

DOT 687

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

MDB-TO-CAR SIDE IMPACT TEST OF  
A 19<sup>0</sup> CRABBED MOVING DEFORMABLE BARRIER  
TO A 1981 VOLKSWAGEN RABBIT  
AT 34.4 MPH

PREPARED BY:  
VEHICLE RESEARCH AND TEST CENTER  
ST. RT. 33 LOGAN COUNTY  
EAST LIBERTY, OHIO 43319



FINAL REPORT  
FEBRUARY 1984

PREPARED FOR:  
U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
400 SEVENTH STREET, S.W.  
WASHINGTON, D.C. 20590

Prepared By: John C Stultz

J. C. Stultz

Project Engineer

Transportation Research Center of Ohio

Approved By: Richard W. Runyon

R. W. Runyon

Project Manager

Transportation Research Center of Ohio

Report Accepted By: M. W. Monk

M. W. Monk

Project Engineer

Vehicle Research & Test Center

Report Accepted By: \_\_\_\_\_

T. MacLaughlin

Project Manager

Vehicle Research & Test Center

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                          |                                                                                                                                                                                                              |           |
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| 16. Abstract<br><br>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 Volkswagen Rabbit 4-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 19°, at 34.4 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 27, 1984 and the ambient temperature was 29°F. |                                                          |                                                                                                                                                                                                              |           |
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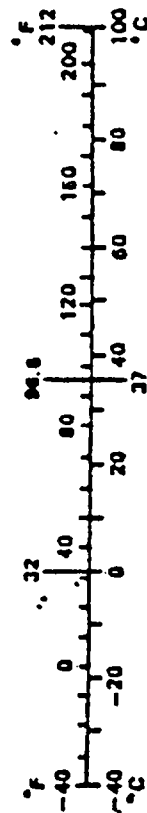
# METRIC CONVERSION FACTORS

## Approximate Conversions to Metric Measures

| Symbol                     | When You Know        | Multiply by                | To Find            | Symbol          |
|----------------------------|----------------------|----------------------------|--------------------|-----------------|
| <b>LENGTH</b>              |                      |                            |                    |                 |
| in                         | inches               | 2.5                        | centimeters        | cm              |
| ft                         | feet                 | 30                         | centimeters        | cm              |
| yd                         | yards                | 0.9                        | meters             | m               |
| mi                         | miles                | 1.6                        | kilometers         | km              |
| <b>AREA</b>                |                      |                            |                    |                 |
| in <sup>2</sup>            | square inches        | 6.5                        | square centimeters | cm <sup>2</sup> |
| ft <sup>2</sup>            | square feet          | 0.09                       | square meters      | m <sup>2</sup>  |
| yd <sup>2</sup>            | square yards         | 0.8                        | square meters      | m <sup>2</sup>  |
| mi <sup>2</sup>            | square miles         | 2.6                        | square kilometers  | km <sup>2</sup> |
|                            | acres                | 0.4                        | hectares           | ha              |
| <b>MASS (weight)</b>       |                      |                            |                    |                 |
| oz                         | ounces               | 28                         | grams              | g               |
| lb                         | pounds               | 0.45                       | kilograms          | kg              |
|                            | short tons (2000 lb) | 0.9                        | metric ton         | t               |
| <b>VOLUME</b>              |                      |                            |                    |                 |
| tsp                        | teaspoons            | 5                          | milliliters        | ml              |
| Tbsp                       | tablespoons          | 15                         | milliliters        | ml              |
| in <sup>3</sup>            | 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 <sup>3</sup>            | cubic feet           | 0.03                       | cubic meters       | m <sup>3</sup>  |
| yd <sup>3</sup>            | cubic yards          | 0.76                       | cubic meters       | m <sup>3</sup>  |
| <b>TEMPERATURE (exact)</b> |                      |                            |                    |                 |
| °F                         | degrees Fahrenheit   | 5/9 (after subtracting 32) | degrees Celsius    | °C              |

## Approximate Conversions From Metric Measures

| Symbol                     | When You Know                     | Multiply by       | To Find            | Symbol          |
|----------------------------|-----------------------------------|-------------------|--------------------|-----------------|
| <b>LENGTH</b>              |                                   |                   |                    |                 |
| 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              |
| <b>AREA</b>                |                                   |                   |                    |                 |
| cm <sup>2</sup>            | square centimeters                | 0.16              | square inches      | in <sup>2</sup> |
| m <sup>2</sup>             | square meters                     | 1.2               | square yards       | yd <sup>2</sup> |
| km <sup>2</sup>            | square kilometers                 | 0.4               | square miles       | mi <sup>2</sup> |
| ha                         | hectares (10 000 m <sup>2</sup> ) | 2.5               | acres              |                 |
| <b>MASS (weight)</b>       |                                   |                   |                    |                 |
| g                          | grams                             | 0.035             | ounces             | oz              |
| kg                         | kilograms                         | 2.2               | pounds             | lb              |
| t                          | metric ton (1000 kg)              | 1.1               | short tons         |                 |
| <b>VOLUME</b>              |                                   |                   |                    |                 |
| ml                         | milliliters                       | 0.03              | fluid ounces       | fl oz           |
| ml                         | milliliters                       | 0.06              | cubic inches       | in <sup>3</sup> |
| L                          | liters                            | 2.1               | pints              | pt              |
| L                          | liters                            | 1.06              | quarts             | qt              |
| L                          | liters                            | 0.26              | gallons            | gal             |
| m <sup>3</sup>             | cubic meters                      | 35                | cubic feet         | ft <sup>3</sup> |
| m <sup>3</sup>             | cubic meters                      | 1.3               | cubic yards        | yd <sup>3</sup> |
| <b>TEMPERATURE (exact)</b> |                                   |                   |                    |                 |
| °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 Volkswagen Rabbit 4-door hatchback was impacted on the left side by a Moving Deformable Barrier (MDB) on January 27, 1984. The test was to simulate an intersection collision with the striking vehicle traveling at 26 mph and the struck vehicle traveling at 13 mph. The orientation angle of the striking vehicle was 60° counterclockwise with respect to the longitudinal axis of the struck vehicle. The impact point 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 Volkswagen Rabbit at 34.4 mph with the MDB's wheels crabbed clockwise to 19°. The actual test speed was 34.4 mph and the actual impact point was 39. inches forward of the midpoint of the Volkswagen Rabbit's wheelbase.

The vehicle was a baseline model with no structural modification. The driver door and left rear door 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: Volkswagen of America

MAKE/MODEL: Volkswagen Rabbit

VIN: 1VWFB0177BV143823

BODY STYLE: 4-Door Hatchback

MODEL YEAR: 1981

NHTSA NO.: R & D

COLOR: Red

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

TRANSMISSION DATA: 5 Speed Manual

DATE VEHICLE RECEIVED: 1/3/84

ODOMETER READING: 27828

DEALER'S NAME AND ADDRESS: Classic Cars, Inc.  
4639 West Broad Street  
Columbus, Ohio 43228

ACCESSORIES:

|                |     |                            |     |
|----------------|-----|----------------------------|-----|
| POWER STEERING | No  | AUTOMATIC TRANSMISSION     | No  |
| POWER BRAKES   | Yes | 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          | Yes | REAR WINDOW DEFROSTER      | Yes |
| 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: Volkswagen of America

DATE OF MANUFACTURE: 4/81

GVWR: 2822 LBS.,

GAWR: FRONT 1609 LBS., REAR 1278 LBS.

VEHICLE TIRE DATA

RECOMMENDED COLD TIRE PRESSURE: FRONT 27 psi; REAR 27 psi

TIRES ON VEHICLE (MFGR. & LINE, SIZE): Sears Road Handler Sport Radial  
155/R13

BIAS PLY, BELTED, OR RADIAL: Radial

PLY RATING: 3

IS SPARE TIRE "SPACE SAVER"? No

IS SPARE TIRE STANDARD EQUIPMENT? Yes

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

RIGHT FRONT 660 LBS. RIGHT REAR 360 LBS.

LEFT FRONT 640 LBS. LEFT REAR 360 LBS.

TOTAL FRONT WEIGHT 1300 LBS. (64.4 % OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT 720 LBS. (35.6 % OF TOTAL VEHICLE WEIGHT)

TOTAL DELIVERED WEIGHT 2020 LBS.

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE: RF 24 3/16 ;LF 24 1/16 ;RR 24 1/16 ;LR 24

PRE-TEST ATTITUDE: RF 23 3/16 ;LF 23 1/4 ;RR 21 9/16 ;LR 21 5/8

POST-TEST ATTITUDE: RF 22 5/16 ;LF 23 3/8 ;RR 20 7/8 ;LR 23

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 157 LBS. CARGO:

RIGHT FRONT 695 LBS. RIGHT REAR 565 LBS.

LEFT FRONT 695 LBS. LEFT REAR 570 LBS.

TOTAL FRONT WEIGHT 1390 LBS. (55.0 % OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT 1135 LBS. (45.0 % OF TOTAL VEHICLE WEIGHT)

TOTAL TEST WEIGHT 2525 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: 4.0 GALLONS

FUEL SYSTEM CAPACITY (DATA FROM OWNERS MANUAL): 10.0 GALLONS

DETAILS OF FUEL SYSTEM: DNA

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ELECTRIC FUEL PUMP: Yes

FUEL INJECTION: Yes

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

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

VEHICLE LOAD (UP TO CAPACITY): FRONT 27 psi; REAR 27 psi

RECOMMENDED TIRE SIZE: 155 SR 13 LOAD RANGE X B,    C,   

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

NUMBER OF OCCUPANTS (DESIGNATED SEATING CAPACITY): 2 FRONT

2 REAR

CARGO LOAD 140 LBS.

4 TOTAL

TOTAL 740 LBS.

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

# TEST CONDITIONS

TEST NUMBER: 840127

DATE OF TEST: January 27, 1984

TIME OF TEST: 1400

WIND VELOCITY: 5-10 mph 333° NNW

HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 29° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 78° F

## SUBJECT VEHICLE DATA

|                            | <u>ACTUAL</u> | <u>INTENDED</u> |
|----------------------------|---------------|-----------------|
| VEHICLE TEST WEIGHT (LBS.) | 2525          | 2508            |
| MDB TEST WEIGHT (LBS.)     | 2990          | 3000            |
| MDB VELOCITY (MPH)*        | 34.4          | 34.4            |
| IMPACT POINT (INCHES)**    | 39.           | 37              |

## DUMMIES

|                  | <u>DRIVER</u>     | <u>MIDDLE<br/>PASSENGER</u> | <u>RT. FRONT<br/>PASSENGER</u> | <u>LEFT REAR<br/>PASSENGER</u> | <u>RT. REAR<br/>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 test vehicles wheelbase.

VISIBLE DUMMY CONTACT POINTS:

|            | DRIVER 06                       | PASSENGER U02                |
|------------|---------------------------------|------------------------------|
| Head       | <u>Side Window, Window Sill</u> | <u>C-Pillar, Side Header</u> |
| Chest      | <u>Driver's Door Panel</u>      | <u>Left Rear Door Panel</u>  |
| Abdomen    | <u>Driver's Door Panel</u>      | <u>Left Rear Door Panel</u>  |
| Left Knee  | <u>Driver's Door Panel</u>      | <u>Left Rear Door Panel</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>Tools Required</u> | <u>Easy</u> |

SEAT MOVEMENT:

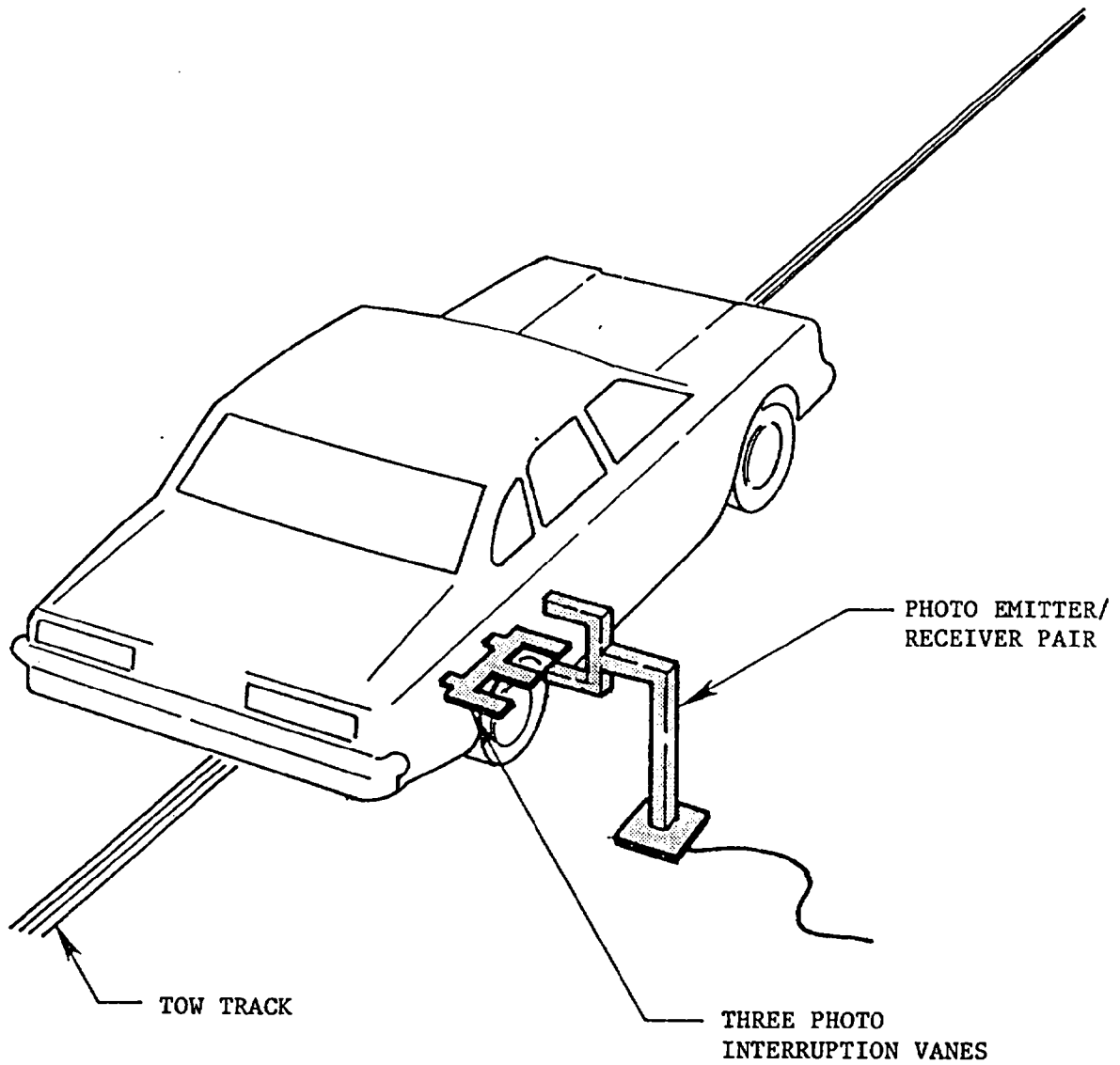
|       | SEAT BACK FAILURE | SEAT SHIFT |
|-------|-------------------|------------|
| Front | <u>No</u>         | <u>Yes</u> |
| Rear  | <u>No</u>         | <u>No</u>  |

GLAZING DAMAGE: Left side of windshield cracked; all left side windows  
shattered; no backlight damage.  
 \_\_\_\_\_  
 \_\_\_\_\_

OTHER NOTABLE IMPACT EFFECTS:

Driver dummy left knee casting shattered.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane is located two inches before impact.

The vanes have one foot spacing.

### VEHICLE TEST WEIGHT CALCULATION

$$\begin{aligned}\text{Test Weight} &= \text{Unloaded Delivered Weight} + \\ &\quad \text{Number of Dummies X 174 lbs.} + \\ &\quad \text{Cargo Weight} \\ &= 2020 + 2 \times 174 + 140 \text{ lbs.} \\ &= 2508 \text{ lbs.}\end{aligned}$$

To achieve test weight, the exhaust system was removed and 4 gallons of Stoddard Solvent were added in the fuel tank. The weight of the test vehicle was measured by placing each wheel on a Loadmeter Corporation Hiway Loadometer.

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<br>(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: Volkswagen Rabbit

FRONT SEAT TYPE: BENCH  
X BUCKET  
       SPLIT BENCH

ADJUSTER TYPE: X MANUAL  
       POWER

BUCKET SEAT BACK TYPE: FIXED  
X ADJUSTABLE

## TECHNICIANS:

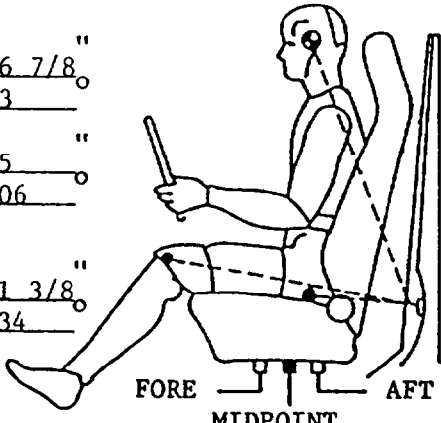
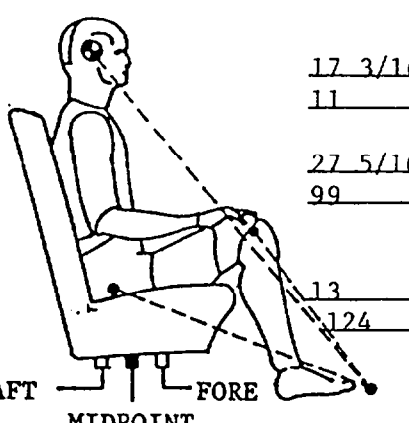
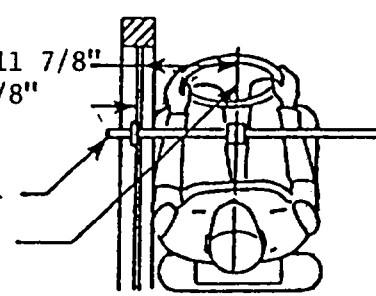
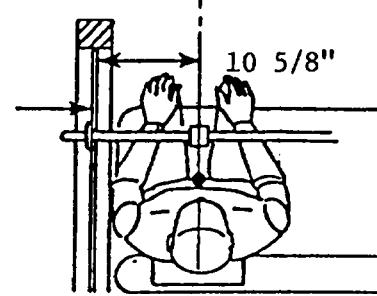
1. J. Kokoruda

2. N. Echeverria

3. R. Benevides

POSITIONING DATE: 1/27/84

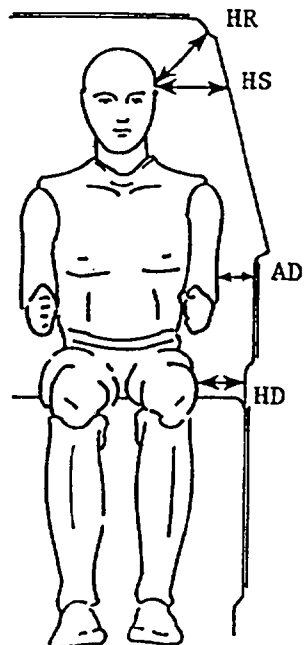
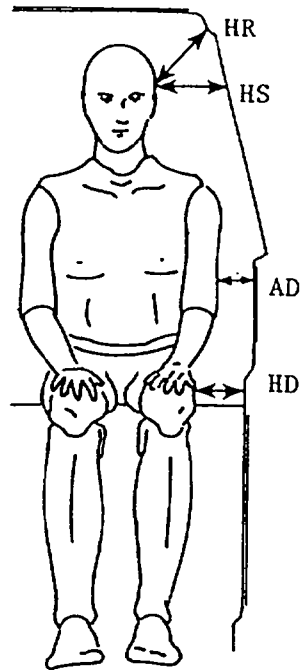
AMBIENT TEMP.: 73° F. TIME: 7:30 AM

|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>DRIVER DUMMY # 06</p>  <p>HEAD TARGET* <u>16 7/8</u>"<br/> <u>3</u>"</p> <p>KNEE JOINT <u>25</u>"<br/> <u>106</u>"</p> <p>APPROX. "H" POINT <u>11 3/8</u>"<br/> <u>134</u>"</p> <p>FORE MIDPOINT AFT</p> | <p>REAR PASSENGER DUMMY # U02</p>  <p><u>17 3/16</u>" HEAD<br/> <u>11</u>" TARGET**</p> <p><u>27 5/16</u>" KNEE<br/> <u>99</u>" JOINT</p> <p>APPROX. "H" POINT <u>13</u>"<br/> <u>124</u>"</p> <p>AFT MIDPOINT FORE</p> |
| <p>DOOR GLASS HEIGHT*** <u>11 7/8</u>"<br/> <u>9 5/8</u>"</p>  <p>LATERAL BAR ADJUSTABLE POINTER</p> <p>DRIVER DUMMY # 06</p>                                                                              | <p>DOOR GLASS HEIGHT <u>DNA</u></p>  <p>PASSENGER DUMMY # U02</p>                                                                                                                                                     |

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

\*\*All passenger dummy dimensions referenced to top of rear seat striker bolt (not as shown) and all angles referenced to vertical.

\*\*\*Door glass height is set equal to the dummy nose level.



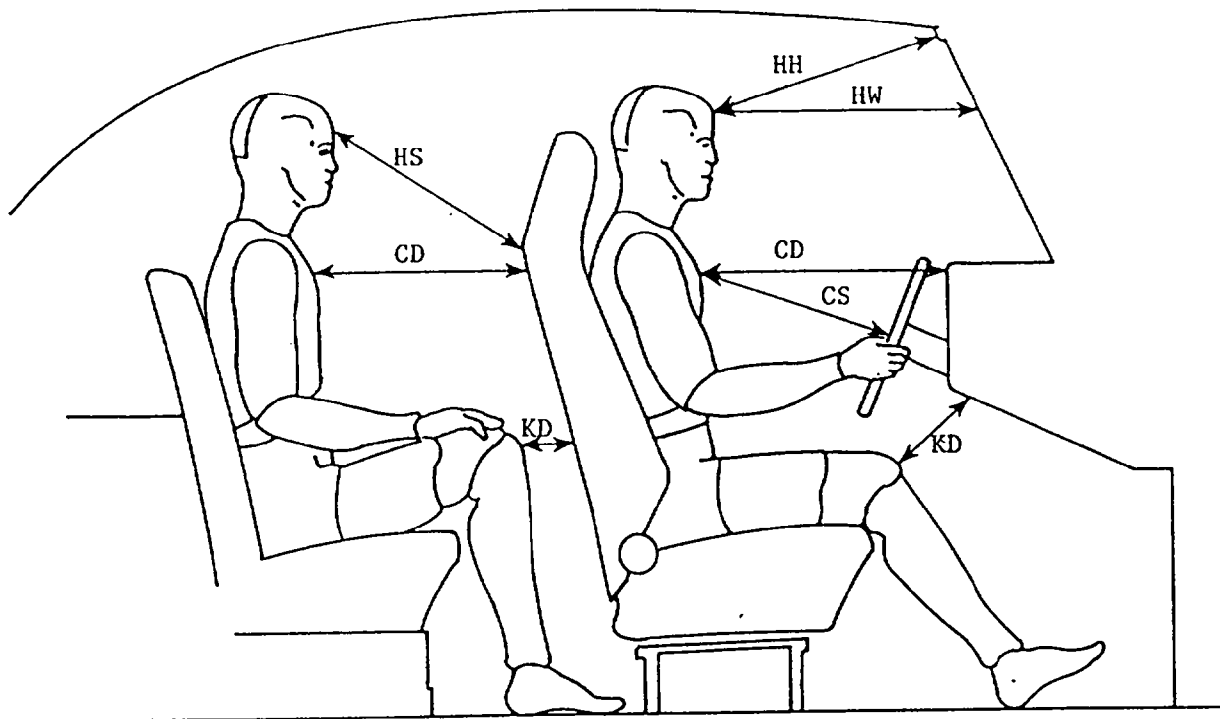
DRIVER  
06

PASSENGER  
U02

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

ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



DRIVER  
06

PASSENGER  
U02

|     |         |         |
|-----|---------|---------|
| HH  | 13 1/16 | DNA     |
| HW  | 19 5/8  | DNA     |
| HS  | DNA     | 23 1/16 |
| CD  | 19 1/2  | 18 3/4  |
| CS  | 12 3/4  | DNA     |
| KDL | 4 5/16  | 4 1/4   |
| KDR | 4 5/16  | 4 5/8   |

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 window sill. The left knee casting was shattered on contact with the driver's door panel. The dummy rebounded rearward across the vehicle. The buttocks struck the front passenger's side header, dropped downward and struck the window sill. The dummy came to rest doubled over in the right front passenger's seat facing the driver's side.

### PASSENGER

During impact, the dummy's torso contacted the left rear passenger door and the head struck the top of the C-Pillar, the side header and side window. Upon rebound, the dummy remained upright with little lateral rebound. The dummy came to rest sitting upright in the left rear passenger seat 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 | 9.0         | X                                                            | X    | 20.0 | 20.1 | 20.0 | 19.9 | 20.0 | 20.0 | 20.0 | 20.2 | 20.3 | 20.3 | 20.4 | X    | X    |
| H-Point     | 18.6        | X                                                            | 16.8 | 17.9 | 17.9 | 17.9 | 17.8 | 17.8 | 17.8 | 17.8 | 17.9 | 17.9 | 18.1 | 18.2 | 18.3 | X    |
| Mid Door    | 22.5        | X                                                            | 17.6 | 17.6 | 17.5 | 17.4 | 17.4 | 17.3 | 17.3 | 17.4 | 17.4 | 17.6 | 17.7 | 17.9 | 17.9 | 16.6 |
| Window Sill | 33.0        | 19.9                                                         | 19.6 | 19.3 | 19.2 | 19.1 | 19.1 | 19.1 | 19.1 | 19.1 | 19.3 | 19.3 | 19.4 | 19.6 | 19.6 | 19.8 |
| Window Top  | 50.8        | X                                                            | X    | X    | X    | X    | 27.5 | 26.8 | 26.8 | 26.6 | 26.8 | 26.8 | 26.9 | 27.2 | 27.2 | 27.5 |

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

|             |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Axle Height | 9.0  | X    | X    | 20.3 | 26.1 | 26.9 | 27.4 | 27.9 | 28.4 | 28.9 | 29.0 | 25.8 | 23.9 | 21.9 | X    | X    |
| H-Point     | 18.6 | X    | 23.0 | 20.8 | 32.4 | 35.4 | 36.7 | 36.0 | 34.8 | 32.5 | 30.2 | 27.7 | 25.1 | 22.4 | 22.1 | X    |
| Mid Door    | 22.5 | X    | 22.3 | 20.3 | 30.4 | 33.8 | 34.7 | 33.7 | 32.5 | 31.1 | 29.3 | 26.5 | 23.8 | 21.3 | 18.6 | 19.0 |
| Window Sill | 33.0 | 20.8 | 20.6 | 18.3 | 27.4 | 30.7 | 32.4 | 32.8 | 31.3 | 29.9 | 29.6 | 26.1 | 22.6 | 20.2 | 18.4 | 16.9 |
| Window Top  | 50.8 | X    | X    | X    | X    | X    | 29.9 | 29.4 | 29.8 | 30.4 | 30.6 | 29.9 | 29.6 | 29.3 | 29.3 | 29.4 |

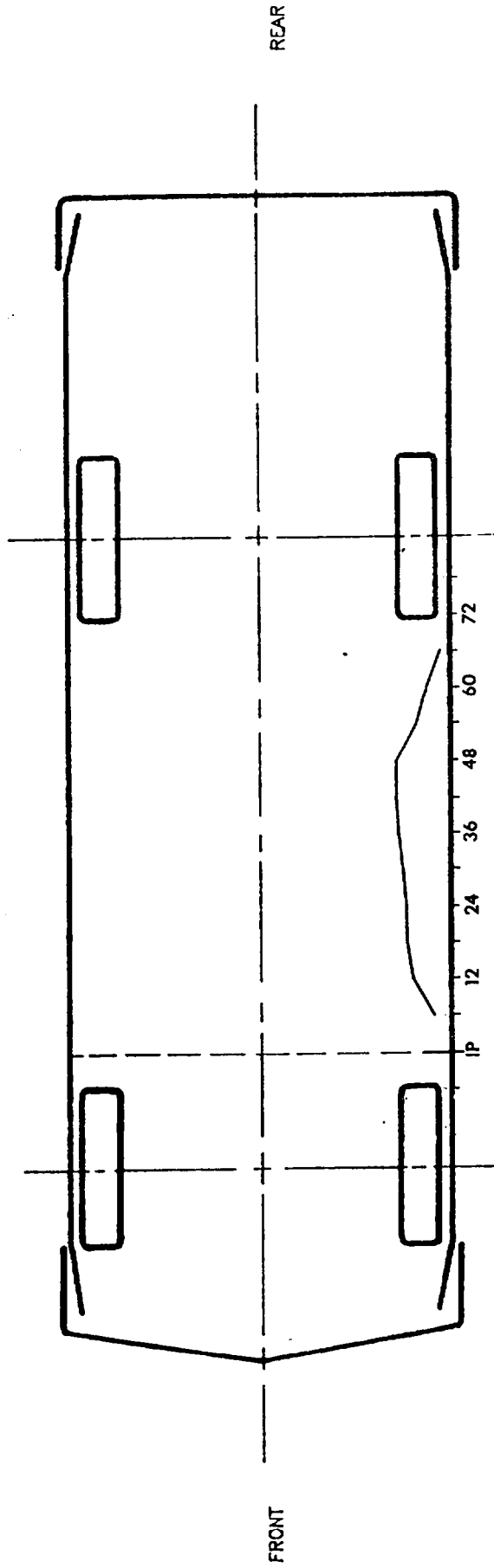
## STATIC CRUSH (IN)

|             |      |     |     |      |      |      |      |      |      |      |      |     |     |     |      |      |
|-------------|------|-----|-----|------|------|------|------|------|------|------|------|-----|-----|-----|------|------|
| Axle Height | 9.0  | X   | X   | 0.3  | 6.1  | 6.9  | 7.5  | 7.9  | 8.4  | 8.9  | 8.8  | 5.5 | 3.6 | 1.5 | X    | X    |
| H-Point     | 18.6 | X   | 6.2 | 2.9  | 14.5 | 17.5 | 18.9 | 18.2 | 17.0 | 14.7 | 12.3 | 9.8 | 7.0 | 4.2 | 3.8  | X    |
| Mid Door    | 22.5 | X   | 4.7 | 2.7  | 12.9 | 16.4 | 17.3 | 16.4 | 15.2 | 13.7 | 11.9 | 8.9 | 6.1 | 3.4 | 0.7  | 2.4  |
| Window Sill | 33.0 | 0.9 | 1.0 | -1.0 | 8.2  | 11.6 | 13.3 | 13.7 | 12.2 | 10.8 | 10.3 | 6.8 | 3.2 | 0.6 | -1.2 | -2.9 |
| Window Top  | 50.8 | X   | X   | X    | X    | X    | 2.4  | 2.6  | 3.0  | 3.8  | 3.8  | 3.1 | 2.7 | 2.1 | 2.1  | 1.9  |

\* 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.

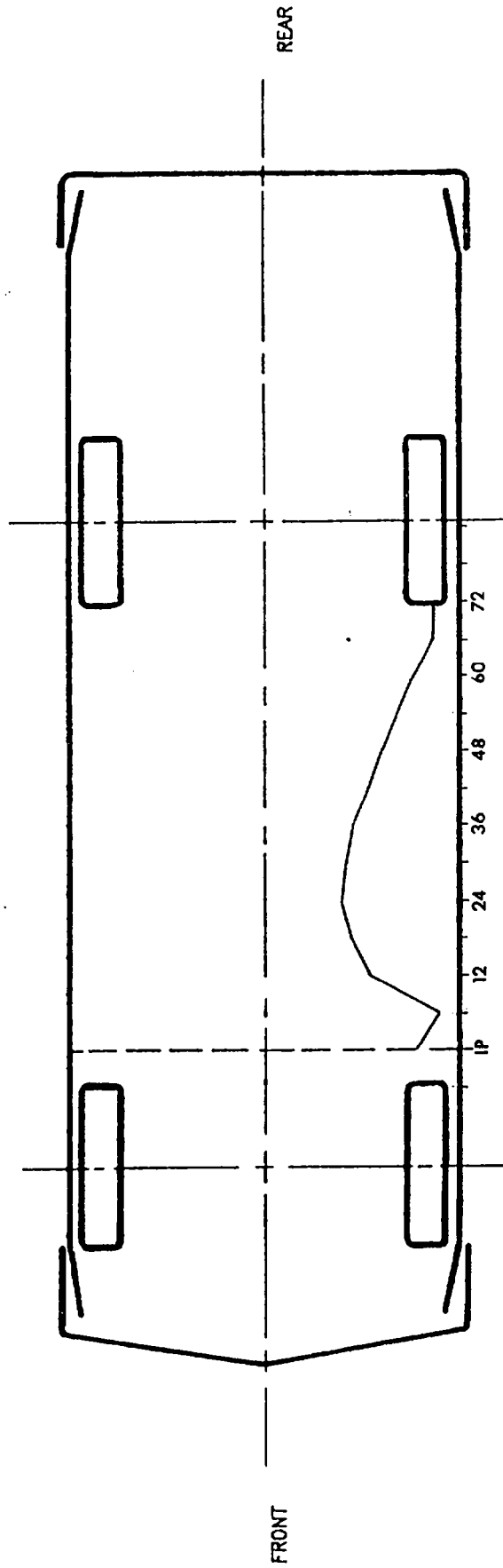
# VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS AXLE HEIGHT  
IP EQUALS PROJECTED IMPACT POINT

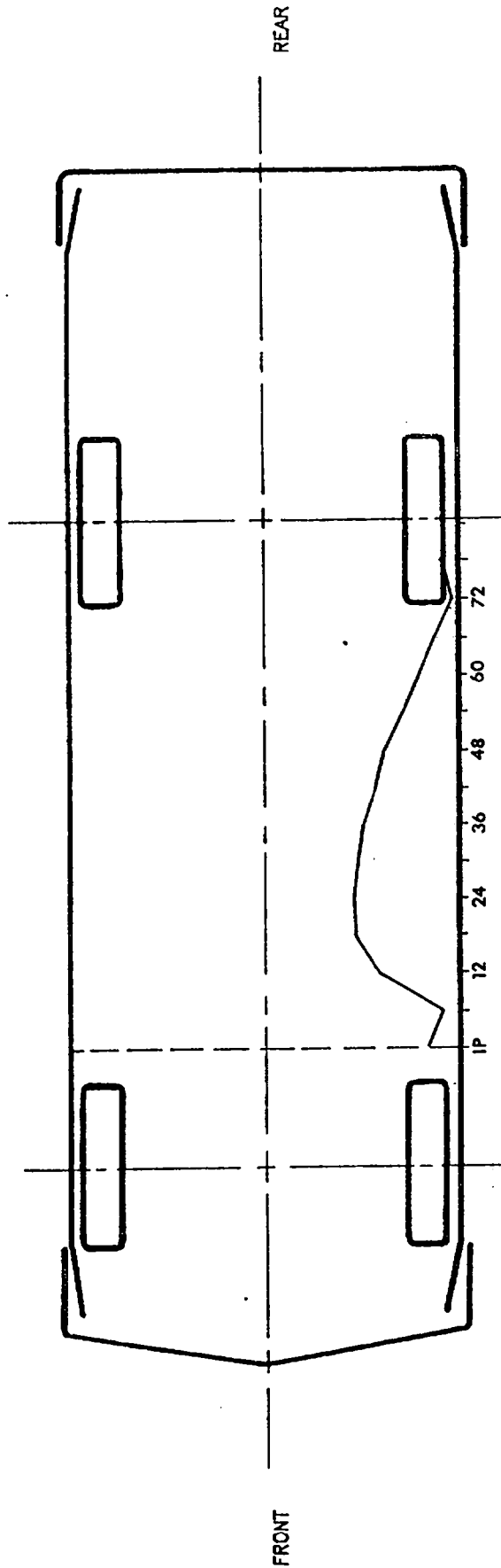


# VEHICLE EXTERIOR STATIC CRUSH PROFILE



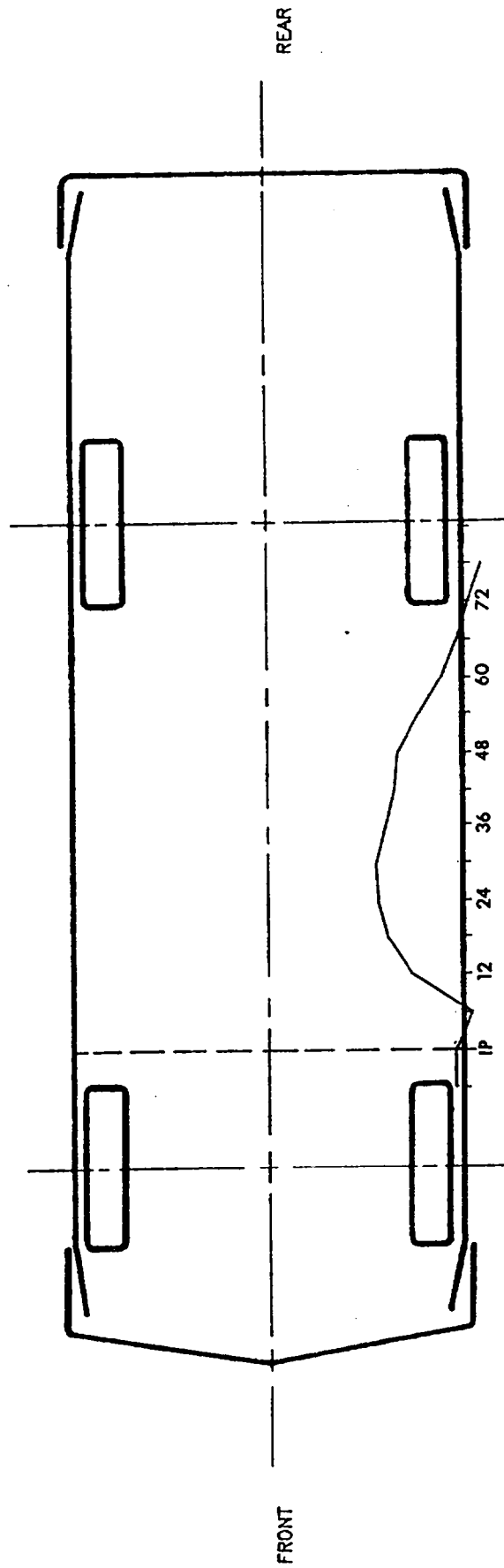
PROFILE LEVEL EQUALS H-POINT HEIGHT  
IP EQUALS PROJECTED IMPACT POINT

# VEHICLE EXTERIOR STATIC CRUSH PROFILE



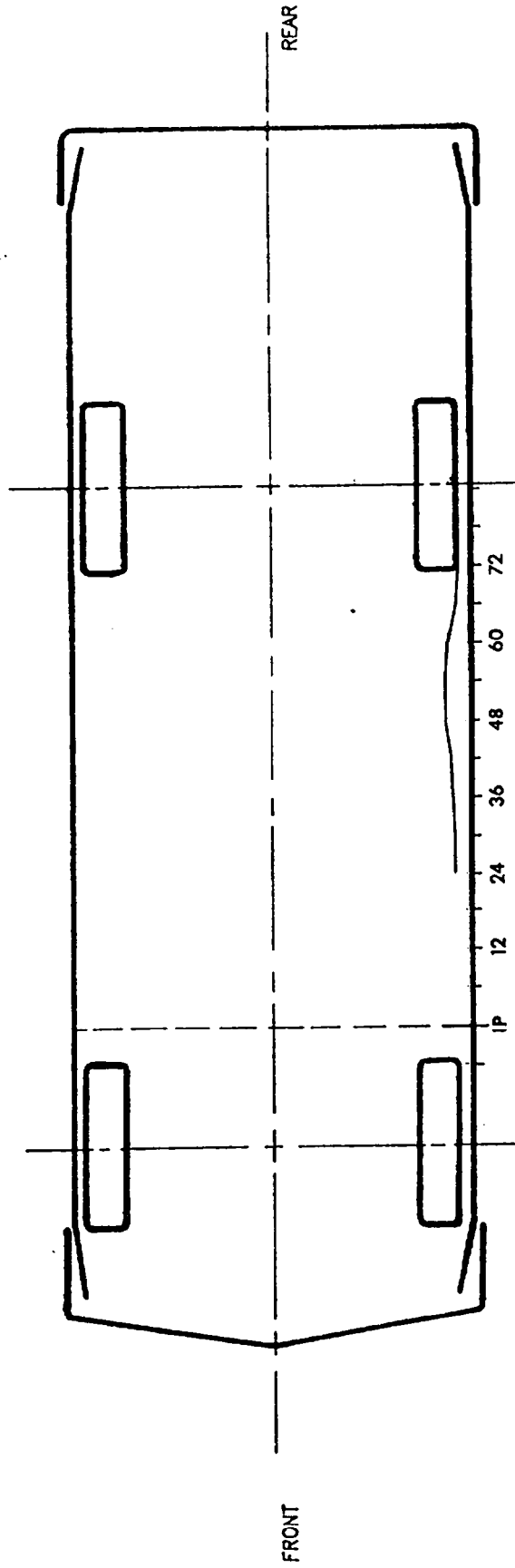
PROFILE LEVEL EQUALS MID-DOOR HEIGHT  
 IP EQUALS PROJECTED IMPACT POINT

# 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<br>(g)   | TIME<br>(msec)       | MAX<br>(g)  | TIME<br>(msec) | MAX<br>(g)      | TIME<br>(msec)      | MAX<br>(g)  | TIME<br>(msec) |
| HEAD ACCELERATION   |              |                      |             |                |                 |                     |             |                |
| LONGITUDINAL        | 11.87        | 160.13               | 117.57      | 115.00         | 23.27           | 250.75              | 39.62       | 132.38         |
| LATERAL             | 61.44        | 114.75               | 18.84       | 95.38          | 103.81          | 85.63               | 22.48       | 250.13         |
| VERTICAL            | 17.93        | 57.38                | 63.06       | 92.00          | 23.99           | 110.25              | 35.88       | 132.75         |
| RESULTANT           |              | 133.15 @             | 114.88      |                |                 | 111.98 @            | 85.63       |                |
| HIC                 | 829.42       | from 63.38 to 127.38 |             |                | 408.12          | from 83.38 to 88.75 |             |                |
| CHEST ACCELERATION  |              |                      |             |                |                 |                     |             |                |
| UPPER SPINE         |              |                      |             |                |                 |                     |             |                |
| LONGITUDINAL        | 24.86        | 95.00                | 39.20       | 86.25          | 6.10            | 285.62              | 15.34       | 119.38         |
| LATERAL (P)***      | 121.82       | 66.87                | 21.16       | 85.63          | 50.53           | 100.63              | 7.47        | 160.63         |
| LATERAL (R)***      | 125.84       | 66.87                | 20.43       | 90.00          | 51.08           | 100.63              | 6.98        | 160.63         |
| VERTICAL            | 19.09        | 267.50               | 20.64       | 63.13          | 9.10            | 100.00              | 5.30        | 159.38         |
| RESULTANT (P)       |              | 123.63 @             | 66.87       |                |                 | 53.00 @             | 100.63      |                |
| RESULTANT (R)       |              | 127.59 @             | 66.87       |                |                 | 53.52 @             | 100.63      |                |
| DELTA V (MPH)****   |              | 24.3 @               | 82.50 (P)   |                |                 | 18.2 @              | 151.87 (P)  |                |
|                     |              | 26.2 @               | 82.50 (R)   |                |                 | 18.0 @              | 151.87 (R)  |                |
| LOWER SPINE         |              |                      |             |                |                 |                     |             |                |
| LONGITUDINAL        | 48.14        | 74.37                | 27.13       | 85.00          | 4.61            | 143.75              | 15.74       | 98.12          |
| LATERAL (P)         | 108.40       | 63.13                | 46.20       | 84.38          | 49.46           | 100.00              | 10.78       | 122.50         |
| LATERAL (R)         | 109.97       | 63.13                | 44.31       | 84.38          | 50.65           | 100.00              | 10.88       | 126.25         |
| VERTICAL            | 21.41        | 56.25                | 5.38        | 104.38         | 13.05           | 100.00              | 4.93        | 160.63         |
| RESULTANT (P)       |              | 109.55 @             | 63.13       |                |                 | 53.22 @             | 99.37       |                |
| RESULTANT (R)       |              | 111.10 @             | 63.13       |                |                 | 54.35 @             | 99.37       |                |
| DELTA V (MPH)       |              | 34.9 @               | 78.75 (P)   |                |                 | 21.5 @              | 113.75 (P)  |                |
|                     |              | 35.6 @               | 79.38 (R)   |                |                 | 22.9 @              | 115.00 (R)  |                |
| LEFT UPPER RIB      |              |                      |             |                |                 |                     |             |                |
| LATERAL (P)         | 80.11        | 63.75                | 11.69       | 108.75         | 33.63           | 105.62              | 5.23        | 153.75         |
| LATERAL (R)         | 81.09        | 58.75                | 13.71       | 108.75         | 34.91           | 105.00              | 8.34        | 153.75         |
| DELTA V (MPH)       |              | 27.2 @               | 101.88 (P)  |                |                 | 23.9 @              | 170.63 (P)  |                |
|                     |              | 27.0 @               | 103.13 (R)  |                |                 | 20.8 @              | 170.63 (R)  |                |
| LEFT LOWER RIB      |              |                      |             |                |                 |                     |             |                |
| LATERAL (P)         | 87.19        | 61.25                | 60.70       | 89.38          | 32.70           | 105.00              | 9.88        | 154.38         |
| LATERAL (R)         | 89.98        | 57.50                | 59.80       | 89.38          | 30.78           | 87.50               | 8.54        | 153.37         |
| DELTA V (MPH)       |              | 31.9 @               | 86.25 (P)   |                |                 | 21.9 @              | 151.88 (P)  |                |
|                     |              | 31.7 @               | 86.25 (R)   |                |                 | 19.3 @              | 151.88 (R)  |                |
| PELVIS ACCELERATION |              |                      |             |                |                 |                     |             |                |
| LONGITUDINAL        | 8.38         | 62.13                | 51.31       | 160.13         | 10.24           | 71.63               | 29.55       | 66.38          |
| LATERAL             | 164.18       | 55.50                | 20.24       | 37.38          | 56.48           | 94.13               | 30.67       | 65.25          |
| VERTICAL            | 29.94        | 51.88                | 2.70        | 133.25         | 9.44            | 99.50               | 4.59        | 83.00          |
| RESULTANT           |              | 167.26 @             | 52.13       |                |                 | 62.06 @             | 94.38       |                |
| DELTA V (MPH)       |              | 31.9 @               | 92.00       |                |                 | 23.1 @              | 125.63      |                |

# SIDE IMPACT DUMMY DATA SUMMARY CONTD

|                  | <u>DRIVER DUMMY</u> |               |                    |               | <u>PASSENGER DUMMY</u> |               |                    |               |
|------------------|---------------------|---------------|--------------------|---------------|------------------------|---------------|--------------------|---------------|
|                  | <u>POSITIVE</u>     |               | <u>NEGATIVE</u>    |               | <u>POSITIVE</u>        |               | <u>NEGATIVE</u>    |               |
|                  | <u>DIRECTION*</u>   |               | <u>DIRECTION**</u> |               | <u>DIRECTION*</u>      |               | <u>DIRECTION**</u> |               |
|                  | <u>MAX</u>          | <u>TIME</u>   | <u>MAX</u>         | <u>TIME</u>   | <u>MAX</u>             | <u>TIME</u>   | <u>MAX</u>         | <u>TIME</u>   |
|                  | <u>(in)</u>         | <u>(msec)</u> | <u>(in)</u>        | <u>(msec)</u> | <u>(in)</u>            | <u>(msec)</u> | <u>(in)</u>        | <u>(msec)</u> |
| RIB DEFLECTION † | 0.03                | 250.75        | 1.88               | 119.13        | 0.03                   | 12.00         | 1.35               | 119.13        |

\* 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

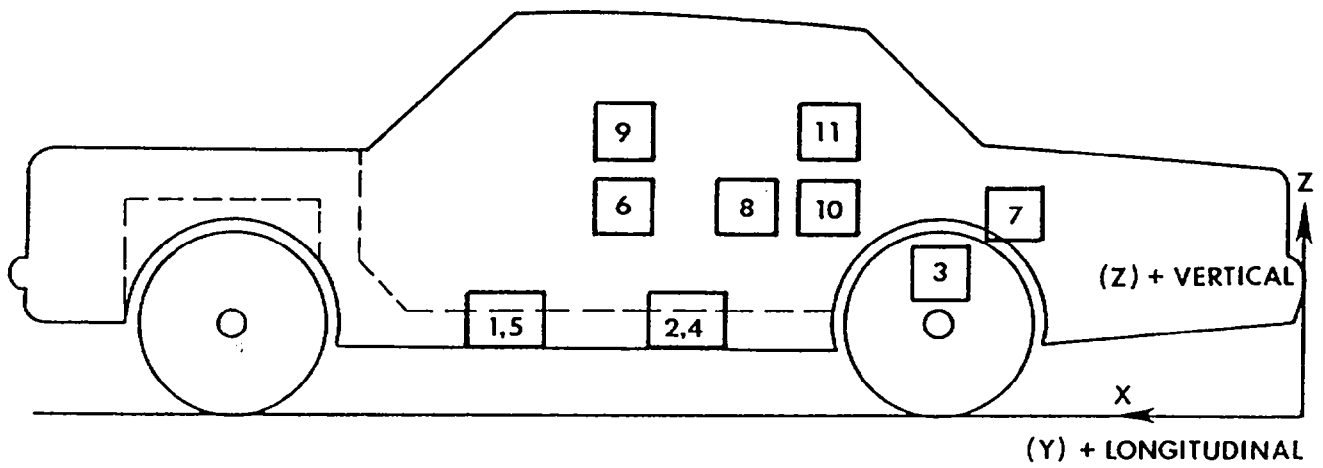
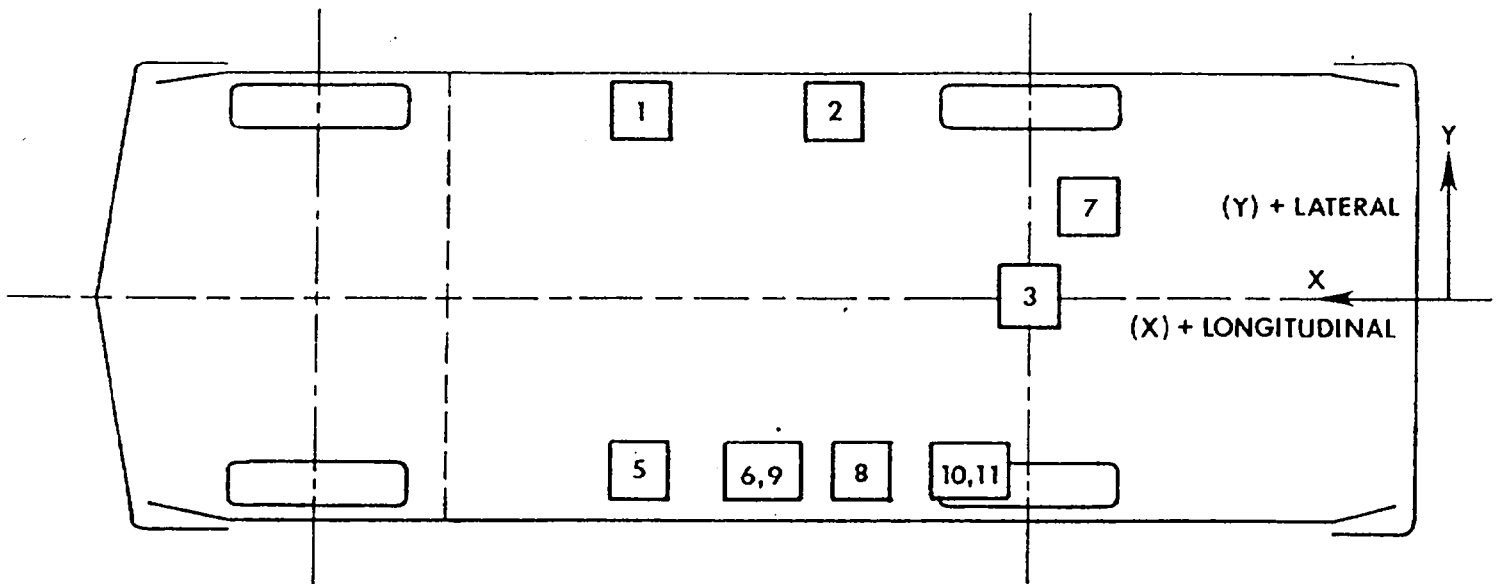
# VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

| NO. | LOCATION                         | X*                                                   | Y*    | Z*   | POSITIVE DIRECTION |               | NEGATIVE DIRECTION |             |
|-----|----------------------------------|------------------------------------------------------|-------|------|--------------------|---------------|--------------------|-------------|
|     |                                  |                                                      |       |      | MAX (g)            | TIME (msec)   | MAX (g)            | TIME (msec) |
| 1   | RIGHT SILL AT FRONT SEAT         | 90.8                                                 | 23.8  | 9.0  |                    |               |                    |             |
|     | (LONGITUDINAL)                   | $\Delta V = -7.5 \text{ mph @ } 130.00 \text{ msec}$ |       |      | 1.30               | 35.88         | 7.10               | 62.88       |
|     | (LATERAL)                        | $\Delta V = 11.6 \text{ mph @ } 130.00 \text{ msec}$ |       |      | 11.34              | 70.13         | 1.31               | 236.75      |
|     | (VERTICAL)                       |                                                      |       |      | 6.06               | 91.63         | 5.78               | 59.13       |
|     | (RESULTANT)                      |                                                      |       |      |                    | 13.10 @ 63.75 |                    |             |
| 2   | RIGHT SILL AT REAR SEAT          | 61.2                                                 | 23.6  | 8.3  |                    |               |                    |             |
|     | (LONGITUDINAL)                   | $\Delta V = -6.5 \text{ mph @ } 130.00 \text{ msec}$ |       |      | 1.57               | 36.00         | 6.61               | 63.13       |
|     | (LATERAL)                        | $\Delta V = 15.8 \text{ mph @ } 130.00 \text{ msec}$ |       |      | 17.93              | 65.38         | 2.89               | 132.00      |
|     | (VERTICAL)                       |                                                      |       |      | 4.63               | 140.13        | 4.30               | 97.88       |
|     | (RESULTANT)                      |                                                      |       |      |                    | 18.79 @ 64.75 |                    |             |
| 3   | REAR DECK OVER AXLE              | 26.9                                                 | 0.0   | 6.6  |                    |               |                    |             |
|     | (LONGITUDINAL)                   | $\Delta V = -7.1 \text{ mph @ } 130.00 \text{ msec}$ |       |      | 6.28               | 113.13        | 11.89              | 104.88      |
|     | (LATERAL)                        | $\Delta V = 20.2 \text{ mph @ } 130.00 \text{ msec}$ |       |      | 19.05              | 104.25        | 3.00               | 166.00      |
|     | (VERTICAL)                       |                                                      |       |      | 14.61              | 112.50        | 15.46              | 81.63       |
|     | (RESULTANT)                      |                                                      |       |      |                    | 23.54 @ 80.75 |                    |             |
| 4   | LEFT SILL AT REAR SEAT           | 61.2                                                 | -23.6 | 8.6  |                    |               |                    |             |
|     | (LATERAL)                        | $\Delta V = 19.0 \text{ mph @ } 112.50 \text{ msec}$ |       |      | 49.43              | 62.63         | 12.48              | 75.25       |
| 5   | LEFT SILL AT FRONT SEAT          | 90.8                                                 | -23.8 | 9.0  |                    |               |                    |             |
|     | (LATERAL)                        | $\Delta V = 12.3 \text{ mph @ } 80.63 \text{ msec}$  |       |      | 59.84              | 23.88         | 39.14              | 18.50       |
| 6   | LEFT FRONT DOOR CENTERLINE       | 84.7                                                 | -26.2 | 18.3 |                    |               |                    |             |
|     | (LATERAL)                        | $\Delta V = 22.3 \text{ mph @ } 45.25 \text{ msec}$  |       |      | 172.76             | 34.75         | 103.20             | 52.25       |
| 7   | RIGHT REAR COMPARTMENT           | 19.9                                                 | -16.9 | 12.0 |                    |               |                    |             |
|     | (LONGITUDINAL)                   |                                                      |       |      | 3.09               | 113.25        | 5.74               | 97.13       |
| 8   | MIDREAR OF LEFT FRONT DOOR       | 76.5                                                 | -26.2 | 22.9 |                    |               |                    |             |
|     | (LATERAL)                        | $\Delta V = 58.3 \text{ mph @ } 63.63 \text{ msec}$  |       |      | 249.04             | 62.00         | 127.91             | 54.63       |
| 9   | UPPER LEFT FRONT DOOR CENTERLINE | 83.2                                                 | -26.9 | 28.0 |                    |               |                    |             |
|     | (LATERAL)                        | $\Delta V = 26.8 \text{ mph @ } 45.25 \text{ msec}$  |       |      | 104.61             | 35.63         | 43.18              | 59.00       |
| 10  | MIDREAR OF LEFT REAR DOOR        | 52.4                                                 | -26.3 | 18.1 |                    |               |                    |             |
|     | (LATERAL)                        | $\Delta V = 22.8 \text{ mph @ } 83.13 \text{ msec}$  |       |      | 84.70              | 54.88         | 39.18              | 68.00       |
| 11  | UPPER LEFT REAR DOOR CENTERLINE  | 51.4                                                 | -26.8 | 26.7 |                    |               |                    |             |
|     | (LATERAL)                        | $\Delta V = 20.3 \text{ mph @ } 80.63 \text{ msec}$  |       |      | 78.63              | 58.00         | 50.65              | 86.50       |

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

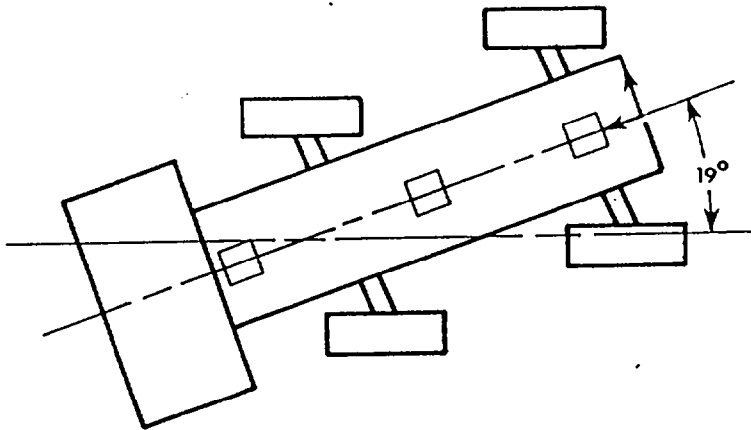
All measurements of accelerometer locations in inches.

# 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  | 74.5                                                  | 0.0 | 11.5 |                    |                |                    |             |
|     | (LONGITUDINAL)     | $\Delta V = -14.6 \text{ mph @ } 130.00 \text{ msec}$ |     |      | 1.31               | 168.25         | 9.53               | 70.25       |
|     | (LATERAL)          | $\Delta V = -2.0 \text{ mph @ } 130.00 \text{ msec}$  |     |      | 3.62               | 122.50         | 3.26               | 102.75      |
|     | (VERTICAL)         |                                                       |     |      | 17.45              | 133.13         | 16.26              | 123.25      |
|     | (RESULTANT)        |                                                       |     |      |                    | 17.61 @ 133.13 |                    |             |
| 2   | FRONT FRAME MEMBER | 130.3                                                 | 0.0 | 11.3 |                    |                |                    |             |
|     | (LONGITUDINAL)     | $\Delta V = -14.7 \text{ mph @ } 130.00 \text{ msec}$ |     |      | 0.54               | 178.00         | 9.21               | 70.50       |
| 3   | REAR FRAME MEMBER  | 23.3                                                  | 0.0 | 11.5 |                    |                |                    |             |
|     | (LONGITUDINAL)     | $\Delta V = -13.6 \text{ mph @ } 130.00 \text{ msec}$ |     |      | 1.08               | 177.38         | 9.04               | 58.38       |

\* 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         | 502         | Vehicle Dynamics               |
| 2          | Overhead             | Photosonics 1B | 25        | 485         | Close-up of impact point       |
| 3          | Onboard MDB          | Photosonics 1B | 25        | 517         | Close-up of impact point       |
| 4          | Onboard MDB          | Stalex         | 13        | 505         | Driver kinematics              |
| 5          | Ground level - right | Photosonics 1B | 25        | 550         | Overall view                   |
| 6          | Ground level - left  | Photosonics 1B | 17        | 480         | Overall view                   |
| 7          | Onboard vehicle      | Photosonics 1B | 8         | 805         | Driver kinematics - front view |
| 8          | Onboard vehicle      | Photosonics 1B | 8         | 800         | Driver kinematics              |
| 9          | Onboard vehicle      | Photosonics 1B | 8         | 800         | 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          | 26'4"  | 60'    | 45" |
| 6          | -19'7" | -11'3" | 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<br>BEING<br>MEASURED | TYPE OF<br>TRANSDUCER | MODEL<br>NUMBER | SERIAL<br>NUMBER | MFGR.          | DATE OF<br>LAST<br>CALIBRATION | SENSITIVITY | DESIRED<br>FULL SCALE<br>(ENGR. UNITS) |
|--------------------------------|-----------------------|-----------------|------------------|----------------|--------------------------------|-------------|----------------------------------------|
| BCGXG                          | Accel                 | 4-202-0001      | 18845            | Bell<br>Howell | 12/7/83                        | .237 MV/G   | 50 G                                   |
| BCGYG                          | Accel                 | 4-202-0001      | 18858            | Bell<br>Howell | 12/7/83                        | .240 MV/G   | 50 G                                   |
| BCGZG                          | Accel                 | 4-202-0001      | 18857            | Bell<br>Howell | 12/7/83                        | .240 MV/G   | 50 G                                   |
| BFCXG                          | Accel                 | 4-202-0001      | 18240            | Bell<br>Howell | 12/7/83                        | .240 MV/G   | 50 G                                   |
| BRCXG                          | Accel                 | 4-202-0001      | 19022            | Bell<br>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  
A-2

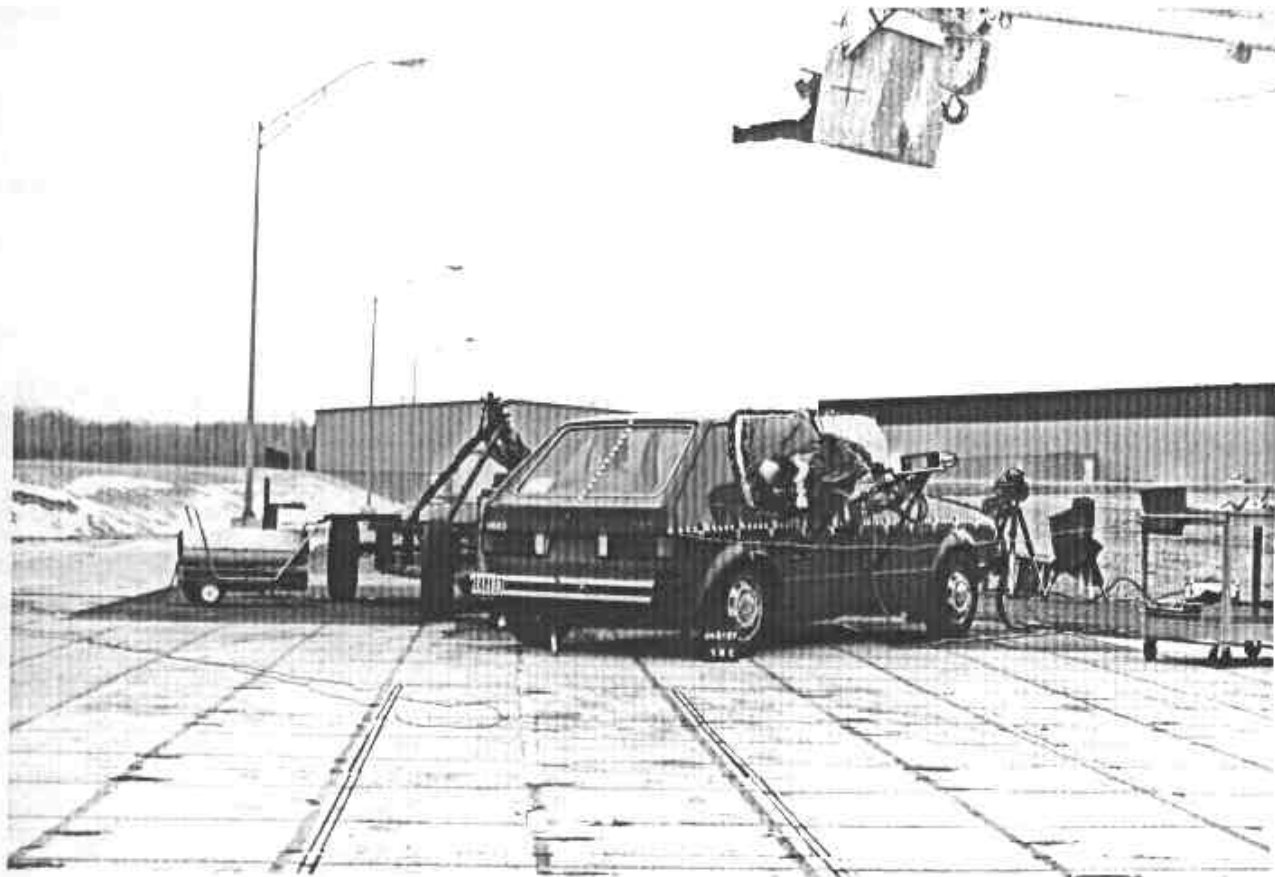


Figure A-3. PRE-TEST OVERALL - VIEW 3

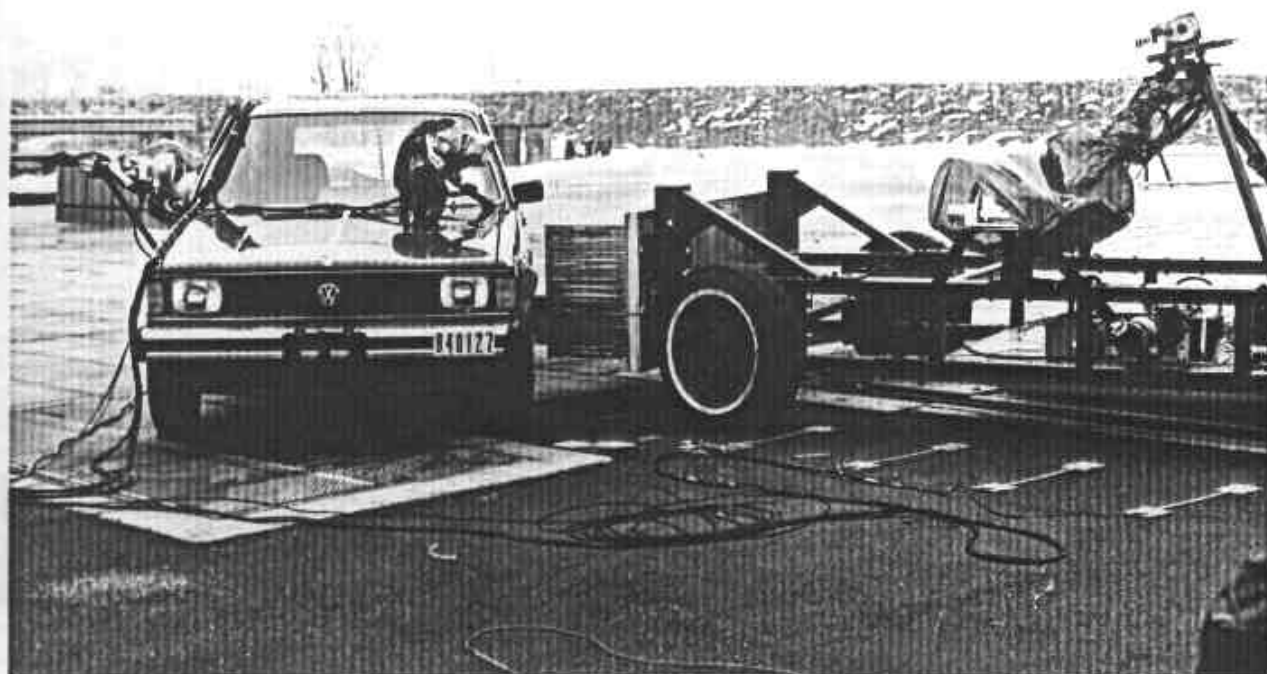


Figure A-4. PRE-TEST OVERALL - VIEW 4  
A-3

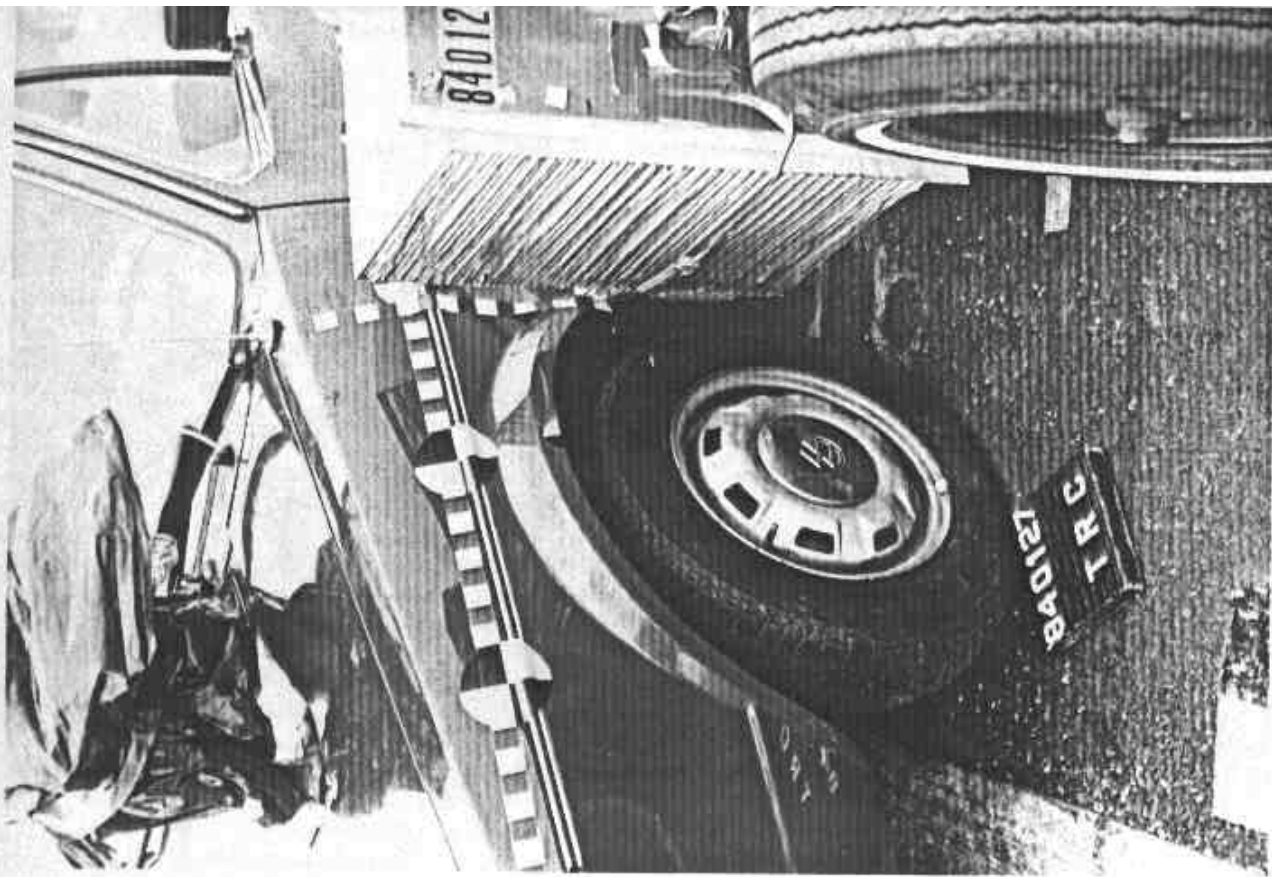


Figure A-5. PRE-TEST CLOSEUP - VIEW 1

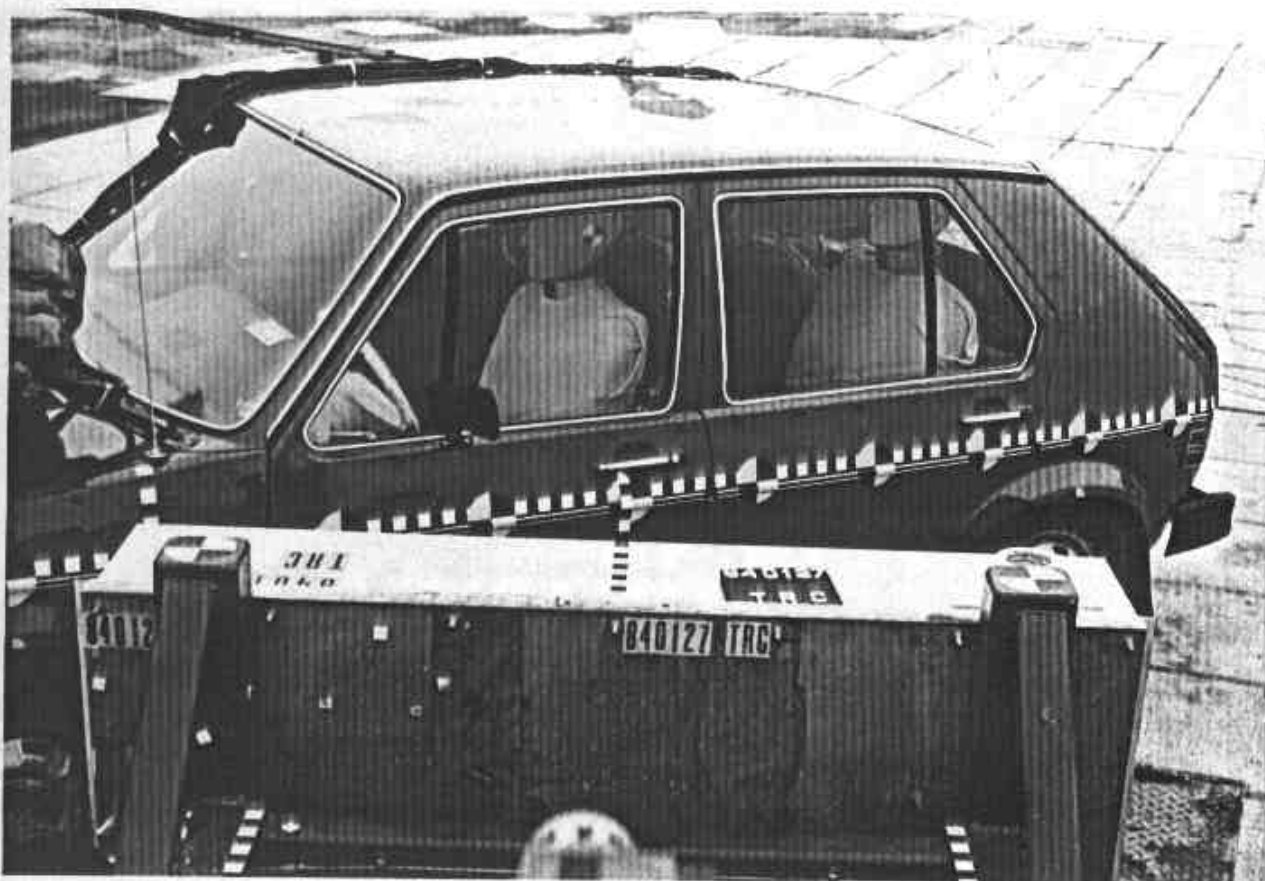


Figure A-6. PRE-TEST CLOSEUP - VIEW 2  
A-4



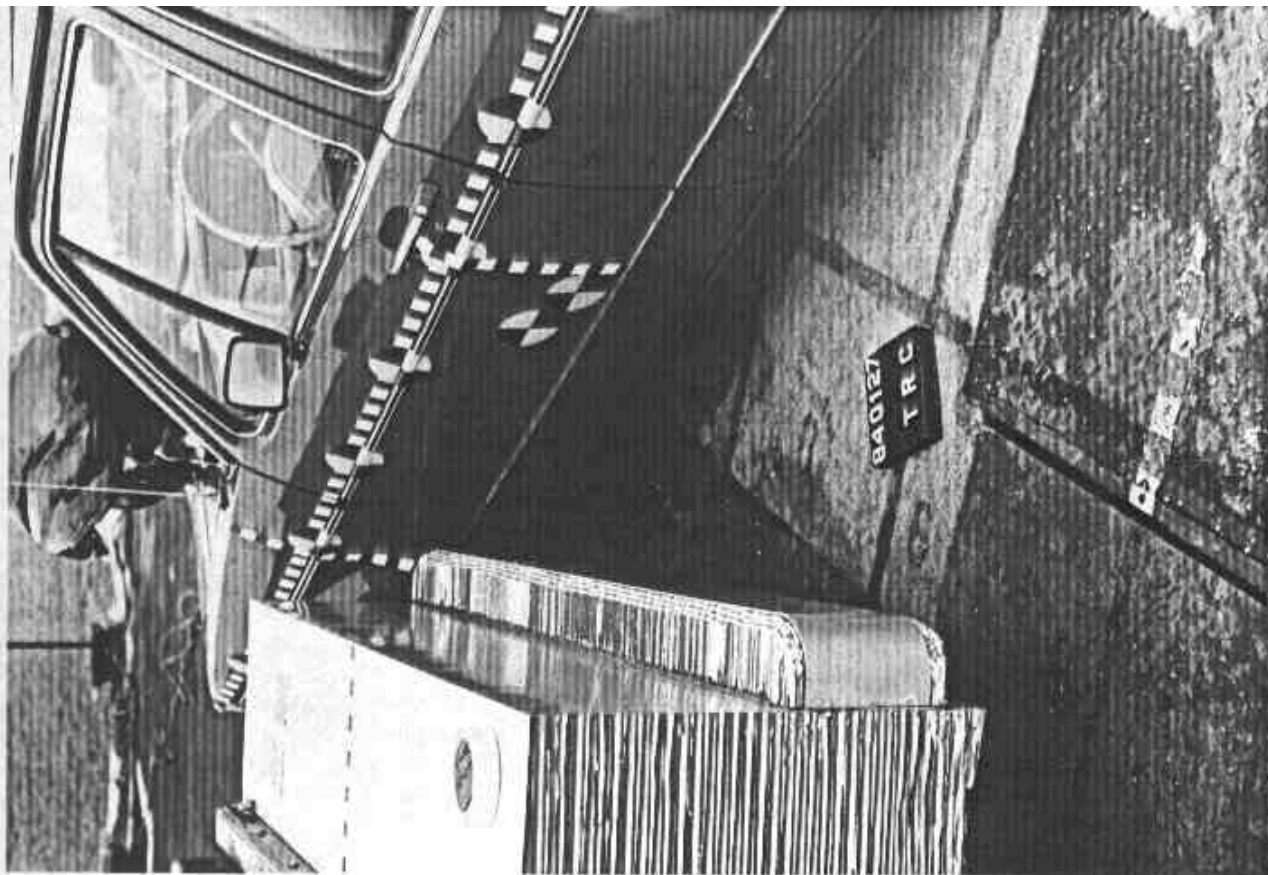


Figure A-7. PRE-TEST CLOSEUP - VIEW 3



Figure A-8. PRE-TEST DRIVER DUMMY - VIEW 1  
A-5

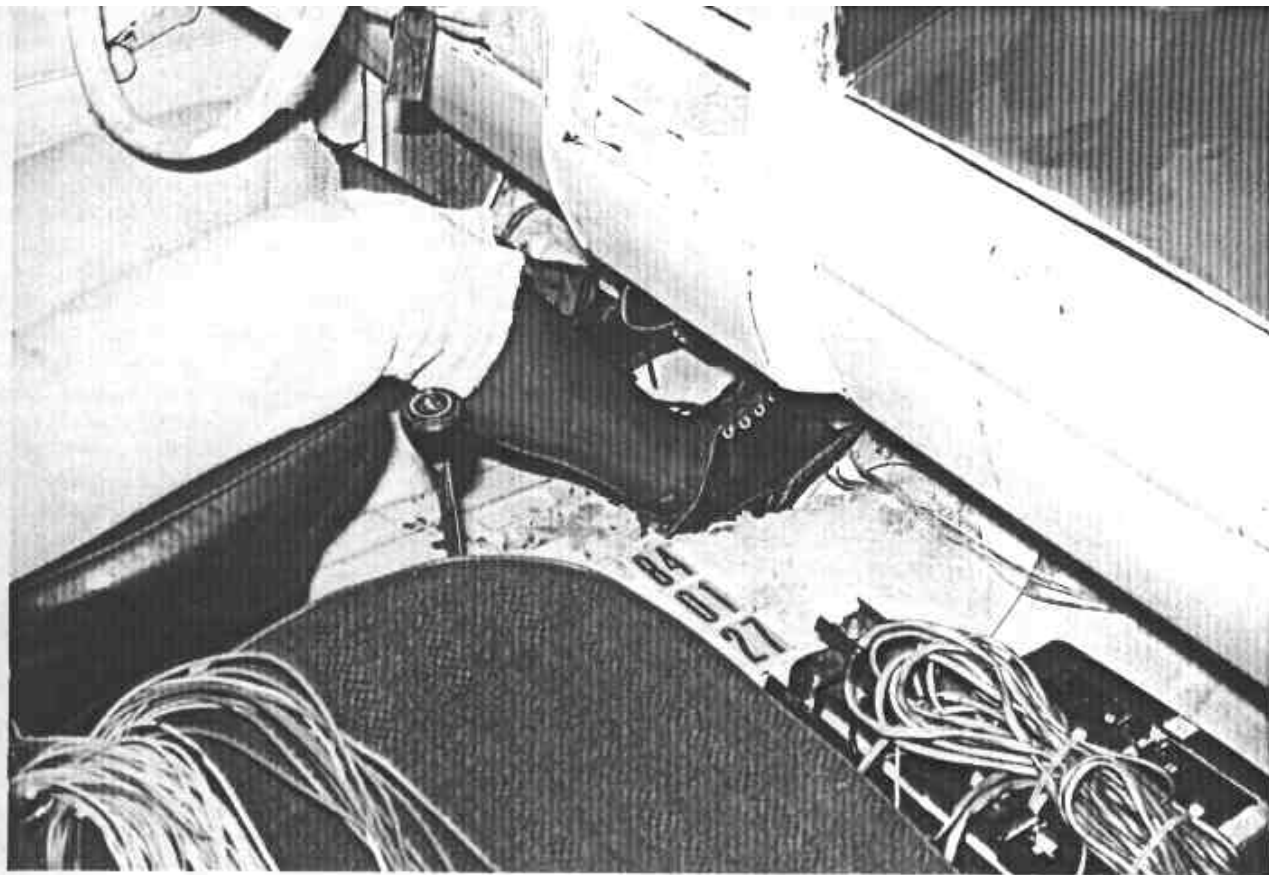


Figure A-9. PRE-TEST DRIVER DUMMY - VIEW 2

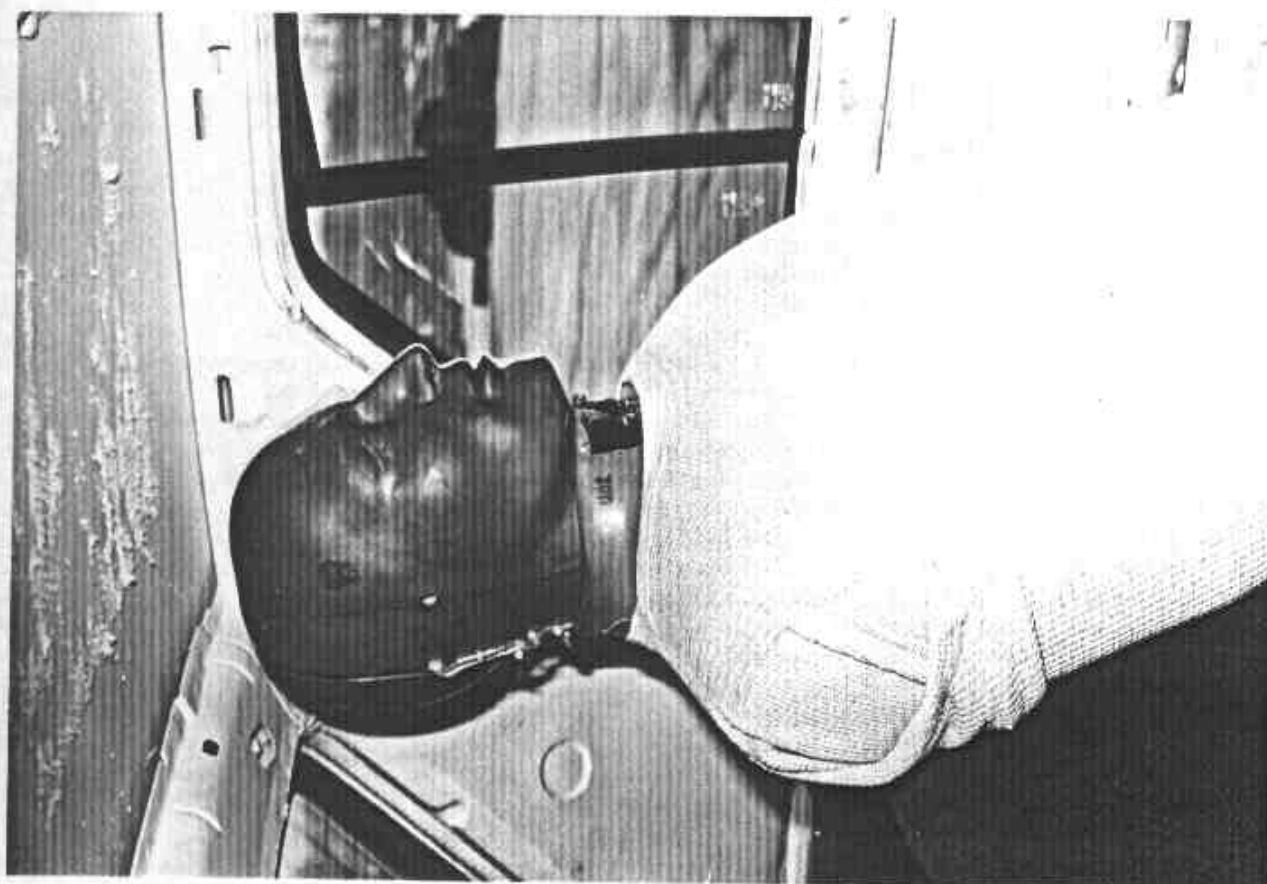


Figure A-10. PRE-TEST PASSENGER DUMMY - VIEW 1  
A-6

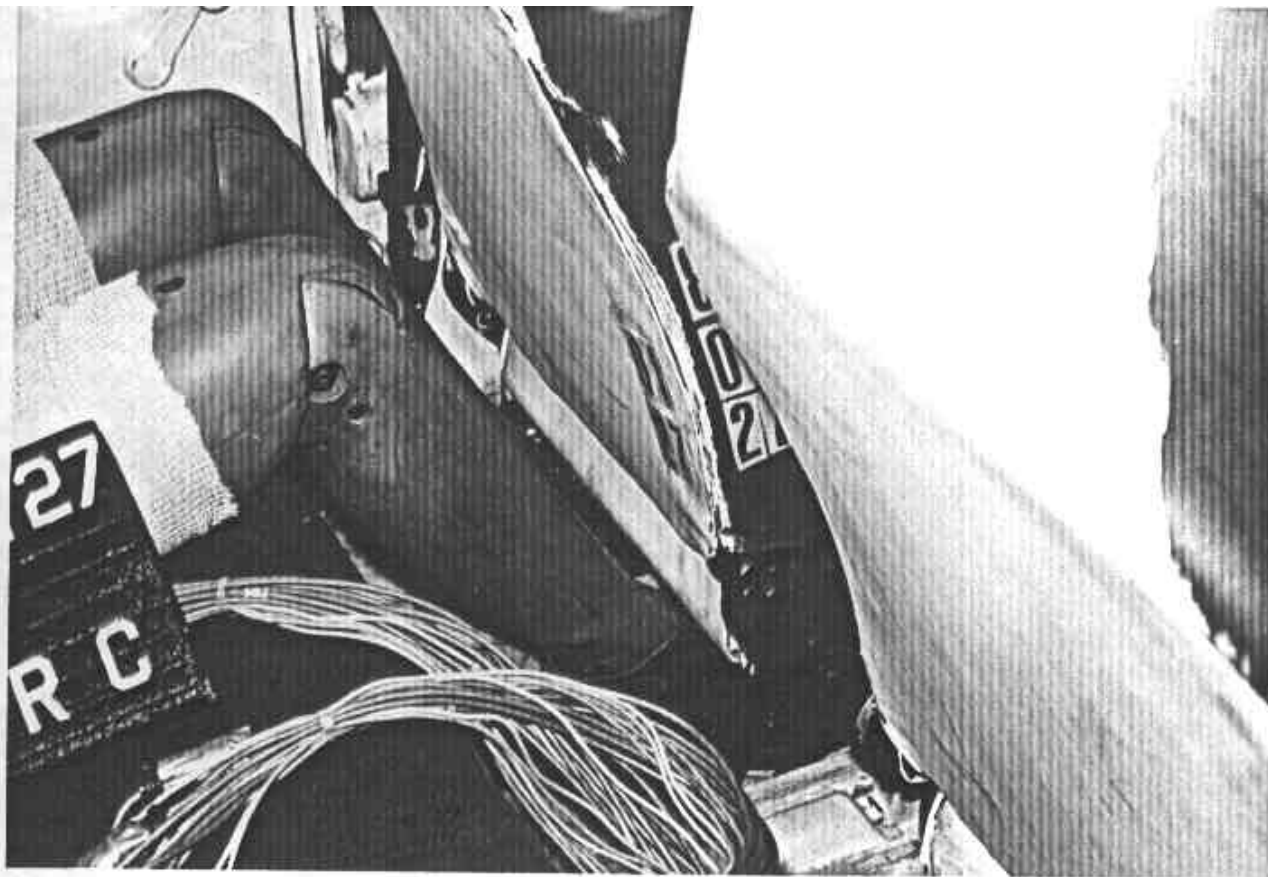


Figure A-11. PRE-TEST PASSENGER DUMMY - VIEW 2

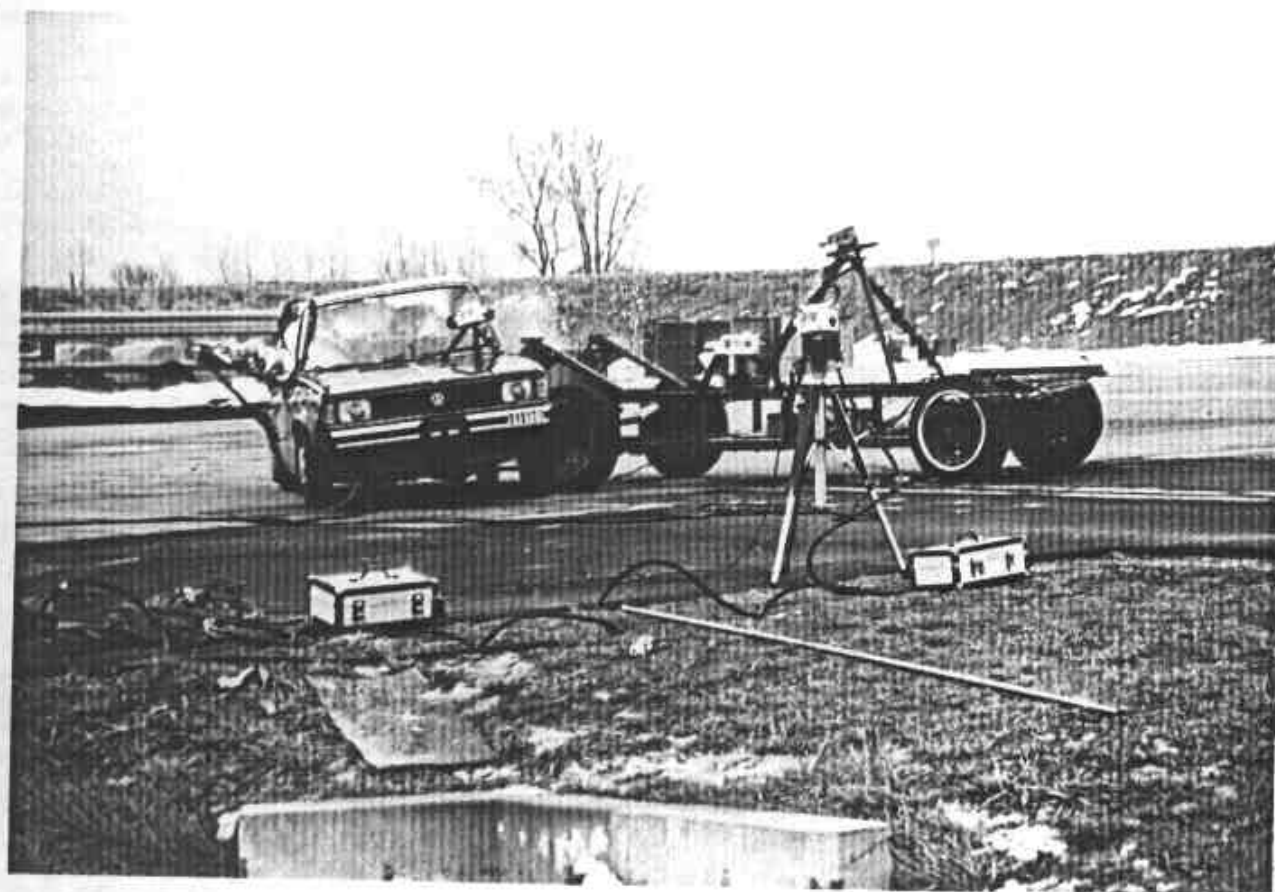


Figure A-12. CRASH EVENT PHOTOGRAPH  
A-7



Figure A-13. POST-TEST OVERALL - VIEW 1

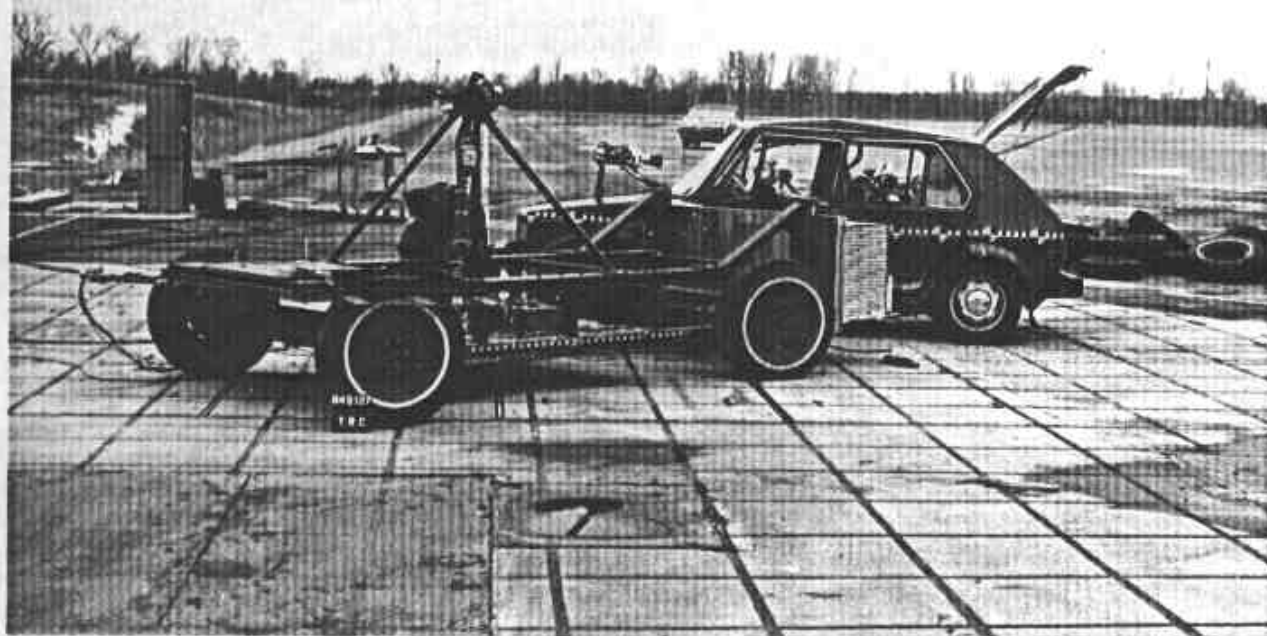


Figure A-14. POST-TEST OVERALL - VIEW 2  
A-8





Figure A-15. POST-TEST OVERALL - VIEW 3



Figure A-16. POST-TEST OVERALL - VIEW 4  
A-9

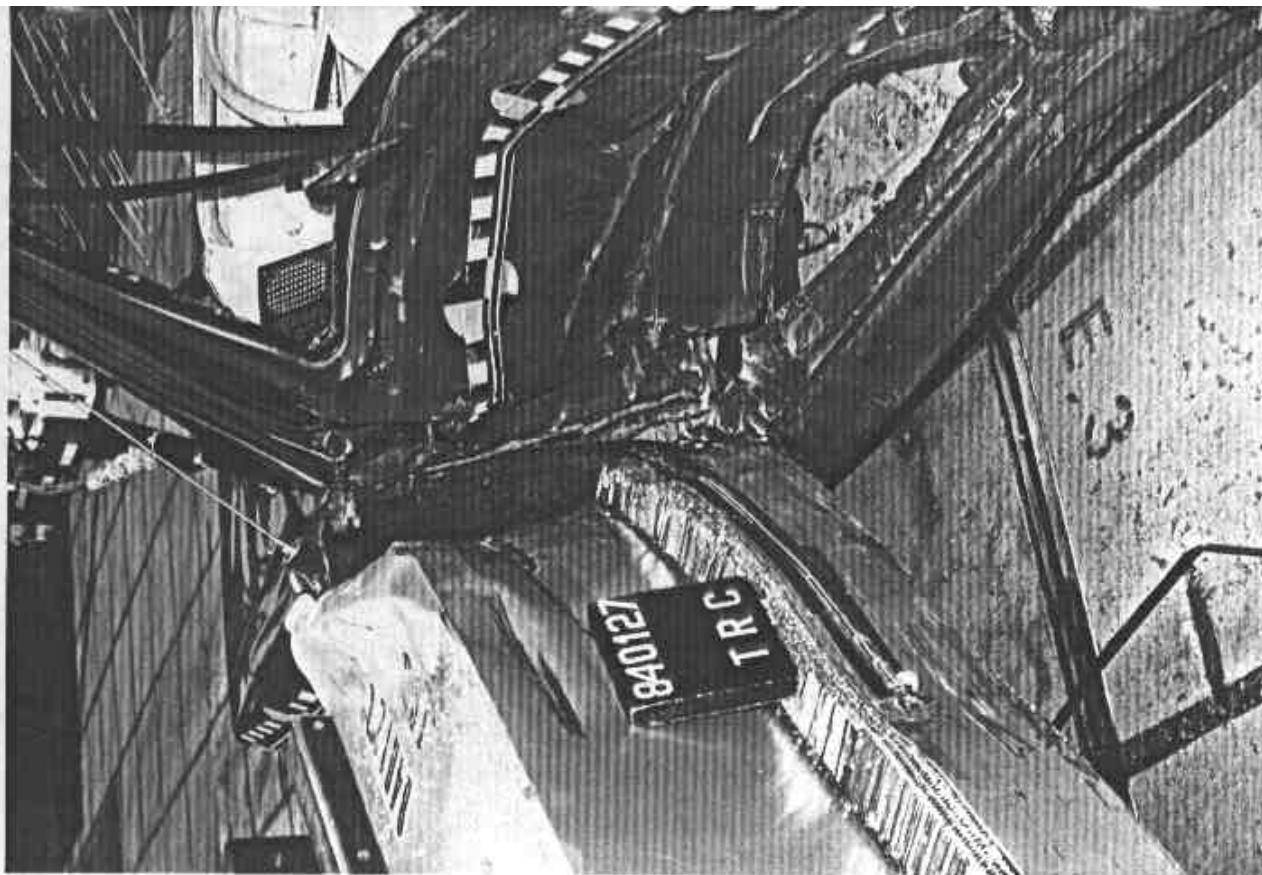


Figure A-17. POST-TEST CLOSEUP - VIEW 1

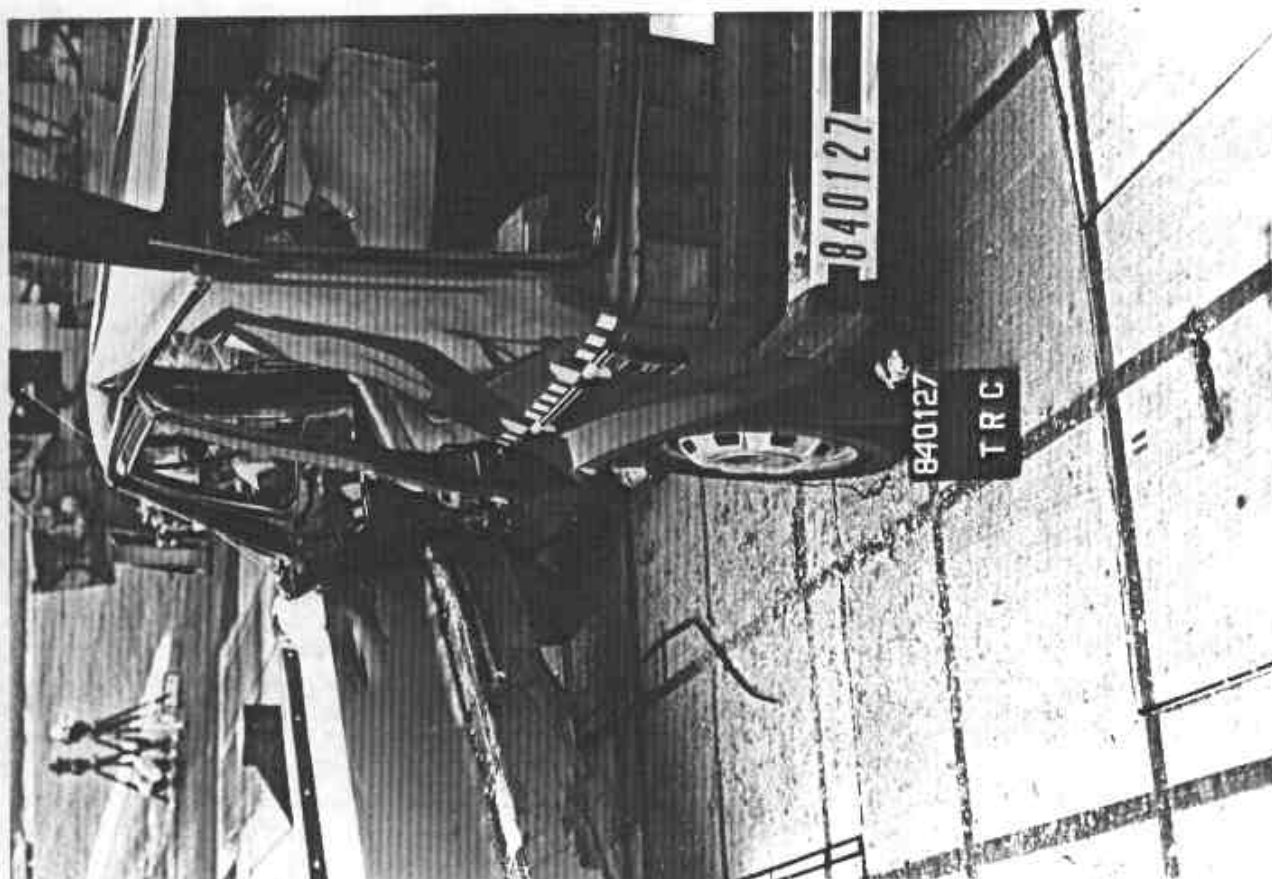


Figure A-18. POST-TEST CLOSEUP - VIEW 2  
A-10

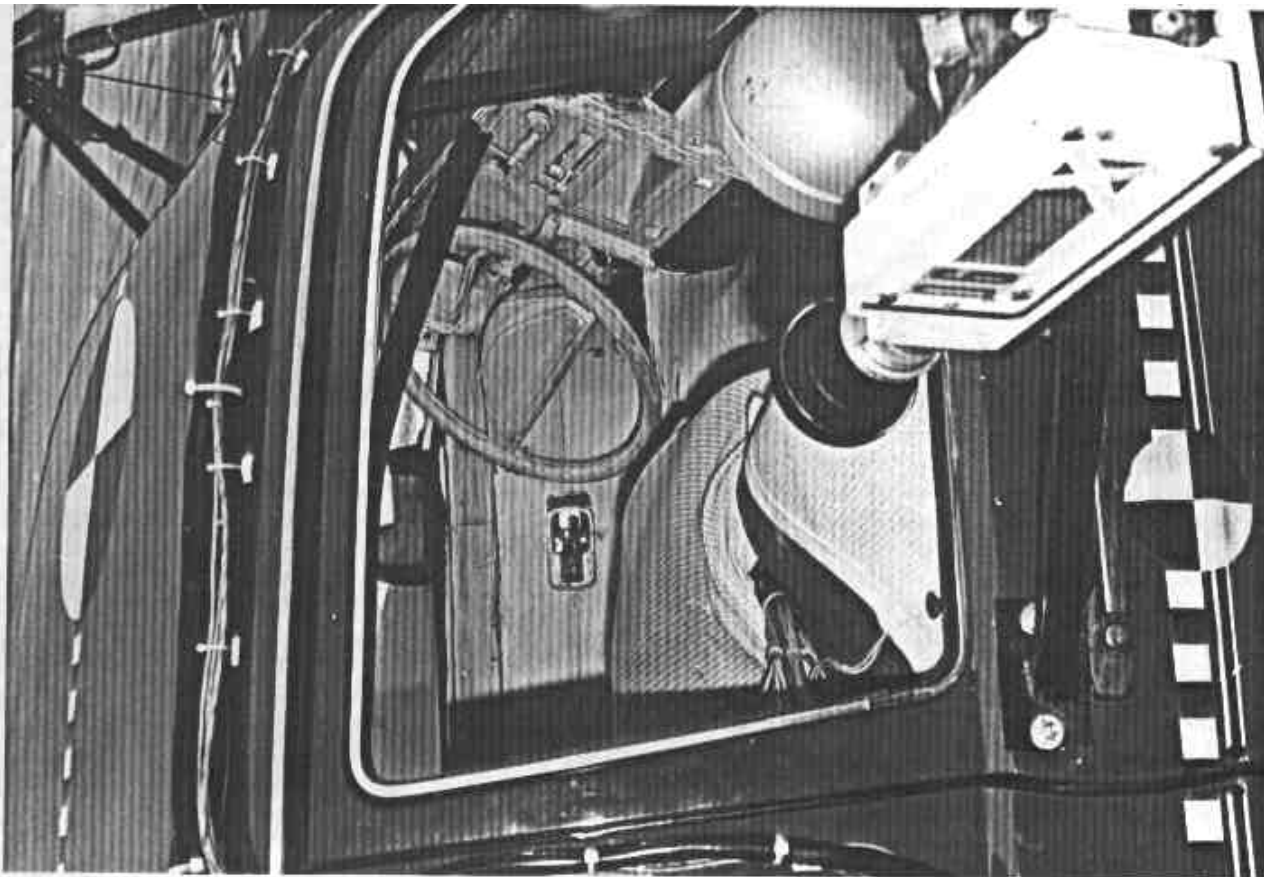


Figure A-19. POST-TEST DRIVER DUMMY - VIEW 1



Figure A-20. POST-TEST DRIVER DUMMY - VIEW 2  
A-11



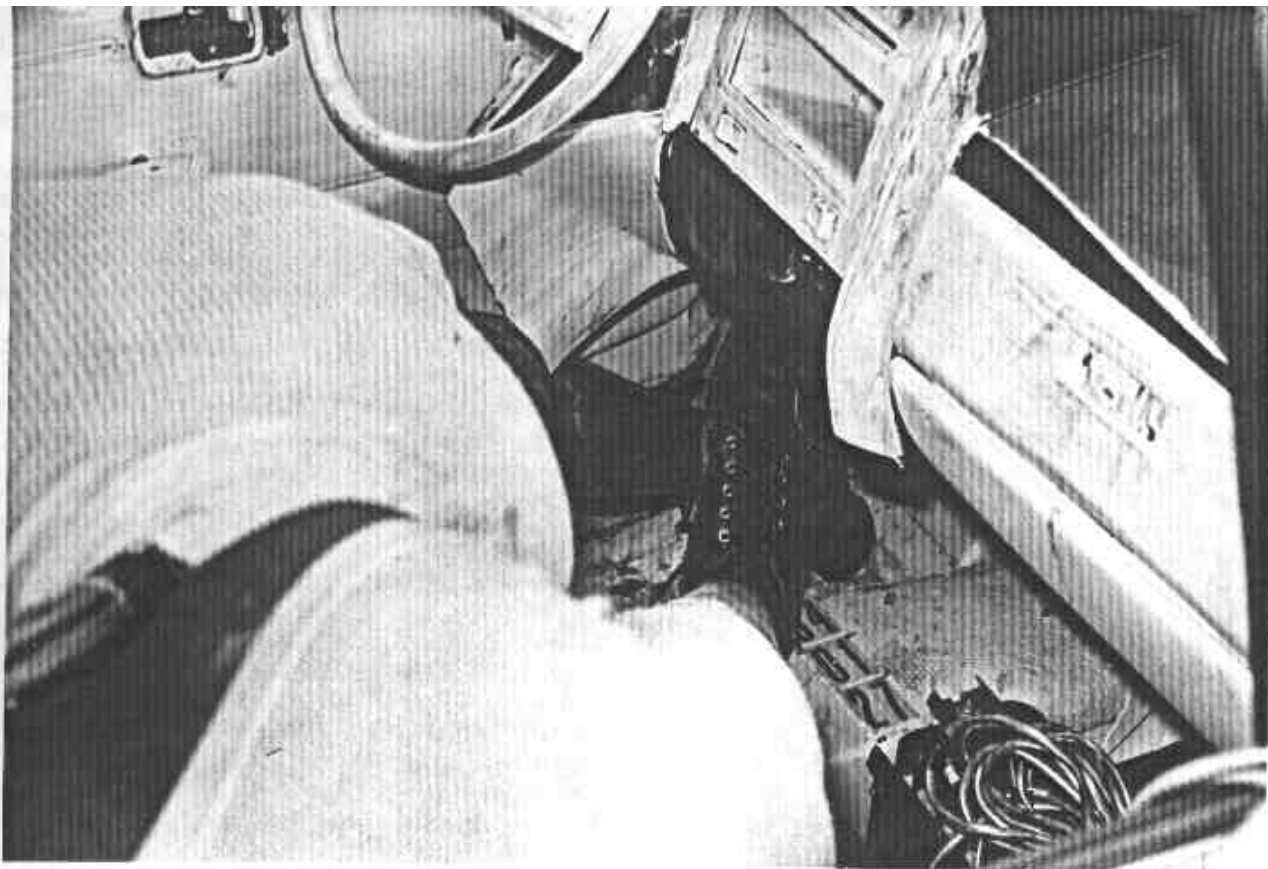


Figure A-21. POST-TEST DRIVER DUMMY - VIEW 3



Figure A-22. POST-TEST PASSENGER DUMMY - VIEW 1  
A-12



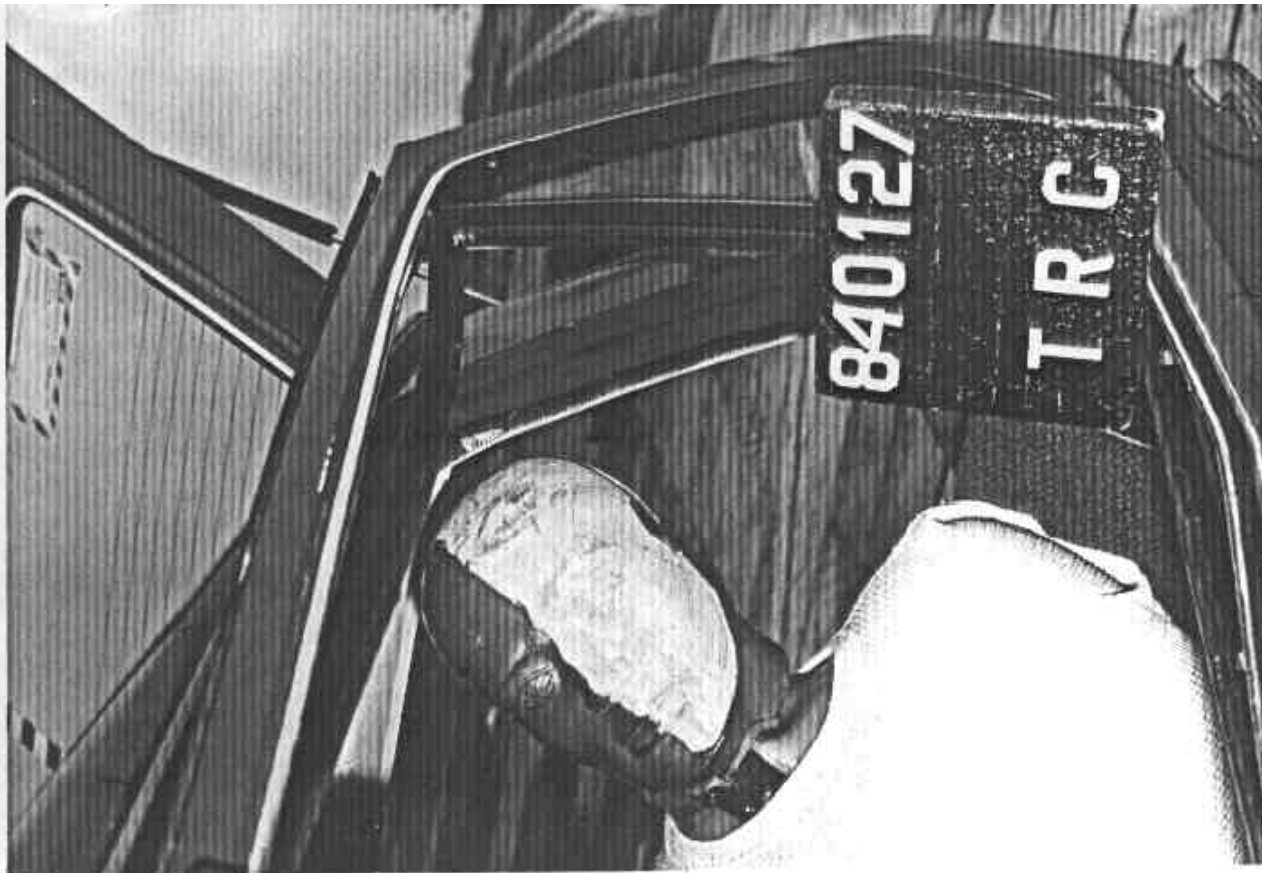


Figure A-23. POST-TEST PASSENGER DUMMY - VIEW 2

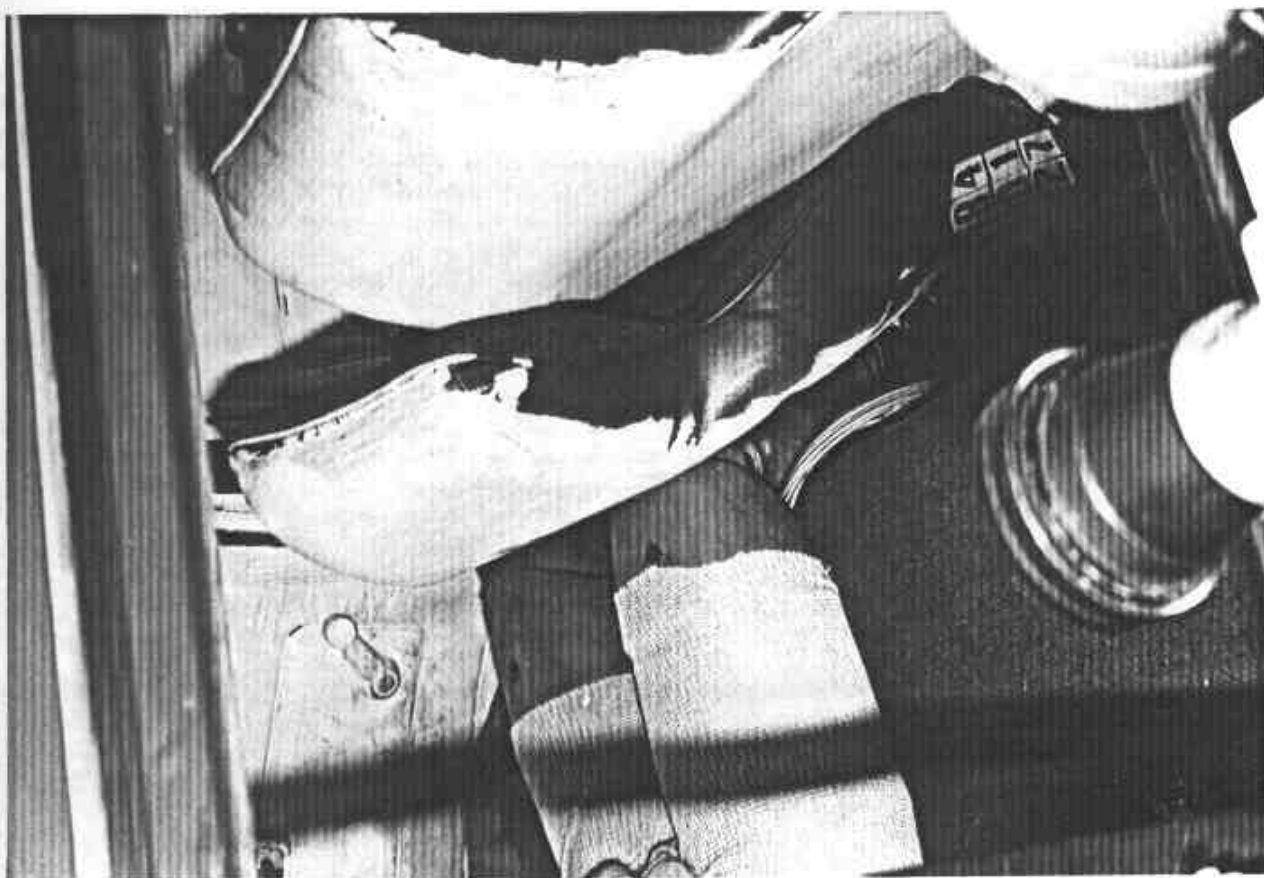


Figure A-24. POST-TEST PASSENGER DUMMY - VIEW 3  
A-13

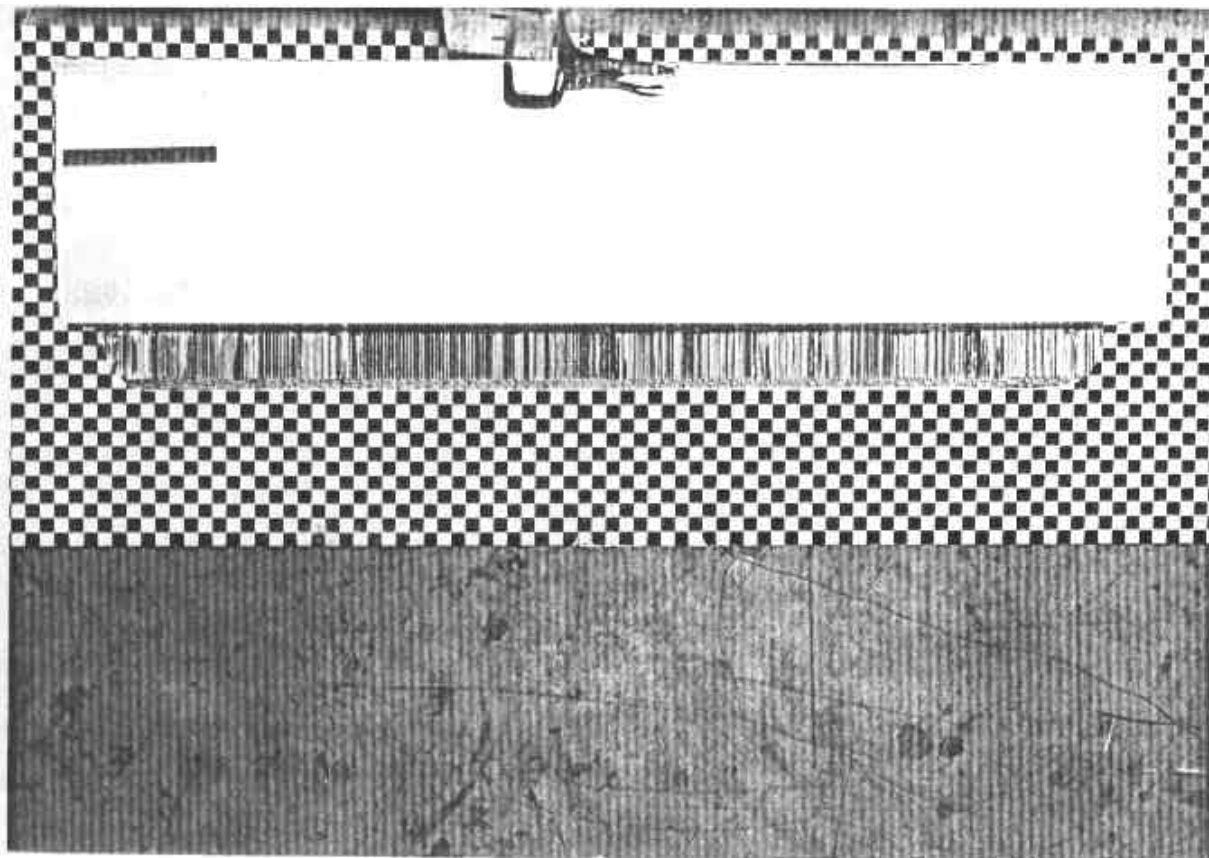


Figure A-25. PRE-TEST MDB FACE - VIEW 1

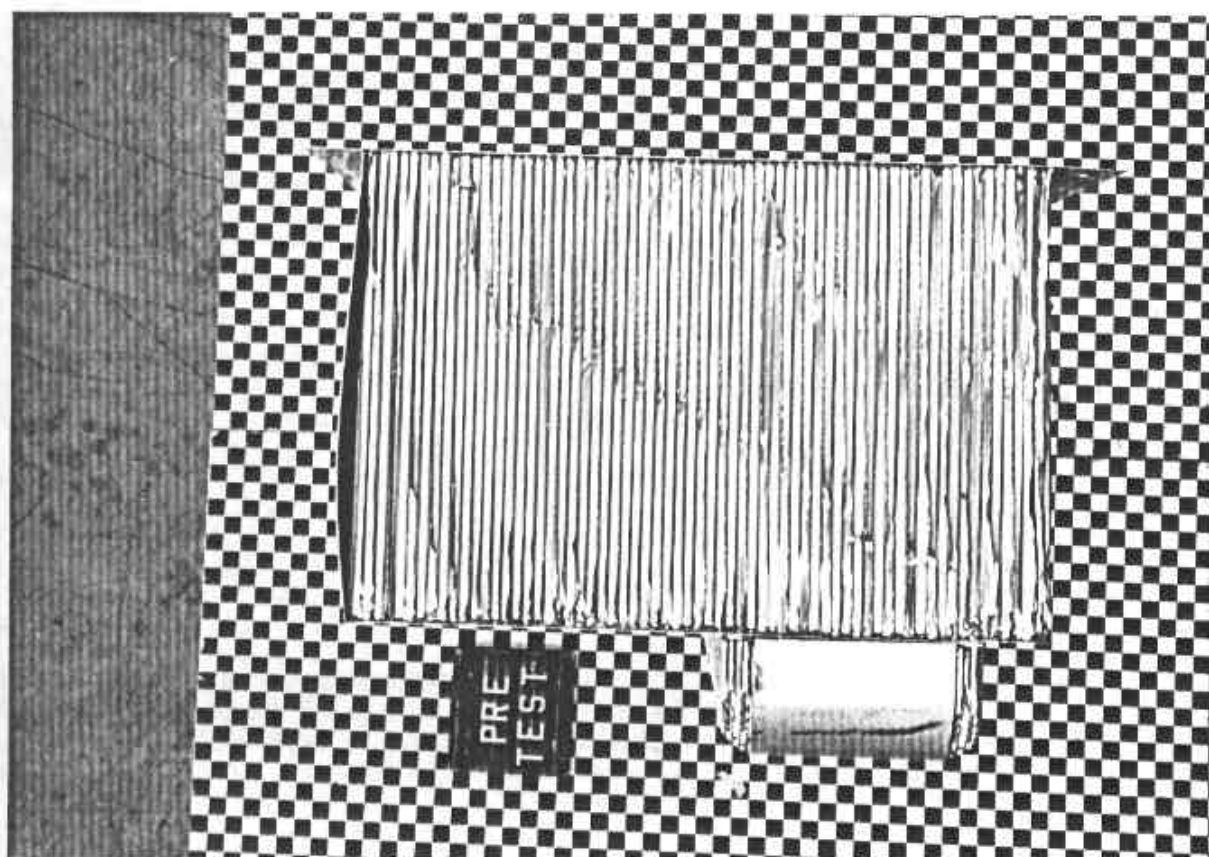


Figure A-26. PRE-TEST MDB FACE - VIEW 2  
A-14

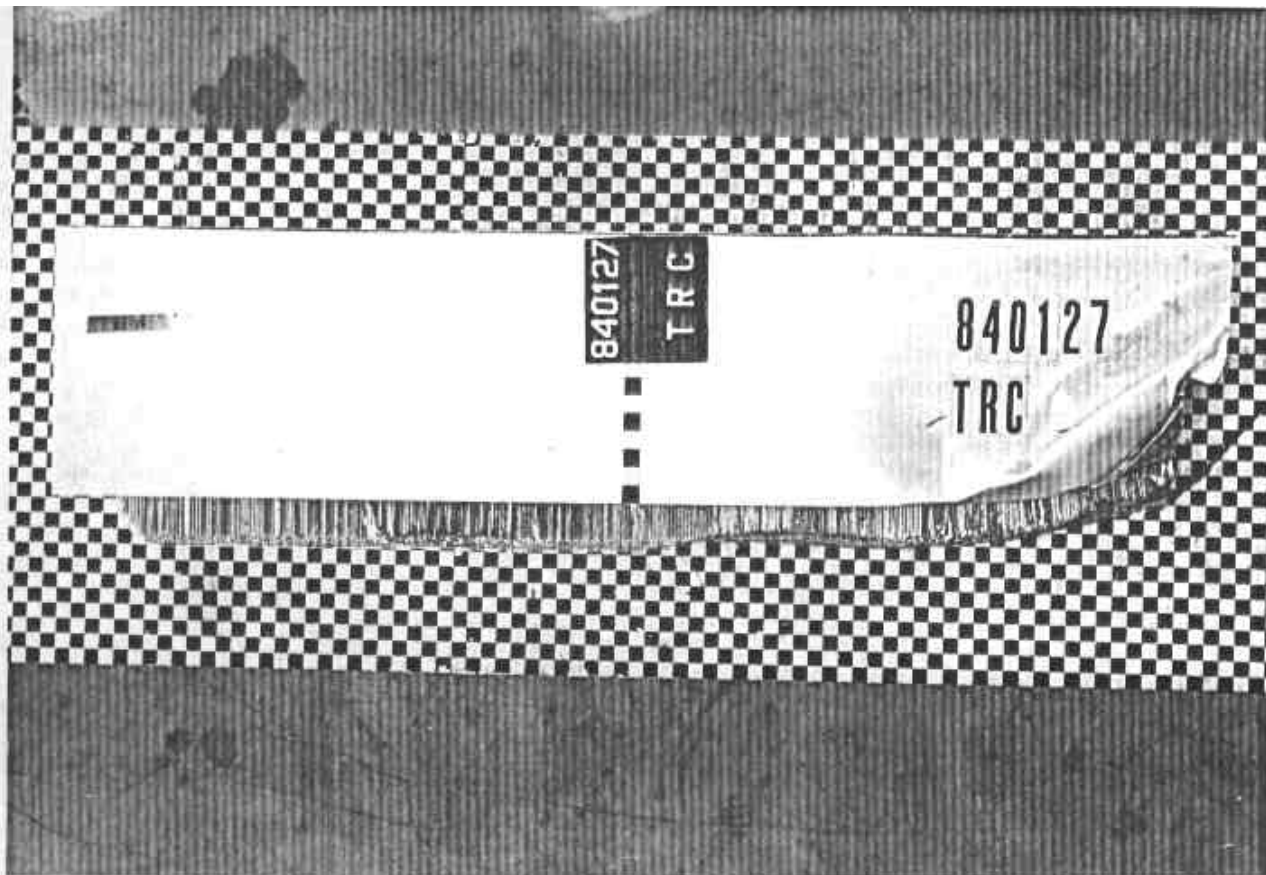


Figure A-27. POST-TEST MDB FACE - VIEW 1

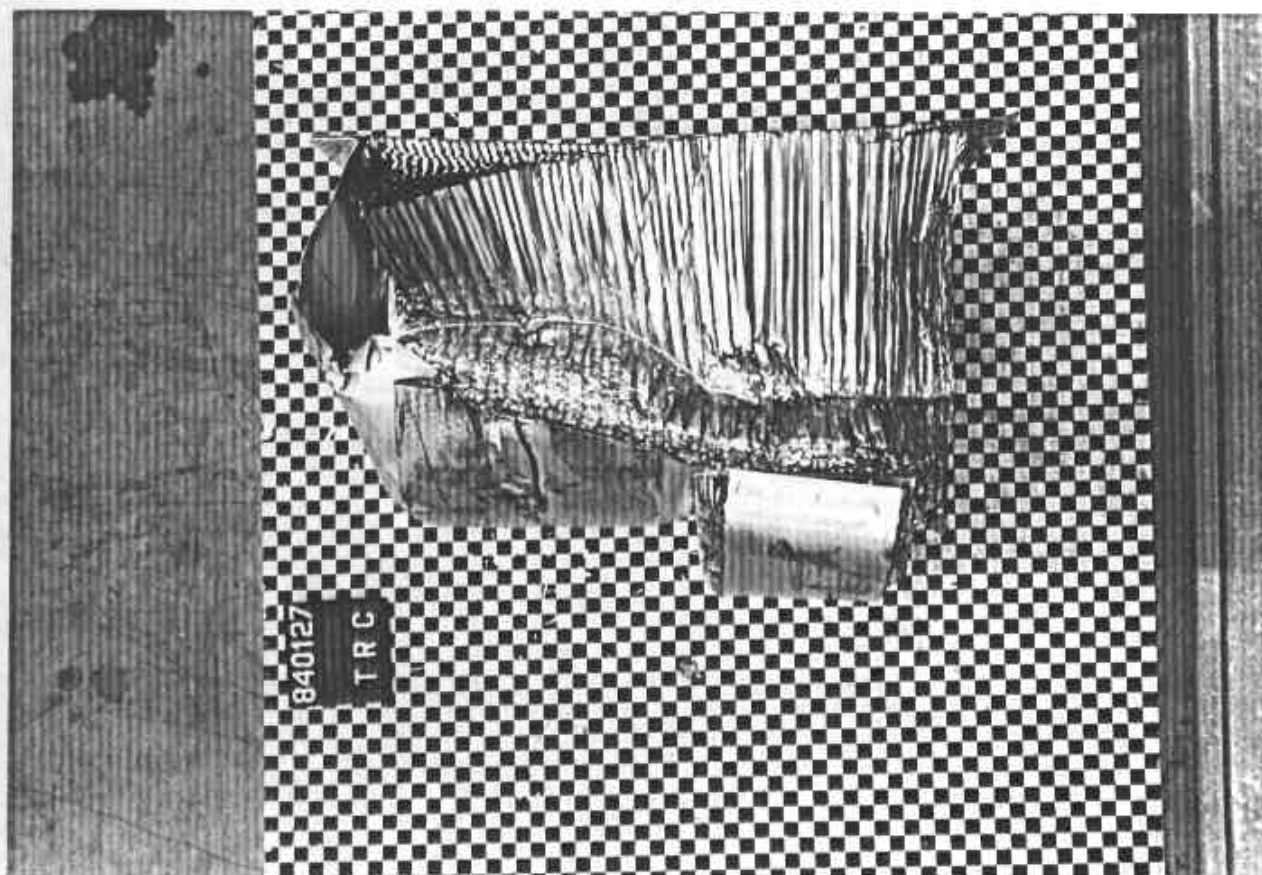


Figure A-28. POST-TEST MDB FACE - VIEW 2  
A-15

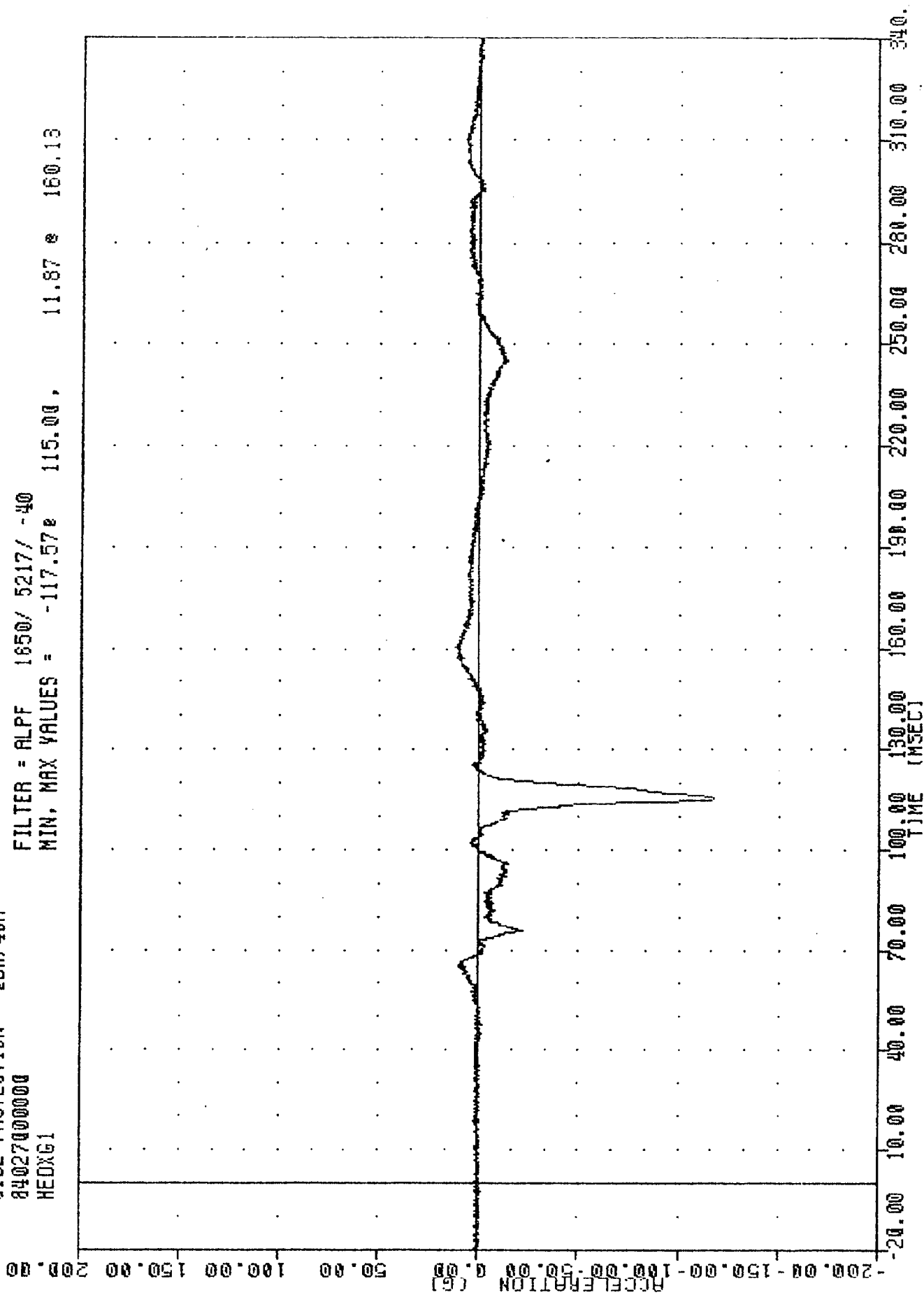
APPENDIX B  
DATA PLOT PRESENTATION

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.

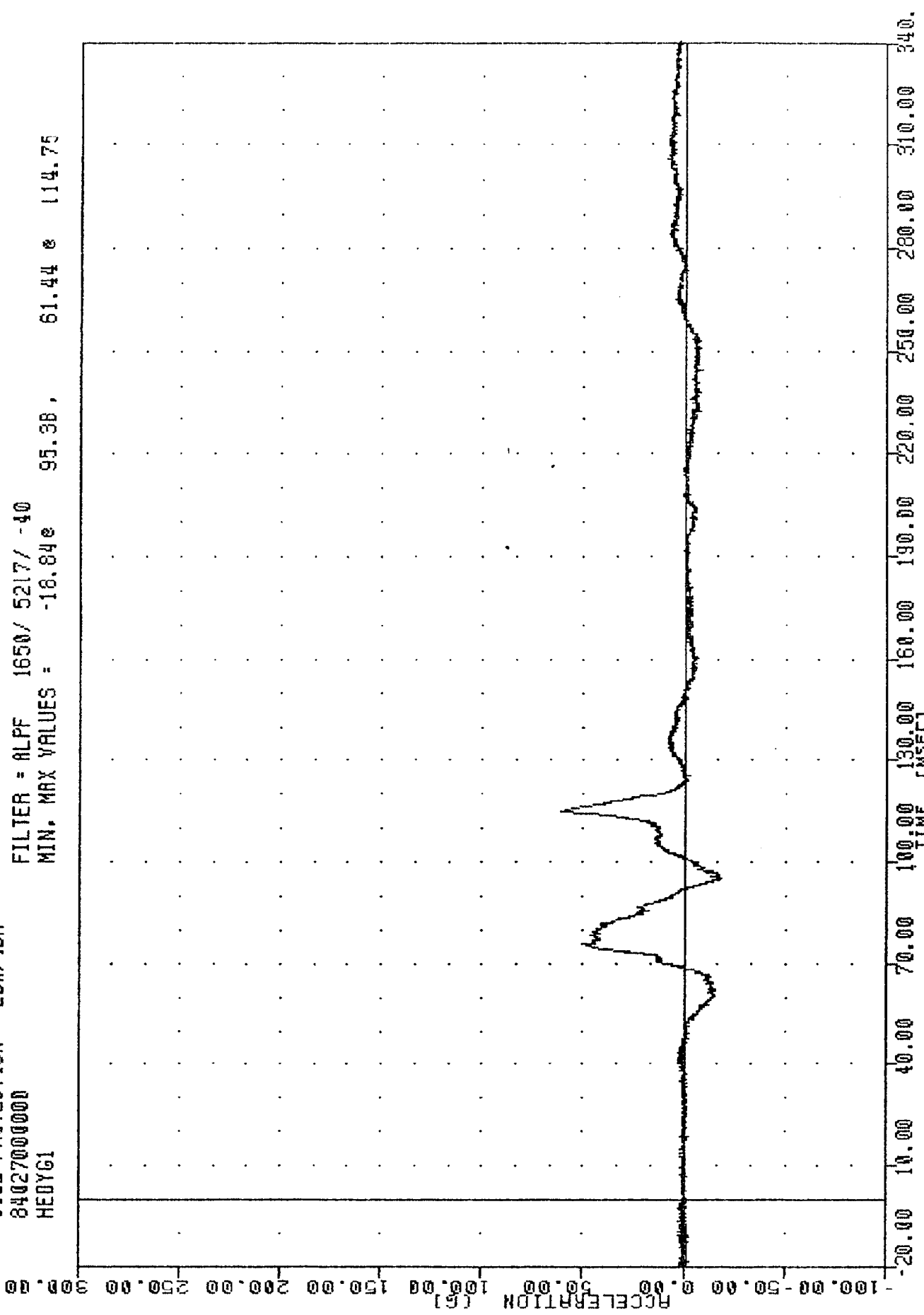
THC  
840127  
SIDE PROTECTION - 20R/40R  
84027000000  
HEDXG1

PLOT DATE 1-FEB-84 10:26:52

FILTER = ALPF 1650/ 5217/ -40  
MIN, MAX VALUES = -117.57e 115.00, 11.87e 160.13



TRC 840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 HEDYG1  
 FILTER = ALPF 1650/ 5217/ -40  
 MIN. MAX VALUES = -18.84e 95.38, 61.44 e 114.75  
 PLOT DATE 1-FEB-84 10:26:52



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER HEAD ACCELERATION Y AXIS

TAC

, 840127

PLOT DATE

1-FEB-84

10:26:52

SIDE PROTECTION - 20R/4DR

840270000000

FILTER = ALPF 1650/ 5217/ -40

HEDZB1

MIN. MAX VALUES =

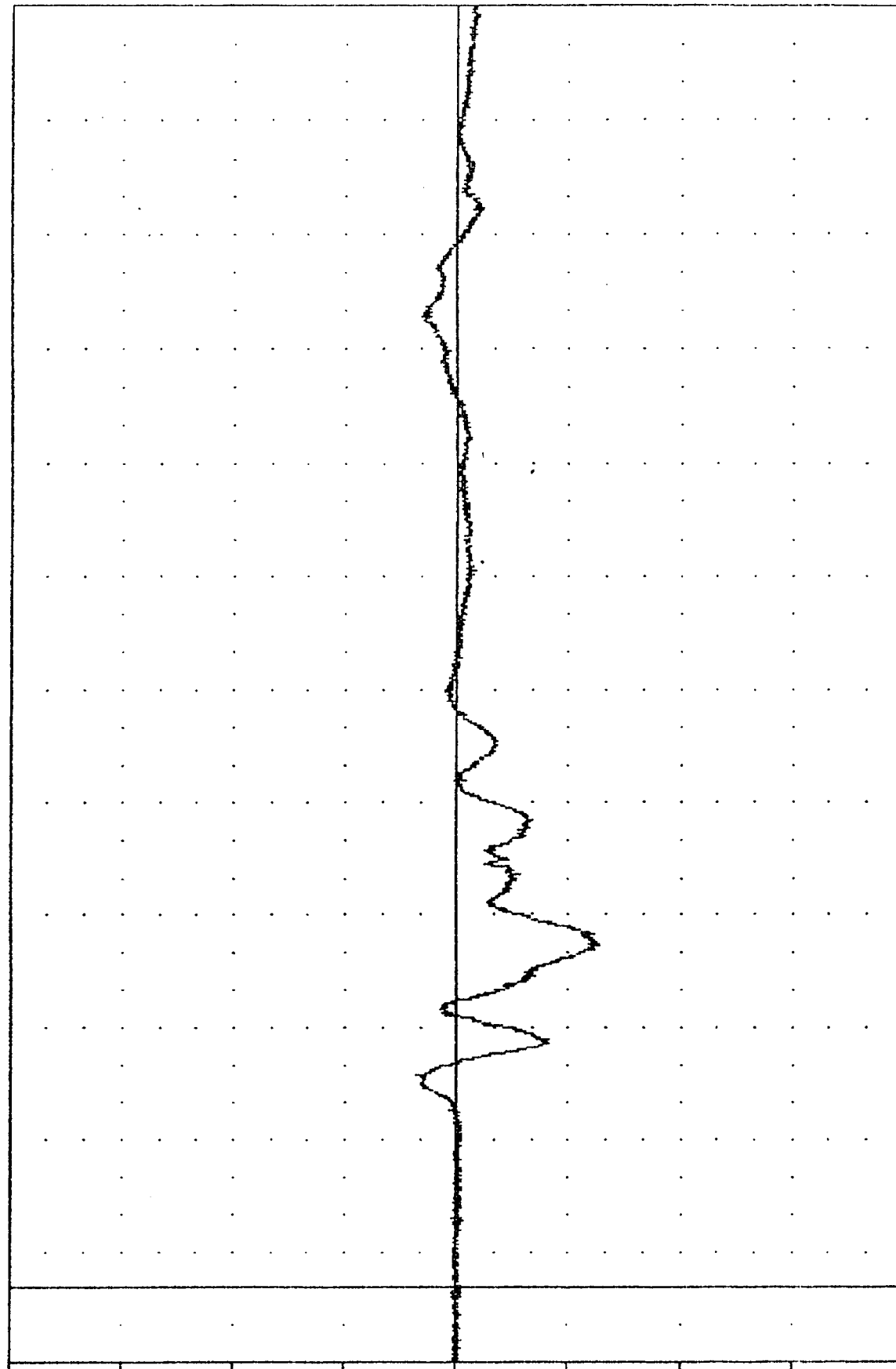
-63.06

32.00

17.93

57.38

ACCELERATION (G)



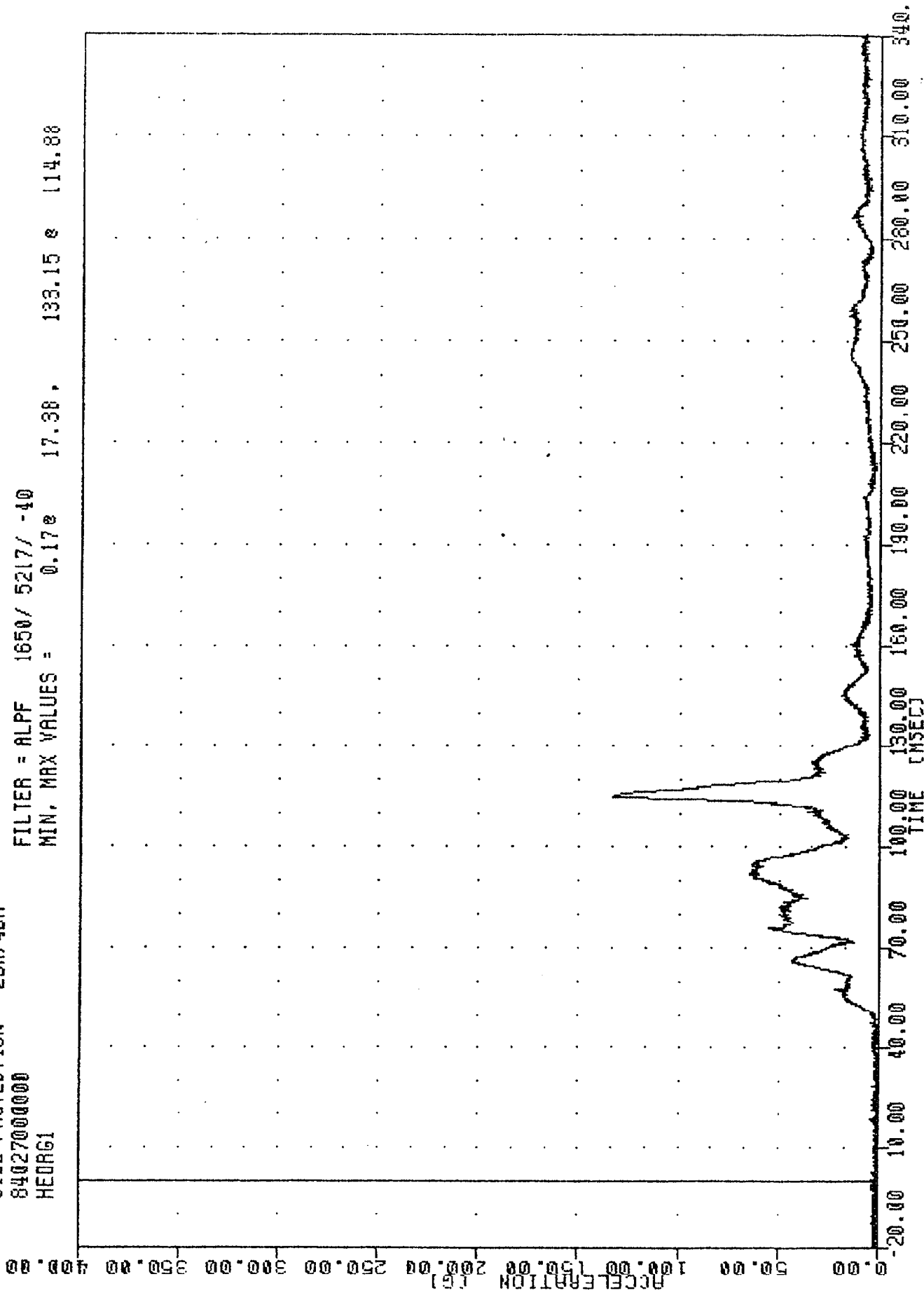
TIME (msec)

MOVING DEFORMABLE BARRIER INTO RABBIT  
DRIVER HEAD ACCELERATION Z AXIS

TRC  
 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 HEDRG1

PLOT DATE 1-FEB-84 10:26:52

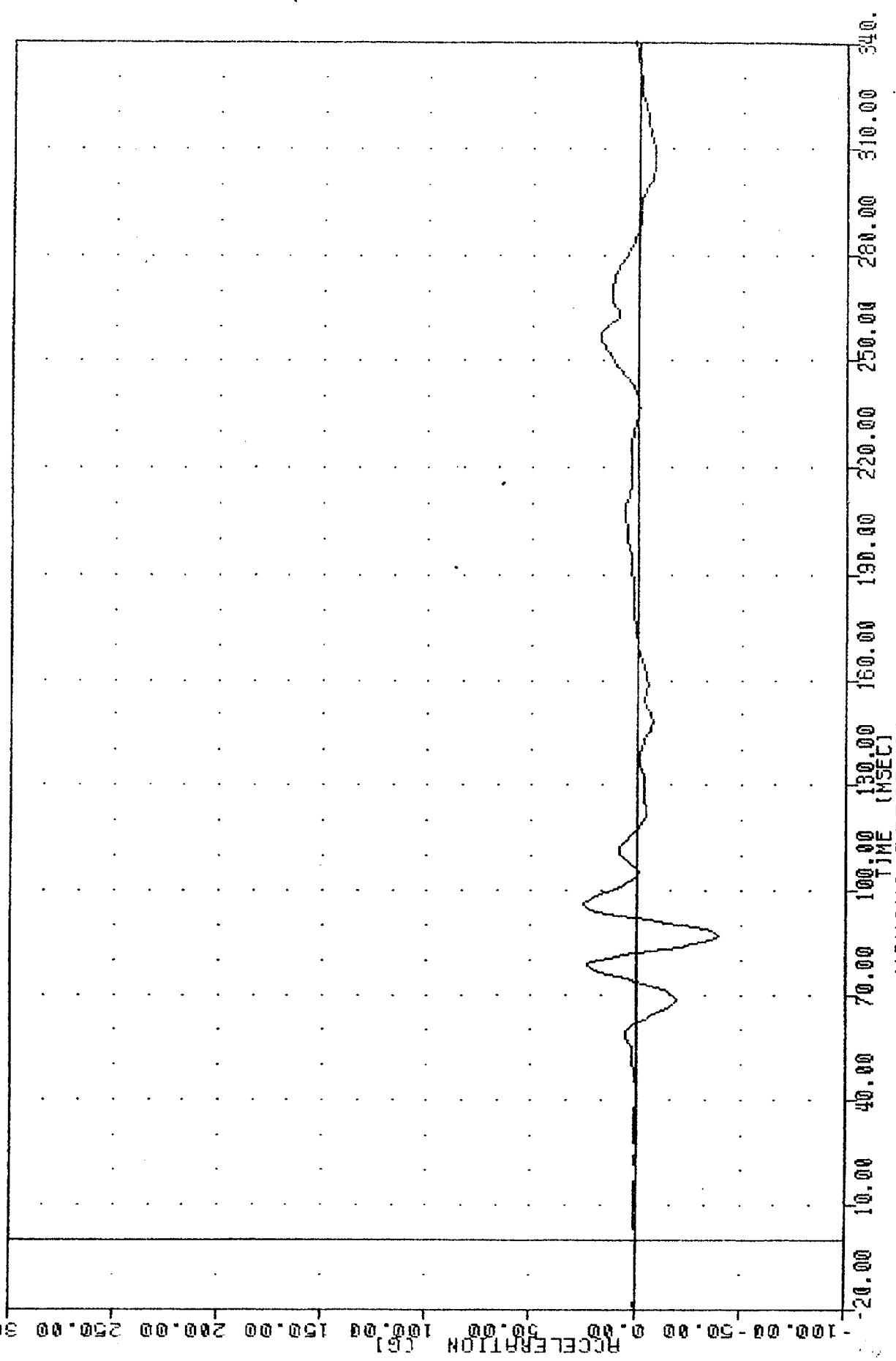
FILTER = ALPF 1650/ 5217/ -40  
 MIN. MAX VALUES = 0.178 17.38, 133.15 114.88



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER HEAD RESULTANT



TRL 840127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 T01XG1  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -39.20 86.25, 24.86 95.00  
 PLOT DATE 1-FEB-84 10:27:42

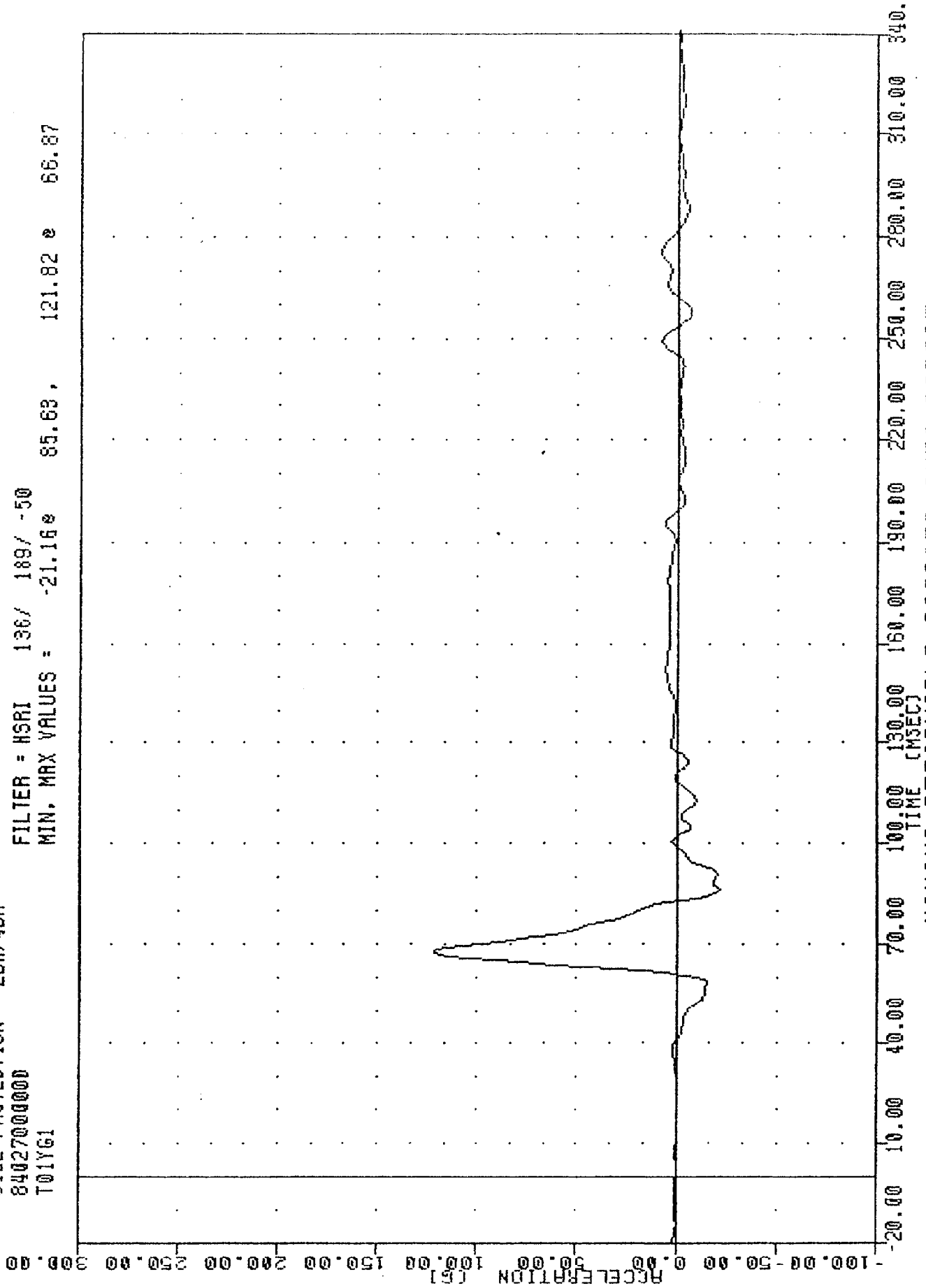


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER UPPER SPINE ACCELERATION X AXIS

TRC  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 T01Y61

PLOT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -21.16 85.63, 121.82 66.87



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER UPPER SPINE ACCELERATION Y AXIS

TBC

, 840127

PLOT DATE

1-FEB-84

10:27:42

SIDE PROTECTION - 20R/4DR

24027000000

FILTER = H3RI 136/ 189/ -50

T01Y6A

MIN. MAX VALUES =

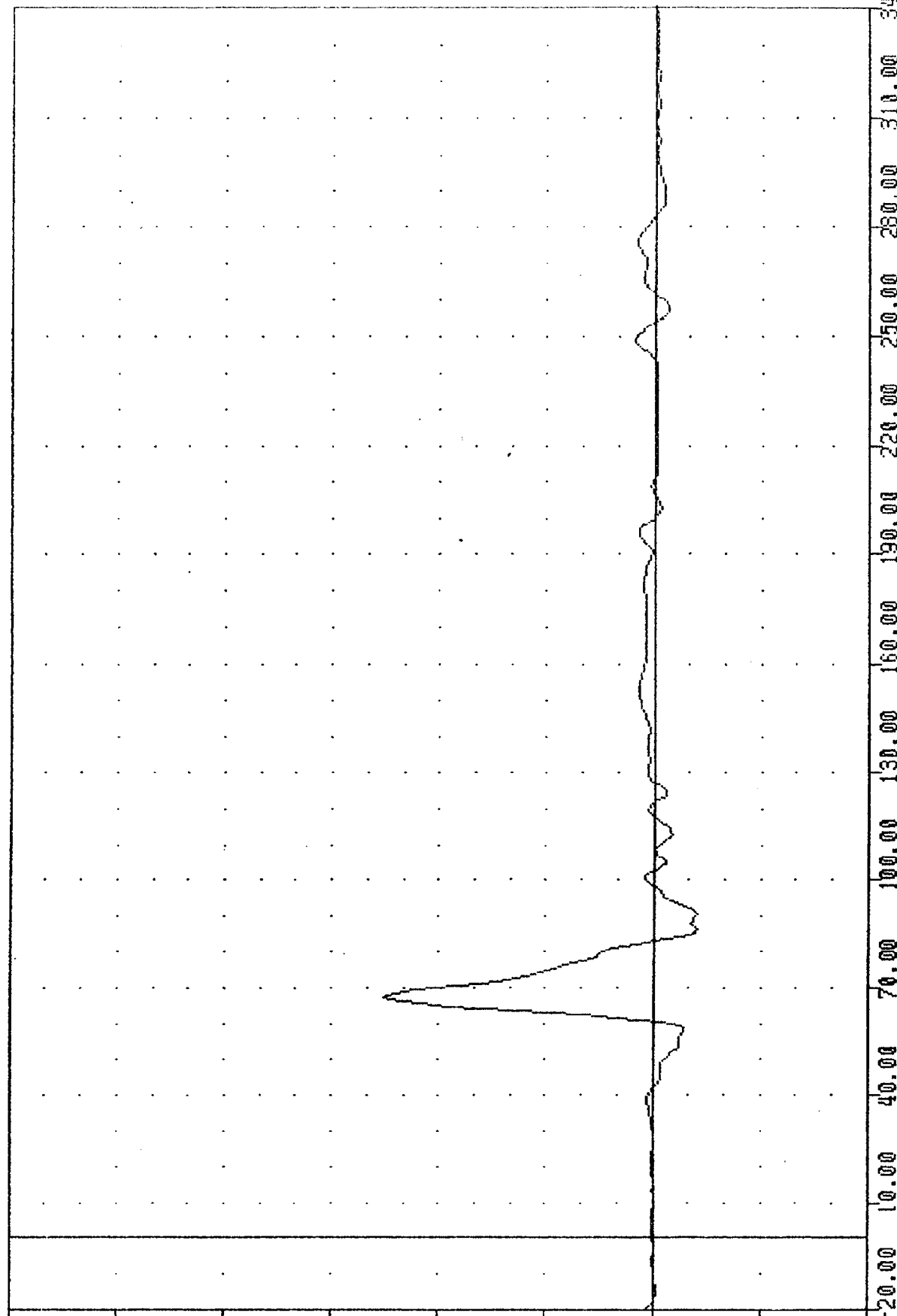
-20.430

90.00

125.84

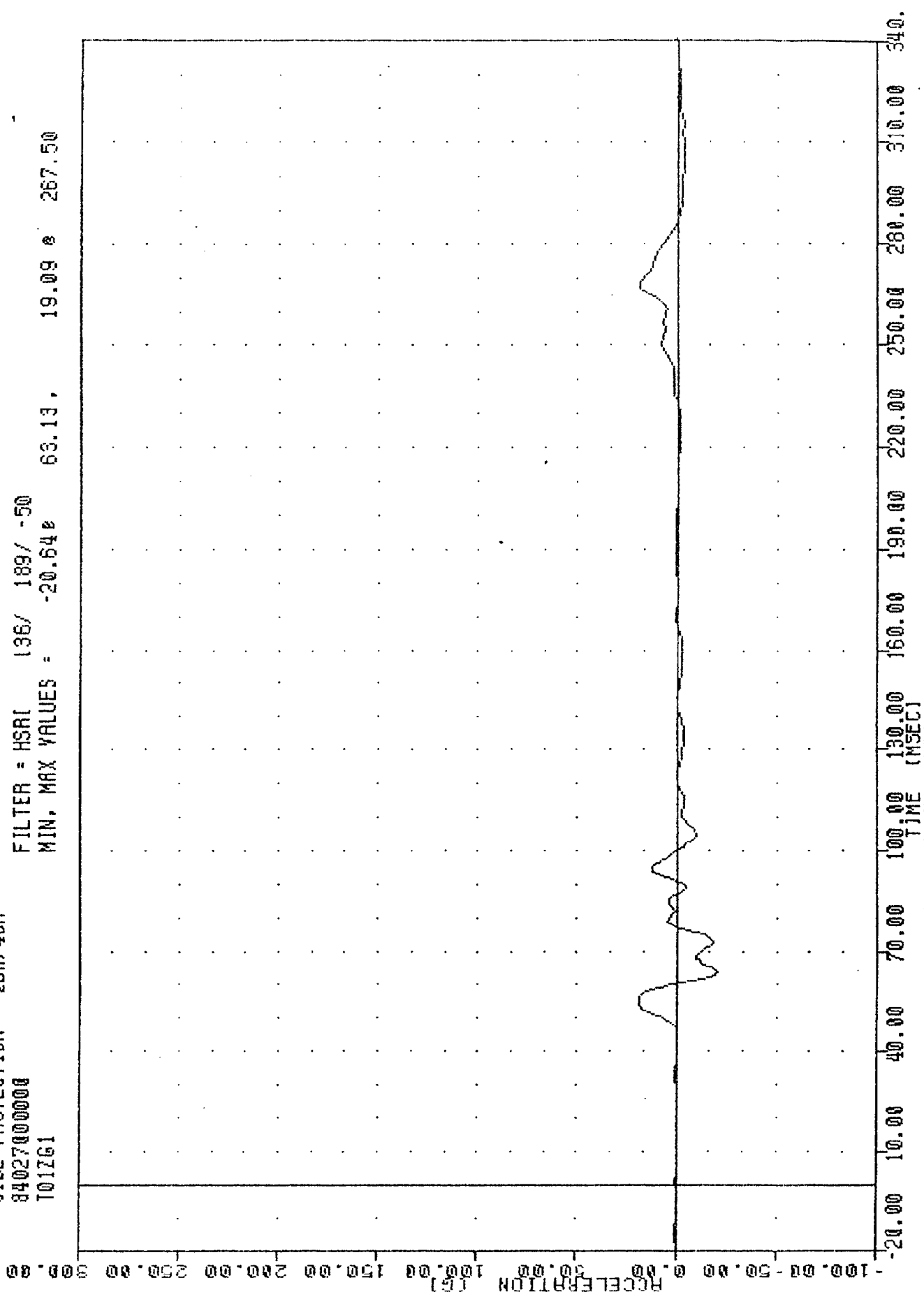
66.87

ACCELERATION [G]



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

IRC 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 1011G1  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -20.64e 63.13, 19.09 e 267.50  
 PLOT DATE 1-FEB-84 10:27:42

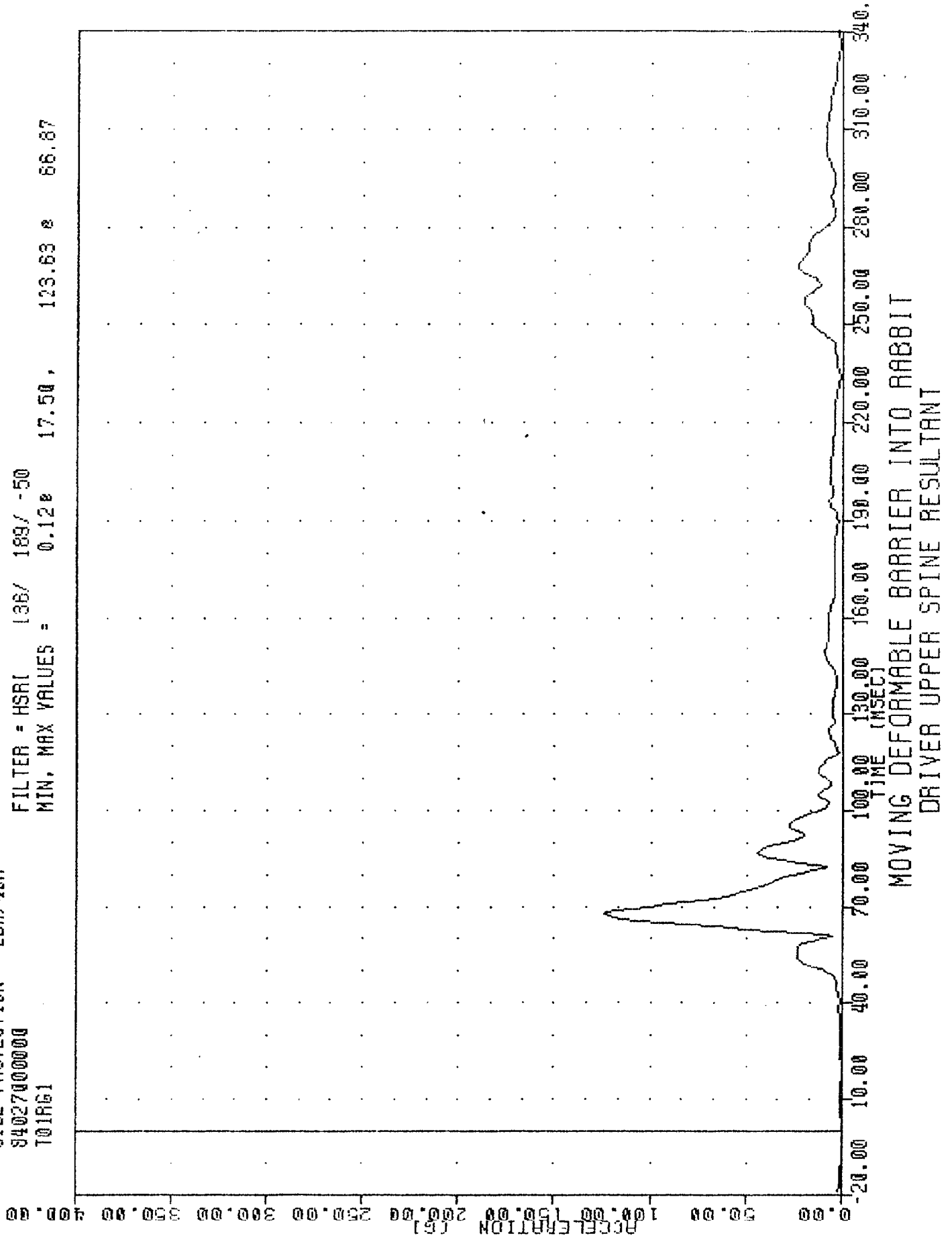


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER UPPER SPINE ACCELERATION Z AXIS

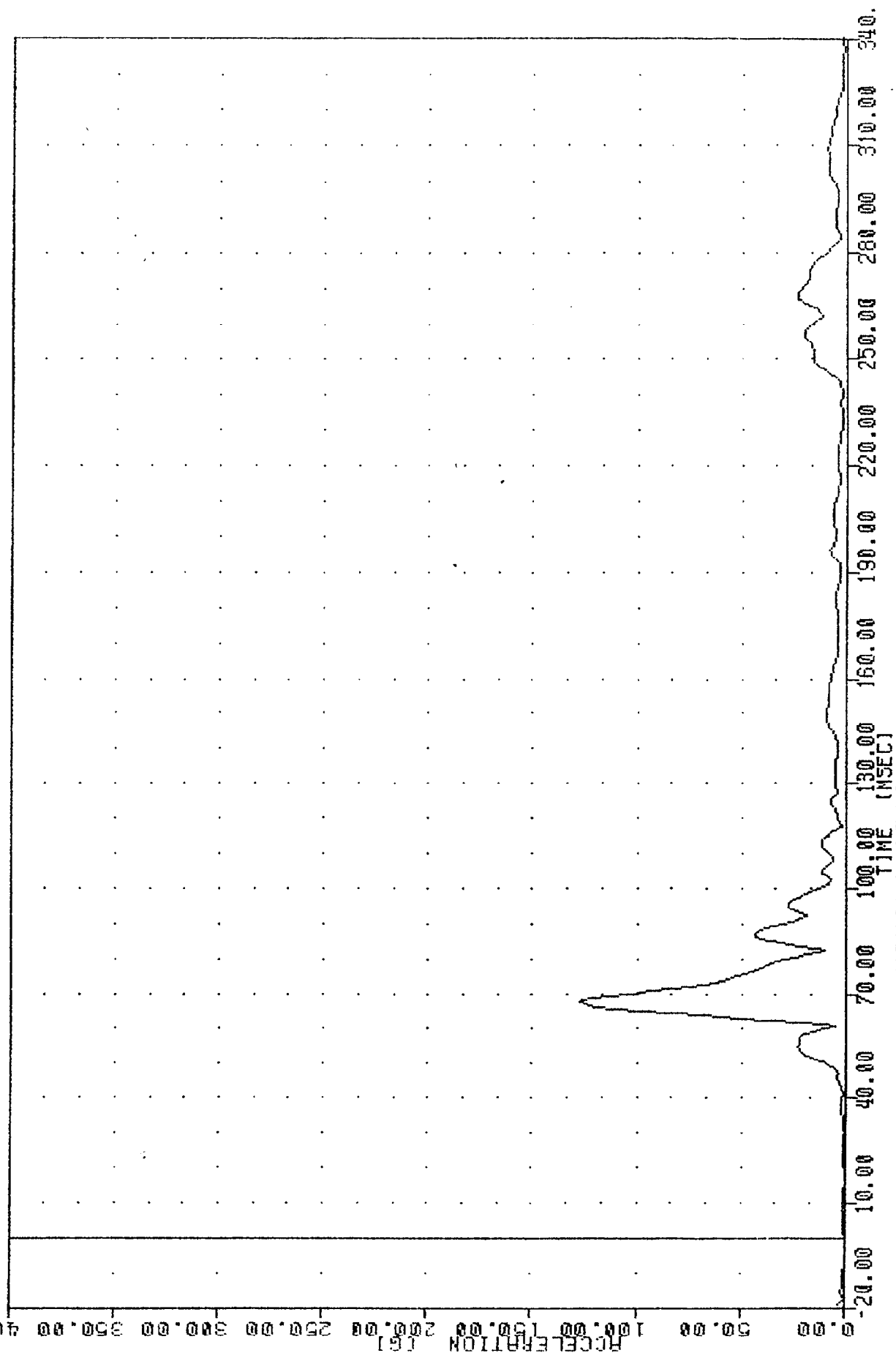
TRC  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 T01RG1

PLOT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = 0.12e 17.50, 123.63 e 66.87

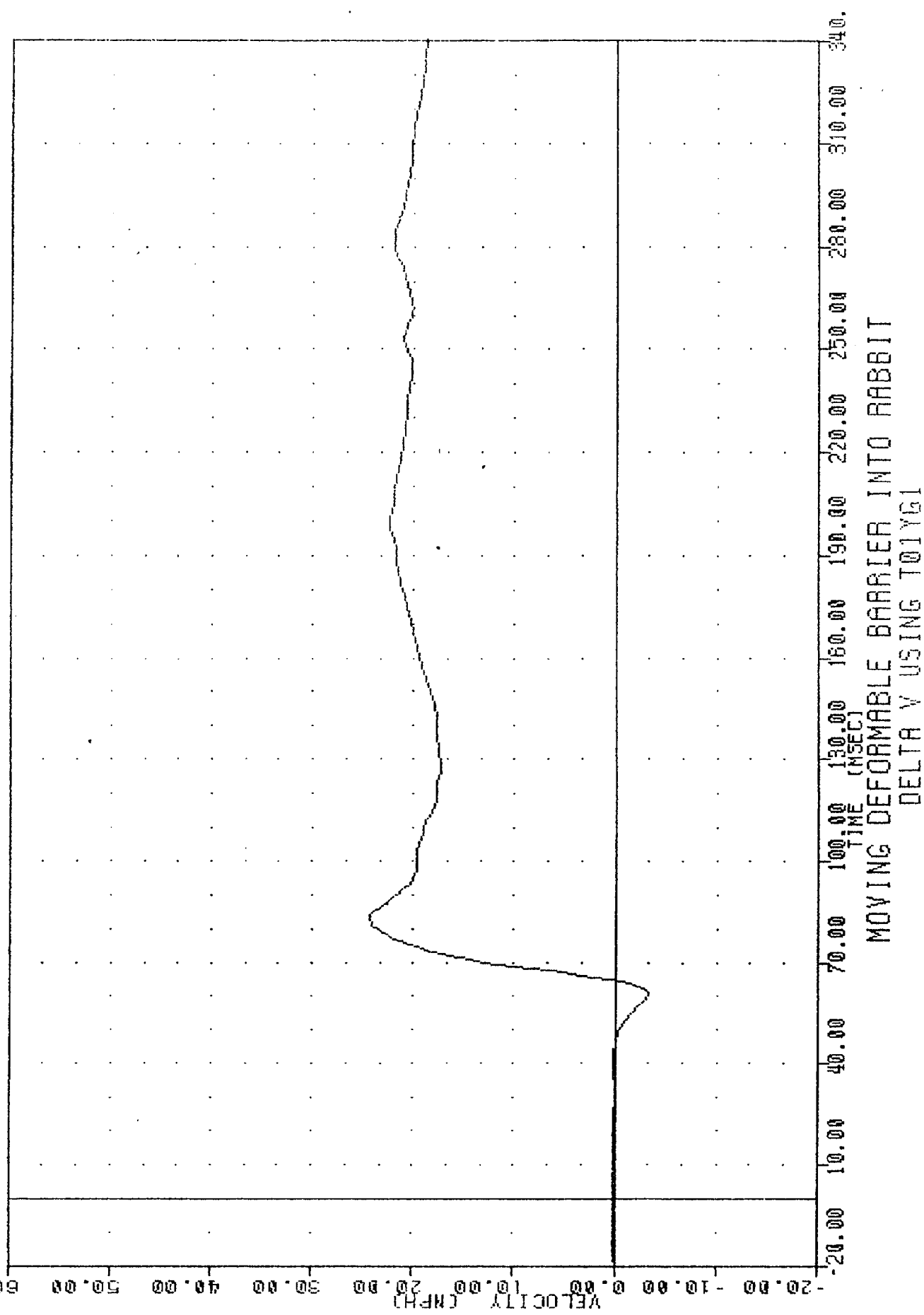


TRL 840127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 T01RG1  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = 0.11e 16.87, 127.59 e 88.87  
 PLOT DATE 1-FEB-84 10:28:43



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER UPPER SPINE RESULTANT USING T01YGA

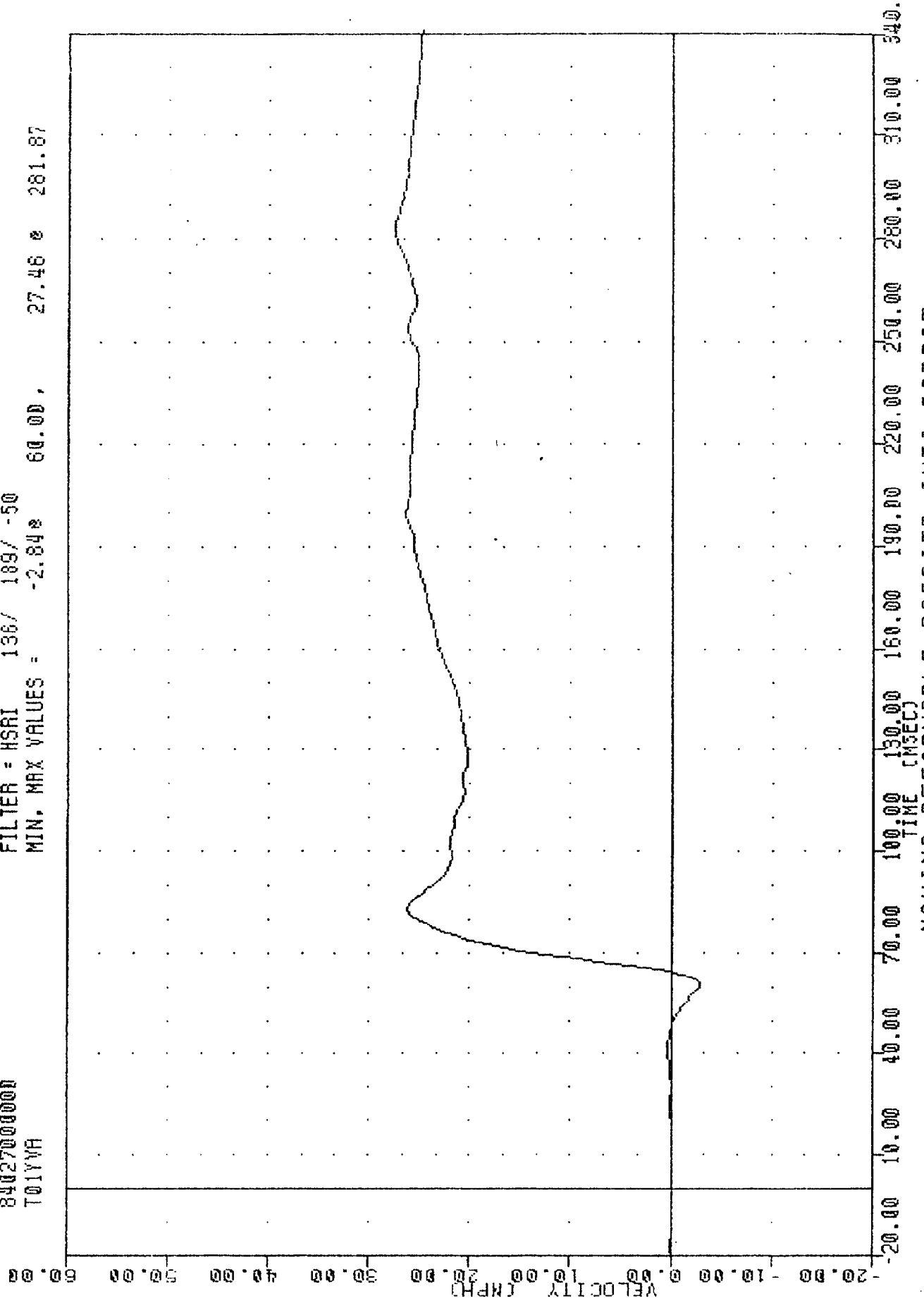
IRL 840127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 T01YV1  
 PLUT DATE 1-FEB-84 10:41:03  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES : -3.27e 60.00, 24.28 e 82.50



TAC 840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 T01YVA

PLOT DATE 1-FEB-84 10:41:09

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -2.848 60.00, 27.46 281.87



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING T01YGA

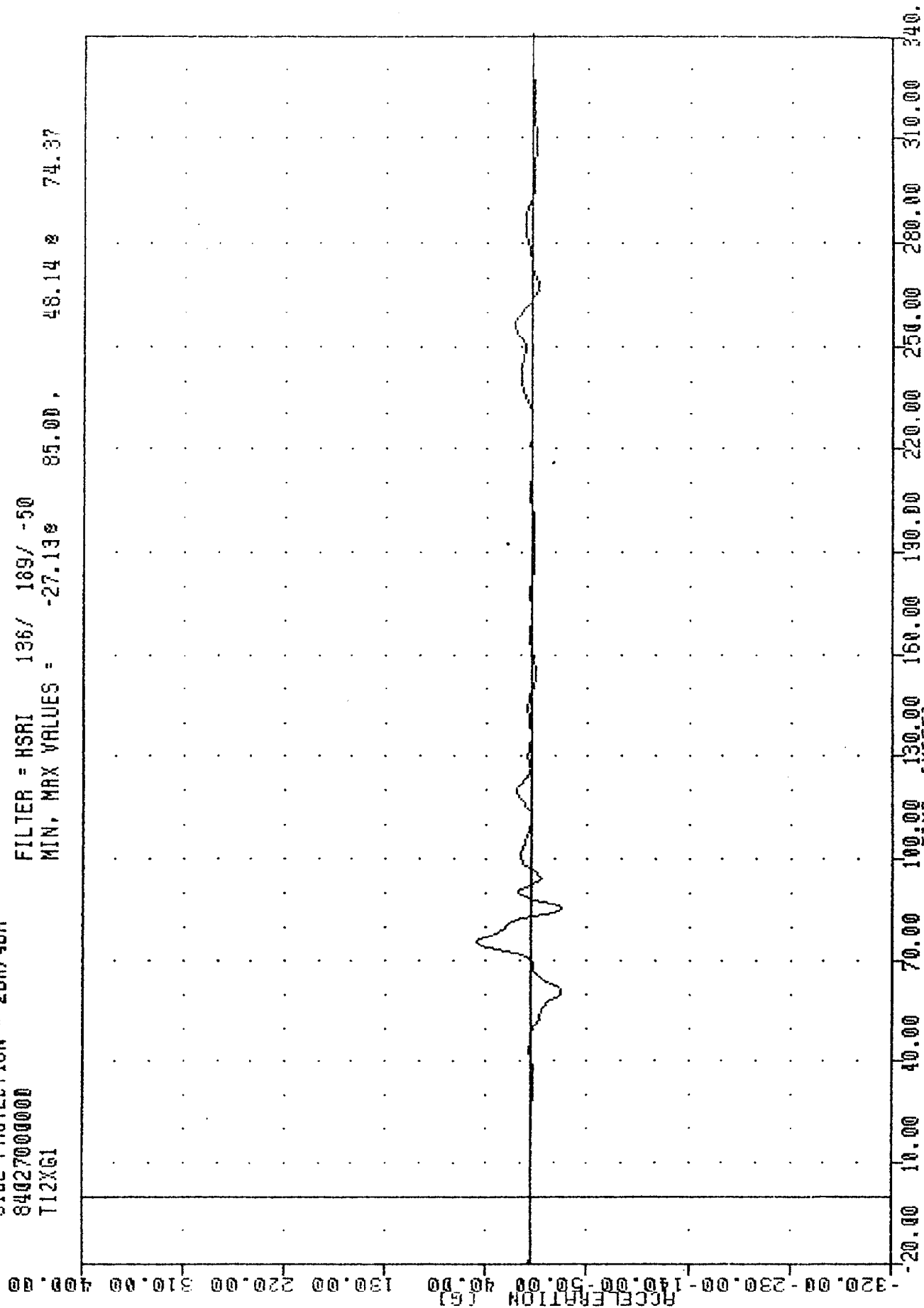


TRC  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 T12X61

PLOT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -27.13g 85.00g, 48.14g 74.37g

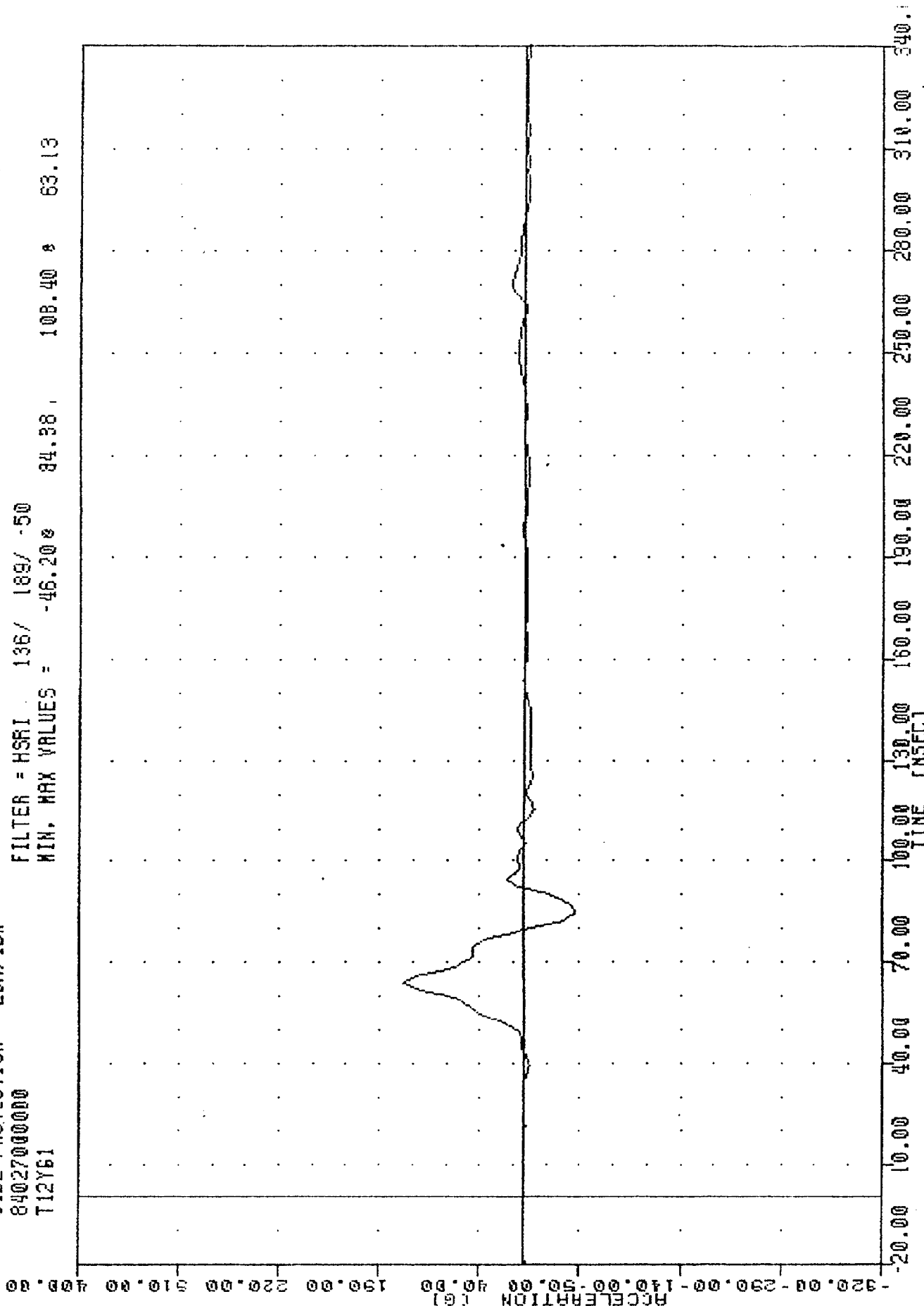


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER LOWER SPINE ACCELERATION X AXIS

TRC 840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 T12Y61

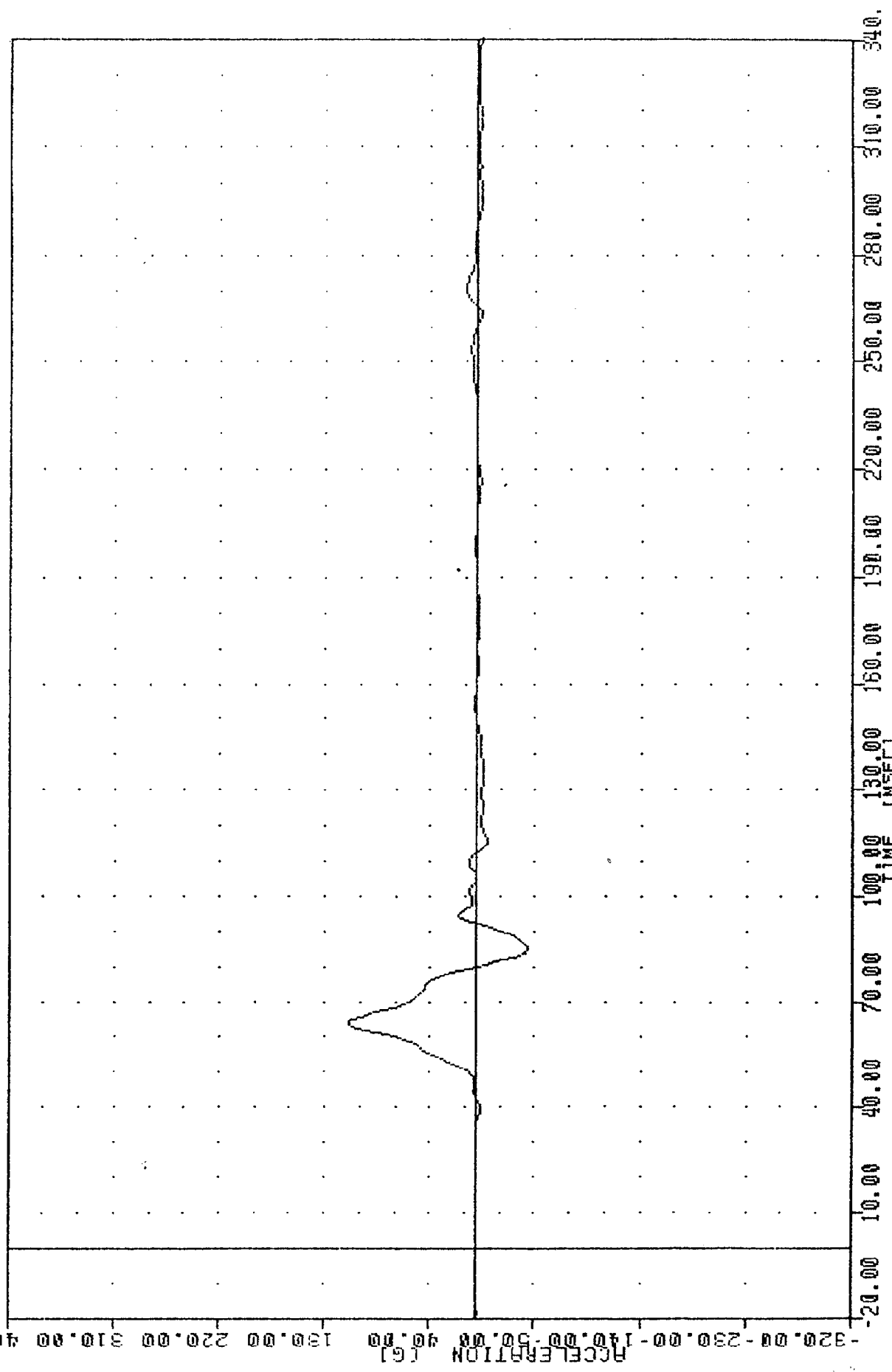
PLOT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -46.208 84.38 108.40 63.13



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER LOWER SPINE ACCELERATION Y AXIS

IRC 840127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 T12Y6A  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -44.31 84.38 109.97 63.13  
 PLUT DATE 1-FEB-84 10:27:42

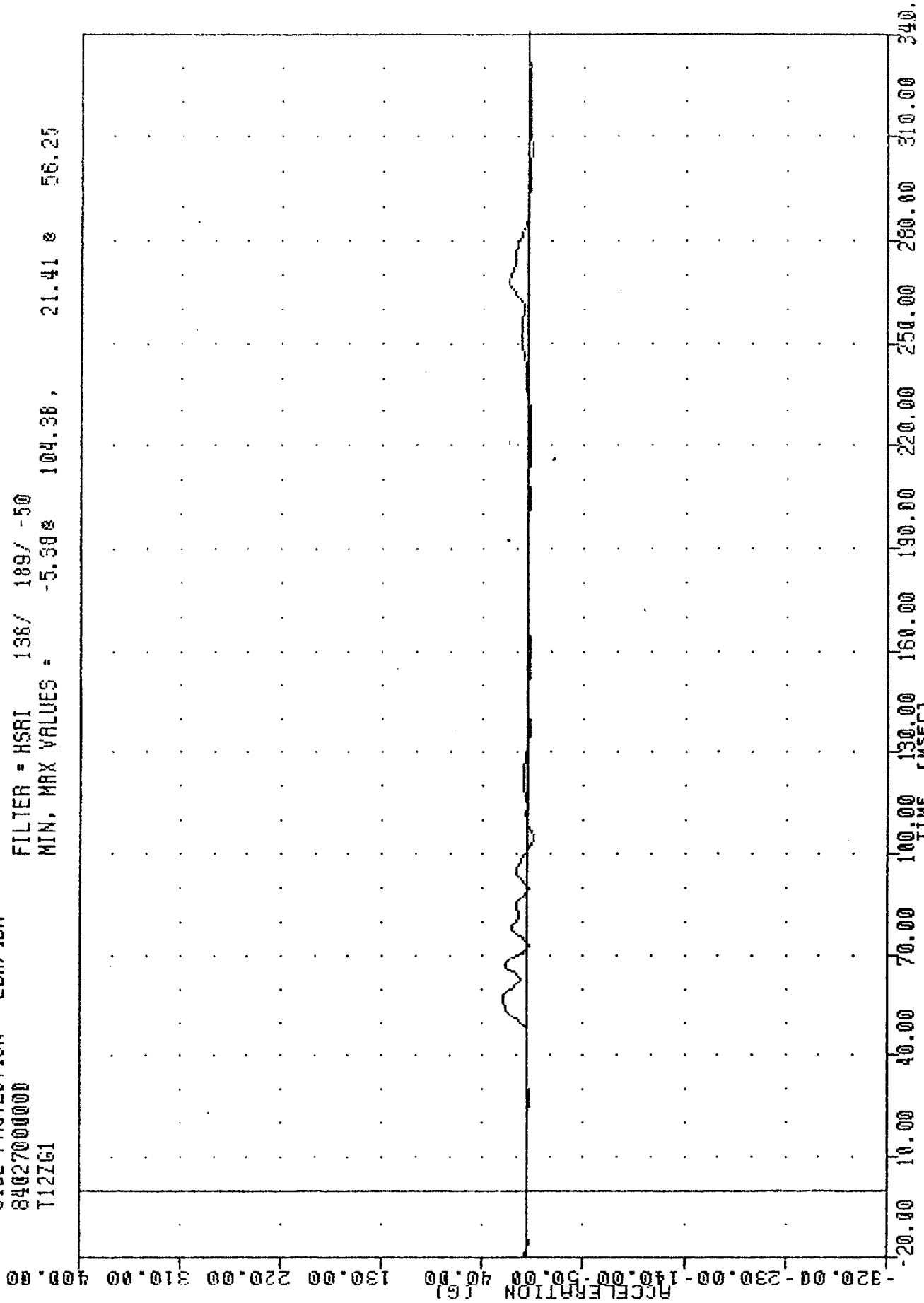


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER LOWER SPINE ACCELERATION -2 Y AXIS

TRC  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 T12ZG1

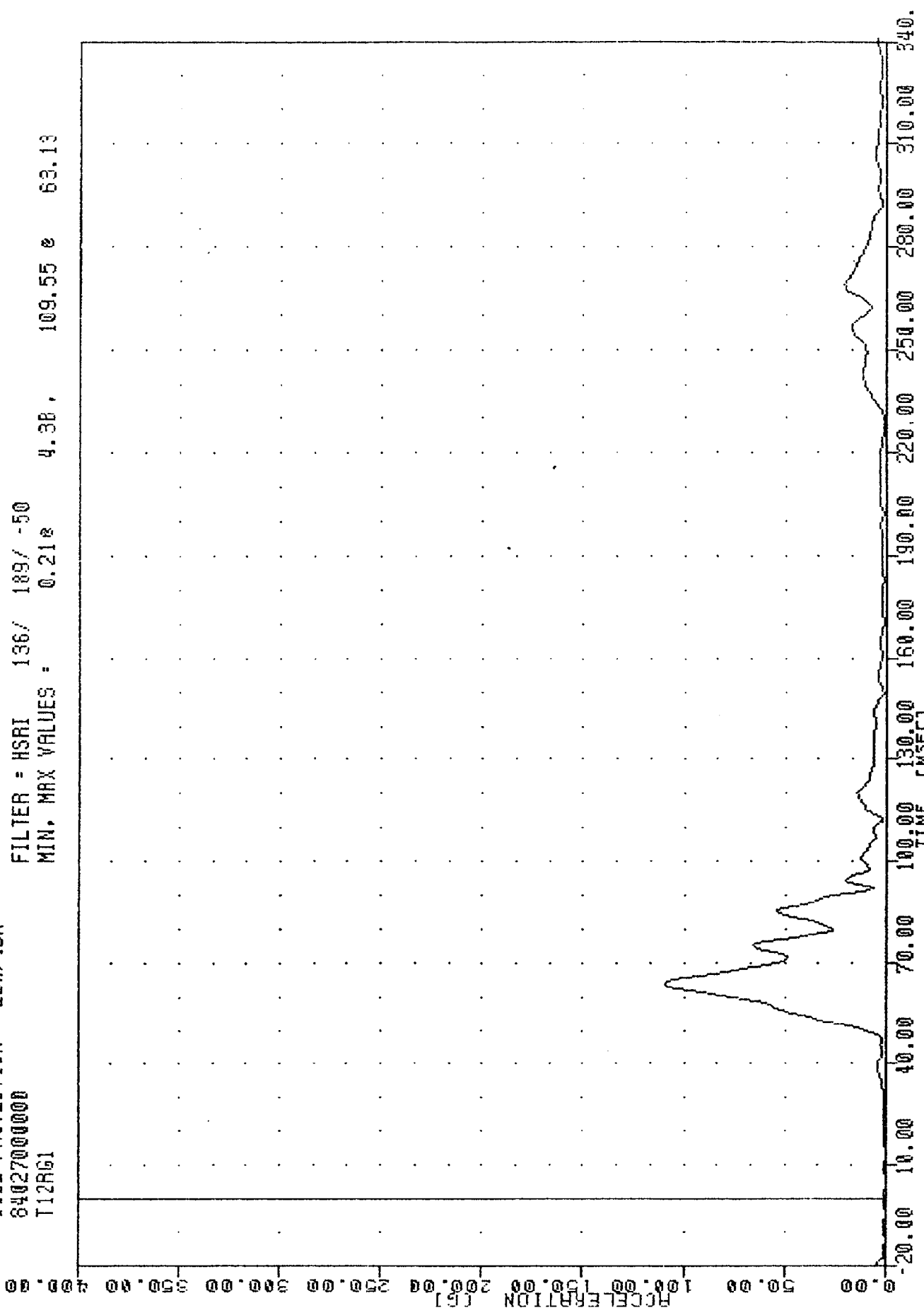
PLOT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -5.388 104.36, 21.41 58.25



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER LOWER SPINE ACCELERATION Z AXIS

TRC 840127  
 SIDE PROTECTION - 20A/40A  
 84027000000  
 T12RG1  
 FILTER = HSRI 136/ 109/ -50  
 MIN. MAX VALUES = 0.21g 4.3g , 109.55 g 63.13  
 PLOT DATE 1-FEB-84 IN:27:42

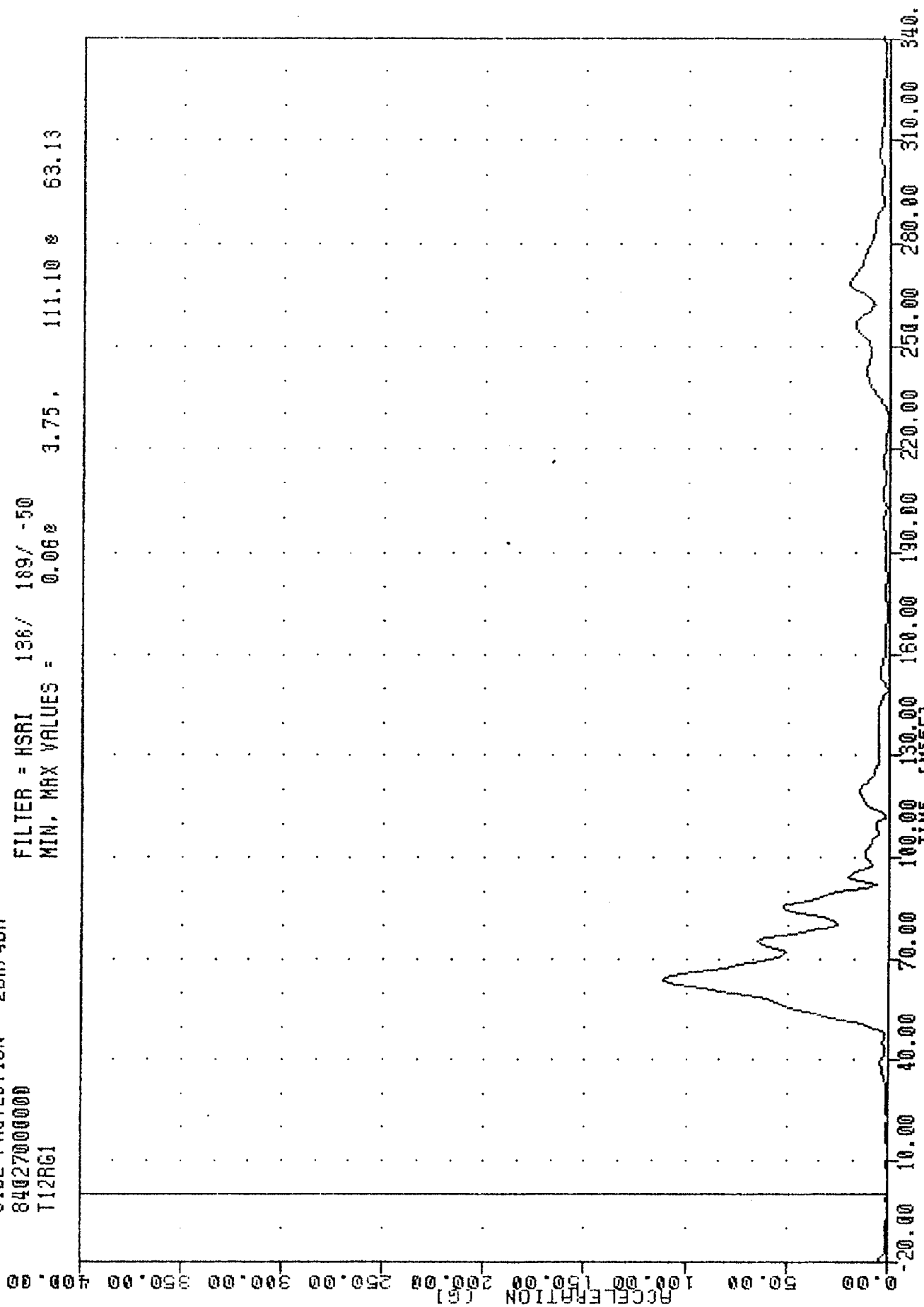


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER LOWER SPINE RESULTANT

TRC 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 T12RG1

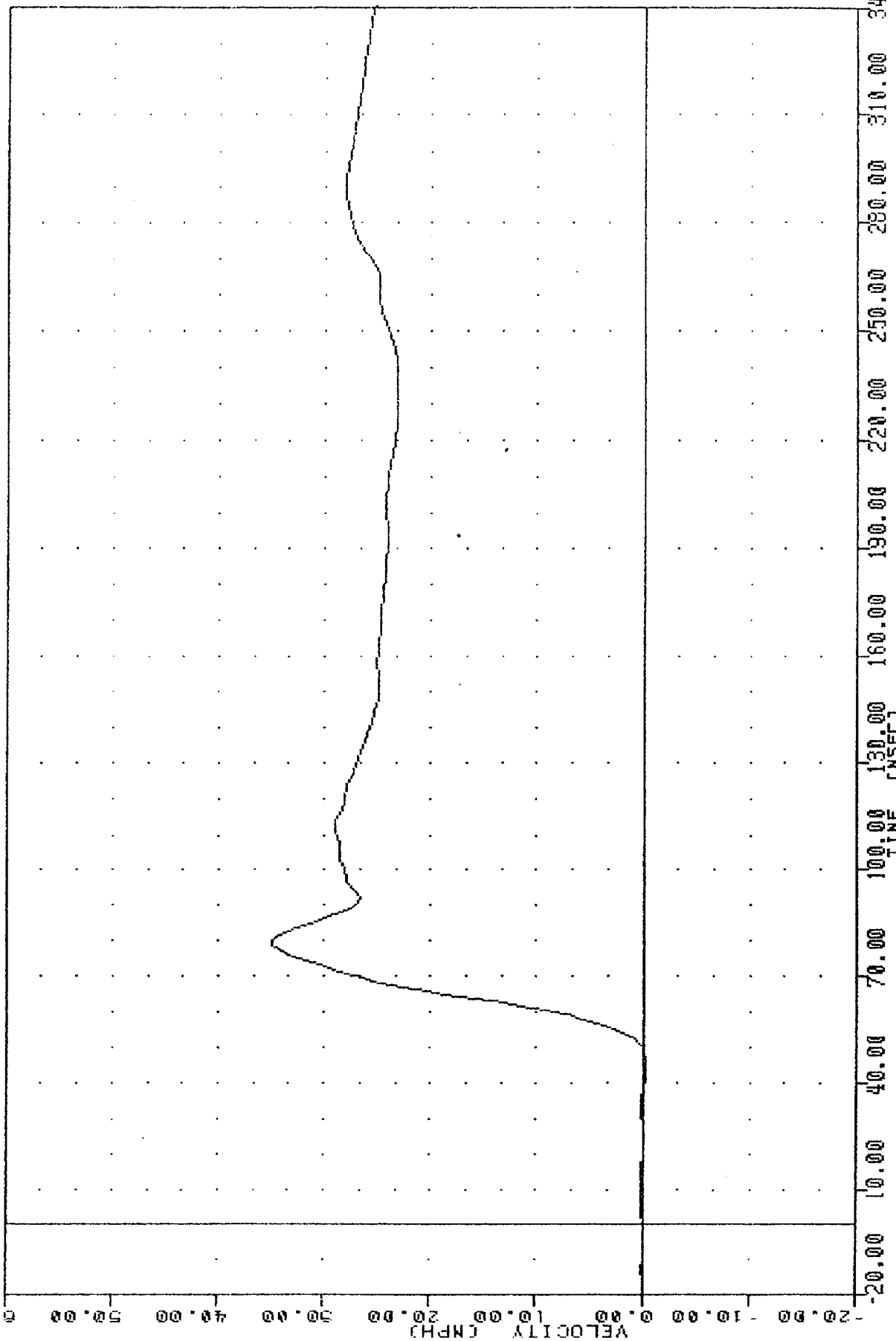
PLOT DATE 1-FEB-84 10:28:43

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = 0.068 3.75 111.10 63.13



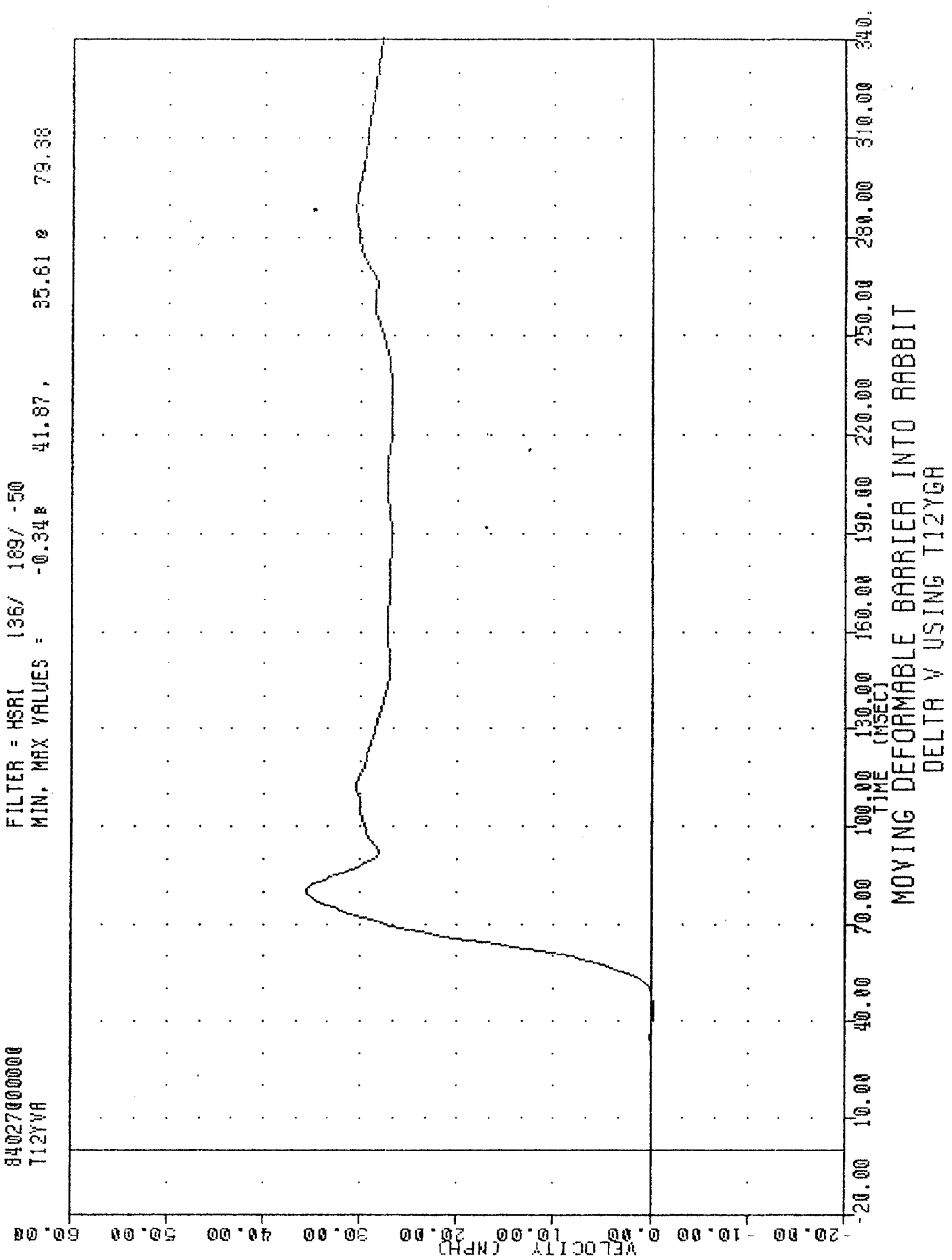
MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER LOWER SPINE RESULTANT USING T12YGA

TRC 840127  
 SIDE PROTECTION - 20A/40A  
 84027000000  
 T12YV1  
 PLUT DATE 1-FEB-84 10:41:09  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -0.39e 42.50 34.86 e 78.75



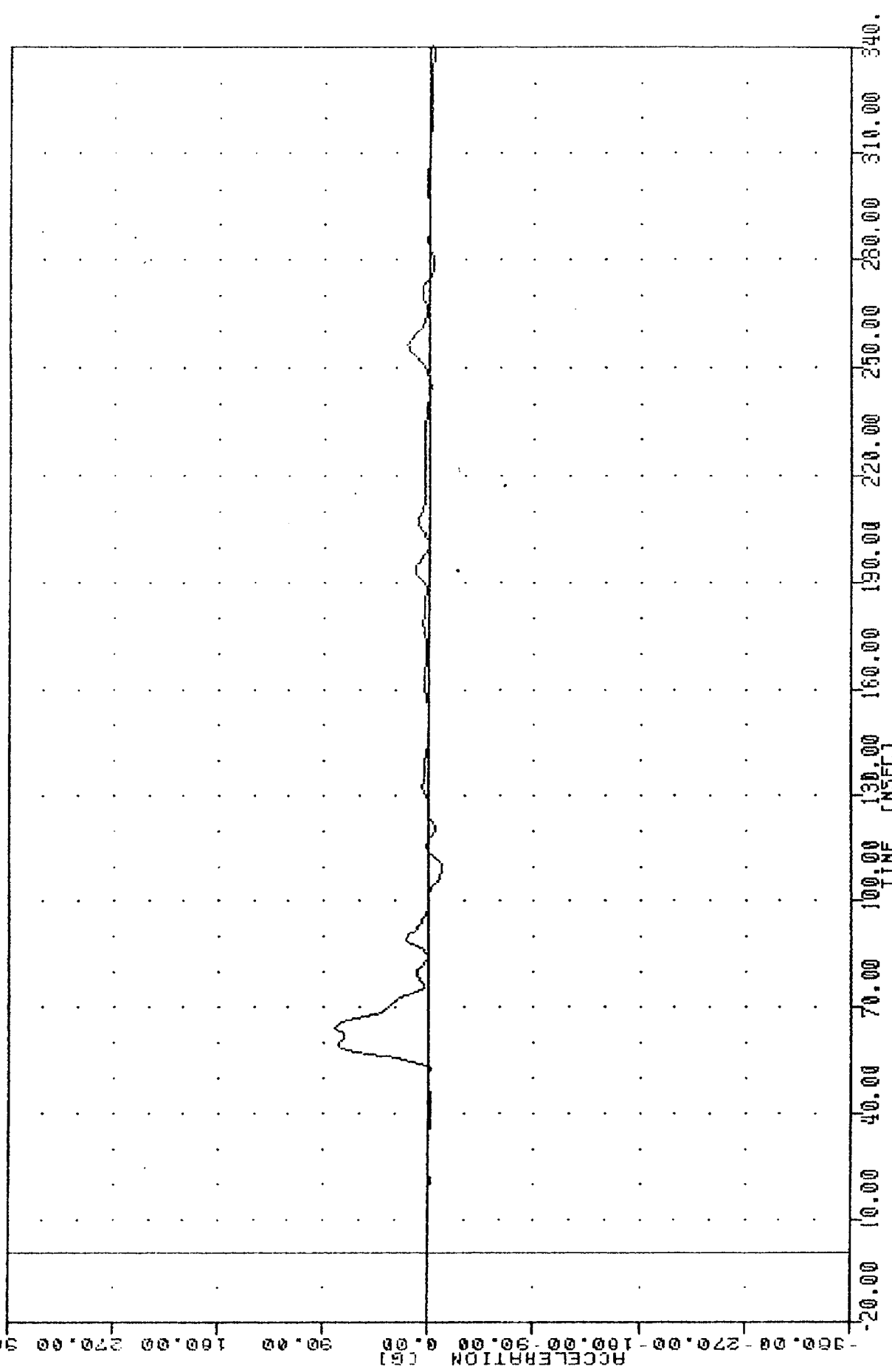
MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING T12YGI

TMC 7040127 PLOT DATE 1 FEB 84 10:41:03  
 SIDE PROTECTION - 20A/40A  
 84027000000  
 T12YVA  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -0.348 41.87, 35.61 0 79.38



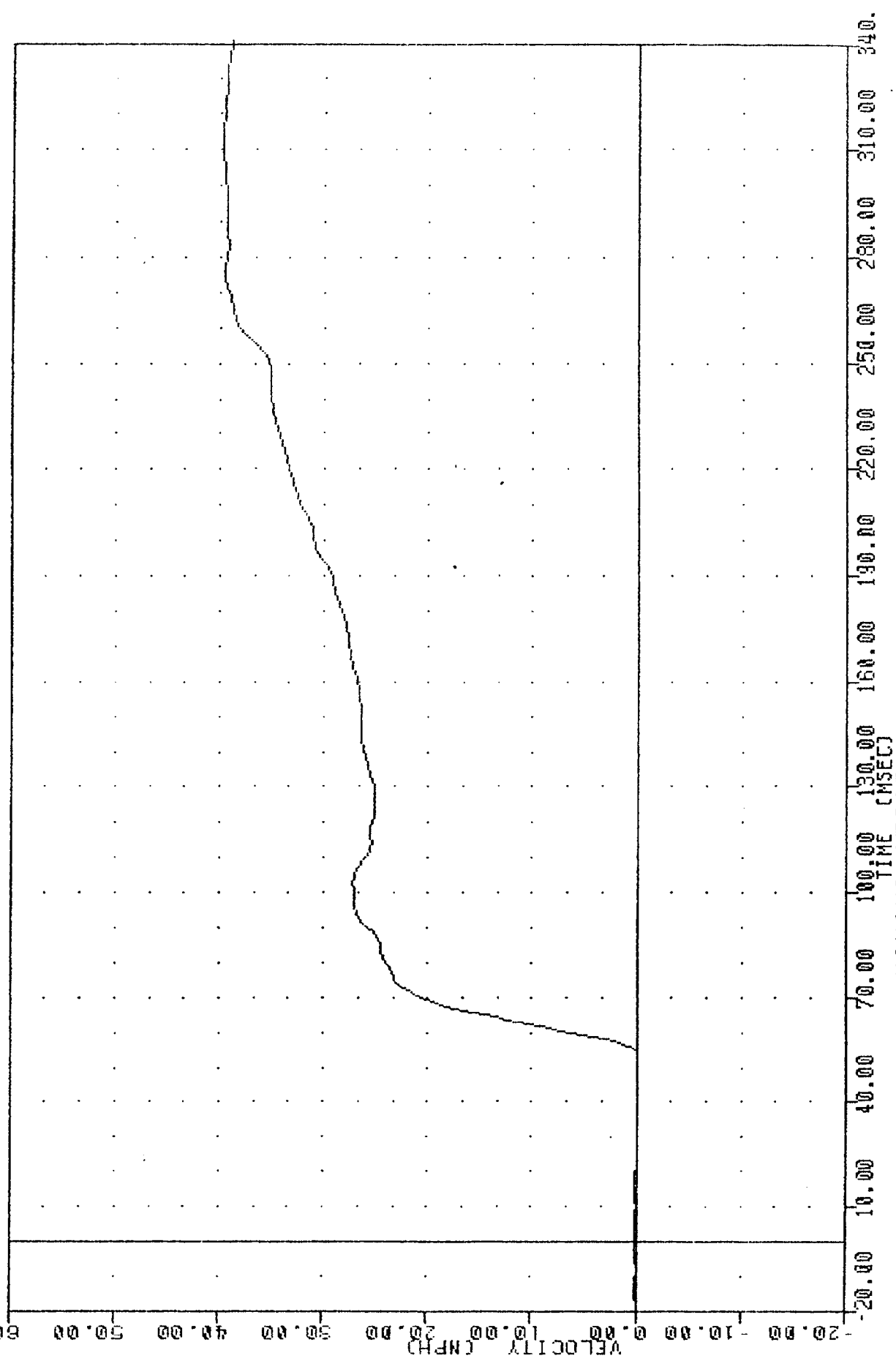


TRL 840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 LURY61  
 FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -11.69g 108.75, 80.11 g 63.75  
 I-FEB-84 10:27:42



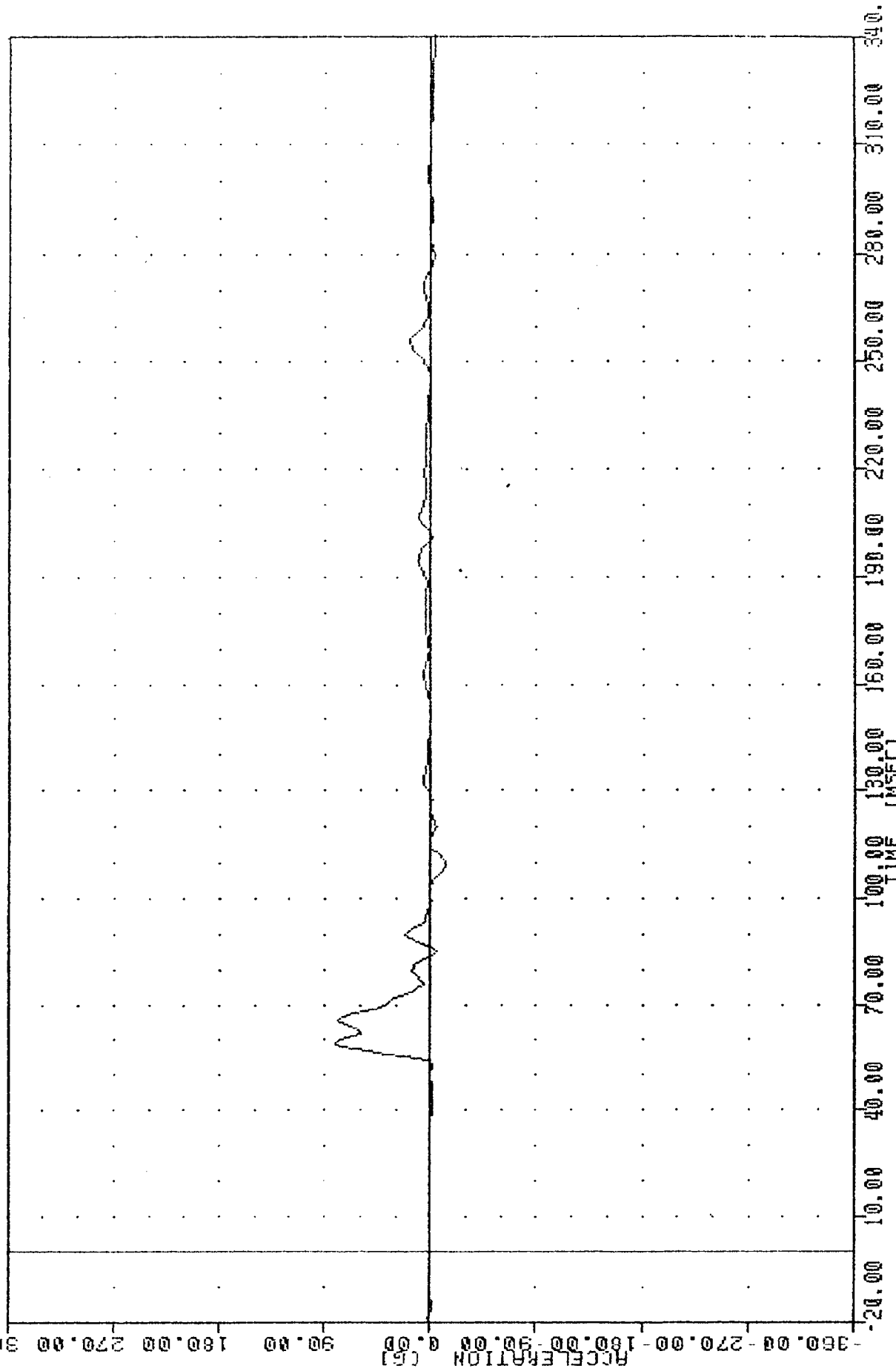
MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER LEFT UPPER RIB ACCELERATION Y AXIS

TRC 840127  
 SIDE PROTECTION - 20R/4DA  
 84027000000  
 LURYV1  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -0.16e 46.88. 39.72 e 311.88  
 PLOT DATE 1-FEB-84 10:41:09



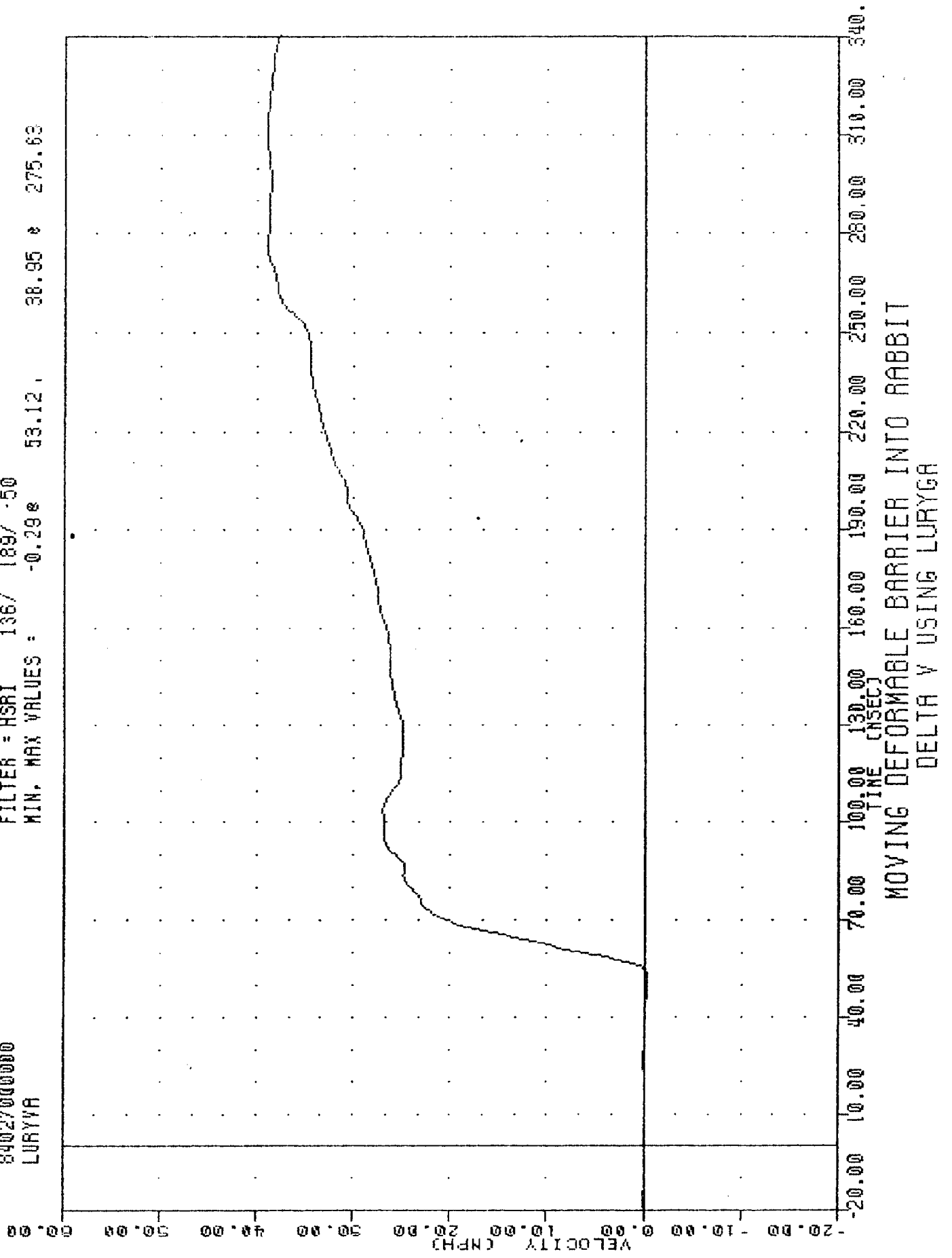
MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING LURYG1

TPL 840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 LURYGA  
 FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -13.71e 108.75, 81.09 e 58.75  
 PLOT DATE 1-FEB-84 10:27:42



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER LEFT UPPER RIB ACCELERATION -2 Y AXIS

THE 840127 1 FEB 84 10:41:09  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 LURYVA  
 FILTER = HSRI 136/ 189/ .50  
 MIN. MAX VALUES : -0.29 53.12 38.95 275.63

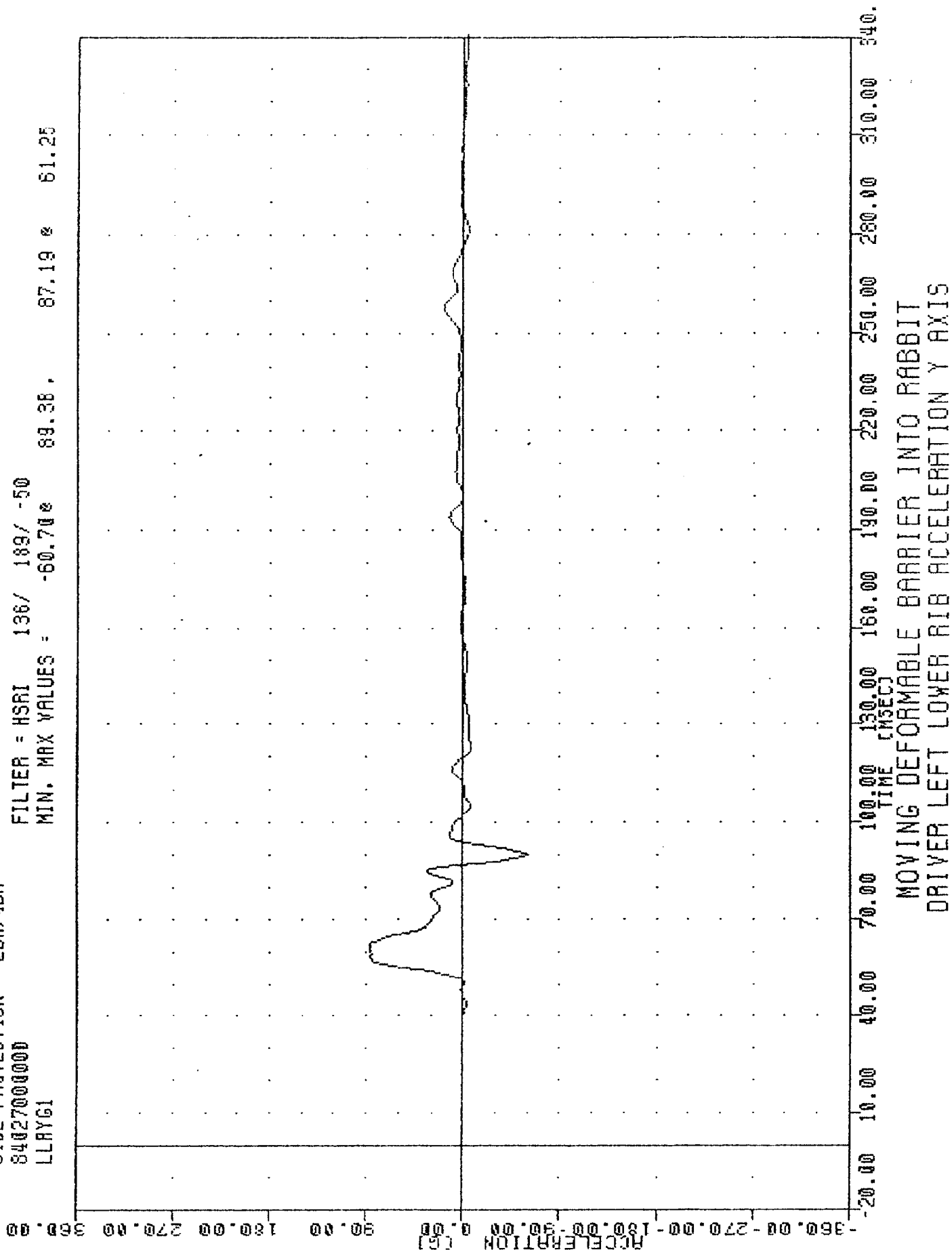


TRC 840127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 LLYG1

PLOT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -60.70 89.36

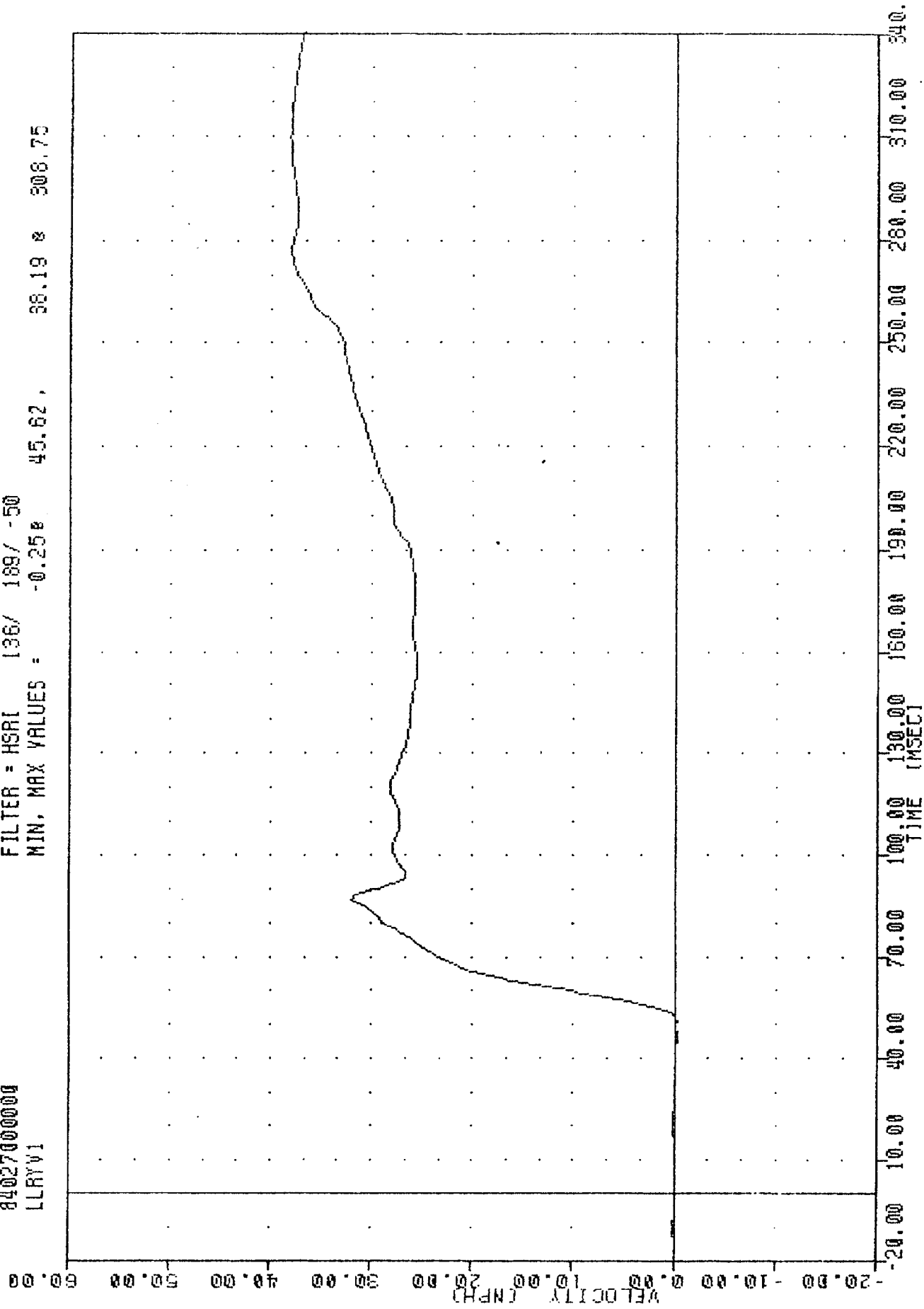
87.19 61.25



TRC 840127  
SIDE PROTECTION - 20A/4DA  
84027000000  
LLRYV1

PLOT DATE 1-FEB-84 10:41:09

FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -0.258 45.82, 38.19 & 308.75

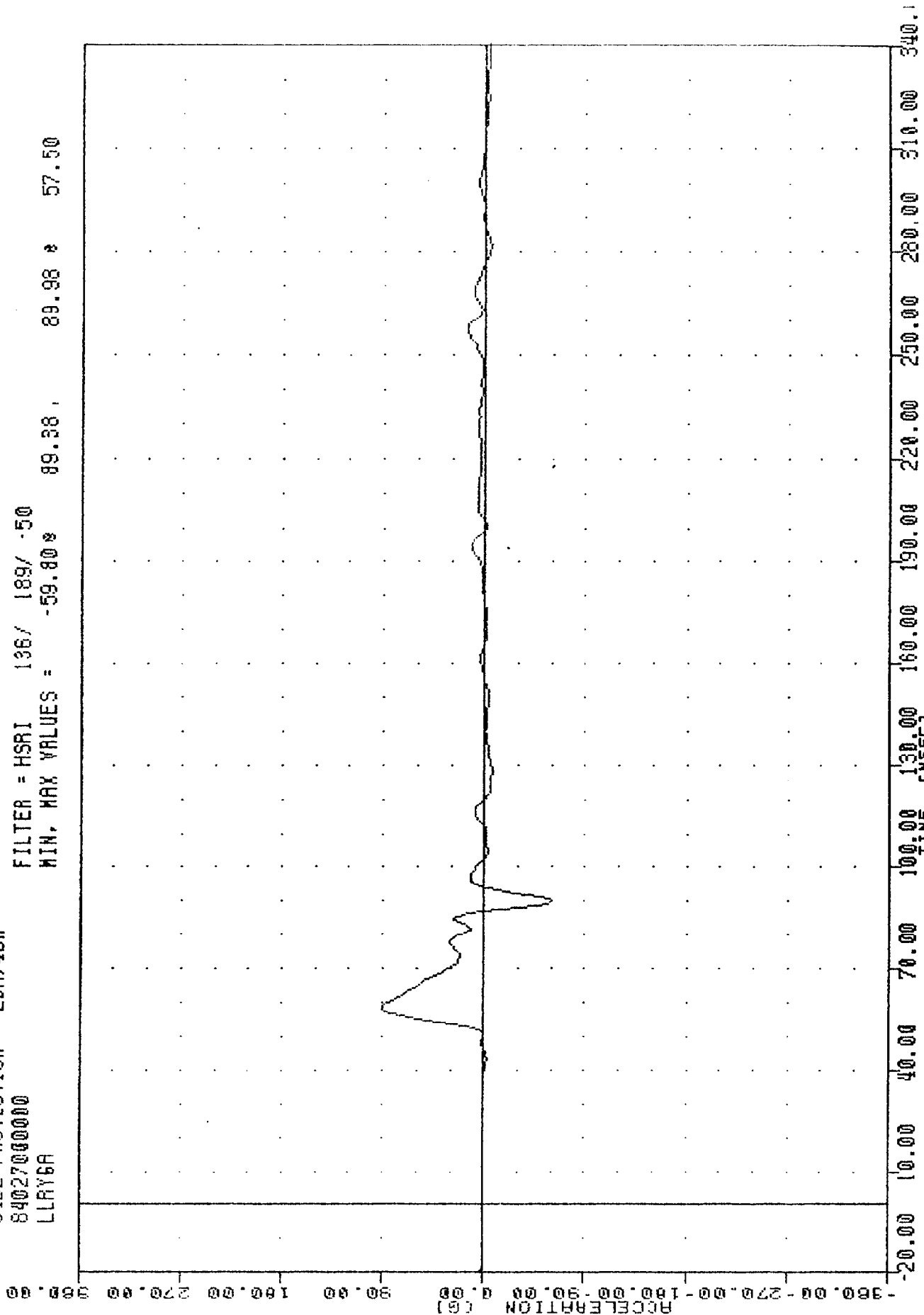


MOVING DEFORMABLE BARRIER INTO RABBIT  
DELTA V USING LLRYG1

THC  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 LLRY6A

PLOT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -59.80 89.98 57.50



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER LEFT LOWER RIB ACCELERATION -2 Y AXIS

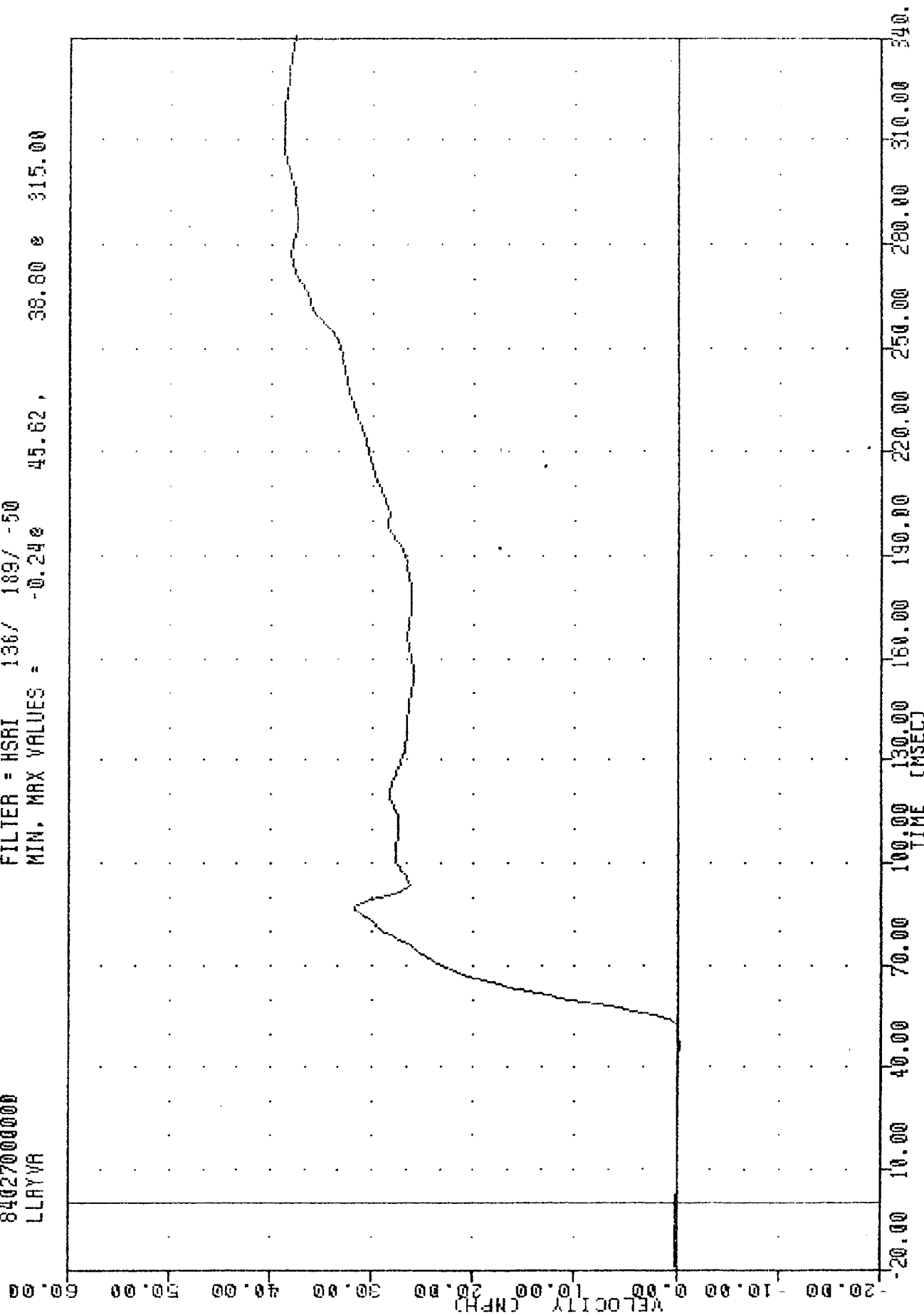
TRC 840127  
SIDE PROTECTION - 2DR/4DR  
840270000000  
LLAYVA

PLUT DATE

1-FEB-84 10:41:09

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.24e 45.62, 38.80 e 315.00



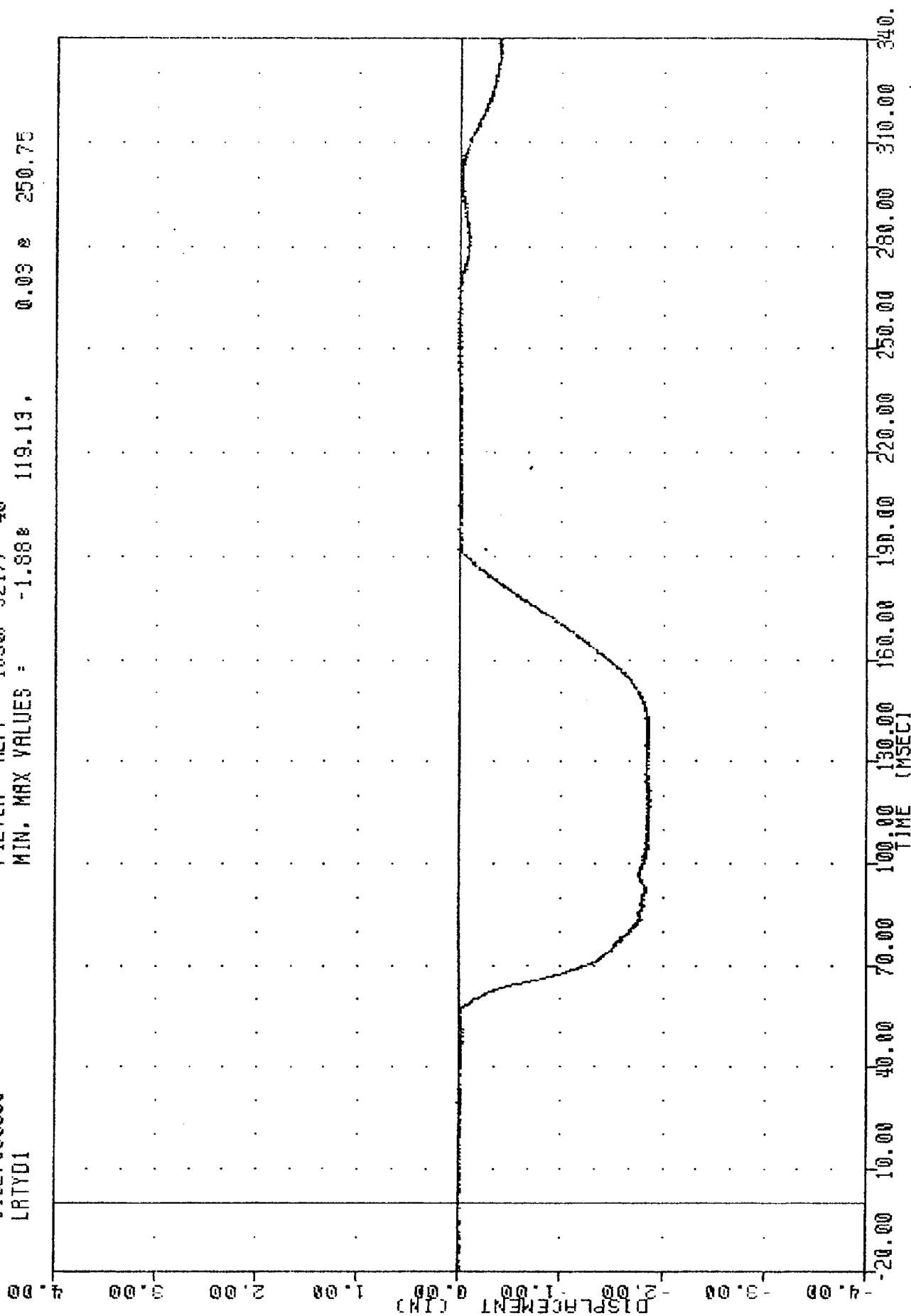
MOVING DEFORMABLE BARRIER INTO RABBIT  
DELTA V USING LLAYVA



TRC  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 LRTYD1

PLOT DATE 1-FEB-84 10:26:52

FILTER = ALPF 1650/ 5217/ -40  
 MIN. MAX VALUES = -1.88 119.13 0.03 250.75

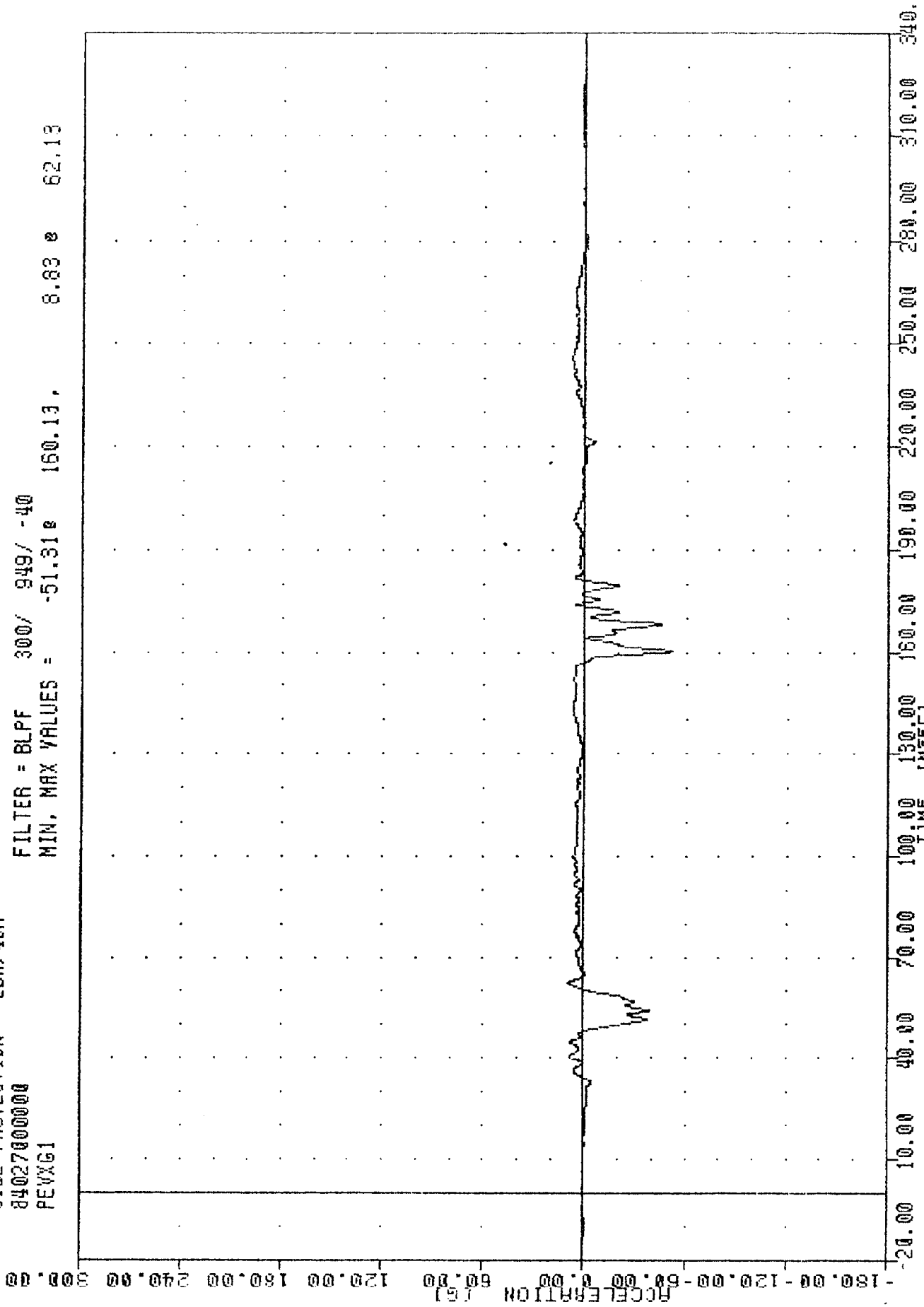


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER LEFT RIB TO SPINE DISPLACEMENT INCHES

TRC  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 PEVXG1

PLOT DATE 1-FEB-84 10:28:52

FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = -51.31g 160.13g 8.83g 62.13



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER PELVIS ACCELERATION X AXIS

THL 840127 PLUT DATE 1-FEB-84 10:26:52

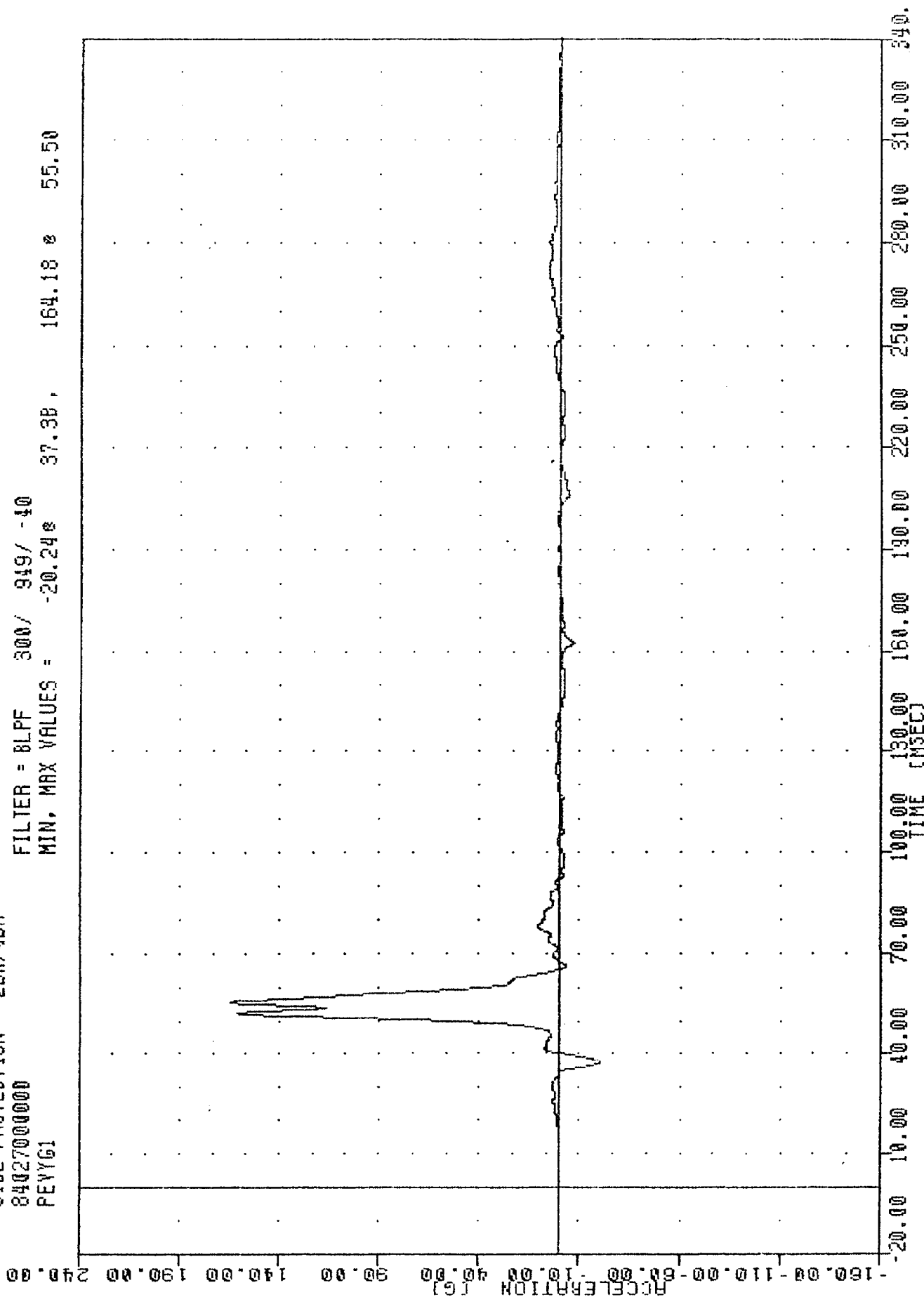
SIDE PROTECTION - 20A/4DA

84027000000

PEYVG1

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -20.24g 37.3B, 164.18 g 55.50

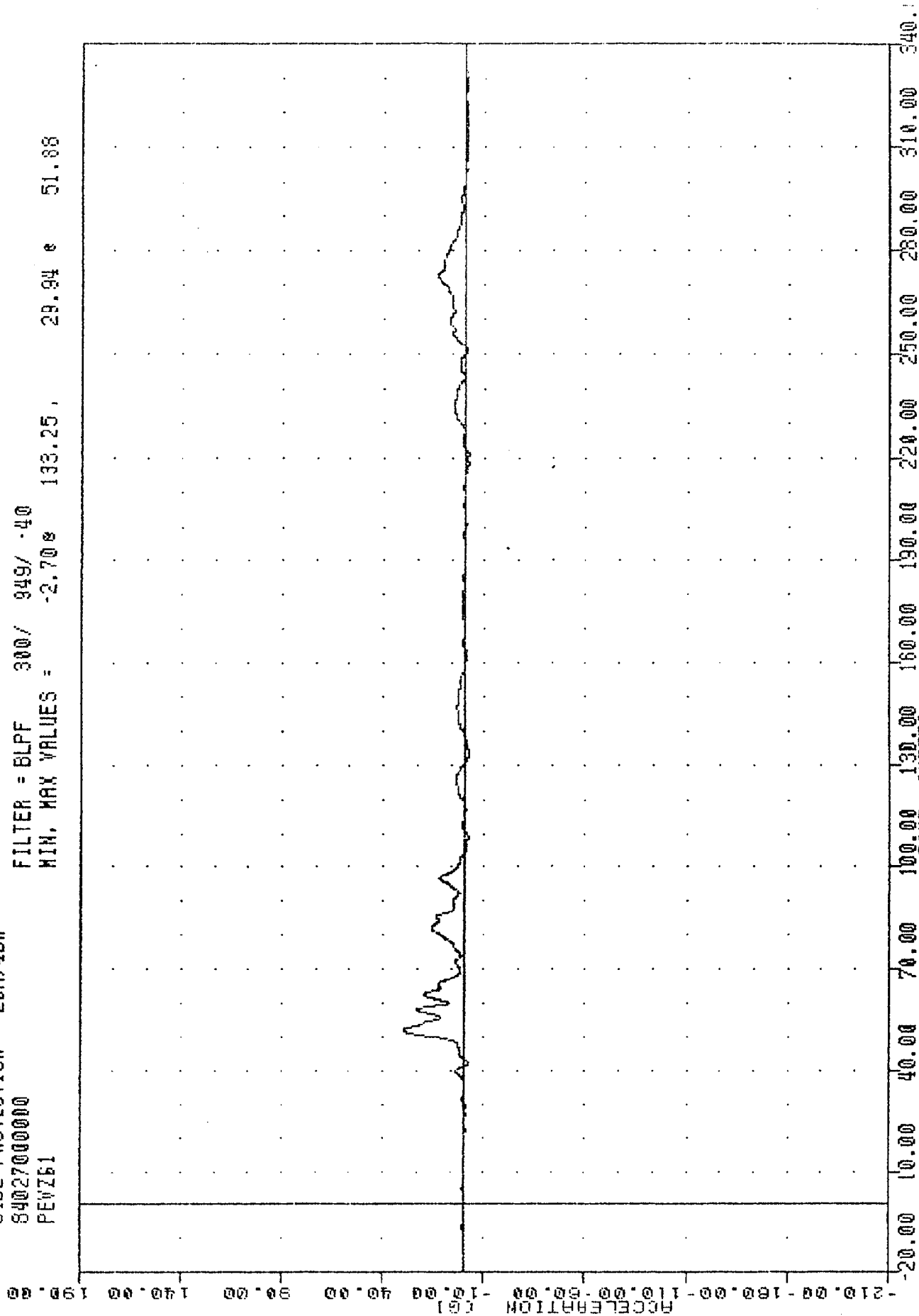


MOVING DEFORMABLE BARRIER INTO RABBIT  
DRIVER PELVIS ACCELERATION Y AXIS

THC  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 PEVZ61

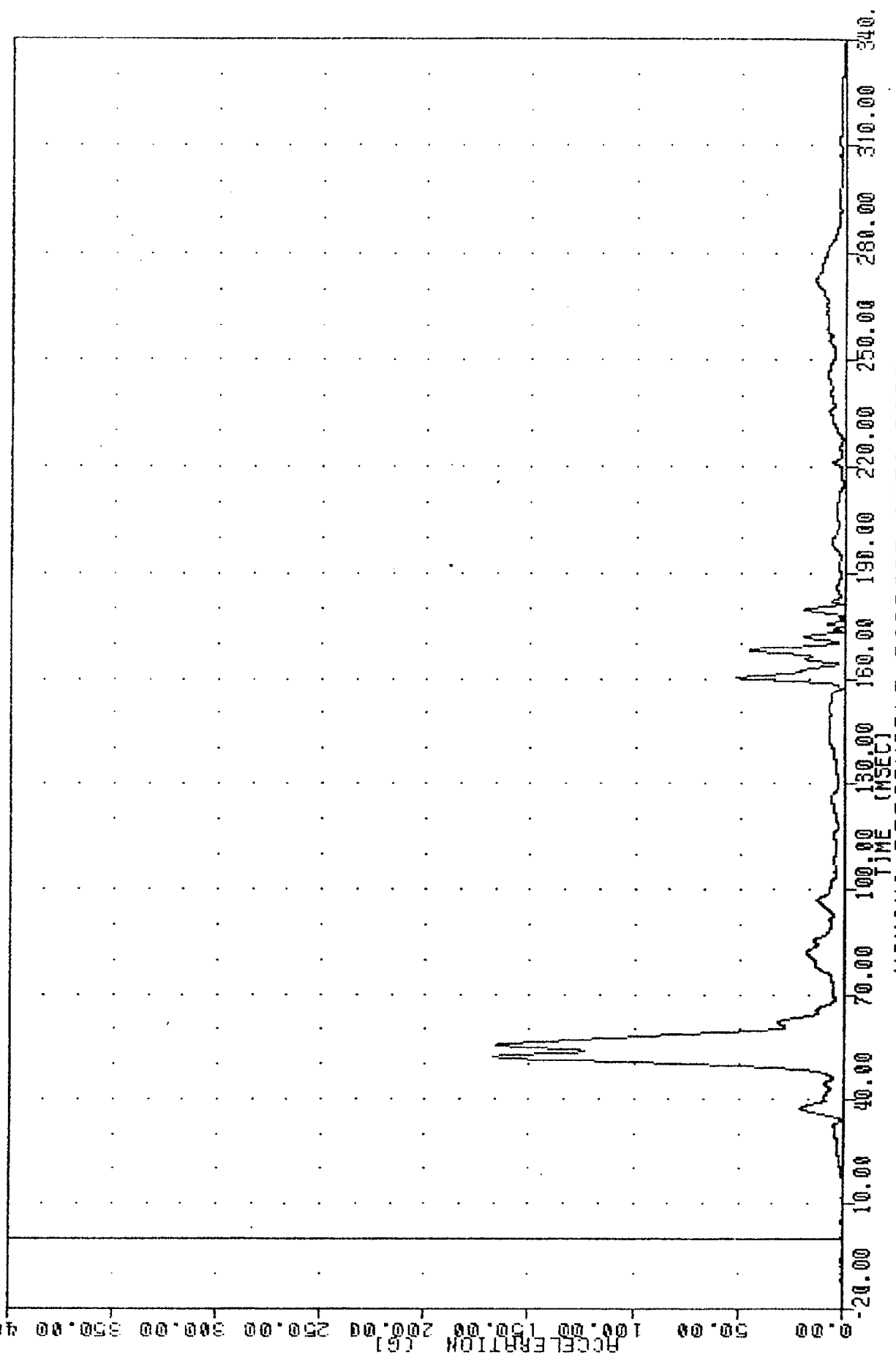
PLOT DATE 1-FEB-84 10:26:52

FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = -2.70e 133.25, 29.94 e 51.88



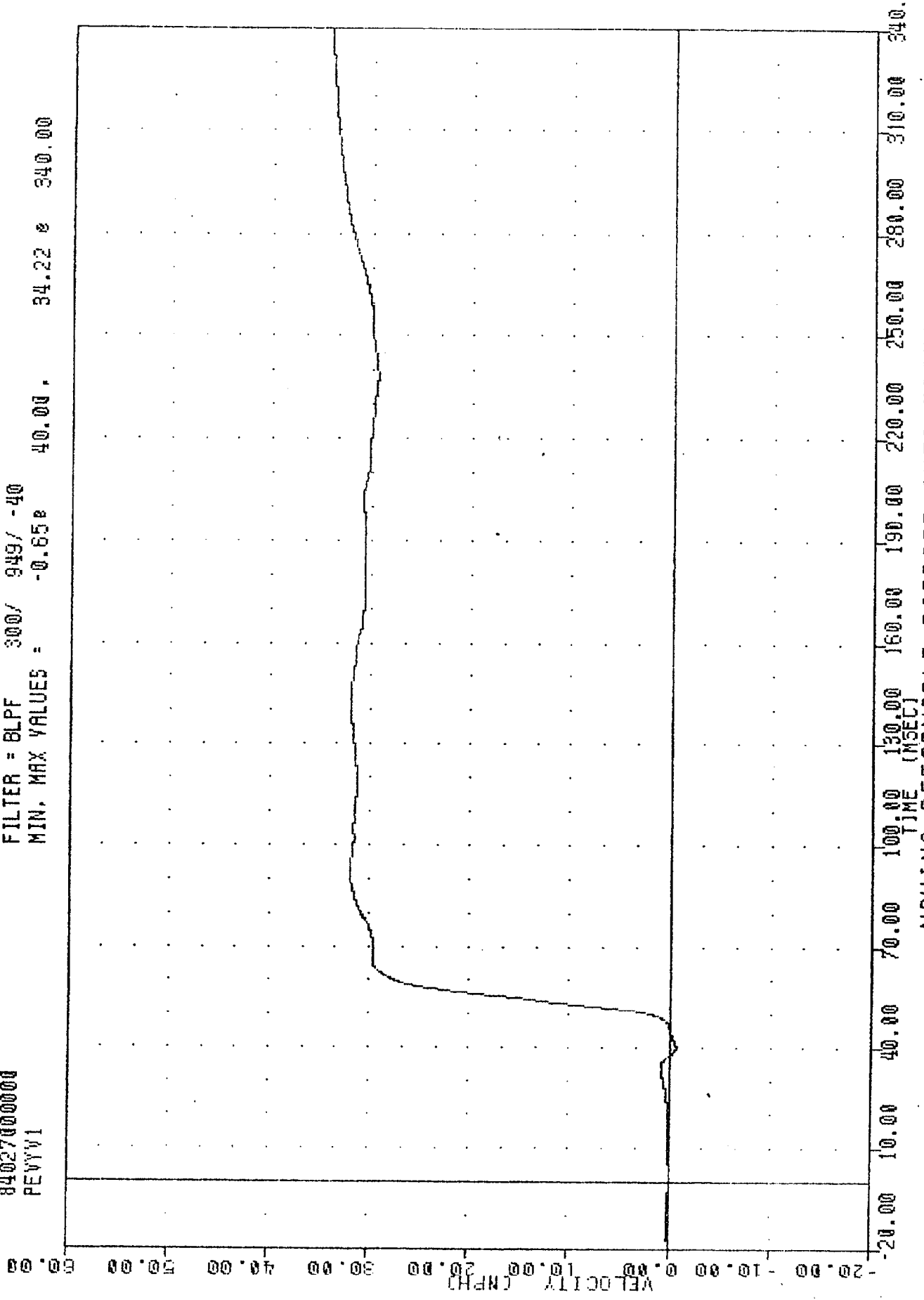
MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER PELVIS ACCELERATION Z AXIS

TRC 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 PEVRG1  
 FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = 0.06 7.38 167.26 52.13  
 PLOT DATE 1-FEB-84 10:26:52



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DRIVER PELVIS RESULTANT

TRC 840127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 PEVYV1  
 FILTER = BLPF 300/ 949/ -40  
 MIN, MAX VALUES = -0.65e 40.00. 34.22 e 340.00  
 PLOT DATE 1-FEB-84 10:41:55

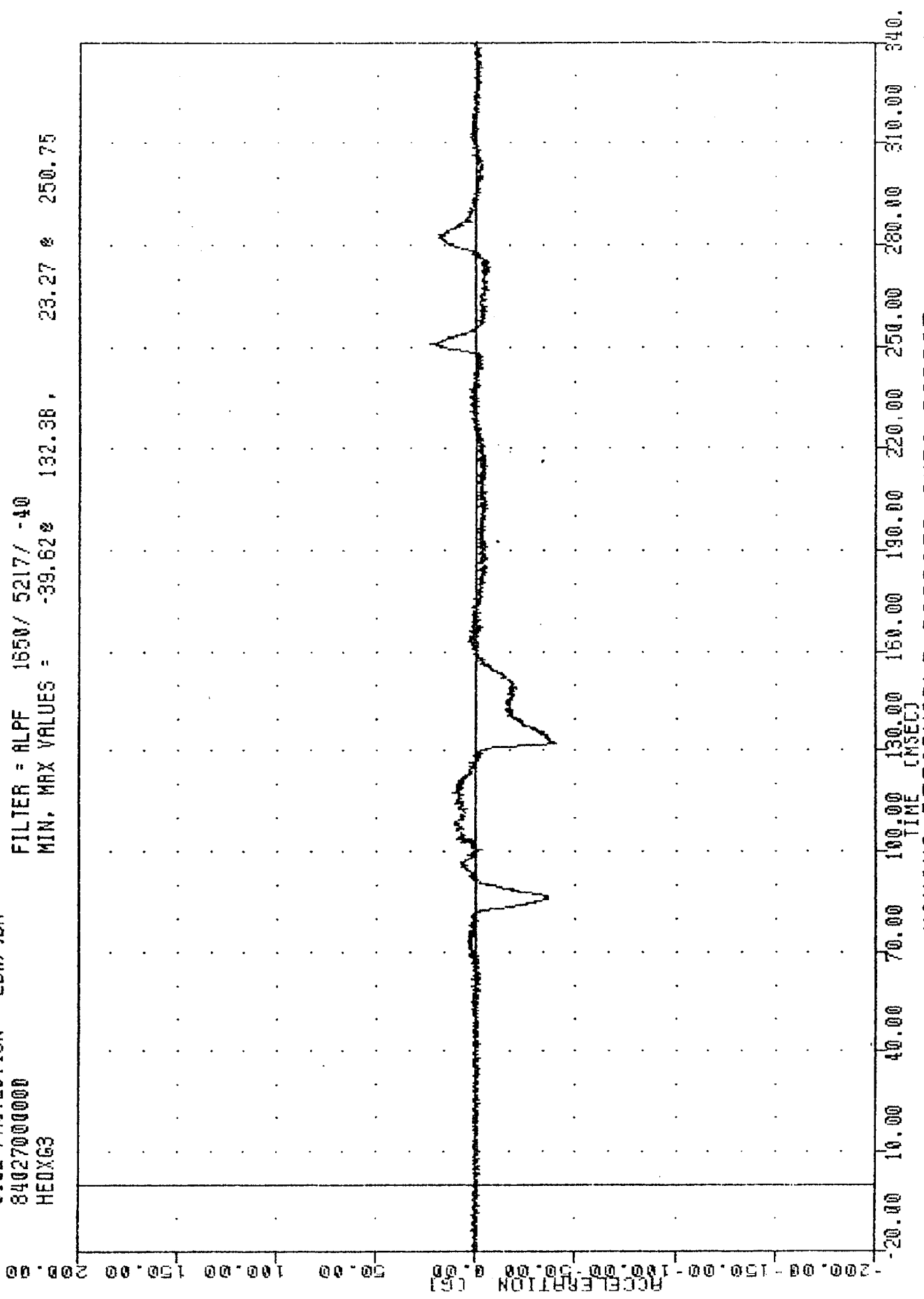


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING PEVYGI

TAC  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 HEDXG3

PLOT DATE 1-FEB-84 10:26:52

FILTER = ALPF 1650/ 5217/ -40  
 MIN, MAX VALUES = -39.62 132.38, 23.27 & 250.75

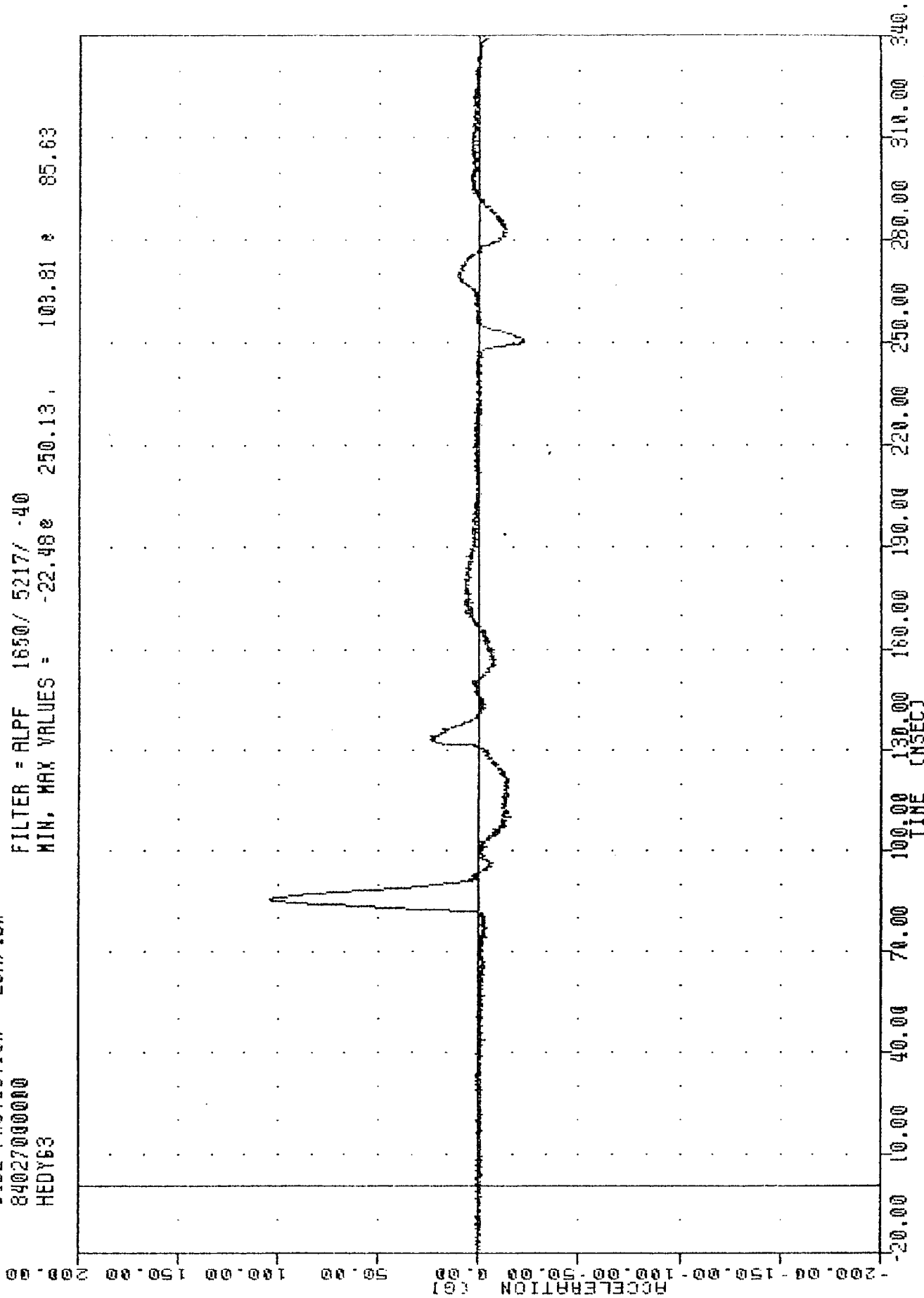


MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER HEAD ACCELERATION X AXIS

THC  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 HEDY63

PLUT DATE 1-FEB-84 10:26:52

FILTER = ALPF 1650/ 5217/ -40  
 MIN. MAX VALUES = -22.48e 250.13, 103.81 e 85.63



MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER HEAD ACCELERATION Y AXIS



PLC

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840127

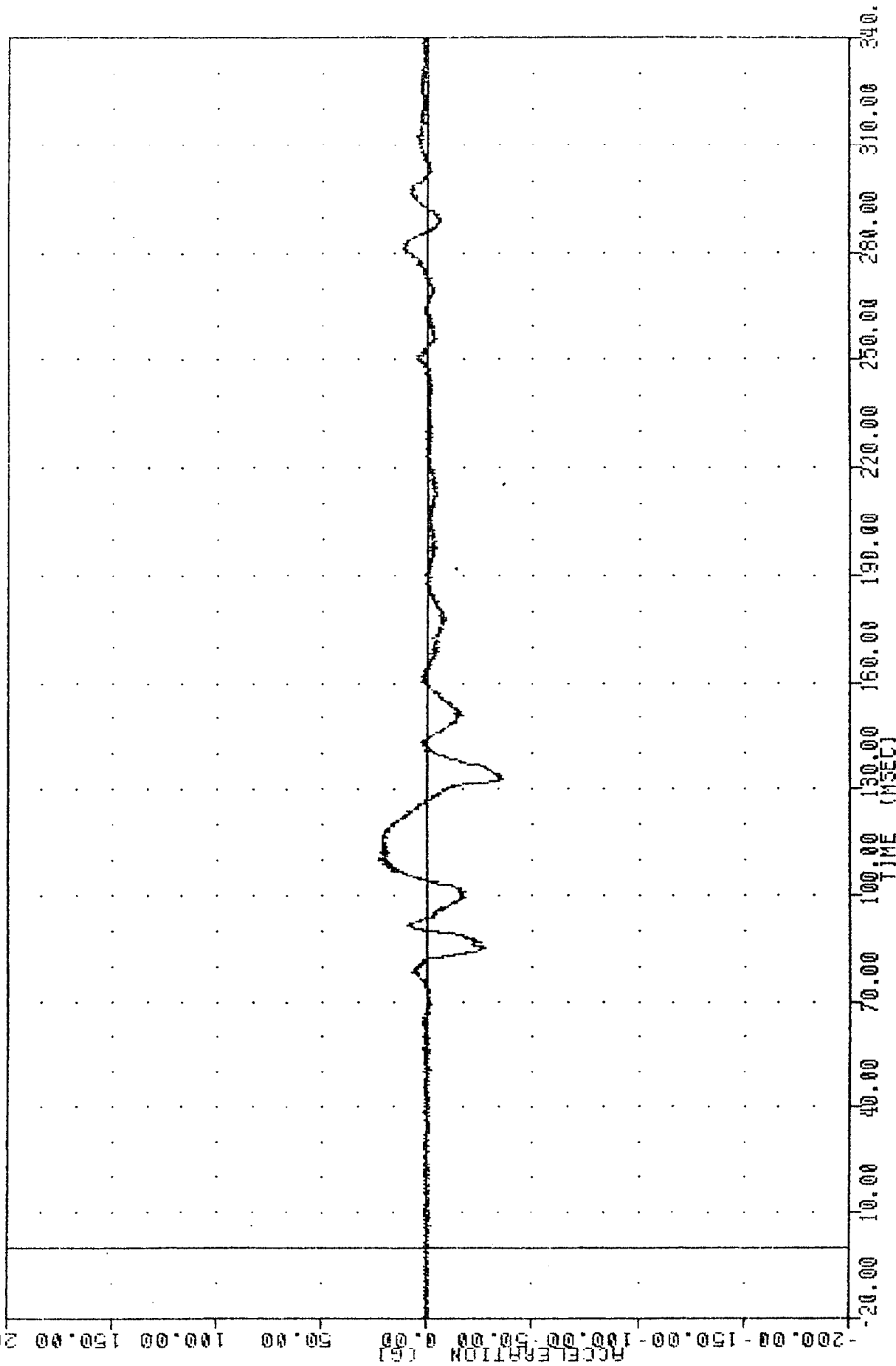
SIDE PROTECTION - 20R/40R

84027000000

HE02G3

FILTER = ALPF 1650/ 5217/ -40

MIN, MAX VALUES = -35.88e 132.75, 23.99 e 110.25

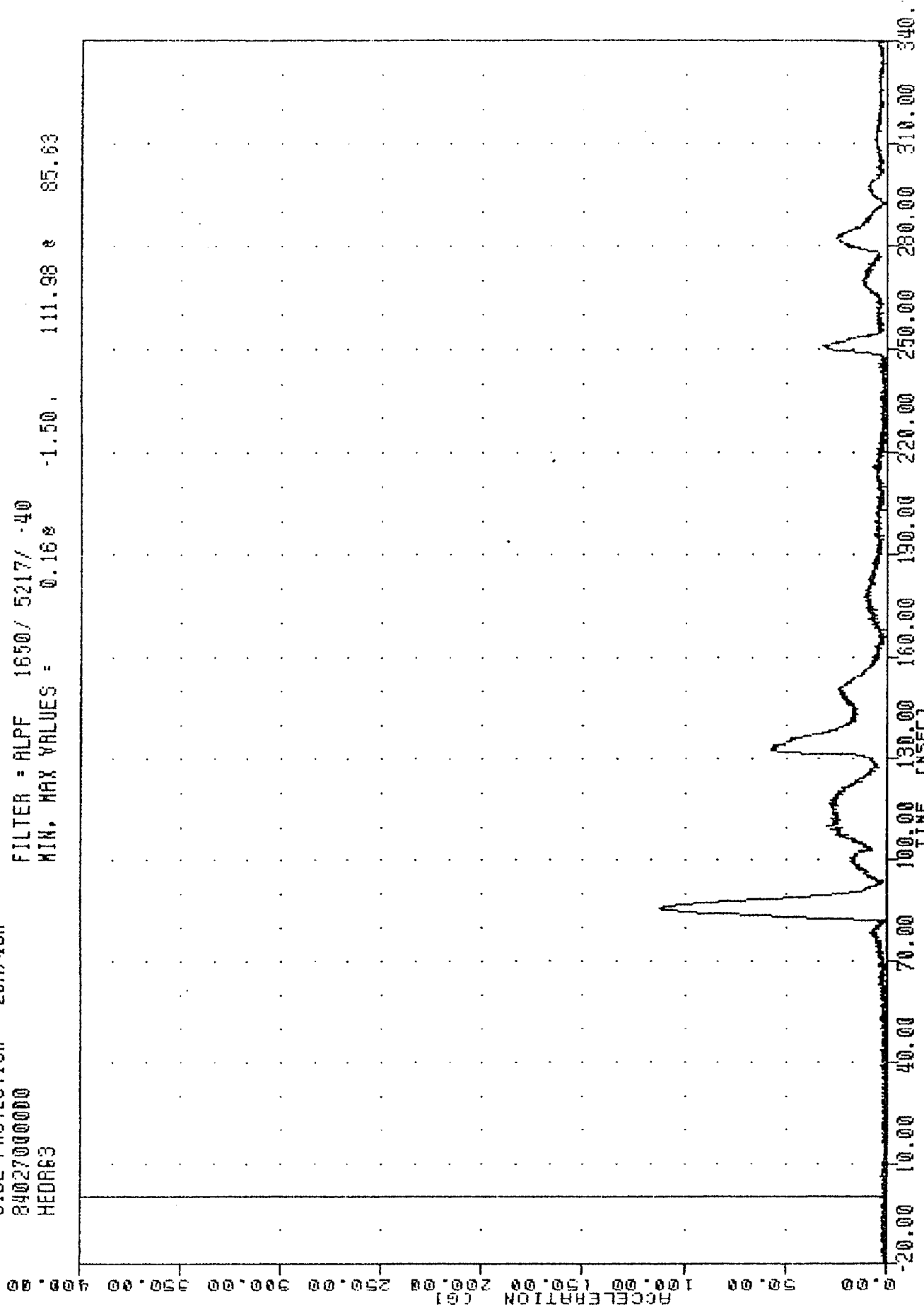


MOVING DEFORMABLE BARRIER INTO RABBIT  
PASSENGER HEAD ACCELERATION Z AXIS

THC  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 HEDR63

840127  
 1-FEB-84 10:28:52

FILTER = ALPF 1650/ 5217/ -40  
 MIN, MAX VALUES = 0.168 -1.50 111.98 85.83

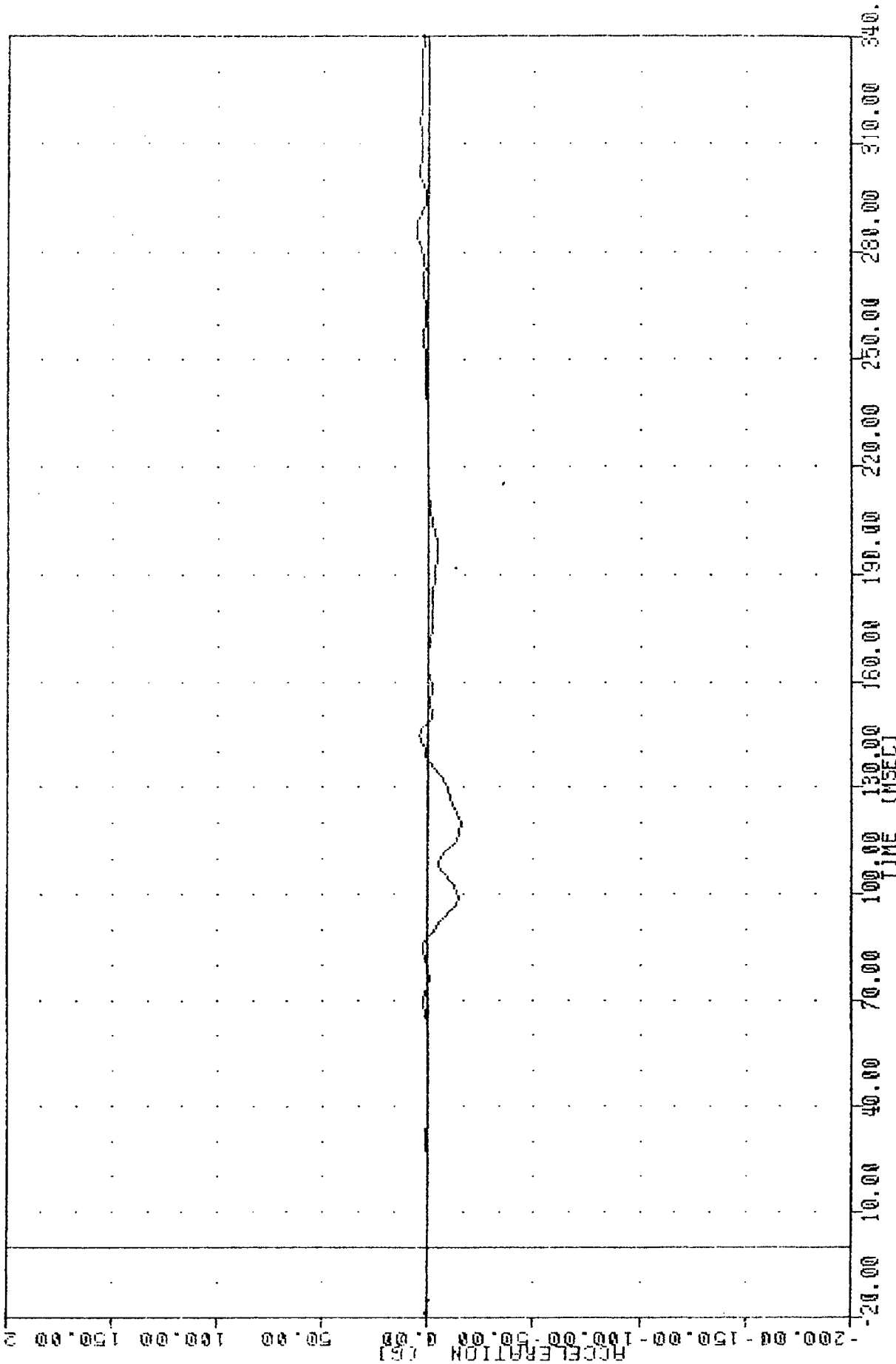


MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER HEAD RESULTANT

IRC  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 101XG3

PLUT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -15.34e 119.38, 6.10 e 285.62



MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER UPPER SPINE ACCELERATION X AXIS

PLUT DATE 1-FEB-84 10:27:42

1-FEB-84

PLUT DATE

840127

840127

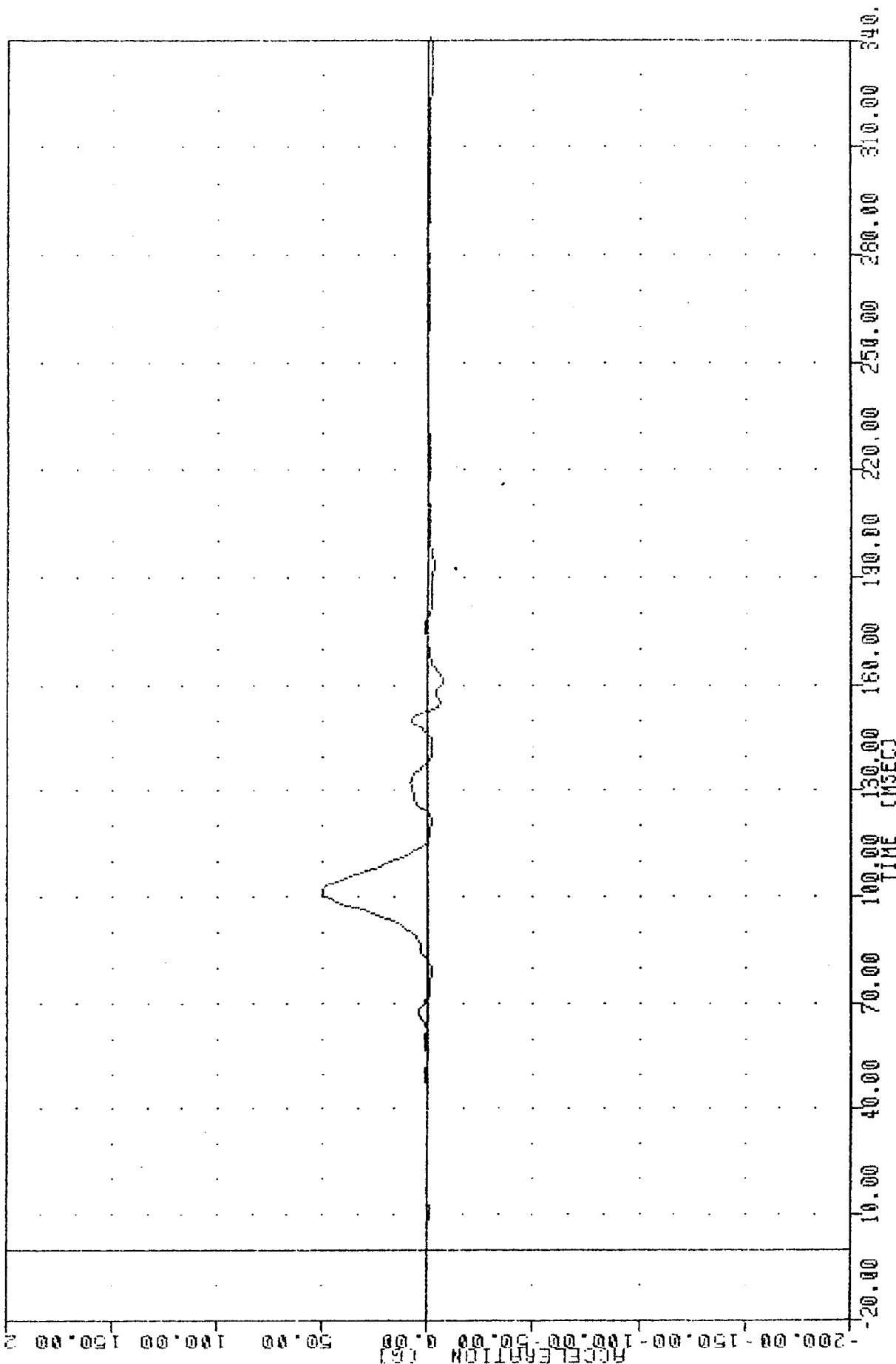
SIDE PROTECTION - 20R/4DR

840270000000

FILTER = HSRI 136/ 189/ -50

T01Y63

MIN. MAX VALUES = -7.47g 160.63, 50.53 g 100.63

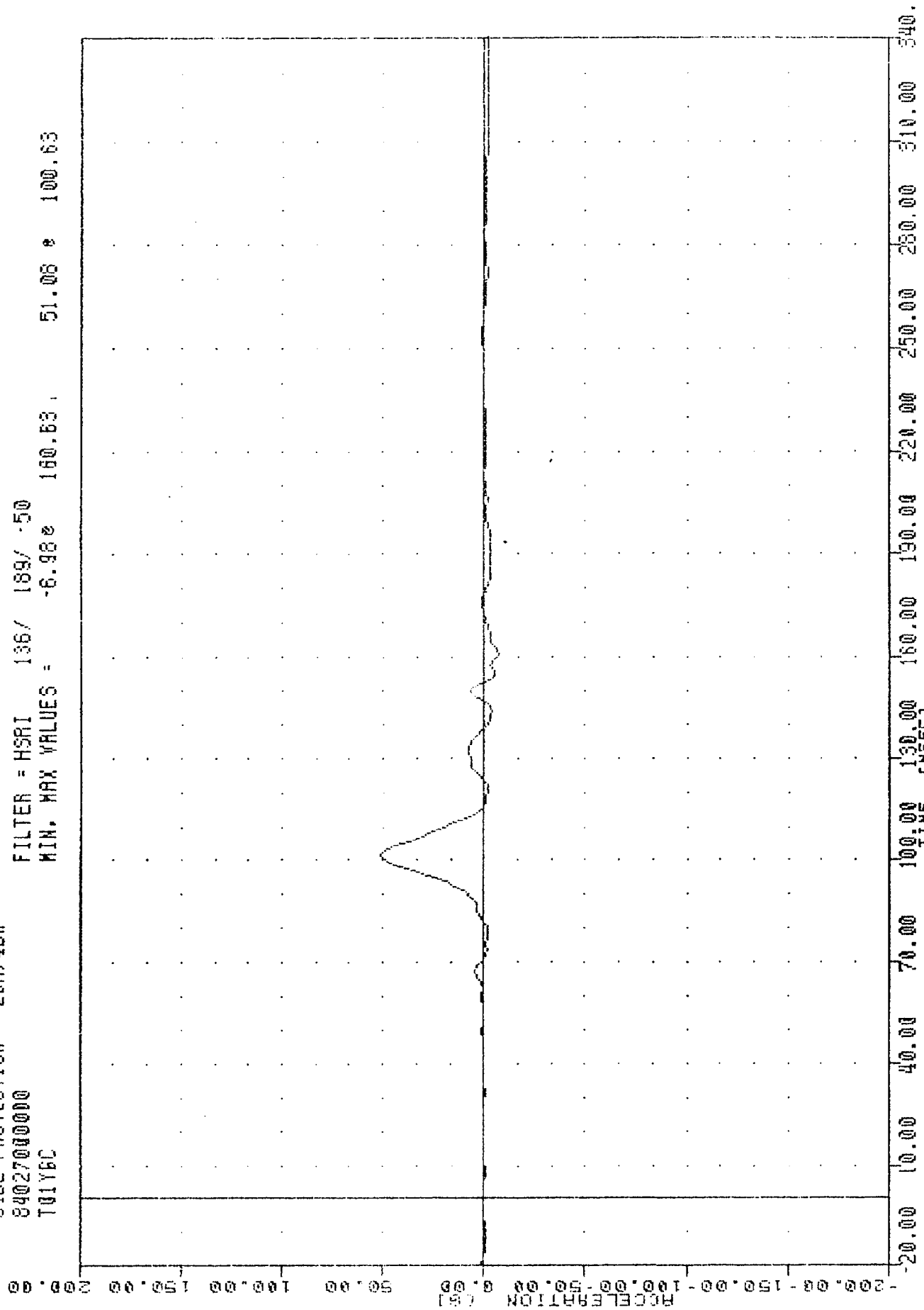


MOVING DEFORMABLE BARRIER INTO RABBIT  
PASSENGER UPPER SPINE ACCELERATION Y AXIS

TBC  
 840127  
 SIDE PROTECTION - 20A/4DA  
 84027000000  
 T01Y6C

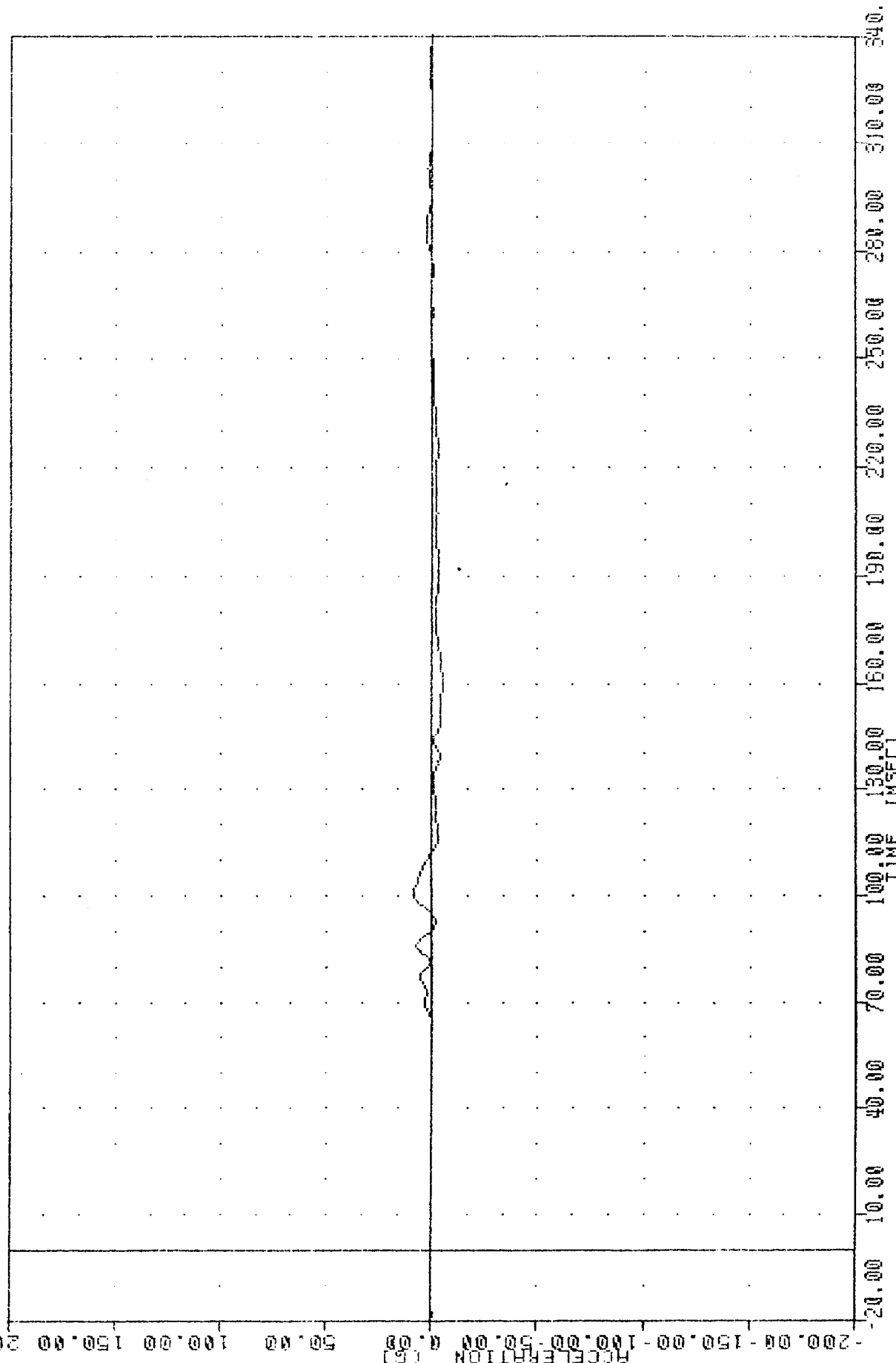
PLUT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -8.98e 160.63 51.06 e 100.63



MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER UPPER SPINE ACCELERATION #2 Y AXIS

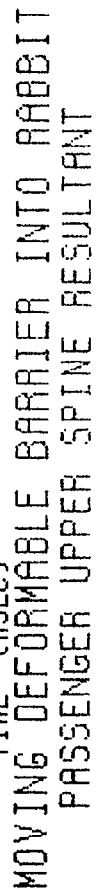
FILE 840127  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 T01ZG3  
 FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -5.30e 159.38 9.10 e 100.00  
 PLOT DATE 1-FEB-84 10:27:42



MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER UPPER SPINE ACCELERATION Z AXIS

1

FILTER = HSF1

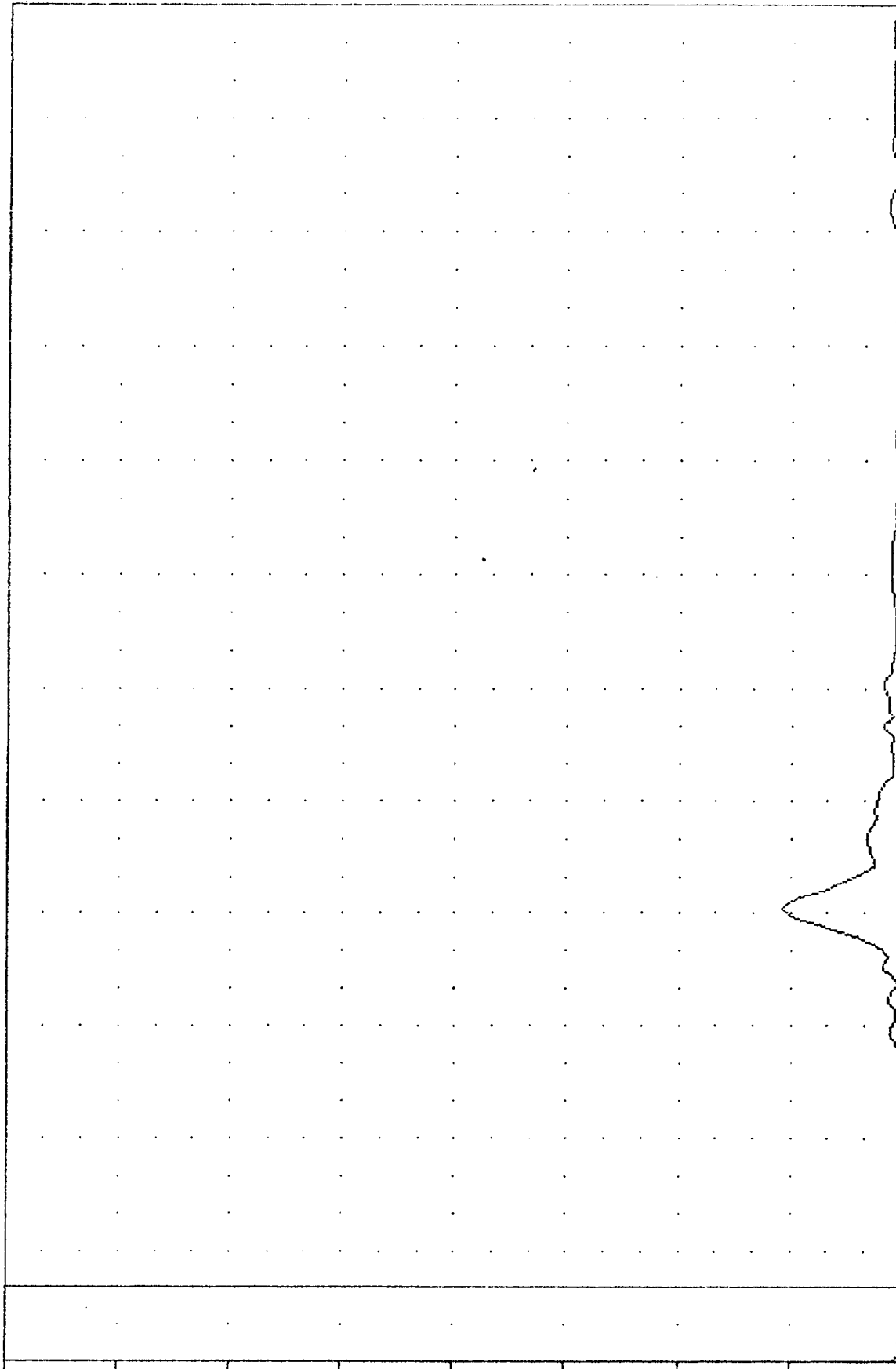


THL 840127  
 SIDE PROTECTION - 20A/40A  
 84027000000  
 T01R63

PLUT DATE 1-FEB-84 10:28:43

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = 0.208 3.13, 53.52 e 100.63

ACCELERATION (G)



TIME (NSEC)

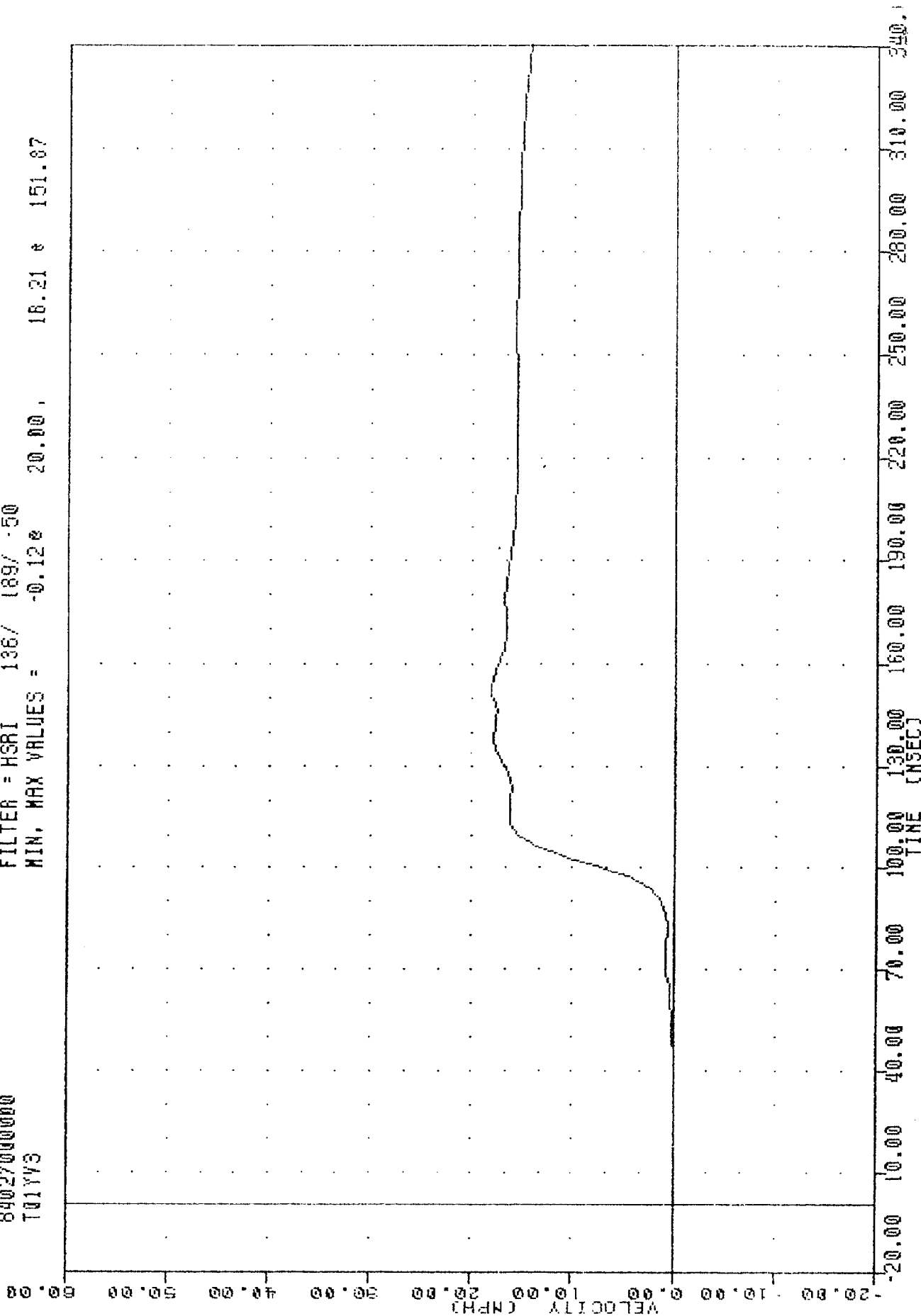
MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER UPPER SPINE RESULTANT USING T01YGC



TAC  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 T01YV3

PLUT DATE 1-FEB-84 10:41:09

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -0.12e 20.00, 18.21 e 151.87



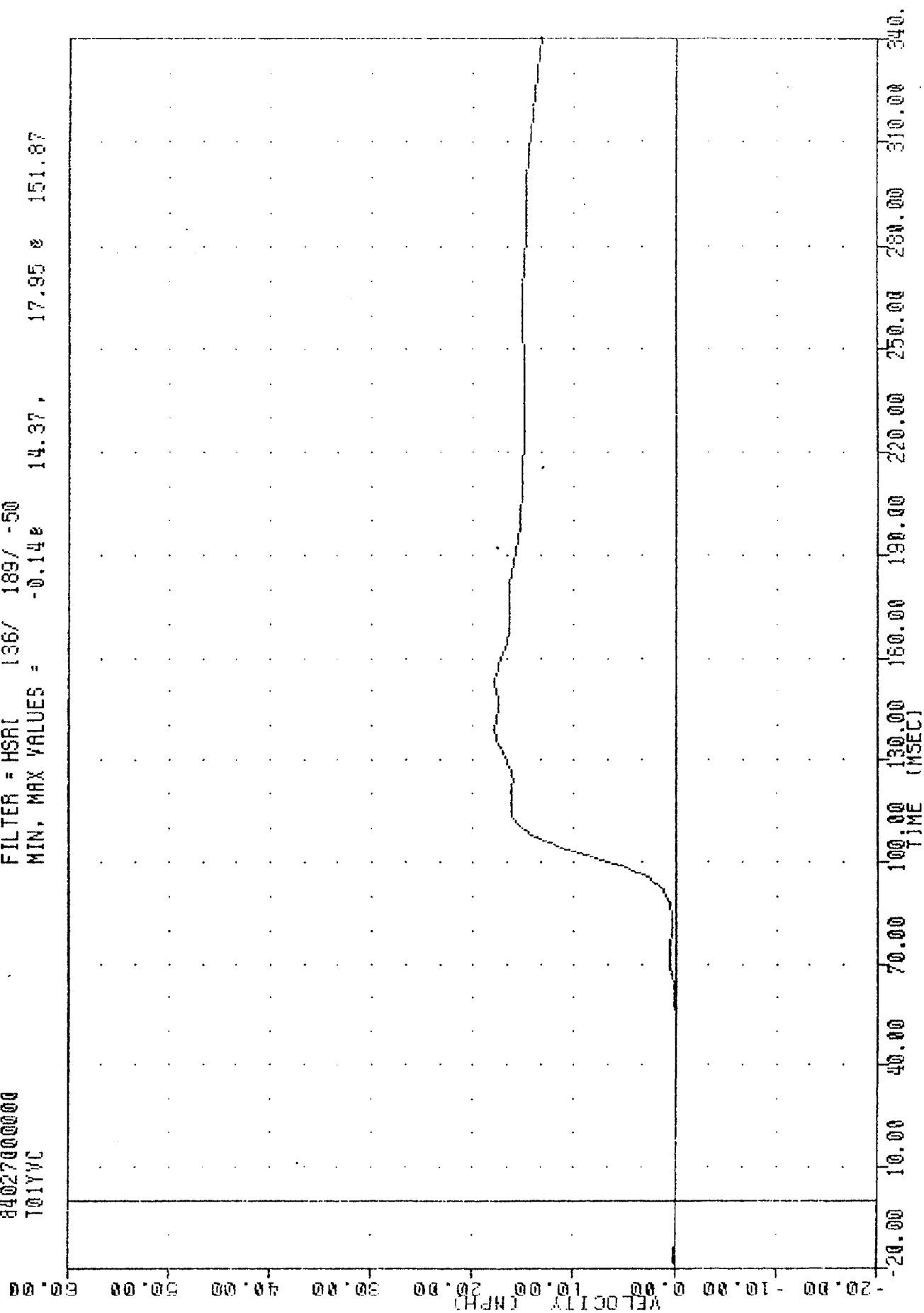
MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA W USING T01YV3

TRC 840127  
SIDE PROTECTION - 2DR/4DR  
84027000000  
T01YVC

PLOT DATE 1-FEB-84 10:41:09

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.14e 14.37, 17.95 e 151.87

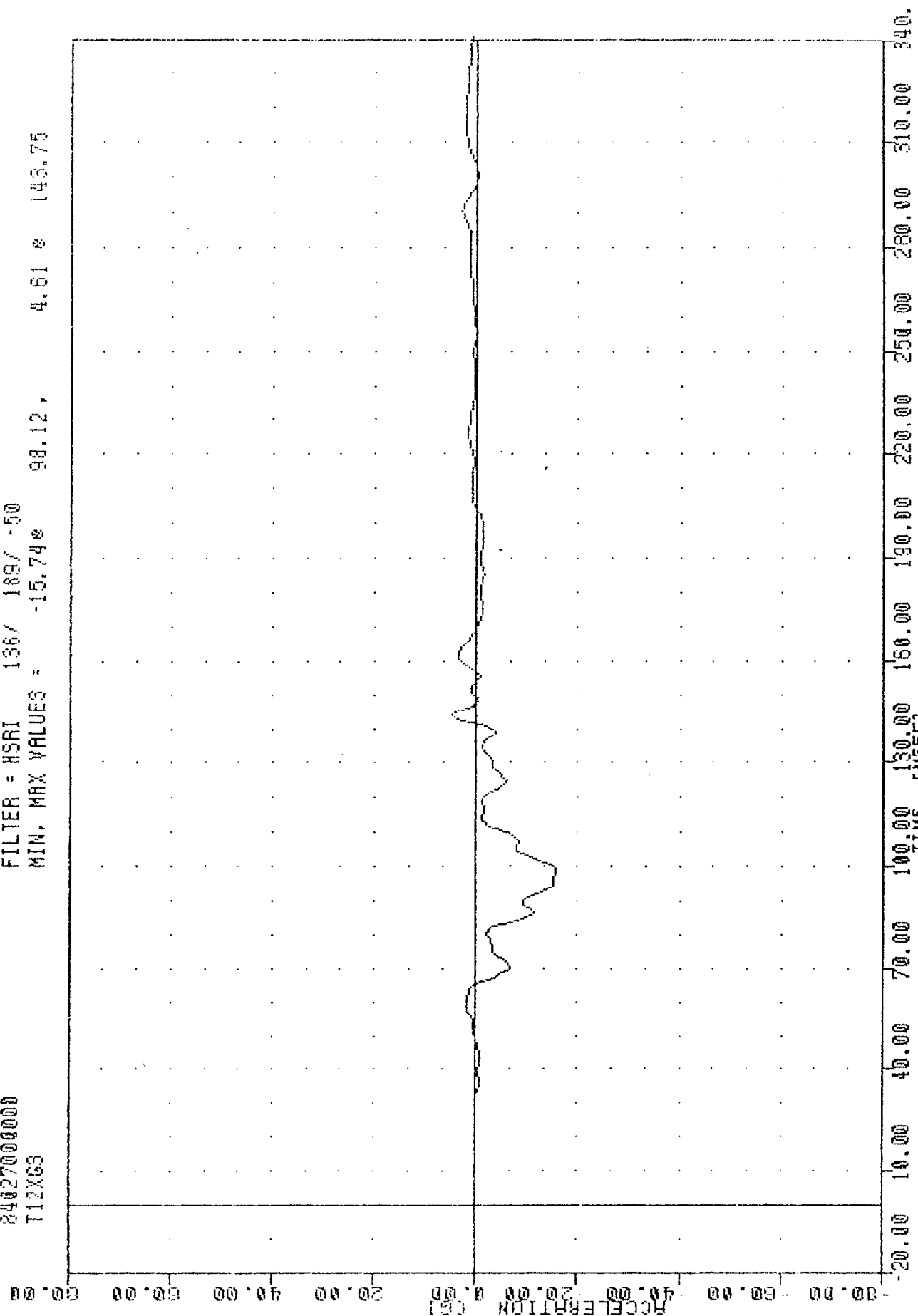


MOVING DEFORMABLE BARRIER INTO RABBIT  
DELTA V USING T01YVC

TRC 840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 T12XG3

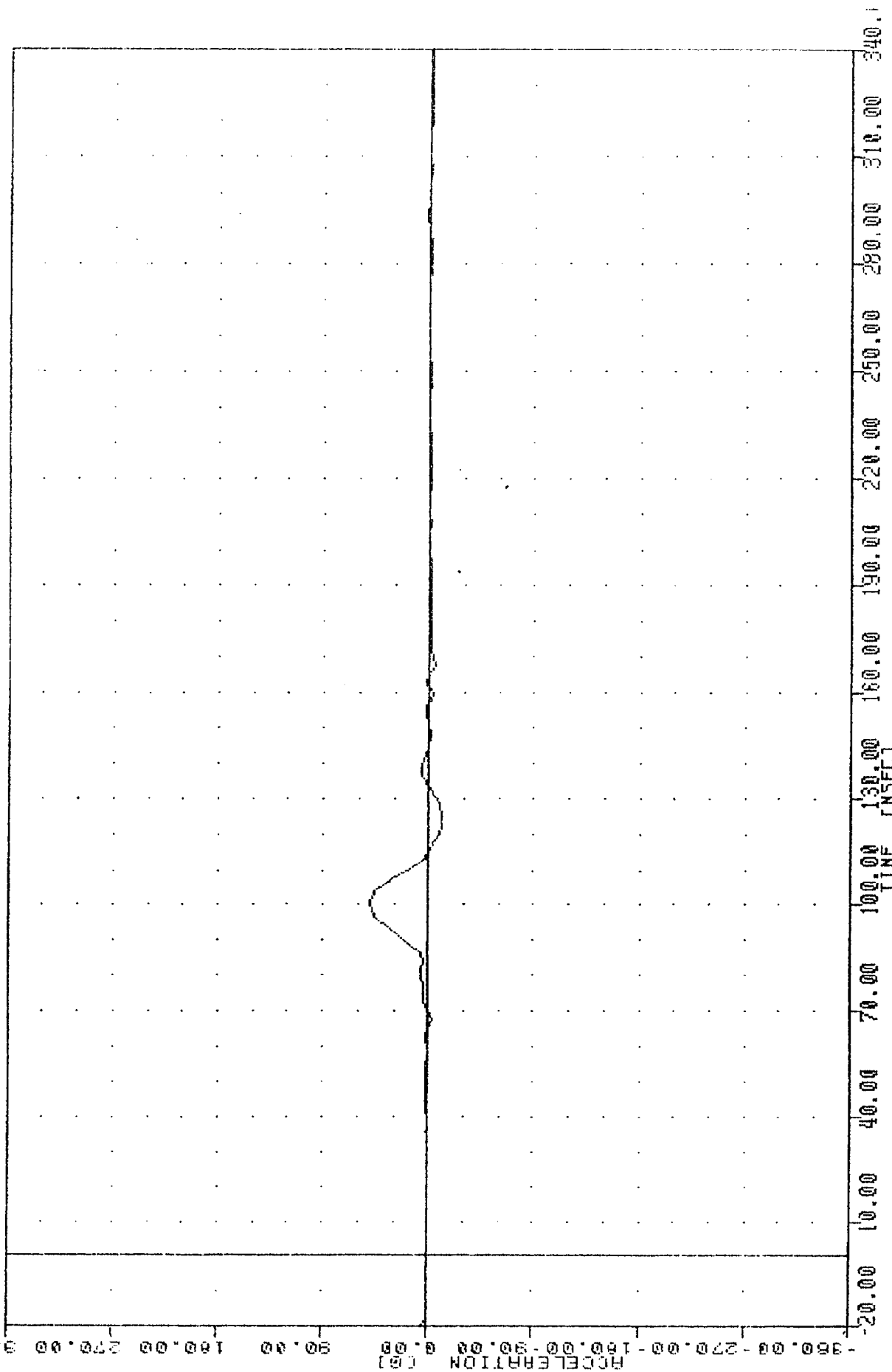
PLOT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -15.74% 98.12, 4.61% 143.75



MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER LOWER SPINE ACCELERATION X AXIS

THL 840127 10:27:42  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 T12Y63  
 FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -10.78e 122.50 49.46 e 100.00

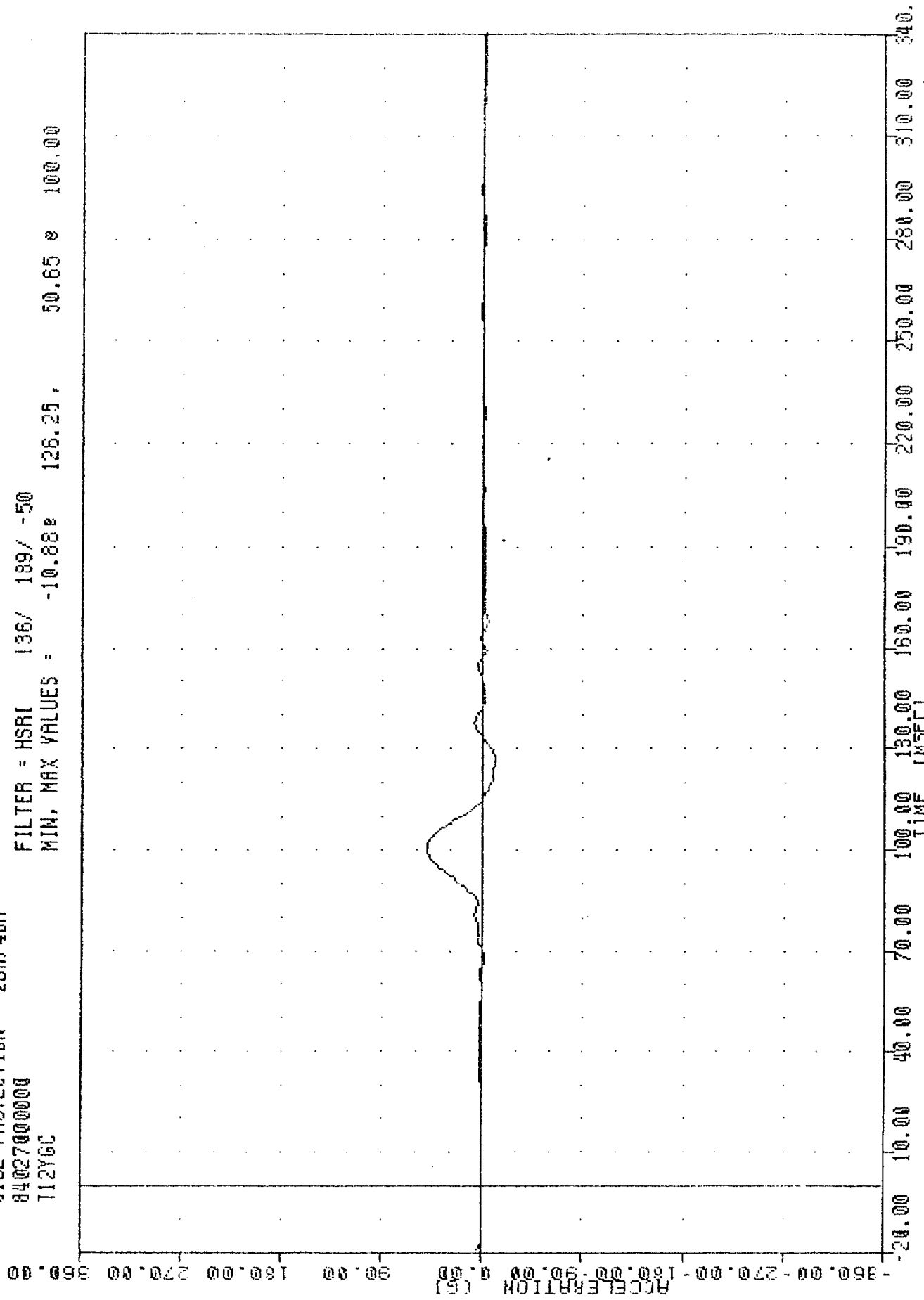


MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER LOWER SPINE ACCELERATION Y AXIS

THC 840127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 712YGC

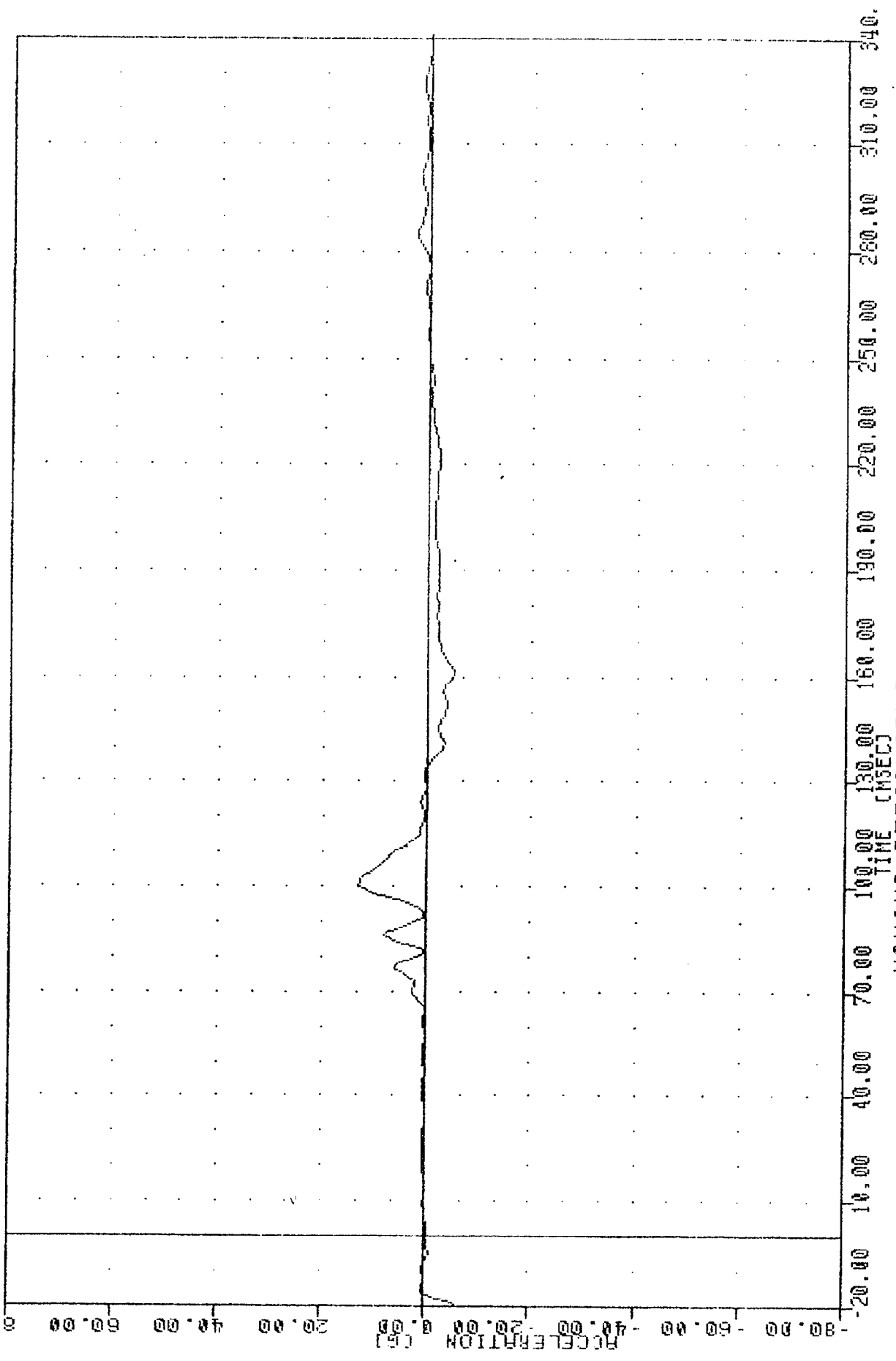
PLOT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -10.88e 126.25, 50.65 e 100.00



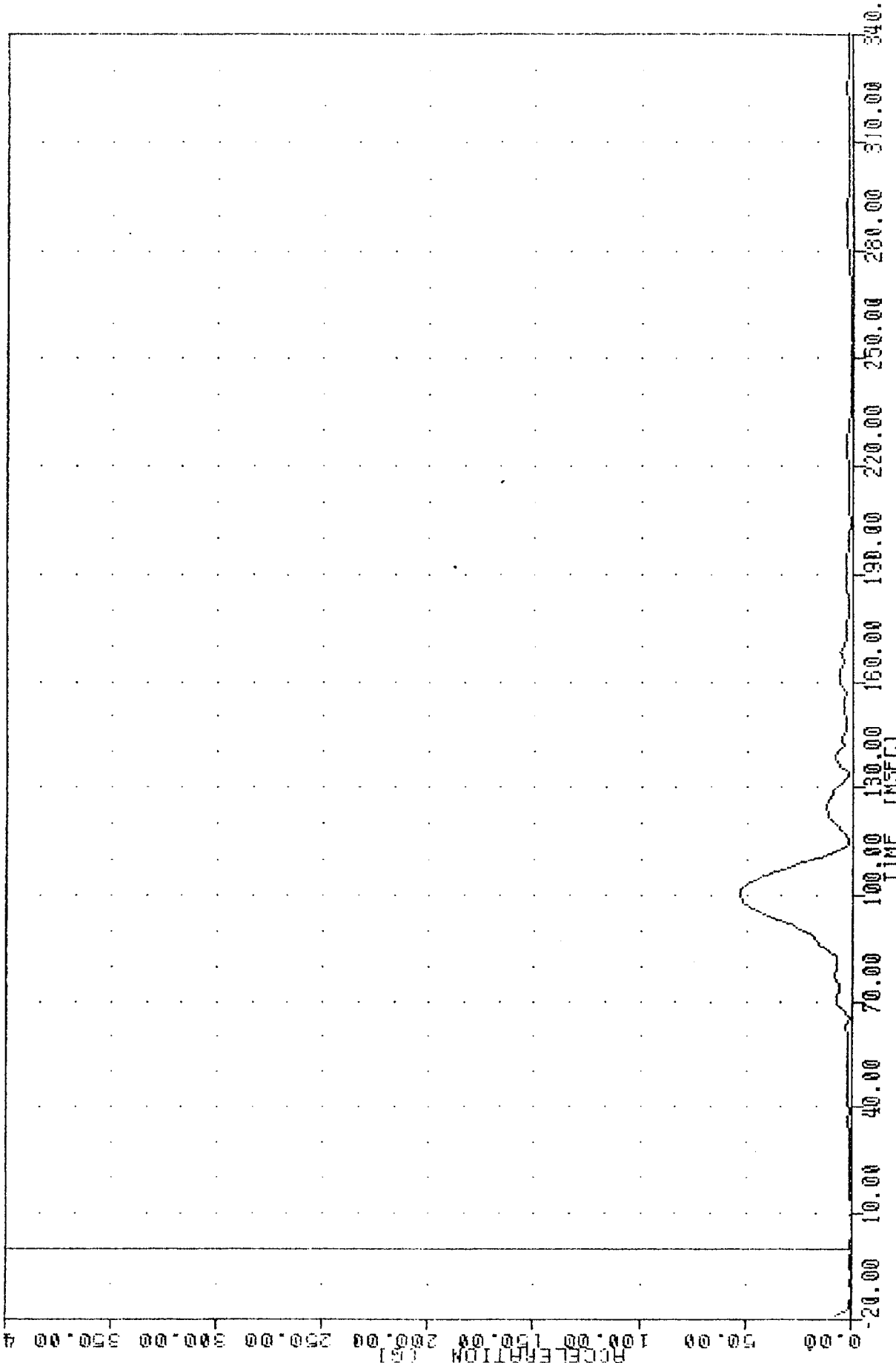
MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER LOWER SPINE ACCELERATION -2 Y AXIS

TRC  
 840127  
 SIDE PROTECTION - 20A/4DR  
 84027000000  
 T12ZG3  
 FILTER = HSRI 136/ 169/ -50  
 MIN. MAX VALUES : -5.80e -20.00 , 13.05 e 100.00  
 PLOT DATE 1-FEB-84 10:27:42



MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER LOWER SPINE ACCELERATION Z AXIS

IRL 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 T12RG3  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = 0.058 -8.13, 53.22 & 99.37  
 PLOT DATE 1-FEB-84 10:27:42



MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER LOWER SPINE RESULTANT

PLUT DATE

1-FEB-84

10:28:43

840127

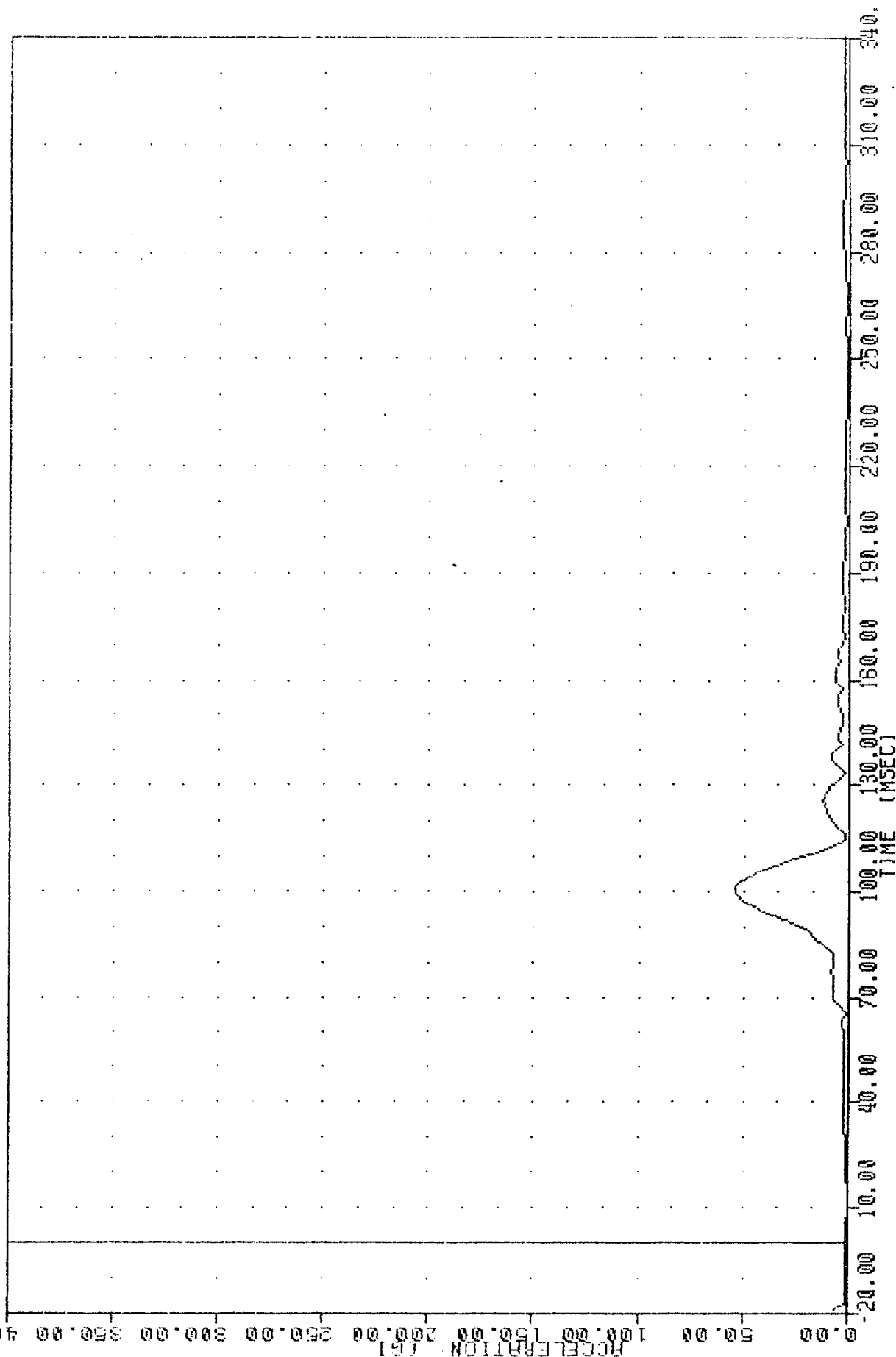
840270000000

SIDE PROTECTION - 30R/40R

FILTER = HSRI 135/ 189/ -50

MIN. MAX VALUES = 0.26v 11.25, 54.35 s 99.37

T12RG3



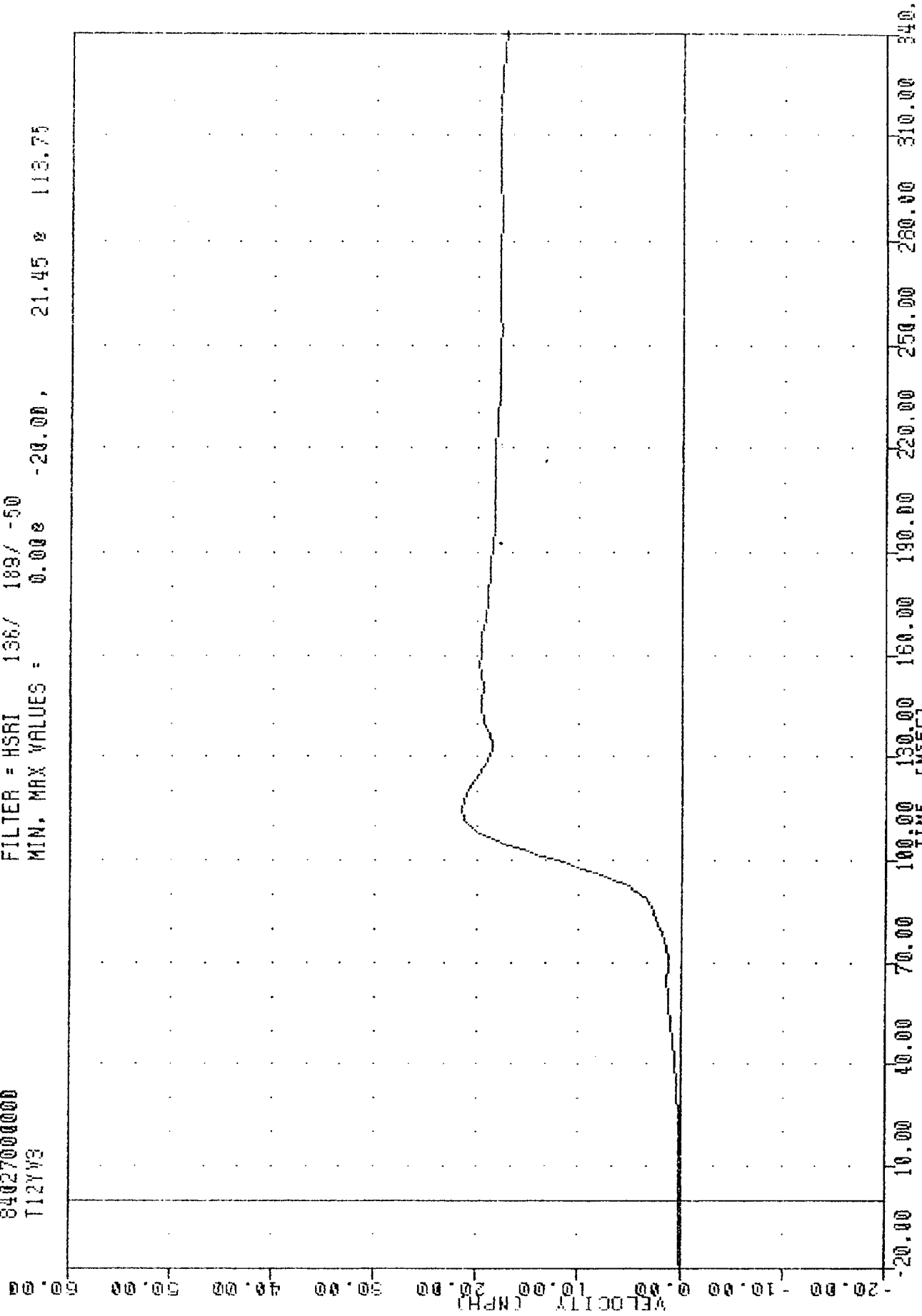
MOVING DEFORMABLE BARRIER INTO RABBIT  
PASSENGER LOWER SPINE RESULTANT USING T12YGC



THL 840127  
SIDE PROTECTION - 20R/40R  
84027000000  
T12YV3

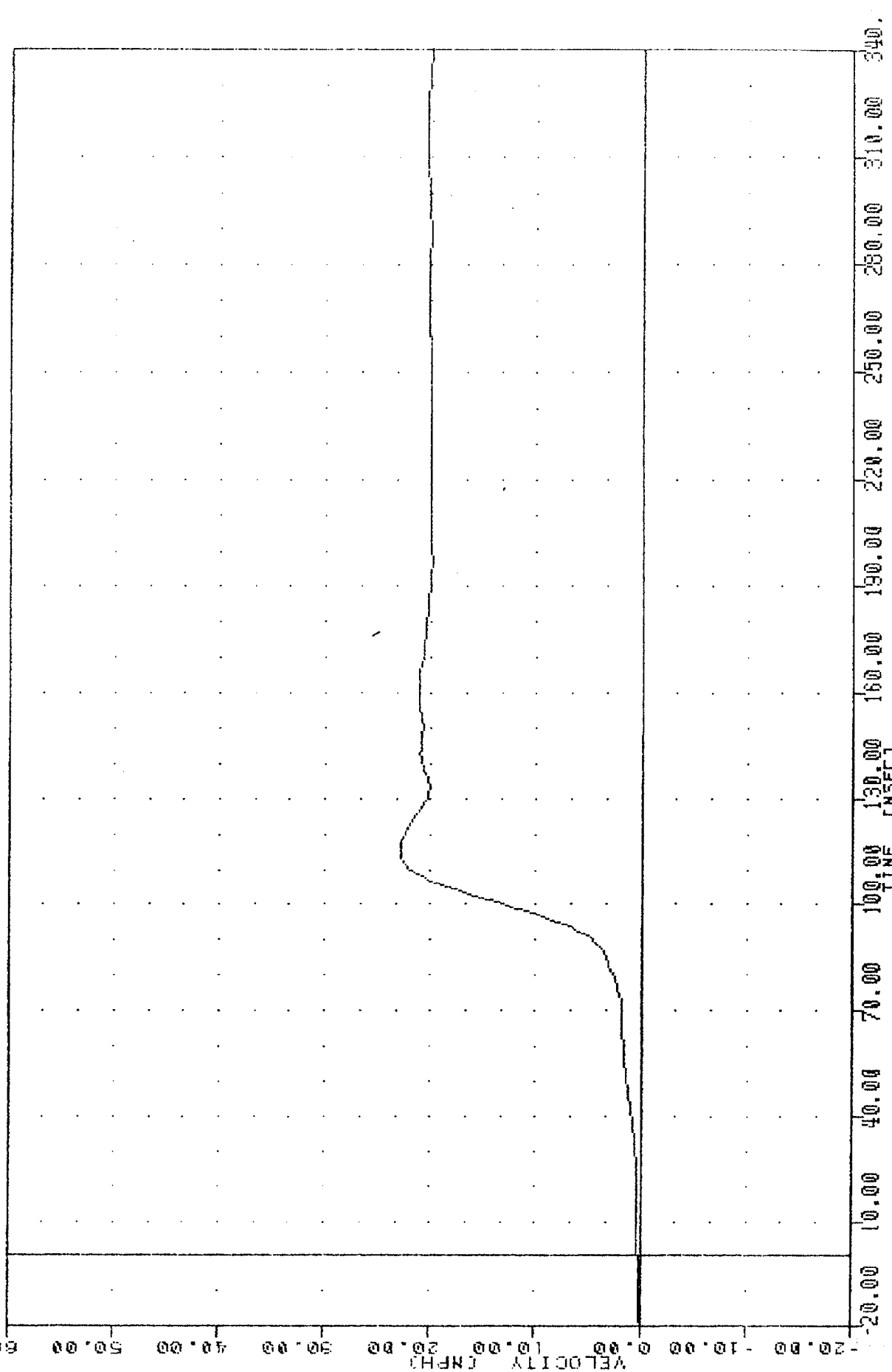
PLOT DATE 1-FEB-84 10:41:09

FILTER = HSRI 136/ 189/ -50  
MIN. MAX VALUES = 0.000 -20.00, 21.45 113.75



MOVING DEFORMABLE BARRIER INTO RABBIT  
DELTA V USING T12Y63

TML 840127 1-840127 1-840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 T12YVC  
 FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = 0.00e -20.00, 22.86 e 115.00  
 PLOT DATE 10:41:08

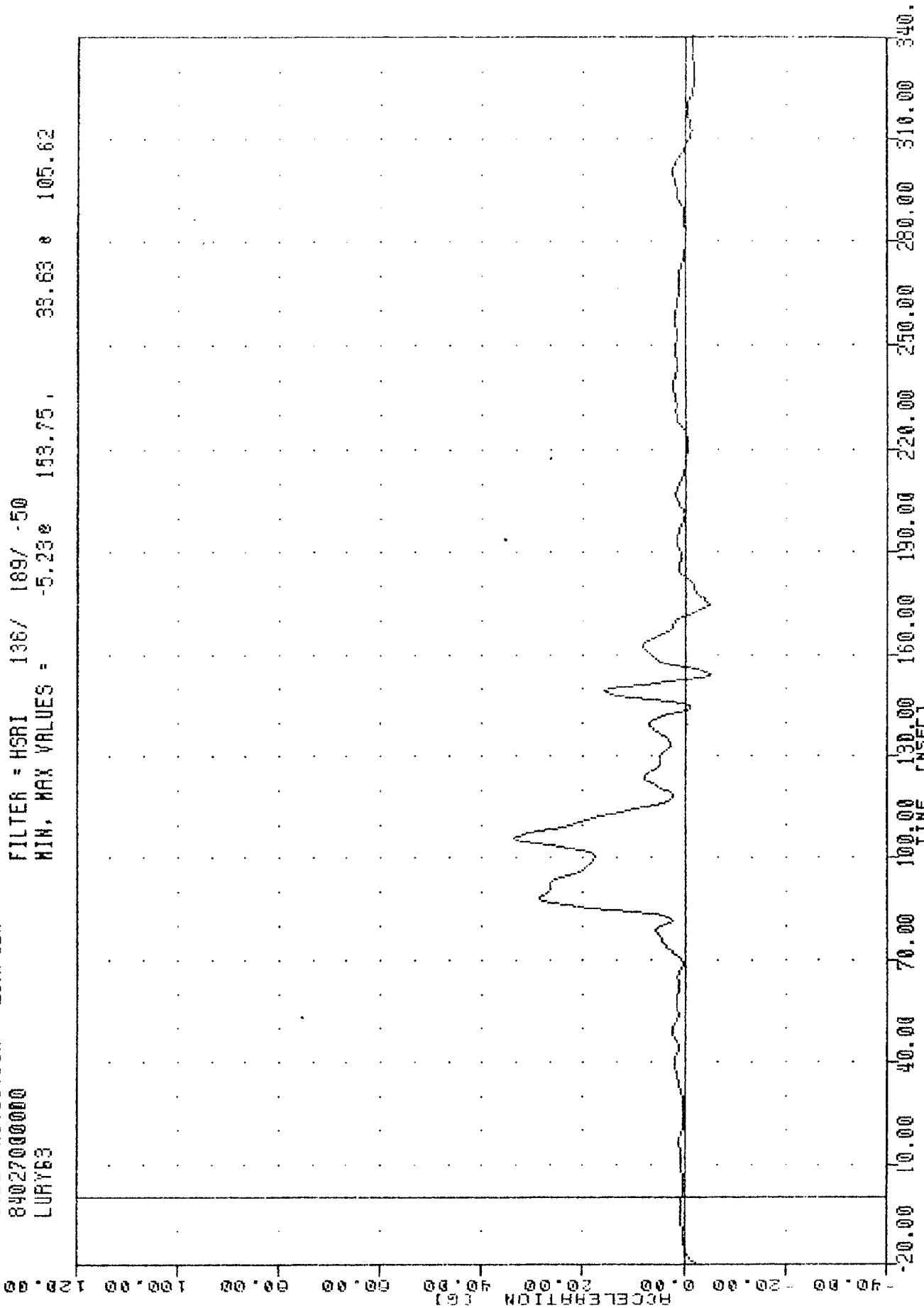


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING T12YVC

THC 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 LURY63

PLUT DATE 1-FEB-84 10:27:42

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -5.230 153.75 38.63 105.62

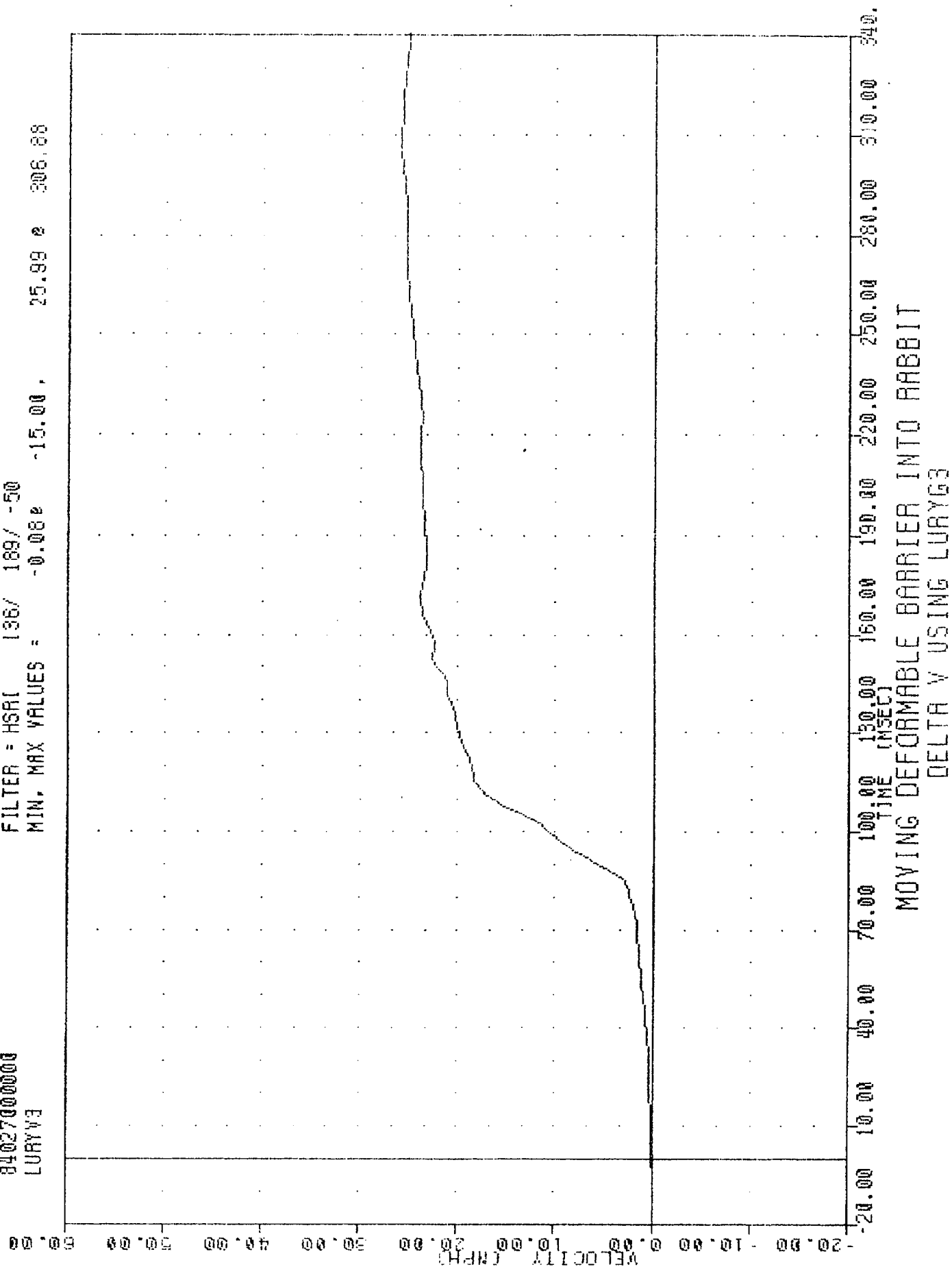


MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER LEFT UPPER RIB ACCELERATION Y AXIS

PLC 840127  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 LURYV3

PLOT DATE 1-FEB-84 10:41:09

FILTER = HSR1 136/ 189/ -50  
 MIN. MAX VALUES = -0.08% -15.00, 25.99 % 306.88



TRC 840127  
SIDE PROTECTION - 20R/40R  
84027000000  
LURYGC

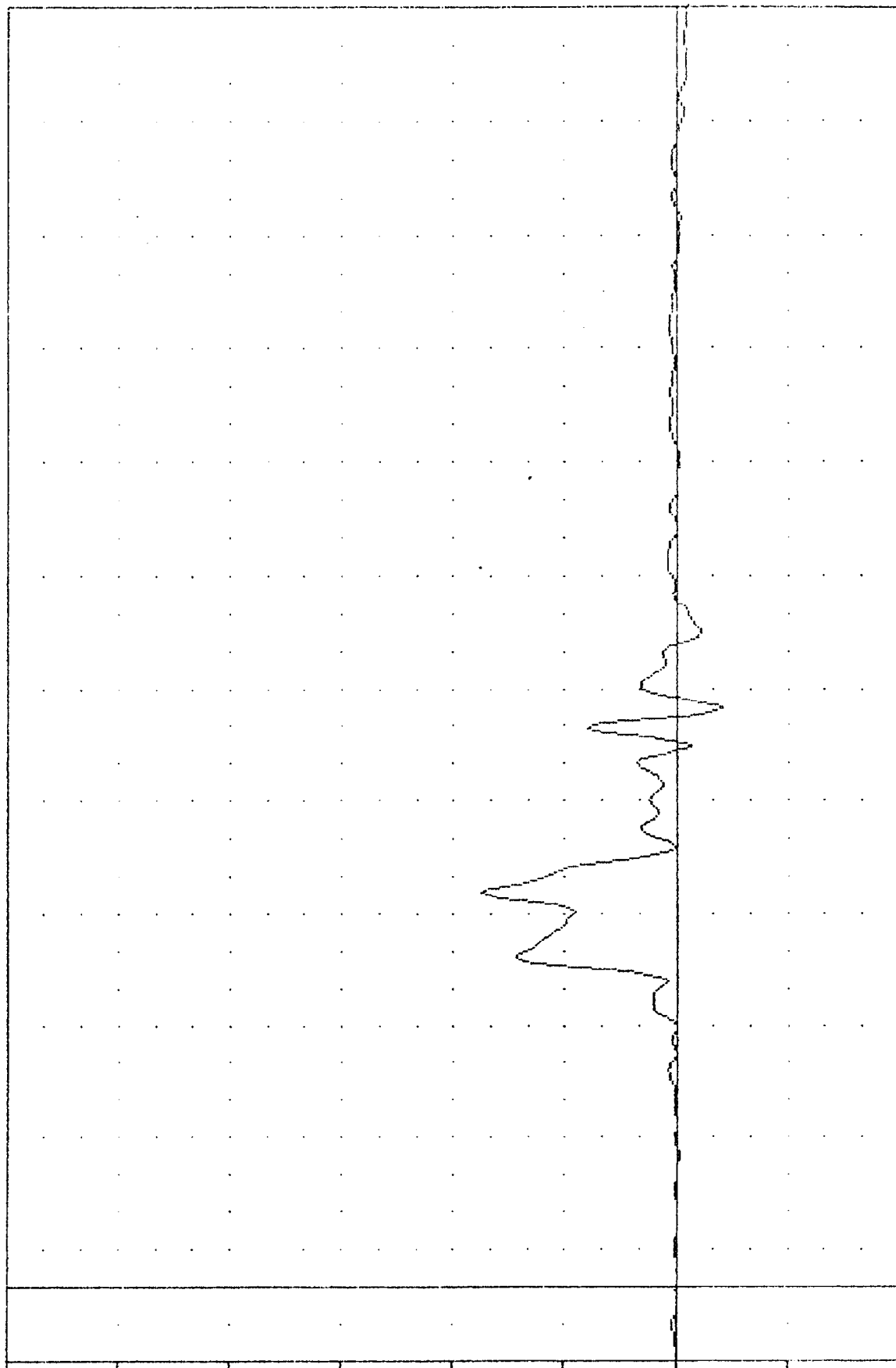
PLOT DATE

1-FEB-84

10:27:42

FILTER = HSR( 136/ 189/ -50  
MIN. MAX VALUES = -8.34e 153.75. 34.91 e 105.00

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

MOVING DEFORMABLE BARRIER INTO RABBIT  
PASSENGER LEFT UPPER RIB ACCELERATION ~2 Y AXIS

PLT DATE

1-FEB-84

10:41:08

840127

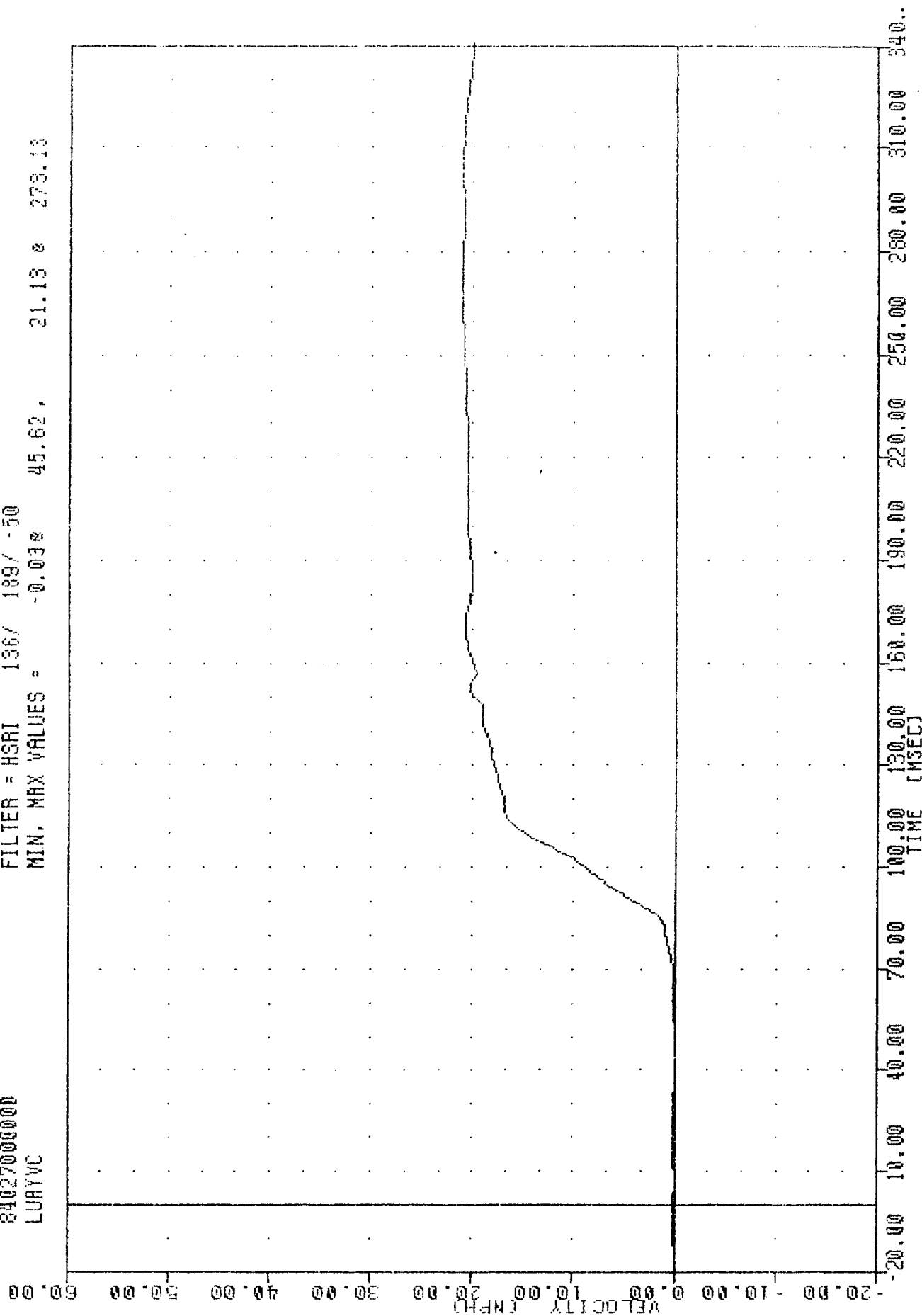
SIDE PROTECTION - 20R/40R

84027000000

LURYVC

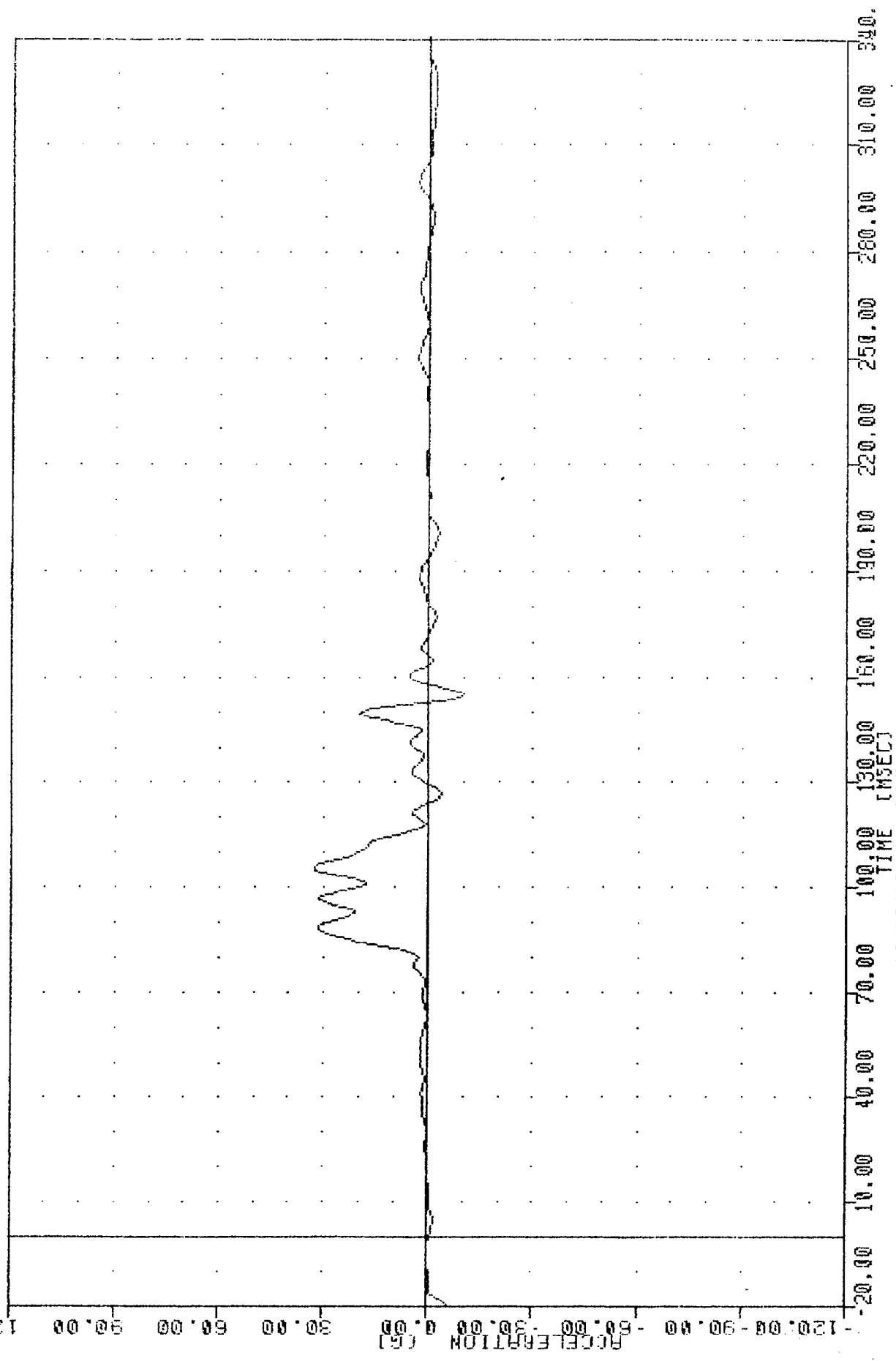
FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.038 45.62, 21.13 & 273.13



MOVING DEFORMABLE BARRIER INTO RABBIT  
DELTA V USING LURYVC

TRC  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 LLAG3  
 FILTER = HSRI 136/ 109/ -50  
 MIN, MAX VALUES = -9.88 154.38, 32.70 105.00  
 PLOT DATE 1-FEB-84 10:27:42

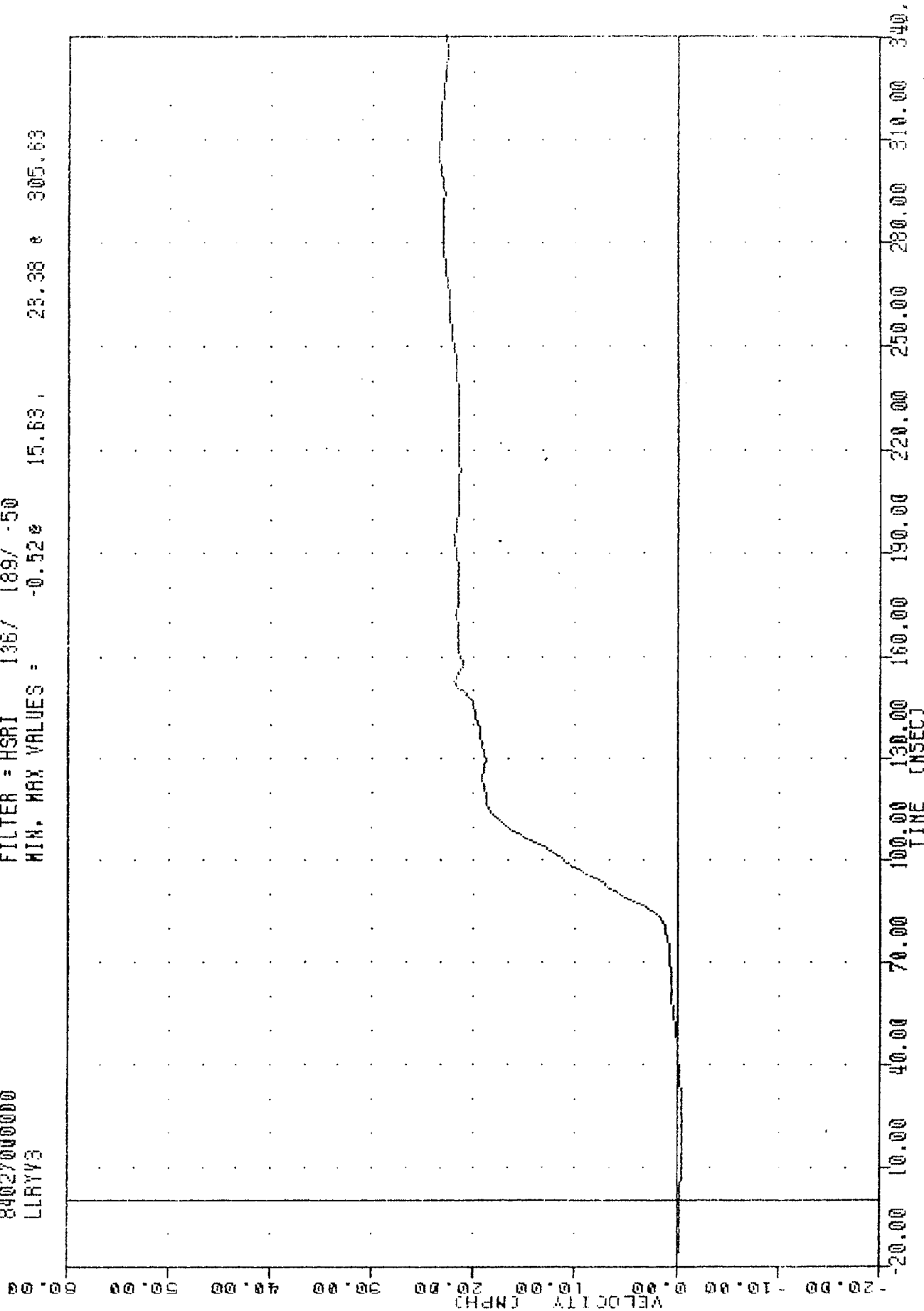


MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER LEFT LOWER RIB ACCELERATION Y AXIS

THC 840127  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 LLRYV3

PLOT DATE 1-FEB-84 10:41:09

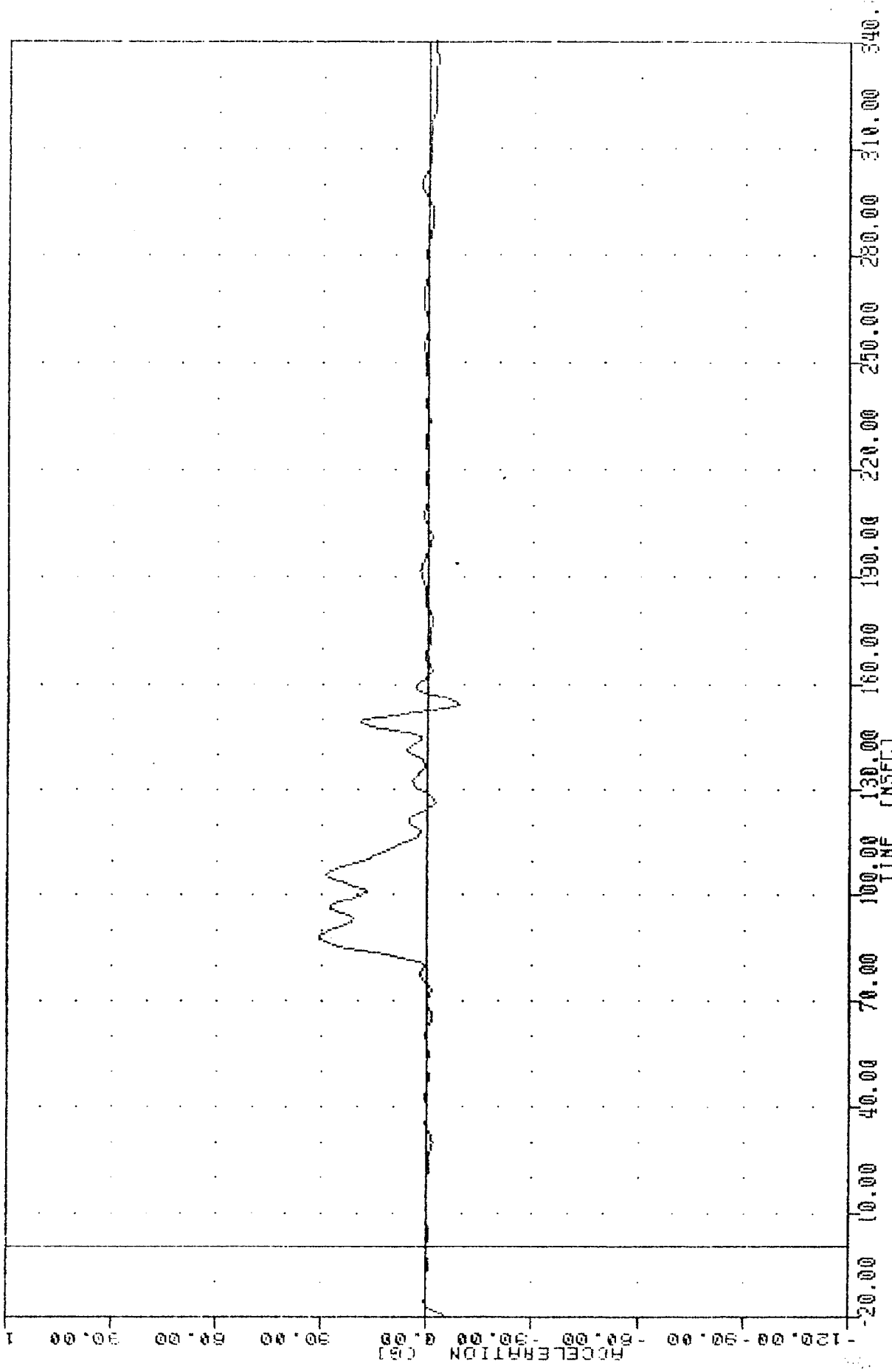
FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -0.52 28.38 305.63



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING LLRYG3



TMC 840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 LLYBEC  
 FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -8.548 153.75 30.78 87.50  
 PLOT DATE 1-FEB-84 10:27:42

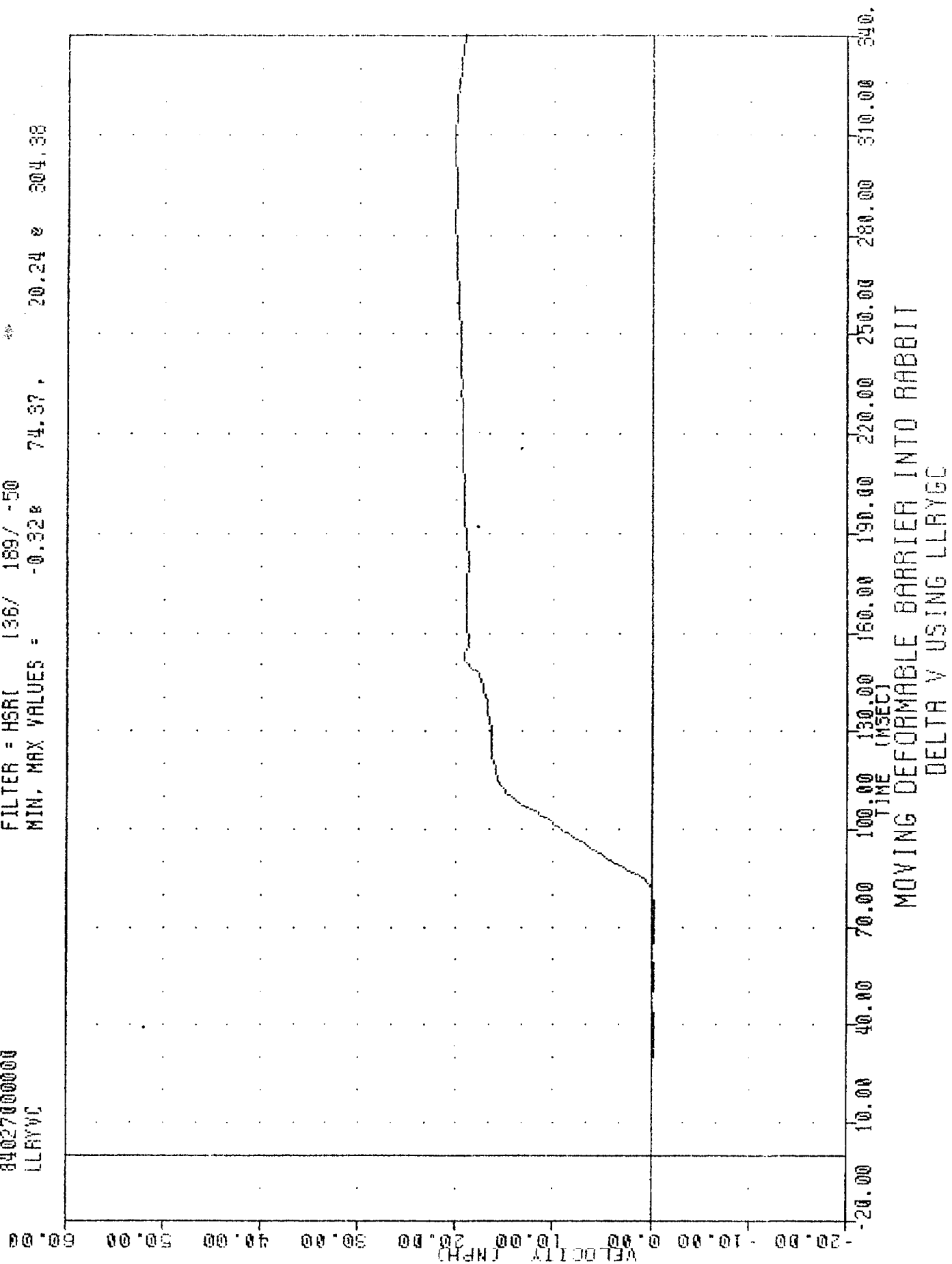


MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER LEFT LOWER RIG ACCELERATION -2 Y AXIS

THE  
SIDE PROTECTION - 20R/40R  
84027000000  
LLRYVC

PLOT DATE 1-FEB-84 10:41:09

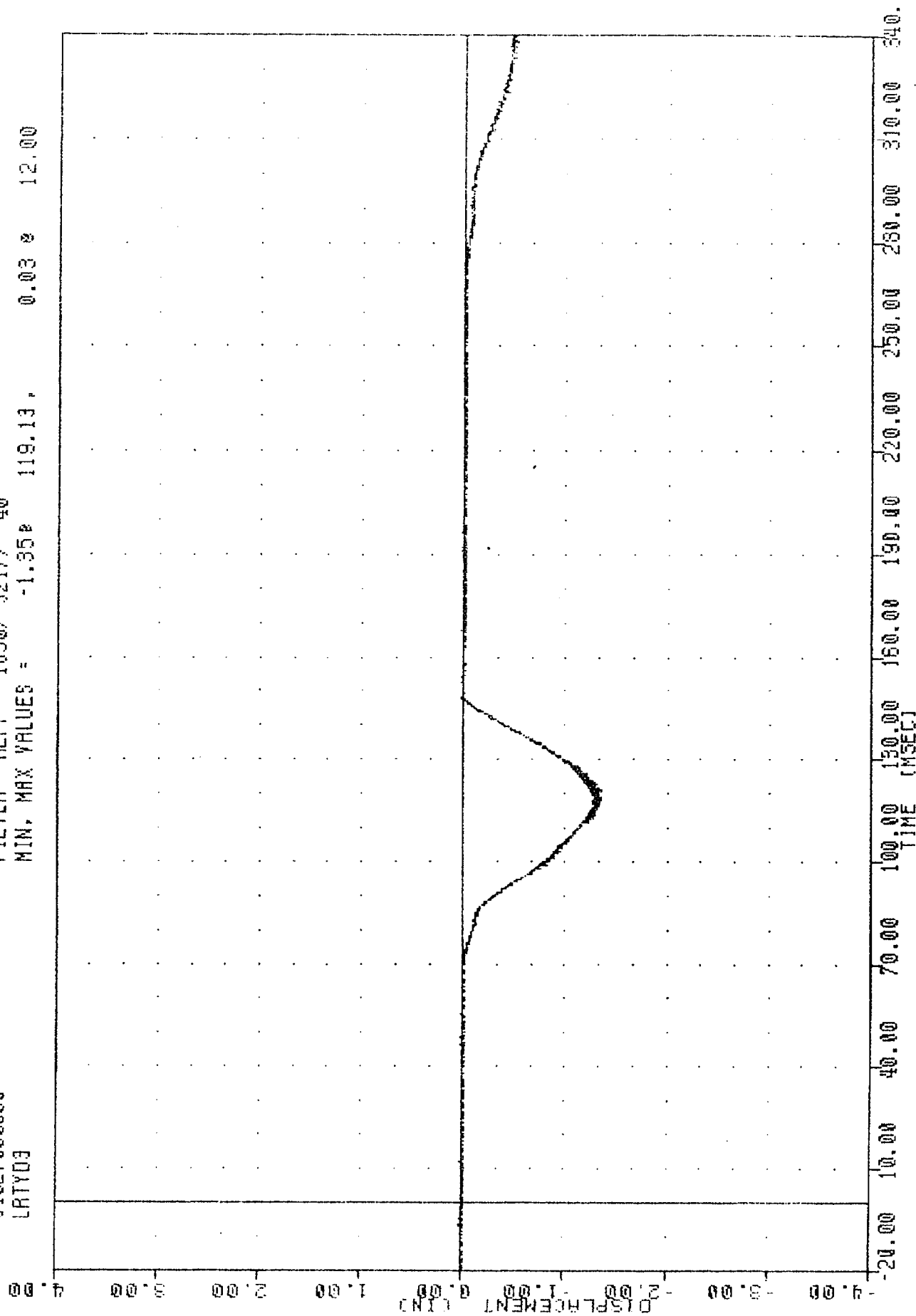
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -0.328 74.37, 20.24 & 304.38



IRC  
 , 840127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 LRTYD3

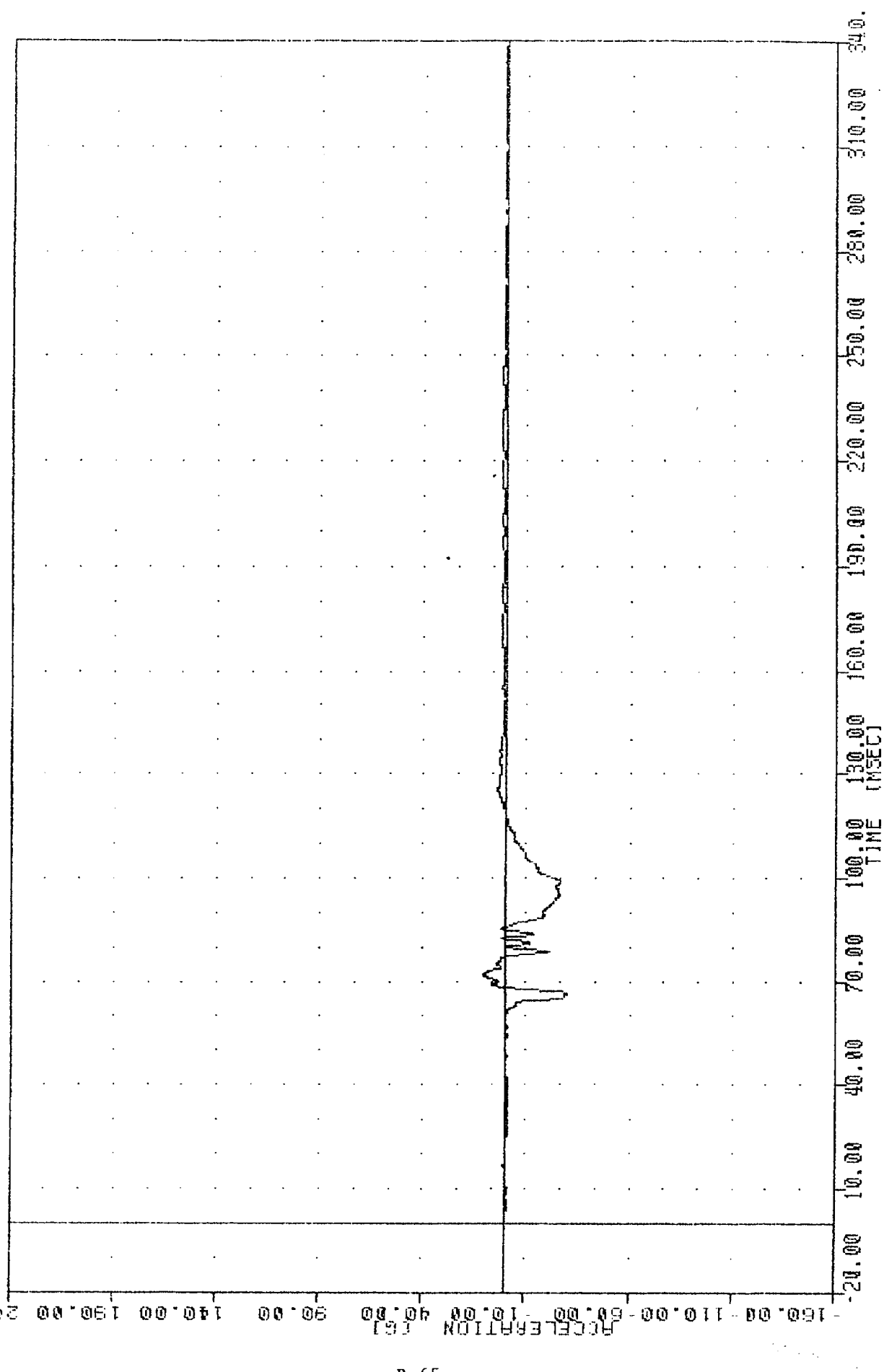
PLOT DATE 1-FEB-84 10:29:10

FILTER = ALPF 1850/ 5217/ -40  
 MIN. MAX VALUES = -1.35e 119.13, 0.03 e 12.00



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

TRC 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 PEVXG3  
 FILTER = BLPF 300/ 949/ -40  
 MIN, MAX VALUES = -29.55 66.38, 10.24 71.63  
 PLOT DATE 1-FEB-84 10:29:10

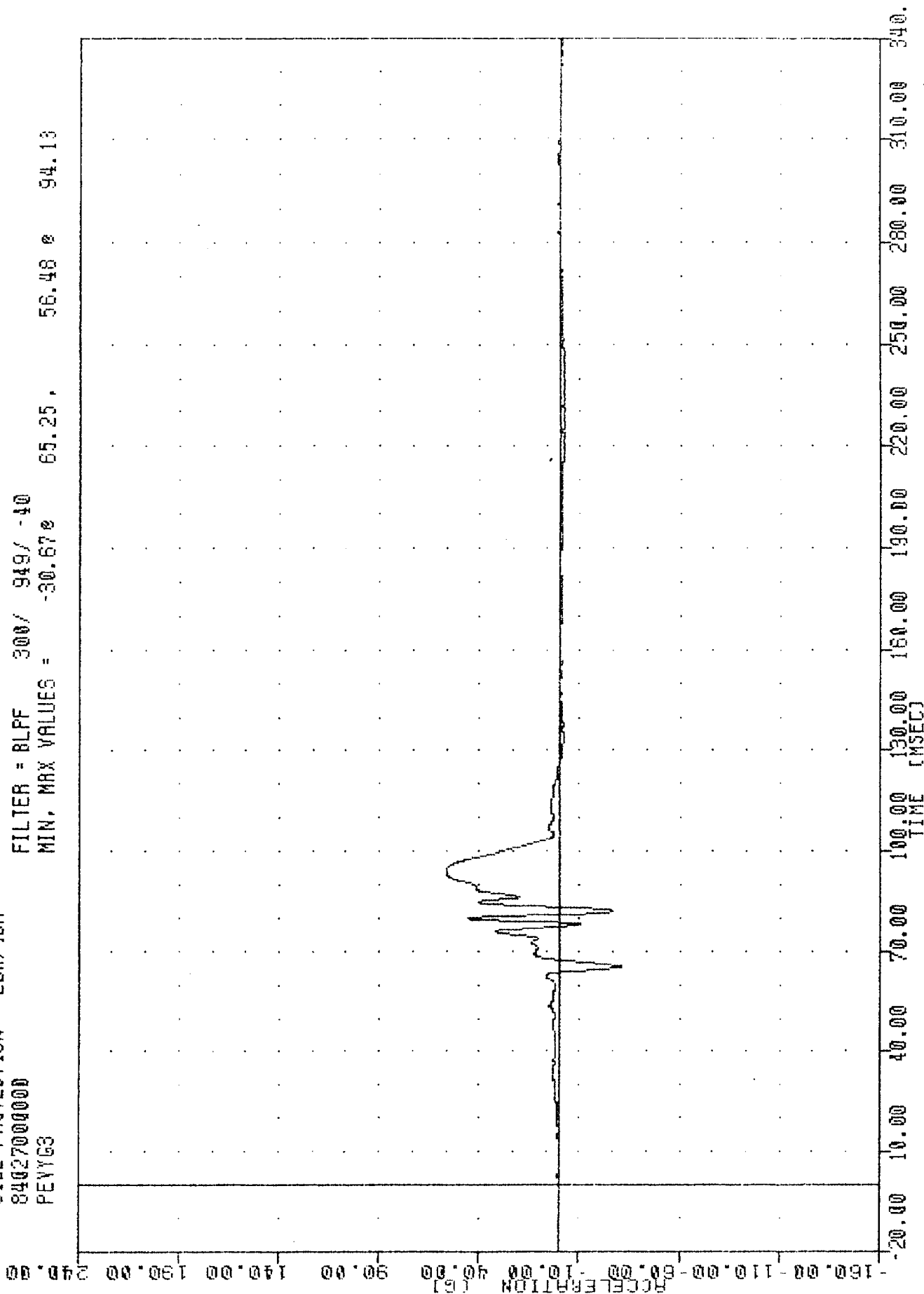


MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER PELVIS ACCELERATION X AXIS

THL 840127  
SIDE PROTECTION - 20R/40R  
840270000000  
PEVIG3

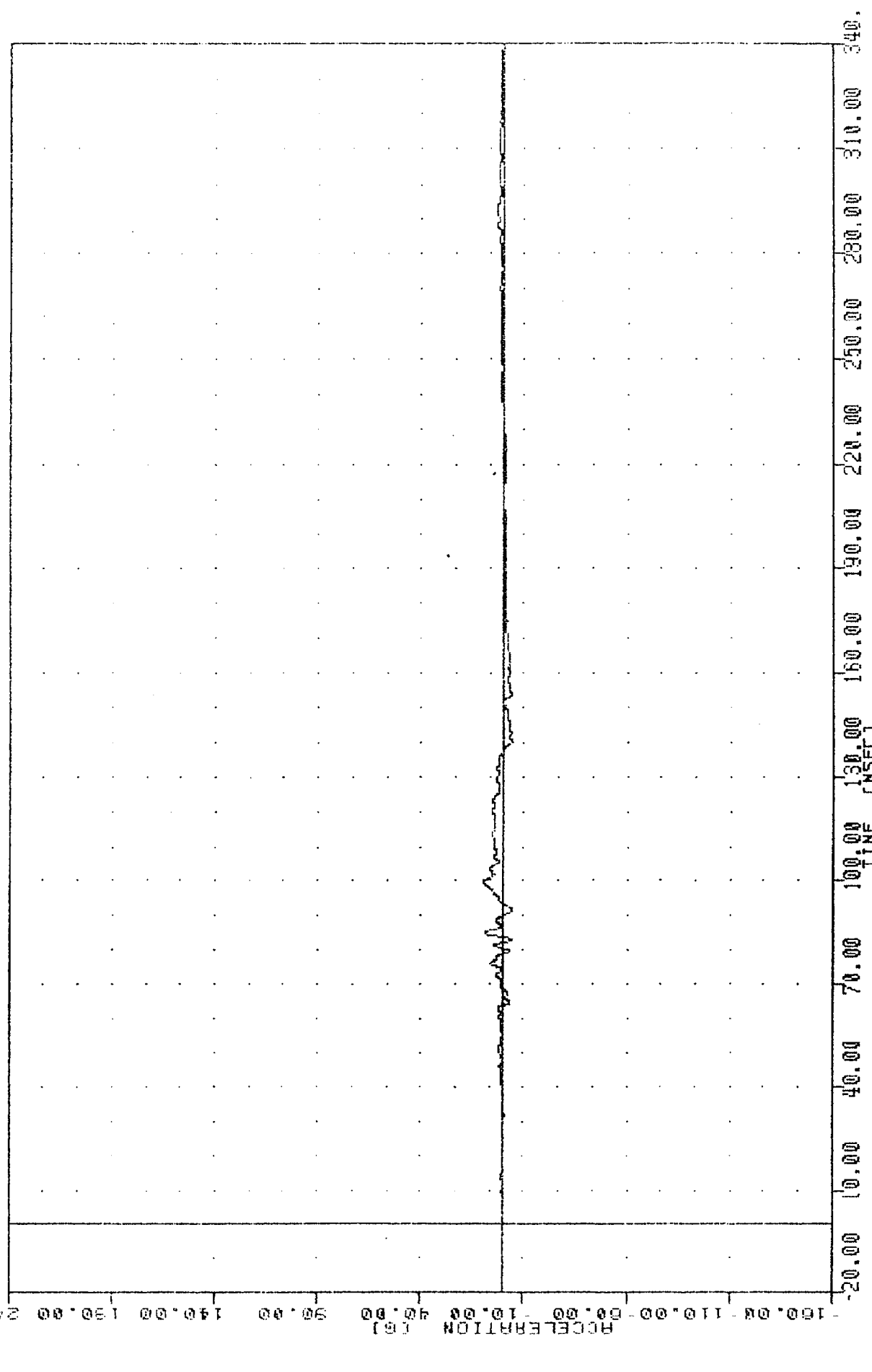
PLOT DATE 1-FEB-84 10:29:10

FILTER = BLPF 300/ 949/ -40  
MIN. MAX VALUES = -30.67 56.48 94.13



MOVING DEFORMABLE BARRIER INTO RABBIT  
PASSENGER PELVIS ACCELERATION Y AXIS

THE 840127  
 SIDE PROTECTION - 20R/4DA  
 840270000000  
 PEVZ63  
 FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = -4.59e 83.00, 9.44 e 99.50  
 PLUT DATE 1-FEB-84 10:29:10

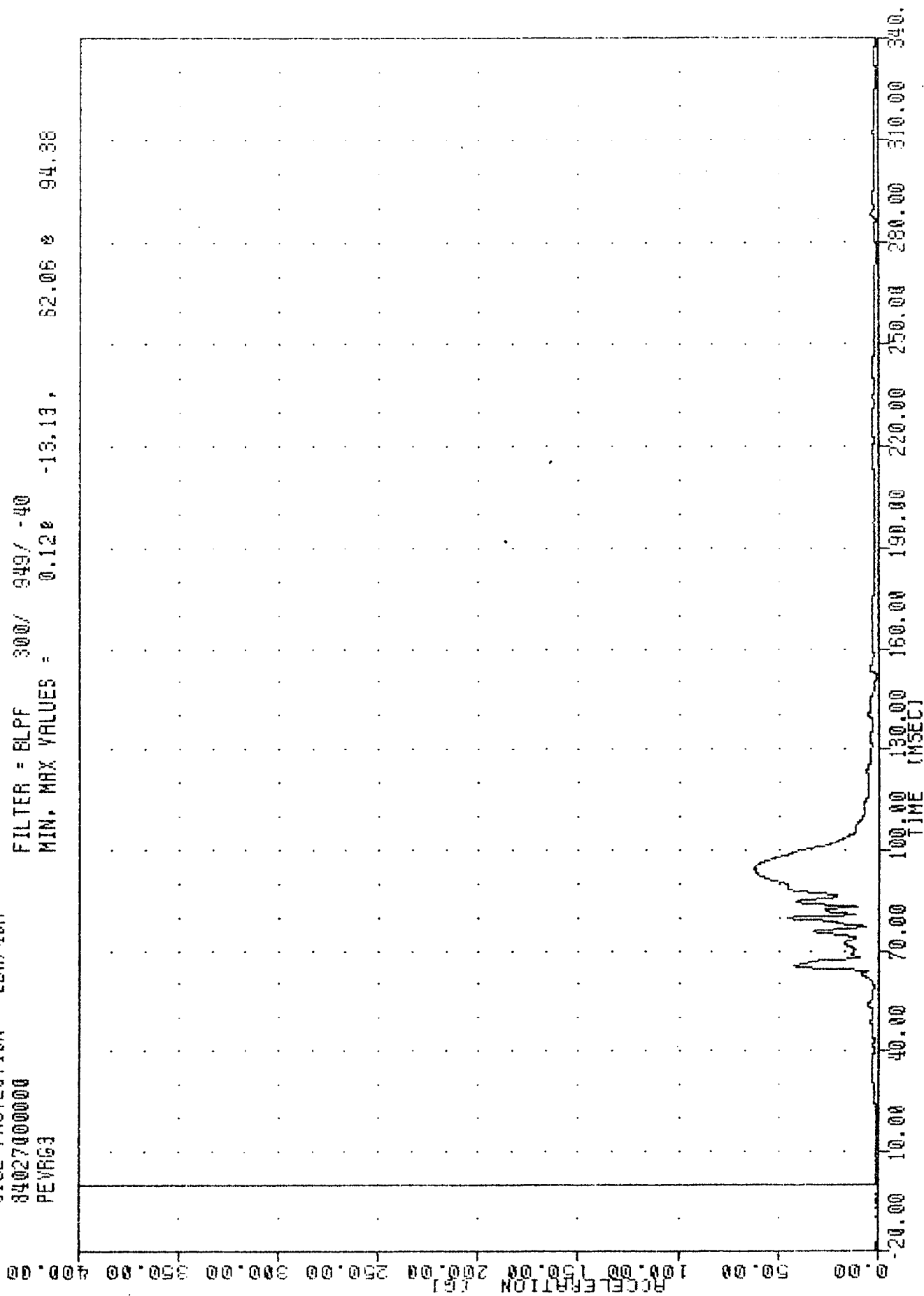


MOVING DEFORMABLE BARRIER INTO RABBIT  
 PASSENGER PELVIS ACCELERATION Z AXIS

PLT DATE 1-FEB-64 10:30:34

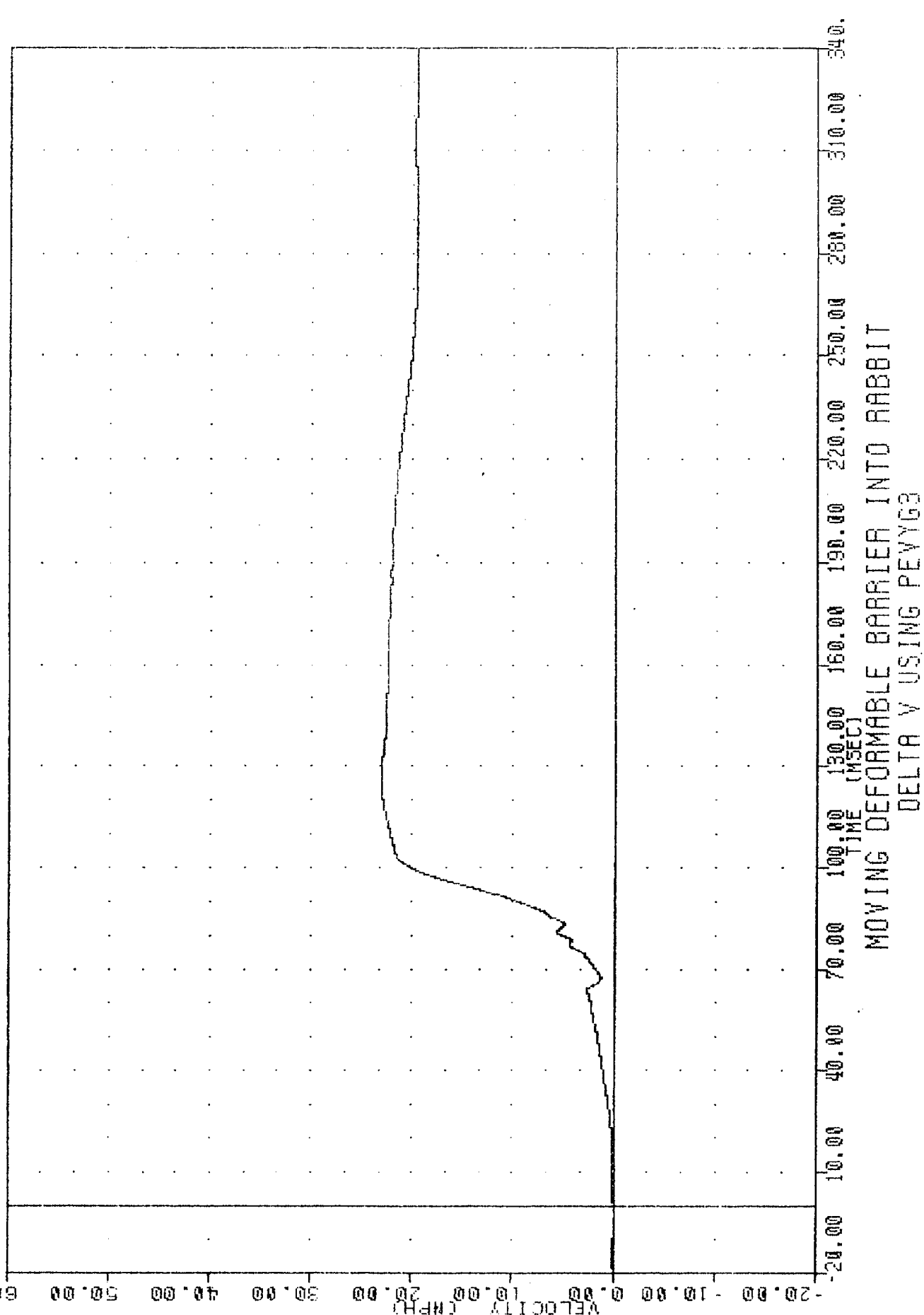
840127  
SIDE PROTECTION - 2DR/4DR  
84027000000  
PEVRS3

FILTER = BLPF 300/ 949/ -40  
MIN. MAX VALUES = 0.12e -13.13, 52.06 e 94.38



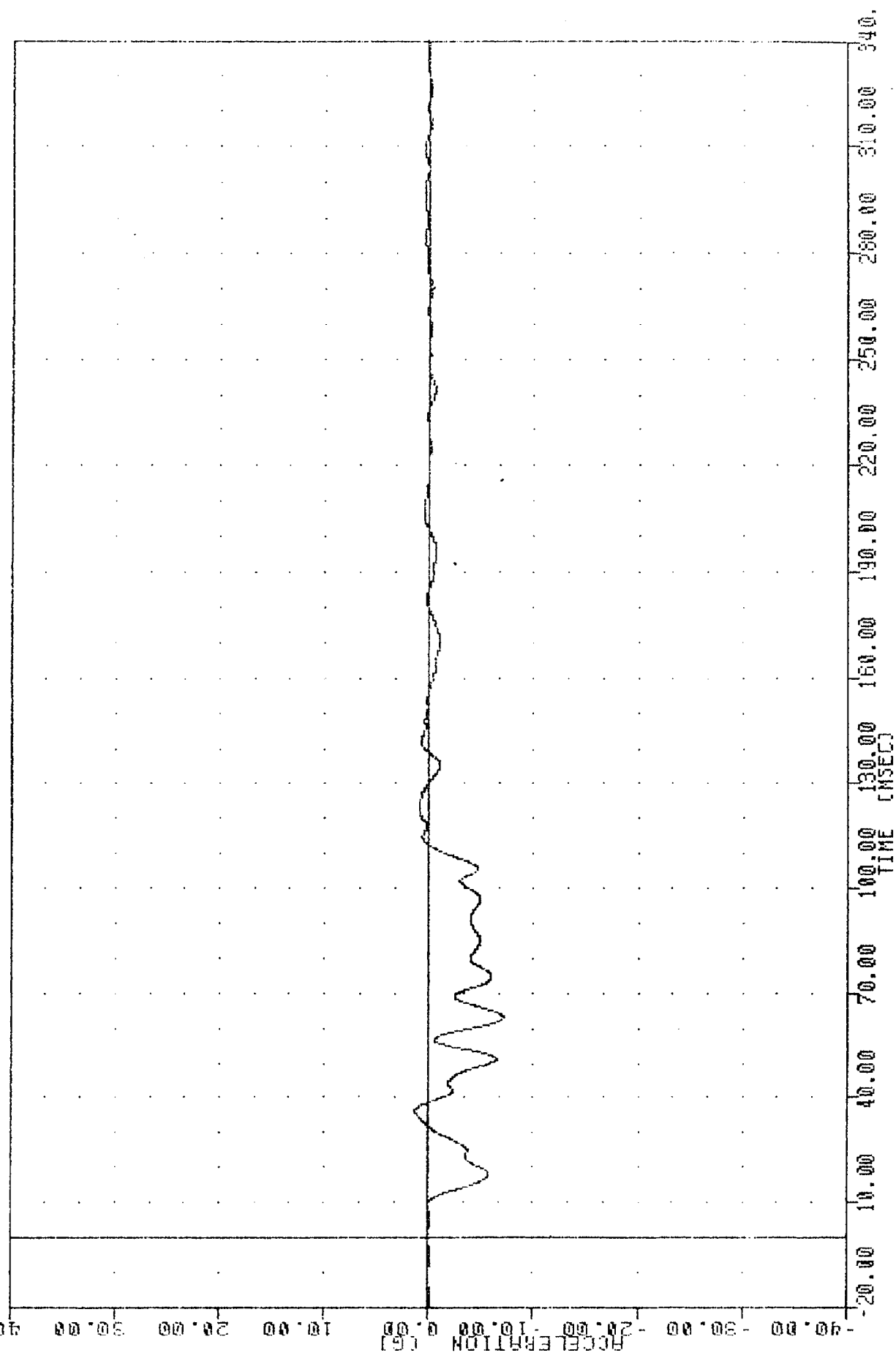
MOVING DEFORMABLE BARRIER INTO RABBIT  
PASSENGER PELVIS RESULTANT

INL 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 PEVYV3  
 FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = 0.00e -6.13, 23.08 e 125.63  
 1 FEB 84 10:42:17



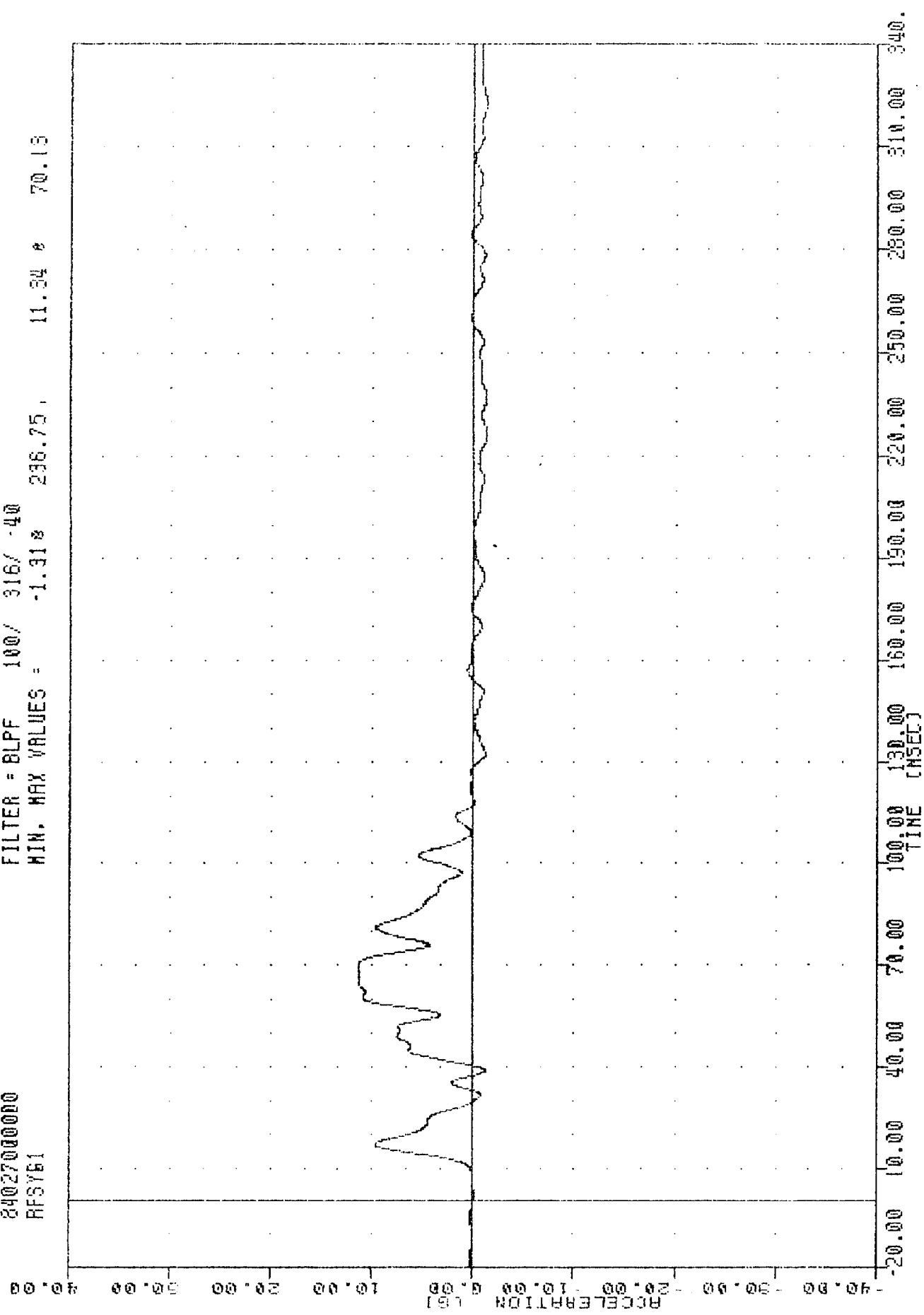


TRC 840127 PLOT DATE 1-FEB-84 10:29:10  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 RF3XG1  
 FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = -7.10e 62.88. 1.30 e 35.88



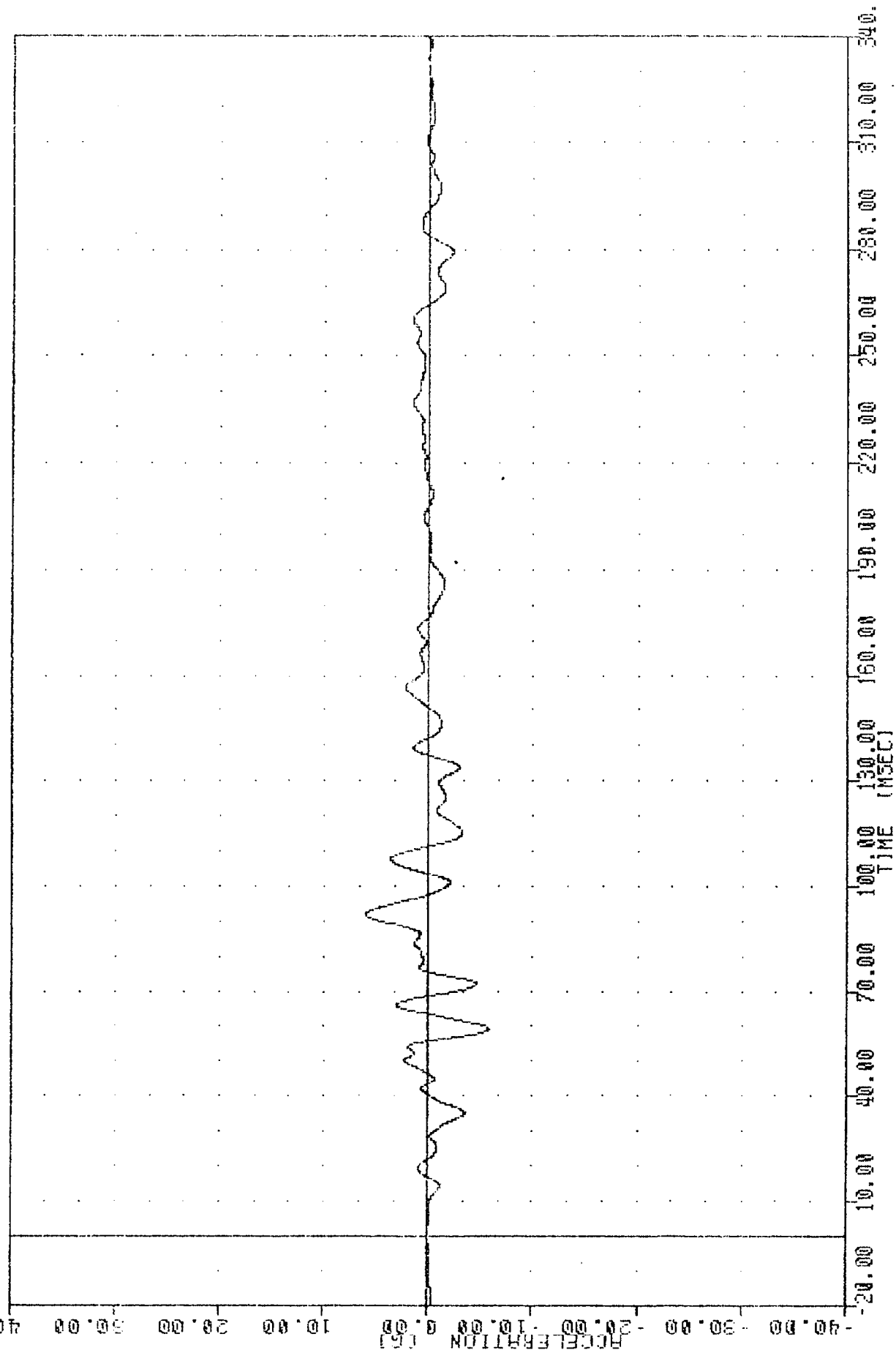
MOVING DEFORMABLE BARRIER INTO RABBIT  
 VEHICLE RIGHT FRONT SILL ACCELERATION X AXIS

THL 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 RFSYB1  
 FILTER = BLPF 100/ 316/ -40  
 MIN. MAX VALUES = -1.318 236.75 11.34 70.13  
 PLOT DATE 1-FEB-84 10:29:10



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

FILE 840127, 840127  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 RFSZG1  
 FILTER = BLPF 100/ 316/ -40  
 MIN. MAX VALUES = -5.78 59.13, 6.08 91.63  
 PLOT DATE 1-FEB-84 10:29:10



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

THC 840127 PLOT DATE 1-FEB-84 10:30:34

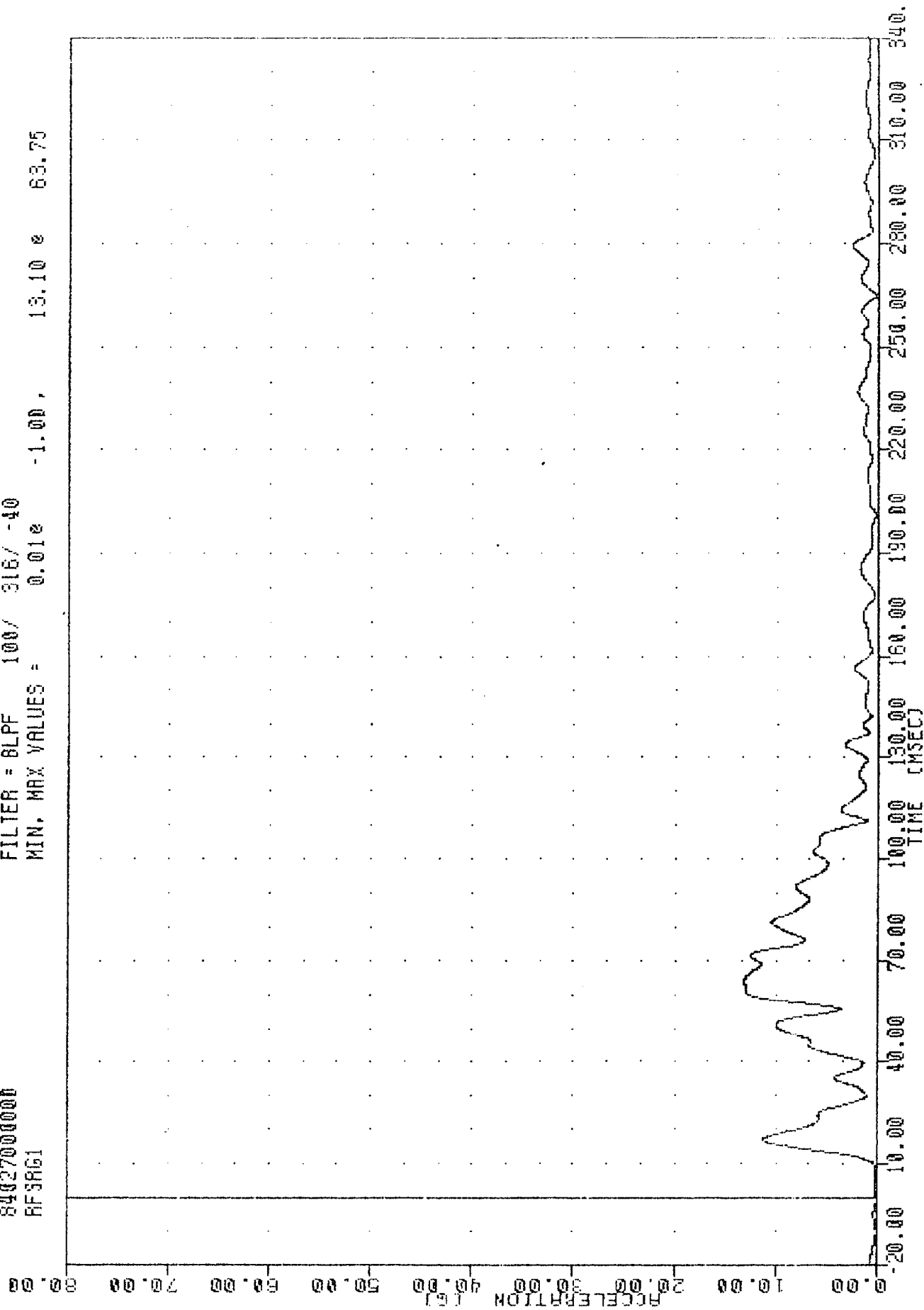
SIDE PROTECTION - 20R/40R

84027000000

RF3RG1

FILTER = 8LPF 100/ 316/ -40

MIN. MAX VALUES = 0.01e -1.00, 13.10 e 83.75

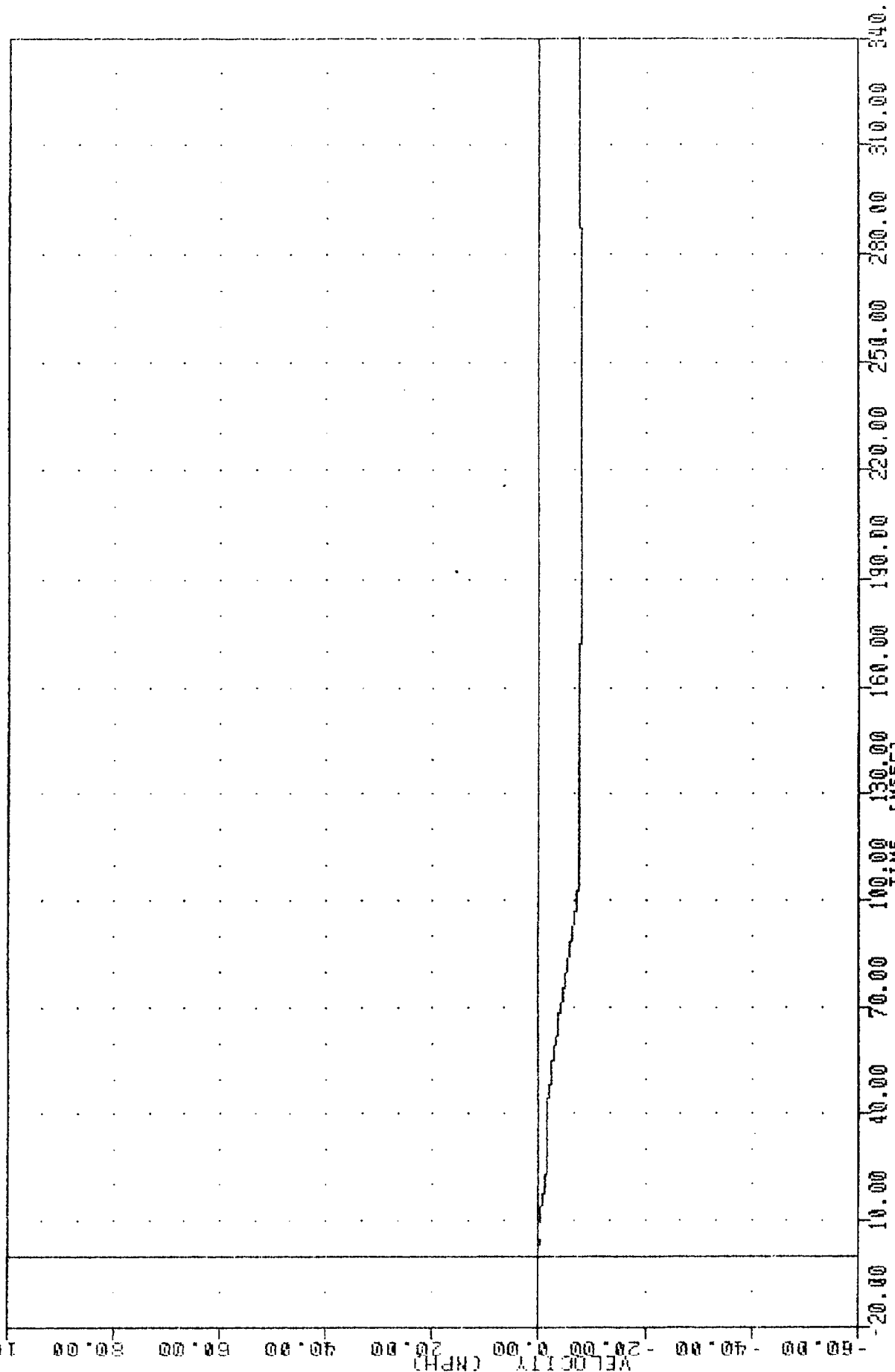


MOVING DEFORMABLE BARRIER INTO RABBIT  
VEHICLE RIGHT FRONT SILL RESULTANT

TRC  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 RFSXV1

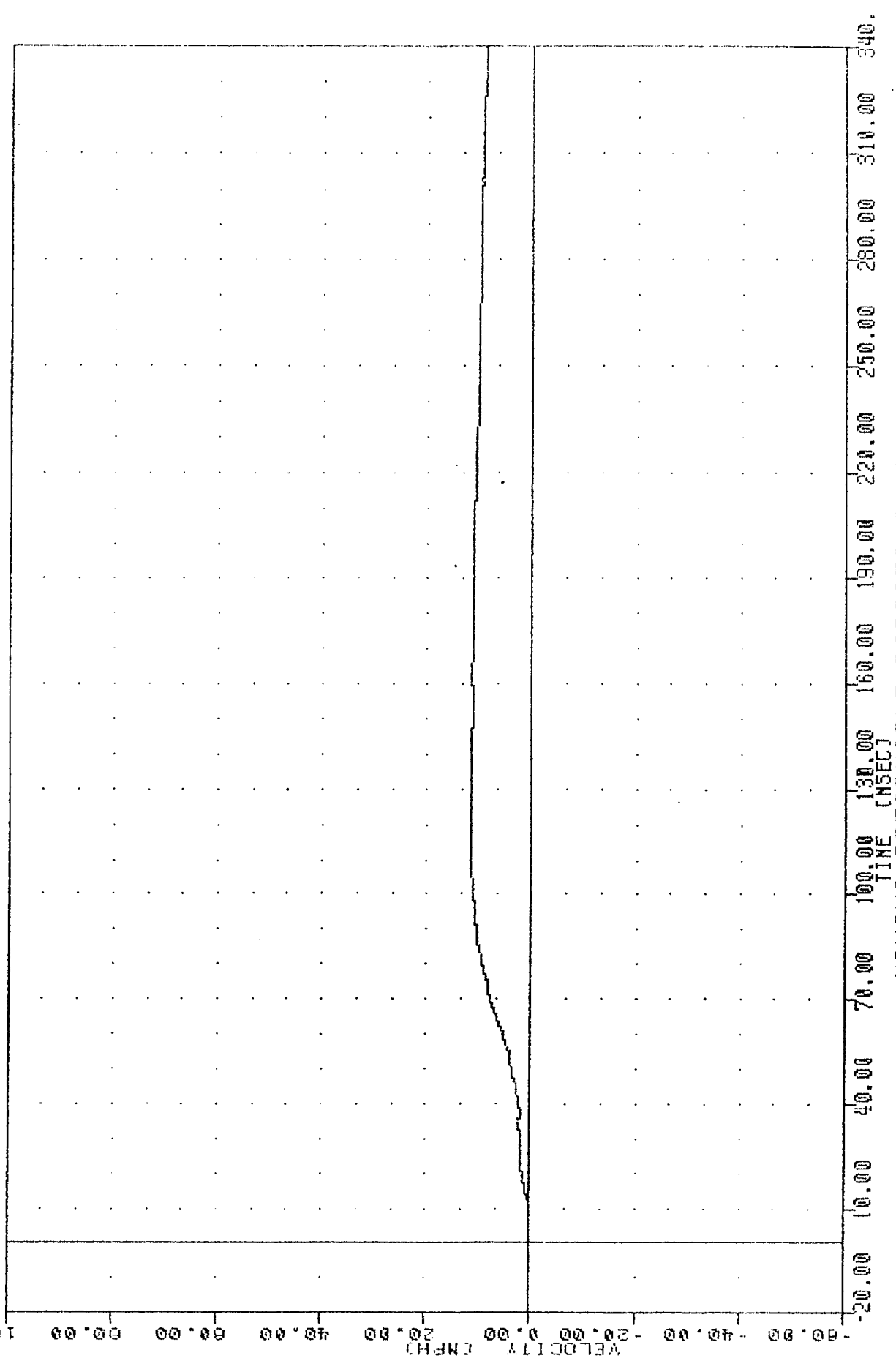
PLOT DATE 1-FEB-84 10:42:17

FILTER = 8LFF 300/ 949/ -40  
 MIN. MAX VALUES = -7.84e 199.36, 0.00 e -20.00



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING RFSXG1

TML 840127 1-FEB-84 10:42:17  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 RFSYV1  
 FILTER = 8LFF 300/ 349/ -40  
 MIN, MAX VALUES = 0.00e -20.00, 11.69 e 118.75

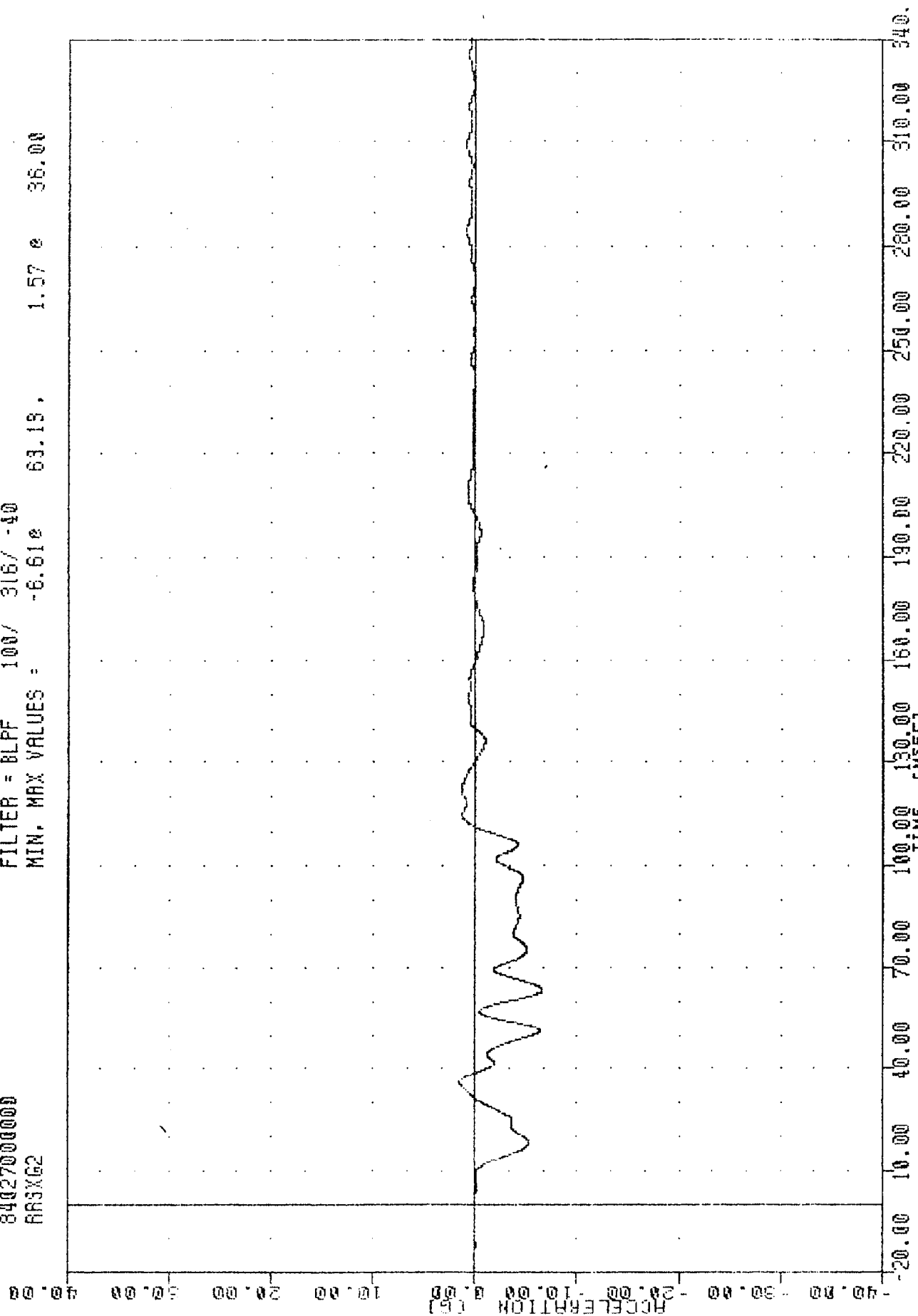


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING RFSYGI

THC 840127  
SIDE PROTECTION - 20R/4DR  
840270000000  
RR3XG2

PLOT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 316/ -40  
MIN. MAX VALUES = -6.612 63.19 1.57 36.00

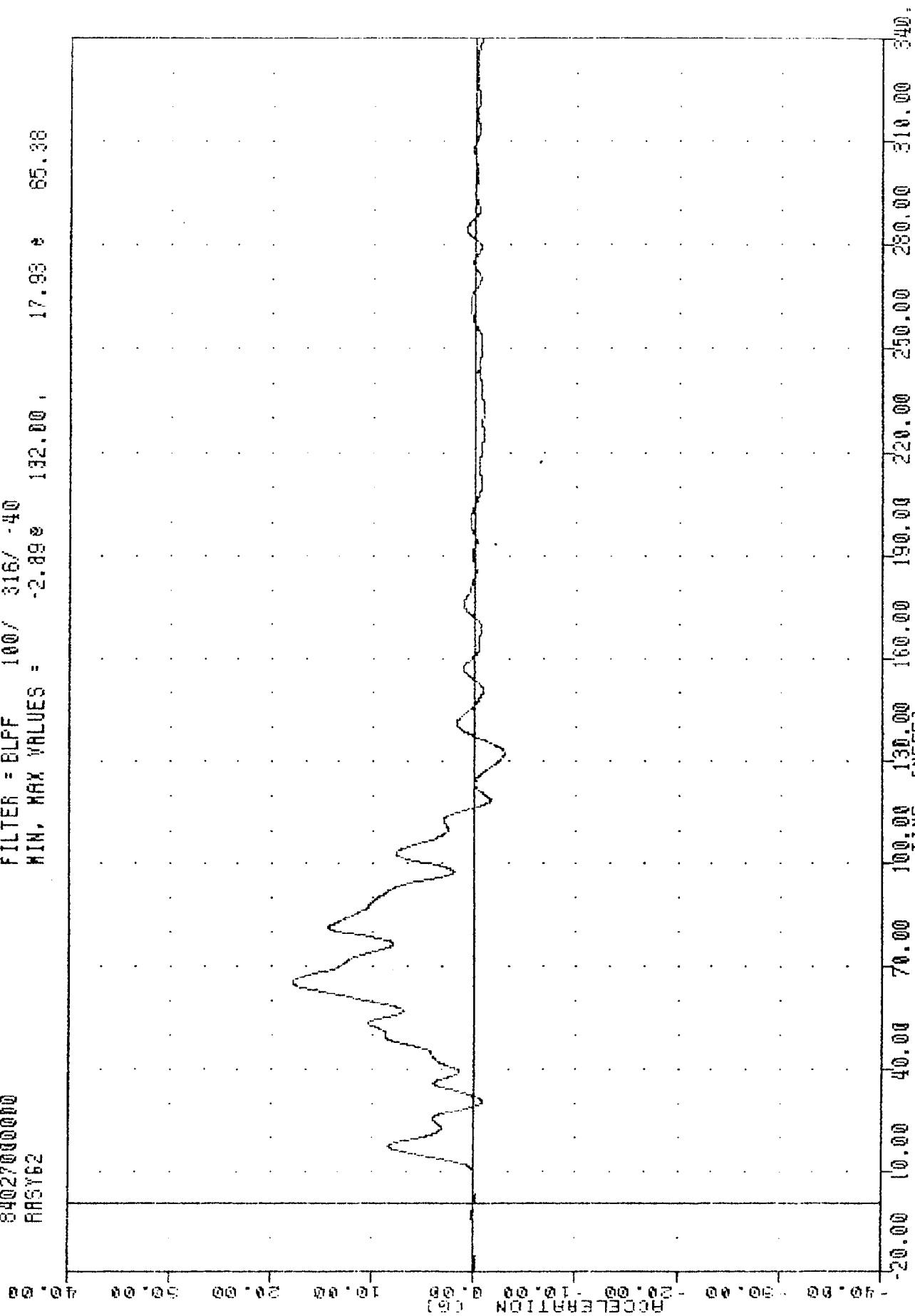


MOVING DEFORMABLE BARRIER INTO RABBIT  
VEHICLE RIGHT REAR SILL ACCELERATION X AXIS

TBC  
 840127  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 RRSY62

PLOT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = -2.89e 132.00, 17.93 e 65.38



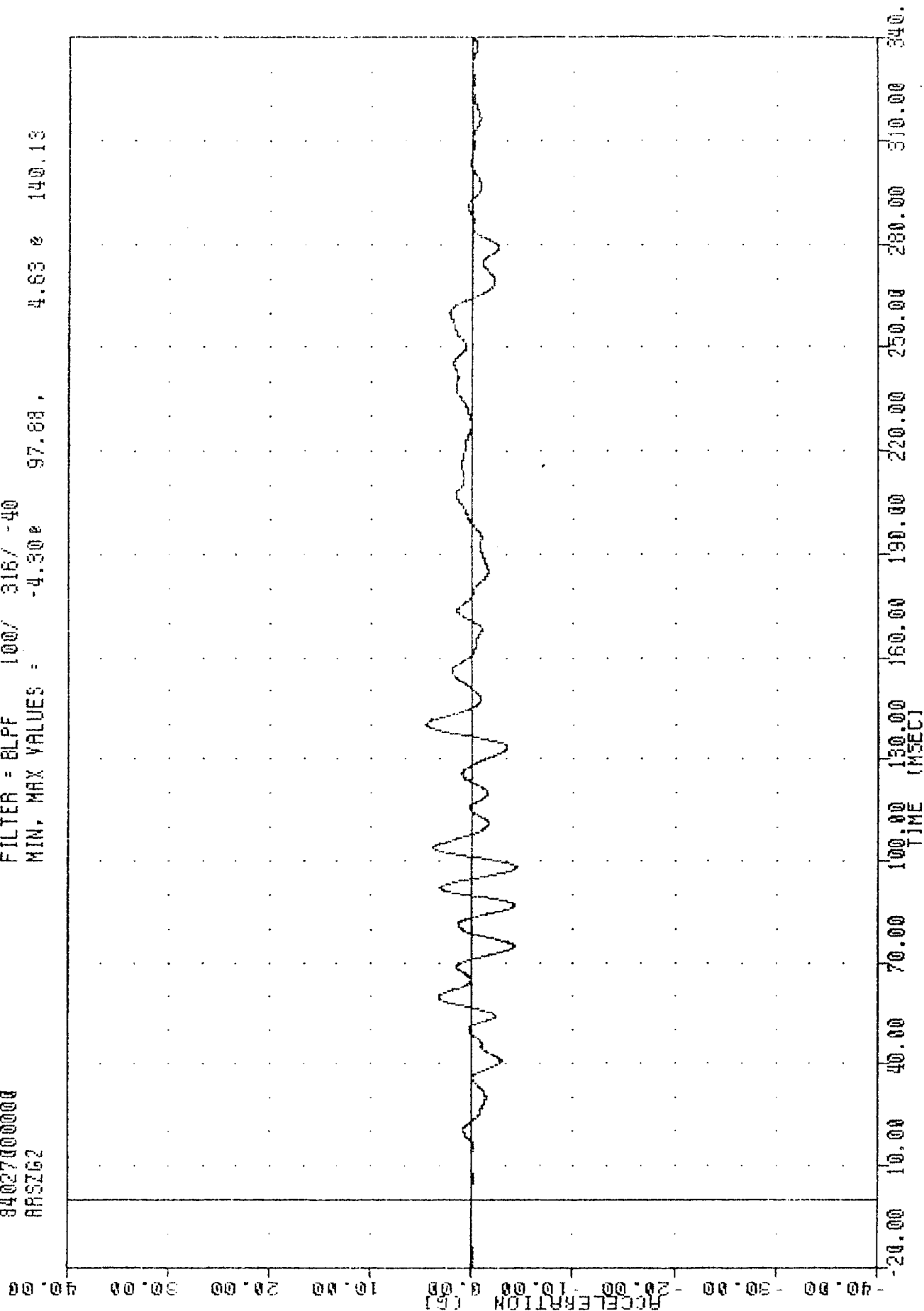
MOVING DEFORMABLE BARRIER INTO RABBIT  
 VEHICLE RIGHT REAR SILL ACCELERATION Y AXIS



IRL 840127  
SIDE PROTECTION - 20A/40A  
84027000000  
ARSZG2

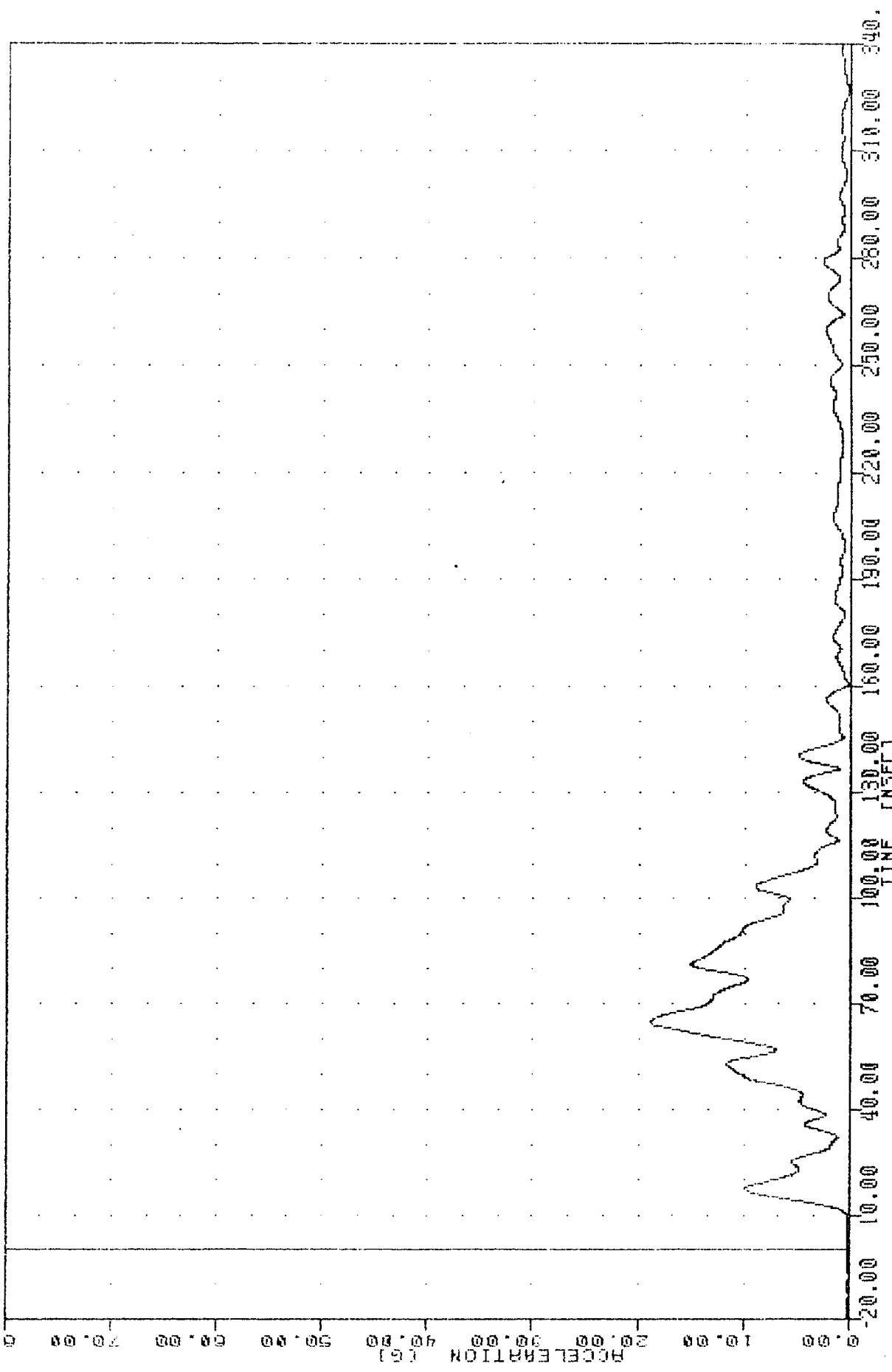
PLOT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 318/ -40  
MIN. MAX VALUES = -4.30e 97.88, 4.83 e 140.13



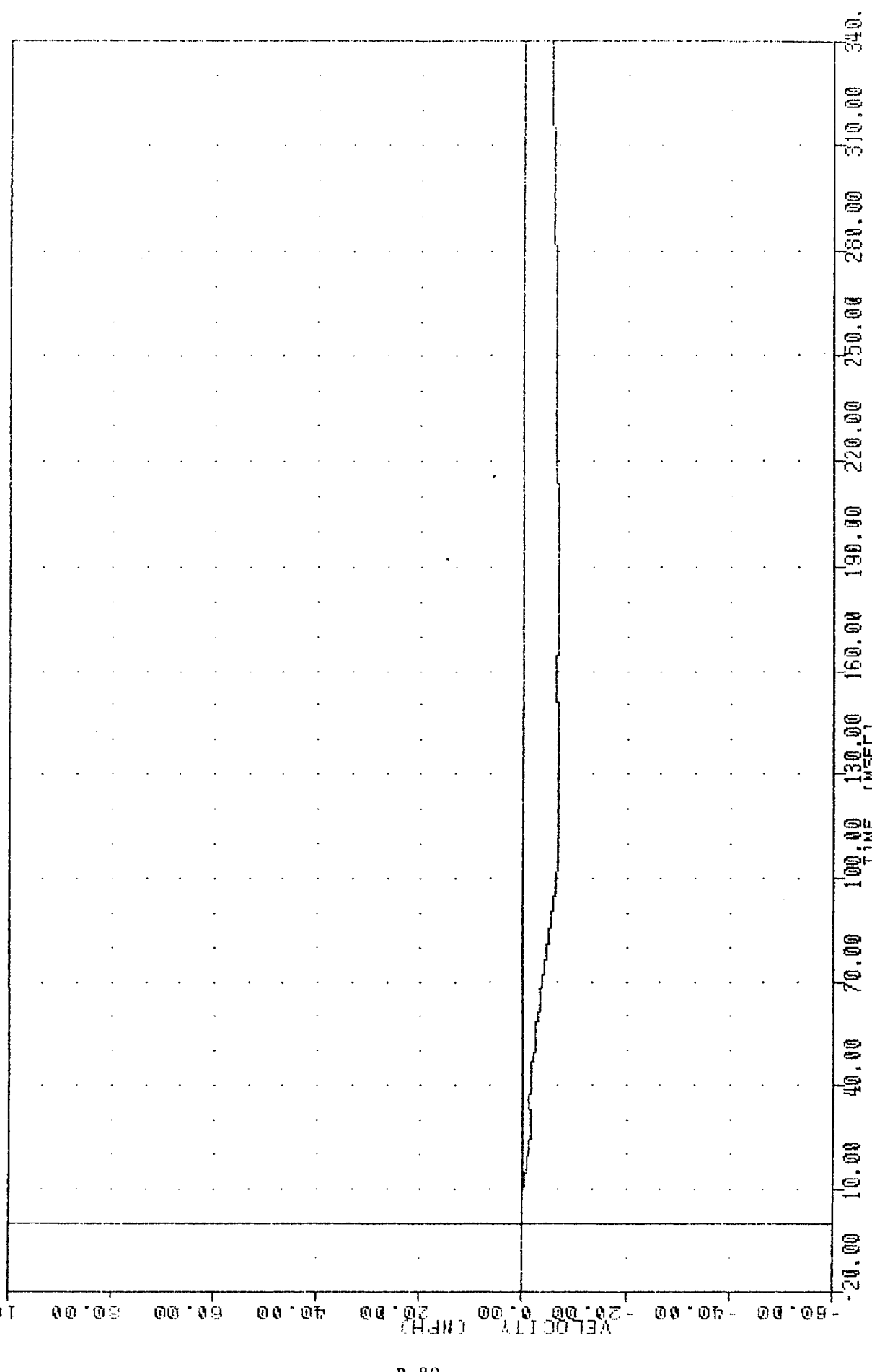
MOVING DEFORMABLE BARRIER INTO RABBIT  
VEHICLE RIGHT REAR SILL ACCELERATION Z AXIS

TMC 840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 RRSR62  
 FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = 0.050 -13.38, 18.79 & 64.75  
 PLOT DATE 1-FEB-84 10:30:54



MOVING DEFORMABLE BARRIER INTO RABBIT  
 VEHICLE RIGHT REAR SILL RESULTANT

INC 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 ARSXV2  
 FILTER = BLFF 300/ 949/ -40  
 MIN. MAX VALUES = -6.82e 107.50, 0.00 e -17.25  
 PLUT DATE 1-FEB-84 10:42:17

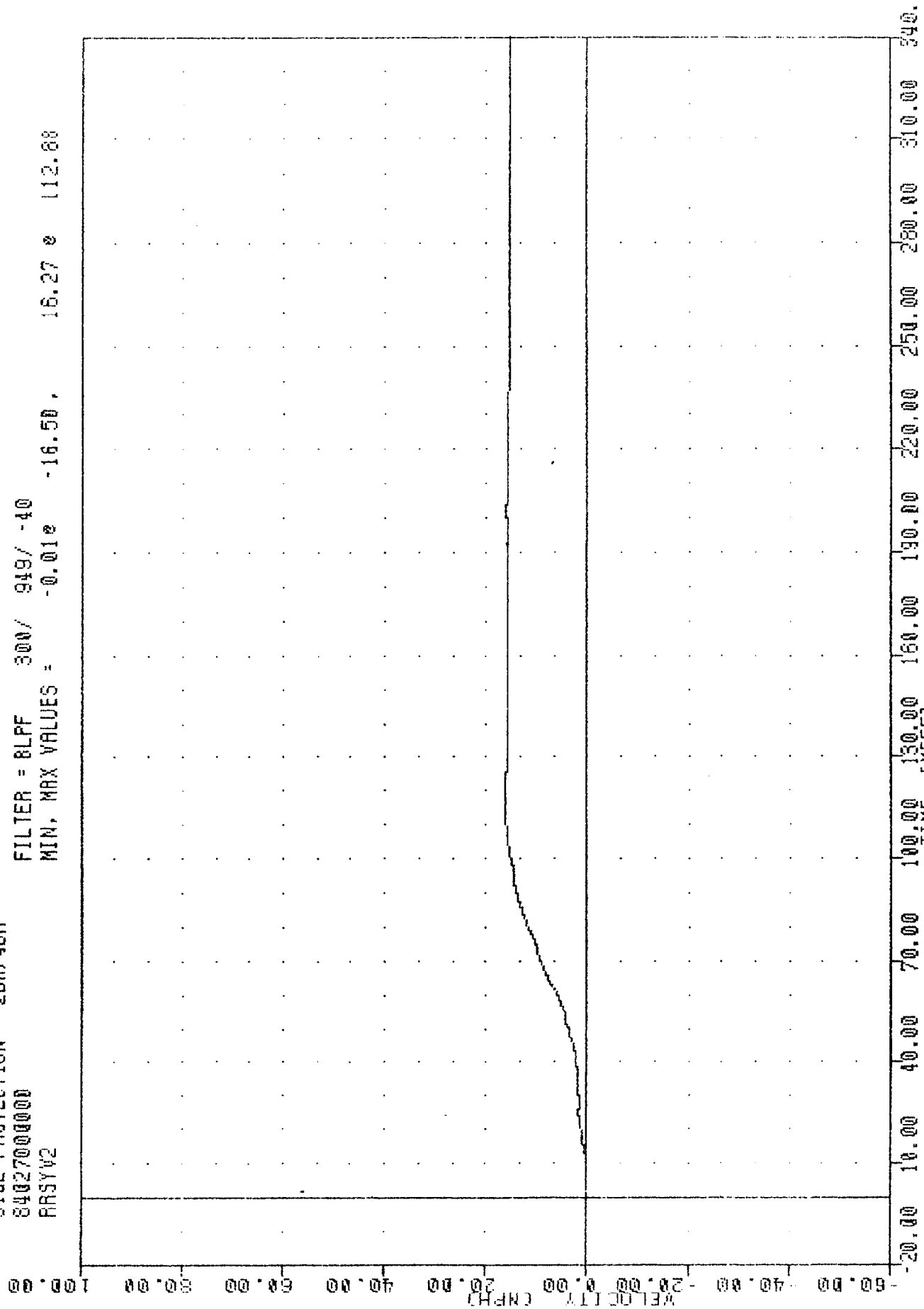


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING ARSXG2

TRC  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 RRSYV2

PLOT DATE 1-FEB-84 10:42:17

FILTER = 8LPF 300/ 949/ -40  
 MIN. MAX VALUES = -0.012 -16.50, 16.27 112.88

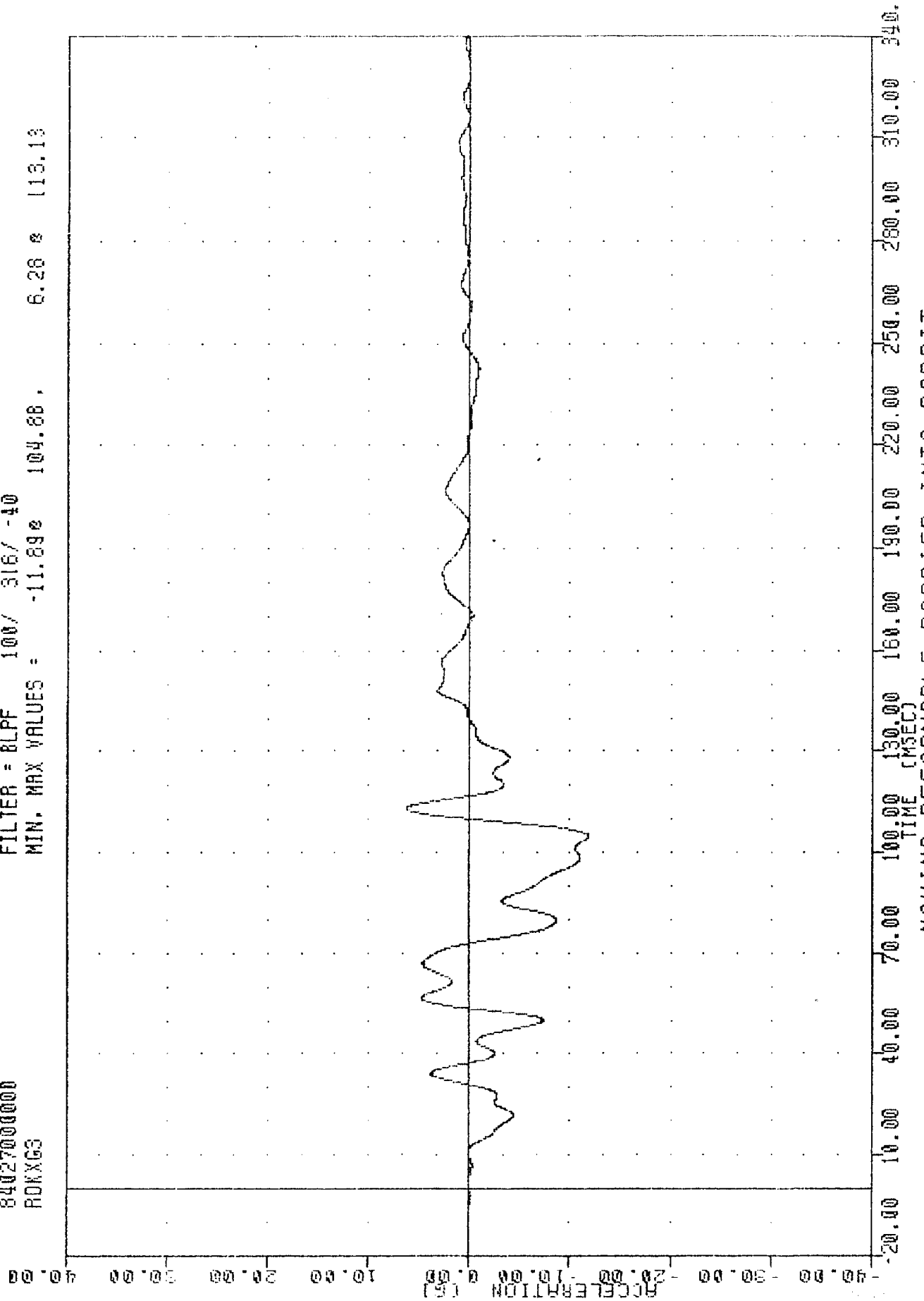


MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING RRSYG2

THL 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 ROKXG3

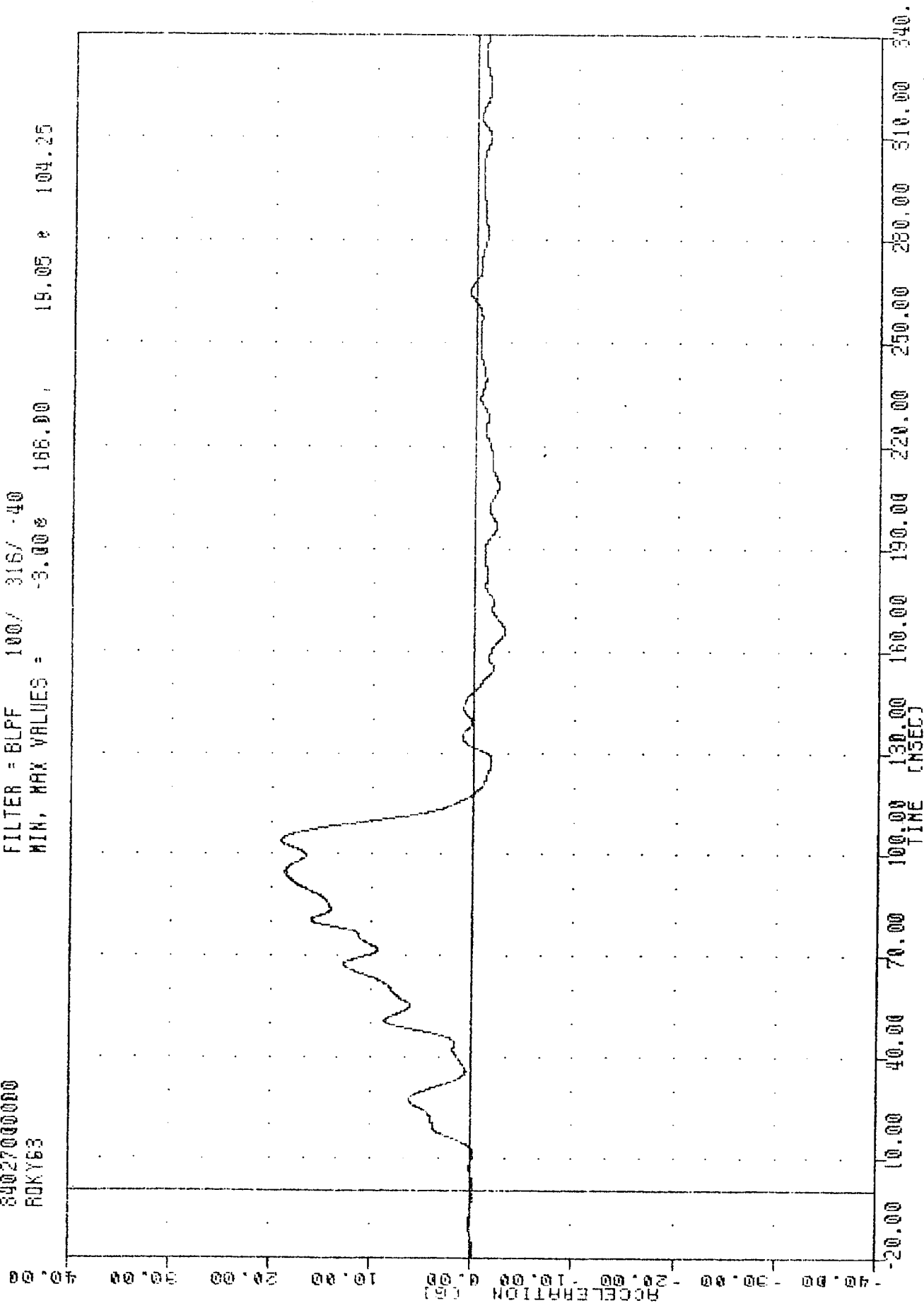
PLOT DATE 1-FEB-84 10:29:10

FILTER = 8LPF 100/ 316/ -10  
 MIN. MAX VALUES = -11.892 104.88 6.28 113.13



MOVING DEFORMABLE BARRIER INTO RABBIT  
 VEHICLE REAR DECK ACCELERATION X AXIS

THE 840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 ROKY63  
 FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = -3.00e 166.00, 15.05 e 104.25  
 PLOT DATE 1-FEB-84 10:29:10

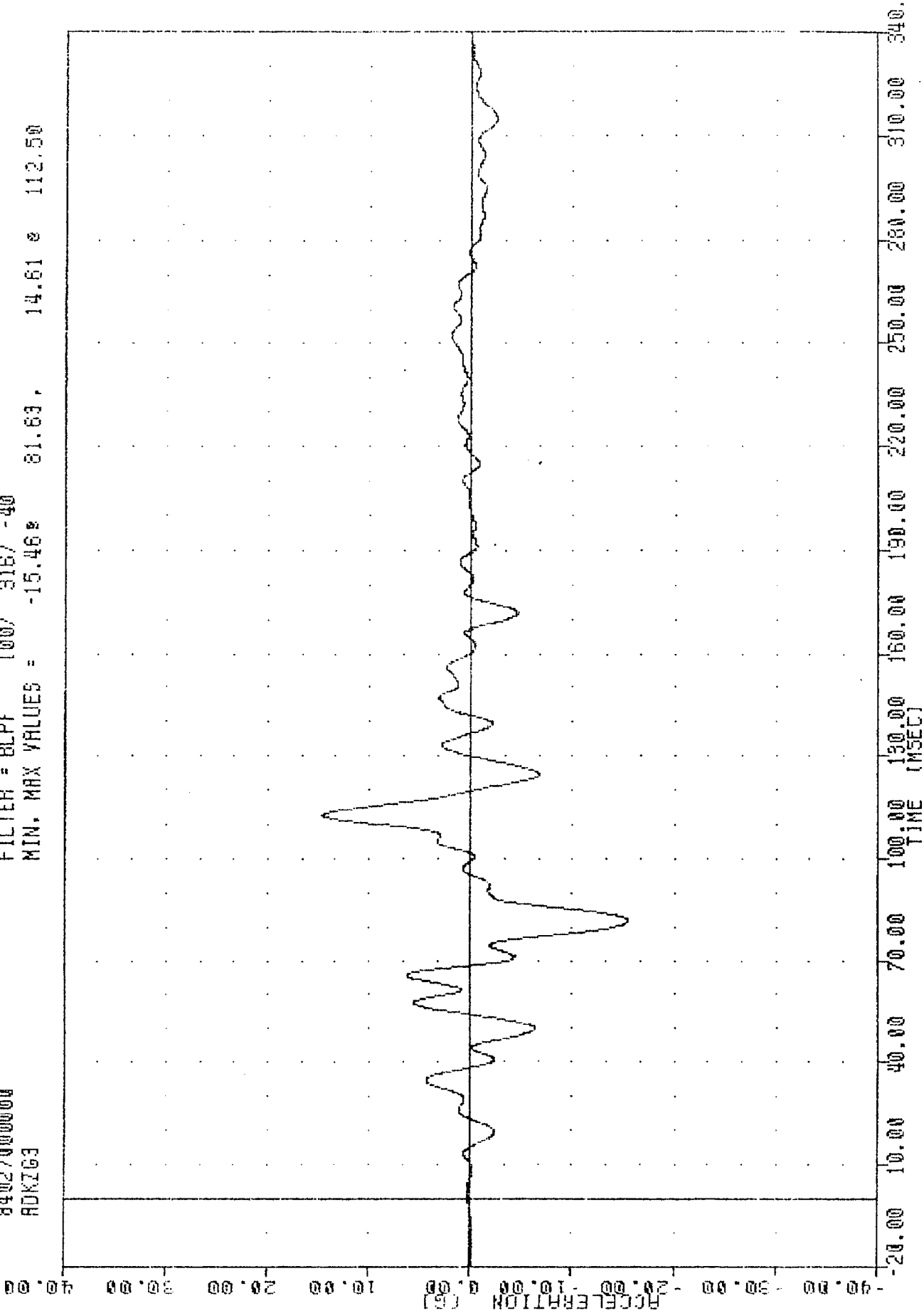


MOVING DEFORMABLE BARRIER INTO RABBIT  
 VEHICLE REAR DECK ACCELERATION Y AXIS

TRC 840127  
SIDE PROTECTION - 20R/40R  
84027000000  
ADK163

PLOT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 318/ -40  
MIN. MAX VALUES = -15.46% 81.63, 14.61% 112.50



MOVING DEFORMABLE BARRIER INTO RABBIT  
VEHICLE REAR DECK ACCELERATION Z AXIS

PLT DATE 1-FEB-84 10:50:34

840127  
SIDE PROTECTION - 2DR/4DR

84027000000

ADKRG3

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = 0.05e -4.75, 23.54 \* 80.75

80.00

70.00

60.00

50.00

40.00

30.00

20.00

10.00

0.00

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

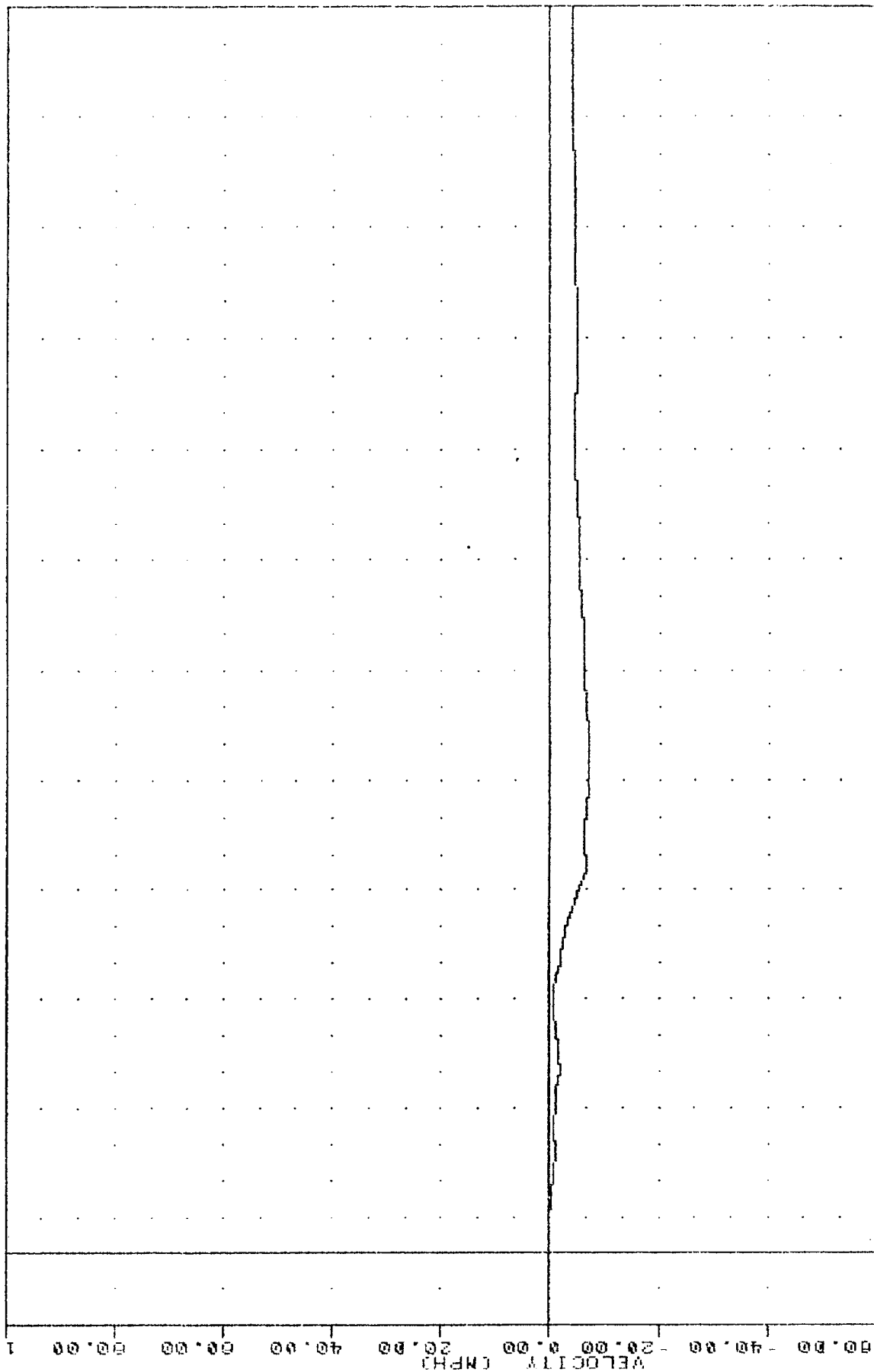
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO RABBIT

VEHICLE REAR DECK RESULTANT



TRC 840127  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 ROKXV3  
 FILTER = BLPF 300/ 949/ -40  
 MIN, MAX VALUES = -7.18e 136.25, 0.02 e -8.00  
 PLUT DATE 1-FEB-84 10:42:17



-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 RABBIT  
 DELTA V USING ROKXG3

PLUT DATE

1-FEB-84

10:42:17

840127

SIDE PROTECTION - 20R/40R

84027000000

ADKYV3

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.01e 9.75, 20.57 e 114.38

100.00

80.00

60.00

40.00

20.00

0.00

-20.00

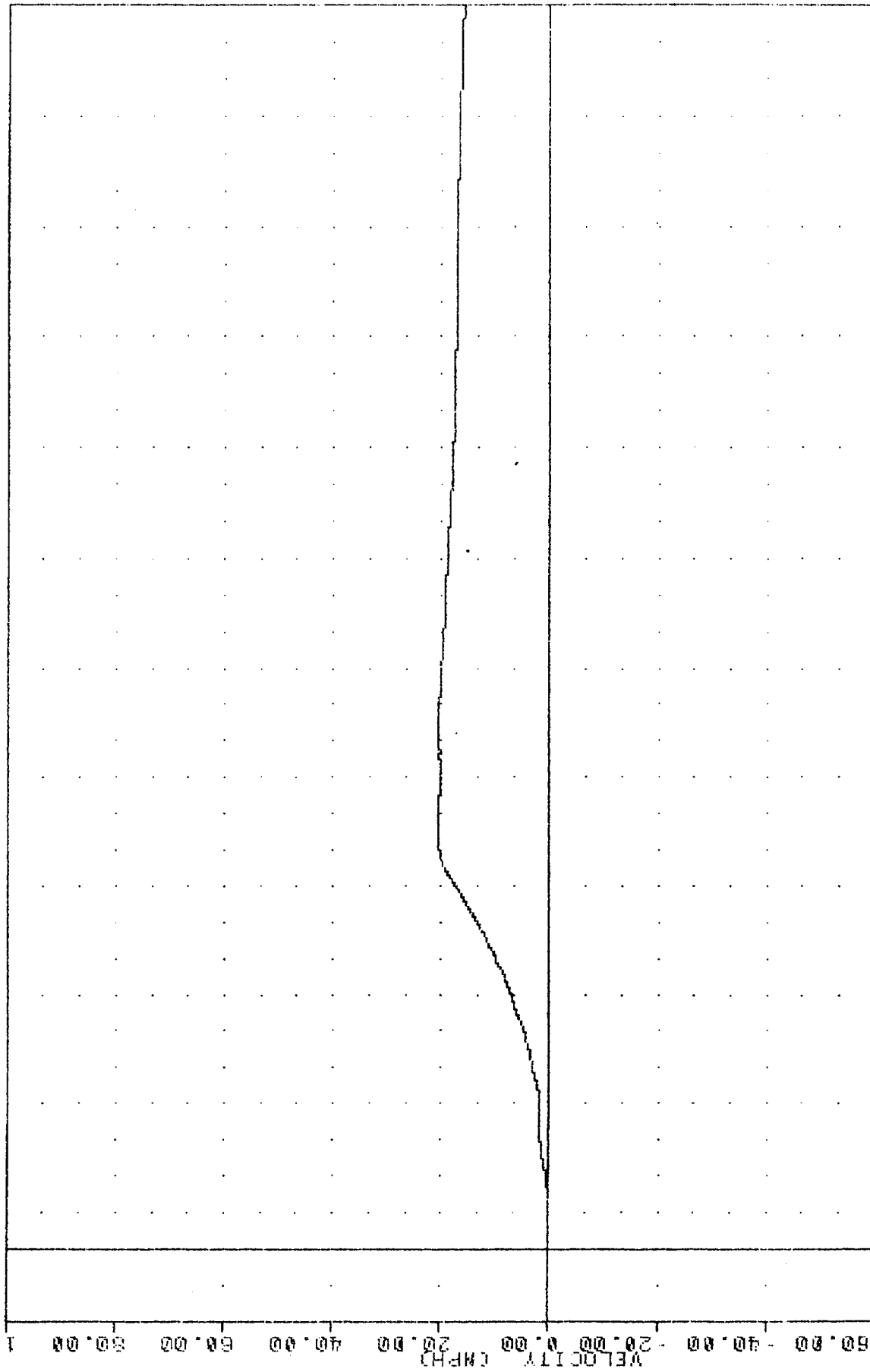
-40.00

-60.00

-80.00

-100.00

B-87



MOVING DEFORMABLE BARRIER INTO RABBIT

DELTA V USING ADKYG3

TRC 840127

SIDE PROTECTION - 20R/40R

84027000000

LR5Y64

PLUT DATE

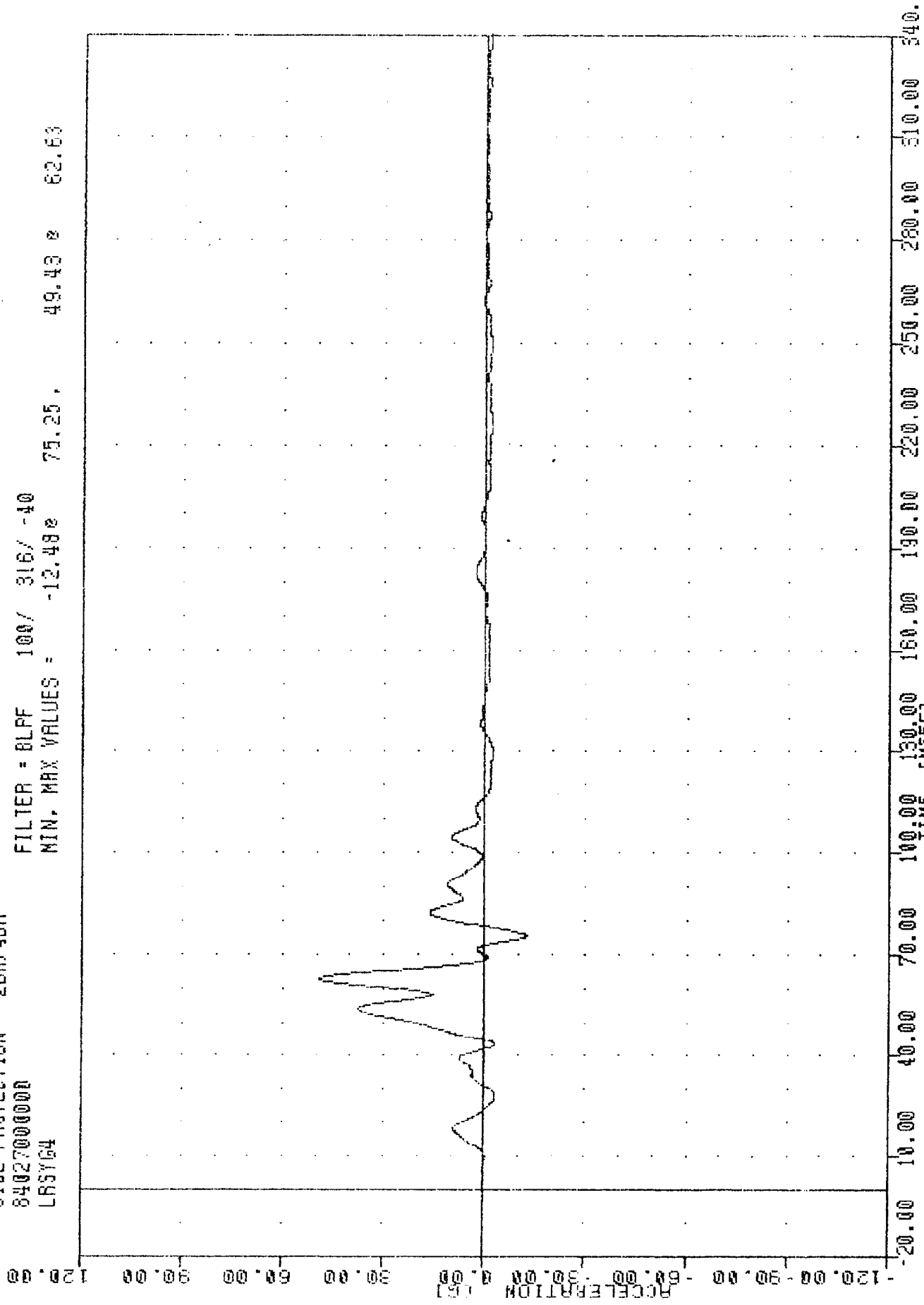
1-FEB-84

18:29:10

FILTER = BLPF 100/ 316/ -40

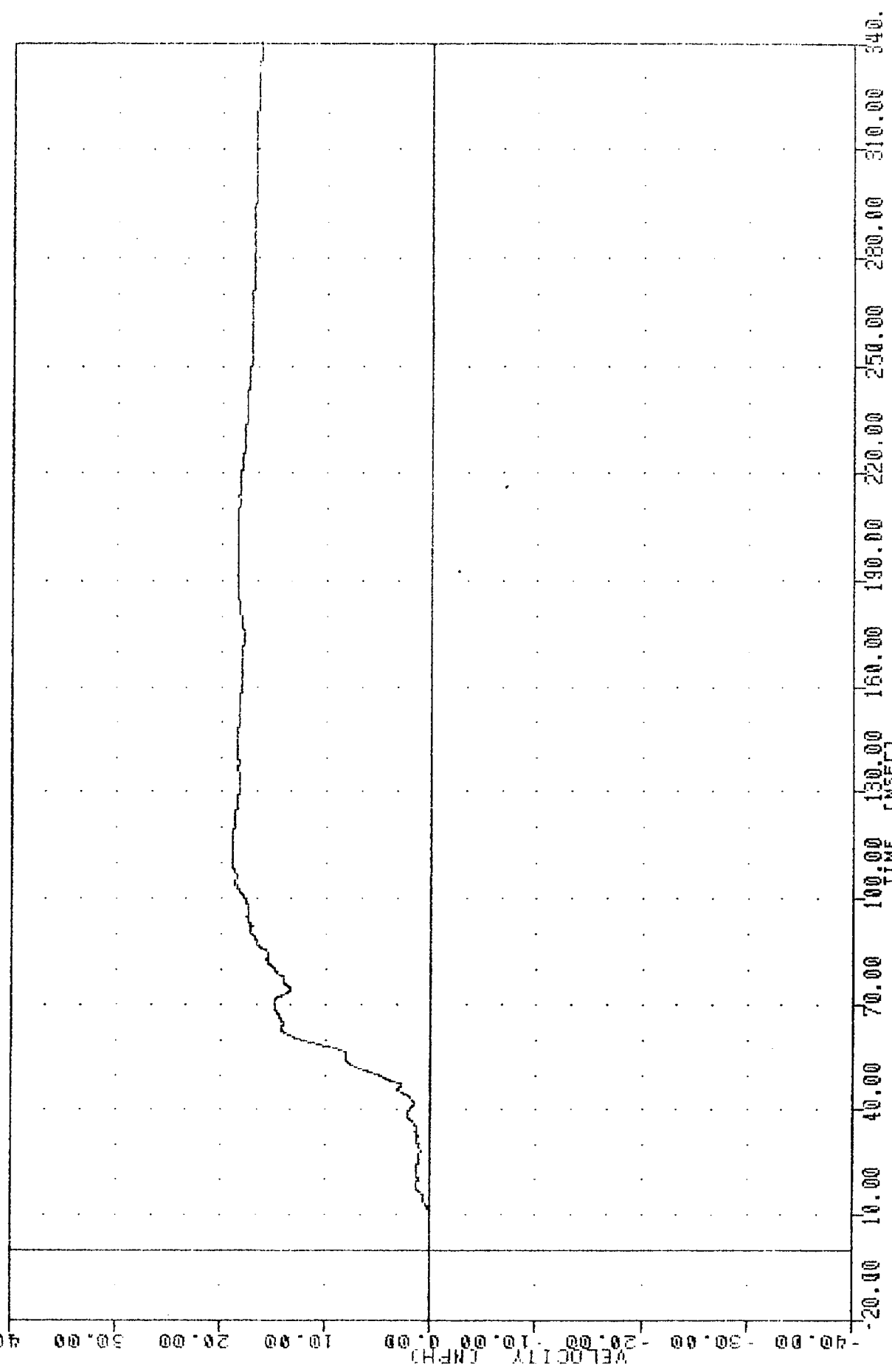
MIN. MAX VALUES = -12.482 75.25

49.43 82.63



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

FILE 840127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 LRSYV4  
 FILTER = BLPF 300/ 949/ -10  
 MIN. MAX VALUES = -0.018 -7.36, 19.01 & 112.50  
 PLOT DATE 1-FEB-84 10:42:17



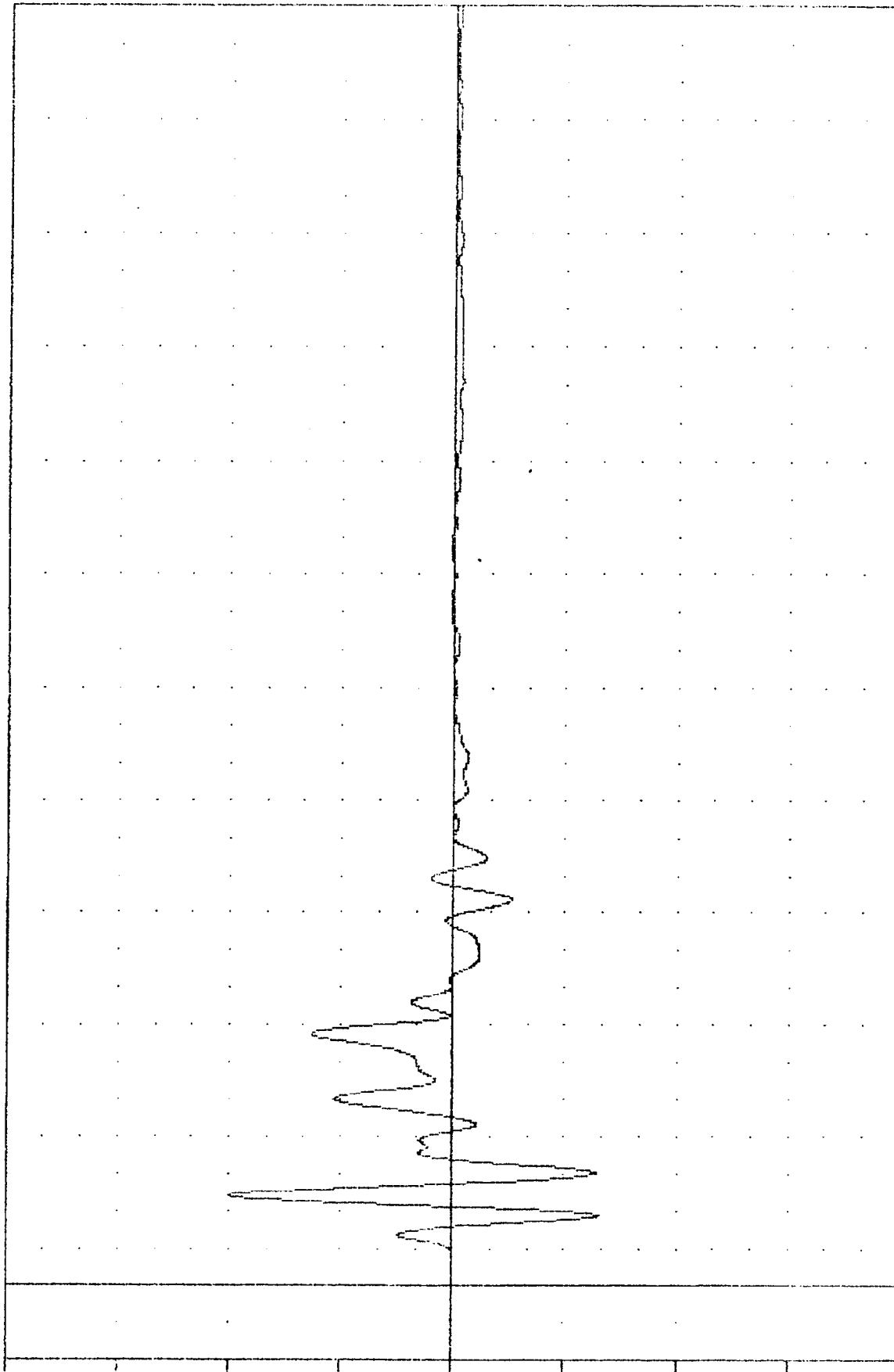
MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING LRSYG4

TRC 840127  
SIDE PROTECTION - 20A/40A  
840270000000  
LFSY65

PLOT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 316/ -40  
MIN. MAX VALUES = -39.148 18.50 59.84 23.88

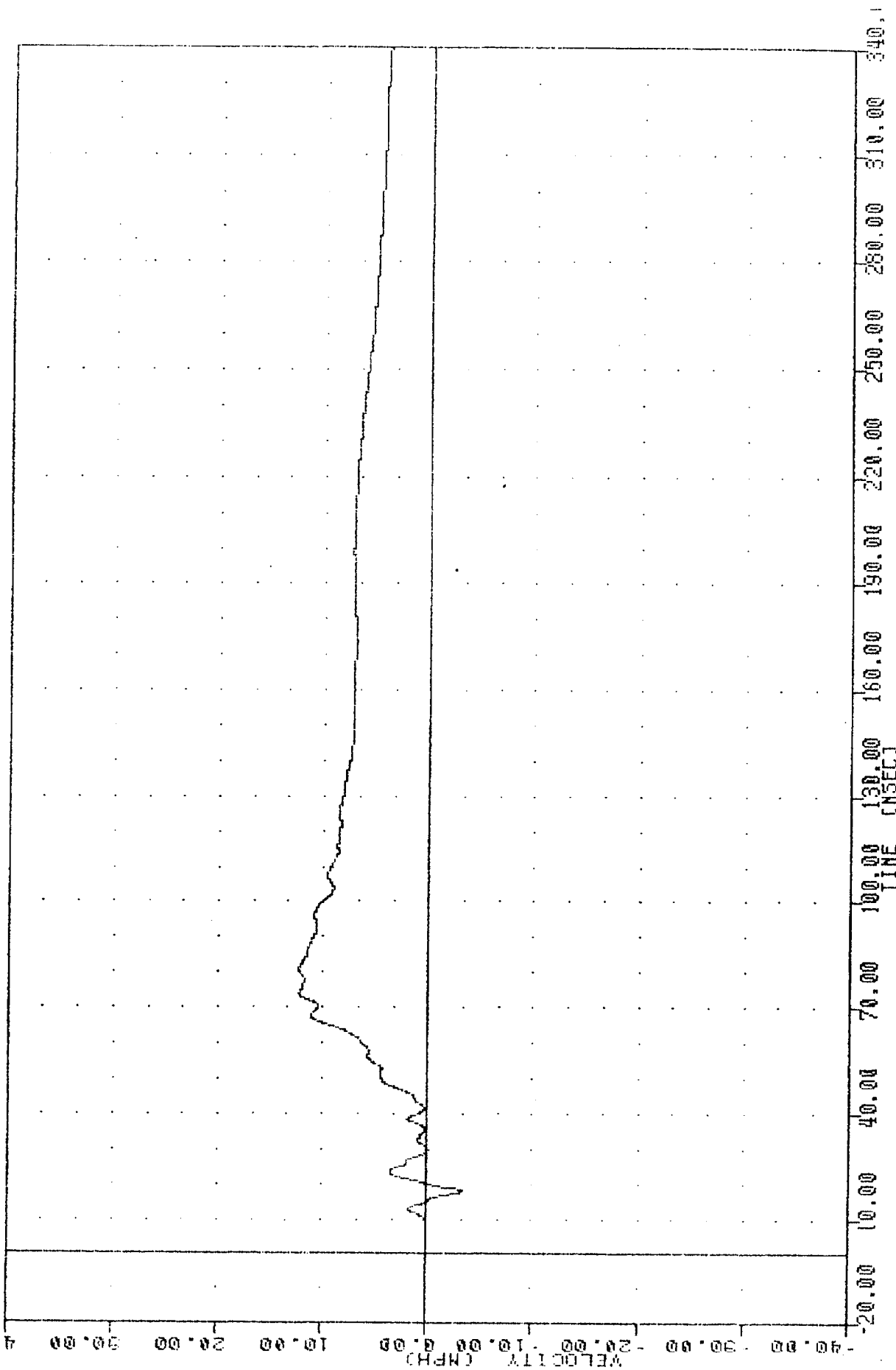
ACCELERATION (G)



-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

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

TNL 840127 1 FEB 84 10:42:17  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 LFSYV5  
 FILTER = BLPF 300/ 949/ -40  
 MIN, MAX VALUES = -3.40e 17.63, 12.28 \* 80.63



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING LFSYG5

TSL 840127  
SIDE PROTECTION - 20A/40A  
84027000000  
LF0Y61

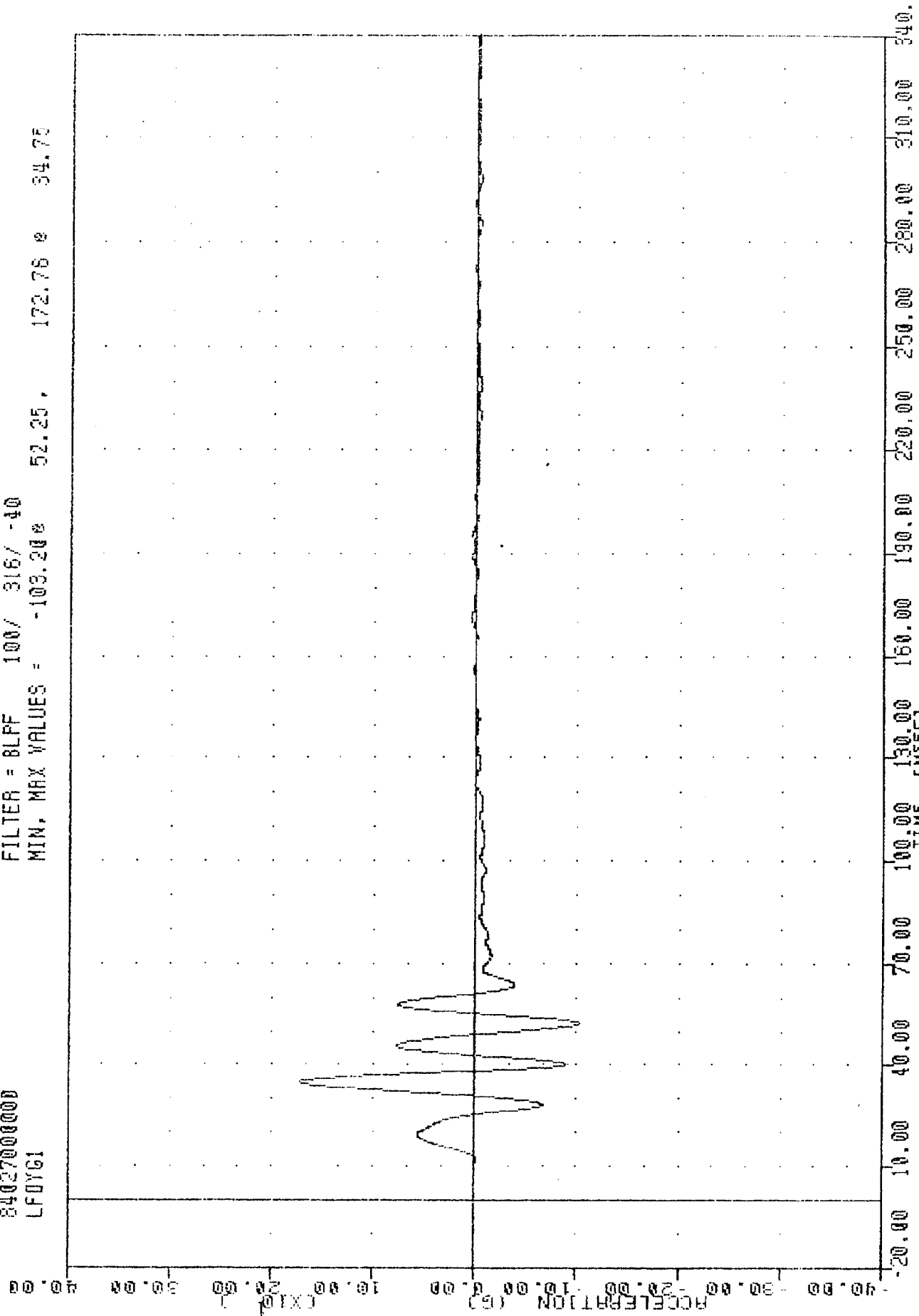
PLUT DATE

1-FEB-84

18:28:10

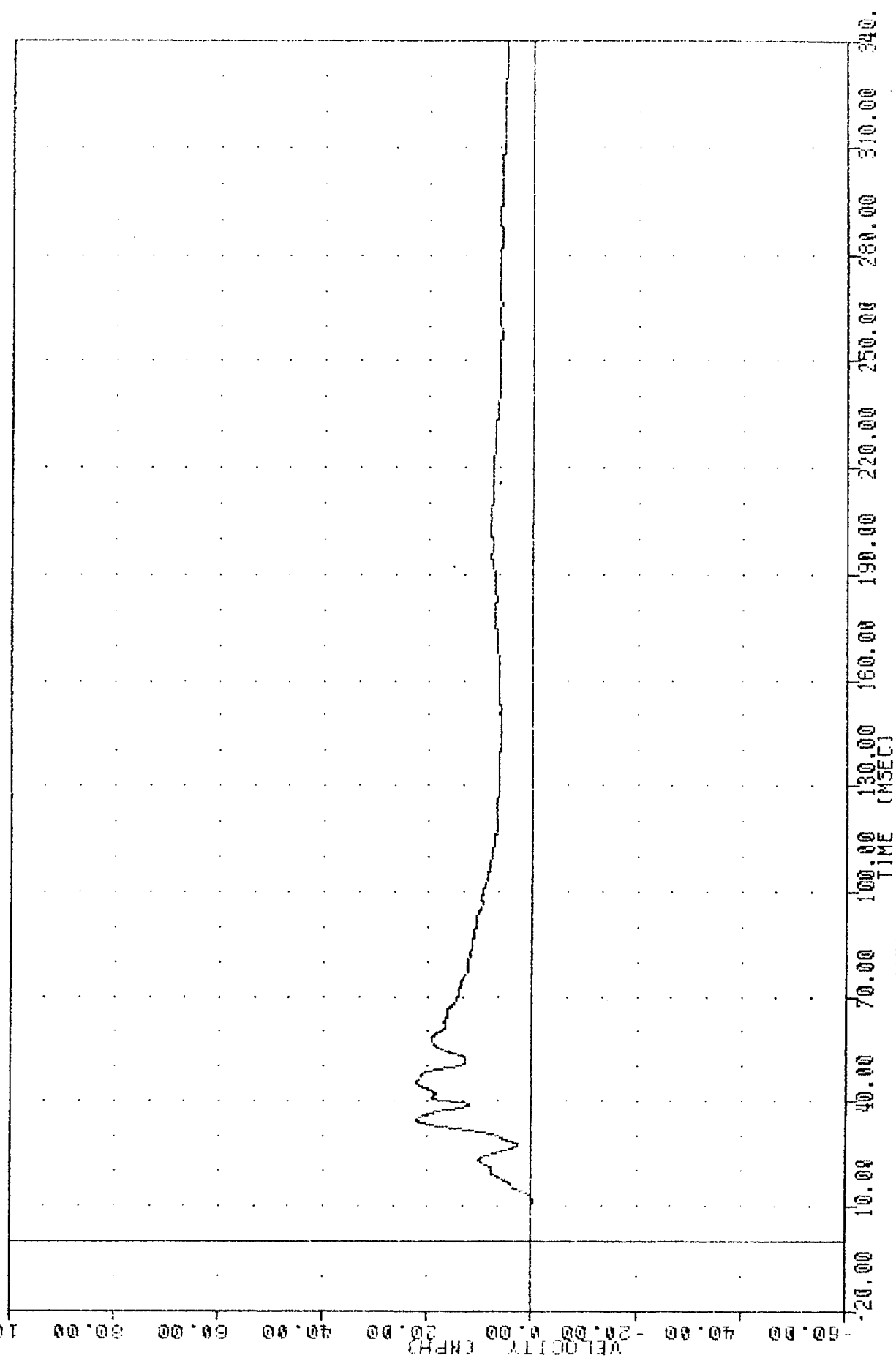
FILTER = 8LPF 100/ 316/ -40

MIN. MAX VALUES = -103.200 52.25, 172.76 0 34.75



MOVING DEFORMABLE BARRIER INTO RABBIT  
VEHICLE LEFT FRONT DOOR (POSITION 6) ACCELERATION Y AXIS

IRC  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 LFDYV1  
 .840127  
 PLOT DATE 1-FEB-84 10:42:17  
 FILTER = BLPF 300/ 849/ -40  
 MIN. MAX VALUES = -0.118 11.50, 22.28 s 45.25



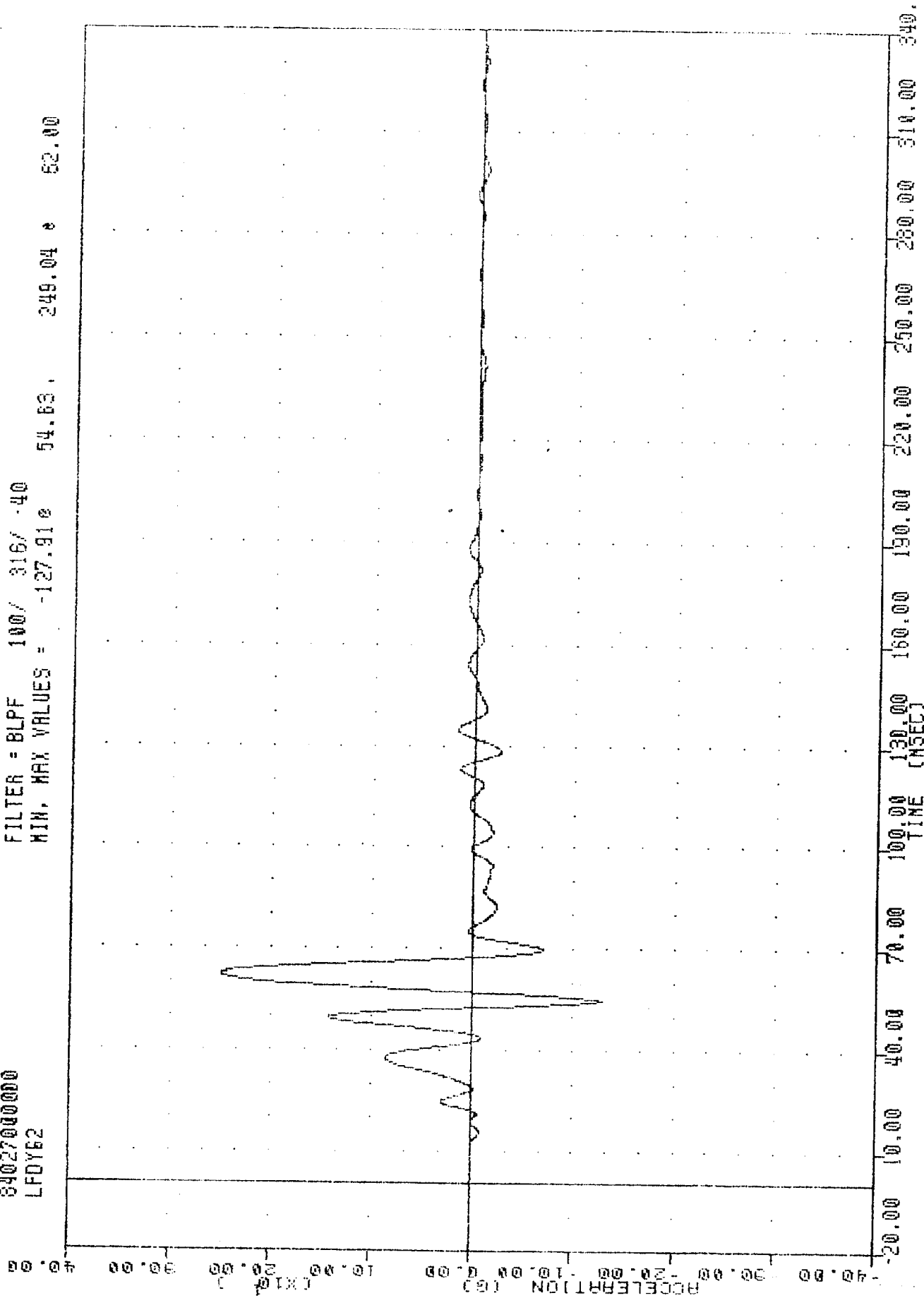
MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING LFDYV1



THC 840127  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 LFDY62

PLUT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = -127.910 54.63, 249.04 \* 52.00

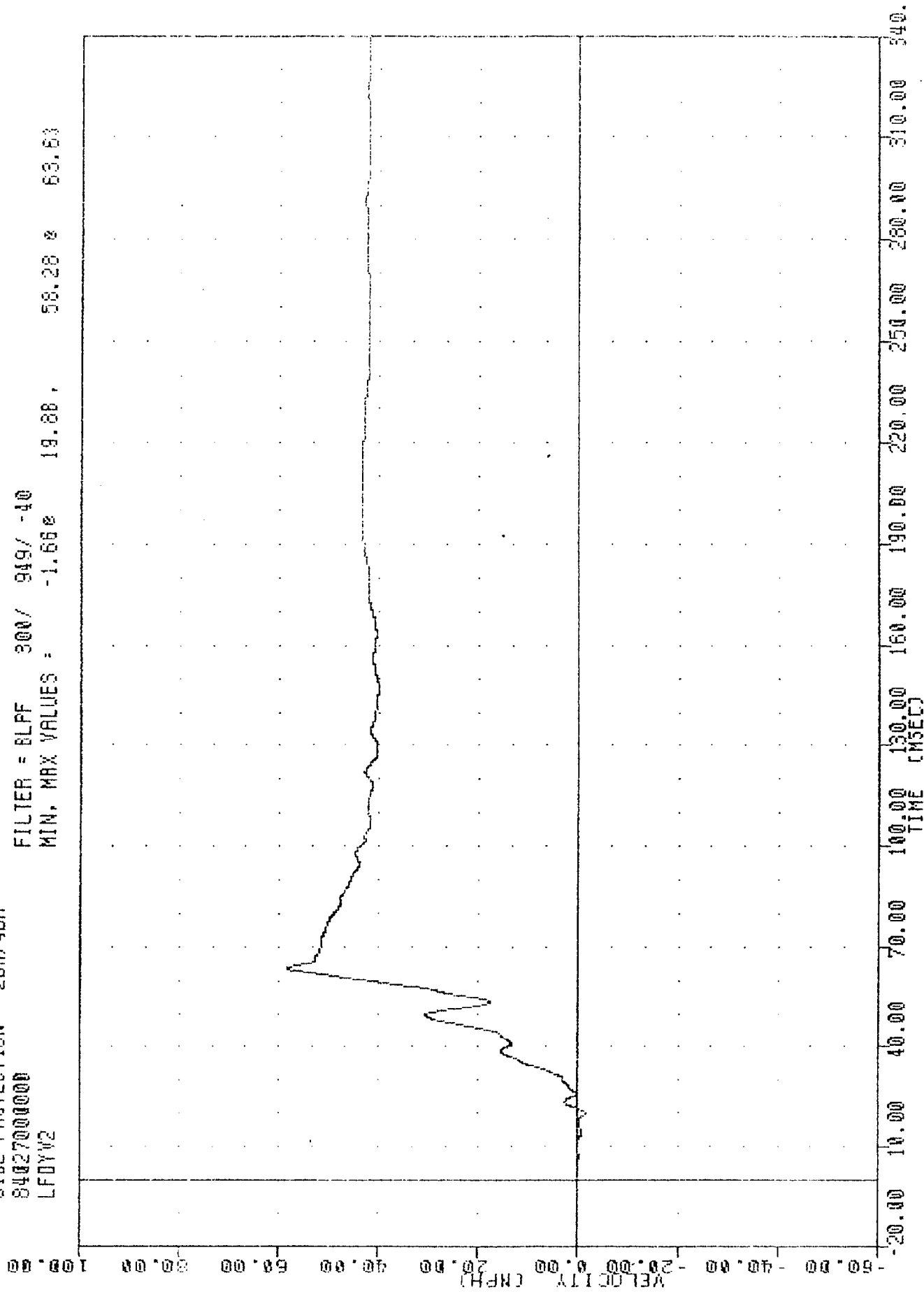


MOVING DEFORMABLE BARRIER INTO RABBIT  
 VEHICLE LEFT FRONT DOOR (POSITION 8) ACCELERATION Y AXIS

TRC 840127  
SIDE PROTECTION - 20A/40A  
840270000000  
LFOYV2

PLOT DATE 1-FEB-84 10:42:17

FILTER = 8LFF 300/ 949/ -10  
MIN. MAX VALUES = -1.668 19.88 58.28 63.63

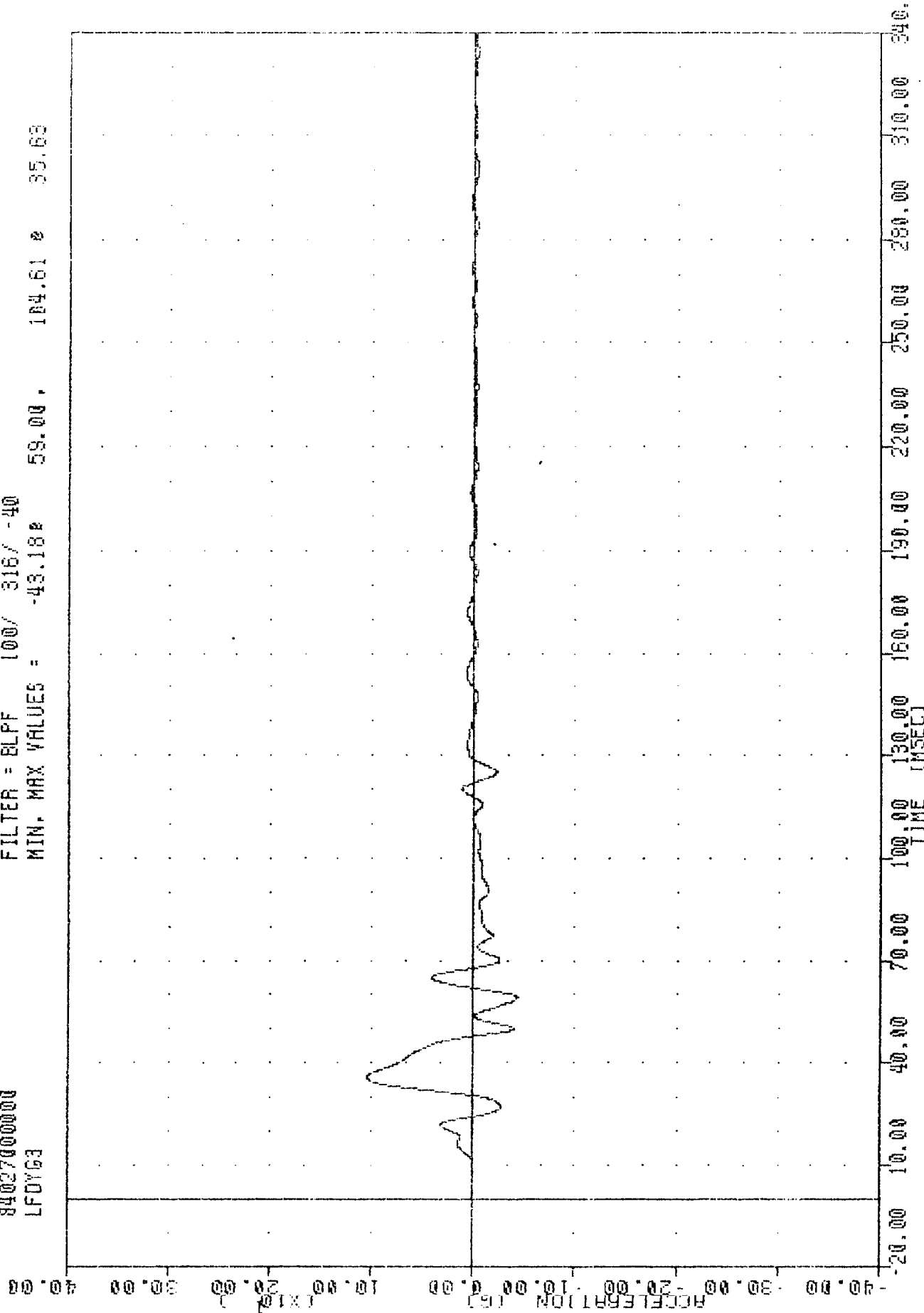


MOVING DEFORMABLE BARRIER INTO RABBIT  
DELTA V USING LFOY62

18C  
SIDE PROTECTION - 20R/40R  
84027000000  
LFOY63

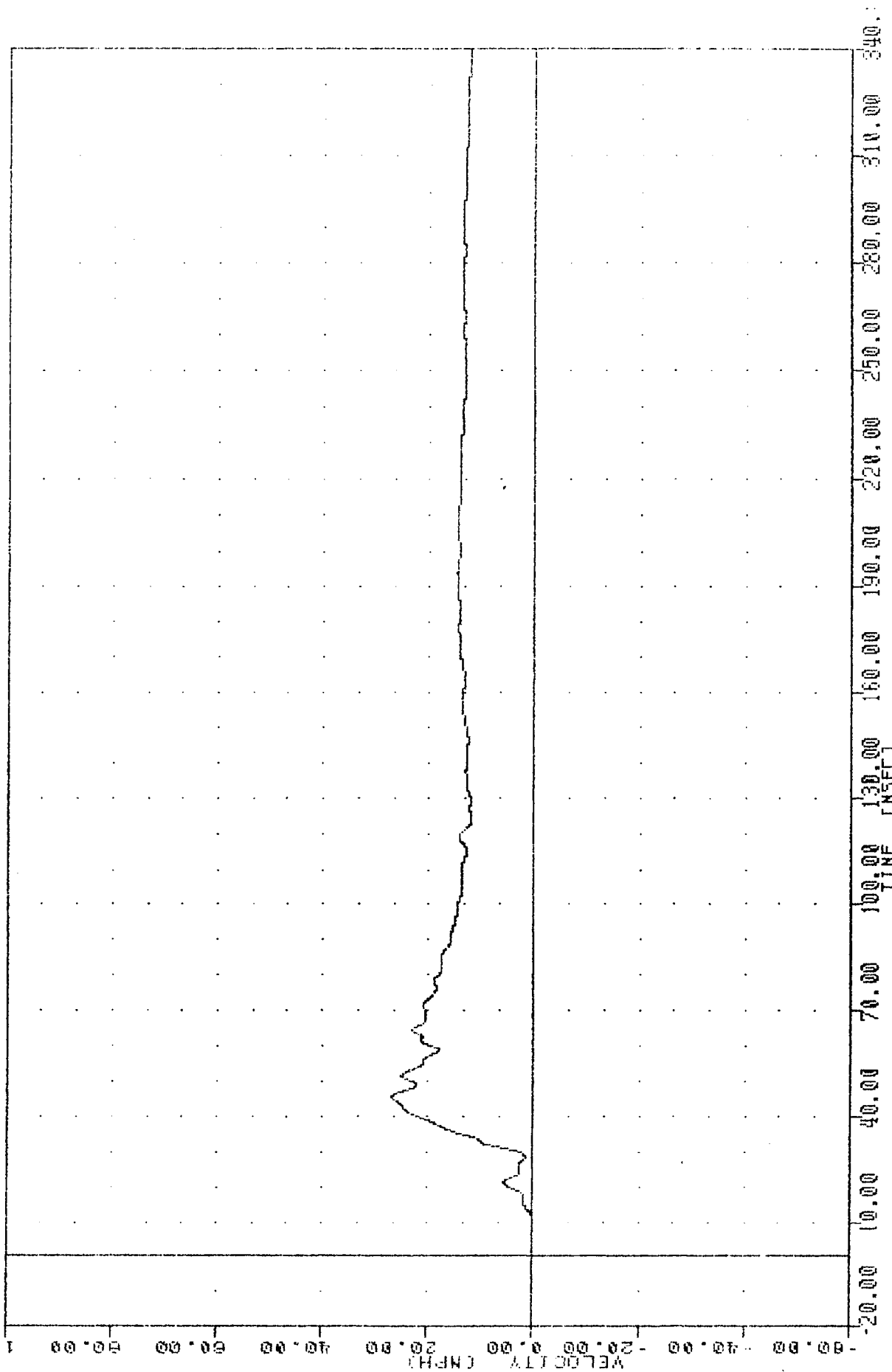
PLOT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 316/ -40  
MIN. MAX VALUES = -43.18 104.61 35.63



MOVING DEFORMABLE BARRIER INTO RABBIT  
VEHICLE LEFT FRONT DOOR (POSITION 9) ACCELERATION \* 84027

THE [REDACTED] 840127 [REDACTED] PLOT DATE 1-FEB-84 10:42:17  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 LFDYV3  
 FILTER = BLPF 300/ 949/ -40  
 MIN, MAX VALUES = -0.028 -15.25, 26.81 & 45.25



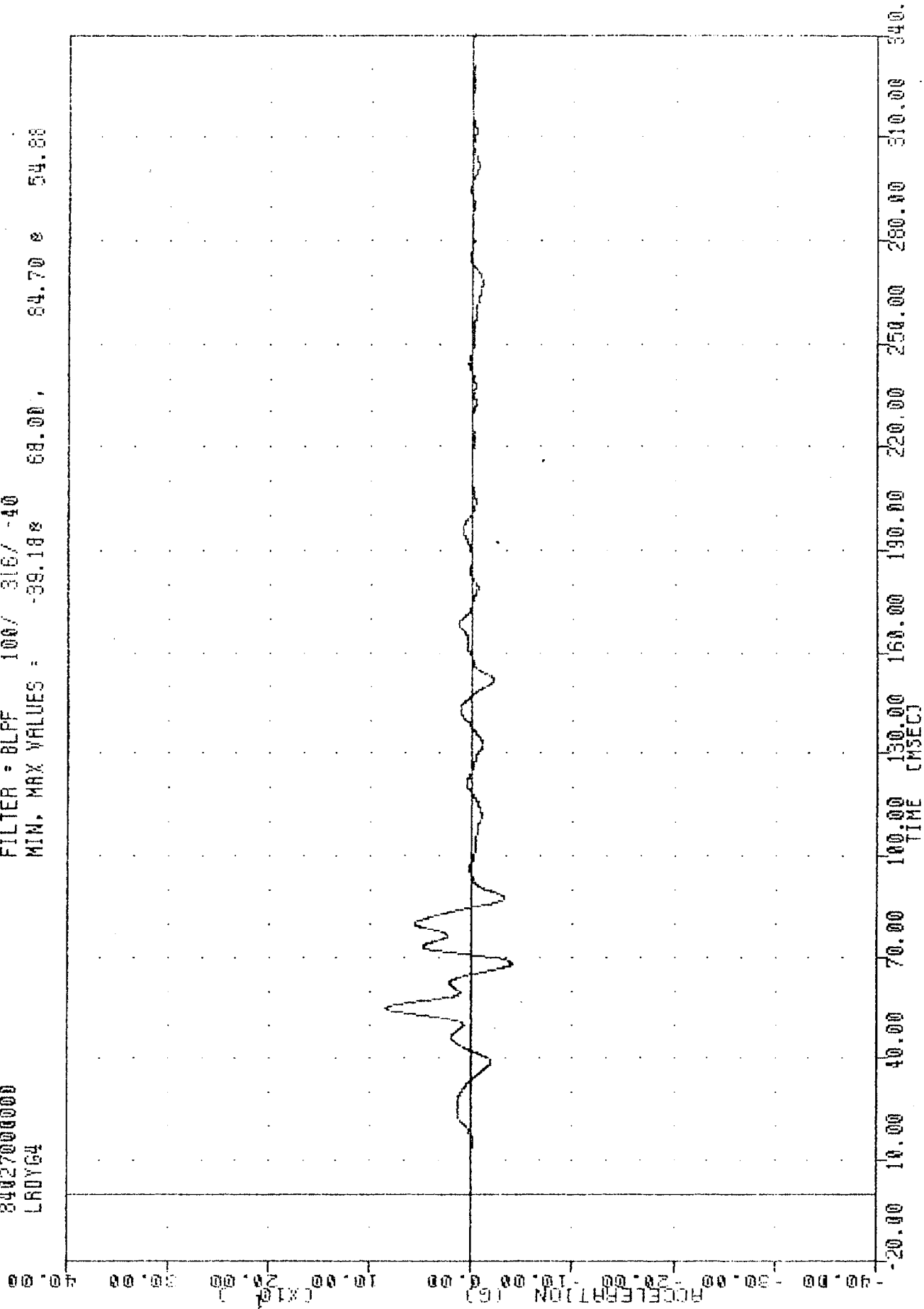
MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING LFDYV3

TRC  
SIDE PROTECTION - 2DR/4DR  
840270000000  
LR0Y64

PLUT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -99.18 68.00 84.70 54.88

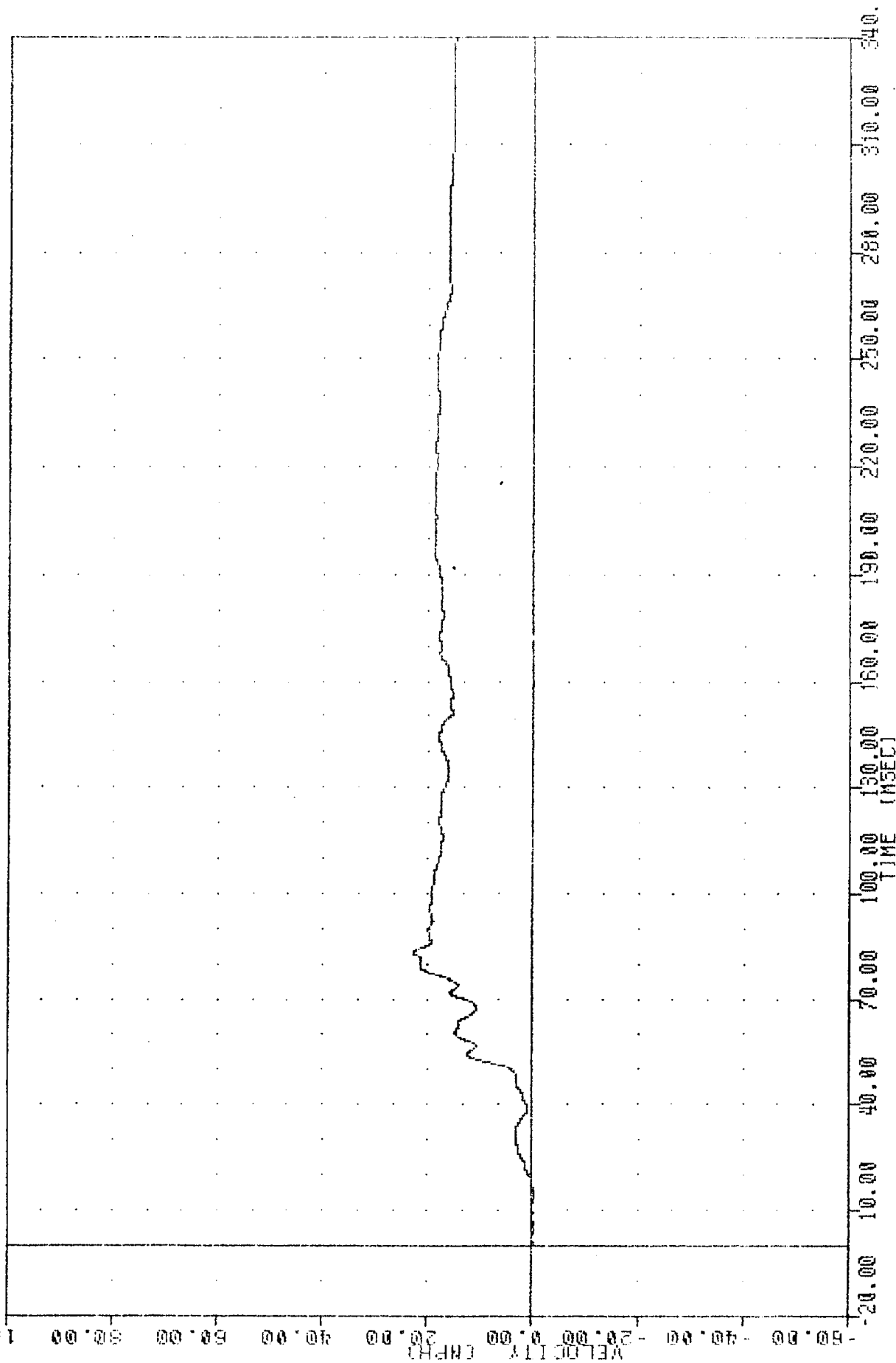


MOVING DEFORMABLE BARRIER INTO RABBIT  
VEHICLE LEFT REAR DOOR (POSITION 10) ACCELERATION Y AXIS

TRC  
SIDE PROTECTION - 20R/40R  
84027000000  
LRDYV4

PLUT DATE 1-FEB-84 10:42:17

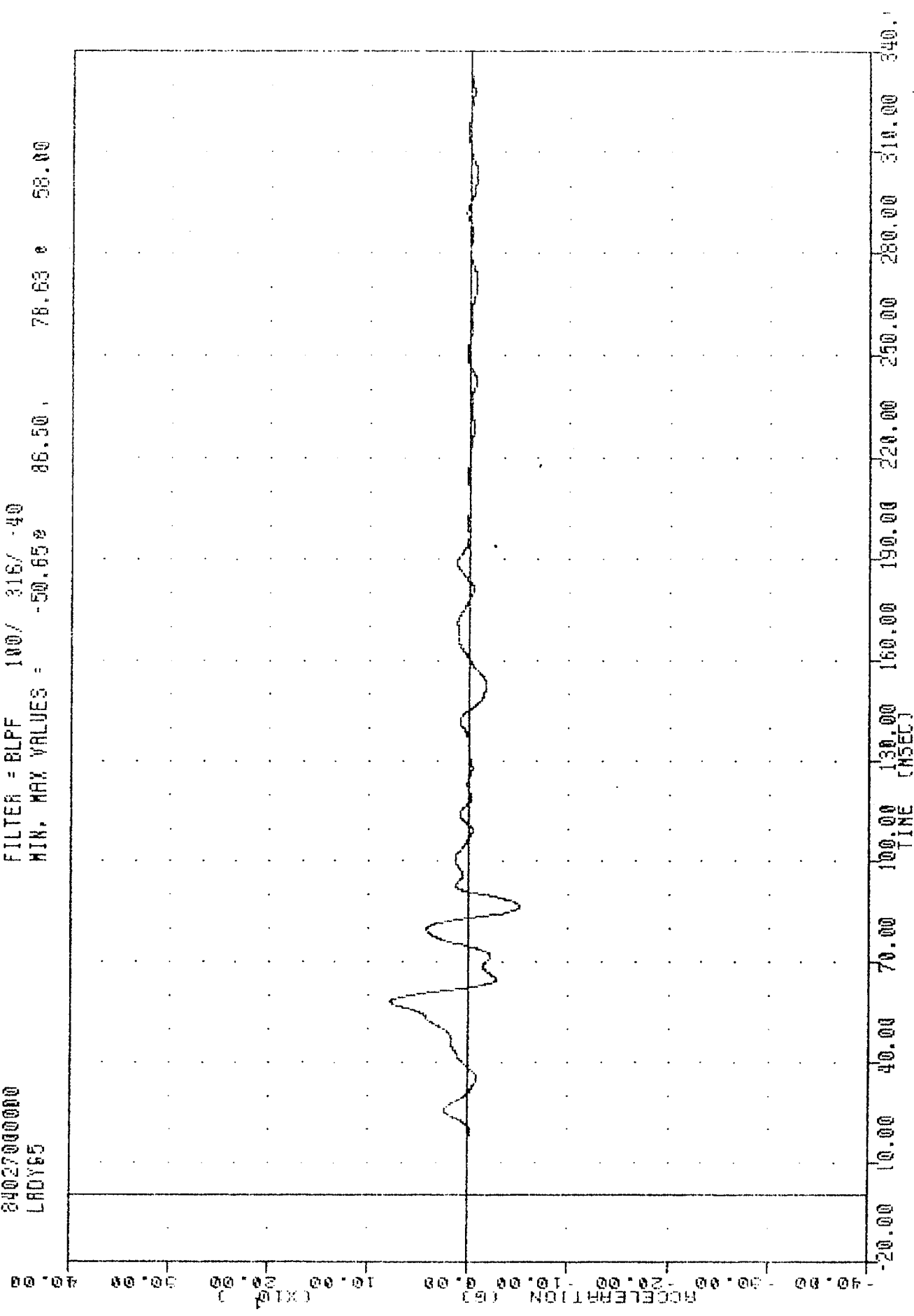
FILTER = BLPF 300/ 949/ -40  
MIN. MAX VALUES = -0.20 14.38 22.79 83.13



MOVING DEFORMABLE BARRIER INTO RABBIT  
DELTA V USING LADY64

[REDACTED] [REDACTED]

06.00 - 07.23 a

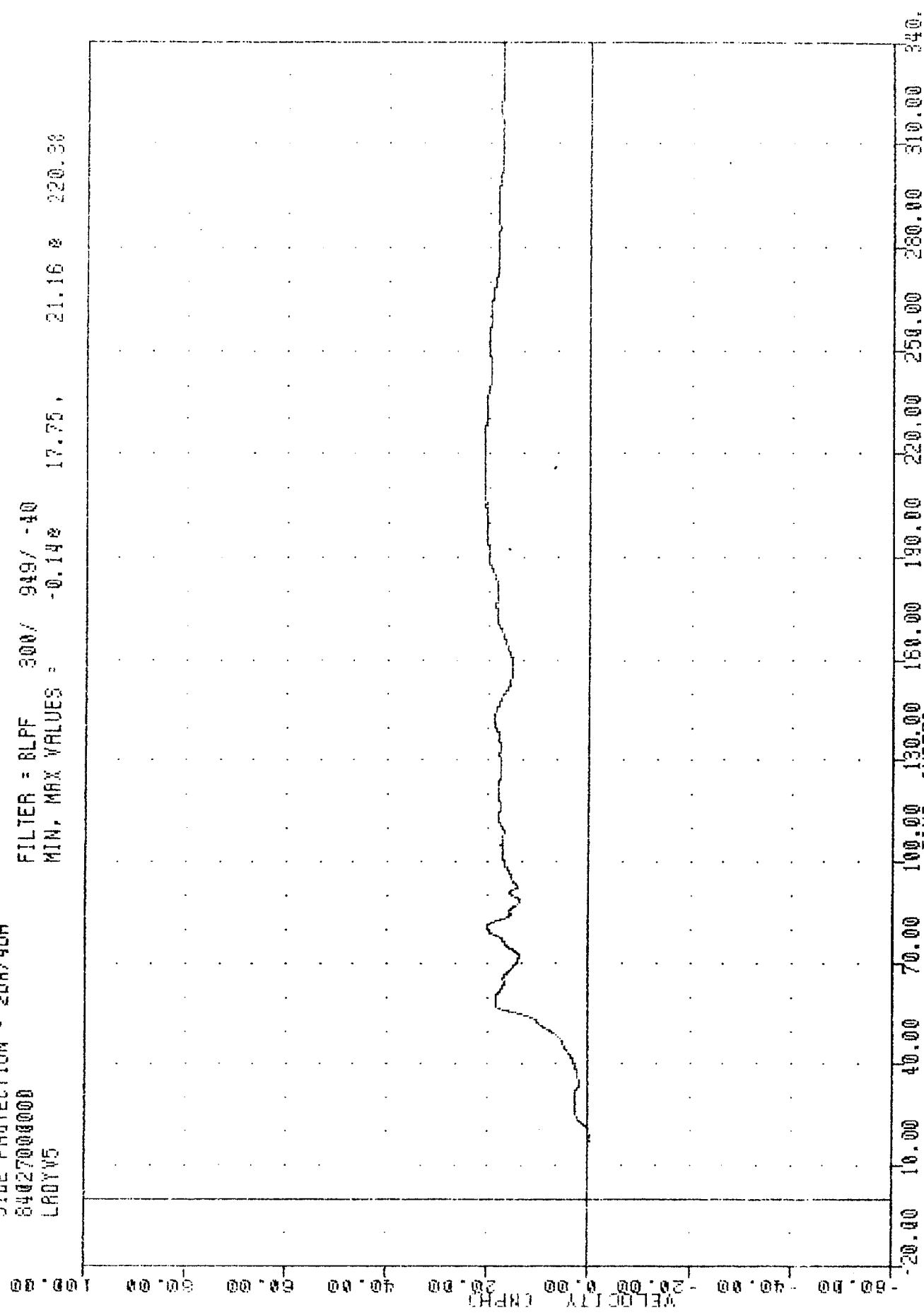


MOVING DEFORMABLE BARRIER INTO RABBIT  
VEHICLE LEFT REAR DOOR (POSITION 1)) ACCELERATION Y AXIS

TRC 840127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 LADYV5

PLOT DATE 1-FEB-84 10:42:17

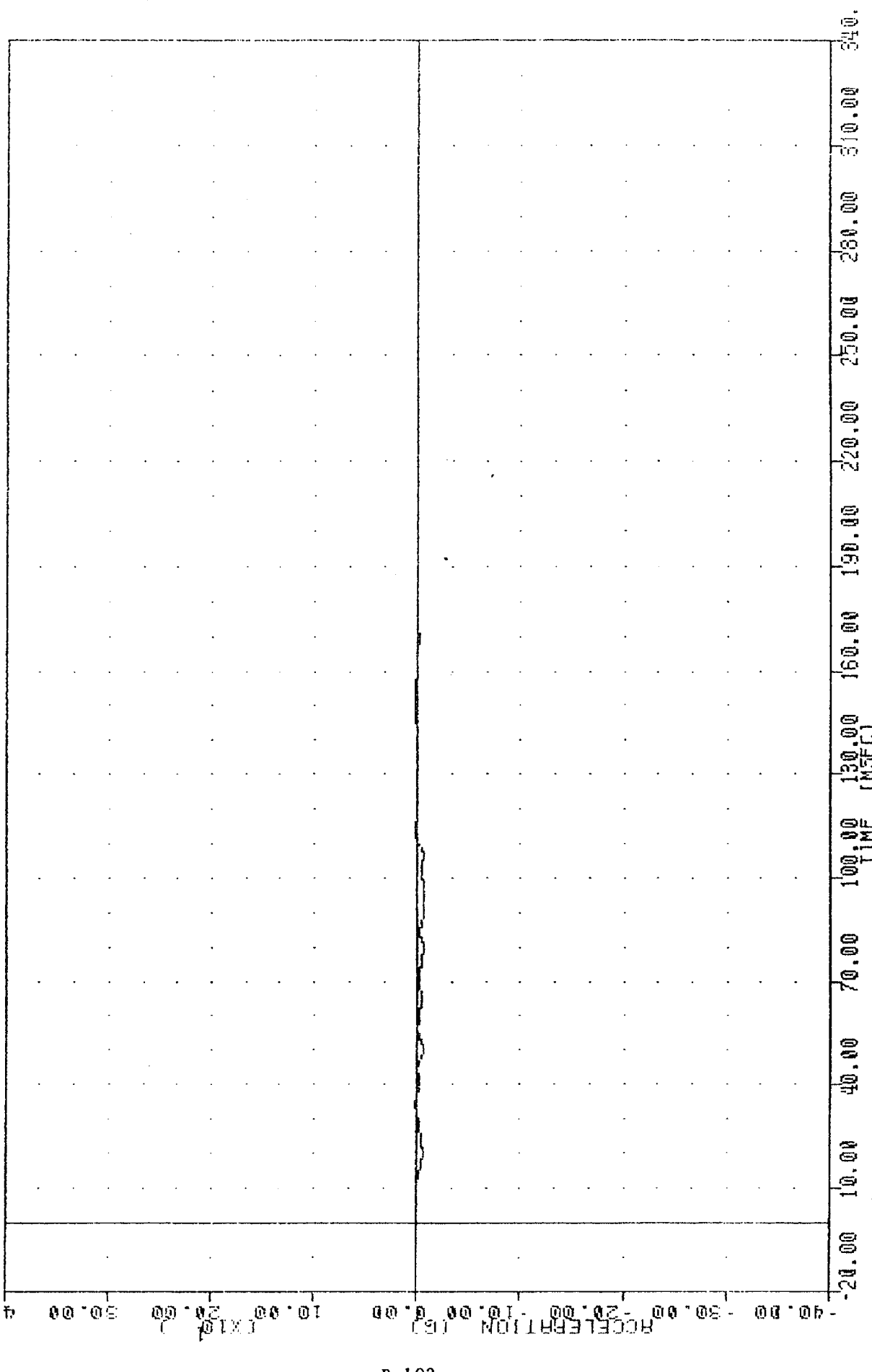
FILTER = RLPF 300/ 949/ -40  
 MIN, MAX VALUES = -0.148 17.75, 21.16 220.38



MOVING DEFORMABLE BARRIER INTO RABBIT  
 DELTA V USING LADY65



INC 0127  
 SIDE PROTECTION - 2DR/4DR  
 84027000000  
 TFRXG7  
 FILTER = BLPF 100/ 316/ -40  
 MIN. MAX VALUES : -5.748 97.13, 3.09 & 113.25  
 PLOT DATE 10.29.10



MOVING DEFORMABLE BARRIER INTO RABBIT  
 VEHICLE TRUNK FLOOR RIGHT ACCELERATION X AXIS

1FC 840127 PLOT DATE 1-FEB-84 10:29:10

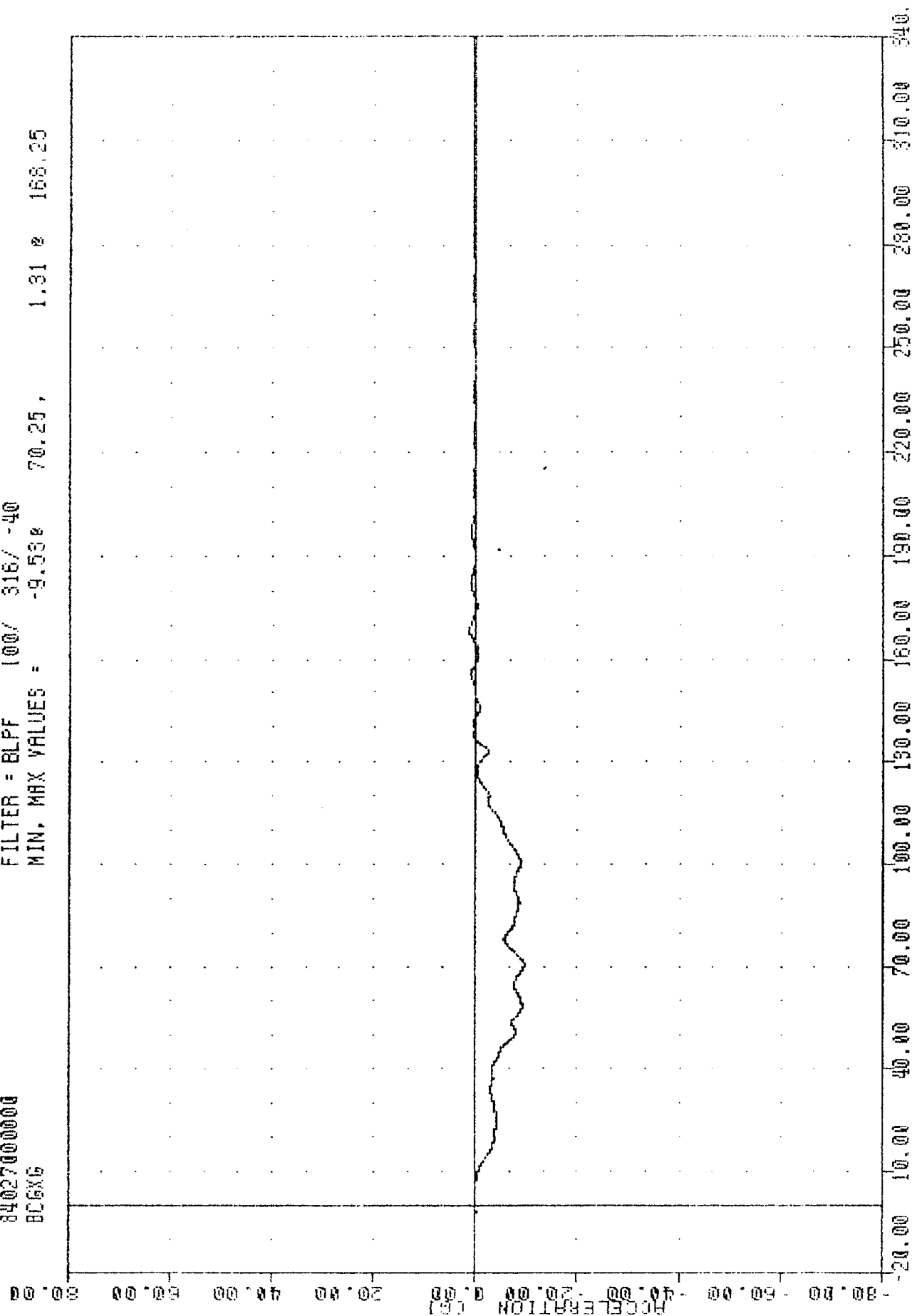
SIDE PROTECTION - 20R/40R

84027000000

BDGKG

FILTER = BLPF 100/ 318/ -40

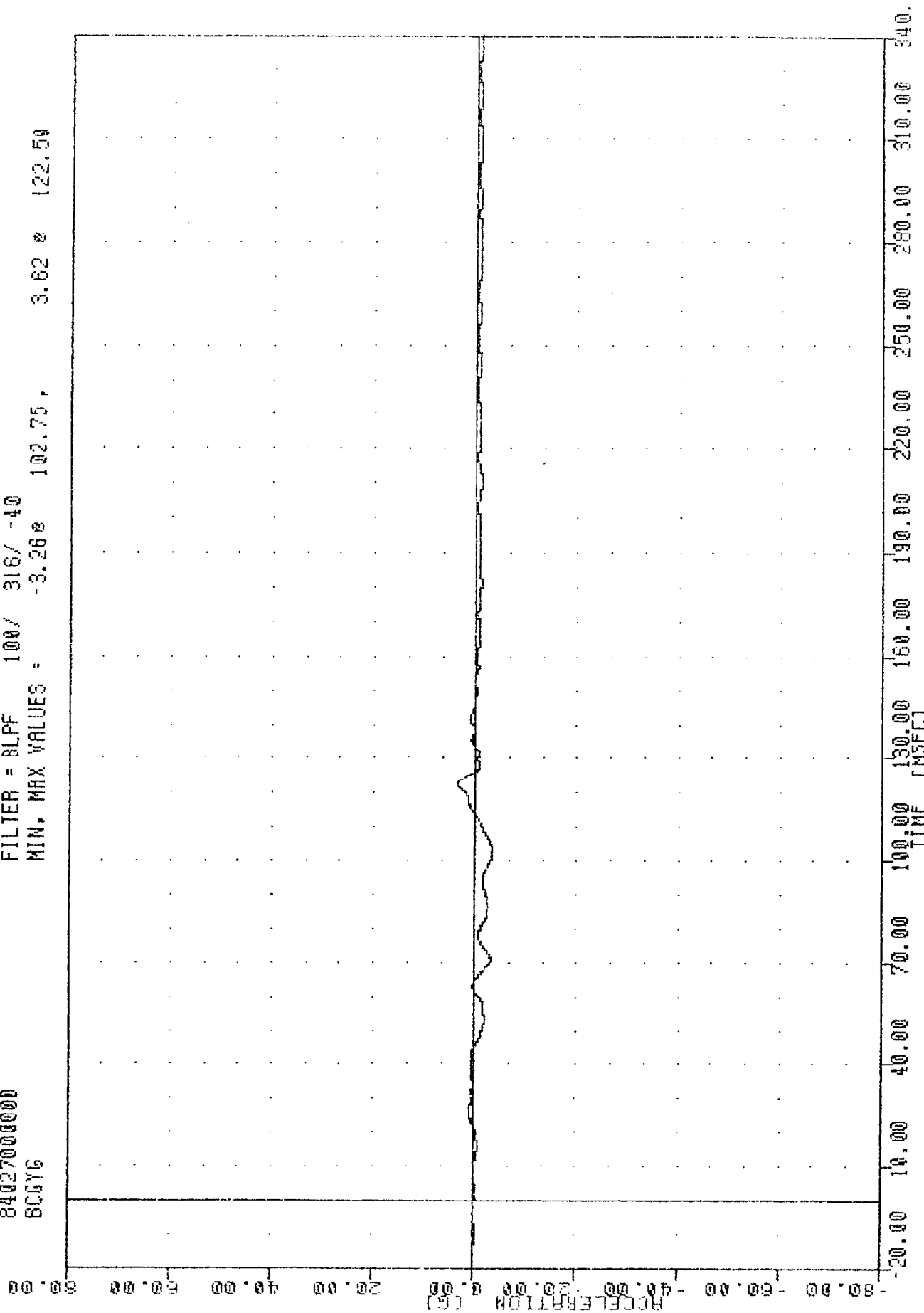
MIN. MAX VALUES = -9.53% 70.25, 1.31 % 168.25



TRC  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 BCCYG

PLOT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 316/ -40  
 MIN. MAX VALUES = -3.26e 102.75, 3.62 e 122.50

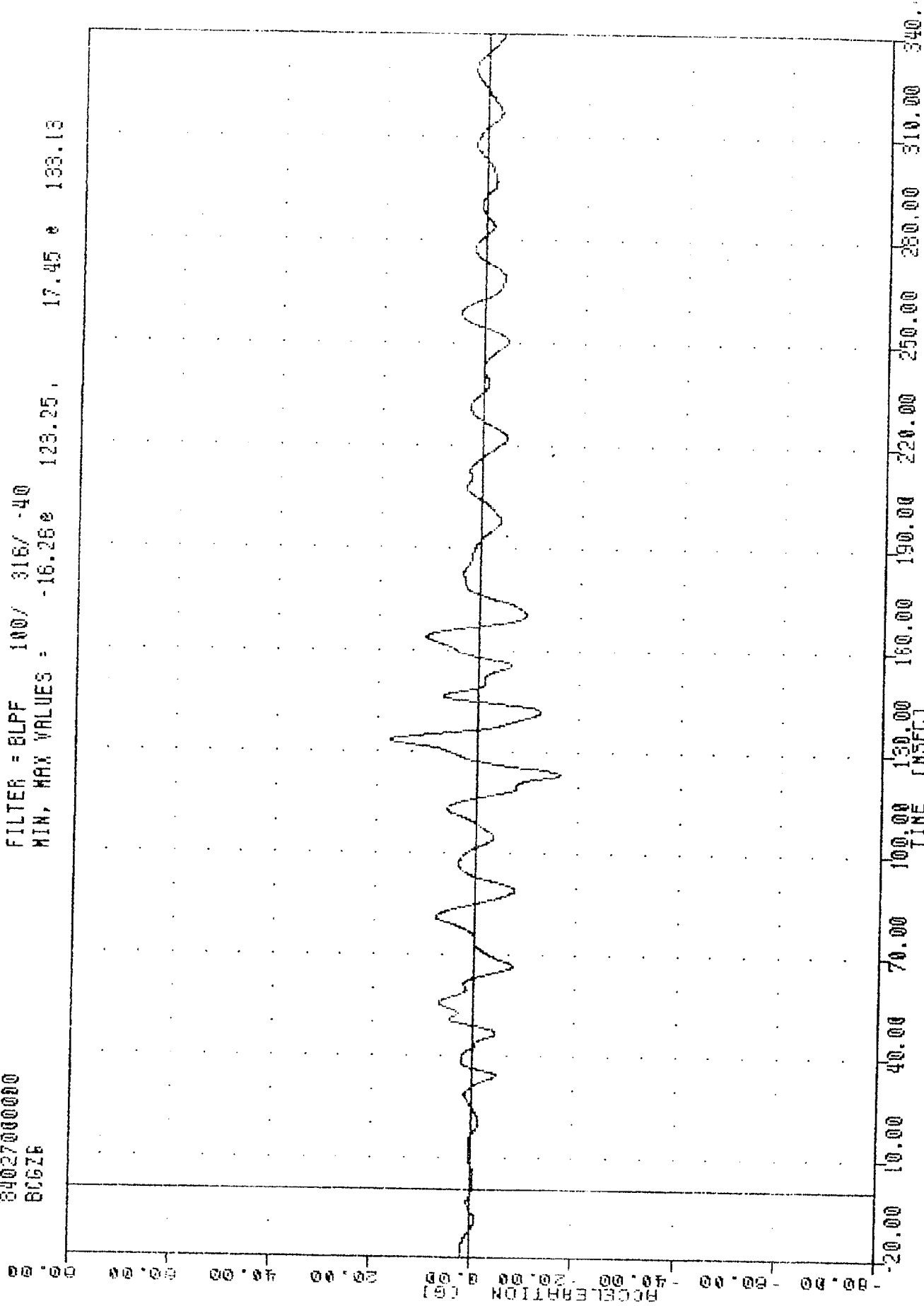


MOVING DEFORMABLE BARRIER INTO RABBIT  
 BARRIER CENTER OF GRAVITY Y AXIS

INC 840127  
 SIDE PROTECTION - 20R/4DR  
 84027000000  
 BCGZE

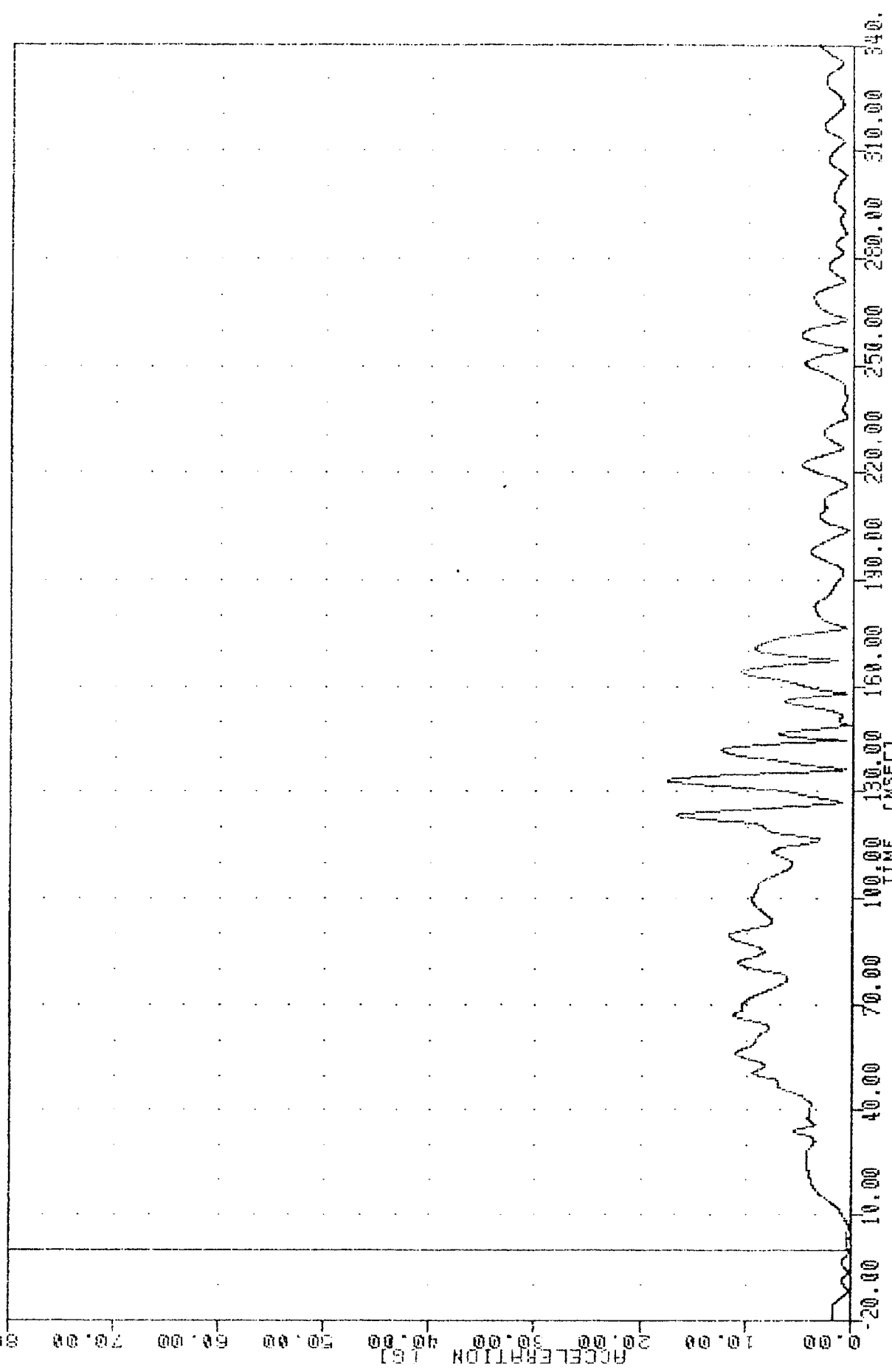
PLU DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = -16.26e 123.25, 17.45 \* 133.13



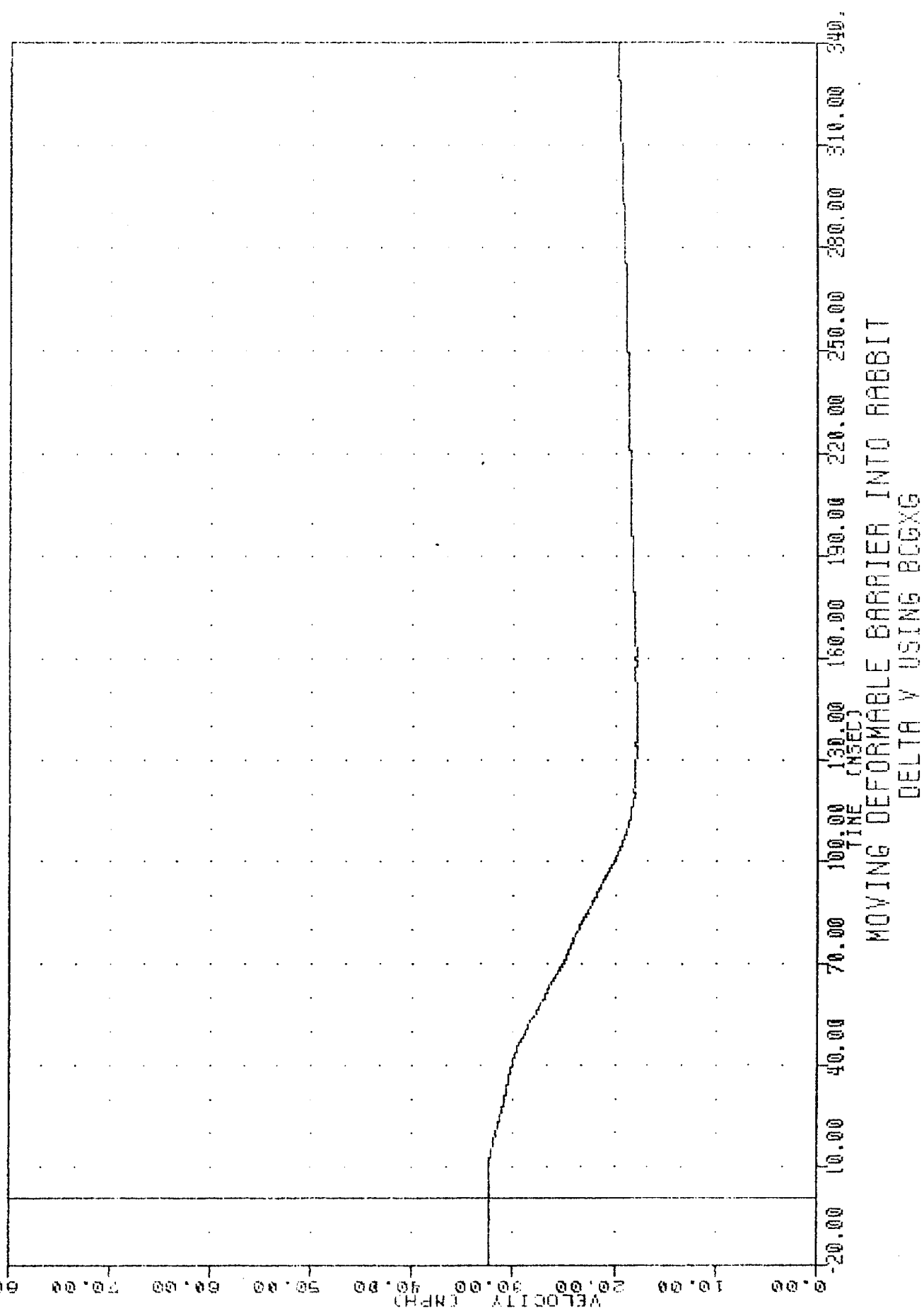
MOVING DEFORMABLE BARRIER INTO RABBIT  
 BARRIER CENTER OF GRAVITY Z AXIS

PLOT DATE 1-FEB-84 10:30:34  
 FILTER = 8LFF 100/ 316/ -40  
 MIN. MAX VALUES = 0.09e 6.53, 17.61 e 133.13  
 SIDE PROTECTION - 20R/40R  
 84027000000  
 BCGRG

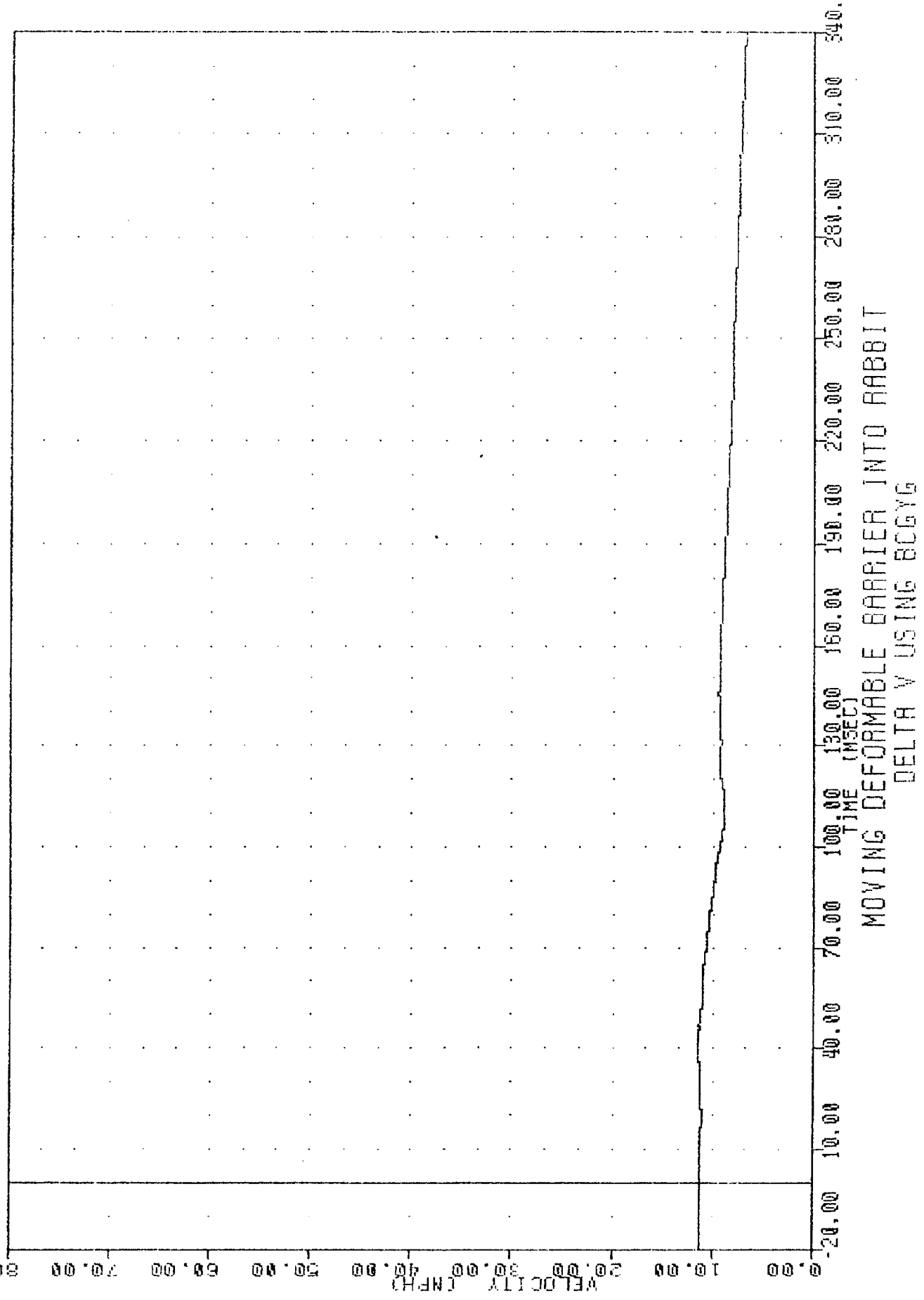


MOVING DEFORMABLE BARRIER INTO RABBIT  
 BARRIER CG RESULTANT

TAC 840127  
 SIDE PROTECTION - 20A/4DR  
 84027000000  
 BCGXV  
 FILTER = BLPF 300/ 949/ -40  
 MIN, MAX VALUES = 17.74e 132.00, 32.52 e -7.36  
 PLUT DATE 1-FEB-84 10:42:17



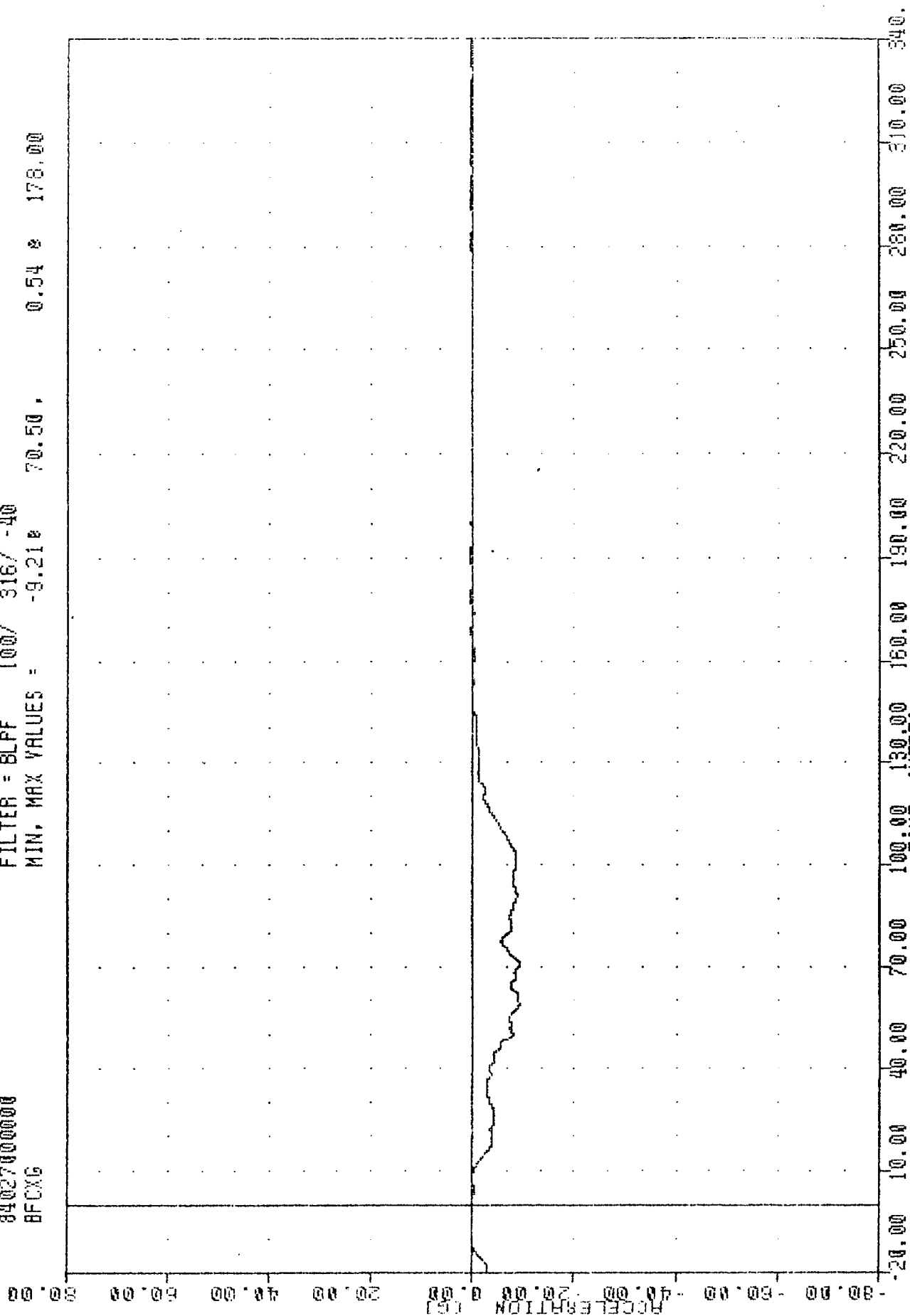
IRL 840127  
 SIDE PROTECTION - 20R/40R  
 840270000000  
 BCGYV  
 PLOT DATE 1-FEB-84 10:42:17  
 FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = 6.81e 340.00, 11.42 e 43.13



TRC  
 84027000000  
 BFCXG  
 SIDE PROTECTION - 2DR/4DR  
 840127

PLOT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = -9.21e 70.50, 0.54 e 178.00



MOVING DEFORMABLE BARRIER INTO RABBIT  
 BARRIER FRONT CROSSMEMBER ACCELERATION X AXIS

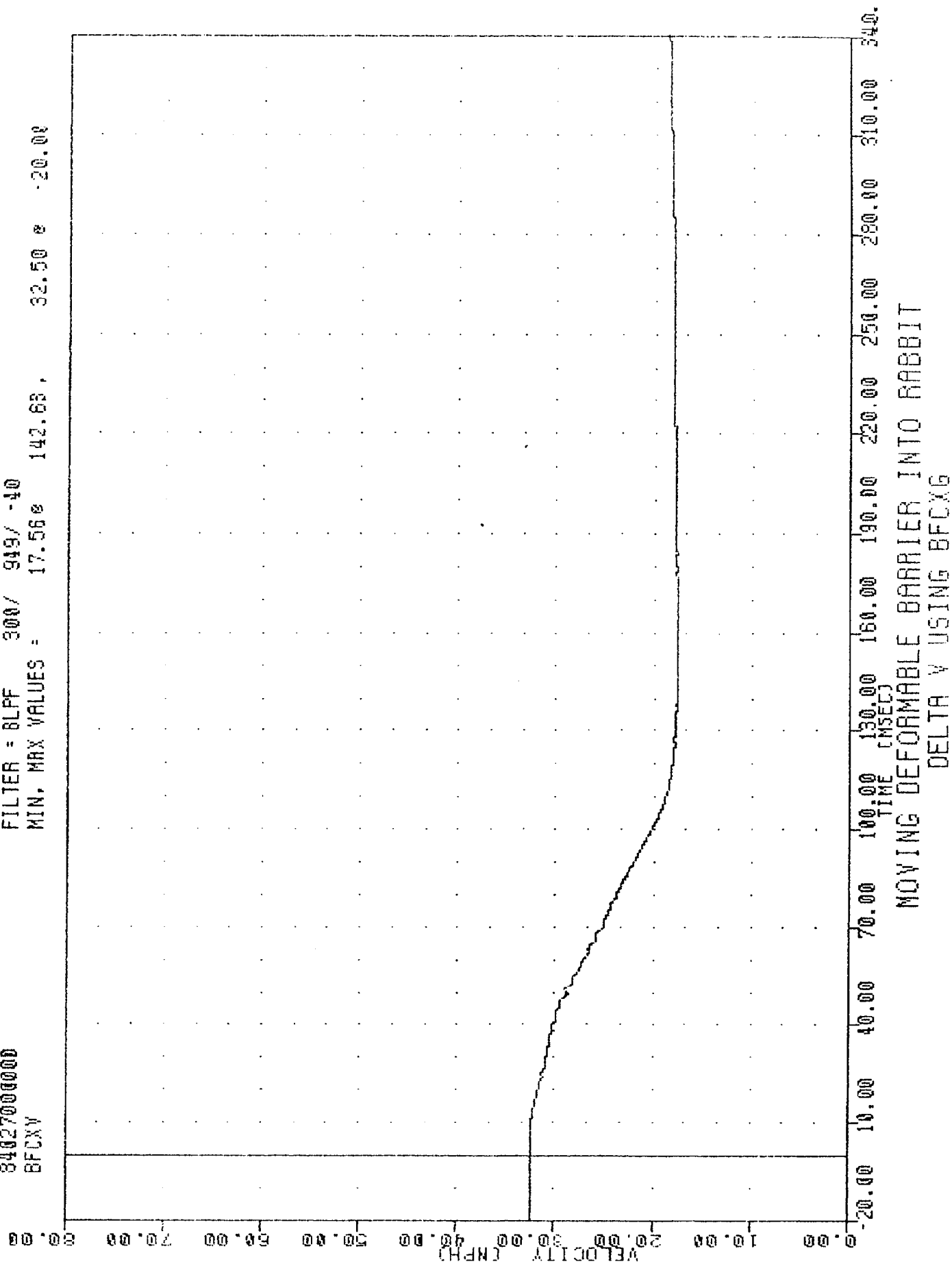


TRC 840127  
SIDE PROTECTION - 20R/40R  
84027000000  
BFCXY

PLOT DATE 1-FEB-84 10:42:17

FILTER = 8LPF 300/ 949/ -10

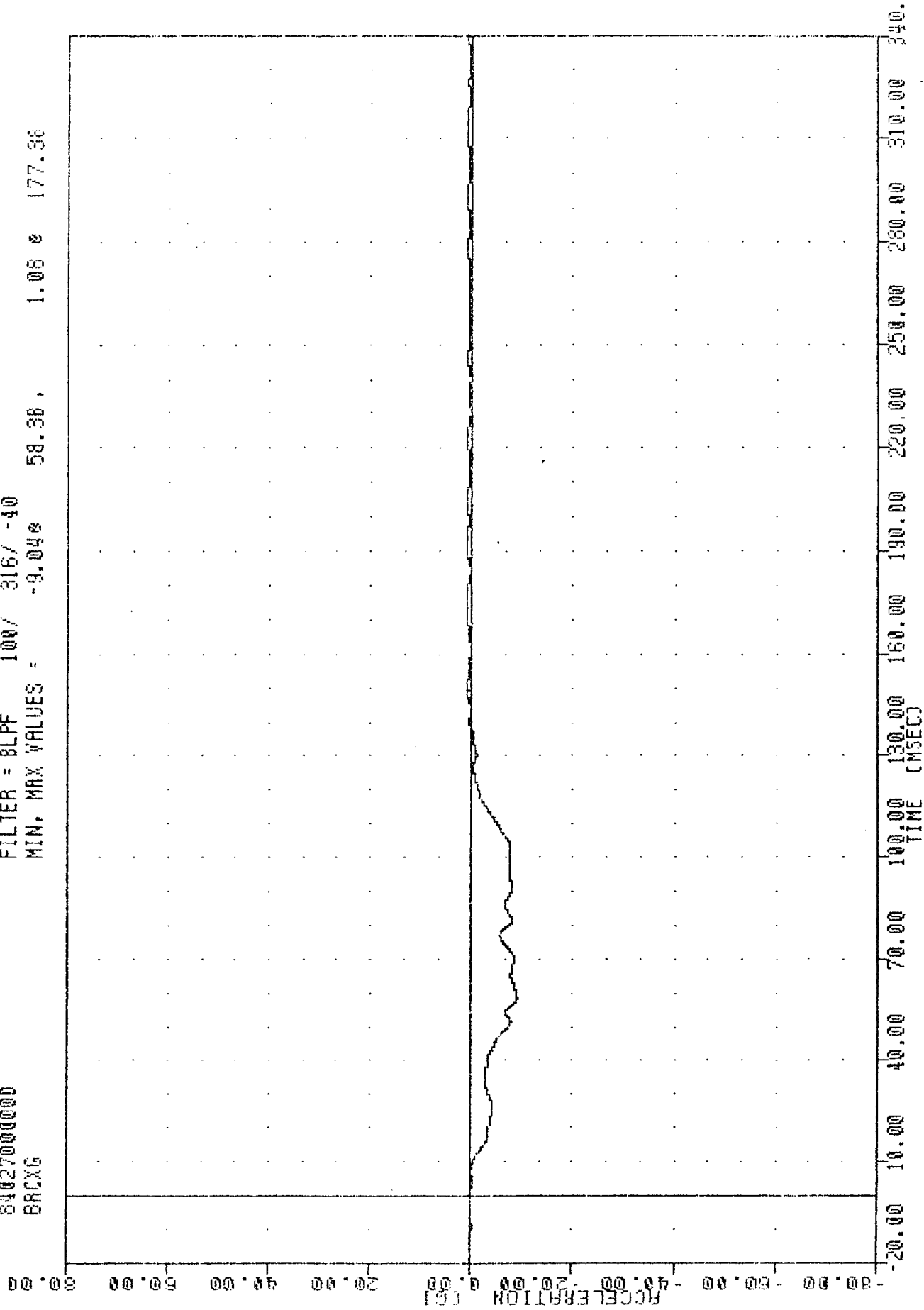
MIN. MAX VALUES = 17.568 142.63, 32.50 32.50 -20.00



PLC 840127  
SIDE PROTECTION - 20R/40R  
84027000000  
BRXG

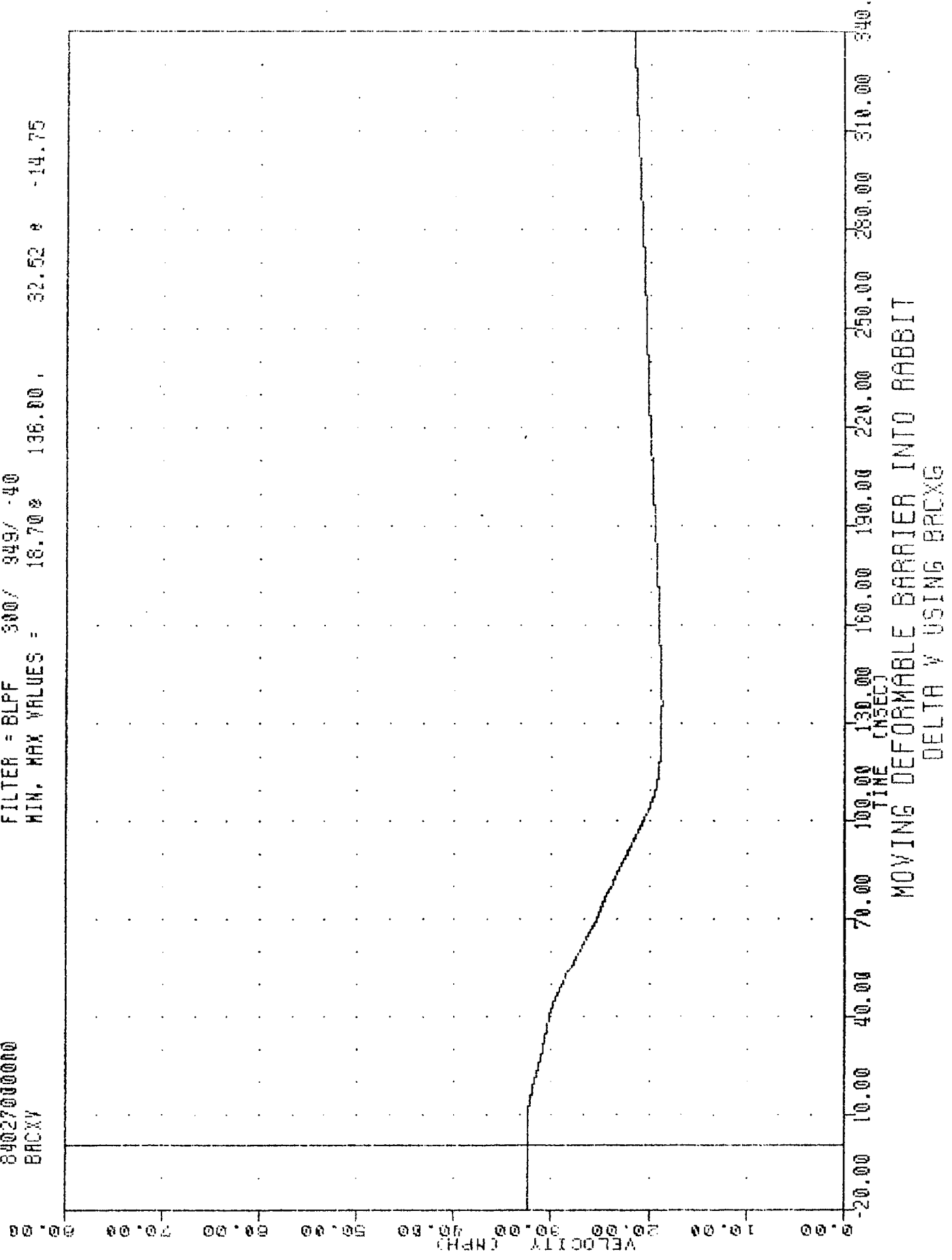
PLOT DATE 1-FEB-84 10:29:10

FILTER = BLPF 100/ 316/ -40  
MIN. MAX VALUES = -9.04e 58.38, 1.08 e 177.38



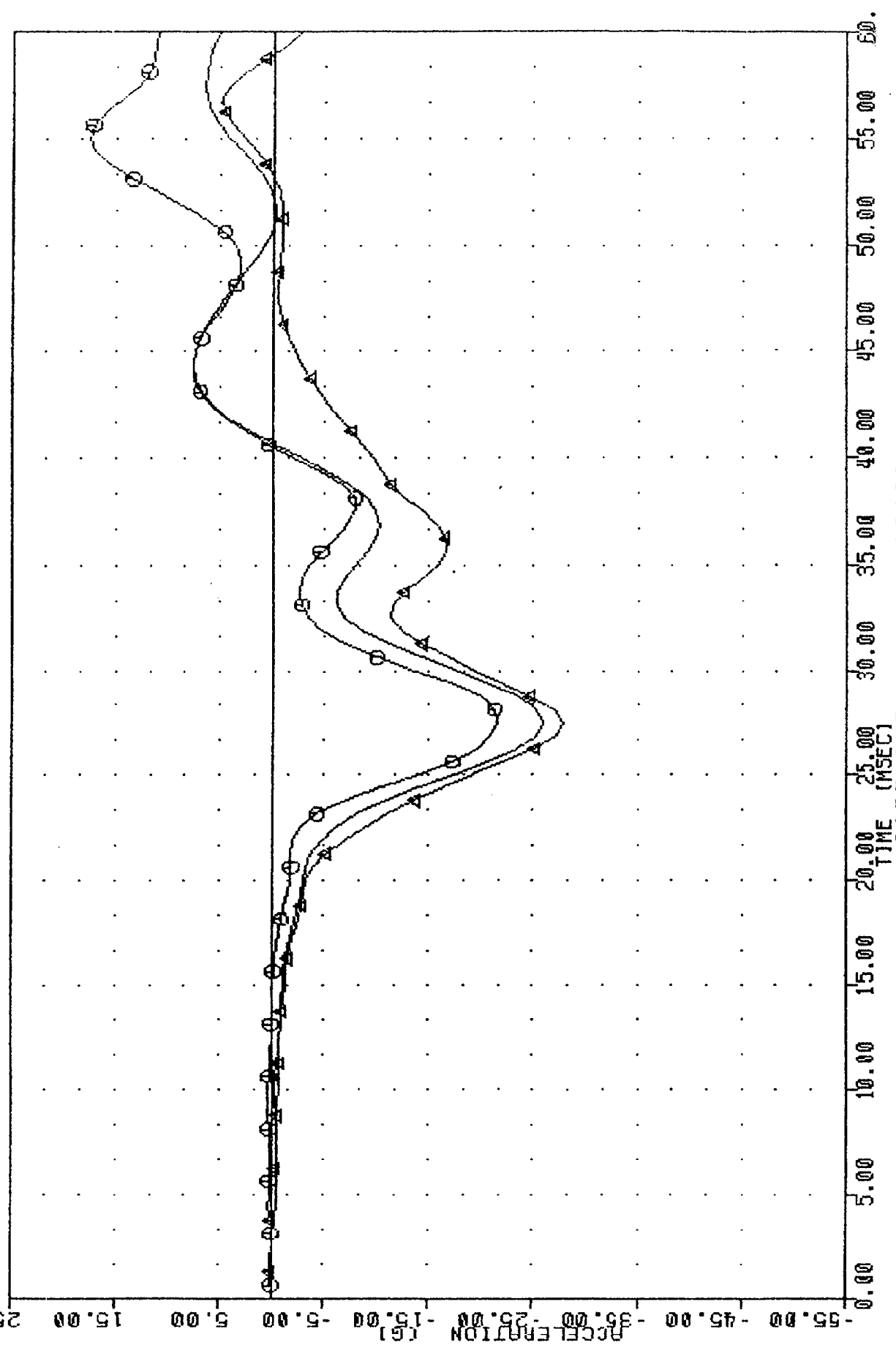
MOVING DEFORMABLE BARRIER INTO RABBIT  
BARRIER REAR CROSSMEMBER ACCELERATION X AXIS

THE 040127 040127 040127 040127 040127 040127 040127 040127 040127 040127  
 SIDE PROTECTION - 20R/4DR  
 840270000000  
 BACXY  
 FILTER = BLPF 300/ 849/ -40  
 MIN. MAX VALUES = 18.70 136.80, 32.52 -14.75



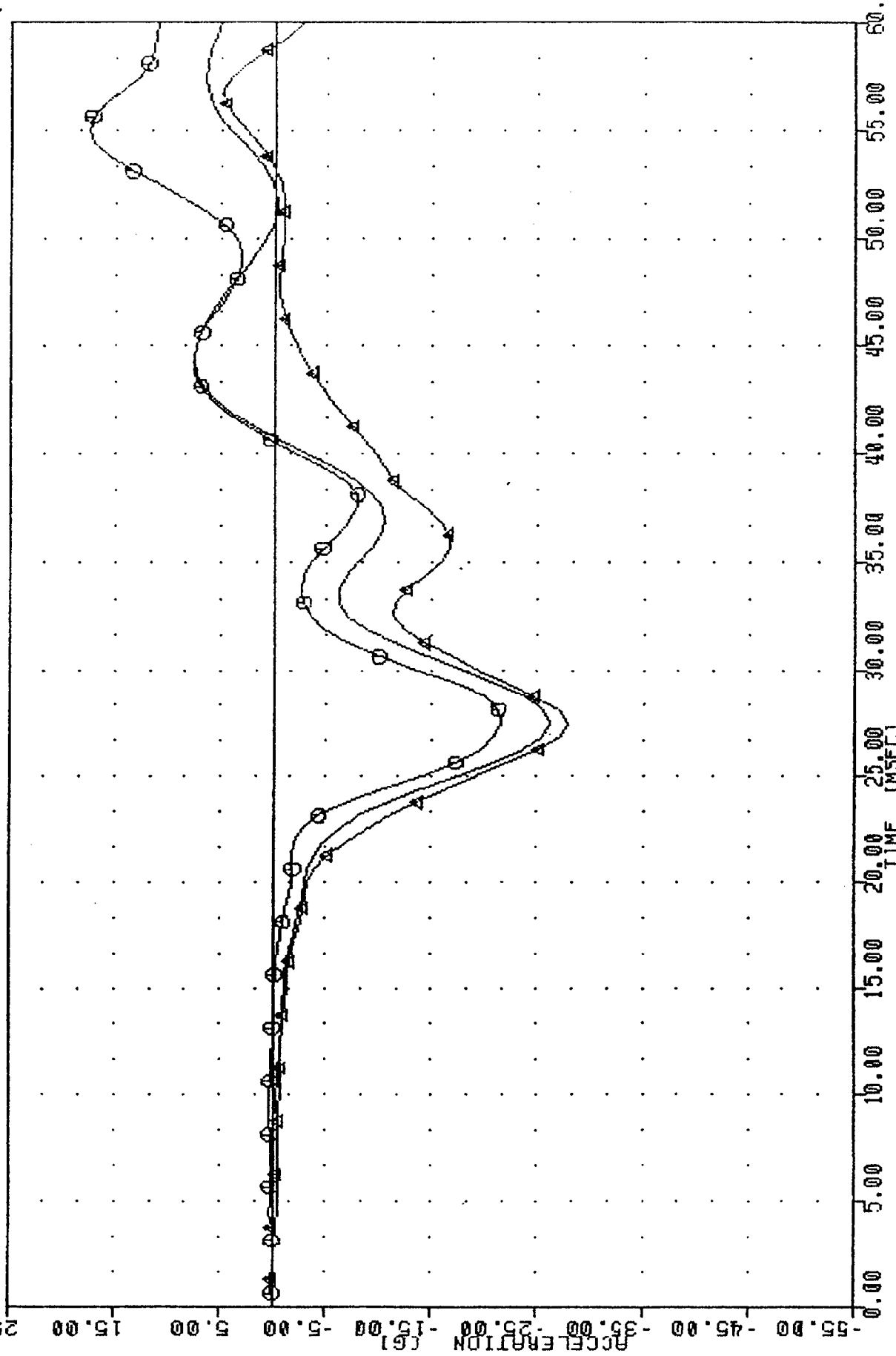
APPENDIX C  
DUMMY CERTIFICATION

VRIC 3RL91, S100888 S10 THORAX 6 BODY 318 CHL 88 84019 84019 20-JAN-84 13:29:04  
 TO1Y61 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -25.96 26.87 7.49 43.75  
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -21.58 28.87 17.54 54.38  
 MN-2SD A FILTER = HSRI 136/ 189/ -50 MIN, MAX = -27.91 26.87 4.78 56.25



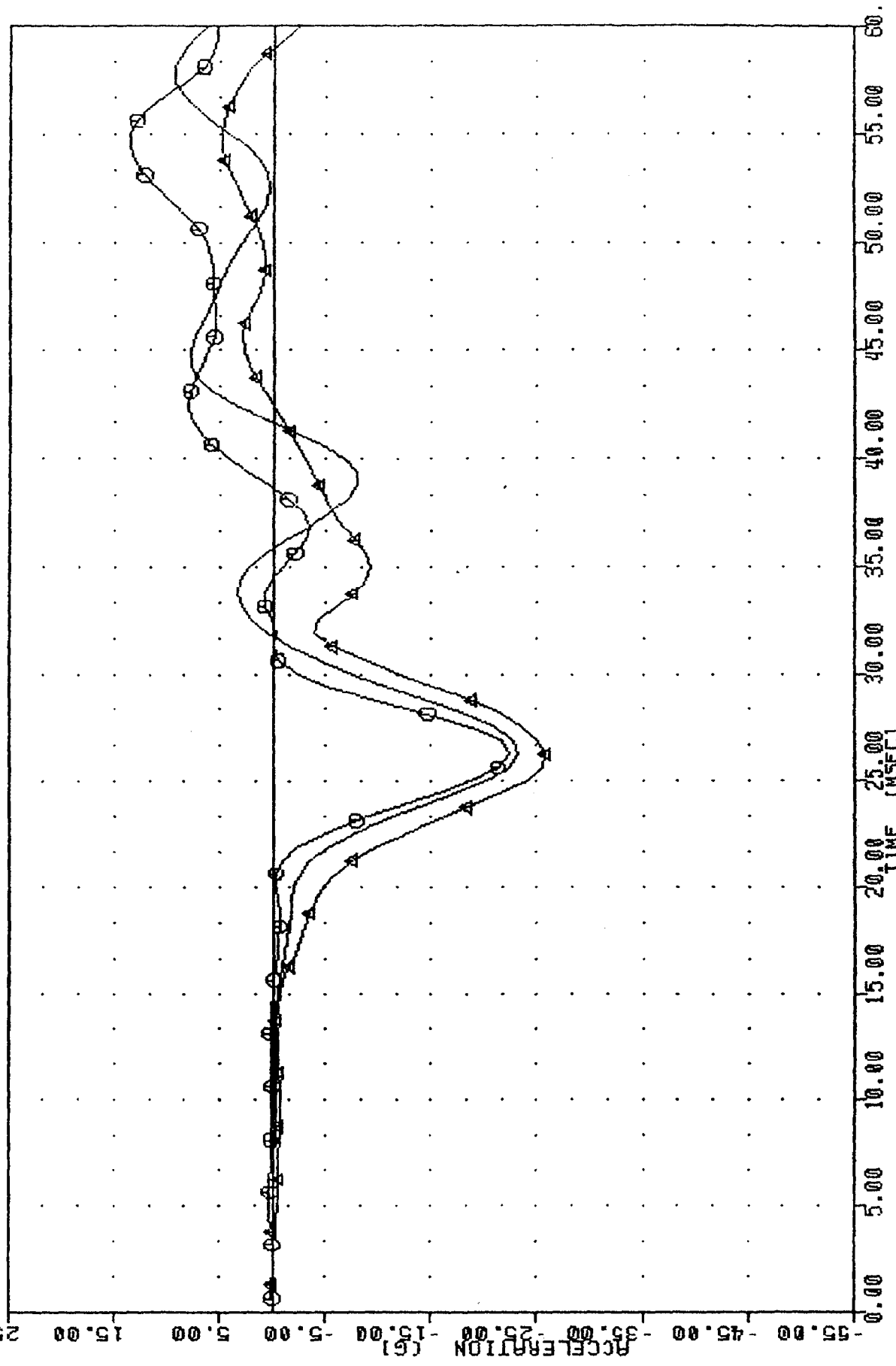
SIDE IMPACT TEST (006)  
 UPPER SPINE ACCELERATION Y AXIS -1

VRIC 3HL91, S100888 SID THORAX B BODY 318 CAL 88 84019 PLUT DATE 20-JUN-84 13:30:53  
 101YGR FILTER: HSRI 136/ 189/ -50 MIN, MAX = -26.22 26.87 7.46 43.75  
 MN-250 0 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -21.58 26.87 17.54 54.38  
 MN-250 A FILTER: HSRI 136/ 189/ -50 MIN, MAX = -27.91 26.87 4.78 56.25



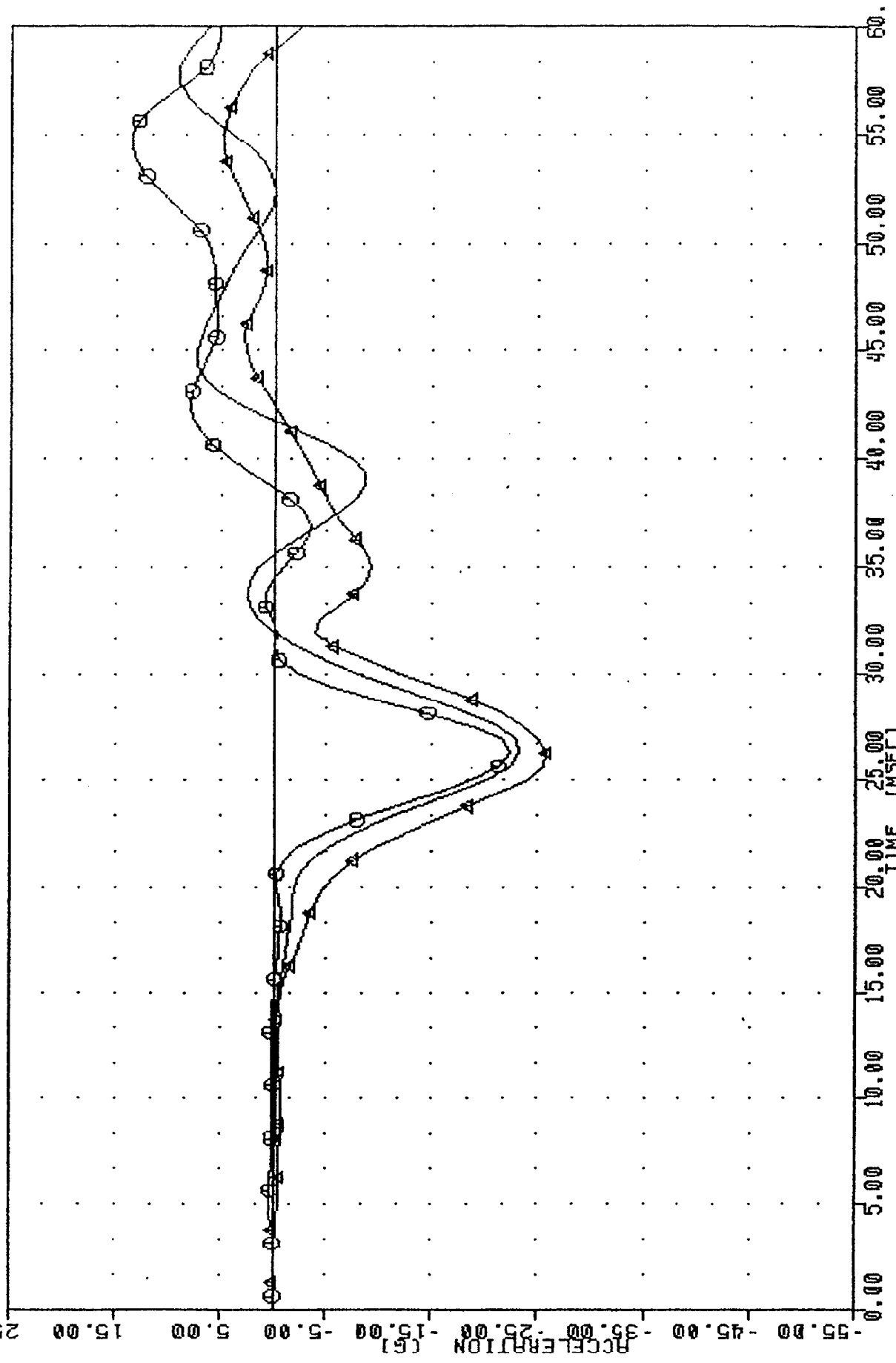
SIDE IMPACT TEST (006)  
 UPPER SPINE ACCELERATION Y AXIS -A

VRTC 5HL91, S100583 S10 THORAX 6 BODY 318 CAL 88 PLOT DATE 20-JAN-84 13:42:44  
 T12Y61 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -23.24 9.198 56.87  
 MN-250 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -22.37 9.198 56.87  
 MN-250 A FILTER = HSRI 136/ 189/ -50 MIN, MAX = -25.84 9.198 56.87



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

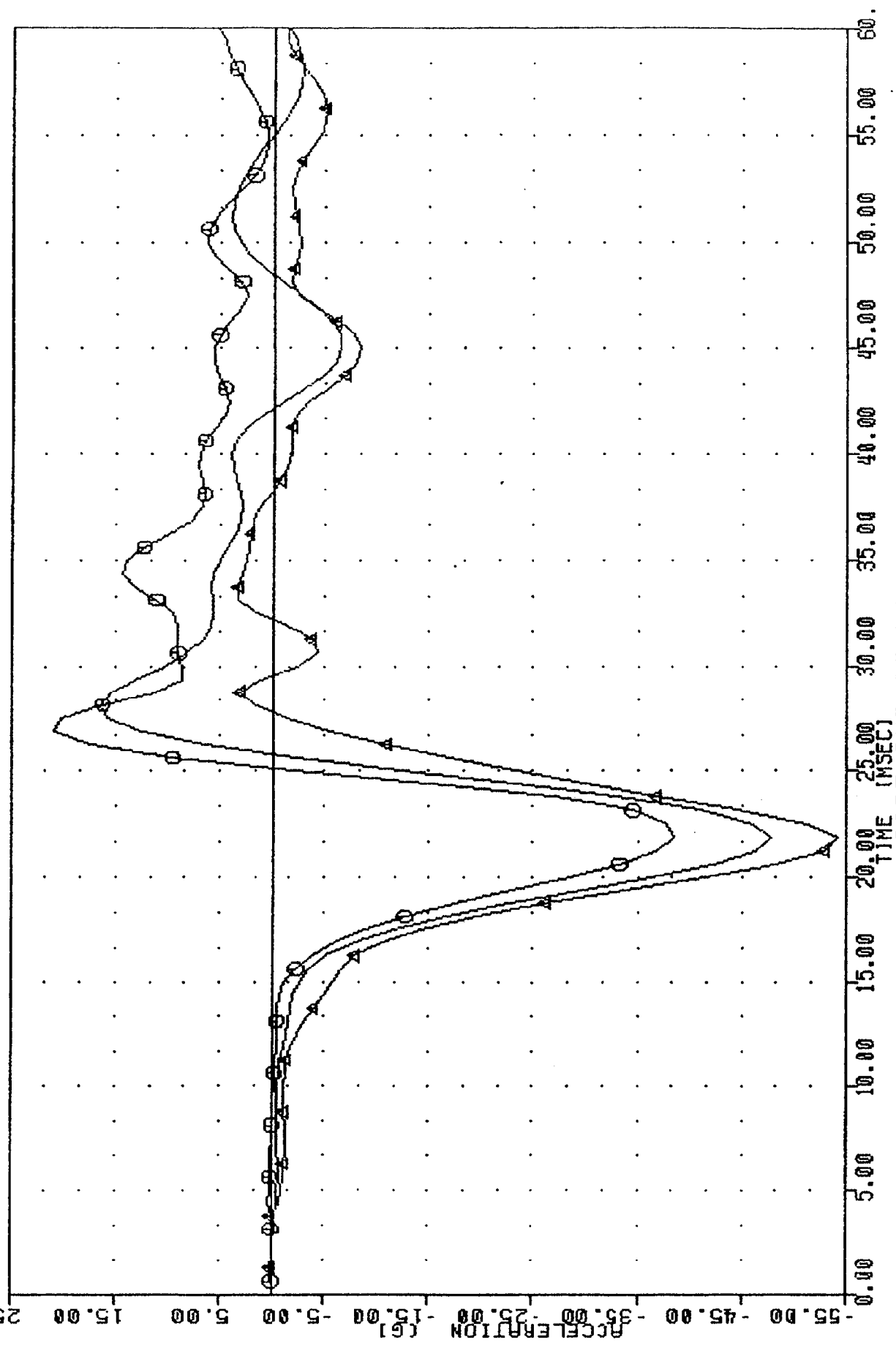
VRTC 3HL91, S100588 SID THORAX 6 BODY 318 LAL 88 84019 PLOT DATE 20-JAN-84 13:45:15  
 T12YGA FILTER: HSRI 136/ 189/ -50 MIN, MAX = -23.29 9.05  
 MN-250 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -22.37 13.54  
 MN-250 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -25.84 4.85



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

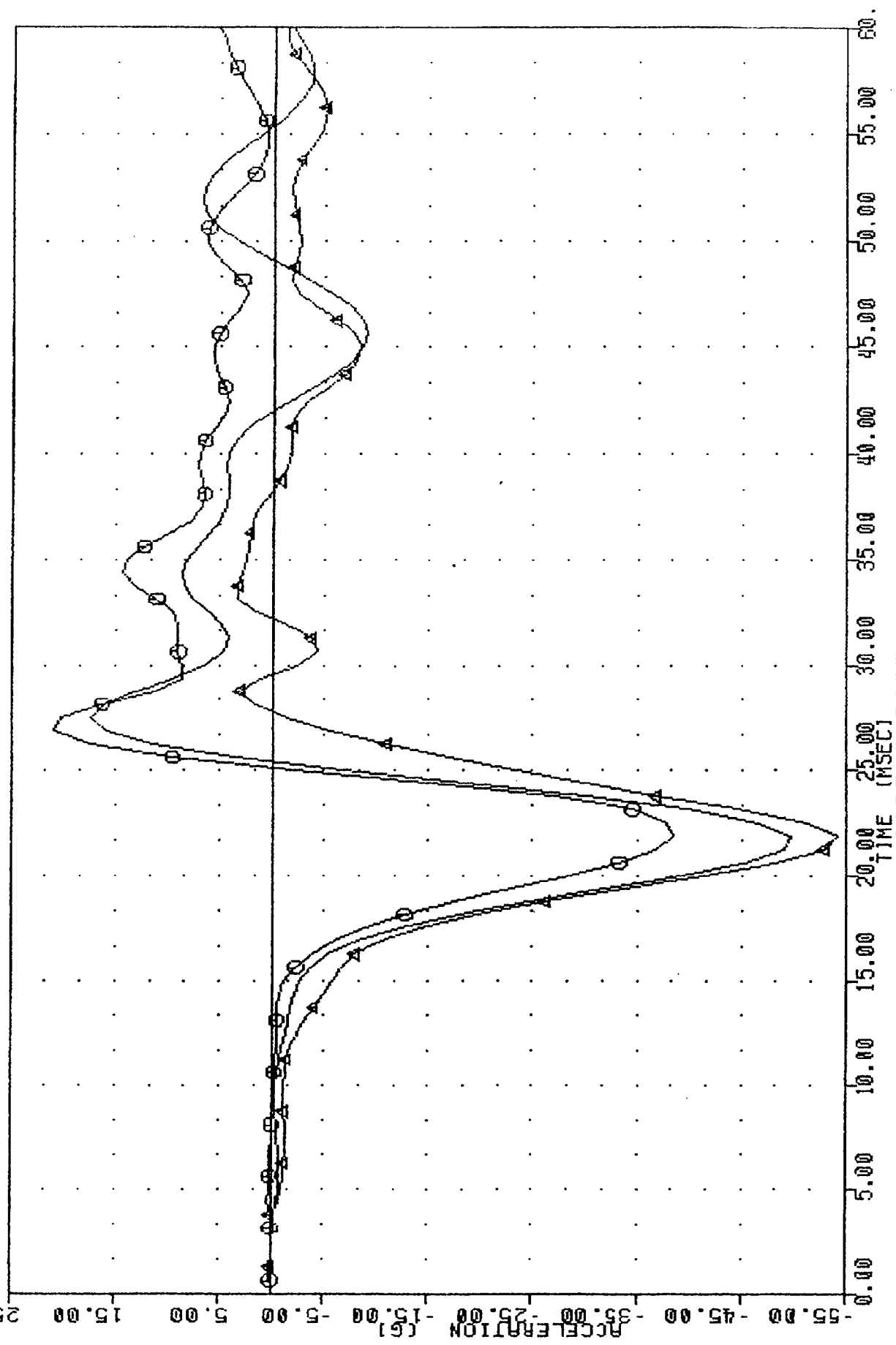


VRIC SRL91, S100688 SID THORAX 6 BODY 318 CAL 88 84019 20-JAN-84 13:37:57  
 LURYGI FILTER = HSRI 136/ 189/ -50 MIN, MAX = -47.83 21.25, 16.52 27.50  
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -38.44 21.25, 20.92 26.25  
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -54.08 21.25, 3.31 33.13



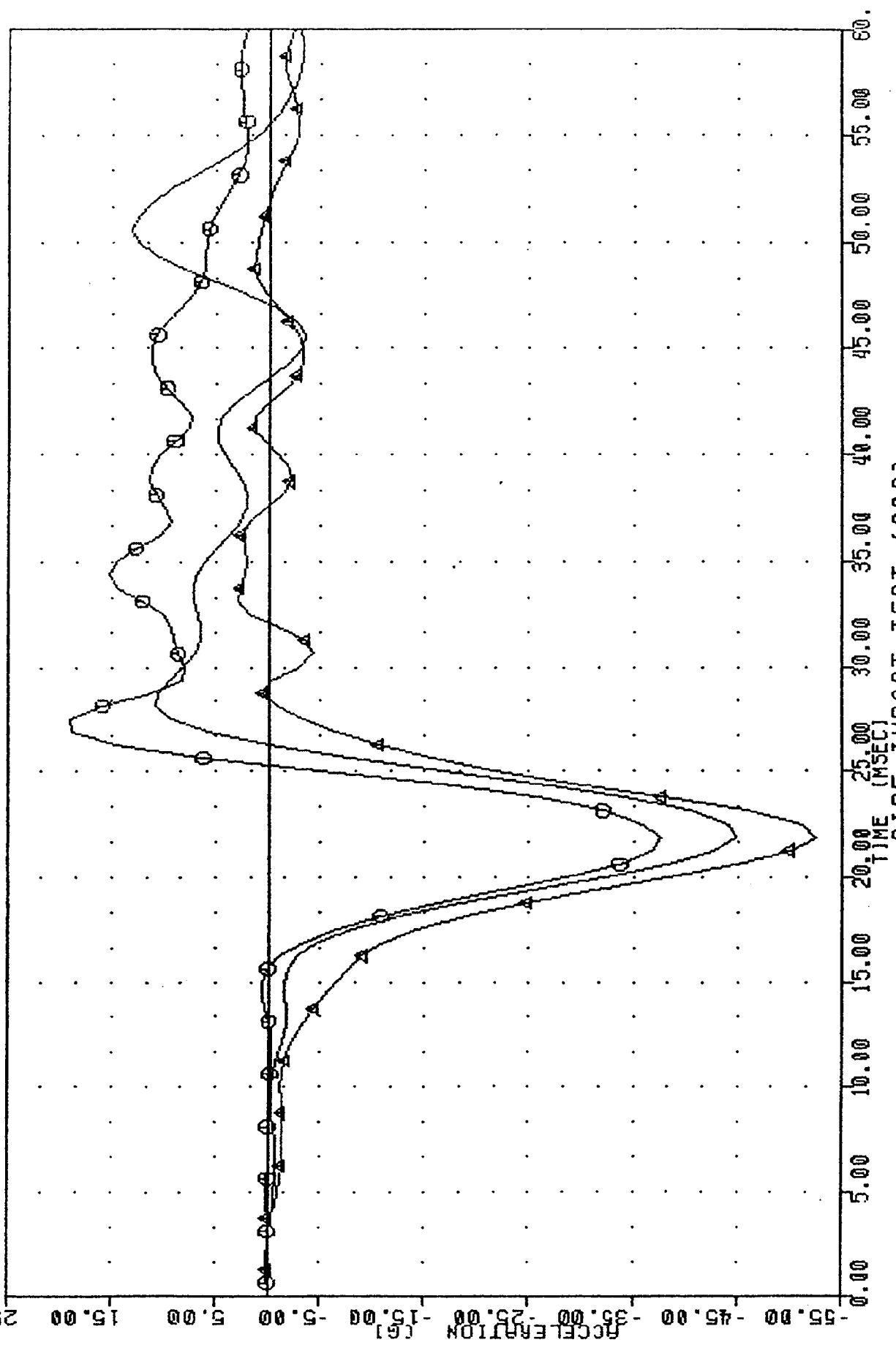
SIDE IMPACT TEST (006)  
 LEFT UPPER RIB ACCELERATION Y AXIS -1

VRLC SRL91, 3100688  
 LURYGA FILTER: HSRI  
 MN-2SD 0  
 MN-2SD 4  
 SIO THORAX 6 BODY 318 CAL 88  
 136/ 189/ -50 MIN. MAX =  
 136/ 189/ -50 MIN. MAX =  
 136/ 189/ -50 MIN. MAX =  
 84019  
 -49.72  
 -38.44  
 -54.08  
 PLOT DATE 20-JAN-84 14:04:17  
 21.25, 17.26  
 21.25, 20.82  
 21.25, 3.31  
 26.87  
 26.25  
 33.13



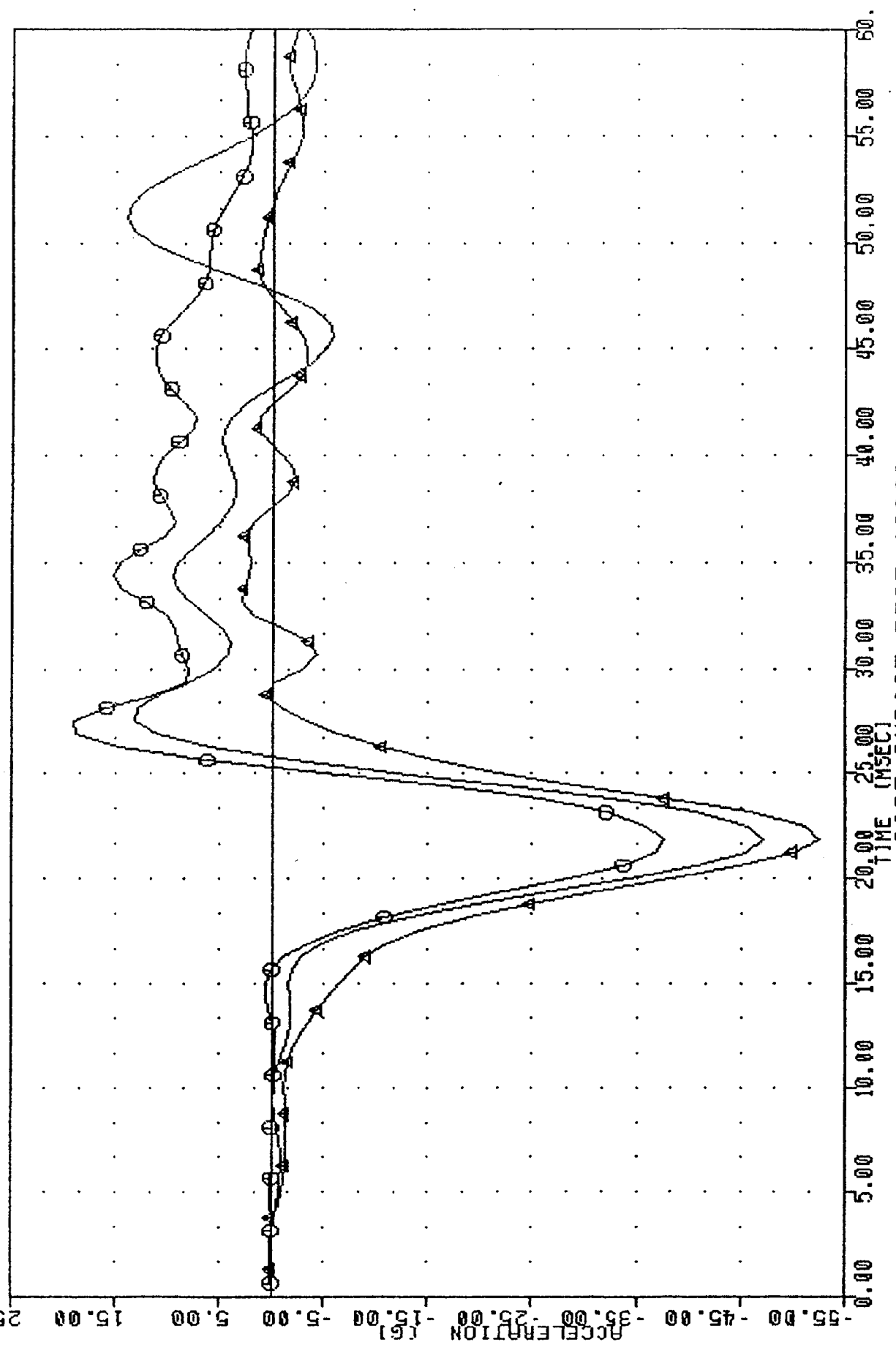
SIDE IMPACT TEST (006)  
 LEFT UPPER RIB ACCELERATION Y AXIS -A

VRIC SHL91, 3100588 SID THORAX B BOUT 318 CHL 88 84019 PLOT DATE 20-JAN-84 13:46:58  
 LLRYG1 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -44.96 21.25, 12.95 50.00  
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -37.66 21.25, 19.00 26.87  
 MN-2SD A FILTER = HSRI 136/ 189/ -50 MIN, MAX = -52.52 21.25, 2.94 32.50



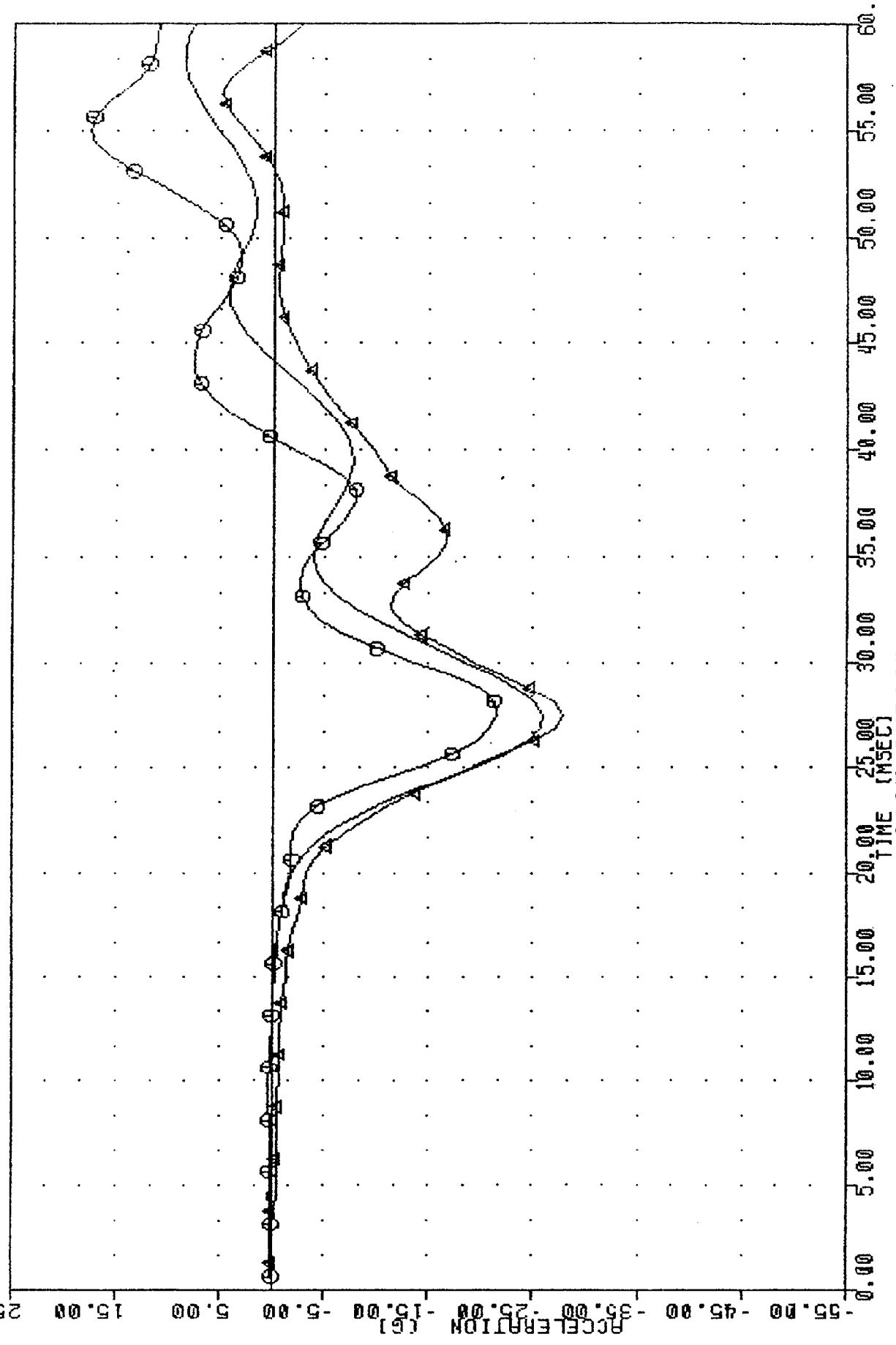
SIDE IMPACT TEST (0006)  
 LEFT LOWER RIB ACCELERATION Y AXIS -1

VRTC 5HL91, S100688 SID THORAX 6 BODY 318 CAL 88 84019 PLOT DATE 20-JAN-84 13:49:00  
 LLRYGR FILTER = HSRI 136/ 189/ -50 MIN, MAX = -47.29 21.25 13.88 50.63  
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -37.66 21.25 19.00 26.87  
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -52.52 21.25 2.94 32.50



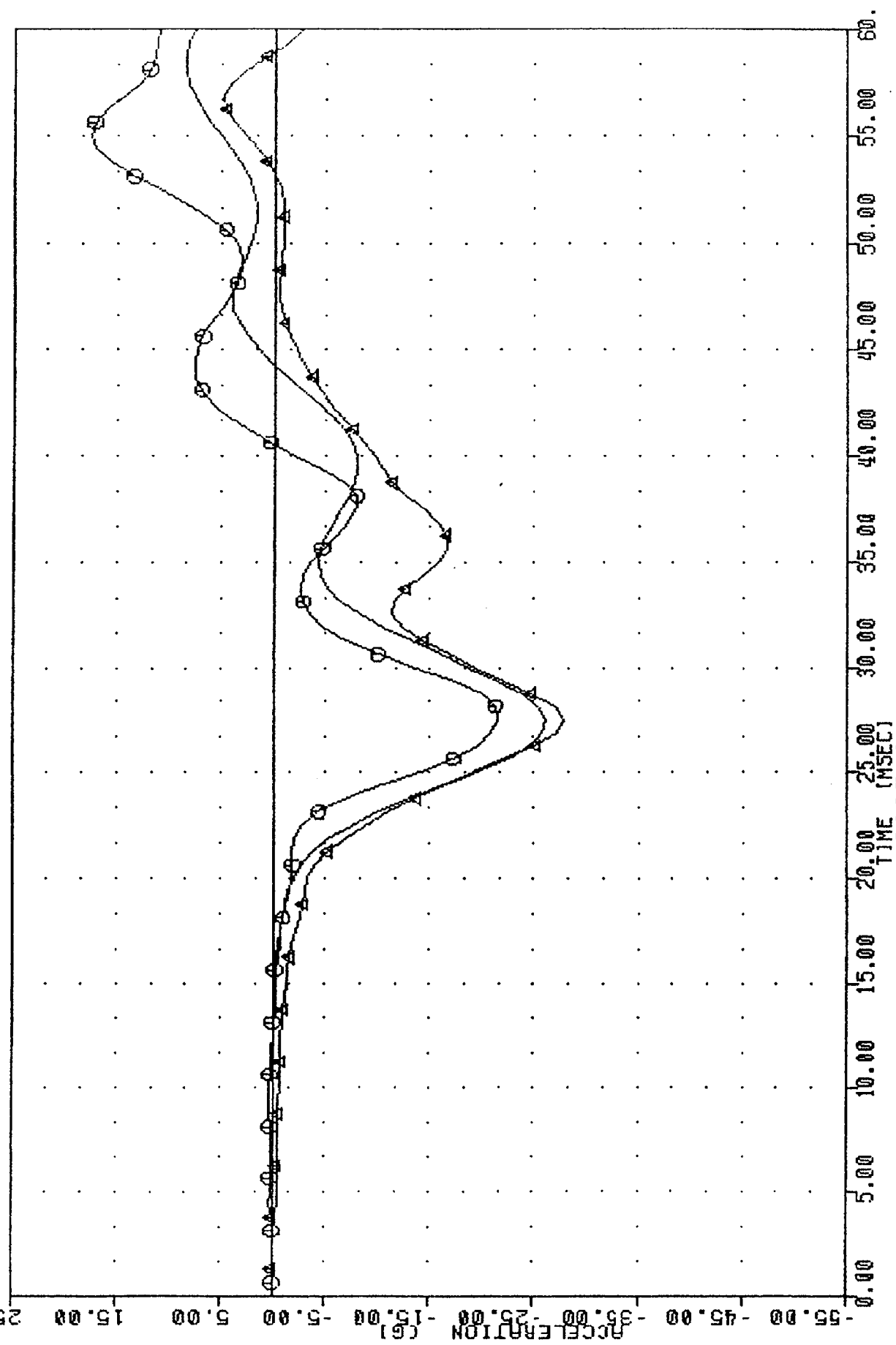
SIDE IMPACT TEST (006)  
 LEFT LOWER RIB ACCELERATION Y AXIS -A

VRIC SHL91, SIU0289 SID THORAX U02 BODY 830 CAL 89 81020 PLOT DATE 20-JAN-84 13:29:48  
 TOIY61 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -25.91 26.87 8.36 58.13  
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -21.58 26.87 17.54 54.38  
 MN-2SD A FILTER = HSRI 136/ 189/ -50 MIN. MAX = -27.91 26.87 4.78 56.25



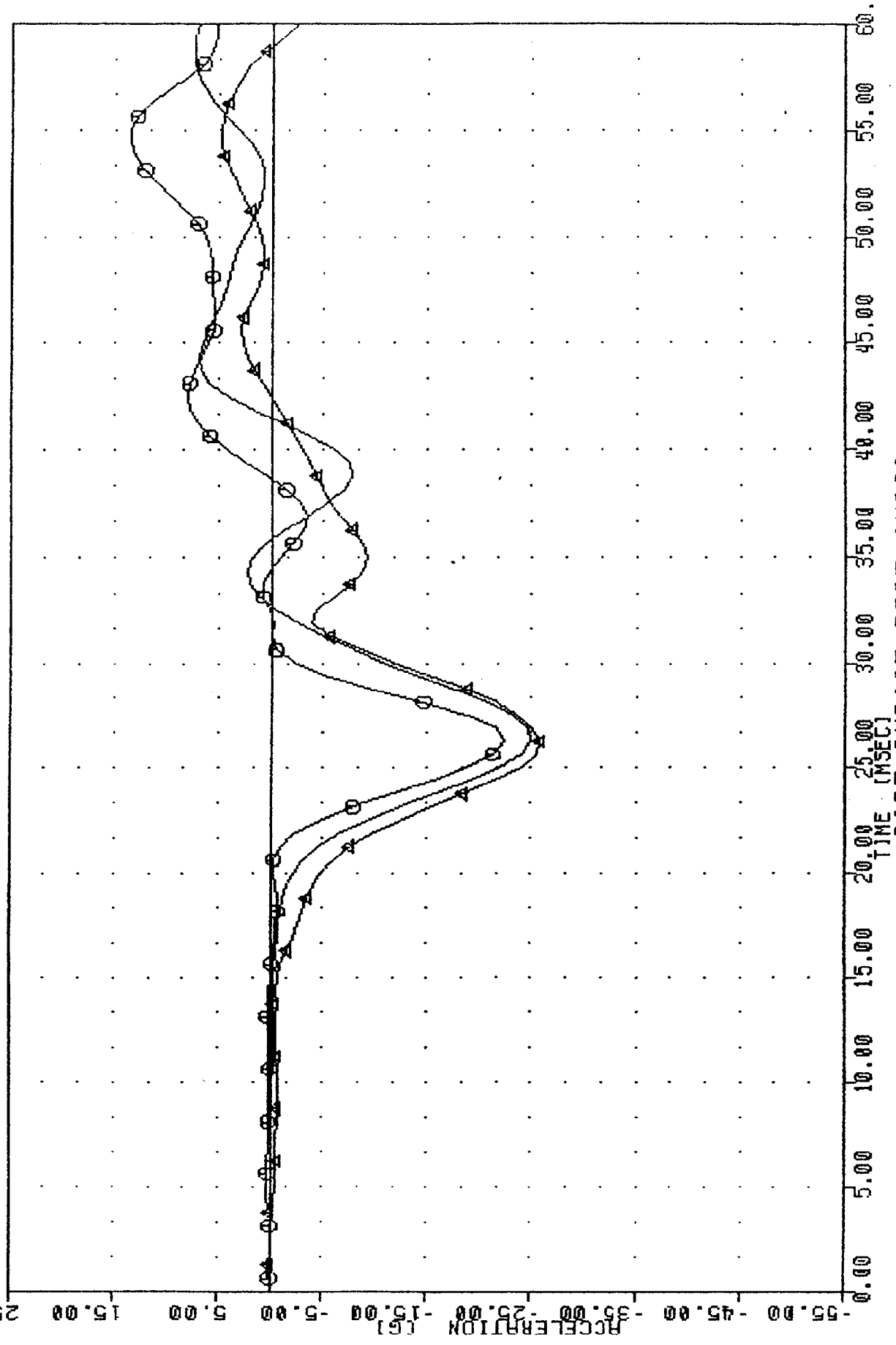
SIDE IMPACT TEST (U02)  
 UPPER SPINE ACCELERATION Y AXIS -1

YRIC SRL91, SIU0289 SID THORAX U02 BODY 830 CAL 89 84020 PLOT DATE 20-JAN-84 13:33:21  
 TOLYGA FILTER = HSRI 136/ 189/ -50 MIN, MAX = -26.10 8 26.87, 8.368 58.13  
 MN-250 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -21.58 8 26.87, 17.548 54.38  
 MN-250 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -27.91 8 26.87, 4.788 56.25



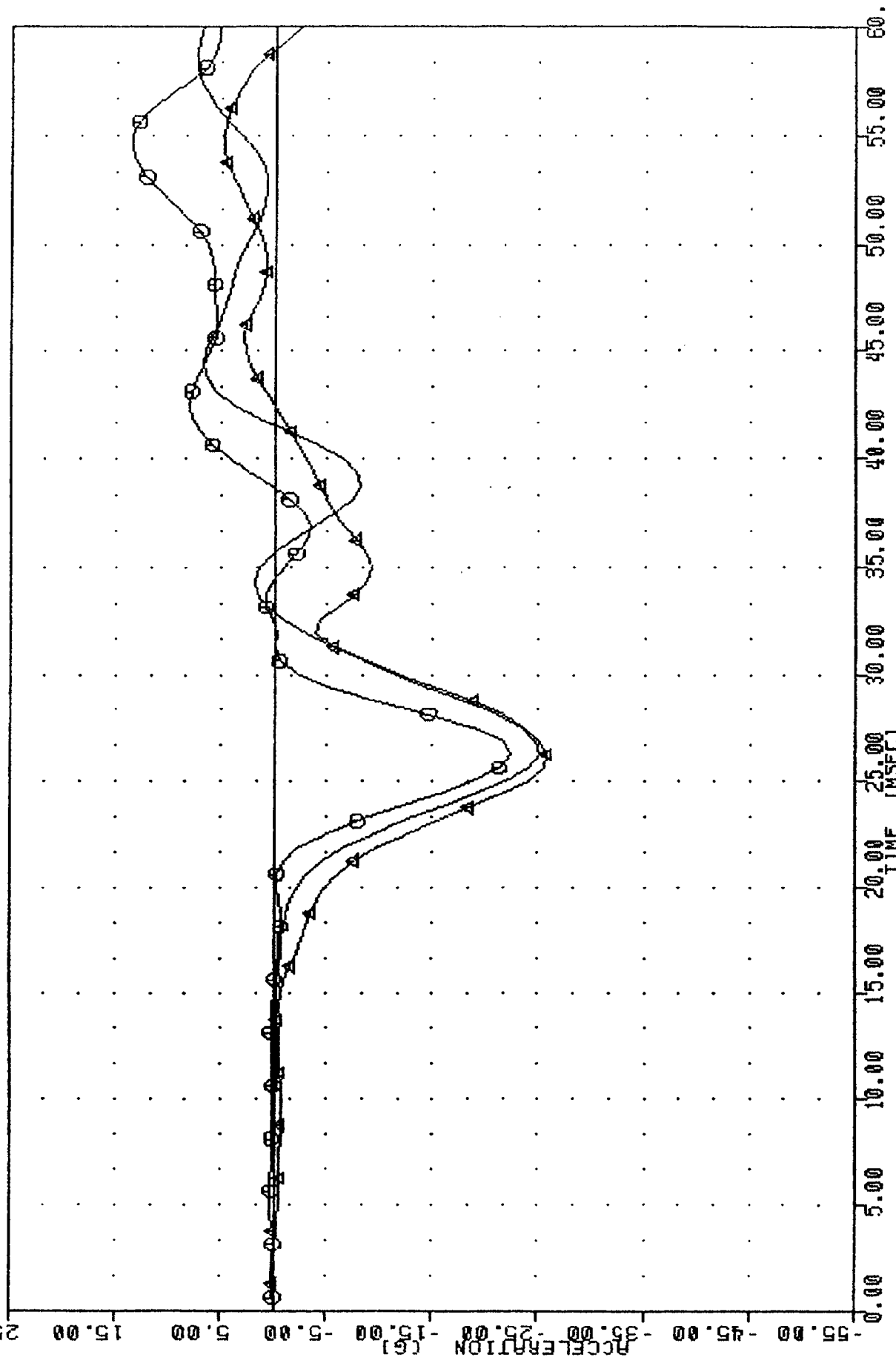
SIDE IMPACT TEST (U02)  
 UPPER SPINE ACCELERATION Y AXIS -A

VRI 3HL91, SIUW289, SIU THORAX U02 BODY 83W CAL 89 84W20 PLOT DATE 20-JAN-84 13:35:55  
 T12Y61 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -25.02 25.63, 7.40 58.13  
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -22.37 25.63, 13.54 53.75  
 MN-2SD A FILTER = HSRI 136/ 189/ -50 MIN. MAX = -25.84 25.63, 4.85 53.75



SIDE IMPACT TEST (U02)  
 LOWER SPINE ACCELERATION Y AXIS -1

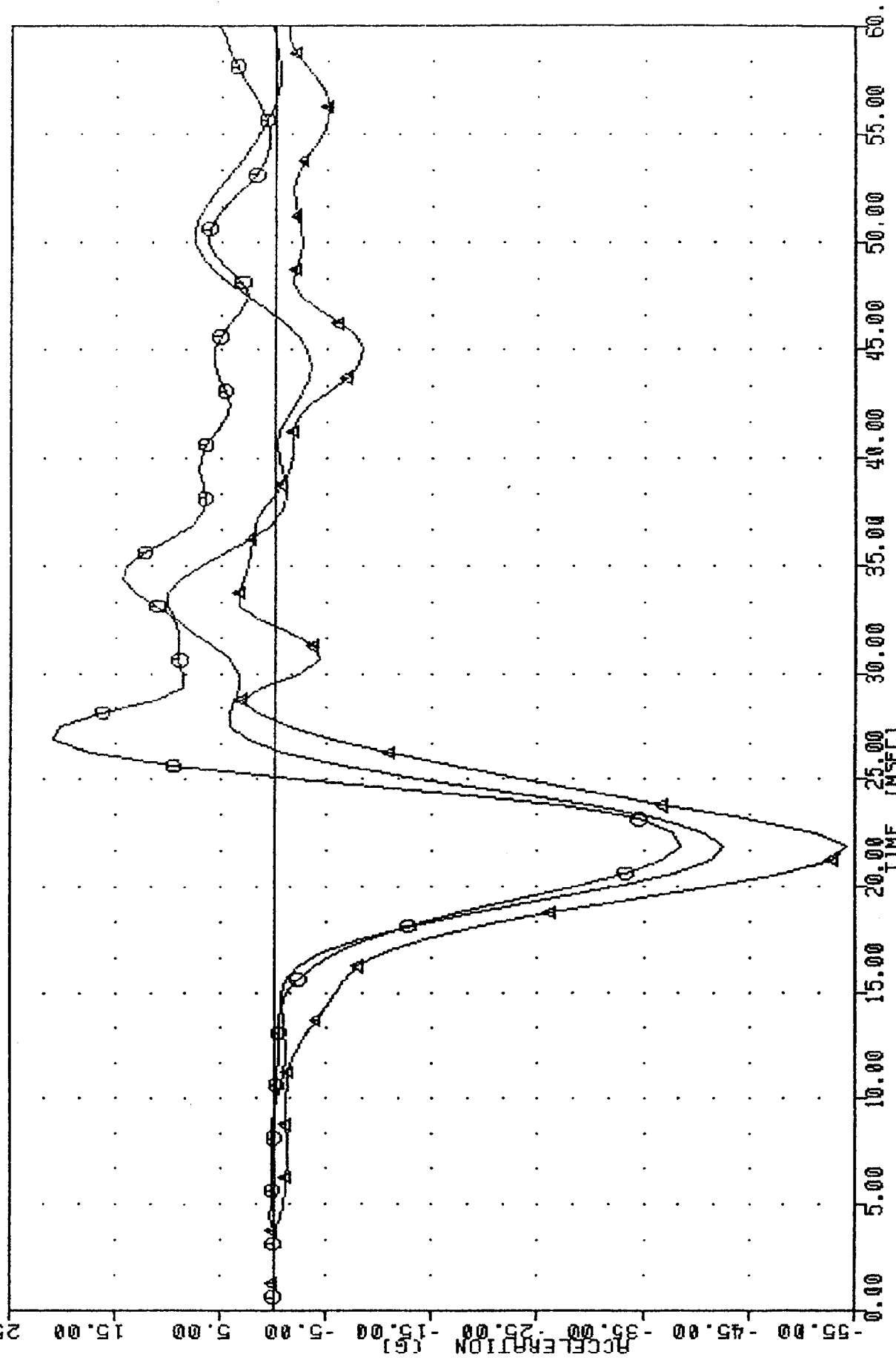
VRTC 3HL91, SIU0289, SIU THORAX U02 BODY 85N CAL 89 81020 P CUT DATE 20-JAN-84 13:38:48  
 T12YGA FILTER: HSRI 136/ 189/ -50 MIN, MAX = -25.03 25.63 7.34 58.13  
 MN-2SD 0 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -22.37 25.63 13.54 53.75  
 MN-2SD A FILTER: HSRI 136/ 189/ -50 MIN, MAX = -25.84 25.63 4.85 53.75



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

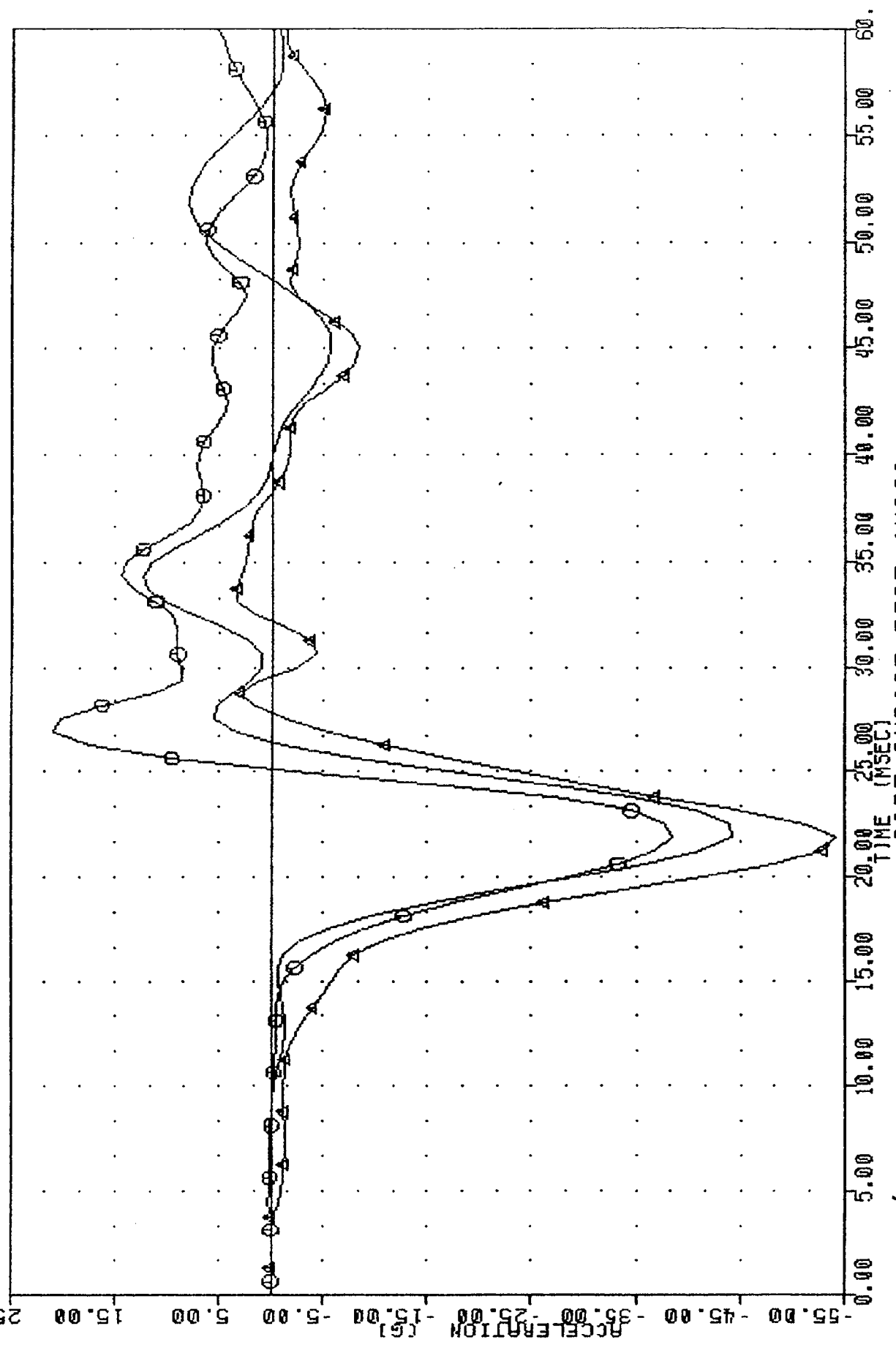


VRIC SRL91, SIU0289 SID THORAX U02 BODY 83W CAL 89 84020 PCUT DATE 20-JAN-84 13:50:14  
 LURY61 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -42.59 21.25, 10.15 32.50  
 MN-2SD 0 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -38.44 21.25, 20.92 26.25  
 MN-2SD A FILTER: HSRI 136/ 189/ -50 MIN, MAX = -54.08 21.25, 3.31 33.13



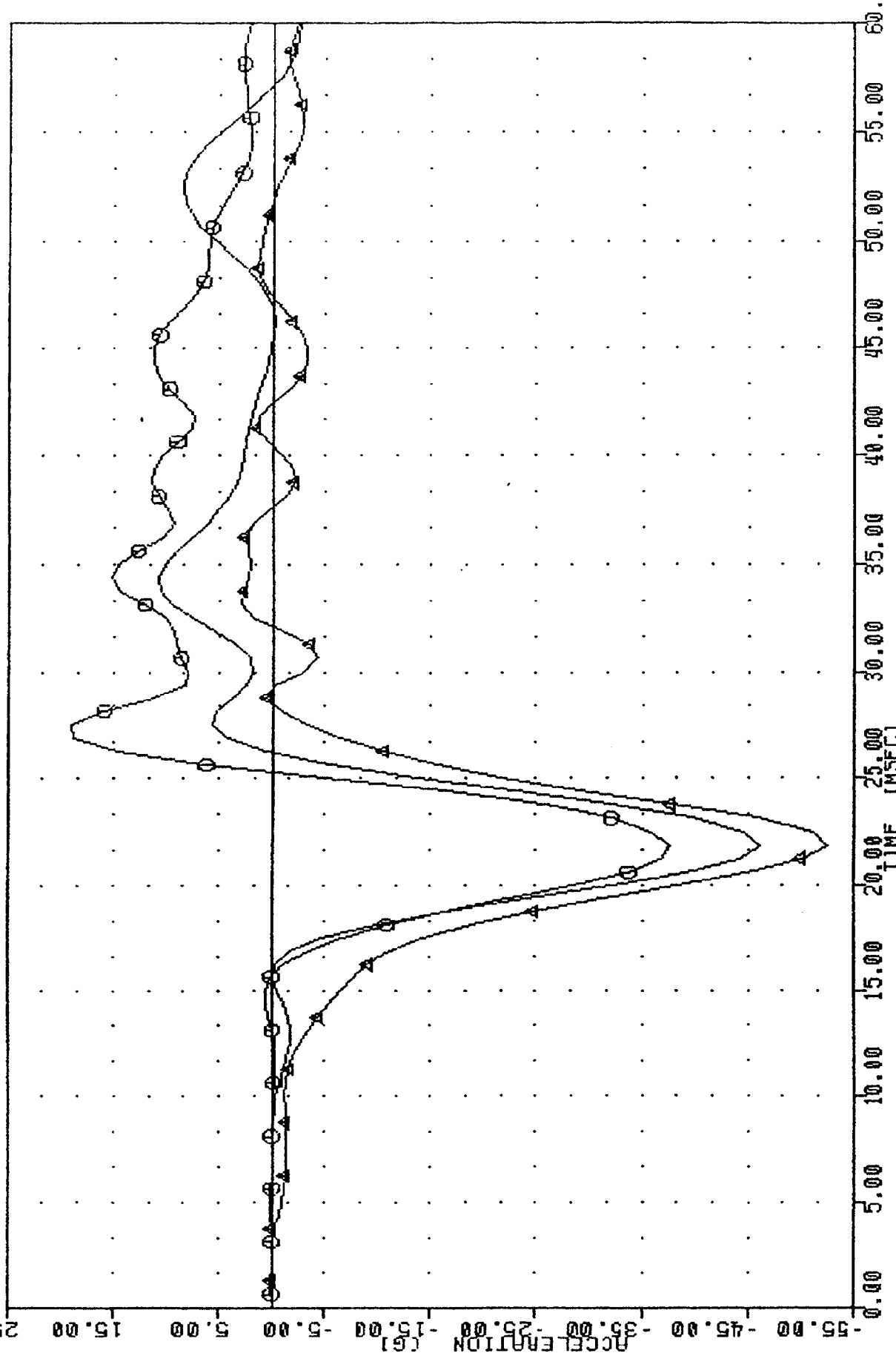
SIDE IMPACT TEST (U02)  
 LEFT UPPER RIB ACCELERATION Y AXIS -1

VRIC SRL91, SIU0289 SID THORAX 002 BODY 83W CAL 89 81020 PLOT DATE 20-JAN-84 13:47:46  
 LURYGA FILTER = HSRI 136/ 189/ -50 MIN, MAX = -44.16 21.25 12.16 33.75  
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -38.44 21.25 20.82 26.25  
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -54.08 21.25 3.31 33.13



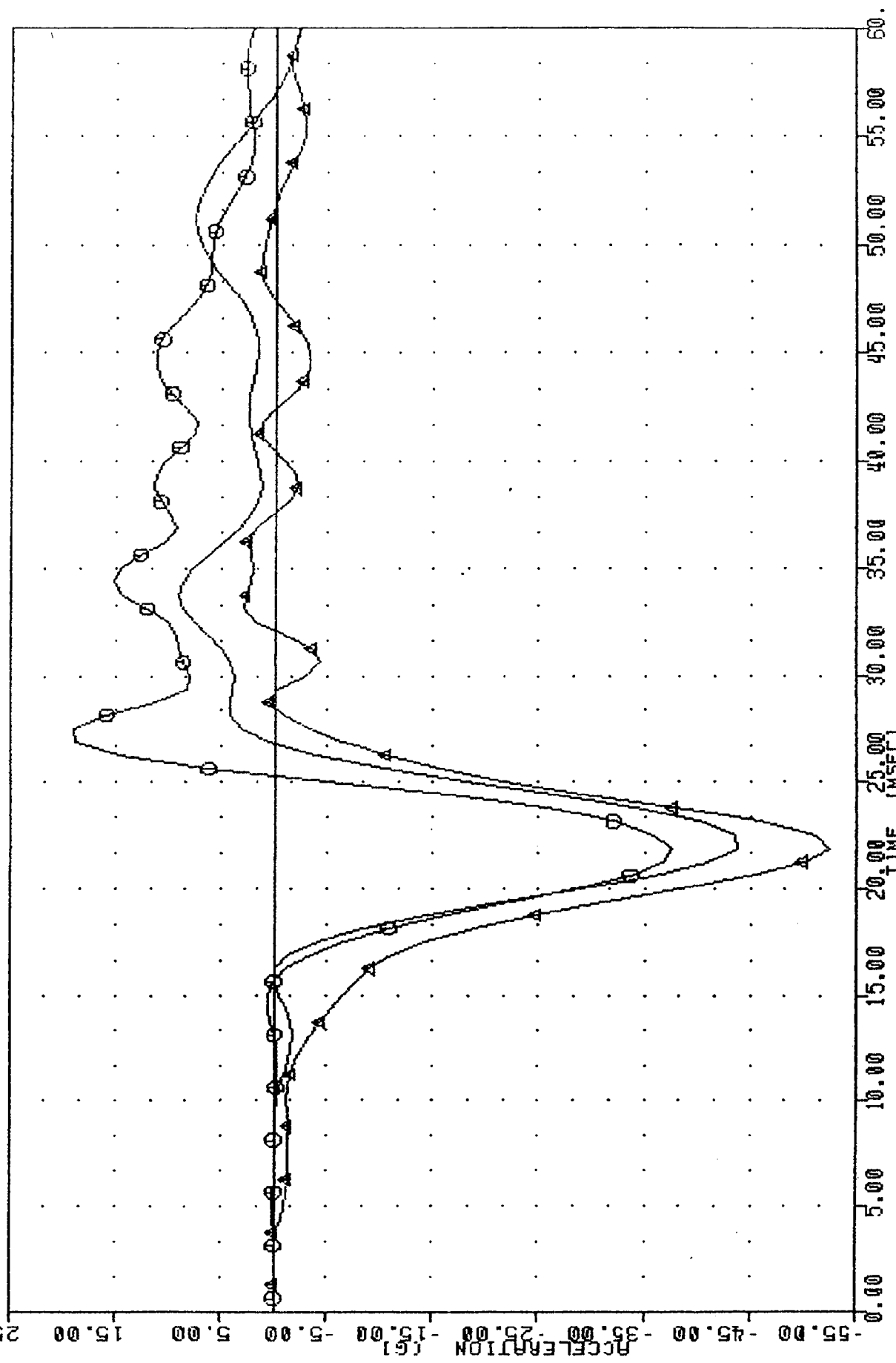
SIDE IMPACT TEST (U02)  
 LEFT UPPER RIB ACCELERATION Y AXIS - A

VRTC 3HL91, SIUW289, S10 MORAX 002 89 84W20 84 13:46:10  
 LLYG1 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -46.13 8 10.728 33.75  
 MN-2SD 0 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -37.66 8 19.000 26.87  
 MN-2SD A FILTER: HSRI 136/ 189/ -50 MIN, MAX = -52.52 8 2.940 32.50



SIDE IMPACT TEST (U02)  
 LEFT LOWER RIB ACCELERATION Y AXIS -1

VRC 3AL91, SIU0289, SID 110RAX 002 BODY 83W CAL 89 84020 PLUT DATE 20-JUN-84 14:01:20  
 LRYGR FILTER = HSRI 136/ 189/ -50 MIN, MAX = -43.82 8 21.25, 8.950 33.13  
 MN-2SD Q FILTER = HSRI 136/ 189/ -50 MIN, MAX = -37.66 8 21.25, 19.000 26.87  
 MN-2SD A FILTER = HSRI 136/ 189/ -50 MIN, MAX = -52.52 8 21.25, 2.940 32.50



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