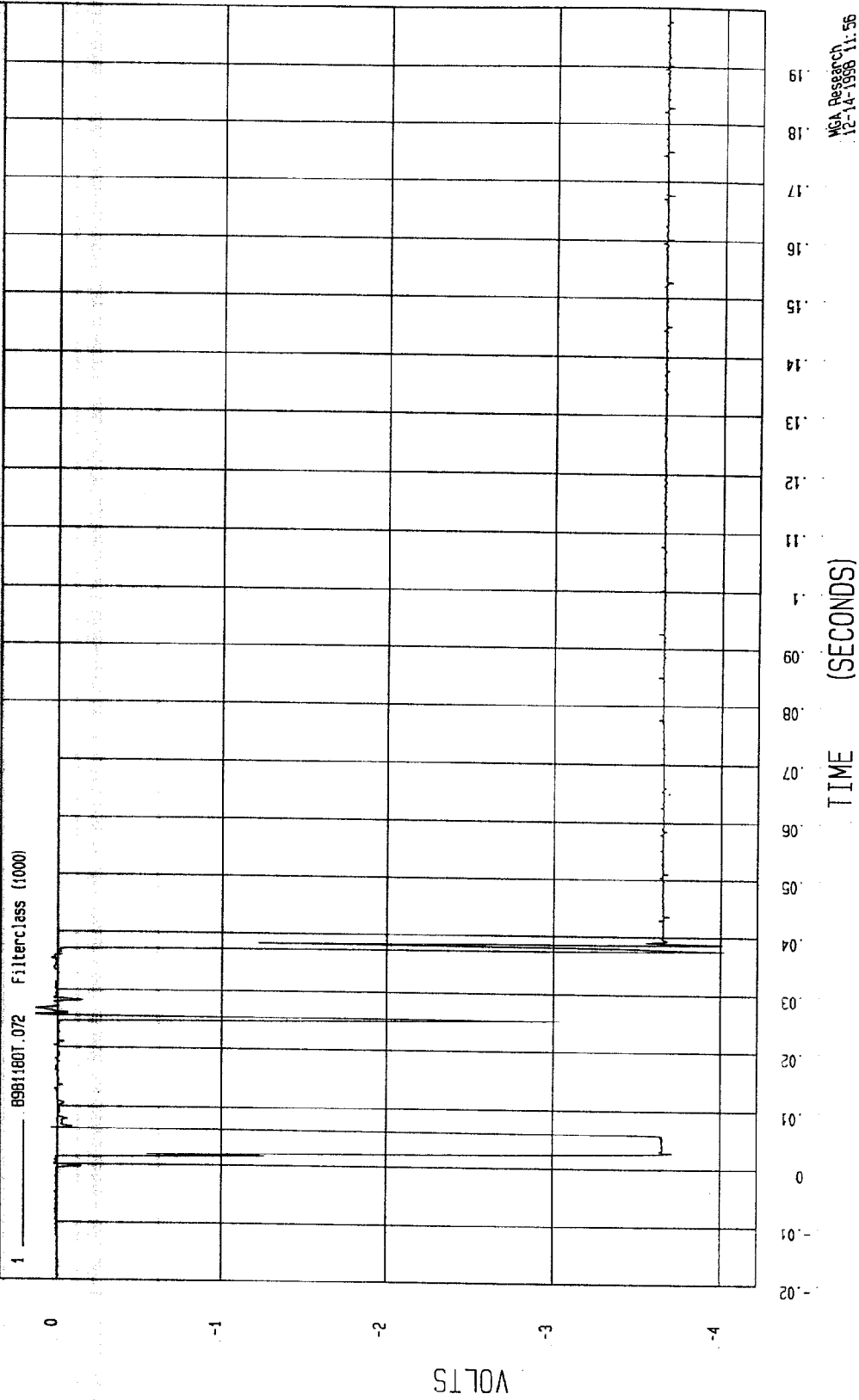
MCA Research
12-14-1998 11:56

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -4.02 VOLTS at 38 msec Maximum = .13 VOLTS at 26 msec

RIGHT BARRIER CONTACT

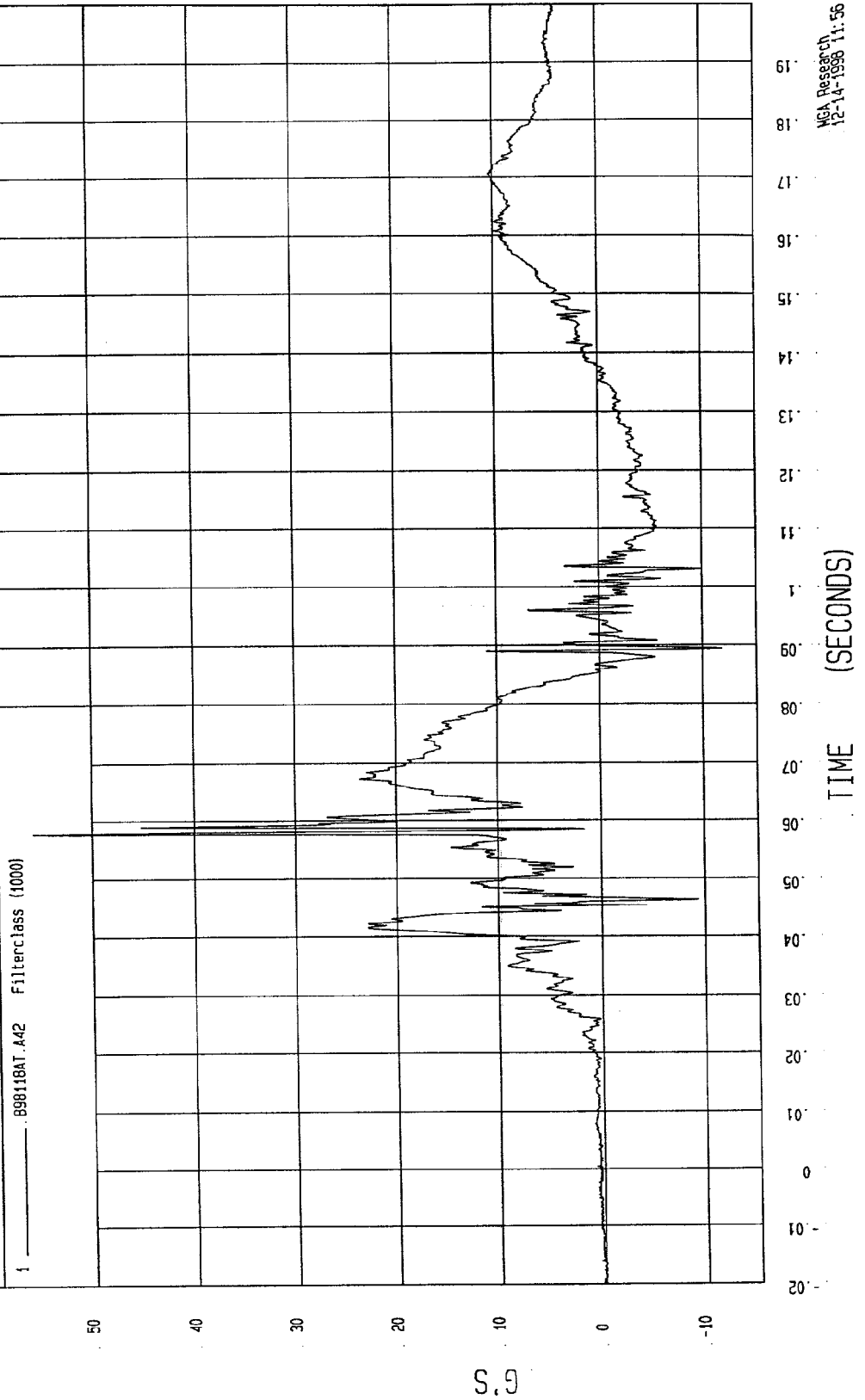


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -11.89 G'S at 89 msec Maximum = 55.76 G'S at 58 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION



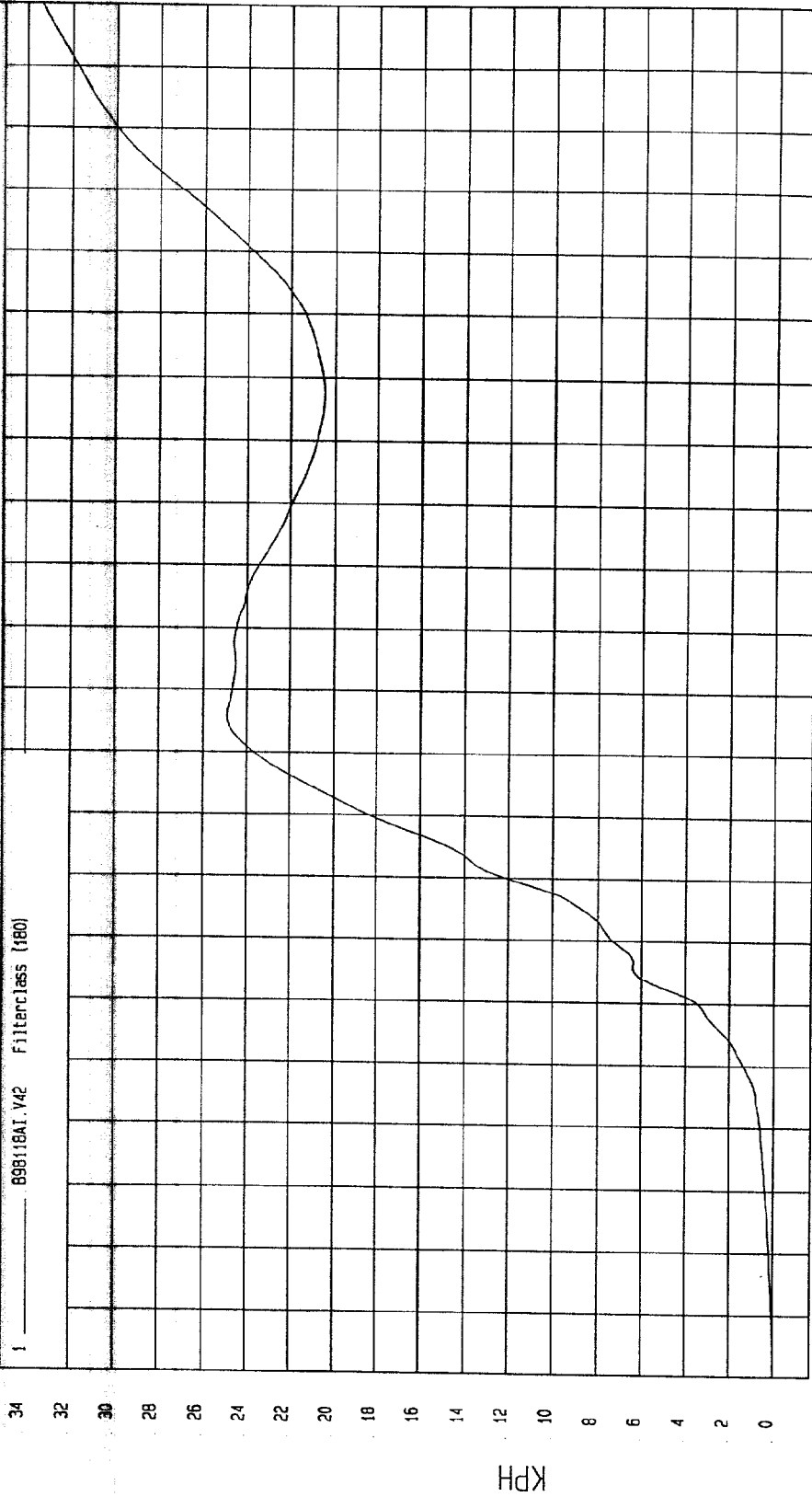
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = 0 KPH at -20 msec Maximum = 33.35 KPH at 200 msec

DRIVER UPPER RIB Y REDUNDANT VELOCITY

1 898118A1.V42 Filter: class (180)



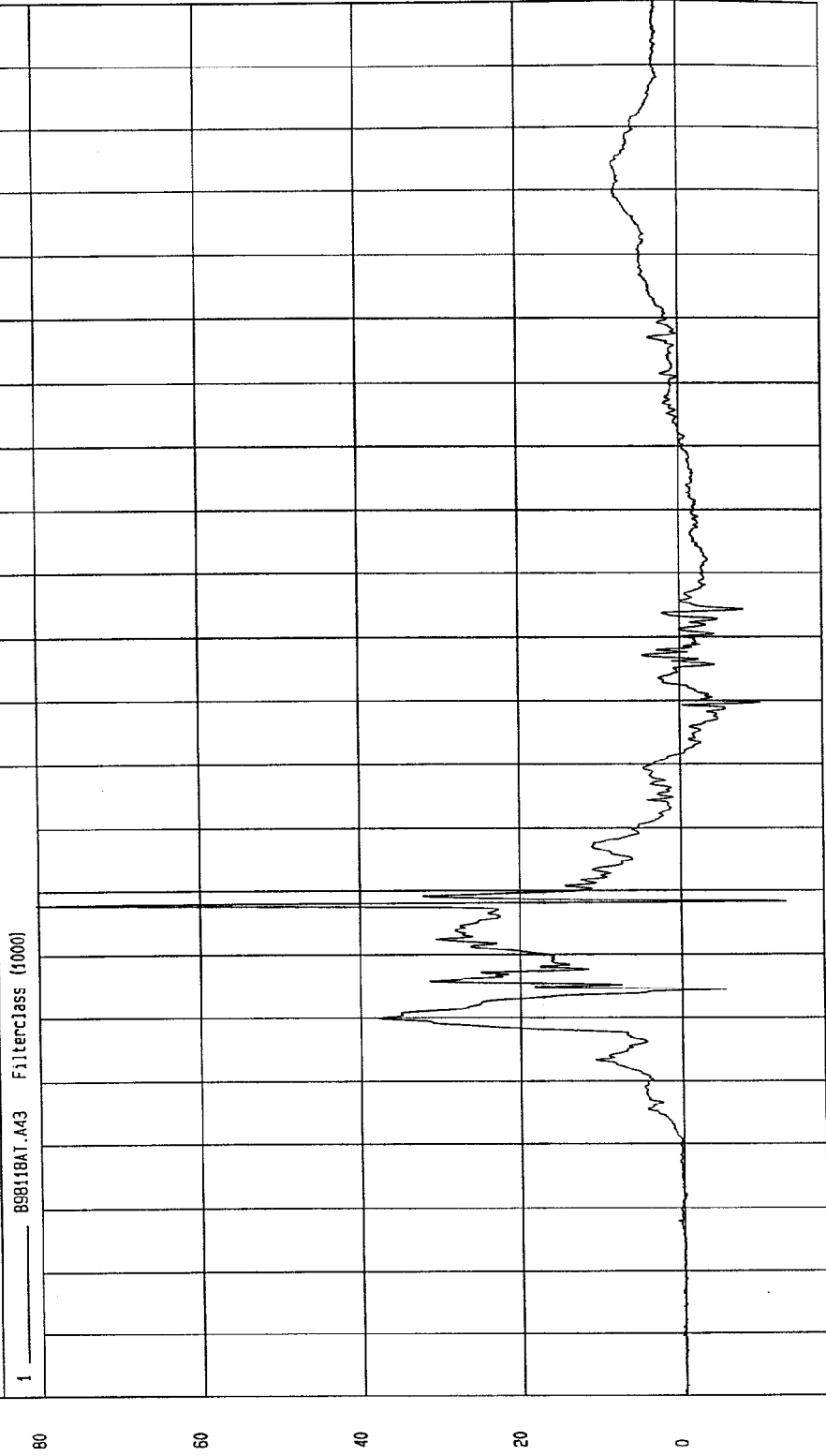
MCA Research
12-15-1998 14: 41

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -12.97 G'S at 58 msec Maximum = 80.33 G'S at 58 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION



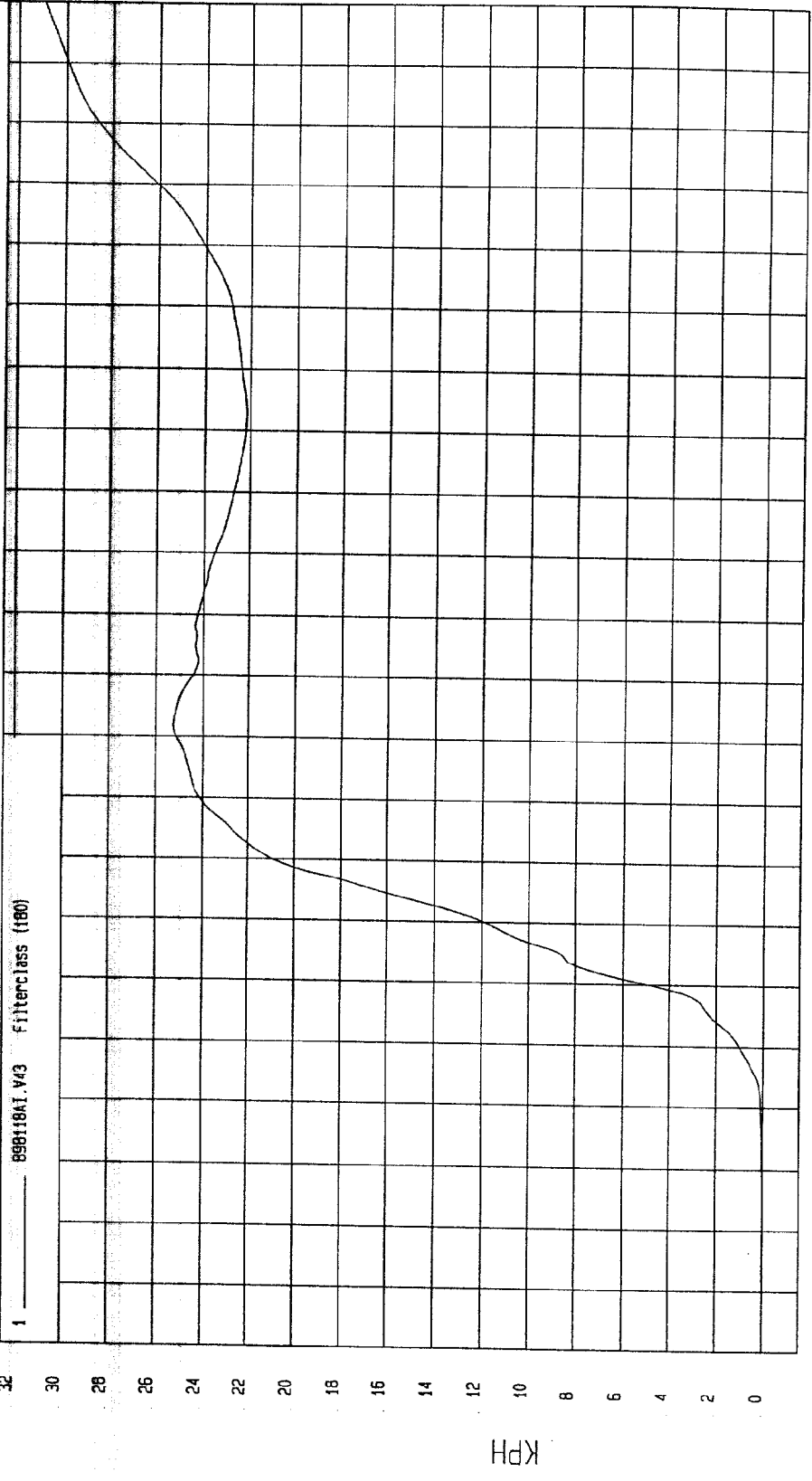
MOA Research
12-14-1998 11:56

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -5.27E-03 KPH at -11 msec Maximum = 30.92 KPH at 200 msec

DRIVER LOWER RIB Y REDUNDANT VELOCITY



MCA Research
12-15-1998 14:41

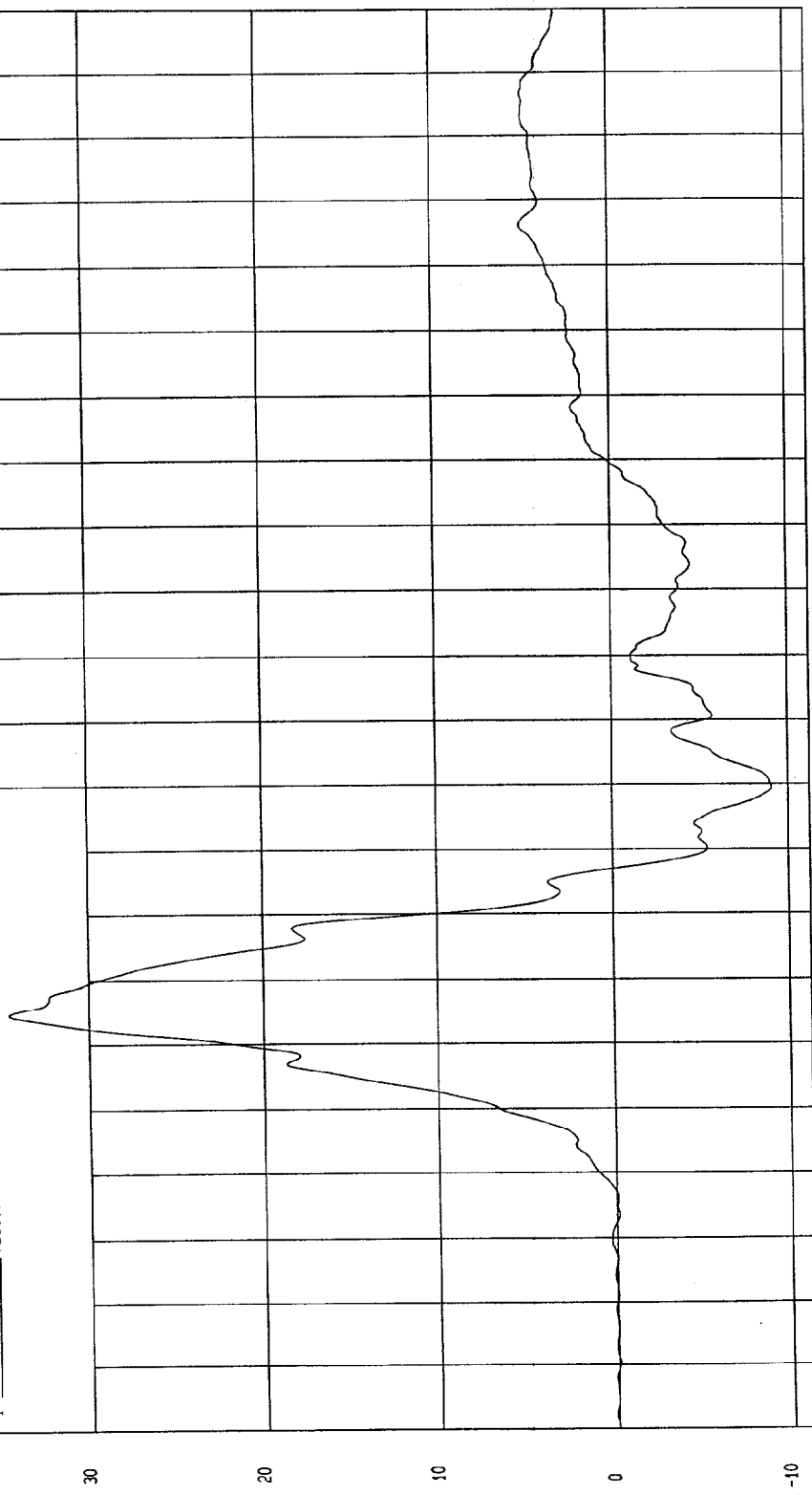
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -9.06 G'S at 80 msec Maximum = 34.61 G'S at 45 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION

1 B98118AF.A44 Filterclass (180)



MCA Research
12-14-1998 11:57

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

Speed: 38.6 MPH 62.1 KPH

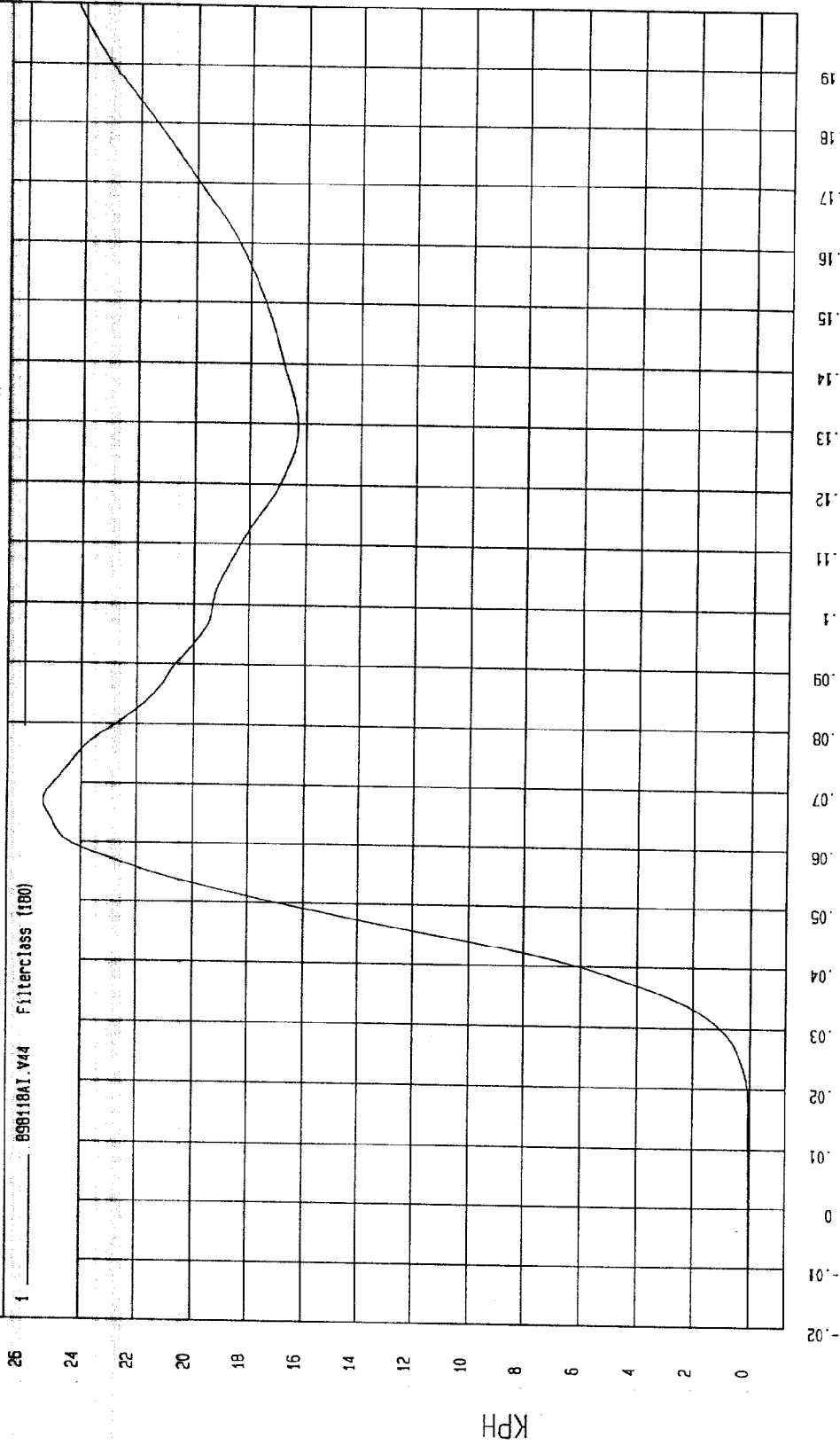
COMPONENT: 1999 FORD F-150 (MX0203)

Maximum = 25.35 KPH at 57 msec

Minimum = -8.03E-05 KPH at -20 msec

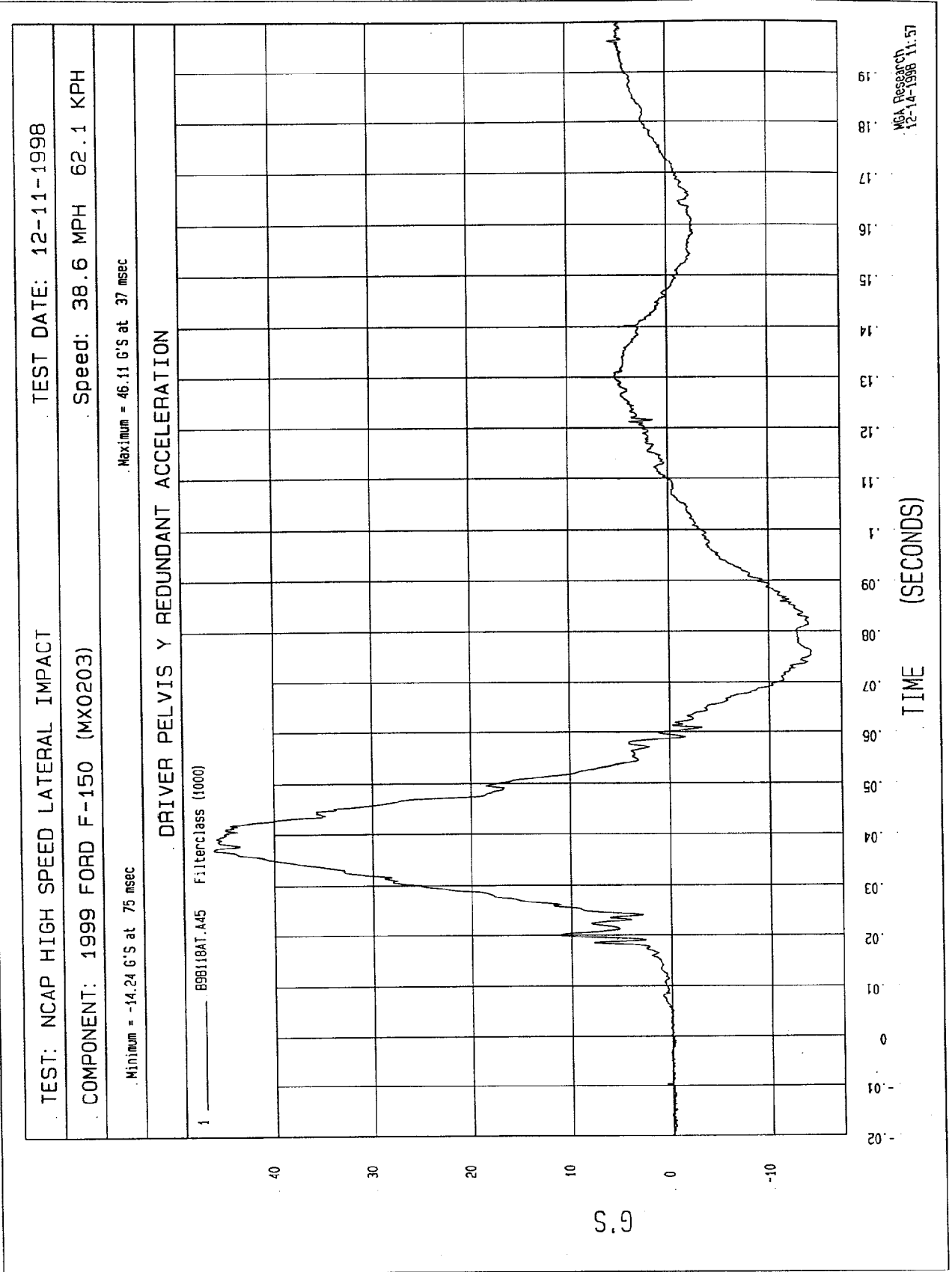
DRIVER LOWER SPINE Y REDUNDANT VELOCITY

1 898118A1.V44 Filterclass (180)



MOA Research
12-15-1998 14: 41

TIME Seconds

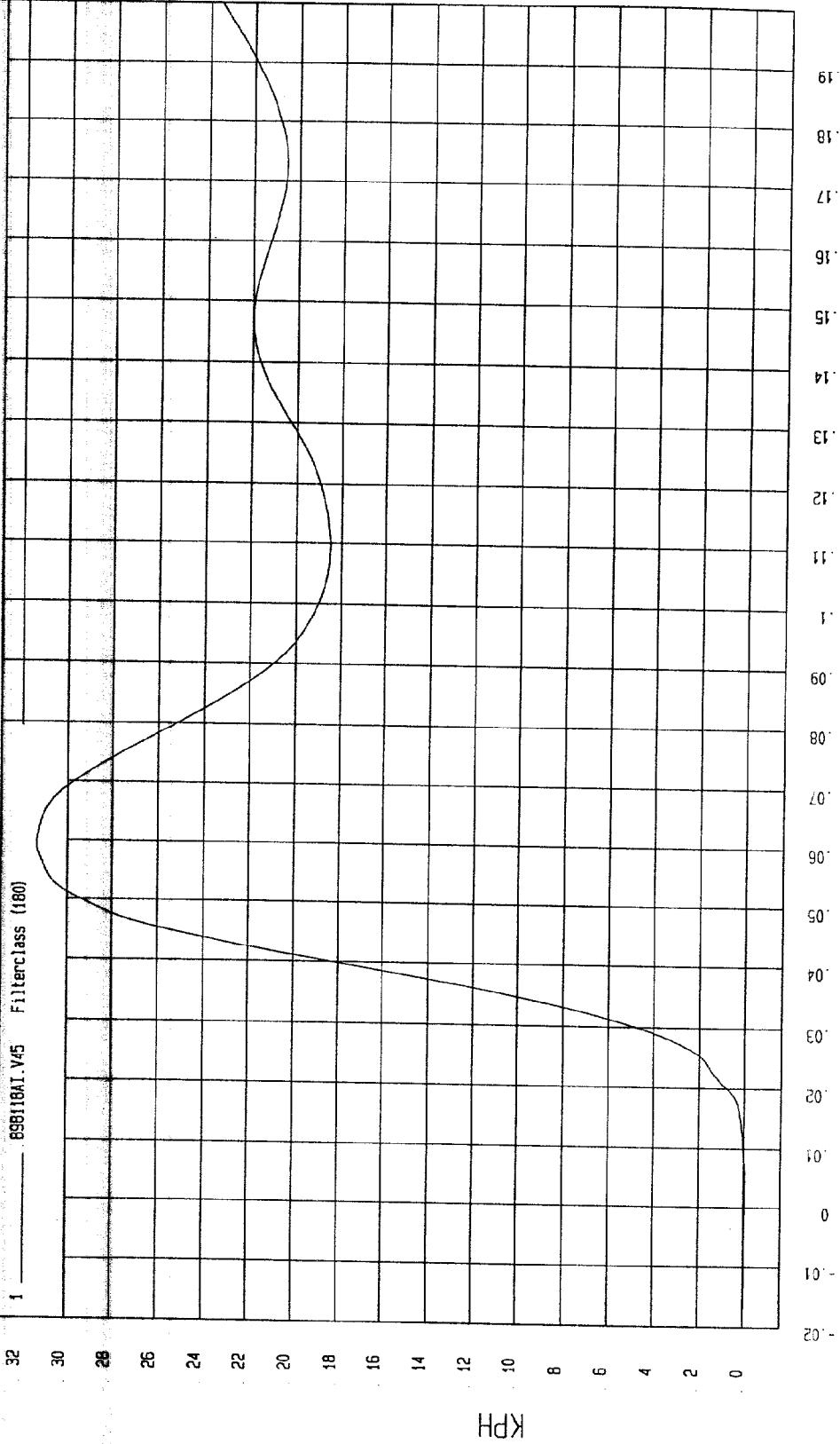


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -5.30E-02 KPH at 5 msec Maximum = 31.37 KPH at 59 msec

- DRIVER PELVIS Y REDUNDANT VELOCITY

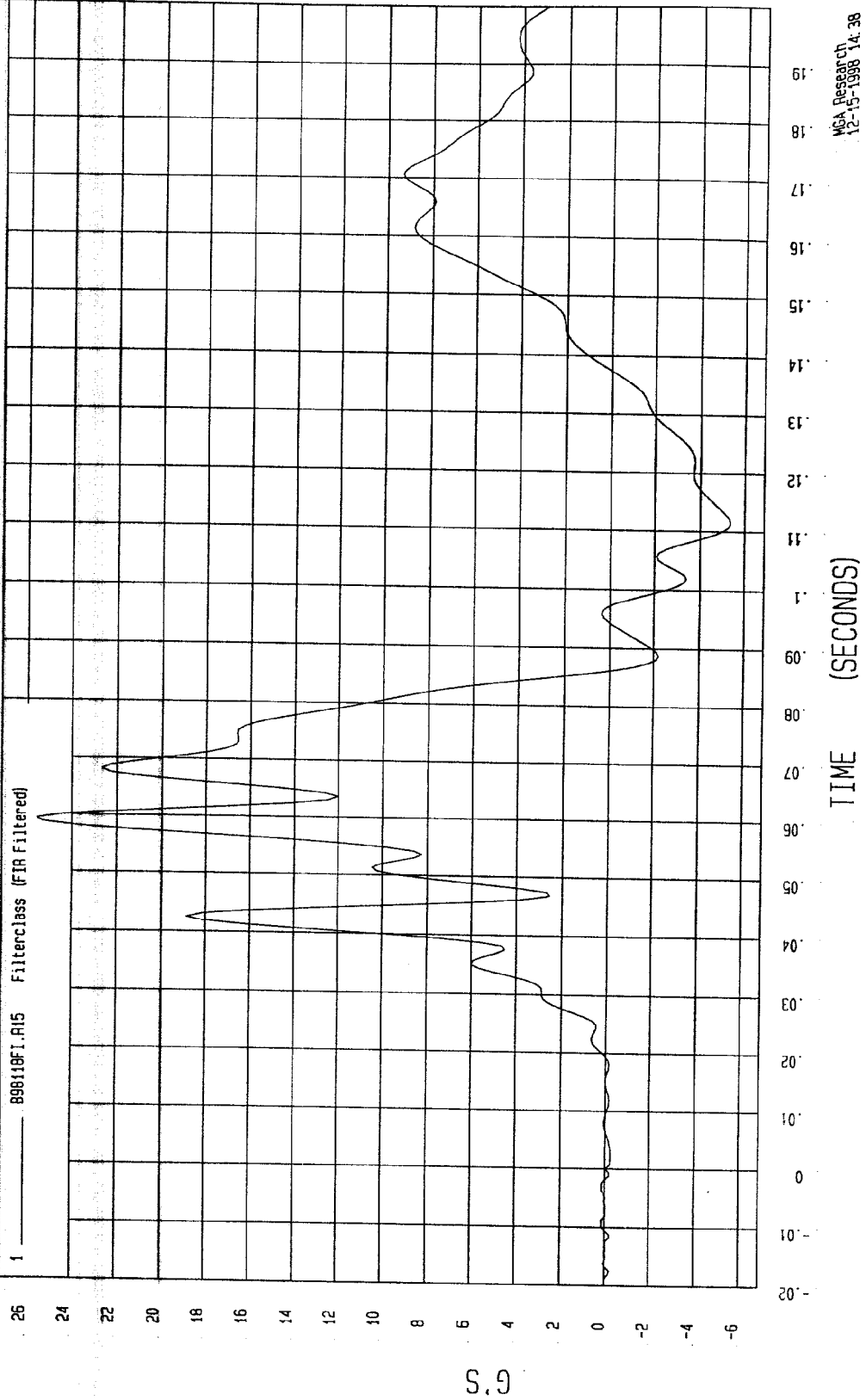


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -5.35 G'S at 111 msec Maximum = 25.59 G'S at 59 msec

DRIVER UPPER RIB Y ACCELERATION

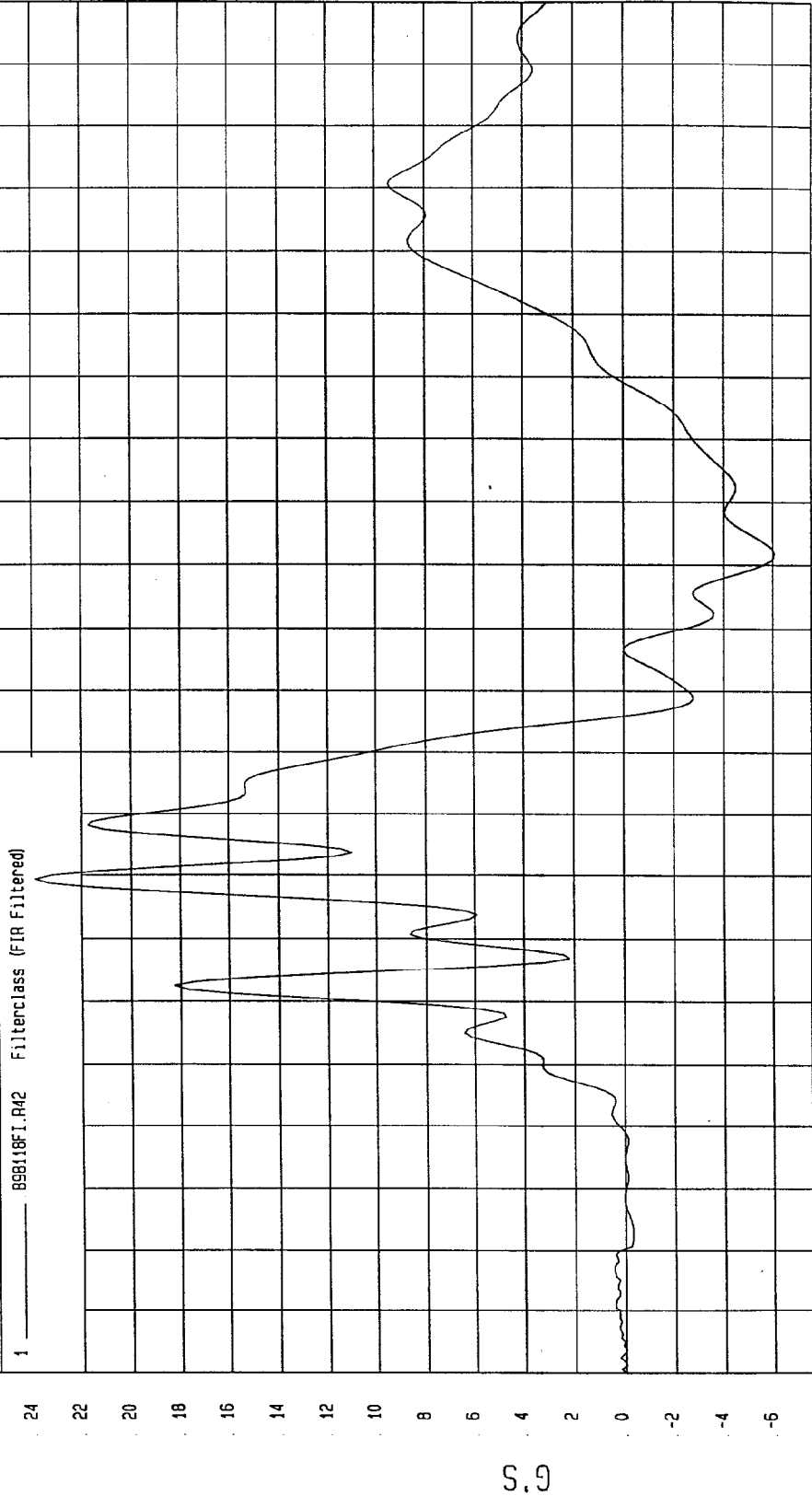


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -6.07 G'S at 112 msec Maximum = 23.91 G'S at 59 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION



TIME (SECONDS)

MCA Research
12-15-1998 14:38

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

SPEED: 38.6 MPH 62.1 KPH

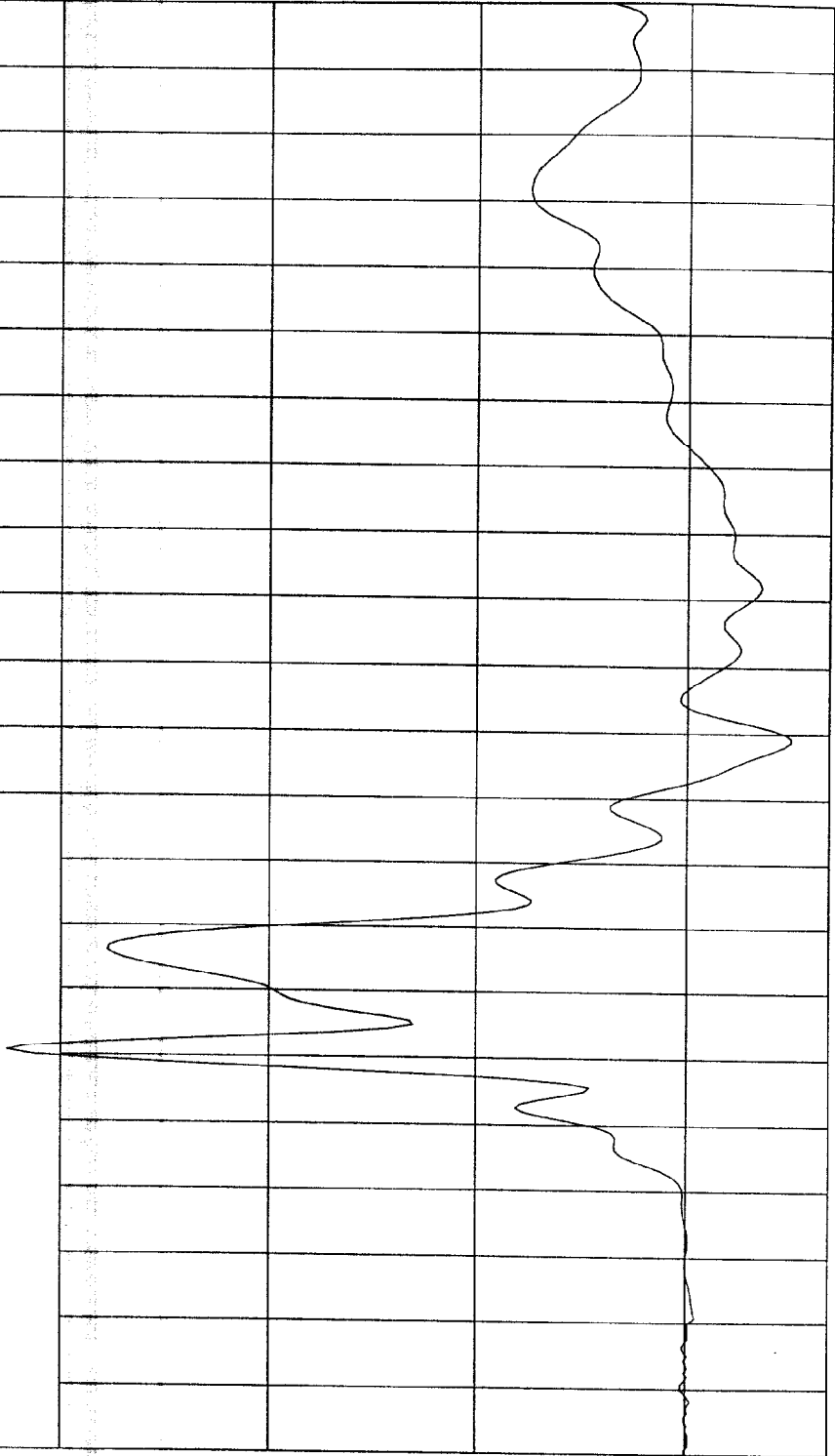
COMPONENT: 1999 FORD F-150 (MX0203)

Maximum = 32.56 G'S at 41 msec

Minimum = -4.88 G'S at 89 msec

DRIVER LOWER RIB Y ACCELERATION

1 99810F1.R16 Filterclass (FIR Filtered)



MCA Research
12-15-1998 14:38

TIME (SECONDS)

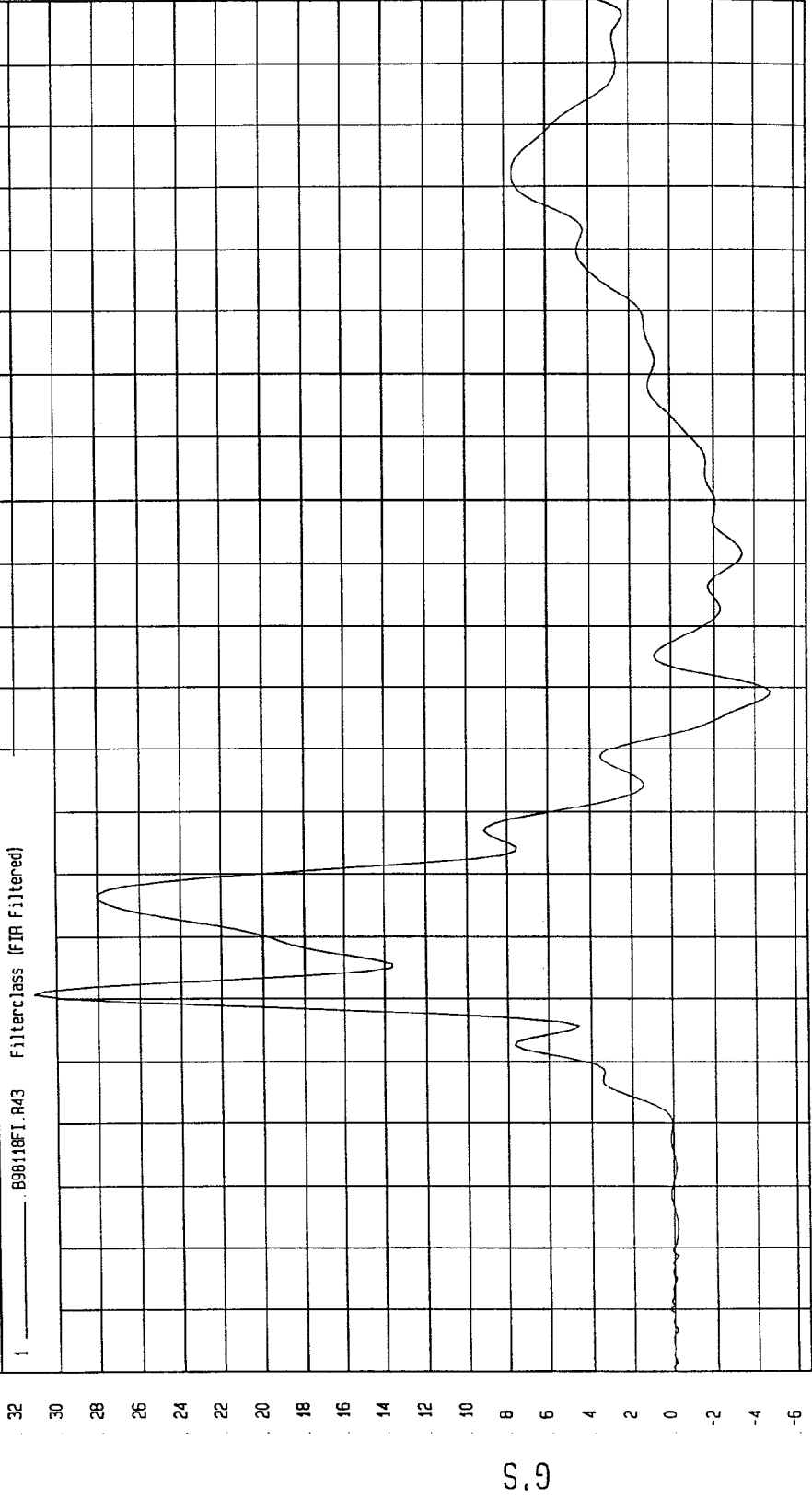
G.S

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203) Speed: 38.6 MPH 62.1 KPH

Minimum = -4.79 G'S at 89 msec Maximum = 31.1 G'S at 41 msec

DRI-VER LOWER RIB Y REDUNDANT ACCELERATION



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203)

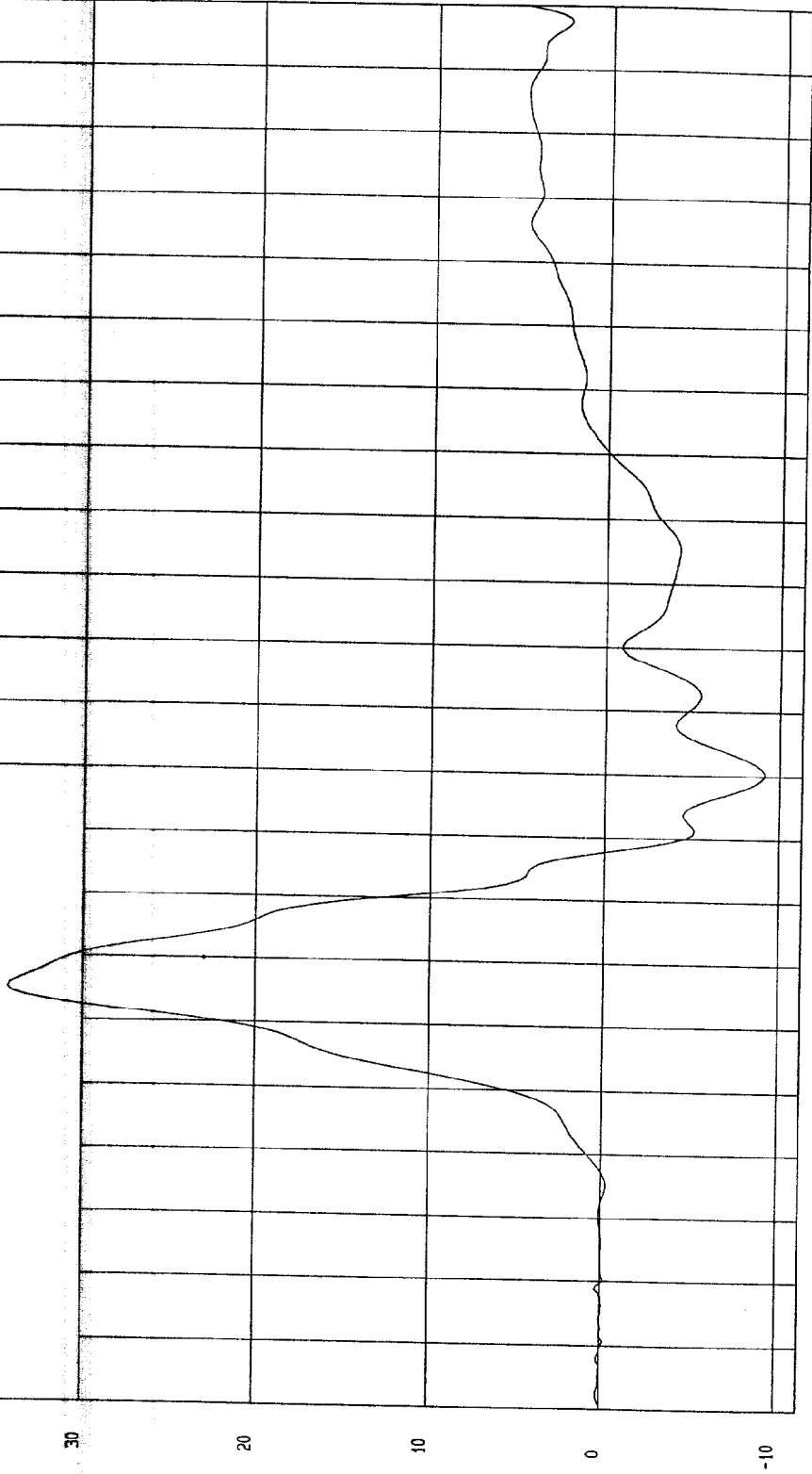
Speed: 38.6 MPH 62.1 KPH

Minimum = -9.12 G'S at 60 msec

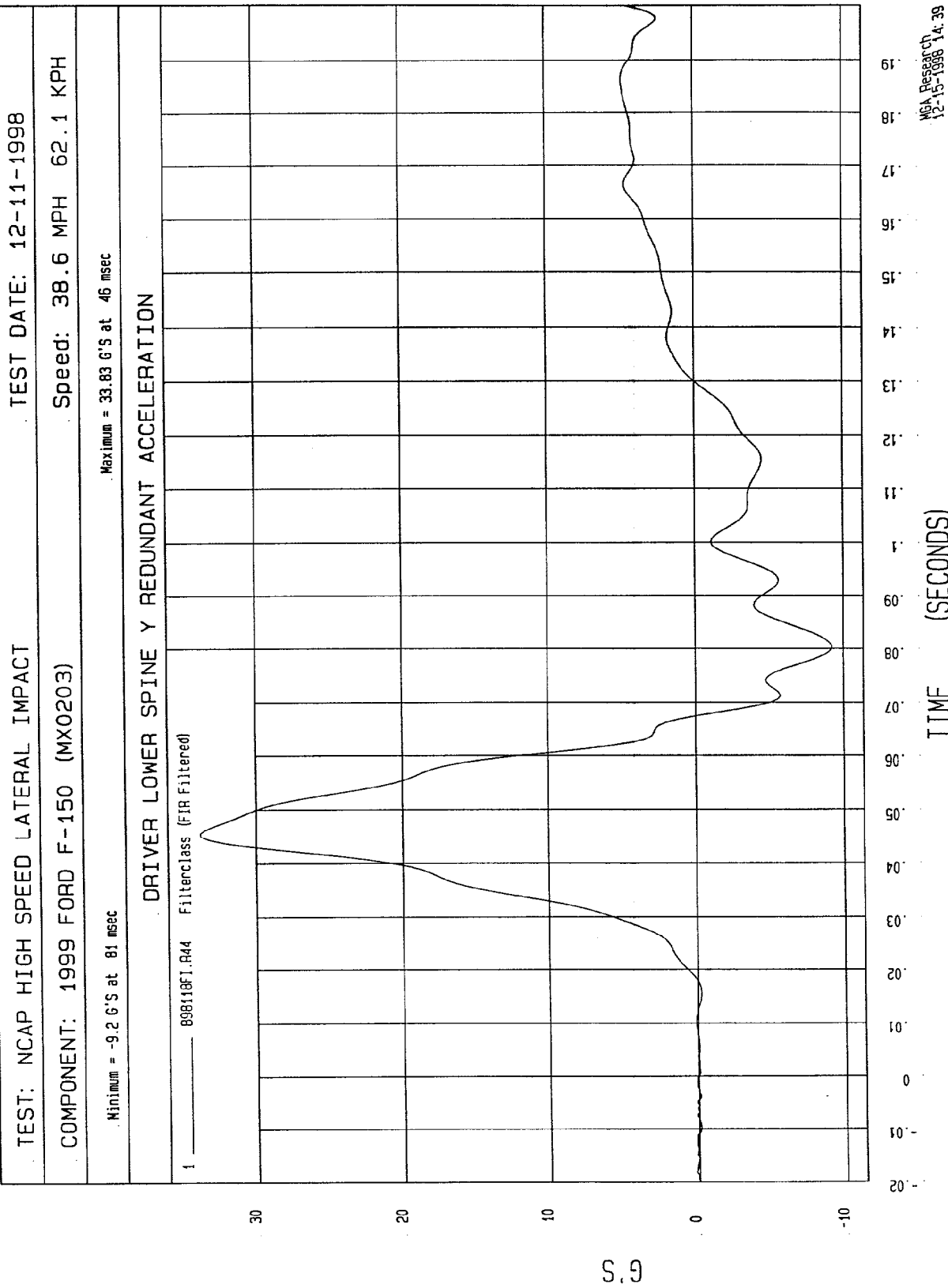
Maximum = 34.3 G'S at 45 msec

DRIVER LOWER SPINE Y ACCELERATION

1 898186T.R17 Filterclass (FTR Filtered)



MCA Research
12-15-1998 14:39



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 12-11-1998

COMPONENT: 1999 FORD F-150 (MX0203)

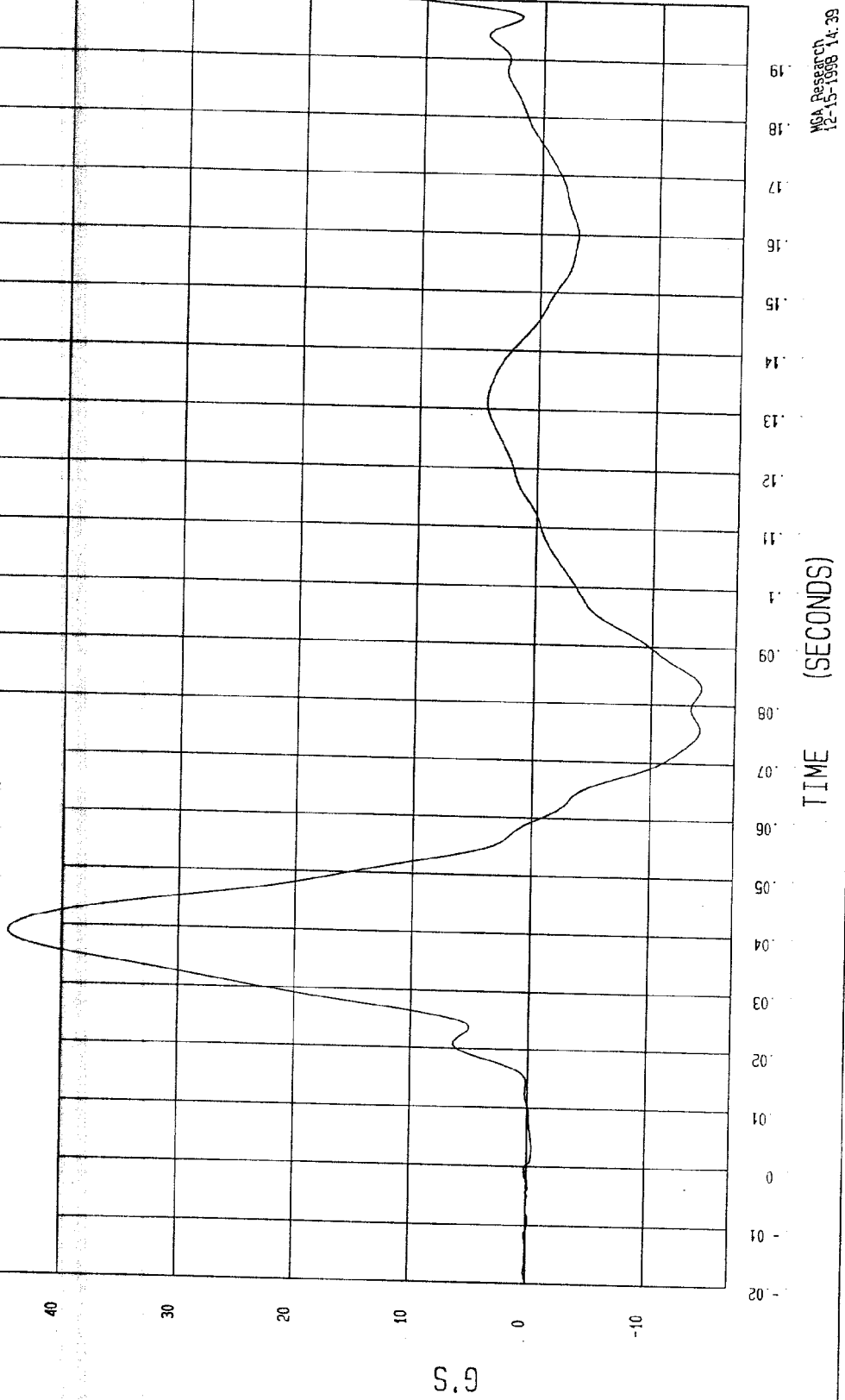
Speed: 38.6 MPH 62.1 KPH

Minimum = -14.28 G'S at 83 msec

Maximum = 44.62 G'S at 39 msec

DRIVER PELVIS Y ACCELERATION

1 ——— 998110F1.R18 Filterclass (FIR Filtered)



MOA Research
12-15-1998 14:39

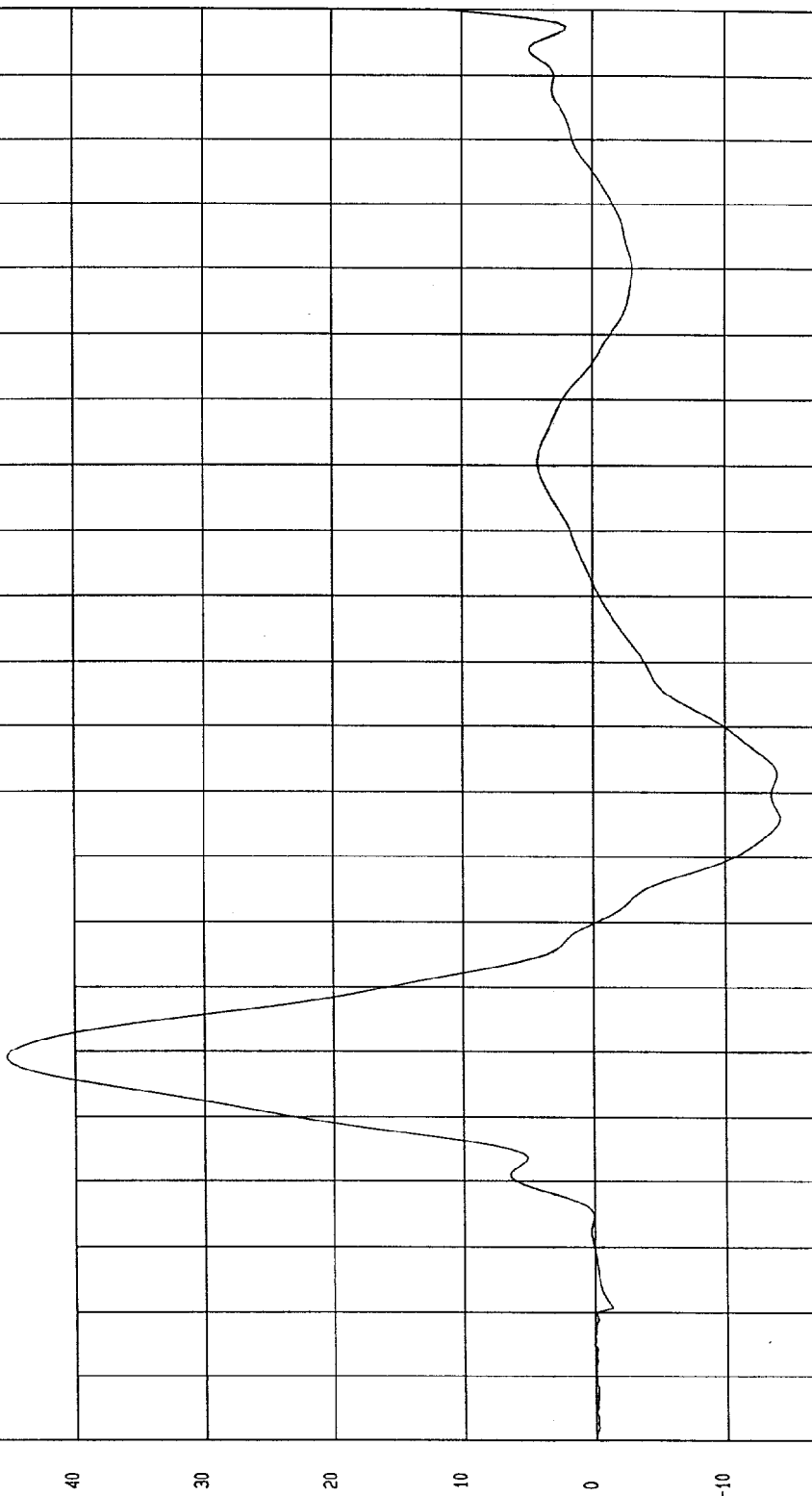
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 12-11-1998

SPEED: 38.6 MPH 62.1 KPH

Maximum = 45.22 G'S at 39 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION

1 898110F1.R45 Filterclass (FIR Filtered)



MCA Research
12-15-1998 14:39

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

PRE-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 269

Calibration Test Results Summary

Driver Dummy Serial Number: 269

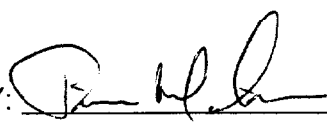
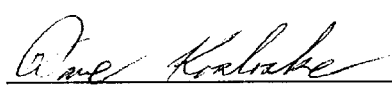
Pre-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY SERIAL NUMBER: 269DATE OF VERIFICATION: December 10, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	892
RH - Rib Height (mm)	501 - 521	508
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	232
KV - Knee Pivot From Back Line (mm)	511 - 526	523
SW - Knee Pivot to Floor (mm)	490 - 505	501
HW - Hip Width (mm)	356 - 391	382

MEASUREMENTS BY: APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

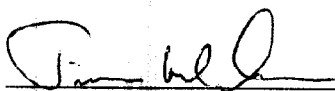
SIDE IMPACT DUMMY (SID)

DATE: December 10, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981572

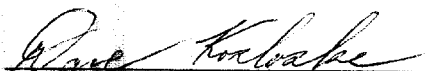
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	23%
PROBE SPEED (m/s)	4.27 - 4.33	4.28
UPPER RIB (g's)	37 - 46 g's	43
LOWER RIB (g's)	37 - 46 g's	46
LOWER SPINE (g's)	15 - 22 g's	21

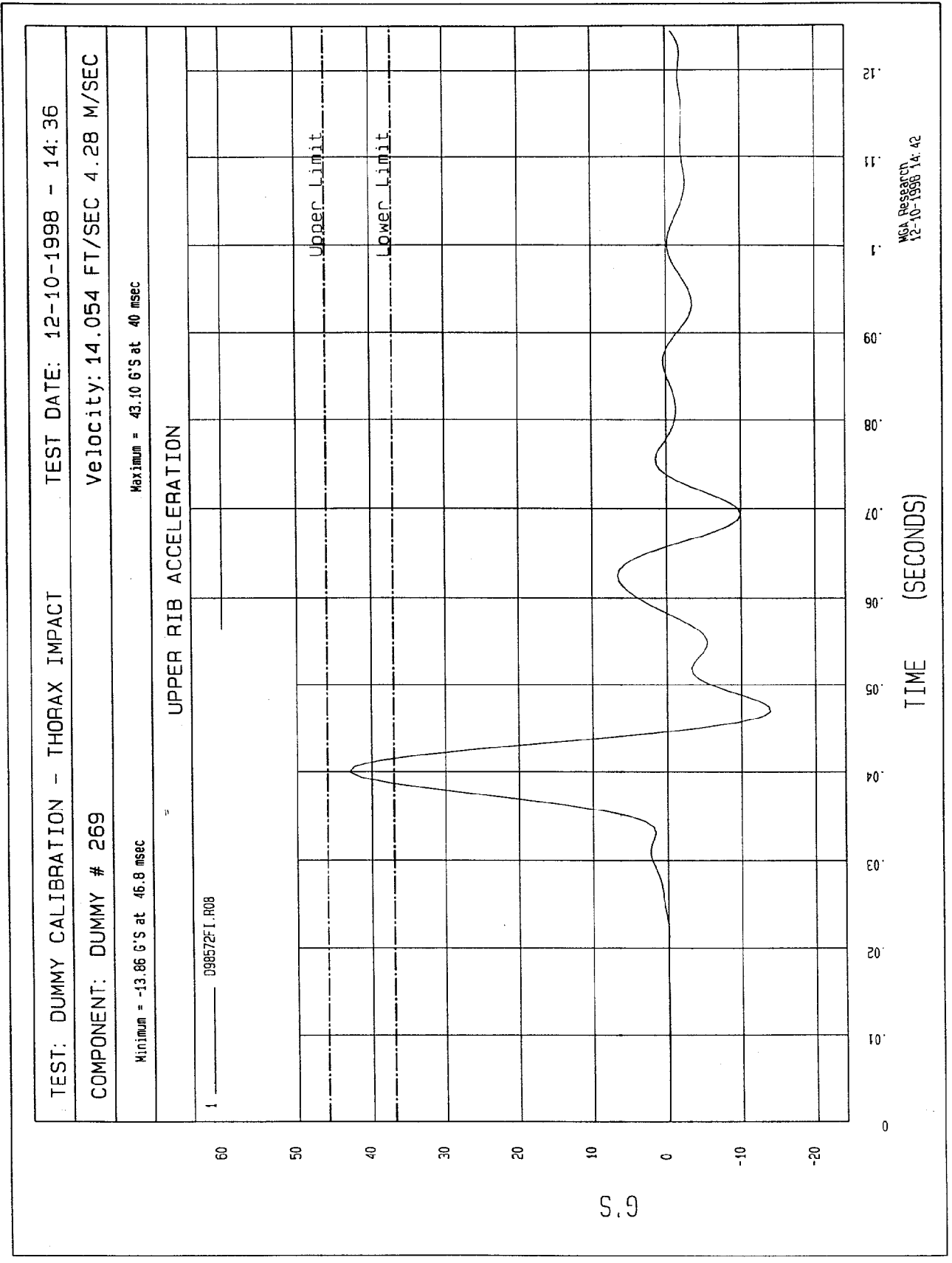
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY



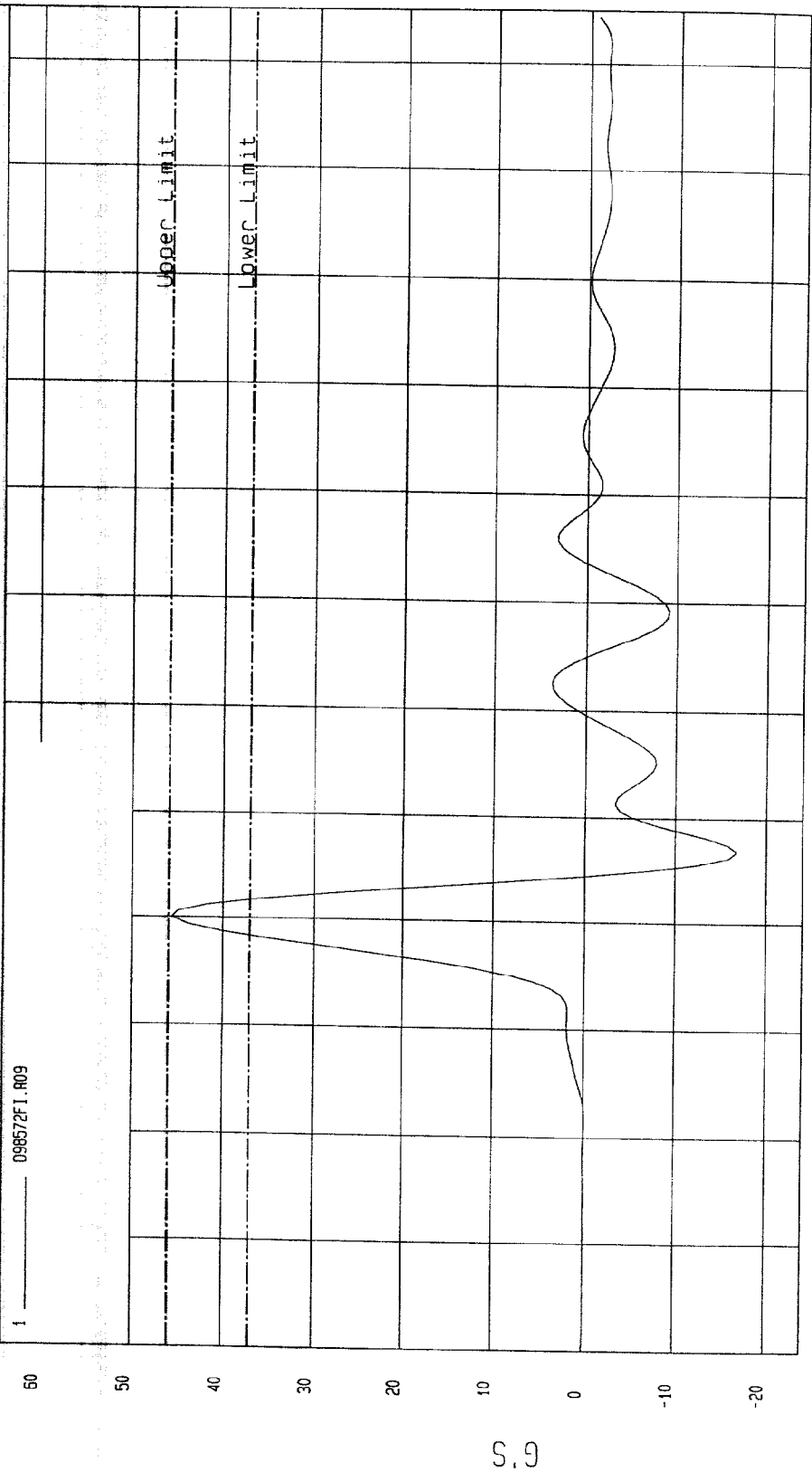


TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-10-1998 - 14:36

COMPONENT: DUMMY # 269 Velocity: 14.054 FT/SEC 4.28 M/SEC

Minimum = -16.70 G'S at 46.8 msec Maximum = 45.67 G'S at 40 msec

LOWER RIB ACCELERATION



NSA Research
12-10-1998 14:42

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-10-1998 - 14:36

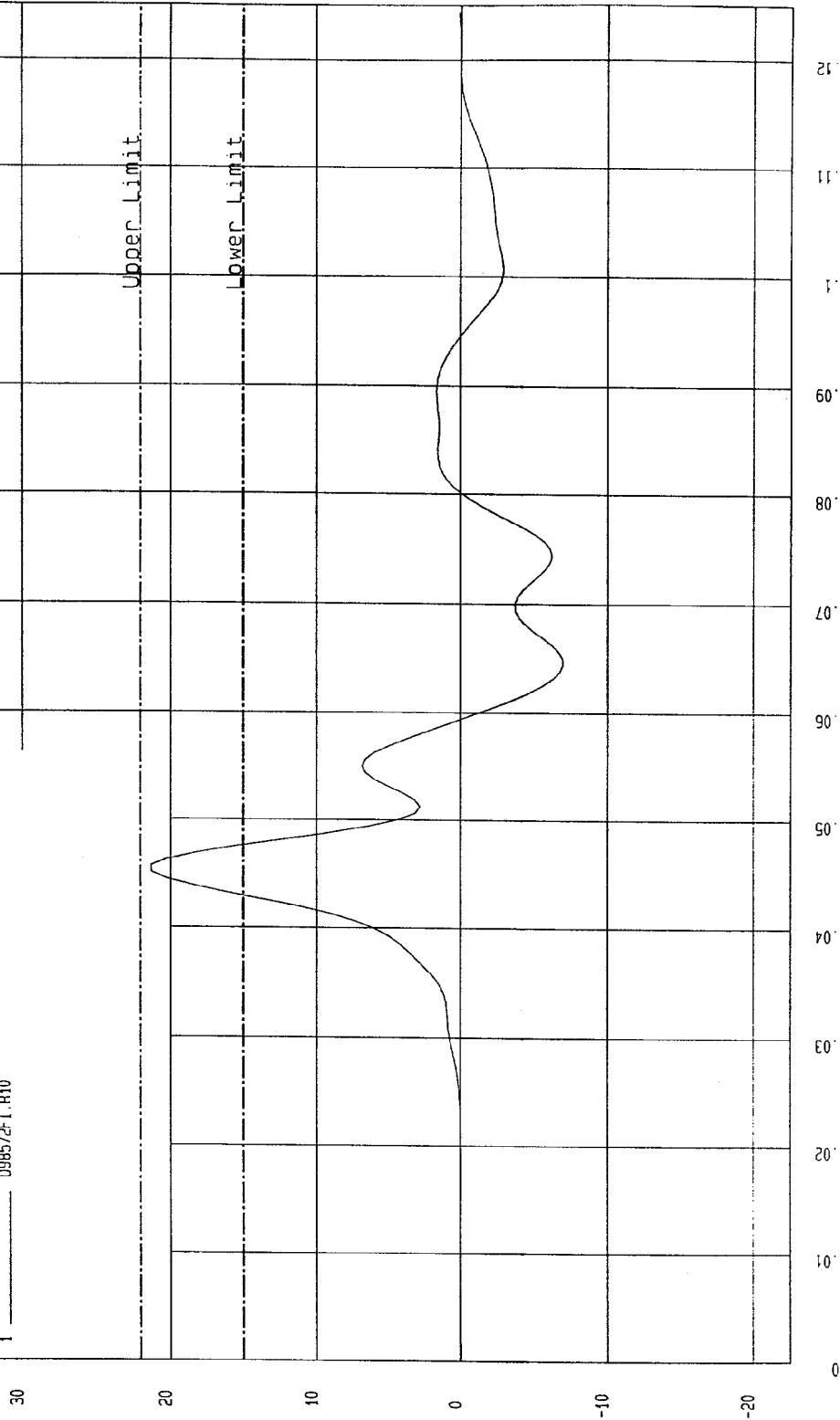
COMPONENT: DUMMY # 269 Velocity: 14.054 FT/SEC 4.28 M/SEC

Minimum = -6.98 G'S at 64.3 msec

Maximum = 21.33 G'S at 45.6 msec

LOWER SPINE ACCELERATION

1 _____ D98572F1.R10

MGA Research
12-10-1998 14:43

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: December 10, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981573

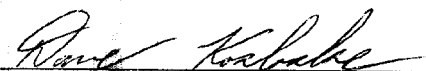
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	23%
PROBE SPEED (m/s)	4.27 - 4.33	4.27
PELVIS ACCELERATION (g's)	40 - 60	40

TEST MEETS SPECIFICATIONS

TECHNICIAN



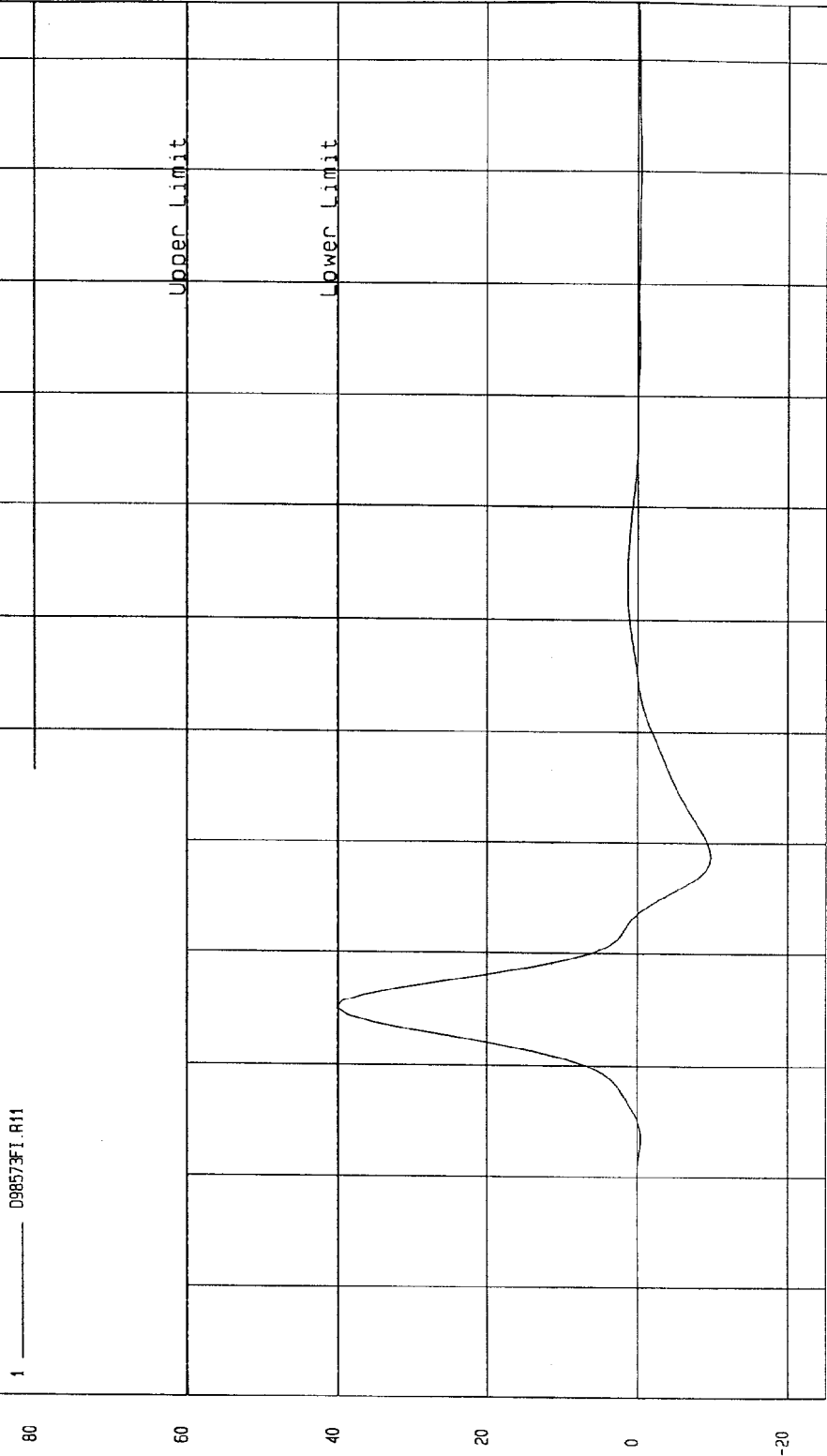
APPROVED BY



TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 12-10-1998 - 14:41
COMPONENT: DUMMY # 269 Velocity: 14.019 FT/SEC 4.27 M/SEC

Minimum = -9.79 G'S at 48.7 msec
Maximum = 40.11 G'S at 35 msec

PELVIS ACCELERATION



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

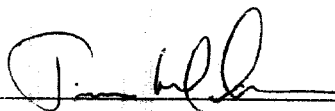
SIDE IMPACT DUMMY (SID)

DATE: December 10, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981574

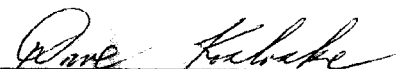
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	23%
FORCE @ 12.7 mm	104 - 162	152
FORCE @ 19.0 mm	163 - 222	213
FORCE @ 25.4 mm	222 - 280	277
FORCE @ 33 mm	325 - 391	382

TEST MEETS SPECIFICATIONS

TECHNICIAN



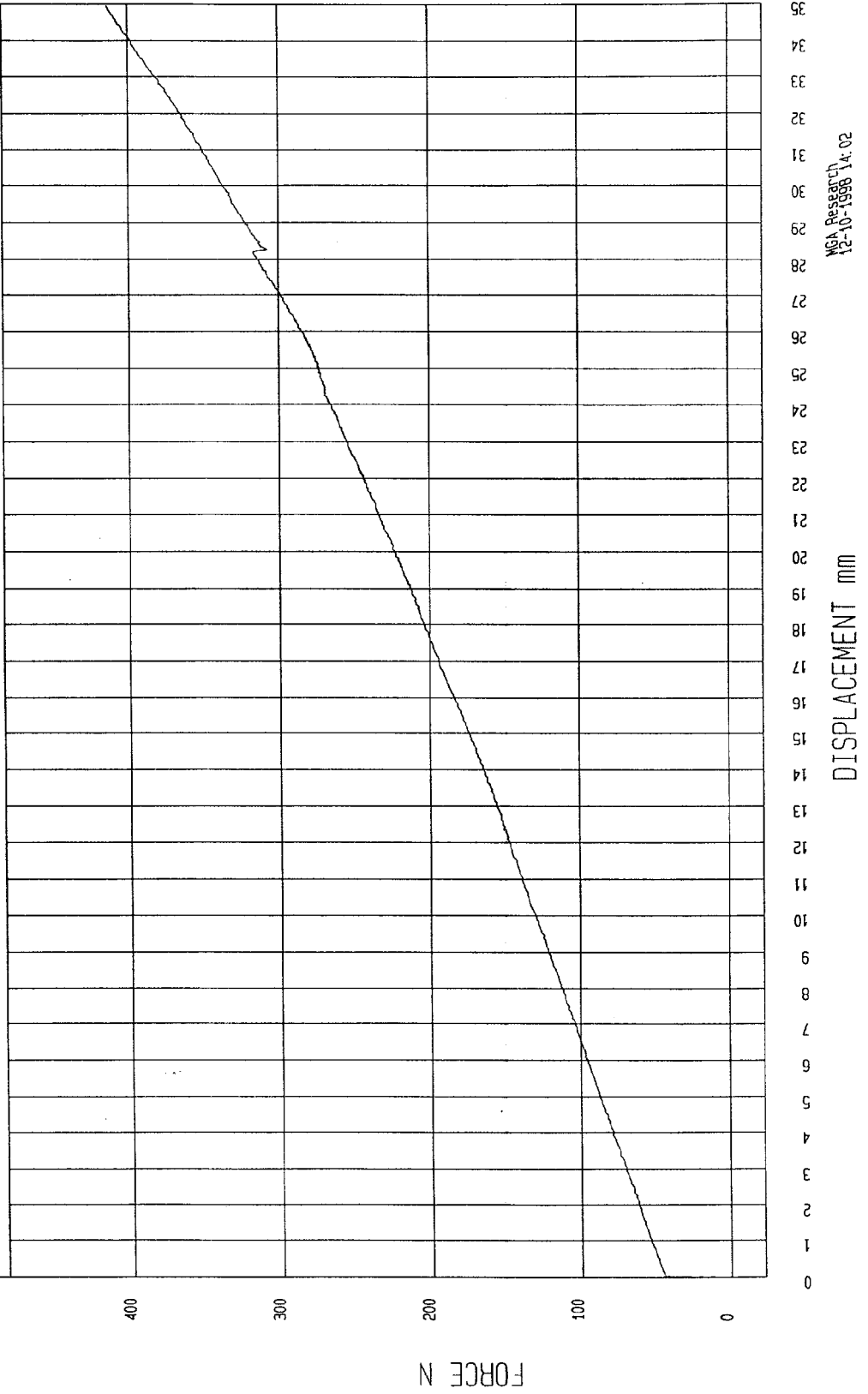
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 12-10-1998 - 13:44:48

COMPONENT: DUMMY # 269

FORCE as a function of DISPLACEMENT



NGA Research
12-10-1998 14:02

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

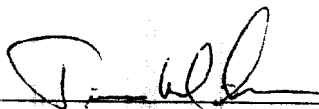
SIDE IMPACT DUMMY (SID)

DATE: December 10, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981575

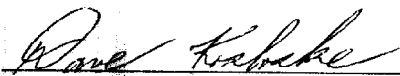
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	24%
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	110.0
FORCE @ 30°	151.2 - 204.6	174.2
FORCE @ 40°	204.6 - 258.0	206.3
RETURN ANGLE	12° maximum	5°

TEST MEETS SPECIFICATIONS

TECHNICIAN



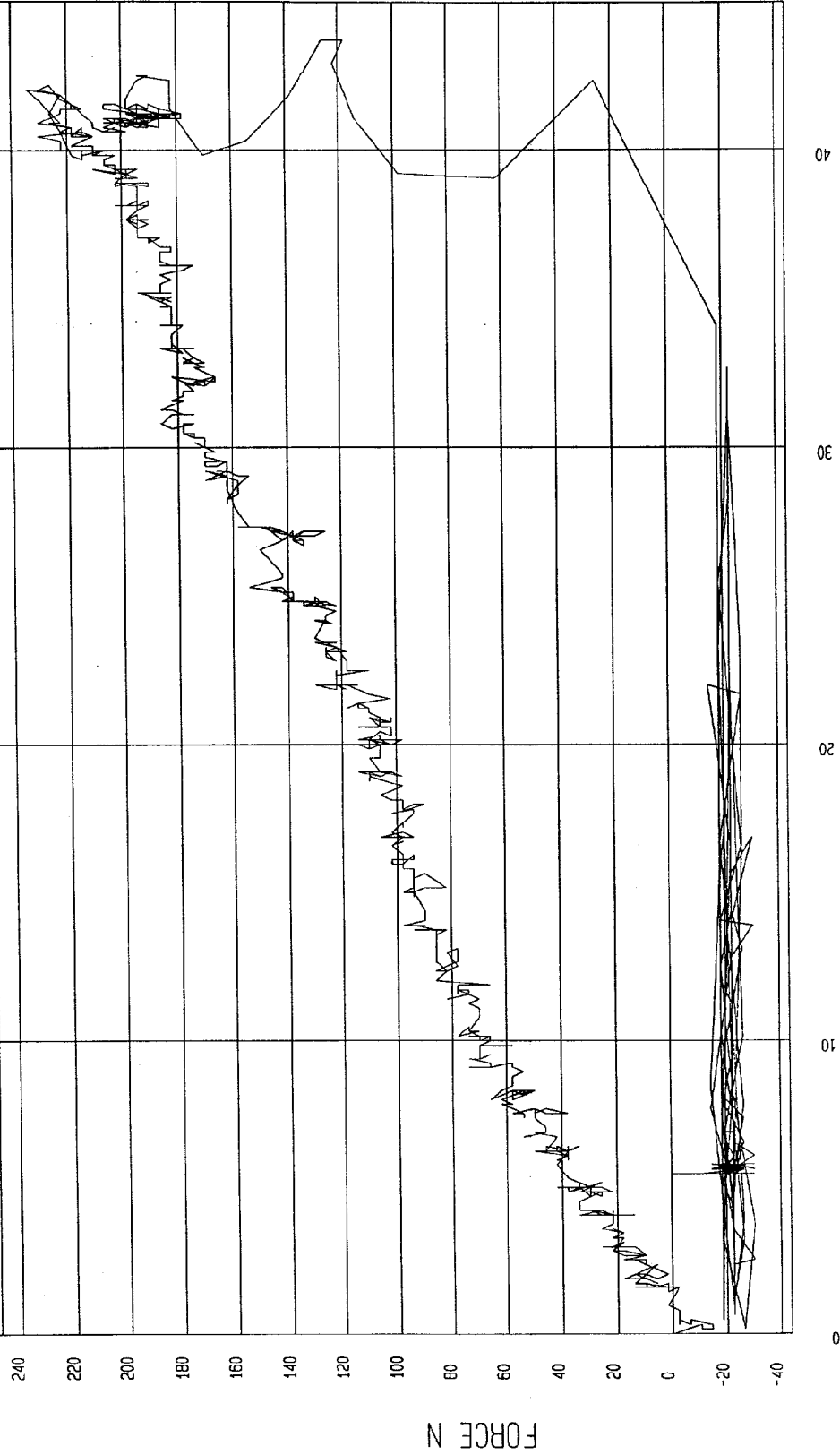
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 12-10-1998 - 10:53:30

COMPONENT: DUMMY # 269

FORCE as a function of TORSO ROTATION



MCA Research
12-10-1998 11:54

POST-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 269

Calibration Test Results Summary

Driver Dummy Serial Number: 269

Post-Test Calibration

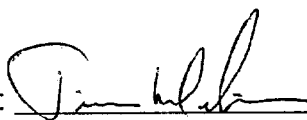
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY SERIAL NUMBER: 269DATE OF VERIFICATION: December 16, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	892
RH - Rib Height (mm)	501 - 521	508
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	232
KV - Knee Pivot From Back Line (mm)	511 - 526	523
SW - Knee Pivot to Floor (mm)	490 - 505	501
HW - Hip Width (mm)	356 - 391	382

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

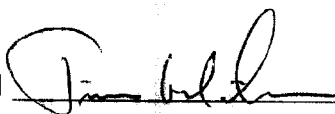
SIDE IMPACT DUMMY (SID)

DATE: December 15, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981672

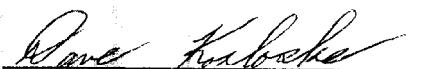
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	22%
PROBE SPEED (m/s)	4.27 - 4.33	4.30
UPPER RIB (g's)	37 - 46 g's	44
LOWER RIB (g's)	37 - 46 g's	42
LOWER SPINE (g's)	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN



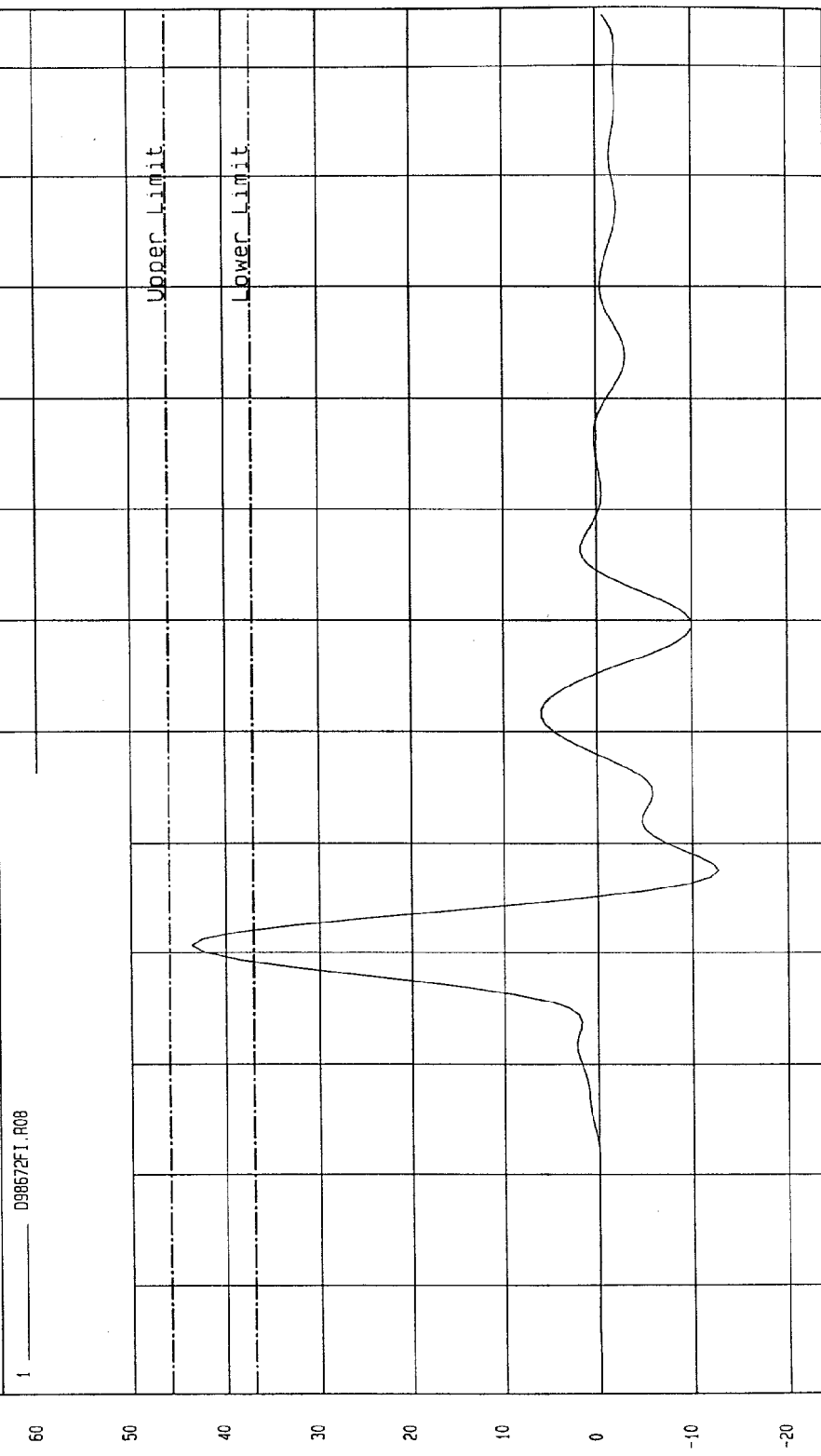
APPROVED BY



TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-15-1998 - 10:02
 COMPONENT: DUMMY # 269 Velocity: 14.094 FT/SEC 4.3 M/SEC

Minimum = -12.68 G'S at 47.5 msec
 Maximum = 43.67 G'S at 40.6 msec

UPPER RIB ACCELERATION



MSA Research
 12-15-1998 10:17

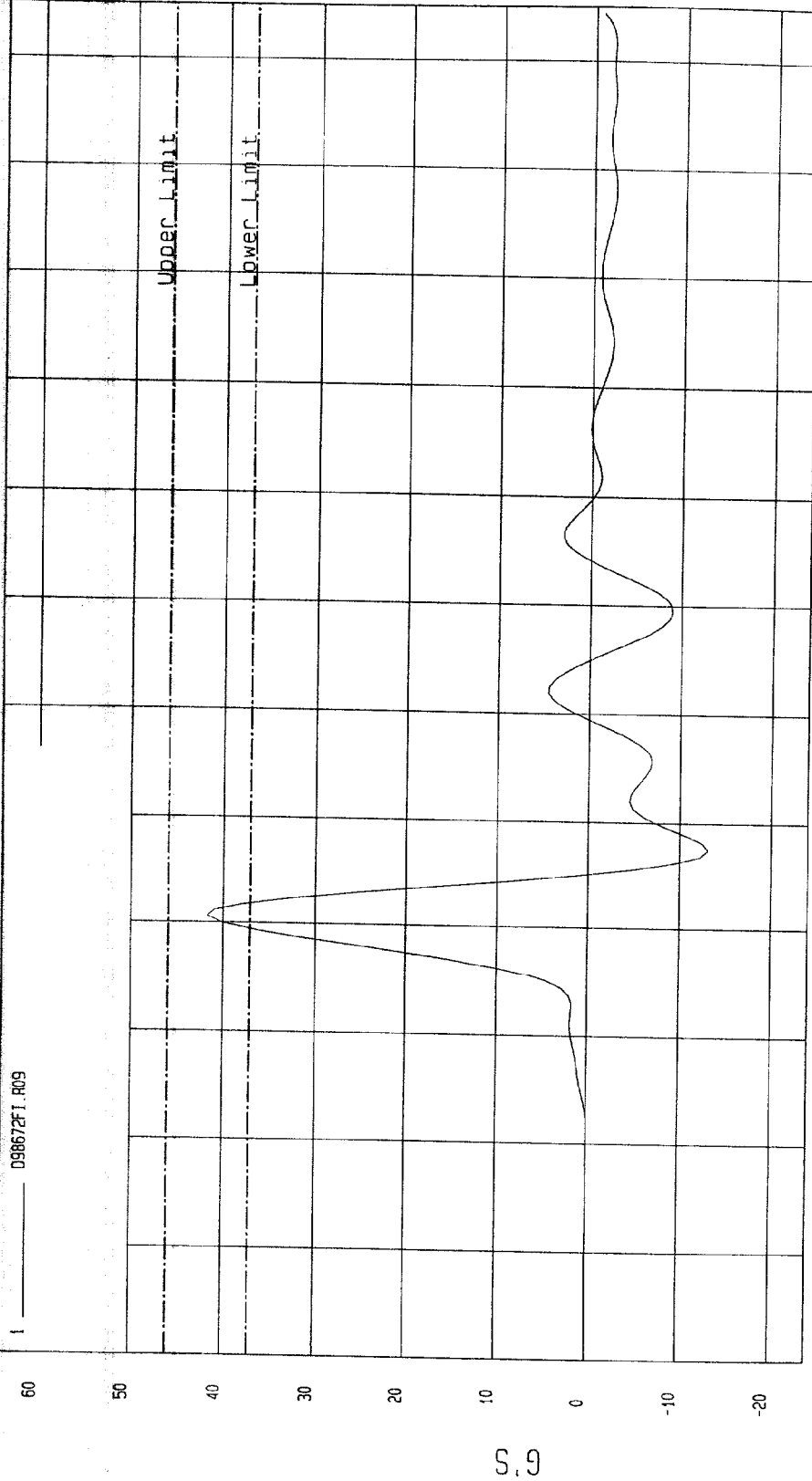
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-15-1998 - 10:02

COMPONENT: DUMMY # 269 Velocity: 14.094 FT/SEC 4.3 M/SEC

Minimum = -13.07 G'S at 47.5 msec Maximum = 41.75 G'S at 40.6 msec

LOWER RIB ACCELERATION

1 _____ D98672F1.R09

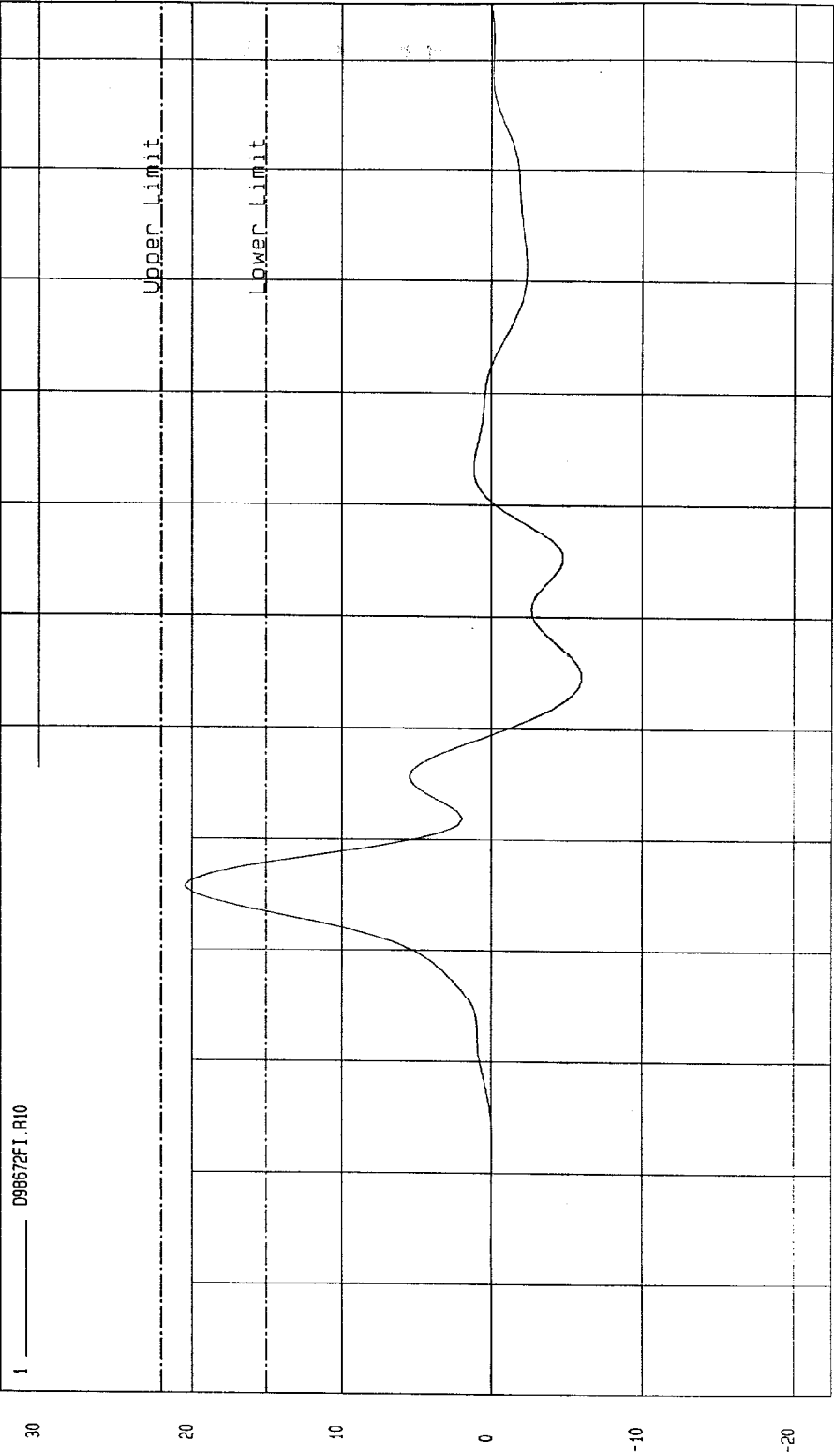


NGA Research
12-15-1998 10:17

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 12-15-1998 - 10:02
COMPONENT: DUMMY # 269 Velocity: 14.094 FT/SEC 4.3 M/SEC

Minimum = -6.06 G'S at 64.3 msec Maximum = 20.47 G'S at 45.6 msec

LOWER SPINE ACCELERATION



TIME (SECONDS)

MECA Research
12-15-1998 10:18

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

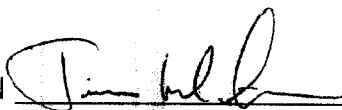
SIDE IMPACT DUMMY (SID)

DATE: December 15, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981673

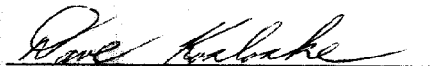
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	22%
PROBE SPEED (m/s)	4.27 - 4.33	4.29
PELVIS ACCELERATION (g's)	40 - 60	42

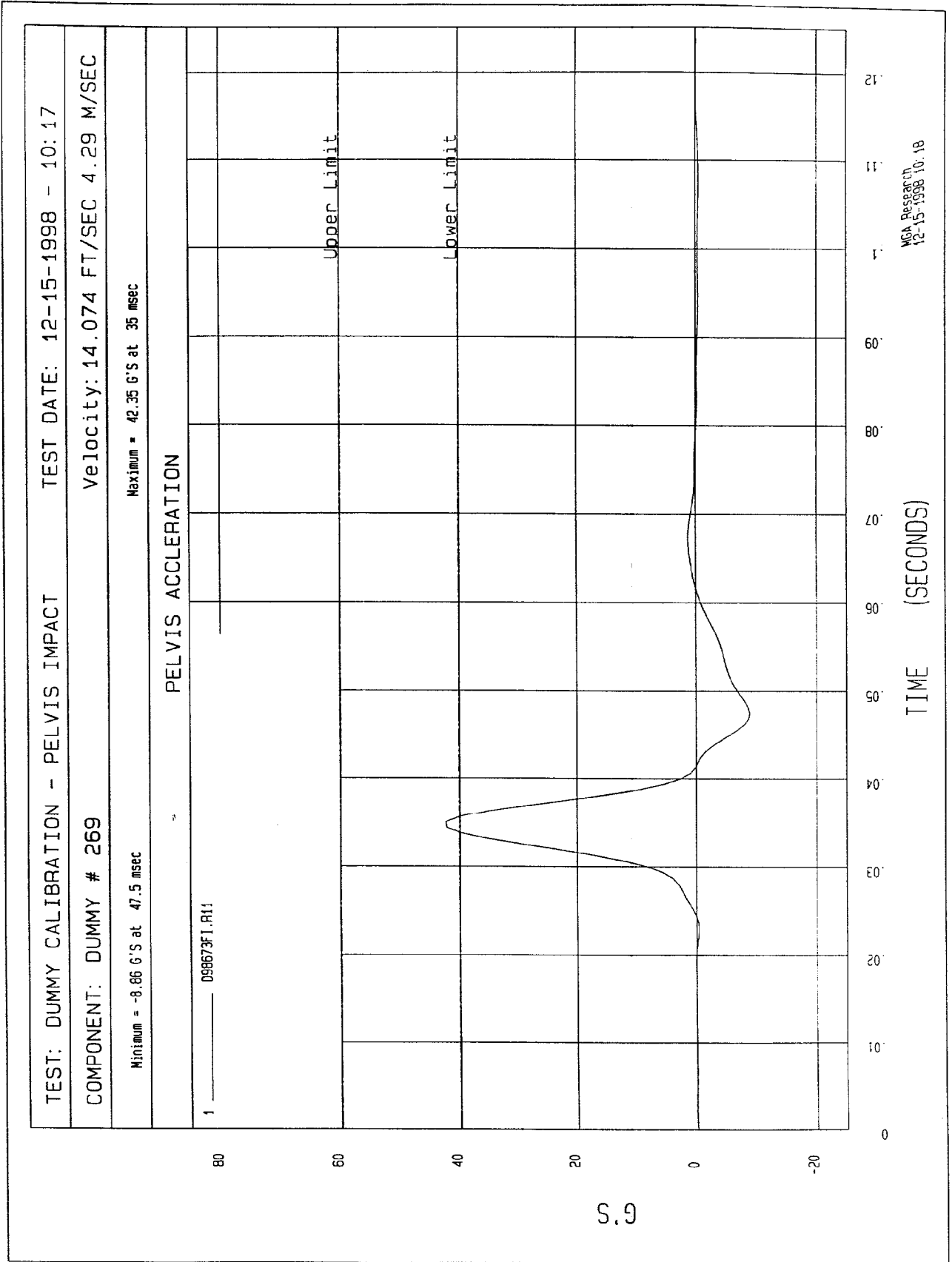
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY





MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST

(PRELOAD = 10 LBS)

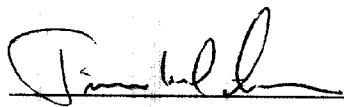
SIDE IMPACT DUMMY (SID)

DATE: December 16, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981674

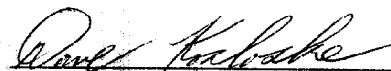
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	23%
FORCE @ 12.7 mm	104 - 162	140
FORCE @ 19.0 mm	163 - 222	201
FORCE @ 25.4 mm	222 - 280	263
FORCE @ 33 mm	325 - 391	357

TEST MEETS SPECIFICATIONS

TECHNICIAN



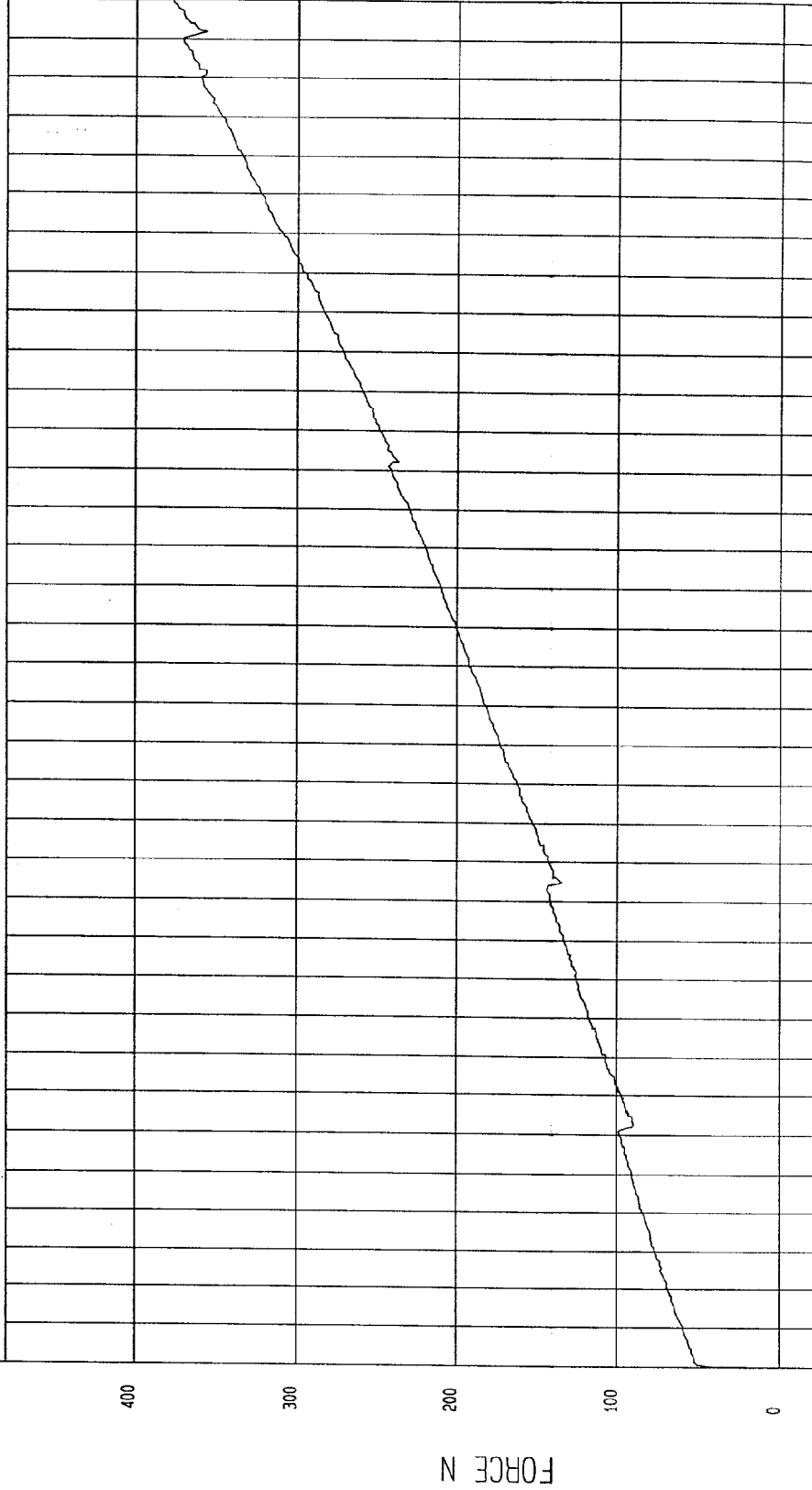
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 12-16-1998 - 09:19:47

COMPONENT: DUMMY # 269

FORCE as a function of FORCE



MGA Research
12-16-1998 09:21

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

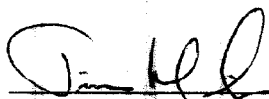
SIDE IMPACT DUMMY (SID)

DATE: December 16, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981675

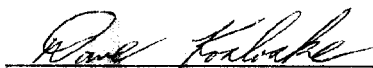
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	23%
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	148.1
FORCE @ 30°	151.2 - 204.6	176.2
FORCE @ 40°	204.6 - 258.0	220.3
RETURN ANGLE	12° maximum	5°

TEST MEETS SPECIFICATIONS

TECHNICIAN



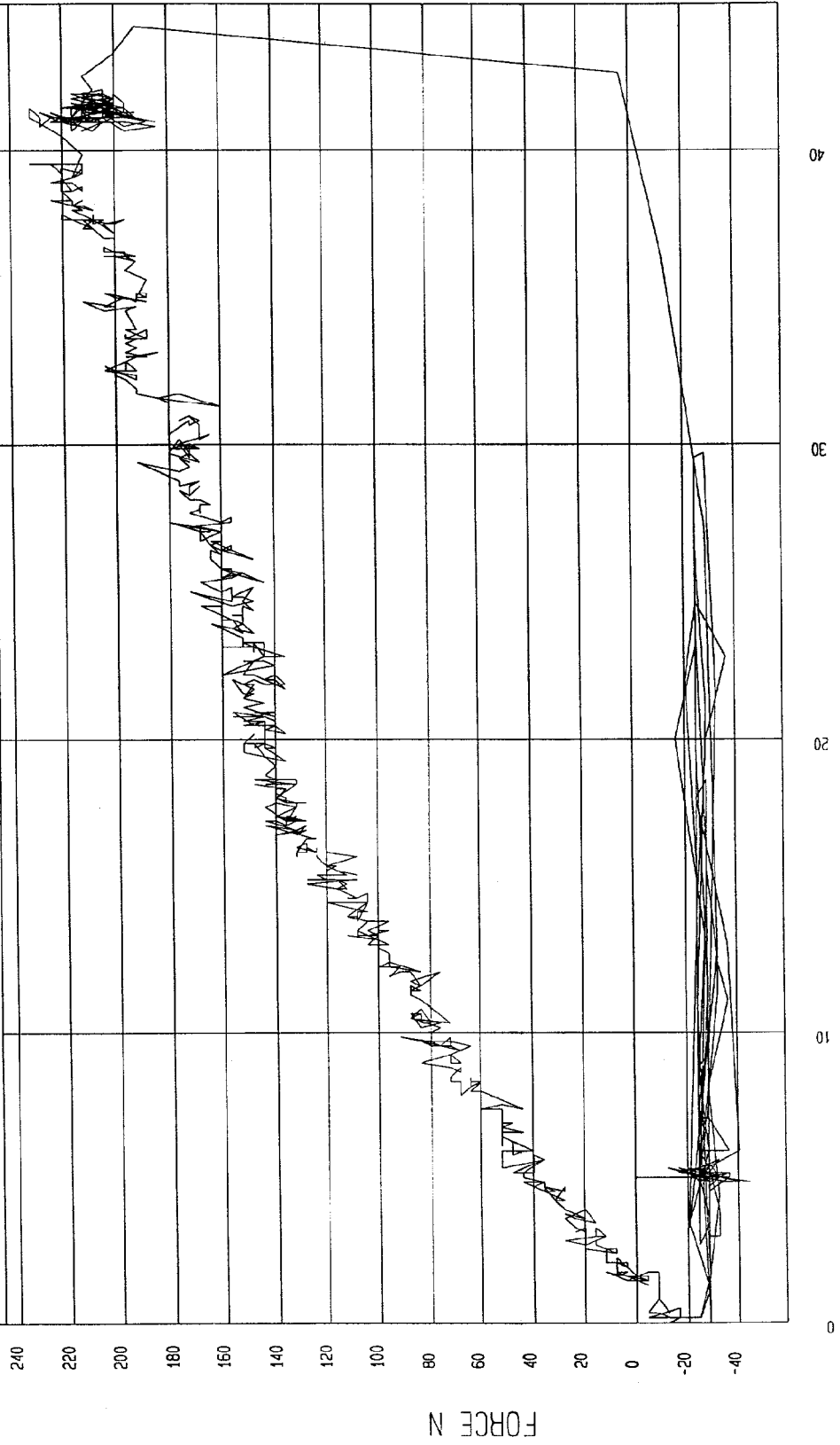
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 12-16-1998 - 10:52:45

COMPONENT: DUMMY # 269

FORCE as a function of TORSO ROTATION



NSA Research
12-16-1998 10:54

POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

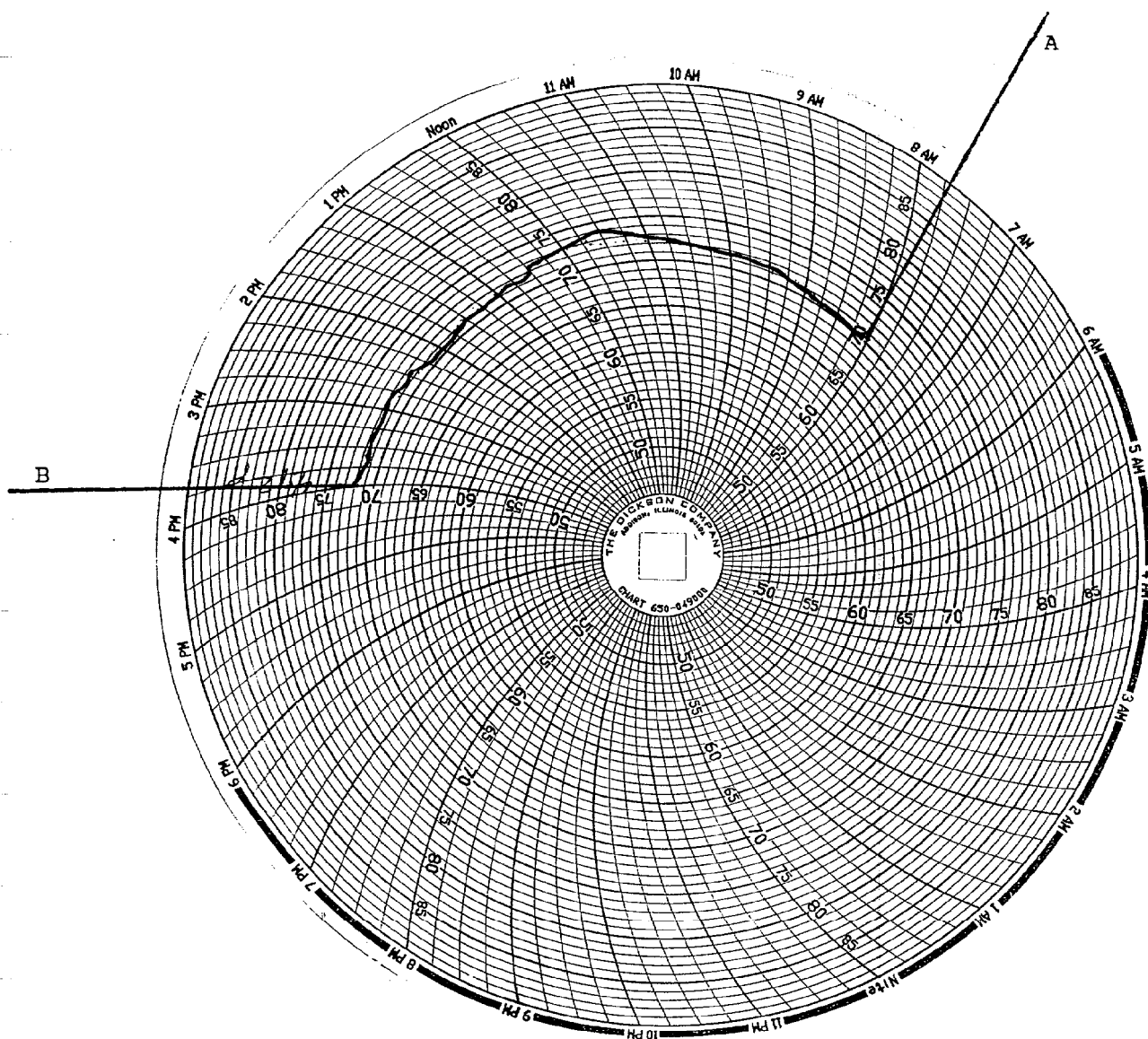
Serial Number: 269

Inspected By: Tim Michnay

Date: December 16, 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. 269

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	ALFJ7	Endevco	October 20, 1998
Lower Rib Y	APYN0	Endevco	October 20, 1998
Lower Spine Y	ANAP1	Endevco	October 20, 1998
Pelvis Y	AP062	Endevco	October 20, 1998
Upper Rib Redundant Y	ALDD6	Endevco	October 20, 1998
Lower Rib Redundant Y	APYN3	Endevco	October 20, 1998
Lower Spine Redundant Y	ANAT6	Endevco	October 20, 1998
Pelvis Redundant Y	AP138	Endevco	October 20, 1998
Head Center of Gravity X	AH0A5	Endevco	October 20, 1998
Head Center of Gravity Y	AN8A4	Endevco	October 20, 1998
Head Center of Gravity Z	AJ9C4	Endevco	October 20, 1998

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE 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	A10-G05	Entran	June 16, 1998
Left Lower A-Post Y	C06-G12	Entran	June 22, 1998
Left Mid B-Post Y	J06-D24	Entran	September 24, 1998
Left Lower B-Post Y	F13-B12	Entran	June 18, 1998
Rear Floorpan Above Axle X	D05-R09	Entran	December 8, 1998
Rear Floorpan Above Axle Y	D05-R20	Entran	December 8, 1998
Rear Floorpan Above Axle Z	H02-J05	Entran	December 8, 1998
Driver Seat Track Y	G08-B04	Entran	June 17, 1998
Right Side Sill at Front Seat X	K16-X06	Entran	September 15, 1998
Right Side Sill at Front Seat Y	C25-A17	Entran	June 16, 1998
Right Side Sill at Front Seat Z	B14-R14	Entran	August 26, 1998
Right Side Sill at Rear Seat X	F12-G01	Entran	June 28, 1998
Right Side Sill at Rear Seat Y	J04-F14	Entran	June 16, 1998
Right Side Sill at Rear Seat Z	E23-R06	Entran	June 16, 1998

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Front Seat Y	F18-G01	Entran	September 15, 1998
Left Side Sill at Rear Seat Y	G08-B04	Entran	June 17, 1998
Vehicle CG X	J10-E16	Entran	June 22, 1998
Vehicle CG Y	J10-E03	Entran	June 16, 1998
Vehicle CG Z	F11-G09	Entran	June 28, 1998
Left Front Door on Centerline	J10-E12	Entran	December 8, 1998
Midrear of Left Front Door	C25-A06	Entran	December 8, 1998
Left Front Door Upper Centerline	J04-F15	Entran	December 8, 1998

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