

TESTING FOR  
"SIDE IMPACT PROTECTION -  
PASSENGER CARS"

V2554

1991 FORD TAURUS  
CONTRACT NO.: DTRS-57-95-C-00010  
(TTD #3)

MGA PROVING GROUNDS  
5000 WARREN ROAD  
BURLINGTON, WI 53105



Test Date: March 11, 1997

Report Date: March 31, 1997

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION  
RSPA/VOLPE NATIONAL TRANSPORTATION SYSTEMS CENTER  
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Approval Date: 4-11-97

FINAL REPORT ACCEPTED BY (OVSC):

Accepted By: \_\_\_\_\_  
Contract Technical Manager

Acceptance Date: \_\_\_\_\_

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SECTION 1  
PURPOSE AND TEST PROCEDURE

The purpose of this testing is to obtain the vehicle and side impact dummy (SID) responses during a side impact crash test of a 1991 Ford Taurus four-door sedan equipped with an automatic transmission. The test is to simulate a 48/24 kph striking/struck vehicle intersection collision.

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

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

## SECTION 2

### SUMMARY OF SIDE IMPACT TEST

A 1991 Ford Taurus was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 19° crabbed position to the tow road guidance system at a velocity of 39.8 mph (64.1 kph). The target vehicle was stationary and was positioned at an angle of 60° with respect to the longitudinal axis of the MDB. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin, on March 11, 1997. Pre- and post-test photographs of the test vehicle, the MDB, and the side impact dummies (SIDs) are included in Appendix A.

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

The SIDs were instrumented with the following accelerometers.

1. Head Tri-axial Accelerometers (X, Y, Z -direction)
2. Upper Spine (US) Uniaxial Accelerometer (Y-direction)
3. Left Upper Rib (LUR) uniaxial accelerometer (Y-direction)
4. Left Lower Rib (LLR) uniaxial accelerometer (Y-direction)
5. Lower Thoracic Spine (T<sub>12</sub>) uniaxial accelerometer (Y-direction)
6. Pelvic (PEV) section uniaxial accelerometer (Y-direction)
7. Rib Displacement Potentiometer (Y-direction)

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

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

Injury Criteria	Front SID	Rear SID
TTI (g's)	132	49
Pelvis (g's)	158	93
HIC	1706	710

## TEST NOTES

Prior to testing, it was determined that the driver (left front occupant) seat back had been deformed prior to receipt of the vehicle. This prevented the SID from being placed perpendicular to the impacted vehicle centerline, from points on the dummies right and left shoulders, 280 mm from its centerline, the left side shoulder was 497 mm from the steering wheel hub and the right side shoulder was 475 mm from the steering wheel hub.

It was also determined prior to testing that the moving barrier roll sensor was not functioning correctly. This channel was not recorded during the impact test.

The ignition switch was turned off prior to testing to avoid possible airbag deployment during impact. This was done to allow for better photographic documentation of the impact event.

Post- test inspection revealed that both the front and rear upper door hinge pins failed during impact.

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

DATA SHEET NO. 1

GENERAL VEHICLE TEST PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

VIN: 1FACP50UXMG148832

Vehicle Body Color: Blue Build Date: 12/90

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

Placement    Longitudinal;   X Lateral

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

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

Odometer Reading 61552 miles

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

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

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 35 Psi FRONT

35 Psi REAR

Recommended Tire Size: P205/70R14

Tires on Test Vehicle: P205/70R14 Manufacturer: Dunlop

Vehicle Capacity Data:

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

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

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

Vehicle Maximum Capacity Loading = 499.0 kg (A)

No. of Occupants x 68.04 kg. = 408.2 kg (B)

Cargo Capacity (A-B) = 90.8 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front = 468.6 kg      Right Rear = 243.1 kg  
Left Front = 457.7 kg      Left Rear = 264.0 kg  
TOTAL FRONT = 926.3 kg      TOTAL REAR = 507.1 kg  
% of Total Vehicle Weight = 64.6%;      % of Total Weight = 35.4%  
TOTAL WEIGHT = 1433.4 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	= <u>1433.4</u> kg
Cargo Carrying Capacity of Test Vehicle	= <u>90.8</u> kg
Weight of 2 Side Impact Dummies (2 x <u>80.7</u> kg.)	= <u>161.4</u> kg
TEST VEHICLE TARGET WEIGHT	= <u>1685.6</u> kg

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

Right Front	= <u>467.7</u> kg	Right Rear	= <u>325.2</u> kg
Left Front	= <u>512.6</u> kg	Left Rear	= <u>379.7</u> kg
TOTAL FRONT	= <u>980.3</u> kg	TOTAL REAR	= <u>704.9</u> kg
% of Total Weight	= <u>58.2</u> %	% of Total Weight	= <u>41.8</u> %
TOTAL TEST WEIGHT	= <u>1685.2</u> kg		

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 700 mm Left Front 701 mm Right Rear 637 mm Left Rear 635 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 690 mm Left Front 680 mm Right Rear 595 mm Left Rear 585 mm

TEST ATTITUDE:

Right Front 687 mm Left Front 686 mm Right Rear 597 mm Left Rear 593 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2690 mm

C.G. = 1099 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4518 mm

Centerline = 4771 mm

Left Side = 4518 mm

TEST VEHICLE CG AND VEHICLE INERTIA MEASUREMENTS WITH ALL INSTRUMENTATION AND CAMERAS:

CGx: 1034 mm behind front spindle

CGy: 21 mm right of vehicle centerline

CGz: 559 mm above ground

Pitch Inertia: 2717.93 kg m<sup>2</sup>

Roll Inertia: 562.65 kg m<sup>2</sup>

Yaw Inertia: 3060.50 kg m<sup>2</sup>

ARM REST LOCATIONS:

Front: 233 mm below window opening

Rear: 240 mm below window opening

SEAT BELT ATTACHMENT POINT COORDINATES:

	X (mm)	Y (mm)	Z (mm)
Front D-Ring:	<u>2128</u>	<u>-580</u>	<u>1180</u>
Front Anchor:	<u>2326</u>	<u>-685</u>	<u>340</u>
Rear Spoolout:	<u>1041</u>	<u>-565</u>	<u>918</u>
Rear Anchor:	<u>1523</u>	<u>-755</u>	<u>470</u>

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

THICKNESS OF DOOR:

	Left Front (mm)	Left Rear (mm)
Thoracic Impact Point:	<u>220</u>	<u>208</u>
H-Point	<u>210</u>	<u>171</u>

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 230 mm

Test Position: 7th position out of 13 total

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 24.7°

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: Non-Adjustable

ADJUSTABLE STEERING COLUMN POSITION: 3rd notch out of 5 total

WINDOW POSITIONS: Left Front Closed Left Rear Closed

Right Front Open Right Rear Open

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 60.6 liters

Test Volume: 55.7 liters 92 % of capacity

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

Wheelbase: = 2690 mm

Impact Point is 405 mm rearward of front axle centerline

DATA SHEET NO. 2  
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

Overall Length = 4771 mm; Overall Width = 1821 mm

TEST WEIGHT:

Right Front = 488.0 kg

Right Rear = 330.2 kg

Left Front = 504.9 kg

Left Rear = 356.1 kg

TOTAL FRONT = 992.9 kg

TOTAL REAR = 686.3 kg

% of Total Weight = 59.0 %

% of Total Weight = 41.0 %

TOTAL VEHICLE WEIGHT = 1679.2 kg

Wheelbase = 2690 mm

Longitudinal C.G. from Center of Front Axle = 1099 mm

Impact Angle with Respect to Impactor = 60° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 ( 281 mm above ground) = 388 mm

2. LEVEL 2 ( 490 mm above ground) = 524 mm

3. LEVEL 3 ( 602 mm above ground) = 527 mm

4. LEVEL 4 ( 878 mm above ground) = 430 mm

5. LEVEL 5 ( 1301 mm above ground) = 95 mm

Maximum Post-Test Intrusion = 540 mm

OCCUPANTS:

	<u>Left Front Passenger</u>	<u>Left Rear Passenger</u>
Type of Dummy	<u>SID</u>	<u>SID</u>
Restraints Used*	<u>type II belt</u> <u>driver airbag</u>	<u>type II belt</u>

\* Test was run with ignition key "off" to prevent possible deployment of driver airbag.

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)

INSTRUMENTATION:

Number of Vehicle Data Channels:	=	<u>44</u>
Number of Cameras: Onboard Vehicle	=	<u>3</u>
Offboard Vehicle	=	<u>4</u>
Deformable Barrier	=	<u>2</u>
TOTAL	=	<u>9</u>

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 19° to right

MDB DETAILS:

Overall Width of Framework Carriage	=	<u>1252 mm</u>
Overall Length of MDB (incl. honeycomb impact face)	=	<u>4115 mm</u>
Wheelbase of Framework Carriage	=	<u>2591 mm</u>
Tread of Framework Carriage (Front & Rear)	=	<u>1880 mm</u>
C.G. Location Rearward of Front Axle	=	<u>1102 mm</u>
C.G. Location From Center Line	=	<u>-23 mm</u>
C.G. Location Above Ground Level	=	<u>508 mm</u>

MDB WEIGHT:

Left Front	=	<u>396.1 kg</u>	Left Rear	=	<u>284.4 kg</u>
Right Front	=	<u>383.4 kg</u>	Right Rear	=	<u>293.8 kg</u>
TOTAL FRONT	=	<u>779.5 kg</u>	TOTAL REAR	=	<u>578.2 kg</u>
TOTAL MDB WEIGHT	=	<u>1357.7 kg</u>			

Impact Angle (MDB C/L to Target Vehicle C/L) = 60° degrees

Impact Speed = Primary: 39.8 mph (64.1 kph) Secondary: 39.6 mph (63.7 kph)

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A Top of Stack (813 mm) = 140 mm
2. Row B Mid Stack (686 mm) = 102 mm
3. Row C Top of Bumper (533 mm) = 95 mm
4. Row D Center of Bumper (432 mm) = 154 mm

INSTRUMENTATION:

Number of MDB Data Channels = 9

DATA SHEET NO. 4  
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

VISIBLE DUMMY CONTACT POINTS:

	<u>RIGHT FRONT SID</u>	<u>RIGHT REAR SID</u>
Head	<u>to D Ring &amp; B Post</u>	<u>to C Post</u>
Arm	<u>to door trim panel</u>	<u>to door trim panel</u>
Pelvis	<u>to door trim panel/armrest</u>	<u>to door trim panel &amp; armrest</u>
Left Knee	<u>to door trim panel</u>	<u>to door trim panel</u>
Right Knee	<u>to left knee</u>	<u>to left knee</u>

DOOR OPENING DURING IMPACT:

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

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 3 mm rearward      Vertical: 12 mm high

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 125 mm Front Seat Cushion: 186 mm

Left Rear Seat Back: 39 mm Rear Seat Cushion: 138 mm

GLAZING DAMAGE:

Windshield cracked and both impacted side door glass shattered.

PILLAR PERFORMANCE:

No seperation noted

SILL SEPARATION:

No seperation noted

OTHER NOTABLE IMPACT EFFECTS:

Left front door top hinge pin broken

Left rear door top hinge pin broken

SECTION 4  
OCCUPANT AND VEHICLE INFORMATION

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

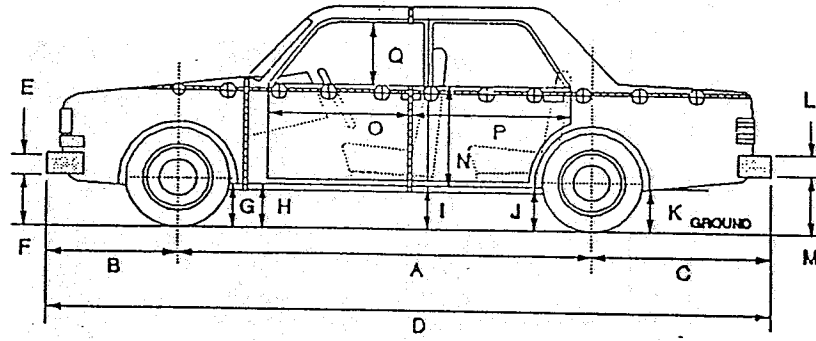
Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

	Front SID ID #270				Rear SID ID #269			
	Pos. Direct.		Neg. Direct		Pos. Direct.		Neg. Direct	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
<b>RIB ACCELERATIONS</b>								
Left Upper Rib (LUR) Y	136.6	54	-36.6	94	33.8	91	-14.2	146
Left Lower Rib (LLR) Y	154.4	54	-42.9	71	43.4	83	-16.5	146
<b>SPINE ACCELERATIONS</b>								
Upper Longitudinal Y	153.6	61	-39.8	85	54.2	99	-7.9	148
Lower Lateral Y	110.0	50	-27.4	38	54.8	90	-10.6	122
<b>PELVIS ACCELERATIONS</b>								
Lateral Y	157.6	48	-38.0	70	92.6	81	-13.4	119

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)

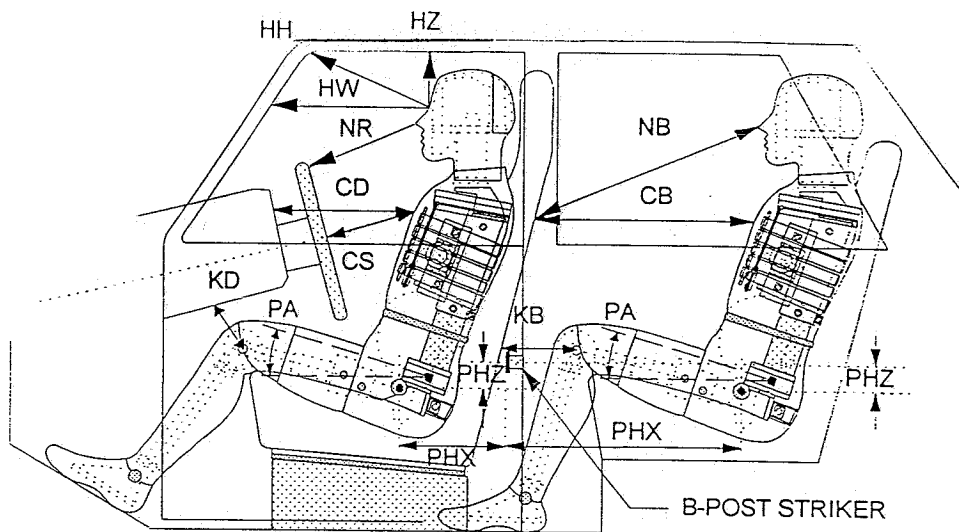
	PRE-TEST	POST-TEST	Δ CHANGE
A	2690	2620	70
B	984	997	13
C	1097	1075	22
D	4771	4692	79
E	120	120	0
F	398	413	15
G	187	172	15
H	190	237	47
I	185	172	13
J1/J2	177/175	200/204	23/29
K	250	269	19
L	195	200	5
M	342	344	2
N	587	563	24
O	779	757	22
P	1206	1180	26
Q	460	420	40
R	4518	4536	18
S	4518	4427	91
T	1821	1357	464

DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997



NOTE: All dimensions are in mm with tolerance of  $\pm 3$  mm

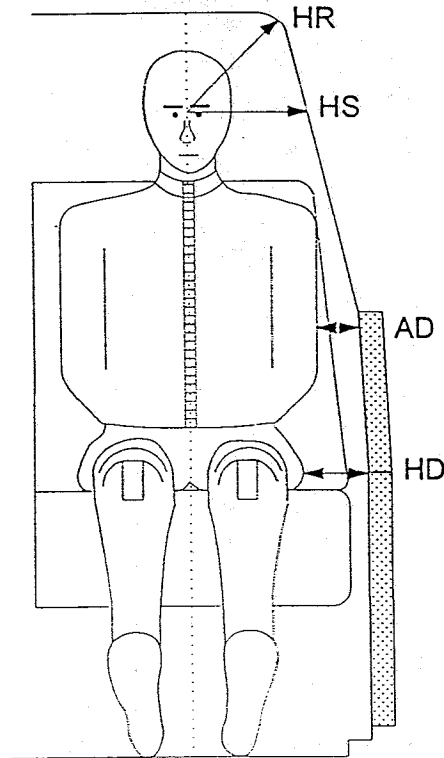
	FRONT PASSENGER ID #270	REAR PASSENGER SID ID #269	
HH	430	HZ	153
HW	675	NB	617
HZ	167	CB	531
NR	479	KBL (KBA)	221 (0°)
CD	574	KBR (KBA)	252 (0°)
CS	350	PA°	24.0°
KDL(KDA°)	162 (14.1°)	PHX	255
KDR(KDA°)	202 (29.9°)	PHZ	320
PA°	24.3°		
PHX	205		
PHZ	138		

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

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

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997



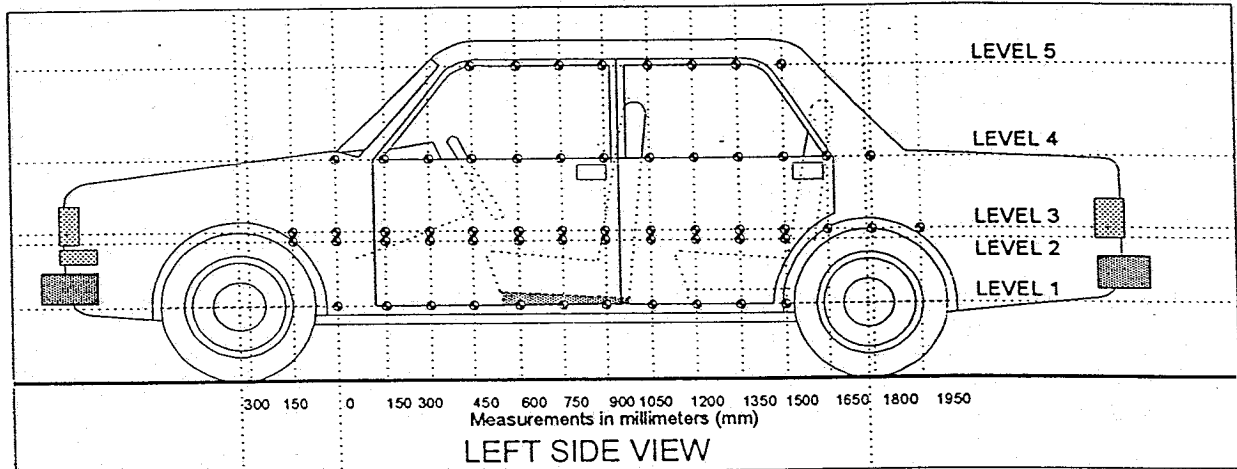
NOTE: All dimensions are in mm

	FRONT PASSENGER ID #270	REAR PASSENGER ID #269
HR	208	172
HS	318	232
AD	110	110
HD	134	166

DATA SHEET NO. 9  
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997



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

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

MEASUREMENTS ALONG THE VERTICAL 750 mm. LINE SHOWN ABOVE

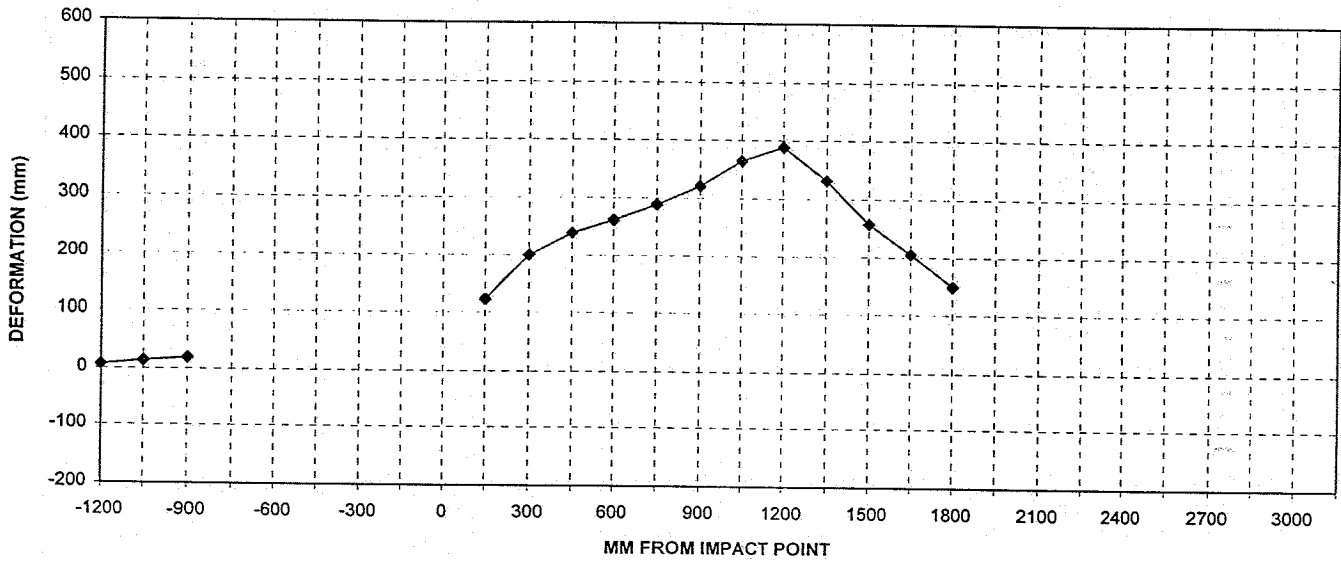
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>281</u> mm
Level 2 @ Occupant H-Point	=	<u>490</u> mm
Level 3 @ Mid Door	=	<u>602</u> mm
Level 4 @ Window Sill	=	<u>878</u> mm
Level 5 @ Window Top	=	<u>1301</u> mm

DATA SHEET NO. 10  
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 1 - Axle Centerline		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200	774	781	7
-1050	741	755	14
-900	712	731	19
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150	720	842	122
300	720	920	200
450	715	954	239
600	715	977	262
750	715	1004	289
900	712	1033	321
1050	712	1076	364
1200	711	1099	388
1350	710	1041	331
1500	709	967	258
1650	709	914	205
1800	708	857	149
1950			
2100			
2250			
2400			
2550			
2700			
2850			
3000			
3150			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



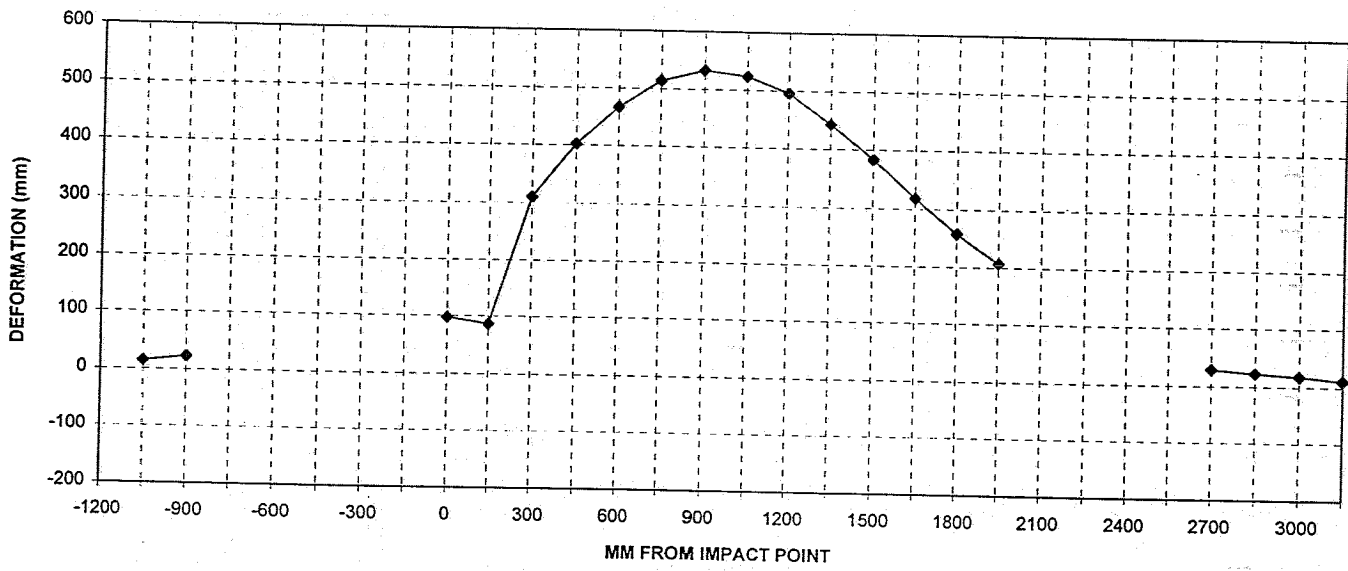
LEVEL 1 - AXLE CENTERLINE

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

Longitudinal Distance (mm)	Level 2 - Occupant H Point		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050	701	716	15
-900	677	700	23
-750			
-600			
-450			
-300			
-150			
0 (impact point)	650	747	97
150	650	736	86
300	647	957	310
450	644	1046	402
600	643	1110	467
750	640	1154	514
900	640	1173	533
1050	640	1164	524
1200	637	1133	496
1350	638	1081	443
1500	638	1021	383
1650	638	956	318
1800	638	896	258
1950	639	846	207
2100			
2250			
2400			
2550			
2700	662	691	29
2850	672	695	23
3000	678	696	18
3150	693	704	11

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



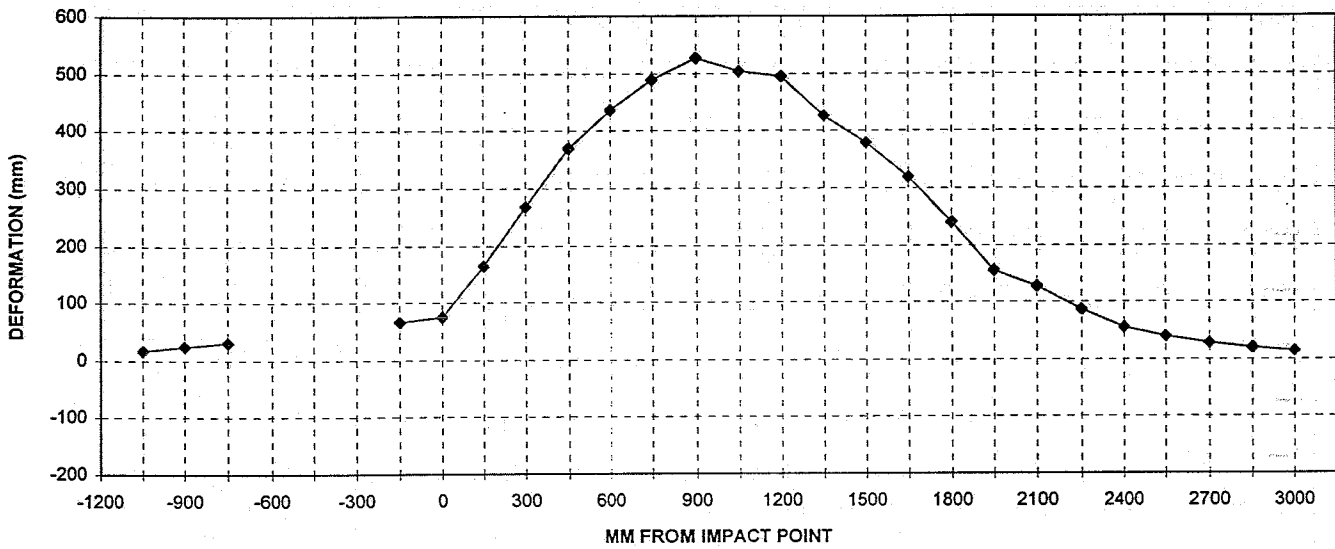
LEVEL 2 - OCCUPANT H-POINT

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

Longitudinal Distance (mm)	Level 3 - Mid Door		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050	727	744	17
-900	703	727	24
-750	683	714	31
-600			
-450			
-300			
-150	653	719	66
0 (impact point)	657	732	75
150	655	819	164
300	656	924	268
450	655	1024	369
600	647	1083	436
750	645	1134	489
900	644	1171	527
1050	643	1147	504
1200	642	1137	495
1350	642	1068	426
1500	642	1020	378
1650	642	961	319
1800	642	883	241
1950	645	800	155
2100	643	770	127
2250	637	723	86
2400	643	698	55
2550	657	697	40
2700	667	695	28
2850	680	700	20
3000	694	708	14
3150			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



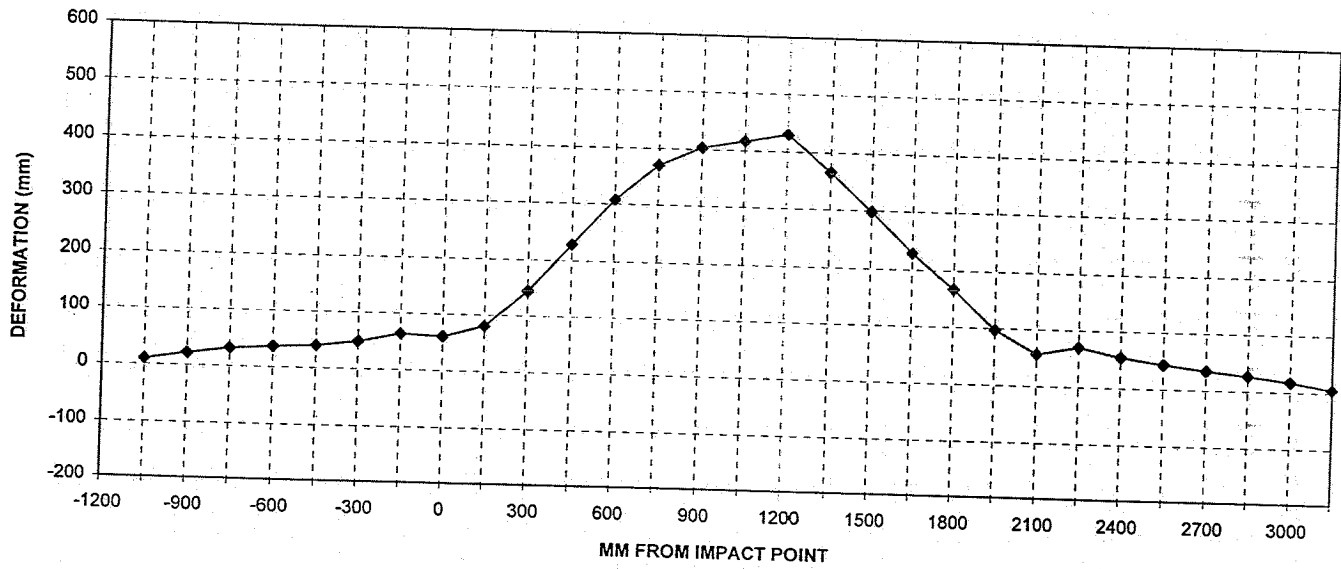
LEVEL 3 - MID DOOR

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

Longitudinal Distance (mm)	Level 4 - Window Sill		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050	824	834	10
-900	793	814	21
-750	770	801	31
-600	752	788	36
-450	741	780	39
-300	726	774	48
-150	724	787	63
0 (impact point)	715	775	60
150	710	790	80
300	710	855	145
450	709	937	228
600	707	1014	307
750	707	1077	370
900	705	1108	403
1050	703	1119	416
1200	702	1132	430
1350	702	1067	365
1500	701	999	298
1650	704	933	229
1800	702	870	168
1950	704	801	97
2100	708	764	56
2250	713	783	70
2400	718	772	54
2550	724	767	43
2700	734	768	34
2850	743	769	26
3000	753	770	17
3150	768	773	5

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



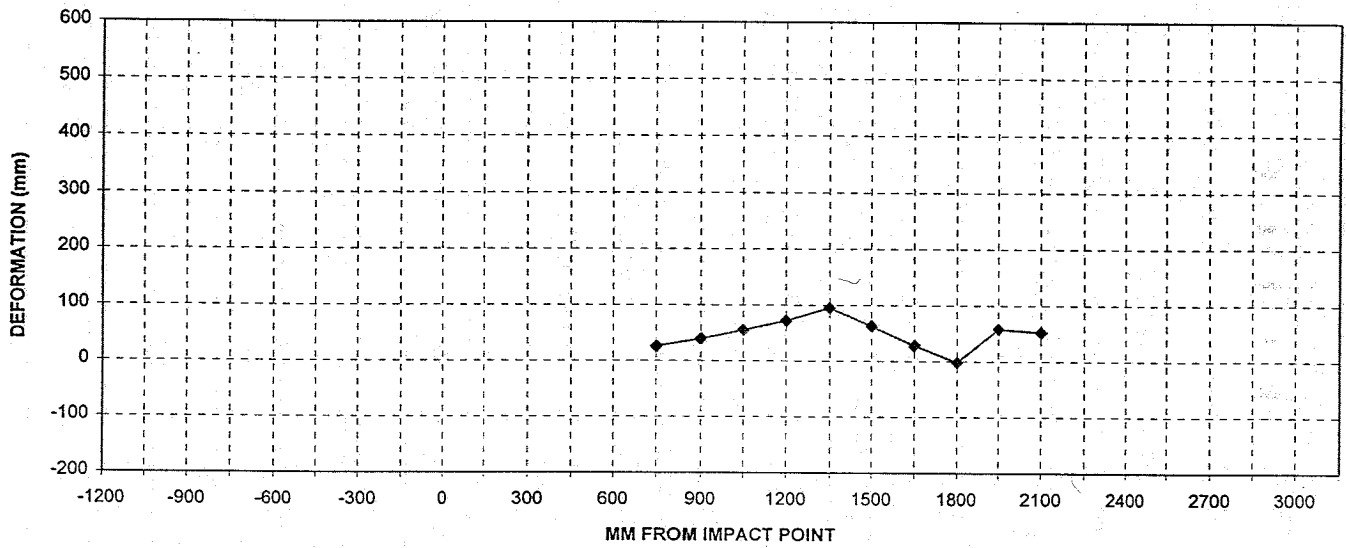
LEVEL 4 - WINDOW SILL

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

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750	943	969	26
900	944	983	39
1050	948	1003	55
1200	949	1021	72
1350	950	1045	95
1500	950	1013	63
1650	950	978	28
1800	949	947	-2
1950	950	1008	58
2100	965	1017	52
2250			
2400			
2550			
2700			
2850			
3000			

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

VEHICLE EXTERIOR STATIC CRUSH (Cont'd)



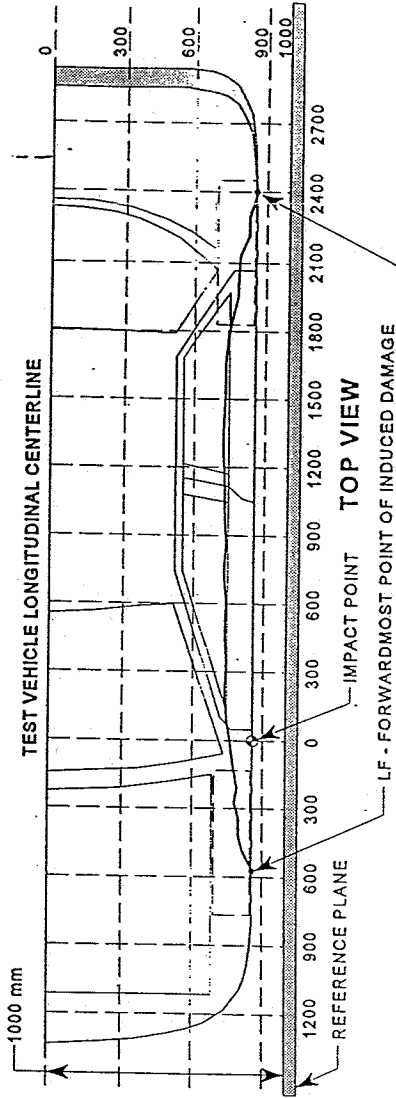
LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11  
VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

NOTE: All measurements are in millimeters (mm) and should be accurate to  $\pm 3$ mm.



MEASUREMENT CONVENTIONS: LR - REARWARDMOST POINT OF INDUCED DAMAGE  
Forward of the impact point (towards front of vehicle) is considered negative (-).  
Rearward of the impact point (toward rear of vehicle) is considered positive (+).

Maximum Crush Depth: 540 mm    1591 mm behind front spindle    410 mm above ground

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (RF = <u>-1050</u> mm)	834	824	10
2. <u>-232</u> mm	770	725	45
3. <u>562</u> mm	1133	660	473
4. <u>1457</u> mm	1058	640	418
5. <u>2330</u> mm	778	715	63
6. (LR = <u>3150</u> mm)	773	768	5

DATA SHEET NO. 12

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

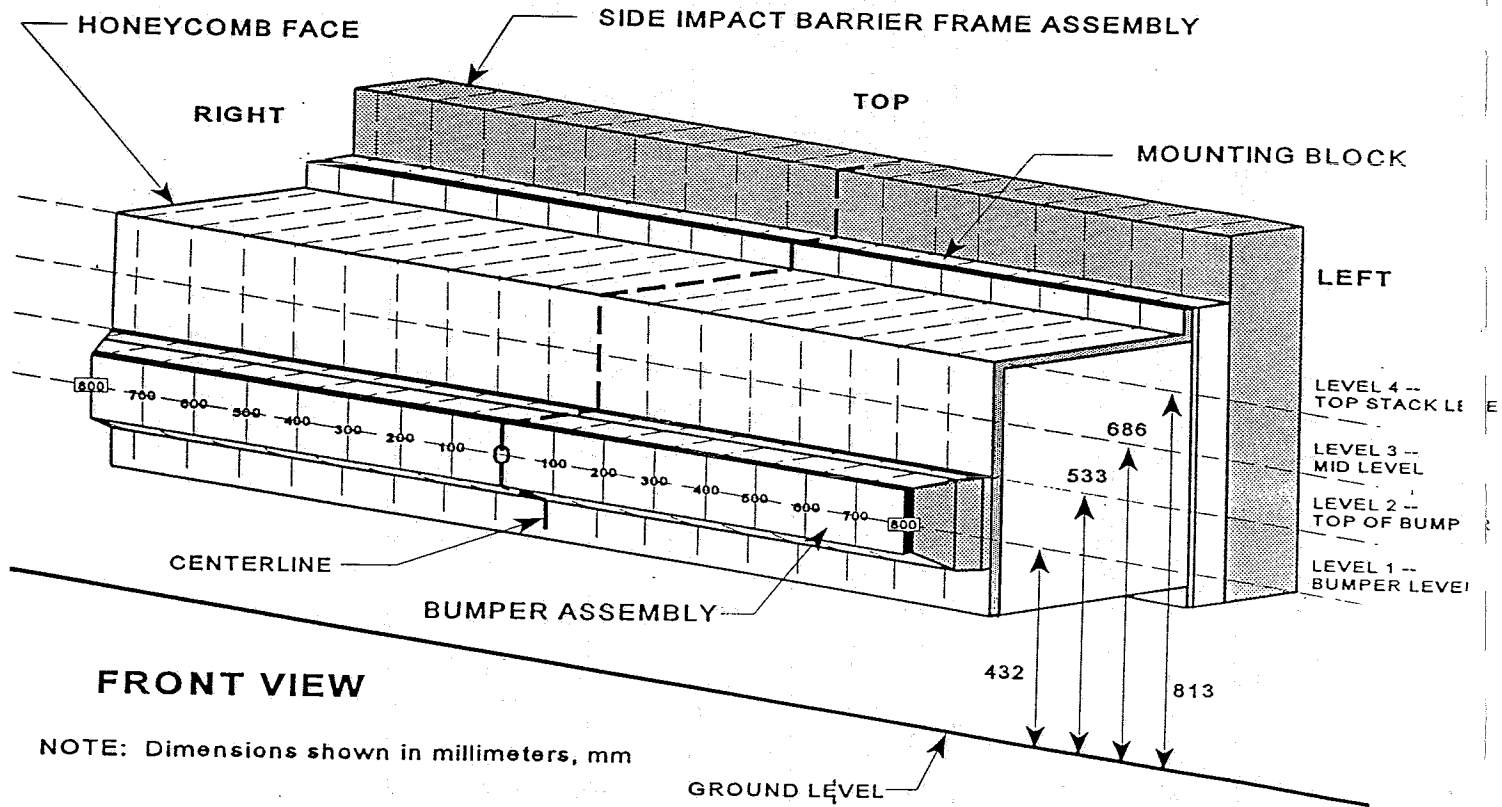
Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

Location	Height at CL*	Distance Right of Center (mm)								Distance Left of Center (mm)								
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level 4	813 mm	1	0	1	2	2	1	1	1	1	1	2	5	10	22	46	89	140
Mid Level Level 3	686 mm	0	0	-1	-1	-1	0	-1	-1	0	-1	0	1	13	14	19	47	102
Top Bumper Level 2	533 mm	-4	-3	-3	-1	4	9	12	14	14	15	18	23	27	35	26	50	95
Mid Bumper Level 1	432 mm	-5	-3	0	4	14	15	20	24	25	30	34	40	46	60	83	119	154

See next page for Barrier Face Graphic

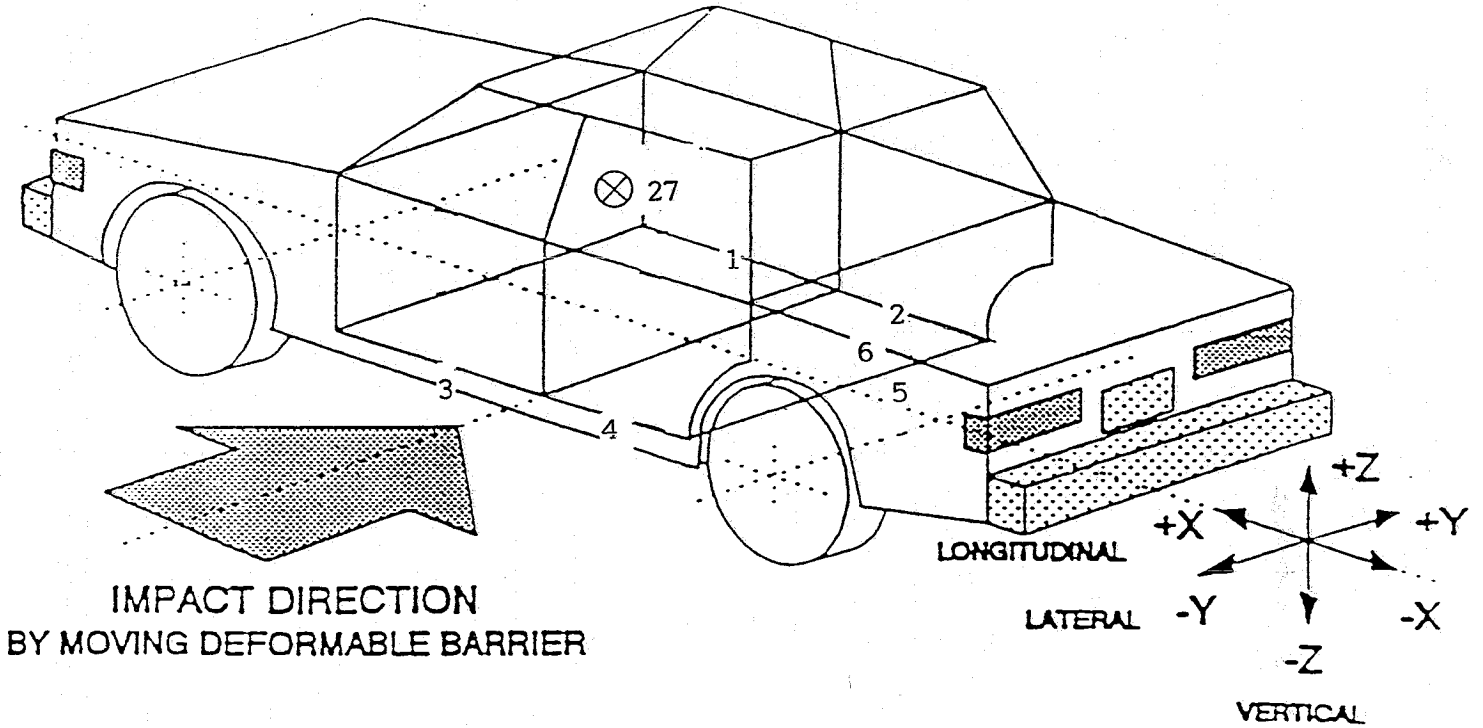
DATA SHEET NO. 12 (Cont'd)



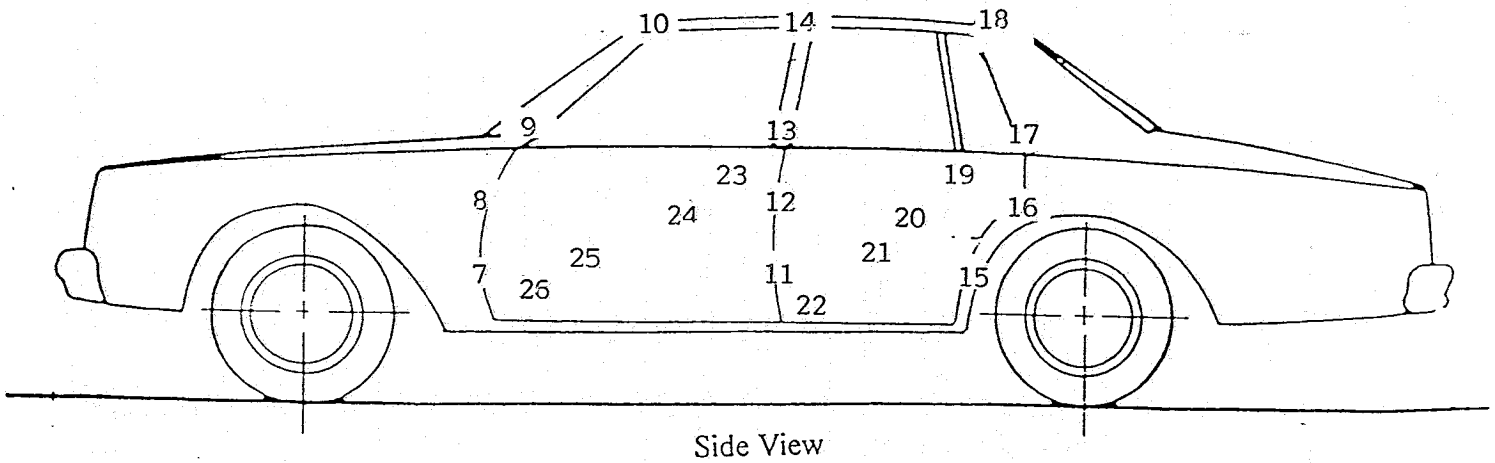
DATA SHEET 13  
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997



IMPACT DIRECTION  
BY MOVING DEFORMABLE BARRIER



Side View

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

Accel. No.	Description	Coordinates (mm)*			Long. (X) Maximums (g's)		Lat. (Y) Maximums (g's)		Vert. (Z) Maximums (g's)		Resultant (g's)
		X	Y	Z	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
1	Right Side Sill @ Front Seat	2770	645	208	2.9	4.4	12.1	3.1	---	---	Max.
2	Right Side Sill @ Rear Seat	1498	660	198	5.0	2.7	14.8	4.2	---	---	---
3	Left Side Sill @ Front Seat <sup>①</sup>	2777	-645	224	36.7	19.6	21.3	.8	---	---	---
4	Left Side Sill @ Rear Seat <sup>②</sup>	1516	-660	208	12.4	20.1	29.3	4.5	---	---	---
5	Rear Floorpan above axle	1063	0	280	2.8	12.4	24.3	3.5	---	---	---
6	Right Rear Occupant Compartment	1930	392	306	3.5	11.2	13.8	2.5	---	---	---
7	Left Side Sill at Base of A-Pillar (interior surface)	3173	-696	483	8.9	11.4	15.7	1.4	---	---	---
8	Lower mid A-Pillar (interior surface)	3265	-768	842	---	---	35.4	27.6	---	---	---
9	Mid A-Pillar (interior surface)	3106	-670	1028	12.5	13.6	12.5	11.0	---	---	---
10	Upper A-Pillar at Roof Rail (interior surface)	2705	-542	1254	---	---	20.1	6.4	---	---	---
11	Left Side Sill at Base of B-Pillar (interior surface)	2130	-770	337	128.3	130.2	175.6	145.0	---	---	---
12	Lower Mid B-Pillar (interior surface)	2194	-766	851	---	---	116.1	32.6	---	---	---
13	Mid B-Pillar (interior surface)	2154	-674	1078	13.8	42.3	79.5	35.1	---	---	---
14	Upper B-Pillar at Roof Rail (interior surface) <sup>③</sup>	2119	-514	1354	---	---	35.1	21.4	---	---	---

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

① Wire cut @ 50 msec - Y

② Wire cut @ 108 msec - Y

③ Wire cut @ 65 msec - Y

## TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY (Cont'd)

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.	
15	Left Side Sill @ Base of C-Pillar (interior surface)	1444	-758	464	23.9	16.3	53.4	8.2	---	---	---
16	Lower Mid C-Pillar (interior surface)	1374	-762	586	---	---	52.1	10.8	---	---	---
17	Mid C-Pillar (interior surface)	1333	-696	1059	27.8	6.4	27.4	31.4	---	---	---
18	Upper Mid C-Pillar (interior surface)	1459	-564	1314	---	---	36.2	16.5	---	---	---
19	Left Rear Door Close to Arm Contact (interior surface)	1545	-774	859	---	---	49.3	94.6	---	---	---
20	Left Rear Door Close to Pelvis Contact (interior surface)	1612	-776	796	---	---	99.3	47.5	---	---	---
21	Left Rear Door Close to Knee Contact (interior surface)④	1873	-772	617	---	---	61.6	43.6	---	---	---
22	Left Rear Door Close to Lower Leg Contact (interior surface)	2097	-770	497	---	---	177.8	75.8	---	---	---
23	Left Front Door Close to Arm Contact (interior surface)	2389	-760	824	---	---	94.3	47.7	---	---	---
24	Left Front Door Close to Pelvis Contact (interior surface)⑤	2509	-770	637	---	---	129.1	35.5	---	---	---
25	Left Front Door Close to Knee Contact (interior surface)	2852	-762	562	---	---	186.7	61.0	---	---	---
26	Left Front Door Close to Lower Leg Contact (interior surface)	3013	-764	468	---	---	87.6	101.5	---	---	---
27	Vehicle CG	2750	15	365	18.8	8.5	13.4	29.8	27.8	6.9	---

④No valid data after 75 msec.

⑤No valid data after 45 msec.

DATA SHEET NO. 13  
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY (Cont'd)

Vehicle CG Angular Velocities (Deg/Sec)		
	Maximum	Minimum
Pitch	349.1	-437.2
Roll*	511.3	547.0
Yaw	550.8	-551.1
Moving Barrier Angular Velocities (Deg/Sec)		
Pitch	468.6	-96.6
Roll	No Data Recorded	No Data Recorded
Yaw	36.6	-114.5

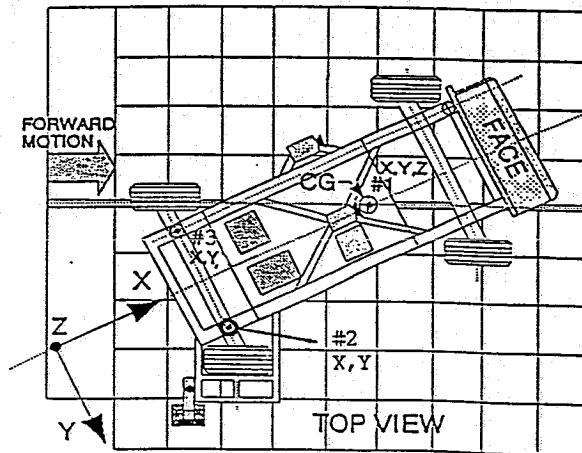
\* Data saturated @ 44 msec.

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997



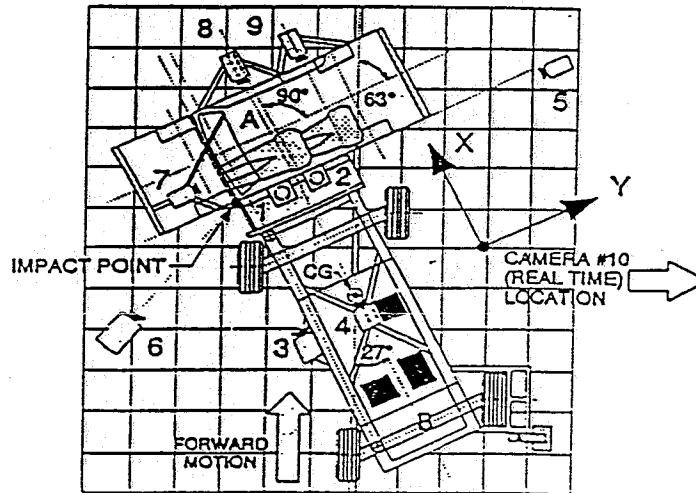
Accel. No.	Description	Coordinates (mm)*			(+ ) Positive		(- ) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	.9	158	12.1	83
	Lateral (Y)	---	---	---	14.7	89	5.3	70
	Vertical (Z)	---	---	---	18.3	52	16.6	189
	Resultant (R)	---	---	---	20.9	52	---	---
2	Right Rear Frame Member	-2591	625	622				
	Right Longitudinal (X)	---	---	---	2.5	171	9.1	43
	Right Lateral (Y)	---	---	---	4.5	59	2.6	62
3	Left Frame Member	-2591	-625	622				
	Left Longitudinal (X)	---	---	---	4.1	186	20.6	81
	Left Lateral (Y)	---	---	---	2.1	142	4.3	58

\*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: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
	Real Time					13	24
1	Left Impact	-600	-2620	1630	90°	13	1020
2	Onboard Hood					13	1010
3	Onboard Front Passenger					8	952
4	Onboard Rear Passenger					8	952
5	Right Impact	-520	10590	1600	90°	25	1026
6	Top Overall	-285	1020	4850		8	1093
7	Top Impact	-170	-290	5000		13	952
8	Cart Wide					13	1020
9	Cart Impact					35	1020

\* Reference: (from impact point)

+X = Forward

+Y = To Right

+Z = Upward from floor level

DATA SHEET 16  
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

TEST REQUIREMENTS:

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

TEST VEHICLE IMPACT TYPE:  X  Side Impact MDB 39.8 mph (64.1 kph)

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATION(S): None

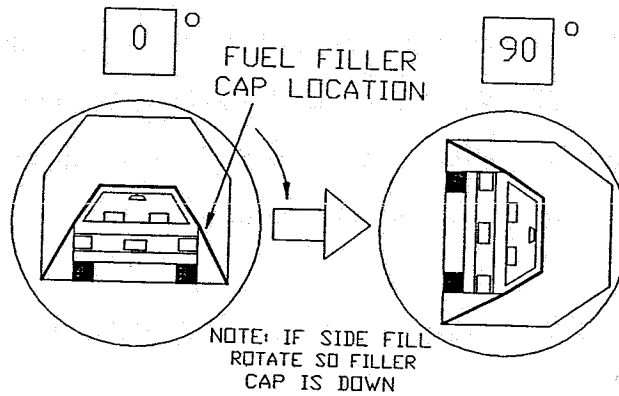
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes      47 seconds  
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes      0 seconds

TOTAL TIME = 7 minutes      47 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

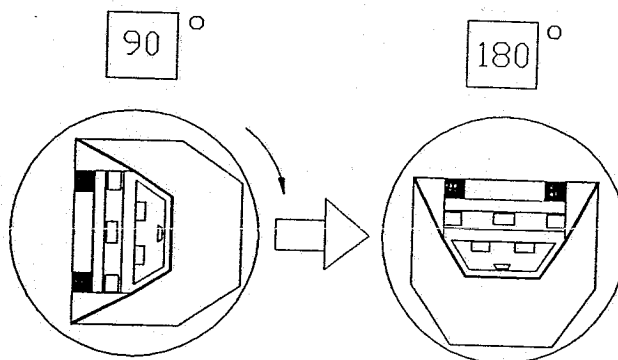
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Test Date: March 11, 1997

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 52 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 52 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

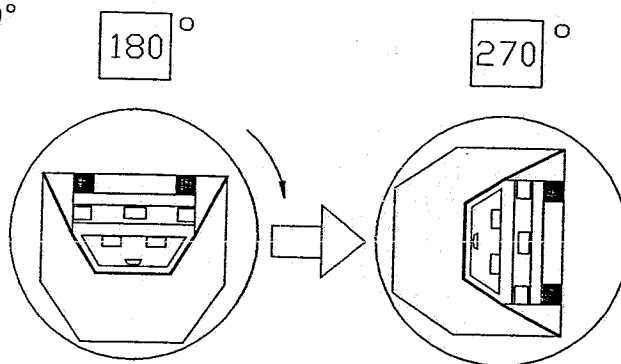
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Vehicle NHTSA No.: CV5300 Test Date: March 11, 1997

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 16 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 16 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

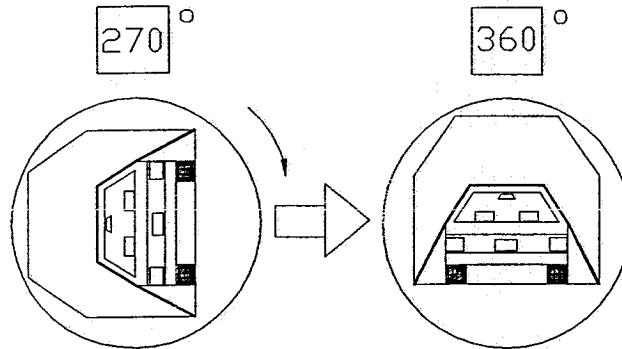
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1991/Ford/Taurus/4 Door

Vehicle NHTSA No.: CV5300 Test Date: March 11, 1997

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 40 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 40 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S): None

APPENDIX A - PHOTOGRAPHS

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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

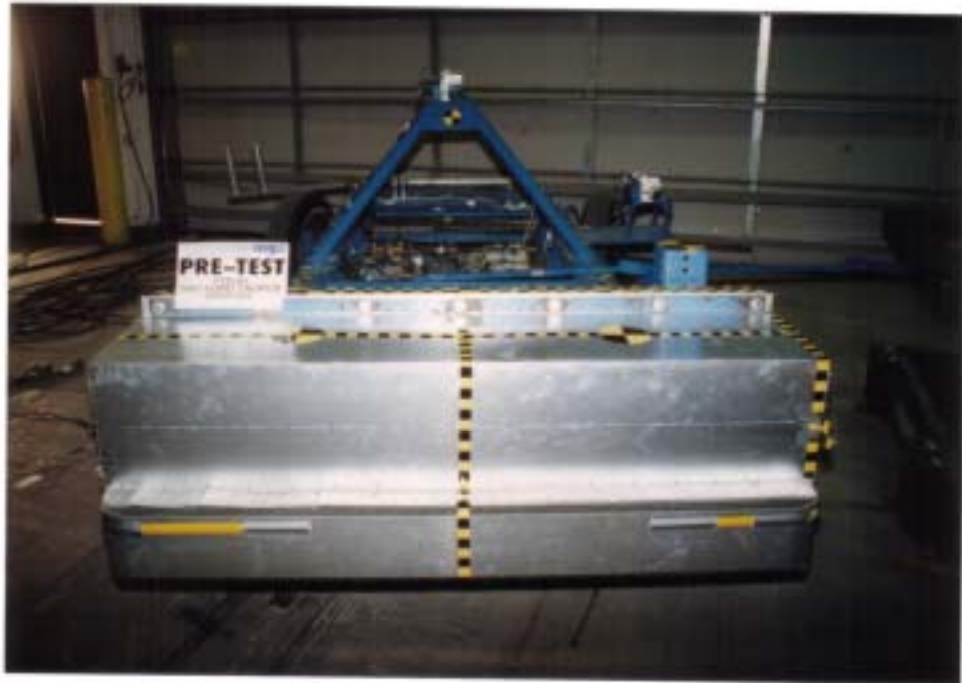


Photo No. A-15 - Pre-Test MDB Front View



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



Photo No. A-33 - Pre-Test Rear Passenger Dummy Right Side View



Photo No. A-34 - Post-Test Rear Passenger Dummy Right Side View



Photo No. A-35 - Pre-Test Rear Passenger Dummy Right Side View (Door Open)



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



Photo No. A-37 - Post-Test Rear Passenger Dummy Shoulder and Door Top View



Photo No. A-38 - Post-Test Rear Passenger Dummy Contact



Photo No. A-39 - Post-Test Rear Passenger Dummy Head Contact



Photo No. A-40 - Pre-Test Right Front Impact Point on Vehicle



Photo No. A-41 - Post-Test Right Front Impact Point on Vehicle



Photo No. A-42 - Impact





Photo No. A-45 - Rollover 90°



Photo No. A-46 - Rollover 180°



Photo No. A-47 - Rollover 270°



Photo No. A-48 - Rollover 360°



Photo No. A-49 - Left Front Attitude Point



Photo No. A-50 - Right Front Attitude Point



Photo No. A-51 - Left Rear Attitude Point



Photo No. A-52 - Right Rear Attitude Point



Photo No. A-53 - Post-Test Impact Point



Photo No. A-54 - Post-Test Front Door Upper Hinge Pin Failure



Photo No. A-55 - Pre-Test Left Lower A-Post



Photo No. A-56 - Pre-Test Left Mid and Upper A-Post Accelerometer



Photo No. A-57 - Pre-Test Left Lower B-Post Accelerometer



Photo No. A-58 - Pre-Test Left Mid and Upper C-Post Accelerometer



Photo No. A-59 - Pre-Test Rear Occupant Accelerometer



Photo No. A-60 - Pre-Test Rear Door Accelerometer Locations

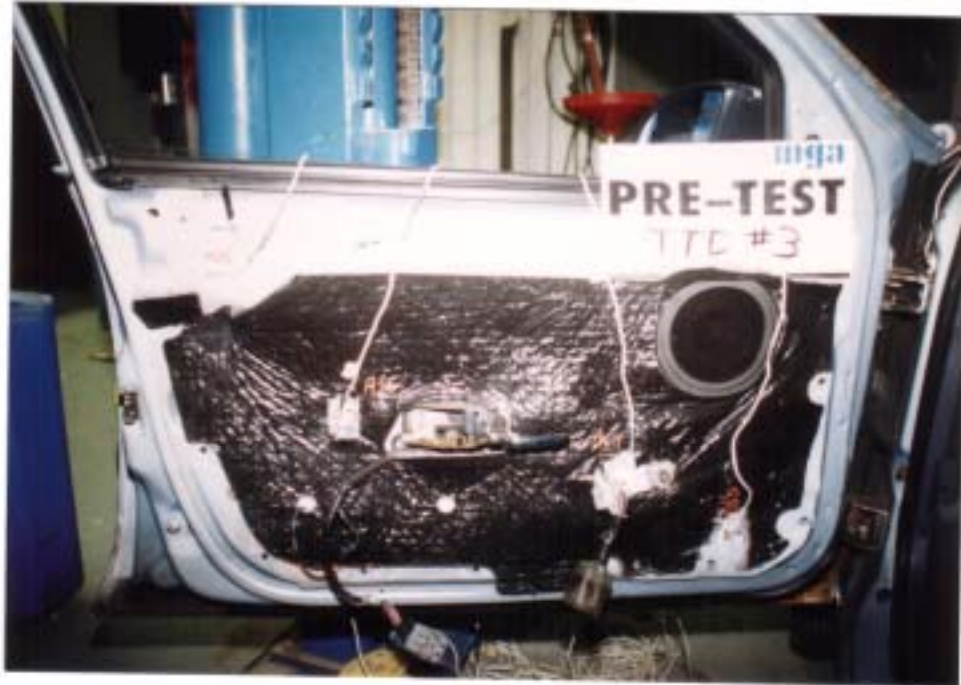


Photo No. A-61 - Pre-Test Front Door Accelerometer Locations



Photo No. A-62 - Post-Test Rear Door Upper Hinge Pin Failure



Photo No. A-63 - Pre-Test Left Lower C-Post



Photo No. A-64 - Pre-Test Left Upper B-Post



Photo No. A-65 - Pre-Test Left Mid B-Post

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Velocity (filter class 180)  
Acceleration (filter class 60)

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\* No valid data collected

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TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

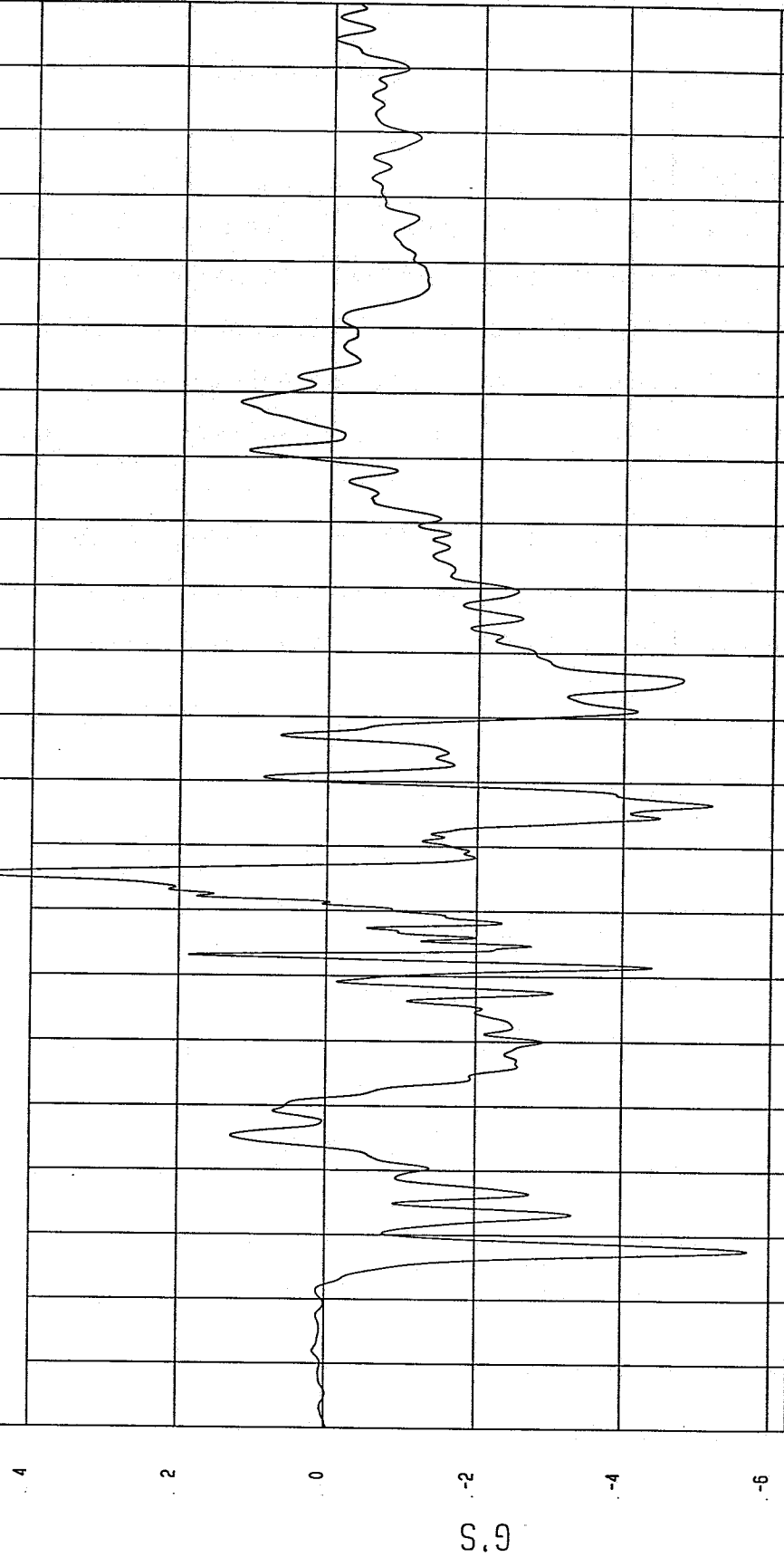
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Minimum = -5.70 G'S at 8 msec

Maximum = 4.72 G'S at 65 msec

RIGHT SIDE SILL AT FRONT SEAT X ACCELERATION

1 ——— B97037AF.A32 Filterclass (180)



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

TIME (SECONDS)

NSA Research  
04-04-1997 14:41

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

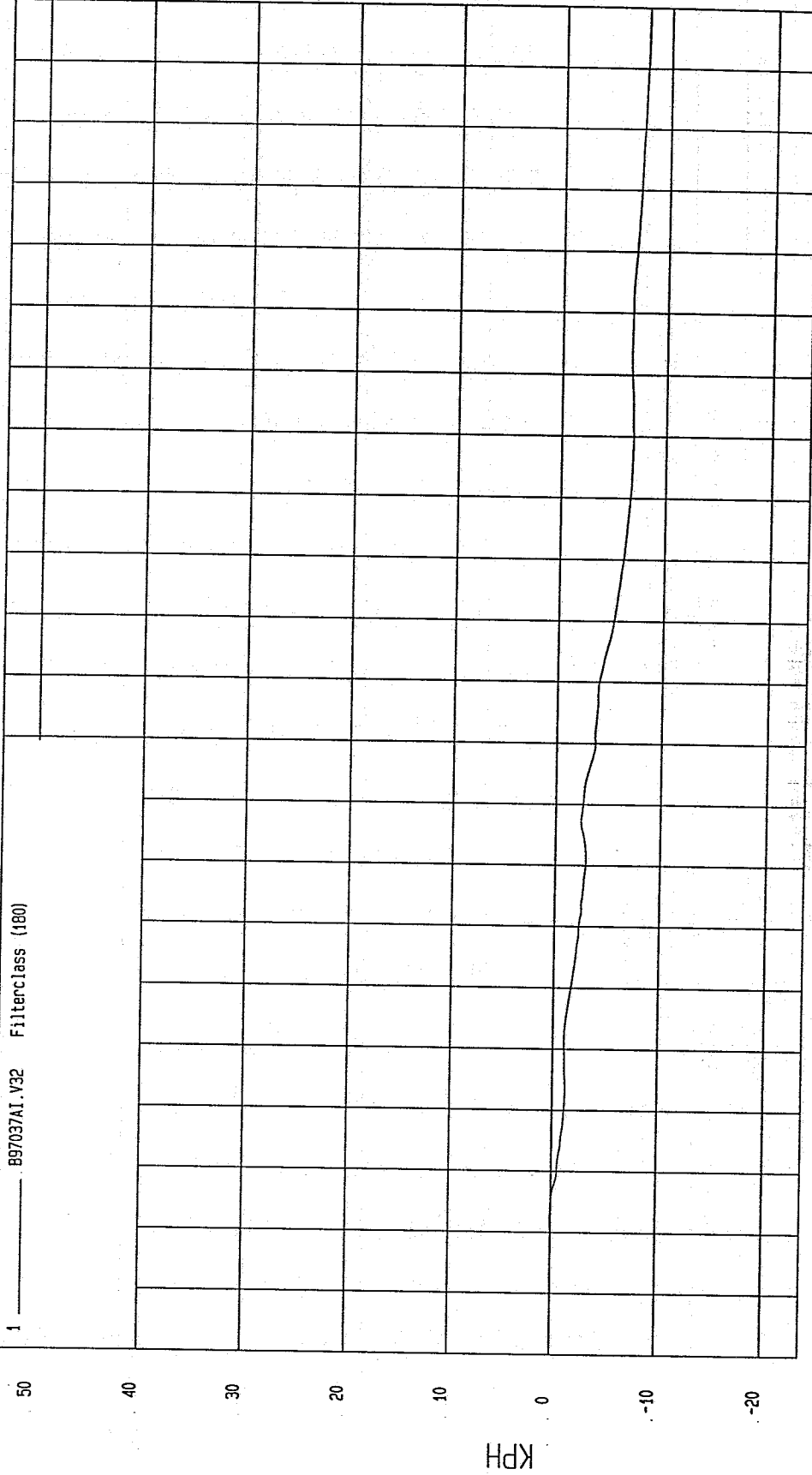
Speed: 39.83 MPH 64.1 KPH

Minimum = -7.88 KPH at 200 msec

Maximum = 4.93E-02 KPH at 2 msec

RIGHT SIDE SILL AT FRONT SEAT X VELOCITY

1 \_\_\_\_\_ B97037A1.V32 Filterclass (180)



MCA Research  
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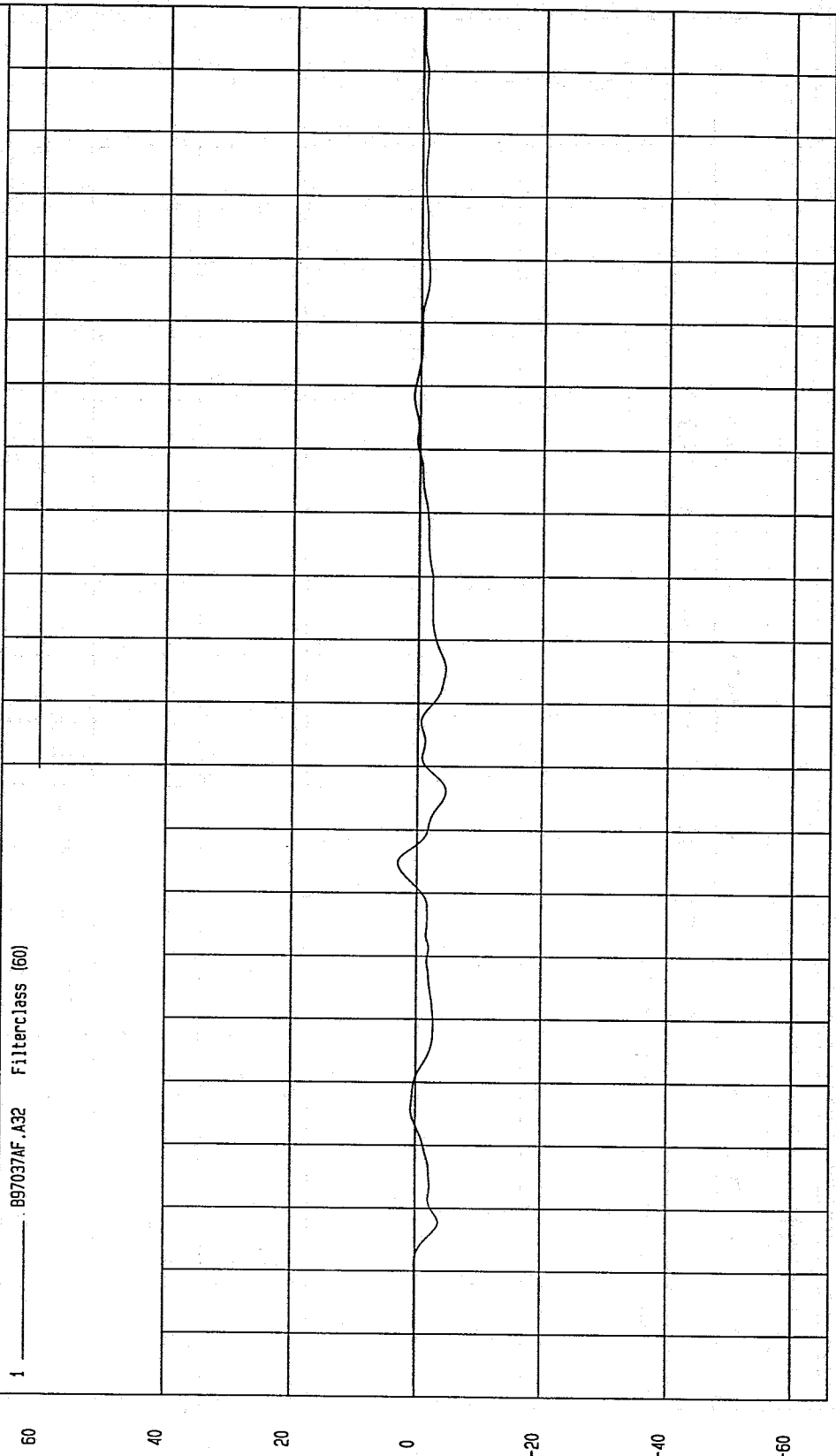
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.40 G'S at 76 msec  
Maximum = 2.91 G'S at 65 msec

RIGHT SIDE SILL AT FRONT SEAT X ACCELERATION

1 \_\_\_\_\_ 897037AF.A32 Filterclass (60)



60  
40  
20  
0  
-20  
-40  
-60  
G.S

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

NCA Research  
04-04-1997 14:49

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

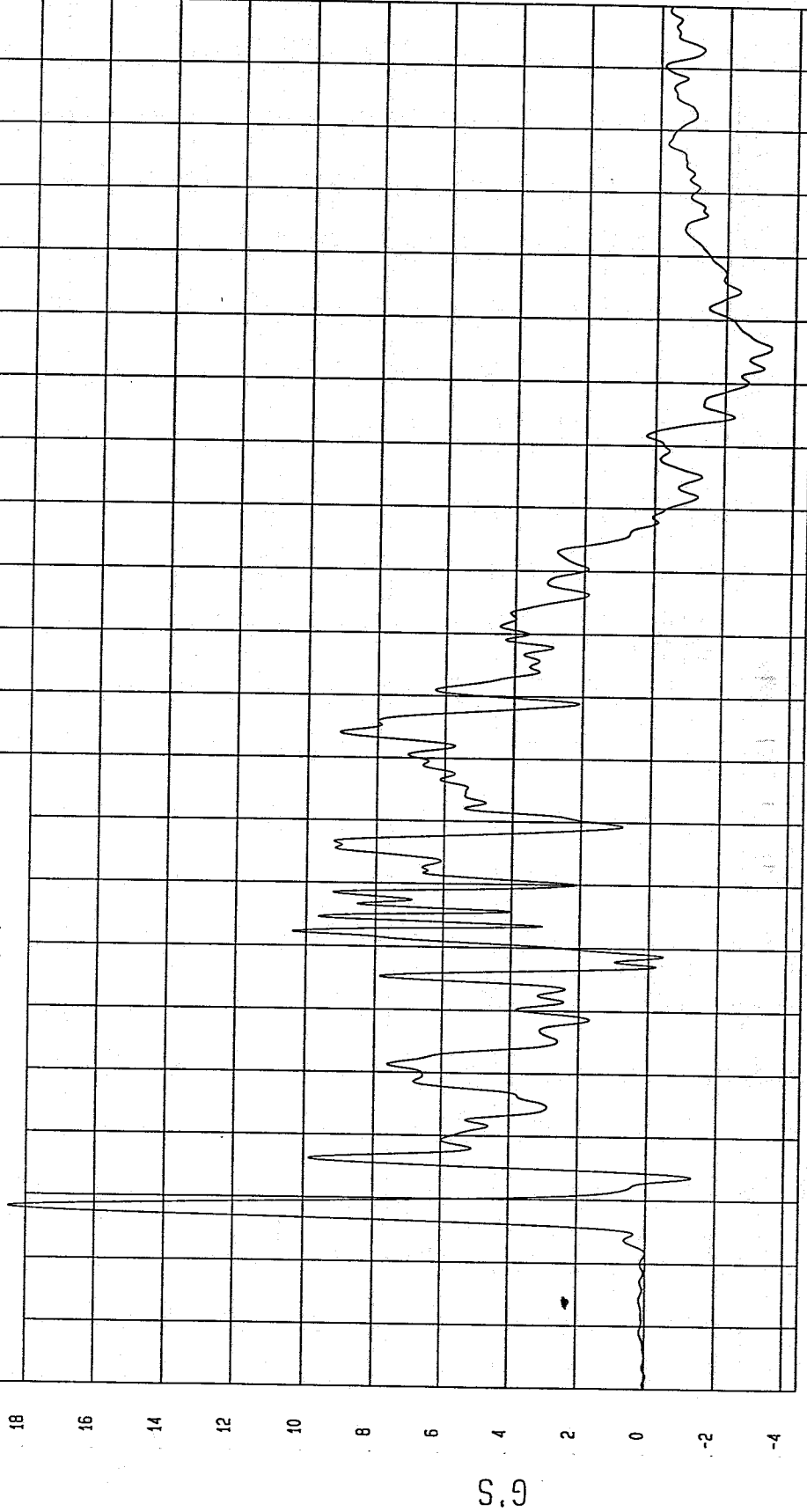
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.32 G'S at 146 msec

Maximum = 18.50 G'S at 8 msec

RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION

1 B97037AF.A33 Filterclass (180)



MCA Research  
04-04-1997 14: 41

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

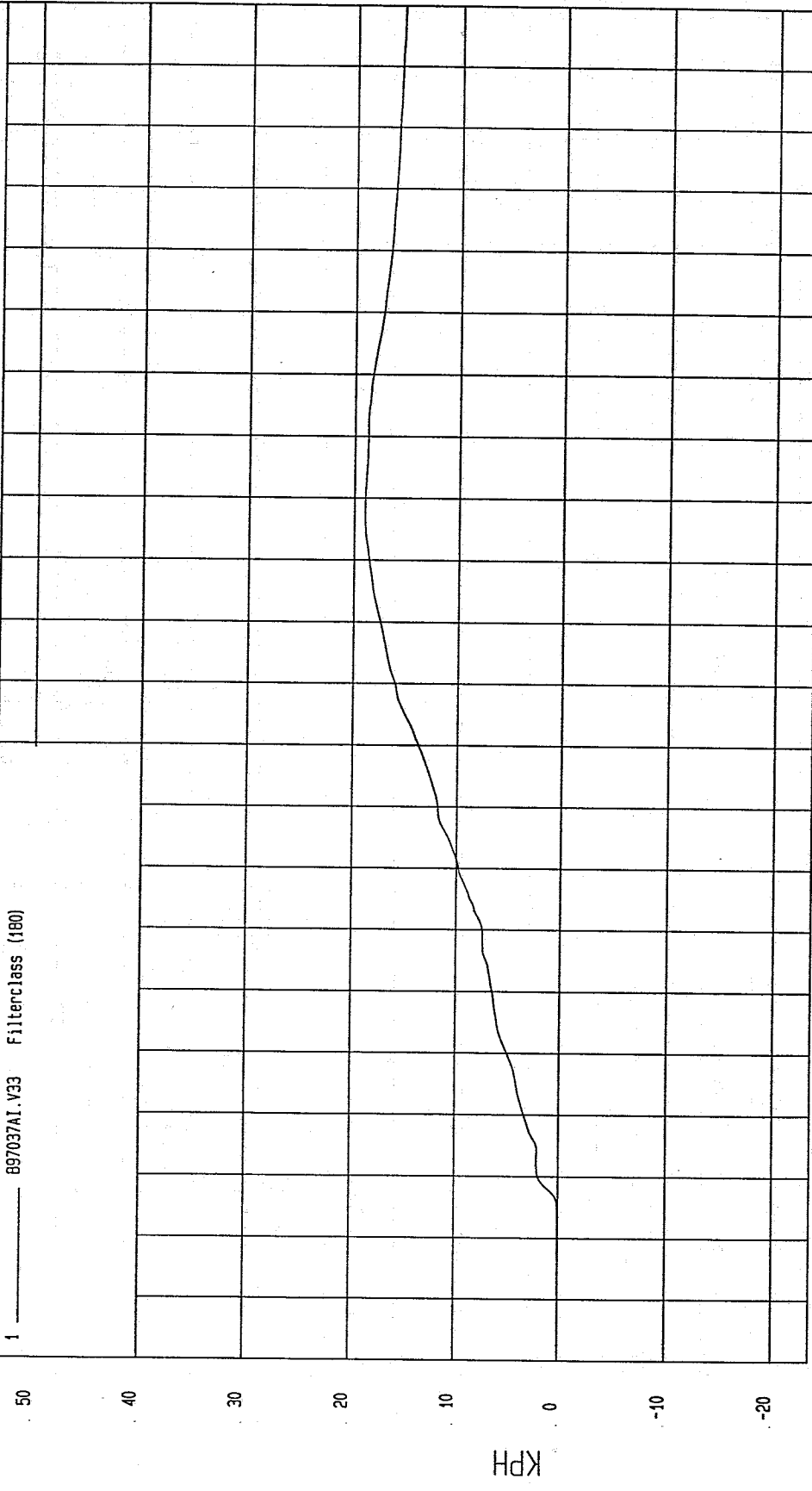
Speed: 39.83 MPH 64.1 KPH

Minimum = 0 KPH at -20 msec

Maximum = 18.96 KPH at 118 msec

RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY

1 ——— B97037A1.V33 Filterclass (180)



NSA Research  
03-04-1997 14:38

TIME Seconds

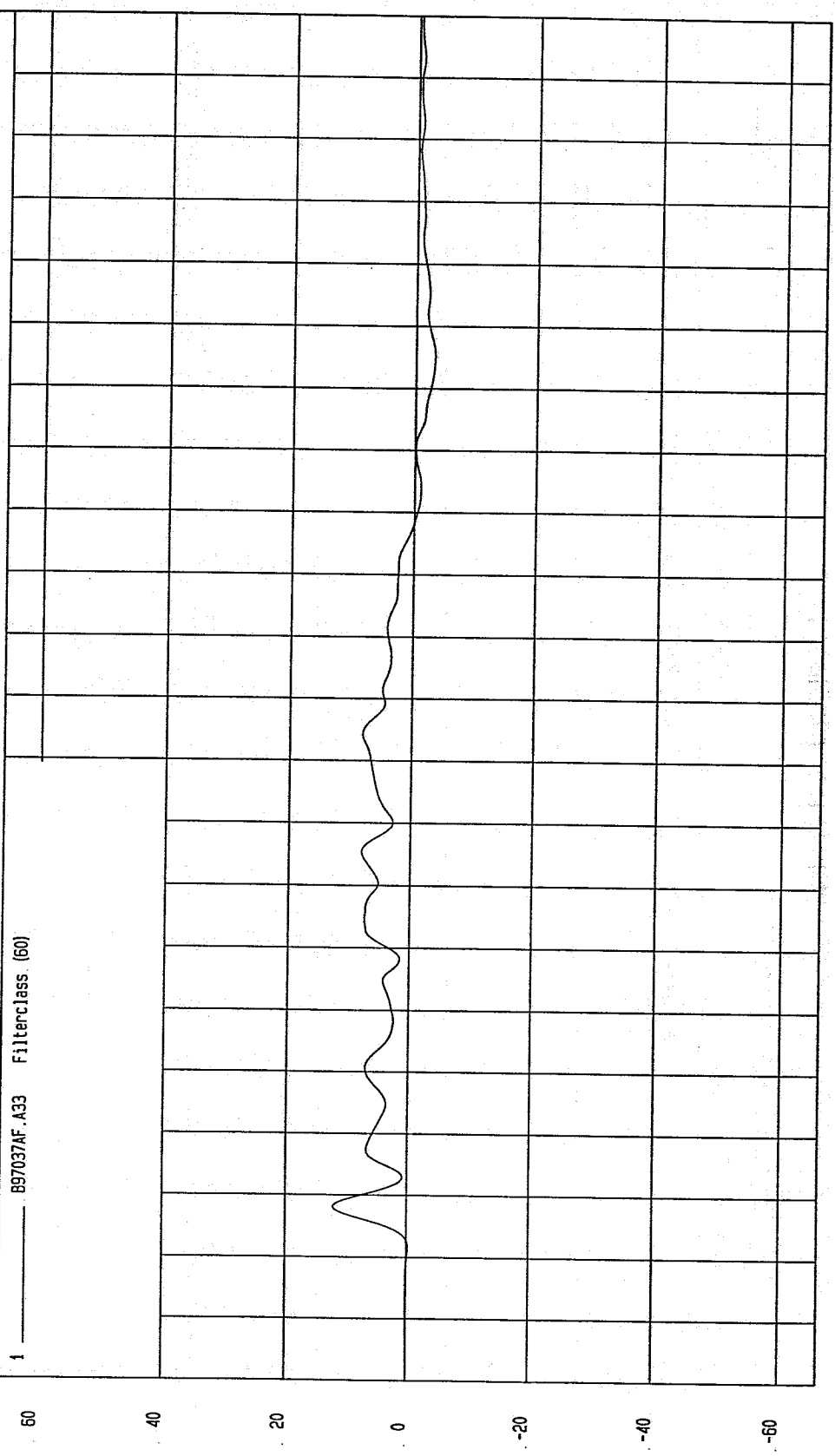
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COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.06 G'S at 145 msec  
Maximum = 12.08 G'S at 8 msec

RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION

1 B97037AF.A33 Filterclass. (60)



NSI Research  
04-04-1997 14:49

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

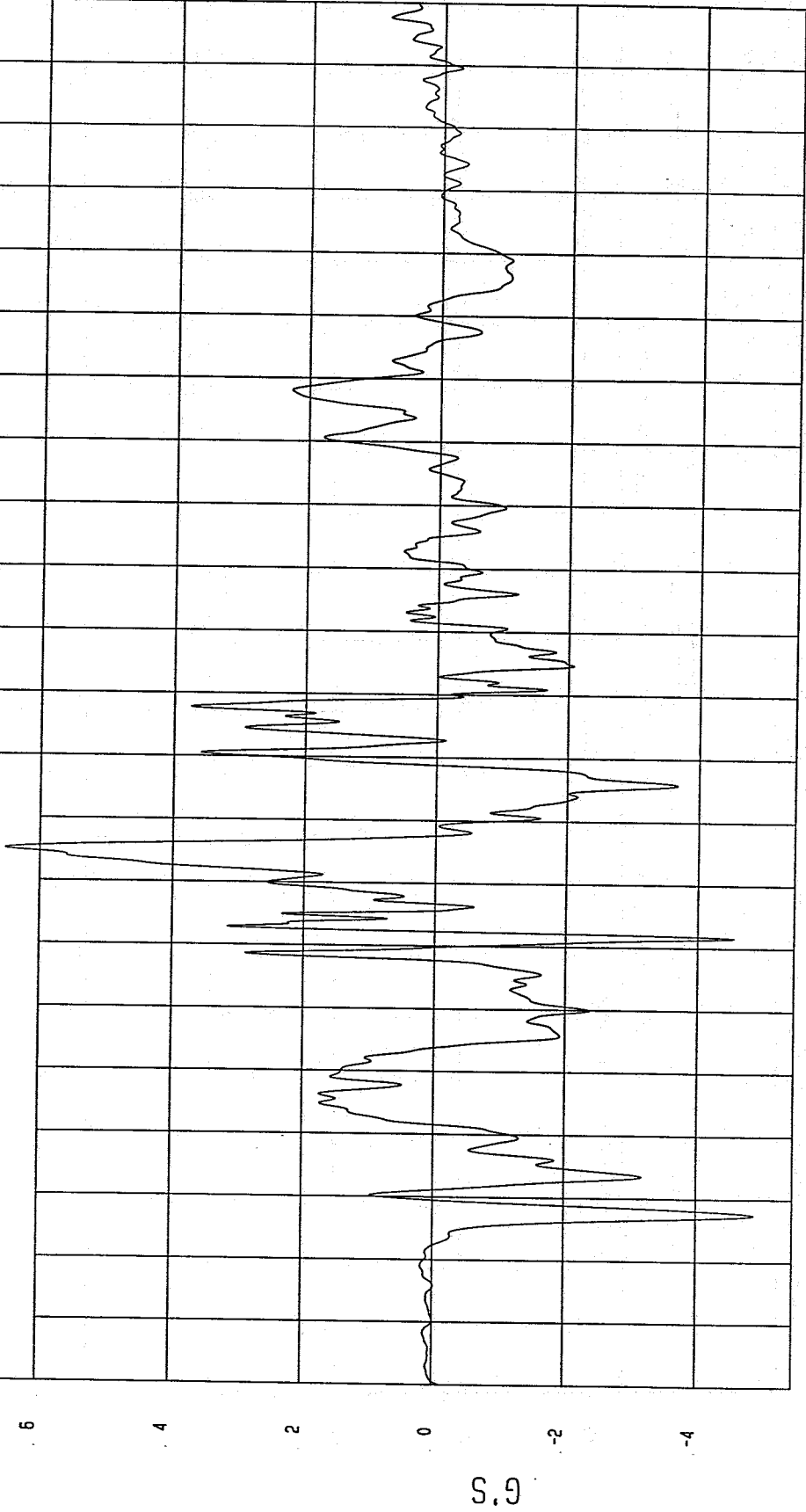
Speed: 39.83 MPH 64.1 KPH

Minimum = -4.85 G'S at 8 msec

Maximum = 6.50 G'S at 65 msec

RIGHT SIDE SILL AT REAR SEAT X ACCELERATION

1 897037AF.A35 Filterclass (180)



MGA Research  
04-04-1997 1A: 41

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

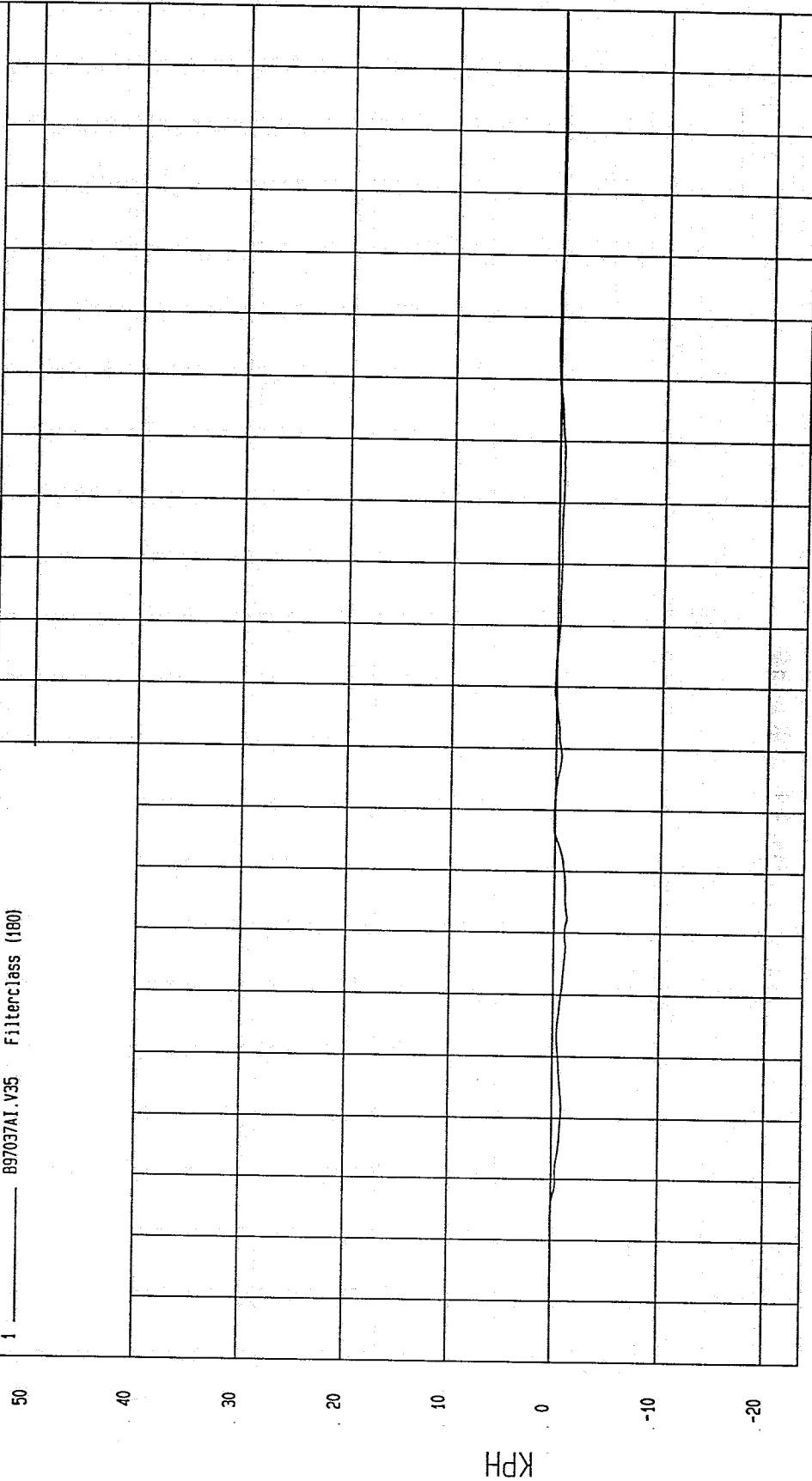
Speed: 39.83 MPH 64.1 KPH

Minimum = -1.20 KPH at 52 msec

Maximum = .18 KPH at 89 msec

RIGHT SIDE SILL AT REAR SEAT X VELOCITY

1 \_\_\_\_\_ 897037AI.V35 Filterclass (180)



MGA Research  
04-04-1997 14:38

TIME Seconds

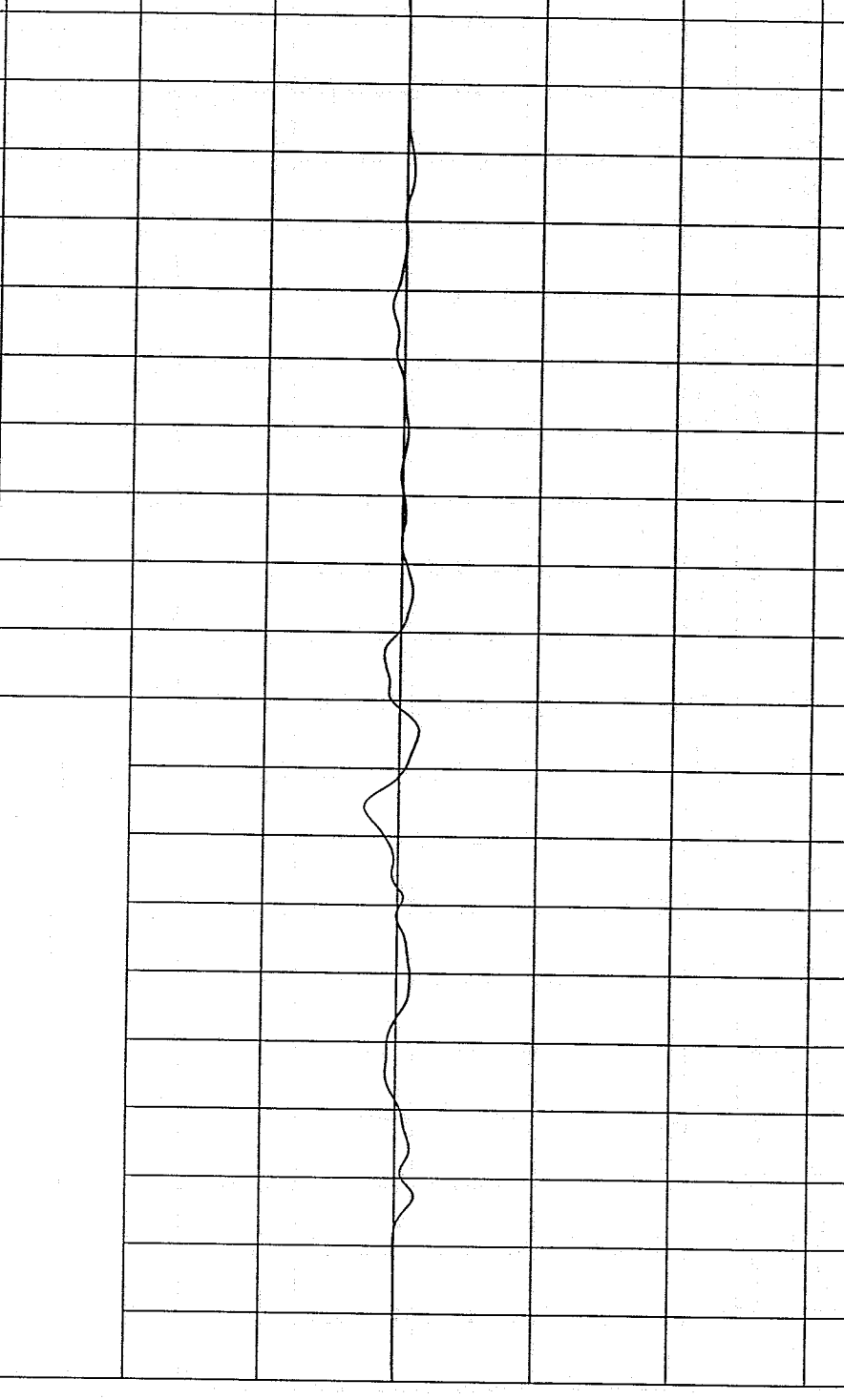
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -2.72 G'S at 76 msec Maximum = 5.04 G'S at 64 msec

RIGHT SIDE SILL AT REAR SEAT X ACCELERATION

1 897037AF.A35 Filterclass (60)



MCA Research  
04-07-1997 10:24

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

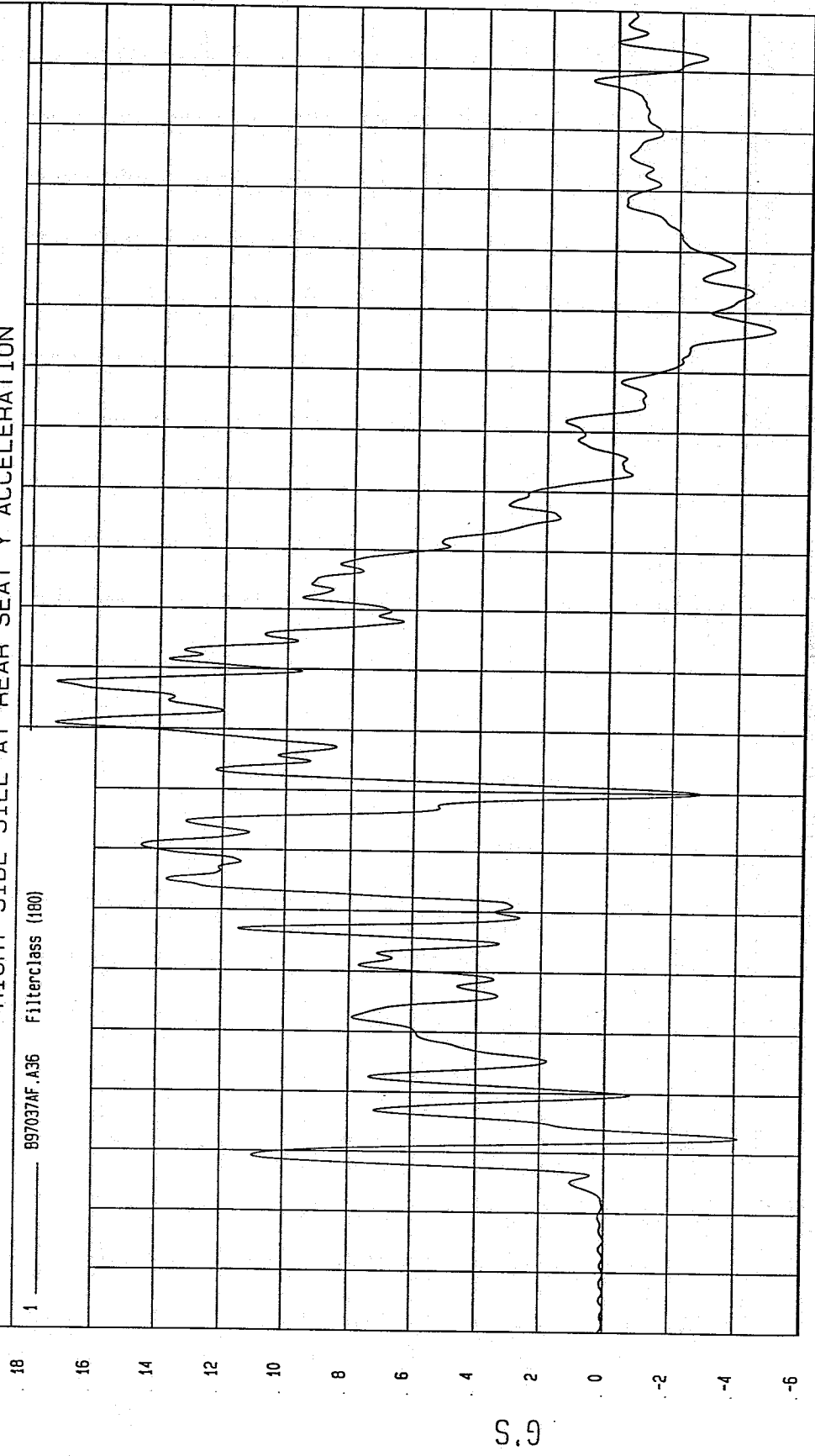
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.93 G'S at 147 msec

Maximum = 17.26 G'S at 81 msec

RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION

1 897037AF.A36 Filterclass (180)



MGA Research  
04-07-1997 10:24

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

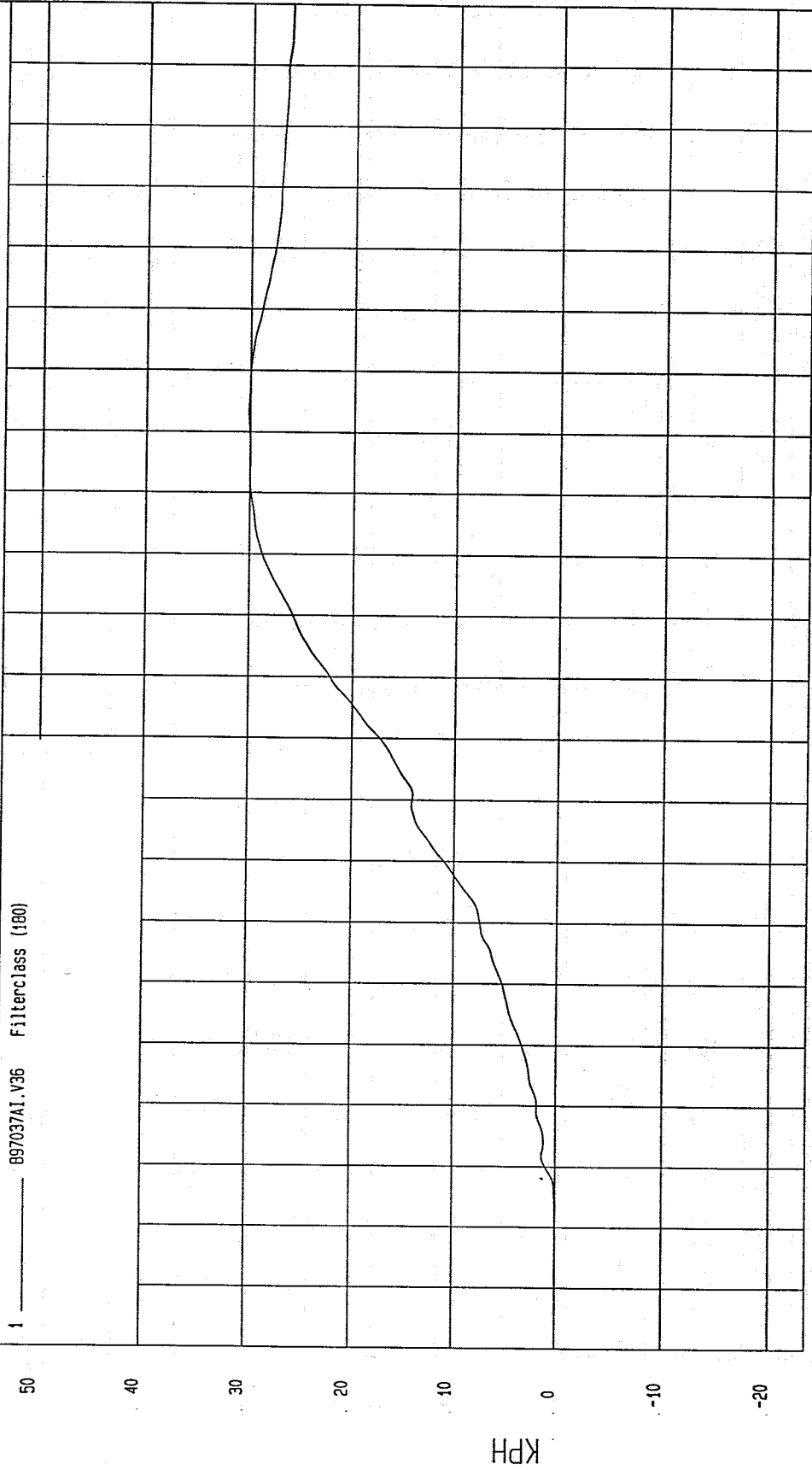
Speed: 39.83 MPH 64.1 KPH

Minimum = 0 KPH at -20 msec

Maximum = 30.16 KPH at 133 msec

RIGHT SIDE SILL AT REAR SEAT Y VELOCITY

1 ——— 897037AI.V36 Filterclass (180)



NGA Research  
04-07-1997 10:26

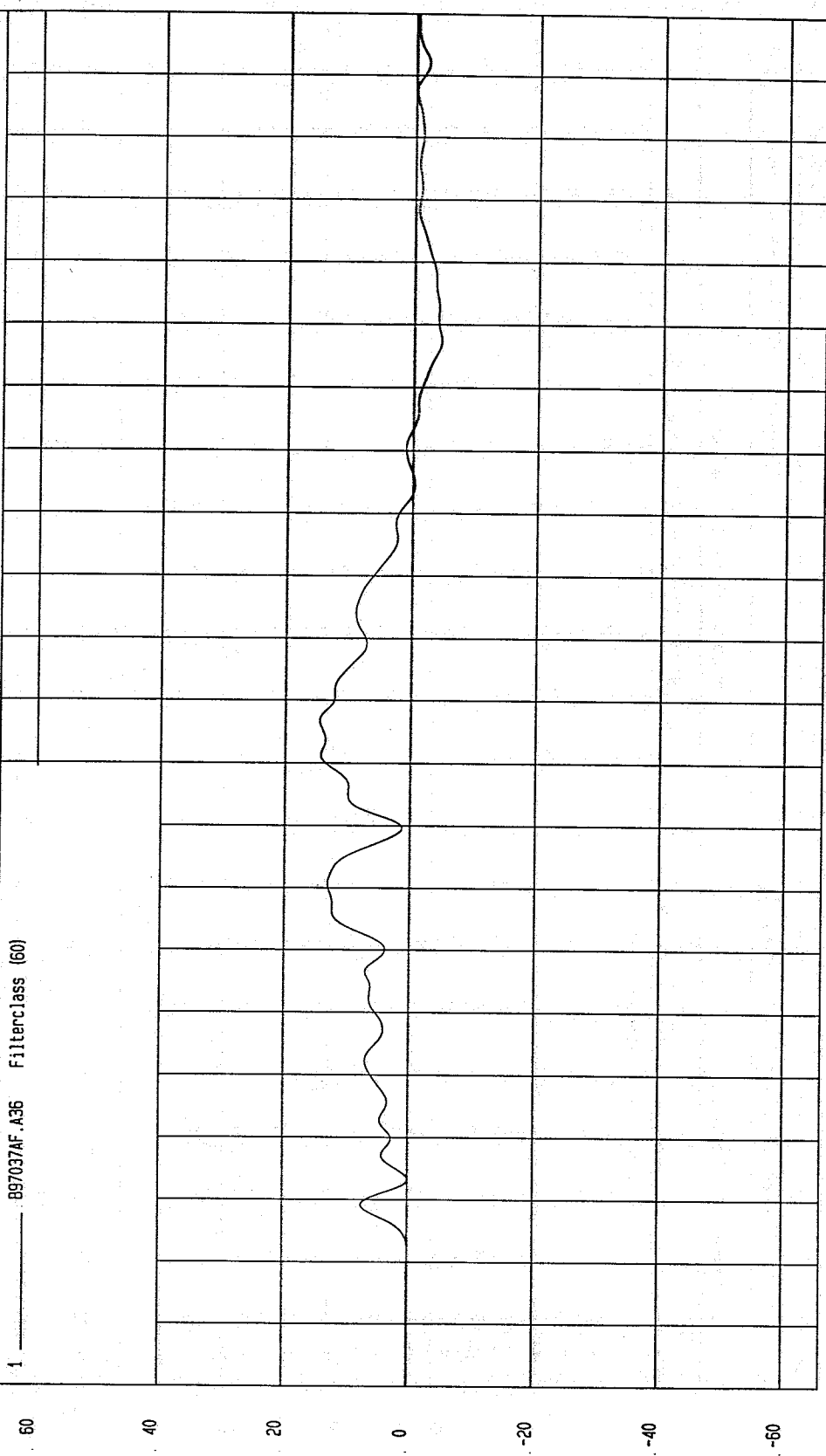
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.21 G'S at 147 msec Maximum = 14.79 G'S at 87 msec

RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION

1 ——— 897037AF.A36 Filterclass (60)



NGA Research  
0A-07-1997 10:24

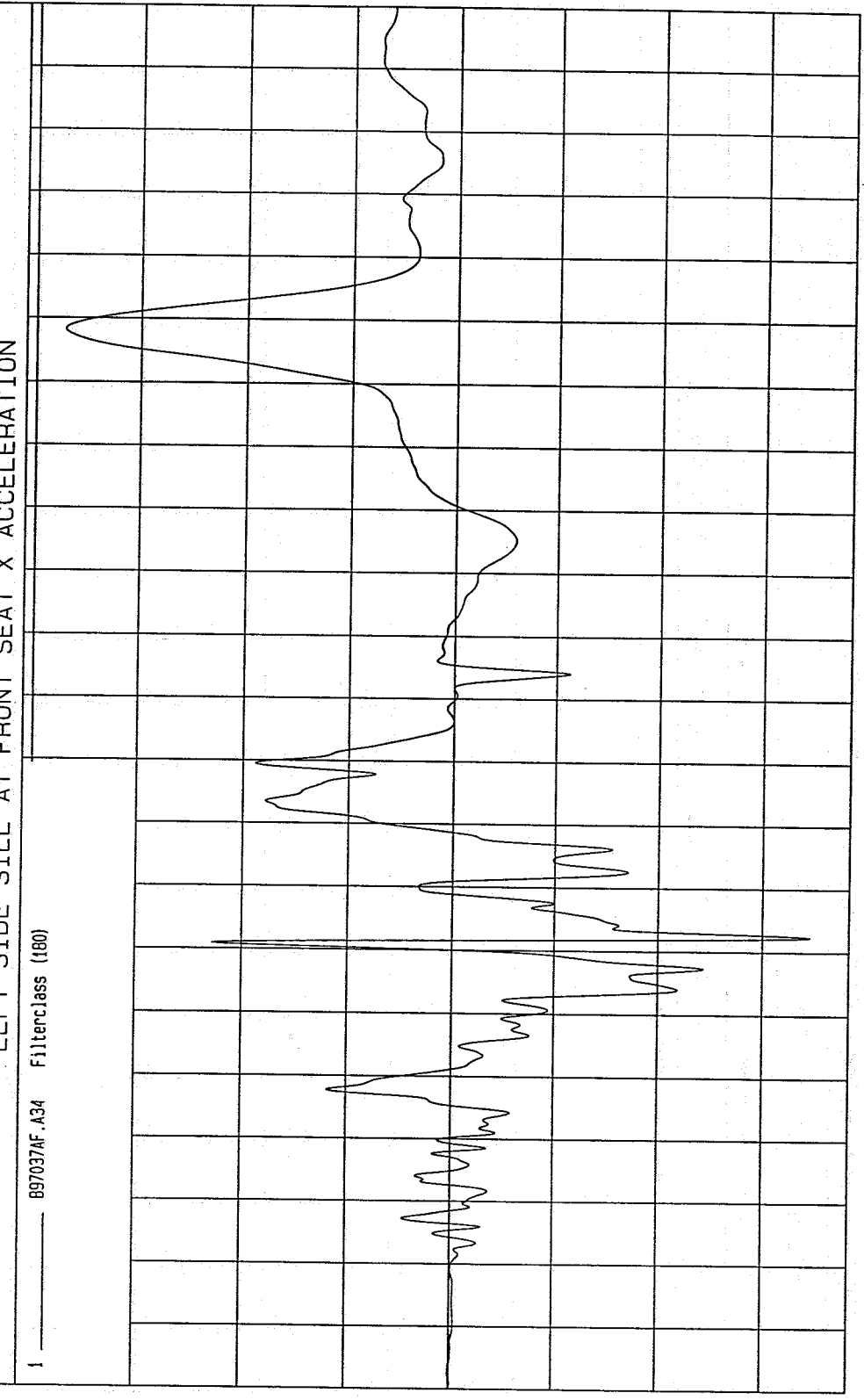
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -34.42 G'S at 52 msec Maximum = 37.33 G'S at 148 msec

LEFT SIDE SILL AT FRONT SEAT X ACCELERATION

1 897037AF.A34 Filterclass (180)



TIME (SECONDS)

WCA Research  
04-07-1997 10:32

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

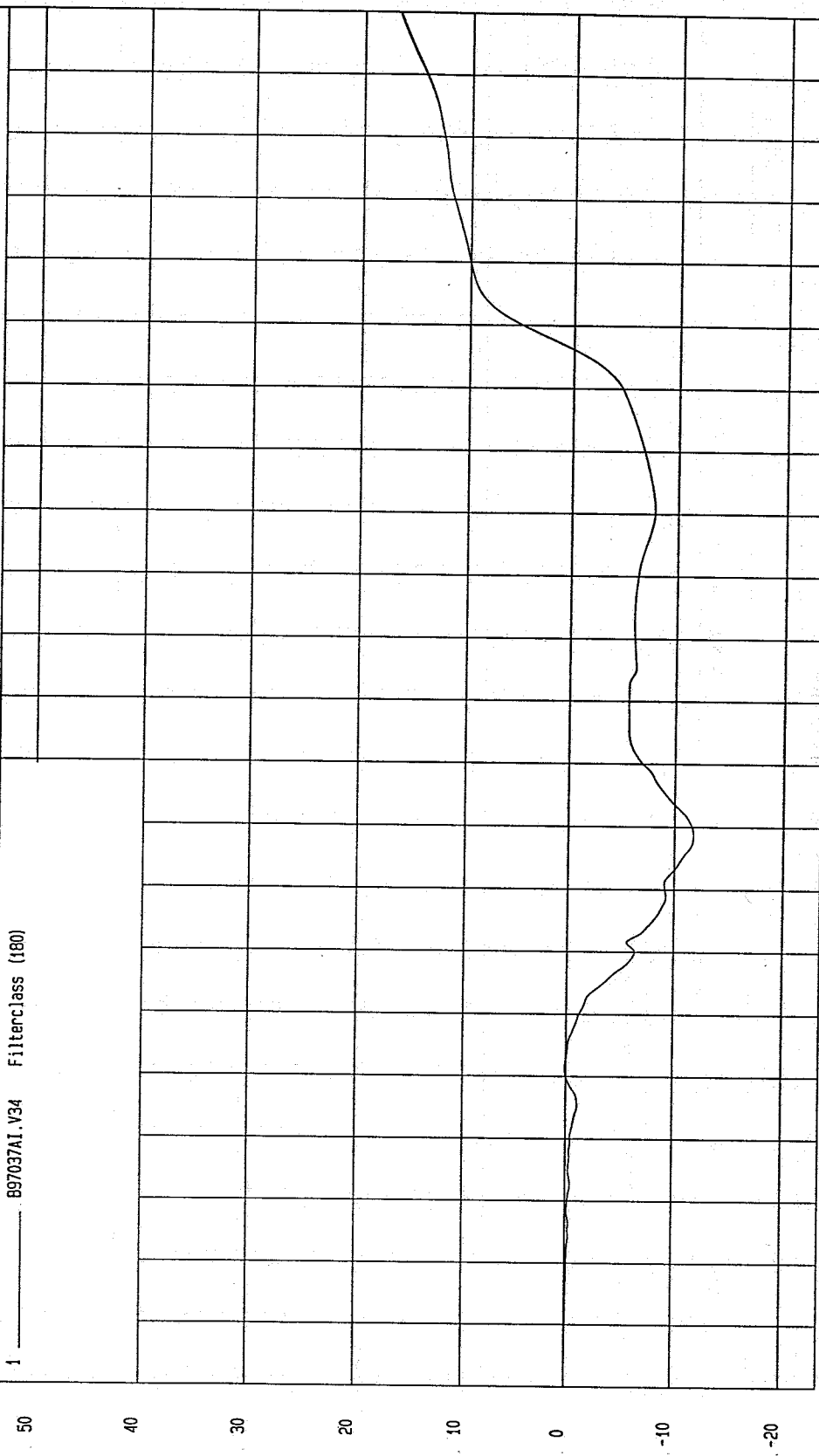
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -11.78 KPH at 69 msec

Maximum = 16.69 KPH at 200 msec

LEFT SIDE SILL AT FRONT SEAT X VELOCITY

1 \_\_\_\_\_ 897037AI.V34 Filterclass (180)



TIME Seconds

MGA Research  
04-07-1997 10:31

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

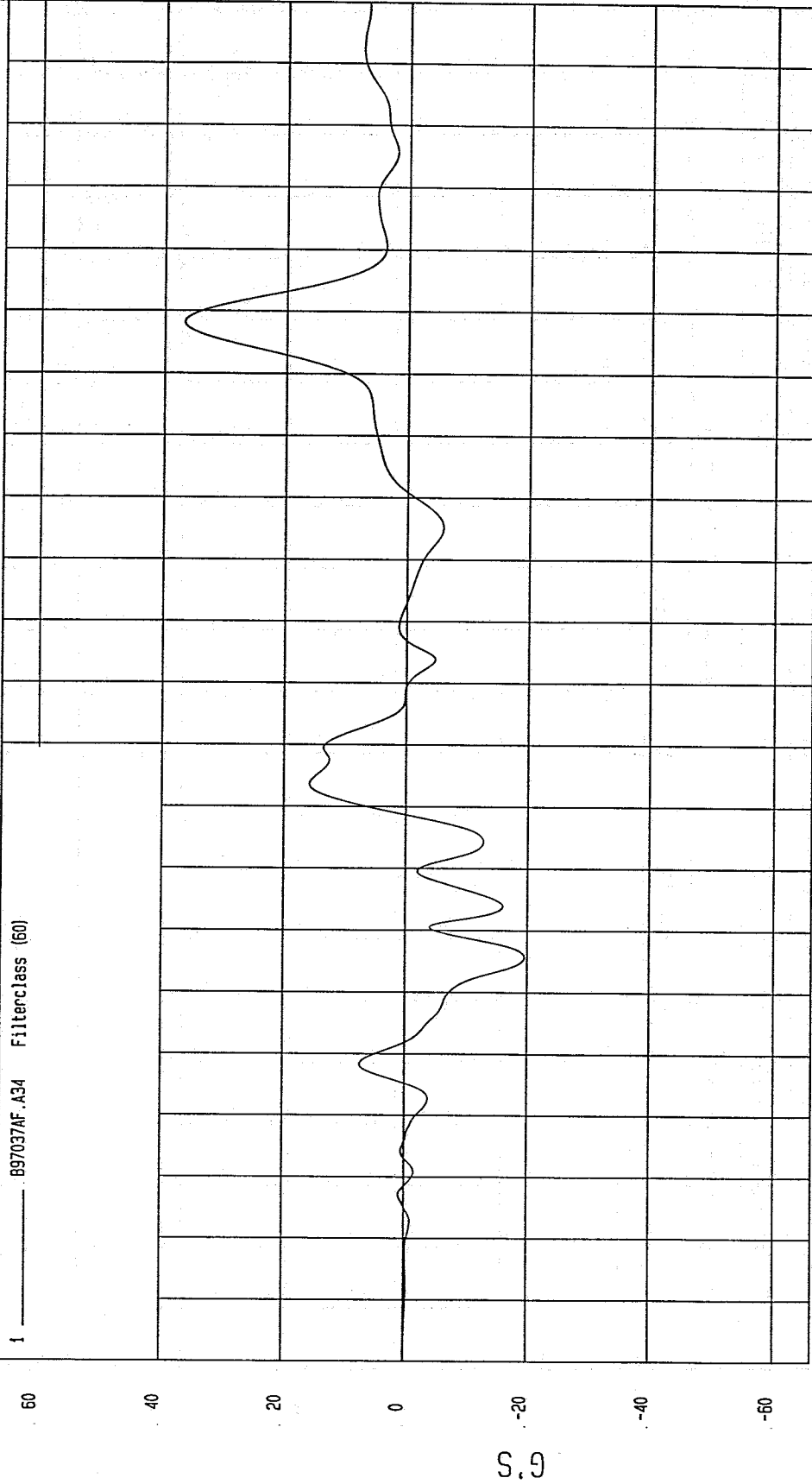
Speed: 39.83 MPH 64.1 KPH

Minimum = -19.57 G'S at 46 msec

Maximum = 36.70 G'S at 148 msec

LEFT SIDE SILL AT FRONT SEAT X ACCELERATION

1 ——— .B97037AF.A34 Filterclass (60)



MCA Research  
04-10-1997 10:38

TIME (SECONDS)

G'S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

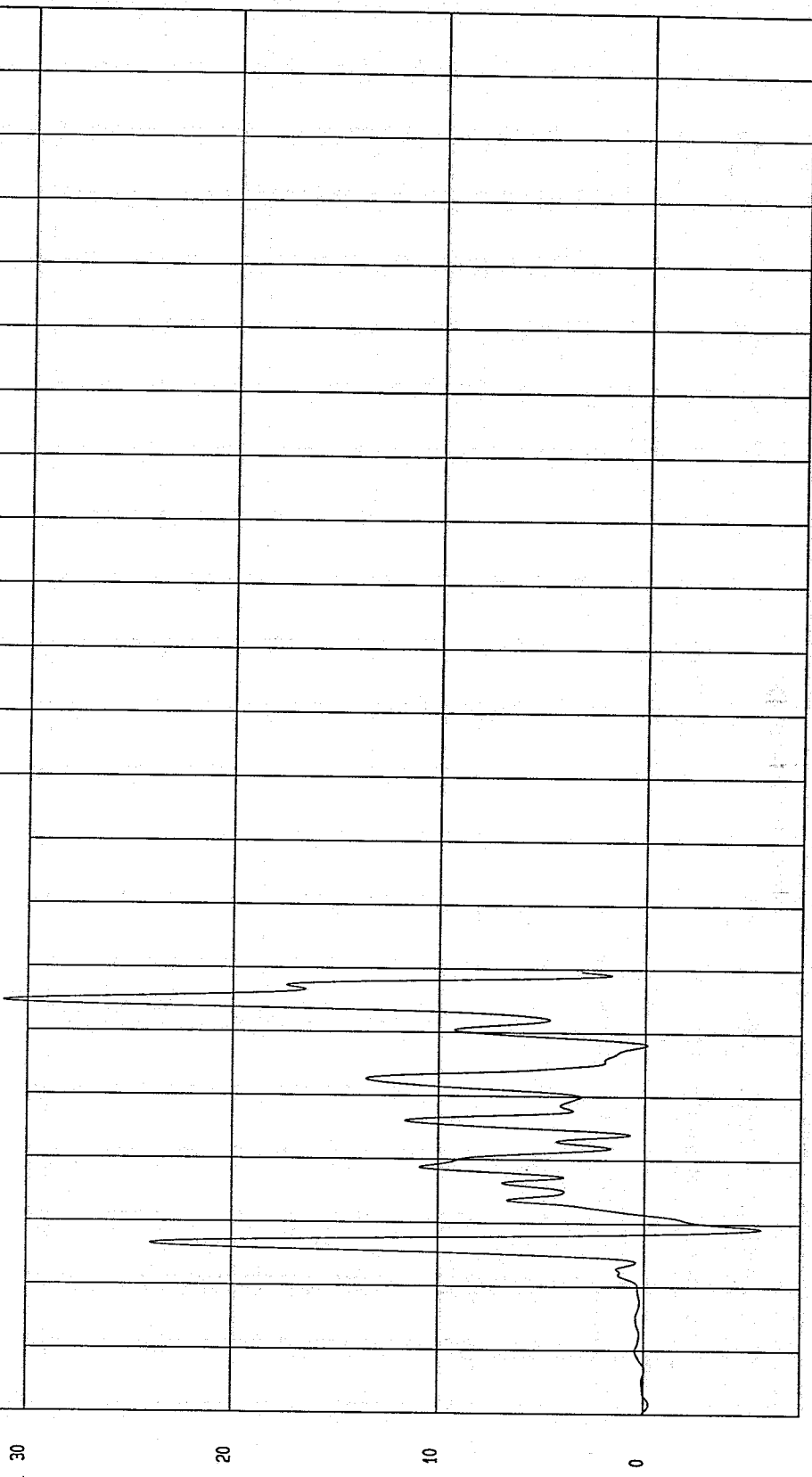
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -5.63 G'S at 9 msec

Maximum = 31.16 G'S at 45 msec

LEFT SIDE SILL AT FRONT SEAT Y ACCELERATION

1 ——— 897037AF.A38 Filterclass (180)



TIME (SECONDS)

0.19  
0.18  
0.17  
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0  
-0.01  
-0.02

NSA Research  
04-01-1997 10:34

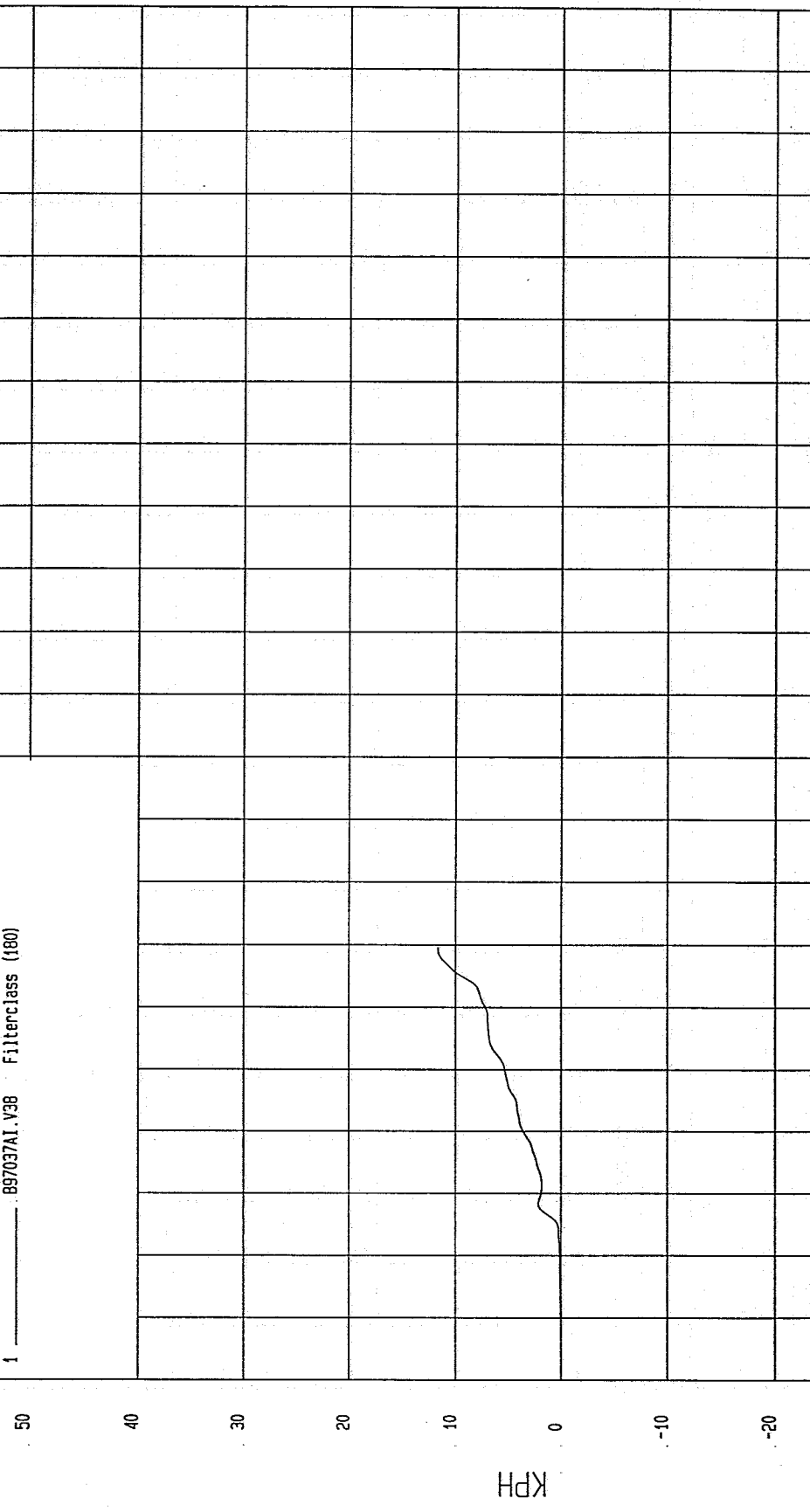
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.32E-02 KPH at -17 msec Maximum = 11.73 KPH at 50 msec

LEFT SIDE SILL AT FRONT SEAT Y VELOCITY

1 \_\_\_\_\_ .897037A1.V38 Filterclass (180)



NSA Research  
04-07-1997 10:34

TIME Seconds

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

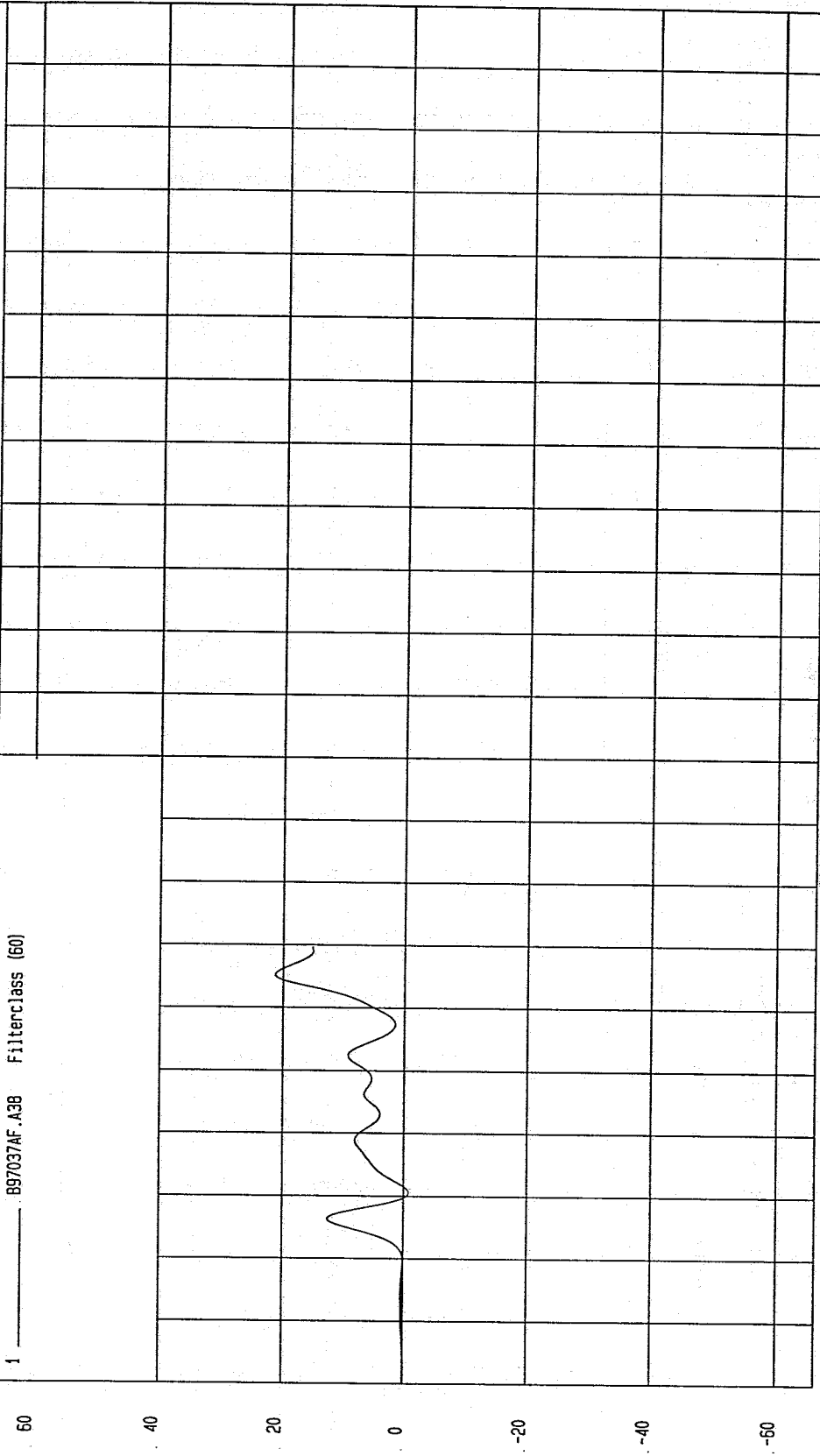
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -.79 G'S at 11 msec

Maximum = 21.26 G'S at 45 msec

LEFT SIDE SILL AT FRONT SEAT Y ACCELERATION

1 897037AF.A38 Filterclass (60)



WGA Research  
04-07-1997 10:36

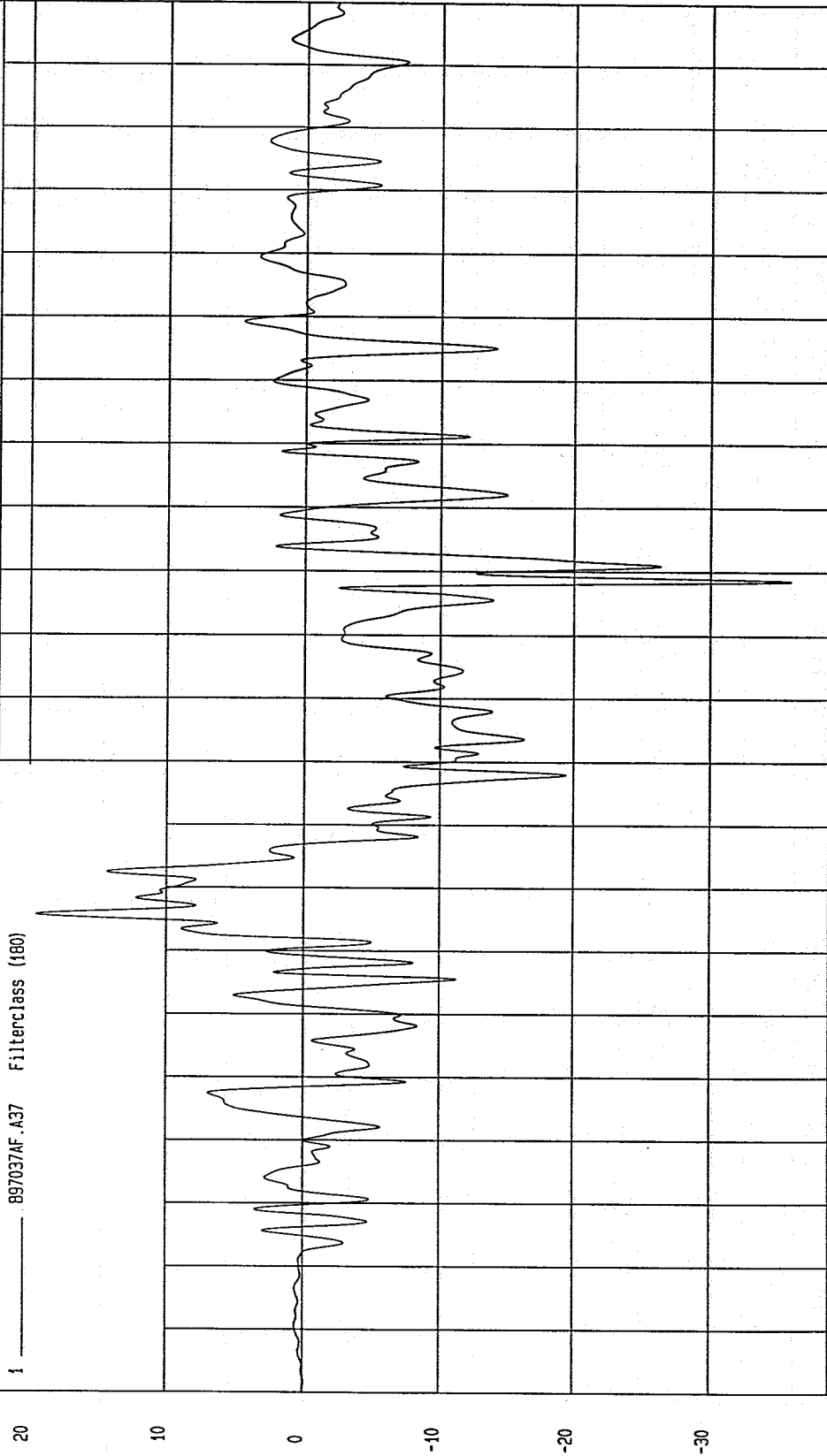
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -35.67 G'S at 109 msec  
Maximum = 19.48 G'S at 56 msec

LEFT SIDE SILL AT REAR SEAT X ACCELERATION

1 ——— 897037AF.A37 Filterclass (180)



MCA Research  
04-08-1997 15:40

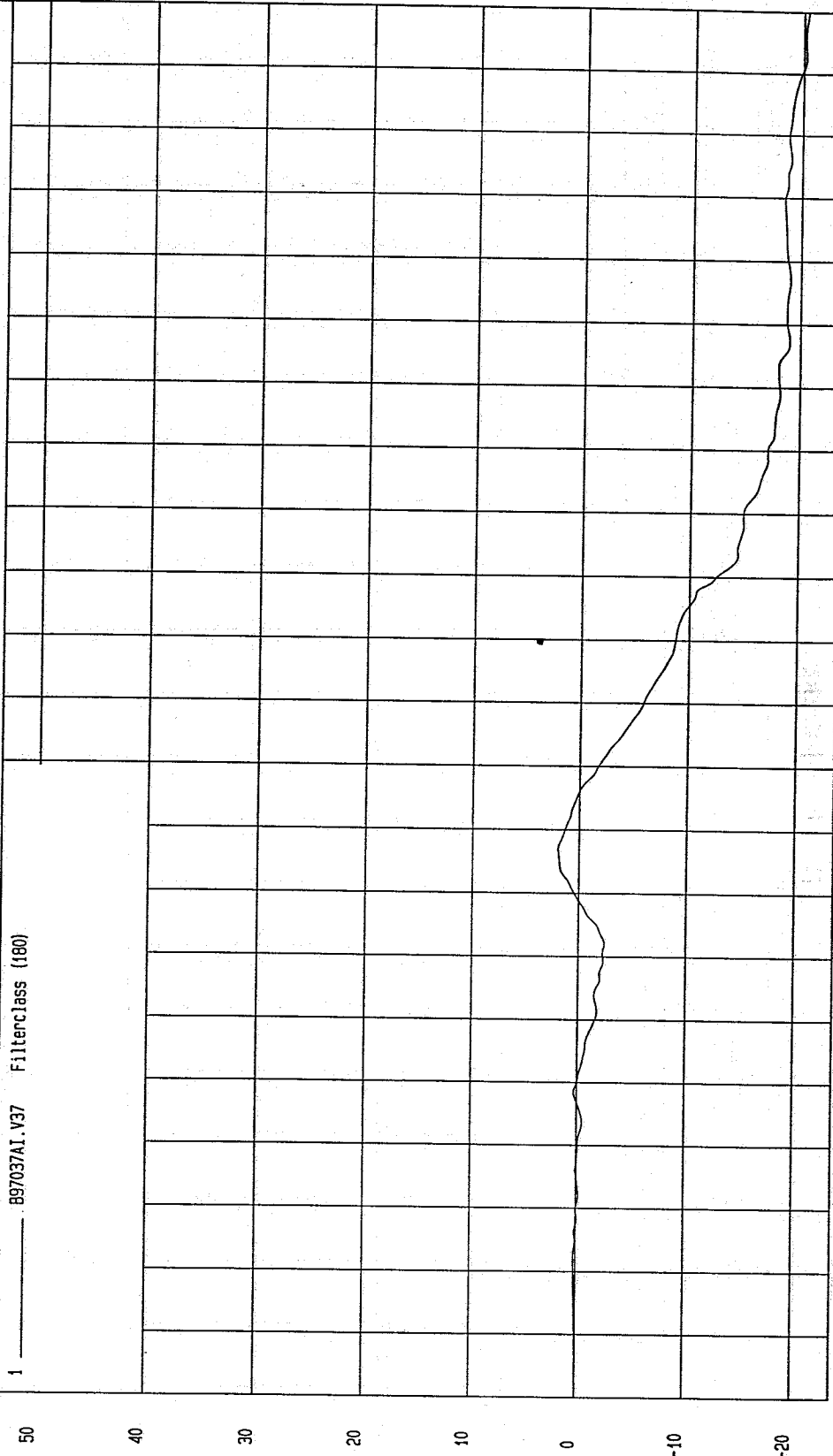
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -20.41 KPH at 200 msec Maximum = 1.94 KPH at 67 msec

LEFT SIDE SILL AT REAR SEAT X VELOCITY

1 ——— .B97037A1.V37 Filterclass (180)



TIME Seconds

NGA Research  
04-08-1997 13:35

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

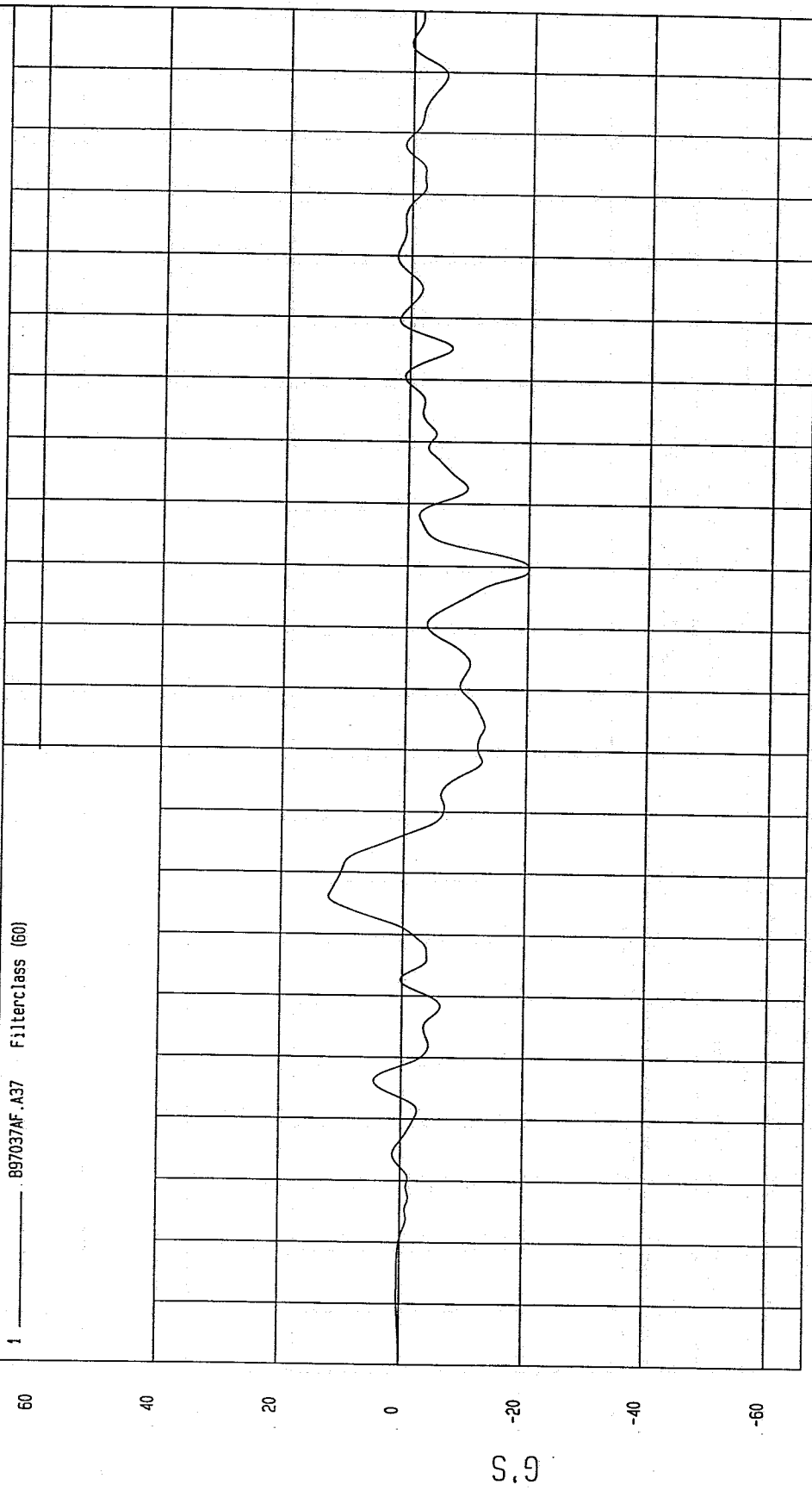
Speed: 39.83 MPH 64.1 KPH

Minimum = -20.14 G'S at 110 msec

Maximum = 12.39 G'S at 56 msec

LEFT SIDE SILL AT REAR SEAT X ACCELERATION

1 ——— .897037AF.A37 Filterclass (60)



MCA Research  
04-01-1997 10:32

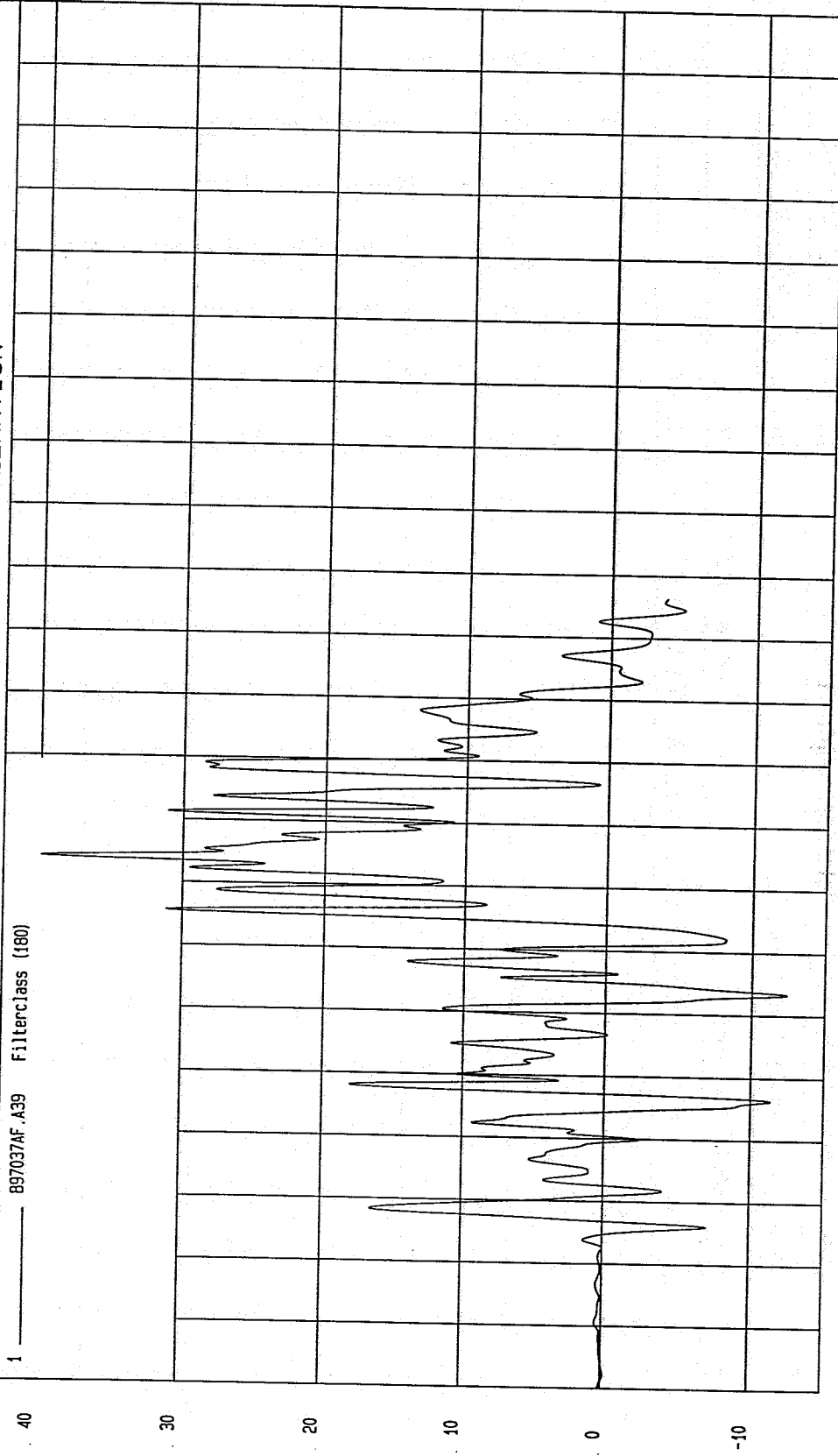
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -12.46 G'S at 43 msec  
Maximum = 39.93 G'S at 64 msec

LEFT SIDE SILL AT REAR SEAT Y ACCELERATION

1 ——— 897037AF.A39 Filterclass (180)



TIME (SECONDS)

0.19  
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MGA Research  
04-04-1997 14:42

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

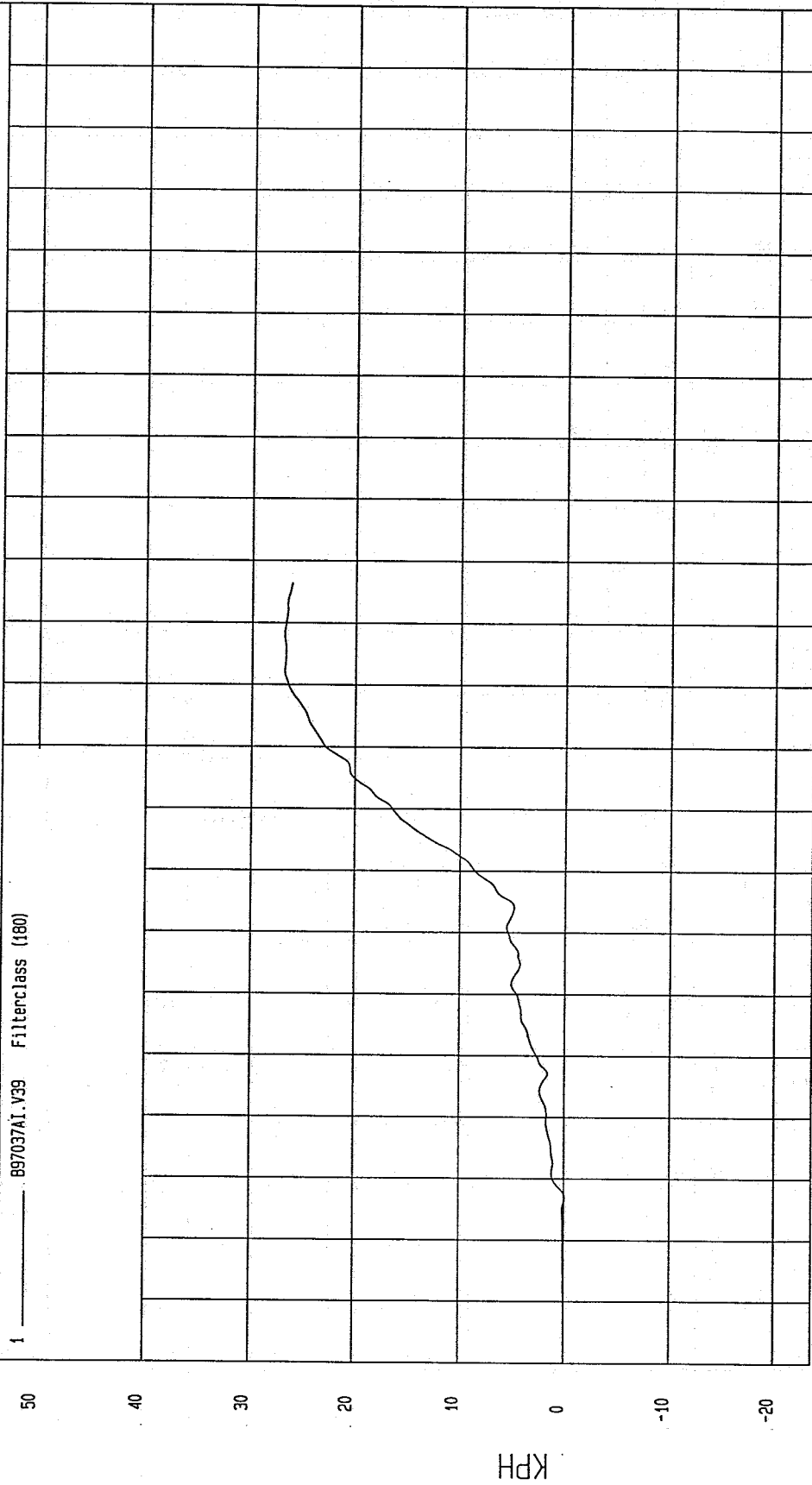
Speed: 39.83 MPH 64.1 KPH

Minimum = -8.95E-02 KPH at 7 msec

Maximum = 26.88 KPH at 96 msec

LEFT SIDE SILL AT REAR SEAT Y VELOCITY

1 \_\_\_\_\_ 897037AI.V39 Filterclass (180)



NSA Research  
04-04-1997 14:39

TIME Seconds

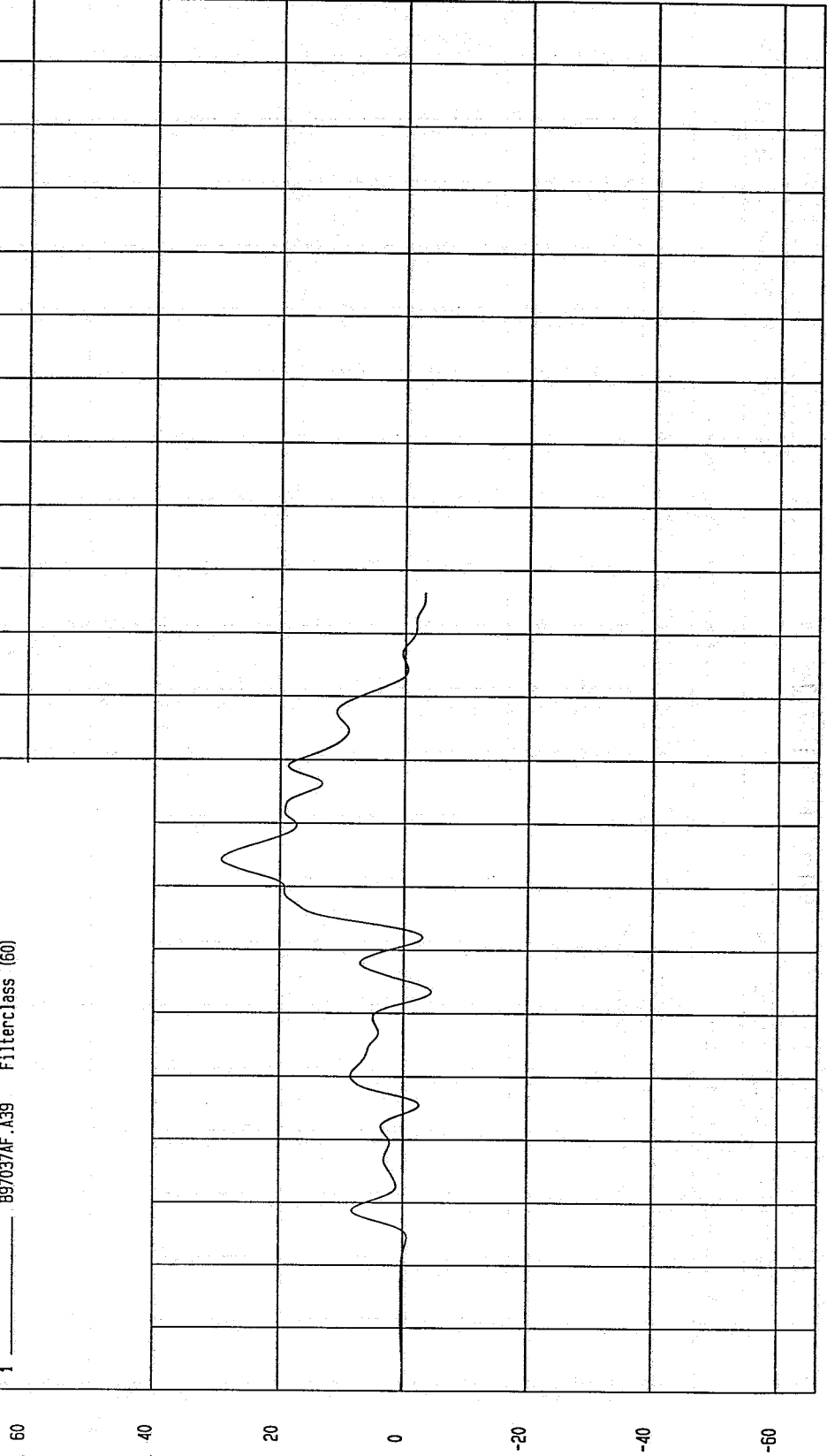
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.45 G'S at 43 msec Maximum = 29.33 G'S at 64 msec

LEFT SIDE SILL AT REAR SEAT Y ACCELERATION

1 897037AF.A39 Filterclass (60)



NSA Research  
04-04-1997 14:50

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

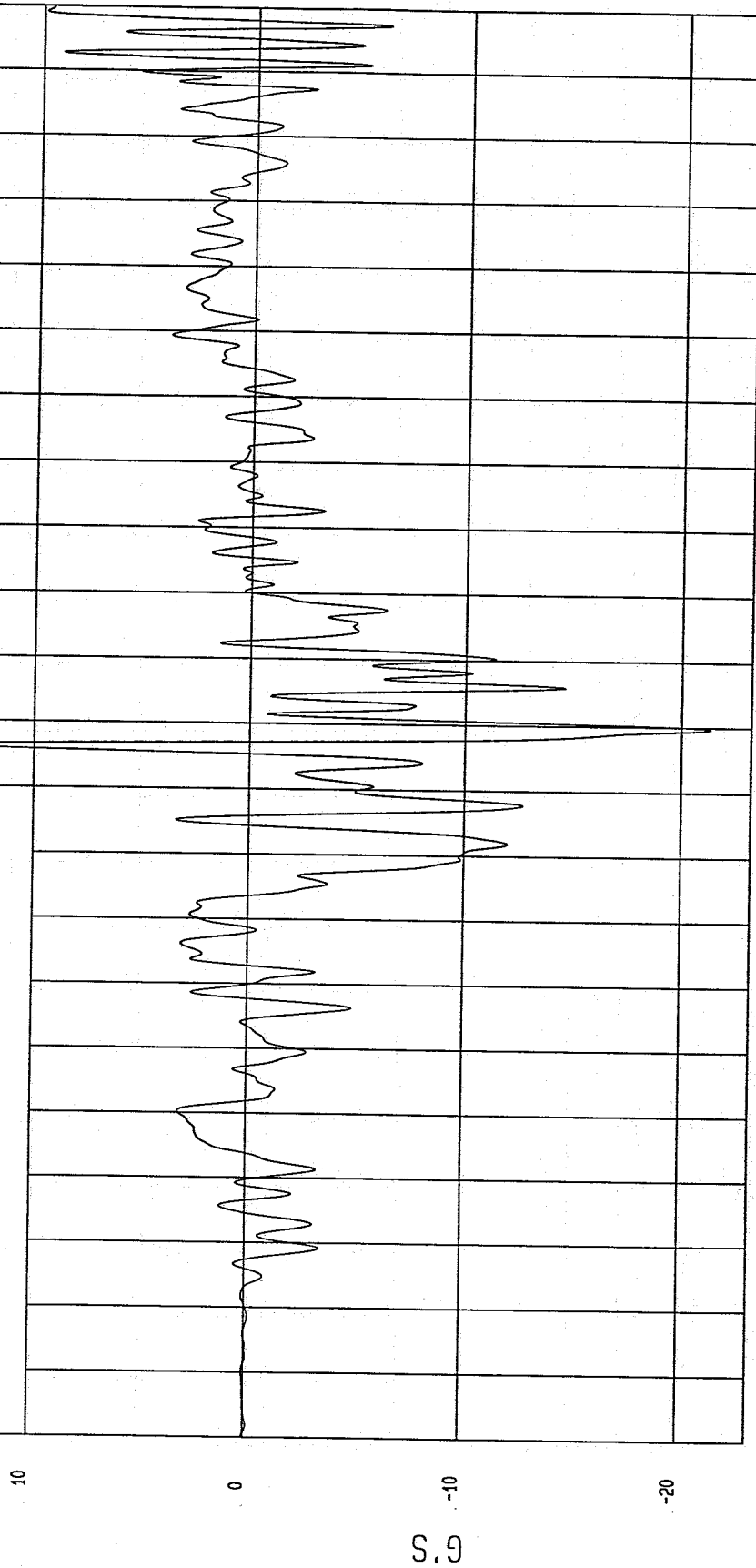
Speed: 39.83 MPH 64.1 KPH

Minimum = -21.32 G'S at 90 msec

Maximum = 14.67 G'S at 86 msec

REAR FLOORPAN ABOVE AXLE X ACCELERATION

1 ——— B97037AF.A09 Filterclass (180)



19  
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-0.01  
-0.02

TIME (SECONDS)

NGA Research  
0A-04-1997 1A: 42

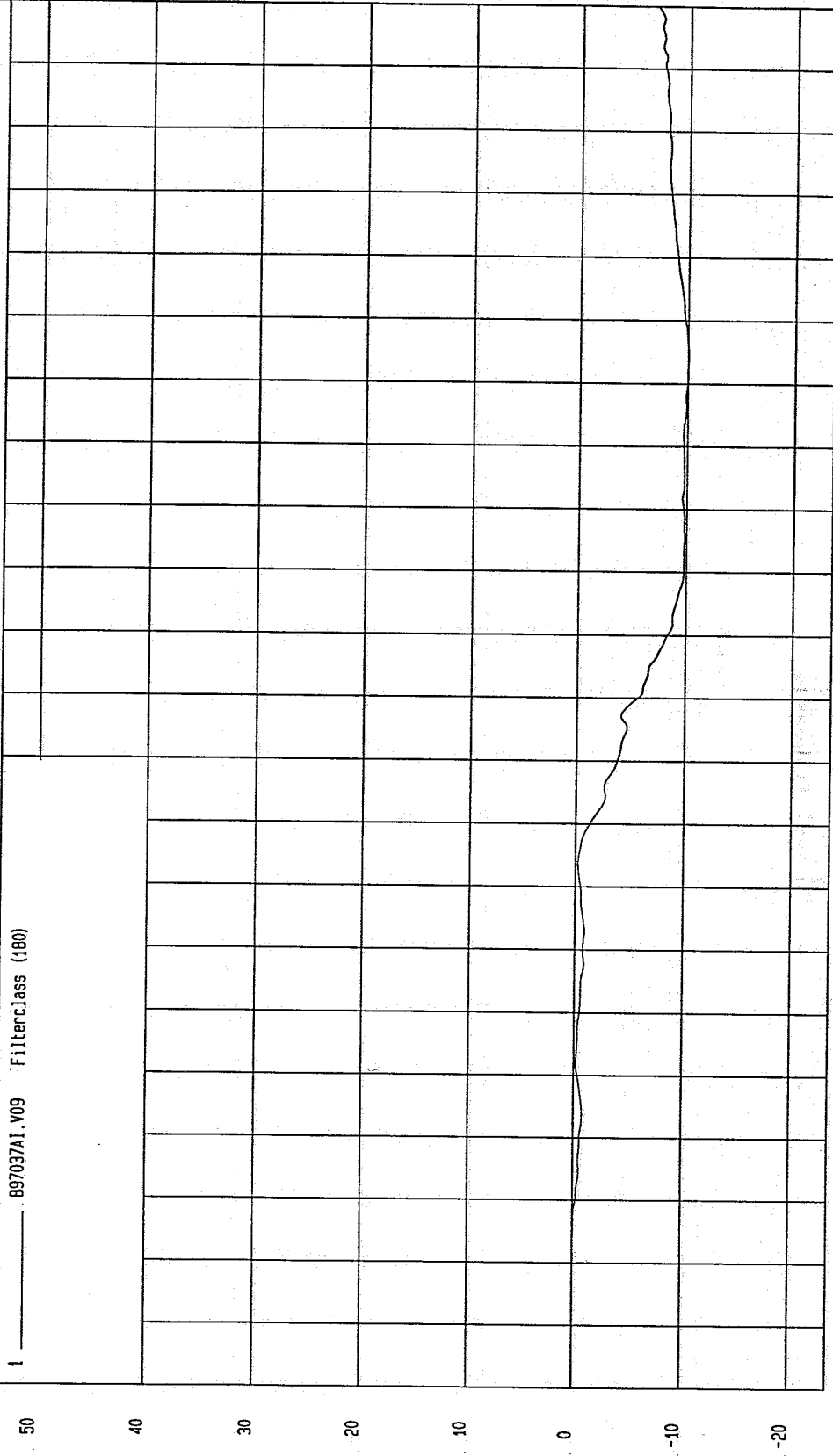
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -10.07 KPH at 144 msec  
Maximum = 5.68E-03 KPH at -9 msec

REAR AXLE X VELOCITY

1 B97037AI.V09 FilterClass (180)



NSA Research  
04-04-1997 1A: 37

TIME Seconds

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

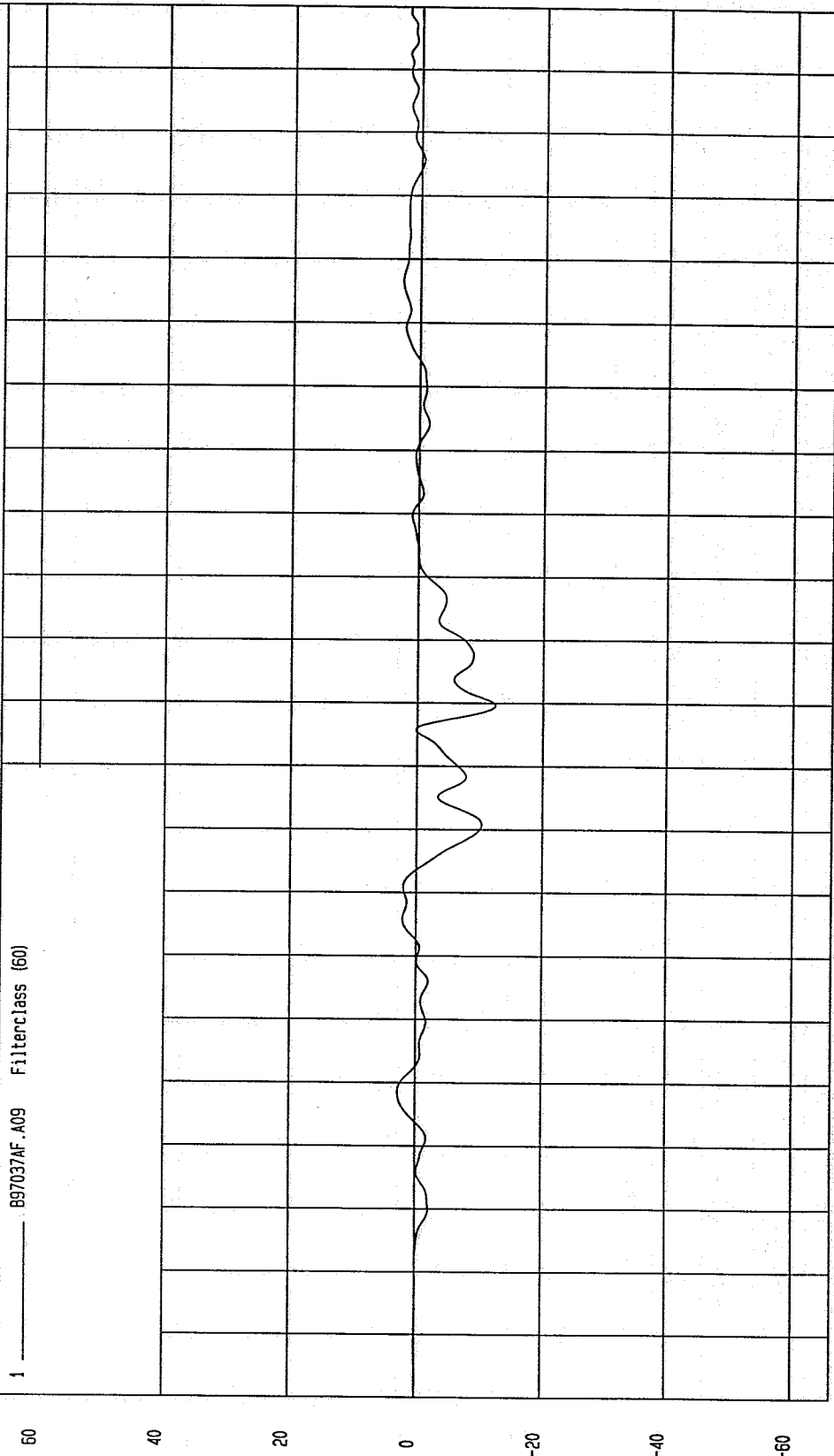
Speed: 39.83 MPH 64.1 KPH

Minimum = -12.40 G'S at 90 msec

Maximum = 2.77 G'S at 28 msec

REAR FLOORPAN ABOVE AXLE X ACCELERATION

1 ——— .897037AF.A09 Filterclass (60)



WCA Research  
04-04-1997 14:50

TIME (SECONDS)

G'S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

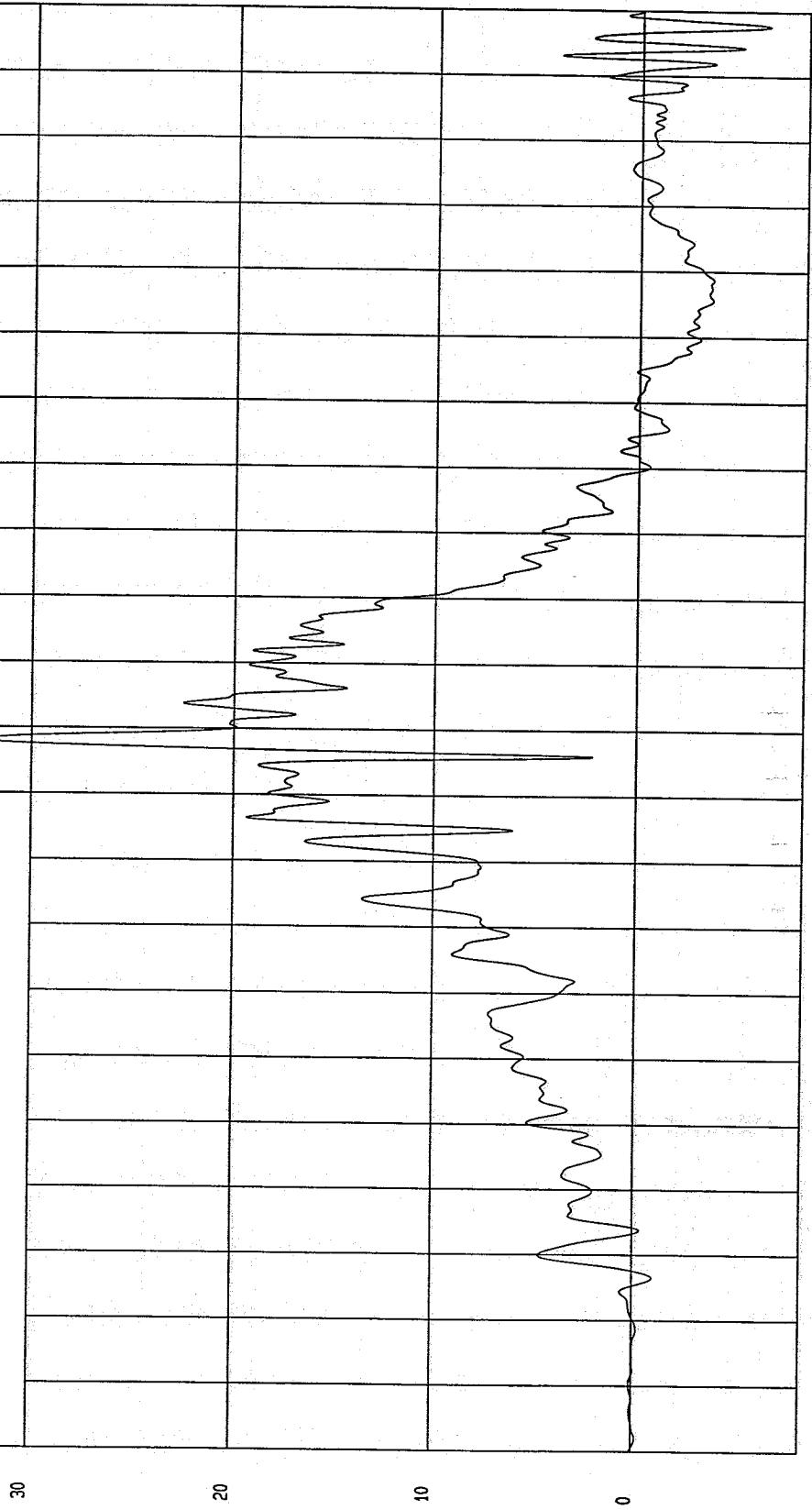
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -6.17 G'S at 198 msec

Maximum = 32.25 G'S at 88 msec

REAR FLOORPAN ABOVE AXLE Y ACCELERATION

1 ——— 897037AF.A10 Filterclass (180)



NGA Research  
04-04-1997 1A: 42

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

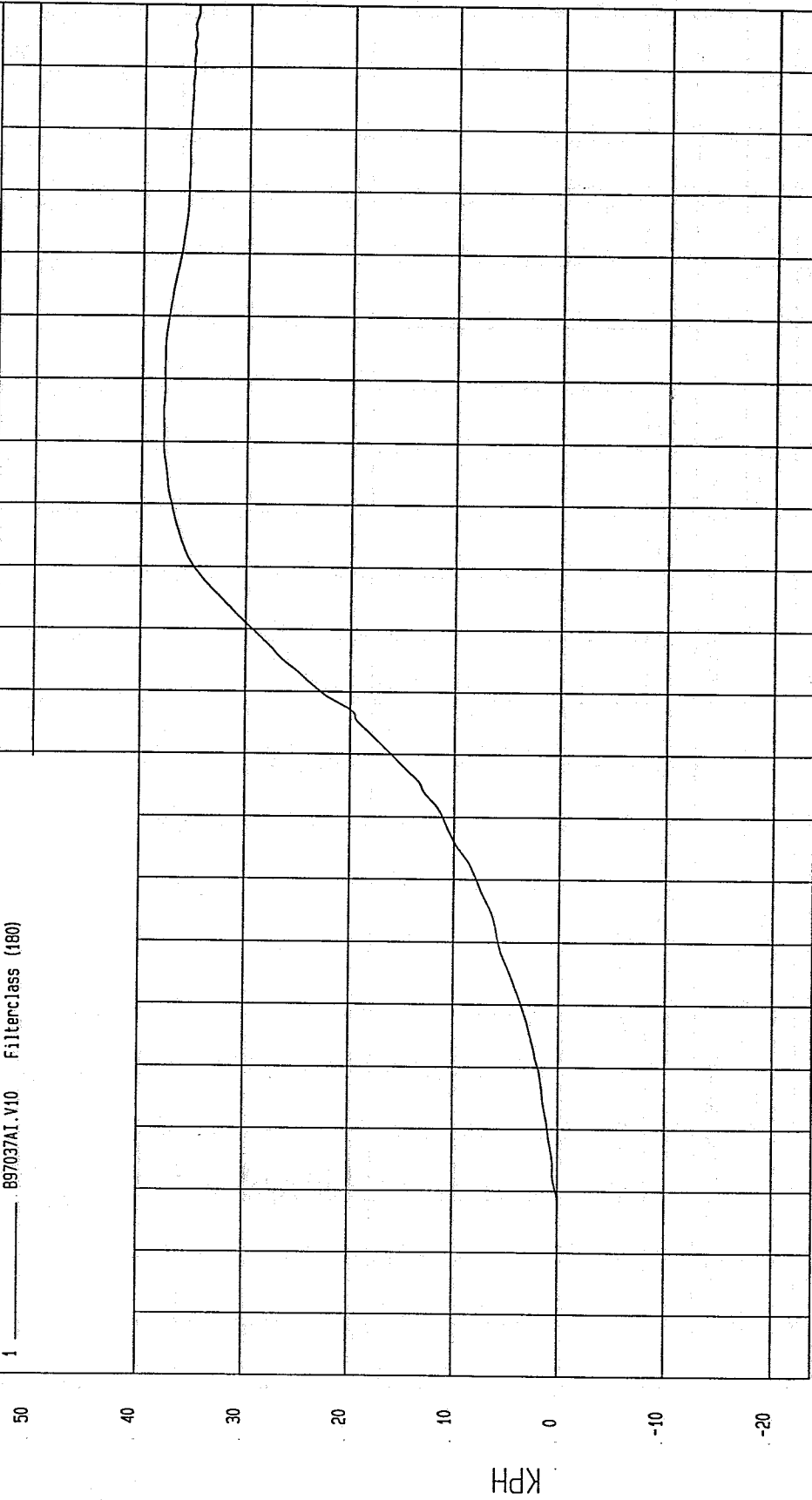
Speed: 39.83 MPH 64.1 KPH

Minimum = -2.34E-02 KPH at 8 msec

Maximum = 37.93 KPH at 135 msec

REAR AXLE Y VELOCITY

1 ——— B97037A1.V10 Filterclass (180)



TIME Seconds

MCA Research  
04-04-1997 14:37

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

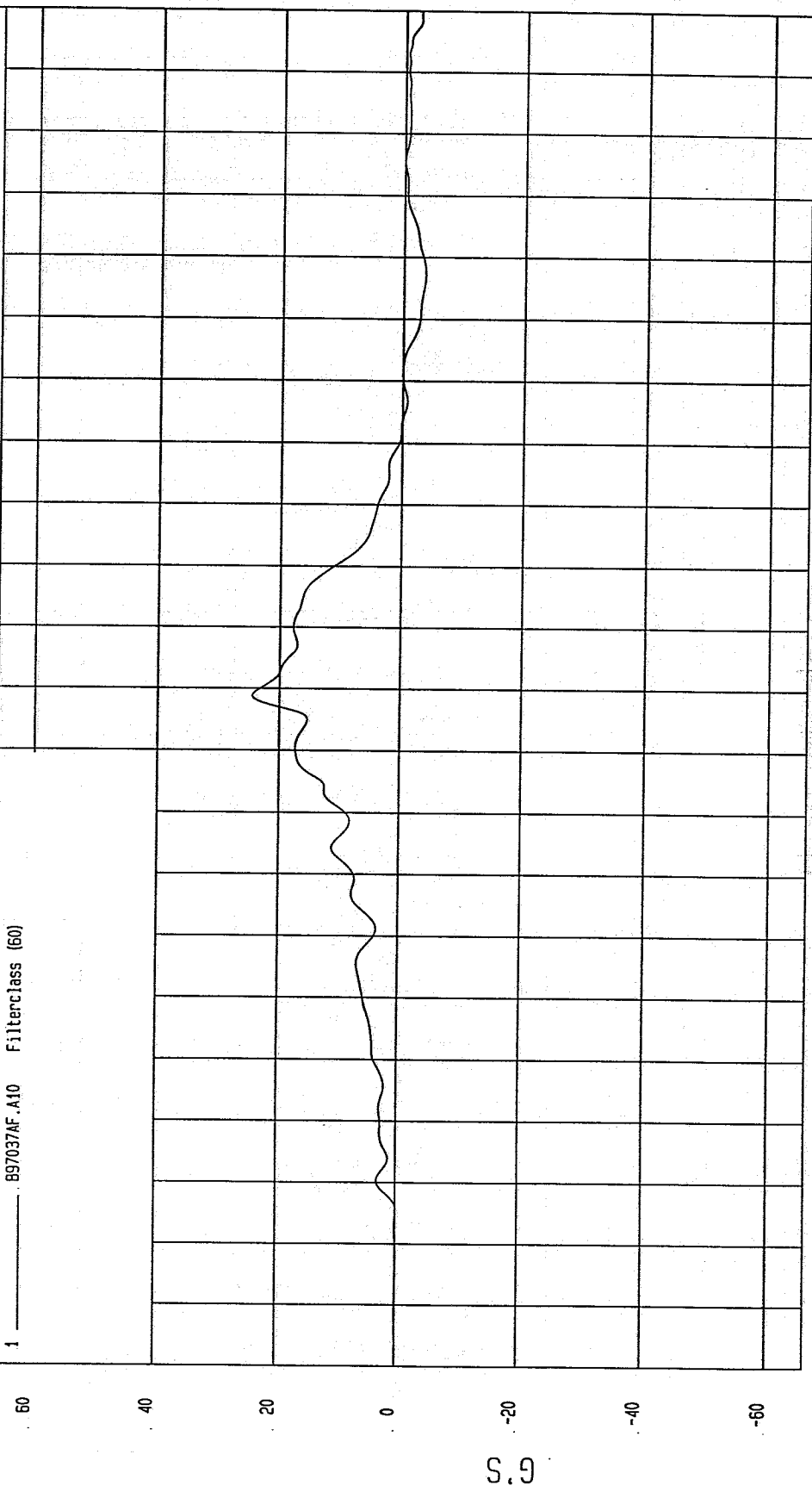
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.51 G'S at 157 msec

Maximum = 24.31 G'S at 89 msec

REAR FLOORPAN ABOVE AXLE Y ACCELERATION

1 \_\_\_\_\_ 897037AF.A10 Filterclass (60)



MCA Research  
04-04-1997 14:50

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

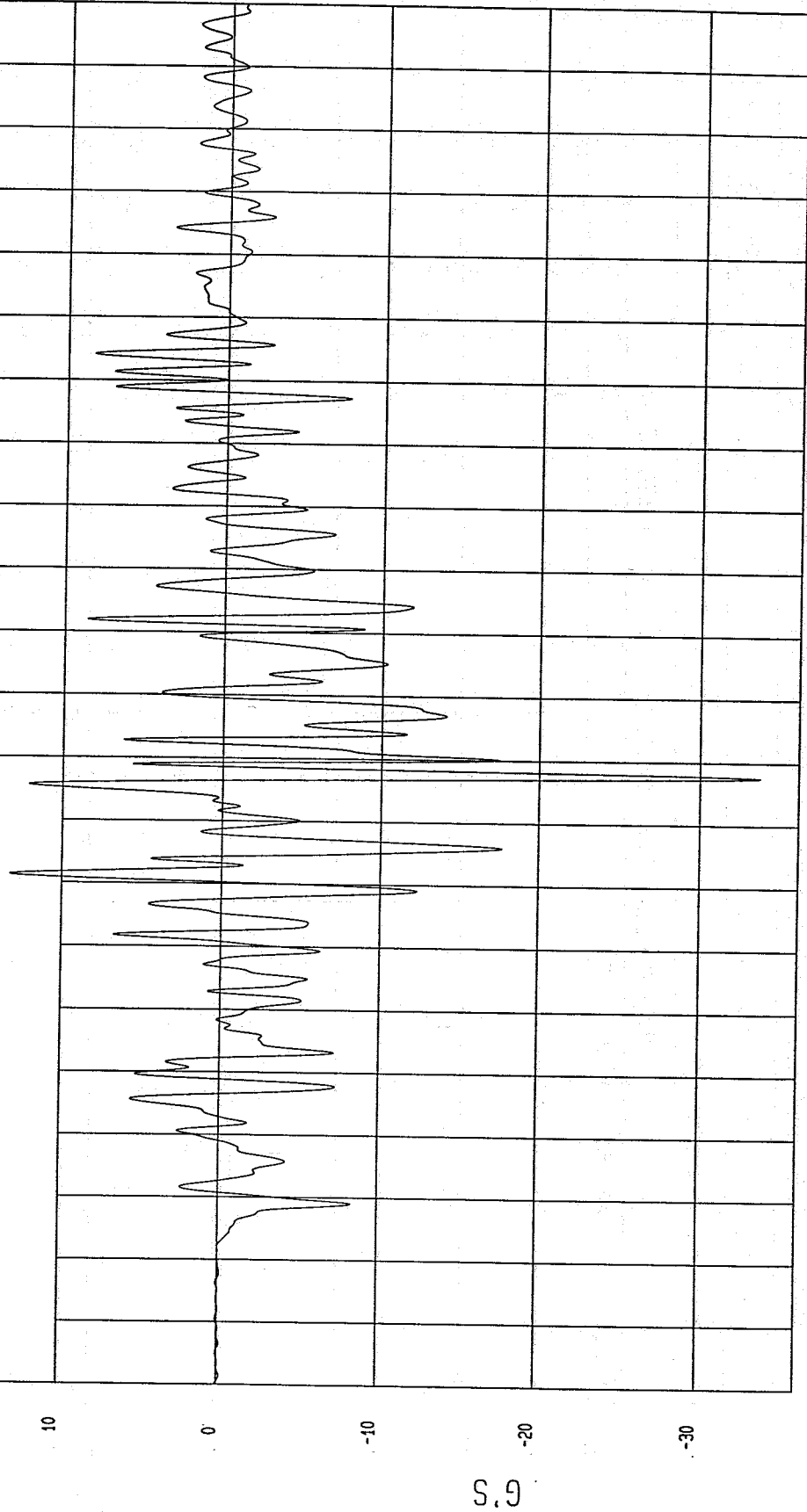
Speed: 39.83 MPH 64.1 KPH

Minimum = -33.72 G'S at 78 msec

Maximum = 13.25 G'S at 61 msec

RIGHT REAR OCCUPANT COMPARTMENT X ACCELERATION

1 ——— B97037AF.A55 Filterclass (180)



NSA Research  
04-04-1997 1A: A3

TIME (SECONDS)

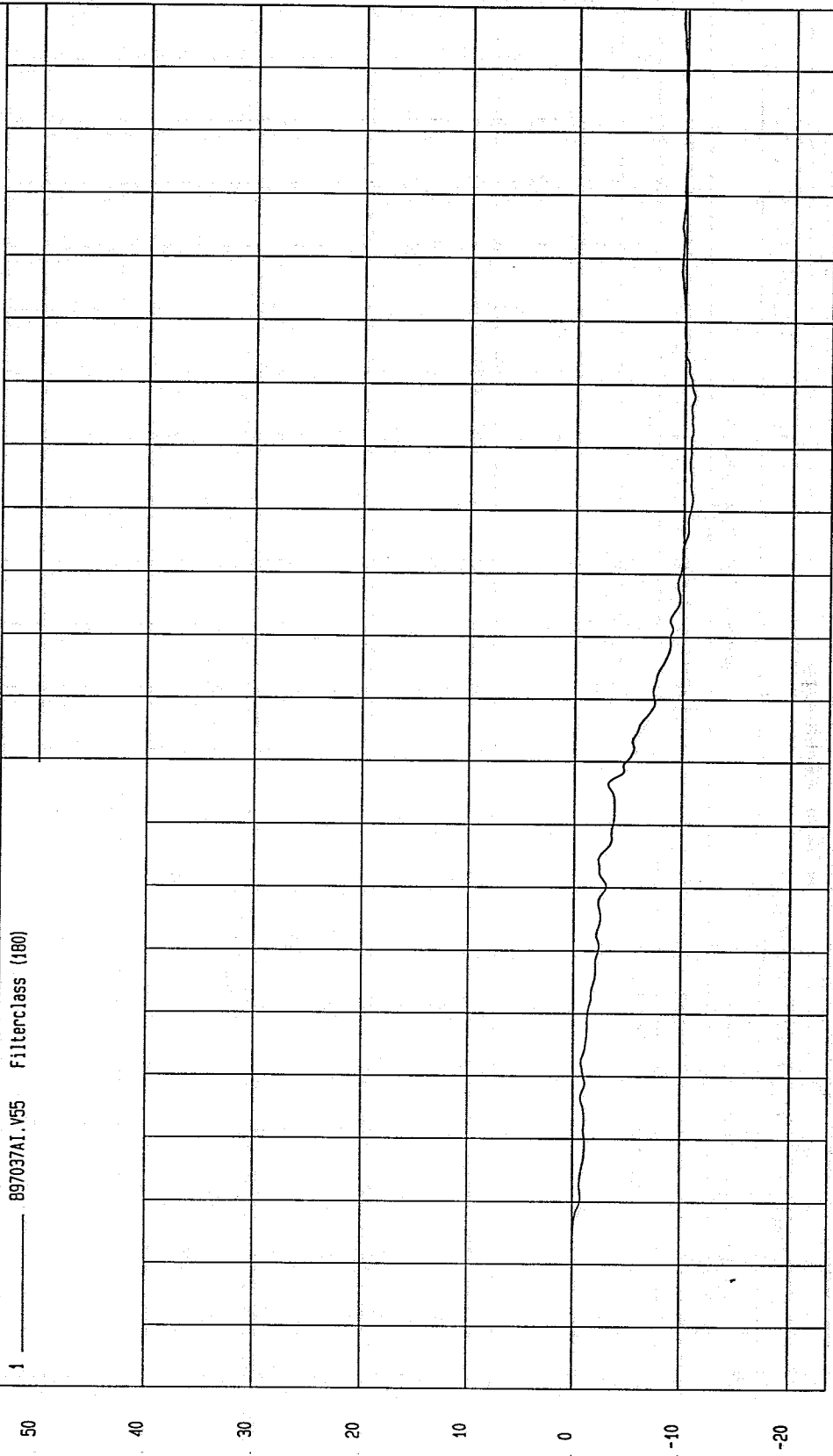
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -10.92 KPH at 138 msec Maximum = 7.67E-04 KPH at -20 msec

RIGHT REAR OCCUPANT COMPARTMENT X VELOCITY

1 897037A1.V55 Filterclass (180)



MCA Research  
04-07-1997 10:19

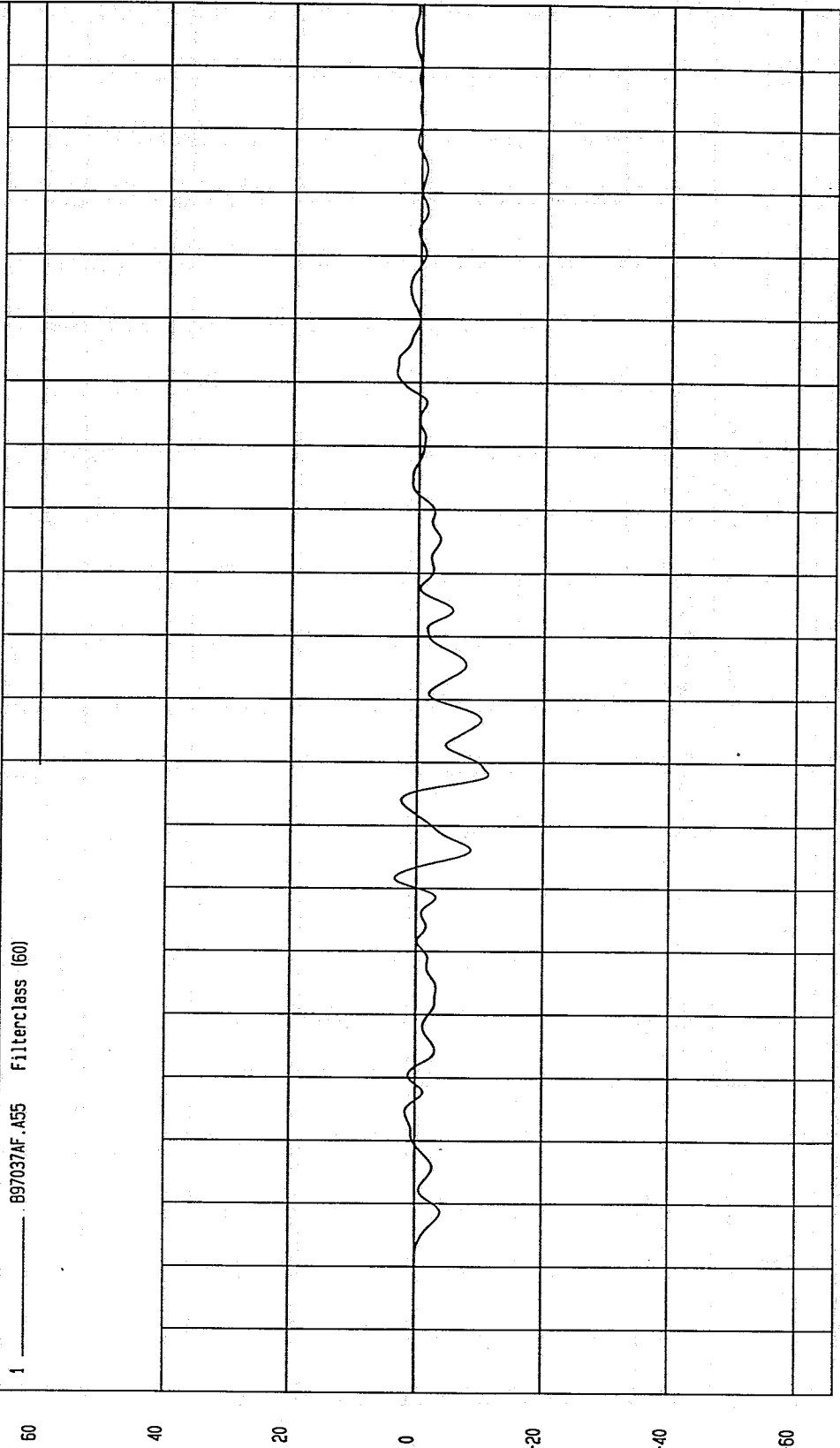
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -11.23 G'S at 78 msec Maximum = 3.49 G'S at 142 msec

RIGHT REAR OCCUPANT COMPARTMENT X ACCELERATION

1 \_\_\_\_\_ 897037AF.A55 Filterclass (60)



MCA Research  
04-04-1997 14:51

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

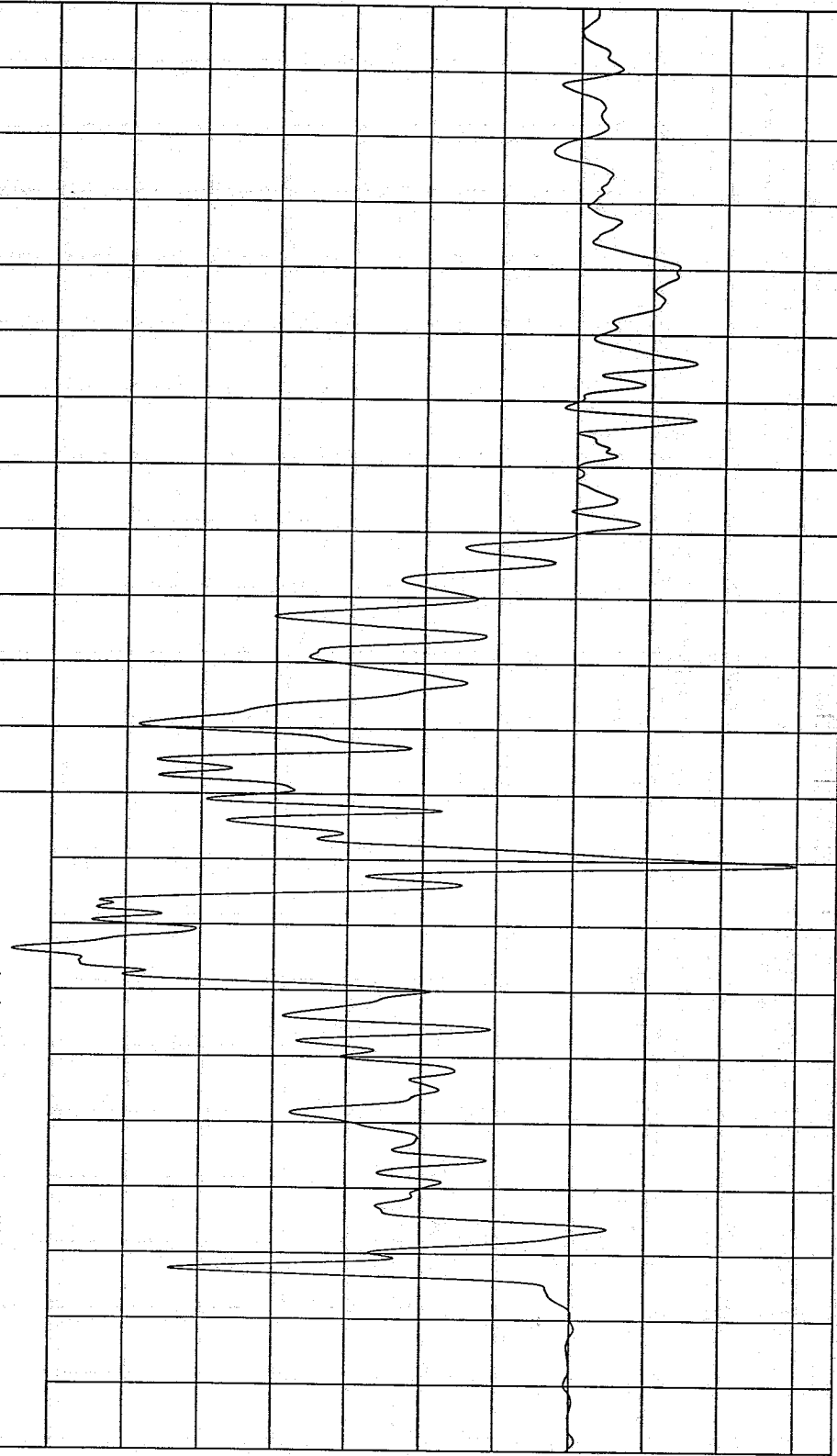
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -6.00 G'S at 70 msec

Maximum = 15.01 G'S at 56 msec

RIGHT REAR OCCUPANT COMPARTMENT Y ACCELERATION

1 \_\_\_\_\_ B97037AF.A56 Filterclass (180)



NSA Research  
04-04-1997 14:43

TIME (SECONDS)

G.S

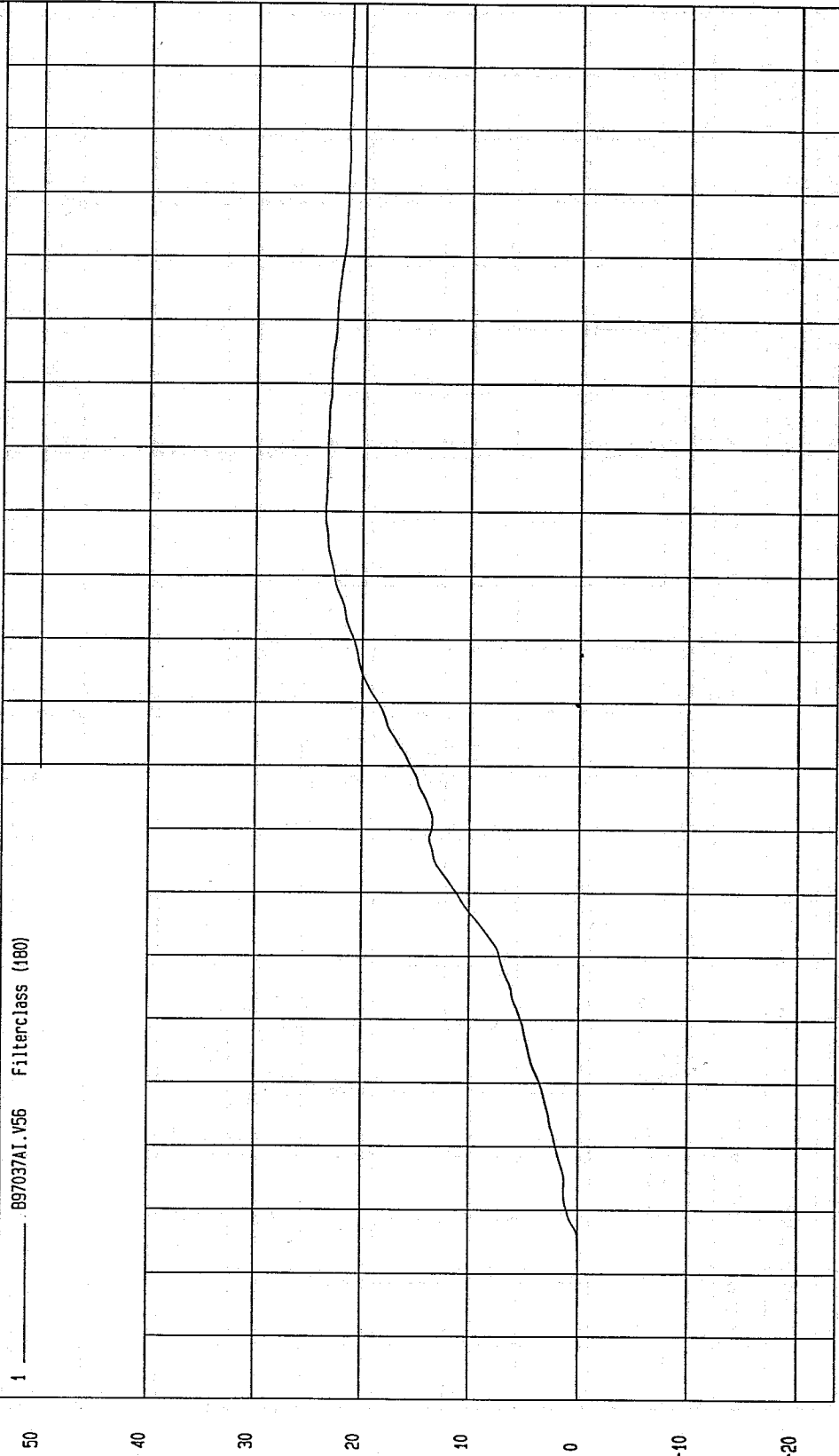
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.22E-02 KPH at -11 msec  
Maximum = 23.56 KPH at 120 msec

RIGHT REAR OCCUPANT COMPARTMENT Y VELOCITY

1 ——— .897037A1.V56 Filterclass (180)



MGA Research  
04-07-1997 10:20

TIME Seconds

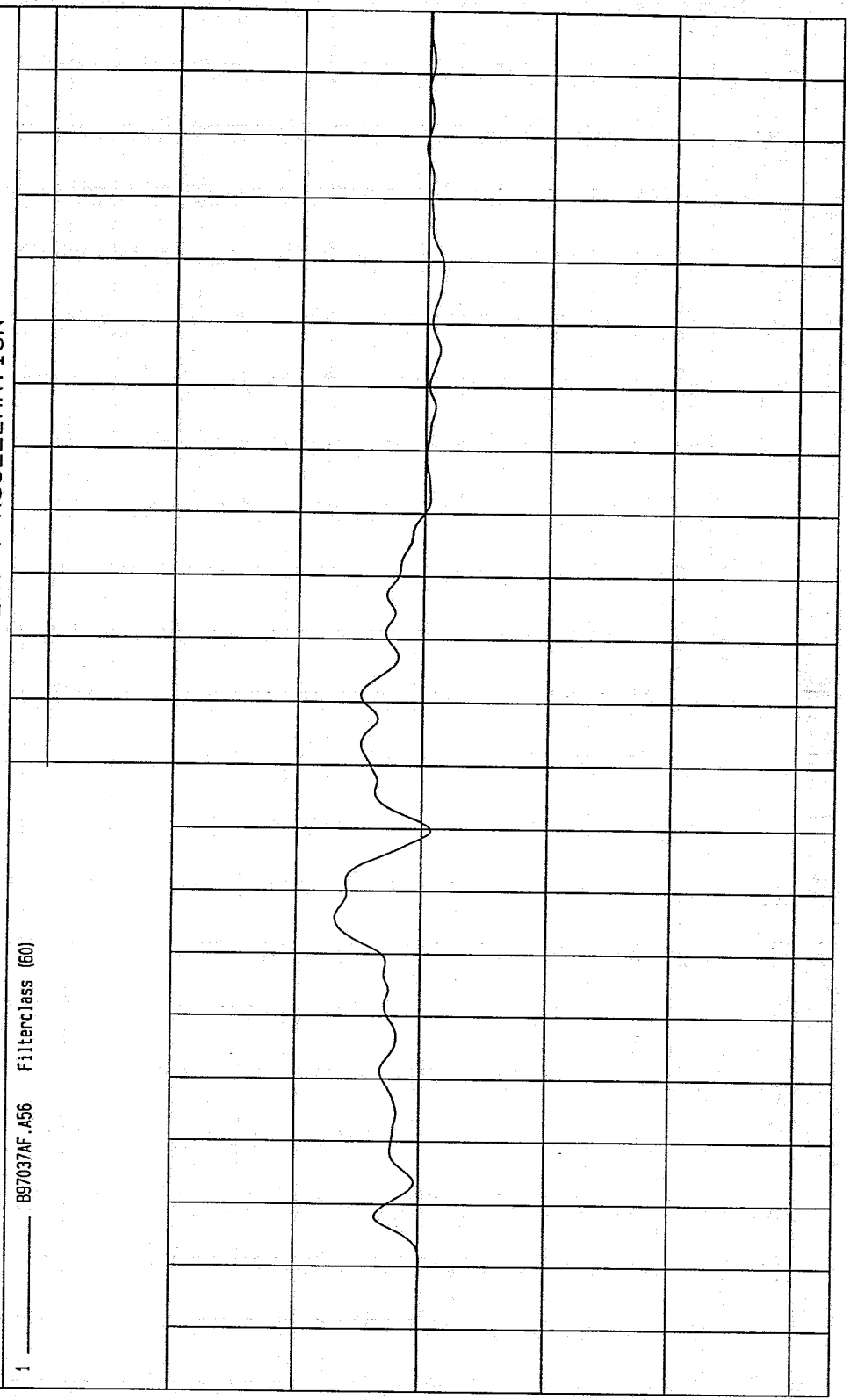
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -2.54 G'S at 159 msec Maximum = 13.75 G'S at 56 msec

RIGHT REAR OCCUPANT COMPARTMENT Y ACCELERATION

1 ——— B97037AF.A56 Filterclass (60)



60  
40  
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-40  
-60  
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1.8  
1.9  
TIME (SECONDS)

MCA Research  
04-04-1997 1A:51

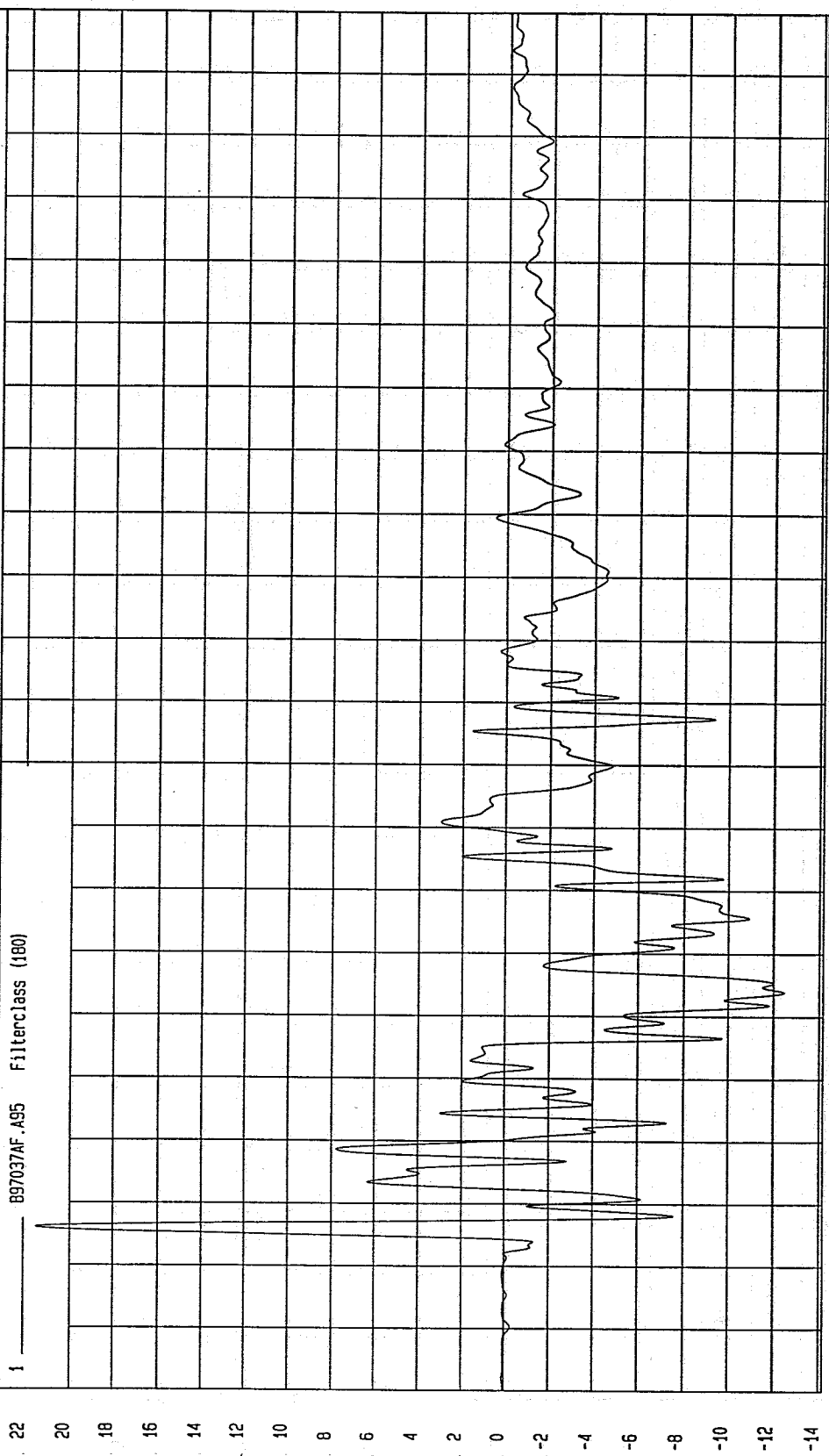
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum \* -12.46 G'S at 44 msec Maximum \* 21.50 G'S at 6 msec

LEFT SIDE SILL @ BASE OF A PILLAR X ACCELERATION

1 897037AF.A95 Filterclass (180)



TIME (SECONDS)

M&A Research  
04-07-1997 08:31

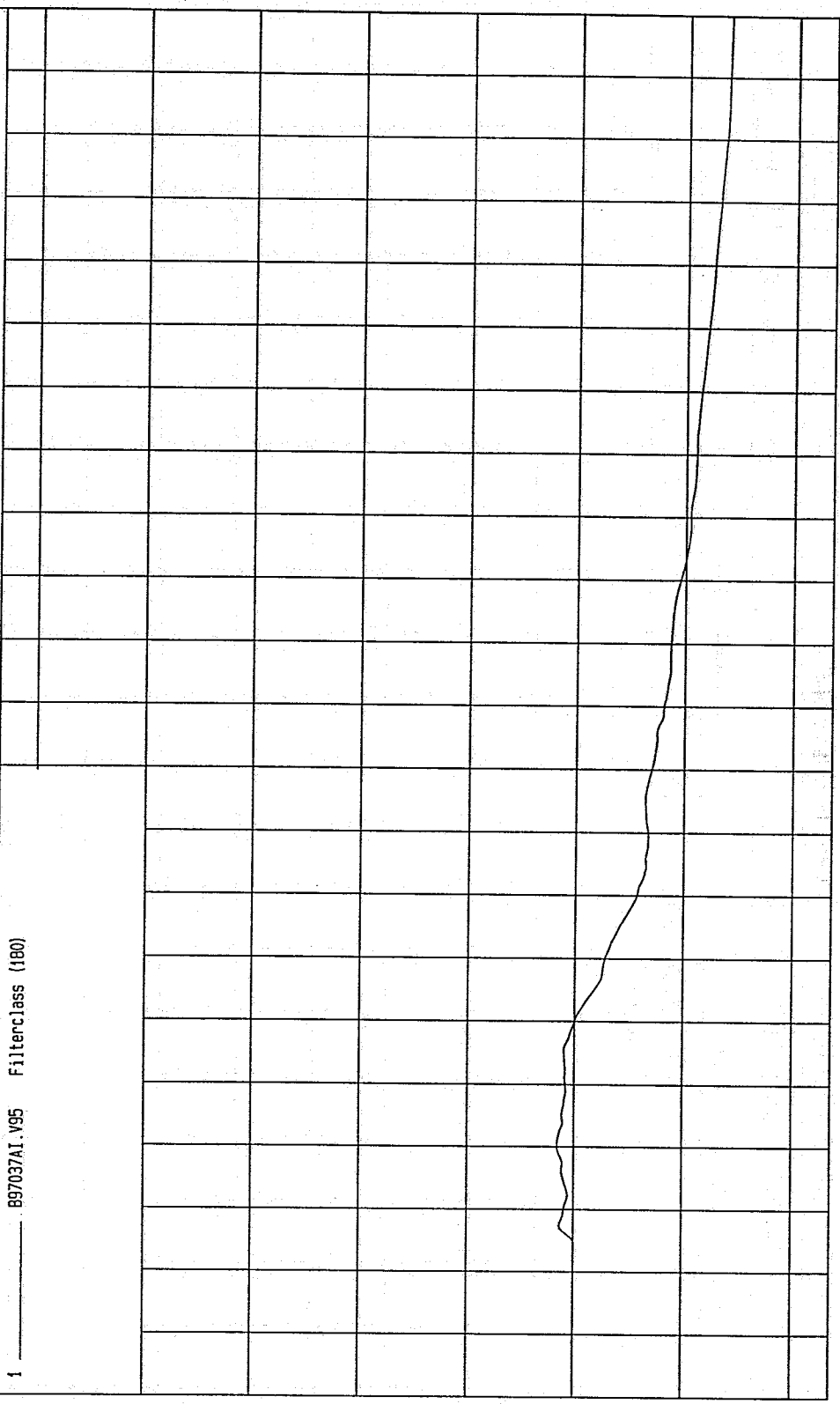
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -13.77 KPH at 200 msec Maximum = 1.54 KPH at 20 msec

LEFT SIDE SILL @ BASE OF A PILLAR X VELOCITY

1 \_\_\_\_\_ B97037AI.V95 Filterclass (180)



MOA Research  
03-07-1997 08:31

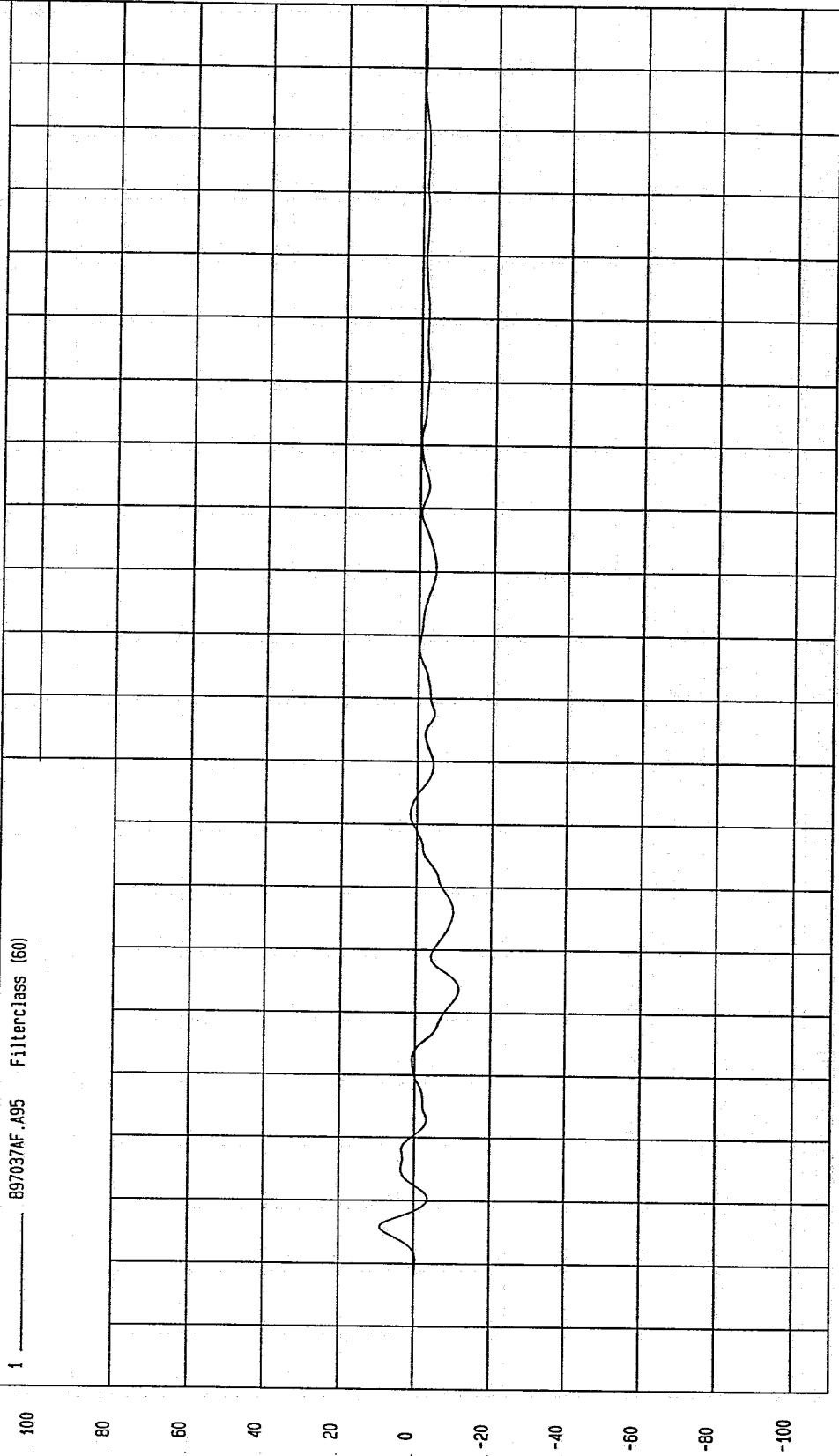
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -11.35 G'S at 44 msec  
Maximum = 8.94 G'S at 6 msec

LEFT SIDE SILL @ BASE OF A PILLAR X ACCELERATION

1 \_\_\_\_\_ 897037AF.A95 Filterclass (60)



NGA Research  
04-07-1997 08: 31

TIME (SECONDS)

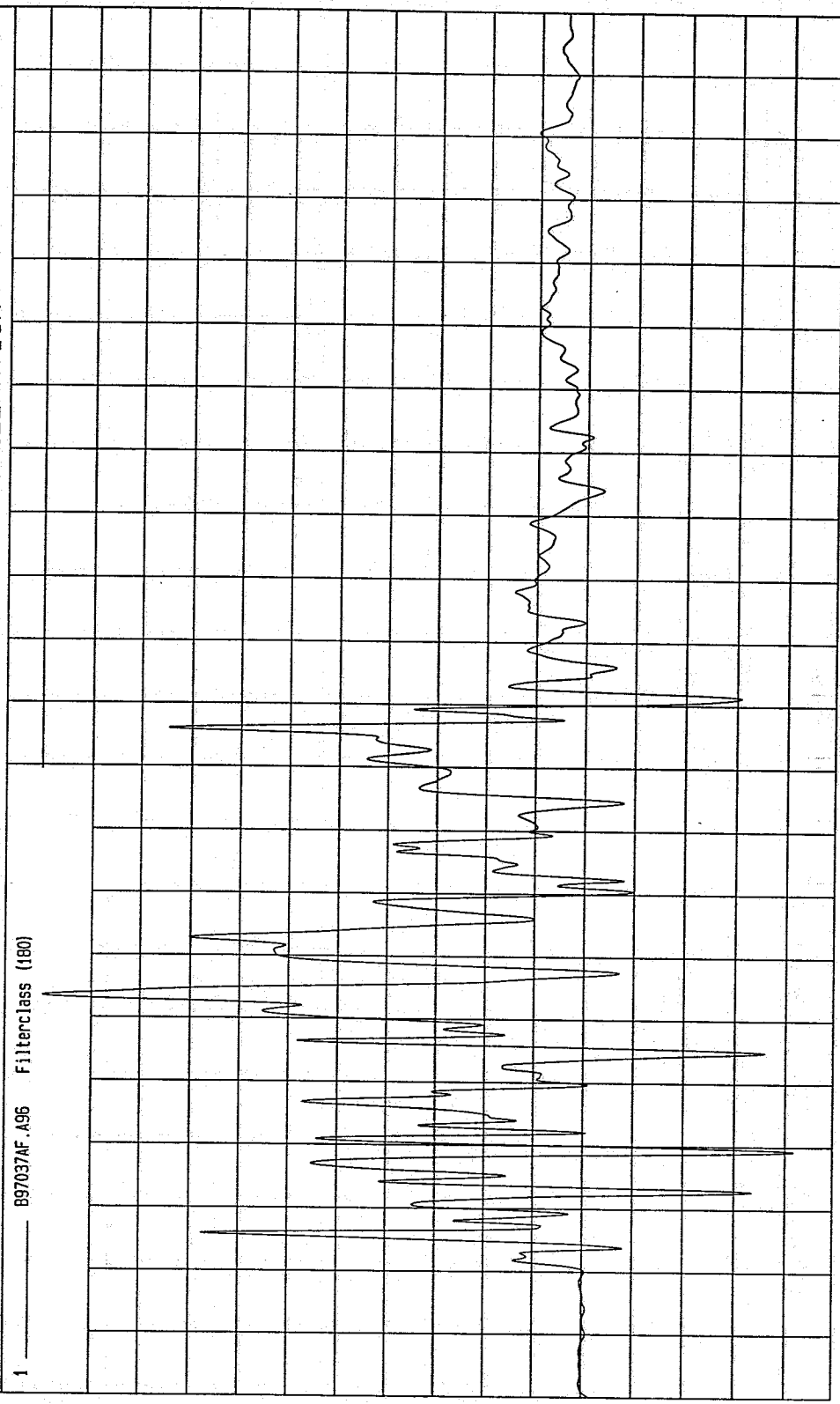
G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -8.33 G'S at 19 msec Maximum = 21.94 G'S at 44 msec

LEFT SIDE SILL @ BASE OF A PILLAR Y ACCELERATION



TIME (SECONDS)

MGA Research  
04-07-1997 08:31

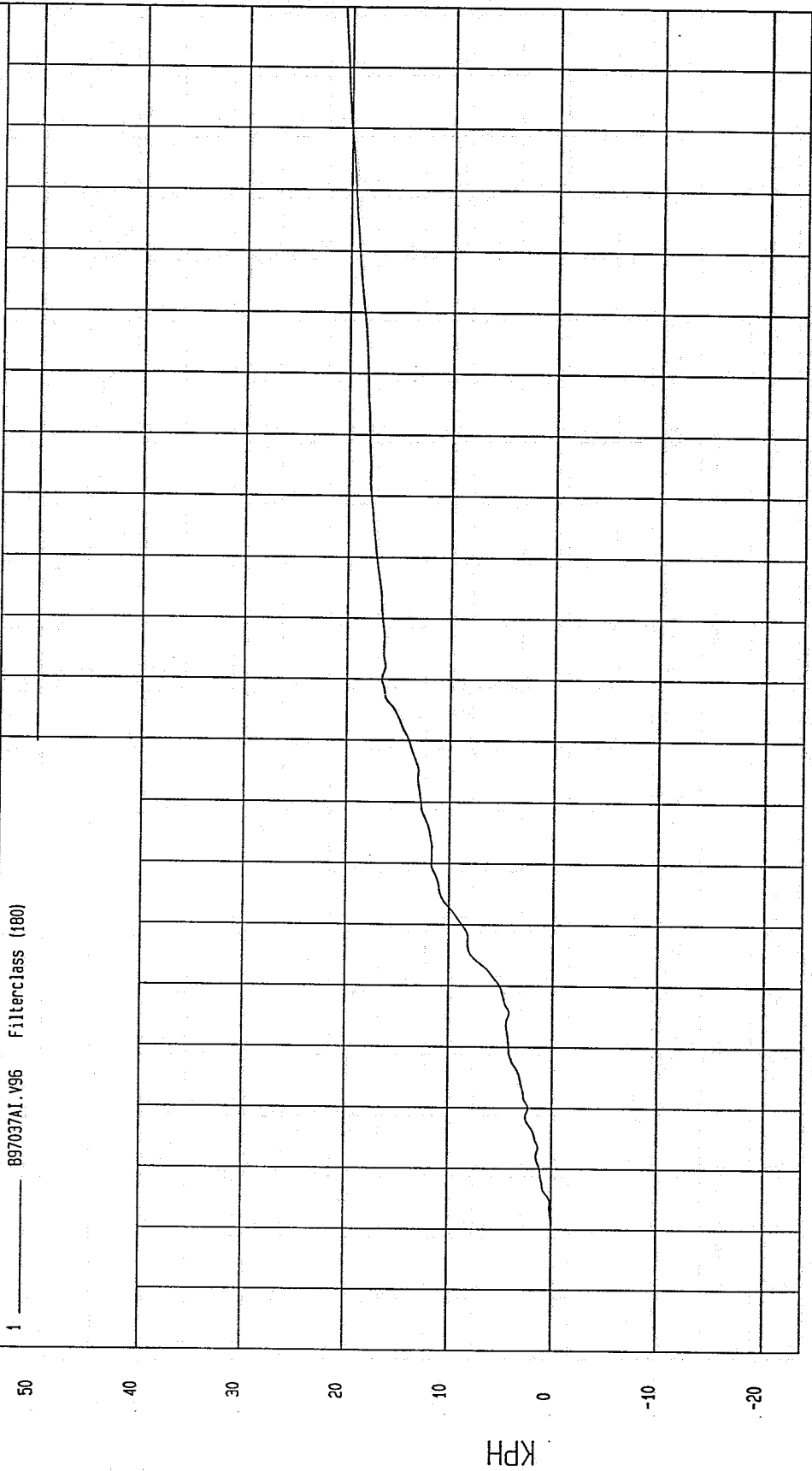
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -5.83E-03 KPH at -3 msec  
Maximum = 20.70 KPH at 200 msec

LEFT SIDE SILL @ BASE OF A PILLAR Y VELOCITY

1 ——— B97037AI.V96 Filterclass (180)



MCA Research  
04-07-1997 08:31

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

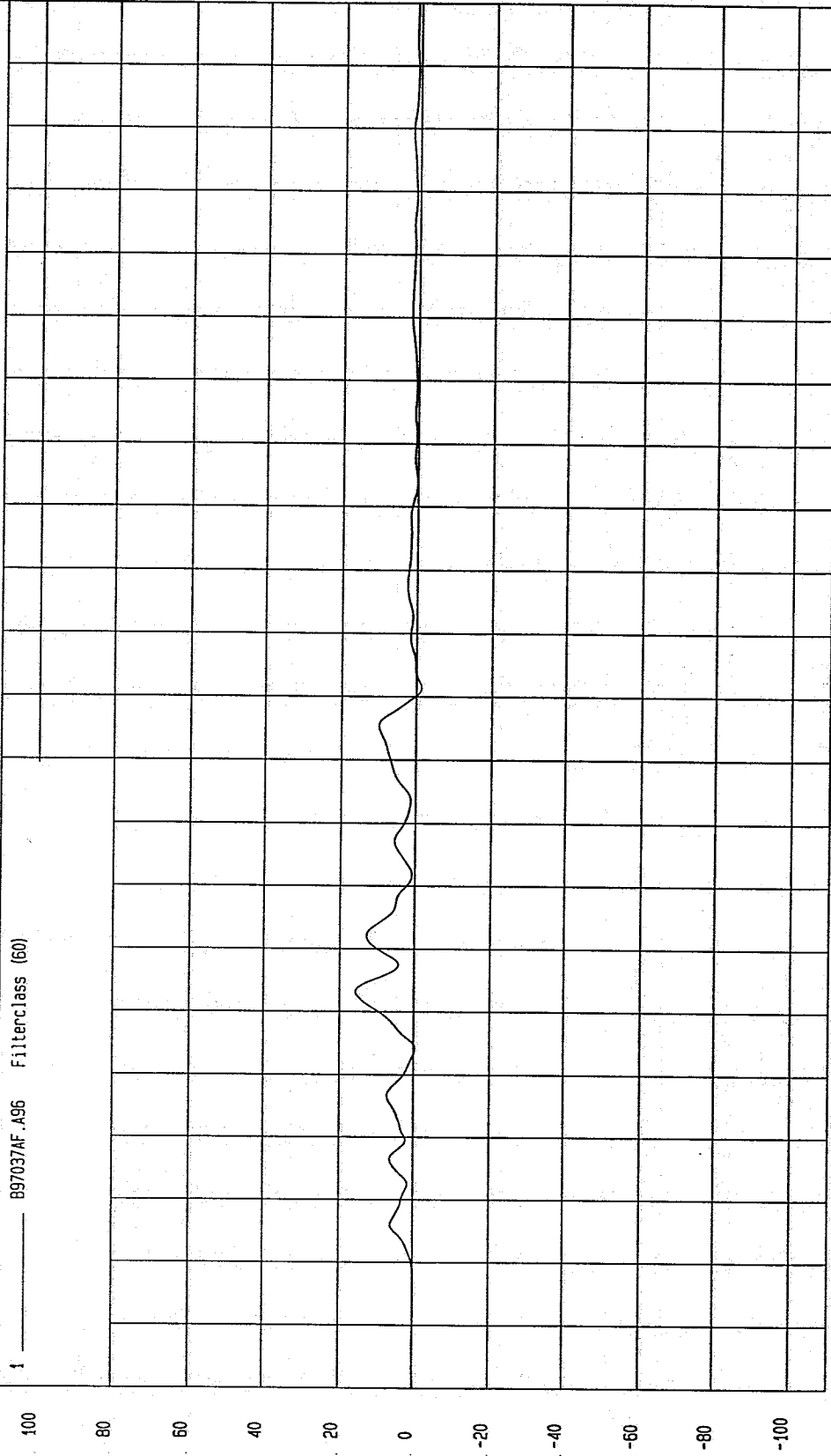
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.40 G'S at 91 msec

Maximum = 15.73 G'S at 43 msec

LEFT SIDE SILL @ BASE OF A PILLAR Y ACCELERATION

1 ——— B97037AF.A96 Filterclass (60)



NSA Research  
04-07-1997 08:32

TIME (SECONDS)

G.S

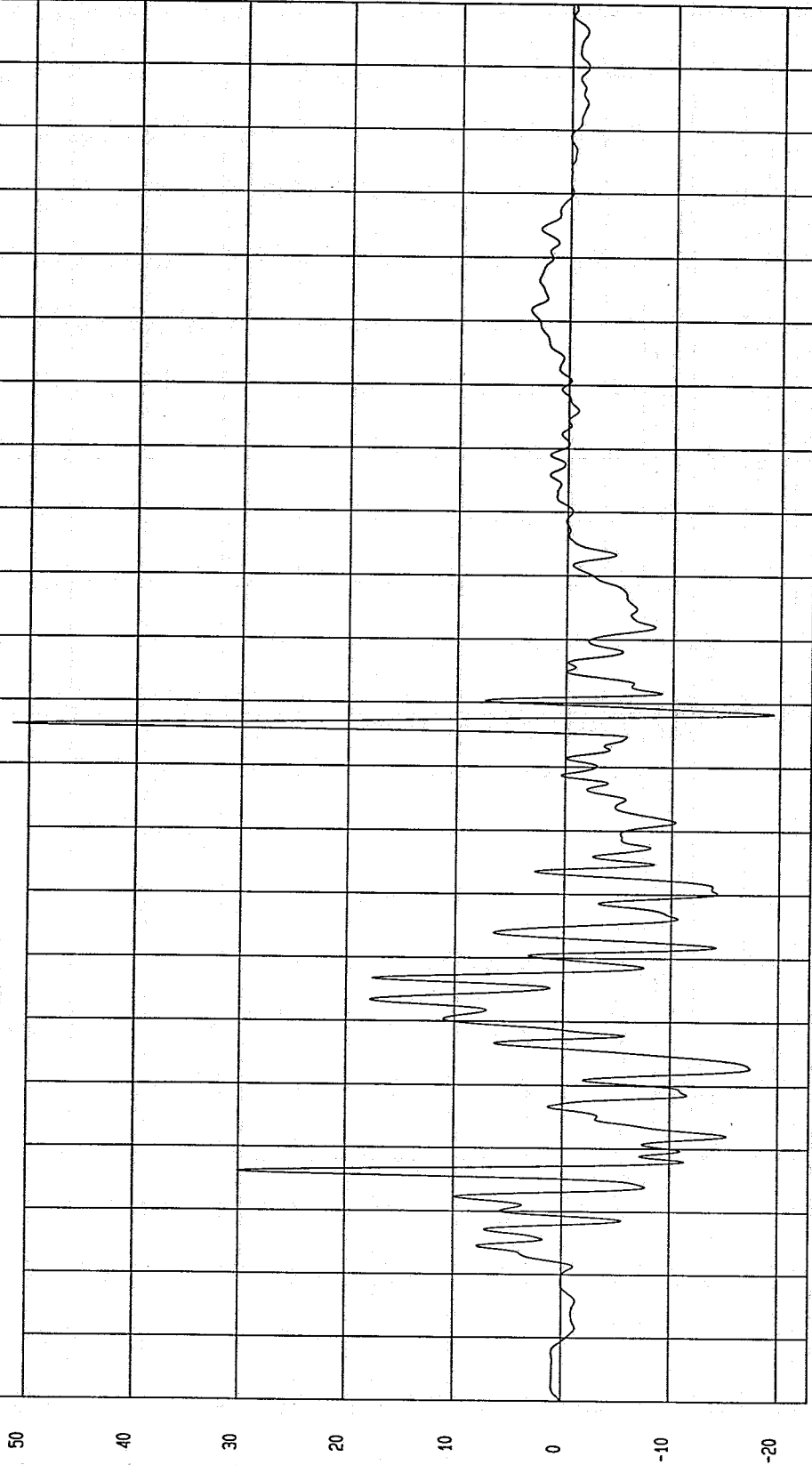
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -19.34 G'S at 88 msec Maximum = 51.50 G'S at 86 msec

LEFT MID A PILLAR X ACCELERATION

1 ——— B97037AF.A92 Filterclass (180)



NSA Research  
04-04-1997 14.43

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

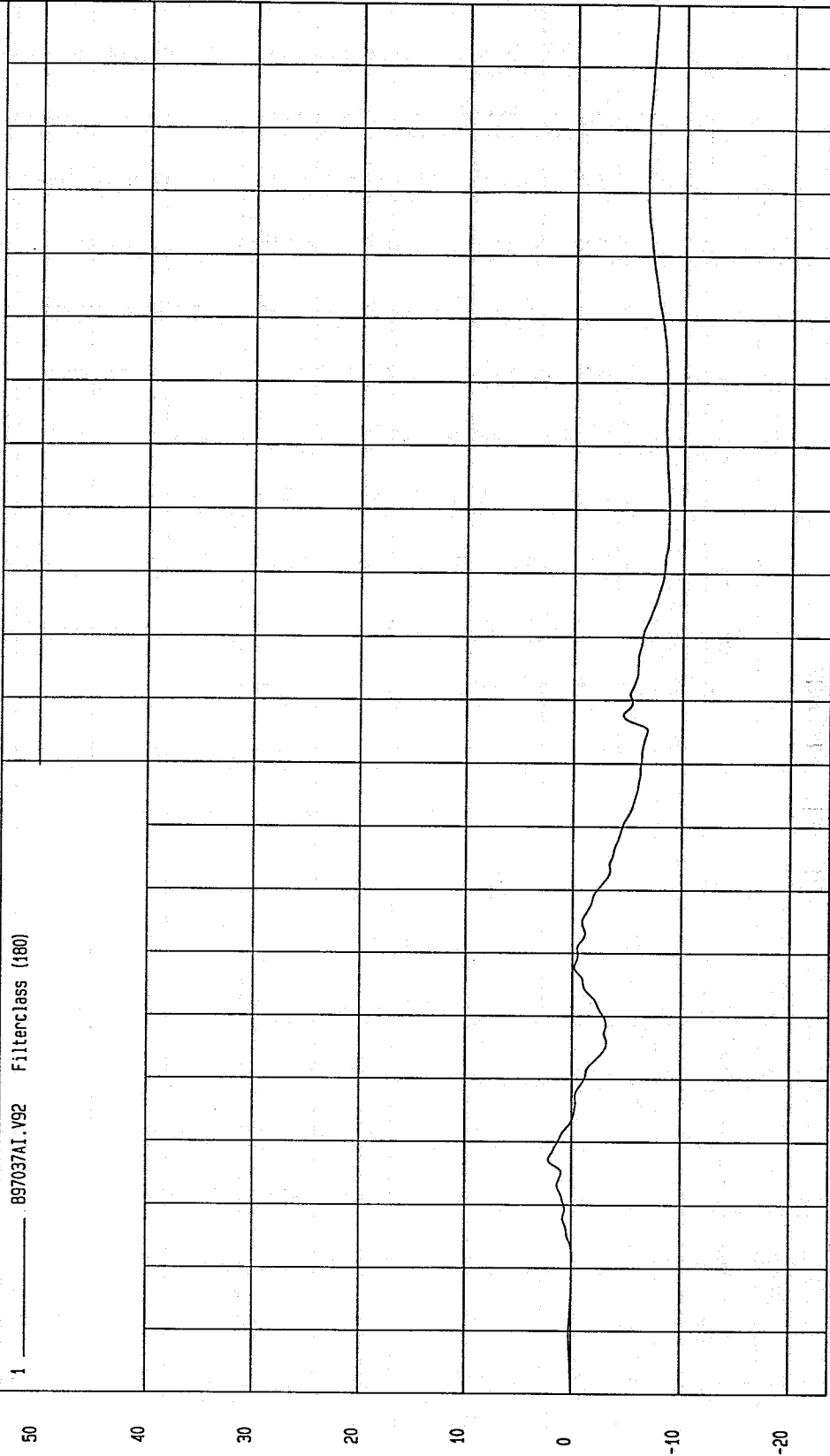
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -8.63 KPH at 121 msec

Maximum = 2.19 KPH at 17 msec

LEFT MID A PILLAR X VELOCITY

1 \_\_\_\_\_ 897037AI.V92 Filterclass (180)



MCA Research  
04-04-1997 14:39

TIME Seconds

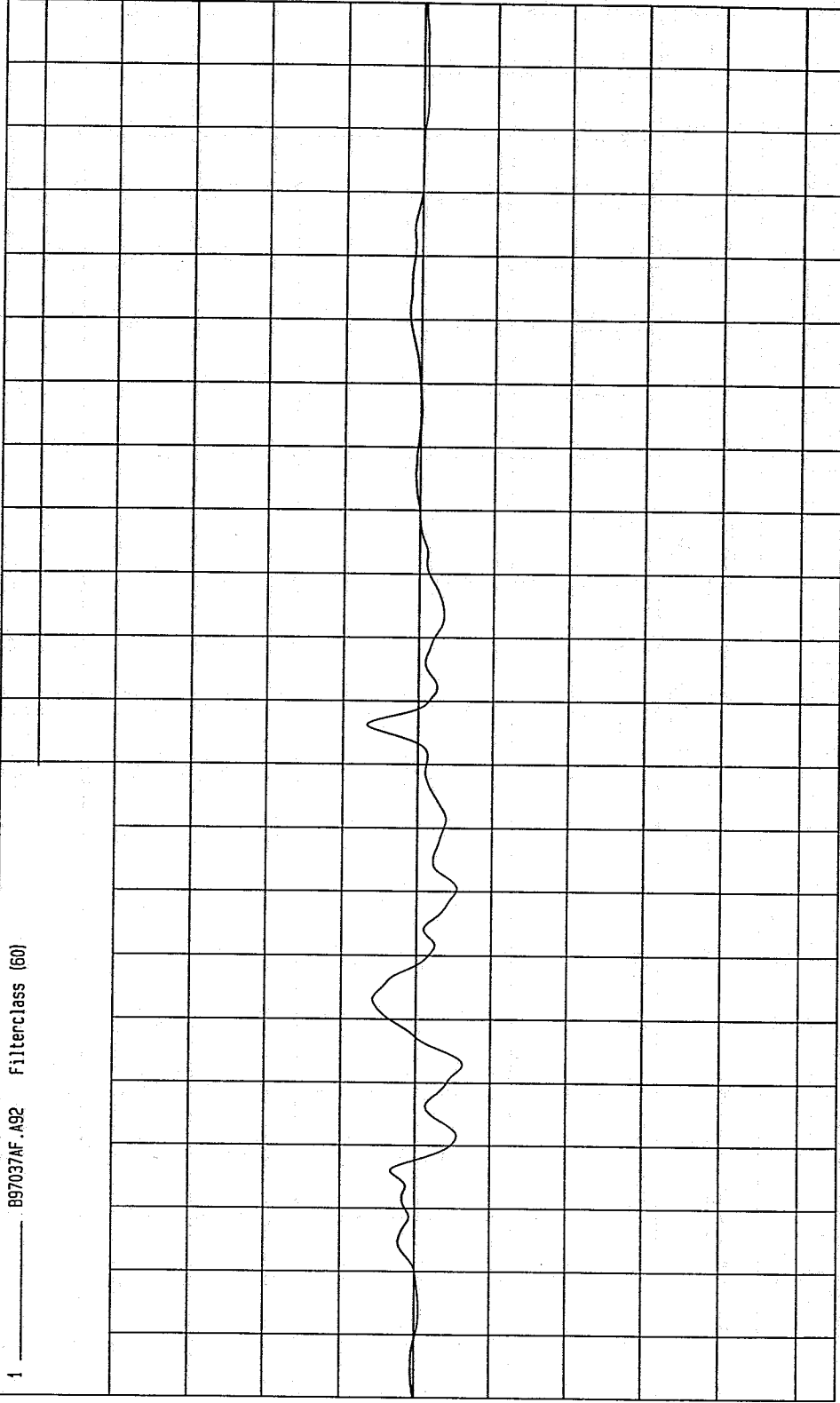
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -12.46 G'S at 33 msec Maximum = 13.60 G'S at 86 msec

LEFT MID A PILLAR X ACCELERATION

1 \_\_\_\_\_ B97037AF.A92 Filterclass (60)



WCA Research Co.  
04-04-1997 14:51

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

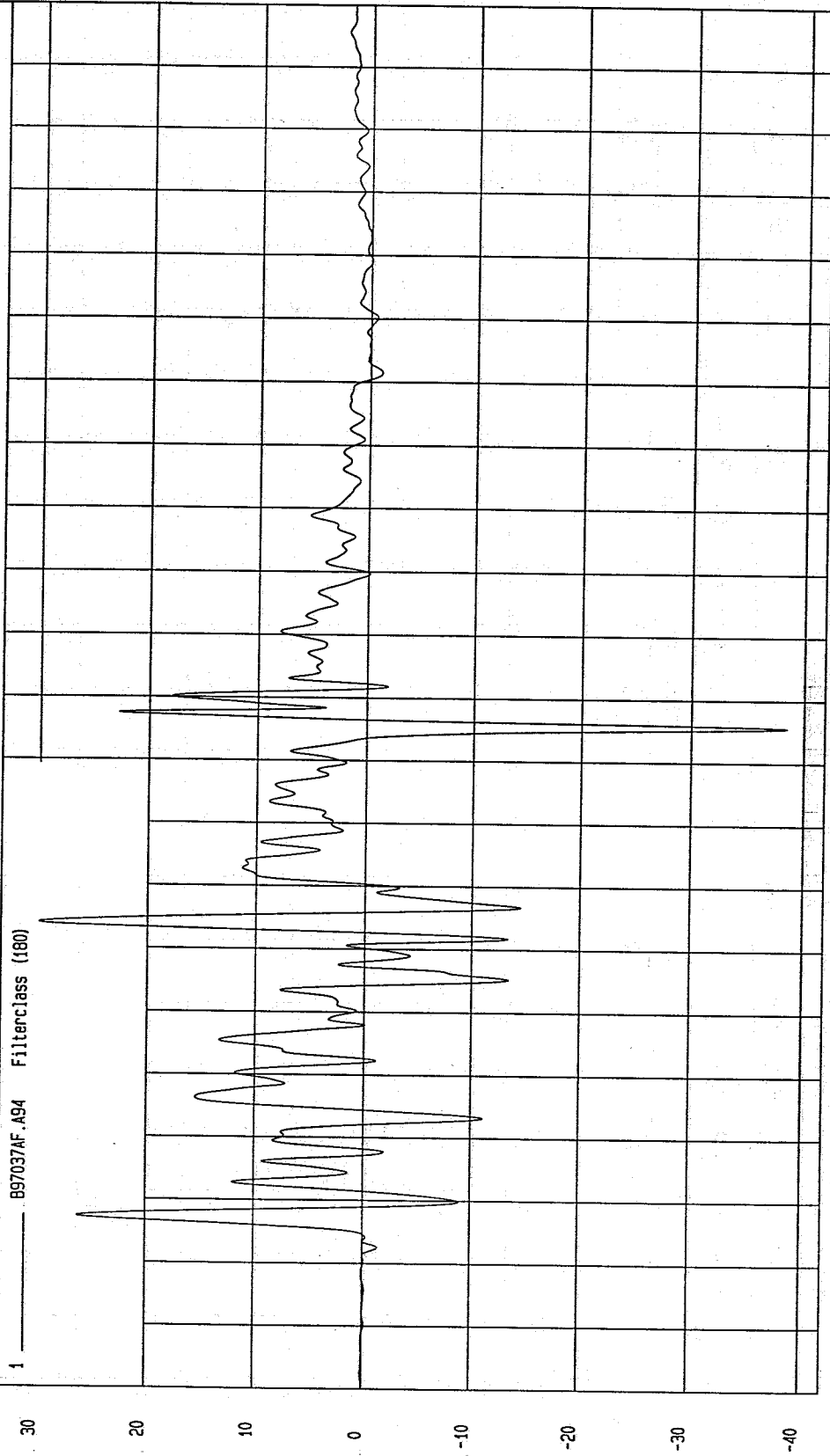
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -38.46 G'S at 86 msec

Maximum = 30.01 G'S at 54 msec

LEFT MID A PILLAR Y ACCELERATION

1 B97037AF.A94 Filterclass (180)



NSA Research  
04-04-1997 A. 43

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

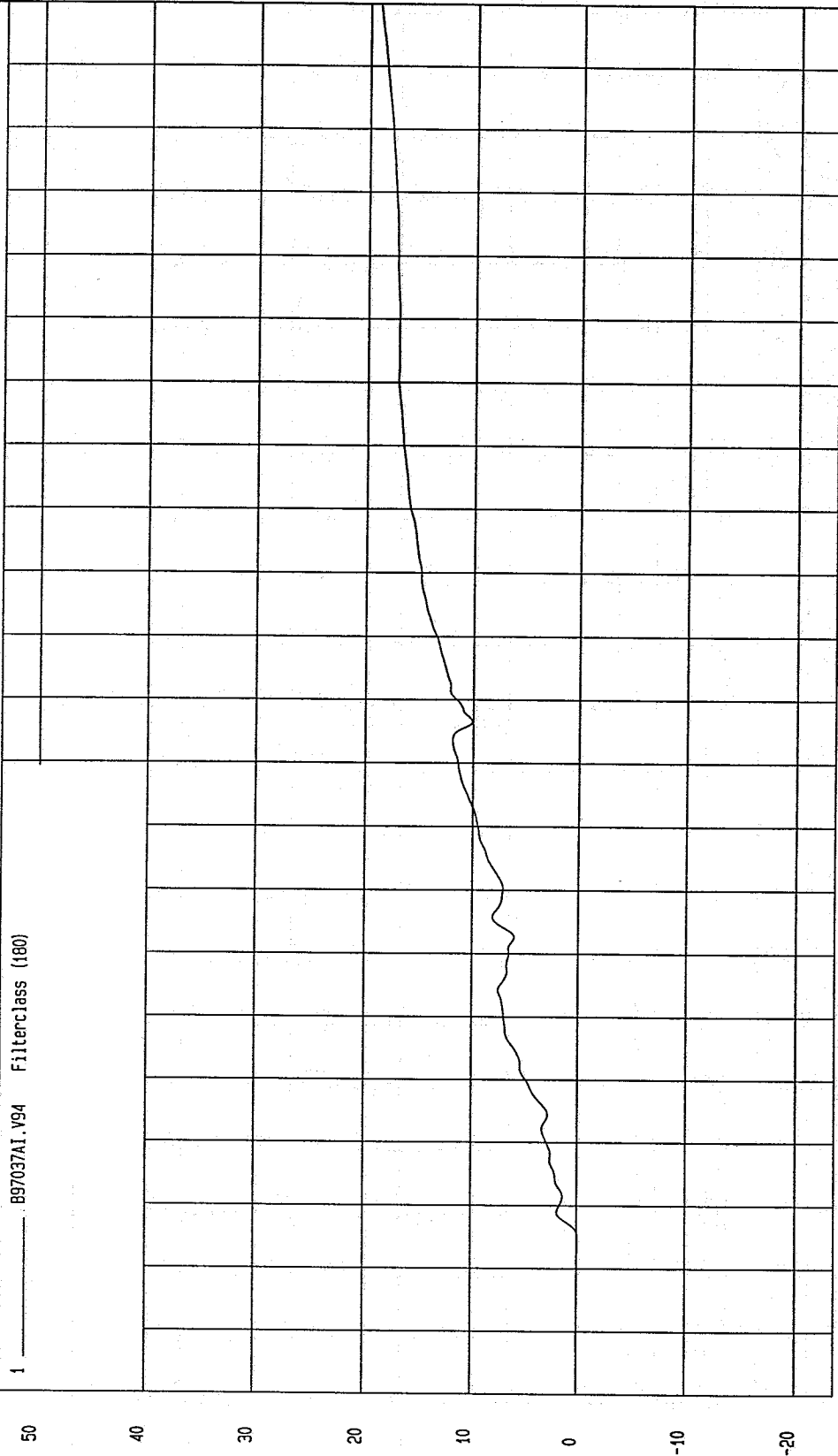
Speed: 39.83 MPH 64.1 KPH

Minimum = -.07 KPH at 5 msec

Maximum = 19.03 KPH at 200 msec

LEFT MID A PILLAR Y VELOCITY

1 B97037A1.V94 Filterclass (100)



MGA Research  
04-04-1997 14:38

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

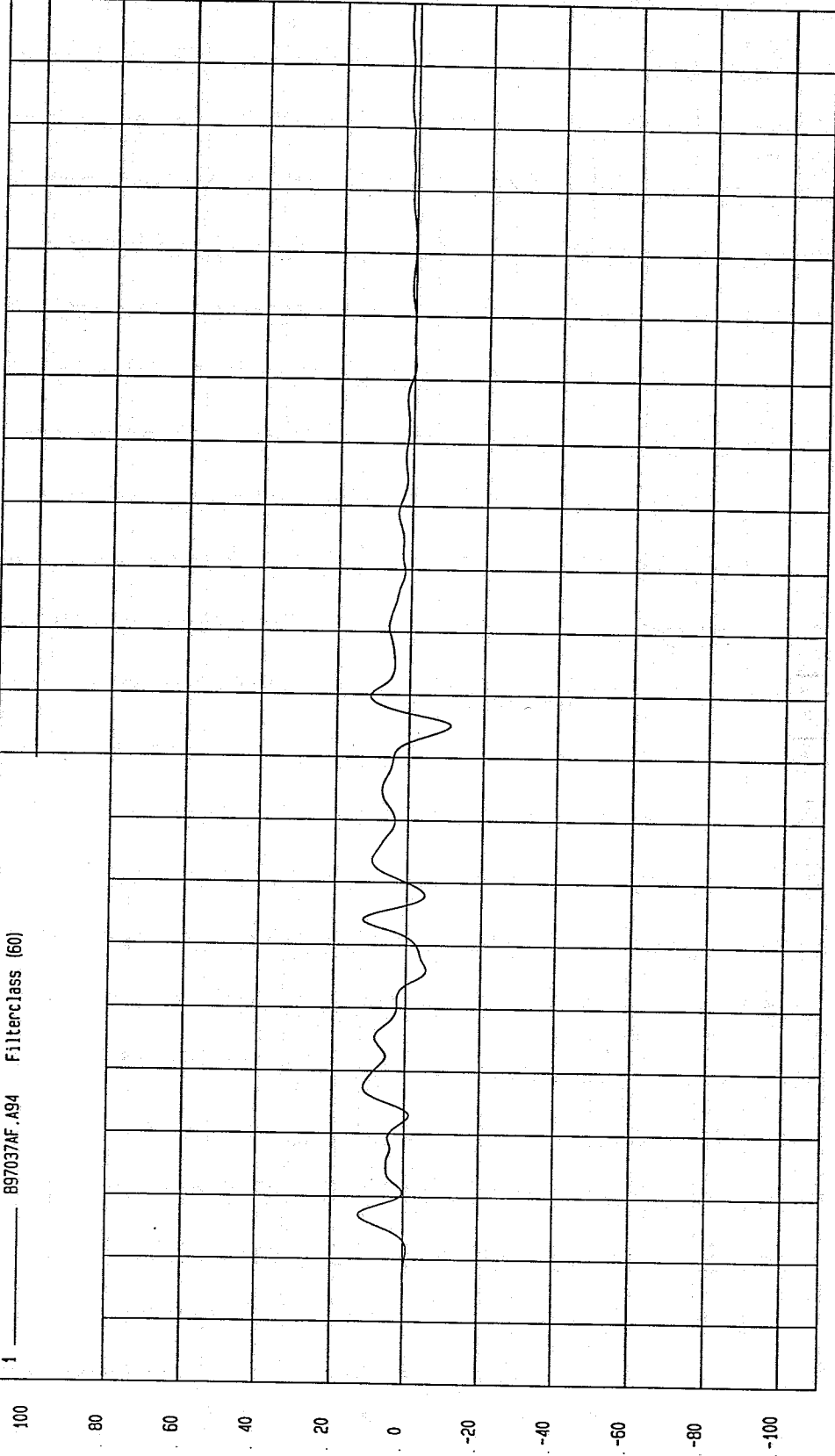
Speed: 39.83 MPH 64.1 KPH

Minimum = -10.98 G'S at 85 msec

Maximum = 12.48 G'S at 7 msec

LEFT MID A PILLAR Y ACCELERATION

1 897037AF.A94 Filterclass (60)



100  
80  
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-40  
-60  
-80  
-100

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.19

TIME (SECONDS)

MCA Research  
04-04-1997 14:51

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

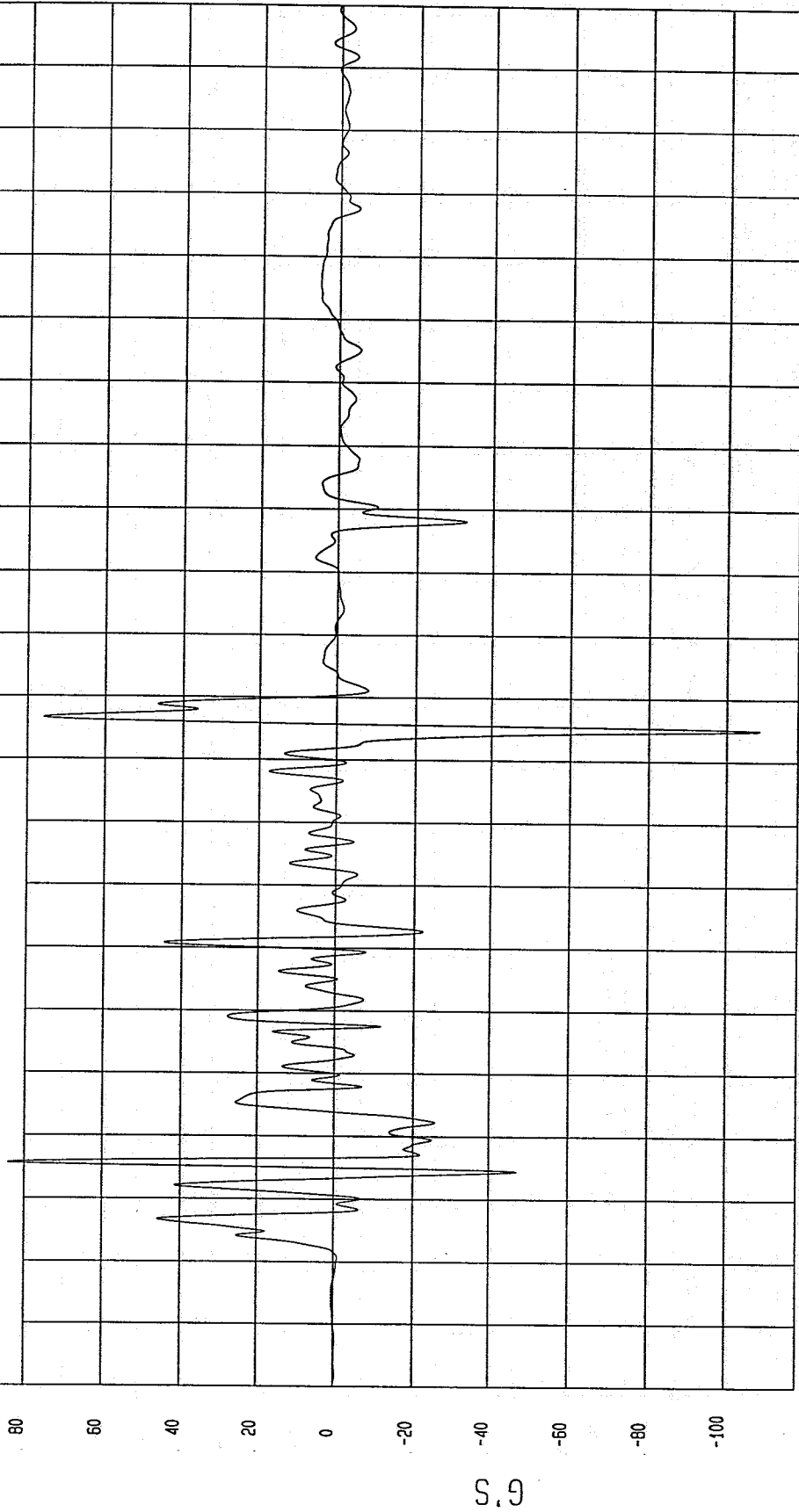
Speed: 39.83 MPH 64.1 KPH

Minimum = -108.03 G'S at 85 msec

Maximum = 84.12 G'S at 16 msec

LEFT LOWER MID A PILLAR Y ACCELERATION

1 ——— .897037AF.A19 Filterclass (480)



MGA Research  
04-07-1997 08:37

TIME (SECONDS)

G'S

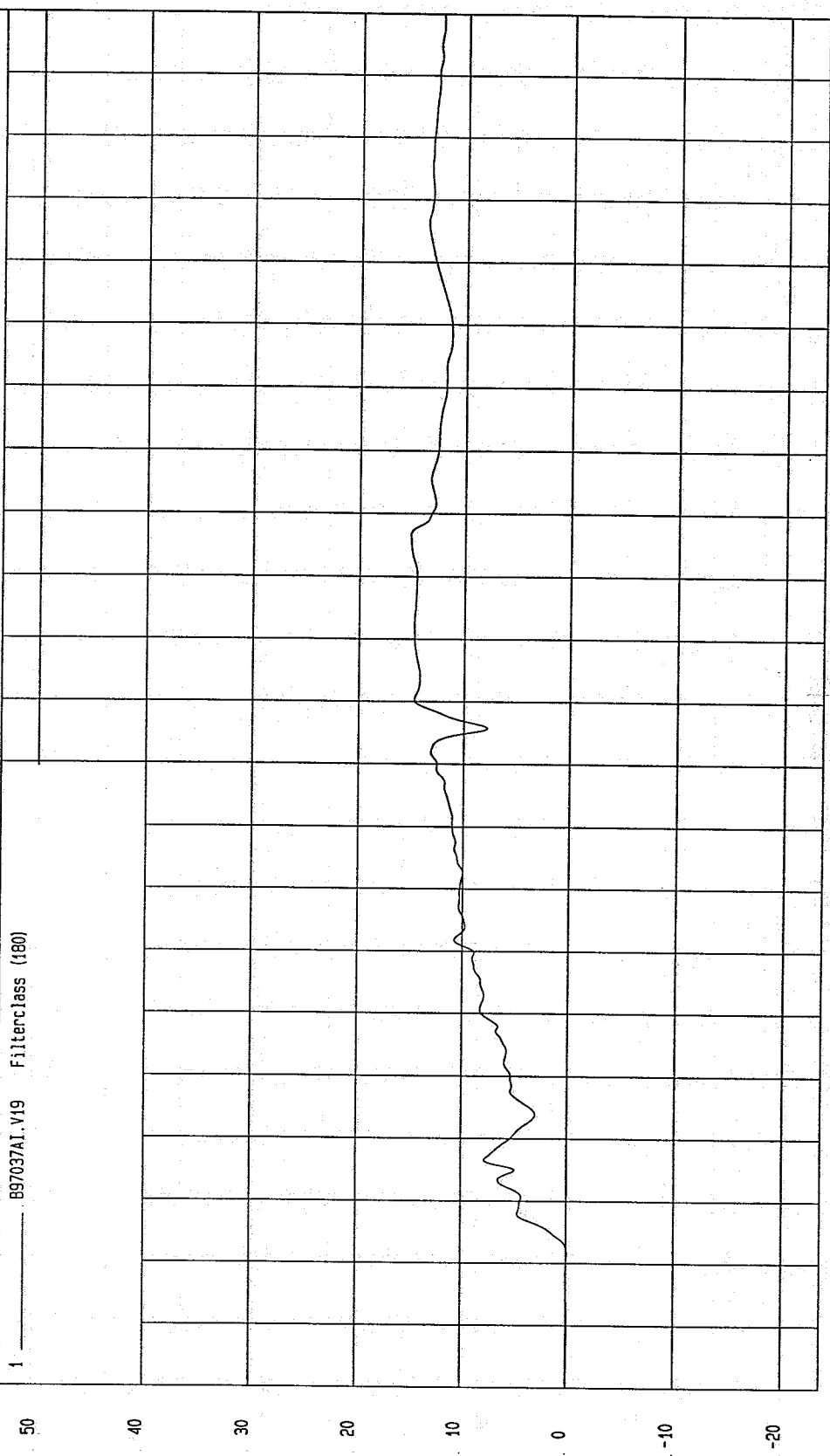
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -6.56E-02 KPH at -11 msec Maximum = 15.08 KPH at 116 msec

LEFT LOWER MID A PILLAR Y VELOCITY

1 ——— 897037A1.V19 Filterclass (180)



TIME Seconds

NGI Research  
04-01-1997 08:36

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

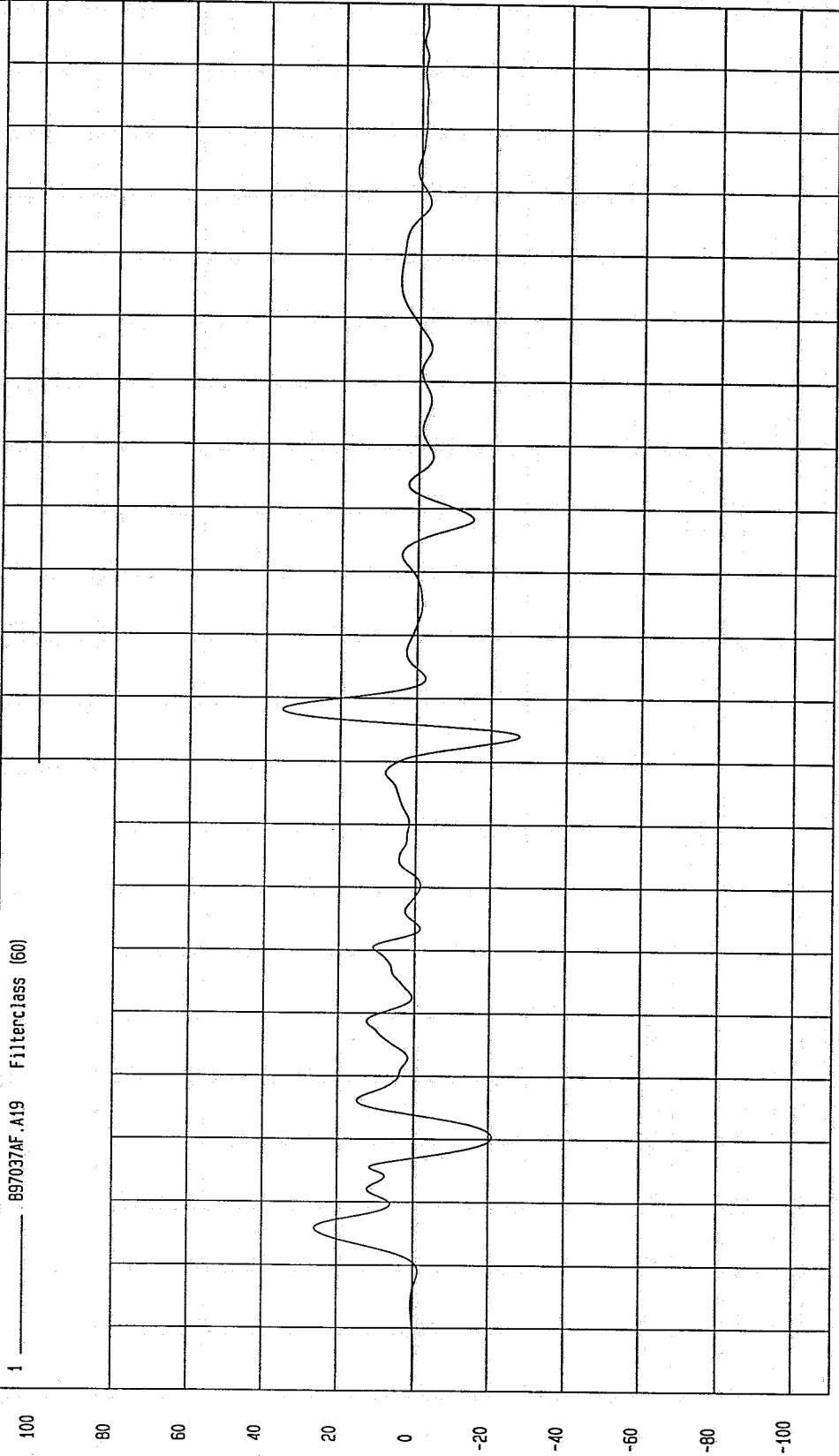
Speed: 39.83 MPH 64.1 KPH

Minimum = -27.57 G'S at 84 msec

Maximum = 35.44 G'S at 88 msec

LEFT LOWER MID A PILLAR Y ACCELERATION

1 ——— .897037AF.A19 Filterclass (60)



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TIME (SECONDS)

MGA Research  
04-07-1997 08:37

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

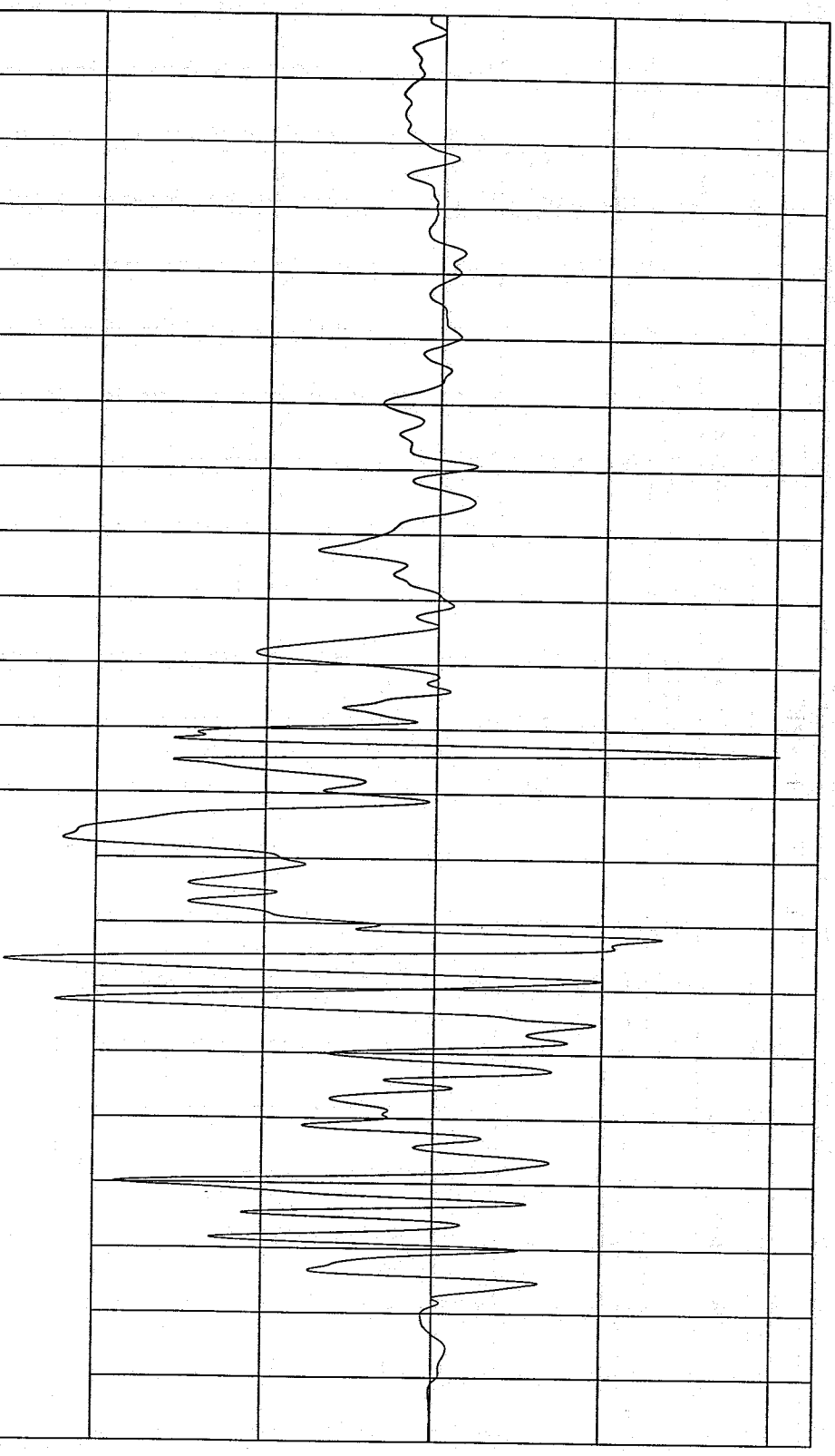
Speed: 39.83 MPH 64.1 KPH

Minimum = -20.26 G'S at 86 msec

Maximum = 25.29 G'S at 54 msec

LEFT UPPER A PILLAR @ ROOF RAIL Y ACCELERATION

1 \_\_\_\_\_ B97037AF.A20 Filterclass (180)



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0.01  
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-0.01  
-0.02

TIME (SECONDS)

MCA Research  
04-07-1997 08:41

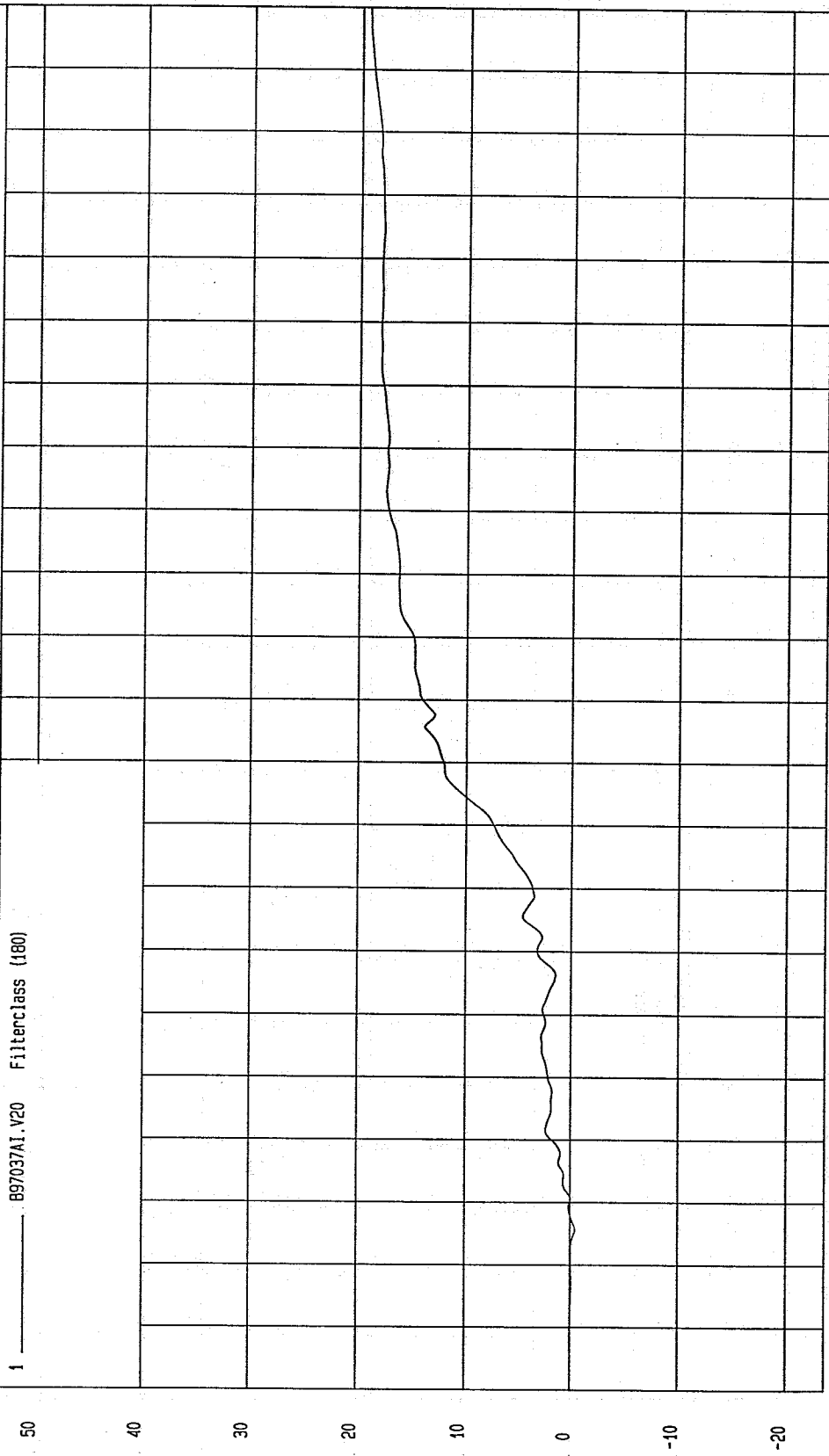
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -.43 KPH at 6 msec Maximum = 19.28 KPH at 200 msec

LEFT UPPER A PILLAR @ ROOF RAIL Y VELOCITY

1 ——— B97037A1.V20 Filterclass (180)



TIME Seconds  
MCA Research  
04-01-1997 08: 41

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

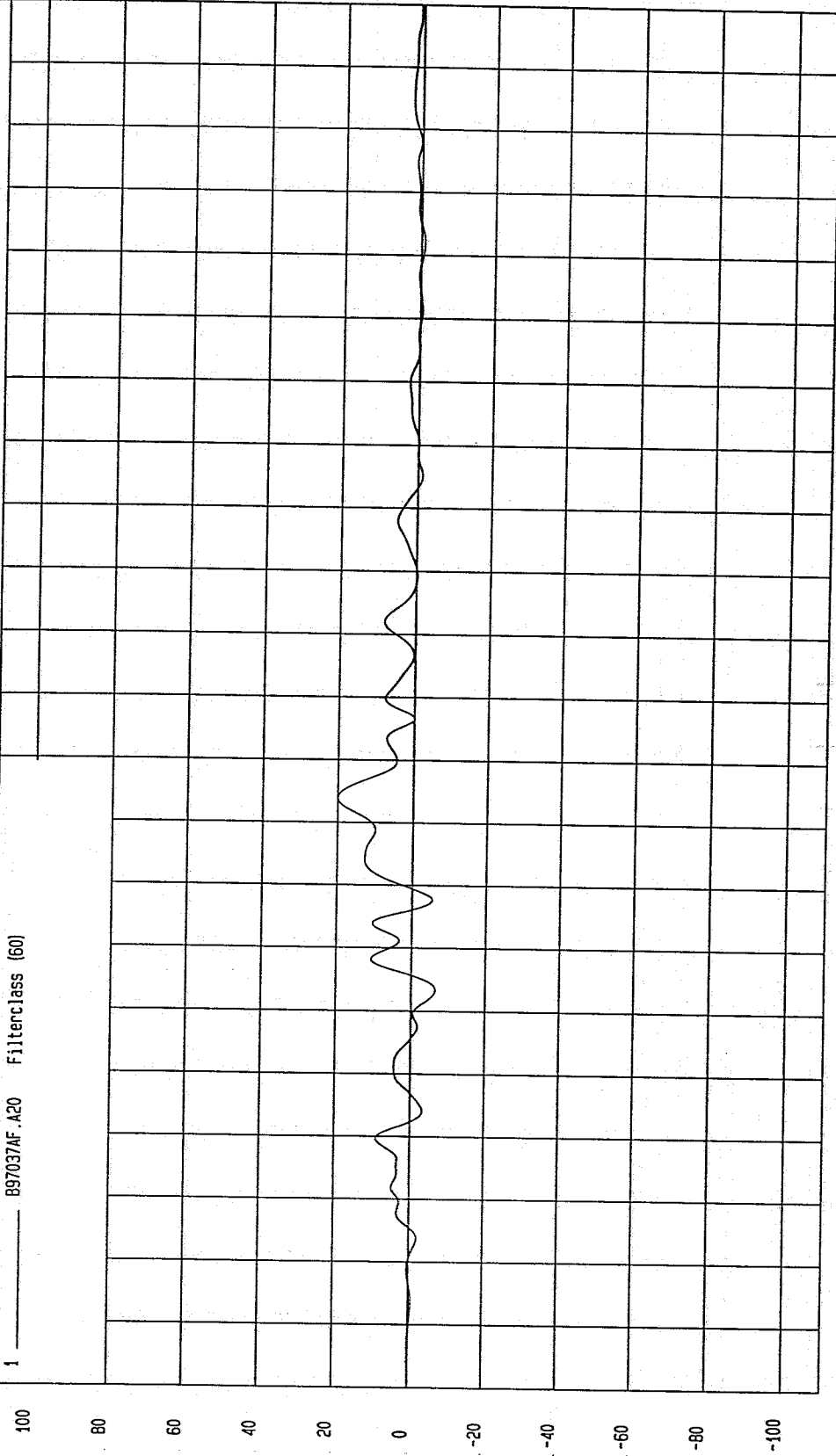
Speed: 39.83 MPH 64.1 KPH

Minimum = -6.41 G'S at 43 msec

Maximum = 20.07 G'S at 74 msec

LEFT UPPER A PILLAR @ ROOF RAIL Y ACCELERATION

1 ——— B97037AF.A20 Filterclass (60)



NGA Research  
04-07-1997 08.42

TIME (SECONDS)

G.S

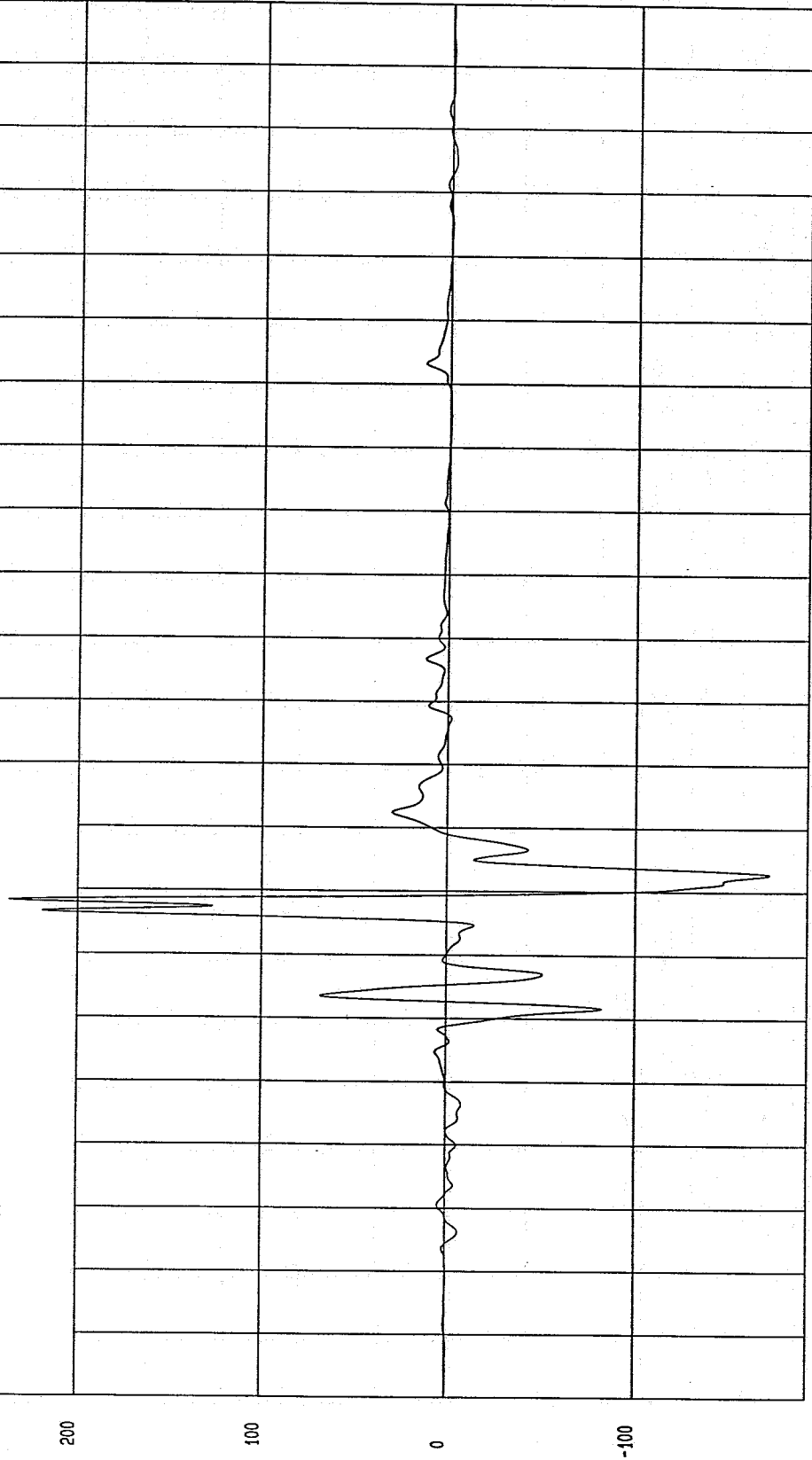
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -171.20 G'S at 63 msec  
Maximum = 236.45 G'S at 58 msec

LEFT SIDE SILL AT BASE OF B PILLAR X ACCELERATION

1 \_\_\_\_\_ B97037AF.A90 Filterclass (100)



MSA Research  
04-07-1997 08:54

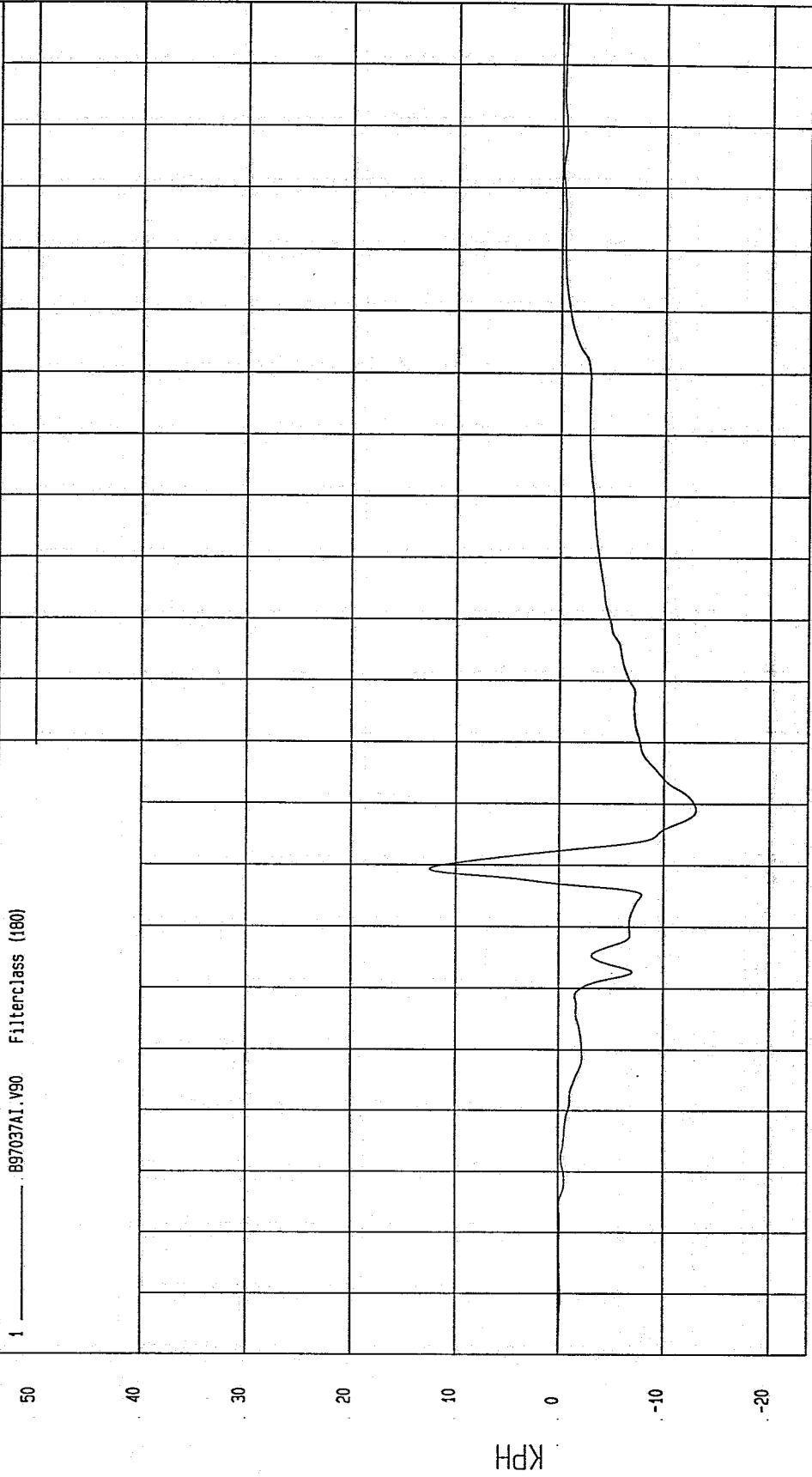
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -13.07 KPH at 69 msec  
Maximum = 12.54 KPH at 59 msec

LEFT SIDE SILL @ BASE OF B PILLAR X VELOCITY

1 \_\_\_\_\_ B97037A1.V90 Filterclass (180)



TIME Seconds  
MGA Research  
04-07-1997 08:54

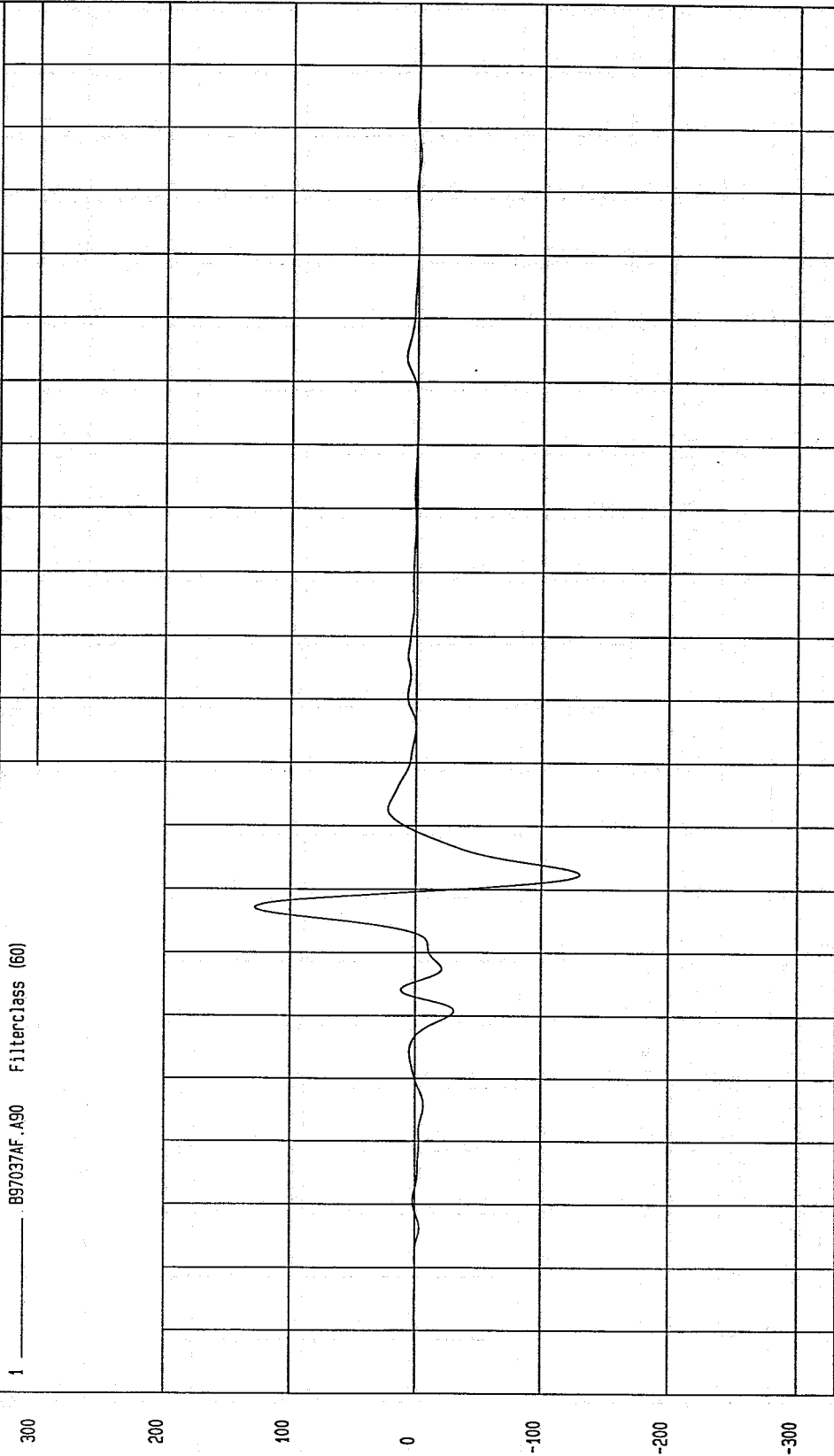
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -130.22 G'S at 62 msec Maximum = 128.30 G'S at 57 msec

LEFT SIDE SILL @ BASE OF B PILLAR X ACCELERATION

1 ——— .B97037AF.A90 Filterclass (60)



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TIME (SECONDS)

MGA Research  
04-07-1997 08:55

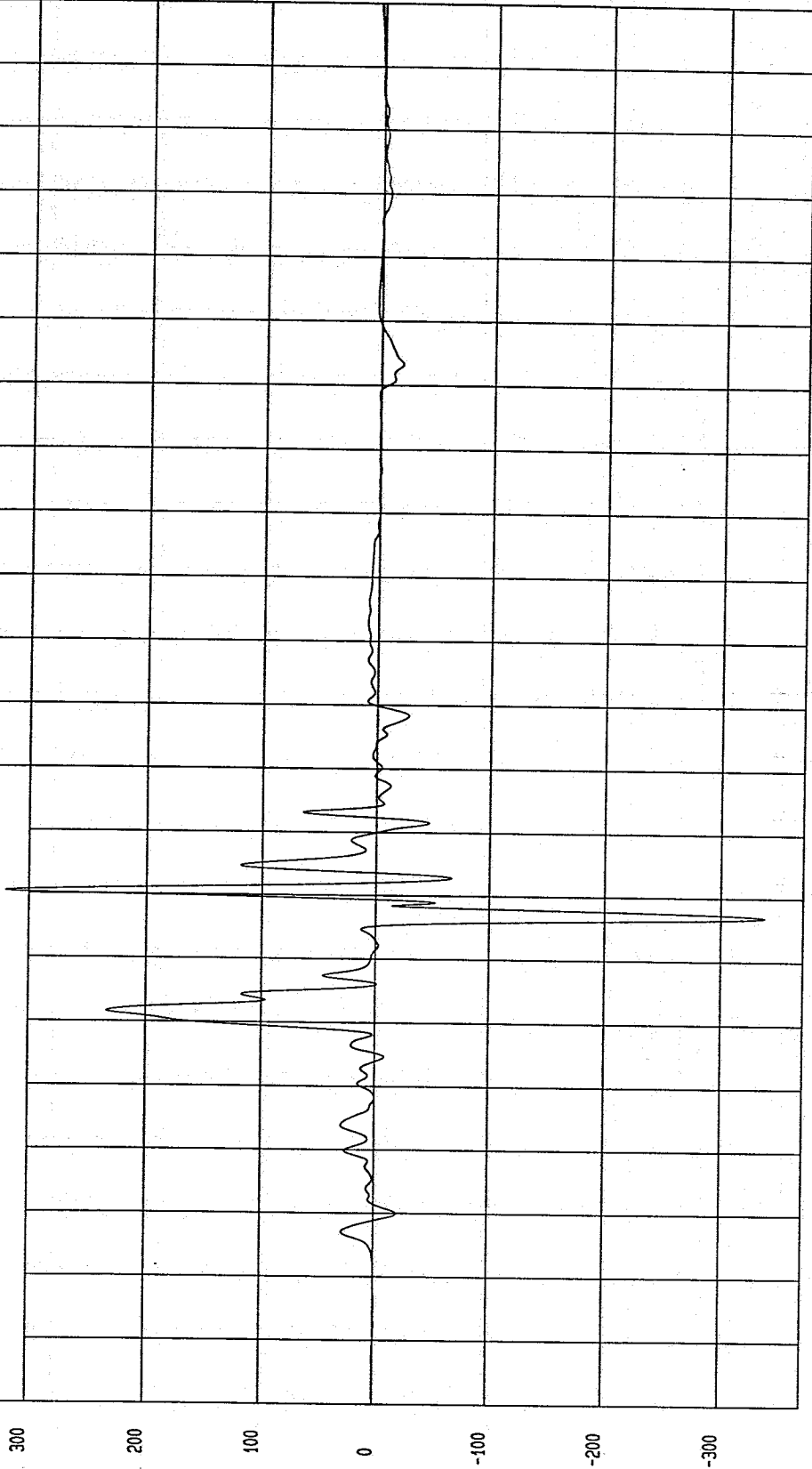
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -337.38 G'S at 57 msec  
Maximum = 319.67 G'S at 60 msec

LEFT SIDE SILL @ BASE OF B PILLAR Y ACCELERATION

1 ——— 897037AF.A91 Filterclass (180)



MSA Research Co.  
04-07-1997 08:54

TIME (SECONDS)

G.S

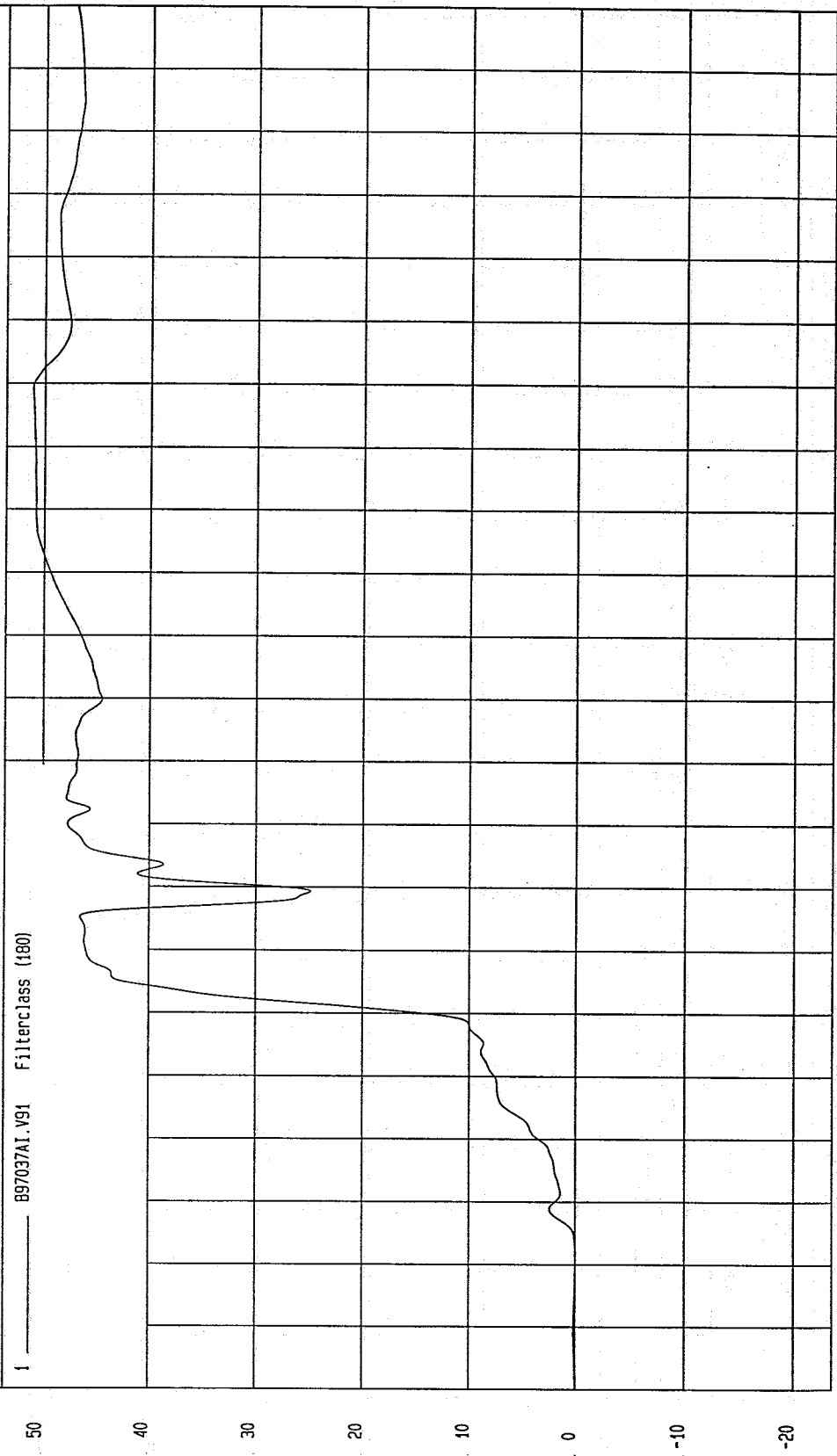
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.46E-02 KPH at 2 msec  
Maximum = 51.06 KPH at 139 msec

LEFT SIDE SILL @ BASE OF B PILLAR Y VELOCITY

1 ——— 897037A1.V91 Filterclass (180)



TIME Seconds

MCA Research  
04-01-1997 08:54

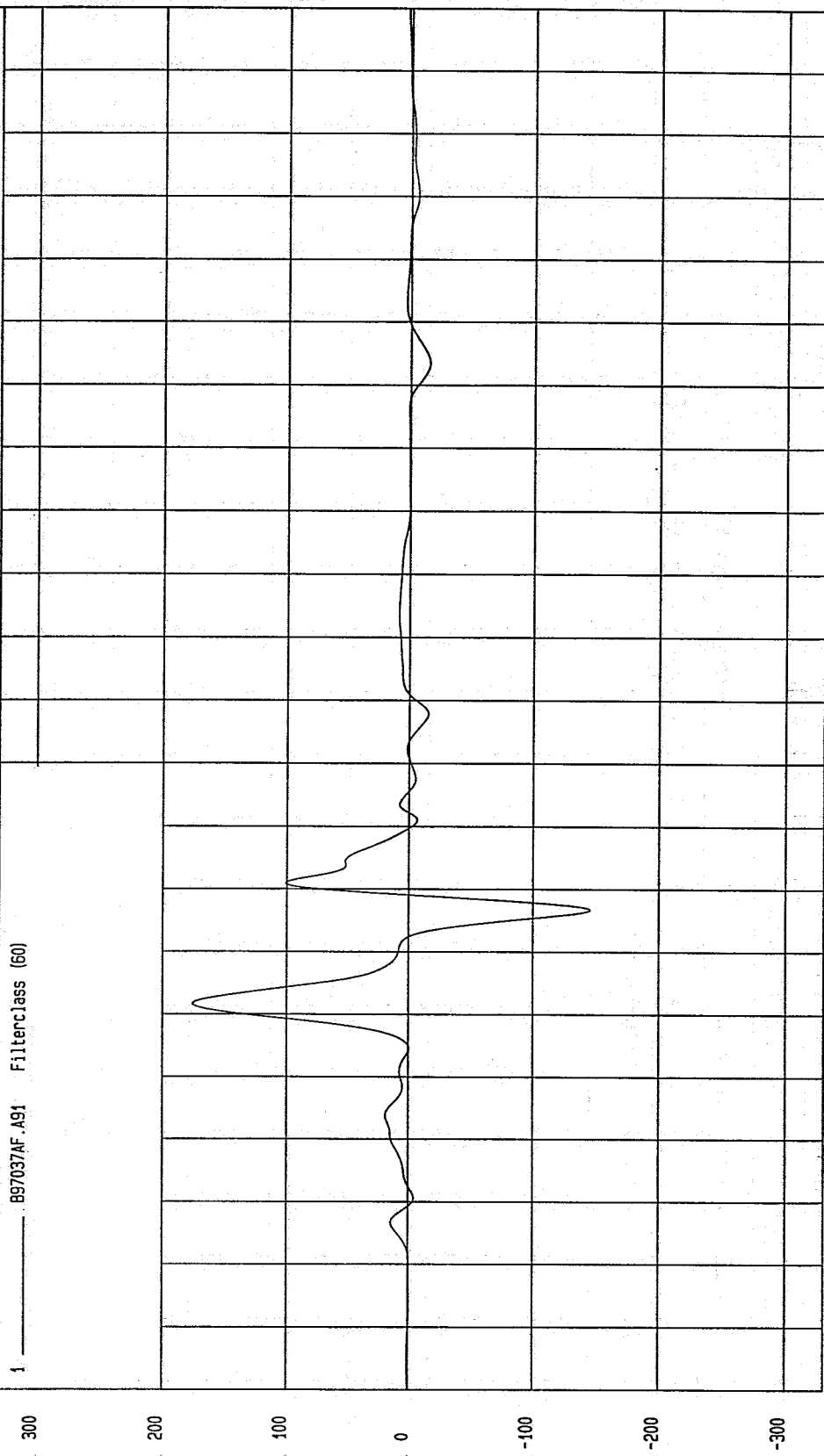
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -145.03 G'S at 57 msec Maximum = 175.62 G'S at 42 msec

LEFT SIDE SILL @ BASE OF B PILLAR Y ACCELERATION

1 \_\_\_\_\_ 897037AF.A91 Filterclass (60)



MGA Research  
03-07-1997 08:55

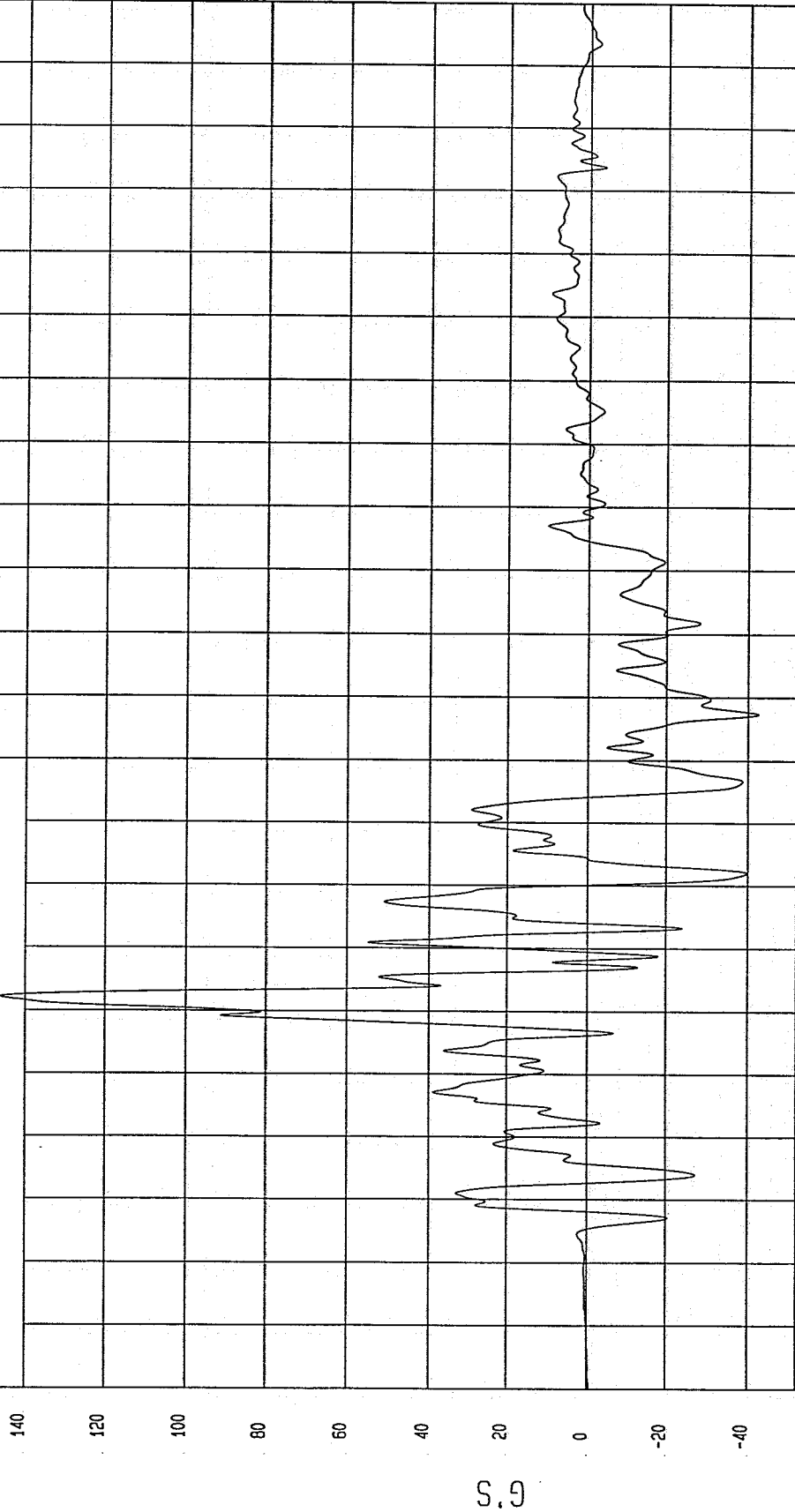
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -42.44 G'S at 87 msec  
Maximum = 146.09 G'S at 42 msec

LEFT LOWER MID B PILLAR Y ACCELERATION

1 B97037AF.A29 Filterclass (180)



NGA Research  
04-01-1997 09: 01

TIME (SECONDS)

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

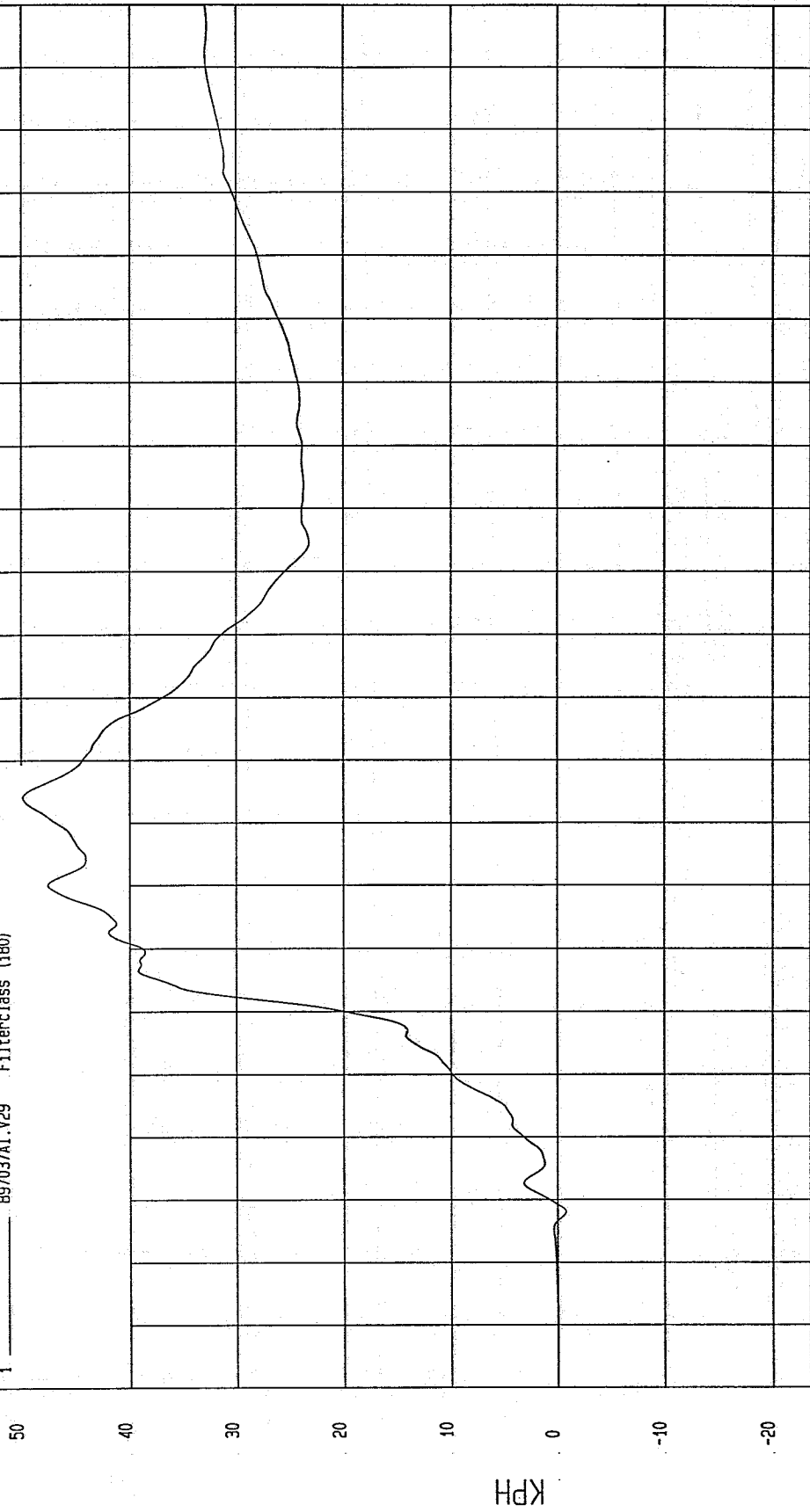
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -.78 KPH at 8 msec

Maximum = 49.84 KPH at 74 msec

LEFT LOWER MID B PILLAR Y VELOCITY

1 897037AI.V29 Filterclass (180)



NGA Research  
04-07-1997 09:01

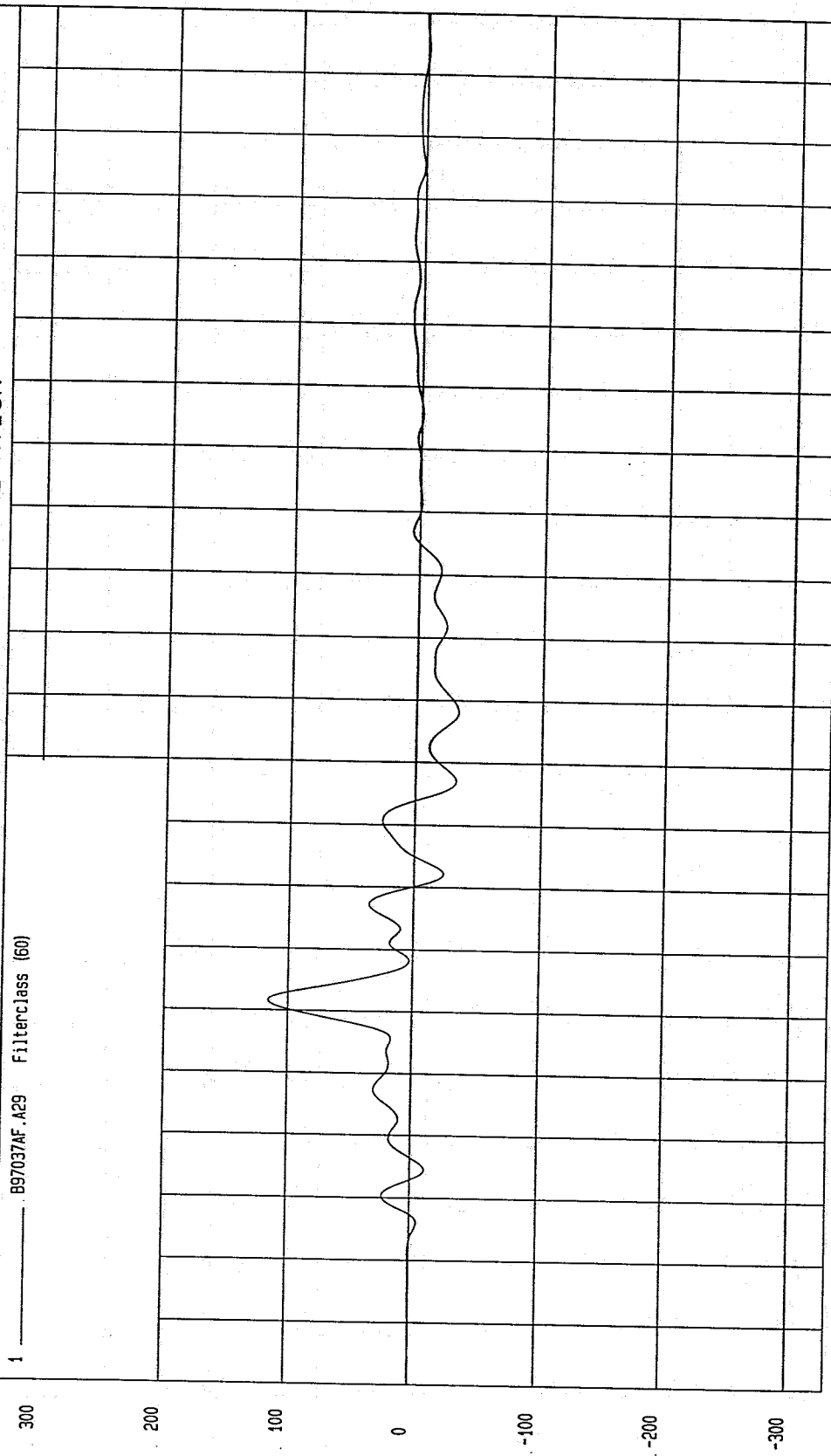
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -32.55 G'S at 88 msec  
Maximum = 116.07 G'S at 42 msec

LEFT LOWER MID B PILLAR Y ACCELERATION

1 B97037AF.A29 Filterclass (60)



MGA Research  
0A-07-1997 09: 01

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

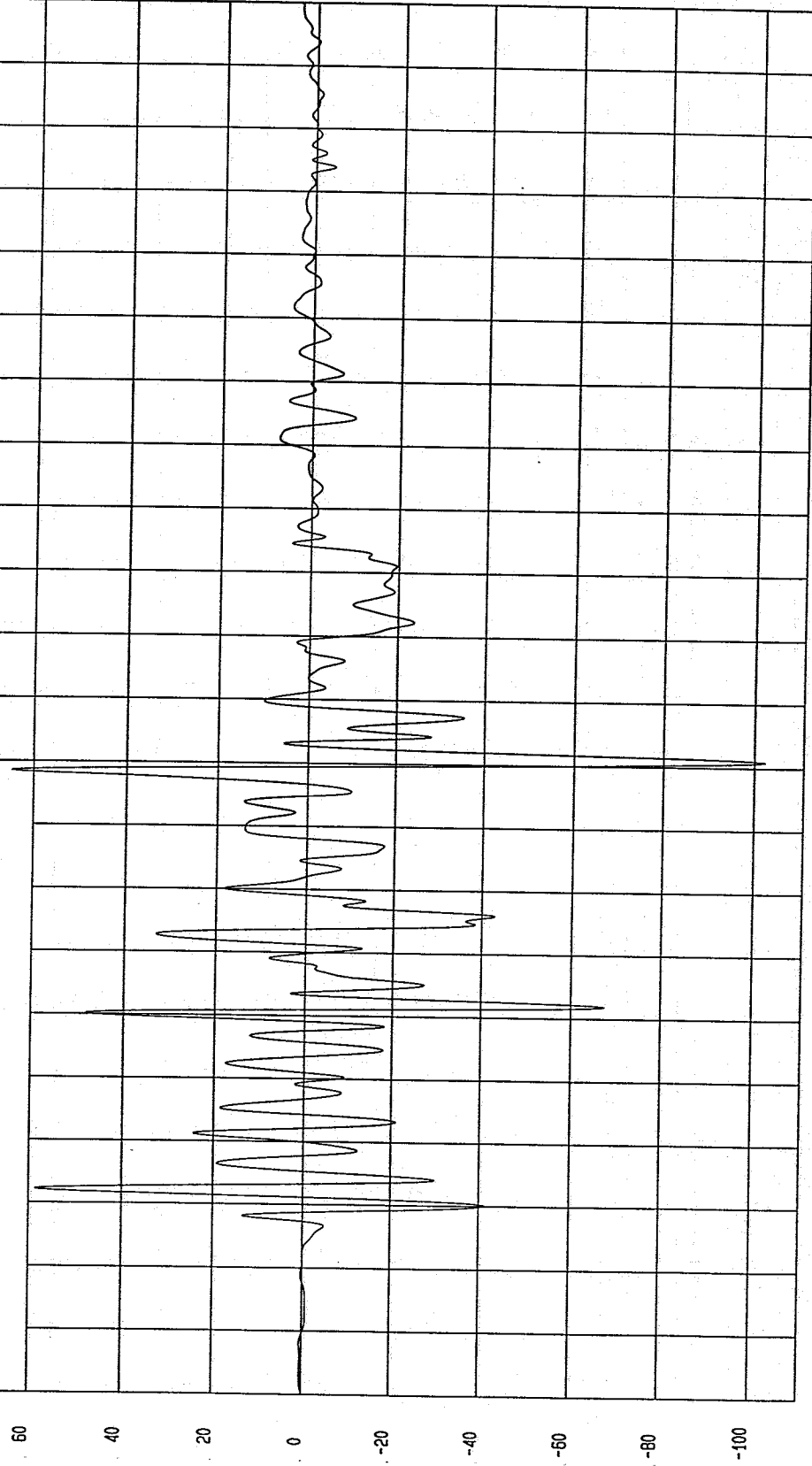
Speed: 39.83 MPH 64.1 KPH

Minimum = -102.23 G'S at 81 msec

Maximum = 64.85 G'S at 78 msec

LEFT MID B PILLAR X ACCELERATION

1 \_\_\_\_\_ 897037AF.A88 Filterclass (180)



NSA Research  
04-04-1997 1A.44

TIME (SECONDS)

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TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

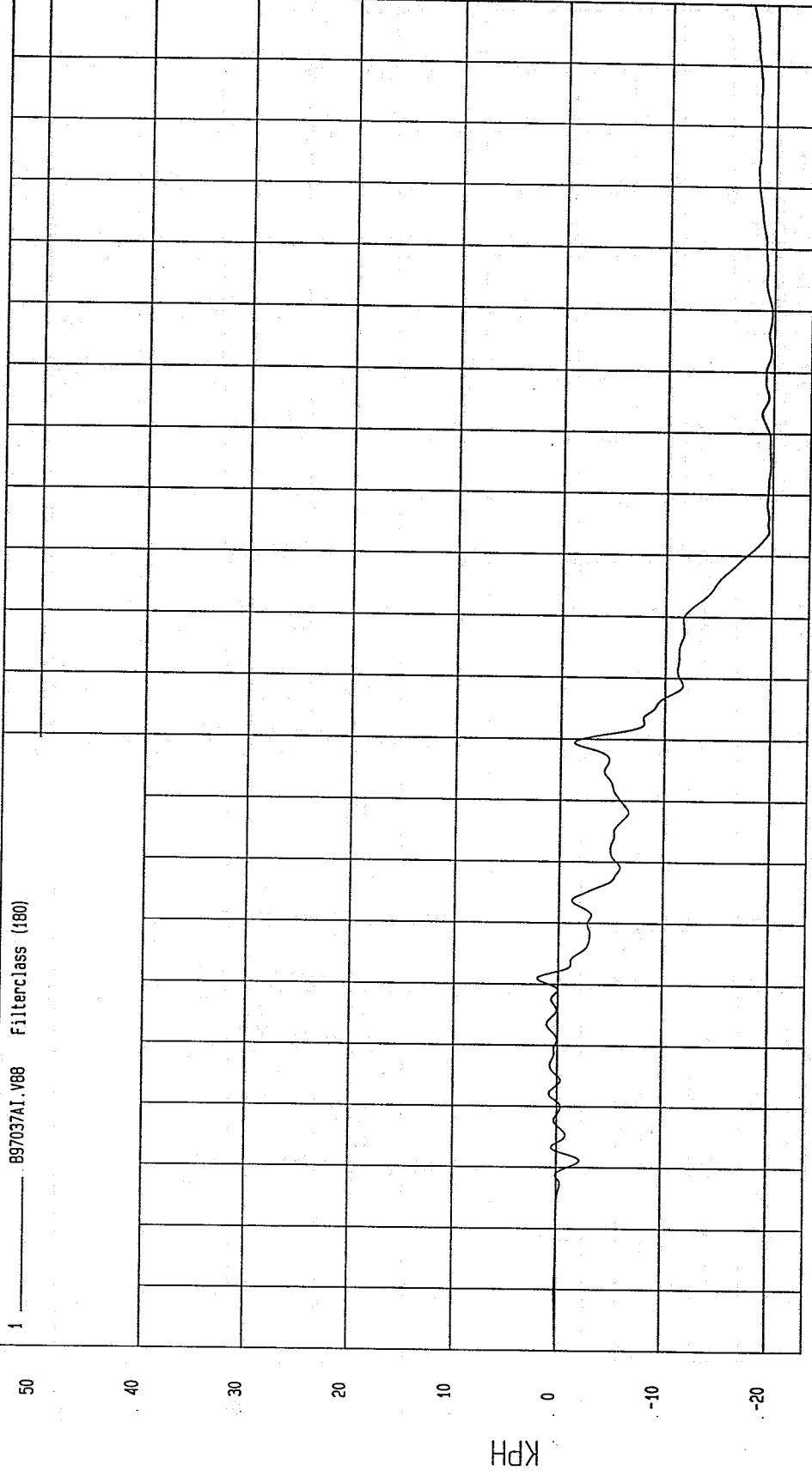
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -19.74 KPH at 125 msec

Maximum = 2.01 KPH at 41 msec

LEFT MID B PILLAR X VELOCITY

1 ——— 897037A1.V08 Filterclass (180)



NGA Research  
04-07-1997 09: 05

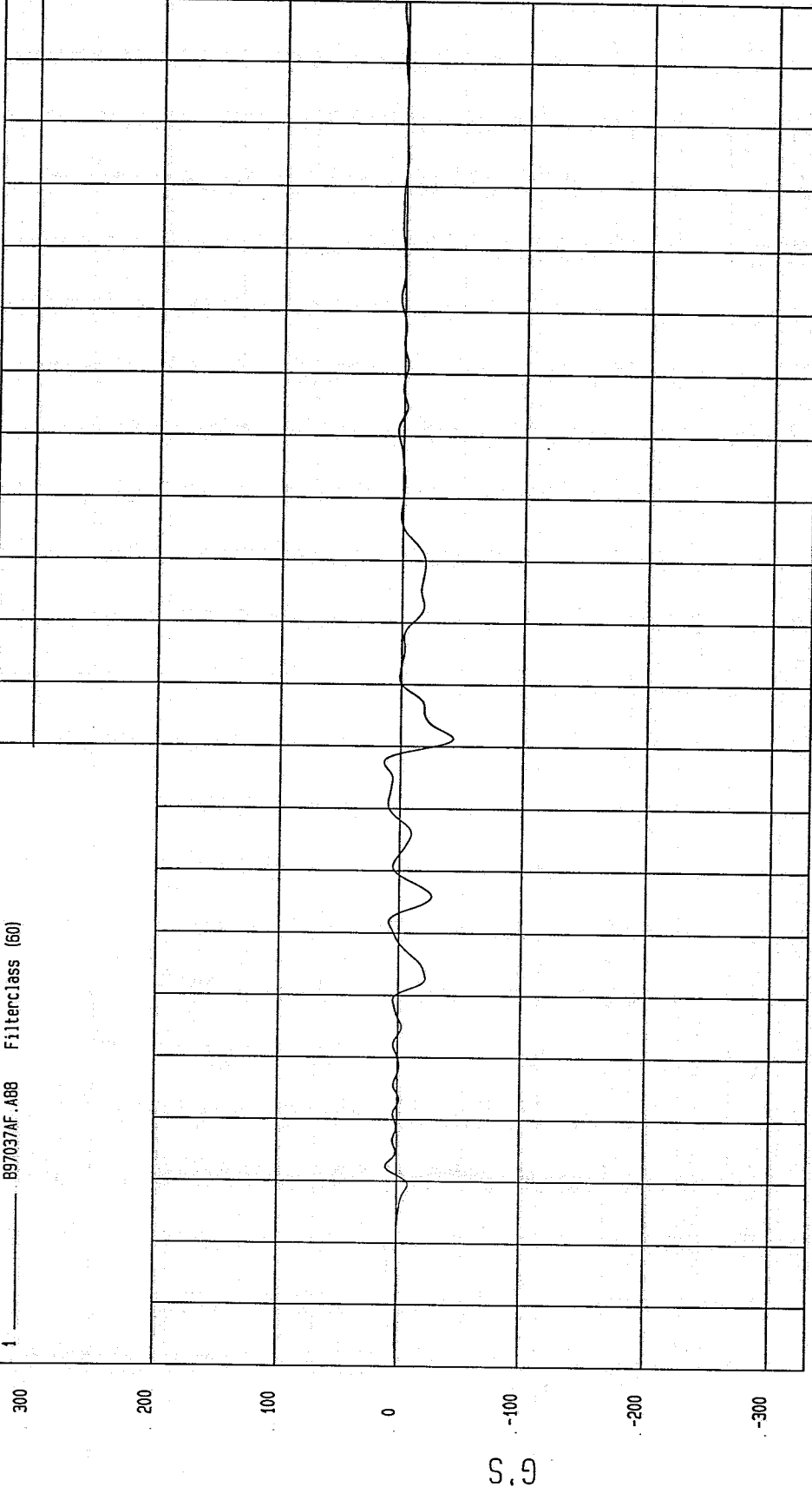
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -42.32 G'S at 81 msec Maximum = 13.82 G'S at 77 msec

LEFT MID B PILLAR X ACCELERATION

1 \_\_\_\_\_ 897037AF.A88 Filterclass (60)



NGA Research  
04-04-1997 1A:52

TIME (SECONDS)

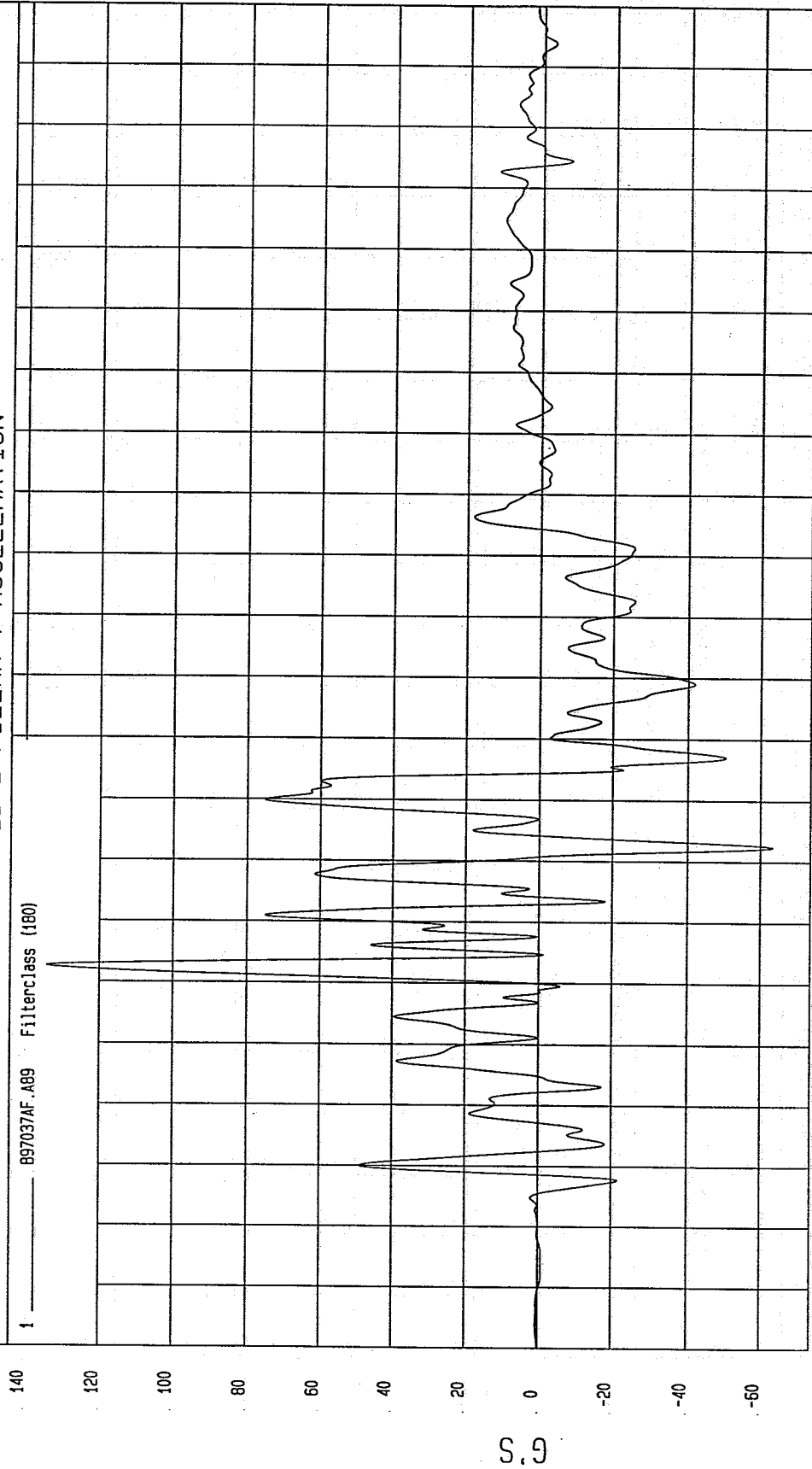
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -63.14 G'S at 62 msec  
Maximum = 134.22 G'S at 43 msec

LEFT MID B PILLAR Y ACCELERATION

1 \_\_\_\_\_ 897037AF.A89 Filterclass (f80)



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TIME (SECONDS)

NGA Research  
0A-04-1997 1A: 4A

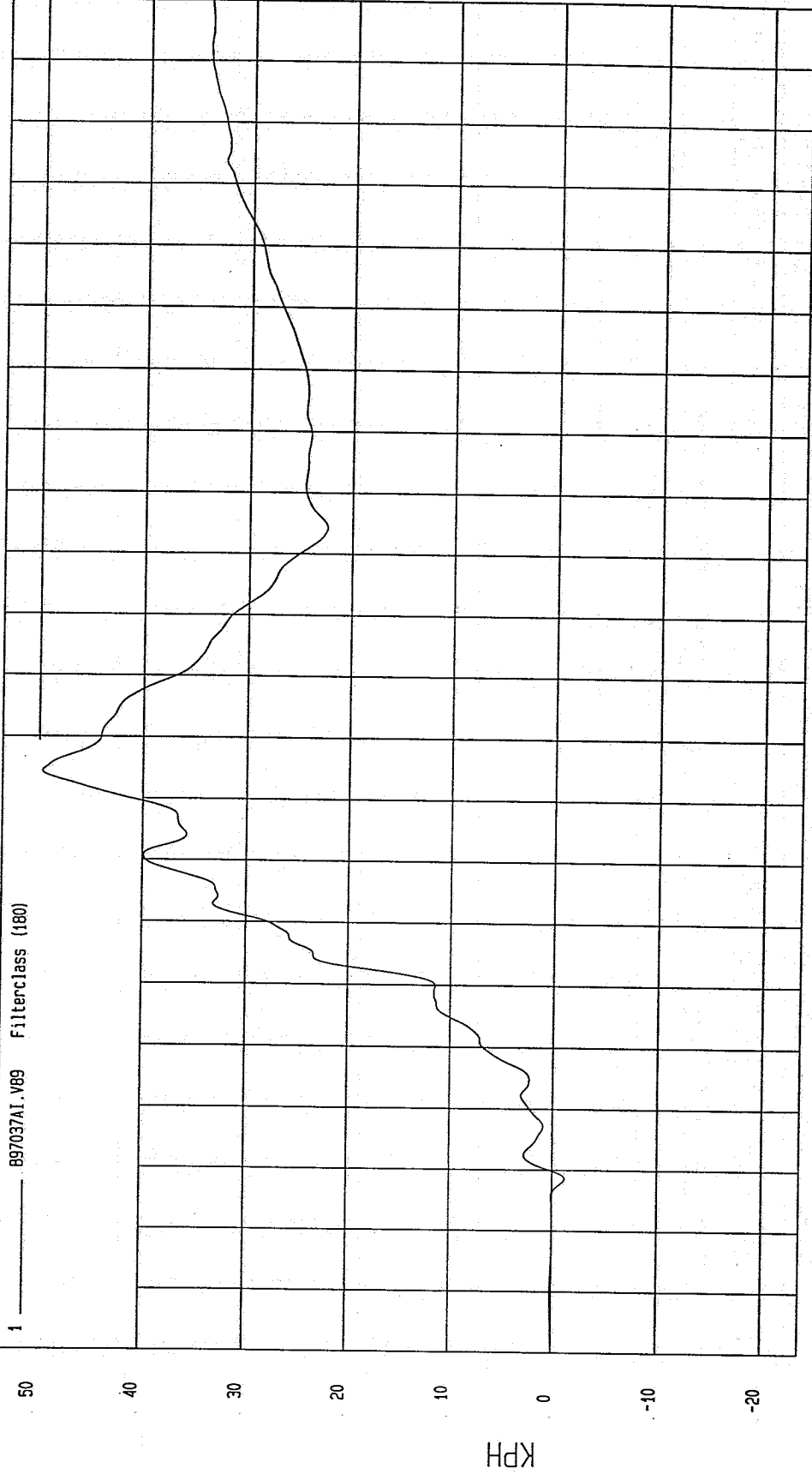
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.21 KPH at 9 msec  
Maximum = 49.70 KPH at 74 msec

LEFT MID B PILLAR Y VELOCITY

1 ——— .B97037A1.V89 Filterclass (180)



NSA Research  
04-04-1997 14:30

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

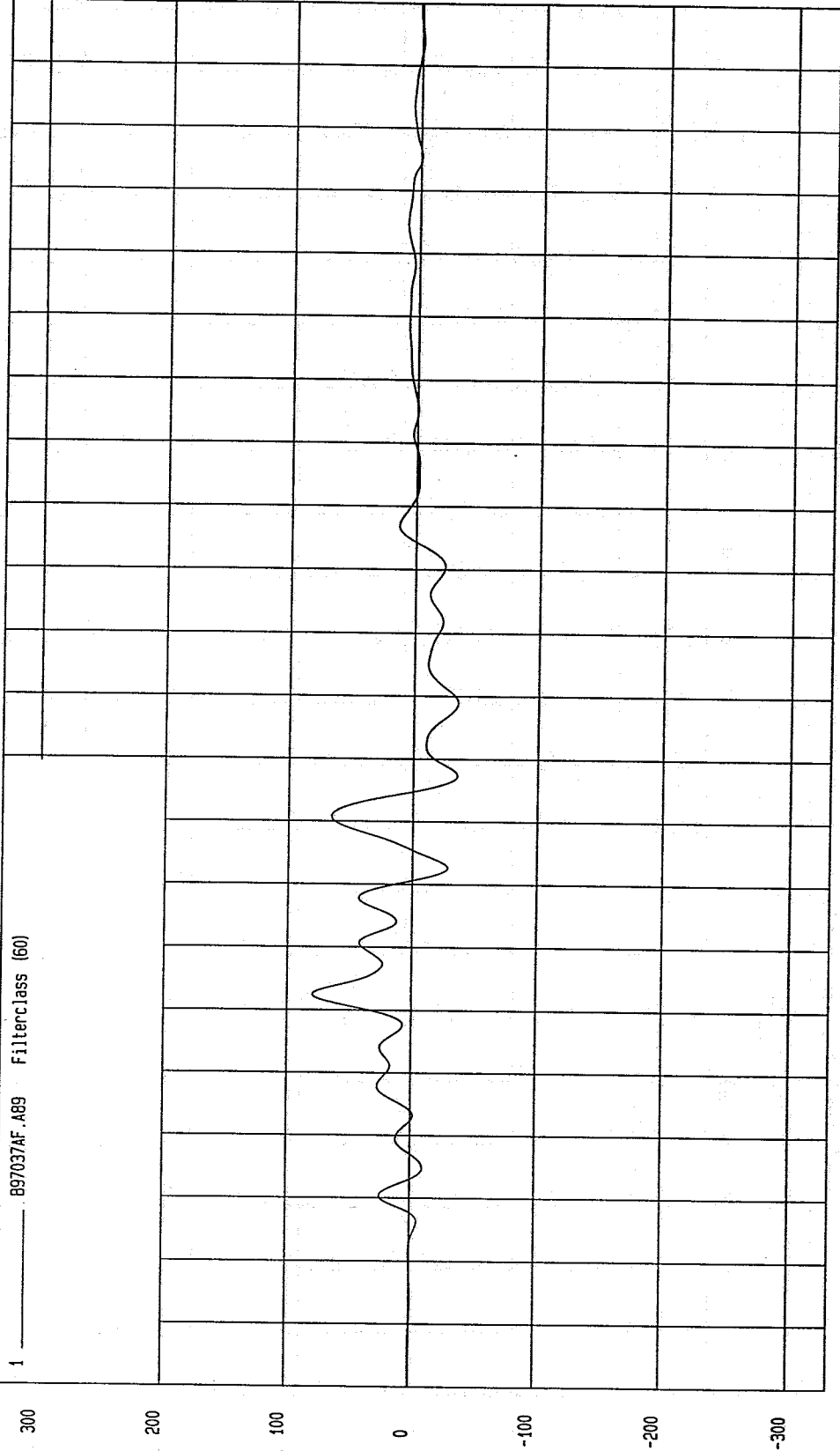
Speed: 39.83 MPH 64.1 KPH

Minimum = -35.14 G'S at 77 msec

Maximum = 79.49 G'S at 42 msec

LEFT MID B PILLAR Y ACCELERATION

1 \_\_\_\_\_ B97037AF.A89 Filterclass (60)



MGA Research  
04-04-1997 14:52

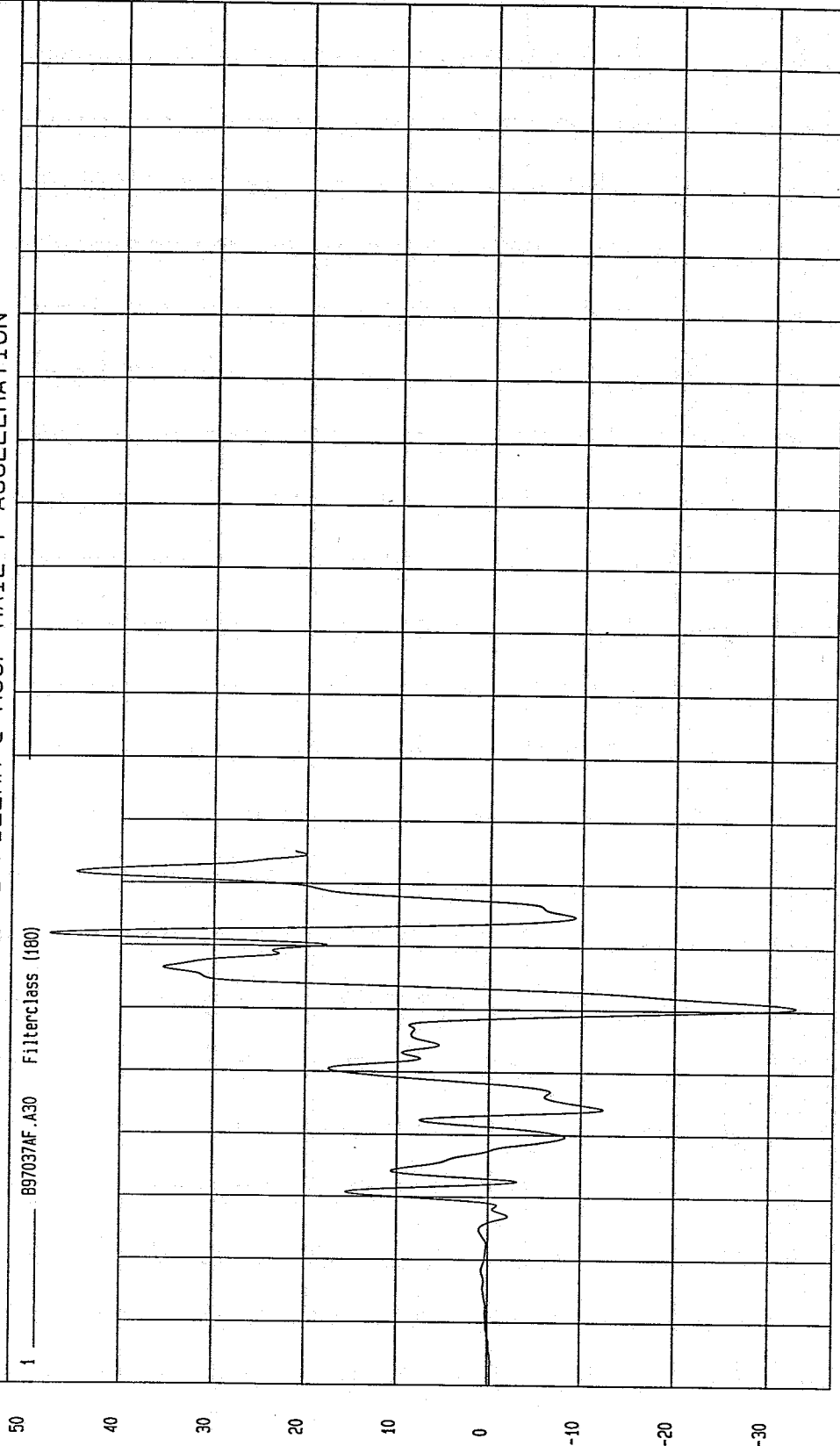
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -32.77 G'S at 40 msec  
Maximum = 47.63 G'S at 52 msec

LEFT UPPER B PILLAR @ ROOF RAIL Y ACCELERATION

1 897037AF.A30 Filterclass (180)



MSA Research  
04-07-1997 06:25

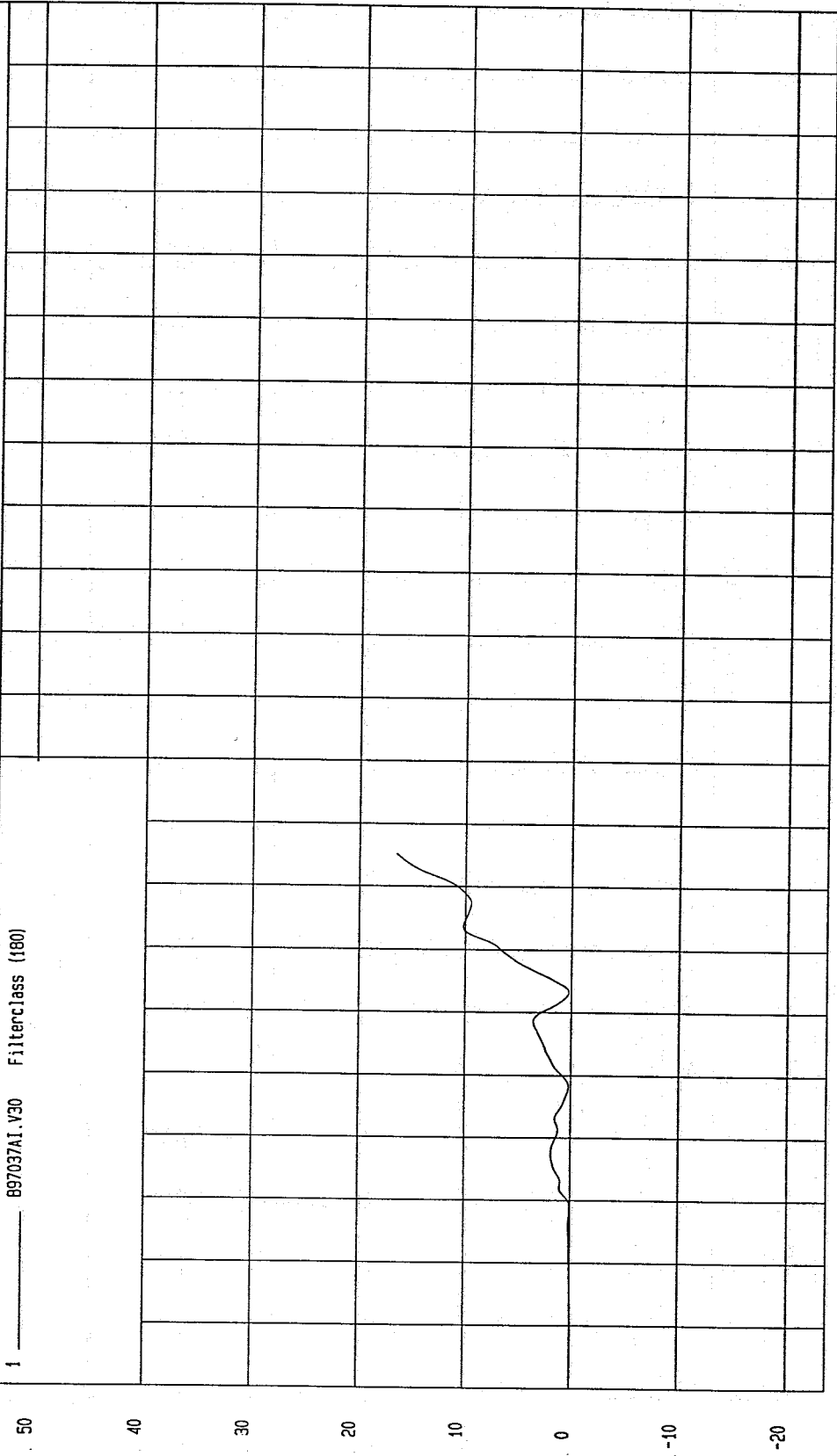
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -5.98E-02 KPH at -12 msec  
Maximum = 16.51 KPH at 65 msec

LEFT UPPER B PILLAR @ ROOF RAIL Y VELOCITY

1 \_\_\_\_\_ 897037A1.V30 Filterclass (f80)



MCA Research  
04-07-1997 06:25

TIME Seconds

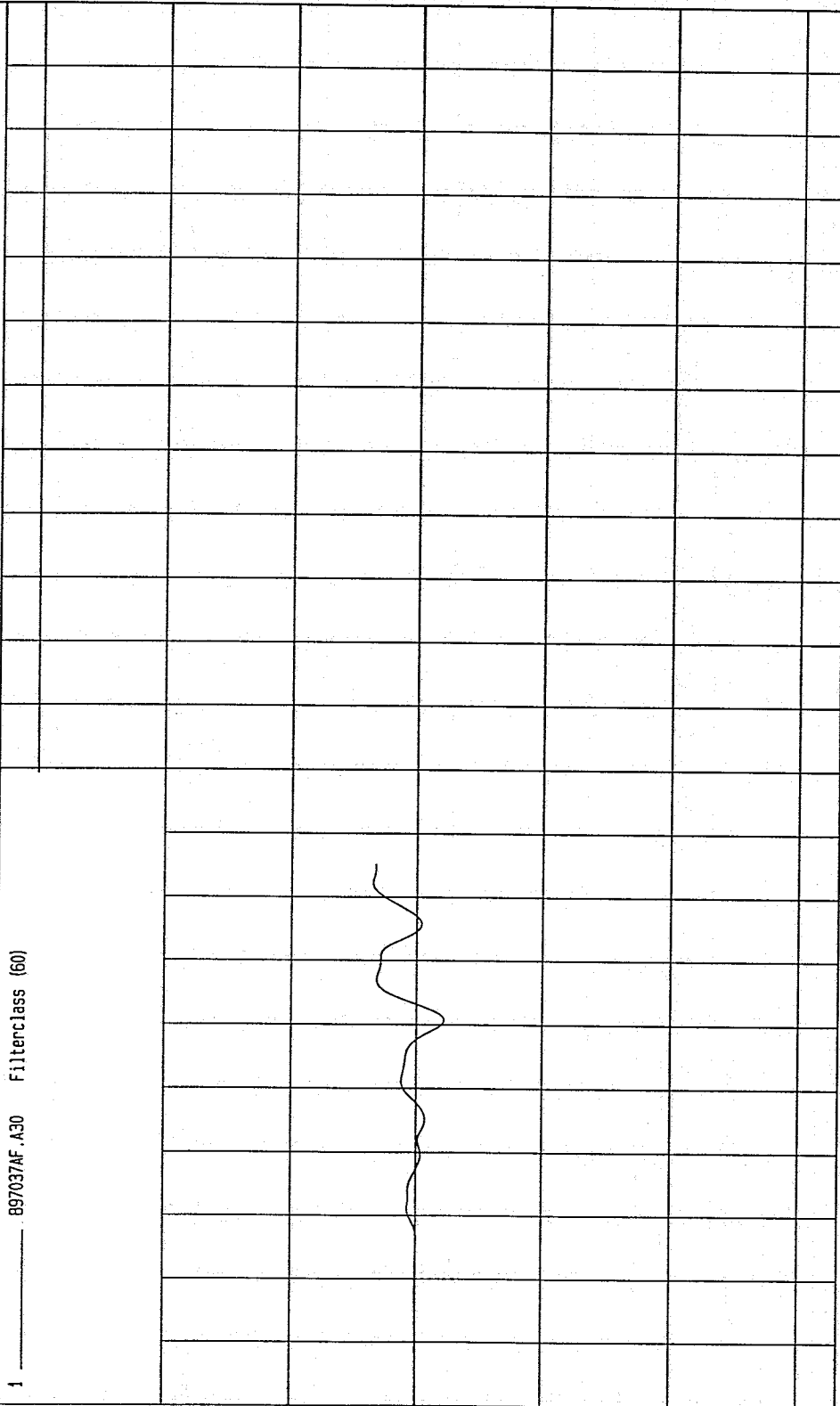
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -21.36 G'S at 41 msec Maximum = 35.09 G'S at 62 msec

LEFT UPPER B PILLAR @ ROOF RAIL Y ACCELERATION

1 ——— 897037AF.A30 Filterclass (60)



TIME (SECONDS)

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0.1  
0.09  
0.08  
0.07  
0.06  
0.05  
0.04  
0.03  
0.02  
0.01  
0  
-0.01  
-0.02

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100  
0  
-100  
-200  
-300

G.S

NGA Research  
03-01-1997 06:25

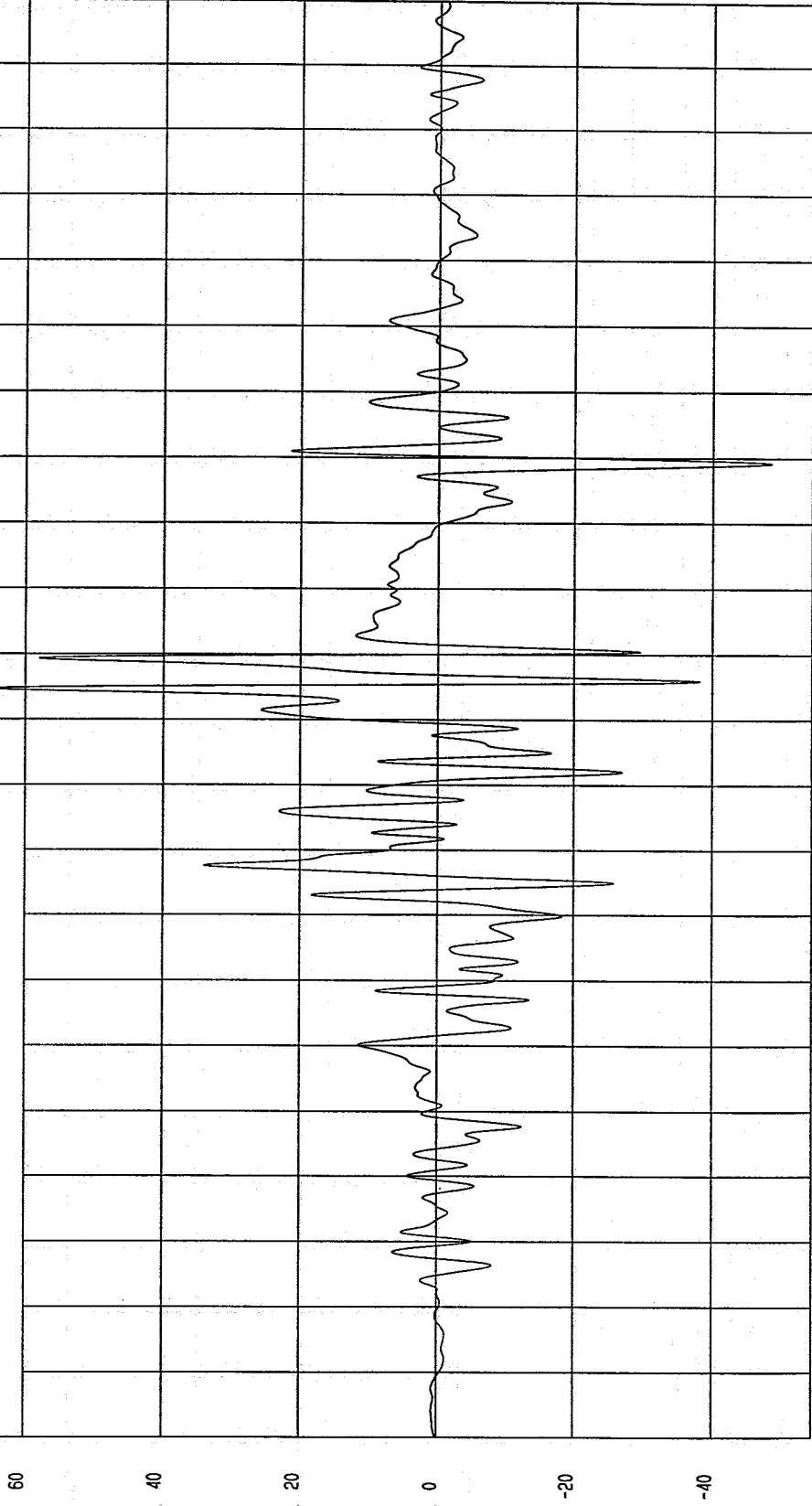
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -48.16 G'S at 129 msec Maximum = 65.26 G'S at 95 msec

LEFT SIDE SILL @ BASE OF C PILLAR X ACCELERATION

1 897037AF.A86 Filterclass (180)



NGA Research  
04-07-1997 09:10

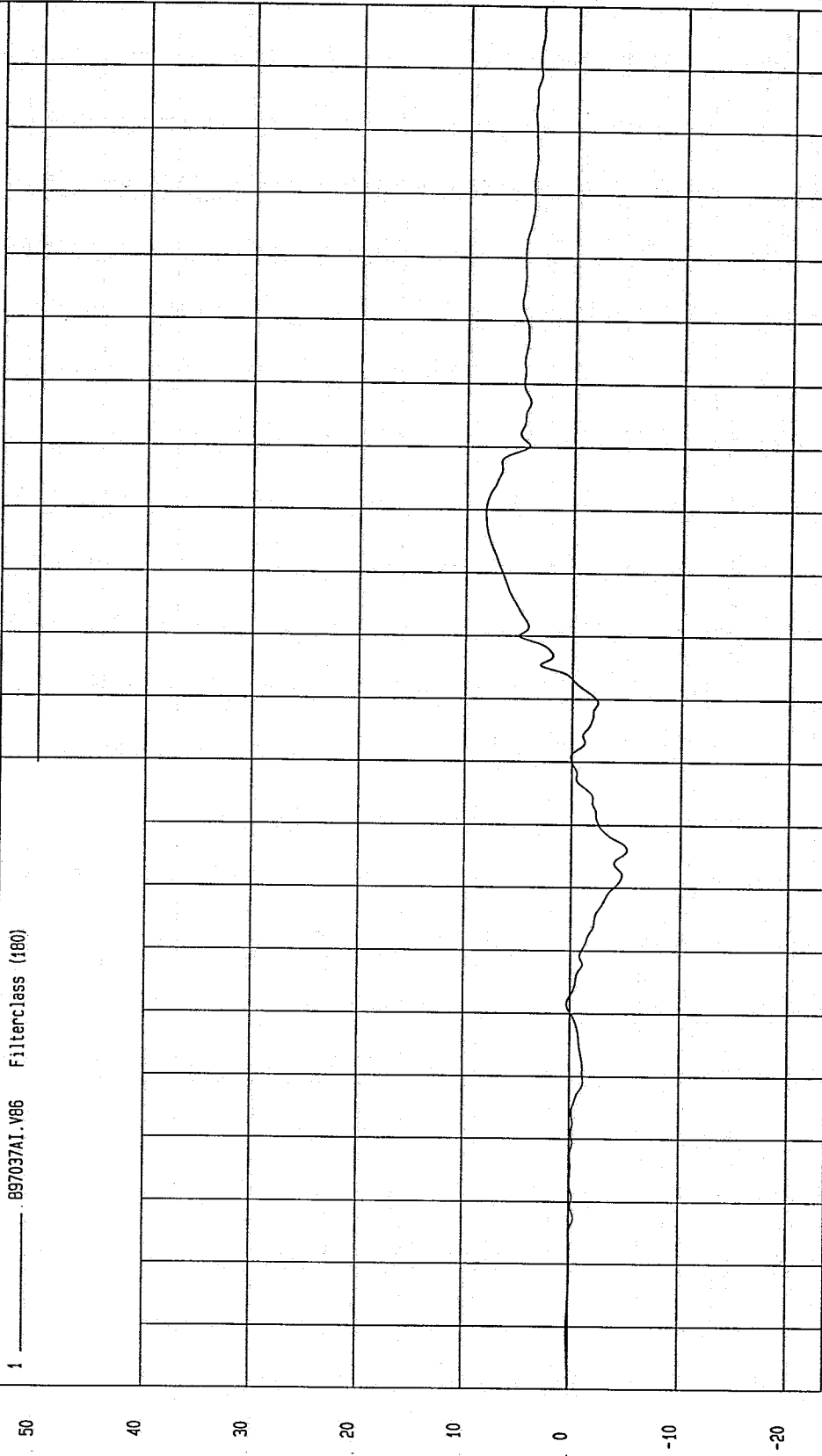
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -5.11 KPH at 66 msec Maximum = 8.16 KPH at 120 msec

LEFT SIDE SILL @ BASE OF C PILLAR X VELOCITY

1 897037AI.V06 Filterclass (100)



MCA Research  
04-07-1997 09:10

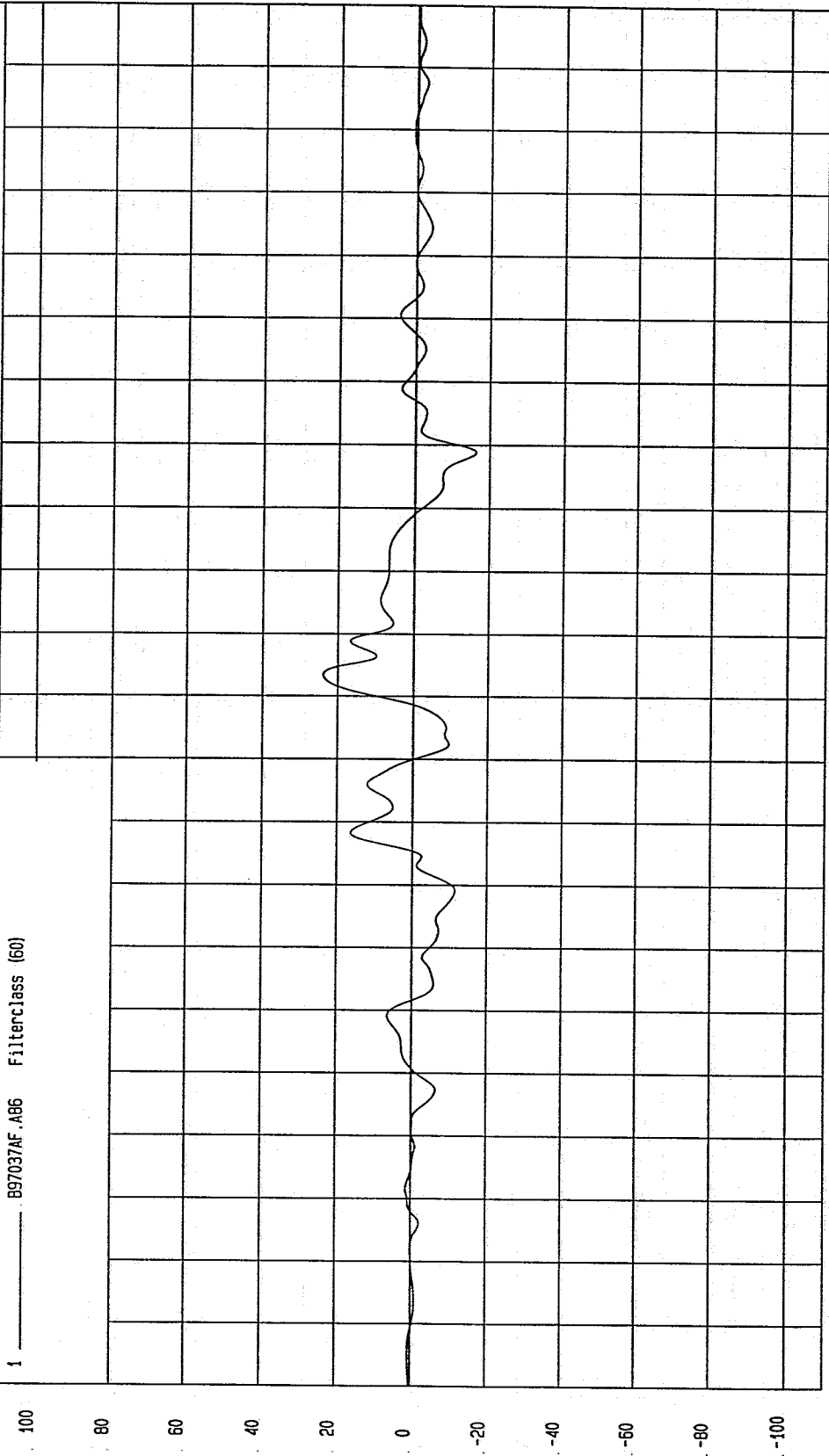
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -16.30 G'S at 129 msec  
Maximum = 23.90 G'S at 93 msec

LEFT SIDE SILL @ BASE OF C PILLAR X ACCELERATION

1 ----- B97037AF.A86 Filterclass (60)



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TIME (SECONDS)

NGA Research  
04-04-1997 14:53

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

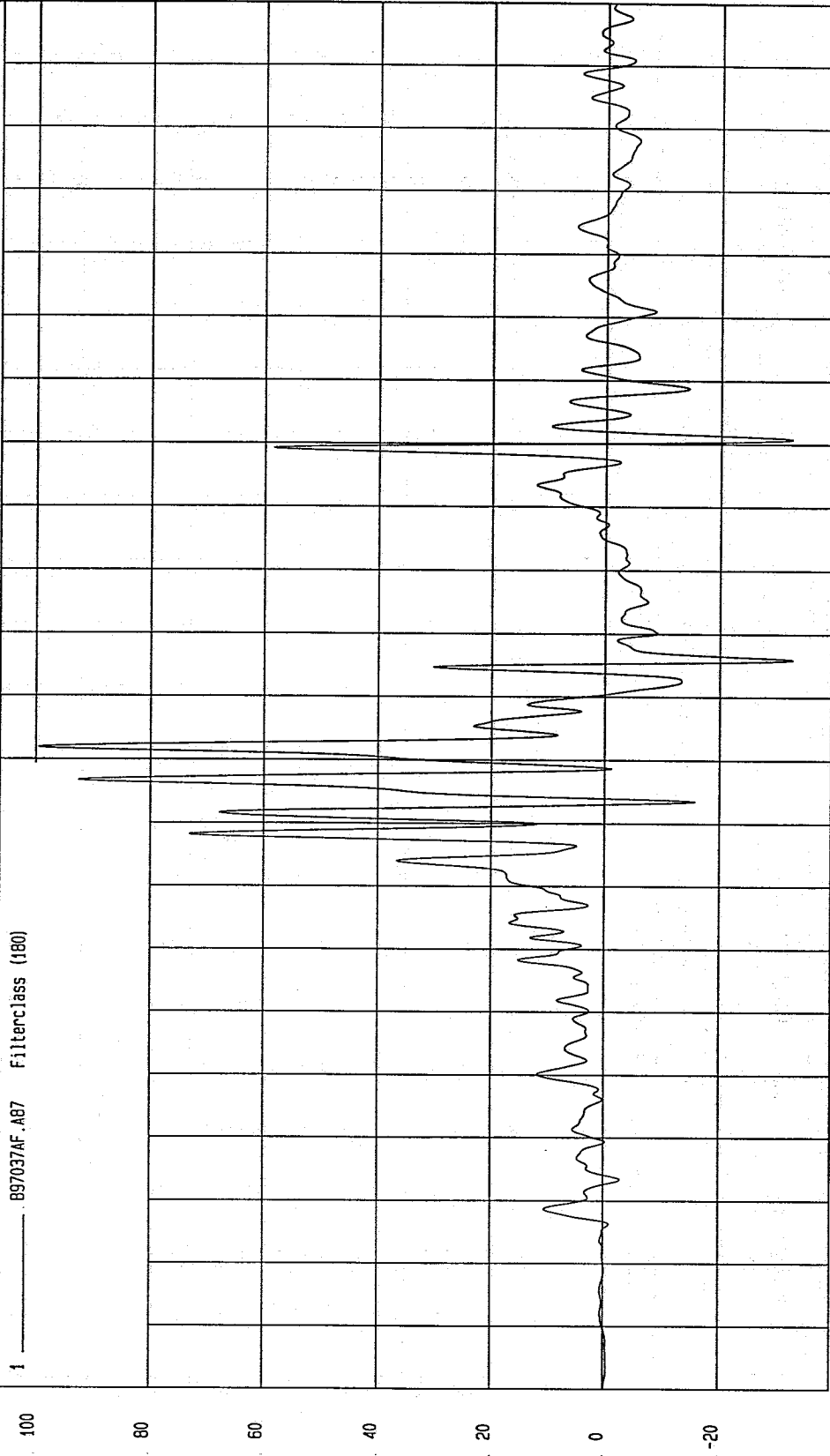
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -32.51 G'S at 96 msec

Maximum = 99.62 G'S at 82 msec

LEFT SIDE SILL @ BASE OF C PILLAR Y ACCELERATION

1 \_\_\_\_\_ .B97037AF.AB7 Filterclass (180)



MCA Research  
04-07-1997 09:11

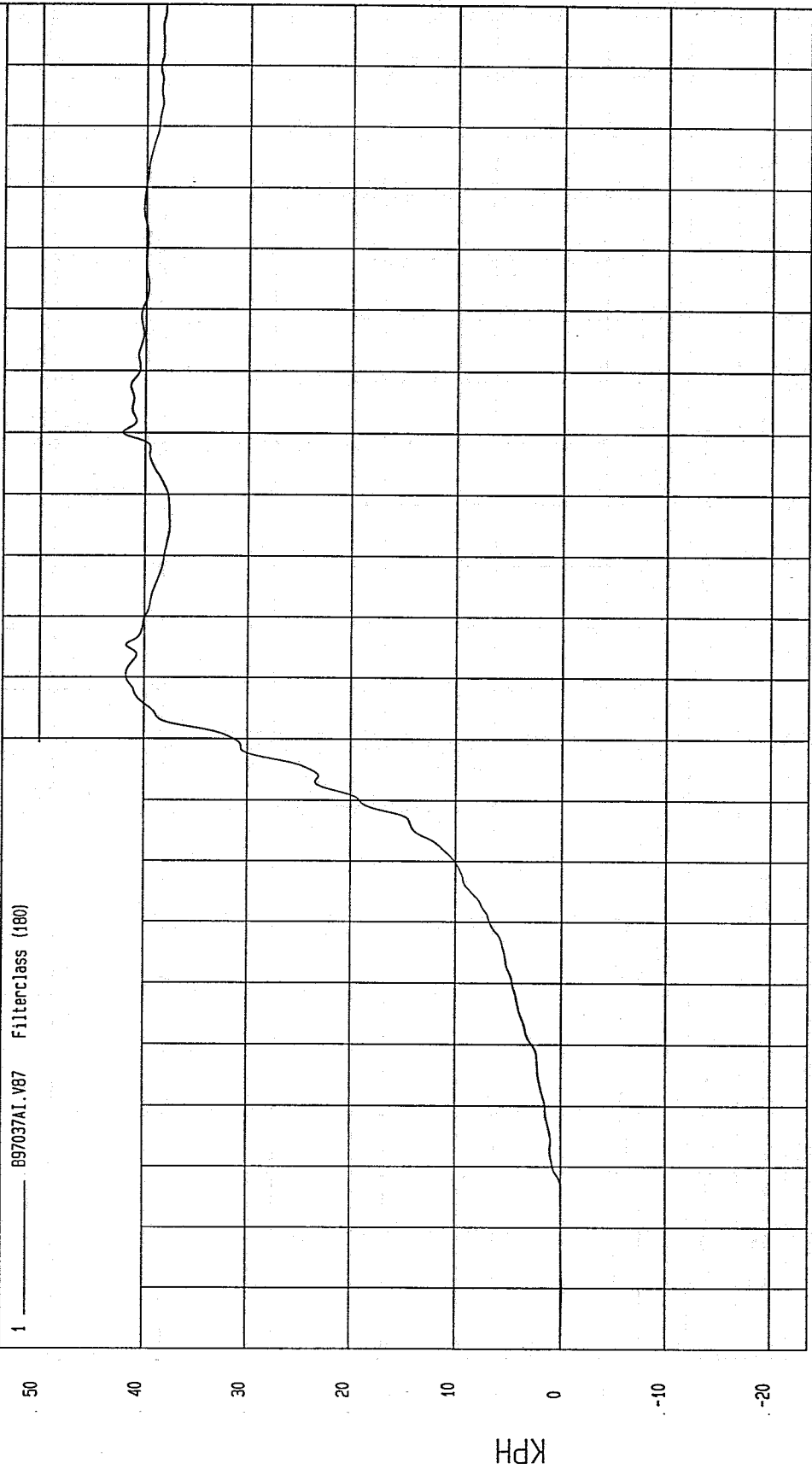
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -.11 KPH at -10 msec Maximum = 42.13 KPH at 130 msec

LEFT SIDE SILL @ BASE OF C PILLAR Y VELOCITY

1 897037A1.V87 Filterclass (180)



NGA Research  
04-07-1997 09:10

TIME Seconds

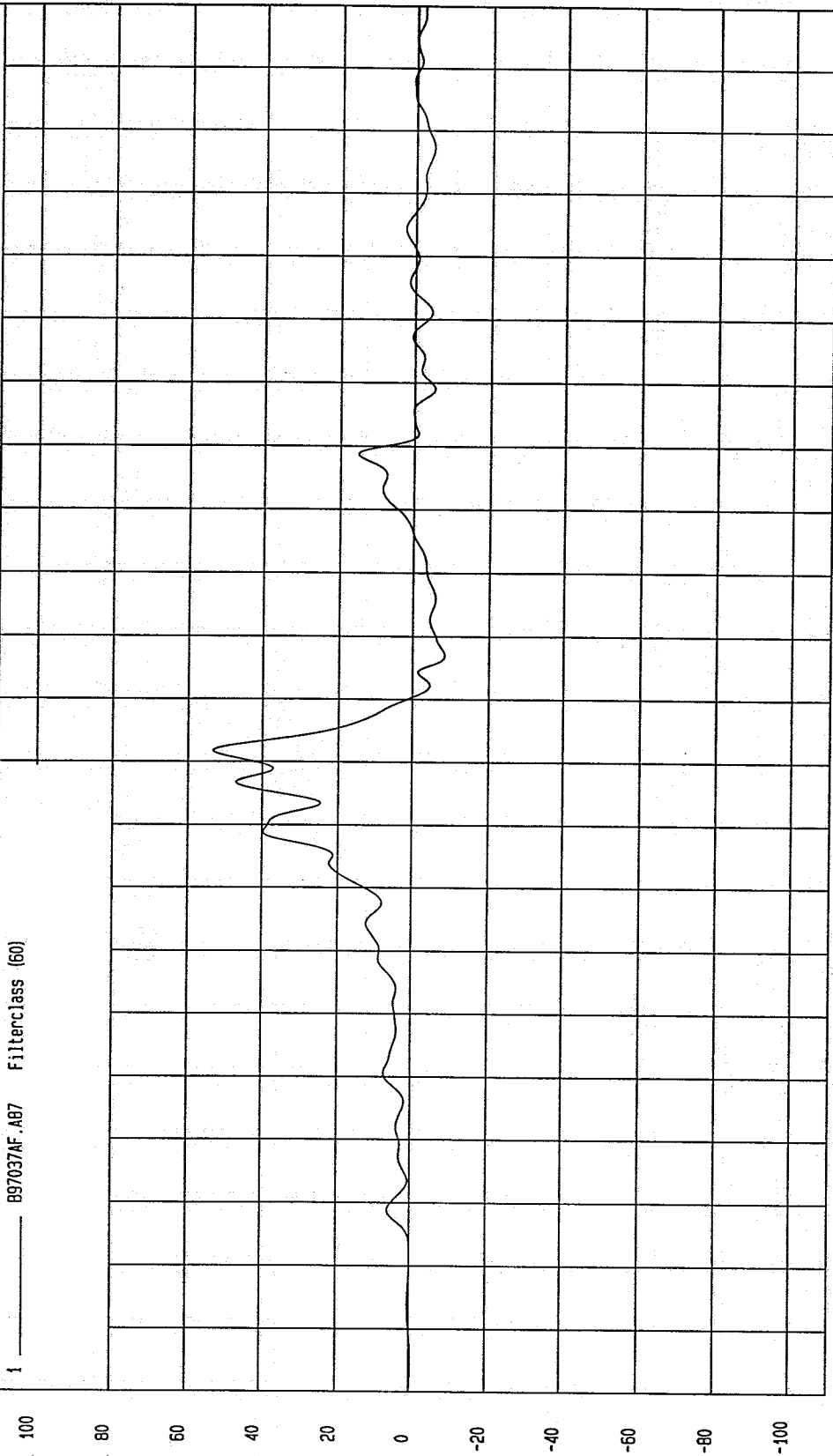
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -8.20 G'S at 97 msec  
Maximum = 53.40 G'S at 82 msec

LEFT SIDE SILL @ BASE OF C PILLAR Y ACCELERATION

1 897037AF.A87 Filterclass (60)



NGA Research  
0A-04-1997 14:53

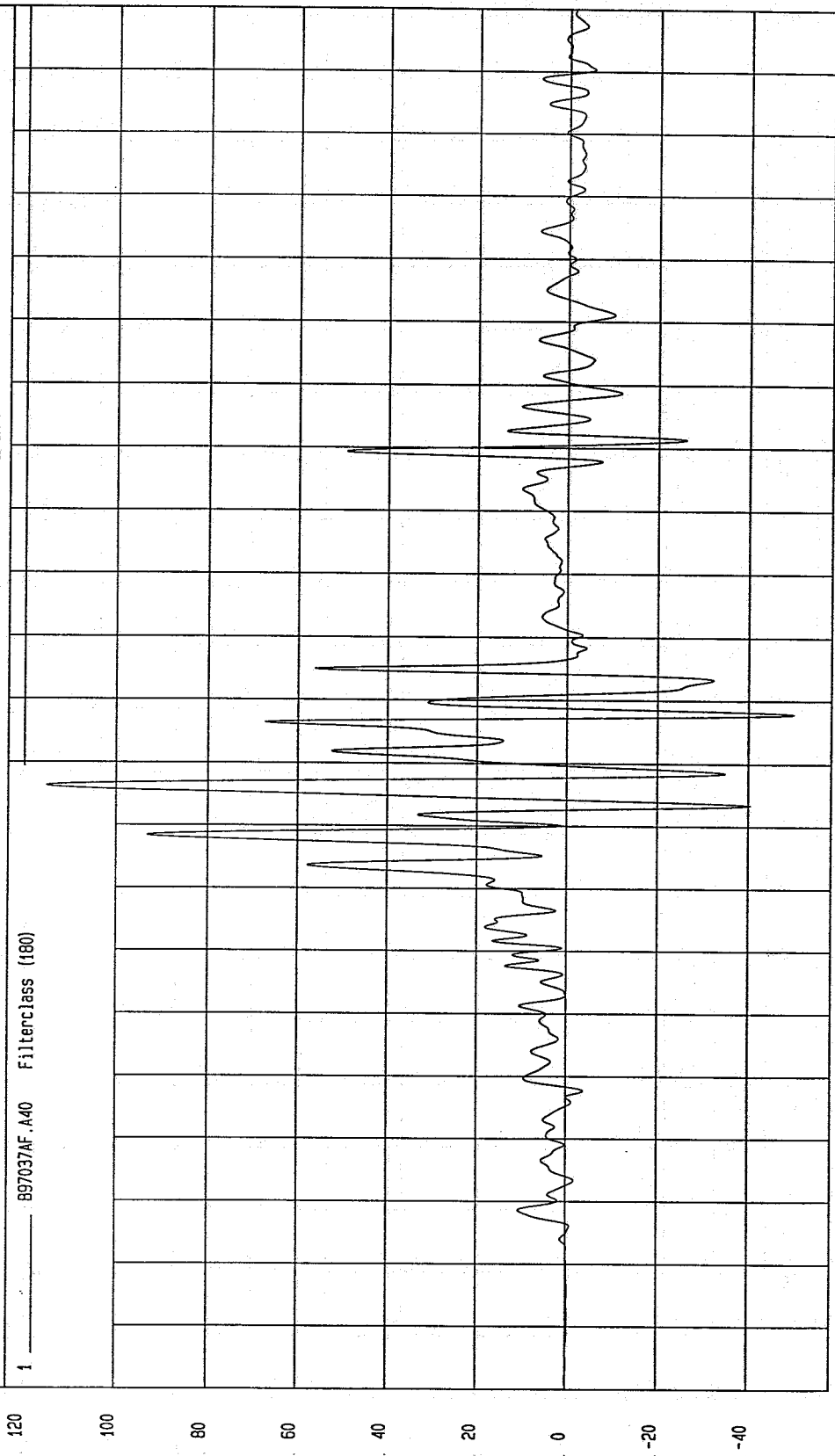
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -49.62 G'S at 88 msec Maximum = 115.30 G'S at 76 msec

LEFT LOWER C PILLAR Y ACCELERATION

1 897037AF.A40 Filterclass (180)



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TIME (SECONDS)

NGA Research  
04-07-1997 09:18

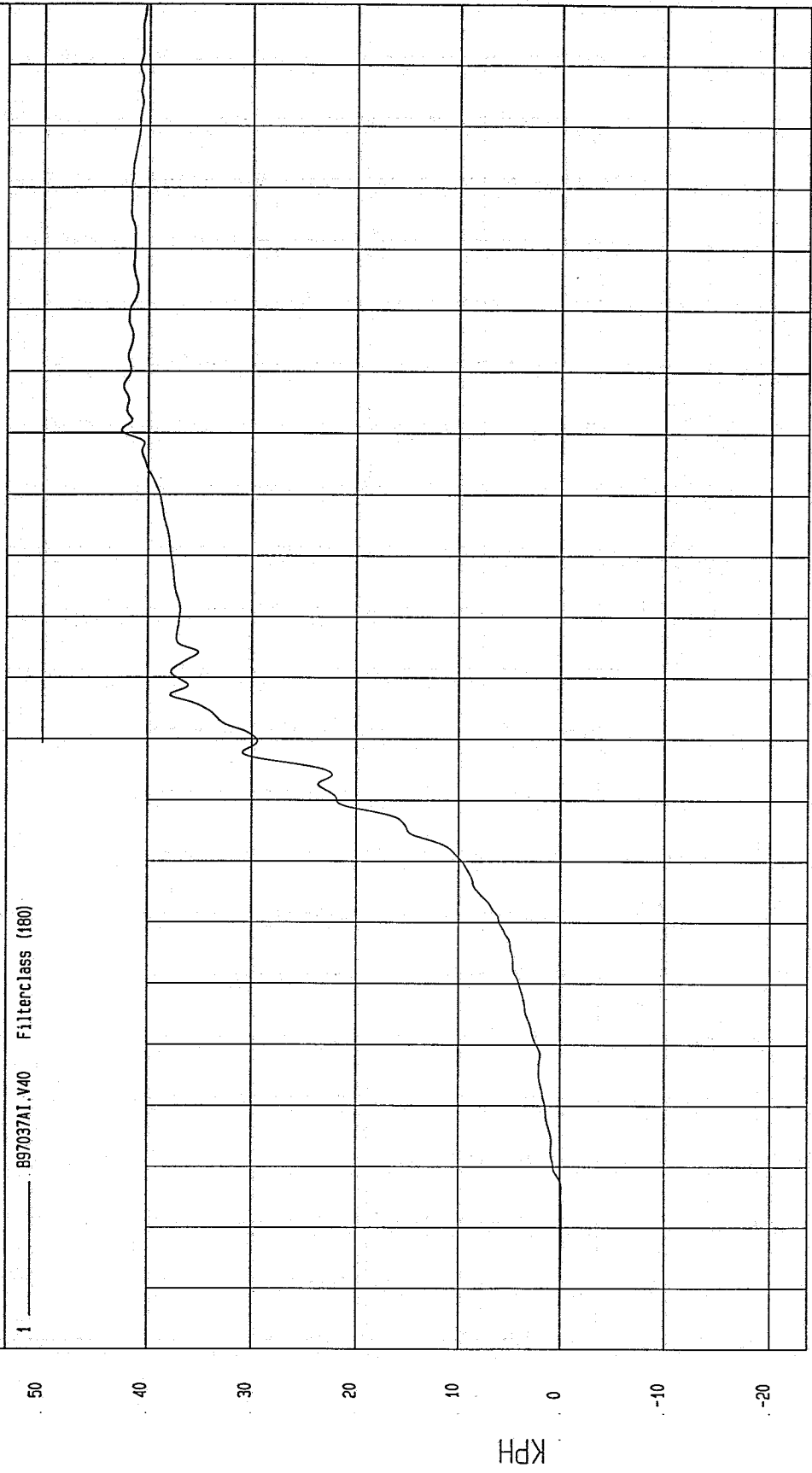
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -.13 KPH at 3 msec  
Maximum = 42.50 KPH at 130 msec

LEFT LOWER C PILLAR Y VELOCITY

1 897037A1.V40 Filterclass (180)



TIME Seconds

MCA Research  
04-07-1997 09:16

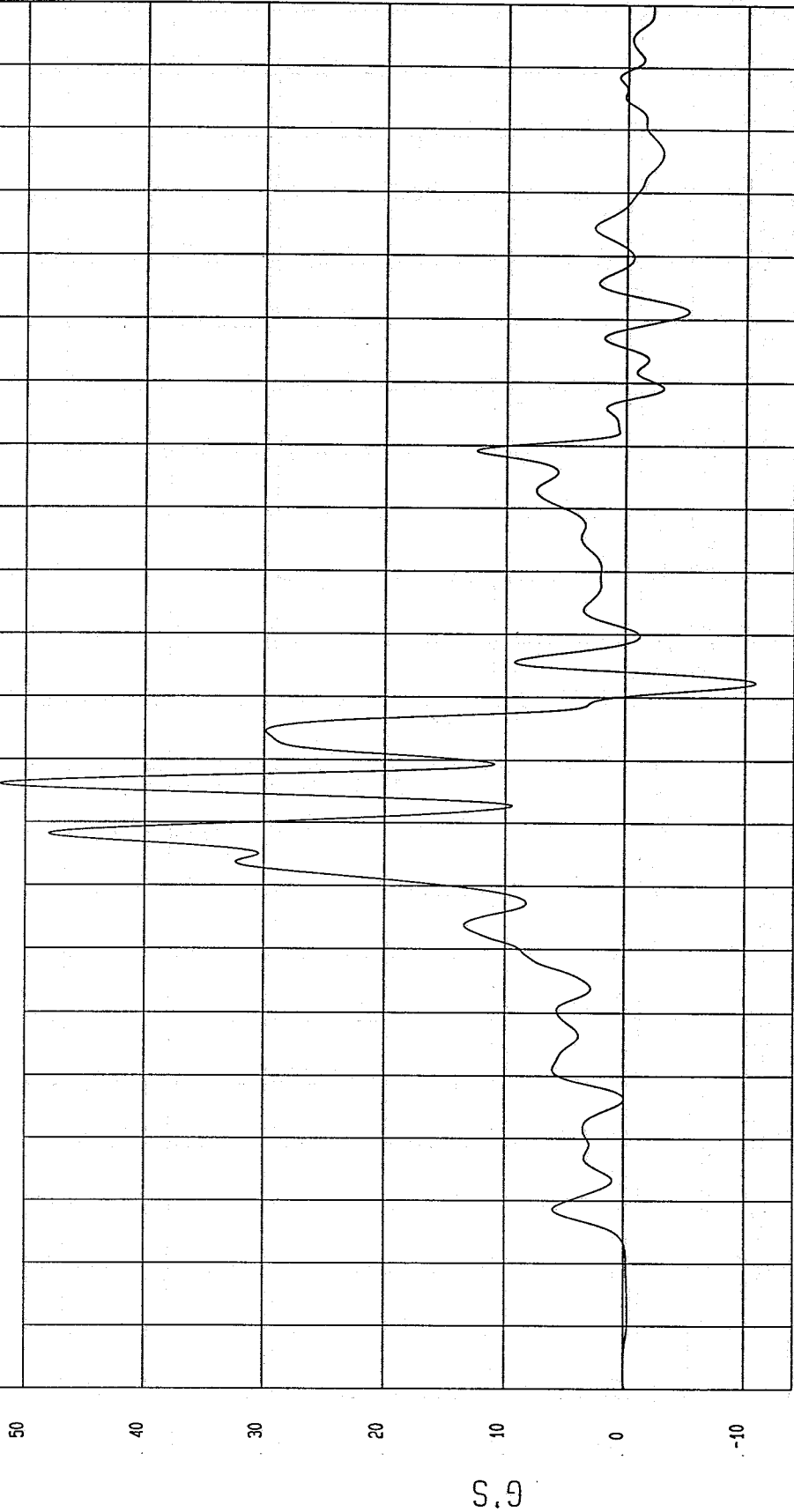
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -10.80 G'S at 92 msec  
Maximum = 52.10 G'S at 76 msec

LEFT LOWER C PILLAR Y ACCELERATION

1 B97037AF.A40 Filterclass (60)



NGA Research  
04-01-1997 09:16

TIME (SECONDS)

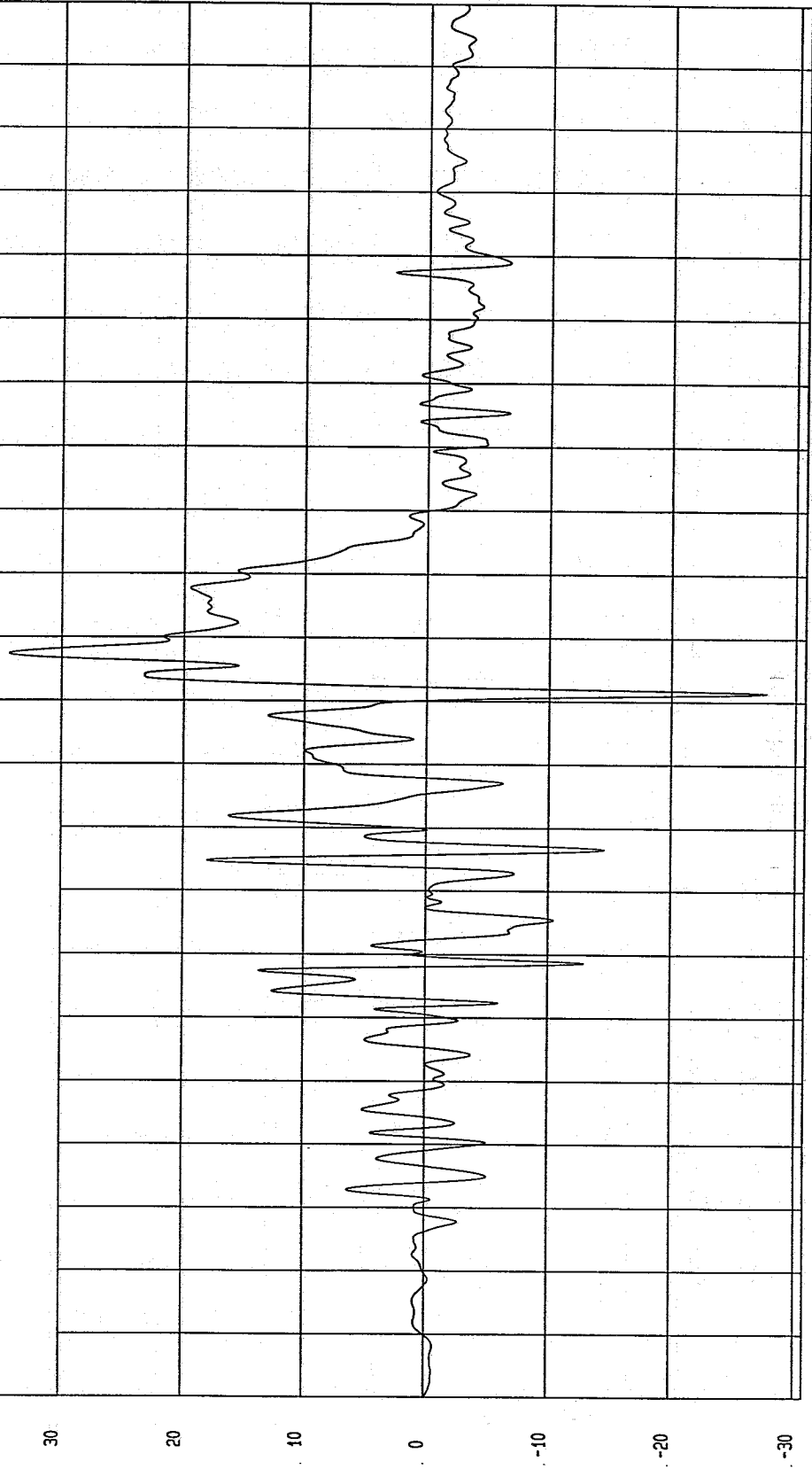
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -27.66 G'S at 91 msec Maximum = 34.30 G'S at 97 msec

LEFT MID C PILLAR X ACCELERATION

1 \_\_\_\_\_ B97037AF.A84 Filterclass (180)



TIME (SECONDS)

MGA Research  
04-04-1997 14:44

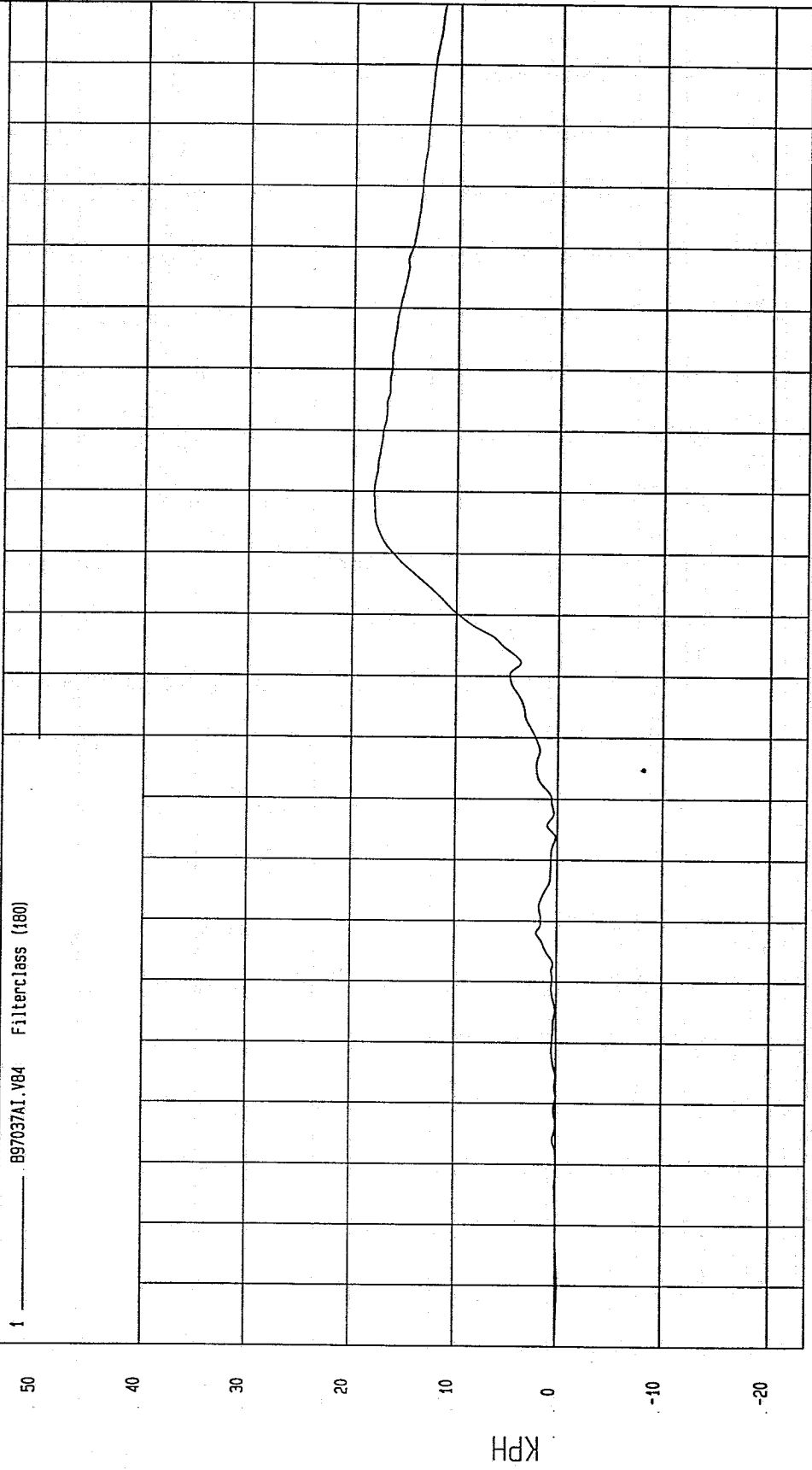
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.17 KPH at -10 msec Maximum = 17.90 KPH at 120 msec

LEFT MID C PILLAR X VELOCITY

1 \_\_\_\_\_ B97037A1.V84 Filterclass (180)



TIME Seconds

MGA Research  
04-04-1997 14:39

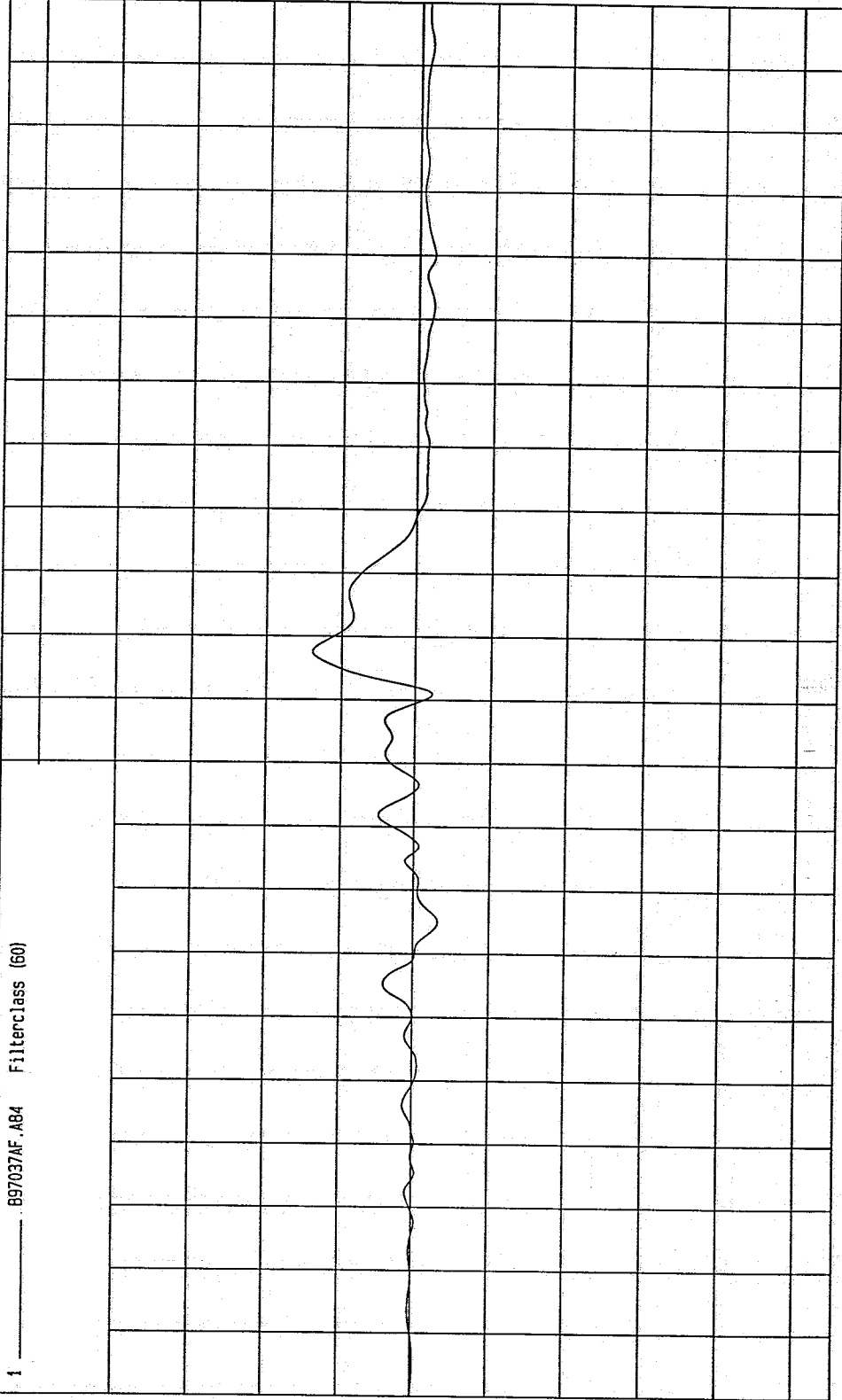
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -6.44 G'S at 55 msec Maximum = 27.79 G'S at 98 msec

LEFT MID C PILLAR X ACCELERATION

1 \_\_\_\_\_ B97037AF.AB4 Filterclass (60)



MCA Research  
0A-04-1997 14.53

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

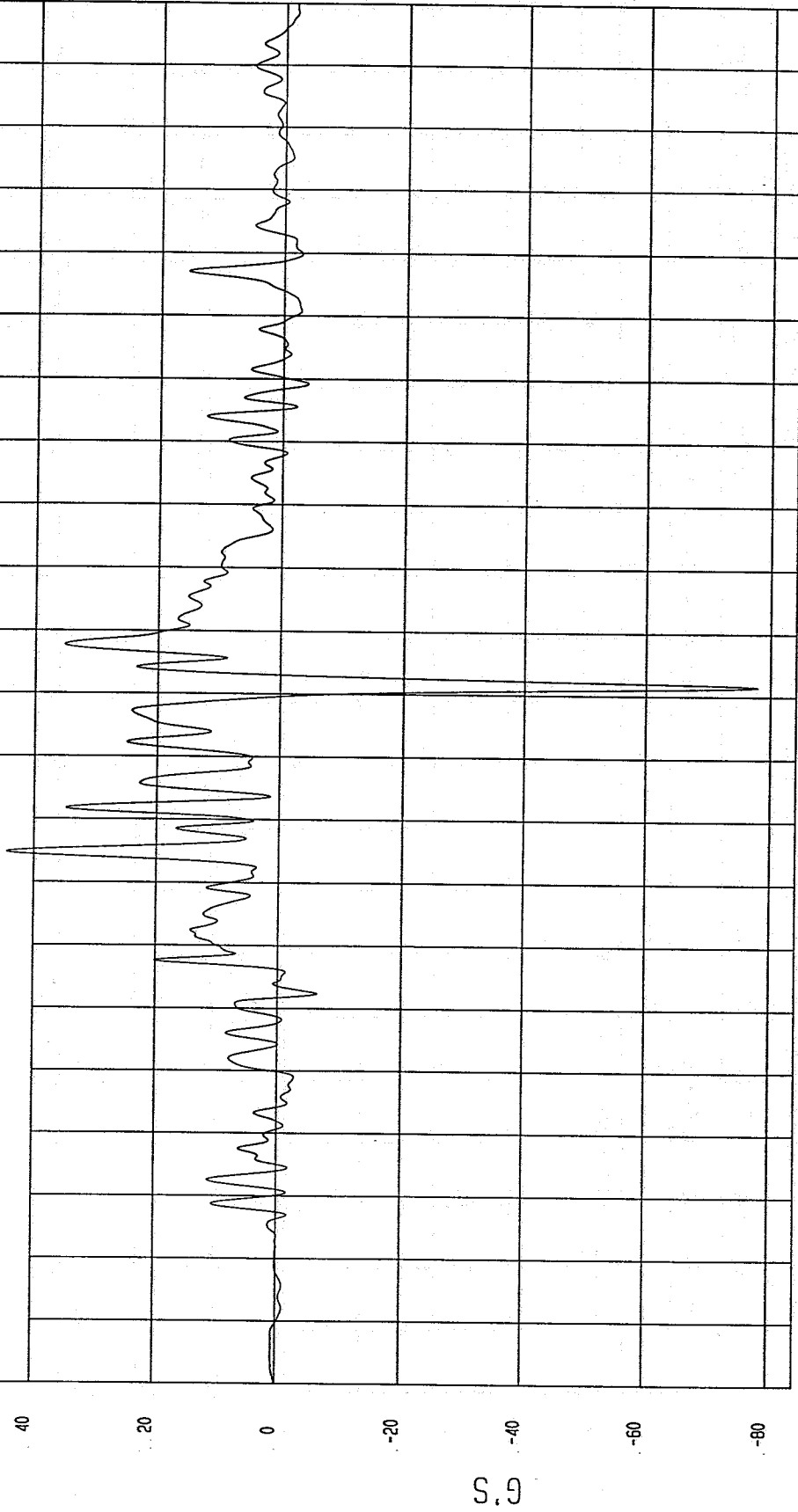
Speed: 39.83 MPH 64.1 KPH

Minimum = -78.00 G'S at 92 msec

Maximum = 44.43 G'S at 65 msec

LEFT MID C PILLAR Y ACCELERATION

1 ——— B97037AF.A65 Filterclass (180)



MGA Research  
04-04-1997 14:44

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

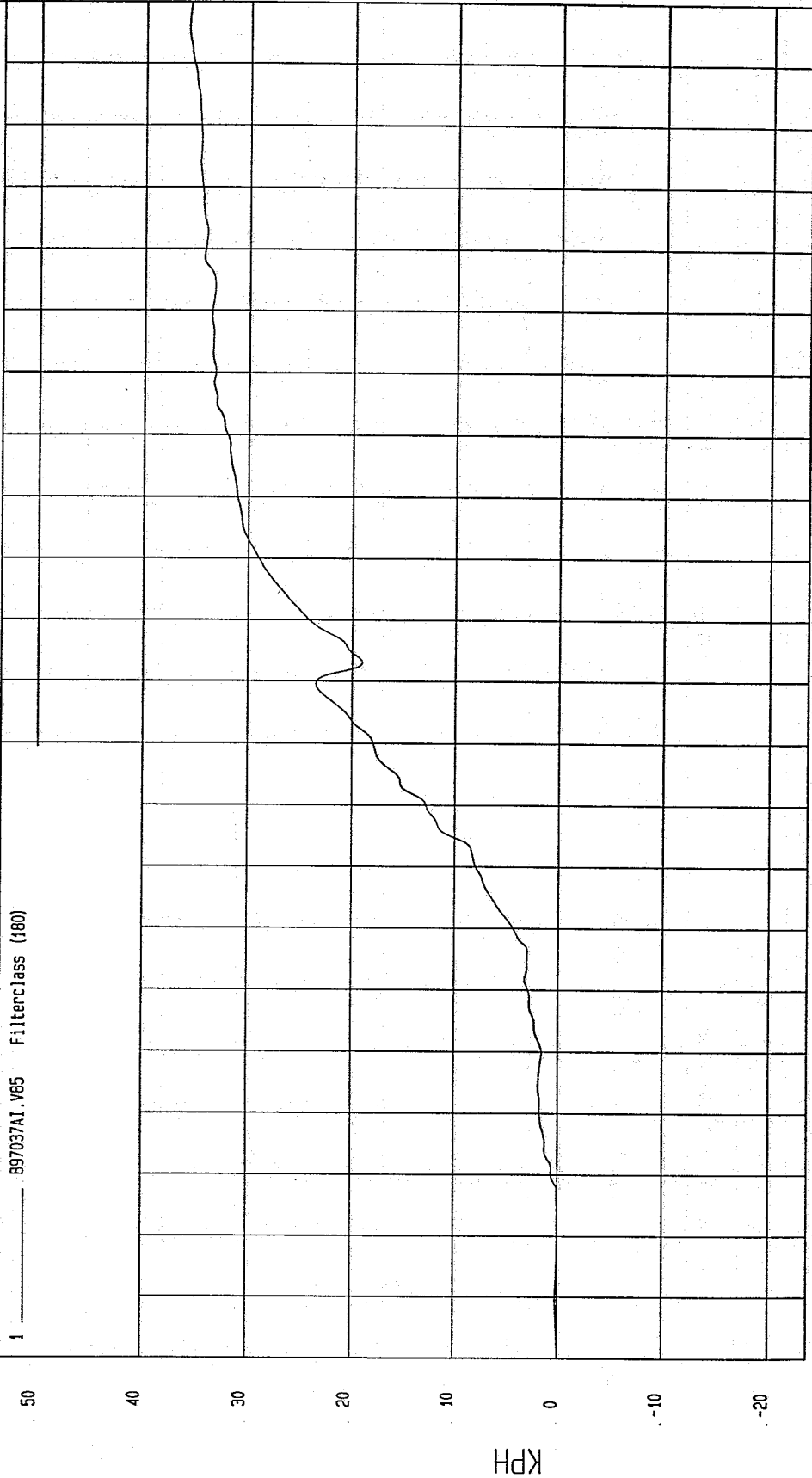
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = 0 KPH at -20 msec

Maximum = 35.98 KPH at 196 msec

LEFT MID C PILLAR Y VELOCITY

1 \_\_\_\_\_ 897037AI.V85 Filterclass (180)



NCA Research  
04-07-1997 09:25

TIME Seconds

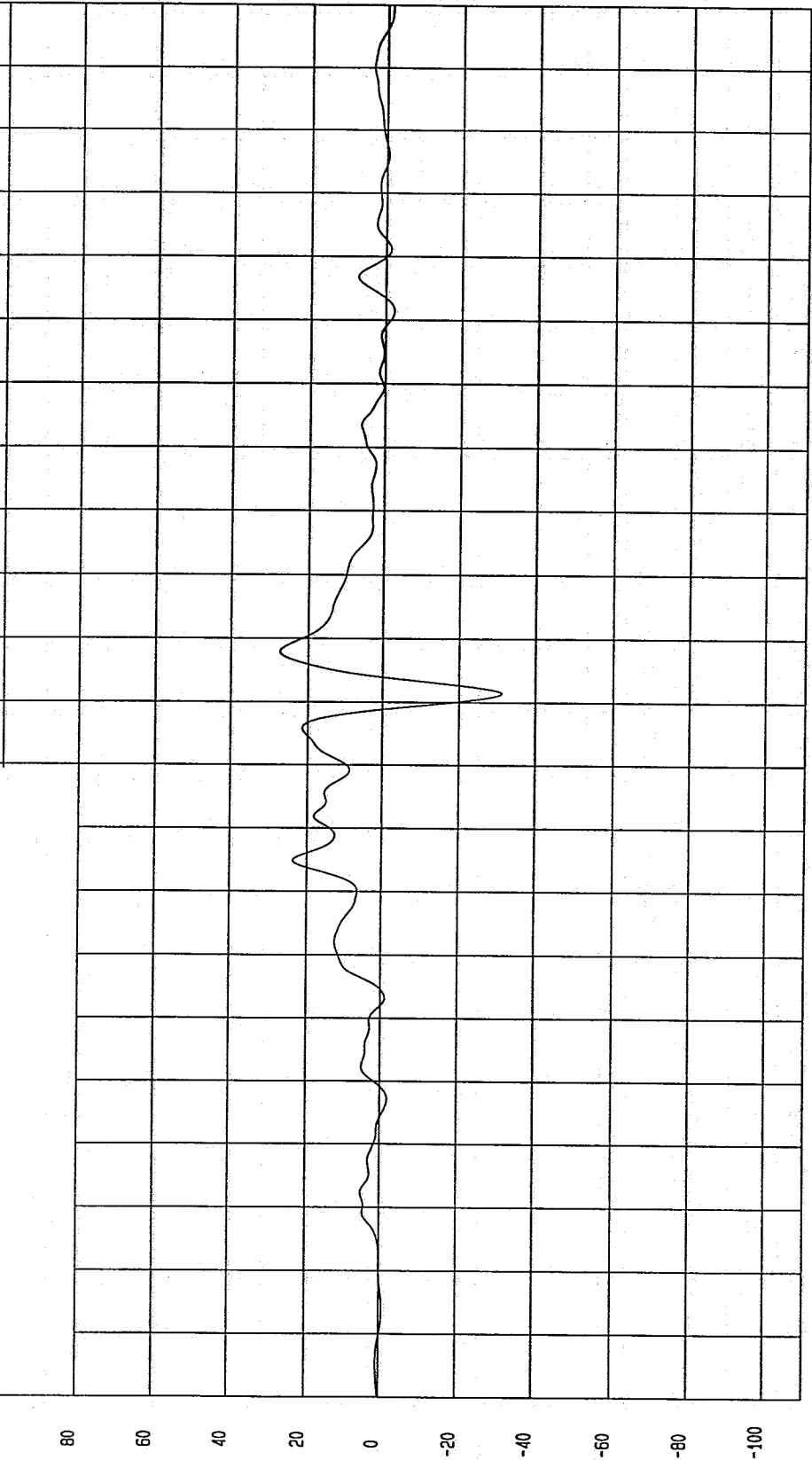
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -31.40 G'S at 91 msec Maximum = 27.39 G'S at 98 msec

LEFT MID C PILLAR Y ACCELERATION

1 \_\_\_\_\_ 897037AF.AB5 Filterclass (60)



MCA Research  
04-04-1997 14:53

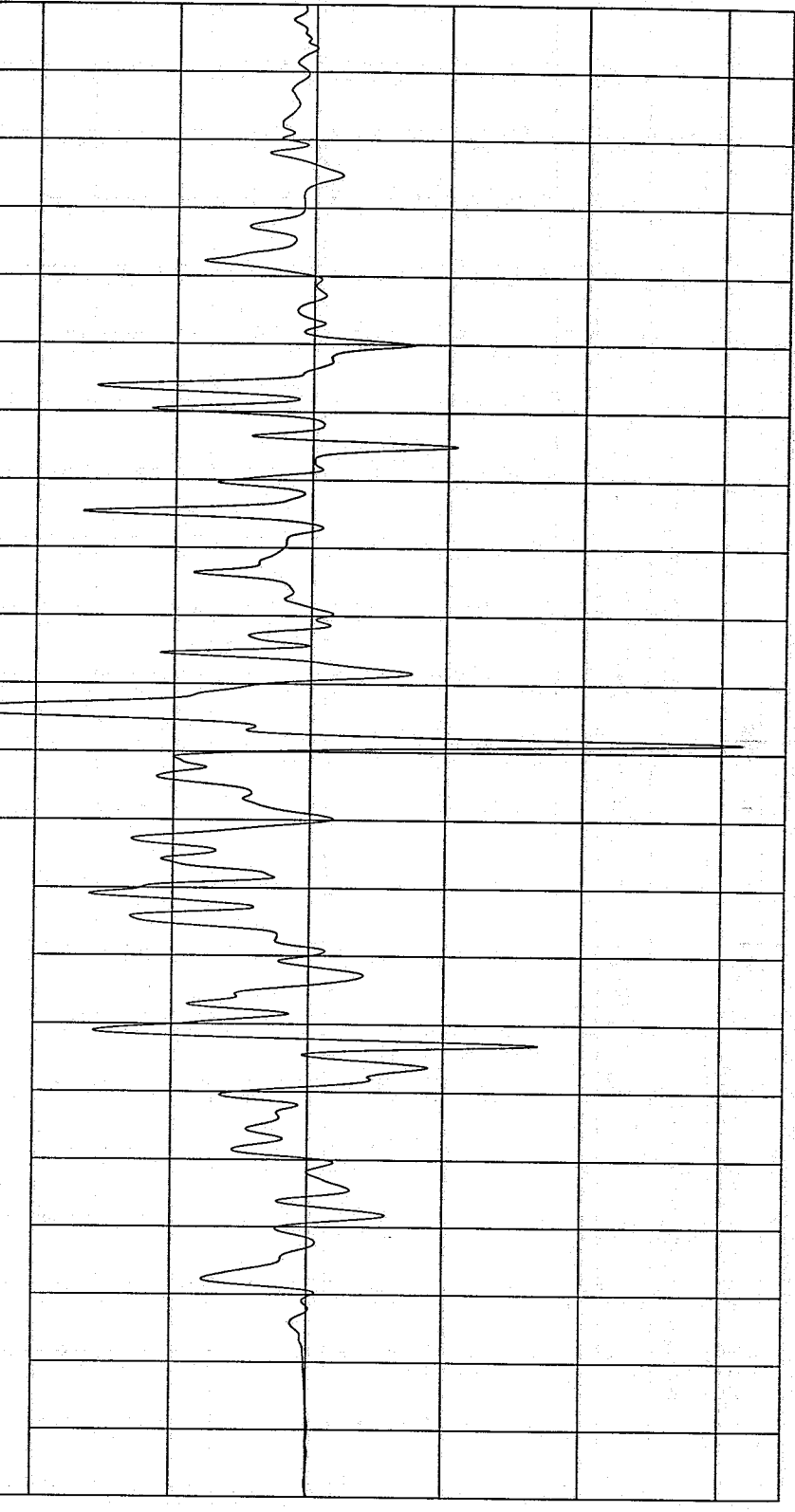
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -63.09 G'S at 91 msec Maximum = 54.00 G'S at 96 msec

LEFT UPPER C PILLAR @ ROOF RAIL Y ACCELERATION

1 897037AF.A82 Filterclass (180)



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

NSA Research  
04-07-1997 09:29

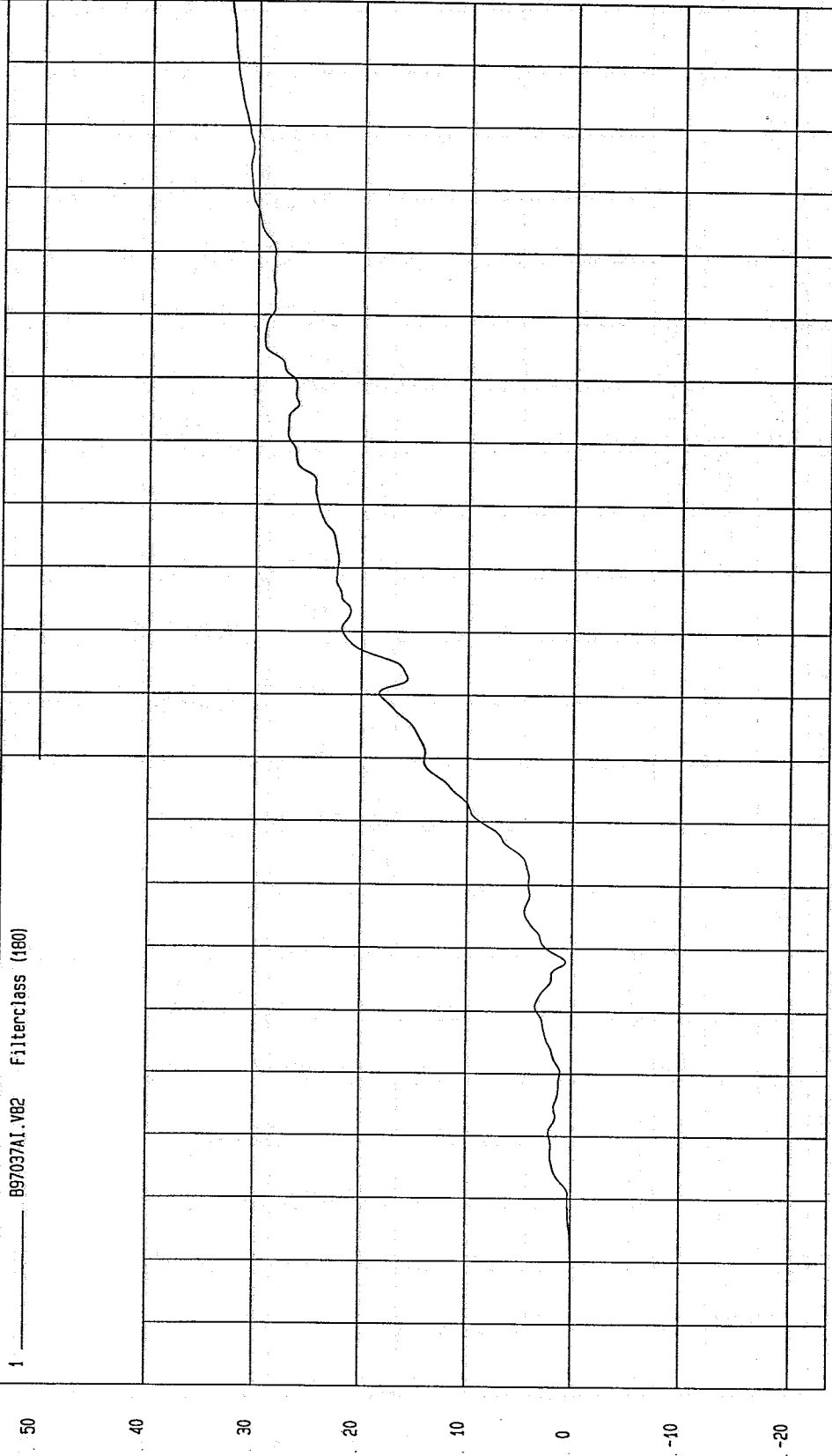
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.15E-02 KPH at -7 msec Maximum = 32.69 KPH at 200 msec

LEFT UPPER C PILLAR @ ROOF RAIL Y VELOCITY

1 \_\_\_\_\_ B97037A1.VB2 Filterclass (180)



TIME Seconds

WCA Research  
04-07-1997 09:29

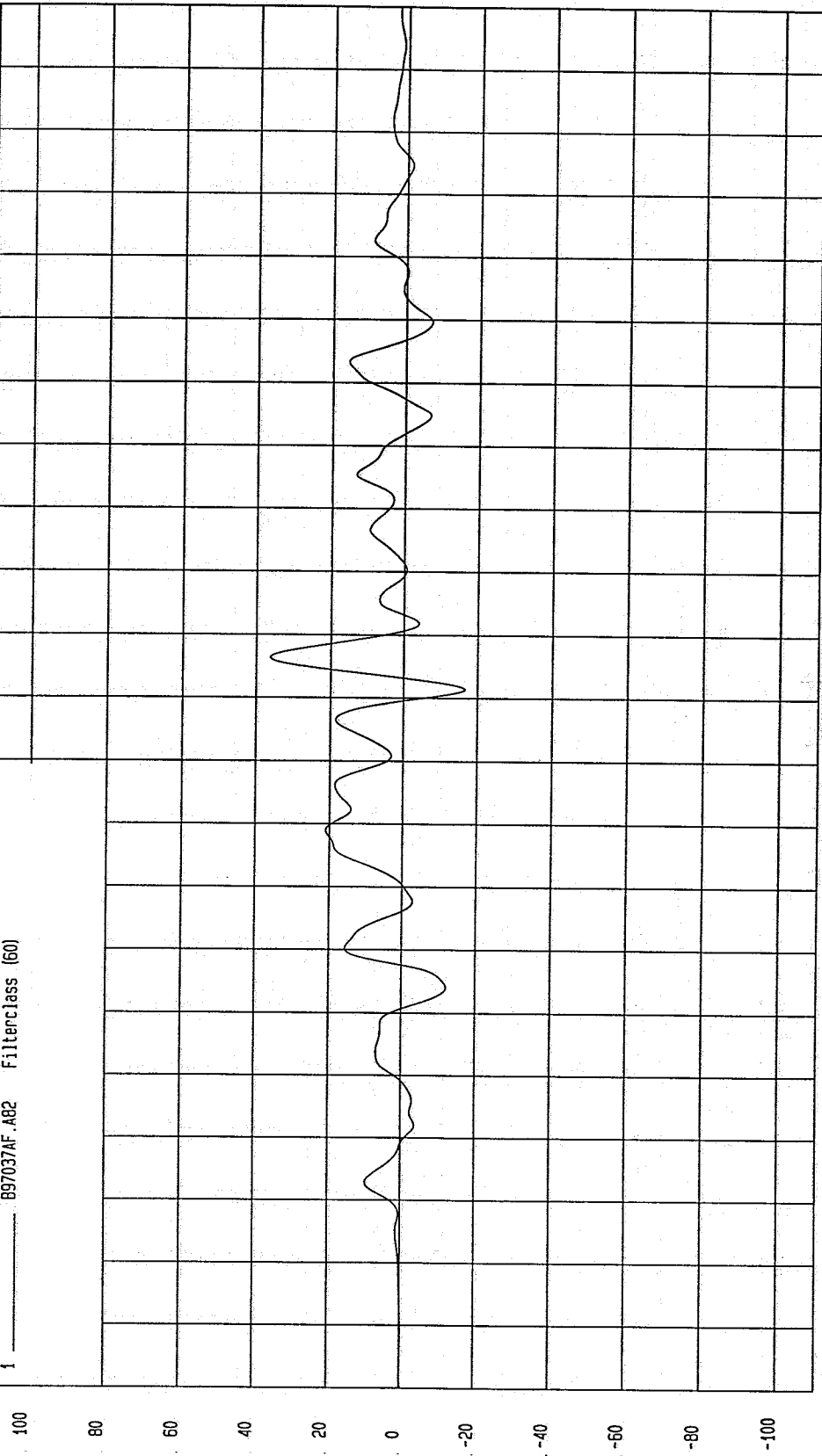
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -16.52 G'S at 91 msec Maximum = 36.19 G'S at 96 msec

LEFT UPPER C PILLAR @ ROOF RAIL Y ACCELERATION

1 ----- B97037AF.AB2 Filterclass (60)



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

MCA Research  
04-04-1997 14:53

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

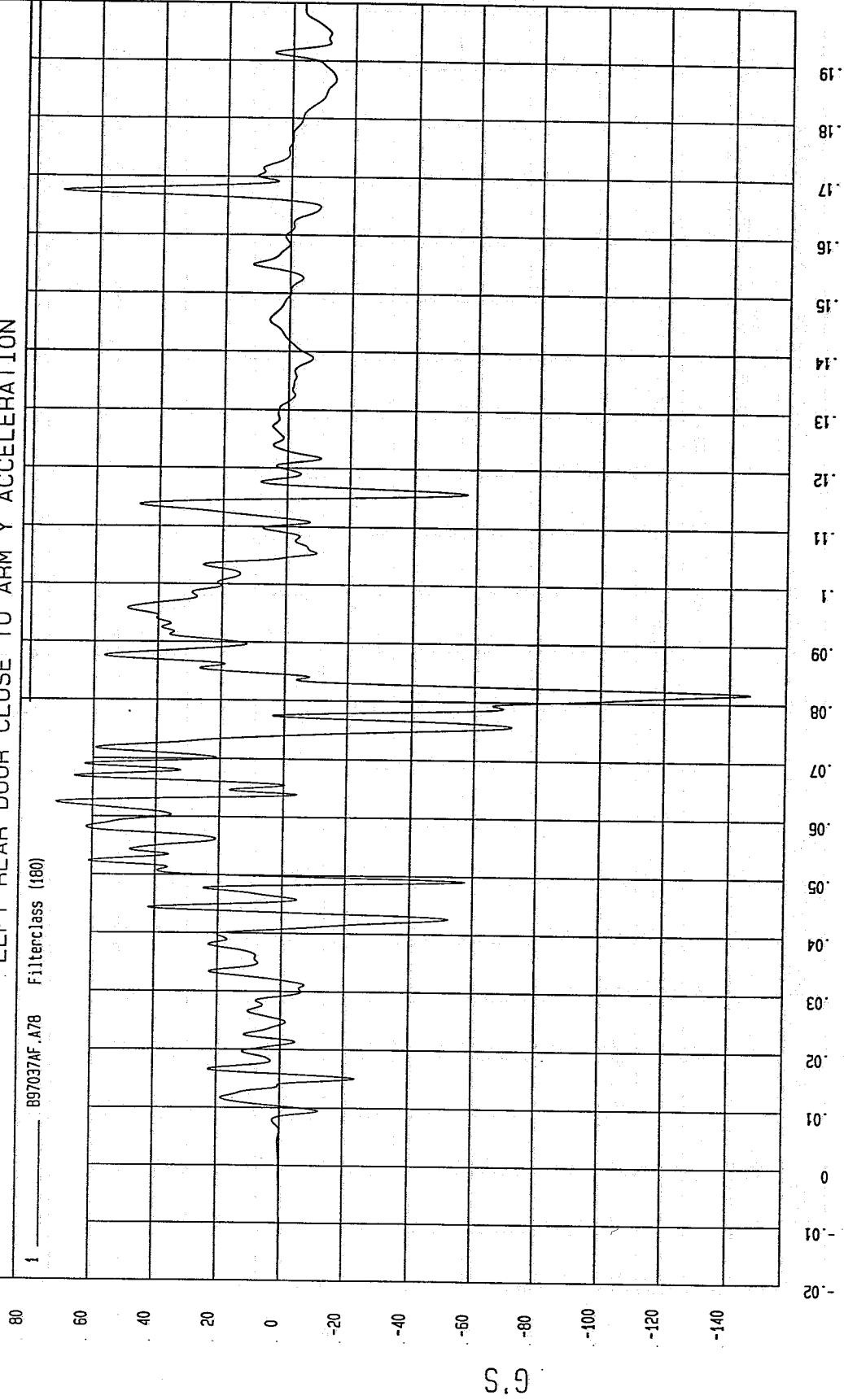
Speed: 39.83 MPH 64.1 KPH

Minimum = -146.30 G'S at 82 msec

Maximum = 71.87 G'S at 168 msec

LEFT REAR DOOR CLOSE TO ARM Y ACCELERATION

1 ——— B97037AF.A78 Filterclass (180)



MSA Research  
04-04-1997 14:45

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

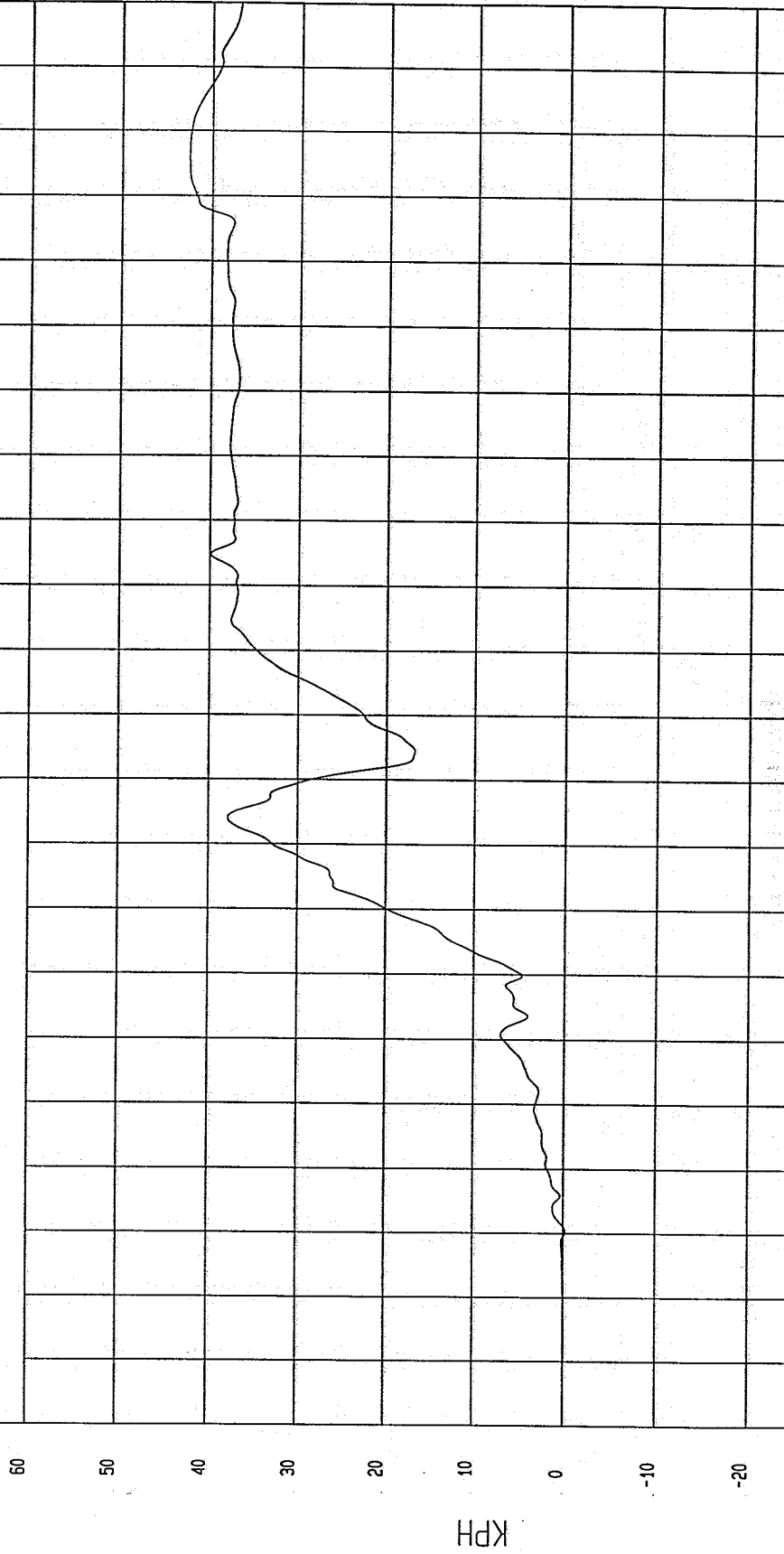
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -.19 KPH at 10 msec

Maximum = 42.60 KPH at 176 msec

LEFT REAR DOOR CLOSE TO ARM Y VELOCITY

1 B97037A1.V78 Filterclass (180)



TIME Seconds

MGA Research  
04-07-1997 09: 40

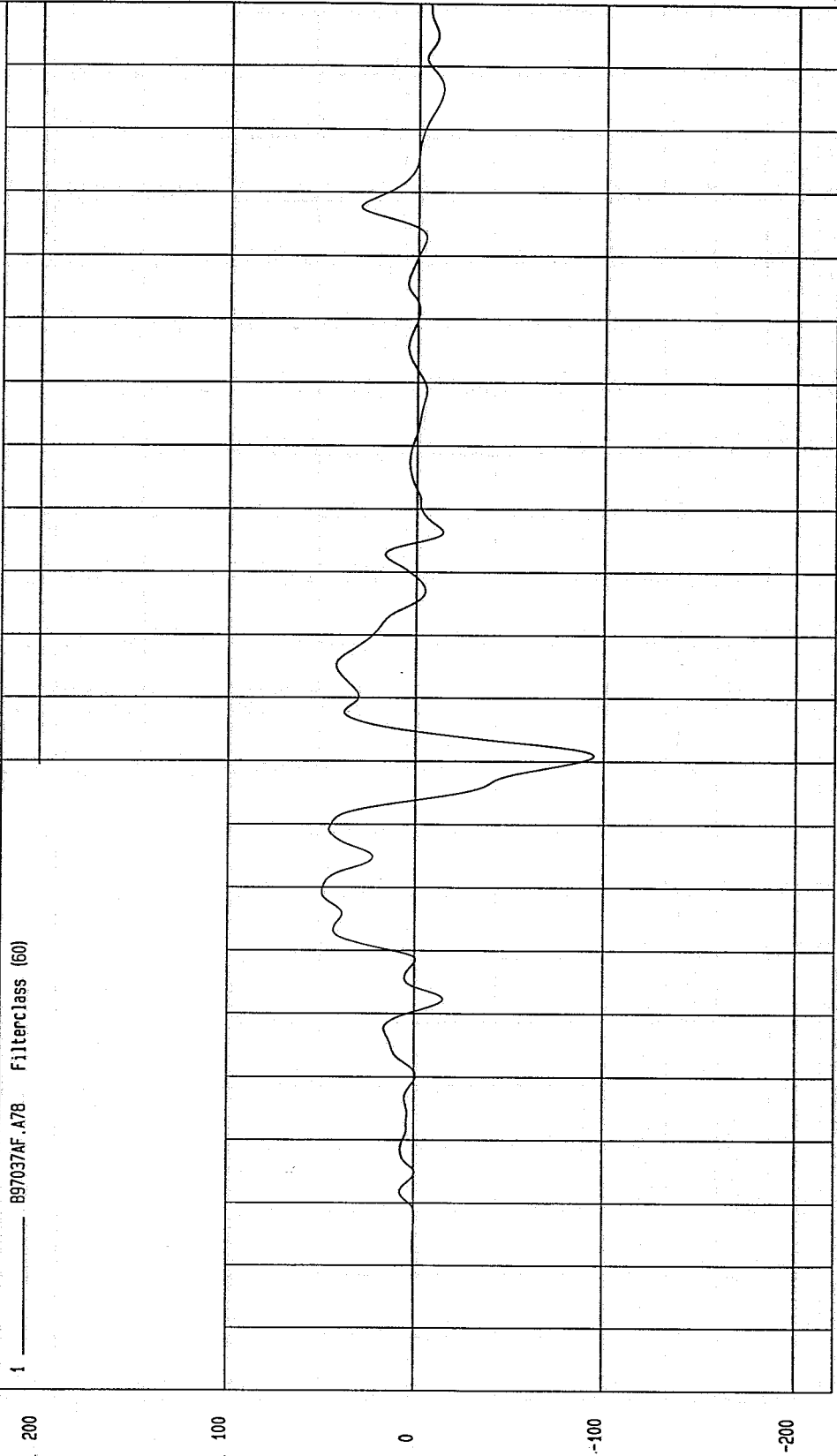
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -94.64 G'S at 81 msec Maximum = 49.33 G'S at 59 msec

LEFT REAR DOOR CLOSE TO ARM Y ACCELERATION

1 ——— B97037AF.A78 Filterclass (60)



NSA Research  
04-04-1997 14:54

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

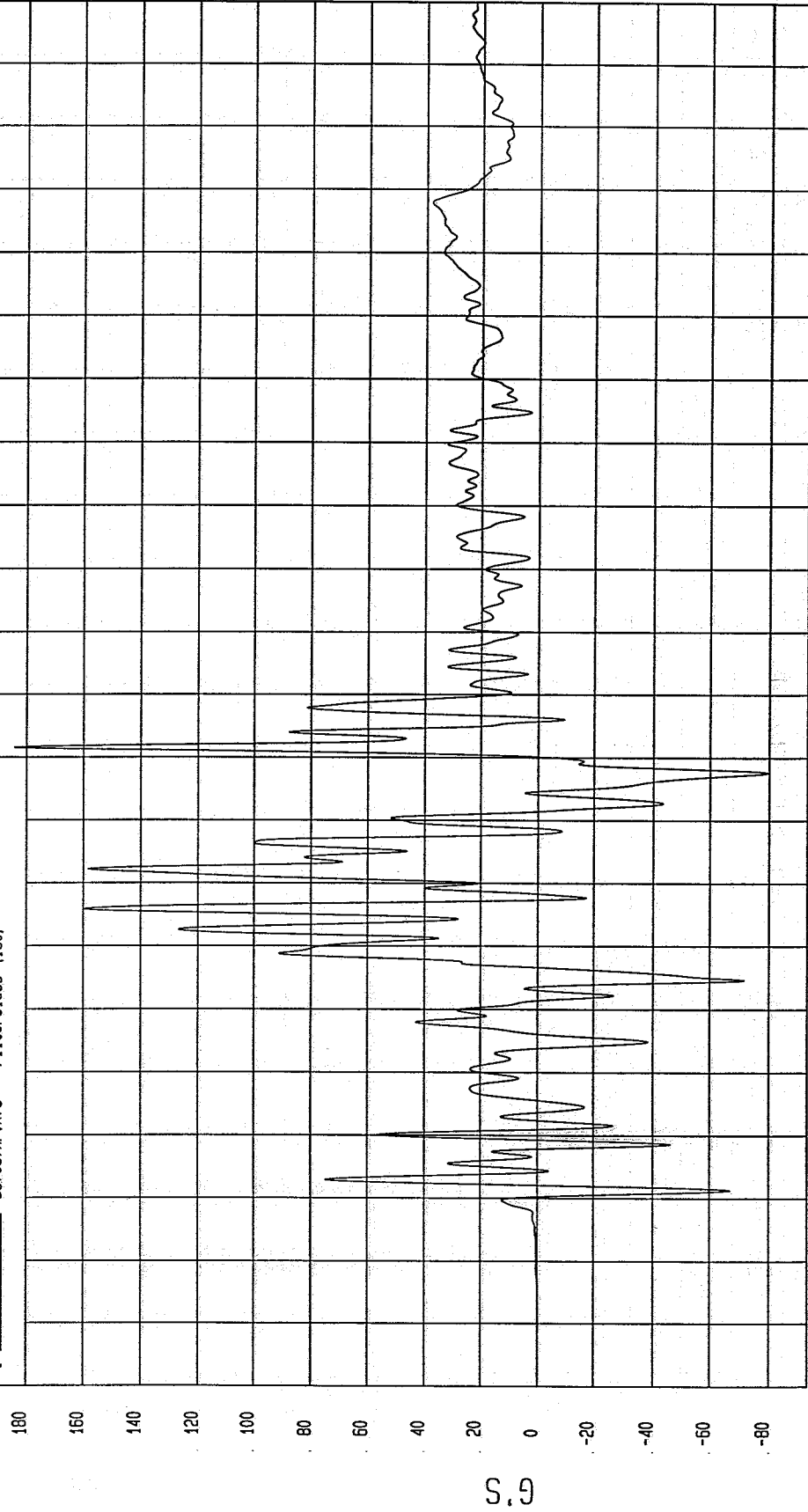
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -79.53 G'S at 78 msec

Maximum = 184.11 G'S at 82 msec

LEFT REAR DOOR CLOSE TO PELVIS Y ACCELERATION

1 ——— B97037AF.A79 Filterclass (180)



MGA Research  
04-04-1997 1A.45

TIME (SECONDS)

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.61 KPH at 12 msec Maximum = 149.62 KPH at 200 msec

LEFT REAR DOOR CLOSE TO PELVIS Y VELOCITY

1 897037A1.V79 Filterclass (180)



MSA Research  
04-07-1997 09:40

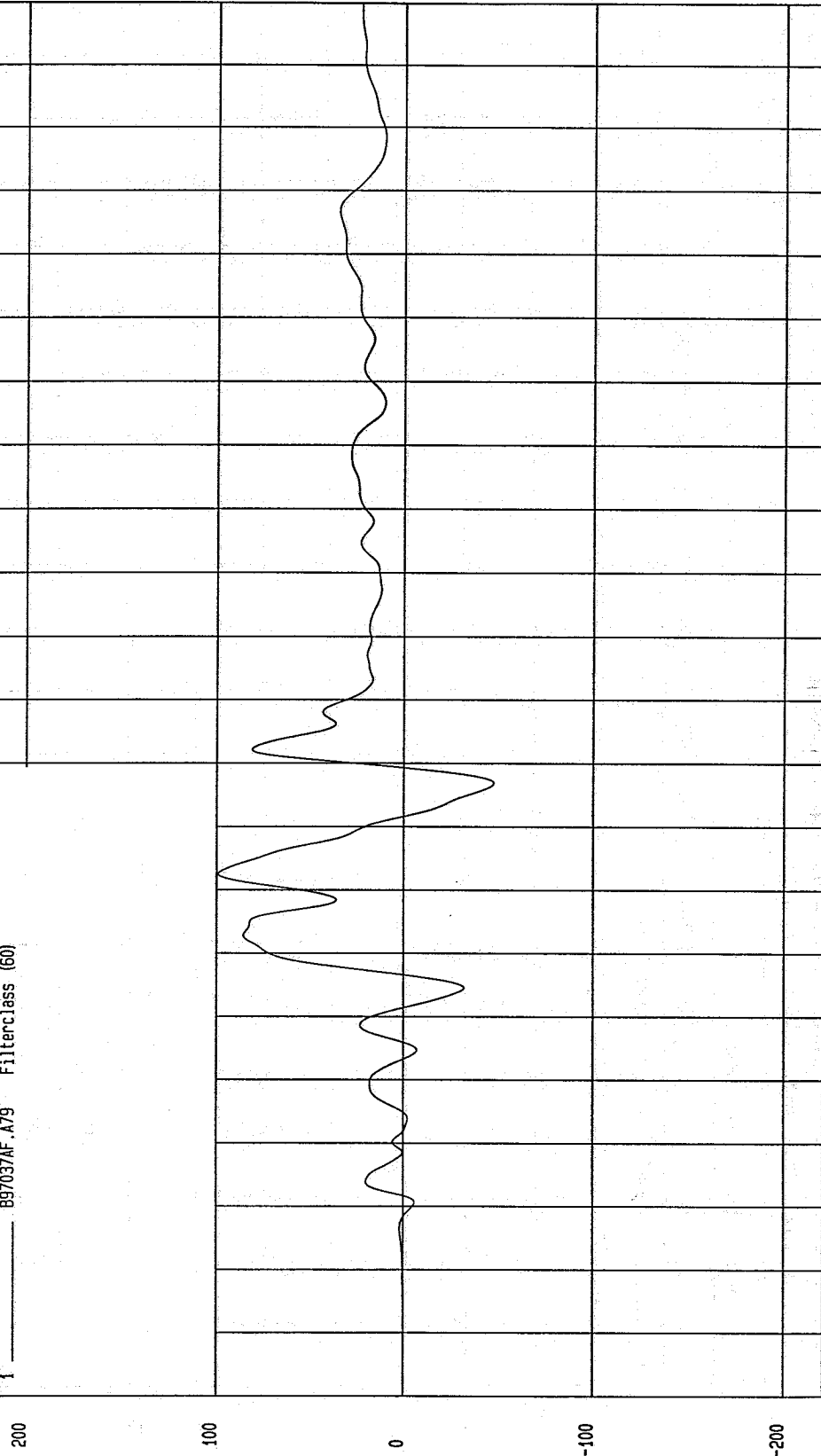
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -47.48 G'S at 77 msec  
Maximum = 99.32 G'S at 62 msec

LEFT REAR DOOR CLOSE TO PELVIS Y ACCELERATION

1 ——— B97037AF.A79 Filterclass (60)



MCA Research  
04-04-1997 14:54

TIME (SECONDS)

G.S

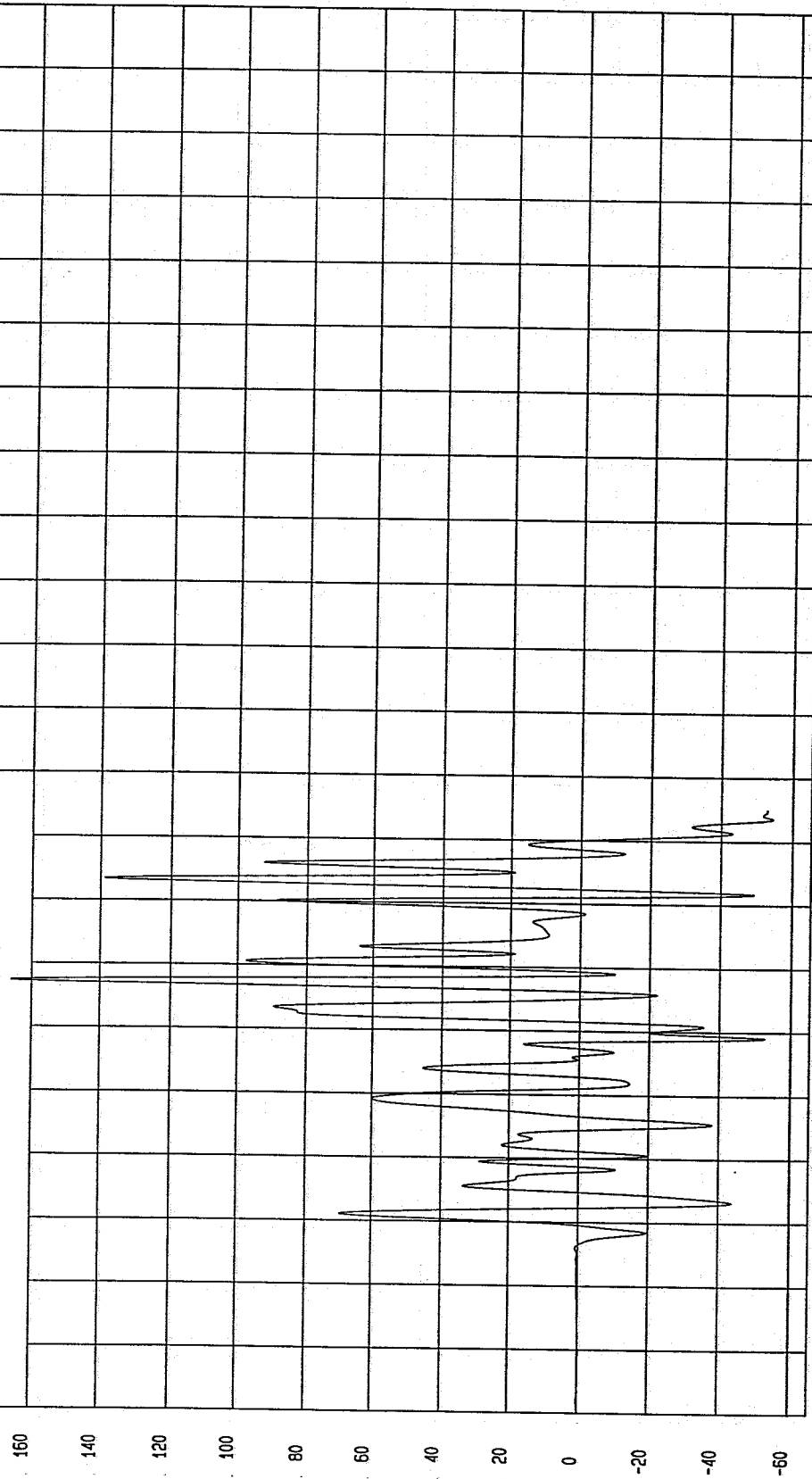
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -54.31 G'S at 74 msec Maximum = 166.01 G'S at 47 msec

LEFT REAR DOOR CLOSE TO KNEE Y ACCELERATION

1 897037AF.A80 Filterclass (180)



NSA Research  
04-0A-1997 1A. 45

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

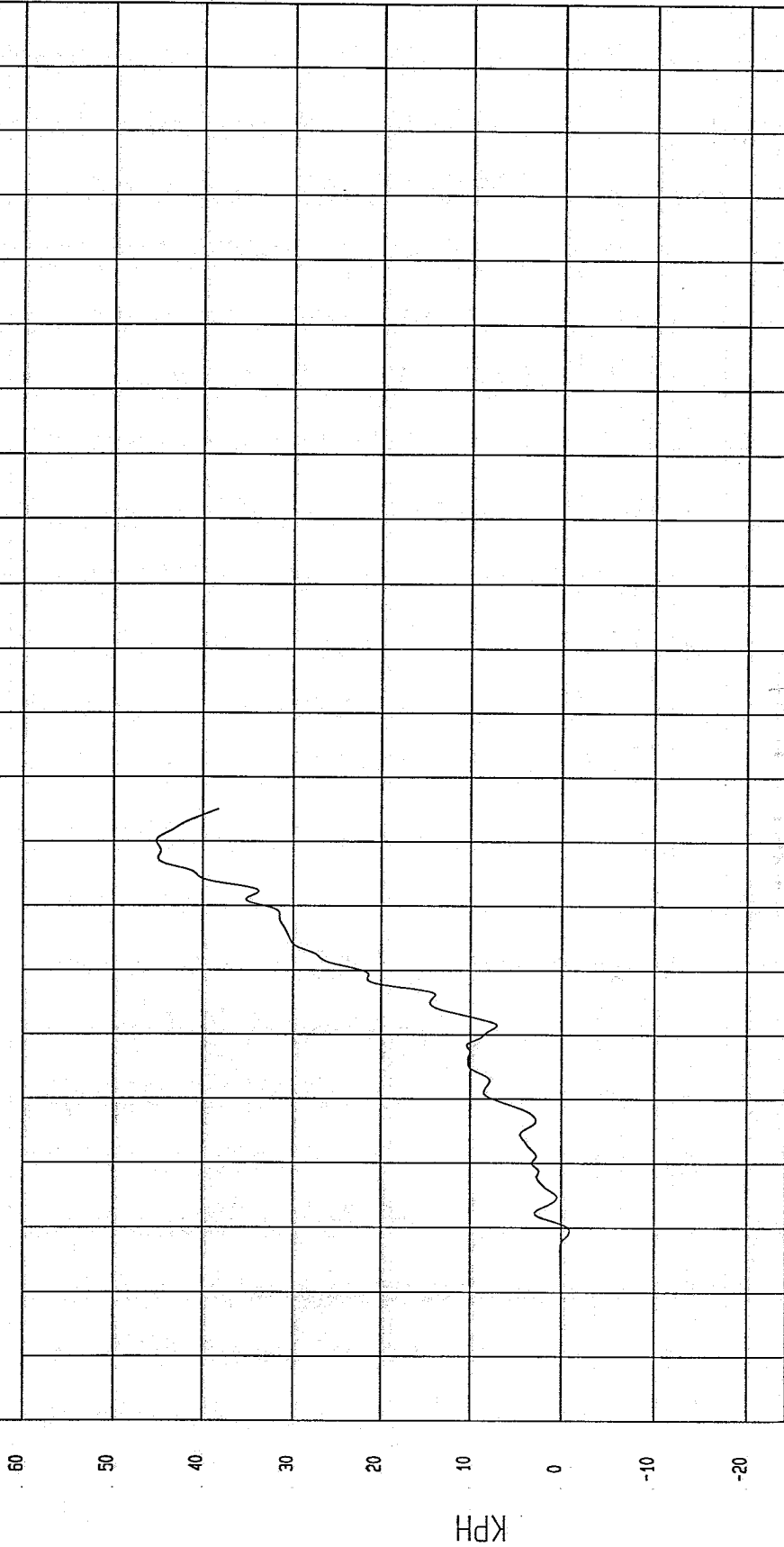
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -.81 KPH at 10 msec

Maximum = 45.31 KPH at 70 msec

LEFT REAR DOOR CLOSE TO KNEE Y VELOCITY

1 ——— .B97037AI.V80 Filterclass (180)



MOA Research  
0A-07-1997 09.41

TIME Seconds

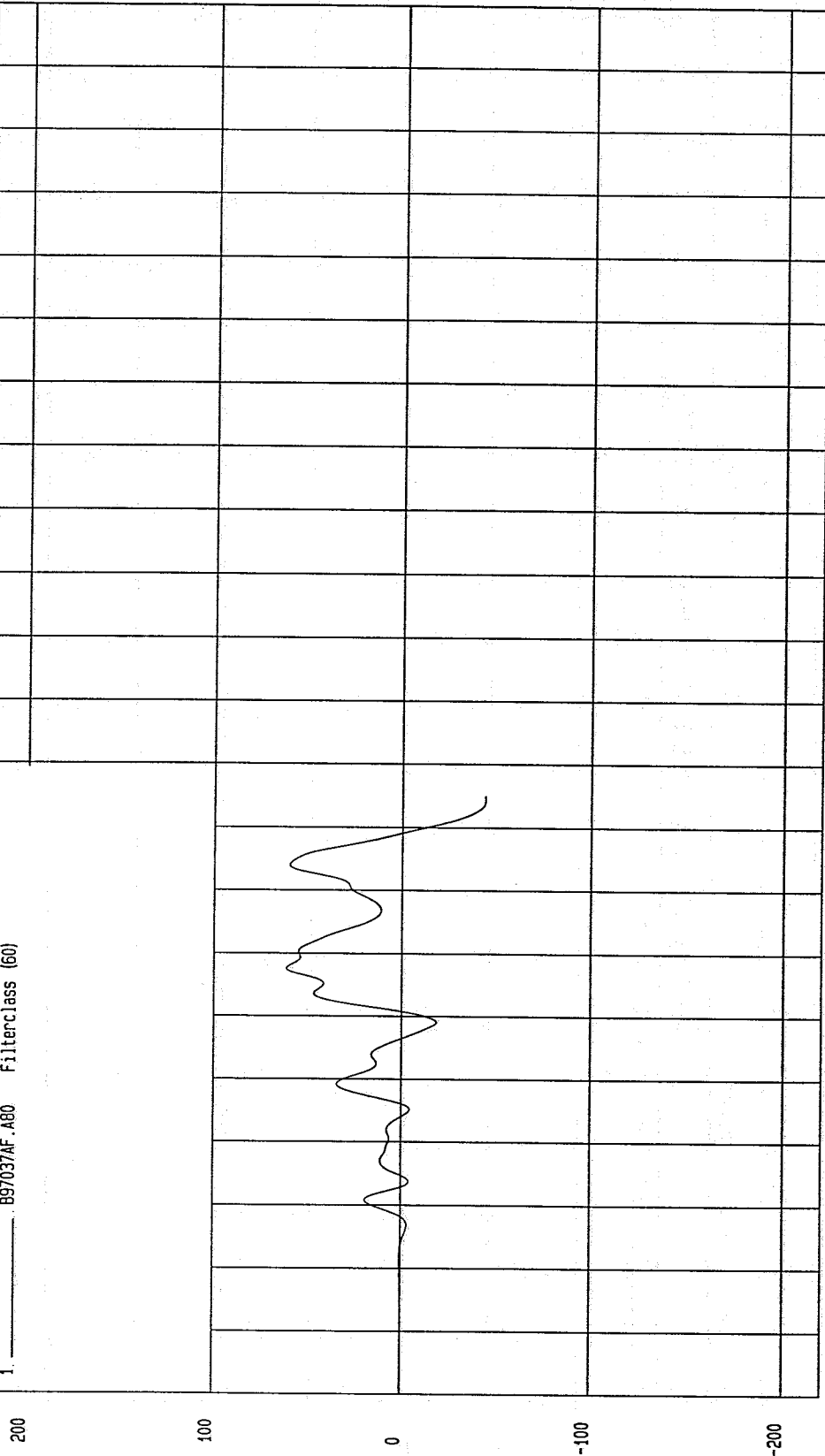
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -43.60 G'S at 74 msec Maximum = 61.58 G'S at 48 msec

LEFT REAR DOOR CLOSE TO KNEE Y ACCELERATION

1. \_\_\_\_\_ 897037AF.A80 Filterclass (60)



MGA Research  
03-04-1997 14:54

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

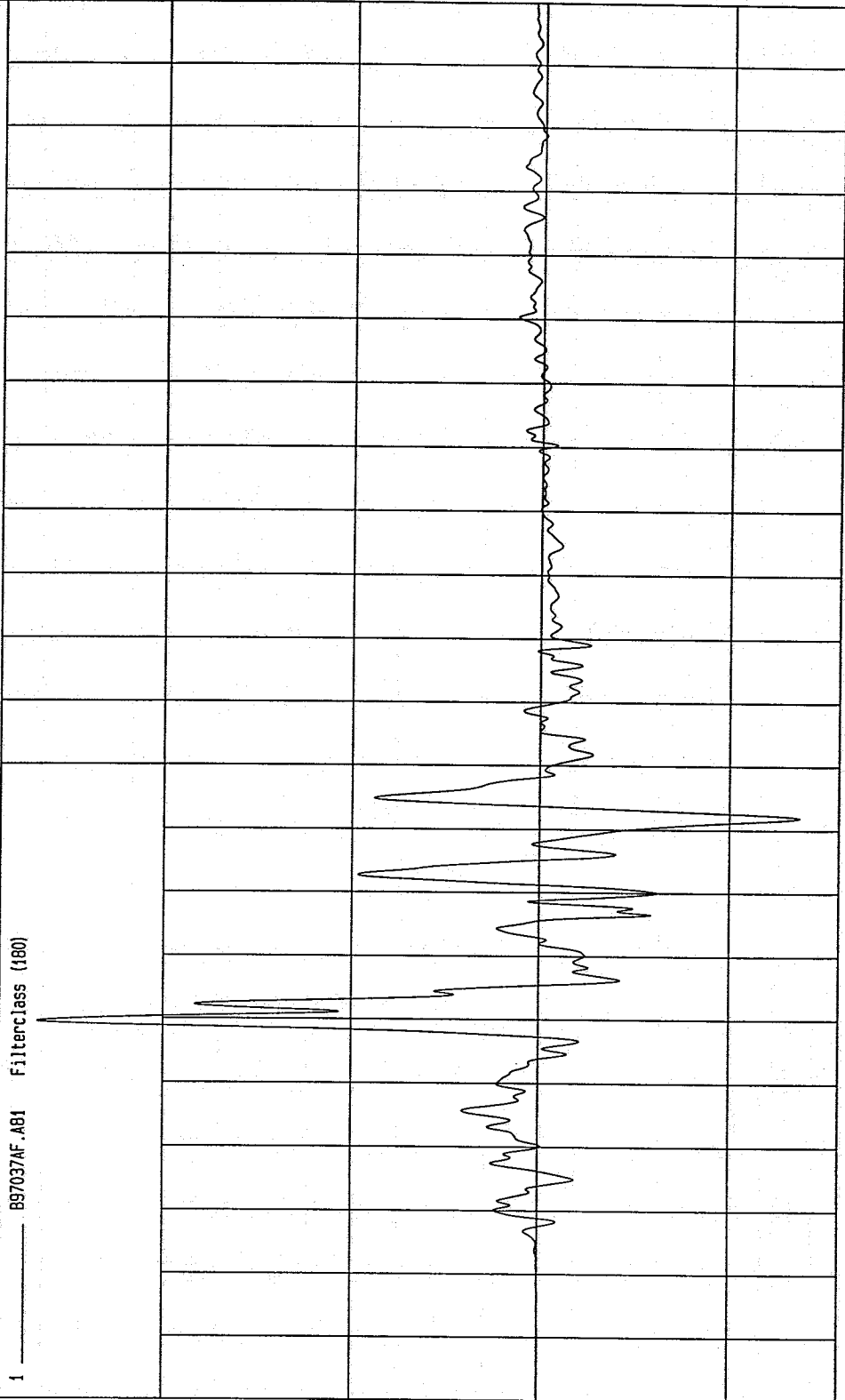
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -135.68 G'S at 72 msec

Maximum = 266.30 G'S at 40 msec

LEFT REAR DOOR CLOSE TO LOWER LEG Y ACCELERATION

1 \_\_\_\_\_ B97037AF.AB1 Filterclass (180)



NGA Research  
04-04-1997 1A. 46

TIME (SECONDS)

G.S

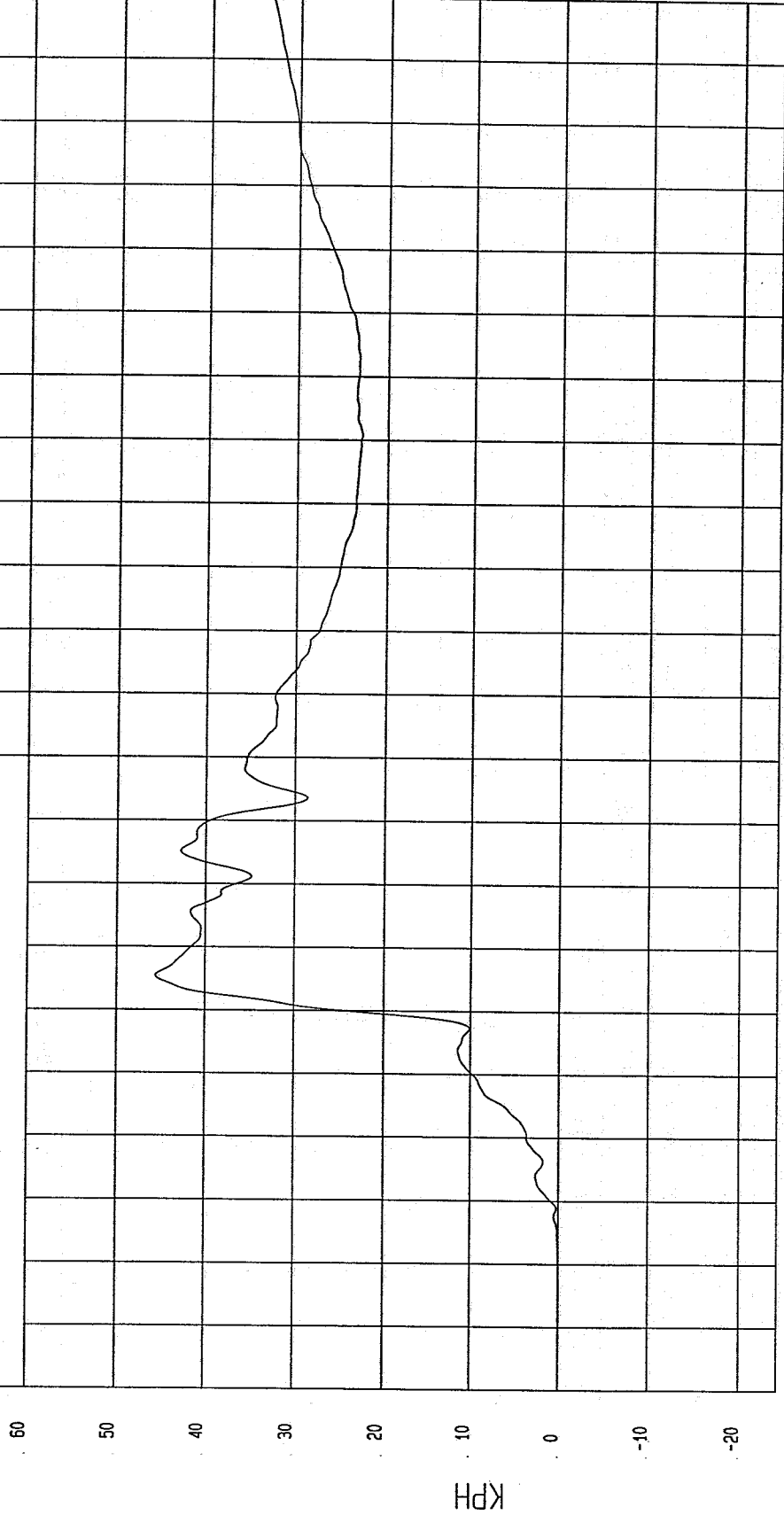
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.92E-02 KPH at -8 msec Maximum = 45.66 KPH at 45 msec

LEFT REAR DOOR CLOSE TO LOWER LEG Y VELOCITY

1 ——— B97037A1.V81 Filterclass (180)



NGA Research  
04-01-1997 09: 41

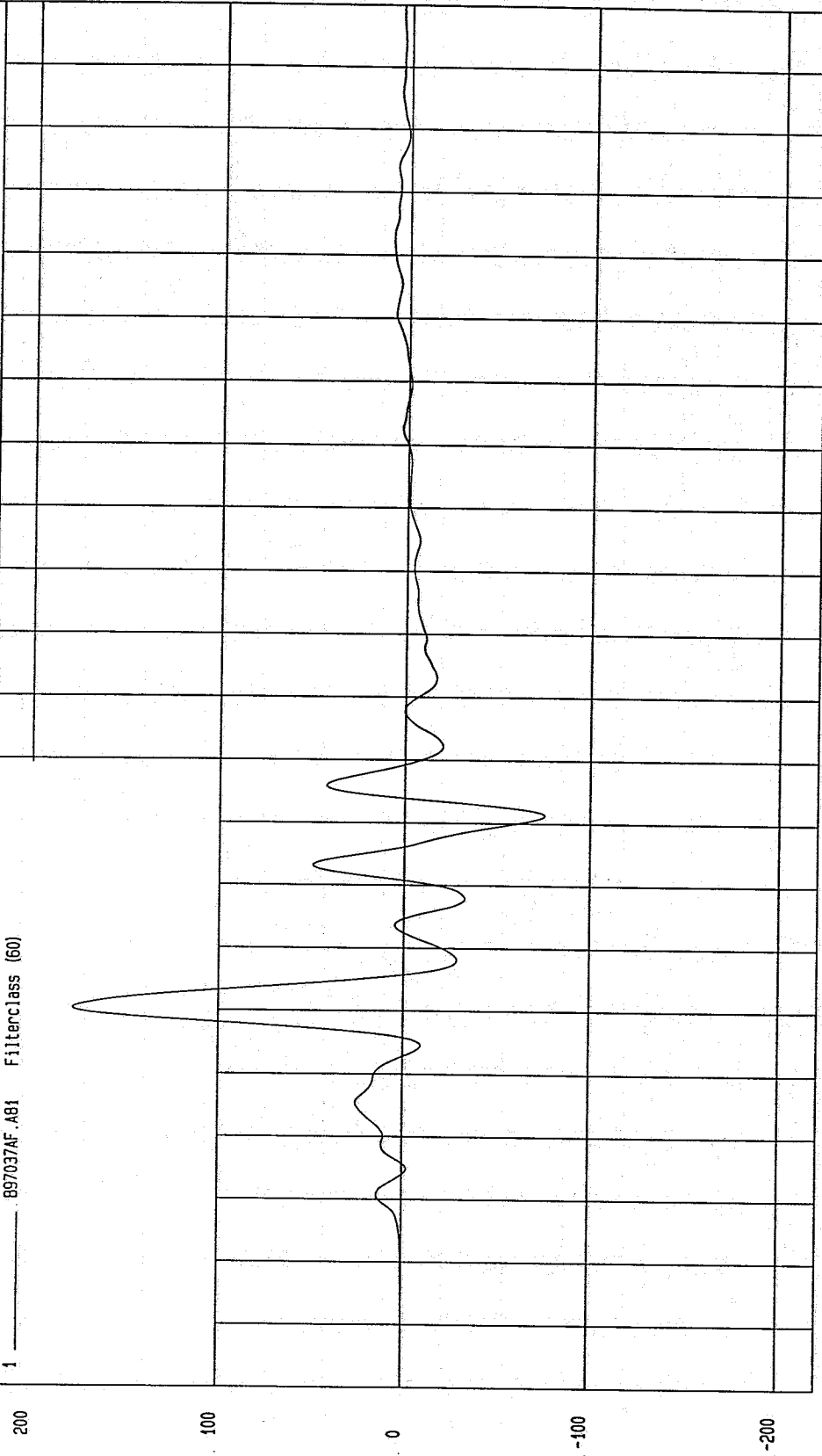
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -75.82 G'S at 71 msec Maximum = 177.80 G'S at 40 msec

LEFT REAR DOOR CLOSE TO LOWER LEG Y ACCELERATION

1 897037AF.A81 Filterclass (60)



TIME (SECONDS)

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-0.01  
-0.02

WCA Research  
04-04-1997 14:55

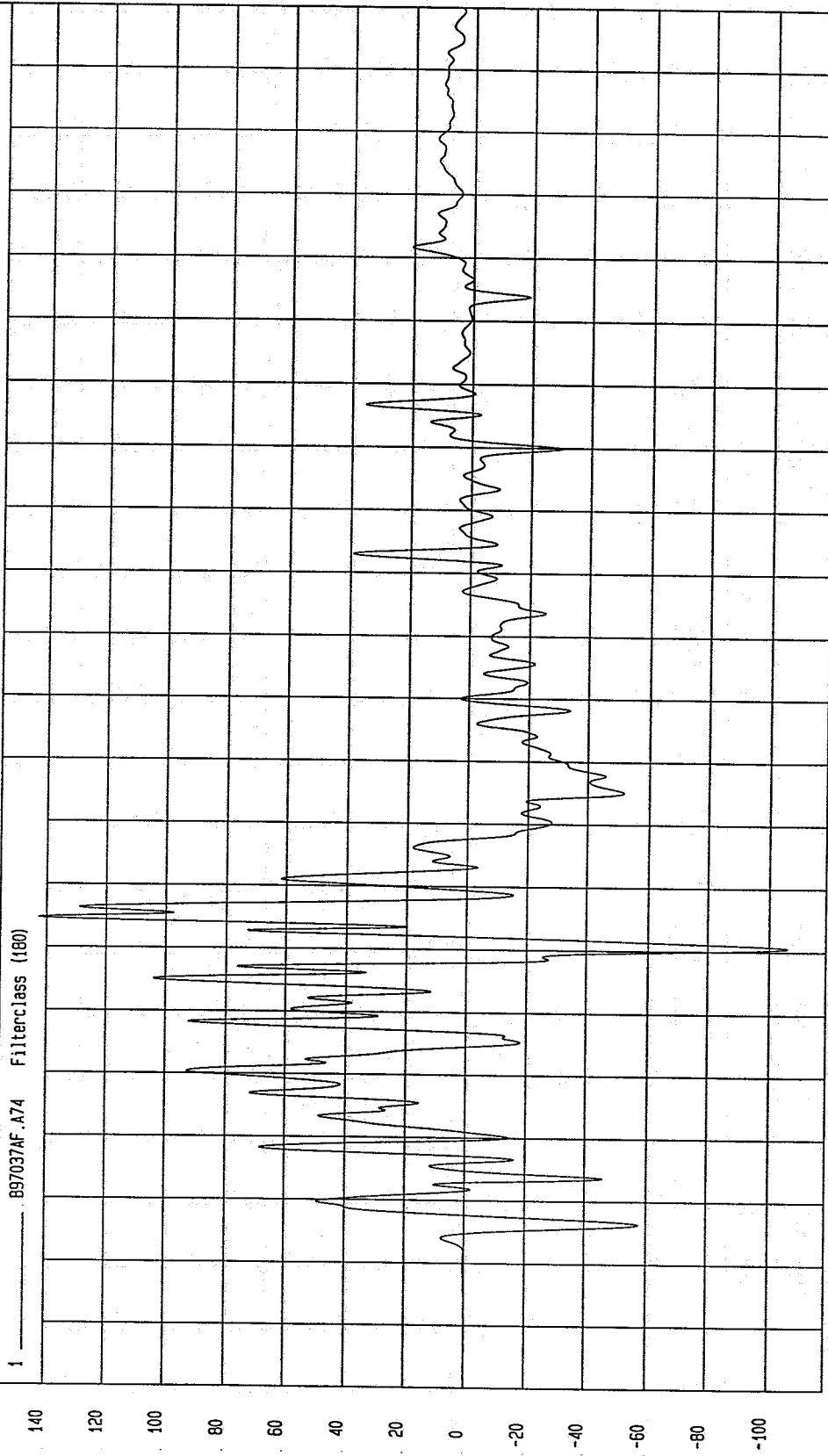
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

Speed: 39.83 MPH 64.1 KPH

Minimum = -105.90 G'S at 50 msec Maximum = 142.63 G'S at 55 msec

LEFT FRONT DOOR CLOSE TO ARM Y ACCELERATION



MCA Research  
04-04-1997 14:45

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

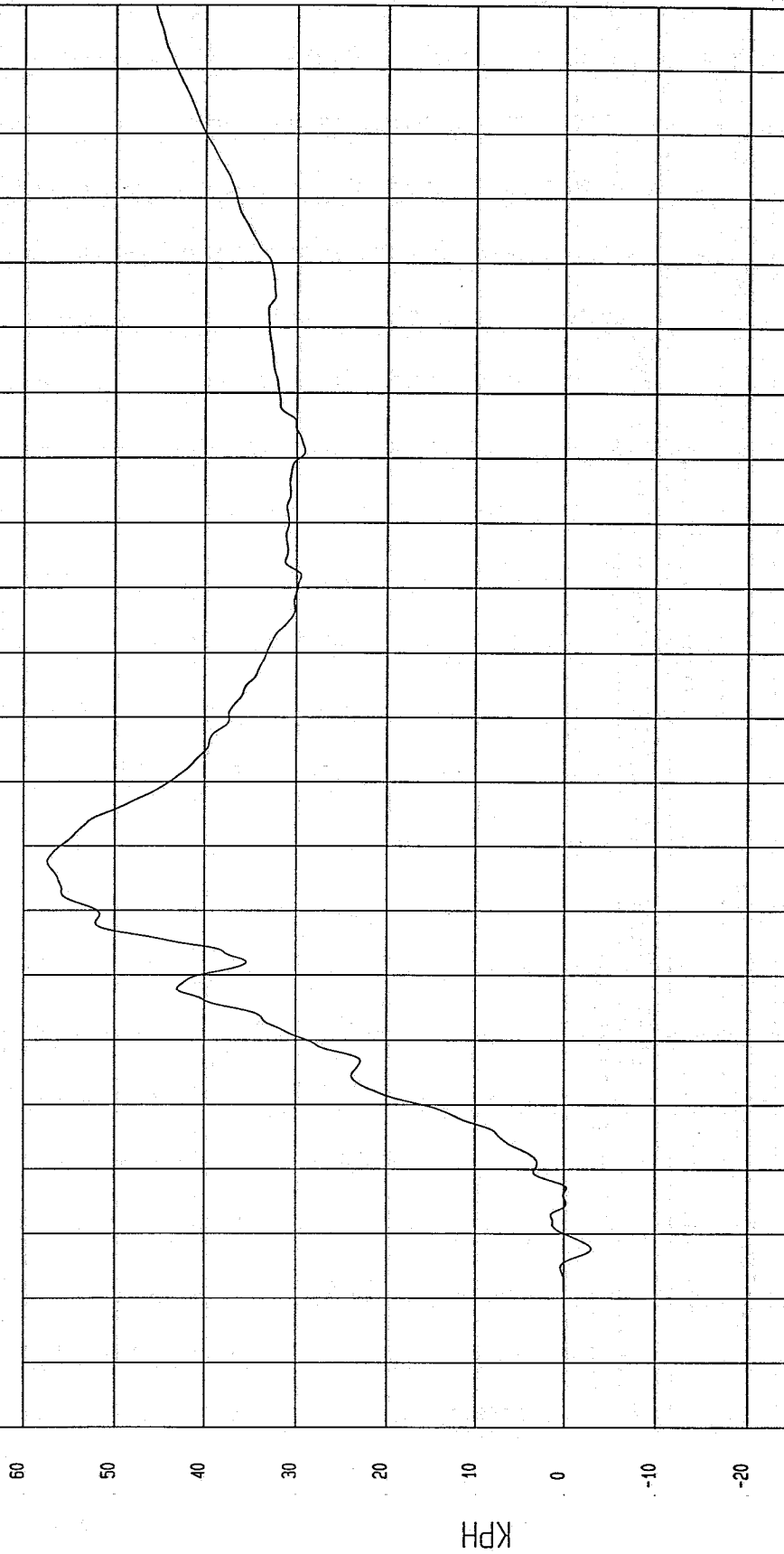
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -2.98 KPH at 8 msec

Maximum = 57.33 KPH at 68 msec

LEFT FRONT DOOR CLOSE TO ARM Y VELOCITY

1 ——— 897037A1.V74 Filterclass (180)



W&A Research Co.  
0A-07-1997 09: 40

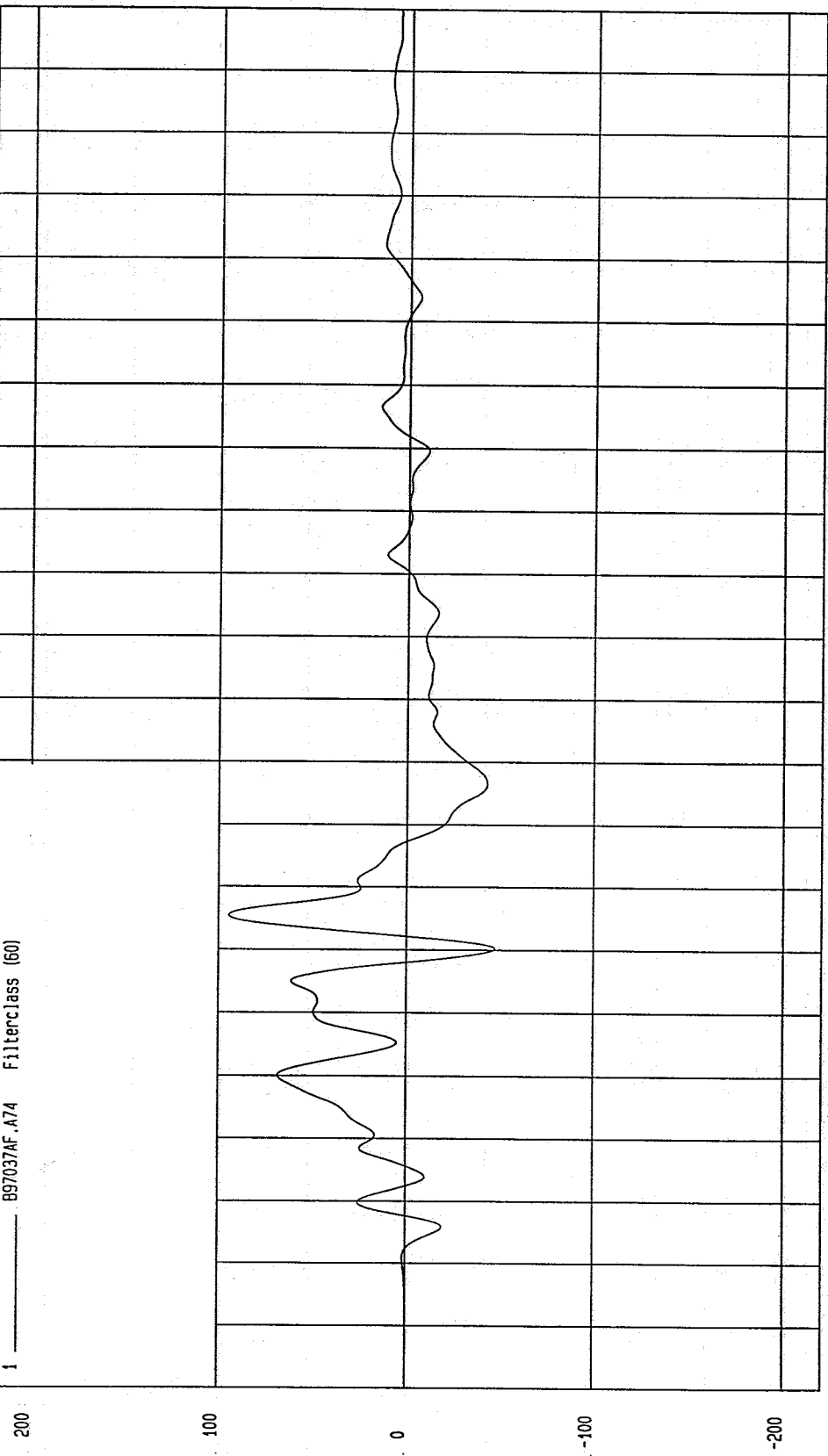
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -47.67 G'S at 50 msec Maximum = 94.31 G'S at 56 msec

LEFT FRONT DOOR CLOSE TO ARM Y ACCELERATION

1 897037AF.A74 Filterclass (60)



NQA Research  
04-04-1997 14:54

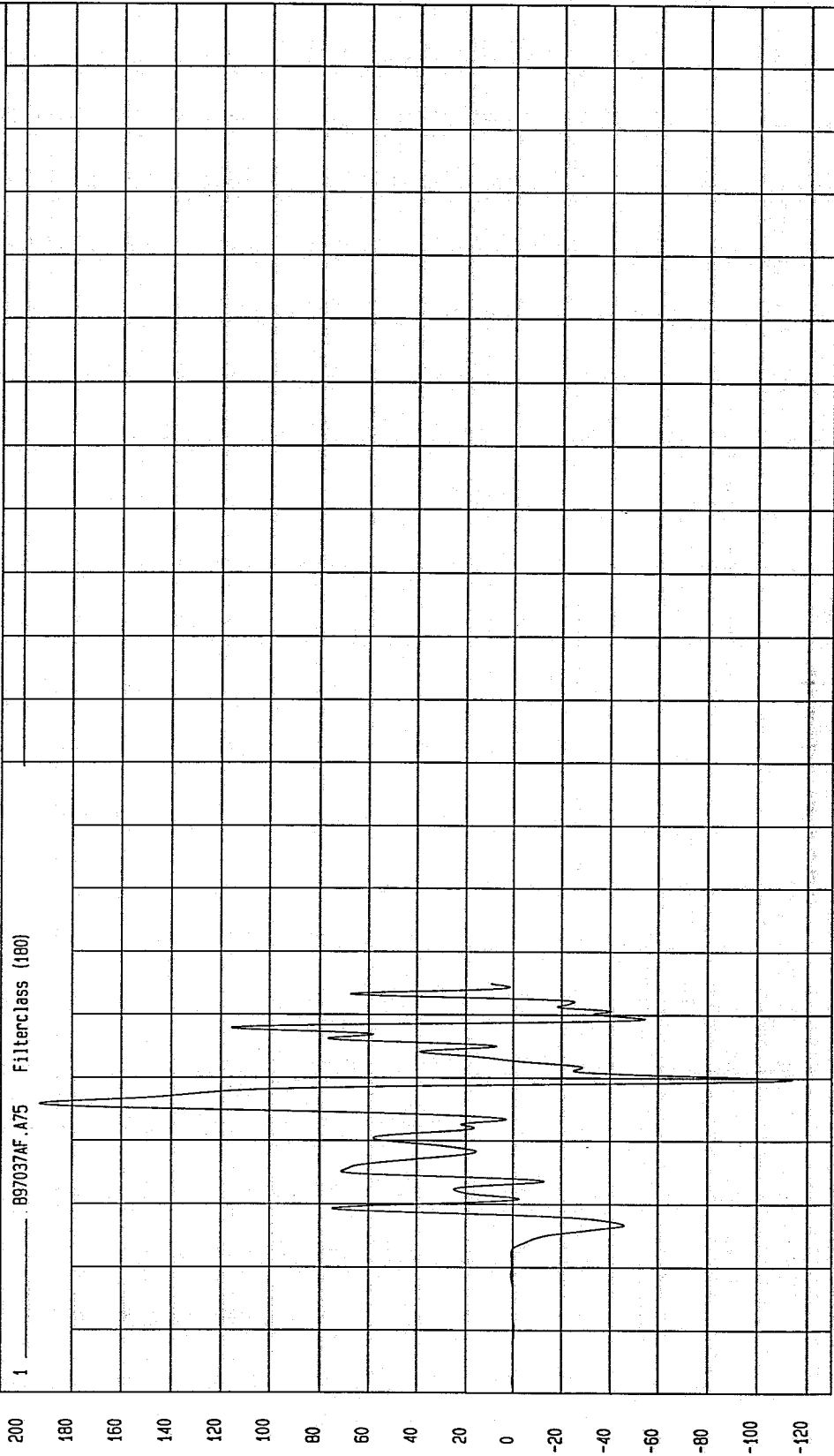
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -114.12 G'S at 30 msec  
Maximum = 193.37 G'S at 26 msec

LEFT FRONT DOOR CLOSE TO PELVIS Y ACCELERATION

1 897037AF.A75 Filterclass (180)



MGA Research  
04-04-1997 14.45

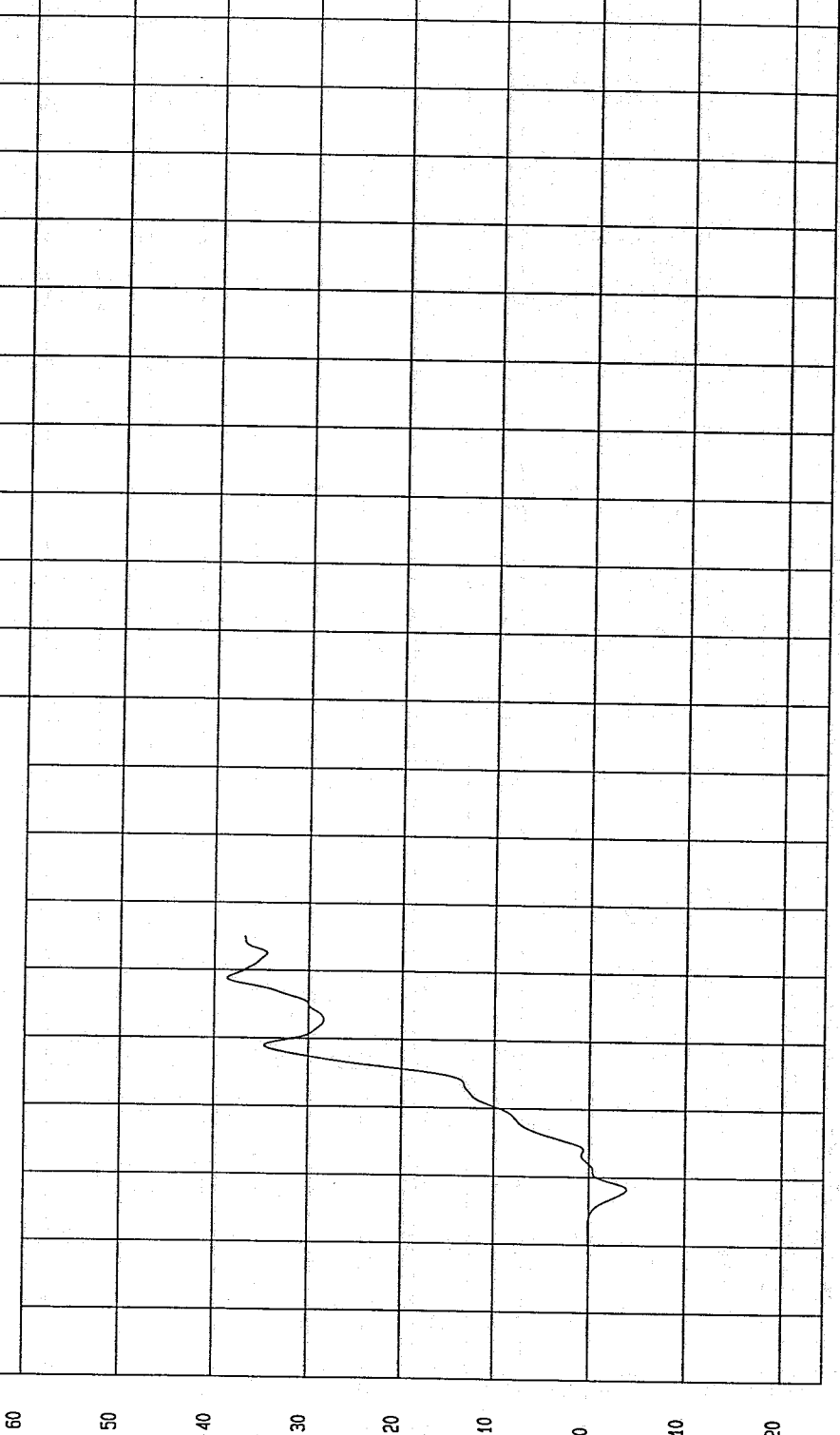
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.92 KPH at 8 msec Maximum = 38.69 KPH at 39 msec

LEFT FRONT DOOR CLOSE TO PELVIS Y VELOCITY

1 ——— B97037A1.V75 Filterclass (180)



NCA Research  
04-07-1997 09:40

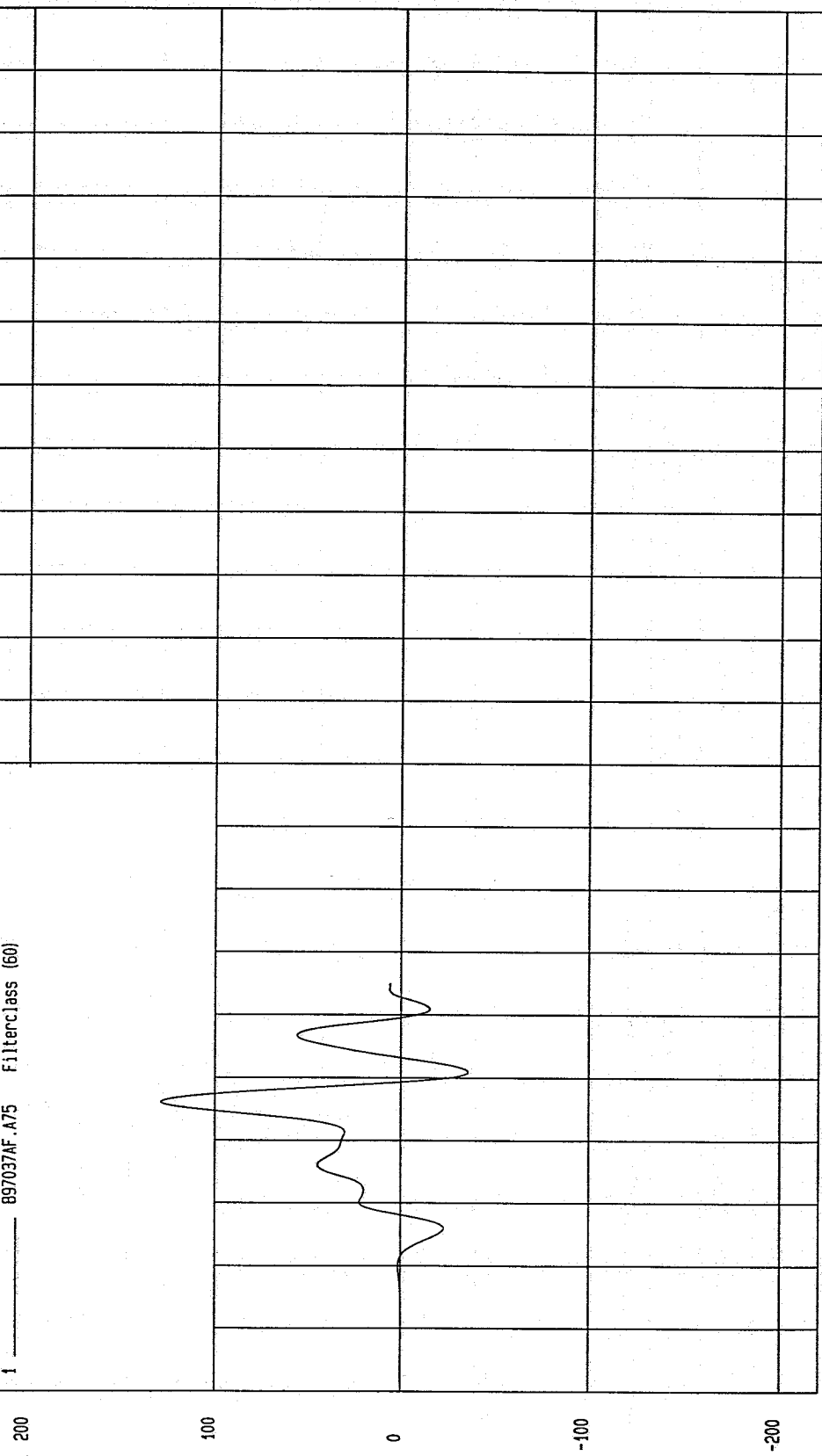
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -35.50 G'S at 31 msec  
Maximum = 129.10 G'S at 26 msec

LEFT FRONT DOOR CLOSE TO PELVIS Y ACCELERATION

1 ——— 897037AF.A75 FilterClass (60)



TIME (SECONDS)

0.19  
0.18  
0.17  
0.16  
0.15  
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0.09  
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0.04  
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0.02  
0.01  
0  
-0.01  
-0.02

MCA Research  
04-04-1997 14:54

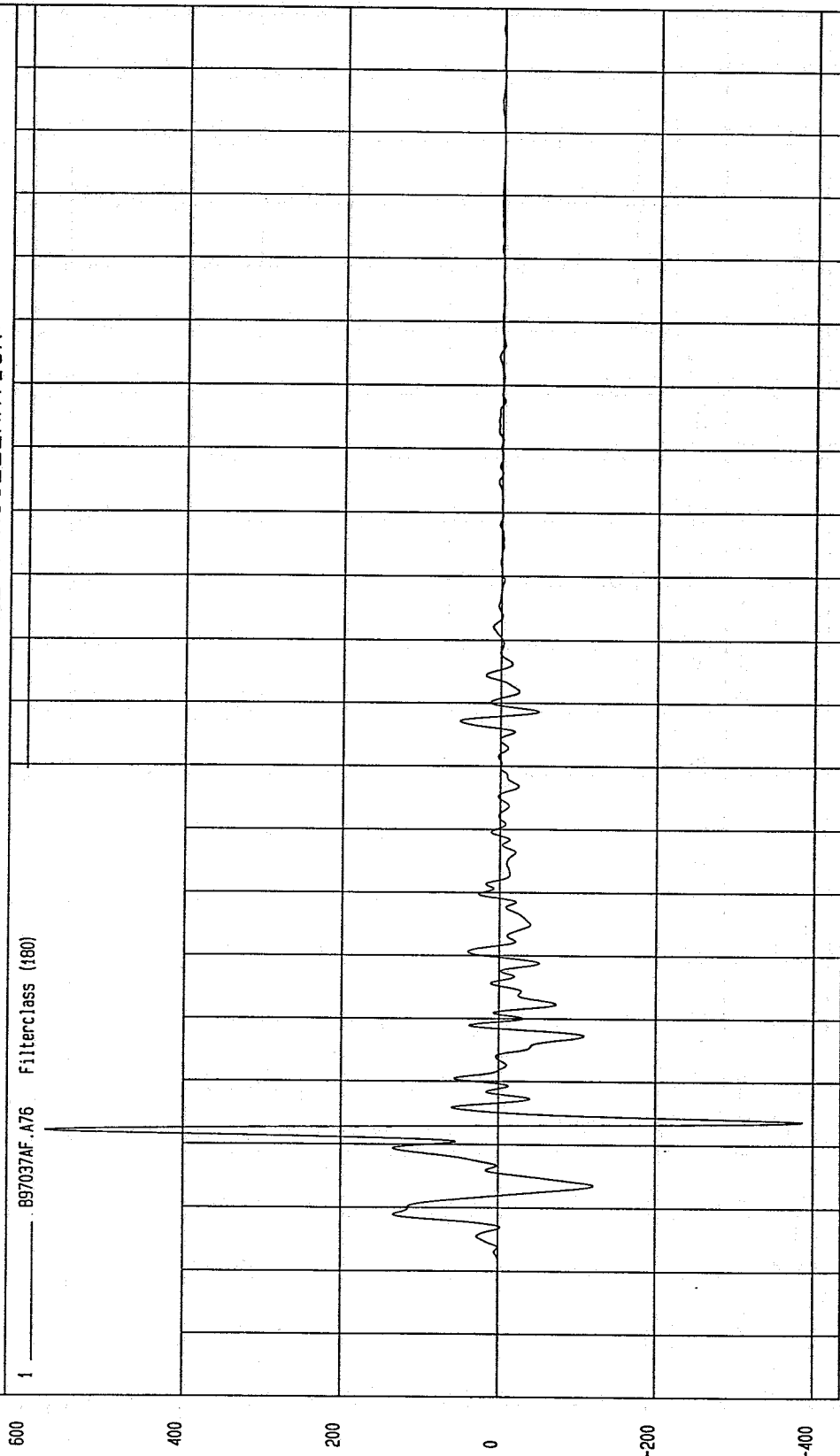
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -386.06 G'S at 24 msec Maximum = 574.57 G'S at 22 msec

LEFT FRONT DOOR CLOSE TO KNEE Y ACCELERATION

1 897037AF.A75 Filterclass (180)



WGA Research Co.  
0A-0A-1997 1A.45

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

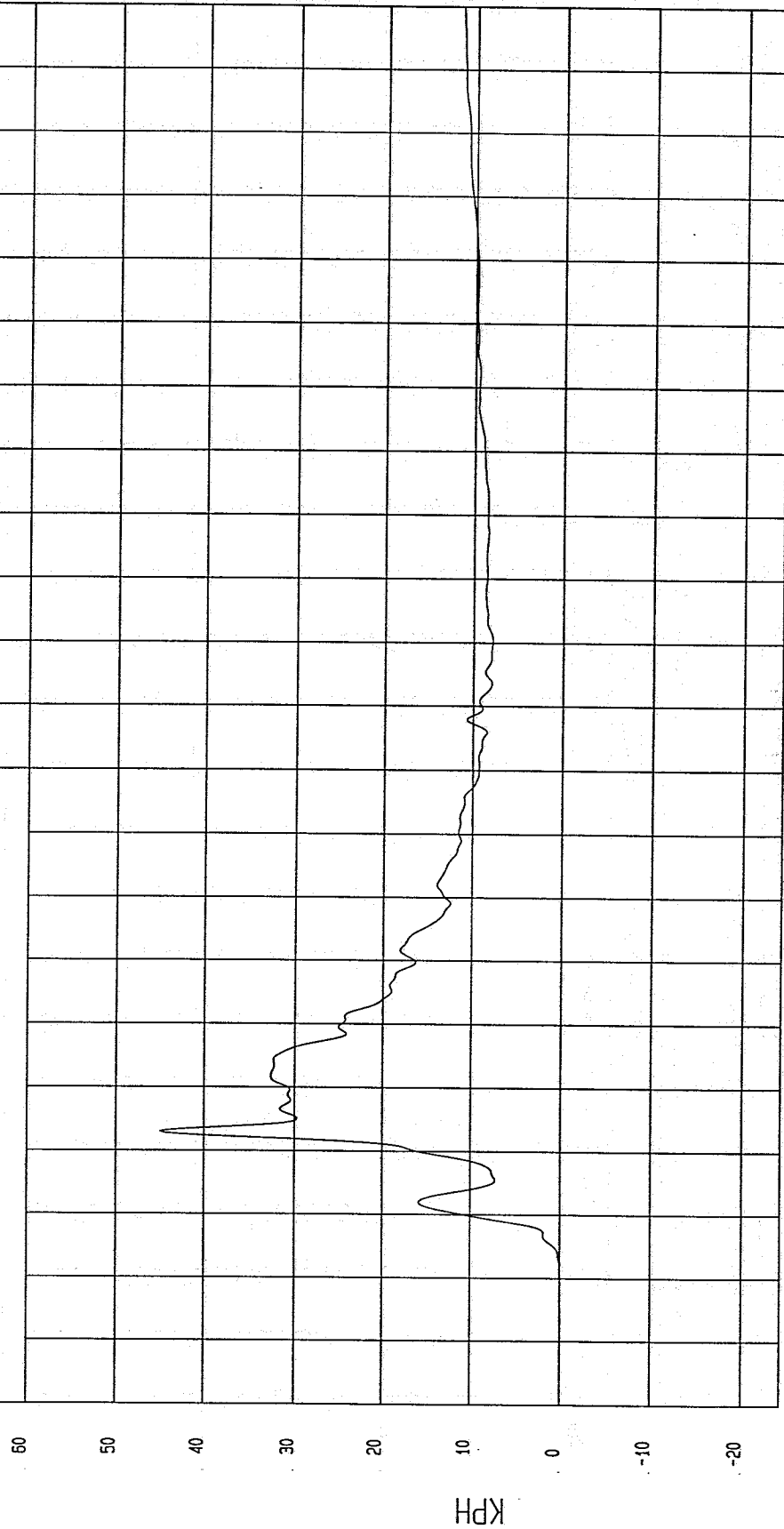
Speed: 39.83 MPH 64.1 KPH

Minimum = -2.65E-02 KPH at -8 msec

Maximum = 45.00 KPH at 23 msec

LEFT FRONT DOOR CLOSE TO KNEE Y VELOCITY

1 ——— 897037AI.V76 Filterclass (180)



MCA Research  
04-07-1997 09:40

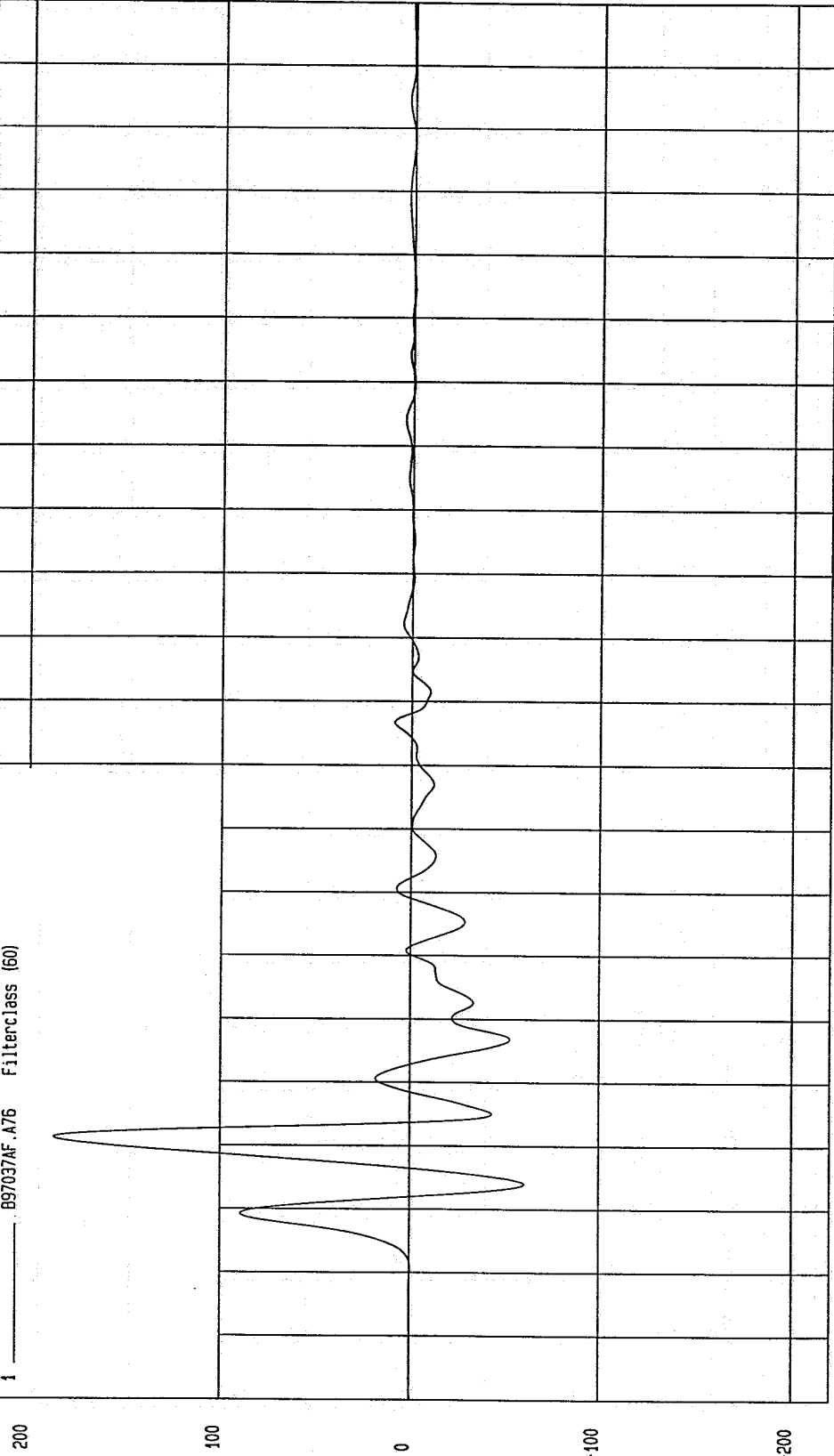
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -60.96 G'S at 14 msec  
Maximum = 186.68 G'S at 21 msec

LEFT FRONT DOOR CLOSE TO KNEE Y ACCELERATION

1 ——— .B97037AF.A76 Filterclass (60)



MCA Research  
04-04-1997 14:54

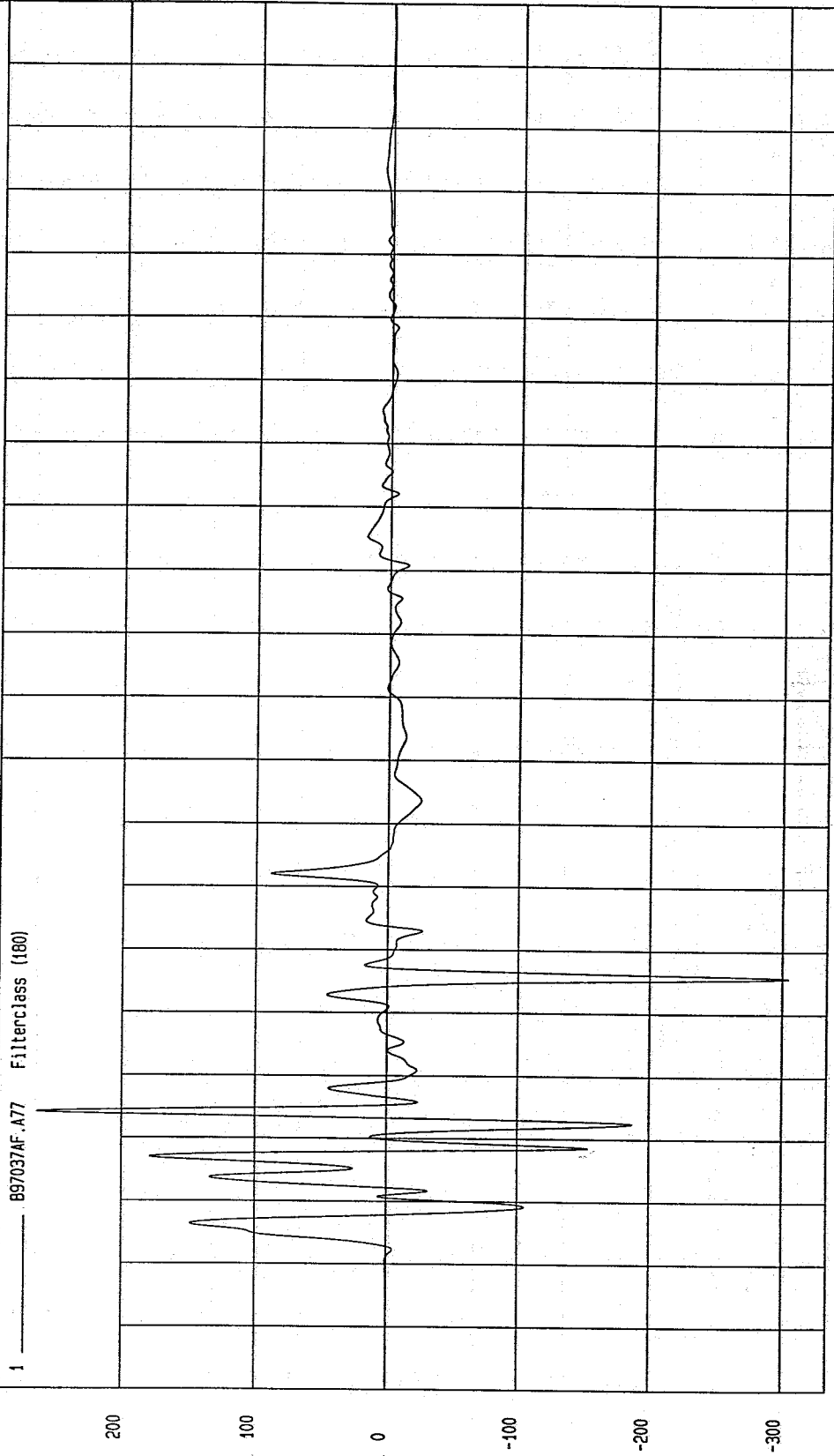
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -304.61 G'S at 46 msec  
Maximum = 262.87 G'S at 24 msec

LEFT FRONT DOOR CLOSE TO LOWER LEG Y ACCELERATION

1 ——— B97037AF.A77 Filterclass (180)



MCA Research  
04-04-1997 1A: 45

TIME (SECONDS)

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

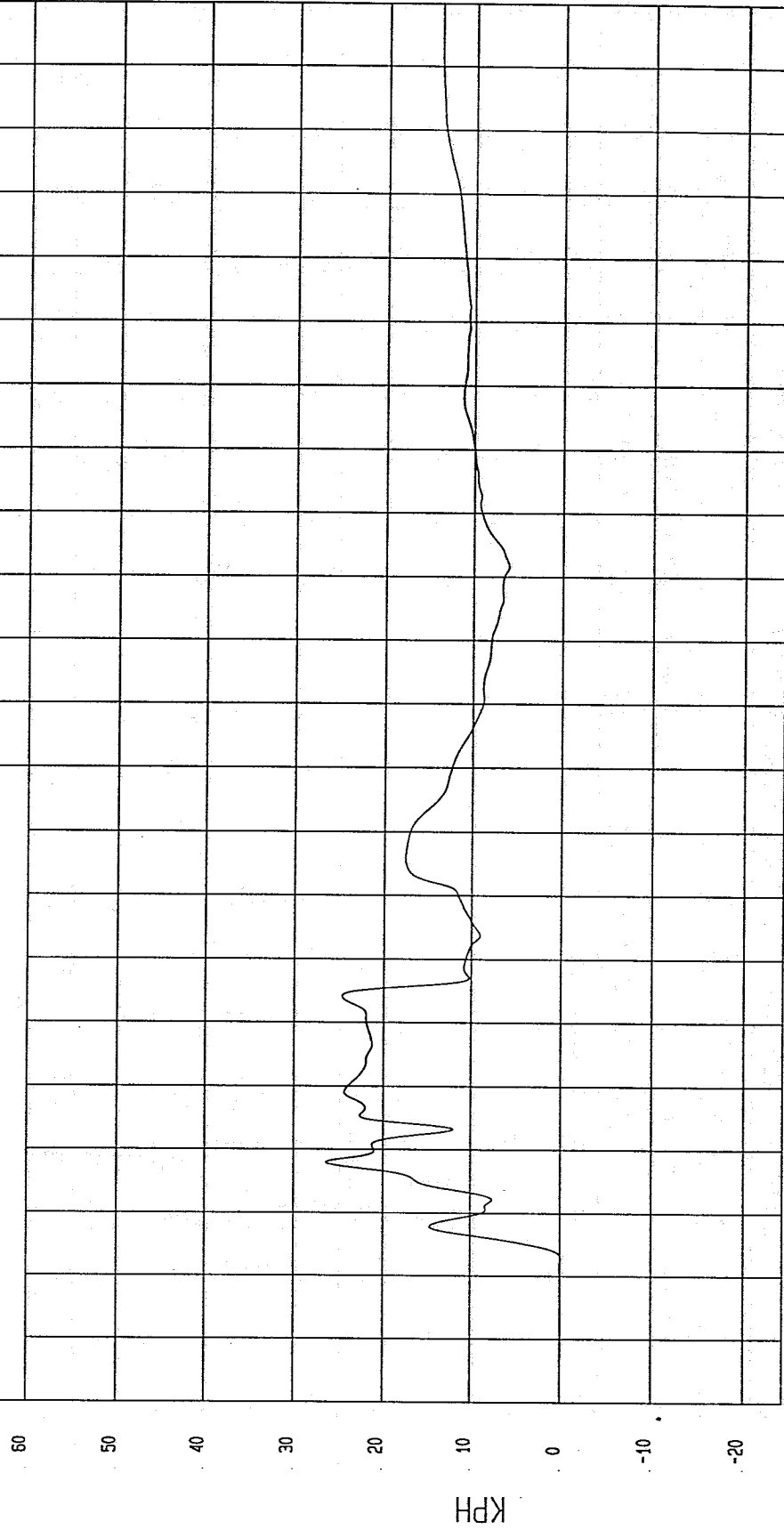
Speed: 39.83 MPH 64.1 KPH

Minimum = -8.33E-02 KPH at 3 msec

Maximum = 26.32 KPH at 18 msec

LEFT FRONT DOOR CLOSE TO LOWER LEG Y VELOCITY

1 — 897037AI.V77 Filterclass (180)



MOA Research  
04-07-1997 09:40

TIME Seconds

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

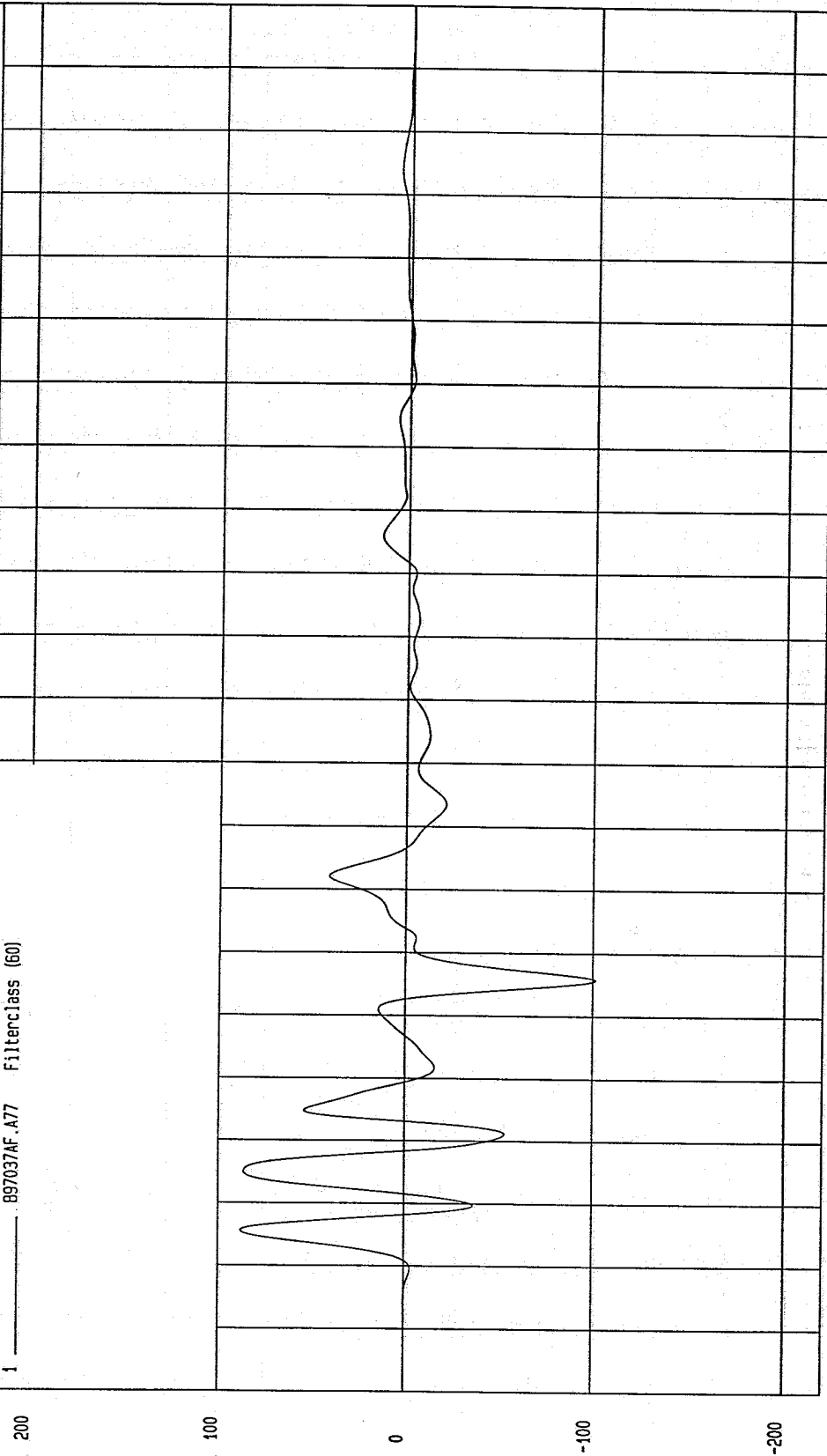
Speed: 39.83 MPH 64.1 KPH

Minimum = -101.52 G'S at 46 msec

Maximum = 87.63 G'S at 6 msec

LEFT FRONT DOOR CLOSE TO LOWER LEG Y ACCELERATION

1 897037AF.A77 Filterclass (60)



MCA Research  
04-04-1997 14:54

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

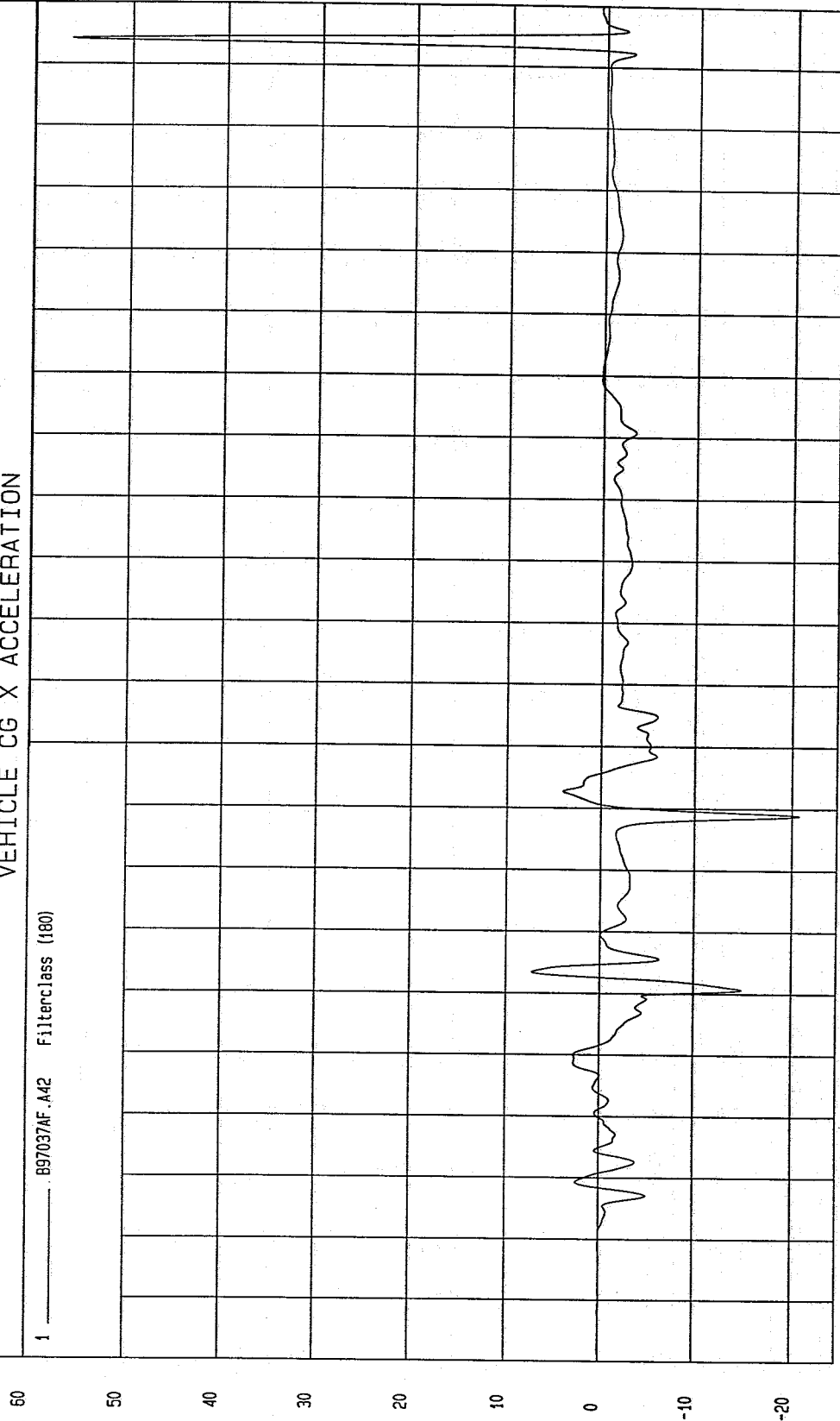
Speed: 39.83 MPH 64.1 KPH

Minimum = -20.72 G'S at 69 msec

Maximum = 56.28 G'S at 194 msec

VEHICLE CG X ACCELERATION

1 \_\_\_\_\_ B97037AF.A42 Filterclass (180)



MPA Research Co.  
03-07-1997 09:45

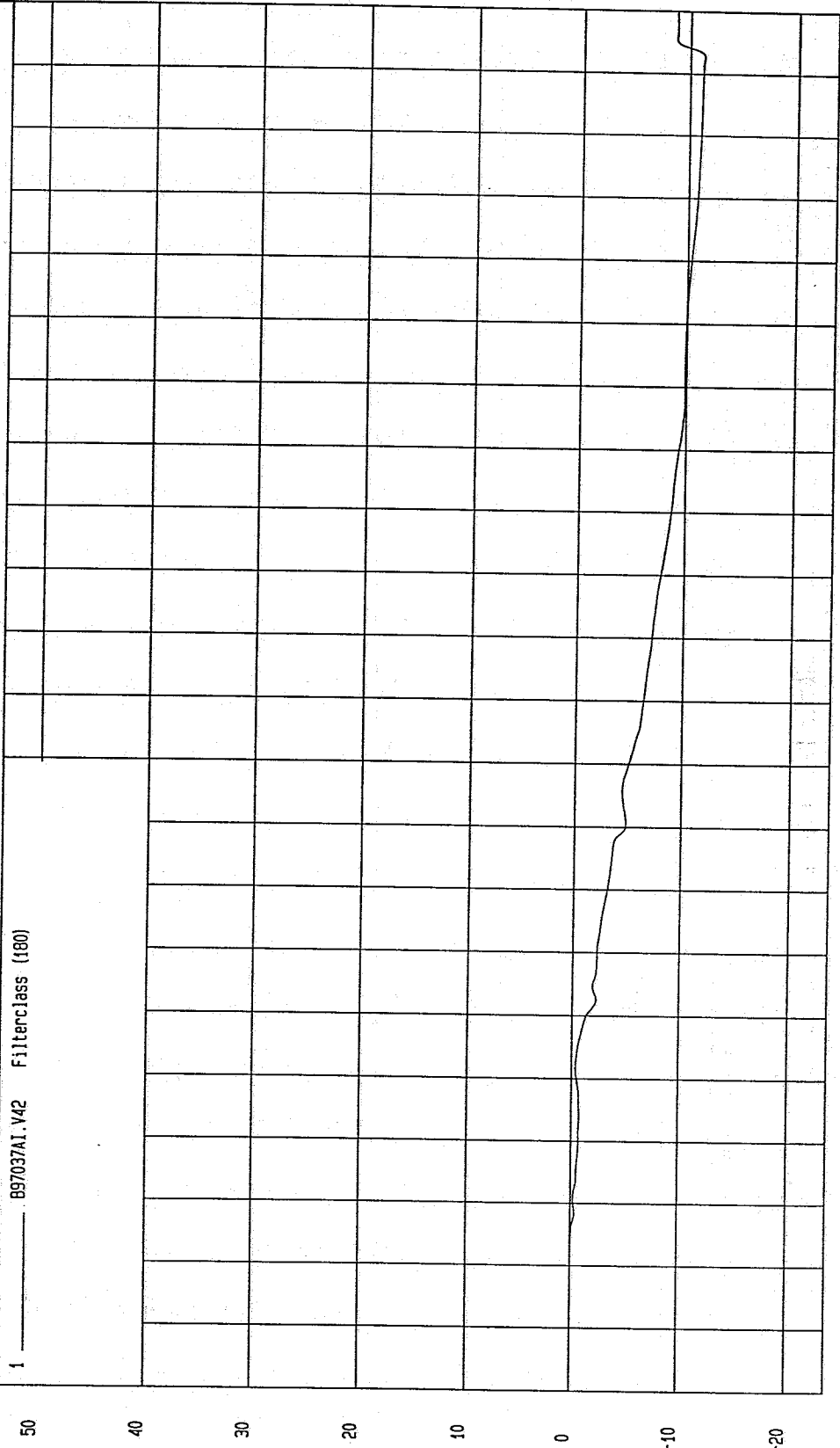
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -11.32 KPH at 193 msec Maximum = 1.11E-02 KPH at 1 msec

VEHICLE CG X VELOCITY

1 ——— B97037A1.V42 Filterclass (180)



NGA Research  
04-07-1997 09: 45

TIME Seconds

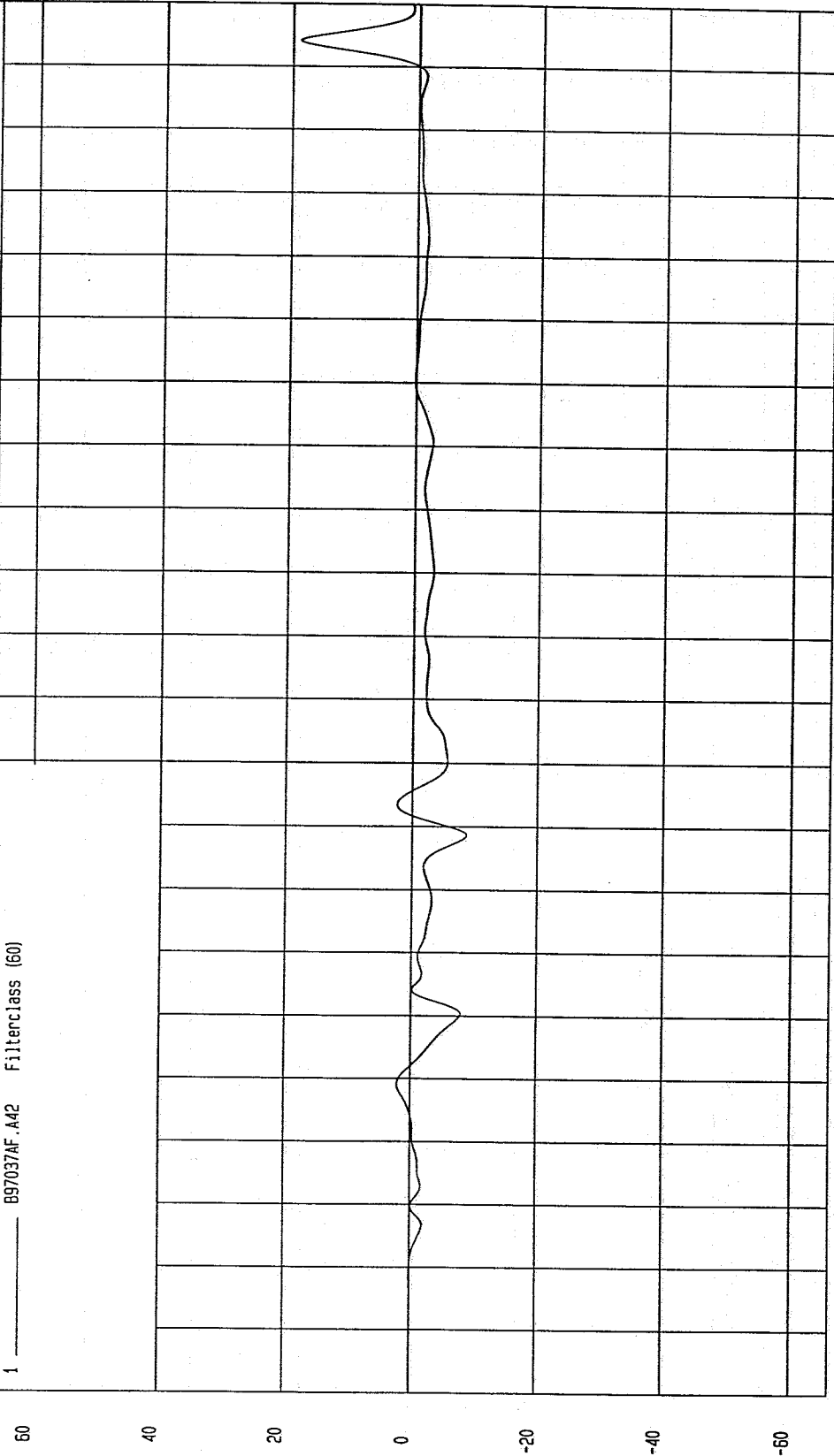
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -8.47 G'S at 69 msec Maximum = 18.77 G'S at 194 msec

VEHICLE CG X ACCELERATION

1 \_\_\_\_\_ B97037AF.A42 Filterclass (60)



MGA Research  
04-07-1997 09:46

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

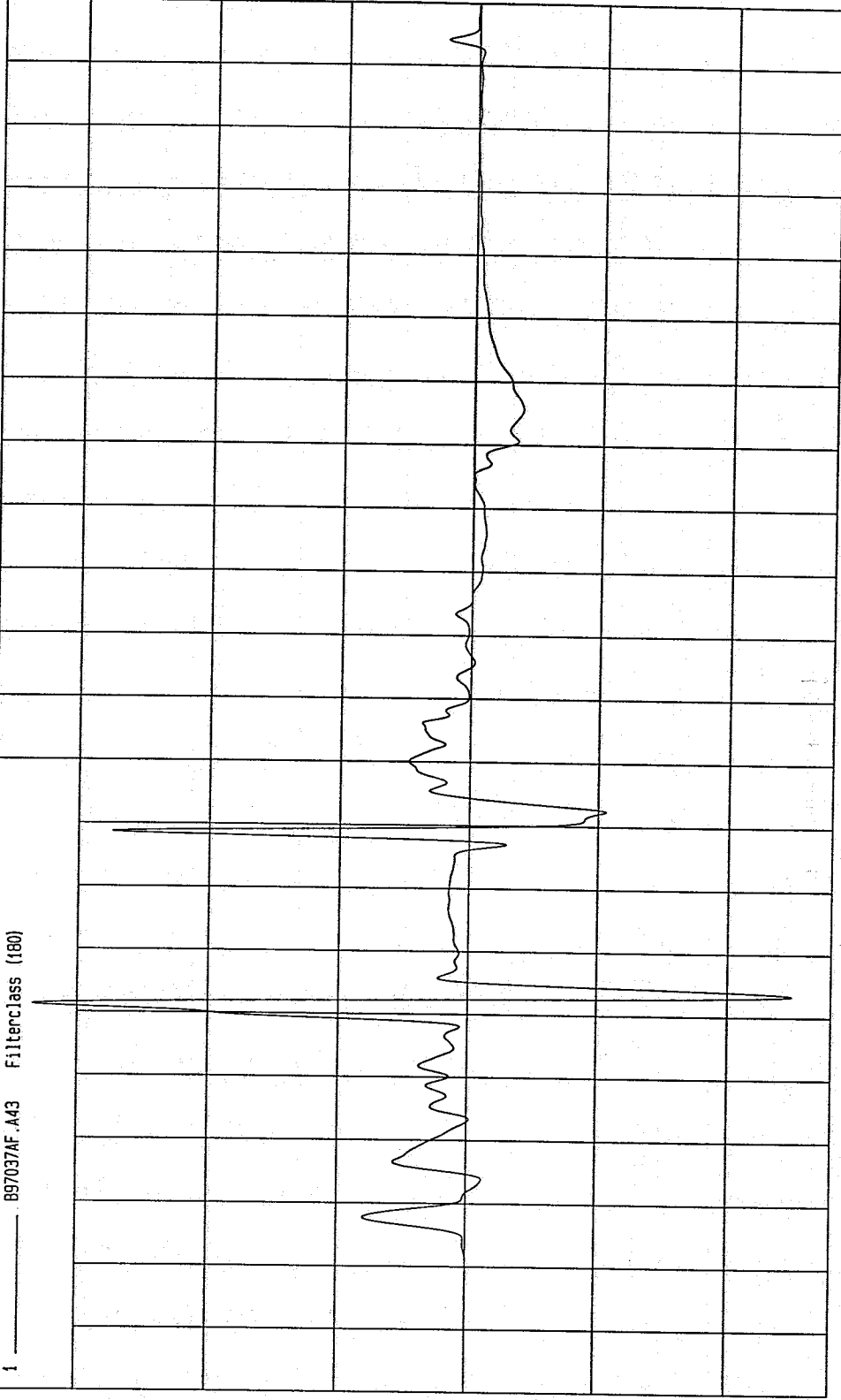
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -49.70 G'S at 43 msec

Maximum = 66.73 G'S at 41 msec

VEHICLE CG Y ACCELERATION

1 897037AF.A43 Filterclass (180)



NCA Research  
04-07-1997 09:52

TIME (SECONDS)

G'S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS

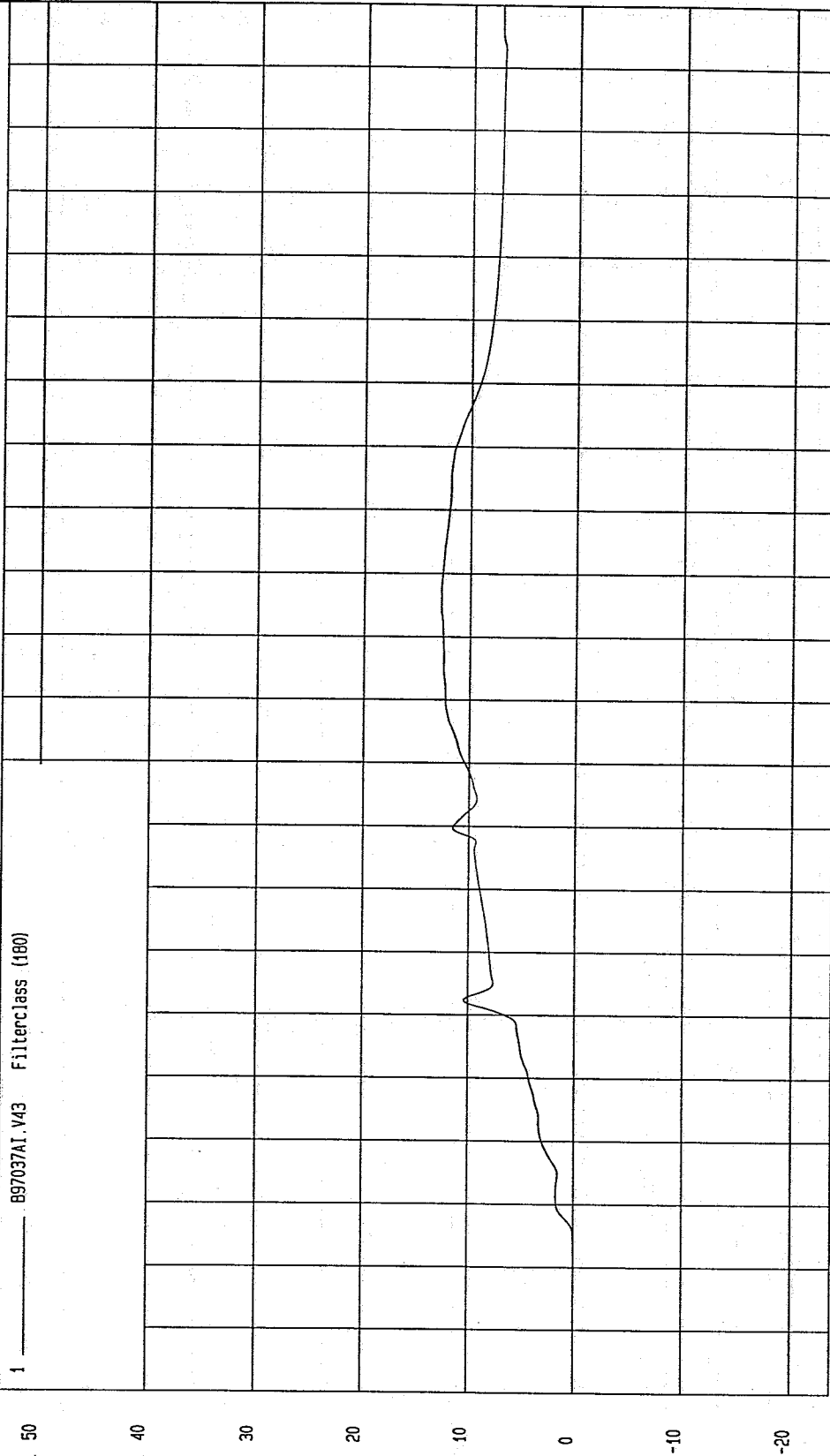
Speed: 39.83 MPH 64.1 KPH

Minimum = -3.62E-03 KPH at -11 msec

Maximum = 12.81 KPH at 105 msec

VEHICLE CG Y VELOCITY

1 \_\_\_\_\_ B97037A1.V43 Filterclass (180)



NSA Research  
04-07-1997 09:52

TIME Seconds

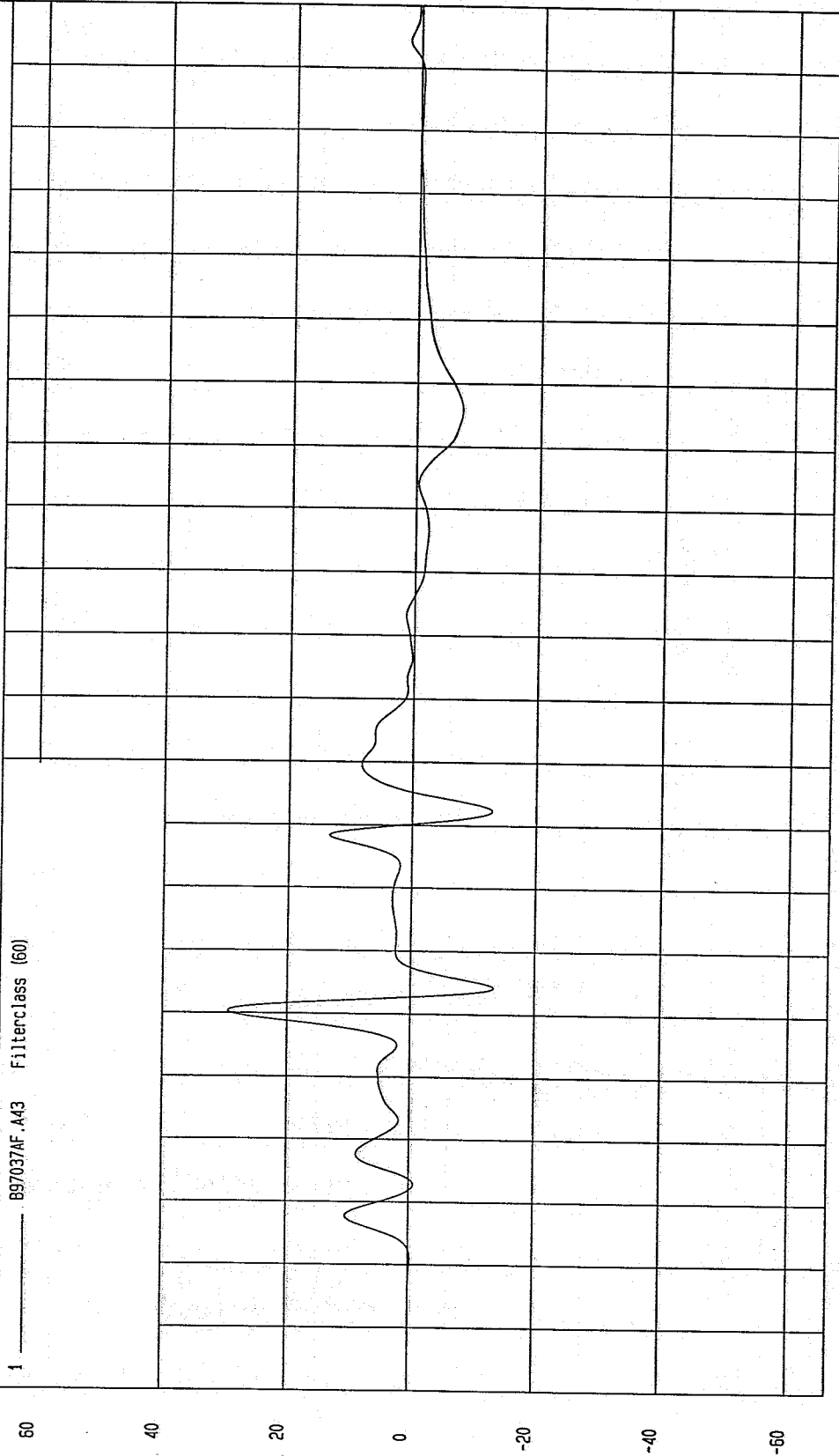
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -13.43 G'S at 44 msec Maximum = 29.75 G'S at 40 msec

VEHICLE CG Y ACCELERATION

1 897037AF.A43 Filterclass (60)



MCA Research  
03-07-1997 09:52

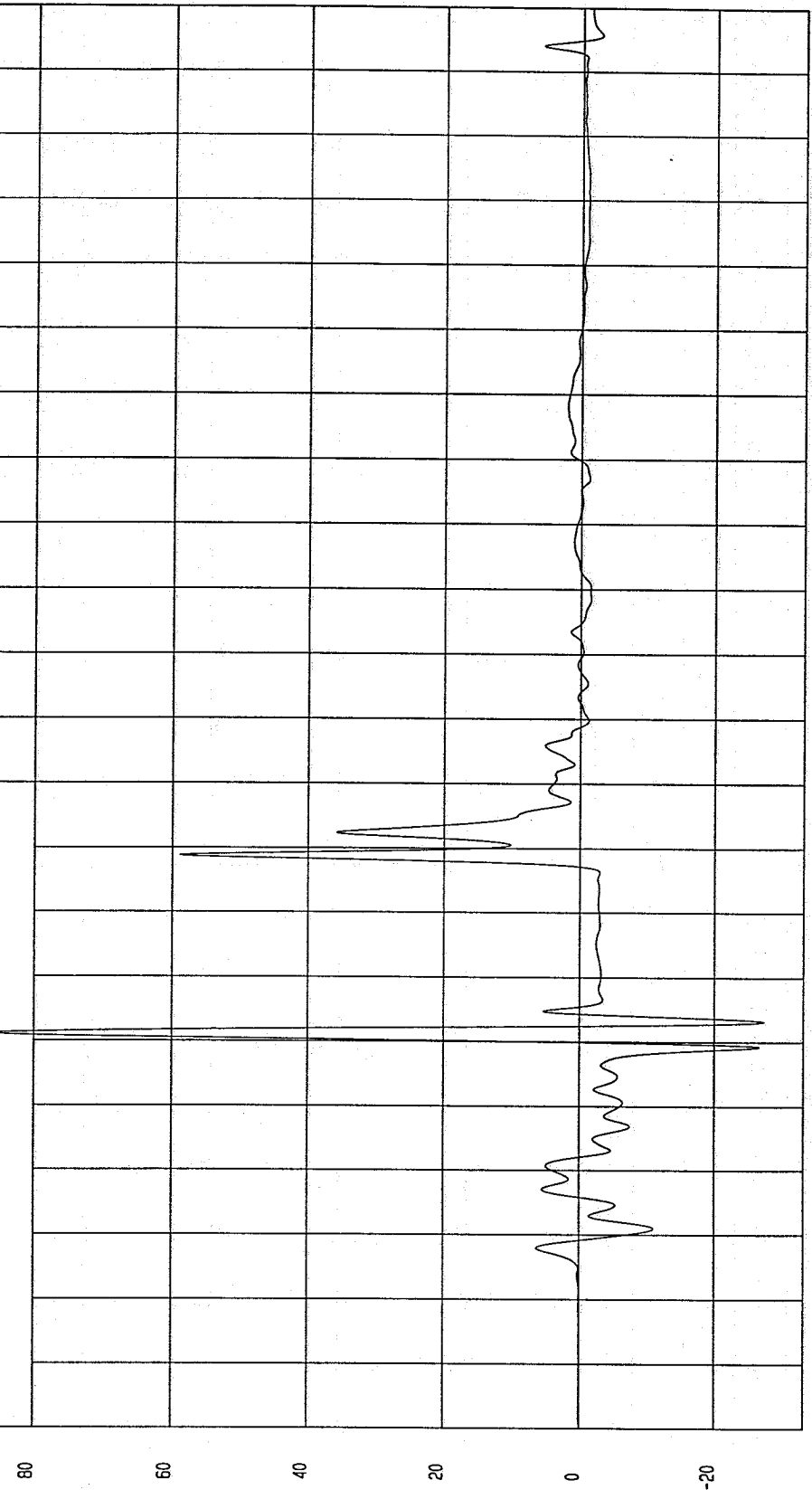
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -27.26 G'S at 43 msec Maximum = 85.99 G'S at 41 msec

VEHICLE CG Z ACCELERATION

1 \_\_\_\_\_ B97037AF.A44 Filterclass (180)



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

NCA Research  
04-07-1997 09:46

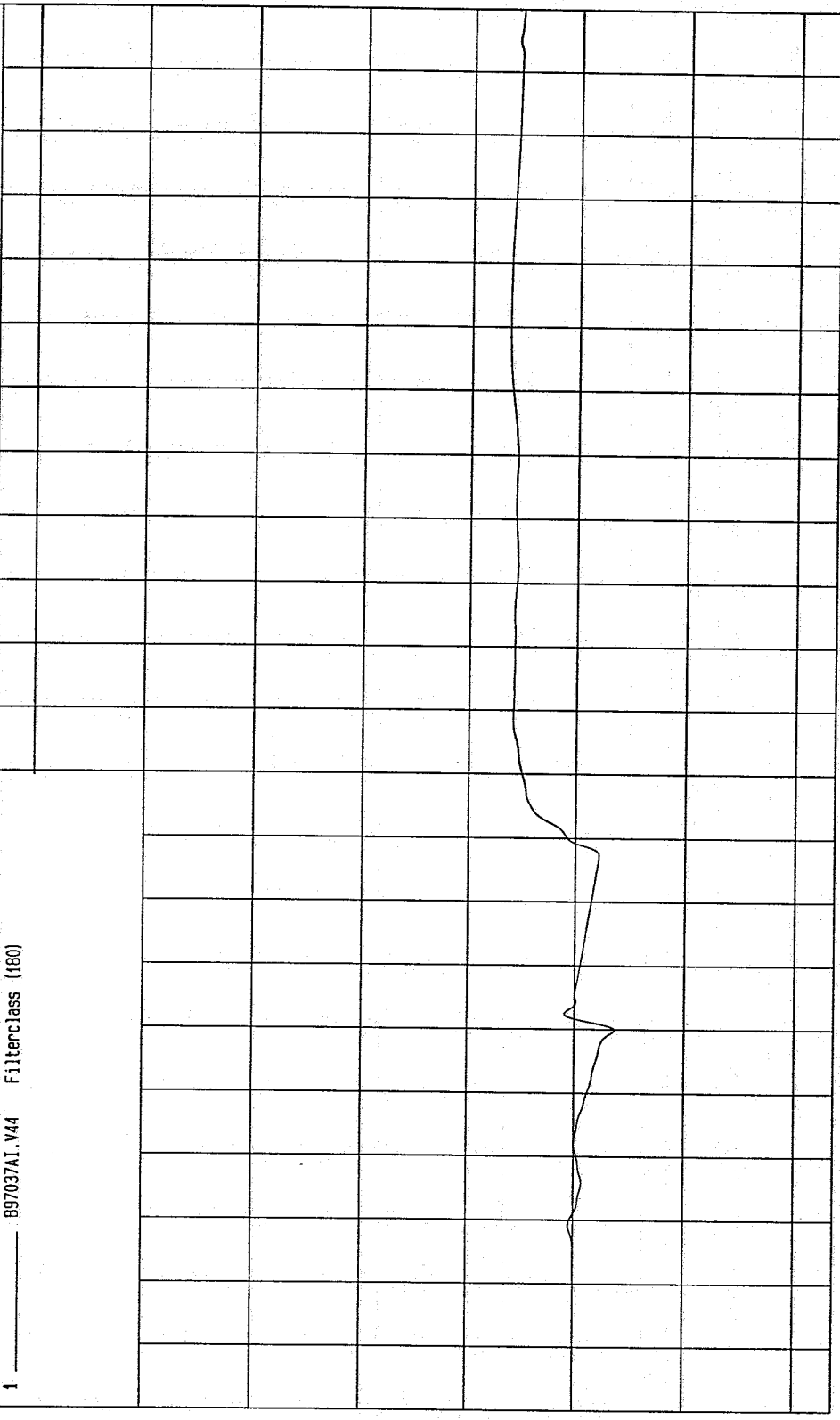
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.71 KPH at 40 msec Maximum = 6.44 KPH at 150 msec

VEHICLE CG Z VELOCITY

1 ——— B97037AI.V44 Filterclass (180)



TIME Seconds  
MGA Research  
04-07-1997 09:45

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

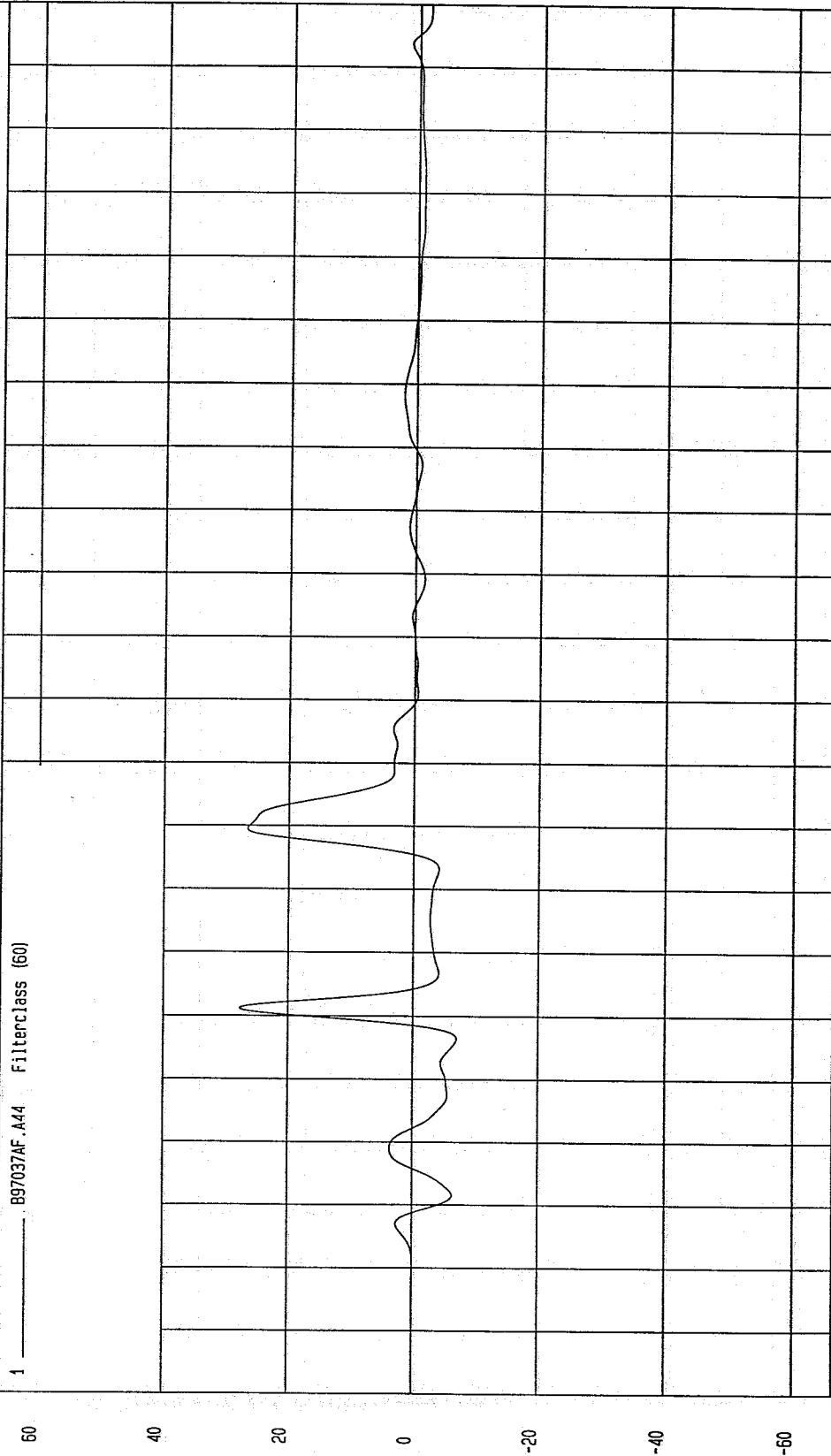
Speed: 39.83 MPH 64.1 KPH

Minimum = -6.92 G'S at 36 msec

Maximum = 27.82 G'S at 41 msec

VEHICLE CG Z ACCELERATION

1 \_\_\_\_\_ B97037AF.A44 Filterclass (60)



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0A-07-1997 09.46

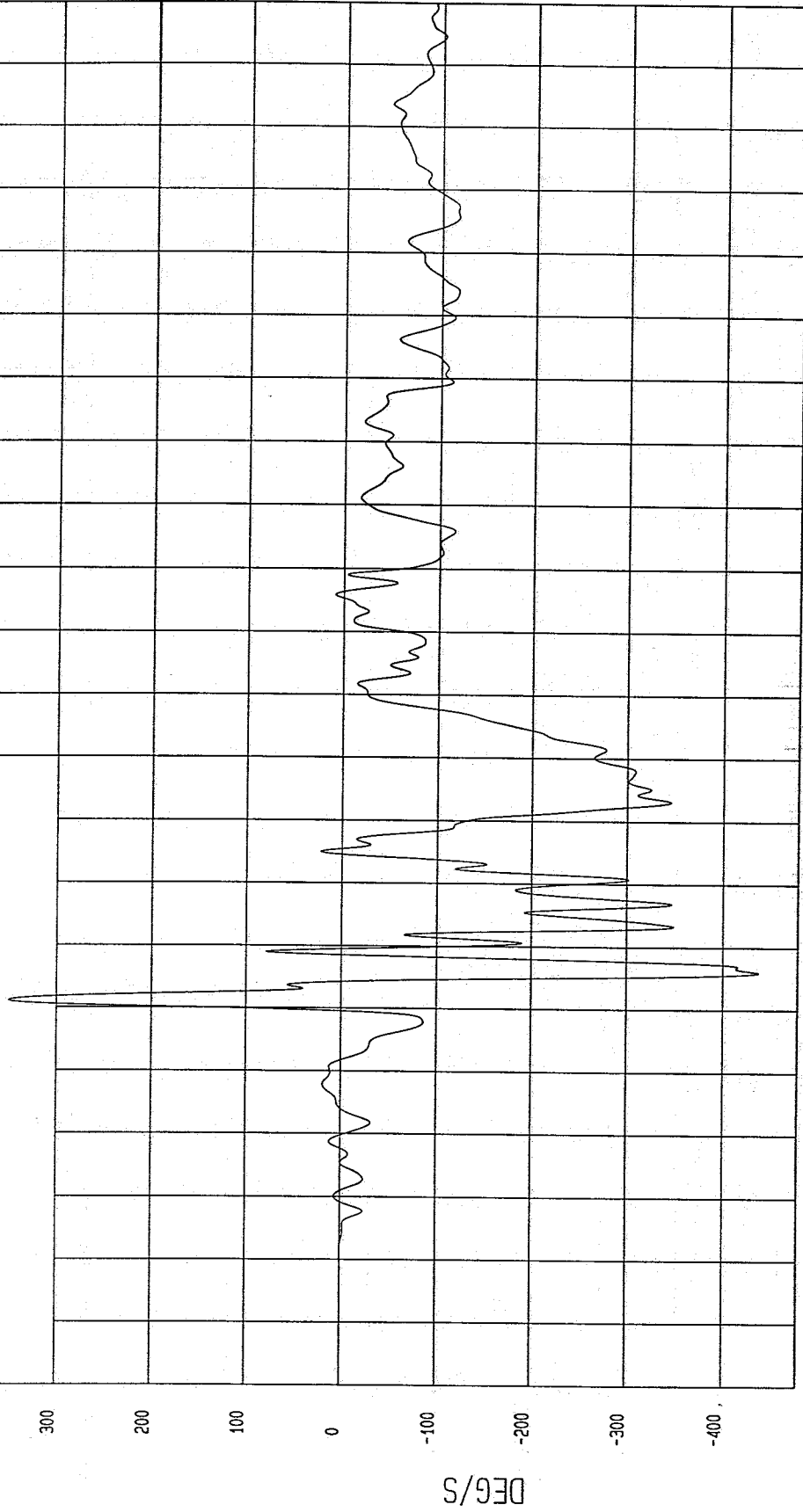
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -437.24 DEG/S at 46 msec  
Maximum = 349.05 DEG/S at 41 msec

VEHICLE PITCH RATE

1 ——— 897037RF.R61 Filterclass (180)



MGA Research  
04-14-1997 06:19

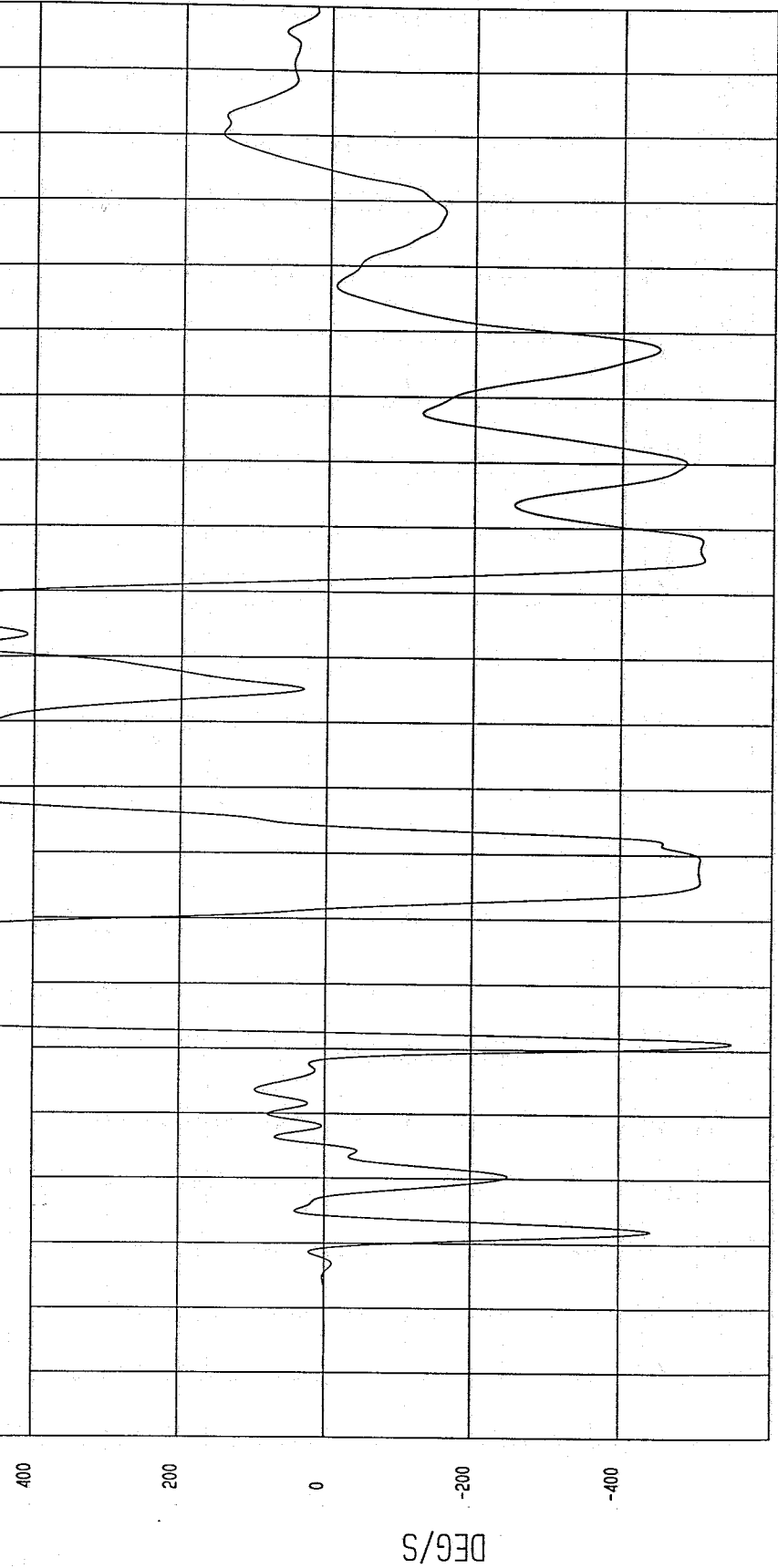
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -546.98 DEG/S at 41 msec Maximum = 511.34 DEG/S at 44 msec

VEHICLE ROLL RATE

1 B97037AF.060 Filterclass (180)



NGA Research  
04-14-1997 06:19

TIME (SECONDS)

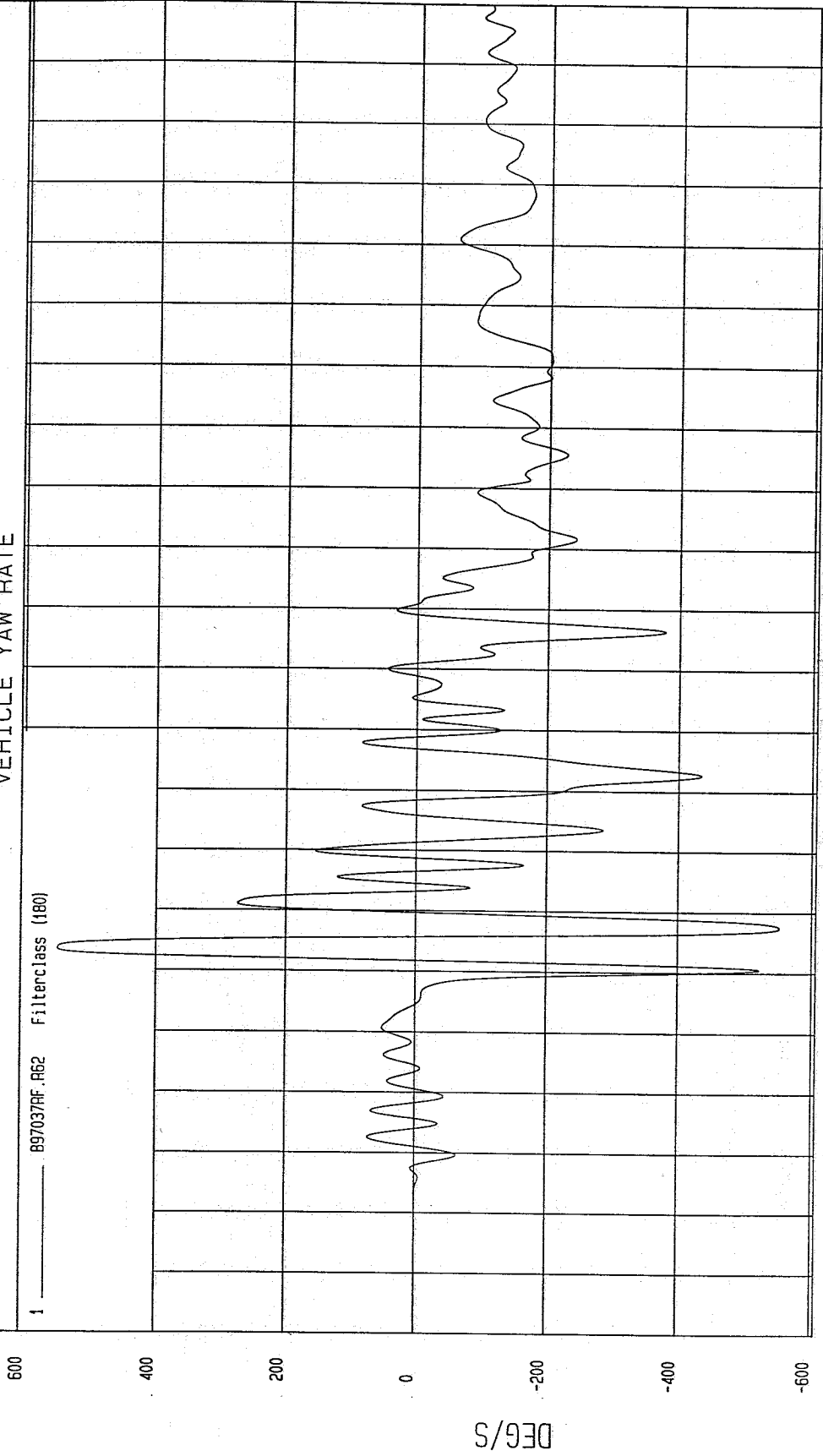
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -551.05 DEG/S at 48 msec  
Maximum = 550.77 DEG/S at 44 msec

VEHICLE YAW RATE

1 ——— B97037RF.R62 Filterclass (180)



WCA Research Corp.  
04-1A-1997 06.19

TIME (SECONDS)

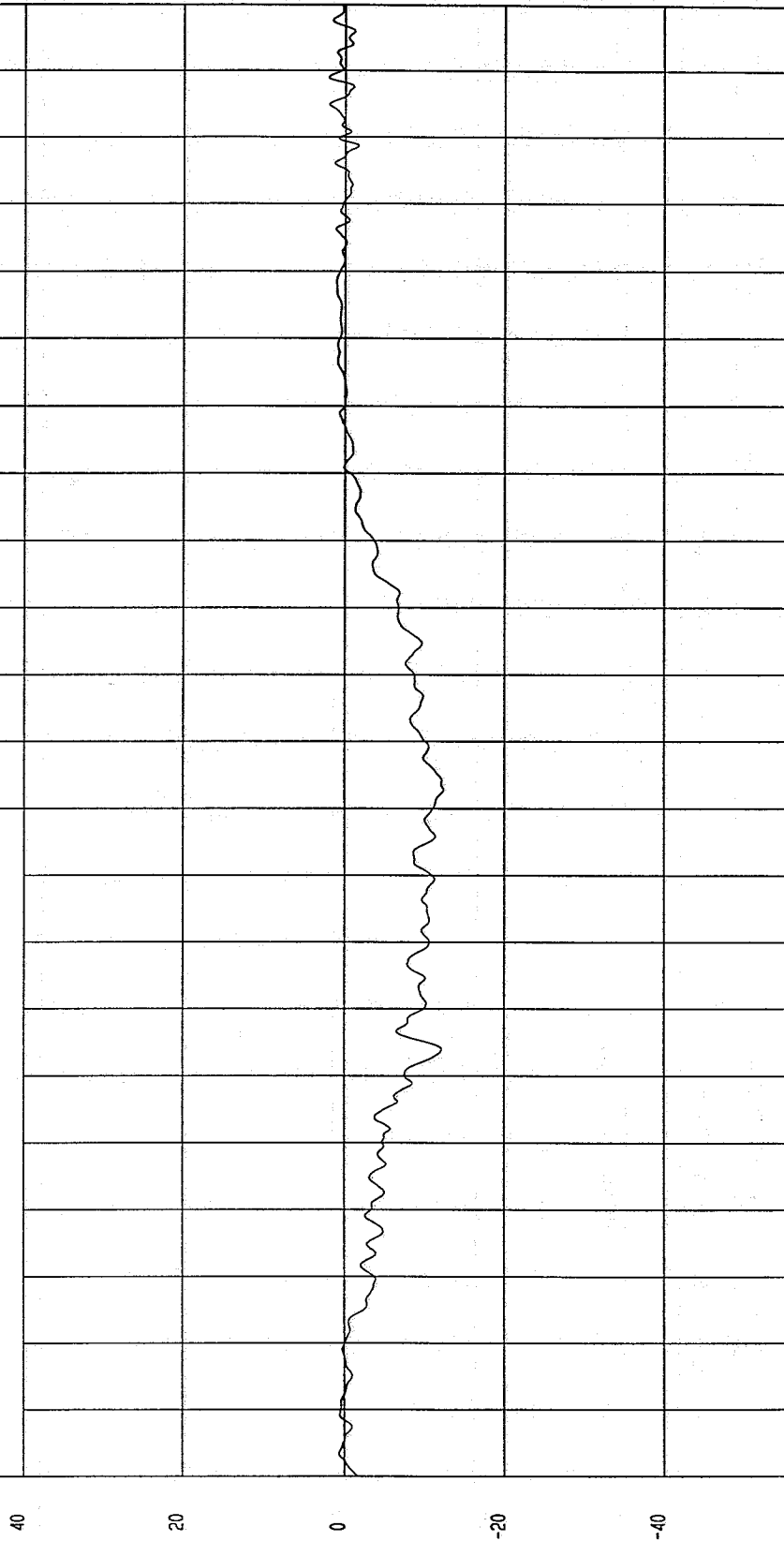
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -12.46 G'S at 83 msec  
Maximum = 1.98 G'S at 189 msec

MOVING BARRIER CG X ACCELERATION

1 ——— B97037AF.A02 Filterclass (180)



TIME (SECONDS)

MCA Research  
04-07-1997 09:55

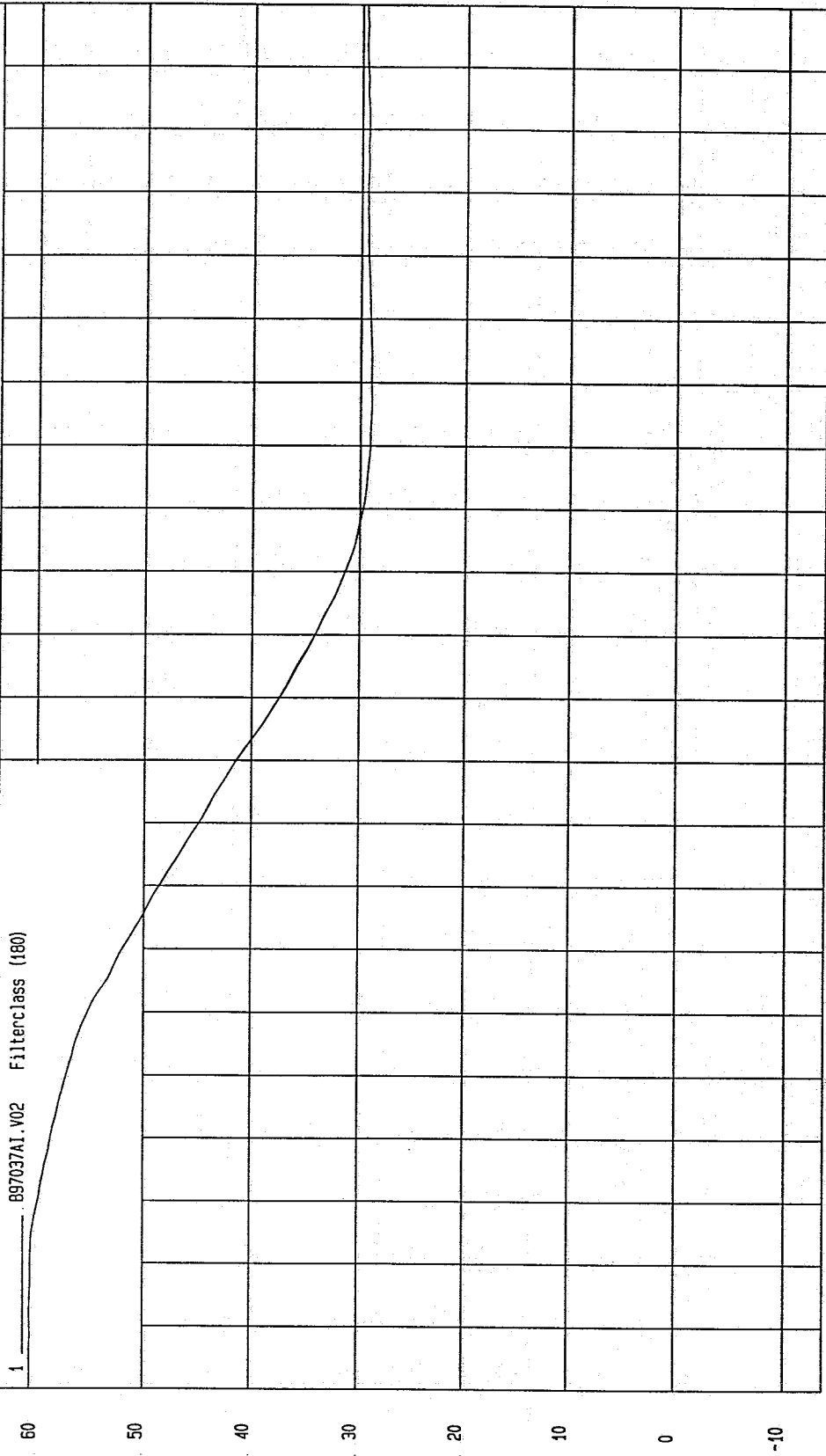
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = 28.92 KPH at 137 msec  
Maximum = 60.6 KPH at -20 msec

MOVING BARRIER CG X VELOCITY

1 897037A1.V02 Filterclass (180)



MOA Research  
04-04-1997 14:39

TIME Seconds

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

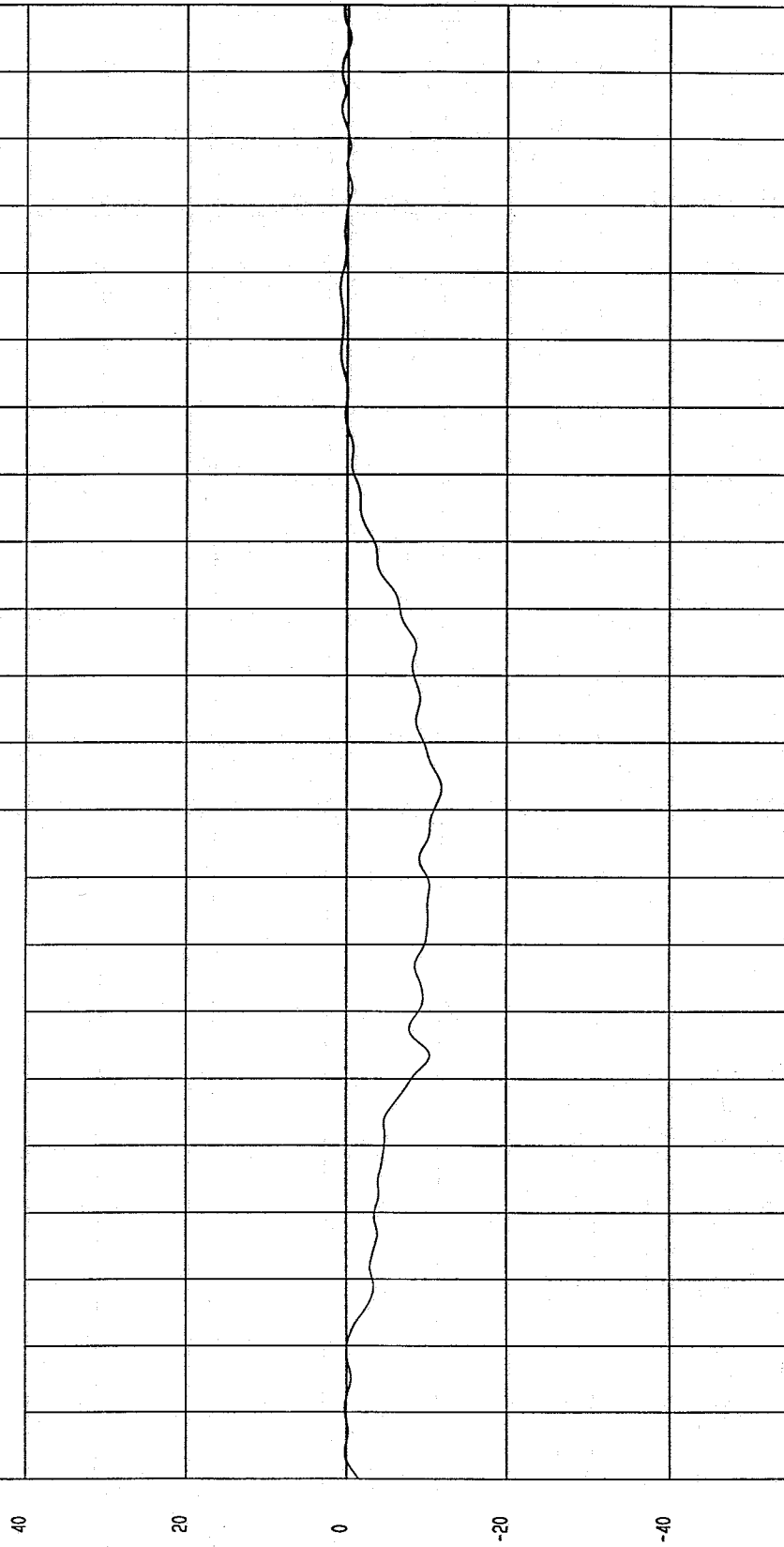
Speed: 39.83 MPH 64.1 KPH

Minimum = -12.06 G'S at 83 msec

Maximum = .87 G'S at 158 msec

MOVING BARRIER CG X ACCELERATION

1 ——— B97037AF.A02 Filterclass (60)



NGA Research  
04-04-1997 1A.A6

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

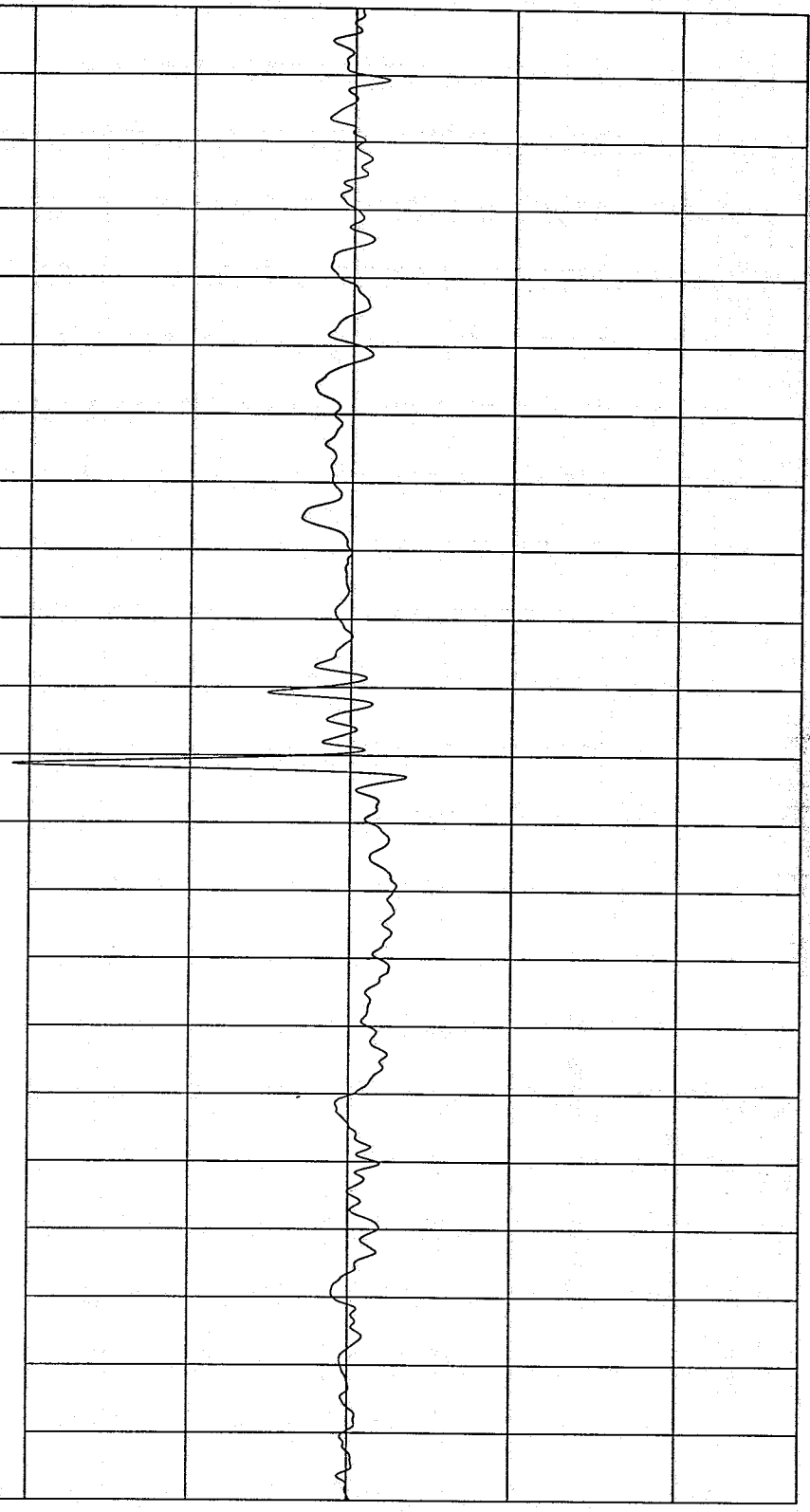
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -6.92 G'S at 87 msec

Maximum = 42.06 G'S at 89 msec

MOVING BARRIER CG Y ACCELERATION

1 \_\_\_\_\_ B97037AF.A03 Filterclass (180)



TIME (SECONDS)

NSA Research  
04-07-1997 09:55

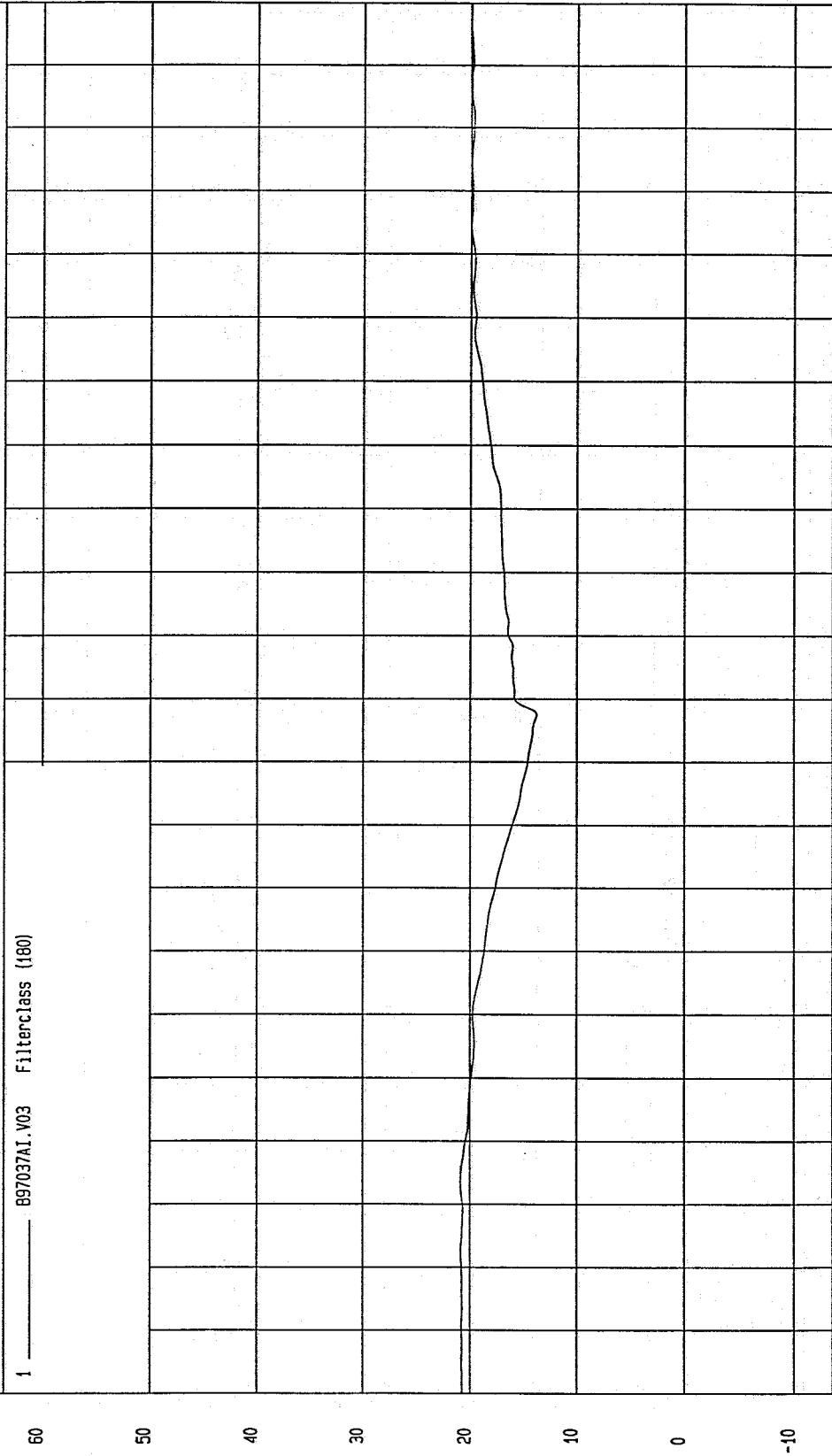
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = 13.68 KPH at 88 msec Maximum = 20.92 KPH at 13 msec

MOVING BARRIER CG Y VELOCITY

1 ——— 897037AI.V03 Filterclass (180)



TIME Seconds  
MGA Research  
04-04-1997 1A:39

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

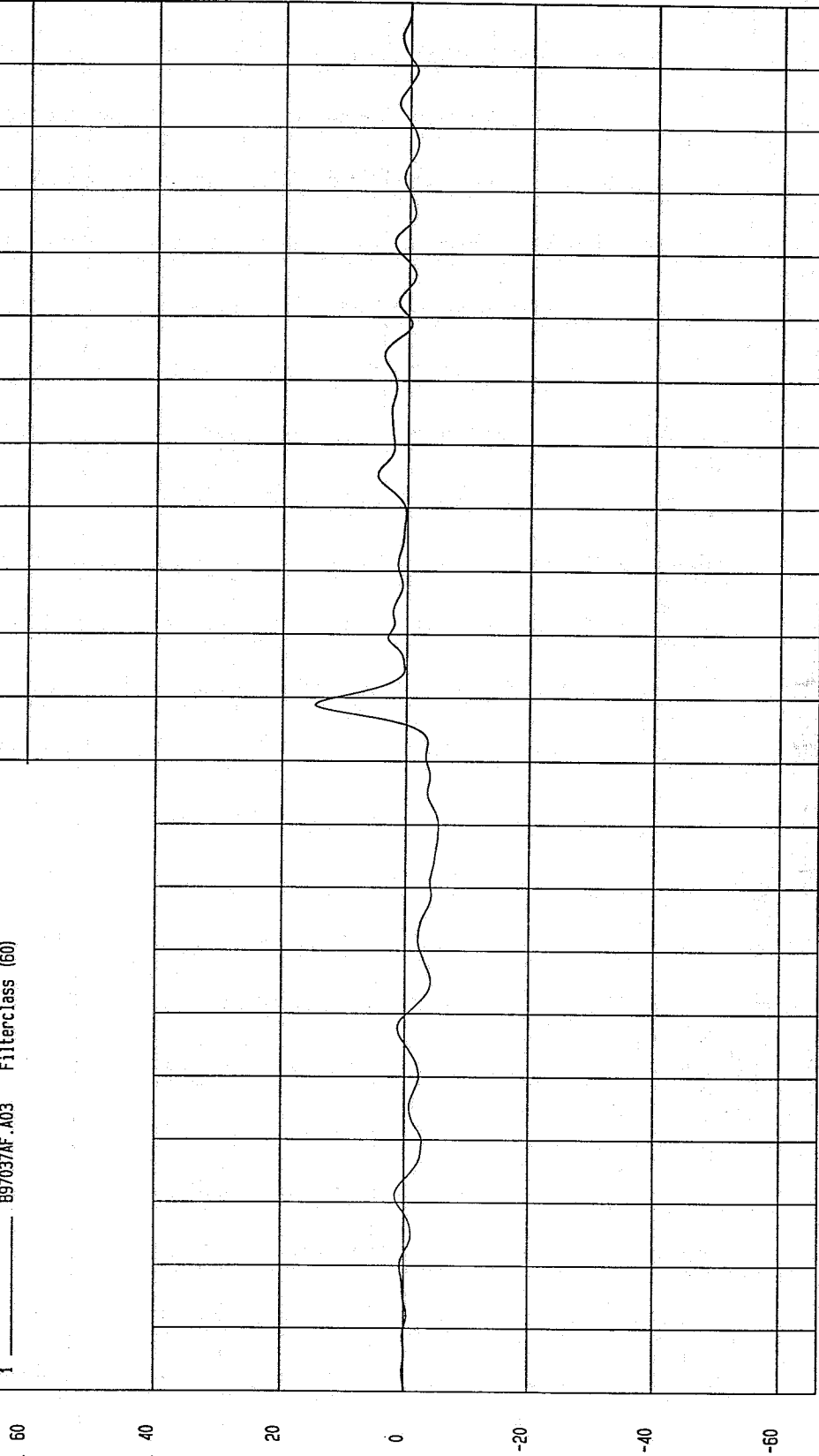
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -5.26 G'S at 70 msec

Maximum = 14.72 G'S at 89 msec

MOVING BARRIER CG Y ACCELERATION

1 ——— B97037AF.A03 Filterclass (60)



MSA Research  
04-04-1997 14:55

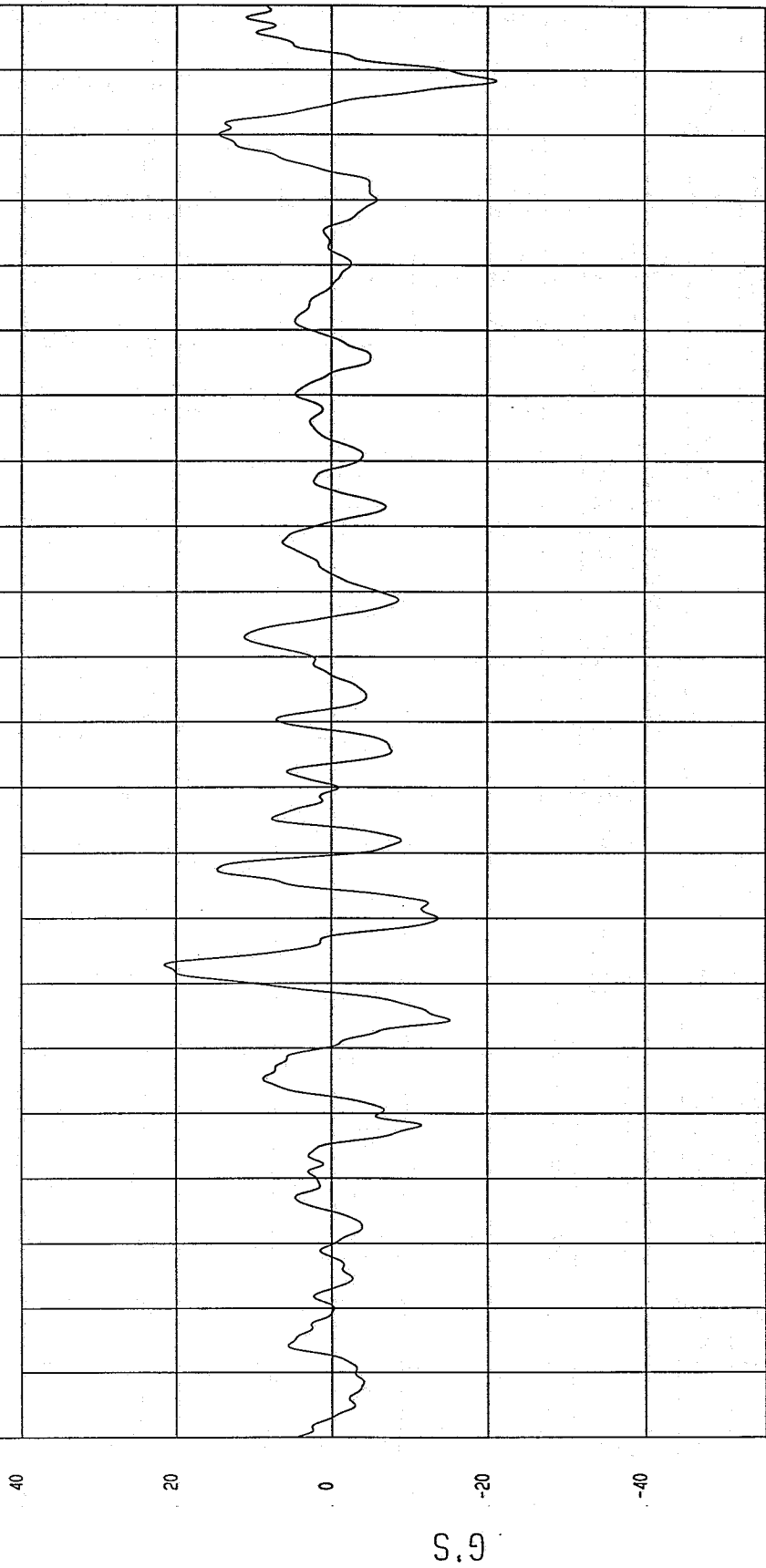
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -21.13 G'S at 188 msec Maximum = 21.55 G'S at 53 msec

MOVING BARRIER CG Z ACCELERATION

1 \_\_\_\_\_ 897037AF.A04 Filterclass (160)



0.19  
0.18  
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TIME (SECONDS)

NSA Research Co.  
04-07-1997 09:55

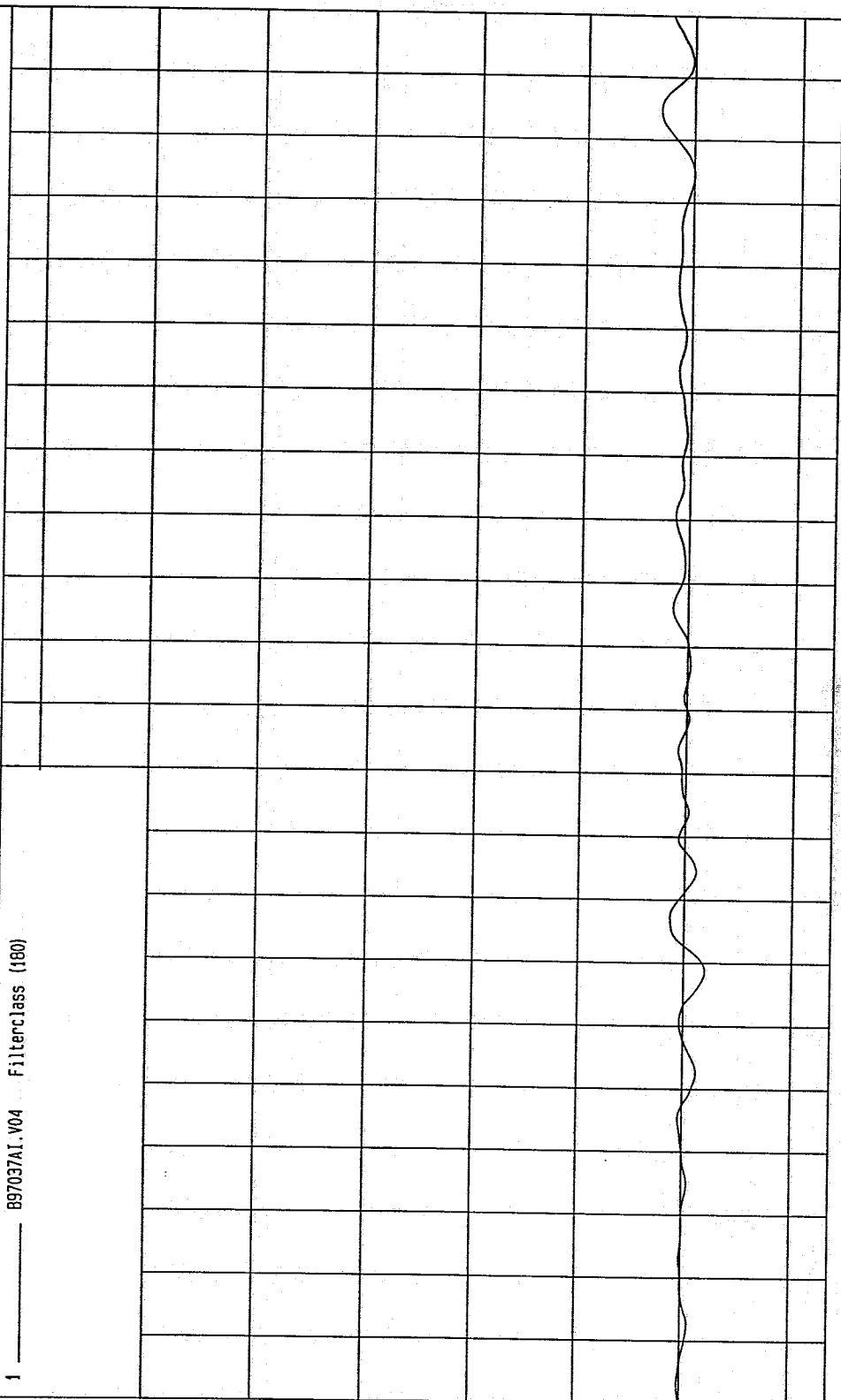
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.97 KPH at 49 msec Maximum = 3.12 KPH at 185 msec

MOVING BARRIER CG Z VELOCITY

1 ——— B97037A1.V04 Filterclass (160)



KPH

TIME Seconds

NCA Research  
04-04-1997 14:39

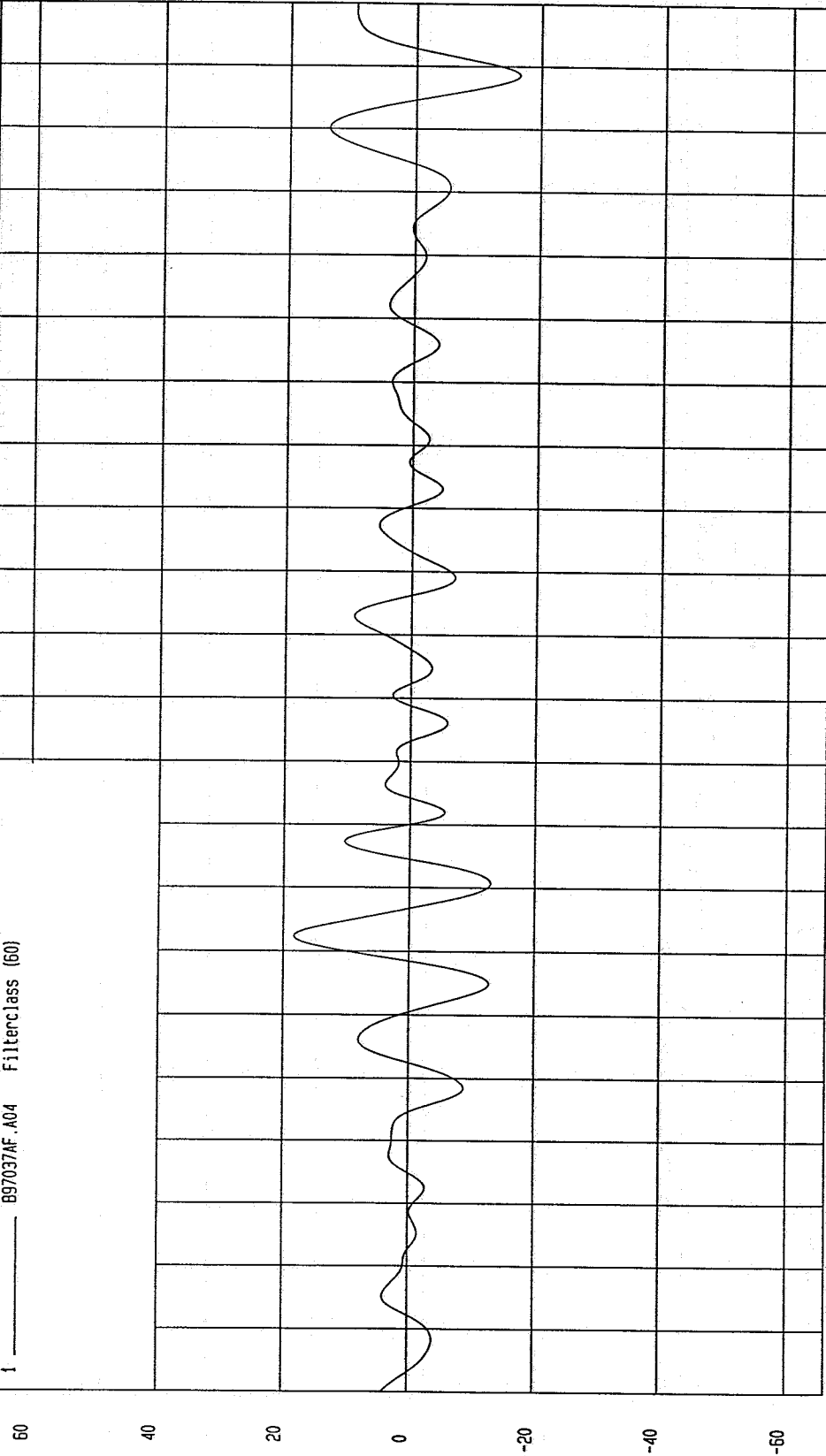
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -16.58 G'S at 189 msec Maximum = 18.33 G'S at 52 msec

MOVING BARRIER CG Z ACCELERATION

1 \_\_\_\_\_ 897037AF.A04 Filterclass (60)



MCA Research  
04-04-1997 14:55

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

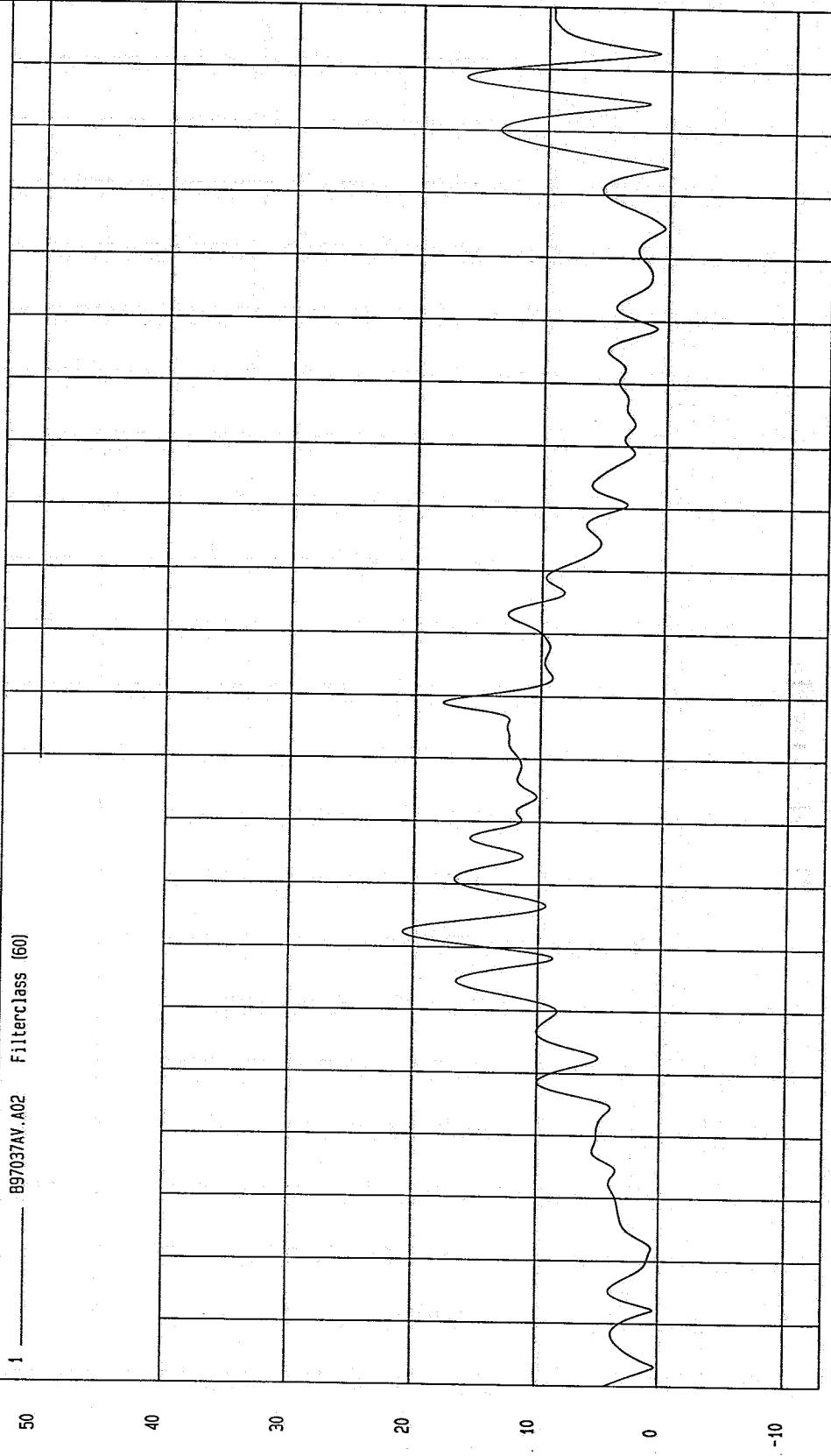
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = .21 G'S at 174 msec

Maximum = 20.86 G'S at 52 msec

MOVING BARRIER CG RESULTANT ACCELERATION

1 B97037AV.A02 Filterclass (60)



TIME (SECONDS)

0.19  
0.18  
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-0.02

WGA Research  
0A-10-1997 10.41

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

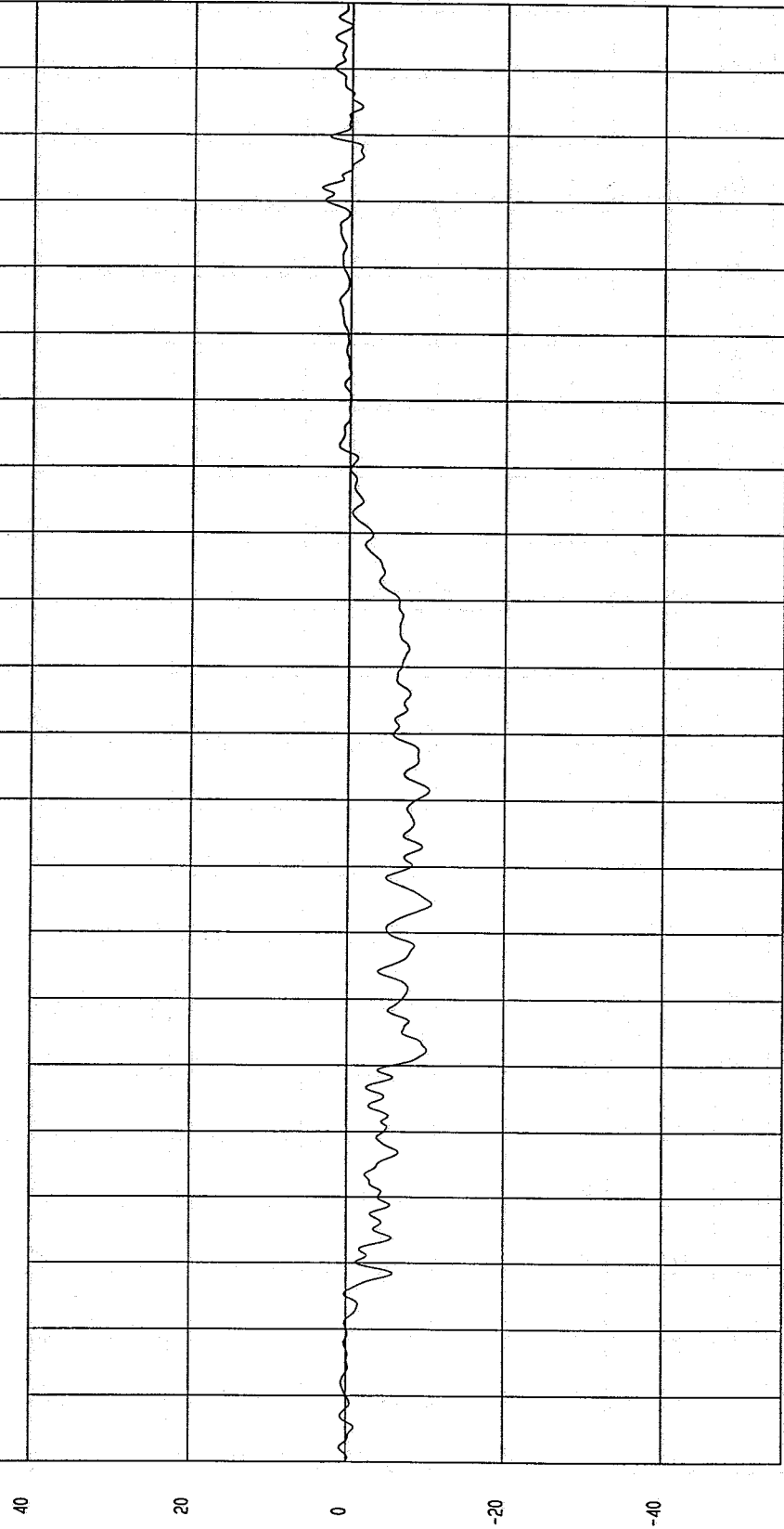
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -10.72 G'S at 64 msec

Maximum = 3.70 G'S at 172 msec

MOVING BARRIER RIGHT REAR AXLE X ACCELERATION

1 B97037AF.A07 Filterclass (180)



NGA Research  
04-07-1997 10:09

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

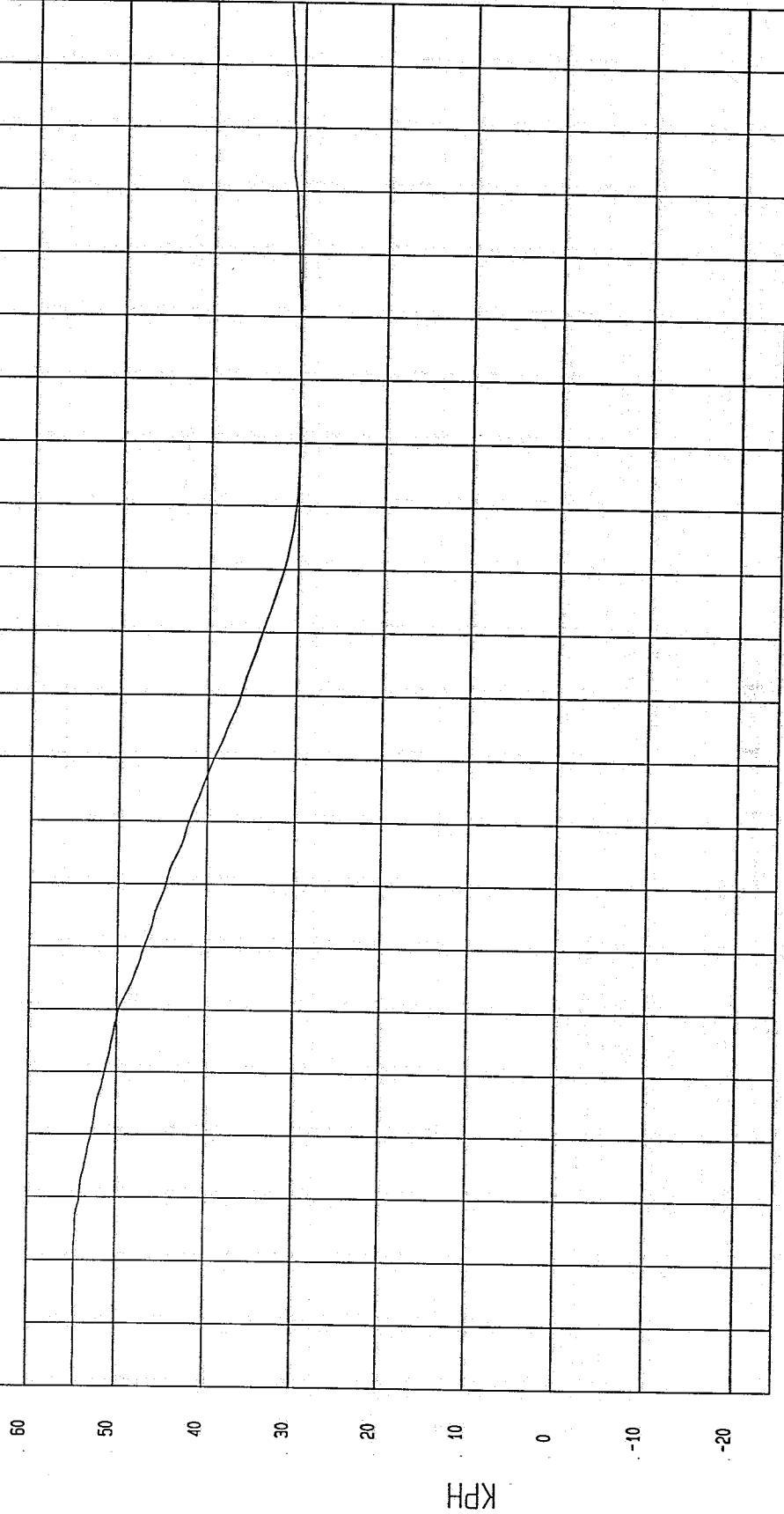
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = 29.86 KPH at 132 msec

Maximum = 54.56 KPH at -6 msec

MOVING BARRIER RIGHT REAR AXLE X VELOCITY

1 — .897037A1.V07 Filterclass (180)



WCA Research  
04-07-1997 10:16

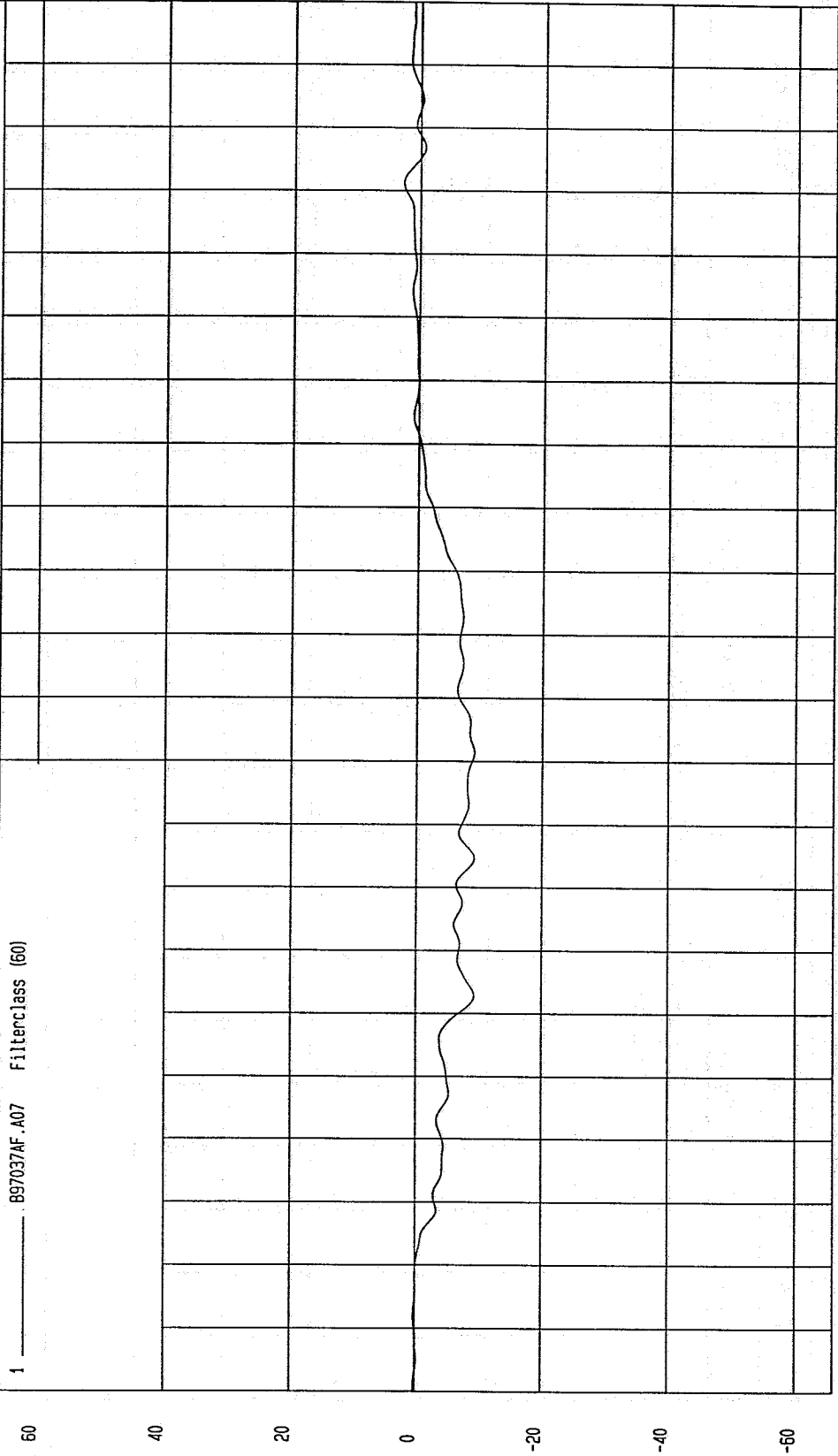
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -9.42 G'S at 43 msec  
Maximum = 2.51 G'S at 171 msec

MOVING BARRIER RIGHT REAR AXLE X ACCELERATION

1 \_\_\_\_\_ B97037AF.A07 Filterclass (60)



NGA Research  
04-01-1997 10:10

TIME (SECONDS)

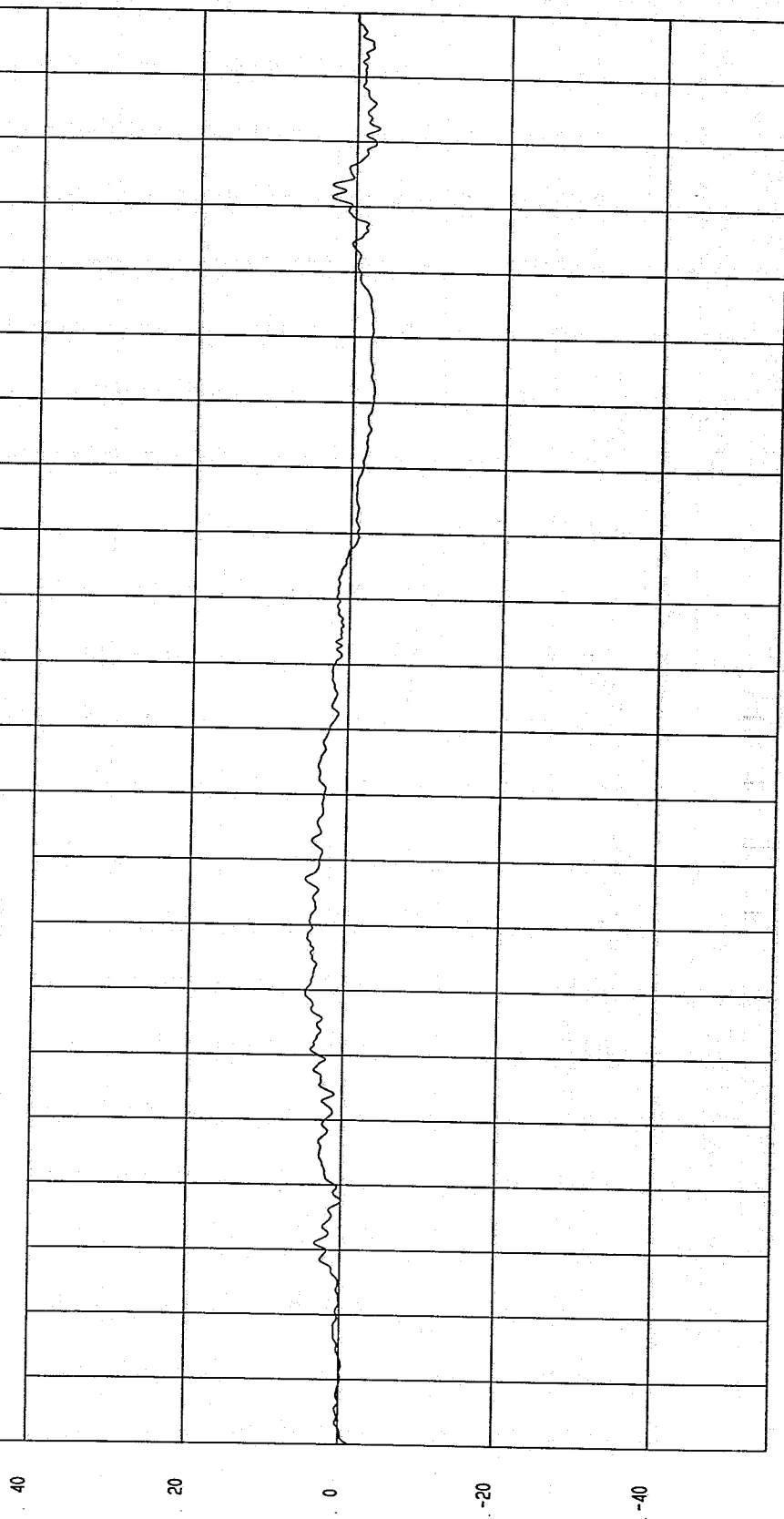
G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT  
TEST DATE: 03-12-1997  
COMPONENT: 1991 FORD TAURUS  
Speed: 39.83 MPH 64.1 KPH

Minimum = -2.87 G'S at 182 msec  
Maximum = 5.23 G'S at 67 msec

MOVING BARRIER RIGHT REAR AXLE Y ACCELERATION

1 B97037AF.A08 Filterclass (180)



40  
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-20  
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TIME (SECONDS)

MGA Research  
04-07-1997 10:09

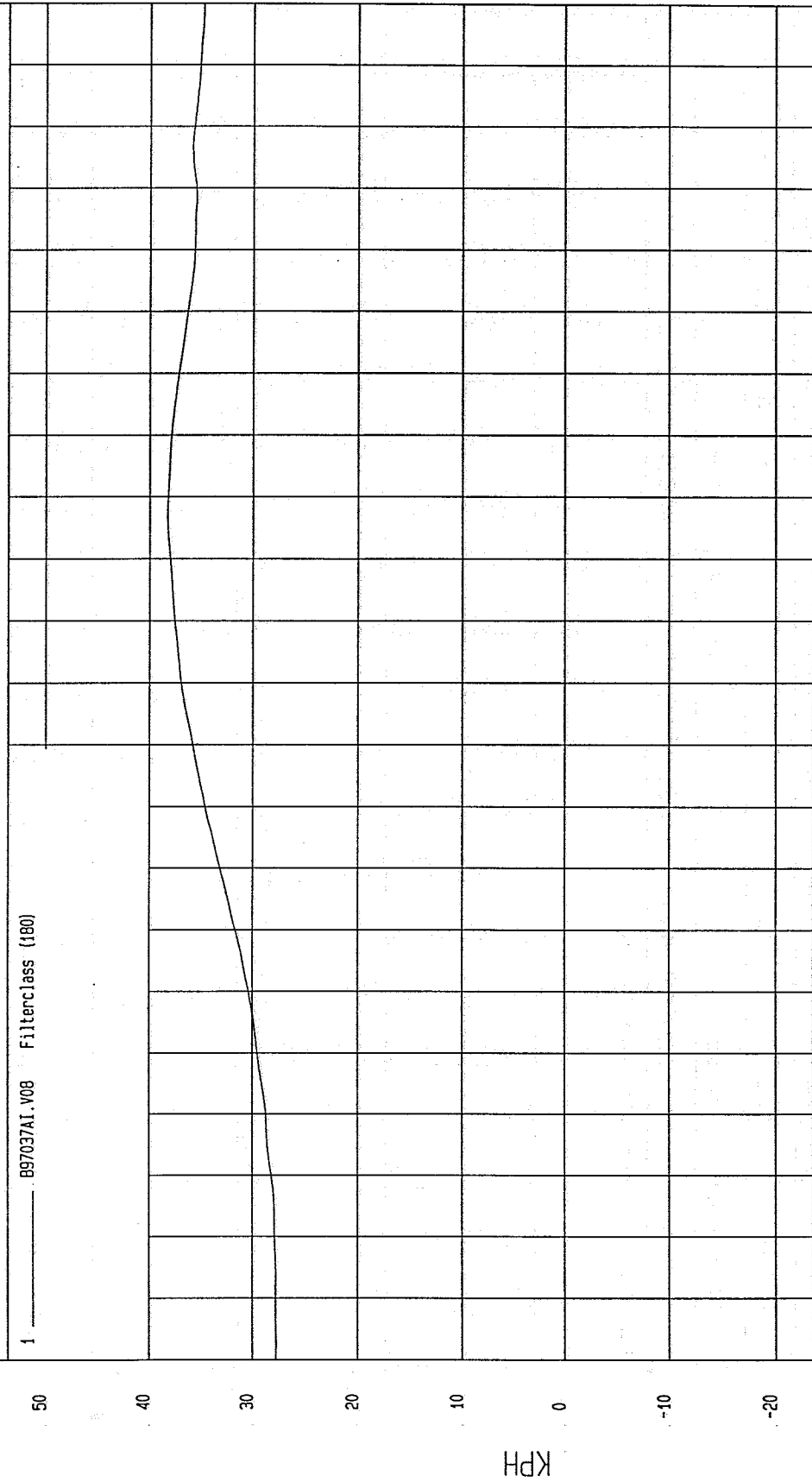
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = 27.74 KPH at -17 msec Maximum = 38.31 KPH at 118 msec

MOVING BARRIER RIGHT REAR AXLE Y VELOCITY

1 ——— .B97037A1.V08 Filterclass (180)



NCA Research  
04-07-1997 10:13

TIME Seconds

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS

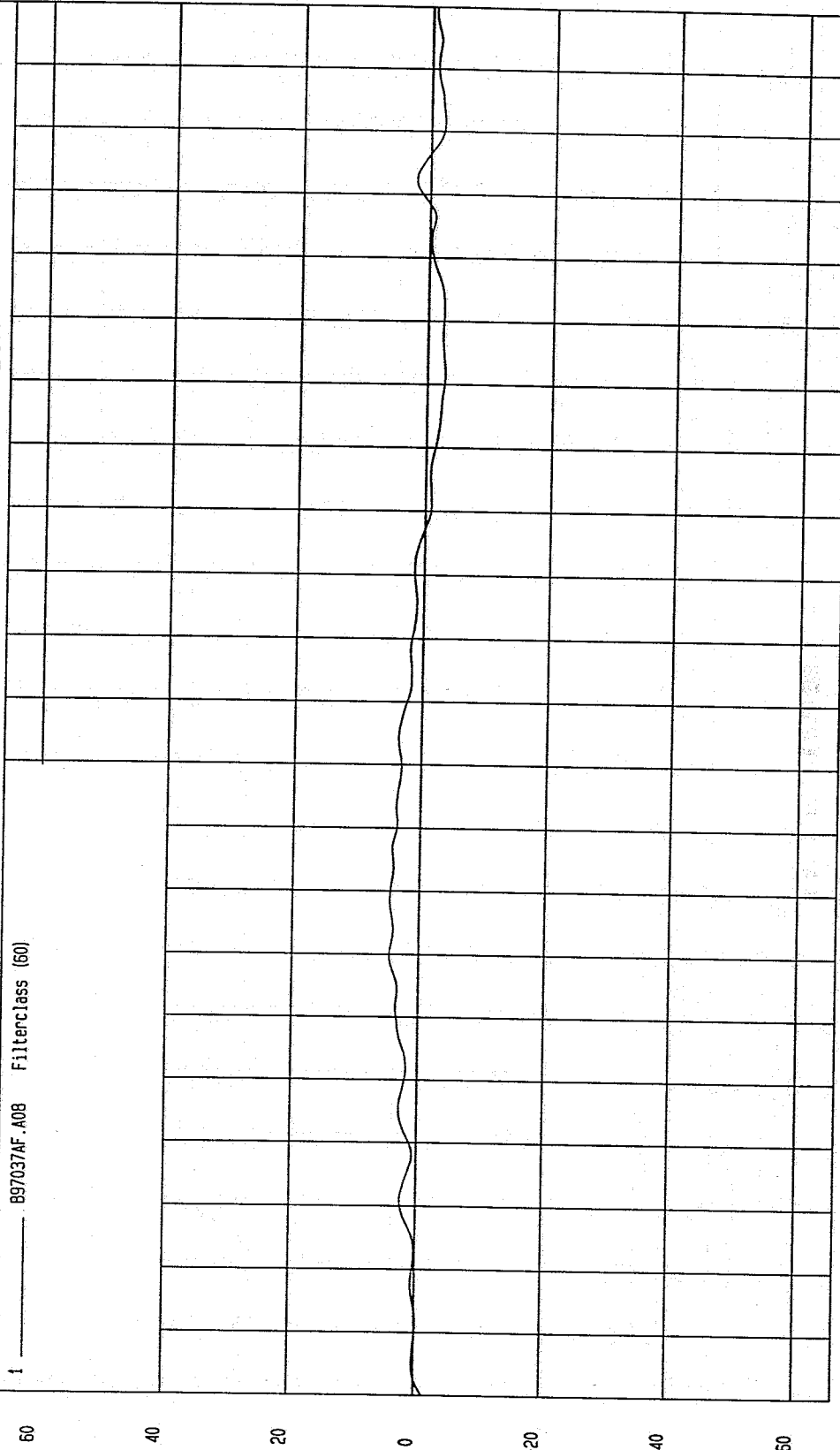
Speed: 39.83 MPH 64.1 KPH

Minimum = -2.62 G'S at 142 msec

Maximum = 4.52 G'S at 59 msec

MOVING BARRIER RIGHT REAR AXLE Y ACCELERATION

1 ——— 897037AF.A08 Filterclass (50)



60  
40  
20  
0  
-20  
-40  
-60

TIME (SECONDS)

0  
.01  
.02  
.03  
.04  
.05  
.06  
.07  
.08  
.09  
1  
1.1  
1.2  
1.3  
1.4  
1.5  
1.6  
1.7  
1.8  
1.9

MCA Research  
04-07-1997 10:10

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

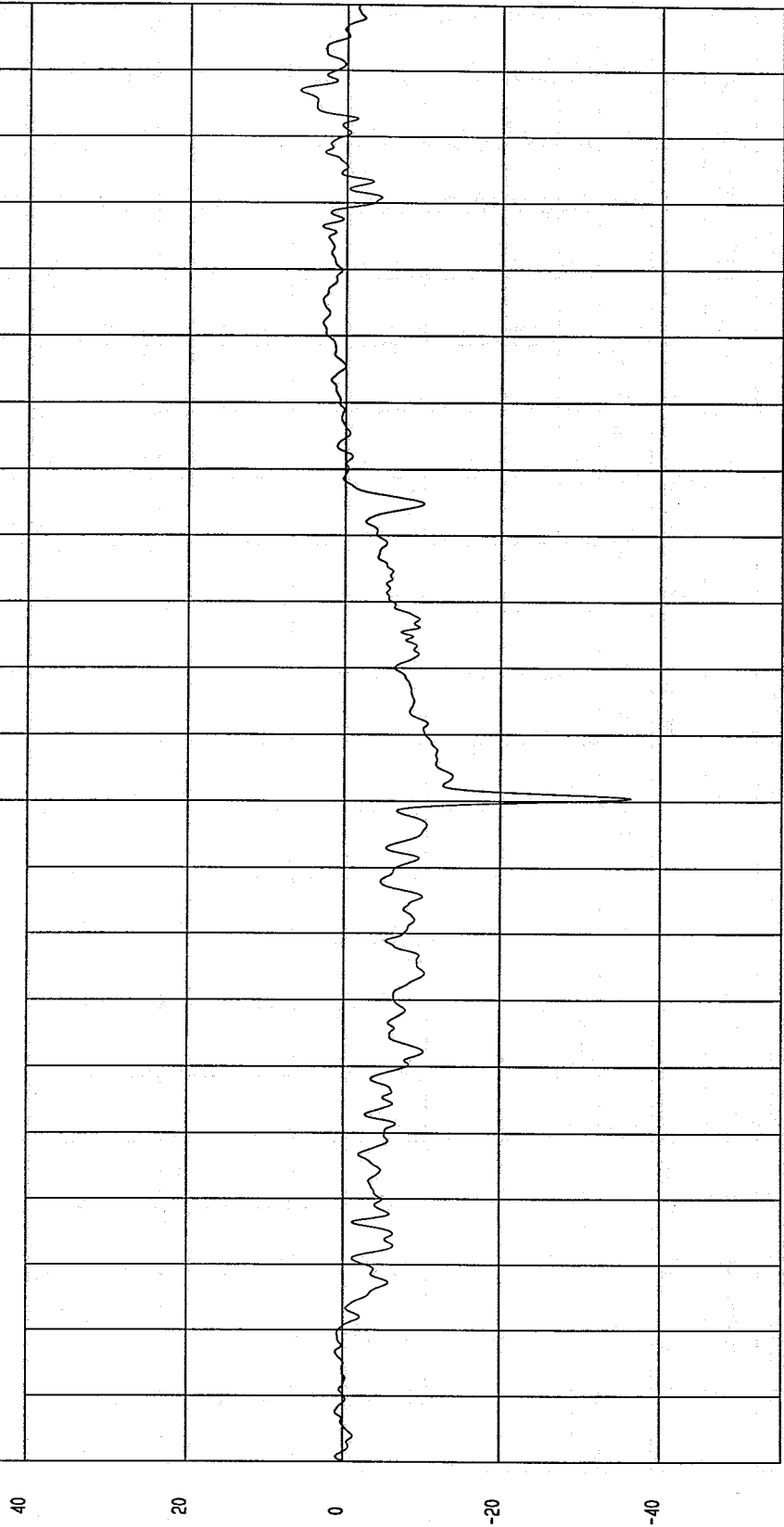
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -36.33 G'S at 80 msec

Maximum = 6.07 G'S at 187 msec

MOVING BARRIER LEFT REAR AXLE X ACCELERATION

1 ——— B97037AF.A05 Filterclass (180)



TIME (SECONDS)

NGA Research  
04-07-1997 10:10

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

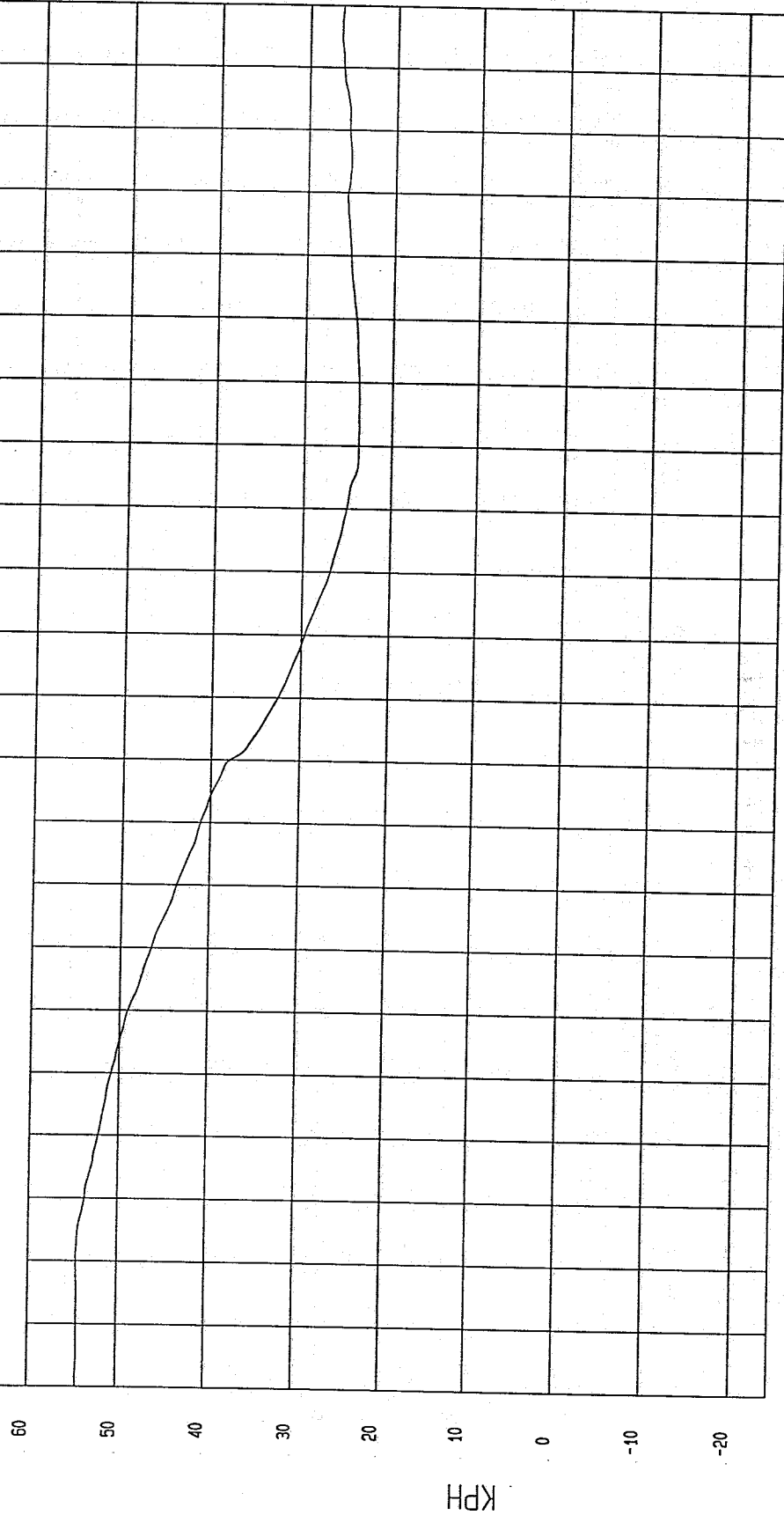
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = 23.60 KPH at .133 msec

Maximum = 54.61 KPH at 1 msec

MOVING BARRIER LEFT REAR AXLE X VELOCITY

1 .897037AI.V05 Filterclass (180)



MGA Research  
04-07-1997 10:16

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

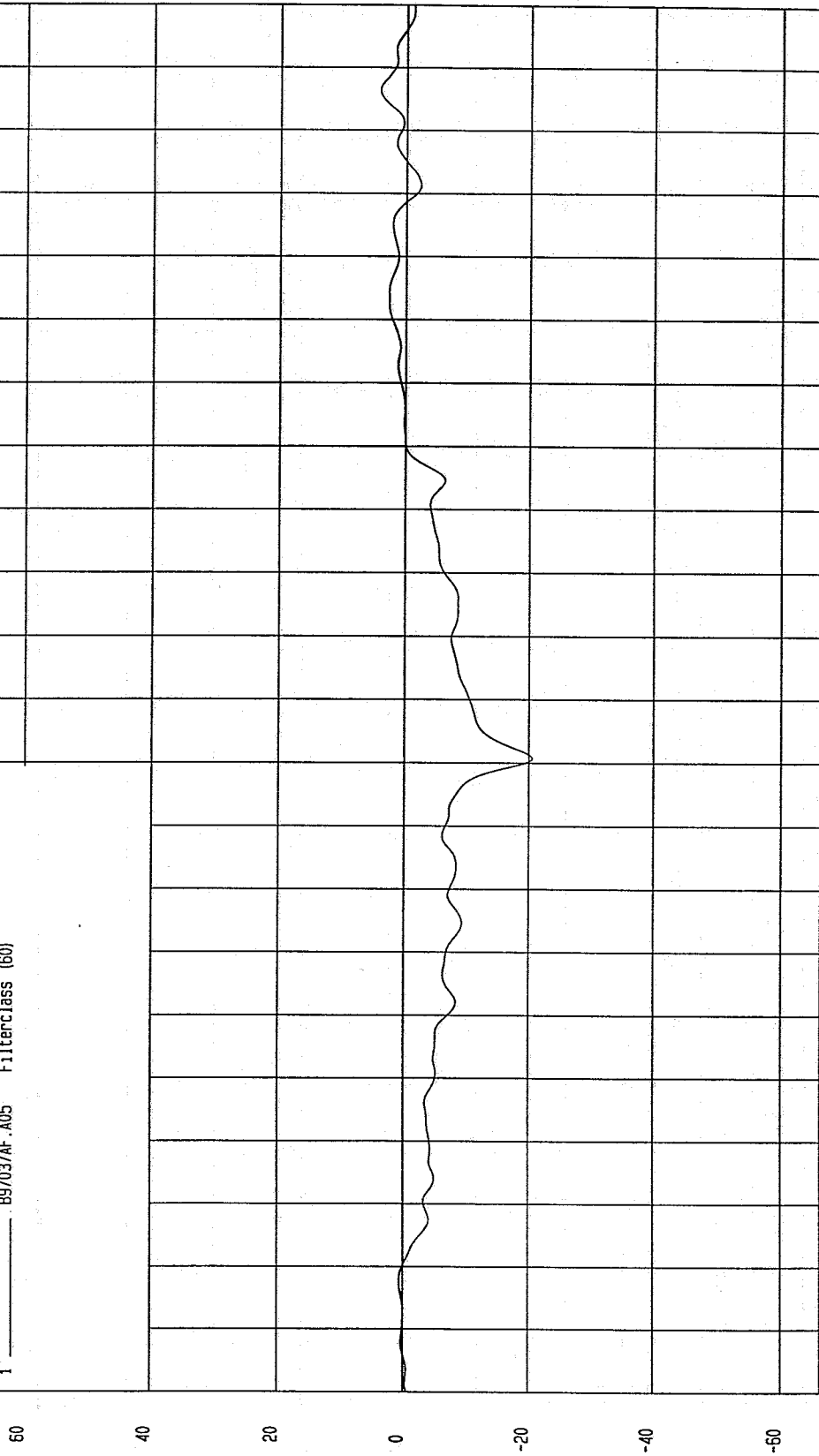
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -20.57 G'S at 81 msec

Maximum = 4.13 G'S at 186 msec

MOVING BARRIER LEFT REAR AXLE X ACCELERATION

1 \_\_\_\_\_ 897037AF.A05 Filterclass (60)



NSA Research  
04-07-1997 10:10

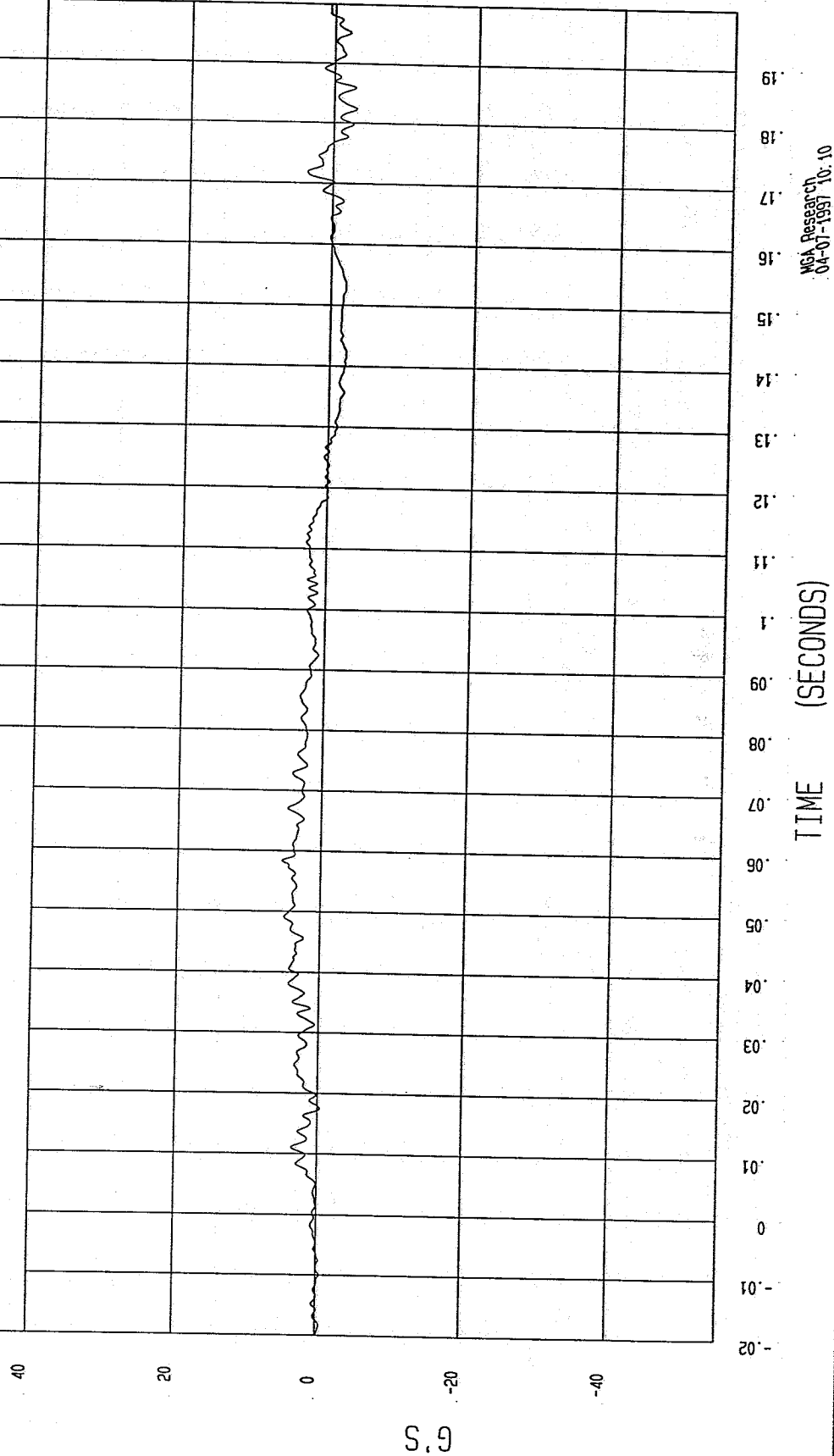
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.11 G'S at 182 msec Maximum = 5.35 G'S at 58 msec

MOVING BARRIER LEFT REAR AXLE Y ACCELERATION

1 897037AF.A05 Filterclass (180)



NGA Research  
04-07-1997 10:10

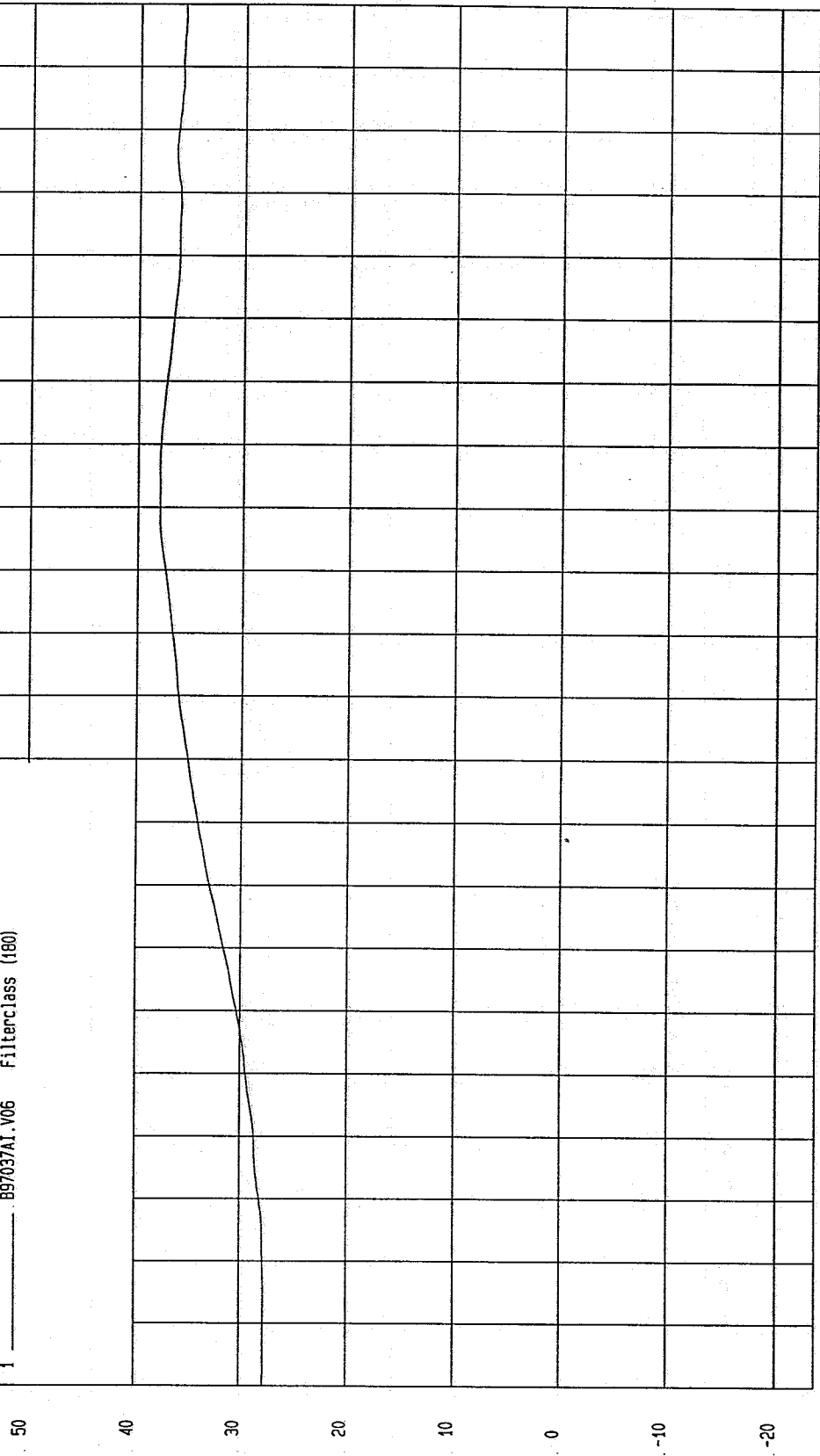
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = 27.73 KPH at -6 msec Maximum = 37.98 KPH at 127 msec

MOVING BARRIER LEFT REAR AXLE Y VELOCITY

1 ——— .B97037A1.V06 Filterclass (180)



TIME Seconds  
MCA Research  
04-07-1997 10:09

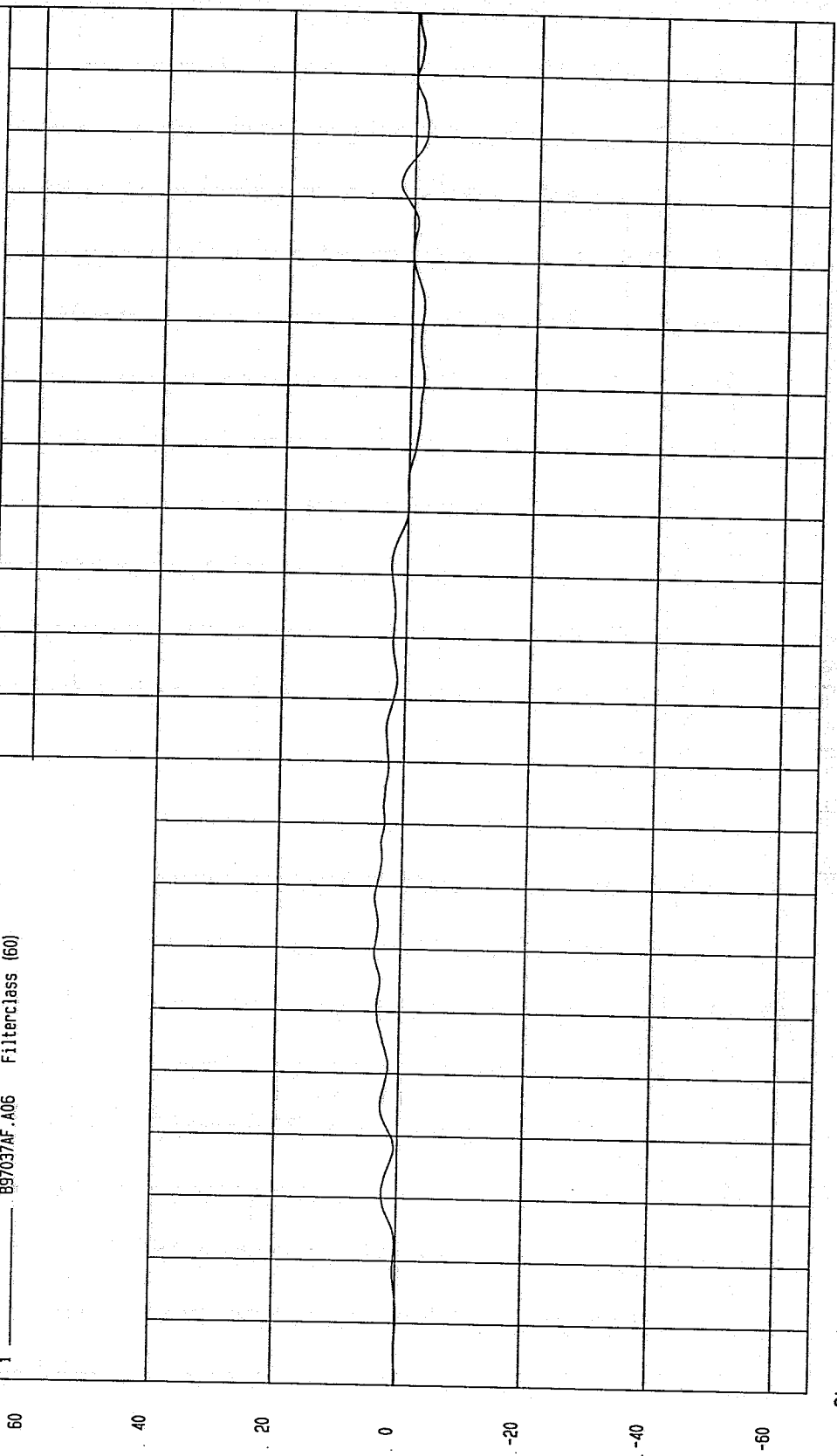
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -2.08 G'S at 141 msec Maximum = 4.27 G'S at 58 msec

MOVING BARRIER LEFT REAR AXLE Y ACCELERATION

1 B97037AF.A06 Filterclass (60)



TIME (SECONDS)

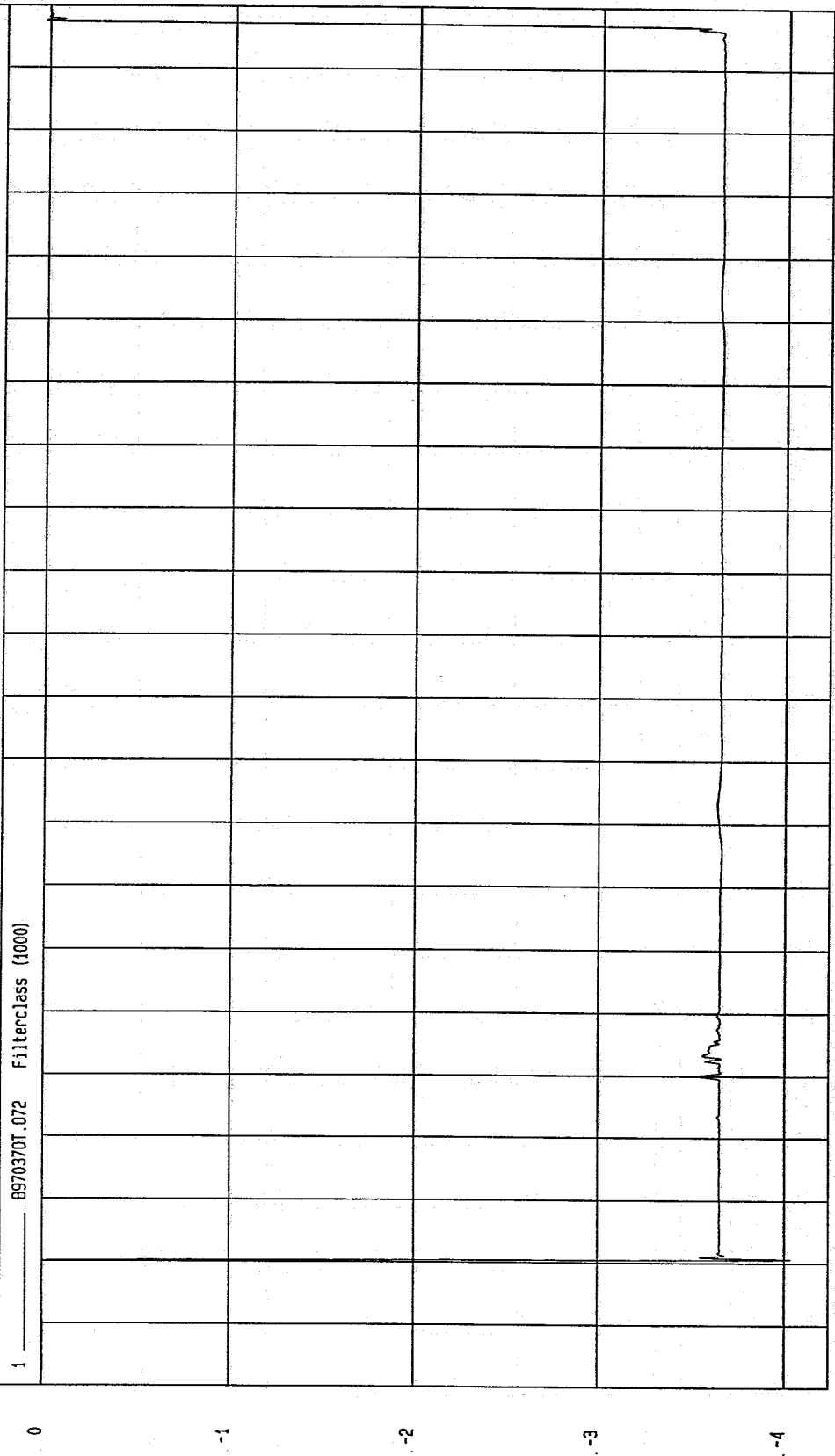
NCA Research  
04-07-1997 10:11

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.03 VOLTS at 1 msec Maximum = 2.19E-02 VOLTS at 198 msec

LEFT BARRIER BUMPER CONTACT



TIME (SECONDS)

MGA Research  
04-04-1997 14:56

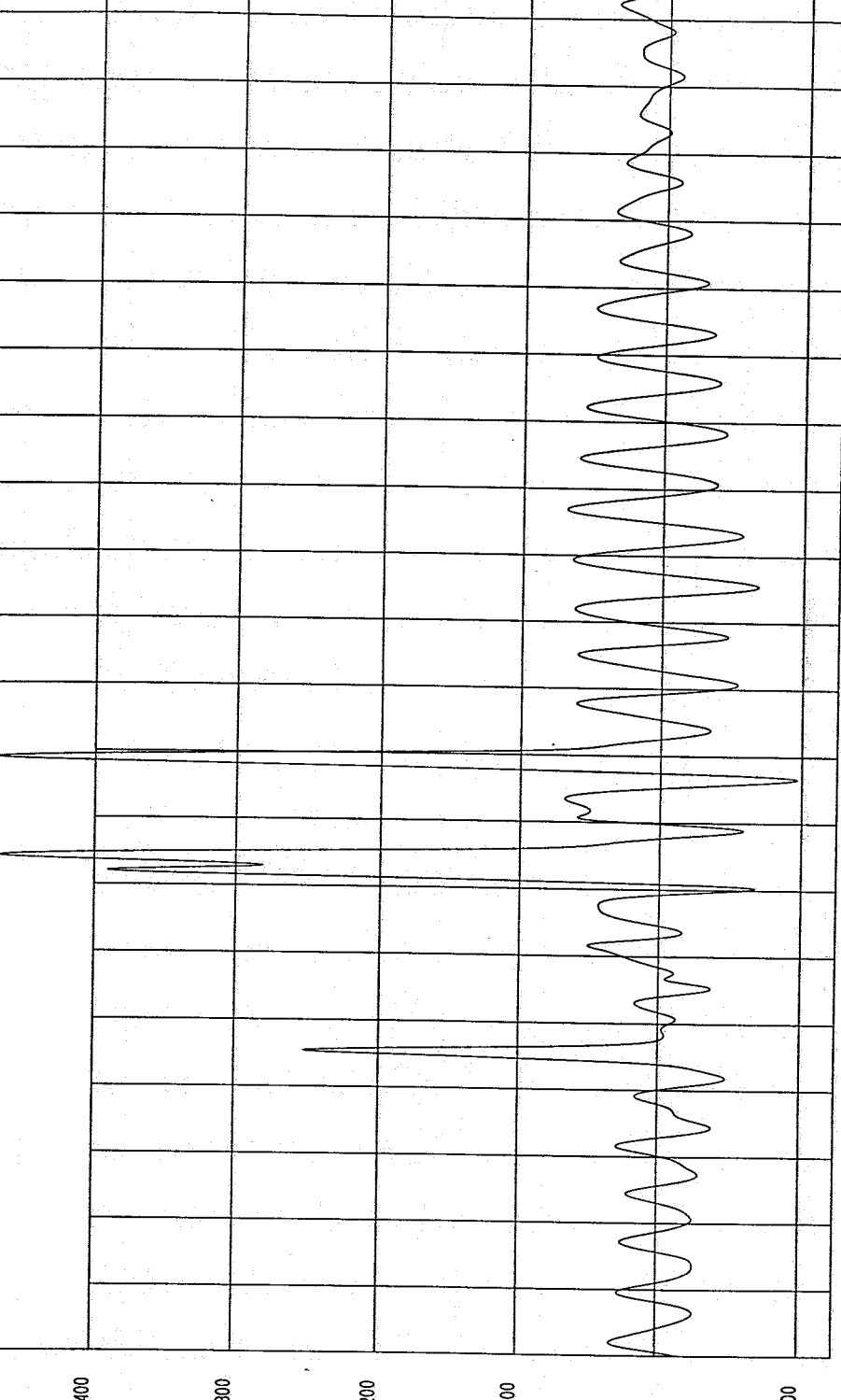
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -96.55 DEG/S at 67 msec  
Maximum = 468.61 DEG/S at 69 msec

MOVING BARRIER PITCH RATE

1 \_\_\_\_\_ B97037RF.R64 Filterclass (180)



TIME (SECONDS)

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

WCA Research  
04-14-1997 06:18

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-12-1997

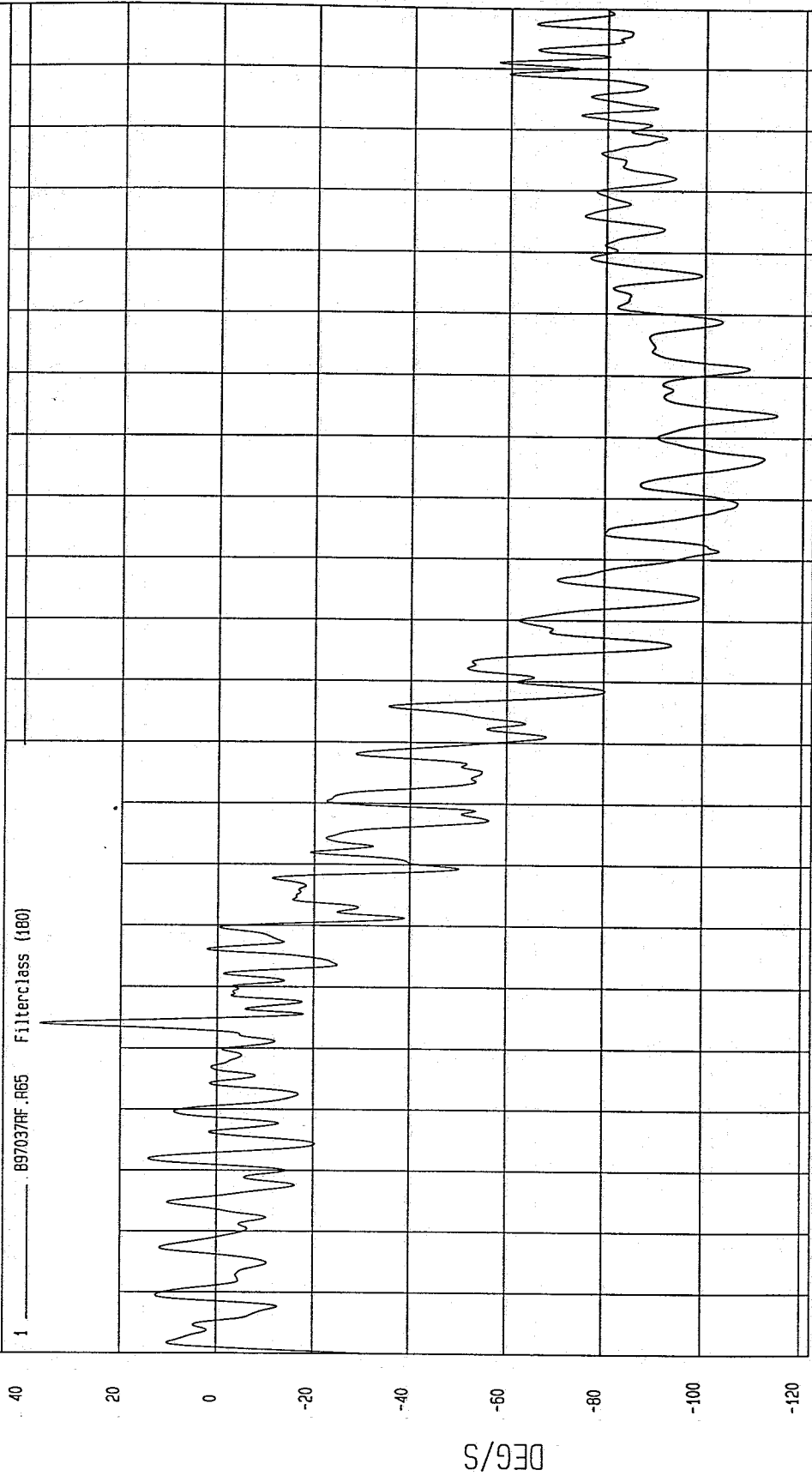
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -114.52 DEG/S at 134 msec

Maximum = 36.56 DEG/S at 34 msec

MOVING BARRIER YAW RATE

1 . . . . . 897037RF.R65 Filterclass (180)



NSA Research  
04-14-1997 06:19

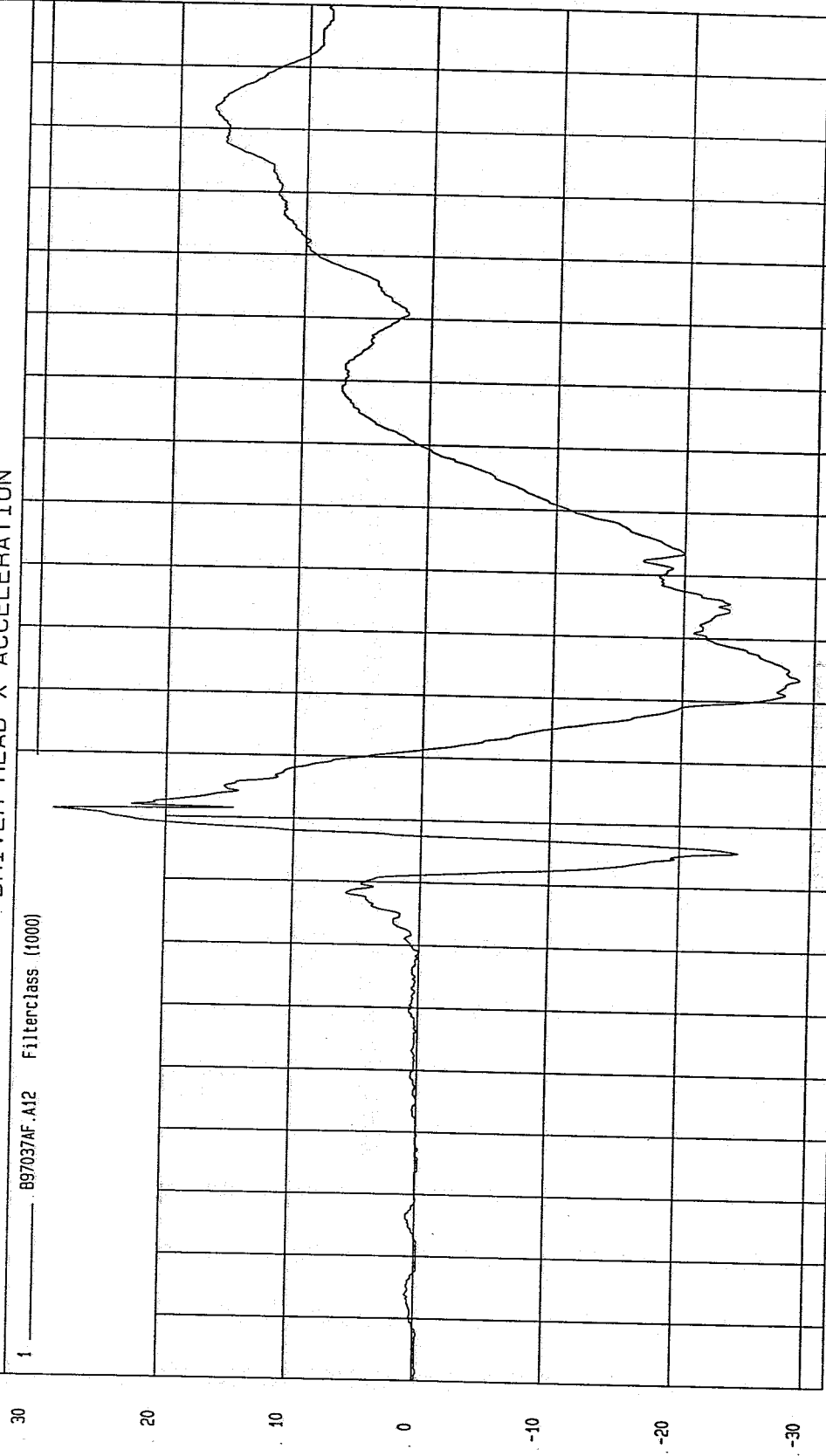
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -28.88 G'S at 94 msec Maximum = 28.71 G'S at 71 msec

DRIVER HEAD X ACCELERATION

1 \_\_\_\_\_ B97037AF.A12 Filterclass (1000)



MGA Research  
04-04-1997 14:32

DRIVER HEAD X REDUNDANT ACCELERATION VS. TIME

NO VALID DATA COLLECTED

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

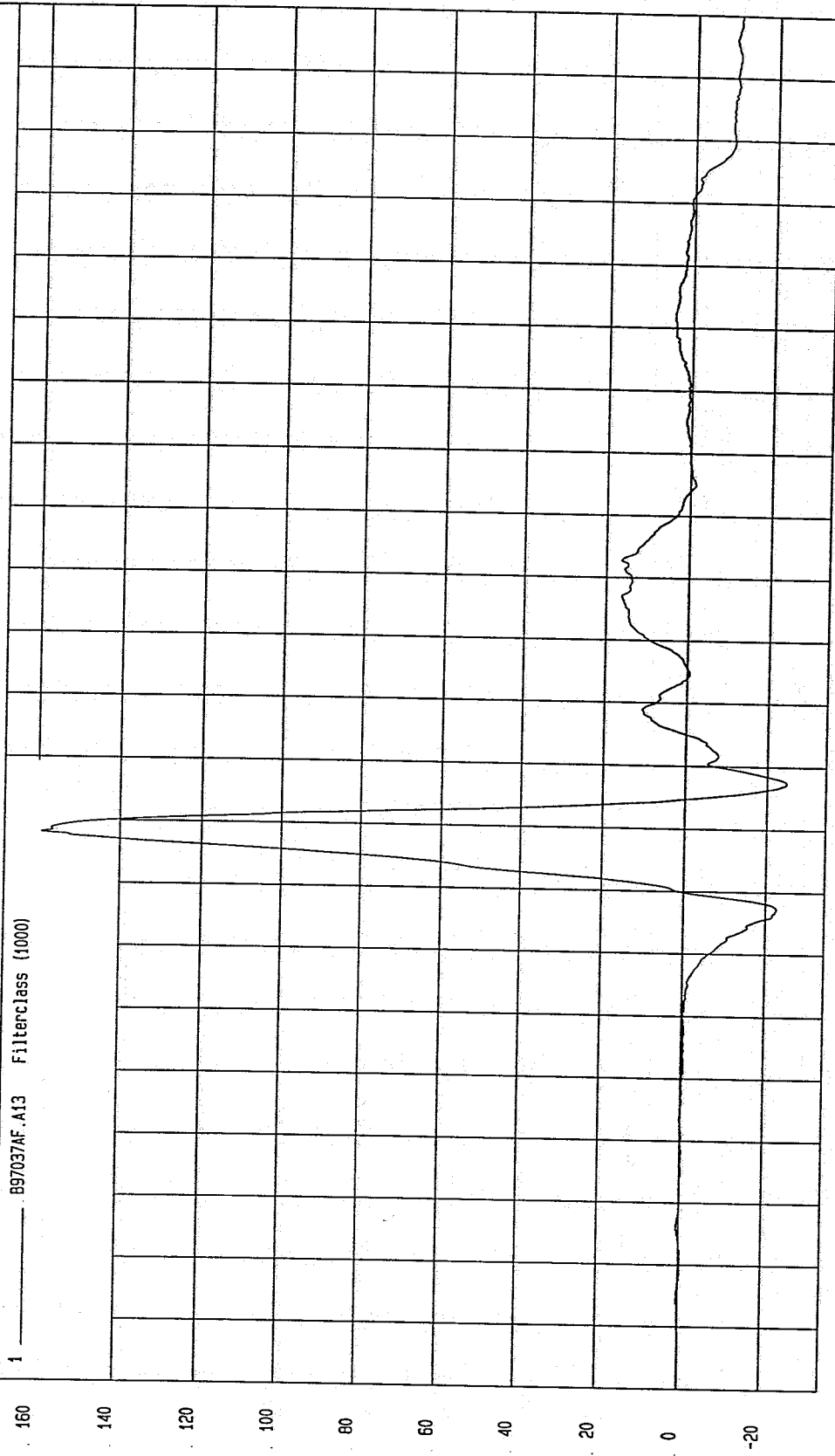
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -24.59 G'S at 77 msec

Maximum = 159.22 G'S at 68 msec

DRIVER HEAD Y ACCELERATION

1 ——— B97037AF.A13 Filterclass (1000)



TIME (SECONDS)

MOA Research  
04-04-1997 14:32

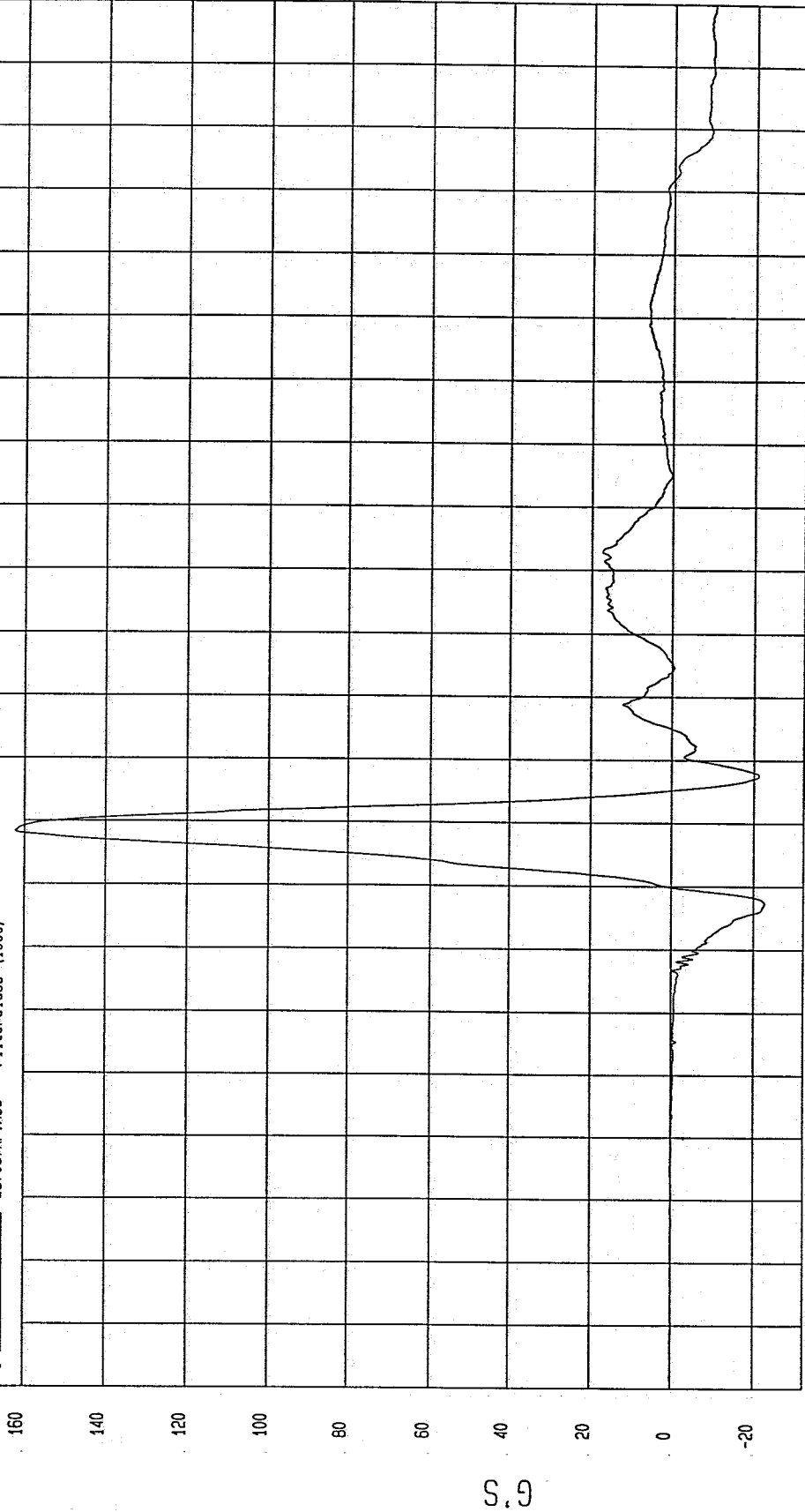
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -22.64 G'S at 57 msec Maximum = 162.07 G'S at 68 msec

DIVER HEAD Y REDUNDANT ACCELERATION

1 B97037AF.A98 Filterclass (1000)



MCA Research  
04-04-1997 14:33

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

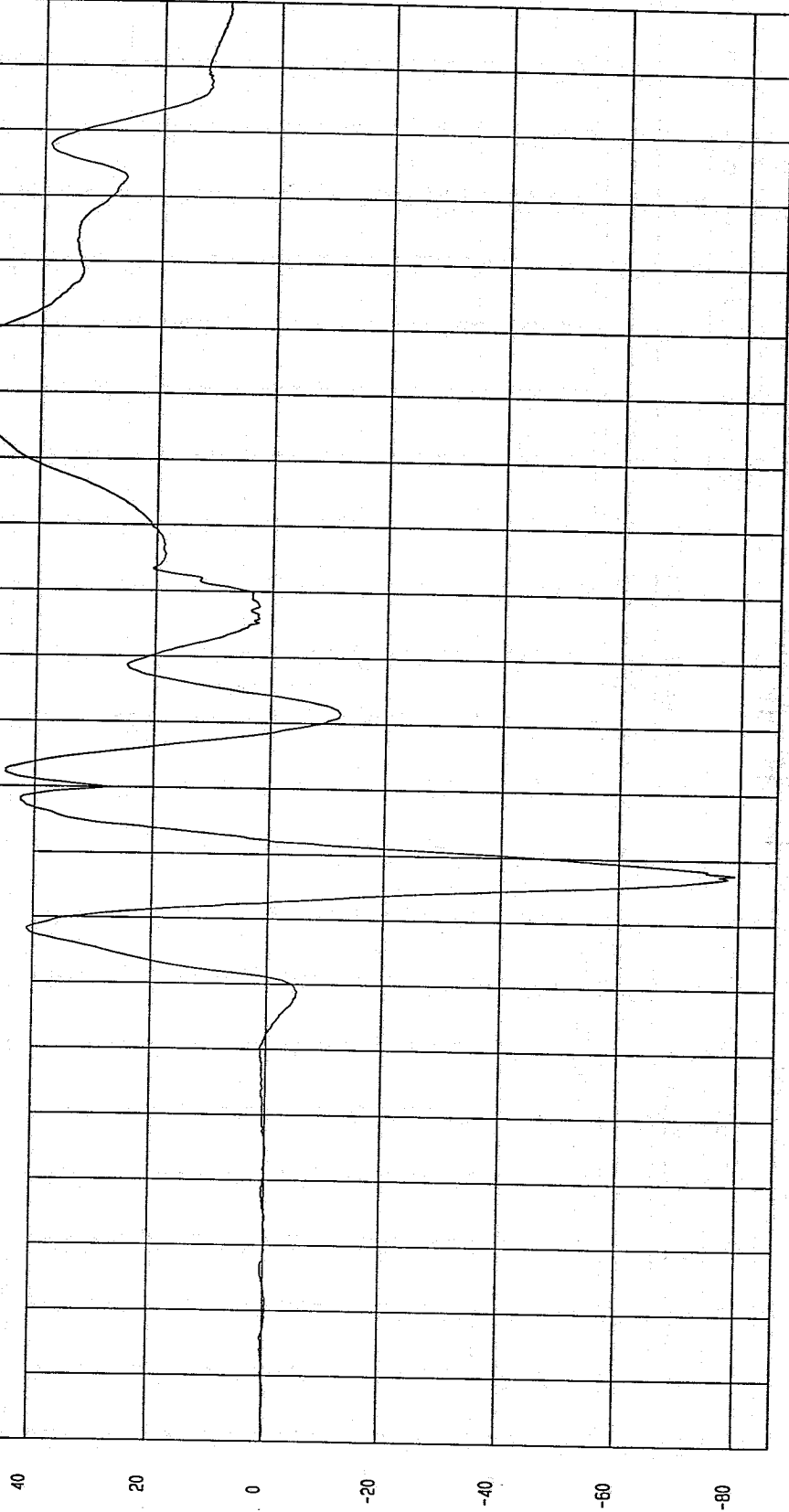
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -79.27 G'S at 68 msec

Maximum = 53.21 G'S at 145 msec

DRIVER HEAD Z ACCELERATION

1 897037AF.A14 Filterclass (1000)



W&A Research  
04-04-1997 14:32

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

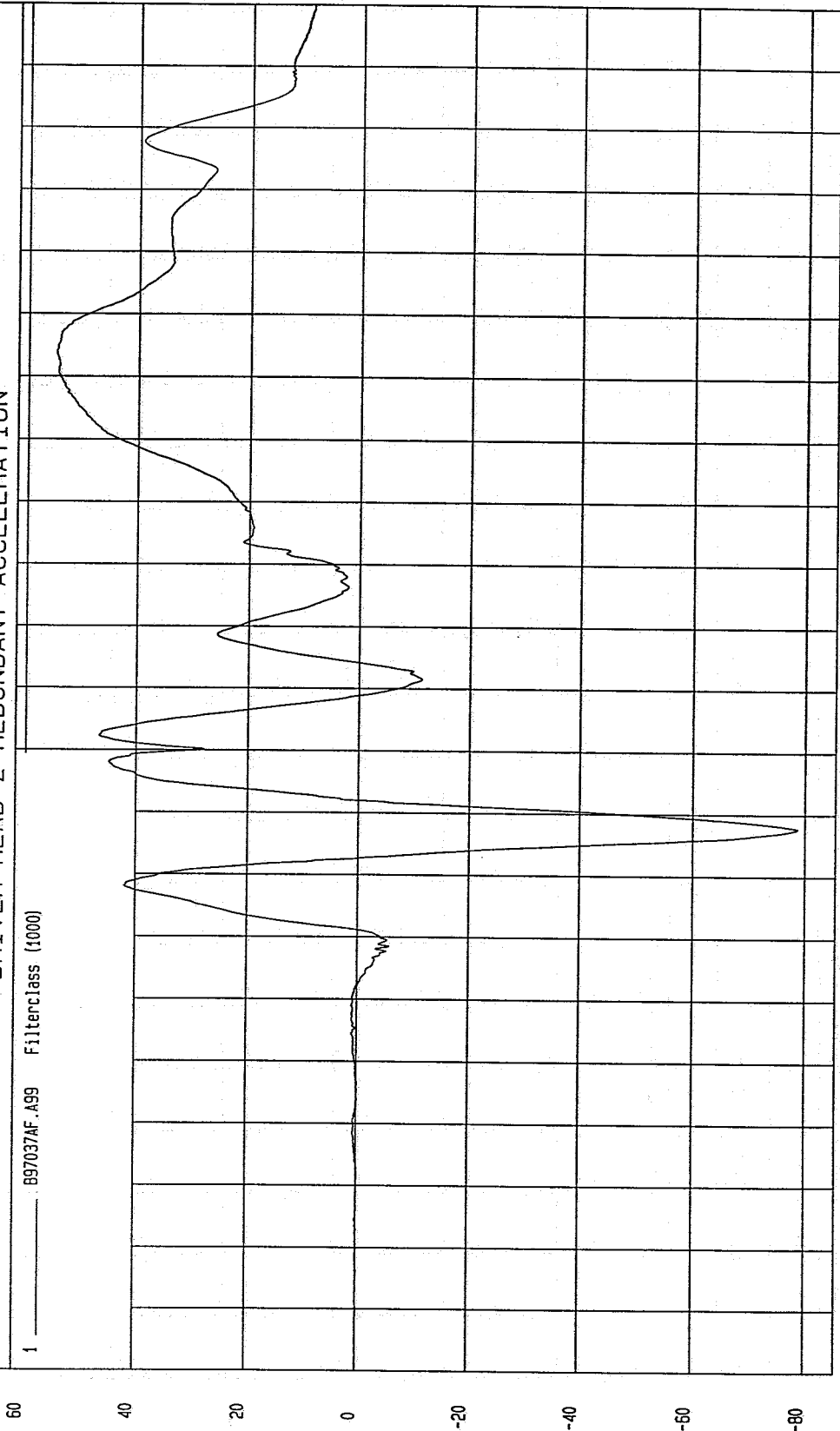
Speed: 39.83 MPH 64.1 KPH

Minimum = -78.59 G'S at 68 msec

Maximum = 55.10 G'S at 144 msec

DRIVER HEAD Z REDUNDANT ACCELERATION

1 897037AF.A99 Filterclass (1000)



M&A Research  
04-04-1997 14:33

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

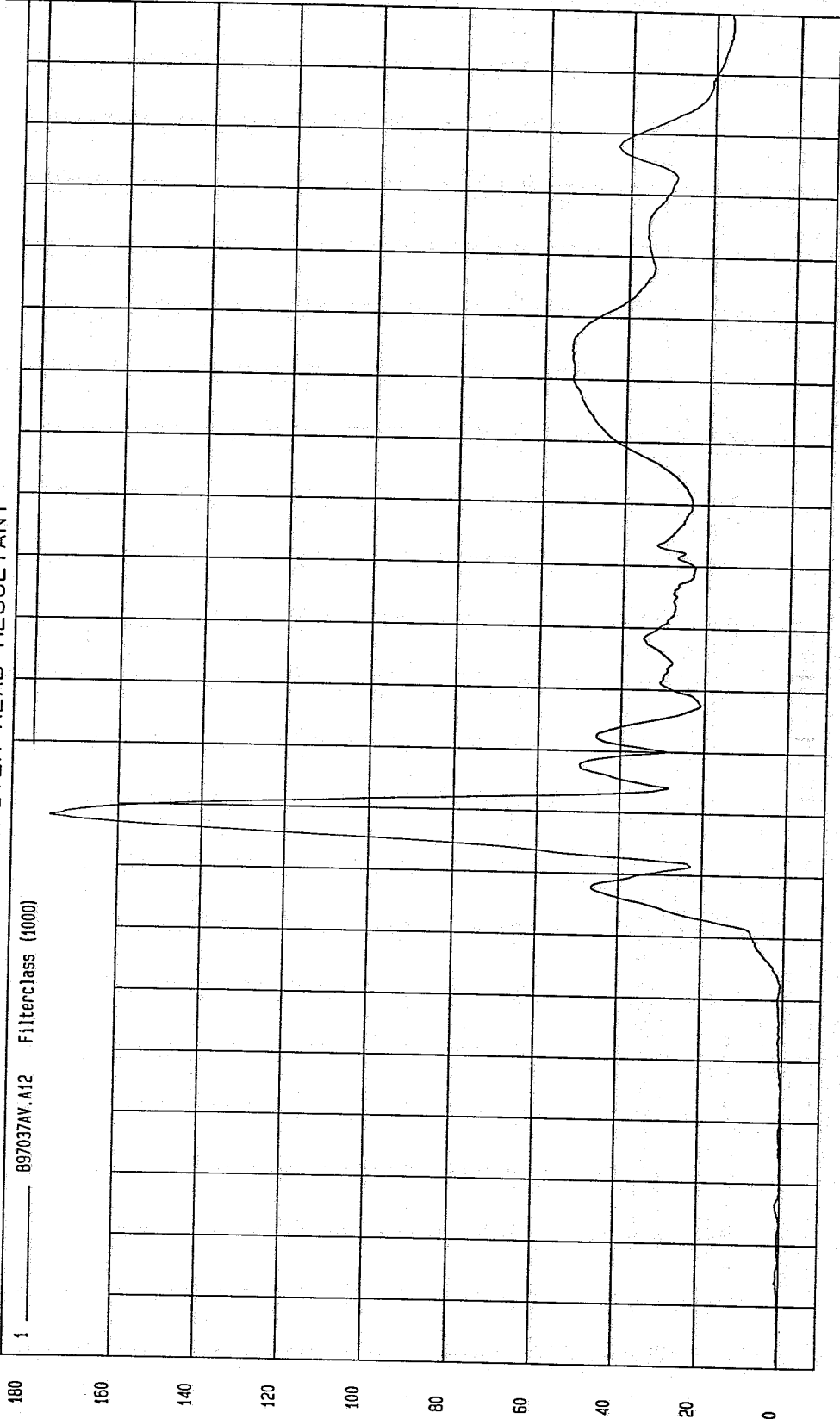
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = .03 G'S at -20 msec

Maximum = 176.13 G'S at 68 msec

DRIVER HEAD RESULTANT

1 ——— 897037AV.A12 Filterc1ass (1000)



MGA Research  
04-07-1997 06:17

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

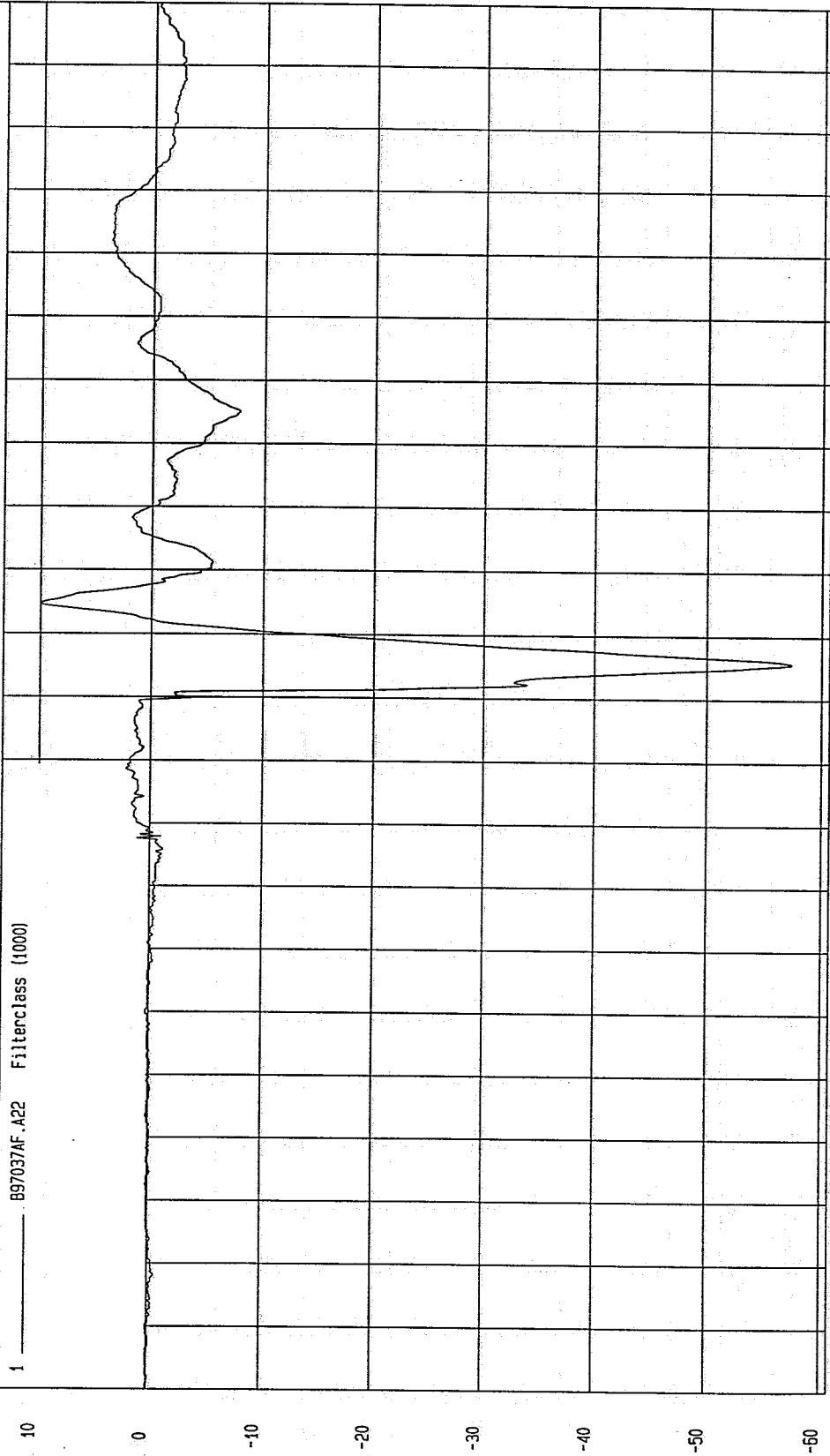
Speed: 39.83 MPH 64.1 KPH

Minimum = -57.35 G'S at 96 msec

Maximum = 9.94 G'S at 105 msec

REAR PASSENGER HEAD X ACCELERATION

1 \_\_\_\_\_ B97037AF.A22 Filterclass (1000)



NCA Research  
04-04-1997 14:33

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

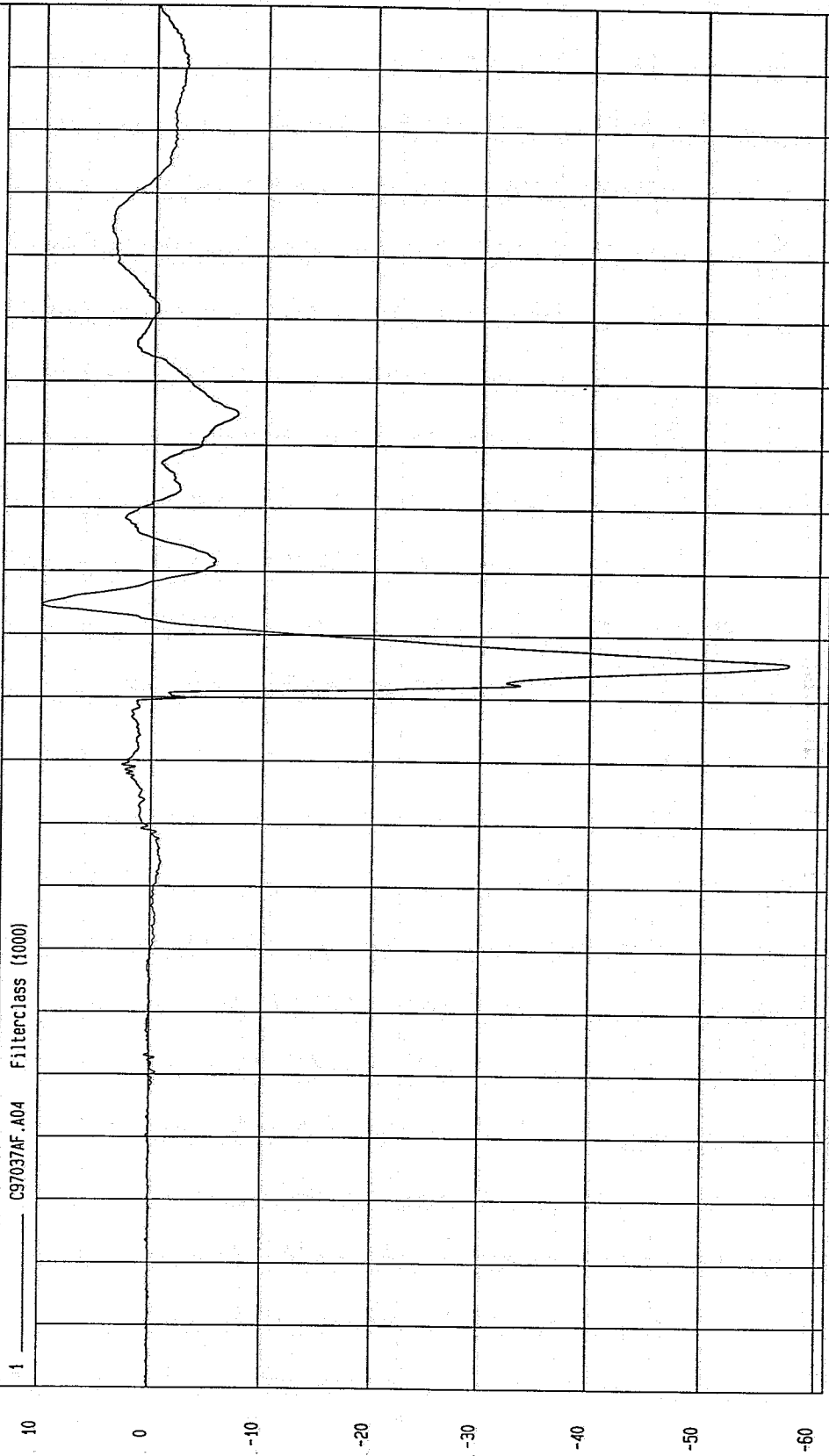
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -57.49 G'S at 96 msec

Maximum = 10.05 G'S at 105 msec

REAR PASSENGER HEAD X REDUNDANT ACCELERATION

1 C97037AF.A04 Filterclass (1000)



TIME (SECONDS)

NGA Research  
04-04-1997 15:13

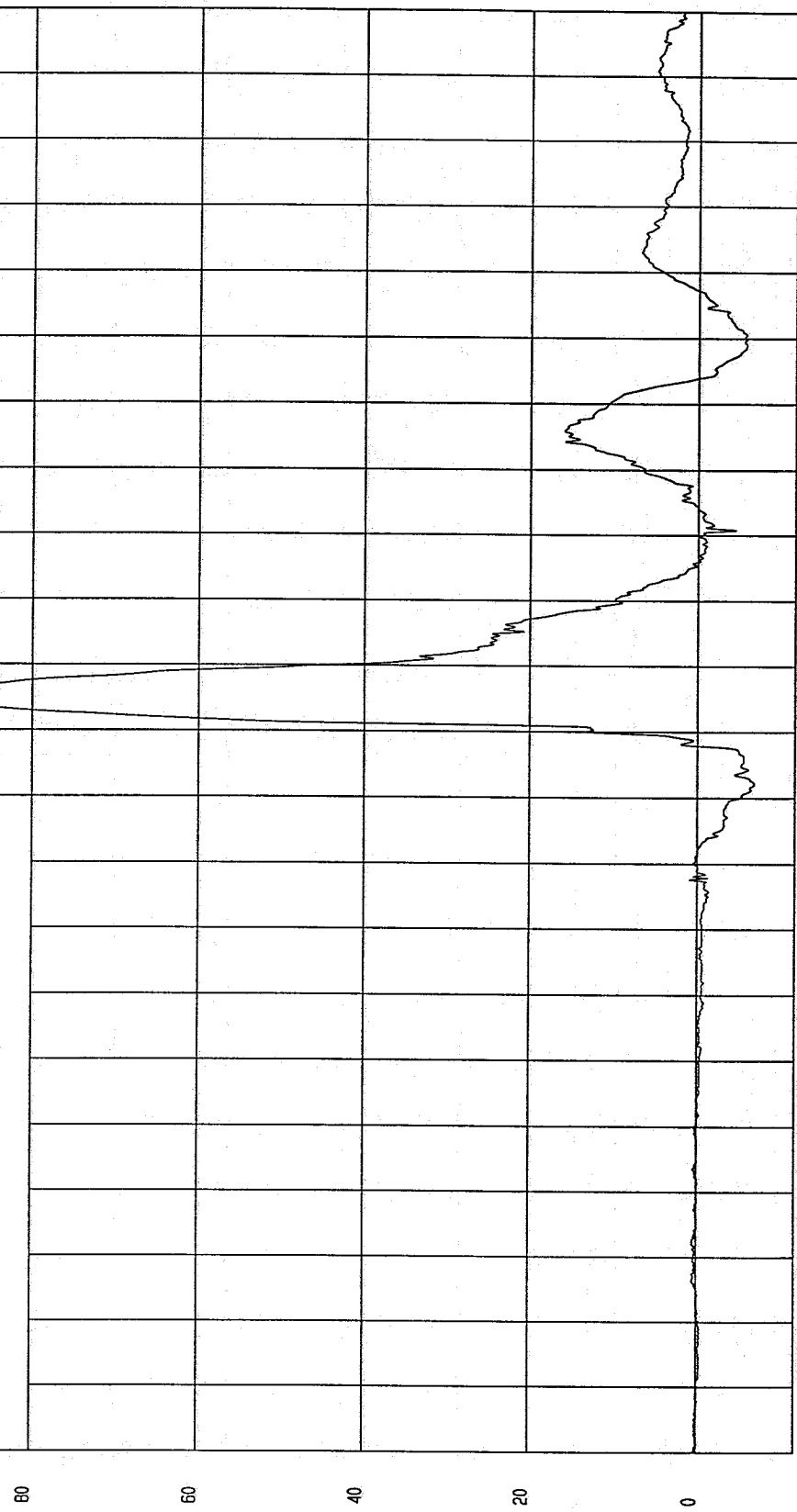
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -6.67 G'S at 82 msec Maximum = 87.02 G'S at 95 msec

REAR PASSENGER HEAD Y ACCELERATION

1 \_\_\_\_\_ B97037AF.A23 Filterclass (1000)



MECA Research  
04-04-1997 14:33

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

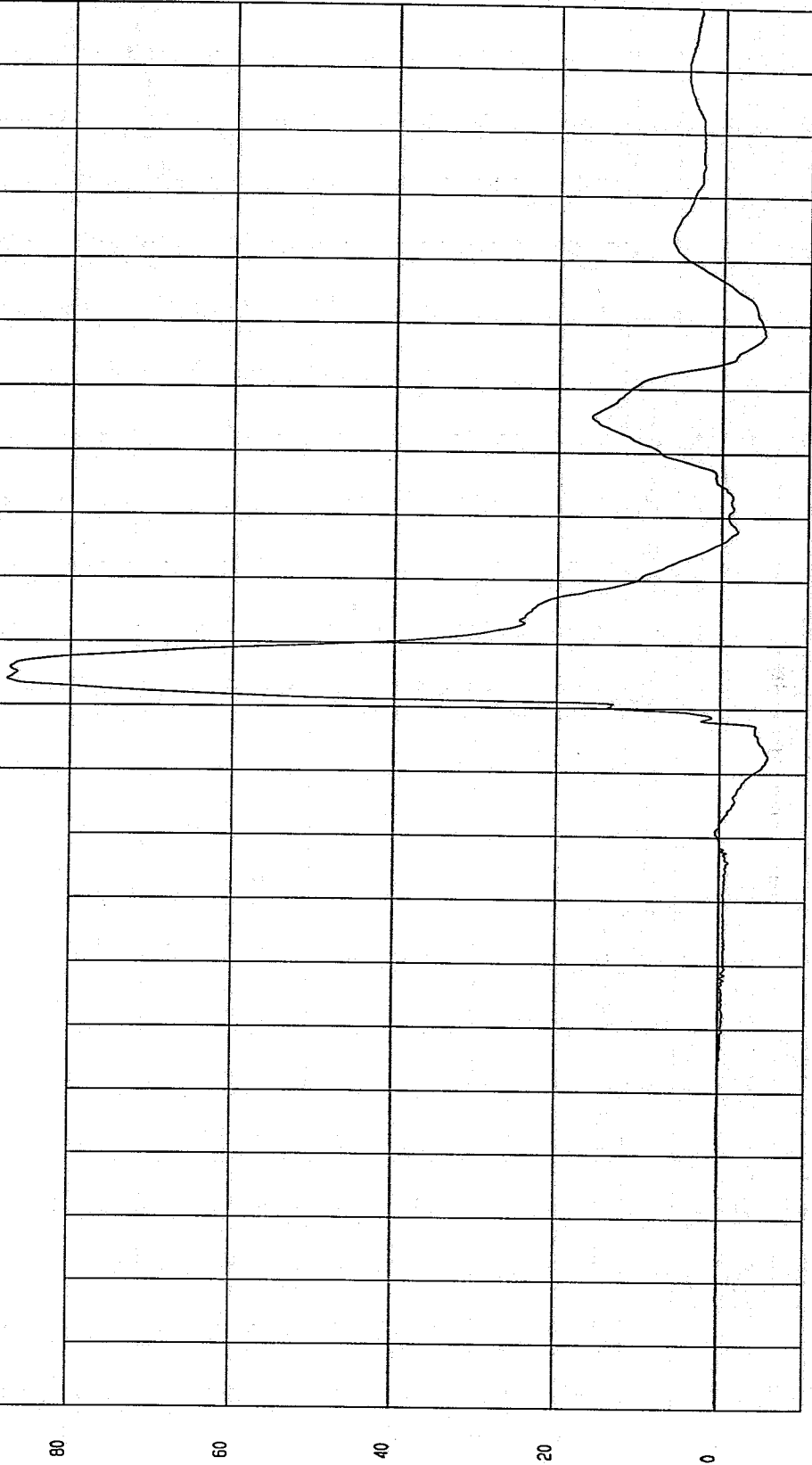
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -5.77 G'S at 83 msec

Maximum = 87.75 G'S at 94 msec

REAR PASSENGER HEAD Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ C97037AF.A02 Filterclass (1000)



WCA Research  
04-04-1997 15.13

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

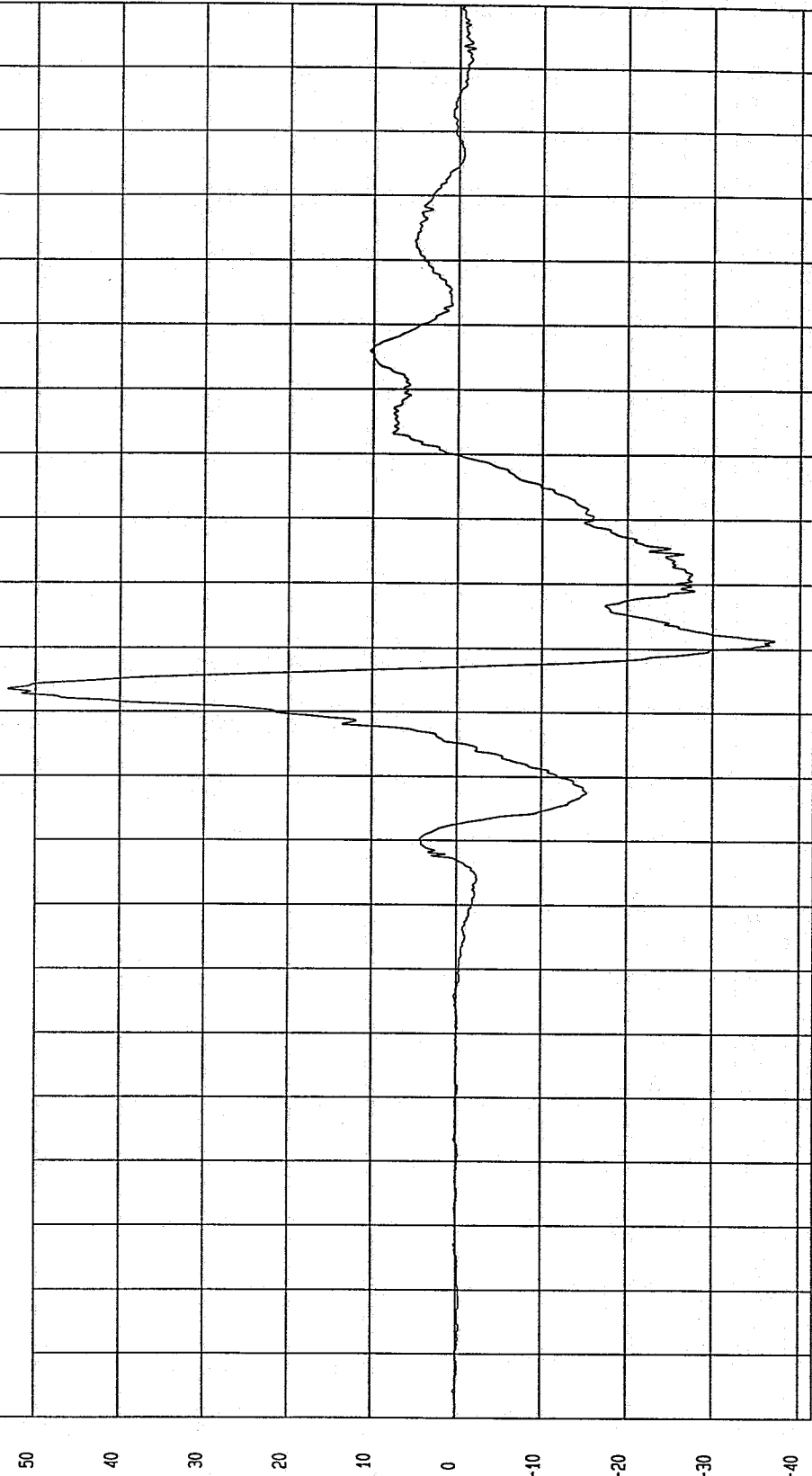
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -37.12 G'S at 101 msec

Maximum = 53.27 G'S at 94 msec

REAR PASSENGER HEAD Z ACCELERATION

1 \_\_\_\_\_ 897037AF.A24 Filterclass (1000)



MGA Research  
04-04-1997 14:33

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

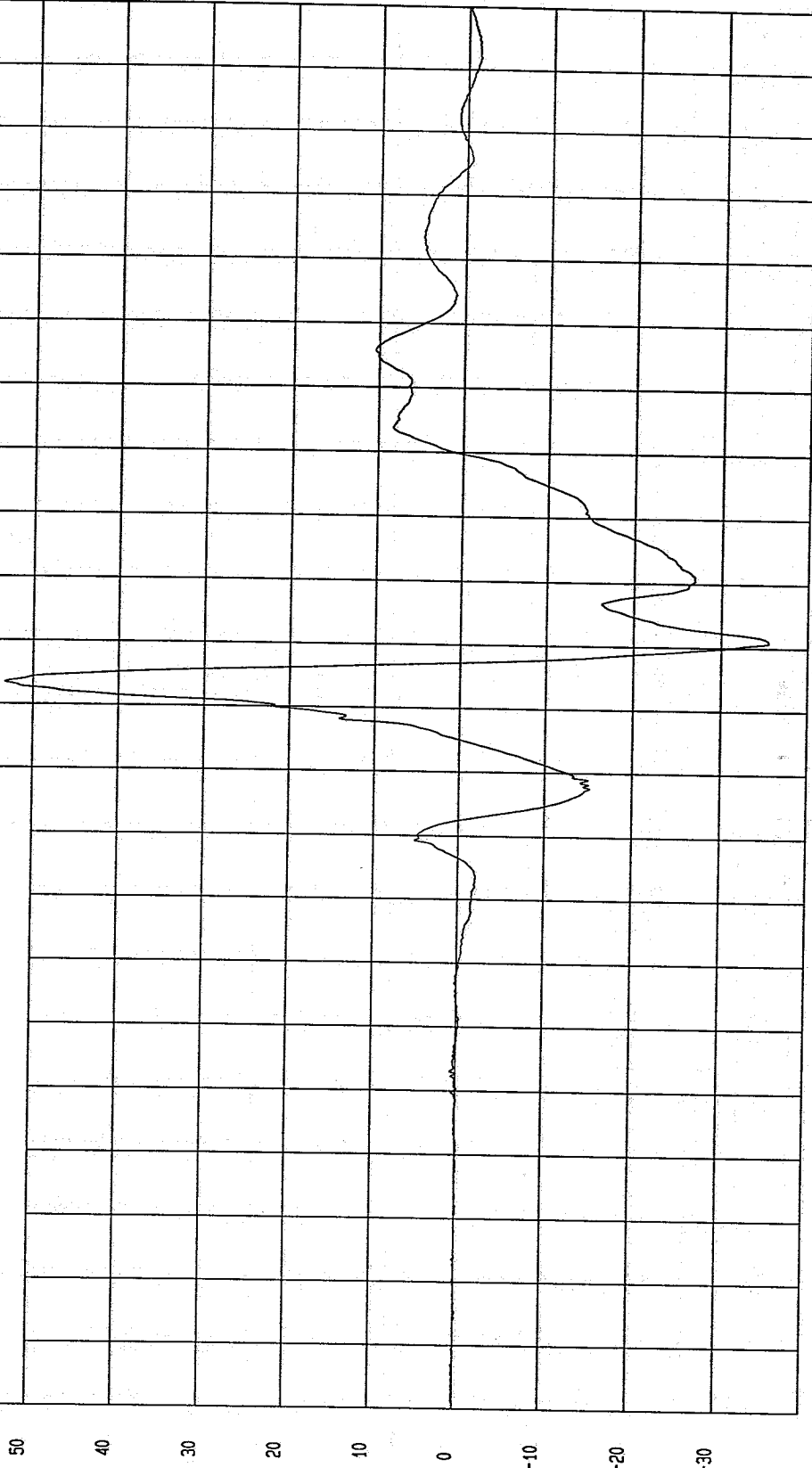
Speed: 39.83 MPH 64.1 KPH

Minimum = -35.33 G'S at 101 msec

Maximum = 53.17 G'S at 94 msec

REAR PASSENGER HEAD Z REDUNDANT ACCELERATION

1 C97037AF.A03 FilterClass (4000)



NGA Research  
04-04-1997 15:13

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = 3.96E-02 G'S at -18 msec

Maximum = 140.02 G'S at 95 msec

REAR PASSENGER HEAD RESULTANT

1 \_\_\_\_\_ 897037AV.A22 Filterclass (1000)



NSA Research  
04-04-1997 14:33

TIME (SECONDS)

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

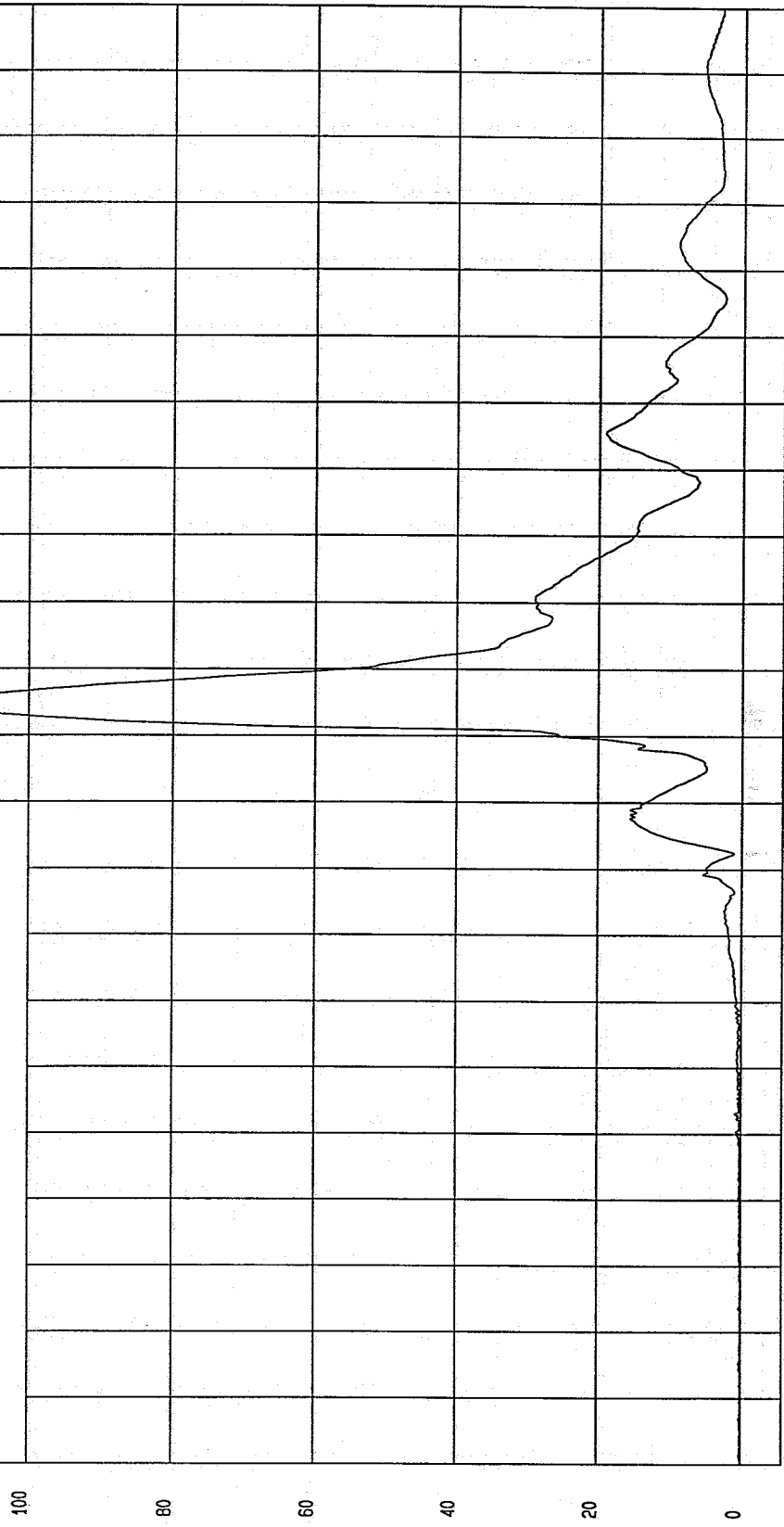
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = 8.46E-03 G'S at -9 msec

Maximum = 111.10 G'S at 95 msec

REAR PASSENGER HEAD REDUN. RESULTANT

1 C97037AV.A02 Filterclass (1000)



MCA Research  
03-04-1997 15:14

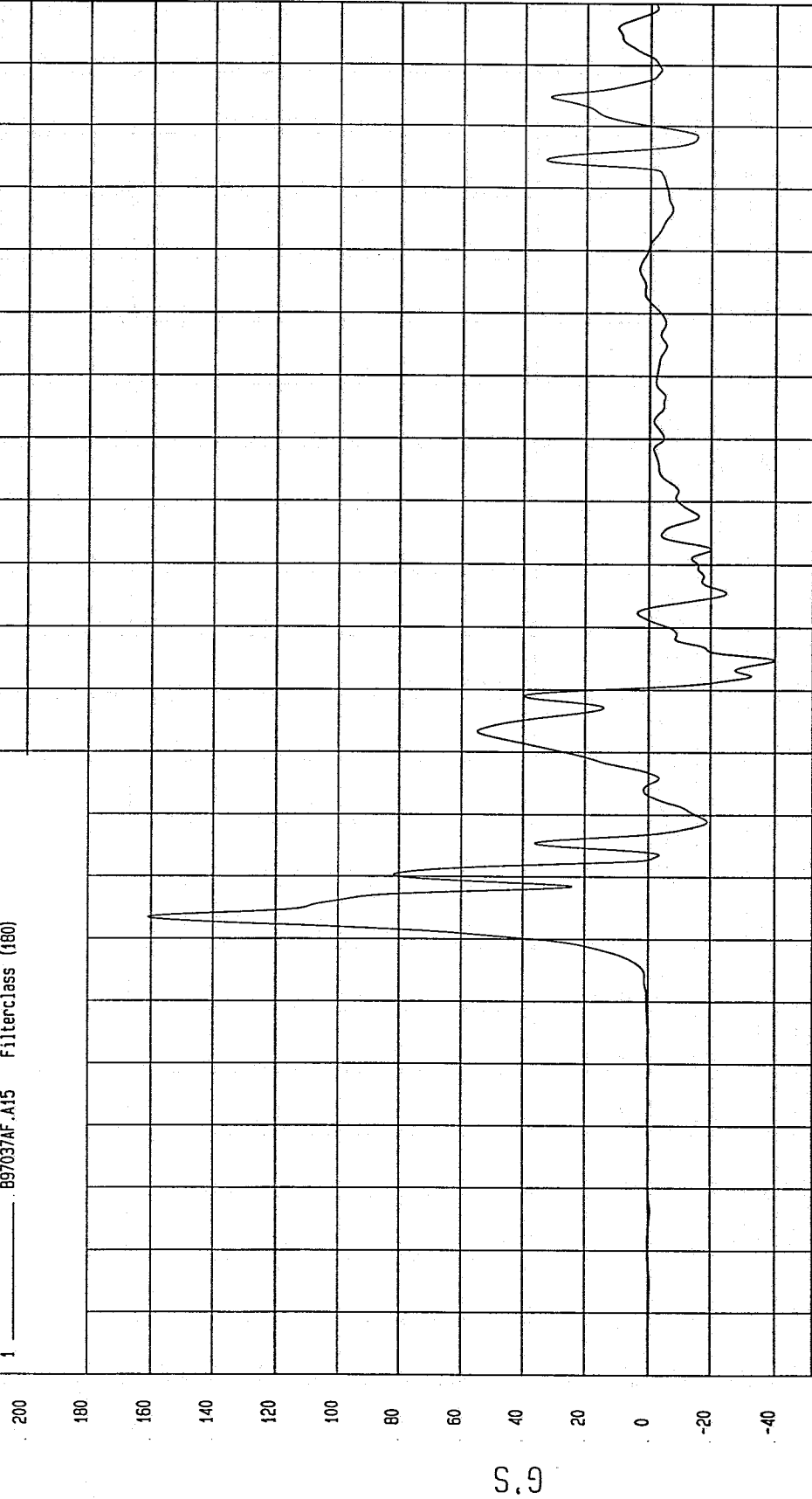
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -39.80 G'S at 95 msec  
Maximum = 160.99 G'S at 53 msec

DRIVER UPPER RIB Y ACCELERATION

1 B97037AF.A15 Filterclass (180)



MCA Research  
04-03-1997 16:52

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

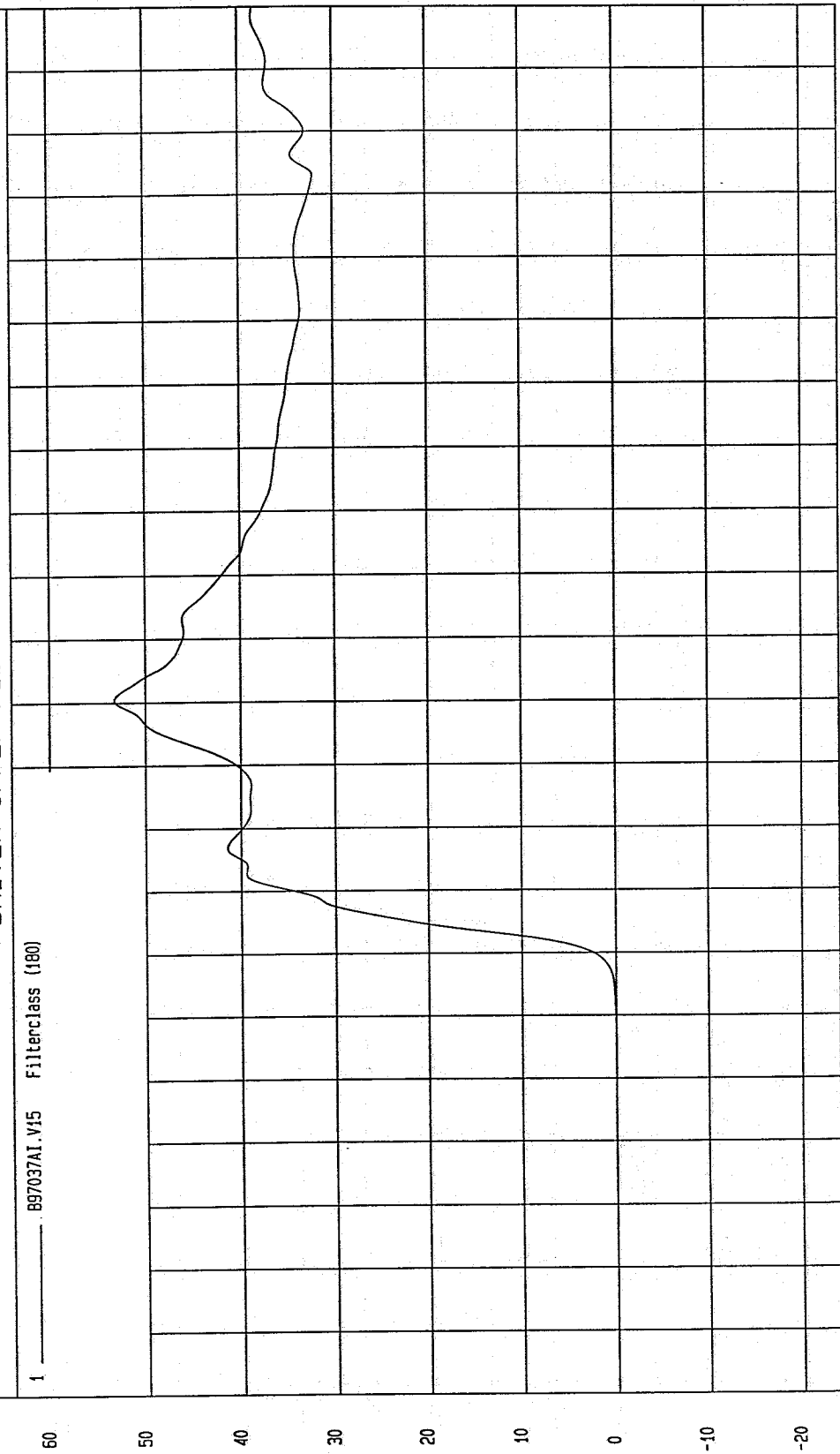
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.29E-02 KPH at 8 msec

Maximum = 53.29 KPH at 90 msec

DRIVER UPPER RIB Y VELOCITY

1 \_\_\_\_\_ B97037AI.V15 Filterclass (100)



TIME Seconds

MVA Research  
04-03-1997 16:56

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

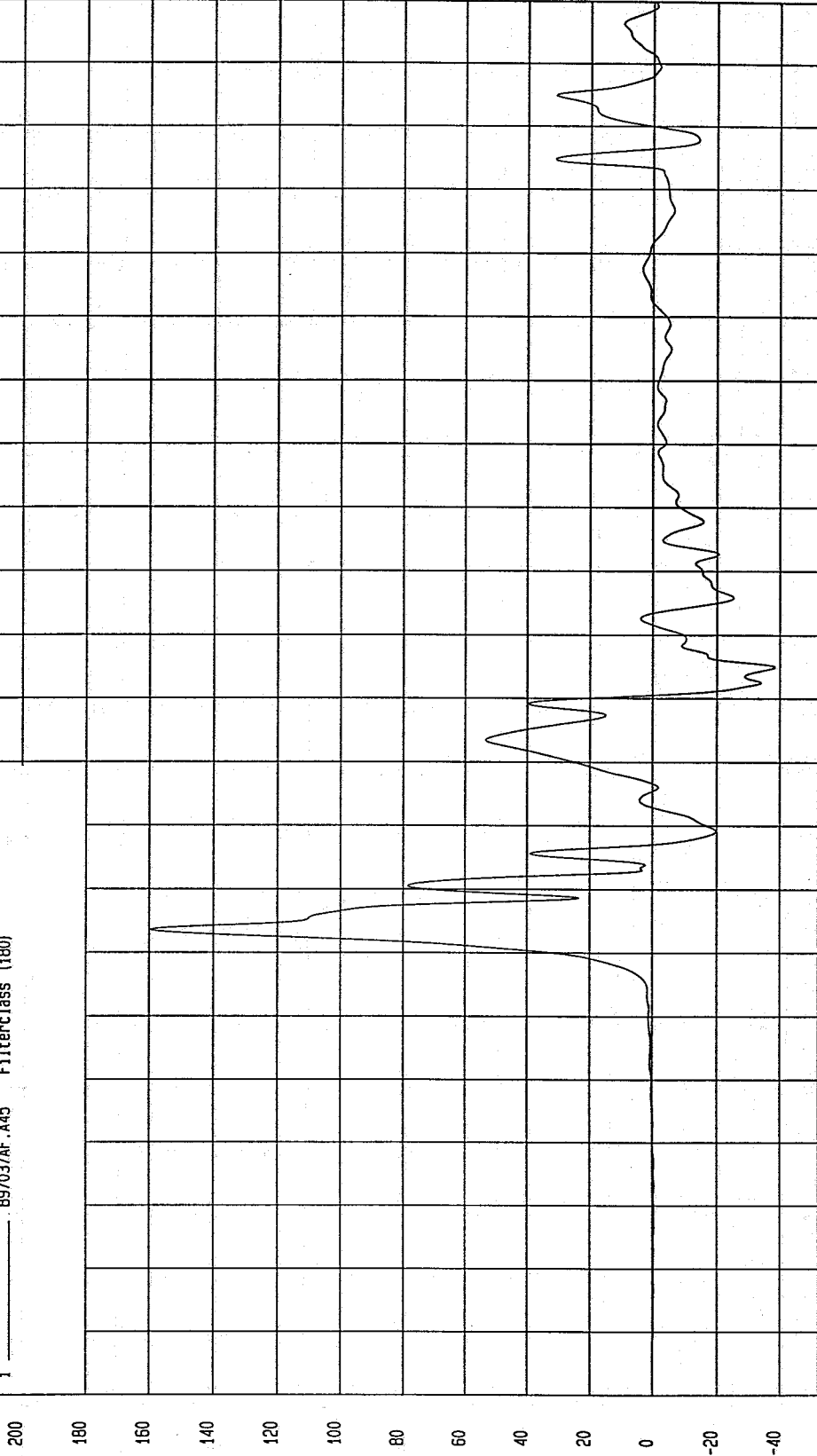
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -38.31 G'S at 95 msec

Maximum = 159.42 G'S at 54 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION

1 ——— .897037AF.A45 Filterclass (180)



MGA Research  
04-03-1997 16:52

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

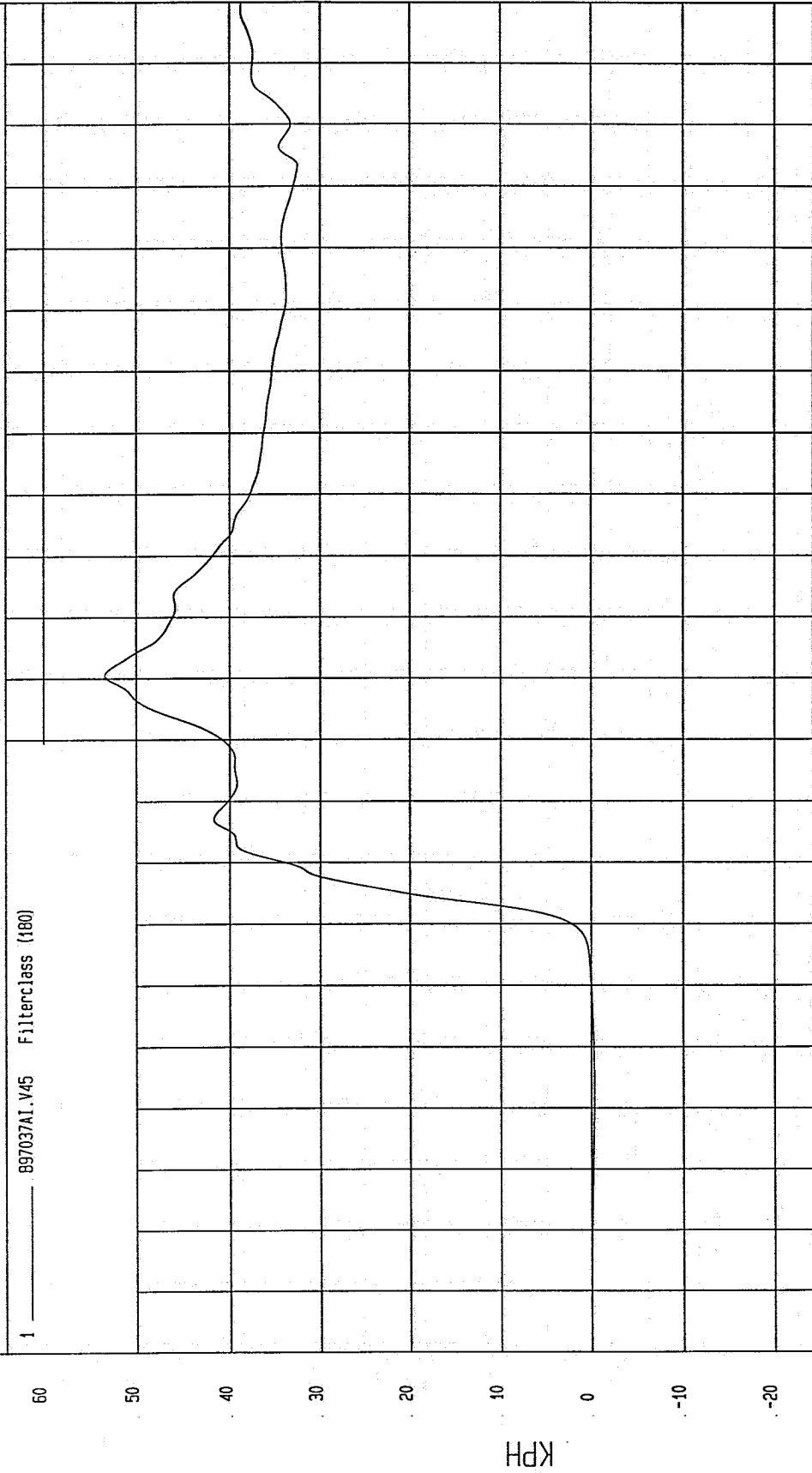
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -32 KPH at 24 msec

Maximum = 53.48 KPH at 90 msec

DRIVER UPPER RIB Y REDUNDANT VELOCITY

1 \_\_\_\_\_ 897037A1.V45 Filterclass (180)



NGA Research  
04-03-1997 16:59

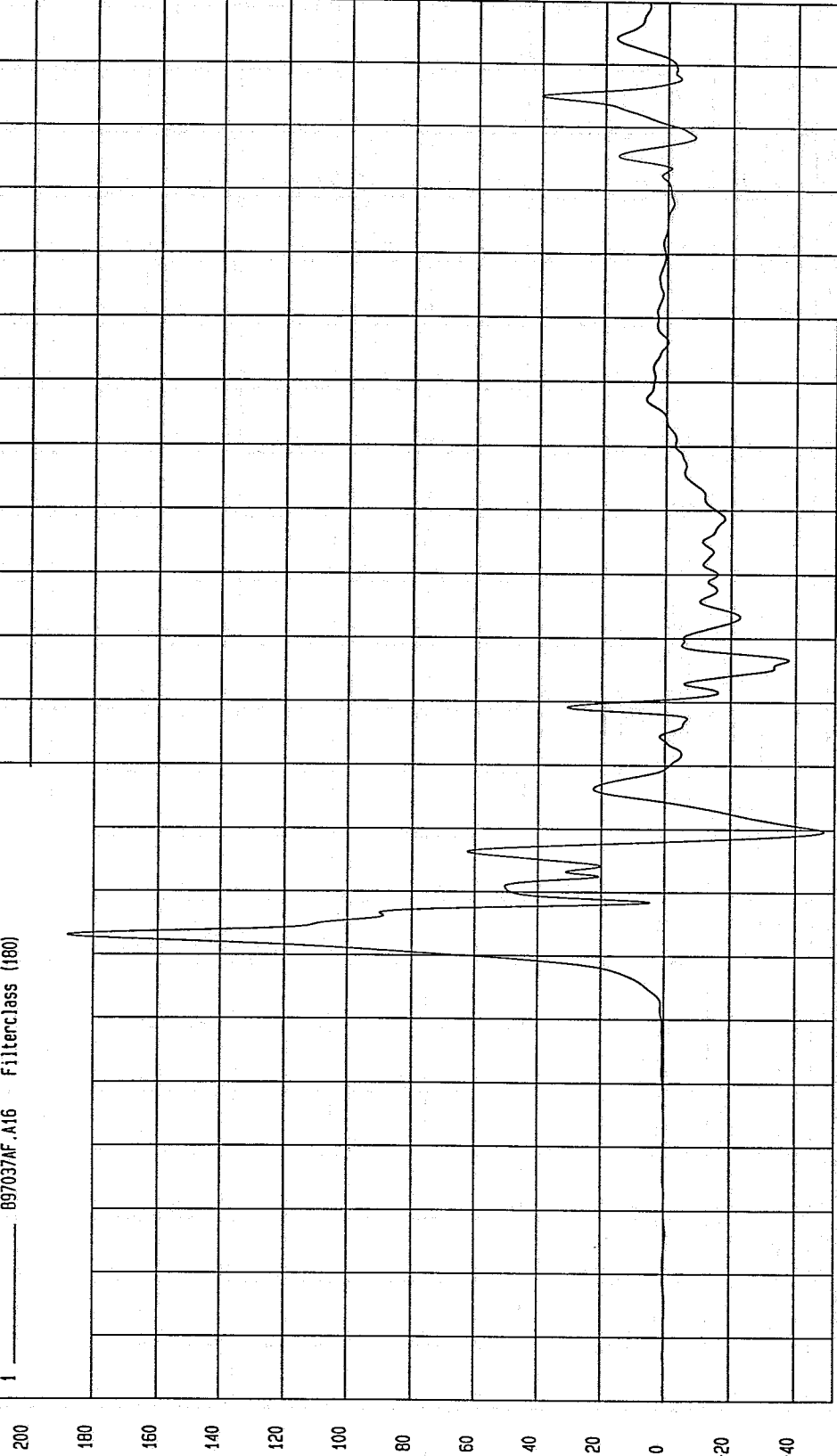
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -48.73 G'S at 70 msec  
Maximum = 189.23 G'S at 53 msec

DRIVER LOWER RIB Y ACCELERATION

1 \_\_\_\_\_ 897037AF.A16 Filterclass (180)



NGA Research  
04-03-1997 16:53

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

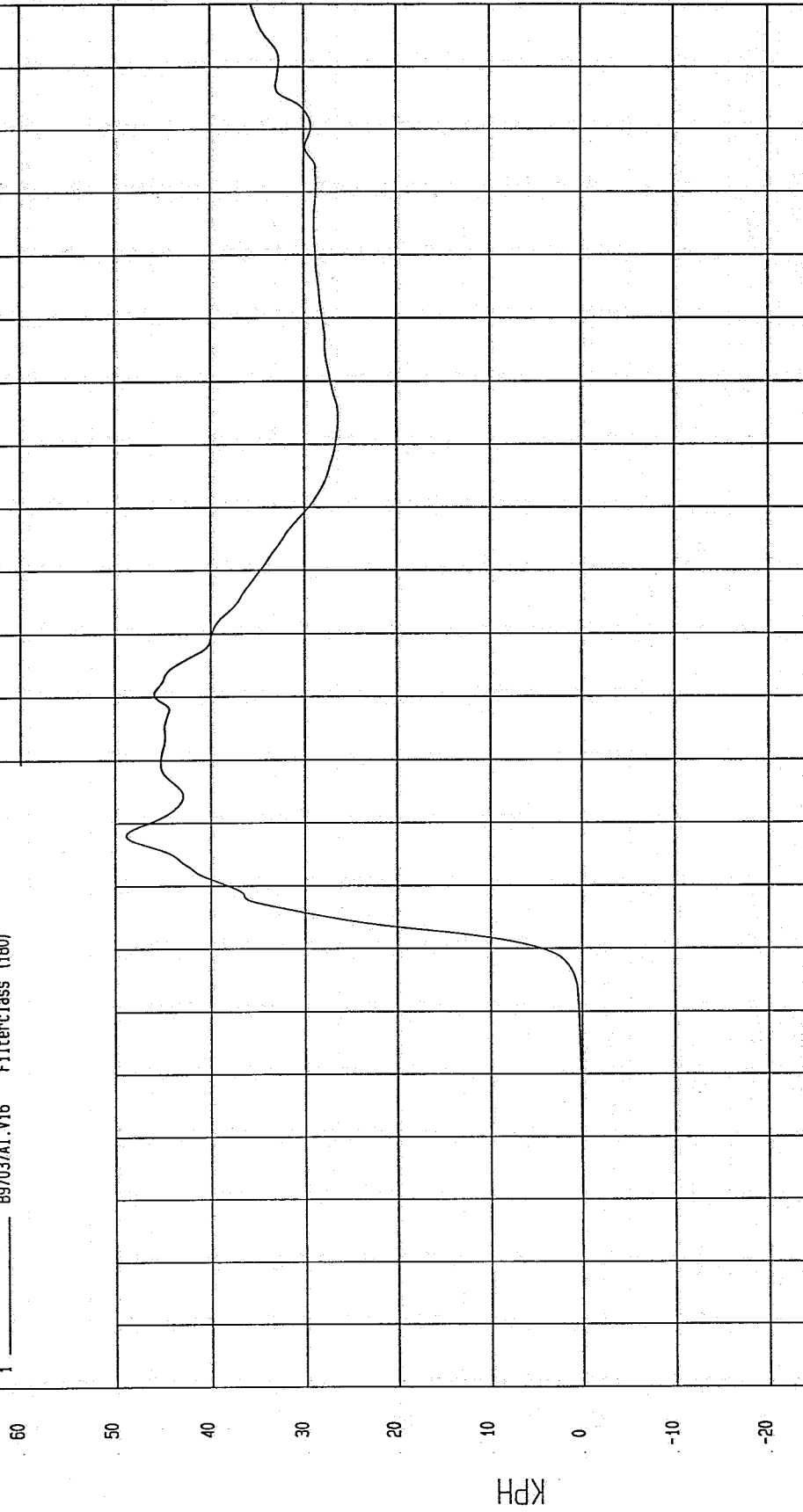
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -2.22E-02 KPH at -3 msec

Maximum = 48.83 KPH at 68 msec

DRIVER LOWER RIB Y VELOCITY

1 \_\_\_\_\_ B97037A1.V16 Filterclass (180)



MCA Research  
04-03-1997 16:58

TIME Seconds

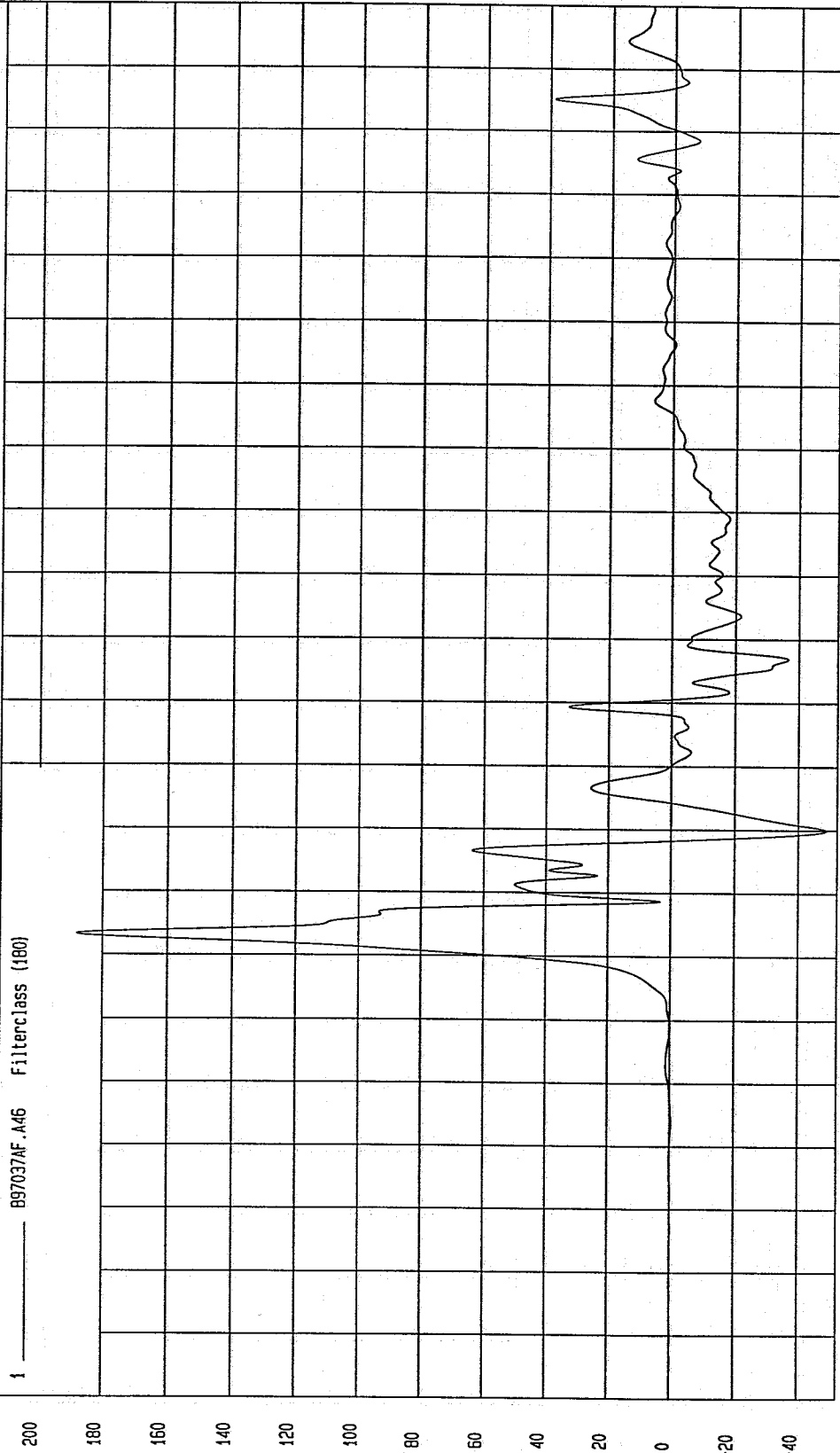
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -48.72 G'S at 70 msec Maximum = 188.23 G'S at 53 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION

1 ——— B97037AF.A46 Filterclass (180)



NCA Research Co.  
04-03-1997 16:53

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

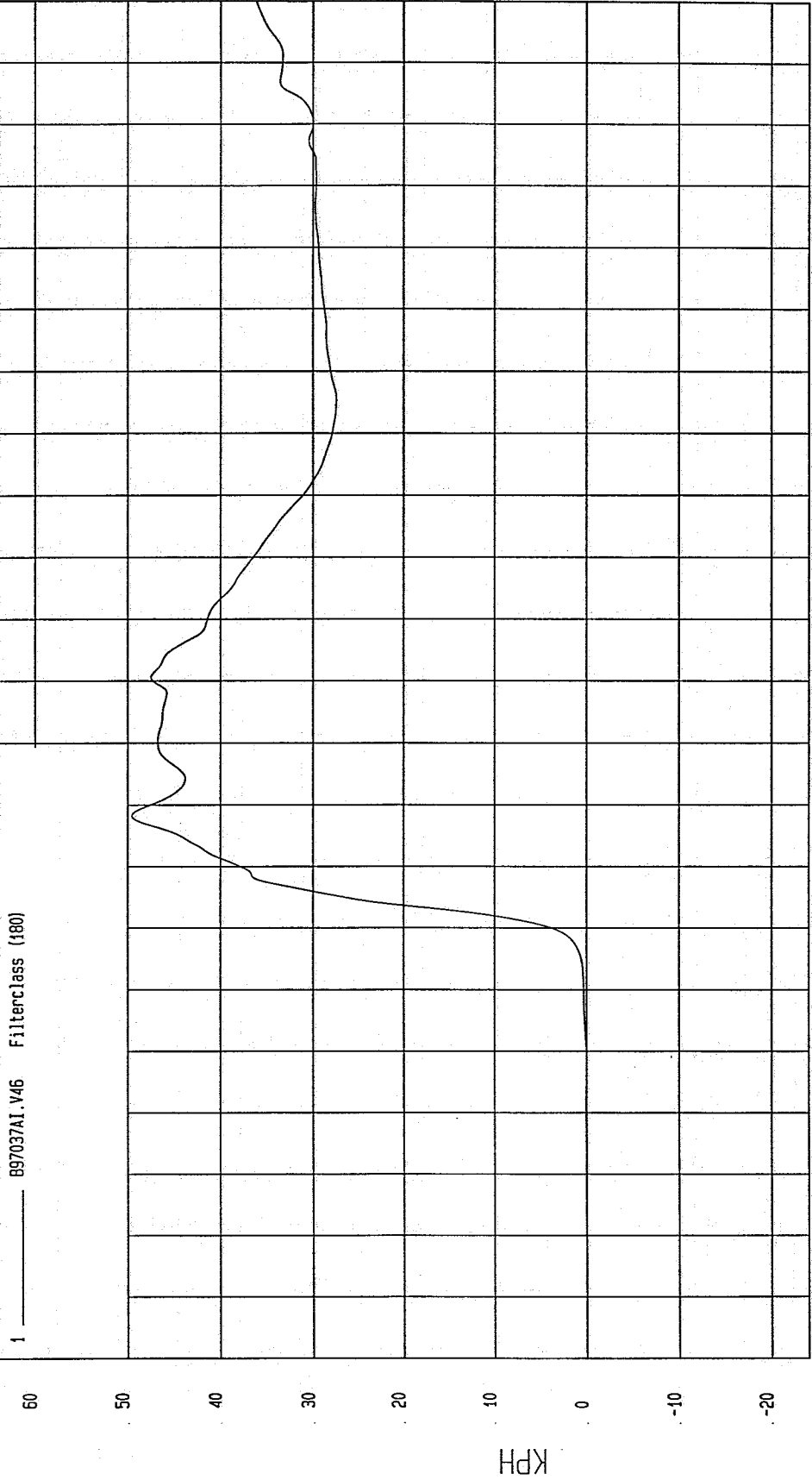
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.24E-03 KPH at -9 msec

Maximum = 49.55 KPH at 68 msec

DRIVER LOWER RIB Y REDUNDANT VELOCITY

1 ——— B97037A1.V46 Filterclass (480)



TIME Seconds

NGA Research  
04-03-1997 16:59

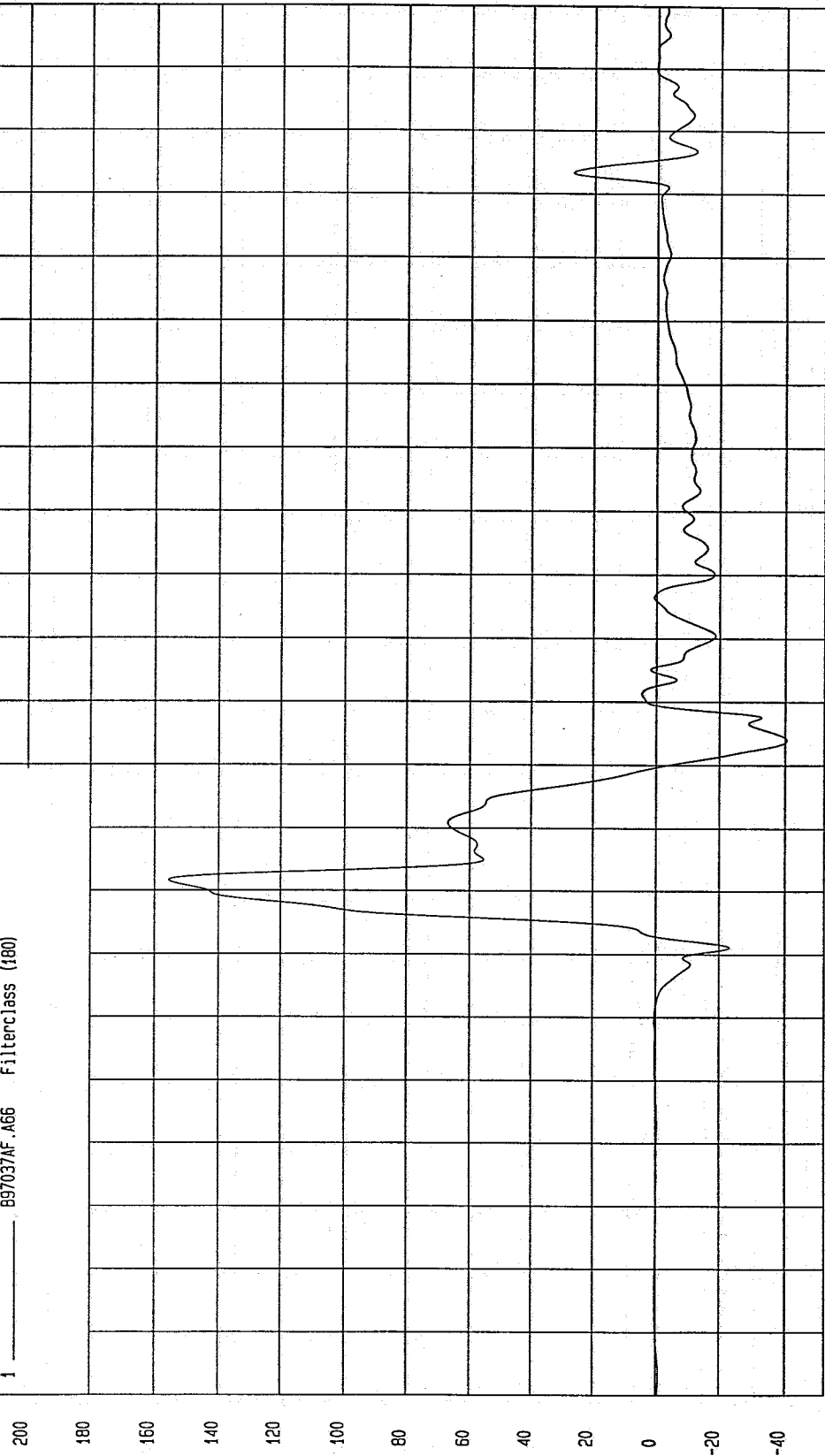
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -40.51 G'S at 84 msec Maximum = 155.75 G'S at 62 msec

DRIVER UPPER SPINE Y ACCELERATION

1 B97037AF.A66 Filterclass (180)



MCA Research  
04-07-1997 13.58

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

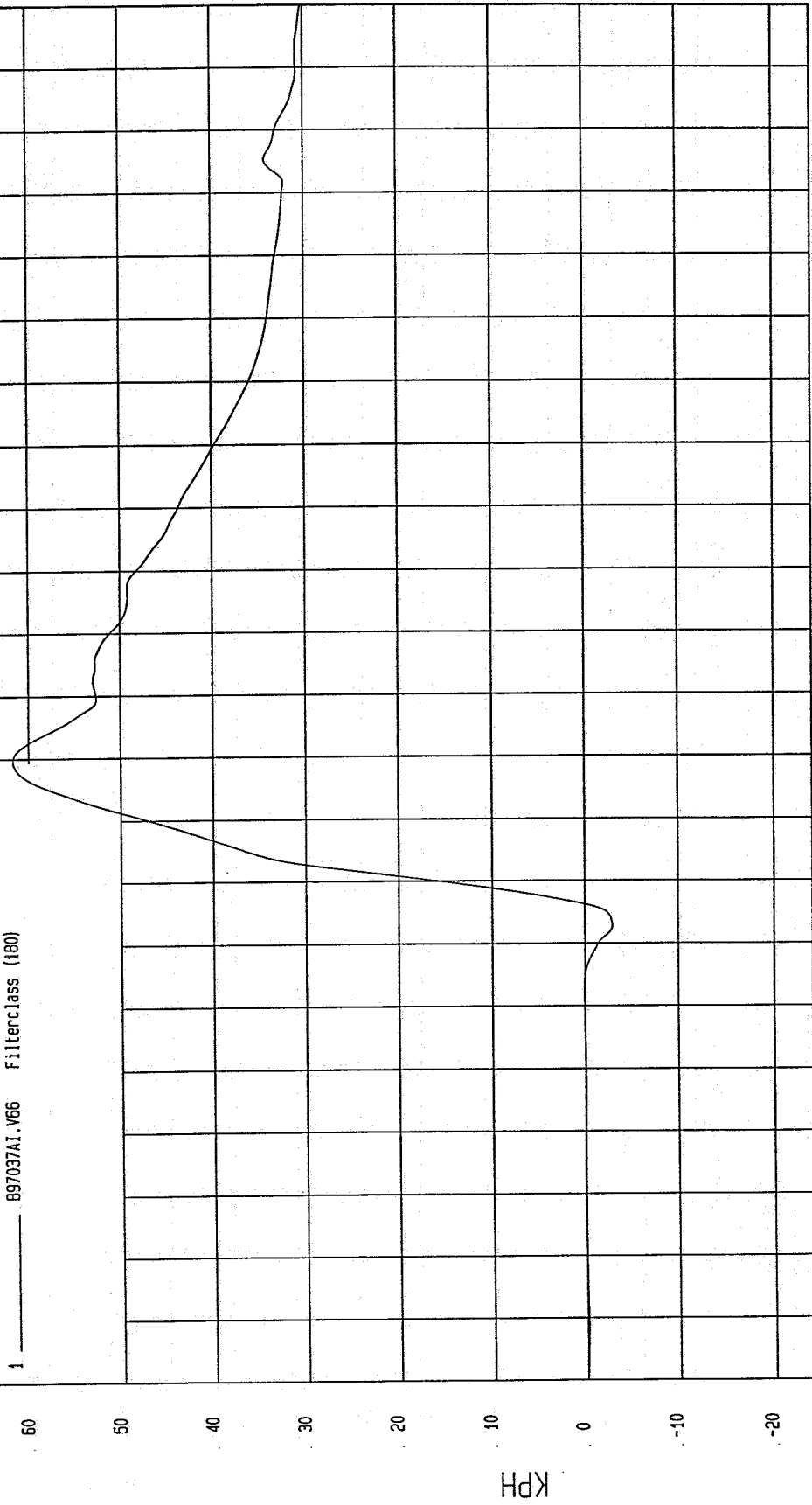
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -2.89 KPH at .53 msec

Maximum = 61.64 KPH at 80 msec

DRIVER UPPER SPINE Y VELOCITY

1 897037AI.V66 Filterclass (180)



TIME Seconds  
MGA Research  
04-07-1997 13:58

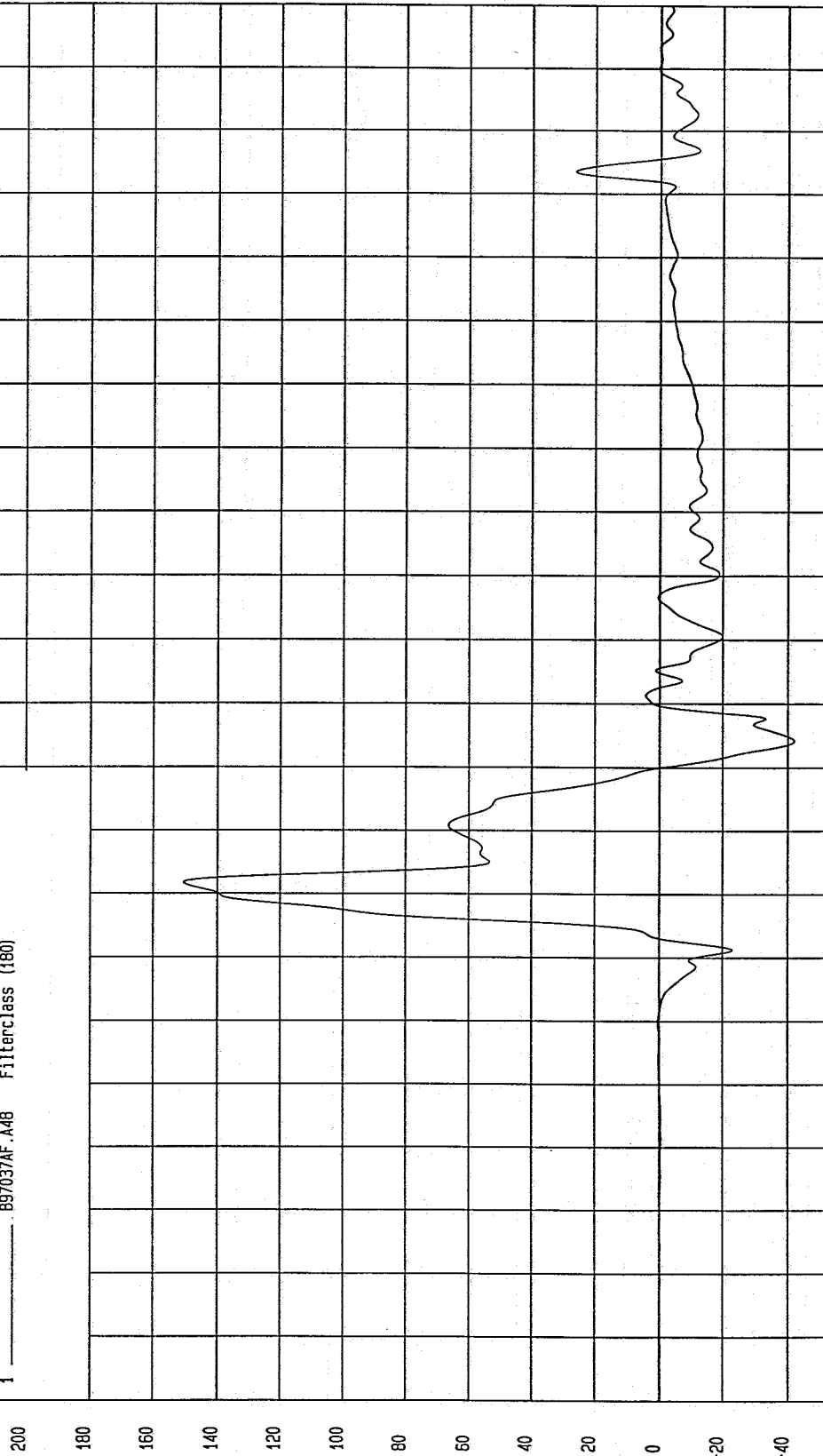
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -41.93 G'S at 84 msec Maximum = 150.39 G'S at 62 msec

DRIVER UPPER SPINE Y REDUNDANT ACCELERATION

1 ——— B97037AF.A48 FilterClass (180)



TIME (SECONDS)

MGA Research  
04-03-1997 16:54

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

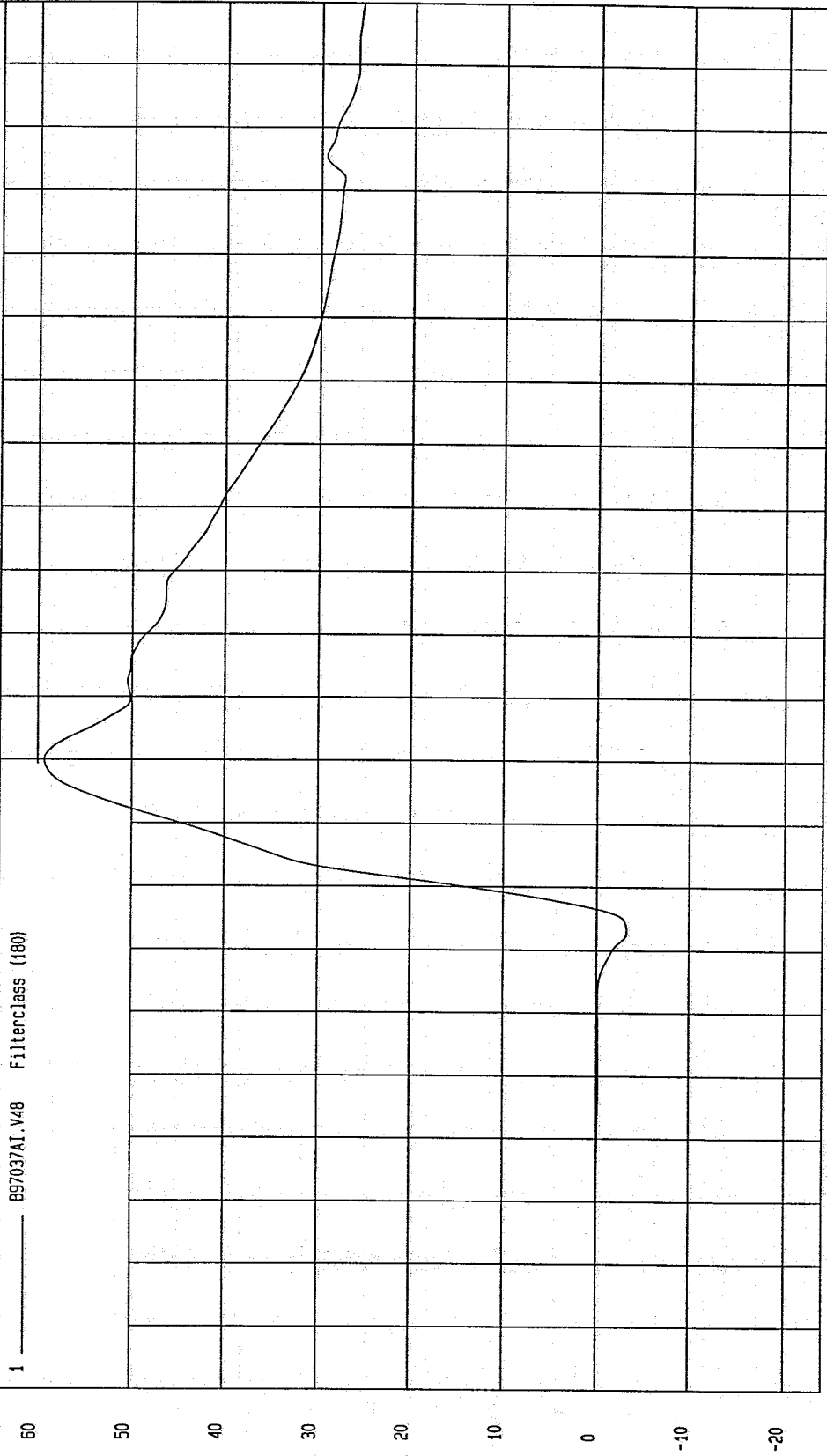
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.19 KPH at 53 msec

Maximum = 59.31 KPH at 80 msec

DRIVER UPPER SPINE Y REDUNDANT VELOCITY

1 ——— B97037AI.V48 Filterclass (180)



WCA Research  
04-10-1997 10:52

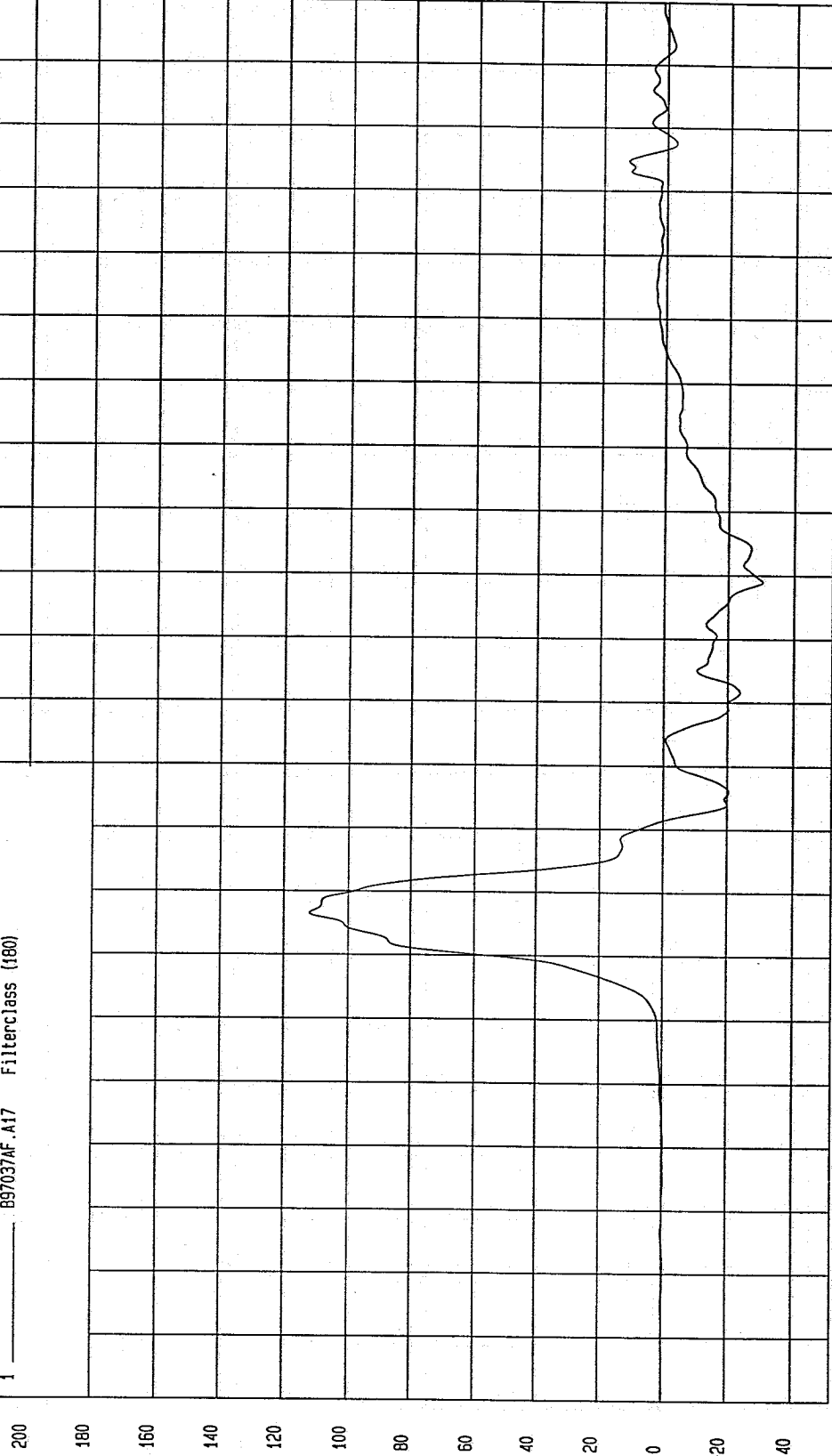
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -30.31 G'S at 109 msec  
Maximum = 112.26 G'S at 56 msec

DRIVER LOWER SPINE Y ACCELERATION

1 ——— B97037AF.A17 Filterclass (f80)



MCA Research  
04-03-1997 16:53

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

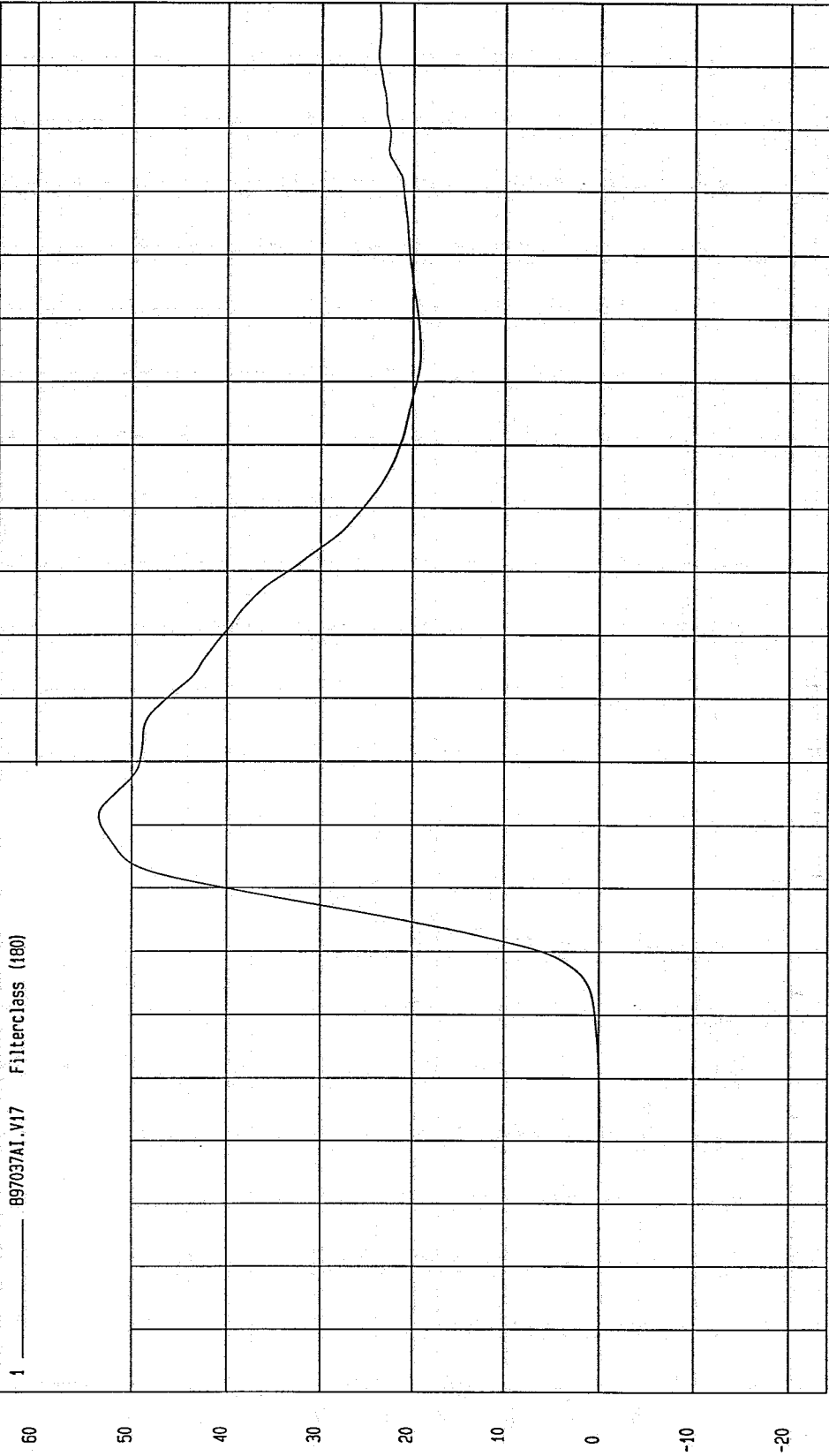
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = .10 KPH at 23 msec

Maximum = 53.49 KPH at 71 msec

DRIVER LOWER SPINE Y VELOCITY

1 897037A1.V17 Filterclass (180)



TIME Seconds

MCA Research  
04-03-1997 16:58

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

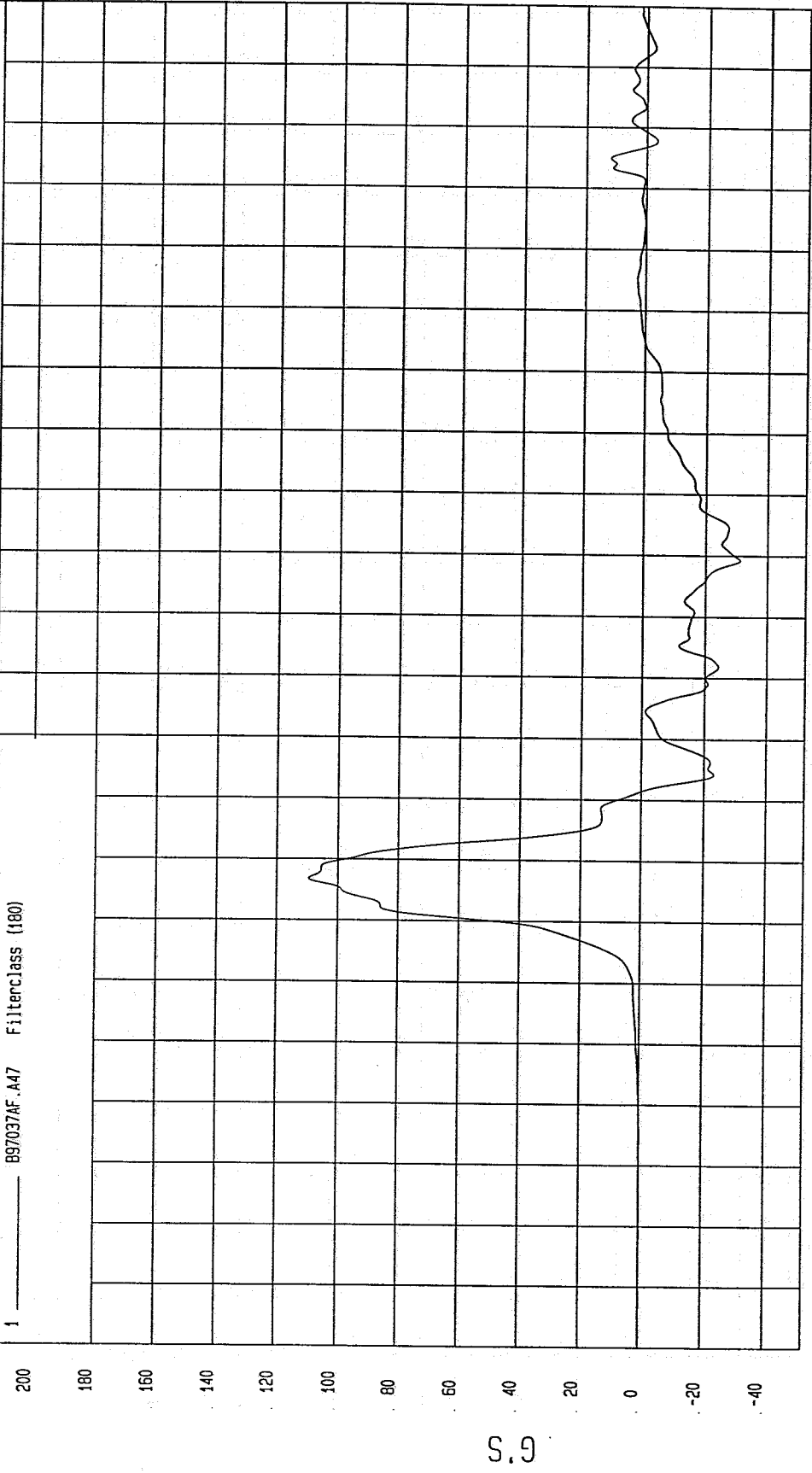
Speed: 39.83 MPH 64.1 KPH

Minimum = -31.20 G'S at 109 msec

Maximum = 109.69 G'S at 57 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION

1 ——— 897037AF.A47 Filterclass (180)



MCA Research  
04-03-1997 16:53

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

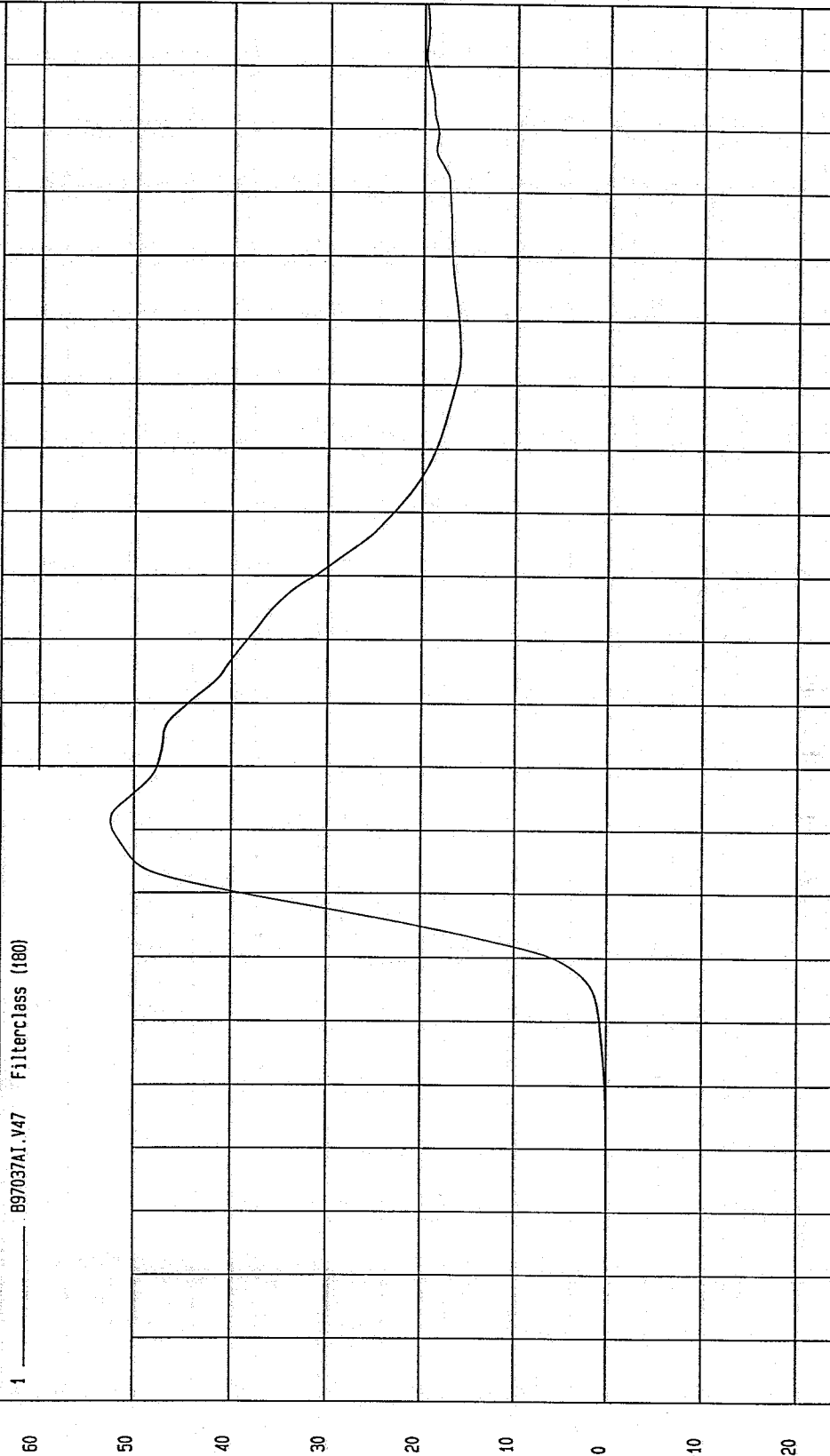
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.58E-02 KPH at 16 msec

Maximum = 52.47 KPH at 71 msec

DRIVER LOWER SPINE Y REDUNDANT VELOCITY

1 ——— .897037A1.V47 Filterclass (180)



0 -01 -02 -10 -20 KPH

0 .01 .02 .03 .04 .05 .06 .07 .08 .09 .1 .11 .12 .13 .14 .15 .16 .17 .18 .19

TIME Seconds

MGA Research  
04-03-1997 16:59

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

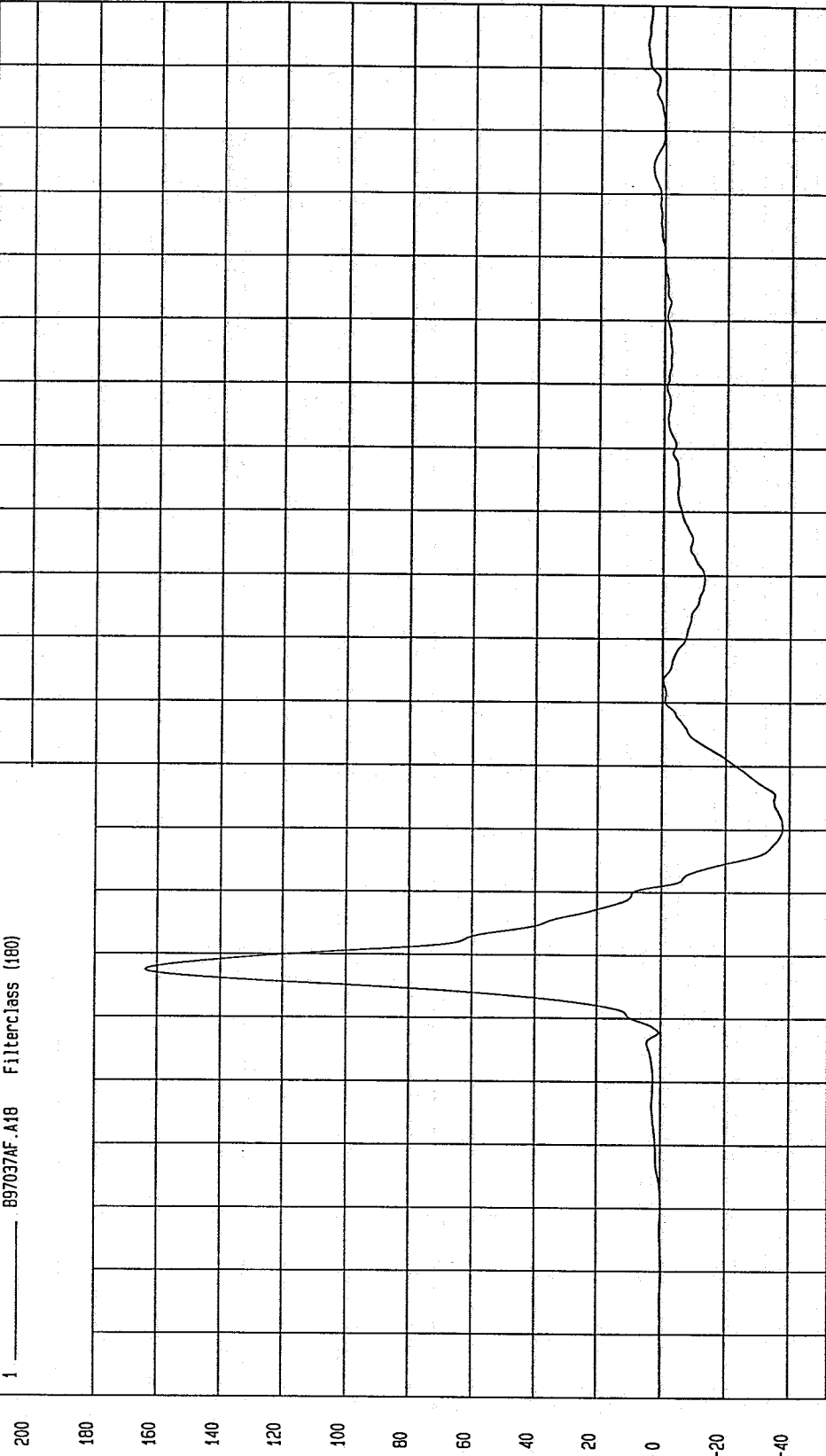
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -37.79 G'S at 70 msec

Maximum = 163.67 G'S at 48 msec

DRIVER PELVIS Y ACCELERATION

1 ——— 897037AF.A18 FilterClass (480)



TIME (SECONDS)

MCA Research  
04-03-1997 16:53

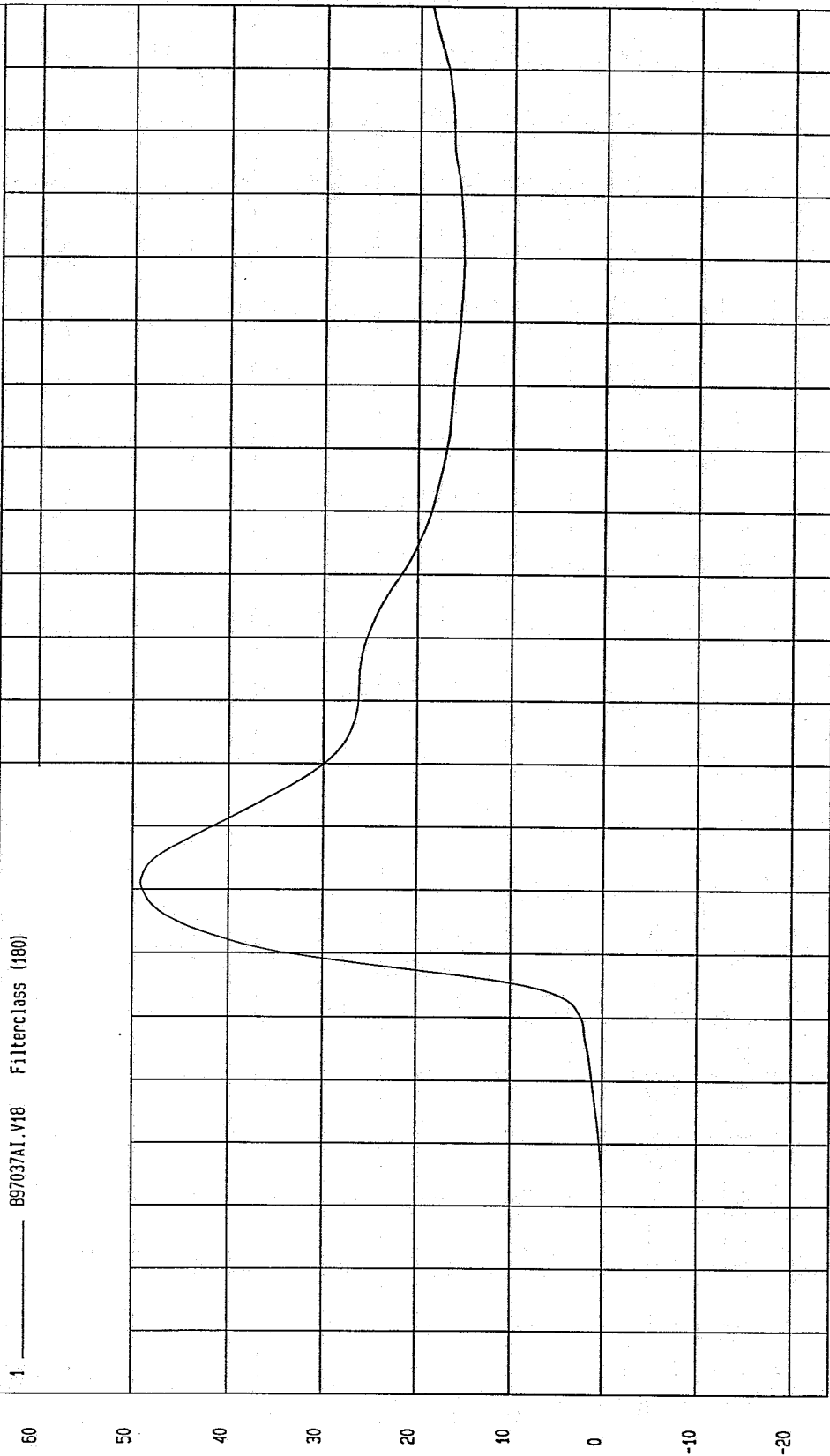
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -2.54E-02 KPH at -11 msec  
Maximum = 49.15 KPH at 61 msec

DRIVER PELVIS Y VELOCITY

1 ——— B97037A1.V18 FilterClass (180)



MEV Research  
04-03-1997 16:59

TIME Seconds

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

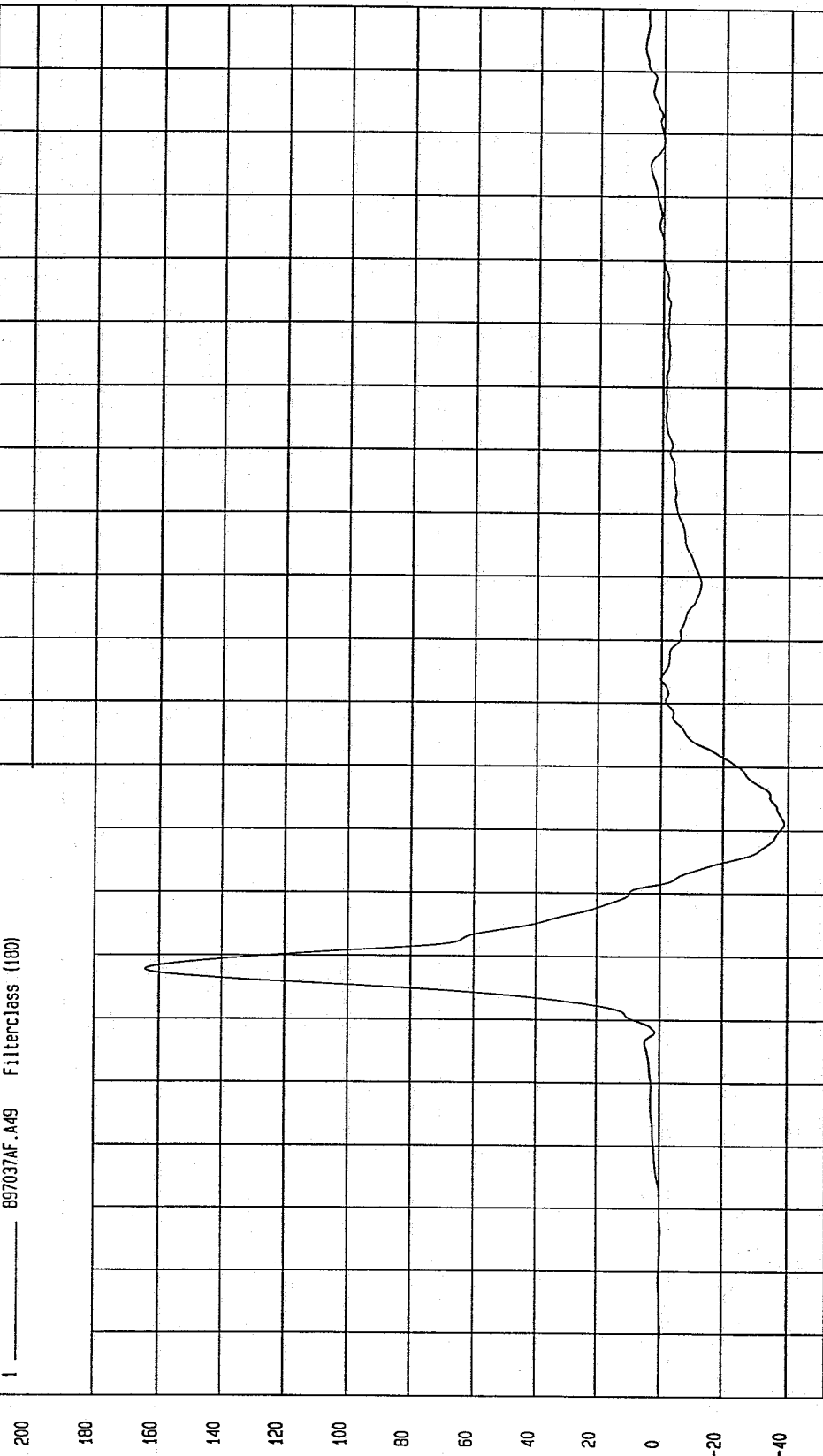
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -38.74 G'S at 71 msec

Maximum = 164.22 G'S at 48 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION

1 897037AF.A49 Filterclass (180)



WCA Research  
0A-03-1997 16:53

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

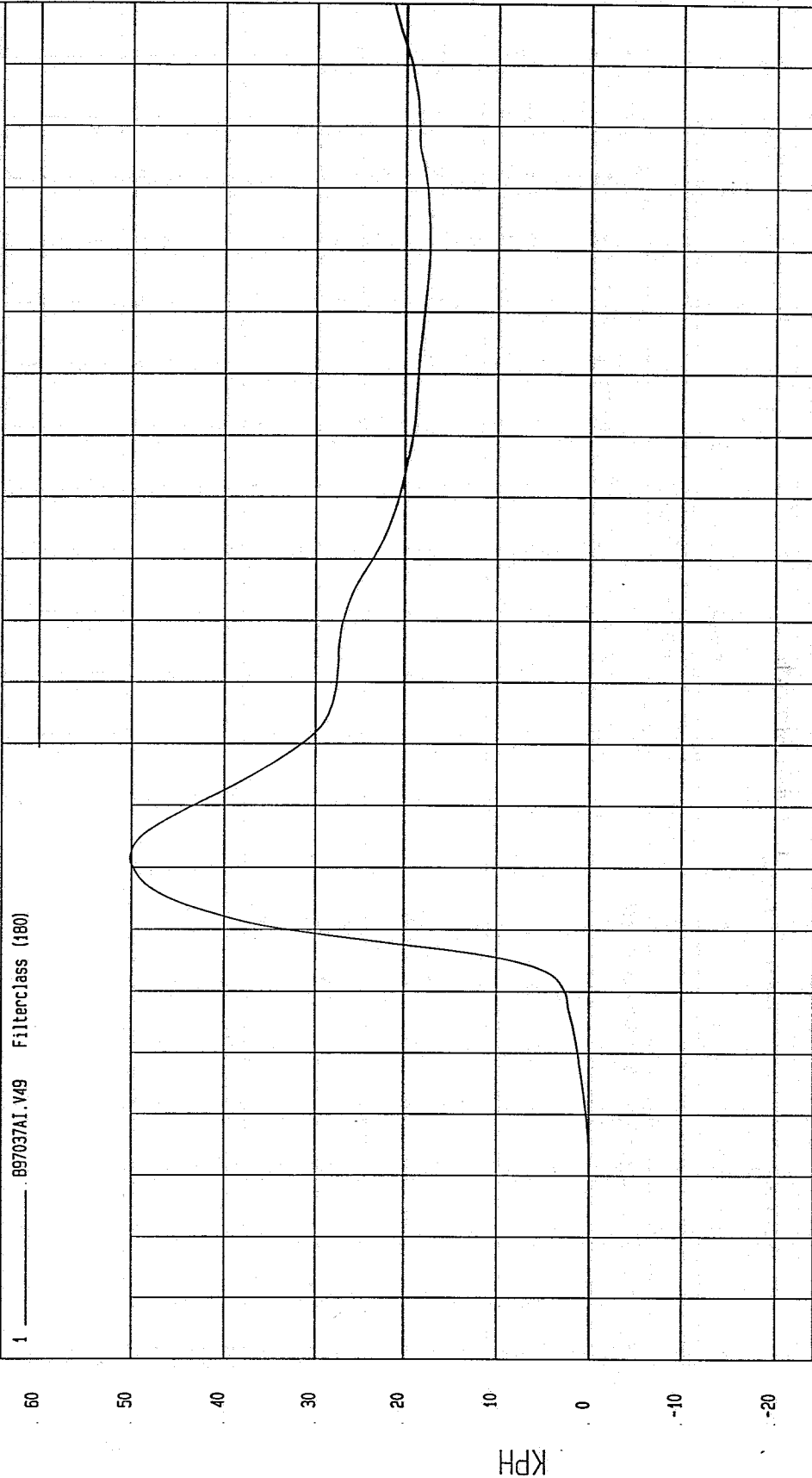
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.55E-02 KPH at -6 msec

Maximum = 50.16 KPH at 62 msec

DRIVER PELVIS Y REDUNDANT VELOCITY

1 \_\_\_\_\_ .B97037AI.V49 Filterclass (480)



MCA Research  
04-03-1997 11:00

TIME Seconds

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

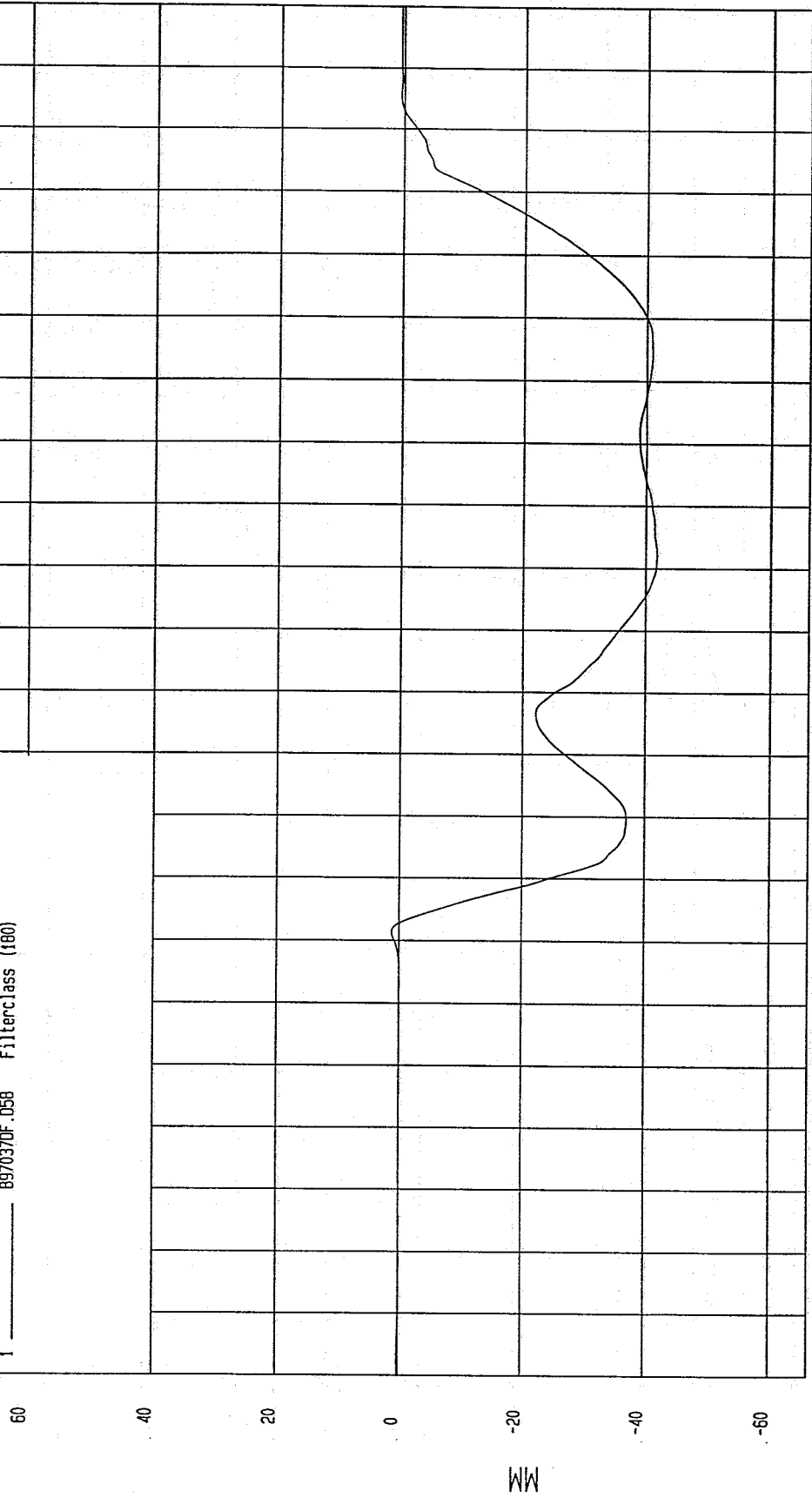
Speed: 39.83 MPH 64.1 KPH

Minimum = -41.85 MM at 112 msec

Maximum = 1.25 MM at 51 msec

DRIVER RIB DISPLACEMENT

1 \_\_\_\_\_ 897037DF.058 Filterclass (180)



M&A Research  
04-04-1997 15:08

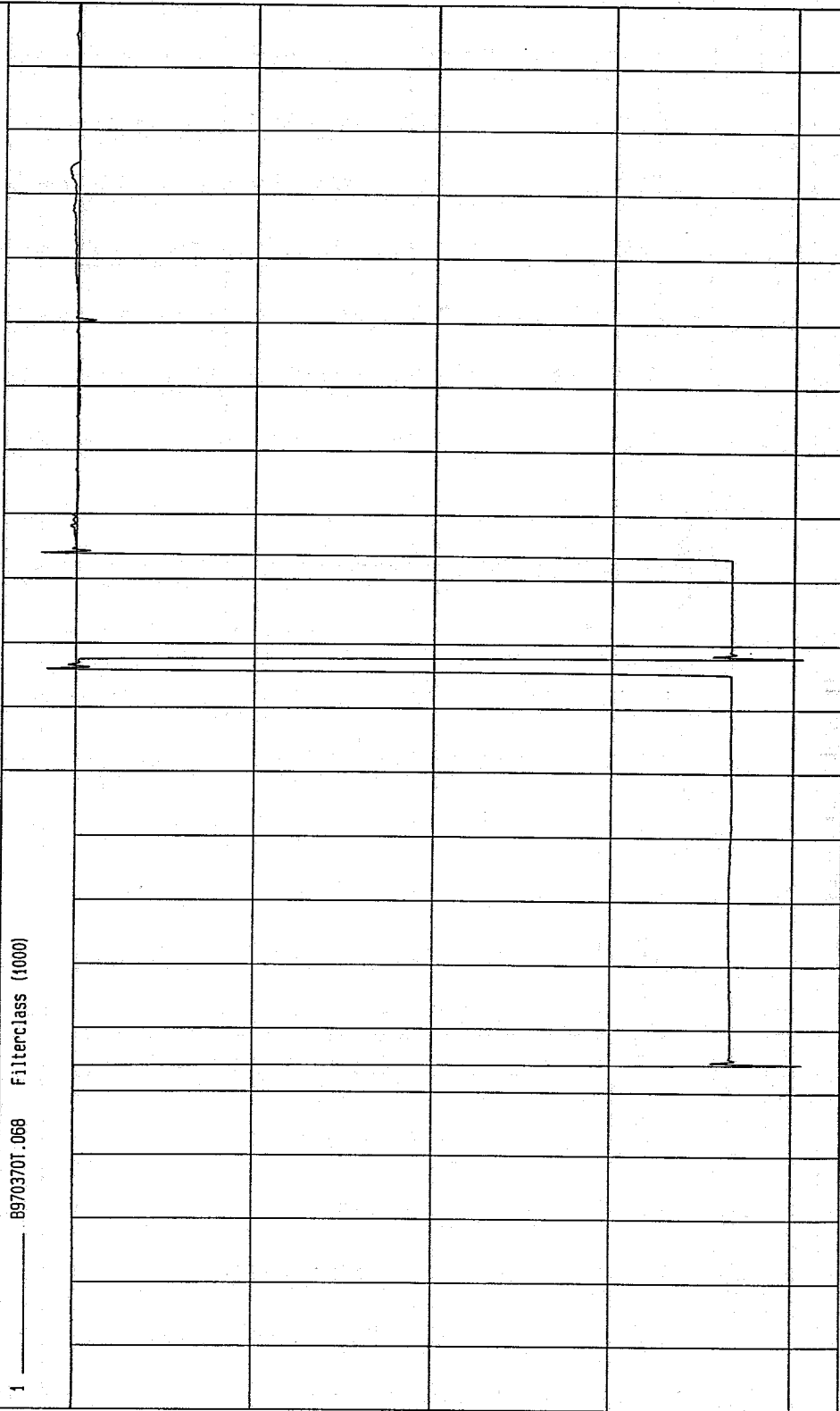
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.05 VOTLS at 34 msec  
Maximum = .19 VOTLS at 114 msec

DRIVER SHOULDER CONTACT

1 \_\_\_\_\_ 8970370T.068 Filterclass (1000)



NSA Research  
04-04-1997 15:05

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

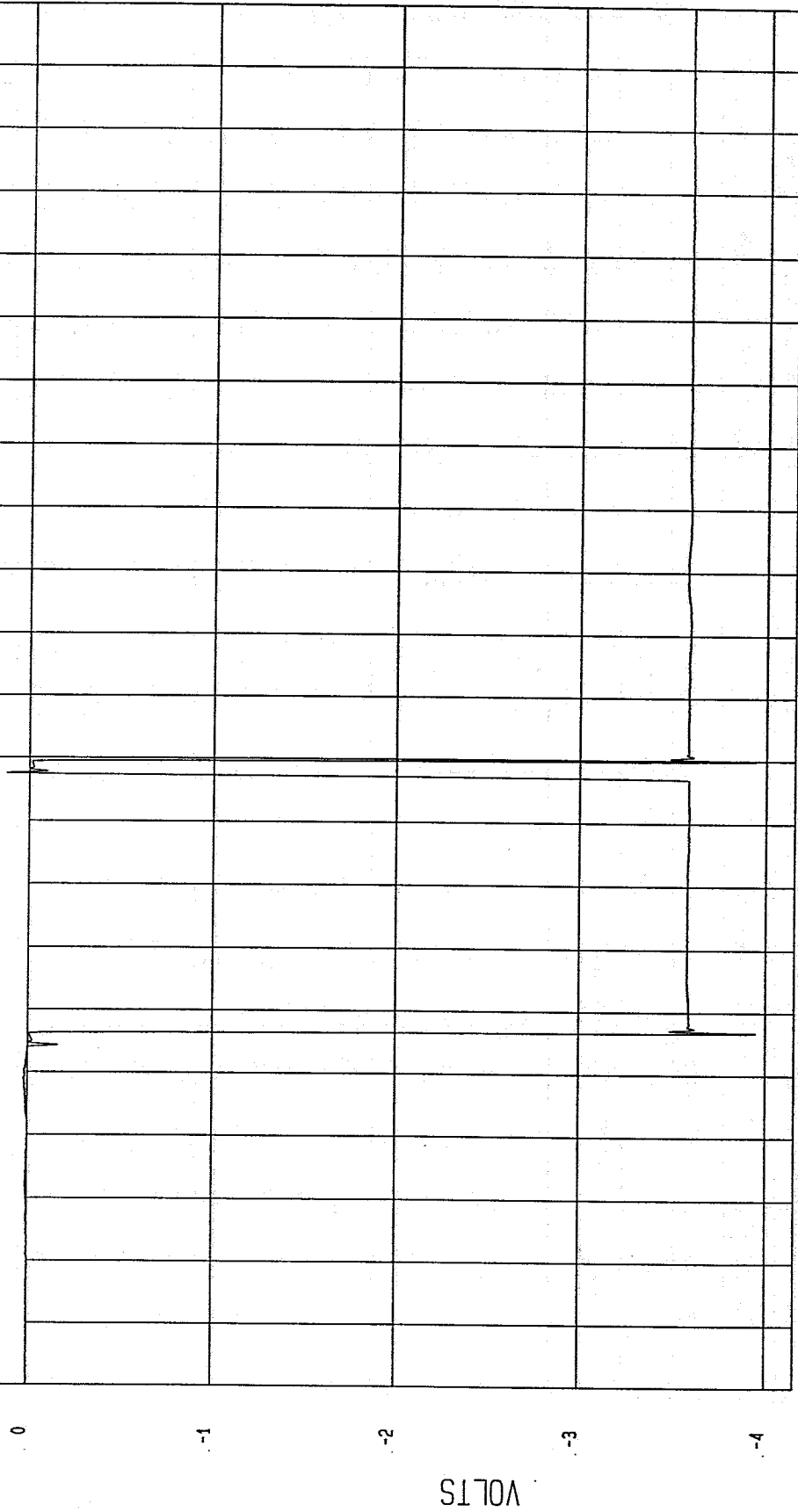
Speed: 39.83 MPH 64.1 KPH

Minimum = -3.94 VOLTS at 37 msec

Maximum = .12 VOLTS at 78 msec

DRIVER PELVIS CONTACT

1 \_\_\_\_\_ 8970370T.069 Filterclass (1000)



MGA Research  
04-04-1997 15:05

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

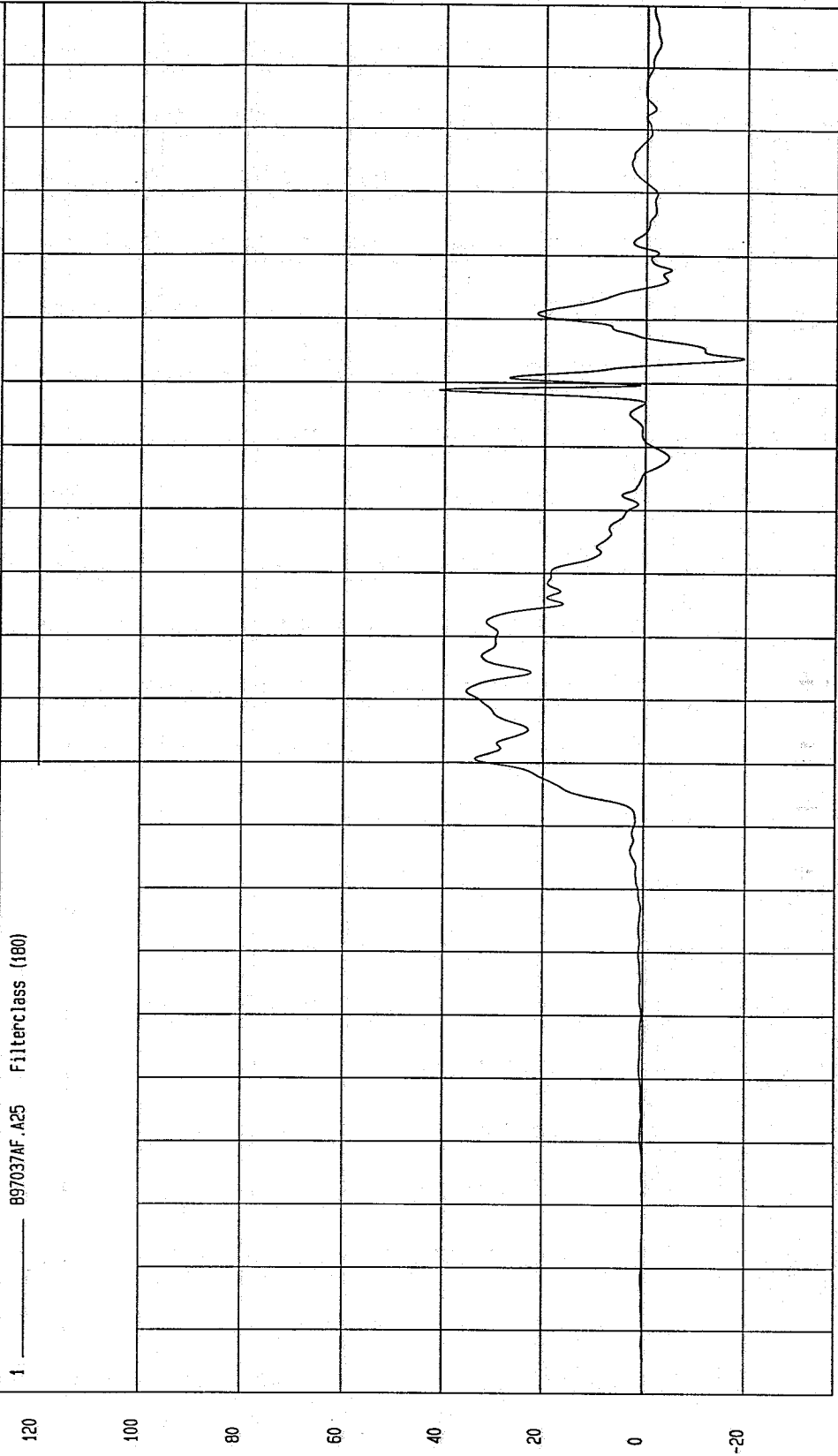
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -19.34 G'S at 144 msec

Maximum = 41.23 G'S at 139 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

1 897037AF.A25 Filterclass (180)



TIME (SECONDS)

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

WGA Research Co.  
04-03-1997 16:54

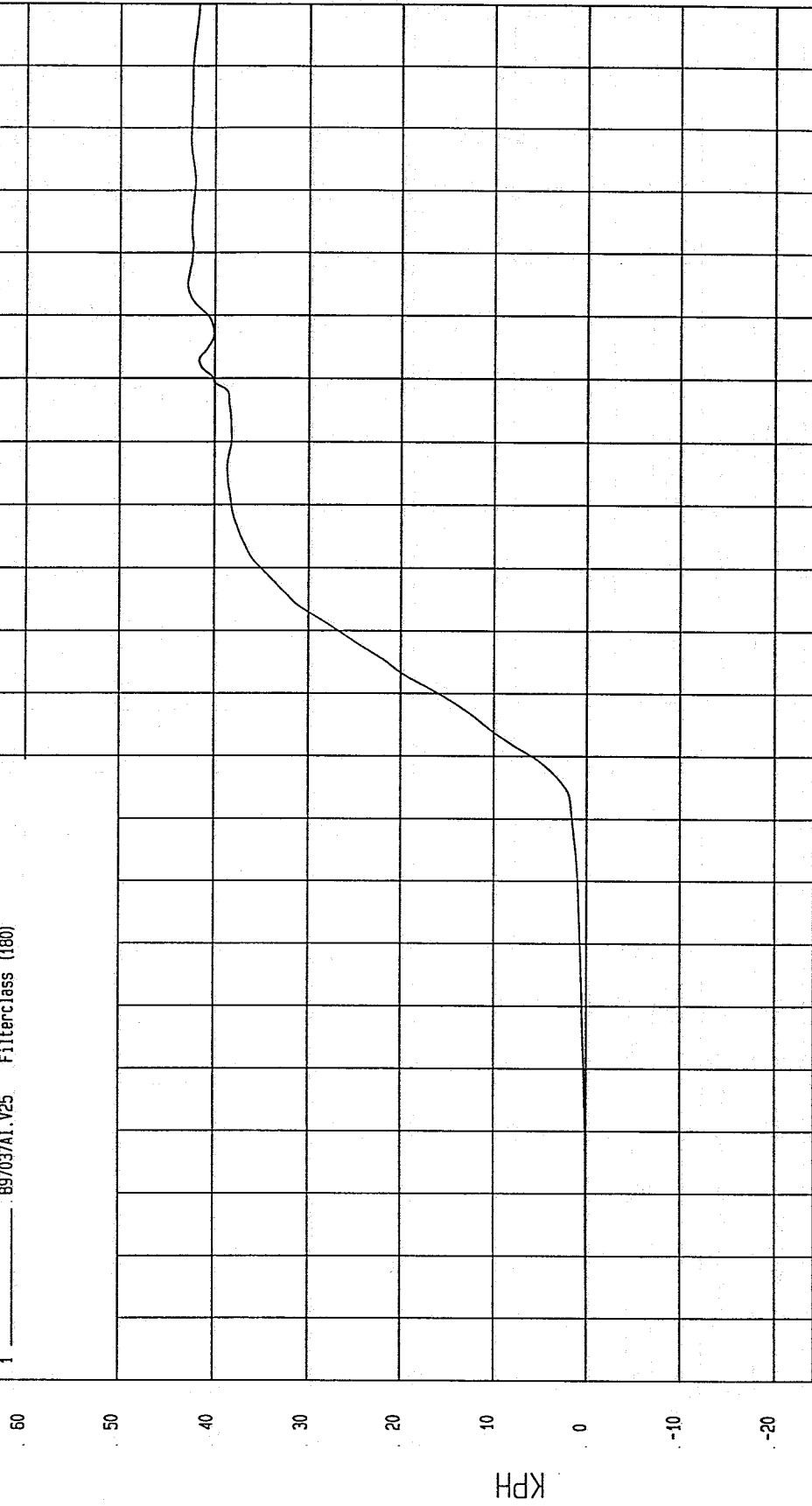
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.88E-02 KPH at -13 msec Maximum = 42.90 KPH at 155 msec

REAR PASSENGER UPPER RIB Y VELOCITY

1 ——— .897037A1.V25 FilterClass (180)



WCA Research  
04-03-1997 16:59

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

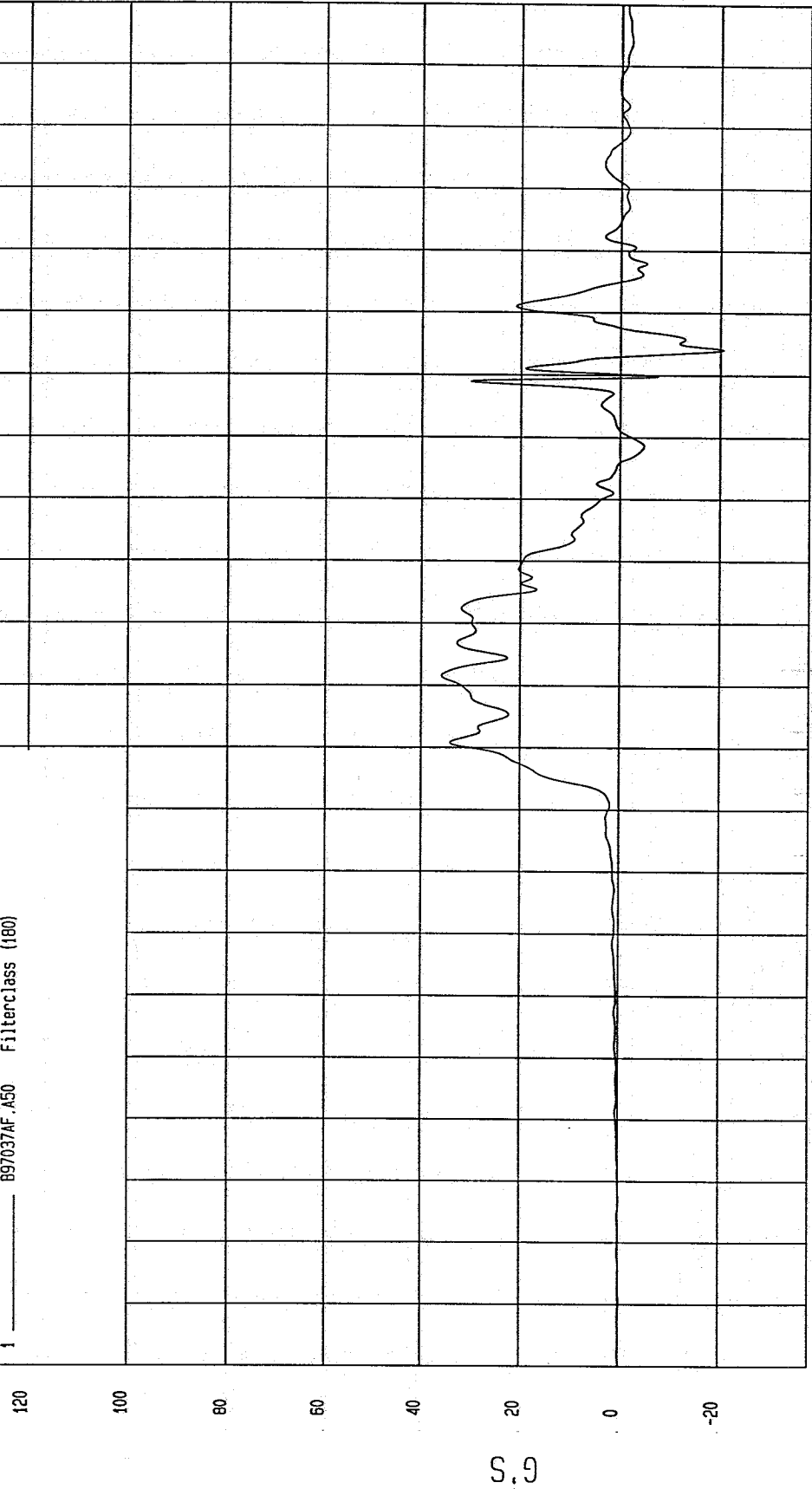
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -20.55 G'S at 144 msec

Maximum = 35.82 G'S at 92 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 ——— 897037AF.A50 FilterClass (180)



MGA Research  
04-03-1997 16:54

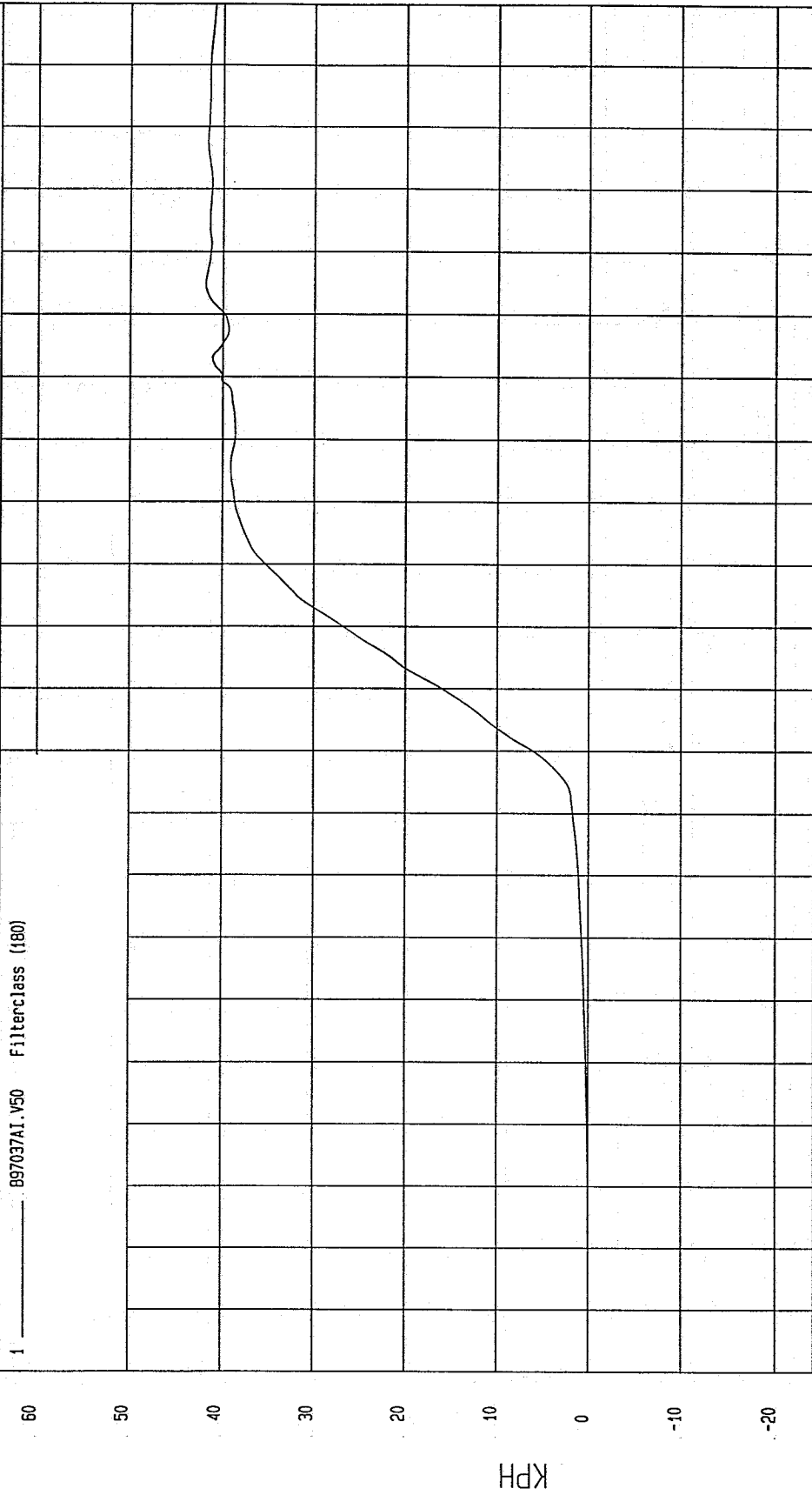
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.58E-03 KPH at -3 msec Maximum = 41.91 KPH at 155 msec

REAR PASSENGER UPPER RIB Y REDUNDANT VELOCITY

1 \_\_\_\_\_ 897037A1.V50 Filterclass (180)



TIME Seconds

MGA Research  
04-03-1997 17:00

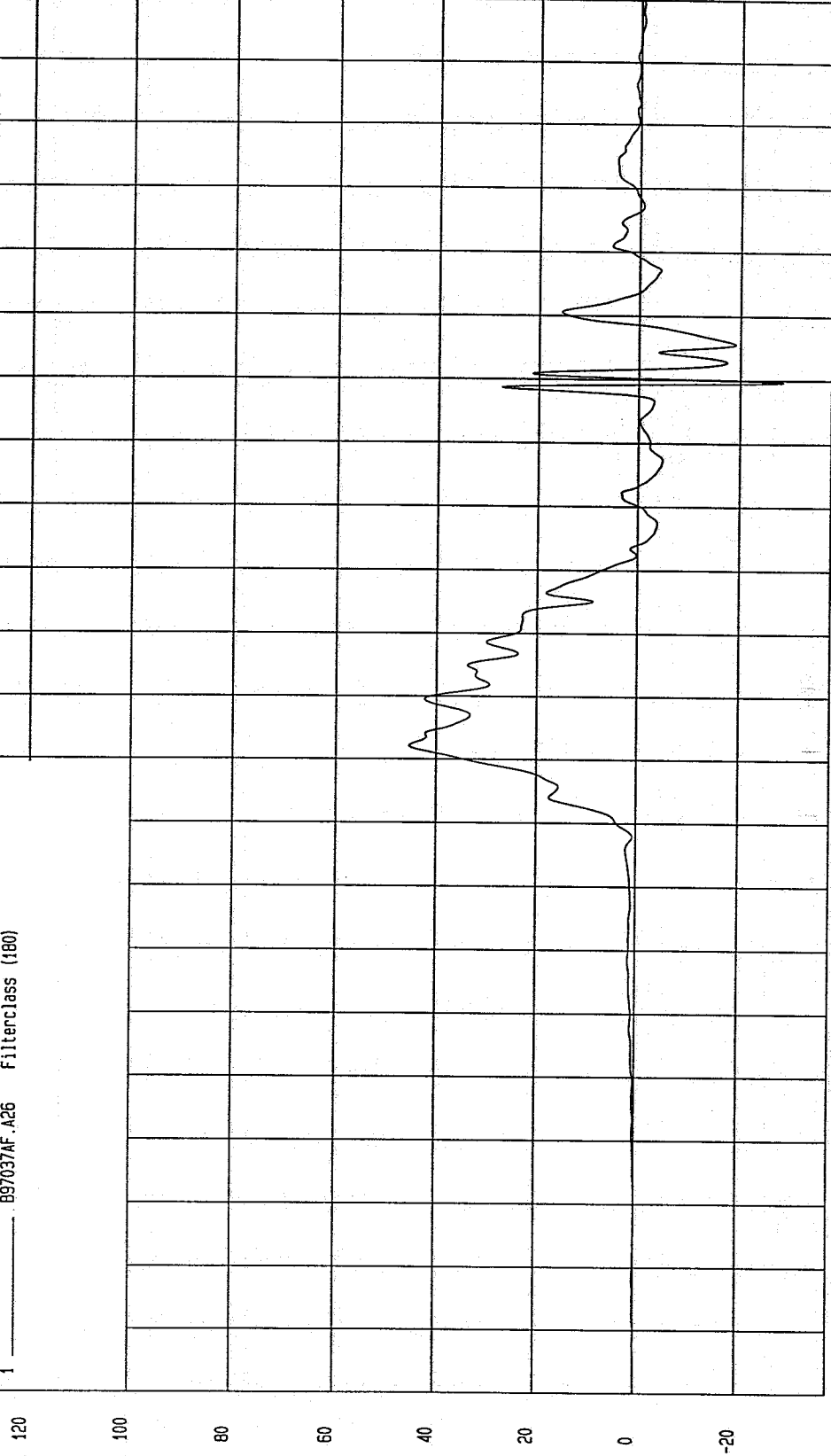
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -28.24 G'S at 140 msec  
Maximum = 45.17 G'S at 82 msec

REAR PASSENGER LOWER RIB Y ACCELERATION

1 \_\_\_\_\_ B97037AF-A26 Filterclass (180)



MCA Research  
04-03-1997 16:54

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

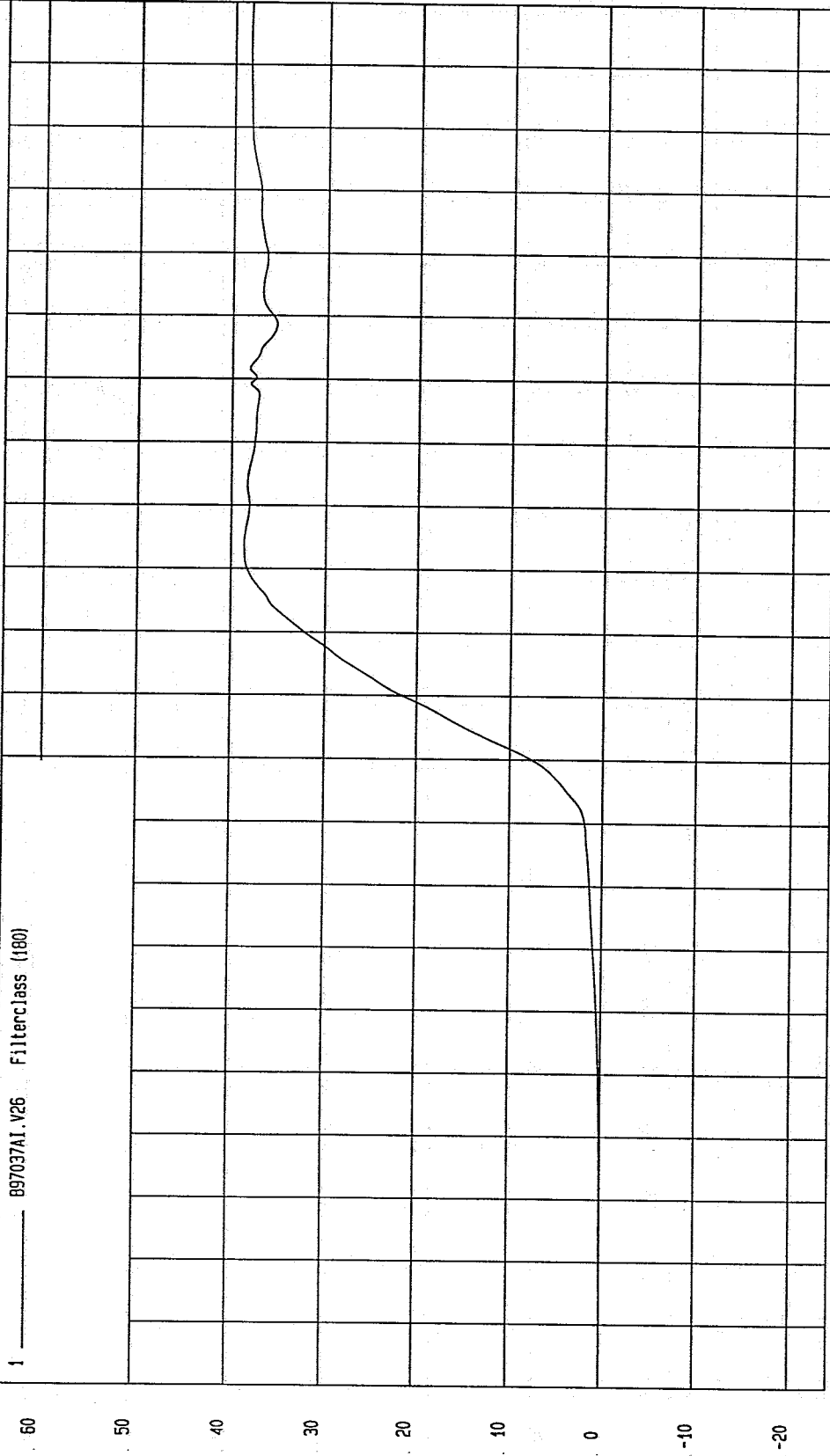
Speed: 39.83 MPH 64.1 KPH

Minimum = -1.48E-02 KPH at -13 msec

Maximum = 38.54 KPH at 114 msec

REAR PASSENGER LOWER RIB Y VELOCITY

1 ——— 897037A1.V26 FilterClass (180)



NSI Research  
04-03-1997 16:59

TIME Seconds

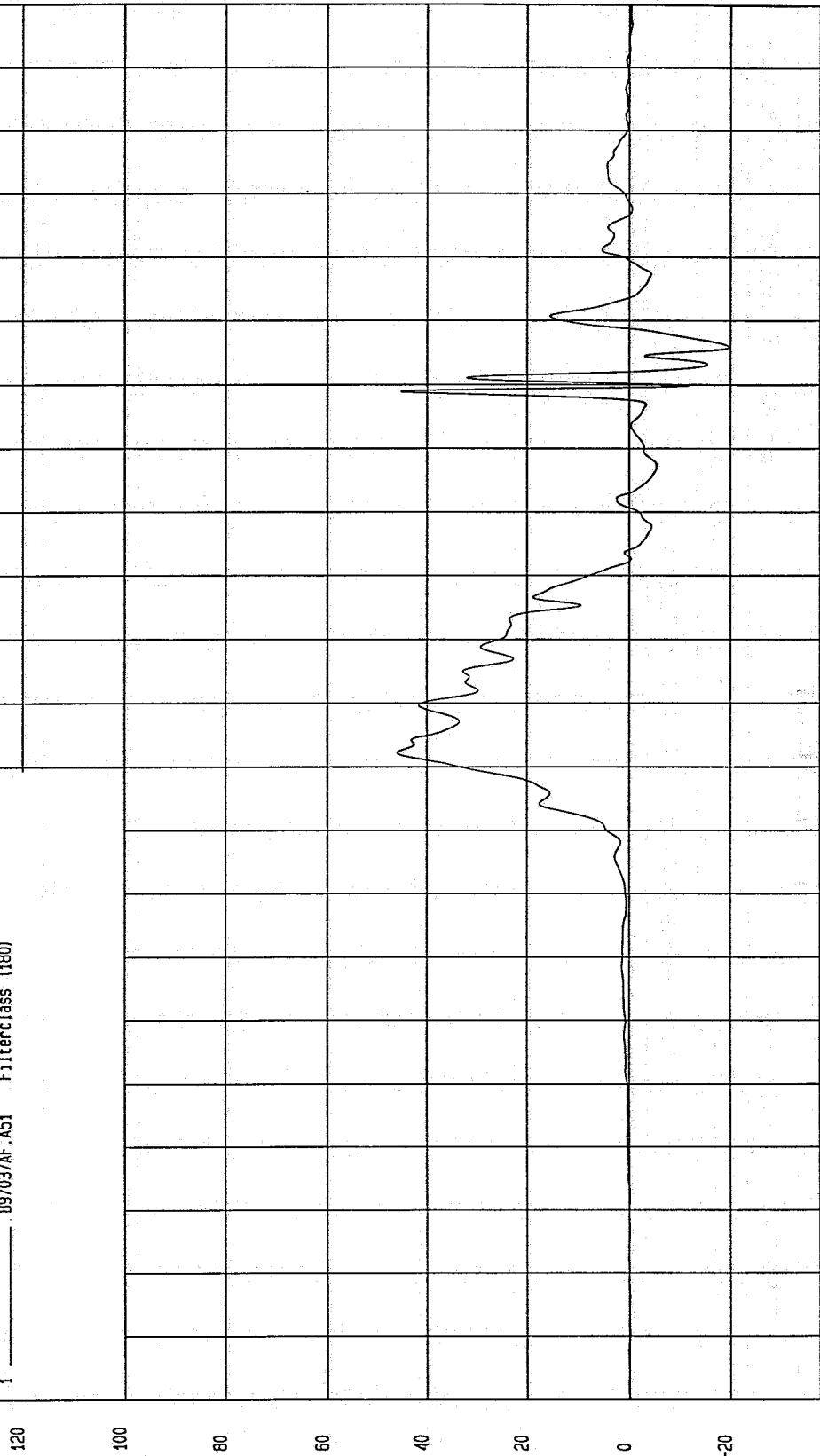
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -19.79 G'S at 146 msec Maximum = 45.49 G'S at 82 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

1 ——— .897037AF.A51 Filterclass (180)



MCA Research  
04-03-1997 16:54

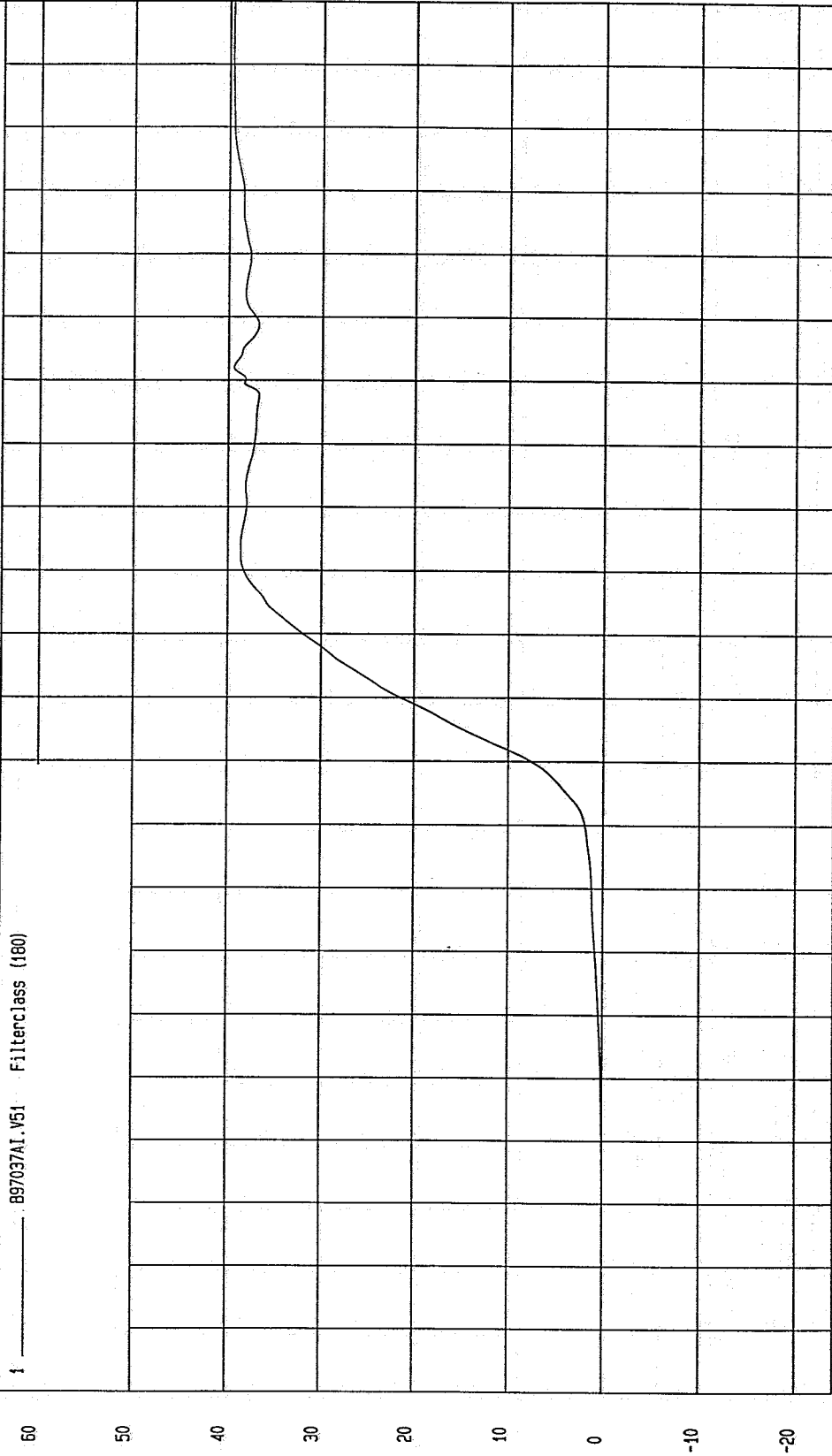
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.44E-03 KPH at -3 msec Maximum = 39.63 KPH at 192 msec

REAR PASSENGER LOWER RIB Y REDUNDANT VELOCITY

1 897037AI.V51 Filterclass (180)



W&A Research  
04-03-1997 11:00

TIME Seconds

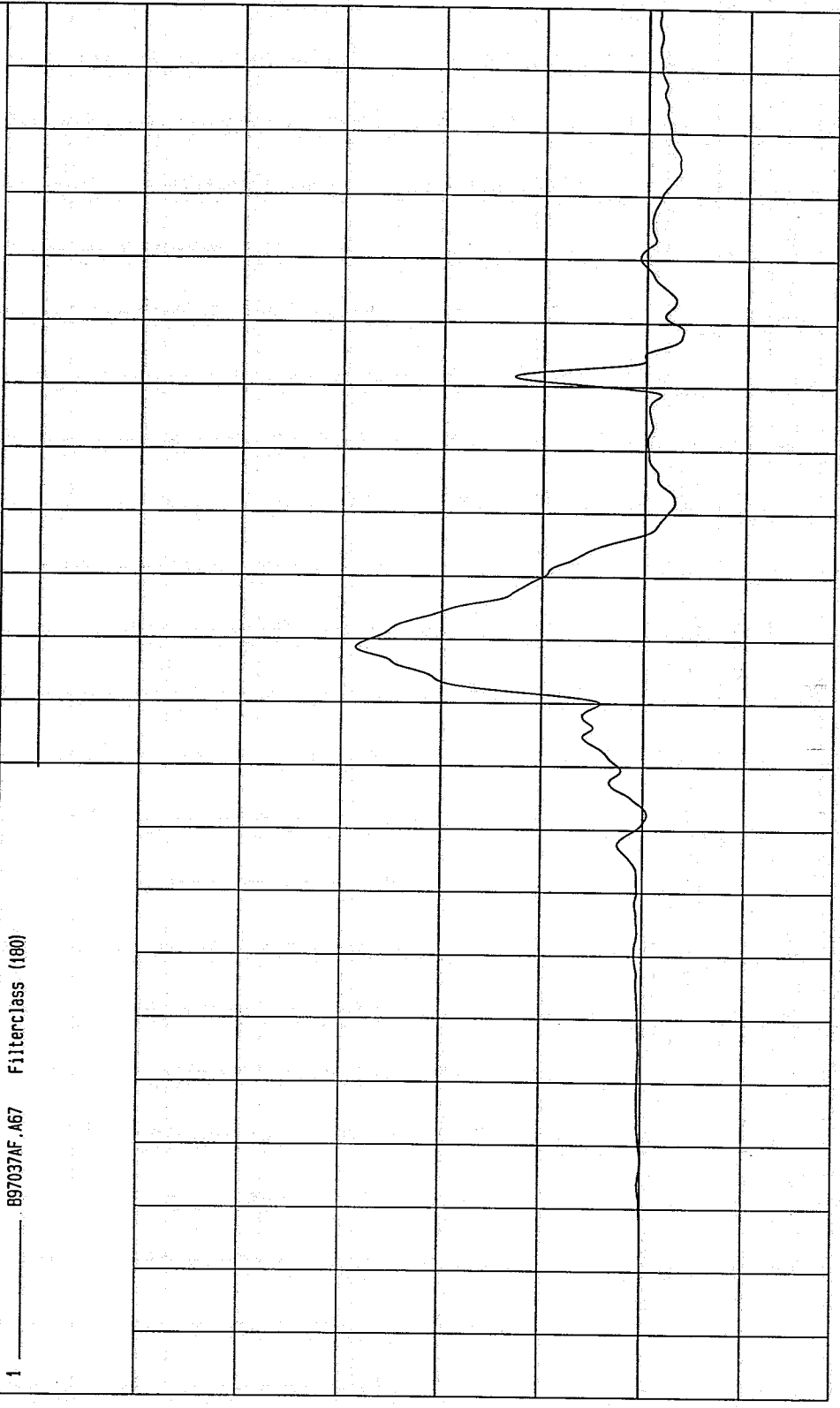
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -7.30 G'S at 149 msec  
Maximum = 57.16 G'S at 99 msec

REAR PASSENGER UPPER SPINE Y ACCELERATION

1 \_\_\_\_\_ B97037AF.A67 Filterclass (180)



MCA Research  
04-03-1997 16:55

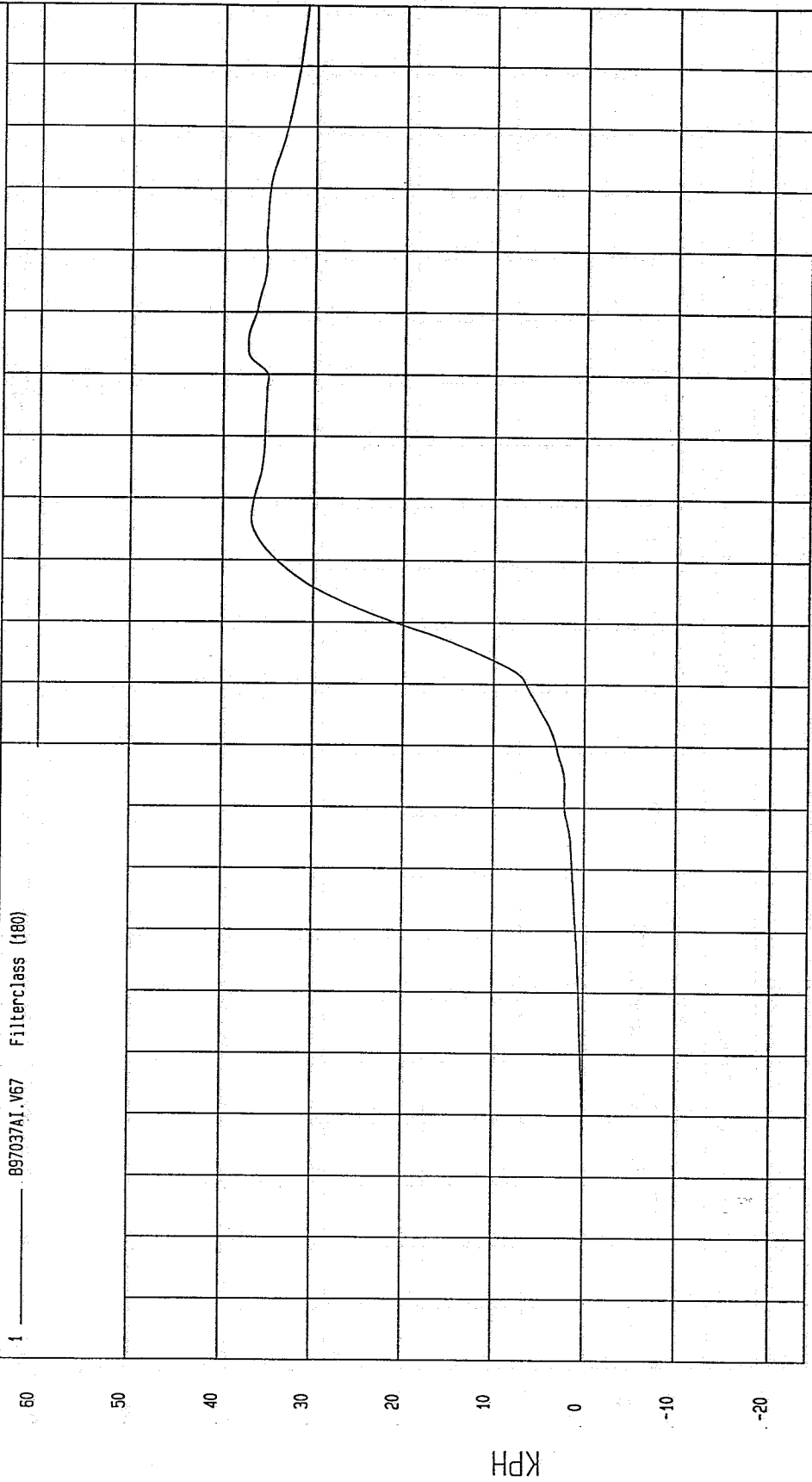
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -1.51E-02 KPH at 8 msec  
Maximum = 37.22 KPH at 145 msec

REAR PASSENGER UPPER SPINE Y VELOCITY

1 ——— 897037AI.V67 FilterClass (180)



NSA Research  
04-03-1997 16:59

TIME Seconds

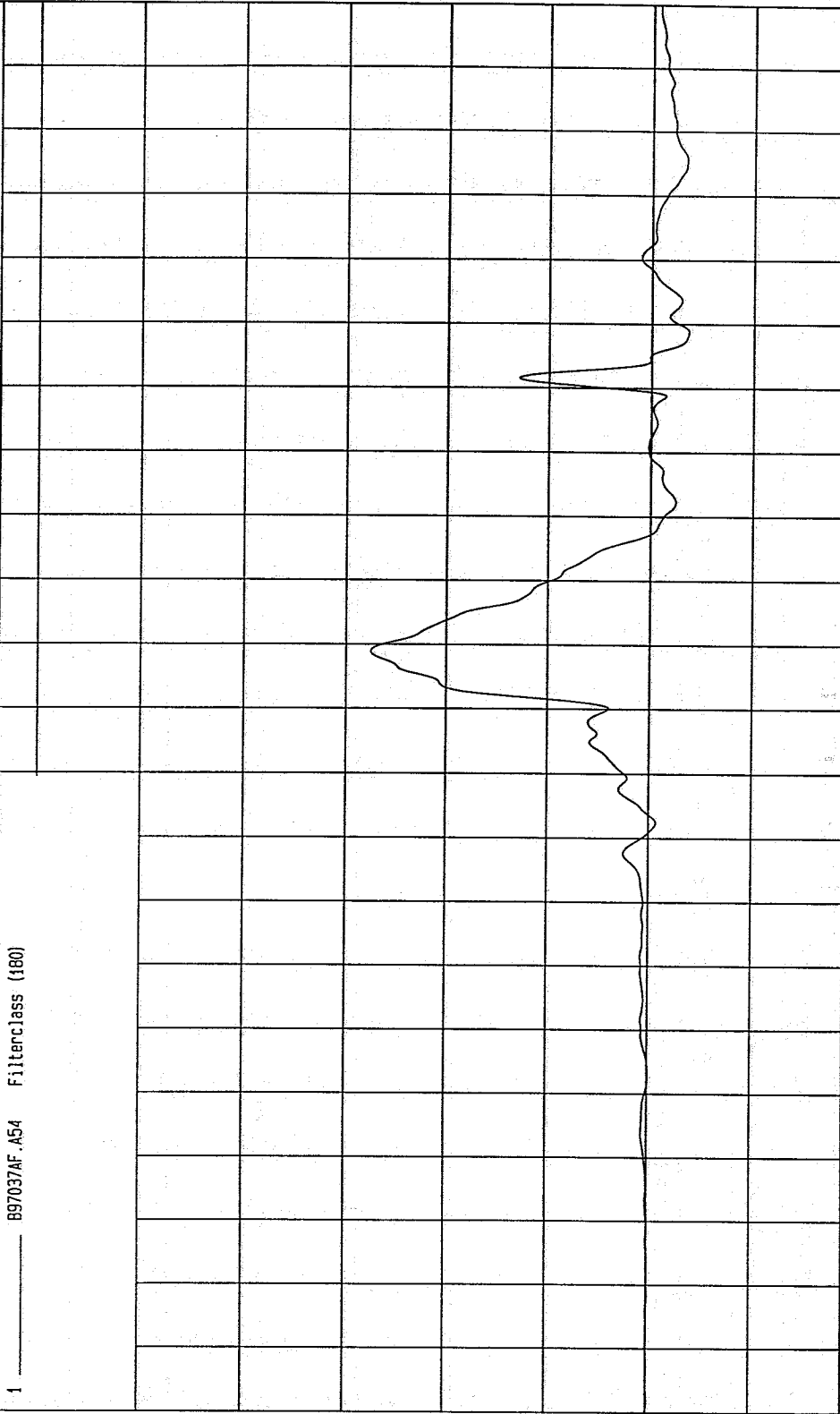
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -7.35 G'S at 149 msec  
Maximum = 54.99 G'S at 99 msec

REAR PASSENGER UPPER SPINE Y REDUNDANT ACCELERATION

1 ——— B97037AF.A54 Filterclass (480)



NSA Research  
04-03-1997 16:55

TIME (SECONDS)

G.S

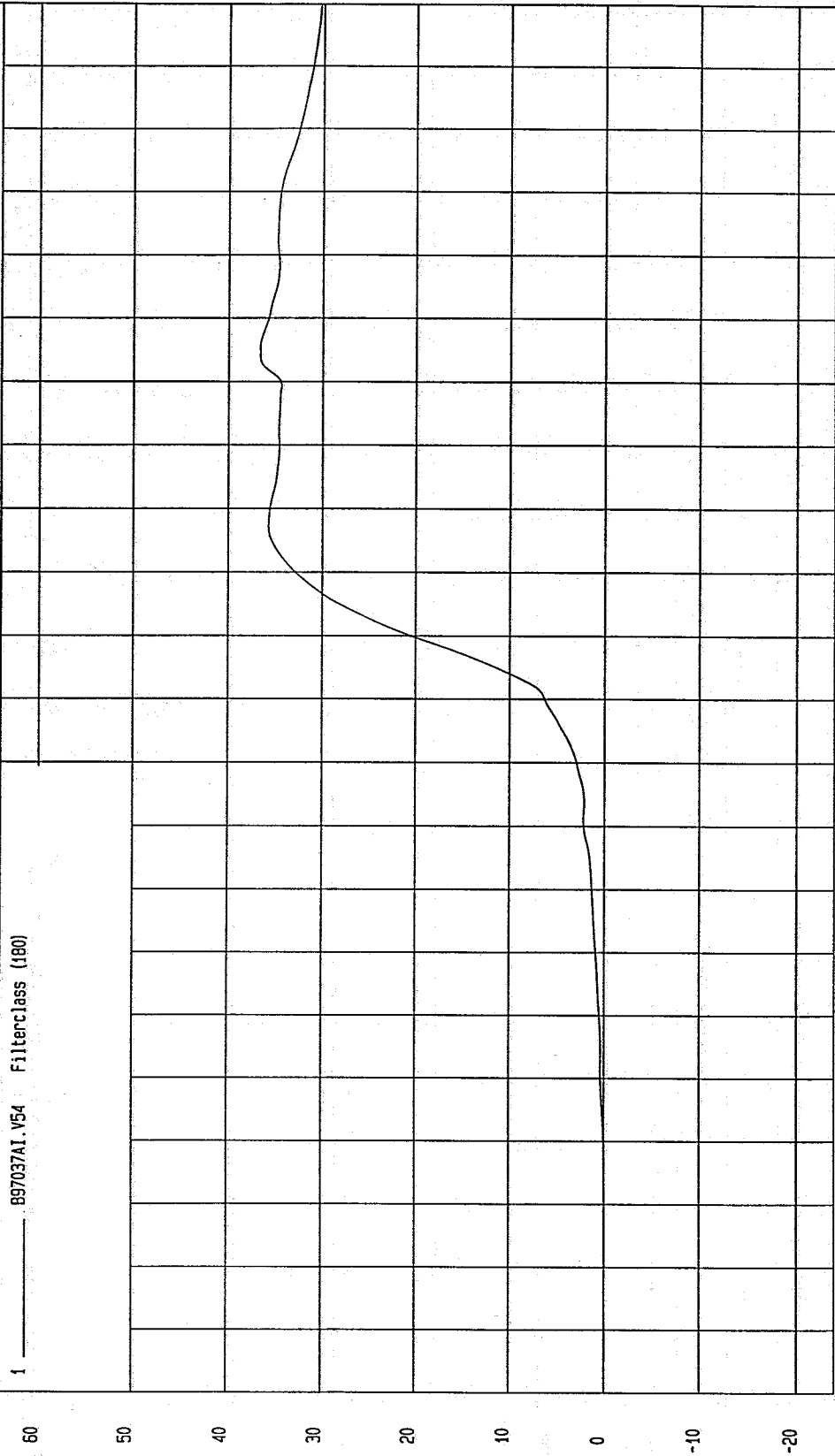
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -3.33E-02 KPH at 5 msec Maximum = 36.58 KPH at 145 msec

REAR PASSENGER SPINE RIB Y REDUNDANT VELOCITY

1 ——— 897037AI.V54 Filterclass (180)



MCA Research  
04-03-1997 17:00

TIME Seconds

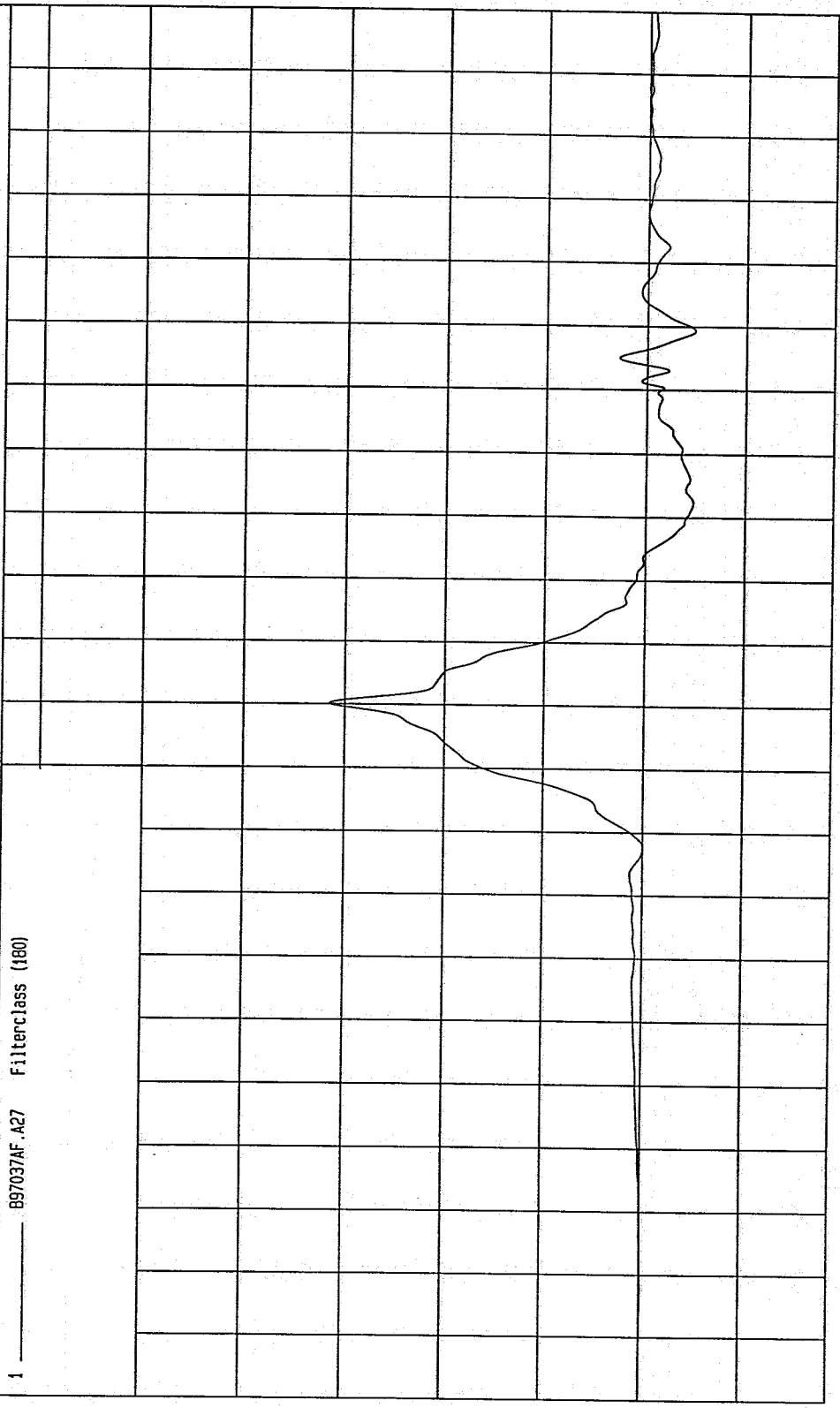
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -9.80 G'S at 149 msec Maximum = 63.00 G'S at 90 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION

1 \_\_\_\_\_ B97037AF.A27 Filterclass (180)



TIME (SECONDS)

19  
.18  
.17  
.16  
.15  
.14  
.13  
.12  
.11  
.1  
.09  
.08  
.07  
.06  
.05  
.04  
.03  
.02  
.01  
0  
-01  
-02

120  
100  
80  
60  
40  
20  
0  
-20

G.S

NGA Research  
04-03-1997 16:54

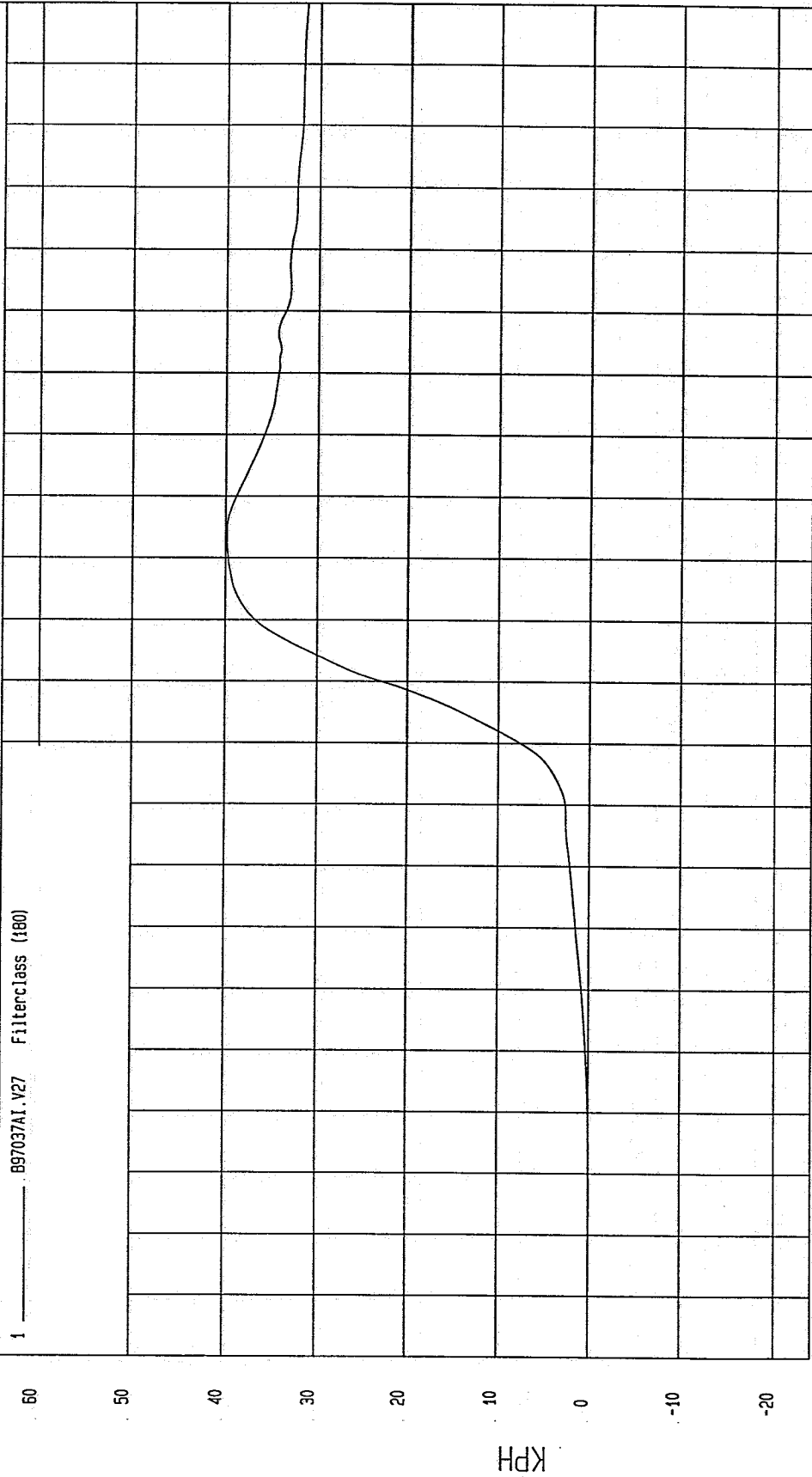
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.92E-02 KPH at 6 msec Maximum = 39.86 KPH at 114 msec

REAR PASSENGER LOWER SPINE Y VELOCITY

1 ——— 897037A1.V27 Filterclass (180)



MGA Research  
04-03-1997 16:59

TIME Seconds

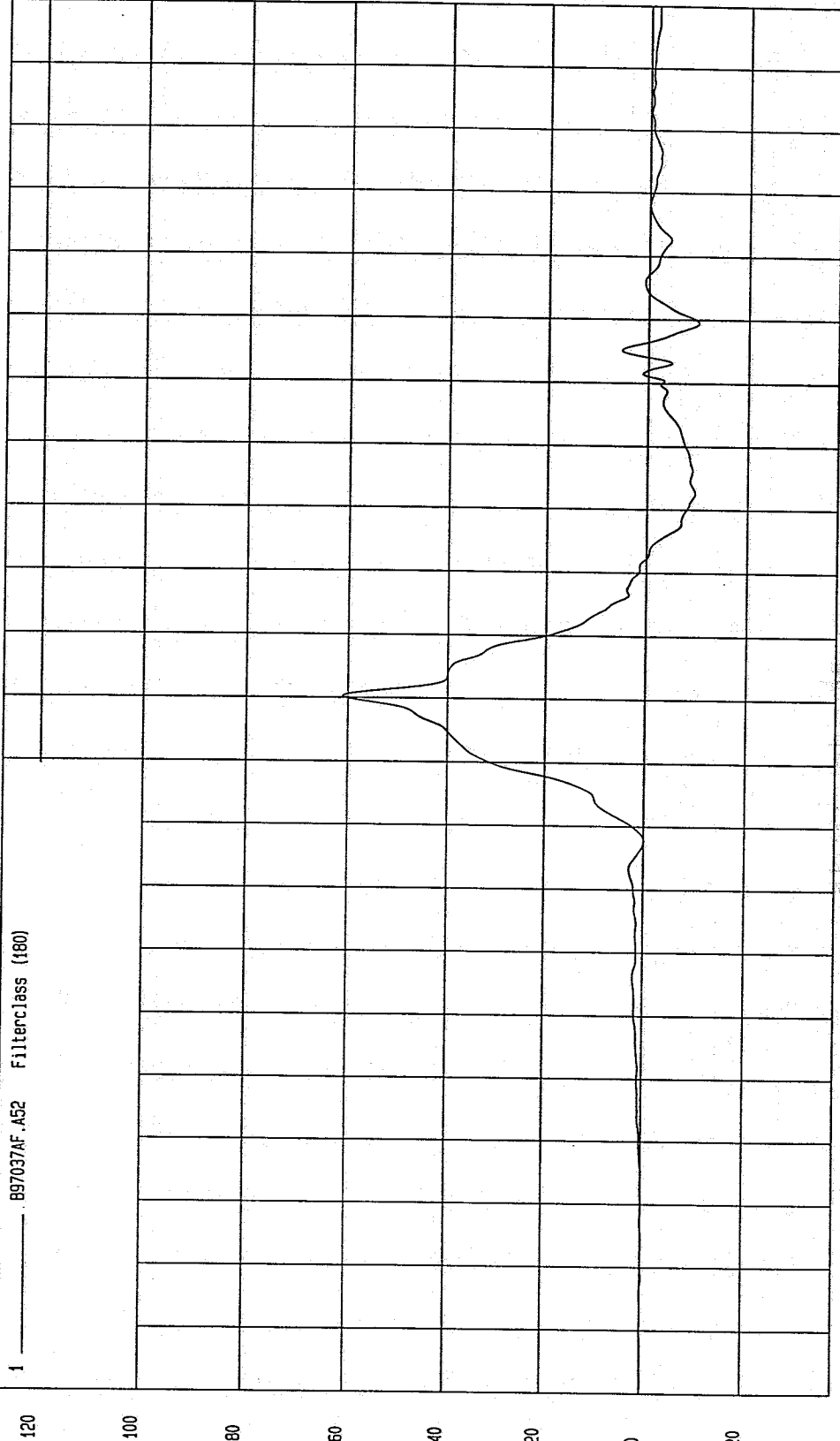
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -9.95 G'S at 150 msec  
Maximum = 61.11 G'S at 90 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 ——— .B97037AF.A52 Filterclass (180)



NGA Research  
04-03-1997 16:54

TIME (SECONDS)

G.S

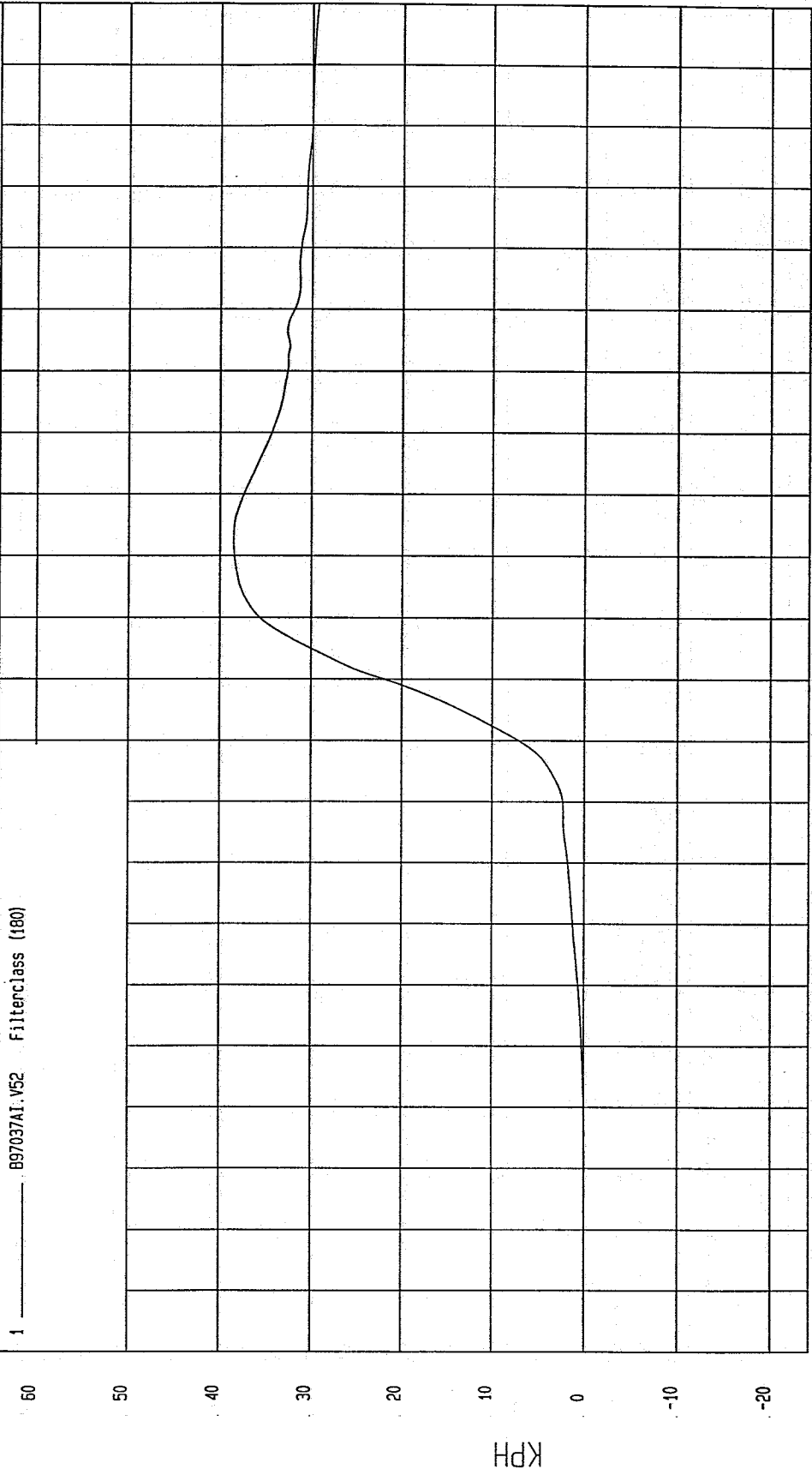
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.86E-02 KPH at 6 msec  
Maximum = 38.50 KPH at 112 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT VELOCITY

1 \_\_\_\_\_ 897037AI.V52 Filterclass (180)



NSA Research  
04-03-1997 17:00

TIME Seconds

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

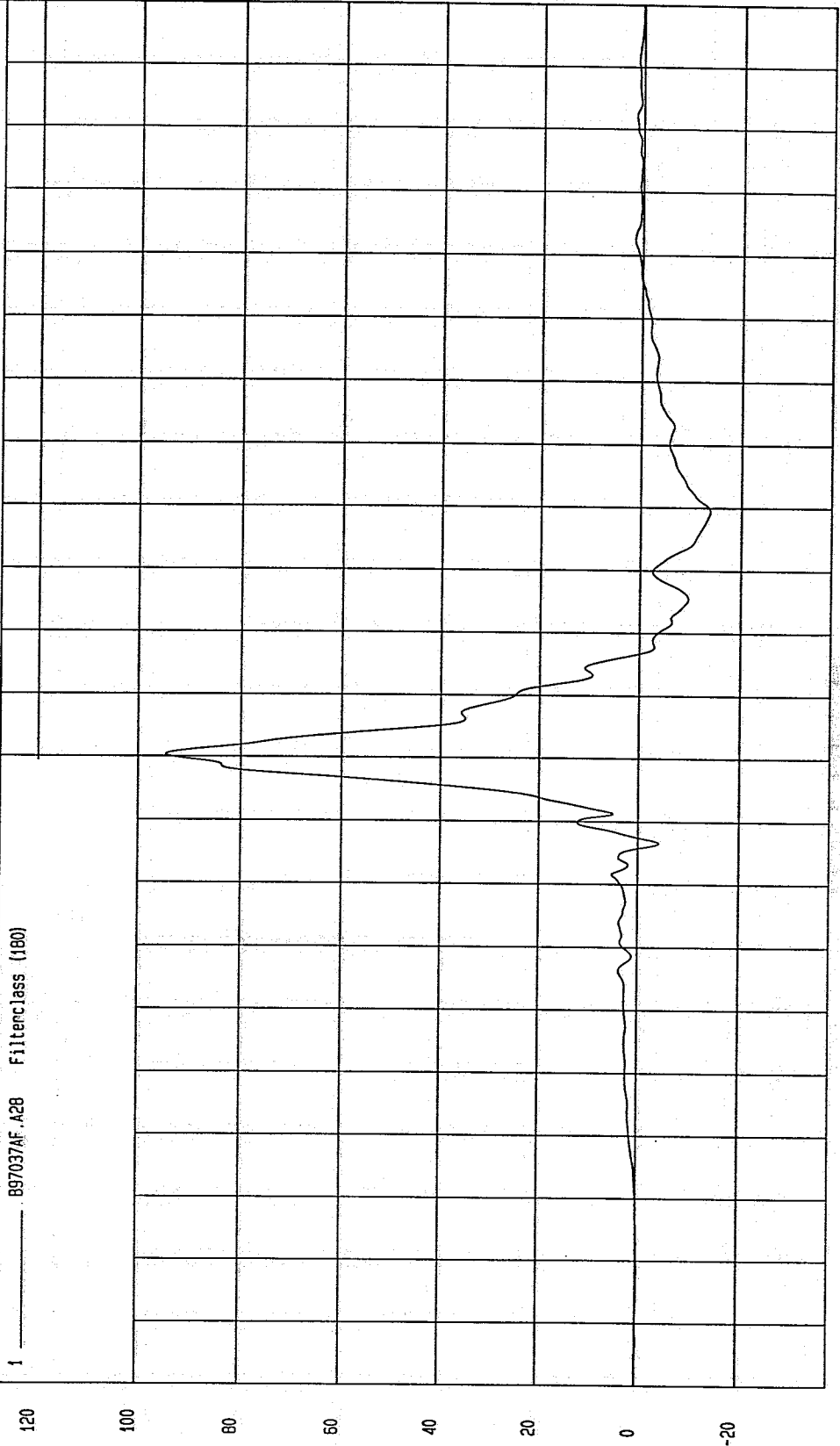
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -13.94 G'S at 119 msec

Maximum = 94.65 G'S at 80 msec

REAR PASSENGER PELVIS Y ACCELERATION

1 ——— B97037AF.A28 Filternclass (180)



MCA Research  
04-03-1997 16:55

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

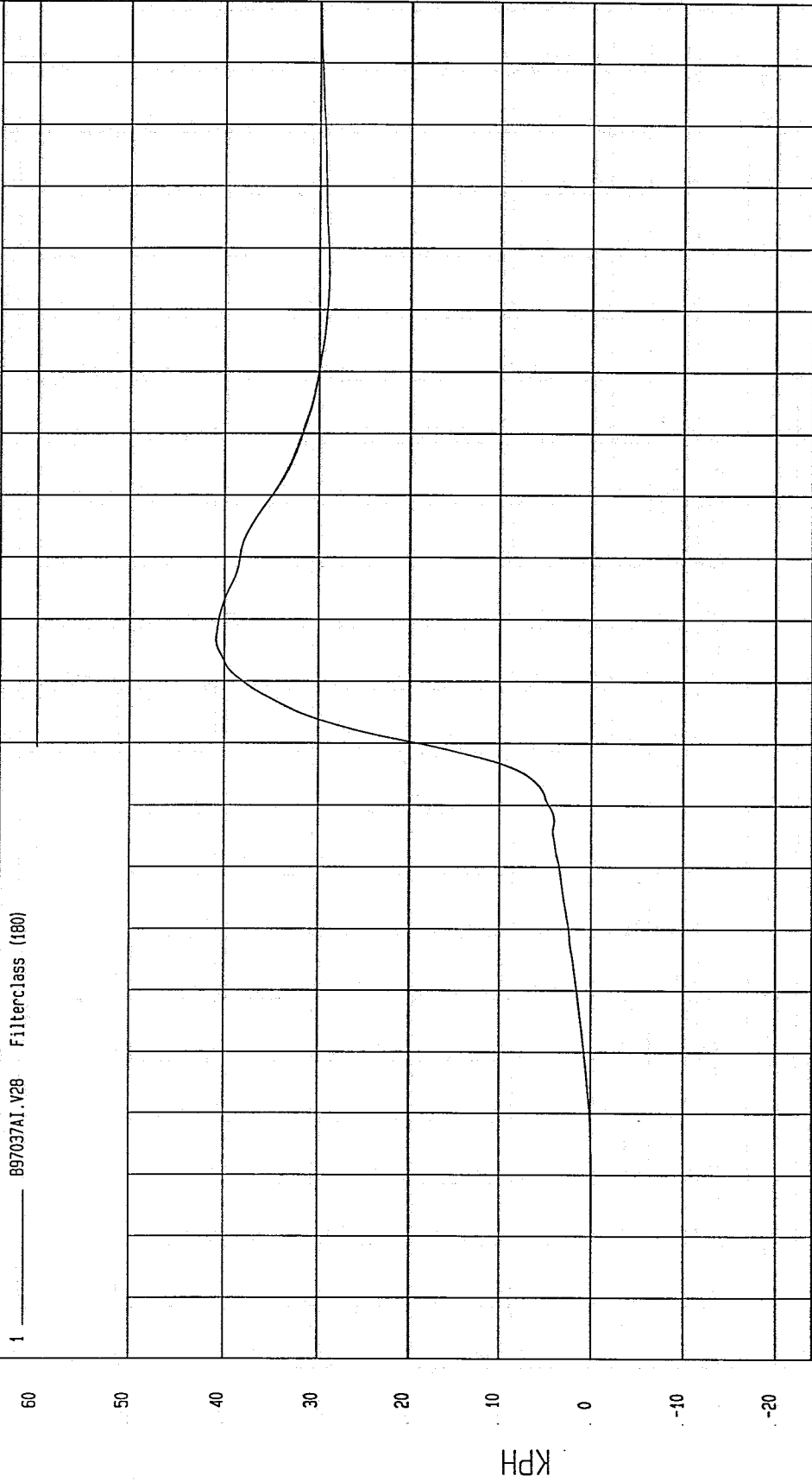
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -8.89E-02 KPH at 6 msec

Maximum = 40.94 KPH at 97 msec

REAR PASSENGER PELVIS Y VELOCITY

1 \_\_\_\_\_ B97037AI.V28 Filterclass (180)



NSA Research  
04-03-1997 16:59

TIME Seconds

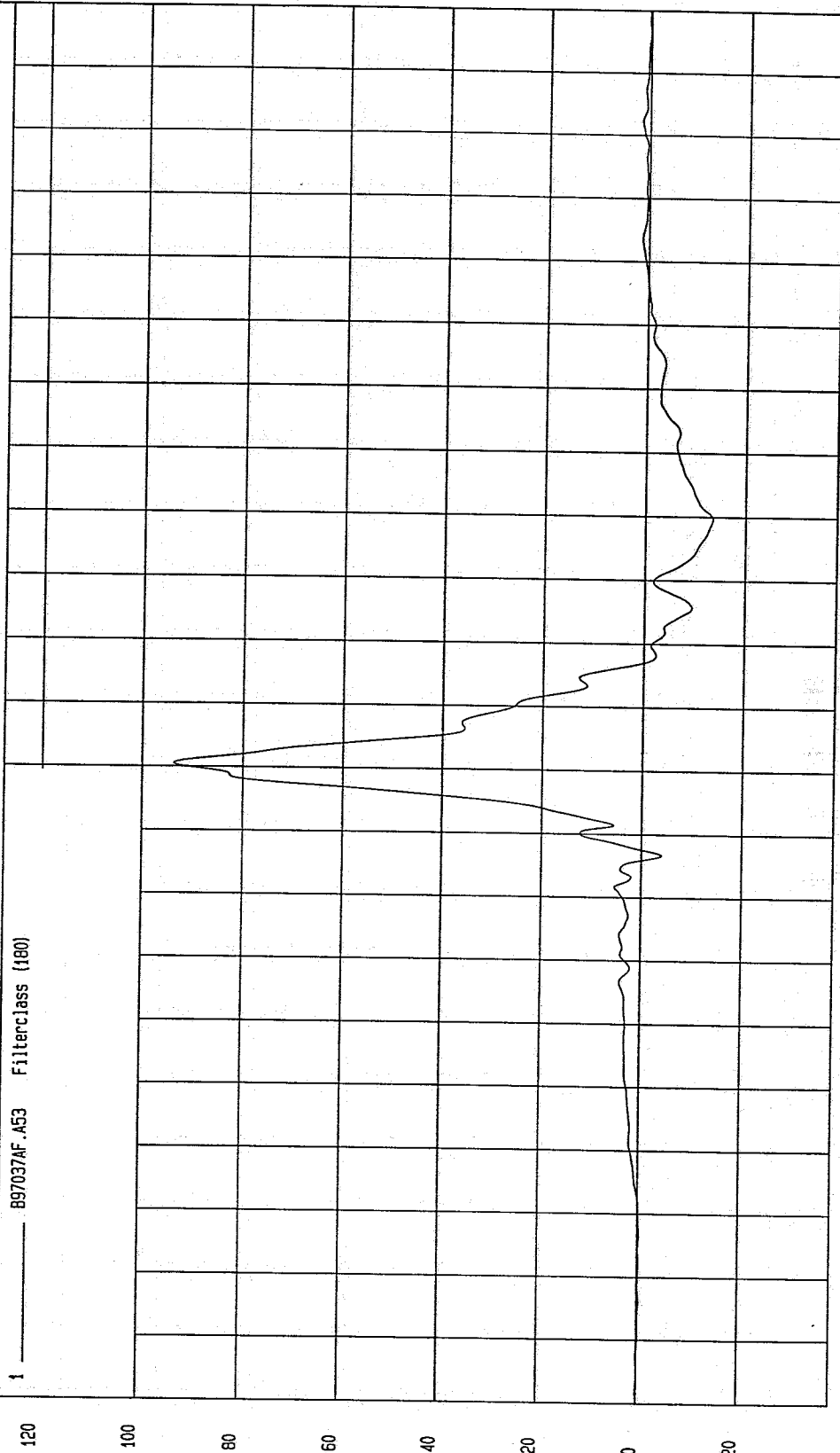
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -13.37 G'S at 120 msec  
Maximum = 93.81 G'S at 80 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ B97037AF.A53 Filterclass (180)



NGA Research  
04-03-1997 16:55

TIME (SECONDS)

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

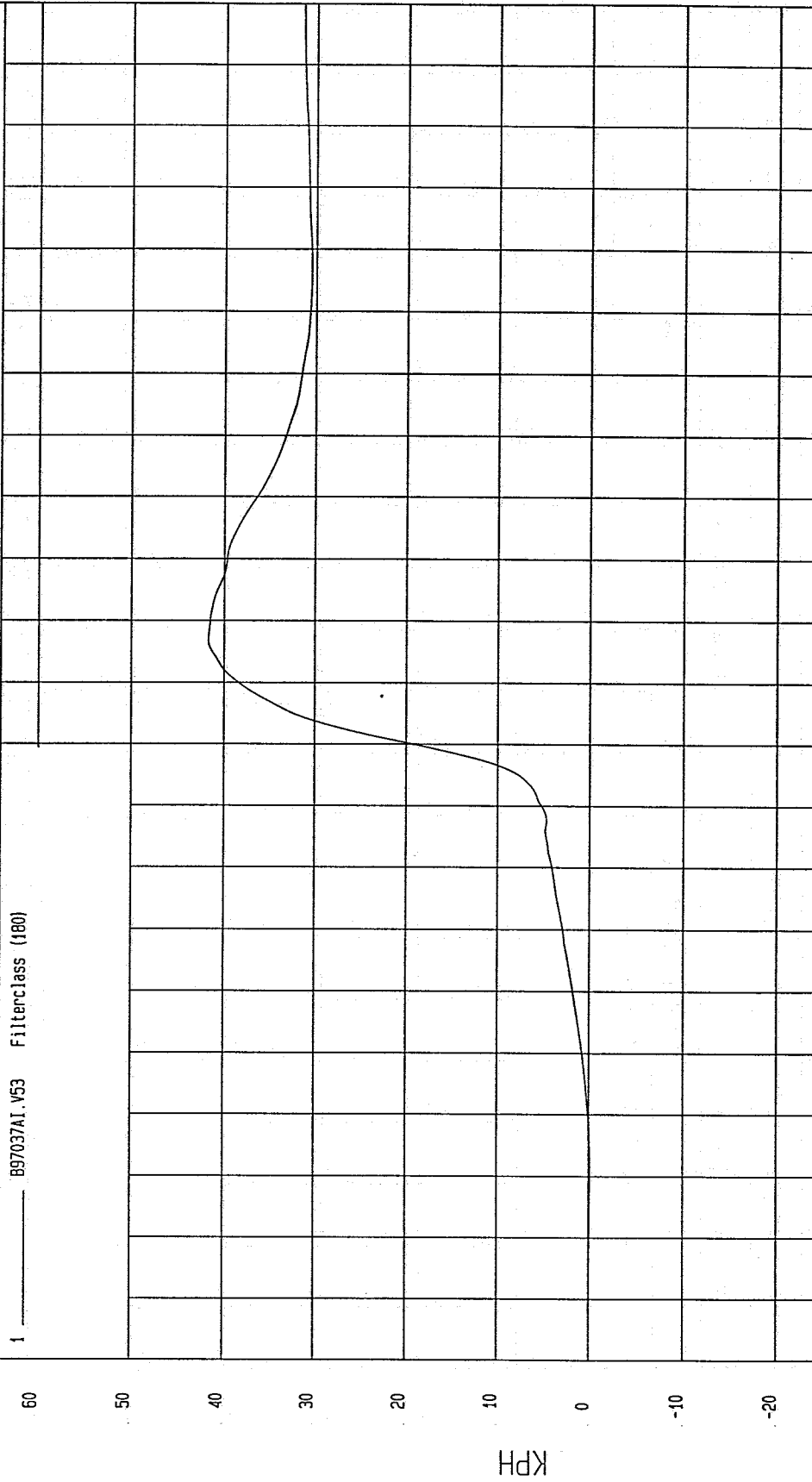
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -13 KPH at 12 msec

Maximum = 41.73 KPH at 97 msec

REAR PASSENGER PELVIS Y REDUNDANT VELOCITY

1 B97037A1.V53 Filterclass (180)



MSA Research  
04-03-1997 17:00

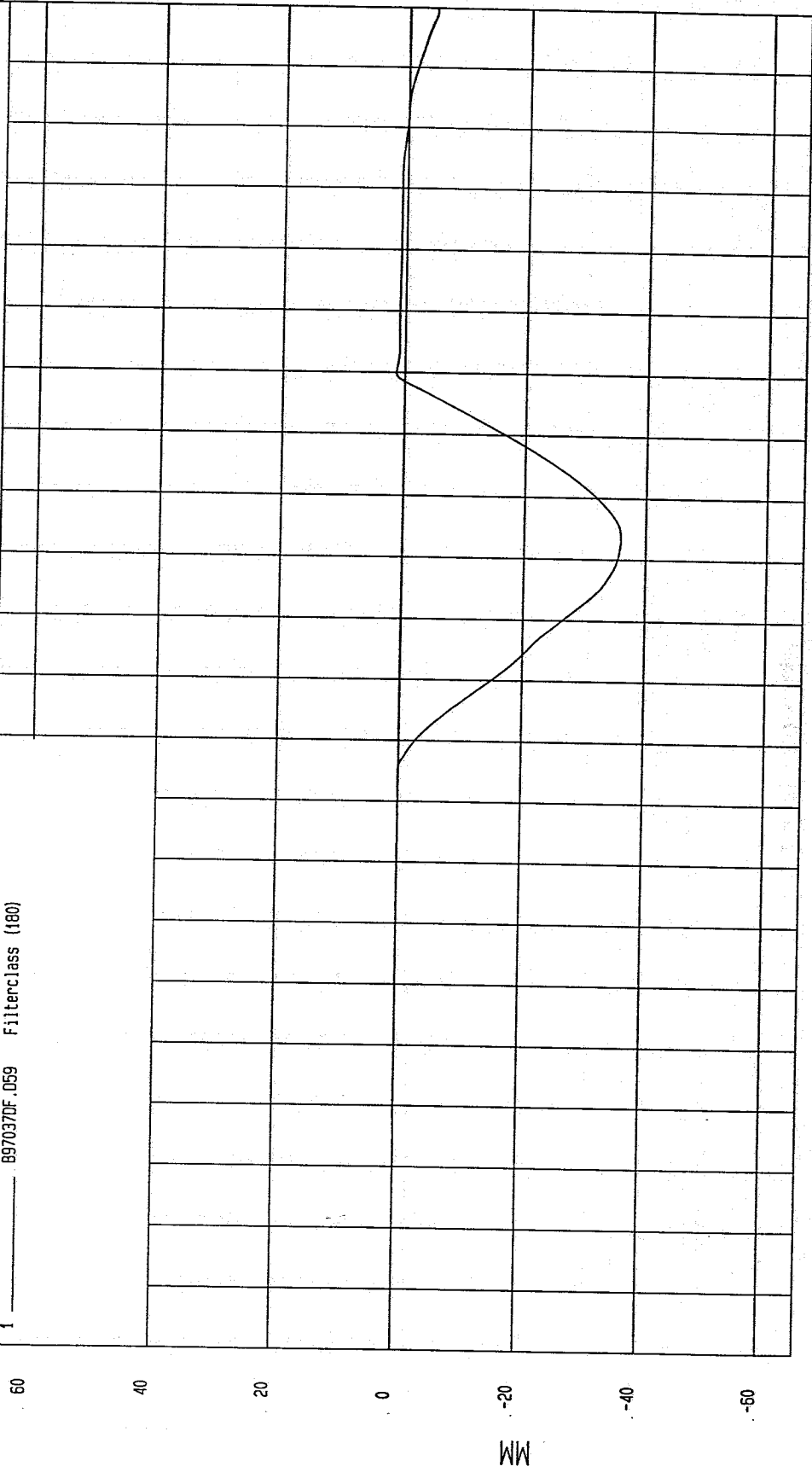
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -35.88 MM at 113 msec Maximum = 1.33 MM at 140 msec

PASSENGER RIB DISPLACEMENT

1 \_\_\_\_\_ 897037DF.D59 Filterclass (180)



NGA Research  
04-04-1997 15:08

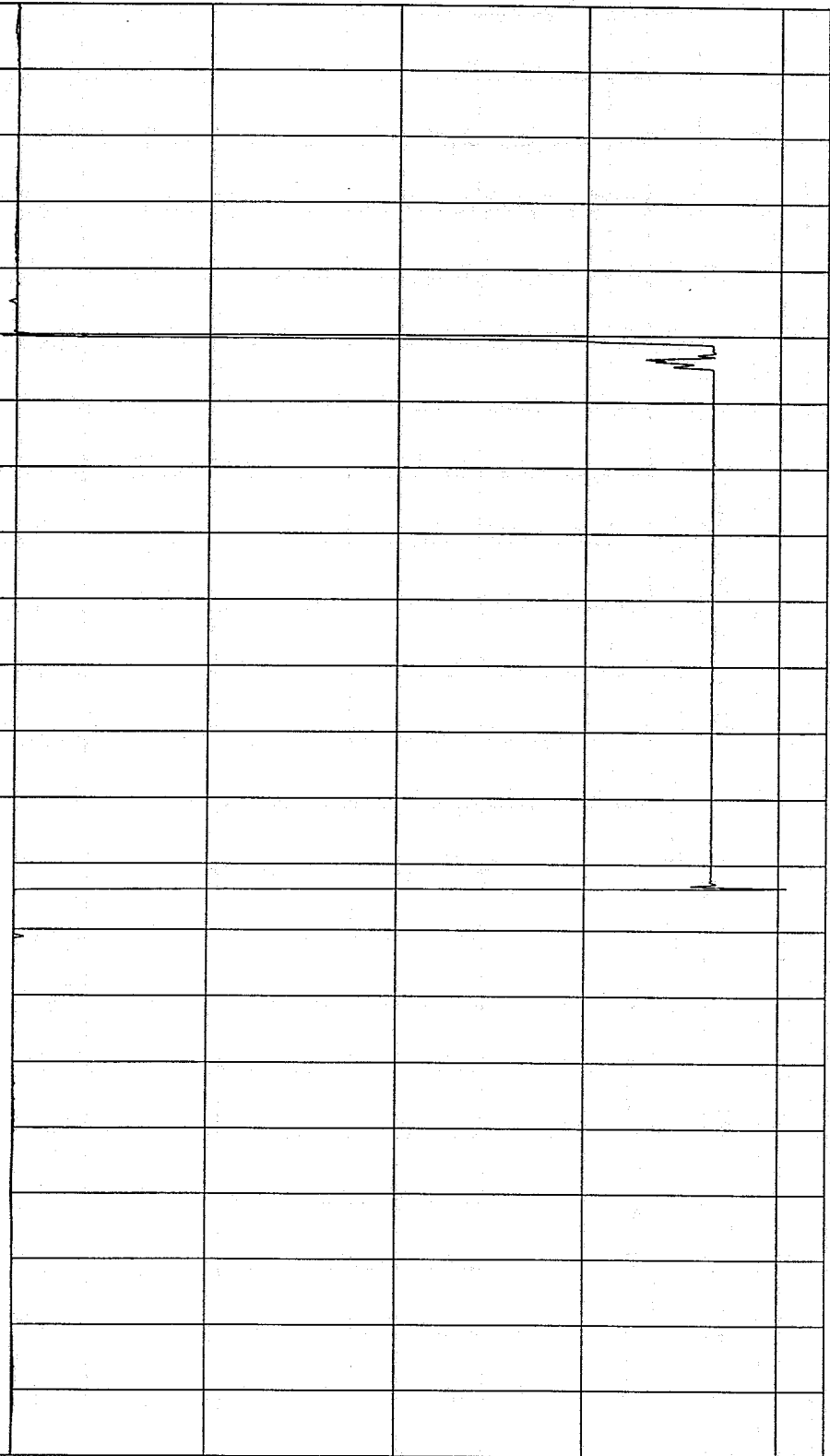
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -4.04 VOLTS at 66 msec  
Maximum = 7.43E-02 VOLTS at 150 msec

REAR PASSENGER SHOULDER CONTACT

1 89703701.071 Filterclass (1000)



MCA Research  
04-07-1997 11:20

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

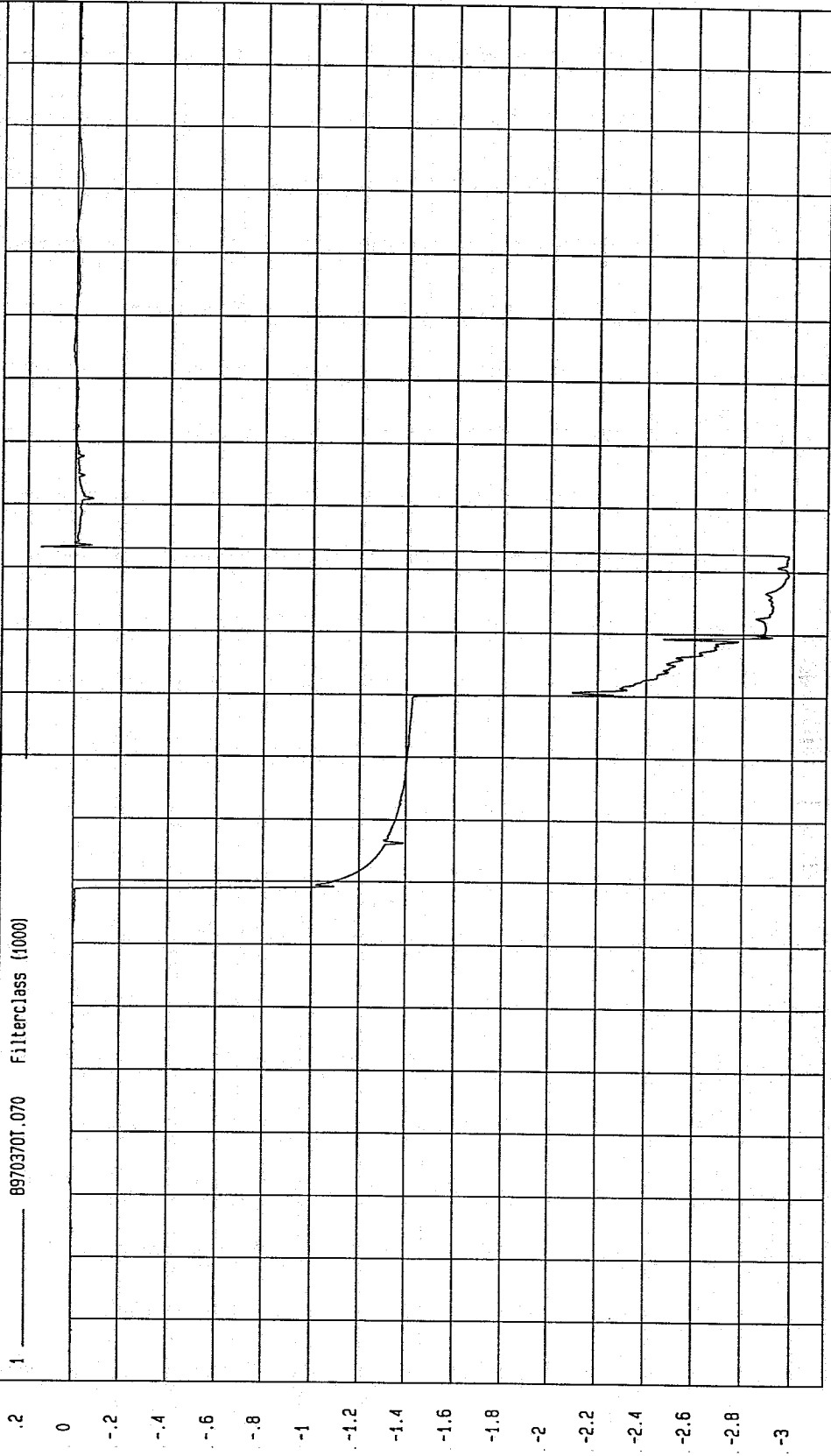
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -2.98 VOLTS at 109 msec

Maximum = .14 VOLTS at 113 msec

REAR PASSENGER PELVIS CONTACT

1 \_\_\_\_\_ 89703701.070 Filterclass (1000)



WCA Research  
04-07-1997 11:21

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

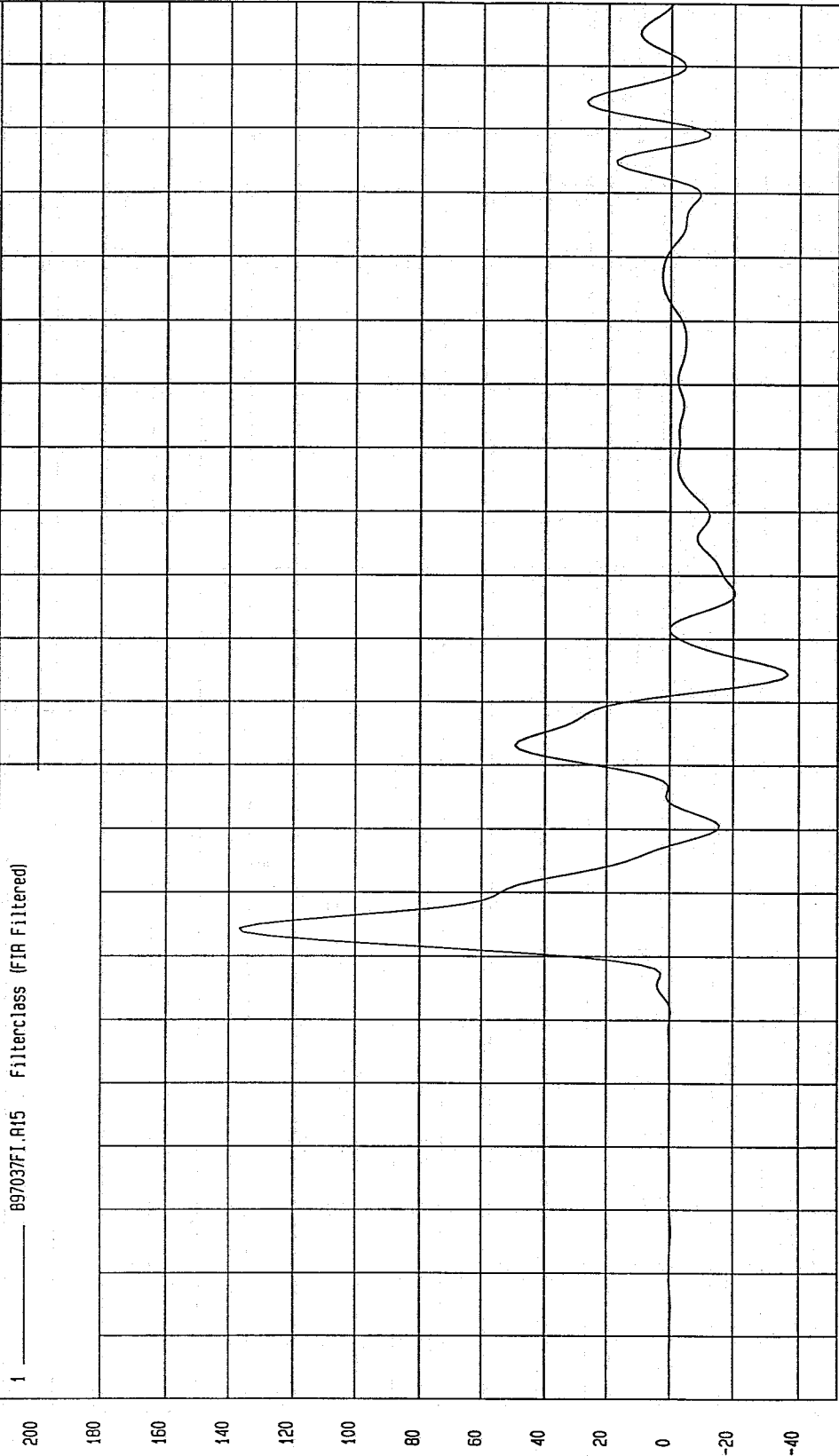
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -36.60 G'S at 94 msec

Maximum = 136.60 G'S at 54 msec

DRIVER UPPER RIB Y ACCELERATION

1 — 897037FI.R15 Filterclass (FIR Filtered)



NGA Research  
0A-07-1997 11:09

TIME (SECONDS)

G'S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

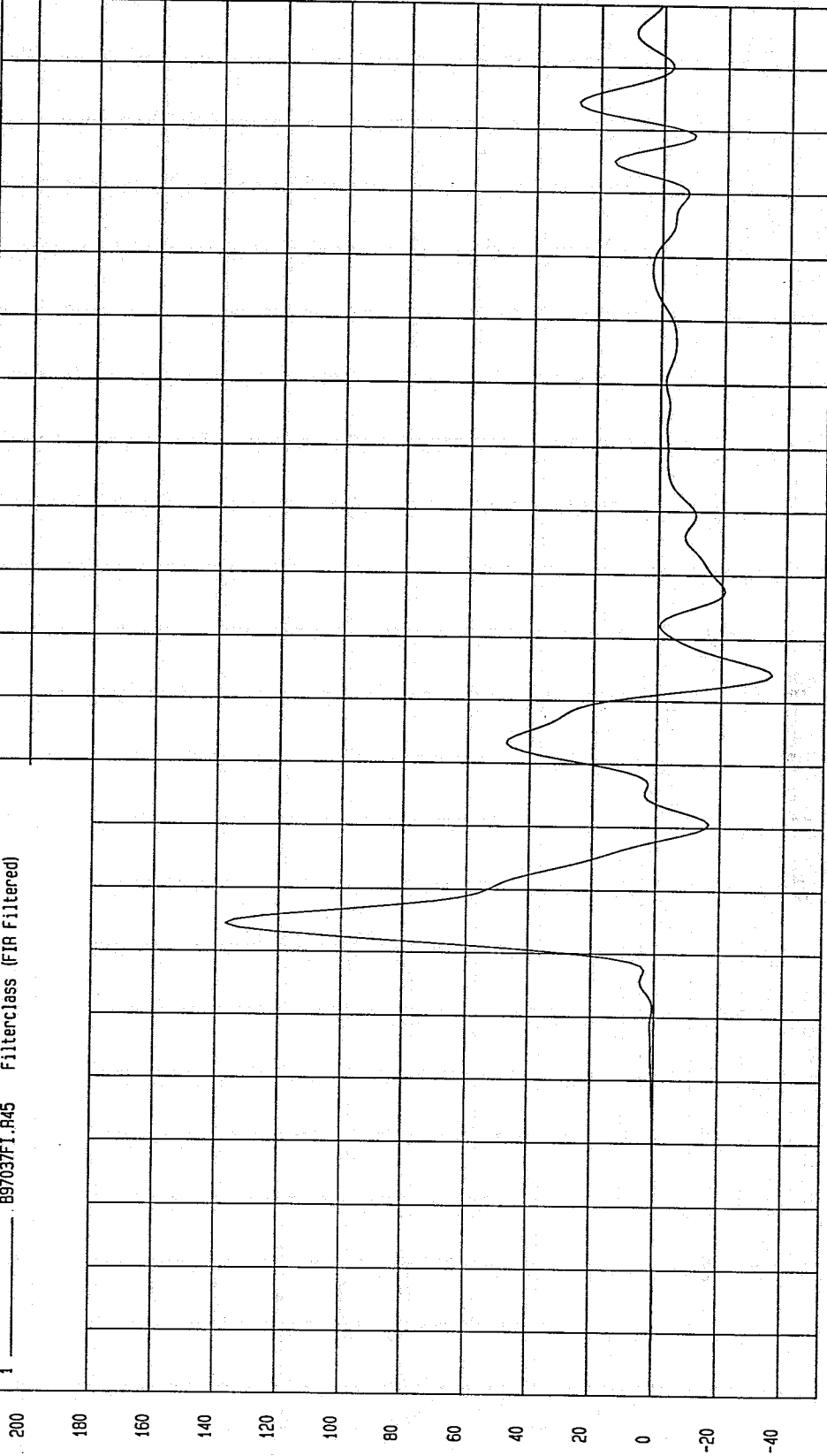
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -35.88 G'S at 94 msec

Maximum = 136.95 G'S at 54 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION

1 ——— .897037FI.R45 Filterclass (FIR Filtered)



TIME (SECONDS)

MCA Research  
04-07-1997 11:09

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

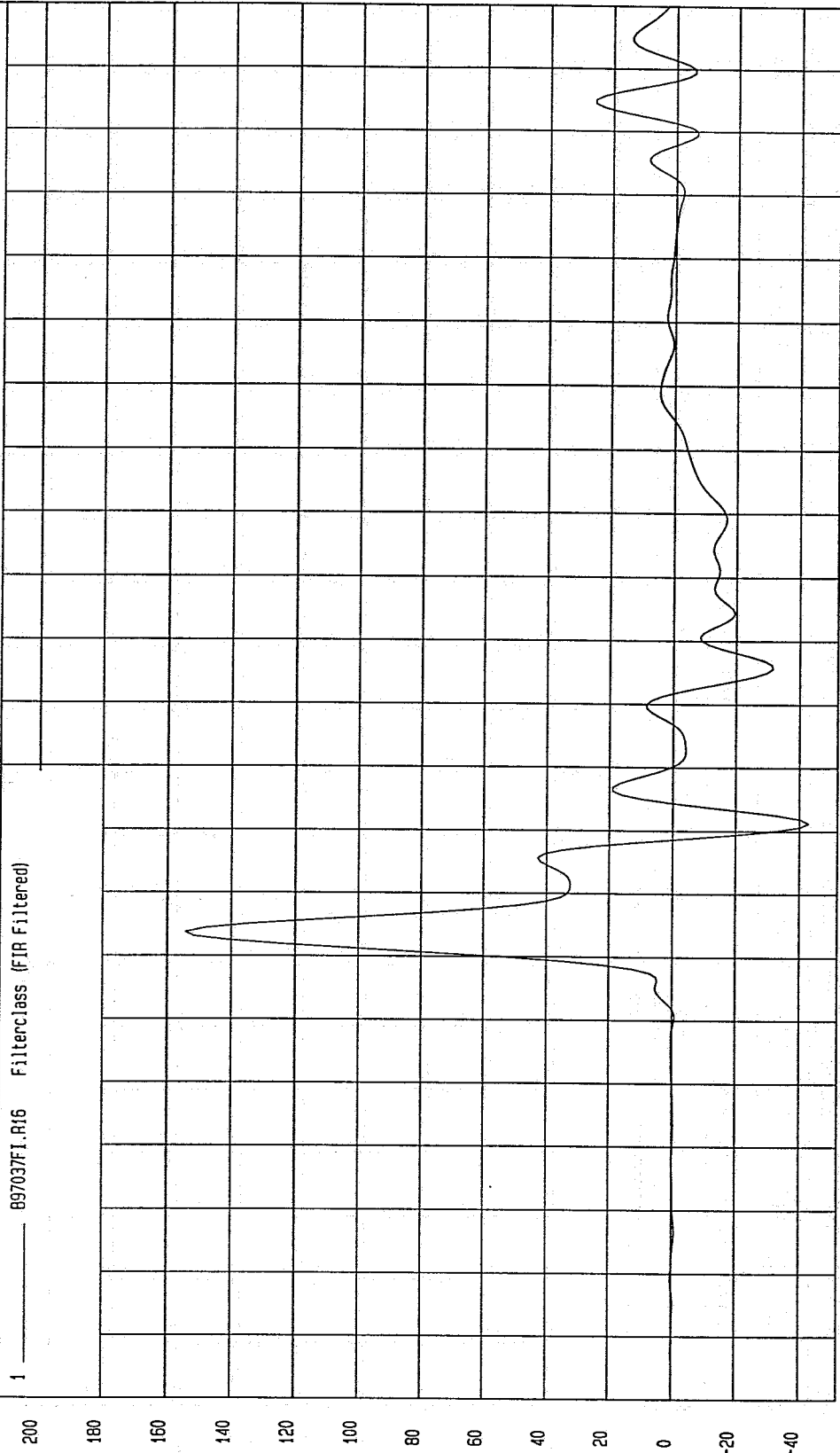
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -42.91 G'S at 71 msec

Maximum = 154.41 G'S at 54 msec

DRIVER LOWER RIB Y ACCELERATION

1 897037FI.R16 Filterclass (FIR Filtered)



MOA Research  
04-07-1997 11:09

TIME (SECONDS)

G'S

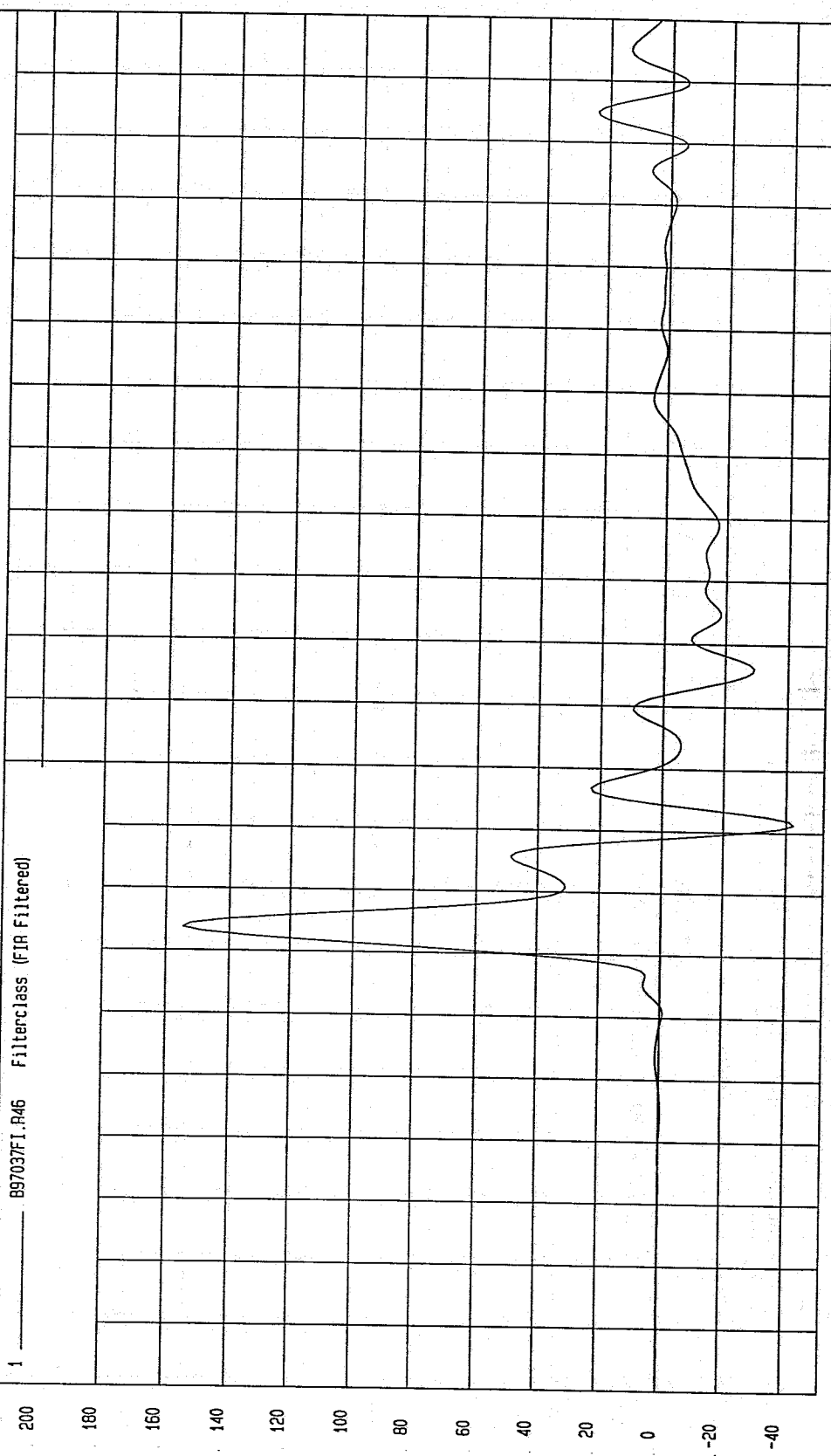
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -42.23 G'S at 71 msec  
Maximum = 154.72 G'S at 54 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION

1 ——— B97037FI.R46 Filterclass (FIR Filtered)



MGA Research  
04-07-1997 11:09

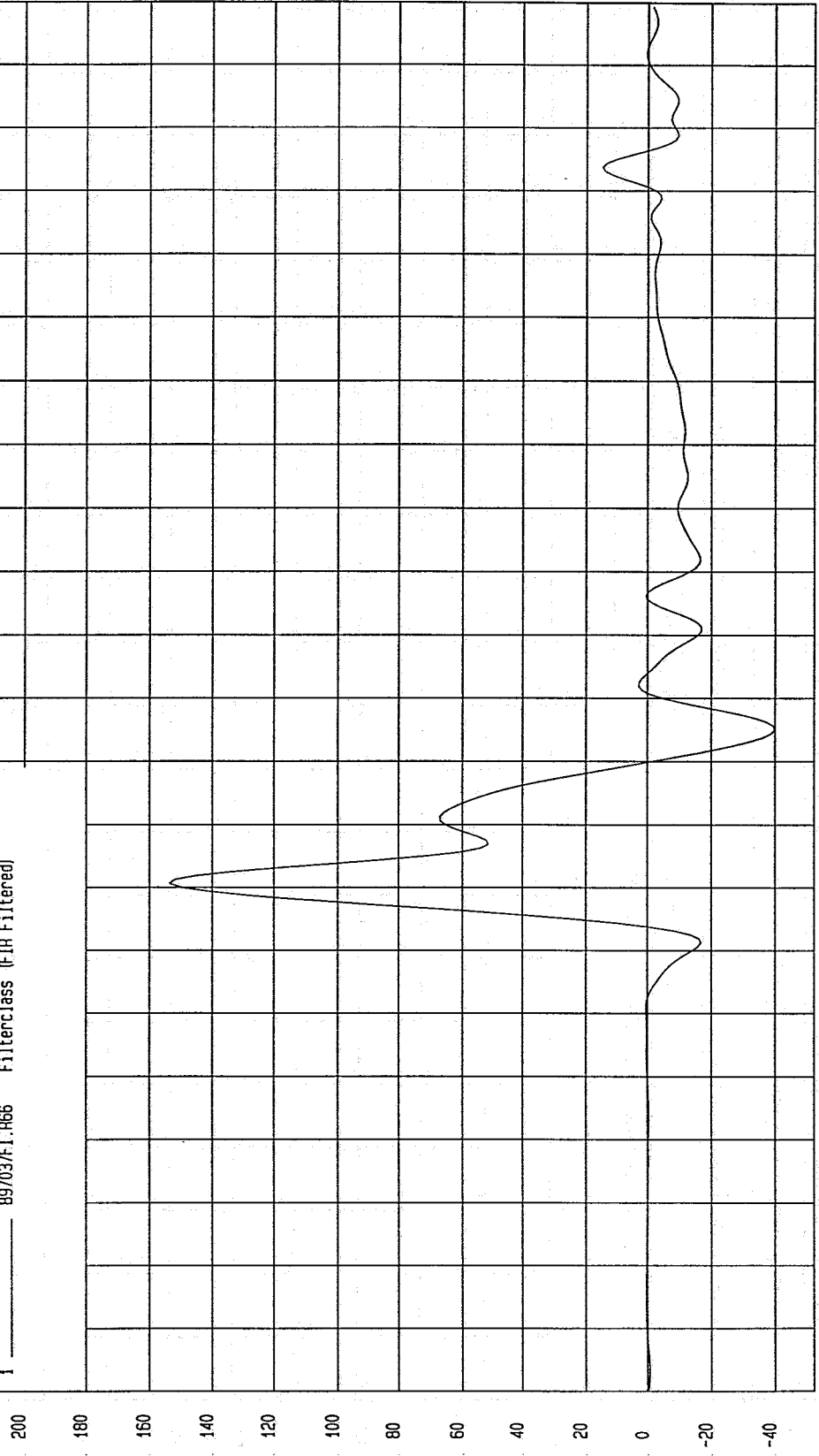
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -39.84 G'S at 85 msec  
Maximum = 153.58 G'S at 61 msec

DRIVER UPPER SPINE Y ACCELERATION

1 ——— 897037FI.R66 Filterclass (FIR Filtered)



TIME (SECONDS)

MCA Research  
04-07-1997 13:58

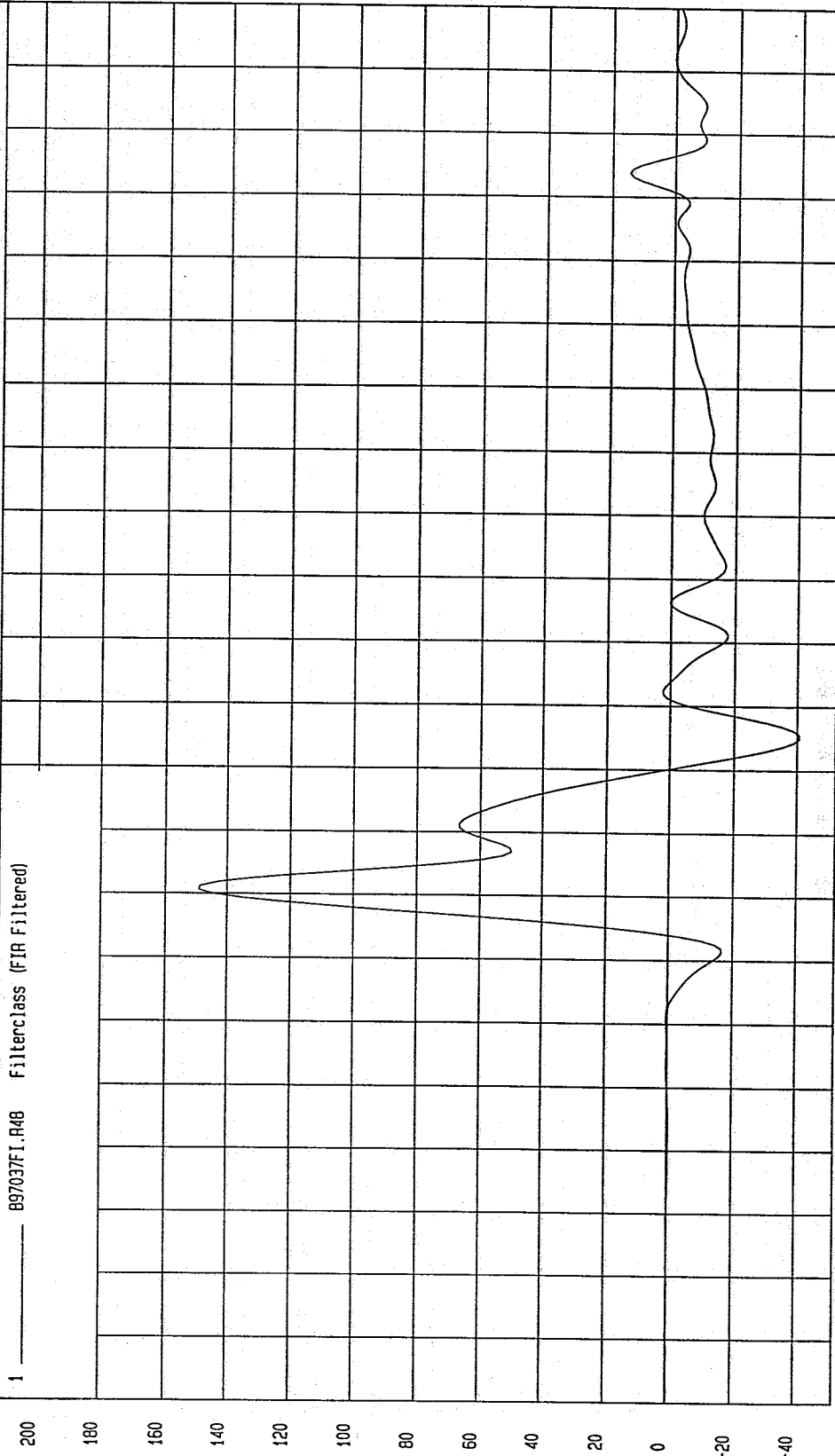
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -40.64 G'S at 86 msec Maximum = 149.31 G'S at 61 msec

DRIVER UPPER SPINE Y REDUNDANT ACCELERATION

1 897037FI.R48 Filterclass (FIR Filtered)



TIME (SECONDS)

NSA Research  
04-07-1997 11:29

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

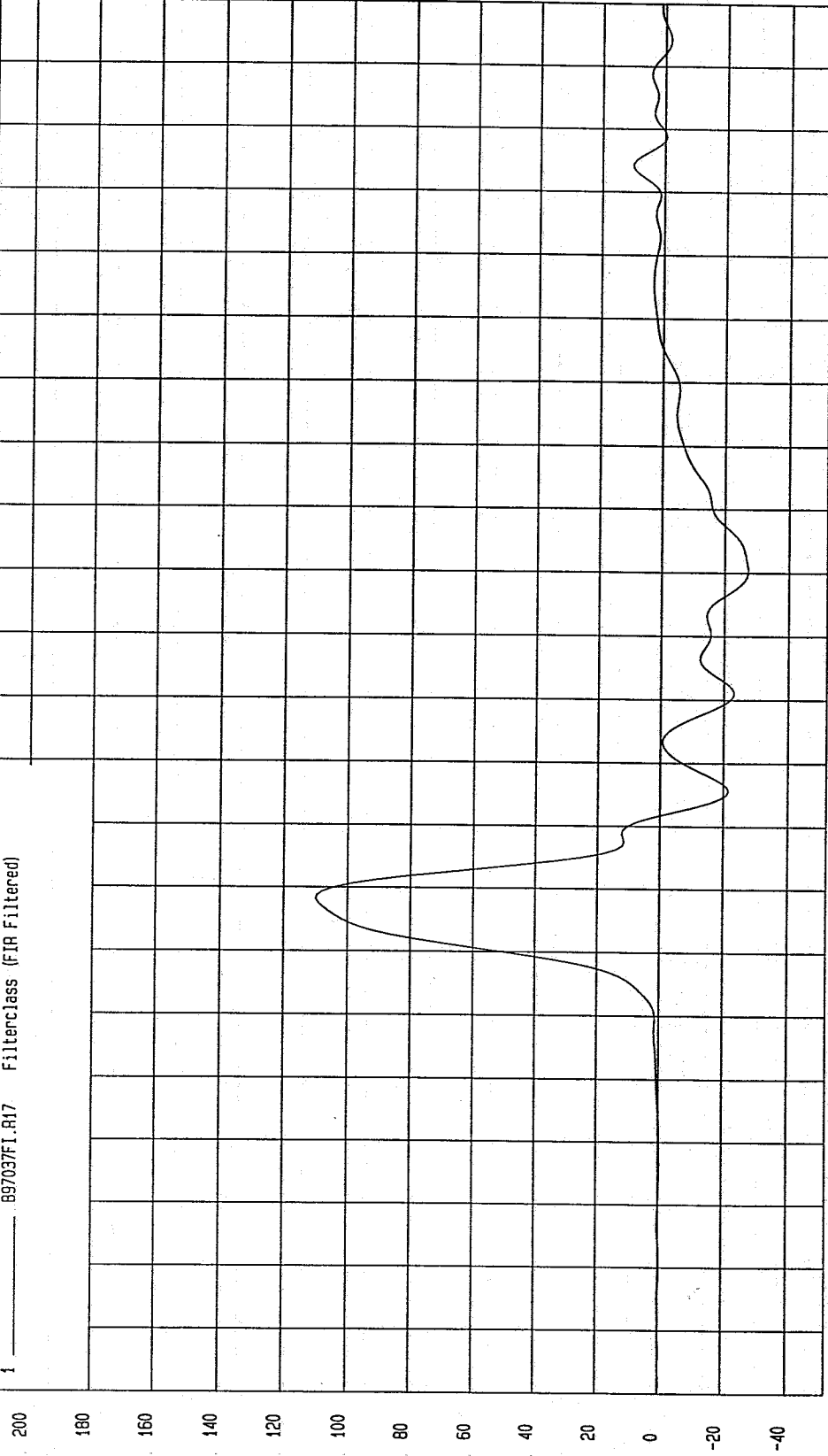
Speed: 39.83 MPH 64.1 KPH

Minimum = -27.35 G'S at 111 msec

Maximum = 110.04 G'S at 56 msec

DRIVER LOWER SPINE Y ACCELERATION

1 897037FI.R17 Filterclass (FIR Filtered)



MSA Research  
04-07-1997 11:09

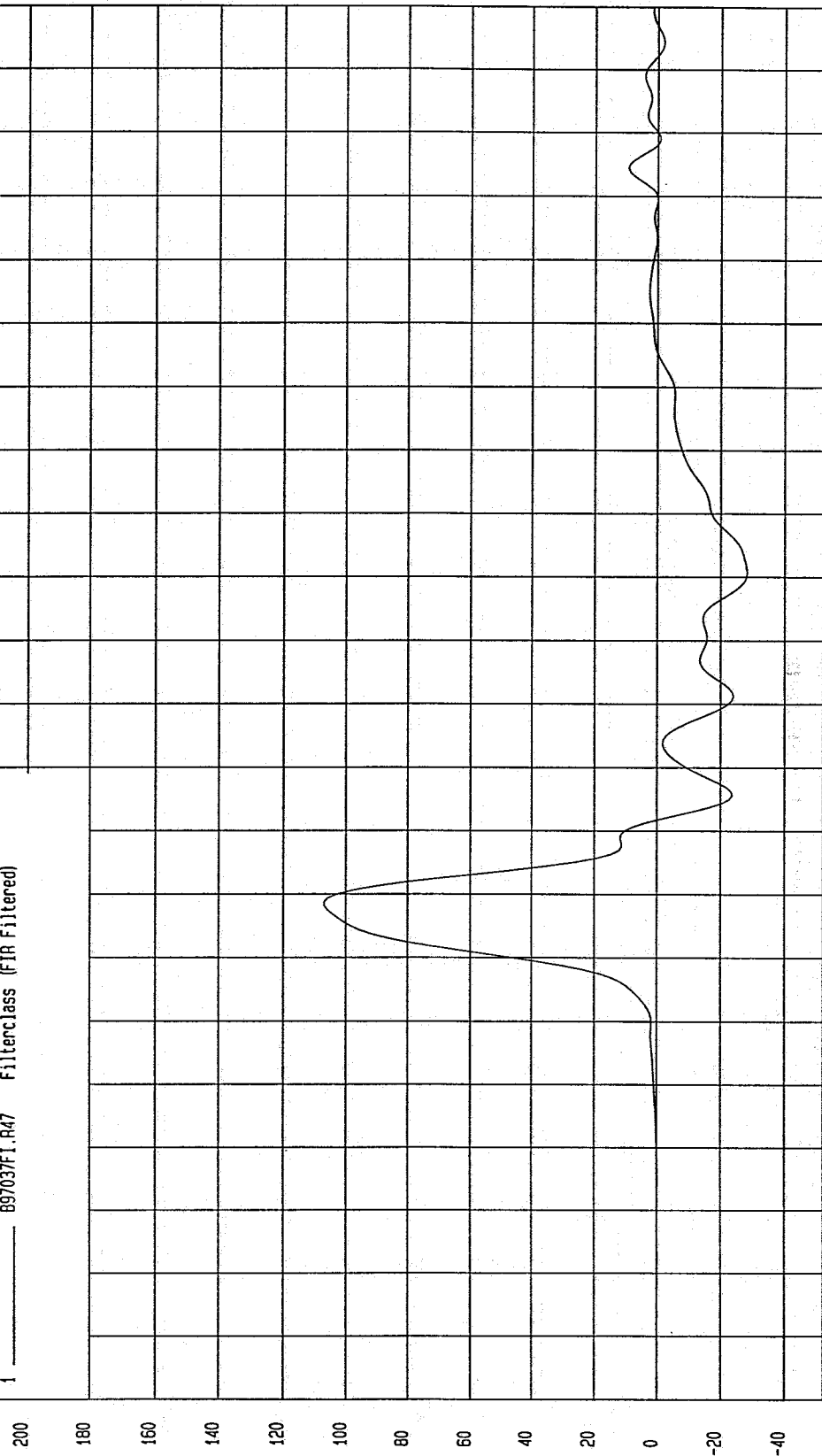
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -28.22 G'S at 111 msec Maximum = 107.11 G'S at 59 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ 89703FT.R47 Filterclass (FIR Filtered)



MCA Research  
04-07-1997 11:09

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

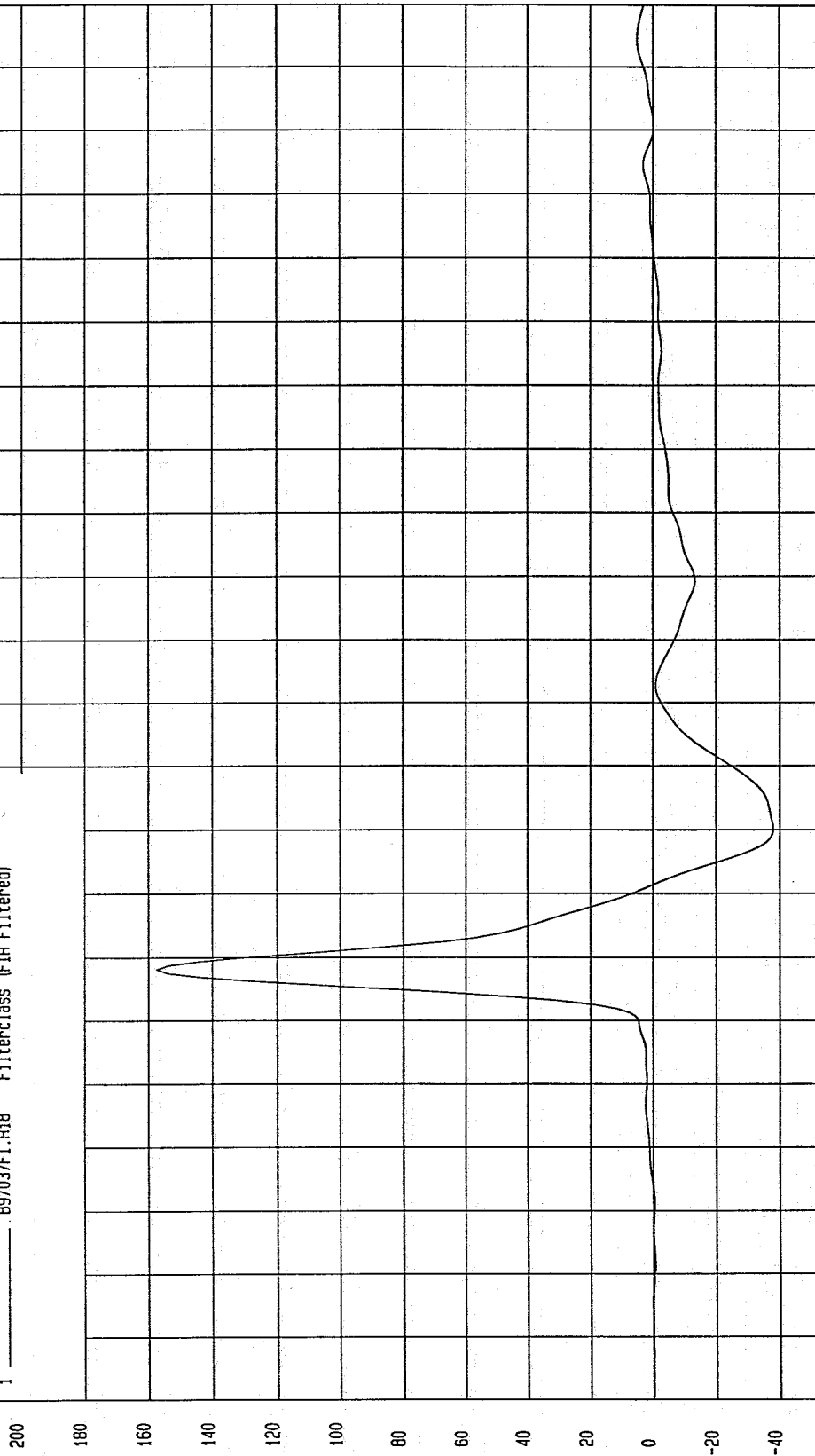
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -38.04 G'S at 70 msec

Maximum = 157.55 G'S at 48 msec

DRIVER PELVIS Y ACCELERATION

1 \_\_\_\_\_ .897037F1.R18 Filterclass (FIR Filtered)



MCA Research  
04-07-1997 11:09

TIME (SECONDS)

G.S

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -38.16 G'S at 71 msec Maximum = 157.46 G'S at 48 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ 897037I.R49 Filterclass (FIR Filtered)

200  
180  
160  
140  
120  
100  
80  
60  
40  
20  
0  
-20  
-40

G.S

-02  
-01  
0  
01  
02  
03  
04  
05  
06  
07  
08  
09  
1  
11  
12  
13  
14  
15  
16  
17  
18  
19

TIME (SECONDS)

MGA Research  
04-07-1997 11:10

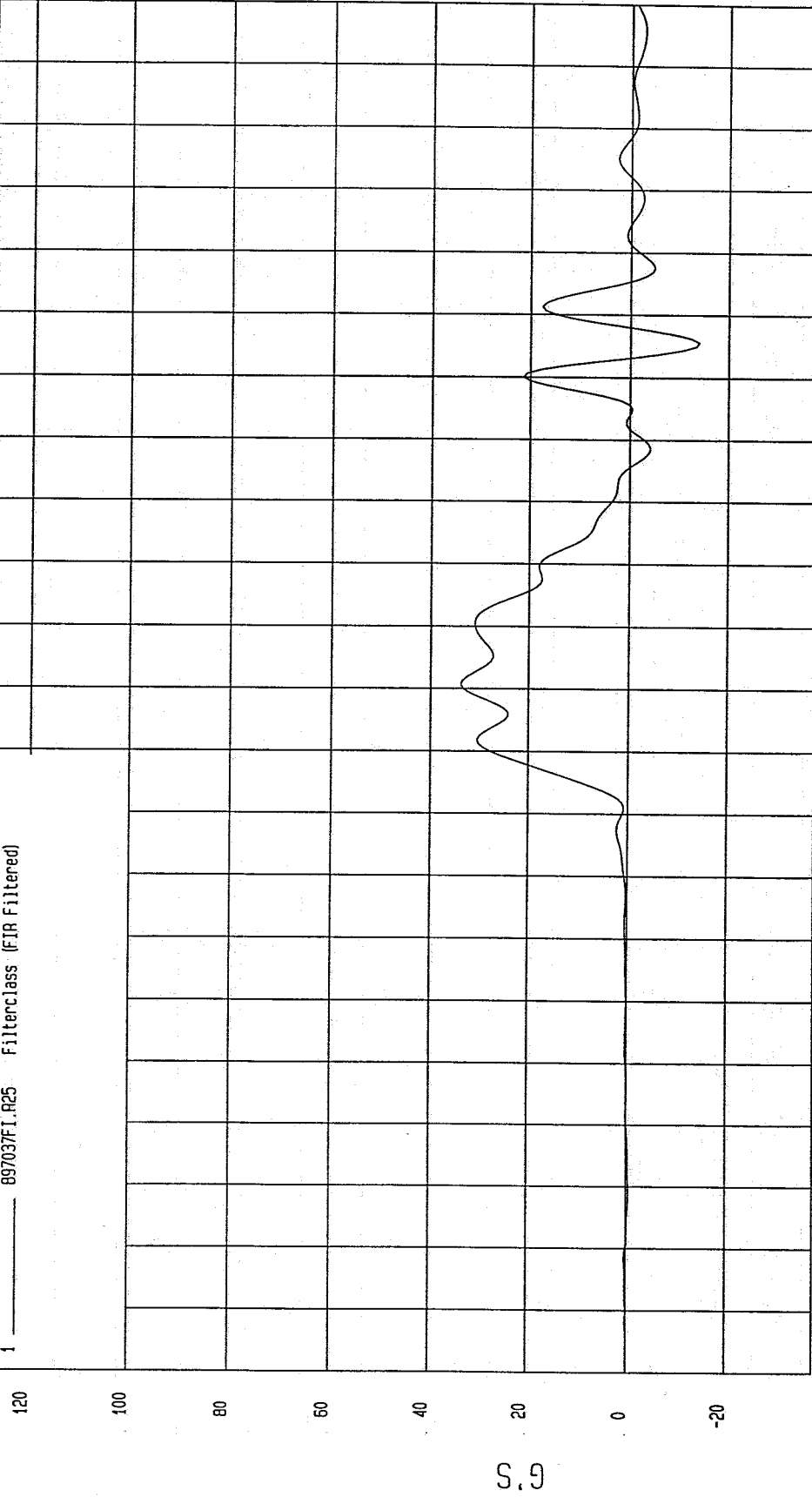
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -14.19 G'S at 146 msec Maximum = 33.82 G'S at 91 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

1 897037FI.R25 Filterclass (FIR Filtered)



TIME (SECONDS)

MGA Research  
04-01-1997 11:10

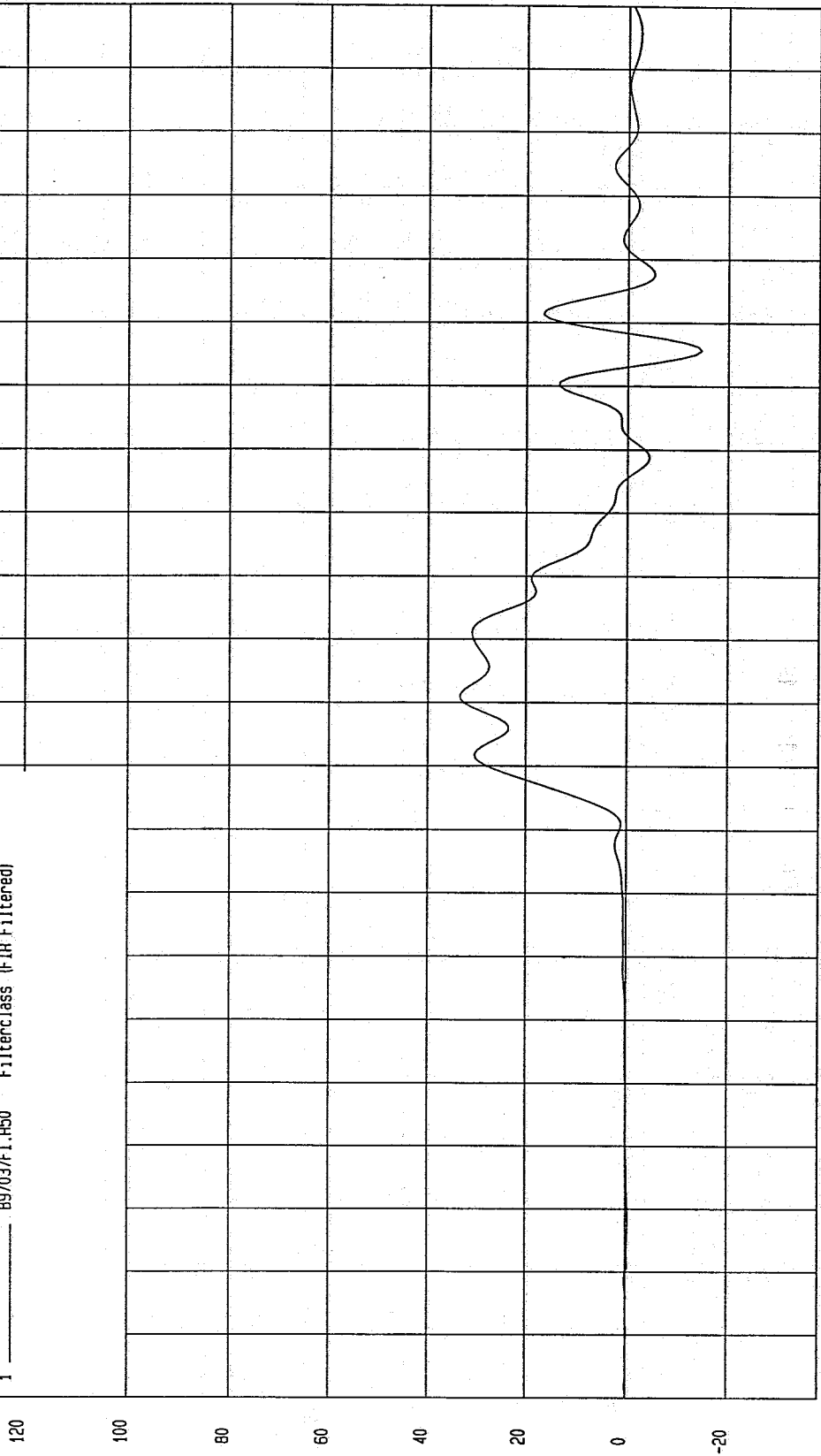
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -14.63 G'S at 146 msec  
Maximum = 33.36 G'S at 91 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ 897037FI.R50 Filterclass (FIR Filtered)



NSA Research  
04-01-1997 11:10

TIME (SECONDS)

G.S

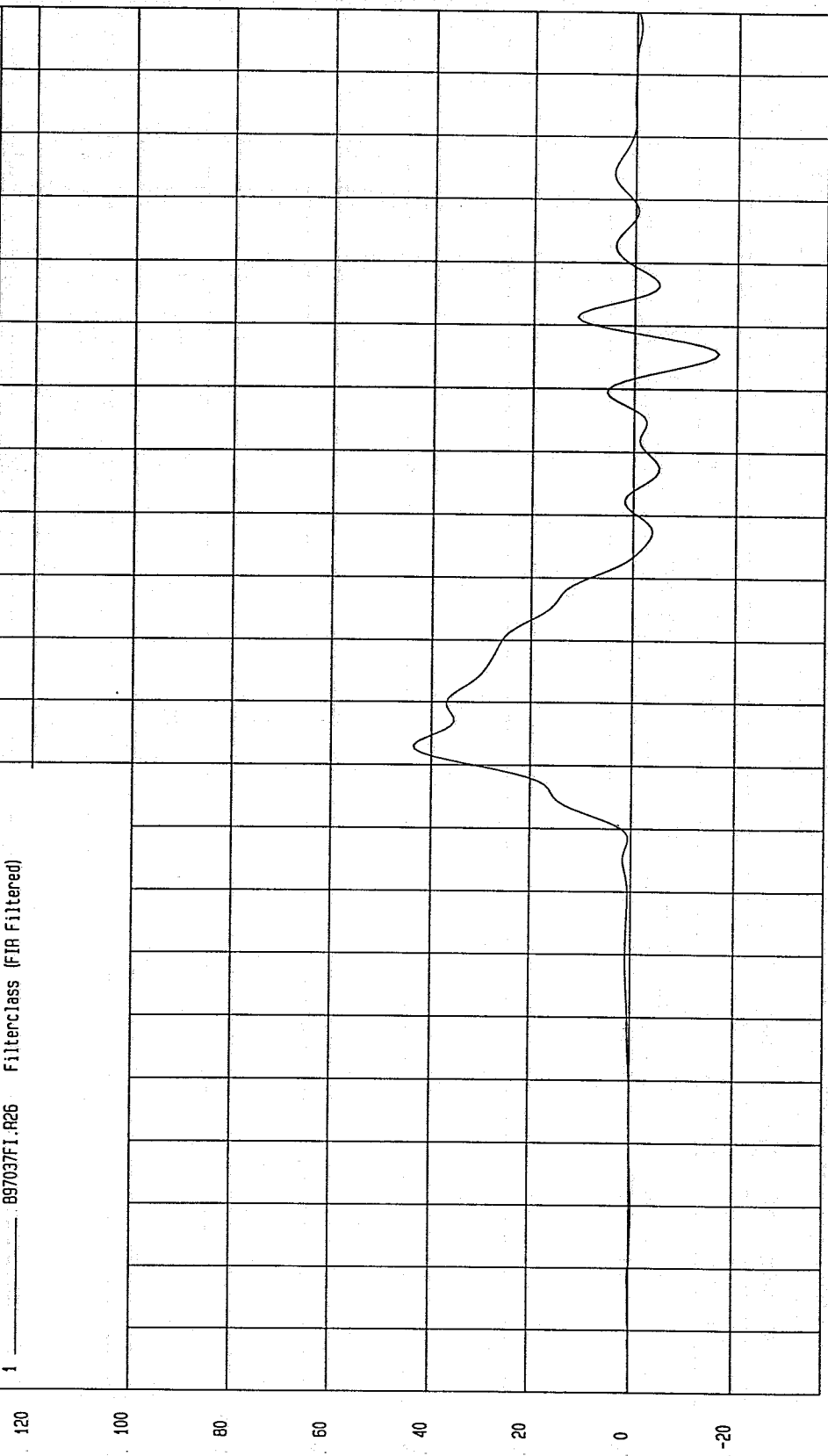
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -16.46 G'S at 146 msec Maximum = 43.44 G'S at 83 msec

REAR PASSENGER LOWER RIB Y ACCELERATION

1 897037F1.R26 Filterclass (FIR Filtered)



NGA Research  
04-07-1997 11:10

TIME (SECONDS)

G'S

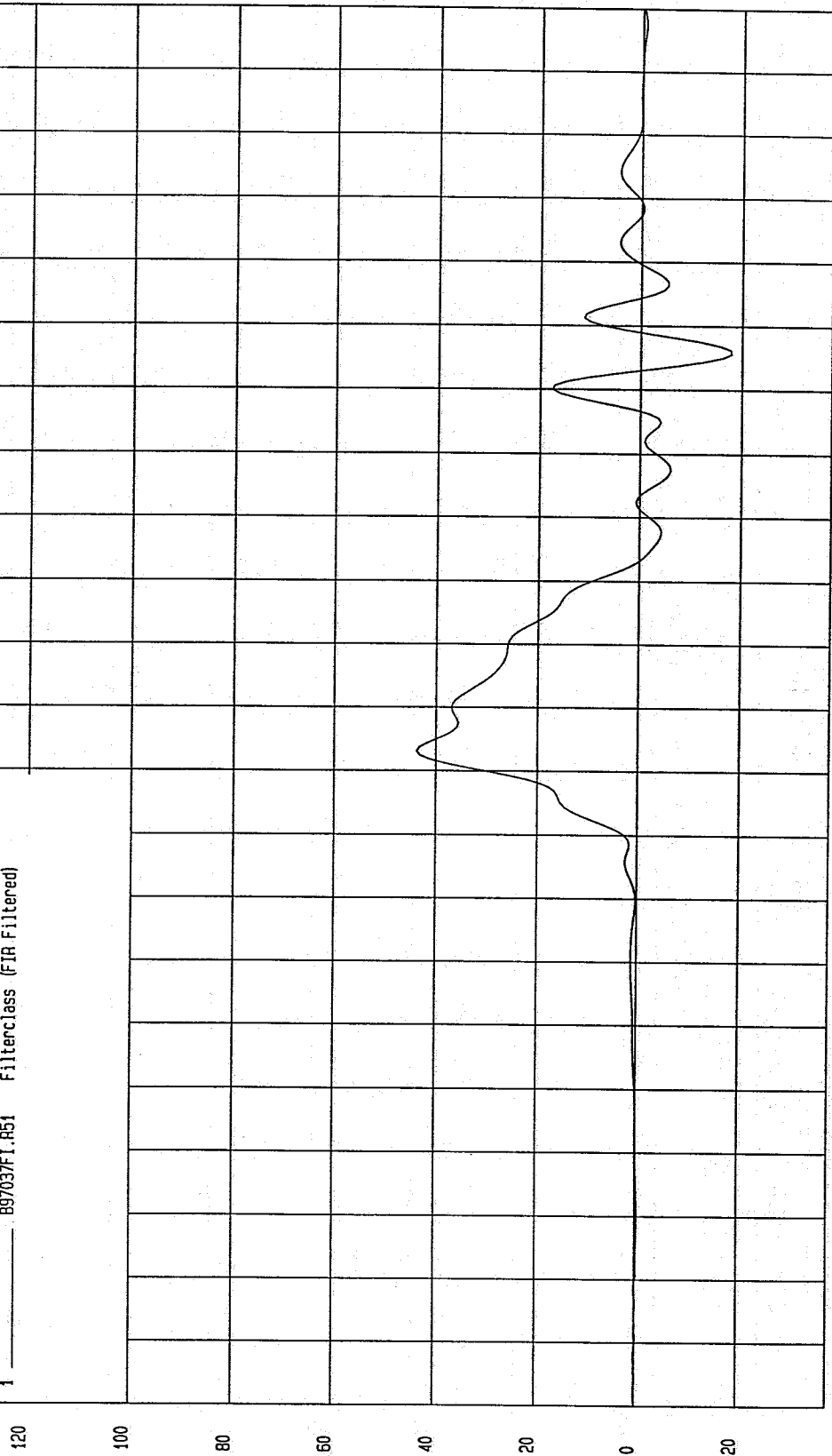
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -17.92 G'S at 146 msec Maximum = 43.85 G'S at 83 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

1 897037FI.R51 Filterclass (FIR Filtered)



NGA Research  
04-07-1997 11:10

TIME (SECONDS)

G'S

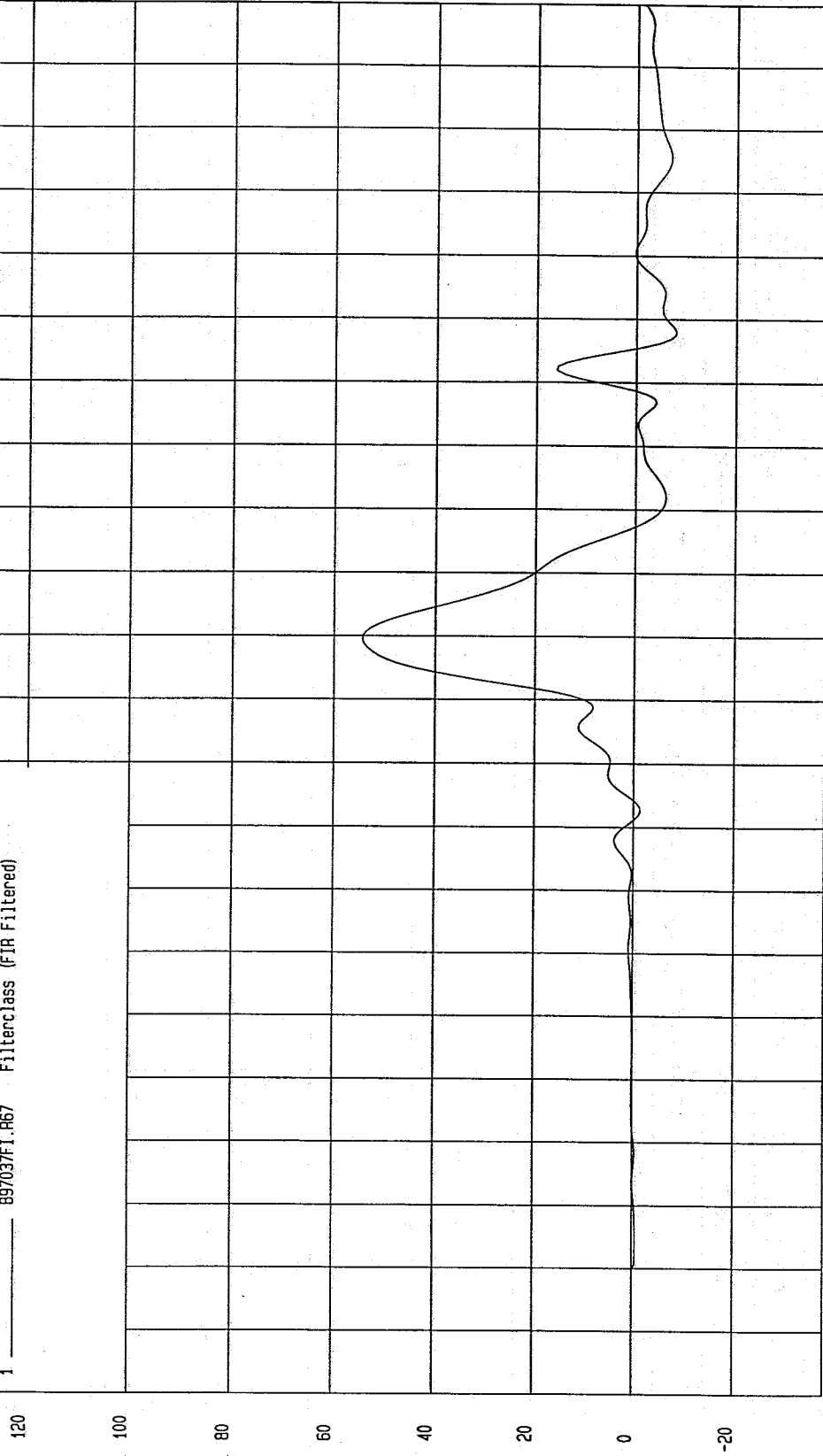
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -7.93 G'S at 148 msec Maximum = 54.17 G'S at 99 msec

REAR PASSENGER UPPER SPINE Y ACCELERATION

1 ——— 897037FI.R67 Filterclass (FIR Filtered)



MCA Research  
04-07-1997 11:11

TIME (SECONDS)

G.S

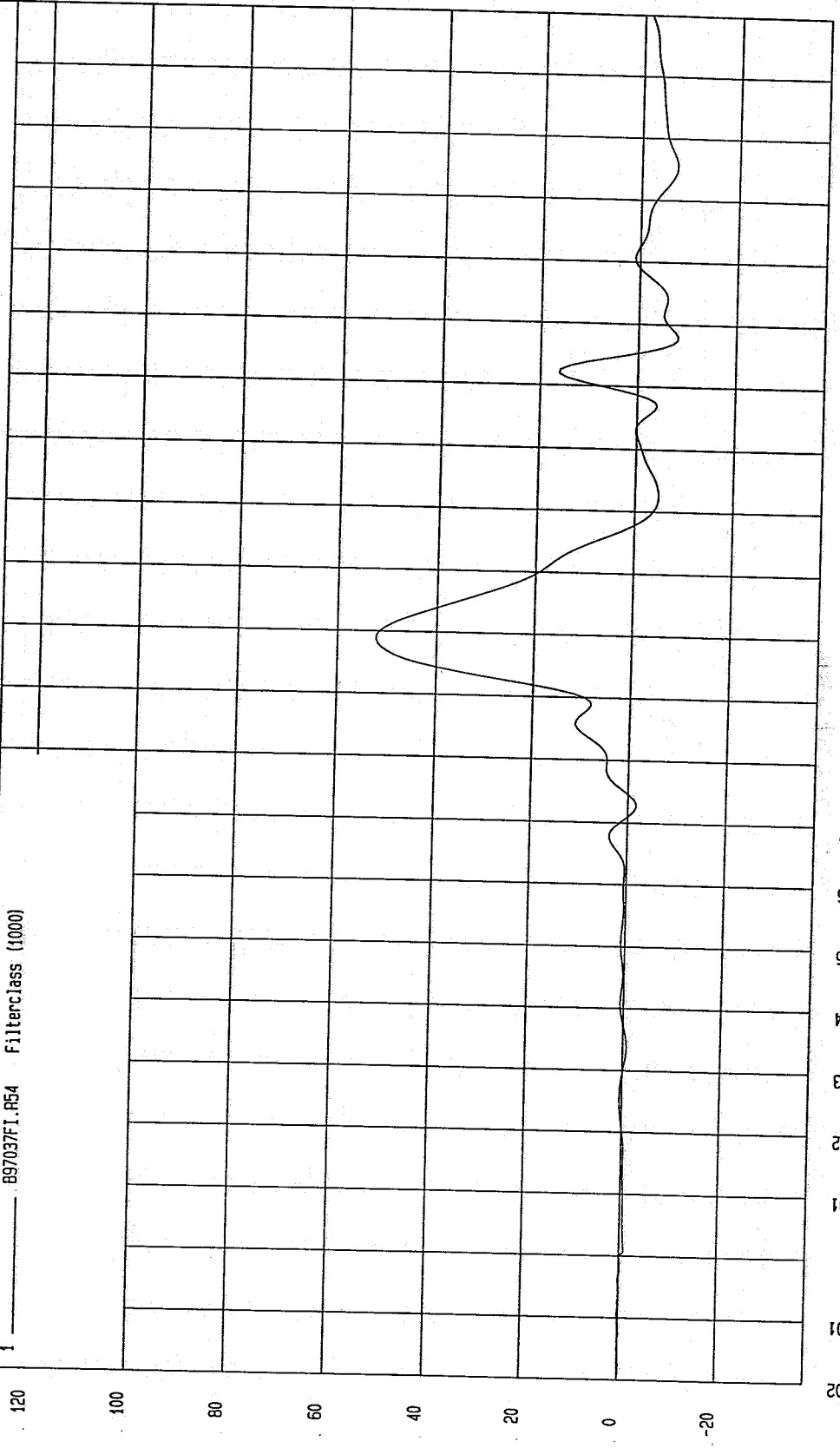
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -8.06 G'S at 148 msec Maximum = 52.13 G'S at 99 msec

REAR PASSENGER UPPER SPINE Y REDUNDANT ACCELERATION

1 897037FI.B54 Filterclass (1000)



MSA Research  
04-07-1997 11:11

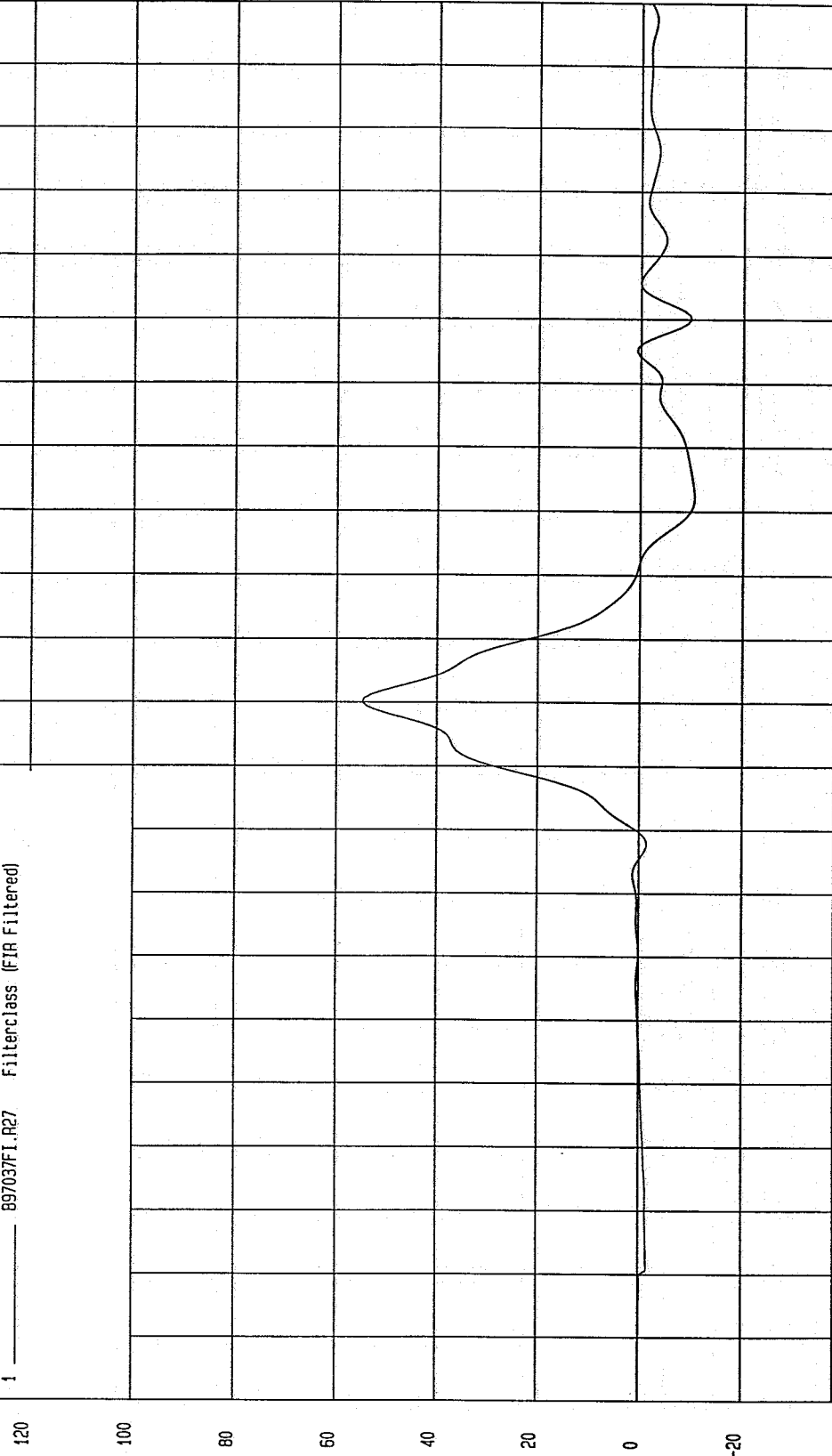
TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -10.64 G'S at 122 msec  
Maximum = 54.76 G'S at 90 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION

1 — 897037FL.R27 Filterclass (FIR Filtered)



MCA Research  
04-07-1997 11:10

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

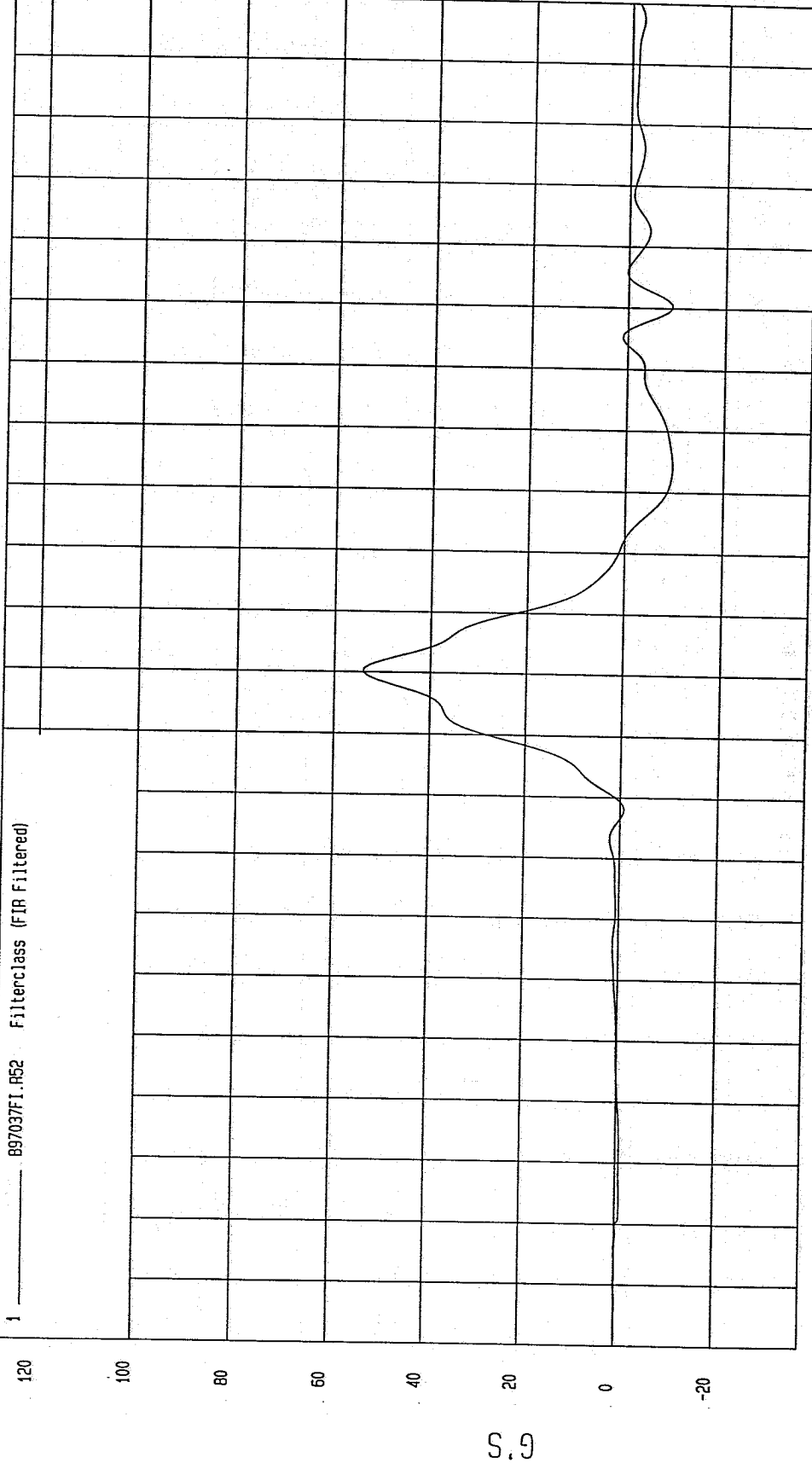
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -9.67 G'S at 124 msec

Maximum = 53.91 G'S at 90 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ B97037FI.R62 Filterclass (FIR Filtered)



MCA Research  
04-07-1997 11: 10

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT TEST DATE: 03-11-1997

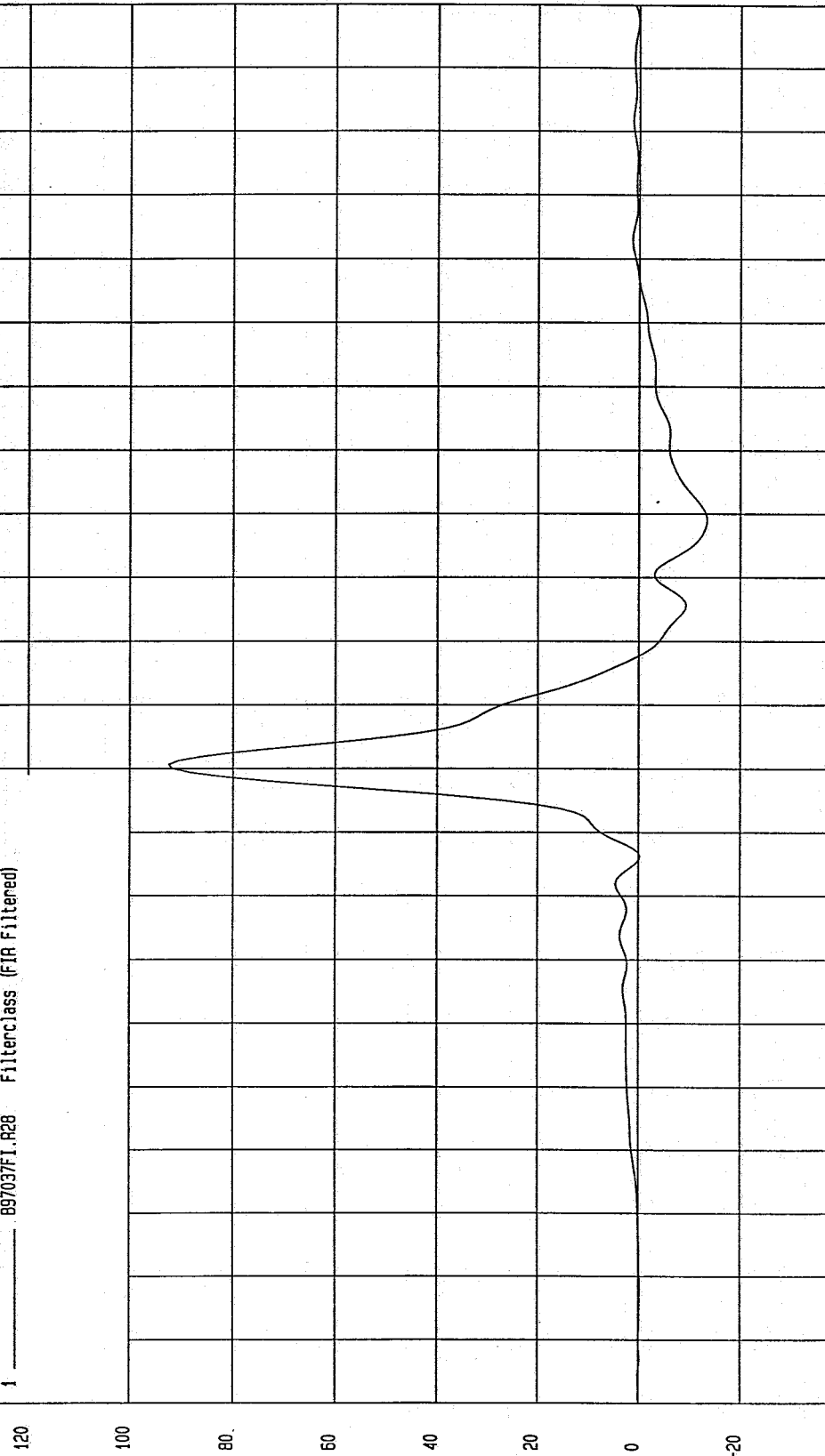
COMPONENT: 1991 FORD TAURUS Speed: 39.83 MPH 64.1 KPH

Minimum = -13.42 G'S at 119 msec

Maximum = 92.60 G'S at 81 msec

REAR PASSENGER PELVIS Y ACCELERATION

1 897037FL.R28 Filterclass (FIR Filtered)



WCA Research  
03-07-1997 11:15

TEST: 19/60 DEGREE CART/VEHICLE SIDE IMPACT

TEST DATE: 03-11-1997

COMPONENT: 1991 FORD TAURUS

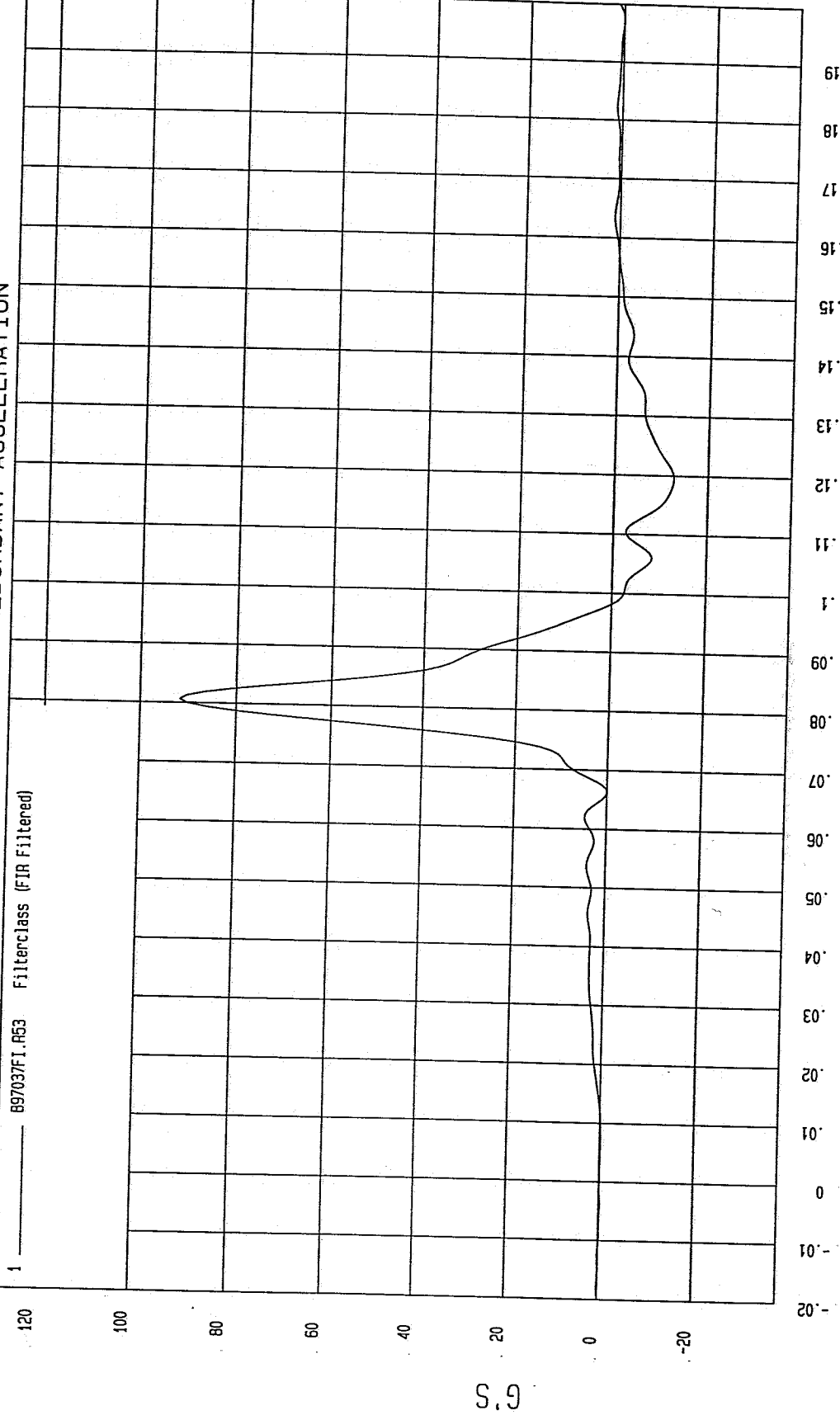
Speed: 39.83 MPH 64.1 KPH

Minimum = -12.76 G'S at 119 msec

Maximum = 91.75 G'S at 81 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION

1 — 897037I.R63 Filterclass (FIR Filtered)



MCA Research  
04-07-1997 11:17

APPENDIX C  
SID CONFIGURATION AND PERFORMANCE VERIFICATION

DUMMY PERFORMANCE CALIBRATIONS

SIDE IMPACT TEST

1991 FORD TAURUS

MGA PROVING GROUNDS  
5000 WARREN ROAD  
BURLINGTON, WI 53105



Test Date: March 11, 1997

Report Date: March 31, 1997

FINAL REPORT

Prepared For:

U. S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
ENFORCEMENT

OFFICE OF VEHICLE SAFETY COMPLIANCE

MAIL CODE: NEF-30  
400 SEVENTH STREET, S.W., ROOM 6115  
Washington, D.C. 20590

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	VEHICLE AND DUMMY TEMPERATURE	7-1

PRE-TEST CERTIFICATION DATA

Front Dummy Serial Number: 270

## Calibration Test Results Summary

Dummy Serial Number: 270

### Pre-Test Calibration

External Dimensions: The dummy passed all external dimension requirements.

Thorax Impact Test: The thorax passed all impact test requirements.

Pelvic Impact Test: The pelvis passed all impact test requirements.

Abdominal Compression Test: The abdomen passed all compression test requirements.

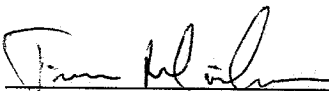
Lumbar Flexion Test: The lumbar passed all flexion test requirements.

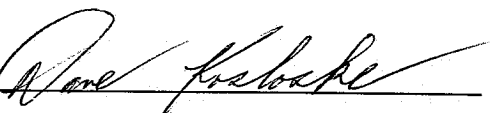
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: March 10, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
RH - Rib Height	19.75" - 20.50"	20.50
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.4
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.6
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 10, 1997

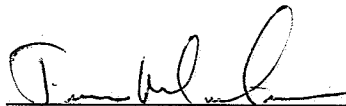
DUMMY NUMBER: 270

TEST NUMBER: D97652

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	22%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	39
LOWER RIB	37 - 46 g's	37
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN



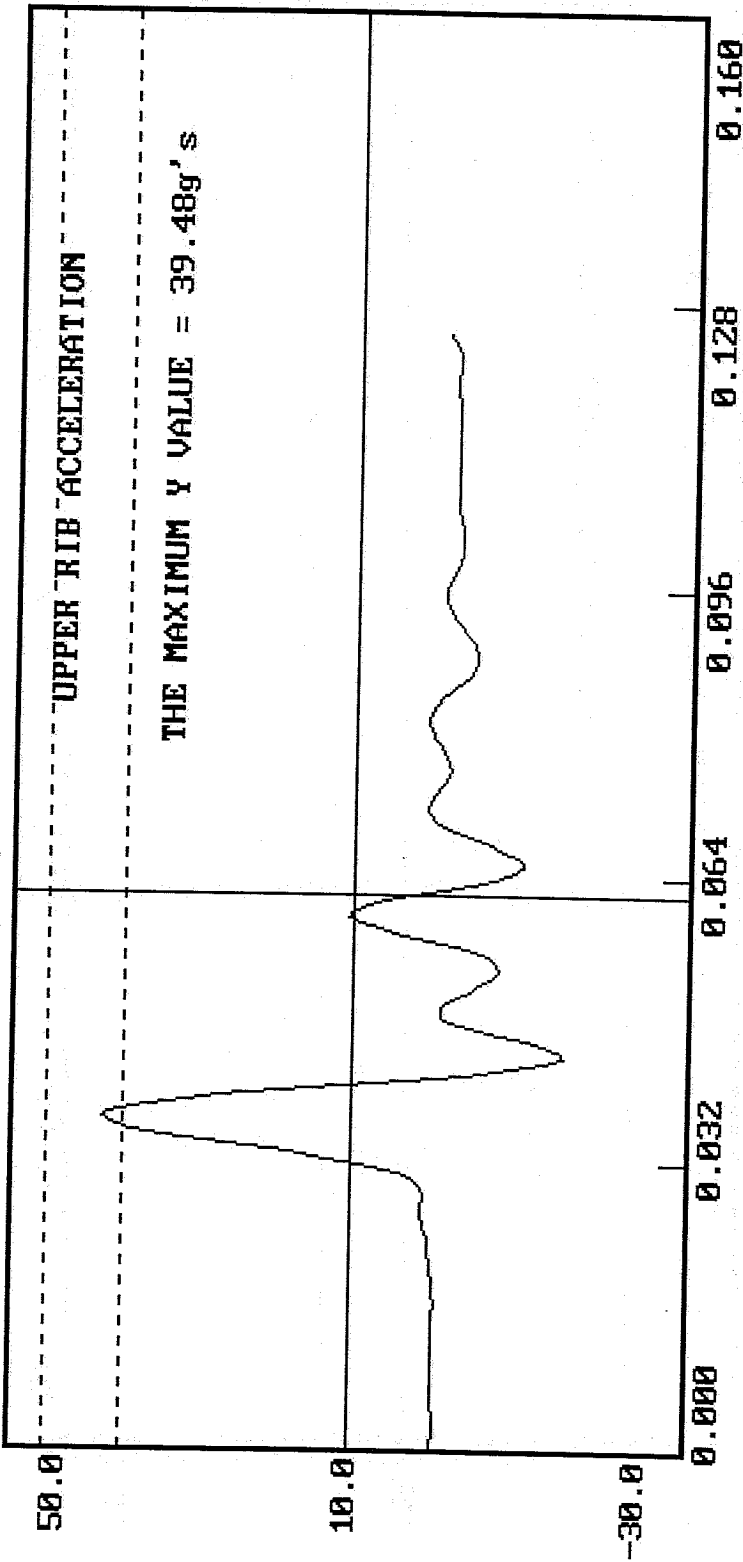
APPROVED BY



DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 270

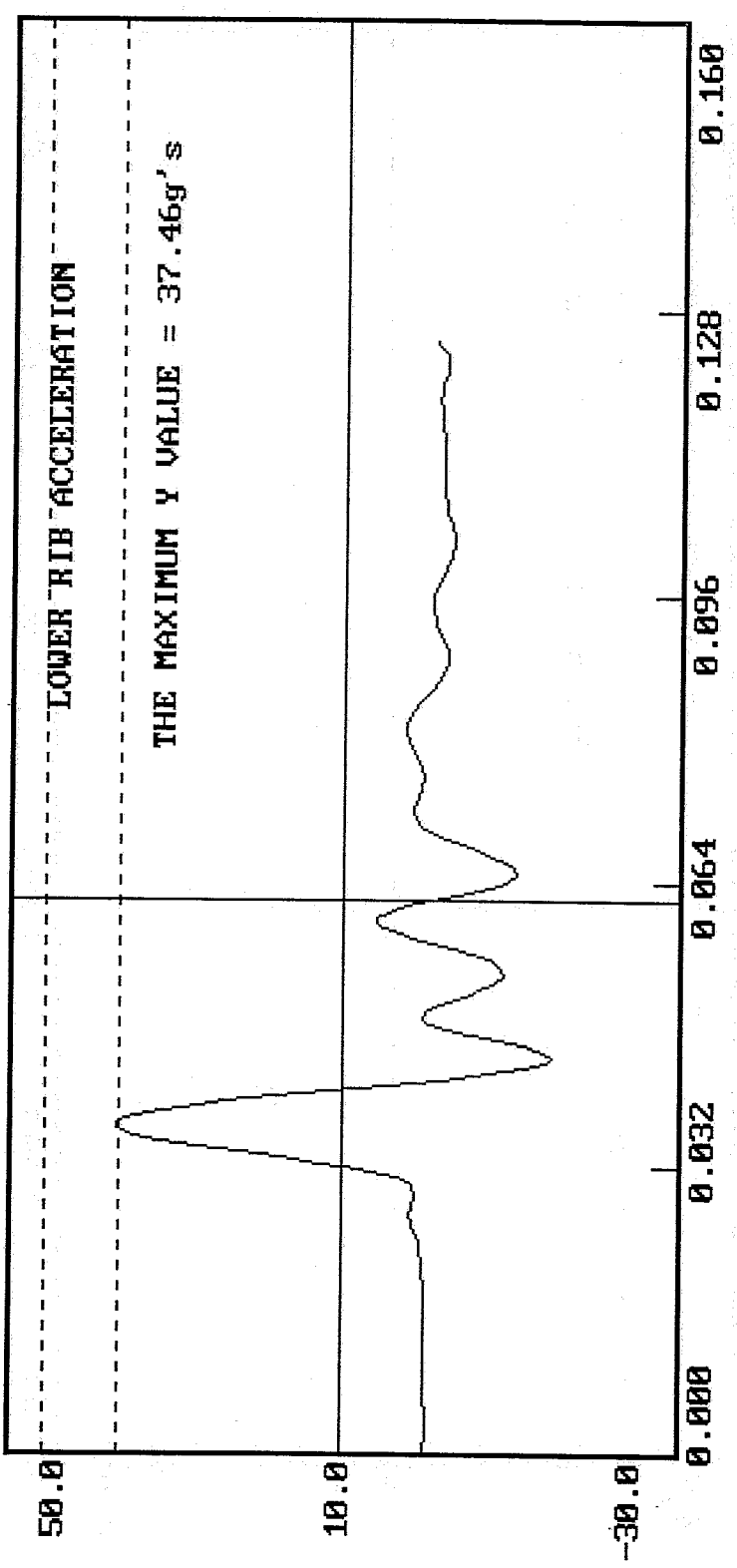
03-10-1997 12:07

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



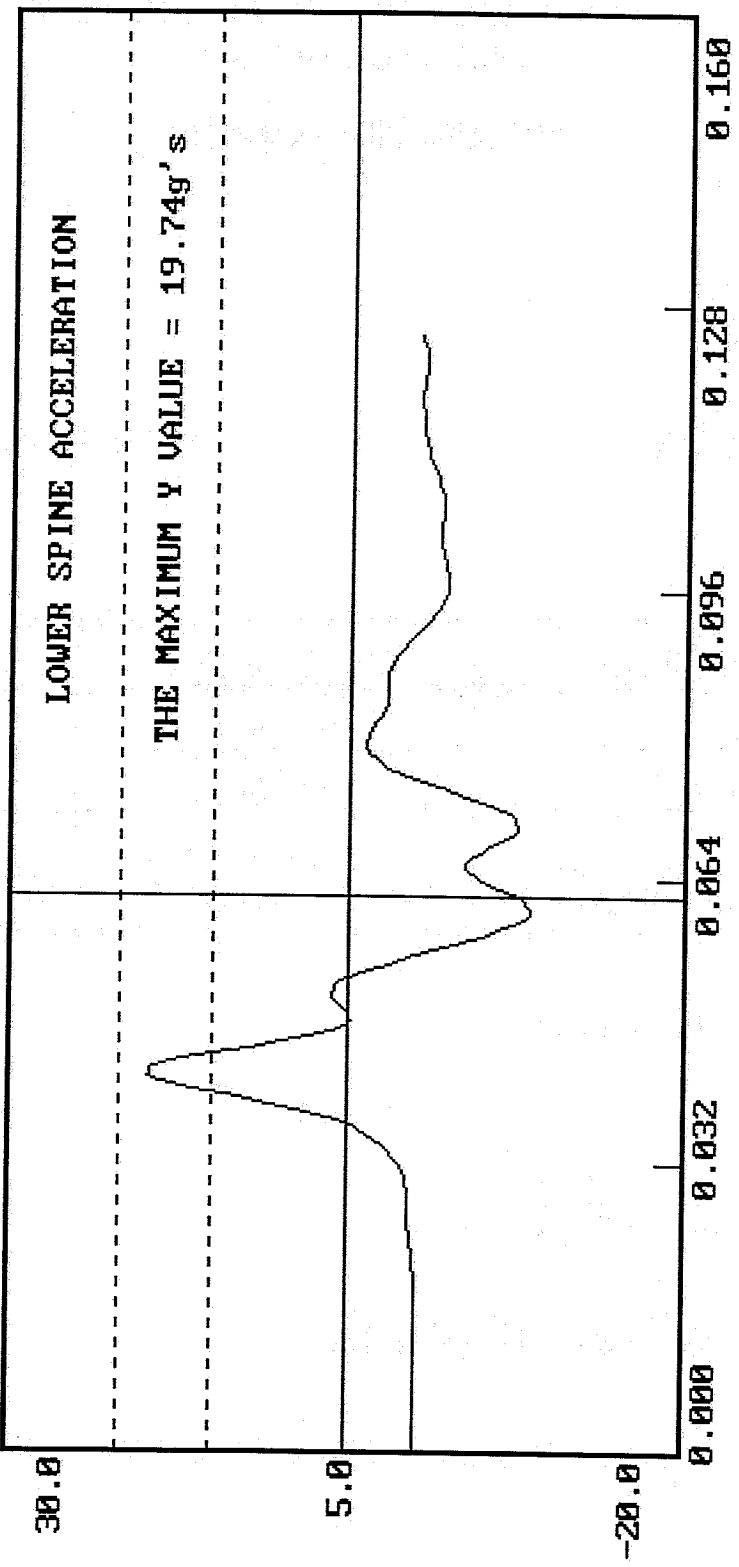
IMPACT SPEED = 14.02 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 270  
03-10-1997 12:07  
ACCELERATION (G'S) VS. TIME ((SECONDS))



IMPACT SPEED = 14.02 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 270  
ACCELERATION (G'S) VS. TIME (SECONDS) 03-10-1997 12:07



IMPACT SPEED = 14.02 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 10, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97653

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	22%
PROBE SPEED	13.8 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	46

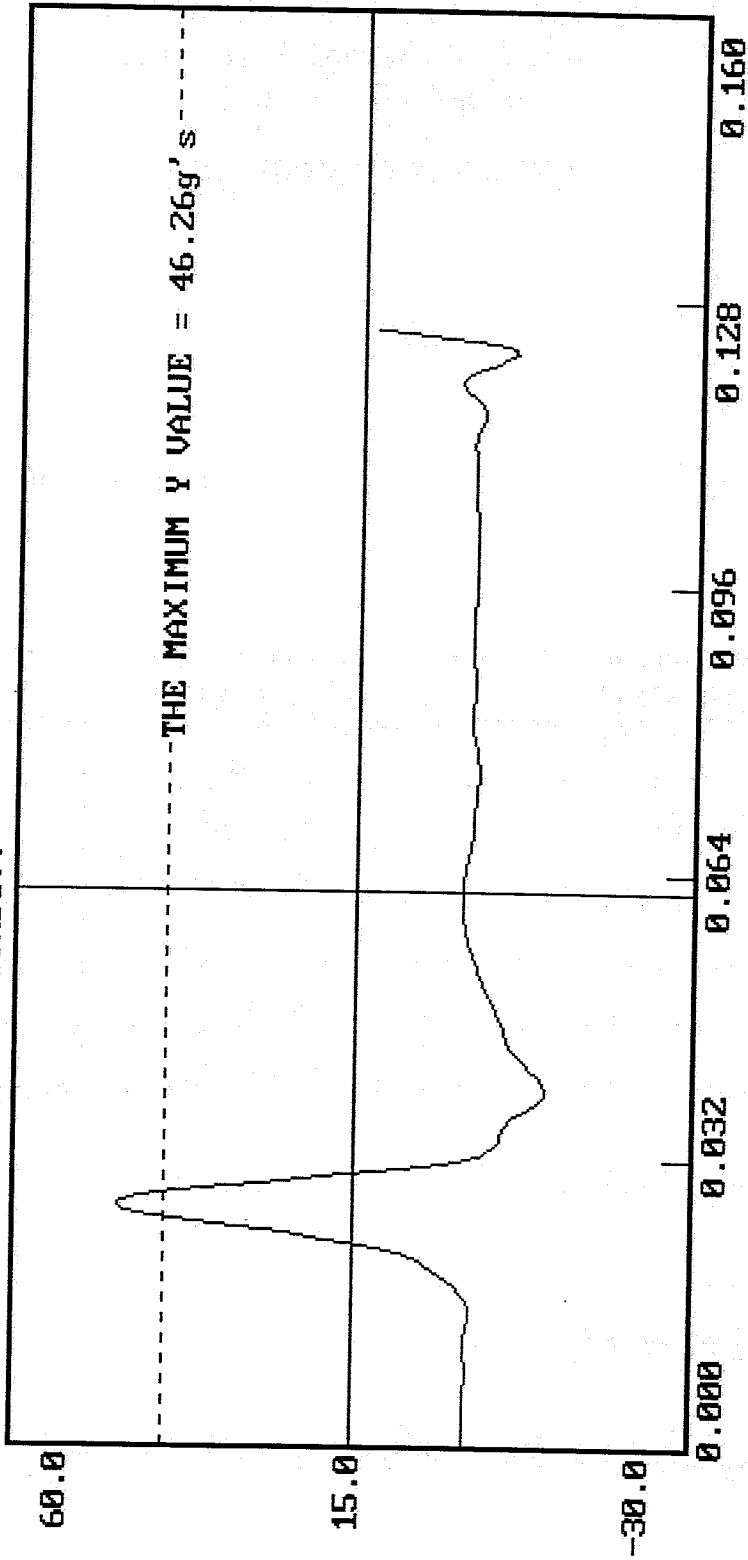
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

03-10-1997 12:34

DUMMY CALIBRATION - PELVIS IMPACT  
DUMMY # 270  
ACCELERATION (G'S) VS. TIME (SECONDS)



IMPACT SPEED = 14.06 FT/SEC

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

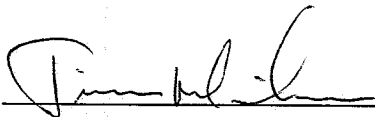
DATE: March 10, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97654

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.6
FORCE @ 0.75 in	36.7 - 49.8 lbs	43.8
FORCE @ 1.0 in	50 - 63 lbs	58
FORCE @ 1.3 in	73 - 88 lbs	79

TEST MEETS SPECIFICATIONS

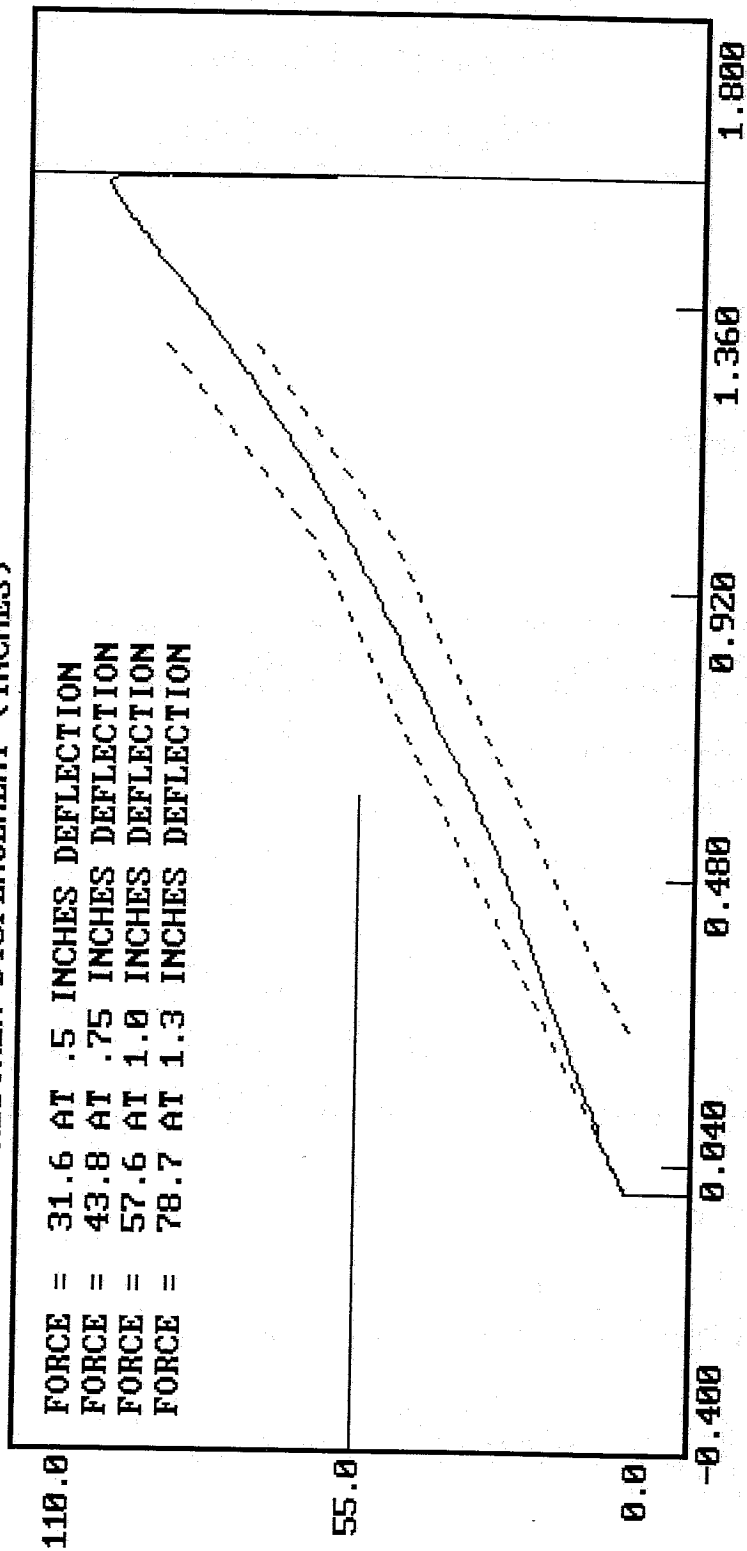
TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION  
DUMMY # 270

03-10-1997 10:18

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



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: March 10, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97655

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	24
FORCE @ 30°	34 - 46 lbs	38
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	2°

TEST MEETS SPECIFICATIONS

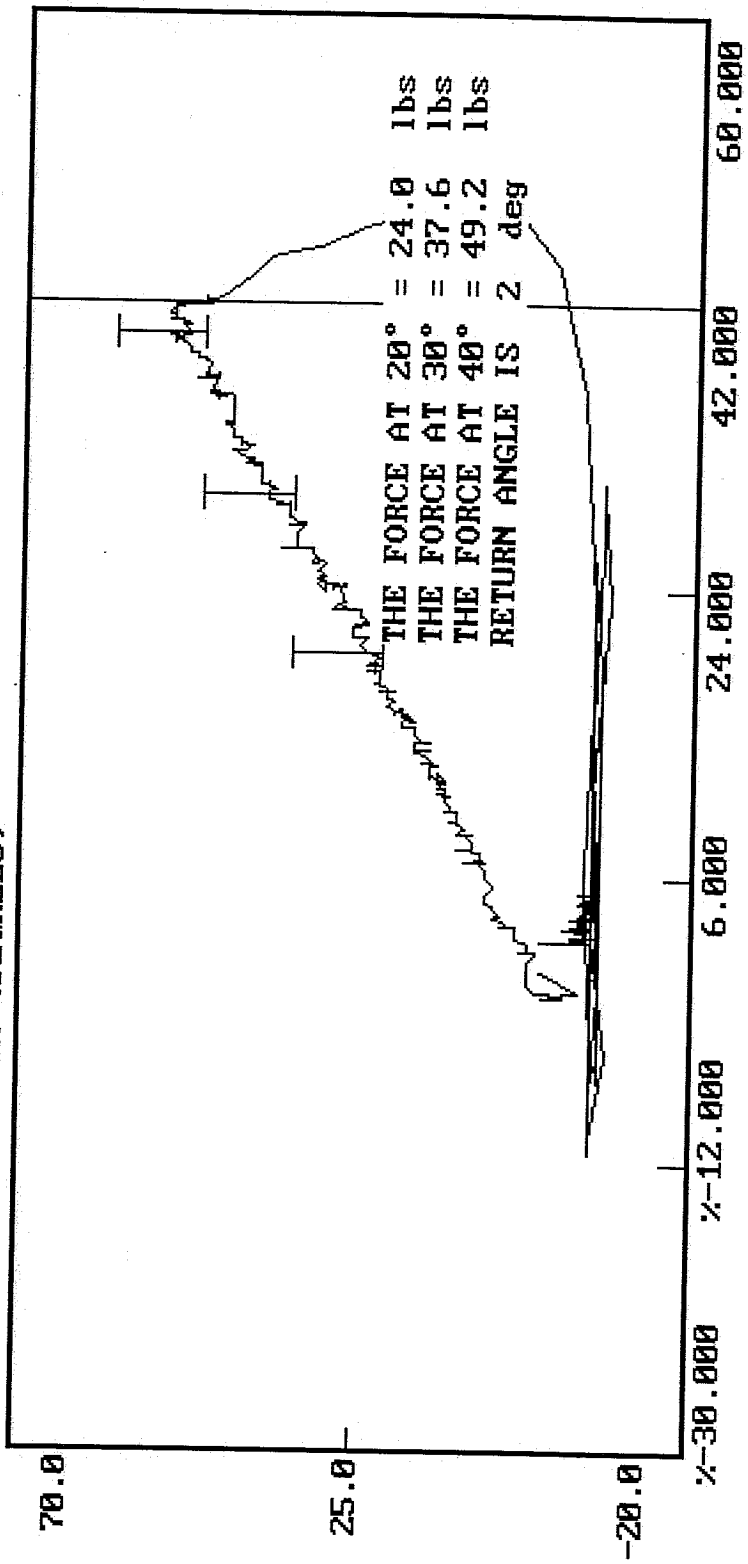
TECHNICIAN Jim M. G.

APPROVED BY Paul Kalsche

DUMMY CALIBRATION - LUMBAR FLEXION  
DUMMY # 270

03-10-1997 09:44

FORCE (LBS) VS. TORSO ROTATION (DEGREES)



IMPACT SPEED = 0.00 FT/SEC

PRE-TEST CERTIFICATION DATA

Rear Dummy Serial Number: 269

## Calibration Test Results Summary

Passenger Serial Number: 269

### Pre-Test Calibration

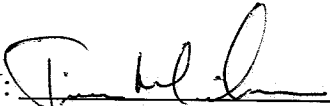
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: March 9, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
RH - Rib Height	19.75" - 20.50"	20.20
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.4
HW - Hip Width	14.0" - 15.4"	15.1

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

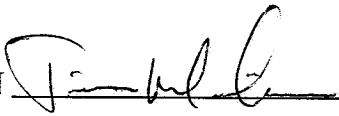
DATE: March 7, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97592

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
PROBE SPEED	13.8 - 14.2 fps	13.9
UPPER RIB	37 - 46 g's	38
LOWER RIB	37 - 46 g's	41
LOWER SPINE	15 - 22 g's	18

TEST MEETS SPECIFICATIONS

TECHNICIAN 

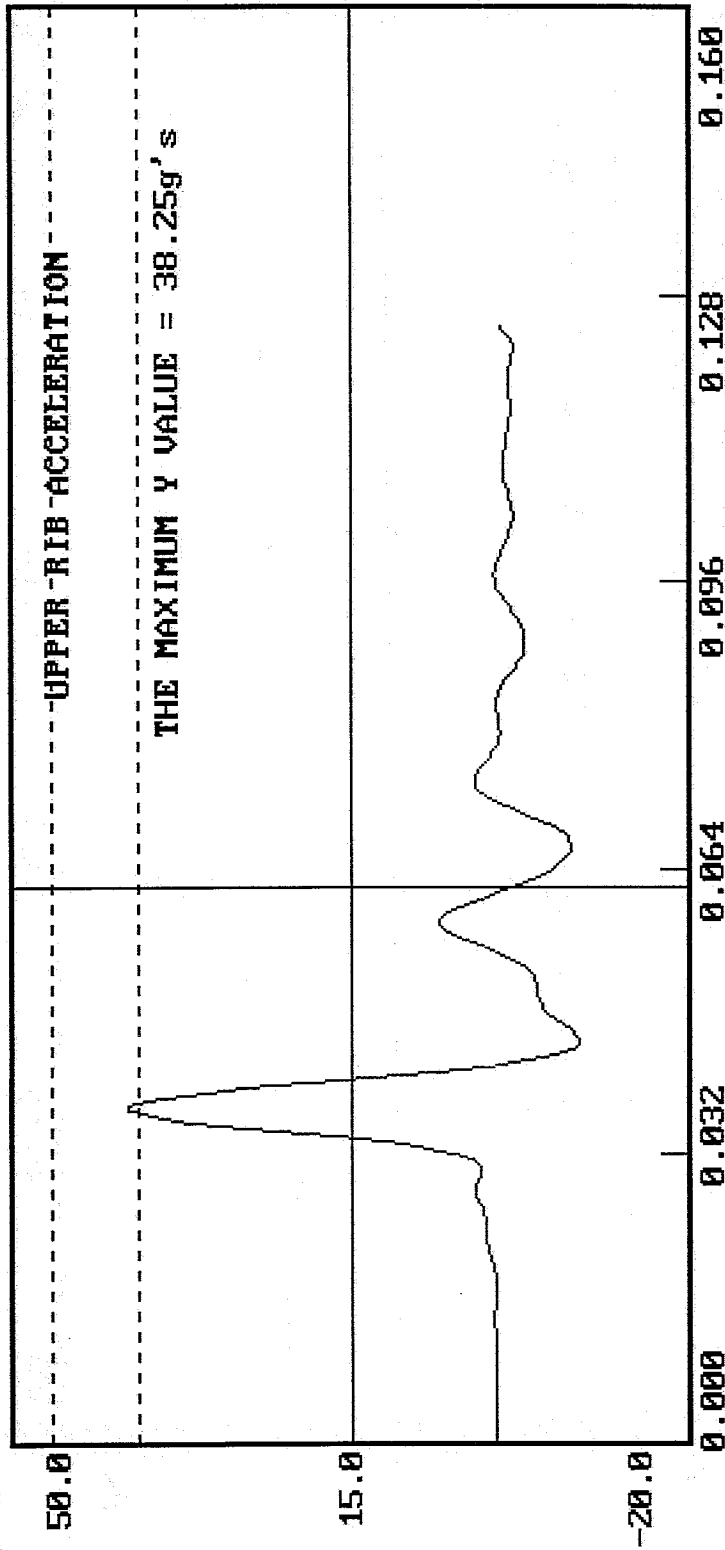
APPROVED BY 

03-07-1997 14:39

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

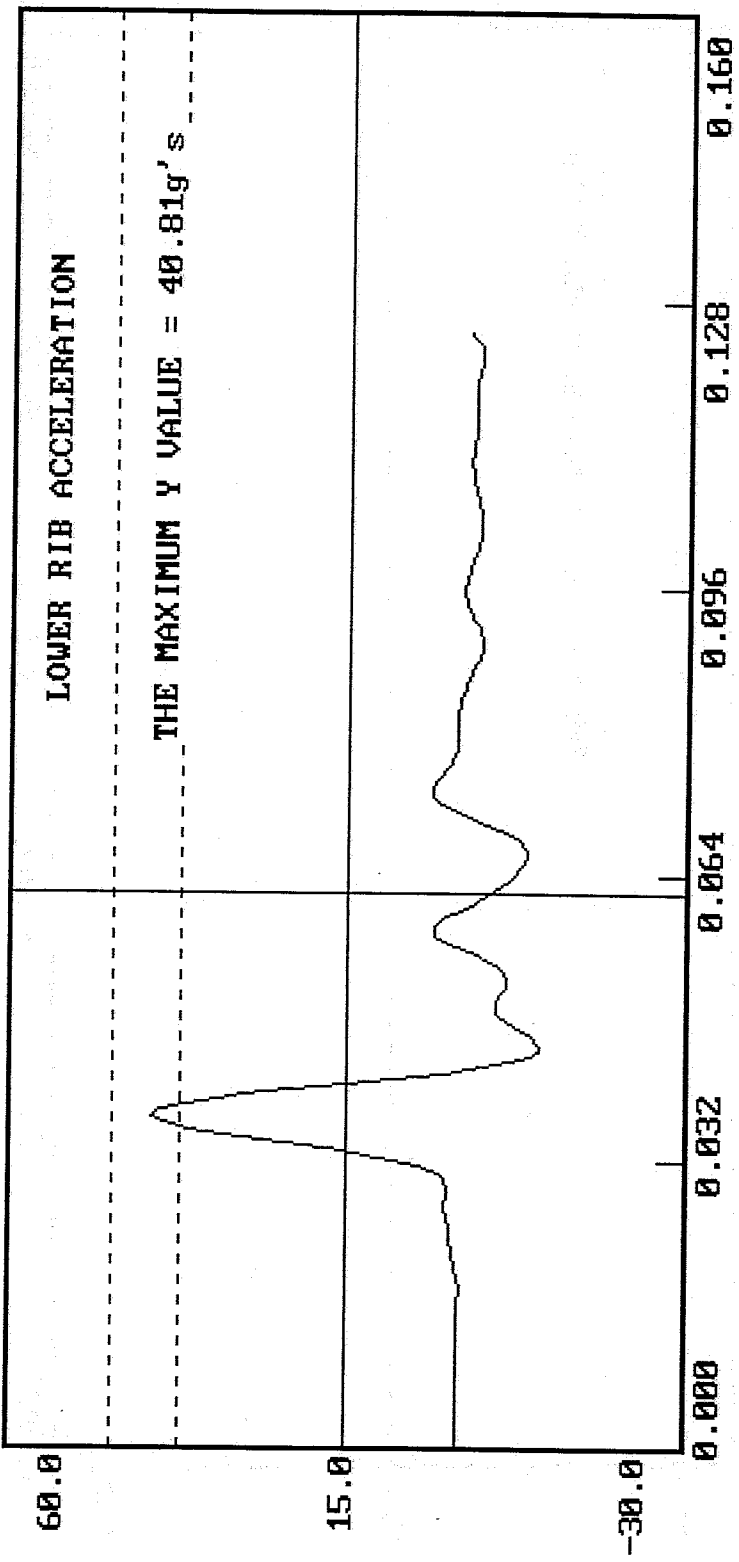
ACCELERATION (G'S) VS. TIME ((SECONDS))



IMPACT SPEED = 13.93 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 269  
ACCELERATION (G'S) VS. TIME ((SECONDS))

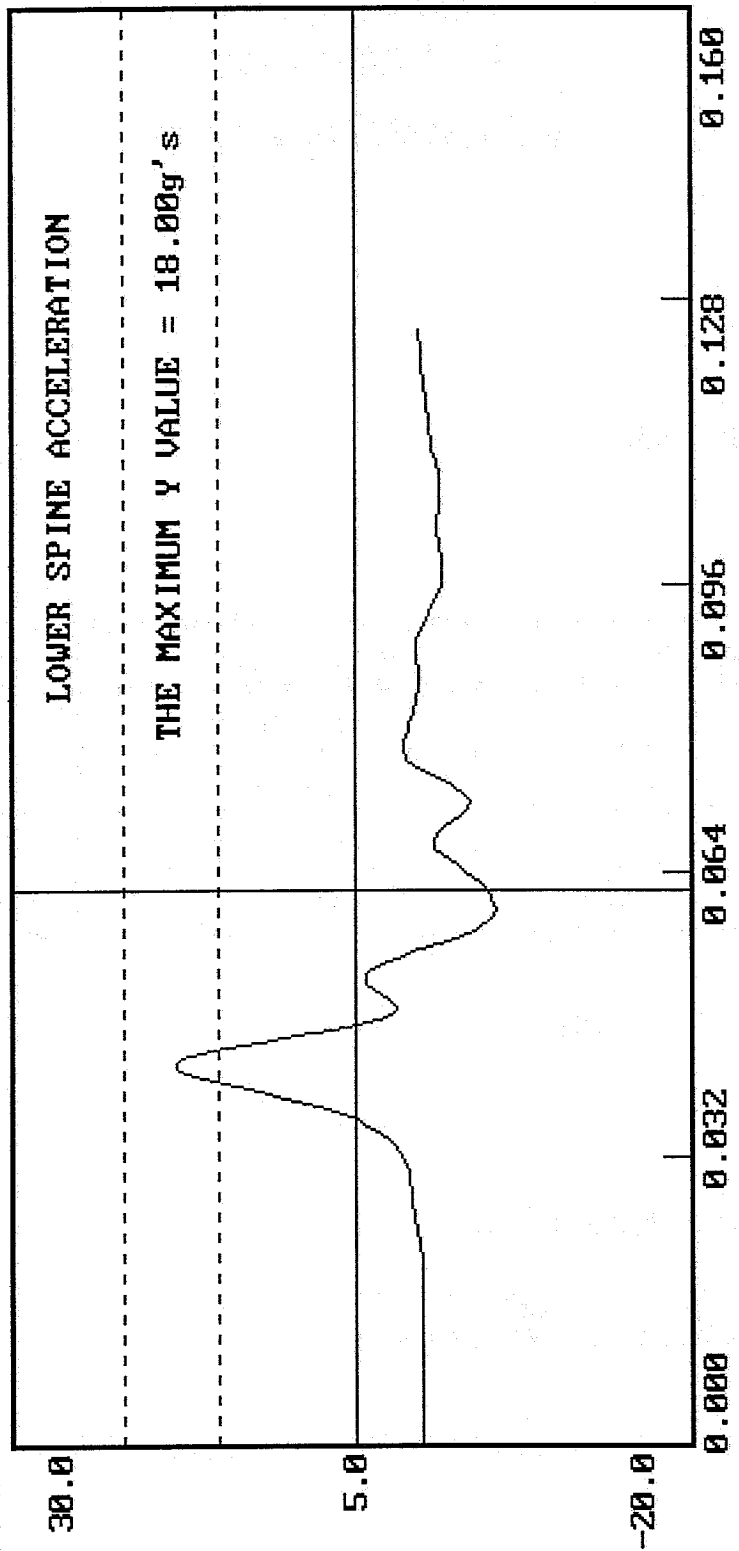
03-07-1997 14:39



IMPACT SPEED = 13.93 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 269  
ACCELERATION (G'S) VS. TIME ((SECONDS))

03-07-1997 14:39



IMPACT SPEED = 13.93 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

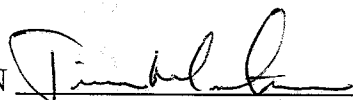
DATE: March 7, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97593

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	18%
PROBE SPEED	13.8 - 14.2 f/s	13.8
PELVIS ACCELERATION	40 - 60 g's	58

TEST MEETS SPECIFICATIONS

TECHNICIAN 

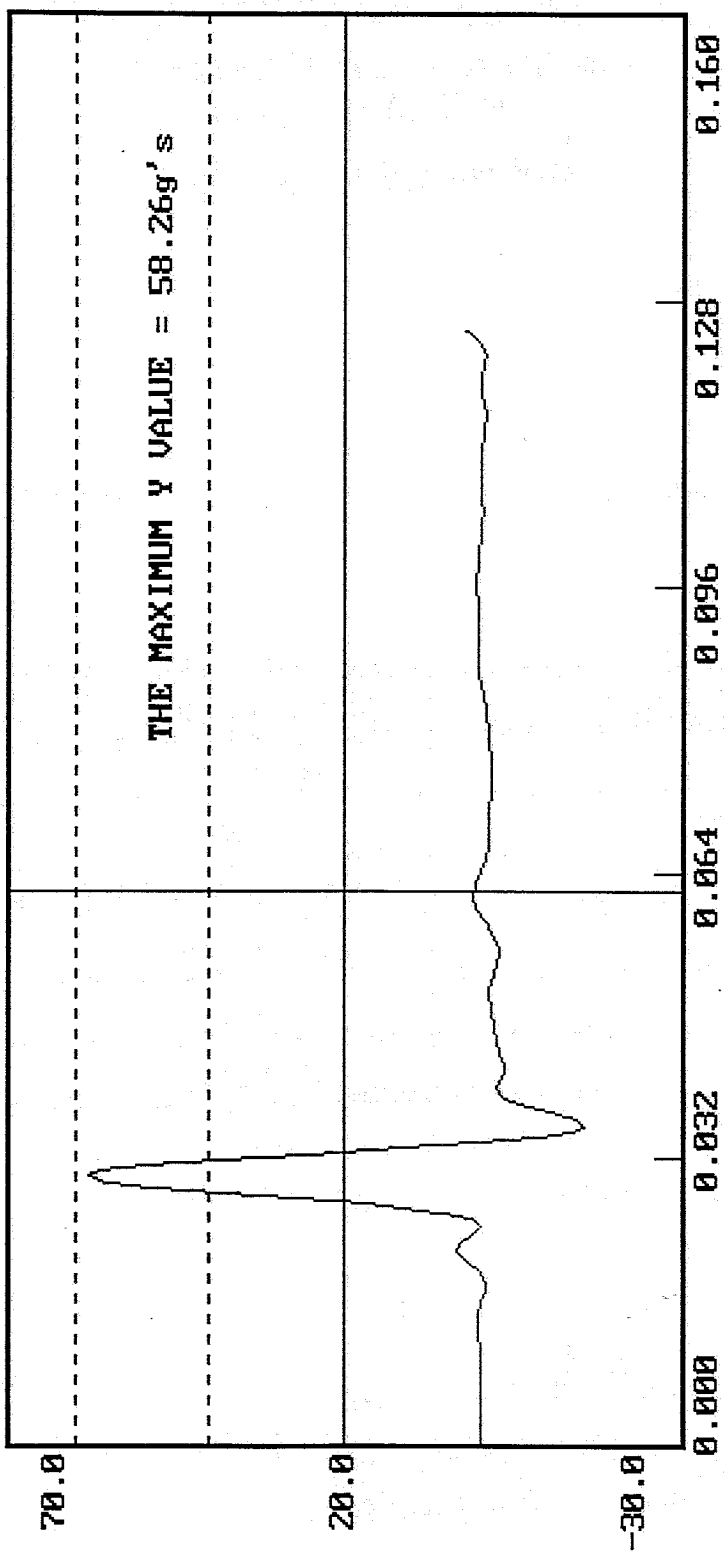
APPROVED BY 

03-07-1997 16:06

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # 269

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



IMPACT SPEED = 13.80 FT/SEC

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

DATE: March 9, 1997

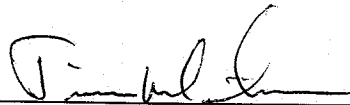
DUMMY NUMBER: 269

TEST NUMBER: D97594

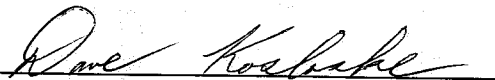
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	34.9
FORCE @ 0.75 in	36.7 - 49.8 lbs	47.9
FORCE @ 1.0 in	50 - 63 lbs	63
FORCE @ 1.3 in	73 - 88 lbs	86

TEST MEETS SPECIFICATIONS

TECHNICIAN



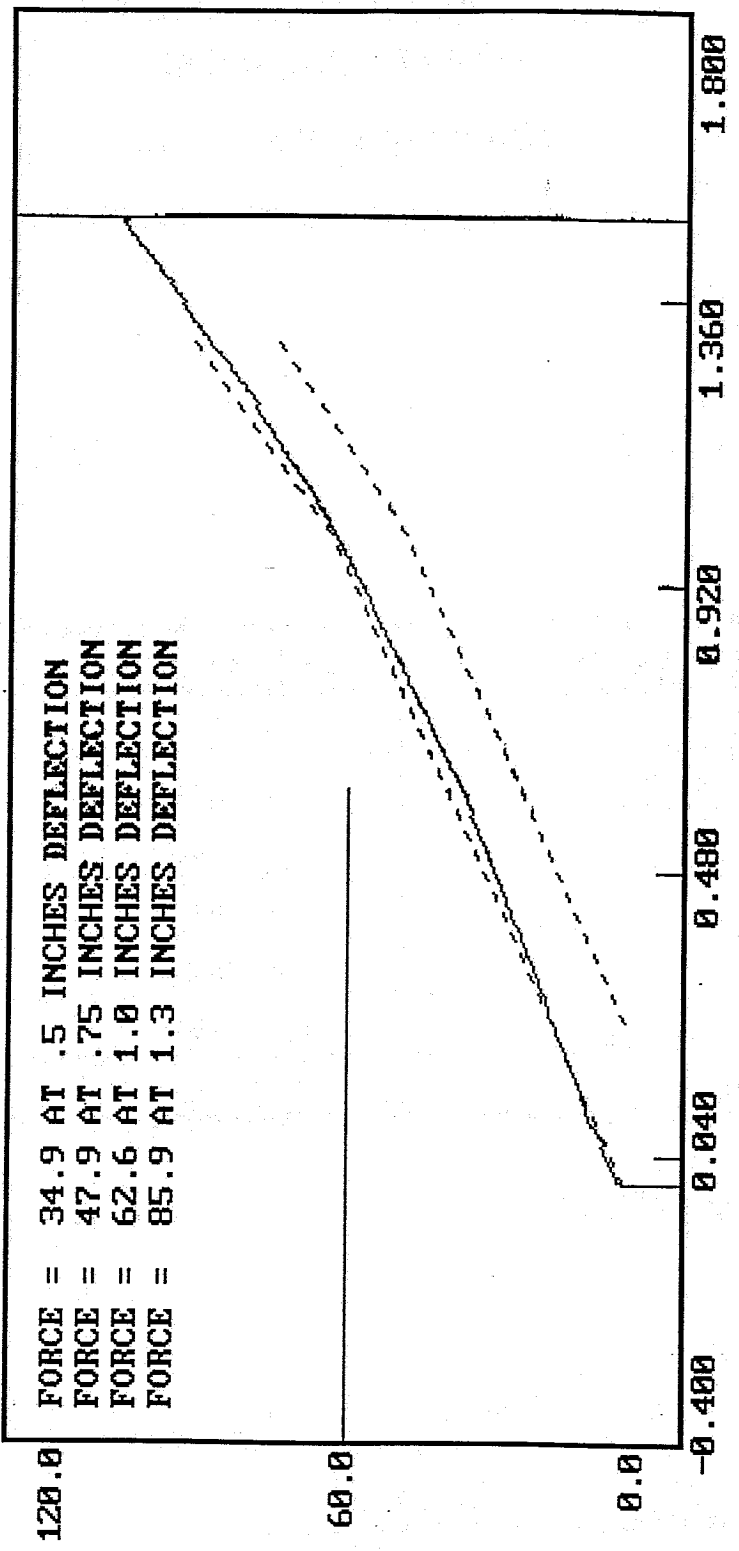
APPROVED BY



DUMMY CALIBRATION - ABDOMEN COMPRESSION  
DUMMY # 269

03-09-1997 10:45

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



IMPACT SPEED = 0.00 FT/SEC

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: March 9, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97595

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	29
FORCE @ 30°	34 - 46 lbs	42
FORCE @ 40°	46 - 58 lbs	50
RETURN ANGLE	12° maximum	4°

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - LUMBAR FLEXION

DUMMY # 269

FORCE (LBS) VS. TORSO ROTATION (DEGREES)

03-09-1997 11:05



IMPACT SPEED = 0.00 FT/SEC

POST-TEST CERTIFICATION DATA

Front Dummy Serial Number: 270

Calibration Test Results Summary

Dummy Serial Number: 270

Post-Test Calibration

External Dimensions: The dummy passed all external dimension requirements.

Thorax Impact Test: The thorax passed all impact test requirements.

Pelvic Impact Test: The pelvis passed all impact test requirements.

Abdominal Compression Test: The abdomen passed all compression test requirements.

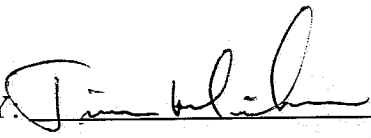
Lumbar Flexion Test: The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: March 13, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
RH - Rib Height	19.75" - 20.50"	20.50
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.4
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.6
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 13, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97672

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
PROBE SPEED	13.8 - 14.2 fps	14.1
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN

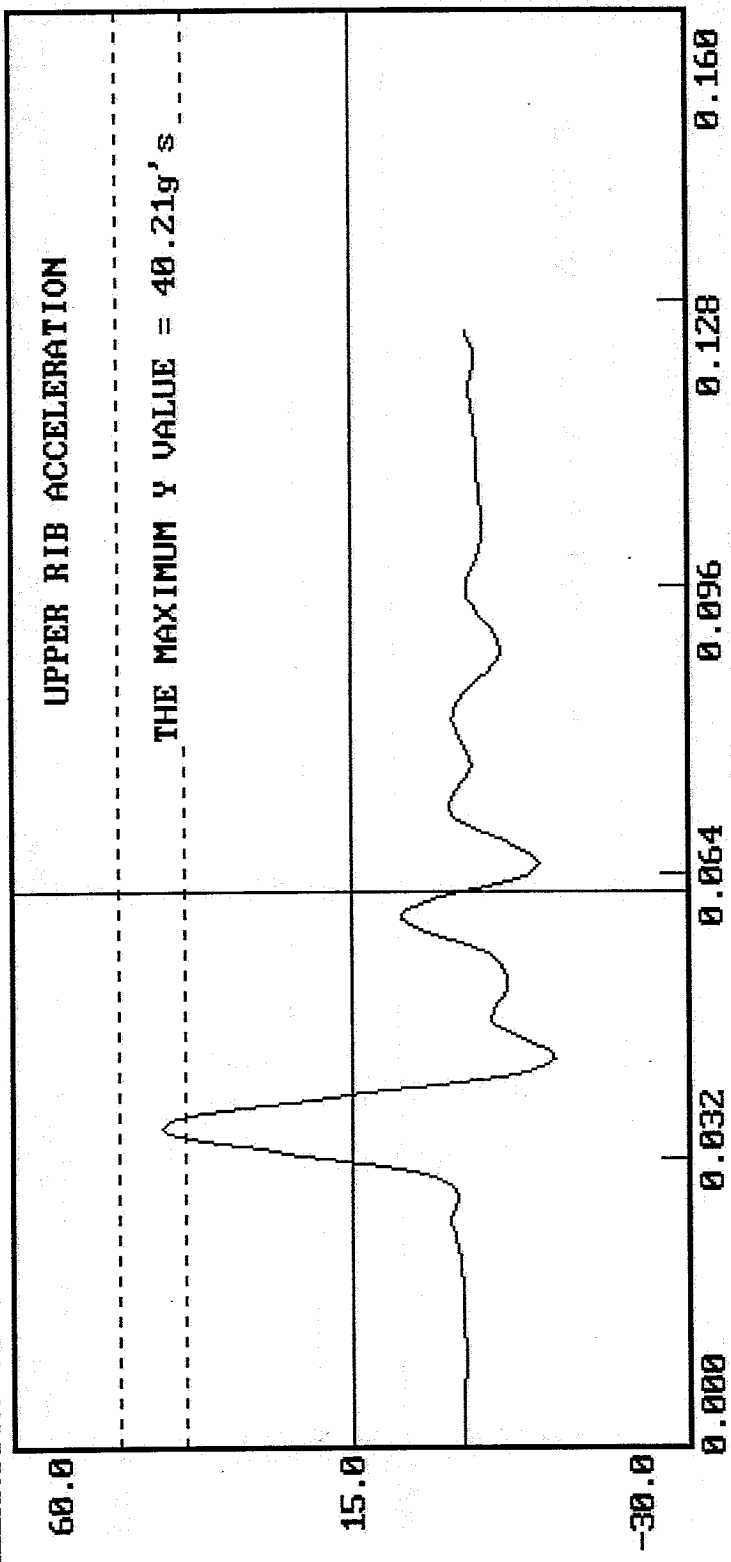
Jim White

APPROVED BY

Paul Kosbake

03-13-1997 15:53

DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 270  
ACCELERATION (G'S) VS. TIME ((SECONDS))

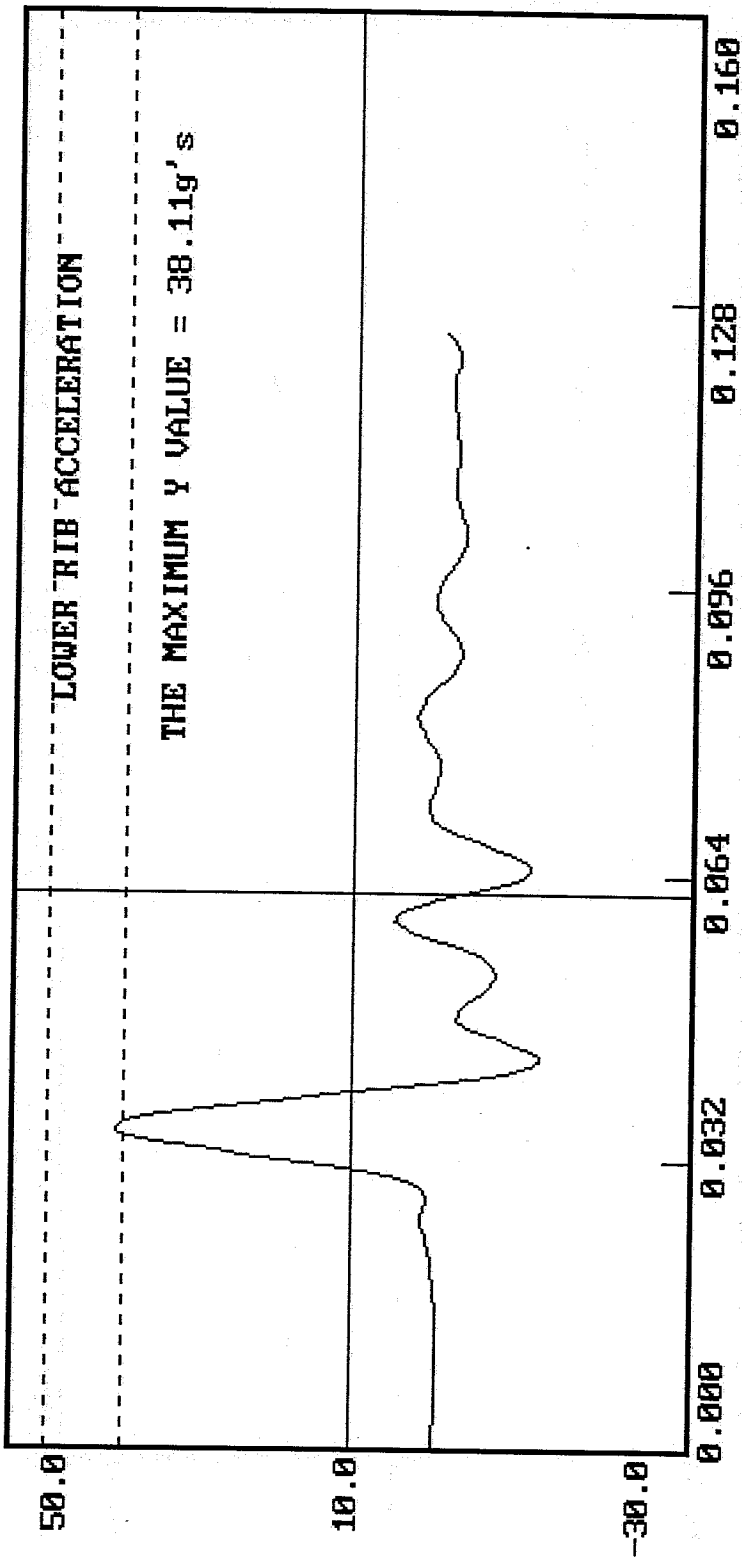


IMPACT SPEED = 14.08 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 270

03-13-1997 15:53

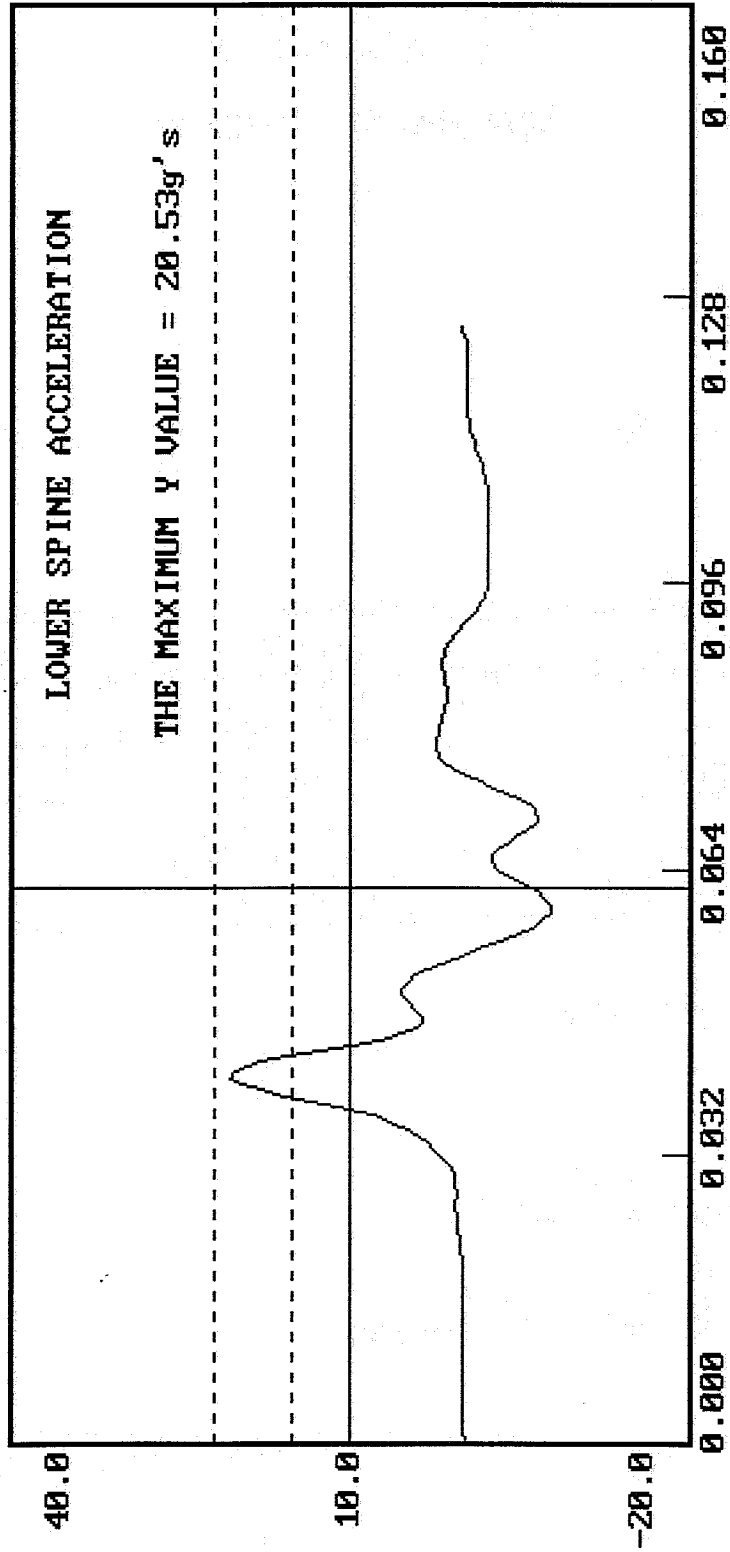
ACCELERATION (G'S) VS. TIME ((SECONDS))



IMPACT SPEED = 14.08 FT/SEC

03-13-1997 15:53

DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 270  
ACCELERATION (G'S) VS. TIME ((SECONDS))



IMPACT SPEED = 14.08 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

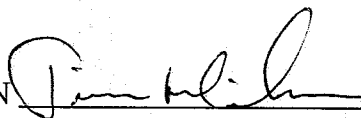
DATE: March 13, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97673

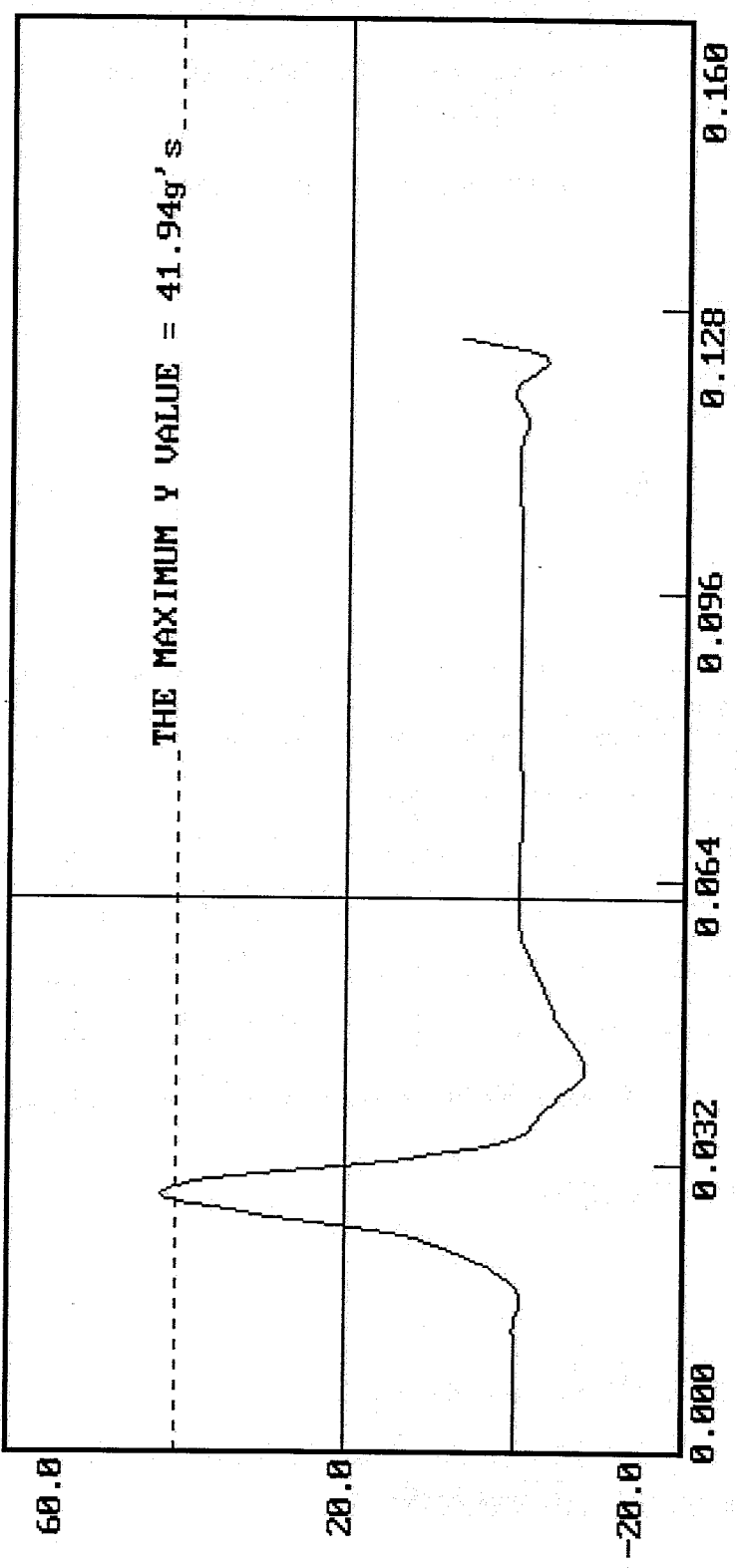
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
PROBE SPEED	13.8 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	42

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - PELVIS IMPACT  
DUMMY # 270  
ACCELERATION (G'S) VS. TIME (SECONDS) 03-13-1997 16:15



IMPACT SPEED = 14.08 FT/SEC

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

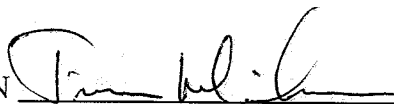
DATE: March 13, 1997

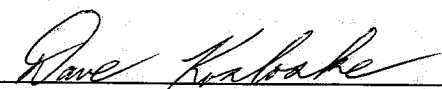
DUMMY NUMBER: 270

TEST NUMBER: D97674

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	12%
FORCE @ 0.5 in	23.3 - 36.5 lbs	29.3
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.3
FORCE @ 1.0 in	50 - 63 lbs	55
FORCE @ 1.3 in	73 - 88 lbs	75

TEST MEETS SPECIFICATIONS

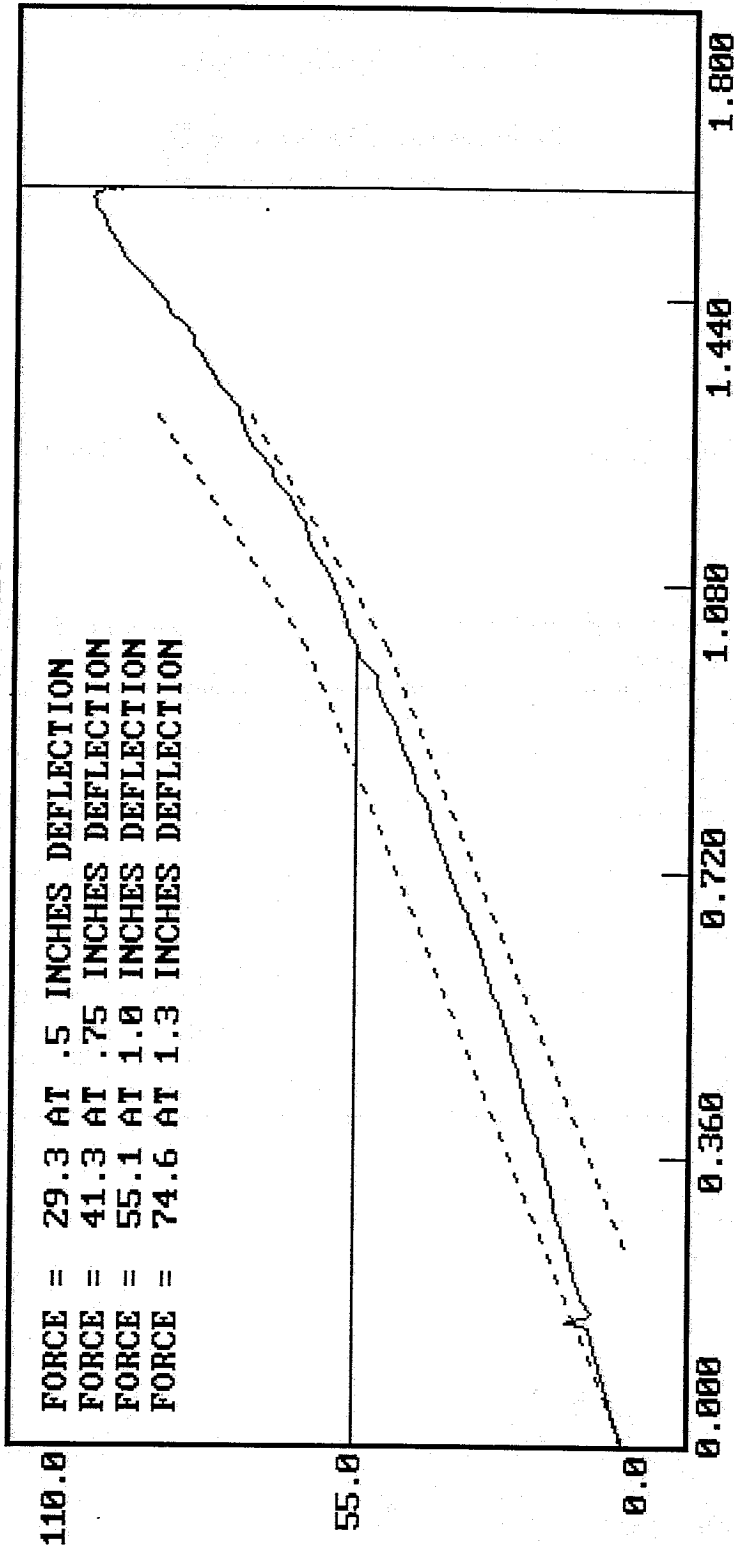
TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - ABDOMEN COMPRESSION  
DUMMY # 270

03-13-1997 12:24

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



IMPACT SPEED = 0.00 FT/SEC

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: March 13, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97675

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	1%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	34
FORCE @ 30°	34 - 46 lbs	45
FORCE @ 40°	46 - 58 lbs	58
RETURN ANGLE	12° maximum	3°

TEST MEETS SPECIFICATIONS

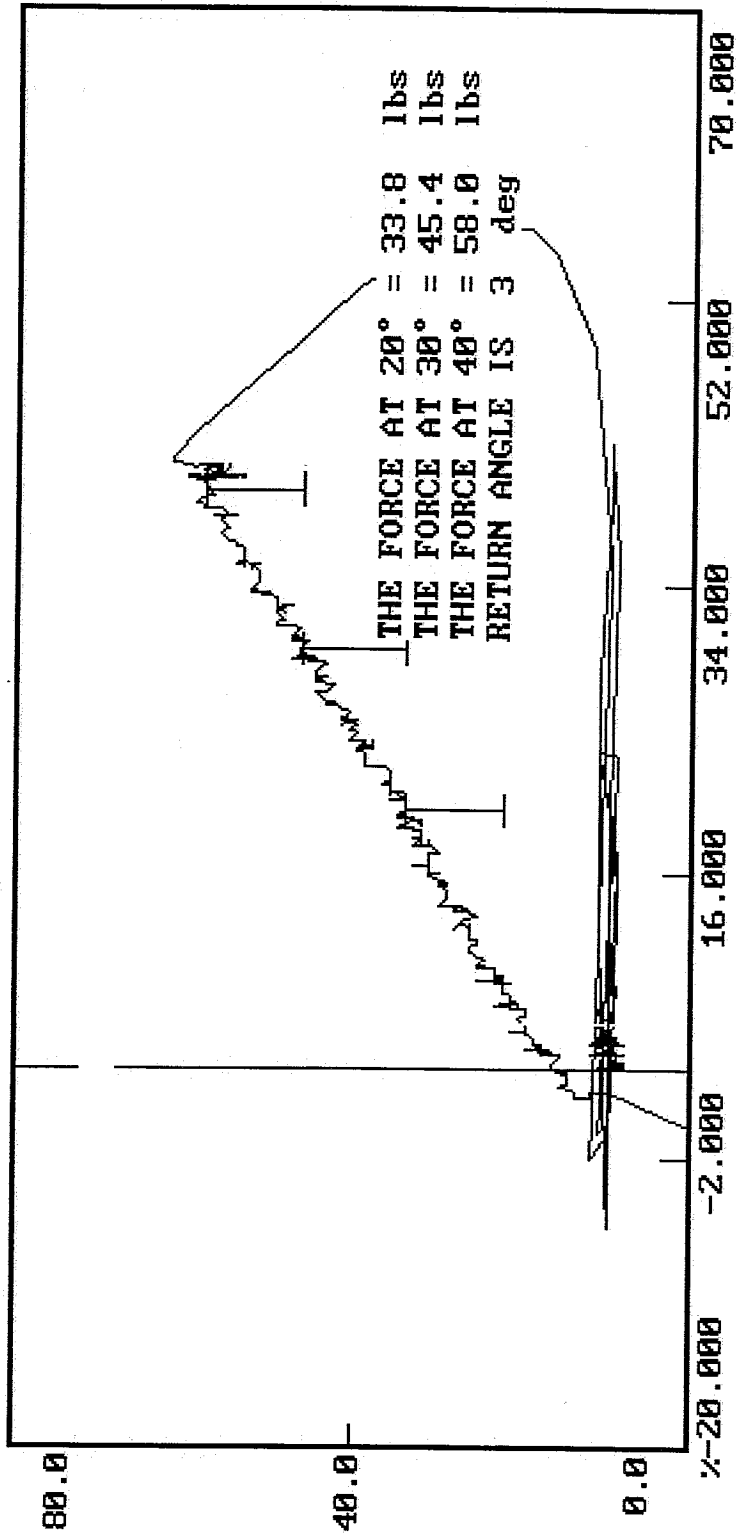
TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - LUMBAR FLEXION  
DUMMY # 270

03-13-1997 14:17

FORCE (LBS) VS. TORSO ROTATION (DEGREES)



IMPACT SPEED = 0.00 FT/SEC

POST-TEST CERTIFICATION DATA

Rear Dummy Serial Number: 269

## Calibration Test Results Summary

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.

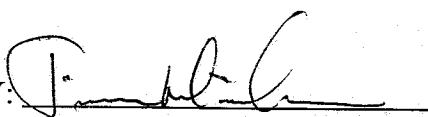
Lumbar Flexion Test: The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: March 13, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
RH - Rib Height	19.75" - 20.50"	20.20
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.4
HW - Hip Width	14.0" - 15.4"	15.1

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 13, 1997


DUMMY NUMBER: 269

TEST NUMBER: D97662

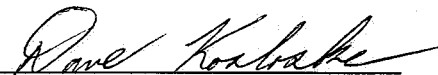
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
PROBE SPEED	13.8 - 14.2 fps	14.1
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	39
LOWER SPINE	15 - 22 g's	19

TEST MEETS SPECIFICATIONS

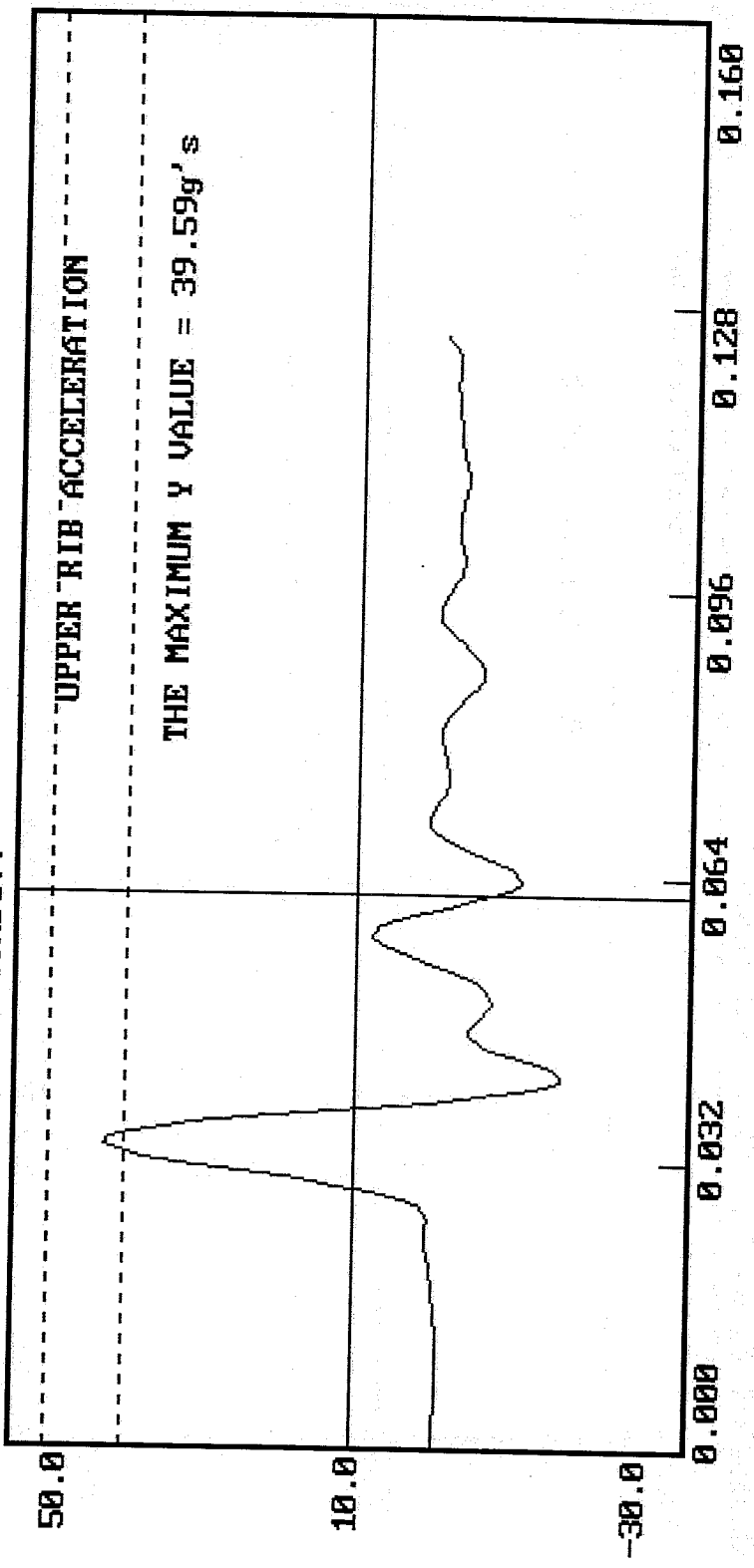
TECHNICIAN



APPROVED BY



DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 269  
03-13-1997 15:35  
ACCELERATION (G'S) VS. TIME ((SECONDS))

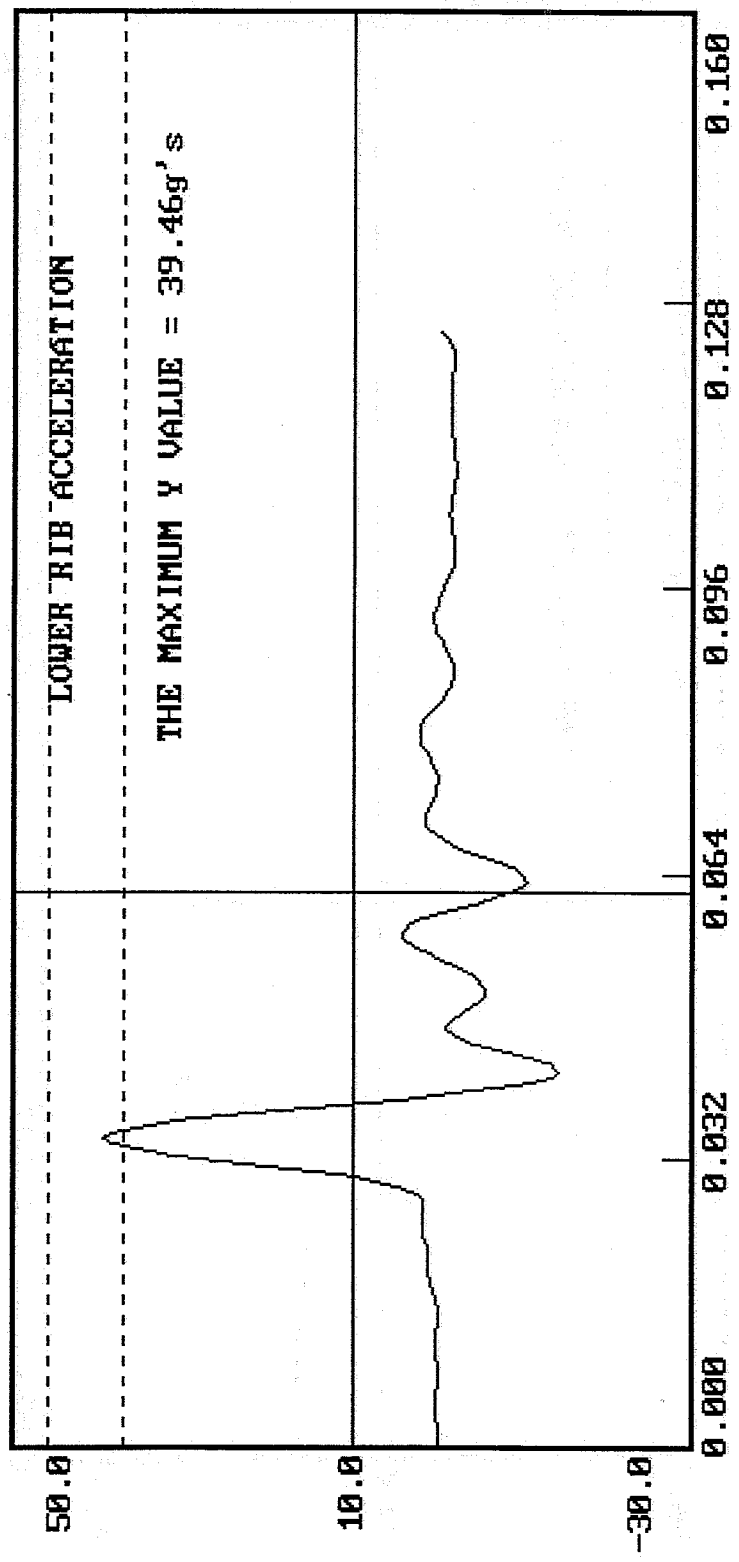


IMPACT SPEED = 14.10 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT  
DUMMY # 269

03-13-1997 15:35

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



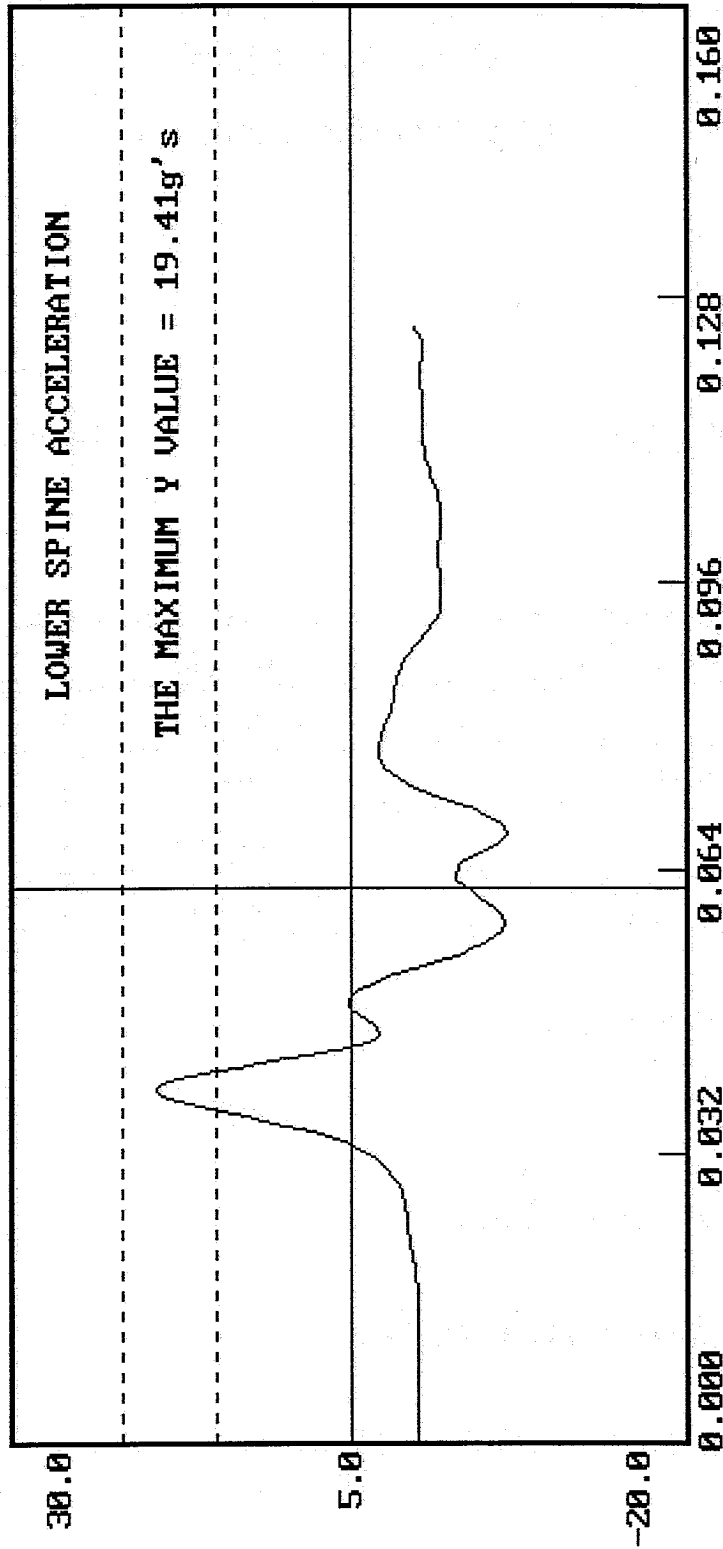
IMPACT SPEED = 14.10 FT/SEC

03-13-1997 15:35

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 269

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



IMPACT SPEED = 14.10 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: March 13, 1997

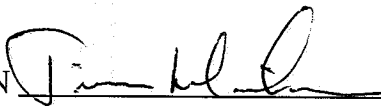
DUMMY NUMBER: 269

TEST NUMBER: D97663

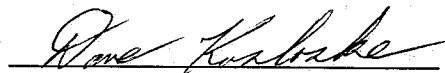
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	20%
PROBE SPEED	13.8 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	56

TEST MEETS SPECIFICATIONS

TECHNICIAN



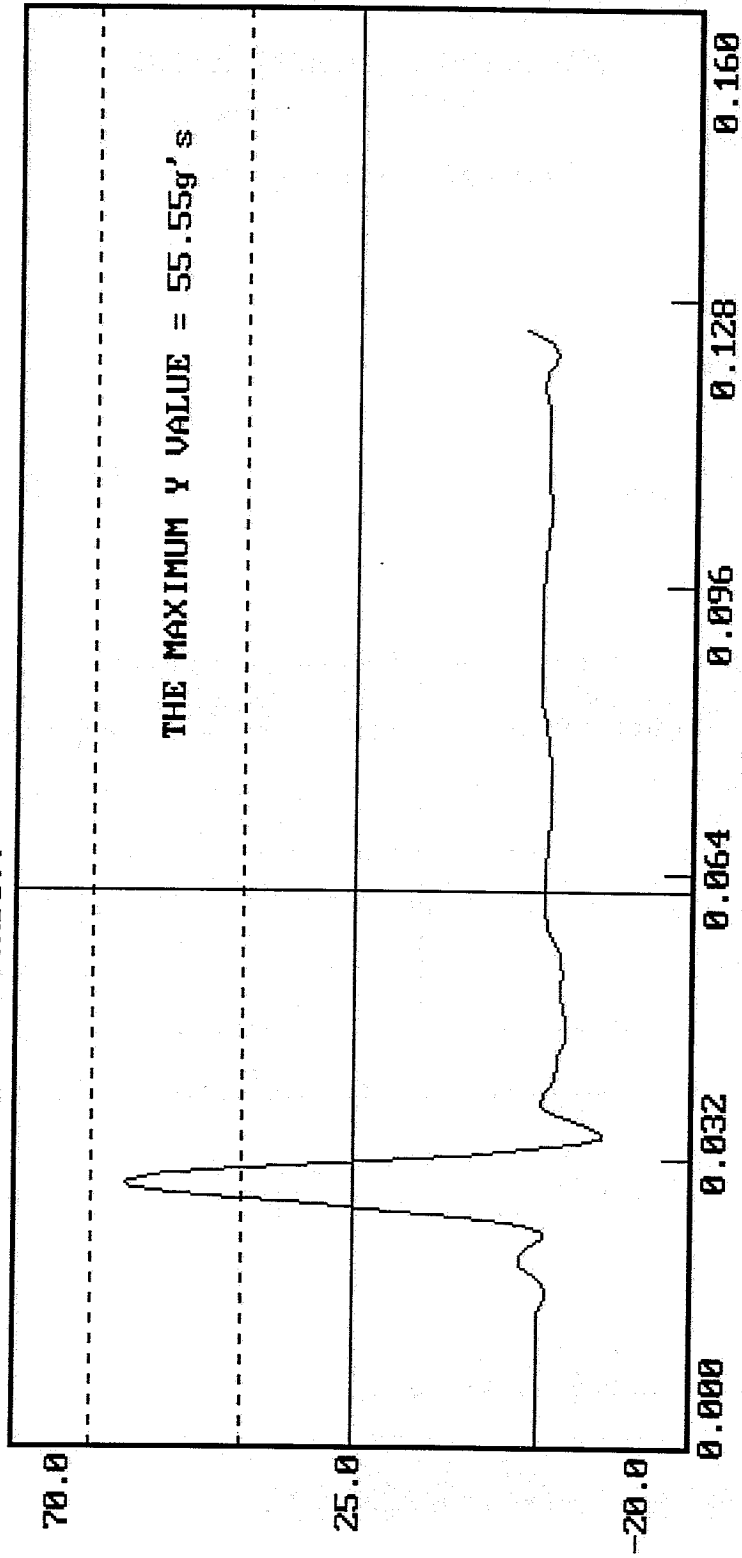
APPROVED BY



DUMMY CALIBRATION - PELVIS IMPACT  
DUMMY # 269

03-13-1997 15:40

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



IMPACT SPEED = 14.10 FT/SEC

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

DATE: March 13, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97664

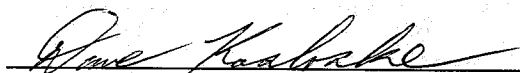
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	12%
FORCE @ 0.5 in	23.3 - 36.5 lbs	33.6
FORCE @ 0.75 in	36.7 - 49.8 lbs	46.6
FORCE @ 1.0 in	50 - 63 lbs	61
FORCE @ 1.3 in	73 - 88 lbs	83

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

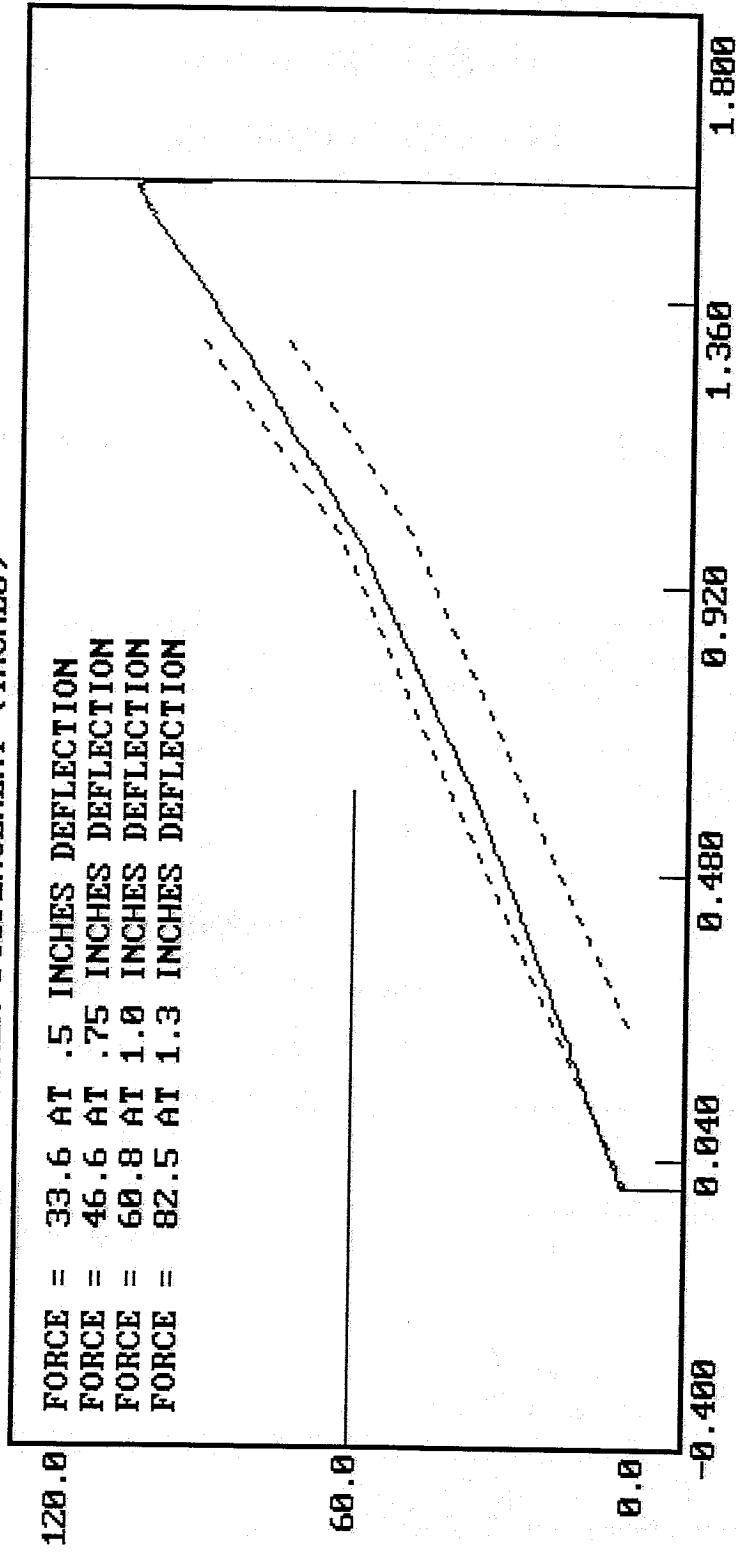


DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 269

03-13-1997 11:59

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



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

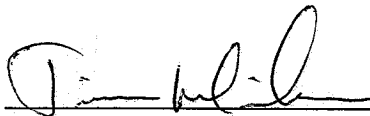
DATE: March 13, 1997

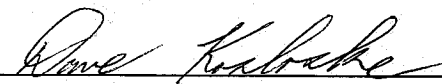
DUMMY NUMBER: 269

TEST NUMBER: D97665

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	27
FORCE @ 30°	34 - 46 lbs	43
FORCE @ 40°	46 - 58 lbs	51
RETURN ANGLE	12° maximum	6°

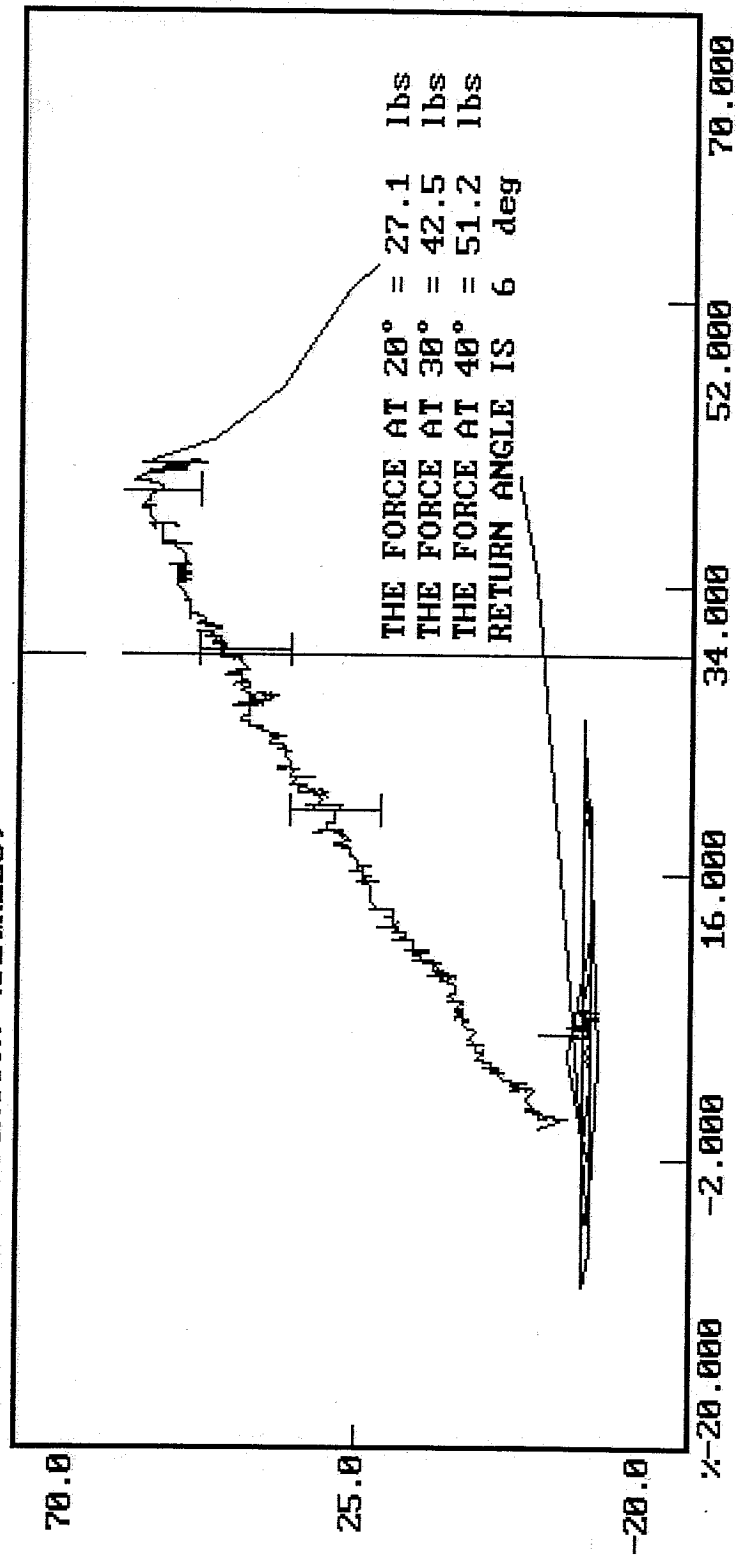
TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

DUMMY CALIBRATION - LUMBAR FLEXION  
DUMMY # 269  
FORCE (LBS) VS. TORSO ROTATION (DEGREES)

03-13-1997 14:02



IMPACT SPEED = 0.00 FT/SEC

POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 270

Inspected By: Tim Michnay

Date: March 13, 1997

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

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

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

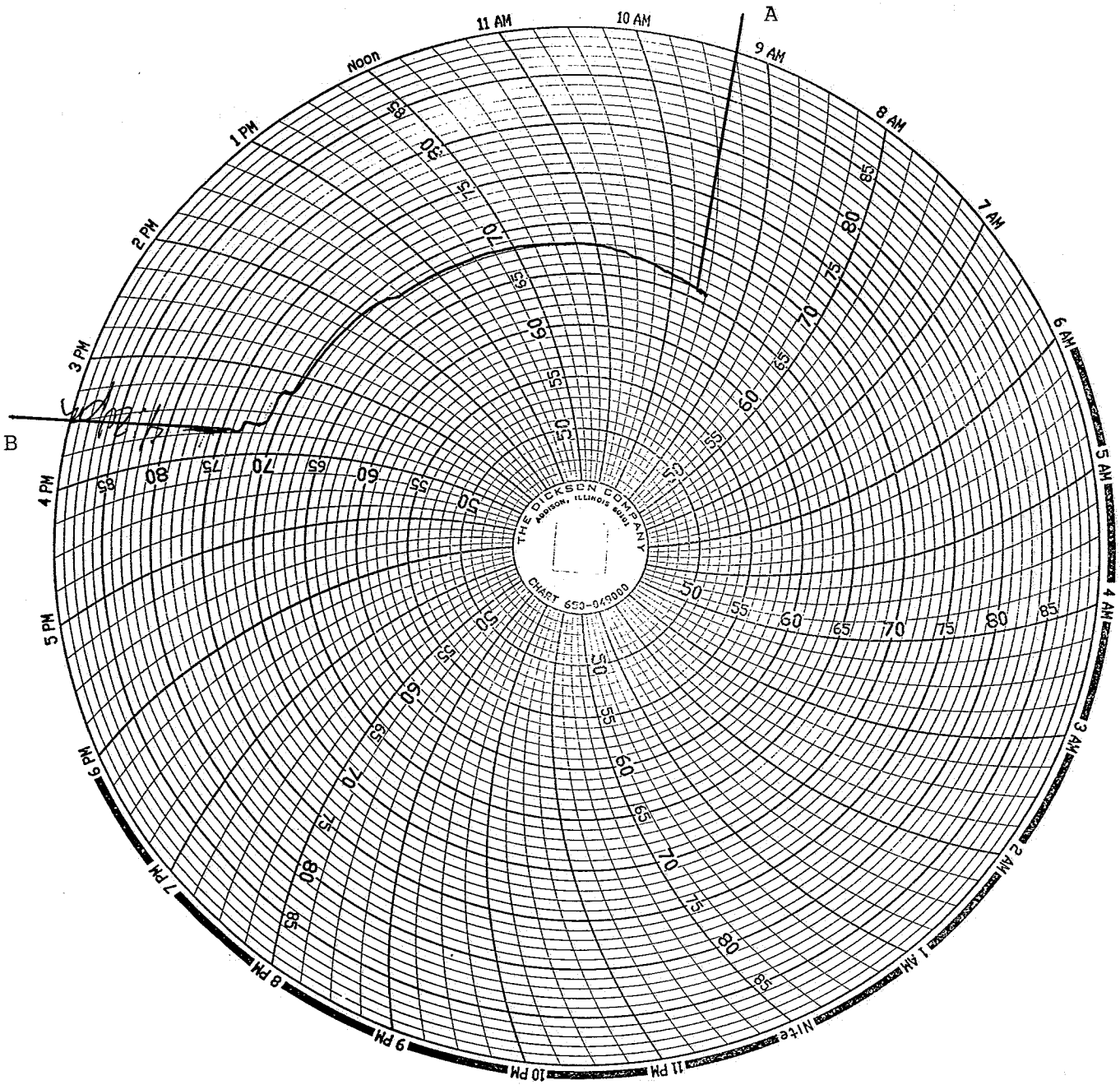
Inspected By: Tim Michnay

Date: March 13, 1997

<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		

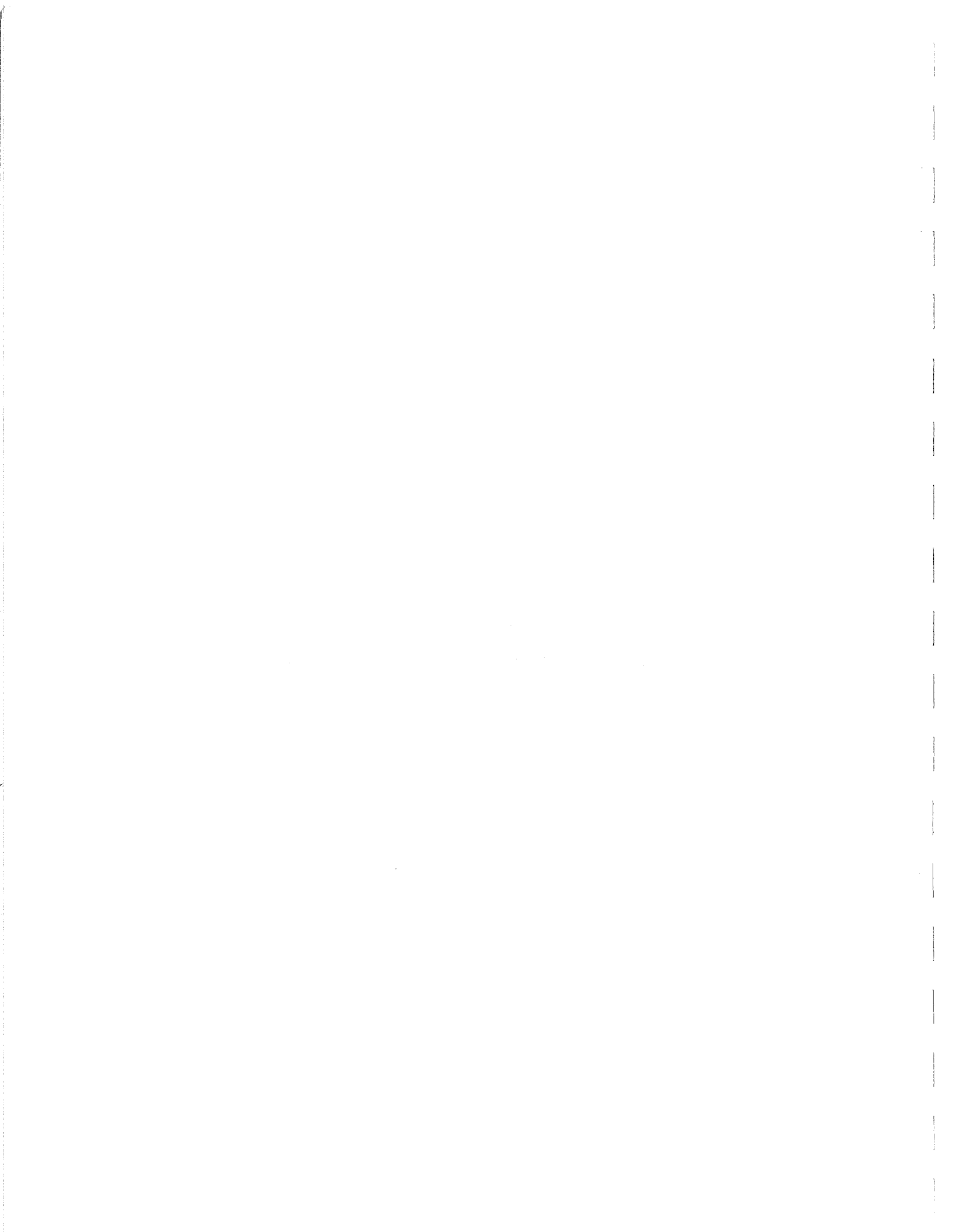
NOTES: (include component/problem/action/reason):

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 RIGHT FRONT PASSENGER DUMMY NO. 270

RIGHT FRONT PASSENGER		
SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Driver Head X	J12423 Endevco	February 27, 1997
Driver Head Y	J12425 Endevco	February 27, 1997
Driver Head Z	J12439 Endevco	February 27, 1997
Driver Head Redundant X	J12449 Endevco	February 27, 1997
Driver Head Redundant Y	J12462 Endevco	February 27, 1997
Driver Head Redundant Z	J12471 Endevco	February 27, 1997
Upper Rib Y	AP1H2 Endevco	February 26, 1997
Lower Rib Y	AJ9C2 Endevco	February 26, 1997
Upper Spine Y	AJ816 Endevco	February 13, 1997
Lower Spine Y	AP2D7 Endevco	February 26, 1997
Pelvis Y	ALCH7 Endevco	February 26, 1997
Upper Rib Redundant Y	AH0B0 Endevco	February 26, 1997
Lower Rib Redundant Y	AHTT2 Endevco	February 26, 1997
Upper Spine Redundant Y	AM749 Endevco	February 26, 1997
Lower Spine Redundant Y	AP1T8 Endevco	February 26, 1997
Pelvis Redundant Y	AJ420 Endevco	February 26, 1997
Rib Displacement	270 Endevco	March 10, 1997

INSTRUMENTS FOR RIGHT REAR PASSENGER DUMMY NO. 269

RIGHT FRONT PASSENGER		
SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Driver Head X	AH0C3 Endevco	February 25, 1997
Driver Head Y	AHTN3 Endevco	February 25, 1997
Driver Head Z	AHT12 Endevco	February 25, 1997
Driver Head Redundant X	J14896 Endevco	February 26, 1997
Driver Head Redundant Y	J14774 Endevco	February 26, 1997
Driver Head Redundant Z	J14771 Endevco	February 26, 1997
Upper Rib Y	AGTM2 Endevco	February 25, 1997
Lower Rib Y	ALEC1 Endevco	February 25, 1997
Upper Spine Y	AGP28 Endevco	January 2, 1997
Lower Spine Y	AH1G2 Endevco	February 25, 1997
Pelvis Y	ALCN9 Endevco	February 25, 1997
Upper Rib Redundant Y	AGTB5 Endevco	February 25, 1997
Lower Rib Redundant Y	J10411 Endevco	February 25, 1997
Upper Spine Redundant Y	AJ8T5 Endevco	January 2, 1997
Lower Spine Redundant Y	AM751 Endevco	February 25, 1997
Pelvis Redundant Y	AKAF3 Endevco	February 25, 1997
Rib Displacement	269 Endevco	March 10, 1997

VEHICLE INSTRUMENT CALIBRATION

VEHICLE AND MDB ACCELEROMETERS		SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X		C25-A04	Entran	June 1, 1996
Moving Barrier CG Y		C25-A06	Entran	January 7, 1997
Moving Barrier CG Z		D05-R16	Entran	January 6, 1997
Moving Barrier Left Rear Axle X		D05-R19	Entran	January 2, 1997
Moving Barrier Left Rear Axle Y		D05-R20	Entran	January 2, 1997
Floopan at Rear Axle X		B28-B01	Entran	January 23, 1997
Floorpan at Rear Axle Y		F07-A19	Entran	January 23, 1997
Left Lower Mid A-Post		J10-E14	Entran	January 3, 1997
Left Upper A-Post		C14-Z08	Entran	January 8, 1997
Left Lower Mid B-Post		G19-G12	Entran	January 8, 1997
Left Upper B-Post		D06-A07	Entran	February 7, 1997
Right Front Sill X		F10-D02	Entran	January 8, 1997
Right Front Sill Y		F07-A08	Entran	January 3, 1997
Left Front Sill X		B14-R03	Entran	January 23, 1997
Right Rear Sill X		E13-D01	Entran	January 3, 1997
Right Rear Sill Y		F07-A04	Entran	January 7, 1997
Left Rear Sill X		H07-A20	Entran	January 6, 1997
Left Front Sill Y		B14-R13	Entran	January 23, 1997
Left Rear Sill Y		A15-Z16	Entran	January 7, 1997
Left Lower Mid C-Post		G19-G08	Entran	January 8, 1997

VEHICLE INSTRUMENT CALIBRATION

		VEHICLE AND MDB ACCELEROMETERS	
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Vehicle CG X	H07-A25	Entran	January 2, 1997
Vehicle CG Y	L14-D04	Entran	January 6, 1997
Vehicle CG Z	L14-D16	Entran	December 3, 1996
Left Front Door Close to Arm	C25-A11	Entran	December 3, 1996
Left Front Door Close to Pelvis	E13-D02	Entran	January 3, 1997
Left Front Door Close to Knee	D05-R03	Entran	January 3, 1997
Left Front Door Close to Lower Leg	L14-D05	Entran	January 3, 1997
Left Rear Door Close to Arm	MGA144	Entran	January 6, 1997
Left Rear Door Close to Pelvis	J23-E13	Entran	February 7, 1997
Left Rear Door Close to Knee	L18-E01	Entran	January 2, 1997
Left Rear Door Close to Lower Leg	J23-E01	Entran	January 2, 1997
Left Upper Mid C-Post	E24-G04	Entran	January 3, 1997
Left Mid C-Post X	B02-G09	Entran	December 3, 1996
Left Mid C-Post Y	C05-Z13	Entran	December 4, 1996
Left Lower C-Post X	L18-E06	Entran	February 7, 1997
Left Lower C-Post Y	J06-D16	Entran	February 7, 1997
Left Mid B-Pillar X	L18-E09	Entran	February 7, 1997

VEHICLE INSTRUMENT CALIBRATION

VEHICLE AND MDB ACCELEROMETERS			
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Mid B-Post Y	J23-E10	Entran	February 7, 1997
Left Lower B-Post	L14-D13	Entran	February 7, 1997
Right Lower B-Post	C14-Z10	Entran	January 23, 1997
Left Mid A-Post X	J23-E16	Entran	February 7, 1997
Left Mid A-Post Y	D05-R08	Entran	January 23, 1997
Left Lower A-Post X	B14-R01	Entran	January 23, 1997
Left Lower A-Post Y	B13-Z05	Entran	January 23, 1997

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

APPENDIX E  
VEHICLE INERTIA MEASUREMENT DATA SHEETS

# S.E.A., Inc. VIMF

## Vehicle Inertia Measurement Facility

Date Tested: 2/13/97

Date Printed: 2/13/97

Year: 1991

Make: Ford

Model: Taurus

VIN: 1FACP50UXMG14832

Description: Full Instrumentation, full fuel, no passenger.

Machine # 2

Test # 331

Track Width 154.8 (cm)

Roof Height 141.0 (cm)

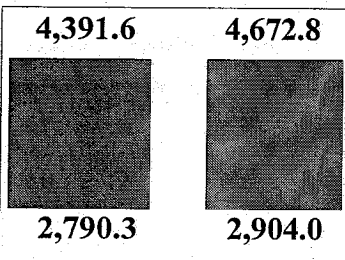
Wheel Base 268.1 (cm)

Load

Left Front Weight

Right Front Weight

**Front Weight**



**9,064.4 (N)**

e = 2.07 (cm)



a = 103.44 (cm)

**Total Weight**  
**14,758.7 (N)**

**Rear Weight**

**5,694.3 (N)**

Left Rear Weight

Right Rear Weight

Run #	Applied Weight (N)	Platform Angle (deg.)	Motion relative to Platform (cm)	C.G. Height (cm)
1	0.000	0.16	0.000	0.00
2	223.917	4.18	-0.104	55.92
3	464.958	8.35	-0.282	55.95
4	223.917	-3.75	0.009	55.71
5	464.958	-7.92	0.175	55.88
				<b>55.87</b>

Run #	Period (sec.)	Platform Amplitude (deg.)	Relative Amplitude (cm)	Pitch Inertia (kg m <sup>2</sup> )
1	5.023	4.08	0.075	2,718.72
2	5.022	4.15	0.076	2,718.89
3	5.022	4.19	0.078	2,716.18
				<b>2,717.93</b>

Run #	Period (sec.)	Platform Amplitude (deg.)	Relative Amplitude (cm)	Roll Inertia (kg m <sup>2</sup> )
1	1.222	2.54	0.128	561.34
2	1.223	2.69	0.135	564.42
3	1.223	2.57	0.128	562.19
				<b>562.65</b>

Run #	Period (sec.)	Platform Amplitude (deg.)	Relative Amplitude (cm)	Cross Product (kg m <sup>2</sup> )	Yaw Inertia (kg m <sup>2</sup> )
1	2.827	3.49	0.037	128.22	3,066.04
2	2.825	3.14	0.033	125.84	3,059.50
3	2.824	3.16	0.034	121.45	3,055.97
					<b>3,060.50</b>

S.E.A., Inc. Vehicle Dynamics Division

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(614) - 888 - 4160

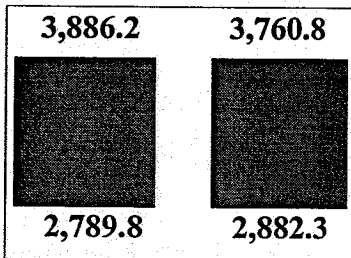
# S.E.A., Inc. VIMF

## Vehicle Inertia Measurement Facility

Date Tested: 1/ 2/97  
 Date Printed: 1/ 2/97  
 Year: 1997  
 Make: FMVSS 214  
 Model:  
 VIN:  
 Description: Left-side configuration

Machine # 2  
 Test # 327  
 Track Width 188.0 (cm)  
 Roof Height 124.5 (cm)  
 Wheel Base 258.8 (cm)  
 Load

Left Front Weight      Right Front Weight



**Front Weight**

**7,647.0 (N)**

e = -0.23 (cm)



a = 110.22 (cm)

**Total Weight**  
**13,319.1 (N)**

**Rear Weight**

**5,672.1 (N)**

Left Rear Weight      Right Rear Weight

Run #	Applied Weight (N)	Platform Angle (deg.)	Motion relative to Platform (cm)	C.G. Height (cm)
1	0.000	-0.09	0.000	0.00
2	226.870	3.64	-0.098	50.79
3	467.912	7.48	-0.260	50.80
4	226.870	-3.81	0.112	50.70
5	467.912	-7.65	0.310	50.80
				50.77

Run #	Period (sec.)	Platform Amplitude (deg.)	Relative Amplitude (cm)	Pitch Inertia (kg m <sup>2</sup> )
1	4.625	4.06	0.089	2,274.50
2	4.624	4.11	0.090	2,272.33
3	4.624	4.15	0.090	2,272.03
				2,272.95

Run #	Period (sec.)	Platform Amplitude (deg.)	Relative Amplitude (cm)	Roll Inertia (kg m <sup>2</sup> )
1	1.137	2.57	0.056	514.35
2	1.137	2.84	0.066	515.75
3	1.137	2.84	0.064	515.25
				515.12

Run #	Period (sec.)	Platform Amplitude (deg.)	Relative Amplitude (cm)	Cross Product (kg m <sup>2</sup> )	Yaw Inertia (kg m <sup>2</sup> )
1	2.721	2.81	0.015	23.11	2,629.94
2	2.721	2.75	0.015	22.19	2,631.81
3	2.721	3.55	0.020	23.90	2,631.96
					2,631.23

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