

DOT 621

EVALUATION OF NHTSA MODIFIED  
VOLKSWAGEN RABBITS

MDB-TO-CAR SIDE IMPACT TEST OF  
A 26<sup>0</sup> CRABBED MOVING DEFORMABLE BARRIER  
TO A 1976 VOLKSWAGEN RABBIT  
AT 39.1 MPH

PREPARED BY:  
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FINAL REPORT  
NOVEMBER 1983

PREPARED FOR:  
U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1. Report No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2. Government Accession No.                          | 3. Recipient's Catalog No.                                                                                                                                                                                      |           |
| 4. Title and Subtitle<br>EVALUATION OF NHTSA MODIFIED VOLKSWAGEN RABBITS<br>MDB-TO-CAR SIDE IMPACT TEST OF A 26 <sup>0</sup> CRABBED MOVING<br>DEFORMABLE BARRIER TO A 1976 VOLKSWAGEN RABBIT<br>AT 39.1 MPH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                      | 5. Report Date<br>NOVEMBER 1983                                                                                                                                                                                 |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                      | 6. Performing Organization Code                                                                                                                                                                                 |           |
| 7. Author(s)<br>J. Stultz, Project Engineer, TRCO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                      | 8. Performing Organization Report No.<br>831024                                                                                                                                                                 |           |
| 9. Performing Organization Name and Address<br>Vehicle Research and Test Center<br>St. Rt. 33, Logan County<br>East Liberty, Ohio 43319                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                      | 10. Work Unit No. (TRAIS)                                                                                                                                                                                       |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                      | 11. Contract or Grant No.<br>DTNH22-82-A-08401                                                                                                                                                                  |           |
| 12. Sponsoring Agency Name and Address<br>U.S. Department of Transportation<br>National Highway Traffic Safety Administration<br>400 Seventh Street, S.W.<br>Washington, DC 20590                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                      | 13. Type of Report and Period Covered<br>FINAL REPORT<br>October 1983                                                                                                                                           |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                      | 14. Sponsoring Agency Code                                                                                                                                                                                      |           |
| 15. Supplementary Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                      |                                                                                                                                                                                                                 |           |
| 16. Abstract<br><br>This test report documents one of a series of twelve crash tests to evaluate the NHTSA's Modified Volkswagen Rabbits. Testing was conducted on a 1976 Volkswagen Rabbit 2-door hatchback with structural modifications designated as Optimized at the TRCO Crash Test Facility, East Liberty, Ohio. The test vehicle was impacted on the left side by a moving deformable barrier, crabbed to 26 <sup>0</sup> , at 39.1 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 October 24, 1983 and the ambient temperature was 59 <sup>0</sup> F. |                                                      |                                                                                                                                                                                                                 |           |
| 17. Key Words<br>Occupant Response<br>Moving Barrier Crash Testing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                      | 18. Distribution Statement Available from:<br>Technical Reference Division, National<br>Highway Traffic Safety Administration<br>Room 5108, Nassif Building<br>400 Seventh Street, S.W.<br>Washington, DC 20590 |           |
| 19. Security Classif. (of this report)<br>Unclassified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20. Security Classif. (of this page)<br>Unclassified | 21. No. of Pages<br>157                                                                                                                                                                                         | 22. Price |

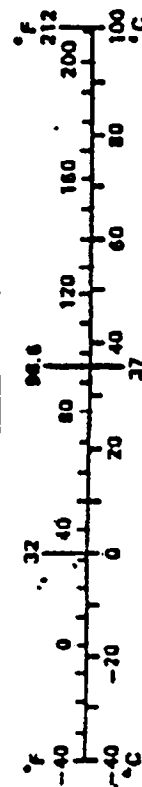
# METRIC CONVERSION FACTORS

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                      | acres              | 0.4                        | hectares           | ha              |
| <b>MASS (weight)</b>       |                    |                            |                    |                 |
| oz                         | ounces             | 28                         | grams              | g               |
| lb                         | pounds             | 0.45                       | kilograms          | kg              |
|                            | short tons         | 0.9                        | metric ton         | t               |
|                            | (2000 lb)          |                            |                    |                 |
| <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                 | 2.5               | acres              | acres           |
|                            | (10 000 m <sup>2</sup> ) |                   |                    |                 |
| <b>MASS (weight)</b>       |                          |                   |                    |                 |
| g                          | grams                    | 0.035             | ounces             | oz              |
| kg                         | kilograms                | 2.2               | pounds             | lb              |
| t                          | metric ton               | 1.1               | short tons         |                 |
|                            | (1000 kg)                |                   |                    |                 |
| <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 the NHTSA fleet of modified Volkswagen Rabbits with and without padding. The vehicle was tested using conditions not currently contained in a Federal Motor Vehicle Safety Standard.

INTRODUCTION

A stationary 1976 Volkswagen Rabbit 2-door hatchback was impacted on the left side by a Moving Deformable Barrier (MDB) on October 24, 1983. The test was to simulate an intersection collision with the striking vehicle traveling at 35 mph and the struck vehicle traveling at 17.5 mph. The orientation angle of the striking vehicle was 90° counterclockwise with respect to the longitudinal axis of the struck vehicle. The leading edge of contact was to be 37 inches forward of the vehicle center of gravity which is defined by accident investigation to be the midpoint of the wheelbase.

To simulate this collision, the MDB was to be towed into the stationary Volkswagen Rabbit at 39.1 mph with the MDB's wheels crabbed clockwise to 26°. The actual test speed was 39.1 mph and the actual leading edge was 38. inches forward of the midpoint of the Volkswagen Rabbit's wheelbase.

The vehicle was structurally modified to the level designated "Optimized." The driver door and left rear occupant wall were unpadded.

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

SECTION 2.0  
GENERAL TEST AND VEHICLE PARAMETER DATA

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



TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Volkswagenwerk AG

MAKE/MODEL: Volkswagen Rabbit

VIN: 1763016309

BODY STYLE: 2-Door Hatchback

MODEL YEAR: 1976

NHTSA NO.: R & D

COLOR: Green

ENGINE DATA: TYPE: Transverse

CYLINDERS: 4

DISPLACEMENT 97 CID

TRANSMISSION DATA: 4 Speed Manual

DATE VEHICLE RECEIVED: 10/3/83

ODOMETER READING: 71745

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING No  
POWER BRAKES No  
POWER SEATS No  
POWER WINDOWS No  
TINTED GLASS No  
RADIO No  
CLOCK No  
OTHER

AUTOMATIC TRANSMISSION No  
AUTOMATIC SPEED CONTROL No  
TILTING STEERING WHEEL No  
TELESCOPING STEERING WHEEL No  
AIR CONDITIONING No  
ANTI-SKID BRAKE No  
REAR WINDOW DEFROSTER Yes

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? No, Structurally Optimized
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: Volkswagenwerk AG

DATE OF MANUFACTURE: 3/76

GVWR: 2777 LBS.,

GAWR: FRONT 1609 LBS., REAR 1278 LBS.

VEHICLE TIRE DATA

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

TIRES ON VEHICLE (MFG. & LINE, SIZE): Front, Left Rear - Continental  
TS 771 - 155 SR 13  
Right Rear - Uniroyal Rallye  
180 155 SR 13

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            | 580  | LBS. | RIGHT REAR                       | 330 | LBS. |
| LEFT FRONT             | 590  | LBS. | LEFT REAR                        | 330 | LBS. |
| TOTAL FRONT WEIGHT     | 1170 | LBS. | (63.9 % OF TOTAL VEHICLE WEIGHT) |     |      |
| TOTAL REAR WEIGHT      | 660  | LBS. | (36.1 % OF TOTAL VEHICLE WEIGHT) |     |      |
| TOTAL DELIVERED WEIGHT | 1830 | LBS. |                                  |     |      |

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

|                     |            |             |            |             |
|---------------------|------------|-------------|------------|-------------|
| DELIVERED ATTITUDE: | RF 26 1/8  | ;LF 26 1/4  | ;RR 25 3/4 | ;LR 25 1/2  |
| PRE-TEST ATTITUDE:  | RF 25 9/16 | ;LF 25 7/16 | ;RR 22 7/8 | ;LR 22 7/8  |
| POST-TEST ATTITUDE: | RF 24 1/16 | ;LF 25 3/4  | ;RR 22 5/8 | ;LR 23 7/16 |

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 162 LBS. CARGO:

|                    |      |      |                                  |     |      |
|--------------------|------|------|----------------------------------|-----|------|
| RIGHT FRONT        | 650  | LBS. | RIGHT REAR                       | 520 | LBS. |
| LEFT FRONT         | 650  | LBS. | LEFT REAR                        | 520 | LBS. |
| TOTAL FRONT WEIGHT | 1300 | LBS. | (55.6 % OF TOTAL VEHICLE WEIGHT) |     |      |
| TOTAL REAR WEIGHT  | 1040 | LBS. | (44.4 % OF TOTAL VEHICLE WEIGHT) |     |      |
| TOTAL TEST WEIGHT  | 2340 | LBS. |                                  |     |      |

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

TEST FLUID DATA

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

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

"USEABLE" CAPACITY\*: NA GALLONS

TEST VOLUME: 1.0 GALLONS

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

DETAILS OF FUEL SYSTEM: DNA

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ELECTRIC FUEL PUMP: No

FUEL INJECTION: No

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

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

VEHICLE LOAD (UP TO CAPACITY): FRONT 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  
4 TOTAL

CARGO LOAD 142 LBS.

TOTAL 642 LBS.

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

### TEST CONDITIONS

TEST NUMBER: 831024

DATE OF TEST: October 24, 1983

TIME OF TEST: 14:10

WIND VELOCITY: 2-10 mph 360° N

HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 59° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 70° F

### SUBJECT VEHICLE DATA

|                            | <u>ACTUAL</u> | <u>INTENDED</u> |
|----------------------------|---------------|-----------------|
| VEHICLE TEST WEIGHT (LBS.) | 2340          | 2320            |
| MDB TEST WEIGHT (LBS.)     | 2990          | 3000            |
| MDB VELOCITY (MPH)*        | 39.1          | 39.1            |
| IMPACT POINT (INCHES)**    | 38.           | 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 Volkswagen's wheelbase.

# GENERAL TEST AND VEHICLE PARAMETER DATA

## VISIBLE DUMMY CONTACT POINTS:

|            |                                 |                                 |
|------------|---------------------------------|---------------------------------|
|            | DRIVER # 06                     | PASSENGER # U02                 |
| Head       | <u>Side Header, Side Window</u> | <u>Side Header, Side Window</u> |
| Chest      | <u>Driver's Door Panel</u>      | <u>Side Wall</u>                |
| Abdomen    | <u>Driver's Door Panel</u>      | <u>Side Wall</u>                |
| Left Knee  | <u>Driver's Door Panel</u>      | <u>Left Quarter 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>DNA</u>            | <u>DNA</u>  |

## SEAT MOVEMENT:

|       |                   |                                            |
|-------|-------------------|--------------------------------------------|
|       | SEAT BACK FAILURE | SEAT SHIFT                                 |
| Front | <u>No</u>         | <u>Driver's Seat Separated From Mounts</u> |
| Rear  | <u>No</u>         | <u>No</u>                                  |

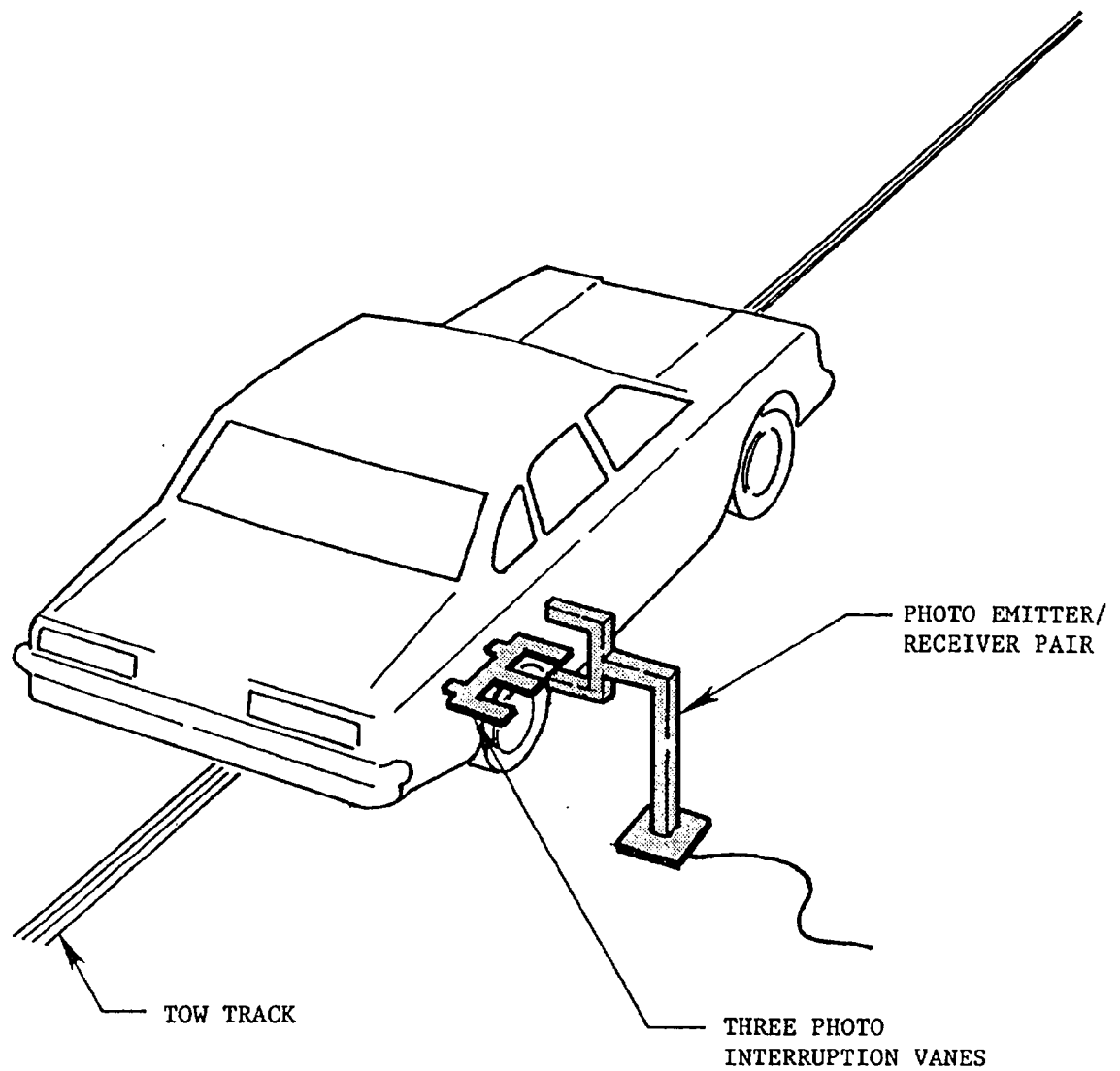
## GLAZING DAMAGE:

Left side of windshield cracked, left side windows separated intact, no backlight damage.

## OTHER NOTABLE IMPACT EFFECTS:

Driver's seat separated from mounts.

## IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane is located two inches before impact.

The vanes have one foot spacing.

VEHICLE TEST WEIGHT CALCULATION

$$\begin{aligned}\text{Test Weight} &= \text{Unloaded Delivered Weight} + \\ &\quad \text{Number of Dummies} \times 174 \text{ lbs.} + \\ &\quad \text{Cargo Weight} \\ &= 1830 + 2 \times 174 + 142 \text{ lbs.} \\ &= 2320 \text{ lbs.}\end{aligned}$$

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

TEST ANOMALIES

Cable separation occurred in the following data channels:

LFDYG2 Vehicle Left Front Door (Position 8) Acceleration Y Axis

LFDYG4 Vehicle Left Front Door (Position 10) Acceleration Y Axis

No Peak levels or Delta Velocities are reported.



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

| <u>SIDE IMPACT<br/>DUMMY*</u>       | <u>DRIVER DSP</u>                                                                                                                                                                                                            | <u>REAR PASSENGER DSP</u>                                                                                                                                        |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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<br>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 floorplan 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.

\*\*Due to structural modifications, the left foot was turned inward.

# 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

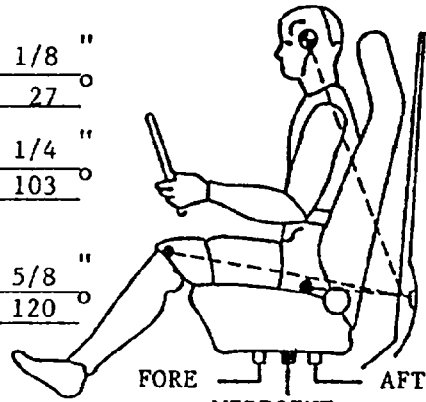
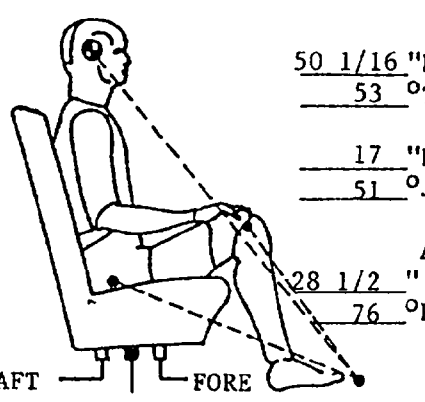
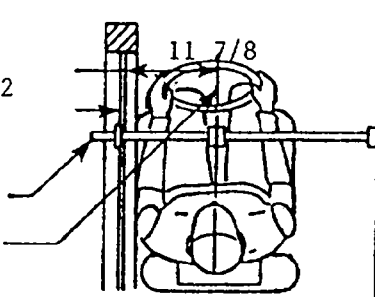
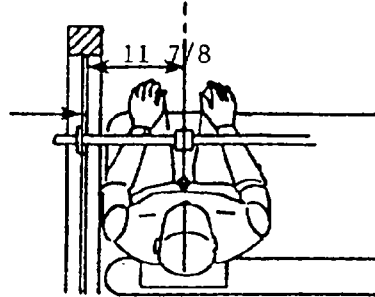
BUCKET SEAT BACK TYPE: FIXED  
X ADJUSTABLE

## TECHNICIANS:

1. J. Kokoruda
2. M. Garrison
3. N. Echeverria

POSITIONING DATE: 10/24/83

AMBIENT TEMP.: 68° F. TIME: 7:00

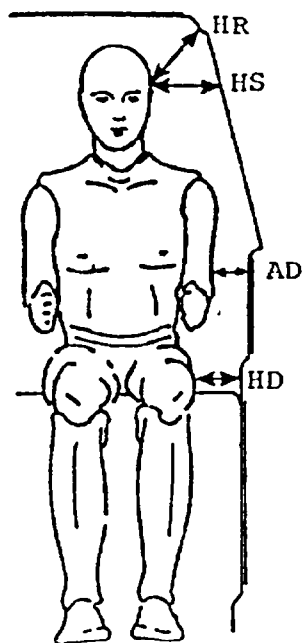
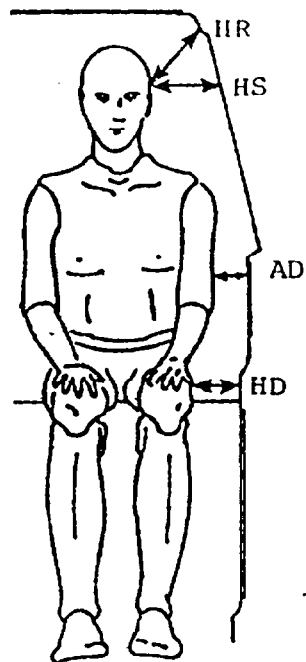
|                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>DRIVER DUMMY # 06</p> <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>HEAD <u>21 1/8"</u></p> <p>TARGET* <u>27°</u></p> <p>KNEE <u>32 1/4"</u></p> <p>JOINT <u>103°</u></p> <p>APPROX. "H" <u>18 5/8"</u></p> <p>POINT <u>120°</u></p> </div> <div style="flex: 1; text-align: center;">  <p>FORE MIDPOINT AFT</p> </div> </div> | <p>REAR PASSENGER DUMMY # U02</p> <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>HEAD <u>50 1/16"</u></p> <p>TARGET** <u>53°</u></p> <p>KNEE <u>17"</u></p> <p>JOINT <u>51°</u></p> <p>APPROX. "H" <u>28 1/2"</u></p> <p>POINT † <u>76°</u></p> </div> <div style="flex: 1; text-align: center;">  <p>AFT MIDPOINT FORE</p> </div> </div> |
| <p>DOOR GLASS HEIGHT*** <u>9 1/2"</u></p> <p>LATERAL BAR ADJUSTABLE POINTER</p> <div style="text-align: center;">  </div> <p>DRIVER DUMMY # 06</p>                                                                                                                                                                                                             | <p>DOOR GLASS HEIGHT <u>DNA</u></p> <div style="text-align: center;">  </div> <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 front seat back latch bolt with front seat in mid-position and all angles referenced to vertical.

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

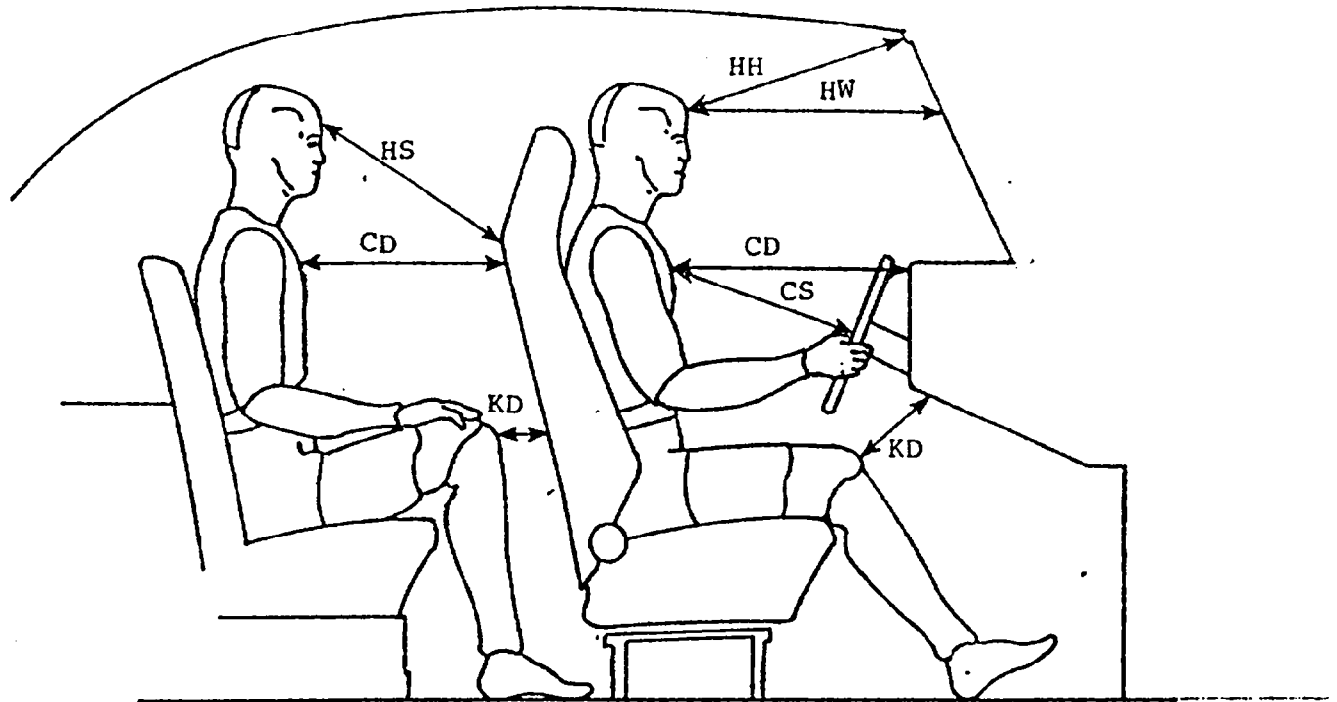
†Due to structural modification interference, the "H" point location was estimated.



|    | 06<br>DRIVER | U02<br>PASSENGER |
|----|--------------|------------------|
| HR | 5 1/2        | 7 7/16           |
| HS | 7 5/8        | 8 9/16           |
| AD | 3 1/8        | 3 5/16           |
| HD | 5 1/4        | 5 3/4            |

NOTE: ALL MEASUREMENTS IN INCHES

#### DUMMY LATERAL CLEARANCE DIMENSIONS



|     | 06<br>DRIVER | U02<br>PASSENGER |
|-----|--------------|------------------|
| HH  | 14 1/4       | DNA              |
| HW  | 19 1/4       | DNA              |
| HS  | DNA          | 24 1/4           |
| CD  | 21 1/16      | 19 7/16          |
| CS  | 12 3/4       | DNA              |
| KDL | 7 7/8        | 3 5/16           |
| KDR | 8 7/16       | 3 5/16           |

NOTE: ALL MEASUREMENTS IN INCHES

## 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 side header. The dummy rebounded across the vehicle and it's buttocks passed through the front passenger's side window. The dummy's head struck the front passenger's head restraint. The dummy came to rest with it's buttocks resting on the front passenger's window sill and it's left shoulder resting on the front passenger's head restraint with it's feet on the driver's seat.

### PASSENGER

During impact, the dummy's torso contacted the left rear passenger's side wall and the head contacted the side window and side header. The dummy rebounded from the side wall in an upright position with it's feet trapped beneath the driver's seat. The dummy remained upright throughout the crash test and came to rest leaning against the left rear passenger's side wall.

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                                                  | 9.5         | X    | X    | 20.1 | 20.4 | 20.4 | 20.3 | 20.4 | 20.4 | 20.4 | 20.4 | 20.3 | 20.4 | 20.5 | X    | X    |
| H-Point                                                      | 17.0        | X    | X    | 18.1 | 18.1 | 18.1 | 18.1 | 18.1 | 18.1 | 18.1 | 18.1 | 18.2 | 18.3 | 18.3 | 17.5 | X    |
| Mid Door                                                     | 23.0        | 16.3 | 17.9 | 17.8 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.7 | 17.8 | 17.8 | 17.9 | 18.1 | 16.7 |
| Window Sill                                                  | 34.0        | X    | 19.8 | 19.4 | 19.4 | 19.4 | 19.3 | 19.3 | 19.3 | 19.3 | 19.3 | 19.4 | 19.4 | 19.4 | 19.7 | 19.2 |
| Window Top                                                   | 51.5        | X    | X    | X    | X    | X    | 29.5 | 27.2 | 26.9 | 26.6 | 26.5 | 26.6 | 26.6 | 26.9 | 27.6 | 28.3 |

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

|             |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Axle Height | 9.5  | X    | X    | 29.8 | 30.6 | 30.0 | 29.6 | 29.1 | 28.5 | 27.8 | 28.1 | 26.5 | 25.1 | 24.0 | X    | X    |
| H-Point     | 17.0 | X    | X    | 32.5 | 32.5 | 33.0 | 32.3 | 32.3 | 32.0 | 31.8 | 31.4 | 31.1 | 30.2 | 29.3 | 25.6 | X    |
| Mid Door    | 23.0 | 25.4 | 27.6 | 30.2 | 30.6 | 30.6 | 30.6 | 30.6 | 30.8 | 30.8 | 30.7 | 31.1 | 30.8 | 30.8 | 27.1 | 23.7 |
| Window Sill | 34.0 | X    | 23.0 | 25.1 | 29.7 | 29.8 | 29.6 | 29.6 | 29.9 | 30.1 | 30.4 | 33.8 | 32.7 | 30.8 | 27.0 | 24.2 |
| Window Top  | 51.5 | X    | X    | X    | X    | X    | 31.9 | 29.5 | 28.9 | 28.8 | 28.6 | 28.6 | 28.3 | 28.1 | 28.6 | 29.1 |

STATIC CRUSH (IN)

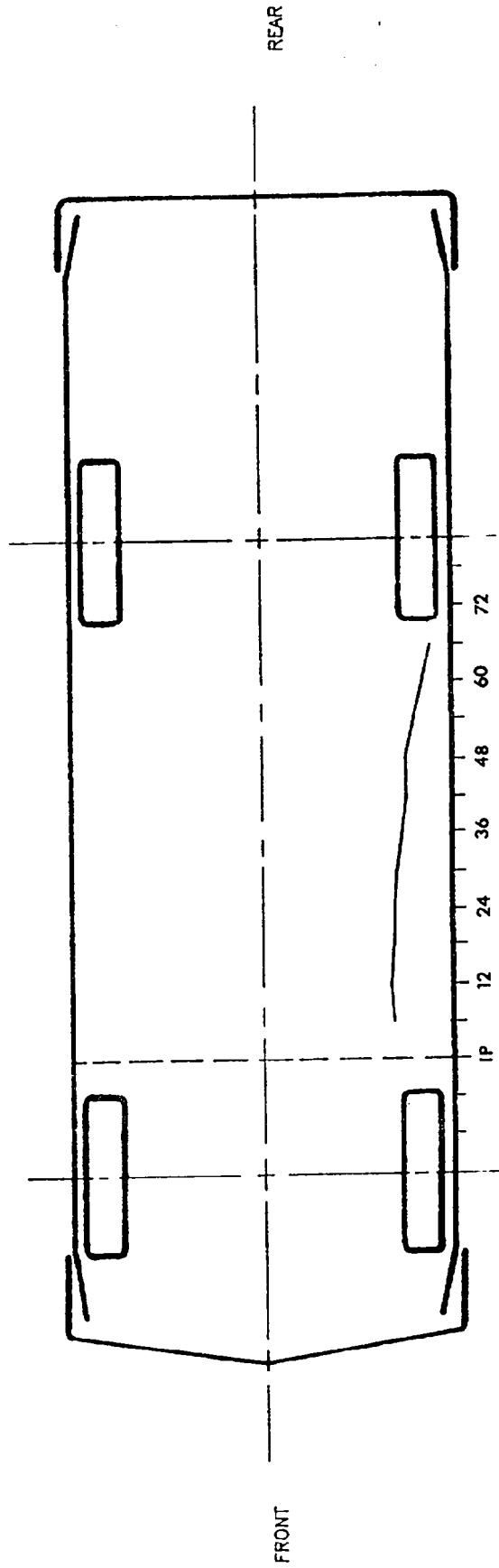
|             |      |     |     |      |      |      |      |      |      |      |      |      |      |      |     |     |
|-------------|------|-----|-----|------|------|------|------|------|------|------|------|------|------|------|-----|-----|
| Axle Height | 9.5  | X   | X   | 9.7  | 10.2 | 9.6  | 9.3  | 8.7  | 8.1  | 7.4  | 7.7  | 6.2  | 4.7  | 3.5  | X   | X   |
| H-Point     | 17.0 | X   | X   | 14.4 | 14.4 | 14.9 | 14.2 | 14.2 | 13.9 | 13.7 | 13.3 | 12.9 | 11.9 | 11.0 | 8.1 | X   |
| Mid Door    | 23.0 | 9.1 | 9.7 | 12.4 | 12.8 | 12.9 | 12.9 | 12.9 | 13.1 | 13.1 | 13.0 | 13.3 | 13.0 | 12.9 | 9.0 | 7.0 |
| Window Sill | 34.0 | X   | 3.2 | 5.7  | 10.3 | 10.4 | 10.3 | 10.3 | 10.6 | 10.8 | 11.1 | 14.4 | 13.3 | 11.4 | 7.3 | 5.0 |
| Window Top  | 51.5 | X   | X   | X    | X    | X    | 2.4  | 2.3  | 2.0  | 2.2  | 2.1  | 2.0  | 1.7  | 1.2  | 1.0 | 0.8 |

\* 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.

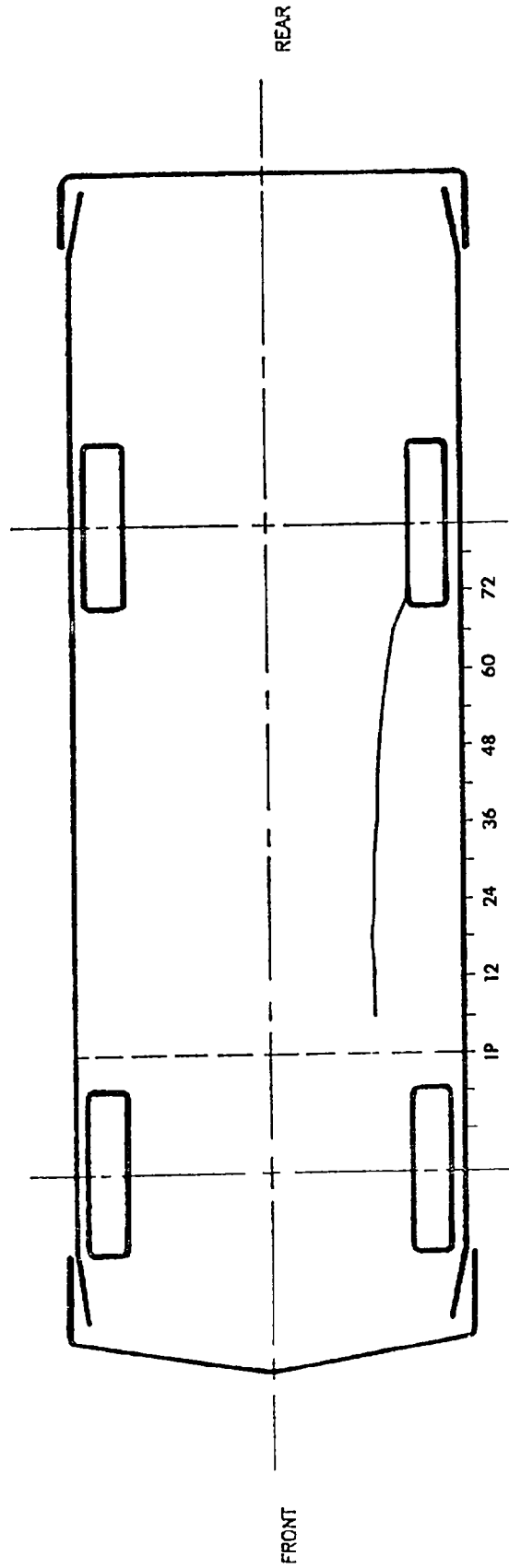


# VEHICLE EXTERIOR STATIC CRUSH PROFILE



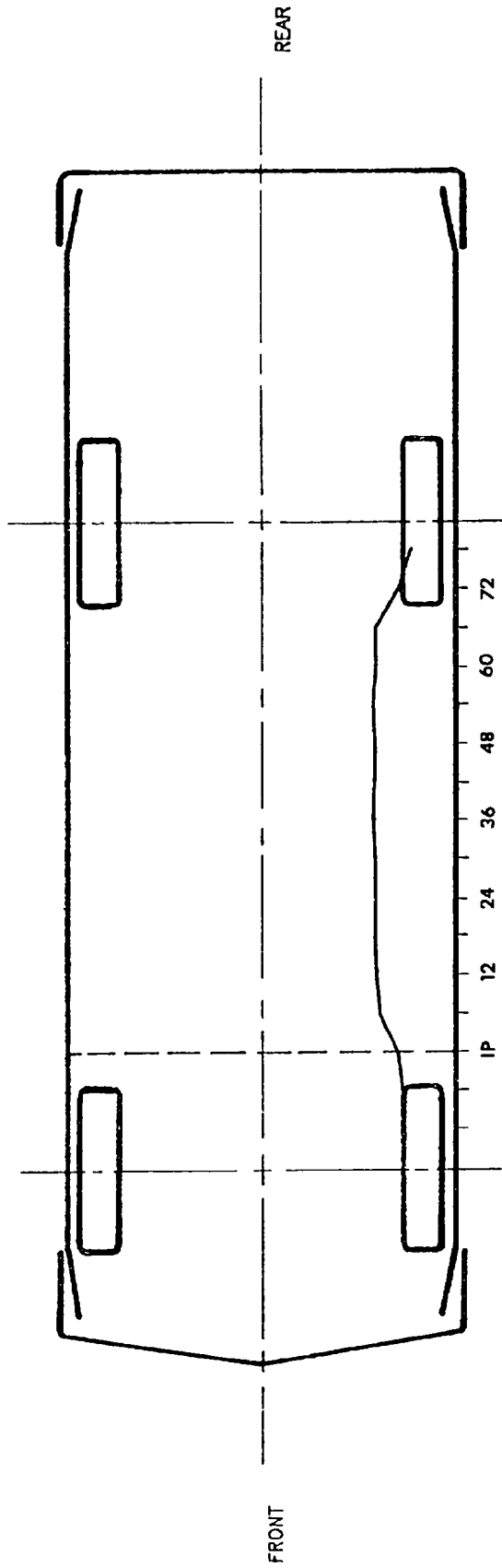
PROFILE LEVEL EQUALS AXLE HEIGHT  
IP EQUALS PROJECTED IMPACT POINT

# VEHICLE EXTERIOR STATIC CRUSH PROFILE



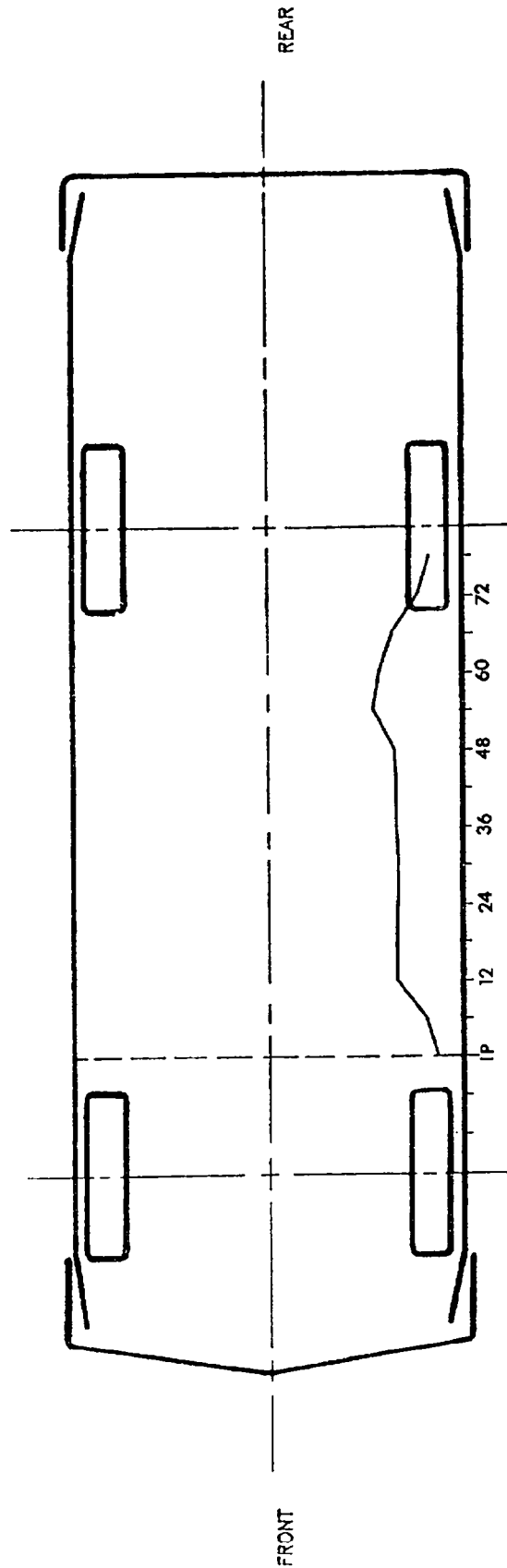
PROFILE LEVEL EQUALS H-POINT HEIGHT  
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



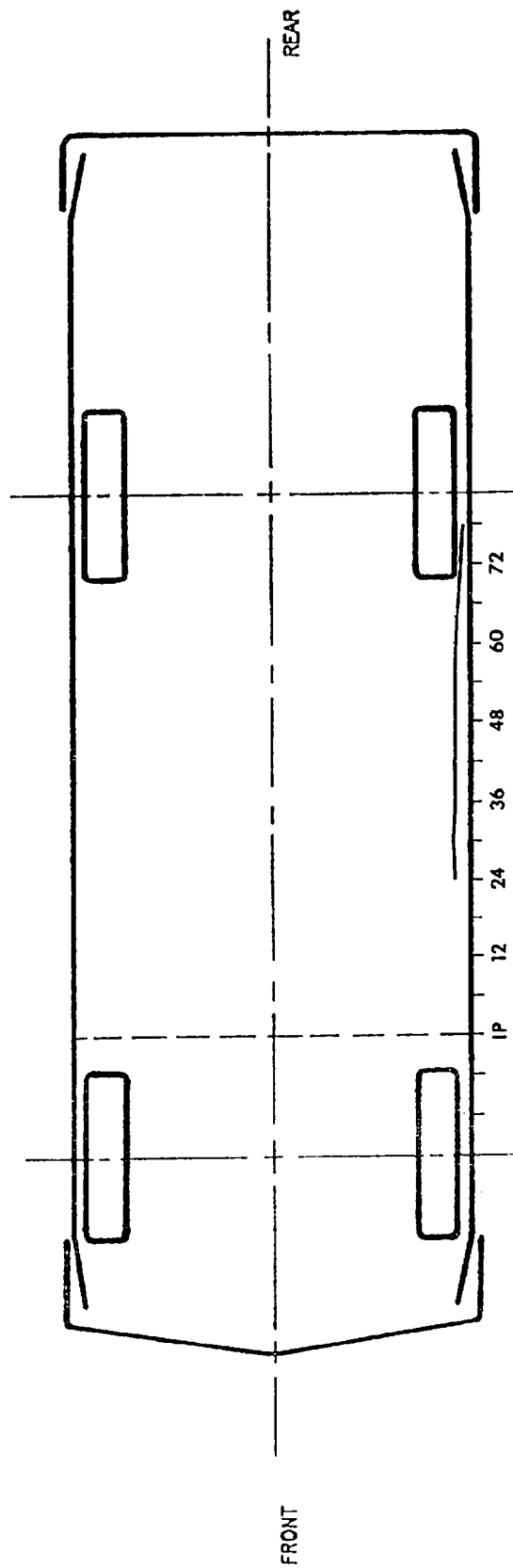
PROFILE LEVEL EQUALS MID-DOOR HEIGHT  
IP EQUALS PROJECTED IMPACT POINT

# 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          | TIME                | MAX         | TIME   | MAX             | TIME                | MAX         | TIME   |
|                     | (g)          | (msec)              | (g)         | (msec) | (g)             | (msec)              | (g)         | (msec) |
| HEAD ACCELERATION   |              |                     |             |        |                 |                     |             |        |
| LONGITUDINAL        | 11.80        | 40.63               | 26.93       | 64.25  | 11.58           | 38.88               | 37.89       | 49.13  |
| LATERAL             | 127.20       | 43.38               | 23.50       | 31.75  | 128.96          | 49.13               | 17.74       | 38.50  |
| VERTICAL            | 47.72        | 49.50               | 31.20       | 33.88  | 63.90           | 57.50               | 35.56       | 43.13  |
| RESULTANT           |              | 127.96 ÷ 43.88      |             |        |                 | 137.56 ÷ 49.13      |             |        |
| HIC                 | 777.16       | from 40.00 to 47.00 |             |        | 993.68          | from 46.88 to 59.38 |             |        |
| CHEST ACCELERATION  |              |                     |             |        |                 |                     |             |        |
| UPPER SPINE         |              |                     |             |        |                 |                     |             |        |
| LONGITUDINAL        | 21.26        | 38.75               | 47.59       | 33.13  | 7.23            | 33.13               | 27.21       | 59.38  |
| LATERAL (P)***      | 90.52        | 33.13               | 17.41       | 24.38  | 74.17           | 45.62               | 8.77        | 35.00  |
| LATERAL (R)***      | 93.90        | 33.13               | 16.78       | 57.50  | 76.35           | 45.62               | 8.92        | 35.00  |
| VERTICAL            | 11.57        | 27.50               | 15.00       | 60.62  | 19.73           | 31.88               | 19.08       | 60.00  |
| RESULTANT (P)       |              | 102.70 ÷ 33.13      |             |        |                 | 75.06 ÷ 45.62       |             |        |
| RESULTANT (R)       |              | 105.68 ÷ 33.13      |             |        |                 | 77.22 ÷ 45.62       |             |        |
| DELTA V (MPH)****   |              | 27.1 ÷ 91.87 (P)    |             |        |                 | 27.1 ÷ 122.50 (P)   |             |        |
|                     |              | 29.1 ÷ 91.25 (R)    |             |        |                 | 27.4 ÷ 123.72 (R)   |             |        |
| LOWER SPINE         |              |                     |             |        |                 |                     |             |        |
| LONGITUDINAL        | 71.13        | 35.63               | 62.06       | 30.62  | 19.57           | 61.87               | 24.03       | 35.00  |
| LATERAL (P)         | 163.76       | 30.62               | 29.49       | 56.87  | 93.50           | 36.25               | 23.99       | 61.87  |
| LATERAL (R)         | 165.41       | 30.62               | 28.90       | 56.87  | 93.09           | 36.25               | 22.03       | 61.87  |
| VERTICAL            | 27.09        | 33.75               | 10.31       | 60.62  | 20.12           | 41.87               | 7.25        | 70.63  |
| RESULTANT (P)       |              | 176.69 ÷ 30.62      |             |        |                 | 95.94 ÷ 36.25       |             |        |
| RESULTANT (R)       |              | 178.22 ÷ 30.62      |             |        |                 | 95.54 ÷ 36.25       |             |        |
| DELTA V (MPH)       |              | 35.2 ÷ 42.50 (P)    |             |        |                 | 31.6 ÷ 56.25 (P)    |             |        |
|                     |              | 35.8 ÷ 42.50 (R)    |             |        |                 | 31.6 ÷ 56.25 (R)    |             |        |
| LEFT UPPER RIB      |              |                     |             |        |                 |                     |             |        |
| LATERAL (P)         | 116.05       | 28.13               | 8.71        | 80.00  | 59.02           | 46.25               | 2.41        | 182.50 |
| LATERAL (R)         | 114.40       | 28.13               | 11.18       | 67.50  | 61.36           | 46.25               | 1.86        | 340.00 |
| DELTA V (MPH)       |              | 30.5 ÷ 98.13 (P)    |             |        |                 | 30.1 ÷ 143.13 (P)   |             |        |
|                     |              | 30.4 ÷ 97.50 (R)    |             |        |                 | 31.2 ÷ 160.00 (R)   |             |        |
| LEFT LOWER RIB      |              |                     |             |        |                 |                     |             |        |
| LATERAL (P)         | 231.68       | 27.50               | 58.31       | 32.50  | 72.76           | 38.75               | 12.02       | 61.87  |
| LATERAL (R)         | 235.95       | 26.87               | 61.26       | 32.50  | 68.51           | 30.62               | 11.53       | 68.75  |
| DELTA V (MPH)       |              | 30.2 ÷ 58.75 (P)    |             |        |                 | 29.1 ÷ 58.75 (P)    |             |        |
|                     |              | 30.5 ÷ 58.75 (R)    |             |        |                 | 27.9 ÷ 58.75 (R)    |             |        |
| PELVIS ACCELERATION |              |                     |             |        |                 |                     |             |        |
| LONGITUDINAL        | 6.12         | 31.13               | 22.94       | 21.50  | 12.40           | 21.25               | 88.70       | 31.00  |
| LATERAL             | 221.15       | 22.88               | 20.72       | 37.50  | 175.72          | 32.38               | 60.35       | 22.00  |
| VERTICAL            | 24.65        | 39.50               | 7.95        | 23.13  | 47.38           | 37.38               | 14.02       | 39.25  |
| RESULTANT           |              | 221.41 ÷ 22.88      |             |        |                 | 177.88 ÷ 32.25      |             |        |
| DELTA V (MPH)       |              | 33.6 ÷ 66.50        |             |        |                 | 30.4 ÷ 50.00        |             |        |

SIDE IMPACT DUMMY DATA SUMMARY CONTD

|                  | DRIVER DUMMY      |               |                    |               | PASSENGER DUMMY   |               |                    |               |
|------------------|-------------------|---------------|--------------------|---------------|-------------------|---------------|--------------------|---------------|
|                  | POSITIVE          |               | NEGATIVE           |               | POSITIVE          |               | NEGATIVE           |               |
|                  | <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 † | 0.06              | 268.00        | 1.81               | 55.88         | 0.04              | 125.25        | 1.80               | 64.00         |

\* 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 (LONGITUDINAL)    | 83.3 | 23.3  | 10.4 |                                     |               |                    |              |
|     | (LATERAL)                                  |      |       |      | $\Delta V = -2.6$ mph à 100.00 msec | 5.01          | 55.50              | 8.95 21.00   |
|     | (VERTICAL)                                 |      |       |      | $\Delta V = 19.2$ mph à 100.00 msec | 32.74         | 10.63              | 3.24 140.75  |
|     | (RESULTANT)                                |      |       |      | 6.29                                | 11.63         | 6.90               | 39.13        |
|     |                                            |      |       |      |                                     | 33.34 à 10.75 |                    |              |
| 2   | RIGHT SILL AT REAR SEAT (LONGITUDINAL)     | 61.3 | 23.1  | 9.1  |                                     |               |                    |              |
|     | (LATERAL)                                  |      |       |      | $\Delta V = -1.5$ mph à 100.00 msec | 6.24          | 55.63              | 8.47 22.88   |
|     | (VERTICAL)                                 |      |       |      | $\Delta V = 21.9$ mph à 100.00 msec | 40.98         | 10.25              | 3.01 164.88  |
|     | (RESULTANT)                                |      |       |      | 6.22                                | 18.63         | 8.38               | 33.63        |
|     |                                            |      |       |      |                                     | 41.03 à 10.25 |                    |              |
| 3   | REAR DECK OVER AXLE (LONGITUDINAL)         | 32.0 | 0.0   | 7.1  |                                     |               |                    |              |
|     | (LATERAL)                                  |      |       |      | $\Delta V = -2.8$ mph à 100.00 msec | 8.50          | 13.63              | 15.89 21.00  |
|     | (VERTICAL)                                 |      |       |      | $\Delta V = 26.3$ mph à 100.00 msec | 31.09         | 24.75              | 5.40 99.50   |
|     | (RESULTANT)                                |      |       |      | 6.87                                | 96.13         | 13.11              | 20.50        |
|     |                                            |      |       |      |                                     | 32.40 à 23.63 |                    |              |
| 4   | LEFT SILL AT REAR SEAT (LATERAL)           | 61.0 | -23.3 | 9.3  |                                     |               |                    |              |
|     |                                            |      |       |      | $\Delta V = 14.6$ mph à 55.38 msec  | 42.51         | 12.38              | 35.32 26.63  |
| 5   | LEFT SILL AT FRONT SEAT (LATERAL)          | 83.6 | -23.3 | 10.7 |                                     |               |                    |              |
|     |                                            |      |       |      | $\Delta V = 11.2$ mph à 10.13 msec  | 91.65         | 10.00              | 68.30 17.25  |
| 6   | LEFT FRONT DOOR CENTERLINE (LATERAL)       | 80.6 | -25.5 | 24.2 |                                     |               |                    |              |
|     |                                            |      |       |      | $\Delta V = 18.4$ mph à 11.00 msec  | 169.30        | 11.75              | 140.15 24.75 |
| 7   | RIGHT REAR COMPARTMENT (LONGITUDINAL)      | 31.0 | 15.4  | 14.3 |                                     |               |                    |              |
|     |                                            |      |       |      | 5.45                                | 55.63         | 8.34               | 21.63        |
| 8   | MIDREAR OF LEFT FRONT DOOR (LATERAL)       | 60.4 | -25.8 | 24.8 |                                     |               |                    |              |
|     |                                            |      |       |      | ---                                 | ---           | Y                  | ---          |
| 9   | UPPER LEFT FRONT DOOR CENTERLINE (LATERAL) | 81.6 | -25.8 | 33.4 |                                     |               |                    |              |
|     |                                            |      |       |      | $\Delta V = 32.0$ mph à 22.25 msec  | 172.66        | 16.50              | 204.01 29.00 |
| 10  | MIDFRONT OF LEFT FRONT DOOR (LATERAL)      | 99.0 | -26.2 | 22.8 |                                     |               |                    |              |
|     |                                            |      |       |      | ---                                 | ---           | Y                  | ---          |
| 11  | UPPER REAR OF LEFT FRONT DOOR (LATERAL)    | 70.5 | -25.8 | 33.6 |                                     |               |                    |              |
|     |                                            |      |       |      | $\Delta V = 24.91$ mph à 17.50 msec | 129.48        | 18.25              | 63.04 23.38  |

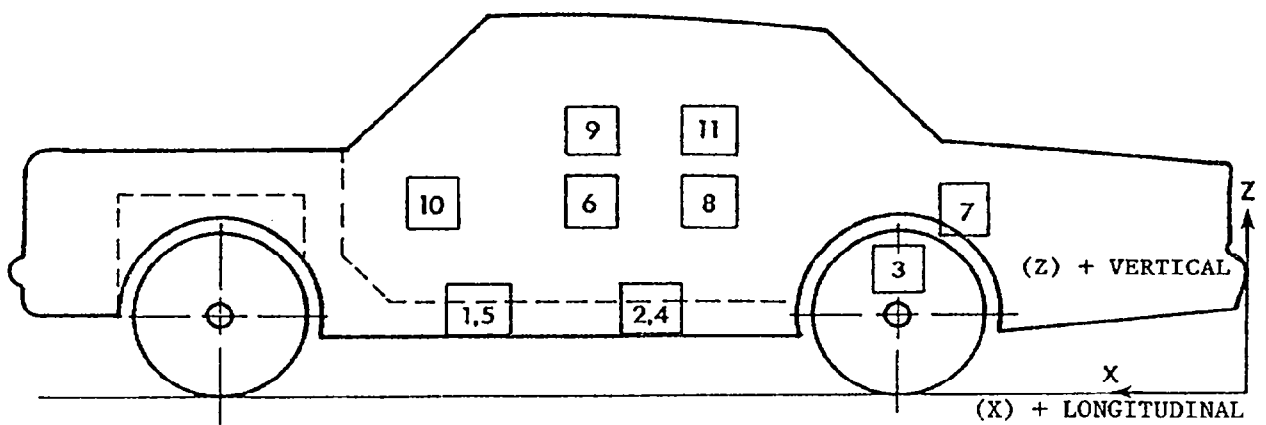
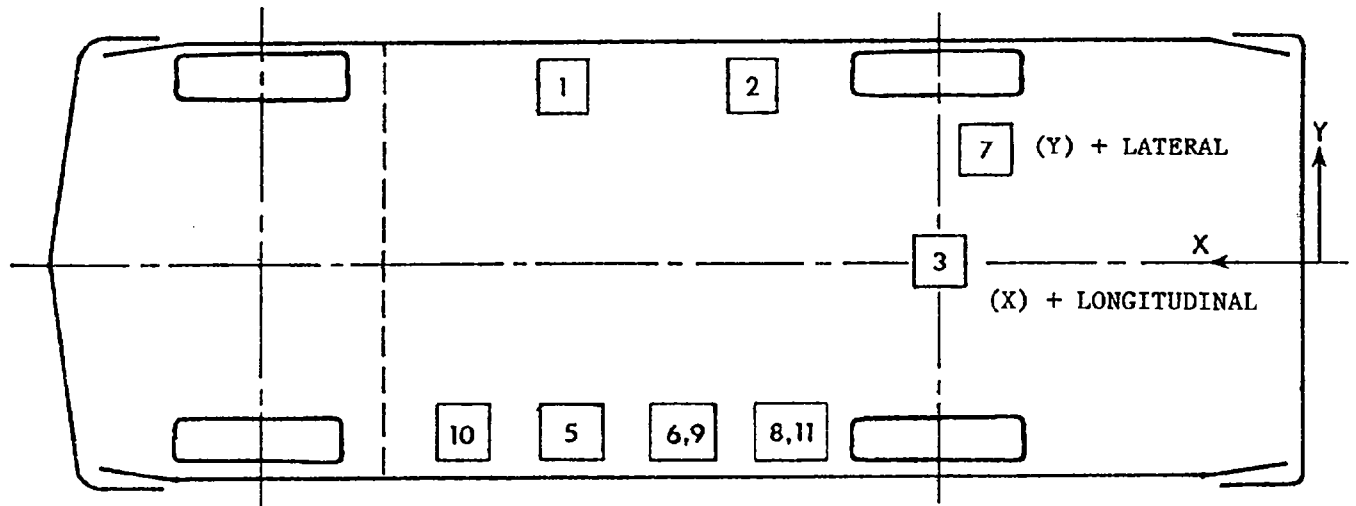
\* Reference: X - Rear Bumper (+ Forward), Y - Vehicle Centerline (+ To Right),  
Z - Ground Level (+ Up)

All measurements of accelerometer locations in inches.

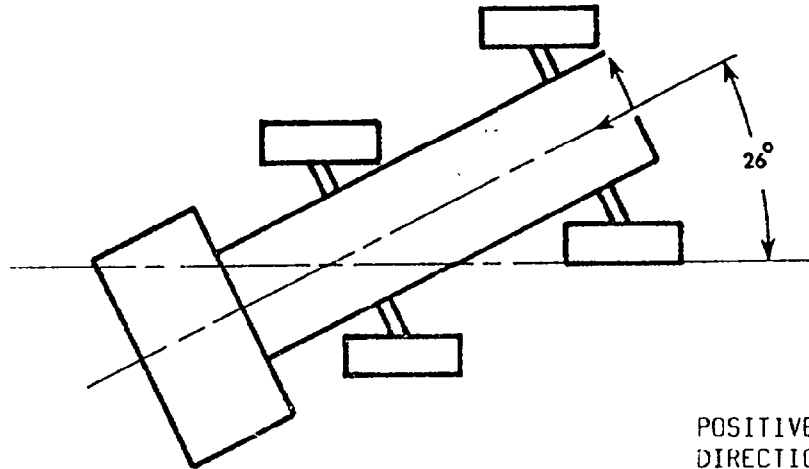
Y See TEST ANOMALIES



# 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)     | $\Delta V = -30.1 \text{ mph @ } 100.00 \text{ msec}$ |     |      | 1.42               | 116.75        | 16.49              | 38.63       |
|     | (LATERAL)          | $\Delta V = -9.0 \text{ mph @ } 100.00 \text{ msec}$  |     |      | 2.44               | 73.13         | 7.71               | 42.25       |
|     | (VERTICAL)         |                                                       |     |      | 19.28              | 68.63         | 21.44              | 60.38       |
|     | (RESULTANT)        |                                                       |     |      |                    | 26.38 @ 36.63 |                    |             |
| 2   | FRONT FRAME MEMBER | 130.3                                                 | 0.0 | 11.3 |                    |               |                    |             |
|     | (LONGITUDINAL)     | $\Delta V = -30.3 \text{ mph @ } 100.00 \text{ msec}$ |     |      | 2.63               | 167.75        | 16.47              | 37.75       |
| 3   | REAR FRAME MEMBER  | 23.3                                                  | 0.0 | 11.5 |                    |               |                    |             |
|     | (LONGITUDINAL)     | $\Delta V = -29.1 \text{ mph @ } 100.00 \text{ msec}$ |     |      | 1.37               | 123.50        | 16.06              | 35.63       |

\* 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         | 762         | Vehicle Dynamics               |
| 2          | Overhead             | Photosonics 1B | 25        | 730         | Close-up of impact point       |
| 3          | Onboard MDB          | Photosonics 1B | 25        | 500         | Close-up of impact point       |
| 4          | Onboard MDB          | Stalex         | 13        | 500         | Driver kinematics              |
| 5          | Ground level - right | Hycam          | 25        | 752         | Overall view                   |
| 6          | Ground level - left  | Photosonics 1B | 17        | 797         | Overall view                   |
| 7          | Onboard vehicle      | Photosonics 1B | 8         | 802         | Driver kinematics - front view |
| 8          | Onboard vehicle      | Photosonics 1B | 8         | 812         | 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          | 24'10"  | 58'8"  | 45" |
| 6          | -20'11" | -13'3" | 45" |

Origin of Coordinate System is Point of Impact

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

NON-GOVERNMENT FURNISHED TRANSDUCER INFORMATION

| PARAMETER<br>BEING<br>MEASURED | TYPE OF<br>TRANSDUCER | MODEL<br>NUMBER | SERIAL<br>NUMBER | MEGR.          | DATE OF<br>LAST<br>CALIBRATION | SENSITIVITY | DESIRED<br>FULL SCALE<br>(ENGR. UNITS) |
|--------------------------------|-----------------------|-----------------|------------------|----------------|--------------------------------|-------------|----------------------------------------|
| BCGXG                          | Accel                 | 4-202-0001      | 18845            | Bell<br>Howell | 8/9/83                         | .236 MV/G   | 50 G                                   |
| BCGYG                          | Accel                 | 4-202-0001      | 18858            | Bell<br>Howell | 8/9/83                         | .2385 MV/G  | 50 G                                   |
| BCGZG                          | Accel                 | 4-202-0001      | 18857            | Bell<br>Howell | 8/9/83                         | .2385 MV/G  | 50 G                                   |
| BFCXG                          | Accel                 | 4-202-0001      | 18240            | Bell<br>Howell | 8/9/83                         | .2385 MV/G  | 50 G                                   |
| BRCXG                          | Accel                 | 4-202-0001      | 19022            | Bell<br>Howell | 8/9/83                         | .221 MV/G   | 50 G                                   |

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

APPENDIX A  
PHOTOGRAPHS



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



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

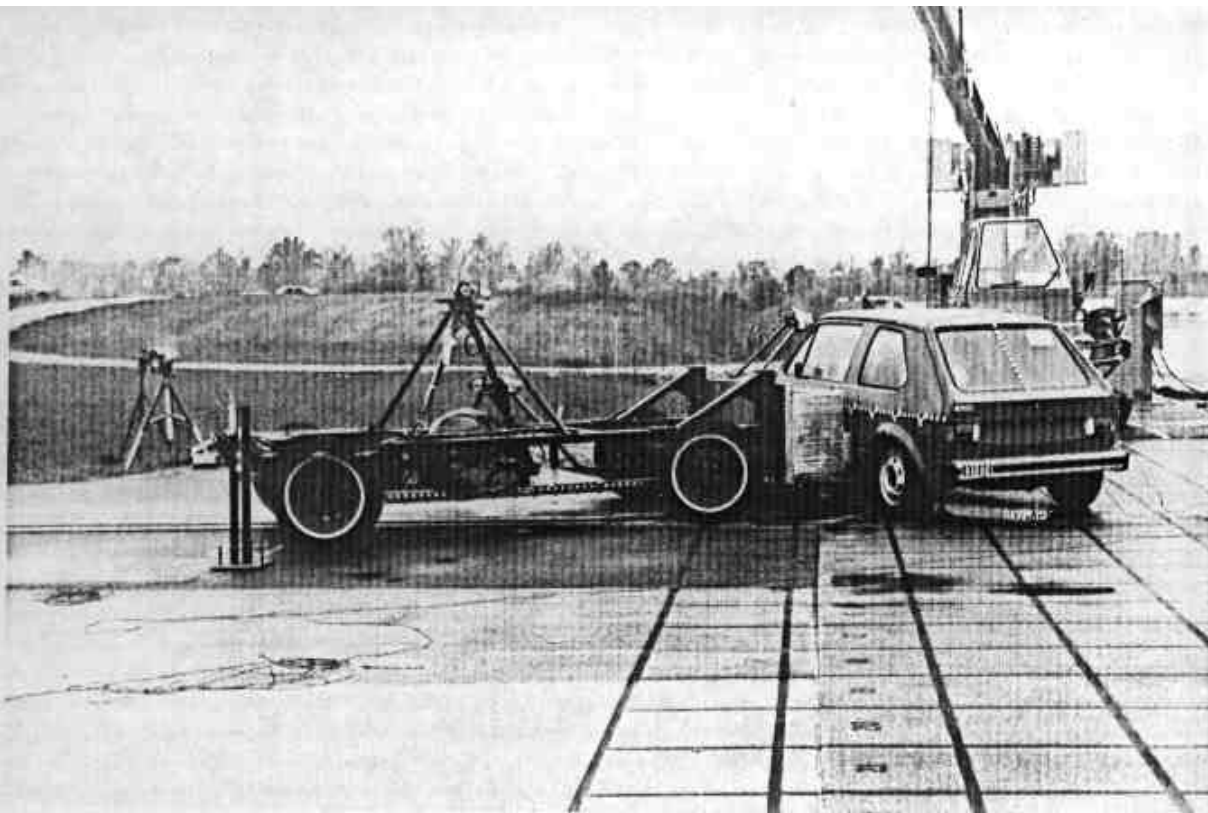


Figure A-3. PRE-TEST OVERALL - VIEW 3



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



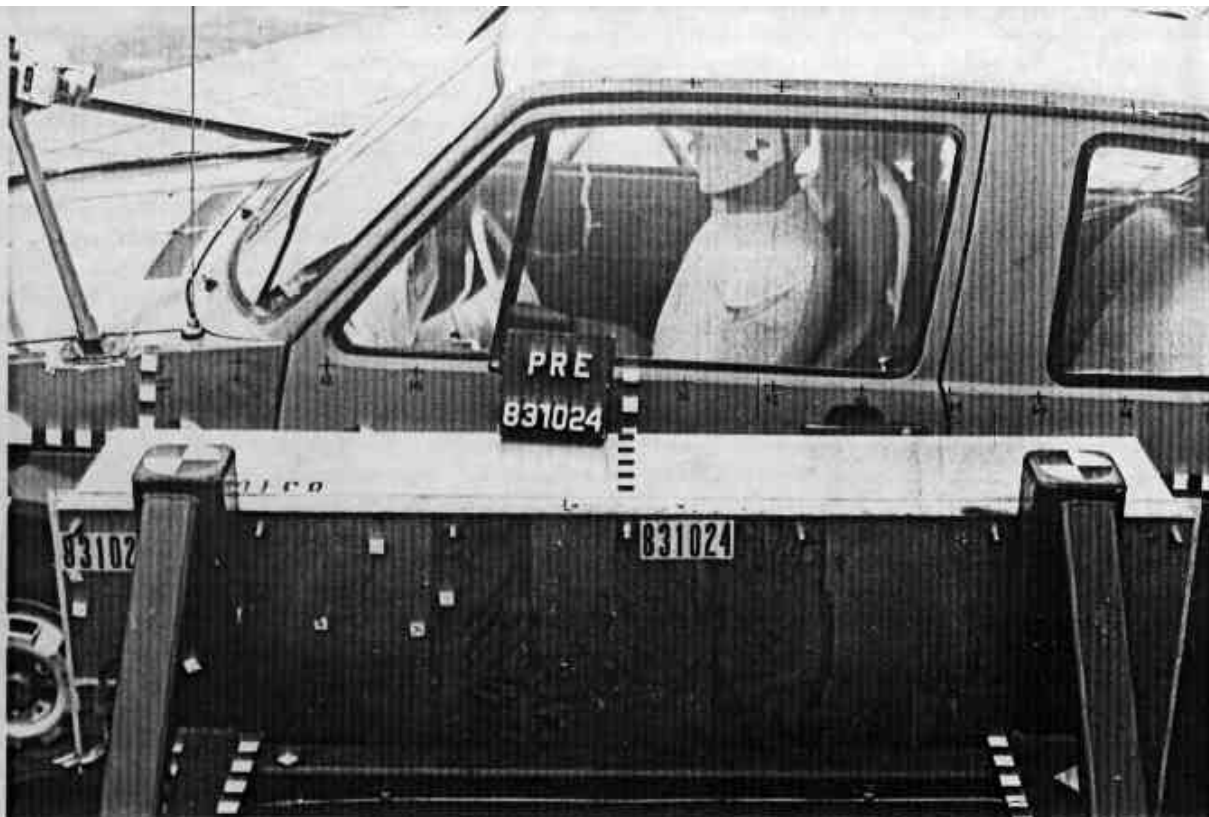


Figure A-5. PRE-TEST CLOSEUP - VIEW 1



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



Figure A-7. PRE-TEST DRIVER DUMMY - VIEW 1



Figure A-8. PRE-TEST DRIVER DUMMY - VIEW 2

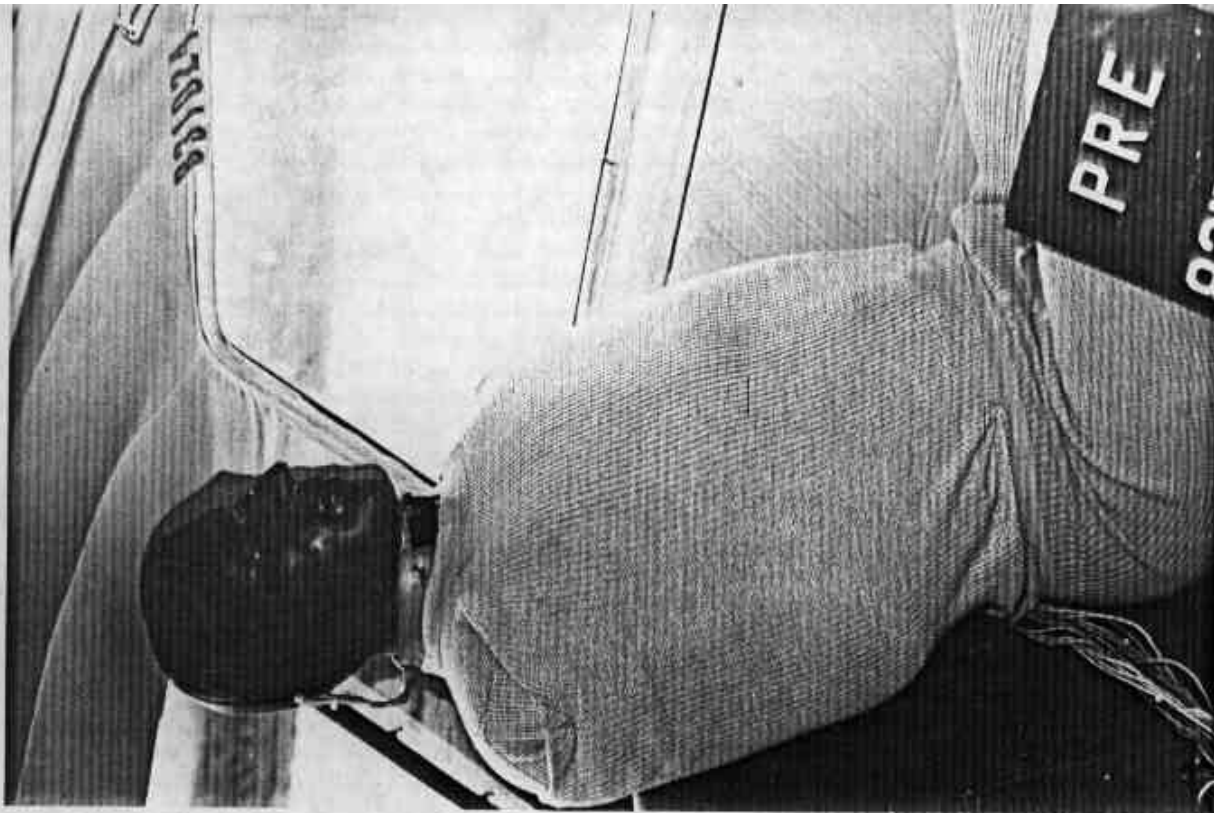


Figure A-9. PRE-TEST PASSENGER DUMMY - VIEW 1



Figure A-10. PRE-TEST PASSENGER DUMMY - VIEW 2

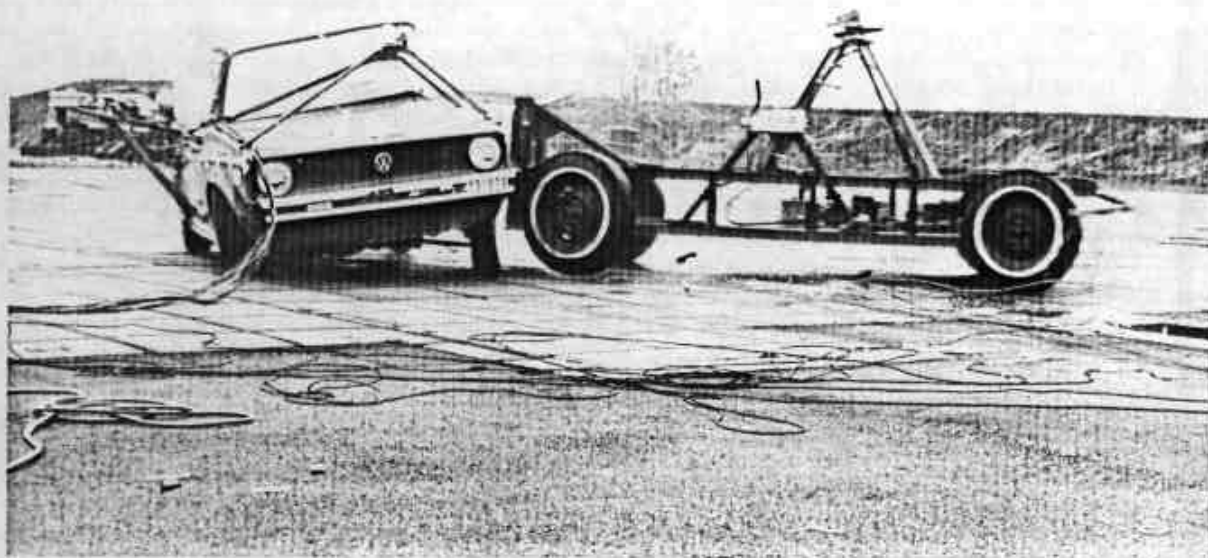


Figure A-11. CRASH EVENT PHOTOGRAPH



Figure A-12. POST-TEST OVERALL - VIEW 1



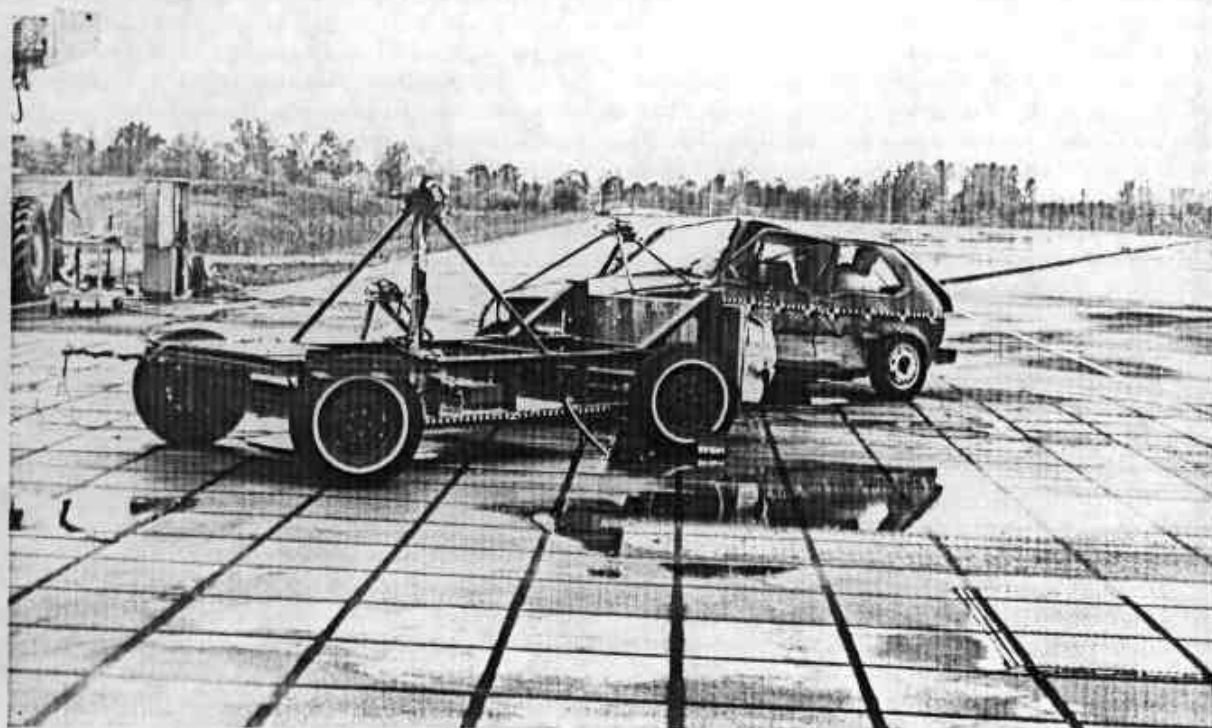


Figure A-13. POST-TEST OVERALL - VIEW 2

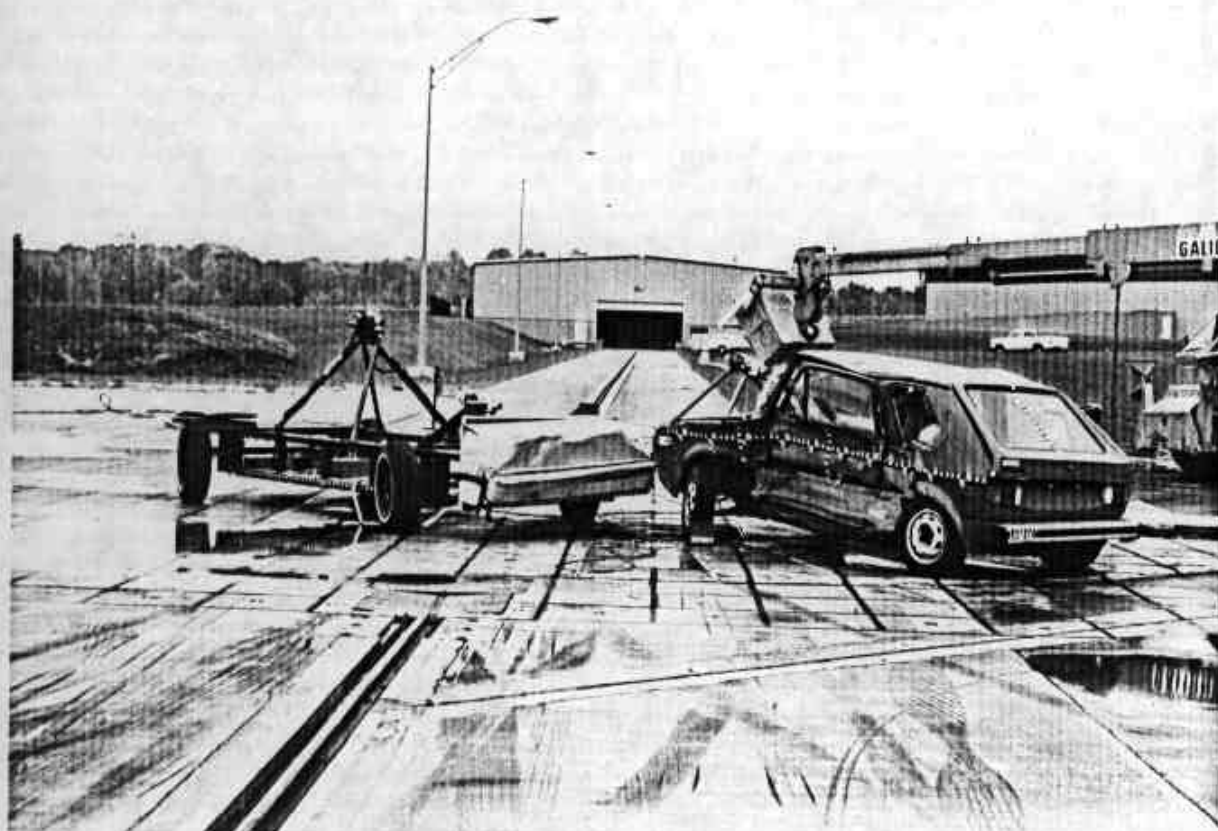


Figure A-14. POST-TEST OVERALL - VIEW 3

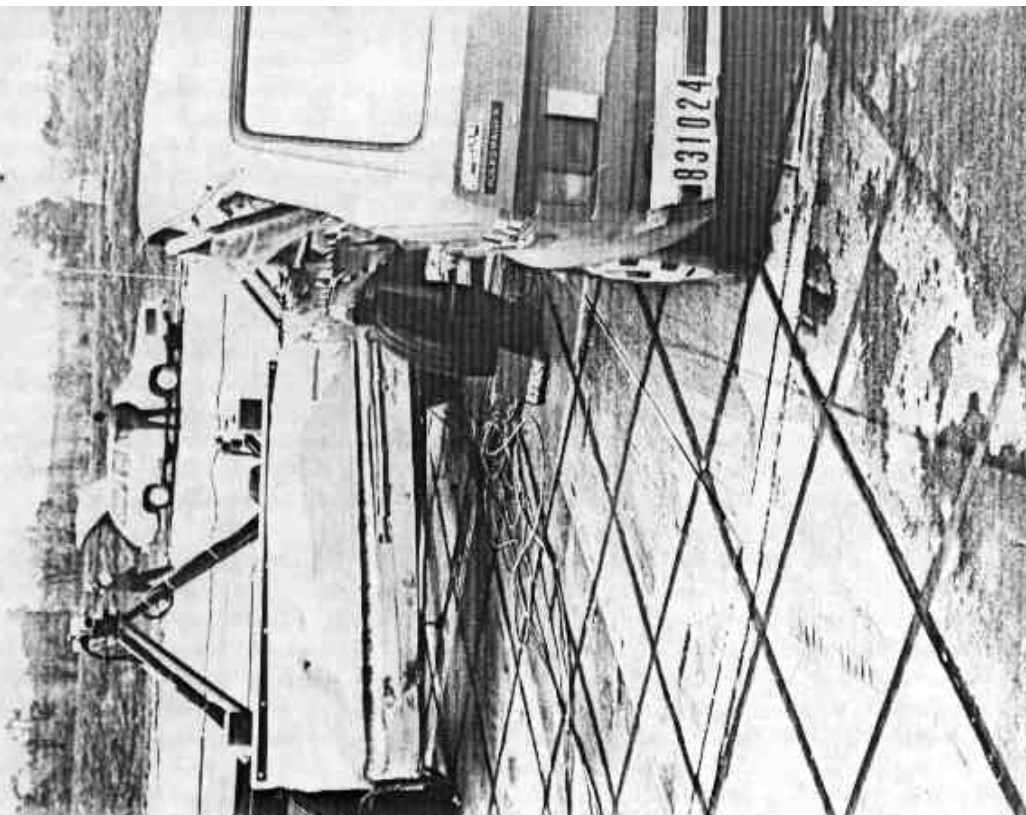


Figure A-15. POST-TEST OVERALL - VIEW 4



Figure A-16. POST-TEST CLOSEUP - VIEW 1

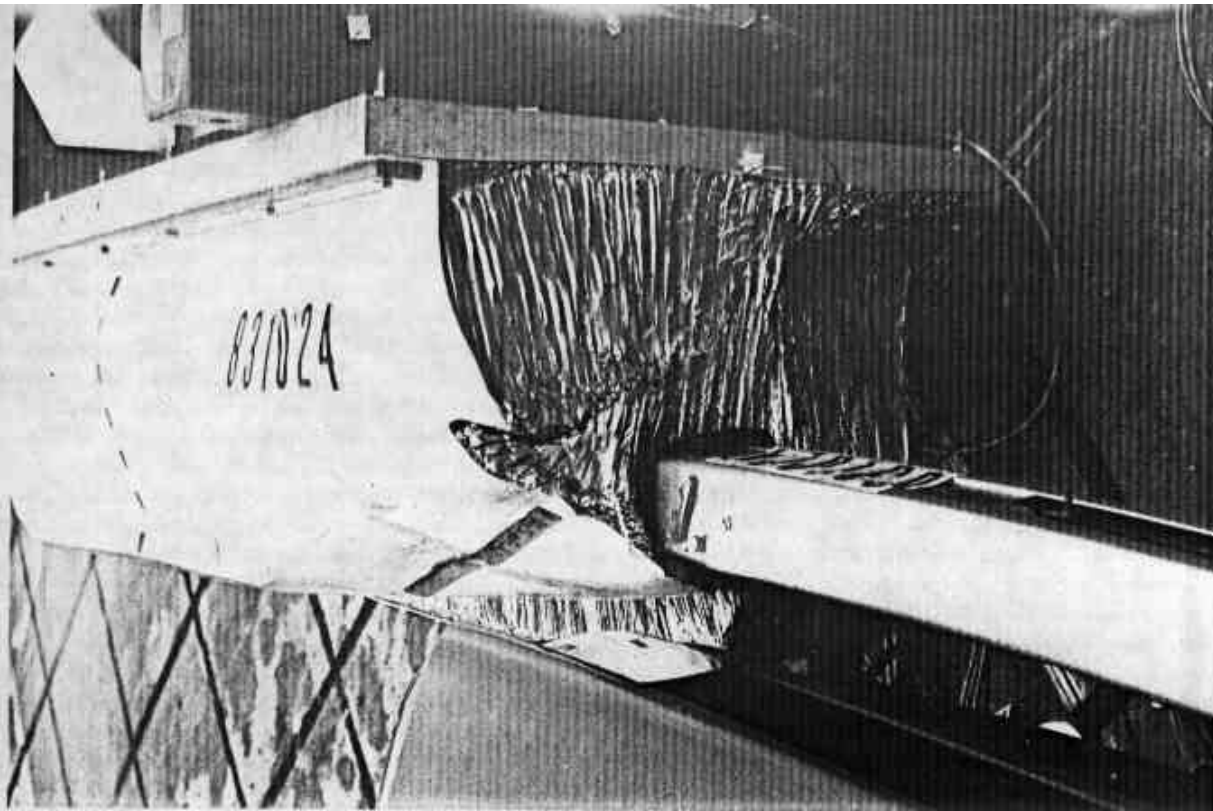


Figure A-17. POST-TEST CLOSEUP - VIEW 2



Figure A-18. POST-TEST DRIVER DUMMY - VIEW 1



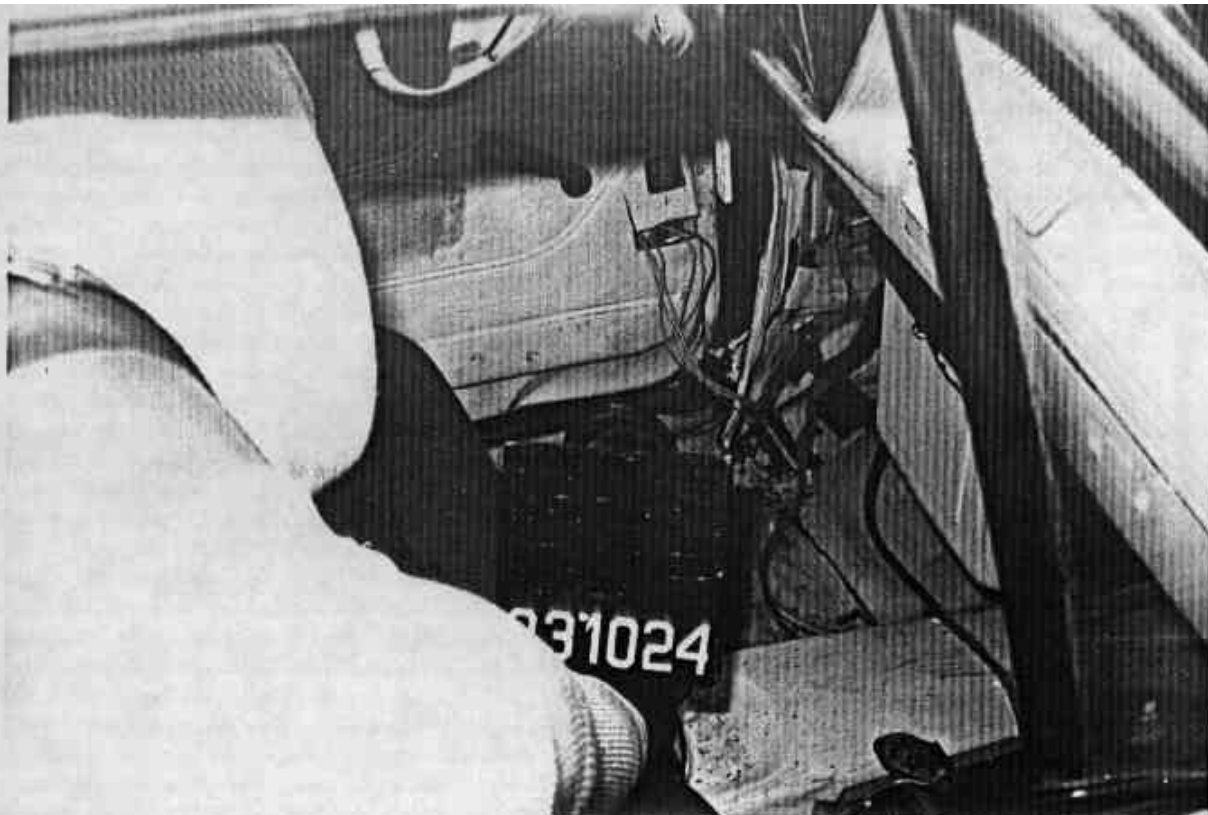


Figure A-19. POST-TEST DRIVER DUMMY - VIEW 2

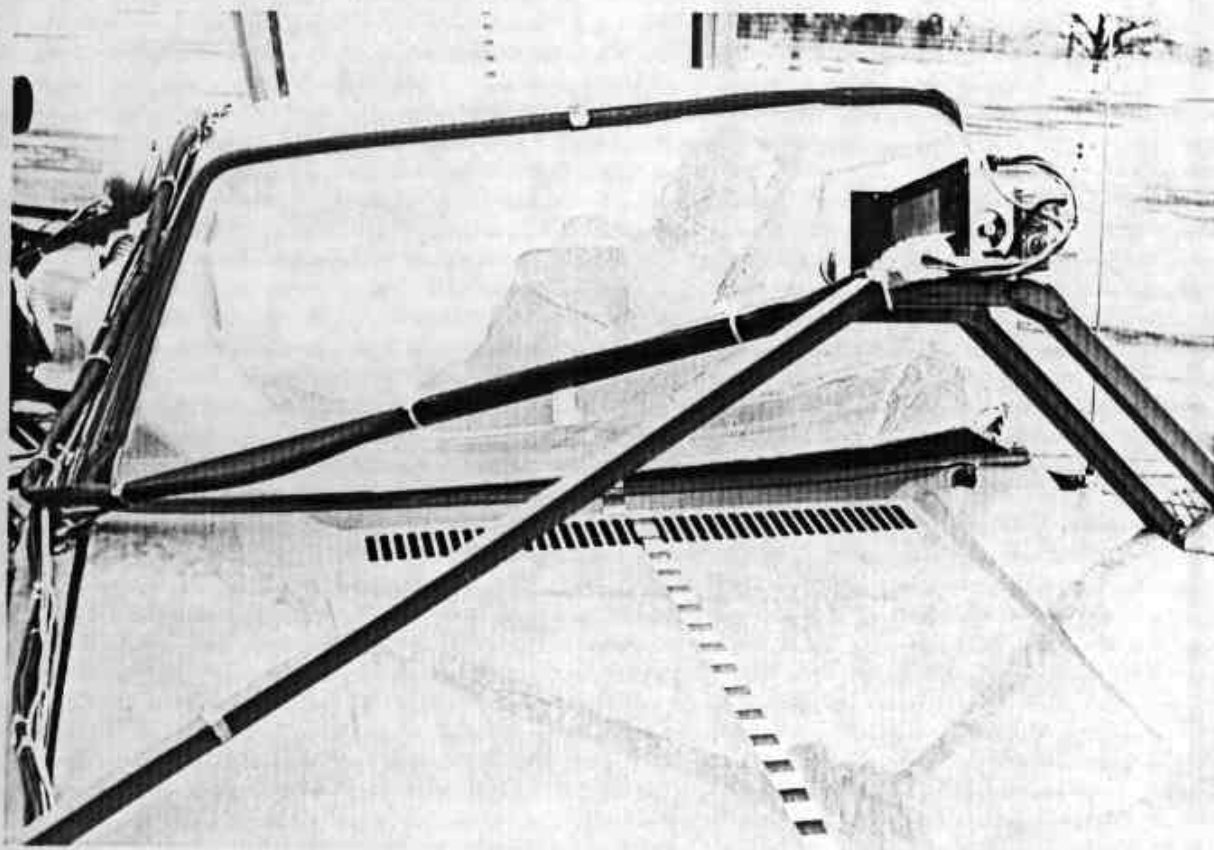


Figure A-20. POST-TEST DRIVER DUMMY - VIEW 3



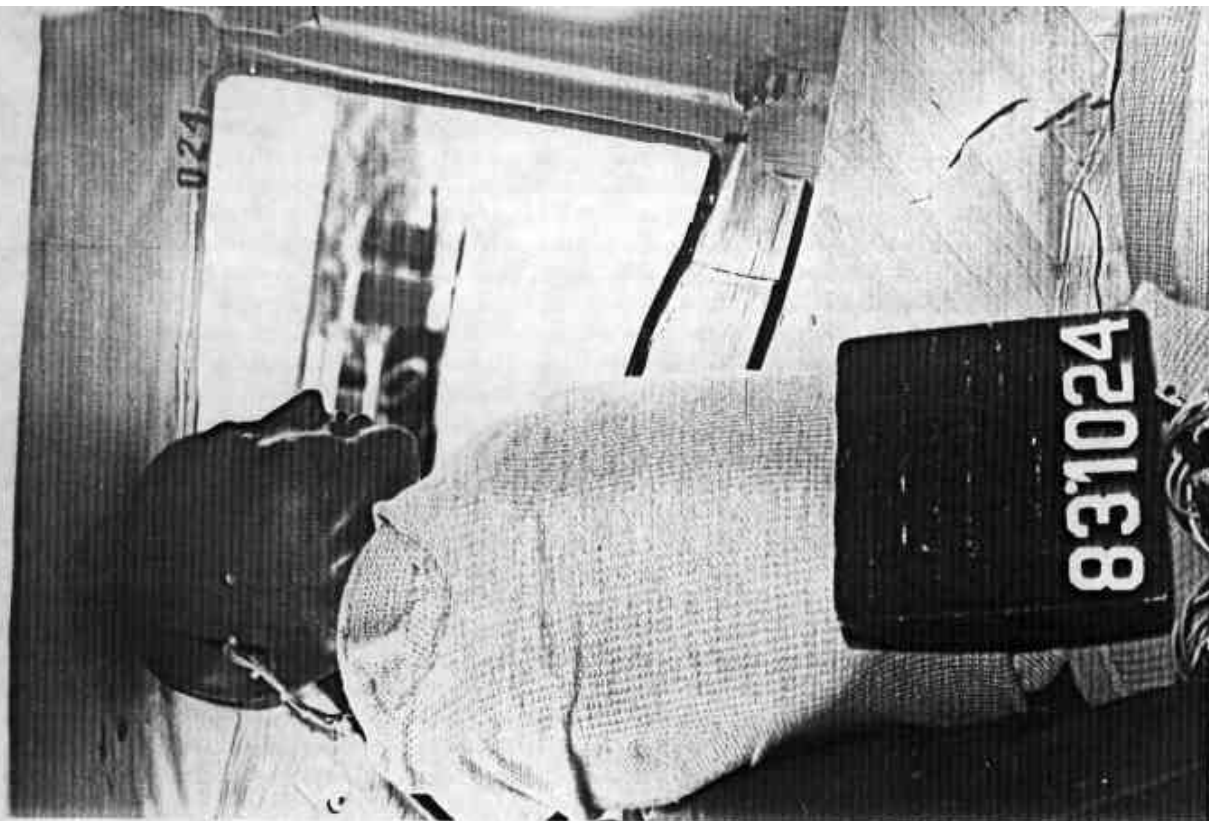


Figure A-21. POST-TEST PASSENGER DUMMY - VIEW 1



Figure A-22. POST-TEST PASSENGER DUMMY - VIEW 2



Figure A-23. POST-TEST PASSENGER DUMMY - VIEW 3

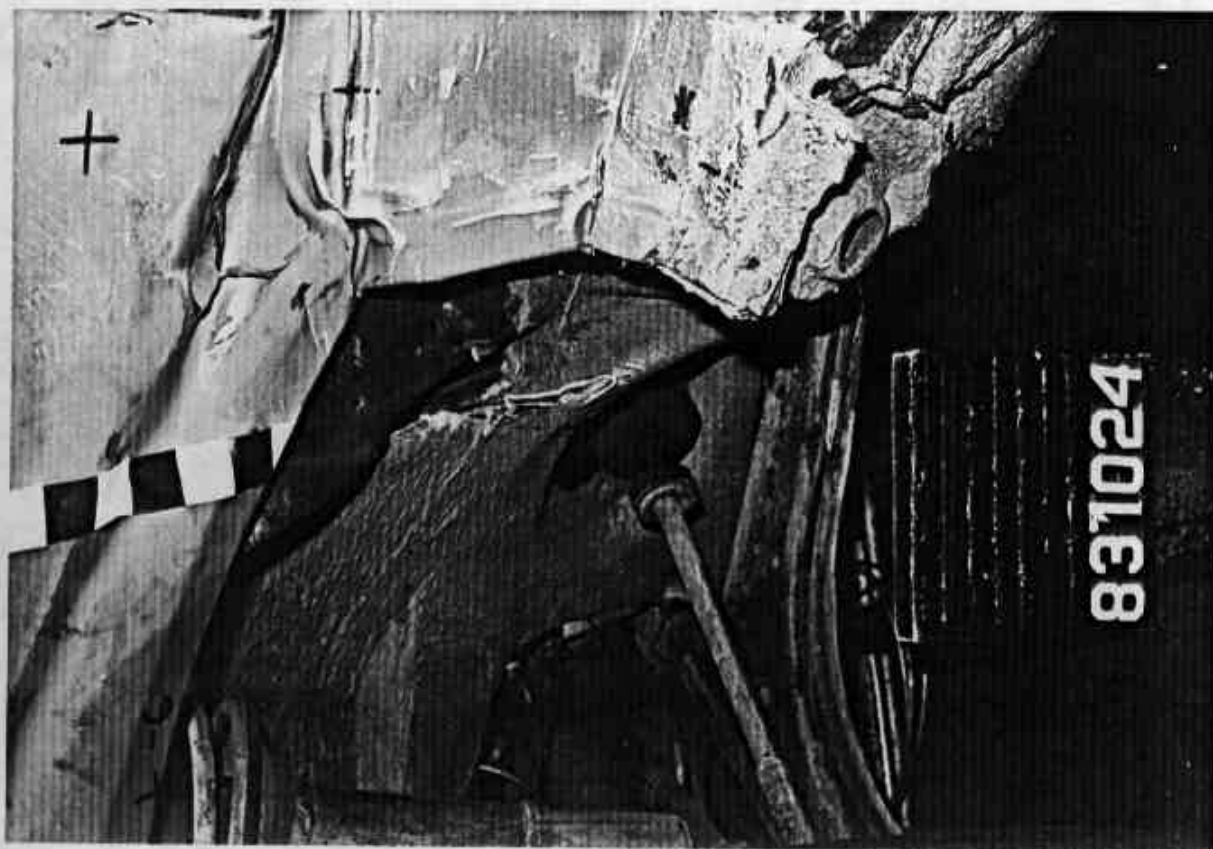


Figure A-24. POST-TEST VEHICLE DAMAGE - VIEW 1

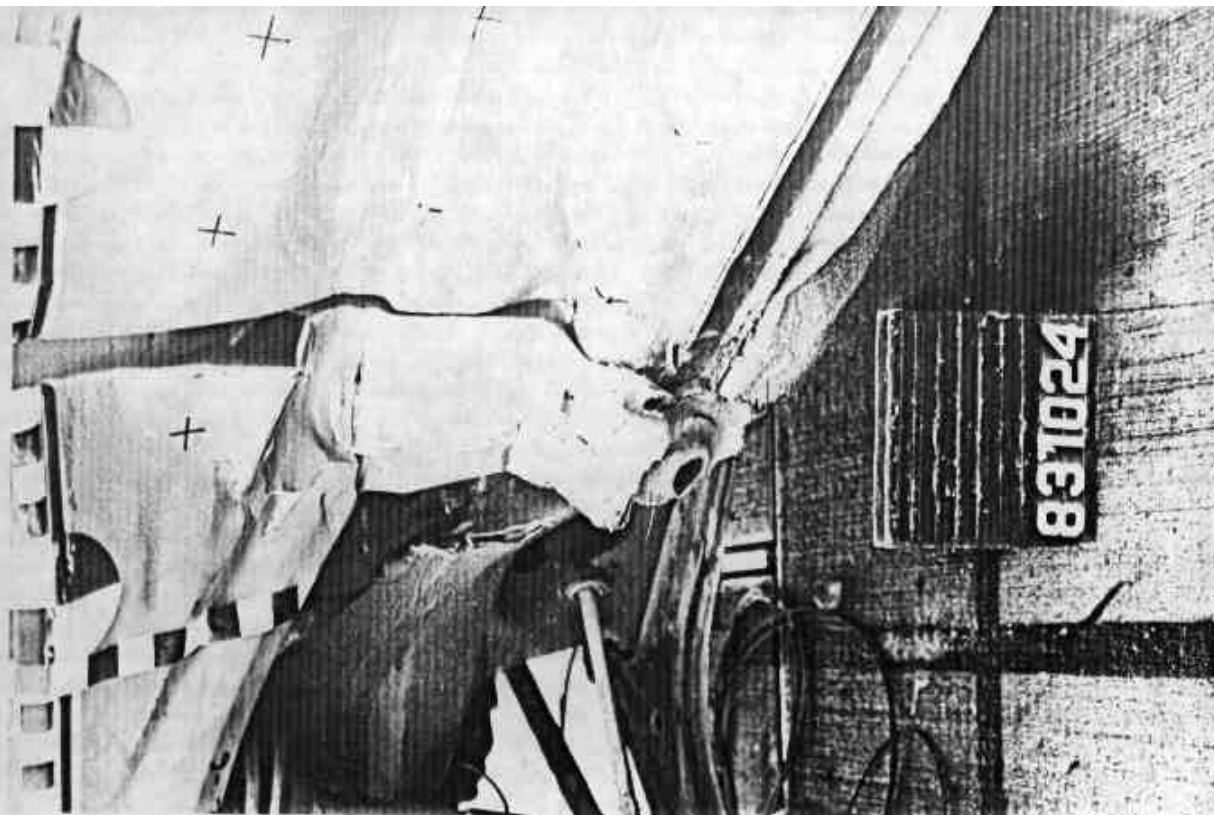


Figure A-25. POST-TEST VEHICLE DAMAGE - VIEW 2

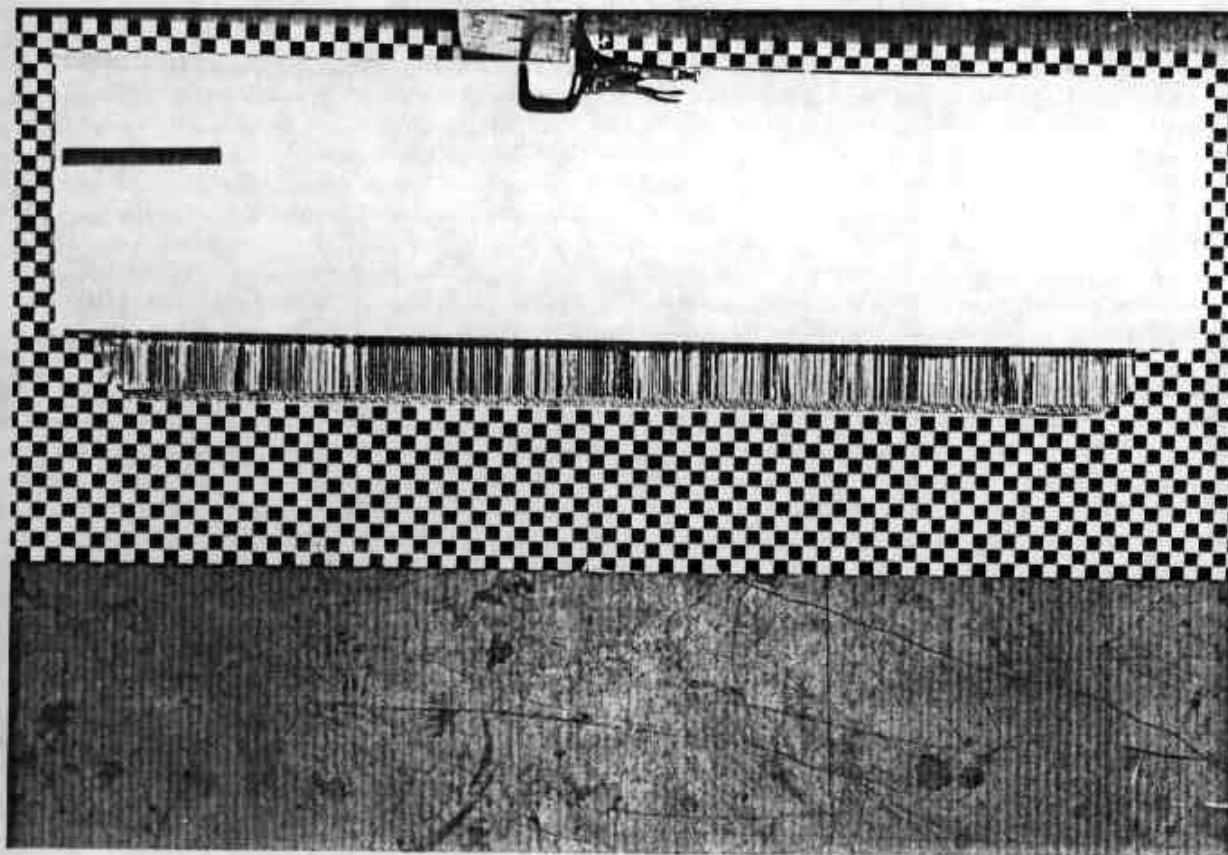


Figure A-26. PRE-TEST MDB FACE - VIEW 1



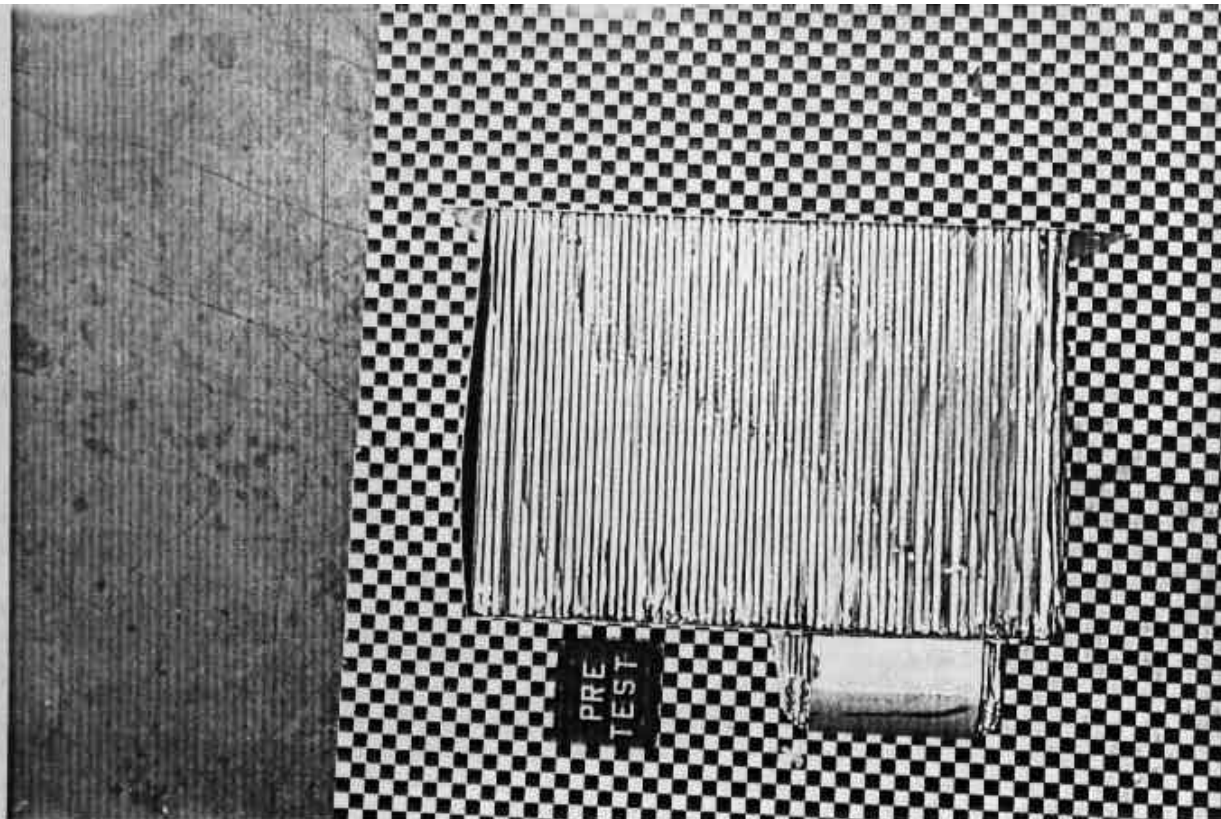


Figure A-27. PRE-TEST MDB FACE - VIEW 2

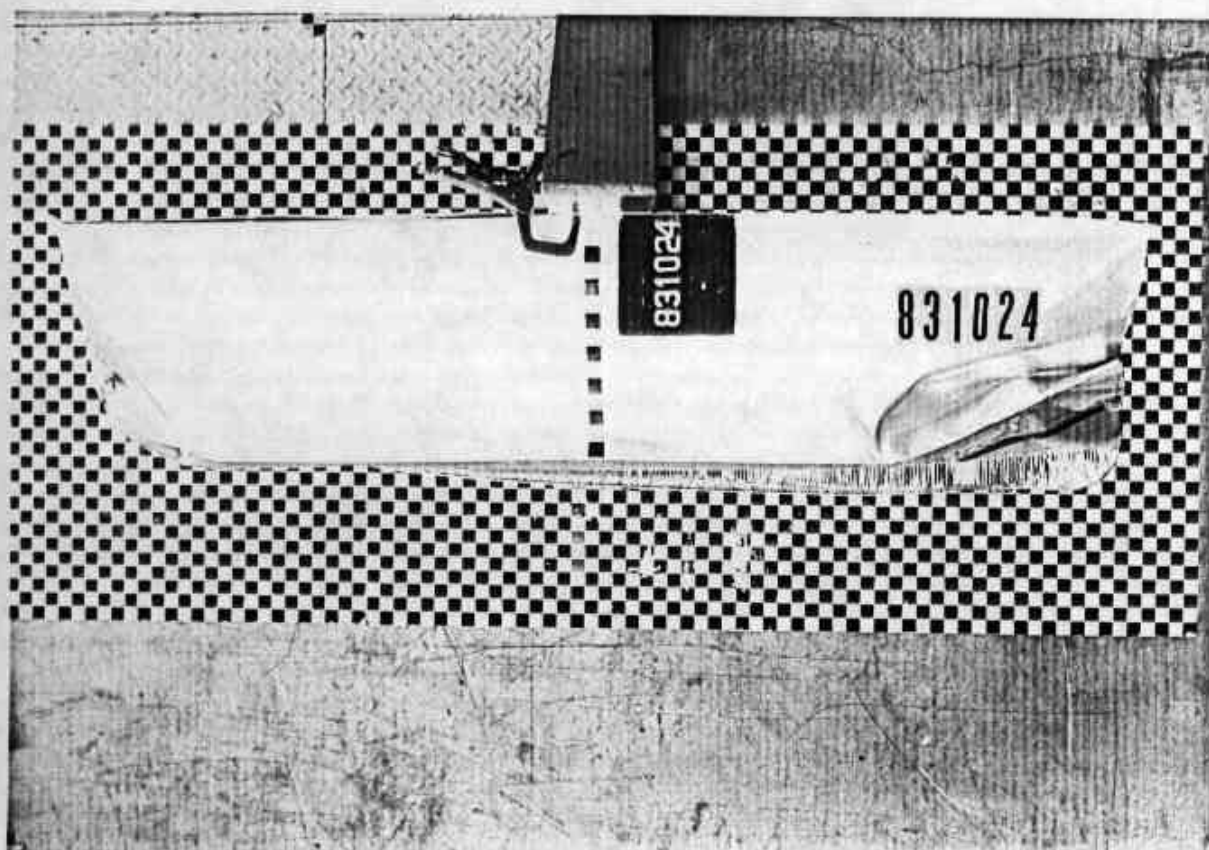


Figure A-28. POST-TEST MDB FACE - VIEW 1

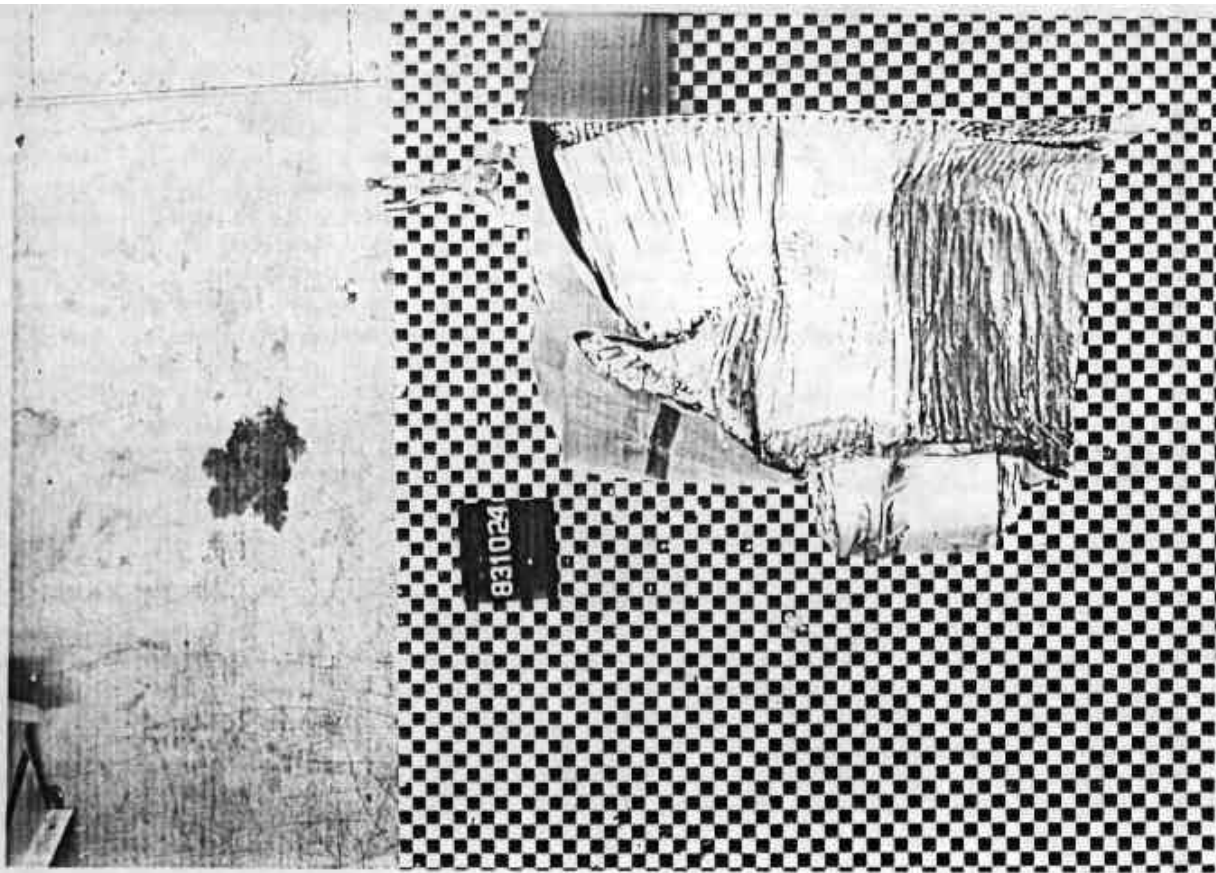


Figure A-29. POST-TEST MD3 FACE - VIEW 2

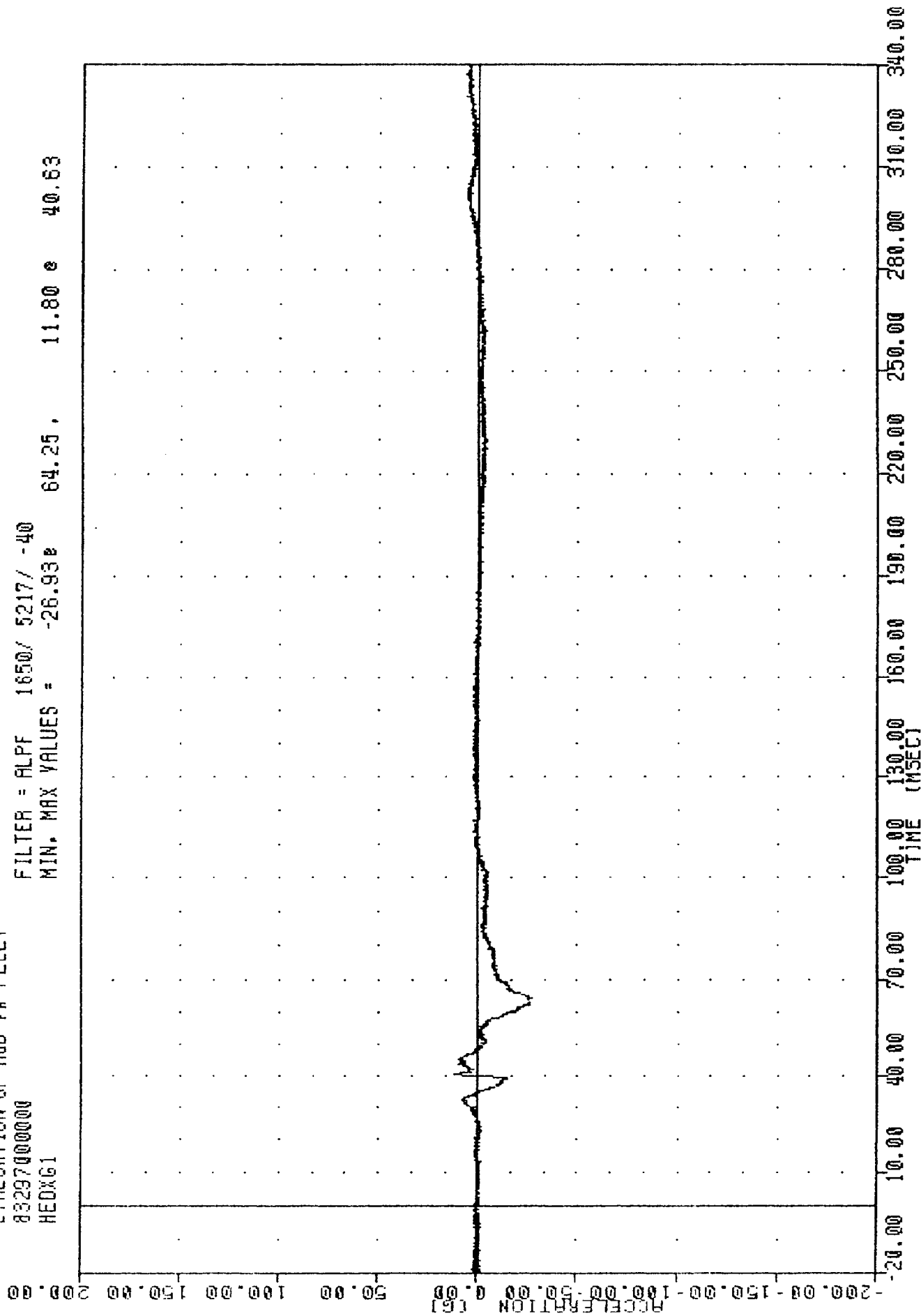
APPENDIX B  
DATA PLOT PRESENTATION

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

TRC  
EVALUATION OF MOD VN FLEET  
83297000000  
HEDXG1

PLOT DATE 26-OCT-83 09:00:24

FILTER = ALPF 1650/ 5217/ -40  
MIN. MAX VALUES = -26.93e 64.25, 11.80 e 40.63

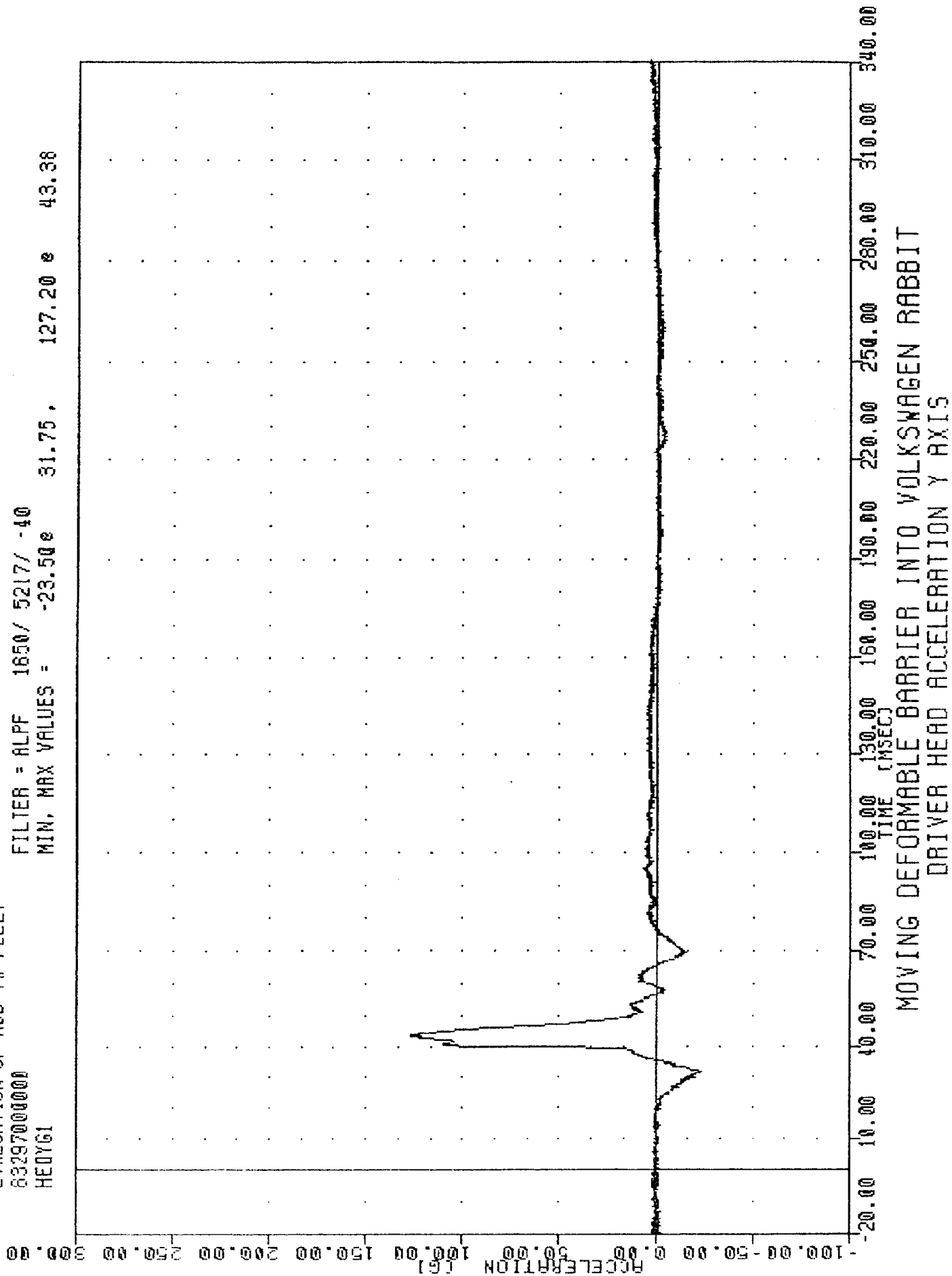


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DRIVER HEAD ACCELERATION X AXIS

TRC 831024  
 EVALUATION OF MDD VW FLEET  
 83297000000  
 HEDY61

PLOT DATE 28-OCT-83 09:00:24

FILTER = ALPF 1650/ 5217/ -40  
 MIN, MAX VALUES = -23.50e 31.75, 127.20 e 43.38

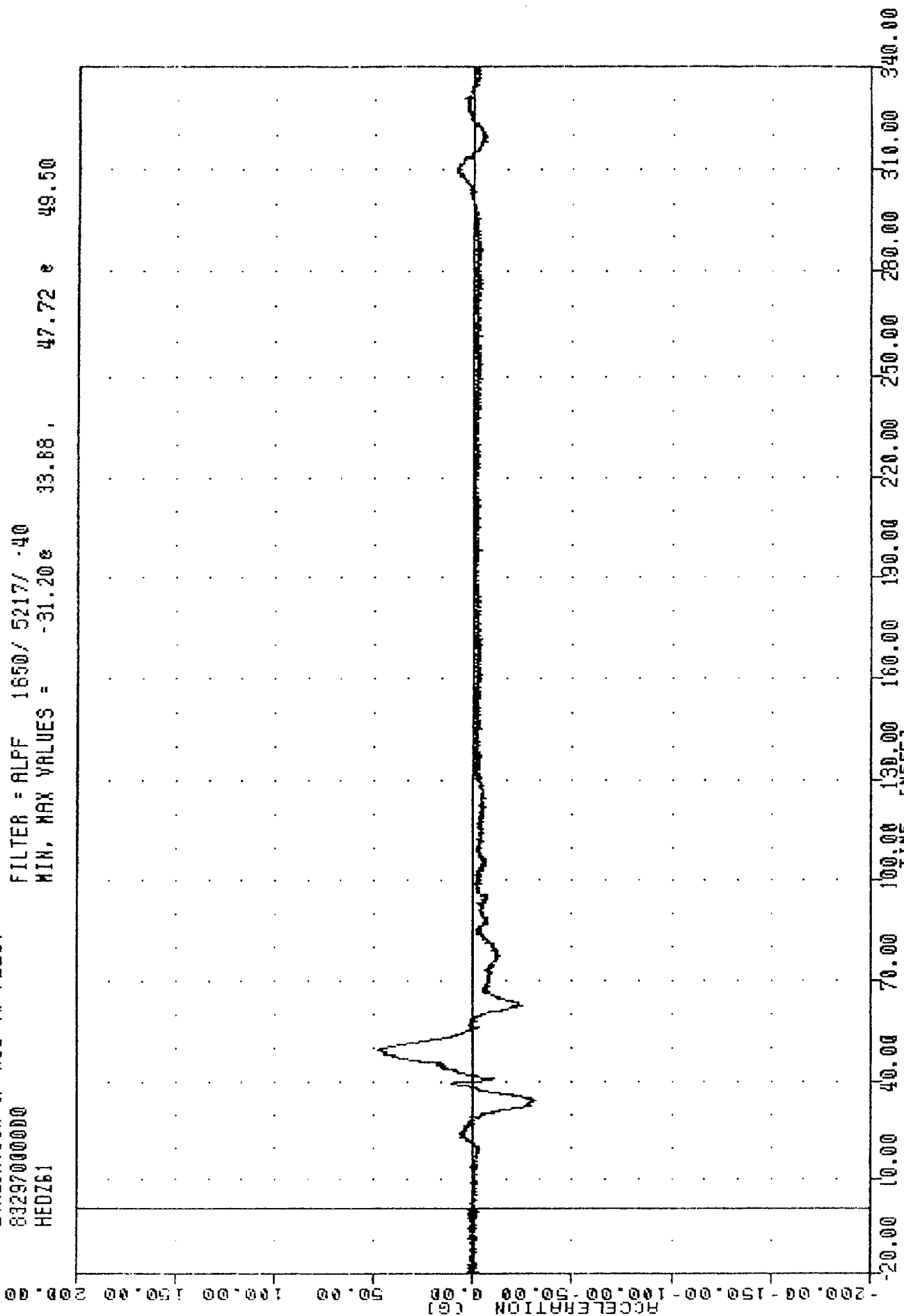




TRC , 831024  
 EVALUATION OF MOD VV FLEET  
 83297000000  
 HEDZ61

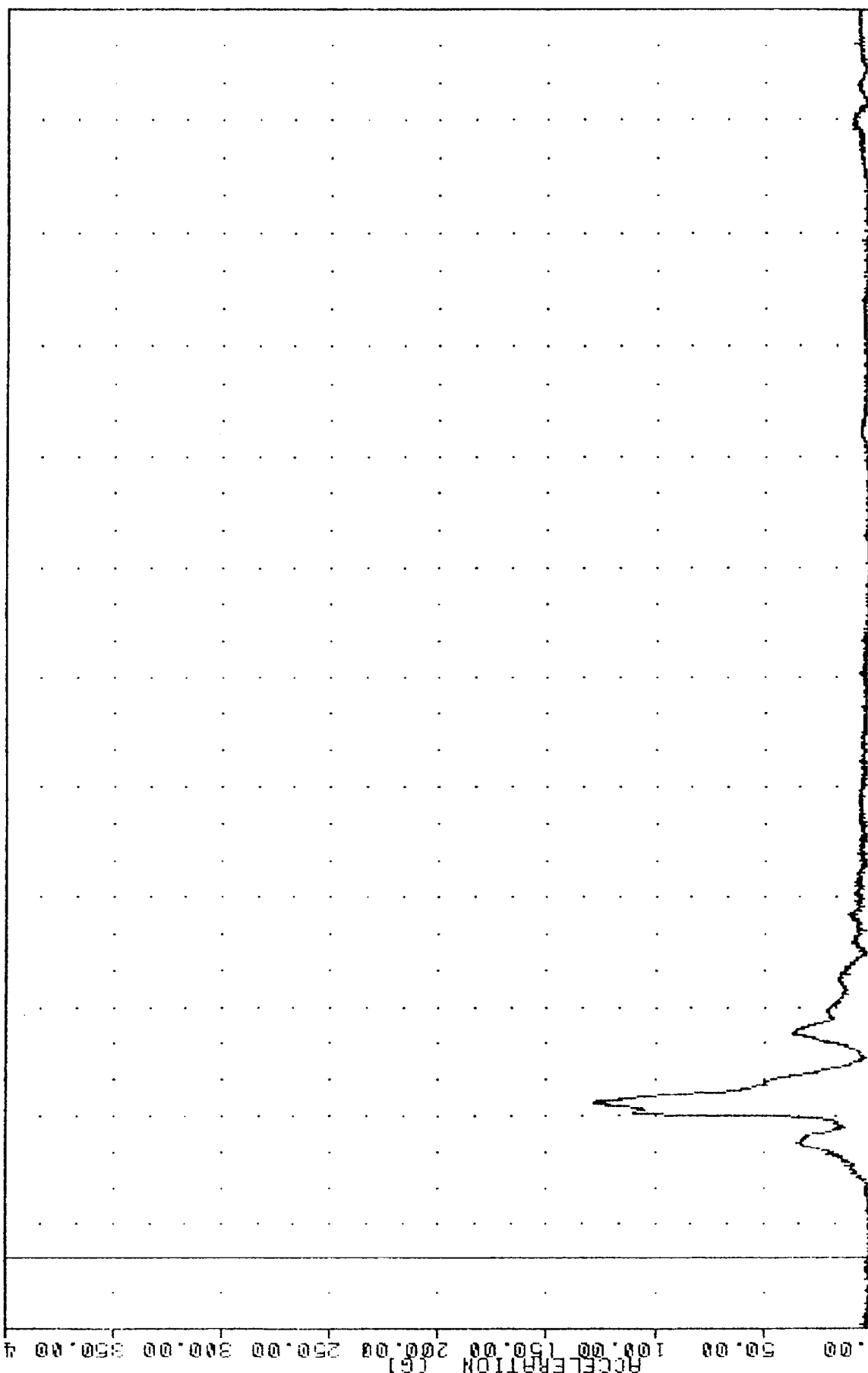
PLOT DATE 26-OCT-83 09:00:24

FILTER = ALPF 1650/ 5217/ -40  
 MIN, MAX VALUES = -31.20 33.88, 47.72 49.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DRIVER HEAD ACCELERATION Z AXIS

TRC 831024  
 EVALUATION OF MOD YN FLEET  
 83297000000  
 HEDRG1  
 PLOT DATE 26-OCT-83 10:20:43  
 FILTER = ALPF 1650/ 5217/ -40  
 MIN. MAX VALUES = 0.148 -6.00 127.96 43.88



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DRIVER HEAD RESULTANT

TRC 831024 PLOT DATE 26-OCT-83 09:03:13

EVALUATION OF MOD VW FLEET

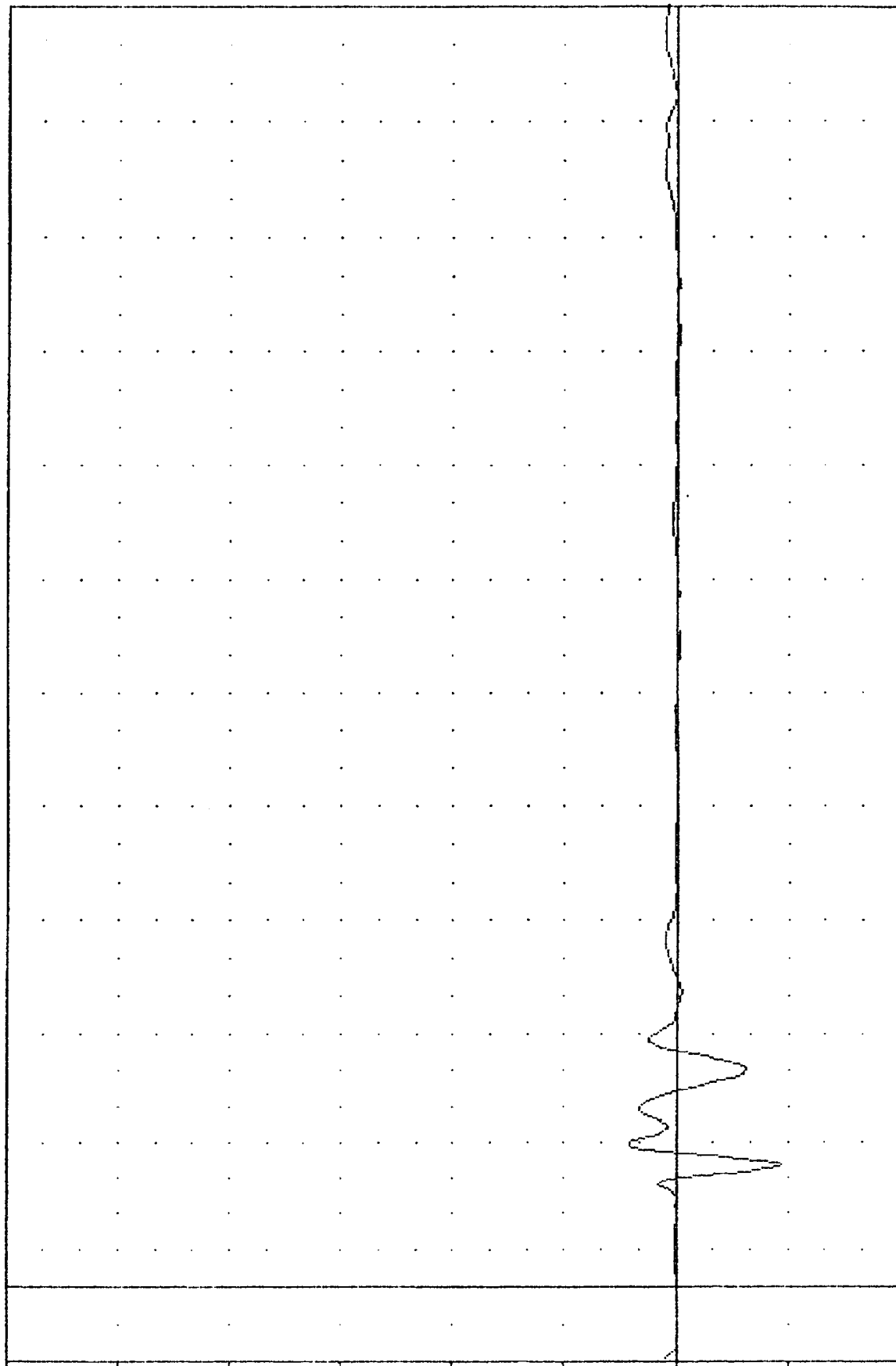
83297000000

T01XG1

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -47.59 33.13, 21.26 38.75

ACCELERATION (G)

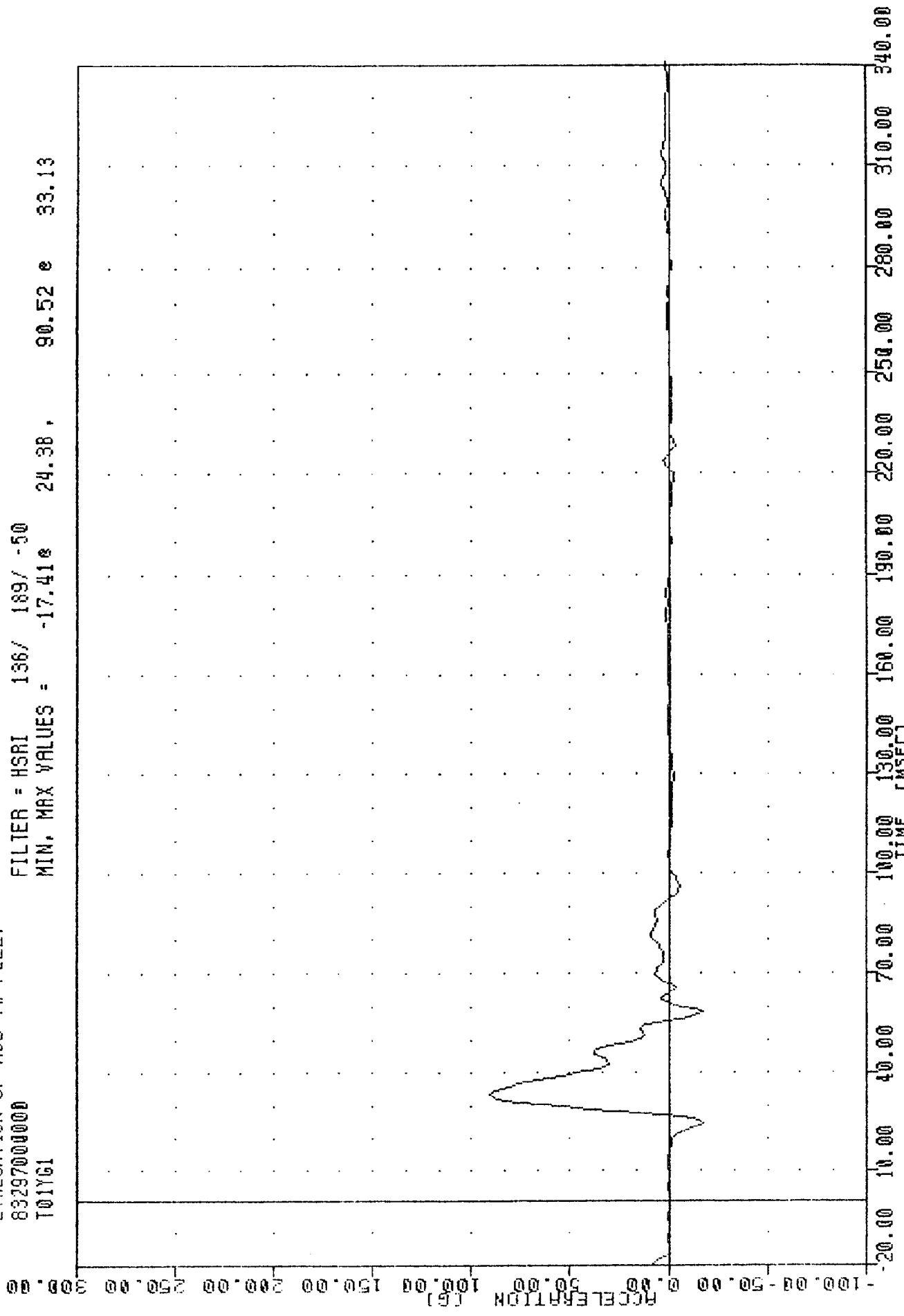


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DRIVER UPPER SPINE ACCELERATION X AXIS

TRC 831024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 T01Y61

PLOT DATE 26-OCT-83 09:03:13

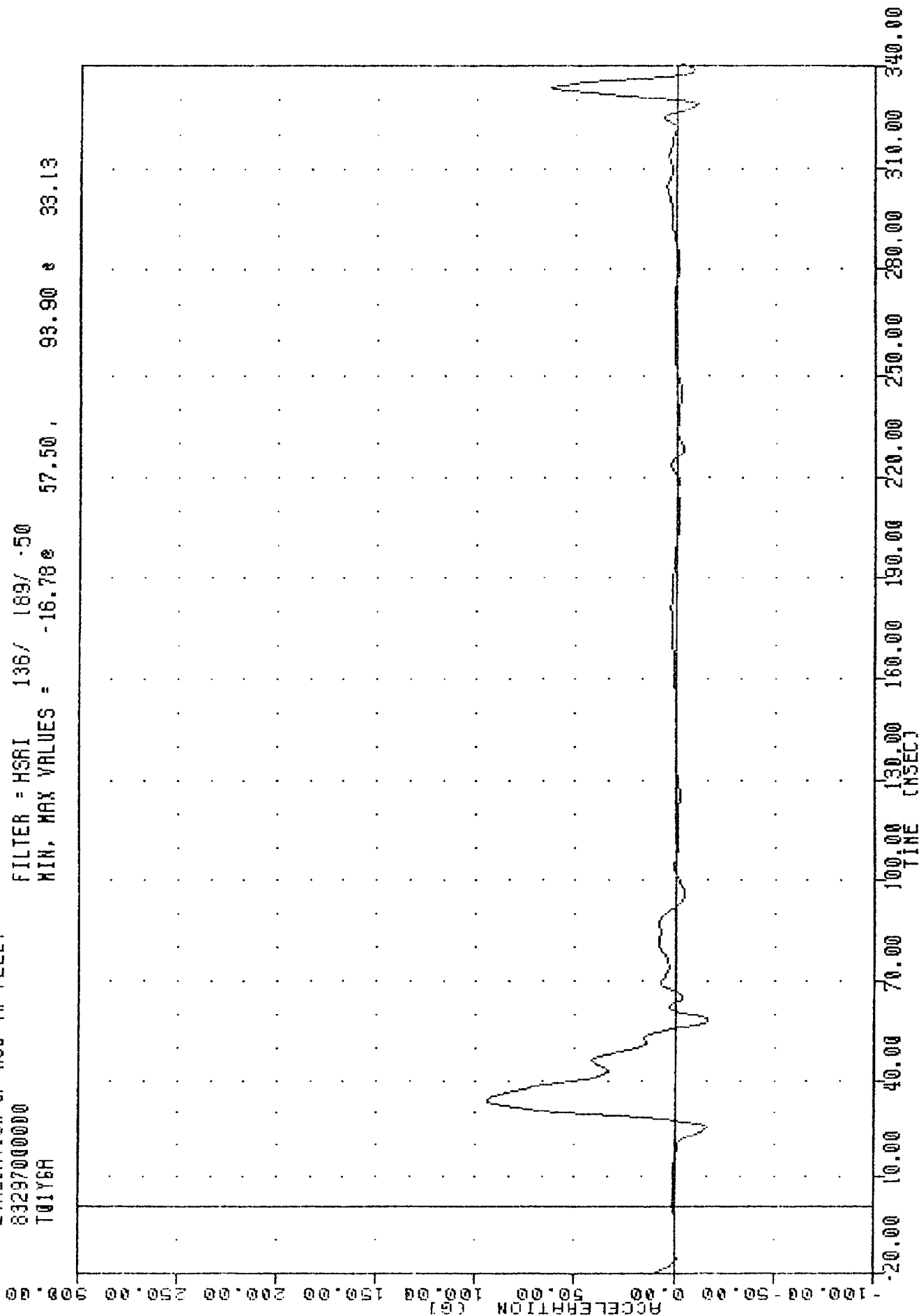
FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -17.41e 24.38, 90.52 e 33.13



TAC 831024  
EVALUATION OF MOD YH FLEET  
83297000000  
T01Y6A

PLOT DATE 26-OCT-83 09:03:13

FILTER = HSRI 136/ 189/ .50  
MIN. MAX VALUES = -16.78e 57.50 , 93.90 e 33.13

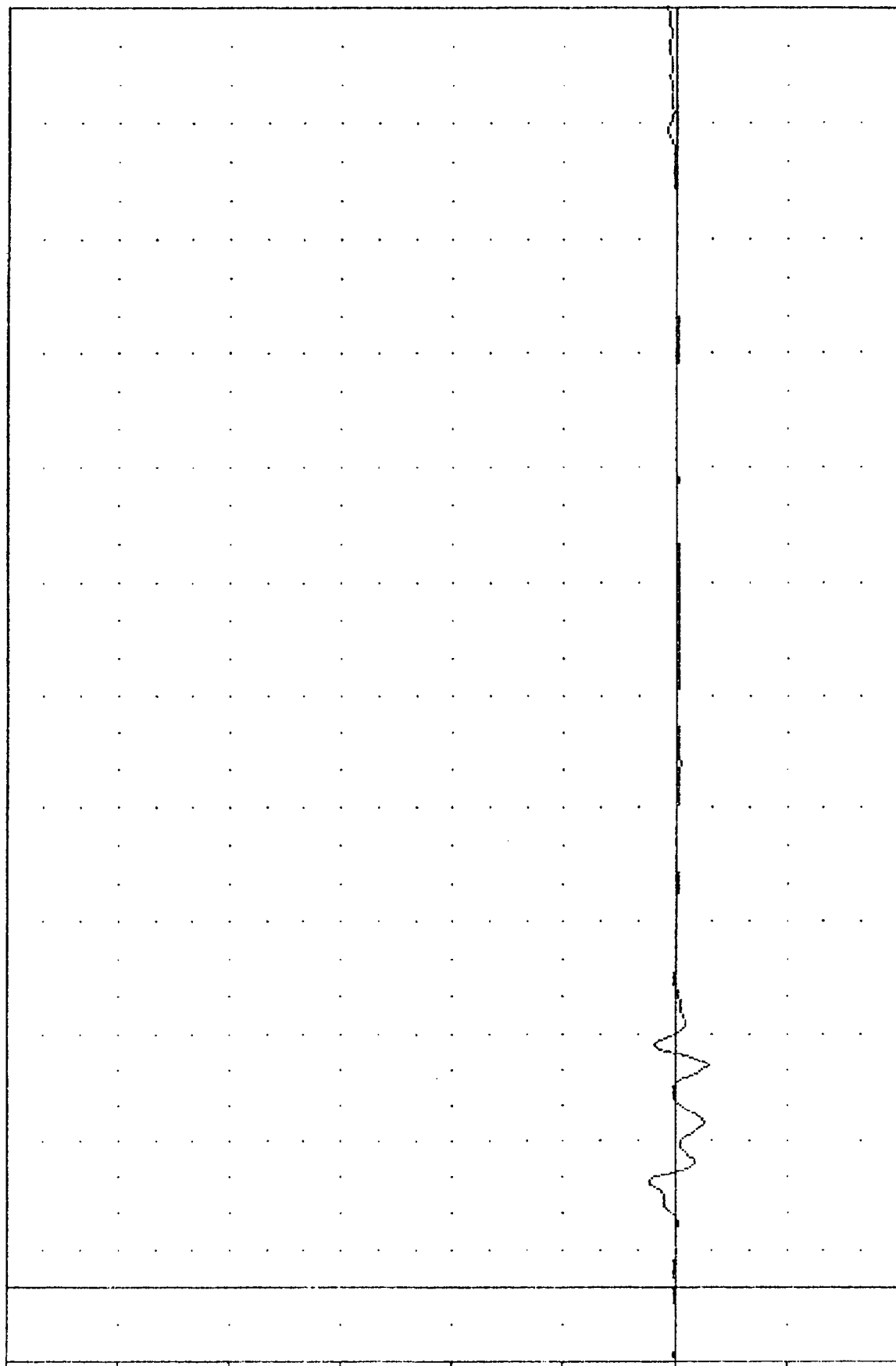


TRC  
EVALUATION OF MOD VW FLEET  
83297000000  
T01ZG1

FLUT DATE 26-OCT-83 09:03:13

FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -15.00 60.62, 11.57 27.50

ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DRIVER UPPER SPINE ACCELERATION Z AXIS

TRC

831024

EVALUATION OF MDD VW FLEET

83297000000

T01RG1

PLOT DATE

26-DEC-83

09:03:13

FILTER = HSRI

136/ 189/ -50

MIN. MAX VALUES =

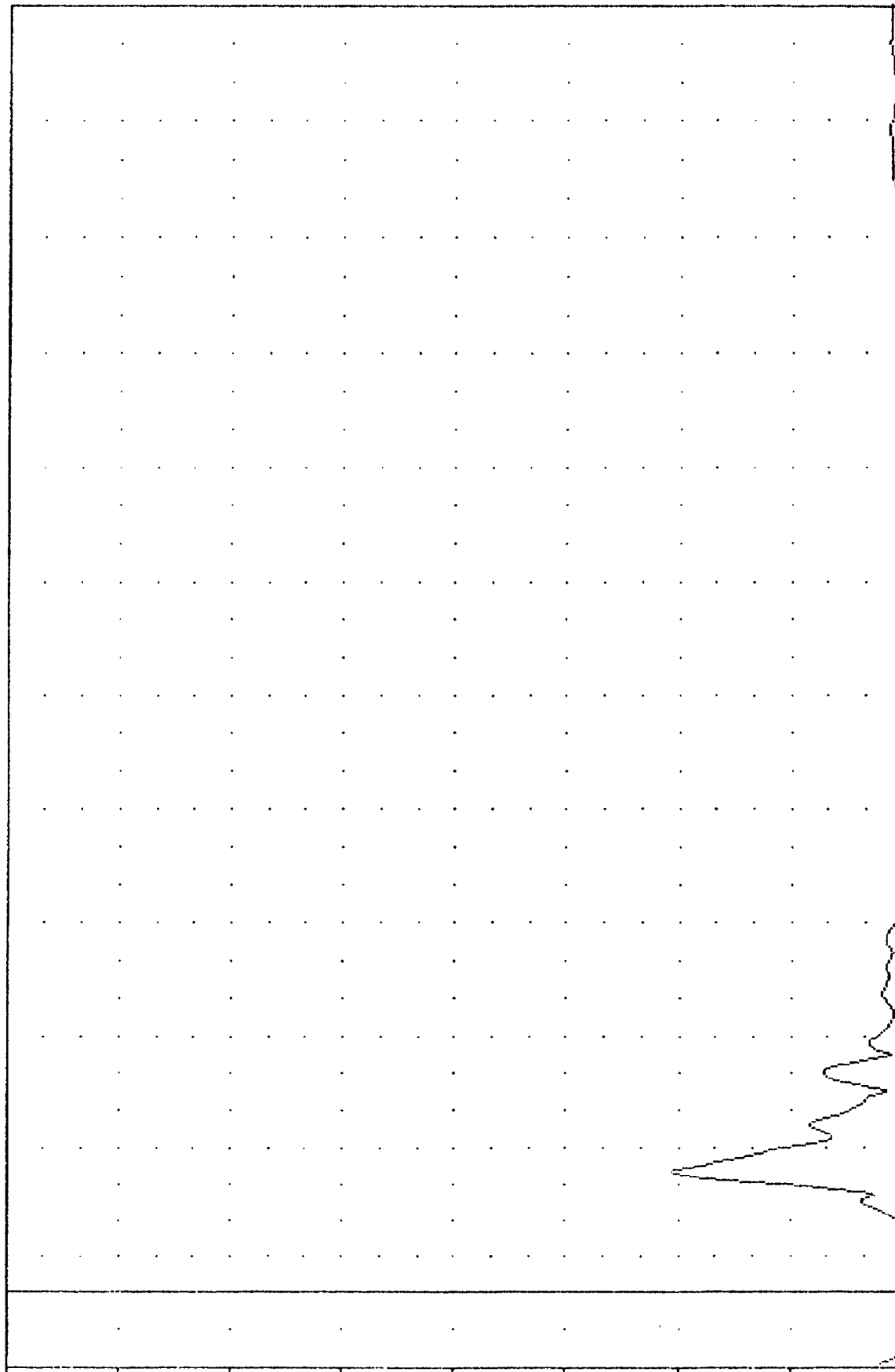
0.08e

-10.63,

102.70 e

33.13

ACCELERATION [G]



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DRIVER UPPER SPINE RESULTANT

TRC 831024  
EVALUATION OF MOD YW FLEET  
83297000000  
T01RG1

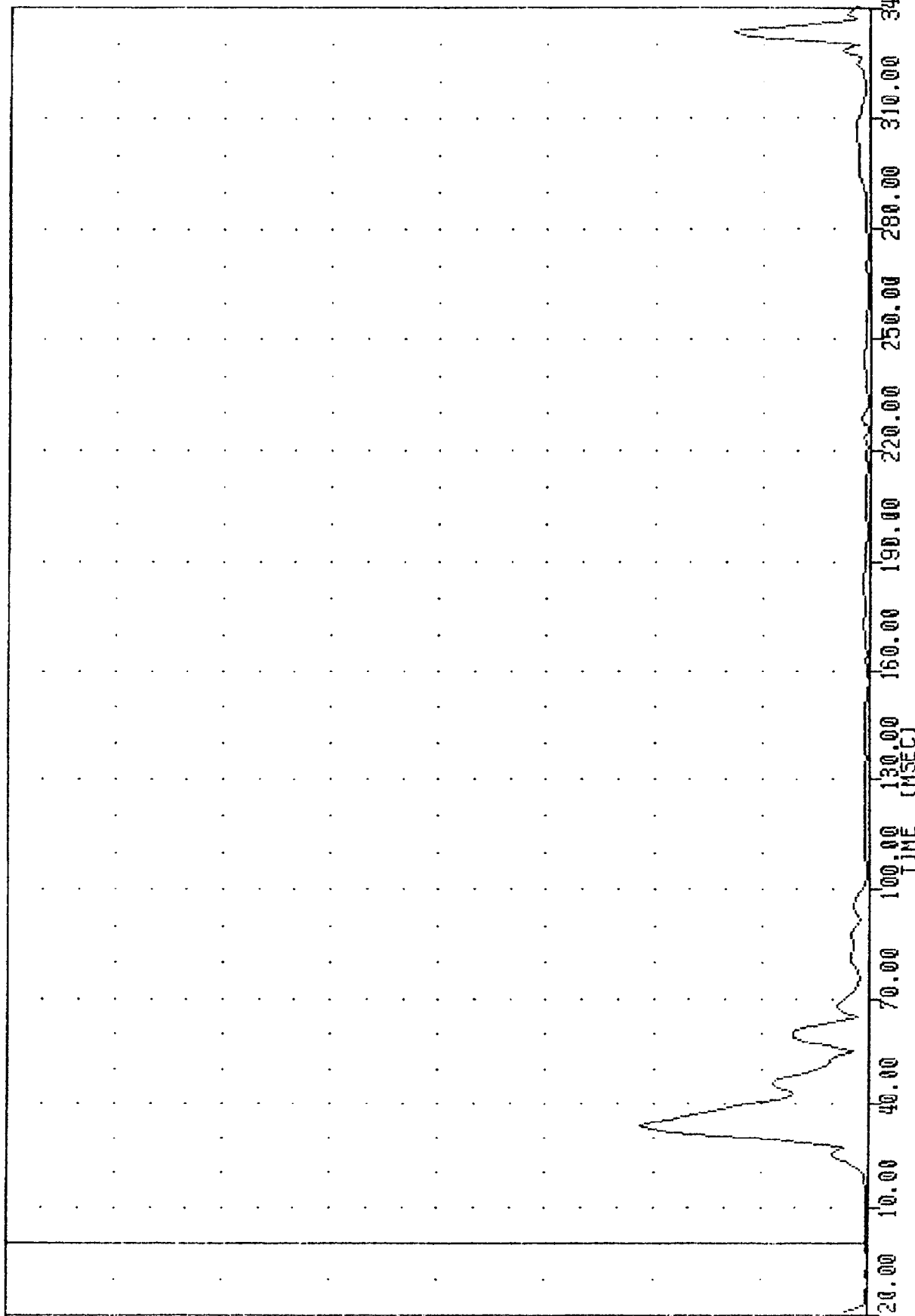
PLUT DATE 26-OCT-83

09:04:27

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.168 156.25, 105.68 & 33.13

ACCELERATION (G)





TRC

, 831024

EVALUATION OF MOD VW FLEET

83297000000

T01YV1

PLOT DATE

26-OCT-83

11:12:12

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES =

-1.38

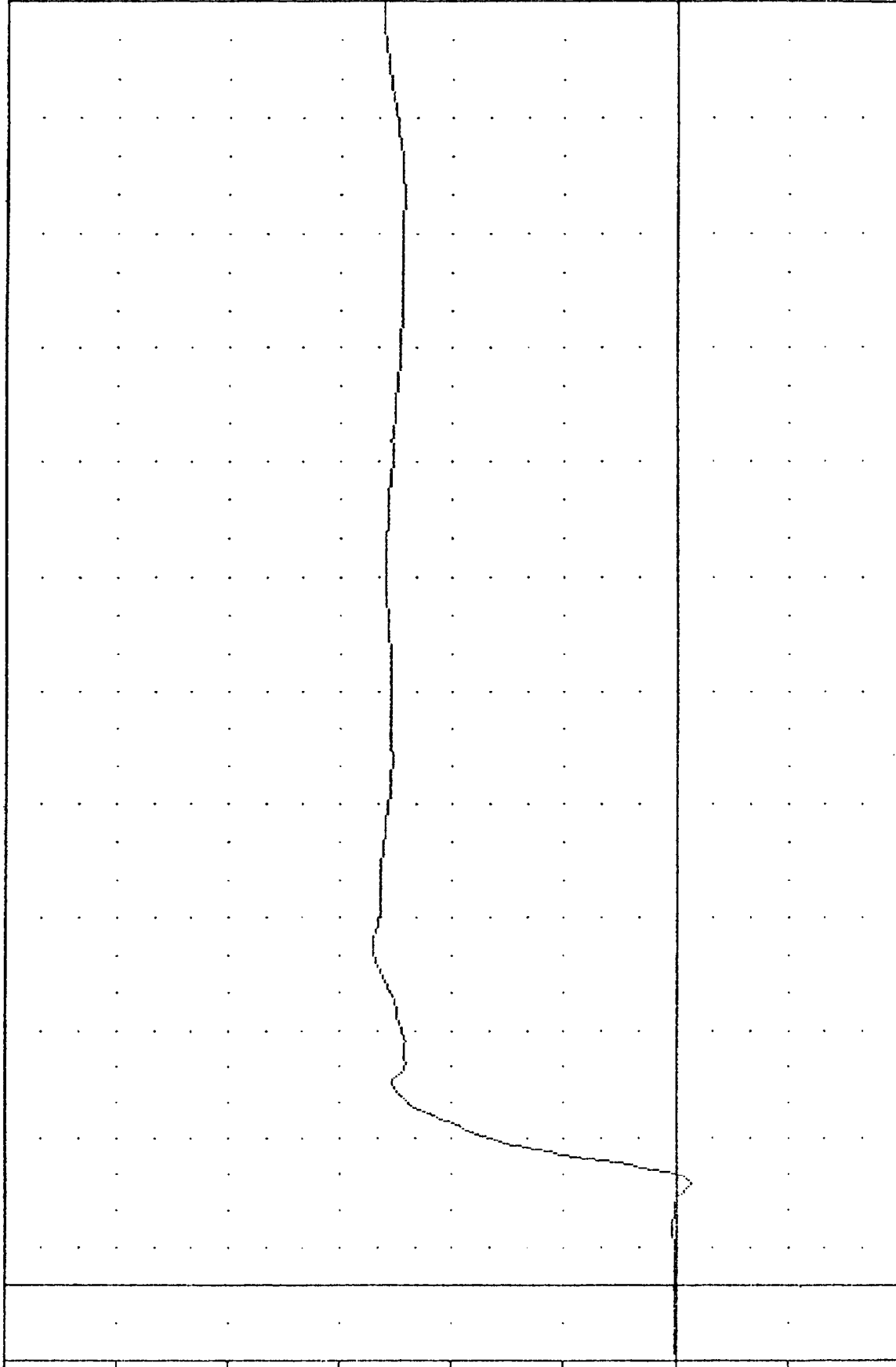
26.87,

27.14

91.87

VELOCITY (MPH)

B-12



-20.00 10.00 20.00 30.00 40.00 50.00 60.00

TIME (MSEC)

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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING T01YV1

TRC 831024 PLOT DATE 26-OCT-83 11:12:12

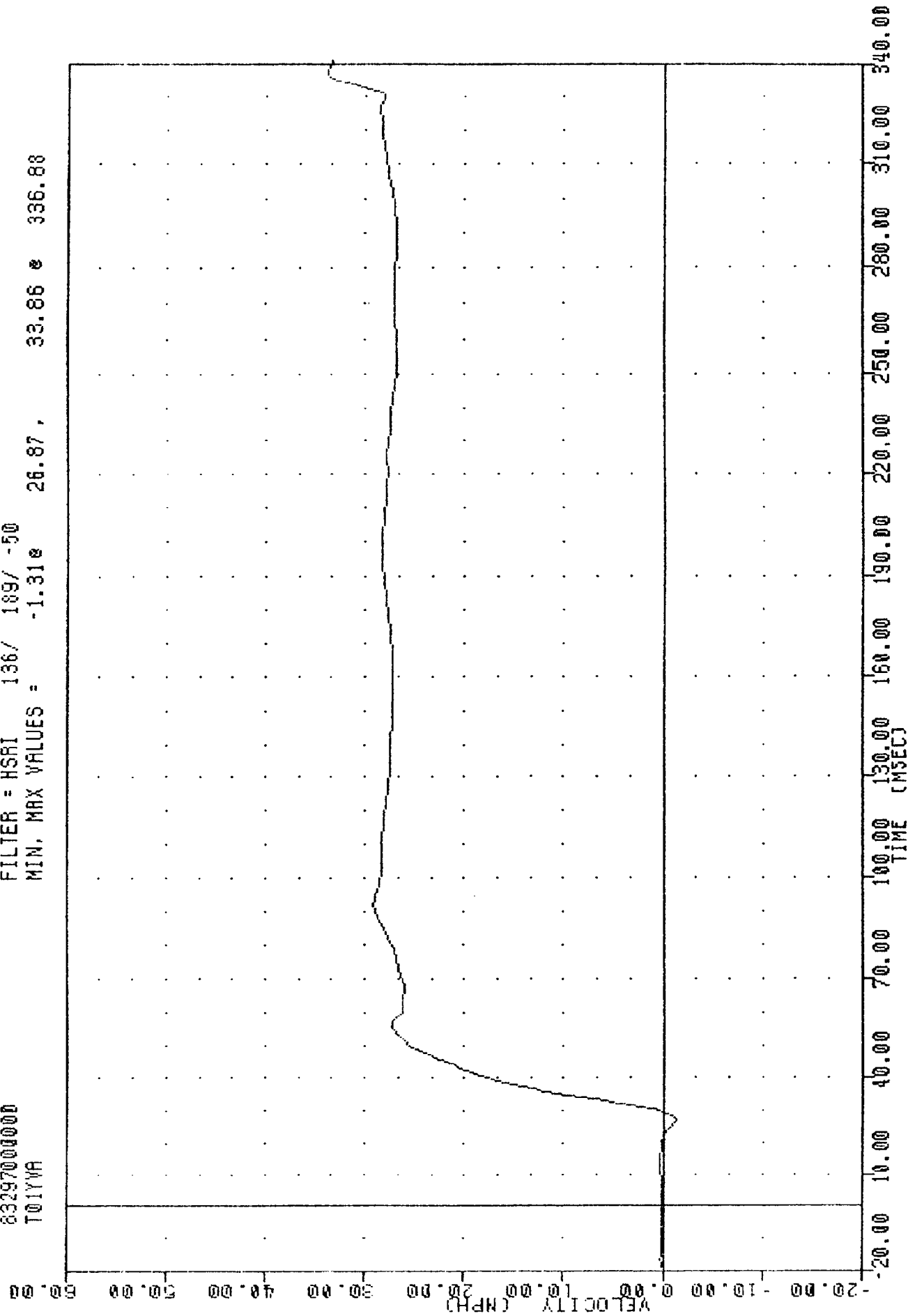
EVALUATION OF MDD VW FLEET

83297000000

T01YVA

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -1.31e 26.87, 33.86 e 336.88

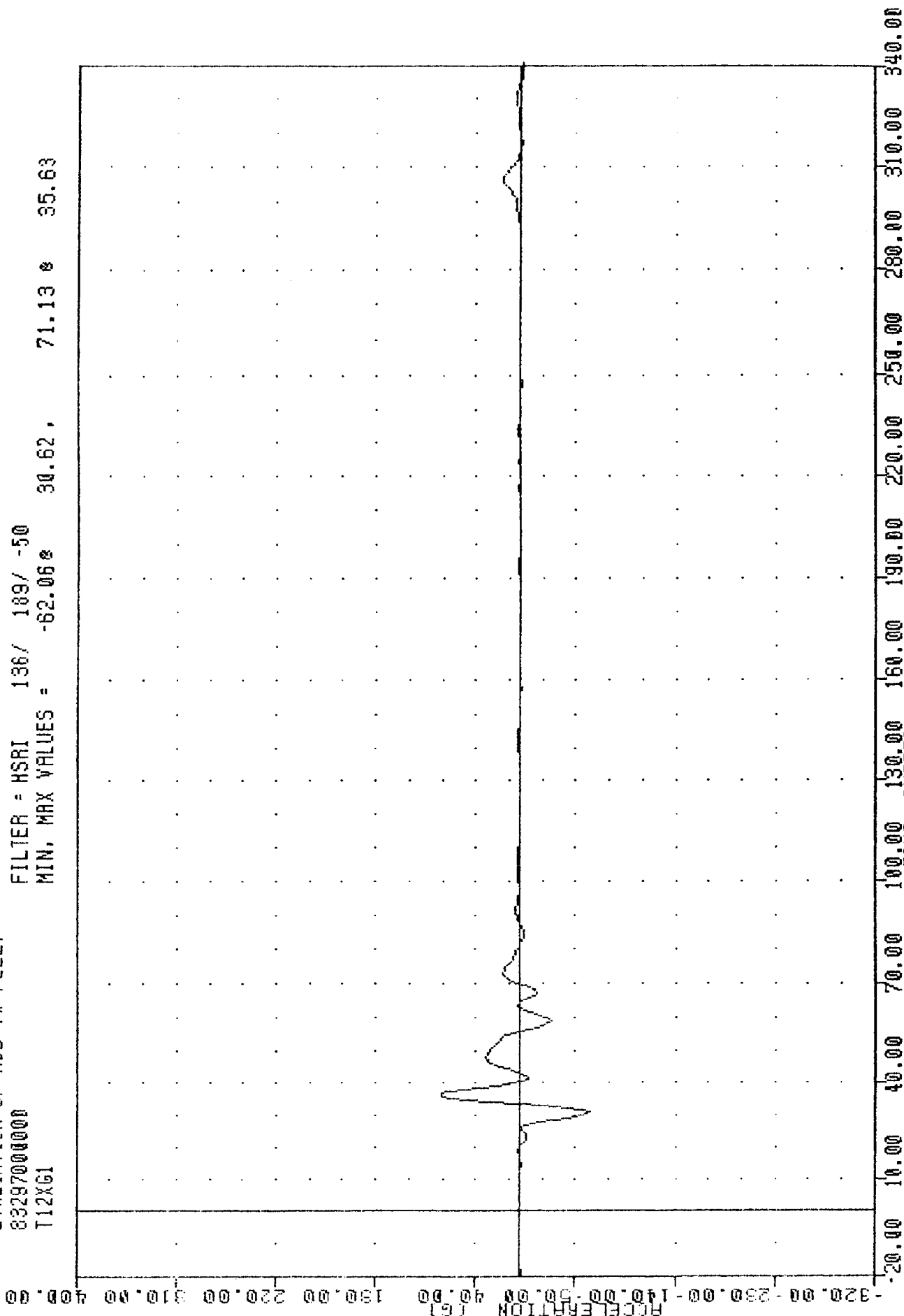


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING T01YGA

TRC 831024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 T12XG1

PLOT DATE 26-OCT-83 09:05:13

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -62.06 30.62 71.13 35.63

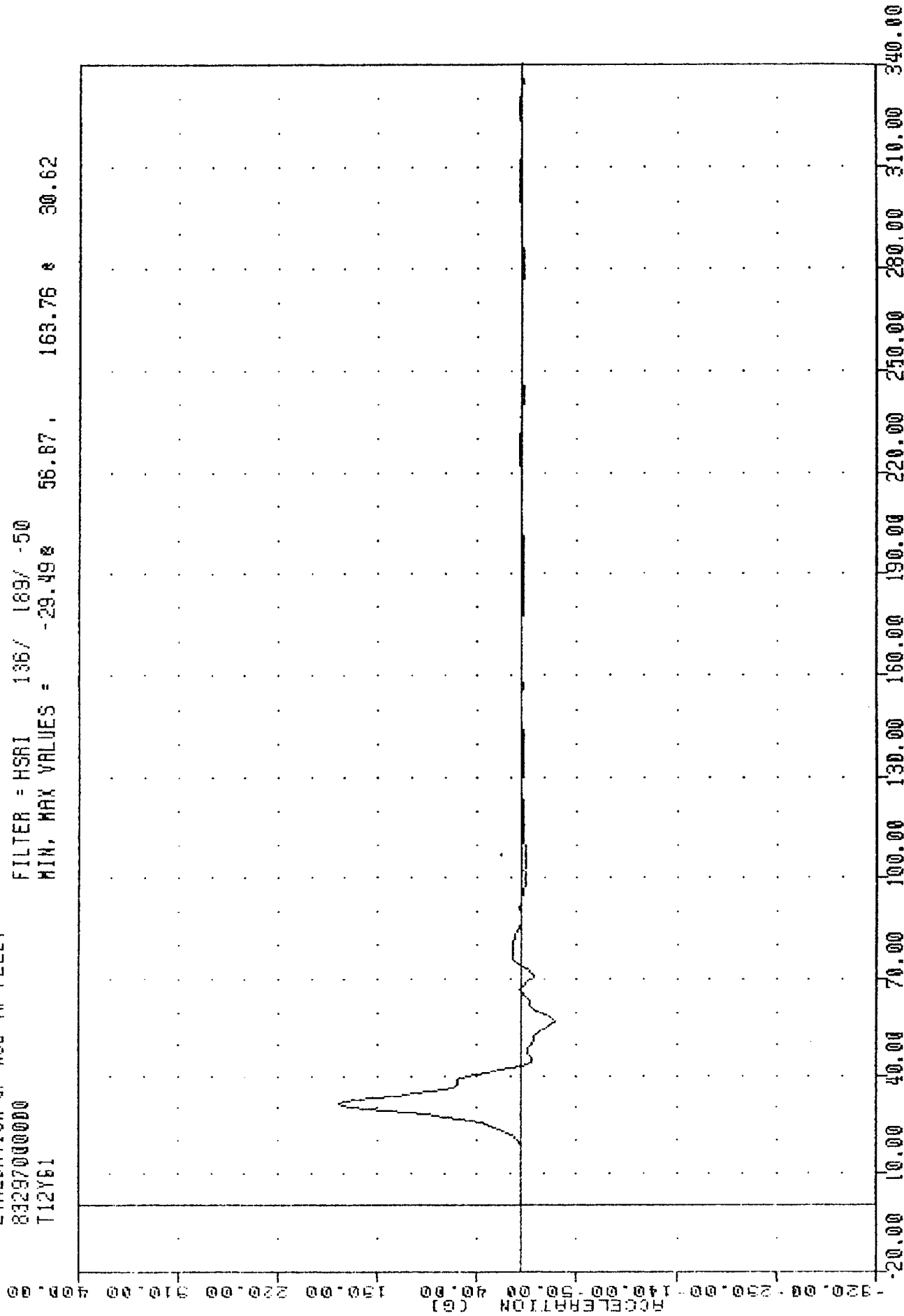


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DRIVER LOWER SPINE ACCELERATION X AXIS

TAC  
 EVALUATION OF MCD VW FLEET  
 83297000000  
 T12Y61

PLOT DATE 26-OCT-88 09:03:13

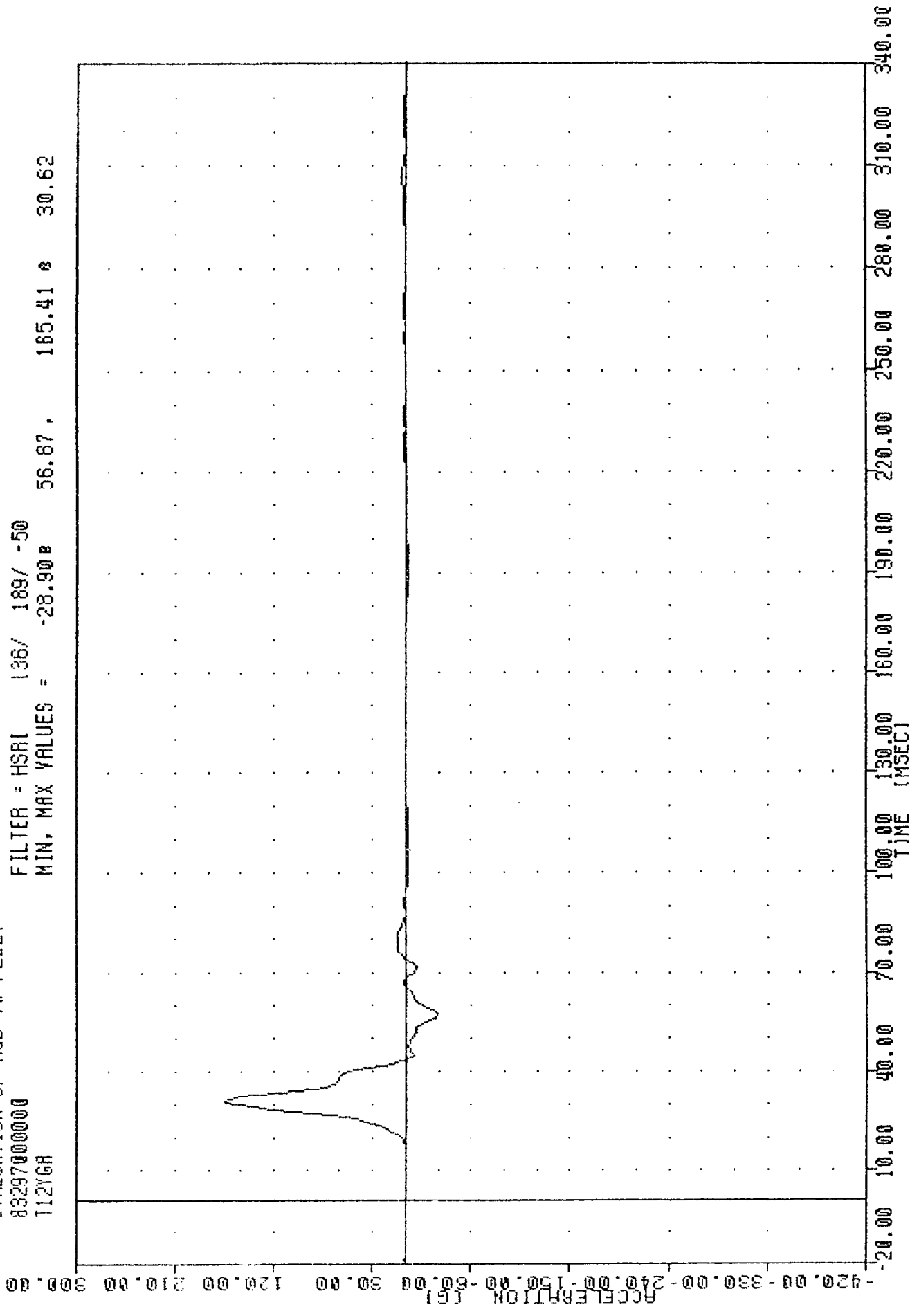
FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -29.498 56.87 , 163.76 30.62



TRC  
EVALUATION OF MOD VW FLEET  
83297000000  
T12V6H

PLOT DATE 26-OCT-83 09:03:13

FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -28.90g 56.87, 165.41 g 30.62

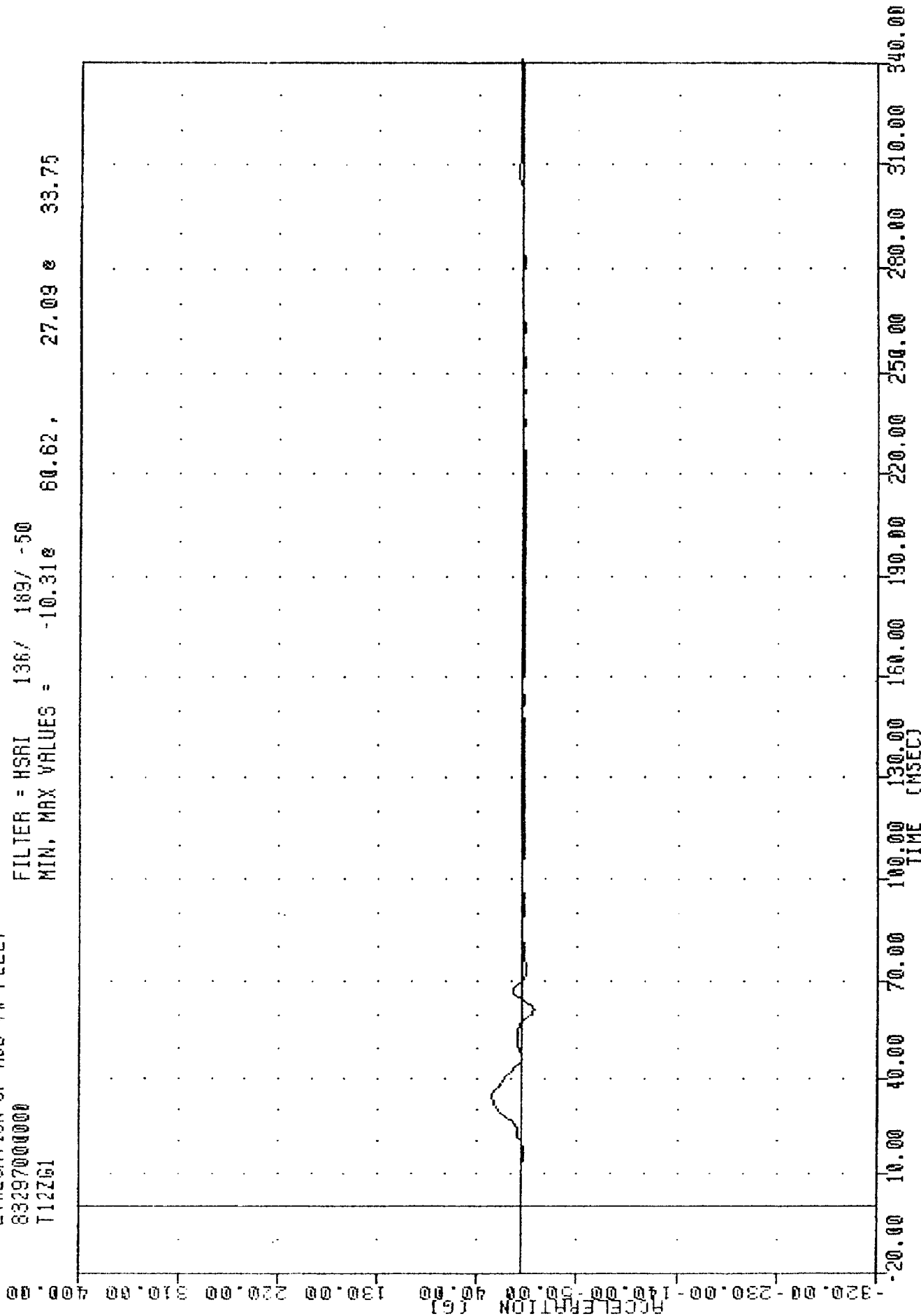


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DRIVER LOWER SPINE ACCELERATION #2 Y AXIS

TRC 831024  
 EVALUATION OF MOD V'N FLEET  
 83297000000  
 T12ZG1

PLOT DATE 26-OCT-83 09:03:13

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -10.31 60.62, 27.09 33.75



TRC 831024 PLOT DATE 28-OCT-83 09:03:13

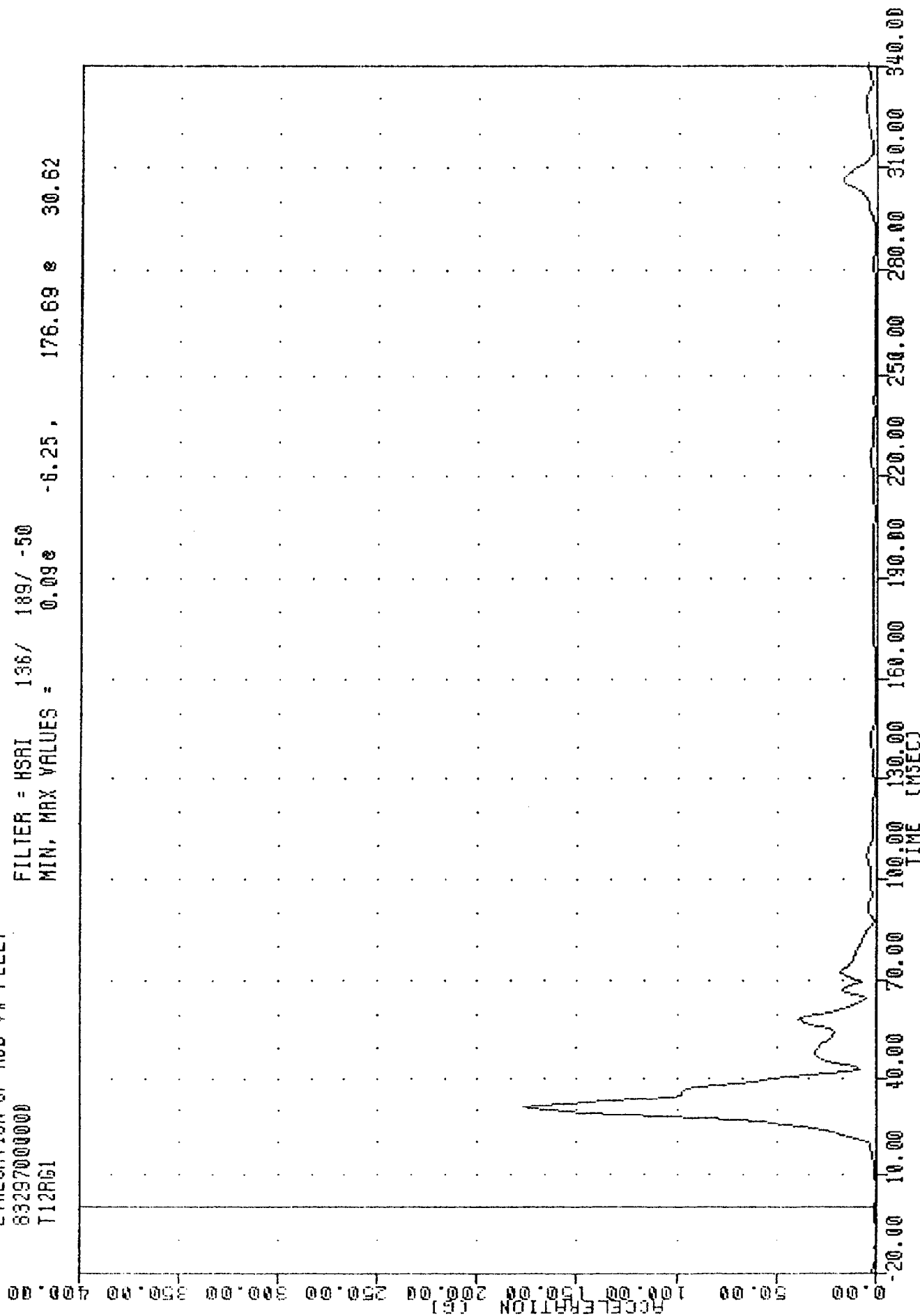
EVALUATION OF MOD V'N FLEET

83297000000

T12R61

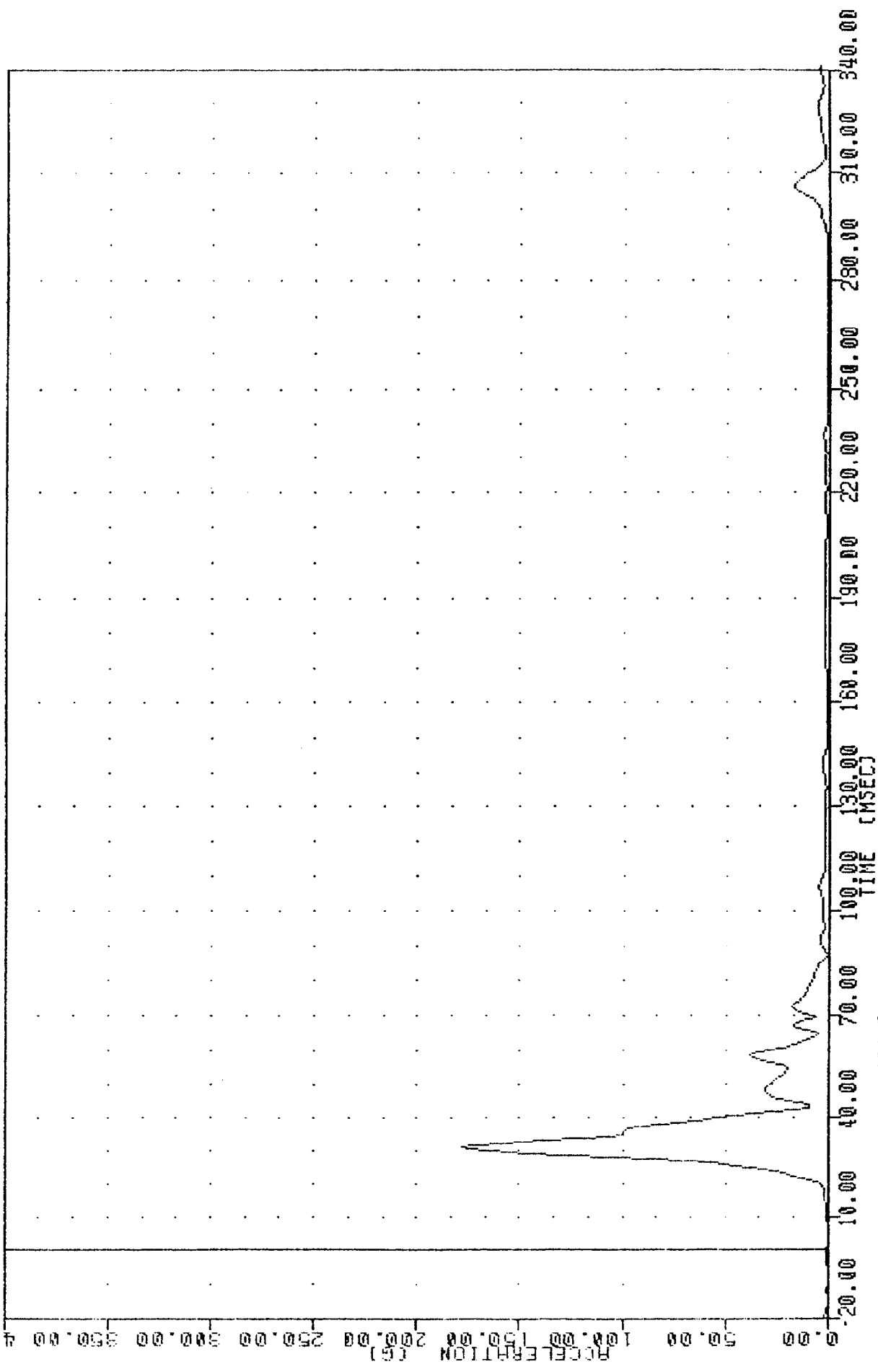
FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.09e -6.25, 176.69 e 30.62



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DRIVER LOWER SPINE RESULTANT

TRC 831024, 831024 PLOT DATE 26-OCT-83 09:04:27  
 EVALUATION OF MDD VW FLEET  
 83297000000  
 T12RG1  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = 0.088 -6.88, 178.22 s 30.62



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DRIVER LOWER SPINE RESULTANT USING T12YGA



TAC

831024

EVALUATION OF MOD VW FLEET

83297000000

T12YV1

PLOT DATE

26-OCT-88

11:12:12

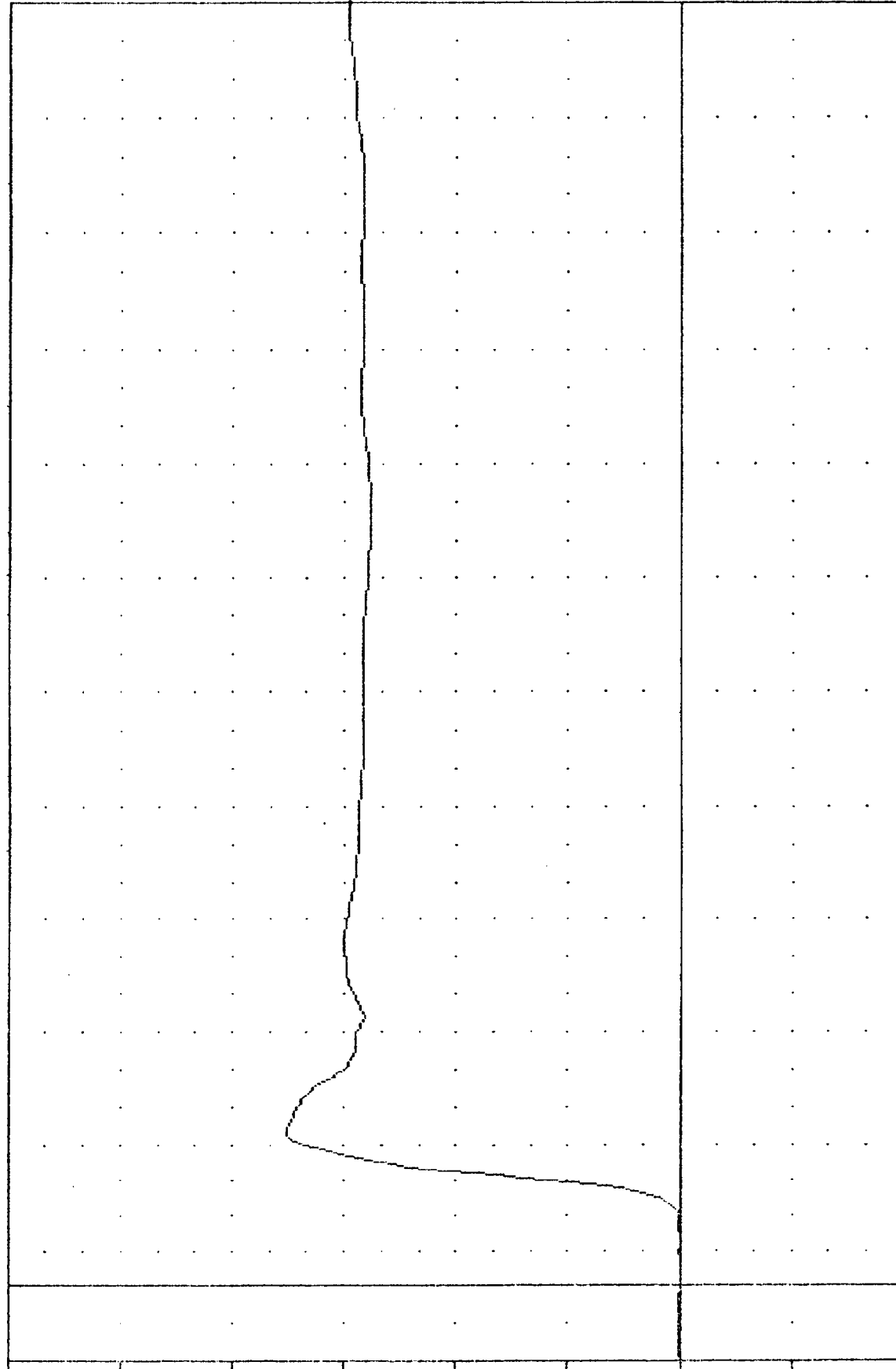
FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.018 1.88

35.17

42.50

VELOCITY (MPH)



-20.00 -10.00 0.00 10.00 20.00 30.00 40.00 50.00 60.00

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

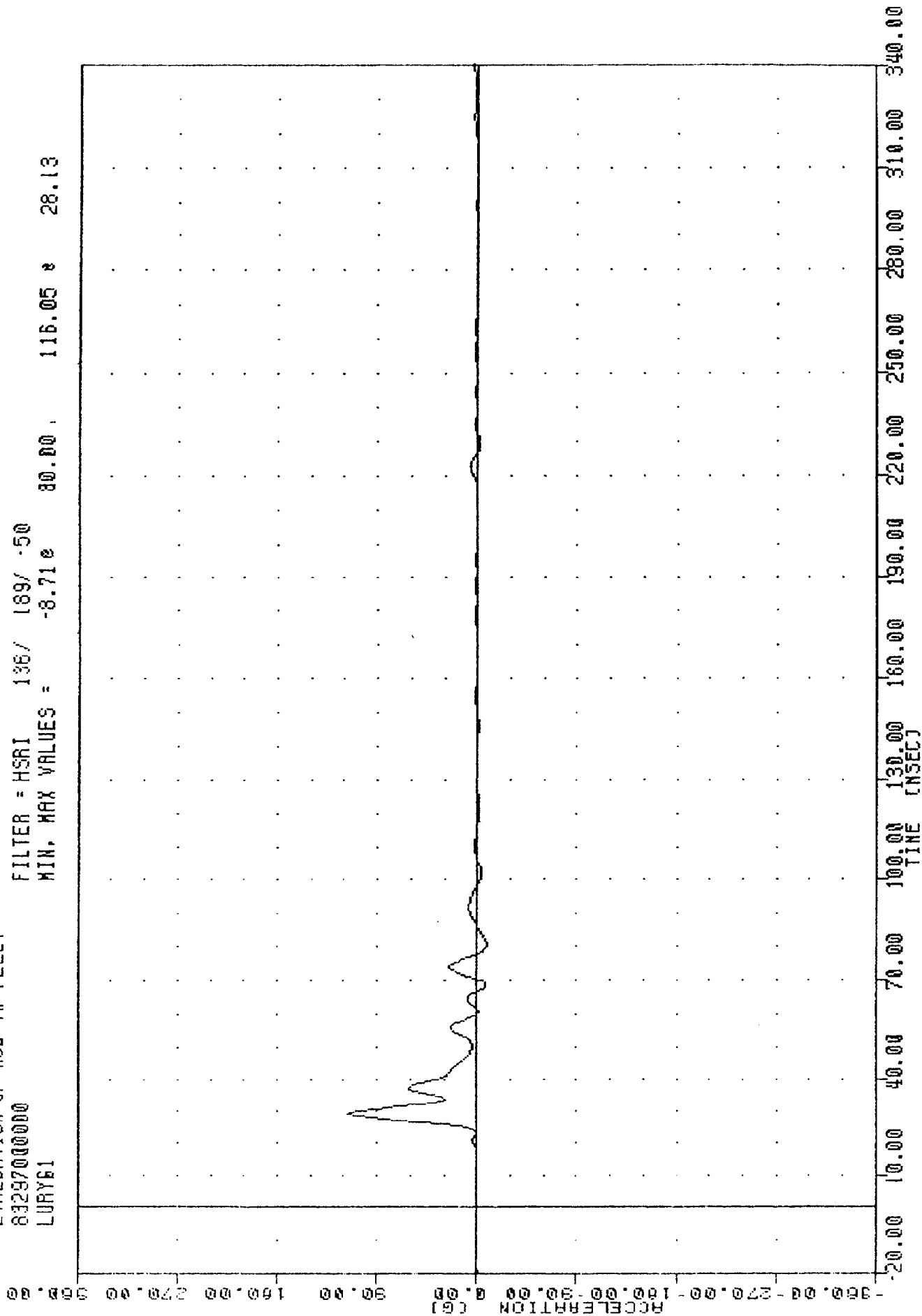
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING T12YGI

100

TRC 832970000000  
 EVALUATION OF MOD VW FLEET  
 LURY61

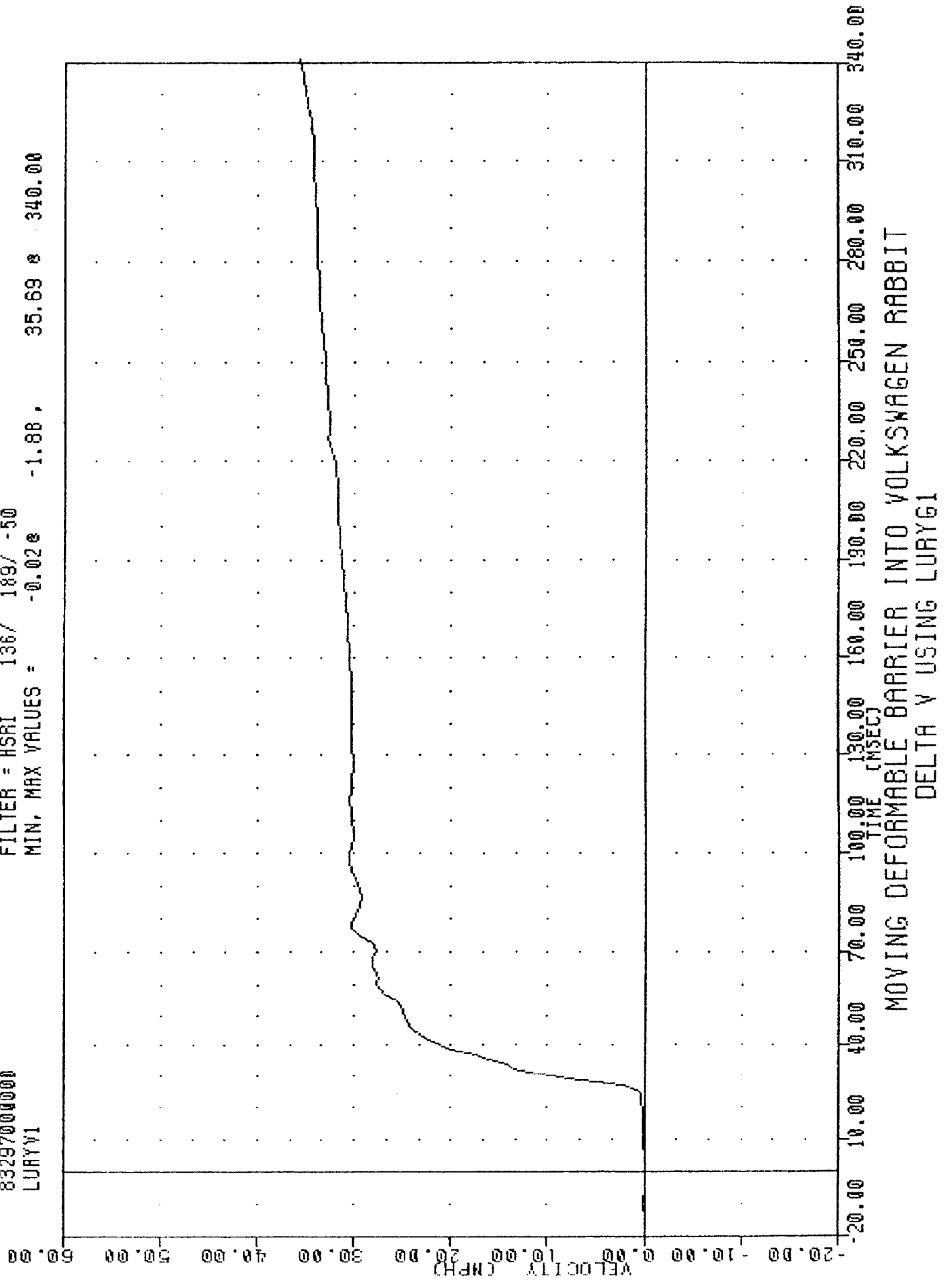
DATE 26 OCT 83 09:05:13

FILTER = HSRI 136/ 139/ -50  
 MIN, MAX VALUES = -8.71e 80.00, 116.05 e 28.13



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

TRC [REDACTED], [REDACTED] 024 [REDACTED] PLOT DATE [REDACTED] 26 OCT -89 [REDACTED] 11:12:12 [REDACTED]  
 EVALUATION OF MDD V/V FLEET  
 83297000000  
 LURYV1  
 FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -0.028 -1.88, 35.69 8 340.00



TRC 831024 PLOT DATE 26-OCT-93 09:03:13

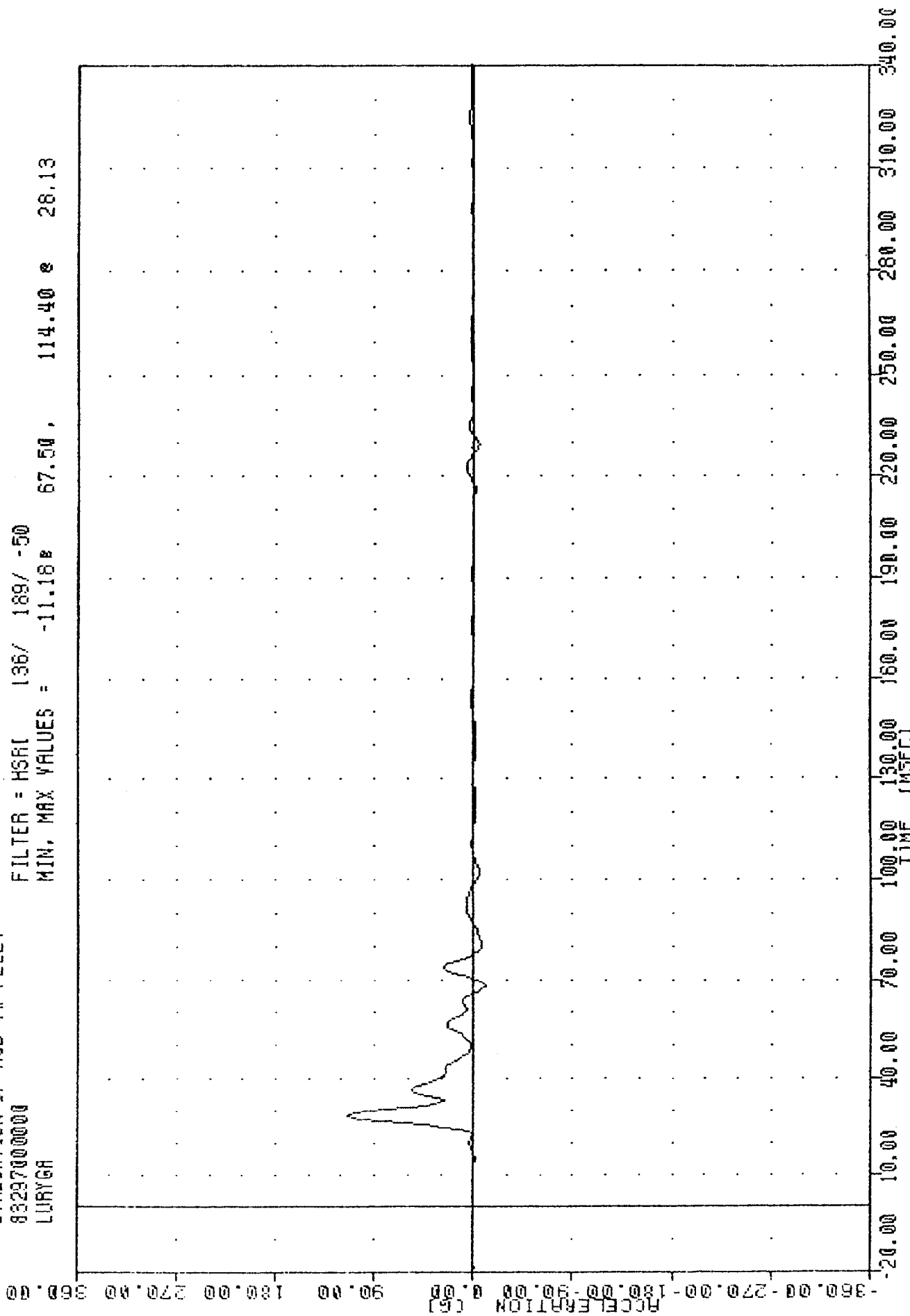
EVALUATION OF MOD VW FLEET

83297000000

LURYGA

FILTER = HSRI 136/ 189/ -50

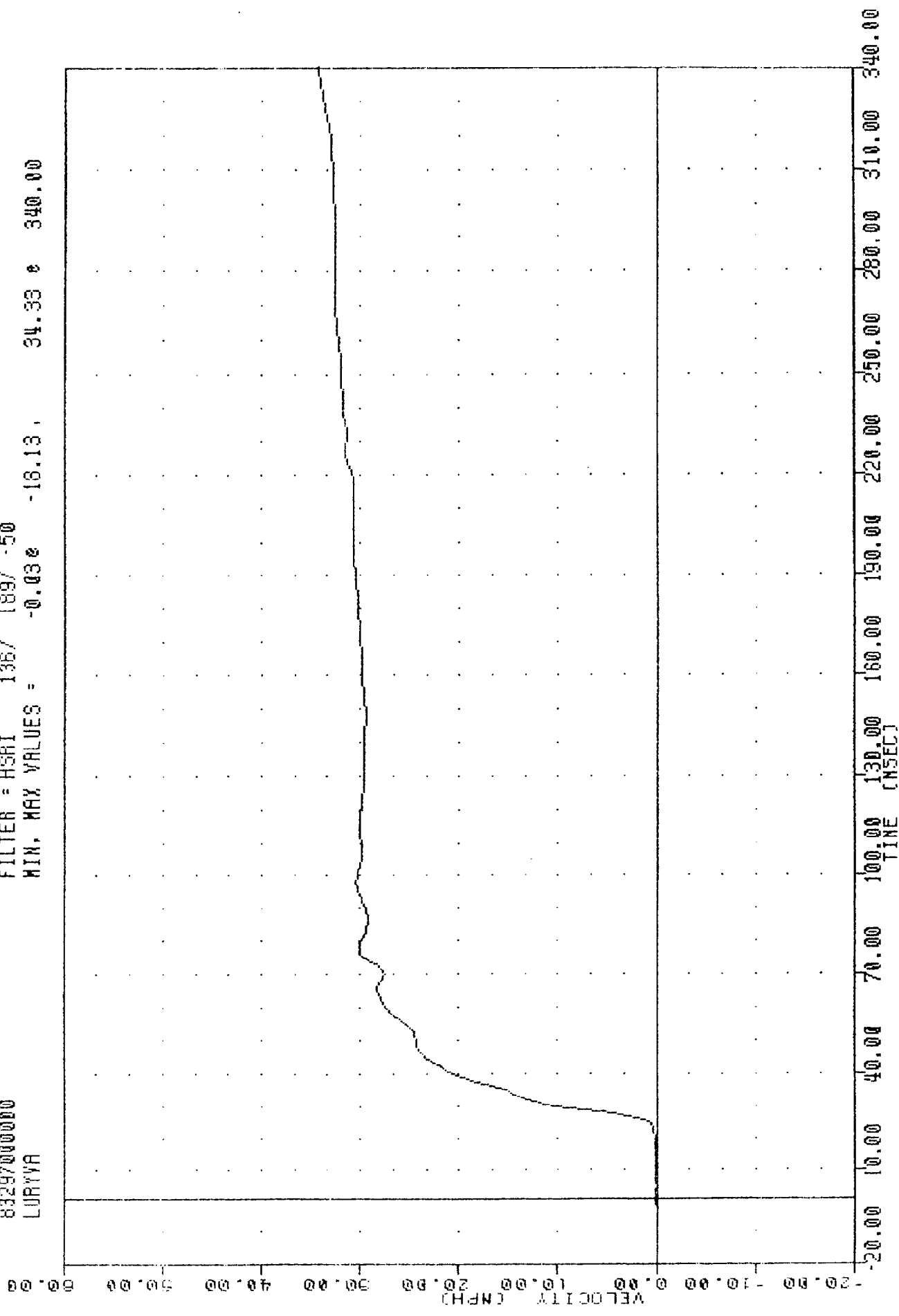
MIN, MAX VALUES = -11.18 67.50, 114.40 28.13



TAC 83J024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 LURYVA

PLOT DATE 26-JUL-83 11:12:12

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -0.032 -18.13 34.33 340.00

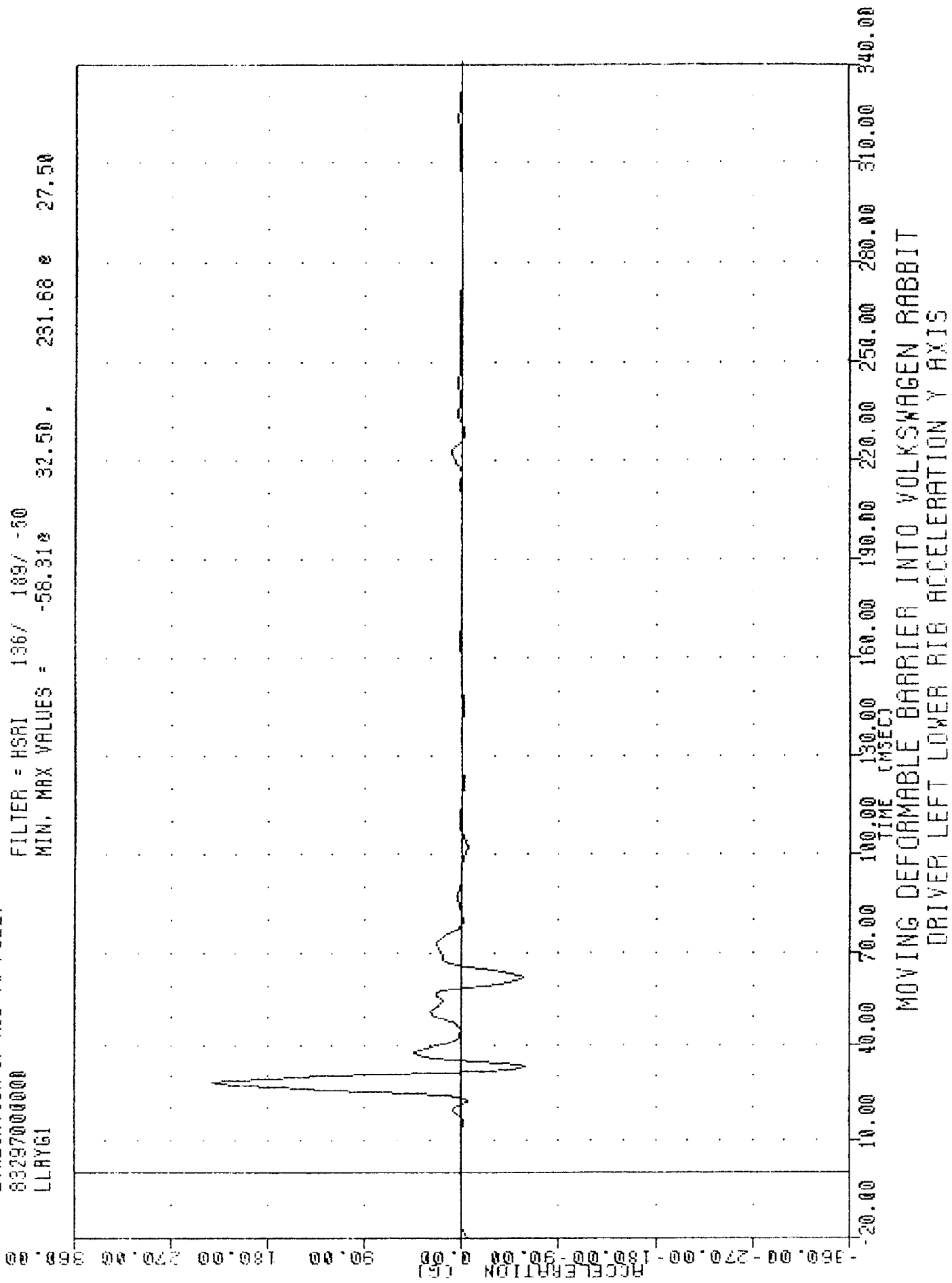


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING LURYGA

TRC 831024  
 EVALUATION OF MOD YW FLEET  
 83297000000  
 LLRYG1

PLOT DATE 26-OCT-88 09:03:13

FILTER = HSRI 136/ 109/ -30  
 MIN, MAX VALUES = -58.31% 32.50, 231.68 @ 27.50

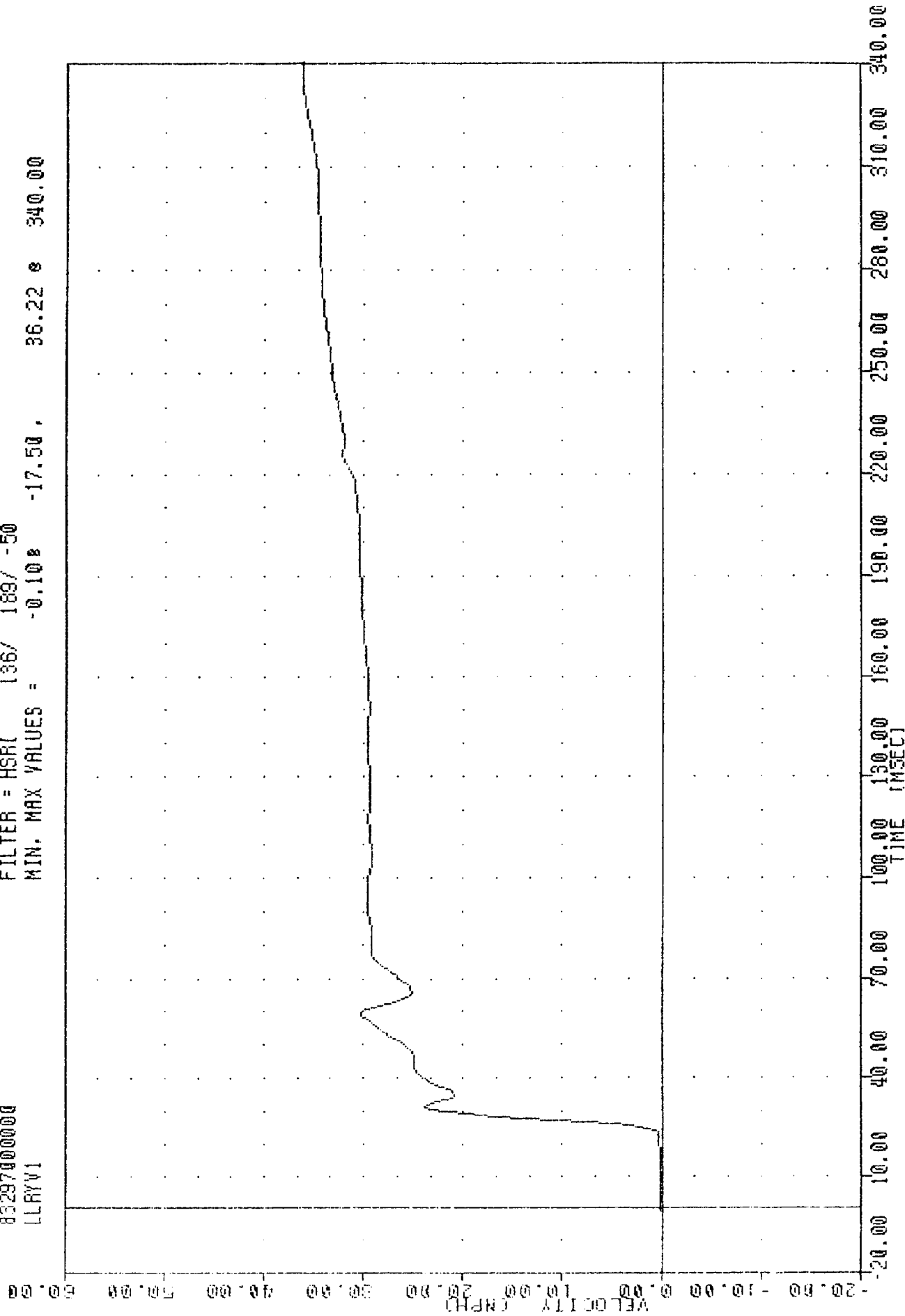


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DRIVER LEFT LOWER RIB ACCELERATION Y AXIS

TRC , 831024  
 EVALUATION OF MOD VW FLEET  
 83287000000  
 LLRYV1

PLOT DATE 26-OCT-83 11:12:12

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -0.10% -17.50 , 36.22 & 340.00



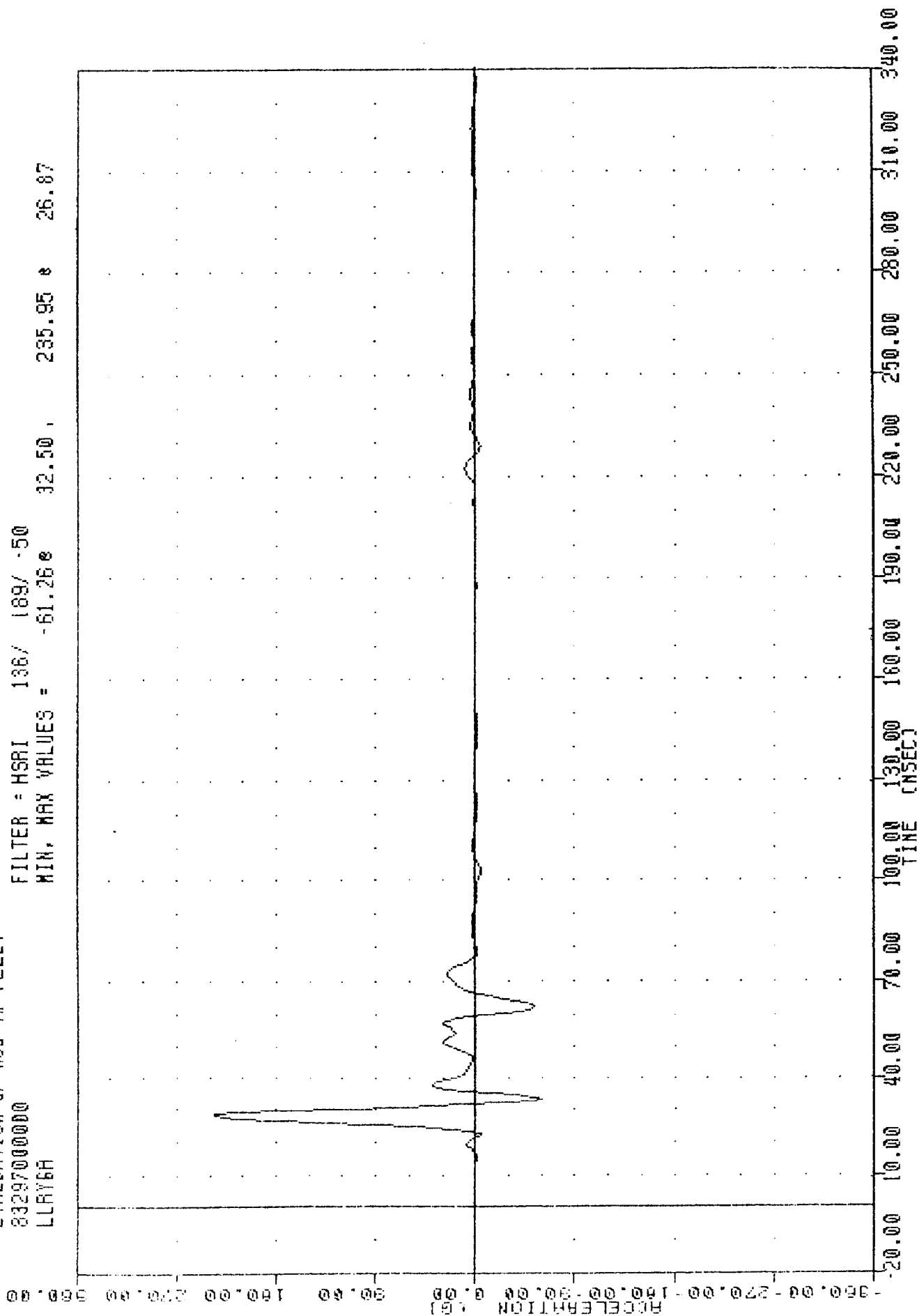
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING LLRYG1



TAC 831024  
 EVALUATION OF MOO VW FLEET  
 83297000000  
 LLYY6A

PLOT DATE 26-DEC-83 09:03:13

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -61.26 32.50 235.95 26.87

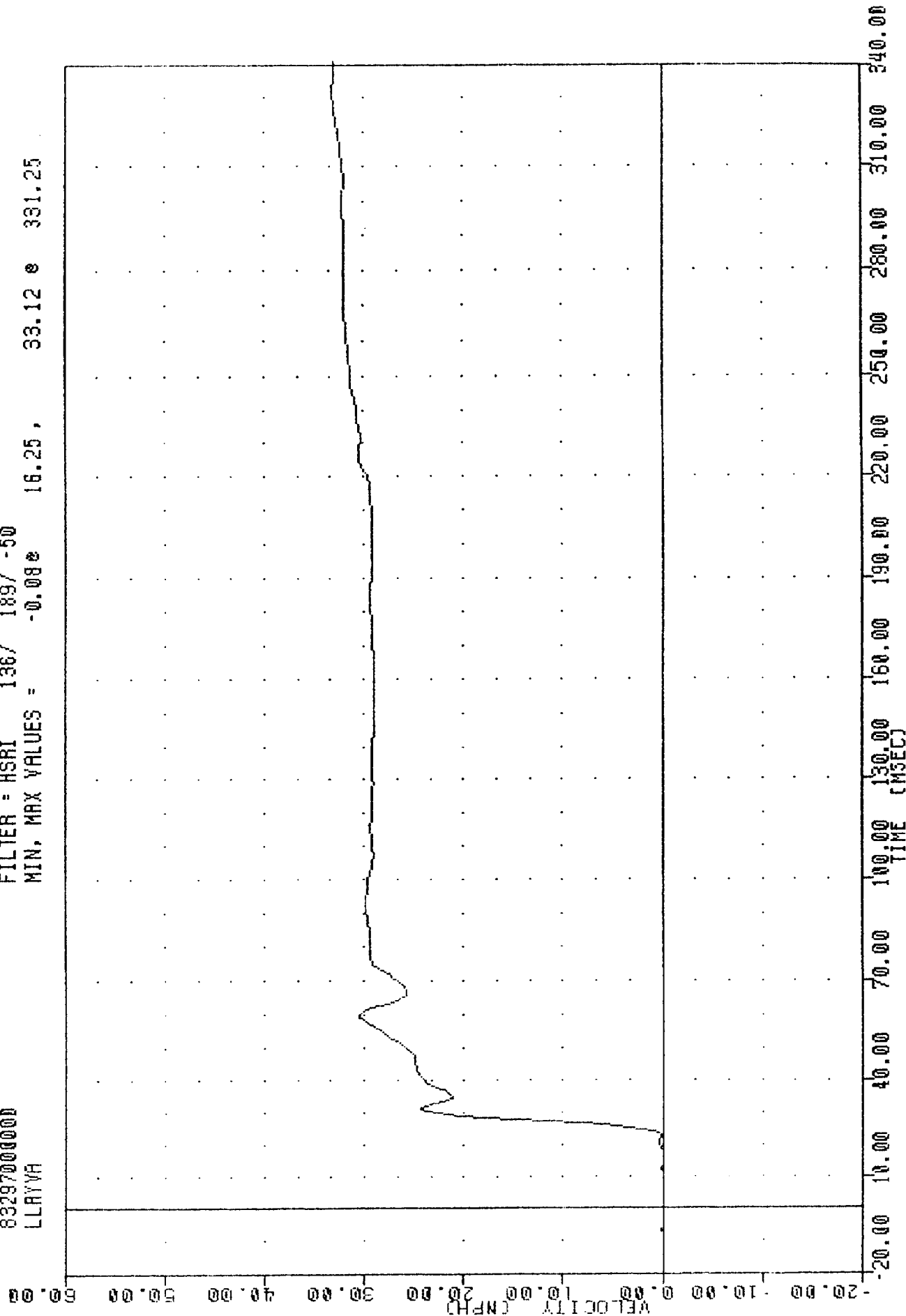


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DRIVER LEFT LOWER RIB ACCELERATION -2 Y AXIS

TRC 831024  
 EVALUATION OF MDD VW FLEET  
 83297000000  
 LLAYVA

PLOT DATE 26-OCT-83 11:12:12

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -0.082 16.25, 33.12 331.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING LLAYVA

TRC

831024

PLOT DATE

26-OCT-83

09:00:24

EVALUATION OF MOD YW FLEET

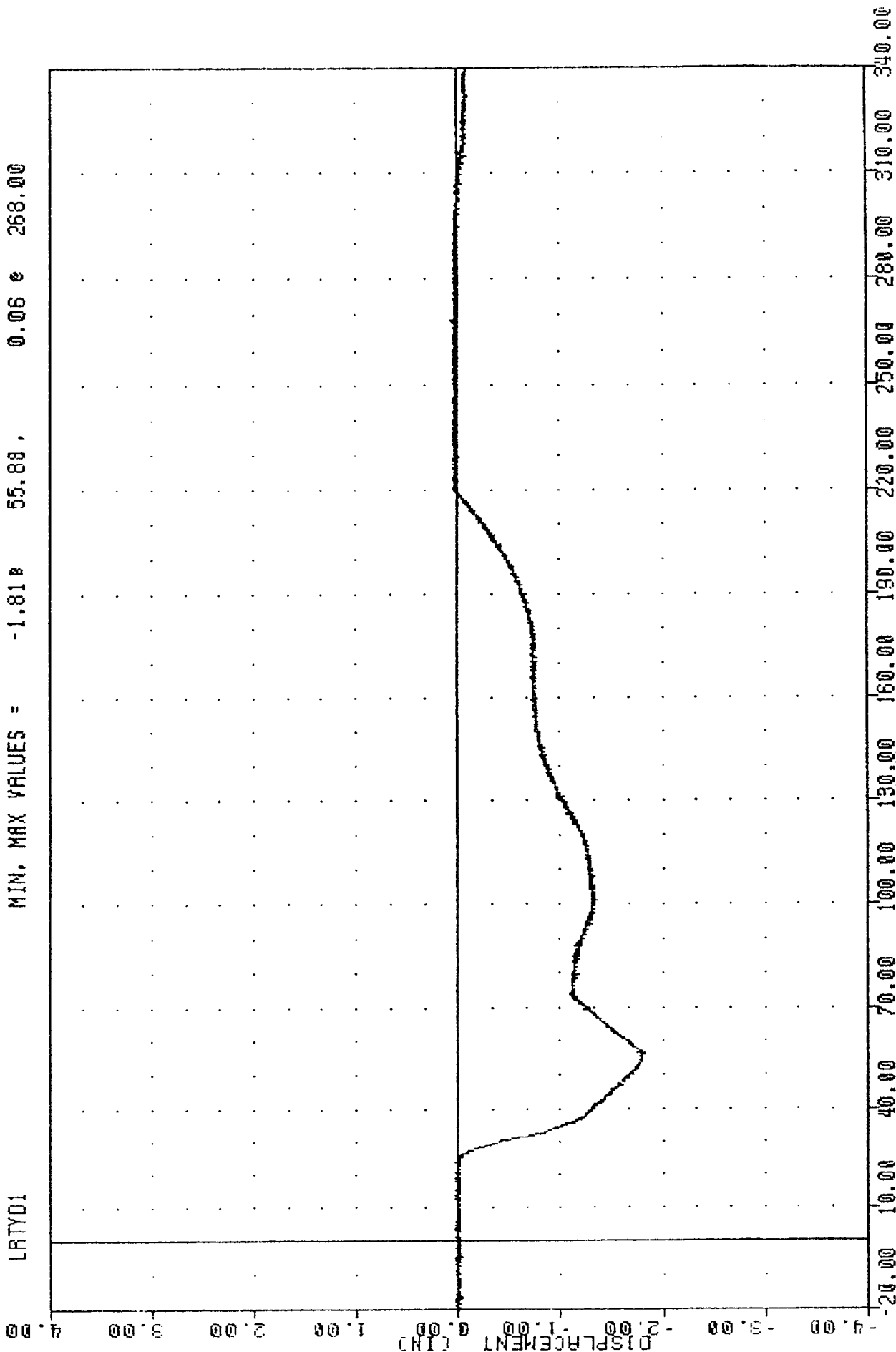
83297000000

LRTYD1

FILTER = ALPF 1650/ 5217/ -40

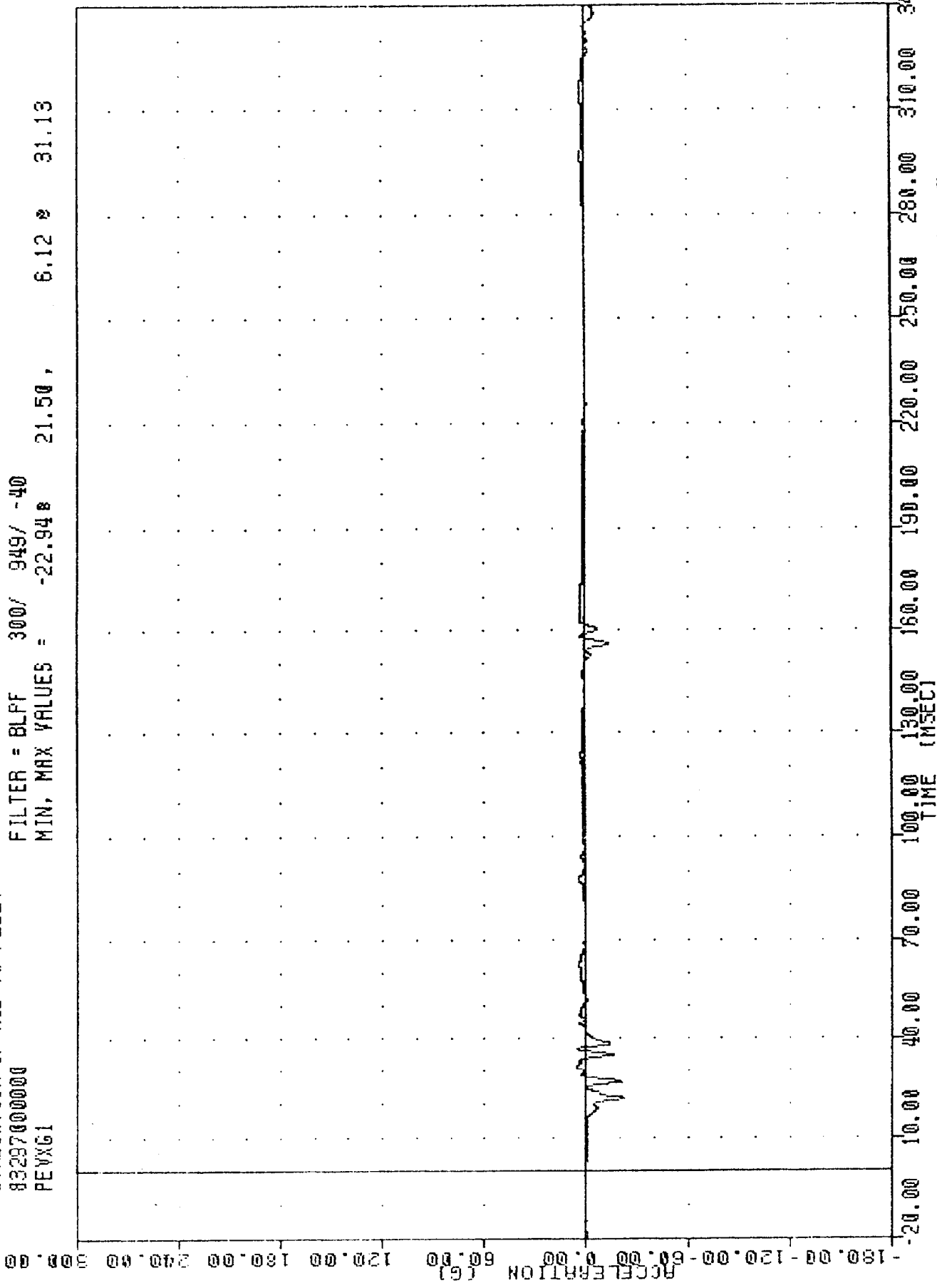
MIN. MAX VALUES = -1.818 55.88 ,

0.06 e 268.00



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

TRC 831024  
 EVALUATION OF MOD YW FLEET  
 83297000000  
 PEVXG1  
 FILTER = BLFF 300/ 949/ -40  
 MIN. MAX VALUES = -22.948 21.50, 6.12 31.13  
 PLOT DATE 26-OCT-83 09:00:24



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DRIVER PELVIS ACCELERATION X AXIS

TRC 831024 PLOT DATE 26-OCT-85 09:00:24

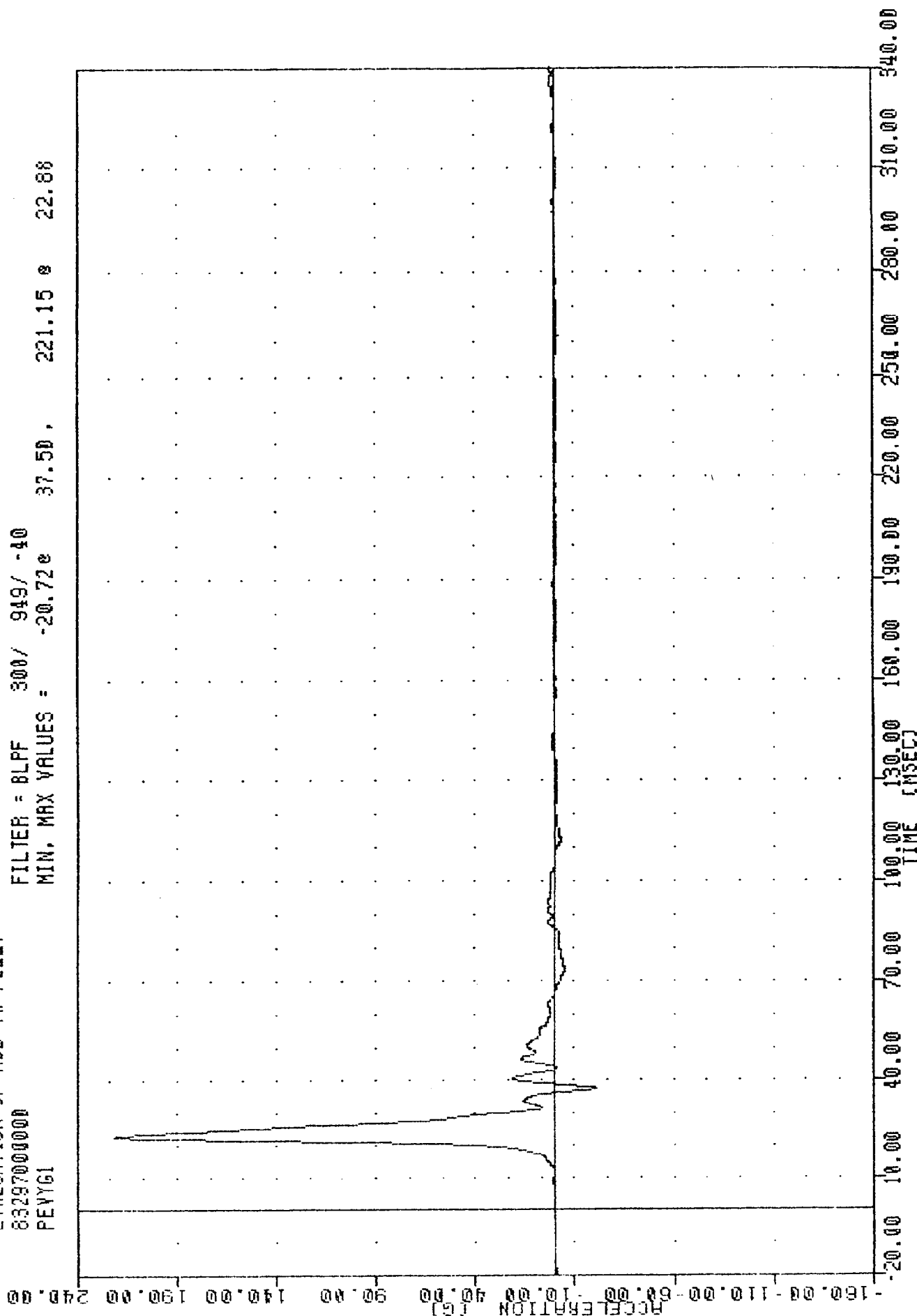
EVALUATION OF MOD VN FLEET

83297000000

PEVYGI

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -20.72e 37.50, 221.15 e 22.88

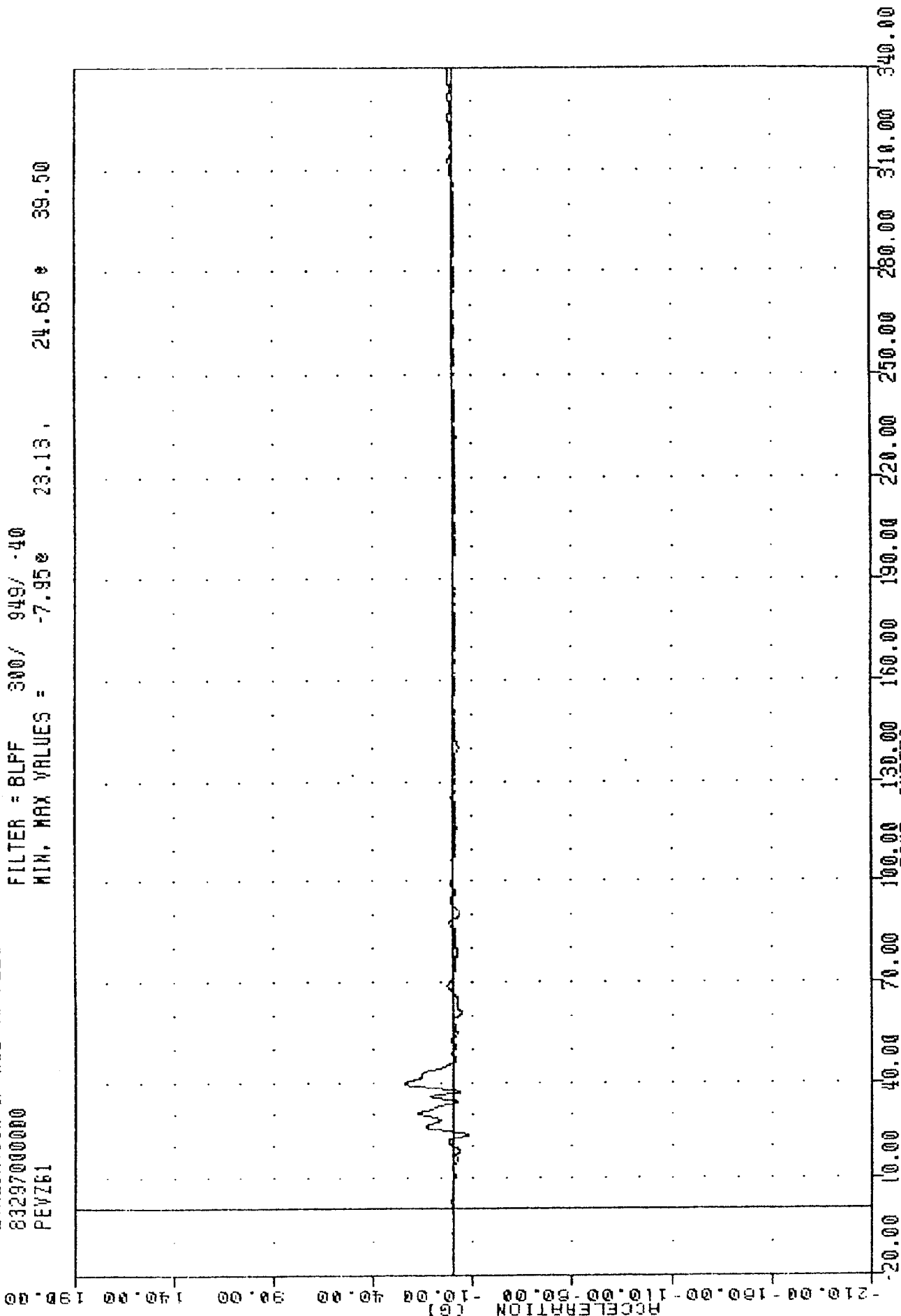


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DRIVER PELVIS ACCELERATION Y AXIS

TAC 831024  
 EVALUATION OF MOD VN FLEET  
 83297000000  
 PEVZ61

PLOT DATE 26-OCT-83 09:00:24

FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = -7.95e 23.13, 24.65 e 39.50



TAC

831024

EVALUATION OF MOD VN FLEET

83297000000

PEVR61

PLOT DATE

28-UCI-88

10:20:43

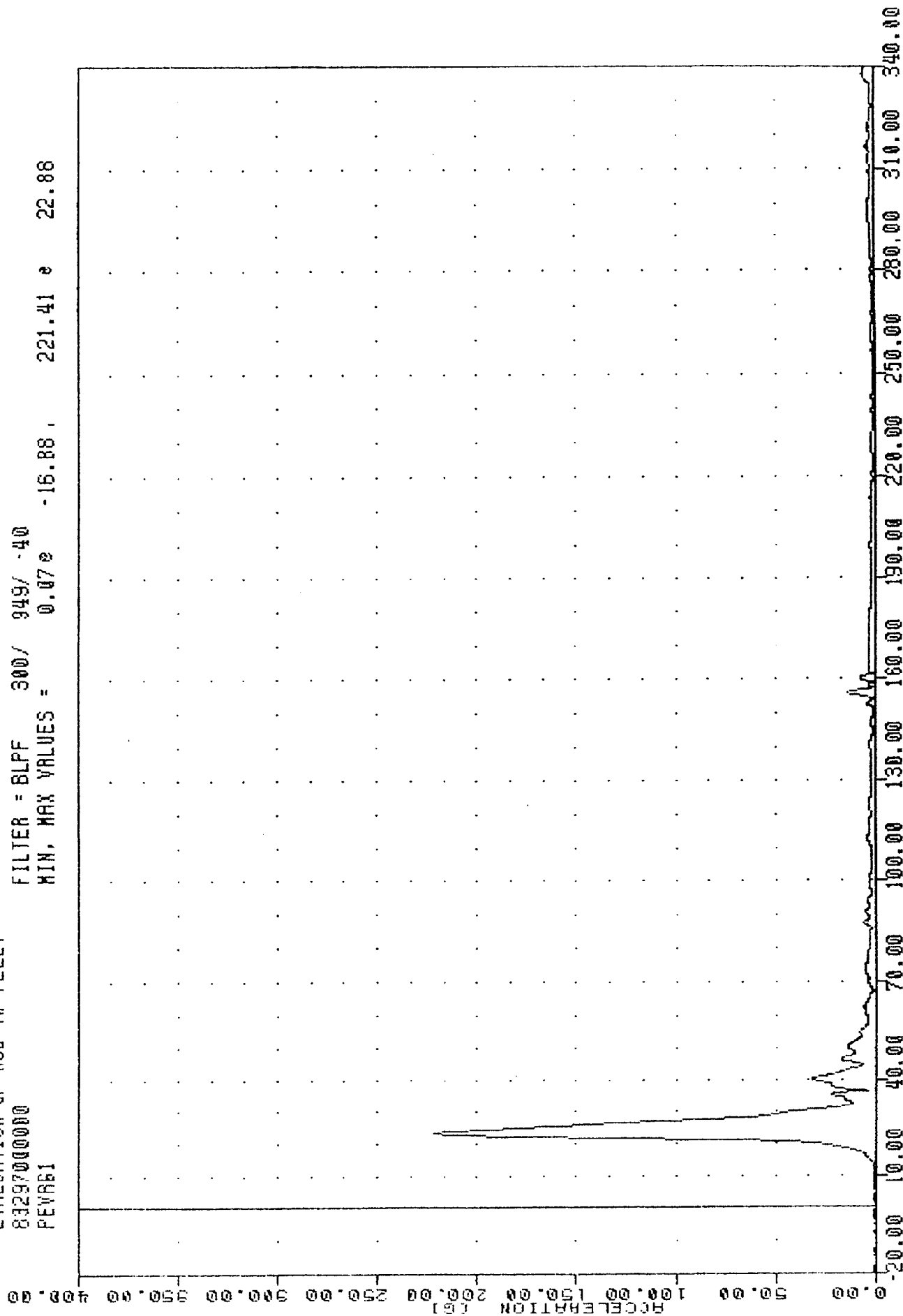
FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = 0.07e

-16.88

221.41 e

22.88



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DRIVER PELVIS RESULTANT

TRC

831024

EVALUATION OF MOD YW FLEET

83297000000

PEVYV1

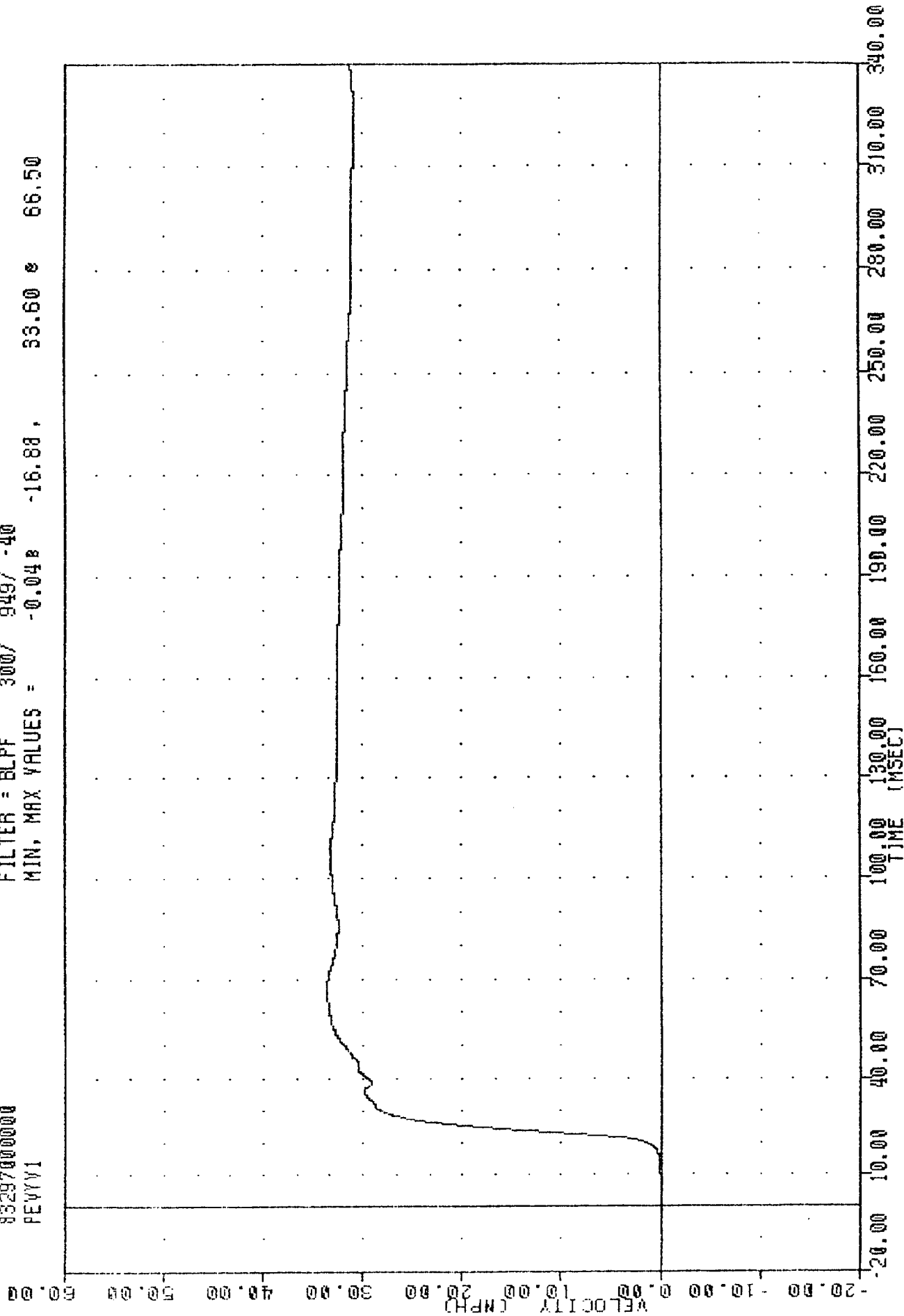
PLOT DATE

26-OCT-83

11:12:59

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -0.048 -16.88, 33.60 e 66.50



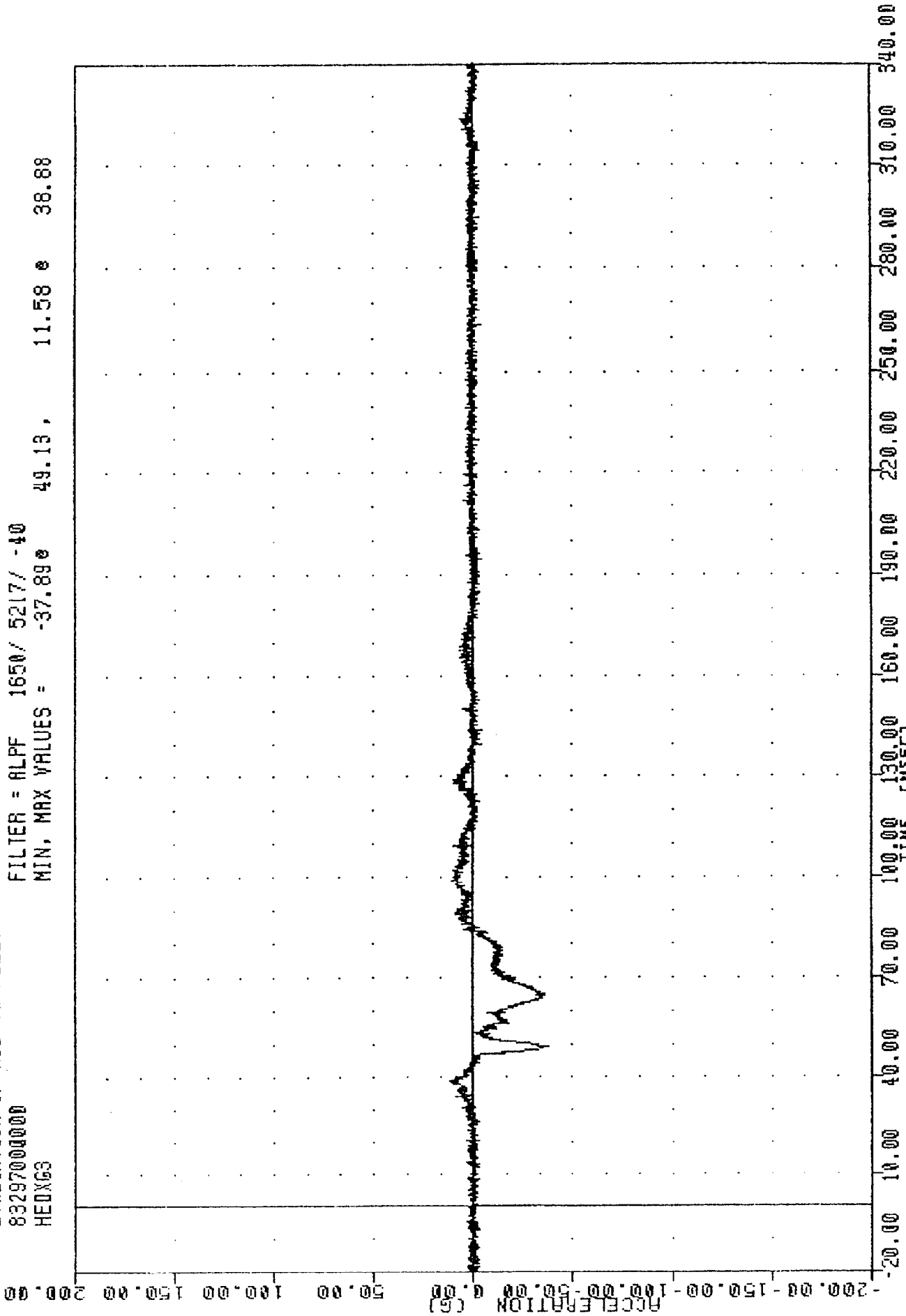
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING PEVYGI



TAC 831024  
 EVALUATION OF MDD VN FLEET  
 83297000000  
 HEDX63

PLOT DATE 26-OCT-83 09:00:24

FILTER = ALPF 1650/ 5217/ -40  
 MIN, MAX VALUES = -37.89 49.13, 11.58 38.88

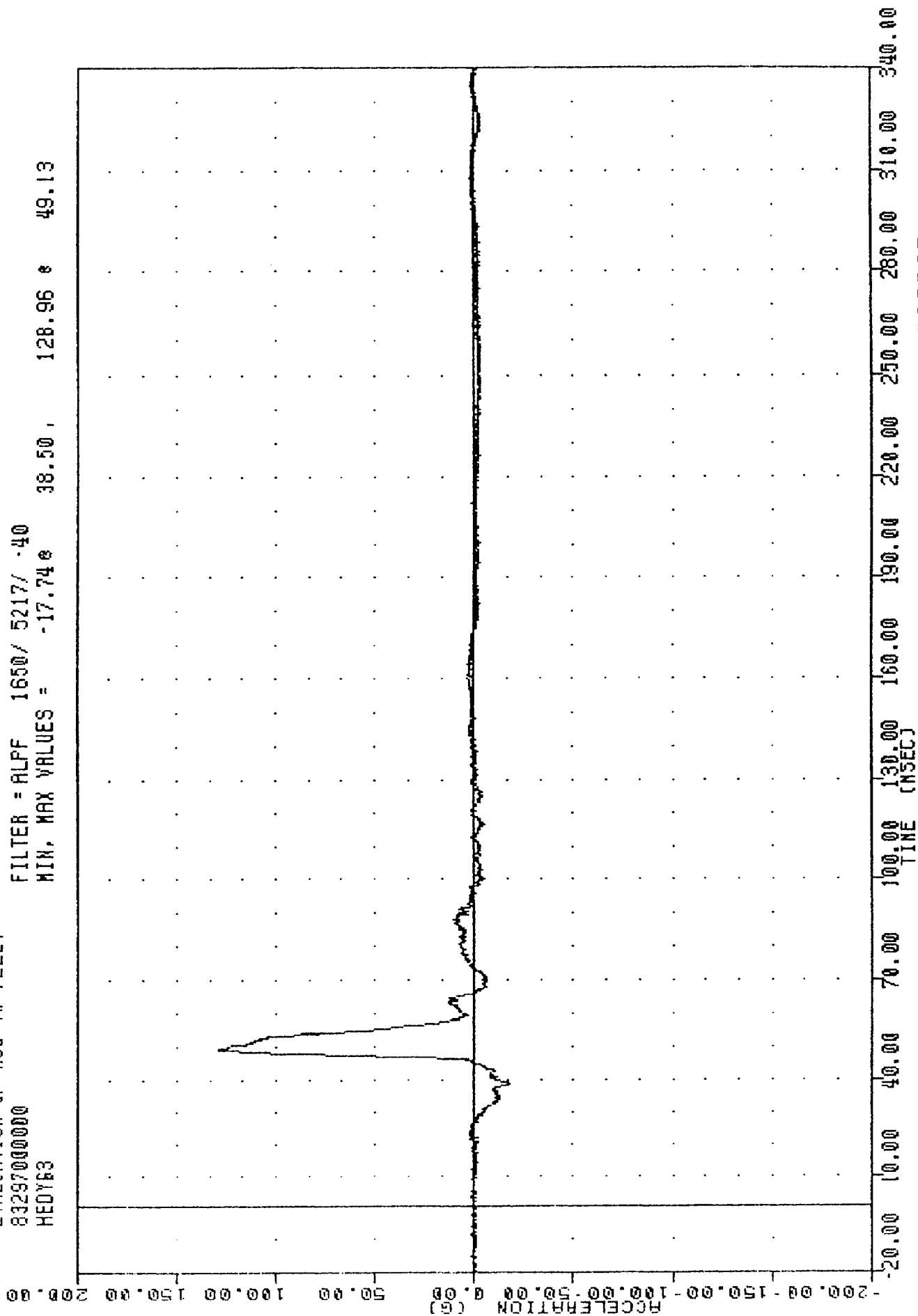


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 PASSENGER HEAD ACCELERATION X AXIS

TAC 831024  
 EVALUATION OF MOD VN FLEET  
 83297000000  
 HEDY63

PLOT DATE 26-UCT-83 09:00:24

FILTER = ALPF 1650/ 5217/ -40  
 MIN. MAX VALUES = -17.74e 38.50 , 128.96 e 49.13



TRC 831024 PLOT DATE 26-OCT-83 09:00:24

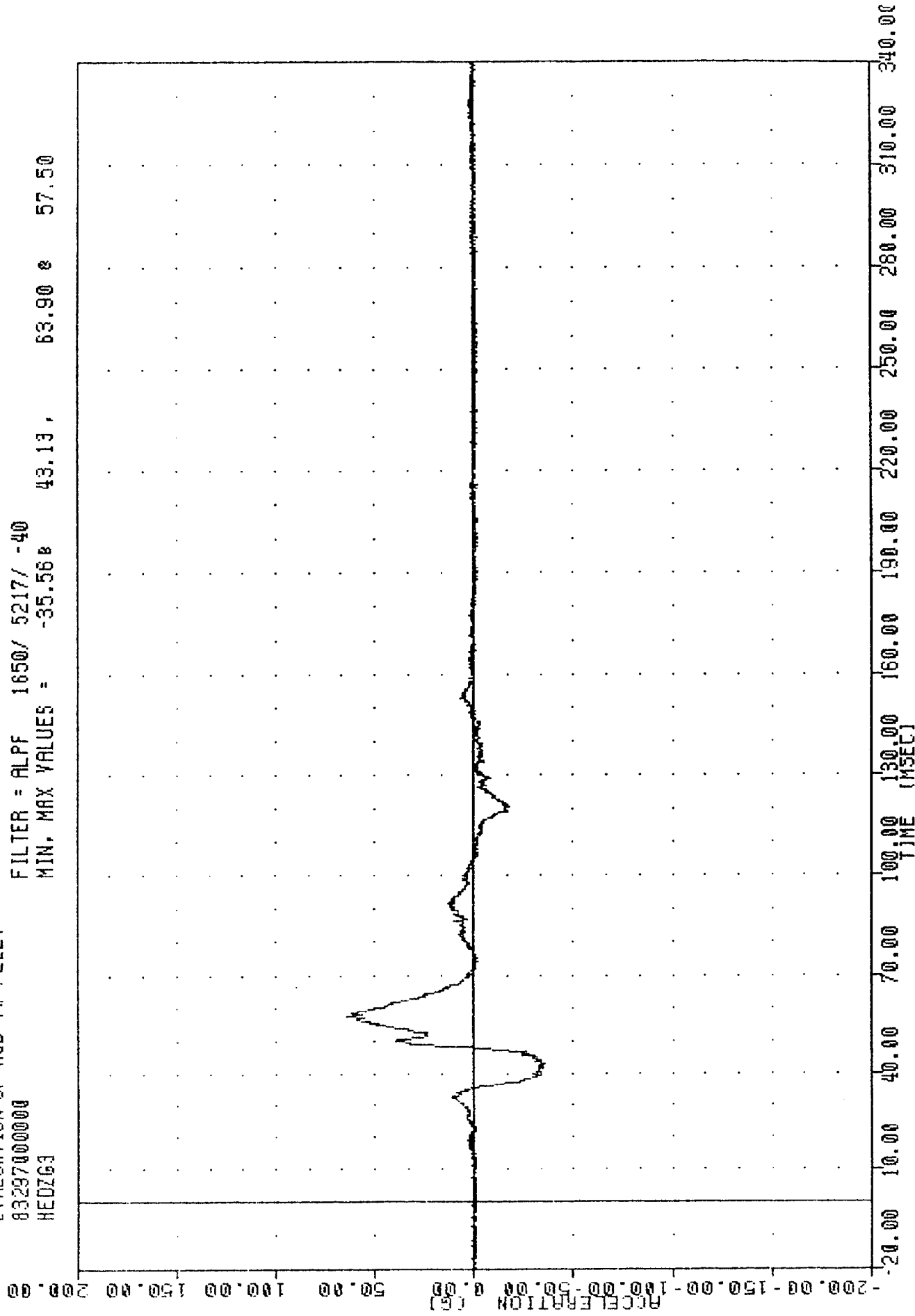
EVALUATION OF MOD VW FLEET

83297000000

HEADZ63

FILTER = ALPF 1650/ 5217/ -40

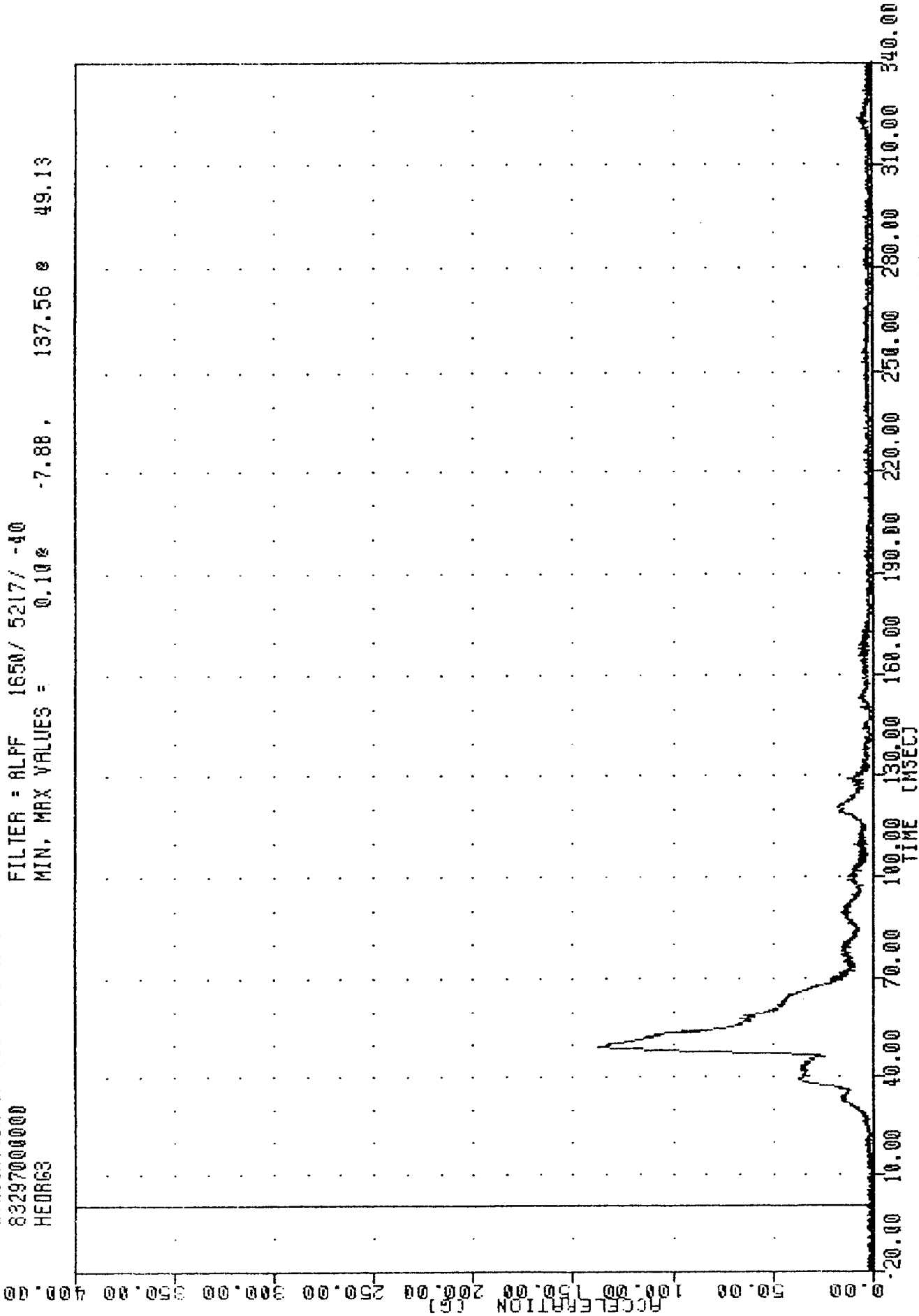
MIN. MAX VALUES = -35.56 43.13 , 63.90 57.50



TRC 831024  
 EVALUATION OF MOD YW FLEET  
 83297000000  
 HEADG3

PLOT DATE 26-OCT-83 10:20:43

FILTER = ALPF 1650/ 5217/ -40  
 MIN. MAX VALUES = 0.102 -7.88, 137.56 49.13



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 PASSENGER HEAD RESULTANT

TRC 831024 PLOT DATE 26-OCT-85 09:03:13

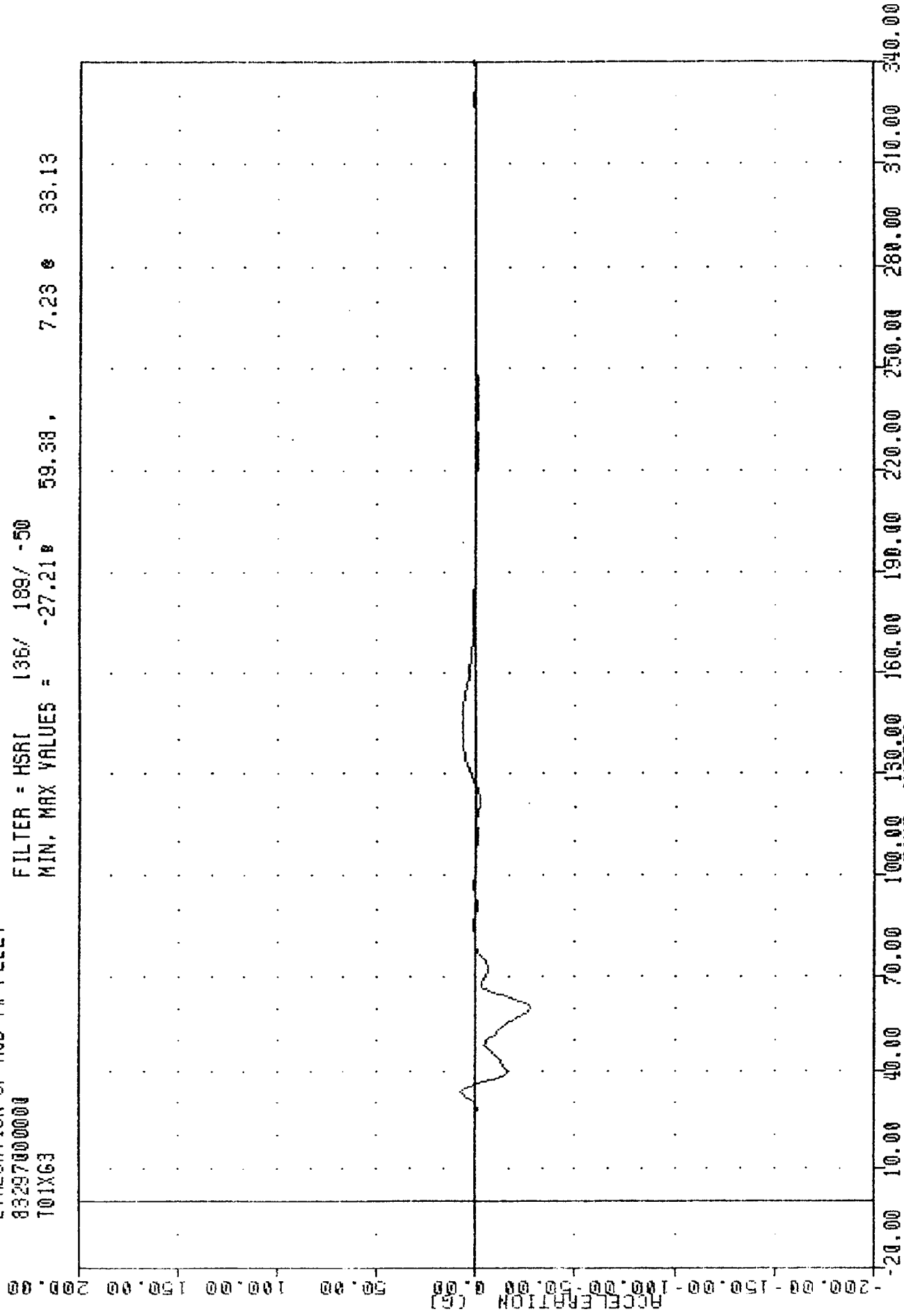
EVALUATION OF MOD YW FLEET

8329700000

101XG3

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -27.21 59.38 7.23 33.13

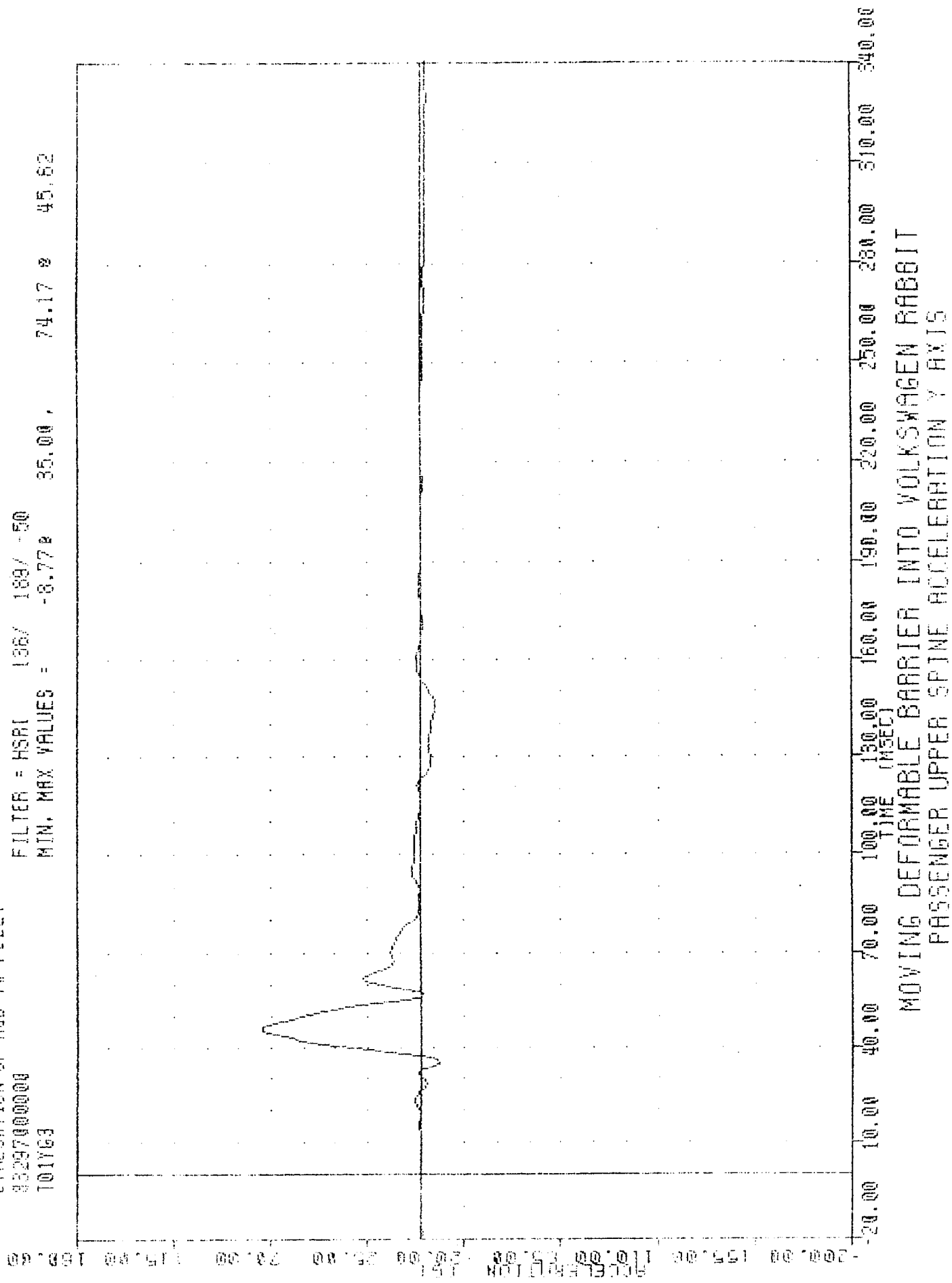


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
PASSENGER UPPER SPINE ACCELERATION X AXIS

PLOT DATE 4-MAY-83 09:37:01

831024  
EVALUATION OF MOD YW FLEET  
832970000000  
T01Y63

FILTER = HSRI 136/ 189/ -50  
MIN. MAX VALUES = -8.77e 35.00, 74.17 e 45.62



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
PASSENGER UPPER SPINE ACCELERATION Y AXIS

TAC 831024 PLOT DATE 26-OCT-83 09:03:13

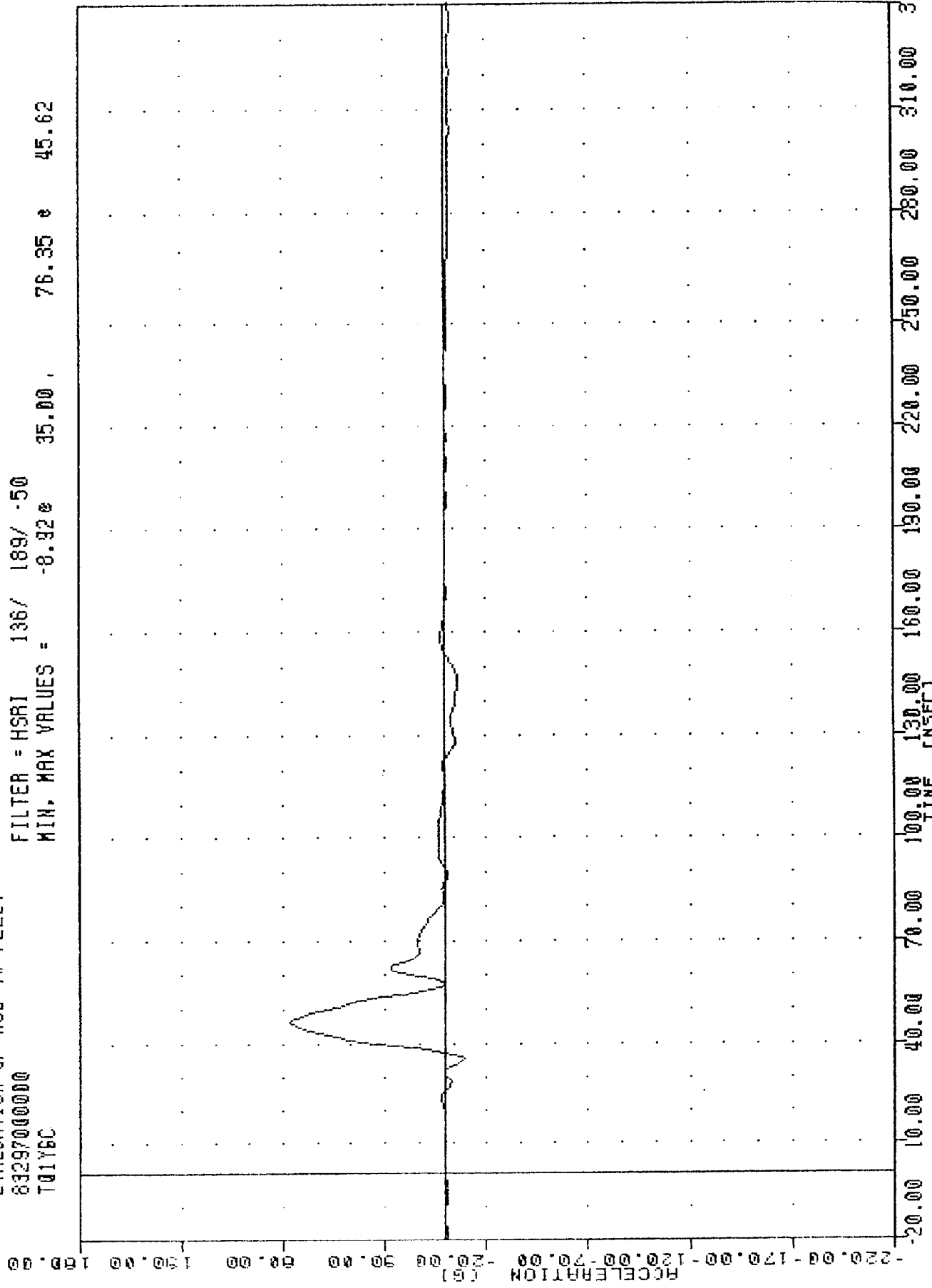
EVALUATION OF MOD VN FLEET

83297000000

T01Y6C

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -8.32 35.00 76.35 45.62



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

TRC 831024 PLOT DATE 26-OCT-83 09:03:13

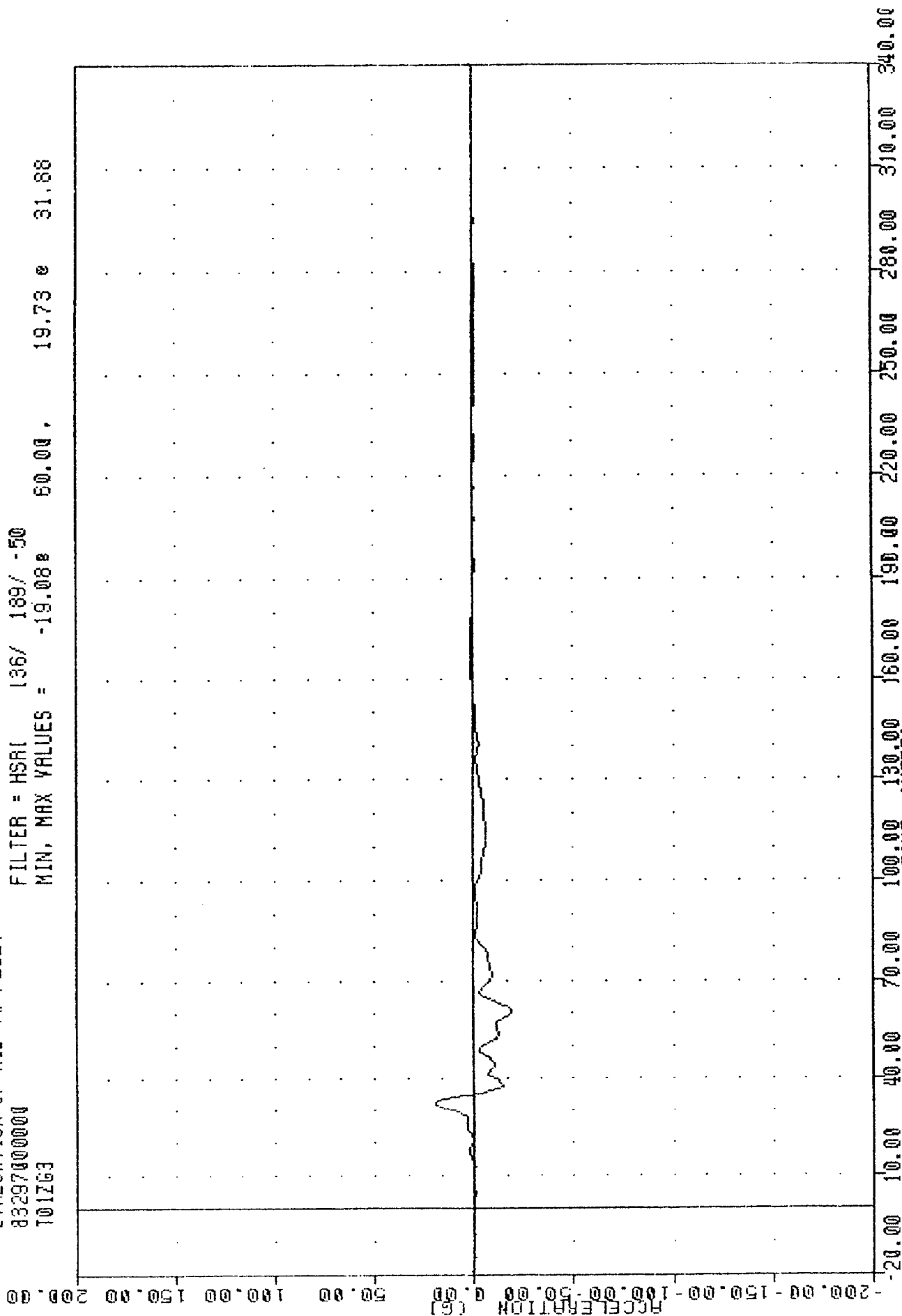
EVALUATION OF MOD V/F FLEET

83297000000

T01Z63

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -19.08 e 60.00, 19.73 e 31.88

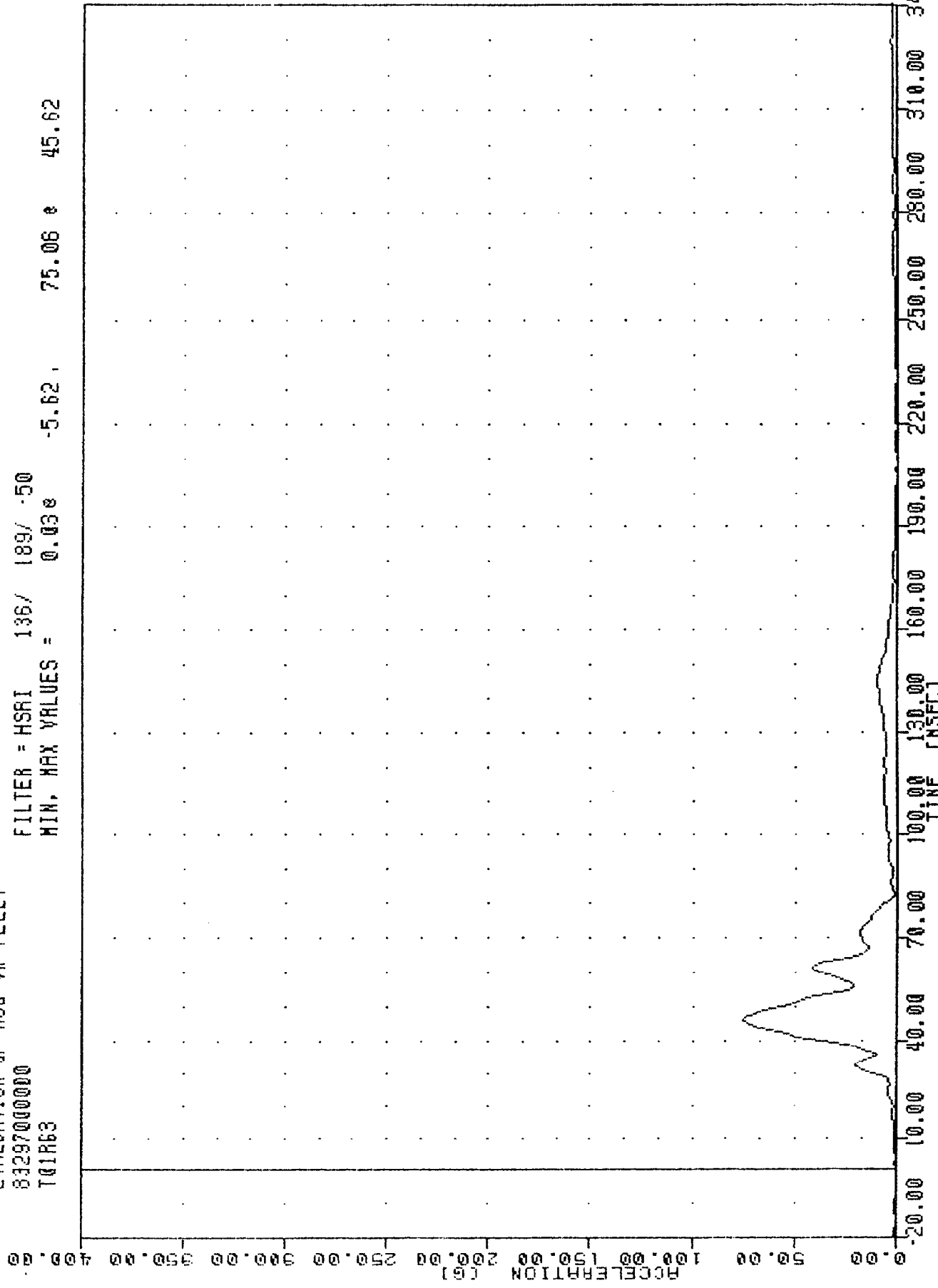




TAC 831024  
 EVALUATION OF MOD VN FLEET  
 83297000000  
 T01R63

PLOT DATE 26-OCT-83 09:03:13

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = 0.03e -5.62, 75.06 e 45.62

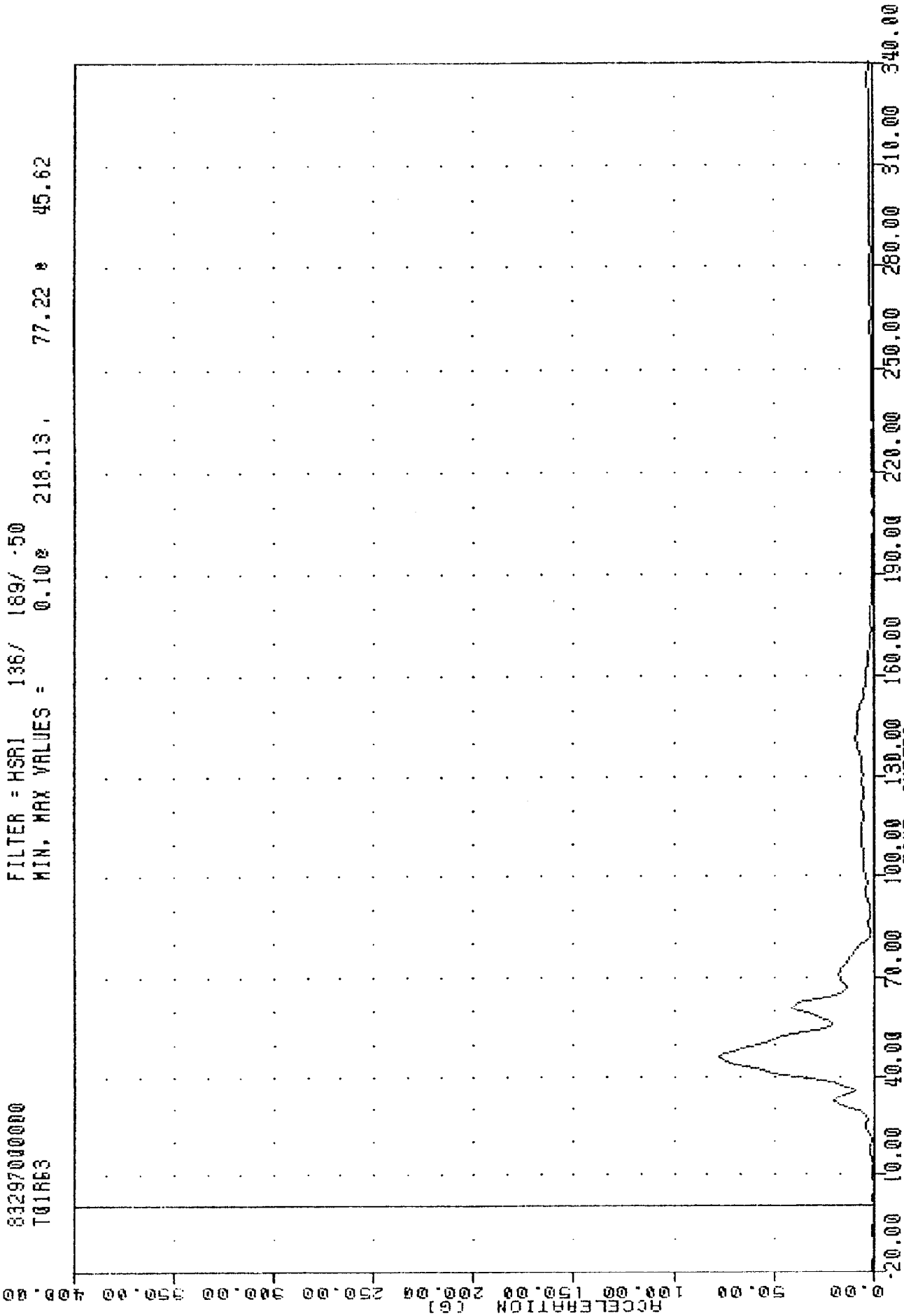


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 PASSENGER UPPER SPINE RESULTANT

TRC  
 EVALUATION OF MOD VM FLEET  
 83297000000  
 T01R63

831024  
 26-OCT-83 09:04:27

FILTER = HSRJ 136/ 189/ .50  
 MIN. MAX VALUES = 0.10e 218.13, 77.22 \* 45.62

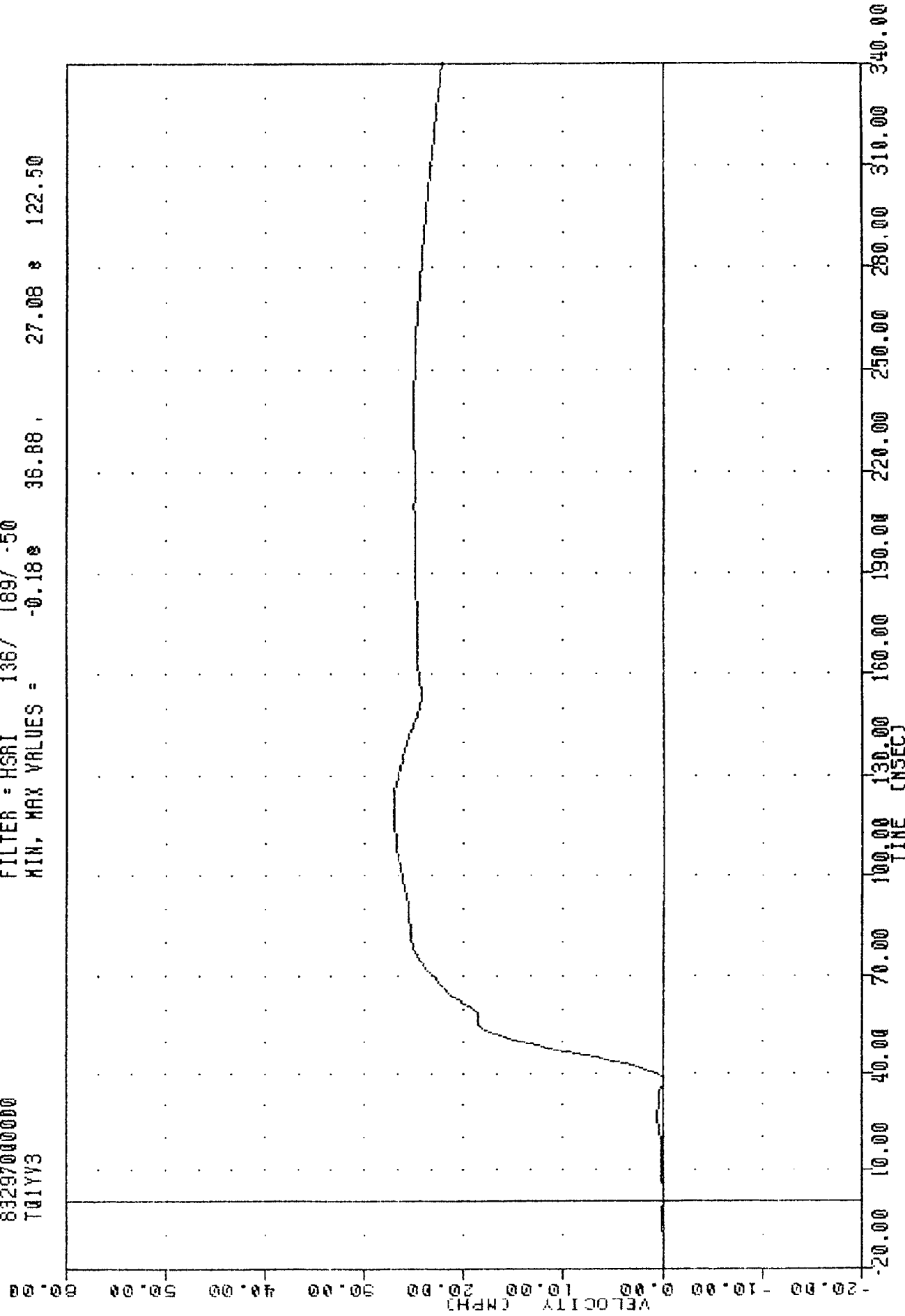


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 PASSENGER UPPER SPINE RESULTANT USING T01YGC

TAC  
EVALUATION OF MOD VN FLEET  
83297000000  
T01YV3

PLOT DATE 26-OCT-83 11:12:12

FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -0.18 36.88 27.08 122.50

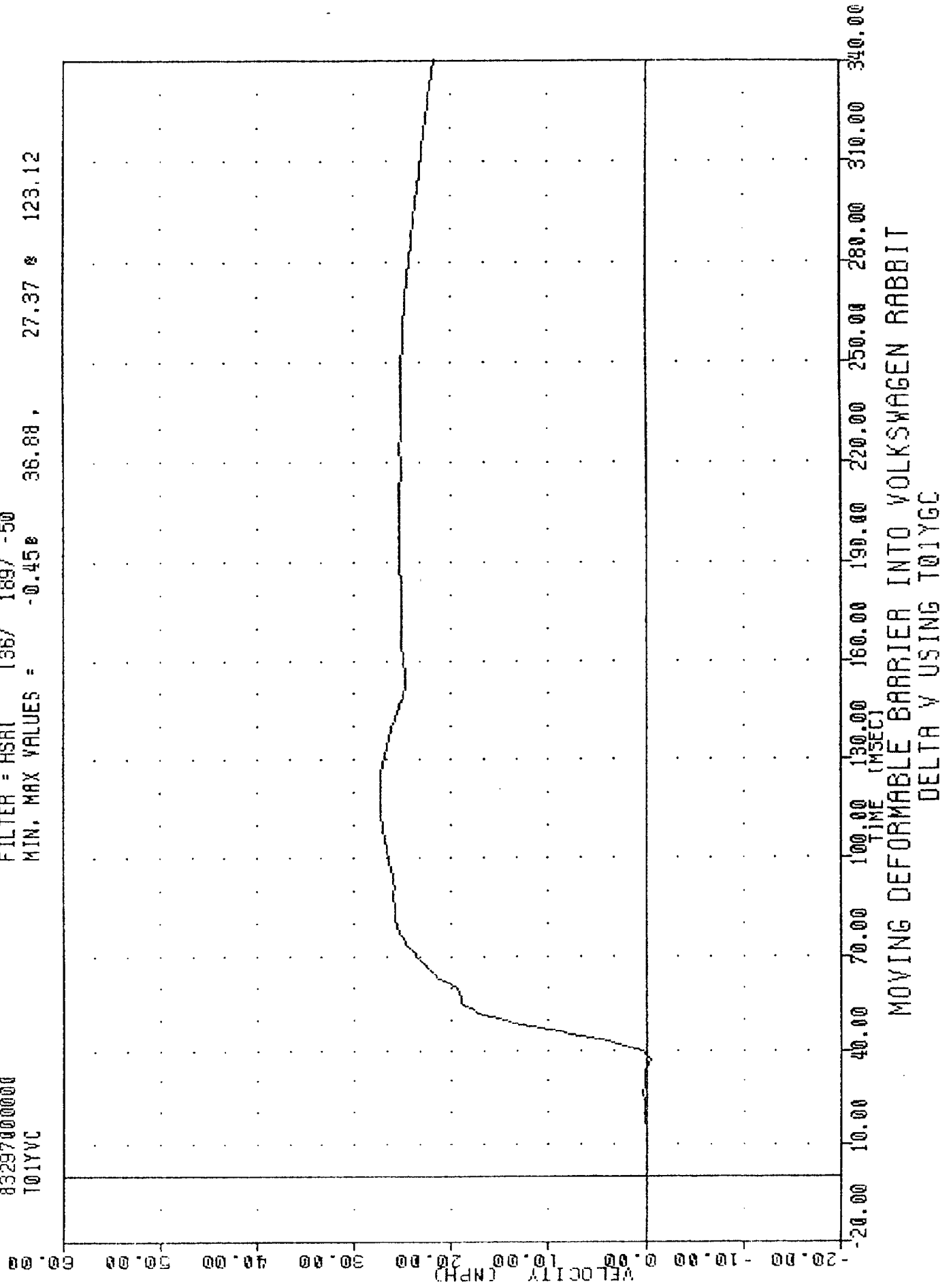


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING T01Y63

IRC  
 EVALUATION OF MOD YW FLEET  
 83297000000  
 T01YVC

PLOT DATE 26-OCT-83 11:12:12

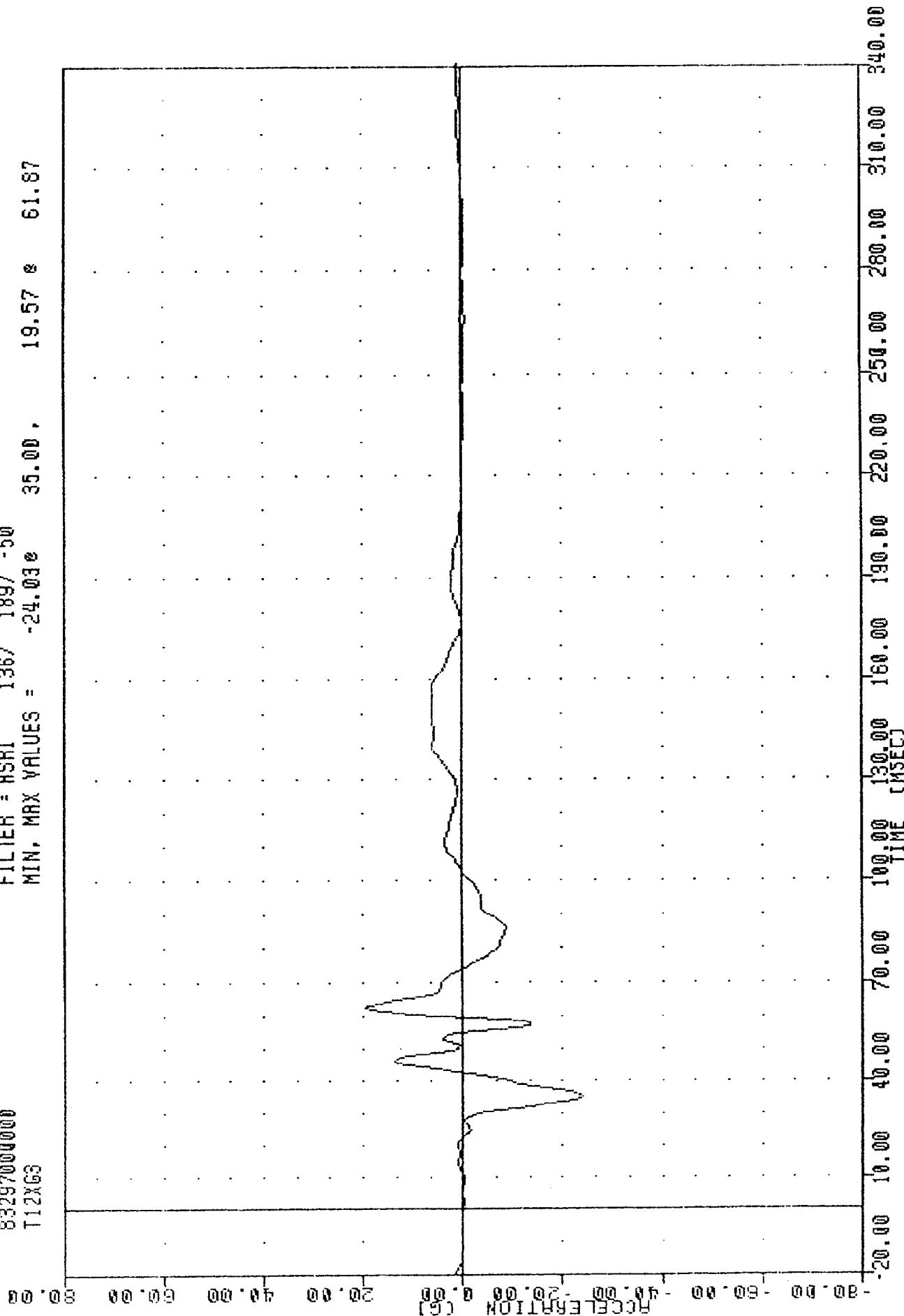
FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -0.450 36.88, 27.37 & 123.12



TRC , 831024  
 EVALUATION OF MOD VN FLEET  
 83297000000  
 T12XG3

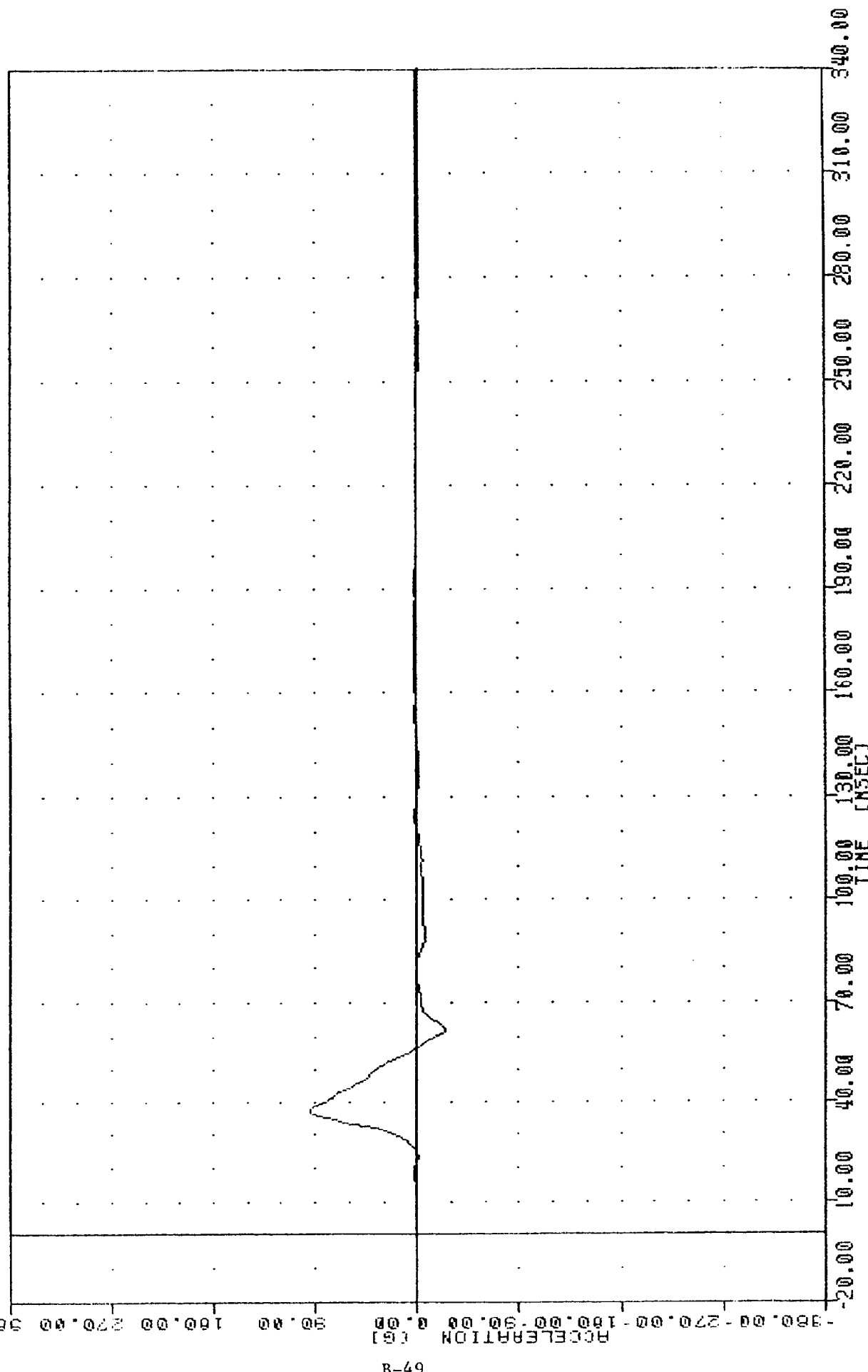
PLOT DATE 26-UCT-83 09:03:13

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -24.03e 35.00, 19.57 e 61.87



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 PASSENGER LOWER SPINE ACCELERATION X AXIS

TRC [REDACTED], 831024 [REDACTED] PLOT DATE 26 OCT 83 08:03:13  
 EVALUATION OF MOD VN FLEET  
 83297000000  
 T12Y63  
 FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -23.99 61.87, 93.50 36.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 PASSENGER LOWER SPINE ACCELERATION Y AXIS

TRC 831024 PLOT DATE 26-OCT-83 09:03:13

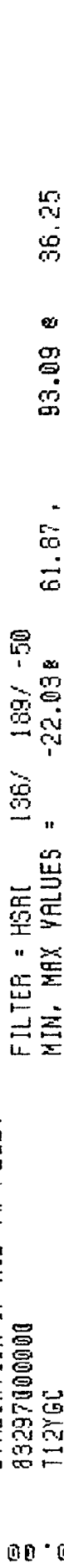
EVALUATION OF MOD VW FLEET

83297000000

112YGC

FILTER = HSR1 136/ 189/ -50

MIN, MAX VALUES = -22.03 61.87, 93.09 36.25

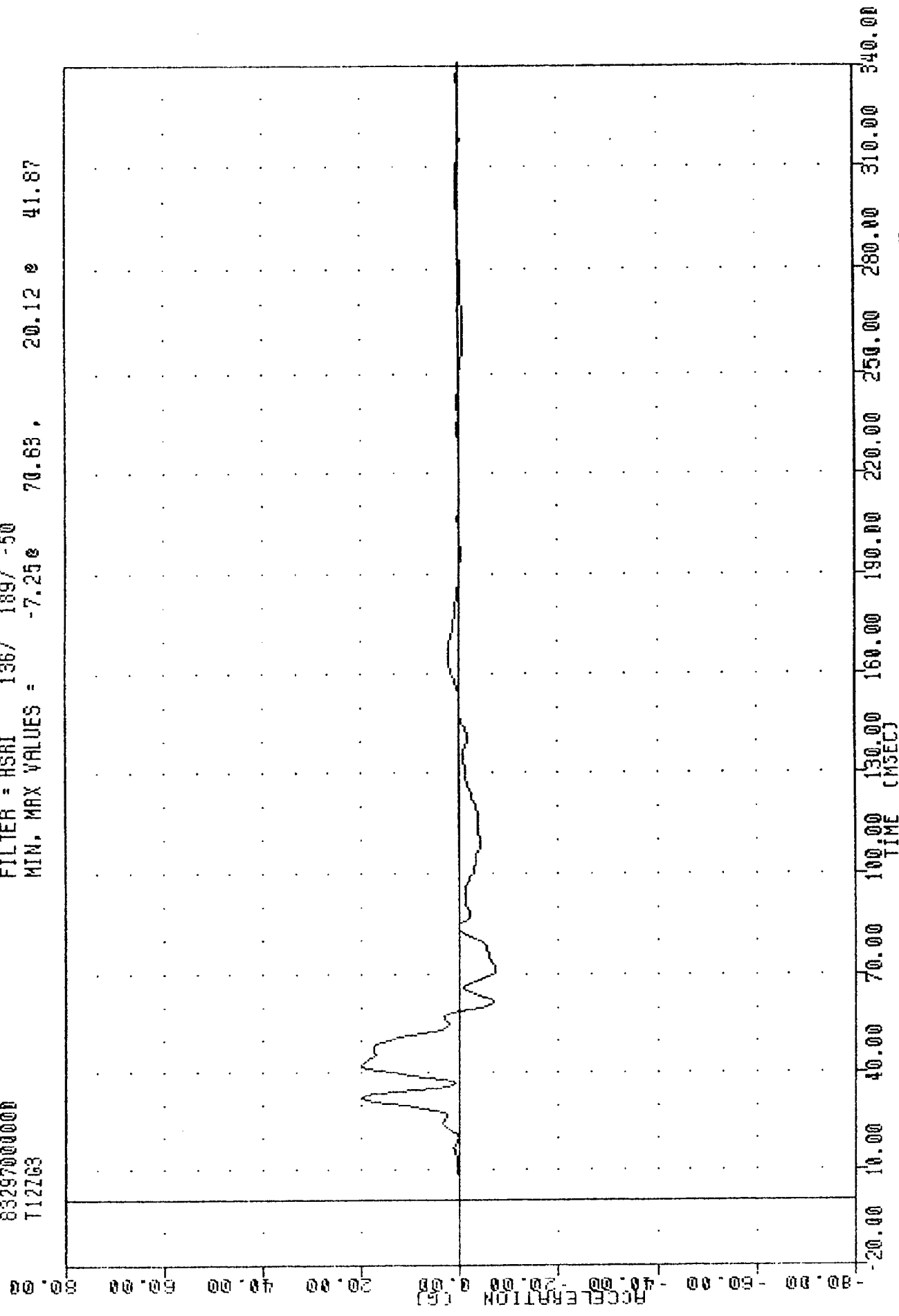


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
PASSENGER LOWER SPINE ACCELERATION -2 Y AXIS

TRC  
 EVALUATION OF MDD VW FLEET  
 83297000000  
 T12763

PLOT DATE 26-OCT-83 09:03:13

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -7.250 70.63 20.12 41.87



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 PASSENGER LOWER SPINE ACCELERATION Z AXIS



TRC

831024

EVALUATION OF MID YW FLEET

83287000000

T12R63

PLOT DATE

26-OCT-83

09:03:13

FILTER = HSR1

136/

189/ -50

MIN. MAX VALUES =

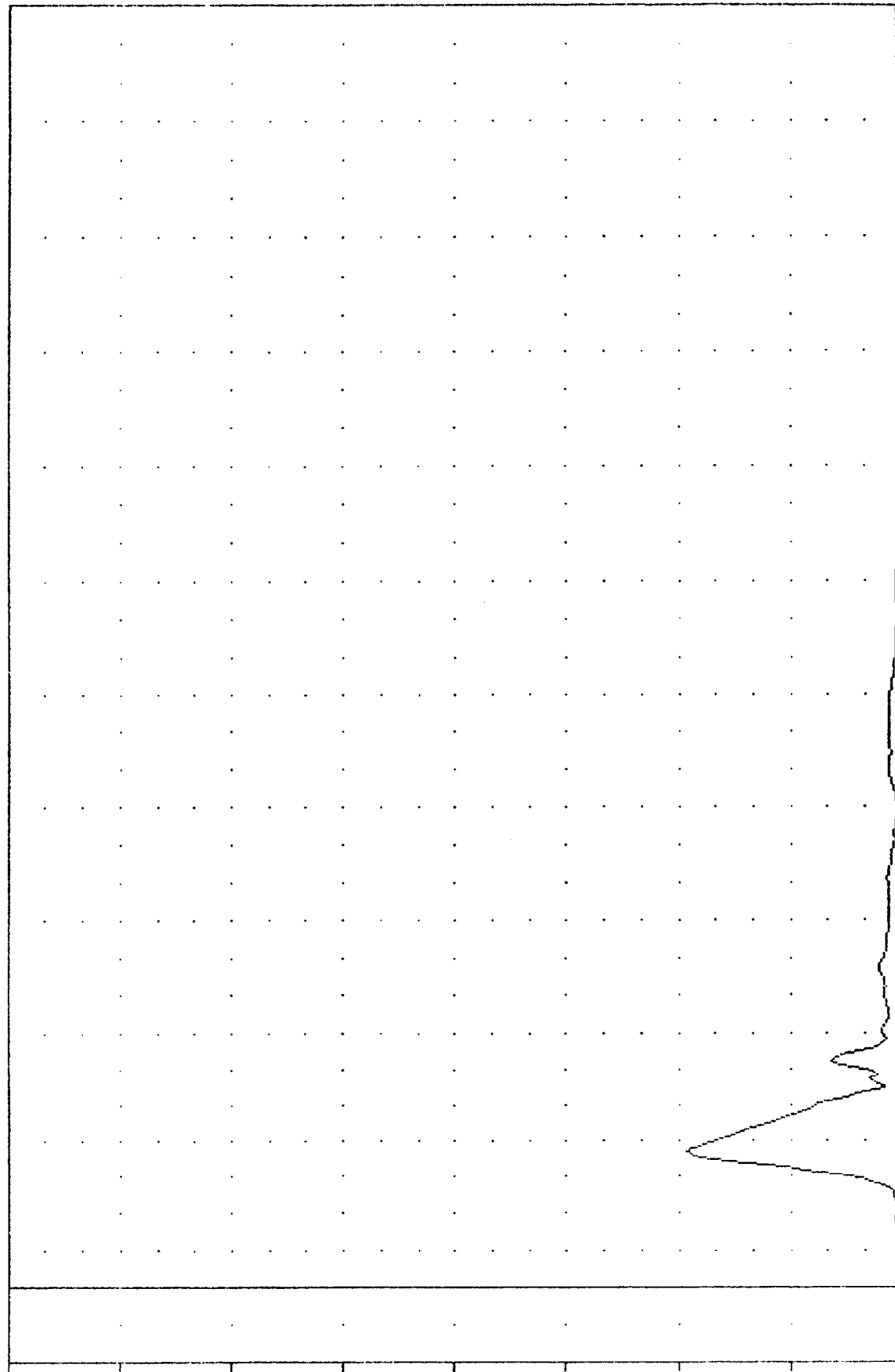
0.038

-9.37,

95.94 @

36.25

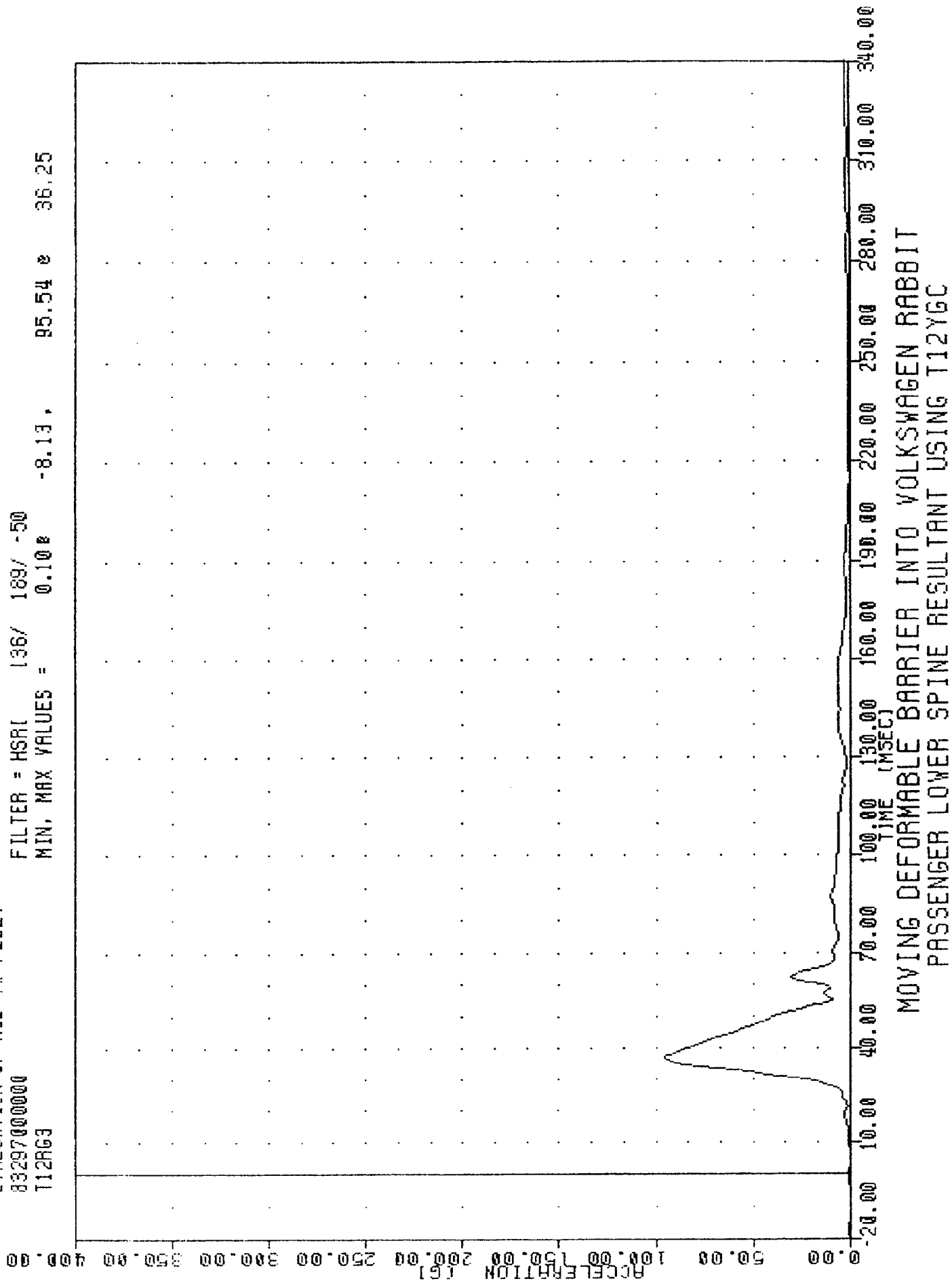
ACCELERATION (G)



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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
PASSENGER LOWER SPINE RESULTANT

TRC 831024 PLOT DATE 26-OCT-83 09:04:27  
 EVALUATION OF MOD YN FLEET  
 83297000000  
 T12RG3  
 FILTER = HSR( 136/ 189/ -50  
 MIN. MAX VALUES = 0.108 -8.13, 95.54 & 36.25



TRC

831024

EVALUATION OF MOD VW FLEET

PLOT DATE

26-OCT-83

11:12:12

83297000000

T12YV3

FILTER = HSRI

136/

189/ -50

MIN, MAX VALUES =

-0.02 31.62

-8.13 56.25

VELOCITY (MPH)

60.00

50.00

40.00

30.00

20.00

10.00

0.00

-10.00

-20.00

-30.00

-40.00

-50.00

-60.00

-70.00

-80.00

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-100.00

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-120.00

-130.00

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-210.00

-220.00

-230.00

-240.00

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-320.00

-330.00

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-350.00

-360.00

-370.00

-380.00

-390.00

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-410.00

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-450.00

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-790.00

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-2730.00

-2740.00

-2750.00

-2760.00

-2770.00

-2780.00

-2790.00

-2800.00

-2810.00

-2820.00

-2830.00

-2840.00

-2850.00

-2860.00

-2870.00

-2880.00

-2890.00

-2900.00

-2910.00

TAC

831024

EVALUATION OF MOD VN FLEET

83297000000

T12YVC

PLOT DATE

28-OCT-83

11:12:12

FILTER = HSRI

136/

189/ -50

MIN, MAX VALUES =

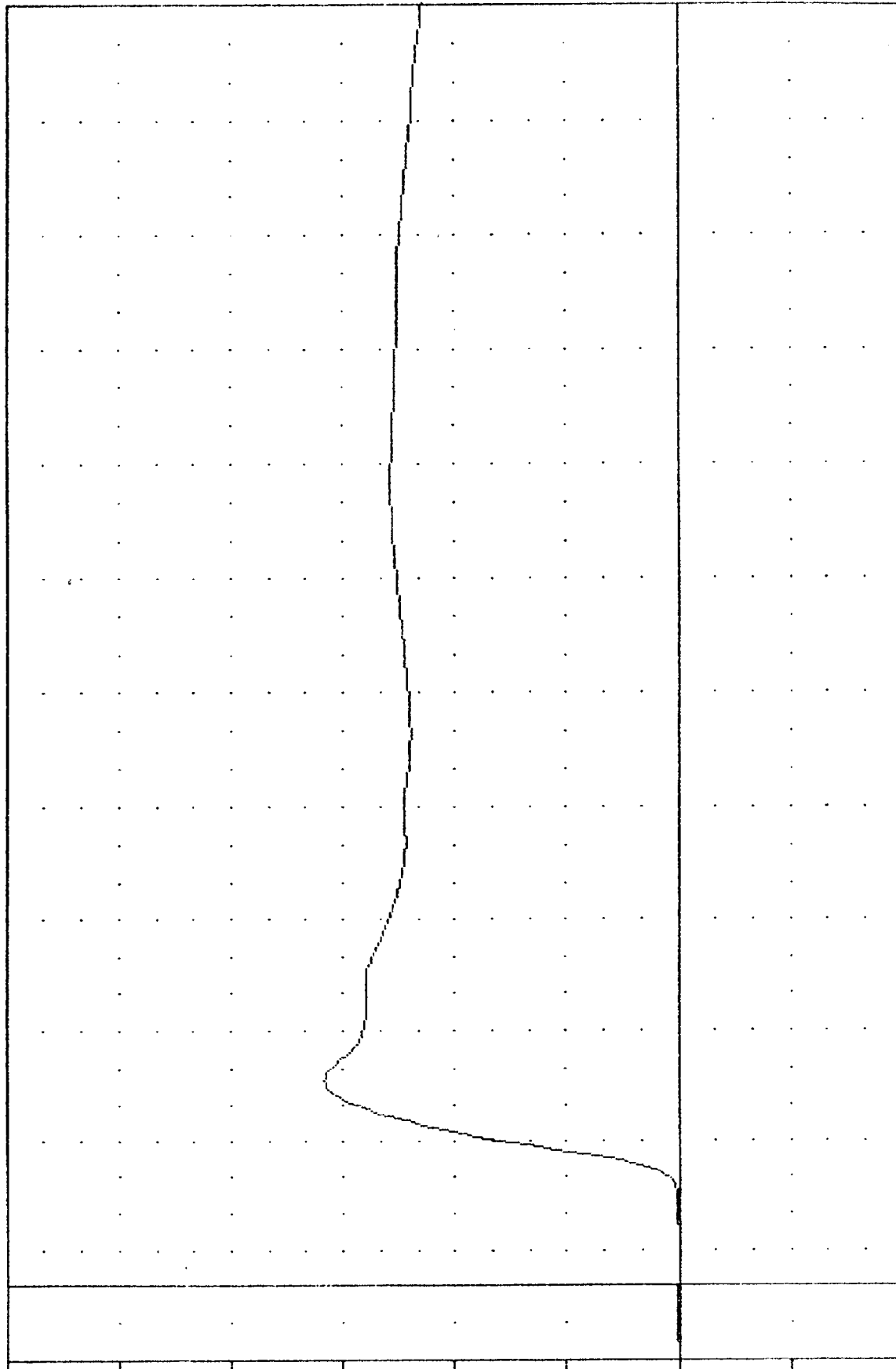
-0.02e

13.75,

31.62 e

56.25

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



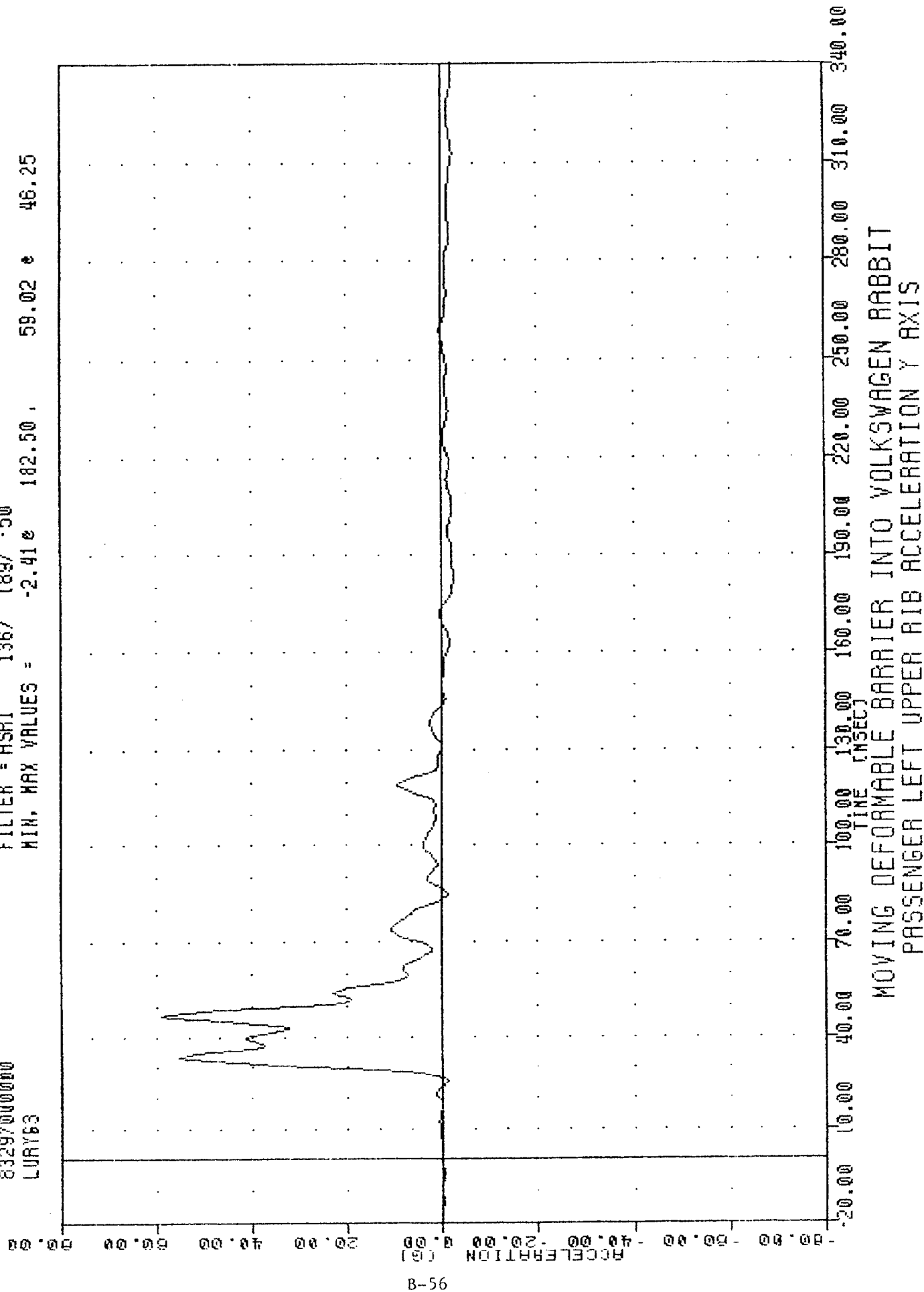
-20.00  
-10.00  
0.00  
10.00  
20.00  
30.00  
40.00  
50.00  
60.00  
0.00  
10.00  
20.00  
30.00  
40.00  
50.00  
60.00  
70.00  
80.00  
90.00  
100.00  
110.00  
120.00  
130.00  
140.00  
150.00  
160.00  
170.00  
180.00  
190.00  
200.00  
210.00  
220.00  
230.00  
240.00  
250.00  
260.00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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING T12YGC

TAC , 831024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 LURY63

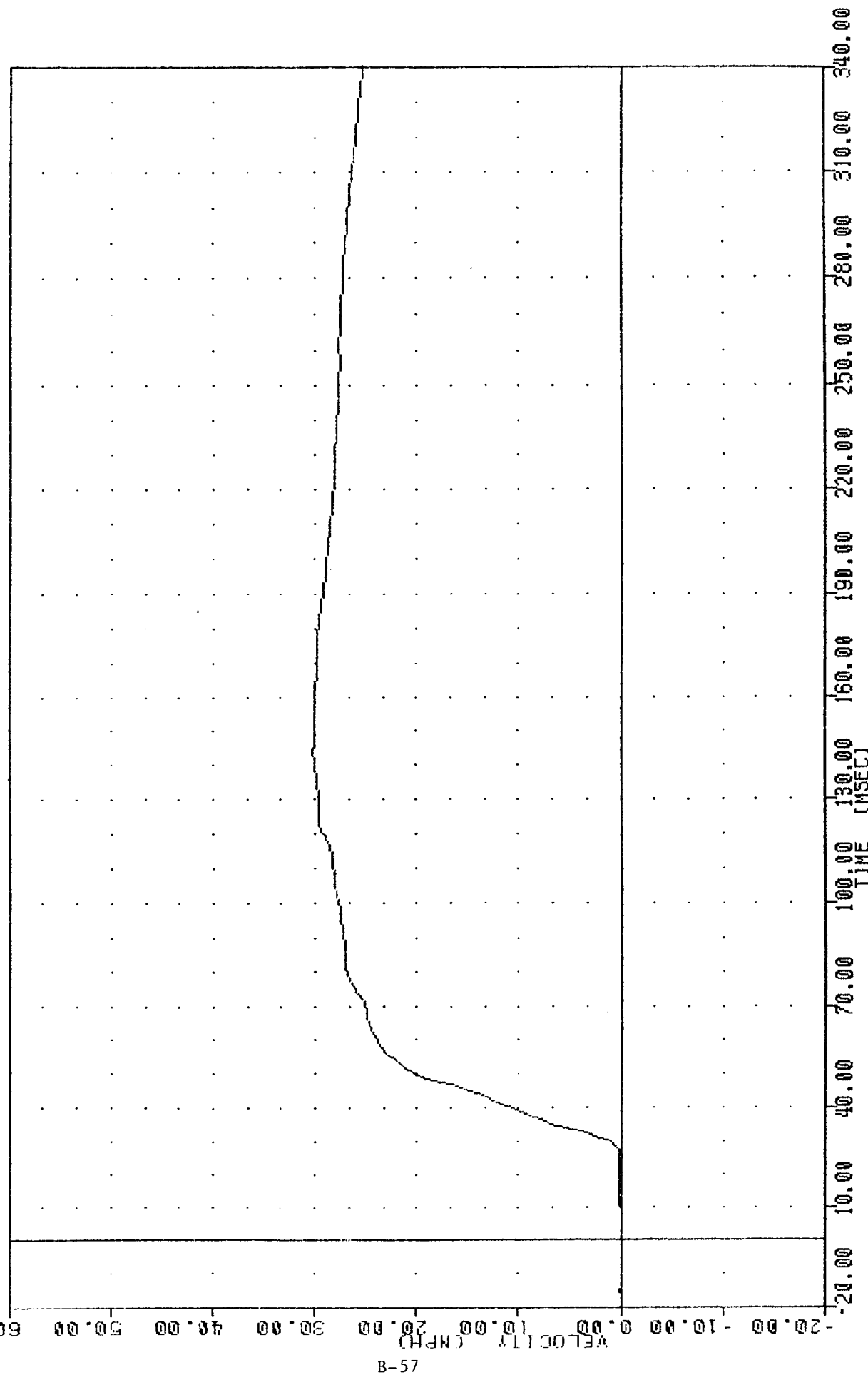
PLOT DATE 26-OCT-83 09:03:13

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -2.41e 182.50 , 59.02 e 48.25



TRC [REDACTED], 831024 [REDACTED] PLOT DATE 26 OCT 83 11:12:12  
 EVALUATION OF MOD YW FLEET  
 83297000000  
 LURYV3

FILTER = HSRI 135/ 189/ -50  
 MIN. MAX VALUES = -0.038 3.13, 30.14 143.13



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING LURYG3

TRC 831024 PLOT DATE 26-OCT-83 09:03:13

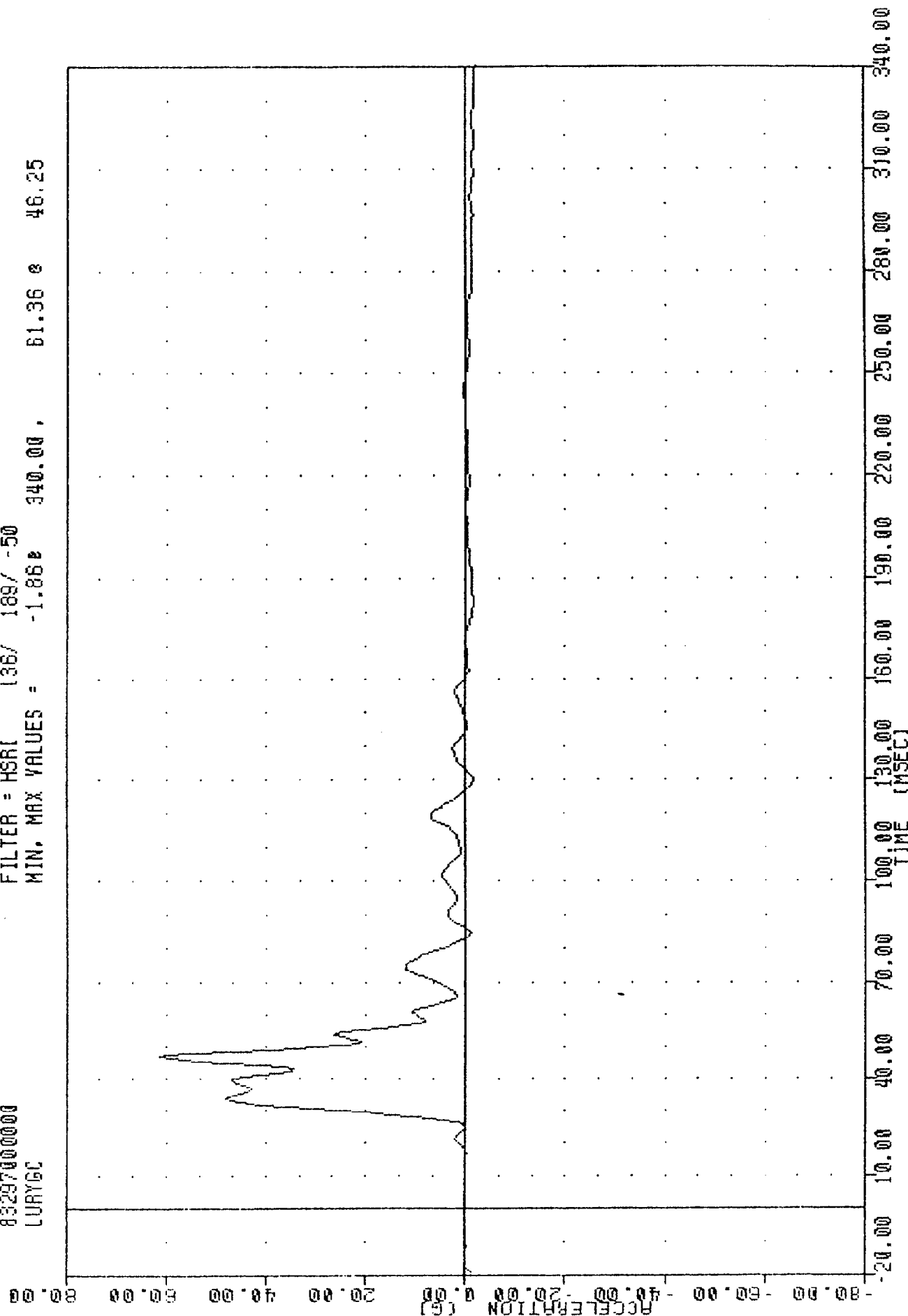
EVALUATION OF MOD VW FLEET

83297000000

LURYGC

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -1.86e 340.00, 61.36 e 46.25

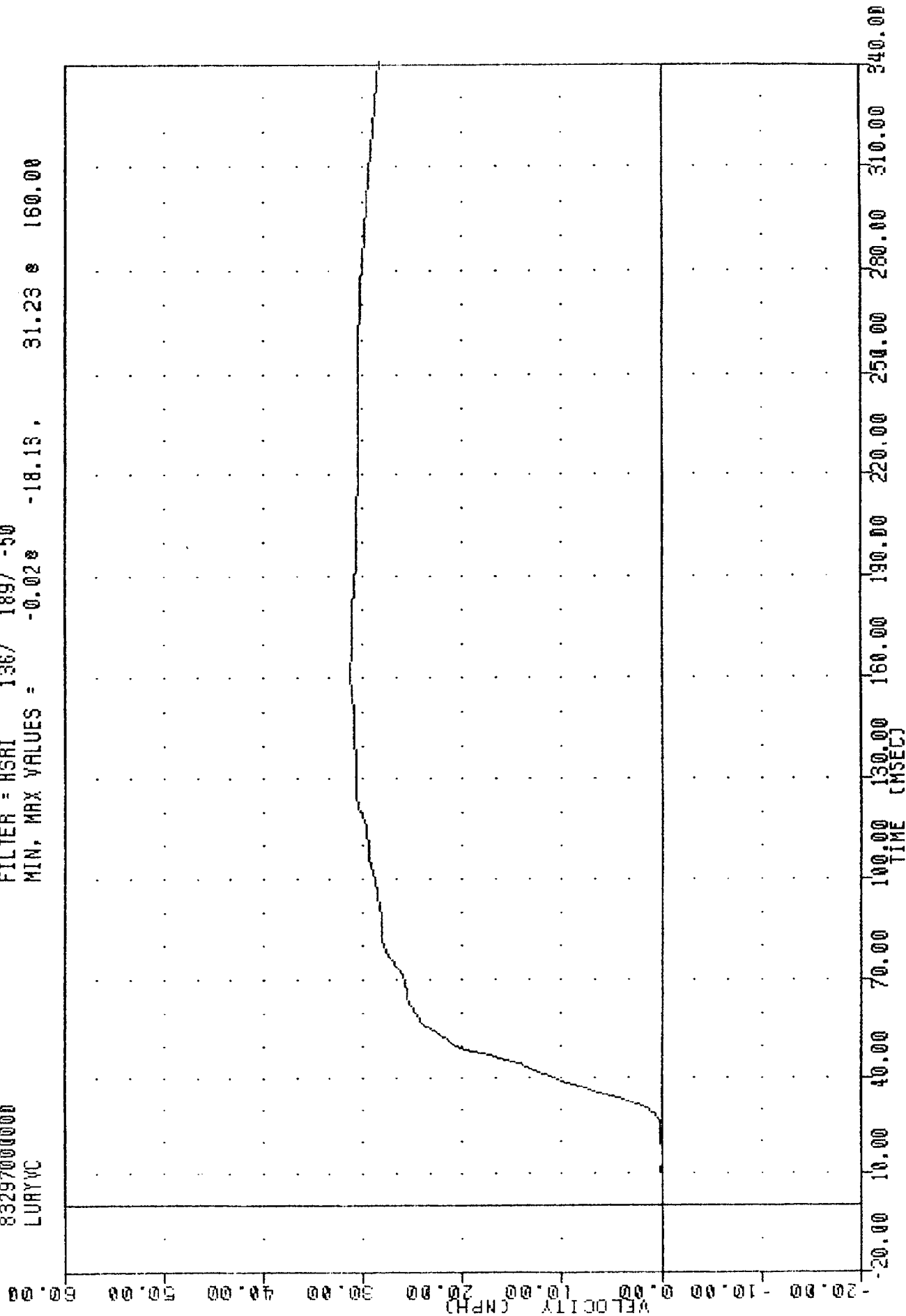


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
PASSENGER LEFT UPPER RIB ACCELERATION -2 Y AXIS

TRC , 831024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 LURYVC

PLOT DATE 26-OCT-83 11:12:12

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -0.020 -18.13, 31.23 160.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING LURY6C



TRC 831024 PLOT DATE 26-OCT-83 09:03:13

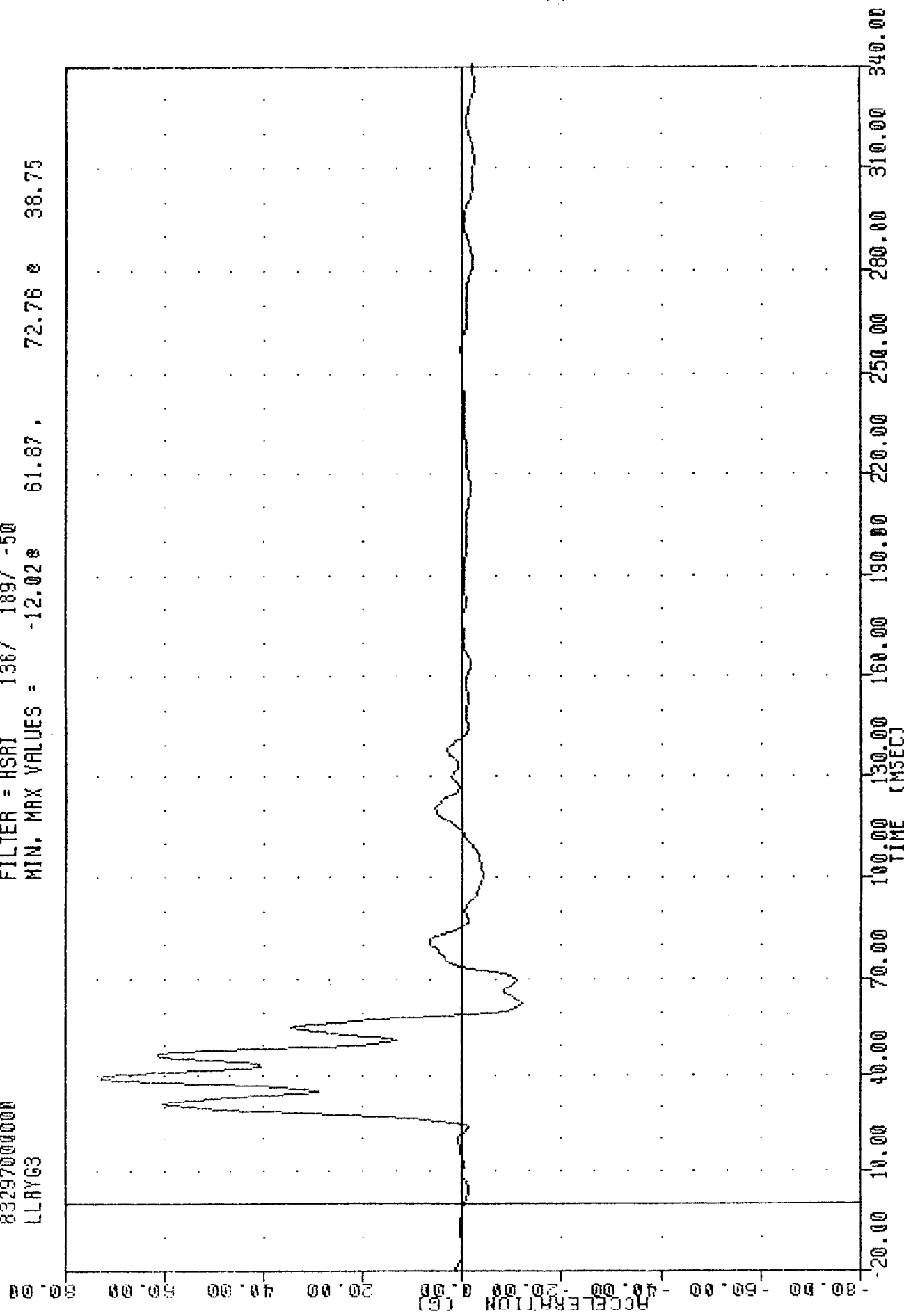
EVALUATION OF MOD VW FLEET

83297000000

LLRY63

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -12.02 61.87, 72.76 38.75



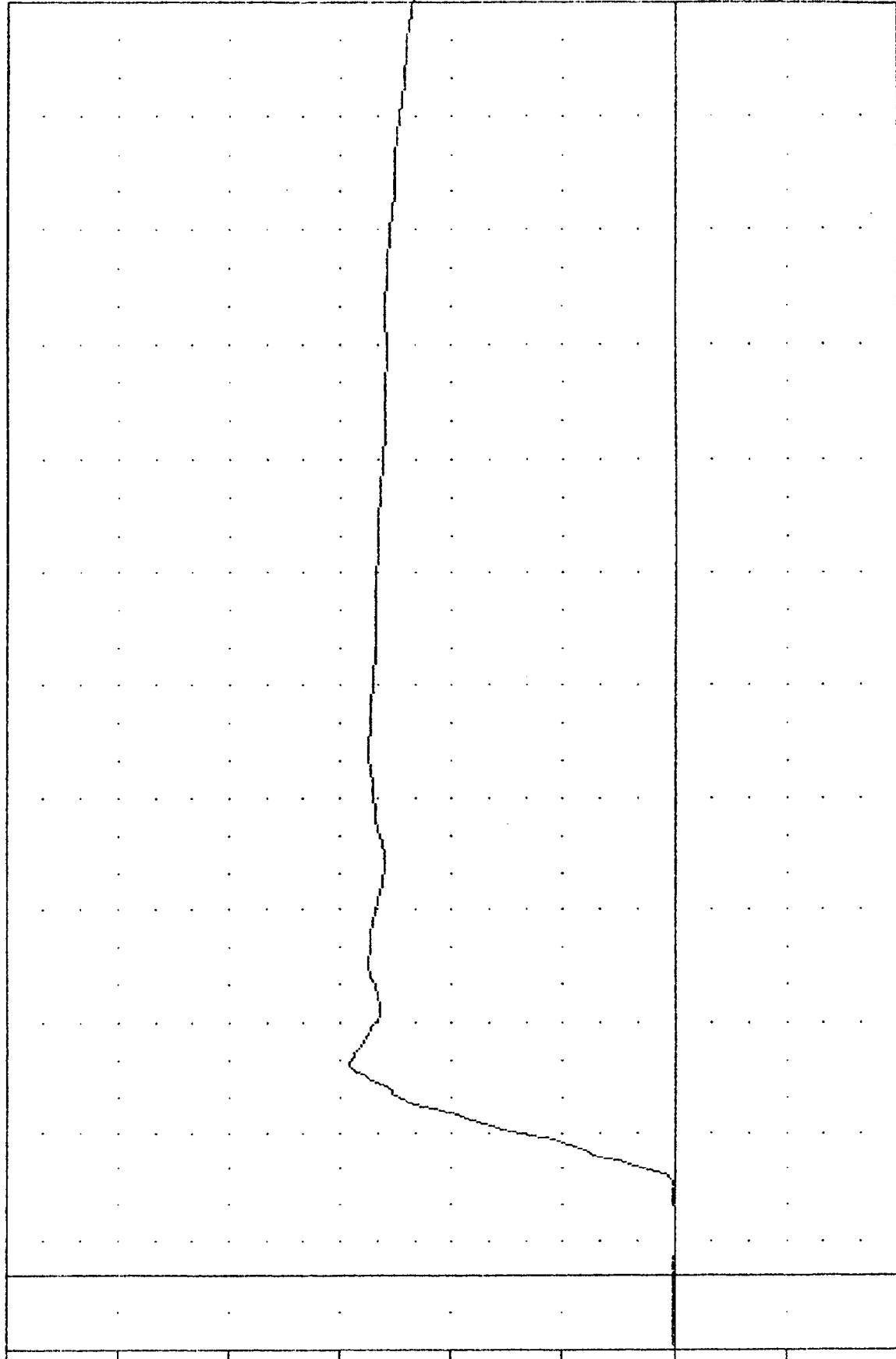
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
PASSENGER LEFT LOWER RIB ACCELERATION Y AXIS

TAC 831024  
EVALUATION OF MOB VN FLEET  
83297000000  
LLRYG3

PLOT DATE 26-OCT-83 11:12:12

FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -0.048 13.13, 29.09 58.75

VELOCITY (MPH)



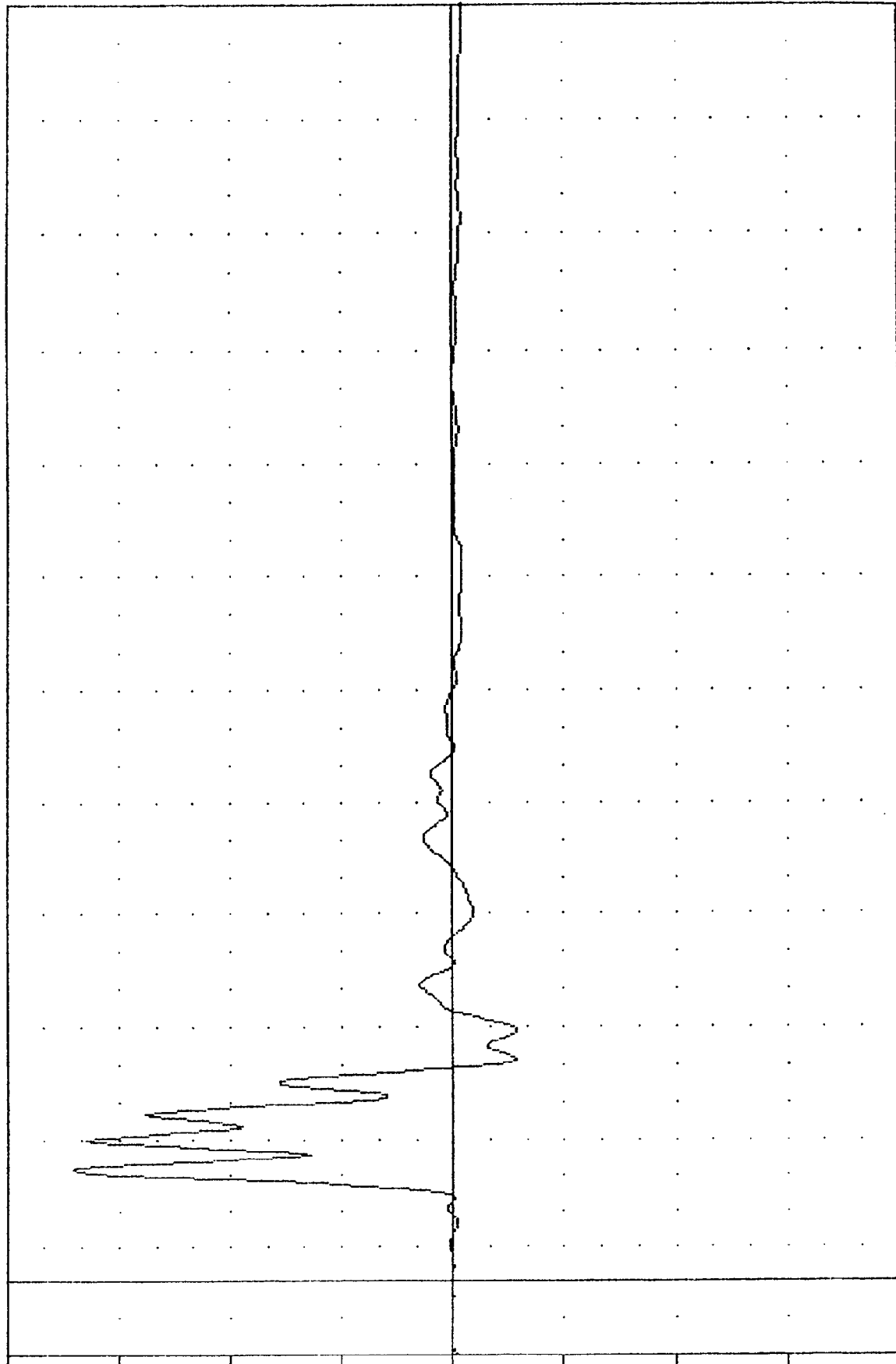
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING LLRYG3

TAC , 831024  
 EVALUATION OF KOD VW FLEET  
 8329700000  
 LLRY6C

FLAT DATE 26-OCT-83 09:03:13

FILTER = HSRI 136/ 189/ -50  
 MIN. MAX VALUES = -11.53 68.75 68.51 30.62

ACCELERATION (G)



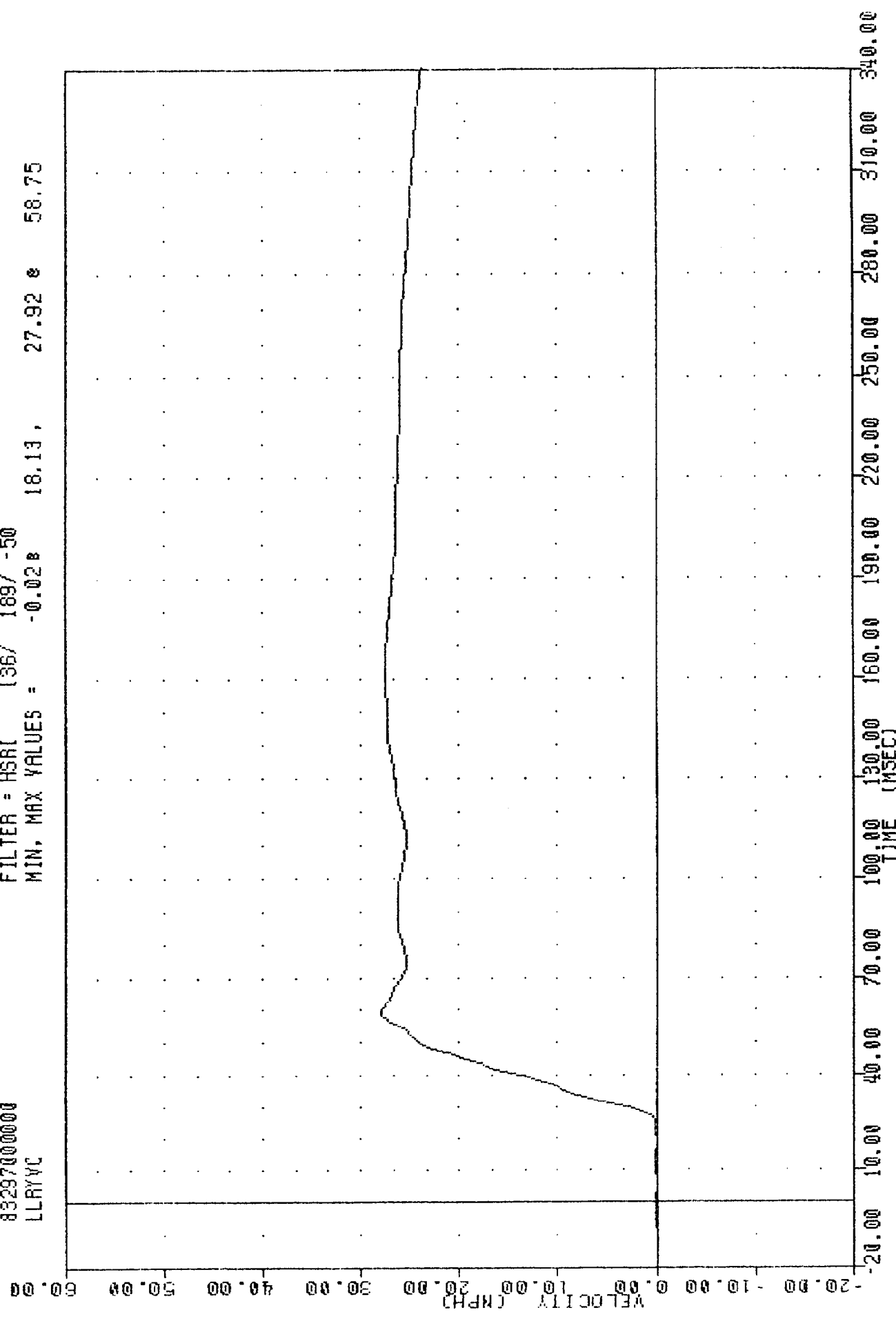
TIME (msec)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 PASSENGER LEFT LOWER RIB ACCELERATION #2 Y AXIS

TRC 831024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 LLYVC

PLOT DATE 26-OCT-83 11:12:12

FILTER = HSRI 136/ 189/ -50  
 MIN, MAX VALUES = -0.028 18.13, 27.92 58.75

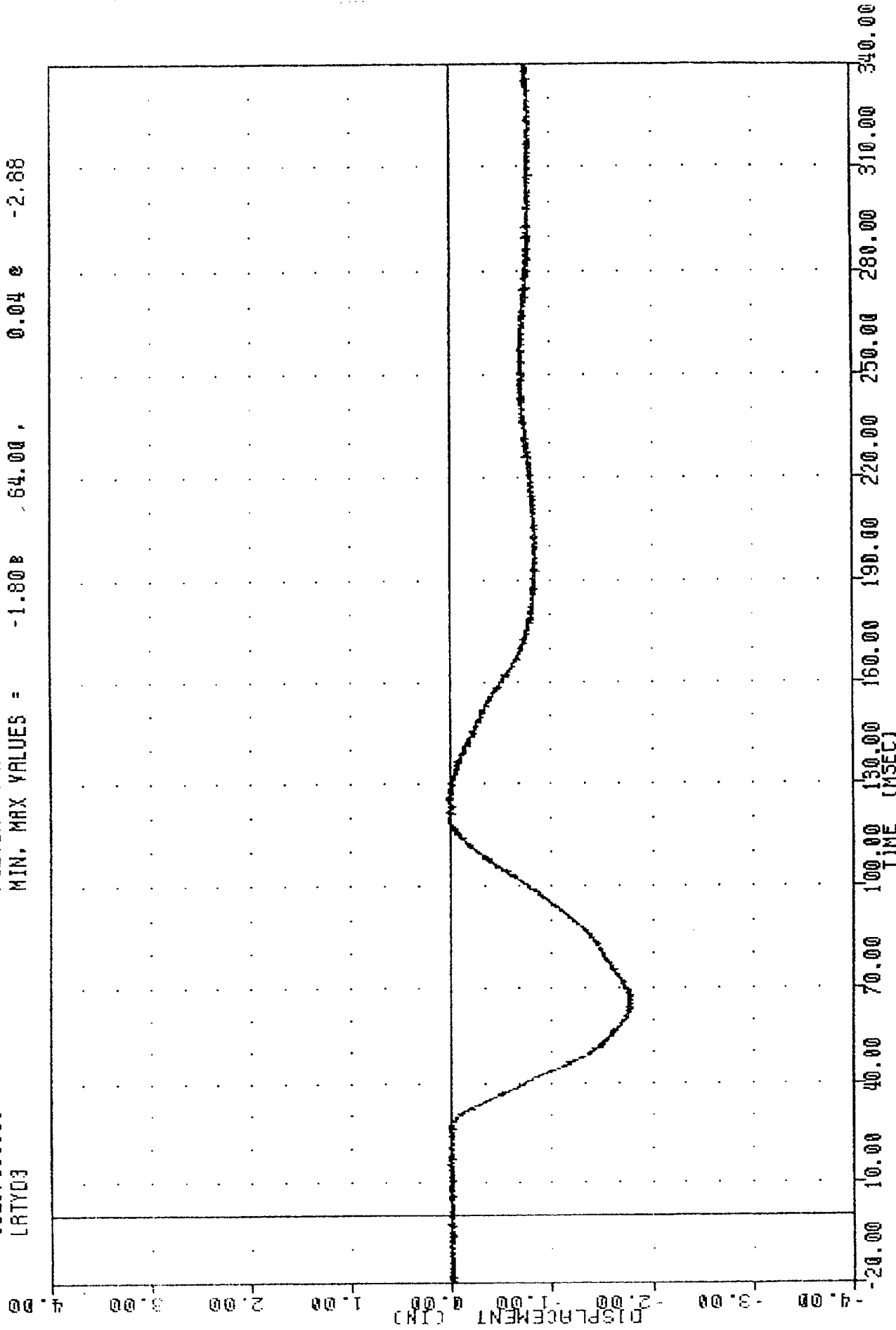


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING LLYVC

TRC 831024  
 EVALUATION OF MOD YW FLEET  
 83287000000  
 LRTY03

PLOT DATE 26-OCT-83 09:01:26

FILTER = ALPF 1650/ 5217/ -40  
 MIN, MAX VALUES = -1.808 64.00, 0.04 e -2.88



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

TRC

831024

EVALUATION OF MOD YW FLEET

83297000000

PEVX63

PLOT DATE

26-OCT-83

09:01:26

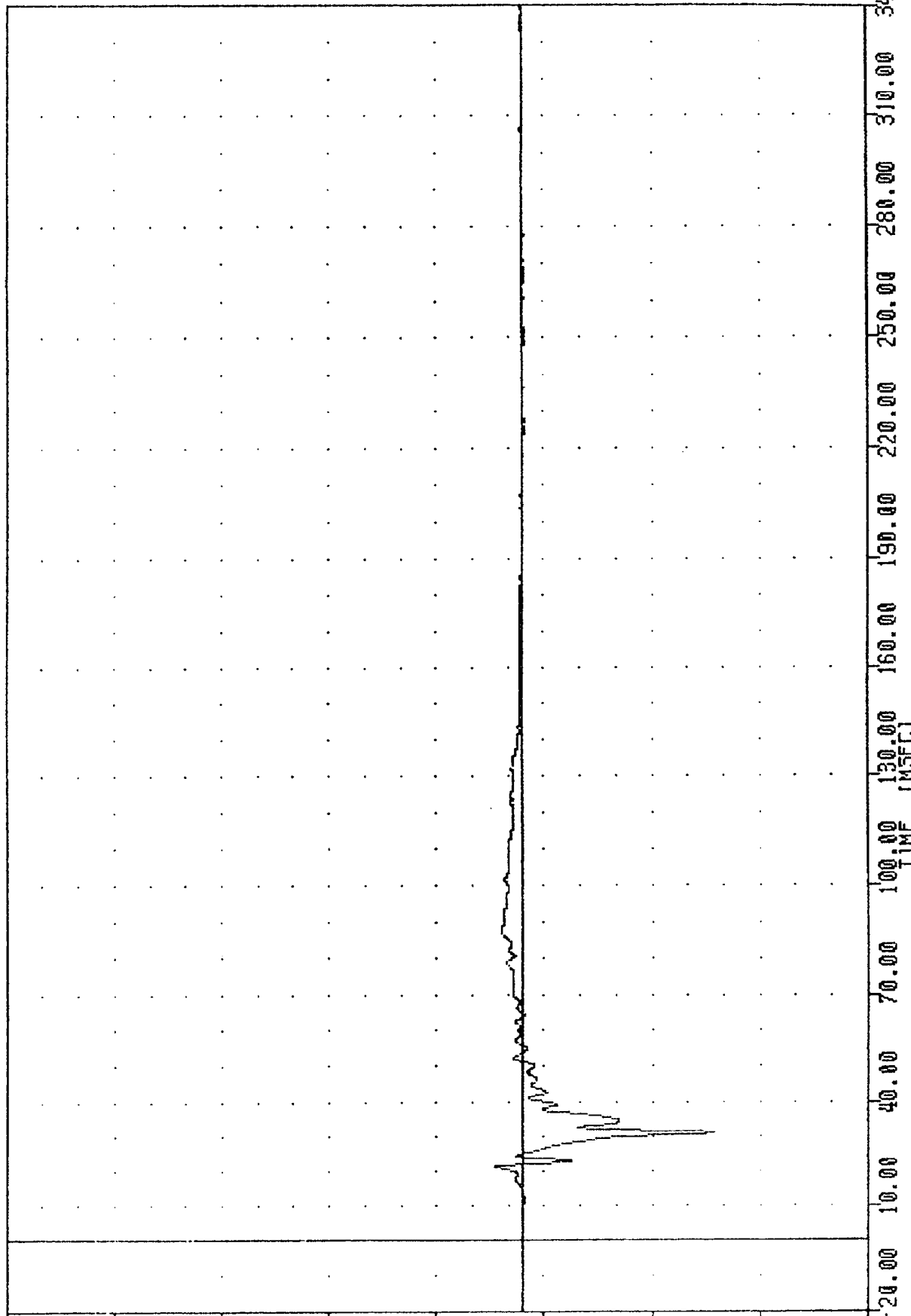
FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -88.70g 31.00g

12.40g

21.25

ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
PASSENGER PELVIS ACCELERATION X AXIS

TRC 831024, 831024 PLOT DATE 26-UCT-83 09:01:26

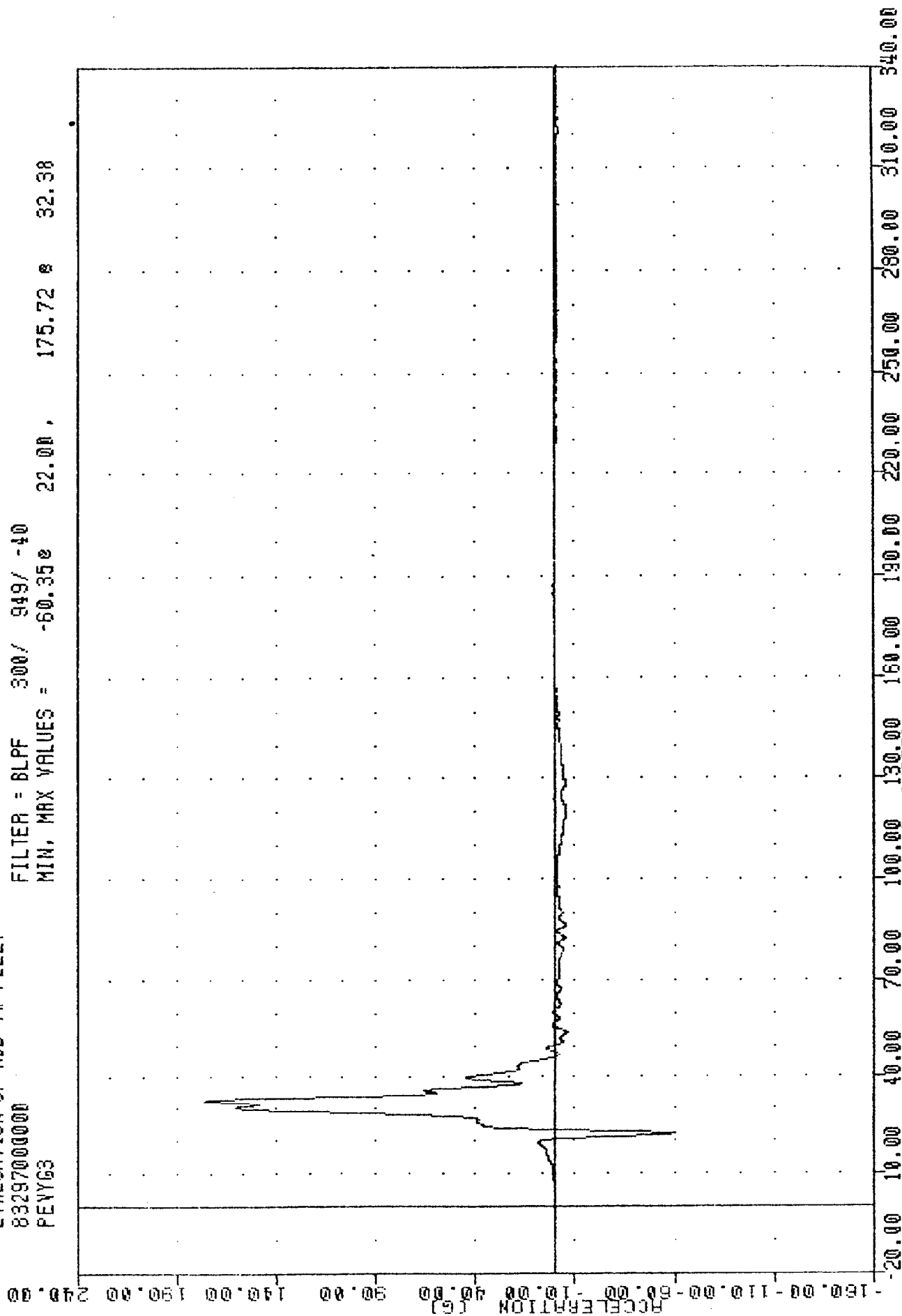
EVALUATION OF MDD VW FLEET

832970000000

PEVY63

FILTER = 8LPF 300/ 949/ -40

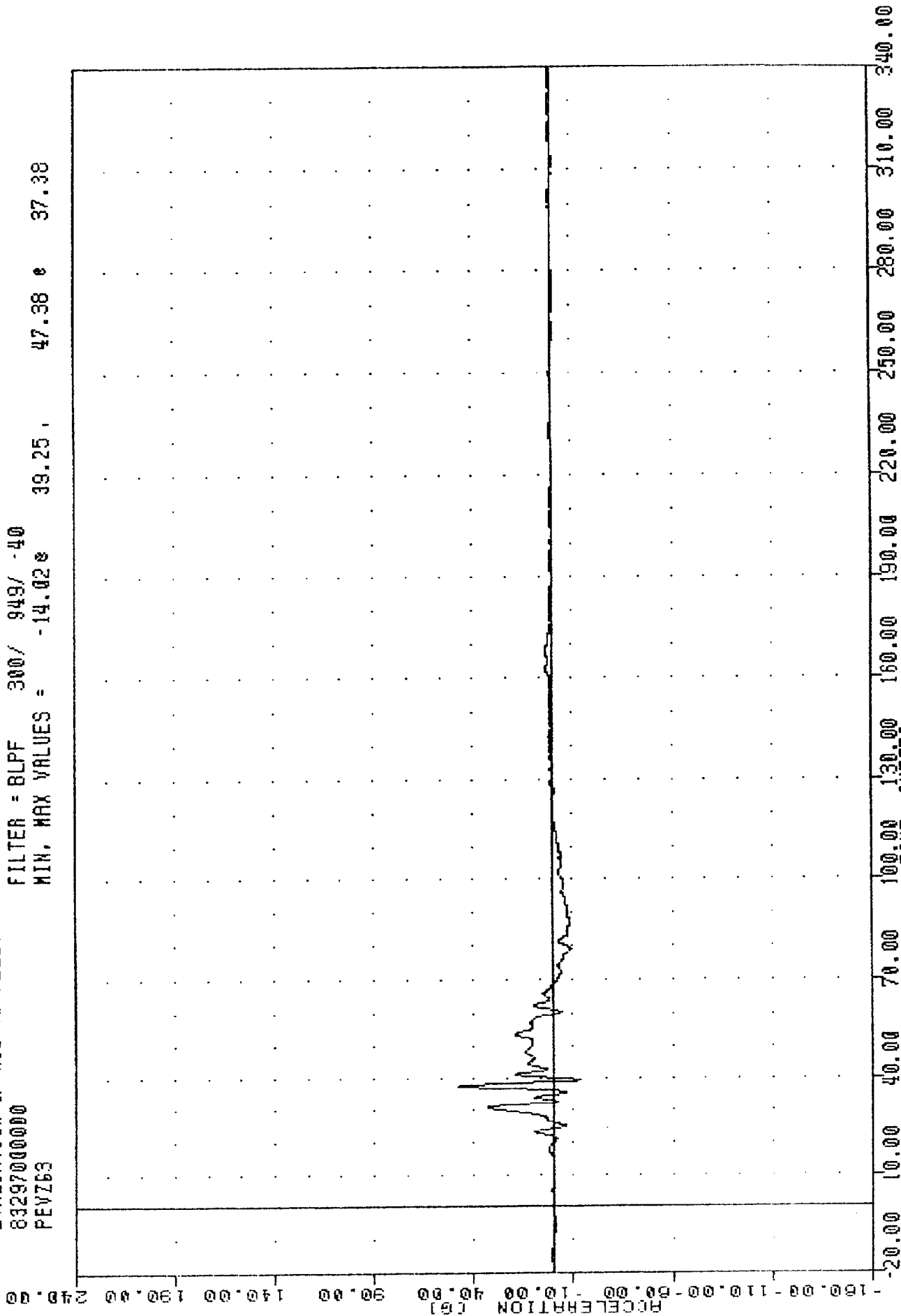
MIN, MAX VALUES = -60.350 22.00, 175.72 32.38



TAC 831024  
EVALUATION OF MOD VW FLEET  
83297000000  
PEVZ63

PLOT DATE 26-OCT-83 09:01:26

FILTER = BLPF 300/ 949/ -40  
MIN, MAX VALUES = -14.02g 39.25 , 47.38 g 37.38





TRC 831024 PLOT DATE 26-OCT-83 09:02:44

EVALUATION OF MOD YW FLEET

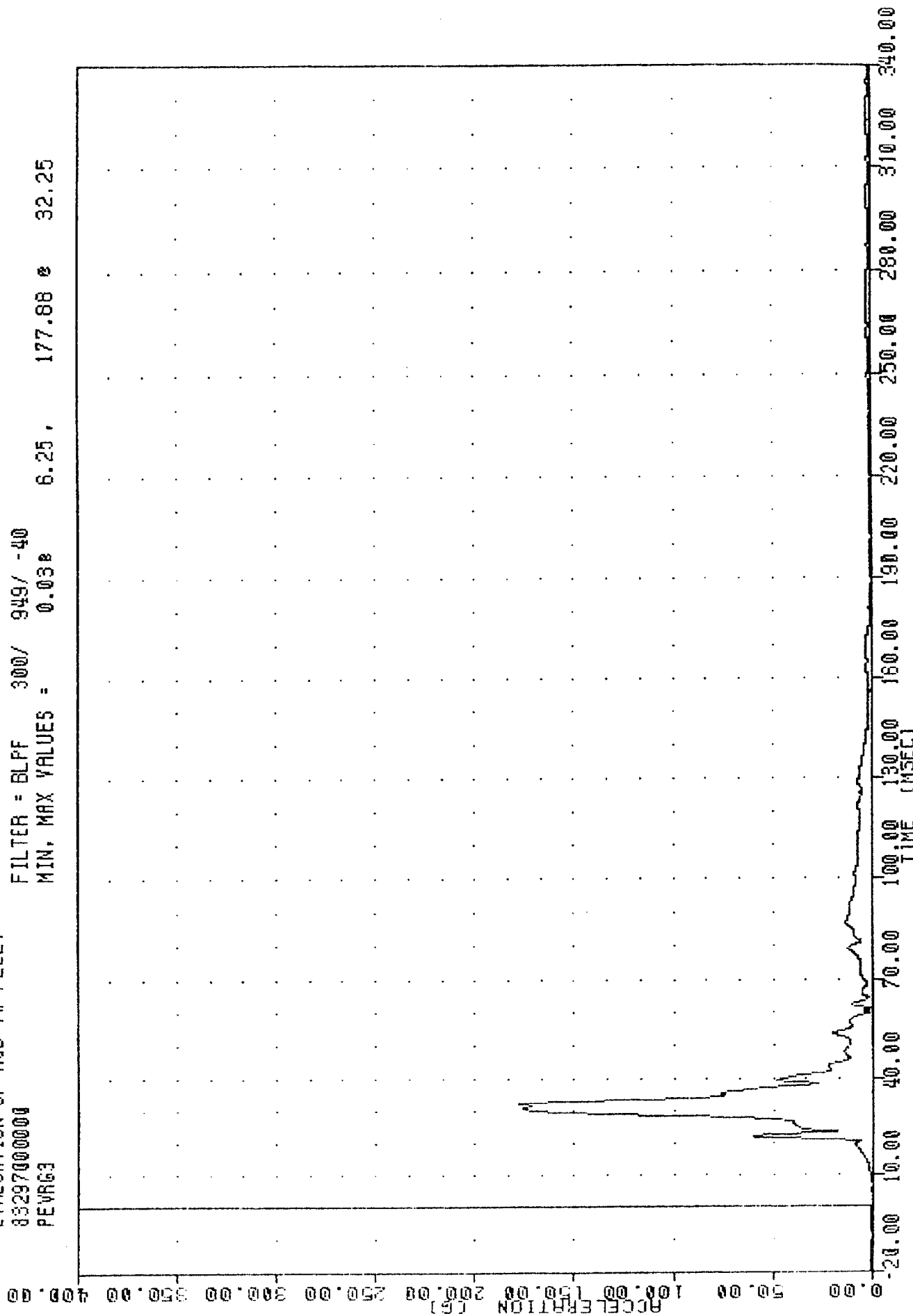
83297000000

PEVRG3

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = 0.038

6.25, 177.88 32.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
PASSENGER PELVIS RESULTANT

TRC , 831024 PLOT DATE 26-OCT-83 11:13:14

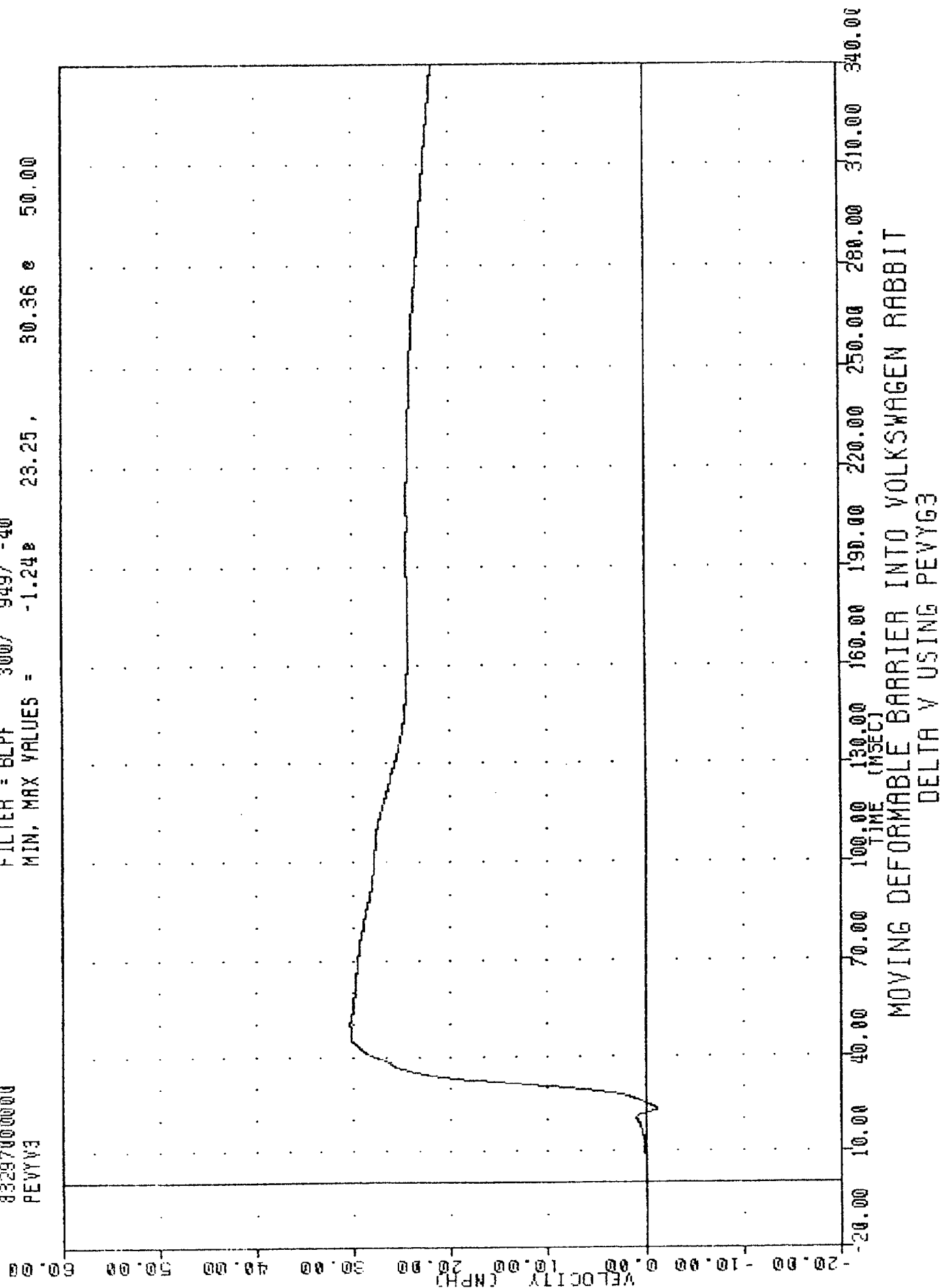
EVALUATION OF MOD YW FLEET

83297000000

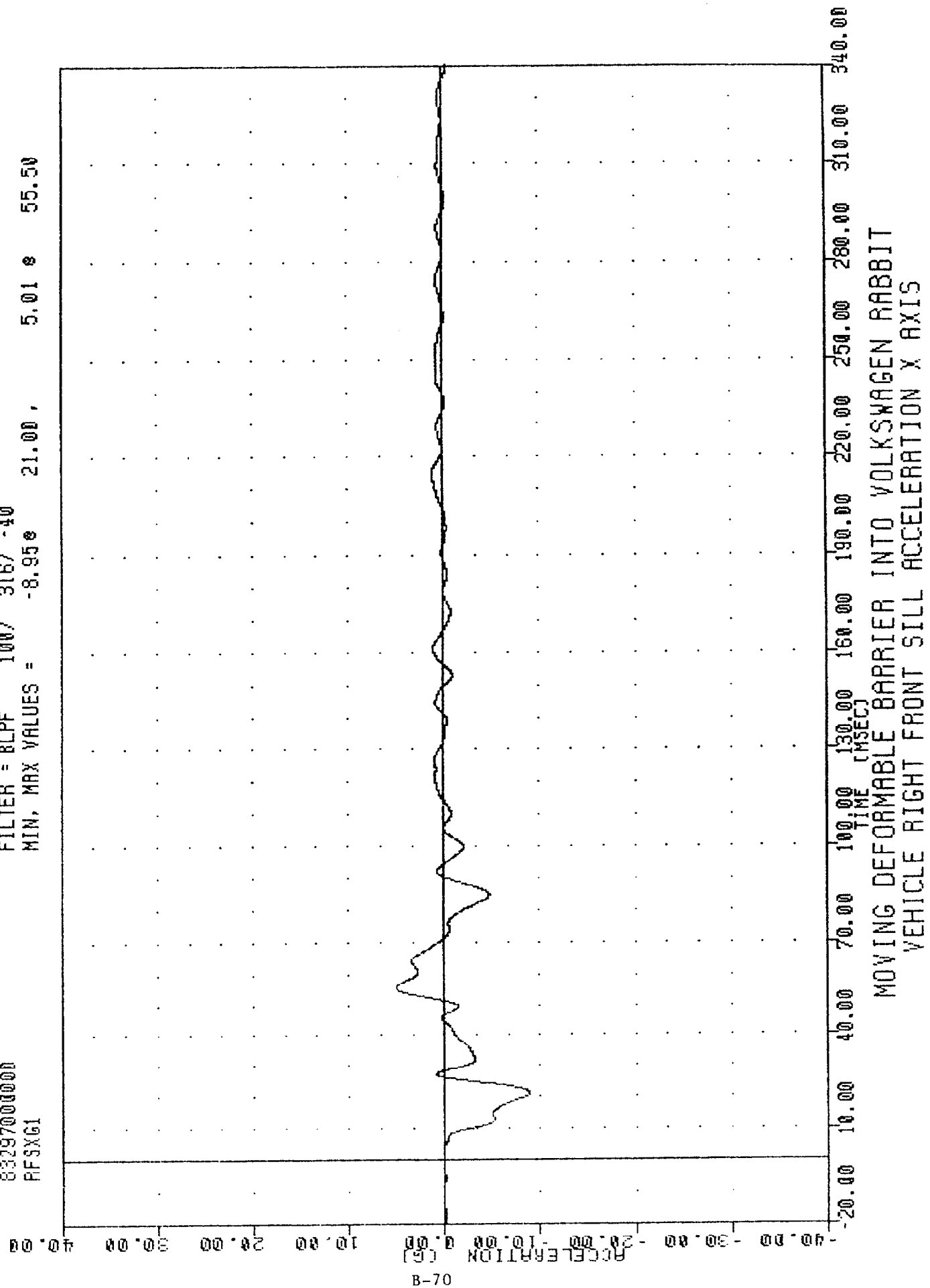
PEVYV3

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -1.248 23.25, 30.36 50.00



TRC 831024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 RFSXG1  
 PLOT DATE 26-OCT-85 09:01:26  
 FILTER = 8LPF 100/ 316/ -40  
 MIN, MAX VALUES = -8.95e 21.00, 5.01 e 55.50



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

TAC 831024  
EVALUATION OF MOD VN FLEET  
83297000000  
AFSY61

PLOT DATE 26 OCT 83 09.01.26

FILTER = BLPF 100/ 316/ .40  
MIN, MAX VALUES = -3.24e 140.75, 32.74 e 10.63

40.00

30.00

20.00

10.00

0.00

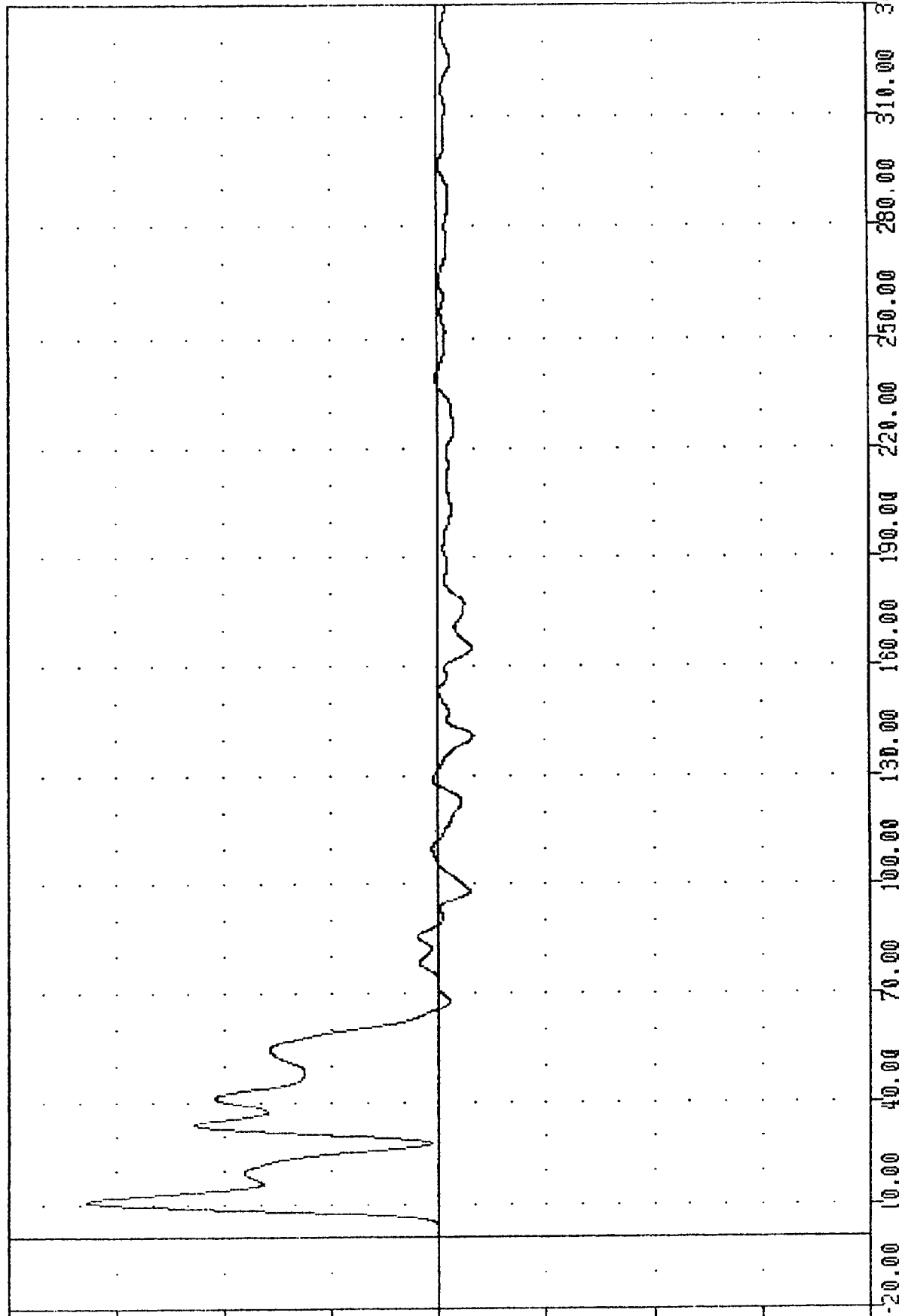
-10.00

-20.00

-30.00

-40.00

11-8



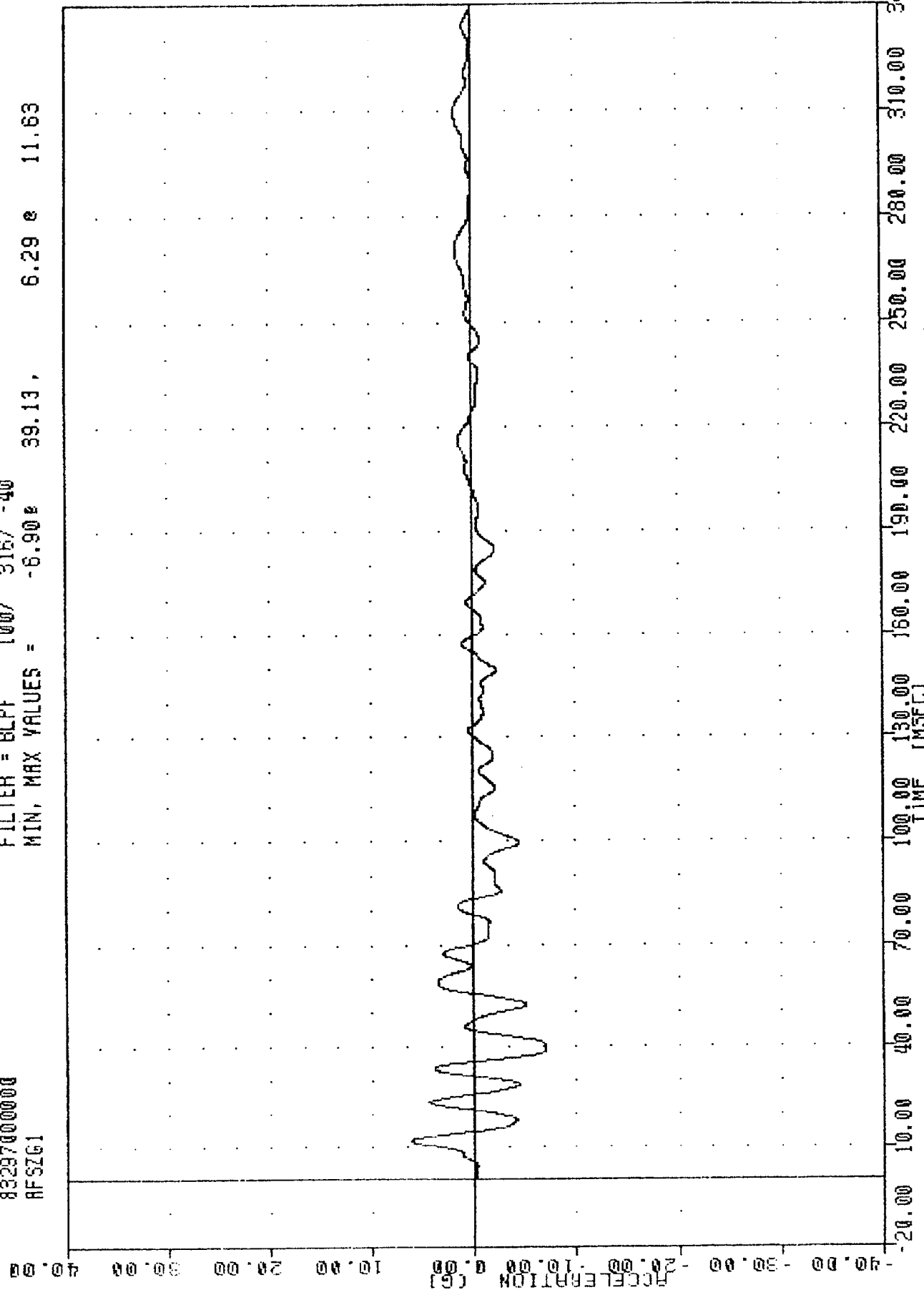
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
VEHICLE RIGHT FRONT SILL ACCELERATION Y AXIS

TRC 831024  
EVALUATION OF MOD YW FLEET  
83297000000  
RFSZG1

PLOT DATE 26-OCT-83 09:01:26

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -6.90% 39.13, 6.29% 11.63

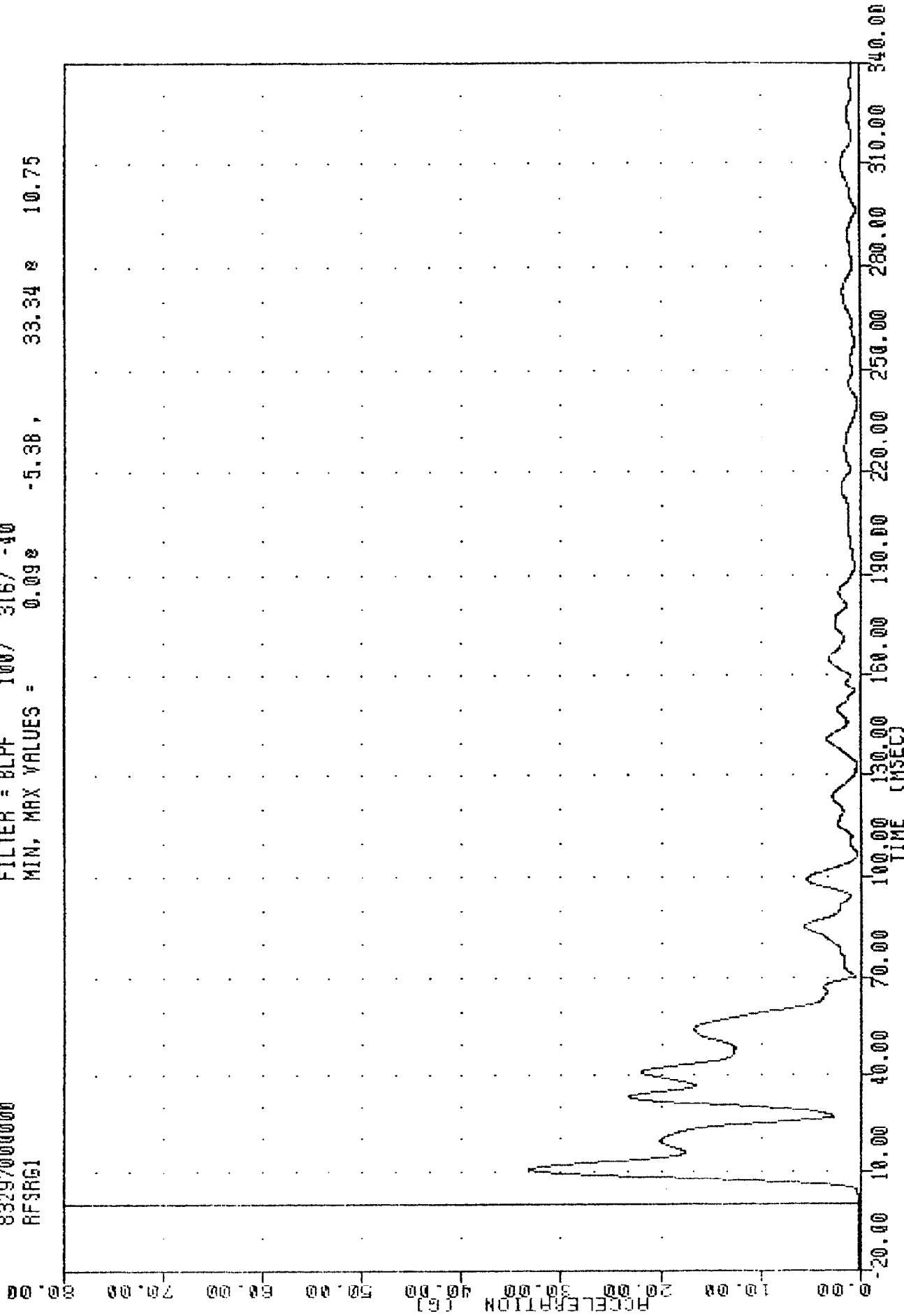


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
VEHICLE RIGHT FRONT SILL ACCELERATION Z AXIS

TRC 831024  
EVALUATION OF MOD VN FLEET  
83297000000  
RFSRG1

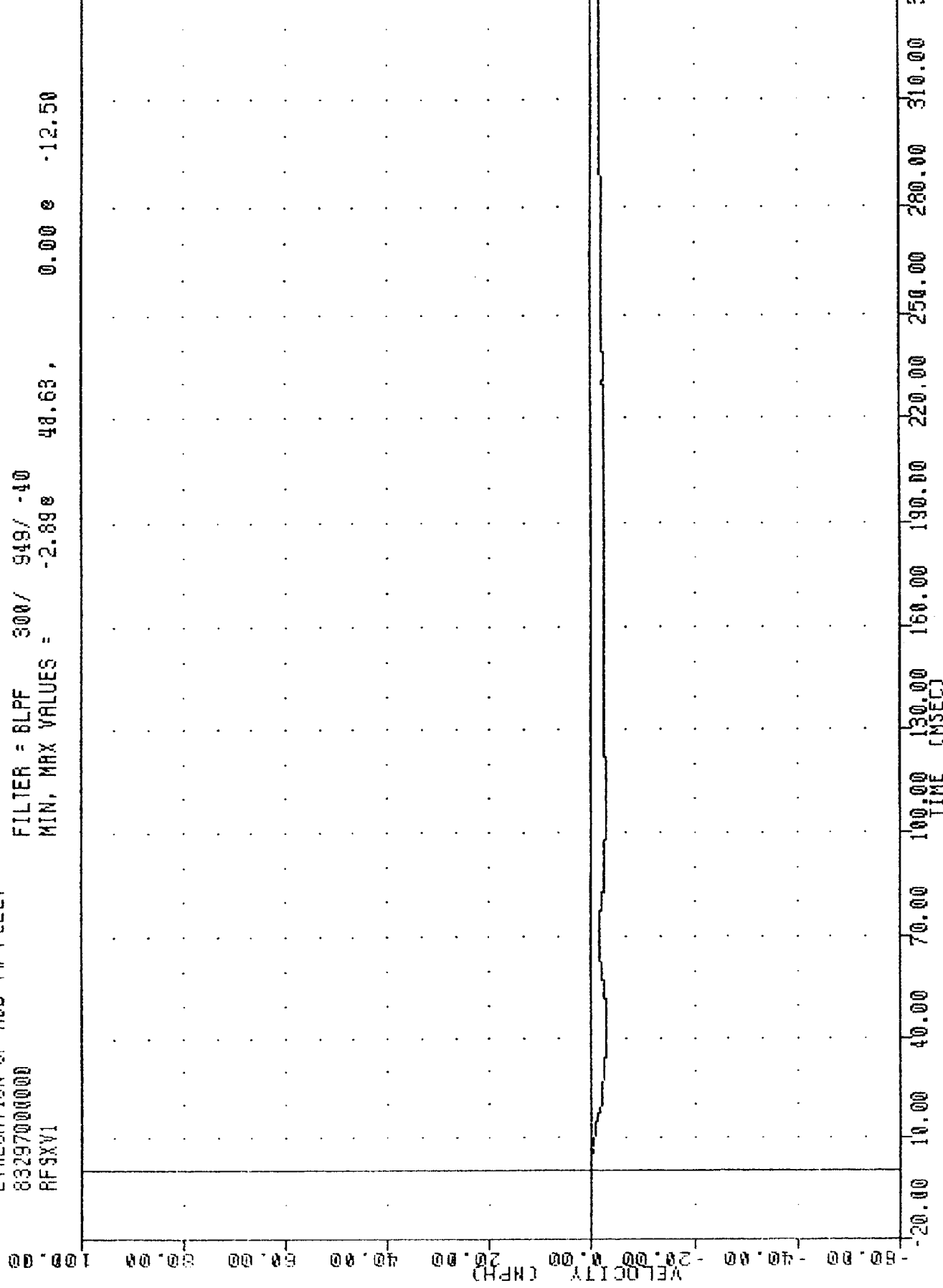
PLOT DATE 26 OCT 83 09:02:44

FILTER = BLPF 100/ 316/ -40  
MIN, MAX VALUES = 0.090 -5.38, 33.34 10.75



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
VEHICLE RIGHT FRONT SILL RESULTANT

TRC [REDACTED], 831024 [REDACTED] PLOT DATE 26 OCT 83 11:13:14  
 EVALUATION OF MOD VN FLEET  
 83297000000  
 RFSXV1  
 FILTER = 6LPF 300/ 949/ -40  
 MIN, MAX VALUES = -2.89e 48.63, 0.00e -12.50

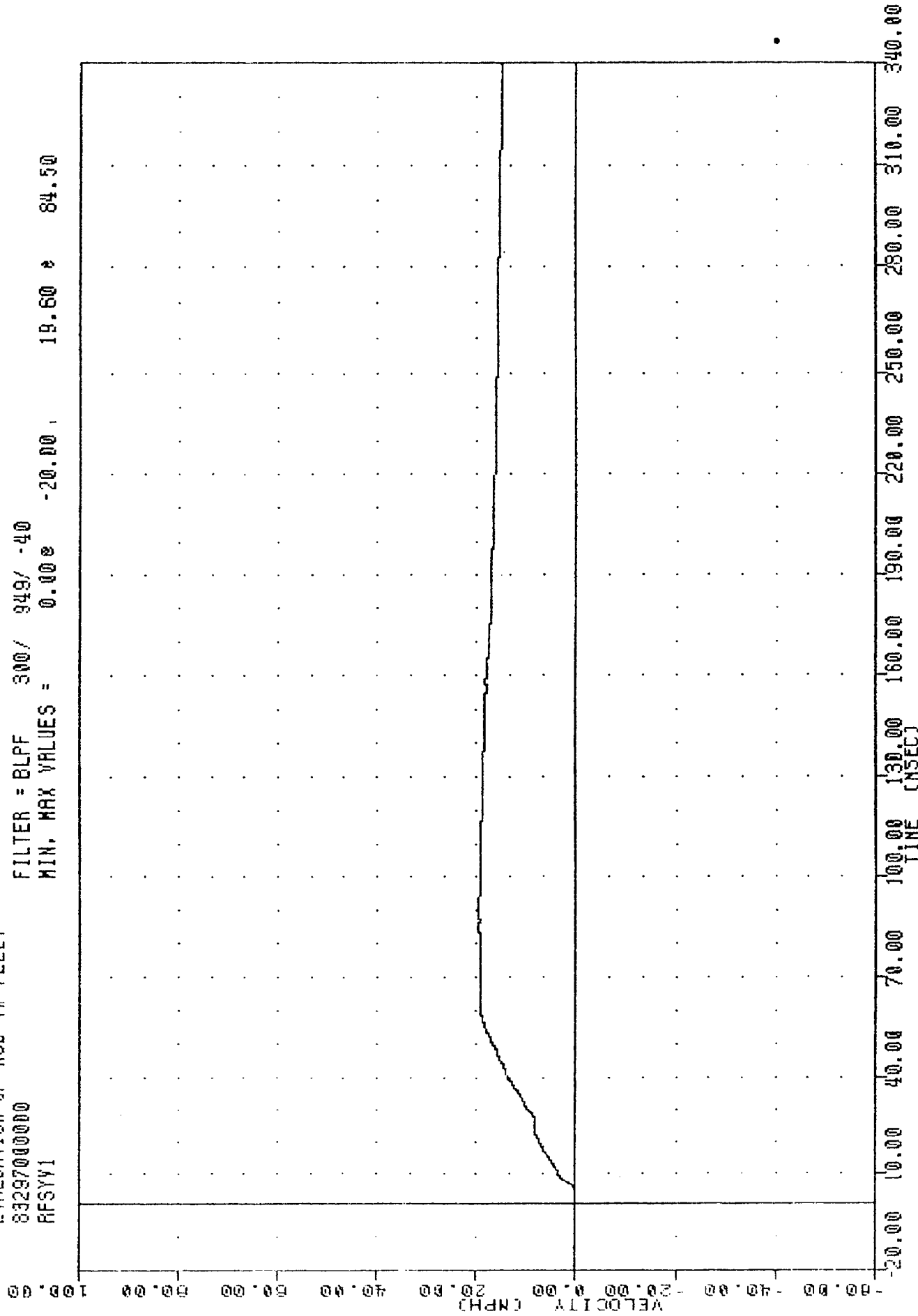


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING RFSXG1

TRC 83J024  
EVALUATION OF MOD VN FLEET  
83297000000  
RFSYV1

PLOT DATE 26 OCT 83 11:13:14

FILTER = BLPF 300/ 949/ -40  
MIN. MAX VALUES = 0.00e -20.00 19.60 e 84.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING RFSYGI



TRC

831024

EVALUATION OF MOD VW FLEET

PLOT DATE

26-OCT-83

09:01:26

83297000000

83297000000

FILTER = 8LPF

100/

316/

-40

RRXXG2

MIN. MAX VALUES =

-8.47

20.88

6.24

55.63

ACCELERATION [G]

40.00

30.00

20.00

10.00

0.00

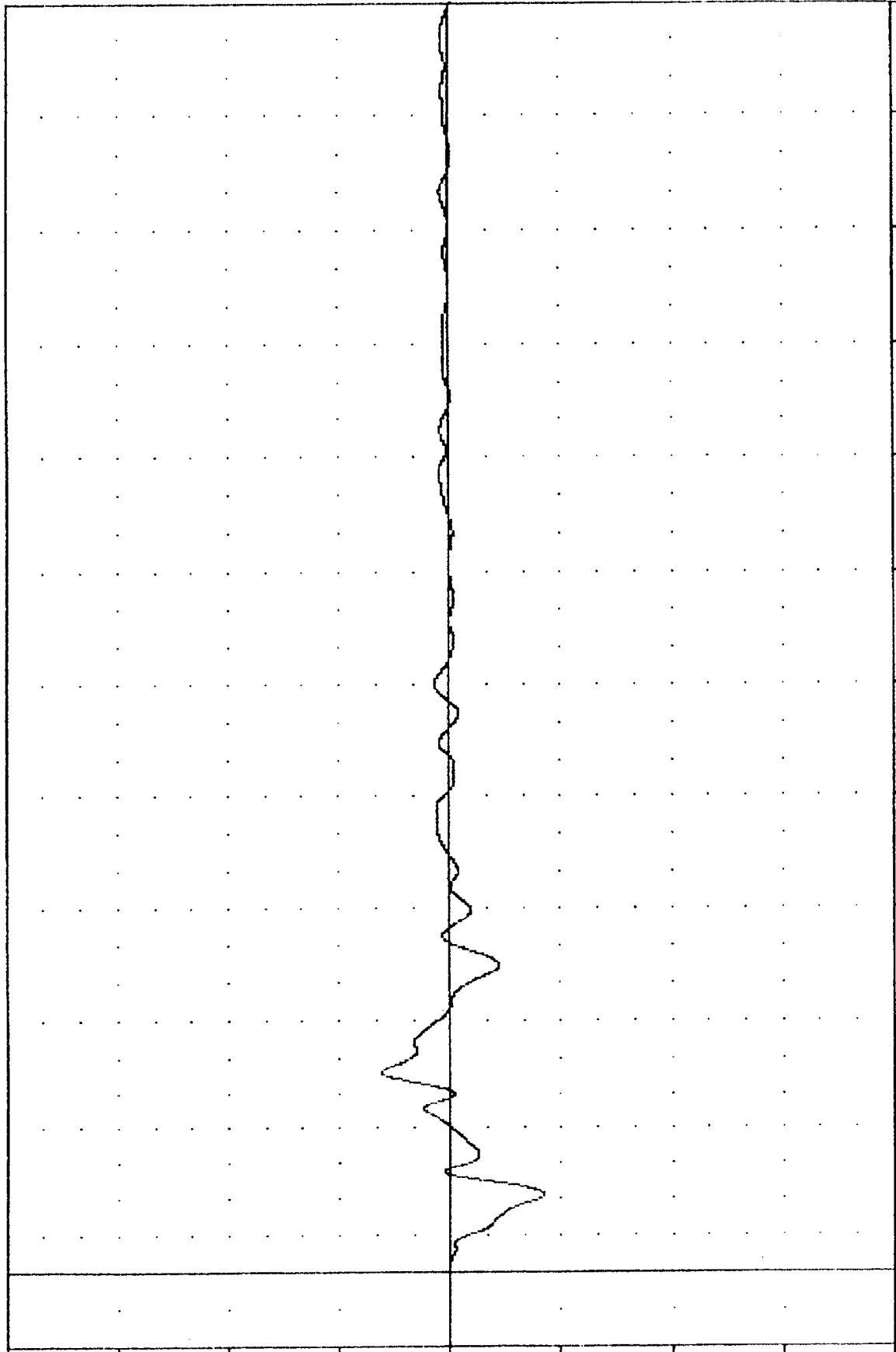
-10.00

-20.00

-30.00

-40.00

B-76



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

TRC 831024 PLOT DATE 27-OCT-83 08:47:54

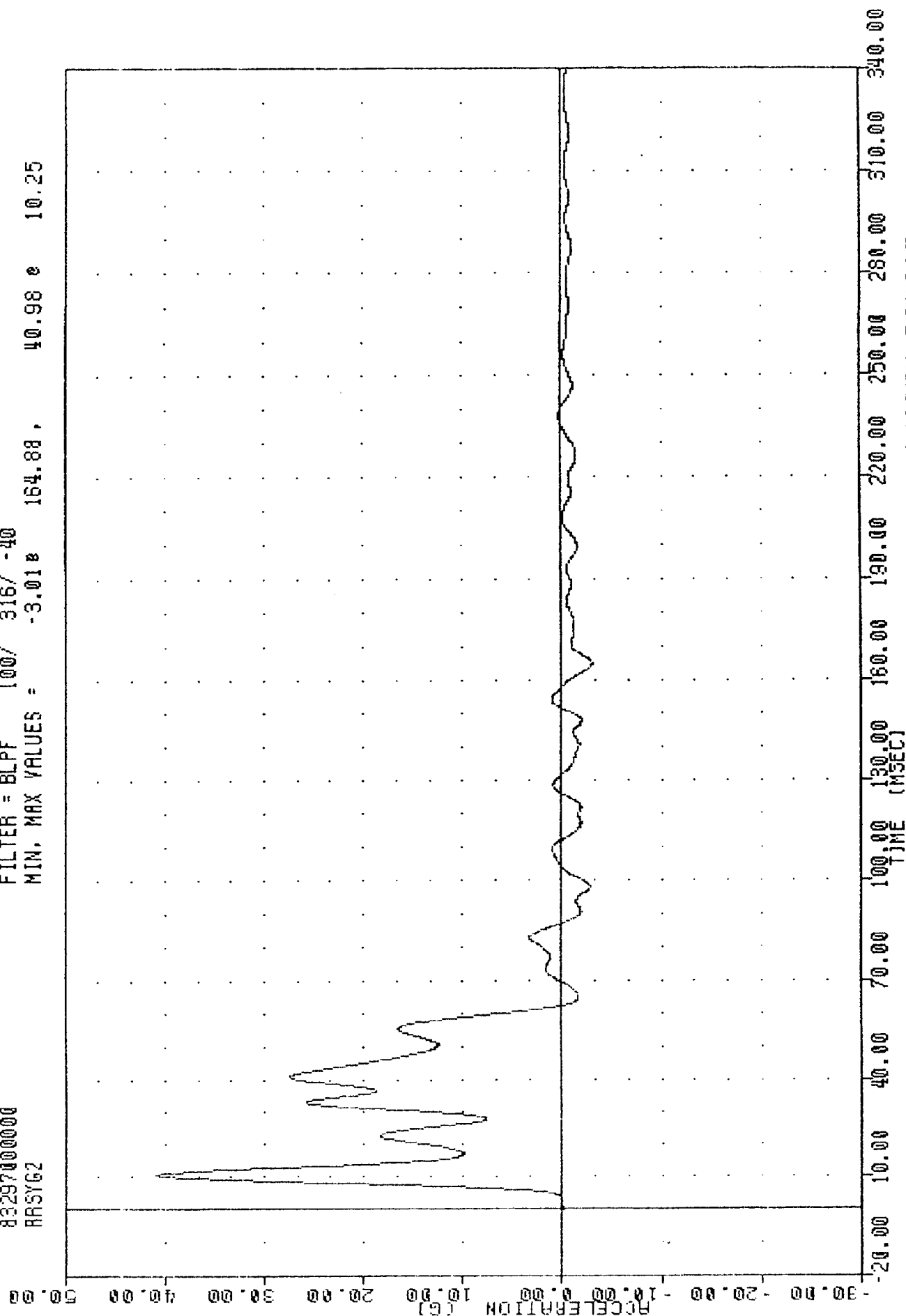
EVALUATION OF MOD YN FLEET

83297000000

RRSYG2

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -3.01e 164.88, 40.98 e 10.25



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

TRC , 831024 PLOT DATE 26-OCT-83 09:01:26

EVALUATION OF MOD YW FLEET

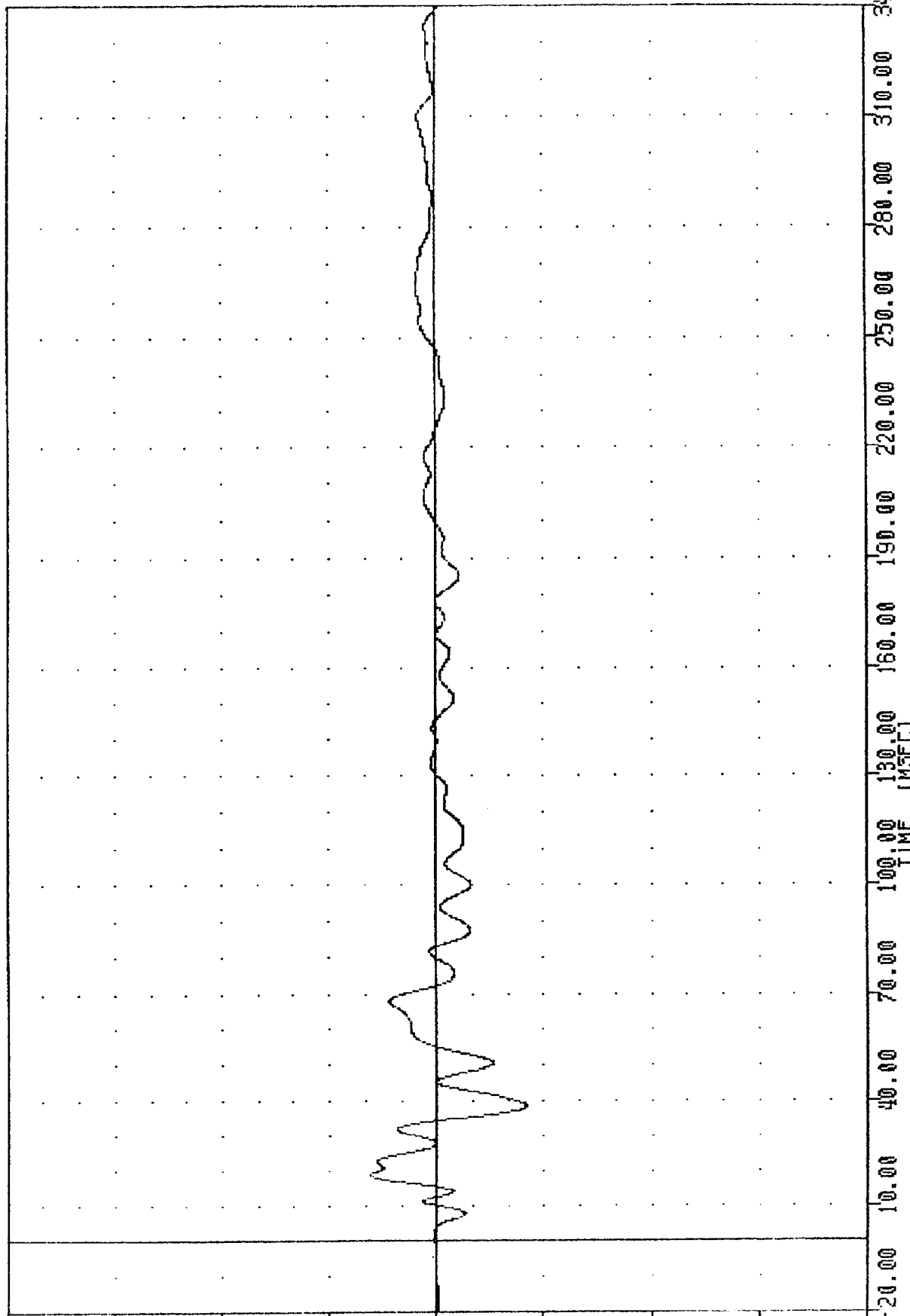
83297000000

RR5IG2

FILTER = BLPF 100/ 315/ -40

MIN, MAX VALUES = -8.38 38.63, 6.22 18.63

ACCELERATION [G]

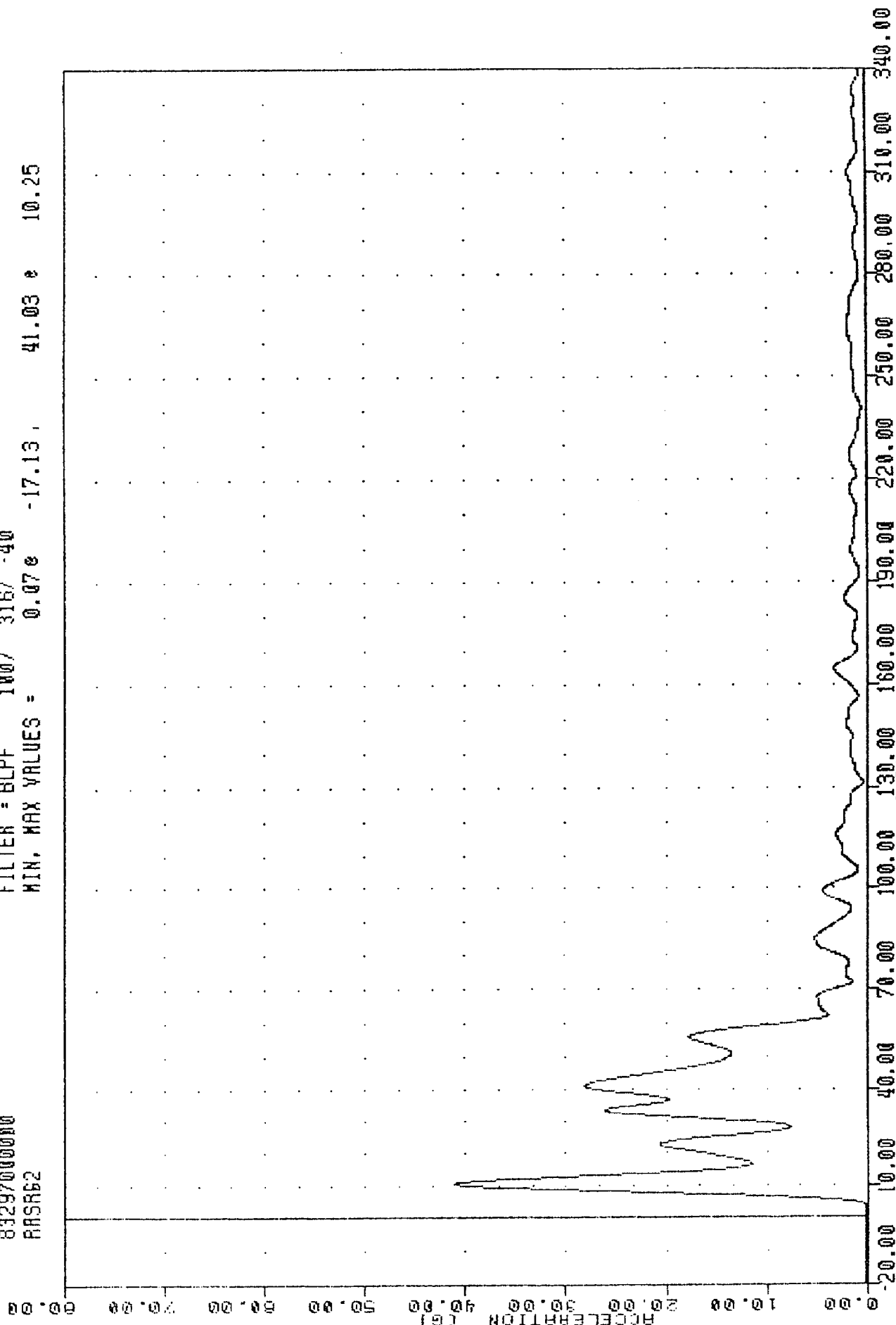


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
VEHICLE RIGHT REAR SILL ACCELERATION Z AXIS

TAC 831024  
EVALUATION OF MOD VV FLEET  
83297000000  
RRSR62

PLOT DATE 26-UCT-83 09:02:44

FILTER = BLPF 100/ 316/ -40  
MIN. MAX VALUES = 0.07e -17.13 , 41.03 e 10.25



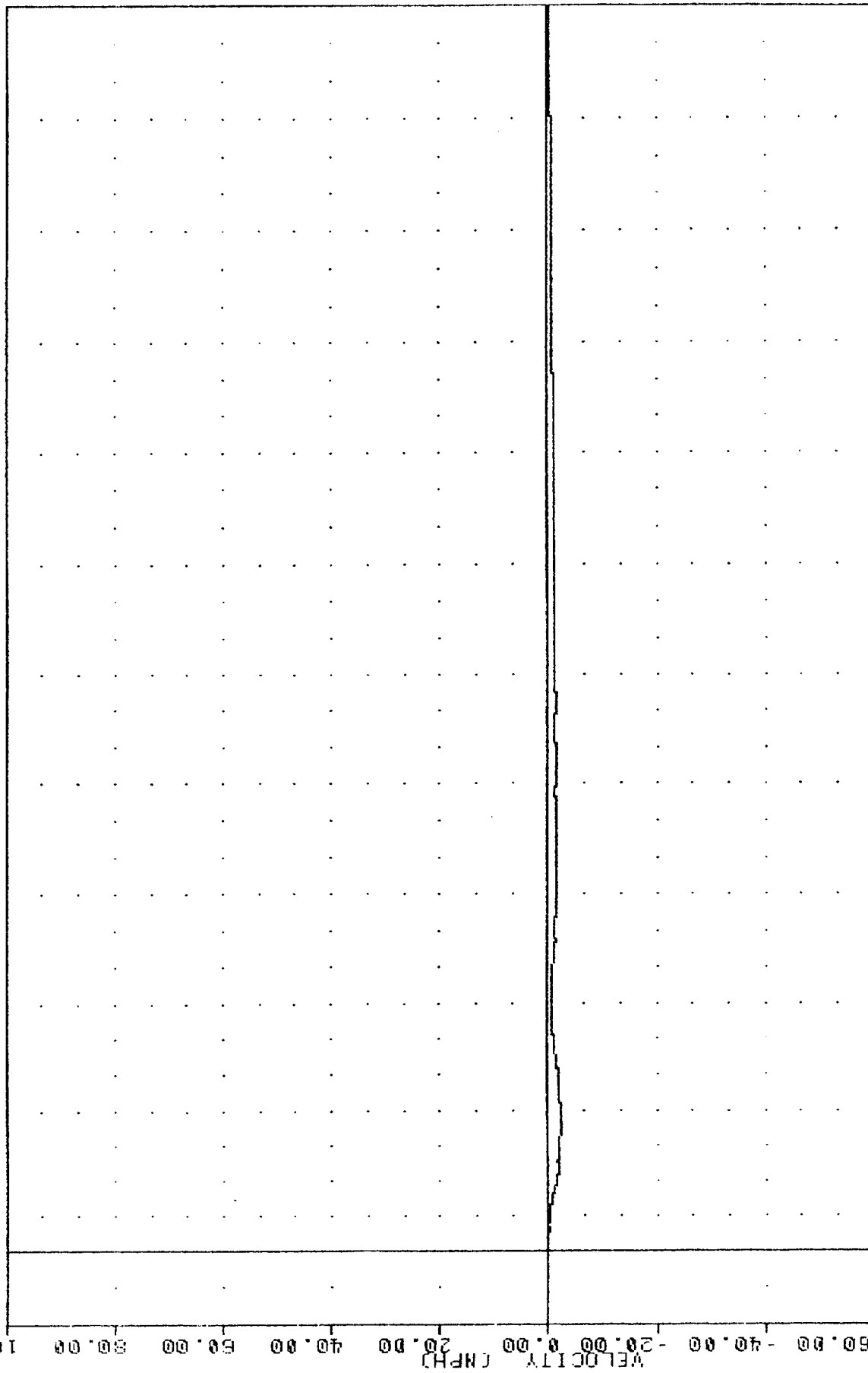
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
VEHICLE RIGHT REAR SILL RESULTANT

TRC , 831024  
 EVALUATION OF MOD VV FLEET  
 83297000000  
 ARSXV2

PLOT DATE 26-OCT-83 11:13:14

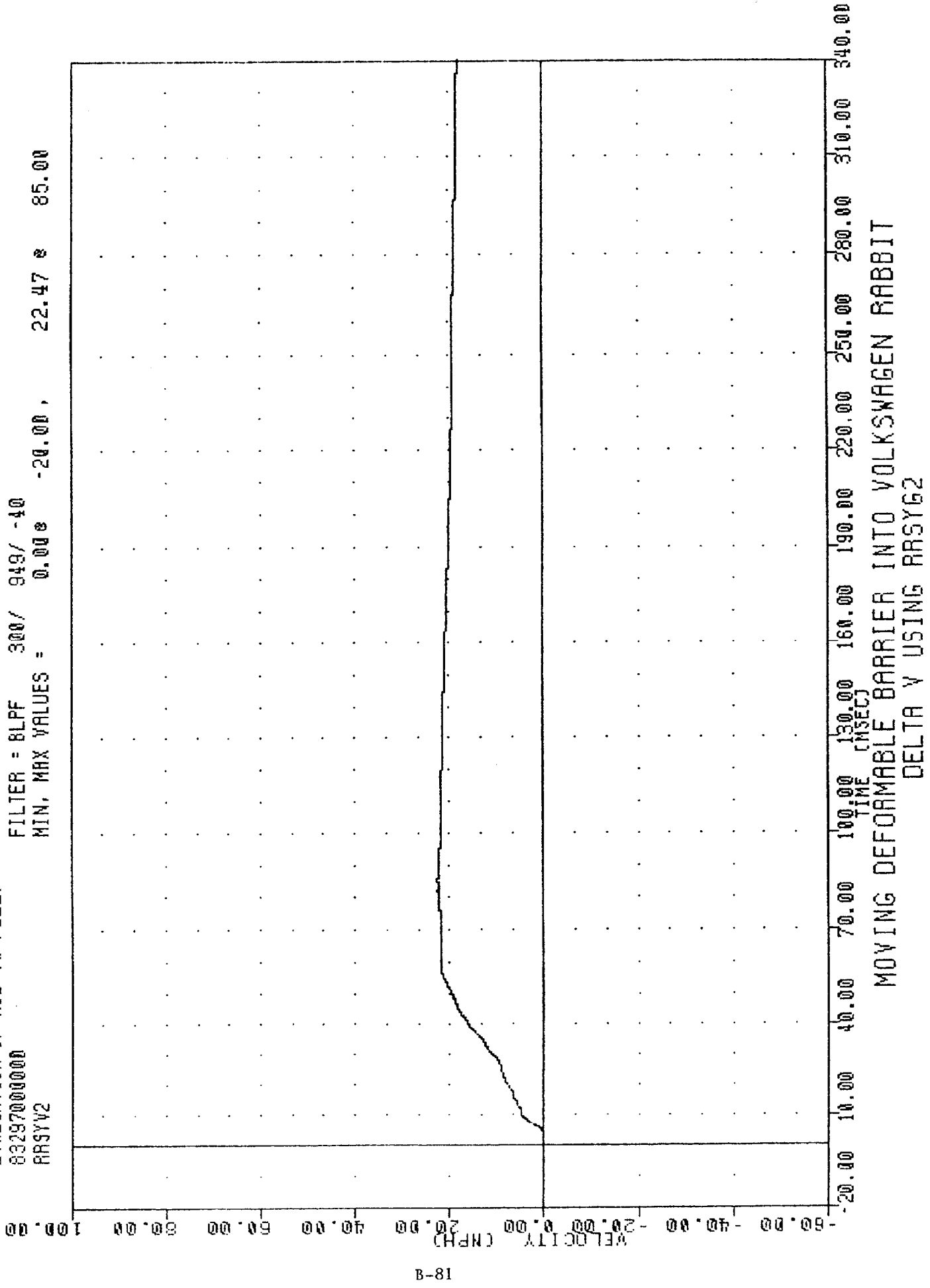
FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = -2.28 37.38 , 0.00 7.38

100.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING ARSXG2

TRC 831024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 RRSYV2  
 FILTER = 8LPP 300/ 949/ -40  
 MIN, MAX VALUES = 0.000 -20.00, 22.47 85.00  
 PLOT DATE 26-OCT-83 11:13:14



TRC 831024 PLOT DATE 26 OCT 83 09:01:28

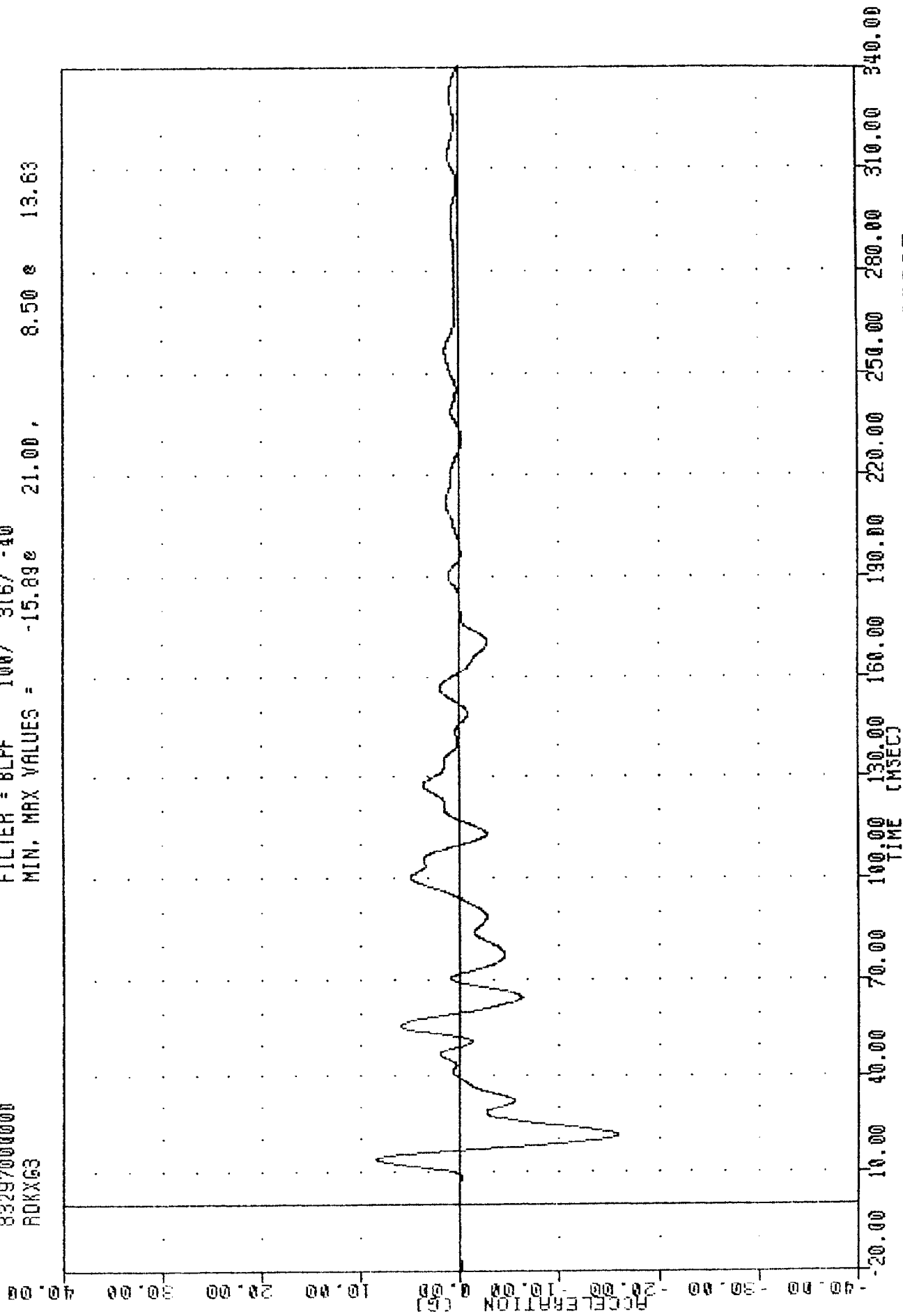
EVALUATION OF MOD V/W FLEET

83297000000

R0KXG3

FILTER = 8LPF 100/ 316/ -40

MIN. MAX VALUES = -15.89e 21.00, 8.50 e 13.63

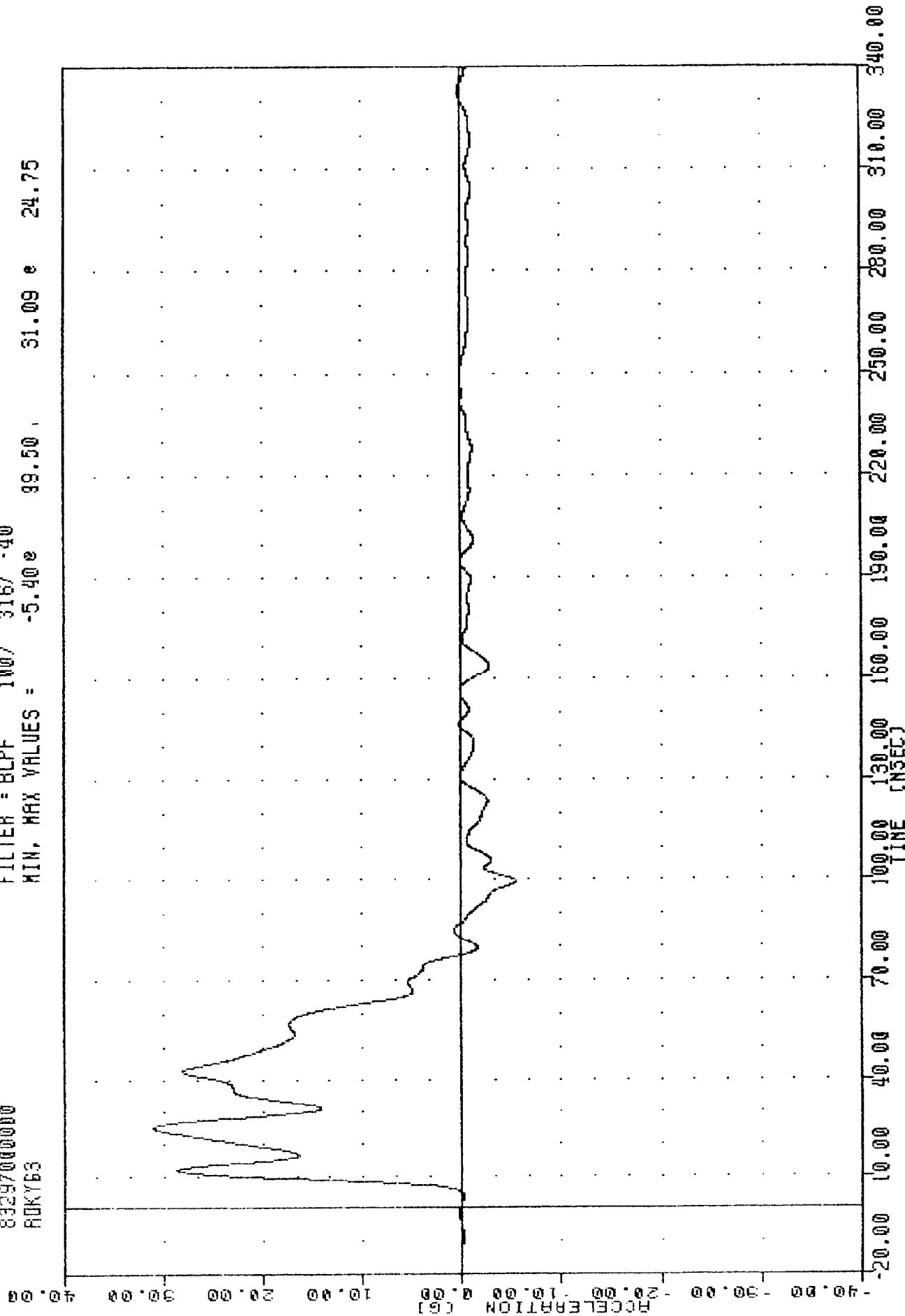


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
VEHICLE REAR DECK ACCELERATION X AXIS

TAC 831024  
 EVALUATION OF MOD VN FLEET  
 83297000000  
 ROKY63

PLT DATE 26 OCT 83 09:01:26

FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = -5.40e 99.50 31.09 e 24.75



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 VEHICLE REAR DECK ACCELERATION Y AXIS



TRC

831024

EVALUATION OF MOD VW FLEET

PLOT DATE 26-JUL-83 09:01:26

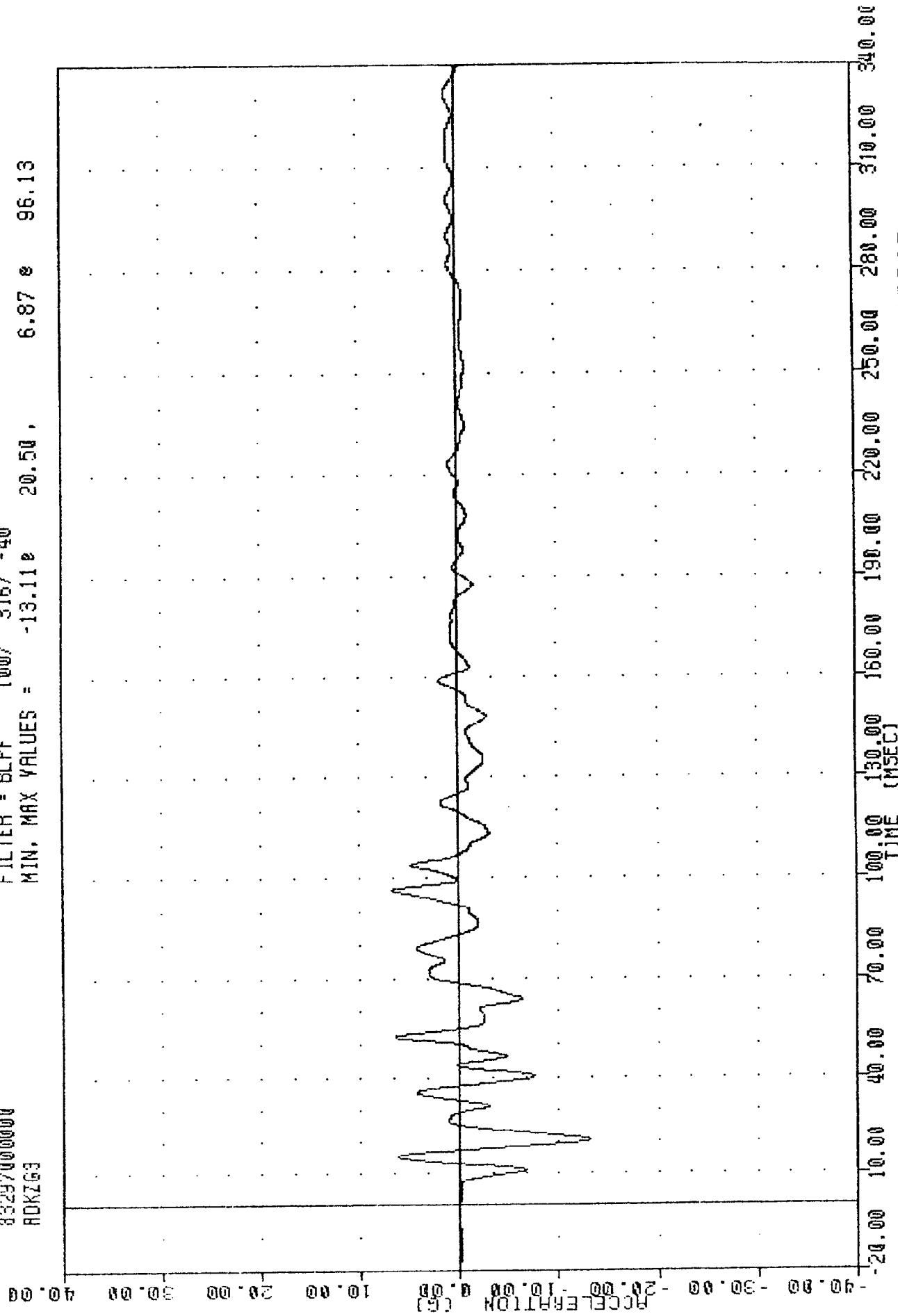
83297000000

ADKZG3

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -13.11e 20.50.

6.87 e 96.13

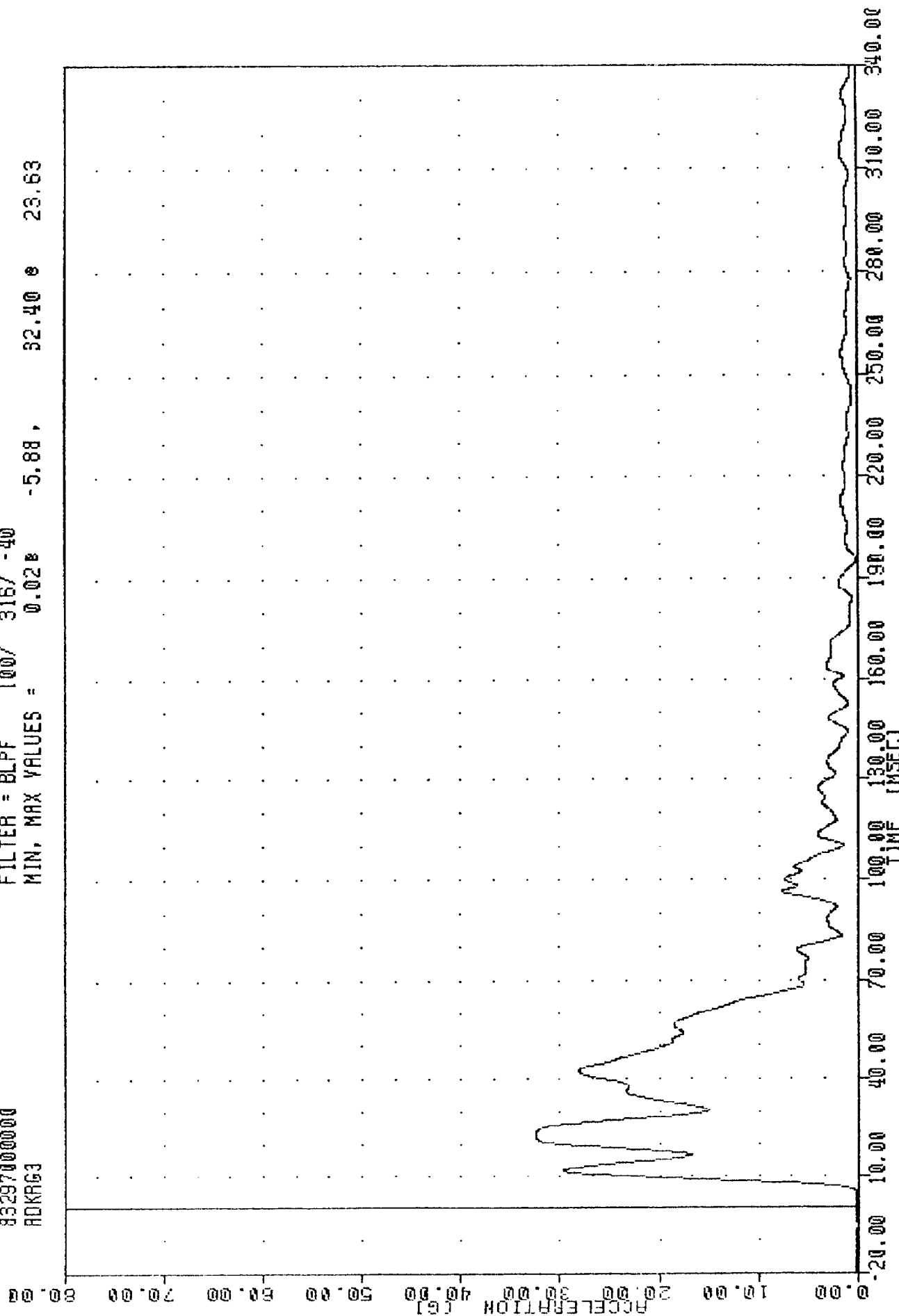


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
VEHICLE REAR DECK ACCELERATION Z AXIS

TRC 831024  
 EVALUATION OF MOD VN FLEET  
 83297000000  
 RDKRG3

PLOT DATE 26-OCT-83 09:02:44

FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = 0.028 -5.88, 32.40 23.63

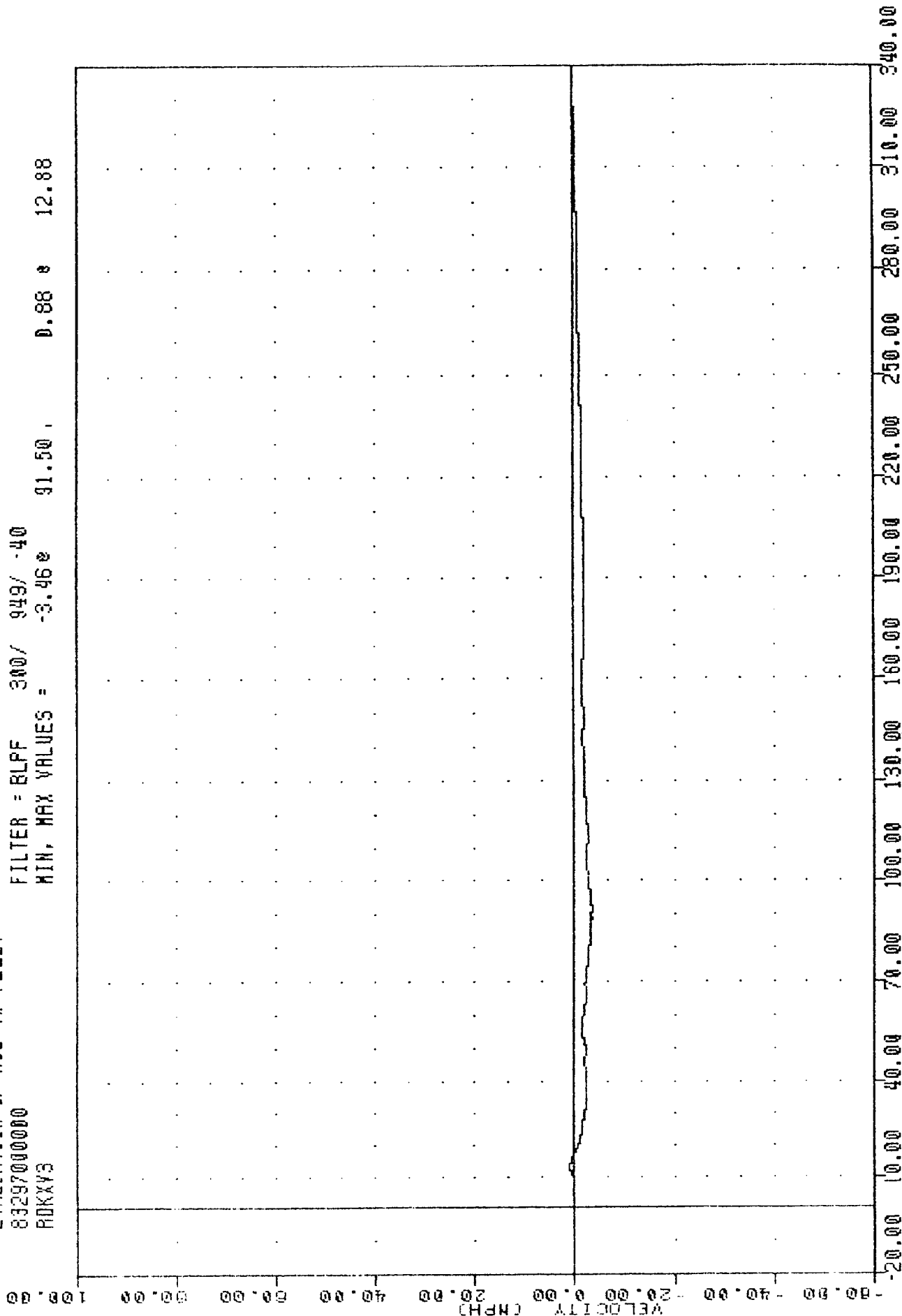


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 VEHICLE REAR DECK RESULTANT

TAC  
EVALUATION OF MOD VN FLEET  
83297000000  
RDKXY3

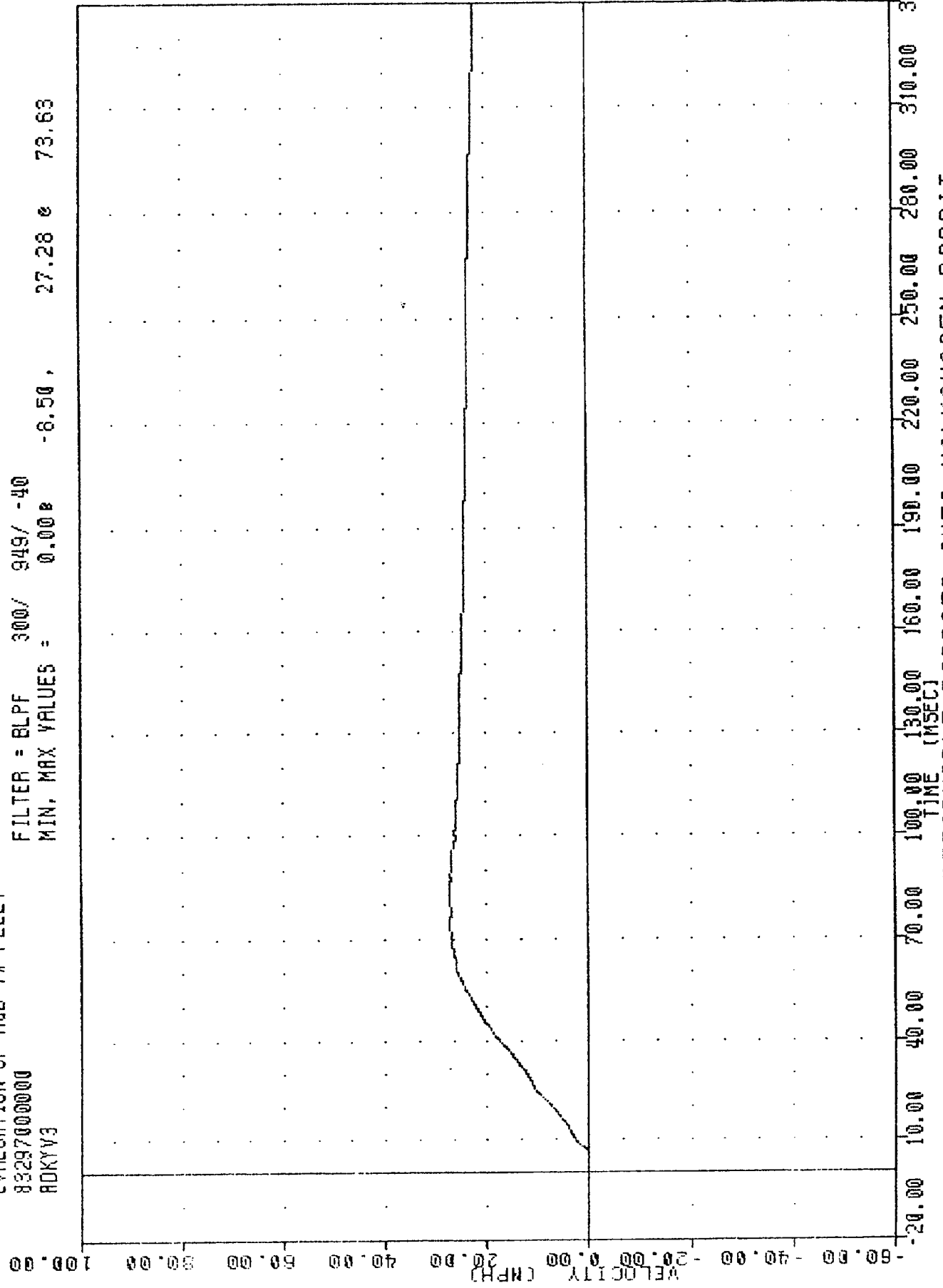
PLOT DATE 28-DEC-83 11:13:14

FILTER = BLPF 300/ 949/ -40  
MIN, MAX VALUES = -3.46 91.50 0.88 12.88



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING RDKXG3

TRC [REDACTED], 831024 [REDACTED] PLOT DATE 26 OCT 83 11:13:14  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 RDKYV3  
 FILTER = BLPF 300/ 949/ -40  
 MIN, MAX VALUES = 0.00 8 -6.50, 27.28 8 73.63



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING RDKYG3

TRC 831024 PLOT DATE 26 OCT 83 09:01:26

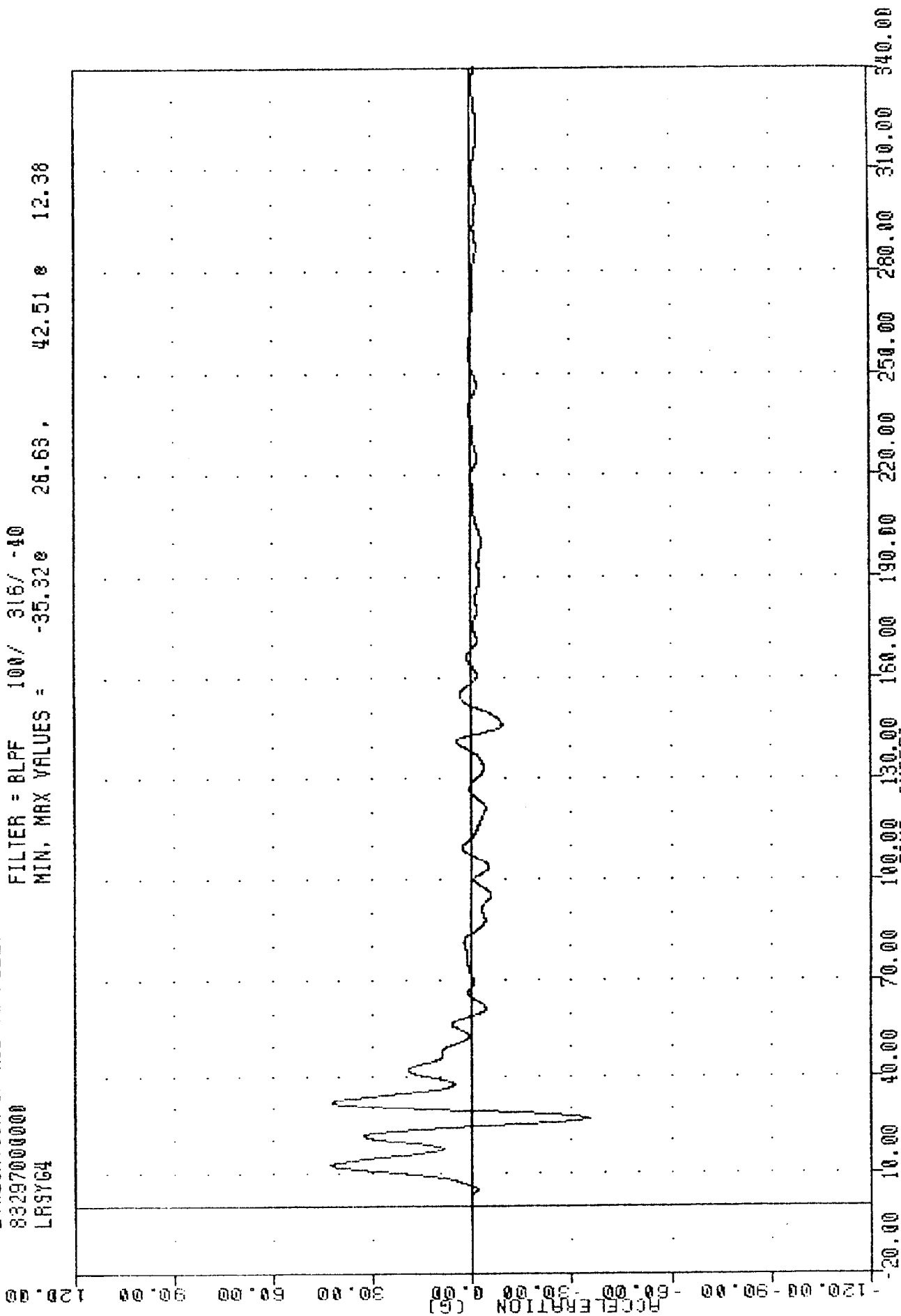
EVALUATION OF MOD VW FLEET

83297000000

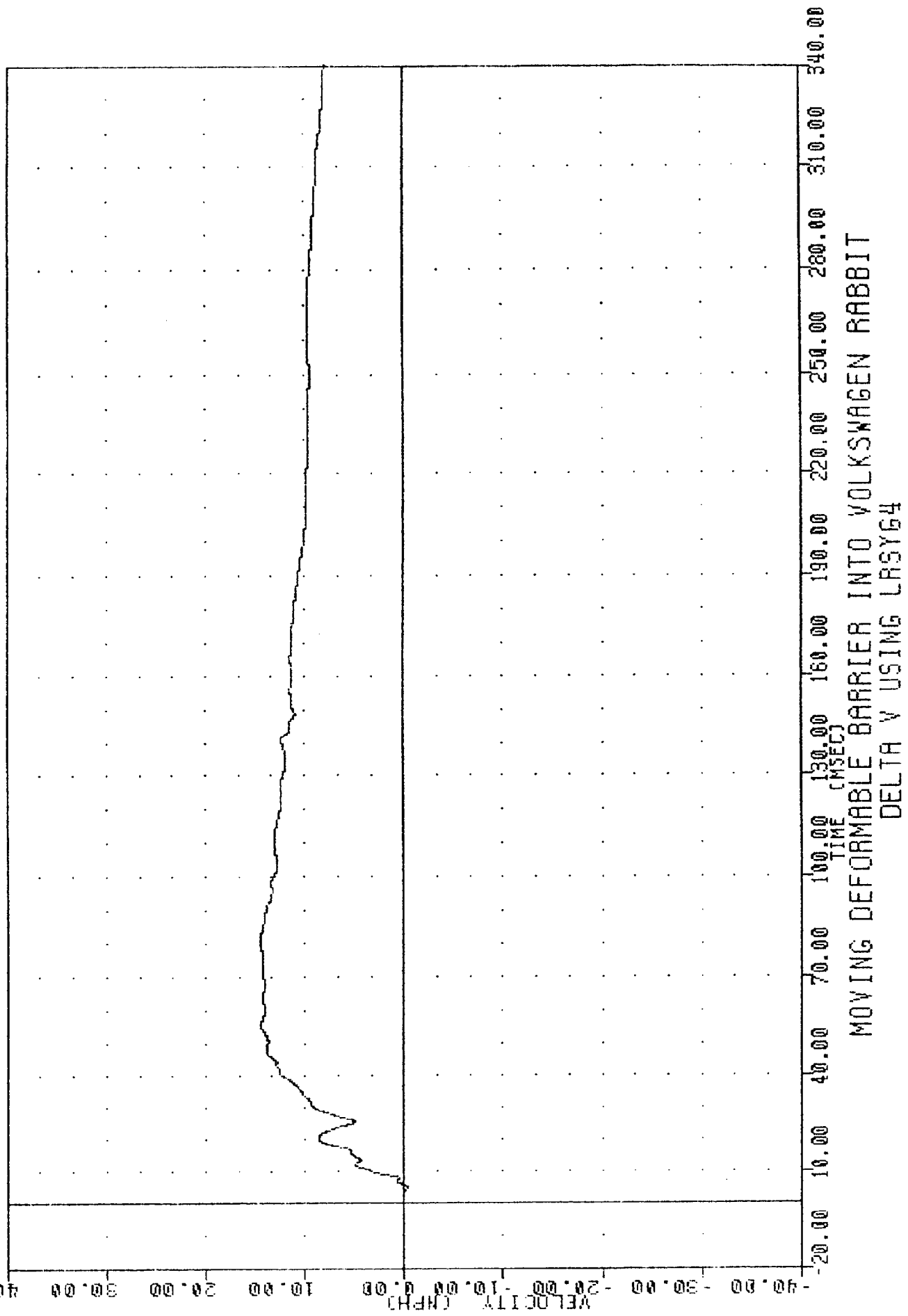
LR9Y64

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -35.32 26.63 42.51 12.38

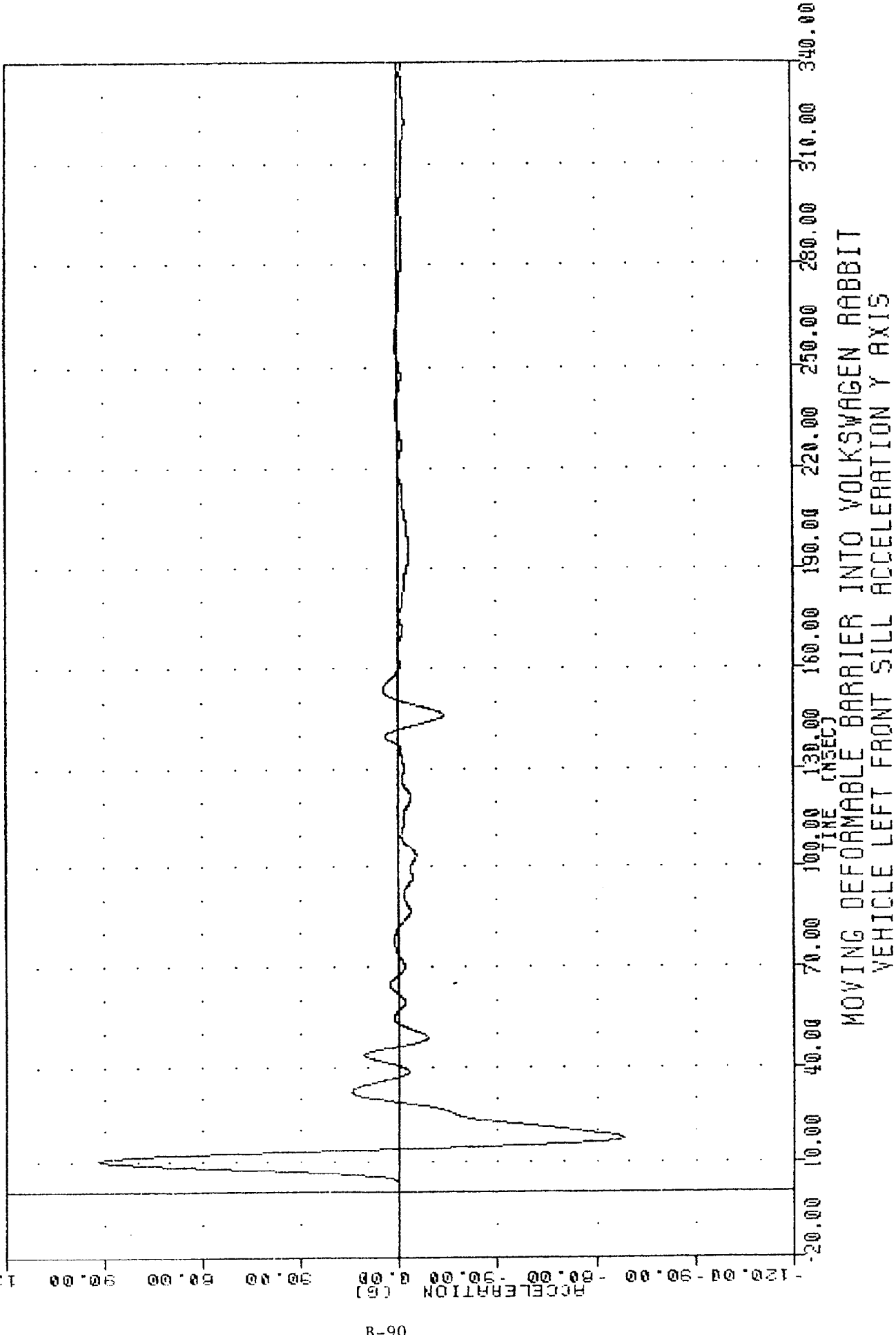


TRC 831024, 831024 PLOT DATE 26-OCT-83 11:13:14  
 EVALUATION OF MDD VW FLEET  
 832970000000  
 LRSYV4  
 FILTER = 8LPF 300/ 949/ -40  
 MIN, MAX VALUES = -0.318 4.75, 14.55 s 55.38



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING LRSY64

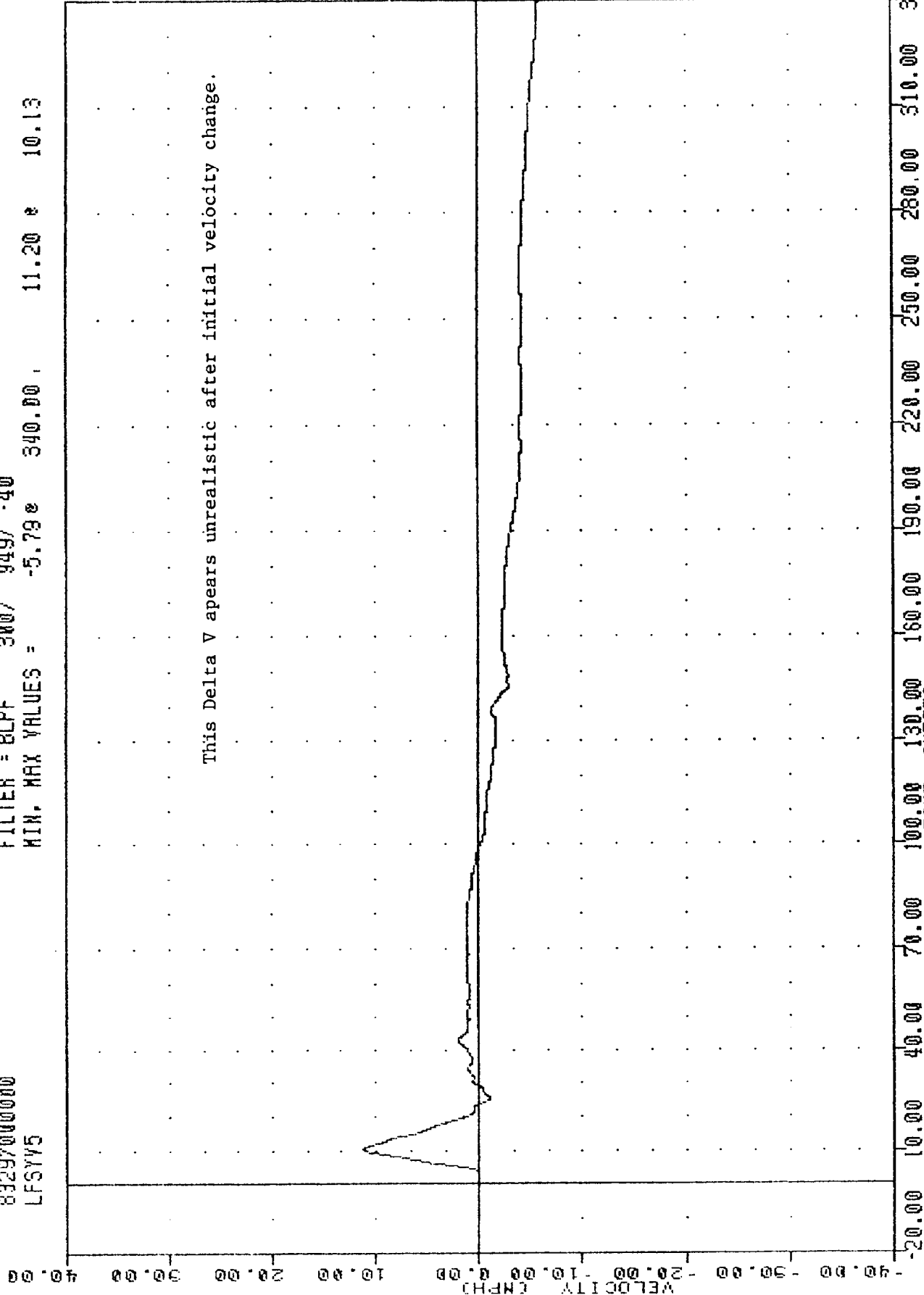
TAC 831024, 831024  
 EVALUATION OF MOO VN FLEET  
 83297000000  
 LFSY65  
 FILTER = BLPF 100/ 316/ -40  
 MIN. MAX VALUES = -68.30e 17.25, 91.65 e 10.00  
 PLOT DATE 28-OCT-83 09:07:28



TAC 83J024  
 EVALUATION OF MOD VN FLEET  
 83297000000  
 LFSYV5

PLOT DATE 26-OCT-83 11:13:14

FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = -5.79e 340.00 11.20 e 10.13



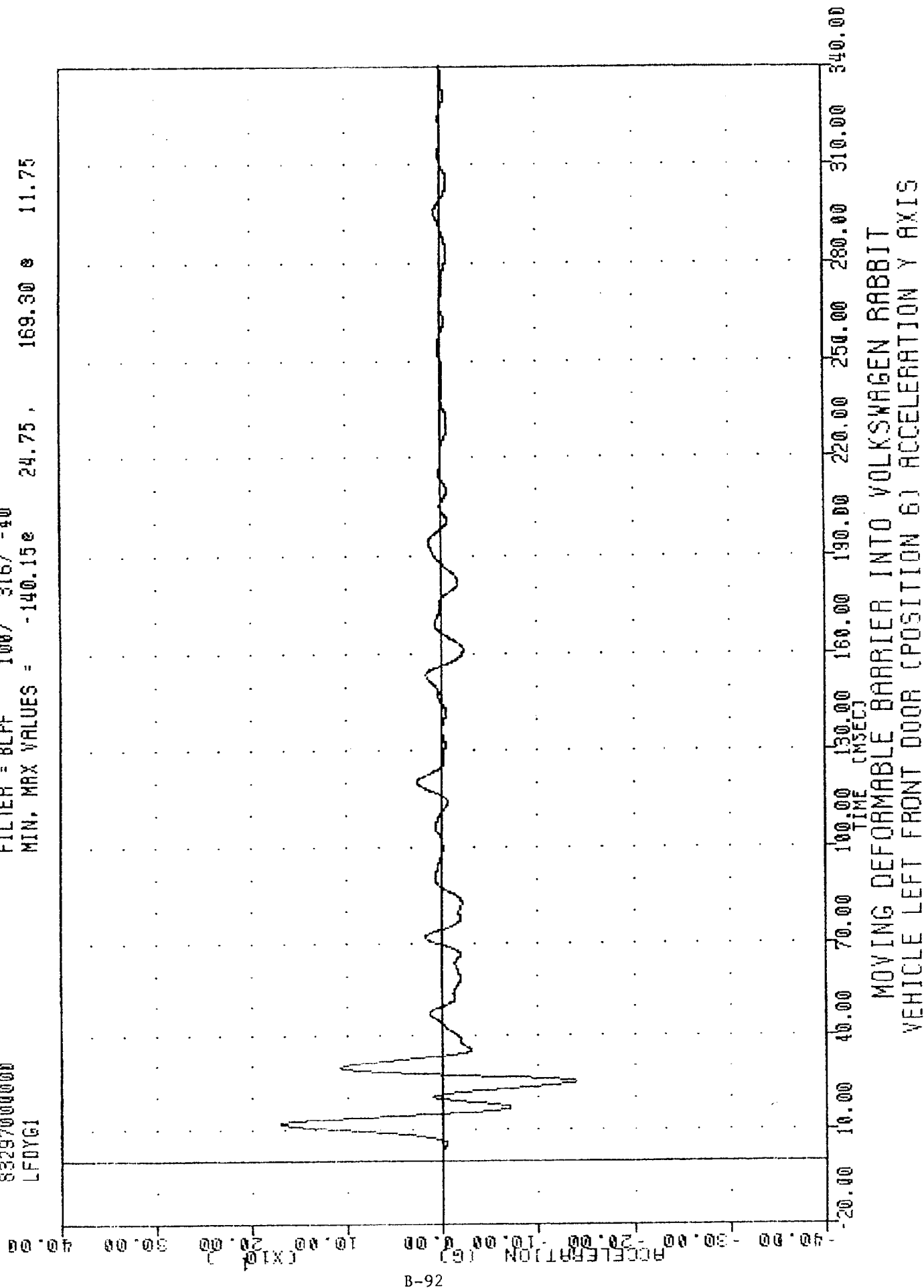
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING LFSYG5



TRC 831024  
 EVALUATION OF M00 VW FLEET  
 83297000000  
 LFOYG1

PLOT DATE 26-OCT-83 09:01:26

FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = -140.15e 24.75, 169.30 e 11.75



TRC 831024 PLOT DATE 26-OCT-83 11:13:14

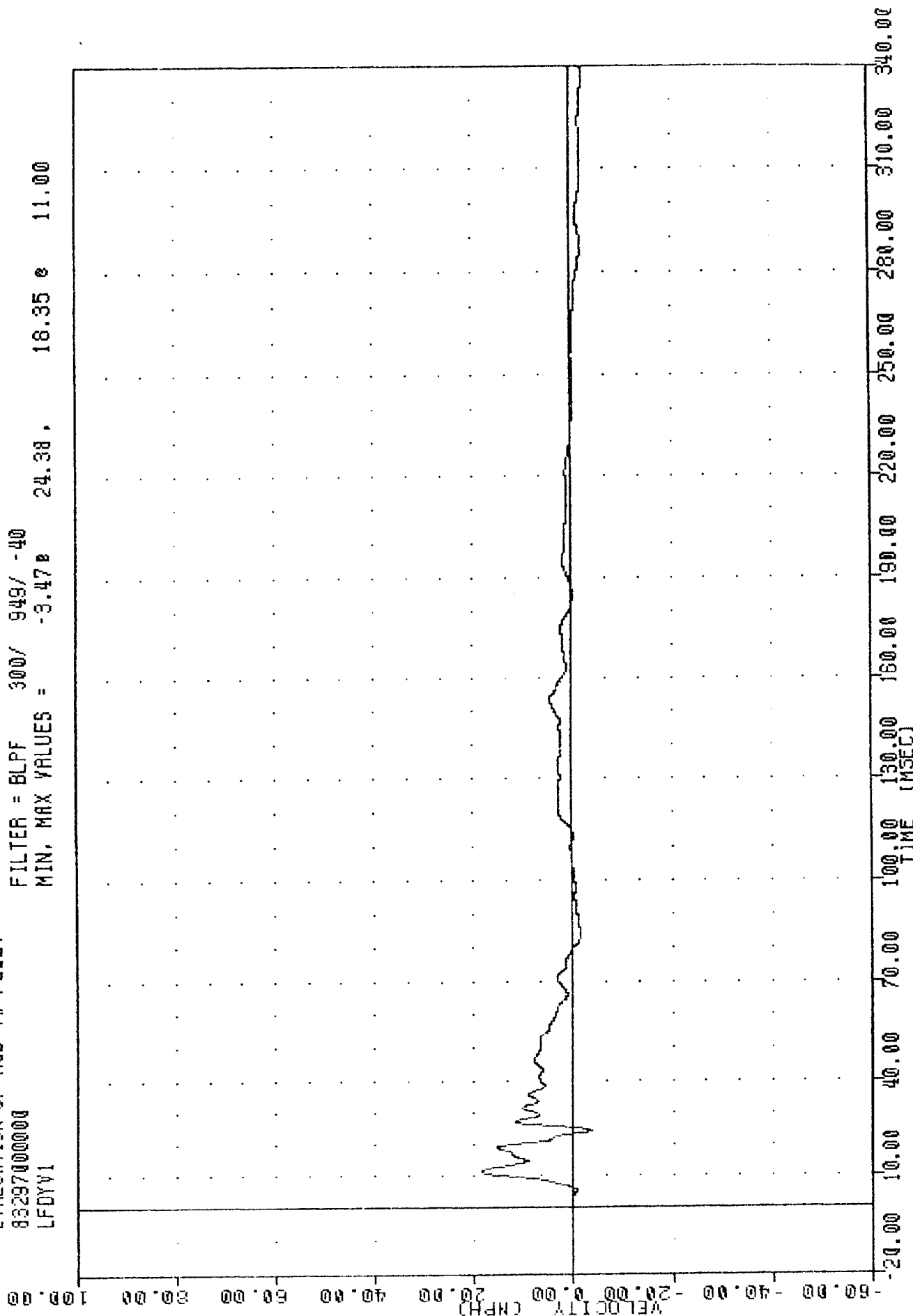
EVALUATION OF MOD YW FLEET

83297000000

LFDYV1

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -3.47 24.38 18.35 11.00

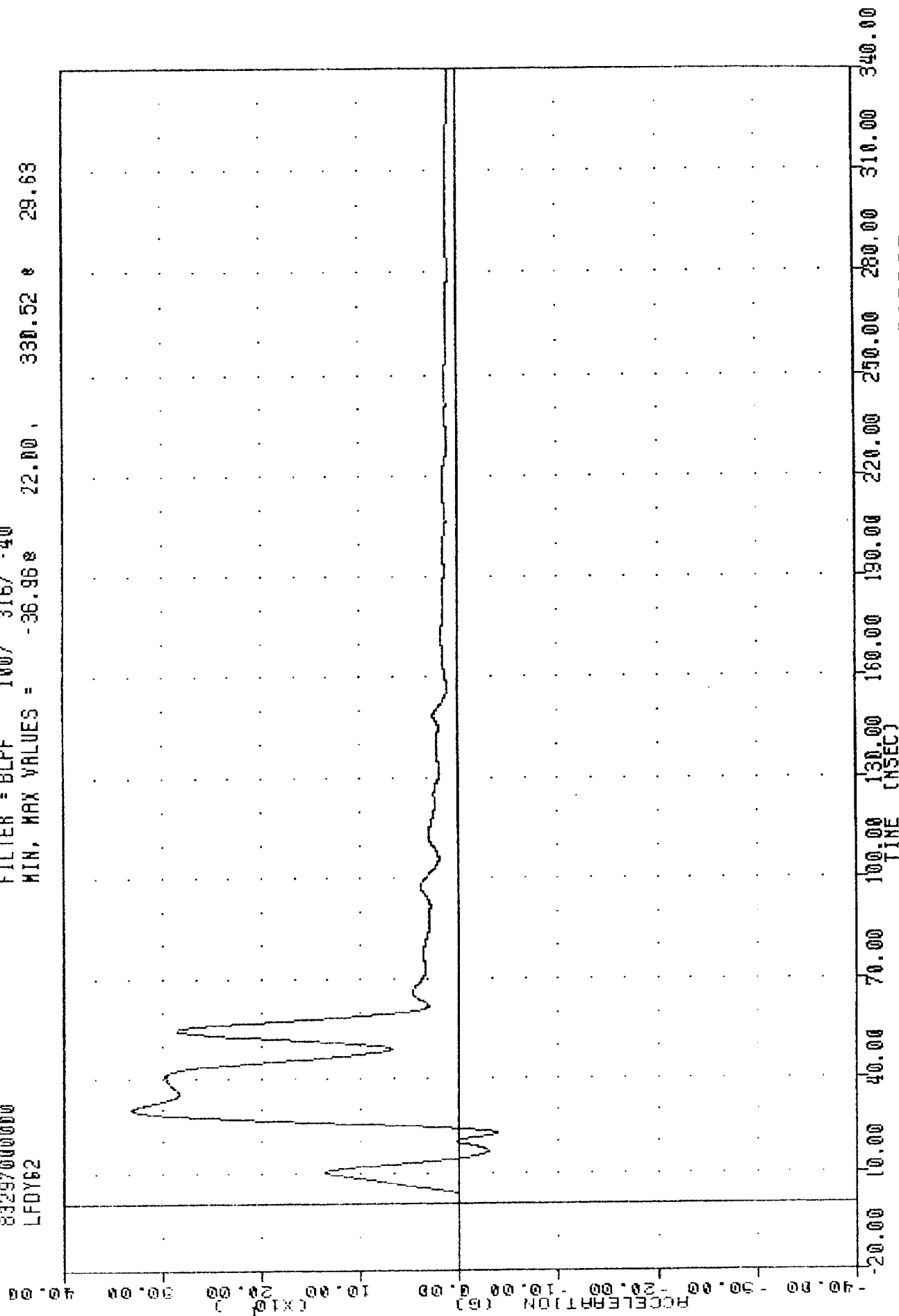


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING LFDYV1

TAC 851024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 LFDY62

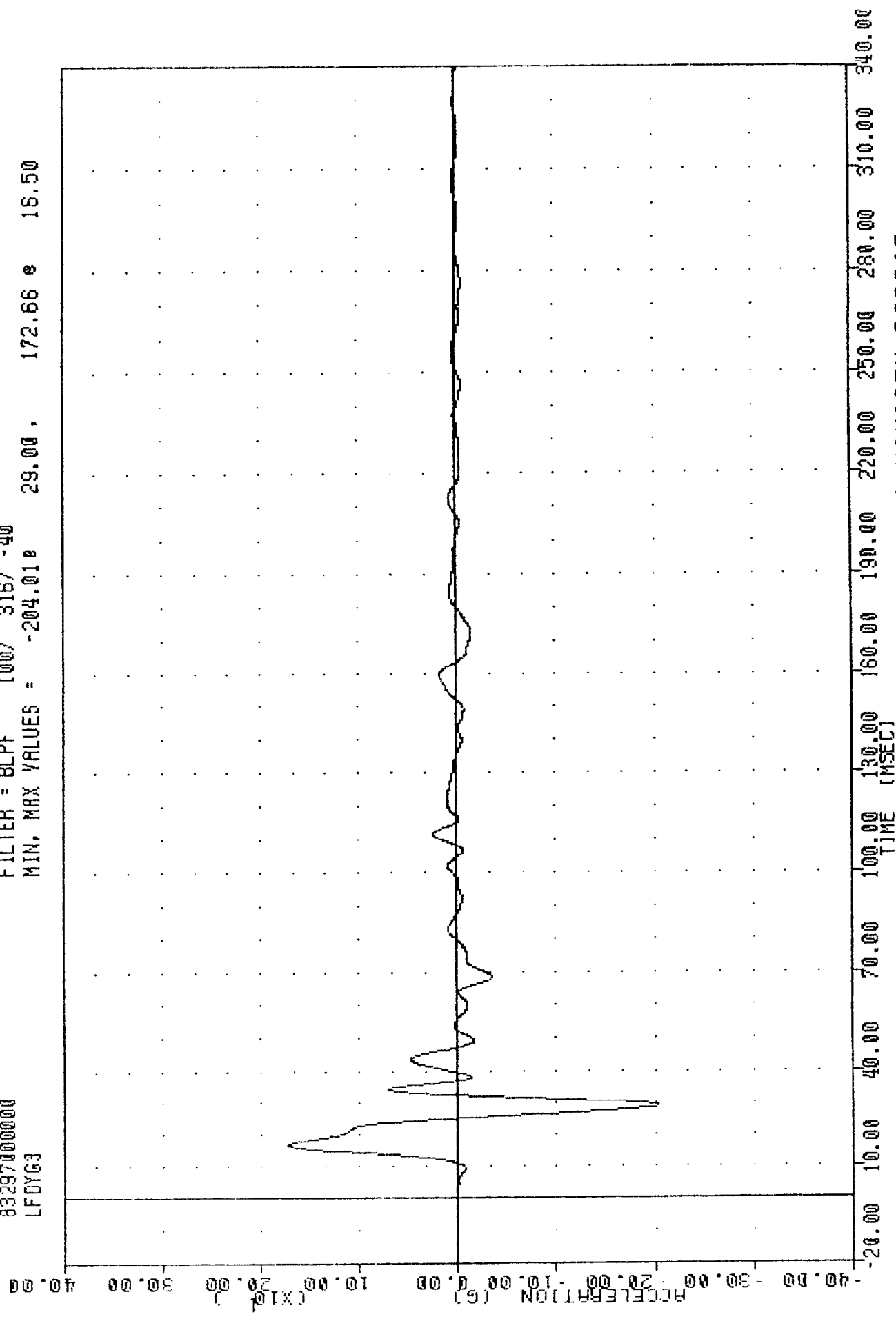
PLOT DATE 26-OCT-83 09:01:26

FILTER = BLPF 100/ 316/ -40  
 MIN. MAX VALUES = -36.96 22.00 330.52 29.63



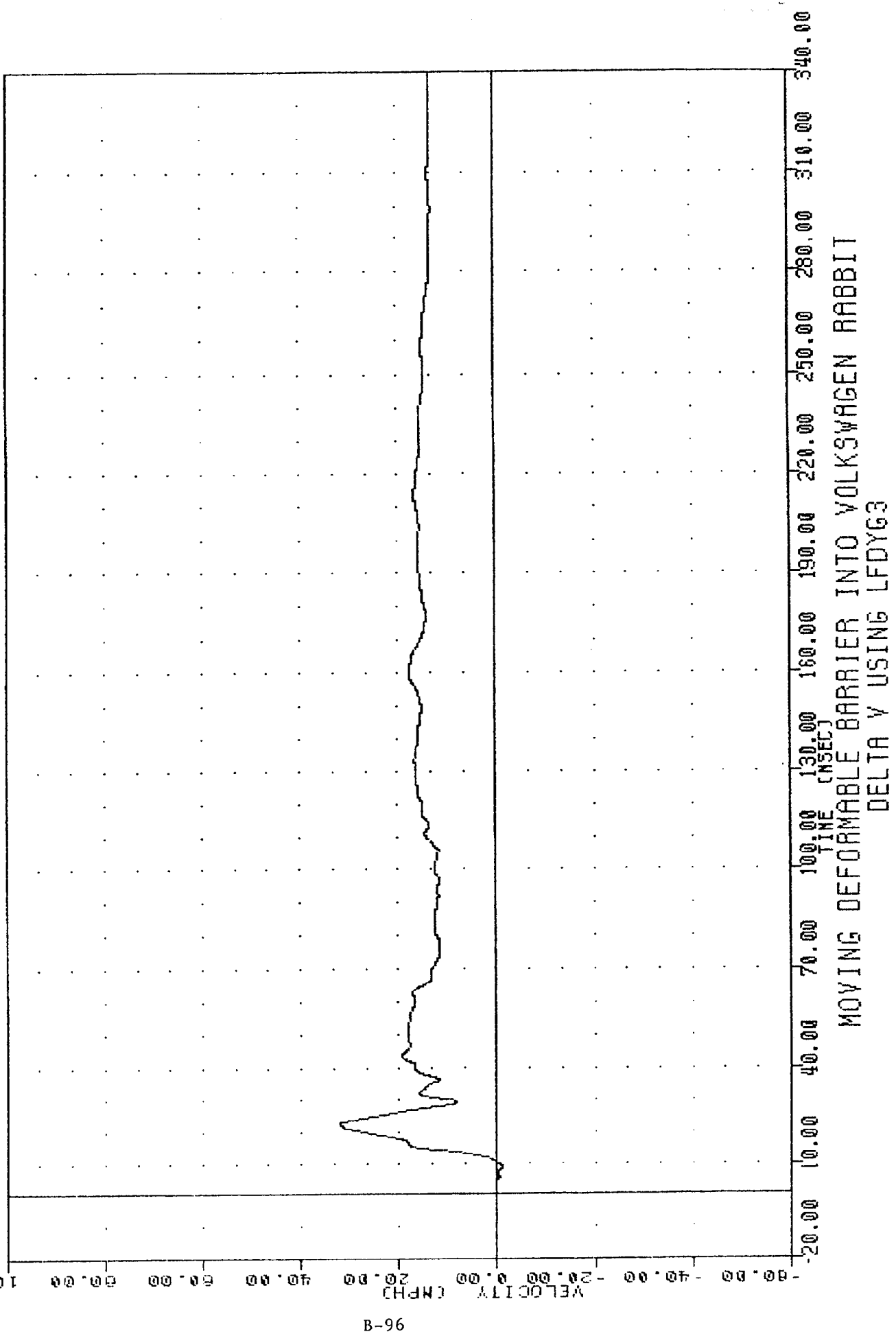
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 VEHICLE LEFT FRONT DOOR (POSITION 8) ACCELERATION Y AXIS

IRC , 831024 , 26-01-83 09:01:26  
 EVALUATION OF MOD YW FLEET  
 83297000000  
 LFDY63  
 FILTER = BLPF 100/ 316/ -40  
 MIN. MAX VALUES = -204.018 29.00, 172.66 e 16.50



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

TAC 831024, 831024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 LFDYV3  
 PLOT DATE 26-OCT-83 11:13:14  
 FILTER = BLPF 300/ 949/ -40  
 MIN, MAX VALUES = -1.31e 8.63, 32.03 e 22.25

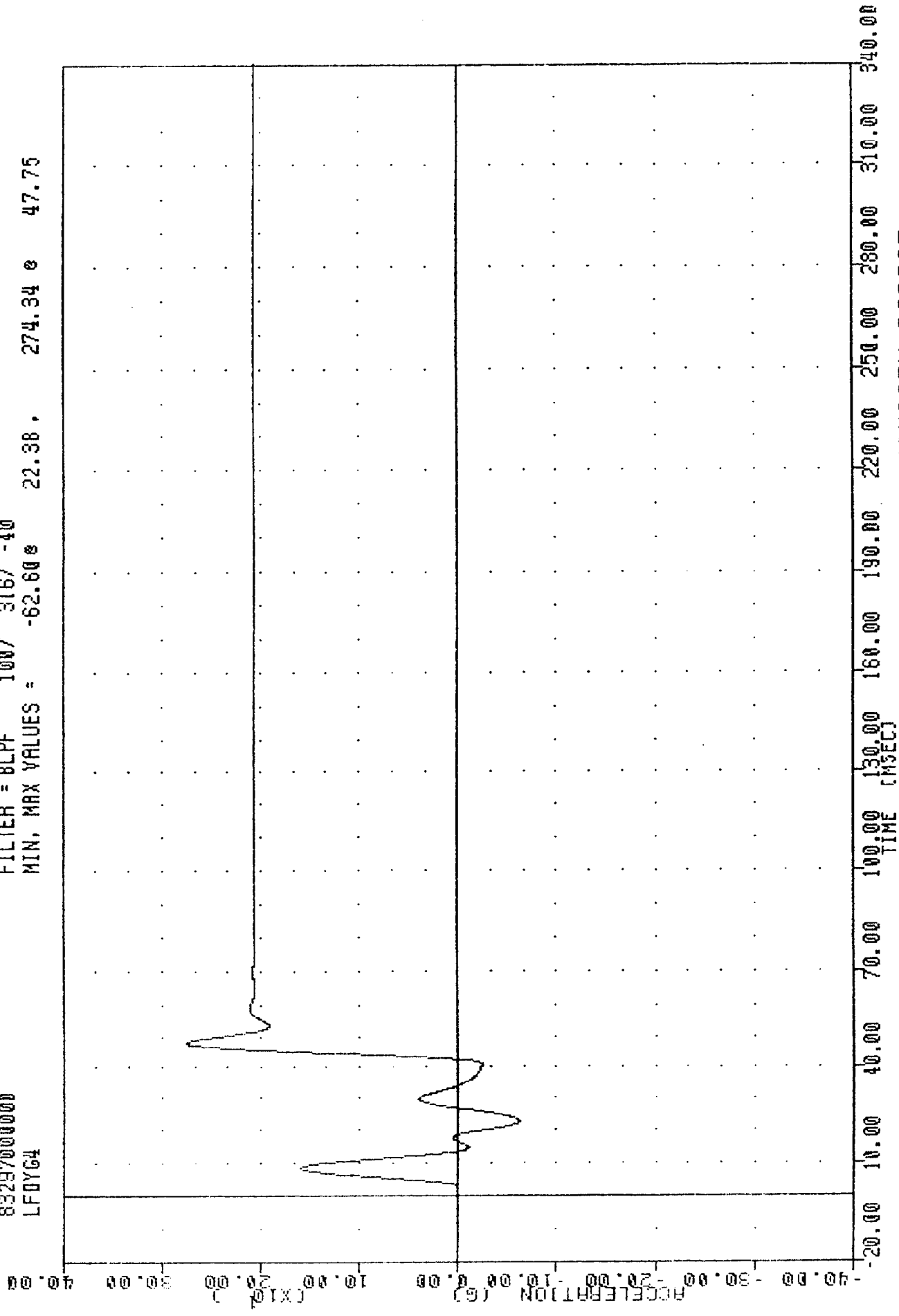


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING LFDYV3

TRC 831024  
 EVALUATION OF MOD VV FLEET  
 83297000000  
 LFDY64

PLOT DATE 26-OCT-83 09:01:26

FILTER = 8LPF 100/ 316/ -40  
 MIN, MAX VALUES = -62.60 22.38 274.34 47.75

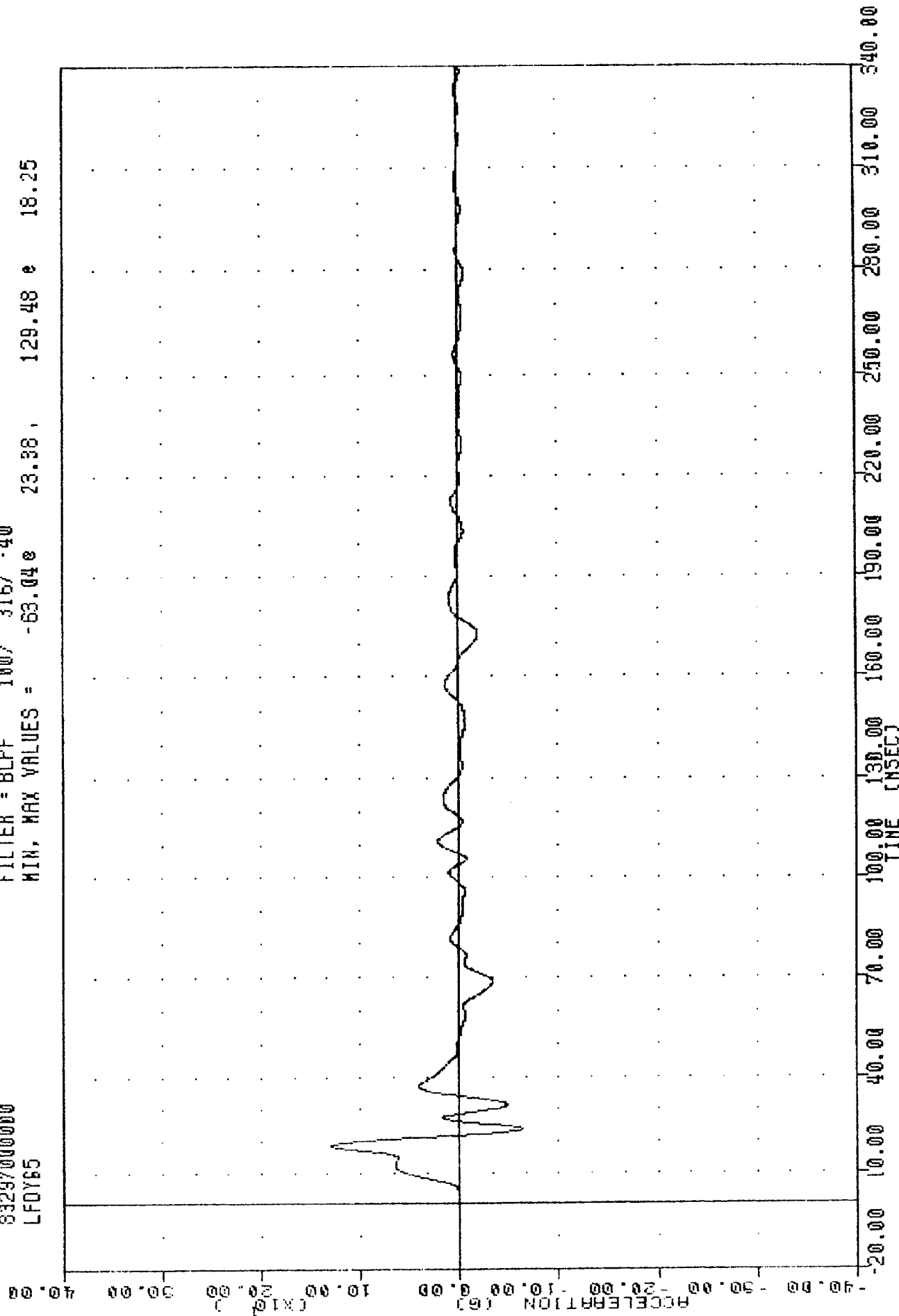


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 VEHICLE LEFT FRONT DOOR (POSITION 10) ACCELERATION Y AXIS

TAC 831024  
EVALUATION OF MOD VN FLEET  
83297000000  
LFDY65

PLOT DATE 26-DEC-83 09:01:26

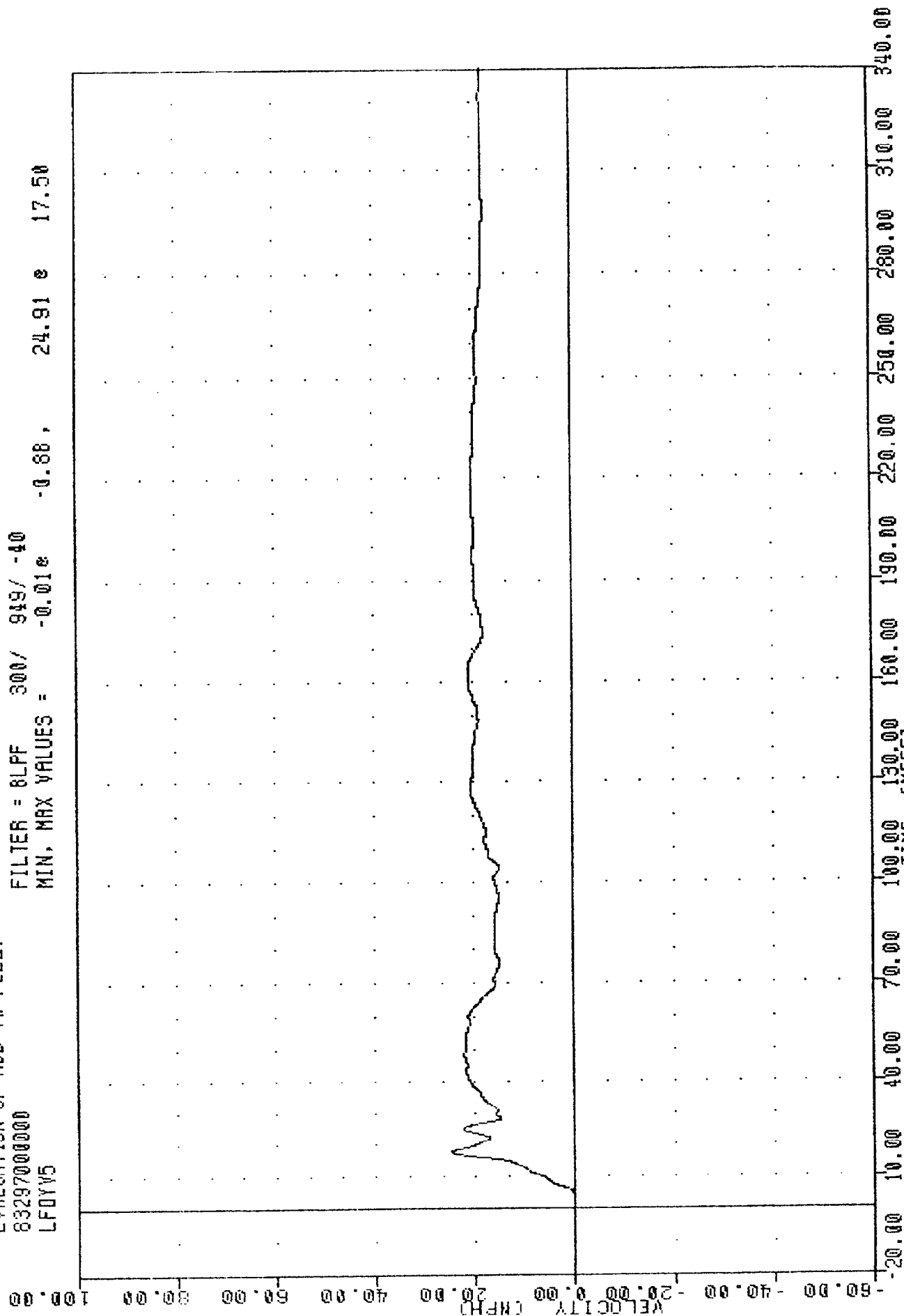
FILTER = BLPF 100/ 316/ -40  
MIN, MAX VALUES = -63.04e 23.38, 129.48 e 18.25



TRC  
EVALUATION OF MOD VW FLEET  
83297000000  
LFDYV5

PLOT DATE 26 OCT 83 11.13.14

FILTER = 8LFF 300/ 949/ -40  
MIN, MAX VALUES = -0.01e -0.68, 24.91 e 17.50

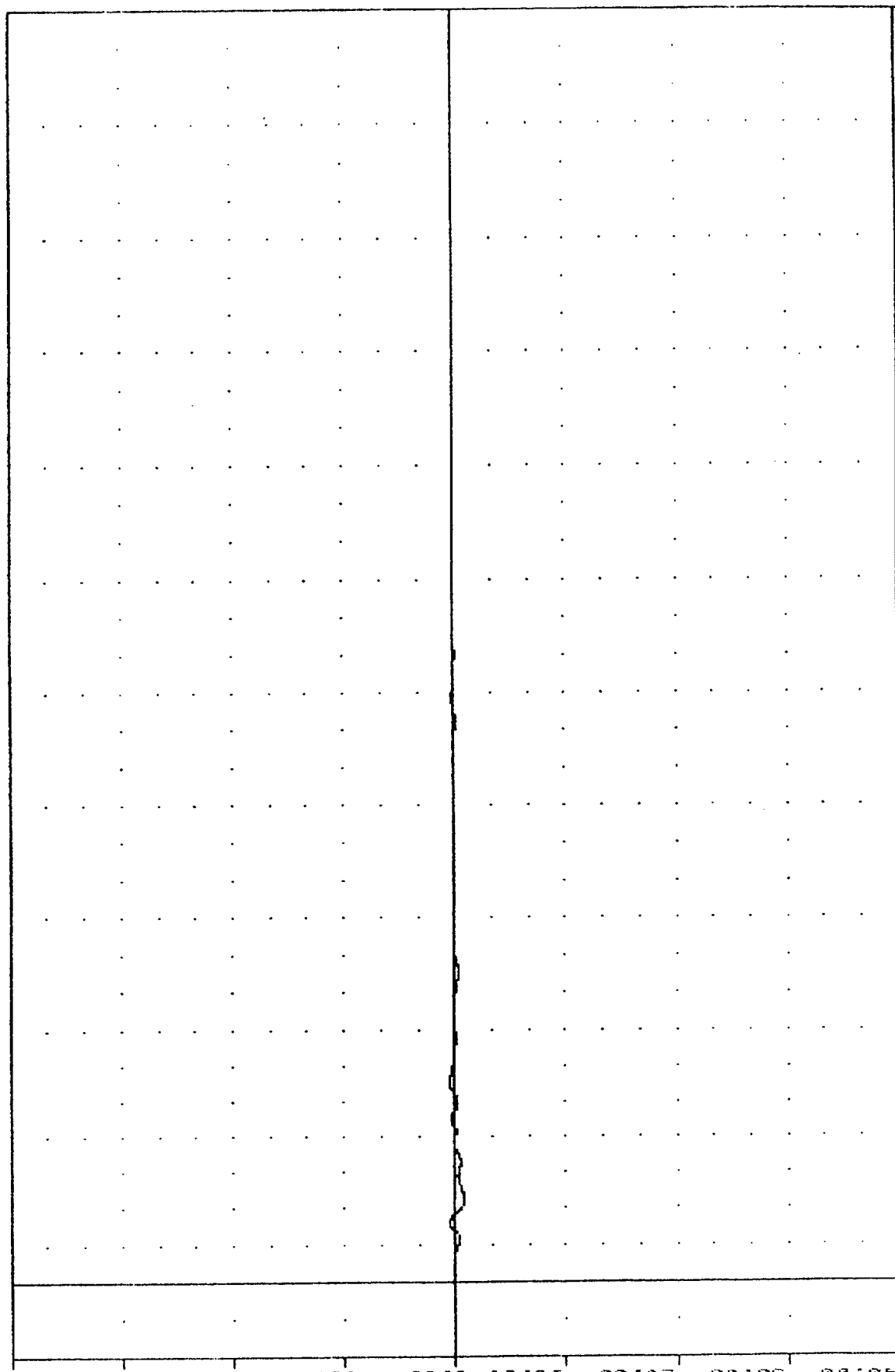


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
DELTA V USING LFDY65



TRC [REDACTED], 831024 [REDACTED] PLOT DATE [REDACTED] 26 OCT 83 [REDACTED] 09:01:26 [REDACTED]  
 EVALUATION OF MOD YW FLEET  
 83297000000  
 TFRXG7  
 FILTER = BLPF 100/ 316/ -40  
 MIN. MAX VALUES = -8.34% 21.63, 5.45% 55.63

ACCELERATION (G)  
 (x10<sup>4</sup>)



-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 VOLKSWAGEN RABBIT  
 VEHICLE TRUNK FLOOR RIGHT ACCELERATION X AXIS

TRC 831024 PLOT DATE 26-OCT-83 09:01:28

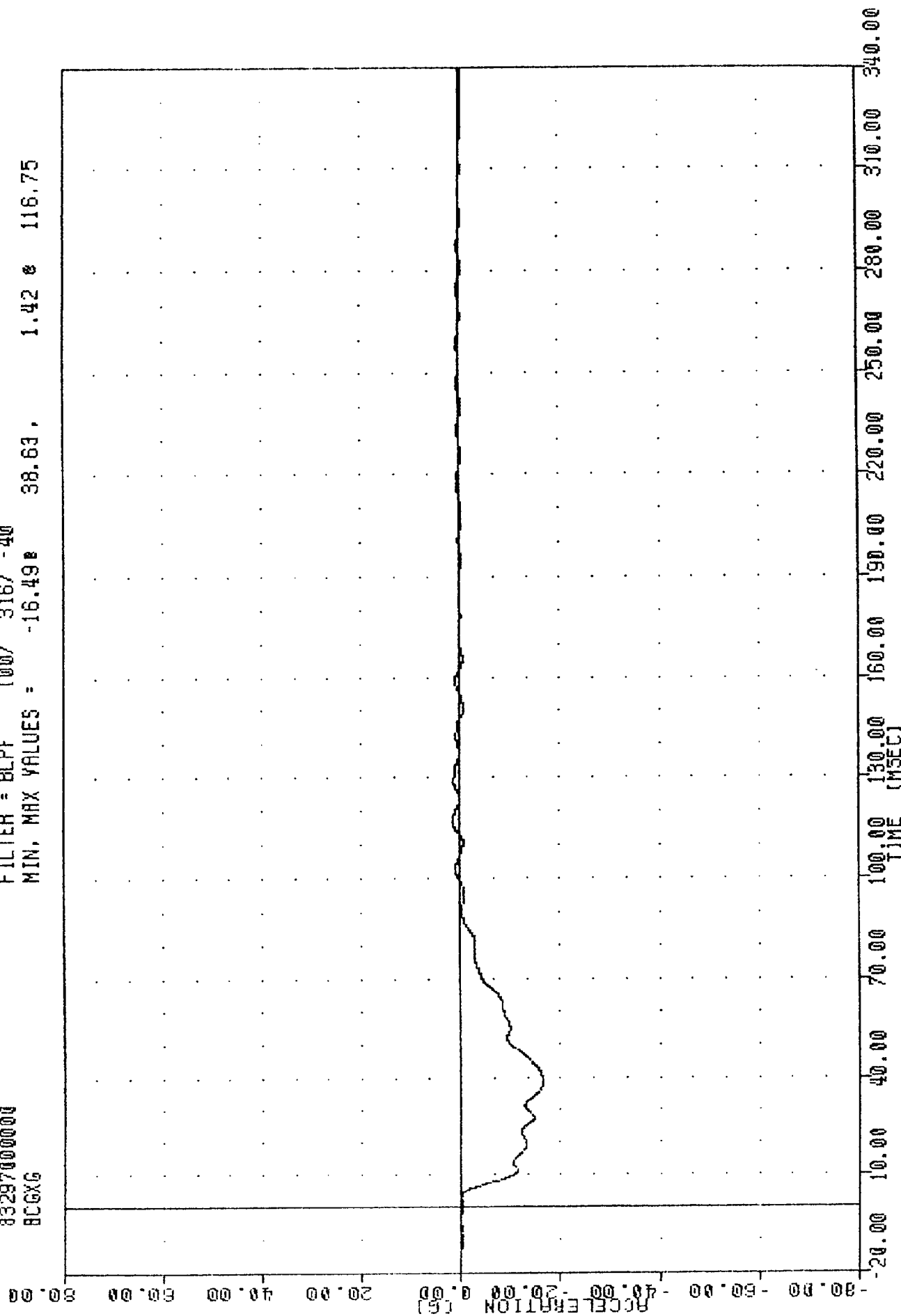
EVALUATION OF MOD YW FLEET

83297000000

BCGXG

FILTER = BLPF 100/ 316/ -40

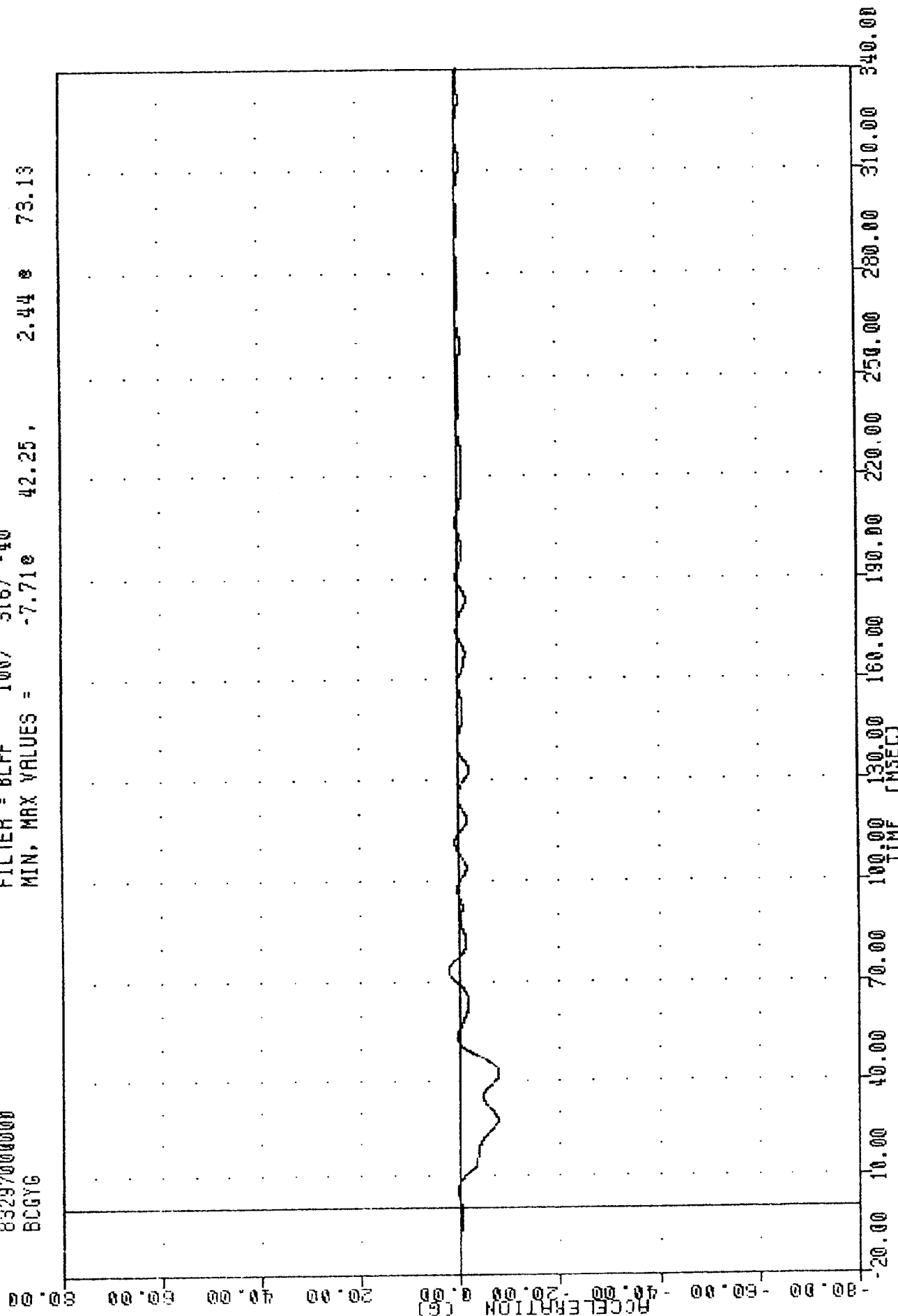
MIN. MAX VALUES = -16.49 38.63 1.42 116.75



TRC 831024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 BCGYG

PLOT DATE 28-OCT-83 09:01:26

FILTER = BLPF 100/ 316/ -40  
 MIN, MAX VALUES = -7.71e 42.25, 2.44 e 73.13

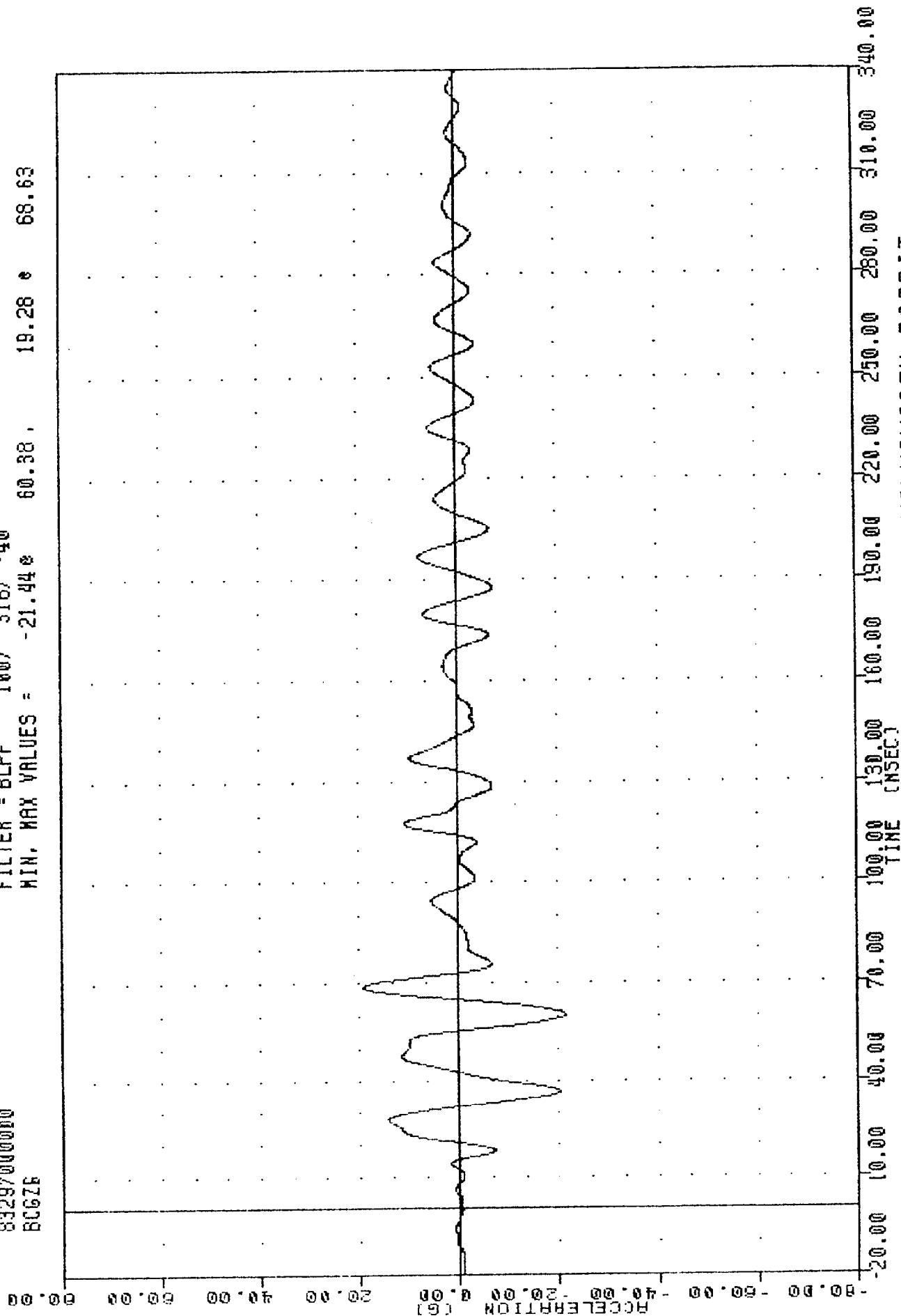


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 BARRIER CENTER OF GRAVITY Y AXIS

TRC 831024  
EVALUATION OF MOD VN FLEET  
83297000000  
BCGZE

DATE 26 OCT 83 09 26

FILTER = BLPF 100/ 316/ -40  
MIN. MAX VALUES = -21.44 60.38 19.28 68.63

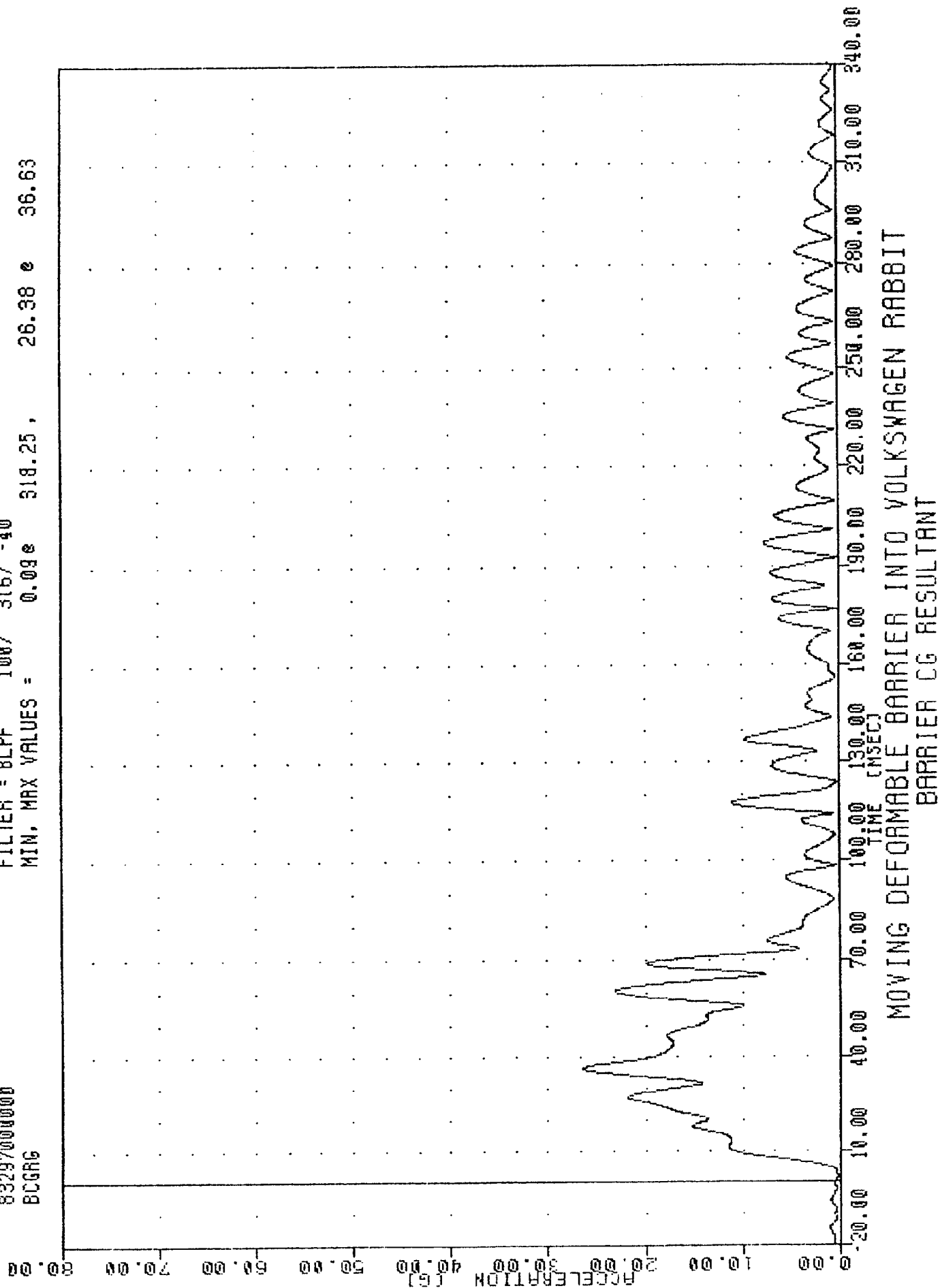


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
BARRIER CENTER OF GRAVITY Z AXIS

TRC , 831024  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 BCGRG

PLOT DATE 26-OCT-83 09:02:44

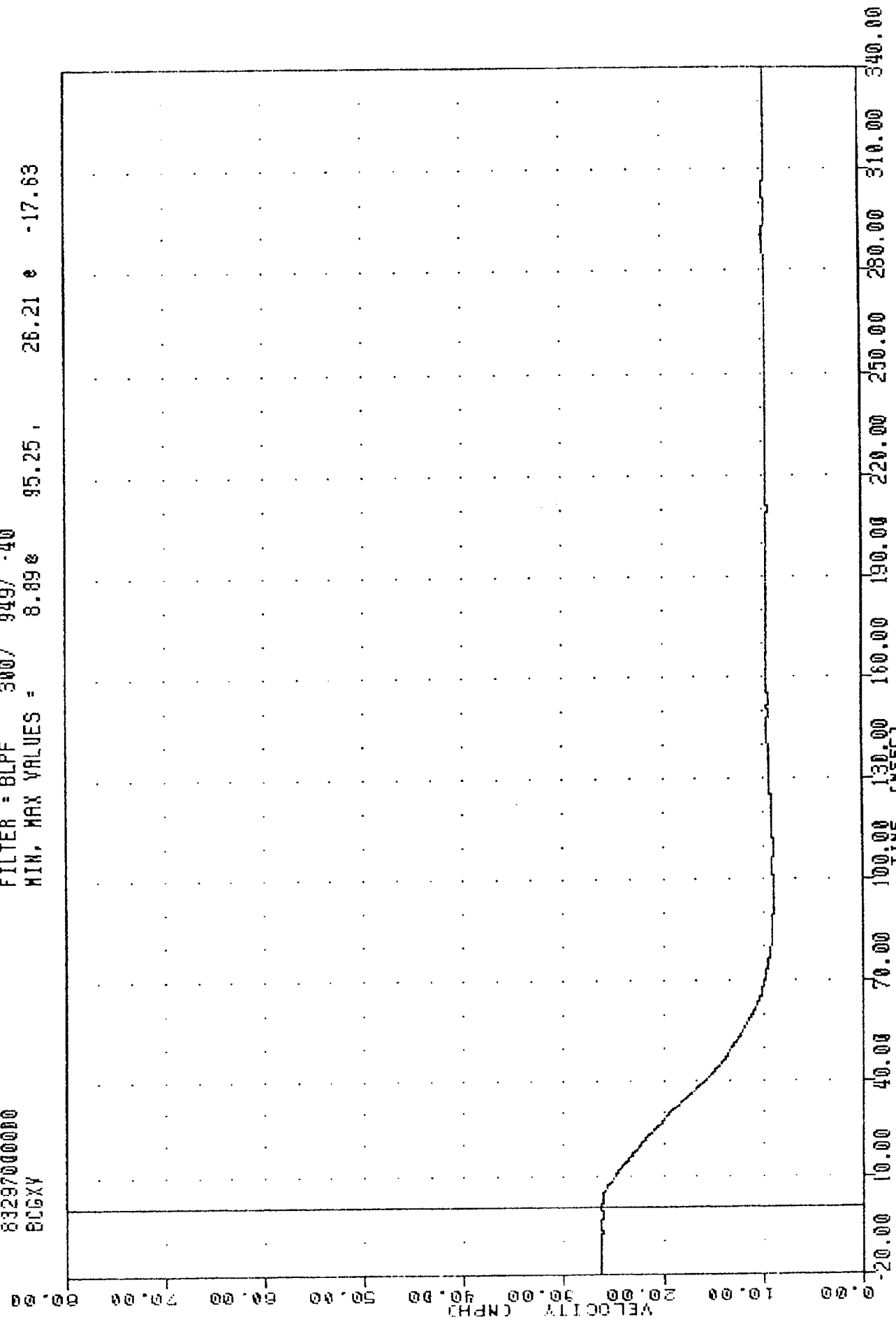
FILTER = 8LPF 100/ 316/ -40  
 MIN, MAX VALUES = 0.09e 318.25, 26.38 e 36.63



TAC  
 EVALUATION OF MOO VW FLEET  
 83297000000  
 BCGXY

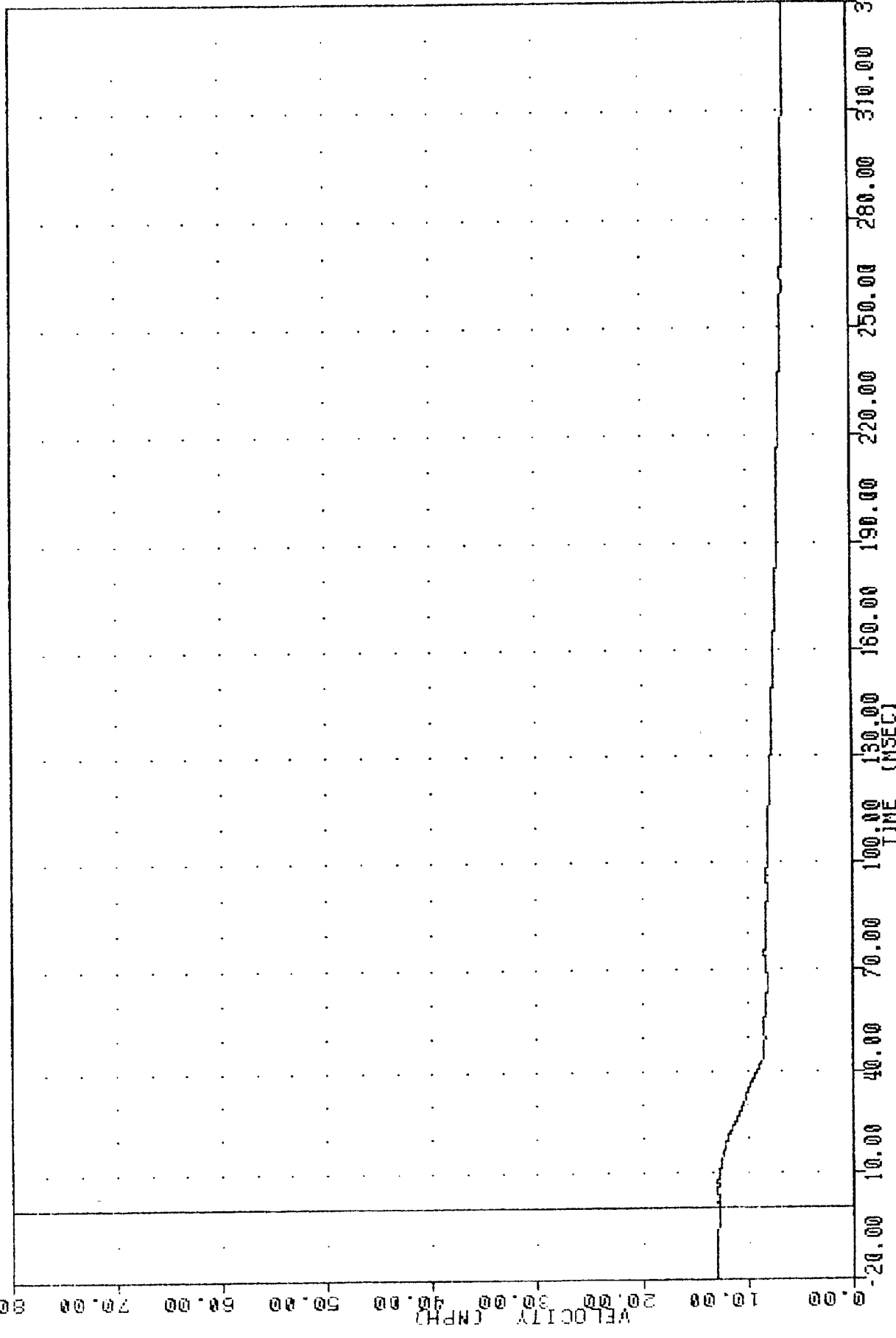
PLOT DATE 26-OCT-83 11:13:14

FILTER = BLPF 300/ 949/ -40  
 MIN, MAX VALUES = 8.89 95.25 26.21 -17.63



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING BCGXG

TRC  
 EVALUATION OF MOD VN FLEET  
 83297000000  
 BCGYV  
 FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = 6.01e 340.00, 12.85 e 4.50  
 PLOT DATE 26 OCT 83 11:13:14



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING BCGYG

TRC 831024 PLOT DATE 26 OCT 83 09:01:28

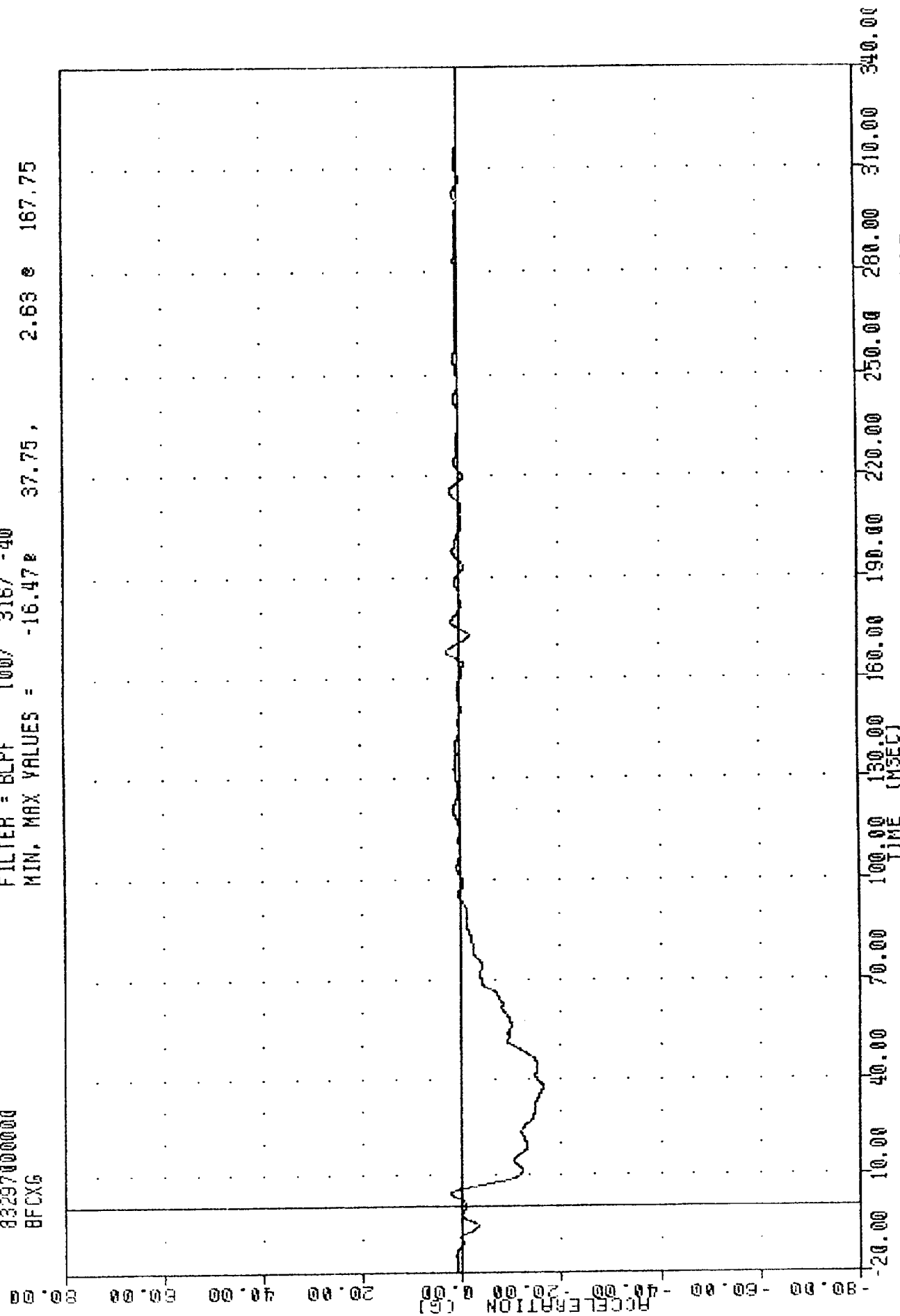
EVALUATION OF MOD VN FLEET

03297000000

BFCXG

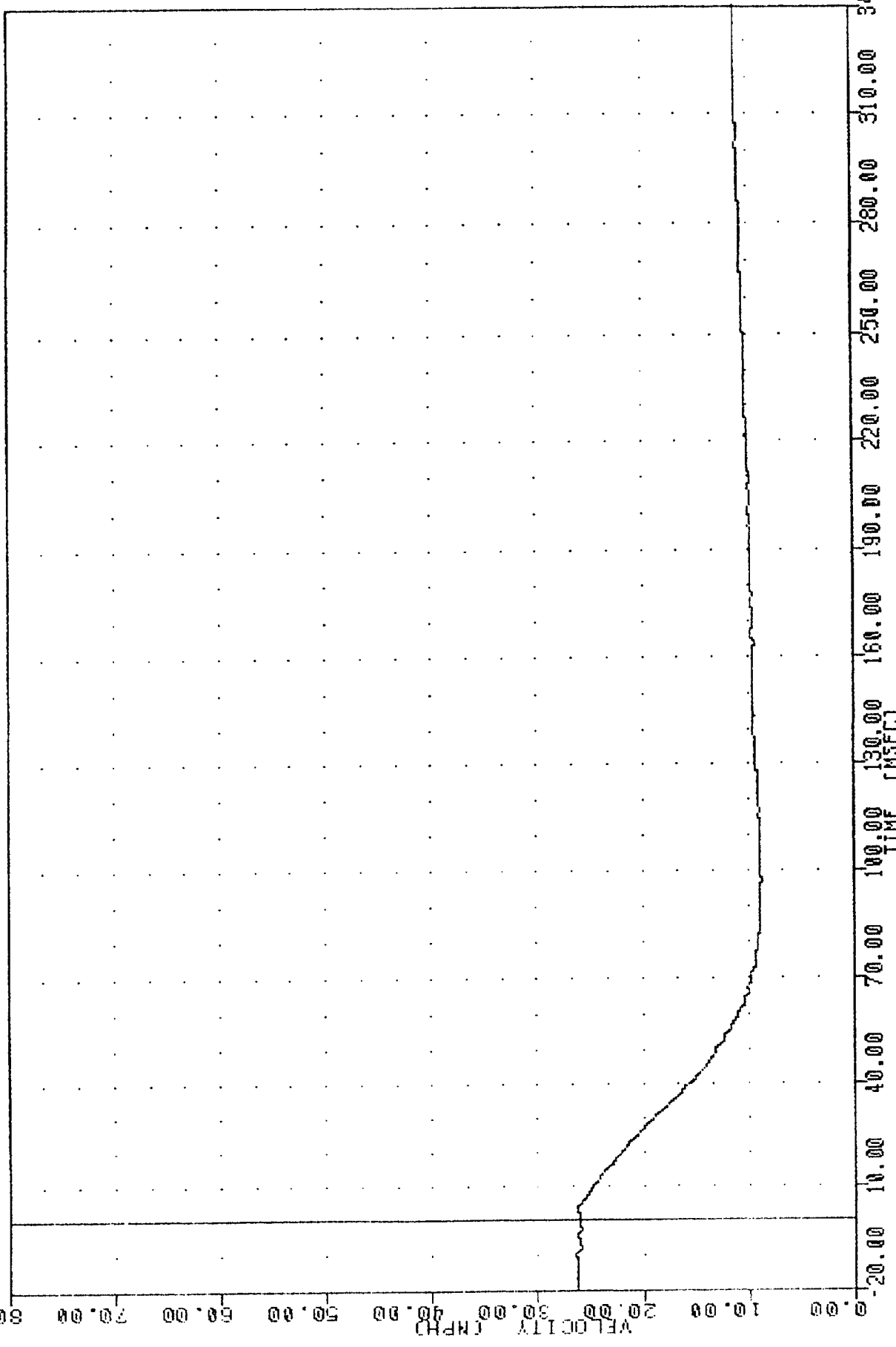
FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -16.47 37.75, 2.63 167.75



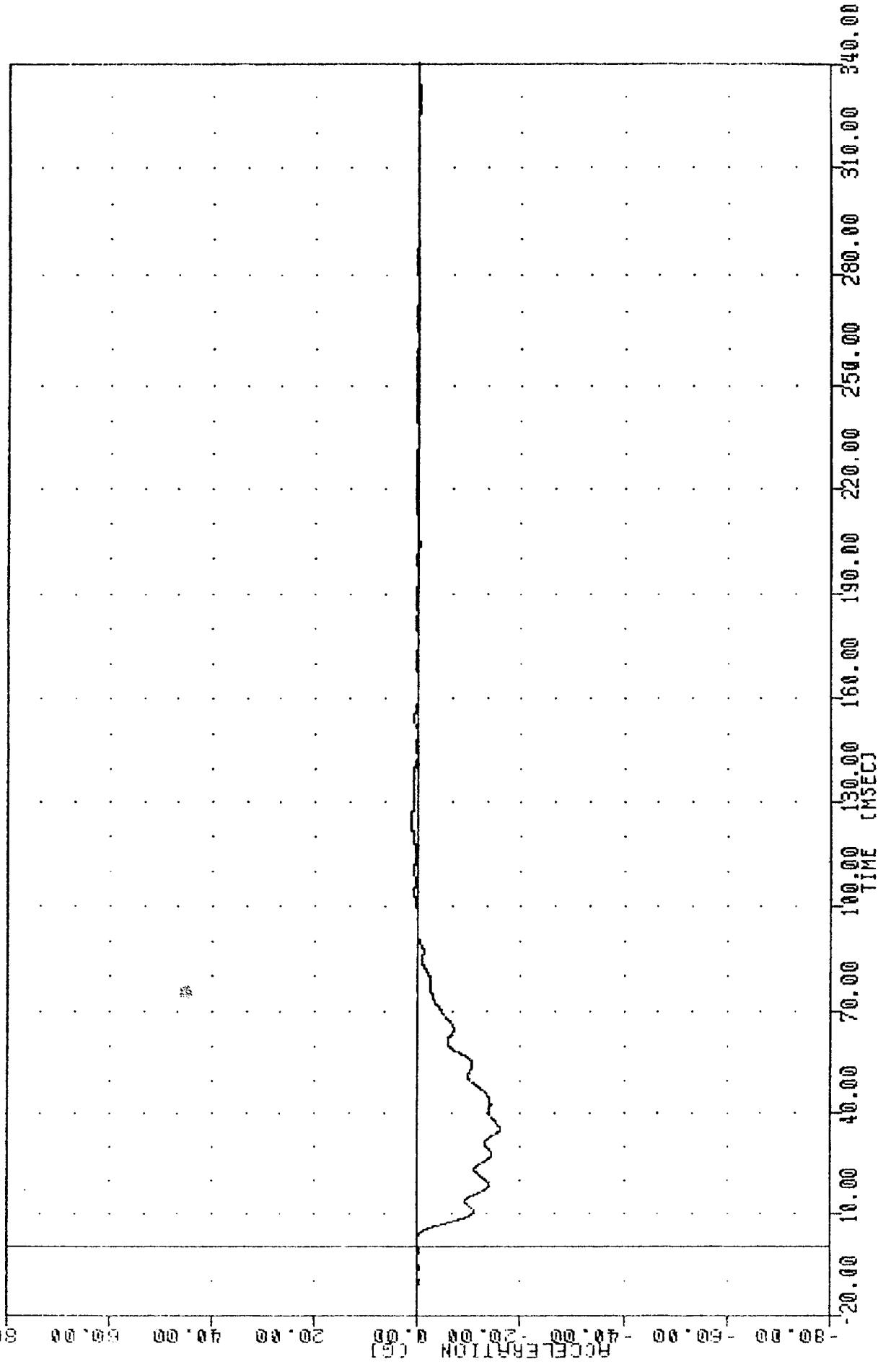


TRC 831024 831024 PLOT DATE 26-OCT-83 11:13:14  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 BFCXY  
 FILTER = BLPF 300/ 949/ -40  
 MIN. MAX VALUES = 8.71 97.13 26.45 -10.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING BFCXG

TRC 831024 PLOT DATE 26 OCT 83 09:01:26  
 EVALUATION OF MOD VW FLEET  
 83297000000  
 BRXG  
 FILTER = BLPF 100/ 316/ -40  
 MIN. MAX VALUES = -16.06e 35.63, 1.37 e 123.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 BARRIER REAR CROSSMEMBER ACCELERATION X AXIS

TRC 832970000000  
 EVALUATION OF MOD YW FLEET  
 BRCXY

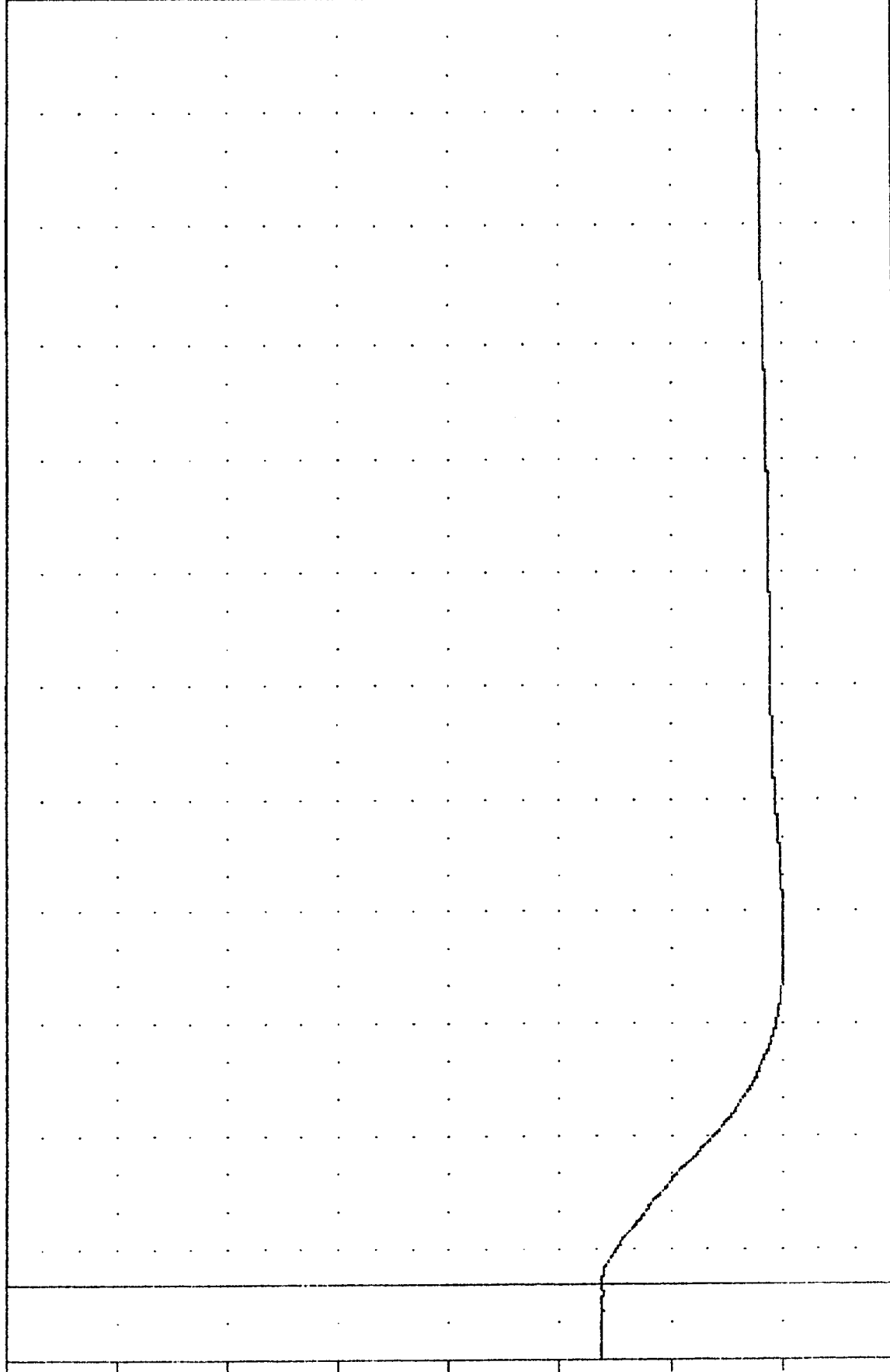
DATE 26 OCT 83

11:13:14

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 9.88 86.25 , 26.21 -9.00

VELOCITY (MPH)



TIME (msec)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT  
 DELTA V USING BRCXG