



DOT 679

SIDE PROTECTION IN 2-DOOR
AND 4-DOOR PRODUCTION VEHICLES

MDB-TO-CAR SIDE IMPACT TEST OF
A 26° CRABBED MOVING DEFORMABLE BARRIER
TO A 1981 DODGE OMNI
AT 33.5 MPH

PREPARED BY:
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FINAL REPORT
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16. Abstract This test report documents one of a series of thirteen crash tests to evaluate side impact protection in various vehicle models. Testing was conducted on a 1981 Dodge Omni 2-door hatchback at the TRCO Crash Test Facility, East Liberty, Ohio. The test vehicle was impacted on the left side by a moving deformable barrier, crabbled to 26°, at 33.5 mph. Occupant responses of two side impact dummies were measured. One dummy was located in the driver's designated seating position and one was located in the left rear seating position. The test date was January 9, 1984 and the ambient temperature was 32°F.					
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures
When You Know Multiply by To Find Symbol

Symbol	When You Know	Multiply by	To Find	Symbol
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km

AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha

MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons	0.9	metric ton	t

VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
in ³	cubic inches	16	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	L
pt	pints	0.47	liters	L
qt	quarts	0.95	liters	L
gal	gallons	3.8	liters	L
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³

TEMPERATURE (exact)				
°F	degrees Fahrenheit	5/9 (after subtracting 32)	degrees Celsius	°C

Approximate Conversions from Metric Measures
When You Know Multiply by To Find Symbol

Symbol	When You Know	Multiply by	To Find	Symbol
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi

AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares	2.5	acres	

MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	metric ton	1.1	short tons	

VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
ml	milliliters	0.06	cubic inches	in ³
l	liters	2.1	pints	pt
L	liters	1.06	quarts	qt
L	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³

TEMPERATURE (exact)				
°C	degrees Celsius	9/5 (then add 32)	degrees Fahrenheit	°F

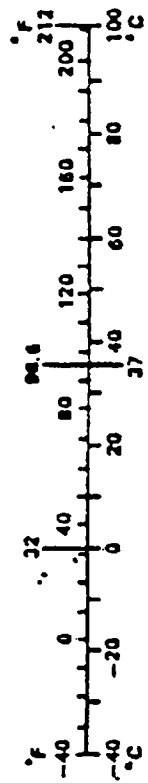


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SECTION 1.0
PURPOSE AND INTRODUCTION

PURPOSE

The main purpose of this test was to evaluate side impact protection in one of a fleet of 2-door and 4-door vehicles. The vehicle was tested using conditions not currently contained in a Federal Motor Vehicle Safety Standard.

INTRODUCTION

A stationary 1981 Dodge Omni 2-door hatchback was impacted on the left side by a Moving Deformable Barrier (MDB) on January 9, 1984. The test was to simulate an intersection collision with the striking vehicle traveling at 30 mph and the struck vehicle traveling at 15 mph. The orientation angle of the striking vehicle was 90° counterclockwise with respect to the longitudinal axis of the struck vehicle. The leading edge of contact was to be 37 inches forward of the vehicle center of gravity which is defined by accident investigation to be the midpoint of the wheelbase.

To simulate this collision, the MDB was to be towed into the stationary Dodge Omni at 33.5 mph with the MDB's wheels crabbed clockwise to 26°. The actual test speed was 33.5 mph and the actual leading edge of contact was 37. inches forward of the midpoint of the Dodge Omni's wheelbase.

The vehicle was a baseline model with no structural modification. The driver door and left rear door wall were unpadded.

Section 2 contains General Test and Vehicle Parameter Data. Section 3 contains data required by R & D. Appendix A contains pre-test and post-test vehicle and dummy photographs. Appendix B contains Data Plots. Appendix C contains Dummy Certification Data.

SECTION 2.0
GENERAL TEST AND VEHICLE PARAMETER DATA

The following data sheets describe the General Test and Vehicle Parameter Data.

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Chrysler Corporation

MAKE/MODEL: Dodge Omni

VIN: 1B3BL14A6BD208440

BODY STYLE: 2-Door Hatchback

MODEL YEAR: 1981

NHTSA NO.: R & D

COLOR: Silver

ENGINE DATA: TYPE: Transverse CYLINDERS: 4 DISPLACEMENT 105 CID

TRANSMISSION DATA: 4 Speed Manual

DATE VEHICLE RECEIVED: 12/22/83

ODOMETER READING: 47843

DEALER'S NAME AND ADDRESS: Paul Sherry Chevrolet
Piqua, Ohio

ACCESSORIES:

POWER STEERING	No	AUTOMATIC TRANSMISSION	No
POWER BRAKES	No	AUTOMATIC SPEED CONTROL	No
POWER SEATS	No	TILTING STEERING WHEEL	No
POWER WINDOWS	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	Yes	AIR CONDITIONING	No
RADIO	Yes	ANTI-SKID BRAKE	No
CLOCK	No	REAR WINDOW DEFROSTER	No
OTHER			

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? No
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

DATA FROM CERTIFICATION LABEL ON LEFT DOOR FACE OR "B" POST:

VEHICLE MANUFACTURED BY: Chrysler Corporation

DATE OF MANUFACTURE: 2/81

GVWR: 3360 LBS.,

GAWR: FRONT 1785 LBS., REAR 1625 LBS.

VEHICLE TIRE DATA

RECOMMENDED COLD TIRE PRESSURE: FRONT 35 psi; REAR 35 psi

TIRES ON VEHICLE (MFGR. & LINE, SIZE): Goodyear Viva P175/75 R 13

BIAS PLY, BELTED, OR RADIAL: Radial

PLY RATING: 3

IS SPARE TIRE "SPACE SAVER"? Yes

IS SPARE TIRE STANDARD EQUIPMENT? Yes

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS):

RIGHT FRONT	670	LBS.	RIGHT REAR	420	LBS.
LEFT FRONT	710	LBS.	LEFT REAR	400	LBS.
TOTAL FRONT WEIGHT	1380		LBS. (62.7 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	820		LBS. (37.3 % OF TOTAL VEHICLE WEIGHT)		
TOTAL DELIVERED WEIGHT	2200		LBS.		

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 24 7/8	;LF 25 1/4	;RR 24 1/8	;LR 24 3/8
PRE-TEST ATTITUDE:	RF 24 1/2	;LF 24 7/8	;RR 21 15/16	;LR 22 1/8
POST-TEST ATTITUDE:	RF 22 7/8	;LF 26	;RR 20 3/4	;LR 23 9/16

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 132 LBS. CARGO:

RIGHT FRONT	700	LBS.	RIGHT REAR	625	LBS.
LEFT FRONT	760	LBS.	LEFT REAR	595	LBS.
TOTAL FRONT WEIGHT	1460		LBS. (54.5 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	1220		LBS. (45.5 % OF TOTAL VEHICLE WEIGHT)		
TOTAL TEST WEIGHT	2680		LBS.		

WEIGHT OF BALLAST SECURED IN VEHICLE TRUNK AREA: 0 LBS.

TEST FLUID DATA

TEST FLUID TYPE: RED STODDARD SOLVENT #2; SPEC. GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

"USEABLE" CAPACITY*: NA GALLONS

TEST VOLUME: 1.0 GALLONS

FUEL SYSTEM CAPACITY (DATA FROM OWNERS MANUAL): 14 GALLONS

DETAILS OF FUEL SYSTEM: DNA

ELECTRIC FUEL PUMP: No

FUEL INJECTION: No

DOES ELECTRIC FUEL PUMP OPERATE WITH IGNITION SWITCH "ON" AND THE ENGINE NOT OPERATING?

DATA FROM "RECOMMENDED TIRE PRESSURE" LABEL ON DOOR, POST, GLOVEBOX, ETC.

VEHICLE LOAD (UP TO CAPACITY): FRONT 35 psi; REAR 35 psi

RECOMMENDED TIRE SIZE: P175/75 R 13 LOAD RANGE X B, C,

VEHICLE CAPACITY: TYPES OF SEATS: Front - Bucket
Rear - Bench

NUMBER OF OCCUPANTS (DESIGNATED SEATING CAPACITY): 2 FRONT
3 REAR
5 TOTAL

CARGO LOAD 115 LBS.

TOTAL 865 LBS.

*WITH ENTIRE FUEL SYSTEM FILLED WITH FUEL TANK THROUGH CARBURETOR BOWL.

TEST CONDITIONS

TEST NUMBER: 840109

DATE OF TEST: January 9, 1984

TIME OF TEST: 13:35

WIND VELOCITY: 6-12 mph 99° ESE

HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 32° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 76° F

SUBJECT VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
VEHICLE TEST WEIGHT (LBS.)	2680	2663
MDB TEST WEIGHT (LBS.)	2990	3000
MDB VELOCITY (MPH)*	33.5	33.5
IMPACT POINT (INCHES)**	37.	37

DUMMIES

	<u>DRIVER</u>	<u>MIDDLE PASSENGER</u>	<u>RT. FRONT PASSENGER</u>	<u>LEFT REAR PASSENGER</u>	<u>RT. REAR PASSENGER</u>
TYPE:	SID			SID	
SERIAL NO.:	06			U02	
INSTRUMENTATION:					
HEAD ACCEL.:	Yes			Yes	
CHEST ACCEL.:	Yes (Upper/Lower)			Yes (Upper/Lower)	
FEMUR L.C.'S:	No			No	
OTHER:	Pelvis/Ribs			Pelvis/Ribs	

RESTRAINT SYSTEM: Both dummies were unrestrained

* As measured over final one foot of travel.

** As measured forward of the midpoint of the vehicle's wheelbase.

VISIBLE DUMMY CONTACT POINTS:

	DRIVER 06	PASSENGER U02
Head	<u>Side Window, MDB Face</u>	<u>C-Pillar</u>
Chest	<u>Driver's Door Panel</u>	<u>Left Rear Side Wall</u>
Abdomen	<u>Driver's Door Panel</u>	<u>Left Rear Side Wall</u>
Left Knee	<u>Driver's Door Panel</u>	<u>Left Rear Side Wall</u>
Right Knee	<u>Left Knee</u>	<u>Left Knee</u>

DOOR OPENING:

	LEFT	RIGHT
Front	<u>Tools Required</u>	<u>Easy</u>
Rear	<u>DNA</u>	<u>DNA</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
Front	<u>No</u>	<u>Yes</u>
Rear	<u>No</u>	<u>No</u>

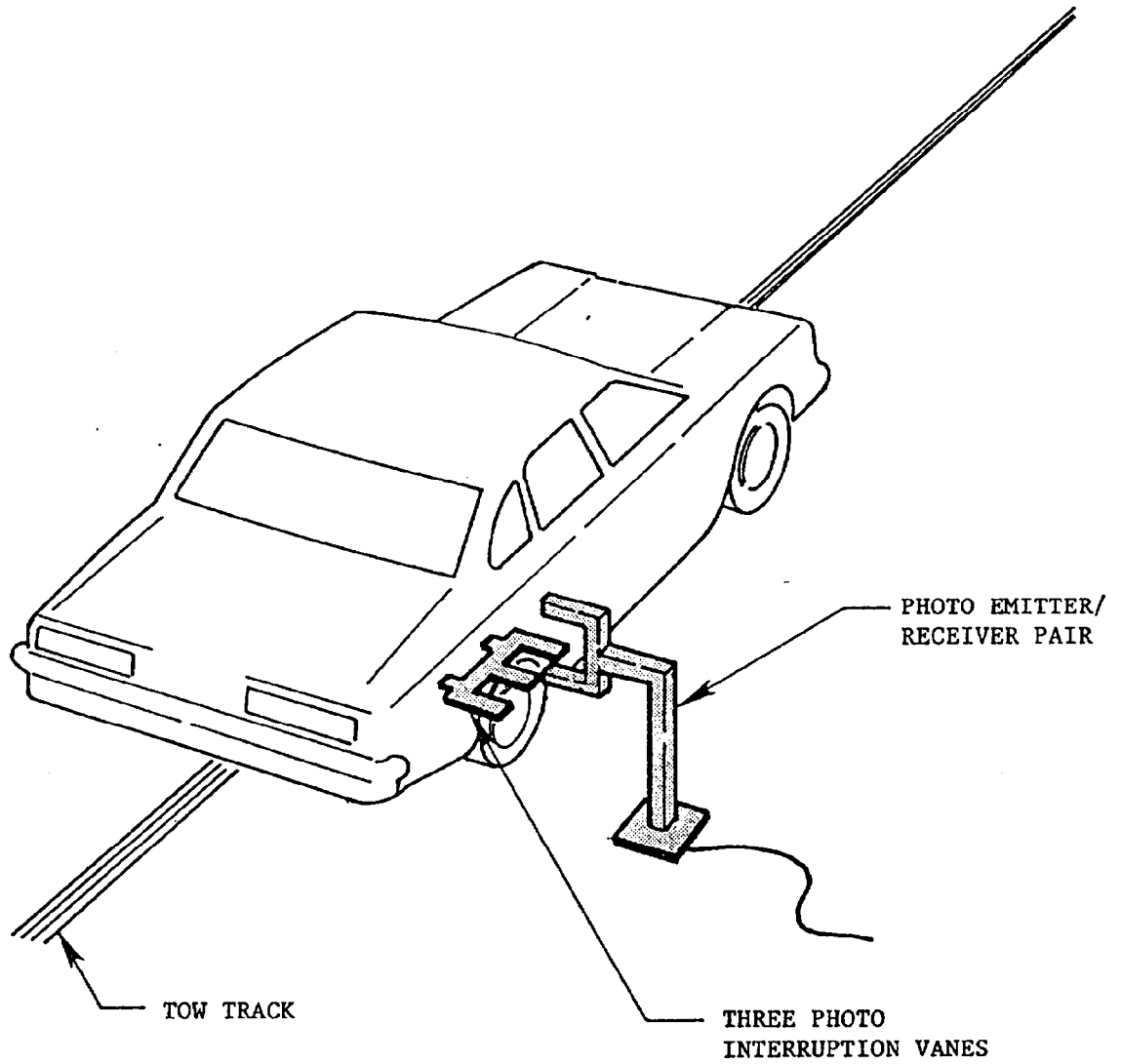
GLAZING DAMAGE:

Windshield cracked; all left side windows shattered;
no backlight damage.

OTHER NOTABLE IMPACT EFFECTS:

Approximately 8 inches of sill override at A-Pillar.

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane is located two inches before impact.

The vanes have one foot spacing.

VEHICLE TEST WEIGHT CALCULATION

$$\begin{aligned} \text{Test Weight} &= \text{Unloaded Delivered Weight} + \\ &\quad \text{Number of Dummies X 174 lbs.} + \\ &\quad \text{Cargo Weight} \\ &= 2200 + 2 \times 174 + 115 \text{ lbs.} \\ &= 2663 \text{ lbs.} \end{aligned}$$

To achieve test weight, the exhaust system and alternator were removed and 1 gallon of Stoddard Solvent was added in the fuel tank. The weight of the test vehicle was measured by placing each wheel on a Loadmeter Corporation Hiway Loadmeter.

TEST ANOMALIES

An anomalous spike occurred in data channel T12ZG1 - Driver Lower Spine Acceleration Z Axis at approximately 110 msec. This spike is uncorrelatable with other electronic data and films and it appears to be a metal-to-metal contact spike. This spike affects the lower spine resultants.

SECTION 3.0
DATA REQUIRED BY R&D

The following pages are included in this section:

1. Dummy temperature control and positioning data
2. Dummy kinematic summary
3. Vehicle crush data
4. Dummy and vehicle accelerometer location and data summary
5. High speed camera information
6. Transducer information

DUMMY TEMPERATURE CONTROL AND POSITIONING

The vehicle was kept inside the temperature controlled crash test building until approximately 2 hours prior to the test. Temperature inside the vehicle and ambient temperature at the crash area were recorded. Dummy temperature while outside the crash test building was maintained portably until approximately 1 minute prior to the test.

The following table summarizes the steps taken to position the instrumented, calibrated dummies in the test vehicle.

DUMMY PLACEMENT AND POSITIONING

SIDE IMPACT
DUMMY*

DRIVER DSP

REAR PASSENGER DSP

HEAD Surface of transverse instrument mounting platform is as horizontal as possible without inducing torso movement & midsagittal plane falls in longitudinal plane.

Surface of transverse instrument mounting platform is as horizontal as possible without inducing torso movement & midsagittal plane falls in longitudinal plane.

UPPER TORSO Placed against seat back. Midsagittal plane is vertical and centered on bucket seat.

Placed against seat back. Midsagittal plane is vertical and contained in the same longitudinal plane as the driver's midsagittal plane.

LOWER TORSO Midsagittal plane is vertical and centered on bucket seat.

Midsagittal plane is vertical and contained in the same longitudinal plane as the driver's midsagittal plane.

UPPER LEGS (thighs or femurs) Placed against seat cushion. Planes defined by femur and tibia centerlines are as close as possible to vertical.

Placed against seat cushion. Planes defined by femur and tibia centerlines are as close as possible to vertical.

KNEES Knees set 14.5" apart between pivot bolt head outer surfaces. Outer surface of right knee pivot bolt is 8.6" from midsagittal plane of dummy. Outer surface of left knee pivot bolt is 5.9" from midsagittal plane of dummy.

Located so that planes defined by femur and tibia centerlines are as close as possible to vertical.

LOWER LEGS Plane defined by femur and tibia centerlines are as close as possible to vertical longitudinal plane.

Plane defined by femur and tibia centerlines are as close as possible to vertical longitudinal plane.

RIGHT FOOT Placed on undepressed accelerator pedal -- rearmost point of heel on floorplan in plane of pedal.

Centerline falls in vertical longitudinal plane. Placed on floor as far forward as possible without front seat interference.

LEFT FOOT Placed on toeboard -- rearmost point of heel on floorpan as close as possible to intersection of toeboard and floorpan. Centerline falls in vertical longitudinal plane.

Centerline falls in vertical longitudinal plane. Placed on floor as far forward as possible without front seat interference.

*NOTE: THE SIDE IMPACT DUMMY DOES NOT INCLUDE ARMS.

DUMMY IN-VEHICLE POSITION RECORDING SHEET

VEHICLE NHTSA NO. R & D

MFR./MAKE/MODEL: Dodge Omni

FRONT SEAT TYPE: BENCH
 X BUCKET
 SPLIT BENCH

ADJUSTER TYPE: X MANUAL
 POWER

BUCKET SEAT BACK TYPE: X FIXED
 ADJUSTABLE

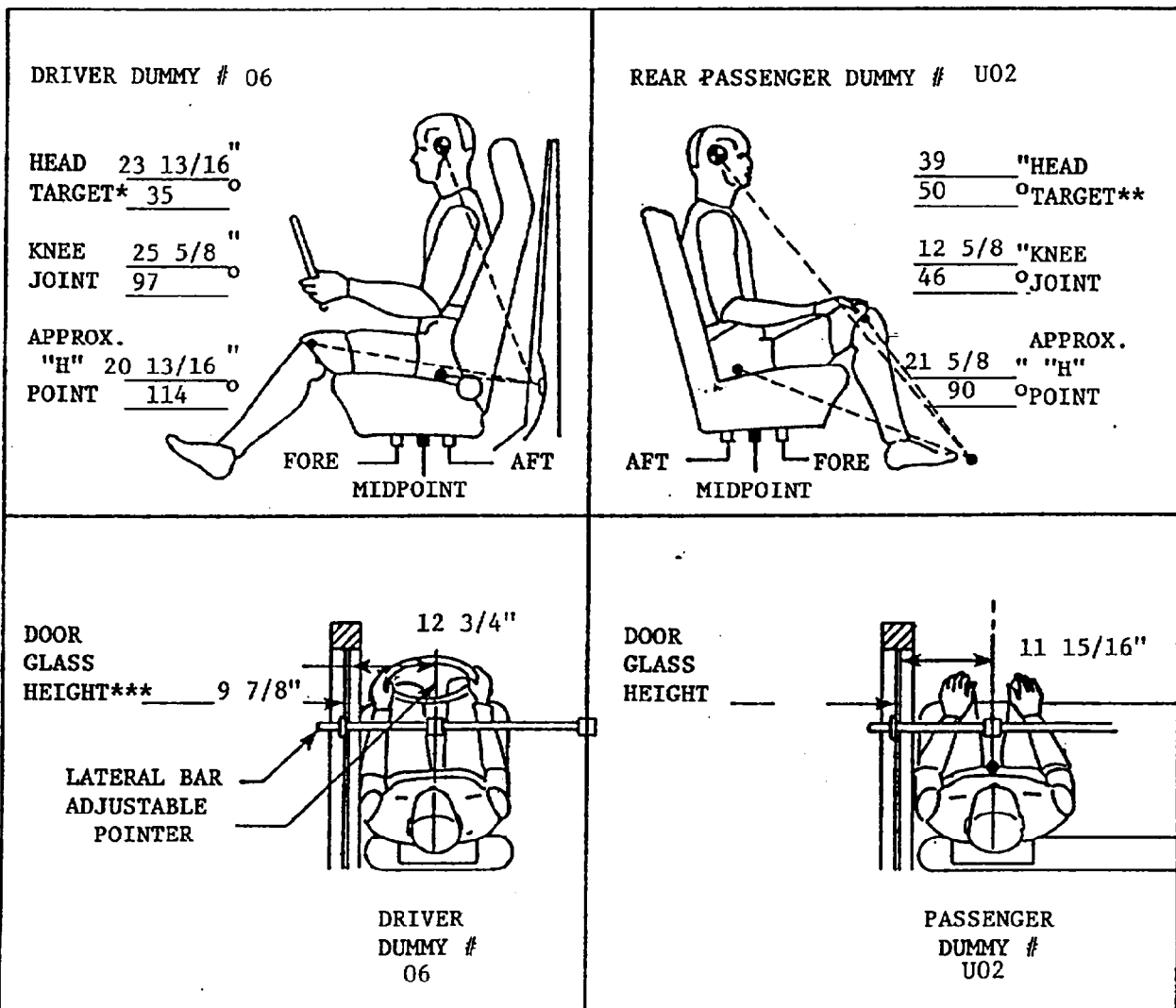
TECHNICIANS:
 1. D. LeVally

2. B. Miller

3. P. Clay

POSITIONING DATE: 1/9/84

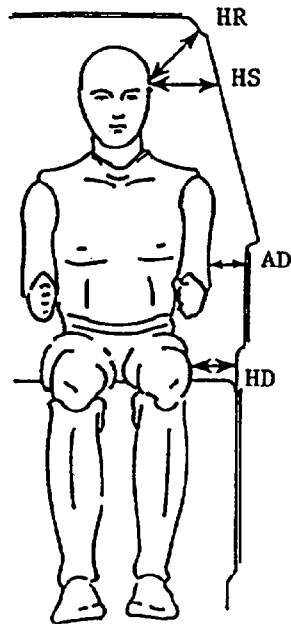
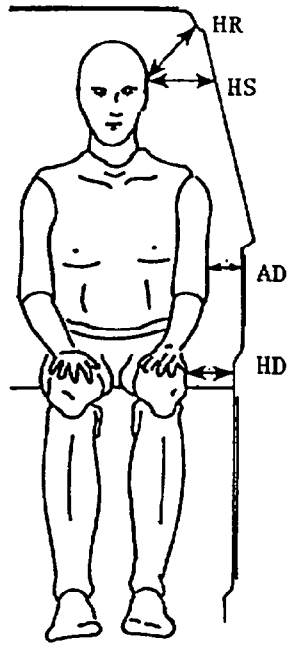
AMBIENT TEMP.: 71° F. TIME: 9:00



*All driver dummy dimensions referenced to top of striker bolt and all angles referenced to vertical.

**All passenger dummy dimensions referenced to front seat back latch bolt with front seat in mid-position and all angles referenced to vertical.

***Door glass height is equal on the right and left side of vehicle at dummy nose level.



DRIVER

PASSENGER

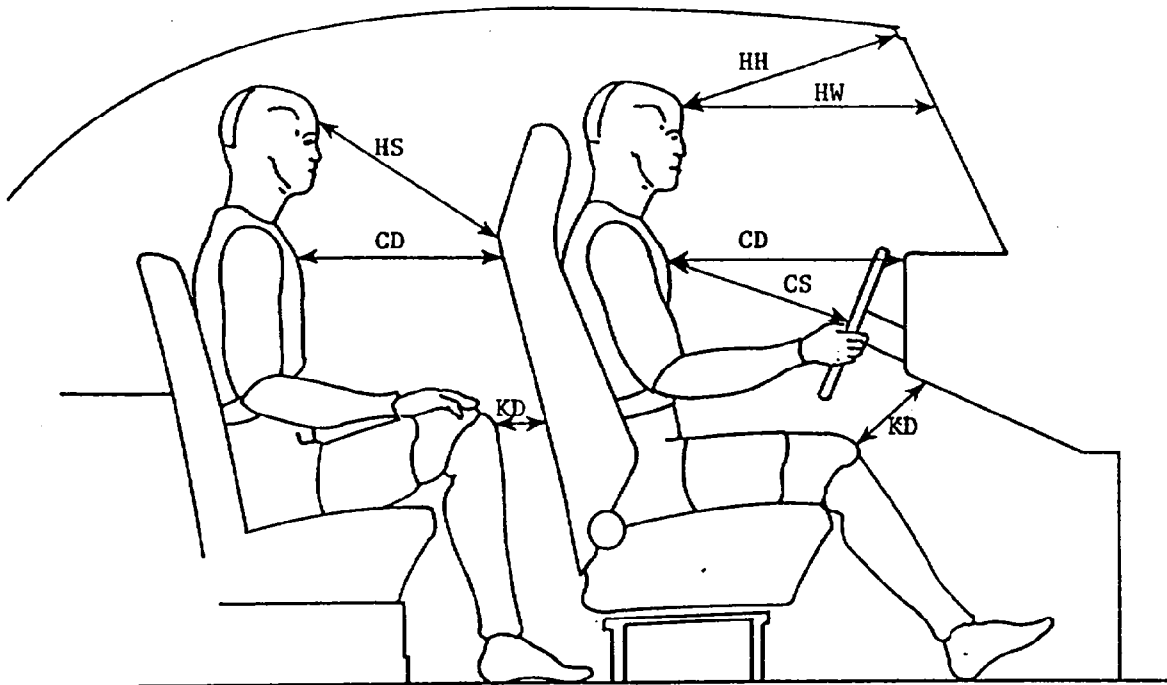
06

U02

HR	6 3/16	4 3/8
HS	8 15/16	5 3/8
AD	4 1/16	5 1/4
HD	6 3/8	5 7/8

ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



DRIVER

PASSENGER

06

U02

HH	9 5/8	DNA
HW	15 11/16	DNA
HS	DNA	20
CD	18 13/16	14 3/8
CS	17 7/16	DNA
KDL	8 1/2	0
KDR	8 3/8	0

ALL MEASUREMENTS IN INCHES

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

DUMMY KINEMATIC SUMMARY

DRIVER

During impact, the dummy's torso contacted the driver's door and the head contacted the driver's side window and the top of the moving deformable barrier face. The dummy rebounded rearward across the front occupant compartment until it's buttocks struck the right front passenger's door. The dummy came to rest sitting upright in the right front passenger's seat and facing toward the driver's side.

PASSENGER

During impact, the dummy's torso contacted the left rear side wall and the head contacted the C-pillar. The dummy rebounded laterally across the rear occupant compartment but was prevented from rebounding the full width of the compartment because it's knees were initially compressed into the rear of the driver's seat. The dummy came to rest sitting upright in the left rear seating position and facing forward.

VEHICLE EXTERIOR PROFILES AND STATIC CRUSH
ZERO DISTANCE AT PROJECTED IMPACT POINT*

LOCATION	HEIGHT (in)	6	0	6	12	18	24	30	36	42	48	54	60	66	72	78
PRE-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)																
Axle Height	9.7	X	X	18.1	17.9	17.9	18.0	18.0	17.9	17.8	17.8	17.8	17.8	17.8	X	X
H-Point	22.3	X	14.1	13.9	13.8	13.7	13.6	13.6	13.6	13.6	13.6	13.7	13.7	13.8	13.9	X
Mid Door***	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Window Sill	34.0	17.9	17.6	17.4	17.4	17.3	17.1	17.1	17.1	17.1	17.0	17.0	17.1	17.1	17.1	17.1
Window Top	52.5	X	X	X	X	X	X	X	25.4	25.2	25.0	24.9	24.8	24.8	24.8	X

POST-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)

Axle Height	9.7	X	X	29.5	31.1	30.4	29.8	29.3	28.9	28.5	27.9	27.5	26.0	23.8	X	X
H-Point	22.3	X	24.5	25.9	27.0	27.4	27.4	27.5	27.8	28.0	28.2	28.5	29.6	28.4	25.3	X
Mid Door***	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Window Sill	34.0	20.5	21.0	22.5	25.1	26.6	26.3	26.3	26.6	27.1	27.4	27.9	29.3	29.1	25.6	22.1
Window Top	52.5	X	X	X	X	X	X	X	28.8	28.6	28.5	28.4	28.1	27.5	27.1	X

STATIC CRUSH (IN)

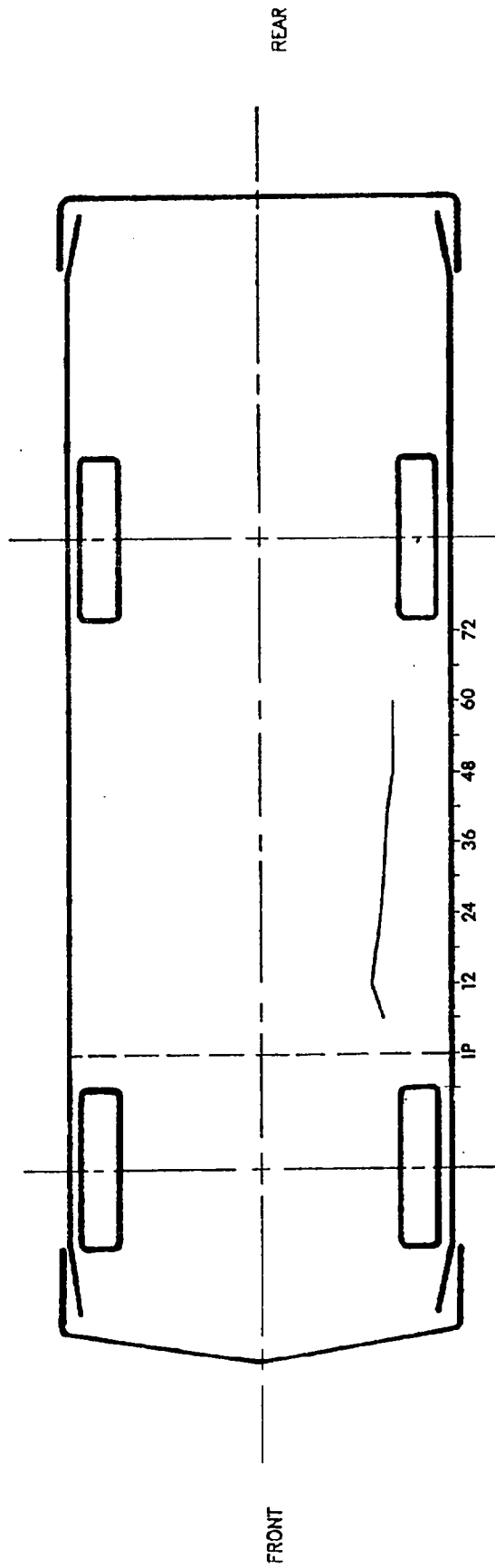
Axle Height	9.7	X	X	11.4	13.2	12.5	11.8	11.3	11.0	10.7	10.1	9.7	8.2	6.0	X	X
H-Point	22.3	X	10.4	12.0	13.2	13.7	13.8	13.9	14.2	14.4	14.6	14.8	15.9	14.6	11.4	X
Mid Door***	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Window Sill	34.0	2.6	3.4	5.1	7.7	9.3	9.2	9.2	9.5	10.0	10.4	10.9	12.2	12.0	8.5	5.0
Window Top	52.5	X	X	X	X	X	X	X	3.4	3.4	3.5	3.6	3.3	2.7	2.3	X

* Projected impact point is 37 inches forward of driver's side wheelbase midpoint. Column readings are front to rear from left to right.

** Reference plane is parallel to and 48 inches from the vehicle longitudinal centerline.

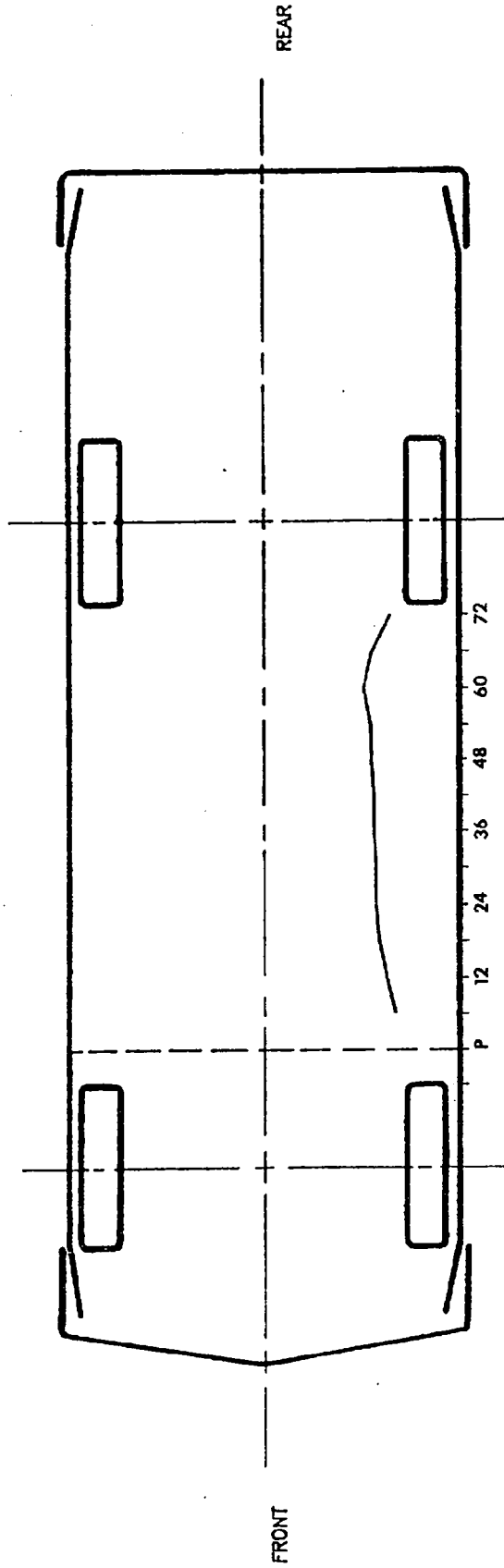
*** The Mid Door and H-Point heights are within two inches; only H-Point crush is reported.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



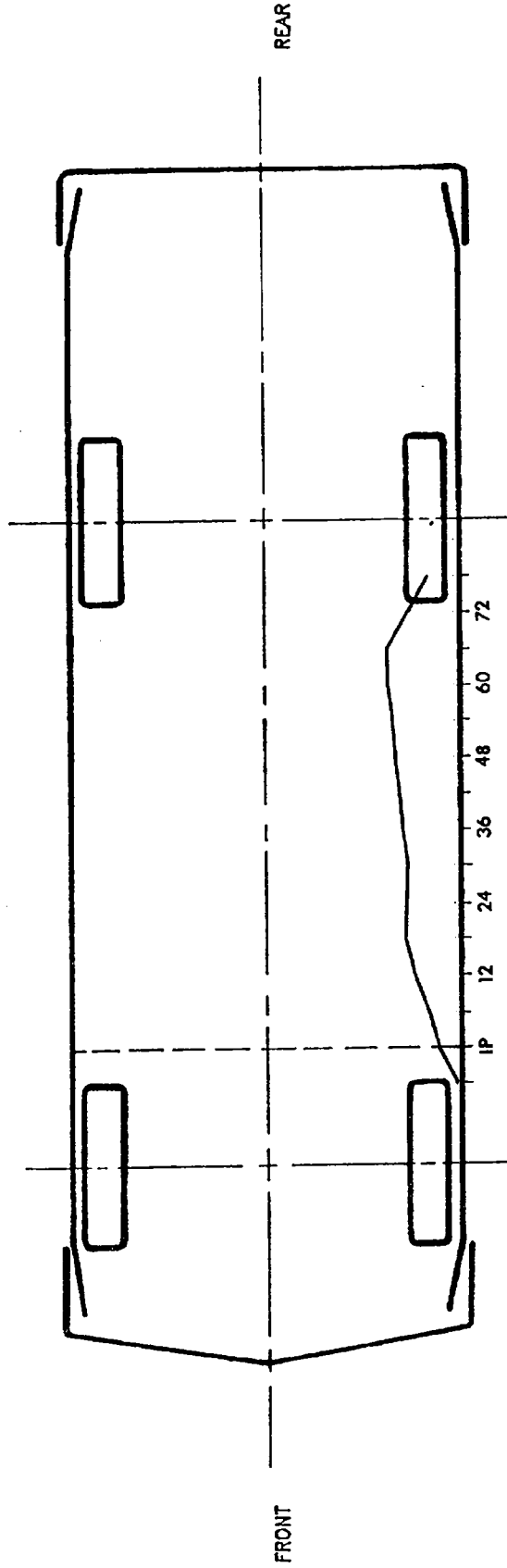
PROFILE LEVEL EQUALS AXLE HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



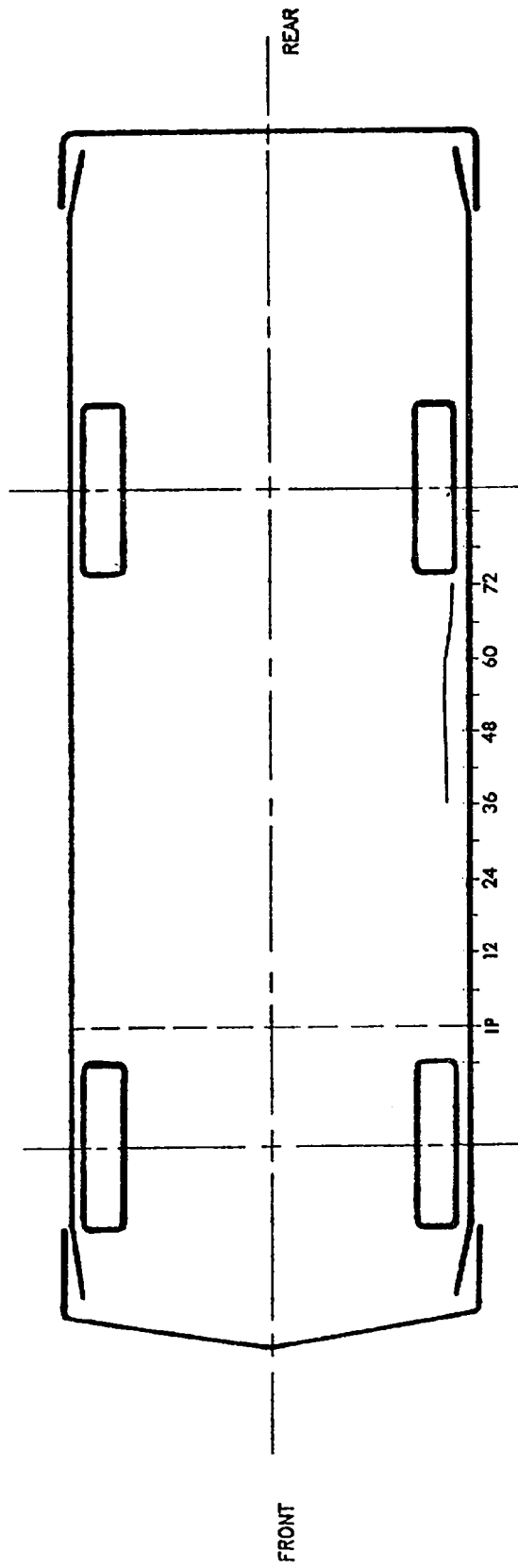
PROFILE LEVEL EQUALS H-POINT HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW SILL HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT
IP EQUALS PROJECTED IMPACT POINT

SIDE IMPACT DUMMY DATA SUMMARY

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE		NEGATIVE		POSITIVE		NEGATIVE	
	DIRECTION*		DIRECTION**		DIRECTION*		DIRECTION**	
	MAX	TIME	MAX	TIME	MAX	TIME	MAX	TIME
	(g)	(msec)	(g)	(msec)	(g)	(msec)	(g)	(msec)
HEAD ACCELERATION								
LONGITUDINAL	9.02	65.38	189.32	81.50	9.65	43.63	13.43	71.38
LATERAL	114.02	81.25	12.85	35.38	138.56	48.50	8.49	37.25
VERTICAL	5.73	29.63	60.41	67.50	47.08	55.63	31.70	40.75
RESULTANT	221.33 @ 81.50				141.85 @ 48.50			
HIC	1224.12 from 80.38 to 83.25				578.37 from 46.75 to 51.13			
CHEST ACCELERATION								
UPPER SPINE								
LONGITUDINAL	30.52	50.00	31.56	40.63	17.78	53.12	24.03	43.75
LATERAL (P)***	104.43	41.87	49.78	62.50	74.00	43.13	20.86	64.38
LATERAL (R)***	105.67	41.87	48.04	62.50	75.05	43.13	20.75	64.38
VERTICAL	13.27	30.62	14.75	85.00	6.22	40.63	7.87	46.88
RESULTANT (P)	108.81 @ 41.87				77.79 @ 43.13			
RESULTANT (R)	110.00 @ 41.87				78.79 @ 43.13			
DELTA V (MPH)****	26.1 @ 58.75 (P)				23.9 @ 61.87 (P)			
	27.2 @ 58.75 (R)				24.5 @ 61.87 (R)			
LOWER SPINE								
LONGITUDINAL	56.55	45.00	39.45	31.88	21.00	51.25	38.82	40.00
LATERAL (P)	109.95	33.13	37.61	62.50	99.53	38.75	23.39	64.38
LATERAL (R)	107.93	33.13	47.85	62.50	101.50	38.75	23.35	64.38
VERTICAL	25.46	109.38	253.28	114.37 γ	19.21	41.25	5.30	88.75
RESULTANT (P)	253.35 @ 114.37 γ				107.30 @ 39.38			
RESULTANT (R)	253.43 @ 114.37 γ				109.25 @ 39.38			
DELTA V (MPH)	32.2 @ 51.88 (P)				28.6 @ 55.63 (P)			
	32.1 @ 51.88 (R)				30.0 @ 55.63 (R)			
LEFT UPPER RIB								
LATERAL (P)	130.90	36.88	23.67	115.00	100.25	35.00	7.67	55.00
LATERAL (R)	130.25	36.88	30.97	33.13	96.12	35.00	14.13	54.38
DELTA V (MPH)	25.8 @ 73.13 (P)				24.9 @ 85.00 (P)			
	26.1 @ 73.13 (R)				24.2 @ 84.38 (R)			
LEFT LOWER RIB								
LATERAL (P)	117.83	36.25	32.98	67.50	101.82	35.63	30.12	68.75
LATERAL (R)	124.83	36.25	24.81	67.50	106.67	35.63	31.86	68.75
DELTA V (MPH)	26.9 @ 78.13 (P)				26.3 @ 58.13 (P)			
	27.7 @ 78.13 (R)				25.4 @ 58.13 (R)			
PELVIS ACCELERATION								
LONGITUDINAL	7.75	68.63	73.27	61.63	6.09	69.00	65.33	35.25
LATERAL	176.98	31.63	9.15	66.50	124.98	36.50	6.21	68.13
VERTICAL	31.05	37.50	17.00	40.13	20.83	38.38	6.73	44.00
RESULTANT	178.37 @ 31.63				125.87 @ 36.38			
DELTA V (MPH)	29.0 @ 65.00				27.7 @ 53.63			

SIDE IMPACT DUMMY DATA SUMMARY CONTD

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE DIRECTION*		NEGATIVE DIRECTION**		POSITIVE DIRECTION*		NEGATIVE DIRECTION**	
	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)
RIB DEFLECTION †	0.05	213.38	1.79	57.38	0.02	24.00	1.85	56.63

* LONGITUDINAL: FORWARD
 LATERAL: RIGHTWARD
 VERTICAL: UPWARD

**LONGITUDINAL: REARWARD
 LATERAL: LEFTWARD
 VERTICAL: DOWNWARD

*** (P) = Primary Sensor, (R) = Redundant Sensor

**** For dummy channels, Delta V is the velocity change at the approximate time of separation from the contact area.

† Compression: Negative

γ SEE TEST ANOMALIES

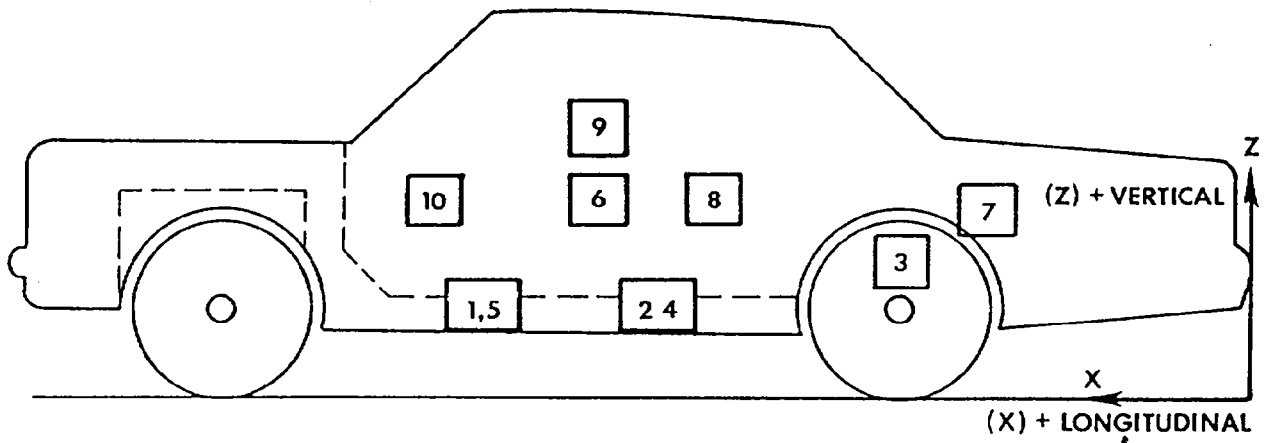
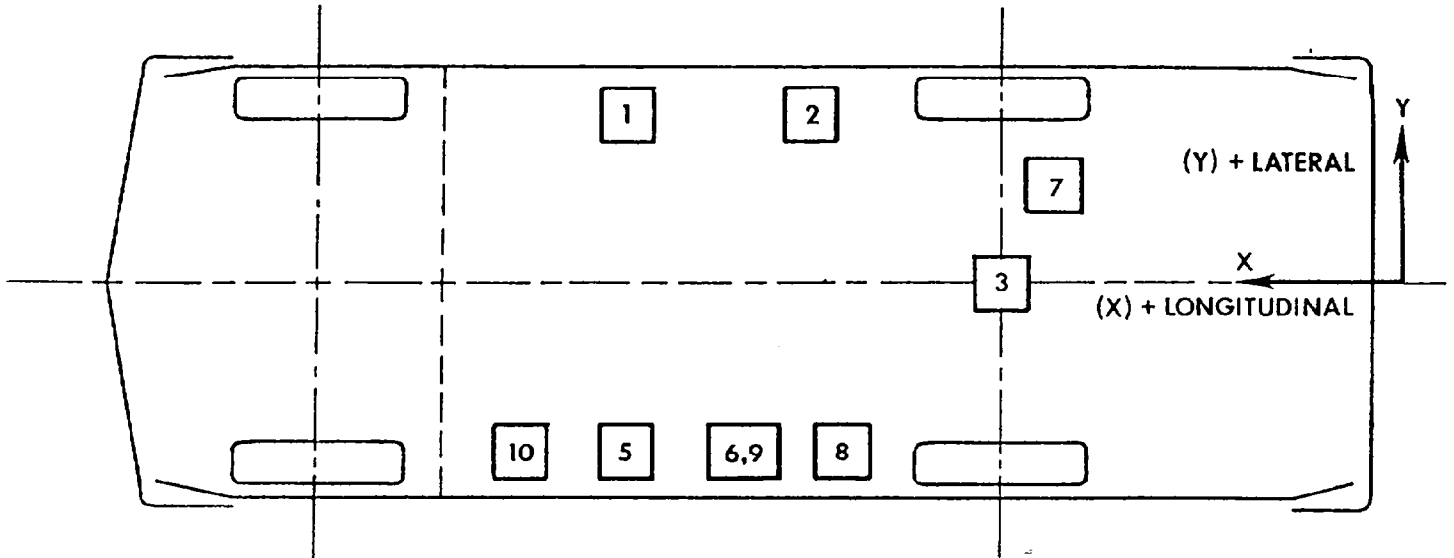
VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION		
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	
1	RIGHT SILL AT FRONT SEAT	102.1	23.7	9.0					
	(LONGITUDINAL)				$\Delta V = -2.5$ mph @ 100.00 msec	3.24	60.13	8.62	25.25
	(LATERAL)				$\Delta V = 15.5$ mph @ 100.00 msec	21.19	50.38	2.24	155.75
	(VERTICAL)					9.45	65.88	9.94	39.63
	(RESULTANT)							22.25 @ 50.50	
2	RIGHT SILL AT REAR SEAT	71.6	22.0	8.0					
	(LONGITUDINAL)				$\Delta V = -0.5$ mph @ 100.00 msec	4.45	60.13	7.74	24.63
	(LATERAL)				$\Delta V = 19.4$ mph @ 100.00 msec	21.47	35.75	2.08	139.38
	(VERTICAL)					7.19	44.75	11.65	40.75
	(RESULTANT)							21.80 @ 48.88	
3	REAR DECK OVER AXLE	38.6	-0.0	8.8					
	(LONGITUDINAL)				$\Delta V = -3.5$ mph @ 100.00 msec	5.27	77.50	14.64	23.38
	(LATERAL)				$\Delta V = 22.0$ mph @ 100.00 msec	23.40	30.63	3.93	115.63
	(VERTICAL)					10.11	77.88	15.91	24.63
	(RESULTANT)							23.98 @ 30.38	
4	LEFT SILL AT REAR SEAT	71.4	-22.6	8.4					
	(LATERAL)				$\Delta V = 6.2$ mph @ 45.38 msec	40.06	25.50	24.83	34.00
5	LEFT SILL AT FRONT SEAT	100.9	-23.5	10.0					
	(LATERAL)				$\Delta V = 16.6$ mph @ 31.25 msec	80.32	27.25	17.59	35.63
6	LEFT FRONT DOOR CENTERLINE	91.9	-27.0	20.2					
	(LATERAL)				$\Delta V = 9.2$ mph @ 15.75 msec	112.35	16.75	119.80	28.63
7	RIGHT REAR COMPARTMENT	32.8	15.5	16.3					
	(LONGITUDINAL)					3.52	51.63	8.16	27.88
8	MIDREAR OF LEFT FRONT DOOR	83.5	-26.3	24.4					
	(LATERAL)				$\Delta V = 22.0$ mph @ 23.00 msec	125.45	10.50	111.39	32.88
9	UPPER LEFT FRONT DOOR CENTERLINE	91.9	-26.4	29.6					
	(LATERAL)				$\Delta V = 27.6$ mph @ 26.50 msec	85.10	13.50	197.29	34.13
10	MIDFRONT OF LEFT FRONT DOOR	100.3	-26.6	24.1					
	(LATERAL)				$\Delta V = 9.1$ mph @ 23.13 msec	79.07	12.50	168.02	37.00

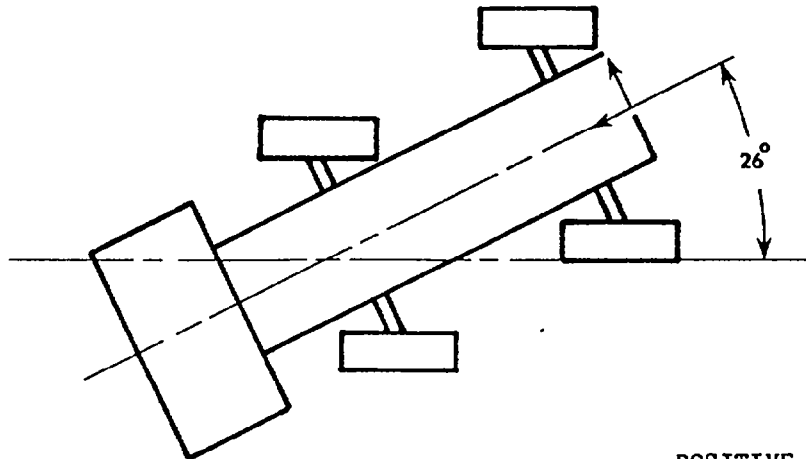
* Reference: X - Rear Bumper (+ Forward), Y - Vehicle Centerline (+ To Right), Z - Ground Level (+ Up)

All measurements of accelerometer locations in inches.

VEHICLE ACCELEROMETER LOCATIONS



MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY



NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION		
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	
1	CENTER OF GRAVITY (LONGITUDINAL) (LATERAL) (VERTICAL) (RESULTANT)	74.5	0.0	11.5					
					$\Delta V = -15.9$ mph @ 100.00 msec	1.14	133.75	15.25	46.50
					$\Delta V = -4.3$ mph @ 100.00 msec	0.93	53.13	8.54	44.13
						19.45	54.50	14.13	45.63
							22.11 @ 45.38		
2	FRONT FRAME MEMBER (LONGITUDINAL)	130.3	0.0	11.3					
					$\Delta V = -16.7$ mph @ 100.00 msec	0.63	134.63	15.39	42.00
3	REAR FRAME MEMBER (LONGITUDINAL)	23.3	0.0	11.5					
					$\Delta V = -15.3$ mph @ 100.00 msec	1.30	102.75	14.83	43.00

* Reference: X - Rear Most Point of Frame (+ To Forward),
 Y - Barrier Centerline (+ To Right),
 Z - Ground Level (+ To Up)

All measurements of accelerometer locations in inches.

HIGH SPEED CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead	Photosonics 1B	8	473	Vehicle dynamics
2	Overhead	Photosonics 1B	25	500	Close-up of impact point
3	Onboard MDB	Photosonics 1B	25	515	Close-up of impact point
4	Onboard MDB	Stalex	13	500	Driver kinematics
5	Ground level - right	Hycam	25	430	Overall view
6	Ground level - left	Photosonics 1B	17	497	Overall view
7	Onboard vehicle	Photosonics 1B	8	805	Driver kinematics - front view
8	Onboard vehicle	Photosonics 1B	8	805	Driver kinematics
9	Onboard vehicle	Photosonics 1B	8	805	Passenger kinematics

NOTE: CAMERAS ARE NUMBERED ACCORDING TO SPLICING SEQUENCE OF FILM.
 (24 fps) REAL TIME MOVIE FILM COVERAGE OF PRE-CRASH, POST-CRASH
 AND CRASH EVENT SPLICED AT START AND END OF FILM.

LOCATIONS OF OFFBOARD HIGH SPEED CAMERAS

CAMERA NO.	X	Y	Z
1	0	0	25'
2	0	0	25'
5	24'10"	58'8"	45"
6	-20'11"	-13'3"	45"

Origin of Coordinate System is Point of Impact

- +X = Forward with Respect to Striking Vehicle's Velocity Vector
- +Y = Rightward with Respect to Striking Vehicle's Velocity Vector
- +Z = Upward with Respect to Striking Vehicle's Velocity Vector

NON-GOVERNMENT FURNISHED TRANSDUCER INFORMATION

PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NUMBER	SERIAL NUMBER	MFR.	DATE OF LAST CALIBRATION	SENSITIVITY	DESIRED FULL SCALE (ENGR. UNITS)
BCGXG	Accel	4-202-0001	18845	Bell Howell	12/7/83	.237 MV/G	50 G
BCGYG	Accel	4-202-0001	18858	Bell Howell	12/7/83	.240 MV/G	50 G
BCGZG	Accel	4-202-0001	18857	Bell Howell	12/7/83	.240 MV/G	50 G
BFCXG	Accel	4-202-0001	18240	Bell Howell	12/7/83	.240 MV/G	50 G
BRCXG	Accel	4-202-0001	19022	Bell Howell	12/7/83	.222 MV/G	50 G

All dummy and struck vehicle accelerometers were Government Furnished Equipment and were Endevco 2264 Accelerometers.

APPENDIX A
PHOTOGRAPHS



Figure A-1. PRE-TEST OVERALL - VIEW 1

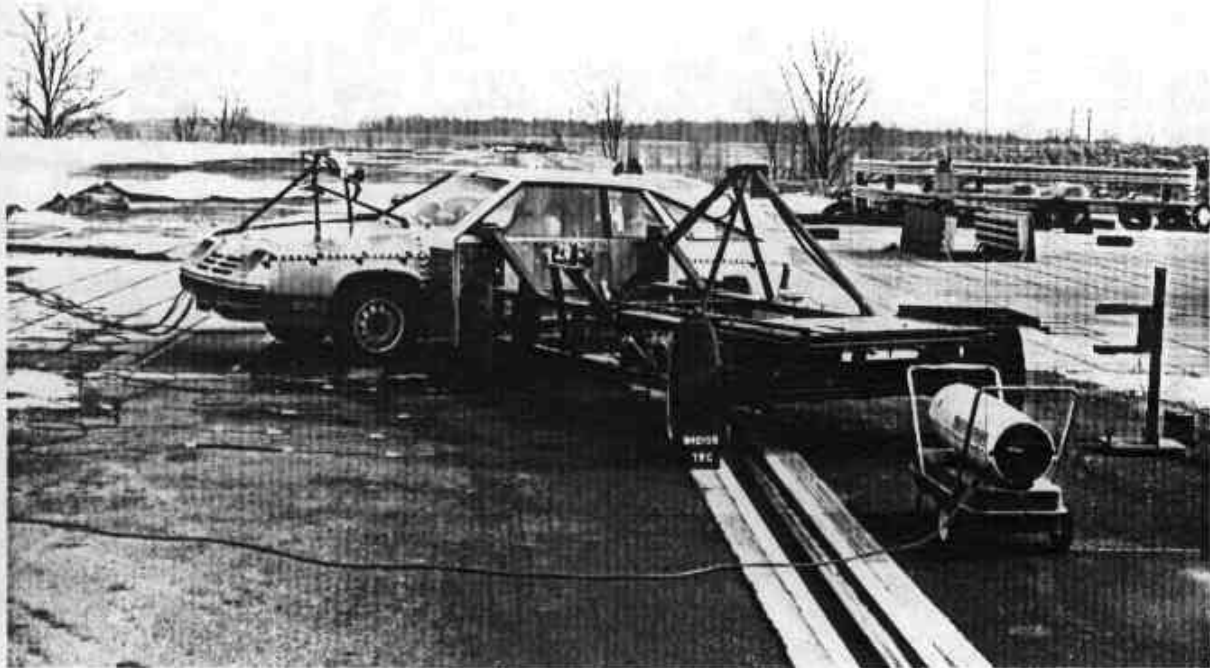


Figure A-2. PRE-TEST OVERALL - VIEW 2

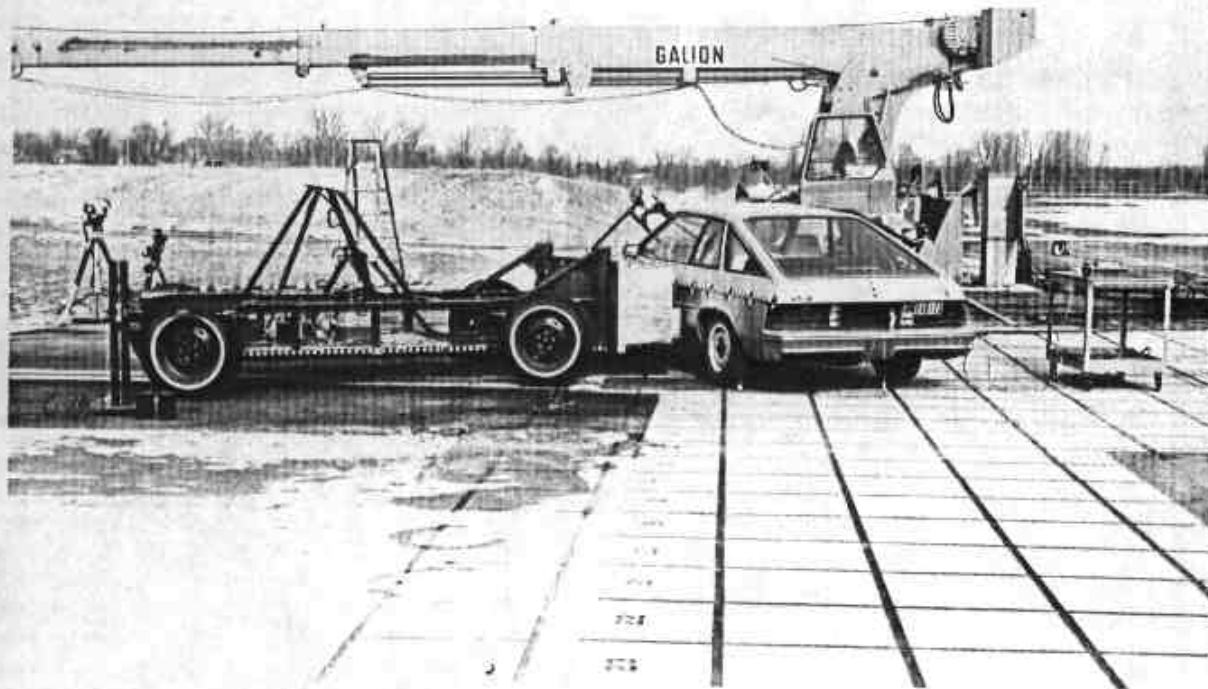


Figure A-3. PRE-TEST OVERALL - VIEW 3



Figure A-4. PRE-TEST OVERALL - VIEW 4

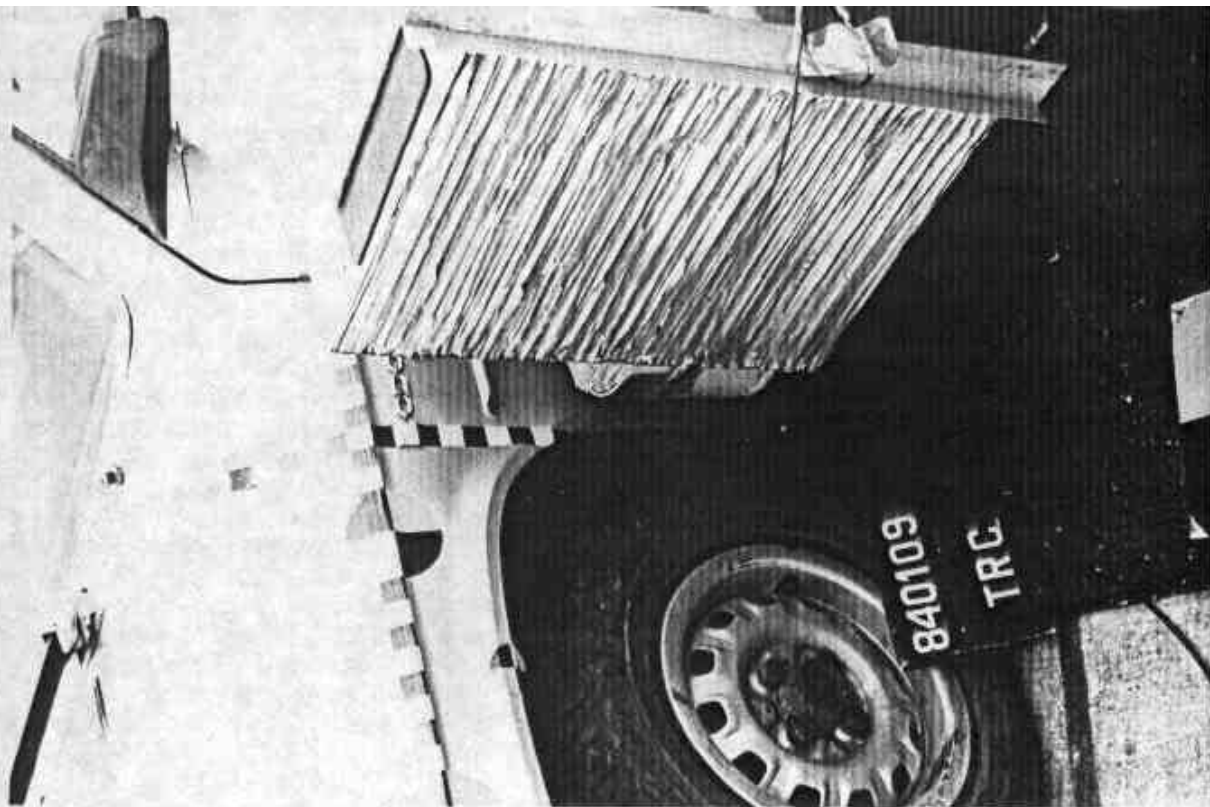


Figure A-5. PRE-TEST CLOSEUP - VIEW 1



Figure A-6. PRE-TEST CLOSEUP - VIEW 2

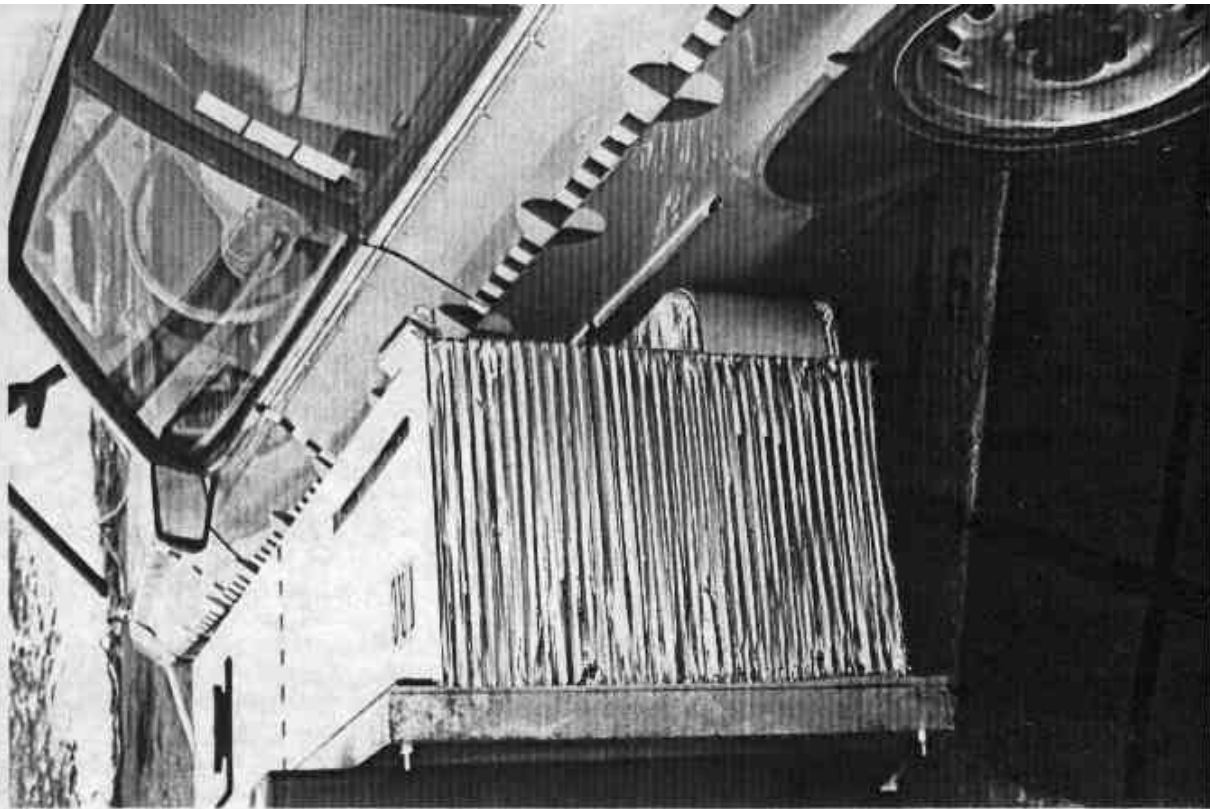


Figure A-7. PRE-TEST CLOSEUP - VIEW 3



Figure A-8. PRE-TEST DRIVER DUMMY - VIEW 1



Figure A-9. PRE-TEST DRIVER DUMMY - VIEW 2

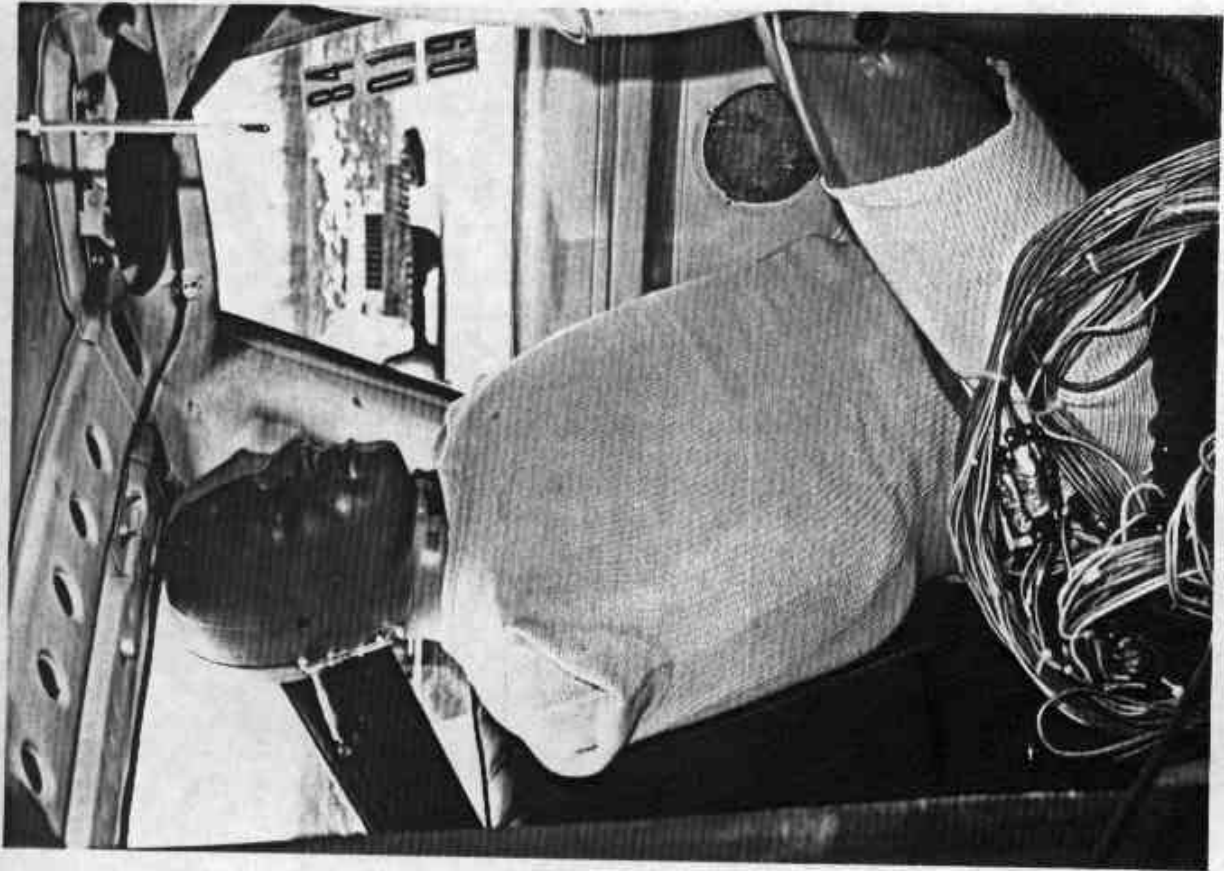


Figure A-10. PRE-TEST PASSENGER DUMMY - VIEW 1

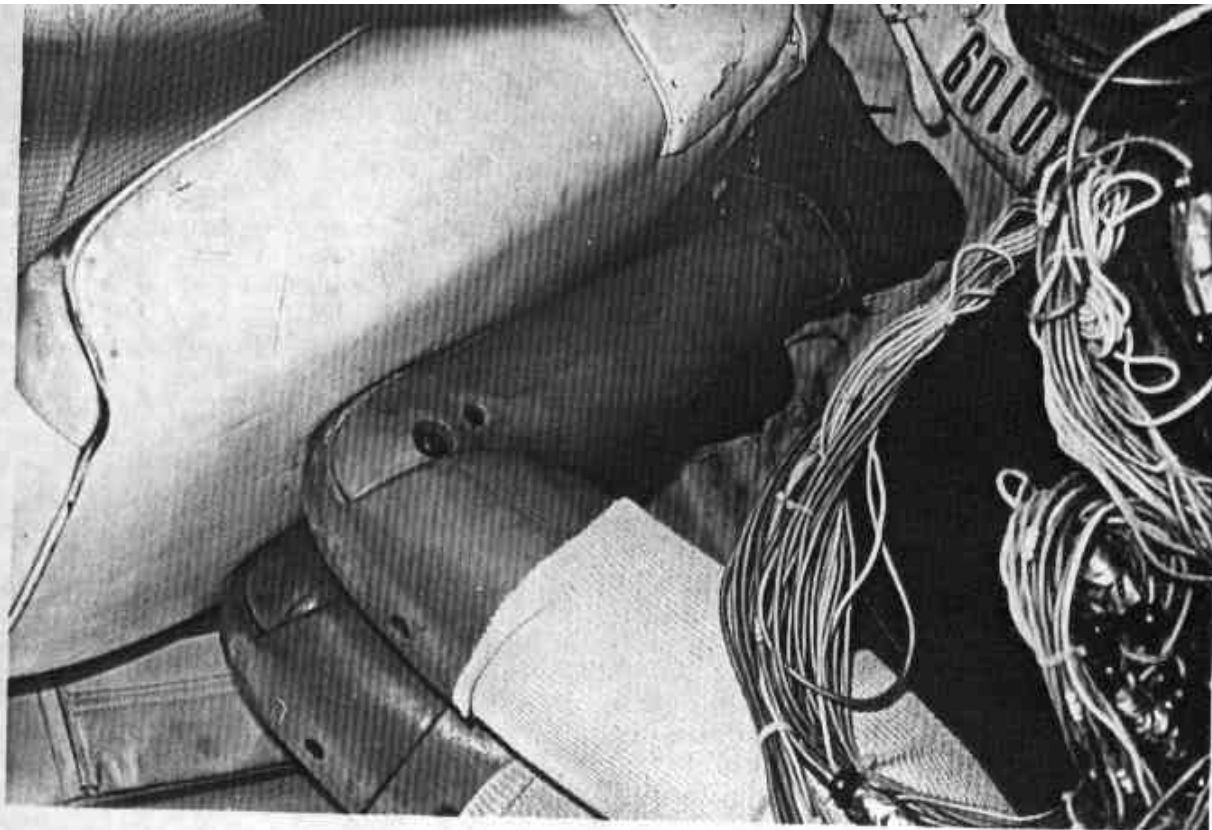


Figure A-11. PRE-TEST PASSENGER DUMMY - VIEW 2



Figure A-12. PRE-TEST PASSENGER DUMMY - VIEW 3



Figure A-13. CRASH EVENT PHOTOGRAPH



Figure A-14. POST-TEST OVERALL - VIEW 1



Figure A-15. POST-TEST OVERALL - VIEW 2

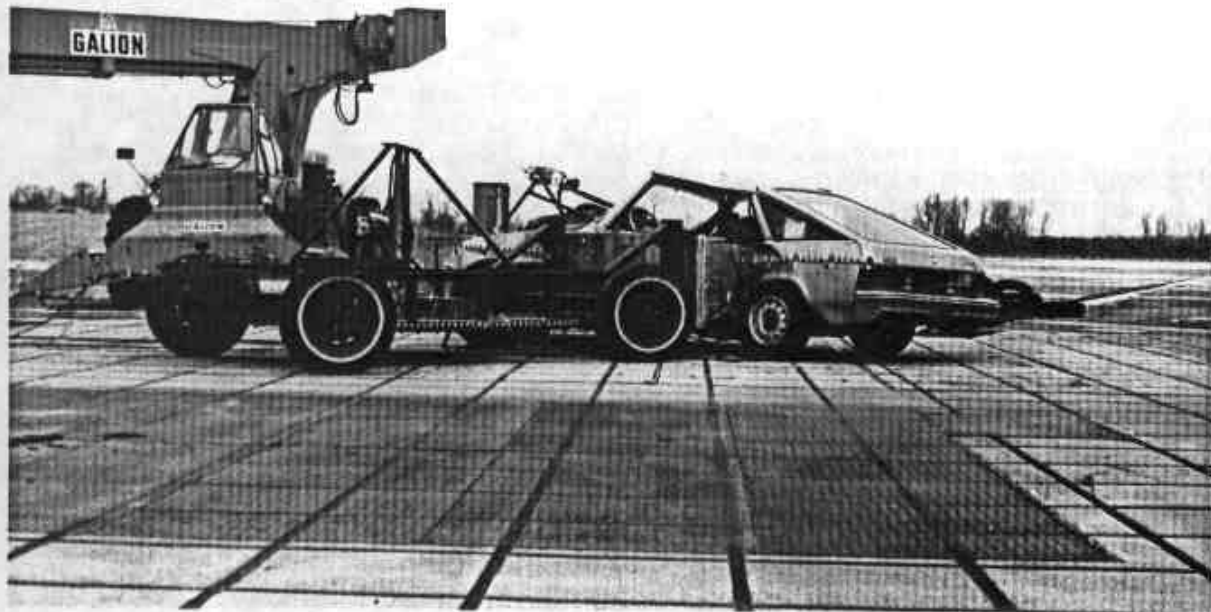


Figure A-16. POST-TEST OVERALL - VIEW 3

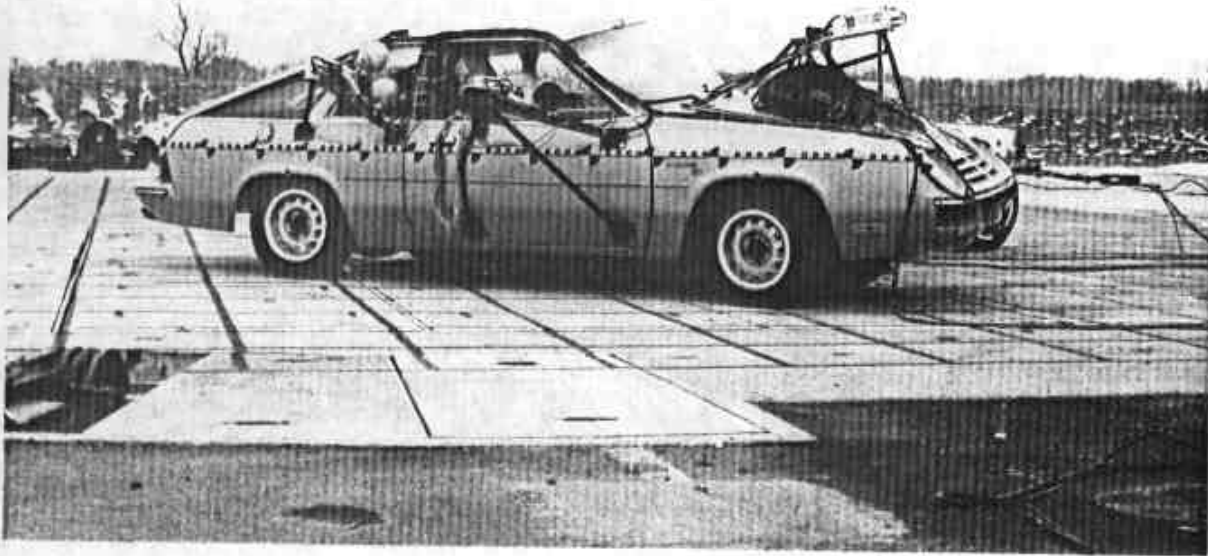


Figure A-17. POST-TEST OVERALL - VIEW 4

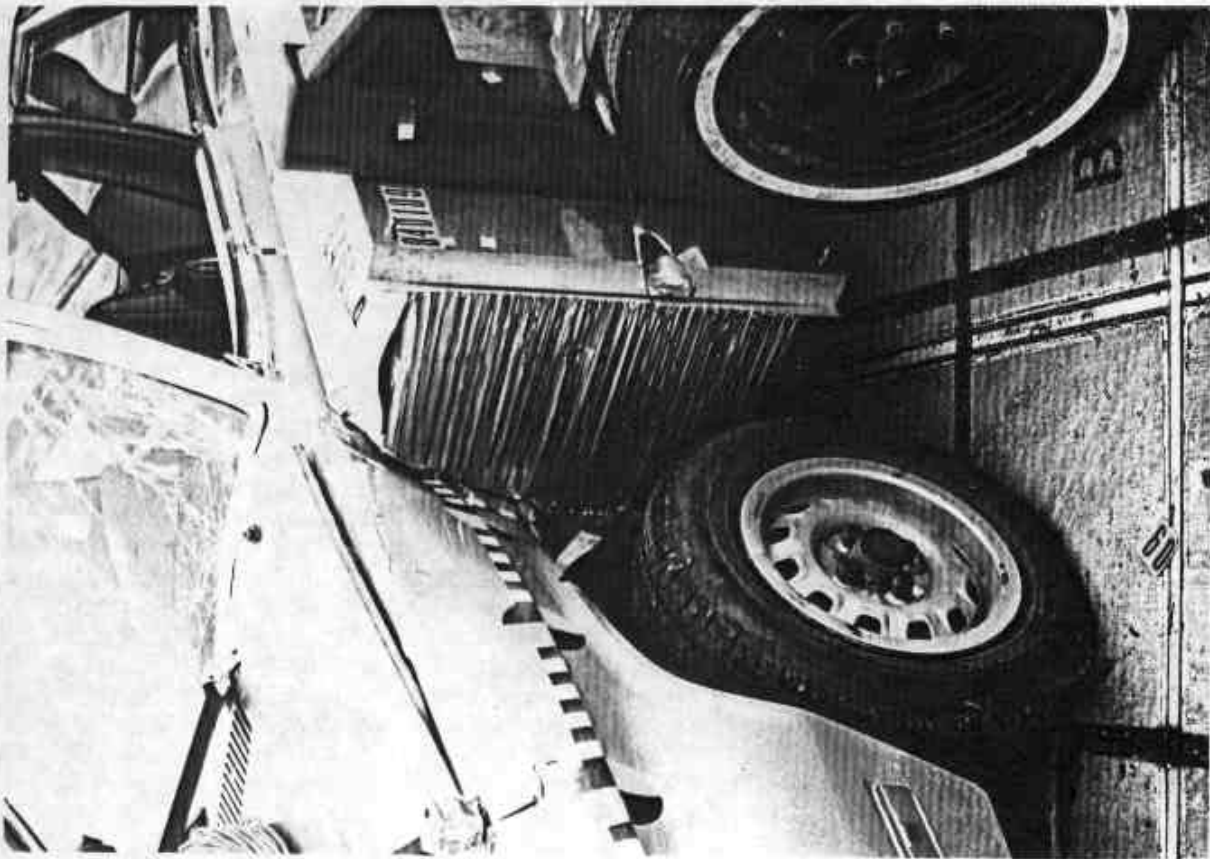


Figure A-18. POST-TEST CLOSEUP - VIEW 1

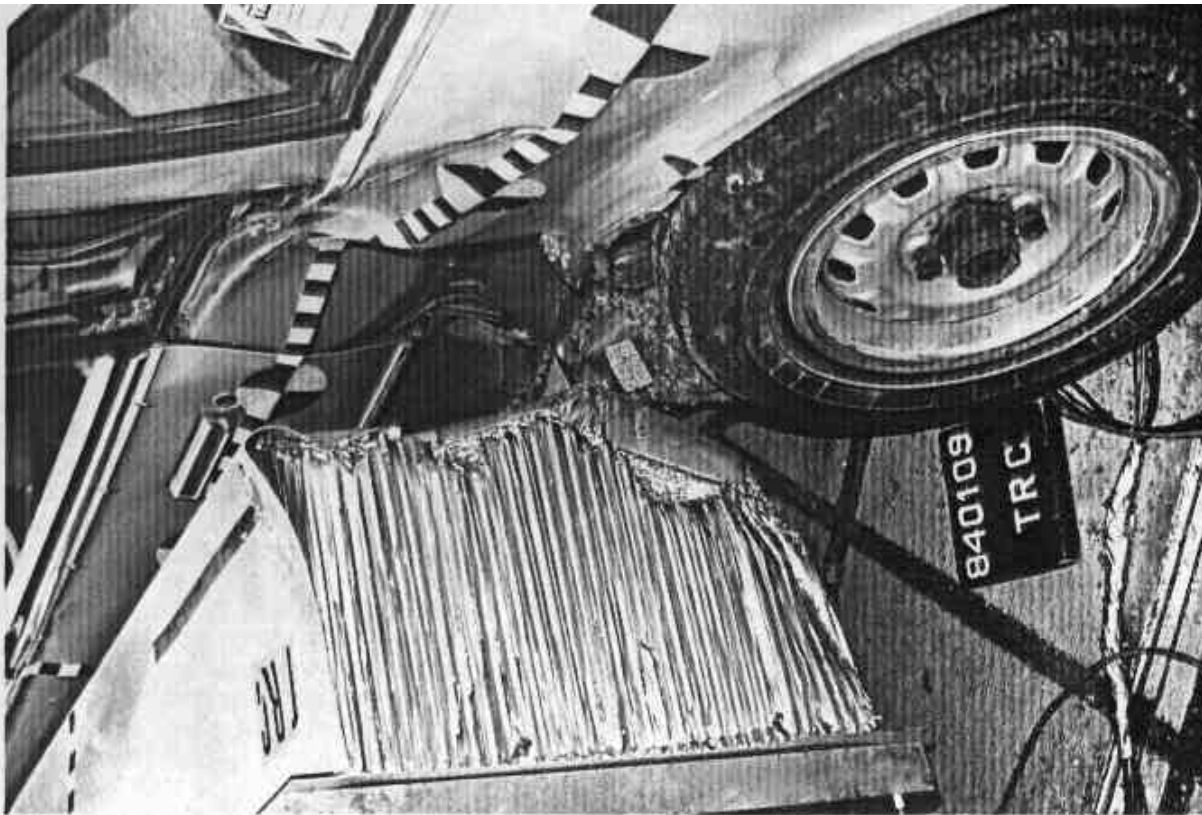


Figure A-19. POST-TEST CLOSEUP - VIEW 2



Figure A-20. POST-TEST DRIVER DUMMY - VIEW 1

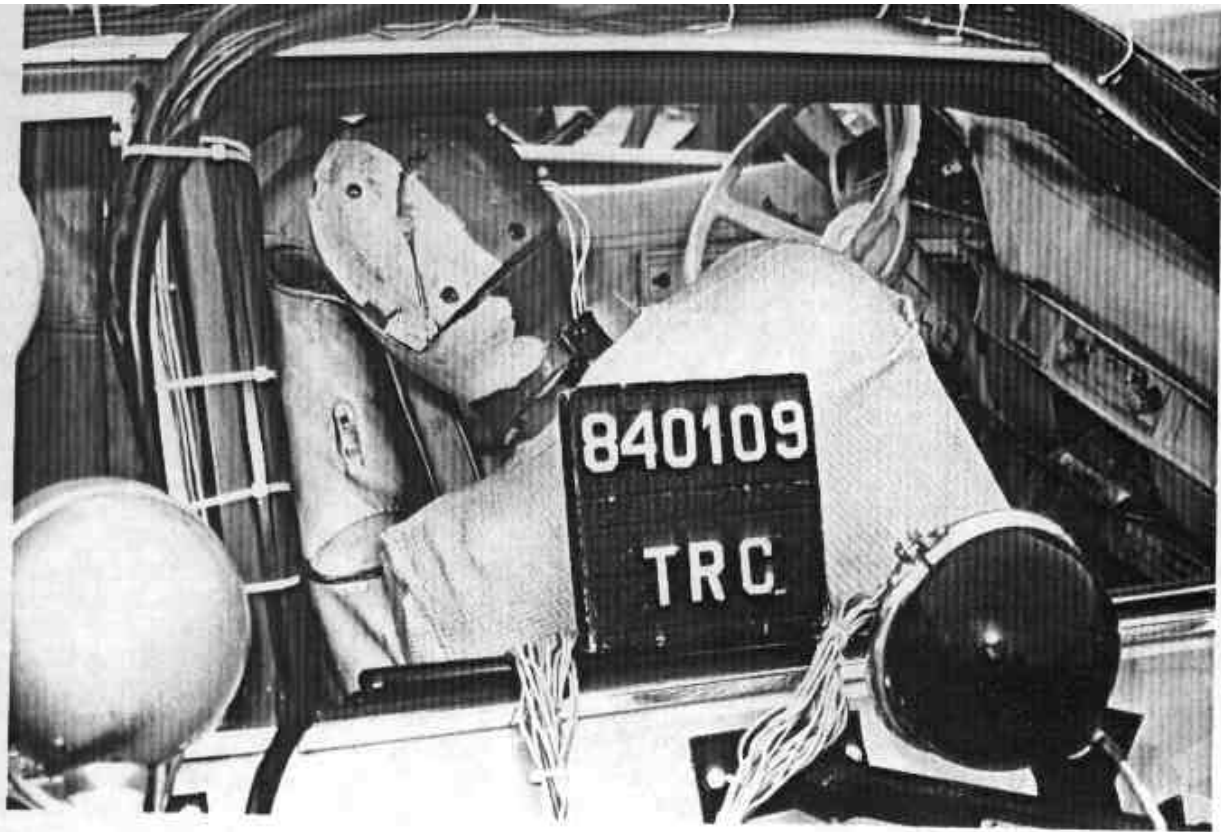


Figure A-21. POST-TEST DRIVER DUMMY - VIEW 2



Figure A-22. POST-TEST DRIVER DUMMY - VIEW 3



Figure A-23. POST-TEST PASSENGER DUMMY - VIEW 1

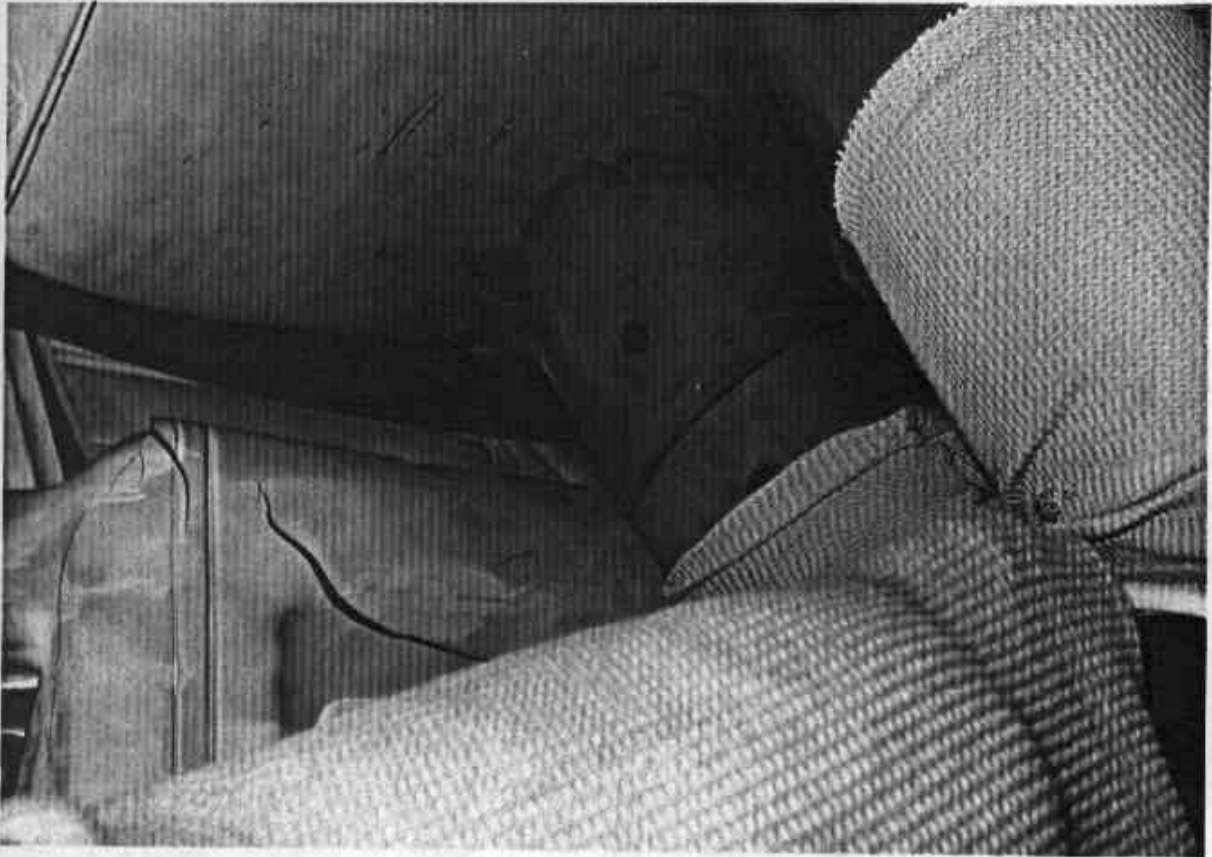


Figure A-24. POST-TEST PASSENGER DUMMY - VIEW 2

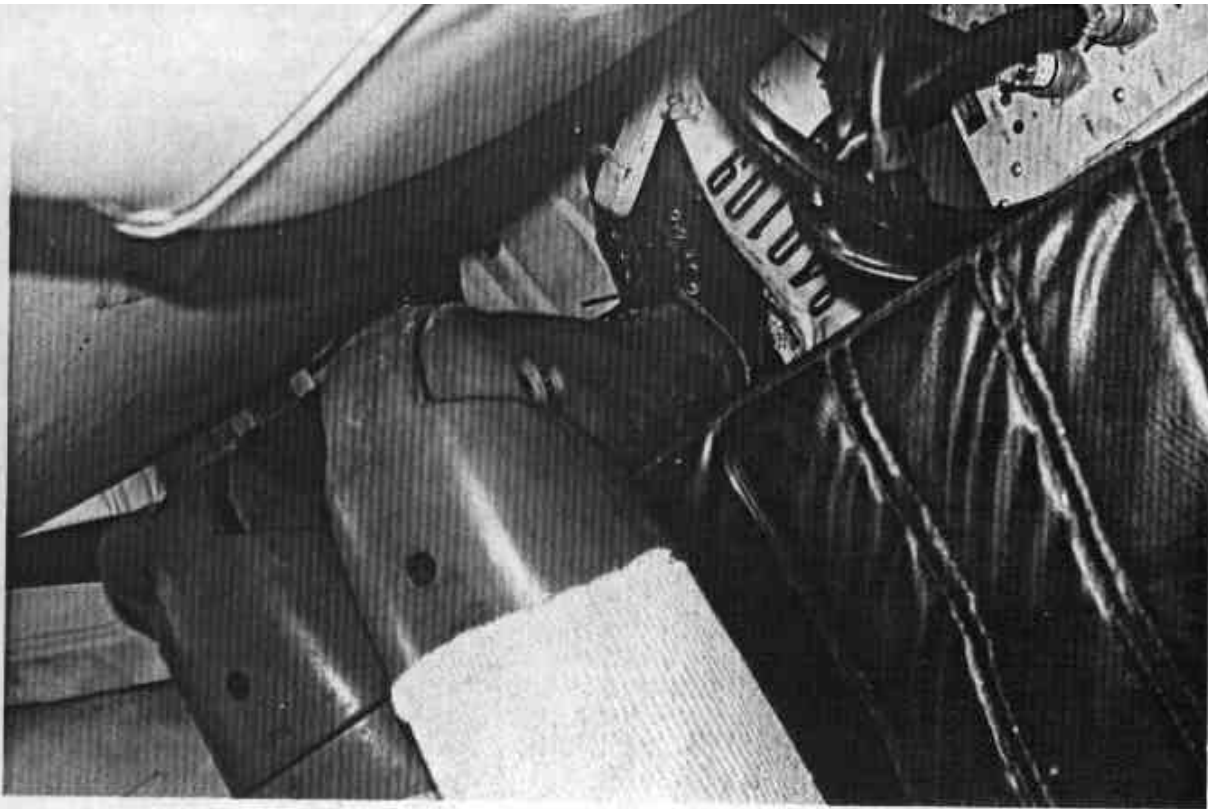


Figure A-25. POST-TEST PASSENGER DUMMY - VIEW 3

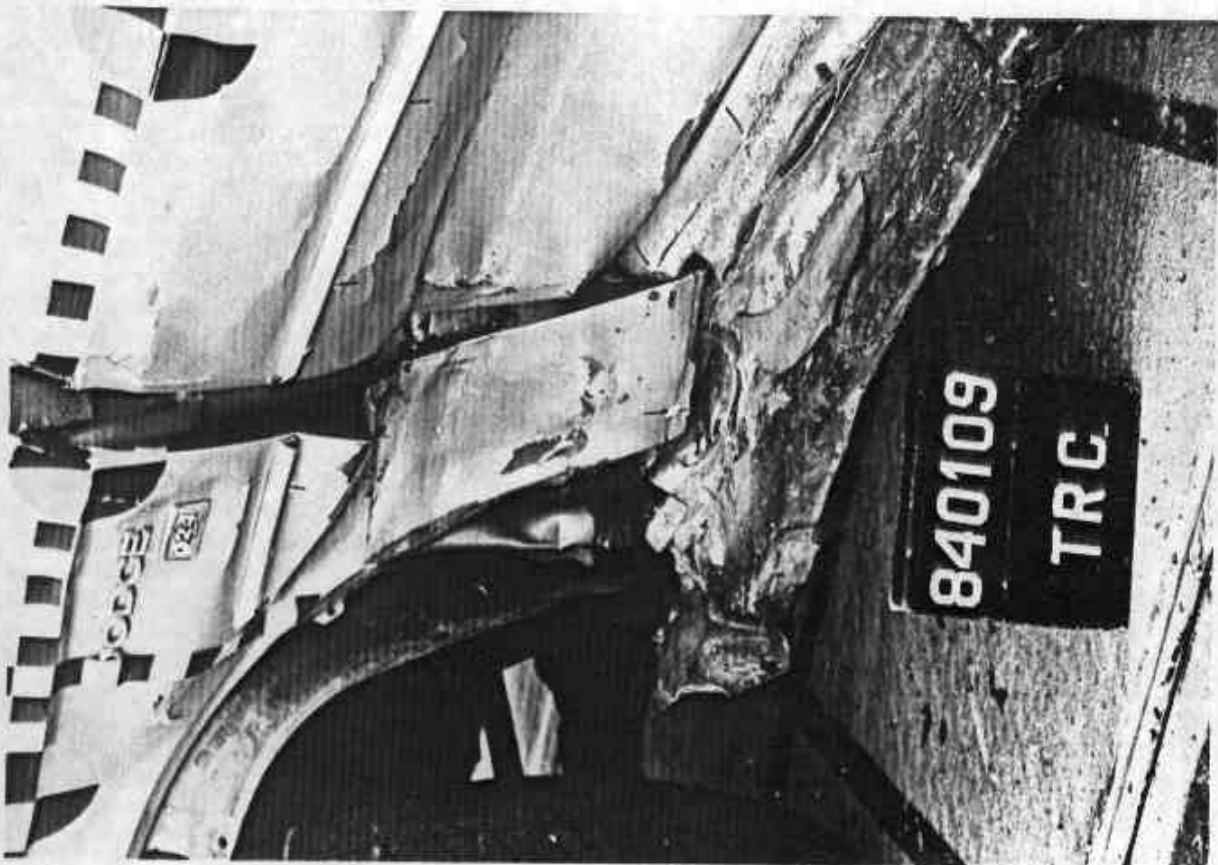


Figure A-26. POST-TEST VEHICLE DAMAGE - VIEW 1



Figure A-27. POST-TEST VEHICLE DAMAGE - VIEW 2

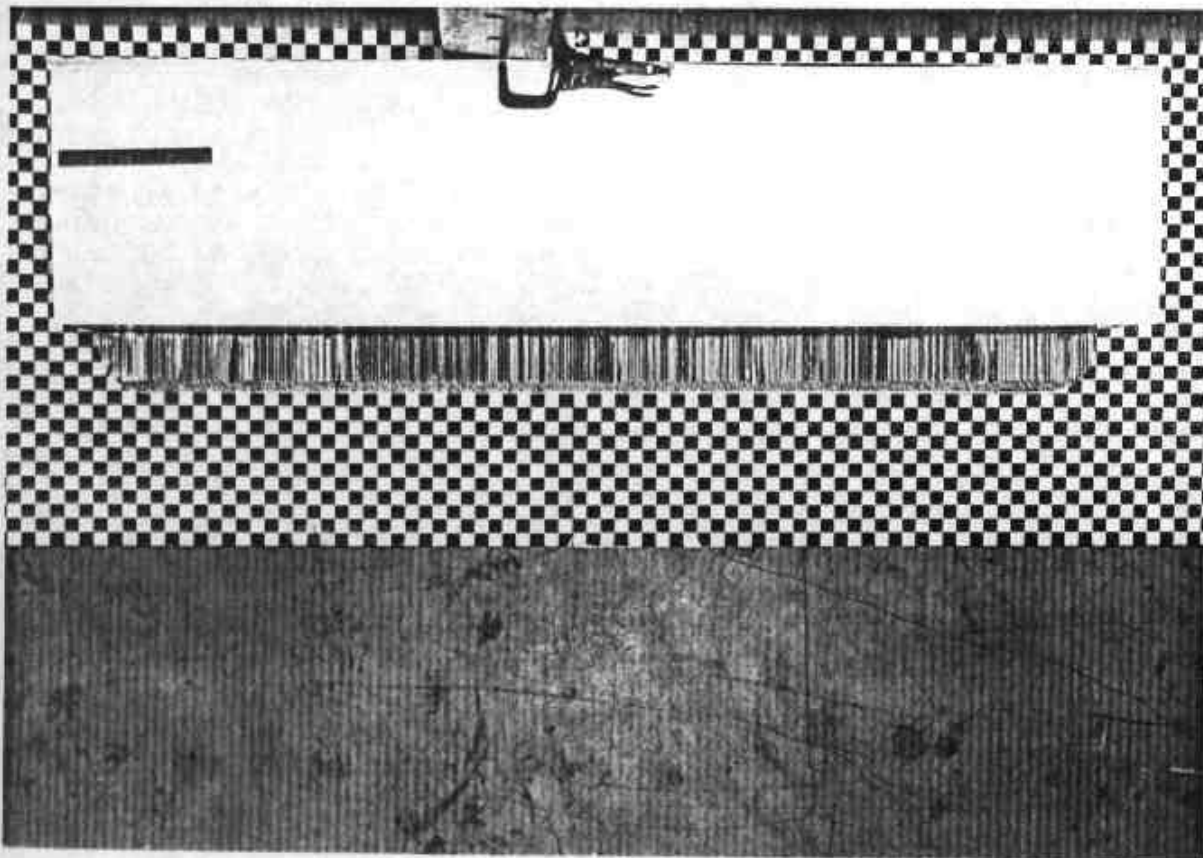


Figure A-28. PRE-TEST MDB FACE - VIEW 1

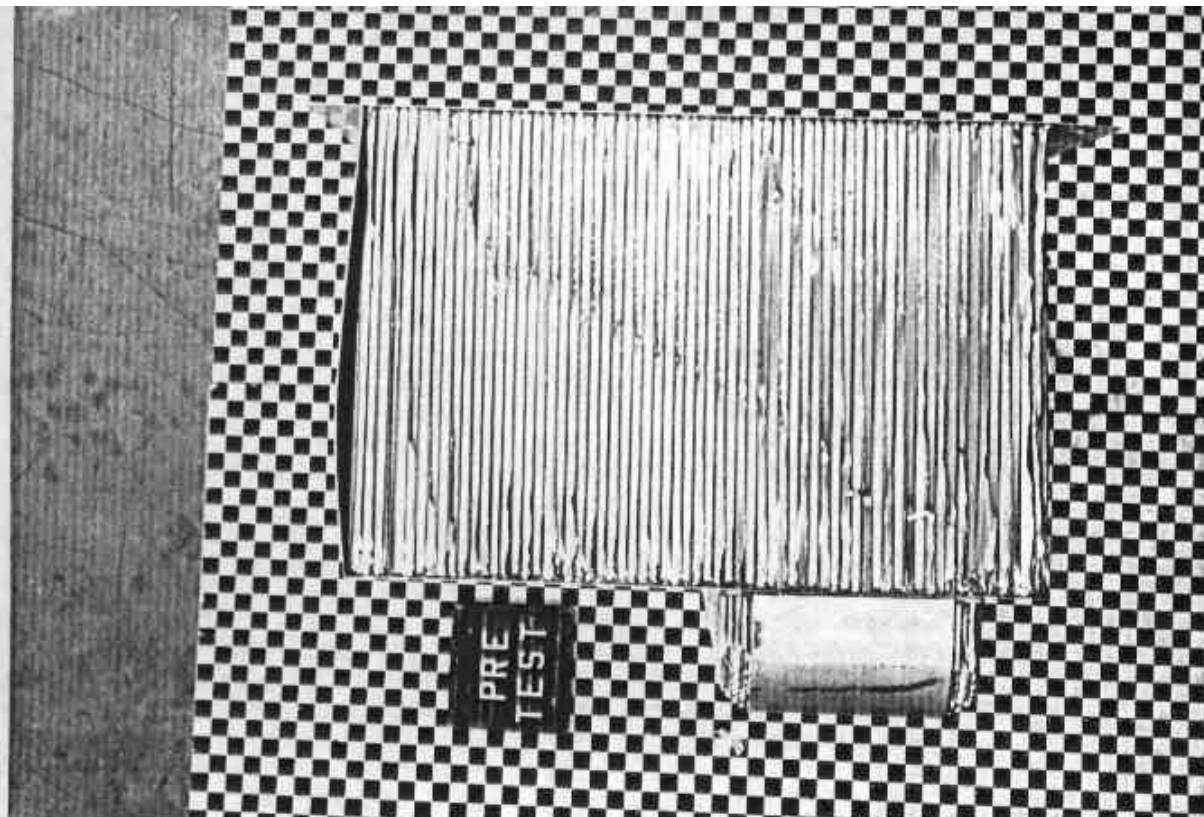


Figure A-29. PRE-TEST MDB FACE - VIEW 2

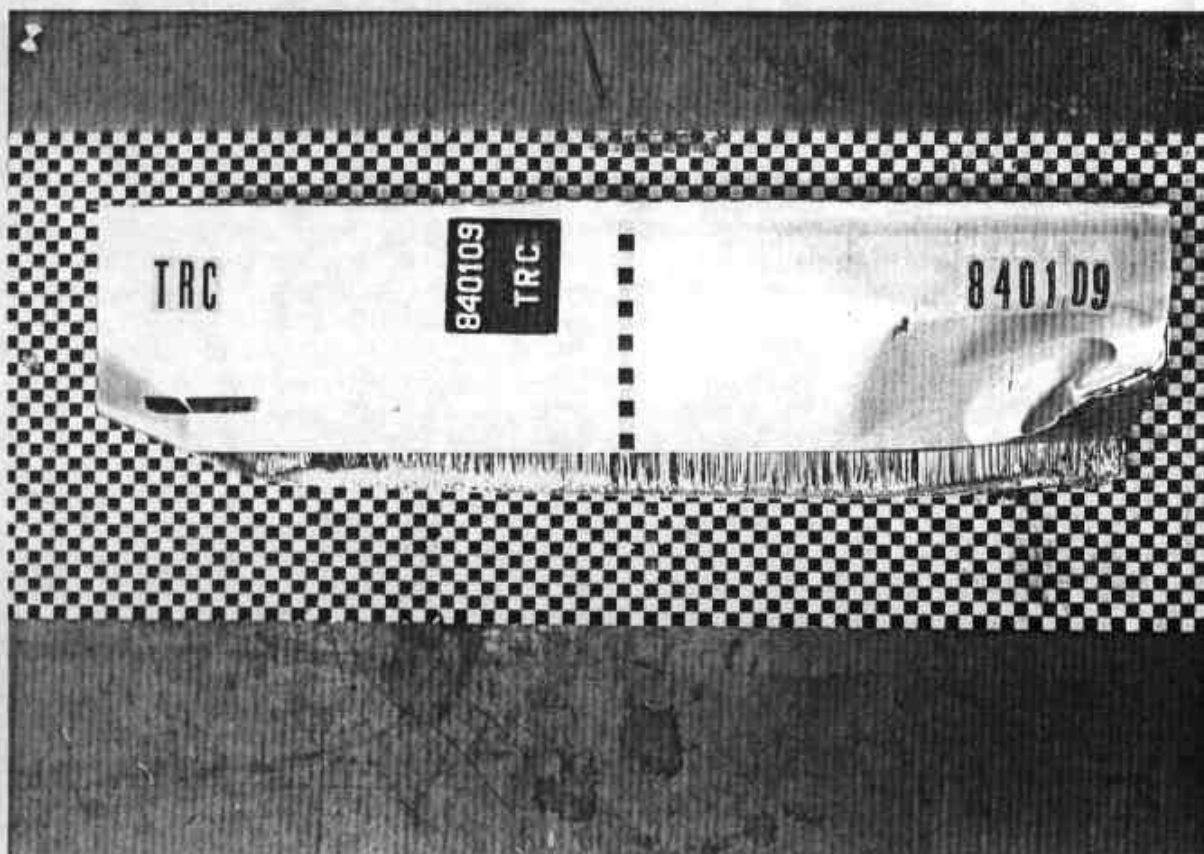


Figure A-30. POST-TEST MDB FACE - VIEW 1

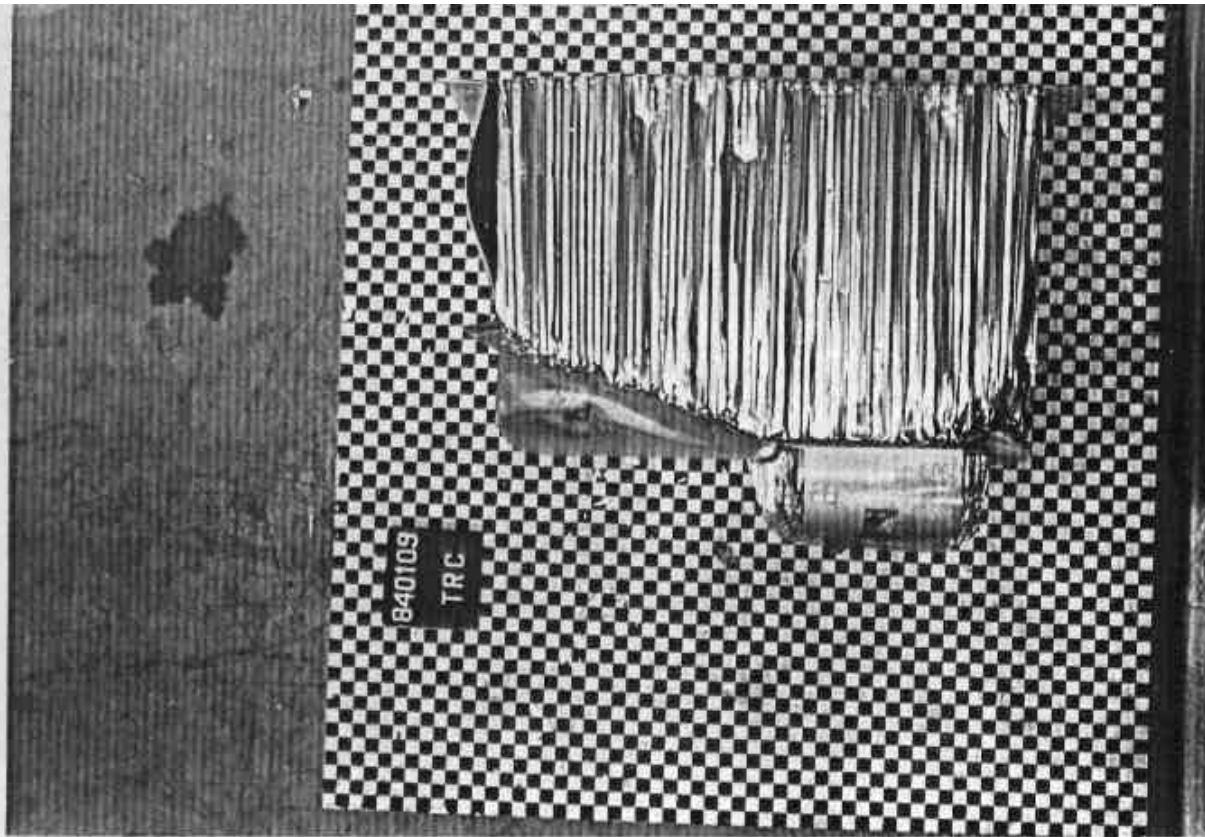
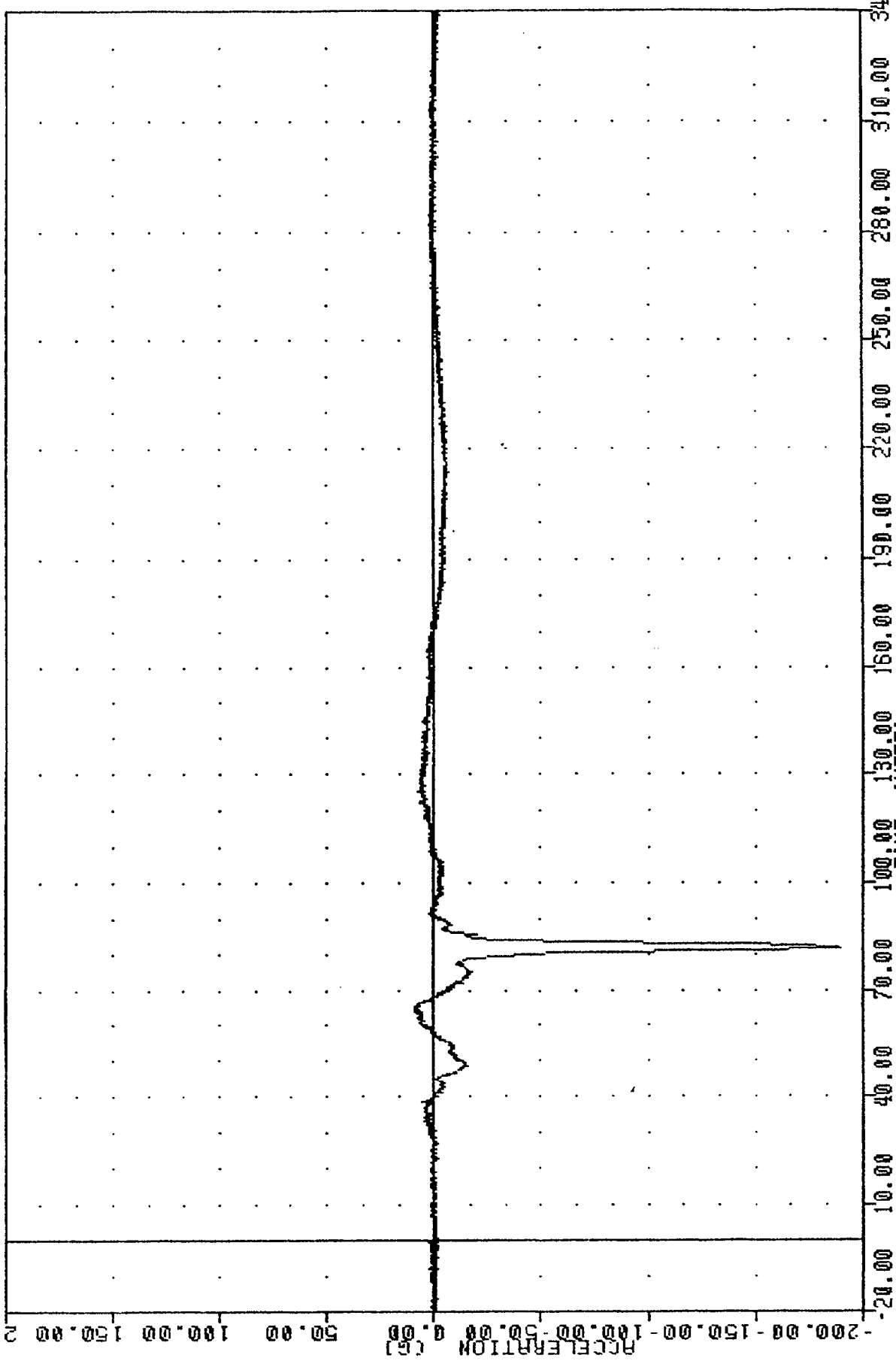


Figure A-31. POST-TEST MDB FACE - VIEW 2

APPENDIX B
DATA PLOT PRESENTATION

Data plots generated from the crash test data are presented on the following pages. All data are recorded on magnetic tape for inclusion in the NHTSA crash test data base system. All data were filtered according to SAE J211, except that dummy thorax data were filtered using the HSRI filter.

THU 840109
 SIDE PROTECTION - 2DR/4DR
 84009000000
 HEDXG1
 PLU1 DATE 11-JAN-84 11:33:42
 FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -189.32 81.50, 9.02 65.38

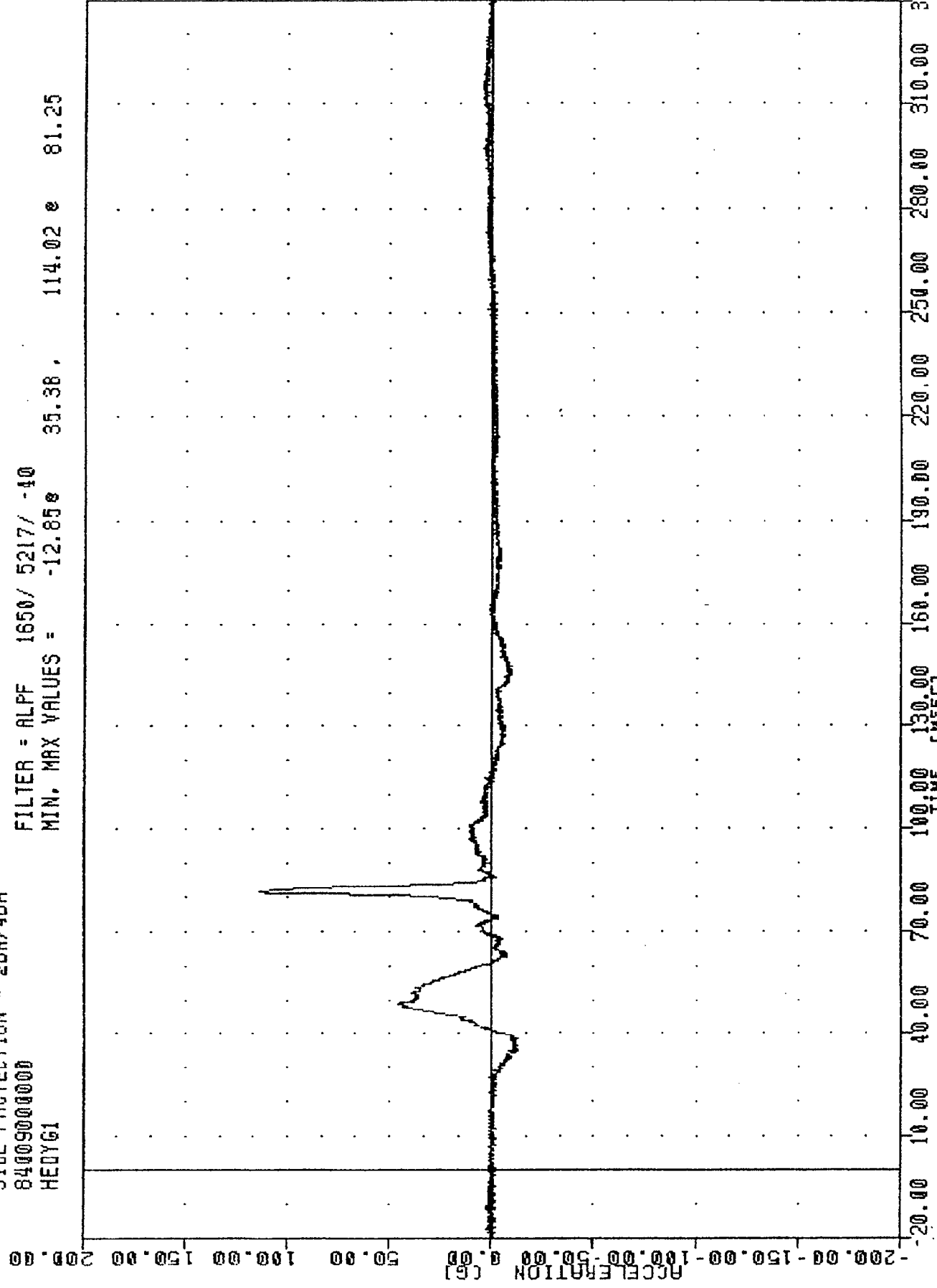


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER HEAD ACCELERATION X AXIS

TRC
840109
SIDE PROTECTION - 2DR/4DR
84009000000
HEDYG1

PLUT DATE 11-JAN-84 11:33:42

FILTER = ALPF 1650/ 5217/ -10
MIN, MAX VALUES = -12.85g 35.38, 114.02 e 81.25

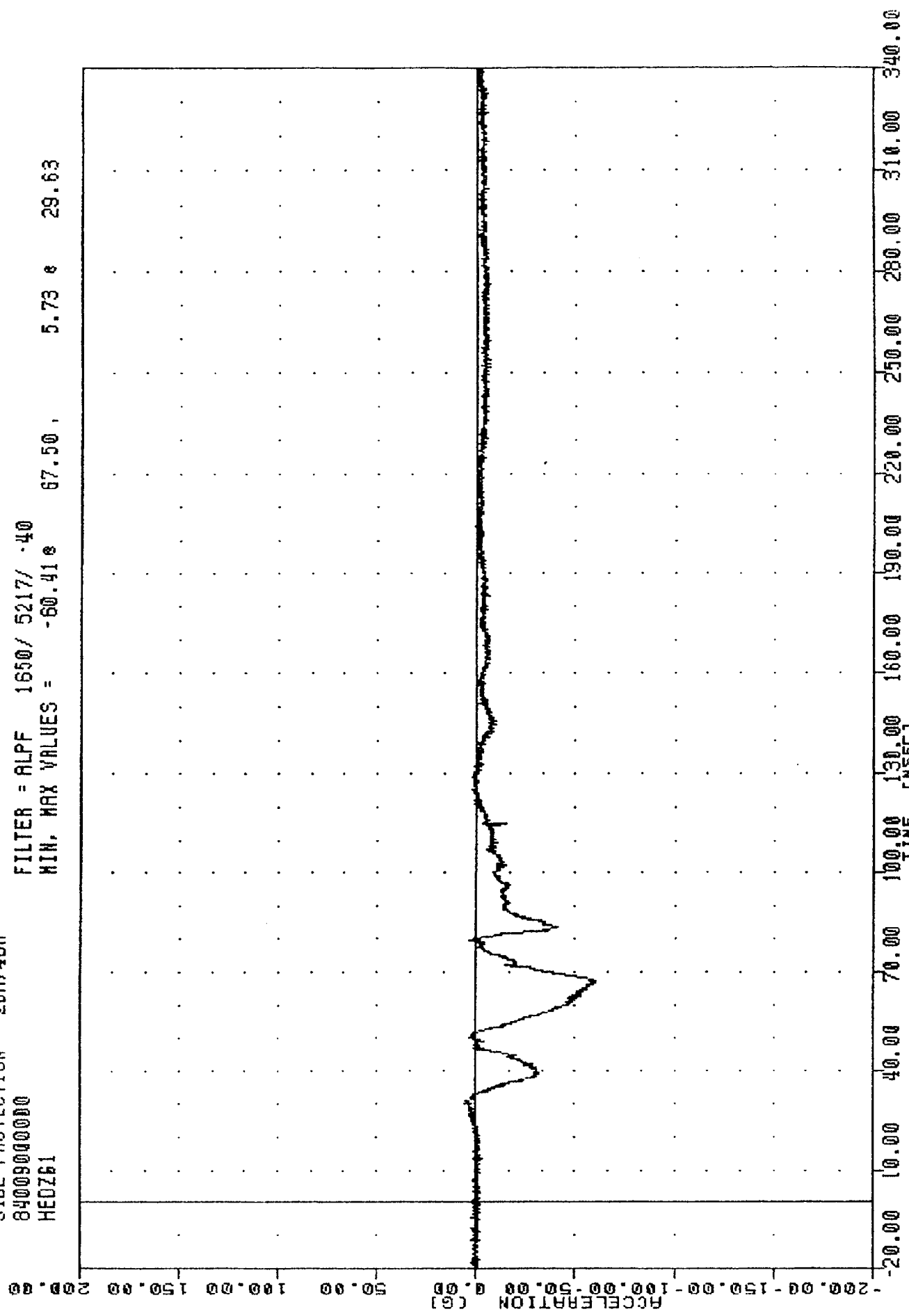


MOVING DEFORMABLE BARRIER INTO OMNI
DRIVER HEAD ACCELERATION Y AXIS

THC
840109
SIDE PROTECTION - 20R/4DR
84009000000
HEDZ61

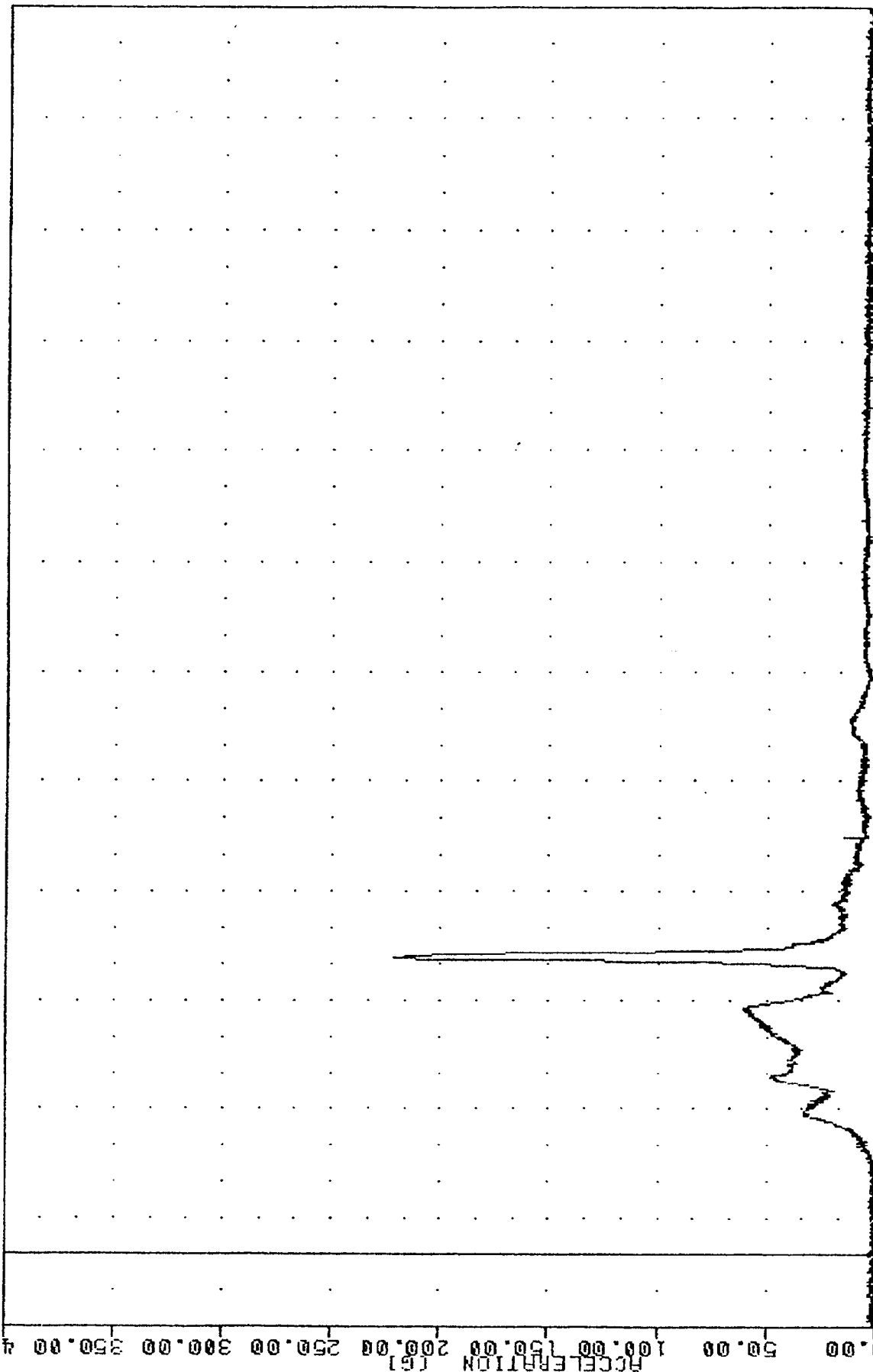
PLUT DATE 11-JUN-84 11:33:42

FILTER = ALPF 1650/ 5217/ .40
MIN. MAX VALUES = -60.41 67.50, 5.73 29.63



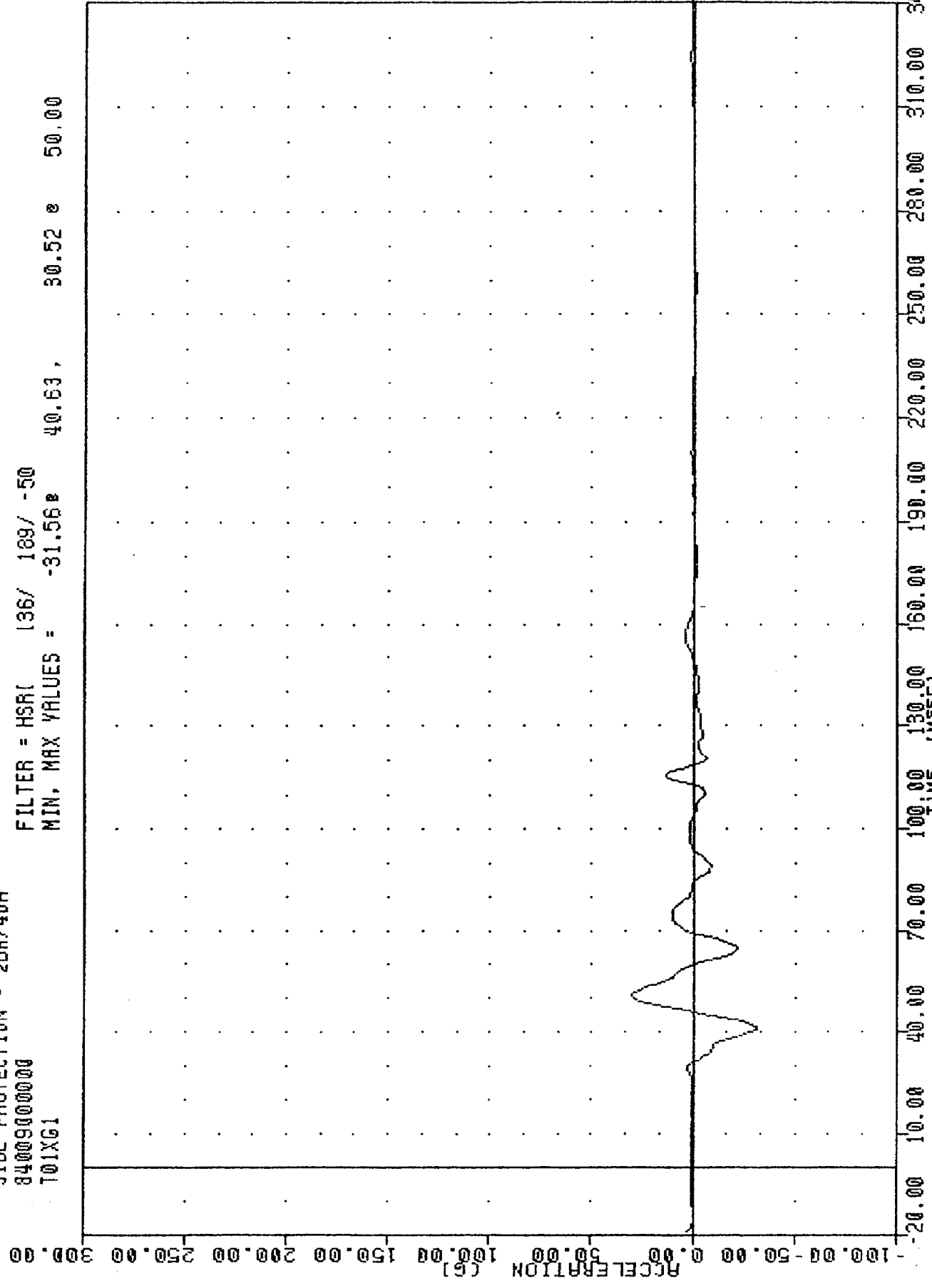
MOVING DEFORMABLE BARRIER INTO OMNI
DRIVER HEAD ACCELERATION Z AXIS

TRC 840109 PLOT DATE 11-JAN-84 11:33:42
SIDE PROTECTION - 2DR/4DR
84009000000
HEDRG1
FILTER = ALPF 1650/ 5217/ -40
MIN. MAX VALUES = 0.09e 2.38 , 221.33 e 81.50



MOVING DEFORMABLE BARRIER INTO OMNI
DRIVER HEAD RESULTANT

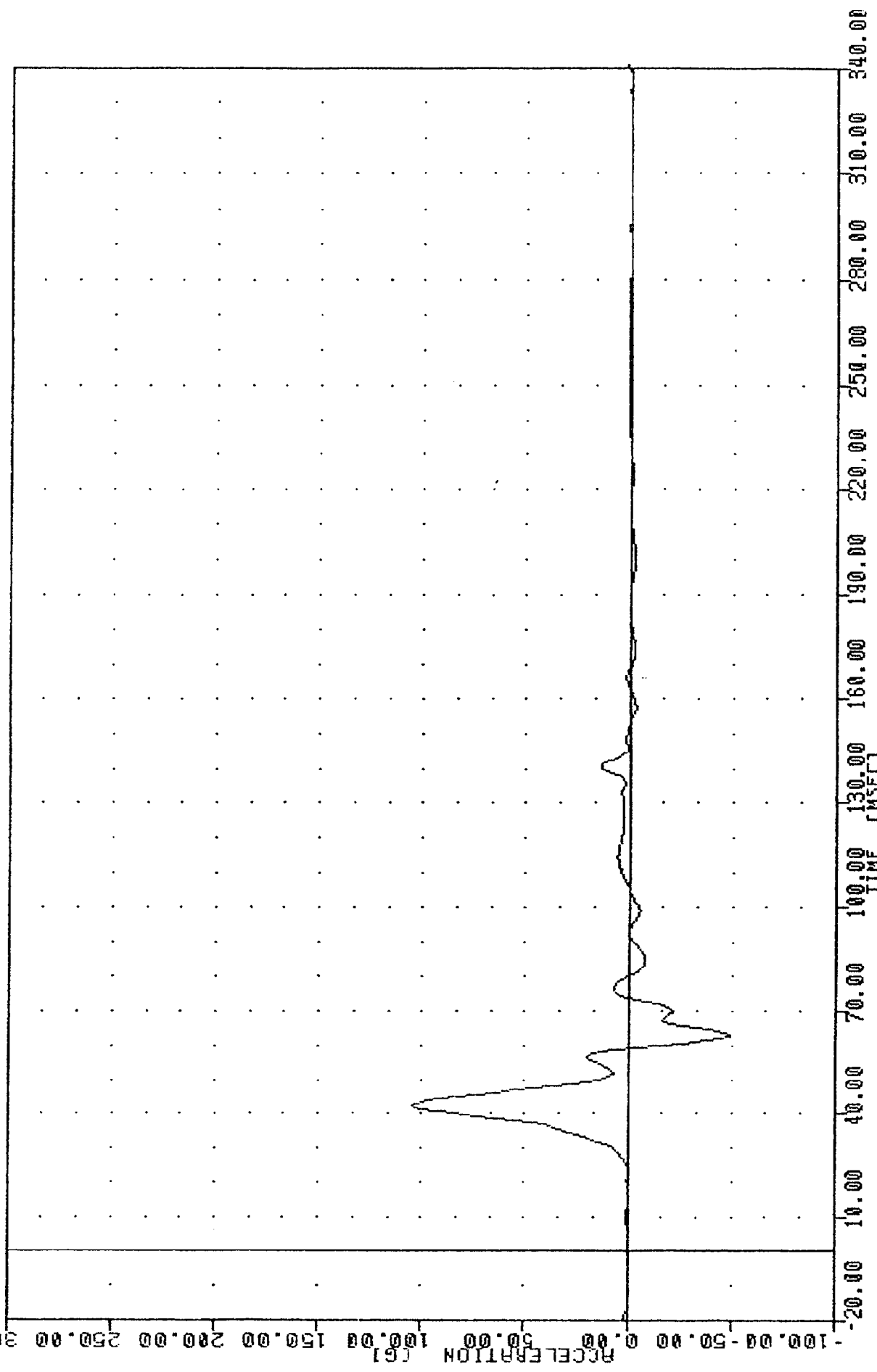
TRC [REDACTED], 840109 [REDACTED] PLUT DATE 11-JAN-84 11:35:05
 SIDE PROTECTION - 2DR/4DR
 84009000000
 T01XG1
 FILTER = HSR(136/ 189/ -50
 MIN. MAX VALUES = -31.56e 40.63, 30.52 e 50.00



MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER UPPER SPINE ACCELERATION X AXIS

TRC [REDACTED] 840109 [REDACTED] PLOT DATE 11 JUN 84 11:35:05
 SIDE PROTECTION - 20R/4DR
 84009000000
 T01Y61

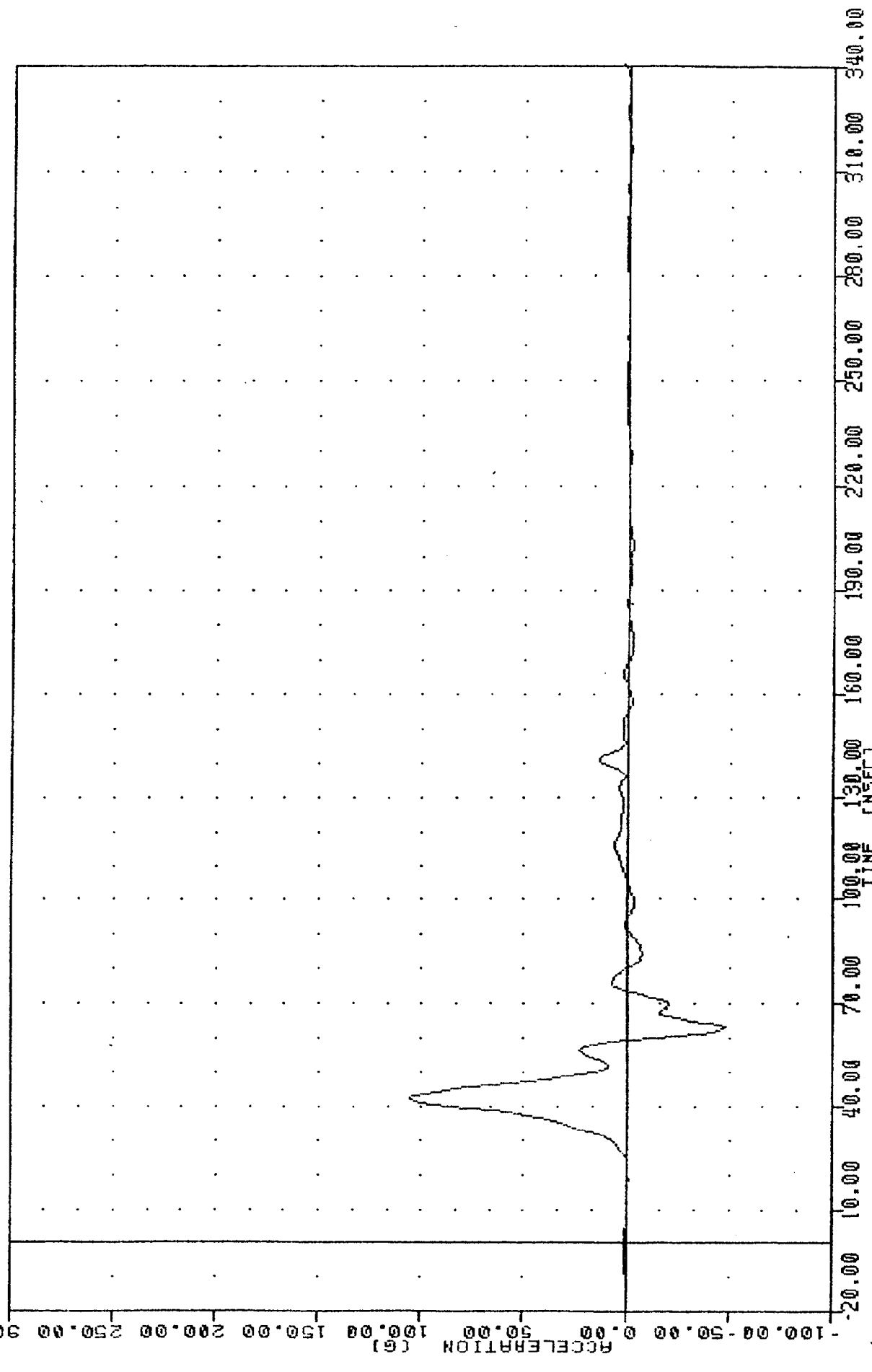
FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -49.78e 104.43 e 41.87



MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER UPPER SPINE ACCELERATION Y AXIS

TRC [REDACTED], 84V109 [REDACTED] PLOT DATE 11-JAN-84 11:35:05

SIDE PROTECTION - 20R/4DR
84009000000
T01Y6A
FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -48.04g 82.50, 105.67 e 41.87

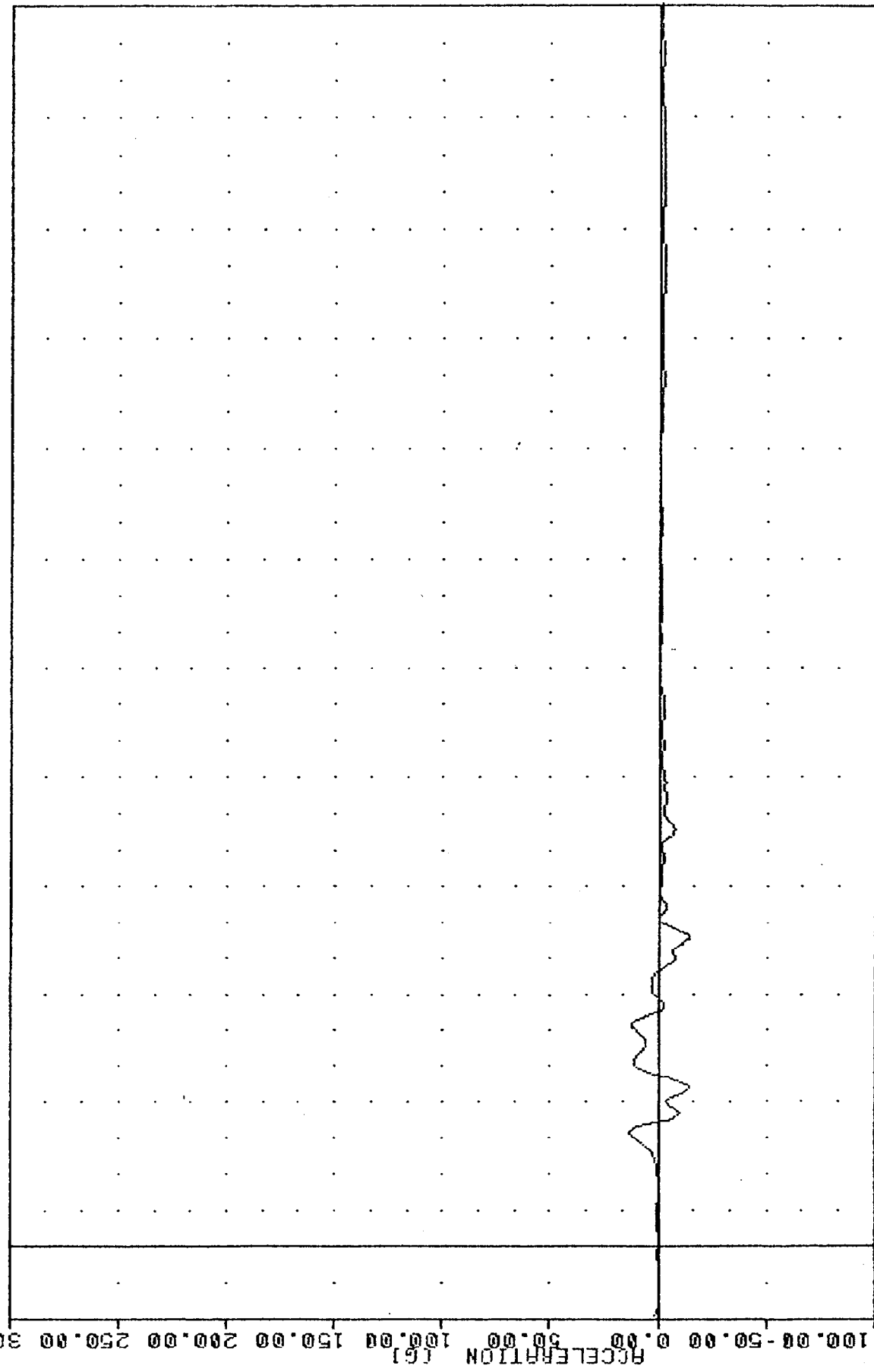


MOVING DEFORMABLE BARRIER INTO OMNI
DRIVER UPPER SPINE ACCELERATION -2 Y AXIS

TIC 840109 PLOT DATE 11 JUN 84 11:33:05

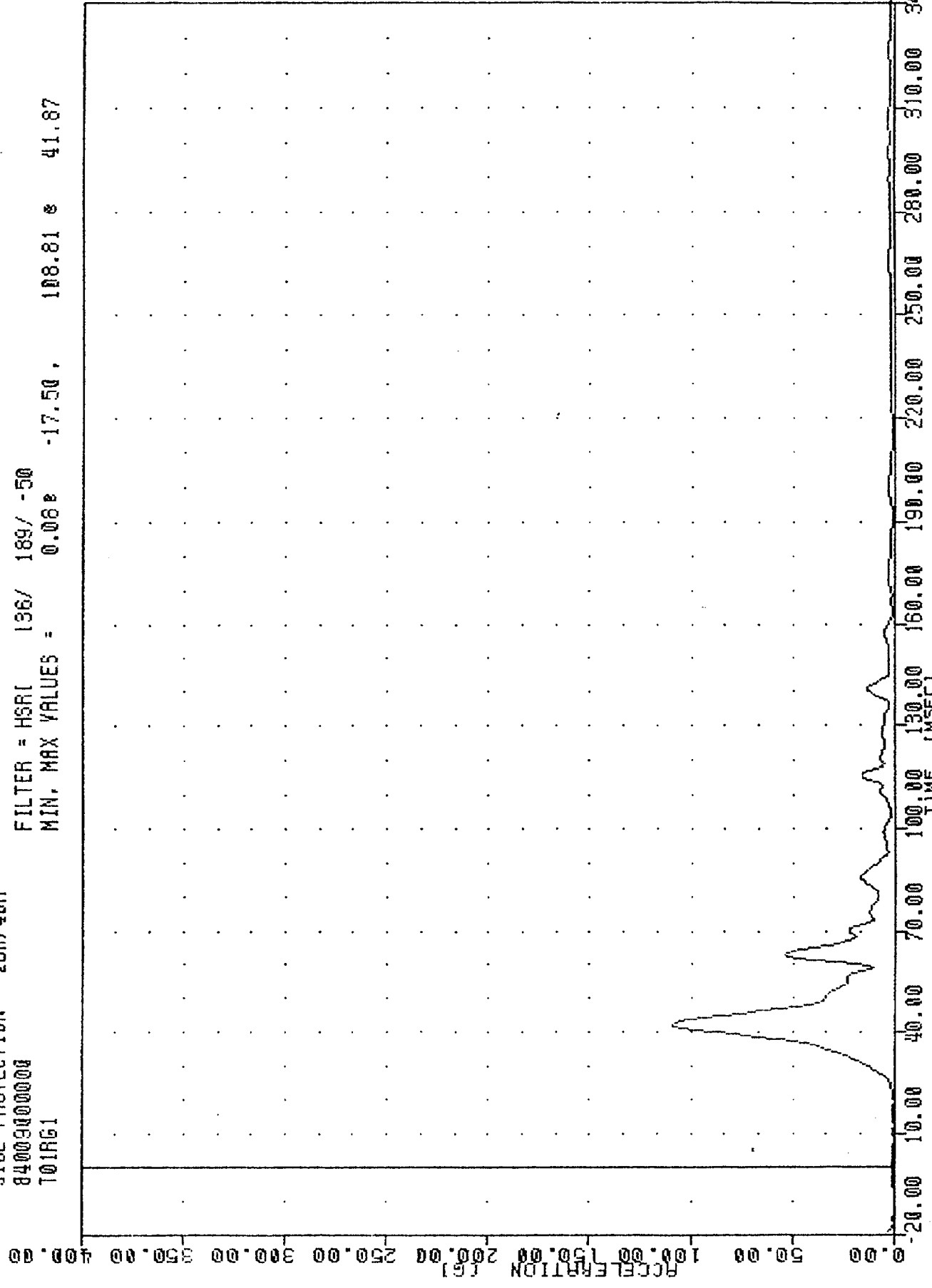
SIDE PROTECTION - 20R/4DR
84009000000
T01261

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -14.75* 85.00 . 13.27 e 30.62



MOVING DEFORMABLE BARRIER INTO OMNI
DRIVER UPPER SPINE ACCELERATION Z AXIS

TRC 840105 PLOT DATE 11-JAN-84 11:35:05
 SIDE PROTECTION - 20R/40R
 84009000000
 T01RG1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.06e -17.50, 108.81 e 41.87

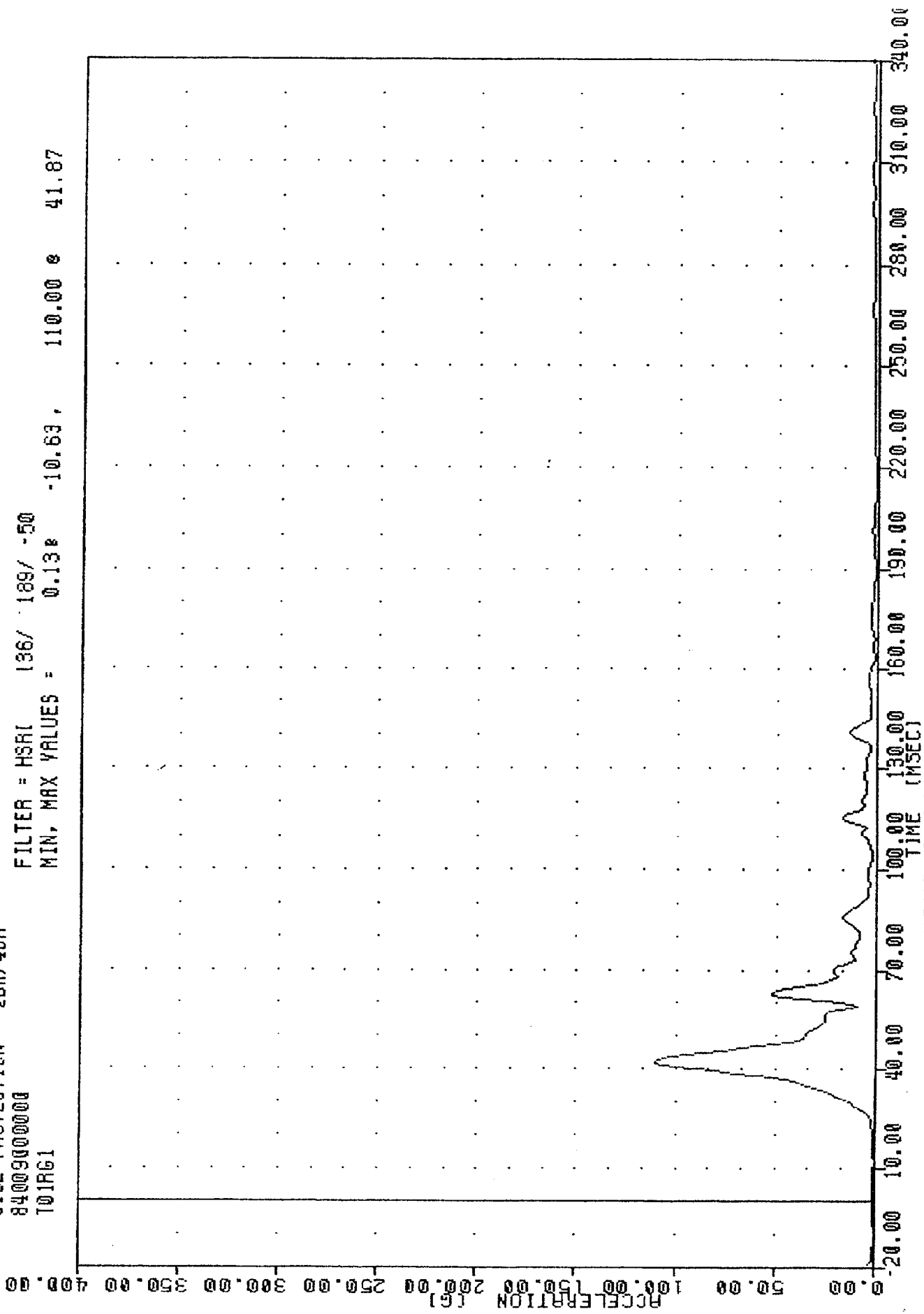


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER UPPER SPINE RESULTANT

THC 840109 PLOT DATE 11-JAN-84 12:47:04

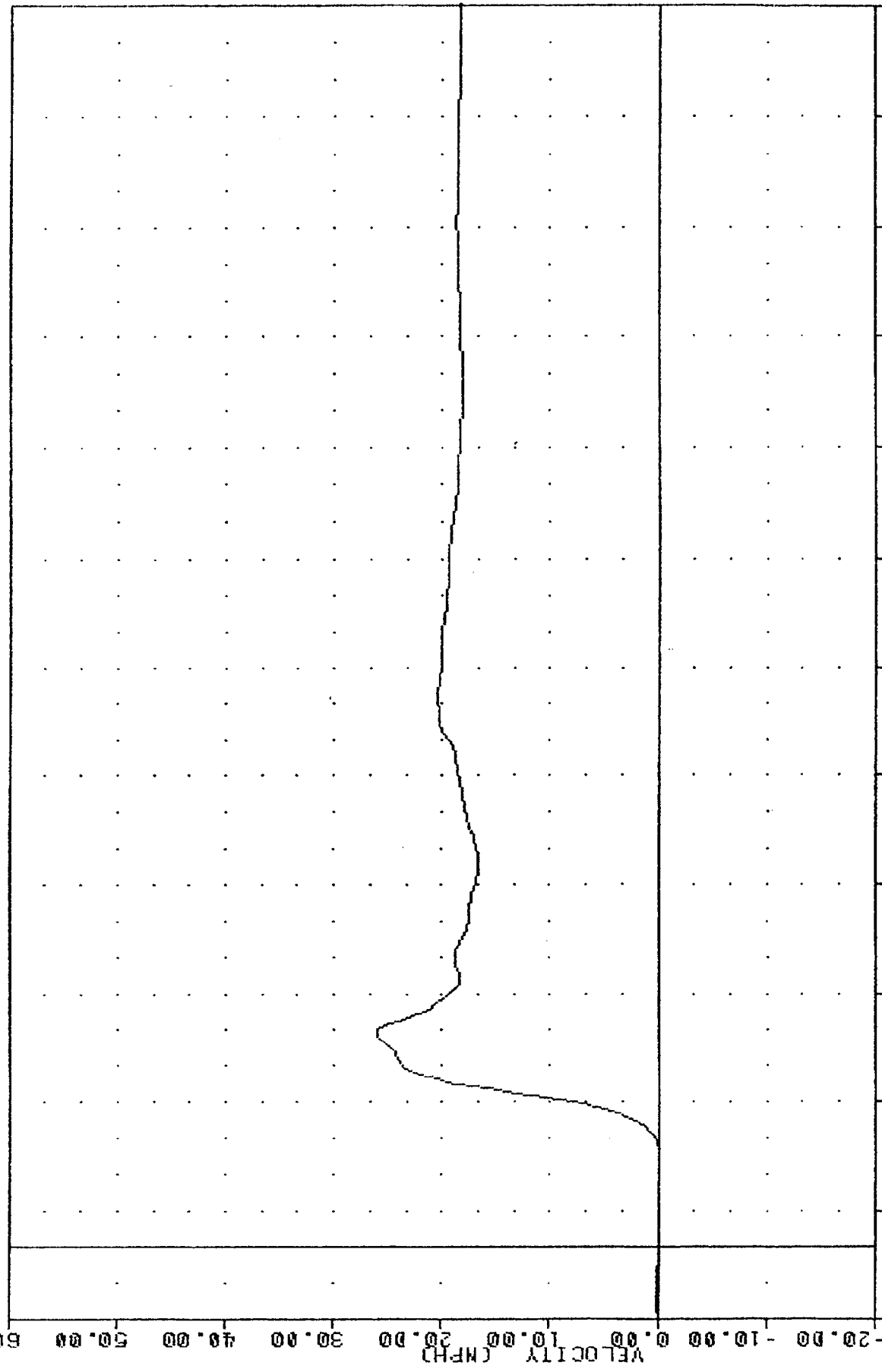
SIDE PROTECTION - 20R/40R
84009000000
T01RG1

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = 0.13e -10.63, 110.00 e 41.87



MOVING DEFORMABLE BARRIER INTO OMNI
DRIVER UPPER SPINE RESULTANT USING T01YGA

TRC [REDACTED], 840109 [REDACTED] PLOT DATE 11-JUN-84 12:47:29
 SIDE PROTECTION - 2DR/4DR
 84009000000
 T01Y1
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.11* 23.75, 26.09 & 58.75

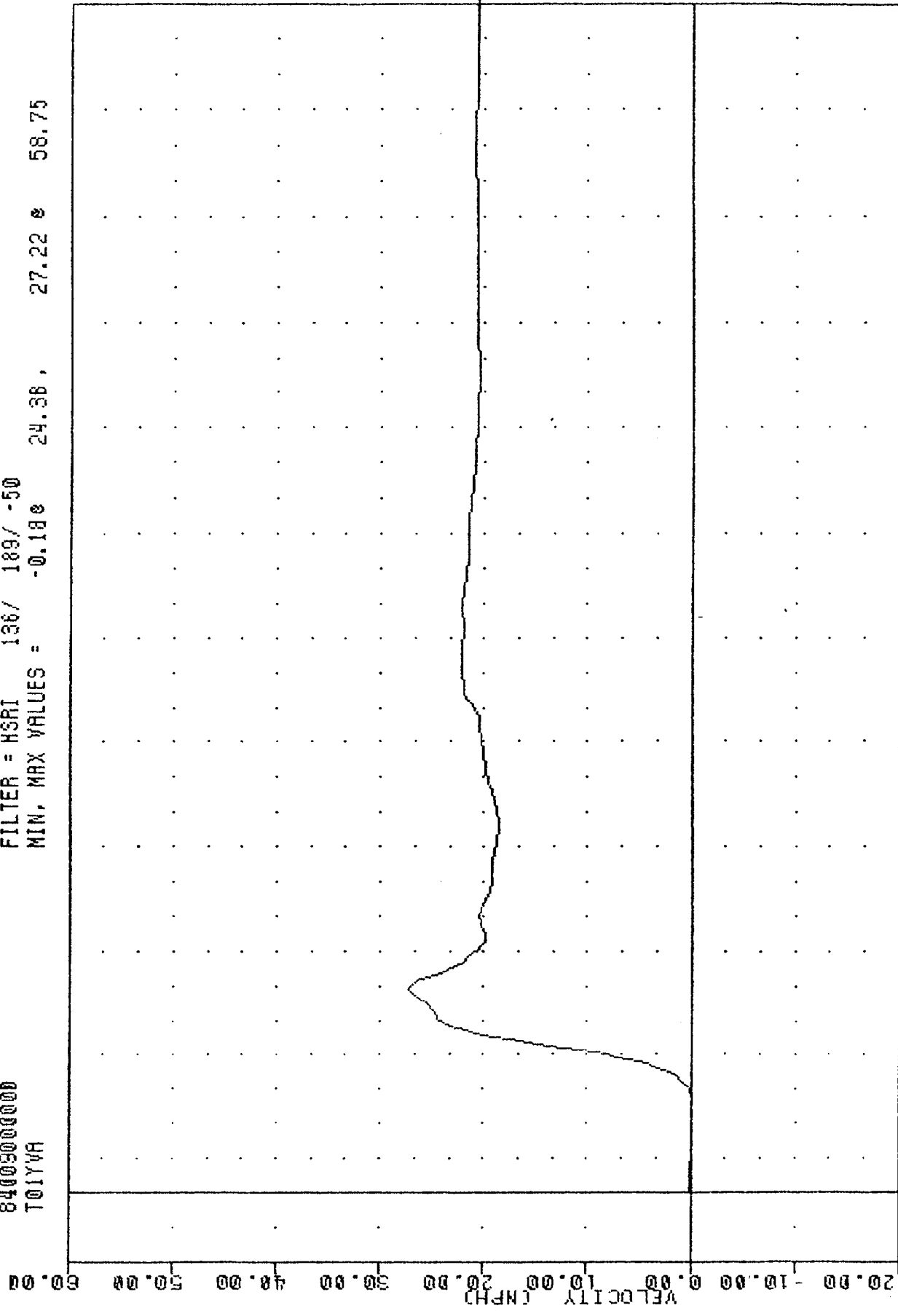


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING T01Y1

THU 840109
 SIDE PROTECTION - 2DR/4DR
 84009000000
 T01YVA

PLUT DATE 11-JAN-84 12:47:29

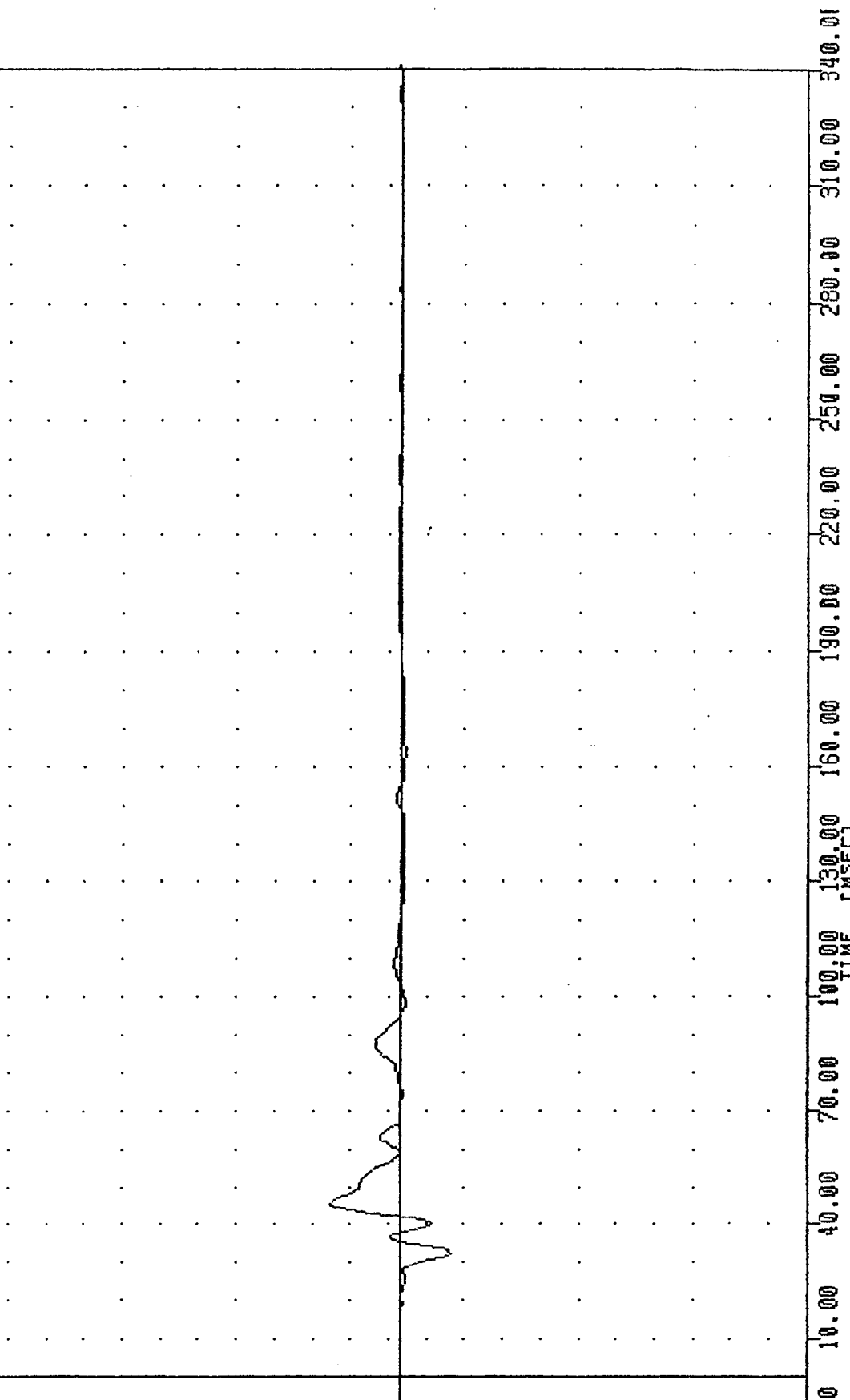
FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.18e 24.36, 27.22 e 58.75



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING T01YGA

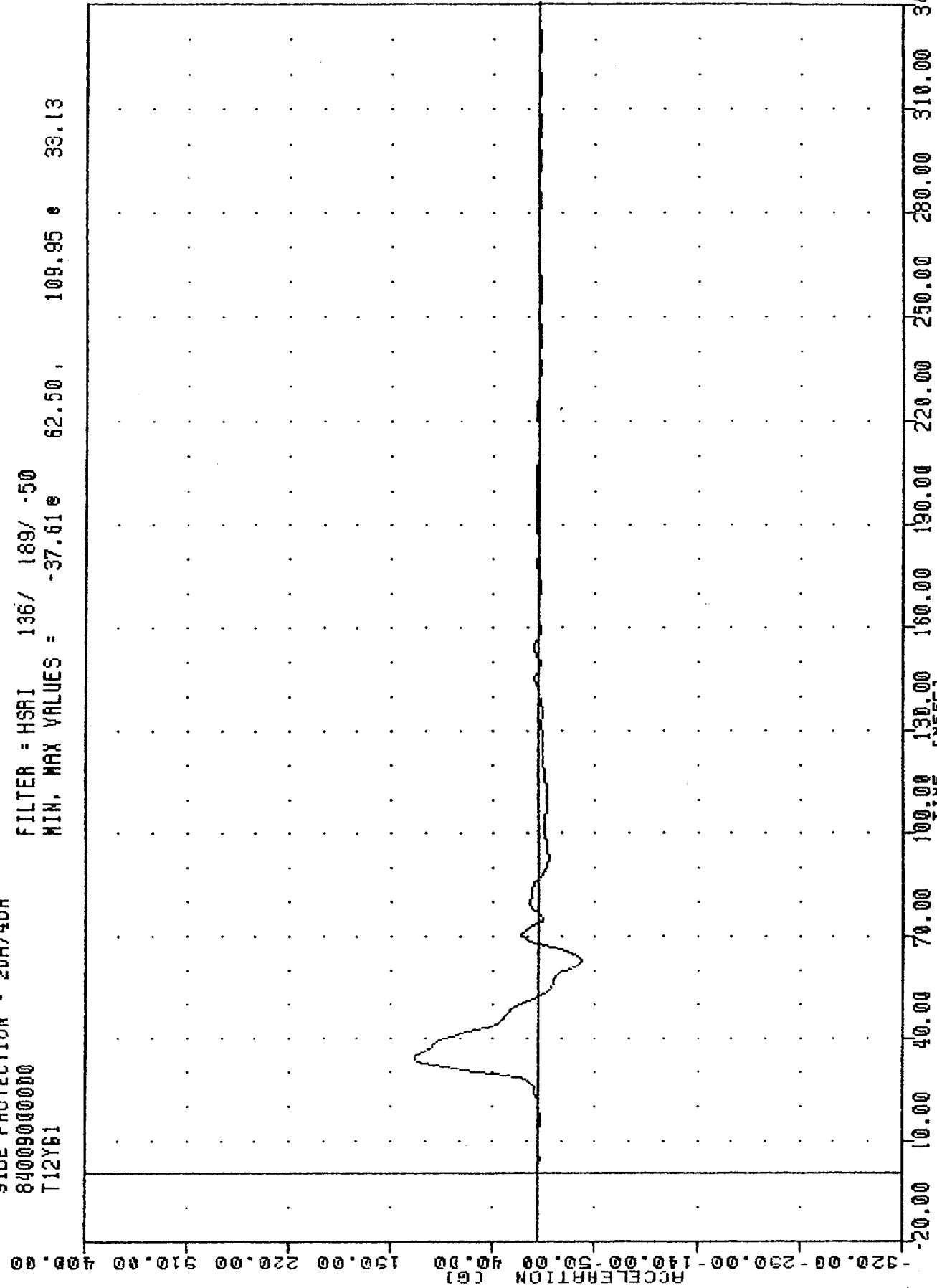
TRC 840109
 SIDE PROTECTION - 20R/40R
 8400900000
 T12XG1

PLUT DATE 11-JUN-84 11:35:00
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -39.45e 31.88, 56.55 e 45.00



MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LOWER SPINE ACCELERATION X AXIS

TRC [REDACTED] 840109 [REDACTED] PLU1 DATE 11-JUN-84 11:35:05
 SIDE PROTECTION - 2DR/4DR
 84009000000
 T12Y61
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -37.61e 62.50, 109.95 e 33.13

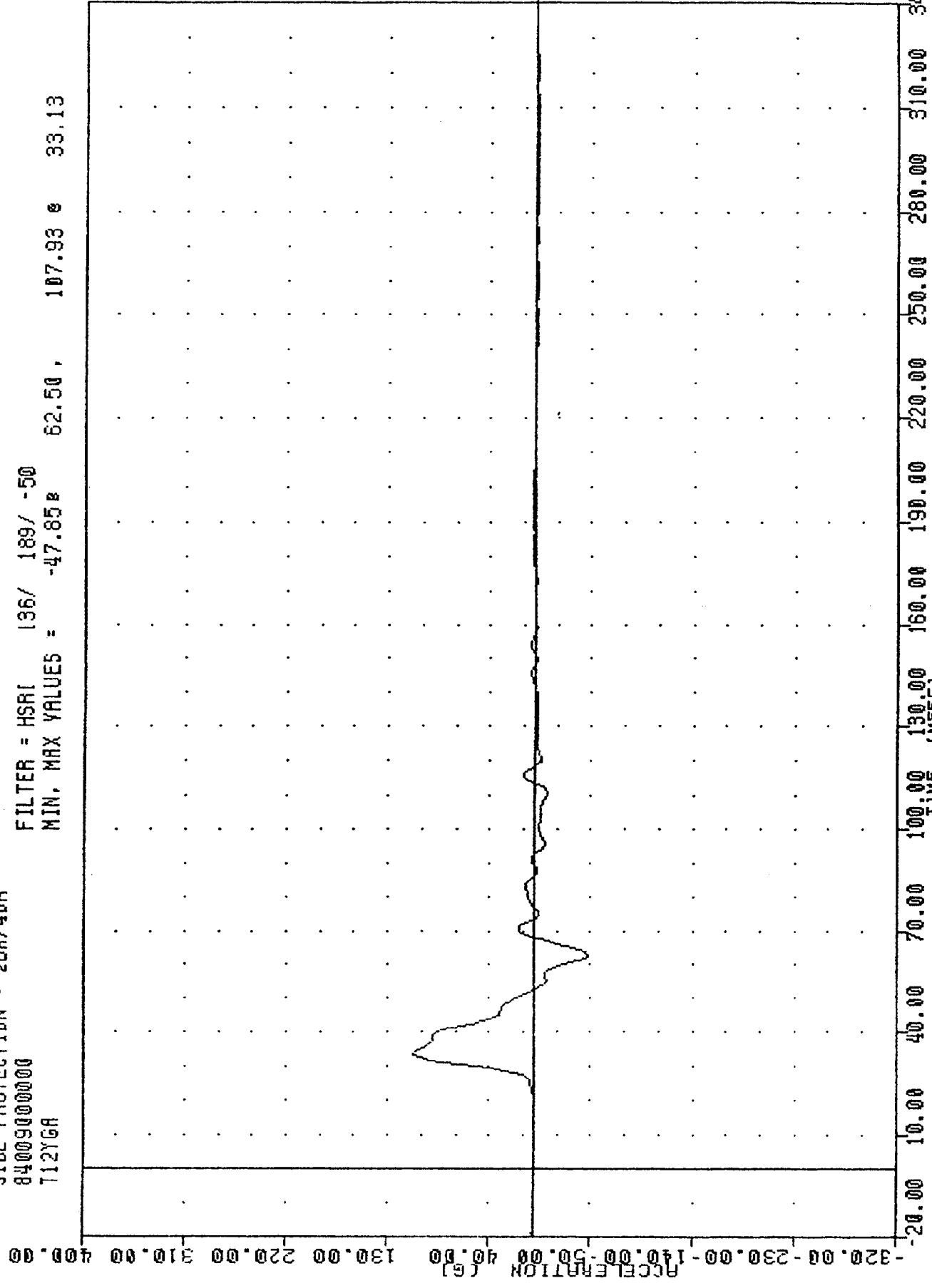


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LOWER SPINE ACCELERATION Y AXIS

TRC 840109
SIDE PROTECTION - 2DR/4DR
84009000000
T12YGA

PLUT DATE 11-JAN-84 11:35:05

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -47.858 62.50, 107.93 e 33.13



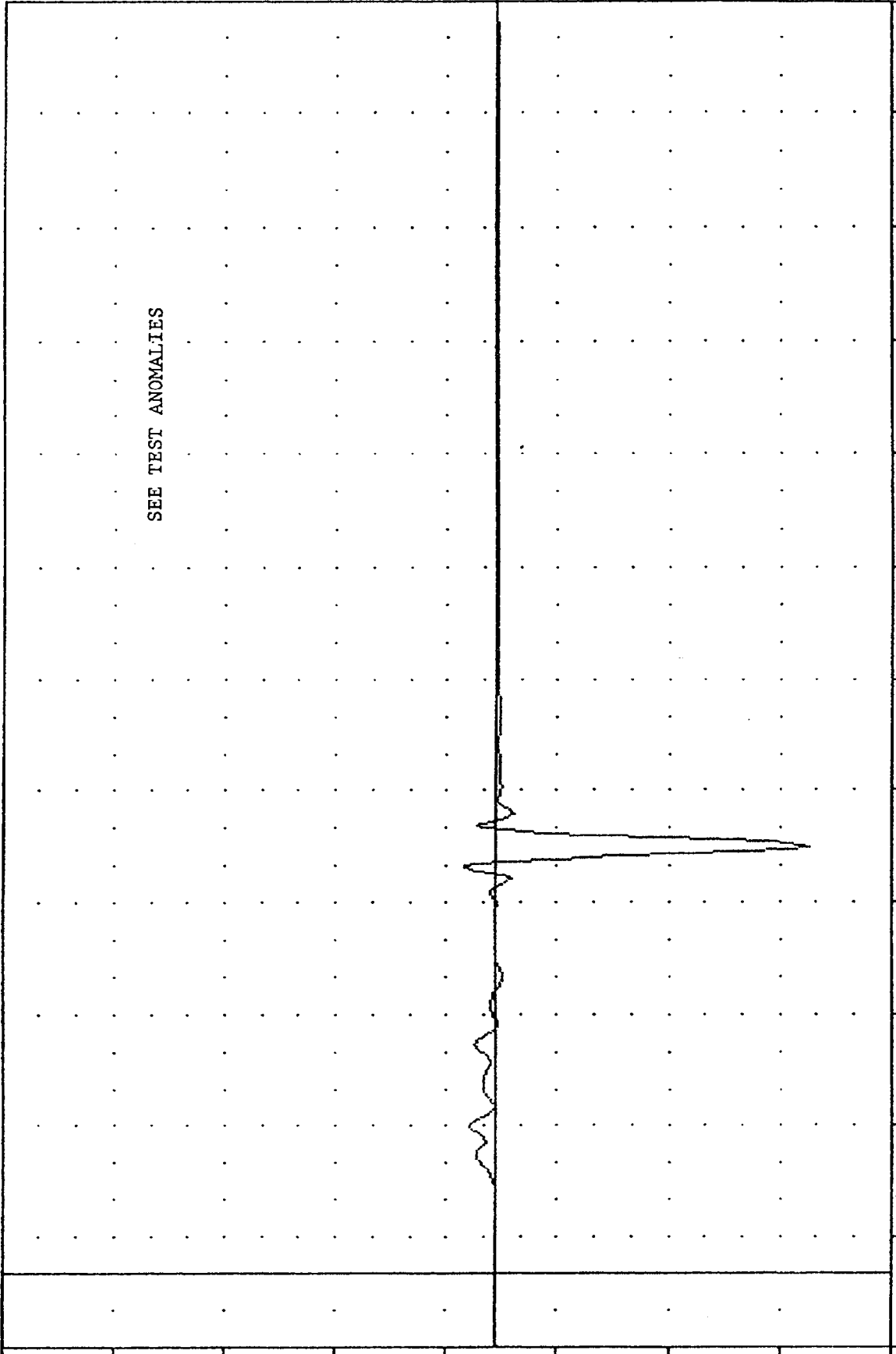
MOVING DEFORMABLE BARRIER INTO OMNI
DRIVER LOWER SPINE ACCELERATION -2 Y AXIS

TRC
840109
SIDE PROTECTION - 2DR/4DR
8400900000
T12ZG1

PLOT DATE 11-JAN-84 11:35:05

FILTER = HSRI 136/ 188/ -50
MIN. MAX VALUES = -253.288 114.37, 25.46 @ 109.38

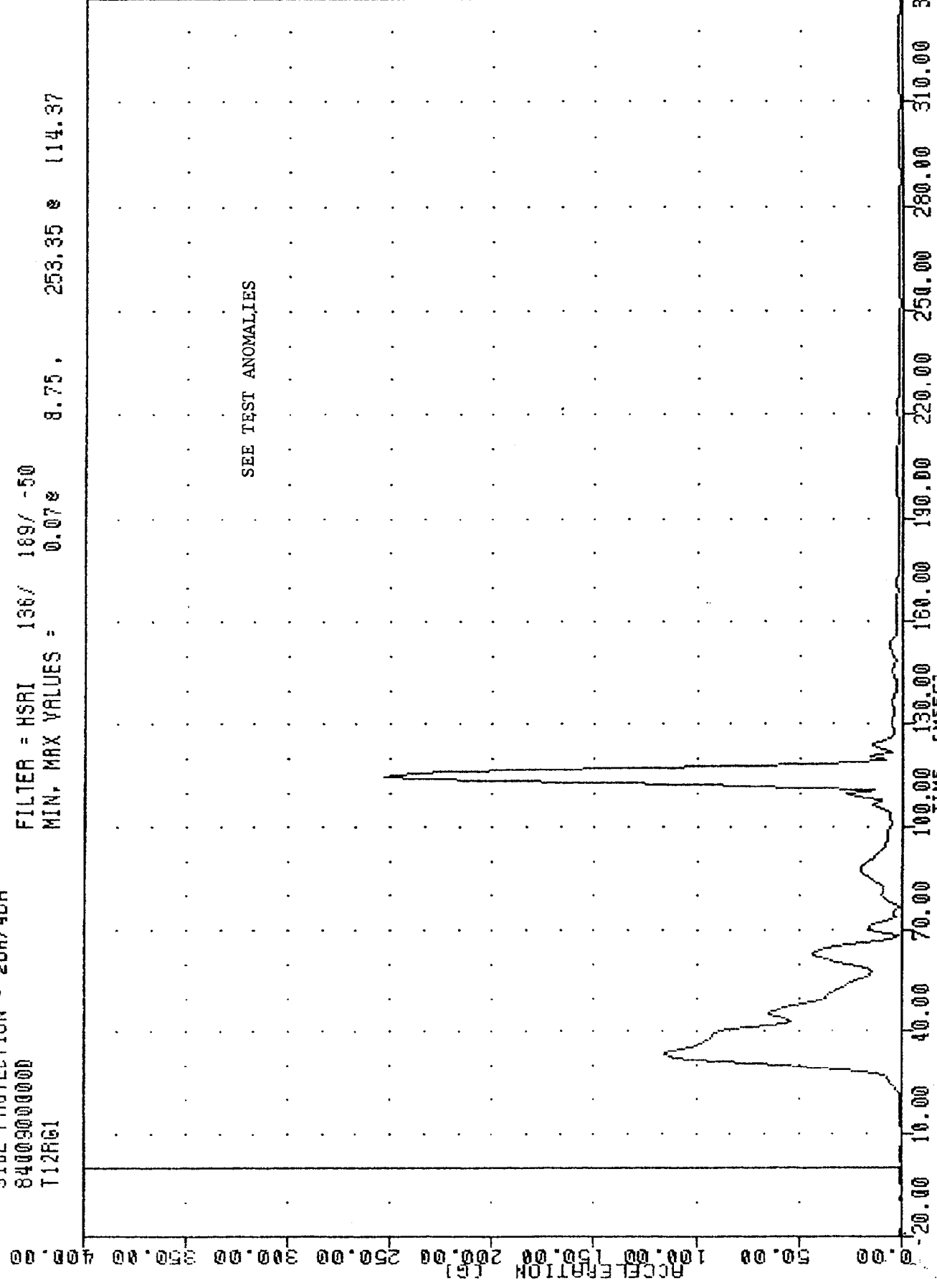
ACCELERATION (G)



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (MSEC)

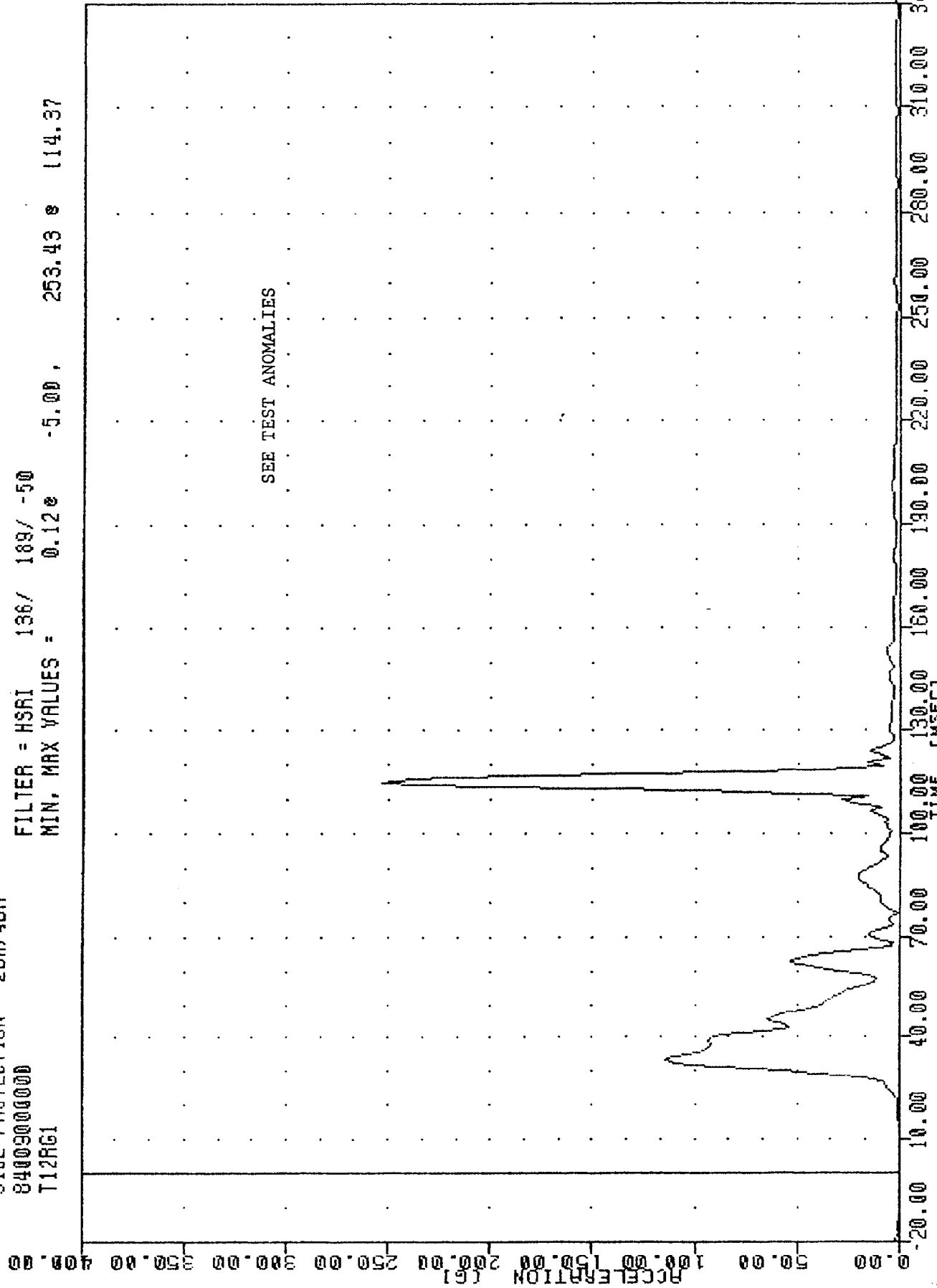
MOVING DEFORMABLE BARRIER INTO OMNI
DRIVER LOWER SPINE ACCELERATION Z AXIS

TML
 840109
 SIDE PROTECTION - 20R/40R
 84009000000
 T12R61
 PLUT DATE 11-JAN-84 11:35:05
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.07e 8.75, 253.35 e 114.37



MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LOWER SPINE RESULTANT

TRC [REDACTED], 840109 [REDACTED] PLOT DATE 11-JUN-84 12:47:04
 SIDE PROTECTION - 20R/4DA
 84009000000
 T12RC1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.12e -5.00, 253.43 s 114.37

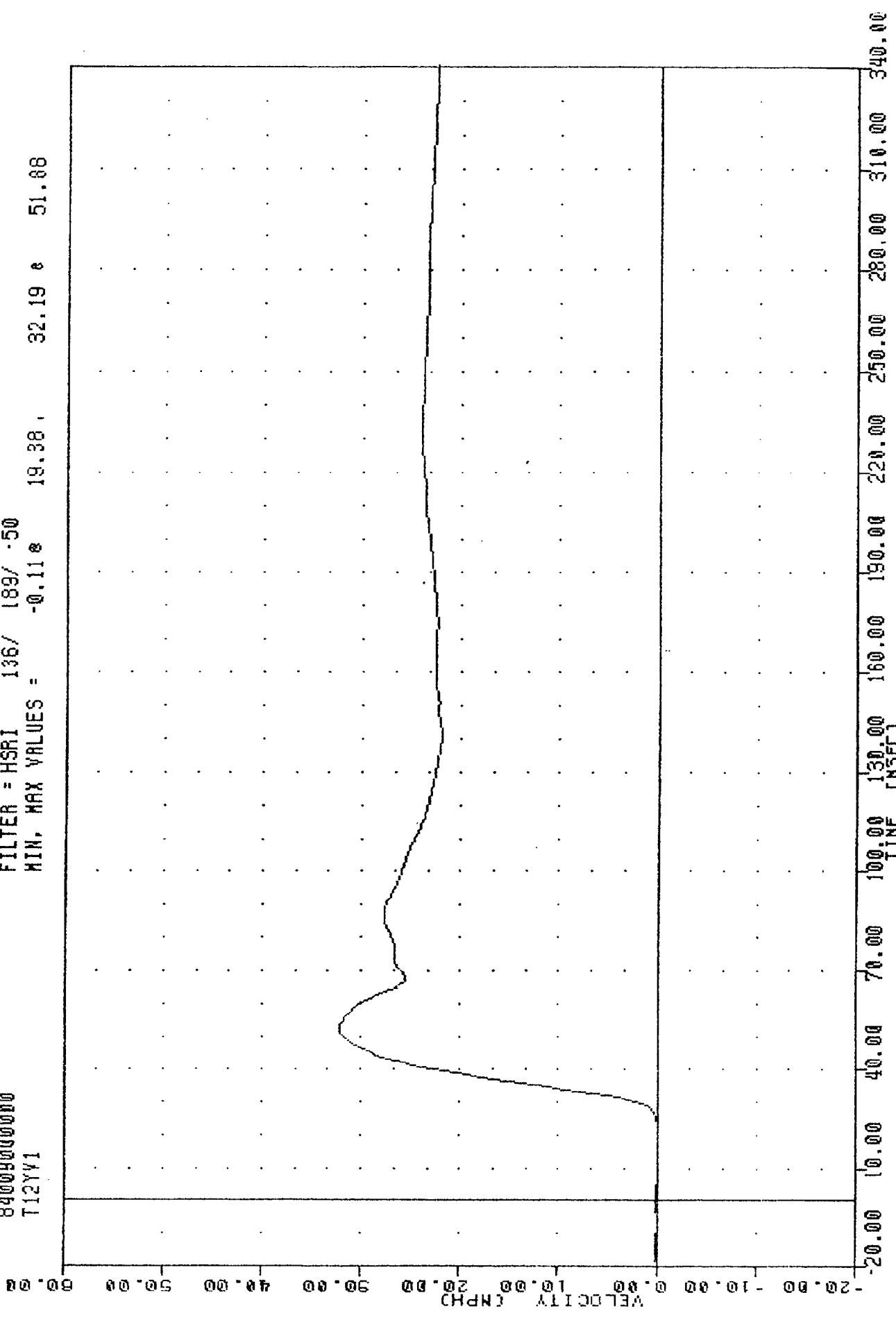


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LOWER SPINE RESULTANT USING T12YGA

TRC
840109
SIDE PROTECTION - 20R/4DR
84009000000
T12YV1

PLOT DATE 11-JAN-84 12:47:29

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.11 19.38 32.19 51.88

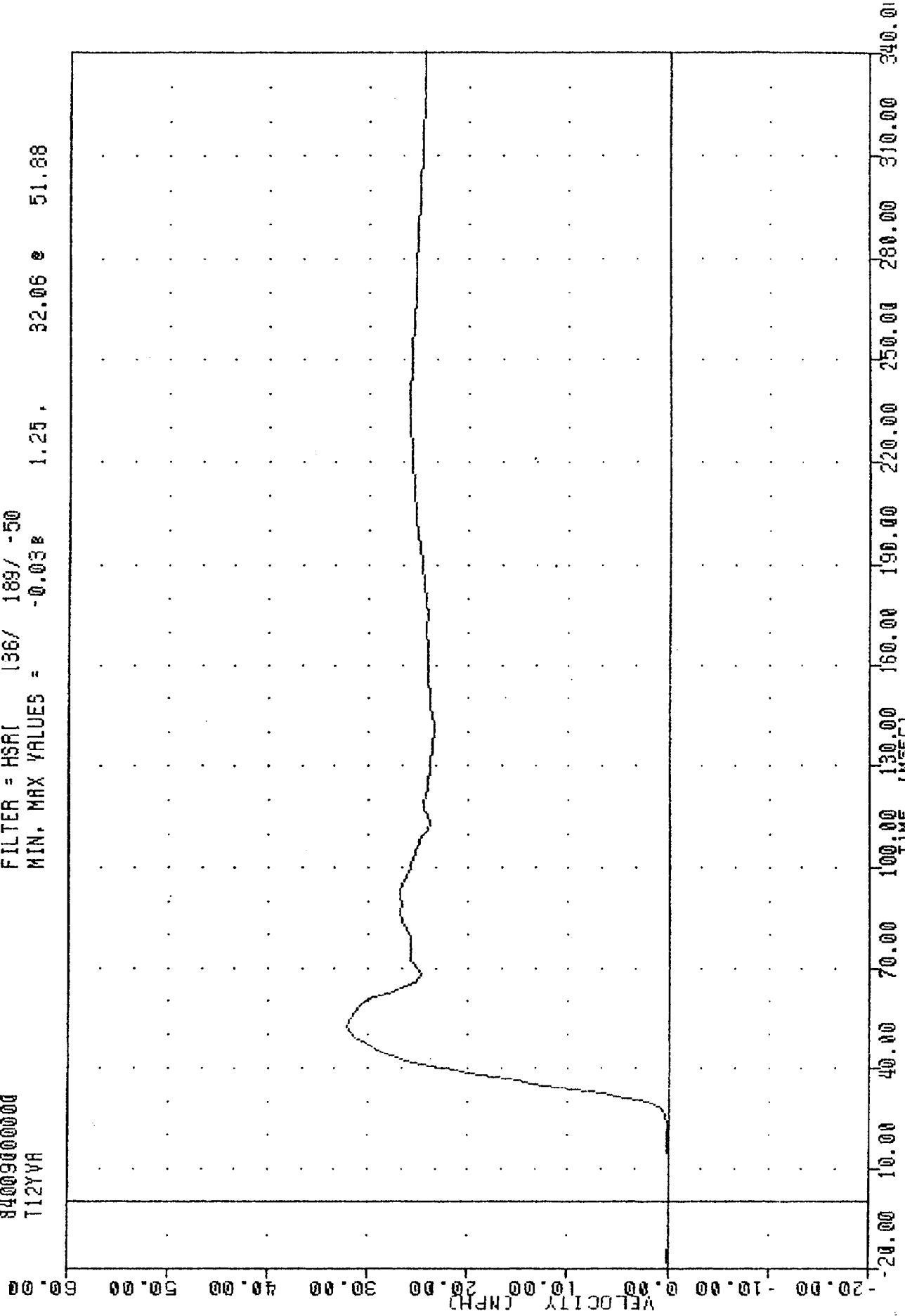


MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING T12Y61

TRC 840109
SIDE PROTECTION - 2DR/4DR
84009000000
T12YVA

PLOT DATE 11-JUN-84 12:47:29

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.038 1.25 32.06 e 51.88

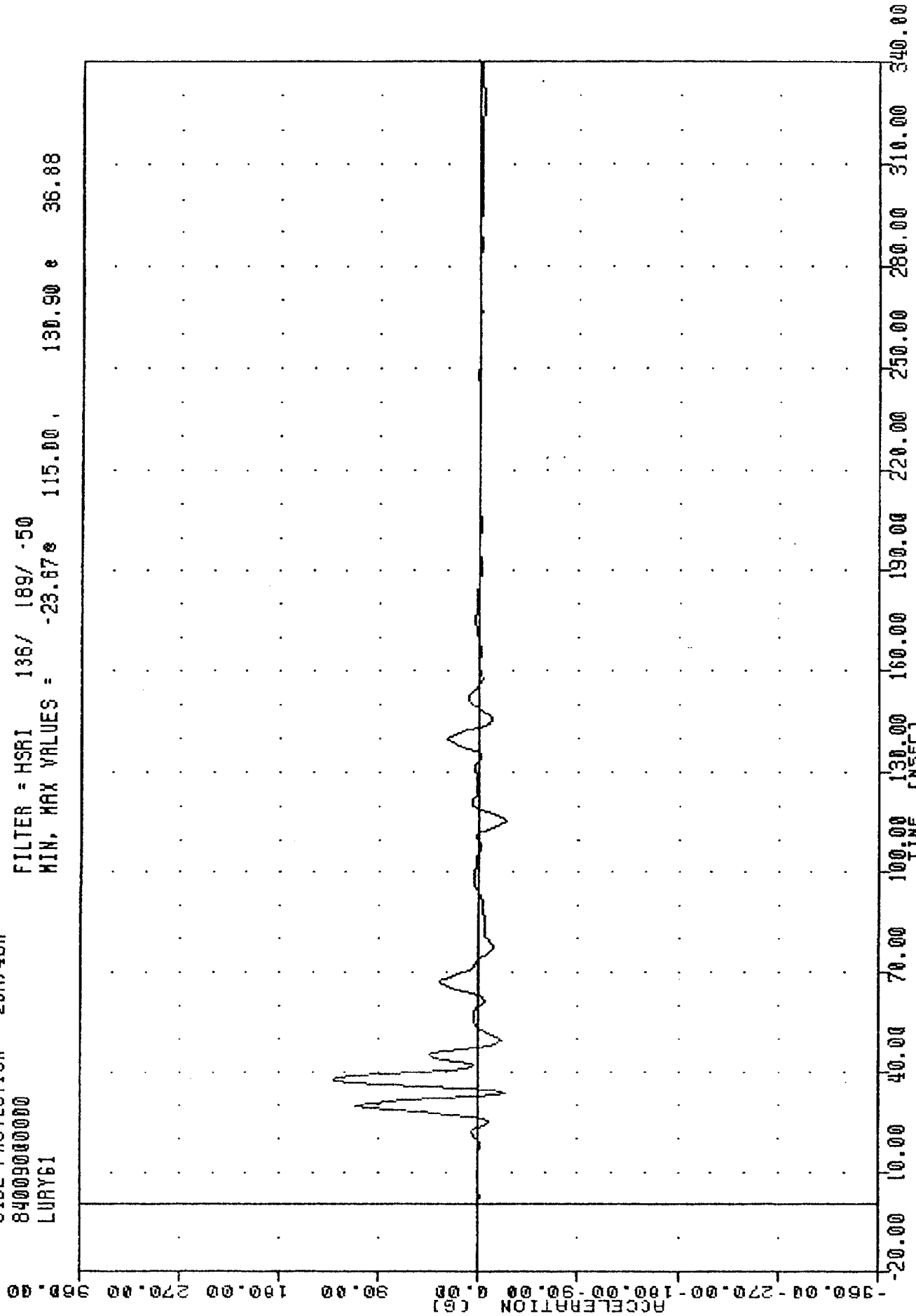


MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING T12YVA

ThL
84009000000
SIDE PROTECTION - 2DR/4DR
LURY61

PLU1 DATE 11 JUN 84 11:55:00

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -23.67 115.00 , 130.50 e 36.88

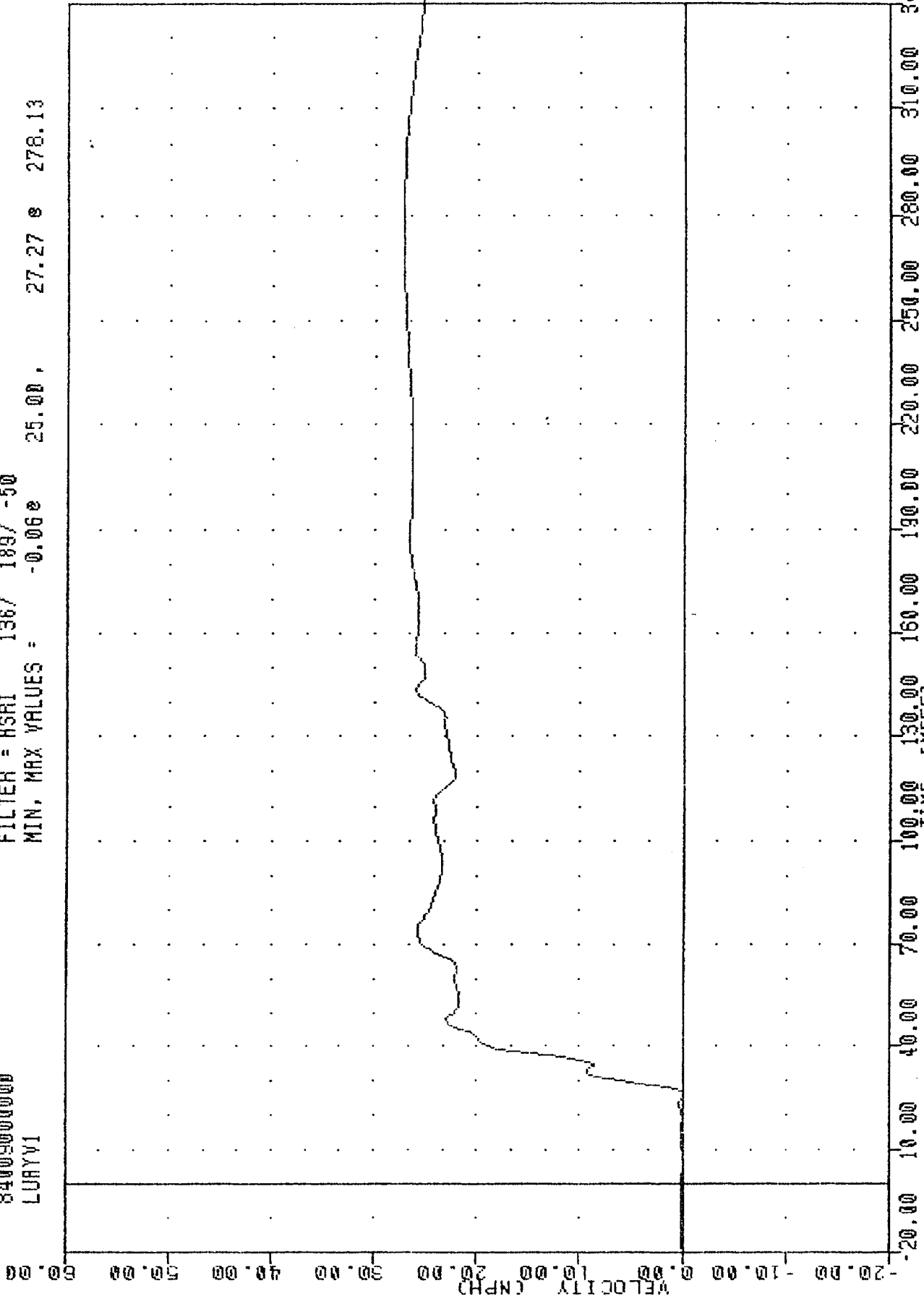


MOVING DEFORMABLE BARRIER INTO OMNI
DRIVER LEFT UPPER RIB ACCELERATION Y AXIS

TML
840109
SIDE PROTECTION - 2DR/4DR
8400900000
LURYV1

PLU1 DATE 11-JAN-84 12:47:29

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -0.06e 25.00, 27.27 e 278.13

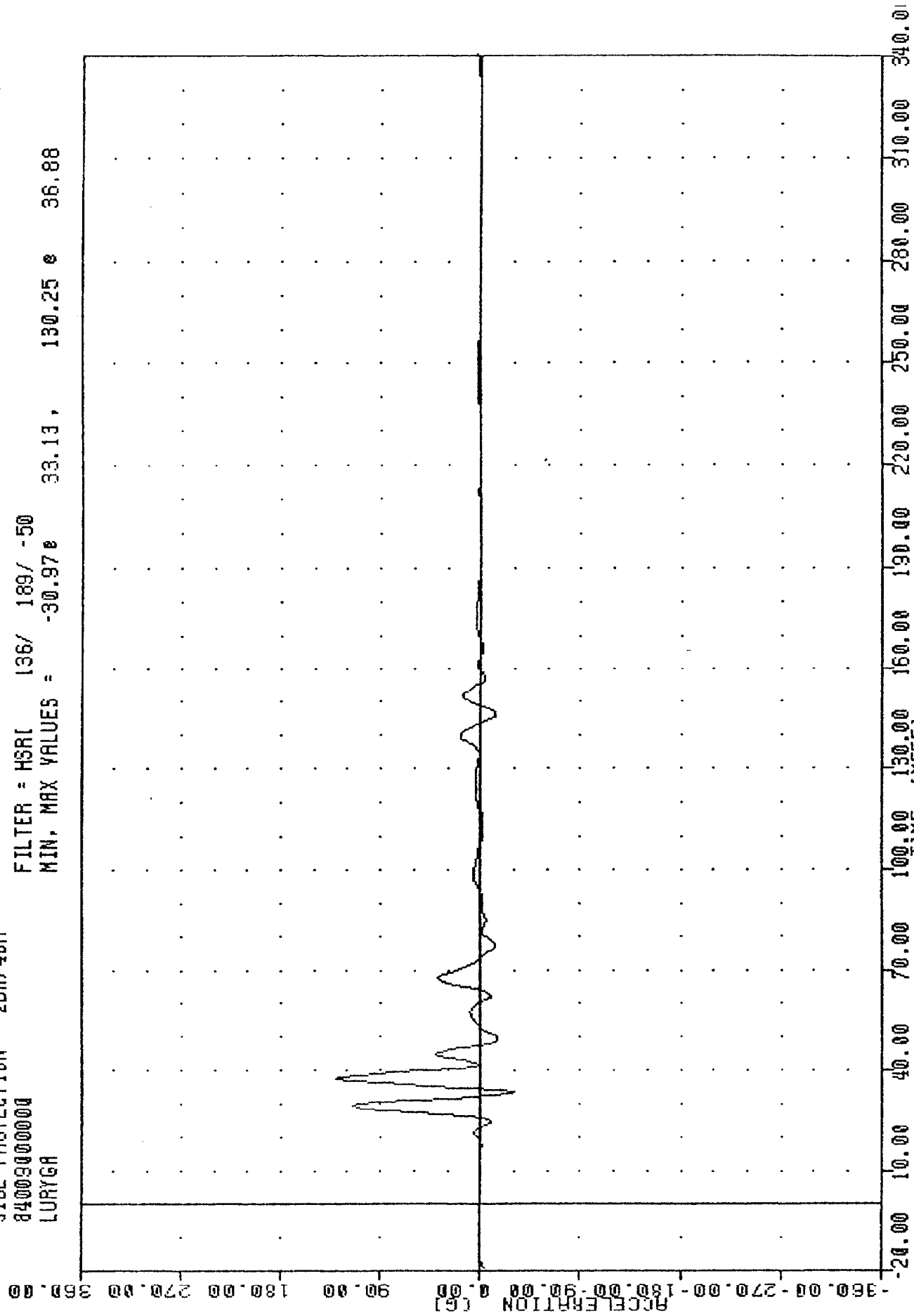


MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LURY61

THU 840109
 SIDE PROTECTION - 2DR/4DR
 8400900000
 LURYGA

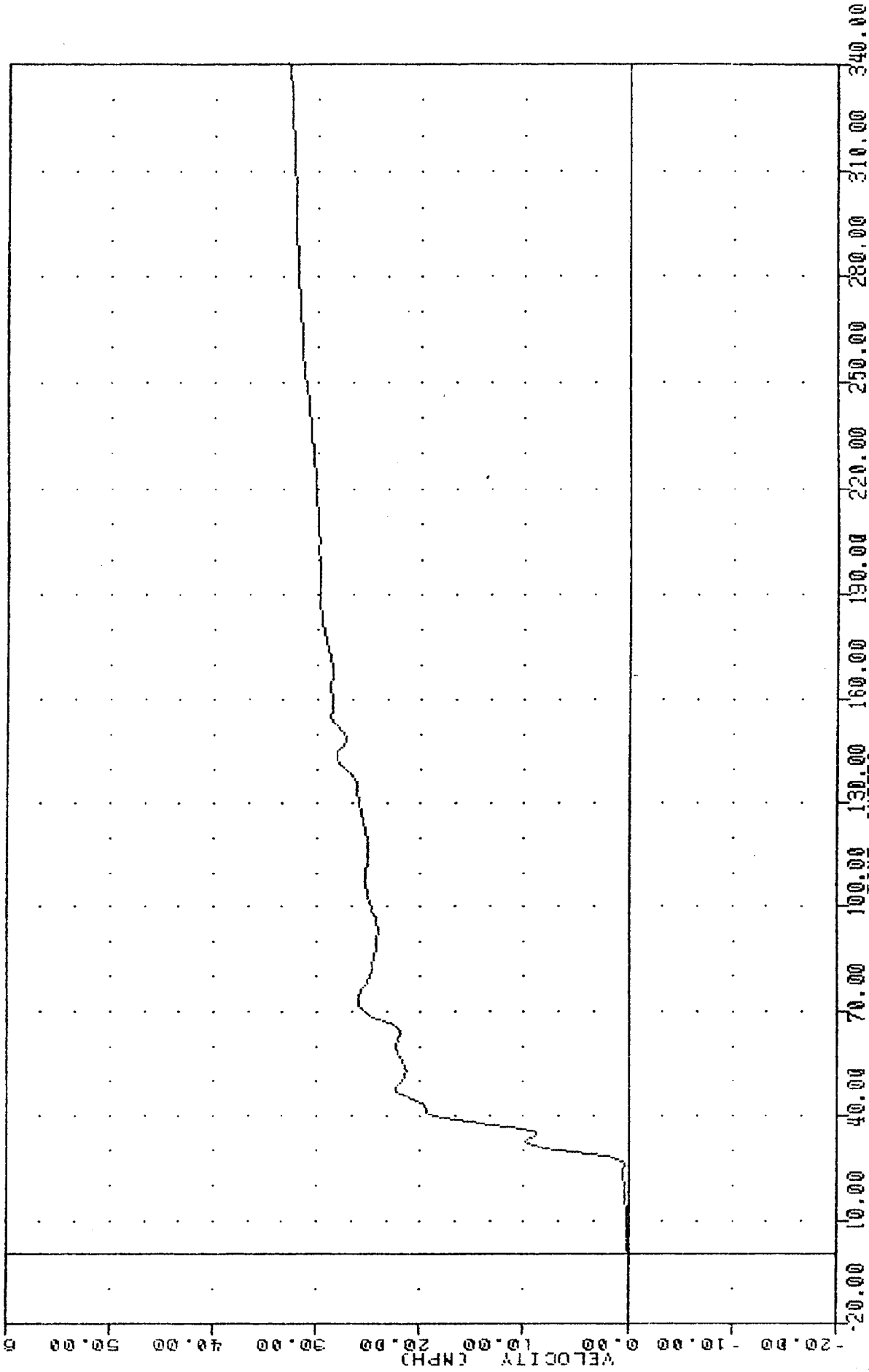
PLU1 DATE 11-JAN-84 11:35:05

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -30.97e 33.13, 130.25 e 36.88



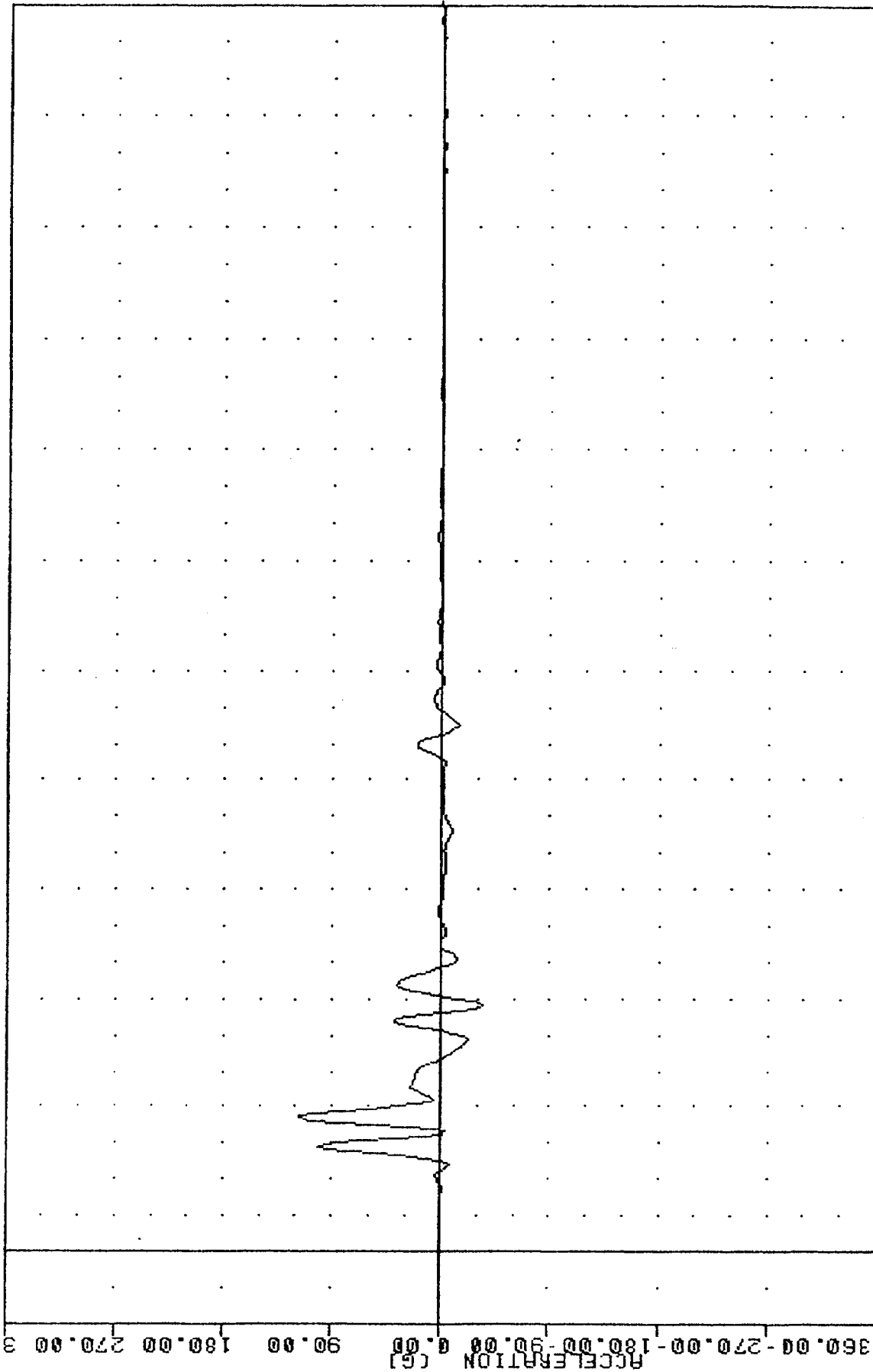
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LEFT UPPER RIB ACCELERATION #2 Y AXIS

TRC
 840109
 SIDE PROTECTION - 20A/40A
 84009000000
 LURYVA
 PLOT DATE 11-JAN-84 12:47:29
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.08e -11.25, 32.92 e 340.00



MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LURYGA

THE [REDACTED] 840109 [REDACTED] PLUT DATE 11-JAN-84 11:35:00
 SIDE PROTECTION - 2DR/4DR
 84009000000
 LLYY61
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -32.98 67.50, 117.83 36.25

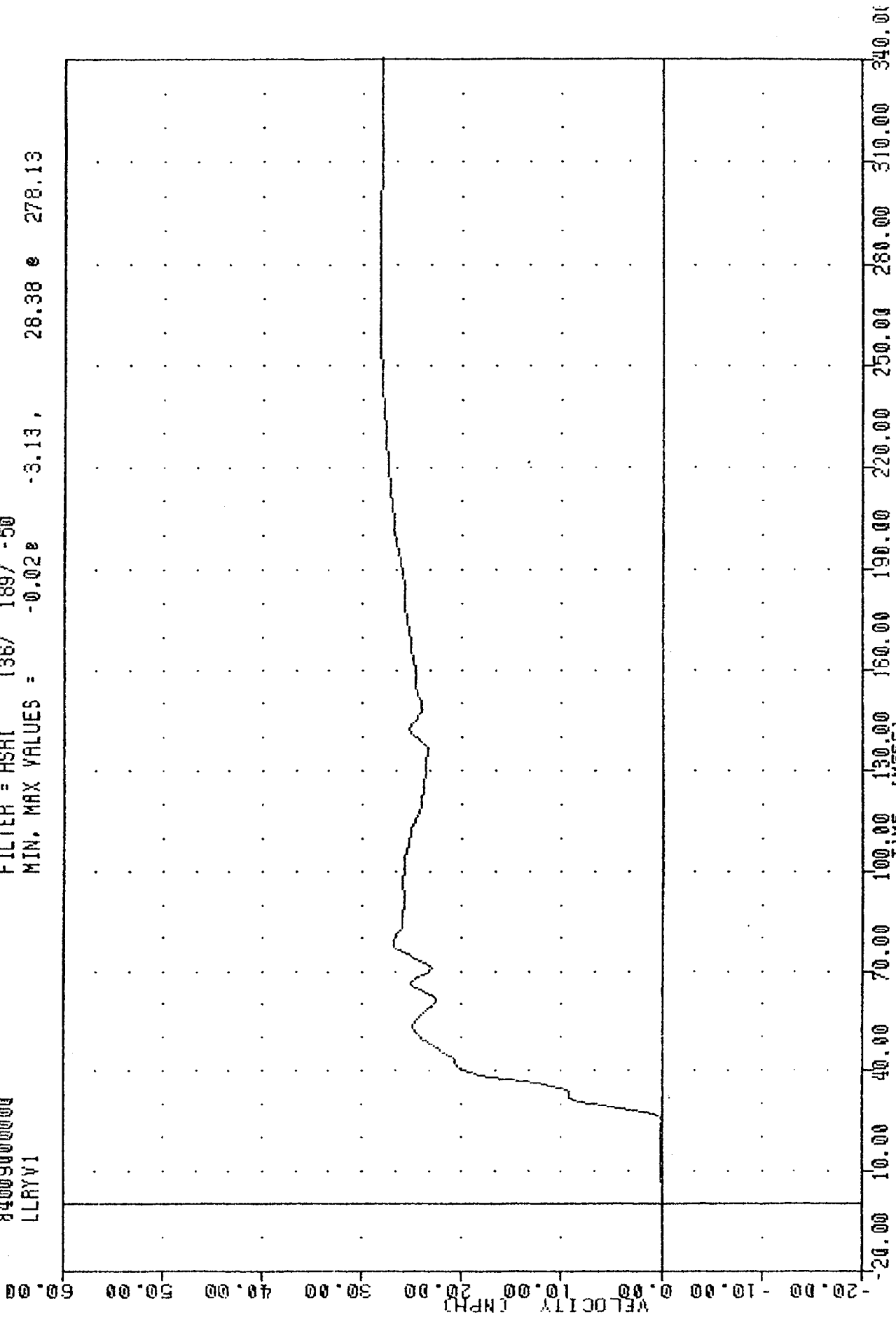


-360.00 -270.00 -180.00 -90.00 0.00 90.00 180.00 270.00 360.00
 ACCELERATION (G)
 0.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LEFT LOWER RIB ACCELERATION Y AXIS

TRC 840109
SIDE PROTECTION - 2DR/4DR
84009000000
LLRYV1

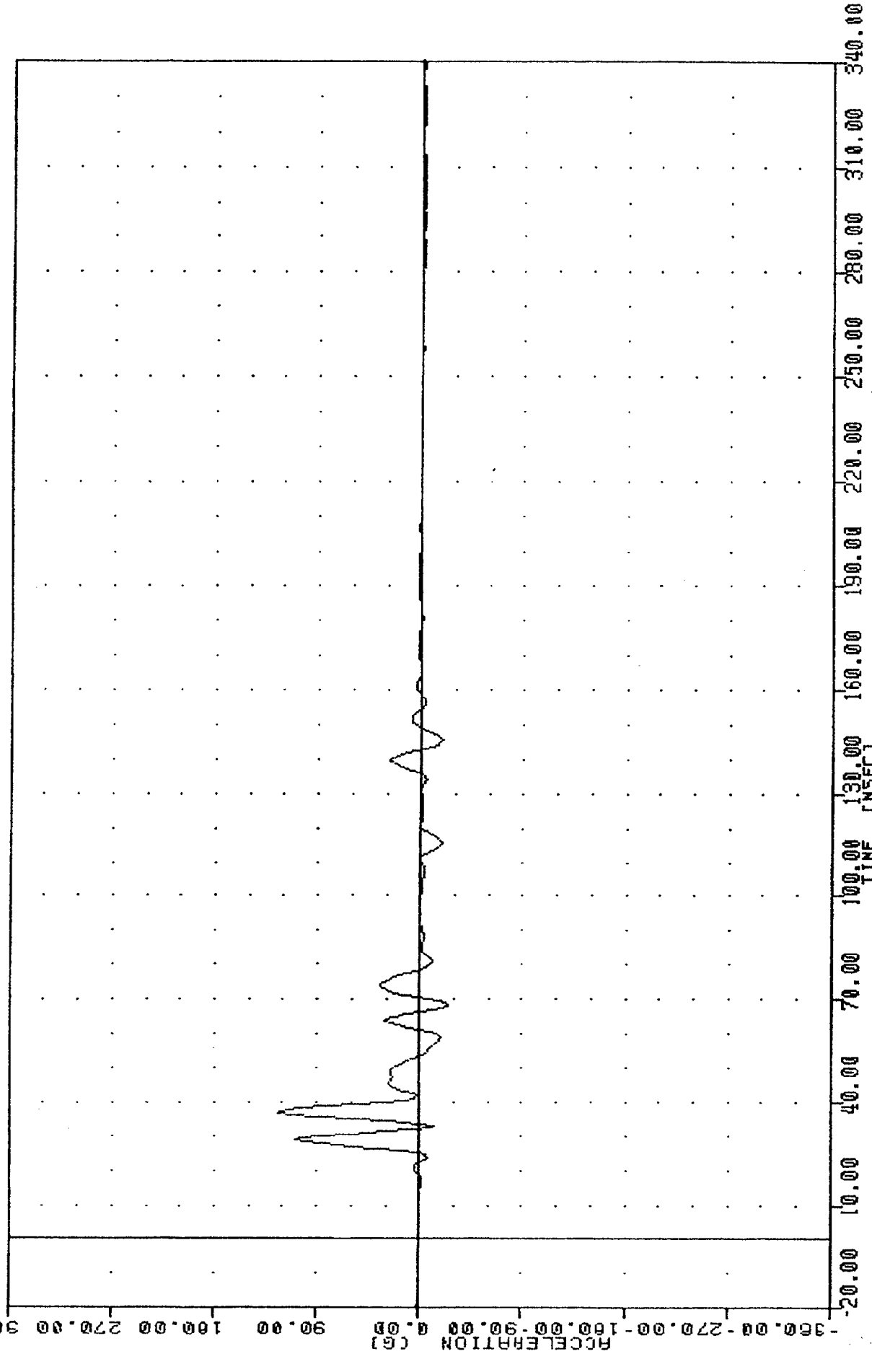
PLUT DATE 11-JAN-84 12:47:29

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.02e -3.13, 28.38 e 278.13



MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LLRYG1

THC 840109
 SIDE PROTECTION - 20R/4DR
 84009000000
 LLYR6A
 PLUT DATE 11 JUN 64 11:35:00
 FILTER = HSRI 136/ 189/ .50
 MIN, MAX VALUES = -24.81e 67.50 , 124.83 e 36.25

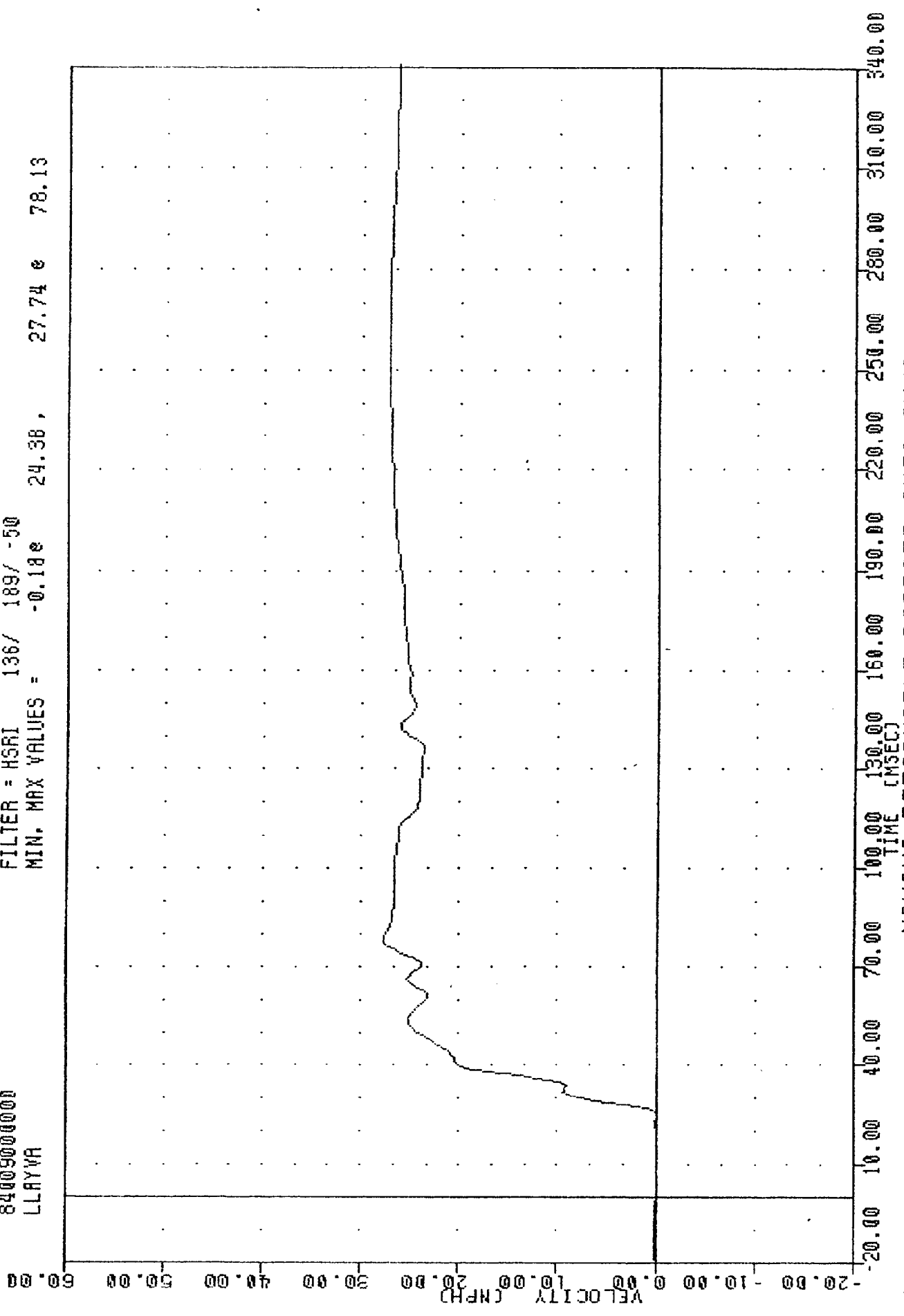


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LEFT LOWER RIB ACCELERATION ~2 Y AXIS

TRC
SIDE PROTECTION - 20R/40R
84009000000
LLRYA

PLUT DATE 11-JAN-84 12:47:29

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.18e 24.38, 27.74 e 78.13



MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LLYGA

TRC 840109

PLOT DATE 11-JAN-84 11:33:42

SIDE PROTECTION - 2DR/4DR

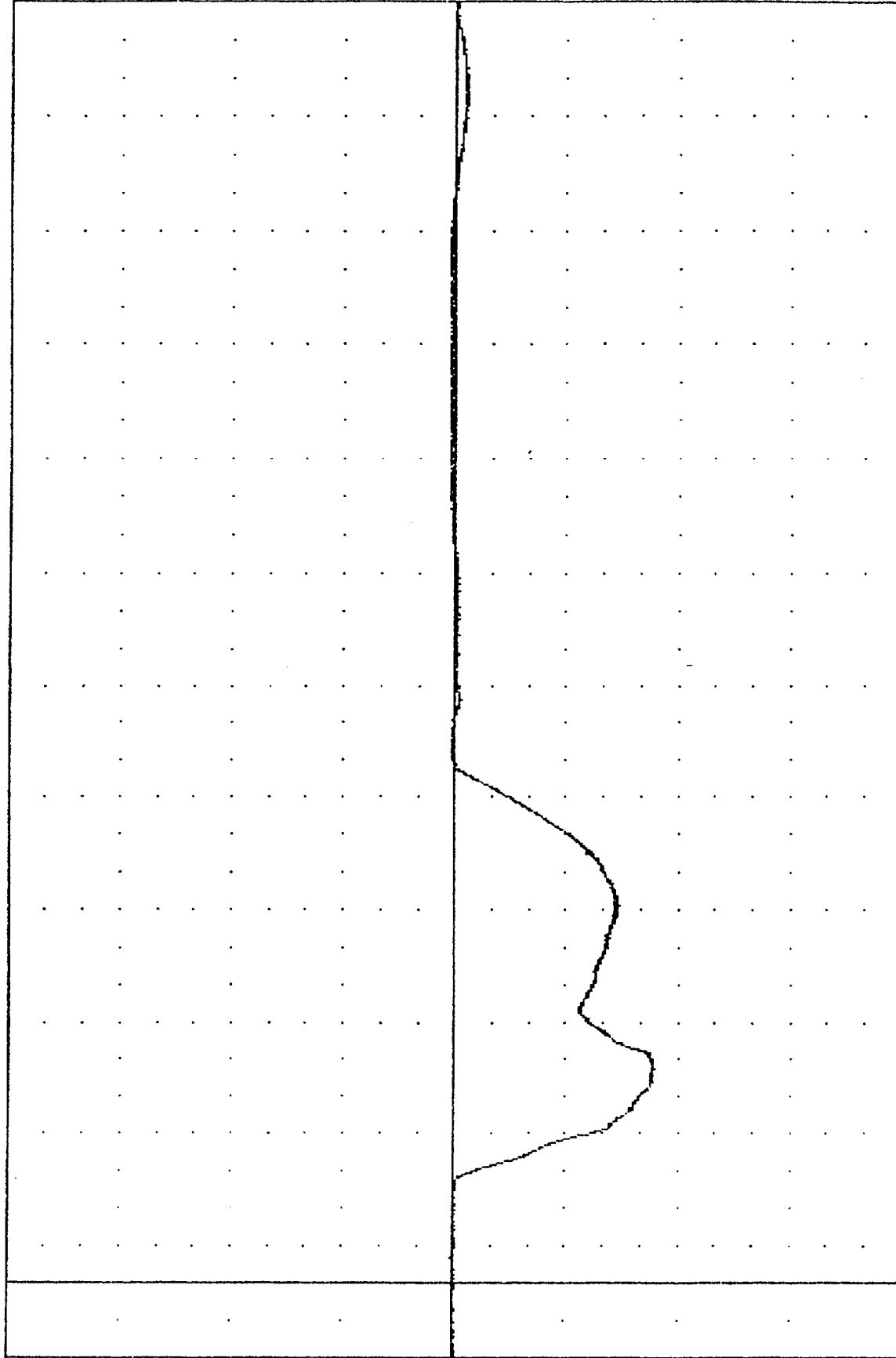
84009000000

LRTYD1

FILTER = ALFF 1650/ 5217/ -40

MIN. MAX VALUES = -1.798 57.38, 0.05 & 213.38

DISPLACEMENT (IN)



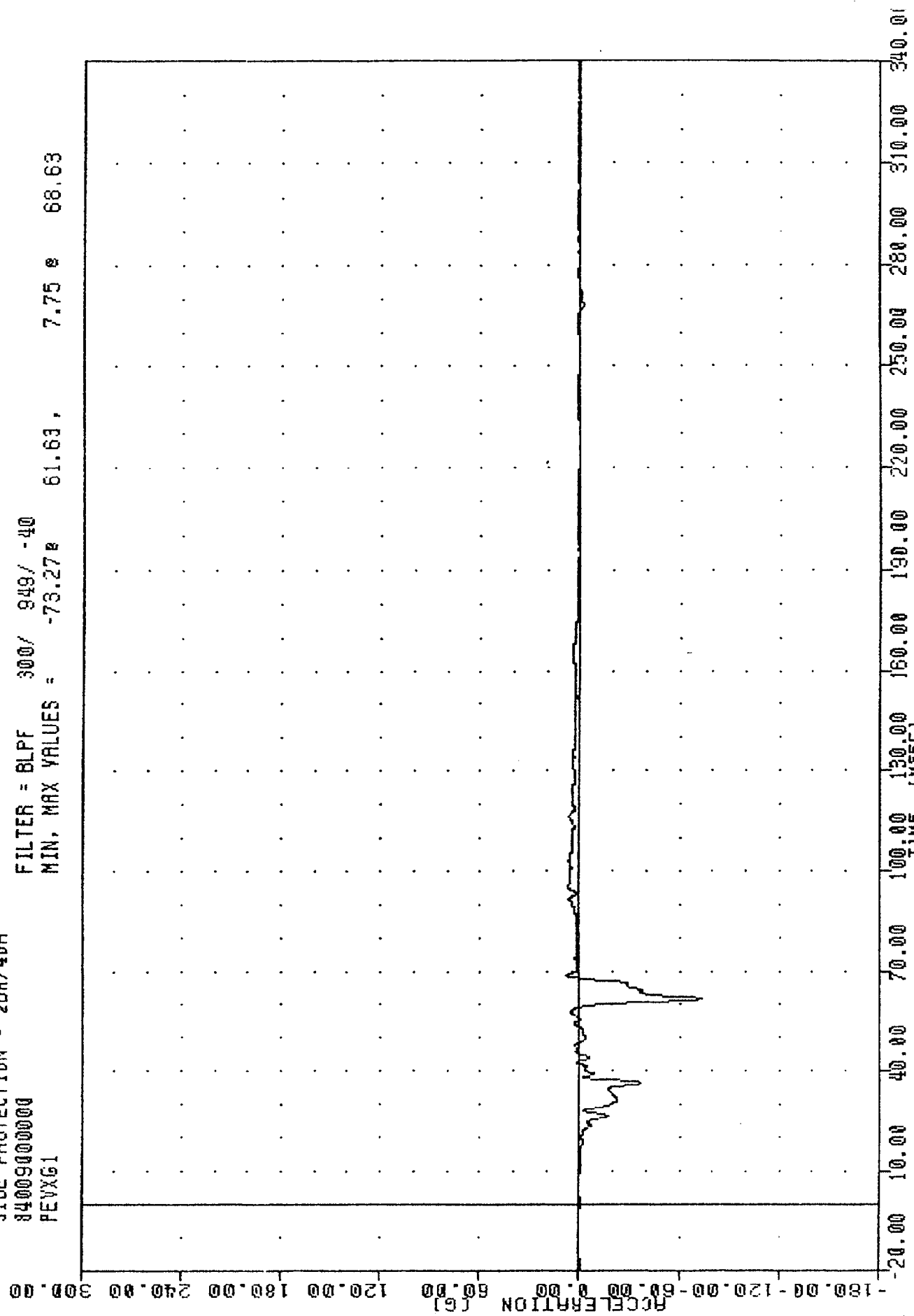
TIME (MSEC) 20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO OMNI DRIVER LEFT RIB TO SPINE DISPLACEMENT INCHES

TRC
 840109
 SIDE PROTECTION - 2DR/4DR
 84009000000
 PEVXG1

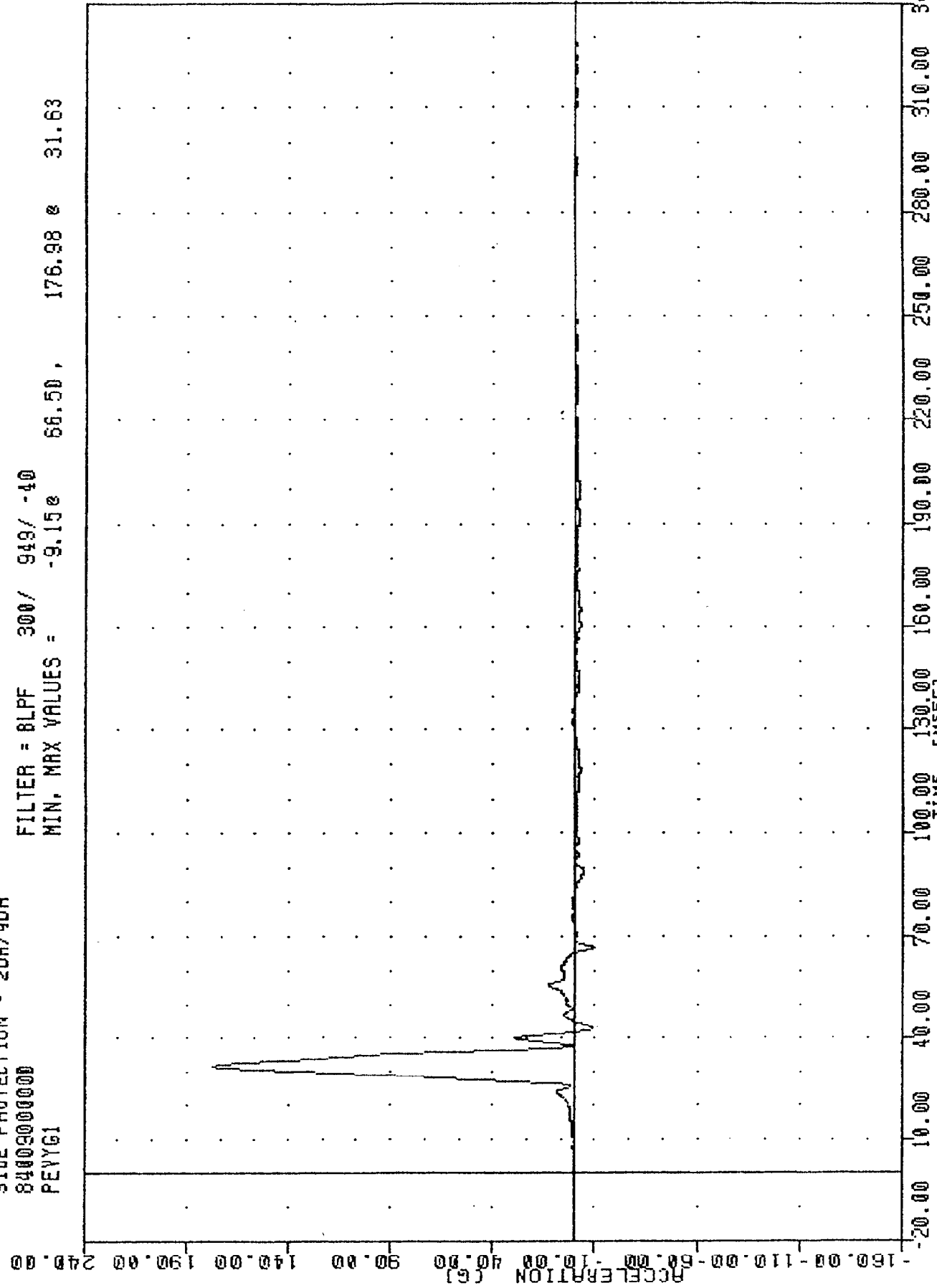
PLUT DATE 11-JAN-84 11:33:42

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -73.27 61.63, 7.75 68.63



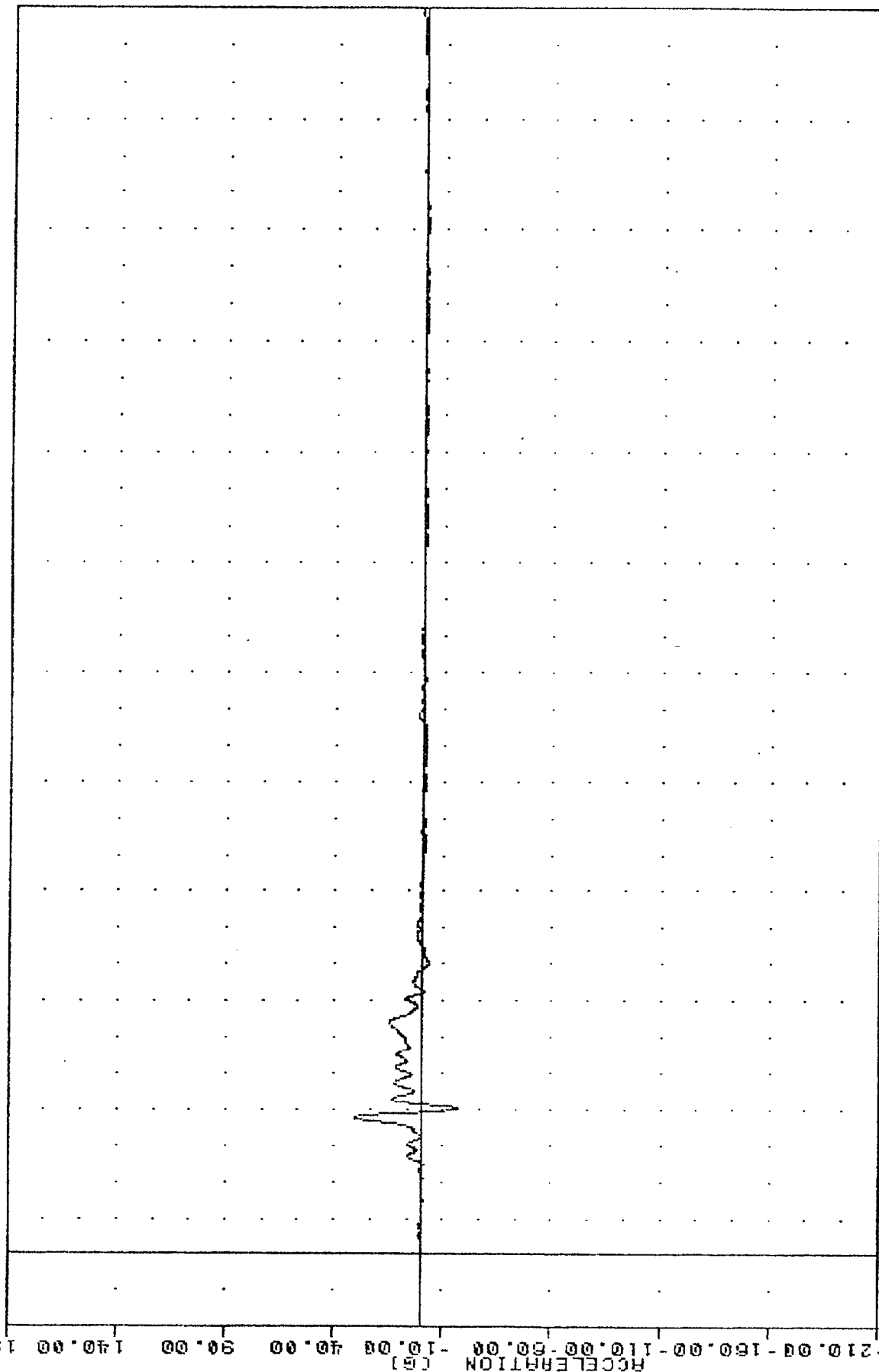
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER PELVIS ACCELERATION X AXIS

THU 840109 11-JAN-84 11:33:42
 SIDE PROTECTION - 2DR/4DR
 84009000000
 PEYYG1
 FILTER = 8LPF 300/ 949/ -40
 MIN. MAX VALUES = -9.15e 66.50 , 176.98 e 31.63



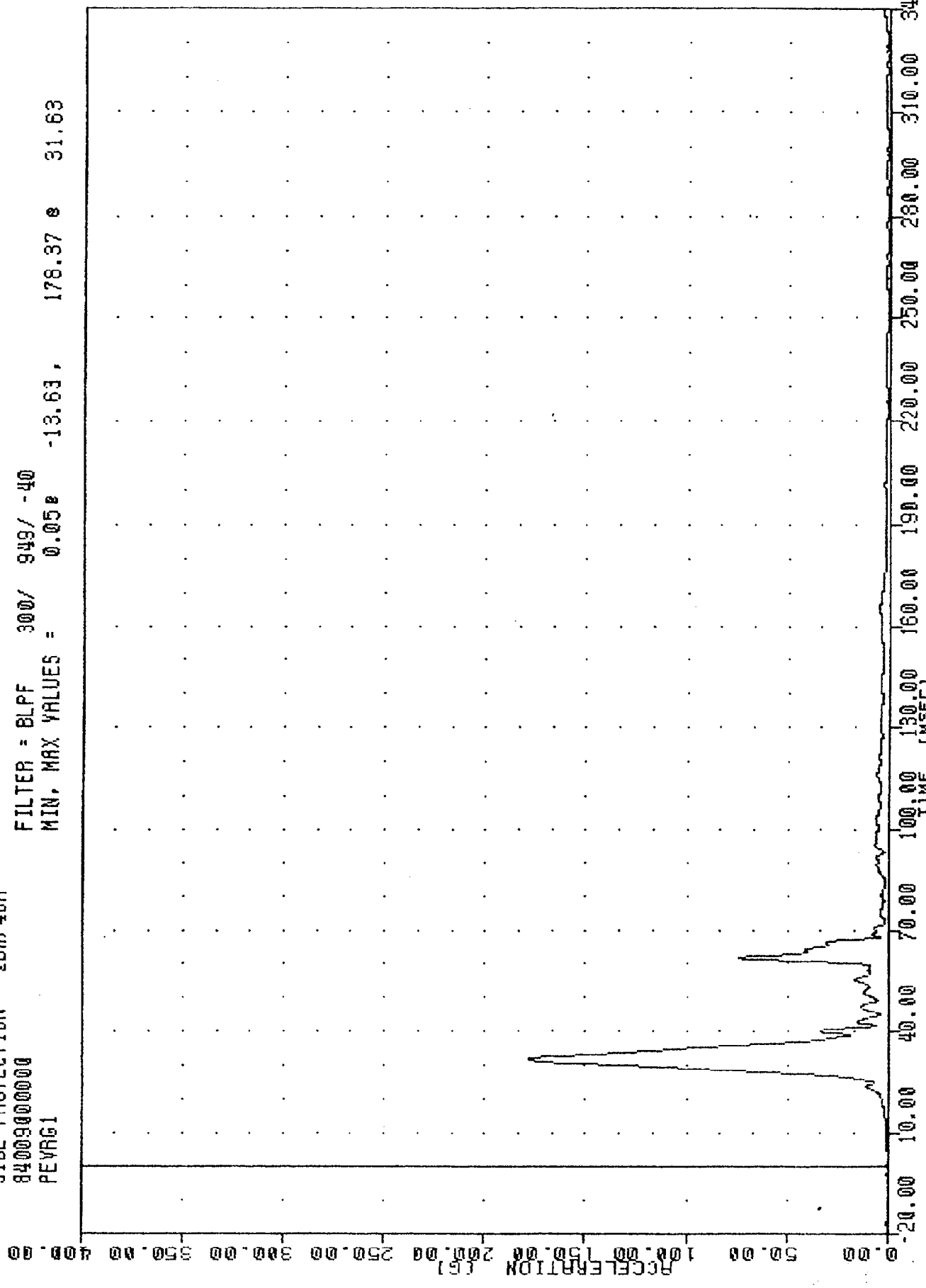
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER PELVIS ACCELERATION Y AXIS

TRC [REDACTED] 64W109 [REDACTED] PLOT DATE 11-JRR-84 11:33:42
 SIDE PROTECTION - 20R/40R
 84009000000
 PEVZE1
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -17.00e 40.13, 31.05 e 37.50



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (NSEC)
 MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER PELVIS ACCELERATION Z AXIS

THU 840109 840109 PLUT DATE 11-JUN-84 11:53:42
 SIDE PROTECTION - 2DR/4DR
 84009000000
 PEVRG1
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 0.05e -13.63, 178.37 e 31.63

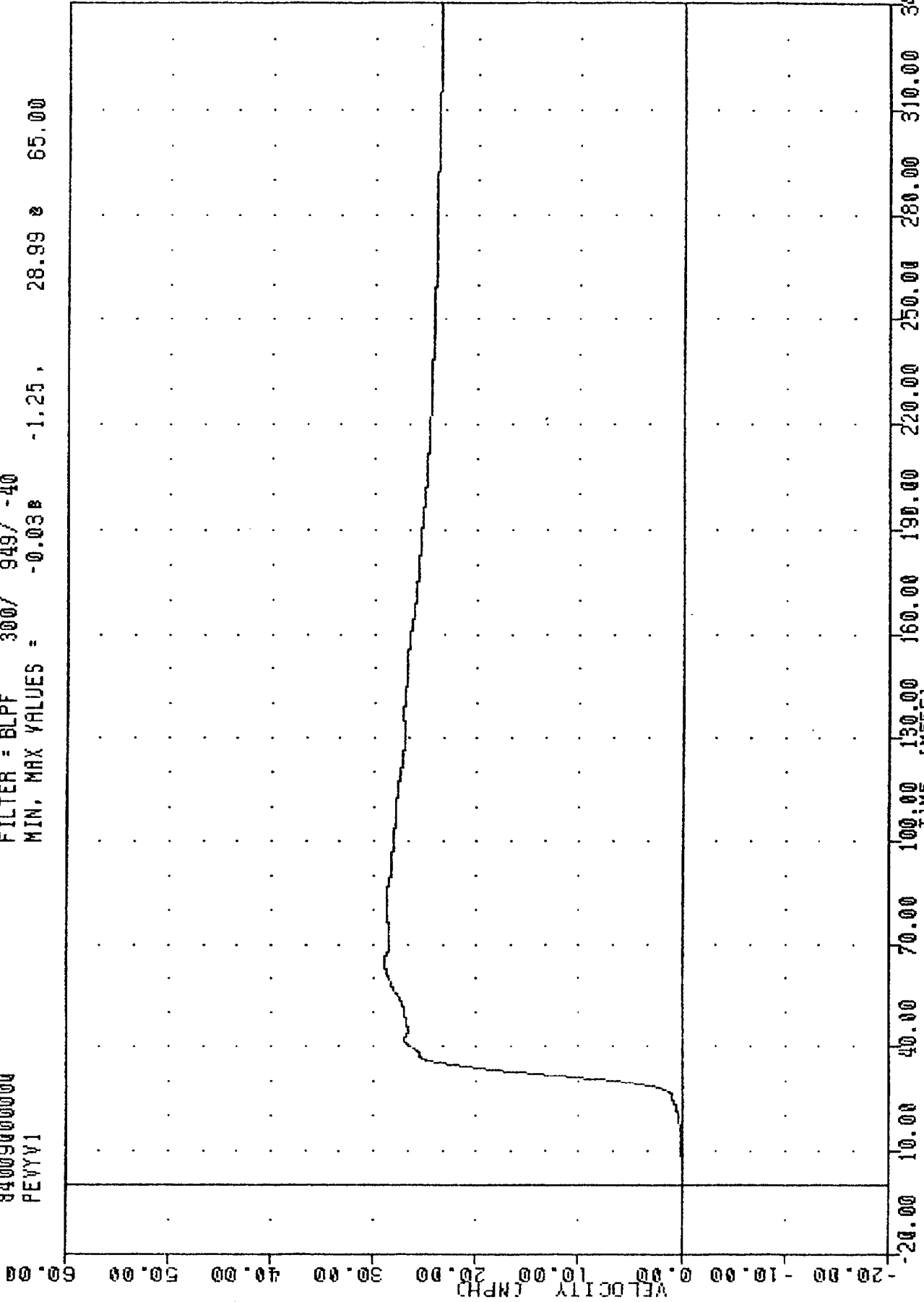


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER PELVIS RESULTANT

TRC
840109
SIDE PROTECTION - 2DR/4DR
8400900000
PEVY1

PLU1 DATE 11-JAN-84 12:48:12

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.038 -1.25, 28.99 65.00

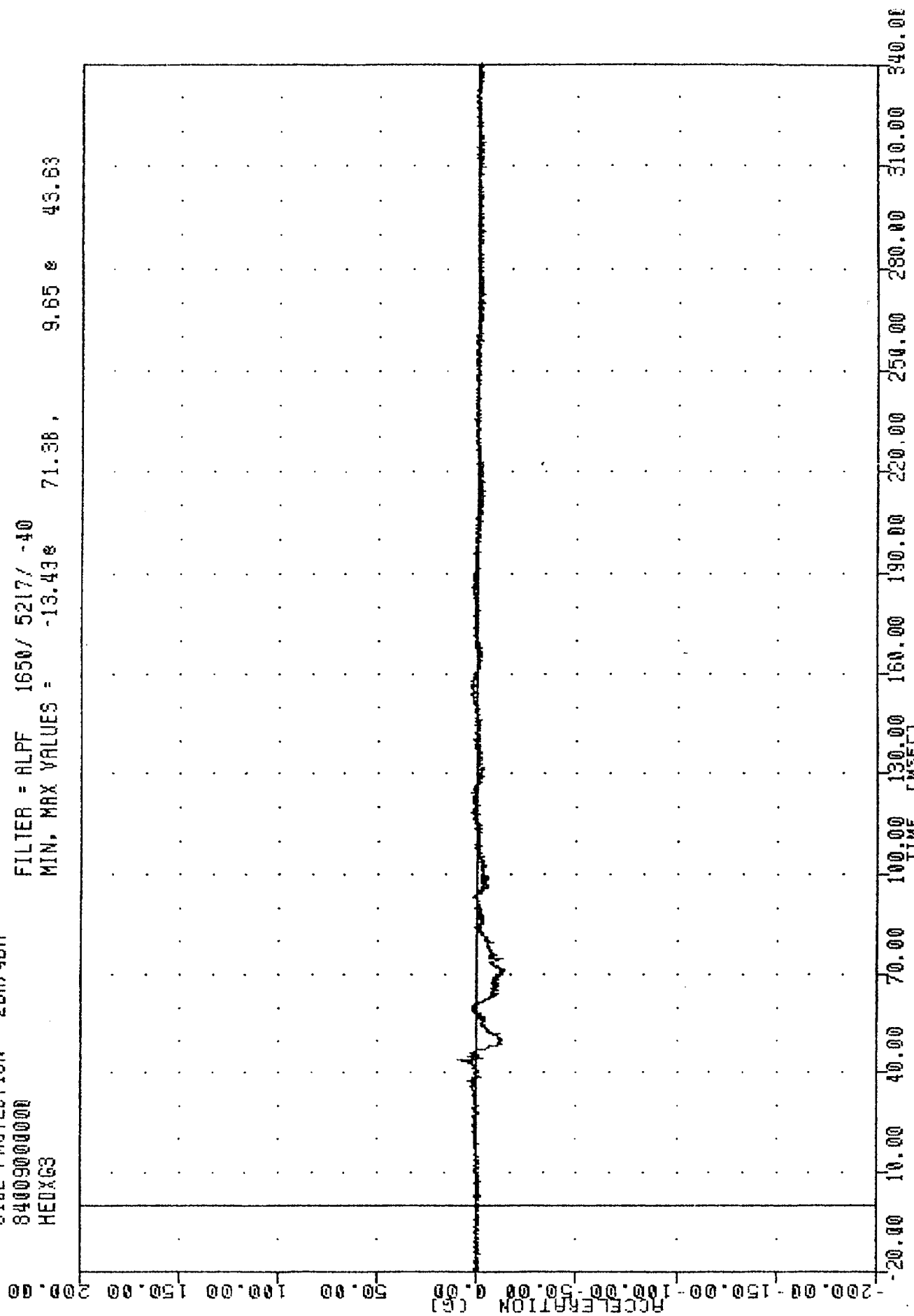


MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING PEVY1

THC
 840109
 SIDE PROTECTION - 20R/4DR
 8400900000
 HEDXG3

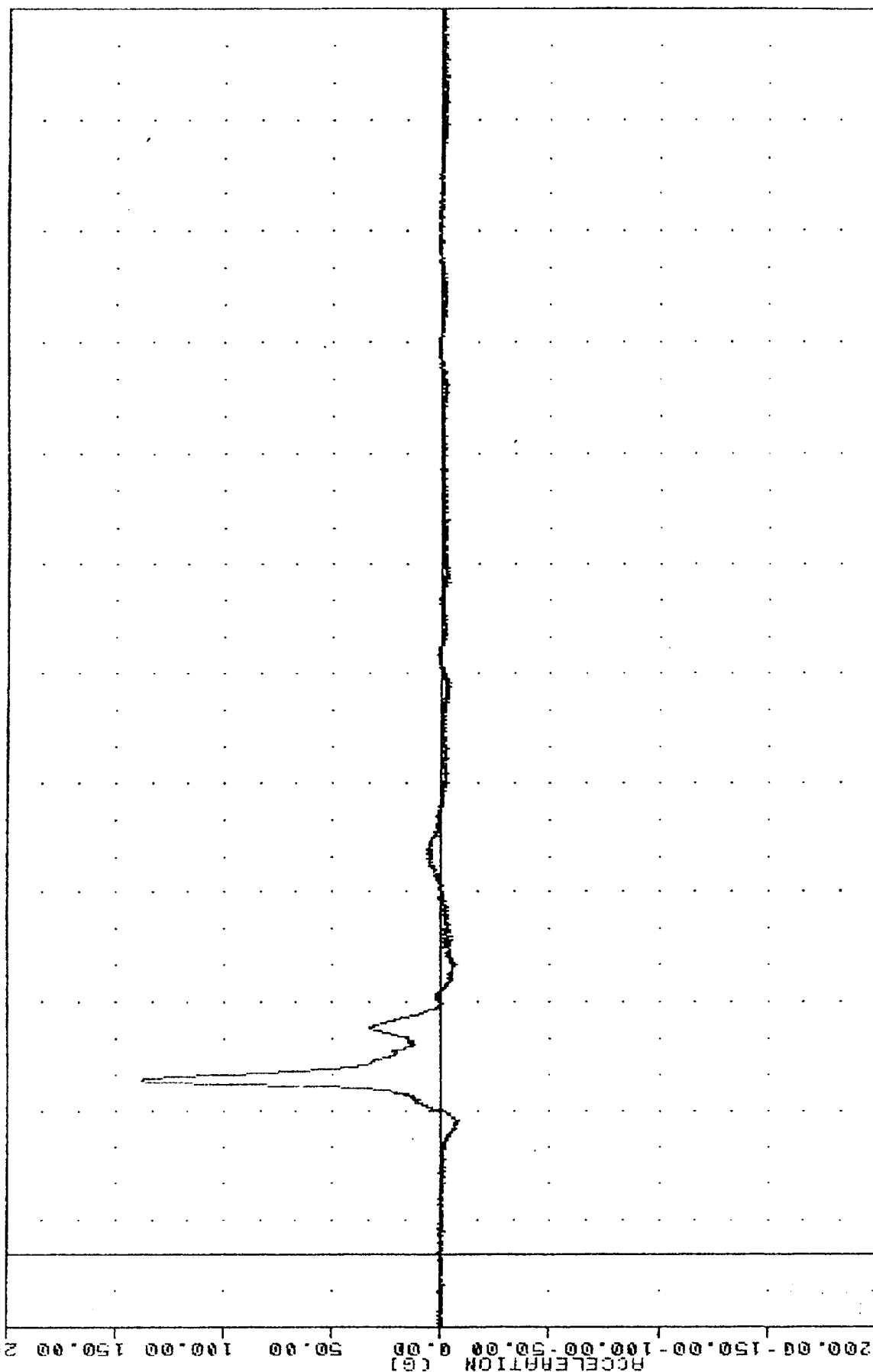
PLUI DATE 11-JAN-84 11:33:42

FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -13.43e 71.38, 9.65 e 43.63



MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER HEAD ACCELERATION X AXIS

TAC 840109 PLOT DATE 11-JUN-84 11:33:42
 SIDE PROTECTION - 2DR/4DR
 84009000000
 HEDY63
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -8.49e 37.25, 138.56 e 48.50

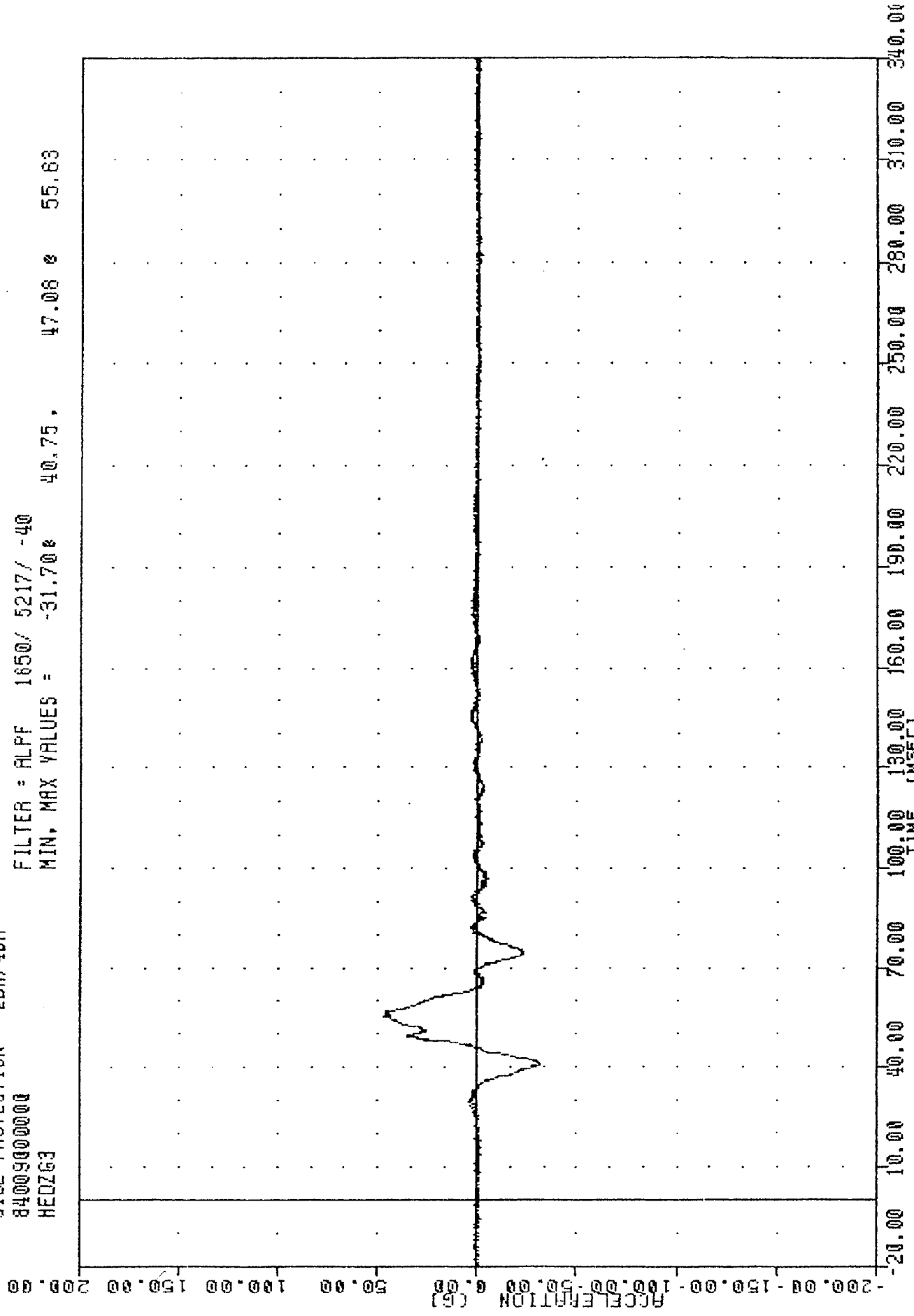


-200.00 -150.00 -100.00 -50.00 0.00 50.00 100.00 150.00 200.00
 0.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00
 MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER HEAD ACCELERATION Y AXIS

TMC
840109
SIDE PROTECTION - 2DR/4DR
8400900000
HE0263

PLUT DATE 11-JAN-84 11:33:42

FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -31.70% 40.75, 47.08 % 55.63

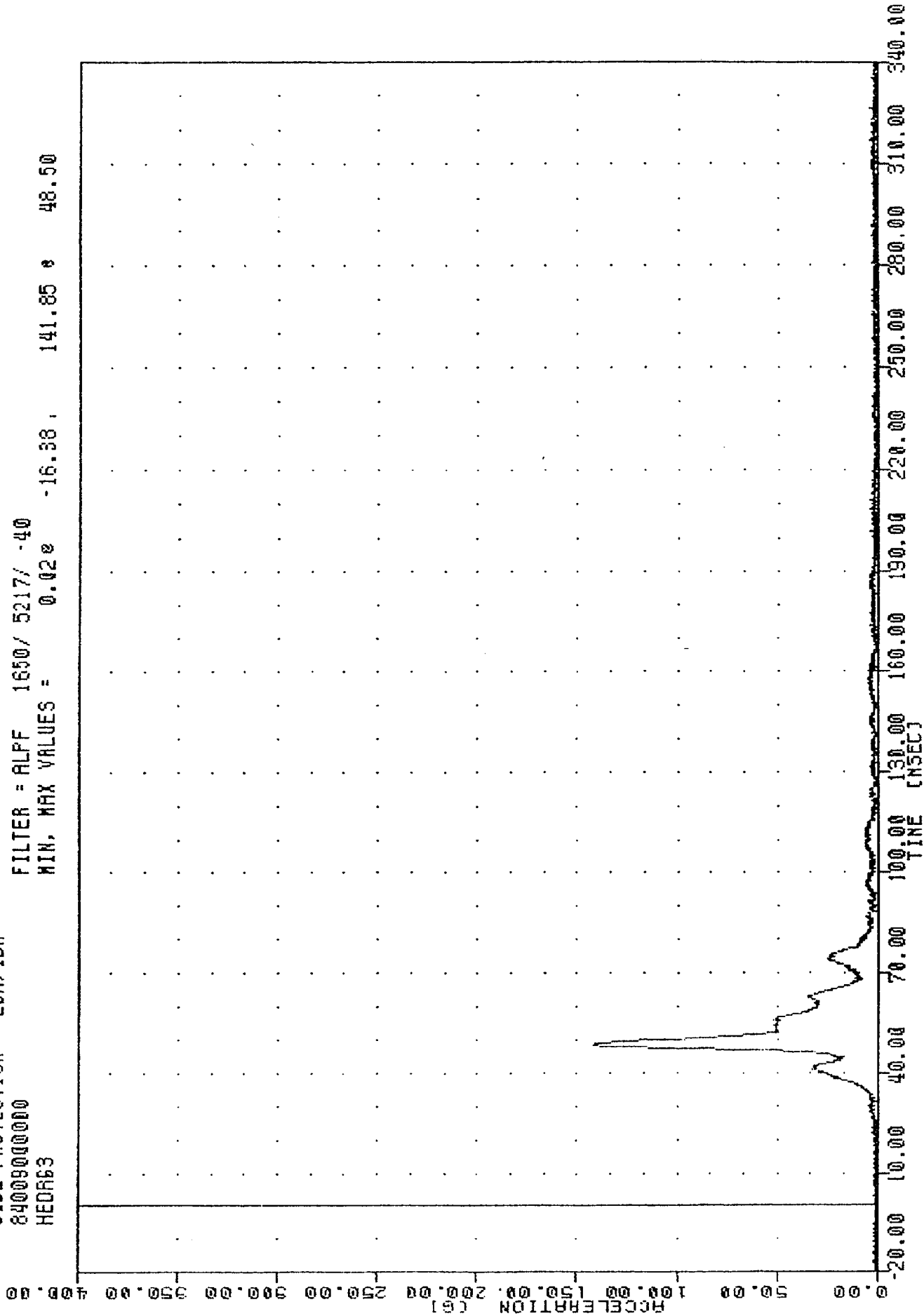


MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER HEAD ACCELERATION Z AXIS

TRC
840109
SIDE PROTECTION - 20R/4DR
84009000000
HEAD63

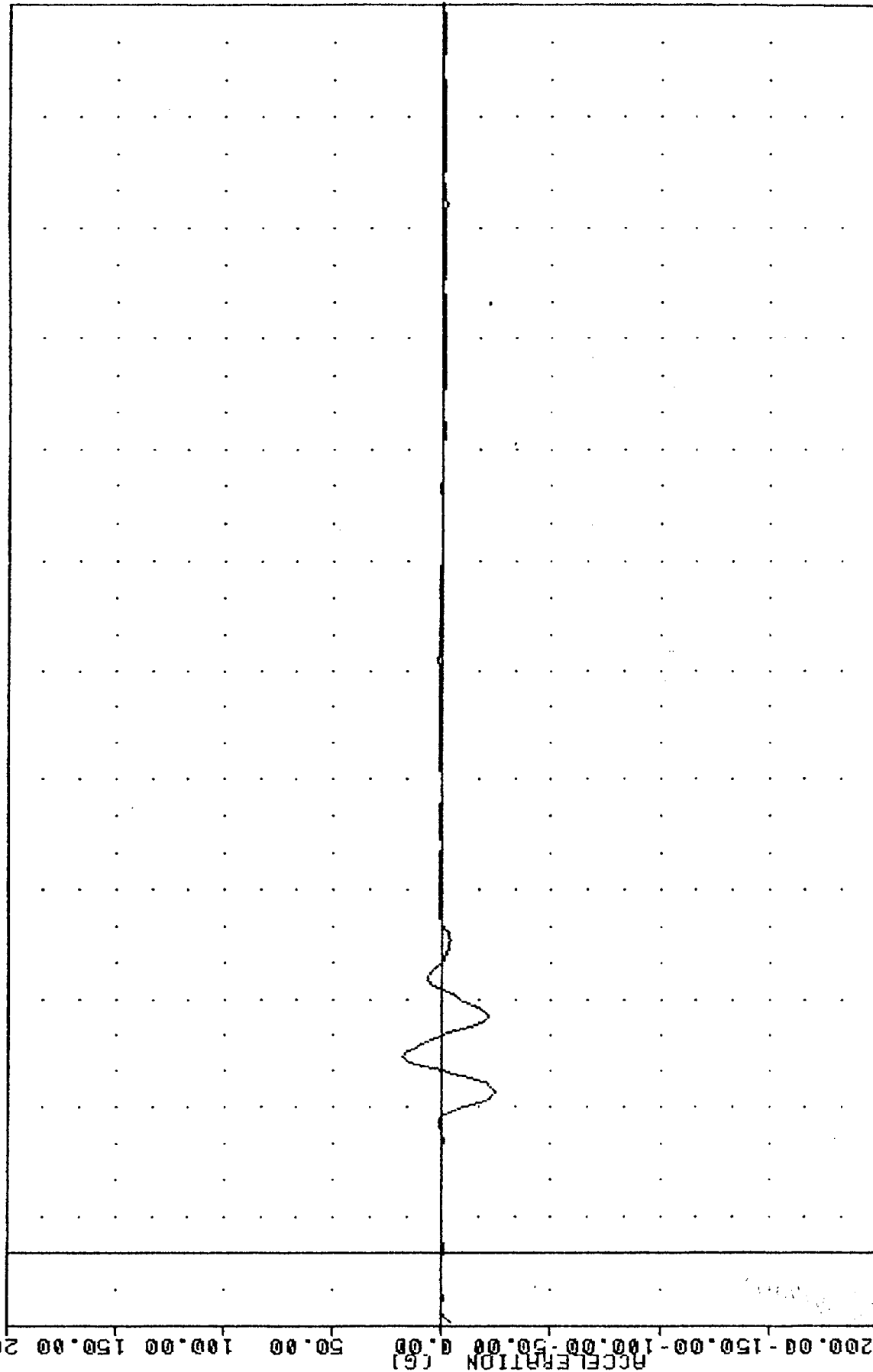
PLU1 DATE 11-JUN-84 11:33:42

FILTER = ALPF 1650/ 5217/ -40
MIN. MAX VALUES = 0.02e -16.38, 141.85 e 48.50



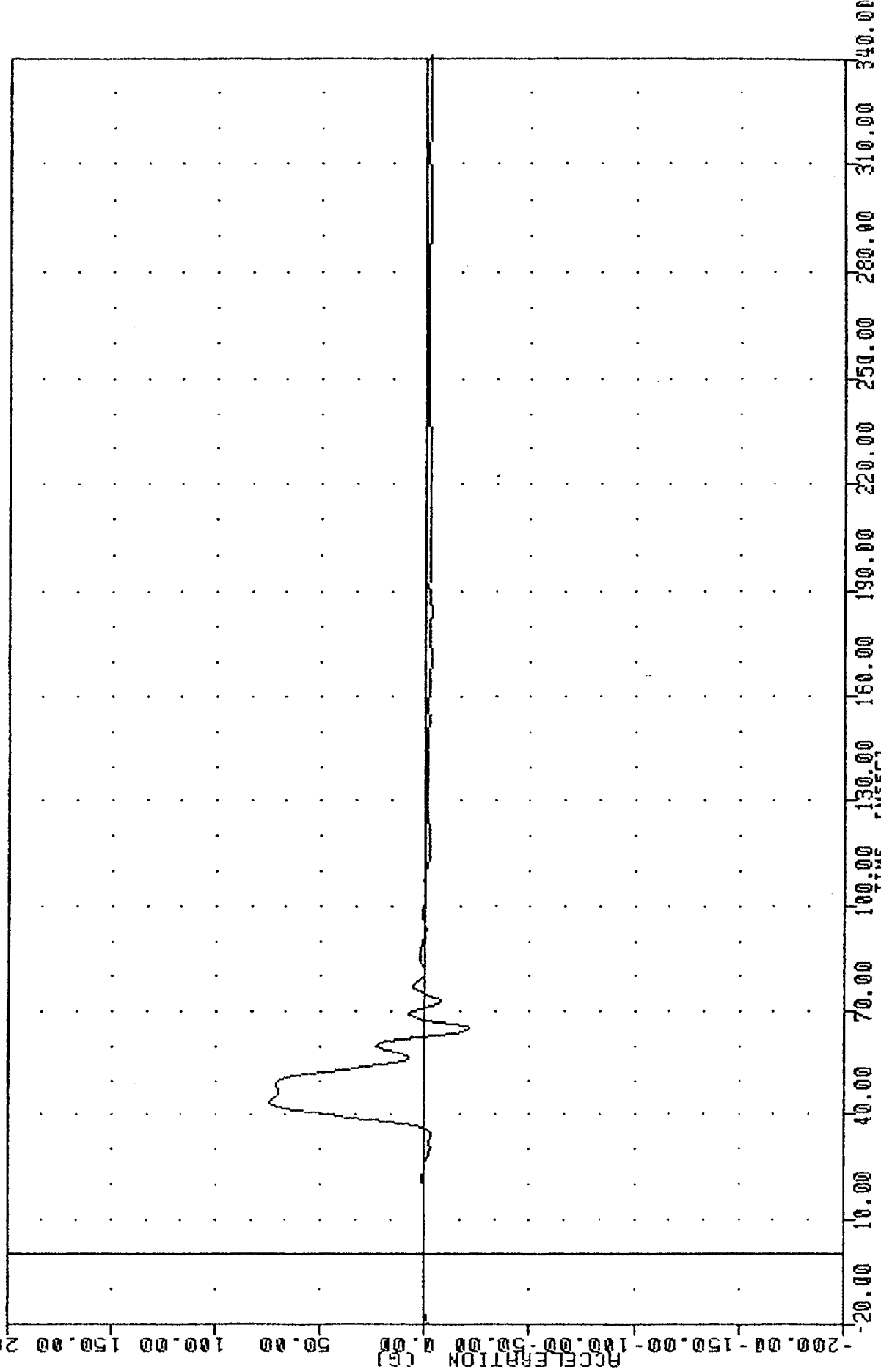
MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER HEAD RESULTANT

TRC 840109
 SIDE PROTECTION - 20R/4DR
 84009000000
 T01XG3
 PLUT DATE 11-JUN-84 11:35:05
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -24.03B 43.75, 17.78 e 53.12



-200.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER UPPER SPINE ACCELERATION X AXIS

THC [REDACTED], 840109 [REDACTED] PLUT DATE 11-JUN-84 11:35:05
 SIDE PROTECTION - 2DR/4DR
 84009000000
 T01Y63
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -20.86 64.38, 74.00 43.13



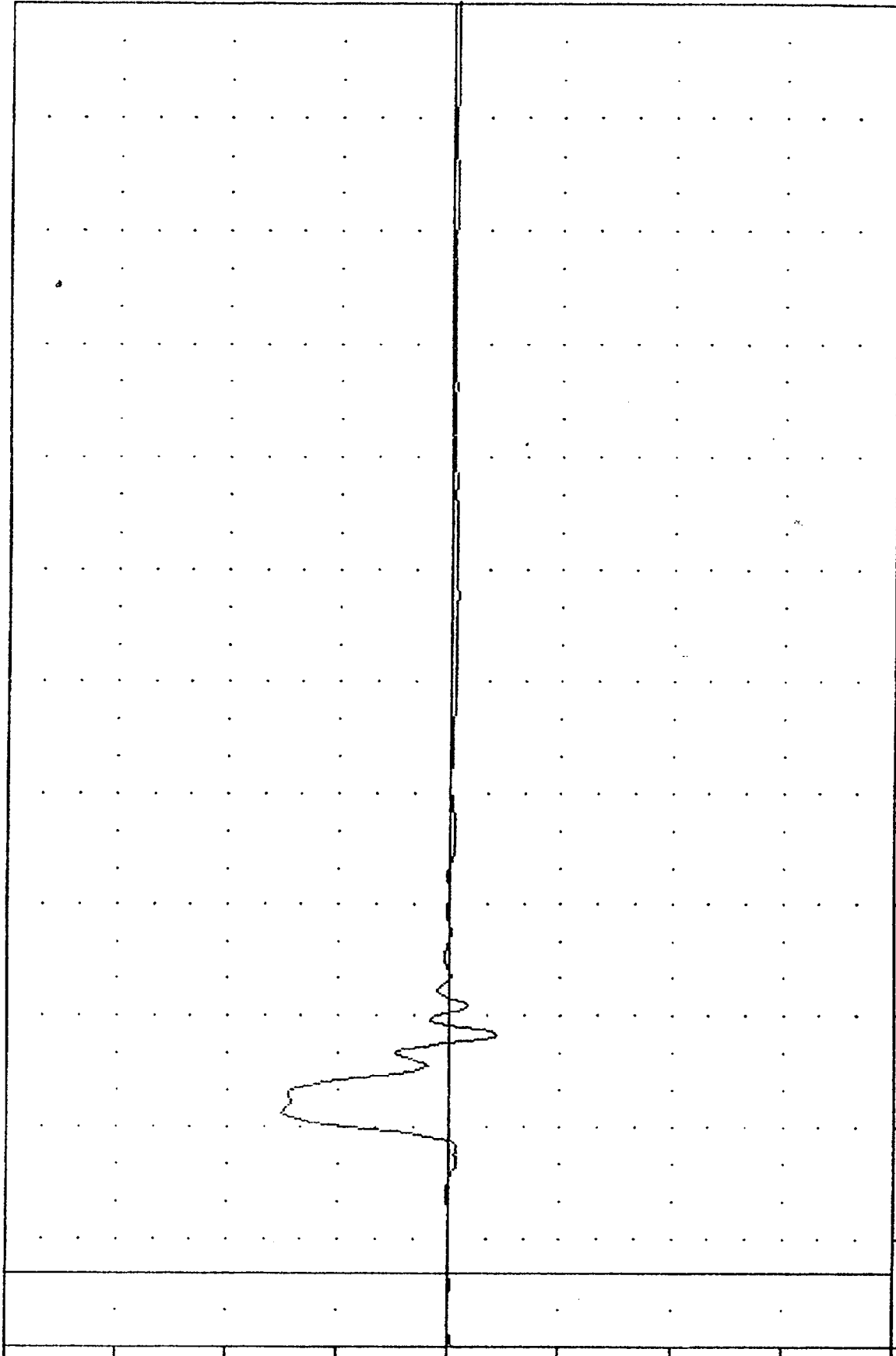
MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER UPPER SPINE ACCELERATION Y AXIS

TAC
840109
SIDE PROTECTION - 20R/4DR
84009000000
T01Y6C

PLUT DATE 11-JUN-84 11:35:00

FILTER = HSRI 136/ 189/ .50
MIN, MAX VALUES = -20.75 64.38, 75.05 43.13

ACCELERATION (G)



TIME (MSEC)

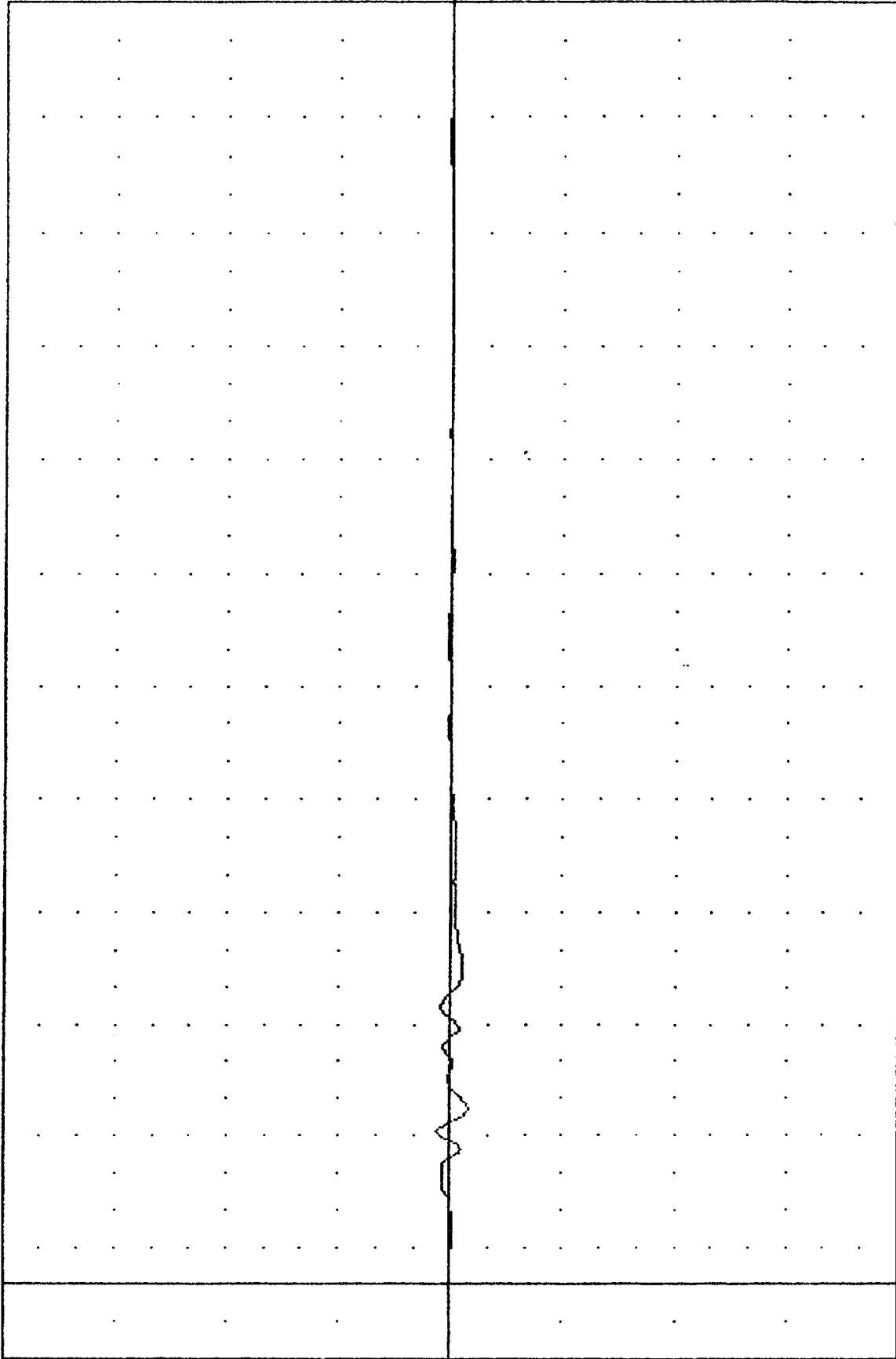
MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER UPPER SPINE ACCELERATION -2 Y AXIS

THU 840109
 SIDE PROTECTION - 2DR/4DR
 84009000000
 T01ZG3

PLUT DATE 11-JAN-84 11:35:05

FILTER = HSR(136/ 189/ -50
 MIN, MAX VALUES = -7.87e 6.22 e 40.63

ACCELERATION (G)



-20.00 10.00 40.00 70.00 100.00 130.00 150.00 180.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)

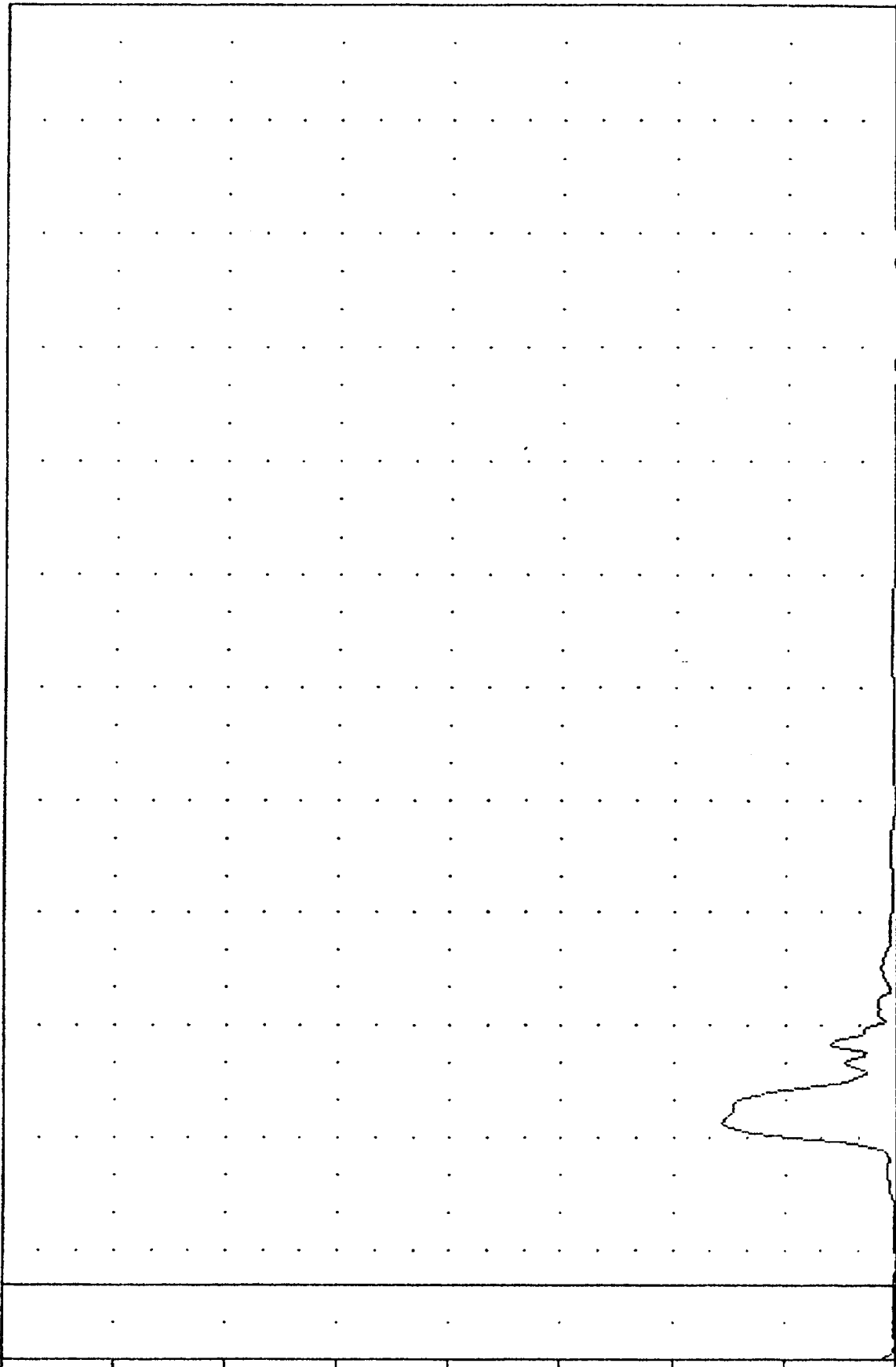
MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER UPPER SPINE ACCELERATION Z AXIS

TAC
840090000000
T01R53
SIDE PROTECTION - 2DR/4DR
840109

PLU1 DATE 11-JUN-84 11:55:05

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = 0.20e 6.88, 77.79 e 43.13

ACCELERATION (G)
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00

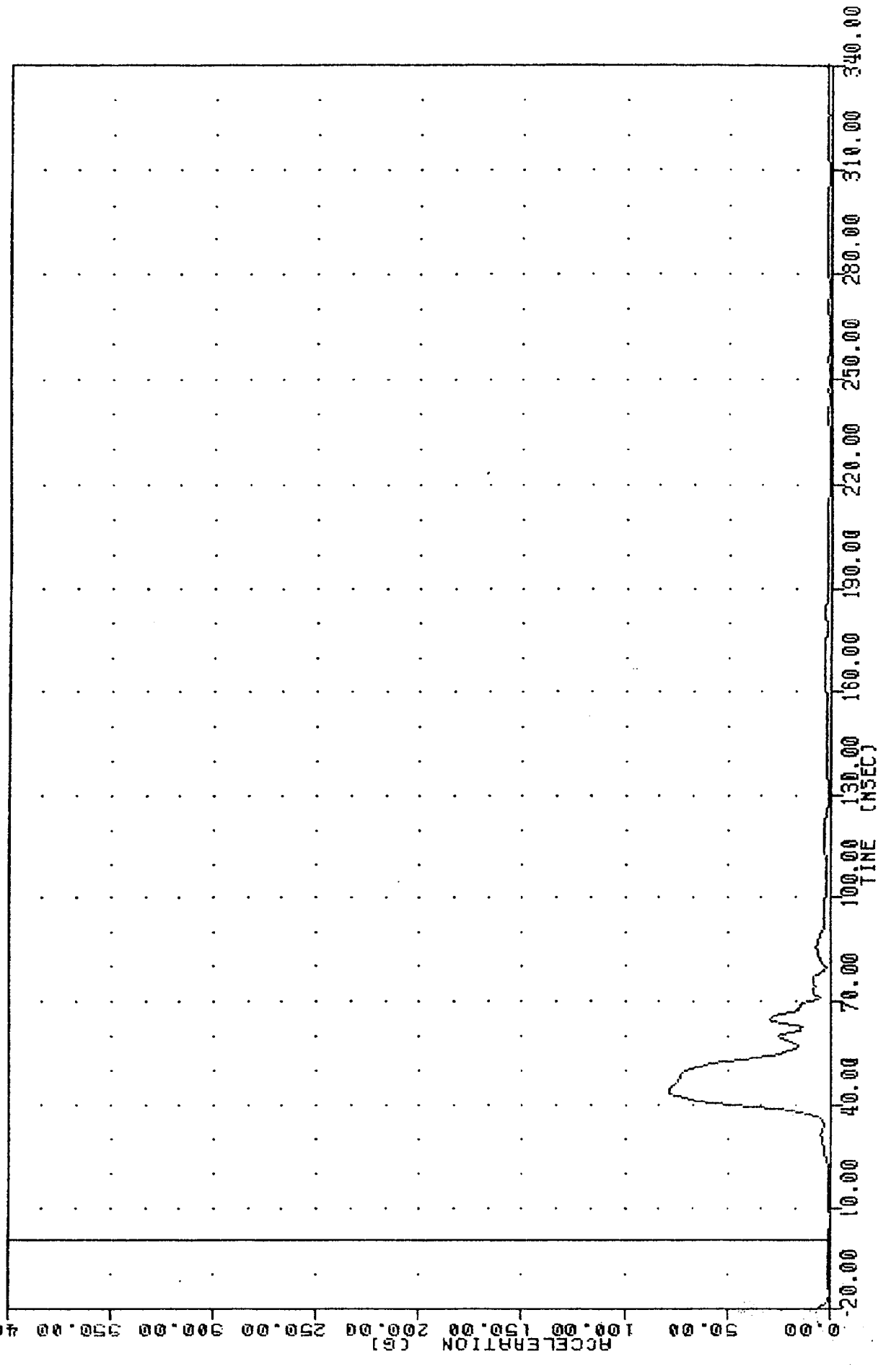


20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER UPPER SPINE RESULTANT

TRC 840109 11-JUN-84 12:47:04

SIDE PROTECTION - 2DR/4DR
84009000000
T01R63
FILTER = HSRI 136/ 189/ .50
MIN. MAX VALUES = 0.23e -15.63, 78.79 e 43.13

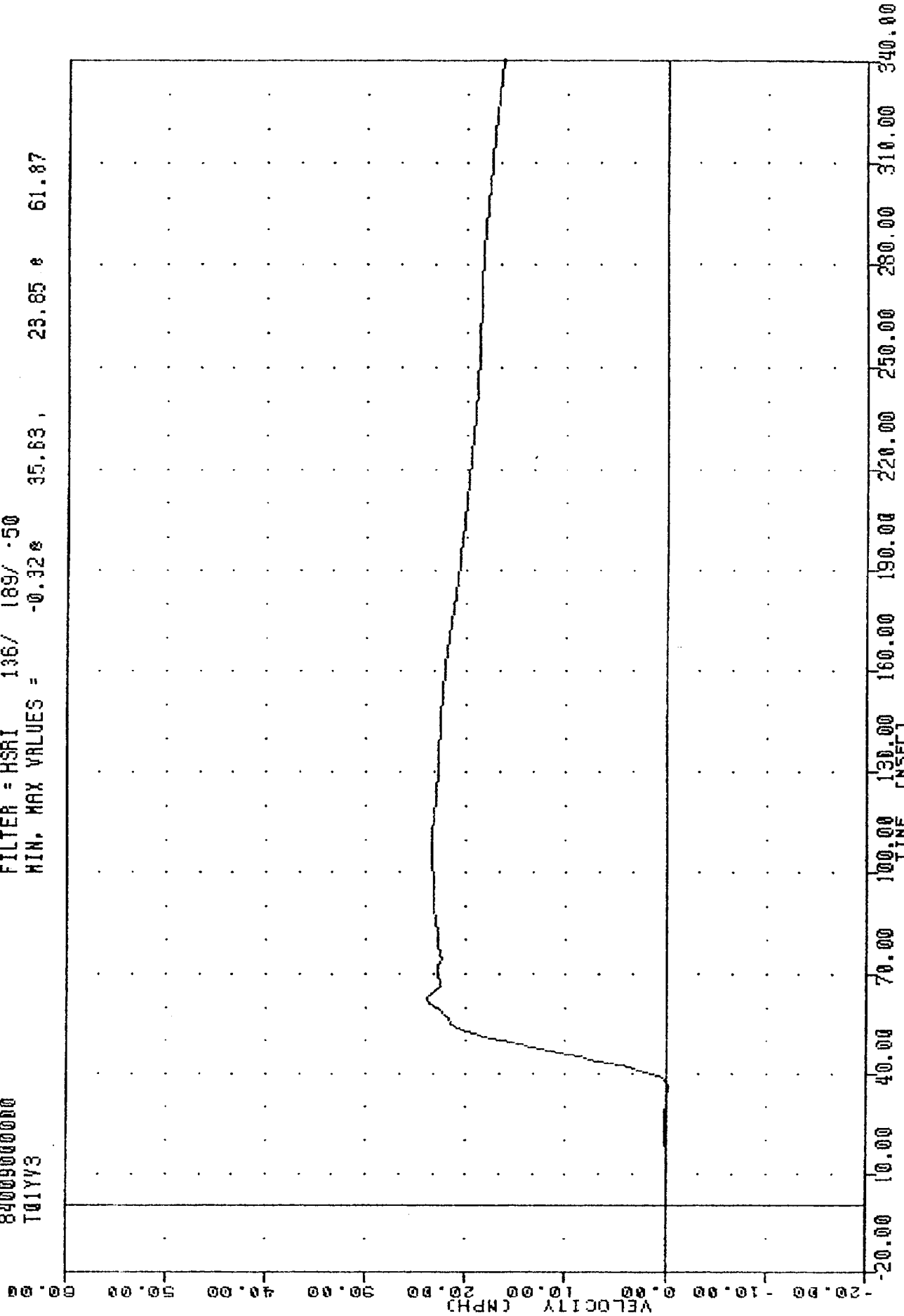


MOVING DEFORMABLE BARRIER INTO OMNI PASSENGER UPPER SPINE RESULTANT USING T01Y6C

THC
840109
SIDE PROTECTION - 20R/4DR
84009000000
T01YV3

PLUT DATE 11 JAN 84 12:47:29

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.32 35.63 , 23.85 e 61.87

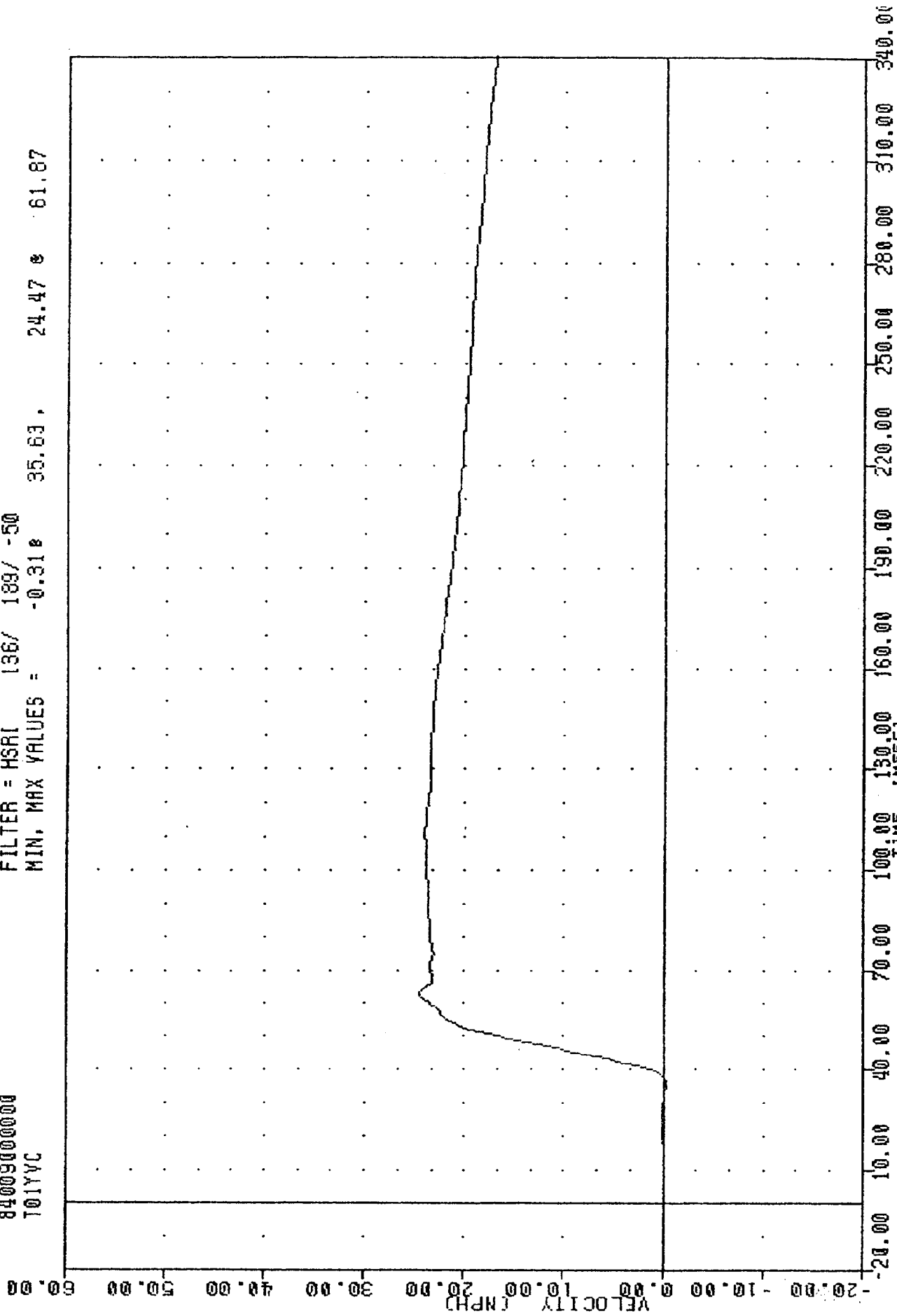


MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING T01Y63

TRC
840103
SIDE PROTECTION - 2DR/4DR
84009000000
T01YVC

PLUT DATE 11-JAN-84 12:47:29

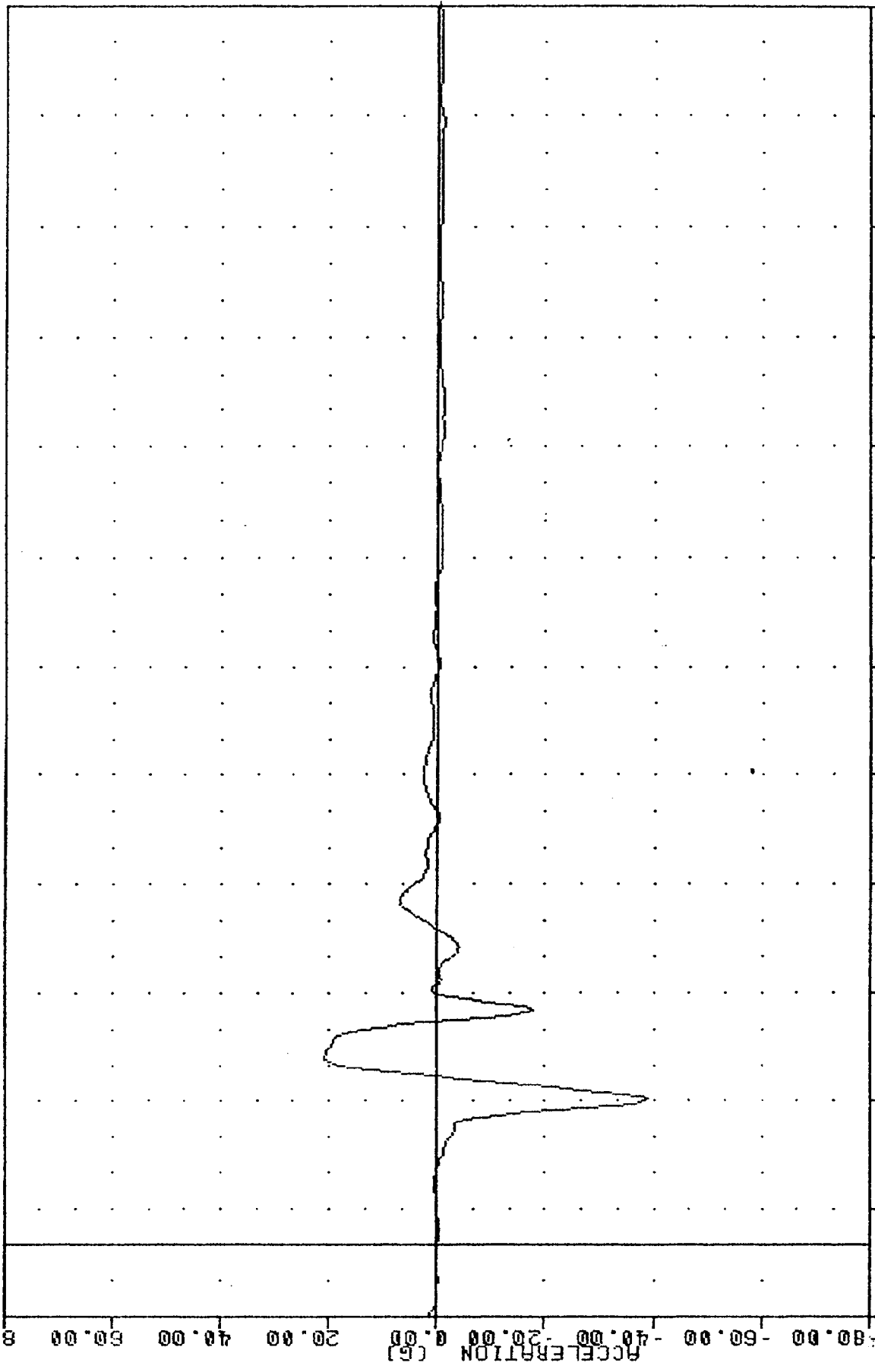
FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -0.318 24.47 & 61.87



MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING T01YGC

THC [REDACTED], 840109 [REDACTED] PLUT DATE 11-JAN-84 [REDACTED] 11:35:05 [REDACTED]

84009000000
T12XG3
SIDE PROTECTION - 2DR/4DR
FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -38.82e 40.00, 21.00 e 51.25



80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (MSEC)

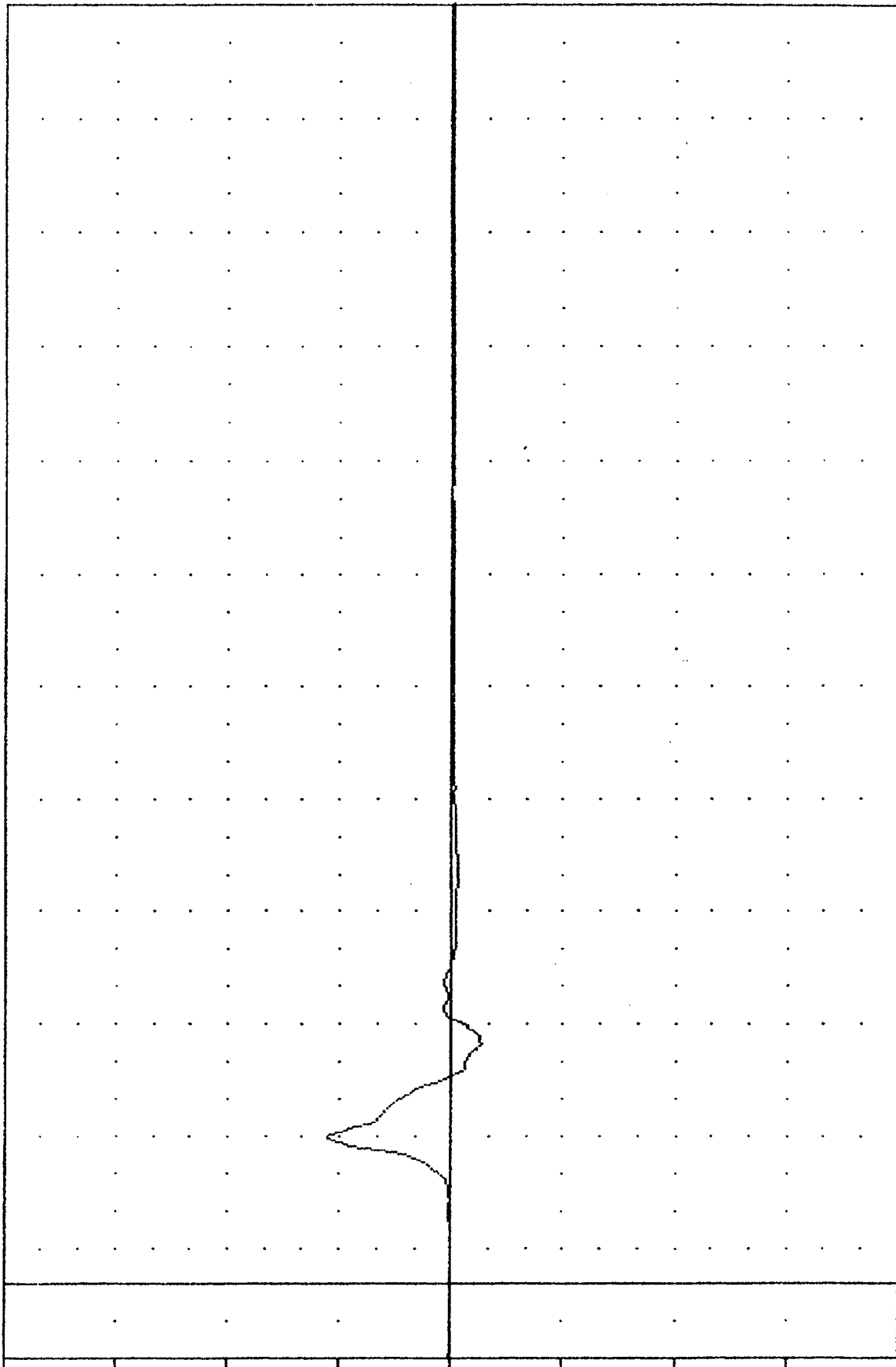
MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER LOWER SPINE ACCELERATION X AXIS

TAC
840109
SIDE PROTECTION - 20R/4DR
84009000000
T12Y63

PLUT DATE 11-JUN-84 11:35:05

FILTER = HSRI 136/ 189/ .50
MIN. MAX VALUES = 64.58 , 99.53 * 38.75

ACCELERATION (G)

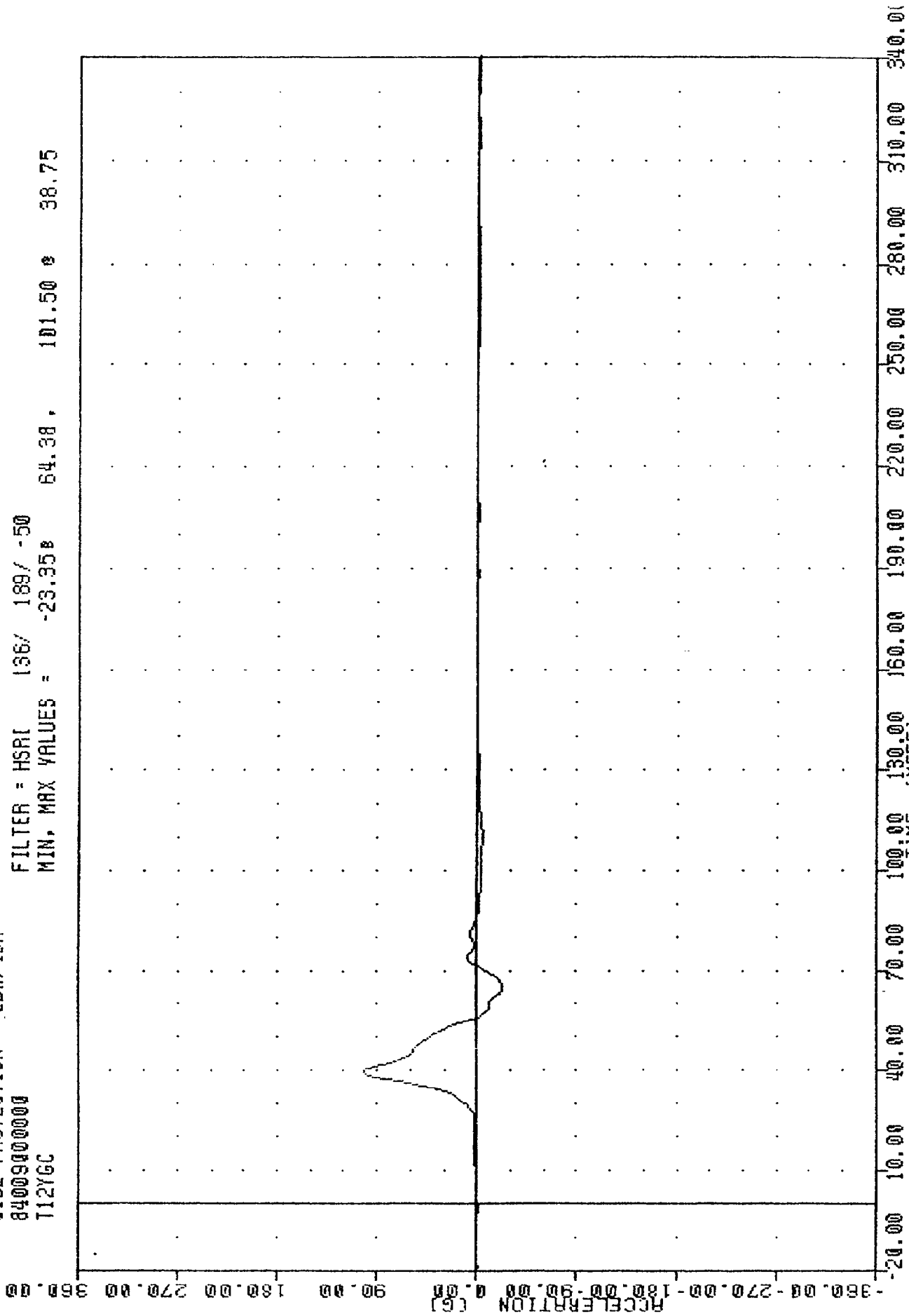


MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER LOWER SPINE ACCELERATION Y AXIS

TRC
840109
SIDE PROTECTION - 2DR/4DR
8400900000
T12YGC

PLUT DATE 11-JAN-84 11:35:05

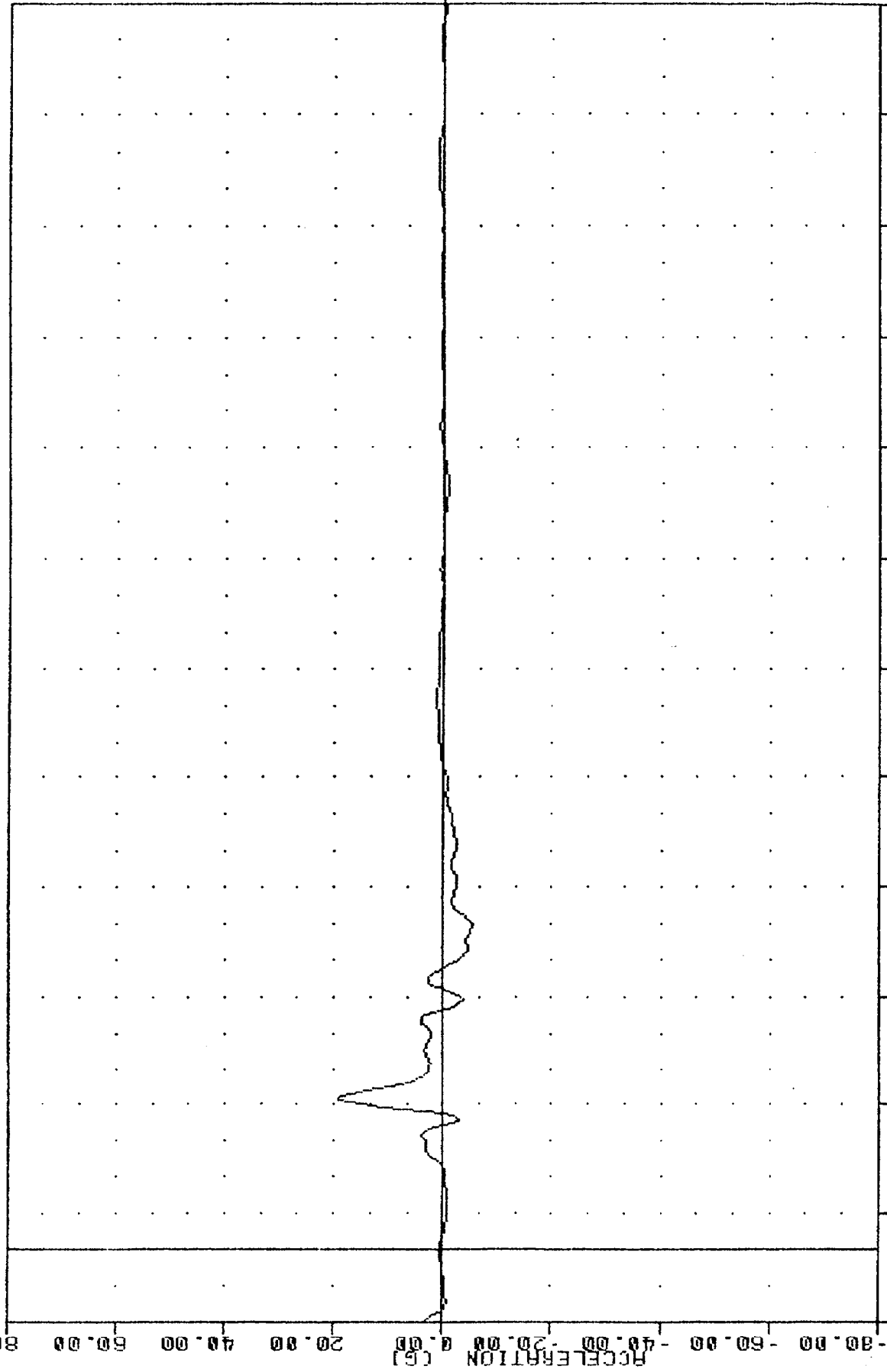
FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -23.358 64.38, 101.50 38.75



MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER LOWER SPINE ACCELERATION #2 Y AXIS

TRC ██████████, 840109 ██████████ PLUT DATE ██████████ 11-JAN-84 ██████████ 11:35:05
 SIDE PROTECTION - 2DR/4DR
 64009000000
 T12ZG3

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -5.50e 88.75, 19.21 e 41.25

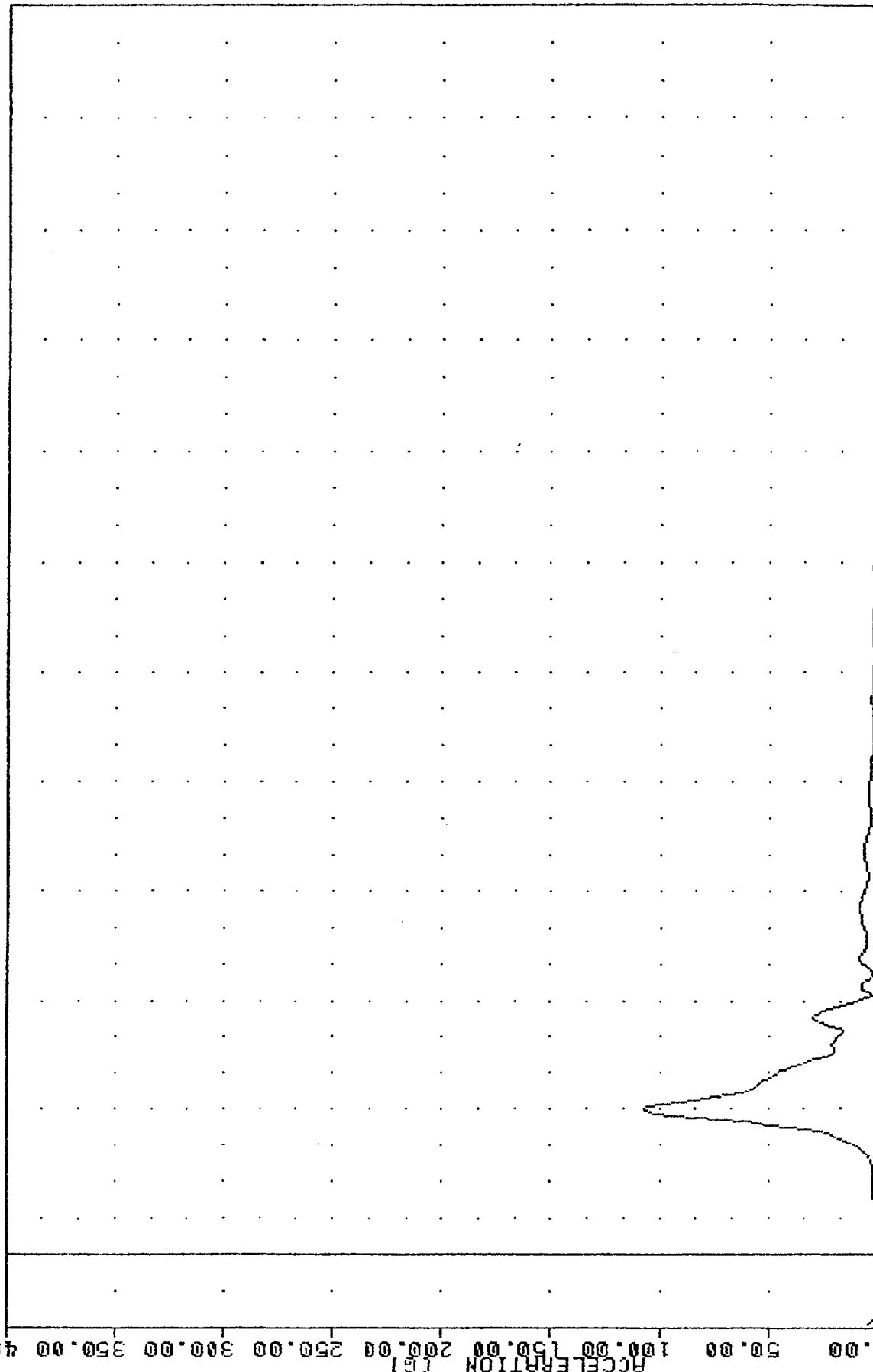


-80.00 -60.00 -40.00 -20.00 0.00 20.00 40.00 60.00 80.00
 -20.00 10.00 40.00 70.00 100.00 130.00 150.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER LOWER SPINE ACCELERATION Z AXIS

IRC 840109 840109 11-JUN-84 11:35:00

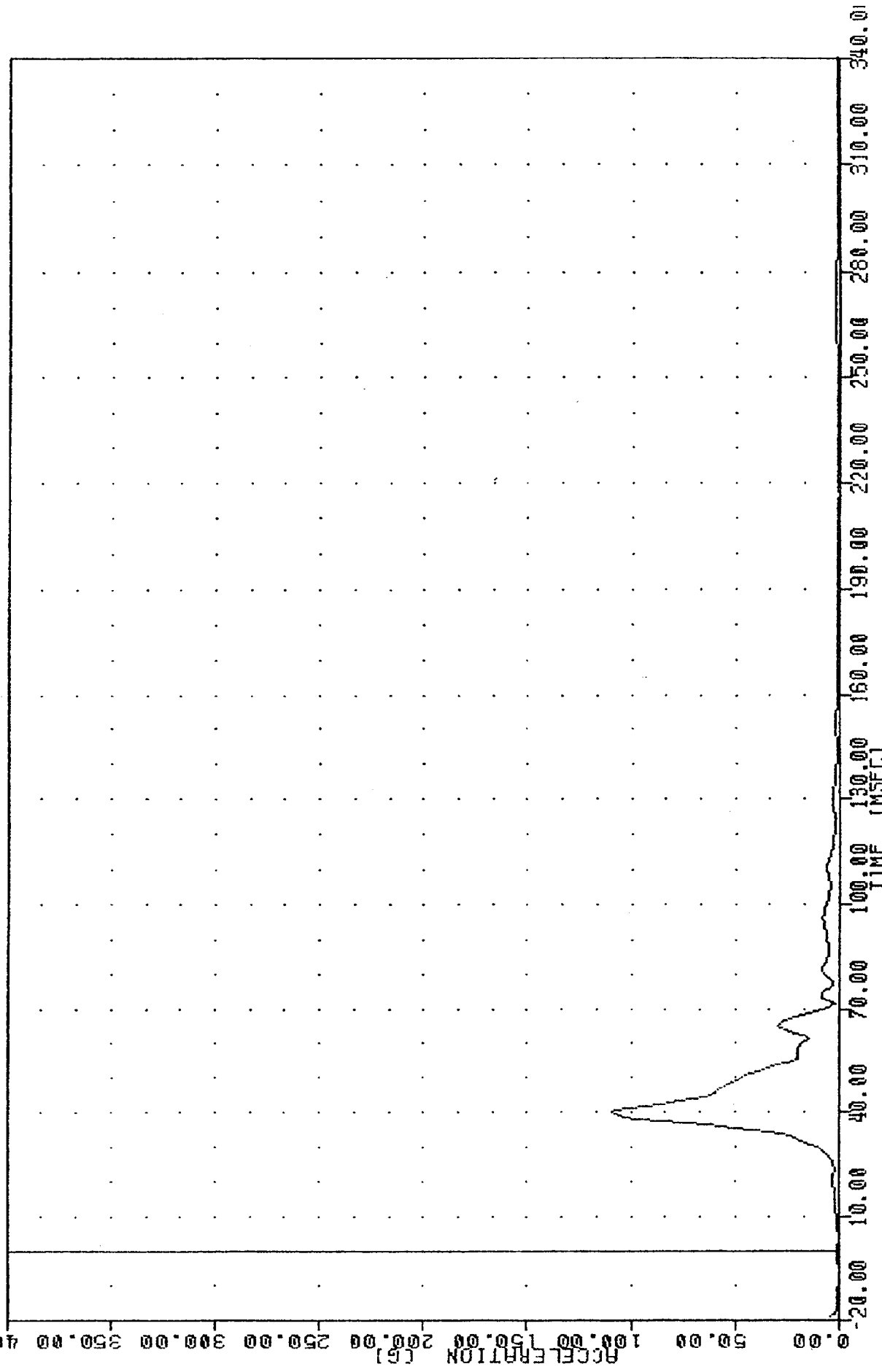
84009000000
712R63
SIDE PROTECTION - 20R/40R
FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = 0.05# -6.88, 107.30 e 39.38



ACCELERATION (G)
TIME (MSEC)
-20.00 10.00 0.00 50.00 100.00 150.00 200.00 250.00 300.00 350.00 400.00
0.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER LOWER SPINE RESULTANT

TRC ██████████ PLOT DATE 11-JAN-84 12:47:04
 840109
 SIDE PROTECTION - 2DR/4DR
 84009000000
 T12R63
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.09# -6.88, 109.25 e 39.38



MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER LOWER SPINE RESULTANT USING T12YGC

TRC 840109

SIDE PROTECTION - 2DR/4DR

84009000000

T12YV3

PLU1 DATE

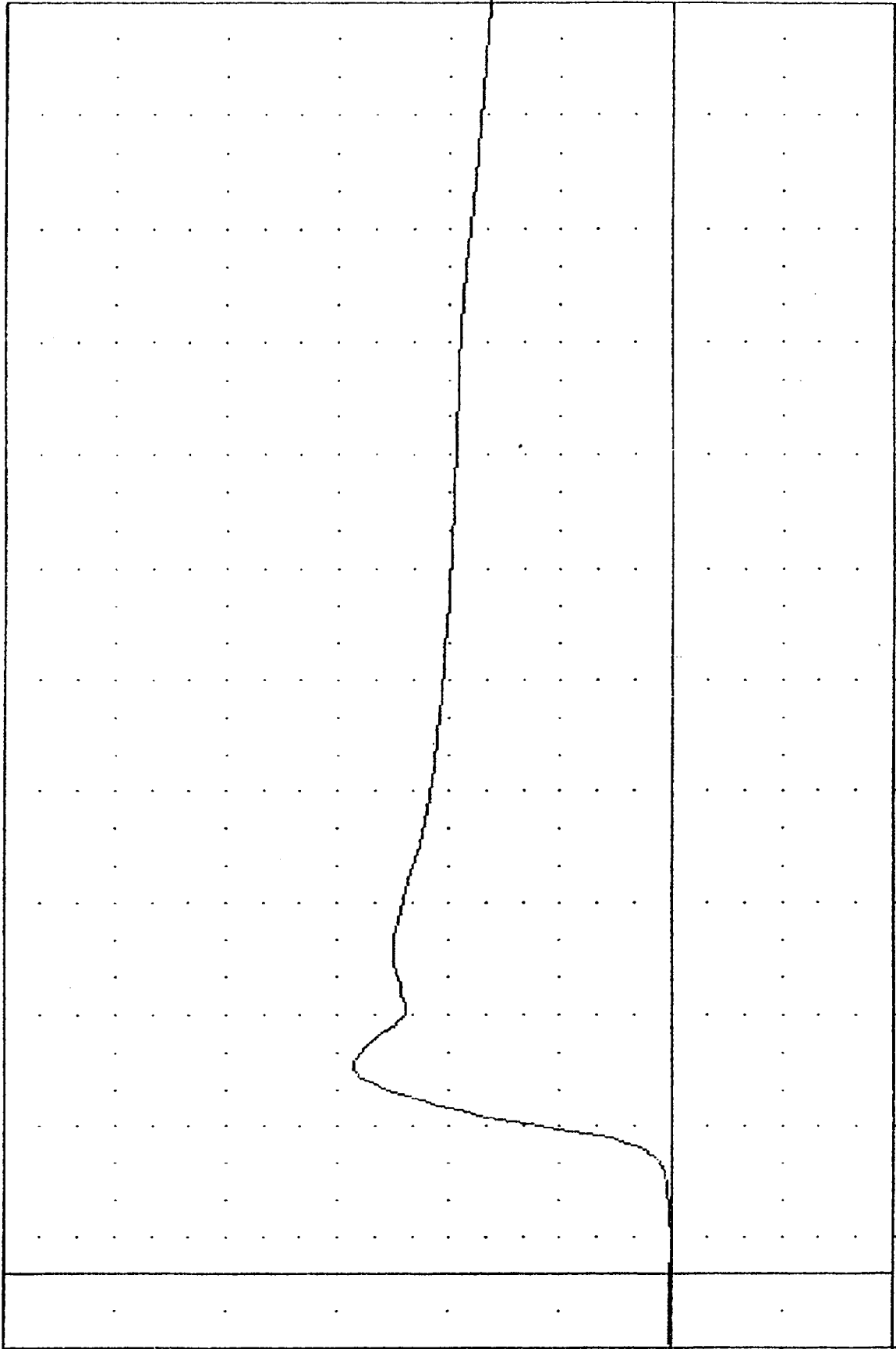
11-JAN-84

12:47:29

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.02e 8.75, 26.59 e 55.63

VELOCITY (MPH) 60.00 50.00 40.00 30.00 20.00 10.00 0.00 -10.00 -20.00



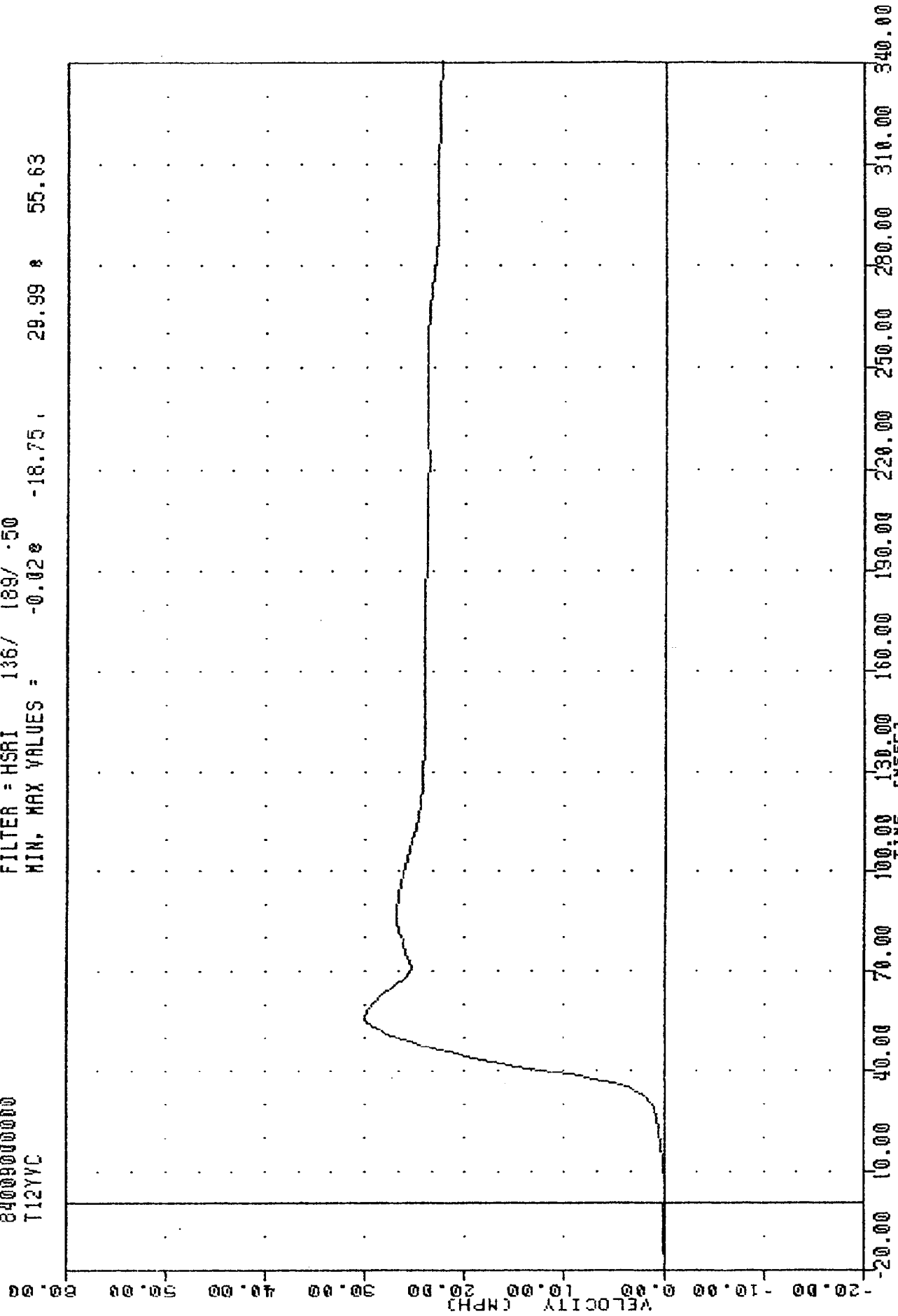
TIME (CMSECT) 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING T12Y63

TAC 840109
 SIDE PROTECTION - 20R/40R
 8400900000
 T12YVC

PLOT DATE 11-JUN-84 12:47:29

FILTER = HSRI 136/ 189/ .50
 MIN. MAX VALUES = -0.02e -18.75 , 29.99 e 55.63

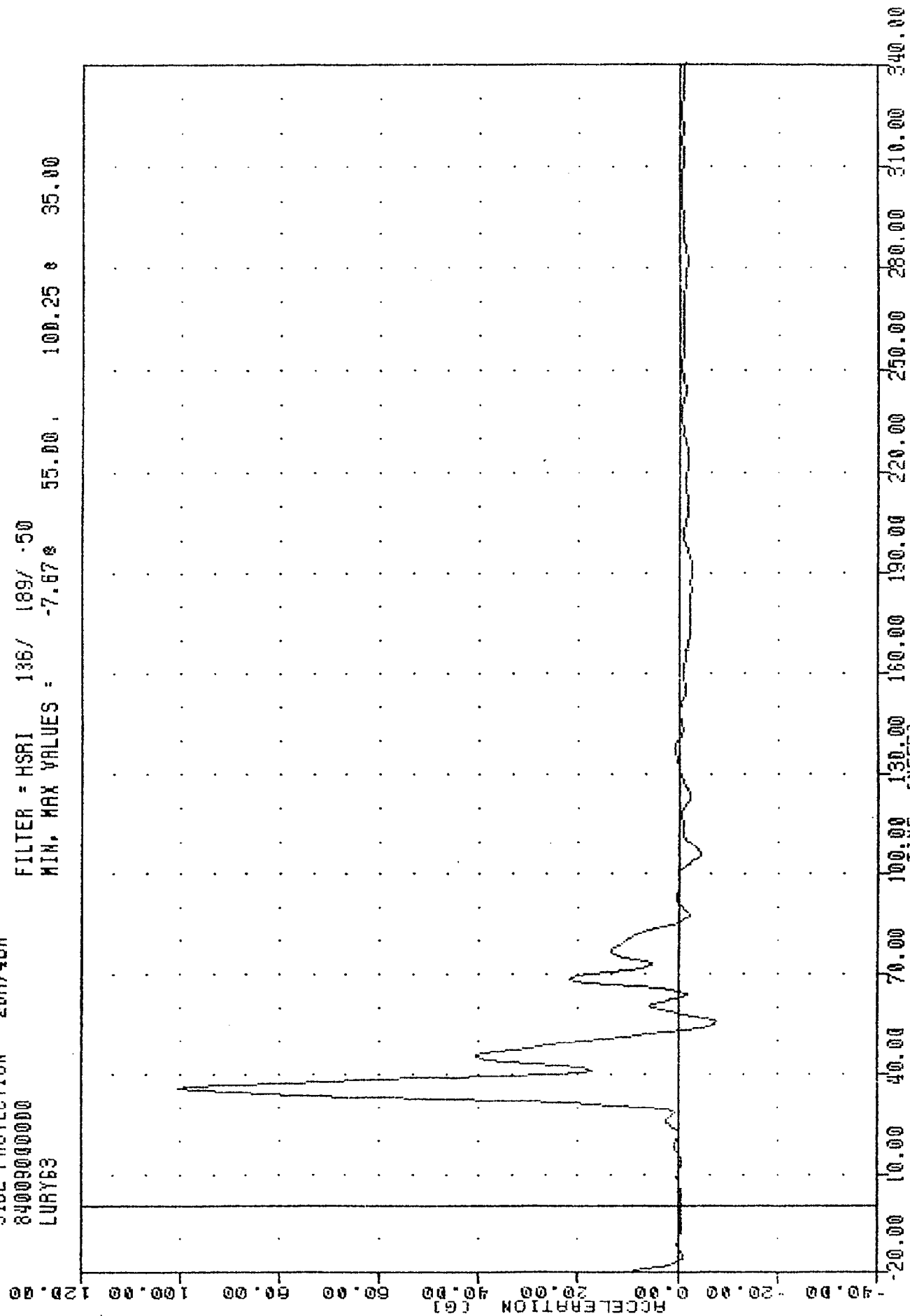


MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING T12YVC

TRC
840109
SIDE PROTECTION - 20R/4DR
8400000000
LURY63

PLU/ DATE 11-JUN-84 11:35:00

FILTER = HSRI 136/ 189/ .50
MIN, MAX VALUES = -7.67g 55.00, 100.25 & 35.00



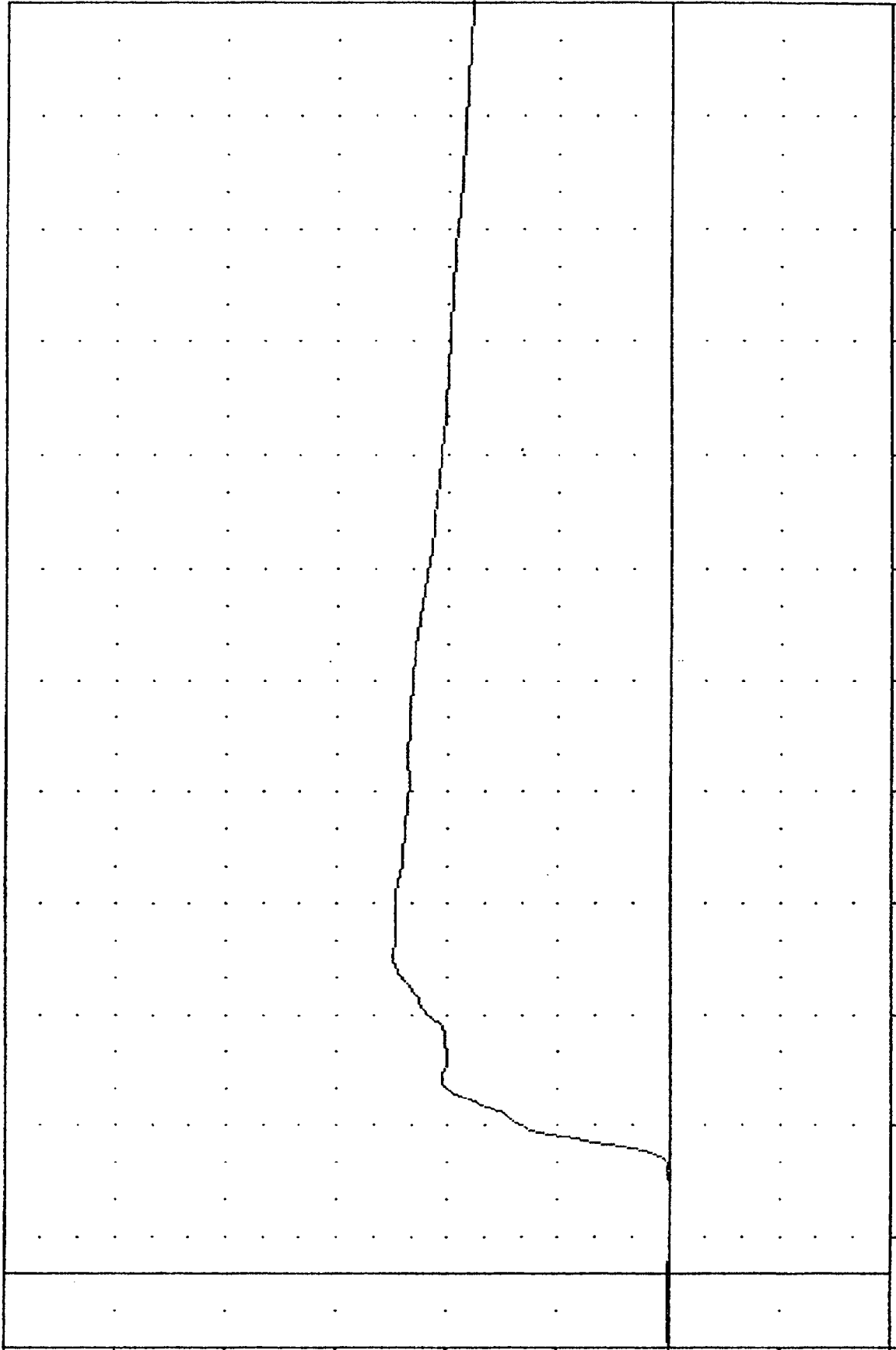
MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER LEFT UPPER RIB ACCELERATION Y AXIS

TRC
840109
SIDE PROTECTION - 20R/4DR
84009000000
LURYV3

PLUT DATE 11-JAN-84 12:47:29

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -0.098 15.63, 24.90 & 85.00

VELOCITY (MPH)



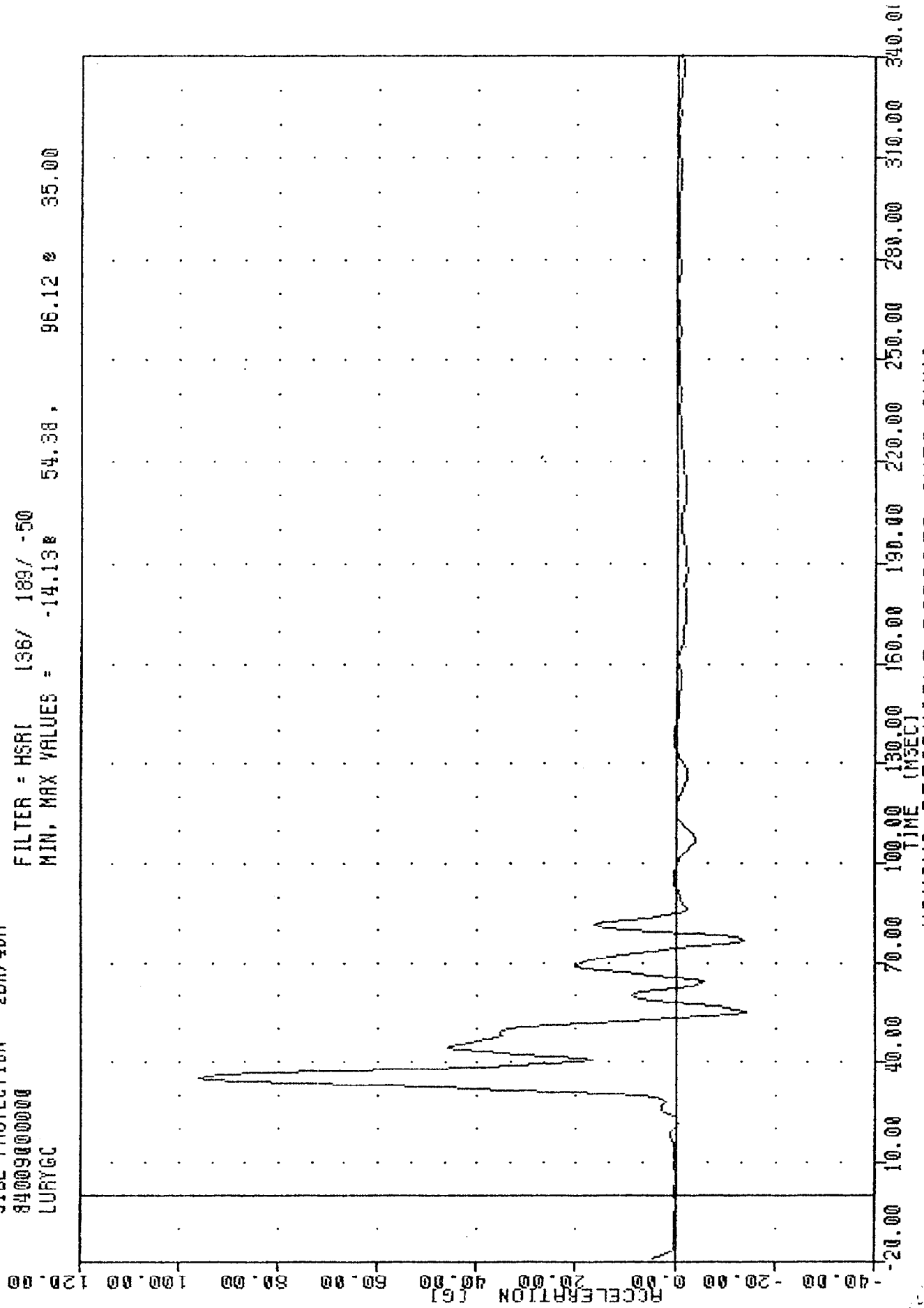
-20.00 10.00 20.00 30.00 40.00 50.00 60.00

MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LURYG3

TRC
840109
SIDE PROTECTION - 2DR/4DR
84009000000
LURYGC

PLUI DATE 11-JAN-84 11:35:05

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -14.13 54.38, 96.12 35.00

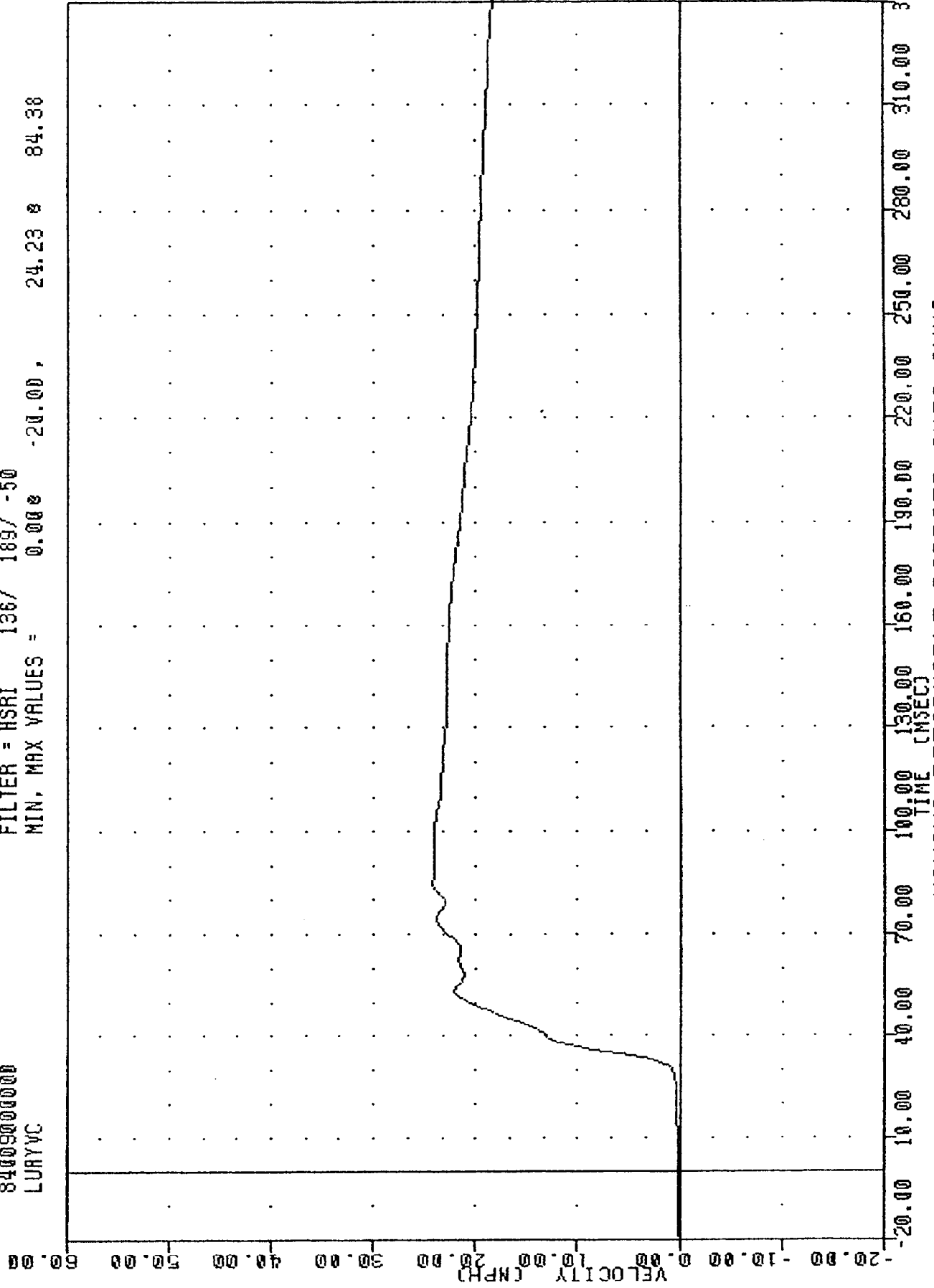


MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER LEFT UPPER RIB ACCELERATION #2 Y AXIS

TRC
840109
SIDE PROTECTION - 2DR/4DR
8400900000
LURYVC

PLOT DATE 11-JAN-84 12:47:29

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = 0.000 -20.00 , 24.23 8 84.30



MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LURYVC

TRC 840109

PLUT DATE 11-JAN-84 11:35:05

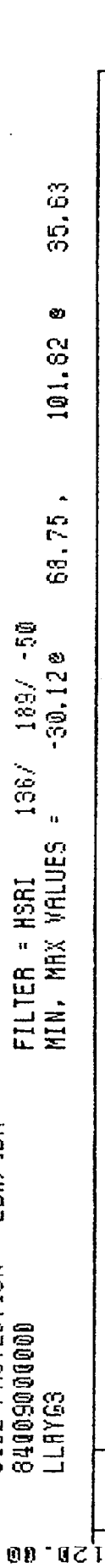
SIDE PROTECTION - 2DR/4DR

84009000000

LLRYG3

FILTER = HSRI 138/ 189/ -50

MIN, MAX VALUES = -30.12e 68.75, 101.62 e 35.63



MOVING DEFORMABLE BARRIER INTO OMNI PASSENGER LEFT LOWER RIB ACCELERATION Y AXIS

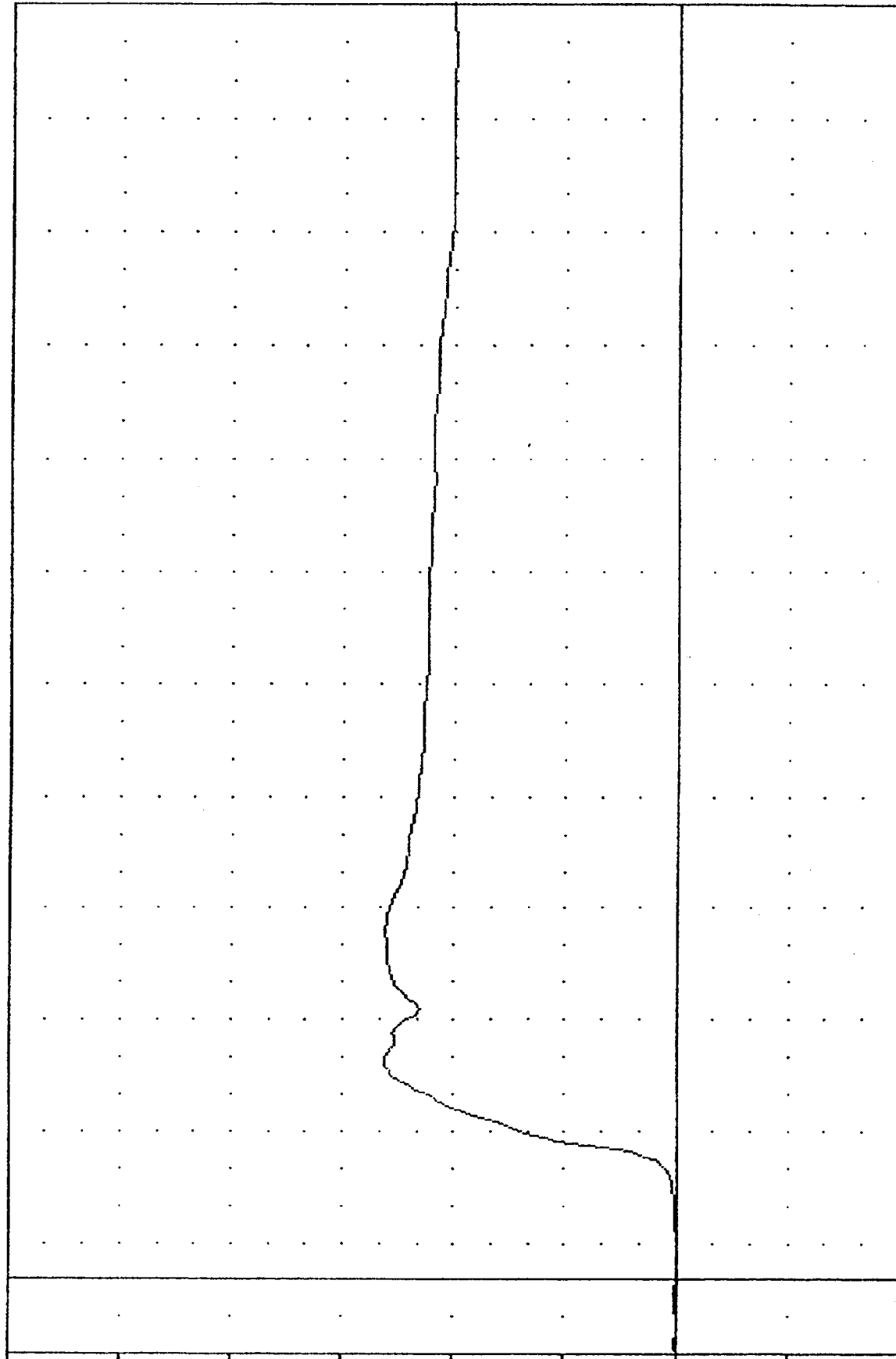
TAC 840108

840090000000
SIDE PROTECTION - 20R/4DR

PLOT DATE 11-JAN-84 12:47:28

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.08 4.38 26.27 58.13

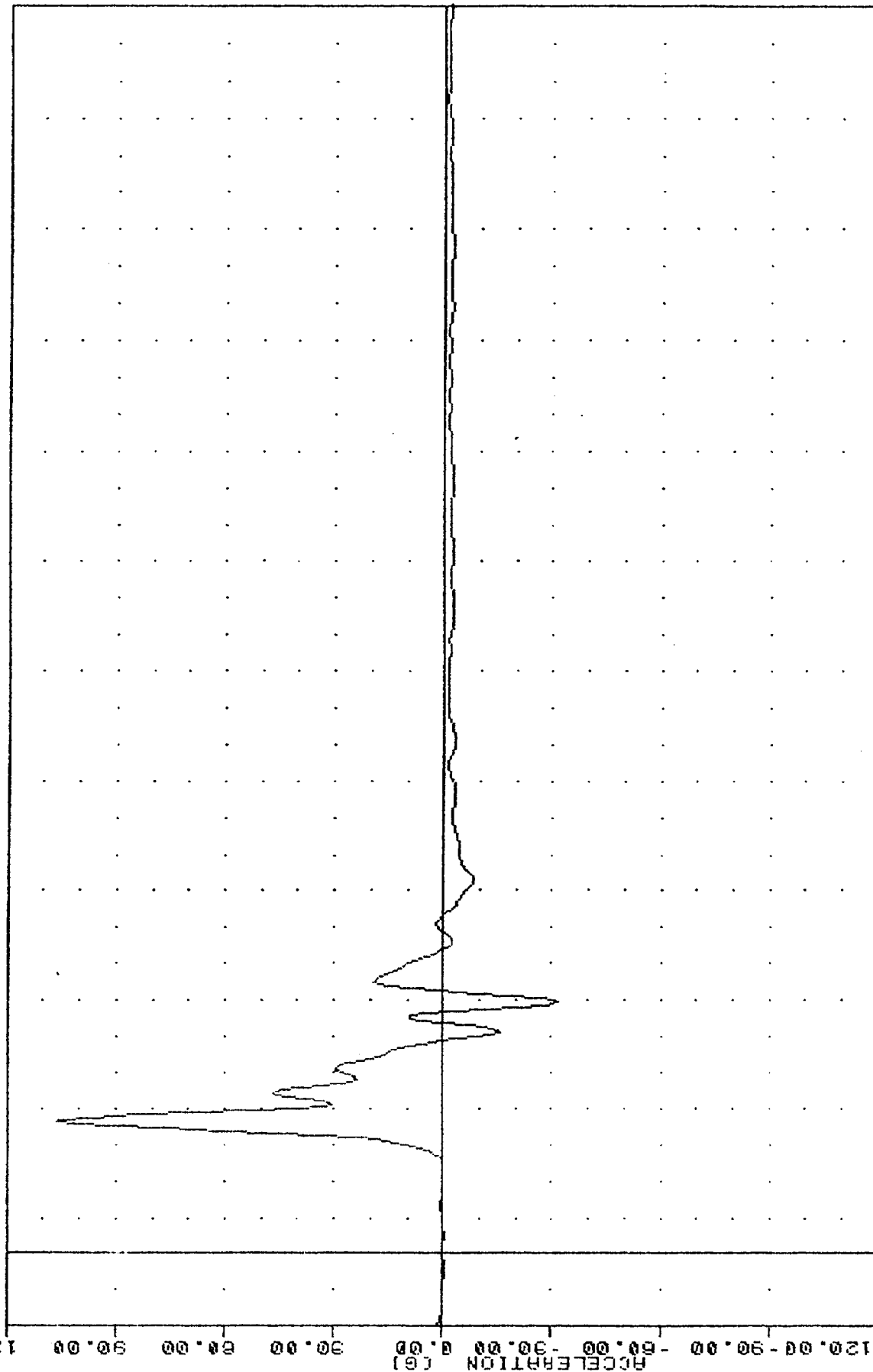
VELOCITY (MPH)



-20.00 10.00 20.00 30.00 40.00 50.00 60.00
0.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00

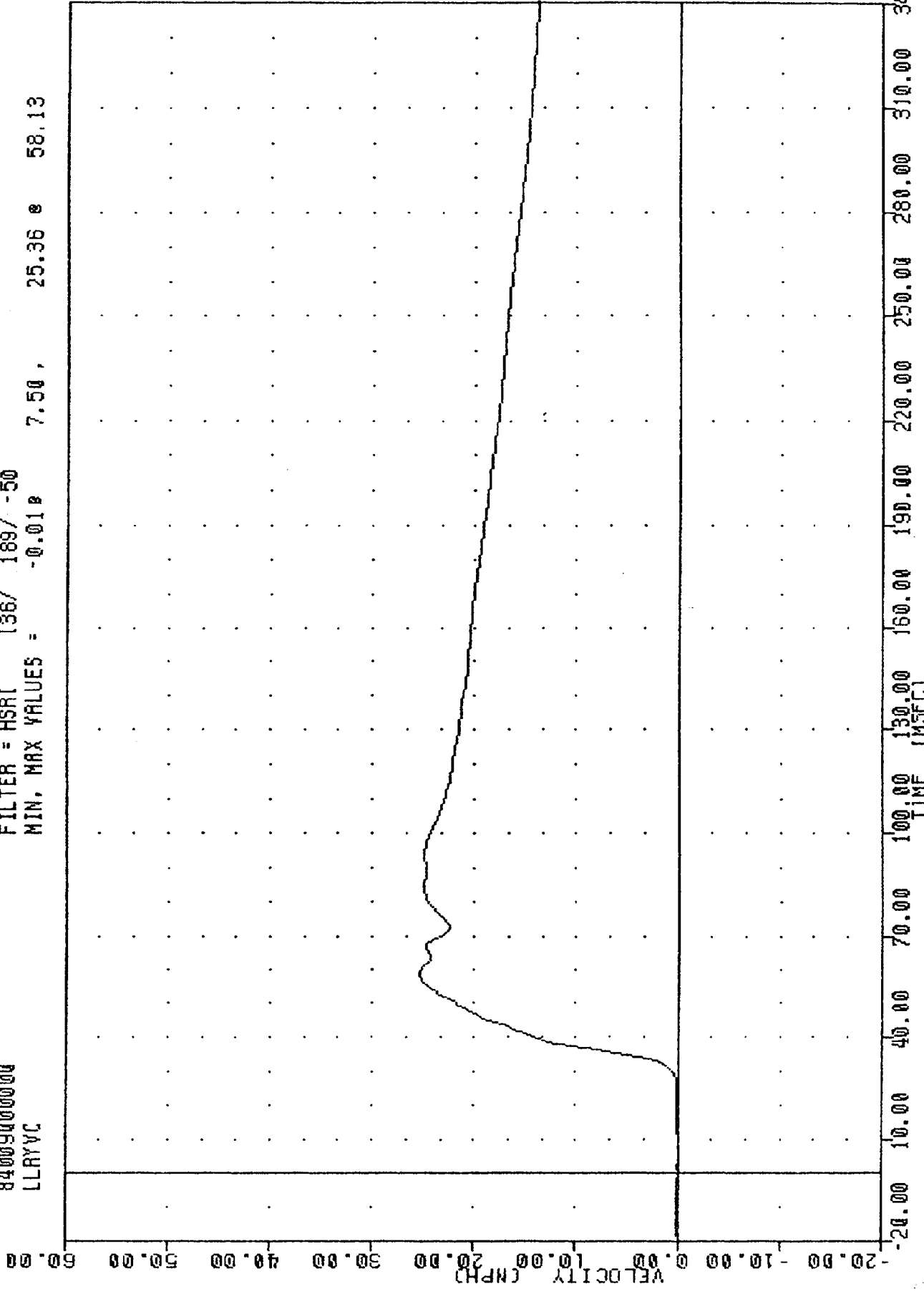
MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LRLY63

TAC 840109, 840109 PLOT DATE 11-JUN-84 11:35:05
 SIDE PROTECTION - 20R/40R
 84009000000
 LLY6C
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -31.86 68.75, 106.67 35.63



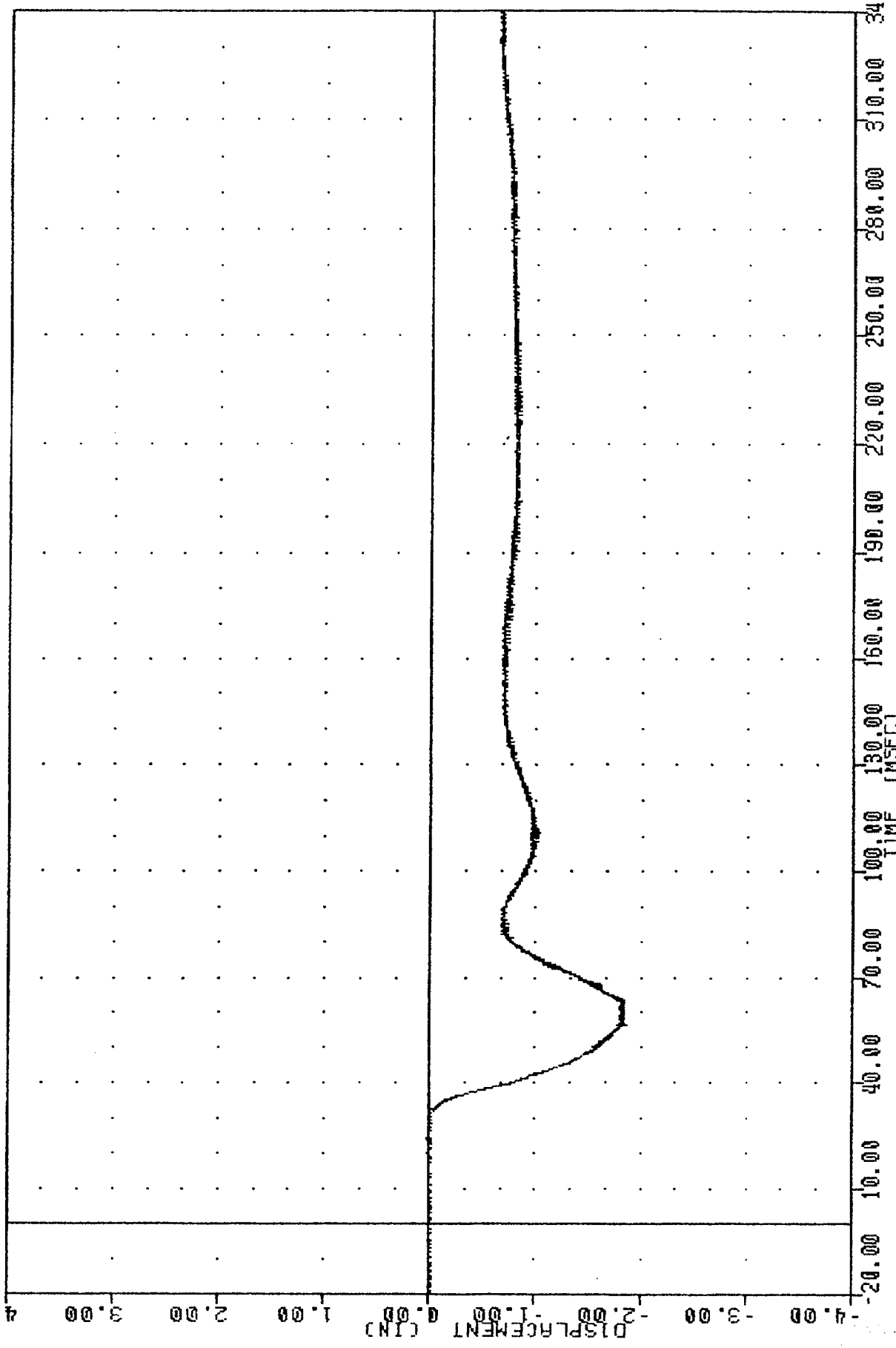
ACCELERATION (G)
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER LEFT LOWER RIB ACCELERATION #2 Y AXIS

THC [REDACTED] 840109 [REDACTED] PLUT DATE 11-JAN-84 12:47:29
 SIDE PROTECTION - 2DR/4DR
 84009000000
 LLRYVC
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.010 7.50 , 25.36 0 58.13



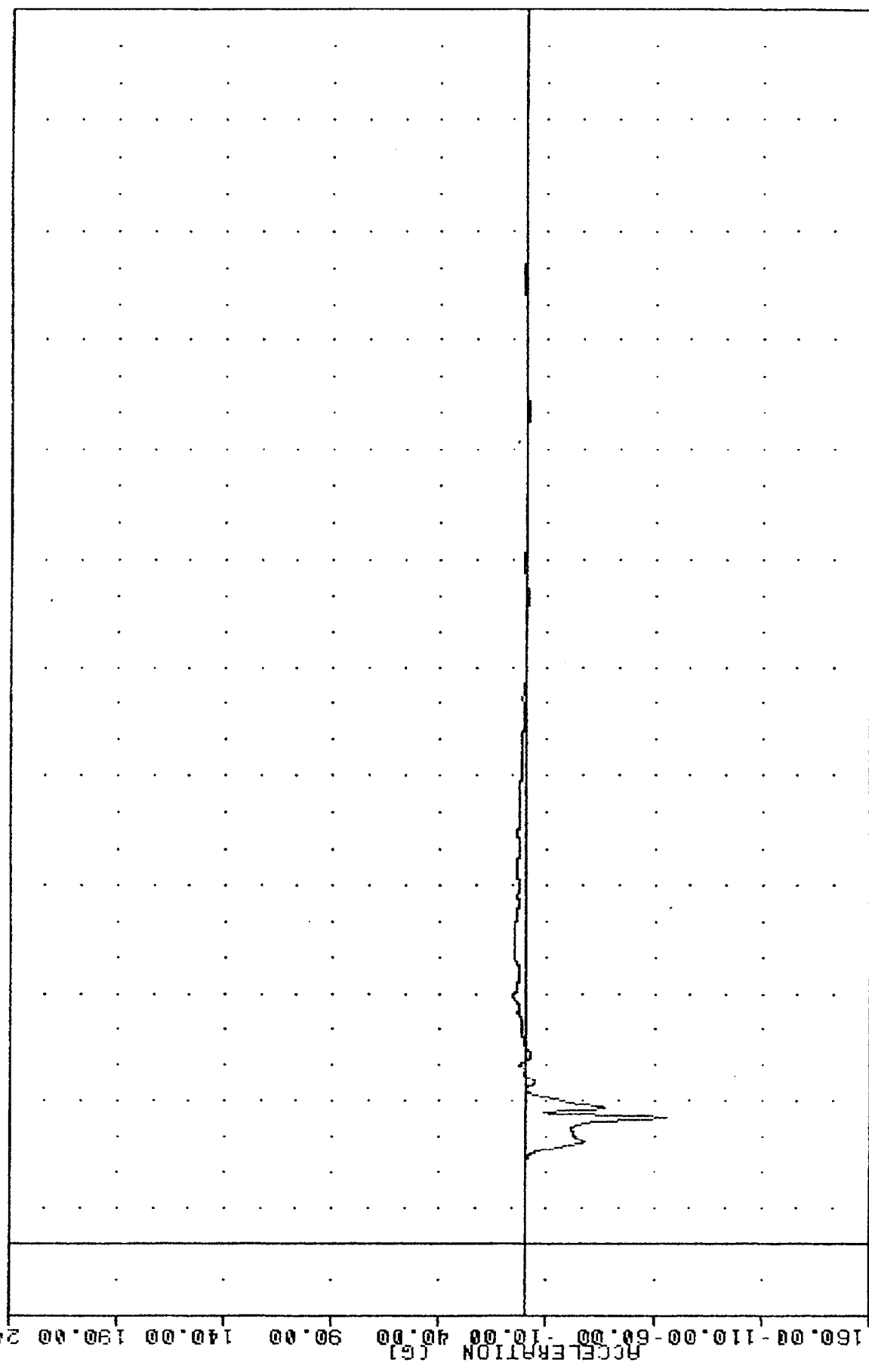
MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LLRYGC

THE [REDACTED] 840109 [REDACTED] PLOT DATE 11 JUN 84 12:46:23
 SIDE PROTECTION - 20R/40R
 8400900000
 LRTY03
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -1.85e 56.63, 0.02 e 24.00



MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER LEFT RIB TO SPINE DISPLACEMENT INCHES

THE [REDACTED] 840109 [REDACTED] PLOT DATE 11 JUN 84 12:48:29
 SIDE PROTECTION - 2DR/4DR
 84009000000
 PEVXG3
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -65.33 6.09 69.00



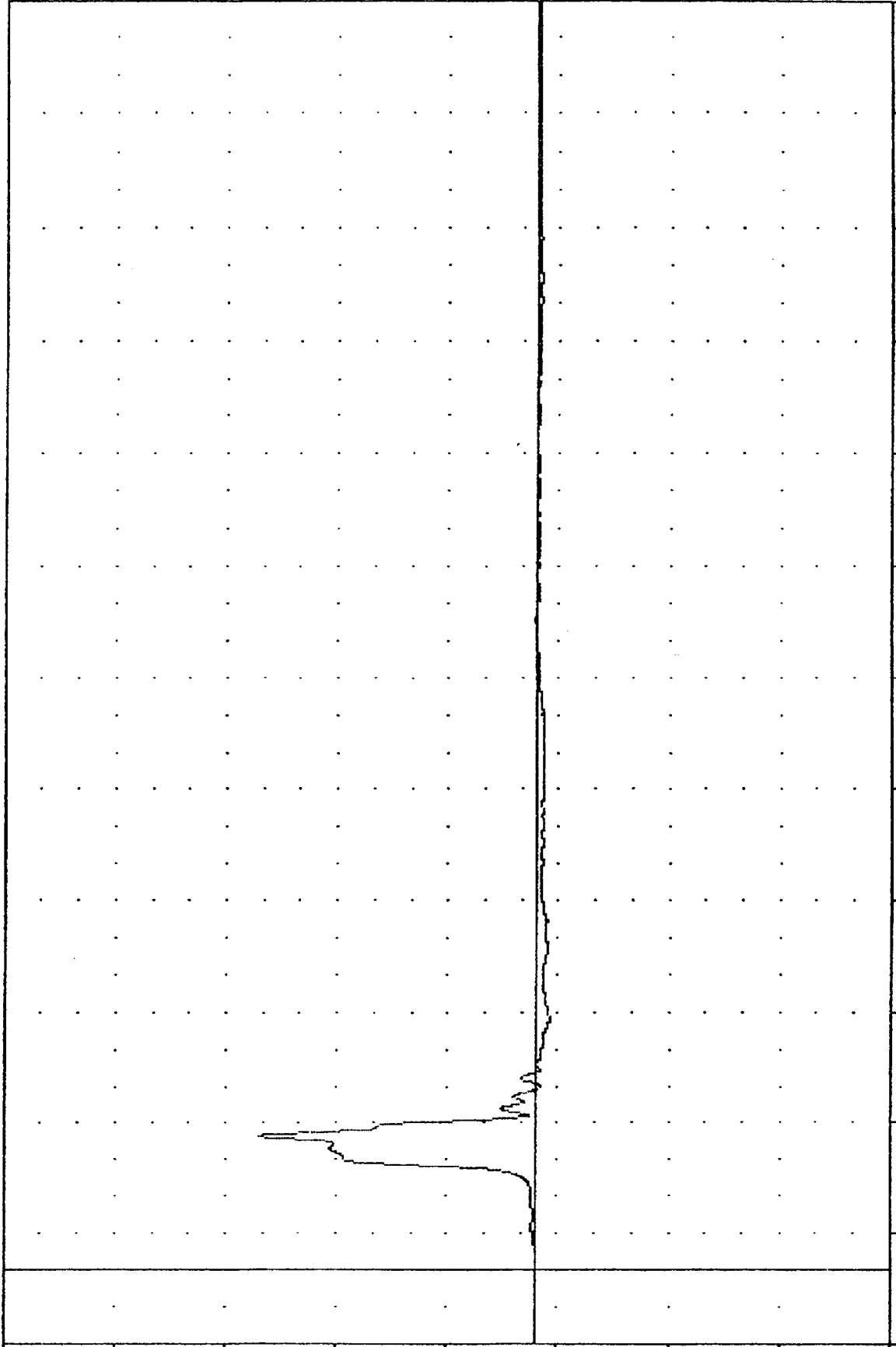
-160.00 -110.00 -60.00 -10.00 40.00 90.00 140.00 190.00 240.00
 ACCELERATION (G)
 -20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER PELVIS ACCELERATION X AXIS

THU 040109
SIDE PROTECTION - 2DR/4DR
8409000000
PEYYG3

PLUT DATE 11-JAN-84 12:48:29

FILTER = 8LPF 300/ 949/ -40
MIN, MAX VALUES = -6.21e 68.13, 124.98 e 36.50

ACCELERATION (G)



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (MSEC)

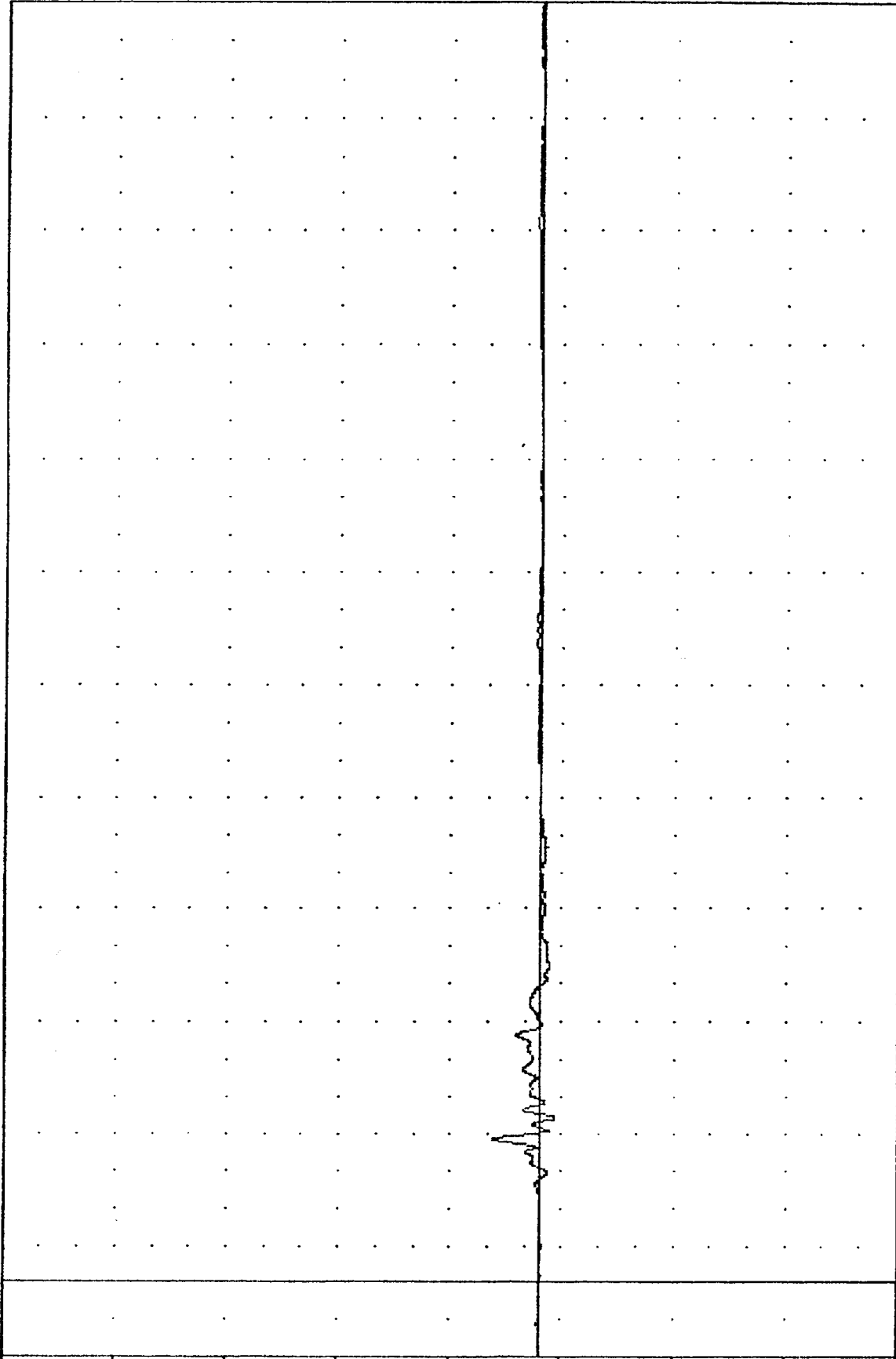
MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER PELVIS ACCELERATION Y AXIS

THU 840109
SIDE PROTECTION - 20R/4DR
84009000000
PEVZ63

PLU1 DATE 11-JUN-84 12:48:29

FILTER = BLPF 300/ 949/ .40
MIN, MAX VALUES = -6.73e 44.00, 20.83 e 38.38

ACCELERATION (G)
-150.00 -110.00 -60.00 -10.00 40.00 90.00 140.00 190.00 240.00



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER PELVIS ACCELERATION Z AXIS

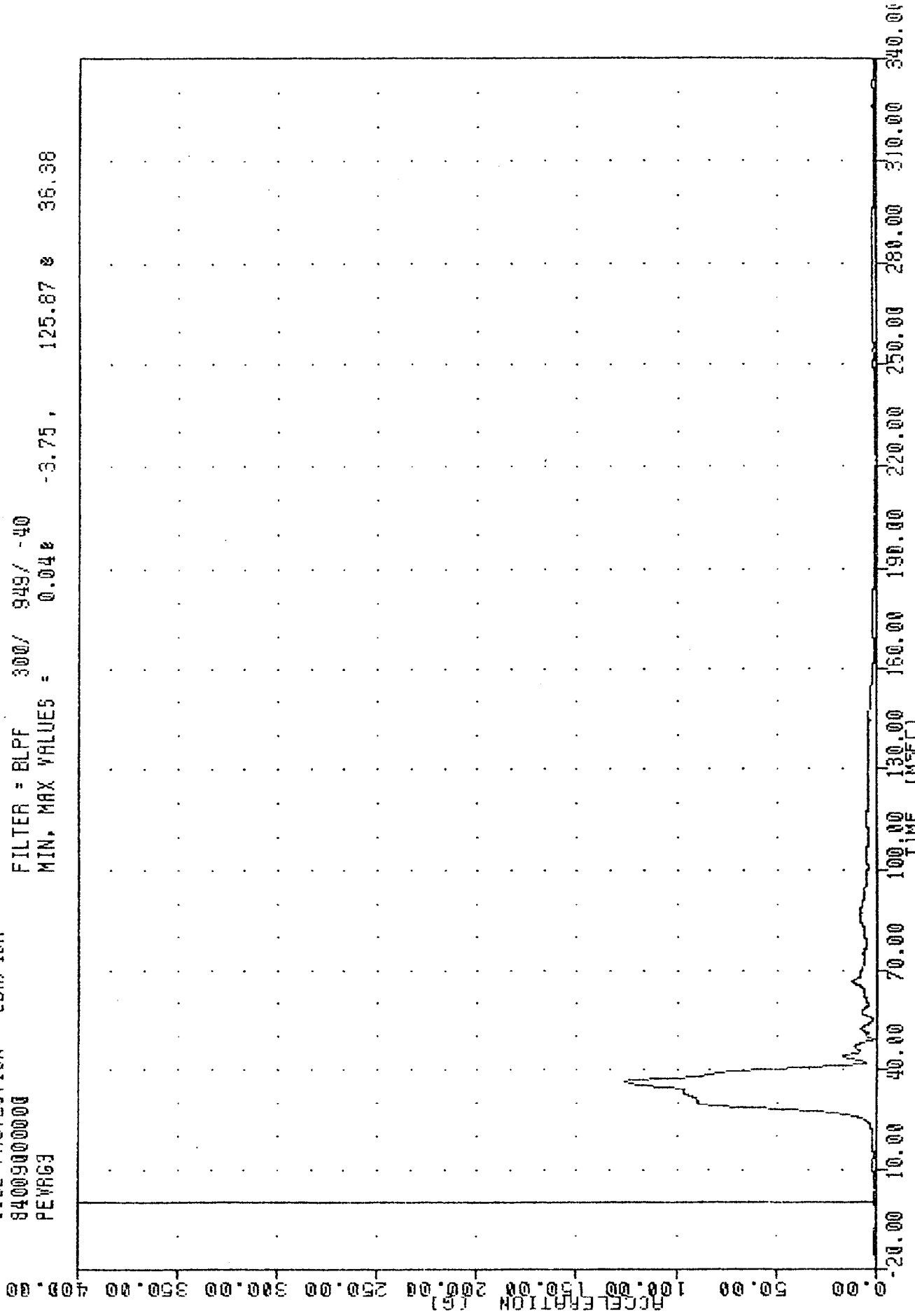
TKL 840105 11-JAN-84 14:15:01

84009000000
SIDE PROTECTION - 20R/40R

PEVRG3

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 0.048 -3.75, 125.87 & 36.38

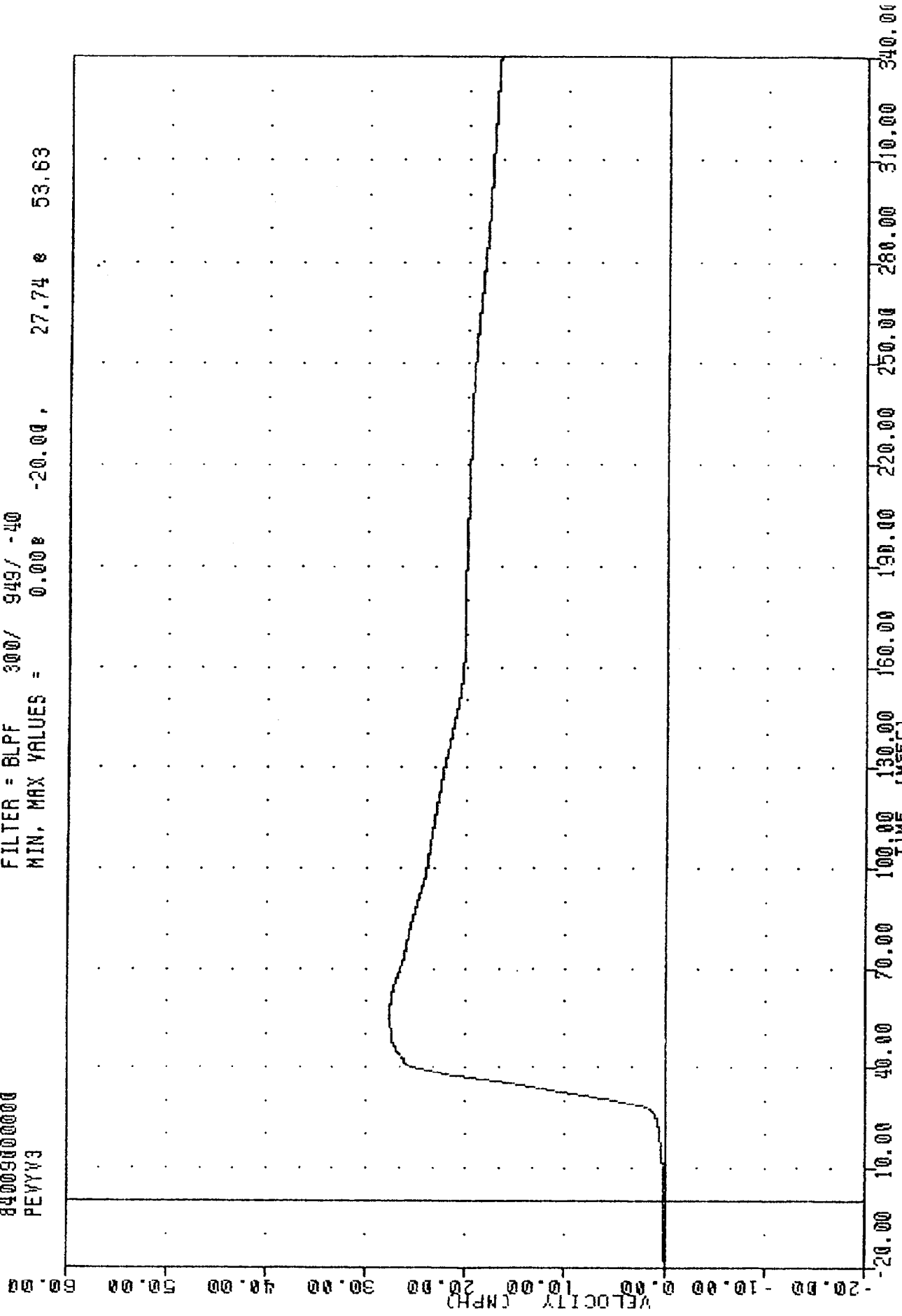


MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER PELVIS RESULTANT

TFC
840109
SIDE PROTECTION - 2DR/4DR
84009000000
PEVYV3

PLUT DATE 11-JAN-84 12:49:44

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = 0.000 -20.00 , 27.74 0 53.63

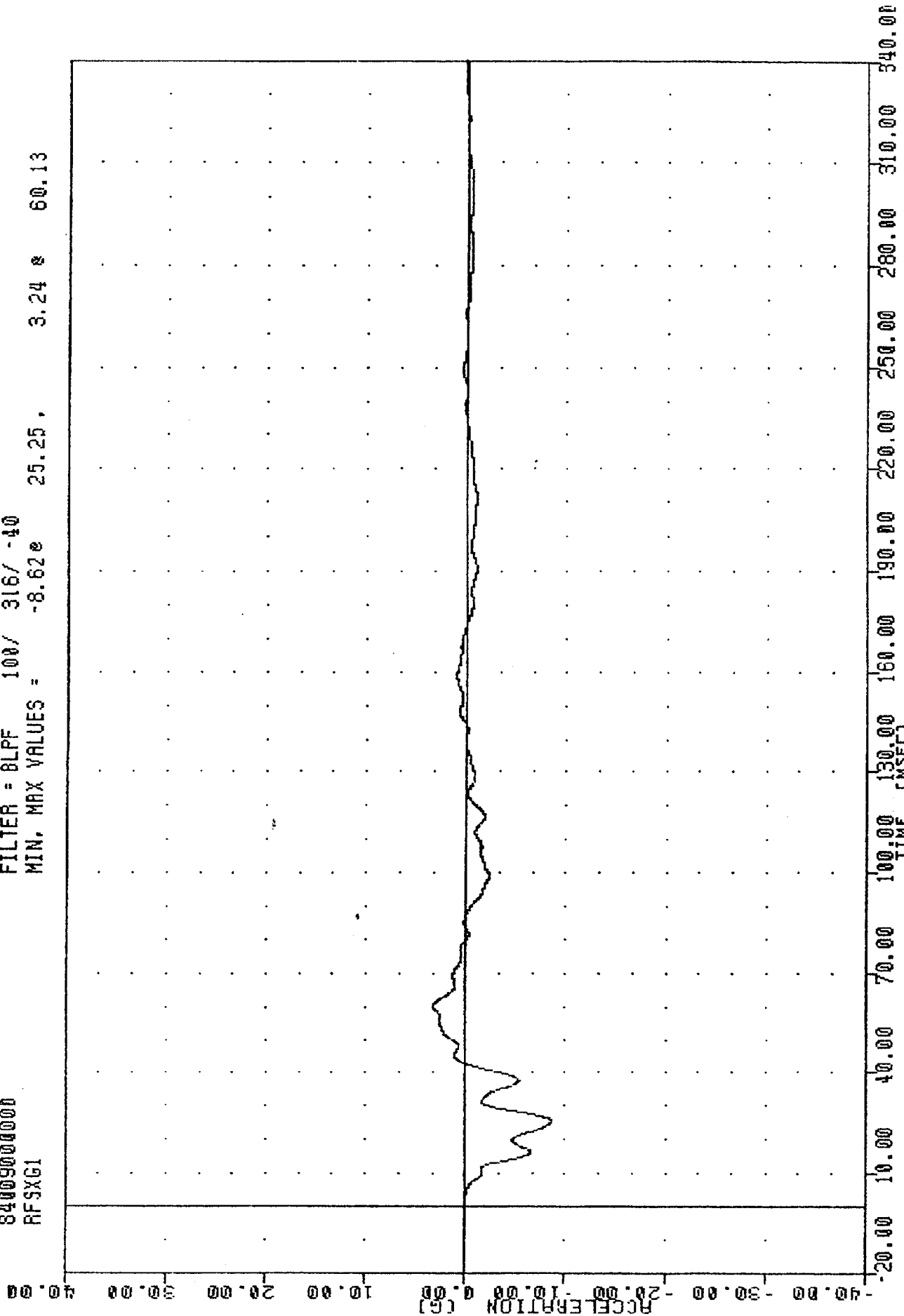


MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING PEVYG3

THC
840109
SIDE PROTECTION - 20R/4DR
84009000000
RFSXG1

PLUT DATE 11-JAN-84 12:48:29

FILTER = 8LPF 100/ 316/ -40
MIN, MAX VALUES = -8.62e 25.25, 3.24 e 60.13

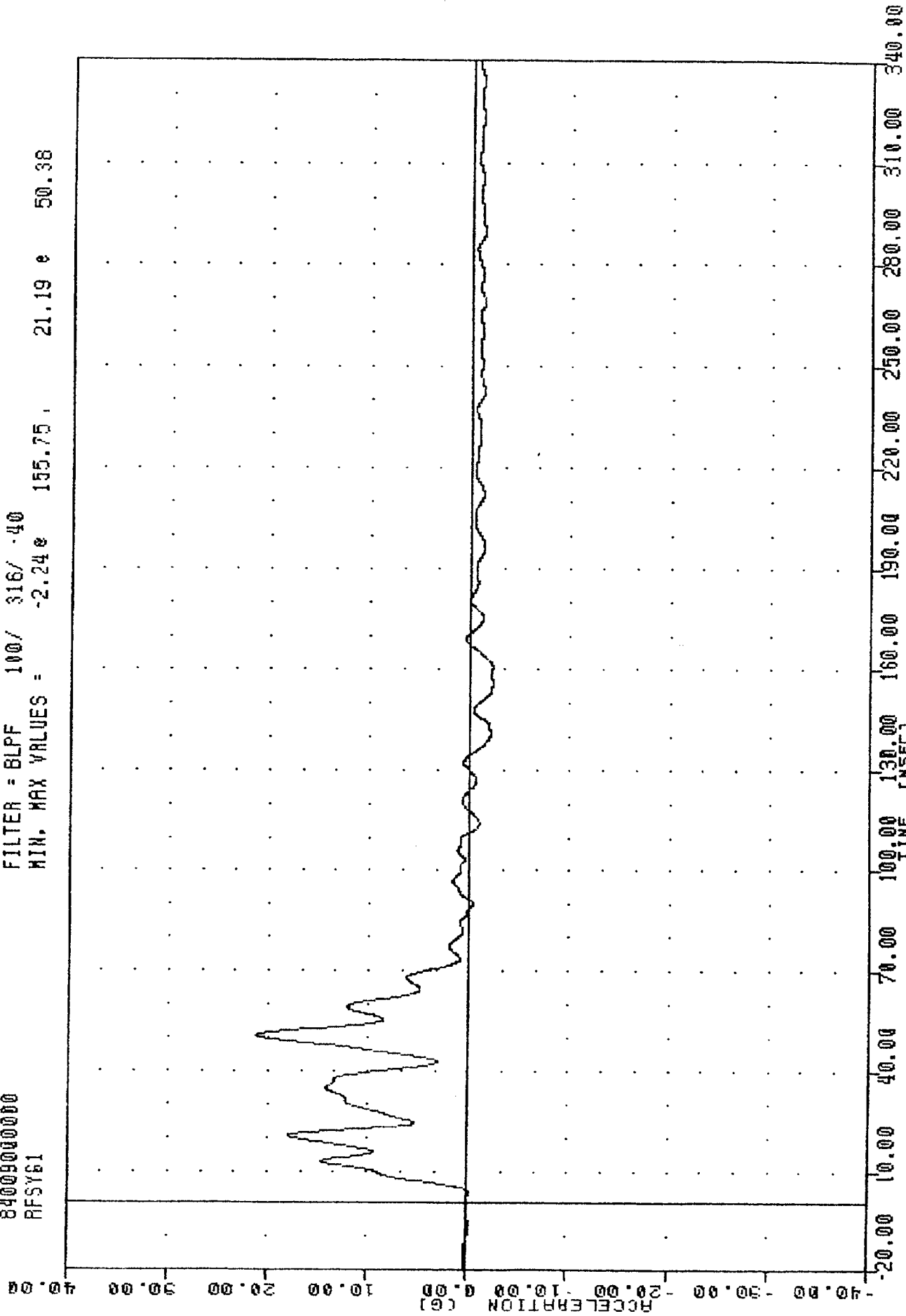


MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT FRONT SILL ACCELERATION X AXIS

TAC 840109
SIDE PROTECTION - 20R/40R
84009000000
RFSY61

PLUI DATE 11 JUN 84 12:48:29

FILTER = BLPF 100/ 316/ .40
MIN. MAX VALUES = -2.24e 155.75, 21.19 e 50.38

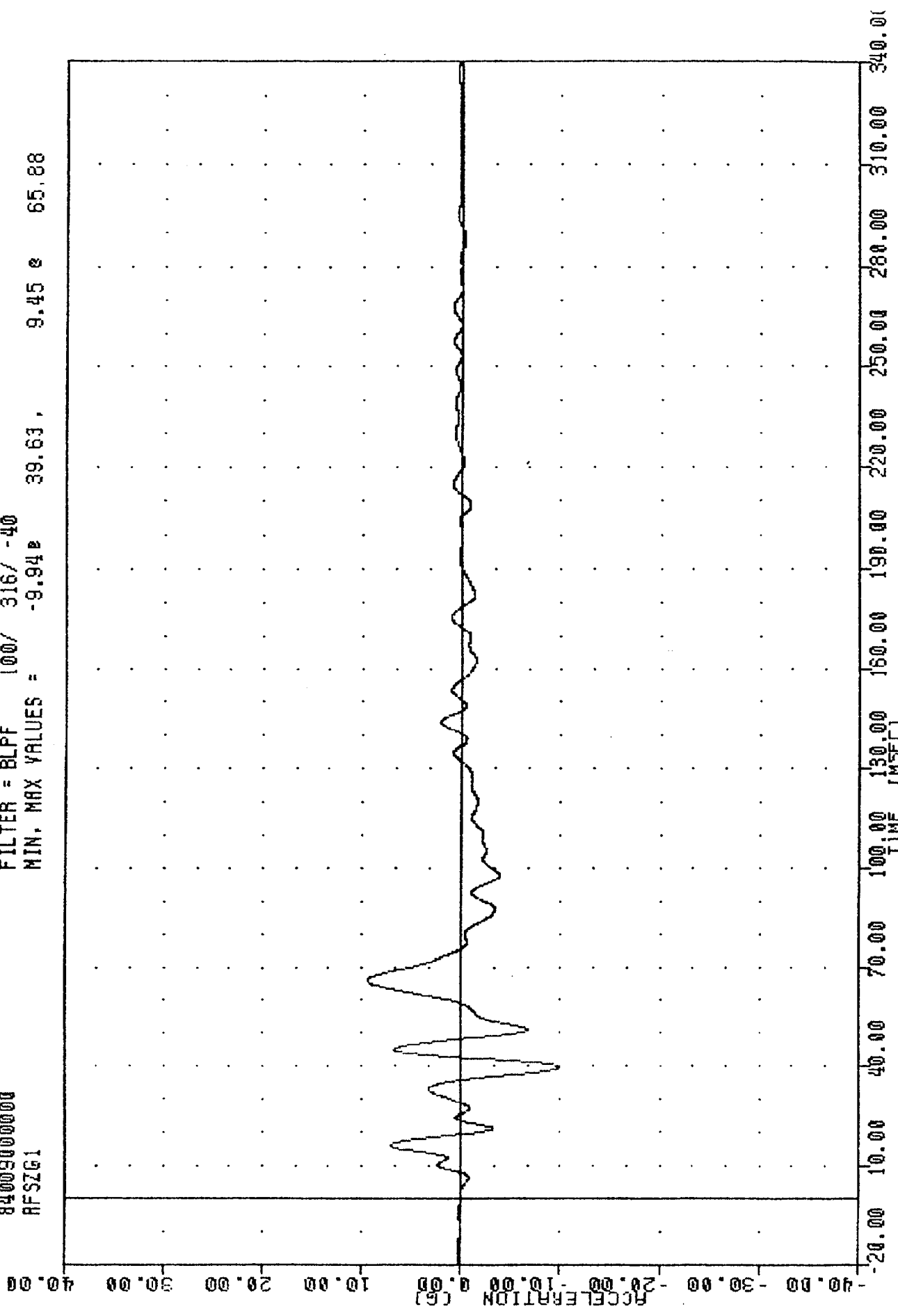


MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT FRONT SILL ACCELERATION Y AXIS

TRC 840109
SIDE PROTECTION - 2DR/4DR
84009000000
AFSZG1

PLU1 DATE 11-JRN-84 12:48:23

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -9.94E 39.63, 9.45 E 65.88



MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT FRONT SILL ACCELERATION Z AXIS

TRC 840109 PLOT DATE 11-JAN-84 14:15:01

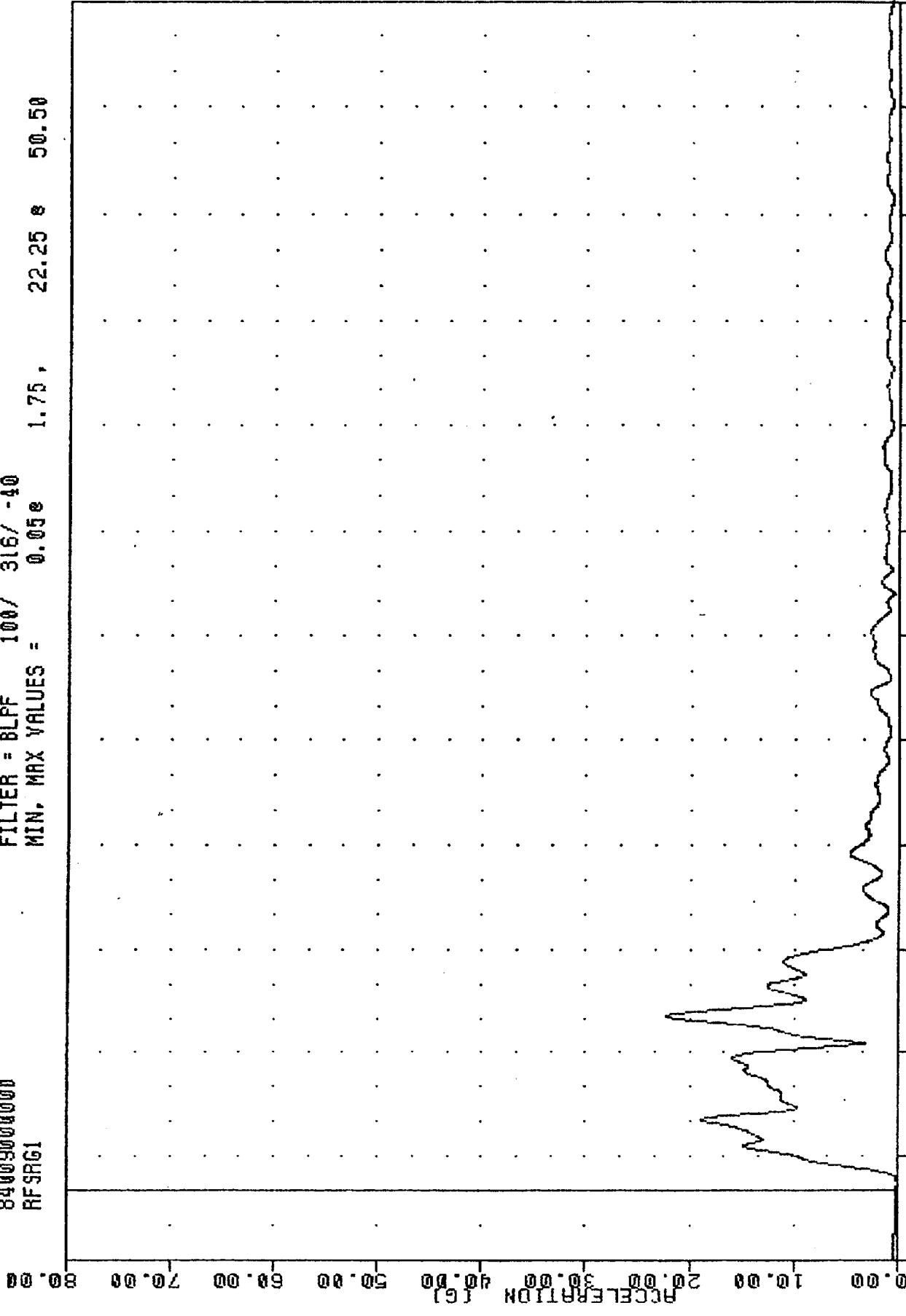
SIDE PROTECTION - 2DR/4DR

84009000000

RFSRG1

FILTER = 8LPF 100/ 316/ -40

MIN. MAX VALUES = 0.05 1.75, 22.25 50.50

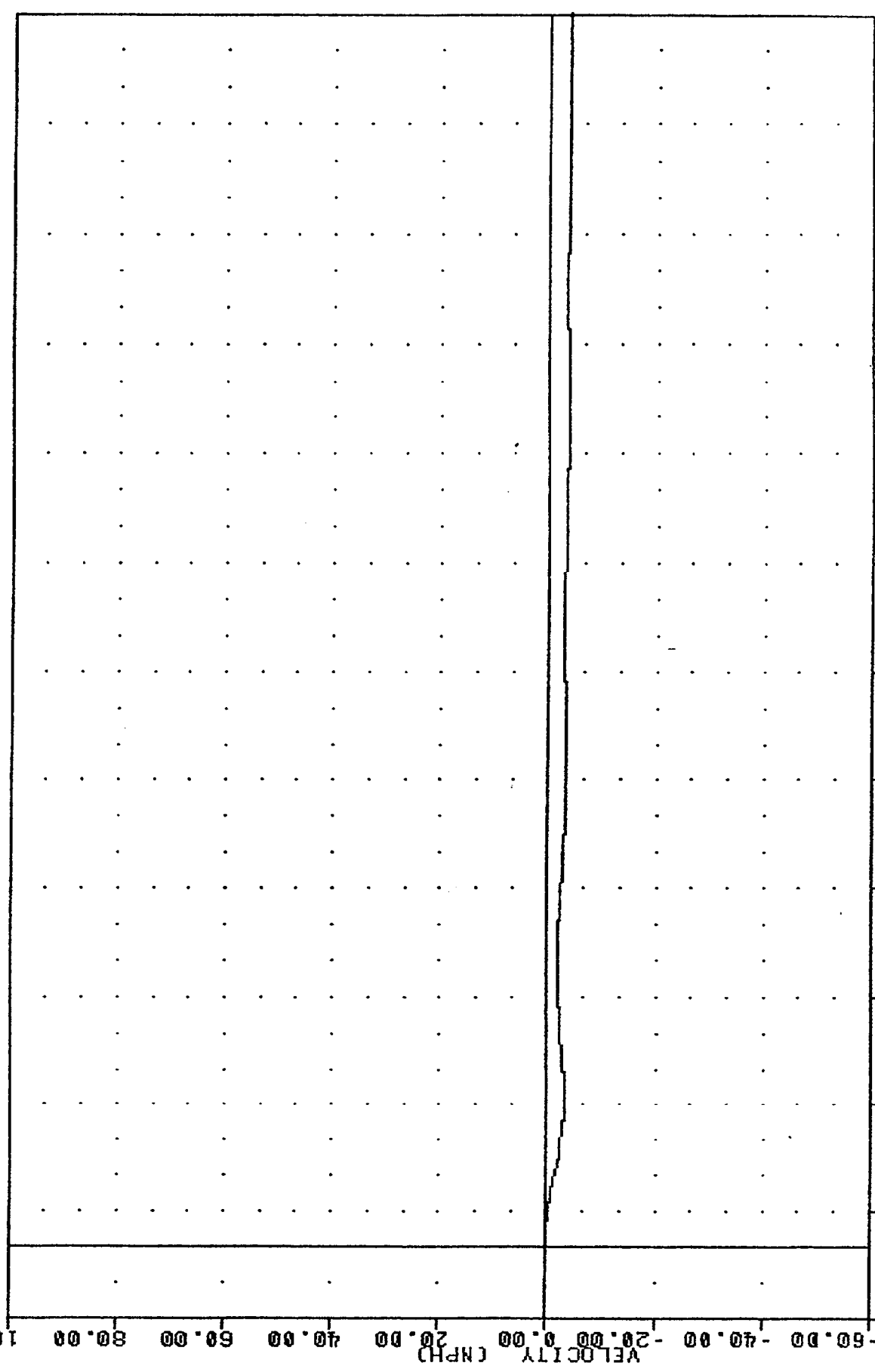


MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT FRONT SILL RESULTANT

TRC [REDACTED], 840109 [REDACTED] PLUT DATE 11-JUN-84 12:49:44 [REDACTED]

SIDE PROTECTION - 20R/4DR
 84009000000
 RFSXV1

FILTER = BLPF 300/ 919/ -40
 MIN. MAX VALUES = -3.68e 309.00, 0.03 e 0.00



MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA Y USING RFSXG1

TAC 840109 11-JAN-84 12:49:44

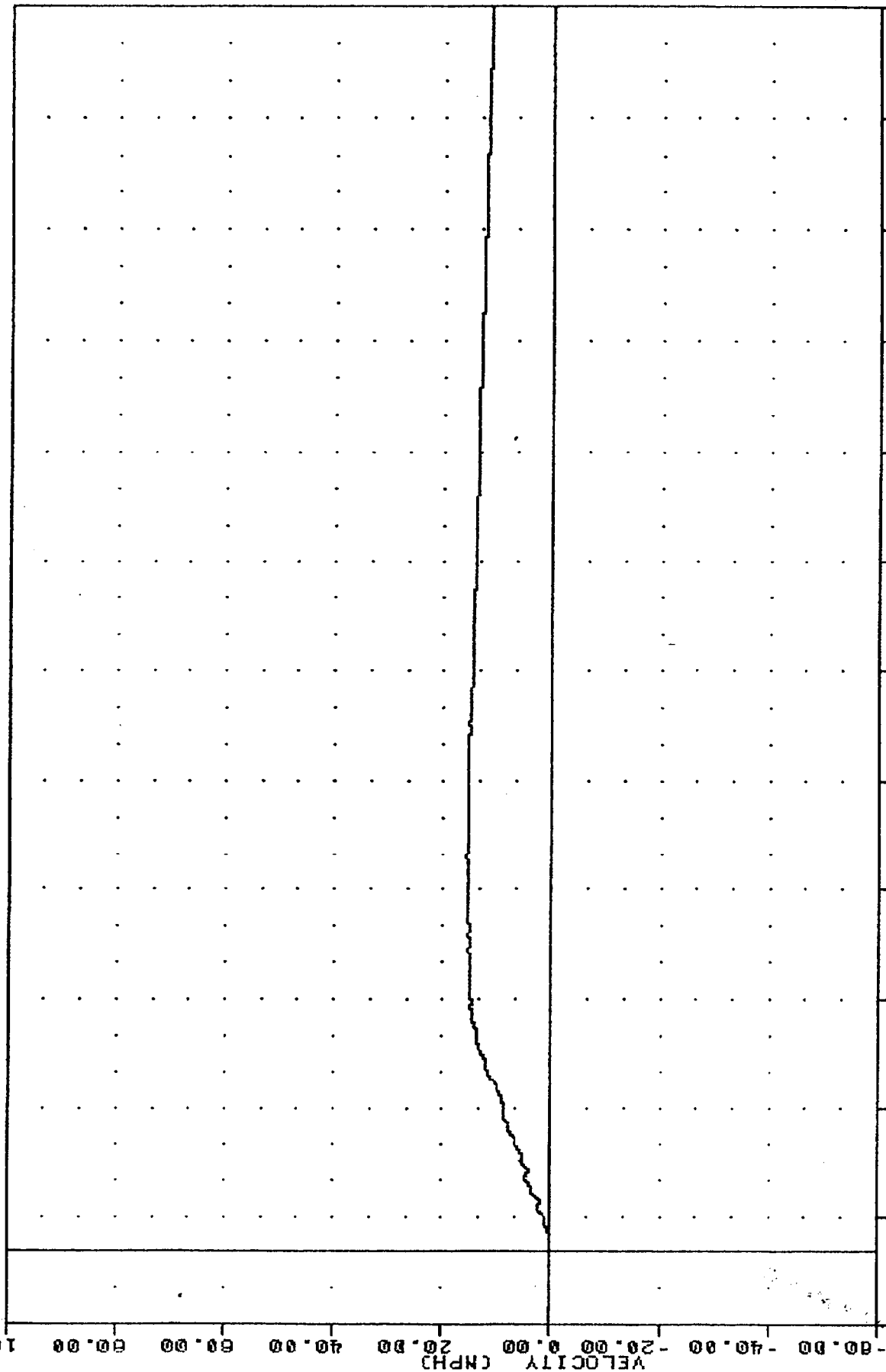
SIDE PROTECTION - 20R/4DR

84009000000

RFSYY1

FILTER = BLPF 300/ 949/ .40

MIN. MAX VALUES = 0.00e -20.00, 15.70 e 109.13

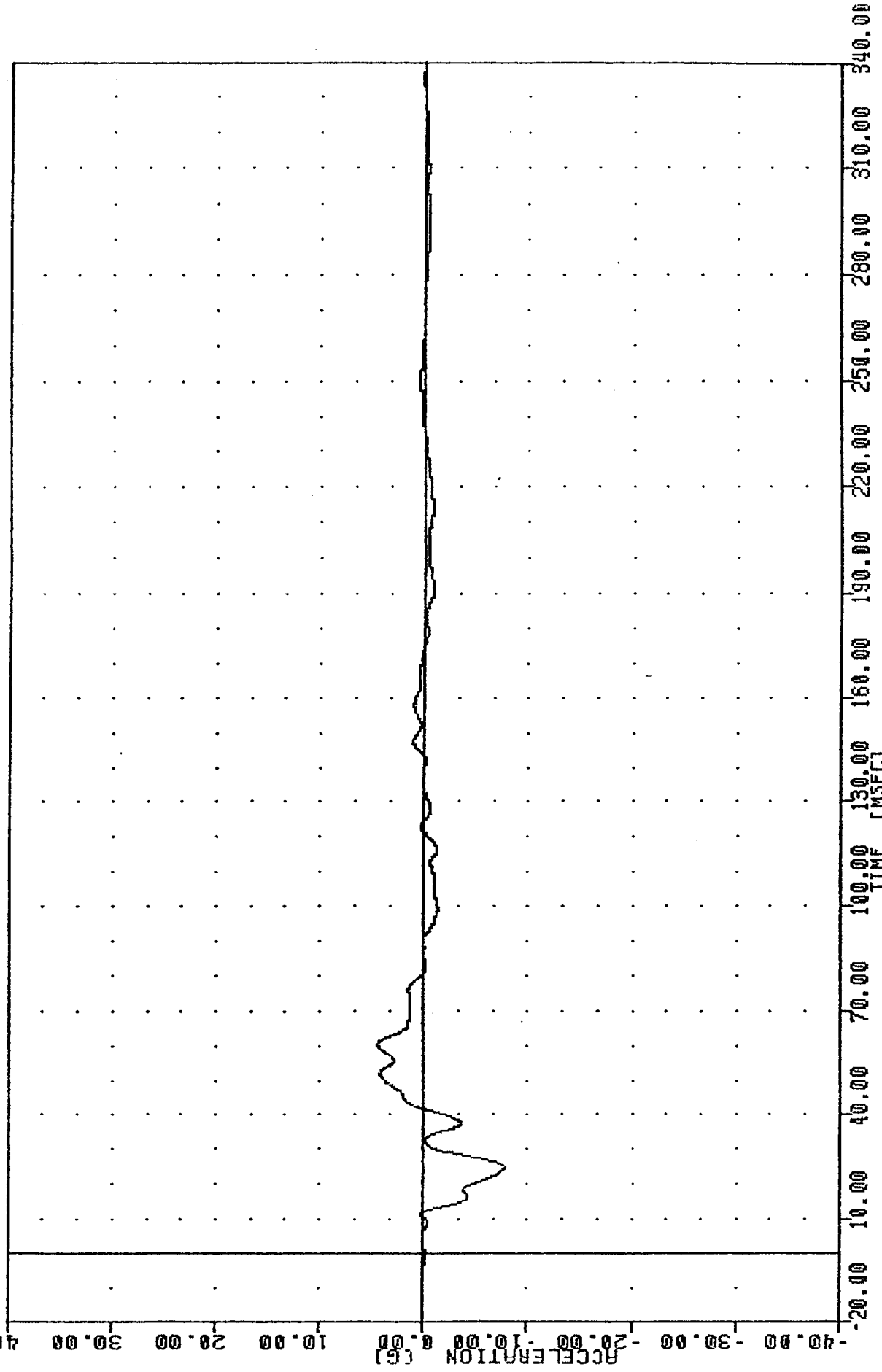


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO OMNI
DELTA Y USING RFSYGI

TRC 840109 PLOT DATE 11-JAN-84 12:48:29
 SIDE PROTECTION - 2DR/4DR
 84009000000
 RRSXG2

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -7.74e 4.45 e 60.13



MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE RIGHT REAR SILL ACCELERATION X AXIS

TAC 840109

SIDE PROTECTION - 20R/4DR

84009000000

RRSY62

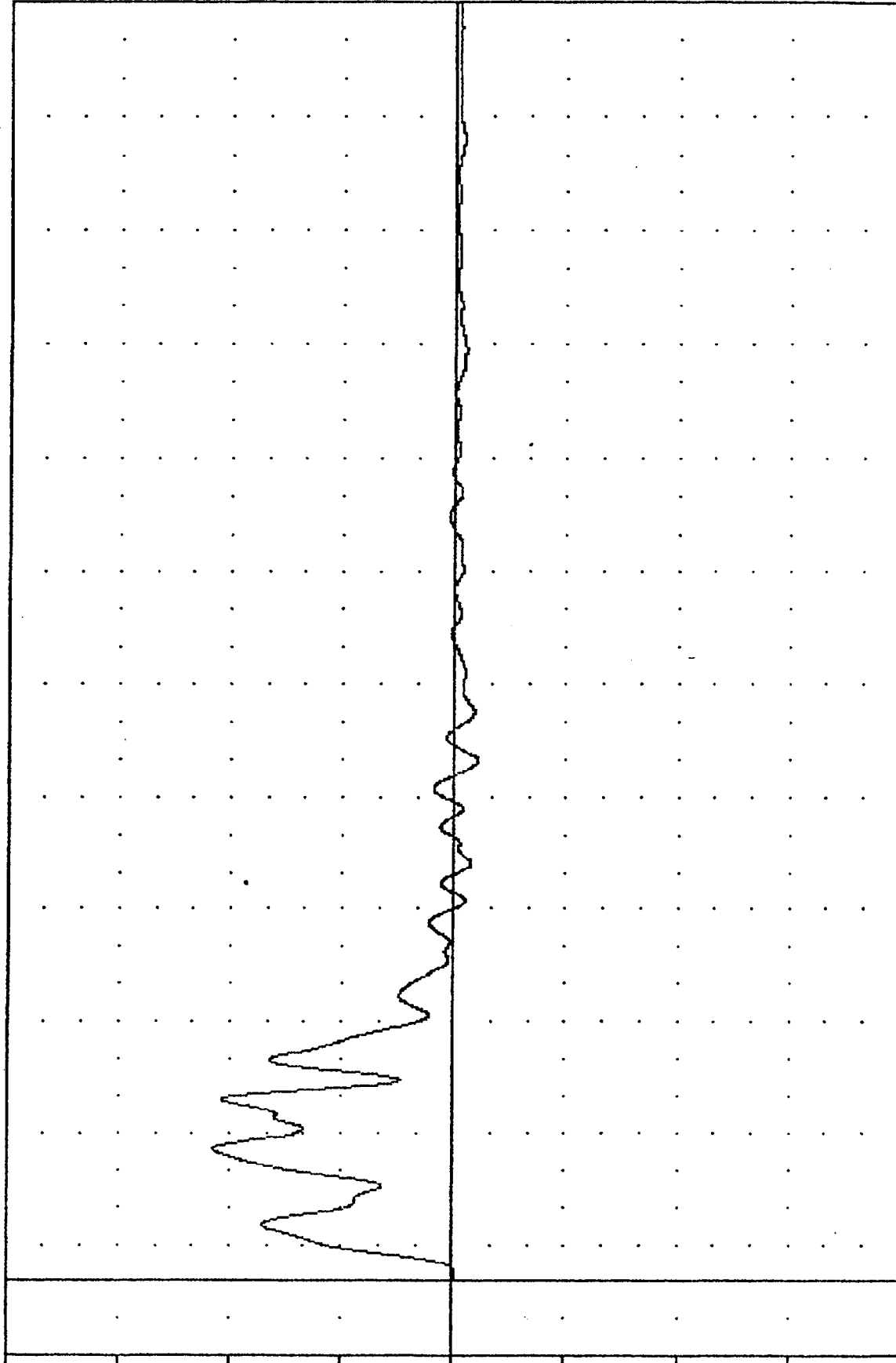
PLOT DATE 11-JUN-84

12:48:29

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -2.08 e 139.38, 21.47 e 35.75

40.00

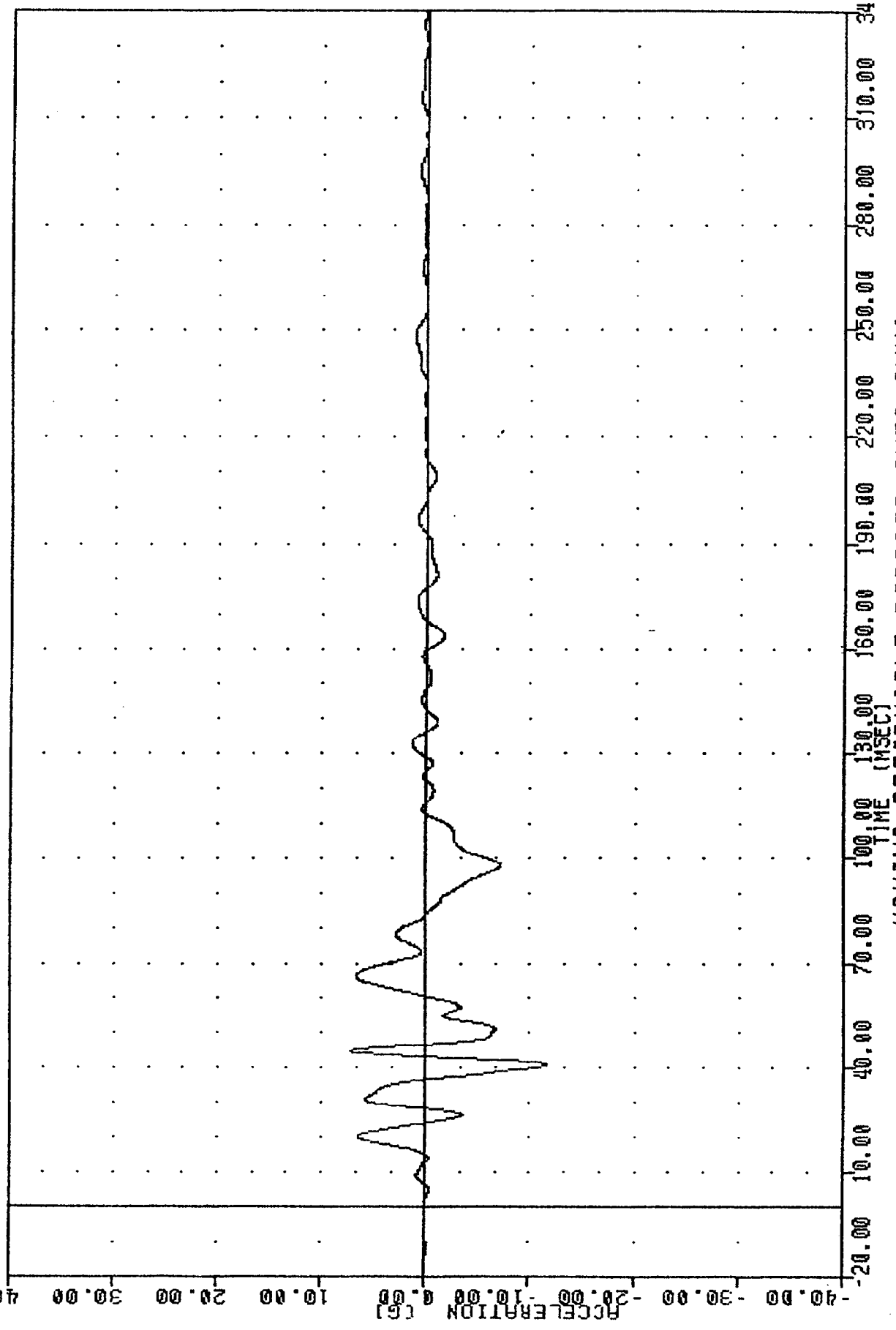


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
ACCELERATION (G)
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT REAR SILL ACCELERATION Y AXIS

THC 840109 PLUT DATE 11-JUN-84 12:48:29
 SIDE PROTECTION - 2DR/4DR
 84009000000
 RRSZG2

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -11.65e 40.75, 7.19 e 44.75

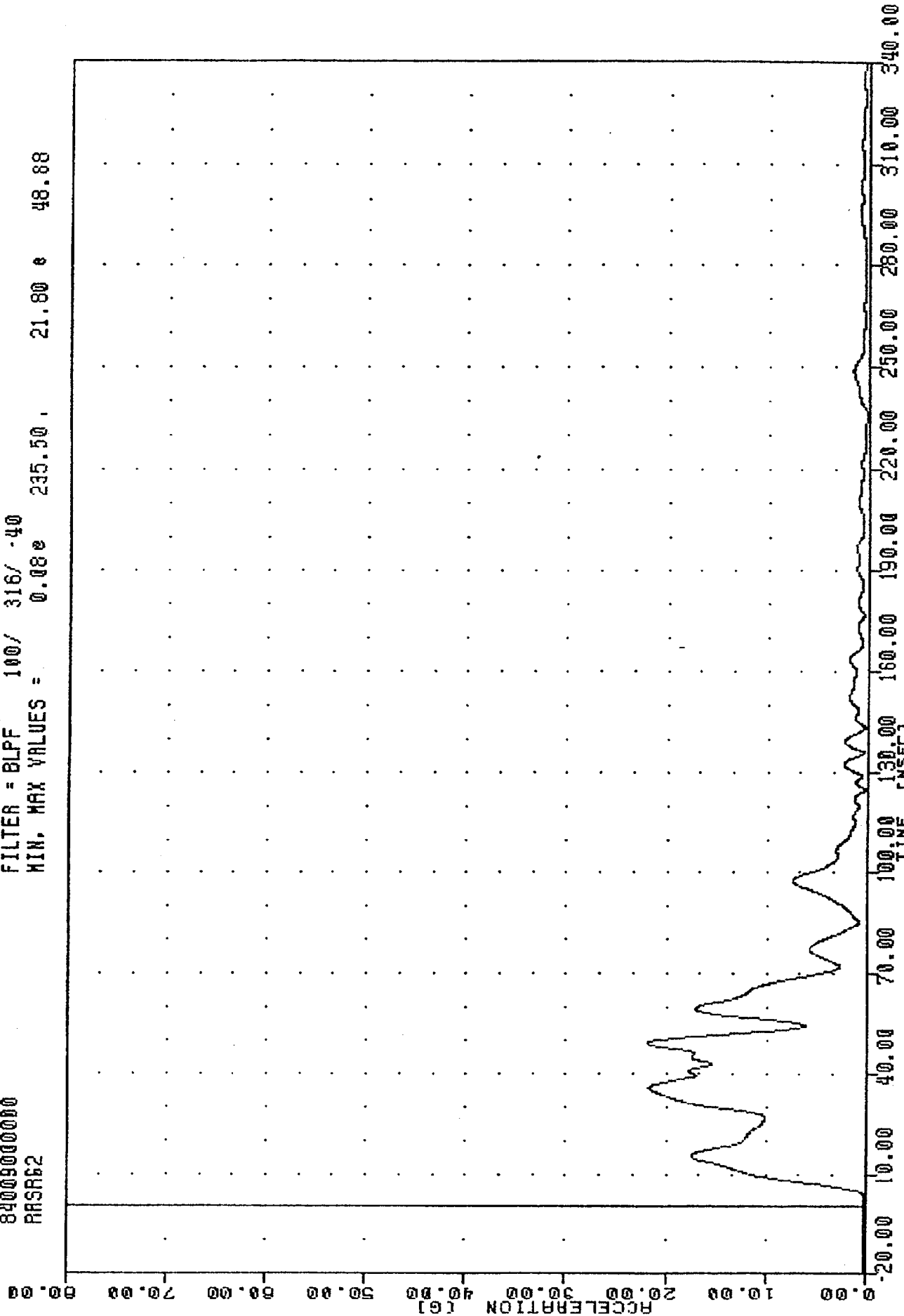


MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE RIGHT REAR SILL ACCELERATION Z AXIS

THE
SIDING PROTECTION - 2DR/4DR
84009000000
RRSR62

PLU DATE 11 JUN 84 14:15:01

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = 0.08e 235.50, 21.80 e 48.88



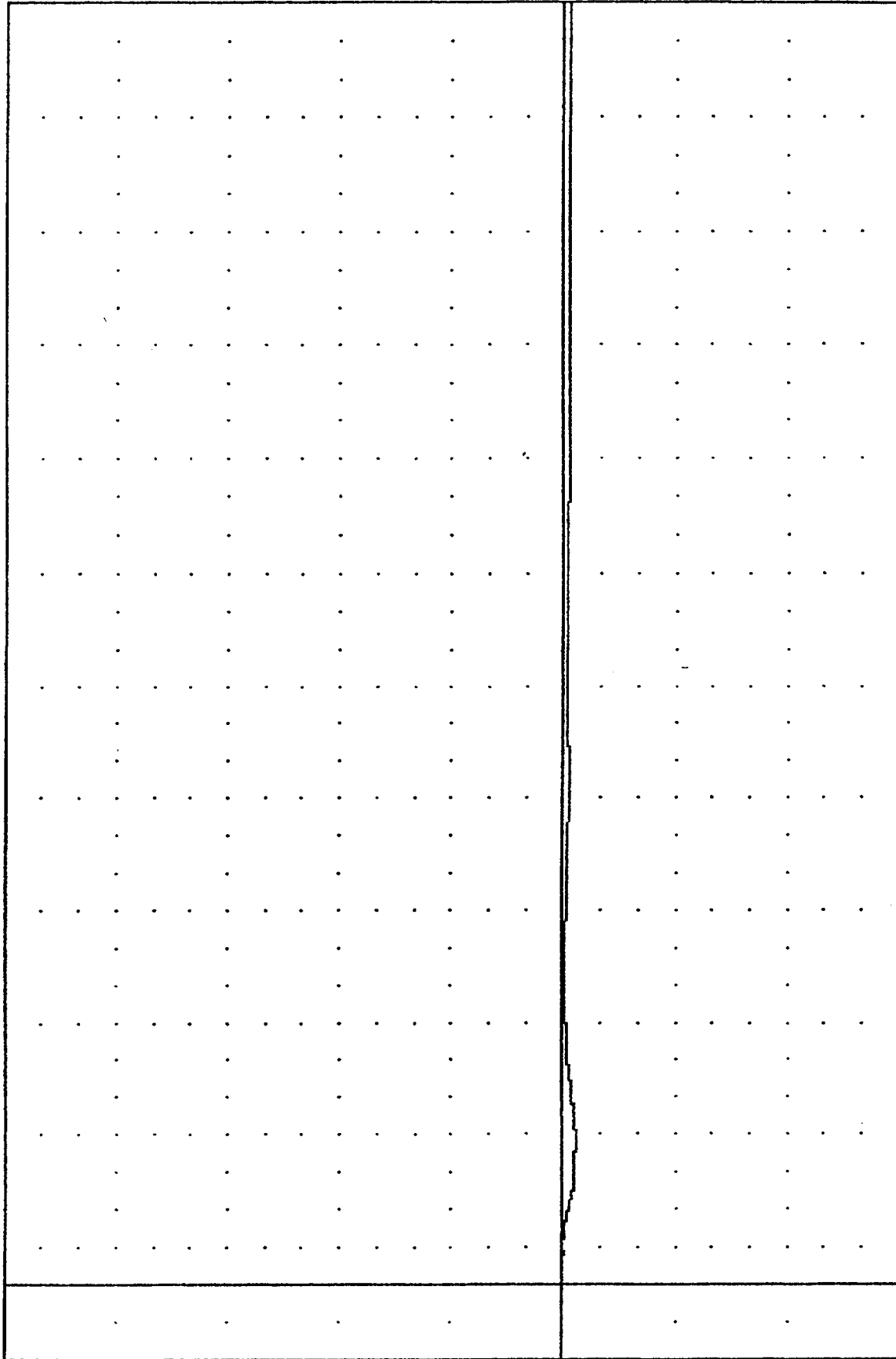
MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT REAR SILL RESULTANT

TRC
 840109
 SIDE PROTECTION - 2DR/4DR
 84009000000
 ARSXY2

PLU1 DATE 11-JAN-84 12:49:44

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -2.27 B 40.00, 0.06 e 10.50

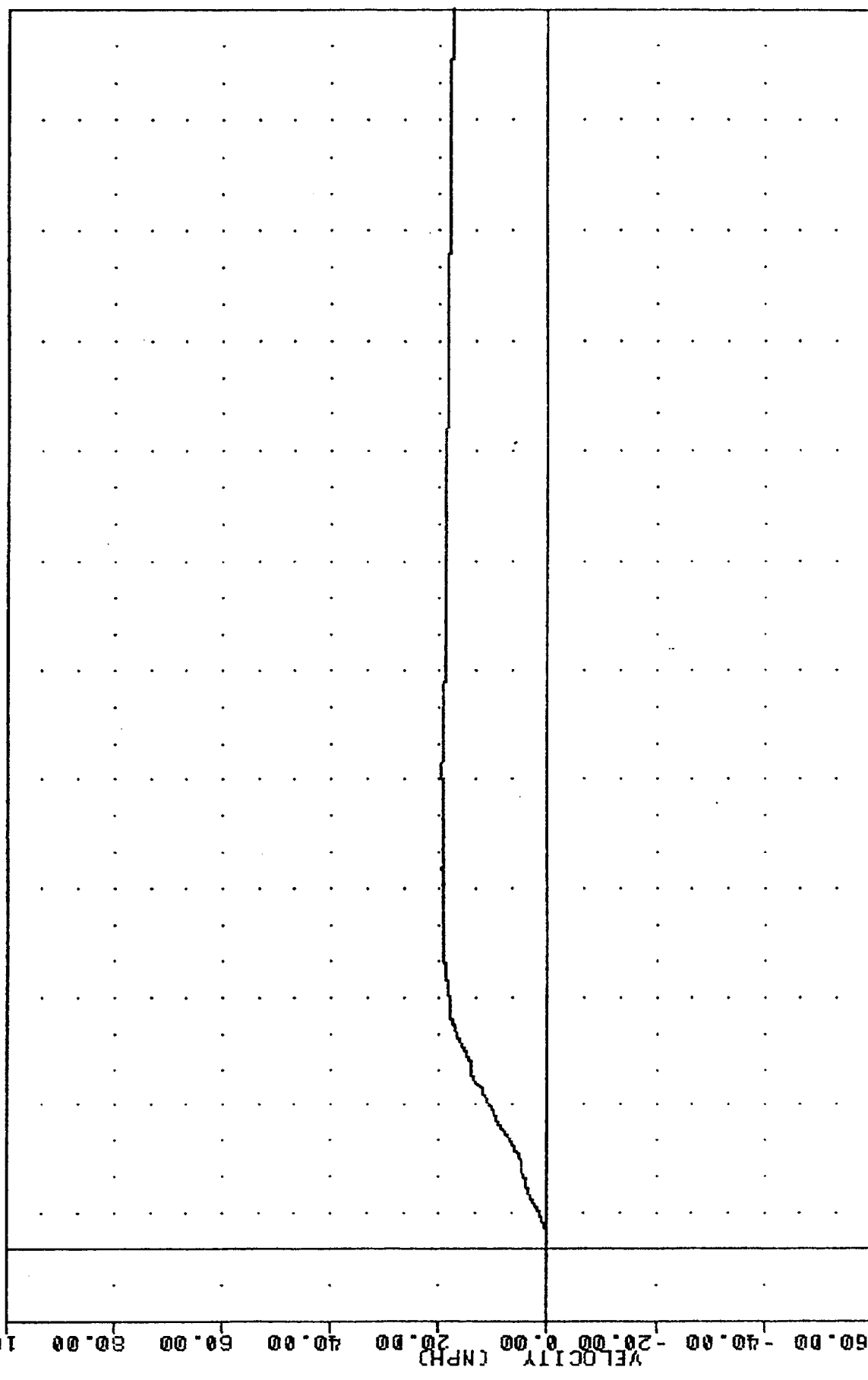
100.00
 80.00
 60.00
 40.00
 20.00
 0.00
 -20.00
 -40.00
 -60.00
 -80.00
 -100.00



-20.00 10.00 40.00 70.00 100.00 130.00 150.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING ARSXC2

THU 040109 11 JUN 84 12:49:44
 SIDE PROTECTION - 2DR/4DR
 84009000000
 RRSYV2
 FILTER = 8LPF 300/ 949/ -40
 MIN. MAX VALUES = 0.00e -18.13, 19.51 e 132.63

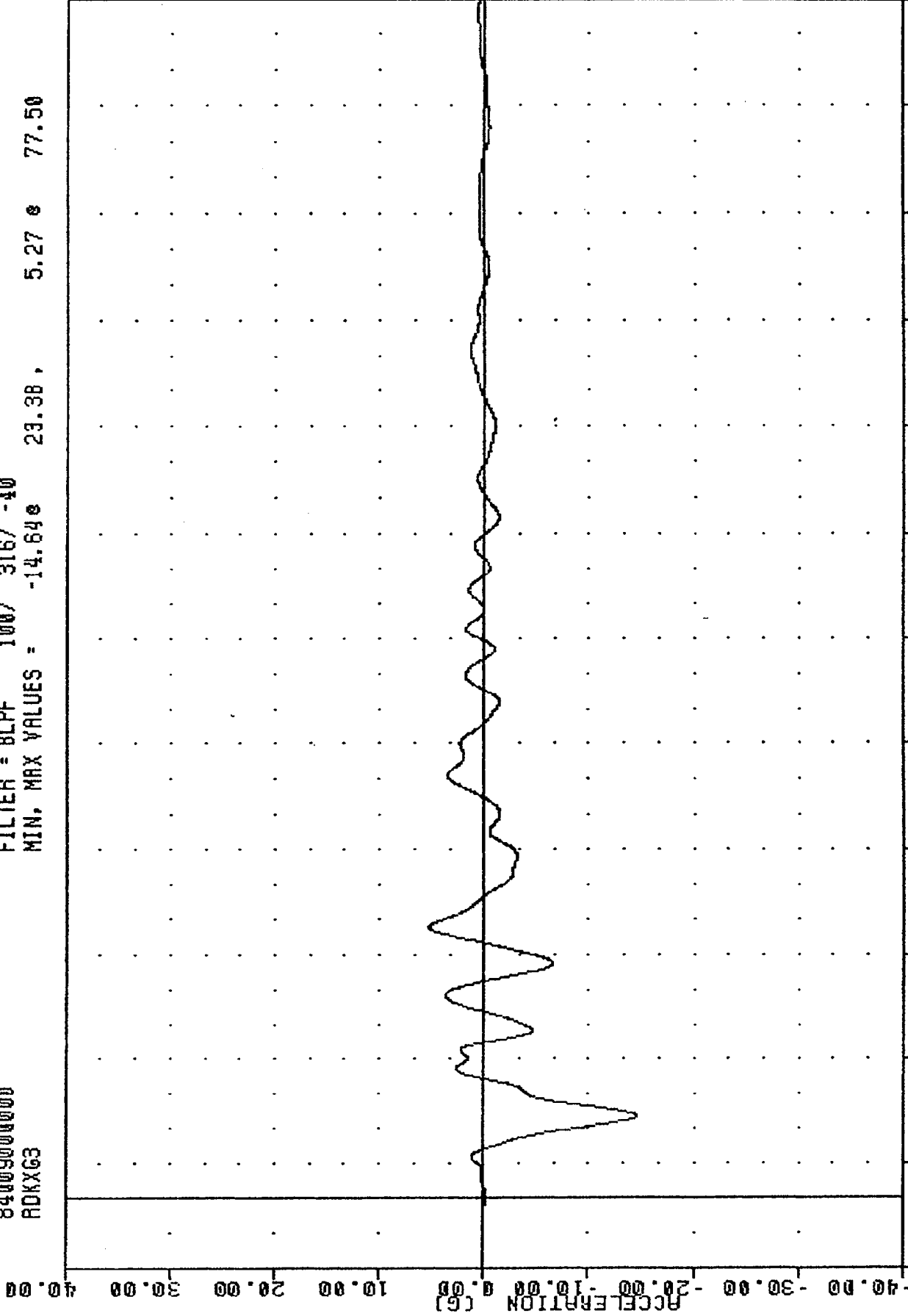


-60.00
 -40.00
 -20.00
 0.00
 20.00
 40.00
 60.00
 80.00
 100.00
 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING RRSYG2

TRC
840109
SIDE PROTECTION - 2DR/4DR
84009000000
ADKXG3

PLUI DATE 11-JAN-84 12:48:29

FILTER = BLPF 100/ 316/ -10
MIN, MAX VALUES = -14.64e 23.38, 5.27 e 77.50

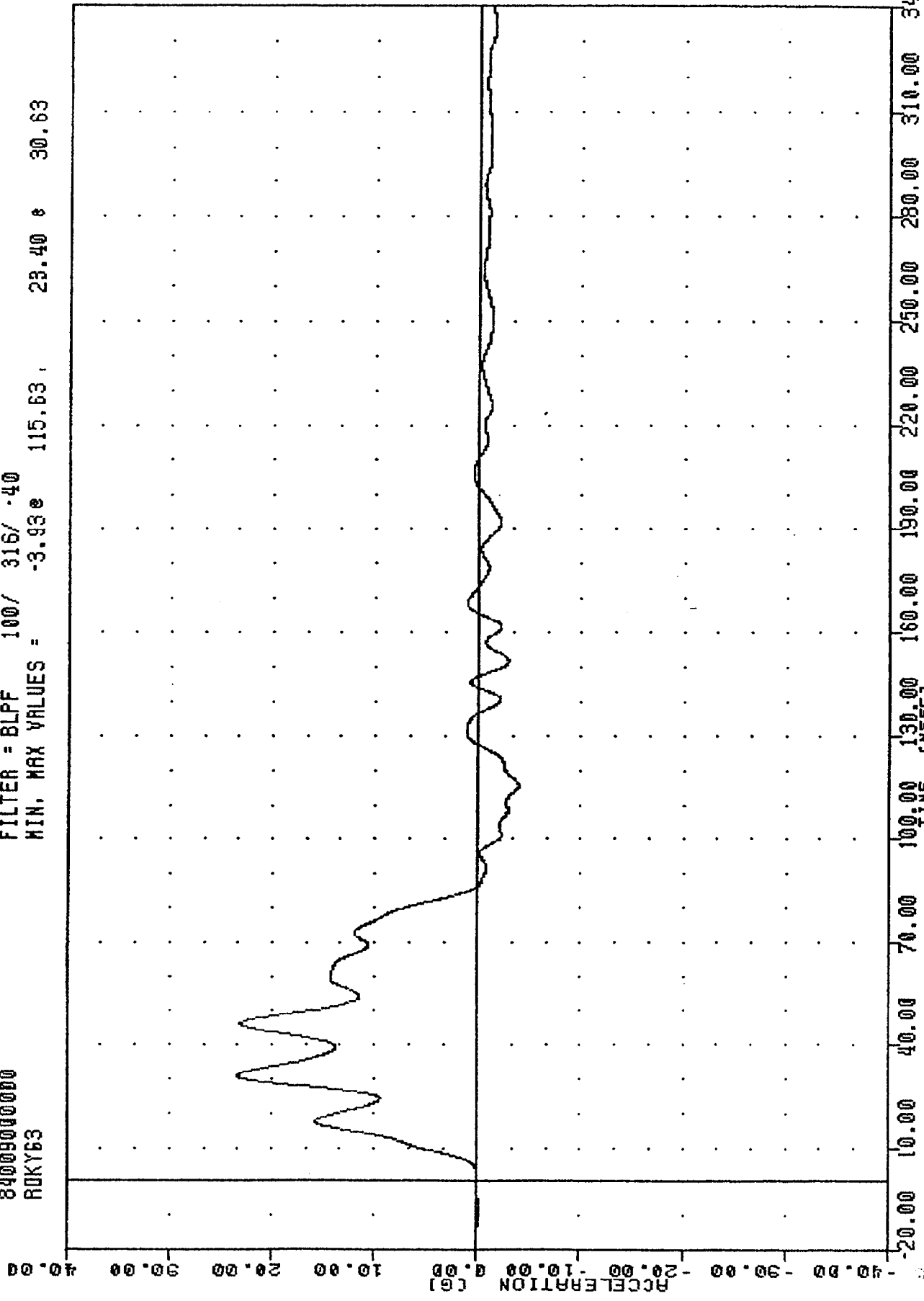


MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE REAR DECK ACCELERATION X AXIS

TAC
840109
SIDE PROTECTION - 2DR/4DR
84009000000
RKY63

PLOT DATE 11-JAN-84 12:48:29

FILTER = BLPF 100/ 316/ .40
MIN. MAX VALUES = -3.93e 115.63, 23.40 e 30.63

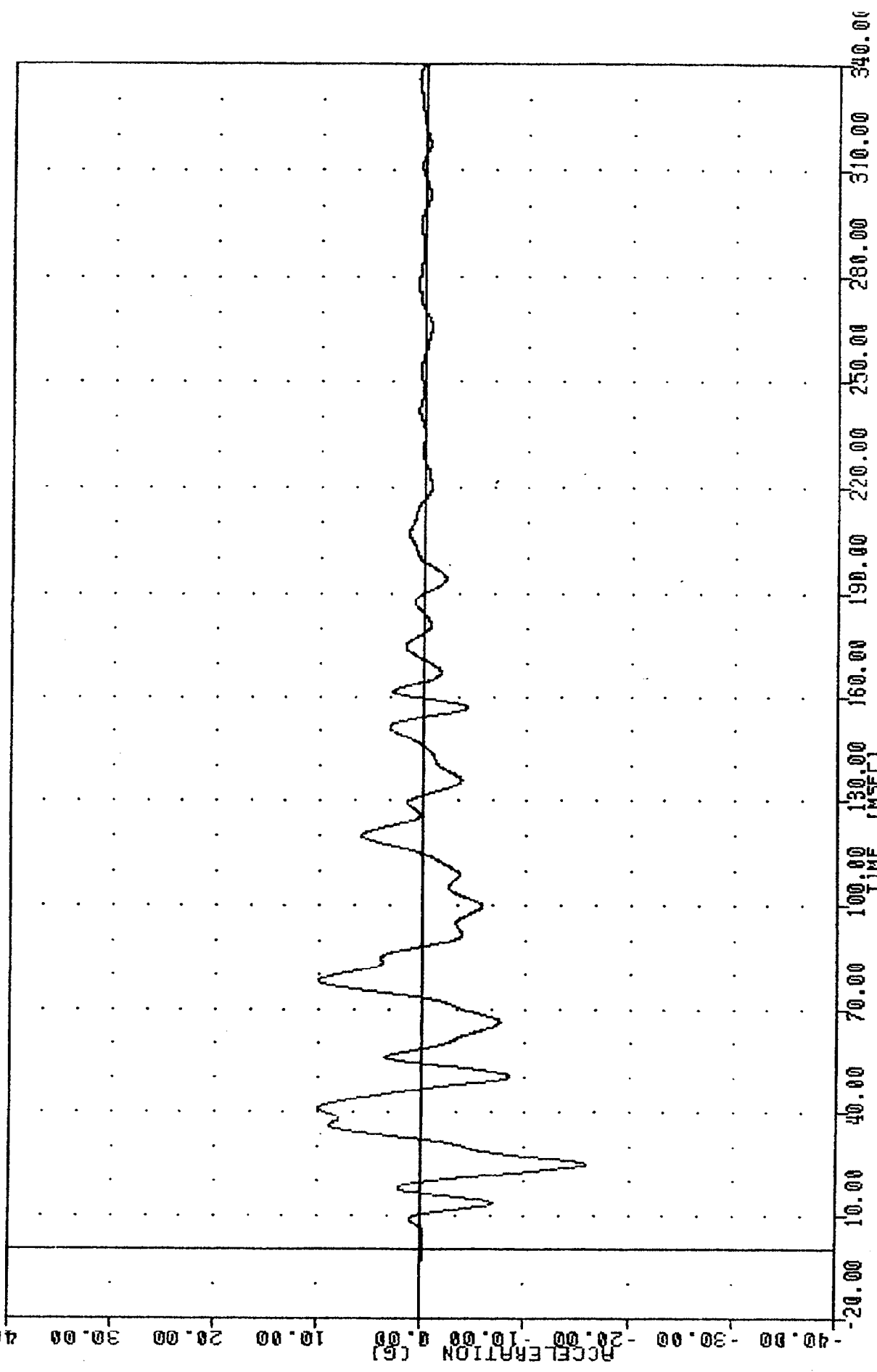


R-82

MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE REAR DECK ACCELERATION Y AXIS

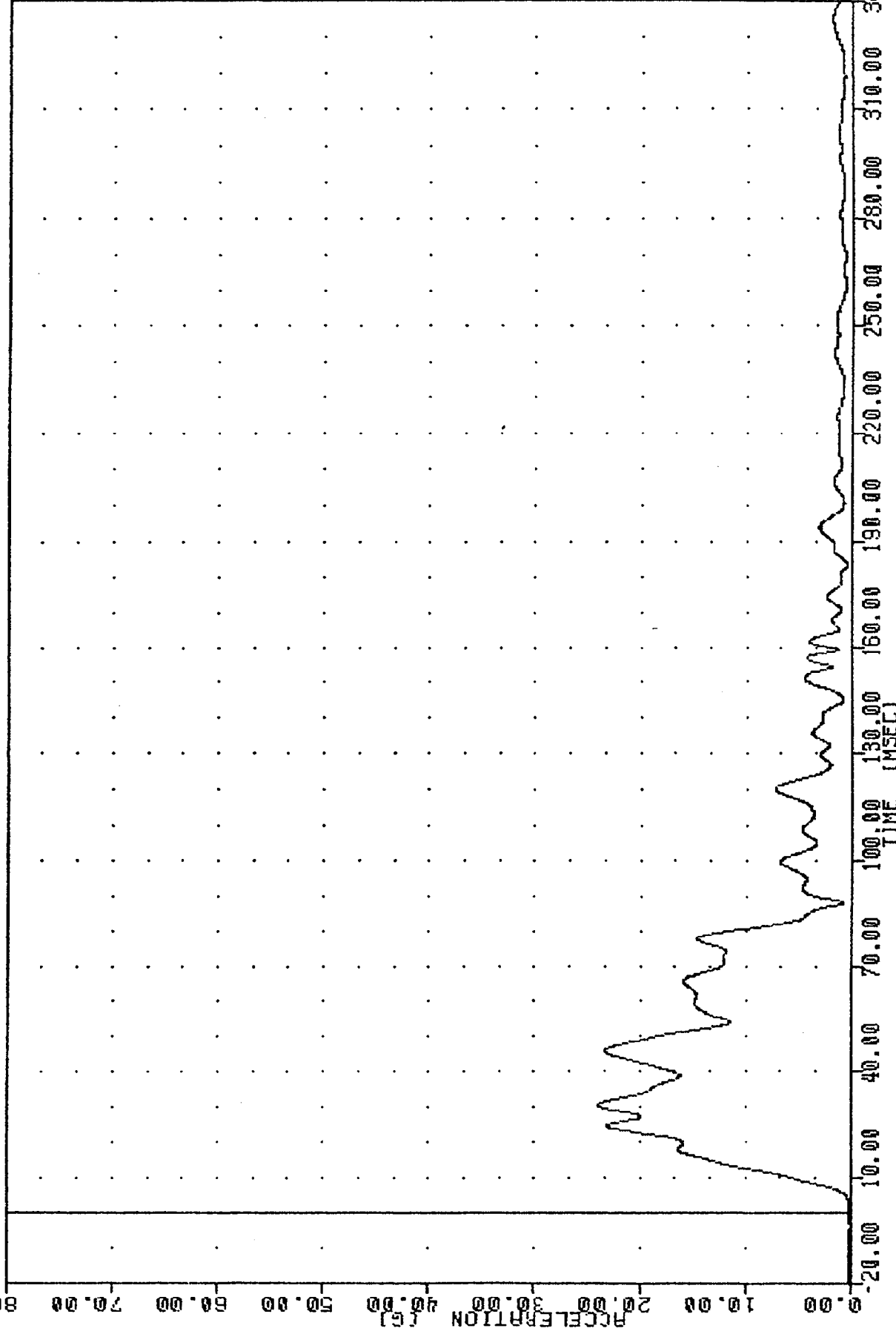
TRC 840109 PLUT DATE 11-JAN-84 12:48:29
 SIDE PROTECTION - 2DR/4DR
 84009000000
 RDKZG3

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -15.918 24.63, 10.11 77.88



MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE REAR DECK ACCELERATION Z AXIS

TRC [REDACTED], 840109 [REDACTED] PLOT DATE 11-JAN-84 14:15:01
 SIDE PROTECTION - 2DR/4DR
 84009000000
 ADKRG3
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = 0.038 -4.25, 23.98 e 30.38



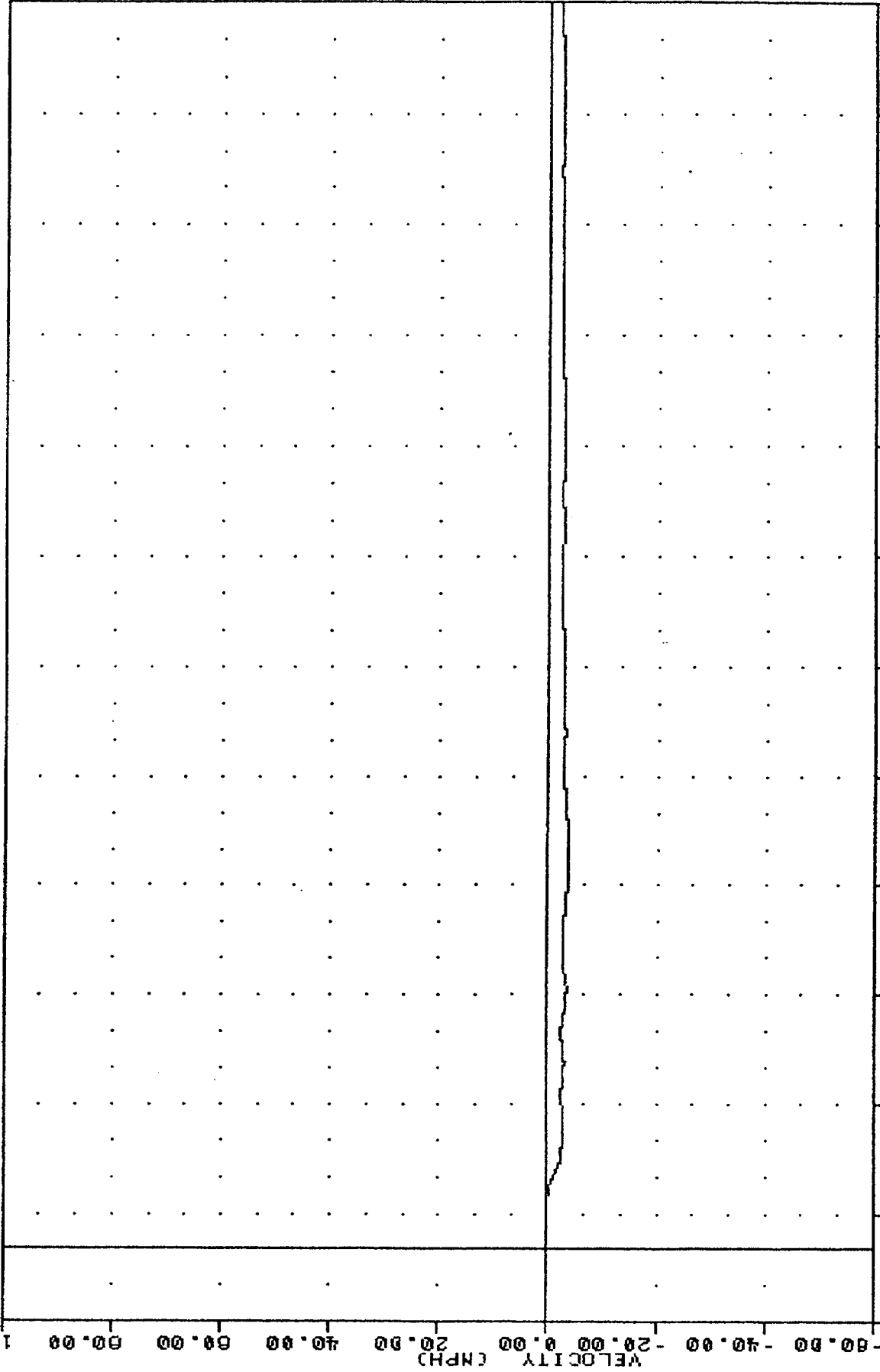
MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE REAR DECK RESULTANT

TRC
 840109
 SIDE PROTECTION - 20R/40R
 84009000000
 RDKXV3

PLUI DATE 11 JUN 84 12:49:44

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -3.75e 111.88, 0.19 e 11.00

100.00



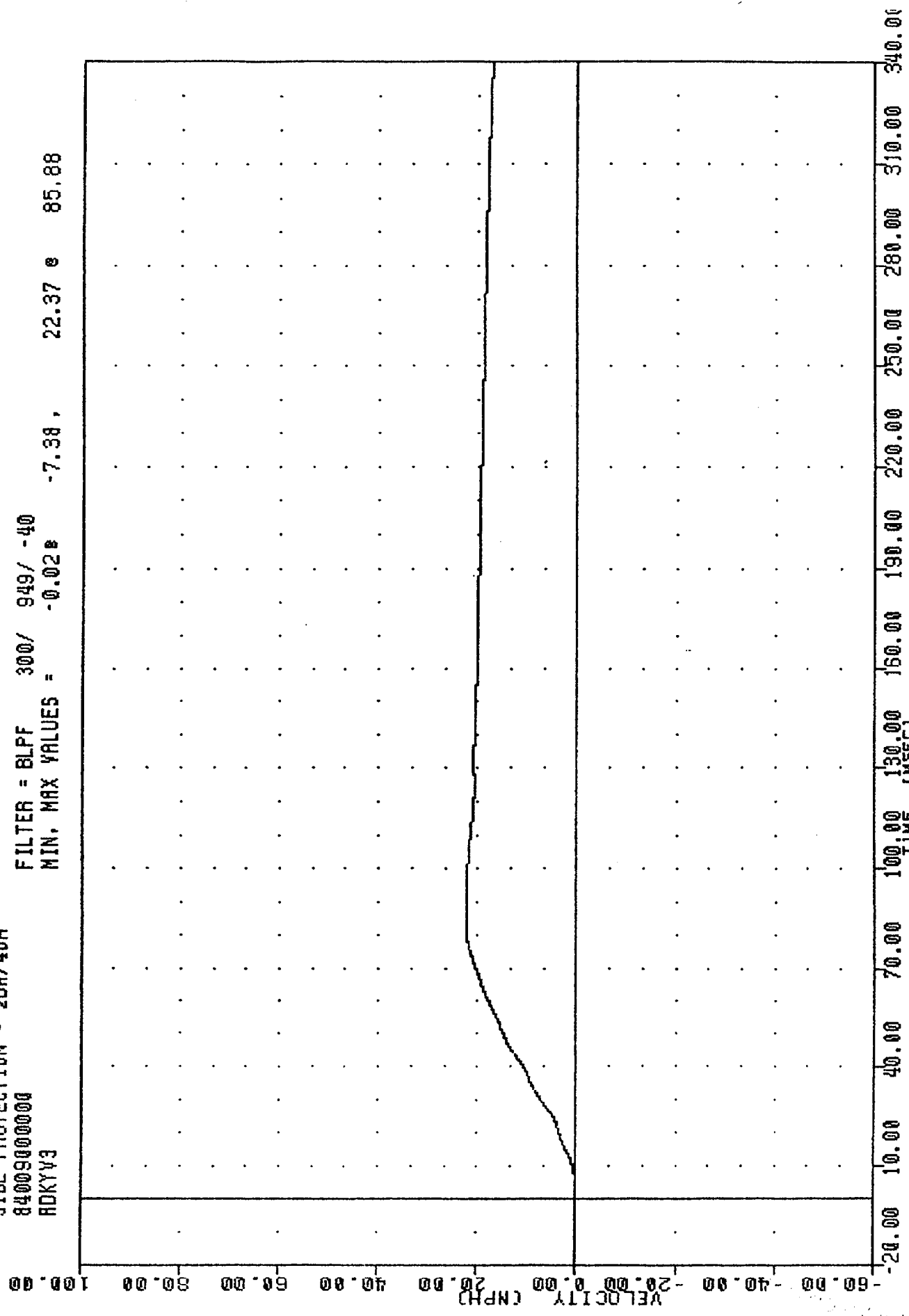
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (INSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA Y USING RDKXG3

THC
 , 840109
 SIDE PROTECTION - 2DR/4DR
 84009000000
 RDKYV3

PLUT DATE 11-JAN-84 12:49:44

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.028 -7.38, 22.37 85.88



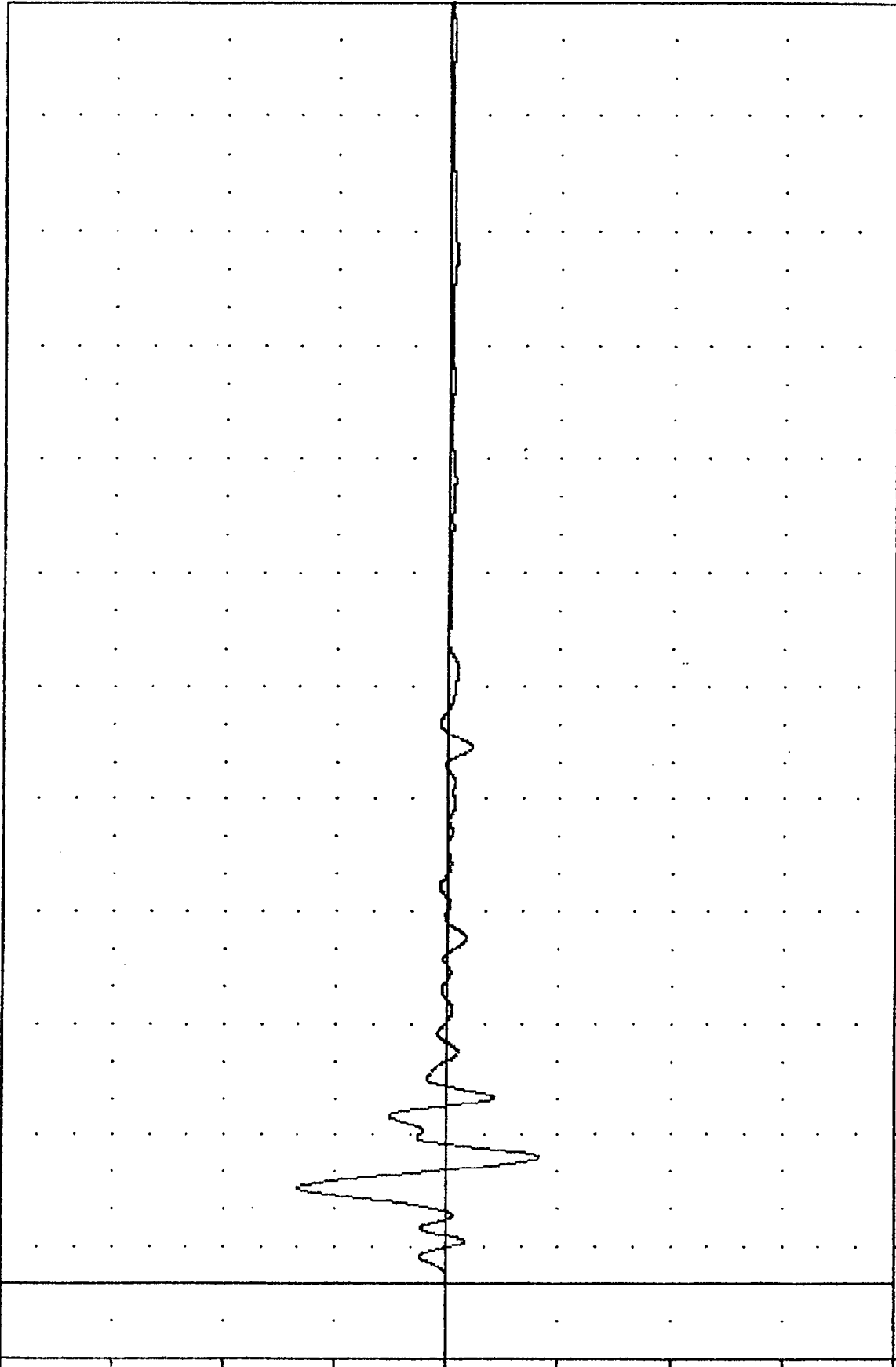
MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING RDKYG3

THU 840109
SIDE PROTECTION - 2DR/4DR
84009000000
LRSYG4

PLUT DATE 11-JAN-84 12:48:29

FILTER = 8LPF 100/ 316/ -40
MIN. MAX VALUES = -24.83e 34.00, 40.06 e 25.50

120.00
90.00
60.00
30.00
0.00
-30.00
-60.00
-90.00
-120.00



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE LEFT REAR SILL ACCELERATION Y AXIS

TRC 840109

PLUT DATE 11-JAN-84 12:49:44

SIDE PROTECTION - 20R/4DR

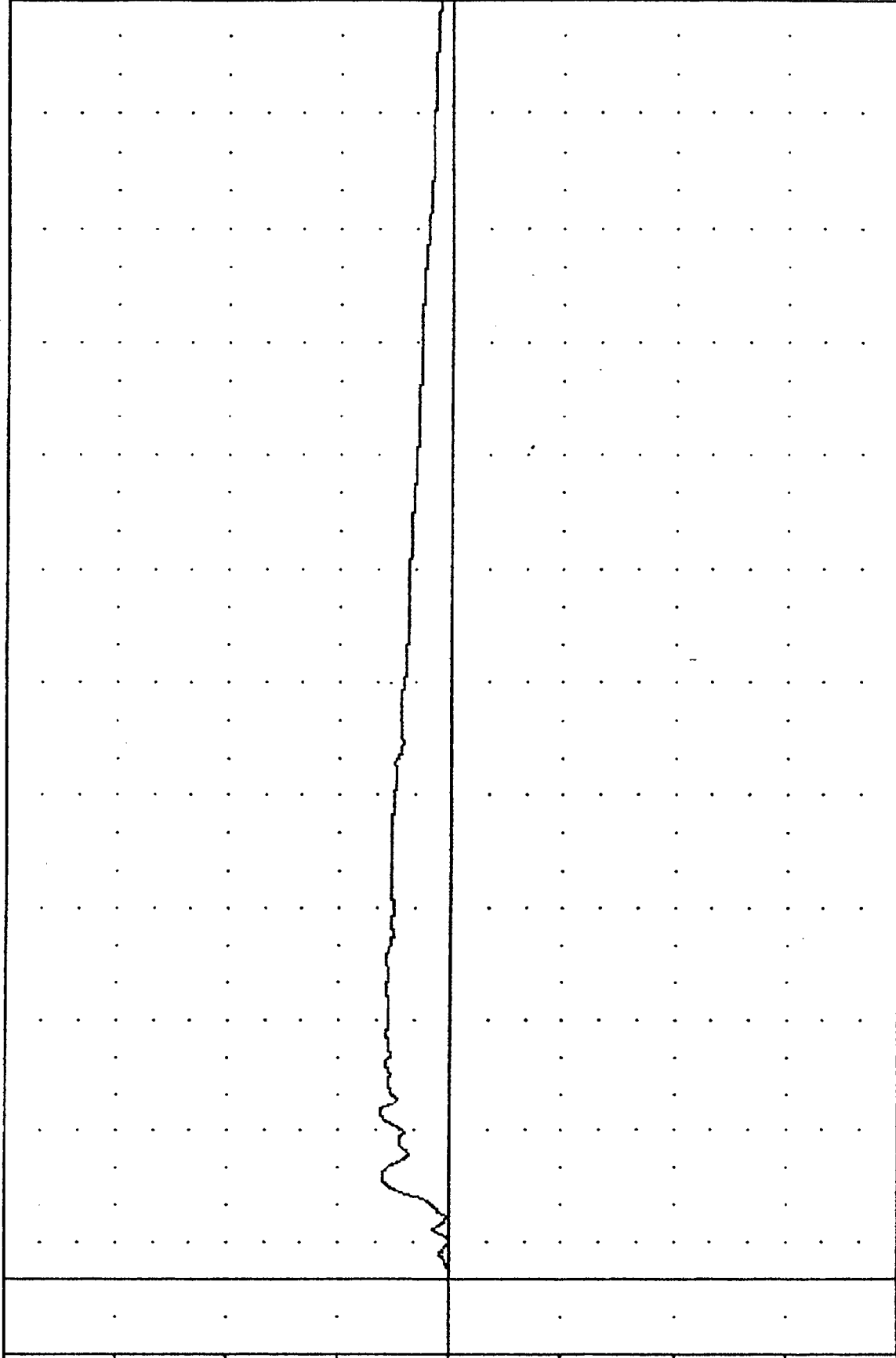
84009000000

LR5YV4

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 0.00e -17.00, 6.18 e 45.38

VELOCITY (MPH)



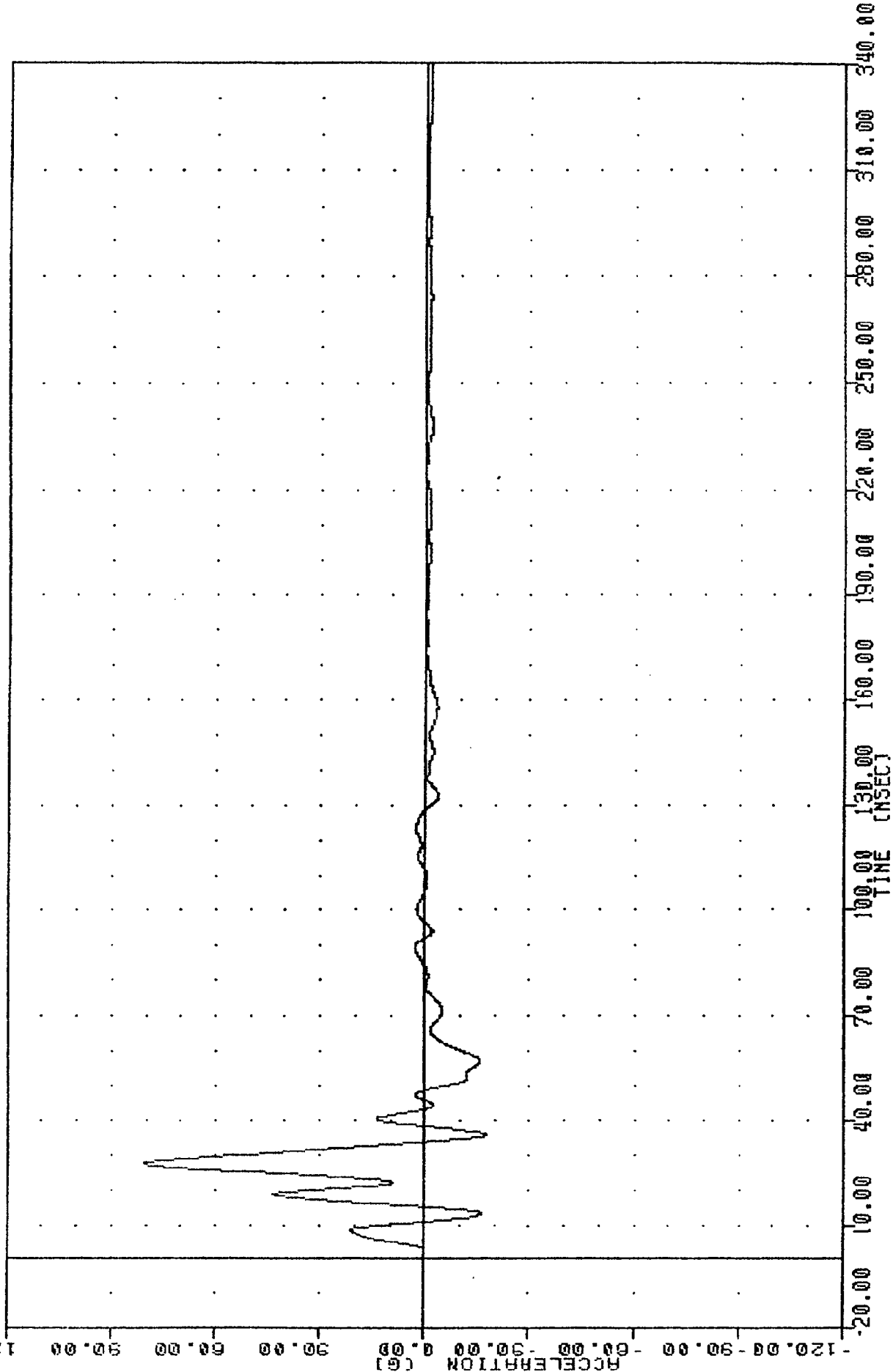
20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO OMNI
DELTA Y USING LR5Y64

TRC
8409000000
SIDE PROTECTION - 20R/4DR
LFSY65

PLUT DATE 11-JUN-84 12:48:29

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = 35.63 , 80.32 * 27.25



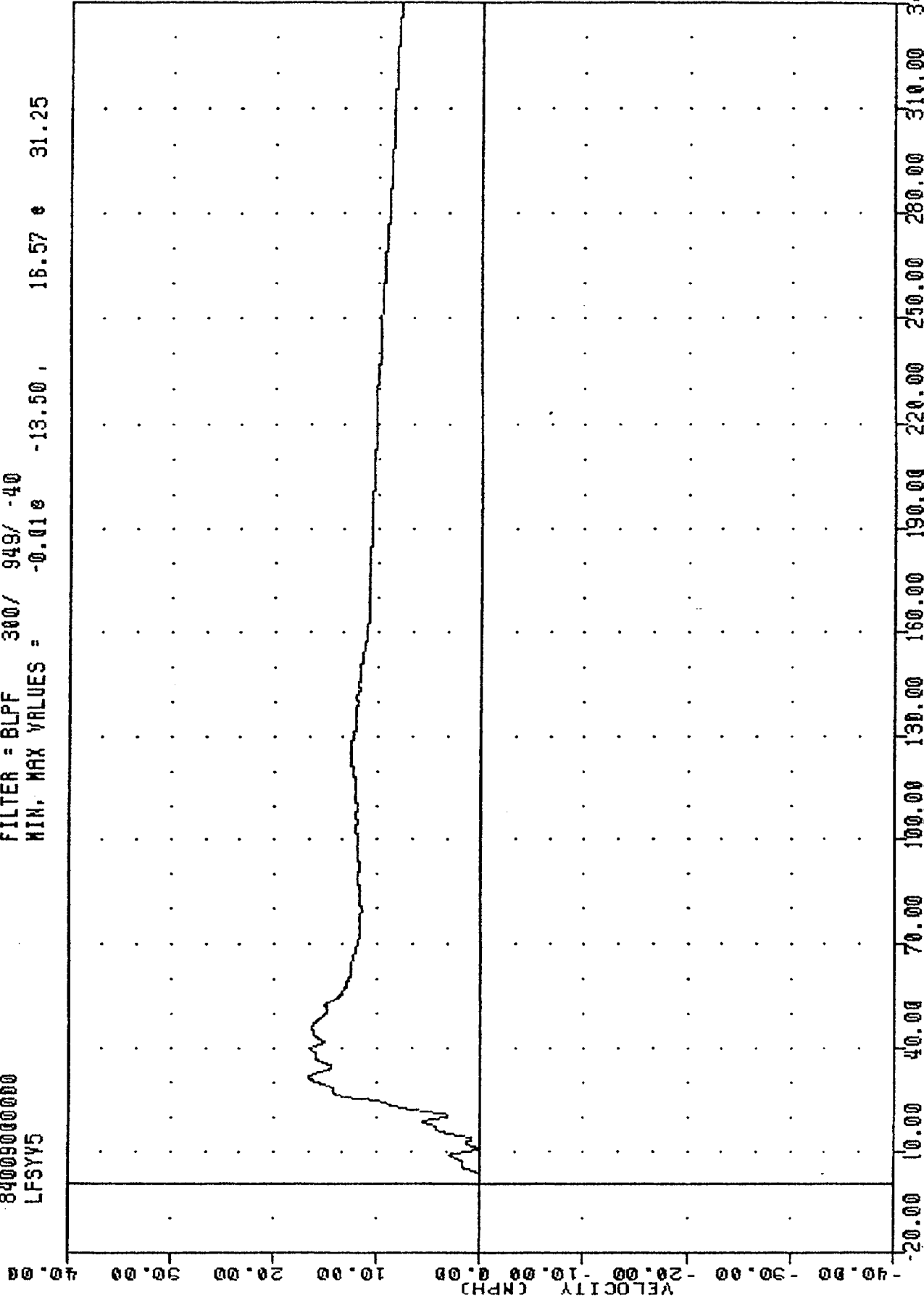
MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE LEFT FRONT SILL ACCELERATION Y AXIS

THU 840109
SIDE PROTECTION - 20R/4DR
84009000000
LFSYY5

PLU DATE 11-JUN-84

12:49:44

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.010 -13.50, 16.57 e 31.25



MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LFSYG5

THC
840109
SIDE PROTECTION - 2DR/4DR
84009000000
LFDYV1

PLU1 DATE 11-JAN-84 12:49:44

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -30.91 340.00, 9.15 15.75

100.00

80.00

60.00

40.00

20.00

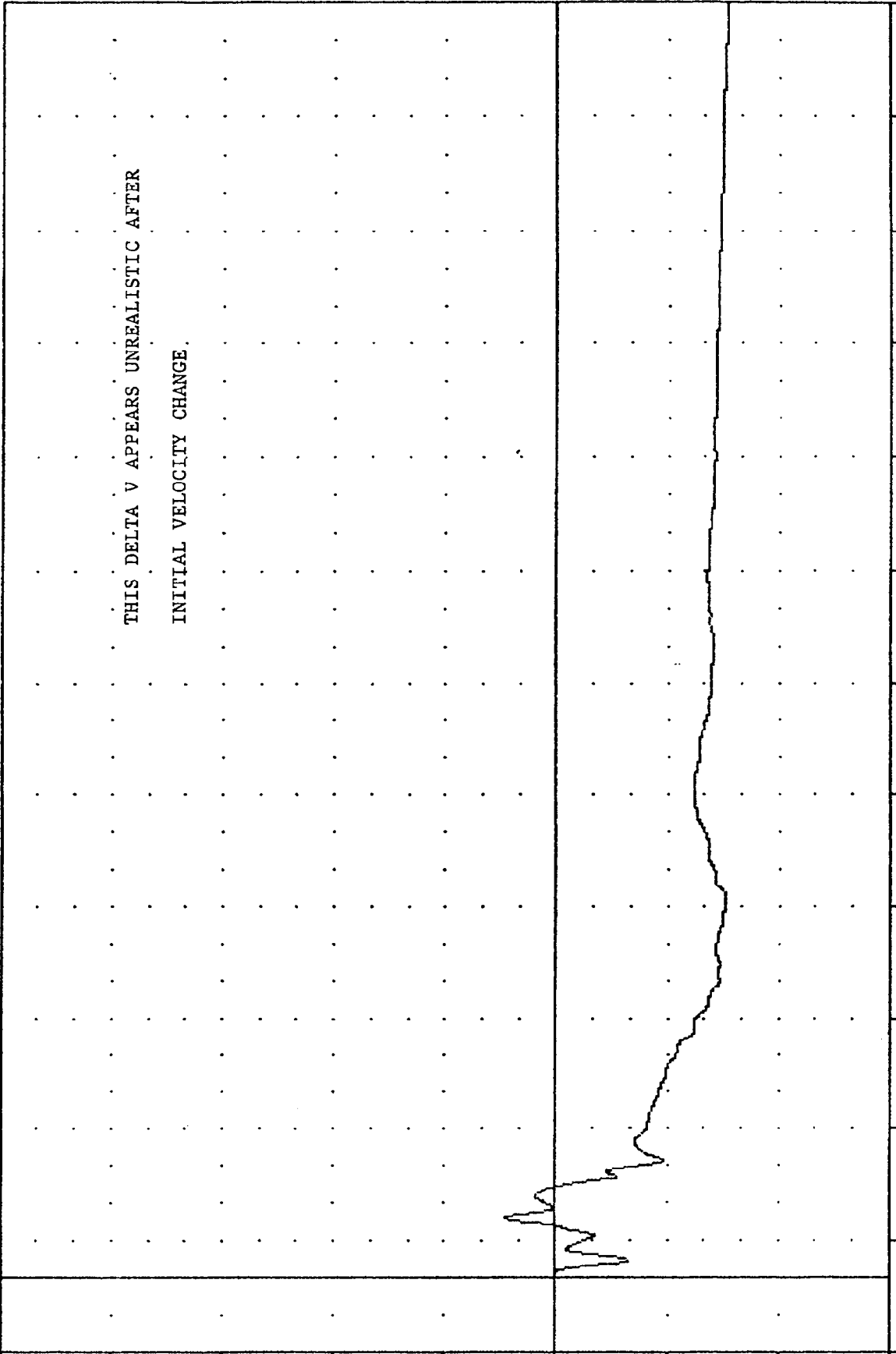
0.00

-20.00

-40.00

-60.00

VELOCITY (MPH)

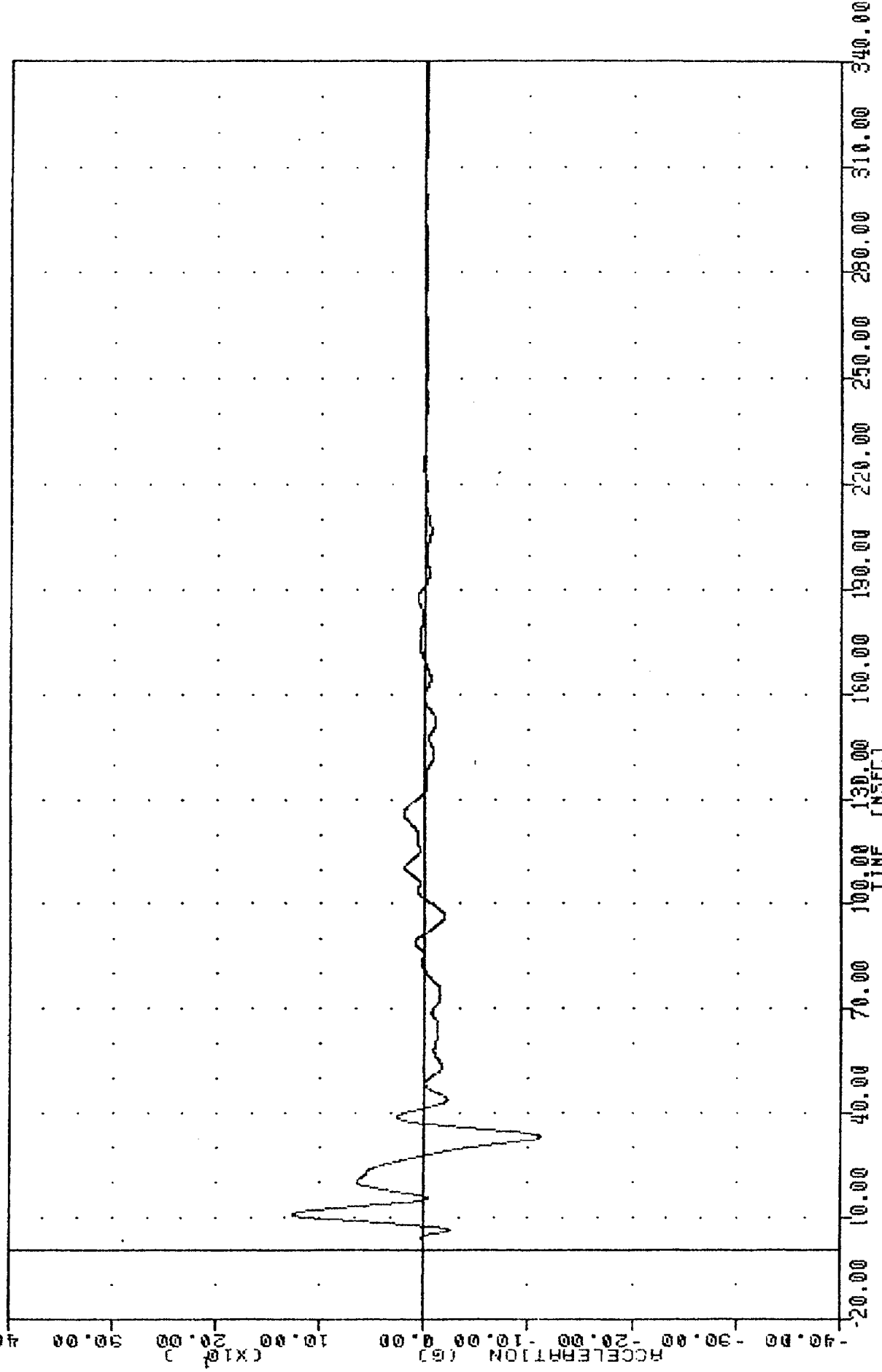


THIS DELTA V APPEARS UNREALISTIC AFTER
INITIAL VELOCITY CHANGE.

-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (MSEC)

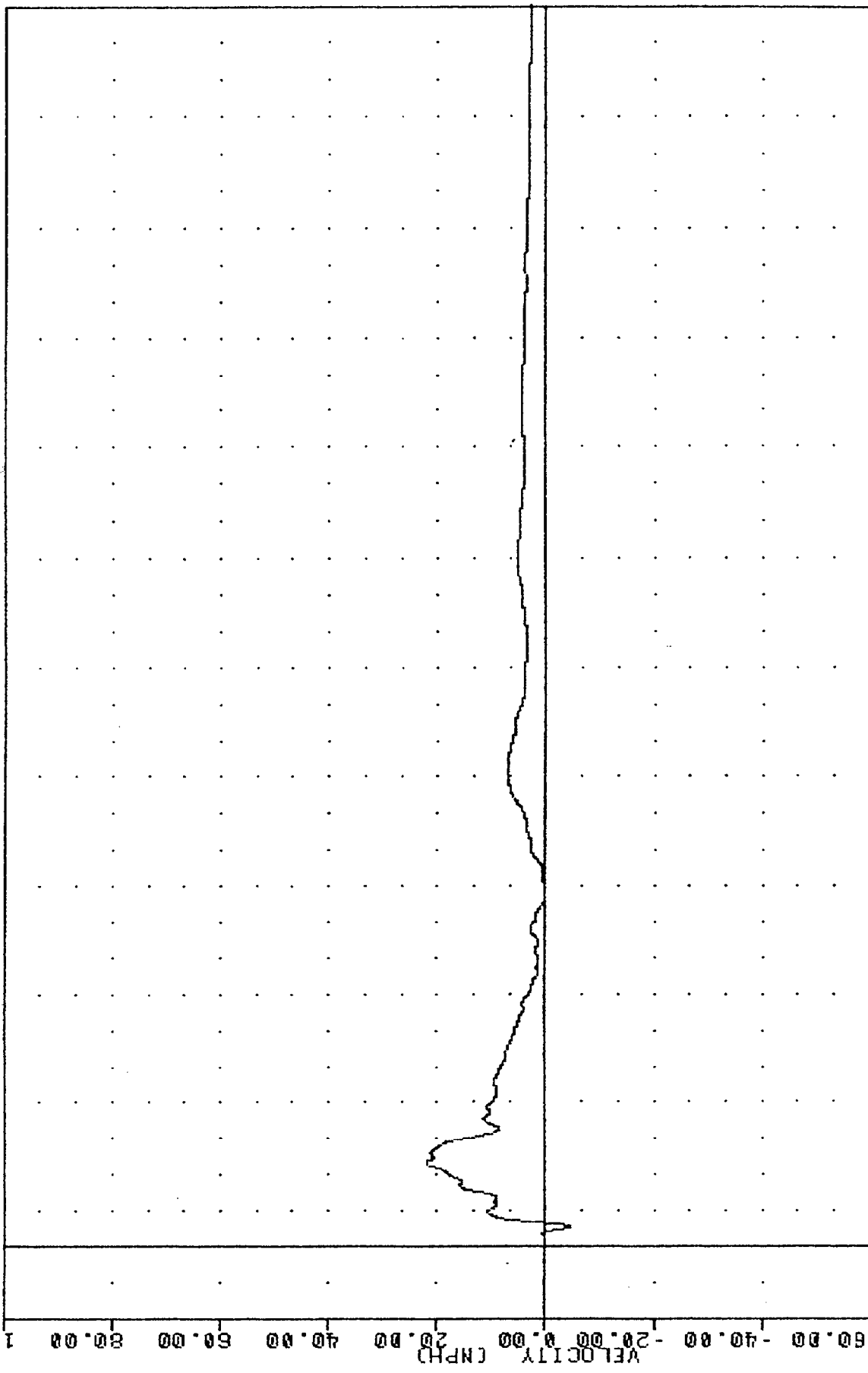
MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LFDYGI

THL [REDACTED] 84V103 [REDACTED] PLU DATE 11-JAN-84 12:48:24
 SIDE PROTECTION - 2DR/4DR
 84009000000
 LFDY62
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -111.39e 32.88 125.45 e 10.50



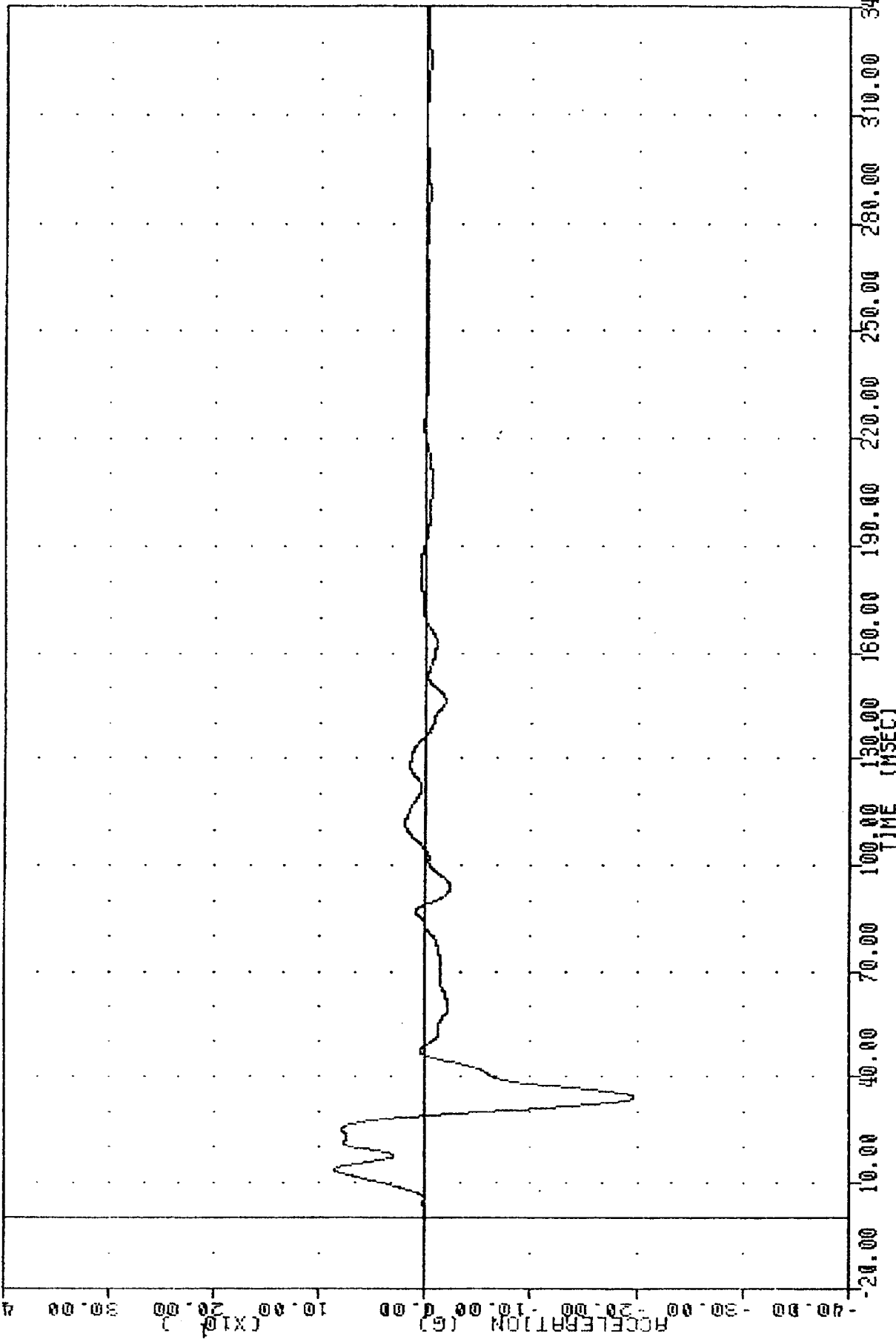
MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE LEFT FRONT DOOR (POSITION 8) ACCELERATION Y AXIS

TRL 840103 11 JUN 84 12:43:44
 SIDE PROTECTION - 2DR/4DR
 84009000000
 LFDYV2
 FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -4.38e 5.50, 21.95 e 23.00



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME CMSEC
 MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LFDYV2

TRC 840109 PLOT DATE 11-JUN-84 12:48:29
 SIDE PROTECTION - 20R/4DR
 84009000000
 LFDY63
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -197.29% 34.13, 85.10 & 13.50

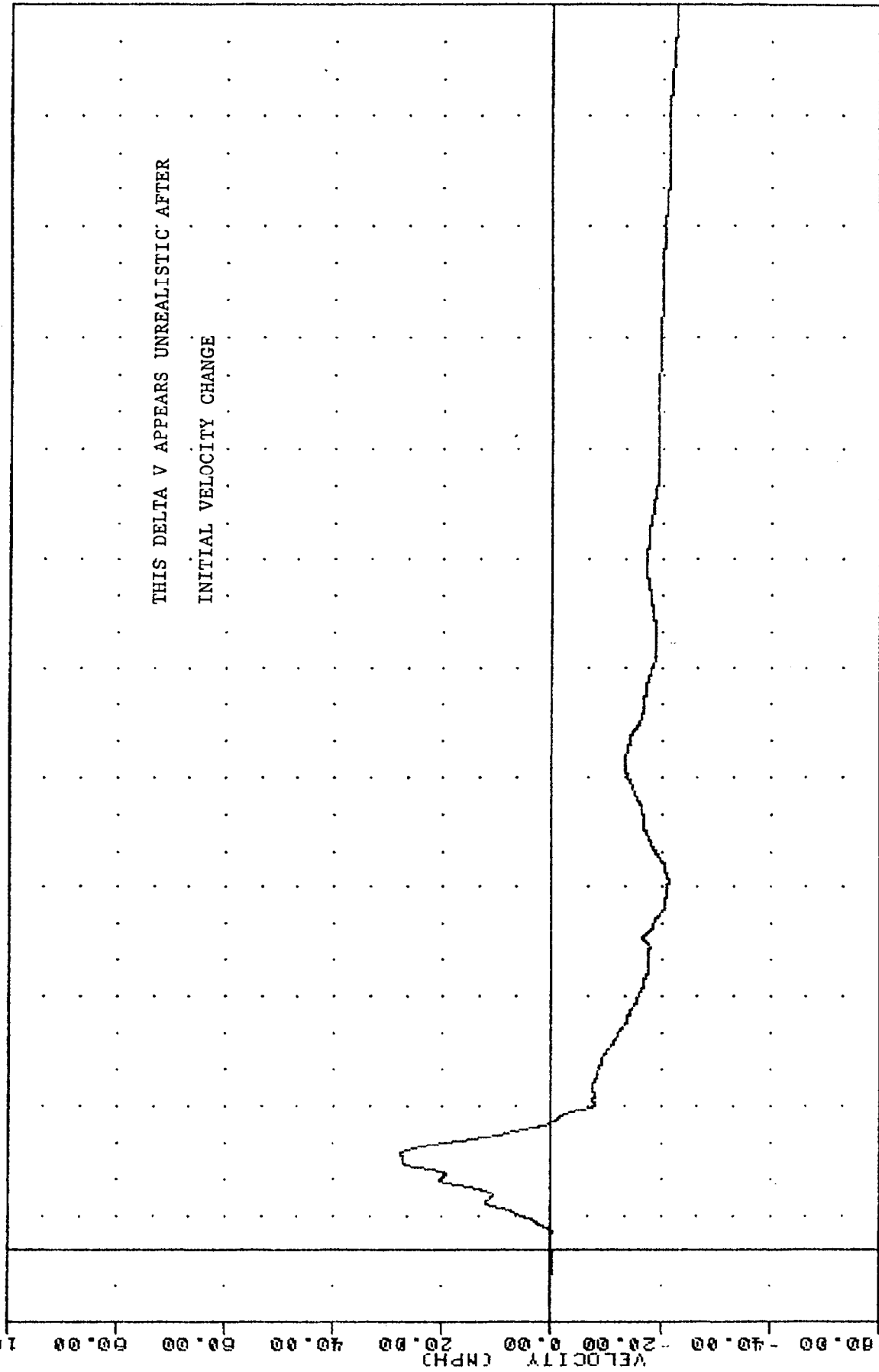


MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE LEFT FRONT DOOR (POSITION 9) ACCELERATION Y AXIS

TAC 840103
 SIDE PROTECTION - 2DR/4DR
 84009000000
 LFDYY3

PLUT DATE 11-JUN-84 12:49:44

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -22.80 340.00, 27.62 26.50

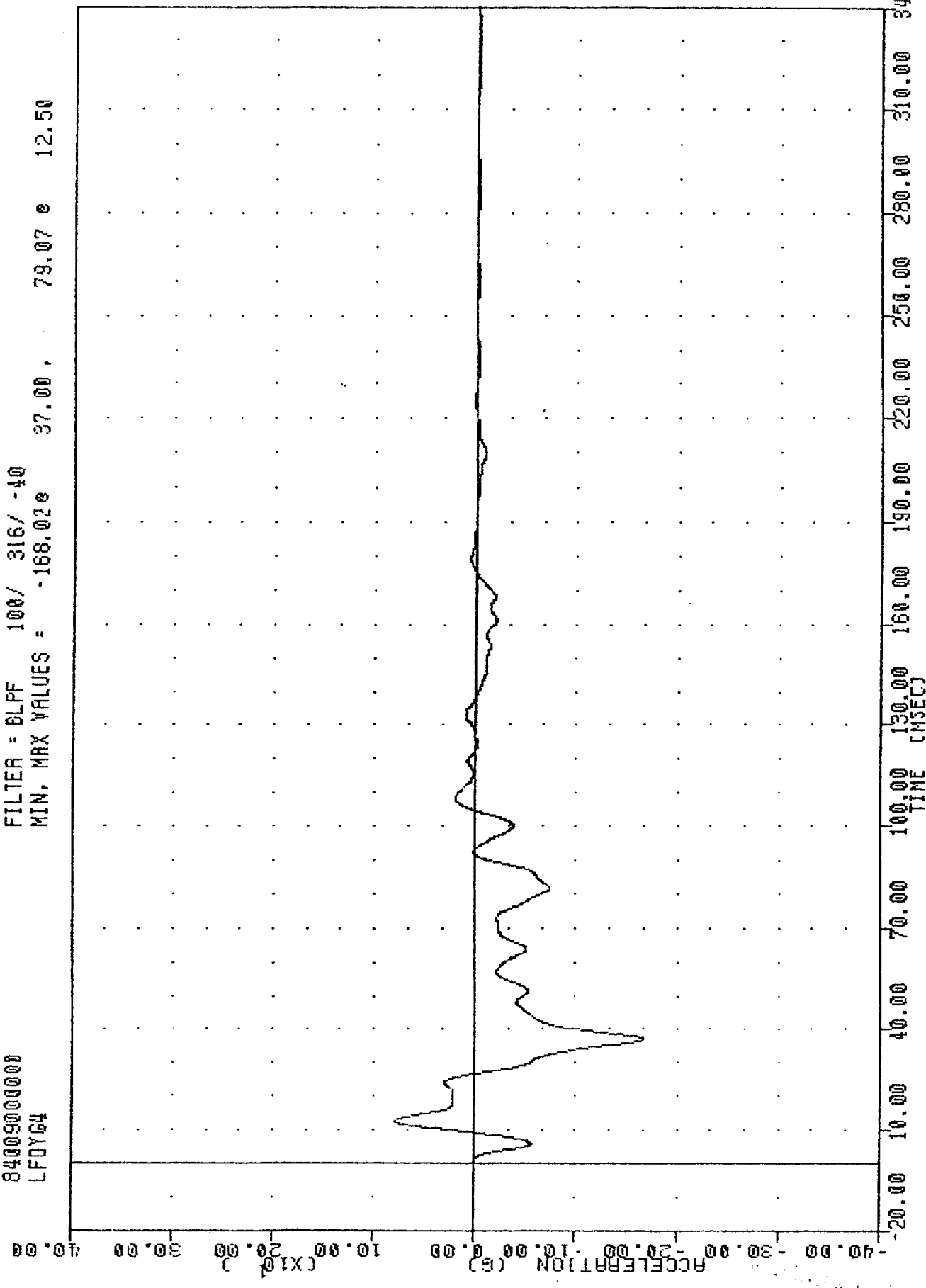


MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LFDYGG3

THL
840109
SIDE PROTECTION - 2DR/4DR
8400900000
LFOY64

PLUT DATE 11-JAN-84 12:48:29

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -168.028 37.00, 79.07 e 12.50

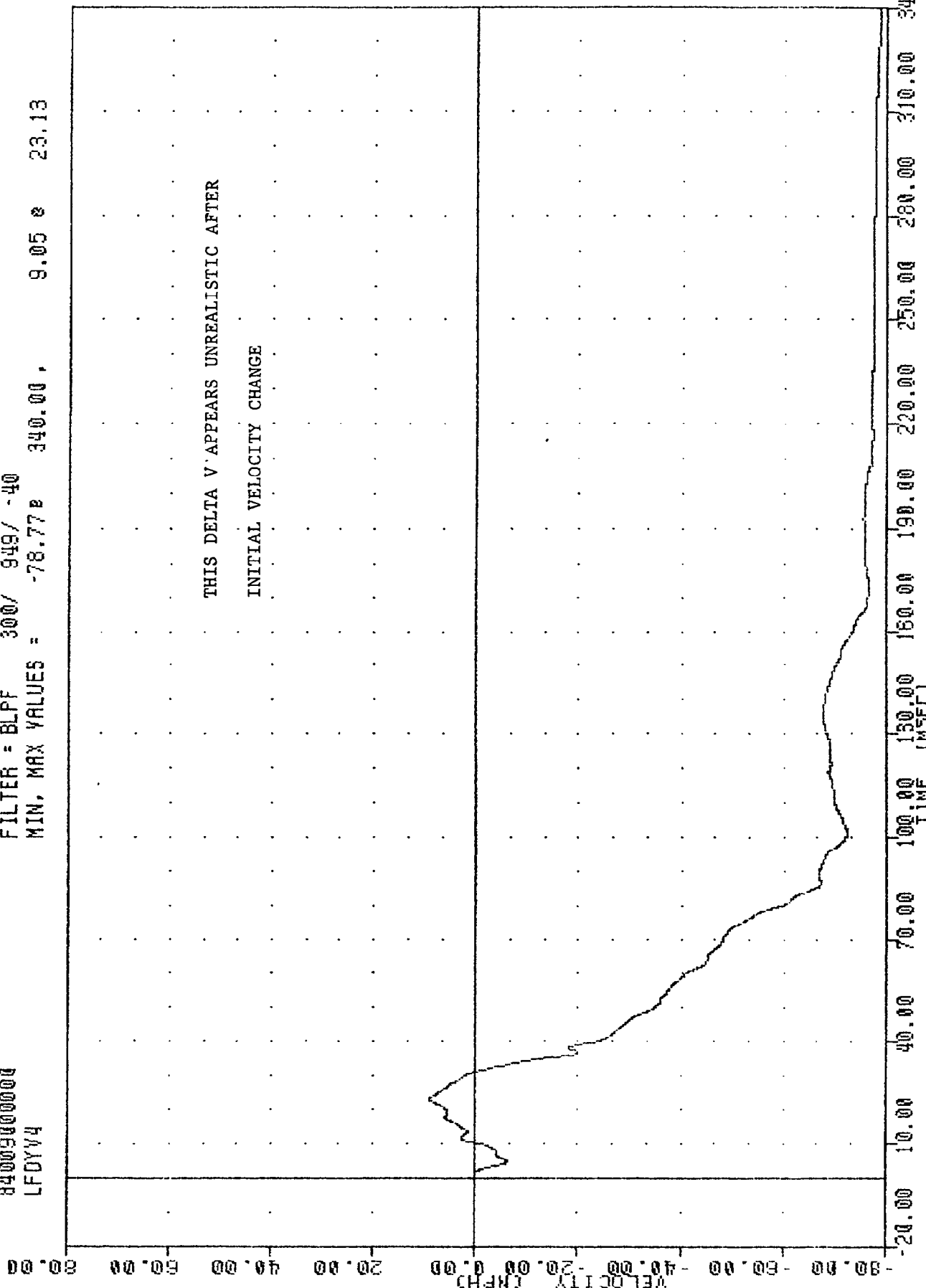


MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE LEFT FRONT DOOR (POSITION 10) ACCELERATION Y AXIS

INC 840109
SIDE PROTECTION - 2DR/4DR
8400900000
LFOYV4

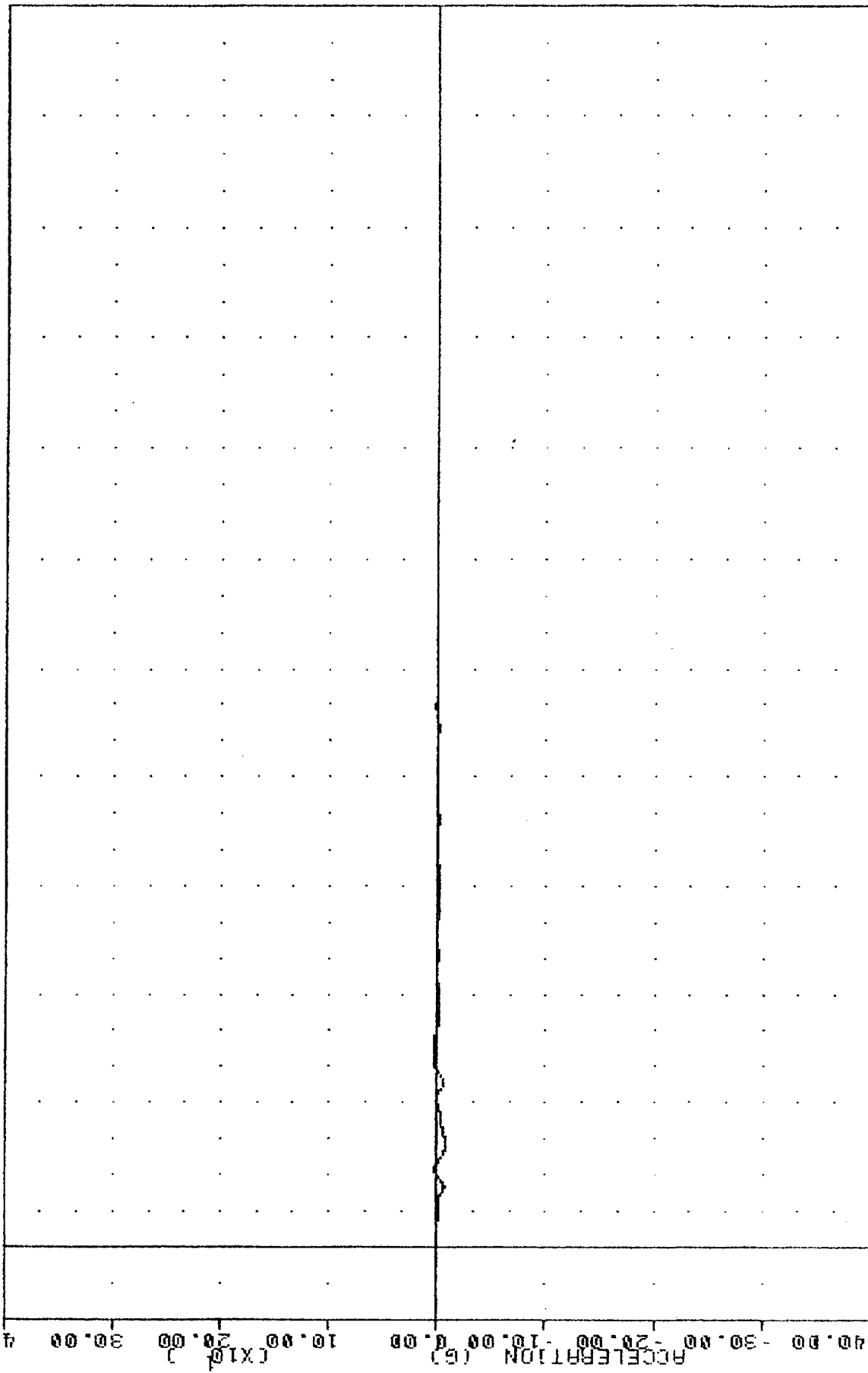
PLUT DATE 17-JAN-84 09:57:15

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -78.77 340.00, 9.05 23.13



MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LFOYV4

TAL 840108 PLOT DATE 11-JAN-84 12:48:29
 SIDE PROTECTION -- 2DR/4DR
 84009000000
 TFRXG7
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -8.16% 27.88% 3.52% 51.63



ACCELERATION (g)
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE TRUNK FLOOR RIGHT ACCELERATION X AXIS

TAC 840108

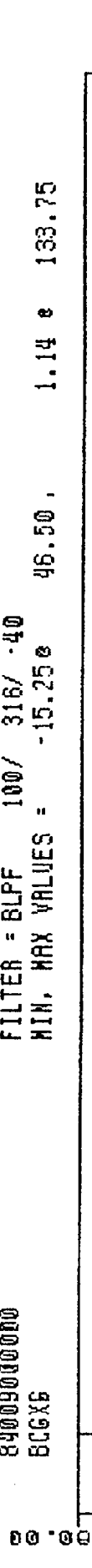
PLOT DATE 11-JAN-84 12:48:29

840090000000
SIDE PROTECTION - 2DR/4DR

BCCX6

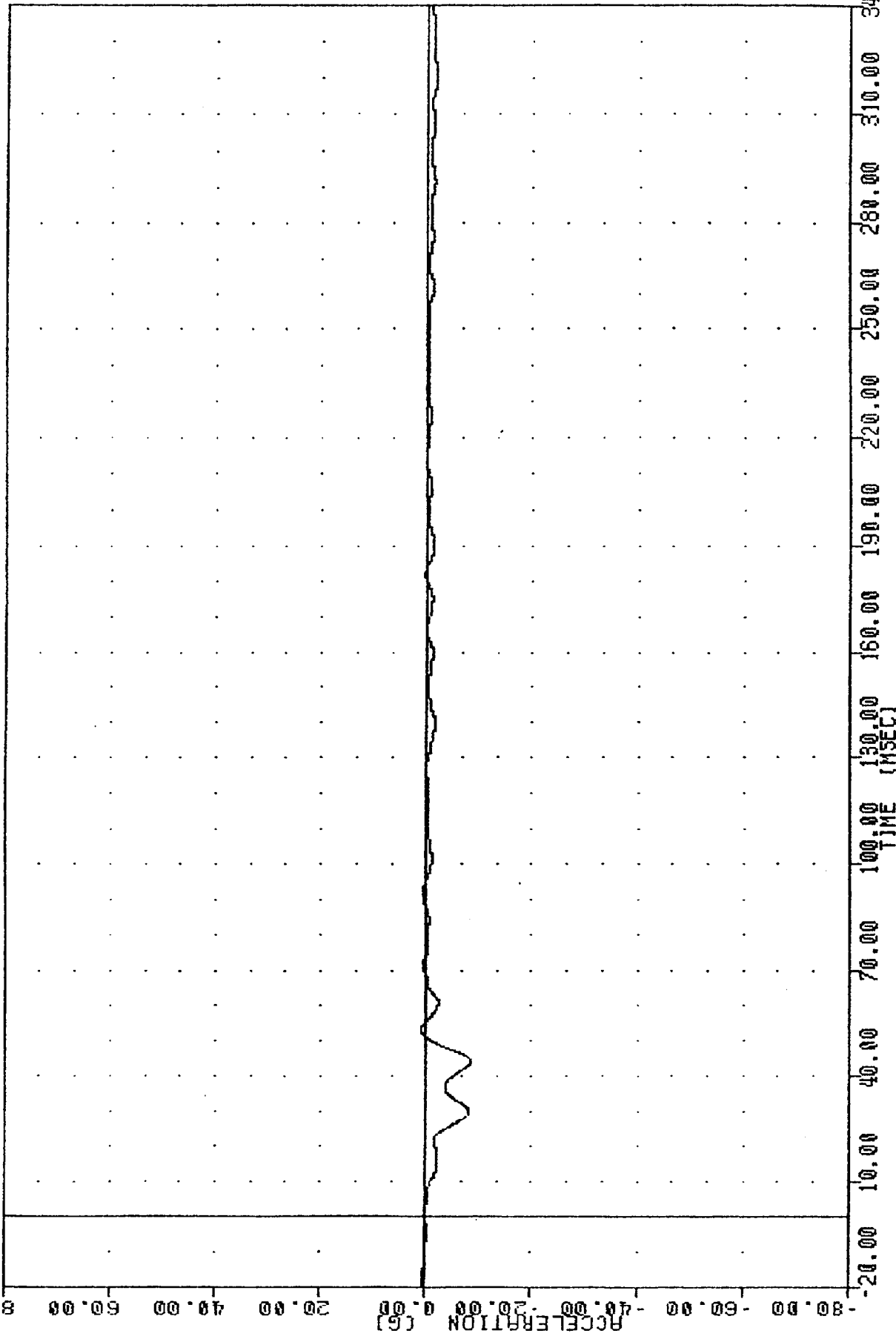
FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -15.25e 46.50, 1.14 e 133.75



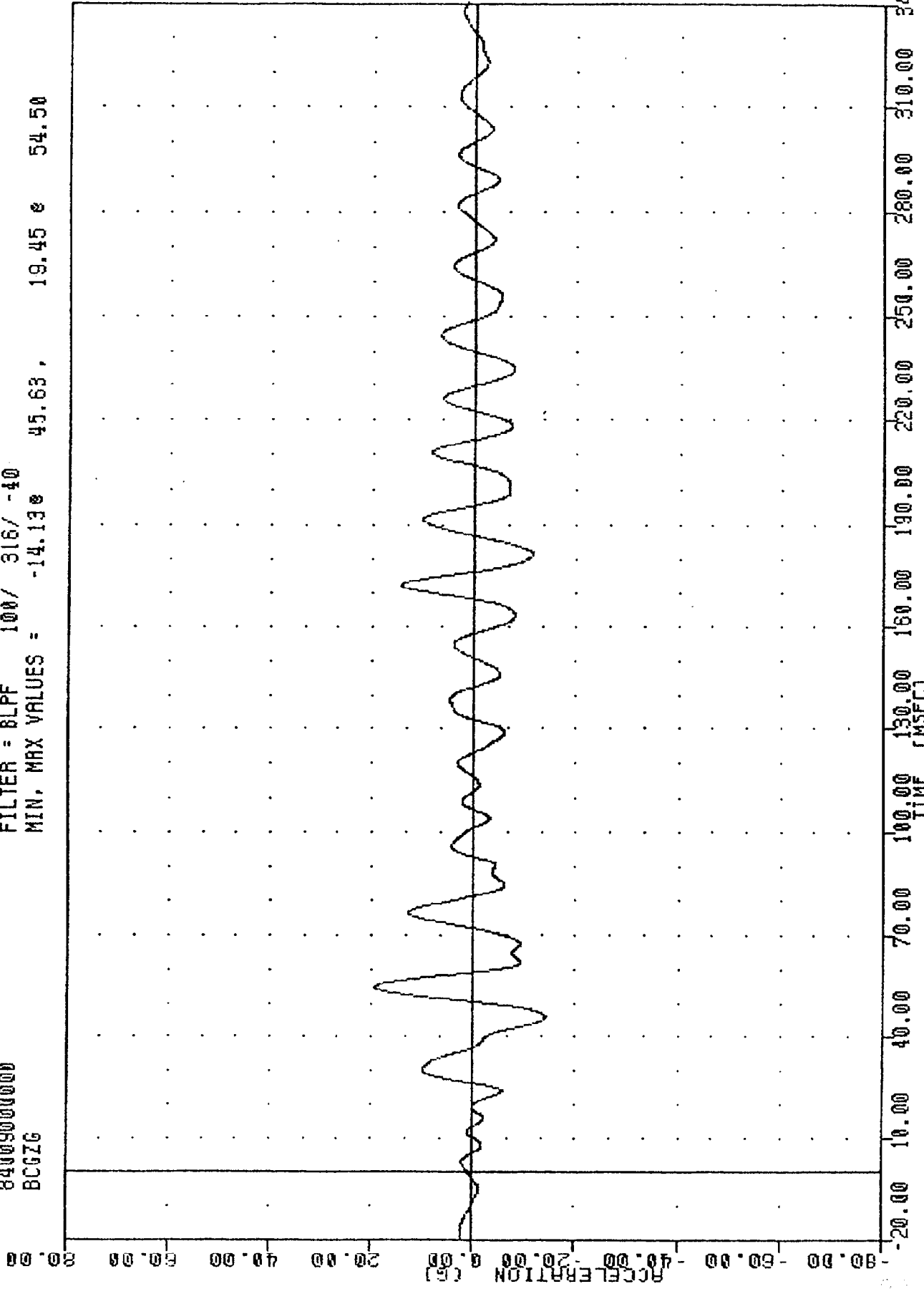
MOVING DEFORMABLE BARRIER INTO OMNI
BARRIER CENTER OF GRAVITY X AXIS

TFL 840109 PLOT DATE 11-JAN-84 12:48:29
 SIDE PROTECTION - 20R/40R
 84009000000
 8CGYG
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -8.54 44.13 0.93 53.13



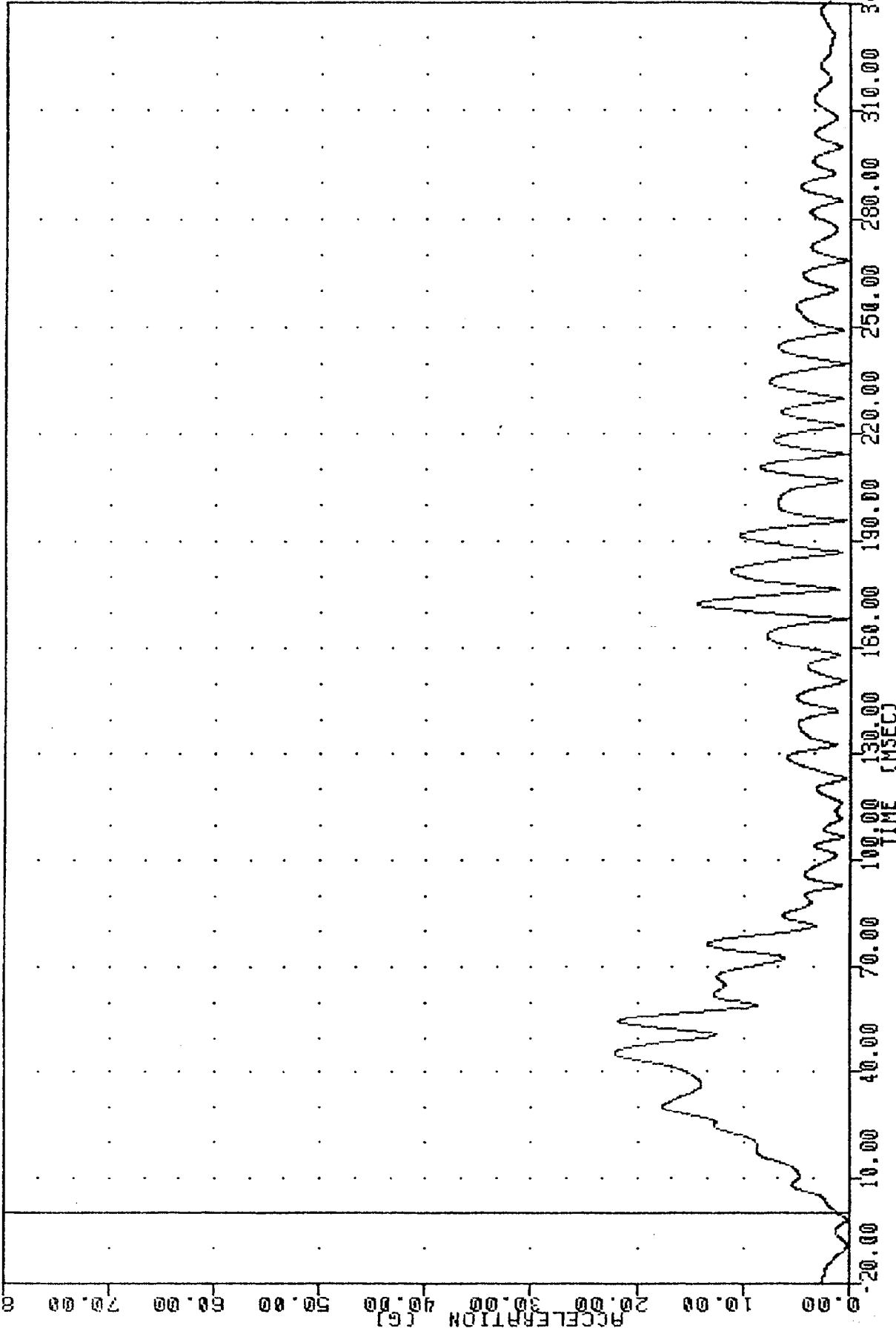
MOVING DEFORMABLE BARRIER INTO OMNI
 BARRIER CENTER OF GRAVITY Y AXIS

TRC 540109
 SIDE PROTECTION - 2DR/4DR
 84009000000
 BCGZG
 PLUT DATE 11-JUN-84 12:48:29
 FILTER = 8LPF 100/ 316/ -40
 MIN. MAX VALUES = -14.130 45.63, 19.45 & 54.50



MOVING DEFORMABLE BARRIER INTO OMNI
 BARRIER CENTER OF GRAVITY Z AXIS

TAC 840109
 SIDE PROTECTION - 2DR/4DR
 84009000000
 BCGRG
 FILTER = 8LPF 100/ 316/ -40
 MIN. MAX VALUES = 0.08e -9.3B, 22.11 e -45.38
 PLOT DATE 11-JAN-84 14:15:01

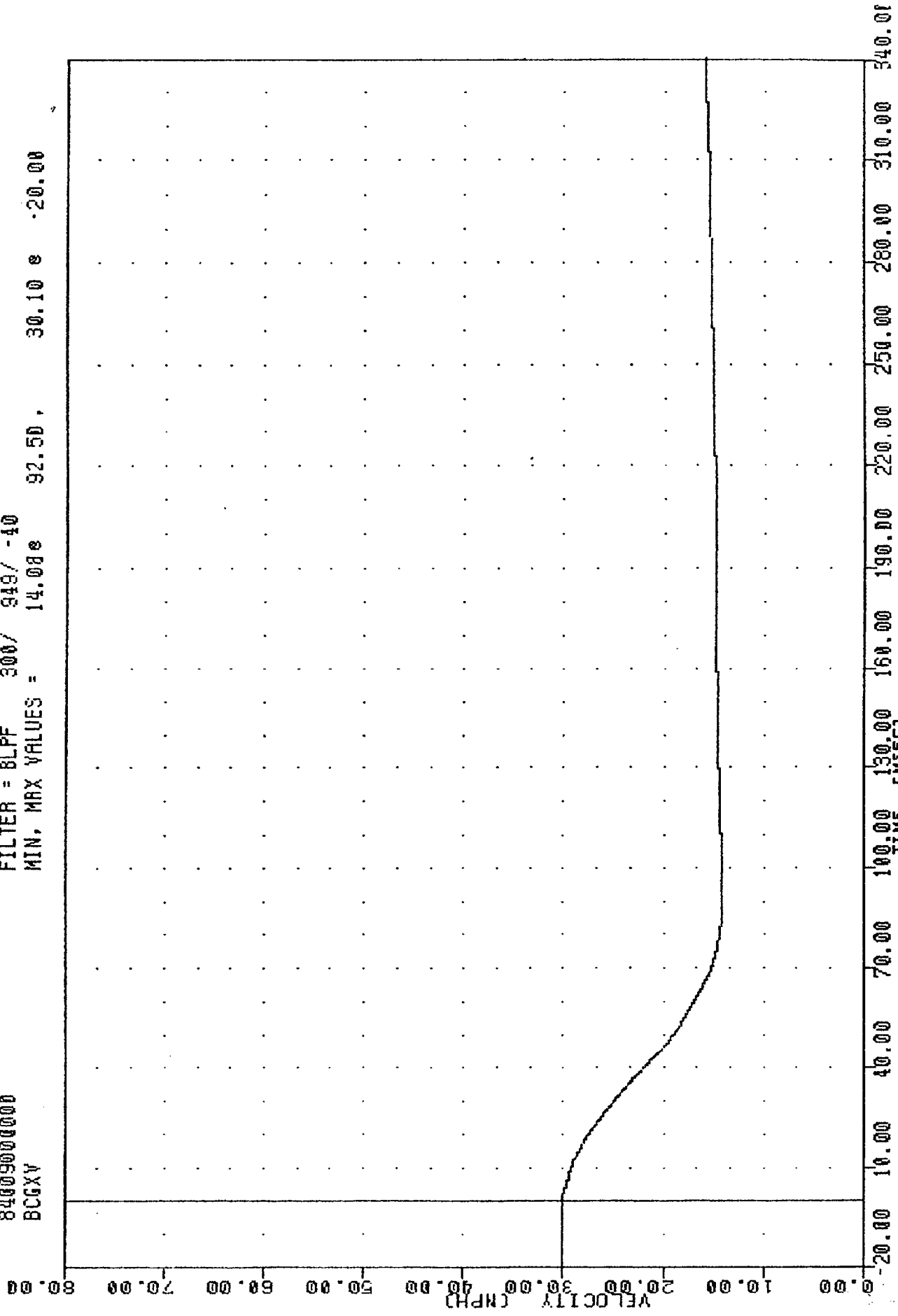


MOVING DEFORMABLE BARRIER INTO OMNI
 BARRIER CG RESULTANT

THL
840109
SIDE PROTECTION - 2DR/4DR
8400900000
BCGXV

PLUT DATE 11-JAN-64 12:49:14

FILTER = 8LFF 300/ 948/ -40
MIN. MAX VALUES = 14.08e 92.50, 30.10 e -20.00



MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING BCGXG

TAC 840109

SIDE PROTECTION - 20R/40R

84009000000

BCGYG

PLUT DATE

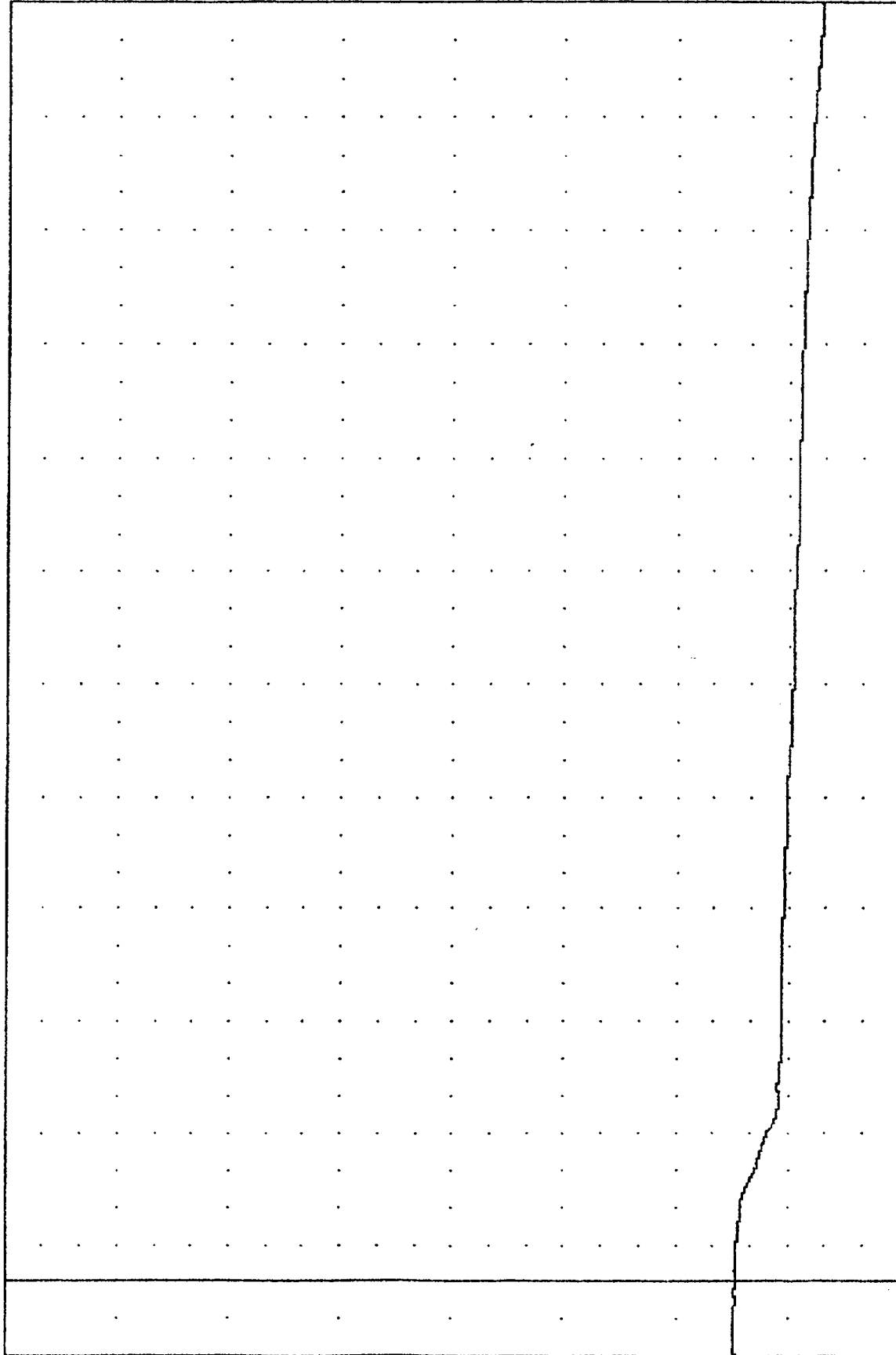
11-JAN-64

12:49:44

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 6.87e 340.00, 14.74e -13.36

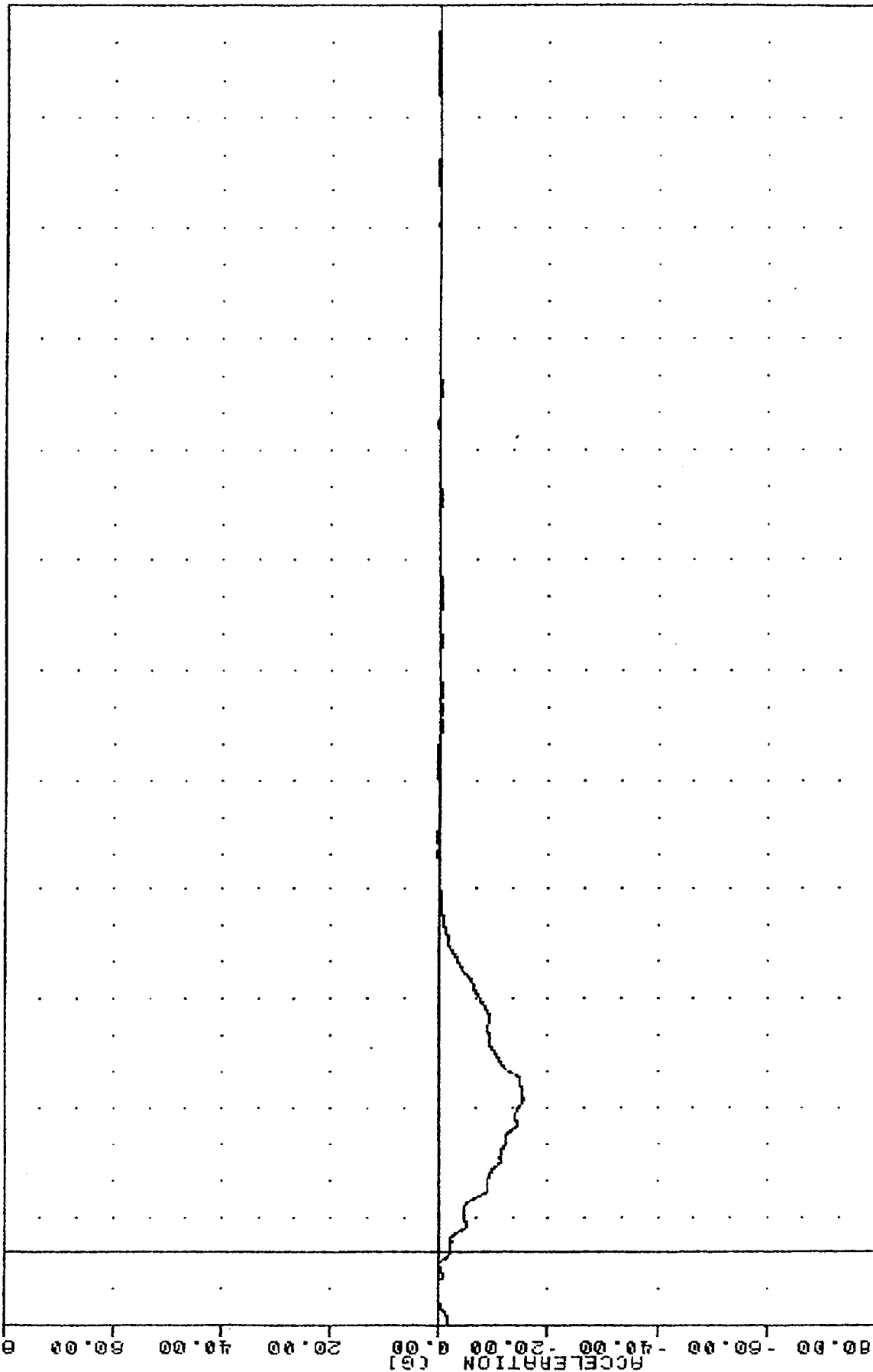
VELOCITY (MPH)



TIME (INSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
DELTA Y USING BCGYG

TRC 840109 11-JUN-84 12:48:23
 SIDE PROTECTION - 2DR/4DR
 84009000000
 BFCX6
 FILTER = BLPF 100/ 316/ .40
 MIN. MAX VALUES = -15.39e 42.00 D.63 e 134.63

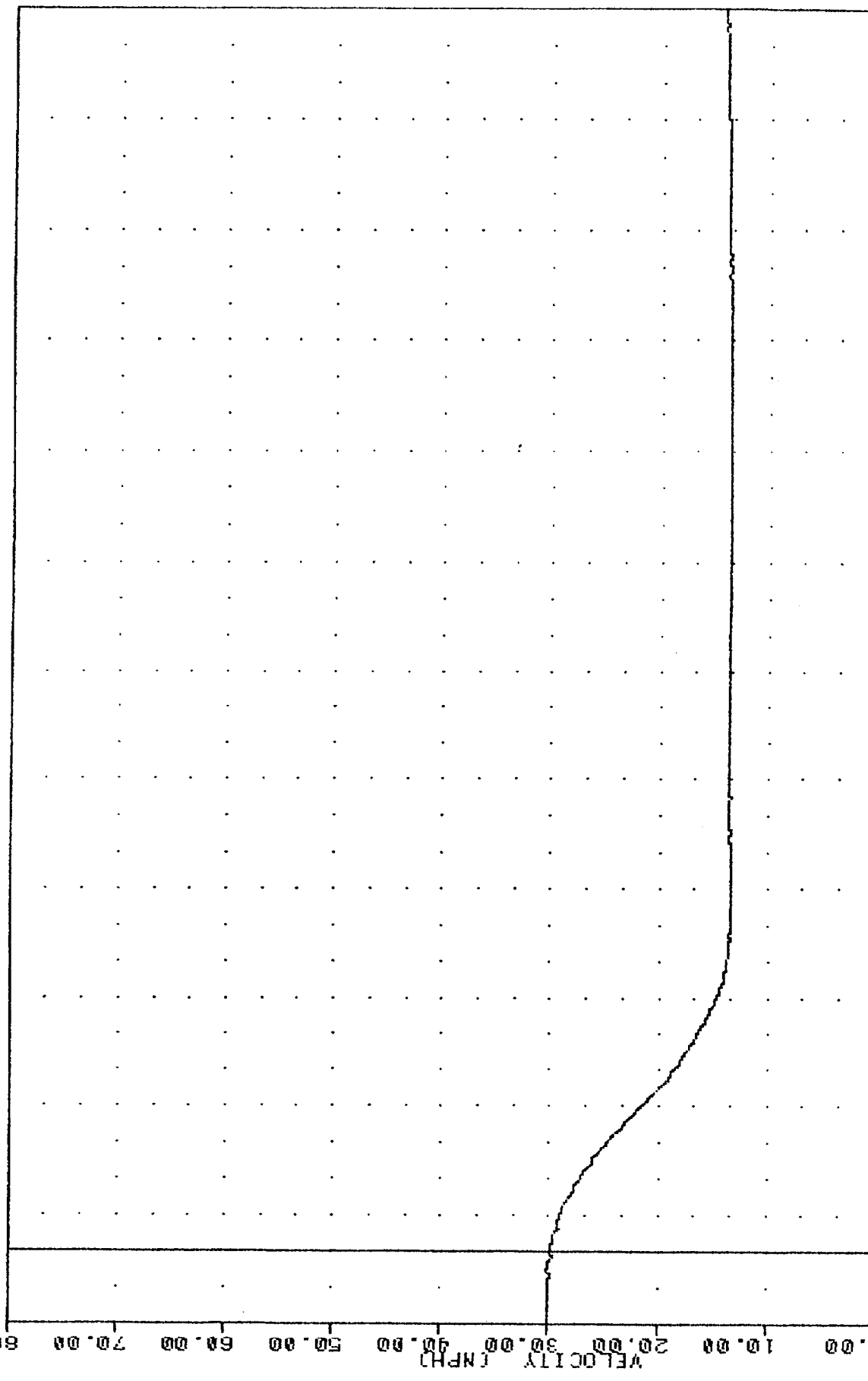


-80.00
 -70.00
 -60.00
 -50.00
 -40.00
 -30.00
 -20.00
 -10.00
 0.00
 10.00
 20.00
 30.00
 40.00
 50.00
 60.00
 70.00
 80.00
 90.00
 100.00
 110.00
 120.00
 130.00
 140.00
 150.00
 160.00
 170.00
 180.00
 190.00
 200.00
 210.00
 220.00
 230.00
 240.00
 250.00
 260.00
 270.00
 280.00
 290.00
 300.00
 310.00
 320.00
 330.00
 340.00

MOVING DEFORMABLE BARRIER INTO OMNI
 BARRIER FRONT CROSSMEMBER ACCELERATION X AXIS

TRC 840109
SIDE PROTECTION - 2DR/4DR
8400900000
BFCXV

PLUT DATE 11-JAN-84 12:49:44
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = 13.328 99.00 , 30.26 e -5.38



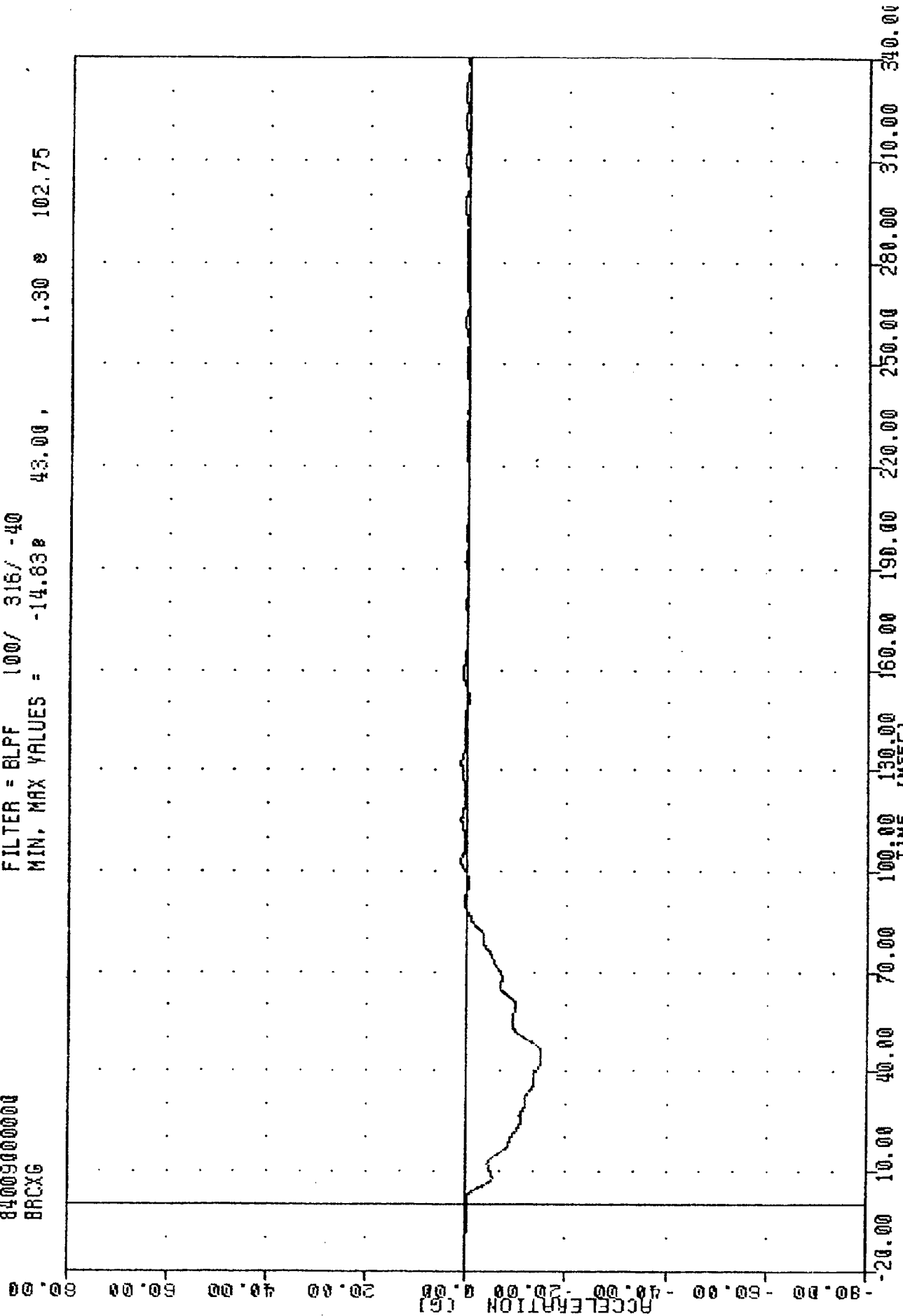
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
-20.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING BFCXG

TRC
840109
SIDE PROTECTION - 2DR/4DR
84009000000
BRXG

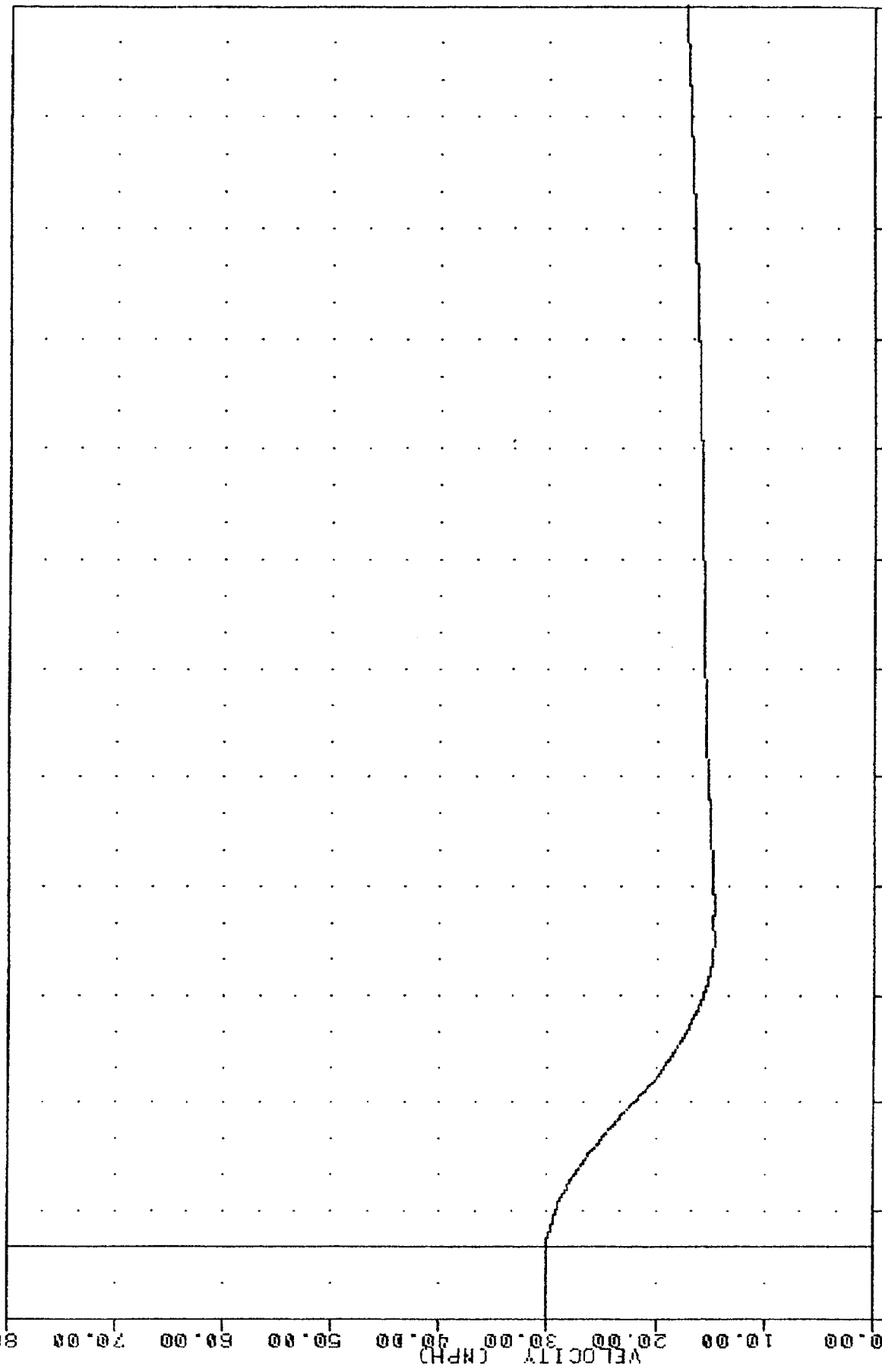
PLOT DATE 11-JAN-84 12:48:29

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -14.838 43.00, 1.30 e 102.75



MOVING DEFORMABLE BARRIER INTO OMNI
BARRIER REAR CROSSMEMBER ACCELERATION X AXIS

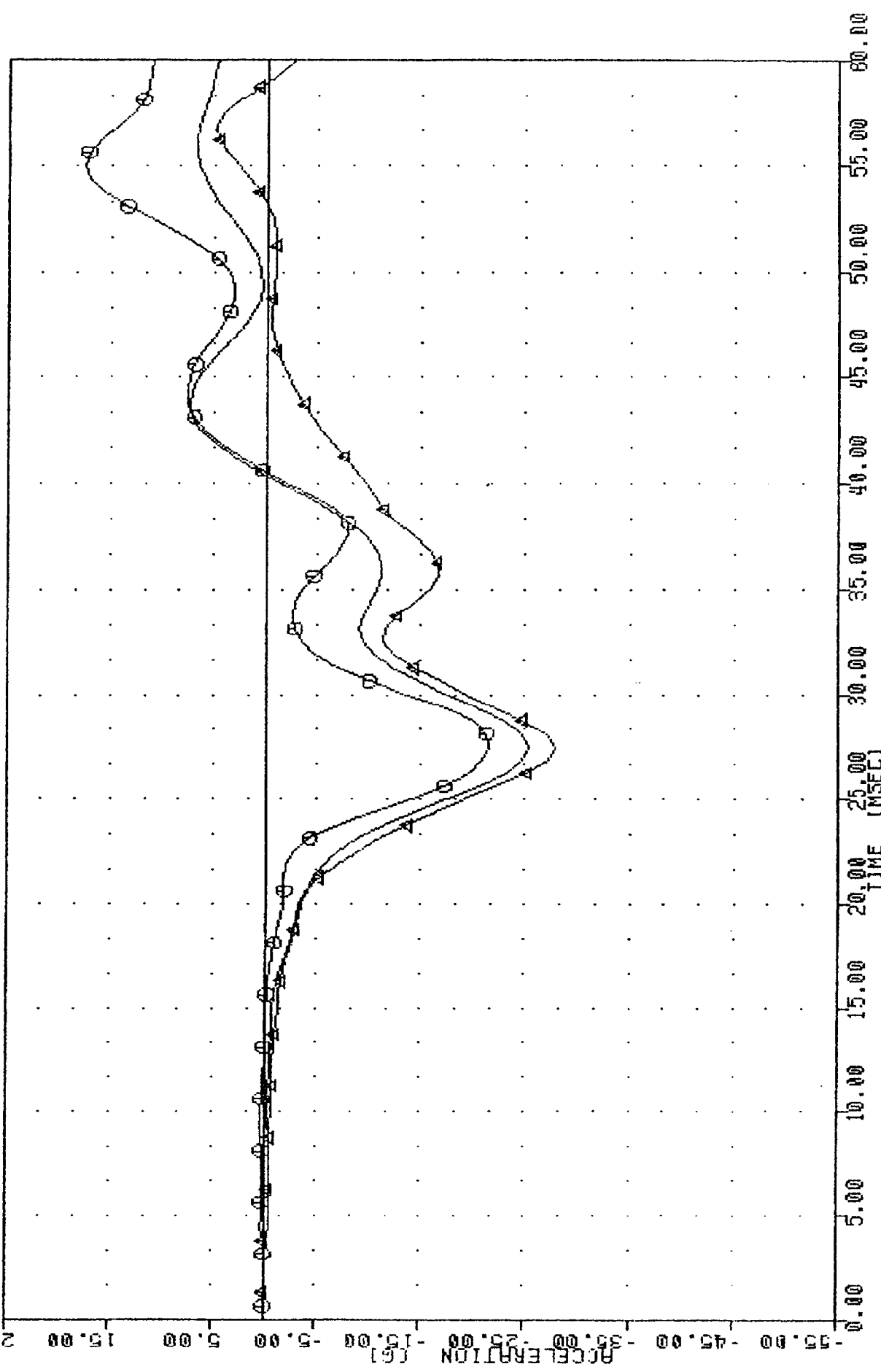
TRC
 840109
 SIDE PROTECTION - 2DR/4DR
 8400900000
 BRXXV
 PLOT DATE 11-JUN-84 12:49:14
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 14.668 86.50, 30.10 e -20.00



MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING BRXXG

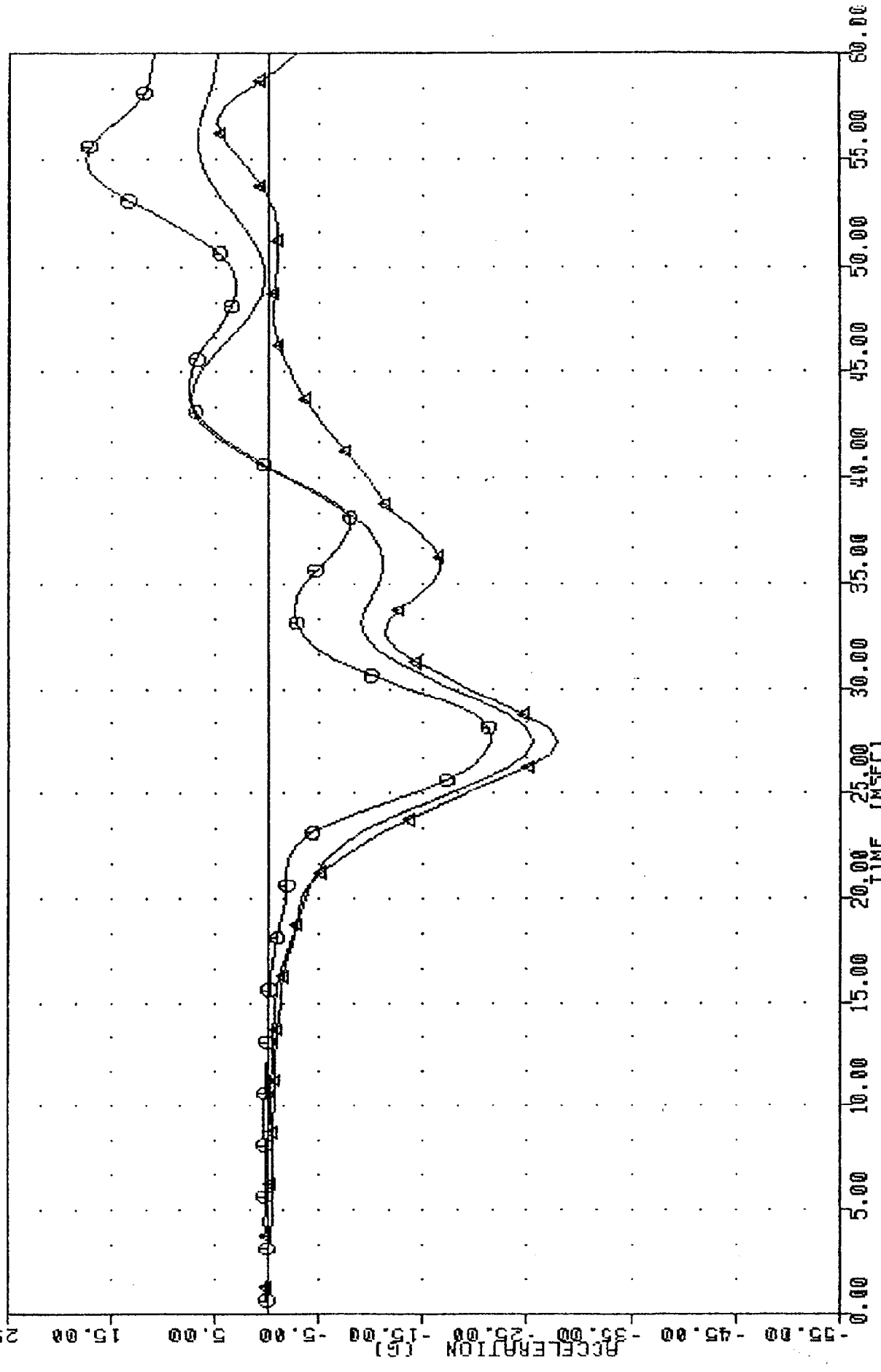
APPENDIX C
DUMMY CERTIFICATION

VRIC SRL91 SID THORAX 6 BODY 318 CAL 83 84005 PLOT DATE 5-JAN-84 13:50:59
 TOIYGI FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.35 26.87 7.34 43.13
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -21.59 26.87 17.54 54.38
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -27.91 26.87 4.78 56.25



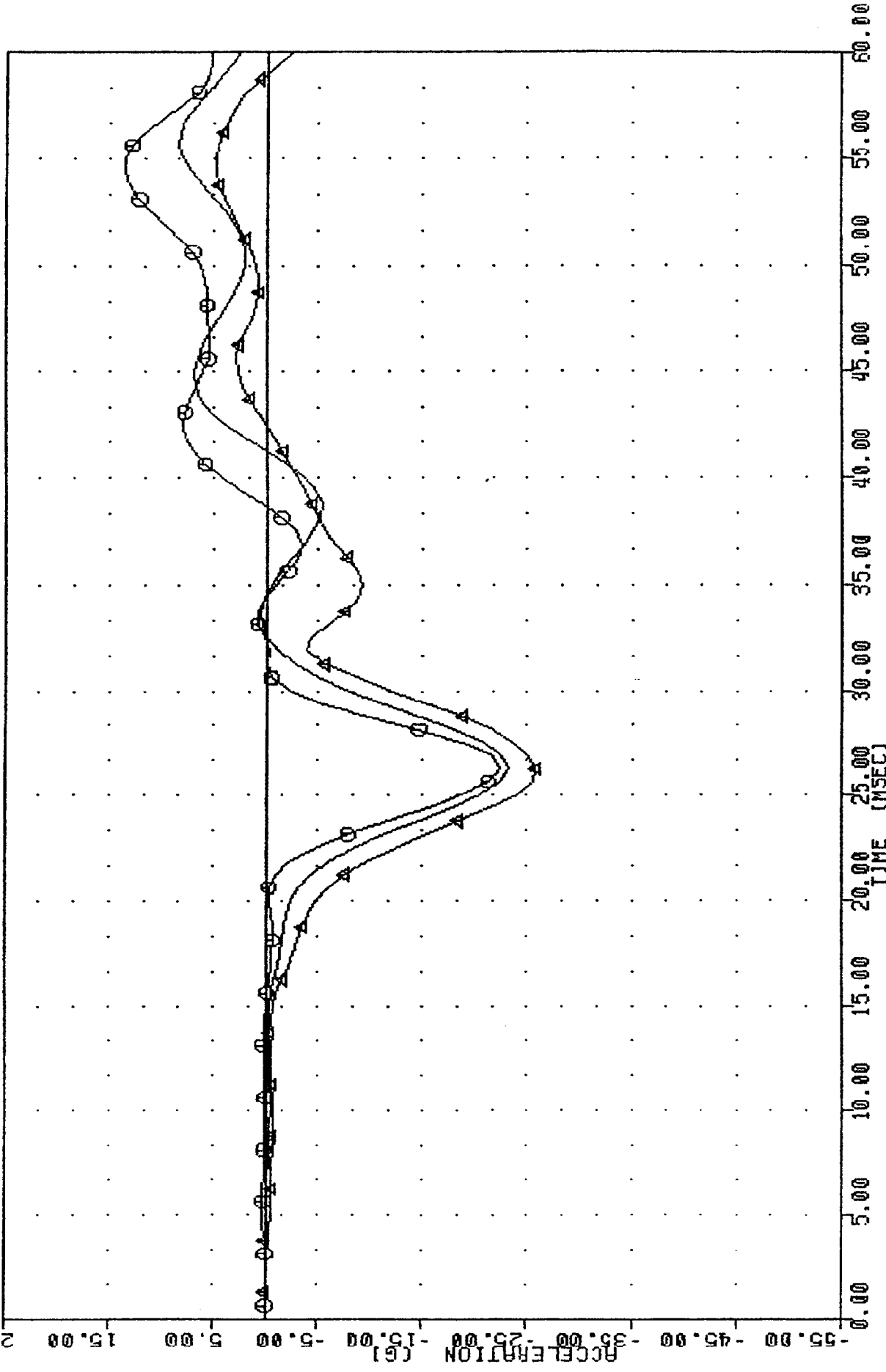
SIDE IMPACT TEST (006)
 UPPER SPINE ACCELERATION Y AXIS -1

VATIC SRL91 SID THORAX 6 BODY 318 CAL 83 84005 5-JAN-84 13:52:46
 TOIYGA FILTER : HSRI 136/ 189/ -50 MIN. MAX = -25.50 26.87 7.37 43.13
 MN-2SD FILTER : HSRI 136/ 189/ -50 MIN. MAX = -21.58 26.87 17.54 54.38
 MN-2SD FILTER : HSRI 136/ 189/ -50 MIN. MAX = -27.91 26.87 4.78 56.25



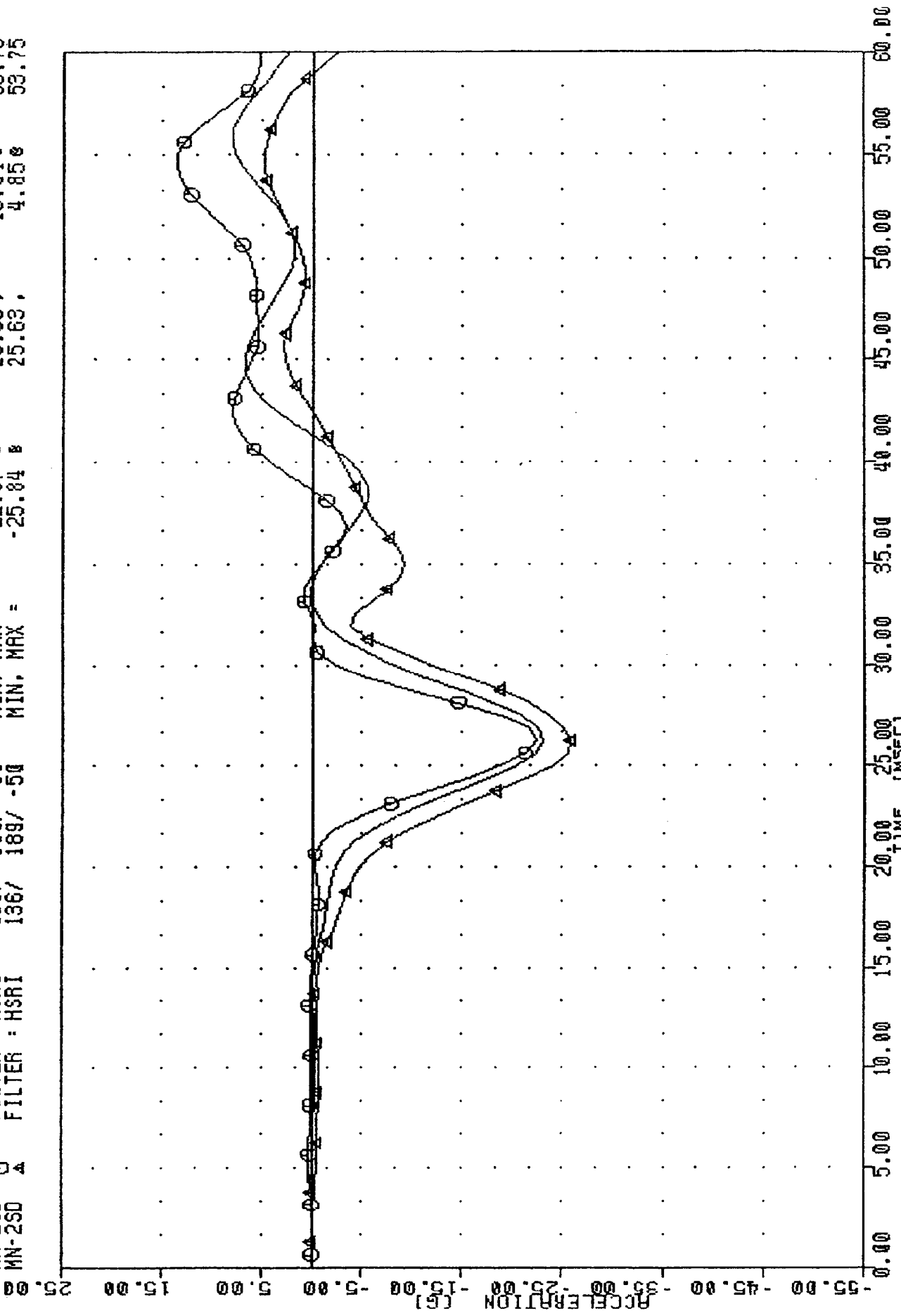
SIDE IMPACT TEST (006)
 UPPER SPINE ACCELERATION Y AXIS -A

YRIC SRL91 • S100683 SID THORAX 6 BODY 318 CAL 83 84005 PLOT DATE 5-JAN-84 14:28:17
 T12YGI FILTER : HSRI 136/ 189/ -50 MIN, MAX = -23.13 8 25.63, 8.29 55.00
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -22.37 8 25.63, 13.54 53.75
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.84 8 25.63, 4.85 53.75



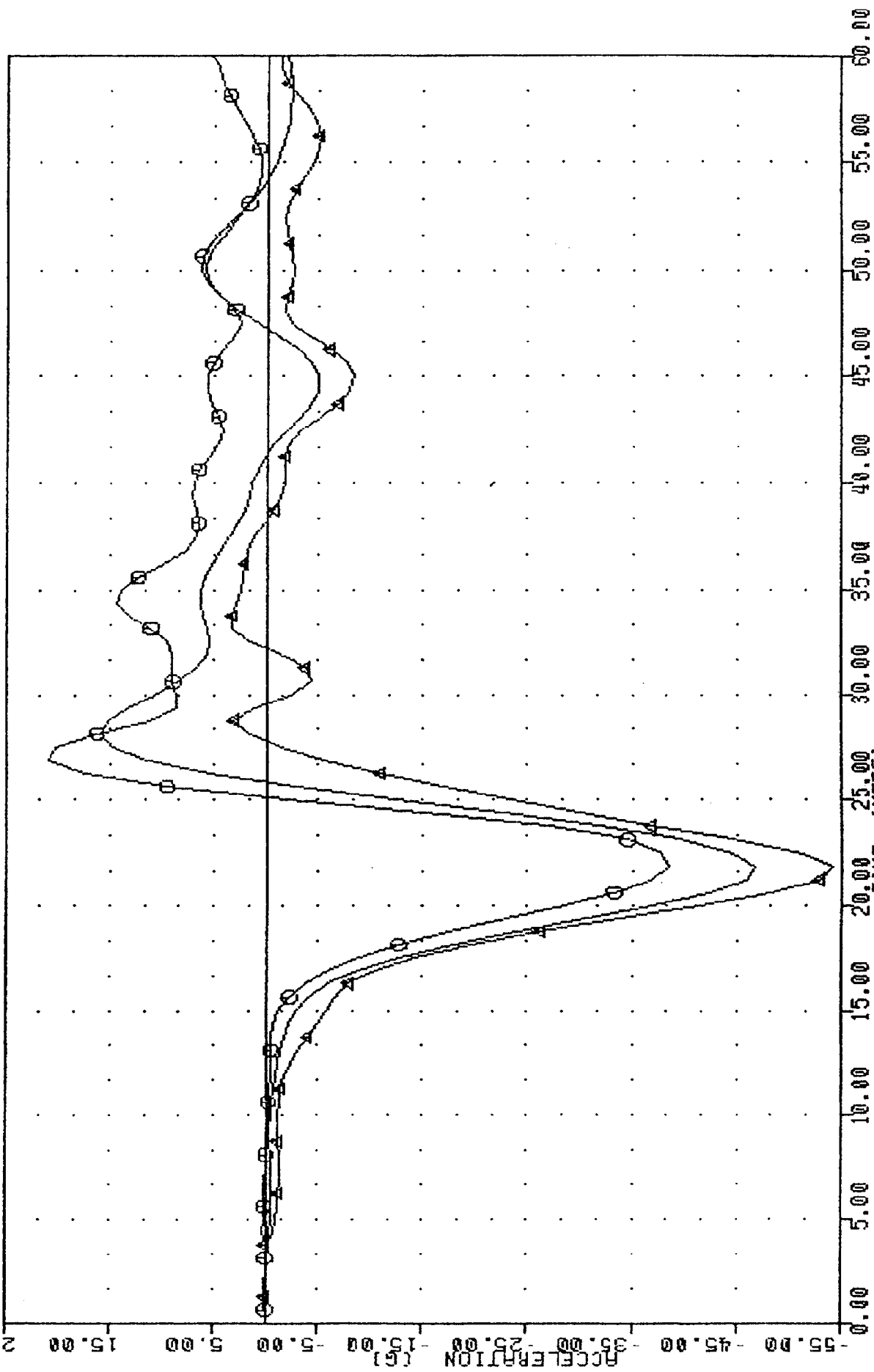
SIDE IMPACT TEST (006)
 LOWER SPINE ACCIFFRATION Y AXIS -1.

VRTC SPL81 • SI00683 SID THORAX 6 BODY 318 CAL 83 84005 PLOT DATE 5-JAN-84 14:02:02
 T12YGA FILTER : HSRI 136/ 189/ -50 MIN. MAX = -23.06 8 25.63 8 8.03 8 55.00
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -22.37 8 25.63 8 13.54 8 53.75
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -25.84 8 25.63 8 4.85 8 53.75



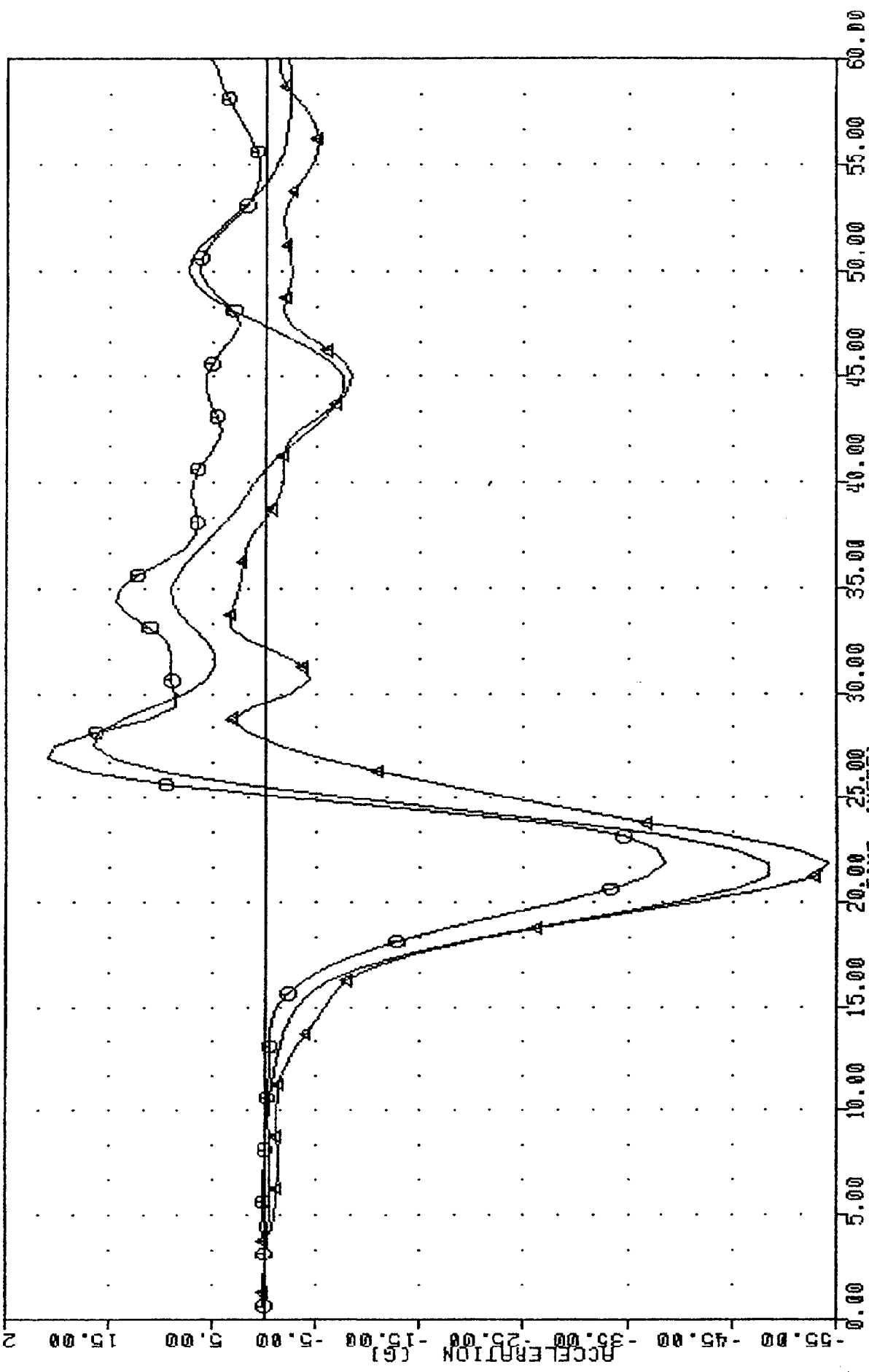
SIDE IMPACT TEST (006)
 IOWFA SPINF ACCFIFRATION Y AXIS -A

VATIC SXL91 SID IHURAX b 600) 318 LHL 83 84wwo 5-JUN-84 13.04.43
 LURYGI FILTER : HSRI 136/ 189/ -50 MIN, MAX = -46.77 B 21.25, 15.90 B 27.50
 MN-250 O FILTER : HSRI 136/ 189/ -50 MIN, MAX = -38.44 B 21.25, 20.92 B 28.25
 MN-250 A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -54.08 B 21.25, 3.31 B 33.13



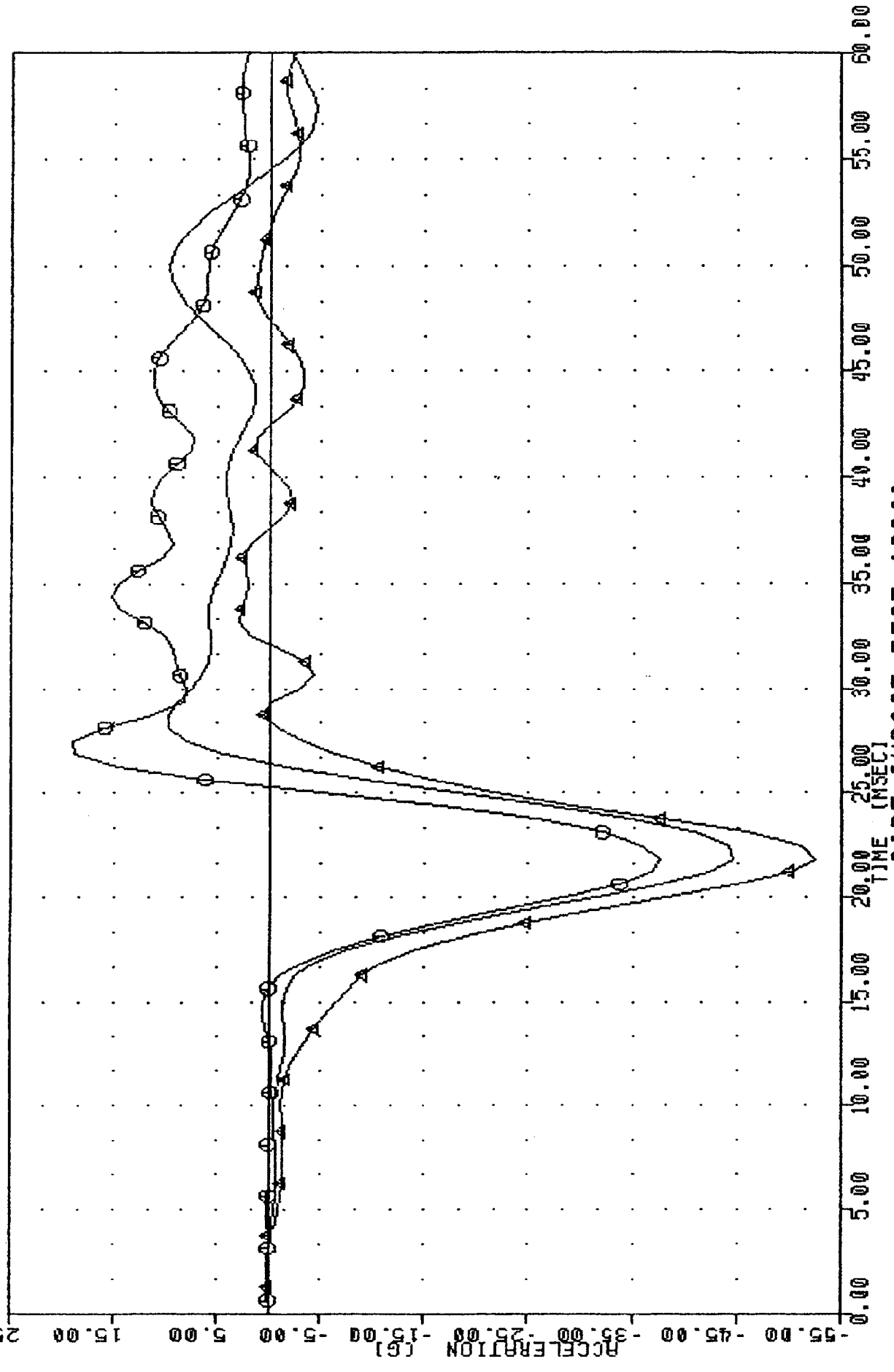
SIDE IMPACT TEST (006)
 LEFT UPPER RIB ACCELERATION Y AXIS -1

VRIC SRL91
 LURYGA
 MN-2SD
 MN-2SD
 SID 1MURAX 6 BODY 518 LHL 83
 136/ 189/ -50
 136/ 189/ -50
 136/ 189/ -50
 FILTER : HSRI
 FILTER : HSRI
 FILTER : HSRI
 84WD
 -48.52
 -38.44
 -54.08
 PLU1 DATE 5-JUN-84
 21.25
 21.25
 21.25
 14.23.46
 16.51
 20.92
 3.31
 26.87
 26.25
 33.13



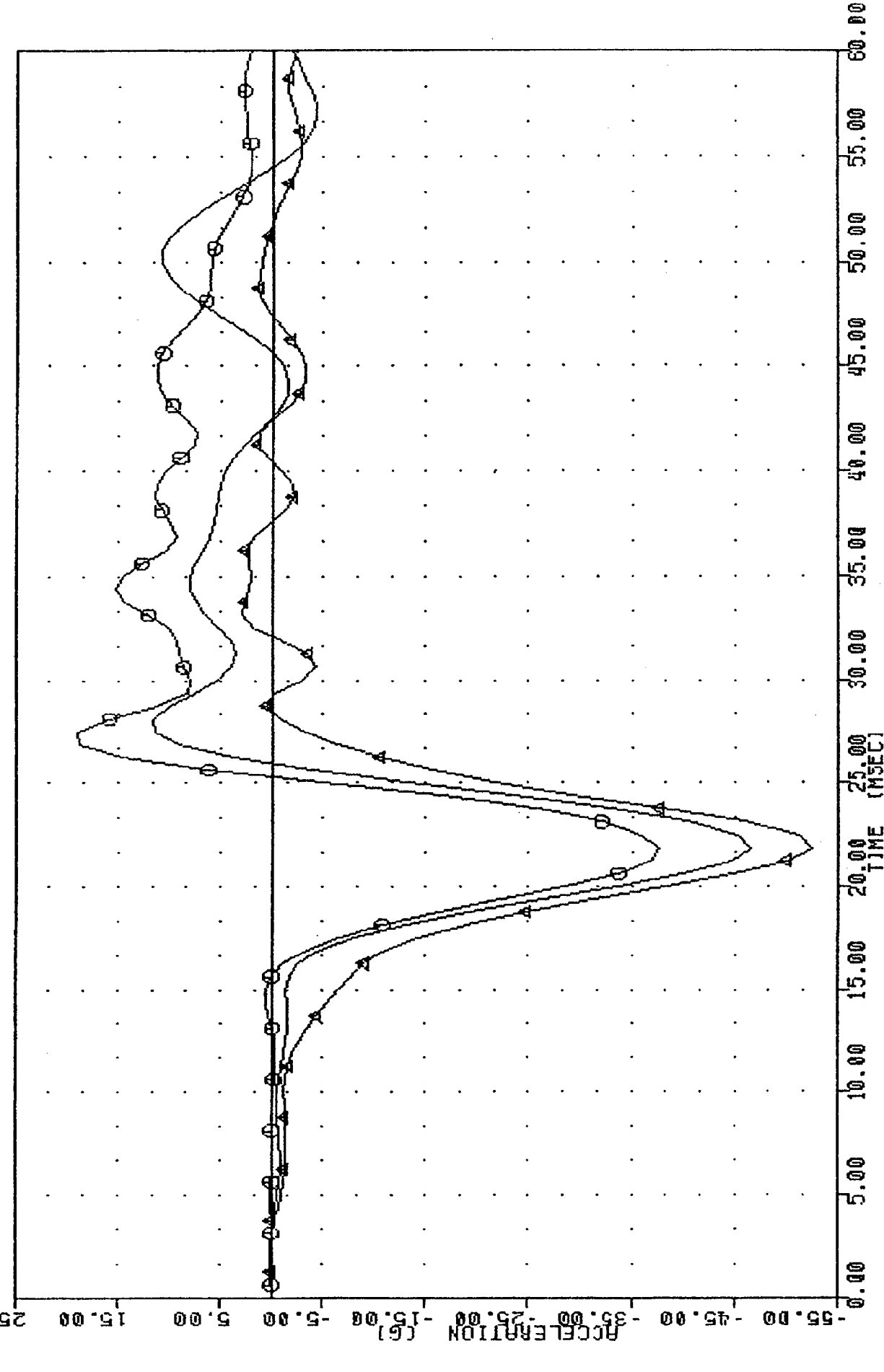
SIDE IMPACT TEST (006)
 LEFT UPPER RIB ACCELERATION Y AXIS - A

WVIC 2100803 310 IDURAX 0 BODJ 318 WIL 83 84 WWC 5-JUN-84 14. WJ. 55
 LLYG1 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -44.63 9.69 28.13
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -37.66 19.00 26.87
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -52.52 2.94 32.50



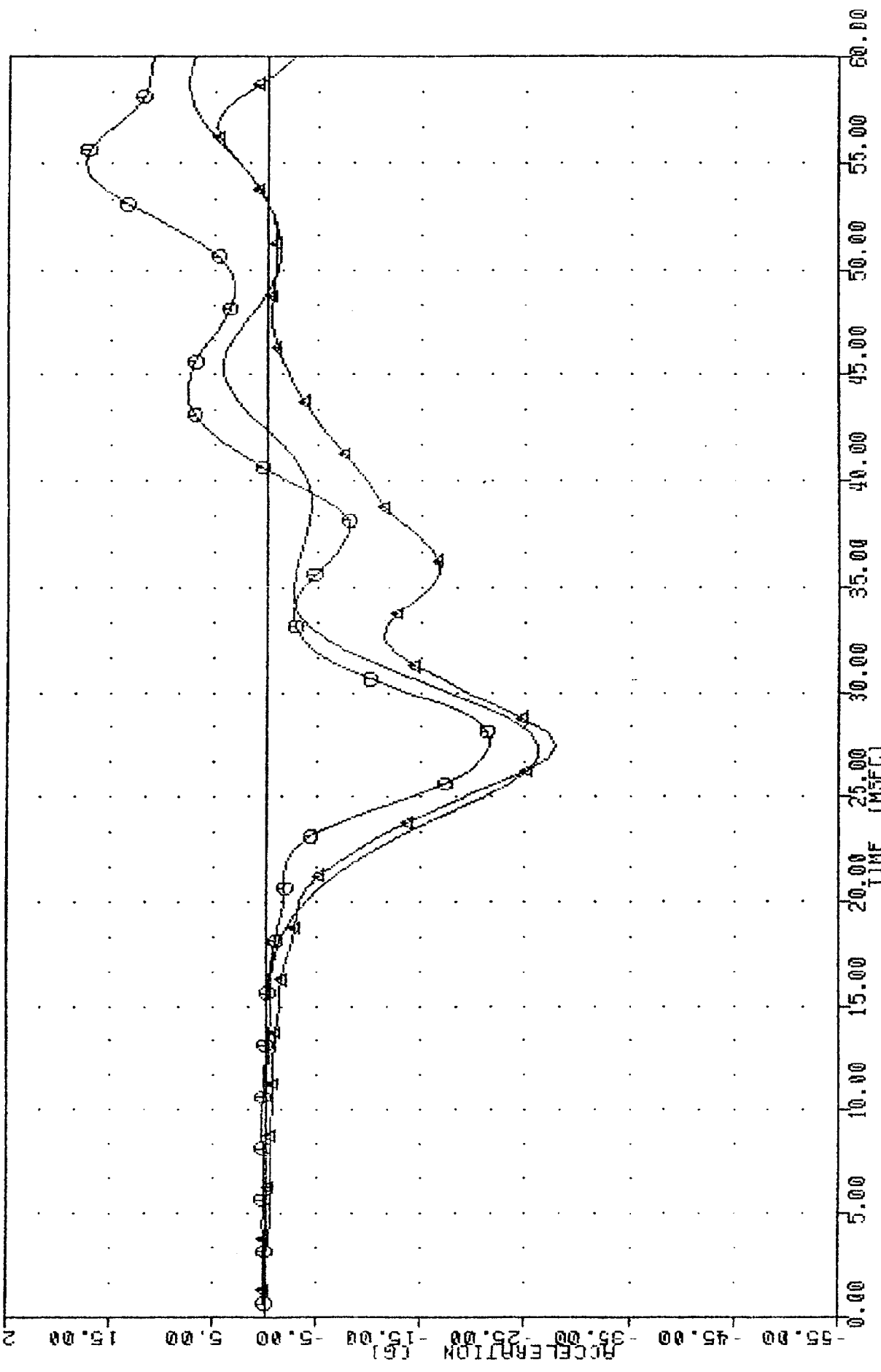
SIDE IMPACT TEST (006)
 LEFT LOWER RIB ACCELERATION Y AXIS -1

VRTC SHL91 51000033 SID INURAX b BODY 318 JNL 83 84 WWS 5-JUN-84 14:00:16
 LLRYGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -46.57 21.25 11.47 27.50
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -37.66 21.25 19.00 26.87
 MN-2SD 1 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -52.52 21.25 2.94 32.50



SIDE IMPACT TEST (006)
 LEFT LOWER RIB ACCELERATION Y AXIS - A

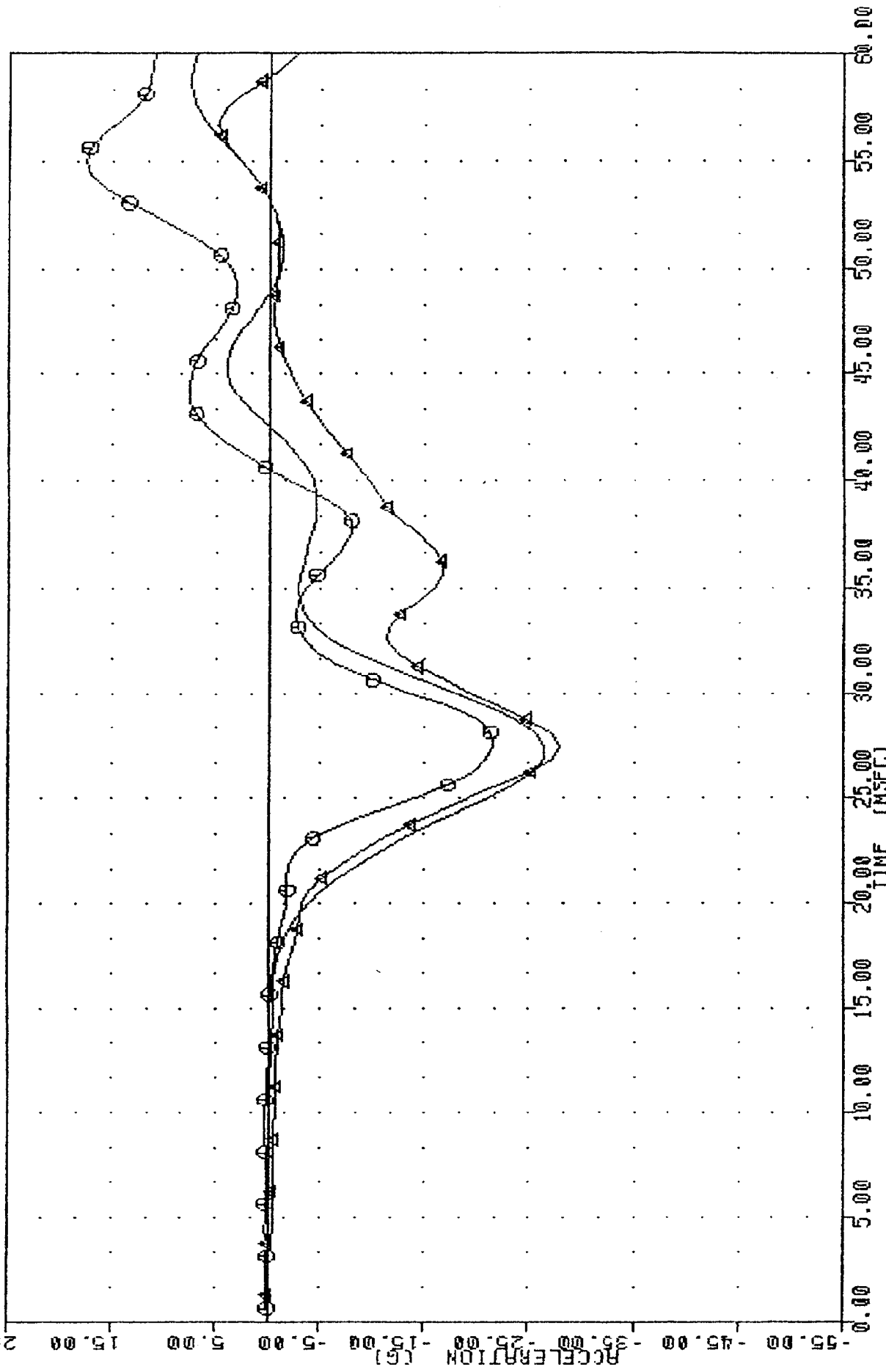
YBTC SRL91 , SIV0282 SID THORAX UN2 BODY 830 CAL 82 84005 5-JAN-84 13:49:42
 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -26.26 e 26.87 e
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -21.58 e 25.87 e
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -27.91 e 26.87 e



SIDE IMPACT TEST (U02)

IIPPER SPINF ACFFIFRATION Y AXIS -1

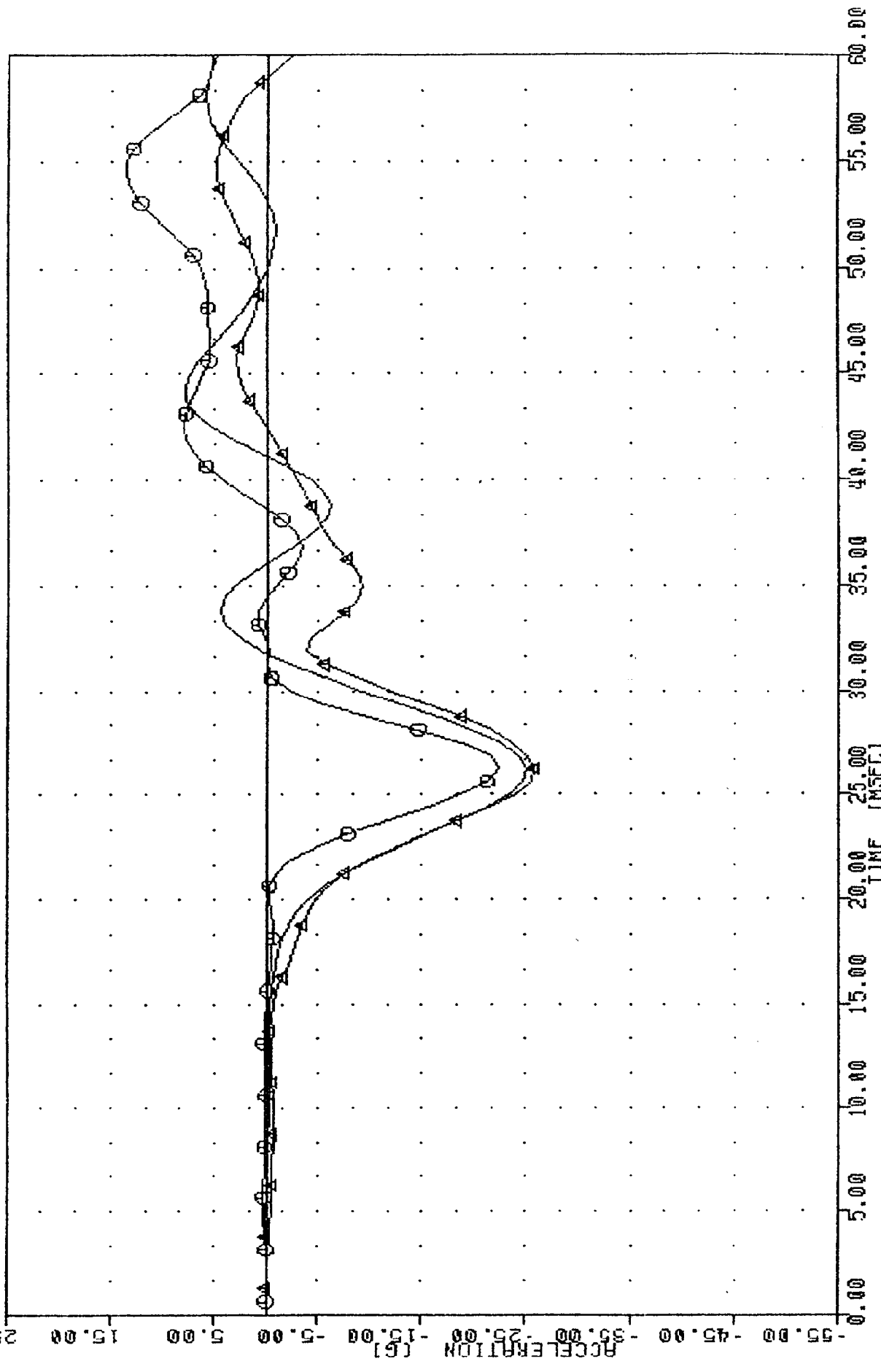
YRIC SRL91 , SIU0282 SID THORAX U02 BODY 83N CAL 82 84005 5-JUN-84 13:51:52
 T01YGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -26.44 7.46 58.13
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -21.58 17.54 54.38
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -27.91 4.78 56.25



SIDE IMPACT TEST (U02)

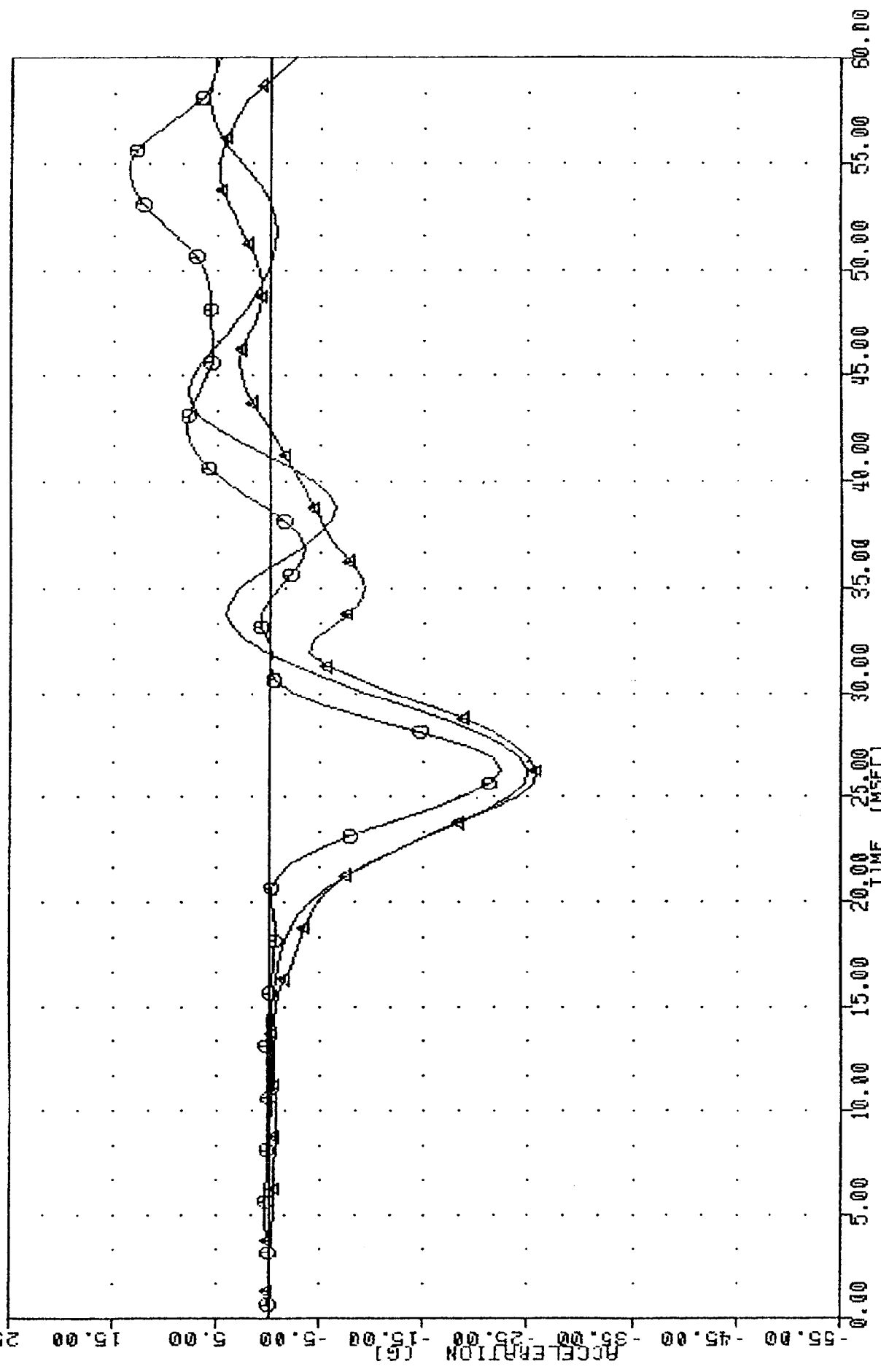
HIPPER SPINE ACCFIERATION Y AXIS -A

YRIC SRL91 , SIU0282 SID THORAX U02 BODY 830 CAL 82 84005 5-JAN-84 13:53:44
 T12Y61 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.03 e 25.63, 7.77 e 43.75
 MN-250 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -22.37 e 25.63, 13.64 e 53.75
 MN-250 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.84 e 25.63, 4.85 e 53.75



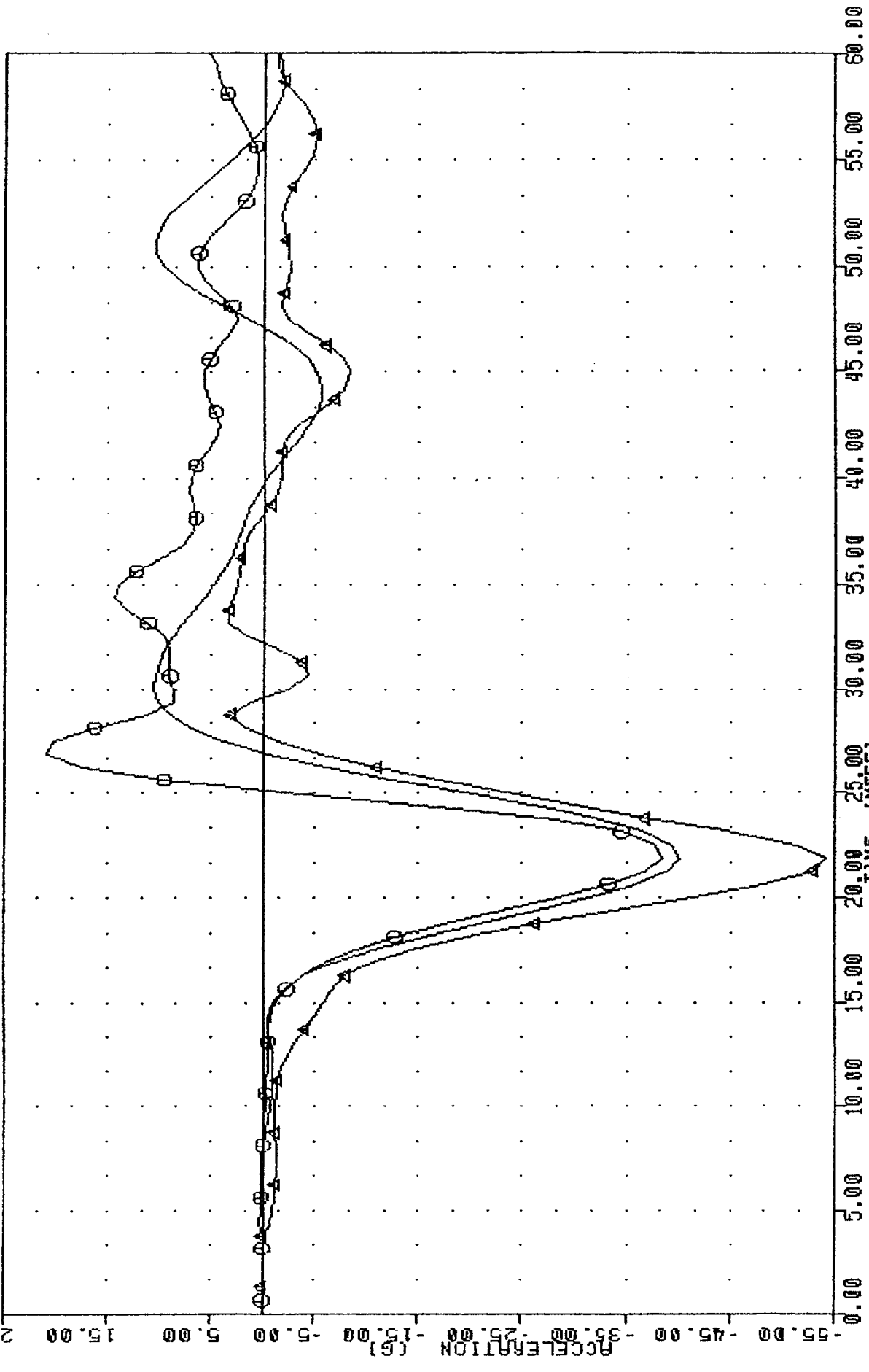
SIDE IMPACT TEST (U02)
 LOWER SPINE ACCIFFRATION Y AXYS -1

VRTC SRL91 , SIU0282 SID THORAX U02 BODY 830 CAL 82 84005 5-JAN-84 13:56:05
 T12YGA FILTER = HSRI 136/ 189/ -50 MIN, MAX = -24.98 8 25.63 25.63 7.67 43.75
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -22.37 8 25.63 25.63 13.54 53.75
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -25.84 8 25.63 25.63 4.85 53.75



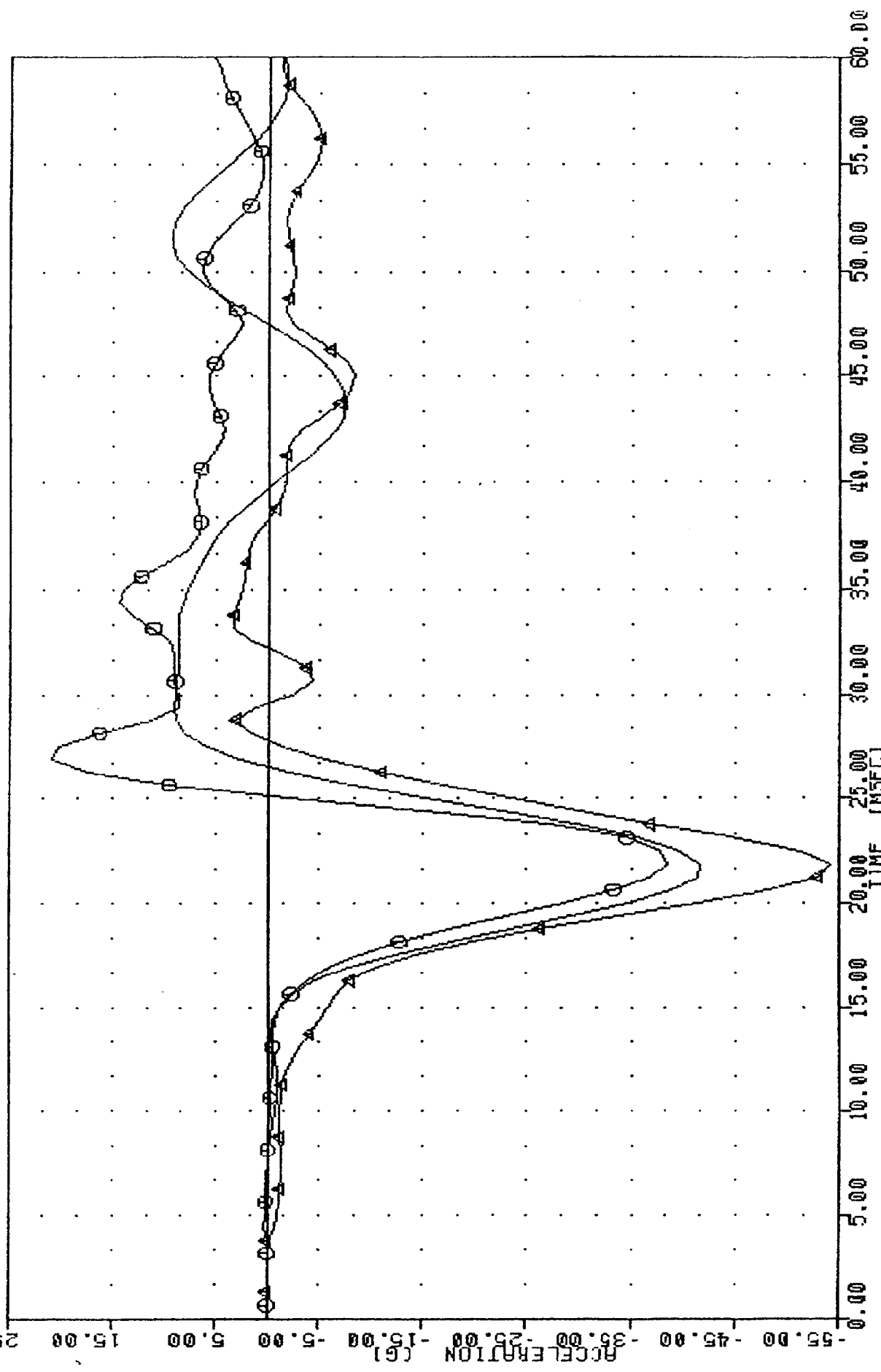
SIDE IMPACT TEST (U02)
 INWER SPINE ACCELERATION Y AXIS -A

VRIC SRL91 SID THORAX U02 BODY 830 CAL 82 81005 PLOT DATE 5-JAN-84 14:00:32
 LURYGI FILTER : HSRI 136/ 189/ -50 MIN, MAX = -40.14 10.42 29.38
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -38.44 20.92 26.25
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -54.08 3.31 33.13



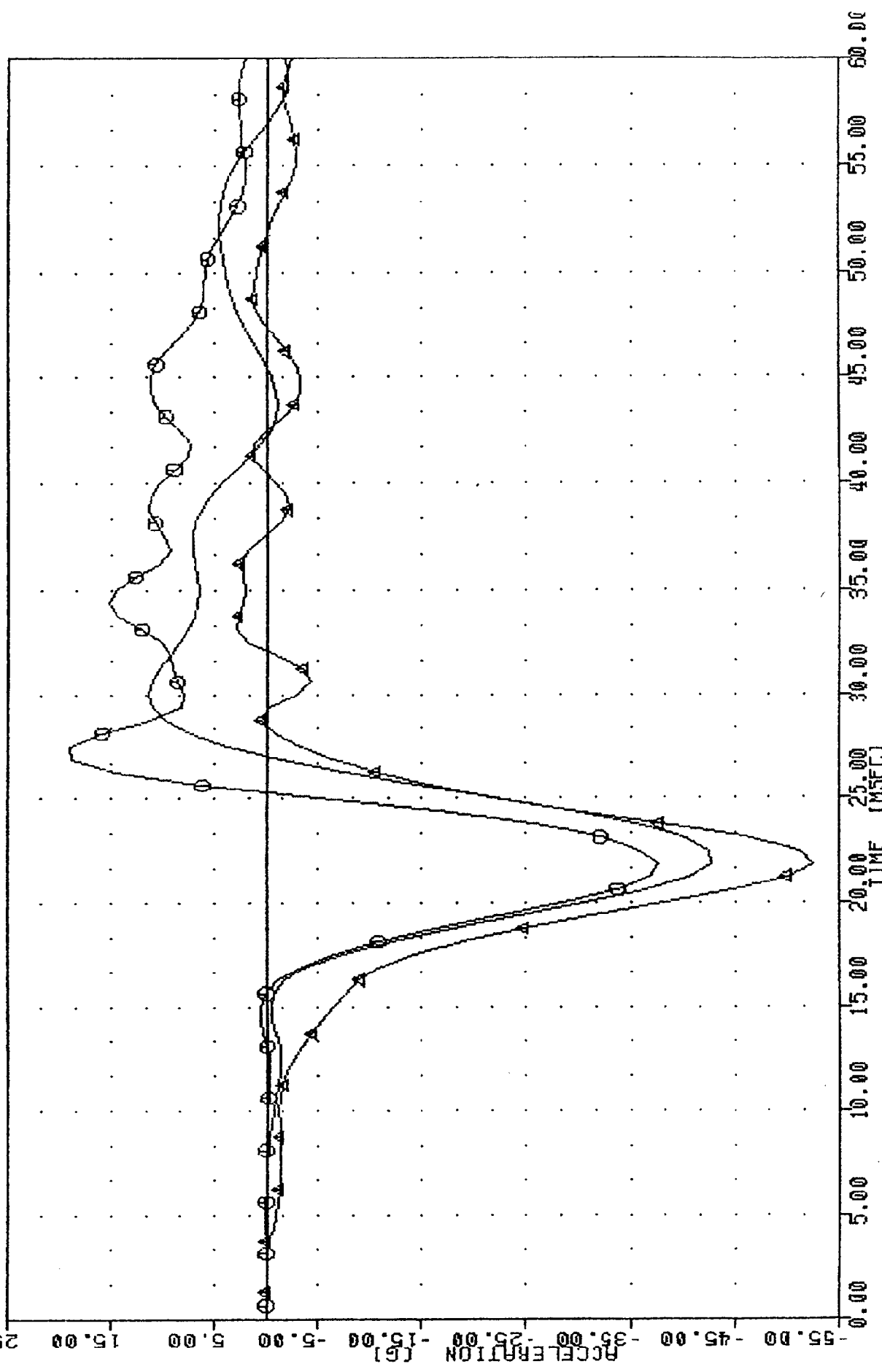
SIDE IMPACT TEST (U02)
 LEFT UPPER RIR ACCELERATION Y AXIS - 1

VRTC SRL91 , SIU0292 SID THORAX U02 BODY 830 CAL 82 81005 5-JAN-84 14:03:03
 LURYGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -41.69 9.298 51.25
 MN-250 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -38.44 20.820 26.25
 MN-250 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -54.08 21.25 33.13



SIDE IMPACT TEST (U02)
 LEFT UPPER RIR ACCELERATION Y AXIS -A

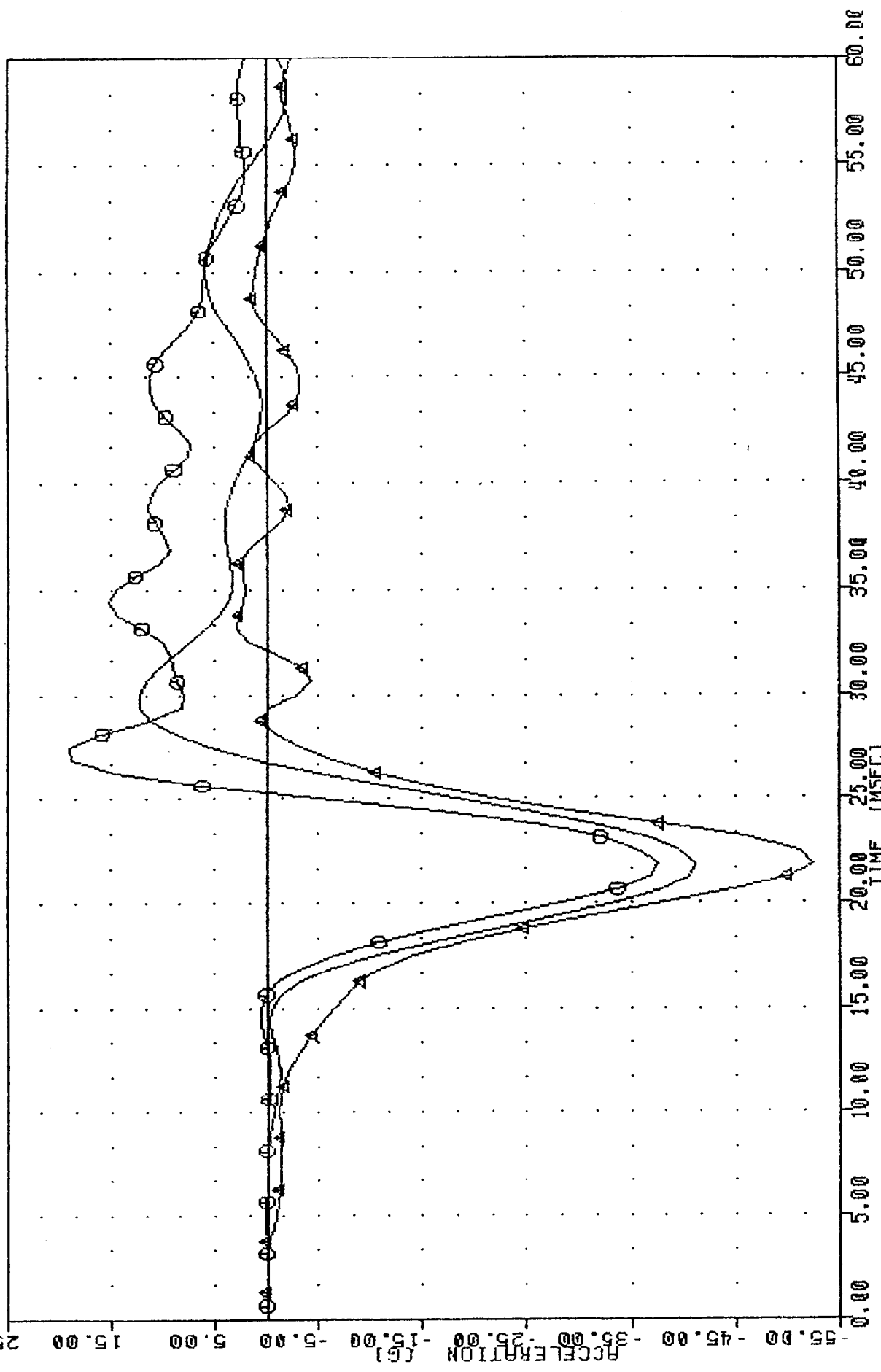
VRTC SRL91 • SIU0282 SID THORAX U02 BODY 830 CAL 82 84005 5-JAN-84 14:05:27
 LLRYG1 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -42.70 11.29 29.38
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -37.66 19.00 26.87
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -52.52 2.94 32.50



SIDE IMPACT TEST (U02)

TEST NUMBER 010 ACCELERATION Y OVTC -1

VRIC SRL91 , SIU0282 SID THORAX U02 BODY 830 CAL 82 84005 5-JAN-84 13:58:26
 LLRYGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -41.28 21.25 12.25 29.38
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -37.88 21.25 19.00 26.97
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -52.52 21.25 2.94 52.50



SIDE IMPACT TEST (U02)
 LEFT LOWER AIR ACCELERATION Y AXIS - A