

D 076786

SIDE IMPACT AGGRESSIVENESS
ATTRIBUTES

MDB-TO-CAR SIDE IMPACT TEST OF
A 26° CRABBED MOVING DEFORMABLE BARRIER
TO A 1981 VOLKSWAGEN RABBIT
AT 39.1 MPH

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



FINAL REPORT
DECEMBER 1984

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

Prepared By: Lara Bell
L. J. Bell
Project Engineer
Transportation Research Center of Ohio

Approved By: Richard W. Runyon
R. W. Runyon
Project Manager
Transportation Research Center of Ohio

Report Accepted By: Thomas J. MacLaughlin
for M. W. Monk
Project Engineer
Vehicle Research & Test Center

Report Accepted By: Thomas J. MacLaughlin
T. MacLaughlin
Project Manager
Vehicle Research & Test Center

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle SIDE IMPACT AGGRESSIVENESS ATTRIBUTES MDB-TO-CAR SIDE IMPACT TEST OF A 26° CRABBED MOVING DEFORMABLE BARRIER TO A 1981 VOLKSWAGEN RABBIT AT 39.1 MPH		5. Report Date DECEMBER 1984
7. Author(s) L. Bell, Project Engineer, TRCO		6. Performing Organization Code
9. Performing Organization Name and Address Vehicle Research and Test Center St. Rt. 33, Logan County East Liberty, Ohio 43319		8. Performing Organization Report No. 841026
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration 400 Seventh Street, S.W. Washington, DC 20590		10. Work Unit No. (TRAIS)
		11. Contract or Grant No. DTNH22-82-A-08401
		13. Type of Report and Period Covered FINAL REPORT October-December 1984
		14. Sponsoring Agency Code
15. Supplementary Notes		
16. Abstract This test report documents one of a series of twelve crash tests to evaluate the side impact aggressiveness attributes of various deformable barrier face configurations. The configurations to be used are designated as "Lowered Stiffness", "Altered Profile" and "Lowered Bumper". Testing was conducted on a 1981 diesel Volkswagen Rabbit 2-door hatchback at the TRCO Crash Test Facility, East Liberty, Ohio. The test vehicle was impacted on the left side by a moving deformable barrier designated as "Lowered Bumper", crabbled to 26°, 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 passenger position. The test date was October 26, 1984 and the ambient temperature was 70° F.		
17. Key Words Occupant Response Moving Barrier Crash Testing Modified Window		18. Distribution Statement Available from: Technical Reference Division, National Highway Traffic Safety Administration Room 5108, Nassif Building 400 Seventh Street, S.W. Washington, DC 20590
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 158
		22. Price

METRIC CONVERSION FACTORS

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

LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons	0.9	metric ton	t
	(2000 lb)			
VOLUME				
tsp	teaspoons	5	milliliters	ml.
Tbsp	tablespoons	15	milliliters	ml.
in ³	cubic inches	16	milliliters	ml.
fl oz	fluid ounces	30	milliliters	ml.
c	cups	0.24	liters	L
pt	pints	0.47	liters	L
qt	quarts	0.95	liters	L
gal	gallons	3.8	liters	L
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	degrees Fahrenheit	5/9 (after subtracting 32)	degrees Celsius	°C

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

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares	2.5	acres	
(10 000 m ²)				
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	metric ton	1.1	short tons	
(1000 kg)				
VOLUME				
mL	milliliters	0.03	fluid ounces	fl oz
mL	milliliters	0.06	cubic inches	in ³
L	liters	2.1	pints	pt
L	liters	1.06	quarts	qt
L	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	degrees Celsius	9/5 (then degrees add 32)	Fahrenheit	°F

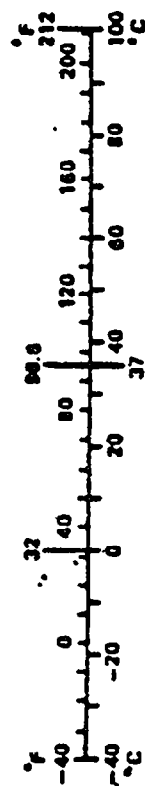


TABLE OF CONTENTS

	<u>Page</u>
1.0 PURPOSE AND INTRODUCTION	1-1
2.0 GENERAL TEST AND VEHICLE PARAMETER DATA	2-1
3.0 DATA REQUIRED BY R&D	3-1
APPENDIX A PHOTOGRAPHS	A-1
APPENDIX B DATA PLOT PRESENTATION	B-1

LIST OF PHOTOGRAPHS

<u>Figure</u>	<u>Page</u>
A-1. PRE-TEST OVERALL - VIEW 1	A-2
A-2. PRE-TEST OVERALL - VIEW 2	A-2
A-3. PRE-TEST OVERALL - VIEW 3	A-3
A-4. PRE-TEST OVERALL - VIEW 4	A-3
A-5. PRE-TEST CLOSEUP - VIEW 1	A-4
A-6. PRE-TEST CLOSEUP - VIEW 2	A-4
A-7. PRE-TEST MODIFIED WINDOW	A-5
A-8. PRE-TEST DRIVER DUMMY - VIEW 1	A-5
A-9. PRE-TEST DRIVER DUMMY - VIEW 2	A-6
A-10. PRE-TEST PASSENGER DUMMY - VIEW 1	A-6
A-11. PRE-TEST PASSENGER DUMMY - VIEW 2	A-7
A-12. PRE-TEST DUMMIES OVERALL	A-7
A-13. POST-TEST OVERALL - VIEW 1	A-8
A-14. POST-TEST OVERALL - VIEW 2	A-8
A-15. POST-TEST OVERALL - VIEW 3	A-9
A-16. POST-TEST OVERALL - VIEW 4	A-9
A-17. POST-TEST DRIVER DUMMY - VIEW 1	A-10
A-18. POST-TEST DRIVER DUMMY - VIEW 2	A-10
A-19. POST-TEST PASSENGER DUMMY - VIEW 1	A-11
A-20. POST-TEST PASSENGER DUMMY - VIEW 2	A-11
A-21. POST-TEST DUMMIES OVERALL	A-12
A-22. POST-TEST VEHICLE DAMAGE - VIEW 1	A-12
A-23. POST-TEST VEHICLE DAMAGE - VIEW 2	A-13
A-24. POST-TEST MODIFIED WINDOW	A-13
A-25. PRE-TEST MDB FACE - VIEW 1	A-14

LIST OF PHOTOGRAPHS CONTD

<u>Figure</u>	<u>Page</u>
A-26. PRE-TEST MDB FACE - VIEW 2	A-14
A-27. POST-TEST MDB FACE - VIEW 1	A-15
A-28. POST-TEST MDB FACE - VIEW 2	A-15

SECTION 1.0
PURPOSE AND INTRODUCTION

PURPOSE

The main purpose of this test was to evaluate the side impact aggressiveness of a deformable barrier face designated as "Lowered Bumper". In all, there will be twelve crash tests involving deformable barrier faces designated as "Lowered Stiffness", "Altered Profile" and "Lowered Bumper". The vehicle was tested using conditions not currently contained in a Federal Motor Vehicle Safety Standard.

INTRODUCTION

A stationary 1981 Volkswagen Rabbit 2-door hatchback was impacted on the left side by a Moving Deformable Barrier (MDB) on October 26, 1984. 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 impact point was to be 37 inches forward of the vehicle center of gravity which is defined by accident investigation to be the midpoint of the wheelbase.

To simulate this collision, the MDB was to be towed into the stationary Volkswagen Rabbit at 39.1 mph with the MDB's wheels crabbed clockwise to 26°. The actual test speed was 39.1 mph and the actual impact point was 37.0 inches forward of the midpoint of the Volkswagen Rabbit's wheelbase.

The left front window of the vehicle was structurally modified. No additional padding was added to the vehicle.

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 describe the General Test and Vehicle Parameter Data.

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Volkswagen of America, Inc.

MAKE/MODEL: Volkswagen Rabbit Diesel VIN: 1VWBG017BBV042743

BODY STYLE: 2-Door Hatchback MODEL YEAR: 1981

NHTSA NO.: R & D COLOR: Black

ENGINE DATA: TYPE: Transverse CYLINDERS: 4 DISPLACEMENT 1700 cc

TRANSMISSION DATA: 5 Speed Manual

DATE VEHICLE RECEIVED: 10/9/84 ODOMETER READING: 34722

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

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

REMARKS:

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

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

VEHICLE MANUFACTURED BY: Volkswagen of America, Inc.

DATE OF MANUFACTURE: 11/80

GVWR: 2822 LBS.,

GAWR: FRONT 1609 LBS., REAR 1278 LBS.

*The driver window had a laminated inner surface. This window was fixed in the closed position by the use of several small bolts through the window frame.

VEHICLE TIRE DATA

RECOMMENDED COLD TIRE PRESSURE: FRONT 27 psi; REAR 31 psi

TIRES ON VEHICLE (MFGR. & LINE, SIZE): BF Goodrich Belted CIM P 165/80B13

BIAS PLY, BELTED, OR RADIAL: Belted

PLY RATING: 4

IS SPARE TIRE "SPACE SAVER"? No

IS SPARE TIRE STANDARD EQUIPMENT? Yes

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

RIGHT FRONT	650	LBS.	RIGHT REAR	350	LBS.
LEFT FRONT	670	LBS.	LEFT REAR	350	LBS.
TOTAL FRONT WEIGHT	1320	LBS.	(65.3 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	700	LBS.	(34.7 % OF TOTAL VEHICLE WEIGHT)		
TOTAL DELIVERED WEIGHT	2020	LBS.			

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 24 9/16	;LF 24 7/16	;RR 25 1/8	;LR 25 3/16
PRE-TEST ATTITUDE:	RF 23 11/16	;LF 24 1/16	;RR 22 3/16	;LR 22 7/16
POST-TEST ATTITUDE:	RF 25 3/16	;LF 28	;RR 22	;LR 23 5/8

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 185 LBS. CARGO:

RIGHT FRONT	710	LBS.	RIGHT REAR	545	LBS.
LEFT FRONT	730	LBS.	LEFT REAR	560	LBS.
TOTAL FRONT WEIGHT	1440	LBS.	(56.6 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	1105	LBS.	(43.4 % OF TOTAL VEHICLE WEIGHT)		
TOTAL TEST WEIGHT	2545	LBS.			

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

TEST FLUID DATA

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

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

"USEABLE" CAPACITY*: NA GALLONS

TEST VOLUME: 4.0 GALLONS

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

DETAILS OF FUEL SYSTEM: DNA

ELECTRIC FUEL PUMP: Yes

FUEL INJECTION: Yes

DOES ELECTRIC FUEL PUMP OPERATE WITH IGNITION SWITCH "ON" AND THE ENGINE NOT OPERATING? No

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

VEHICLE LOAD (UP TO CAPACITY): FRONT 27 psi; REAR 31 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 185 LBS.

TOTAL 785 LBS.

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

TEST CONDITIONS

TEST NUMBER: 841026

DATE OF TEST: October 26, 1984

TIME OF TEST: 14:00

WIND VELOCITY: 6-12 mph 225° SW

HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 70° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 78° F

SUBJECT VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
VEHICLE TEST WEIGHT (LBS.)	2545	2553
MDB TEST WEIGHT (LBS.)	2990	3000
MDB VELOCITY (MPH)*	39.1	39.1
IMPACT POINT (INCHES)**	37.0	37.0

DUMMIES

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

RESTRAINT SYSTEM: Both dummies were unrestrained

* As measured over final one foot of travel.

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

VISIBLE DUMMY CONTACT POINTS:

	DRIVER 06	PASSENGER U02
Head	Side Window, Driver Seat Head Rest	Side Header, Hatchback Frame
Chest	Inner Door Panel	Rear Quarter Panel
Abdomen	Inner Door Panel	Rear Quarter Panel
Left Knee	Inner Door Panel	Rear Quarter Panel
Right Knee	Left Knee	Left Knee

DOOR OPENING:

	LEFT	RIGHT
Front	DNA*	Easy
Rear	DNA	DNA

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
Front	No	No
Rear	No	No

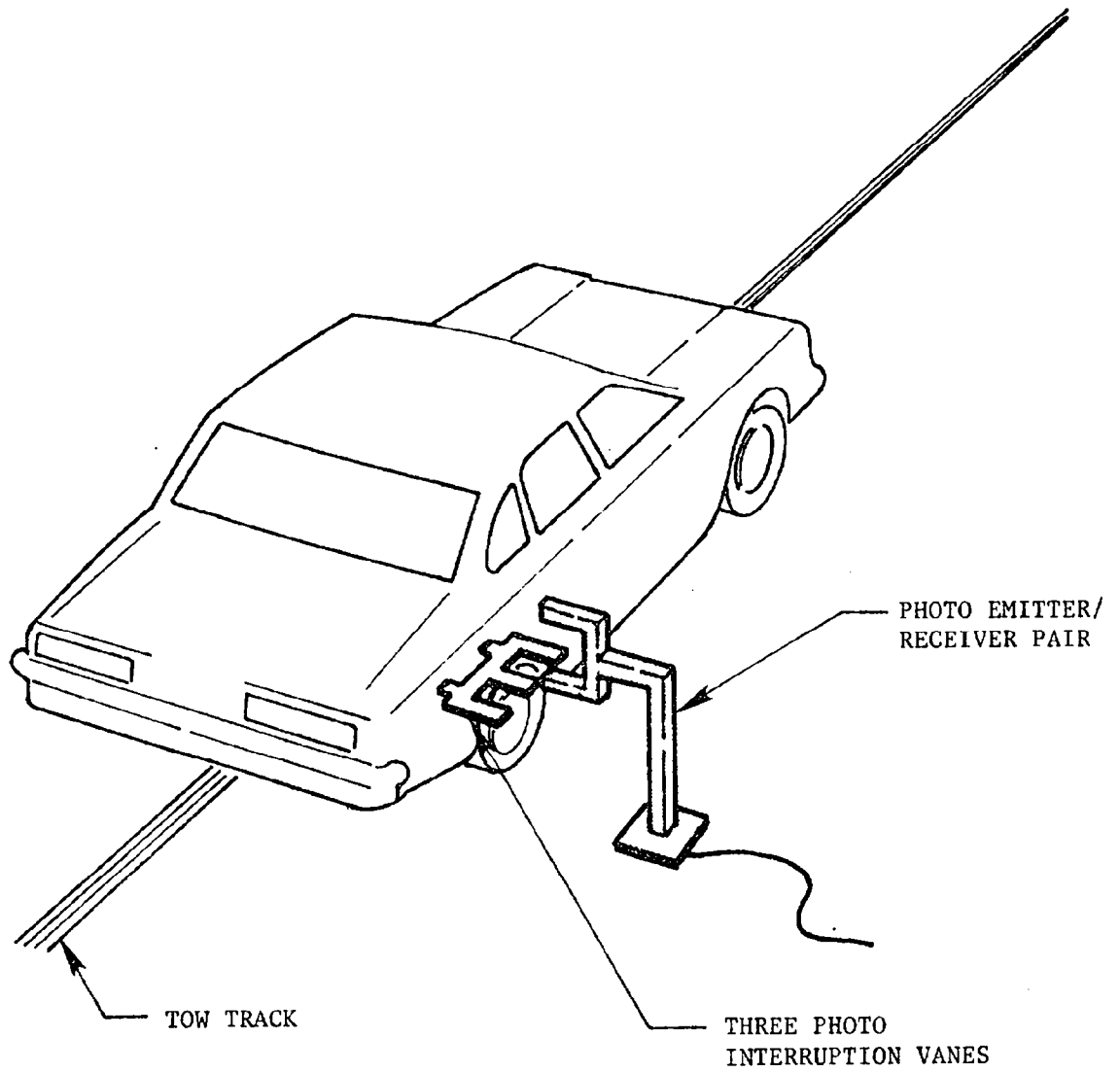
GLAZING DAMAGE:

The bottom edge of the windshield popped out of the frame; windshield cracked on driver's side.

OTHER NOTABLE IMPACT EFFECTS:

*The driver's door was to remain closed for subsequent door opening effort studies.

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane is located two inches before impact.
The vanes have one foot spacing.

VEHICLE TEST WEIGHT CALCULATION

Test Weight = Unloaded Delivered Weight* +
 Number of Dummies X 174 lbs. +
 Cargo Weight
 = 2020 + 2 X 174 + 185 lbs.
 = 2553 lbs.

To achieve test weight, the starter, alternator and battery were removed and 4.0 gallons of Stoddard Solvent were added in the fuel tank. The weight of the test vehicle was measured by placing each wheel on a Loadmeter Corporation Hiway Loadometer.

*Unloaded Delivered Weight = Measured Weight + Estimated 10 Gallons Fuel
 = 1960 + 60 lbs.
 = 2020 lbs.

TEST ANOMALIES

The accelerometer in the passenger's head, "y" axis, HEDYG3, developed a mechanical failure during the test. Therefore, data from this channel, and the passenger head resultant calculation should be disregarded.

SECTION 3.0
DATA REQUIRED BY R & D

The following pages are included in this section:

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

DUMMY TEMPERATURE CONTROL AND POSITIONING

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

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

DUMMY PLACEMENT AND POSITIONING

SIDE IMPACT

DUMMY

DRIVER DSP

REAR PASSENGER DSP

HEAD	Surface of transverse instrument mounting platform is as horizontal as possible without inducing torso movement & midsagittal plane falls in longitudinal plane.	Surface of transverse instrument mounting platform is as horizontal as possible without inducing torso movement & midsagittal plane falls in longitudinal plane.
UPPER TORSO	Placed against seat back. Midsagittal plane is vertical and centered on bucket seat.	Placed against seat back. Midsagittal plane is vertical and contained in the same longitudinal plane as the driver's midsagittal plane.
LOWER TORSO	Midsagittal plane is vertical and centered on bucket seat.	Midsagittal plane is vertical and contained in the same longitudinal plane as the driver's midsagittal plane.
UPPER LEGS (thighs or femurs)	Placed against seat cushion. Planes defined by femur and tibia centerlines are as close as possible to vertical.	Placed against seat cushion. Planes defined by femur and tibia centerlines are as close as possible to vertical.
KNEES	Knees set 14.5" apart between pivot bolt head outer surfaces. Outer surface of right knee pivot bolt is 8.6" from midsagittal plane of dummy. Outer surface of left knee pivot bolt is 5.9" from midsagittal plane of dummy.	Located so that planes defined by femur and tibia centerlines are as close as possible to vertical.
LOWER LEGS	Plane defined by femur and tibia centerlines are as close as possible to vertical longitudinal plane.	Plane defined by femur and tibia centerlines are as close as possible to vertical longitudinal plane.
RIGHT FOOT	Placed on undepressed accelerator pedal -- rearmost point of heel on floorplan in plane of pedal.	Centerline falls in vertical longitudinal plane. Placed on floor as far forward as possible without front seat interference.
LEFT FOOT	Placed on toeboard -- rearmost point of heel on floorpan as close as possible to intersection of toeboard and floorpan. Centerline falls in vertical longitudinal plane.	Centerline falls in vertical longitudinal plane. Placed on floor as far forward as possible without front seat interference.

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

DUMMY IN-VEHICLE POSITION RECORDING SHEET

VEHICLE NHTSA NO. R & D

MFR./MAKE/MODEL: Volkswagen Rabbit

FRONT SEAT TYPE: BENCH
X BUCKET
 SPLIT BENCH

ADJUSTER TYPE: X MANUAL
 POWER

BUCKET SEAT BACK TYPE: FIXED
X ADJUSTABLE

TECHNICIANS:

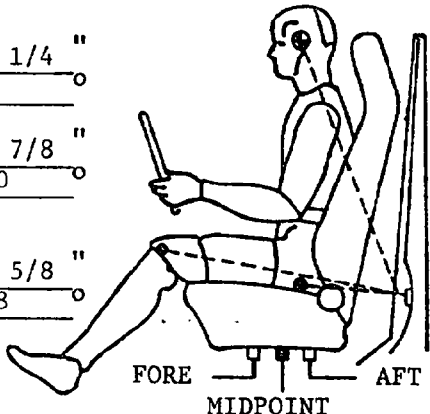
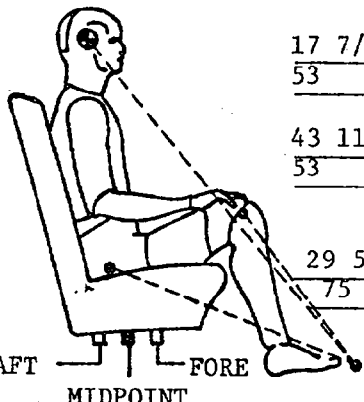
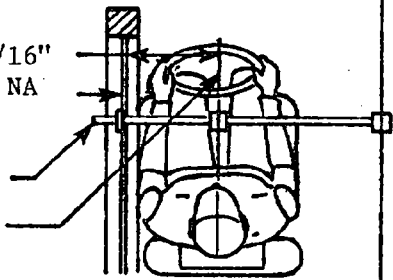
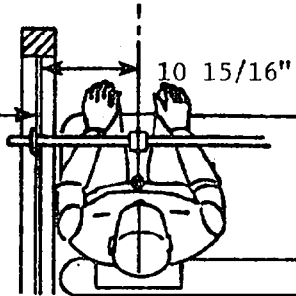
1. D. LeVally

2. N. Echeverria

3. J. Clarridge

POSITIONING DATE: 10/26/84

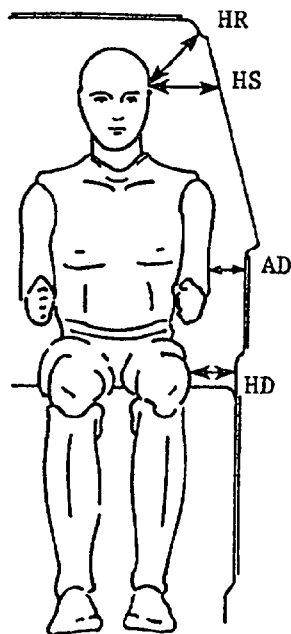
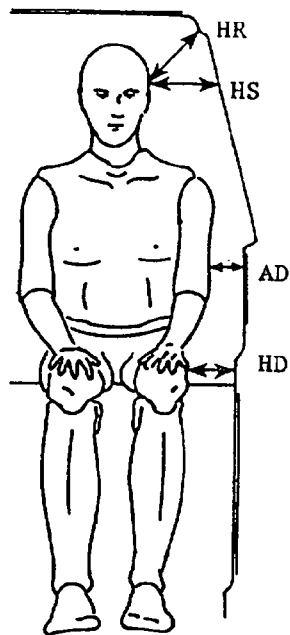
AMBIENT TEMP.: 72° F. TIME: 9:00

DRIVER DUMMY # <u>06</u> HEAD <u>19 1/4</u> " TARGET*<u>32</u> ° KNEE <u>33 7/8</u> " JOINT <u>100</u> ° APPROX. "H" <u>20 5/8</u> " POINT <u>118</u> °  FORE MIDPOINT AFT	REAR PASSENGER DUMMY # <u>U02</u> HEAD <u>17 7/8</u> " TARGET**<u>53</u> ° KNEE <u>43 11/16</u> " JOINT <u>53</u> ° APPROX. "H" <u>29 5/8</u> " POINT <u>75</u> °  AFT MIDPOINT FORE
DOOR GLASS HEIGHT*** <u>11 7/16</u> " NA LATERAL BAR ADJUSTABLE POINTER  DRIVER DUMMY # <u>06</u>	DOOR GLASS HEIGHT <u>NA</u> <u>10 15/16</u> "  PASSENGER DUMMY # <u>U02</u>

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

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

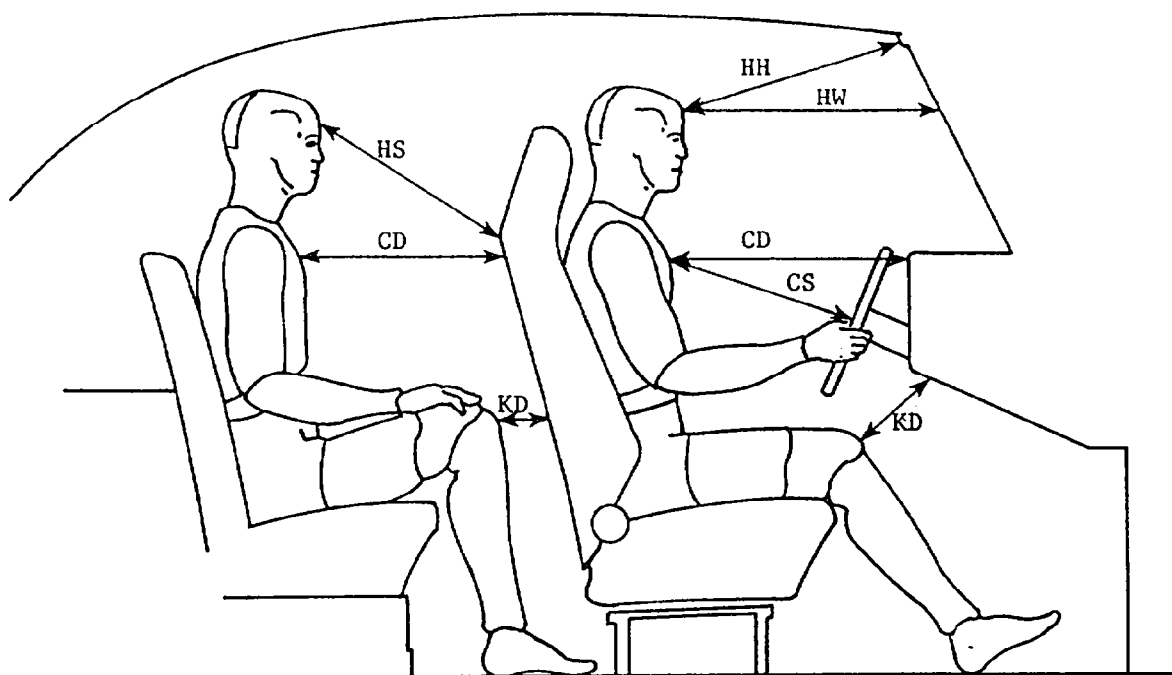
***Door glass height is equal on the right and left side of vehicle at dummy nose level.



	DRIVER 06	PASSENGER U02
HR	7 1/8	6 1/2
HS	8 1/4	8 1/4
AD	4 3/16	4 11/16
HD	6 5/8	6 5/16

ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



DRIVER

PASSENGER

O6

U02

HH	17 3/4	DNA
HW	21 7/8	DNA
HS	DNA	21 3/16
CD	21	16 13/16
CS	13 5/8	DNA
KDL	3 15/16	4
KDR	4 1/2	3 5/16

ALL MEASUREMENTS IN INCHES

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

DUMMY KINEMATIC SUMMARY

DRIVER

During impact, the dash panel below the steering column burst inward hitting the dummy's knees. The left hip of the dummy contacted the inner panel as the door caved in. As the buttocks swung to the right, the dummy's left shoulder and chest contacted the window sill and door panel while the head struck the modified window. The dummy rebounded from the inner door panel, the torso lifting slightly and rotating towards the left. As the driver landed on the far side of the vehicle, the head contacted the driver's seat head rest. Final resting position showed the driver sitting upright in the passenger's seat facing left with the legs fully extended across the occupant compartment.

PASSENGER

During impact, the rear quarter panel crushed in, hitting the dummy's left knee and hip. As the dummy rebounded from the door panel towards the right, the dummy's torso leaned left. The passenger's head then hit the side header and the hatchback frame. The dummy came to rest in an upright position with his upper torso leaning slightly left and his head resting against the left side header.

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	11.8	X	X	20.6	20.5	20.4	20.5	20.4	20.4	20.4	20.5	20.5	20.5	20.6	X	X
H-Point	21.3	X		17.6	18.6	18.5	18.4	18.4	18.4	18.4	18.5	18.6	18.7	18.9	17.9	X
Mid Door	25.3			17.3	18.5	18.3	18.2	18.1	18.1	18.1	18.1	18.3	18.4	18.4	18.5	16.9
Window Sill	35.8			20.8	20.4	20.1	20.0	19.9	19.9	19.8	19.8	19.9	19.9	20.1	20.2	20.3
Window Top	54.6	X	X	X	X	X	28.4	28.1	28.0	27.9	27.9	27.9	28.0	28.1	28.3	28.6

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

Axle Height	11.8	X	X	32.1	34.5	34.3	34.0	33.8	33.7	33.6	33.3	32.9	30.9	27.7	X	X
H-Point	21.3	X		27.6	30.8	31.3	31.5	31.6	31.7	32.0	32.3	32.9	33.2	30.1	25.6	X
Mid Door	25.3			25.4	27.3	29.9	31.3	31.0	30.9	31.0	31.1	31.3	31.9	32.0	26.2	22.4
Window Sill	35.8			23.6	24.0	25.6	29.9	30.8	31.5	31.7	31.4	31.8	32.3	32.0	27.4	23.7
Window Top	54.6	X	X	X	X	X	30.3	29.3	29.6	29.5	29.6	29.5	29.3	29.0	29.0	29.0

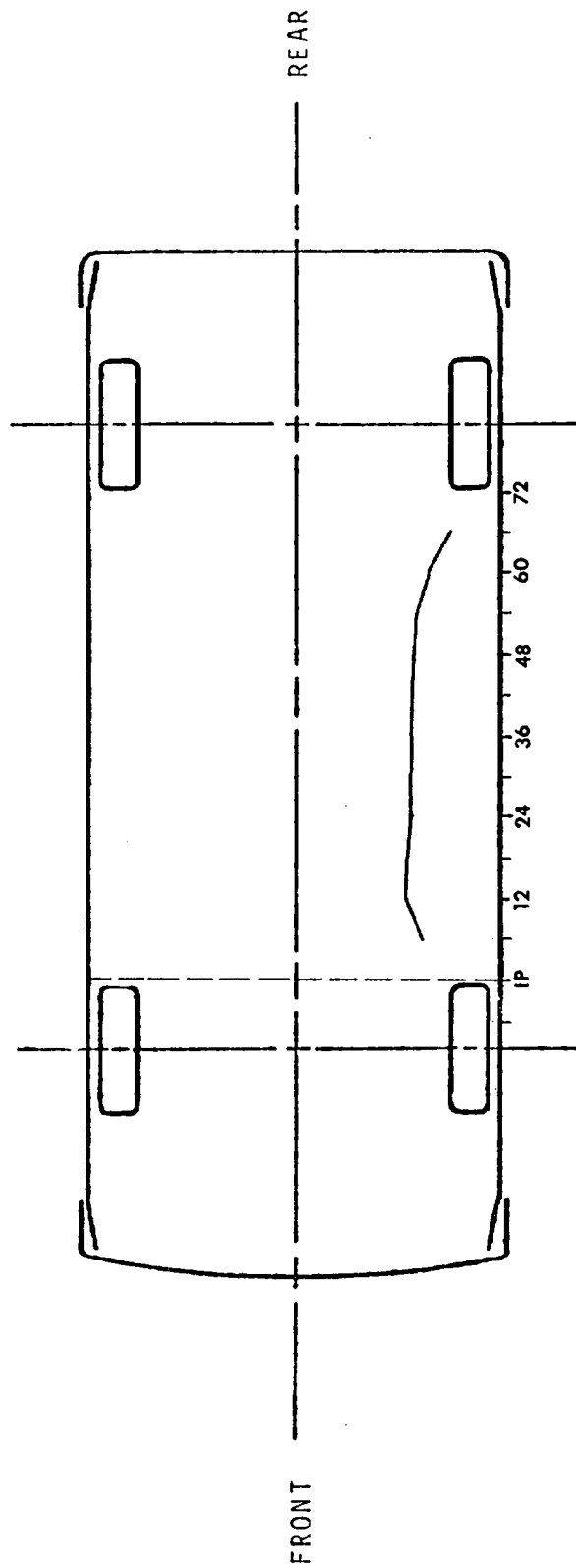
STATIC CRUSH (IN)

Axle Height	11.8	X	X	11.5	14.0	13.9	13.5	13.4	13.3	13.2	12.8	12.4	10.4	7.1	X	X
H-Point	21.3	X		10.0	12.2	12.7	13.0	13.1	13.2	13.3	13.6	14.3	14.5	11.2	7.7	X
Mid Door	25.3			8.1	8.8	11.6	13.0	12.8	12.8	12.9	13.0	13.2	13.6	12.5	7.7	5.5
Window Sill	35.8			2.8	3.6	5.5	9.9	10.9	11.6	11.9	12.0	12.5	12.7	11.9	7.2	3.4
Window Top	54.6	X	X	X	X	X	1.9	1.2	1.6	1.6	1.7	1.6	1.3	0.9	0.7	0.4

* 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

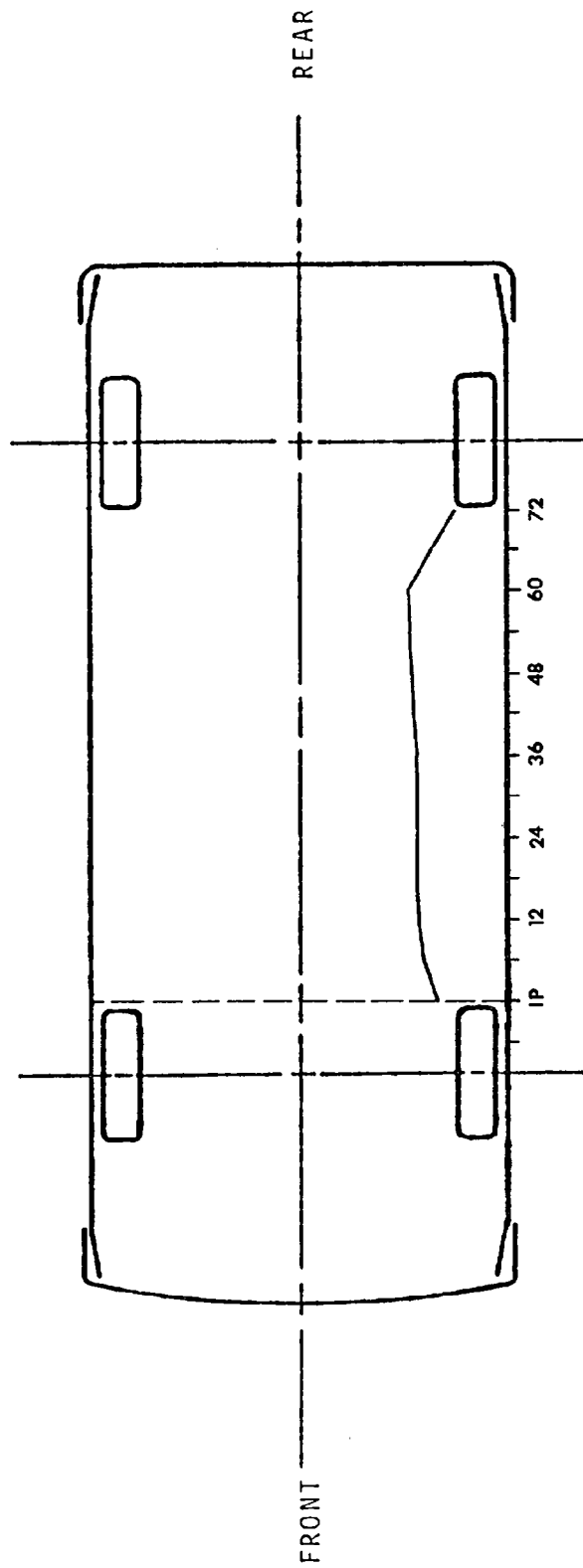


PROFILE LEVEL EQUALS AXLE HEIGHT
IP EQUALS PROJECTED IMPACT POINT

Length of Car = 154.75"
Width of Car = 62.75"

Maximum Crush = 14.0"
Approximate Length of Crush = 60.0"

VEHICLE EXTERIOR STATIC CRUSH PROFILE

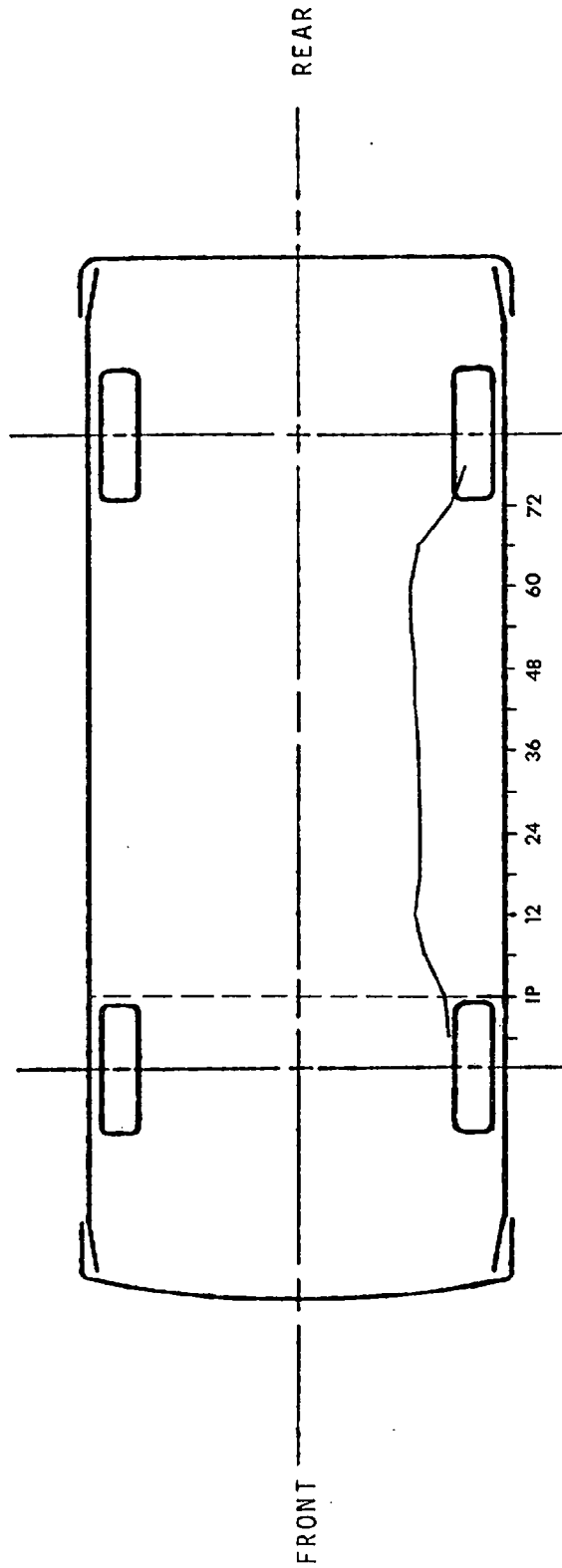


PROFILE LEVEL EQUALS H-POINT HEIGHT
IP EQUALS PROJECTED IMPACT POINT

Length of Car = 154.75"
Width of Car = 62.75"

Maximum Crush = 14.5"
Approximate Length of Crush = 72"

VEHICLE EXTERIOR STATIC CRUSH PROFILE

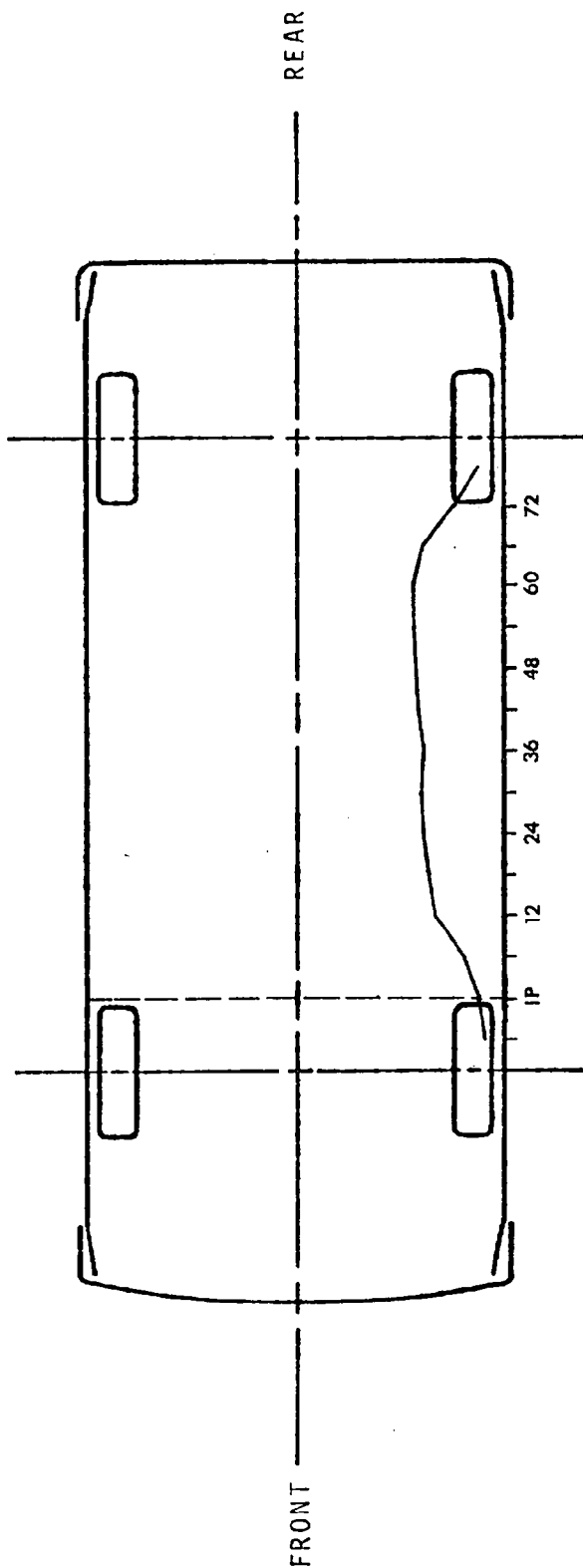


PROFILE LEVEL EQUALS MID-DOOR HEIGHT
IP EQUALS PROJECTED IMPACT POINT

Length of Car = 154.75"
Width of Car = 62.75"

Maximum Crush = 13.6"
Approximate Length of Crush = 84"

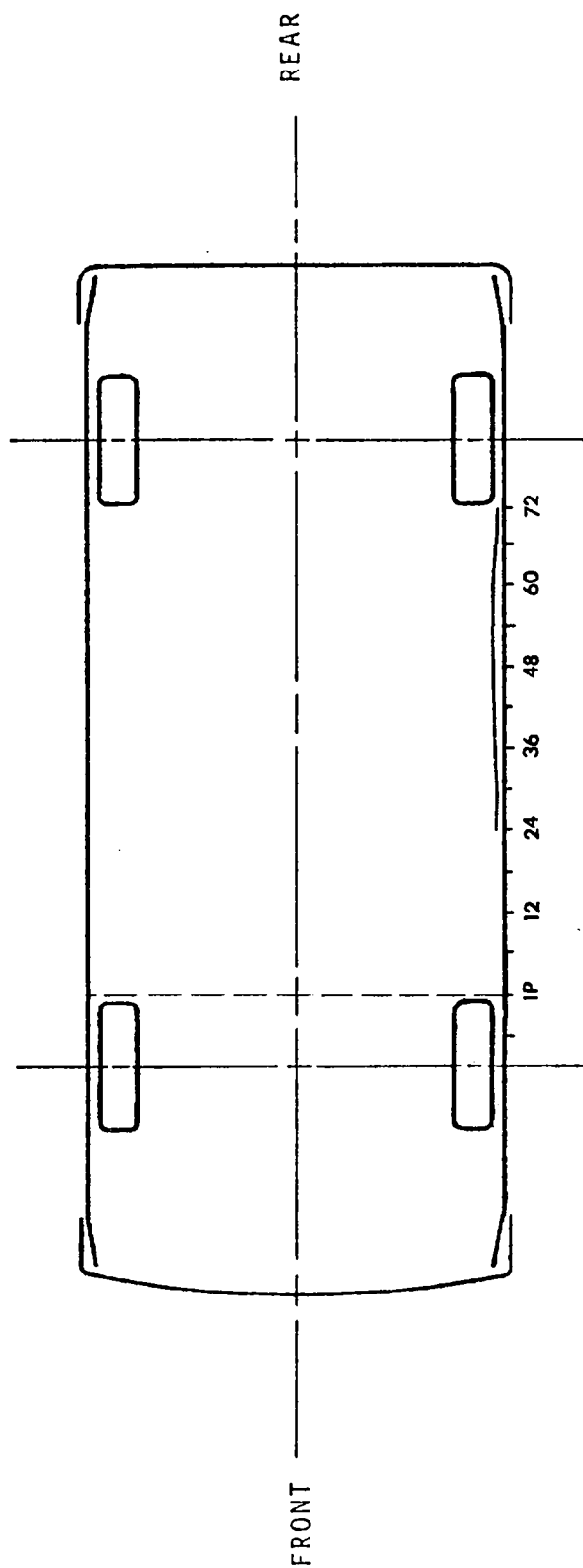
VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW SILL HEIGHT
IP EQUALS PROJECTED IMPACT POINT

Length of Car = 154.75"
Width of Car = 62.75"
Maximum Crush = 13.1"
Approximate Length of Crush = 84"

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT
IP EQUALS PROJECTED IMPACT POINT

Length of Car = 154.75"
Width of Car = 62.75"

Maximum Crush = 1.9"
Approximate Length of Crush = 84"

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	14.28	284.13	30.94	41.38	14.49	157.00	37.29	50.38
LATERAL	55.74	41.38	18.89	28.75	164.96	50.50Y	14.61	66.00Y
VERTICAL	14.63	27.13	85.32	59.50	43.55	54.63	29.34	40.63
RESULTANT		87.49 @	59.50			169.93 @	50.50Y	
HIC	616.10	from 34.00	to 64.50		1582.85	from 47.00	to 56.00	
CHEST ACCELERATION								
UPPER SPINE								
LONGITUDINAL	56.46	43.13	39.51	32.50	6.87	90.62	24.88	58.13
LATERAL (P)***	109.89	33.13	48.40	52.50	63.37	45.62	7.17	32.50
LATERAL (R)***	112.11	33.13	47.18	52.50	65.03	45.62	7.06	31.88
VERTICAL	29.77	26.87	32.61	35.00	10.53	28.13	20.78	56.25
RESULTANT (P)		118.66 @	33.13			64.92 @	45.62	
RESULTANT (R)		120.71 @	33.13			66.54 @	45.62	
DELTA V (MPH)****		31.5 @	49.37 (P)			25.5 @	114.37 (P)	
		32.8 @	50.00 (R)			26.7 @	115.62 (R)	
LOWER SPINE								
LONGITUDINAL	76.89	40.00	76.90	28.75	16.45	62.50	25.85	34.38
LATERAL (P)	208.10	28.13	36.83	52.50	74.79	38.75	24.90	58.75
LATERAL (R)	208.10	28.13	36.63	52.50	77.69	39.38	24.55	58.75
VERTICAL	38.44	28.13	12.05	35.63	8.34	42.50	3.28	56.87
RESULTANT (P)		223.65 @	28.13			75.91 @	37.50	
RESULTANT (R)		223.65 @	28.13			78.26 @	38.75	
DELTA V (MPH)		37.2 @	45.00 (P)			28.2 @	53.75 (P)	
		39.4 @	45.00 (R)			29.3 @	54.38 (R)	
LEFT UPPER RIB								
LATERAL (P)	129.18	25.00	17.37	38.75	79.17	31.25	2.04	71.88
LATERAL (R)	135.96	24.38	13.15	38.13	76.33	31.88	4.60	57.50
DELTA V (MPH)		30.2 @	63.75 (P)			29.9 @	123.75 (P)	
		30.7 @	63.75 (R)			30.7 @	133.75 (R)	
LEFT LOWER RIB								
LATERAL (P)	165.39	25.00	46.46	58.75	67.65	28.75	13.01	55.00
LATERAL (R)	170.88	24.38	50.68	58.75	79.33	28.75	12.10	61.87
DELTA V (MPH)		33.4 @	55.00 (P)			27.2 @	53.75 (P)	
		33.8 @	55.00 (R)			25.2 @	53.75 (R)	
PELVIS ACCELERATION								
LONGITUDINAL	6.42	60.63	16.79	28.50	8.90	78.88	---	---
LATERAL	221.18	28.00	12.02	43.25	---	---	---	---
VERTICAL	32.45	25.13	45.11	28.88	---	---	---	---
RESULTANT		224.63 @	28.13			---	---	---
DELTA V (MPH)		35.0 @	64.13			---	---	---

SIDE IMPACT DUMMY DATA SUMMARY CONTD

		DRIVER DUMMY				PASSENGER DUMMY			
		POSITIVE DIRECTION*		NEGATIVE DIRECTION**		POSITIVE DIRECTION*		NEGATIVE DIRECTION**	
		MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)
RIB DEFLECTION	†	1.91	90.25	---	--- ^ε	1.62	60.88	---	--- ^ε

* 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: Positive

Y See TEST ANOMALIES

° The CTM has judged that intermittent rattling has occurred in these channels and, therefore, the peak values reported are questionable as are applicable resultants and Delta V's.

ε There were no negative values in the time interval of interest.

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

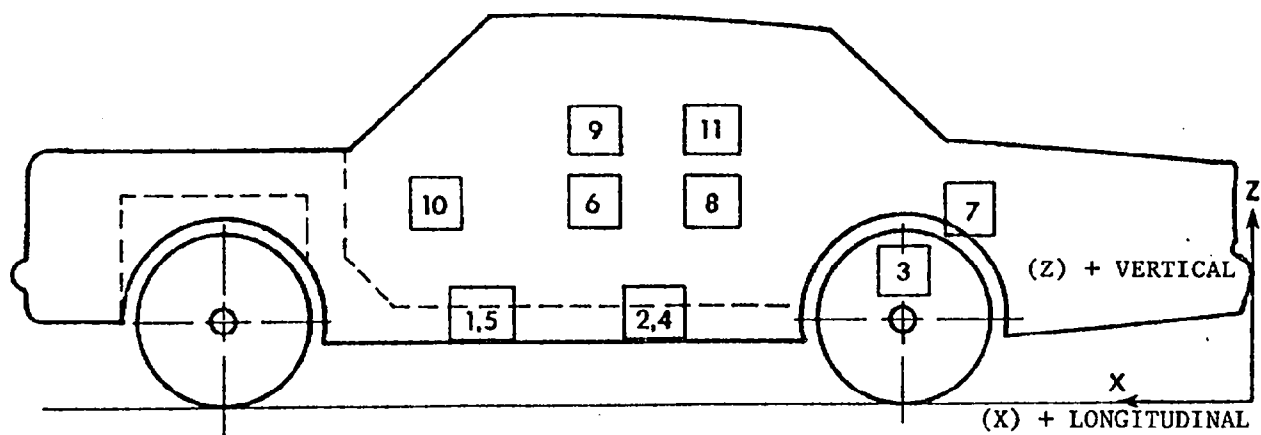
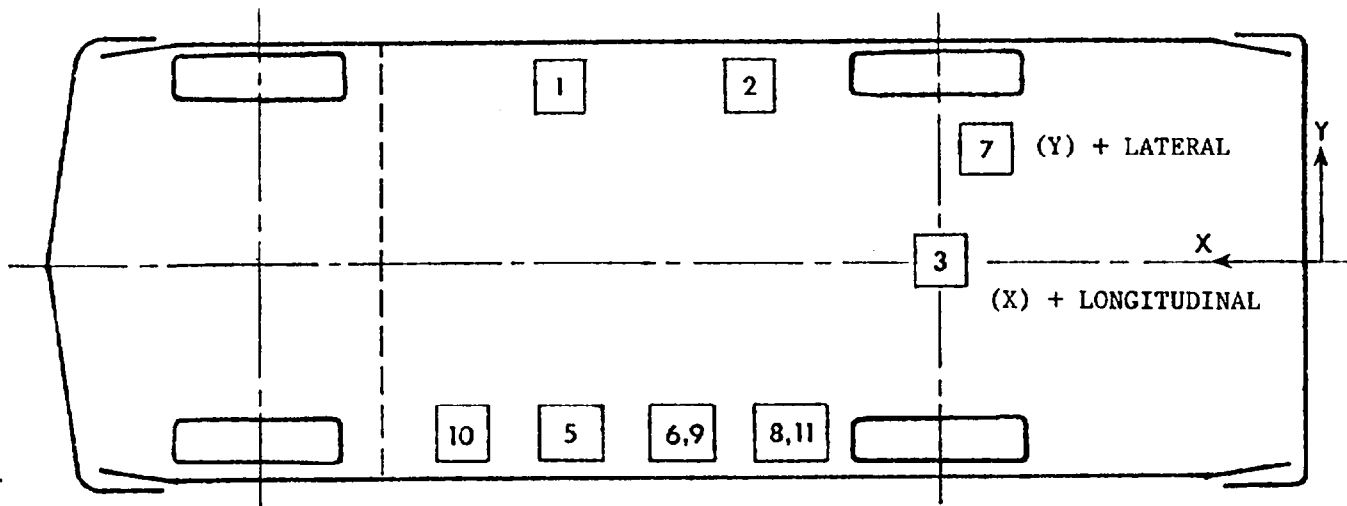
NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	RIGHT SILL AT FRONT SEAT	83.5	23.3	11.0				
	(LONGITUDINAL)	$\Delta V = -1.9 \text{ mph @ } 112.00 \text{ msec}$			5.12	55.25	7.83	13.13
	(LATERAL)	$\Delta V = 18.0 \text{ mph @ } 112.00 \text{ msec}$			31.27	25.00	2.78	71.63
	(VERTICAL)				11.70	19.75	9.01	24.13
	(RESULTANT)					32.30 @ 24.88		
2	RIGHT SILL AT REAR SEAT	61.6	23.8	9.0				
	(LONGITUDINAL)	$\Delta V = -0.4 \text{ mph @ } 112.00 \text{ msec}$			5.60	55.75	7.82	13.25
	(LATERAL)	$\Delta V = 20.8 \text{ mph @ } 112.00 \text{ msec}$			38.94	27.00	3.04	94.25
	(VERTICAL)				8.46	19.63	11.35	75.63
	(RESULTANT)					39.03 @ 27.00		
3	REAR DECK OVER AXLE	32.0	0.0	7.8				
	(LONGITUDINAL)	$\Delta V = -2.4 \text{ mph @ } 112.00 \text{ msec}$			7.04	29.25	9.73	19.38
	(LATERAL)	$\Delta V = 25.5 \text{ mph @ } 112.00 \text{ msec}$			36.14	43.13	3.99	96.13
	(VERTICAL)				9.49	31.38	8.33	65.25
	(RESULTANT)					37.09 @ 43.13		
4	LEFT SILL AT REAR SEAT	62.2	-23.6	9.8				
	(LATERAL)	$\Delta V = 14.2 \text{ mph @ } 22.50 \text{ msec}$			104.74	15.38	57.99	29.25
5	LEFT SILL AT FRONT SEAT	83.5	-23.4	11.3				
	(LATERAL)	$\Delta V = -3.7 \text{ mph @ } 41.25 \text{ msec}$			15.29	16.50	28.54	12.25
6	LEFT FRONT DOOR CENTERLINE	80.5	-25.8	23.6				
	(LATERAL)	$\Delta V = 30.7 \text{ mph @ } 15.13 \text{ msec}$			224.44	13.13	86.06	20.25
7	RIGHT REAR COMPARTMENT	31.0	15.2	15.0				
	(LONGITUDINAL)				5.30	26.50	7.05	20.63
8	MIDREAR OF LEFT FRONT DOOR	60.8	-25.9	24.2				
	(LATERAL)	$\Delta V = 31.7 \text{ mph @ } 13.13 \text{ msec}$			157.91	7.88	77.32	20.25
9	UPPER LEFT FRONT DOOR CENTERLINE	81.7	-25.9	33.1				
	(LATERAL)	$\Delta V = 23.3 \text{ mph @ } 14.75 \text{ msec}^\dagger$			242.31	15.88	142.73	28.50
10	MIDFRONT OF LEFT FRONT DOOR	99.1	-25.8	22.4				
	(LATERAL)	$\Delta V = 19.6 \text{ mph @ } 11.50 \text{ msec}$			106.72	8.13	53.19	17.75
11	UPPER REAR OF LEFT REAR DOOR	70.8	-25.6	33.1				
	(LATERAL)	$\Delta V = 36.3 \text{ mph @ } 16.13 \text{ msec}$			242.65	16.63	187.62	23.38

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

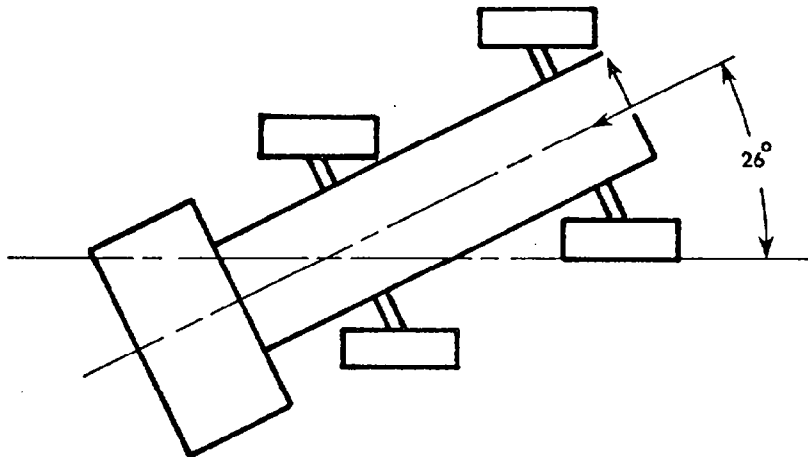
All measurements of accelerometer locations in inches.

[†] This Delta V appears unrealistic

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)	$\Delta V = -20.8 \text{ mph @ } 112.00 \text{ msec}$			---	--- ^x	21.99	36.13
	(LATERAL)	$\Delta V = -3.5 \text{ mph @ } 112.00 \text{ msec}$			3.01	73.00	9.05	39.88
	(VERTICAL)				27.71	51.13	15.26	63.25
	(RESULTANT)					30.26 @ 51.00		
2	FRONT FRAME MEMBER	130.3	0.0	11.3				
	(LONGITUDINAL)	$\Delta V = -19.1 \text{ mph @ } 112.00 \text{ msec}$			---	--- ^x	19.98	37.38
3	REAR FRAME MEMBER	23.3	0.0	11.5				
	(LONGITUDINAL)	$\Delta V = -15.8 \text{ mph @ } 112.00 \text{ msec}$			1.92	95.88	19.24	35.88

* 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.

^x No positive values in the time interval of interest.

HIGH SPEED CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead	Photosonic 1B	8	457	Vehicle dynamics
2	Overhead	Photosonic 1B	25	500	Close-up of impact point
3	Onboard MDB	Photosonic 1B	25	500	Close-up of impact point
4	Onboard MDB	Photosonic 1B	13	498	Driver kinematics
5	Ground level right	Photosonic 1B	25	498	Overall view
6	Ground level left	Photosonic 1B	17	520	Overall view
7	Onboard vehicle	Photosonic 1B	8	808	Driver kinematics - front view
8	Onboard vehicle	Photosonic 1B	8	798	Driver kinematics
9	Onboard vehicle	Photosonic 1B	13	800	Passenger kinematics
10	Right	Kodak	25	24	Overall view

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"	-11'	45"

Origin of Coordinate System is Point of Impact

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

NON-GOVERNMENT FURNISHED TRANSDUCER INFORMATION

PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NUMBER	SERIAL NUMBER	MFGR.	DATE OF LAST CALIBRATION	SENSITIVITY	DESIRED FULL SCALE (ENGR. UNITS)
BCGXG	Accel	4-202-0001	18845	Bell Howell	11/8/84	0.237 MV/G	50 G
BCGYG	Accel	4-202-0001	18858	Bell Howell	11/8/84	0.238 MV/G	50 G
BCGZG	Accel	4-202-0001	18857	Bell Howell	11/8/84	0.240 MV/G	50 G
BFCXG	Accel	4-202-0001	18240	Bell Howell	11/8/84	0.239 MV/G	50 G
BRCXG	Accel	4-202-0001	19022	Bell Howell	11/8/84	0.220 MV/G	50 G

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

APPENDIX A
PHOTOGRAPHS



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

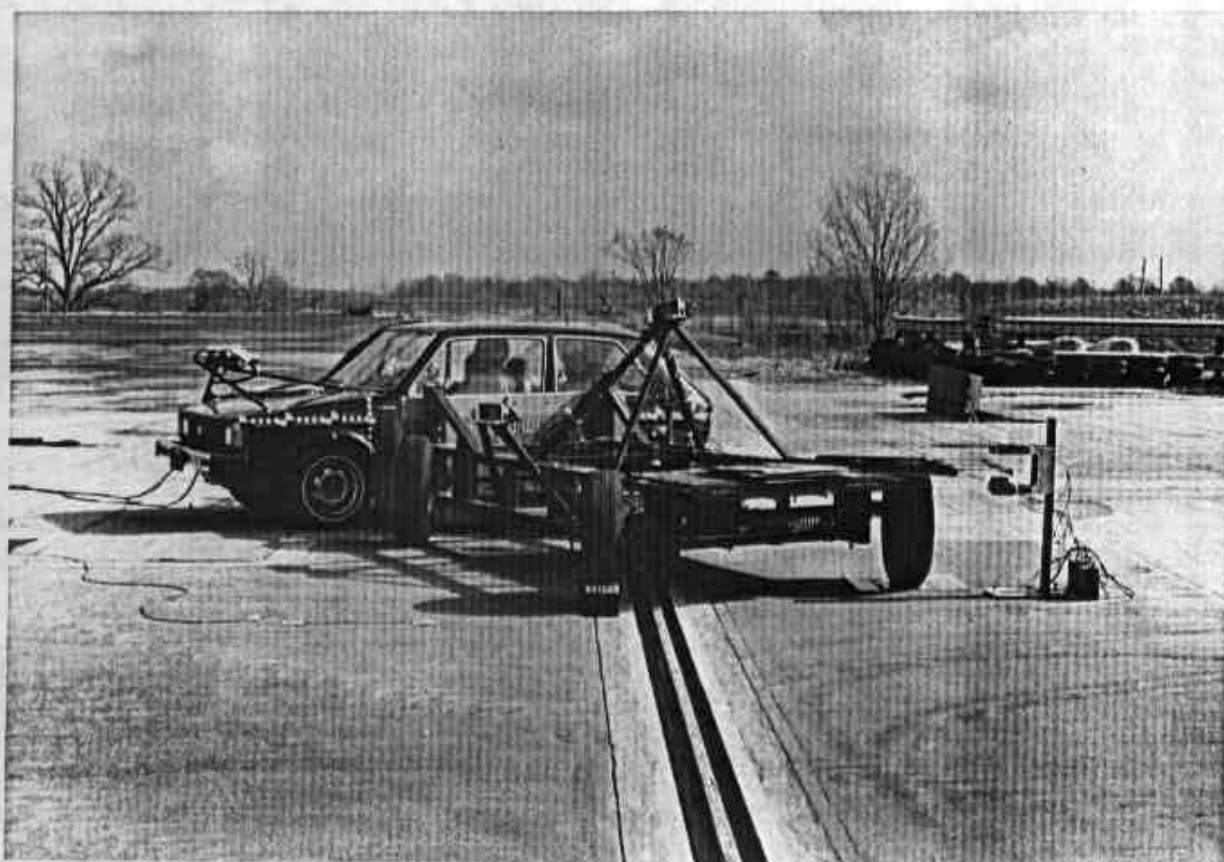


Figure A-2. PRE-TEST OVERALL VIEW 2
A 2



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



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

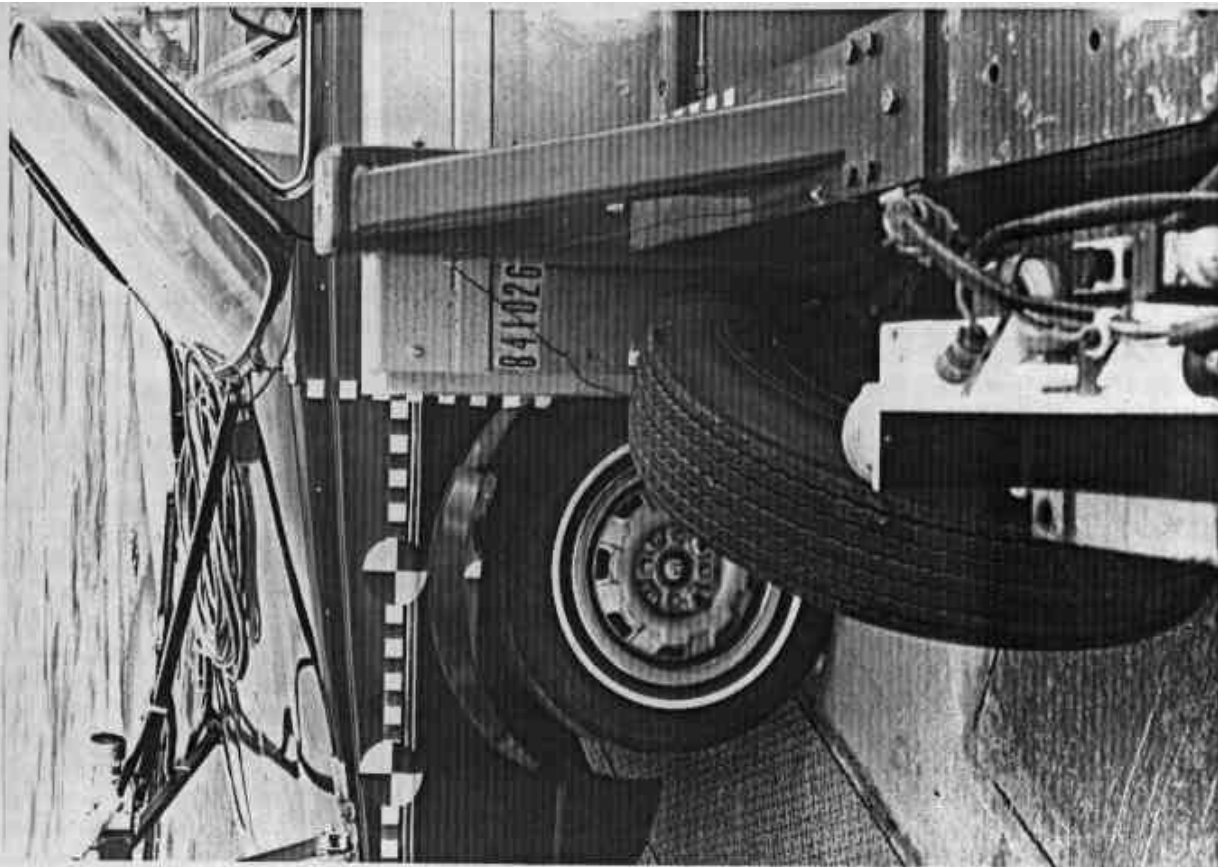


Figure A-5. PRE-TEST CLOSEUP - VIEW 1



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



Figure A-7. PRE-TEST MODIFIED WINDOW

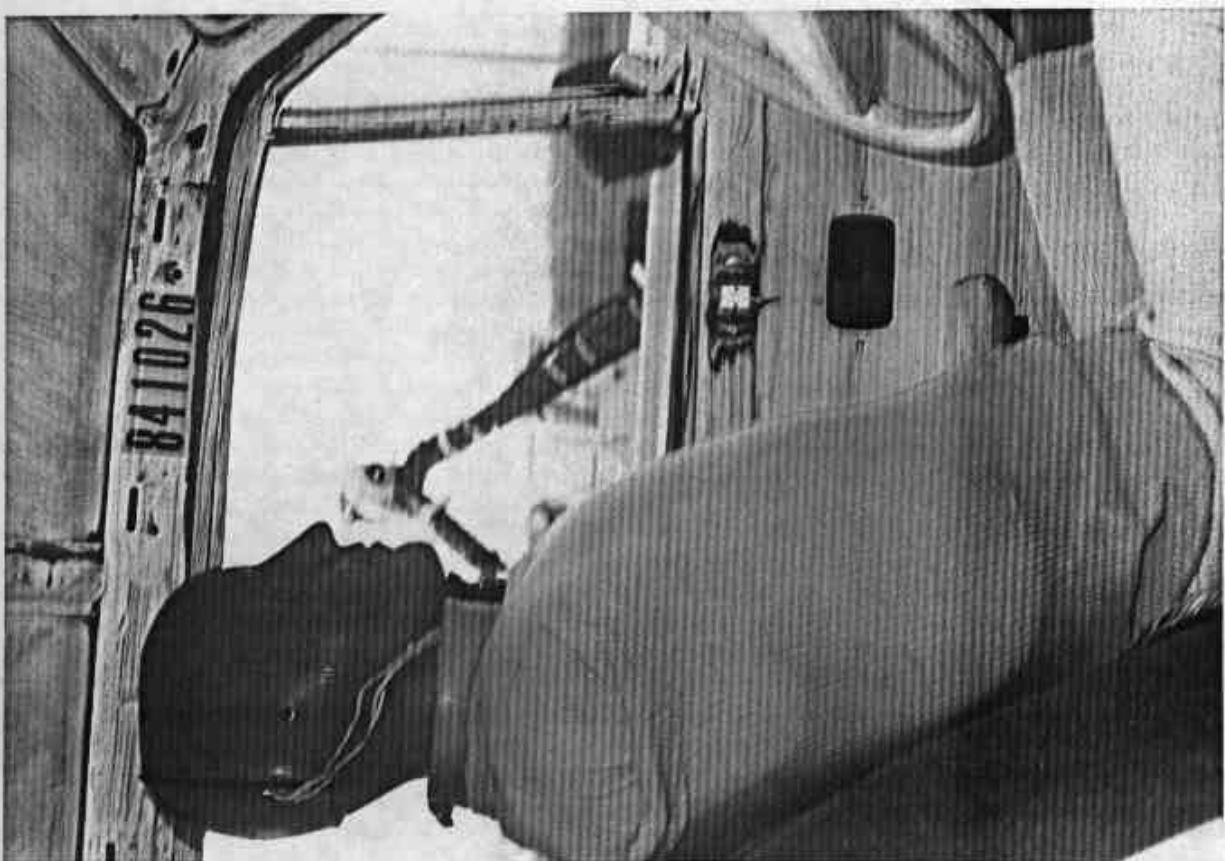


Figure A-8. PRE-TEST DRIVER DUMMY - VIEW 1
A-5

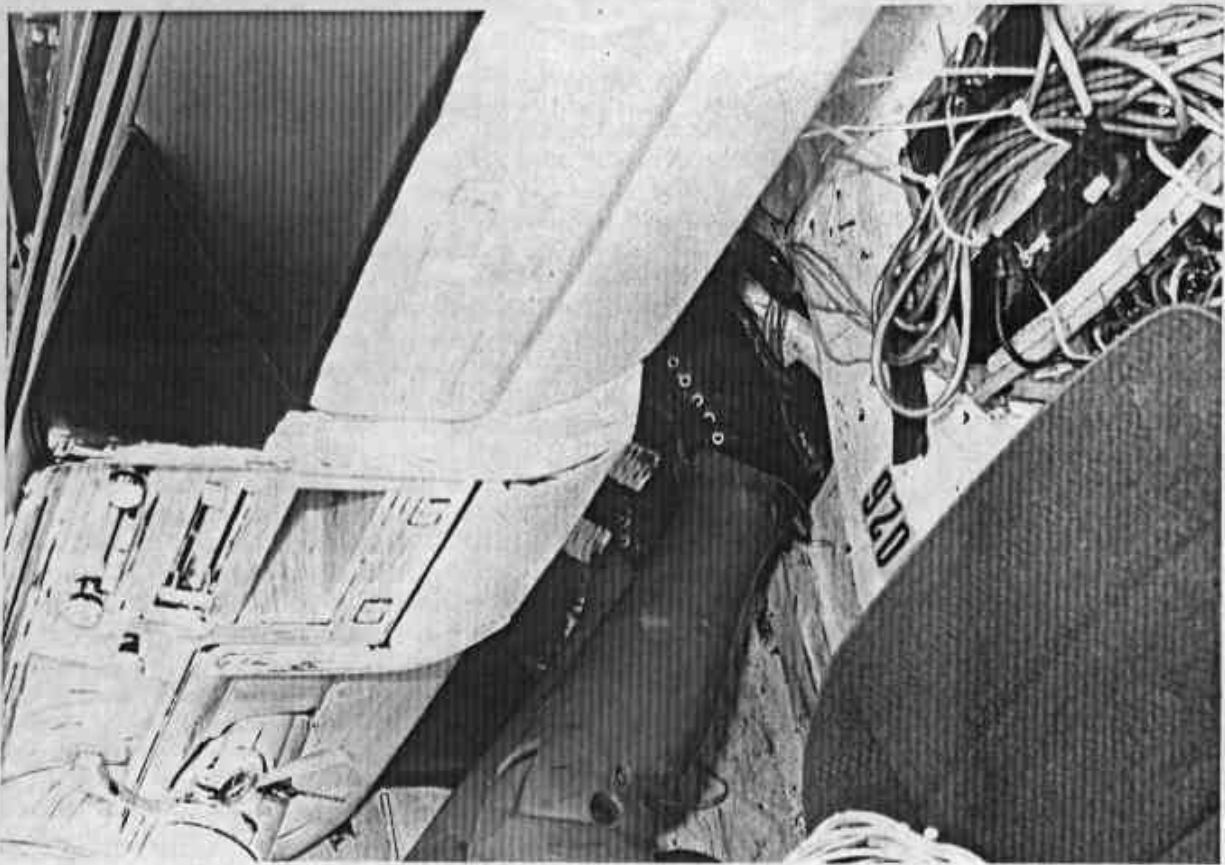


Figure A-9. PRE-TEST DRIVER DUMMY - VIEW 2



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

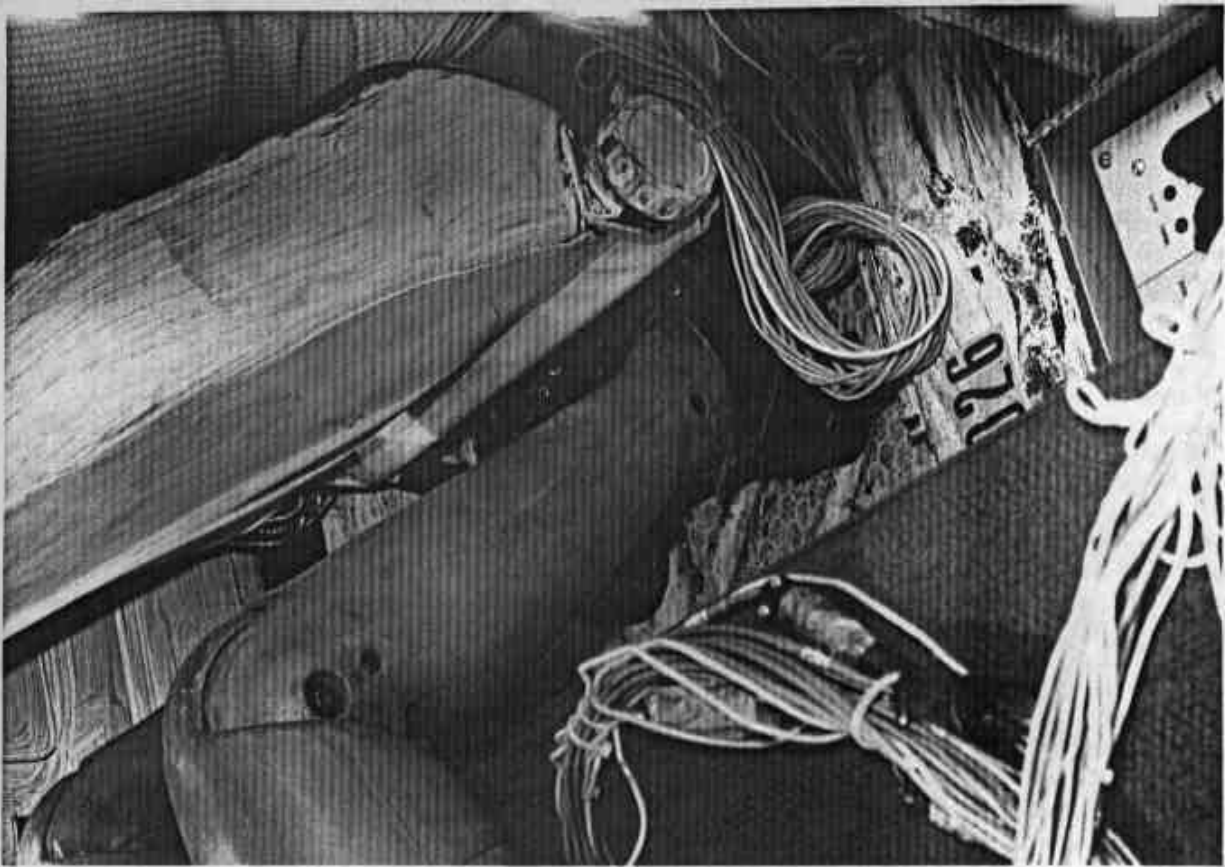


Figure A-11. PRE-TEST PASSENGER DUMMY - VIEW 2



Figure A-12. PRE-TEST DUMMIES OVERALL
A-7

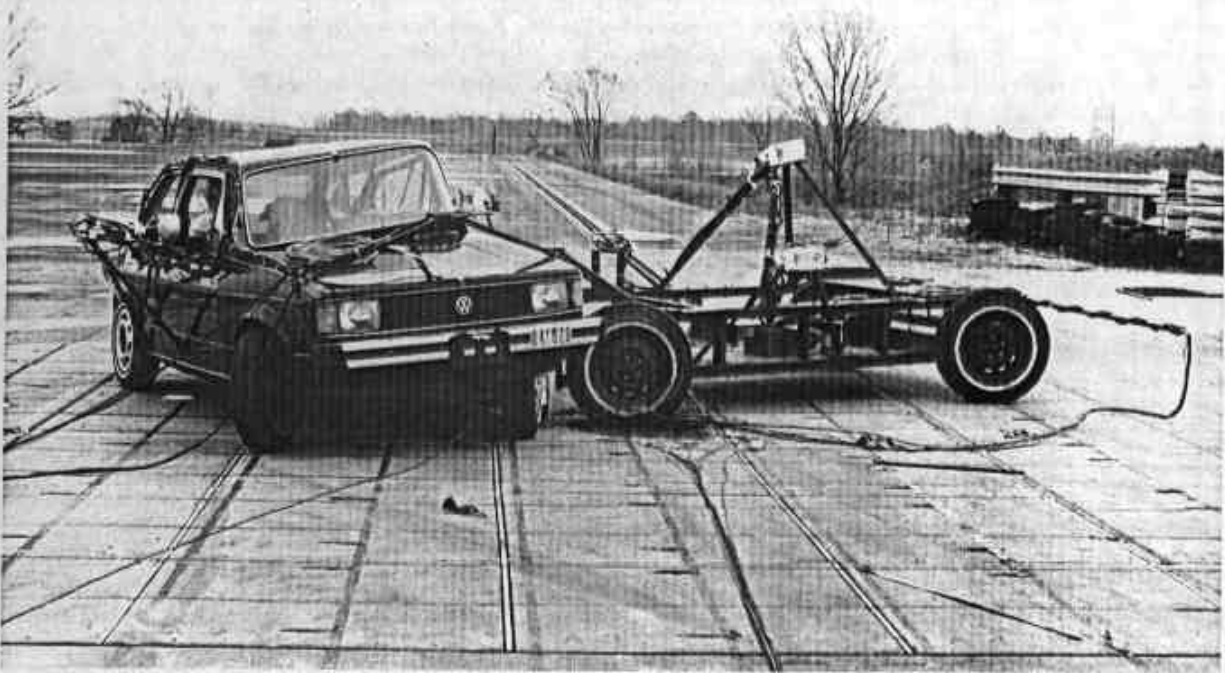


Figure A-13. POST-TEST OVERALL - VIEW 1

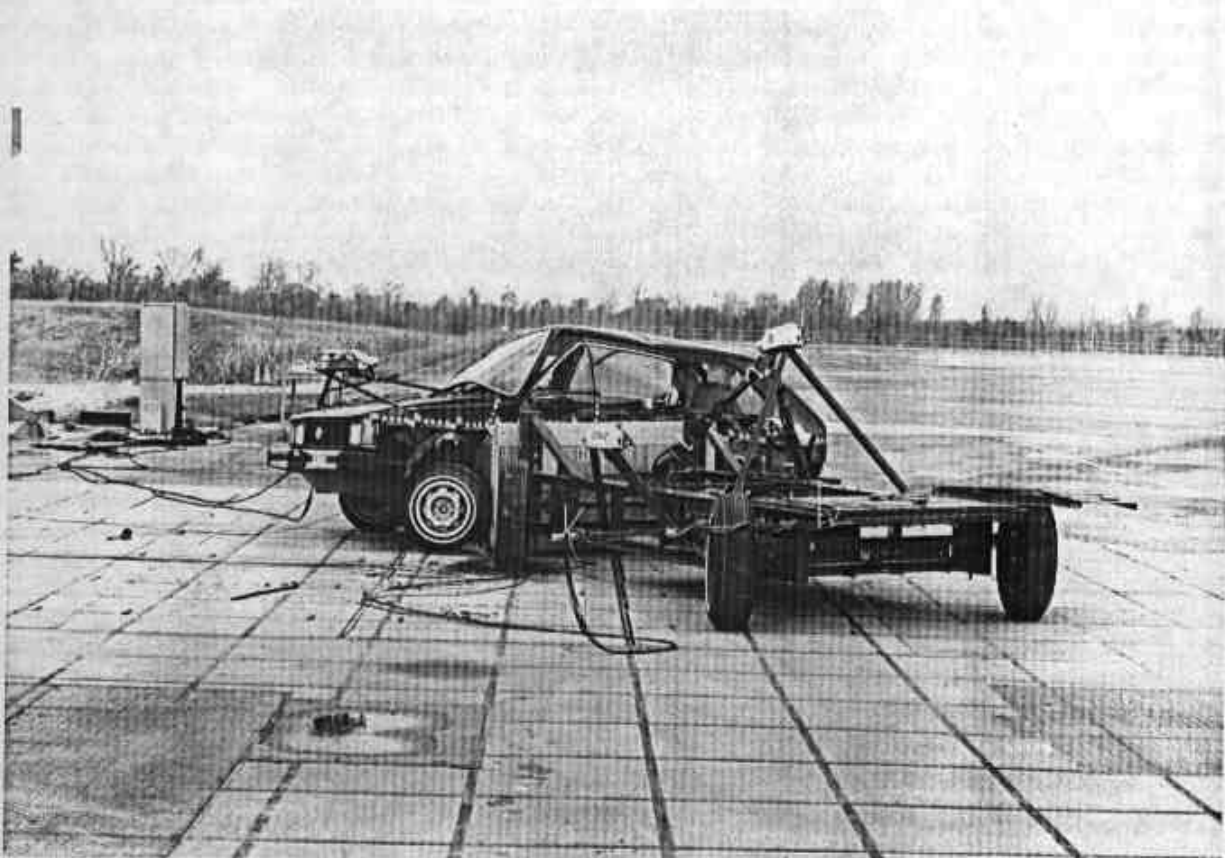


Figure A-14. POST-TEST OVERALL - VIEW 2
A-8



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



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



Figure A-17. POST-TEST DRIVER DUMMY - VIEW 1

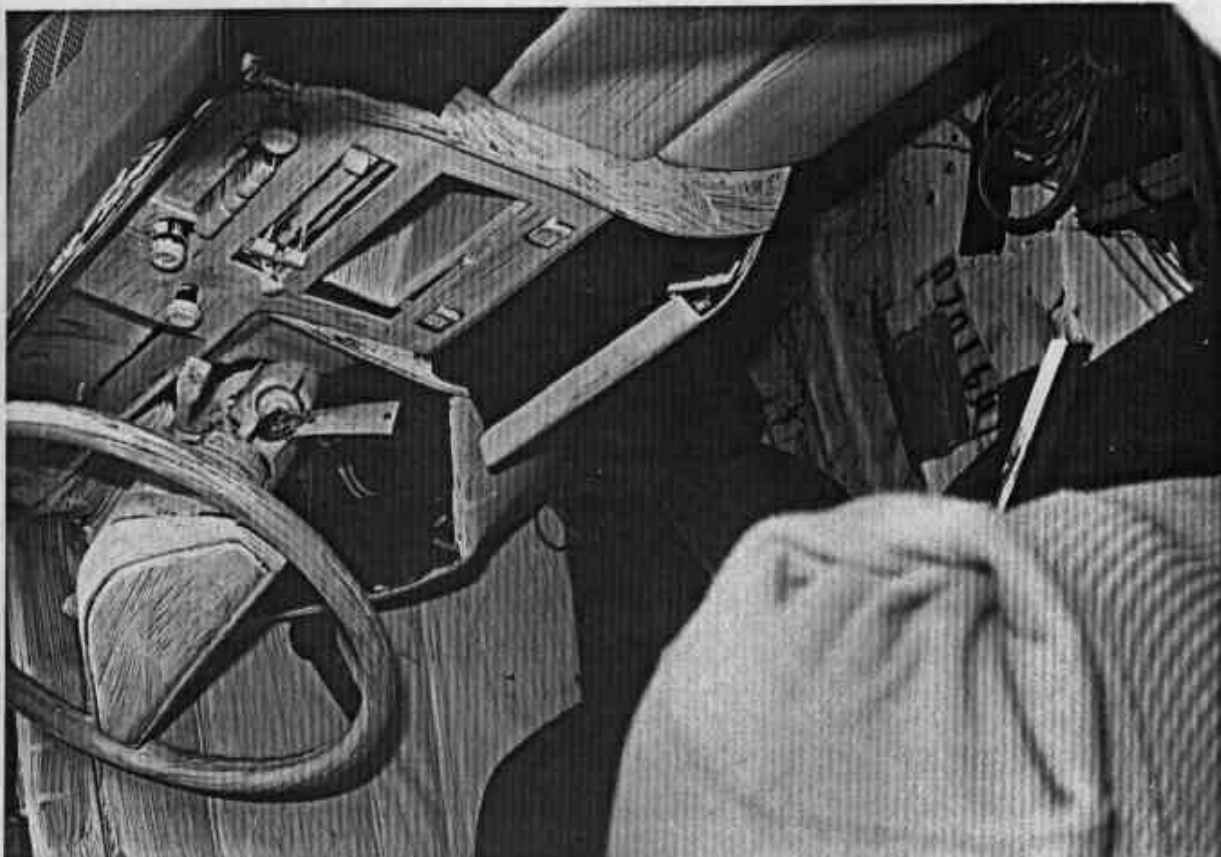


Figure A-18. POST-TEST DRIVER DUMMY - VIEW 2
A-10



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



Figure A-20. POST-TEST PASSENGER DUMMY - VIEW 2

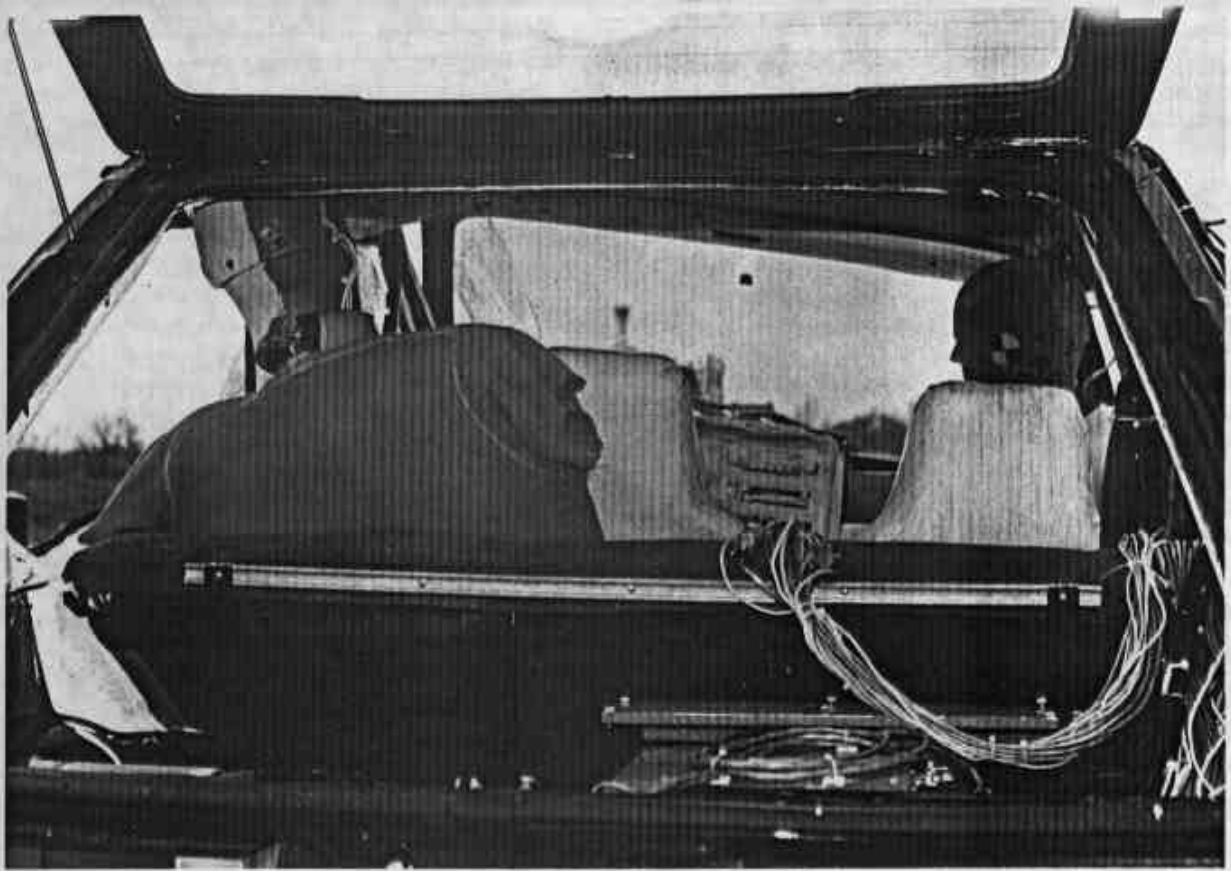


Figure A-21. POST-TEST DUMMIES OVERALL



Figure A-22. POST-TEST VEHICLE DAMAGE - VIEW 1
A-12

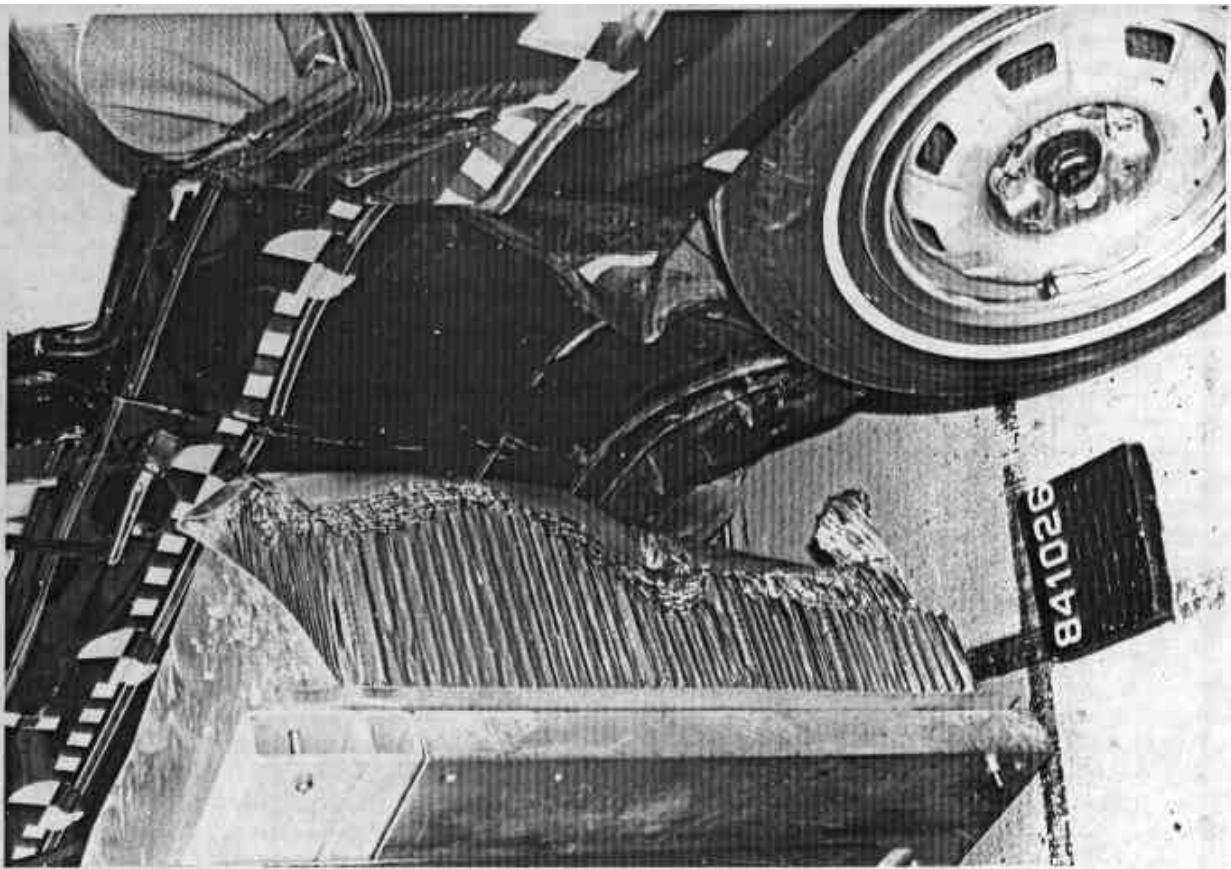


Figure A-23. POST-TEST VEHICLE DAMAGE - VIEW 2



Figure A-24. POST-TEST MODIFIED WINDOW
A-13

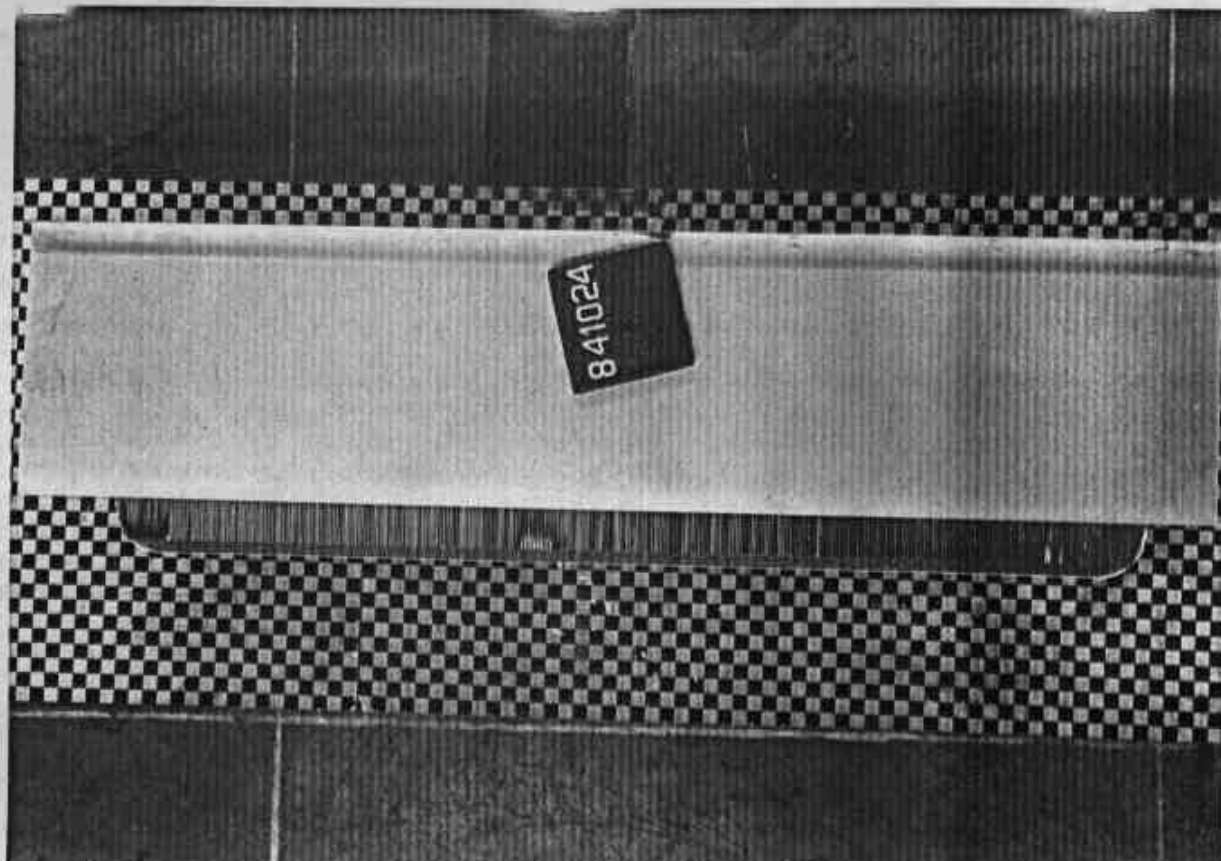


Figure A-25. PRE-TEST MDB FACE - VIEW 1

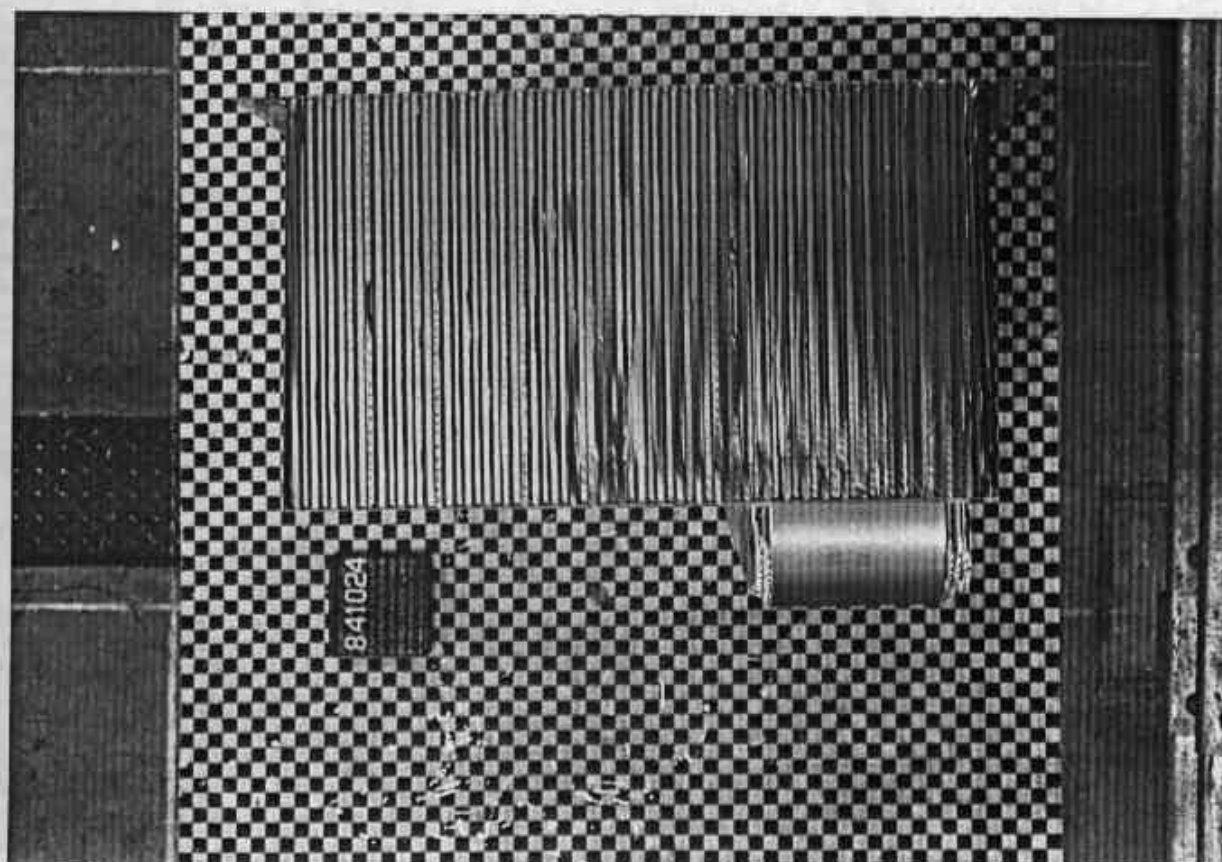


Figure A-26. PRE-TEST MDB FACE - VIEW 2
A-14

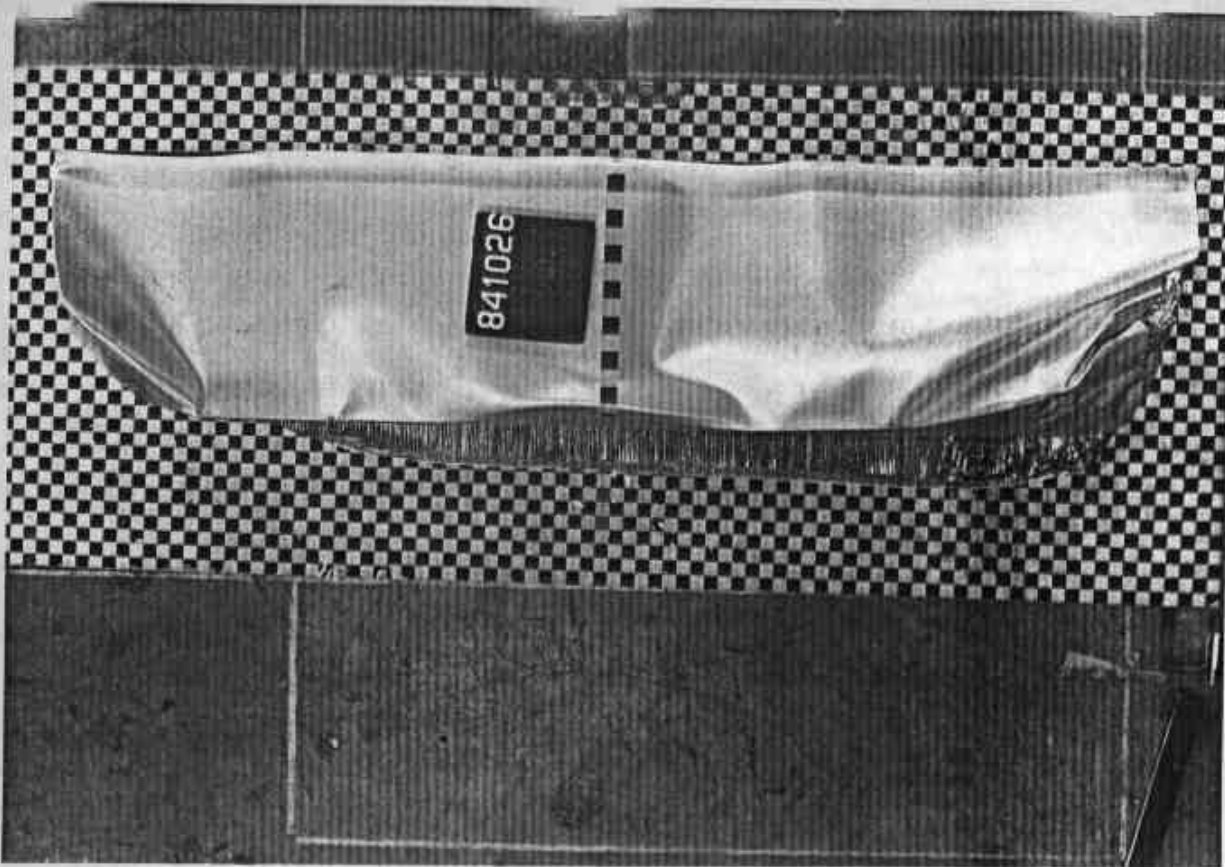


Figure A-27. POST-TEST MDB FACE -- VIEW 1

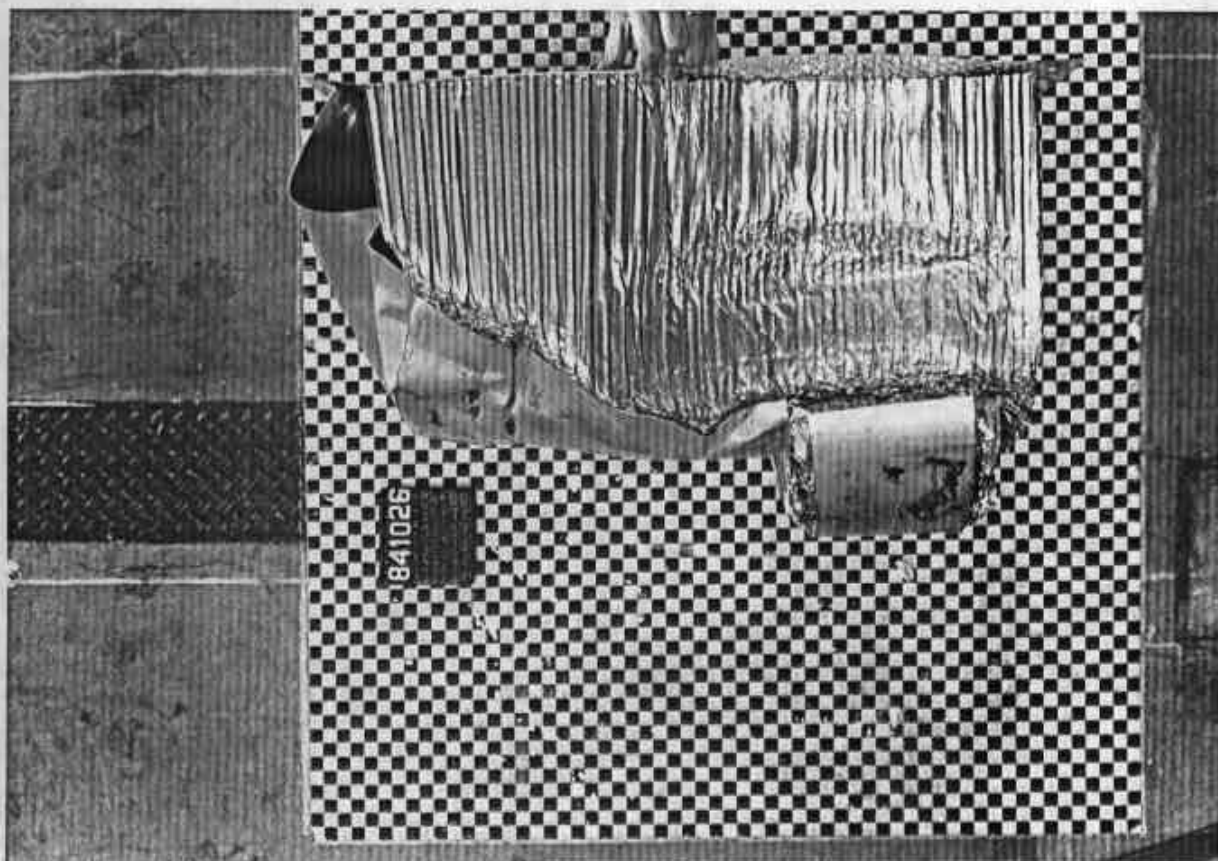


Figure A-28. POST-TEST MDB FACE - VIEW 2

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. The data was filtered according to SAE J211, except dummy thorax data which was filtered using the HSRI filter.

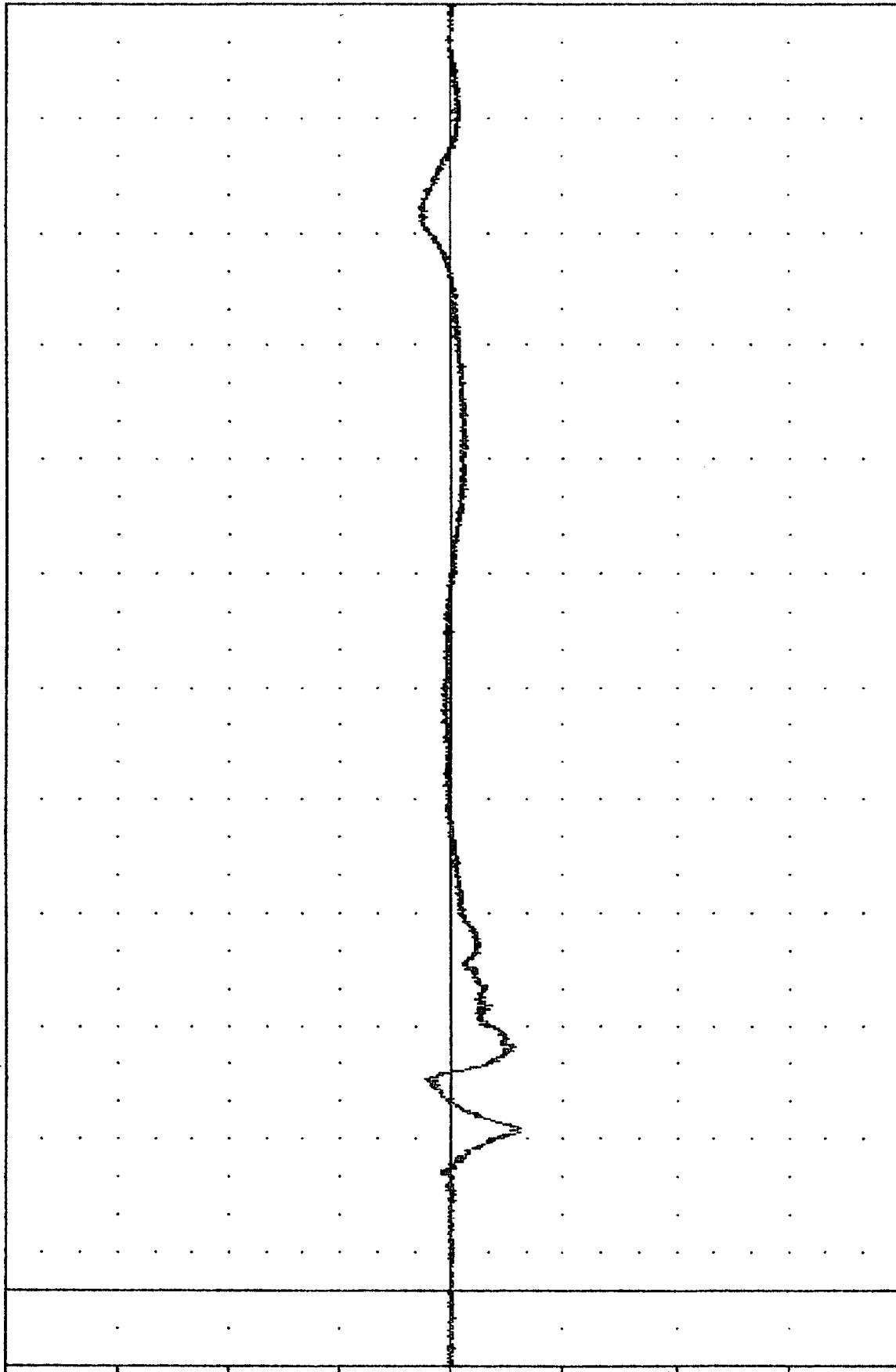
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 HEDXG1

PLOT DATE 1-NOV-84 16:02:06

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -30.94e 41.38 , 14.28 e 284.13

ACCELERATION (G)



-200.00 -150.00 -100.00 -50.00 0.00 50.00 100.00 150.00 200.00

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

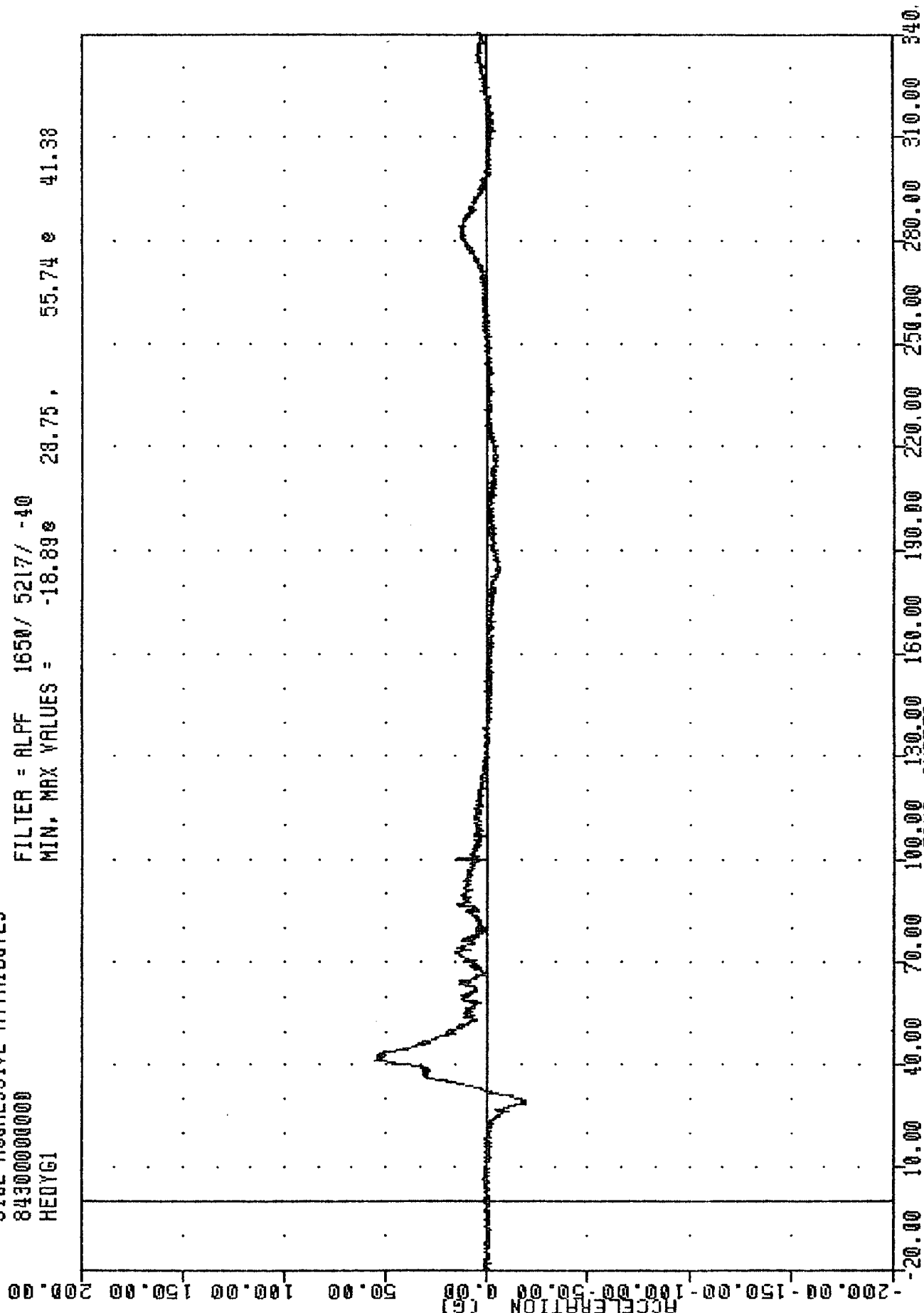
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 NATURAL HFRAN ACCELERATION X AXIS

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 HEDYG1

PLOT DATE 1-NOV-84 16:02:06

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -18.89g 28.75, 55.74 g 41.38



B-3

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER HEAD ACCELERATION Y AXIS

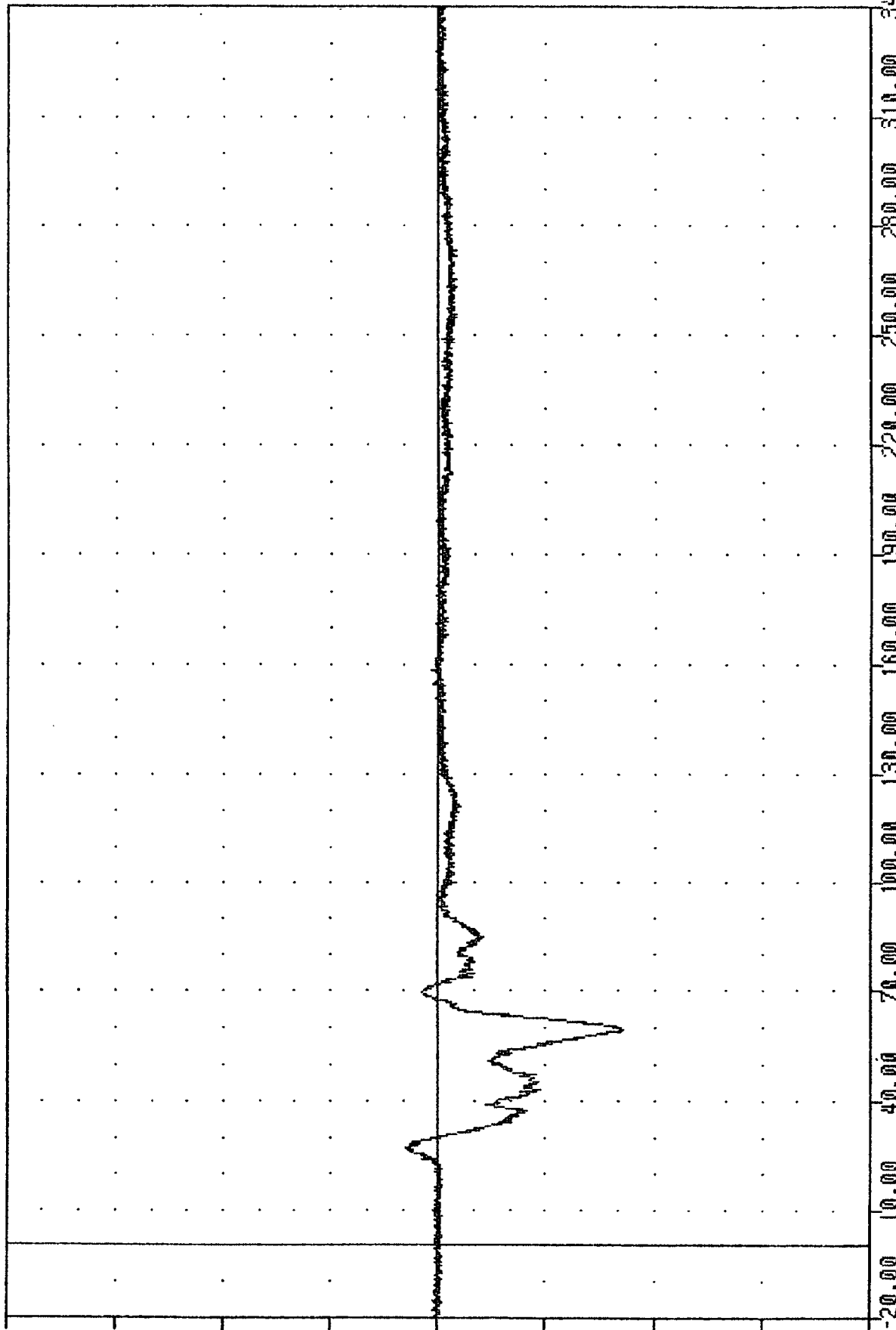
TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 HEDZ61

PLOT DATE 1-NOV-84 16:02:06

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -85.32 59.50 14.63 27.13

ACCELERATION (G)



B-4

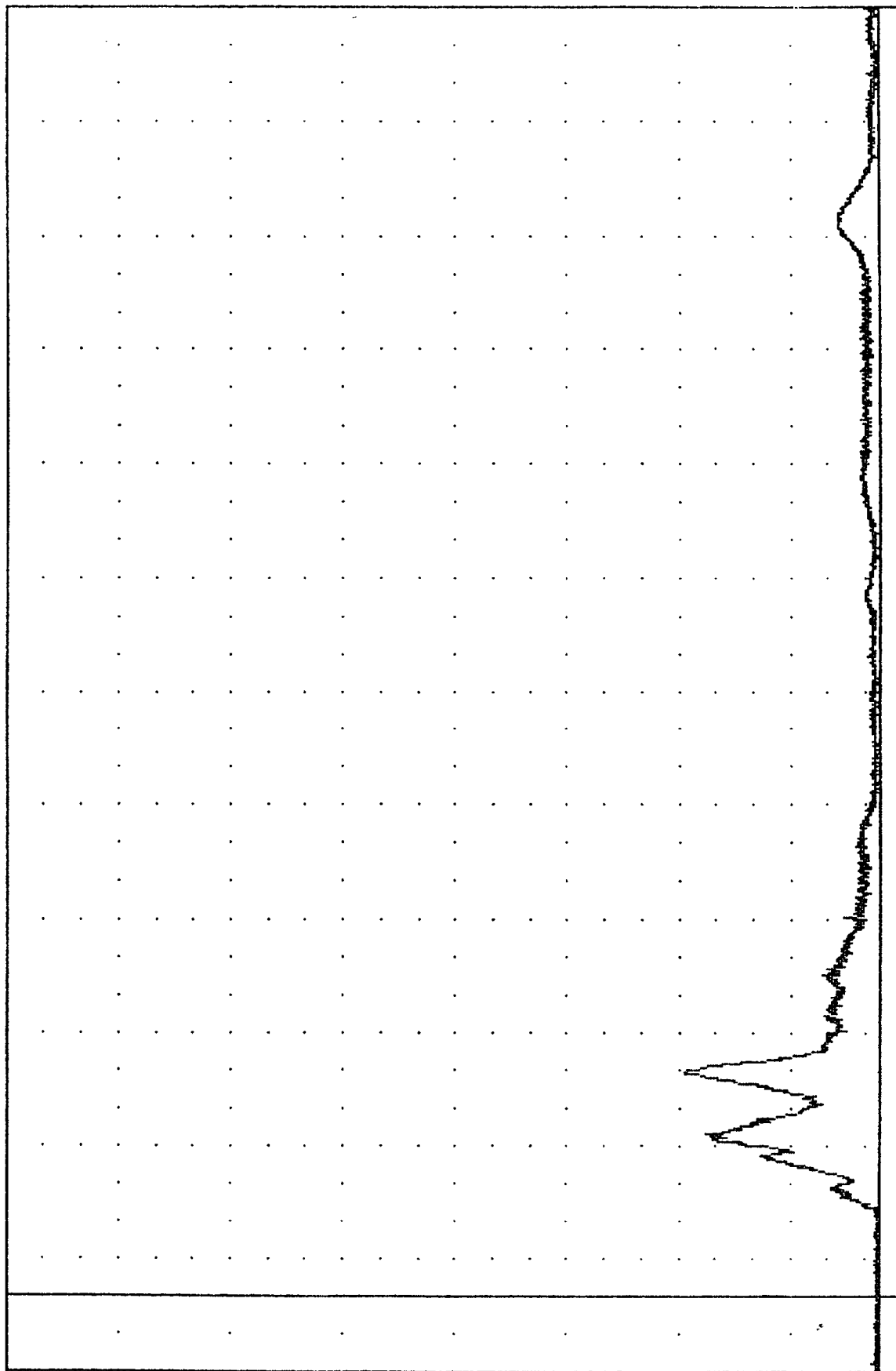
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER HEAD ACCELERATION Z AXIS

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 HEDRG1

PLOT DATE 1-NOV-84 16:02:06

FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = 0.13e -0.88. 87.49 e 59.50

ACCELERATION (g)



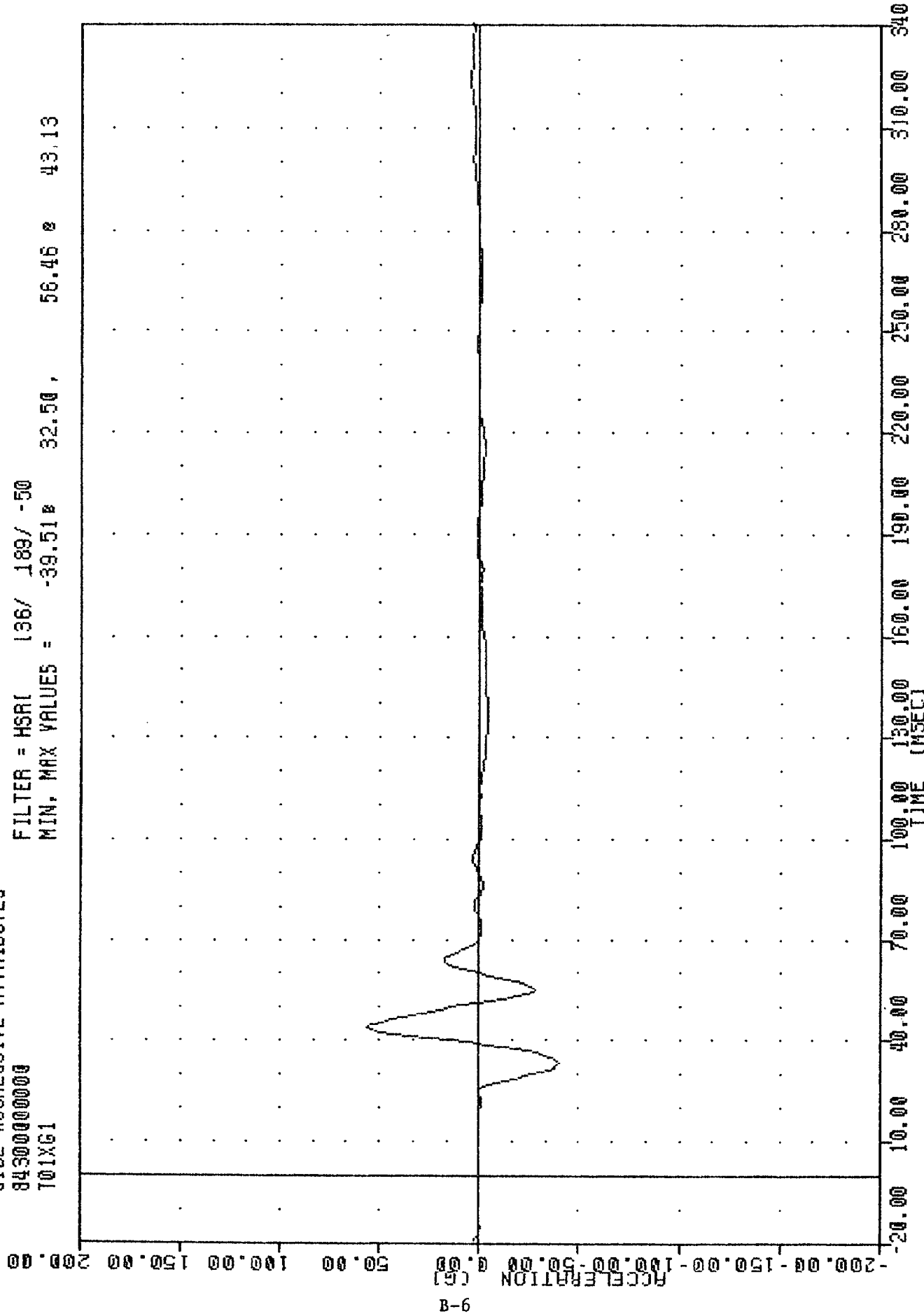
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER HEAD RESULTANT

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 701XG1

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -39.51 32.50, 56.46 43.13



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

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T01YG1

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -48.40e 52.50, 109.89 e 33.13

200.00

150.00

100.00

50.00

0.00

-50.00

-100.00

-150.00

-200.00

ACCELERATION (G)

0.00

50.00

100.00

150.00

200.00

250.00

300.00

350.00

TIME (MSEC)

0.00

50.00

100.00

150.00

200.00

250.00

300.00

350.00

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

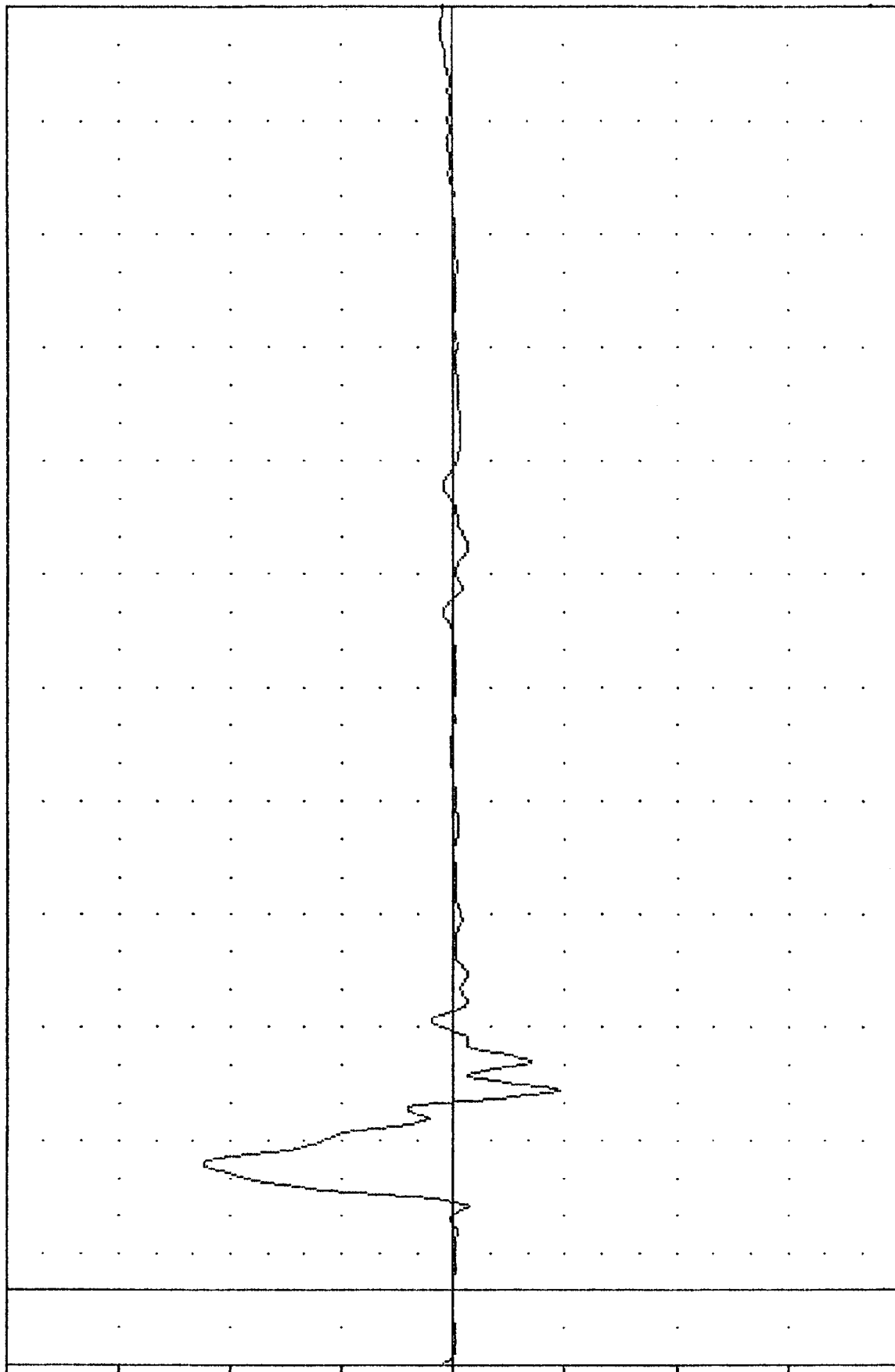
TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T01Y6A

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ .50
 MIN, MAX VALUES = -47.168 52.50 , 112.11 8 33.13

ACCELERATION (G)

200.00 150.00 100.00 50.00 0.00 -50.00 -100.00 -150.00 -200.00



B-8

-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

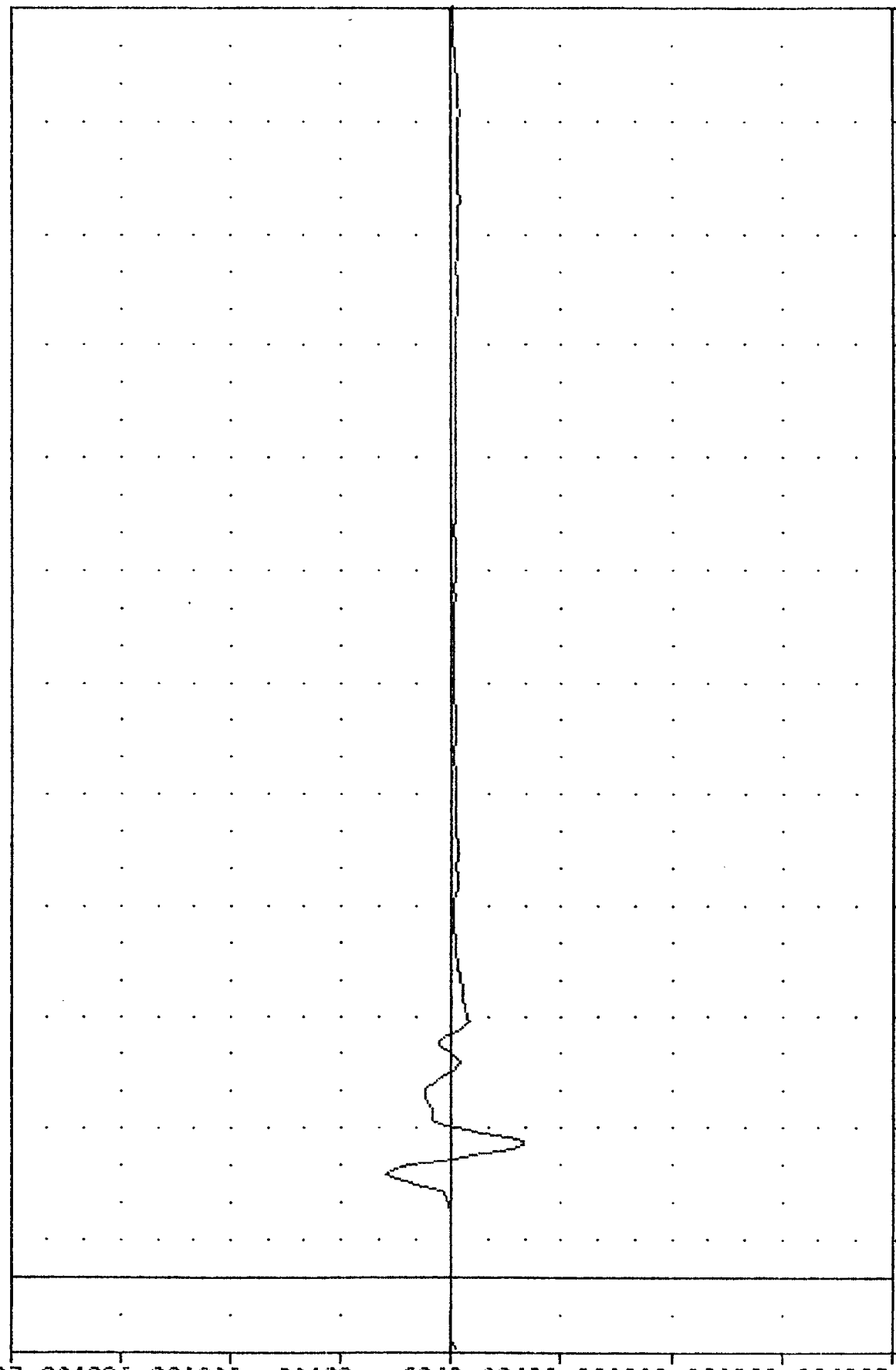
NOTED UNDER CRIME ACCELERATION 20 V OYTC

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T01ZG1

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -32.61% 35.00, 29.77 % 26.87

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
 DRIVER UPPER SPINE ACCELERATION Z AXIS

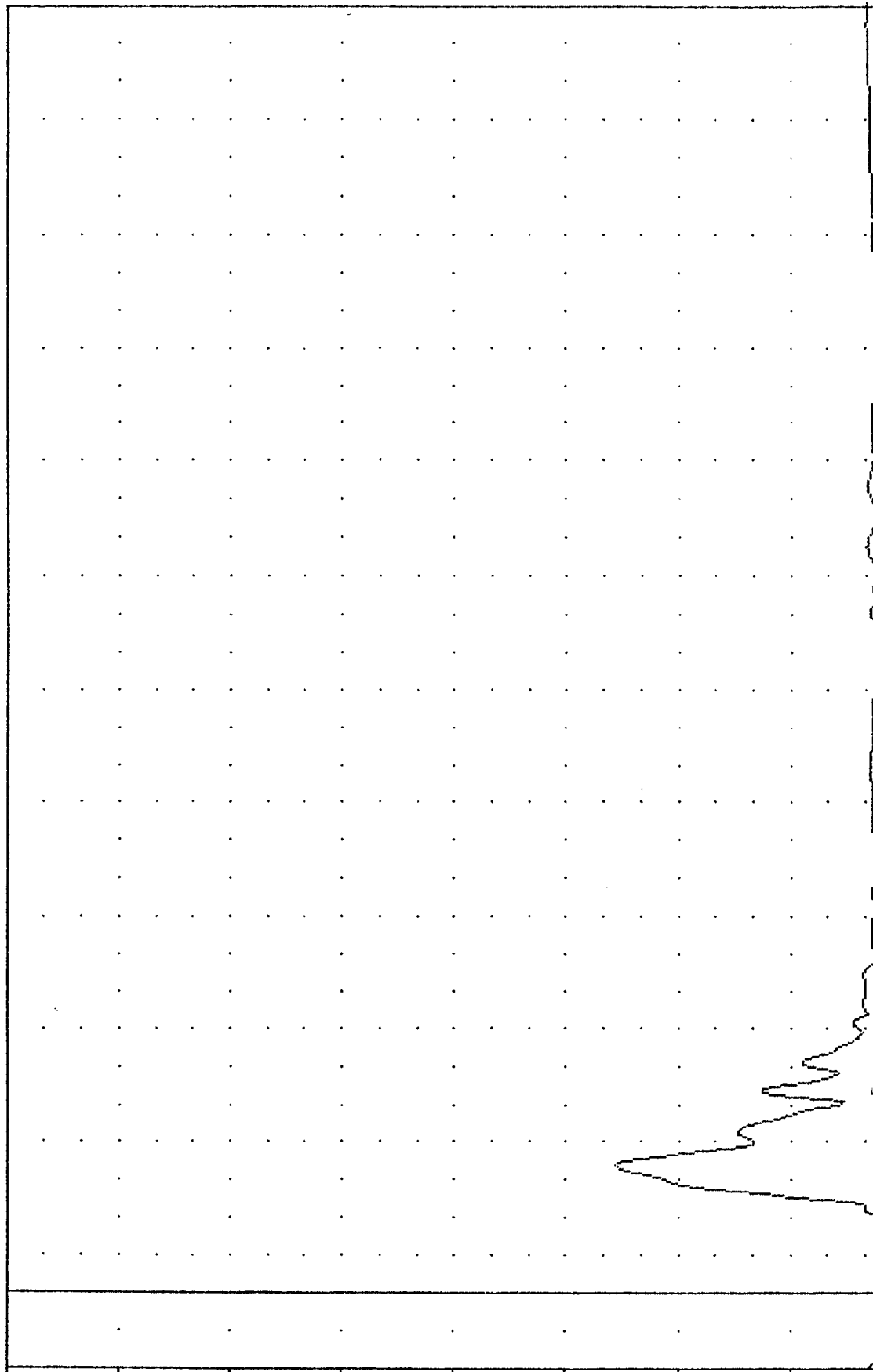
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 T01RG1

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.108 -11.25, 118.66 e 33.13

ACCELERATION (G)



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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 NETVED HIBED CODE DEC11 TMT

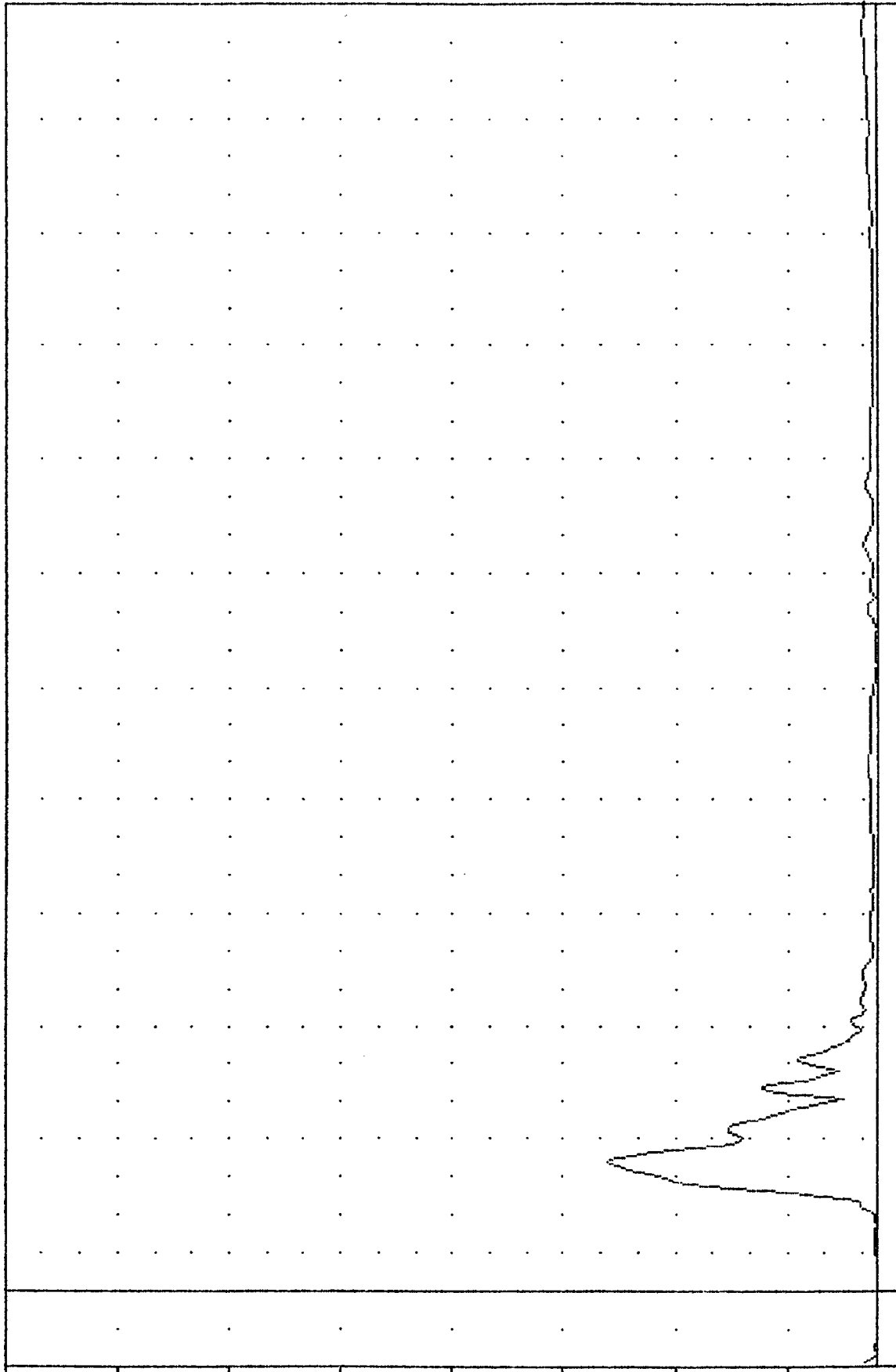
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T01RGA

PLOT DATE 1-NOV-84 16:04:53

FILTER = HSRI 136/ -189/ -50

MIN. MAX VALUES = 0.14e 0.00, 120.71 e 33.13

ACCELERATION (G)



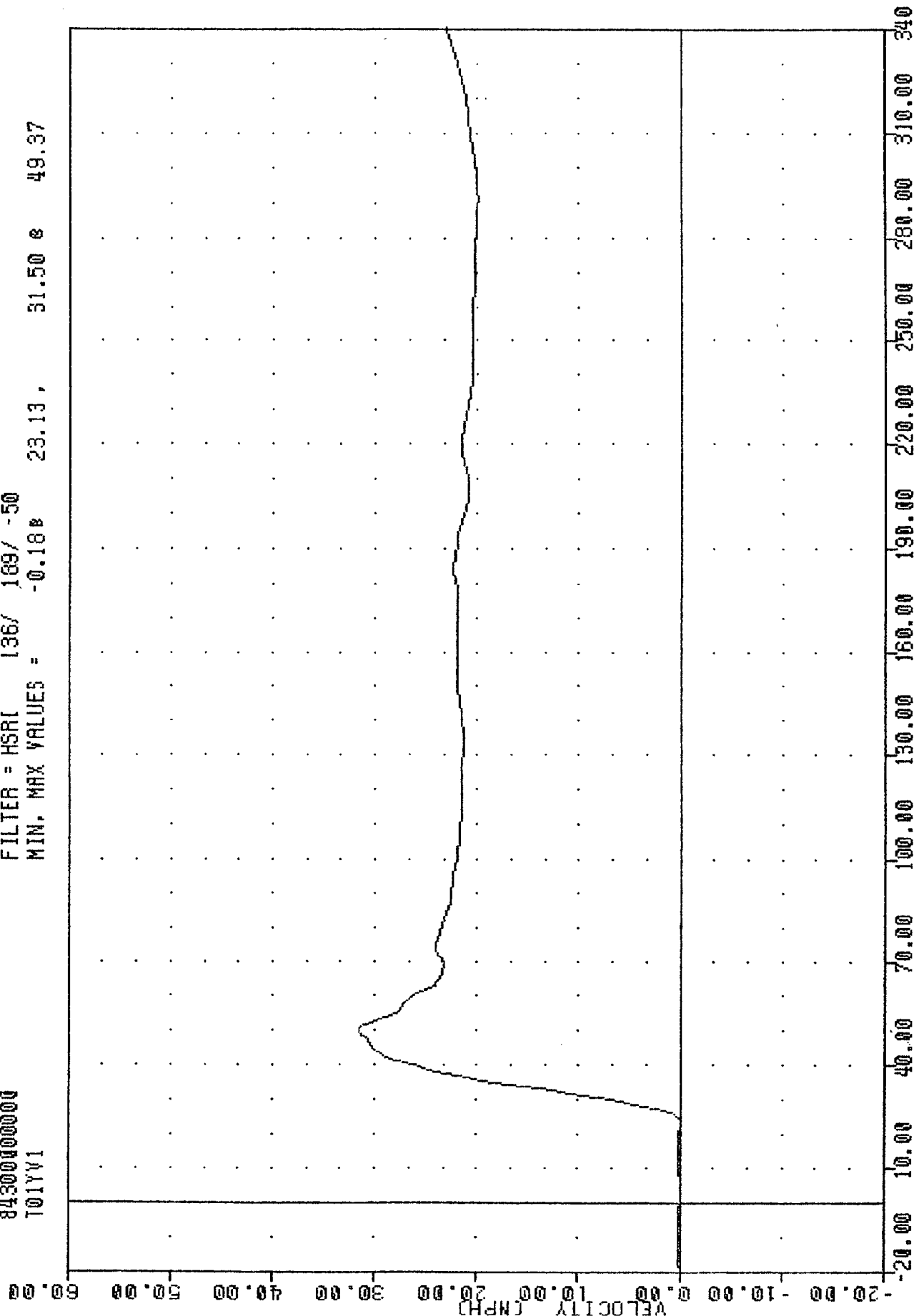
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE RESULTANT LISTING T01YGA

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 T01YV1

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.188 23.13, 31.50 49.37



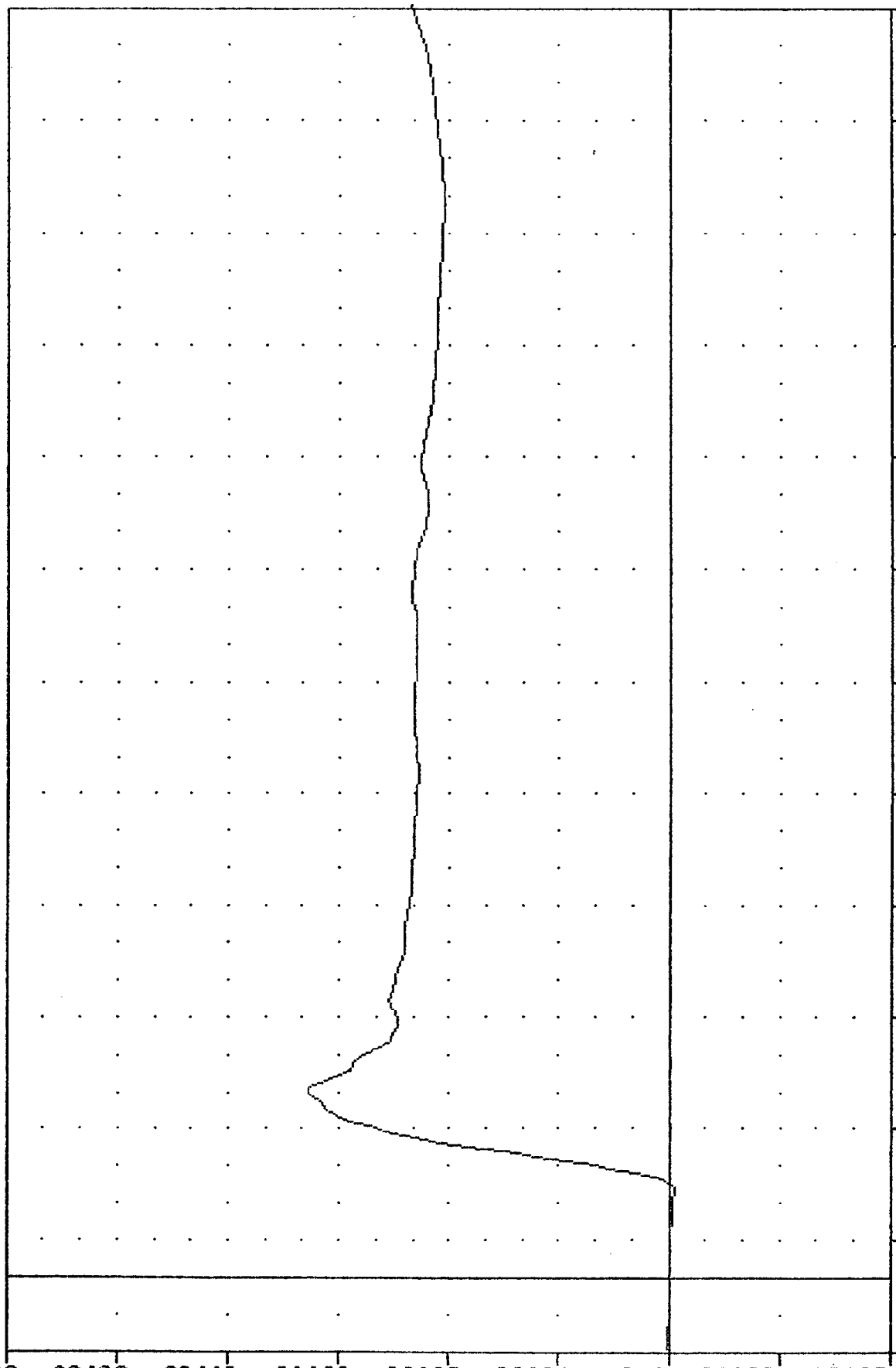
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YV1

TRC 841026
SIDE AGGRESSIVE ATTRIBUTES
84300000000
T01YVA

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.59e 23.13, 32.75 e 50.00

VELOCITY (MPH)



B-13

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING T01YGA

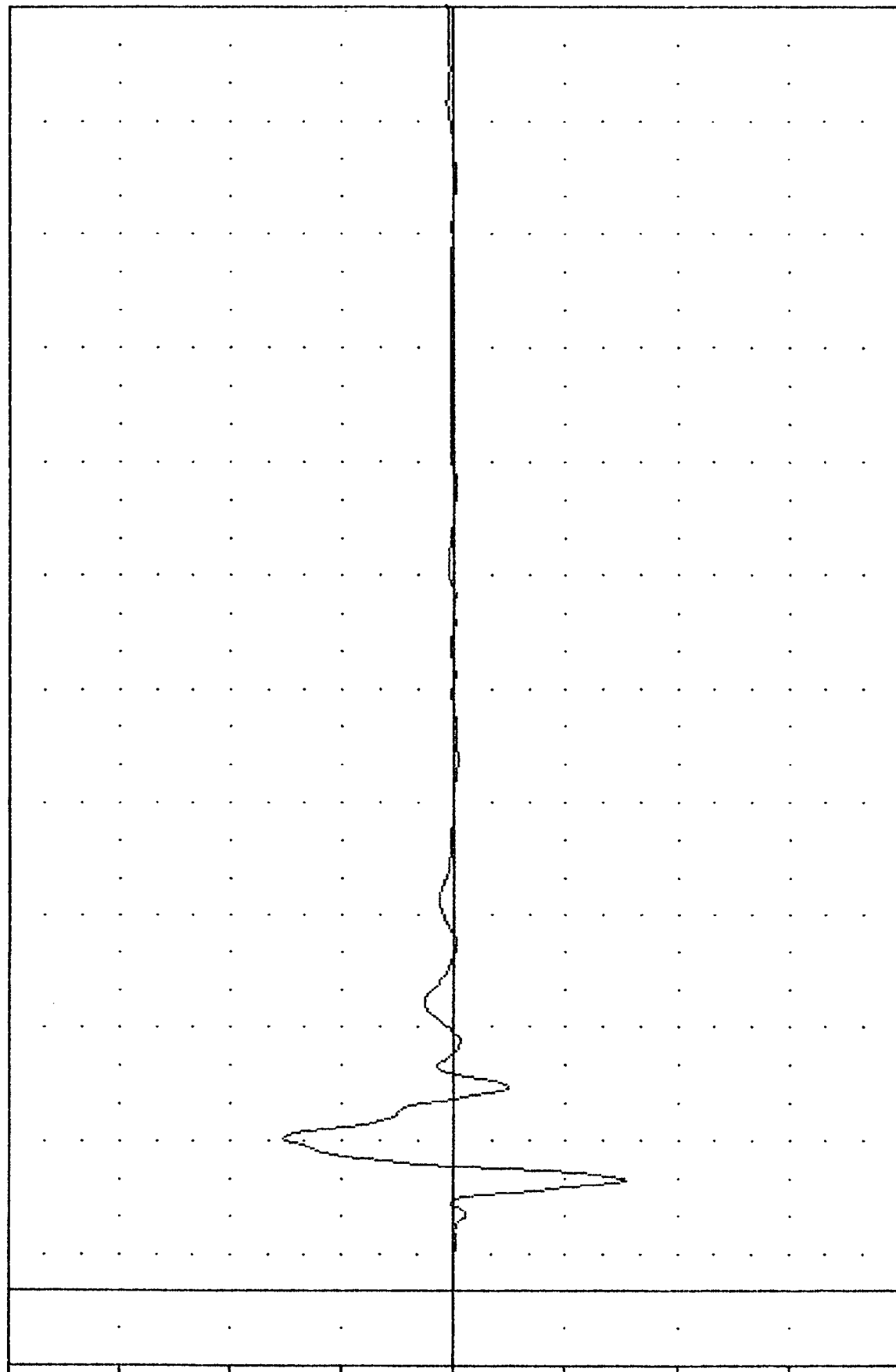
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12X61

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -76.90e 28.75 76.89 e 40.00

ACCELERATION (G)



B-14

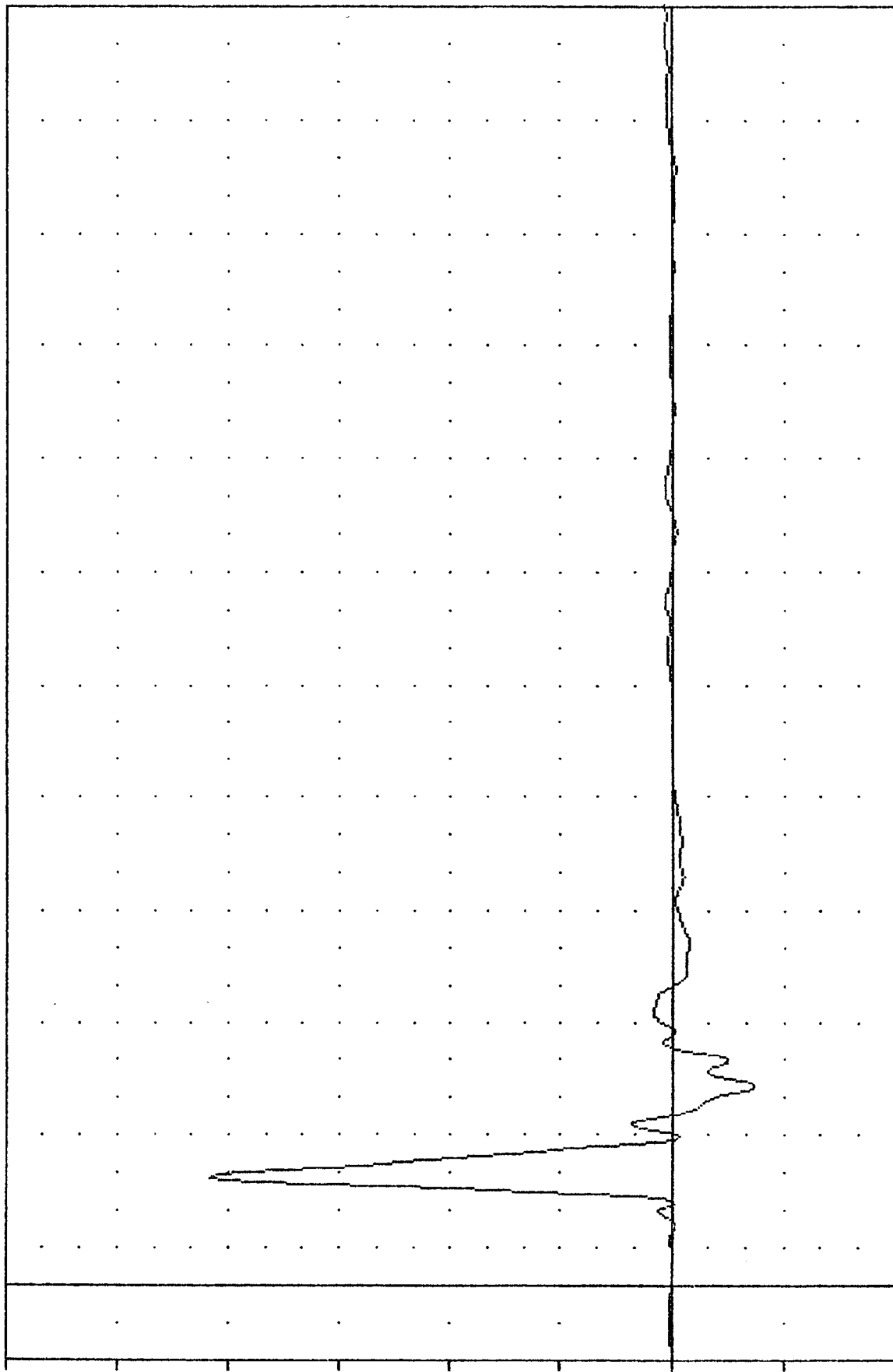
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE ACCELERATION Y AXIS

TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12YG1

PLOT DATE 2-NOV-84 09:29:32

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -36.838 52.50, 208.10 28.13

ACCELERATION [G]



B-15

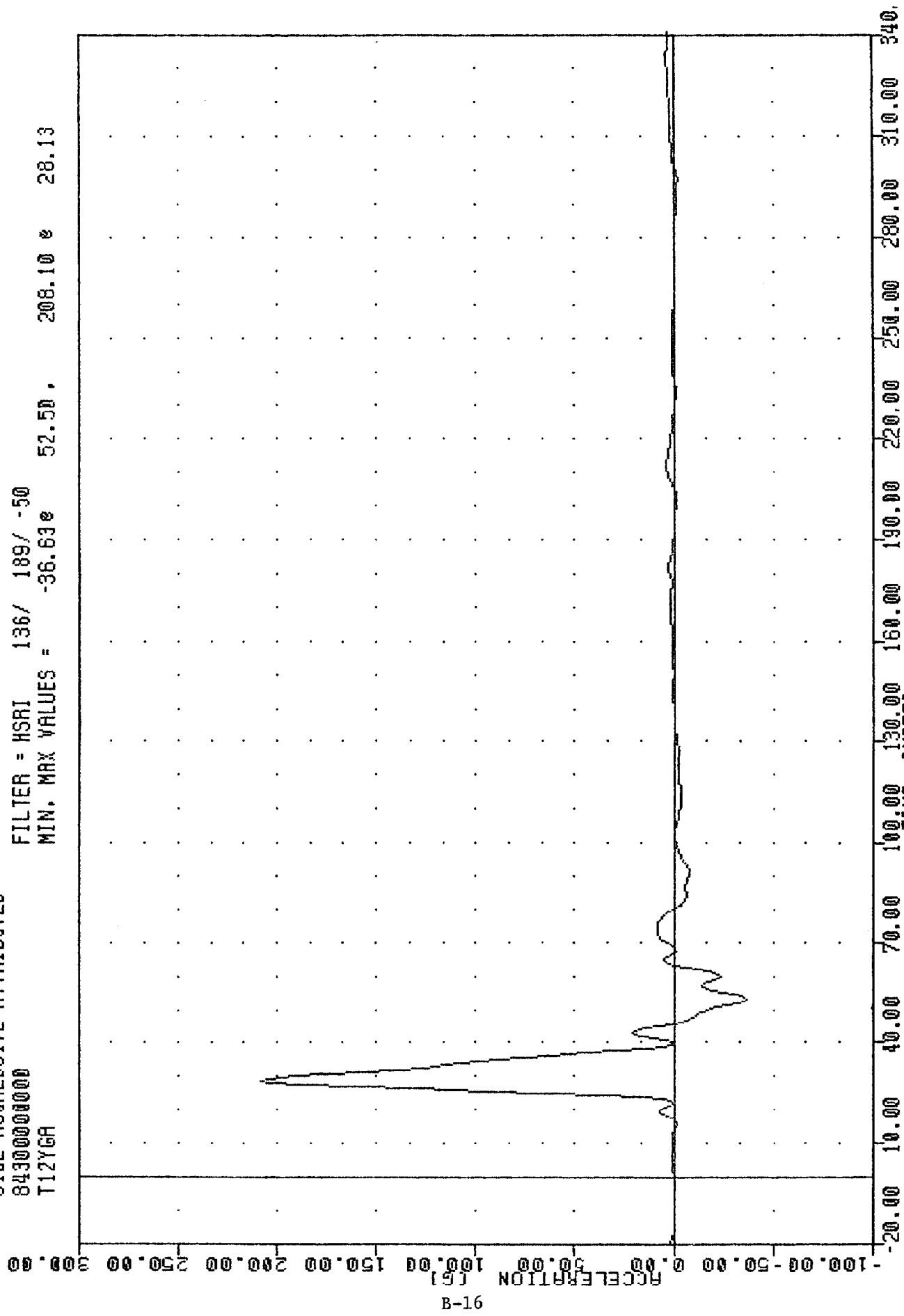
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DERIVED FROM SPINE ACCELERATION DATA

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12YGA

PLOT DATE 2-NOV-84 09:29:32

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -36.630 52.50 , 208.10 28.13



B-16

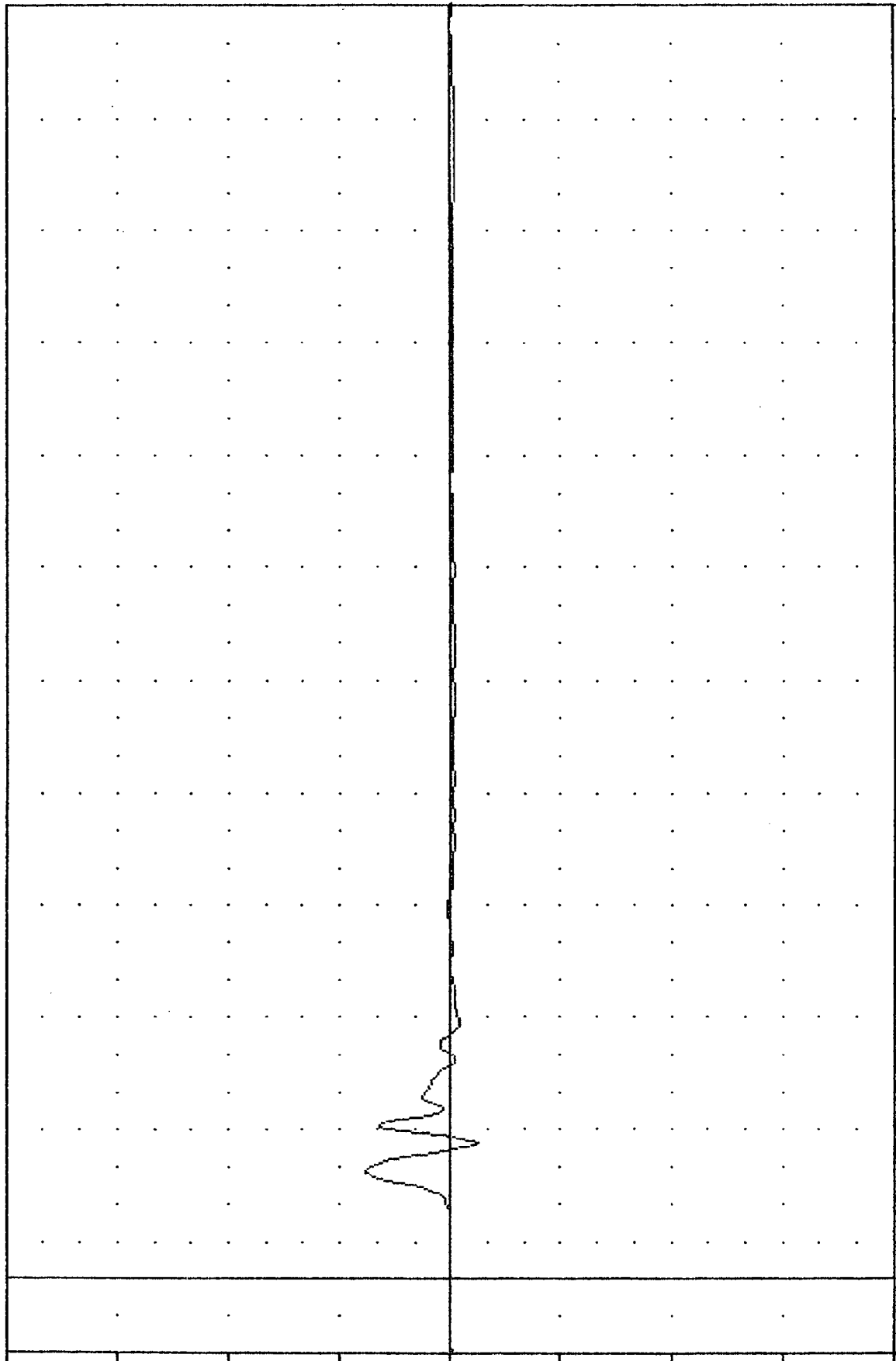
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER INNER COTING ACCELERATION 23 Y AXIS

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12Z61

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -12.05e 35.63 , 38.44 e 28.13

ACCELERATION (G)



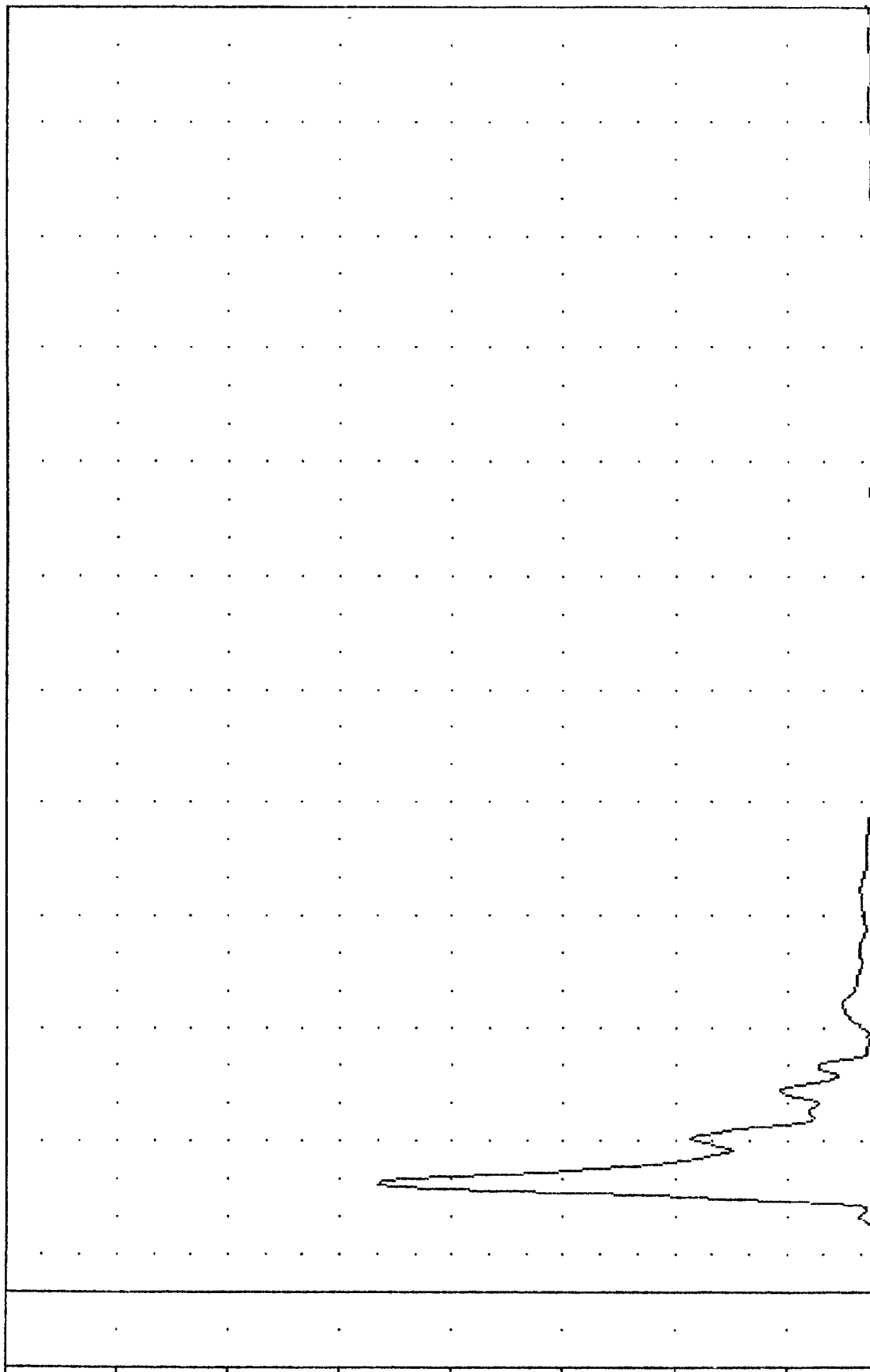
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12RG1

PLOT DATE 1-NDV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.10e -13.75, 223.65 e 28.13

ACCELERATION (g)



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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE RECU TANT

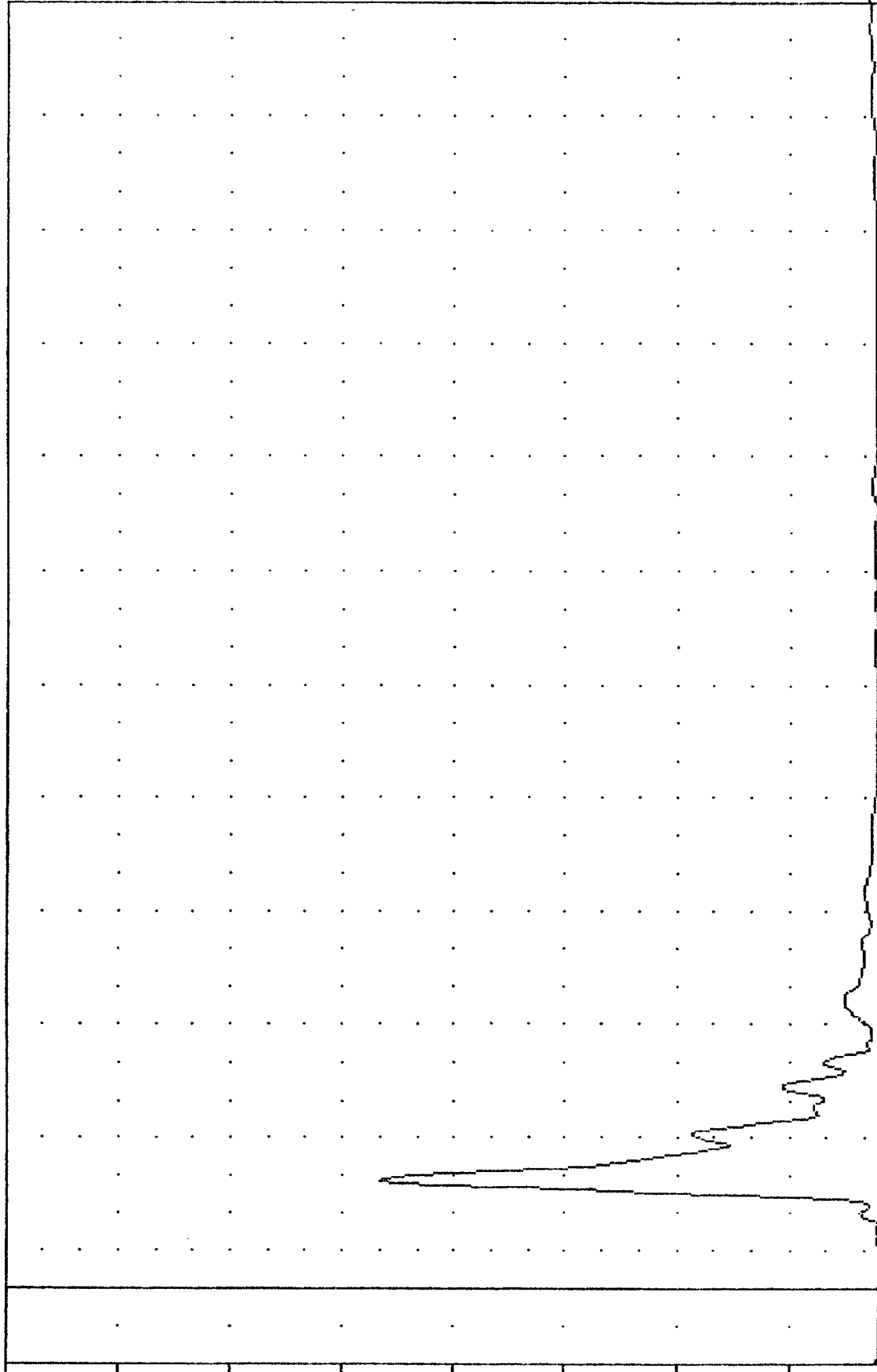
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12RGA

PLOT DATE 1-NOV-84 16:04:53

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = 0.08e -13.75, 223.65 e 28.13

ACCELERATION (G)
 -10.00
 -40.00
 -90.00
 90.00
 140.00
 190.00
 240.00
 290.00
 340.00
 390.00

B-19



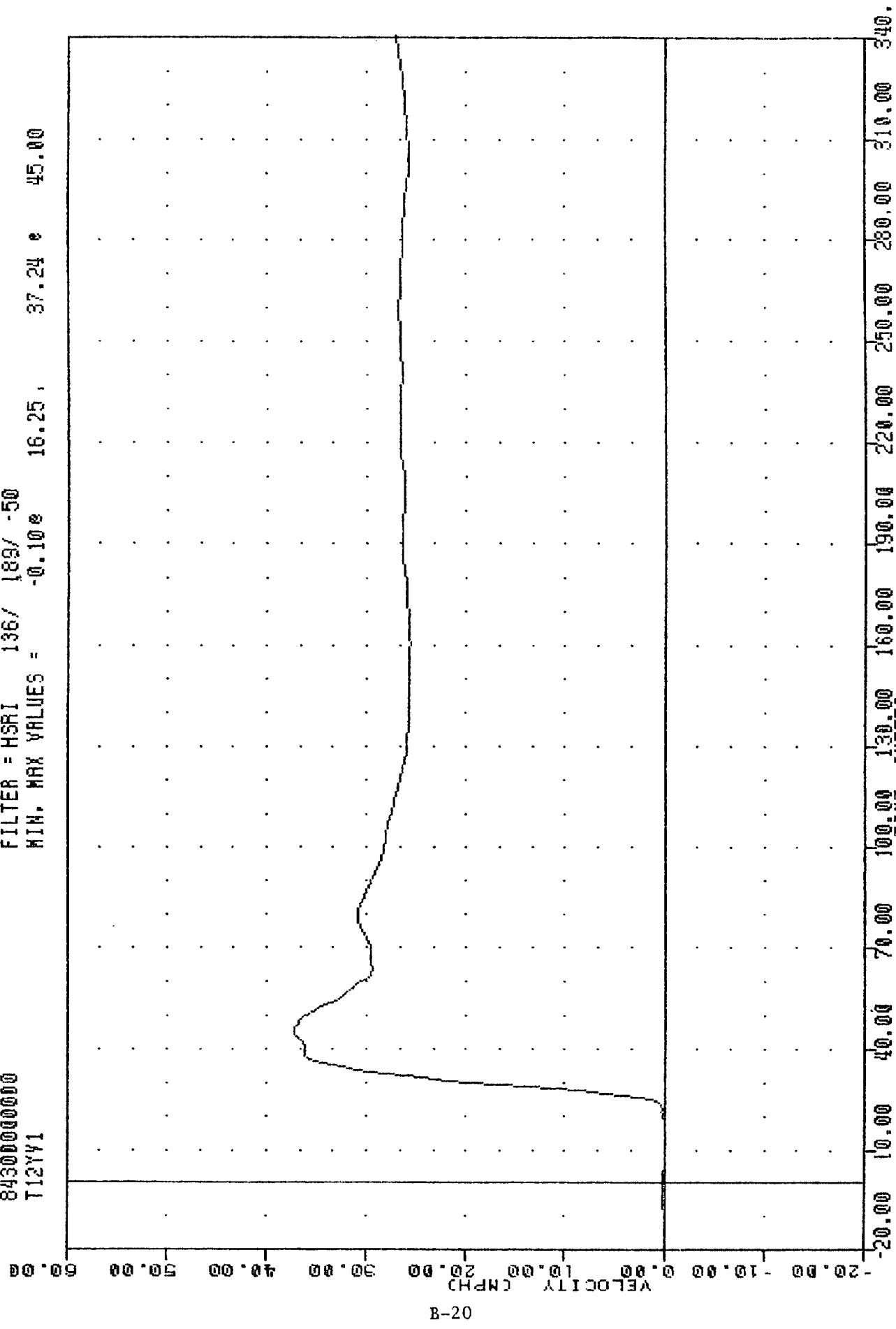
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)

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

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12YV1

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 182/ -50
 MIN. MAX VALUES = -0.100 16.25 , 37.24 e 45.00

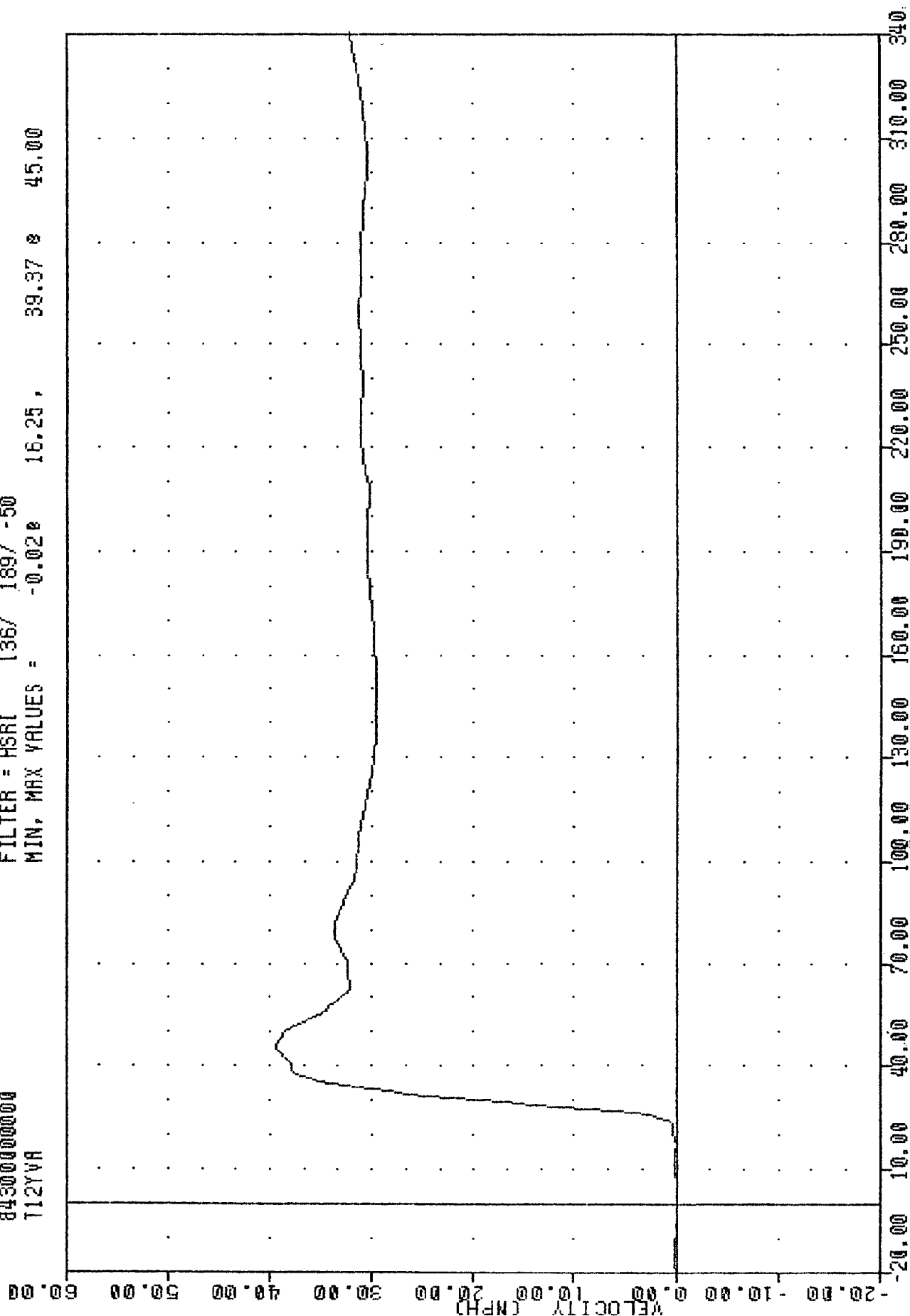


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12YV1

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12YVA

PLOT DATE 1-NDV-84 16:05:10

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.020 16.25, 39.37 0 45.00

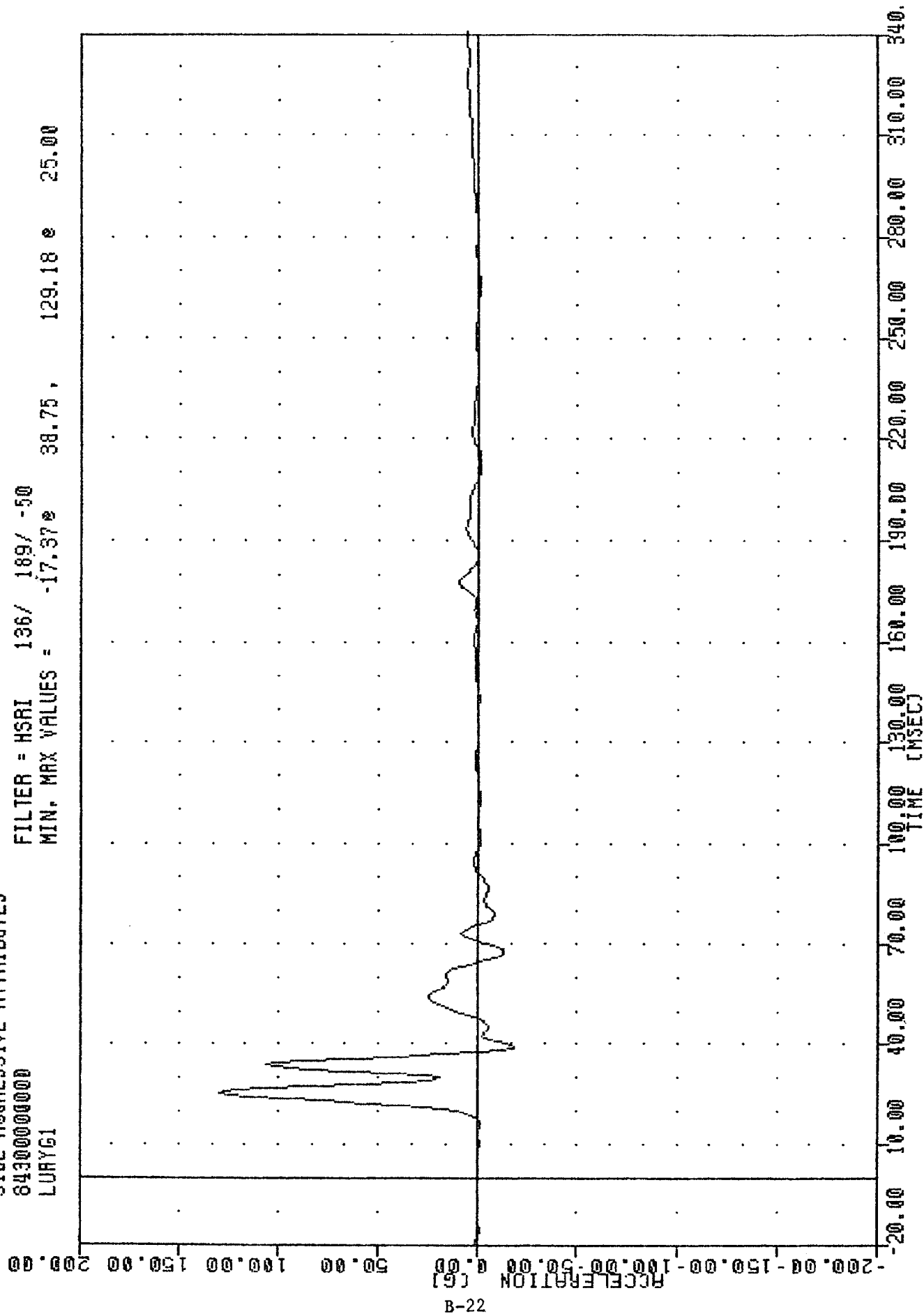


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12YGA

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LURY61

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -17.37 38.75, 129.18 25.00

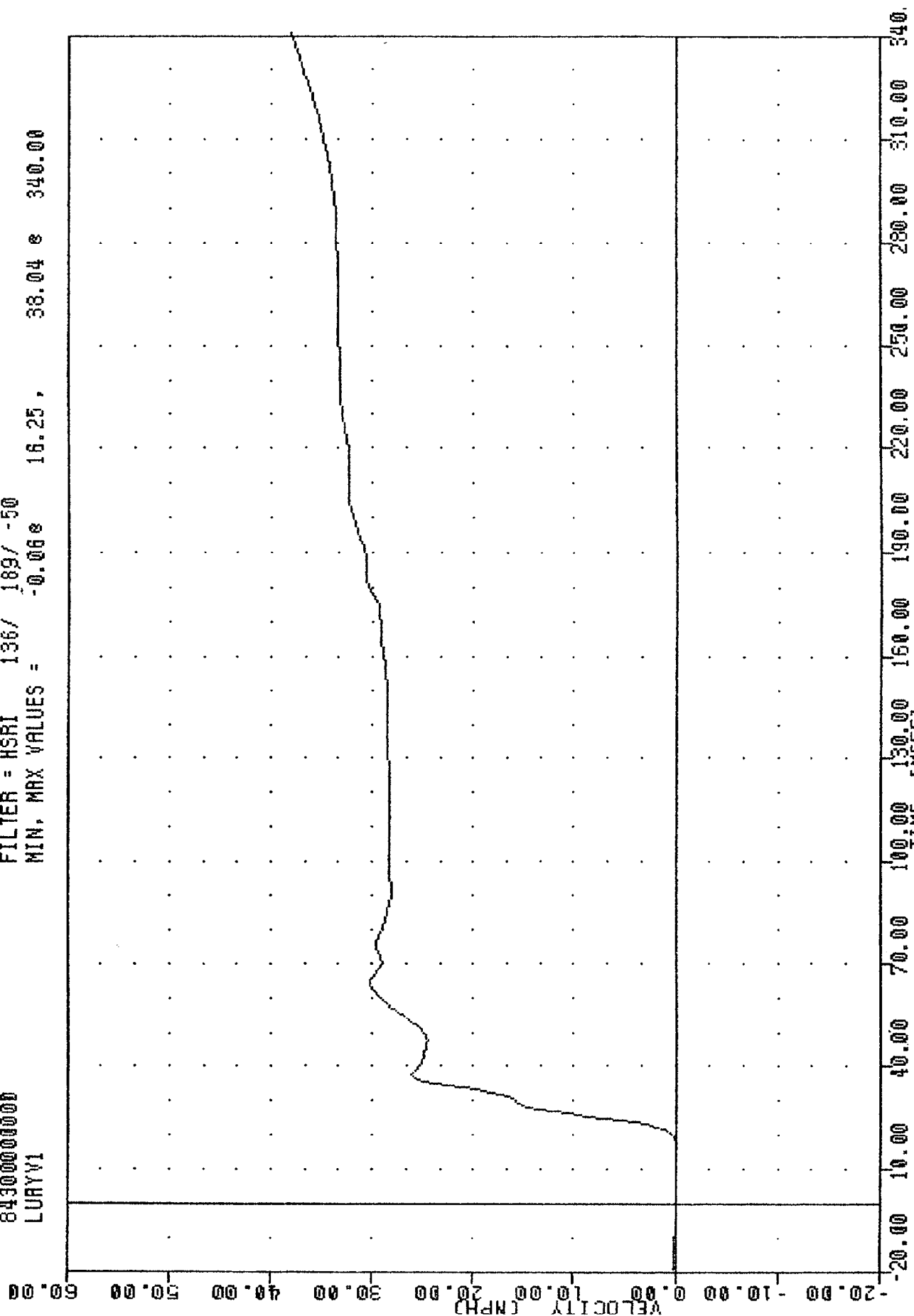


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LEFT UPPER RIB ACCELERATION Y AXIS

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LURYV1

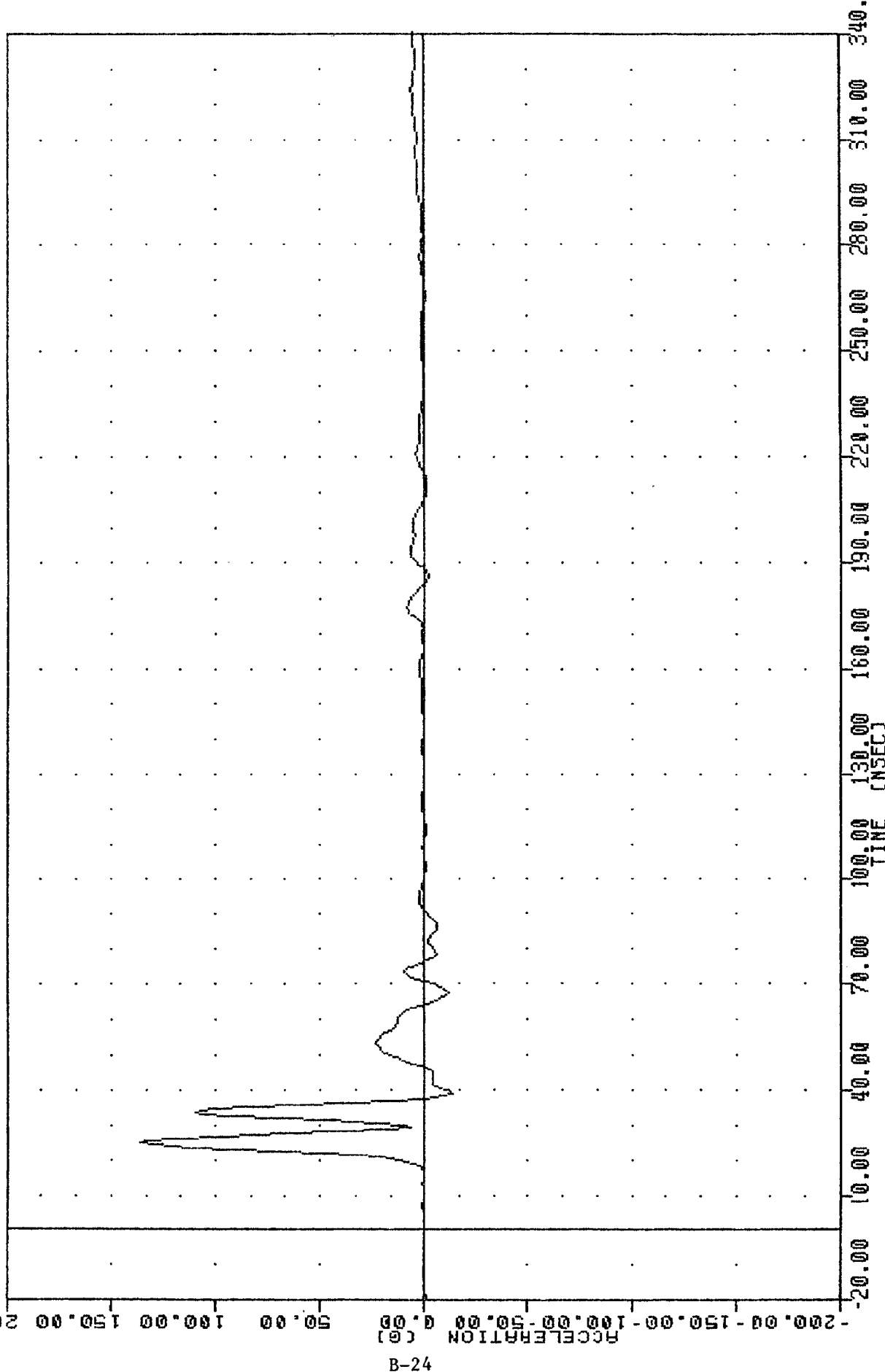
PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.068 16.25, 38.04 & 340.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYGI

IN 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LURTER
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -13.158 38.13, 135.96 & 24.38
 PLOT DATE 1-NOV-84 16:03:24

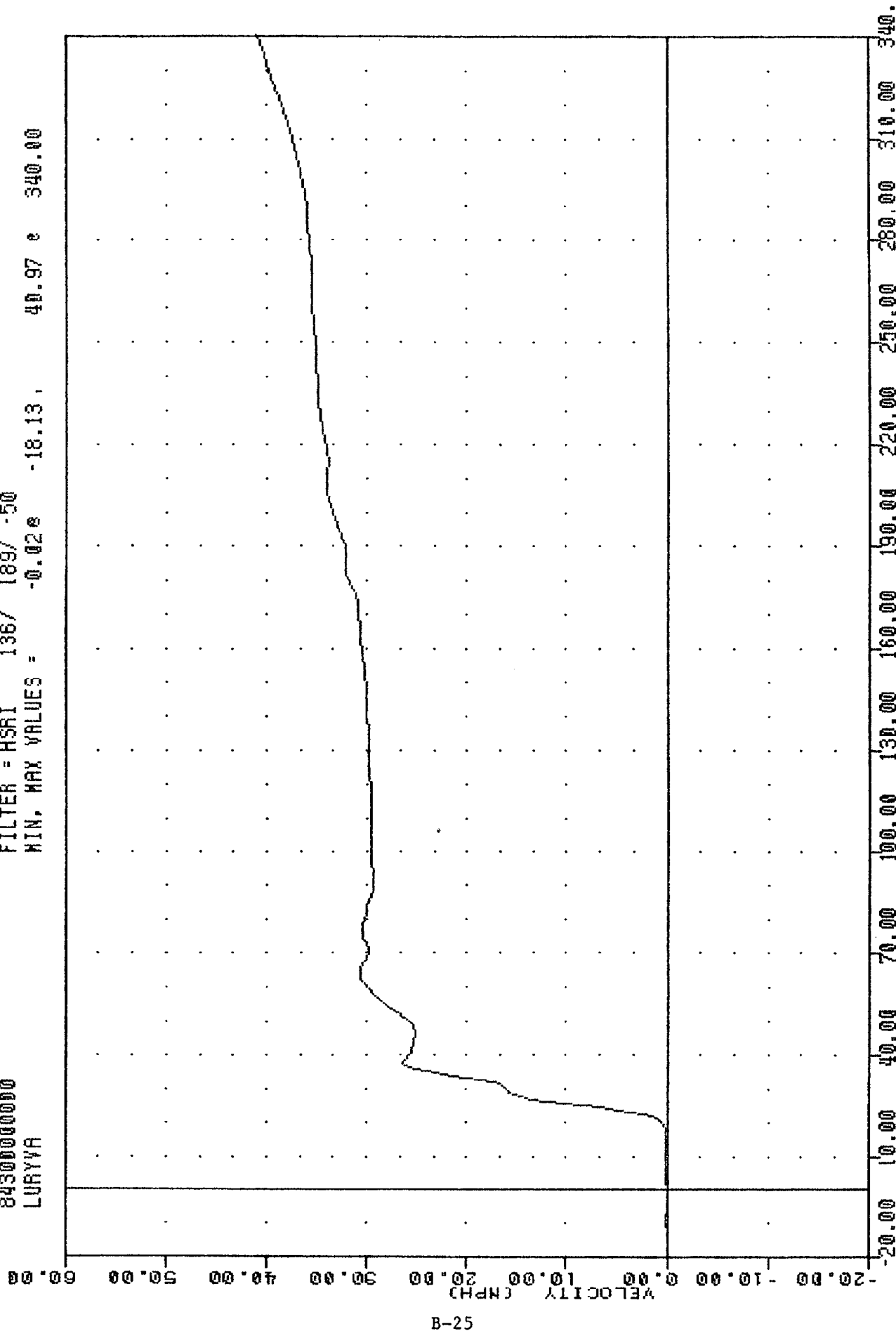


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LEFT UPPER RIB ACCELERATION -2 Y AXIS

THC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LURYVA

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.02 s -18.13 , 40.97 e 340.00



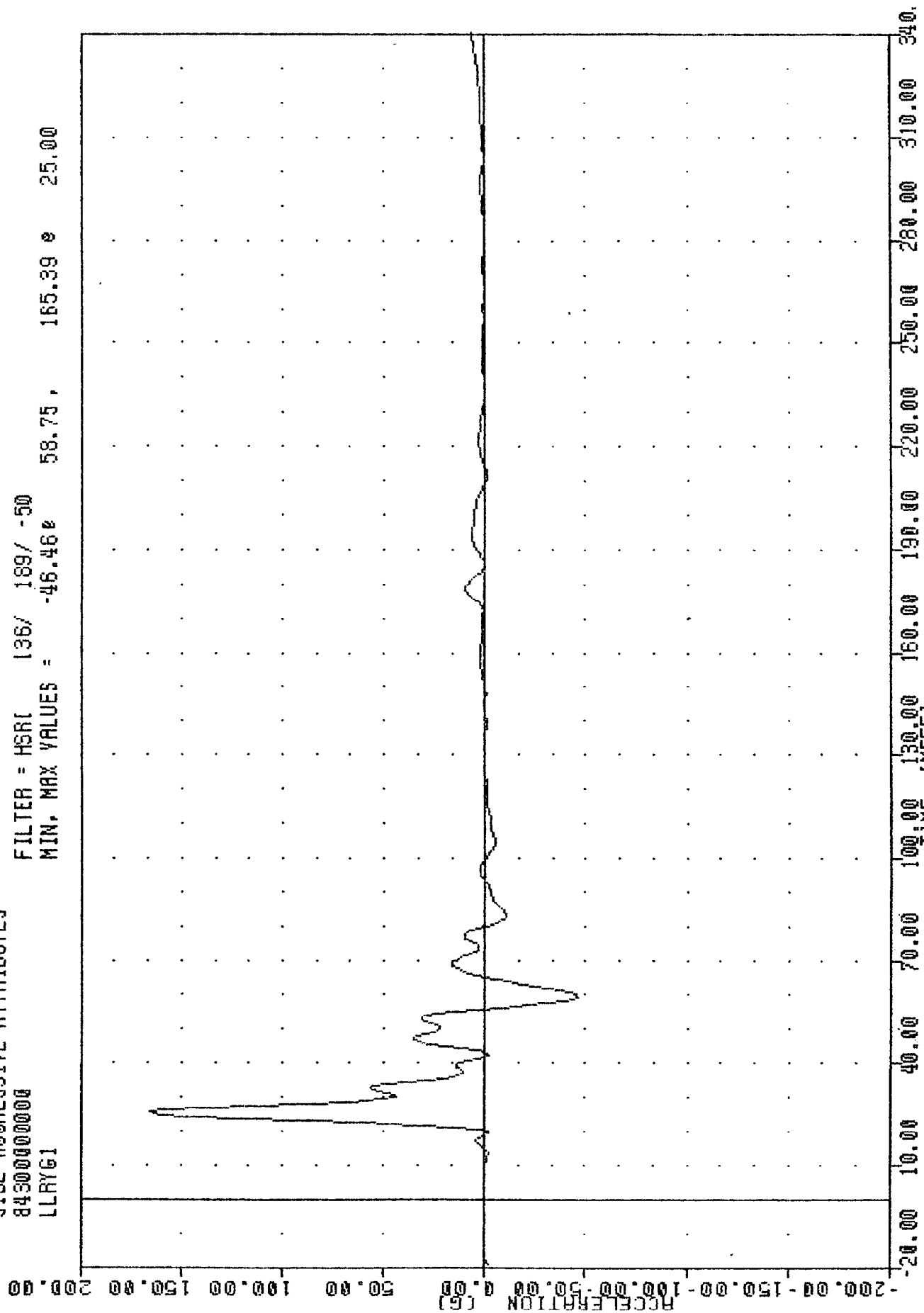
B-25

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYGA

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LLRYG1

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -46.46% 58.75, 165.39 % 25.00

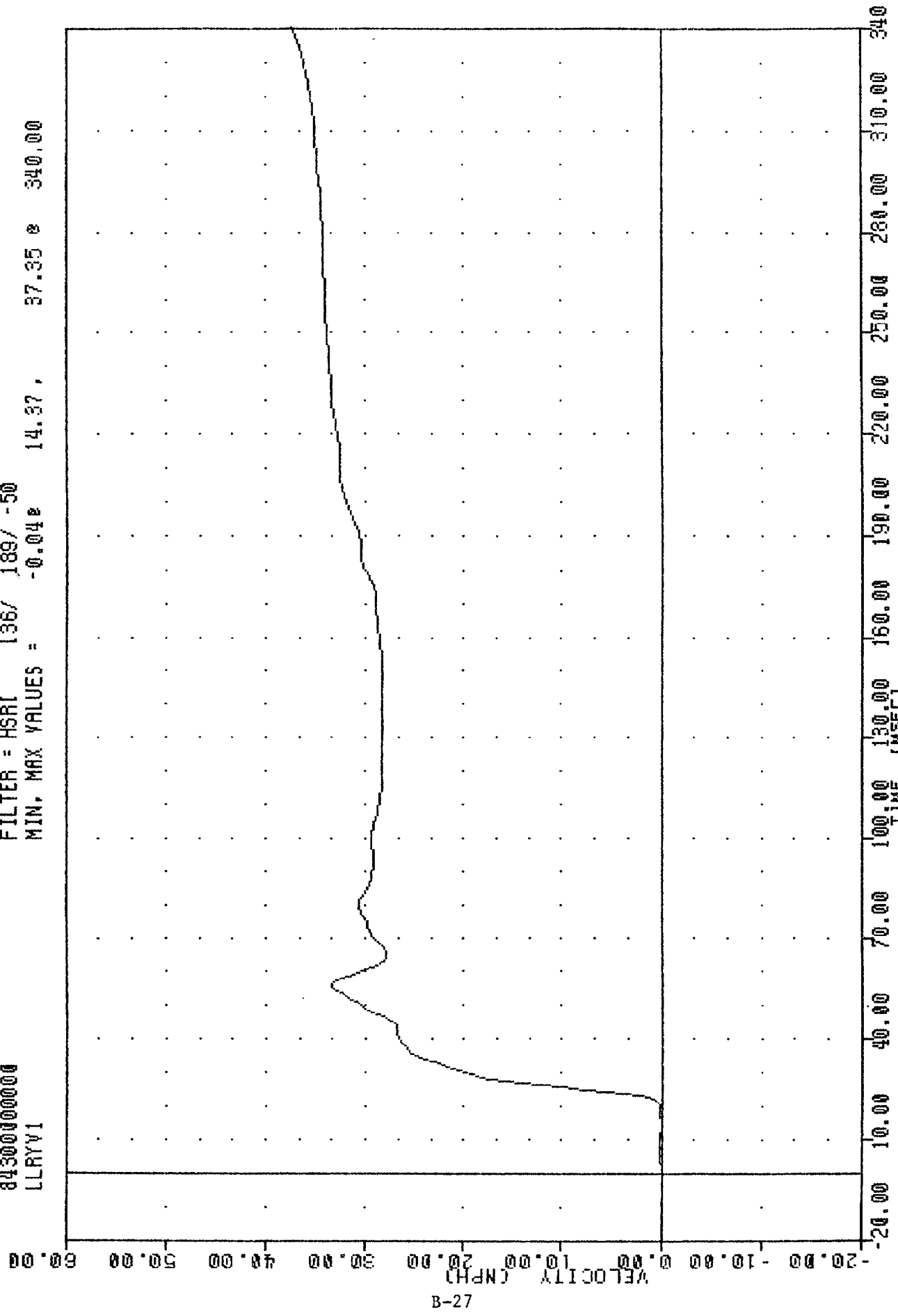


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LEFT INNER AIR ACCELERATION Y AXIS

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LLYYV1

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.042 14.37, 37.35 & 340.00

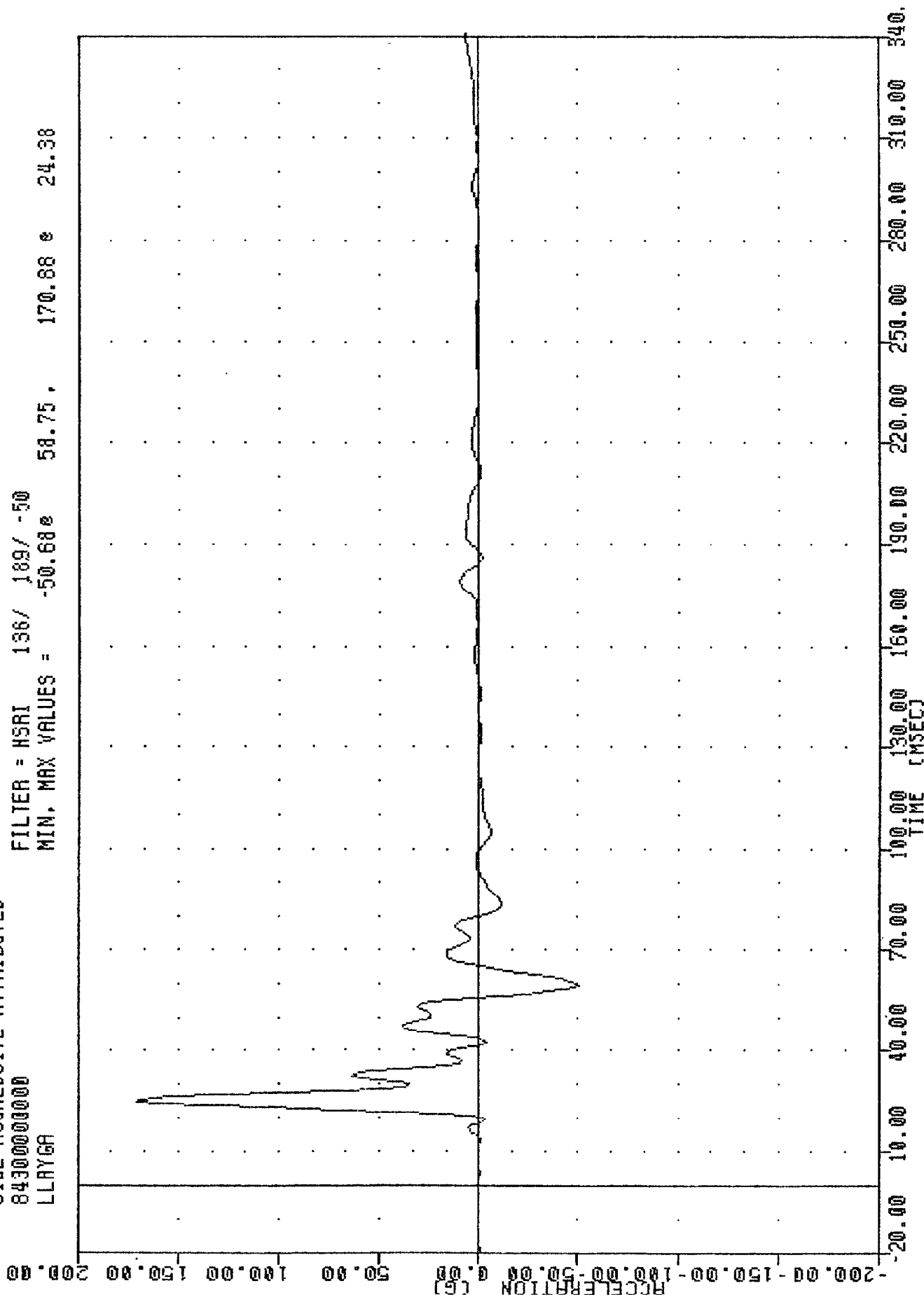


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LLYYGI

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 LLAYGR

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -50.68e 58.75, 170.88 e 24.38



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

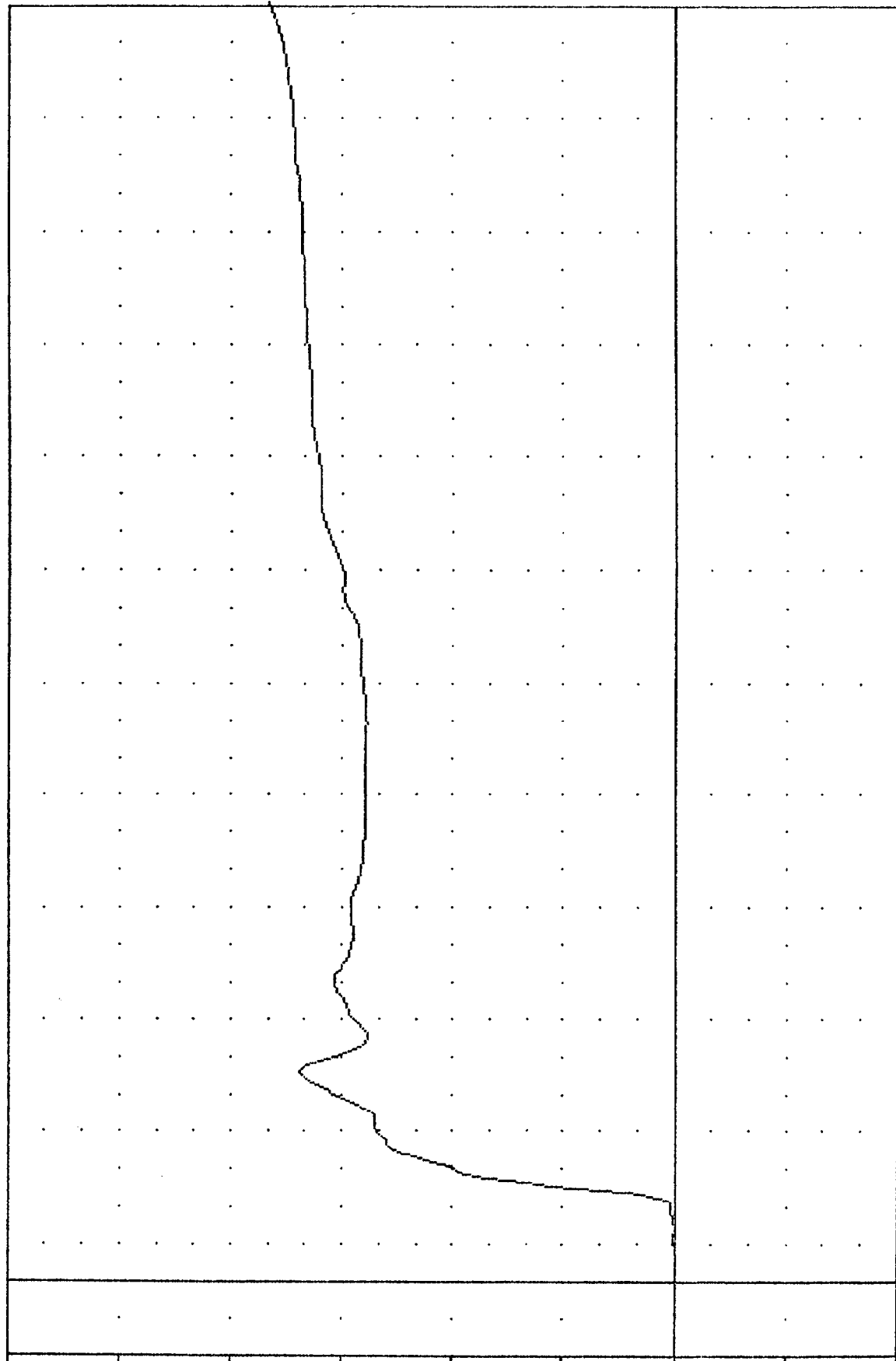
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LLYV8

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.02 5.62, 36.67 340.00

VELOCITY (MPH)

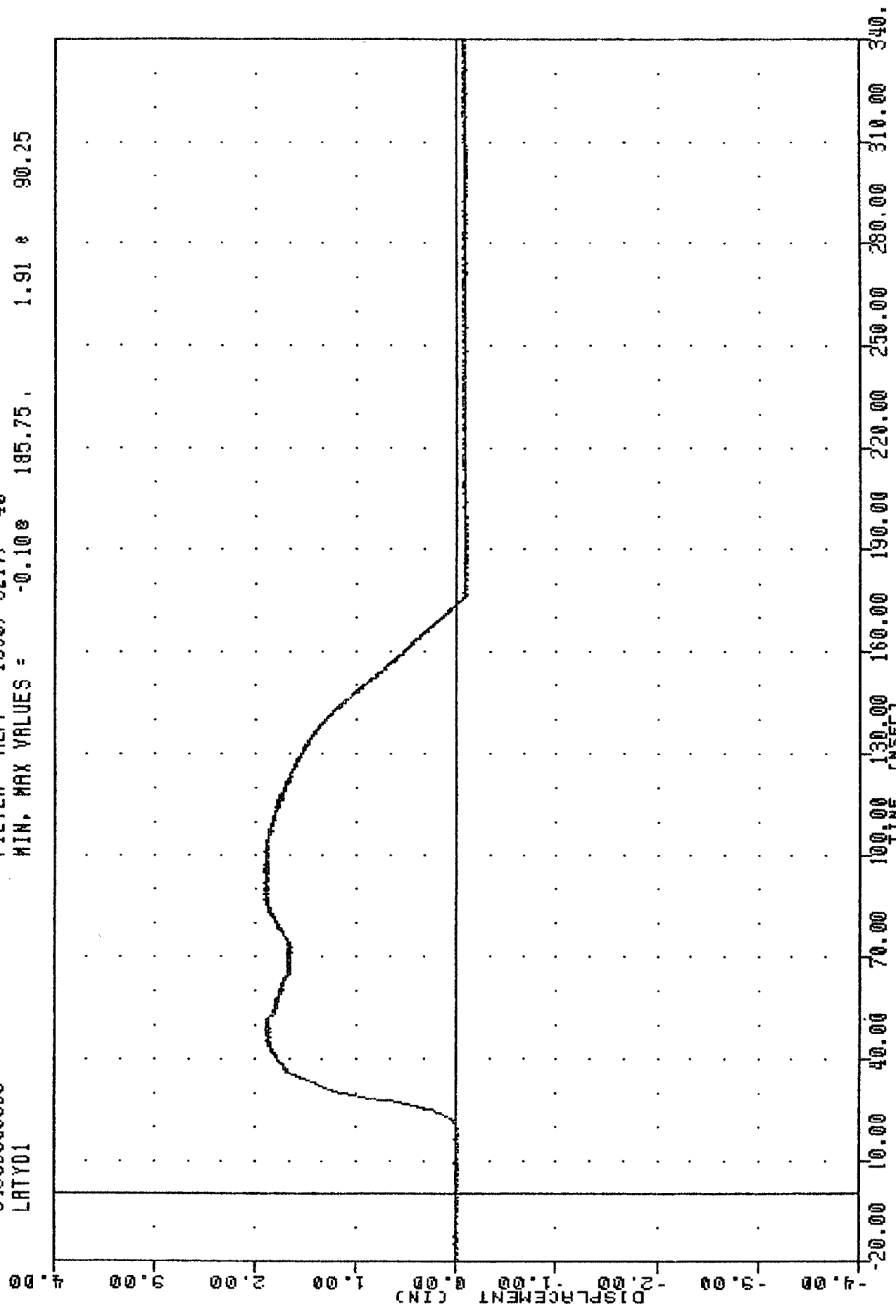


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V LISTING I RYGA

TAC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LRTY01

PLOT DATE 1-NOV-84 16:02:06

FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -0.108 185.75 1.91 90.25

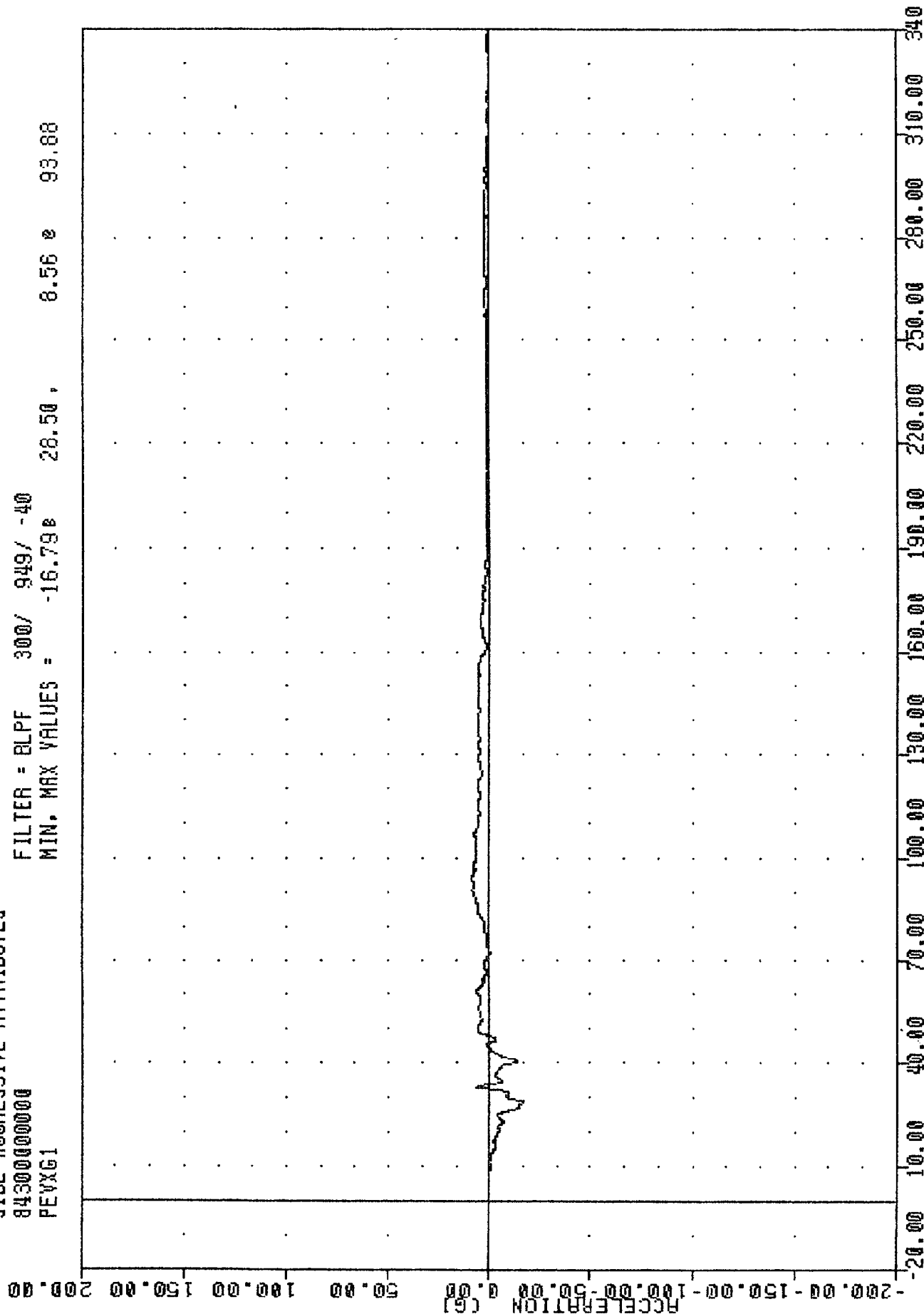


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LEFT RIB TO SPINE DISPLACEMENT INCHES

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 PEVXG1

PLOT DATE 1-NOV-84 16:02:06

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -16.79e 28.50, 8.56 e 93.88

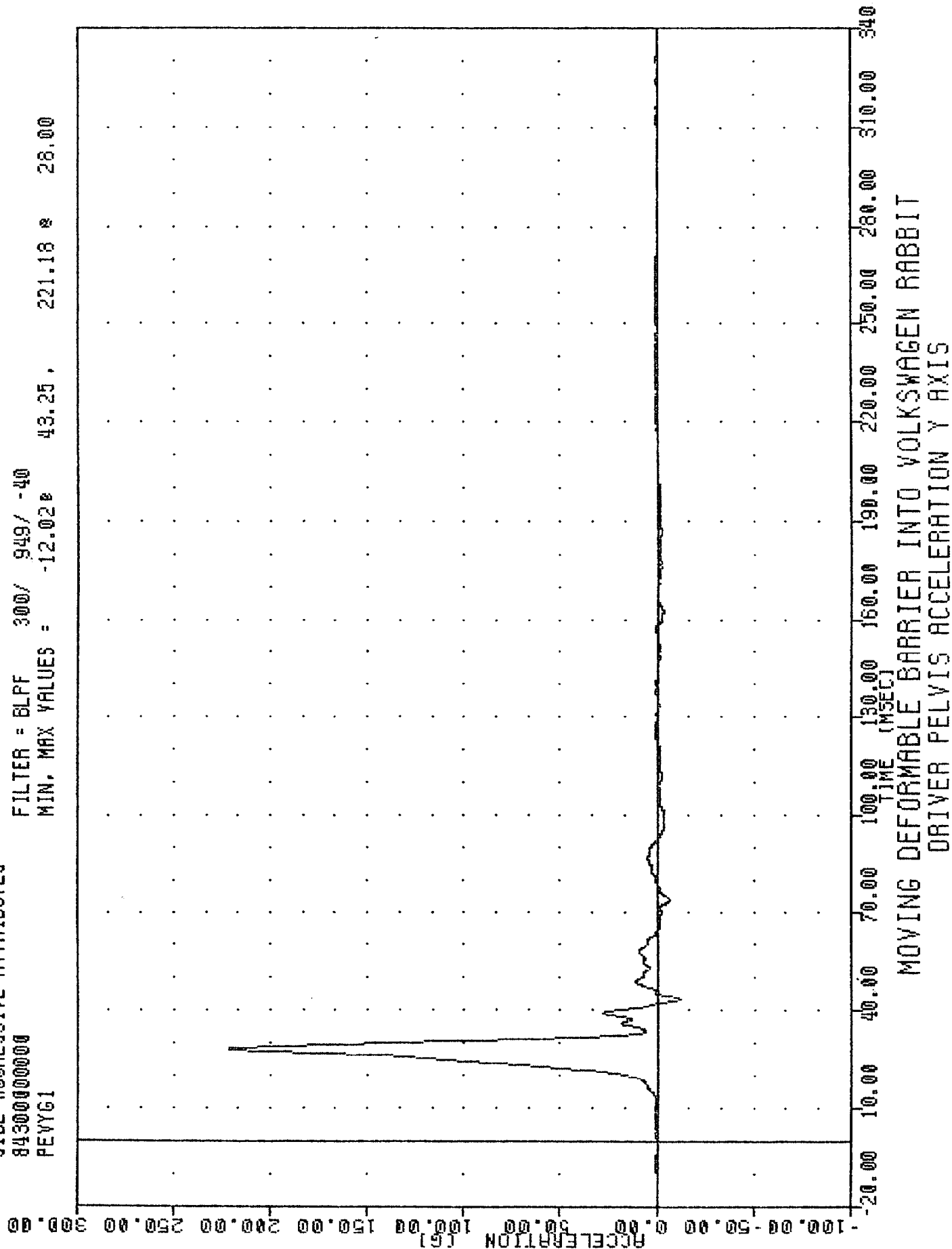


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PIVOTS ACCELERATION X AXIS

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 PEVYG1

PLOT DATE 2-NDV-84 09:29:32

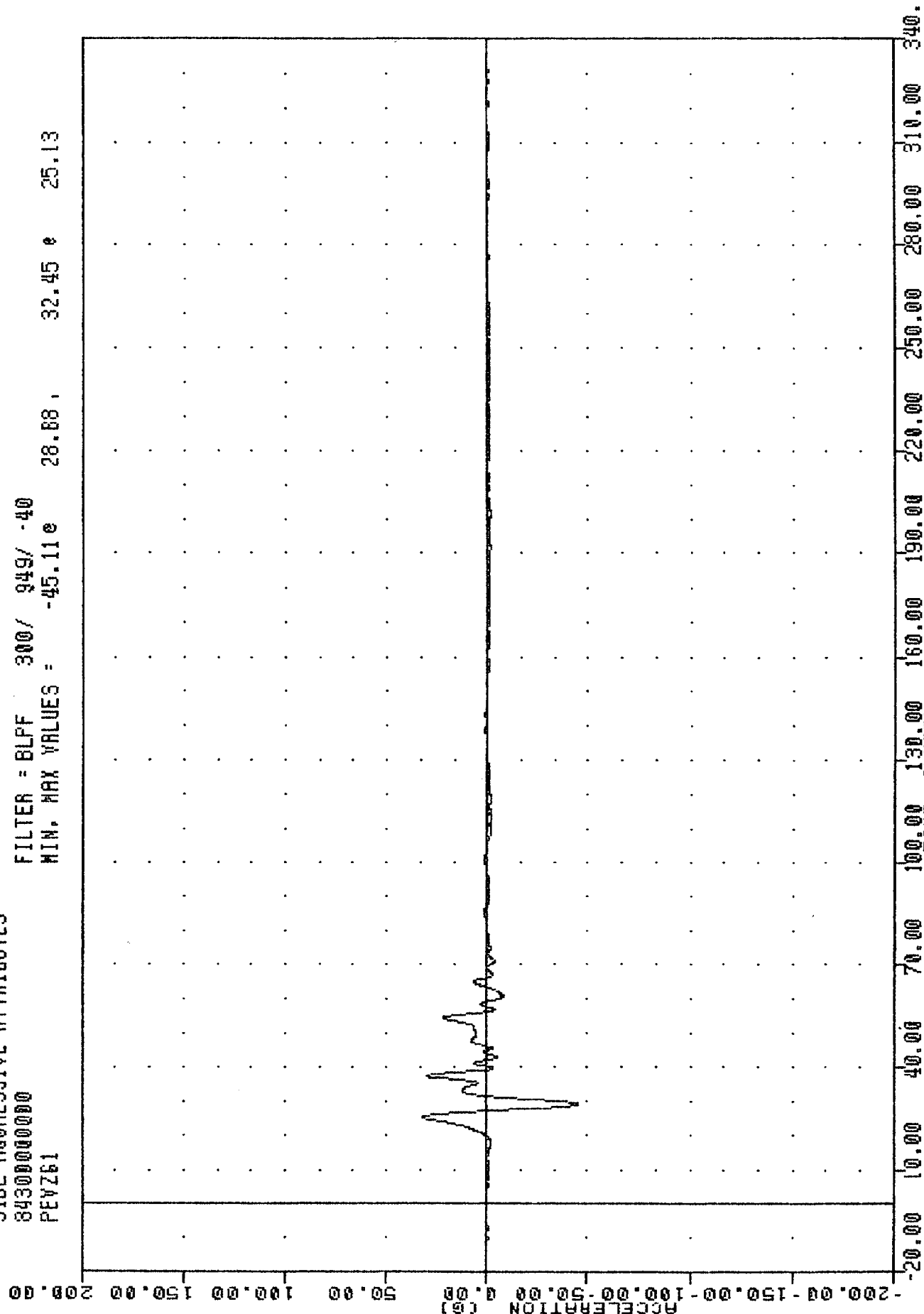
FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -12.028 43.25, 221.18 s 28.00



TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 PEVZ61

PLOT DATE 1-NOV-84 16:02:06

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -45.11e 28.88, 32.45 e 25.13



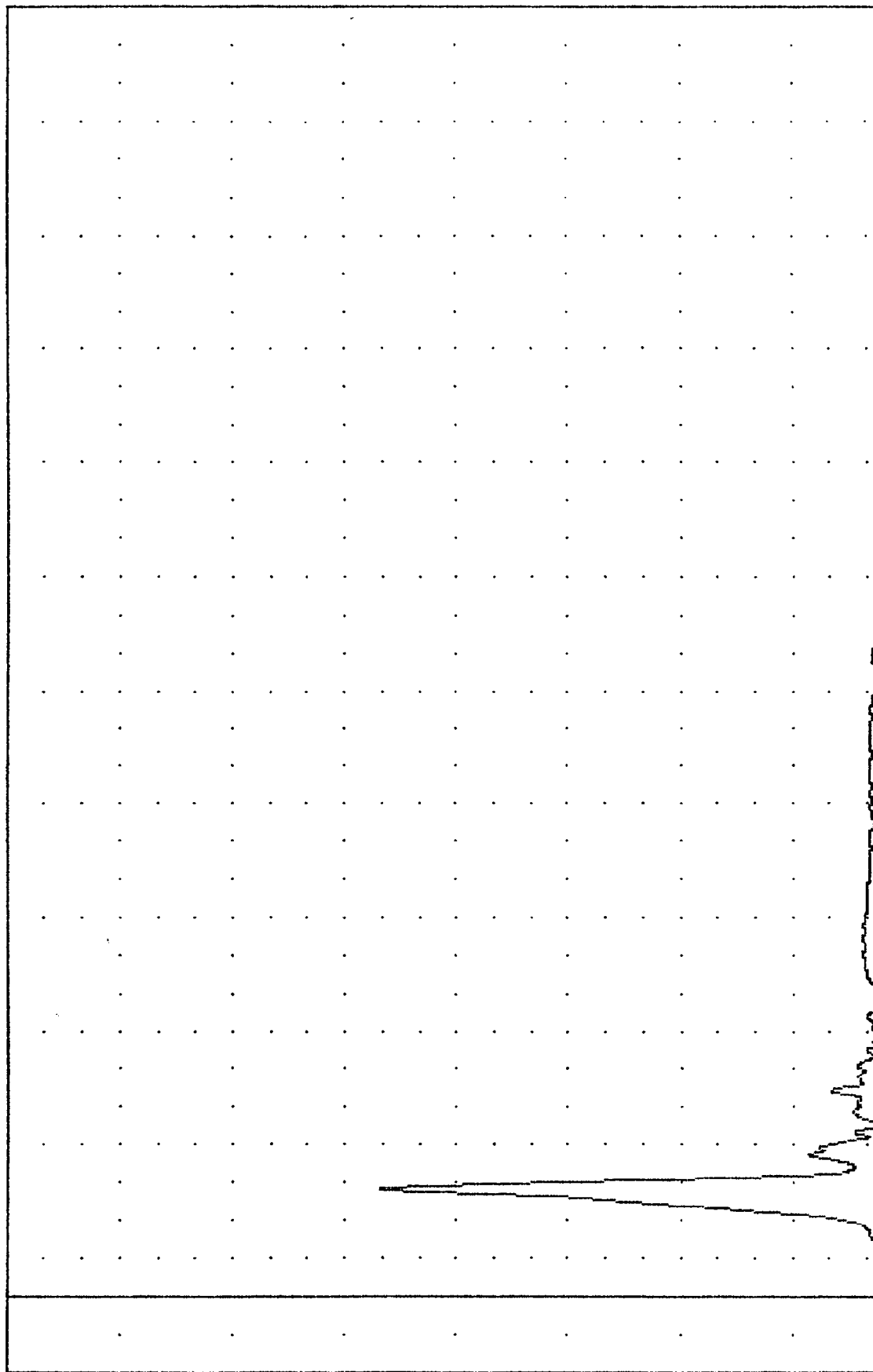
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PELVIS ACCELERATION Z AXIS

TRC , 841026
SIDE AGGRESSIVE ATTRIBUTES
84300000000
PEVRG1

PLOT DATE 1-NDV-84 16:02:06

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = 0.11e -11.50, 224.63 e 28.13

ACCELERATION (G)



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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER PEI VTS RESHUNT

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 PEVYV1

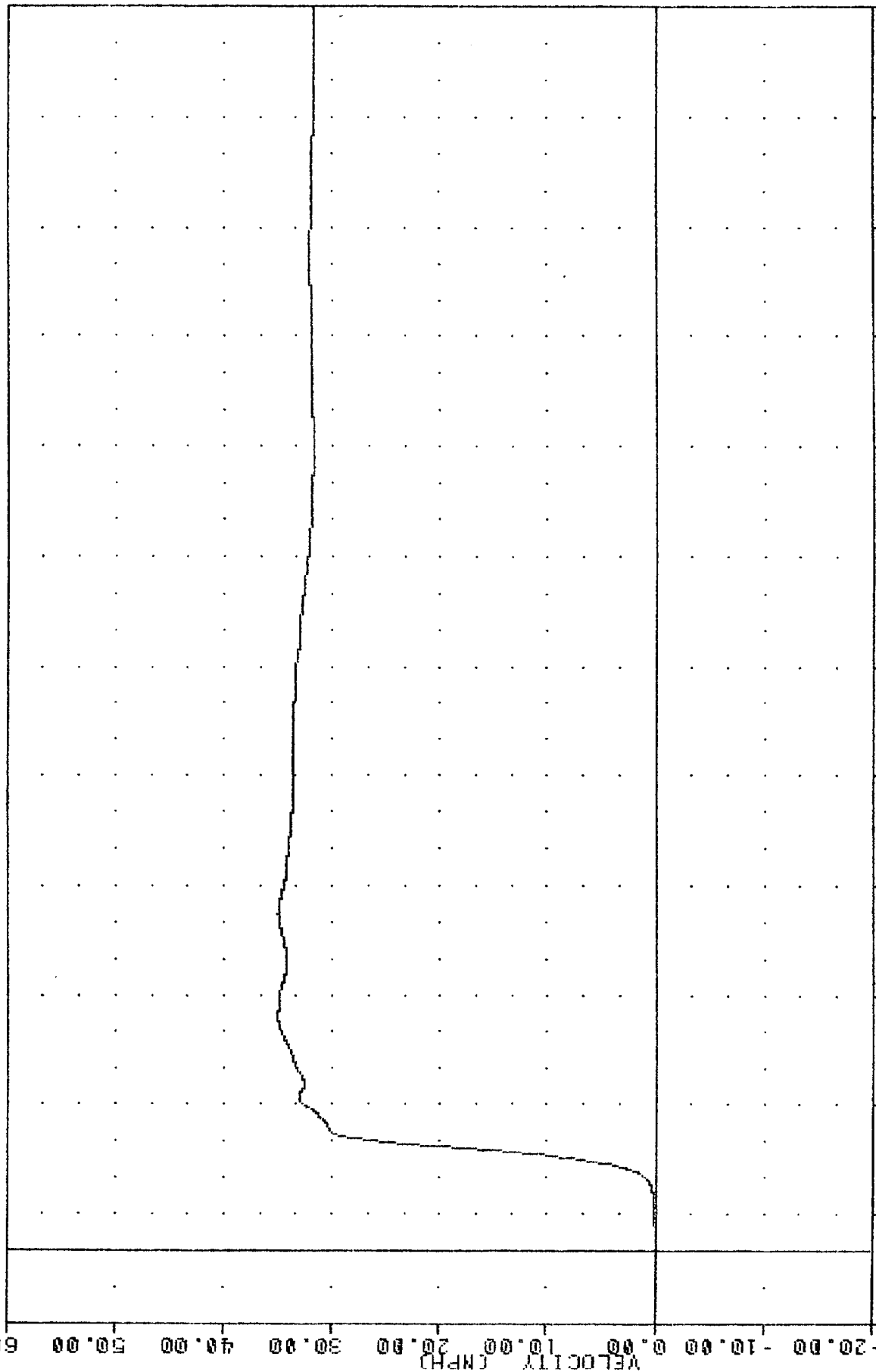
PLOT DATE 1-NDV-84 16:06:05

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.038 -11.50, 35.02 8 64.13

60.00
50.00
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00

B-35



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V LISTING DEWVC1

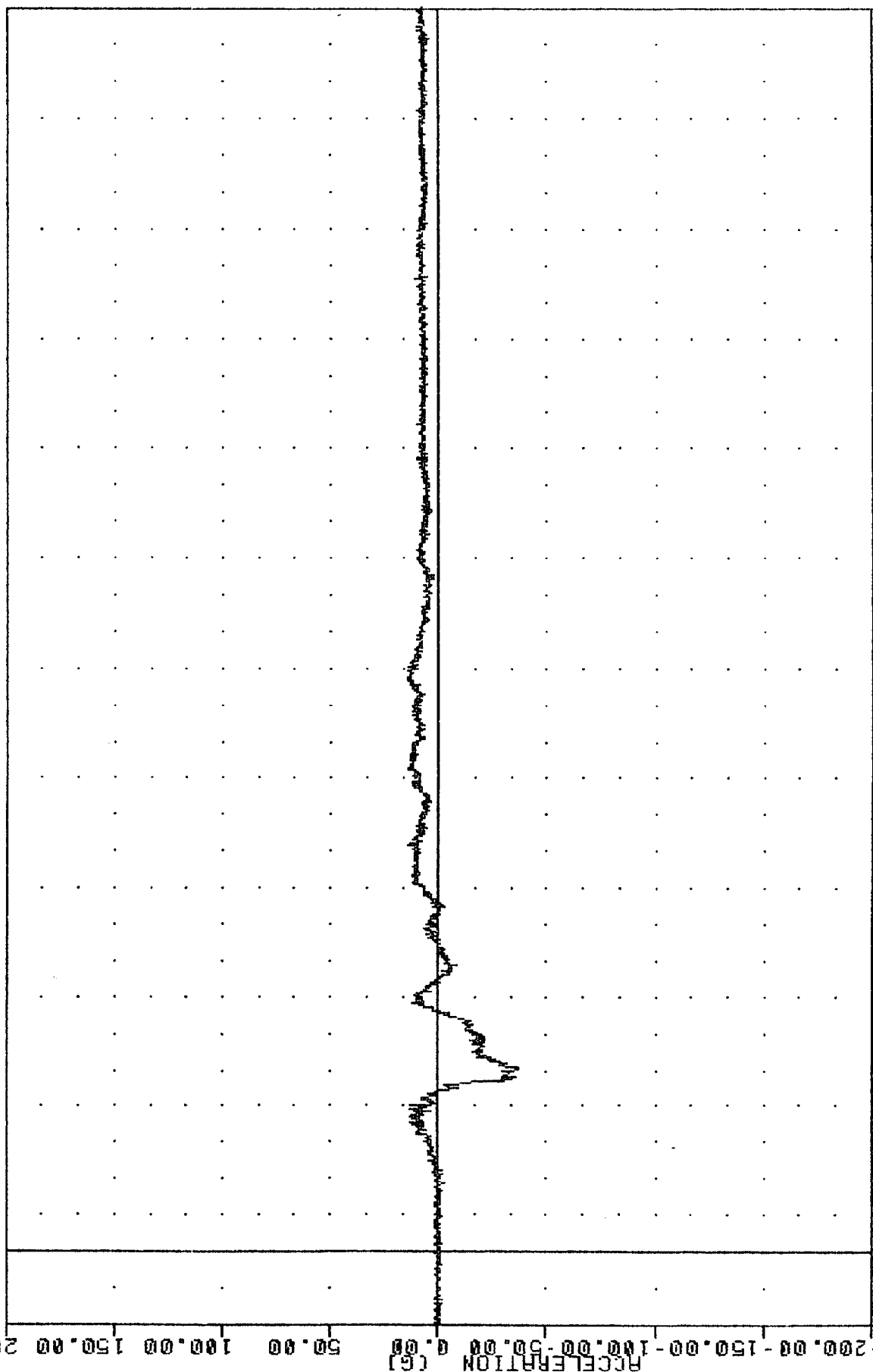
TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 HEDXG3

PLOT DATE 1-NOV-84 16:02:06

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -37.29 50.38, 14.49 e 157.00

200.00



B-36

-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
 PASSENGER HEAD ACCELERATION X AXIS

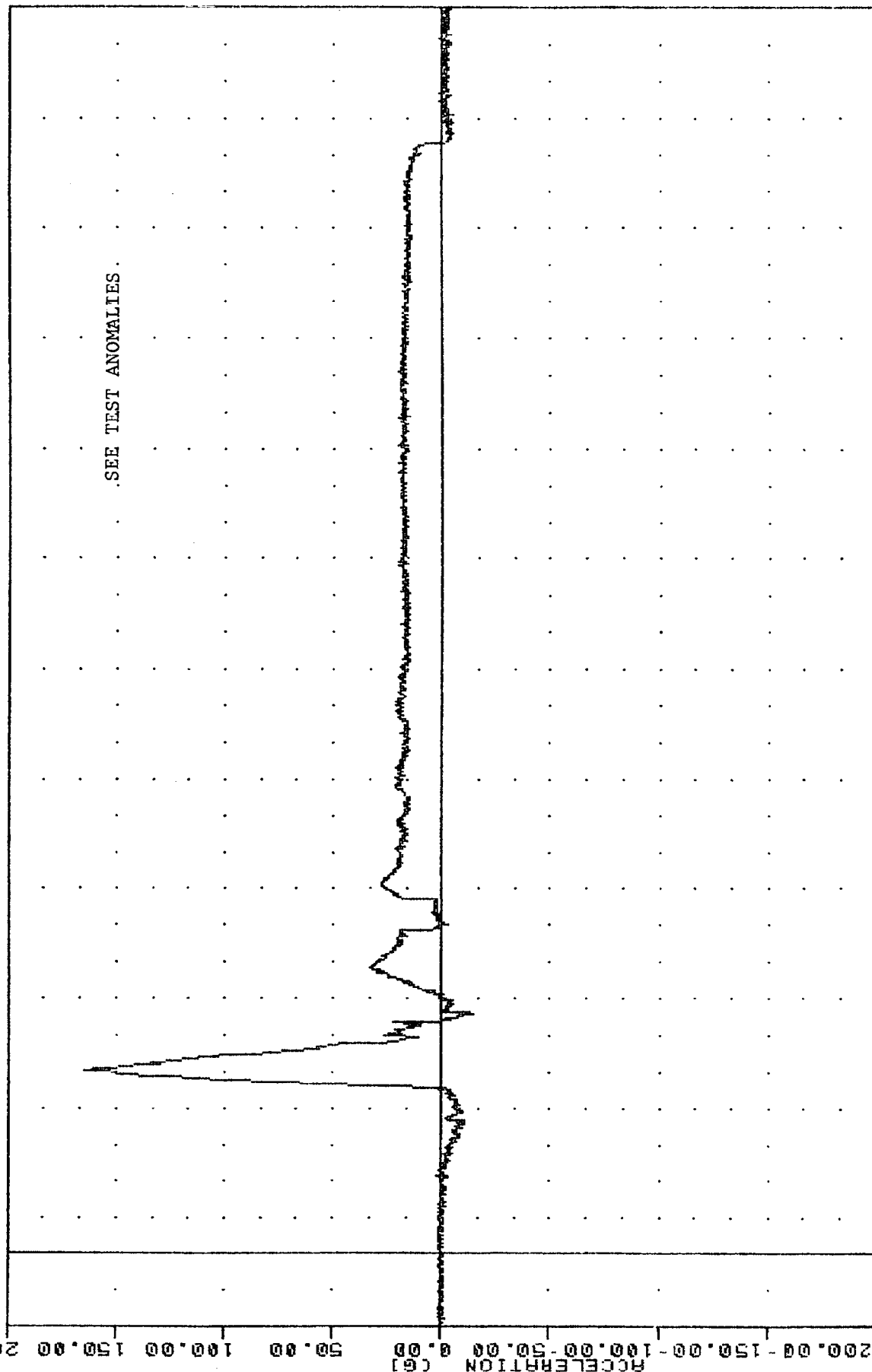
TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 HEDY63

PLOT DATE 1-NOV-84 16:02:06

FILTER = ALPF 1650/ 5217/ -40

MIN, MAX VALUES = -14.61e 66.00 , 164.96 e 50.50

ACCELERATION (G)



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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER HEAD ACCELERATION Y AXIS

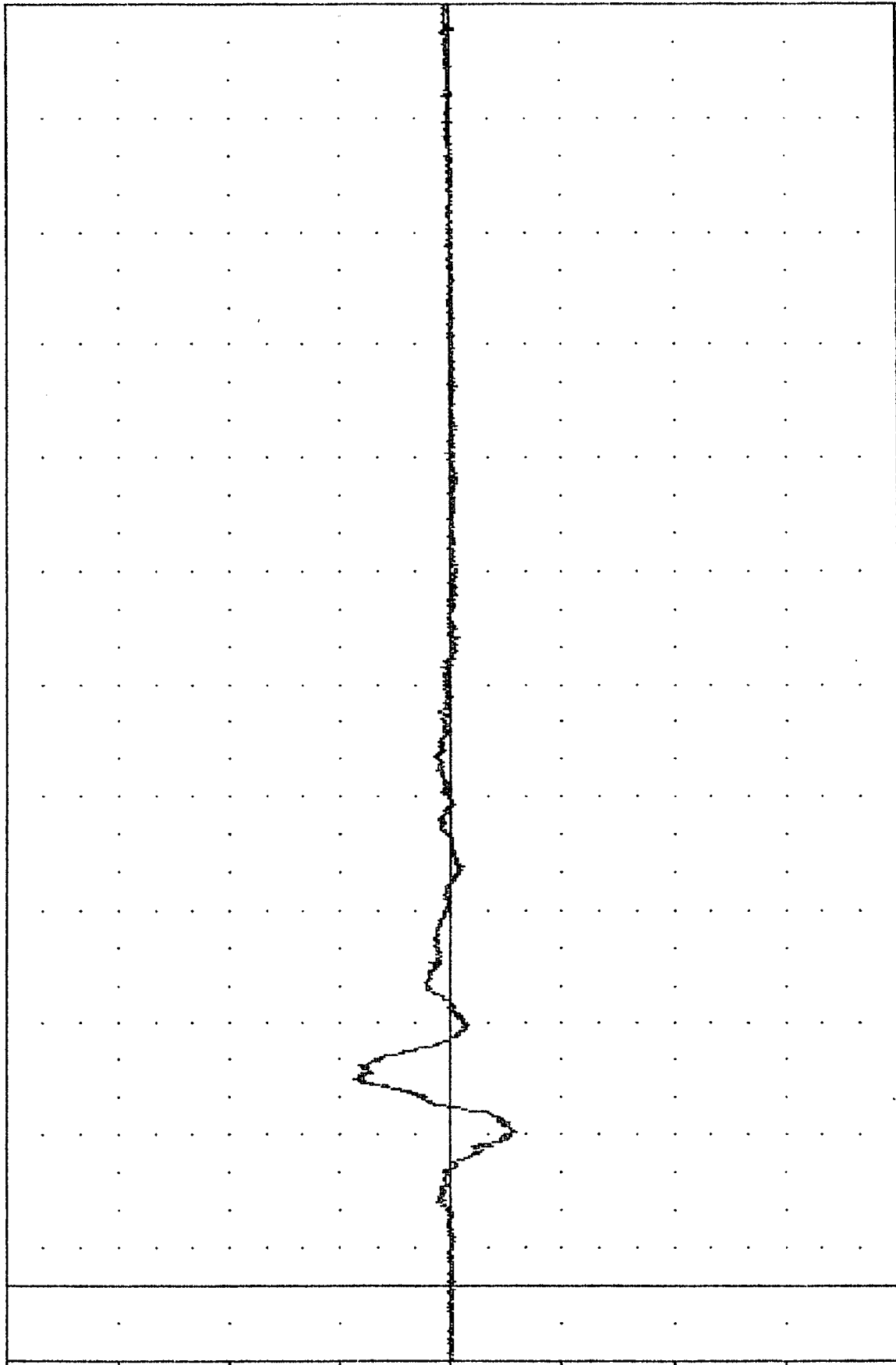
TRC , 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
HEDZG3

PLOT DATE 1-NOV-84 16:02:06

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -29.34 40.63 , 43.55 54.63

ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD ACCELERATION 7 BYTS

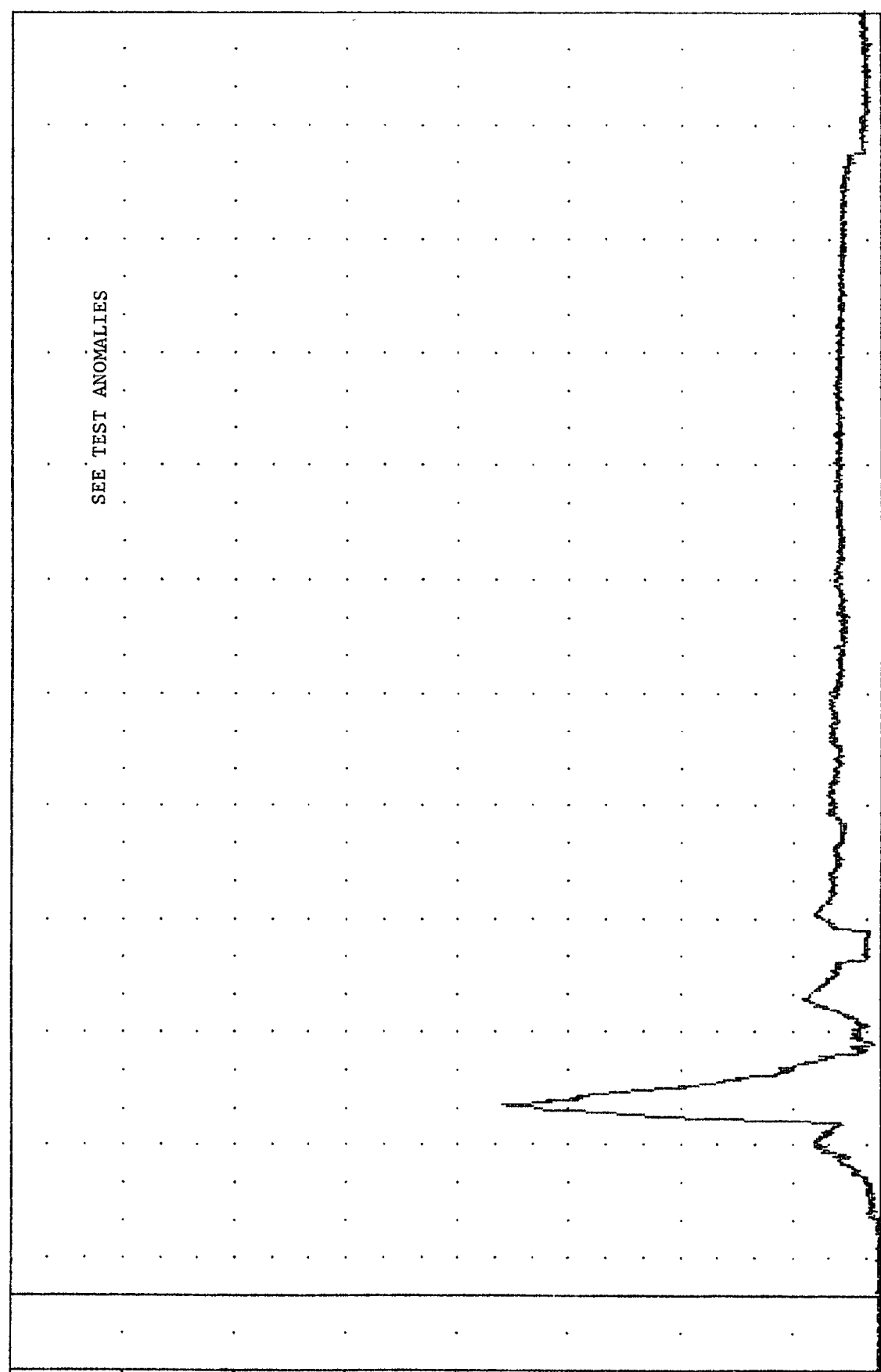
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 HEDRG3

PLOT DATE 1-NOV-84 16:02:06

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = 0.120 -6.63, 169.93 0 50.50

ACCELERATION (G)



SEE TEST ANOMALIES

-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
 DECEMBER 1984

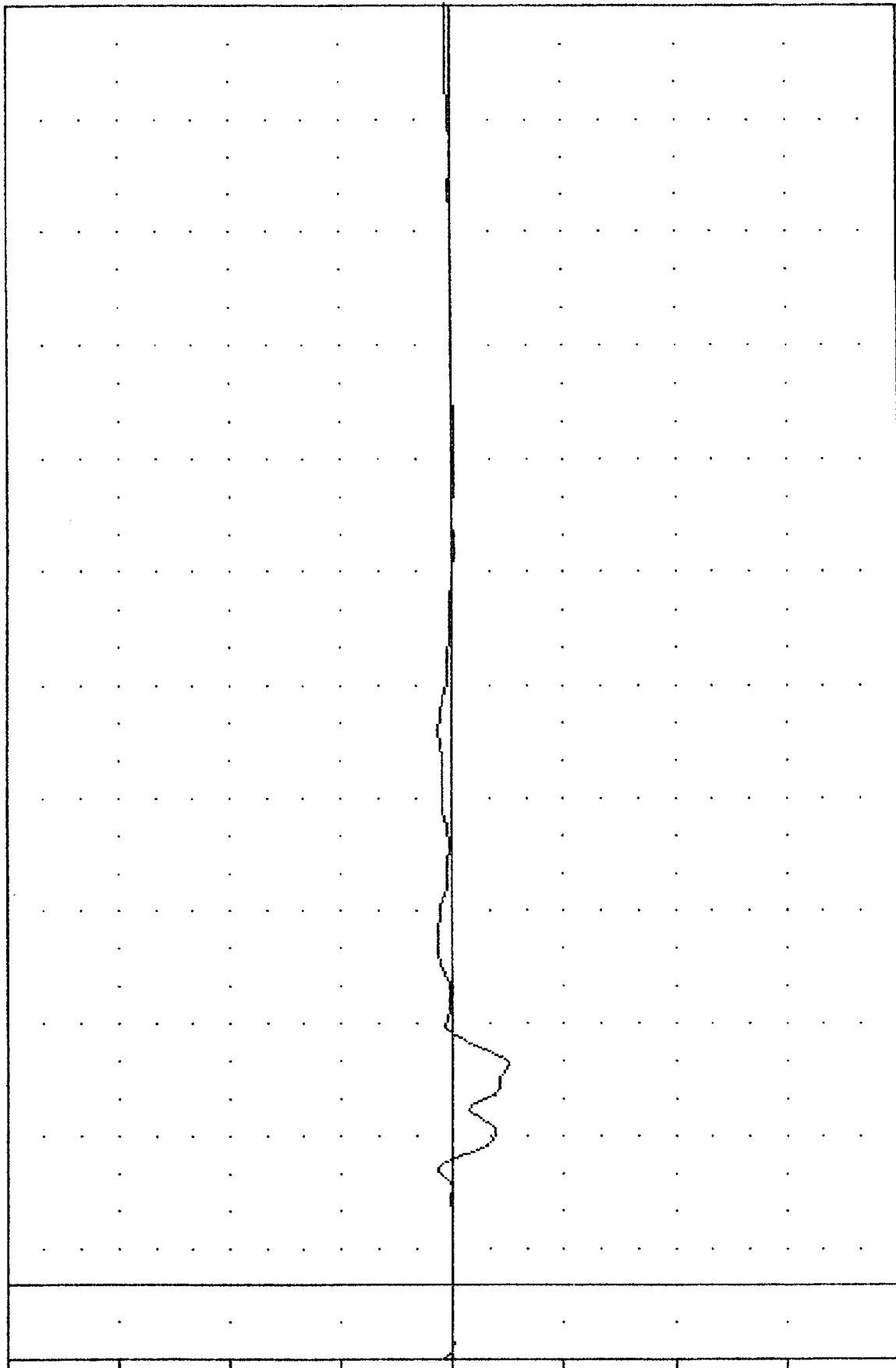
TAC , 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
T01X63

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -24.88 58.13 , 6.87 90.62

ACCELERATION (G)

200.00 150.00 100.00 50.00 0.00 -50.00 -100.00 -150.00 -200.00



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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DOCCENTIF LIDDED CRINE ACCELERATION Y BYTS

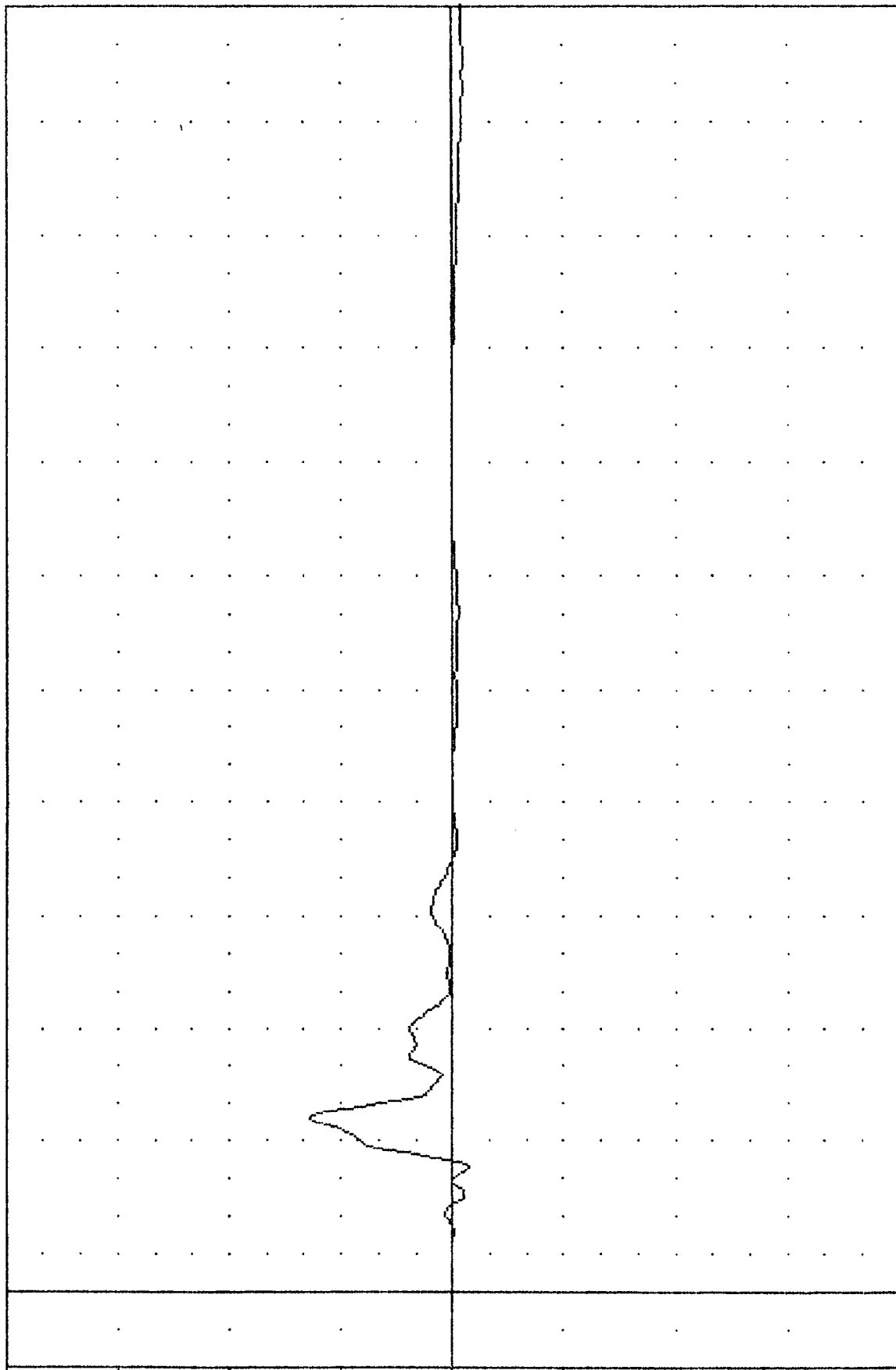
TRC , 841026
SIDE AGGRESSIVE ATTRIBUTES
84300000000
T01Y63

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -7.17e 32.50, 63.37 e 45.62

ACCELERATION (G)

-200.00 -150.00 -100.00 -50.00 0.00 50.00 100.00 150.00 200.00



TIME (MSEC) 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

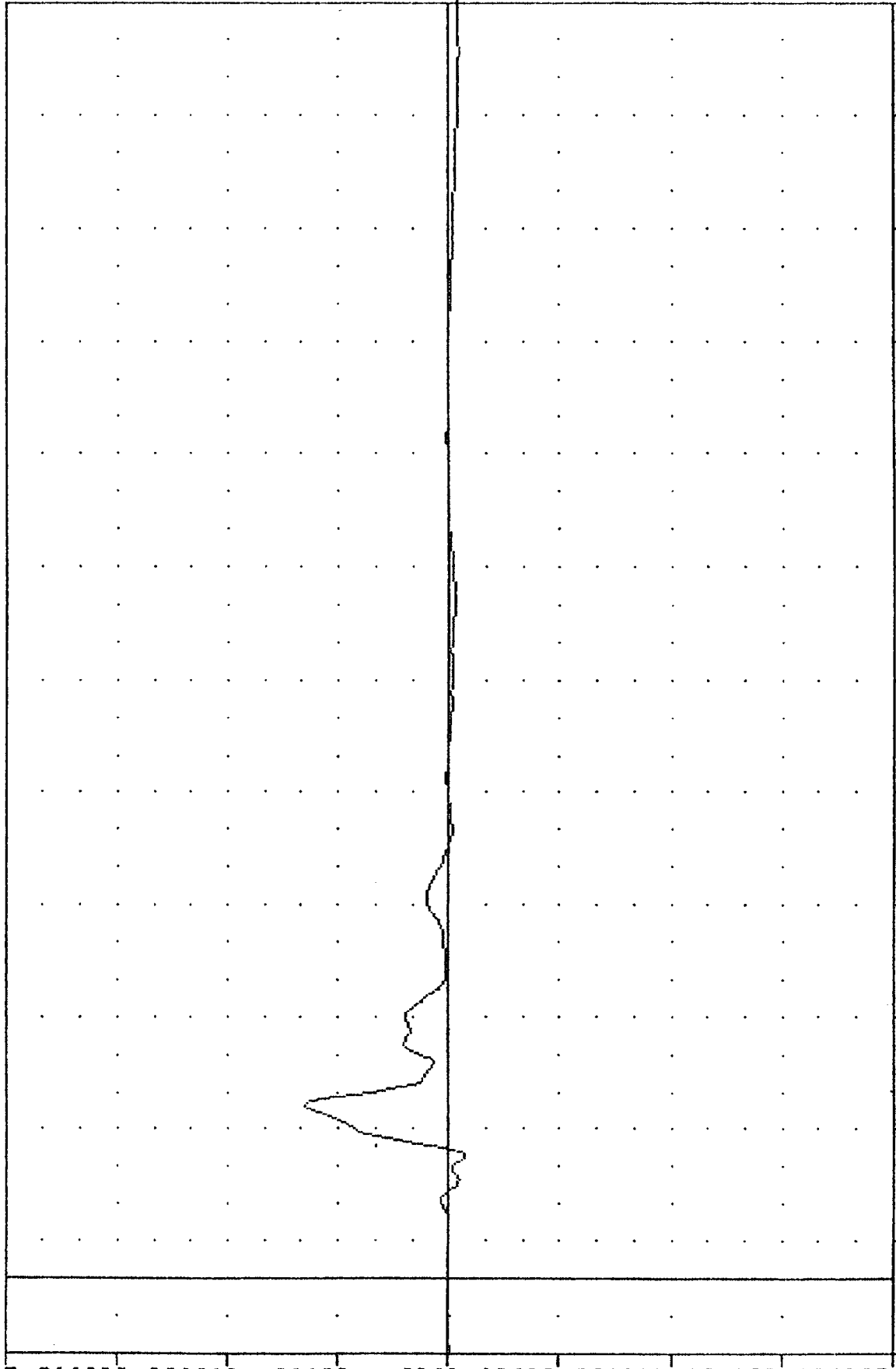
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DOCCENEC IIDDED COTNE ACCICEDOTIM V QVTC

TRC 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
T01YGC

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -7.06 31.88, 65.03 45.62

ACCELERATION (G)
B-42



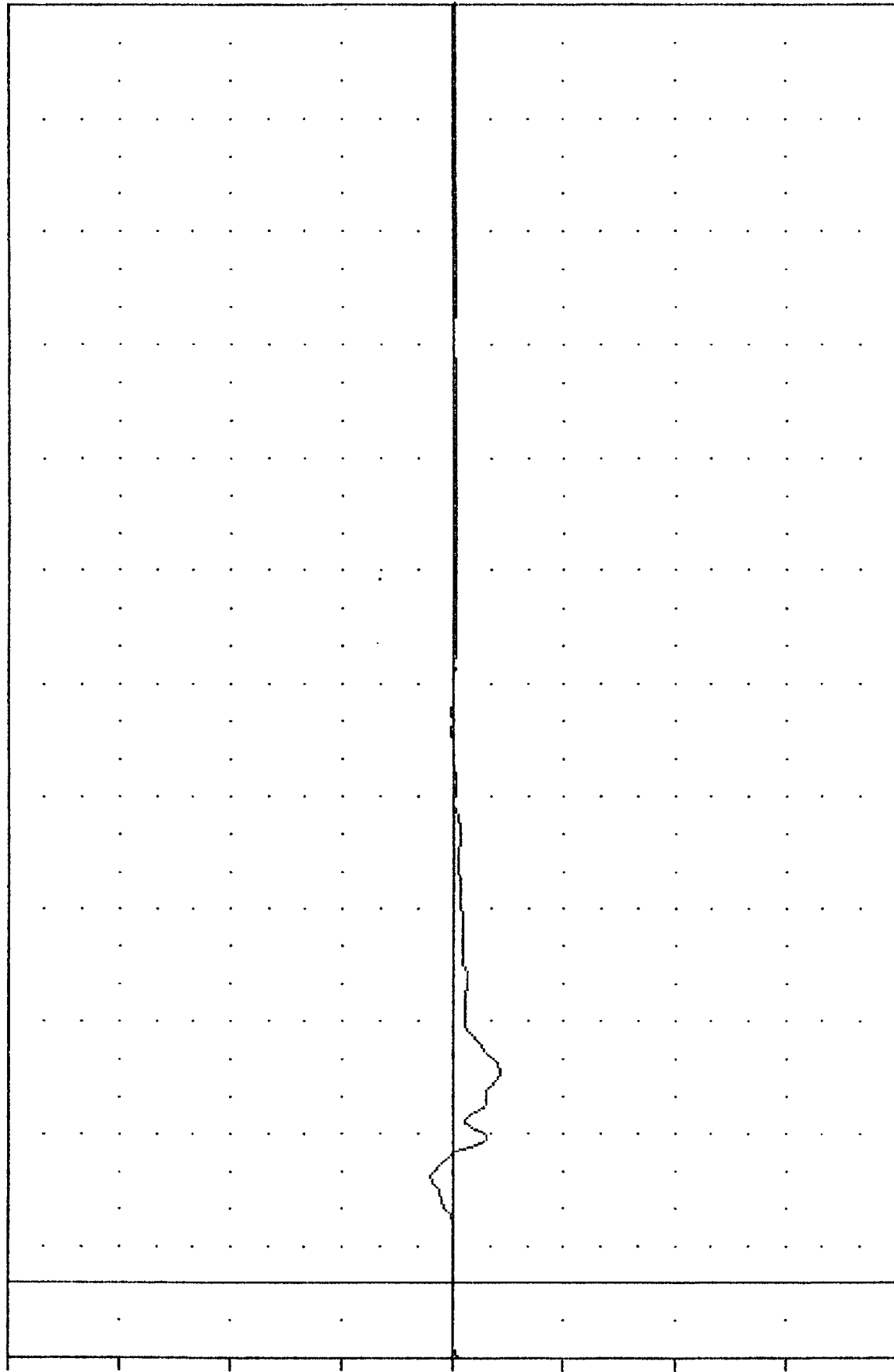
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE ACCELERATION 20 Y AXIS

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T01263

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -20.78 56.25 10.53 28.13

ACCELERATION (G)



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.
 MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE ACCELERATION 7 AXIS

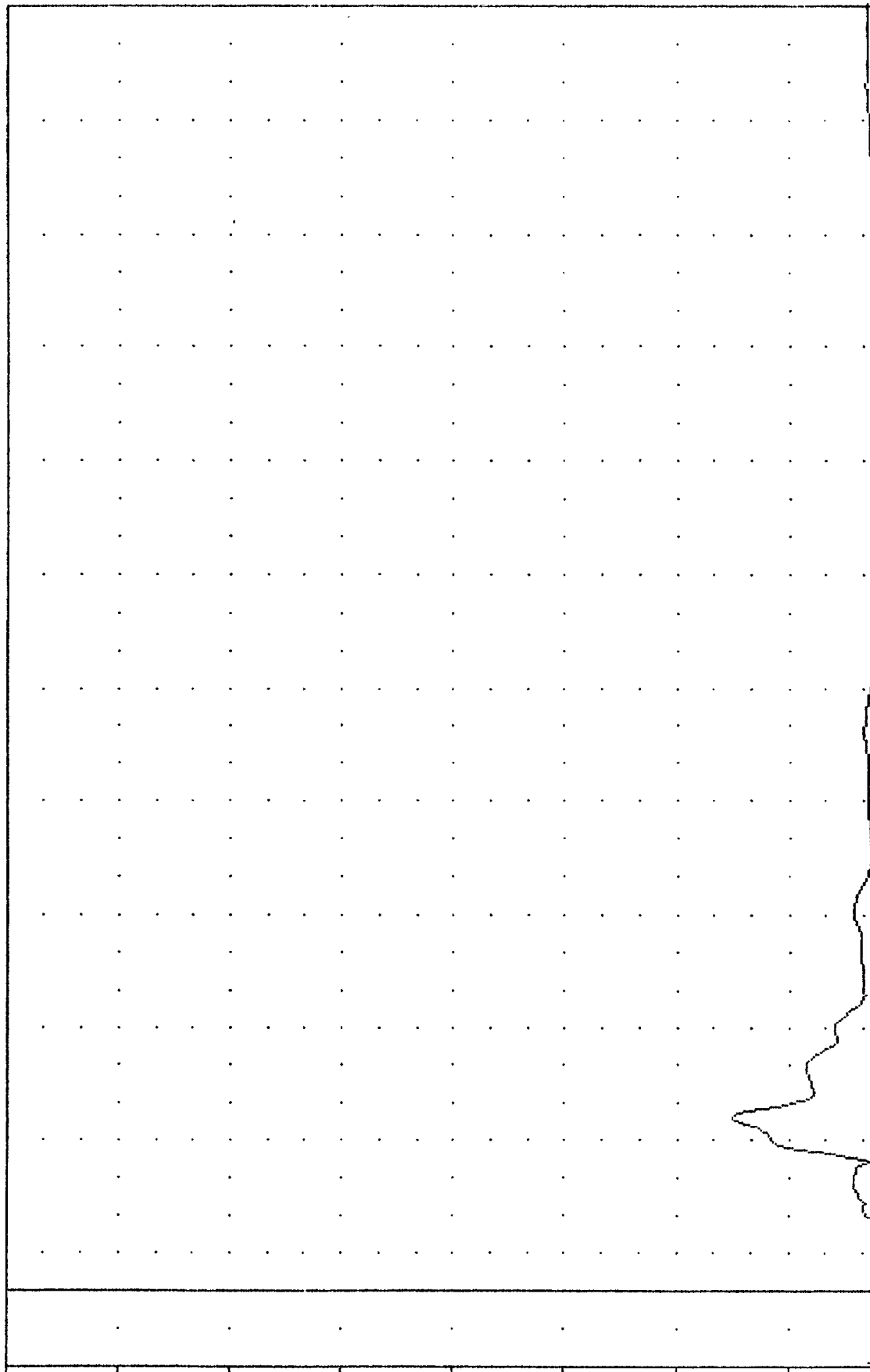
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 101R63

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.14e 8.75, 64.92 e 45.62

ACCELERATION (G)



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE RESENTANT

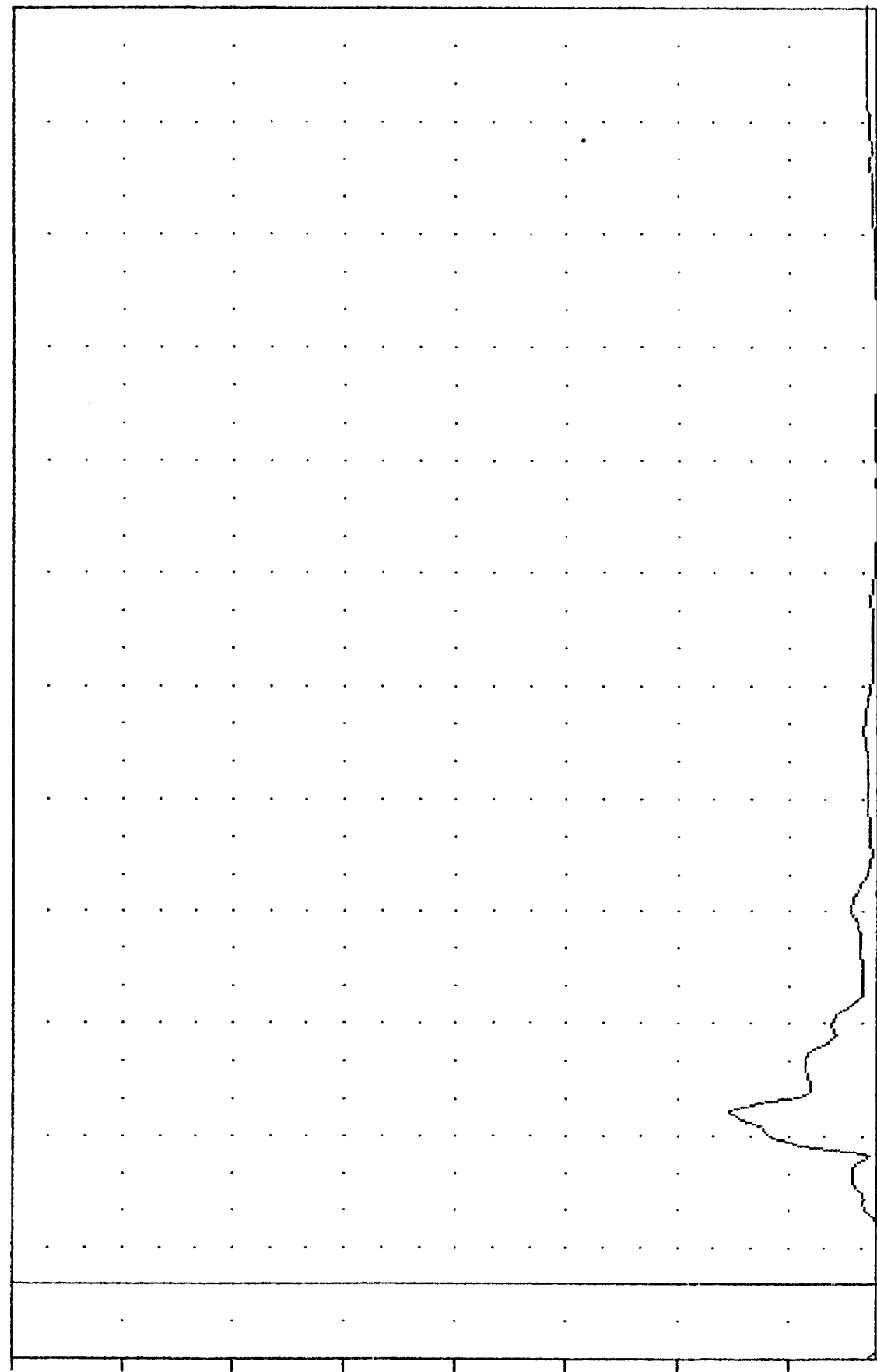
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 T01R6C

PLOT DATE 1-NOV-84 16:04:53

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.178 -14.37, 66.54 * 45.82

ACCELERATION [G]



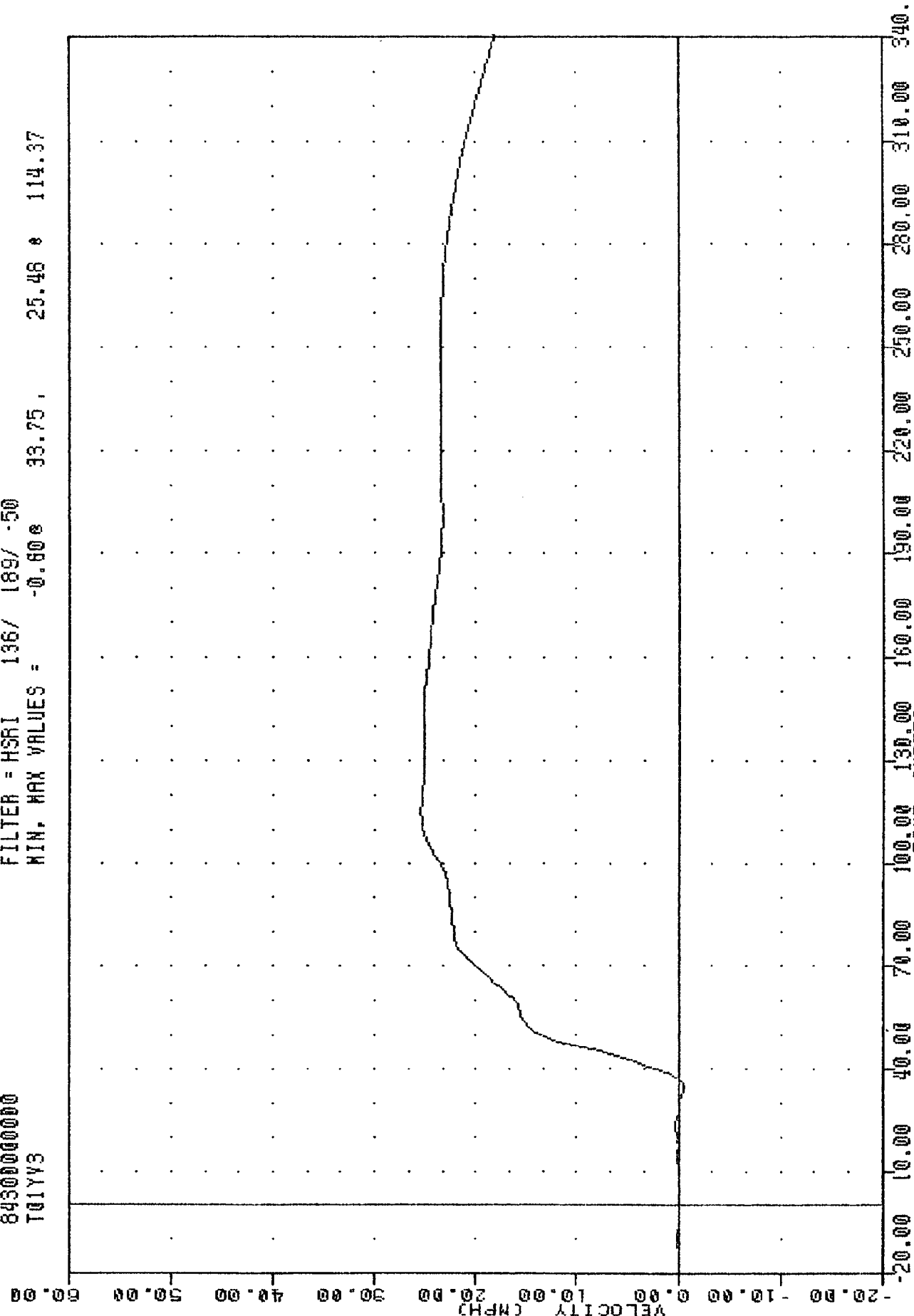
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

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

TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T01YV3

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.808 33.75 , 25.48 * 114.37

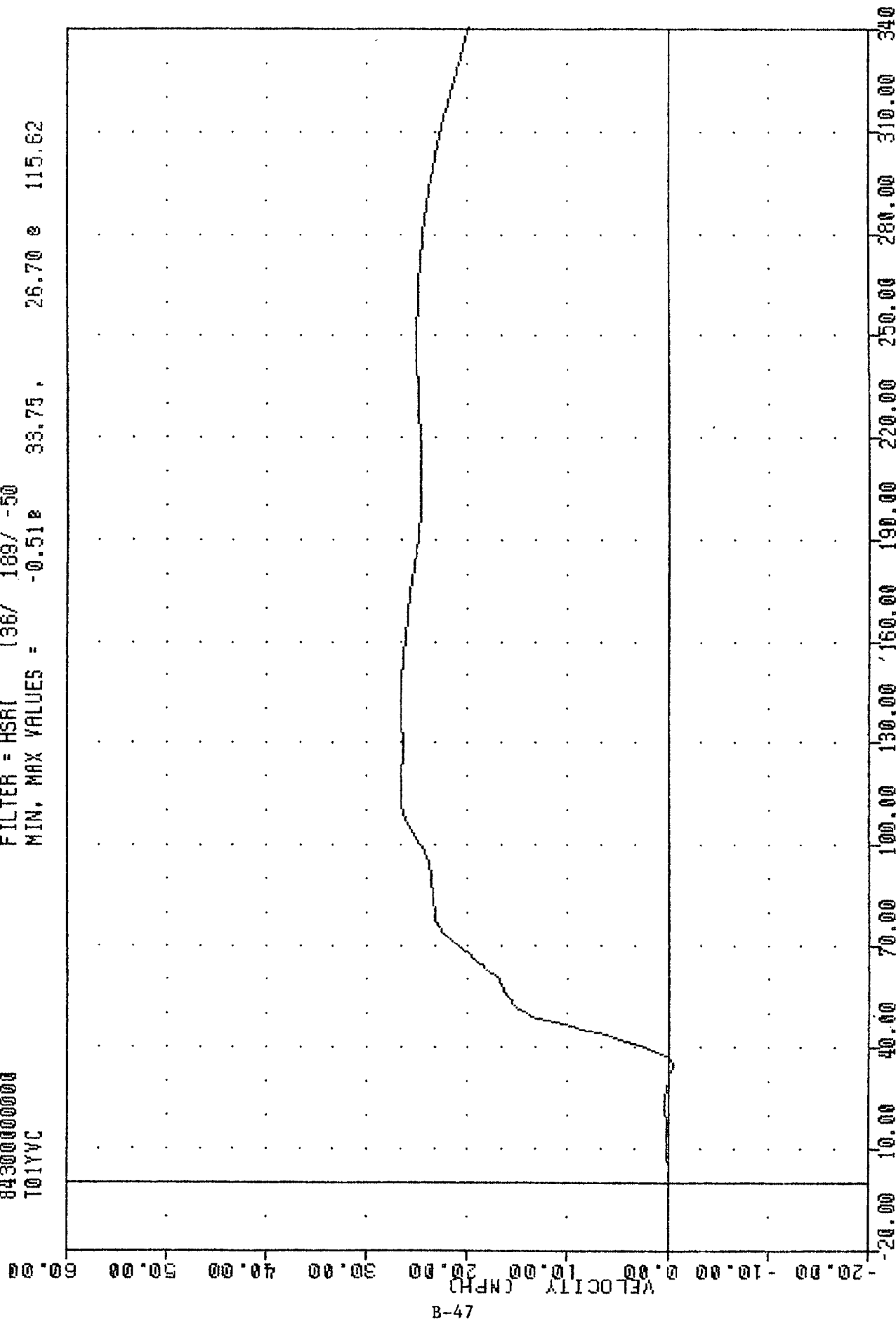


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 NFITA V LISTING T01YV3

TRC
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T01YVC

PLOT DATE 1-NDV-84 16:05:10

FILTER = HSR(136/ 189/ -50
 MIN, MAX VALUES = -0.51E 33.75, 26.70 E 115.62



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 NFITA V USING T01YVC

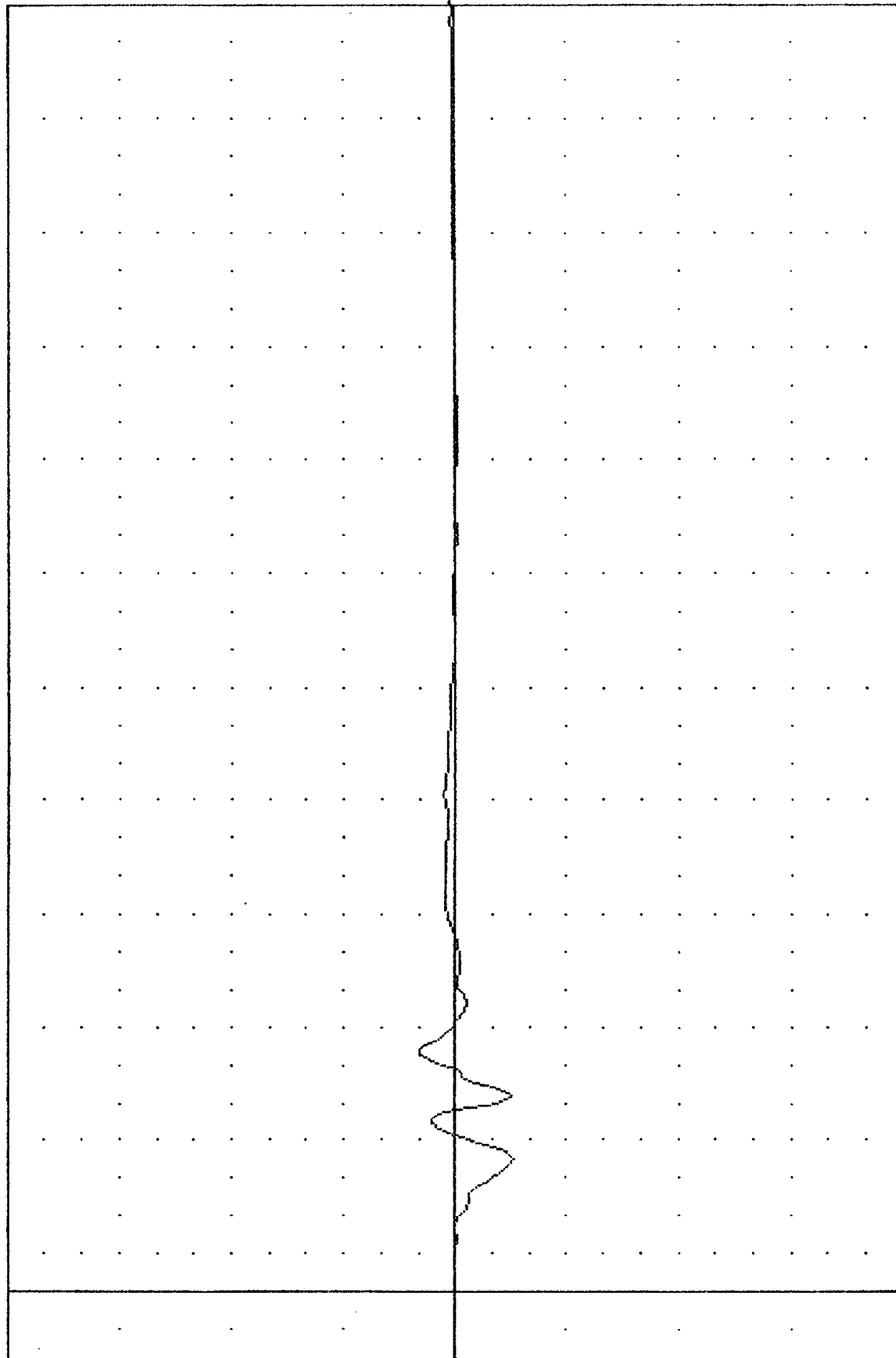
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12X63

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -25.85e 34.38 , 16.45 e 62.50

ACCELERATION [G]



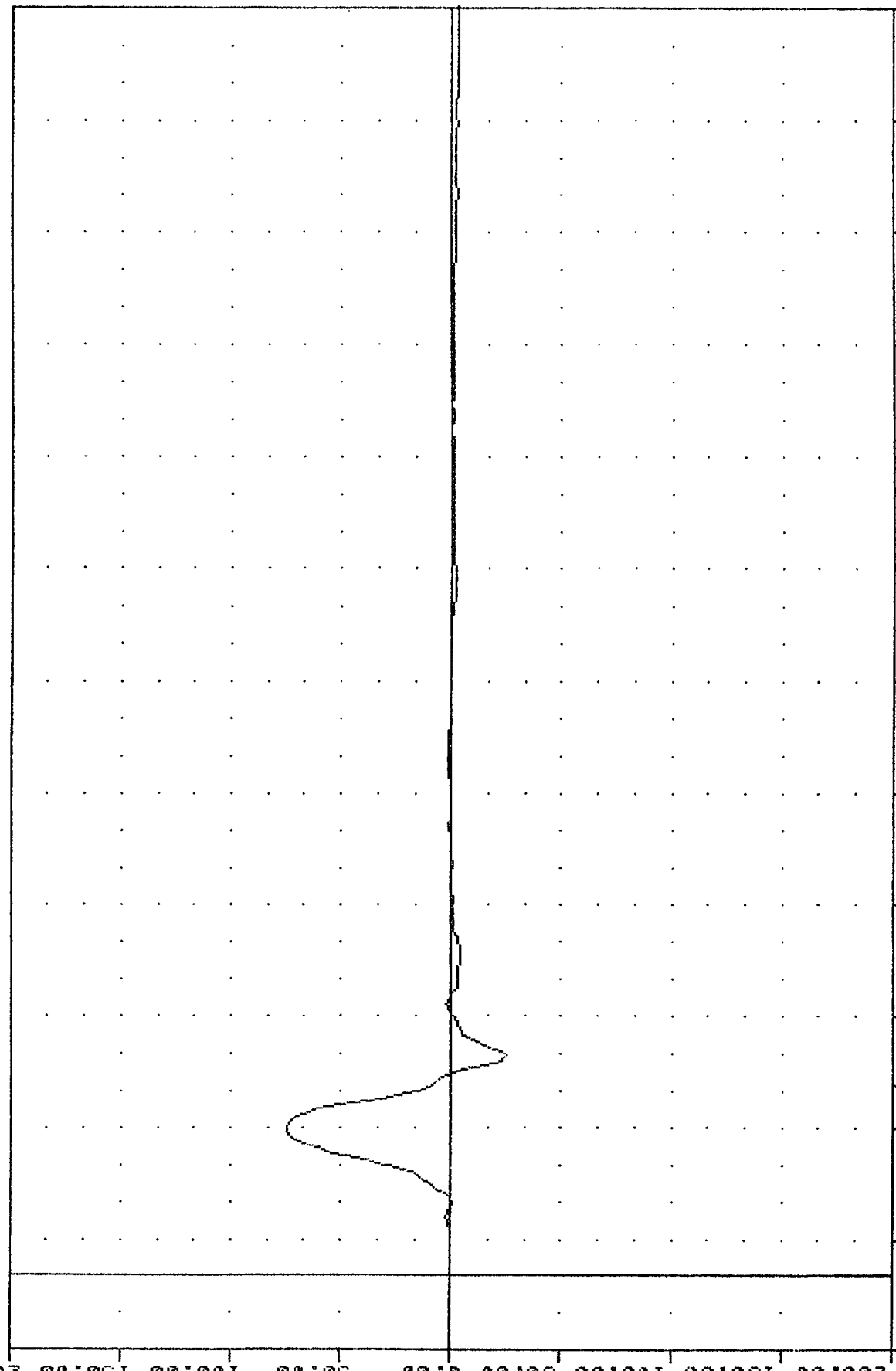
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 RECORDED USING ATRAC ACCELERATION DATA

TAC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12Y63

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 183/ -50
 MIN, MAX VALUES = -24.90 58.75 74.79 38.75

ACCELERATION (G)



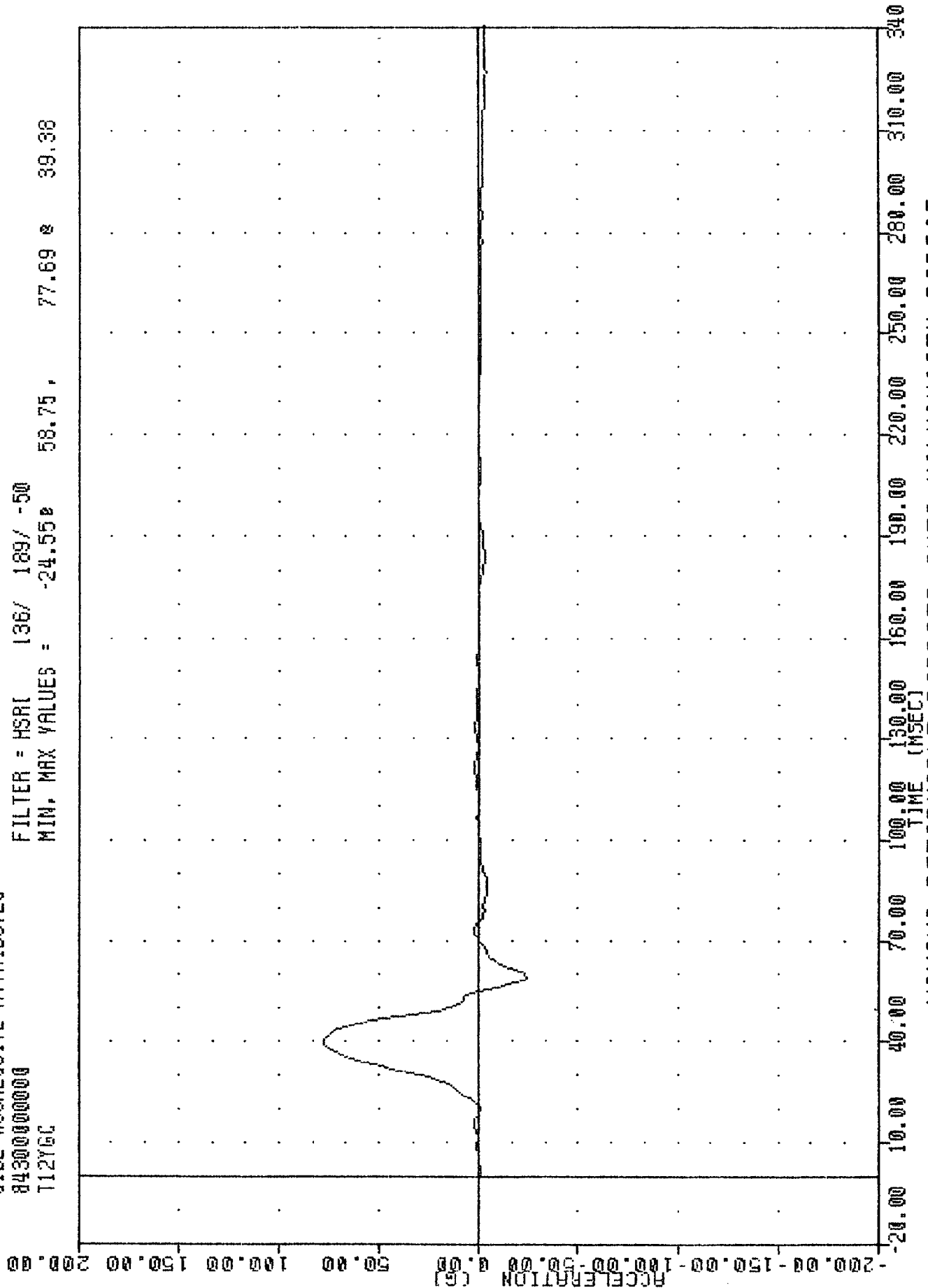
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DACCENEC I NDED CENE ACCELEATION V DUTC

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 T12Y6C

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -24.55 58.75 77.69 39.38



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LOWER SPINE ACCELERATION 20 Y AYTS

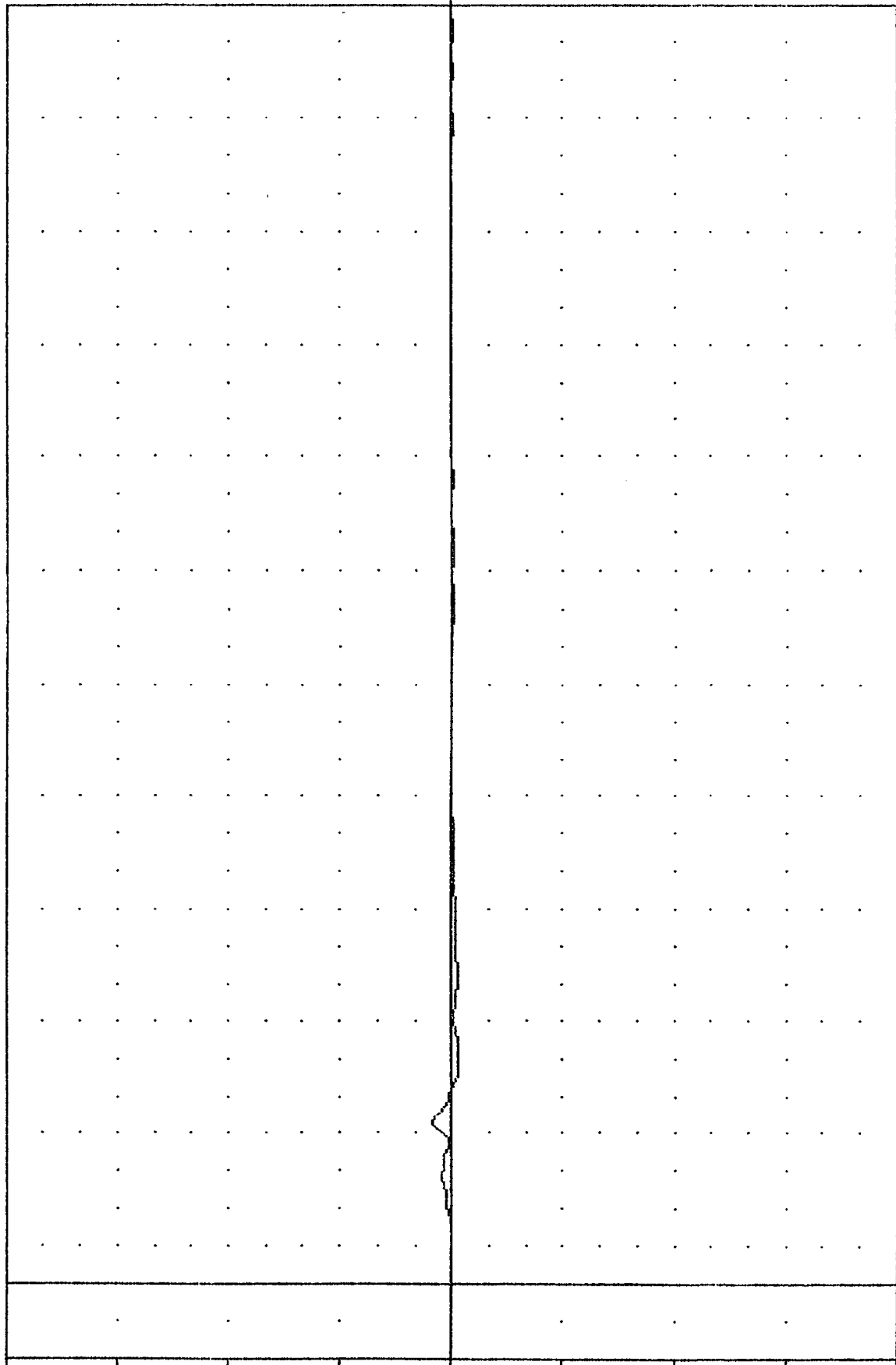
TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12Z63

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -3.28g 56.87, 8.34 g 42.50

ACCELERATION (G)



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

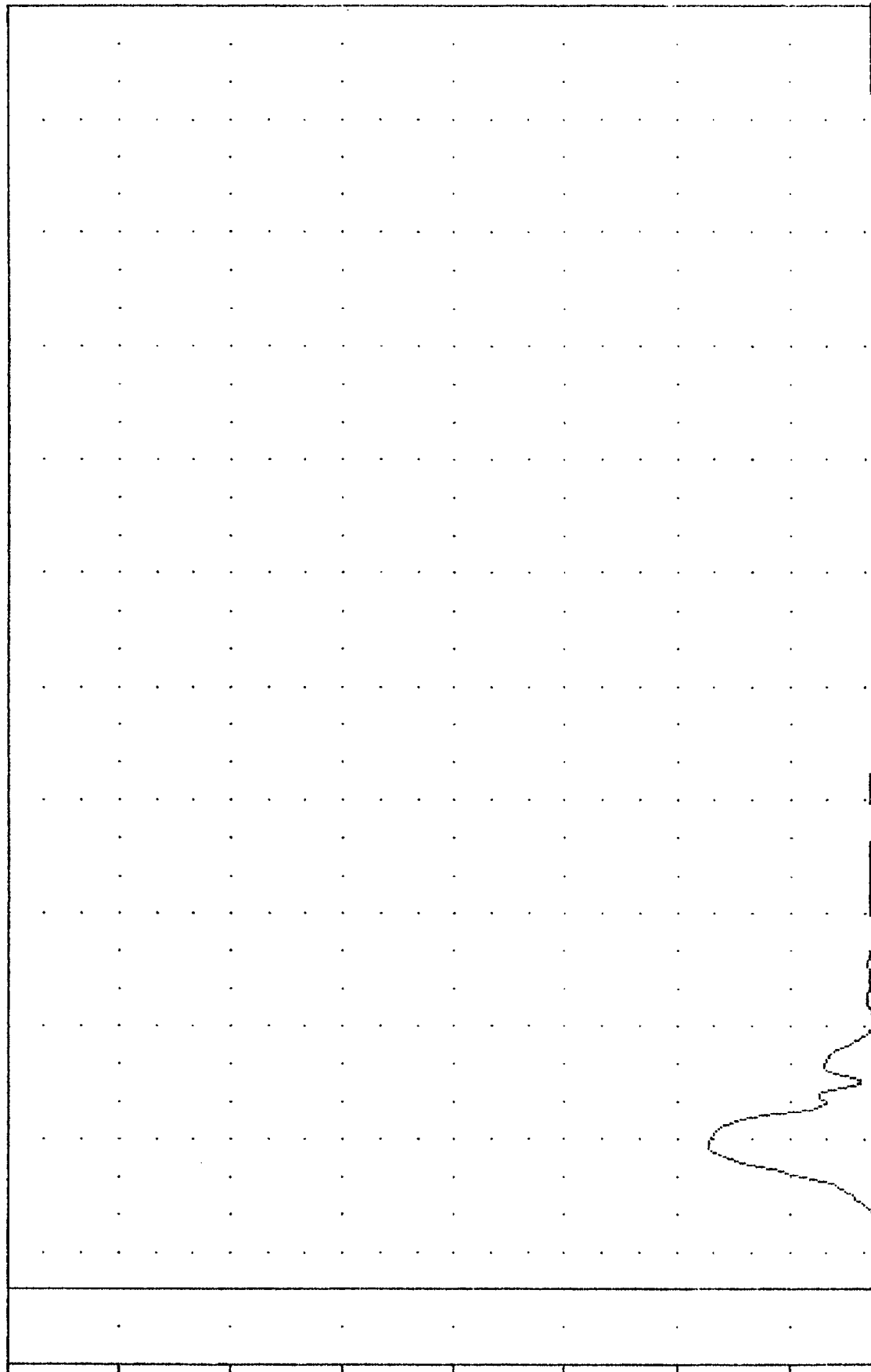
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LOWER SPINE DECELERATION 7 AYTS

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12R63

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.04e 8.75. 75.91 e 37.50

ACCELERATION (G)



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

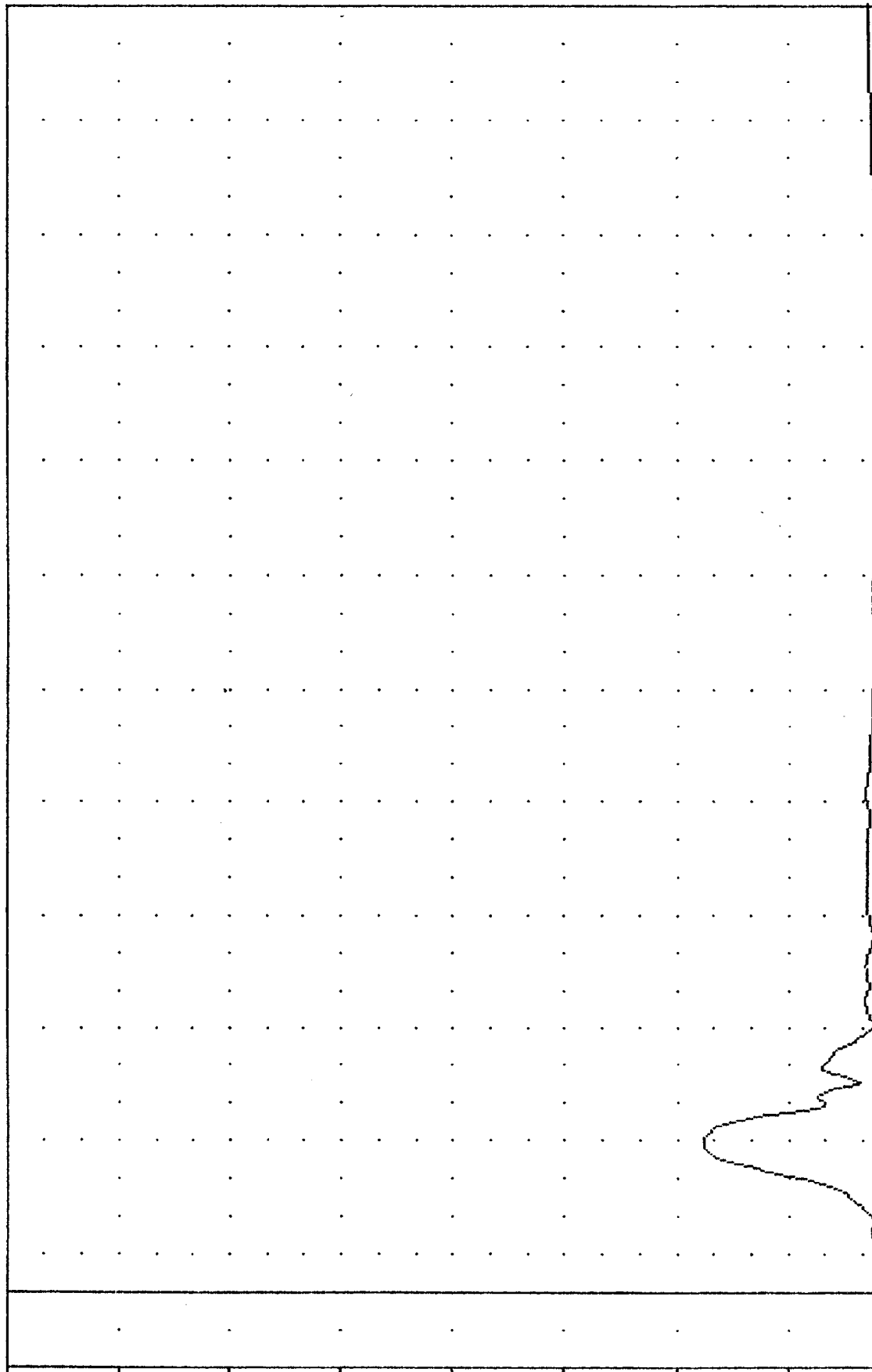
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LOWER SPINE REGION TANT

IRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 T12RGC

PLUT DATE 1-NDV-84 16:04:53

FILTER = HSR 136/ -50
 MIN, MAX VALUES = 0.078 -3.13, 78.26 s 38.75

ACCELERATION (G)
 -10.00
 -9.00
 -8.00
 -7.00
 -6.00
 -5.00
 -4.00
 -3.00
 -2.00
 -1.00
 0.00
 1.00
 2.00
 3.00
 4.00
 5.00
 6.00
 7.00
 8.00
 9.00
 10.00



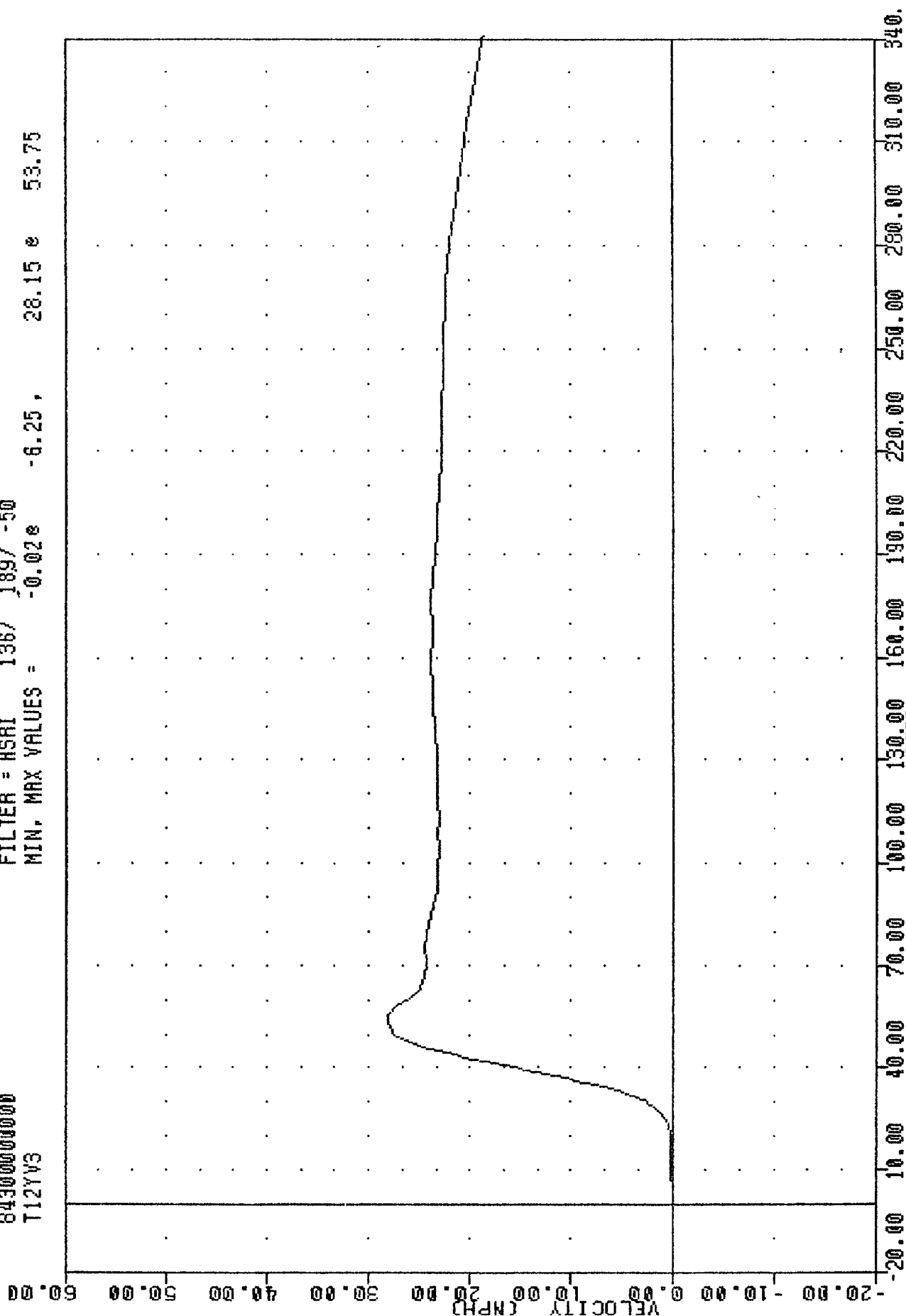
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LOWER SPINE RESISTANT USING T12VGC

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 T12YV3

PLUT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.02s -6.25, 28.15 s 53.75

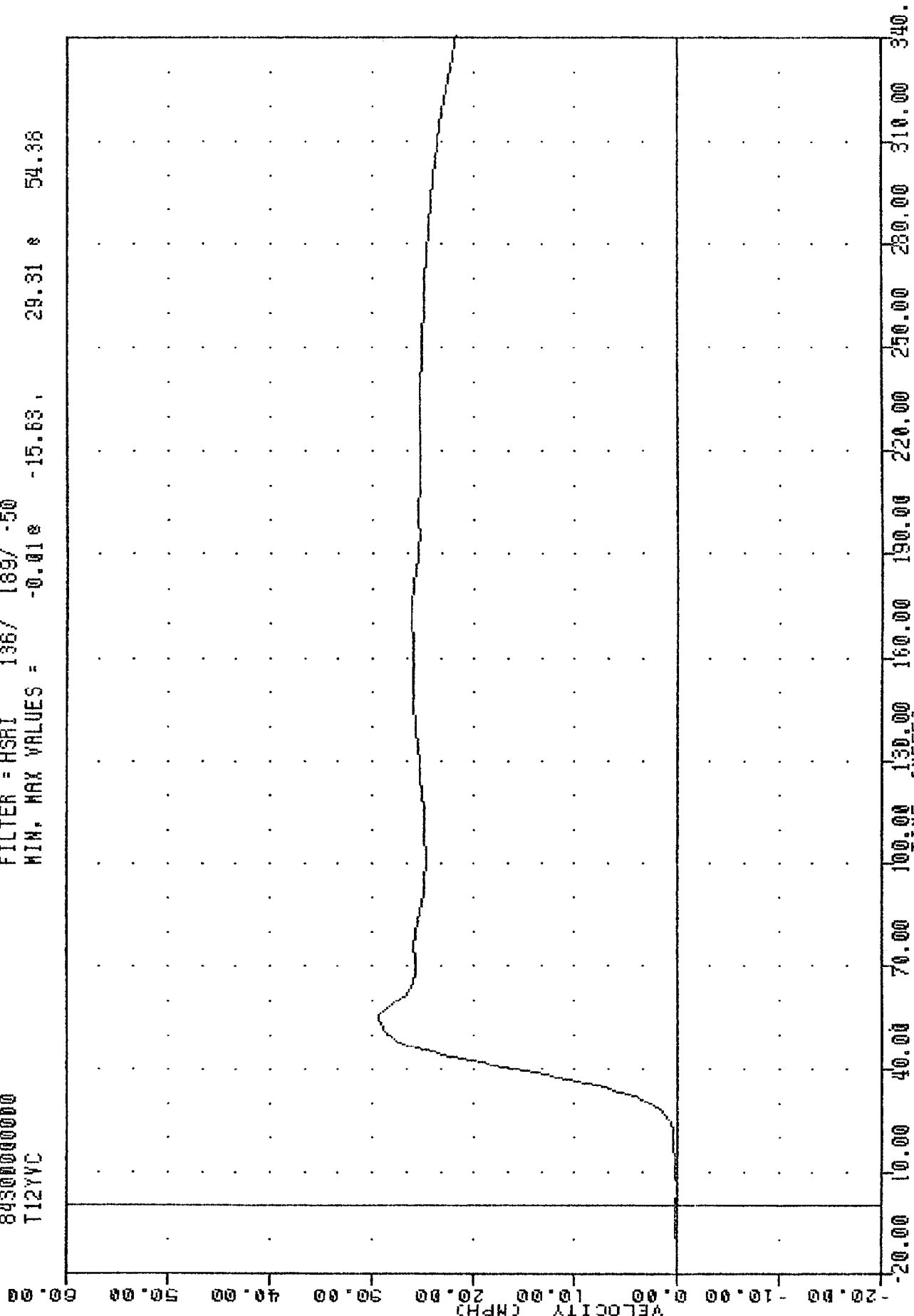


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12Y63

TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 T12YVC

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.01 29.31 54.38



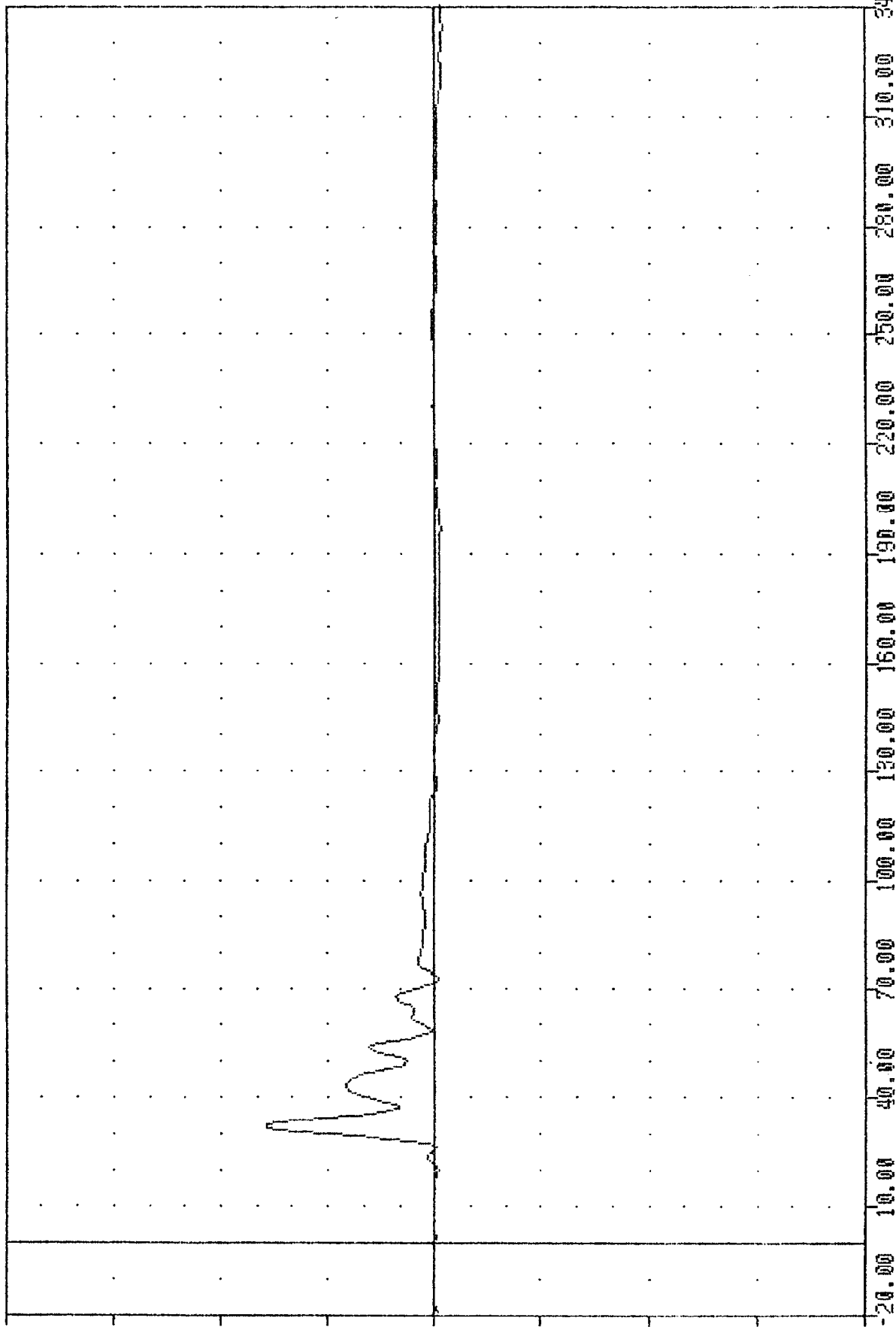
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12YGC

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 LURY63

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSR1 136/ 189/ -50
 MIN, MAX VALUES = -3.520 334.38, 79.17 0 31.25

ACCELERATION (G)



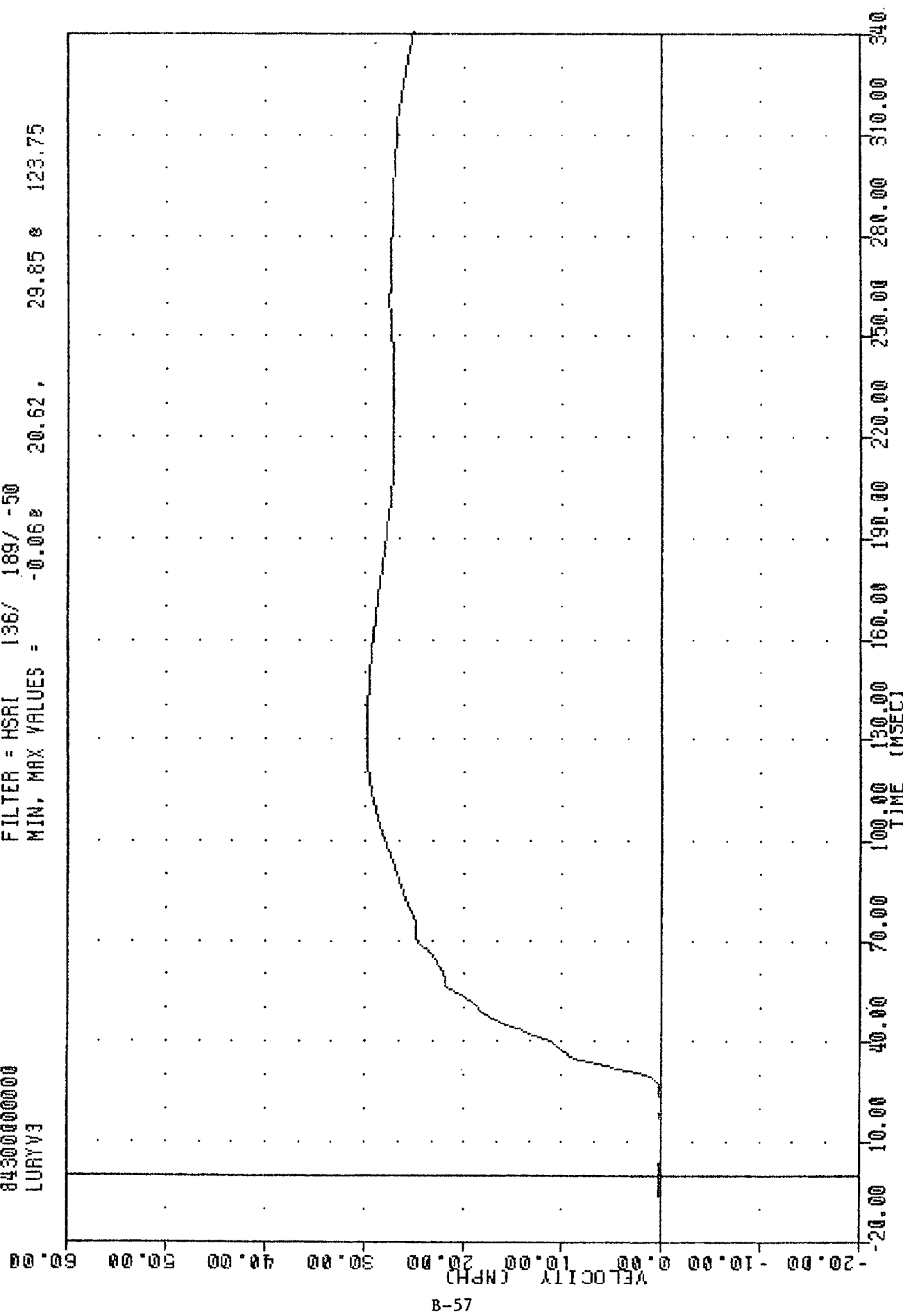
B-56

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

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LURYV3

PLOT DATE 1-NOV-84 18:05:10

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.062 20.62 29.85 123.75

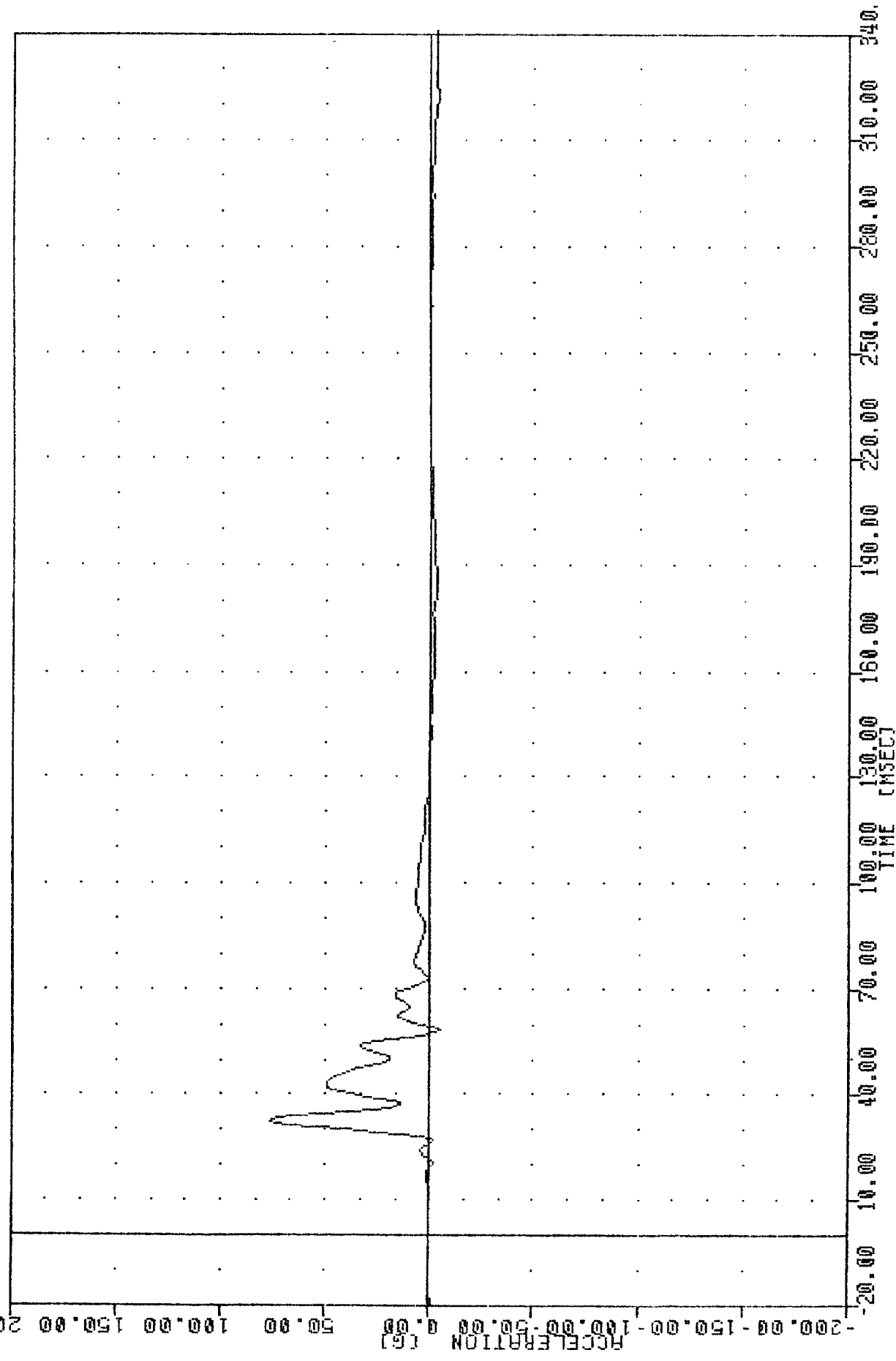


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYG3

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LURYGC

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -4.60e 57.50, 76.33 e 31.66



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

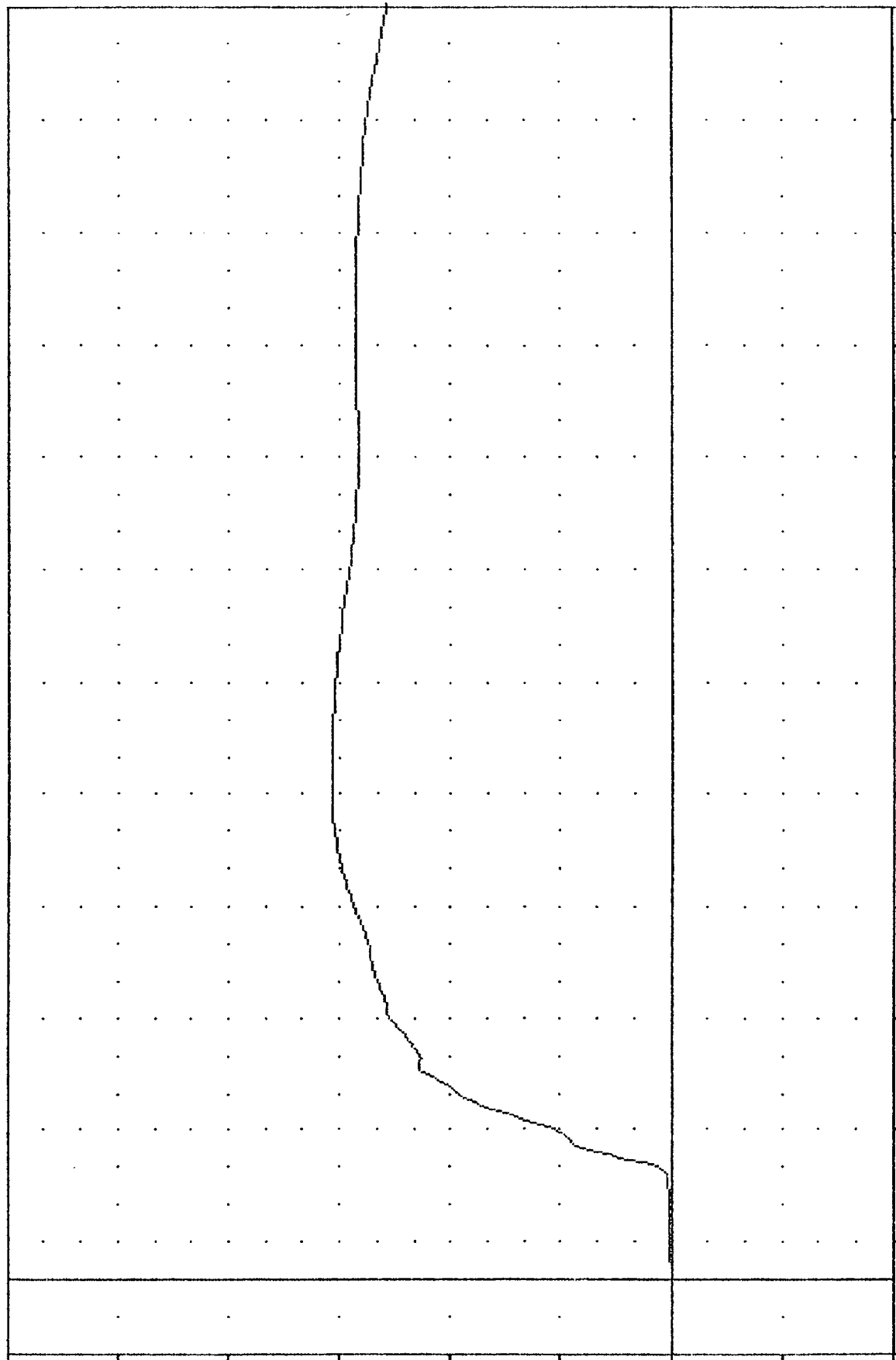
TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 243000000000
 LURYVC

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.038 -11.88, 30.65 133.75

VELOCITY (MPH)



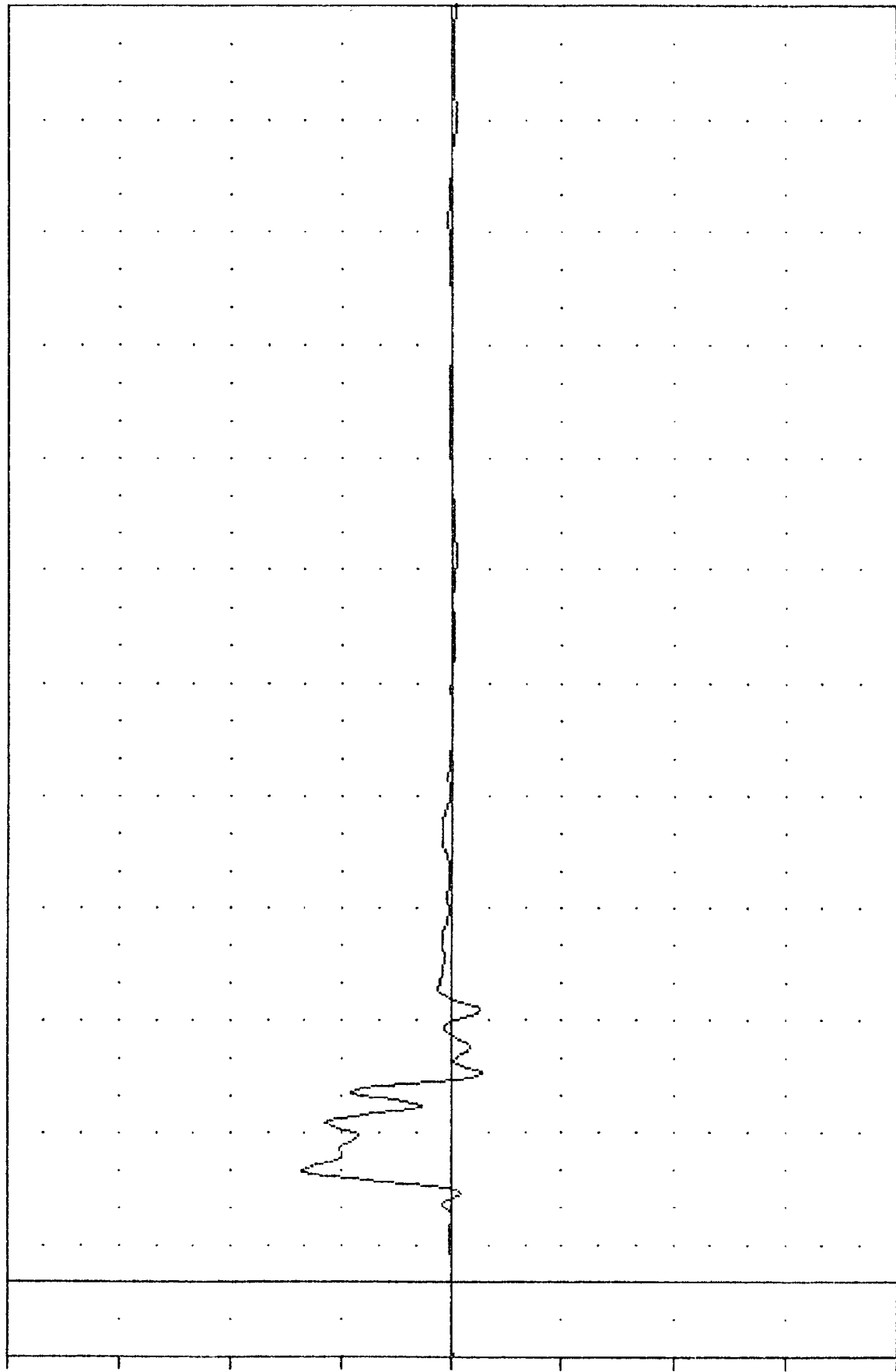
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYGC

TAC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 L1AY63

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -13.018 55.00, 67.65 28.75

ACCELERATION (G)



B-60

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LEFT LOWER AIR ACCIFRATION Y AXIS

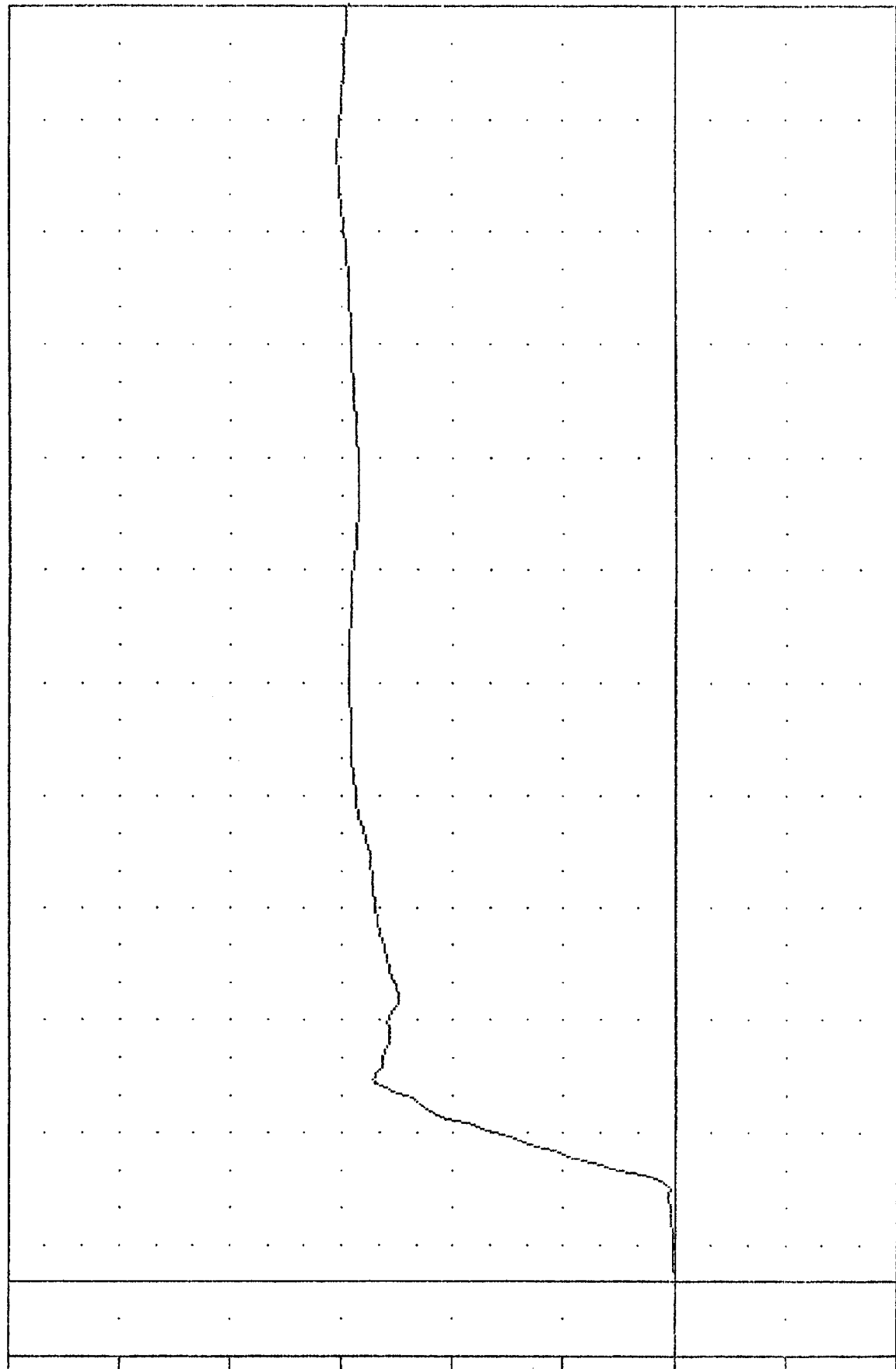
TAC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LLRYV3

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.018 -18.13, 30.36 & 300.63

VELOCITY (MPH)



TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 LLRYGC

PLOT DATE 1-NOV-84 16:03:24

FILTER = HSR1 136/ 189/ -50

MIN, MAX VALUES = -12.108 61.87, 79.33 28.75

200.00

150.00

100.00

50.00

0.00

-50.00

-100.00

-150.00

-200.00

ACCELERATION (G)

TIME (MSEC)

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

340

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

PASSENGER LEFT LOWER RIB ACCELERATION -3 Y AVTS

200.00

150.00

100.00

50.00

0.00

-50.00

-100.00

-150.00

-200.00

ACCELERATION (G)

TIME (MSEC)

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

340

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

PASSENGER LEFT LOWER RIB ACCELERATION -3 Y AVTS

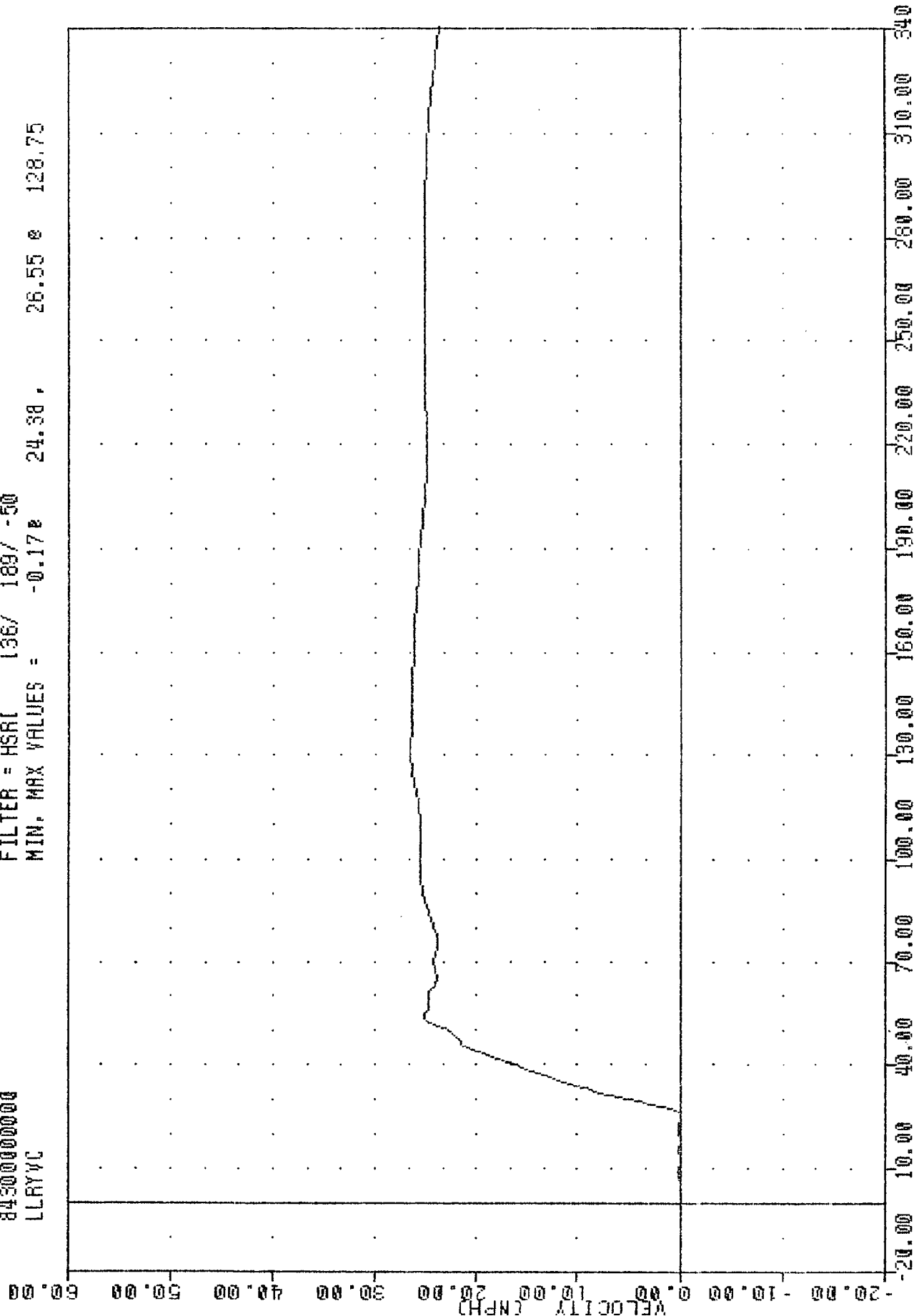
TAC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 LLRYVC

PLOT DATE 1-NOV-84 16:05:10

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.17 24.38, 26.55 128.75

VELOCITY (MPH)



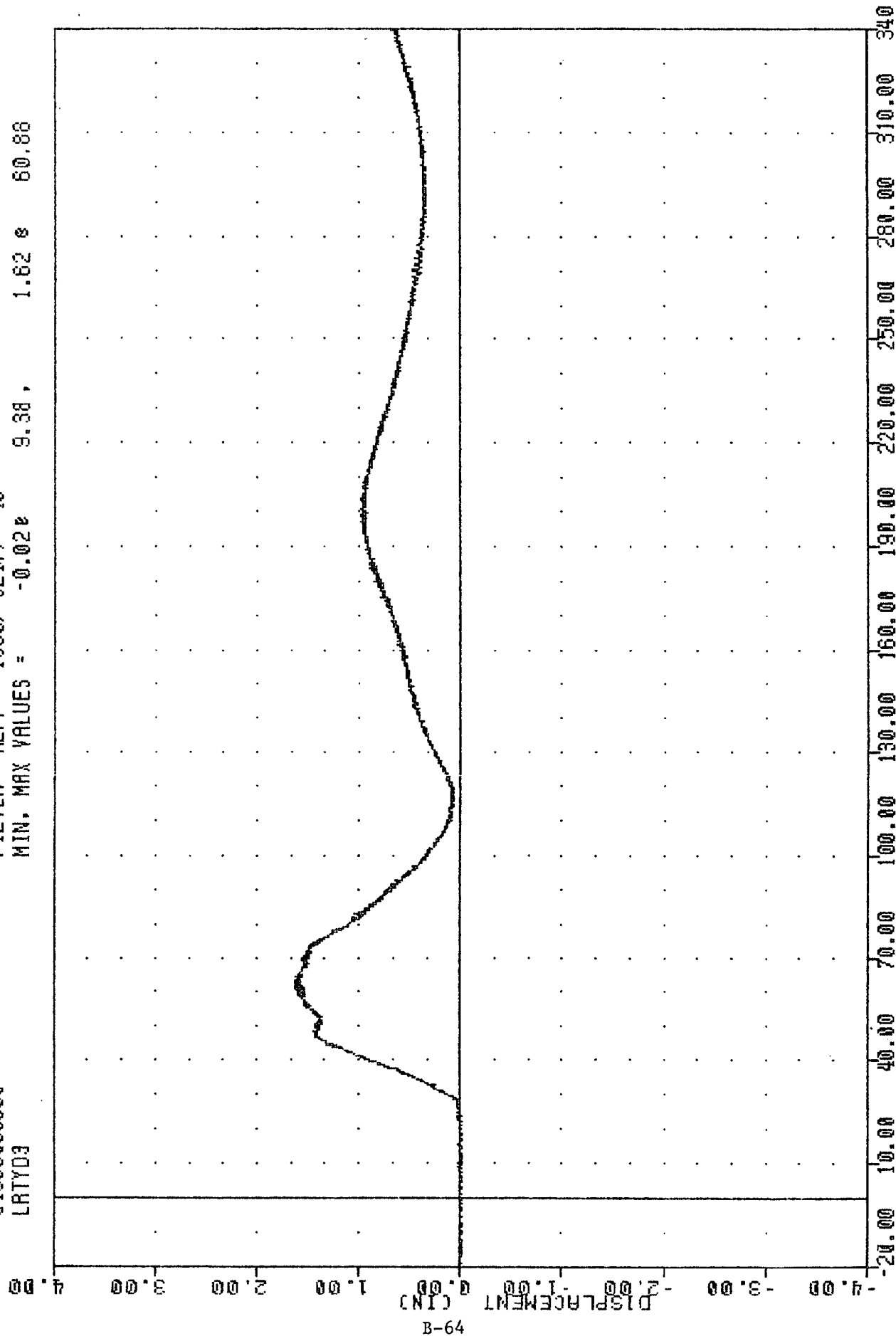
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LLRYGC

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LRTYD3

PLOT DATE 2-NDV-84 08:46:48

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -0.028 9.38, 1.62 8 60.88



B-64

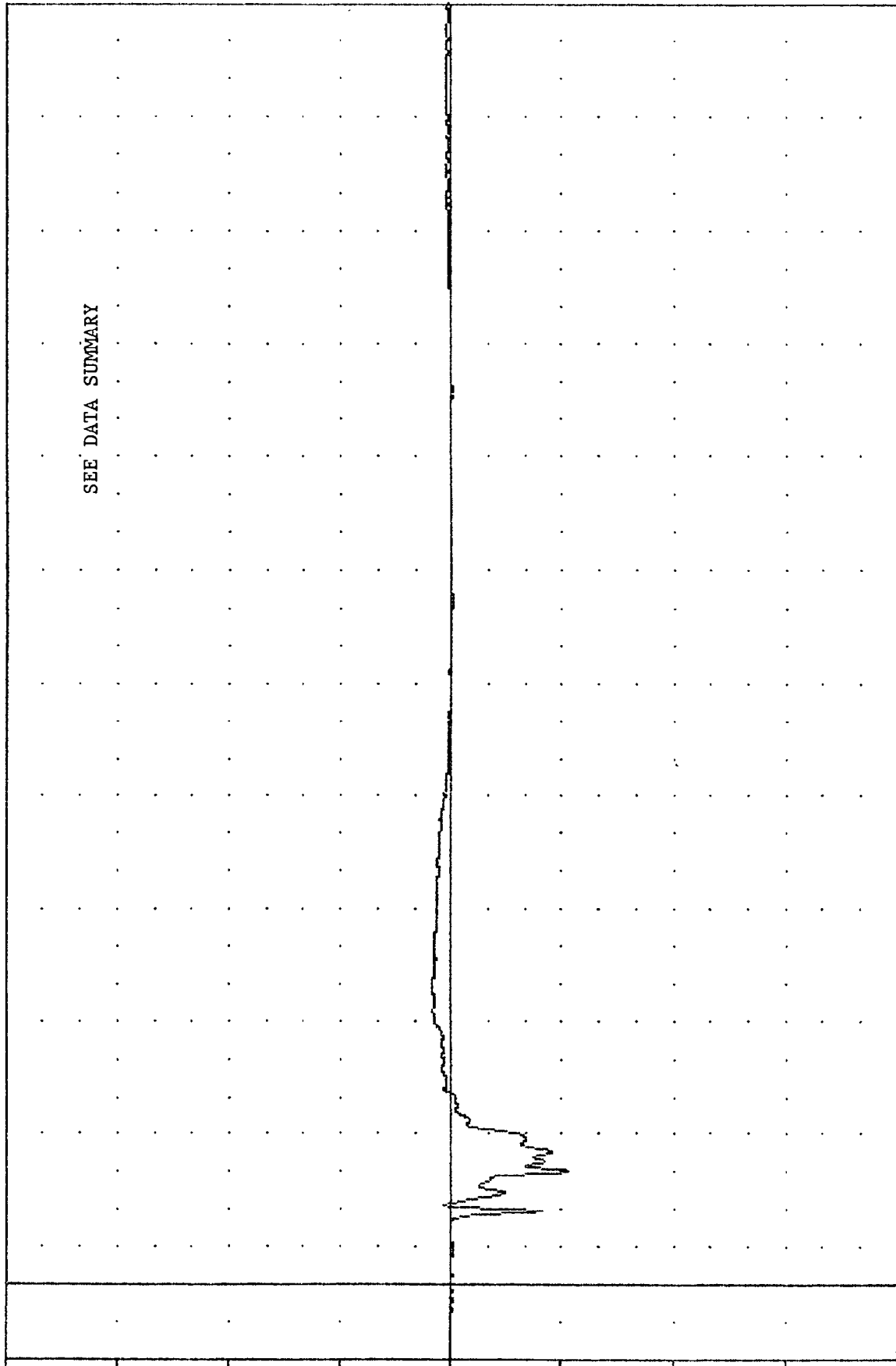
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LEFT AIR TO SPINE DISPLACEMENT INCHES

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 PEVXG3

PLOT DATE 2-NOV-84 08:46:48

FILTER = 8LPF 300/ 949/ -40
 MIN. MAX VALUES = -53.26e 30.13, 8.90 e 78.88

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 PEVVIS ACCELERATION Y AXIS

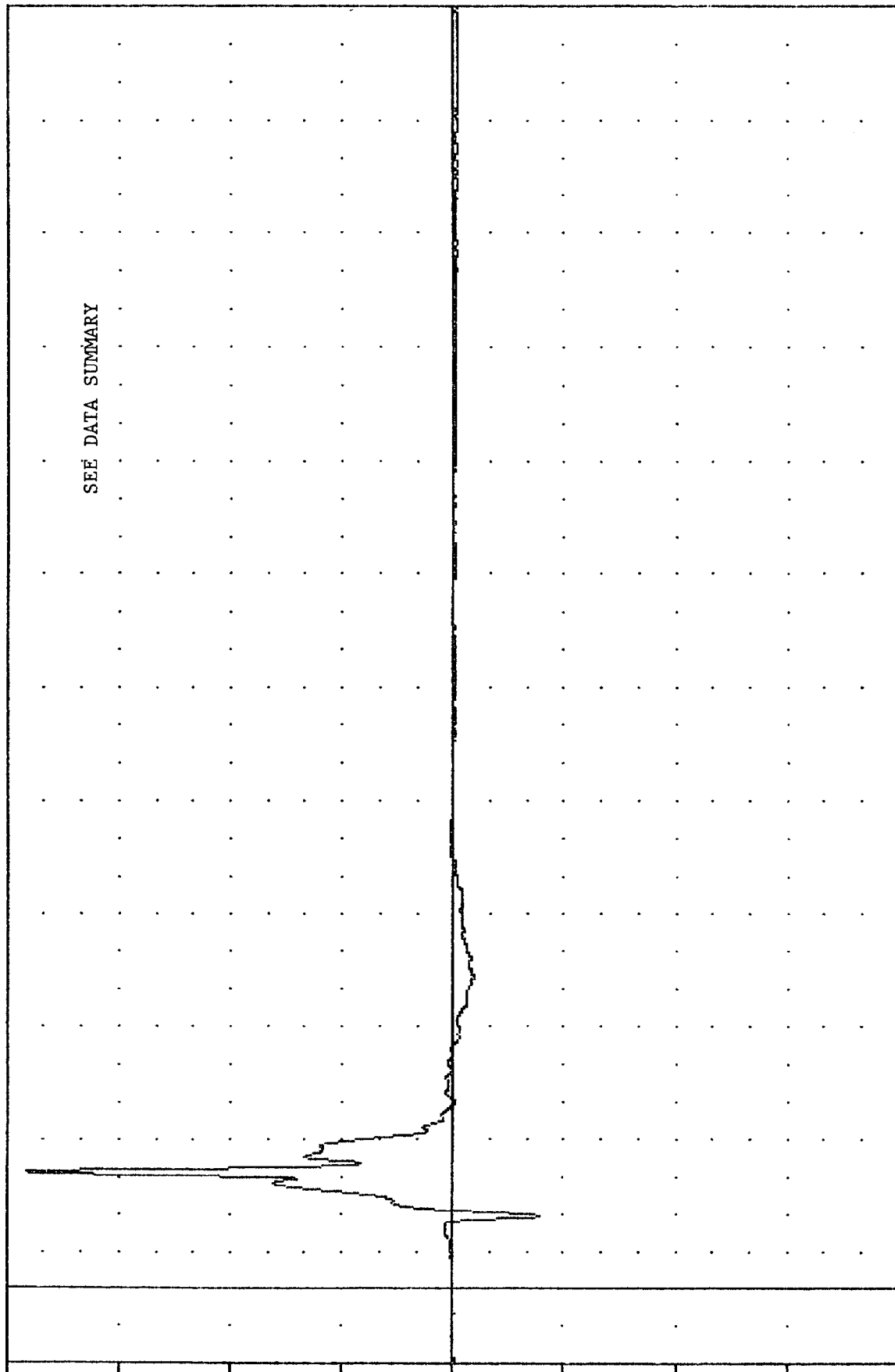
TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 PEVY63

PLOT DATE 2-NOV-84 08:46:48

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -39.298 19.25 190.98 31.13

ACCELERATION (G)



B-66

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

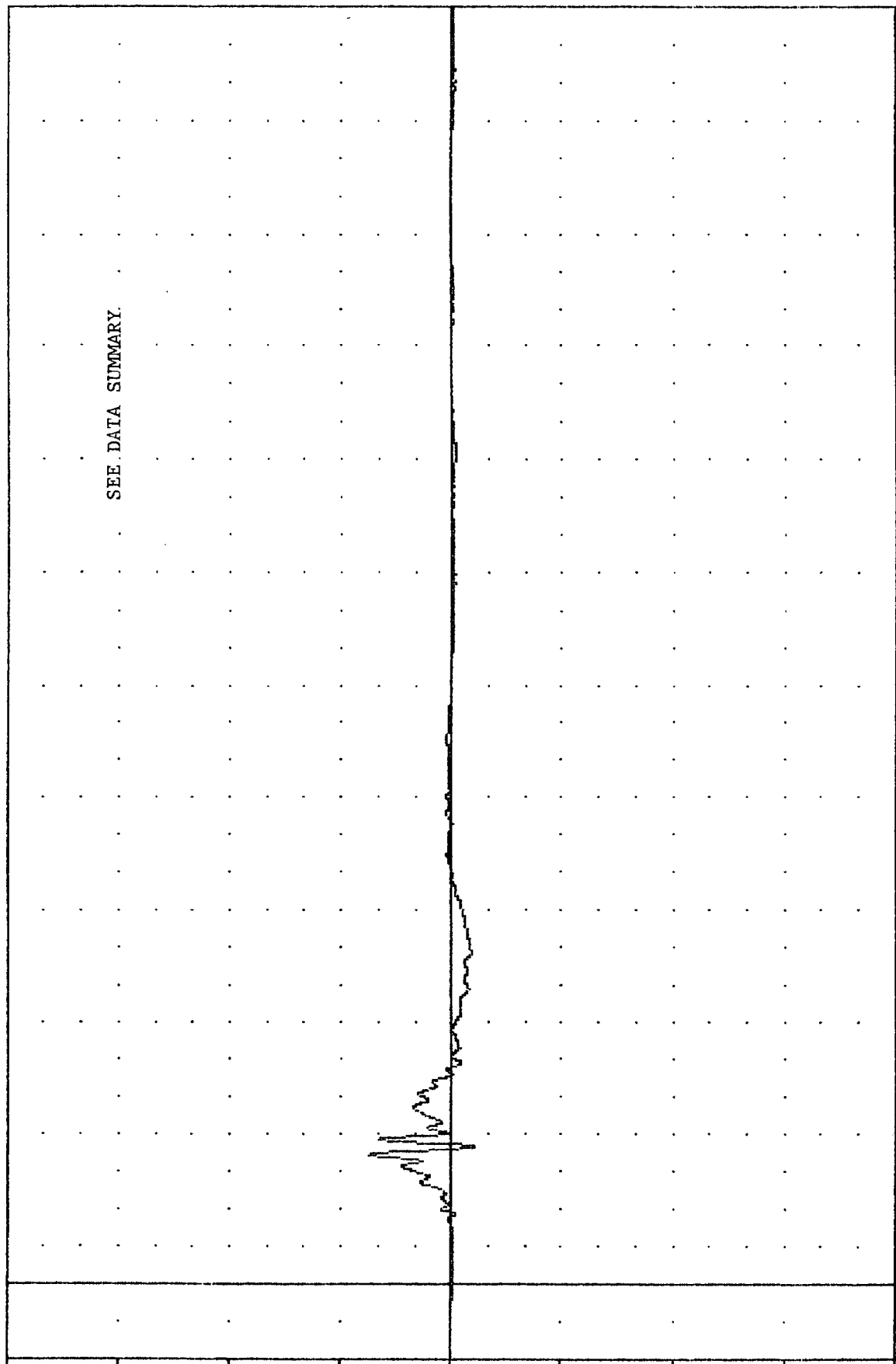
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PEVY'S ACCELERATION Y AXIS

TRC
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 PEVZG3

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -10.41% 36.63, 57.37 & 34.38

ACCELERATION (G)



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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PELVIS ACCELERATION Z AXIS

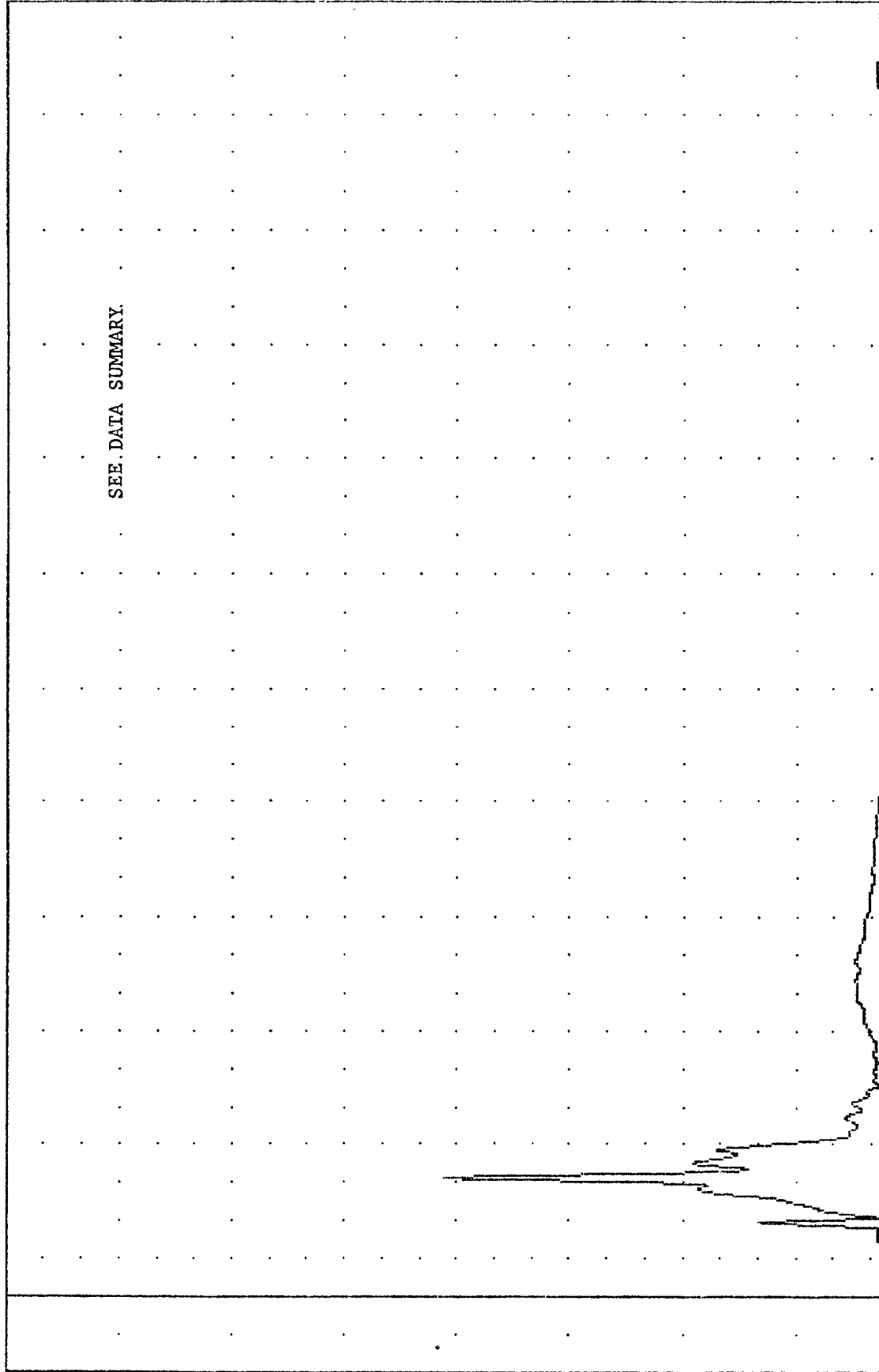
TRC . 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 PENRG3

PLOT DATE 1-NOV-84 16:10:09

FILTER = 8LPF 300/ 949/ -40

MIN. MAX VALUES = 0.108 -8.38, 195.44 e 31.13

ACCELERATION (G)
 10.00 40.00 90.00 140.00 190.00 240.00 290.00 340.00 390.00



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

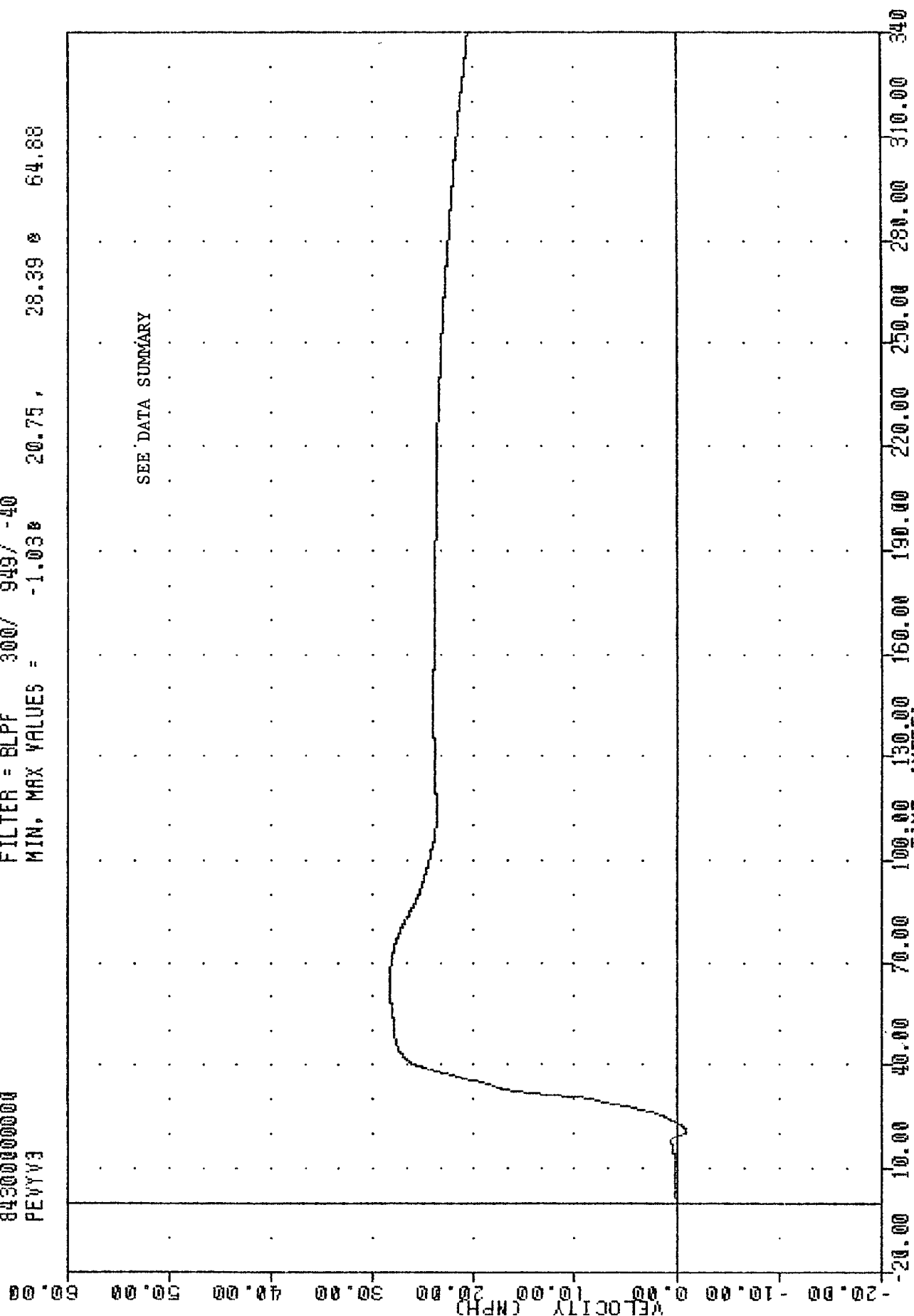
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PFI VTS RFSUIT TANT

PLOT DATE	1-NOV-84	16:11:42
-----------	----------	----------

```

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -1.038 20.75, 28.39 64.88

```

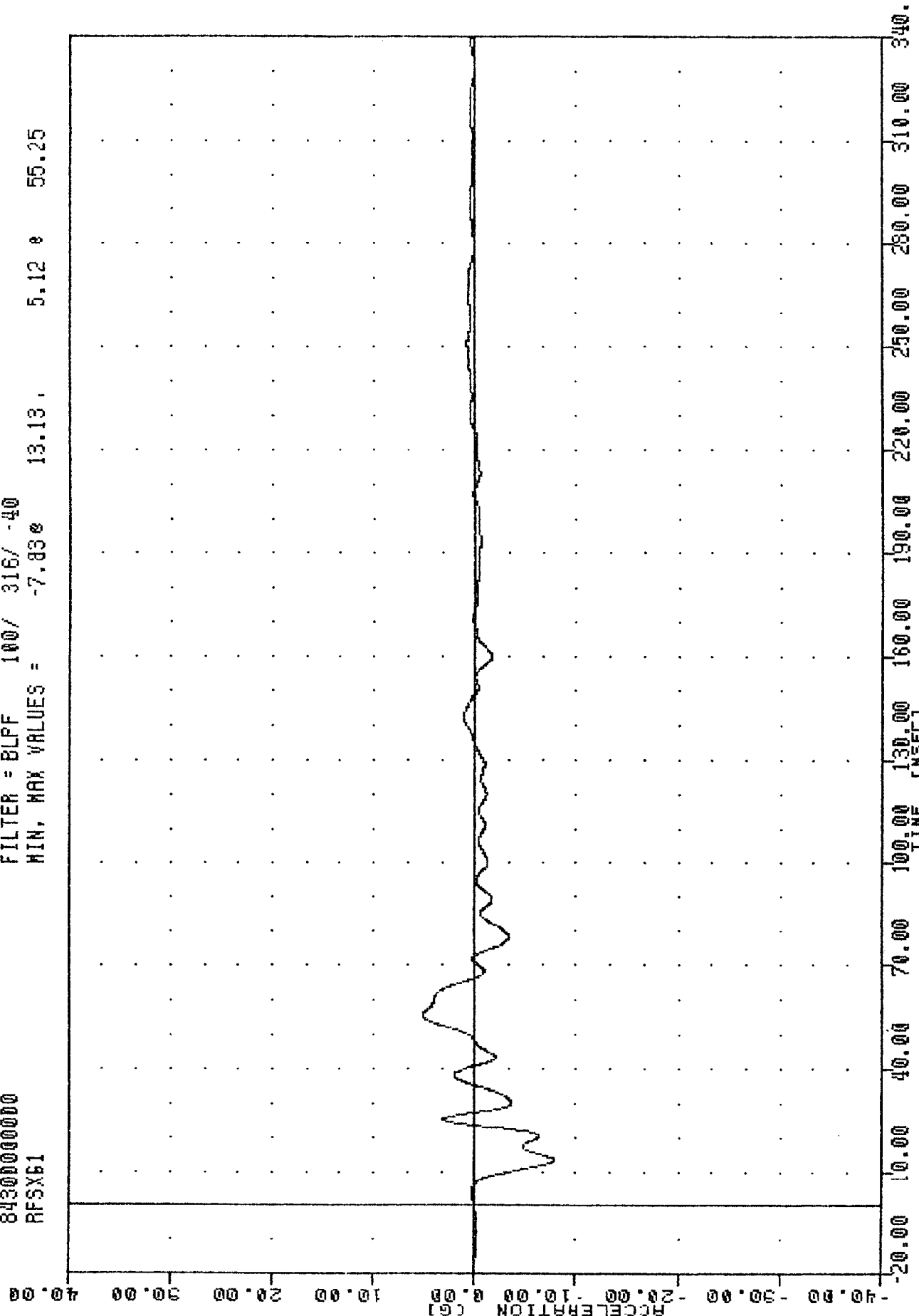


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
TIME (MSEC)
DELTA V USING PEVYG3

TAC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 RFSX61

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -7.83e 13.13, 5.12 e 55.25



B-70

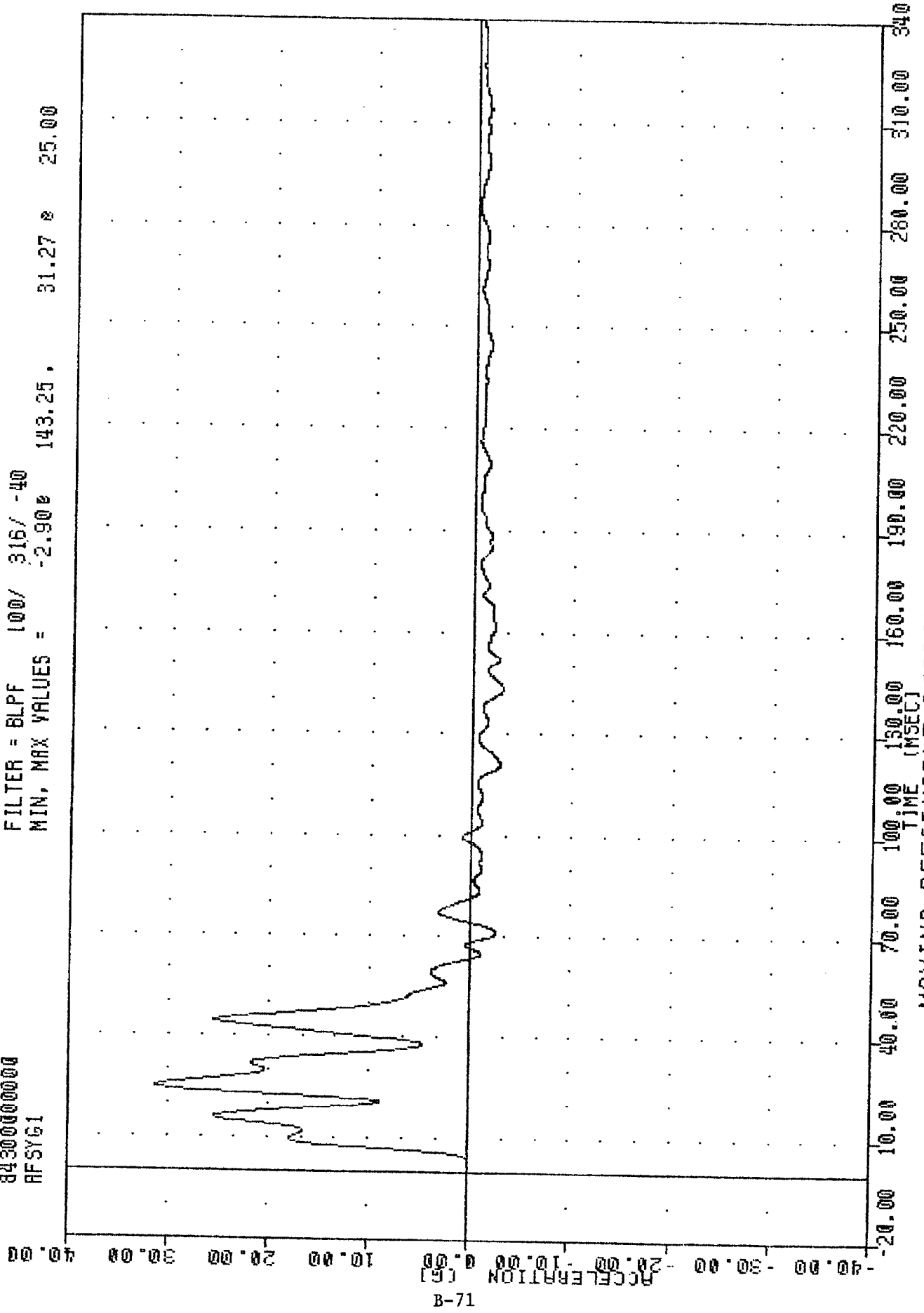
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT FRONT SILL ACCELERATION X AXIS

TRC
SIDE AGGRESSIVE ATTRIBUTES
84300000000
AFSYG1

,841026

PLOT DATE 1-NDV-84 16:10:09

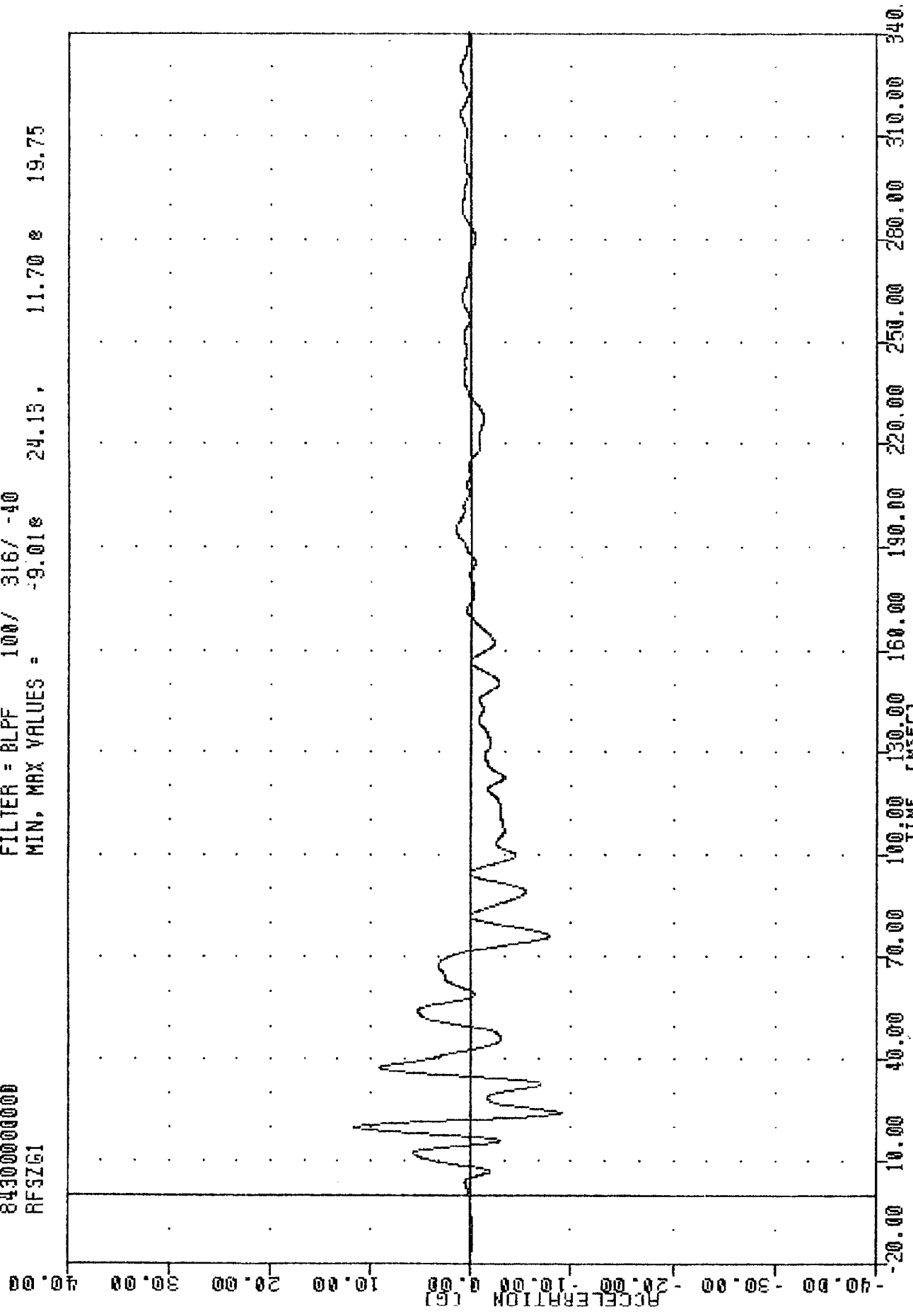
FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -2.900 143.25, 31.27 @ 25.00



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

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 RF3ZG1

PLUT DATE J-NOV-84 16:10:09
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -9.01e 24.13, 11.70 e 19.75

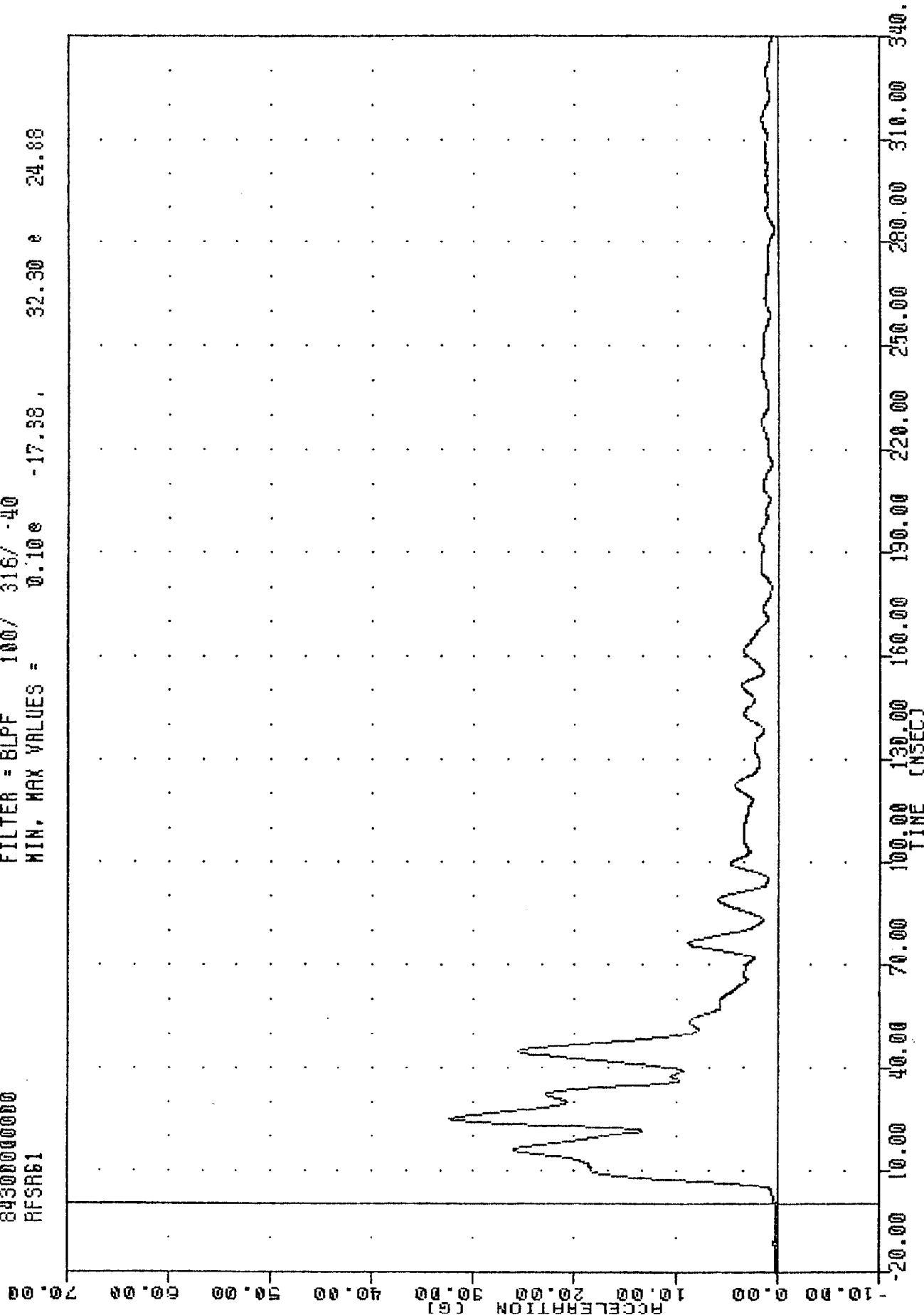


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT FRONT SILL ACCELERATION Z AXIS

TAC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 RFSR61

PLUT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = 0.10e -17.88 , 32.30 e 24.88



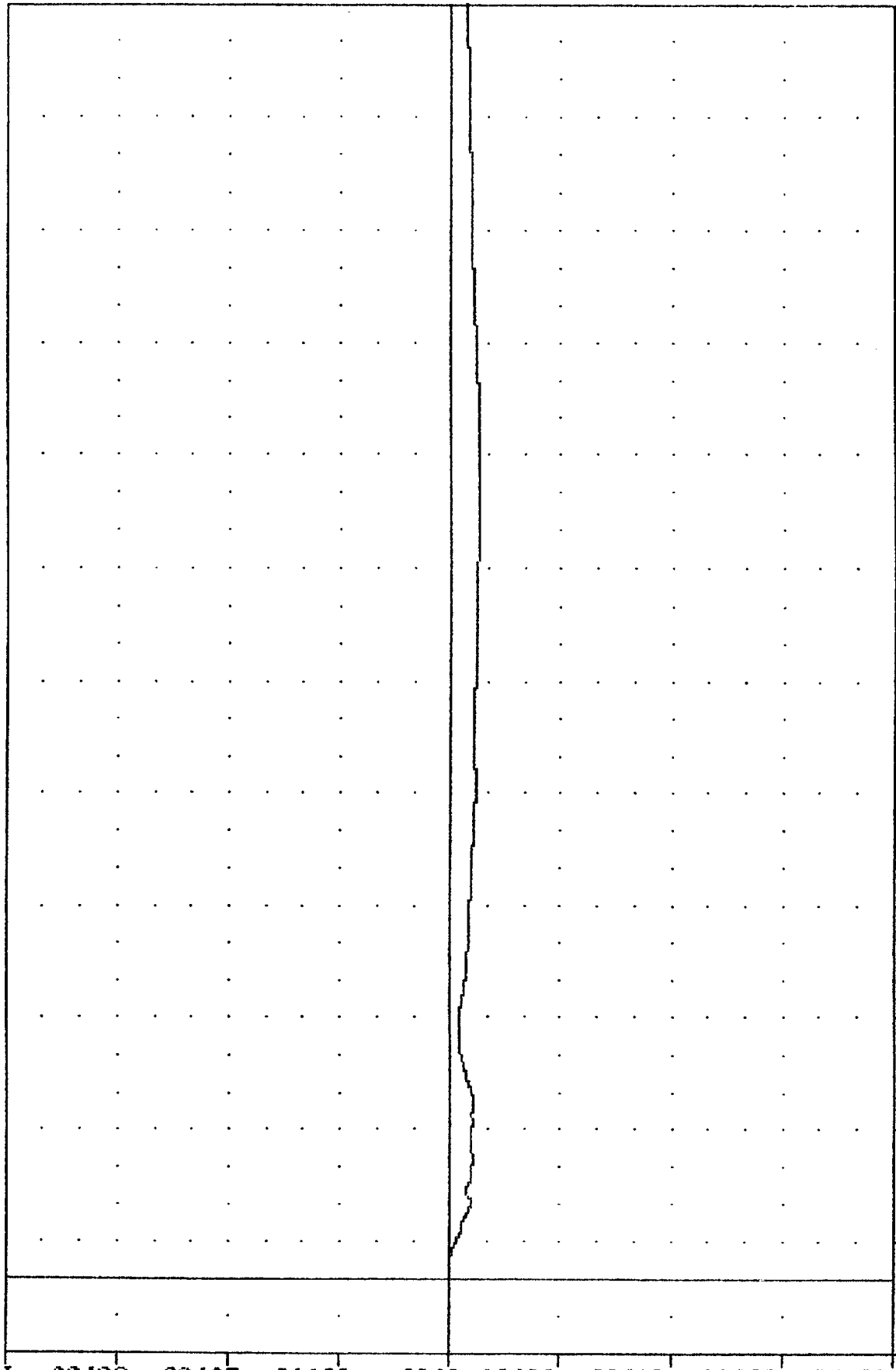
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT FRONT SILL RESULTANT

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 RFSXV1

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -2.54 222.13, 0.00 18.13

VELOCITY (MPH)



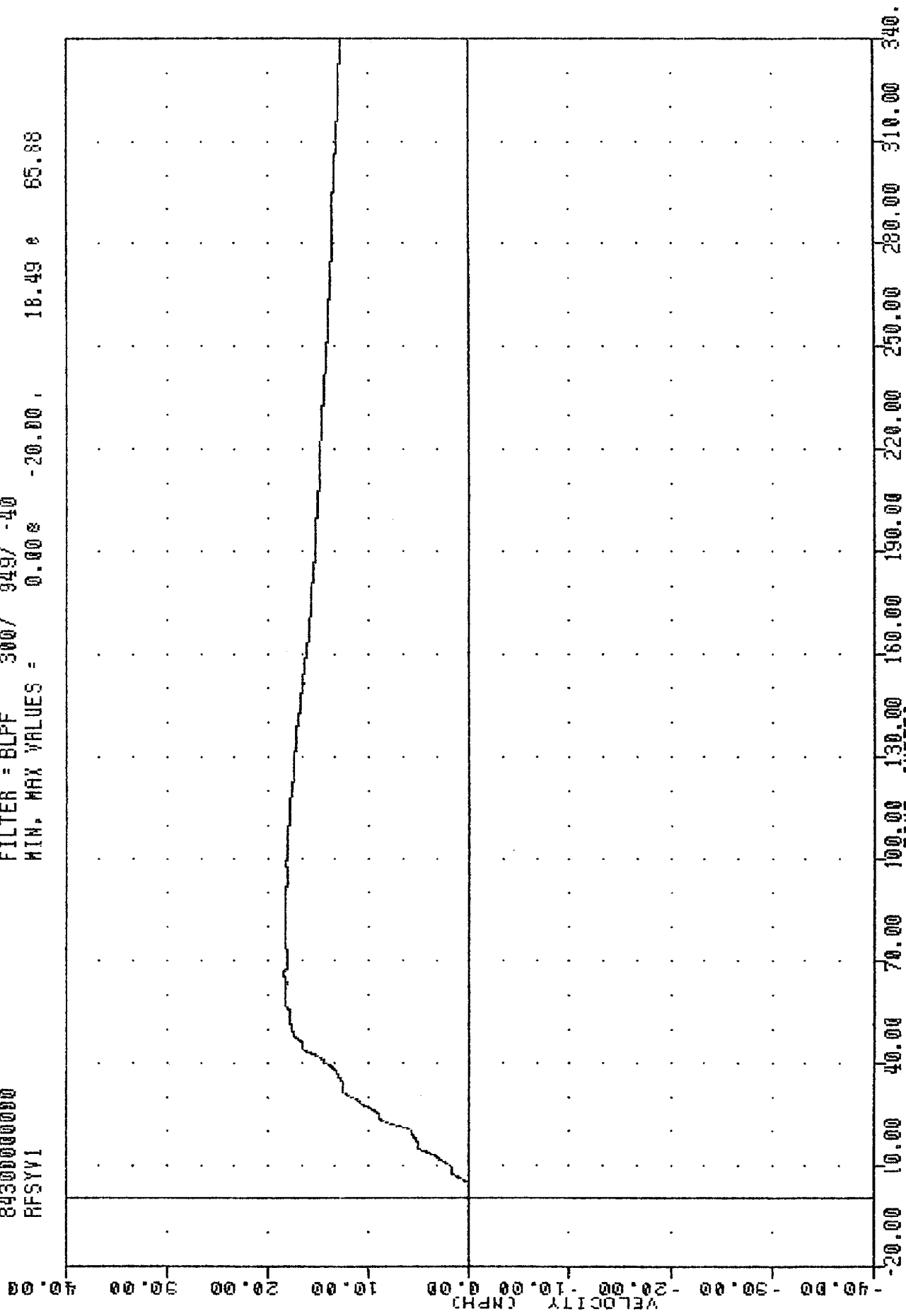
B-74

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING RFSXG1

TAC . 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 RFSYV1

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 0.008 -20.00 18.49 65.88

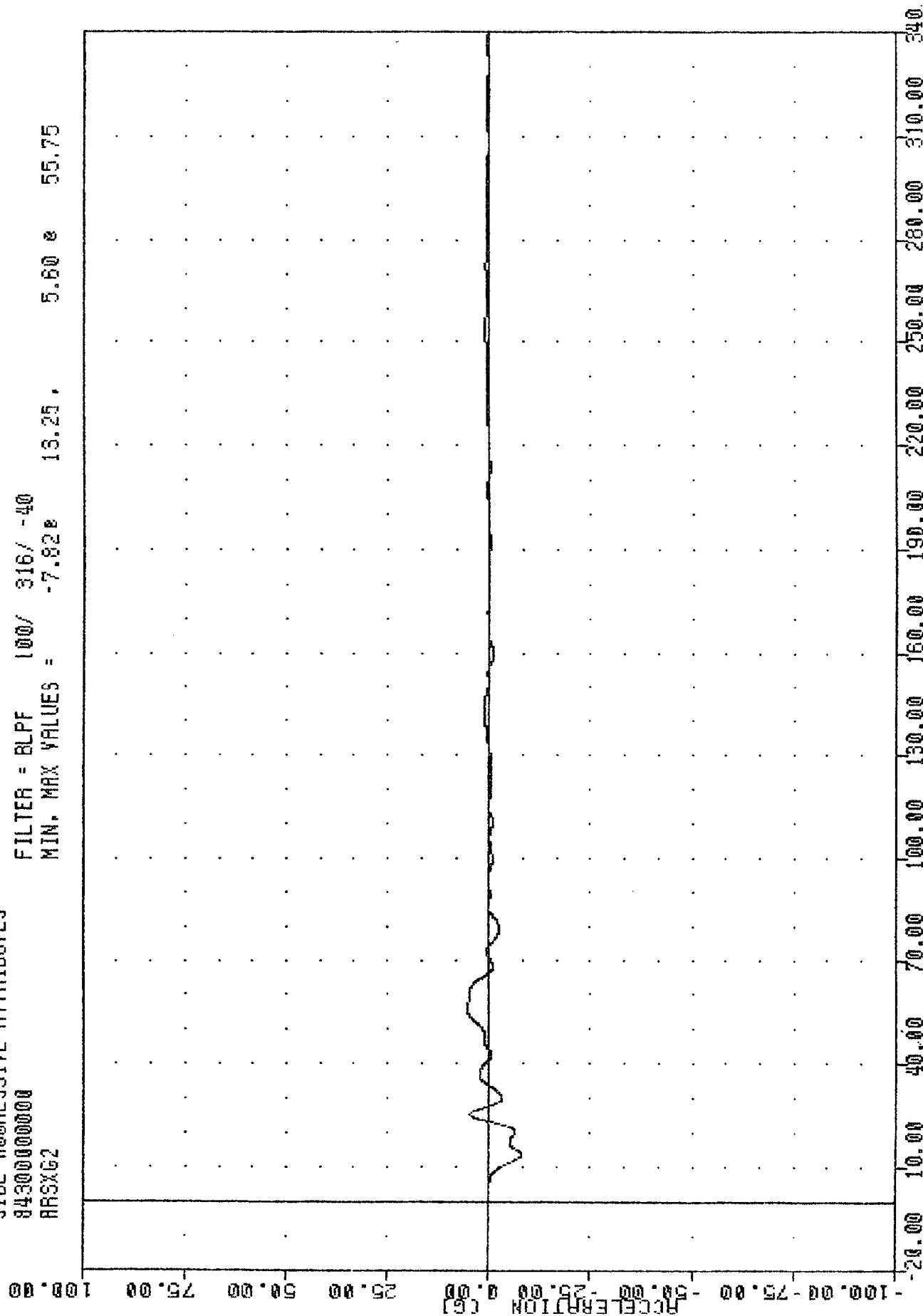


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V TESTING RESYD1

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 ARSXG2

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -7.82e 13.25, 5.60e 55.75

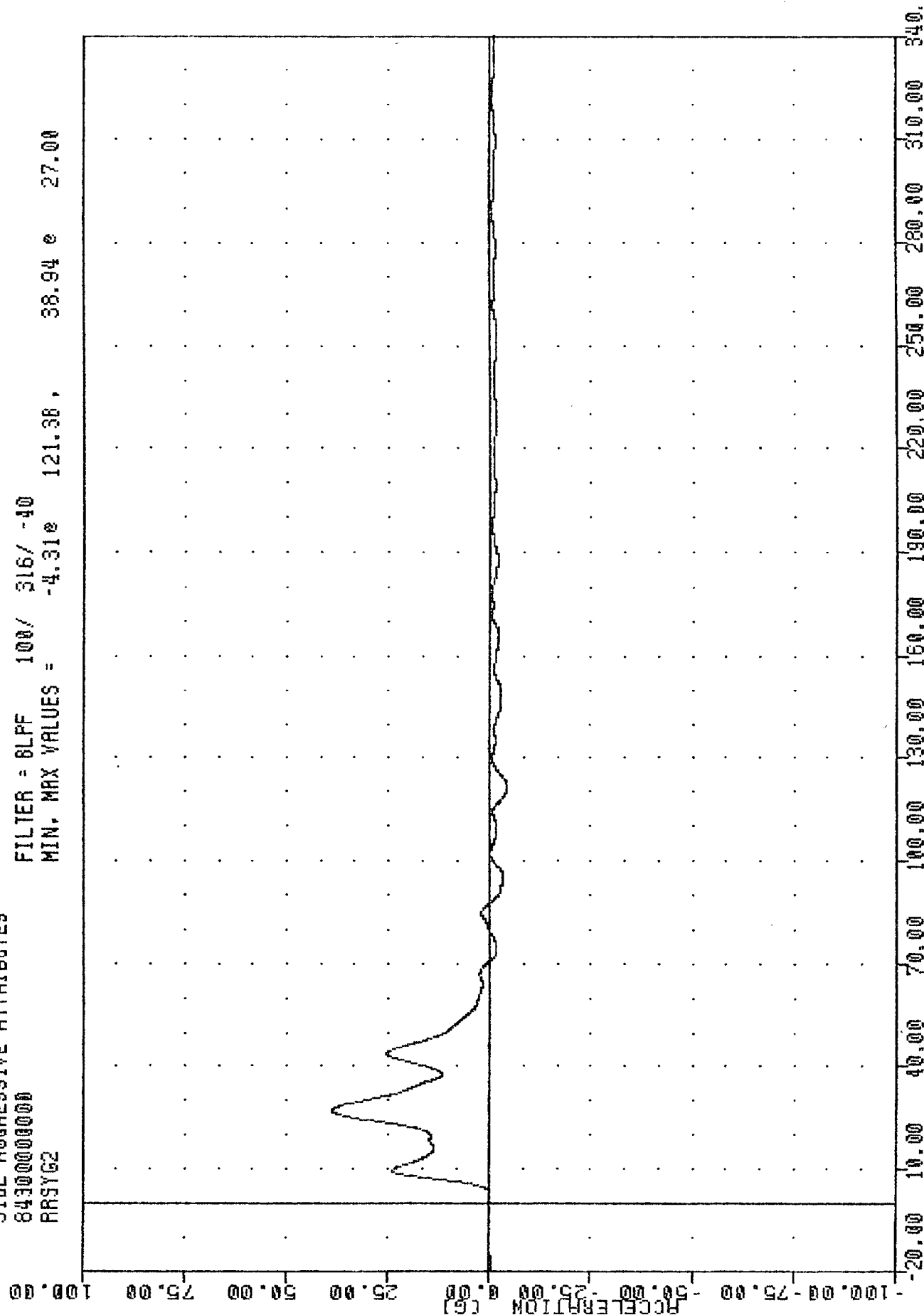


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT REAR STIFF ACCELERATION X AXIS

TRC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 PRSYG2

PLOT DATE 1-NOV-84 16:10:09

FILTER = 8LPF 100/ 316/ -40
 MIN. MAX VALUES = -4.31e 121.38, 38.94 e 27.00



B-77

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE IMPACT REAR CHASSIS ACCELERATION W DATA

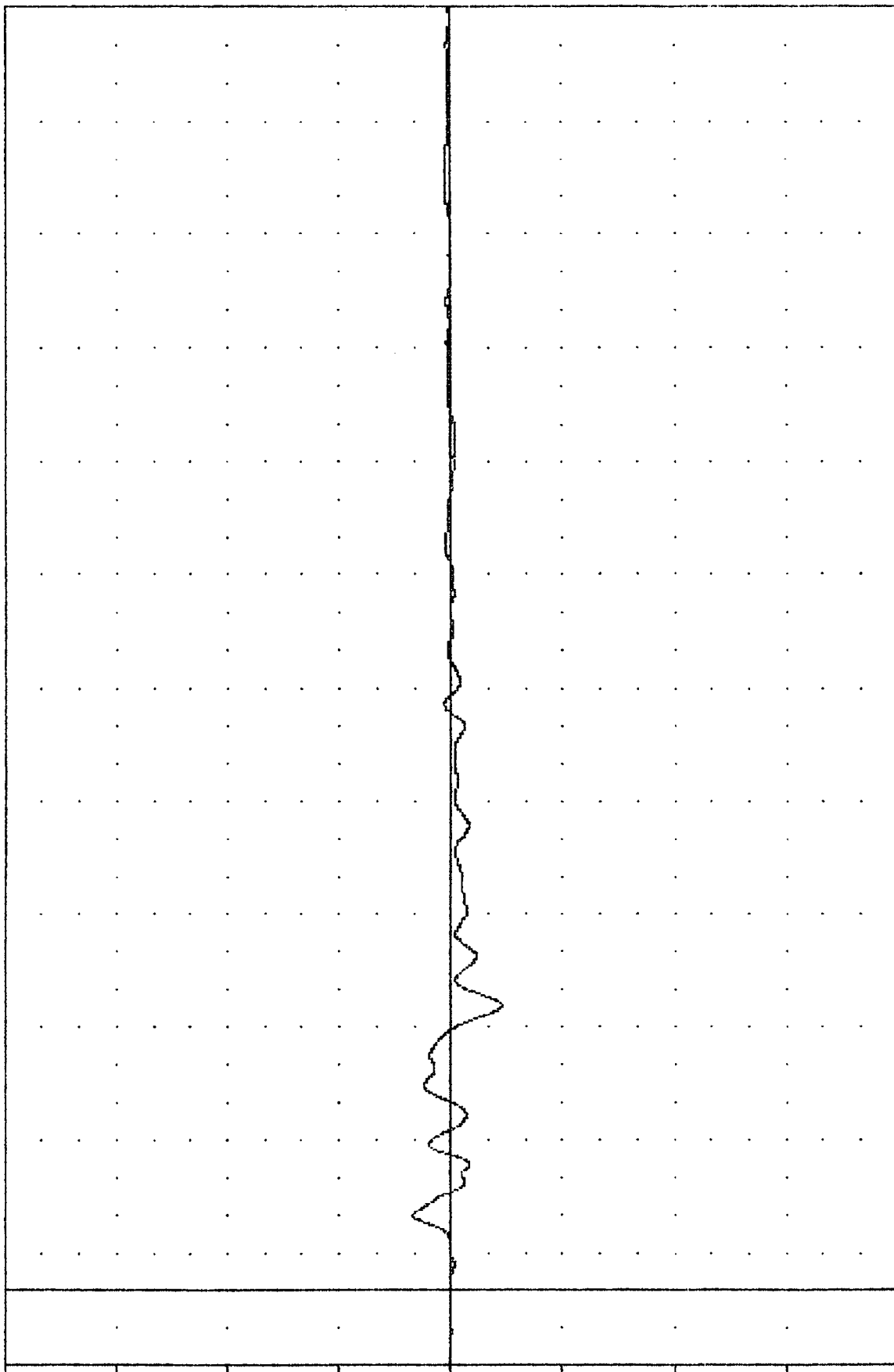
TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 RRSZ62

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40

HIN, MAX VALUES = -11.35e 75.63, 8.46 e 19.63

ACCELERATION (G)



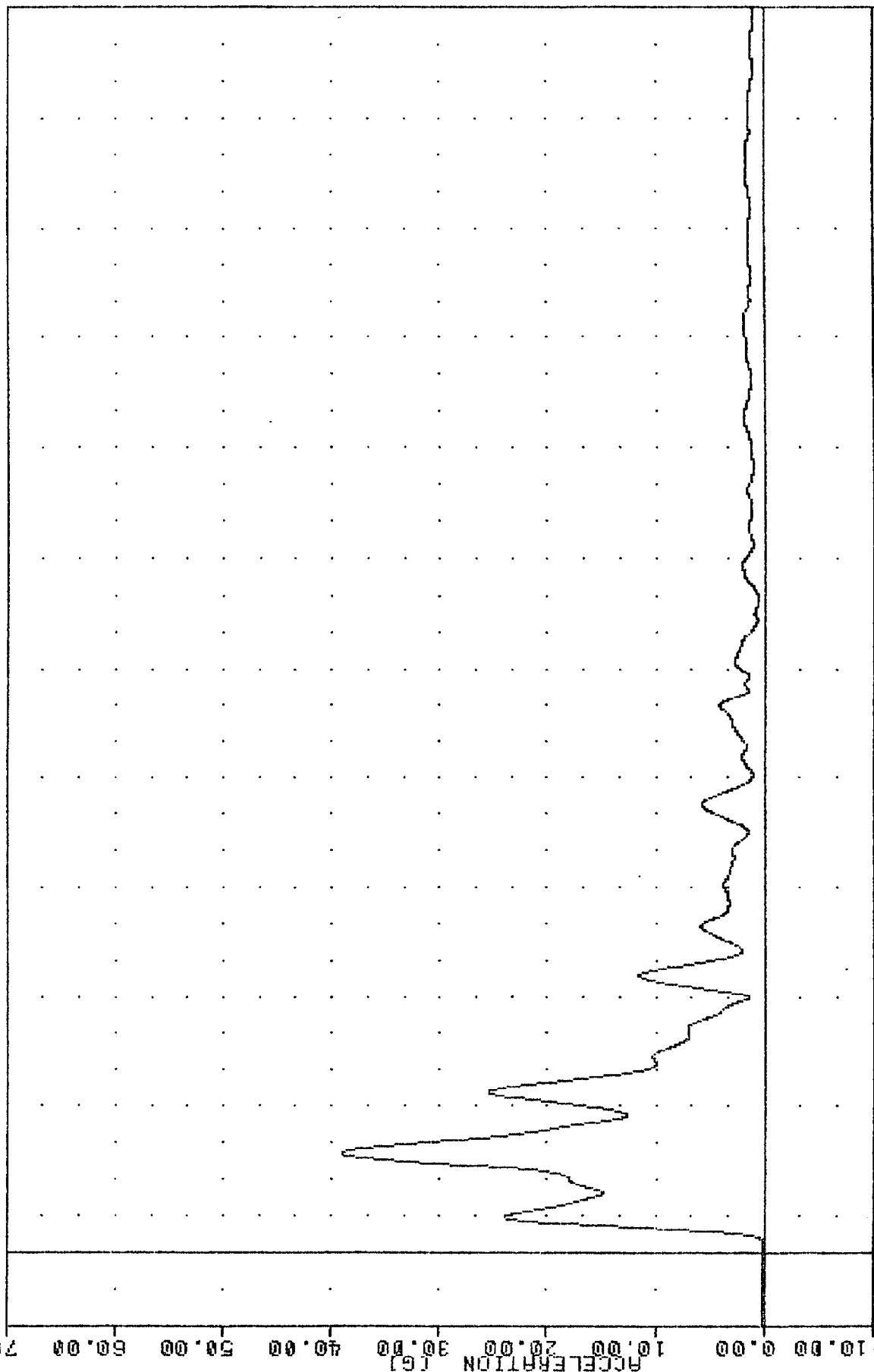
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT REAR SILL ACCELERATION Z AXIS

TRC
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 RR3RG2

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = 0.00, 59.03 @ 27.00

70.00



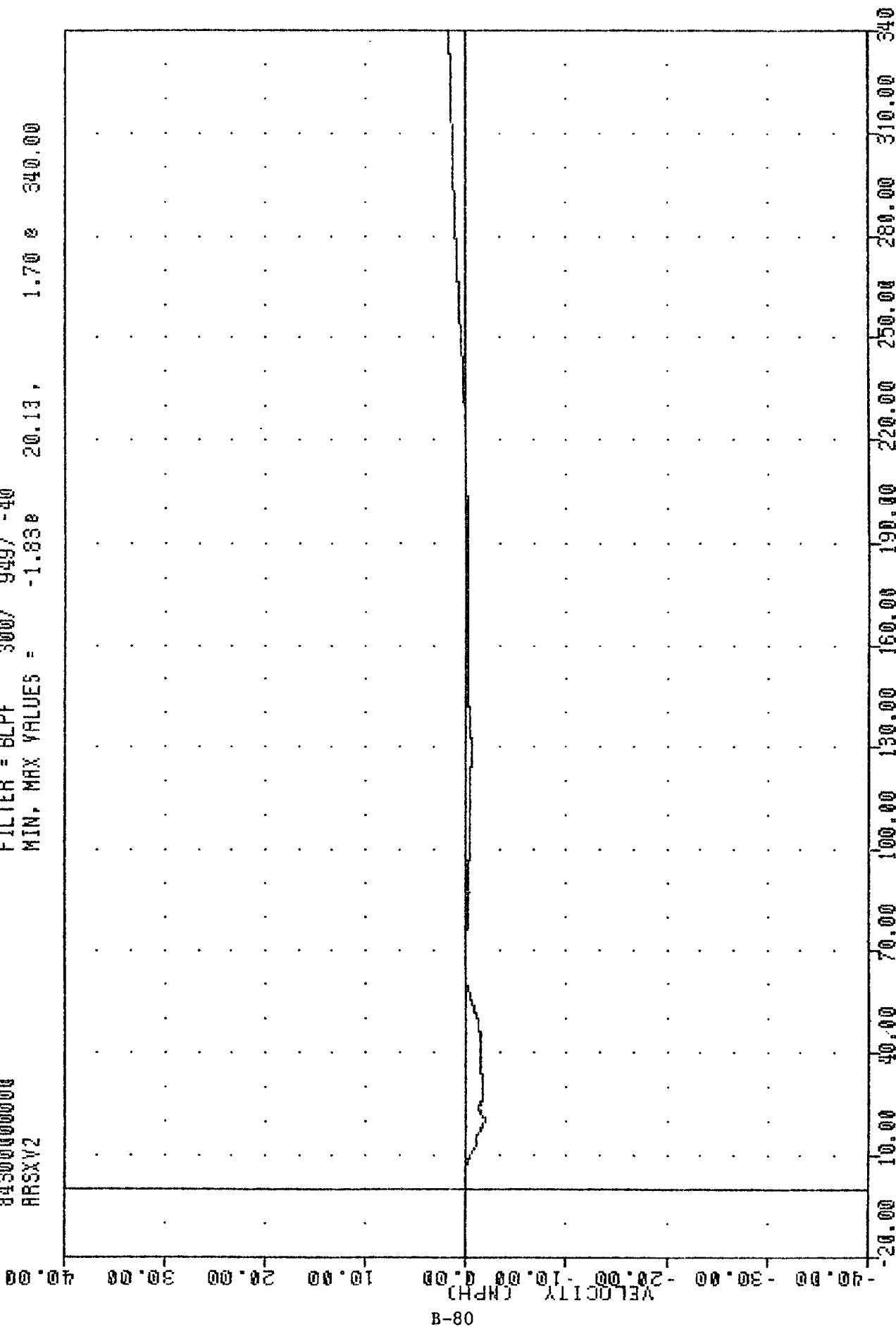
B-79

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT REAR SILL RESULTANT

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 24300000000
 ARSXY2

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -1.83e 20.13, 1.70 e 340.00



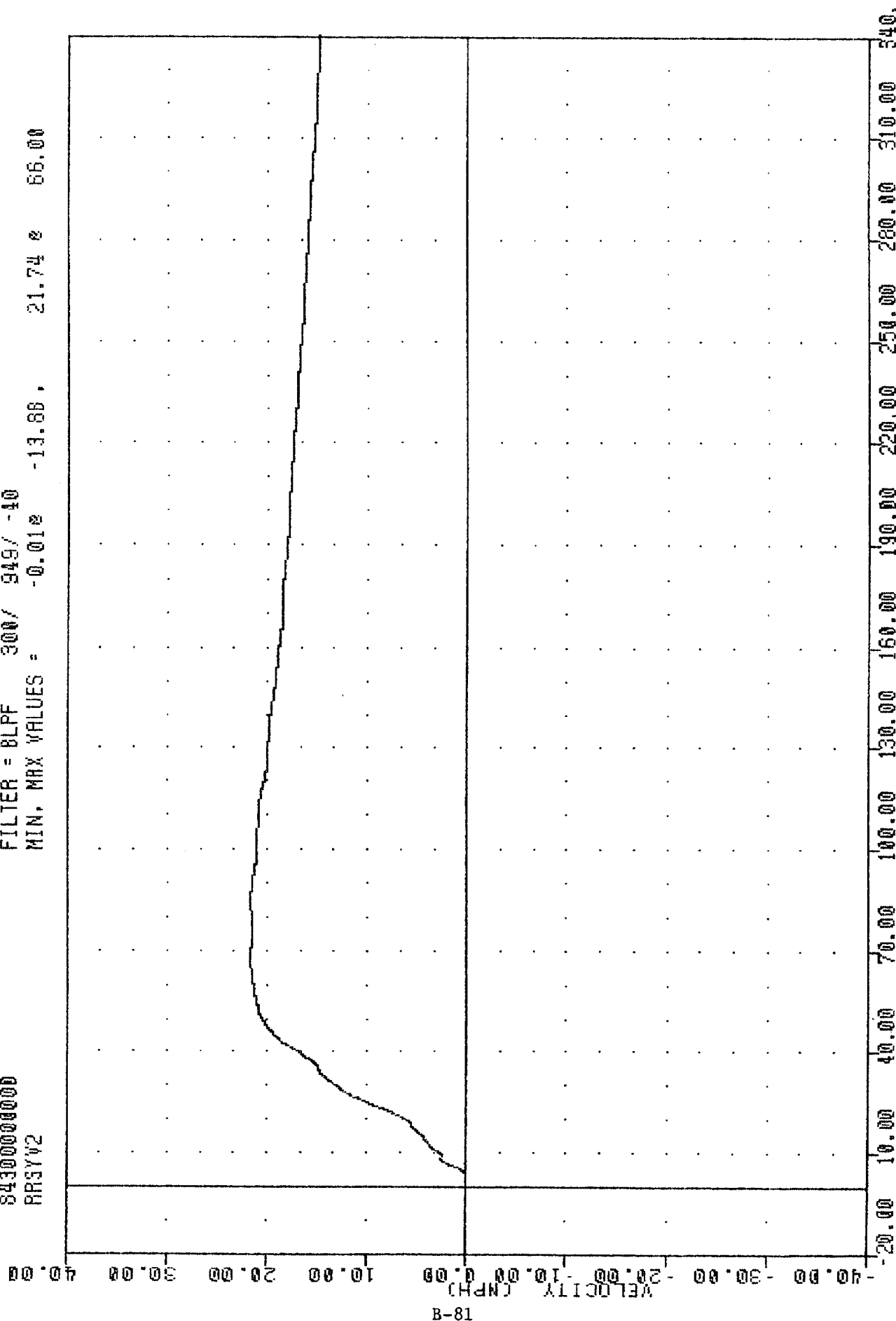
B-80

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 NFITA W IISTMC ARSVC2

TRC
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 RRSYV2

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -0.012 -13.88, 21.74 & 66.00



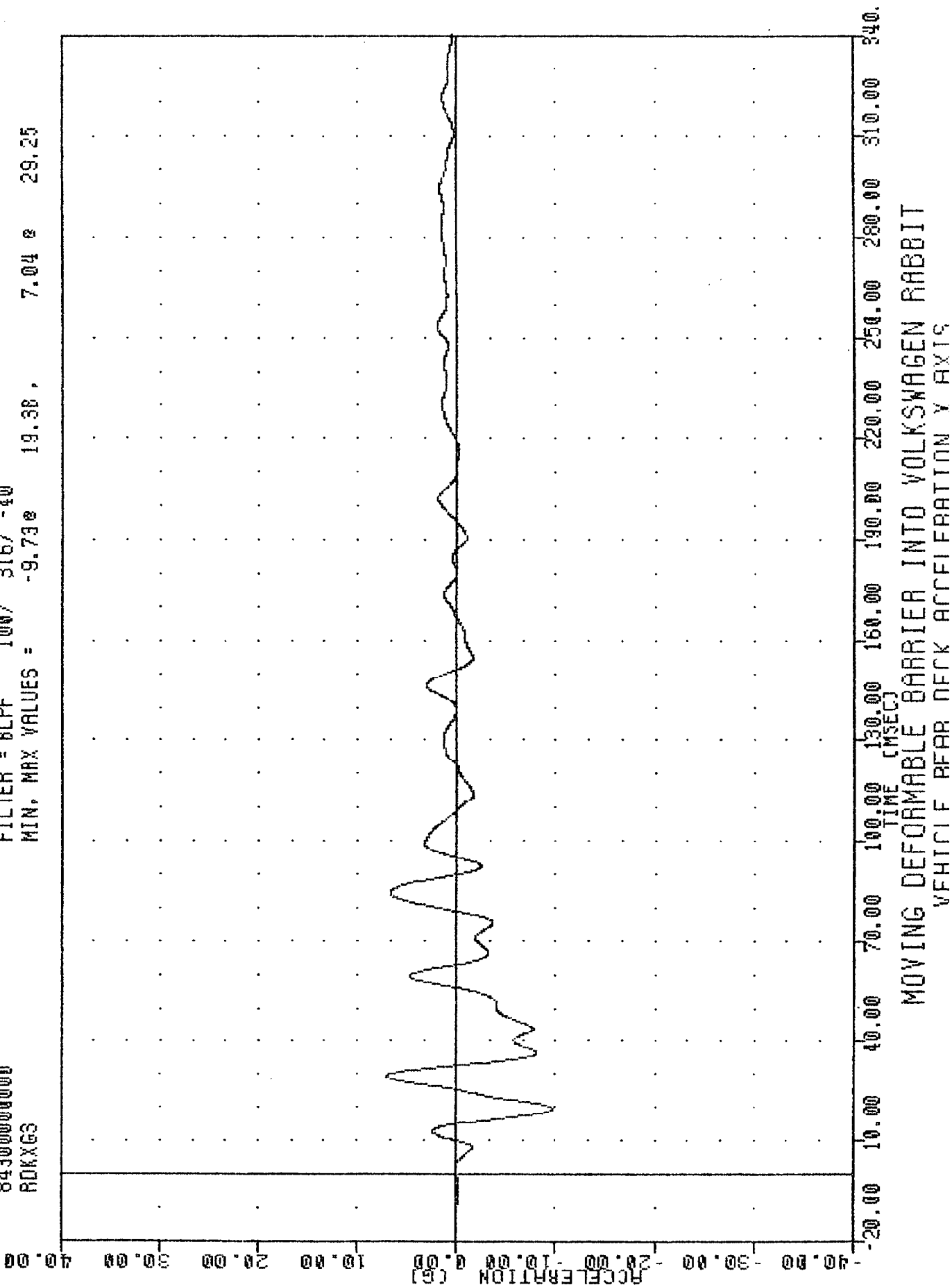
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V LISTING RRSYV2

TRC , 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
RDKXG3

PLOT DATE 1-NOV-84 16:10:09

FILTER = 8LPF 100/ 316/ -40

MIN. MAX VALUES = -9.73e 19.38, 7.04 e 29.25



TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 ROKY53

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -3.99e 96.13, 36.14 e 43.13

40.00

30.00

20.00

10.00

0.00

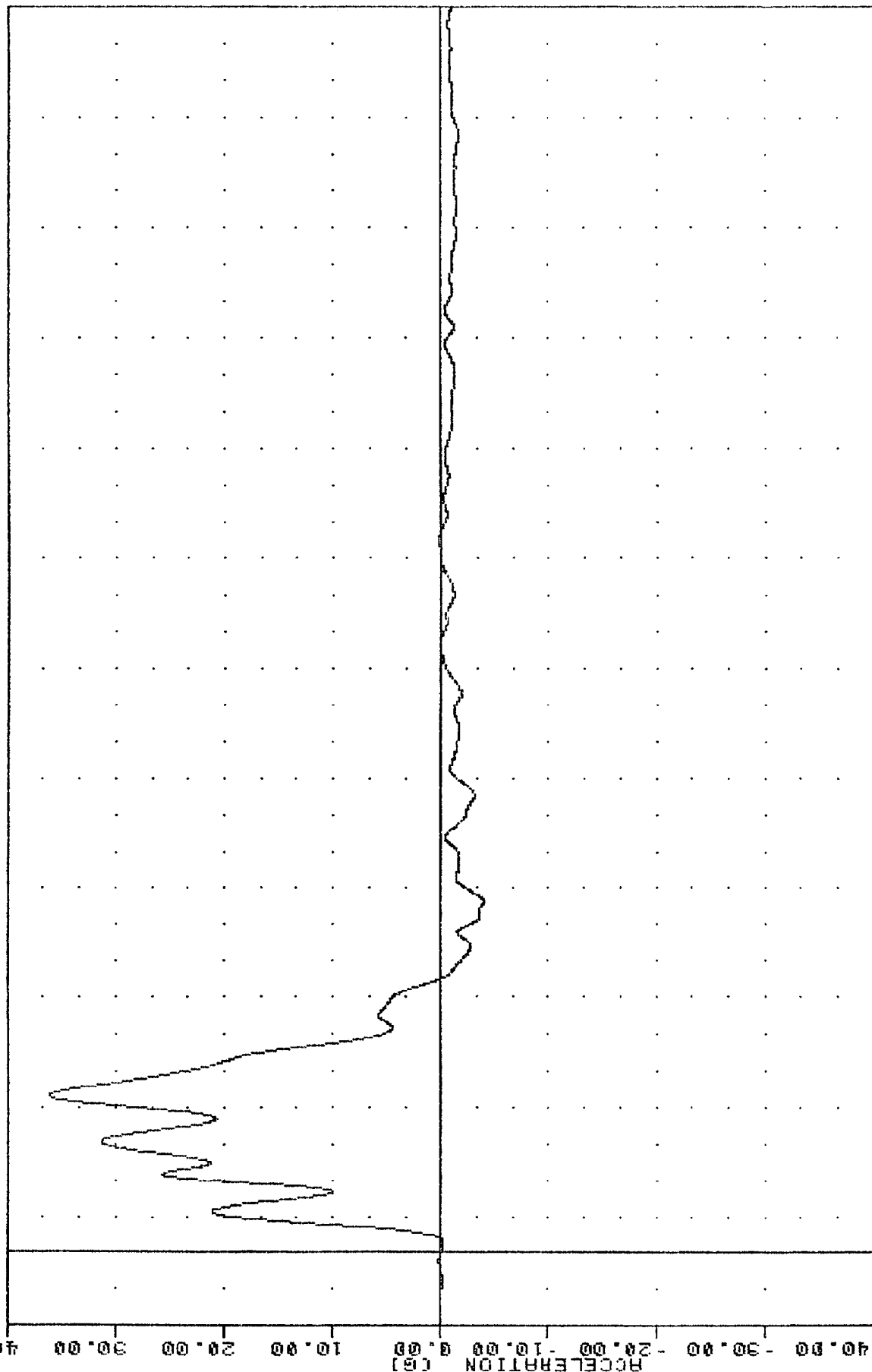
-10.00

-20.00

-30.00

-40.00

B-83



-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

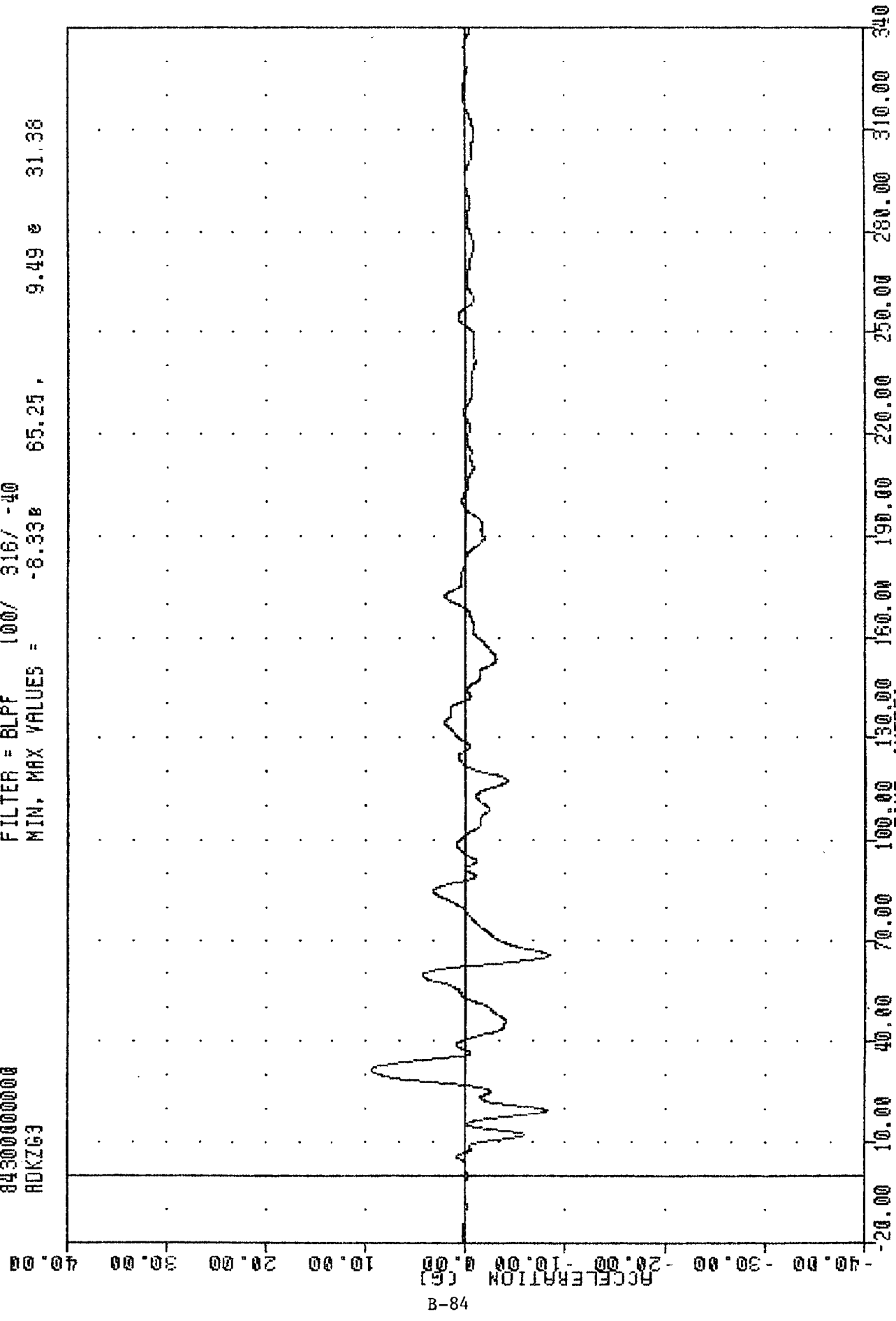
TIME (MSEC)

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

TRC , 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
ADKZG3

PLOT DATE 1-NDV-84 16:10:09

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -8.33e 65.25, 9.49 e 31.38

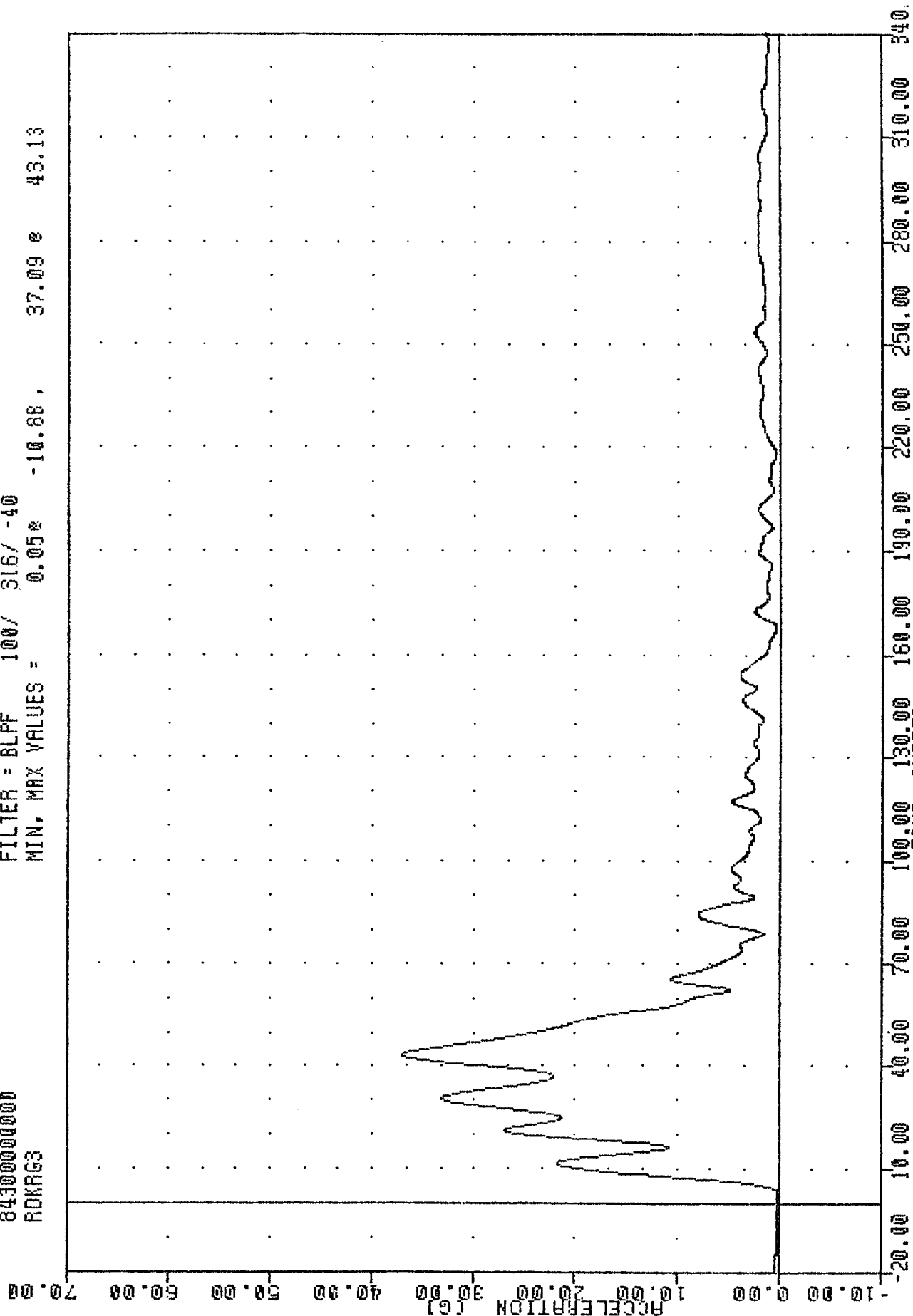


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE REAR DECK ACCELERATION 7 AXIS

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 ROKRG3

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = 0.05% -10.88, 37.09 e 43.13



B-85

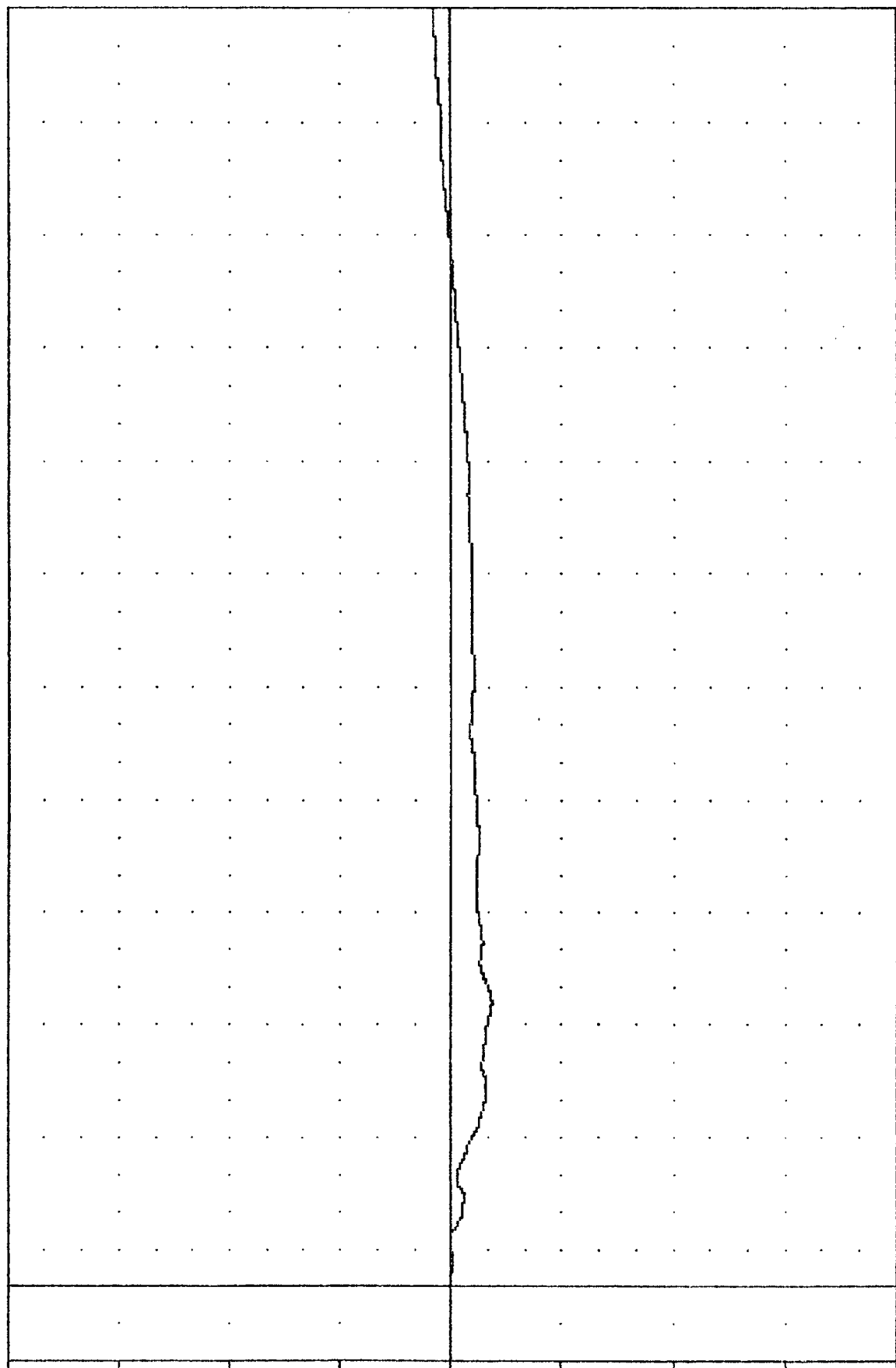
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE REAR DECK RESULTANT

TAC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 ROKXV3

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -3.87 75.63, 1.52 340.00

VELOCITY (MPH)



-40.00 -30.00 -20.00 -10.00 0.00 10.00 20.00 30.00 40.00

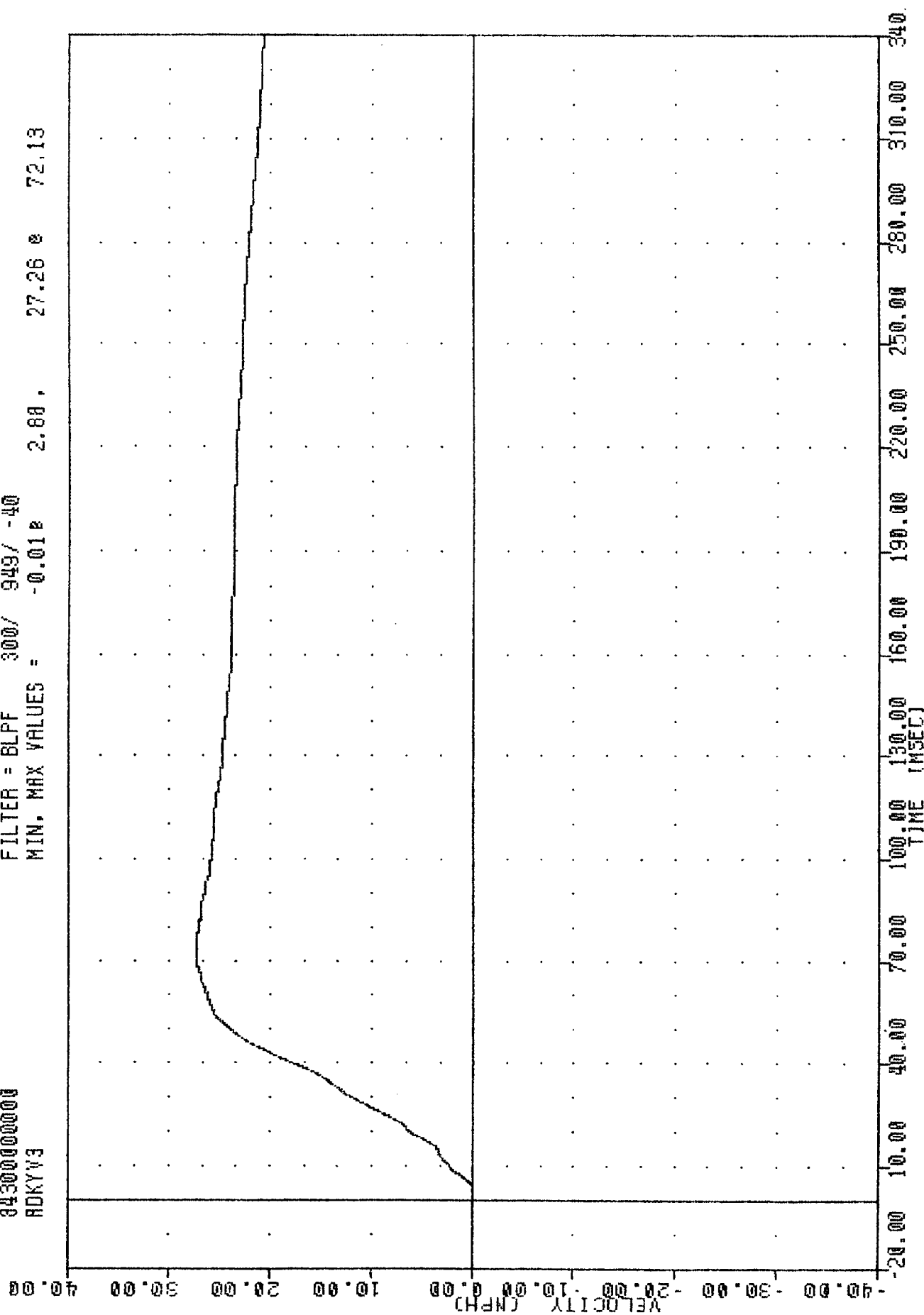
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V LISTING ROKXG3

TRC
SIDE AGGRESSIVE ATTRIBUTES
843000000000
ADKYV3

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.018 2.88, 27.26 72.13



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING RDKYG3

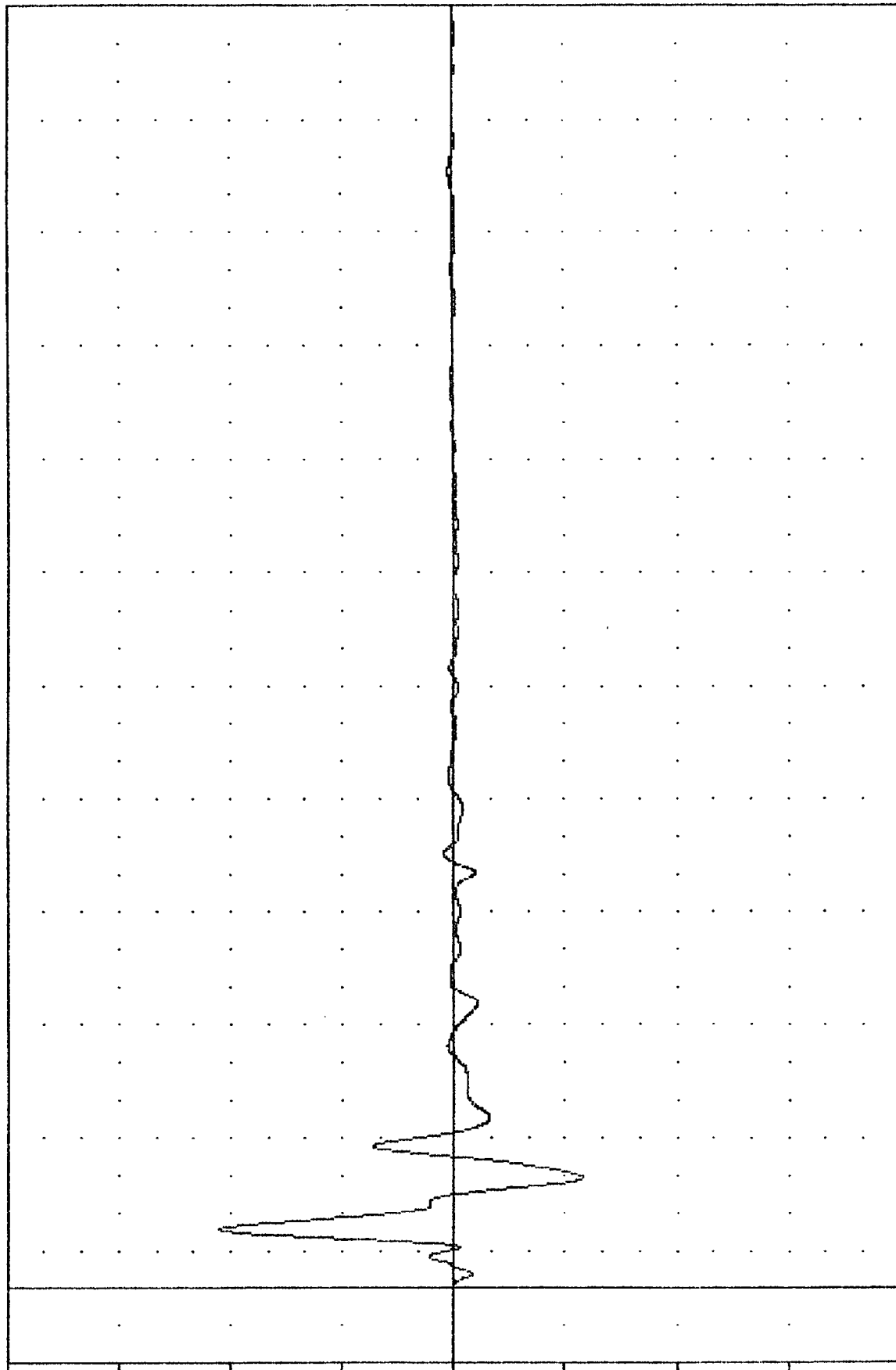
TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LRSY64

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -57.99 29.25 104.74 15.38

ACCELERATION (G)



B-88

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

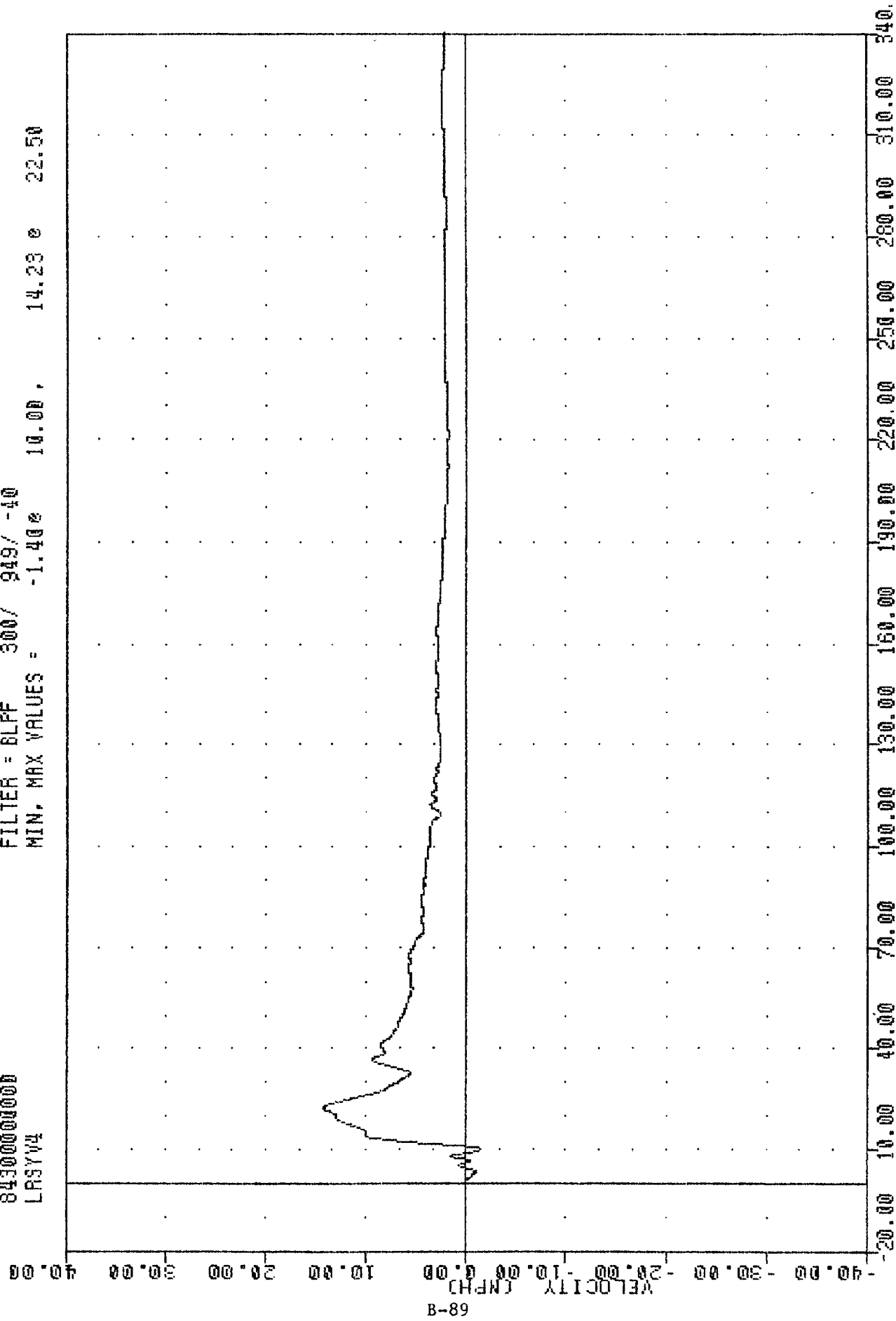
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT REAR STIFF ACCELERATION Y AXIS

TRC , 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
LRSYV4

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -1.40e 10.00, 14.23 e 22.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V LISTING LRSYV4

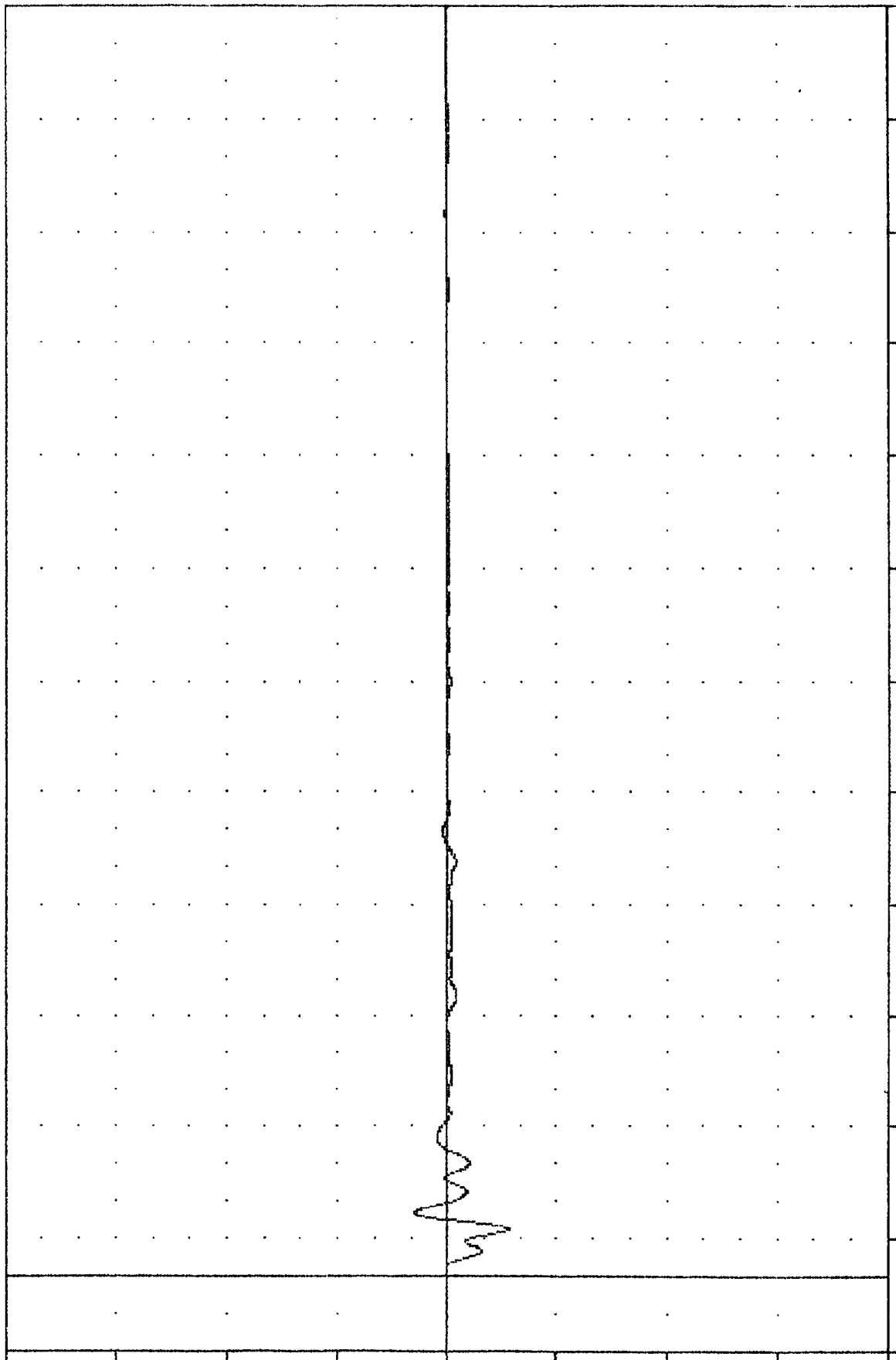
TRC ,841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
LFSYG5

PLOT DATE 1-NDV-84 16:10:09

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -28.54 12.25 15.29 16.50

ACCELERATION (G)

B-90



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT CHASSIS ACCELERATION Y AXIS

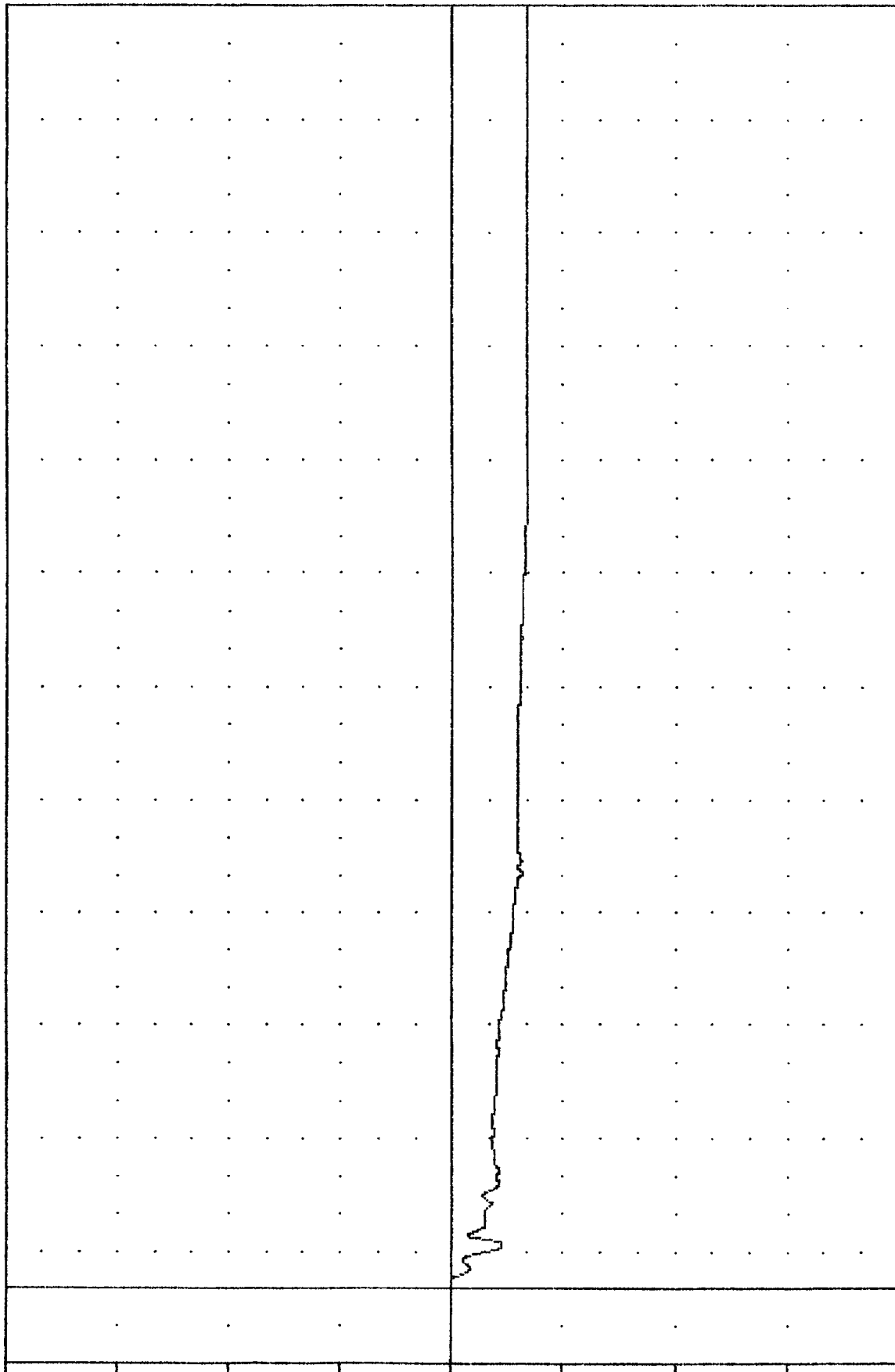
TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LFSY5

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -6.81e 265.75 , 0.05 e 0.63

VELOCITY (MPH)



16-91

-40.00 -30.00 -20.00 -10.00 0.00 10.00 20.00 30.00 40.00

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

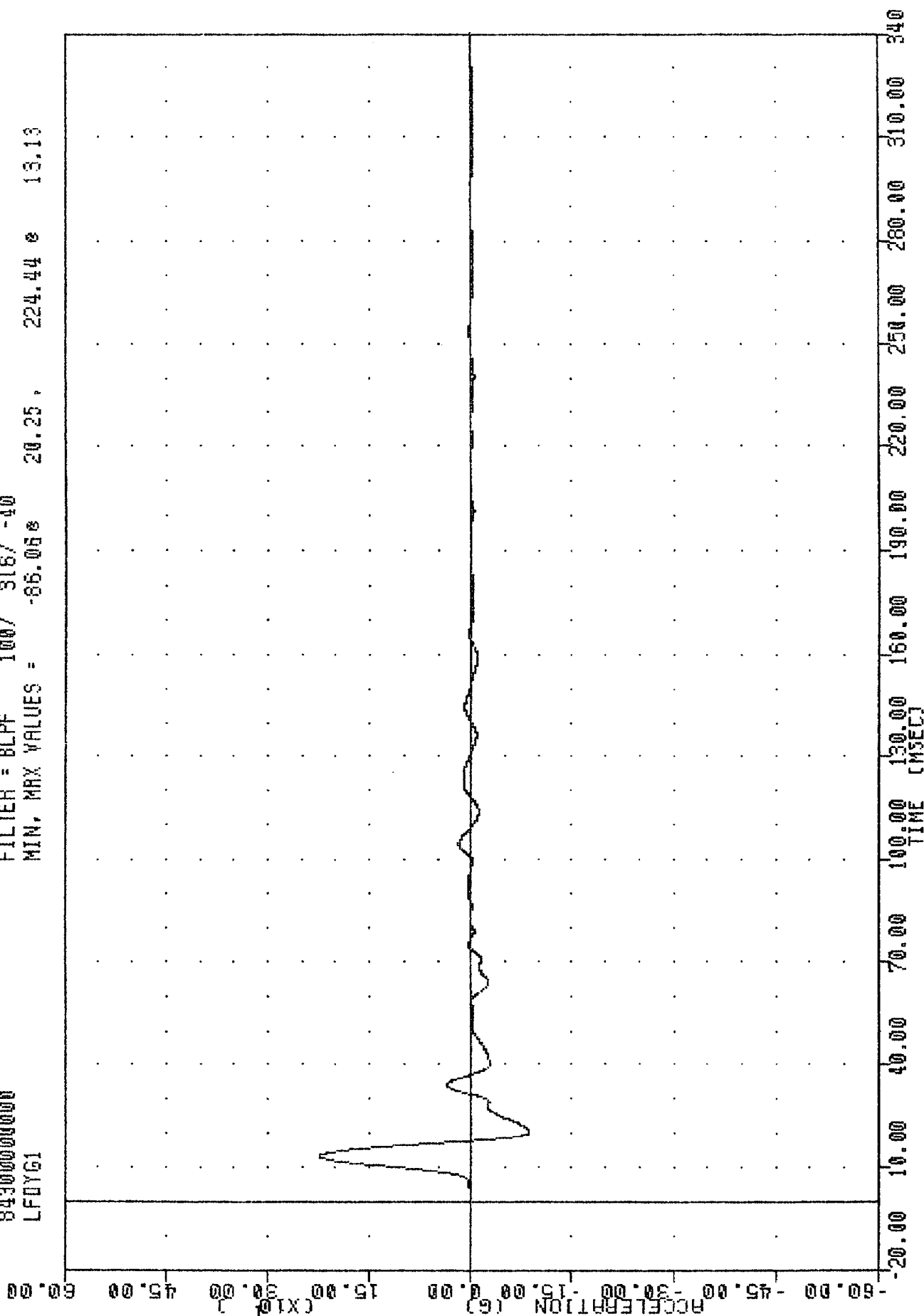
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 NFITA V IISTNG IFSY65

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LF0Y61

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 318/ -40

MIN, MAX VALUES = -86.068 20.25, 224.44 @ 13.13



B-92

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE 1 FEET FRONT RAMP CONNECTION AT ACCELERATION Y AXIS

TRC
SIDE AGGRESSIVE ATTRIBUTES
843000000000
LFDYV1

, 841026

PLOT DATE

1-NDV-84

16:11:42

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = 0.00E -17.00, 30.71E 15.13

VELOCITY (MPH)

40.00

30.00

20.00

10.00

0.00

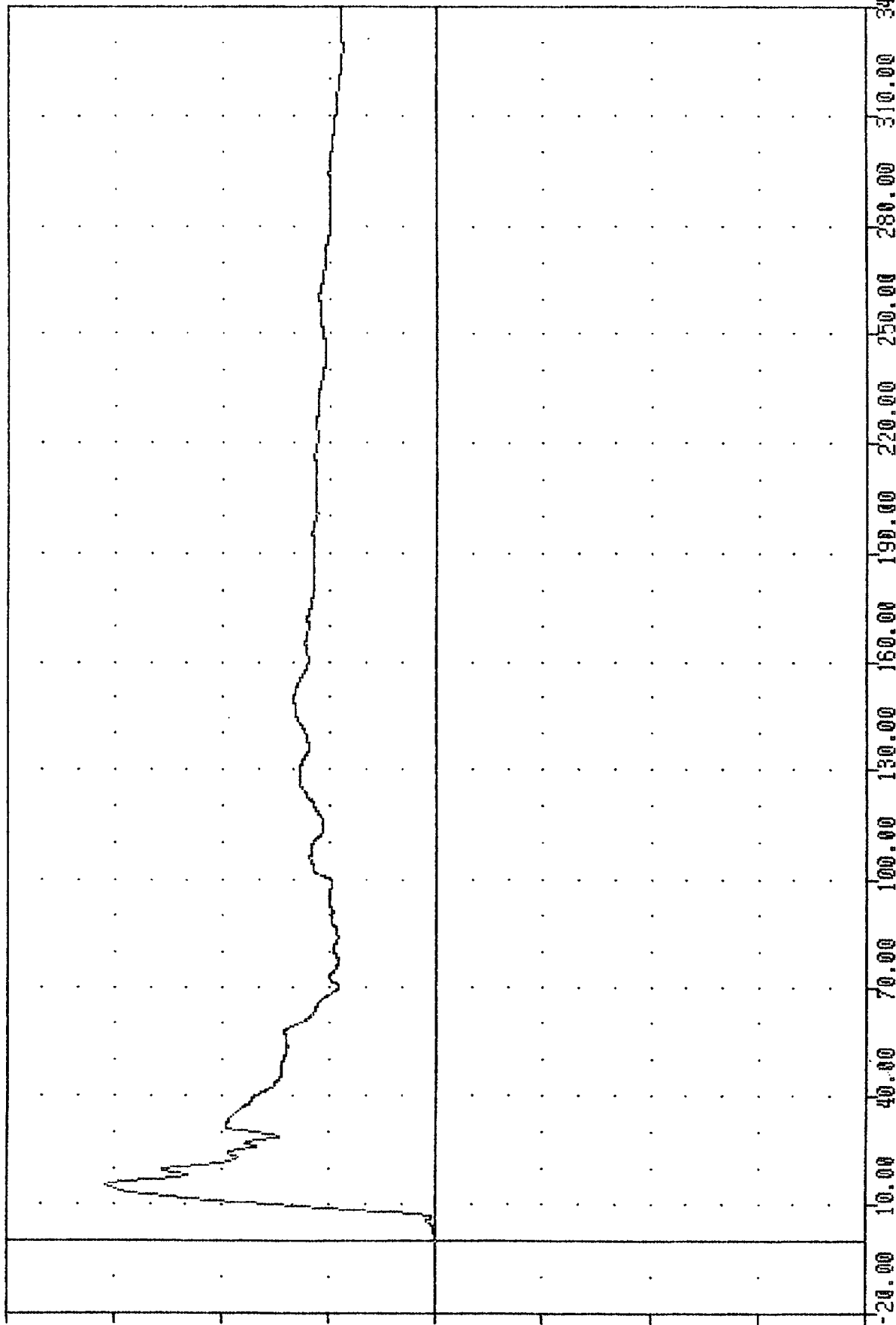
-10.00

-20.00

-30.00

-40.00

B-93

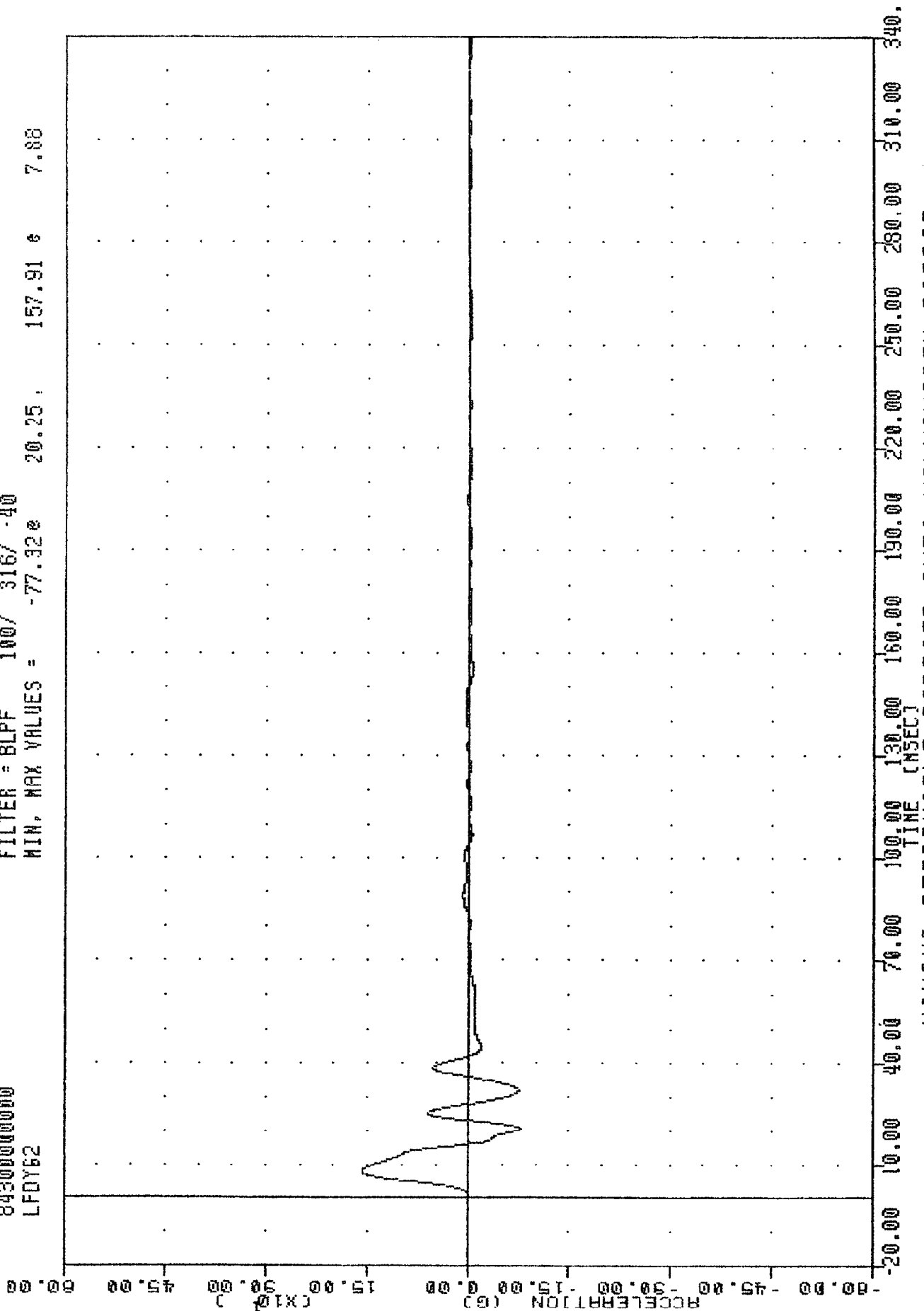


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LFDYGI

TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LFDY62

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -77.32 20.25, 157.91 7.88



B-94

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT FRONT CORNER POSITION 91 ACCELERATION Y AXIS

TRC
SIDE AGGRESSIVE ATTRIBUTES
843000000000
LFDYV2

, 841026

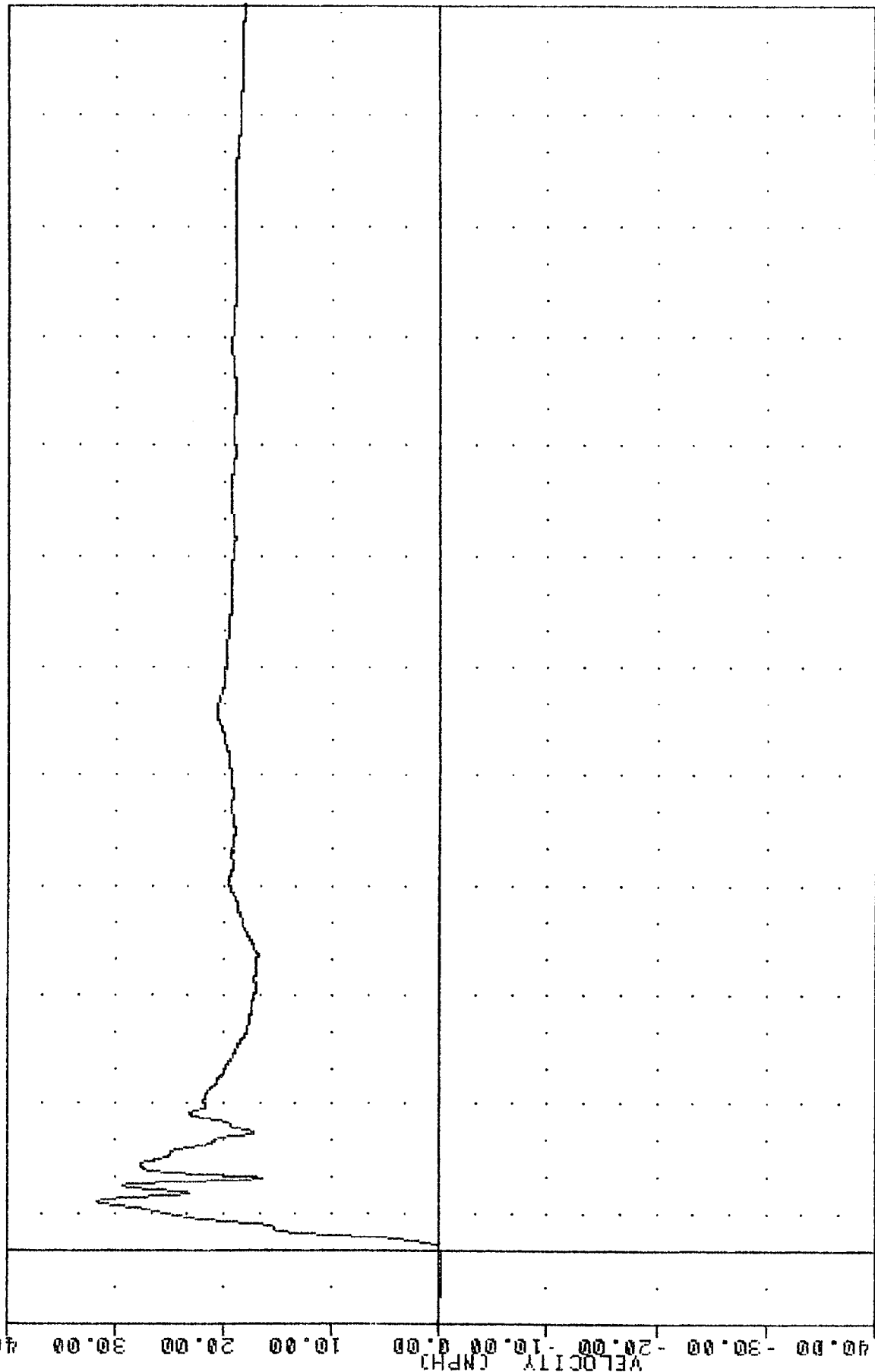
PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.14e -7.00, 31.69 e 13.13

40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00

B-95



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

TIME (CMSEC)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V LISTING LFDYV2

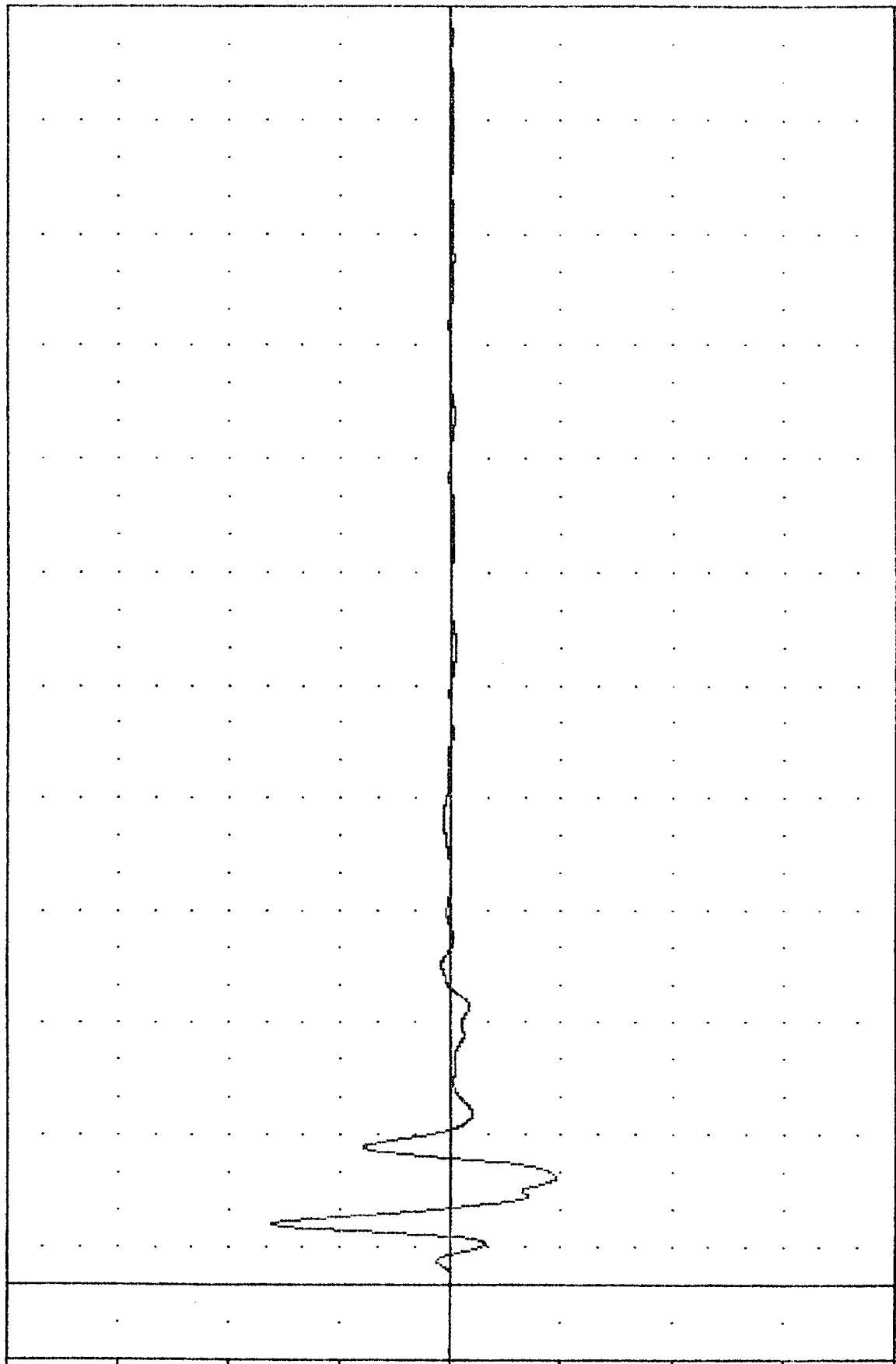
TRC , 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
LFDY63

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -142.73 28.50 , 242.31 15.88

ACCELERATION (G)
(x10⁴)



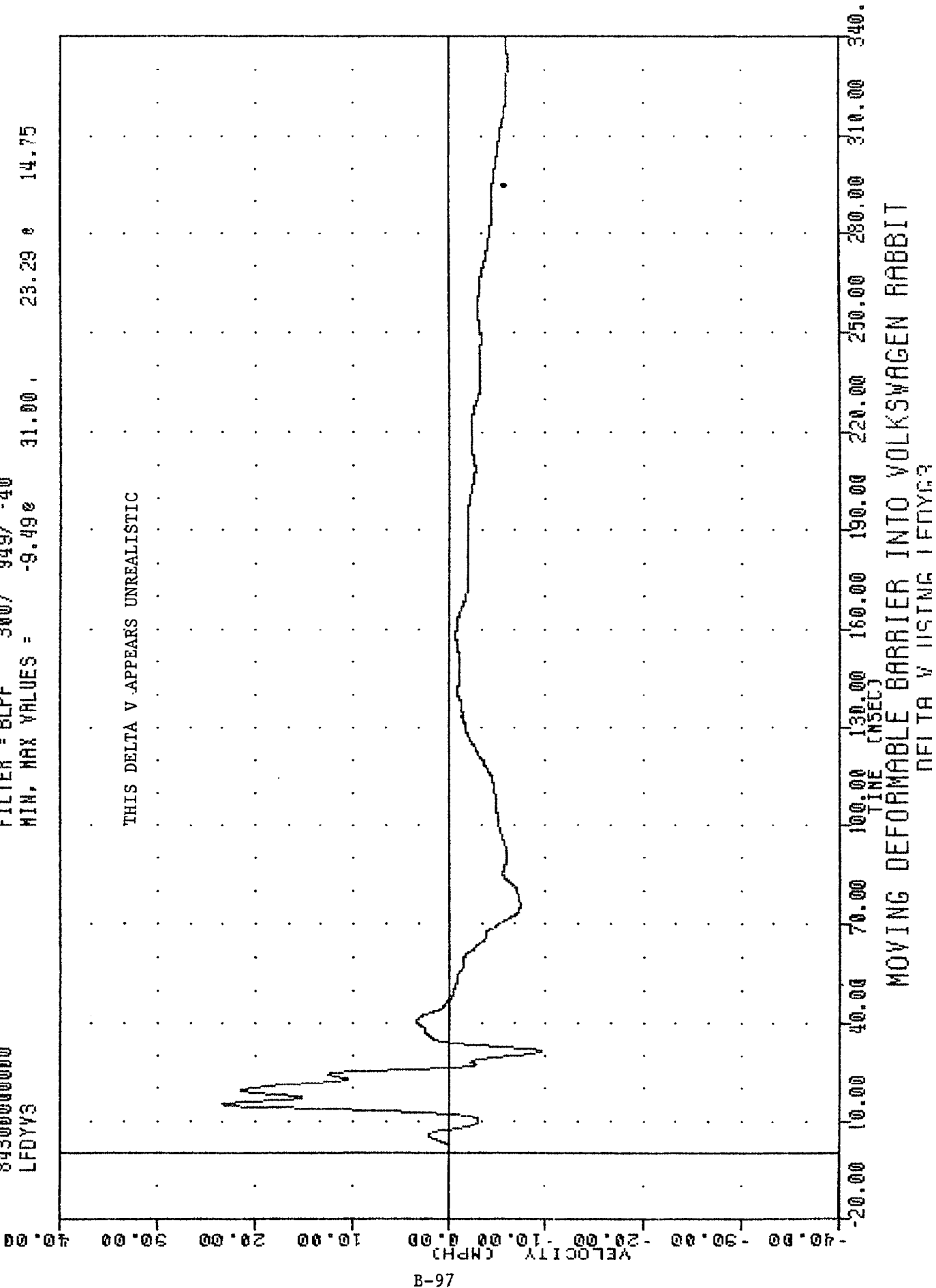
B-96

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT CORNER POSITION AT ACCELERATION Y AXIS

TAC , 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
LFDYV3

PLOT DATE 1-NOV-84 16:11:42

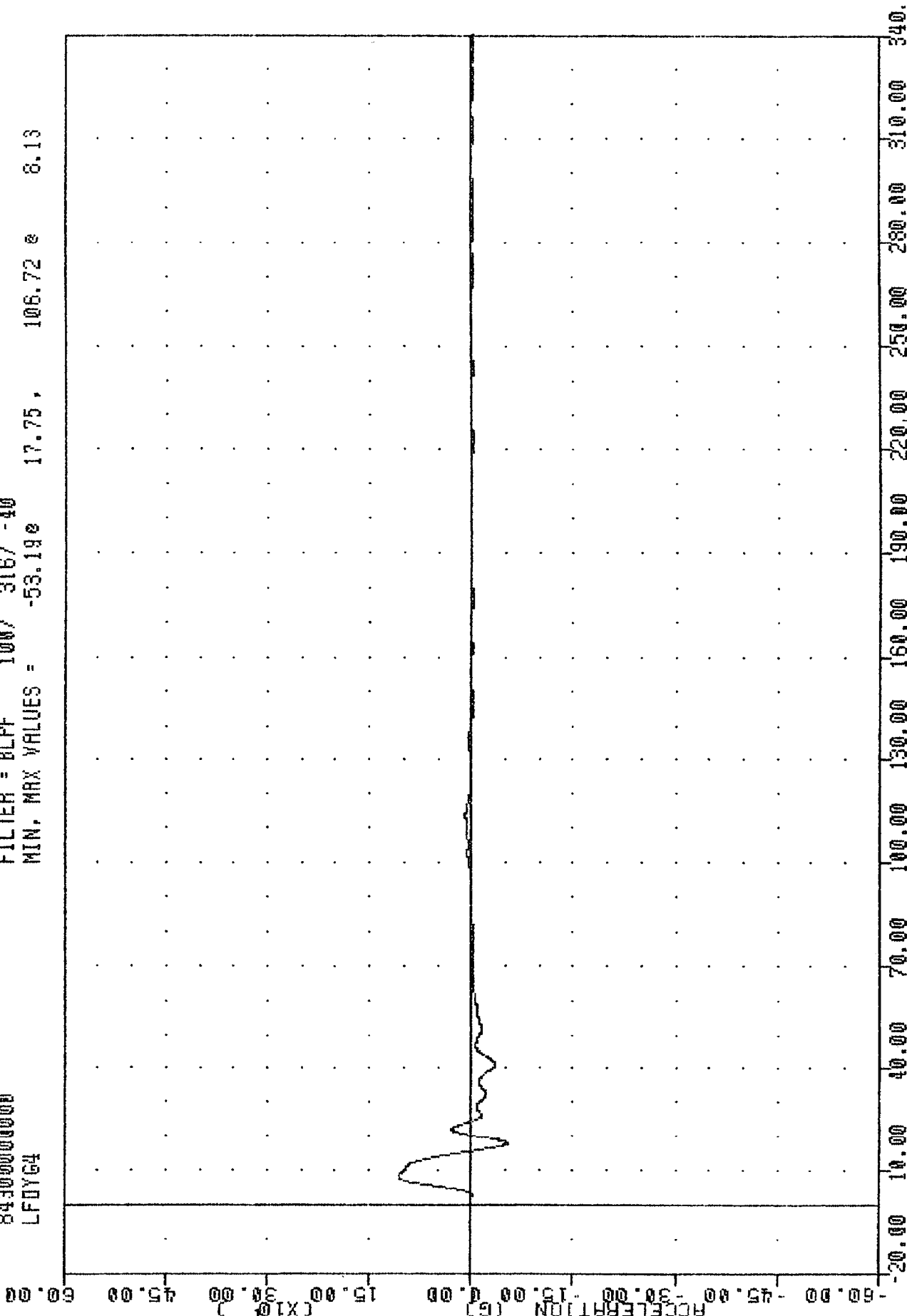
FILTER = BLPF 300/ 349/ -40
MIN, MAX VALUES = -9.490 31.00 23.29 e 14.75



TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LFDY64

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -53.190 17.75, 106.72 & 8.13



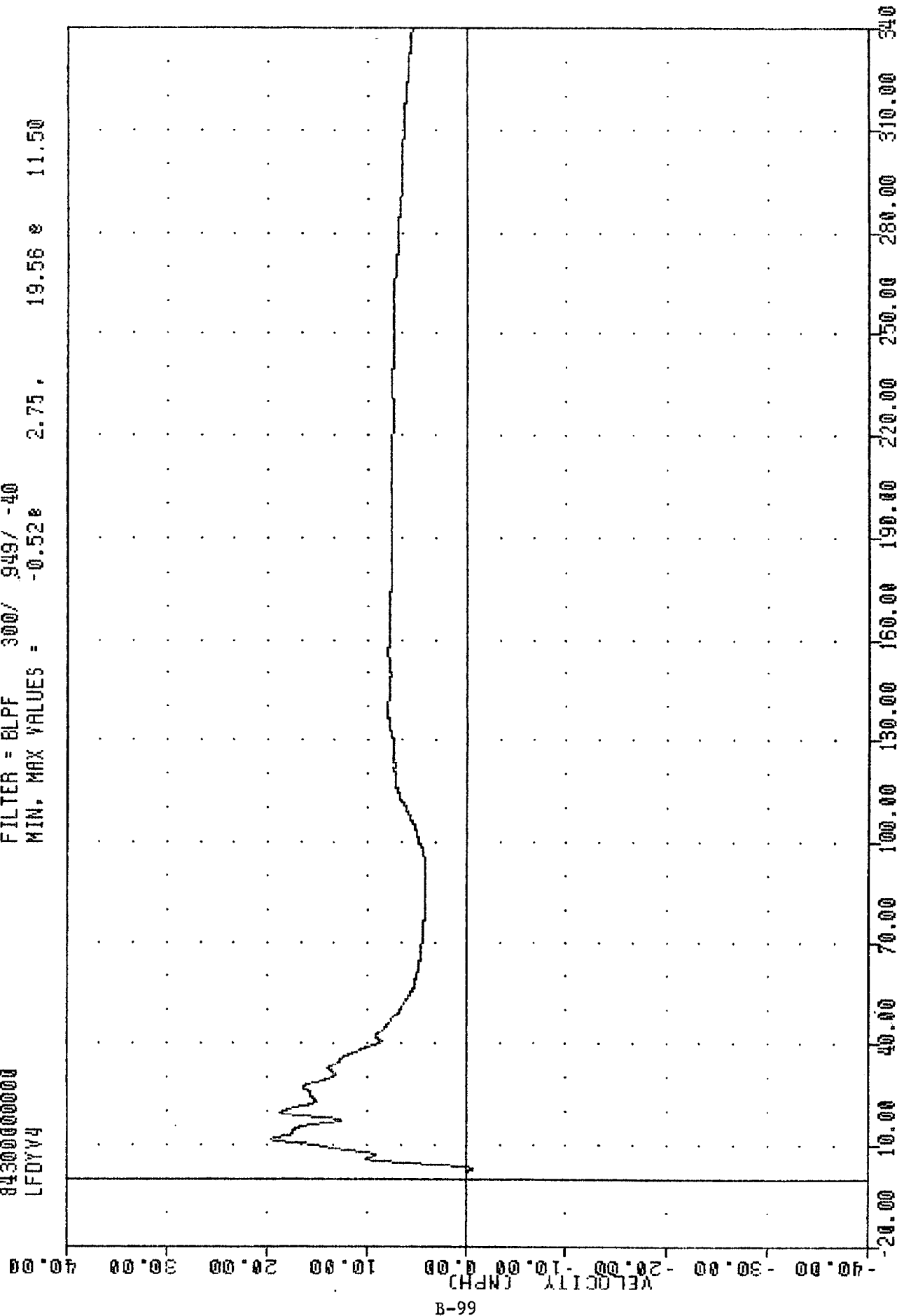
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT FRONT CORNER POSITION 101 ACCELERATION Y AXIS

TRC 841026
SIDE AGGRESSIVE ATTRIBUTES
84300000000
LFDYV4

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.52e 2.75, 19.56 e 11.50



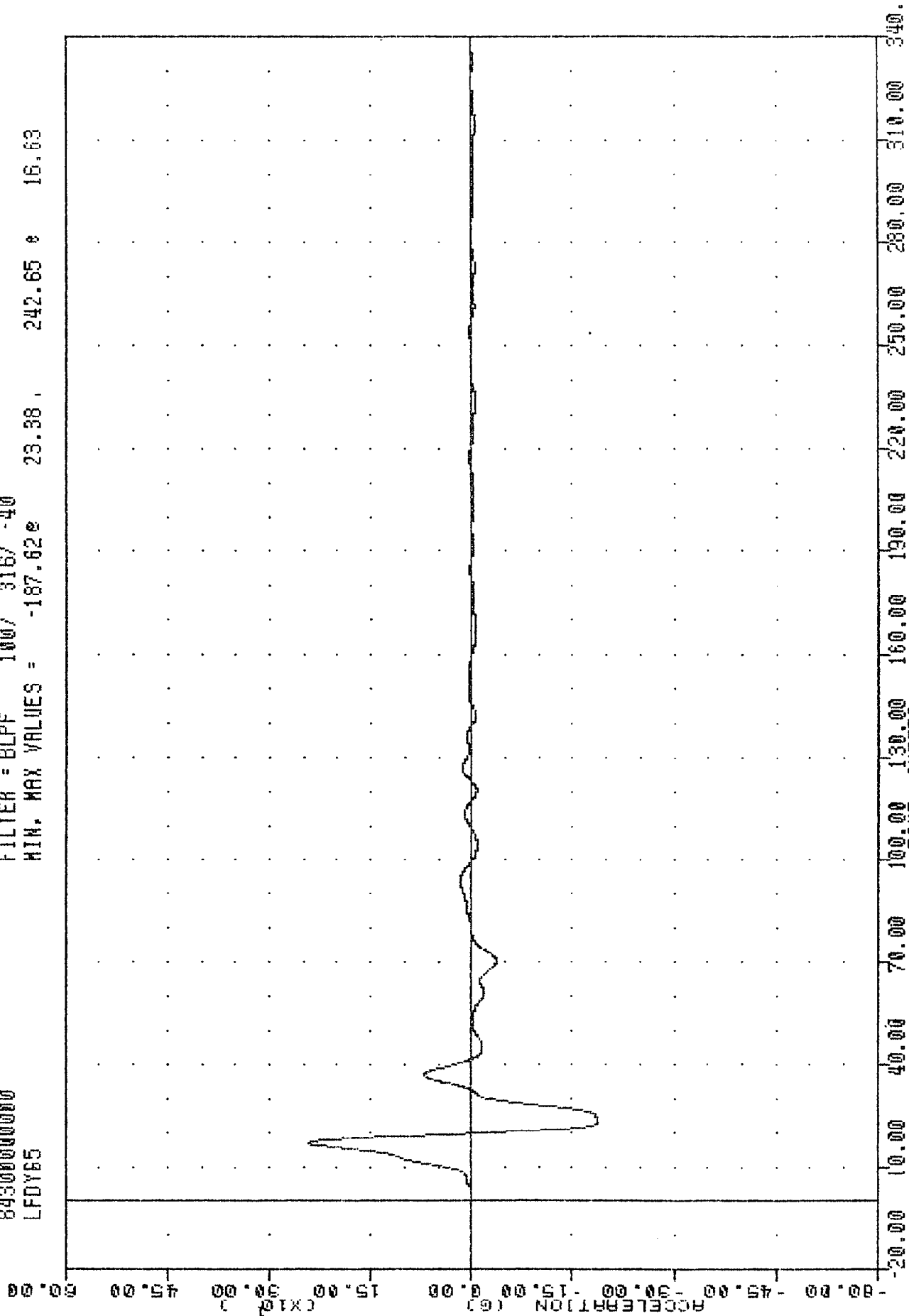
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LFDY64

TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 LFDY65

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -187.62e 23.38 , 242.65 e 16.63



B-100

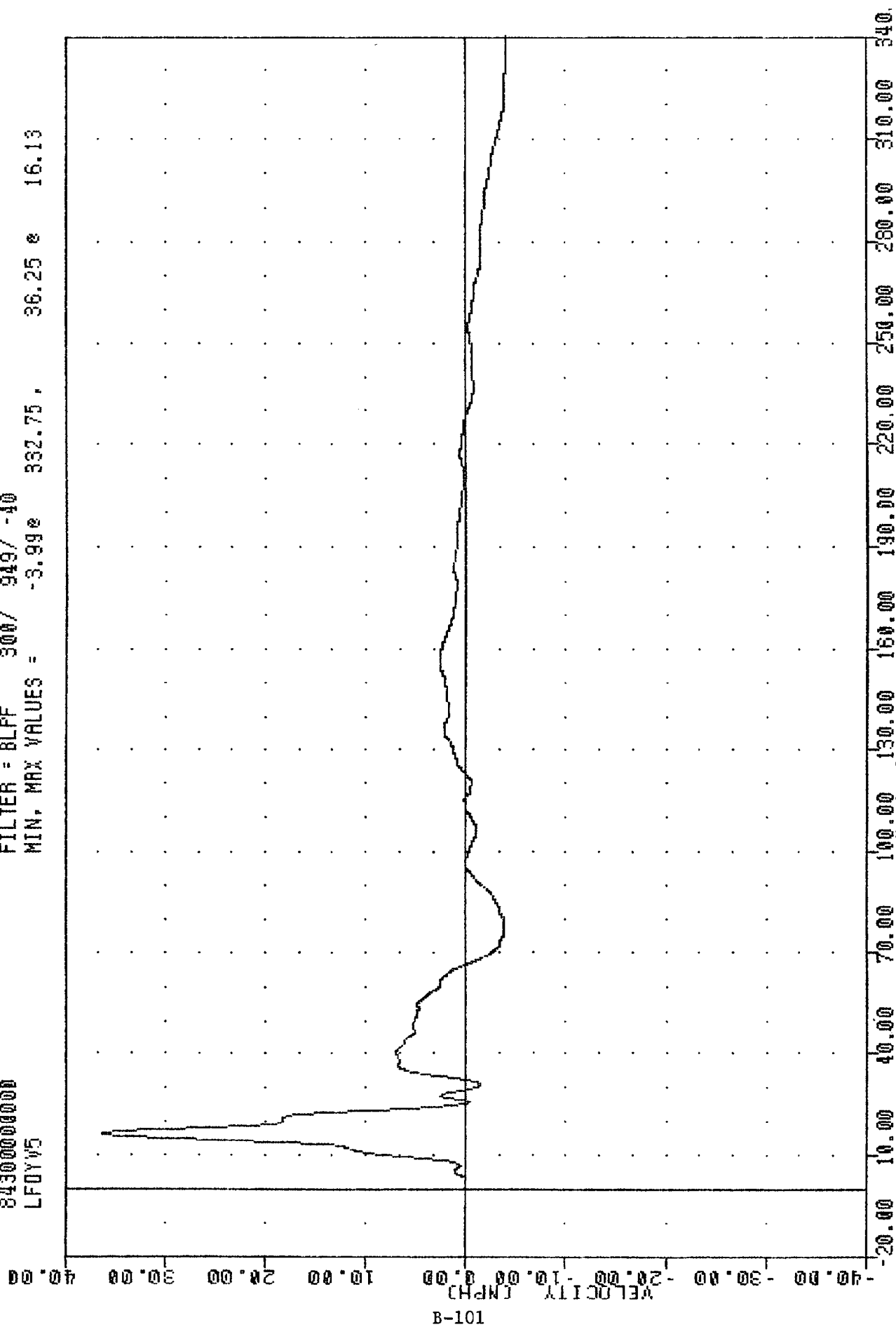
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT FRONT DOOR POSITION 117 ACCELERATION Y AXIS

TRC , 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
LF0YV5

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -3.99e 332.75, 36.25 e 16.13



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DATA V LISTING LF0YV5

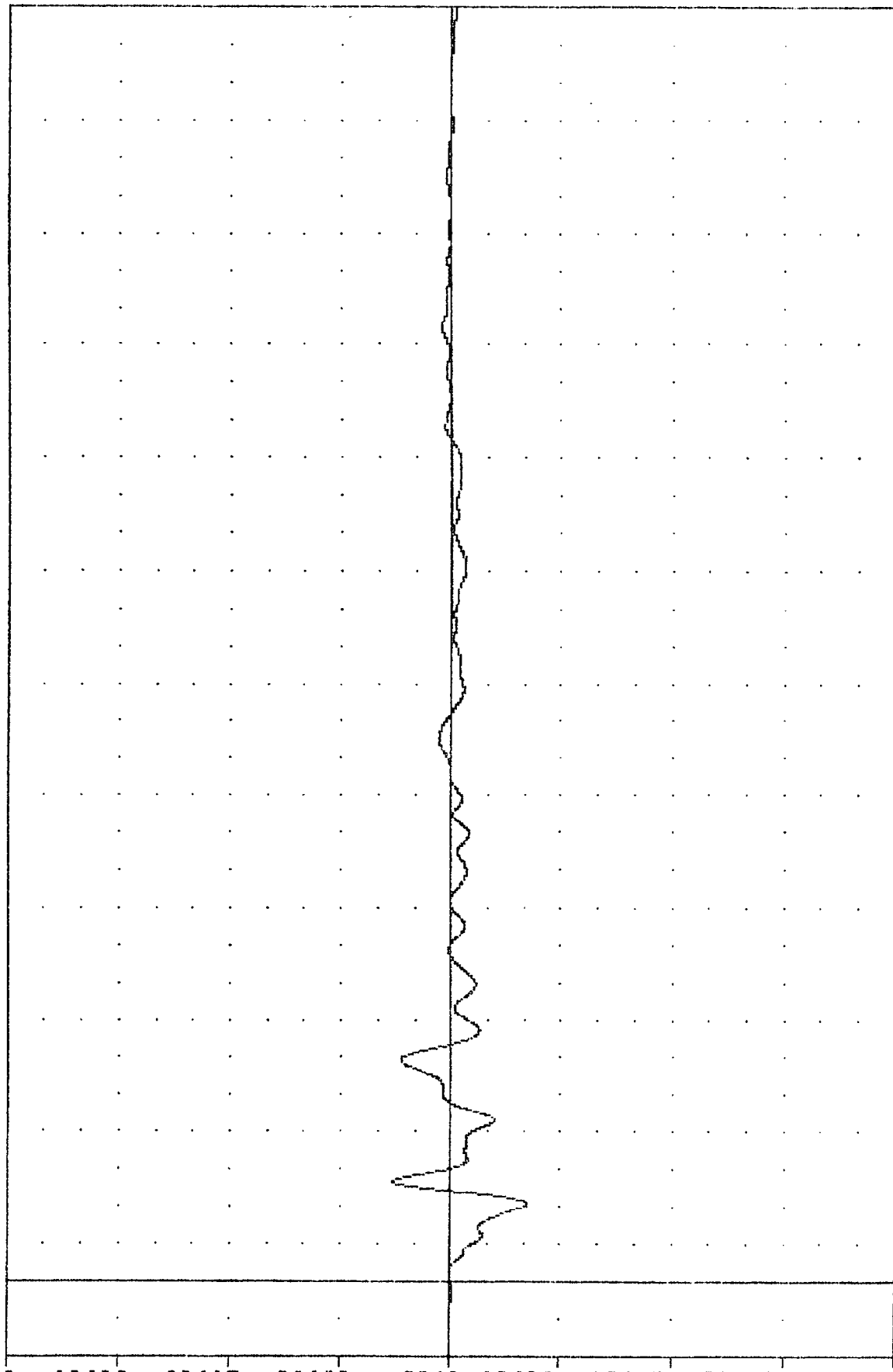
TAC
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 TFRXG7

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -7.05e 20.63, 5.30 e 26.50

ACCELERATION (G)



TIME (MSEC)

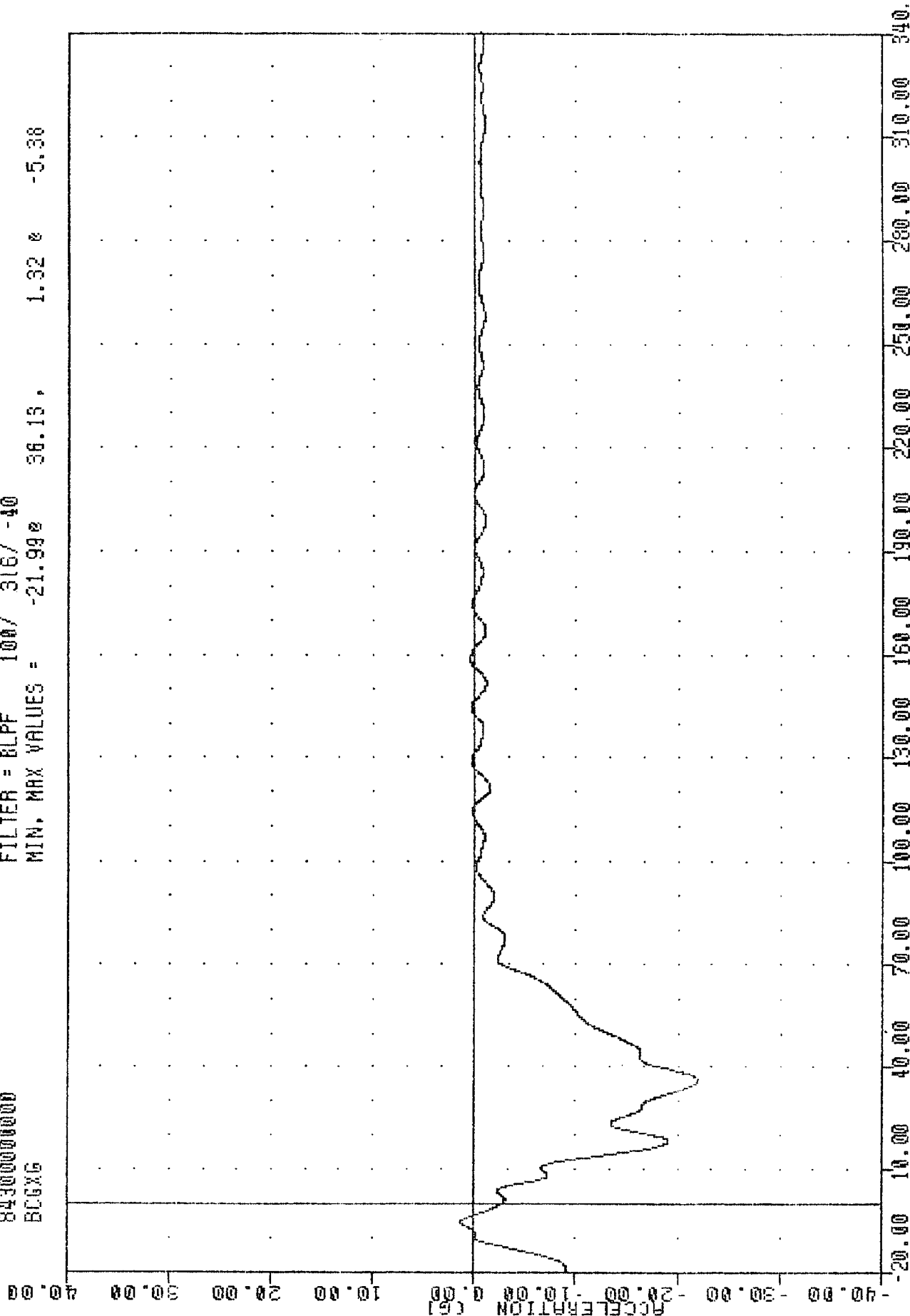
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE TRUNK FLOOR RIGHT ACCELERATION Y AXIS

TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 BCCXG

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -21.99 38.13, 1.32 0 -5.38



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

TAC , 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
BCGYE

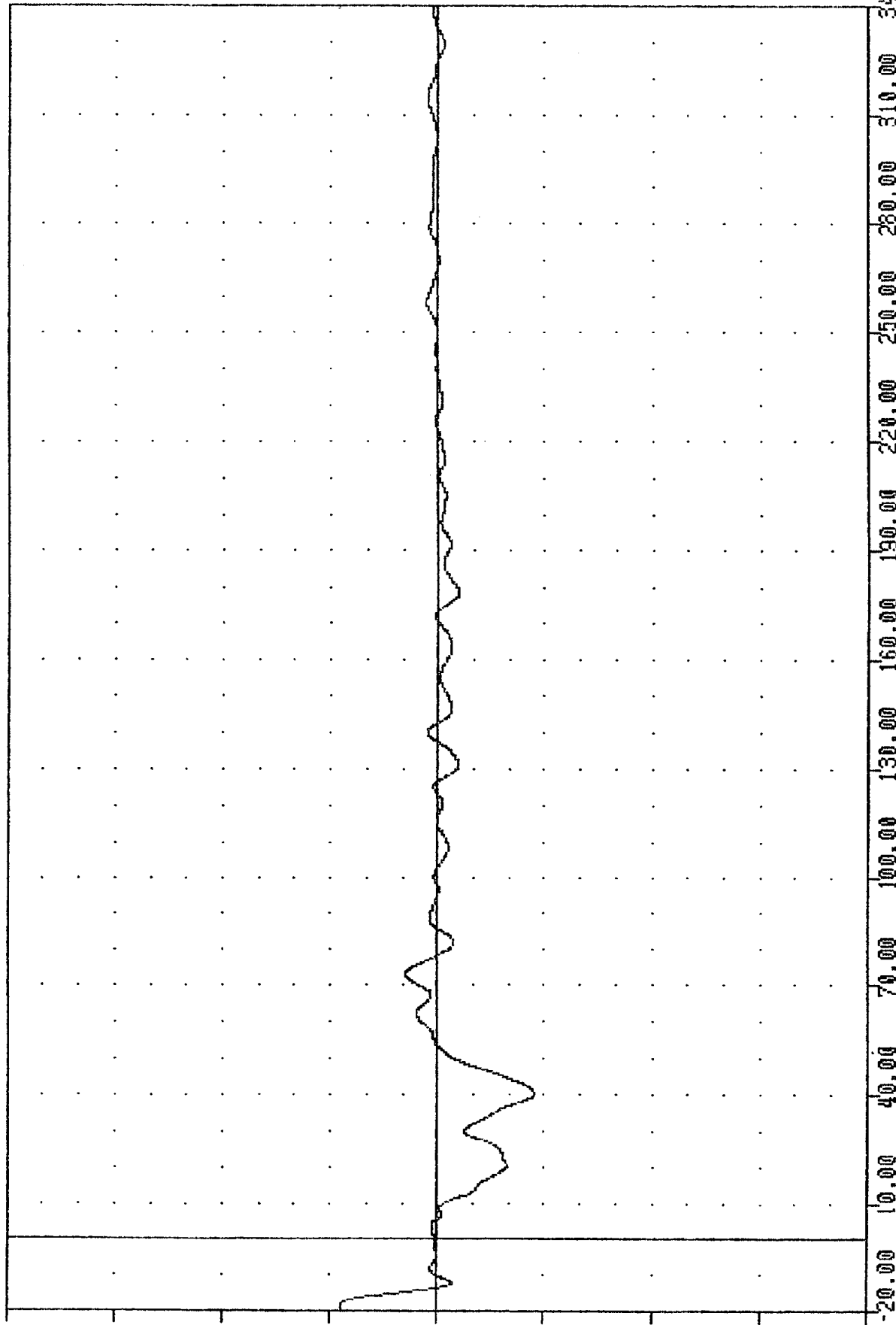
PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -9.05e 39.88 , 9.02 e -20.00

ACCELERATION (G)

B-104



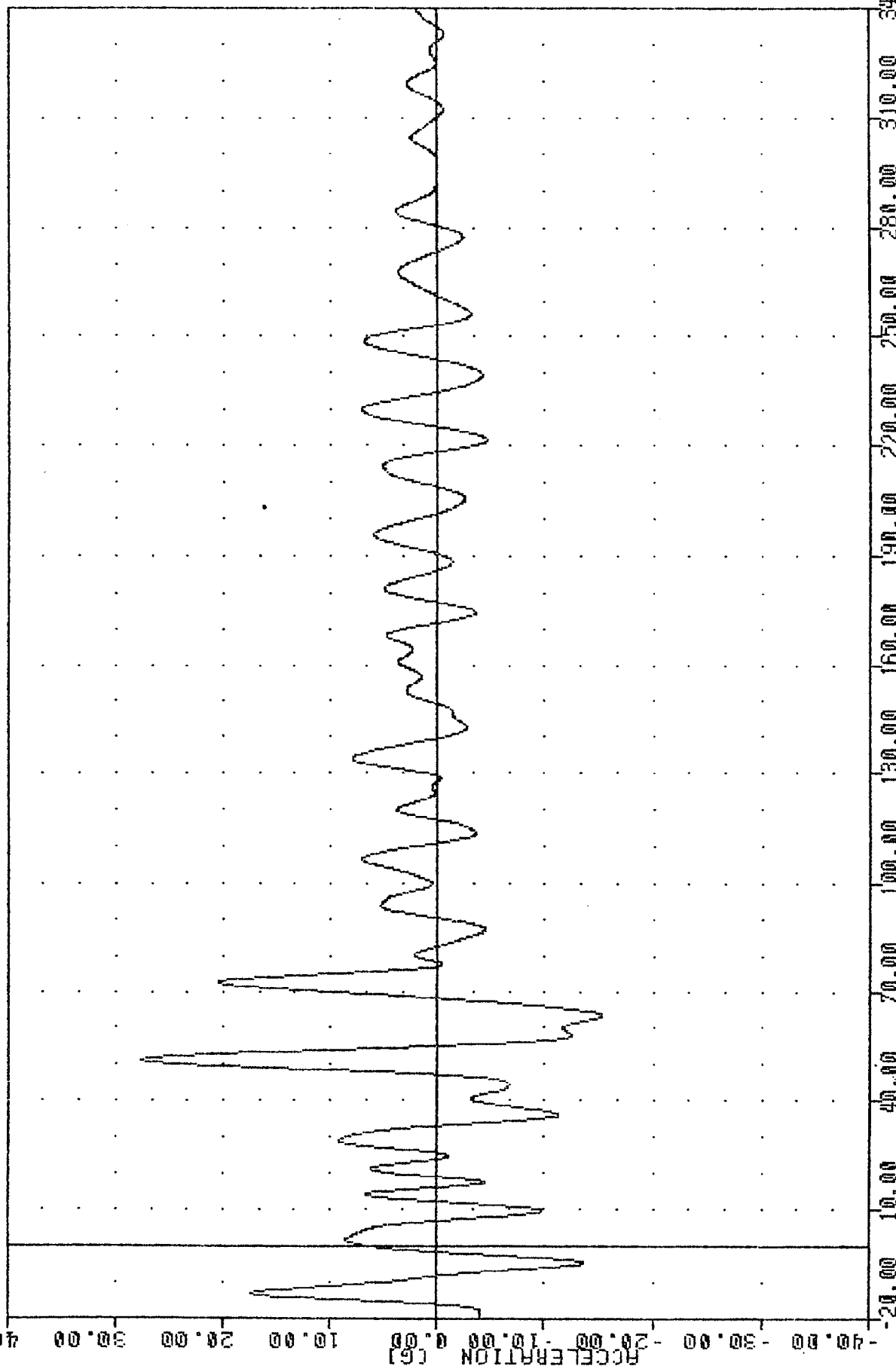
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER CENTER OF GRAVITY Y AXIS

TRC 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
BC676

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -15.268 63.25, 27.71 51.13

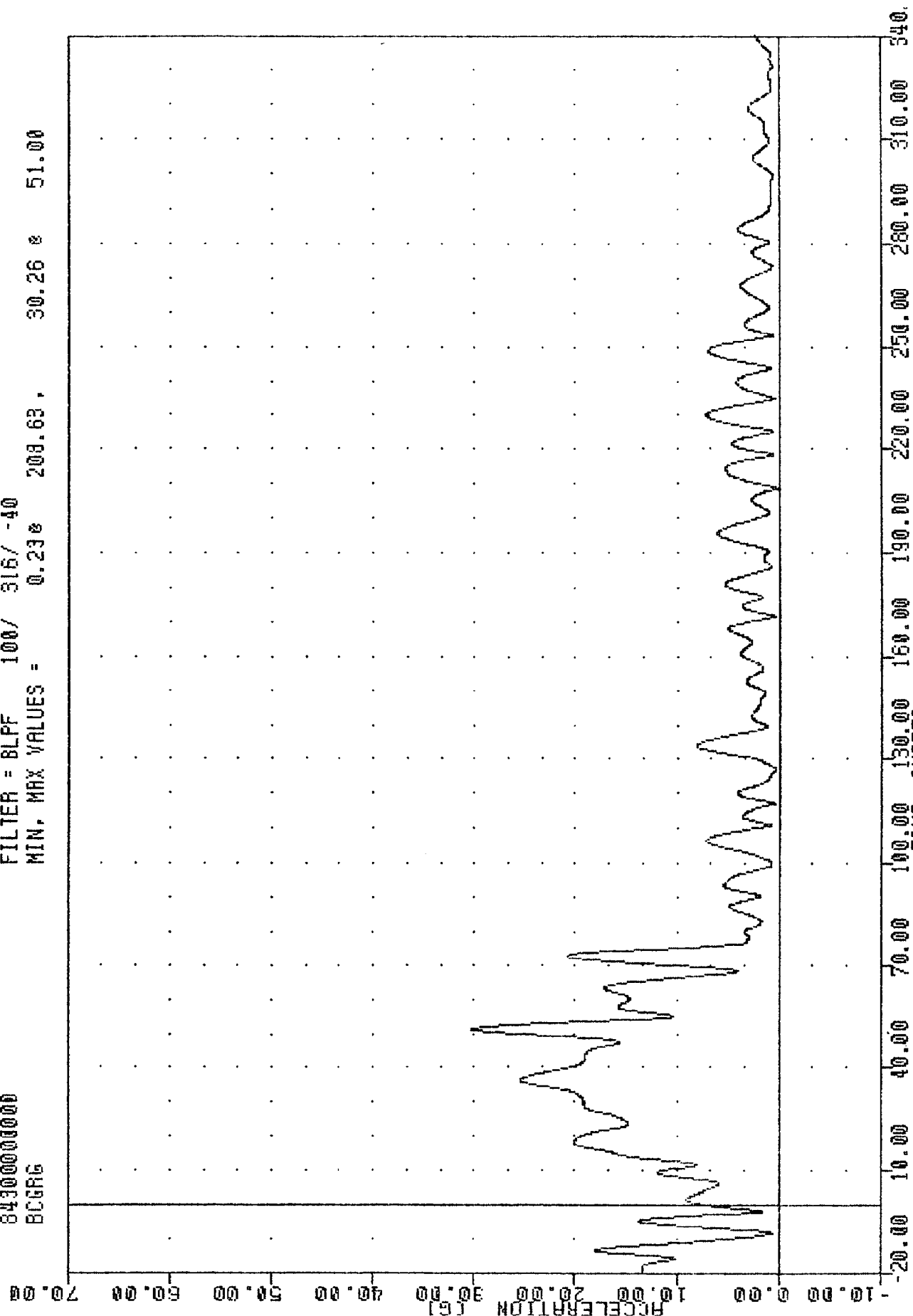
ACCELERATION [G]



B-105

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

FILTER = BLPF 100/ 315/ -40
MIN. MAX VALUES = 0.238



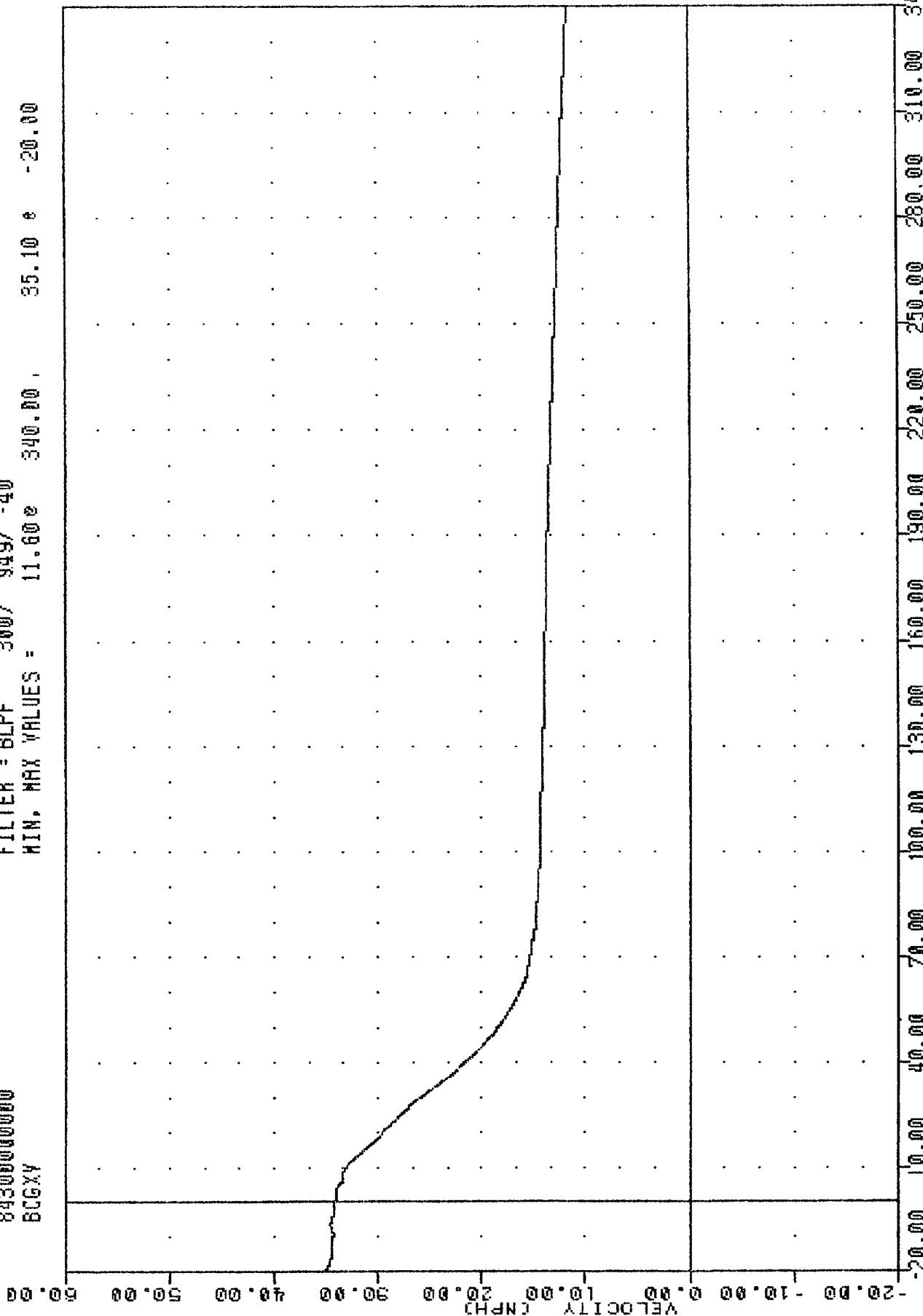
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
TIME (MSEC)
BARRIER CG RESISTANT

TAC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 BCGXY

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 11.600 340.00 , 35.10 8 -20.00



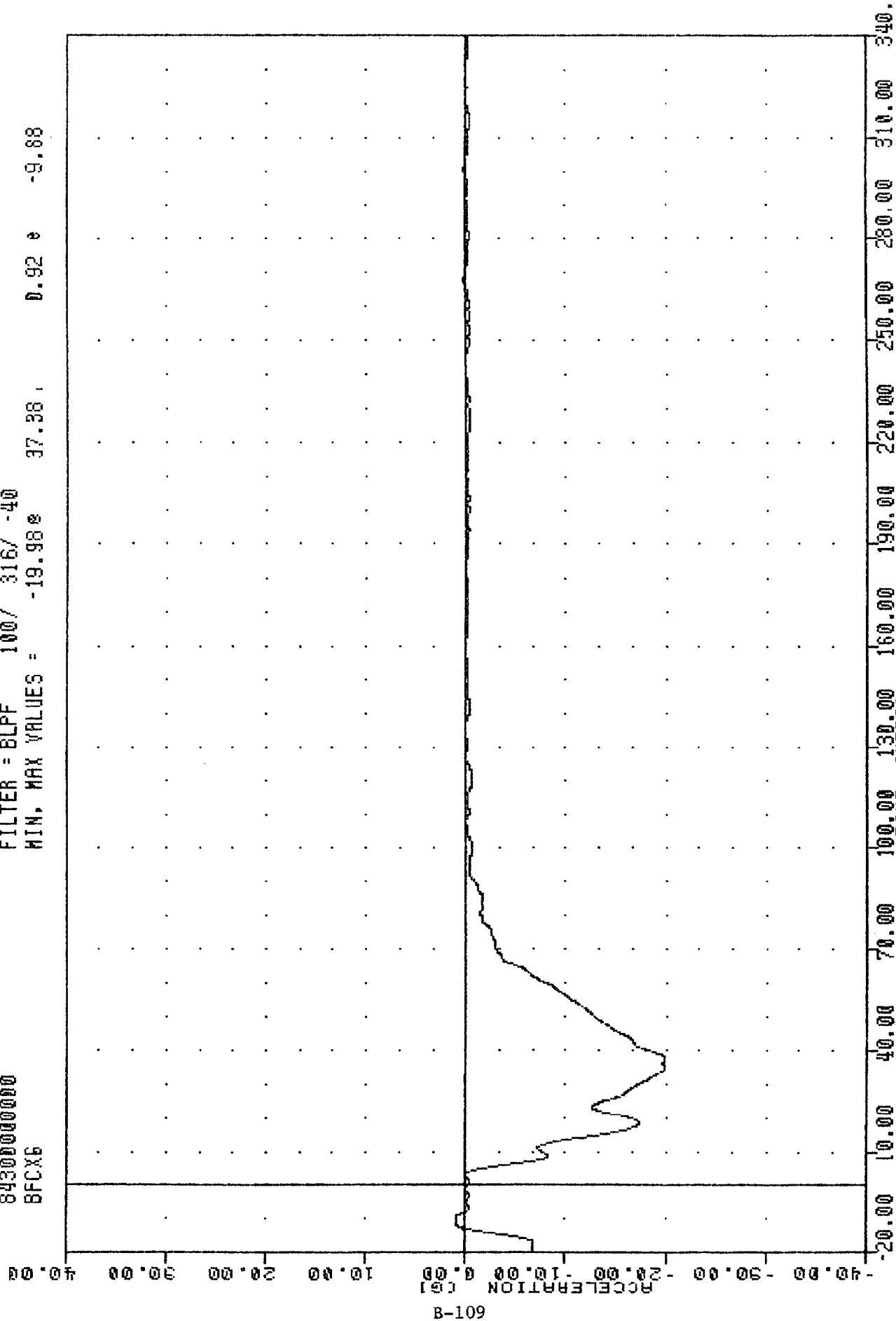
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 REF TO W HUNGAR 0000

TAC 841026
 SIDE AGGRESSIVE ATTRIBUTES
 843000000000
 BFCXB

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -19.988 37.38 0.92 -9.88

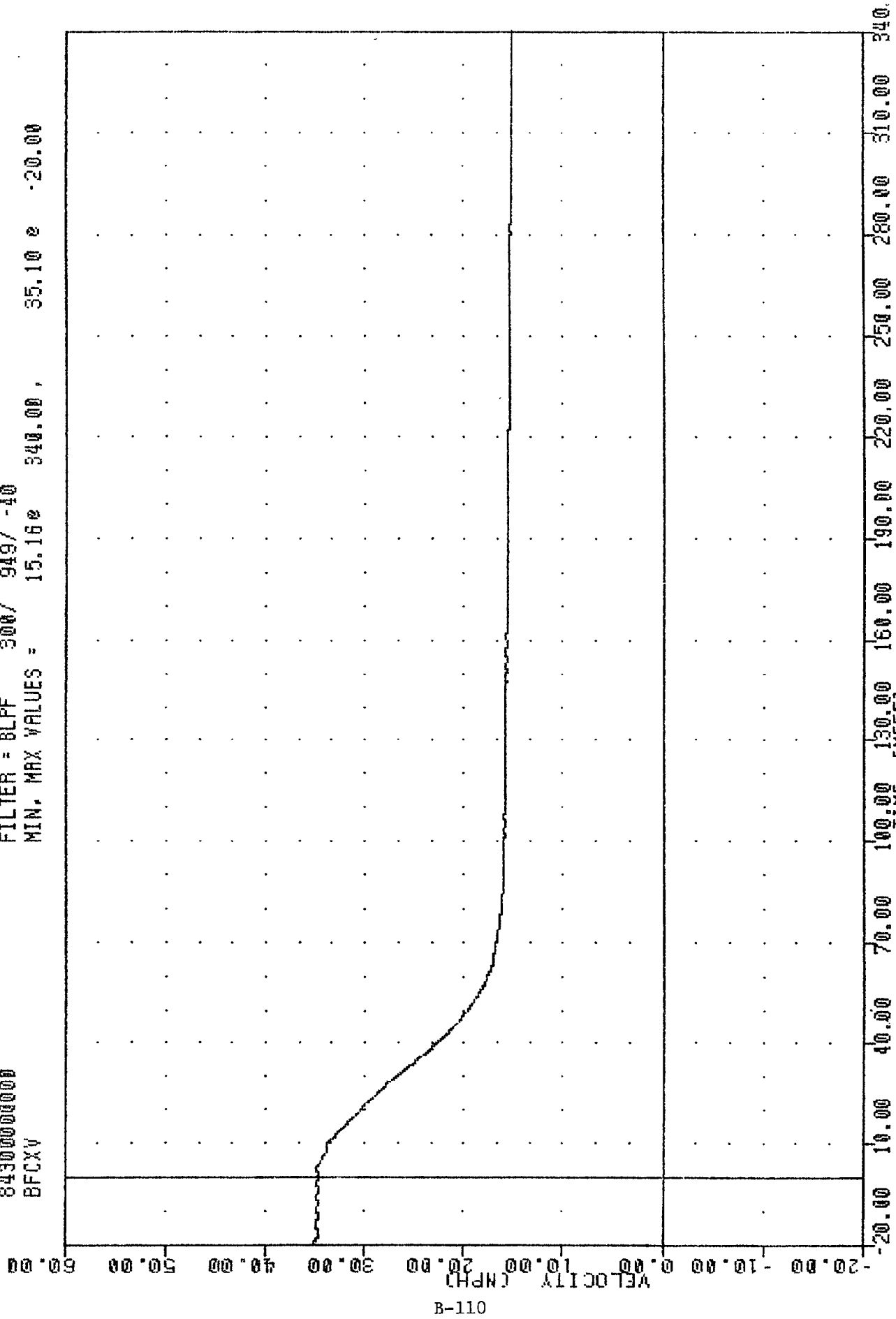


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER FRONT CROSSMEMBER ACCELERATION X AXIS

TRC 841026
SIDE AGGRESSIVE ATTRIBUTES
843000000000
BFCXV

PLOT DATE 1-NOV-84 16:11:42

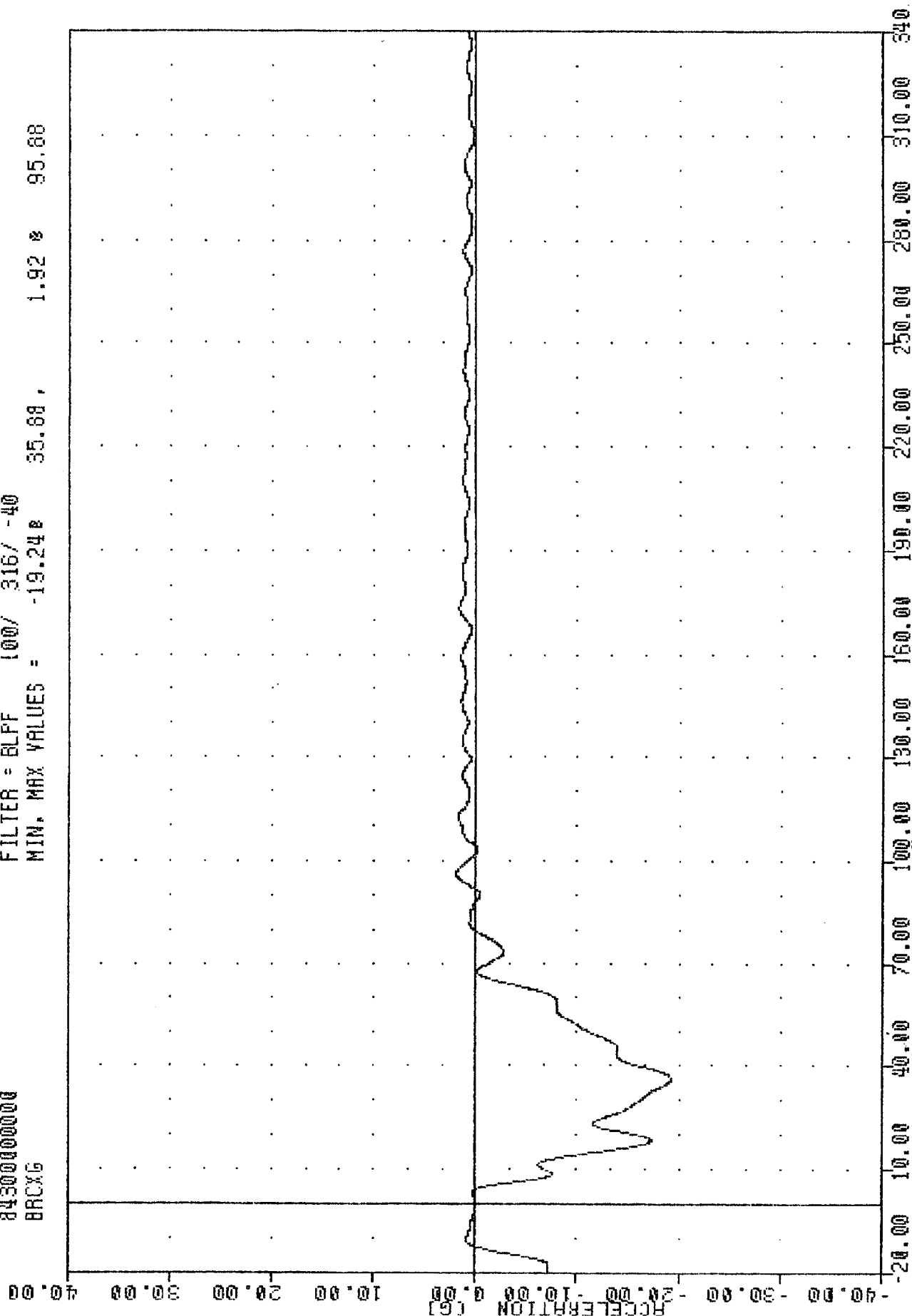
FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = 15.16e 340.00, 35.10 e -20.00



TRC , 841026
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 BRCXG

PLOT DATE 1-NOV-84 16:10:09

FILTER = BLFF 100/ 316/ -40
 MIN. MAX VALUES = -19.248 35.68, 1.928 95.68



B-111

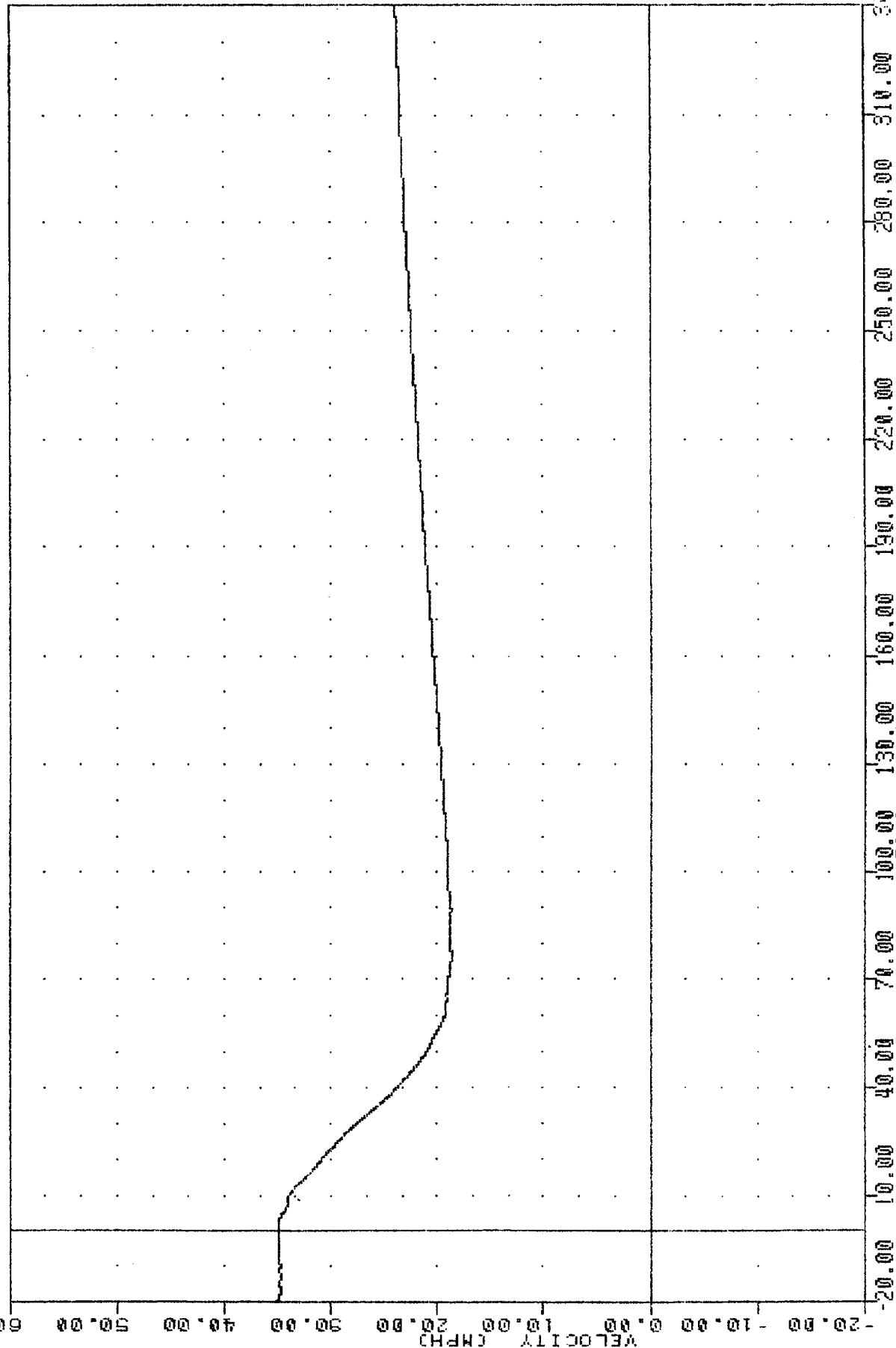
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER REAR CROSSMEMBER ACCELERATION X AXIS

TAC
 SIDE AGGRESSIVE ATTRIBUTES
 84300000000
 BACXY

PLOT DATE 1-NOV-84 16:11:42

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 18.648 75.88 35.10 -20.00

B-112



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING BACXG