

EVALUATION OF NHTSA MODIFIED
VOLKSWAGEN RABBITS

MDB-TO-CAR SIDE IMPACT TEST OF
A 19⁰ CRABBED MOVING DEFORMABLE BARRIER
TO A 1982 VOLKSWAGEN RABBIT
AT 34.4 MPH

PREPARED BY:
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FINAL REPORT
DECEMBER 1983

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16. Abstract This test report documents a repeat of an earlier crash test conducted at another crash test facility. The purpose was to provide baseline data against which to evaluate the NHTSA's Modified Volkswagen Rabbits. Testing was conducted on a baseline 1982 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, crabbed to 19°, at 34.4 mph. Occupant responses of two side impact dummies were measured. One dummy was located in the driver's designated seating position and one was located in the left rear seating position. The test date was November 9, 1983 and the ambient temperature was 69°F.					
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures			Approximate Conversions from Metric Measures		
Symbol	When You Know	Multiply by To Find	Symbol	When You Know	Multiply by To Find
LENGTH			LENGTH		
in	inches	2.5	mm	millimeters	0.04
ft	feet	30	cm	centimeters	0.4
yd	yards	0.9	m	meters	3.3
mi	miles	1.6	m	meters	1.1
AREA			km	kilometers	0.6
in ²	square inches	6.5	AREA		
ft ²	square feet	0.09	cm ²	square centimeters	0.16
yd ²	square yards	0.8	m ²	square meters	1.2
mi ²	square miles	2.6	km ²	square kilometers	0.4
MASS (weight)			ha	hectares	2.5
oz	ounces	28	MASS (weight)		
lb	pounds	0.45	g	grams	0.035
	short tons (2000 lb)	0.9	kg	kilograms	2.2
VOLUME			l	metric ton (1000 kg)	1.1
tsp	teaspoons	5	VOLUME		
Tbsp	tablespoons	15	ml	milliliters	0.03
in ³	cubic inches	16	ml	milliliters	0.06
fl oz	fluid ounces	30	L	liters	2.1
c	cups	0.24	L	liters	1.06
pt	pints	0.47	L	liters	0.26
qt	quarts	0.95	m ³	cubic meters	35
gal	gallons	3.8	m ³	cubic meters	1.3
ft ³	cubic feet	0.03	TEMPERATURE (exact)		
yd ³	cubic yards	0.76	°C	degrees Celsius	9/5 (then degrees add 32) Fahrenheit
TEMPERATURE (exact)			TEMPERATURE (exact)		
°F	degrees Fahrenheit	5/9 (after subtracting 32)	°C	degrees Celsius	9/5 (then degrees add 32) Fahrenheit

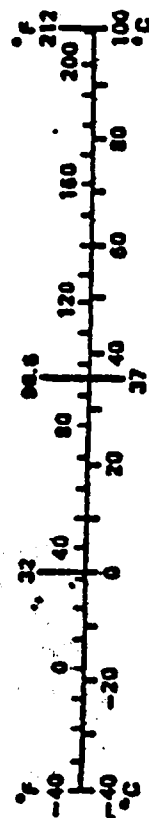


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SECTION 1.0

PURPOSE AND INTRODUCTION

PURPOSE

The main purpose of this test was to provide baseline data against which to evaluate the NHTSA's modified Volkswagen Rabbits. The vehicle was tested using conditions not currently contained in a Federal Motor Vehicle Safety Standard.

INTRODUCTION

A stationary 1982 Volkswagen Rabbit 2-door hatchback was impacted on the left side by a Moving Deformable Barrier (MDB) on November 9, 1983. The test was to simulate an intersection collision with the striking vehicle traveling at 26 mph and the struck vehicle traveling at 13 mph. The orientation angle of the striking vehicle was 60⁰ counterclockwise with respect to the longitudinal axis of the struck vehicle. The impact point was to be 37 inches forward of the vehicle center of gravity which is defined by accident investigation to be the midpoint of the wheelbase.

To simulate this collision, the MDB was to be towed into the stationary Volkswagen Rabbit at 34.4 mph with the MDB's wheels crabbed clockwise to 19⁰. The actual test speed was 34.4 mph and the actual impact point was 38. inches forward of the midpoint of the Volkswagen Rabbit's wheelbase.

The vehicle was a baseline model with no structural modification. The driver door and left rear 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. Appendix C contains Dummy Certification Data.

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: Volkswagen of America

MAKE/MODEL: Volkswagen Rabbit

VIN: 1VWBB0174CV050693

BODY STYLE: 2-Door Hatchback

MODEL YEAR: 1982

NHTSA NO.: R & D

COLOR: Silver Gray

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

TRANSMISSION DATA: 4 Speed Manual

DATE VEHICLE RECEIVED: 11/3/83

ODOMETER READING: 16,498

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

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

REMARKS:

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

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

VEHICLE MANUFACTURED BY: Volkswagen of America

DATE OF MANUFACTURE: 6/82

GVWR: 2822 LBS.,

GAWR: FRONT 1609 LBS., REAR 1278 LBS.

VEHICLE TIRE DATA

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

TIRES ON VEHICLE (MFG. & LINE, SIZE): Uniroyal Rallye 280 P155/80R13

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 700 LBS. RIGHT REAR 370 LBS.

LEFT FRONT 690 LBS. LEFT REAR 350 LBS.

TOTAL FRONT WEIGHT 1390 LBS. (65.9 % OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT 720 LBS. (34.1 % OF TOTAL VEHICLE WEIGHT)

TOTAL DELIVERED WEIGHT 2110 LBS.

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE: RF 24 ;LF 24 3/16 ;RR 23 15/16 ;LR 24 1/4

PRE-TEST ATTITUDE: RF 23 1/2 ;LF 23 1/2 ;RR 21 5/16 ;LR 21 3/8

POST-TEST ATTITUDE: RF 23 1/2 ;LF 23 1/4 ;RR 21 1/4 ;LR 22 3/4

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 172 LBS. CARGO:

RIGHT FRONT 705 LBS. RIGHT REAR 600 LBS.

LEFT FRONT 725 LBS. LEFT REAR 600 LBS.

TOTAL FRONT WEIGHT 1430 LBS. (54.4 % OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT 1200 LBS. (45.6 % OF TOTAL VEHICLE WEIGHT)

TOTAL TEST WEIGHT 2630 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: 9.0 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 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

CARGO LOAD 185 LBS. 2 REAR

TOTAL 785 LBS. 4 TOTAL

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

TEST CONDITIONS

TEST NUMBER: 831109

DATE OF TEST: November 9, 1983

TIME OF TEST: 12:20

WIND VELOCITY: 2-4 mph 153° SE

HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 69° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 69° F

SUBJECT VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
VEHICLE TEST WEIGHT (LBS.)	2630	2643
MDB TEST WEIGHT (LBS.)	2990	3000
MDB VELOCITY (MPH)*	34.4	34.4
IMPACT POINT (INCHES)**	38.	37

DUMMIES

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

RESTRAINT SYSTEM: Both dummies were unrestrained

* As measured over final one foot of travel.

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

GENERAL TEST AND VEHICLE PARAMETER DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #06	PASSENGER #U02
Head	<u>Side Window, Sill</u>	<u>Side Window, Header</u>
Chest	<u>Left Door Panel</u>	<u>Left Rear Compartment Wall</u>
Abdomen	<u>Left Door Panel</u>	<u>Left Rear Compartment Wall</u>
Left Knee	<u>Left Door Panel</u>	<u>Left Rear 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 Torn Loose</u>
Rear	<u>No</u>	<u>No</u>

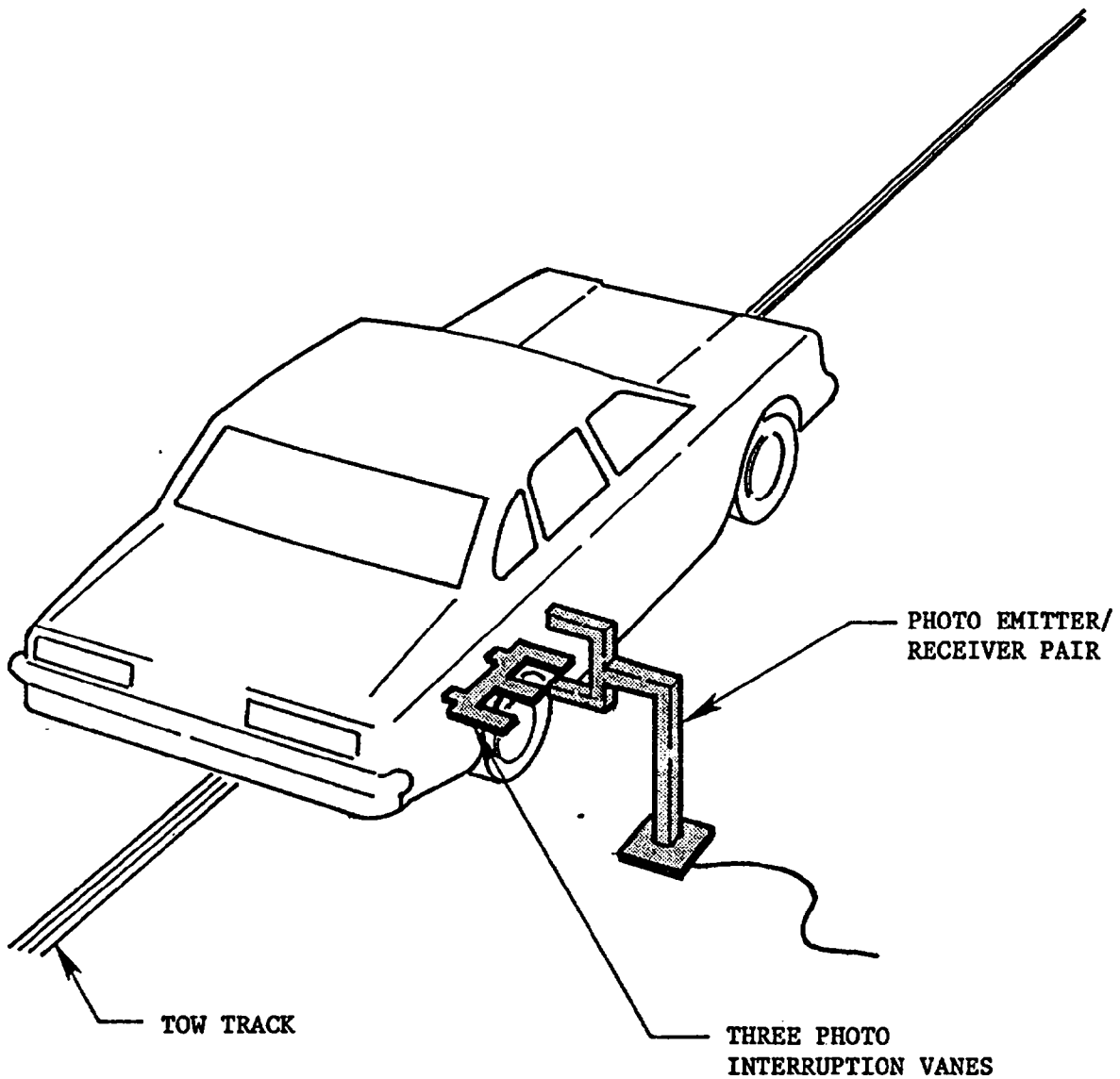
GLAZING DAMAGE:

Windshield partially separated but not cracked,
left side windows shattered, no back light damage

OTHER NOTABLE IMPACT EFFECTS:

Driver's seat torn loose from mountings

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane is located two inches before impact.

The vanes have one foot spacing.

VEHICLE TEST WEIGHT CALCULATION

$$\begin{aligned}\text{Test Weight} &= \text{Unloaded Delivered Weight} + \\ &\quad \text{Number of Dummies} \times 174 \text{ lbs.} + \\ &\quad \text{Cargo Weight} \\ &= 2110 + 2 \times 174 + 185 \text{ lbs.} \\ &= 2643 \text{ lbs.}\end{aligned}$$

To achieve test weight, 9 gallons of Stoddard Solvent were added in the fuel tank. The weight of the test vehicle was measured by placing each wheel on a Loadmeter Corporation Hiway Loadometer.

SECTION 3.0
DATA REQUIRED BY R&D

The following pages are included in this section:

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

DUMMY TEMPERATURE CONTROL AND POSITIONING

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

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

DUMMY PLACEMENT AND POSITIONING

SIDE IMPACT DUMMY*

DRIVER DSP

HEAD	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.
LOWER TORSO	Midsagittal plane is vertical and centered on bucket seat.
UPPER LEGS (thighs or femurs)	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.
LOWER LEGS	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.
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.

REAR PASSENGER DSP

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

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

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

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

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

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

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

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

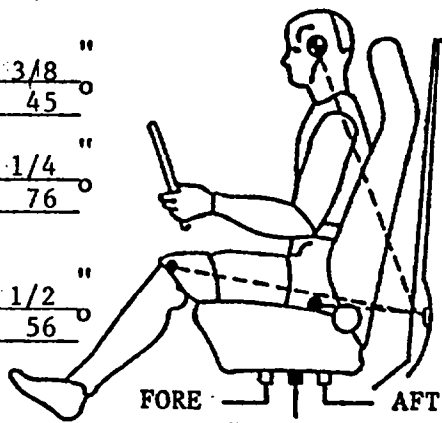
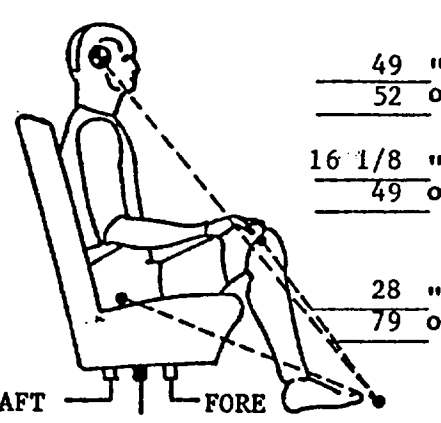
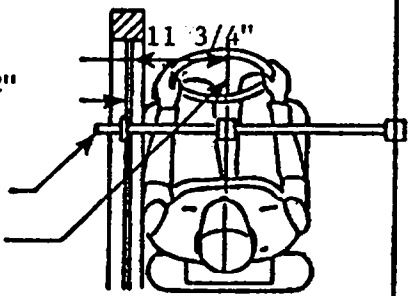
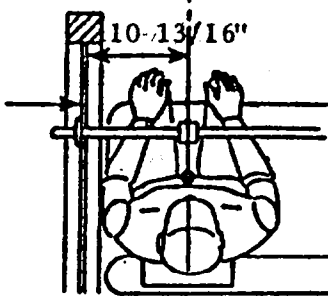
BUCKET SEAT BACK TYPE: FIXED
X ADJUSTABLE

TECHNICIANS:

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

POSITIONING DATE: November 9, 1983

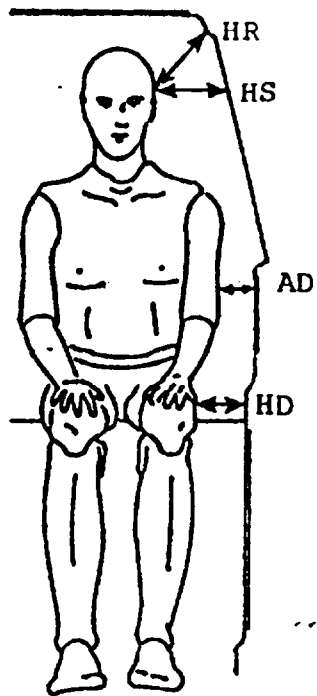
AMBIENT TEMP.: 68° F. TIME: 7:30

DRIVER DUMMY # 06 HEAD <u>20 3/8</u> " TARGET* <u>45</u> ° KNEE <u>32 1/4</u> " JOINT <u>76</u> ° APPROX. "H" <u>18 1/2</u> " POINT <u>56</u> °  FORE MIDPOINT AFT	REAR PASSENGER DUMMY # U02 <u>49</u> "HEAD <u>52</u> °TARGET** <u>16 1/8</u> "KNEE <u>49</u> °JOINT APPROX. "H" <u>28</u> " POINT <u>79</u> °  AFT MIDPOINT FORE
DOOR GLASS HEIGHT*** <u>9 1/2</u> " LATERAL BAR ADJUSTABLE POINTER  11 3/4" DRIVER DUMMY #06	DOOR GLASS HEIGHT <u>N/A</u>  10-13 1/16" PASSENGER DUMMY #U02

*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.

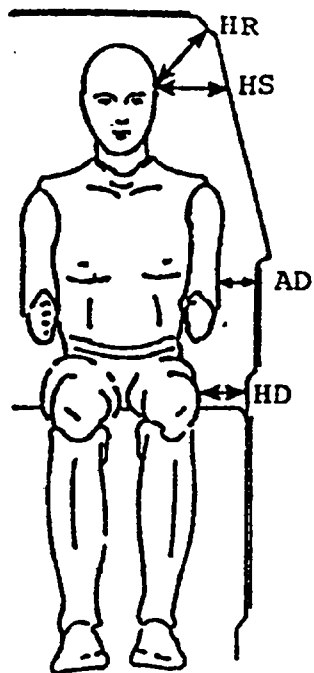
***Door glass height is equal on the right and left side of vehicle at dummy nose level.



06

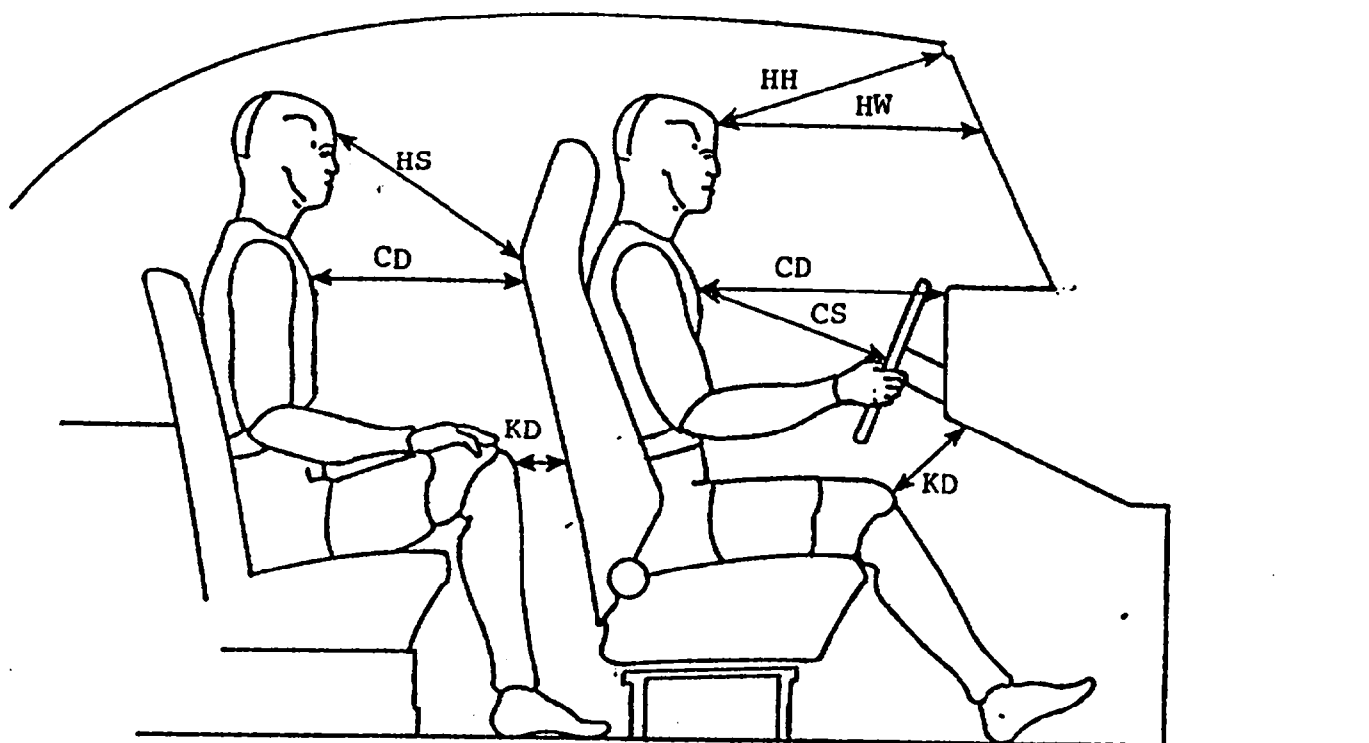
*002

	DRIVER	PASSENGER
HR	6 1/8	6 15/16
HS	7 3/16	8 1/8
AD	3 7/8	4 9/16
HD	5 5/8	4 3/4



NOTE: ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



	06 DRIVER	U02 PASSENGER
HH	16 3/8	DNA
HW	19 15/16	DNA
HS	DNA	24 5/8
CD	21 13/16	17 15/16
CS	12 3/16	DNA
KDL	4 13/16	2
KDR	4 11/16	3

NOTE: ALL MEASUREMENTS IN INCHES

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

DUMMY KINEMATIC SUMMARY

DRIVER

During impact, the dummy's torso contacted the driver's door and the head contacted the driver's side window and sill. The dummy rebounded laterally across the vehicle and its buttocks passed through the front passenger's side window. The dummy's head wedged between the front seats' head restraints. The dummy came to rest with its buttocks resting on the window sill and its head wedged between the front seats' head restraints.

PASSENGER

During impact, the dummy's torso contacted the left rear passenger side wall and the head contacted the side window and side header. Upon rebound from the side wall, the dummy remained upright with its feet trapped beneath the driver's seat. The dummy came to rest seated upright and facing forward.

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

LOCATION	HEIGHT (in)	6	0	6	12	18	24	30	36	42	48	54	60	66	72	78
PRE-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)																
Axle Height	8.4	X	X	19.5	19.7	19.8	19.6	19.7	19.4	19.5	19.4	19.4	19.6	19.8	X	X
H-Point	16.6	X	X	16.9	17.0	16.9	16.9	16.9	16.9	16.9	16.9	17.1	17.1	17.2	16.0	X
Mid Door	22.8	15.4	16.8	16.7	16.7	16.6	16.6	16.6	16.6	16.6	16.6	16.8	16.8	16.8	16.9	15.9
Window Sill	32.8	X	18.7	18.4	18.3	18.3	18.8	18.3	18.3	18.3	18.3	18.3	18.4	18.5	18.7	18.7
Window Top	50.5	X	X	X	X	X	26.3	25.8	25.6	25.6	25.6	25.7	25.8	25.8	26.0	26.3

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

Axle Height	8.4	X	X	21.9	23.8	24.3	24.3	24.3	24.1	23.8	24.1	23.8	22.0	20.8	X	X
H-Point	16.6	X	X	23.3	34.3	37.9	39.9	39.3	38.0	36.1	34.1	29.2	27.0	24.3	22.5	X
Mid Door	22.8	20.0	21.1	20.6	31.2	34.9	36.0	35.4	34.2	33.0	31.9	30.6	27.5	24.6	21.3	18.5
Window Sill	32.8	X	20.0	20.1	27.6	30.5	31.8	32.8	32.0	31.0	29.0	29.3	26.1	23.1	20.9	20.1
Window Top	50.5	X	X	X	X	X	27.9	27.4	27.1	27.1	27.1	27.0	27.1	27.1	27.4	27.6

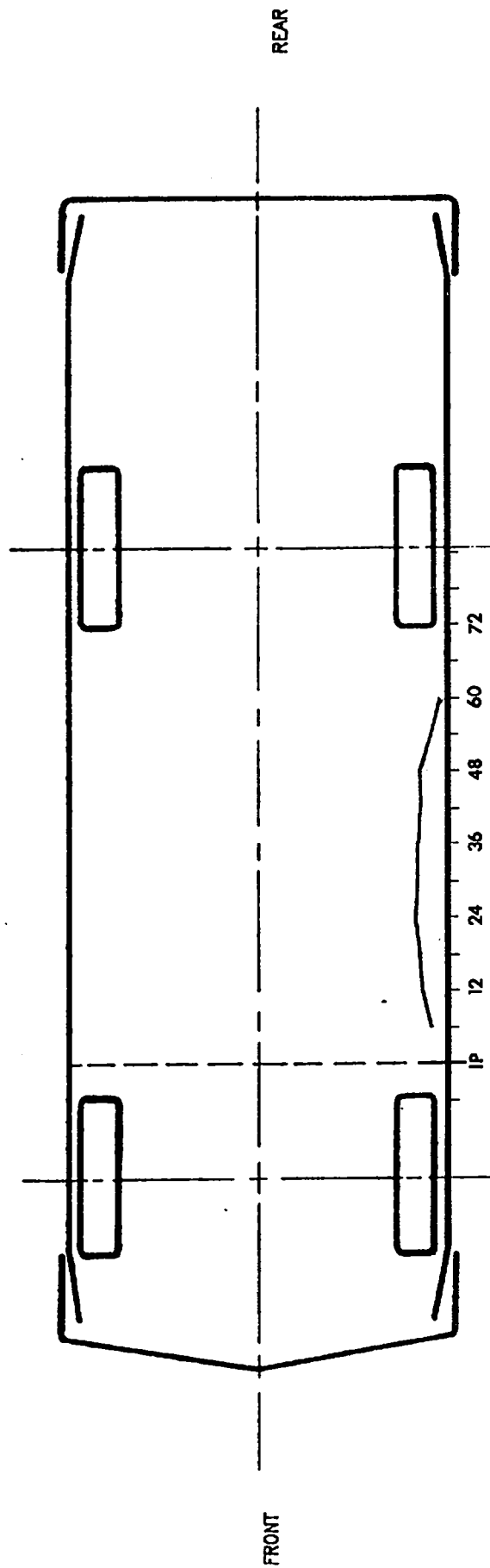
STATIC CRUSH (IN)

Axle Height	8.4	X	X	2.4	4.1	4.5	4.7	4.6	4.7	4.3	4.7	4.4	2.4	1.0	X	X
H-Point	16.6	X	X	6.4	17.3	21.0	23.0	22.4	21.1	19.2	17.2	12.1	9.9	7.1	6.5	X
Mid Door	22.8	4.6	4.3	3.9	14.5	18.3	19.4	18.8	17.6	16.4	15.3	13.8	10.7	7.8	4.4	2.6
Window Sill	32.8	X	1.3	1.7	9.3	12.2	13.0	14.5	13.7	12.7	10.7	11.0	7.7	4.6	2.2	1.4
Window Top	50.5	X	X	X	X	X	1.6	1.6	1.5	1.5	1.5	1.3	1.3	1.3	1.4	1.3

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

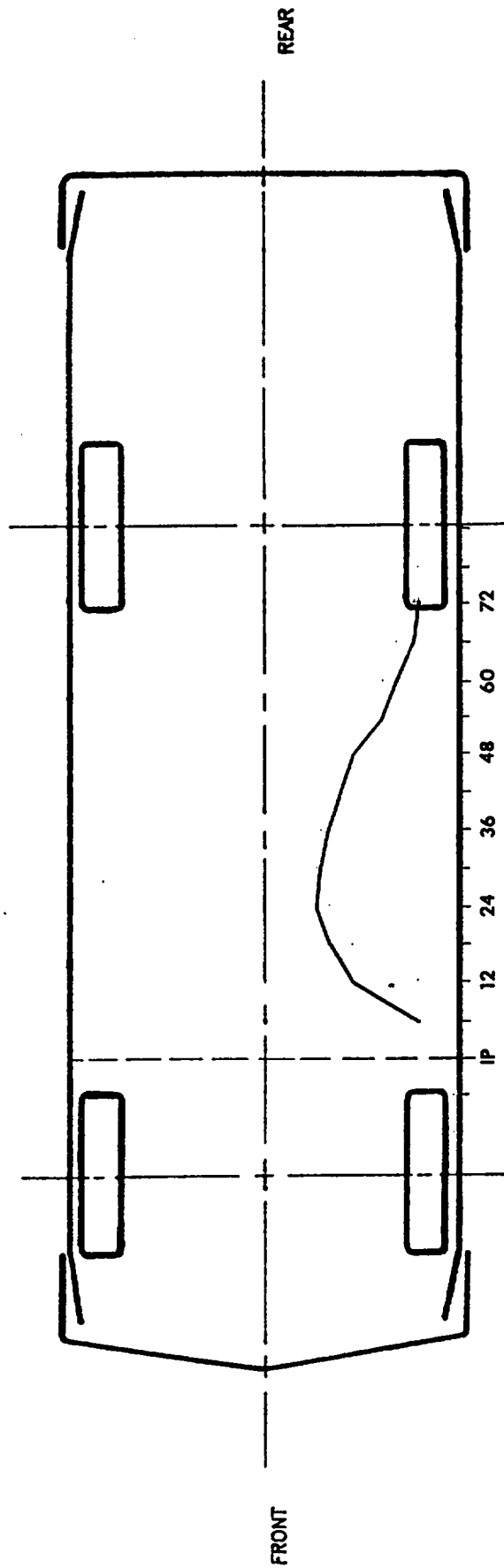
** Reference plane is parallel to and 48 inches from the vehicle longitudinal centerline.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



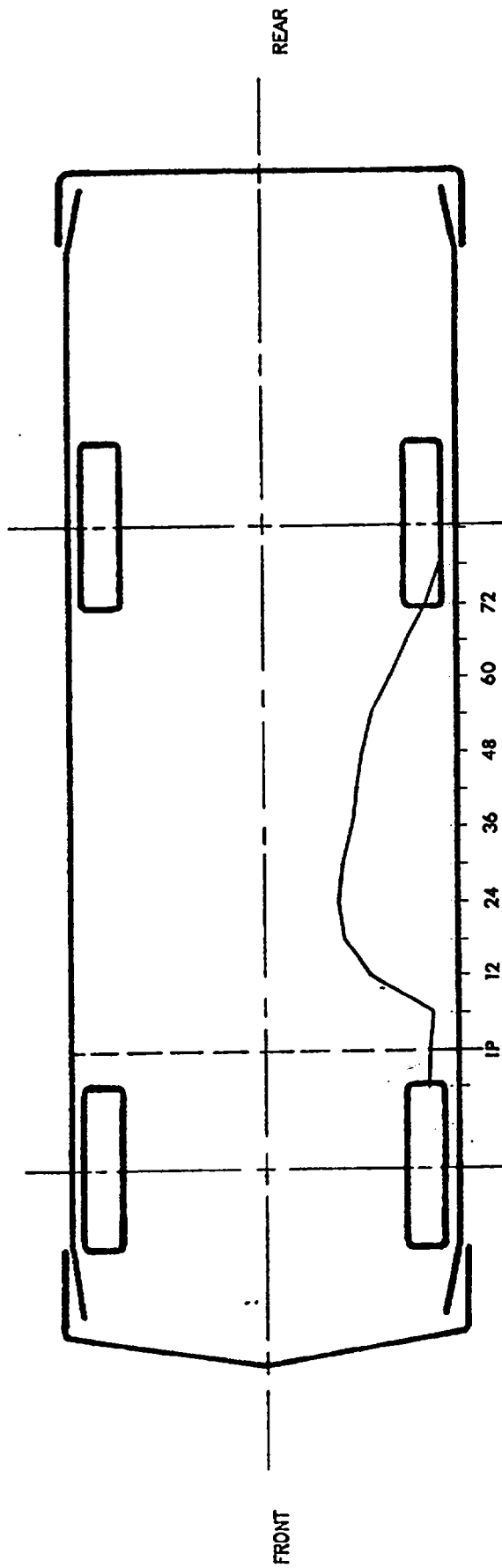
PROFILE LEVEL EQUALS AXLE HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



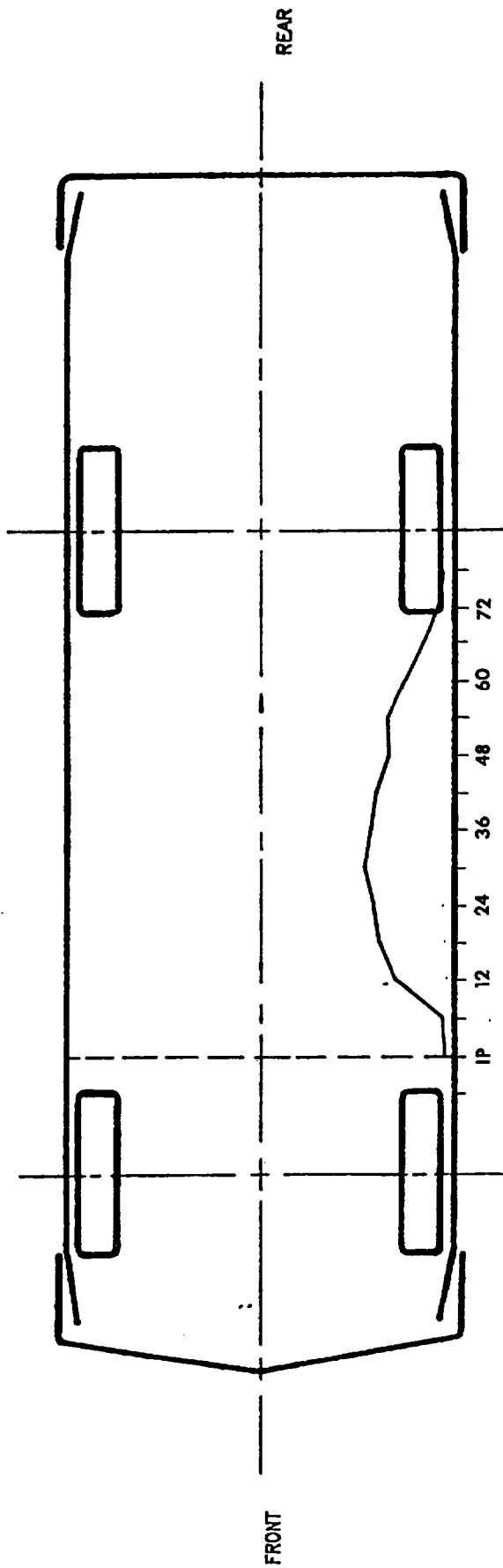
PROFILE LEVEL EQUALS H-POINT HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



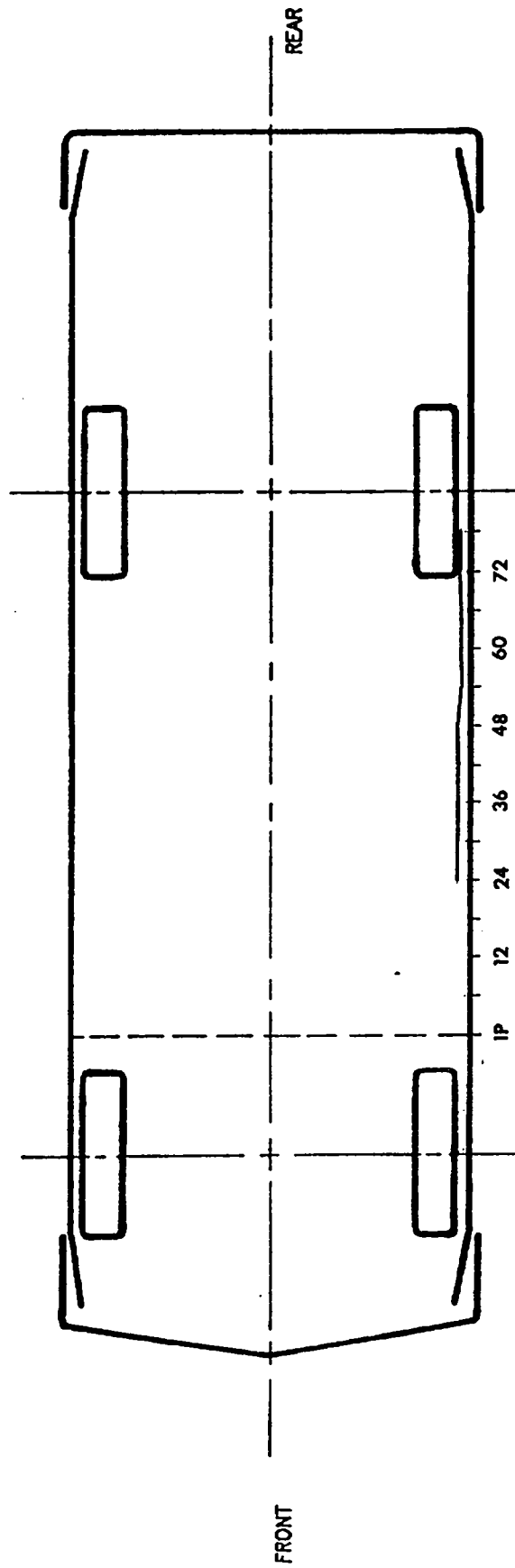
PROFILE LEVEL EQUALS MID-DOOR HEIGHT
 IP EQUALS PROJECTED IMPACT POINT

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	103.82	82.50	46.93	79.13°	16.85	290.88	28.32	92.50
LATERAL	177.90	78.63	72.11	83.00°	66.80	91.88	15.19	290.88
VERTICAL	157.75	82.63	83.61	82.25°	47.80	119.63	31.06	92.75
RESULTANT		192.07 à	78.63°			77.09 à	92.75	
HIC	585.53	from 77.75 to 79.75°			232.08	from 88.63 to 131.38		
CHEST ACCELERATION								
UPPER SPINE								
LONGITUDINAL	18.32	241.88	30.05	85.00	4.98	308.13	27.75	119.38
LATERAL (P)***	97.79	66.25	16.99	59.38	55.92	103.75	7.27	151.87
LATERAL (R)***	99.68	66.25	15.06	59.38	56.16	103.13	6.71	151.25
VERTICAL	21.43	53.75	14.57	65.63	10.65	87.50	10.26	104.38
RESULTANT (P)		102.75 à	66.25			60.22 à	103.75	
RESULTANT (R)		104.55 à	66.25			60.29 à	103.75	
DELTA V (MPH)****		20.4 à	84.38 (P)			17.8 à	145.00 (P)	
		22.0 à	84.38 (R)			19.5 à	145.00 (R)	
LOWER SPINE								
LONGITUDINAL	21.62	73.75	23.98	60.62	8.94	105.62	28.07	95.00
LATERAL (P)	67.91	65.00	32.37	84.38	50.33	96.25	11.90	126.25
LATERAL (R)	70.51	65.00	29.98	84.38	50.58	96.25	11.75	126.25
VERTICAL	22.72	54.38	7.94	105.00	12.03	88.75	6.36	130.00
RESULTANT (P)		69.80 à	64.38			58.05 à	95.63	
RESULTANT (R)		72.23 à	65.00			58.07 à	95.63	
DELTA V (MPH)		30.2 à	78.75 (P)			22.2 à	117.50 (P)	
		32.1 à	79.38 (R)			21.4 à	118.13 (R)	
LEFT UPPER RIB								
LATERAL (P)	128.44	61.87	20.91	66.25	32.74	97.50	5.75	309.38
LATERAL (R)	118.78	61.87	12.40	66.25	34.94	97.50	5.11	310.63
DELTA V (MPH)		25.9 à	96.88 (P)			21.4 à	141.88 (P)	
		26.4 à	100.63 (R)			21.4 à	142.50 (R)	
LEFT LOWER RIB								
LATERAL (P)	140.67	60.00	22.57	87.50	56.46	99.37	6.55	196.87
LATERAL (R)	127.27	60.62	26.30	87.50	53.70	99.37	5.66	196.25
DELTA V (MPH)		28.2 à	83.13 (P)			20.2 à	140.63 (P)	
		29.0 à	81.88 (R)			20.4 à	140.63 (R)	
PELVIS ACCELERATION								
LONGITUDINAL	11.57	79.50	275.63	71.38°	6.02	126.50	51.41	89.38
LATERAL	156.20	52.25	19.36	34.50°	125.01	89.25	34.73	64.88
VERTICAL	42.05	51.63	219.32	73.38°	17.66	88.50	8.22	80.88
RESULTANT		307.98 à	73.13°			136.07 à	89.25	
DELTA V (MPH)		29.9 à	89.13°			22.9 à	103.50	

SIDE IMPACT DUMMY DATA SUMMARY CONTD

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE		NEGATIVE		POSITIVE		NEGATIVE	
	DIRECTION*		DIRECTION**		DIRECTION*		DIRECTION**	
	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)
RIB DEFLECTION †	0.06	252.13	1.87	128.25	0.05	19.50	1.46	123.75

* LONGITUDINAL:	FORWARD	**LONGITUDINAL:	REARWARD
LATERAL:	RIGHTWARD	LATERAL:	LEFTWARD
VERTICAL:	UPWARD	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

° 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.

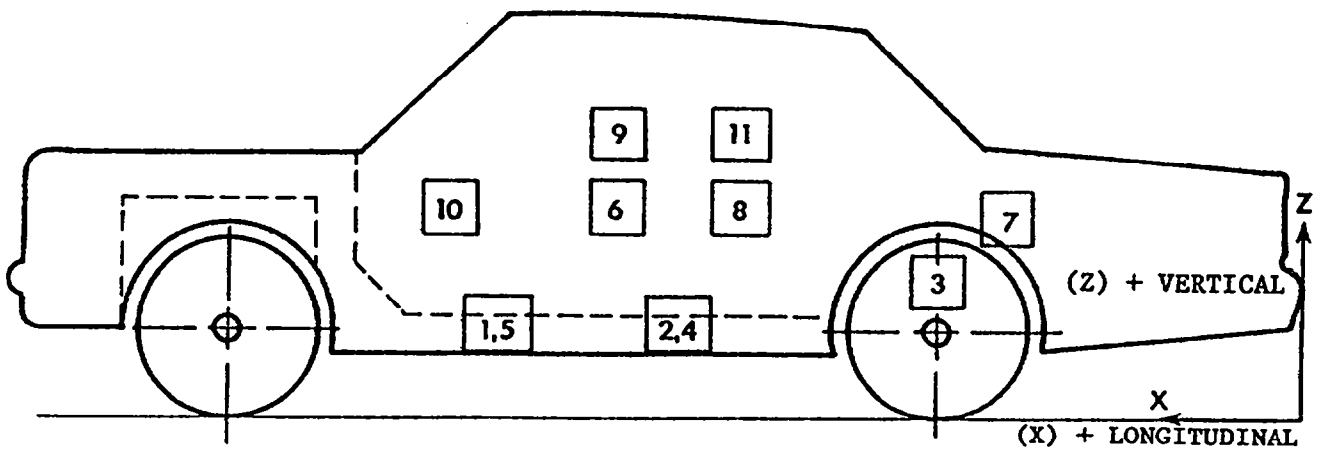
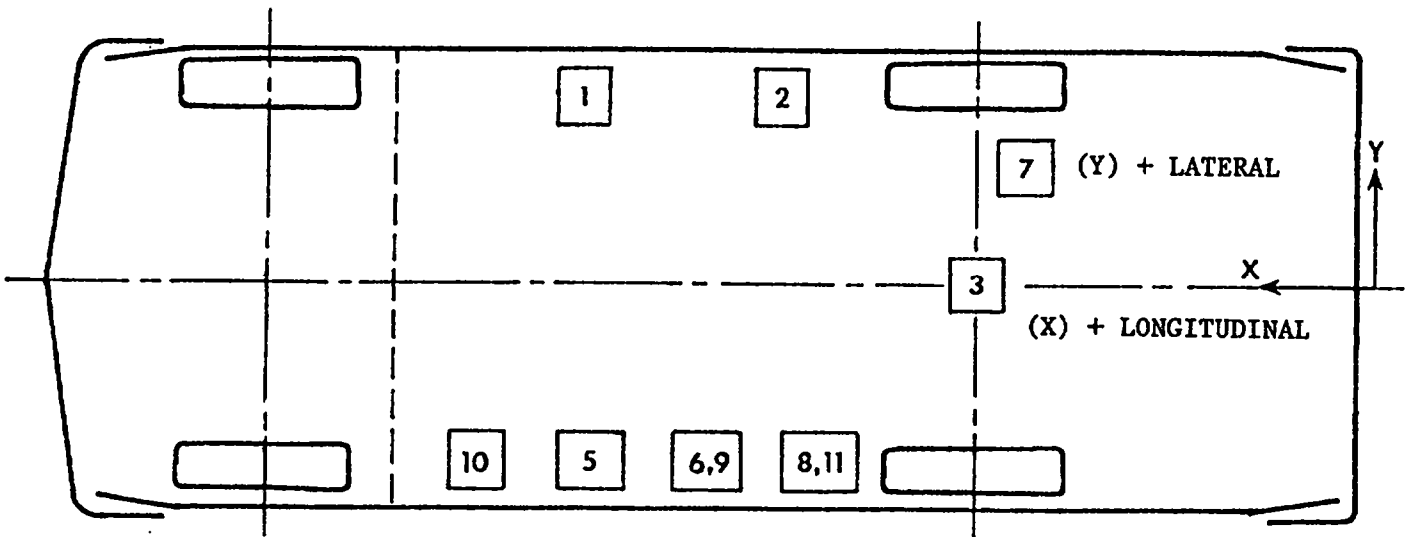
VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

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	23.8	10.1				
	(LATERAL)	$\Delta V = -5.4 \text{ mph à } 160.00 \text{ msec}$			1.26	186.00	5.25	67.63
	(VERTICAL)	$\Delta V = 11.0 \text{ mph à } 160.00 \text{ msec}$			10.78	97.63	2.63	155.88
	(RESULTANT)				5.48	104.38	7.40	54.75
					11.34 à 97.63			
2	RIGHT SILL AT REAR SEAT (LONGITUDINAL)	61.3	24.6	8.4				
	(LATERAL)	$\Delta V = -5.4 \text{ mph à } 160.00 \text{ msec}$			1.36	163.38	5.84	68.00
	(VERTICAL)	$\Delta V = 13.2 \text{ mph à } 160.00 \text{ msec}$			13.01	96.25	2.82	158.88
	(RESULTANT)				6.87	71.50	7.97	89.63
					13.51 à 96.38			
3	REAR DECK OVER AXLE (LONGITUDINAL)	32.0	0.0	6.4				
	(LATERAL)	$\Delta V = -6.9 \text{ mph à } 160.00 \text{ msec}$			2.74	147.75	9.21	100.13
	(VERTICAL)	$\Delta V = 17.9 \text{ mph à } 160.00 \text{ msec}$			19.56	84.63	1.92	135.00
	(RESULTANT)				8.49	133.63	7.70	100.88
					21.67 à 100.50			
4	LEFT SILL AT REAR SEAT (LATERAL)	61.0	-24.6	8.5				
		$\Delta V = 11.6 \text{ mph à } 100.88 \text{ msec}$			34.61	70.50	24.95	65.25
5	LEFT SILL AT FRONT SEAT (LATERAL)	83.6	-24.6	10.5				
		$\Delta V = 6.8 \text{ mph à } 51.00 \text{ msec}$			41.29	22.25	37.38	17.88
6	LEFT FRONT DOOR CENTERLINE (LATERAL)	81.3	-27.0	23.0				
		$\Delta V = 22.6 \text{ mph à } 71.13 \text{ msec}$			155.33	34.63	116.65	41.50
7	RIGHT REAR COMPARTMENT (LONGITUDINAL)	31.0	15.4	13.9				
					1.89	149.63	6.10	96.50
8	MIDREAR OF LEFT FRONT DOOR (LATERAL)	60.0	-26.3	23.3				
		$\Delta V = 18.4 \text{ mph à } 58.38 \text{ msec}$			119.10	58.38	114.87	65.50
9	UPPER LEFT FRONT DOOR CENTERLINE (LATERAL)	81.9	-26.0	32.1				
		$\Delta V = 38.6 \text{ mph à } 76.13 \text{ msec}$			207.96	59.13	127.48	53.00
10	MIDFRONT OF LEFT FRONT DOOR (LATERAL)	99.6	-26.3	21.8				
		$\Delta V = 17.8 \text{ mph à } 30.38 \text{ msec}$			117.97	13.75	86.08	56.13
11	UPPER REAR OF LEFT FRONT DOOR (LATERAL)	70.5	-26.0	32.2				
		$\Delta V = 22.1 \text{ mph à } 46.25 \text{ msec}$			98.62	42.38	144.32	52.50

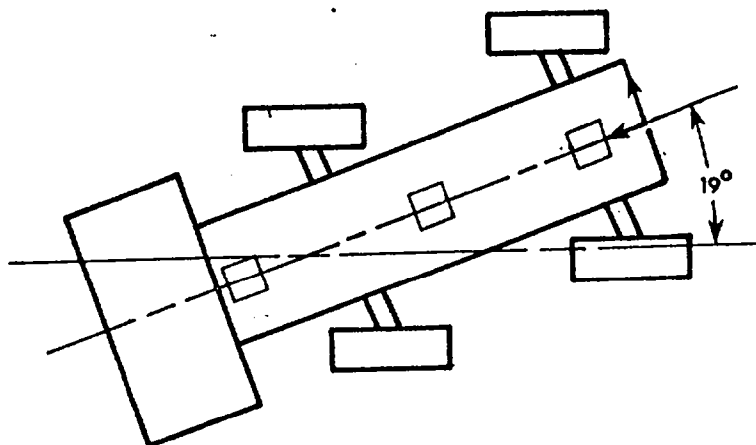
* Reference: X - Rear Bumper (+ Forward), Y - Vehicle Centerline (+ To Right),
Z - Ground Level (+ Up)

All measurements of accelerometer locations in inches.

VEHICLE ACCELEROMETER LOCATIONS



MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY



NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	CENTER OF GRAVITY	74.5	0.0	11.5				
	(LONGITUDINAL)	$\Delta V = -15.2 \text{ mph } \dot{a} 160.00 \text{ msec}$			0.72	163.50	9.84	97.88
	(LATERAL)	$\Delta V = -2.9 \text{ mph } \dot{a} 160.00 \text{ msec}$			1.55	32.13	3.28	98.13
	(VERTICAL)				14.69	128.50	11.04	136.25
	(RESULTANT)					15.85 $\dot{a}$ 72.13		
2	FRONT FRAME MEMBER	130.3	0.0	11.3				
	(LONGITUDINAL)	$\Delta V = -16.0 \text{ mph } \dot{a} 160.00 \text{ msec}$			0.14	0.25	10.63	93.38
3	REAR FRAME MEMBER	23.3	0.0	11.5				
	(LONGITUDINAL)	$\Delta V = -14.0 \text{ mph } \dot{a} 160.00 \text{ msec}$			0.90	216.50	9.55	91.50

* 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	815	Vehicle dynamics
2	Overhead	Photosonics 1B	25	762	Close-up of impact point
3	Onboard MDB	Photosonics 1B	25	505	Close-up of impact point
4	Onboard MDB	Stalex	13	500	Driver kinematics
5	Ground level - right	Stalex	25	502	Overall view
6	Ground level - left	Photosonics 1B	17	795	Overall view
7	Onboard Vehicle	Photosonics 1B	8	805	Driver kinematics - front view
8	Onboard Vehicle	Photosonics 1B	8	802	Driver kinematics
9	Onboard Vehicle	Photosonics 1B	8	802	Passenger kinematics

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

LOCATIONS OF OFFBOARD HIGH SPEED CAMERAS

CAMERA NO.	X	Y	Z
1	0	0	25'
2	0	0	25'
5	26'4"	60'	45"
6	-19'7"	-11'3"	45"

Origin of Coordinate System is Point of Impact

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

NON-GOVERNMENT FURNISHED TRANSDUCER INFORMATION

PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NUMBER	SERIAL NUMBER	MFGR.	DATE OF LAST CALIBRATION	SENSITIVITY	DESIRED FULL SCALE (ENGR. UNITS)
BOGXG	Accel	4-202-0001	18845	Bell Howell	8/9/83	.236 MV/G	50 G
BOGYG	Accel	4-202-0001	18858	Bell Howell	8/9/83	.2385 MV/G	50 G
BOGZG	Accel	4-202-0001	18857	Bell Howell	8/9/83	.2385 MV/G	50 G
BFCXG	Accel	4-202-0001	18240	Bell Howell	8/9/83	.2385 MV/G	50 G
BRCXG	Accel	4-202-0001	19022	Bell 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

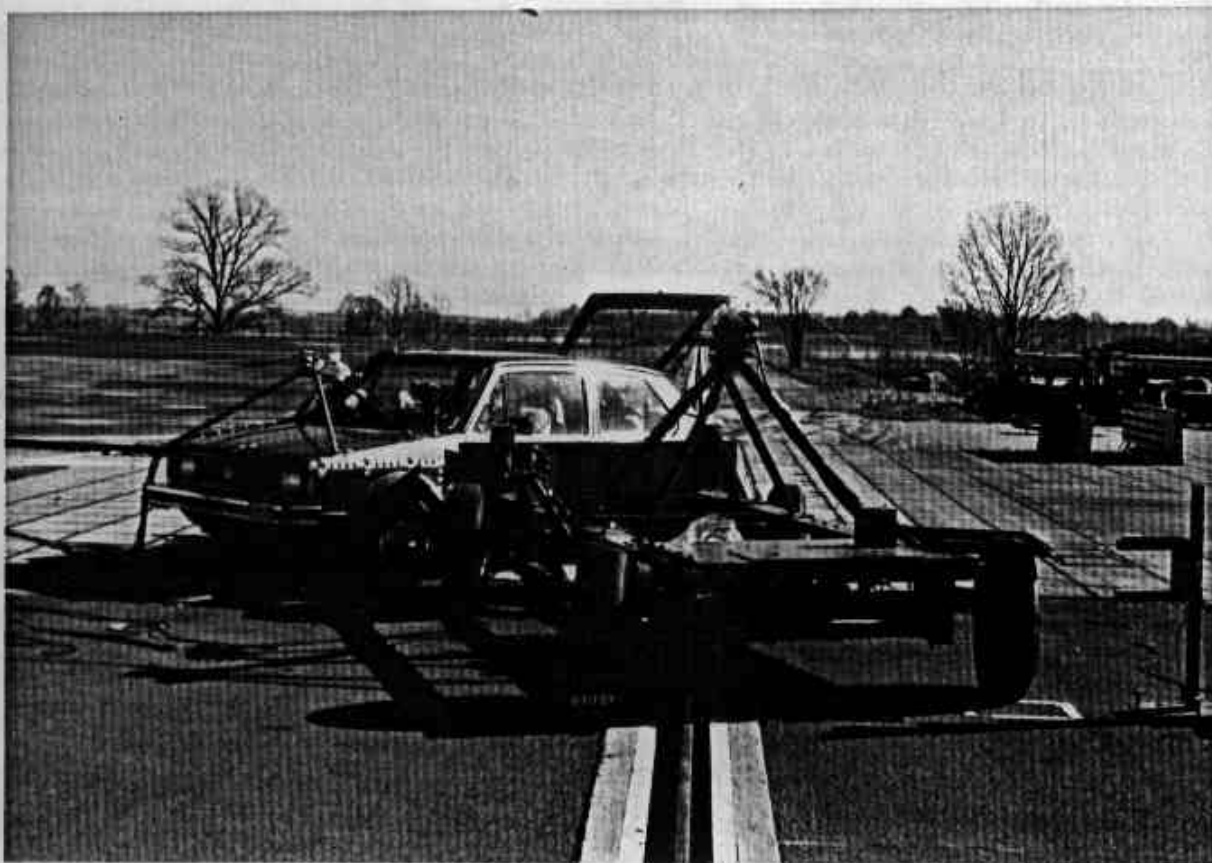


Figure A-2. PRE-TEST OVERALL - VIEW 2

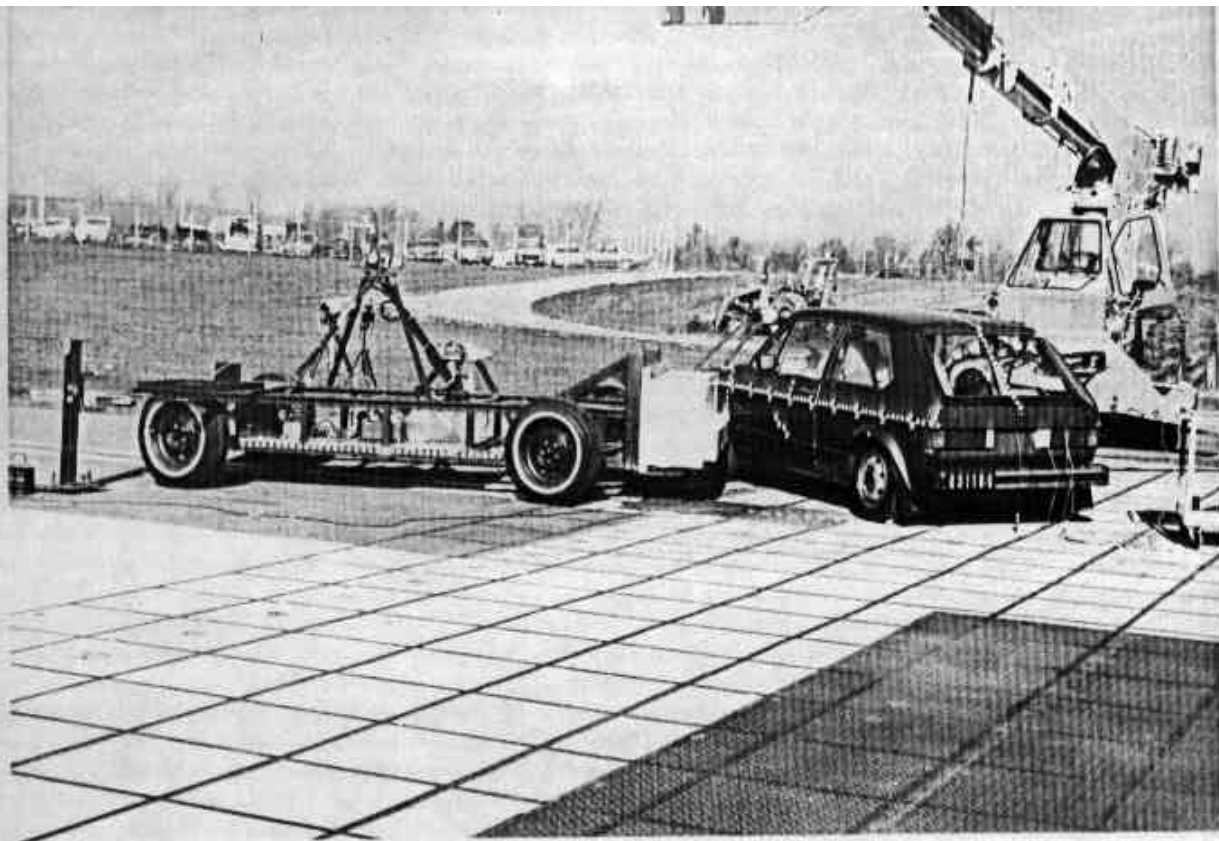


Figure A-3. PRE-TEST OVERALL - VIEW 3

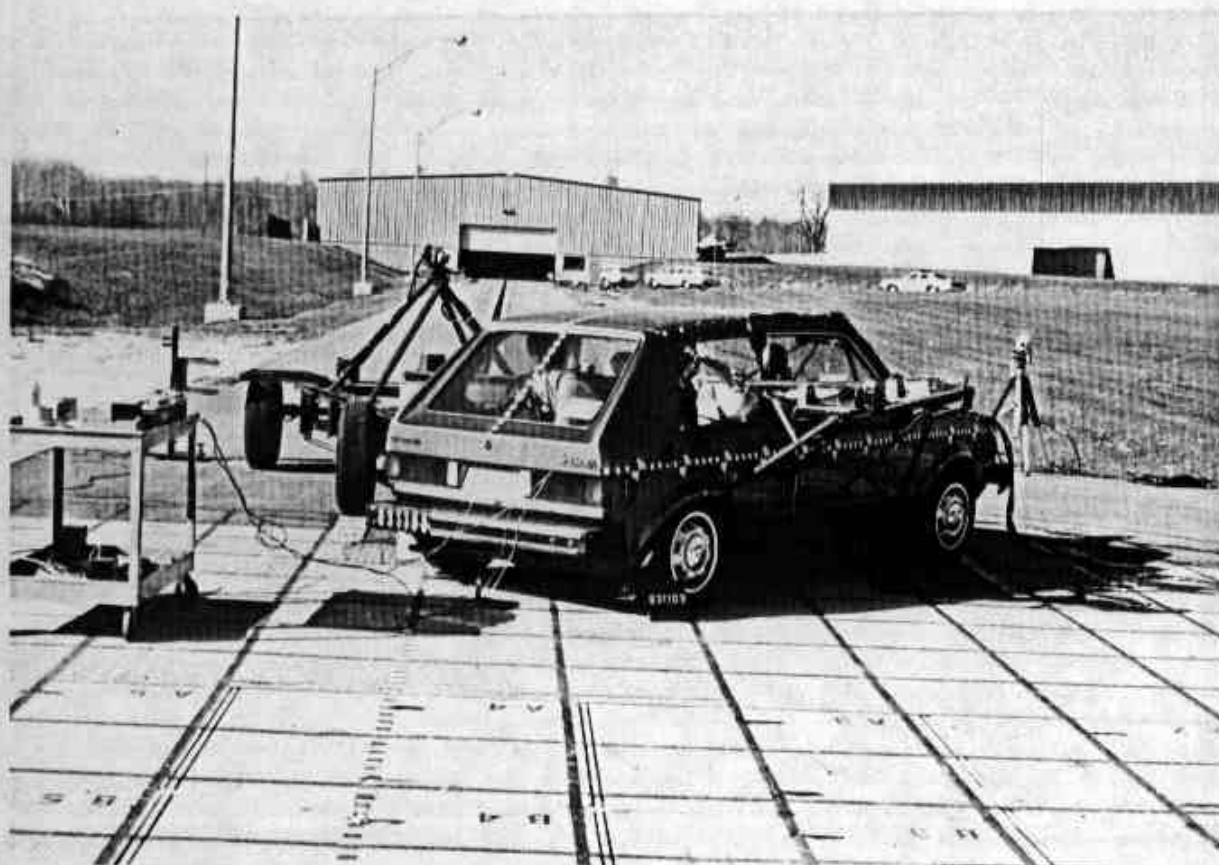


Figure A-4. PRE-TEST OVERALL - VIEW 4

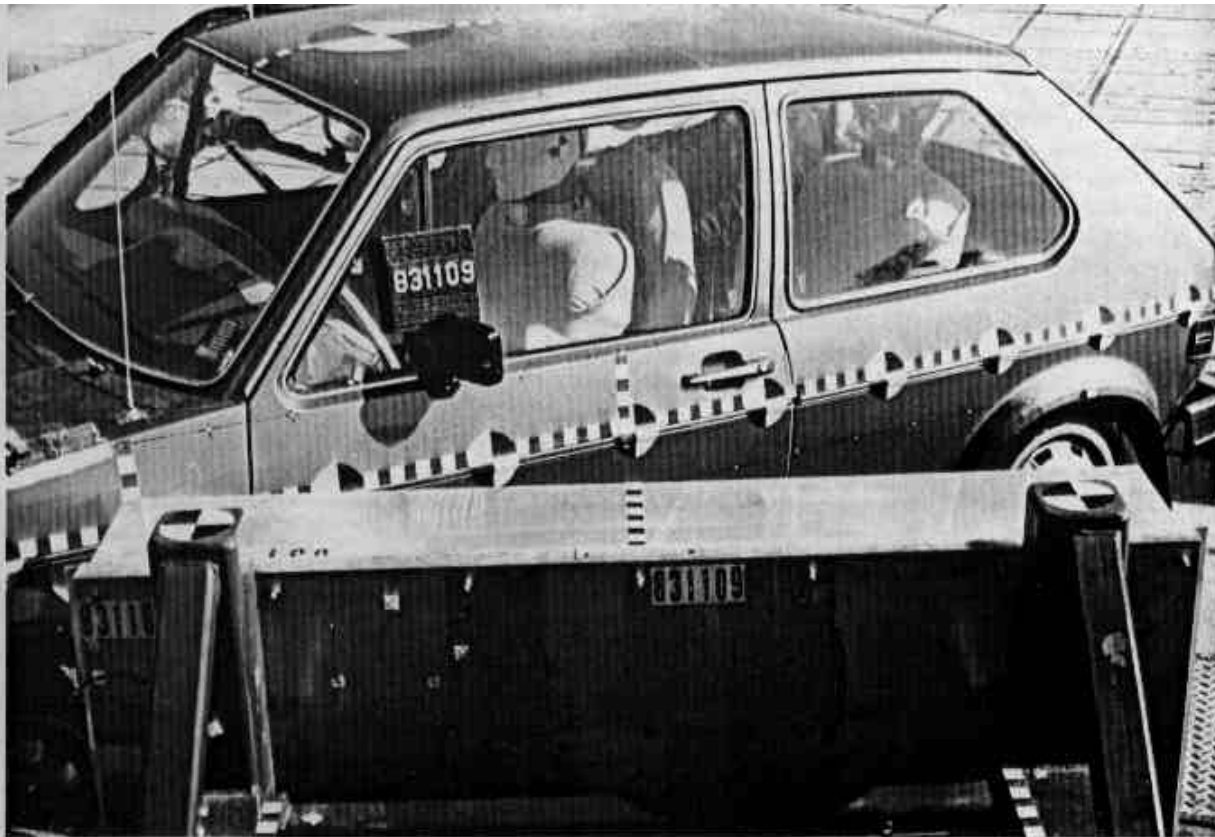


Figure A-5. PRE-TEST CLOSEUP - VIEW 1



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

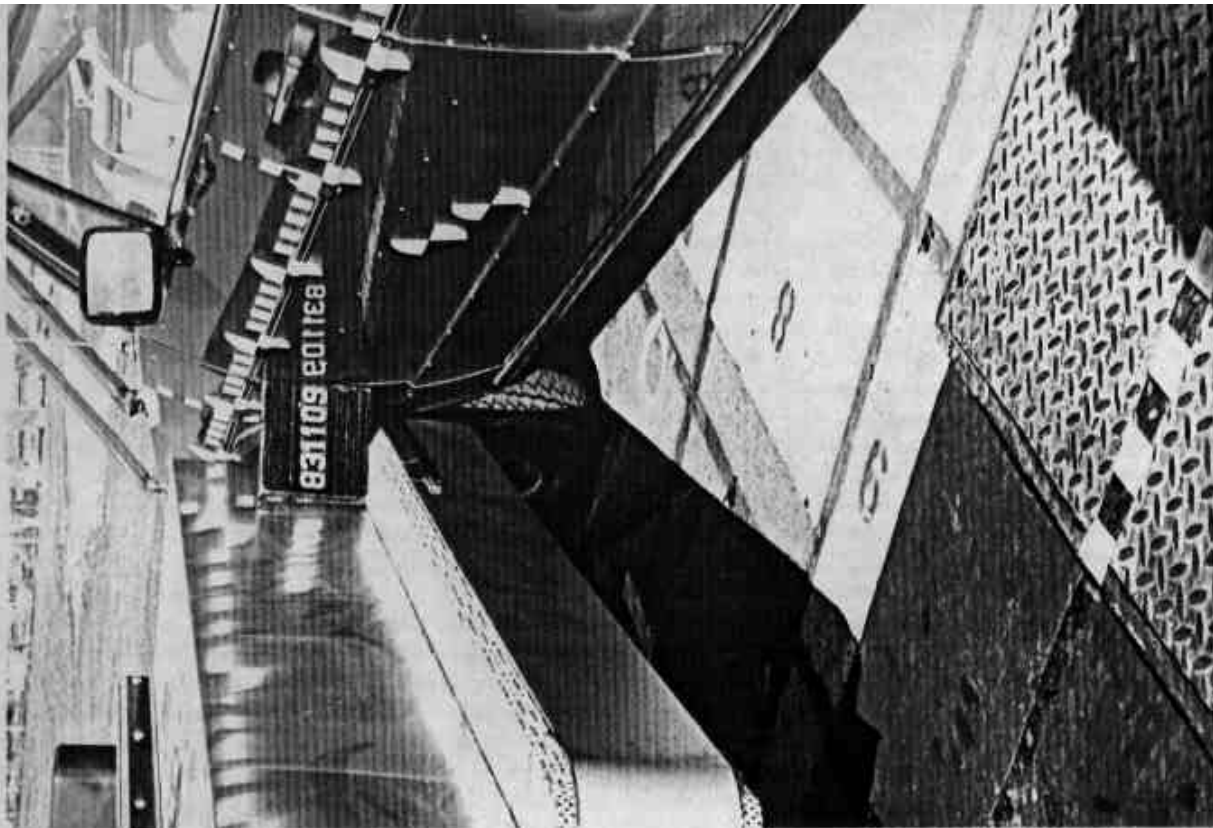


Figure A-7. PRE-TEST CLOSEUP - VIEW 3



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



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



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

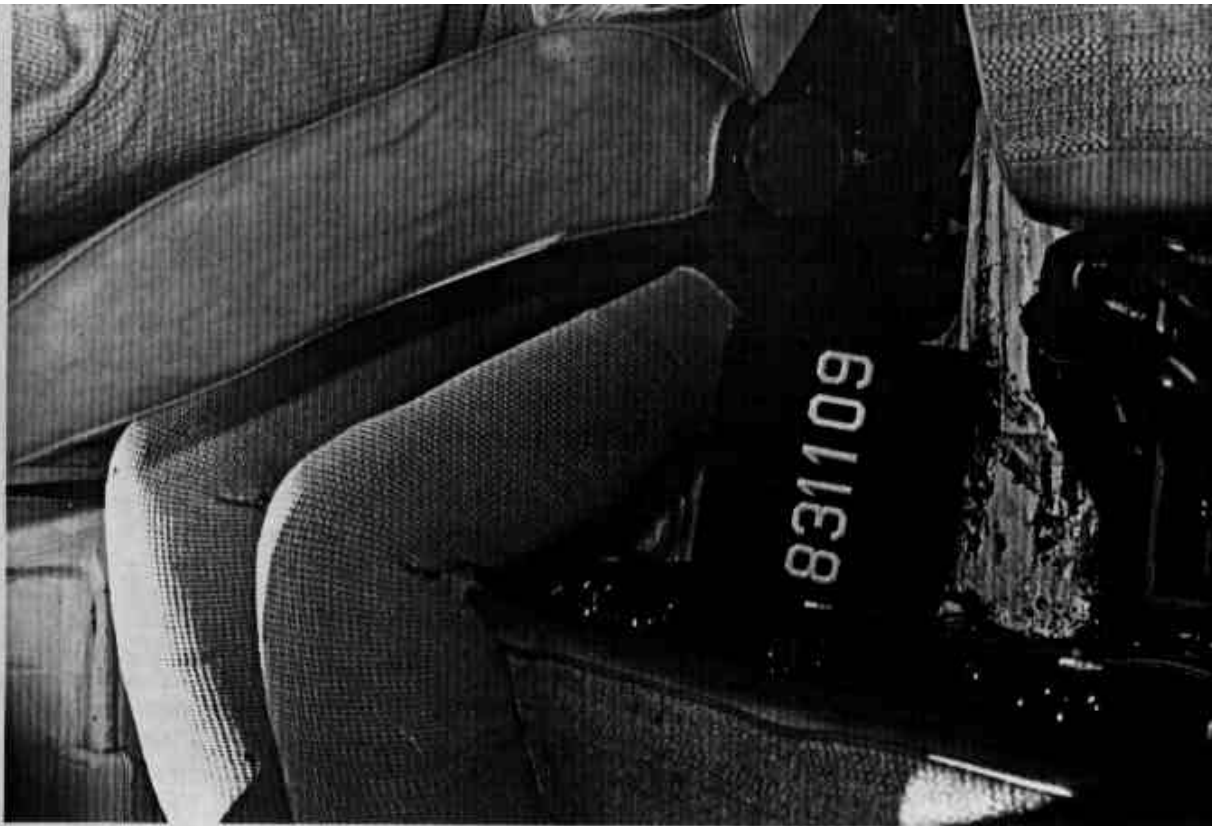


Figure A-11. PRE-TEST PASSENGER DUMMY - VIEW 2

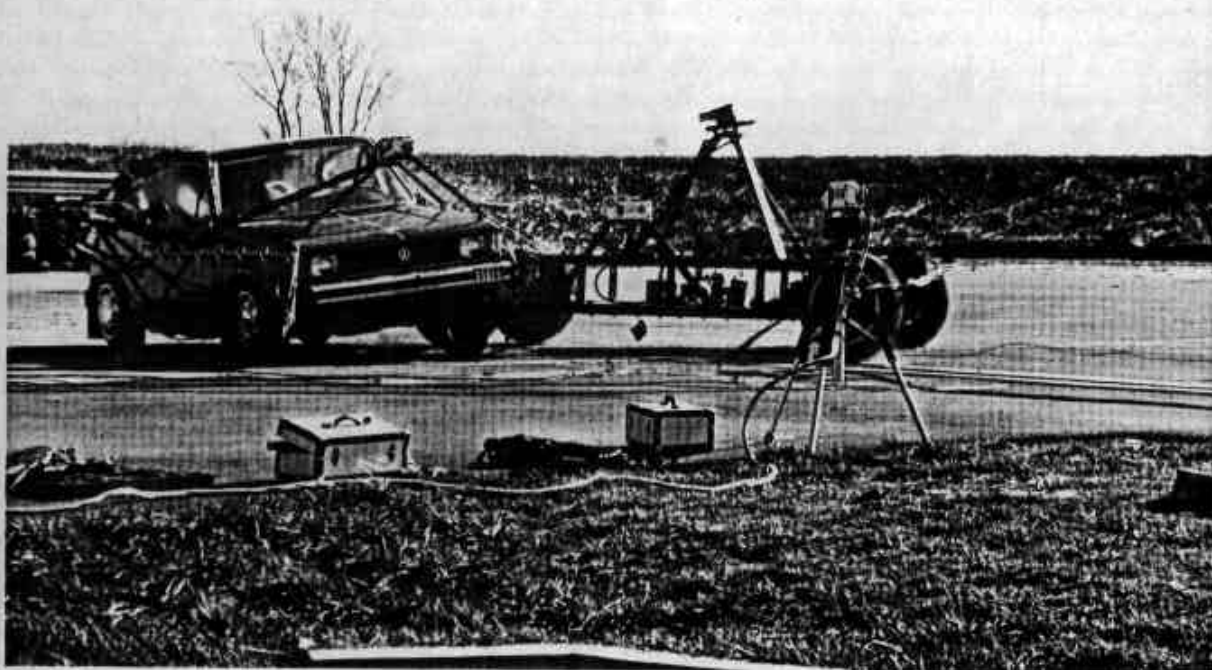


Figure A-12. CRASH EVENT PHOTOGRAPH

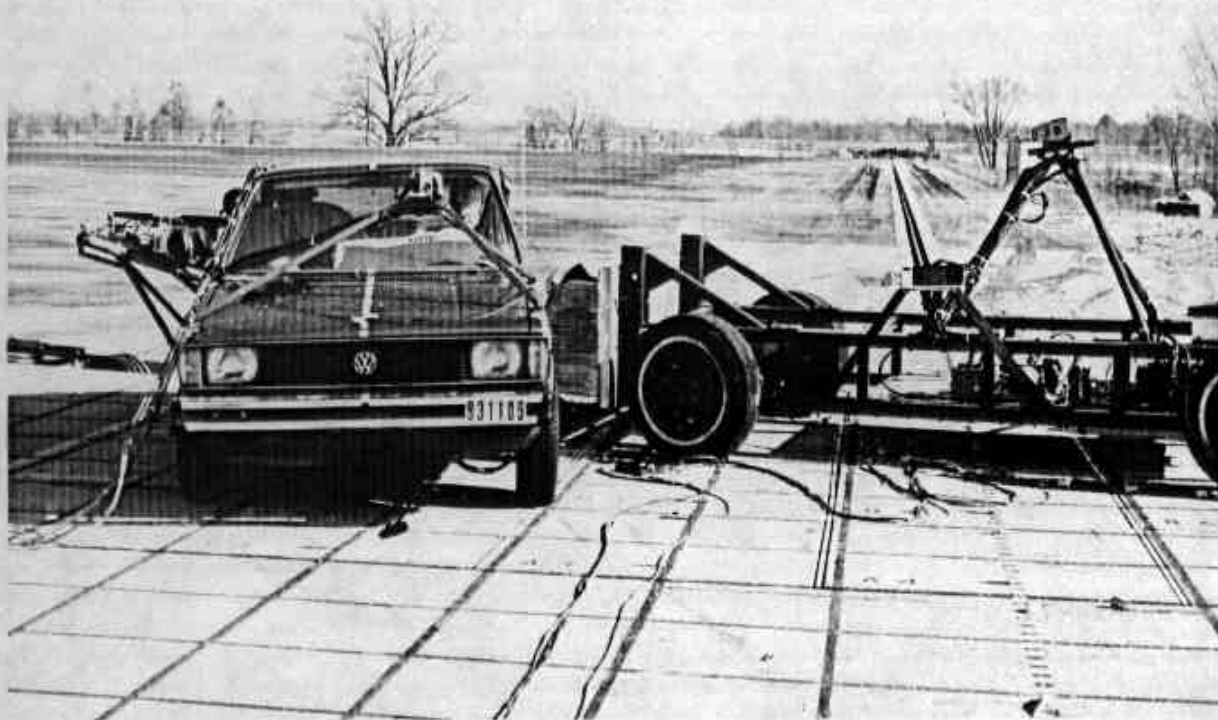


Figure A-13. POST-TEST OVERALL - VIEW 1

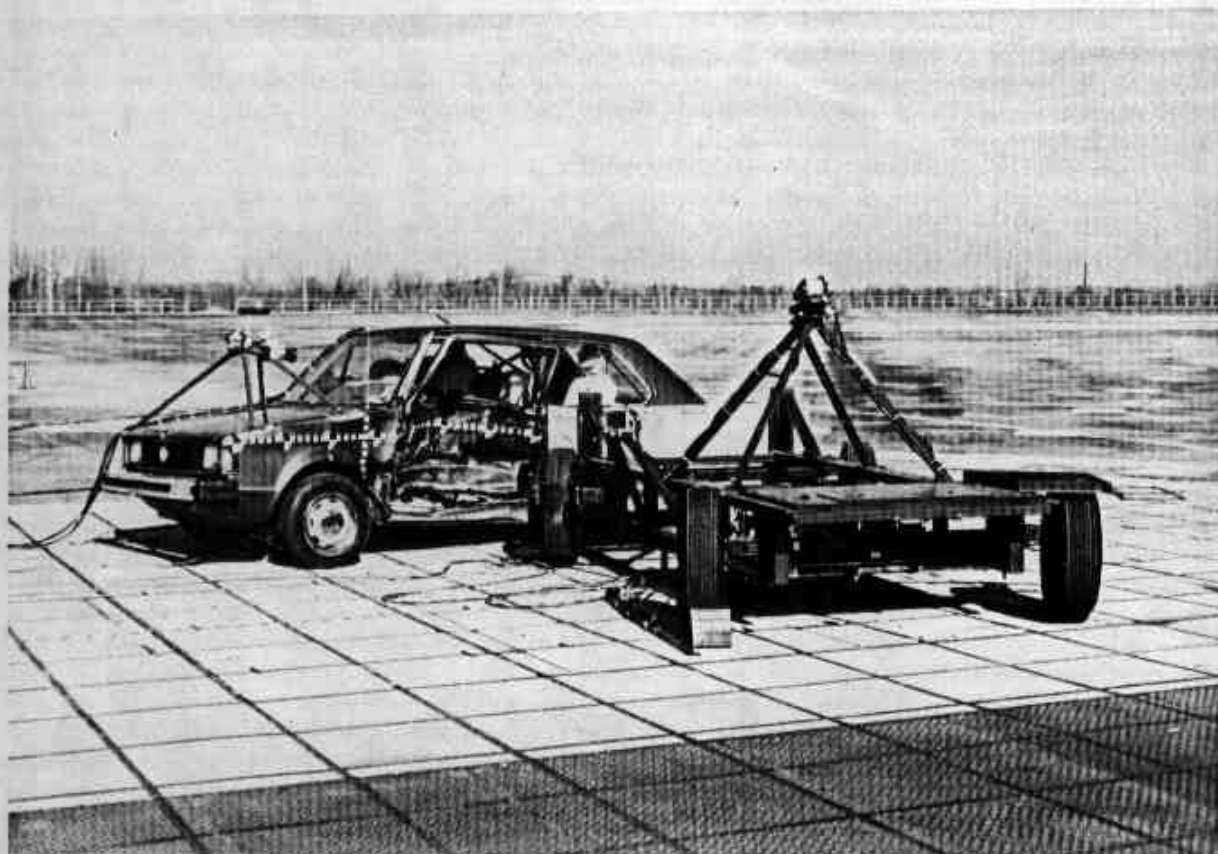


Figure A-14. POST-TEST OVERALL - VIEW 2

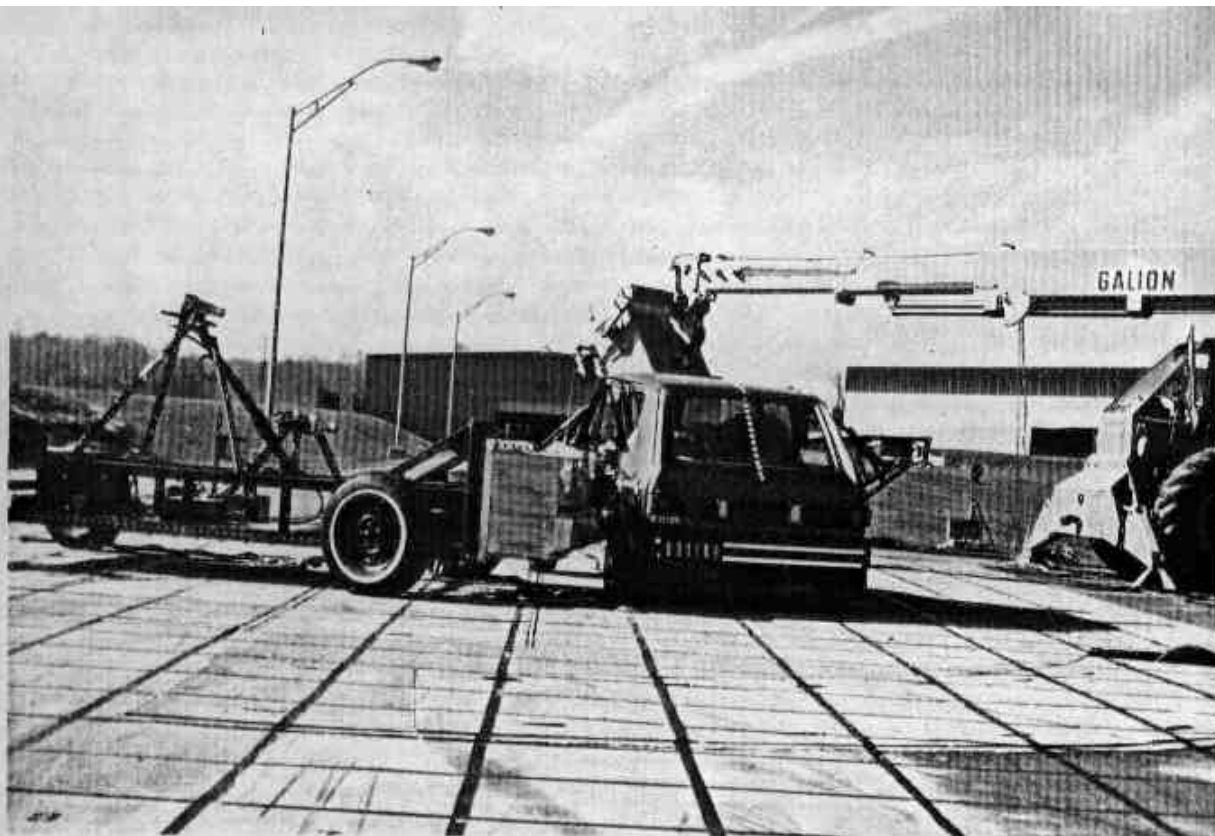


Figure A-15. POST-TEST OVERALL - VIEW 3

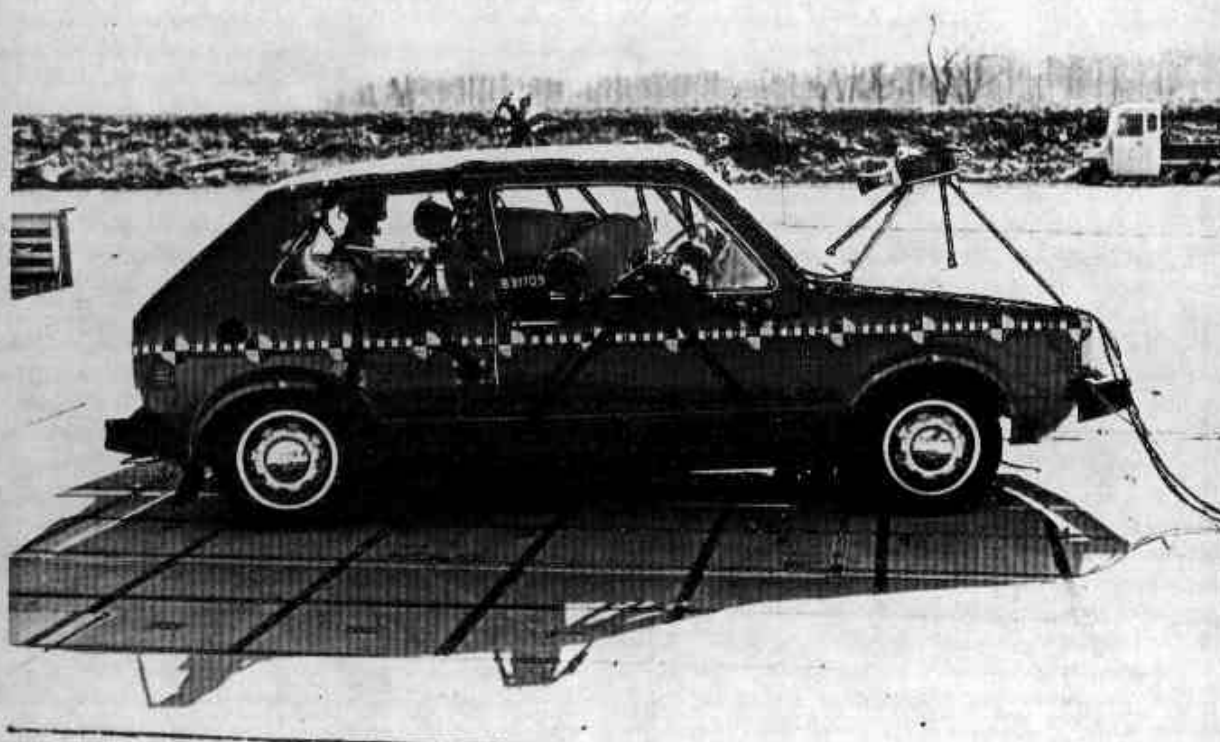


Figure A-16. POST-TEST OVERALL - VIEW 4



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

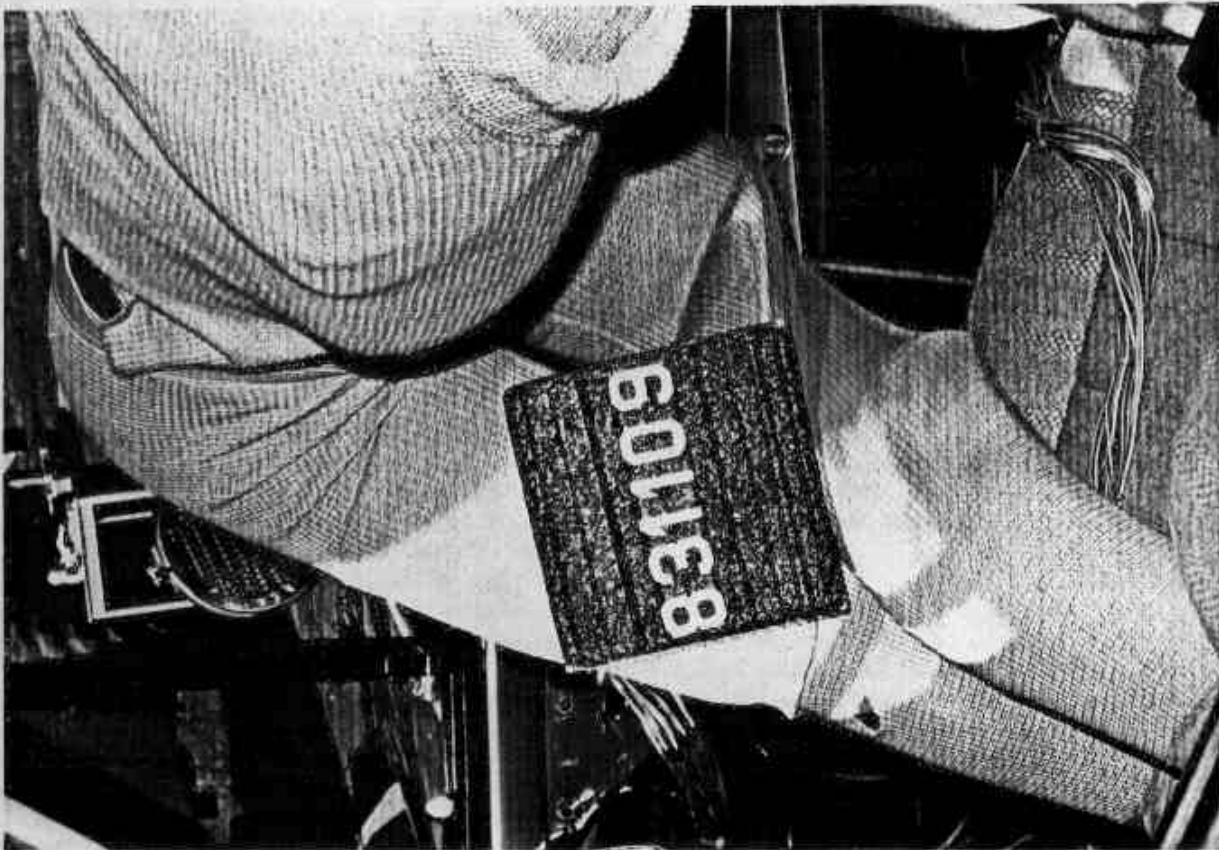


Figure A-18. POST-TEST DRIVER DUMMY - VIEW 2



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

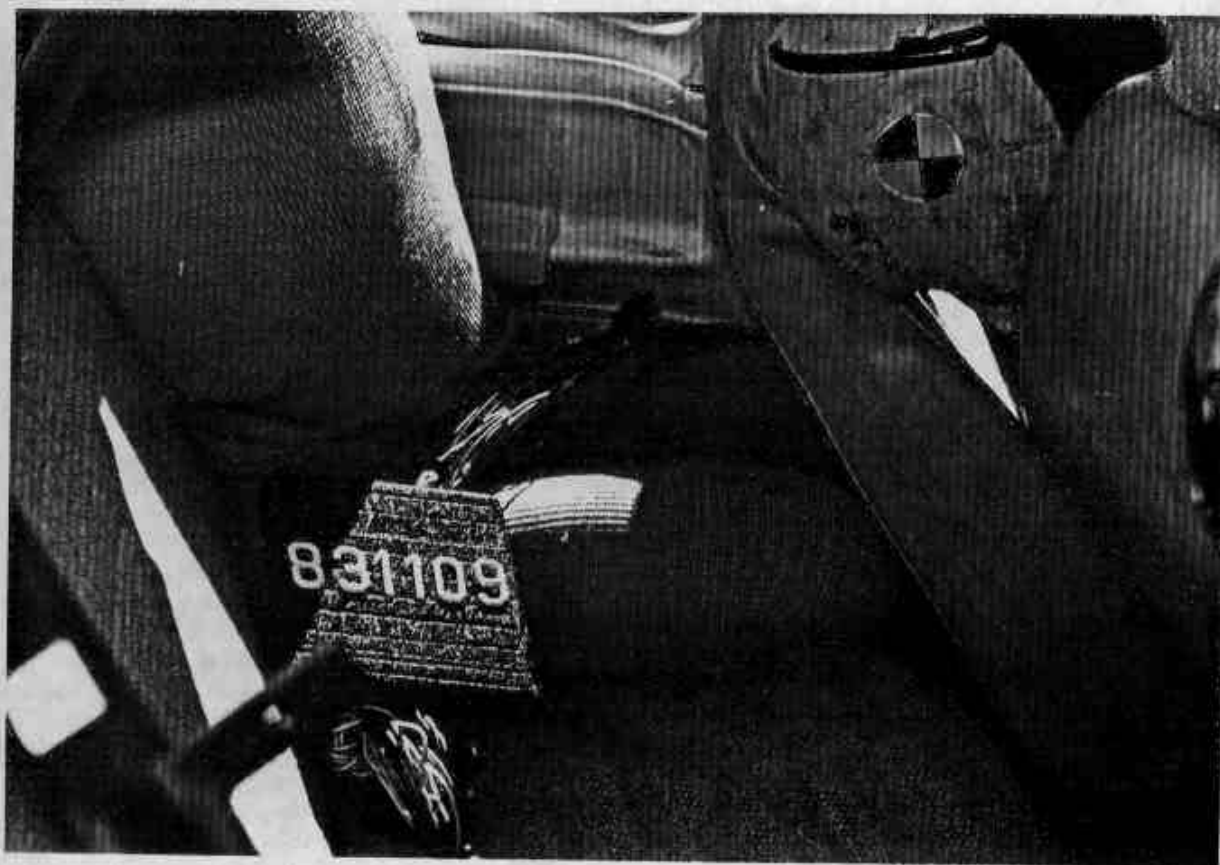


Figure A-20. POST-TEST PASSENGER DUMMY - VIEW 2

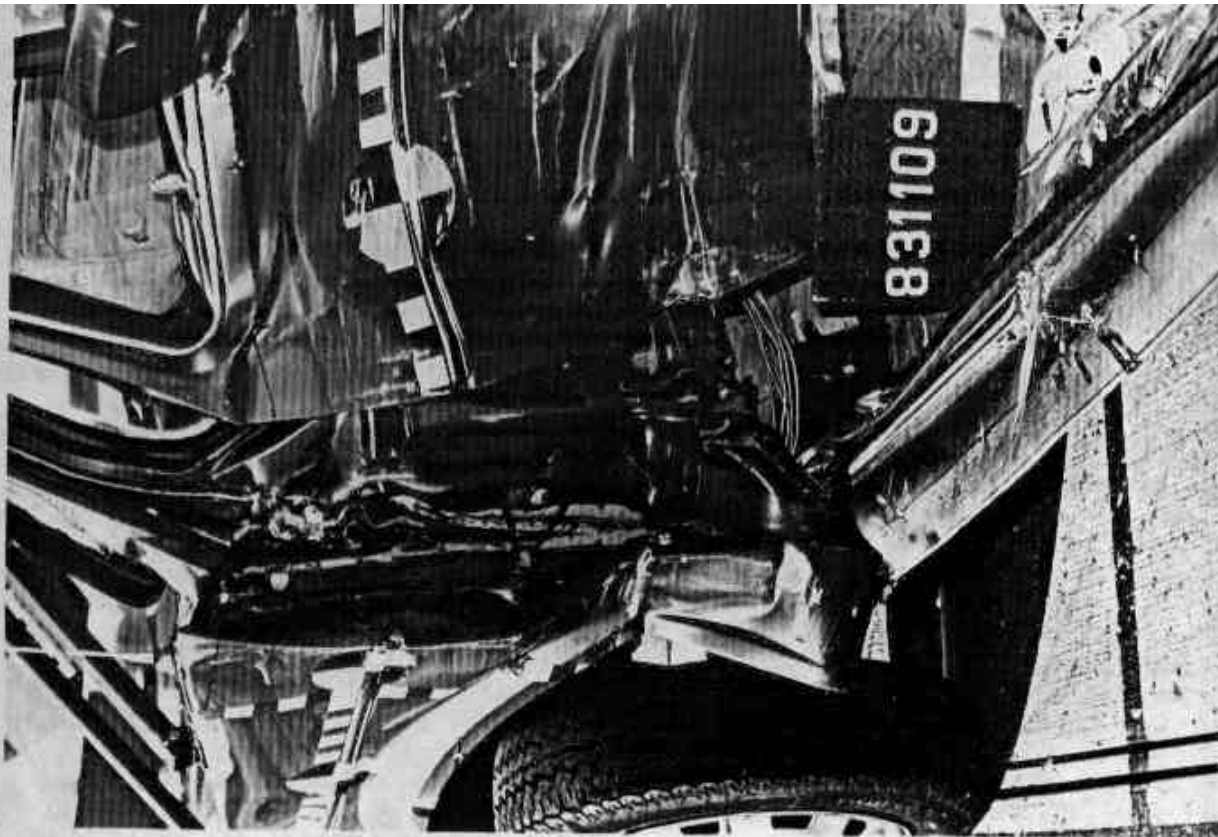


Figure A-21. POST-TEST VEHICLE DAMAGE - VIEW 1

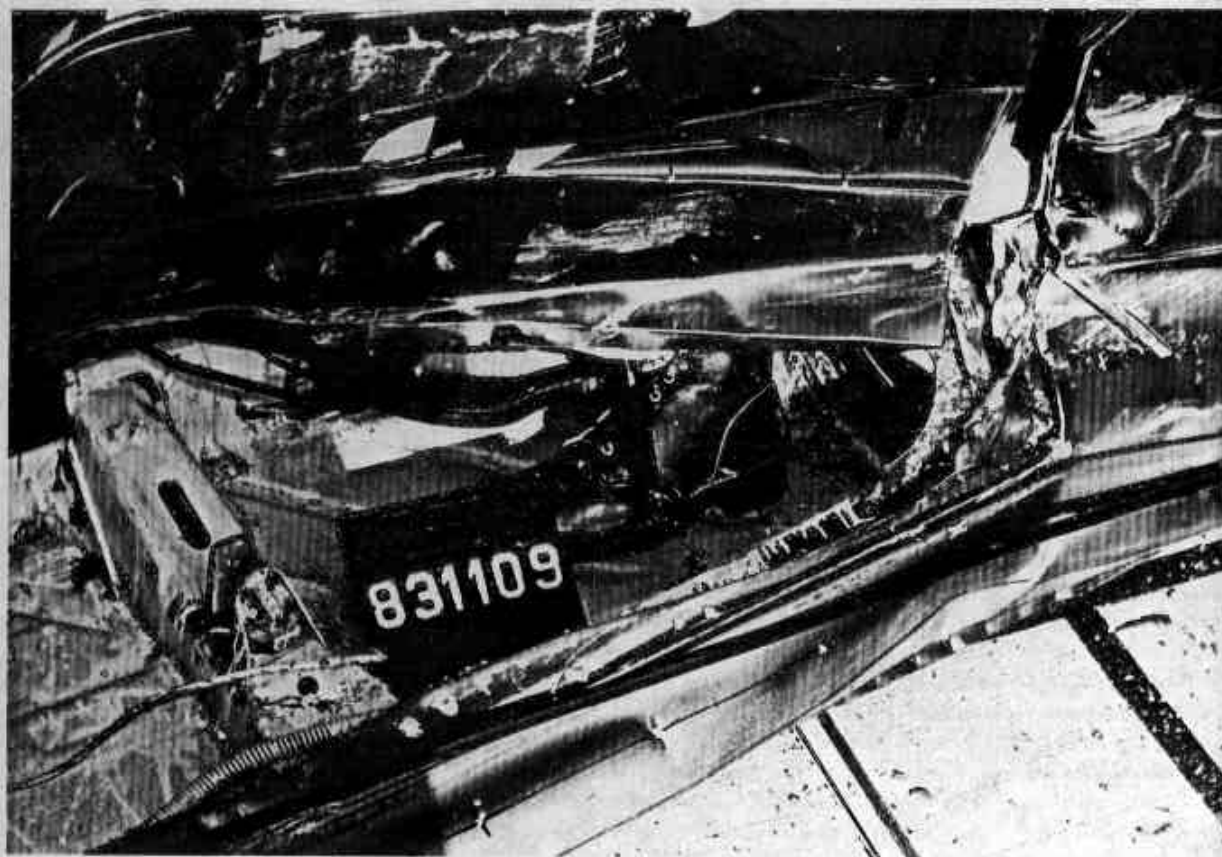


Figure A-22. POST-TEST VEHICLE DAMAGE - VIEW 2

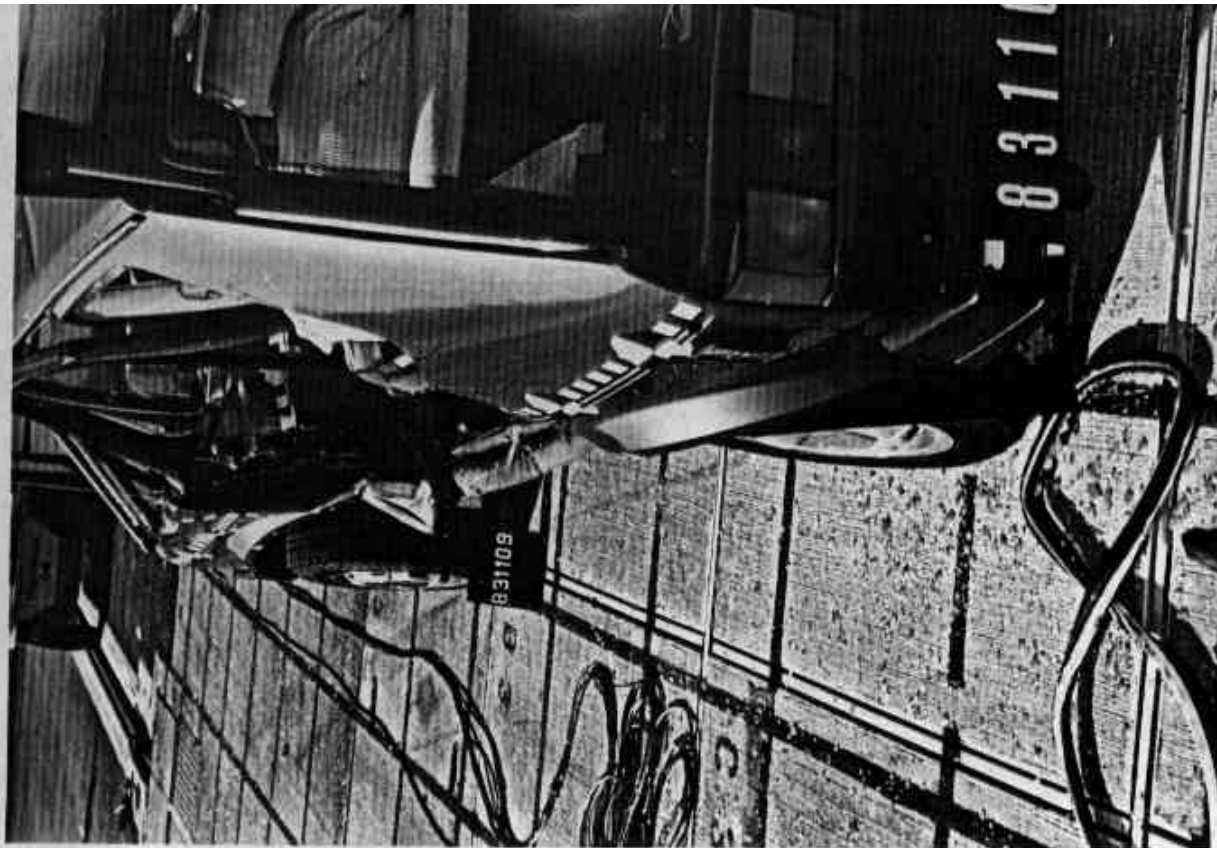


Figure A-23. POST-TEST VEHICLE DAMAGE - VIEW 3

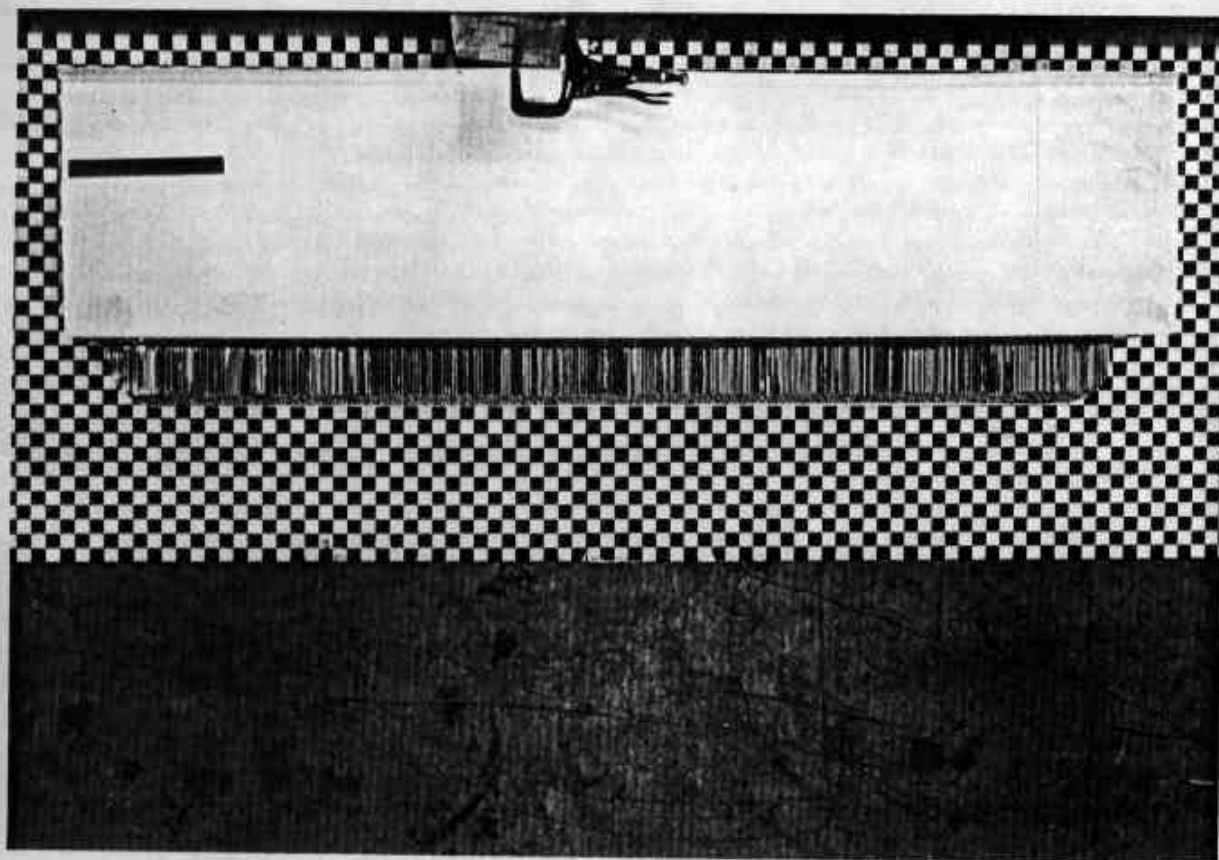


Figure A-24. PRE-TEST MDB FACE - VIEW 1

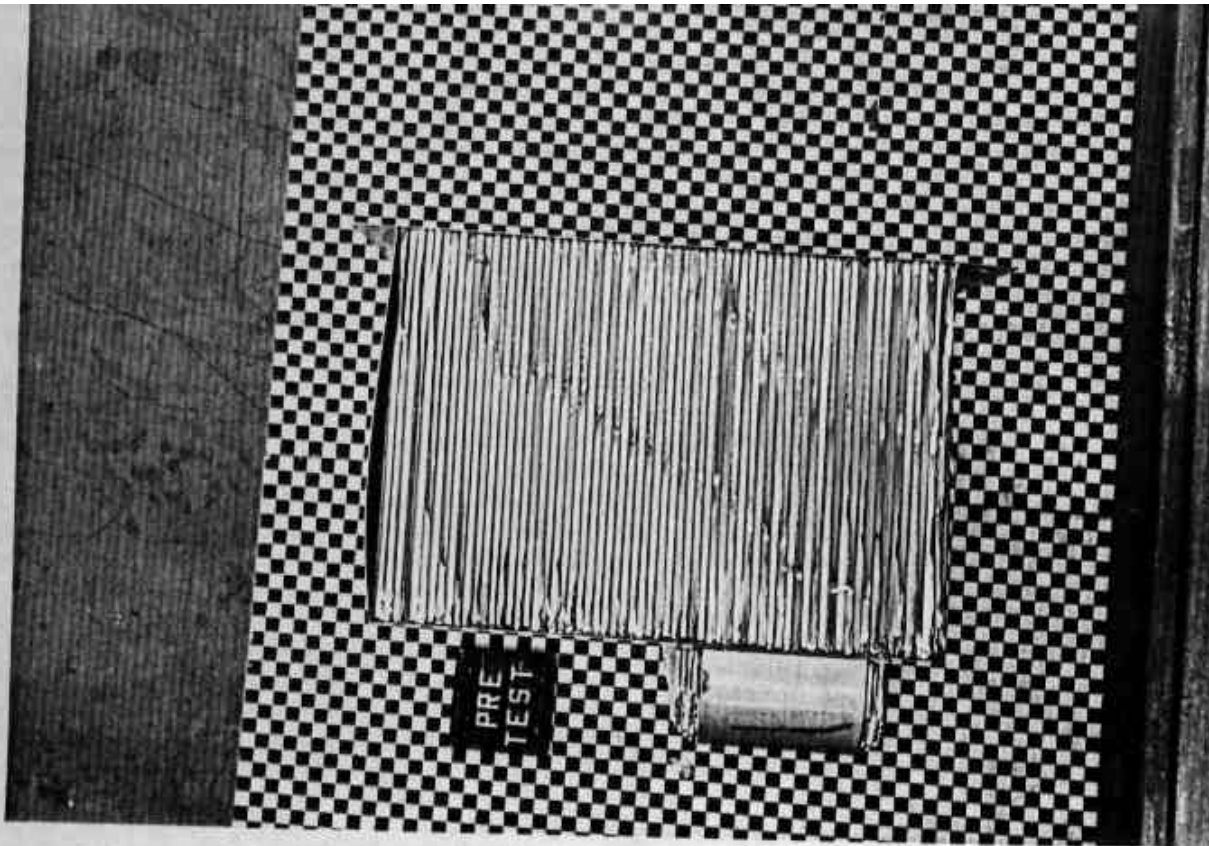


Figure A-25. PRE-TEST MDB FACE - VIEW 2

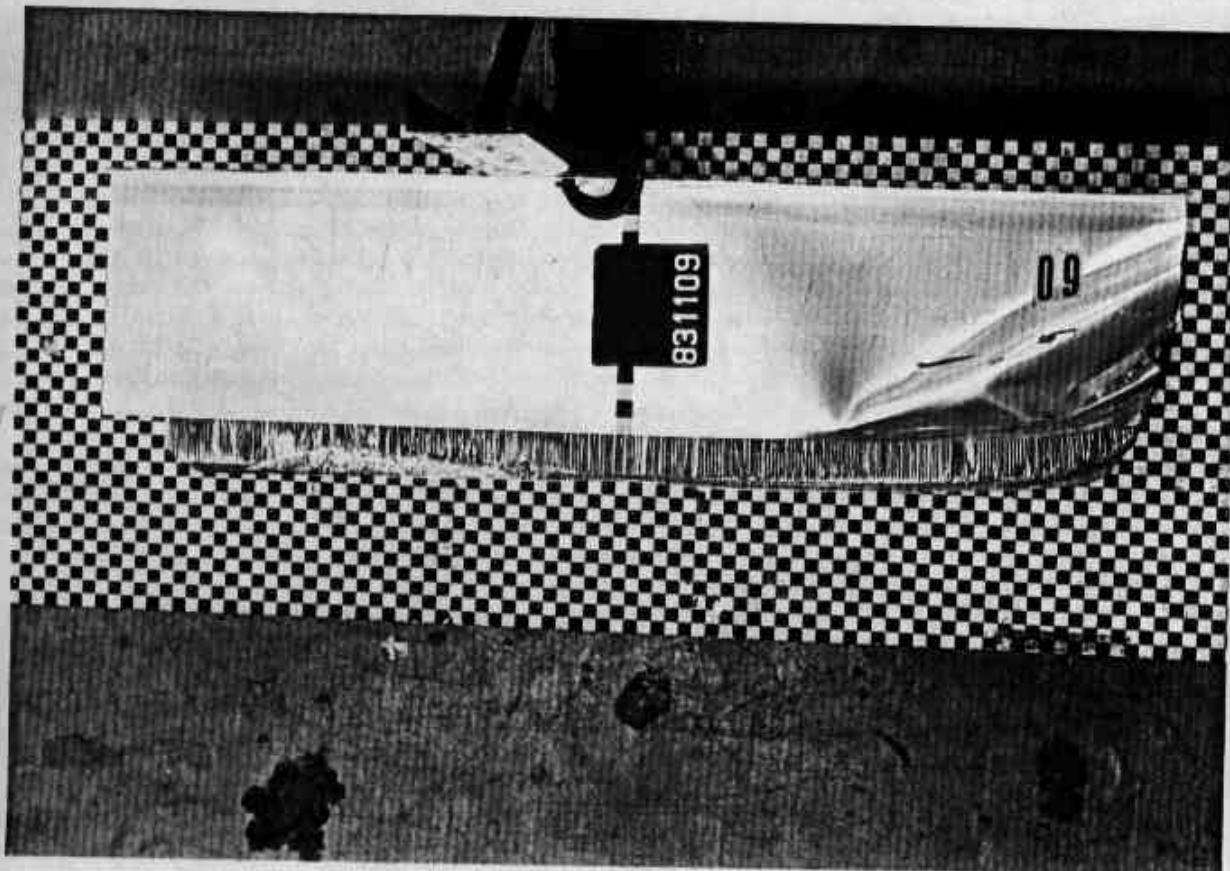


Figure A-26. POST-TEST MDB FACE - VIEW 1

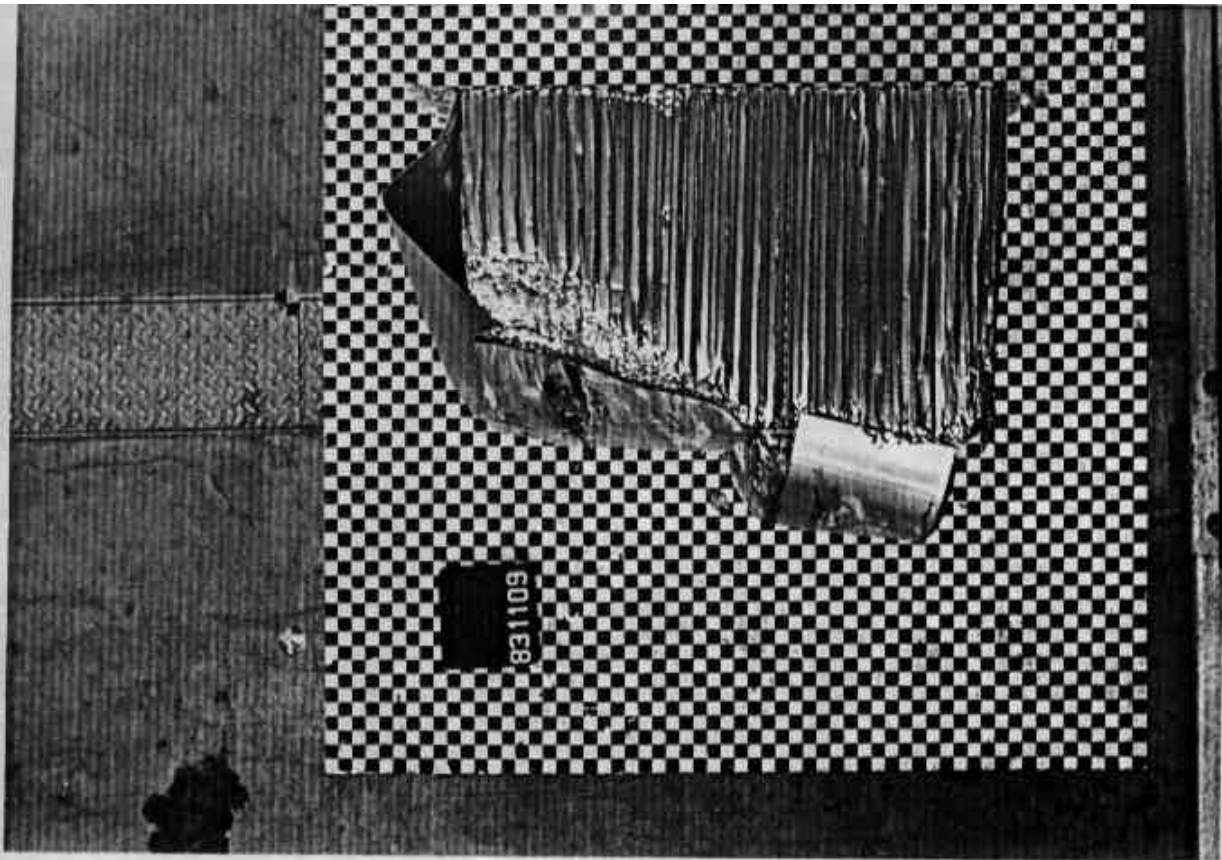
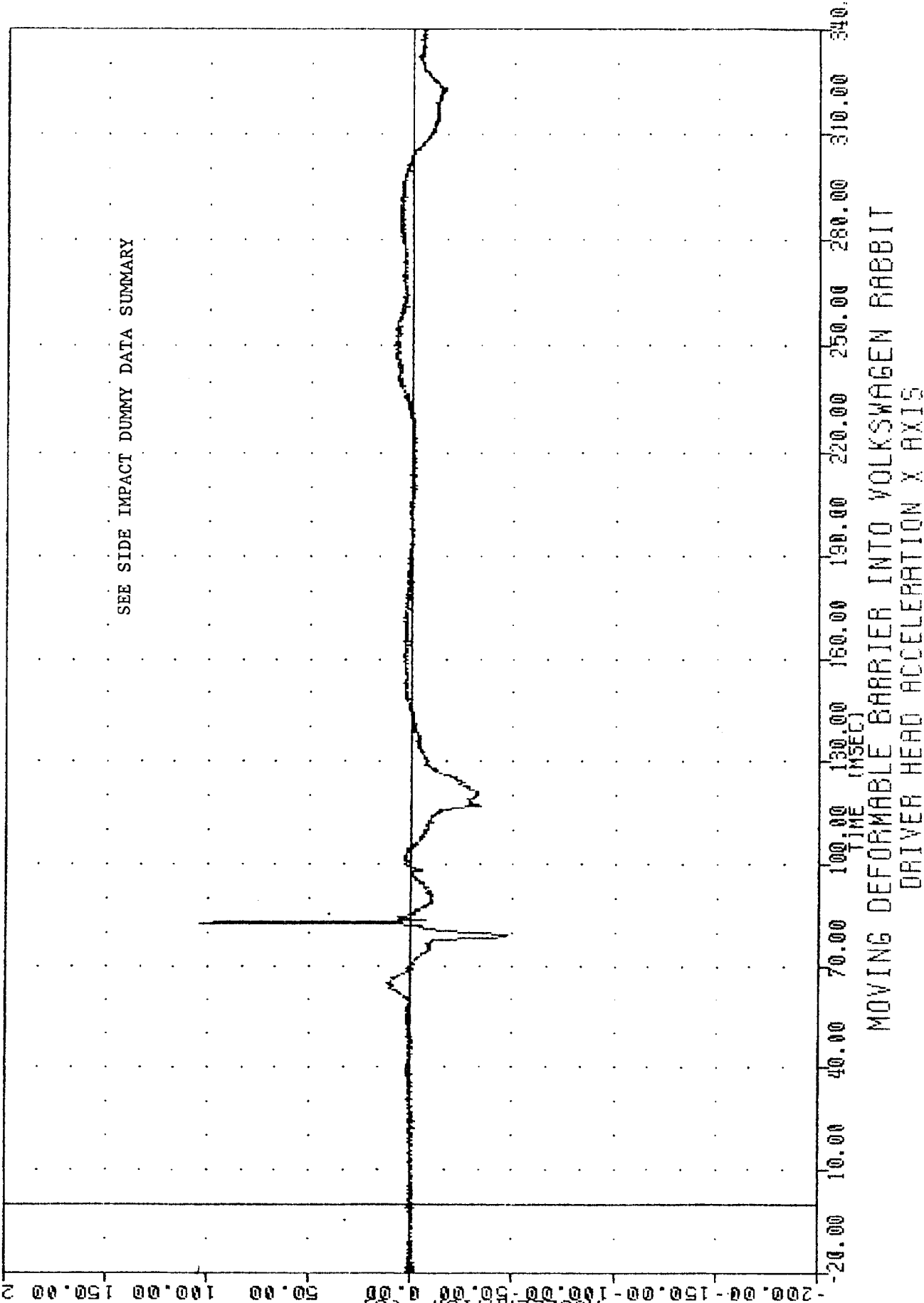


Figure A-27. POST-TEST MDB FACE - VIEW 2

APPENDIX B
DATA PLOT PRESENTATION

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

INC 831109
 EVALUATION OF MOD VN FLEET
 83313000000
 HEDXG1
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -46.93e 79.13. 103.82 s 82.50
 PLOT DATE 14-NOV-83 15:30:45

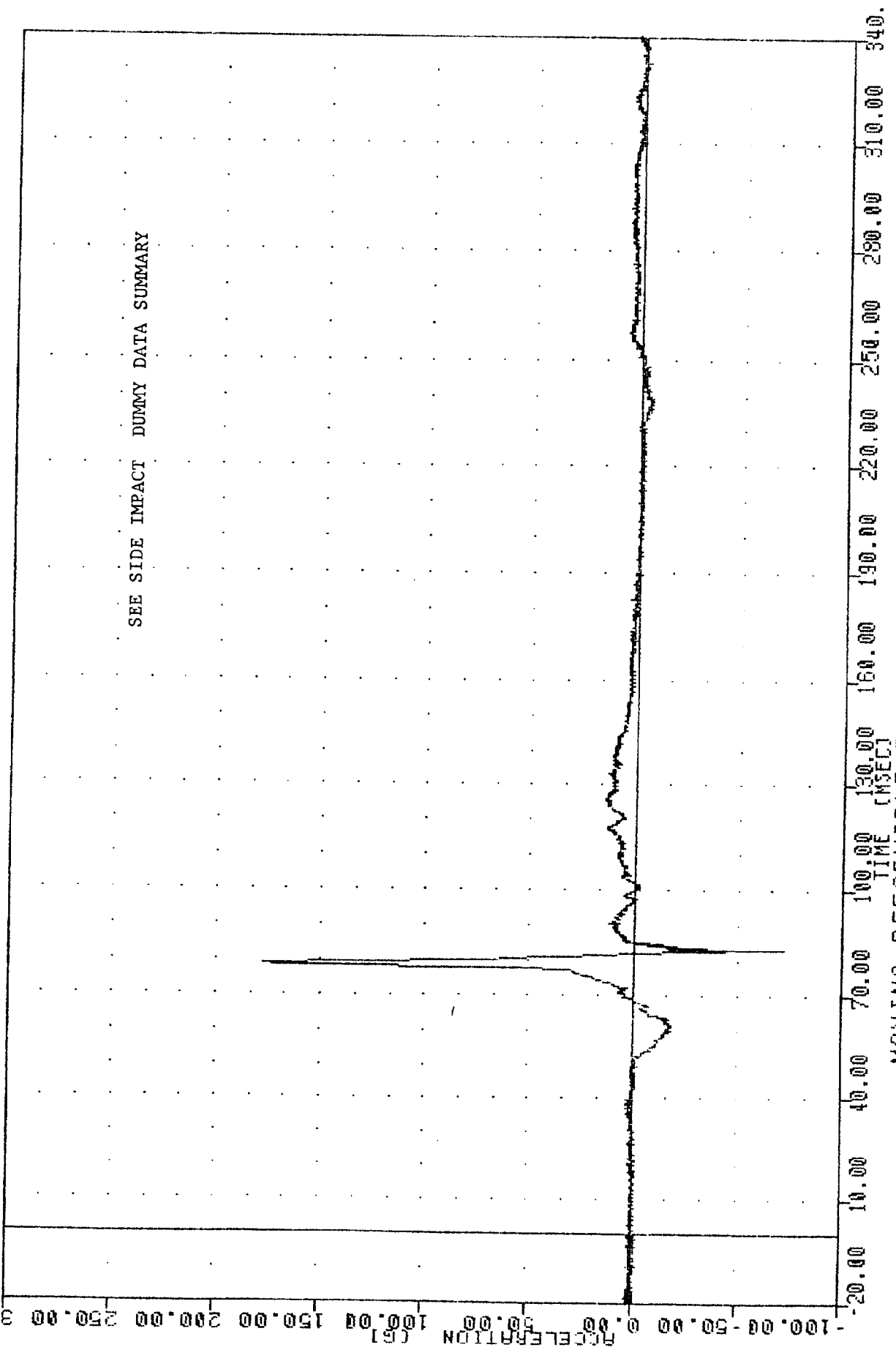


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER HEAD ACCELERATION X AXIS

8331300000
EVALUATION OF MDC VW FLEET
HEDYG1

DATE 14 NOV 83 10:30:43

FILTER = ALPF 1650 / 5217 / -40
MIN, MAX VALUES = -72.110 83.00 177.90 78.63

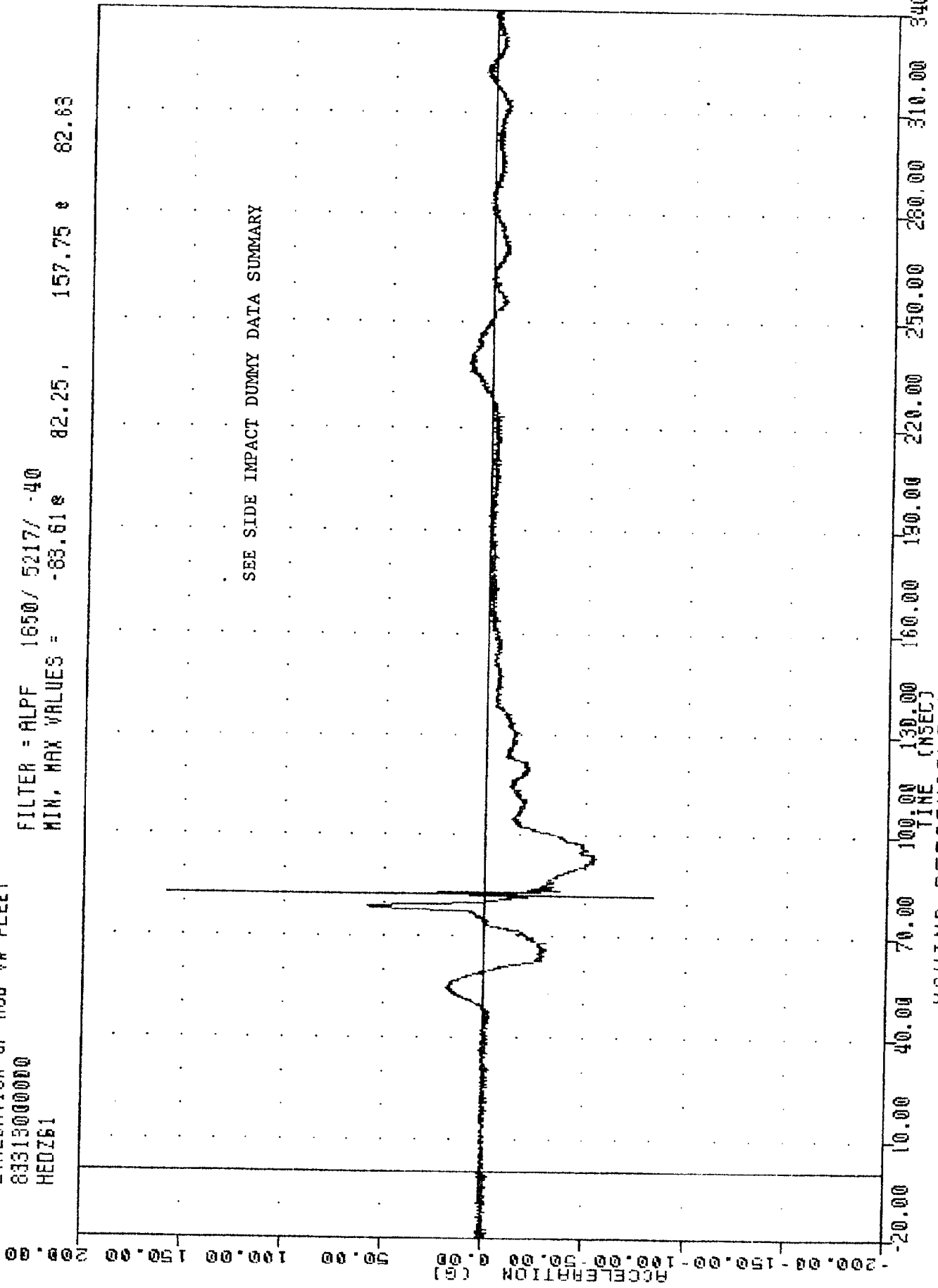


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD ACCELERATION Y AXIS

833100
EVALUATION OF MOD VN FLEET
83313000000
HEDZ61

TEST DATE 14 NOV 83 13:30:45

FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -83.61s 82.25, 157.75 e 82.63



SEE SIDE IMPACT DUMMY DATA SUMMARY

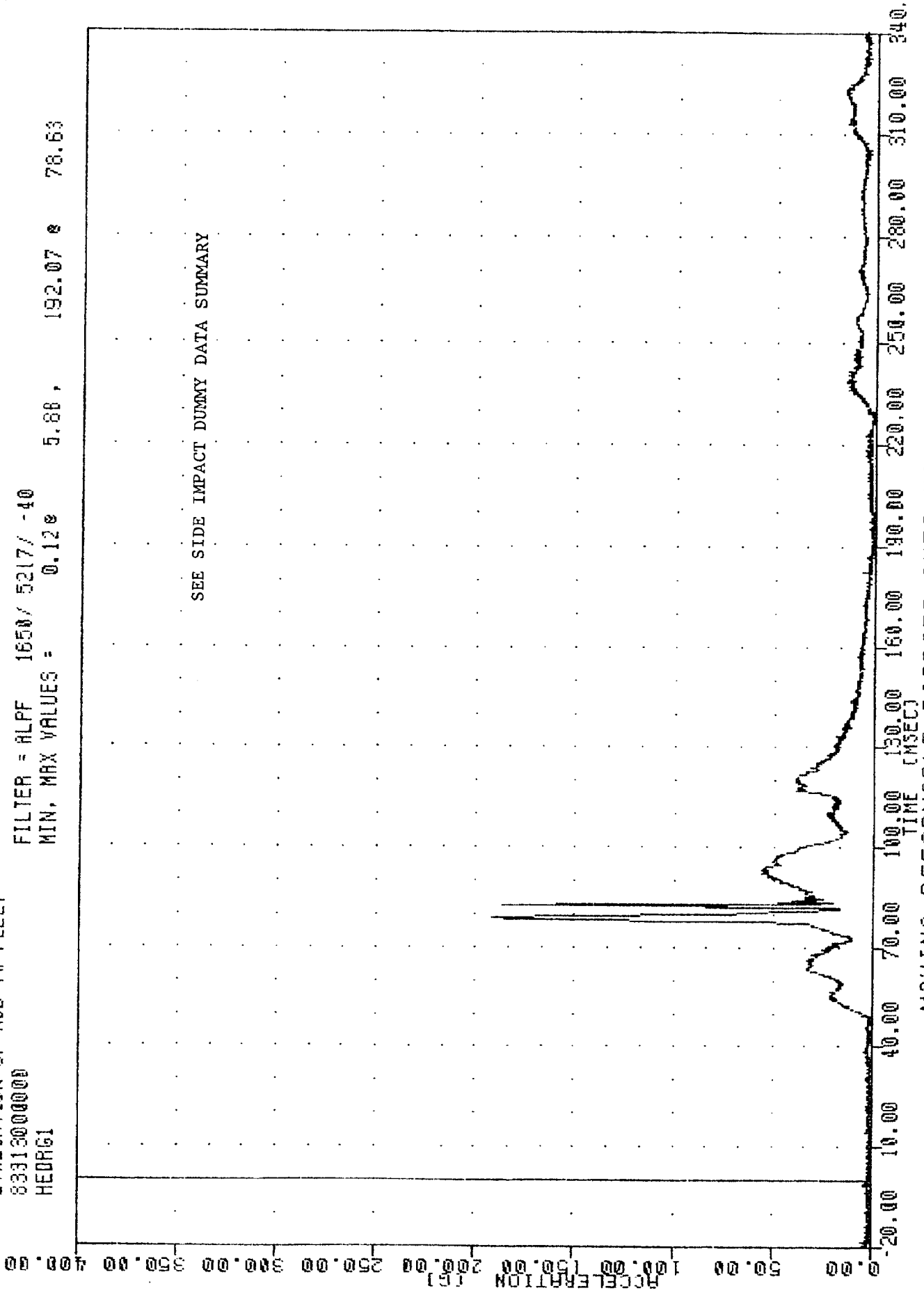
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD ACCELERATION Z AXIS

INC 831J09
EVALUATION OF MDD VW FLEET
833130000000
HEOR61

PLDT DATE 14-NOV-83 15:30:45

FILTER = ALPF 1650 / 5217 / -40

MIN. MAX VALUES = 0.12e 5.88, 192.07 s 78.63

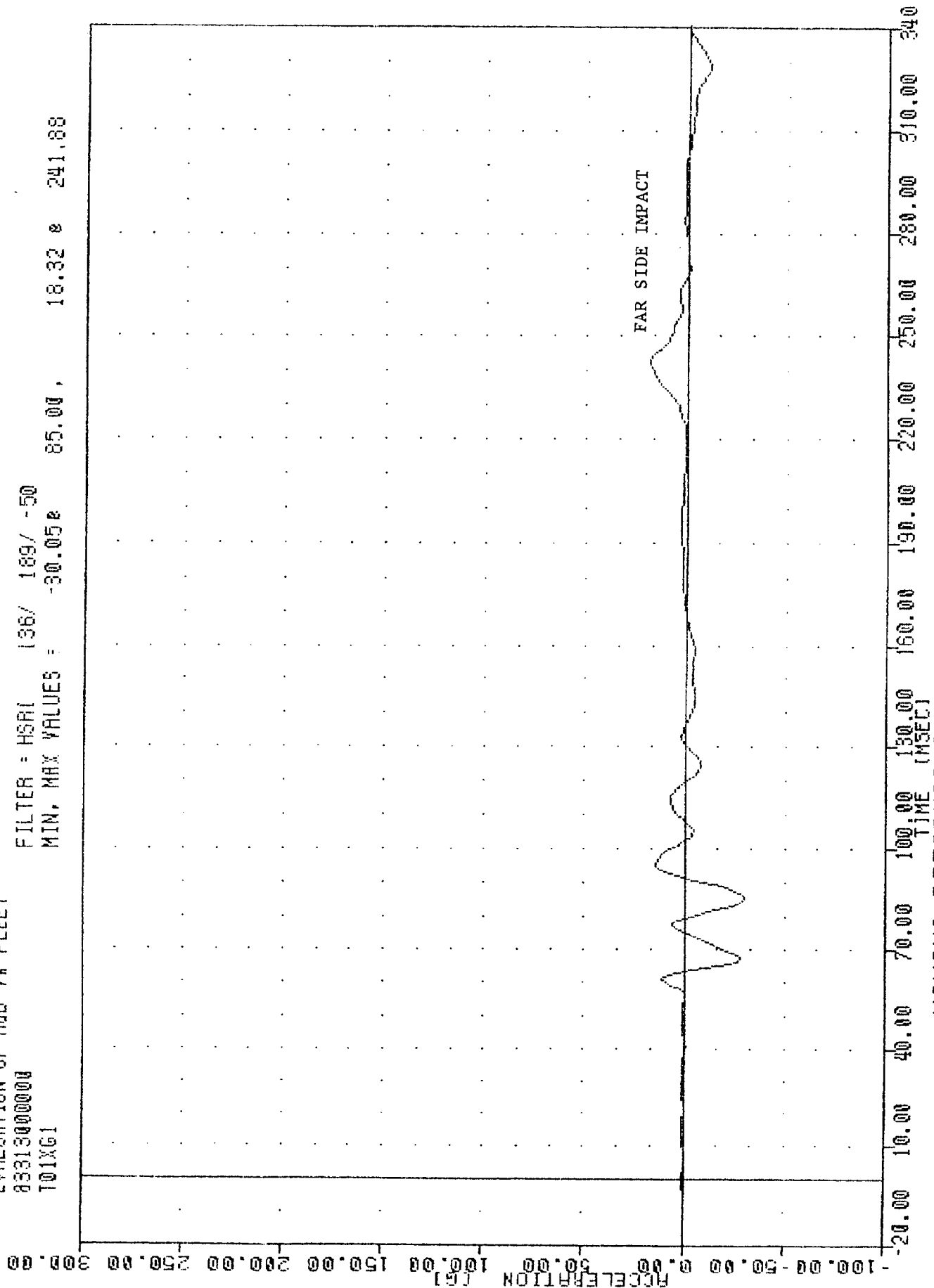


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD RESULTANT

INC 831103
 EVALUATION OF MOD VW FLEET
 83313000000
 T01XG1

PLOT DATE 14 NOV 63 10:31:42

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -30.05e 85.00, 18.32 e 241.88



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

PLU ONE 14 NOV 83 13:31.42

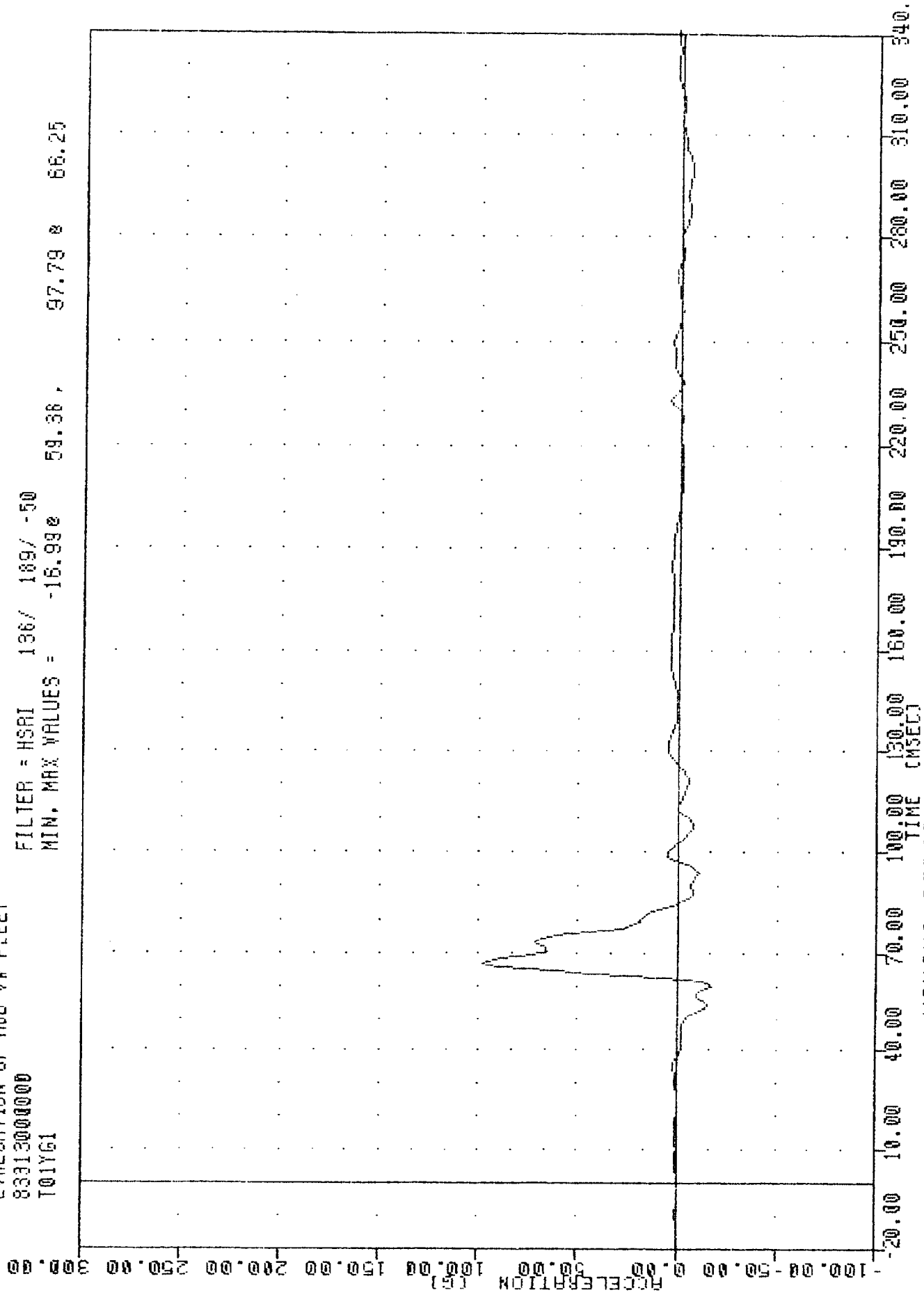
EVALUATION OF M00 VW FLEET

833130000000

T01Y61

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -16.93e 59.38, 97.79 e 66.25



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

PLUT DATE 14-NOV-83 15:31:42

EVALUATION OF MOD VW FLEET

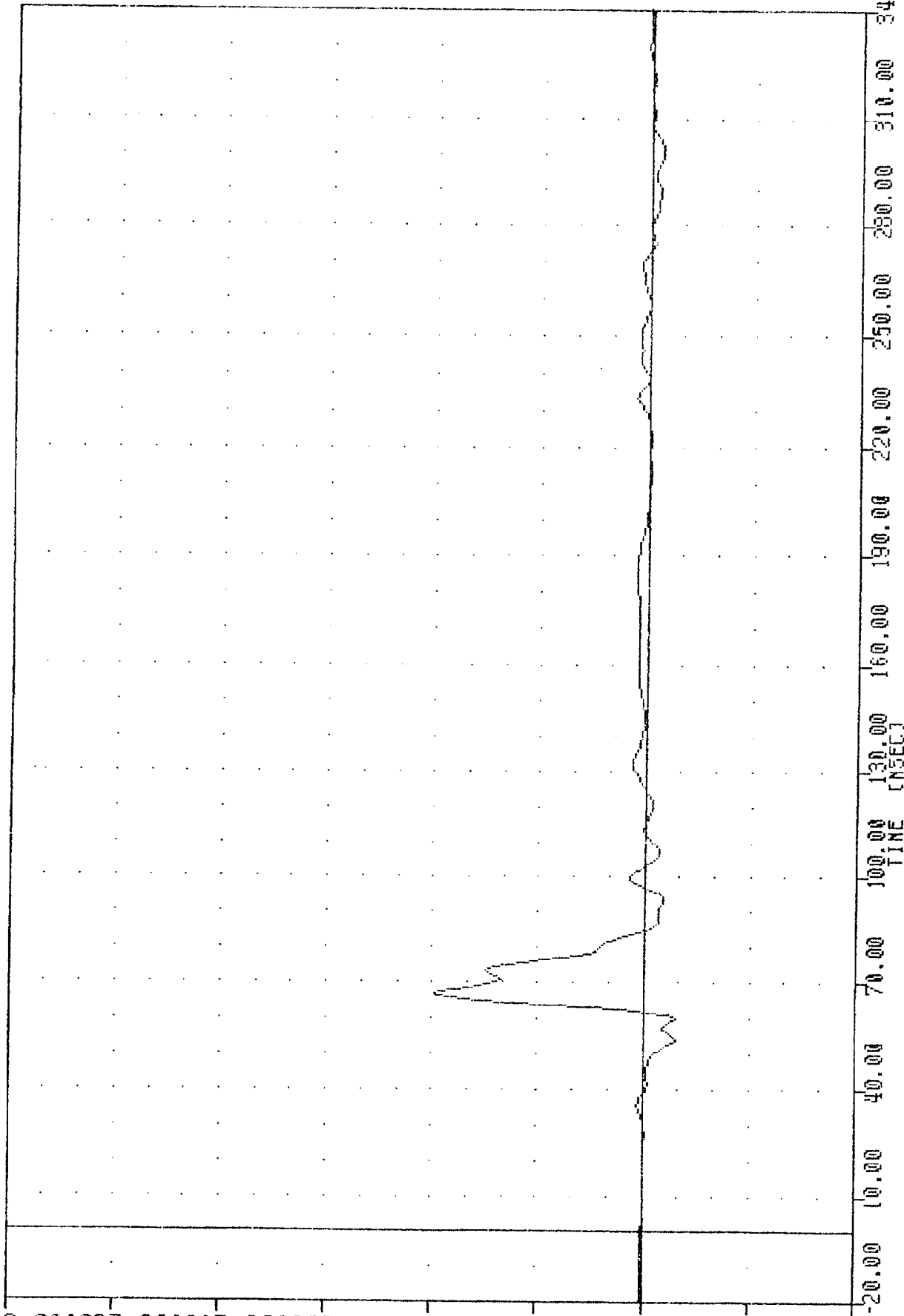
83313000000

T01Y5A

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -15.068 59.38 99.68 66.25

ACCELERATION (G)

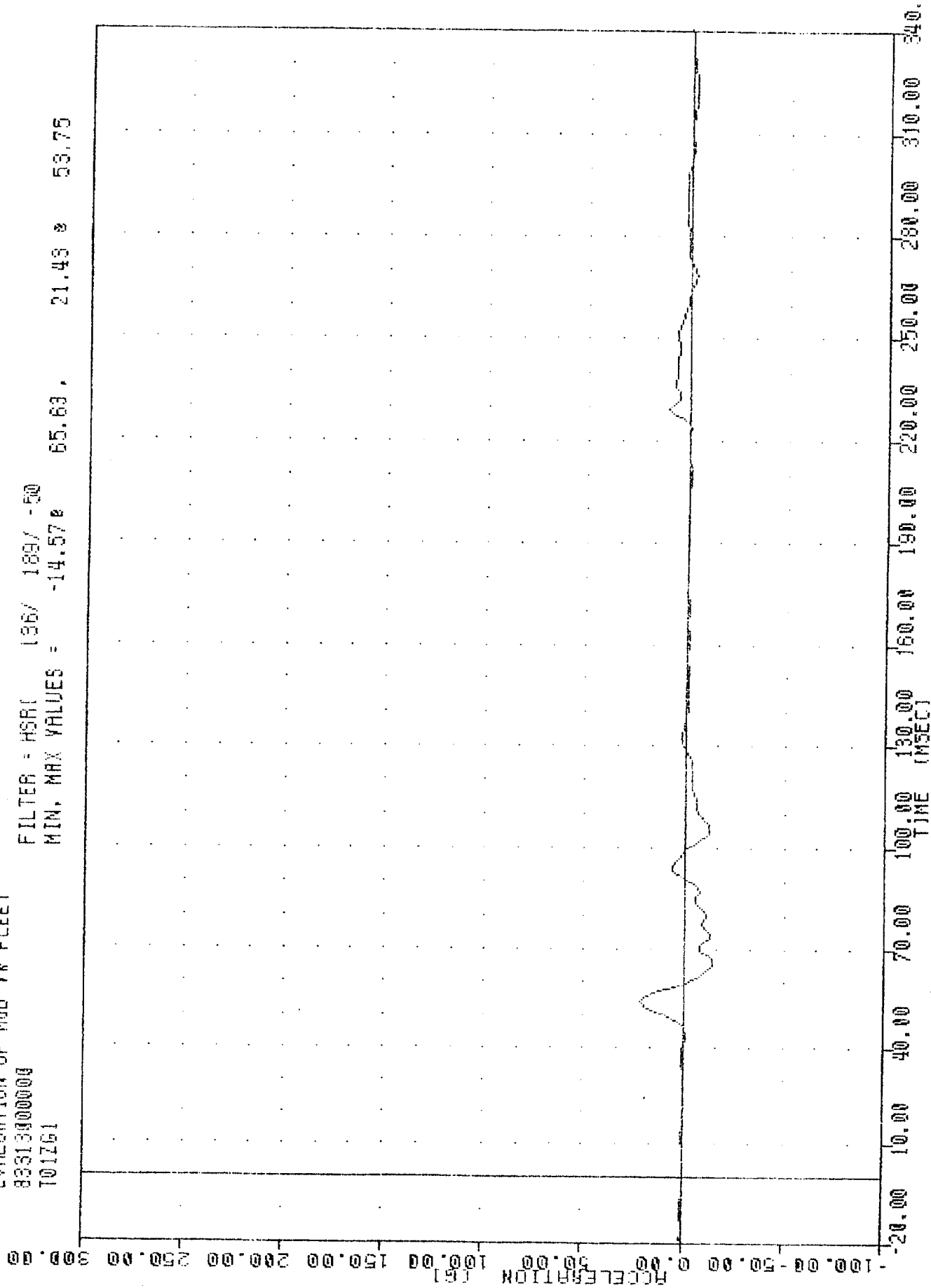


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER UPPER SPINE ACCELERATION -Z Y AXIS

mc 831103
EVALUATION OF MOD VW FLEET
83313000000
T01Z61

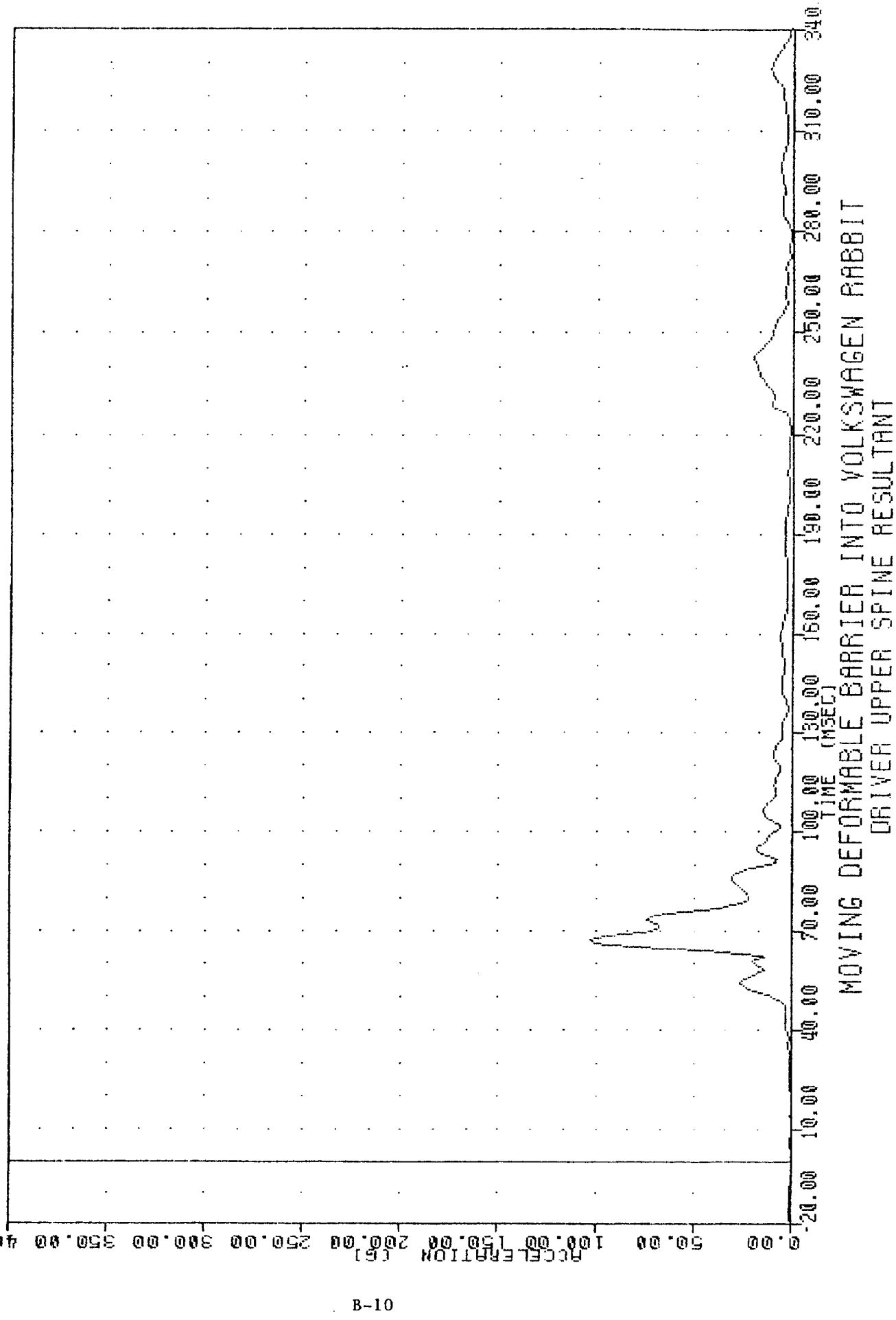
PLUT DATE 14-NOV-83 15:31:42

FILTER = HSR(136/ 189/ -50
MIN. MAX VALUES = -14.57e 65.63. 21.43 e 53.75



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

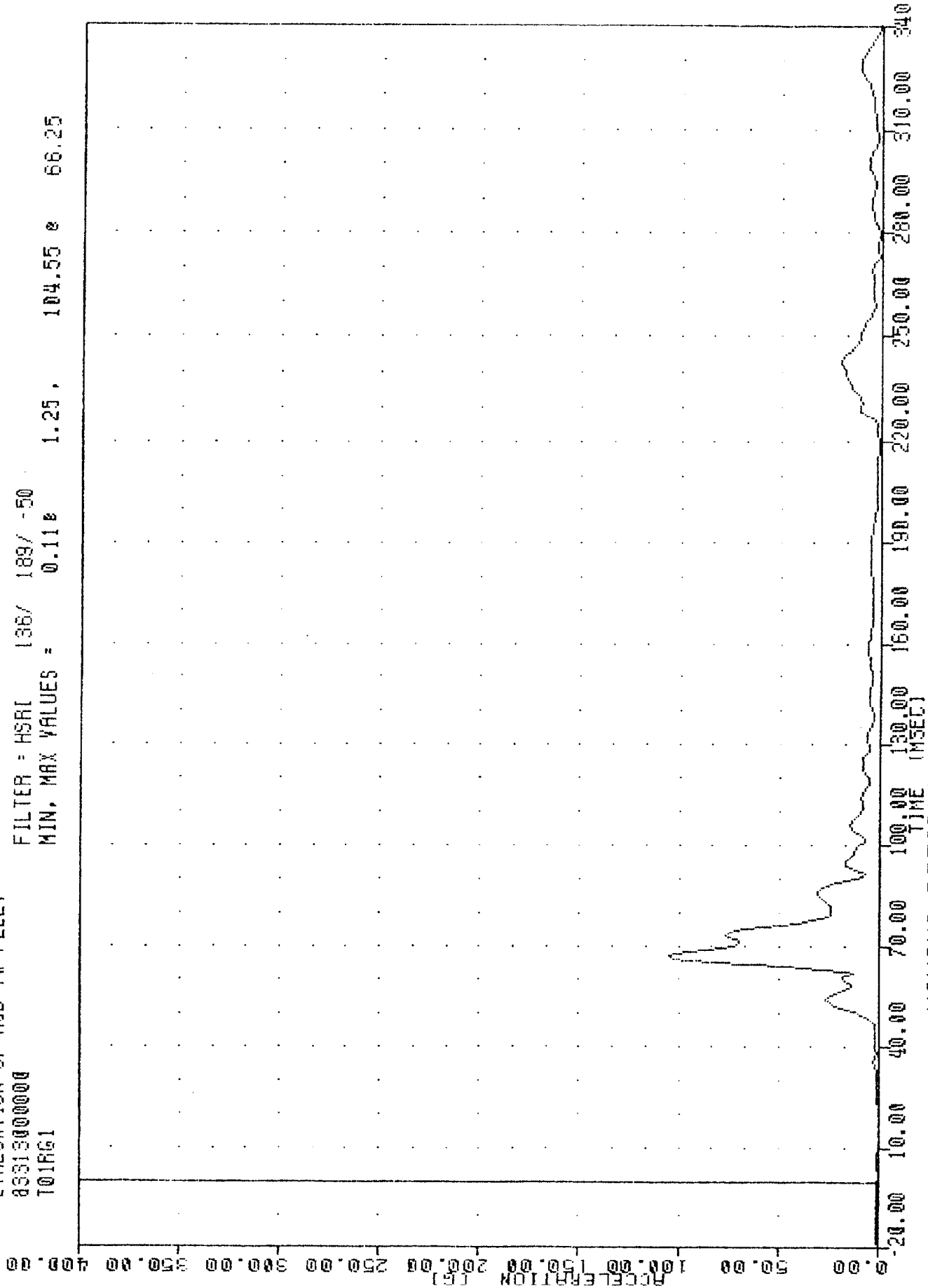
THE
 EVALUATION OF MOD VW FLEET
 83313000000
 101RG1
 831103
 19 NOV 83
 13:31:42
 FILTER = HSAI 136/ 189/ -50
 MIN. MAX VALUES = 0.07g 1.88g 102.75 g 86.25



IRC
 EVALUATION OF MOD YW FLEET
 833130000000
 T01RG1

PLOT DATE 14-NOV-83 15:32:55

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.11% 1.25, 104.55 & 66.25

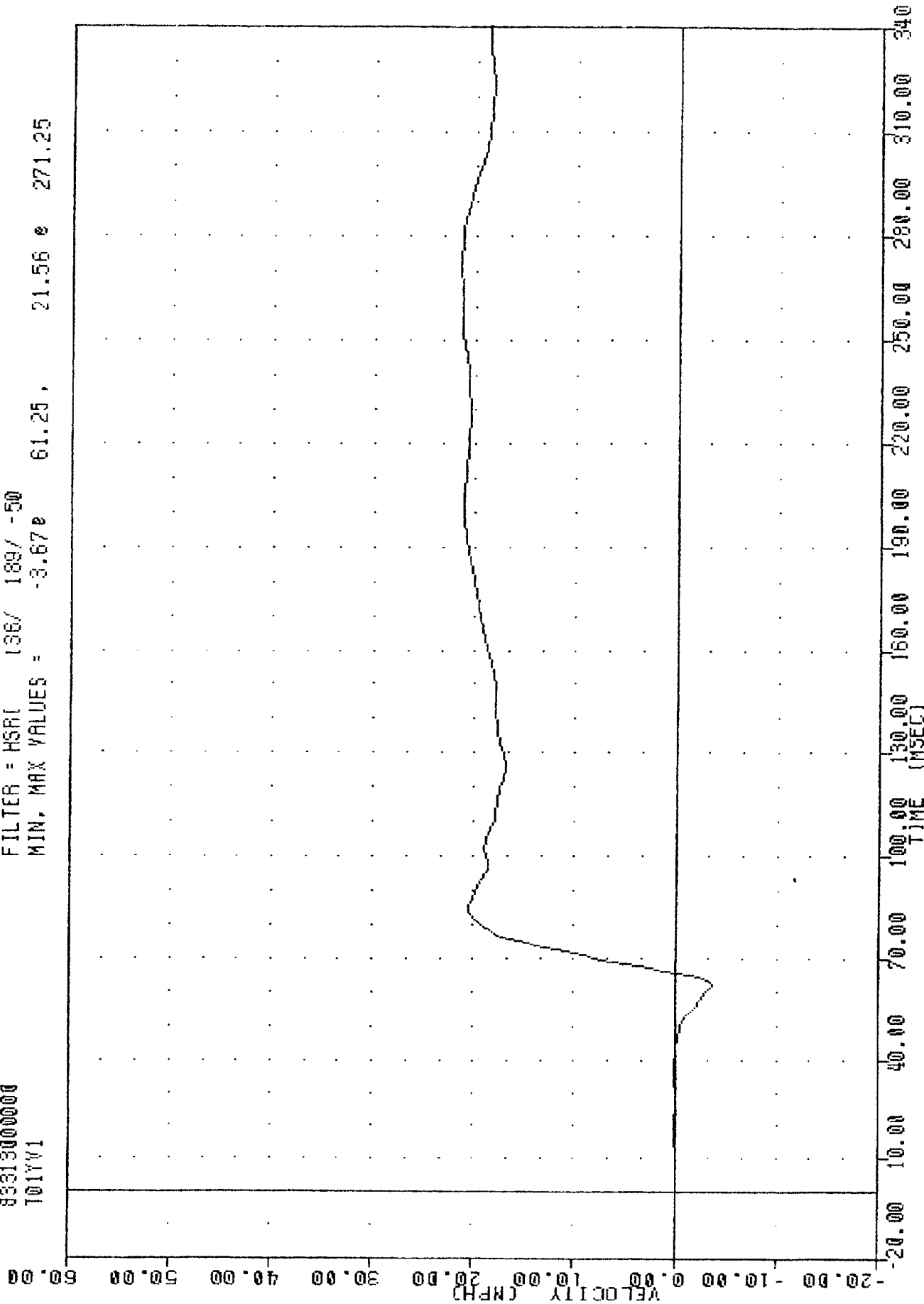


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE RESULTANT USING T01YGA

TRC 831108
EVALUATION OF MOD YN FLEET
83313000000
T01YV1

FLUT DATE 13-NOV-83 09:17:46

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -3.67e 61.25, 21.56 e 271.25

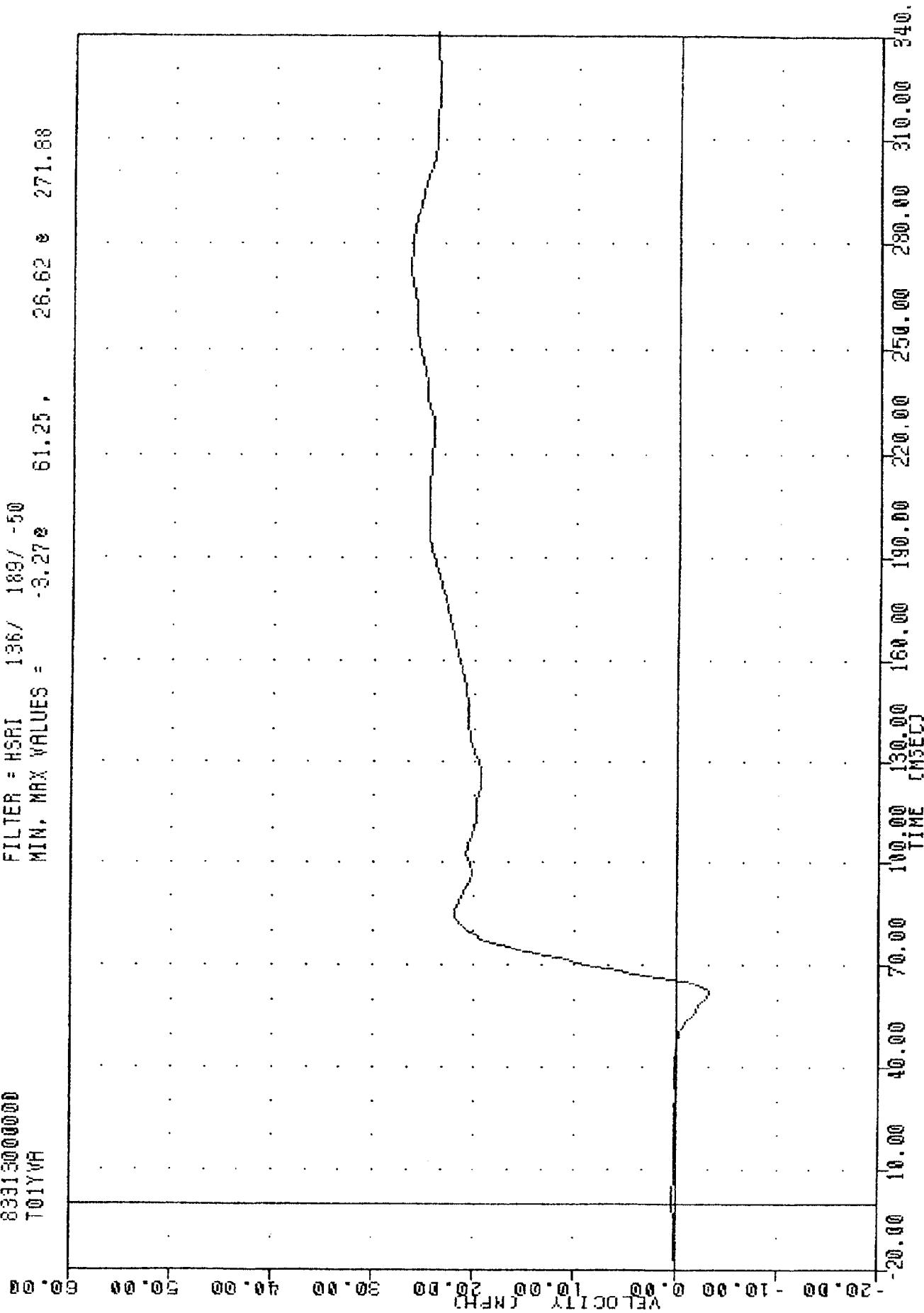


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING T01YV1

THE [REDACTED] 831703
 EVALUATION OF MDD VW FLEET
 833130000000
 T01YGA

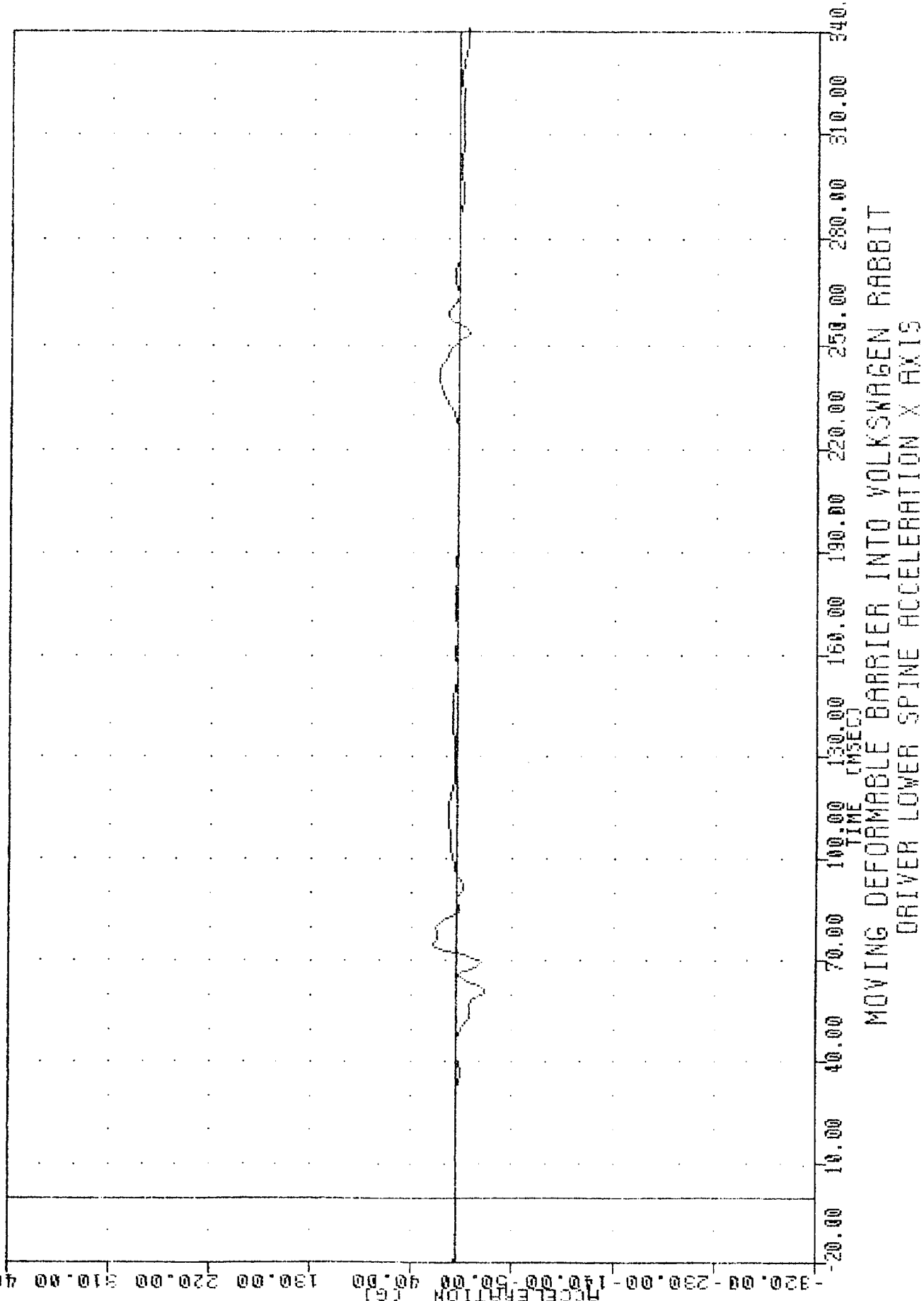
PLOT DATE 13 NOV 83 09:17:45

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -3.27e 61.25, 26.62 e 271.88



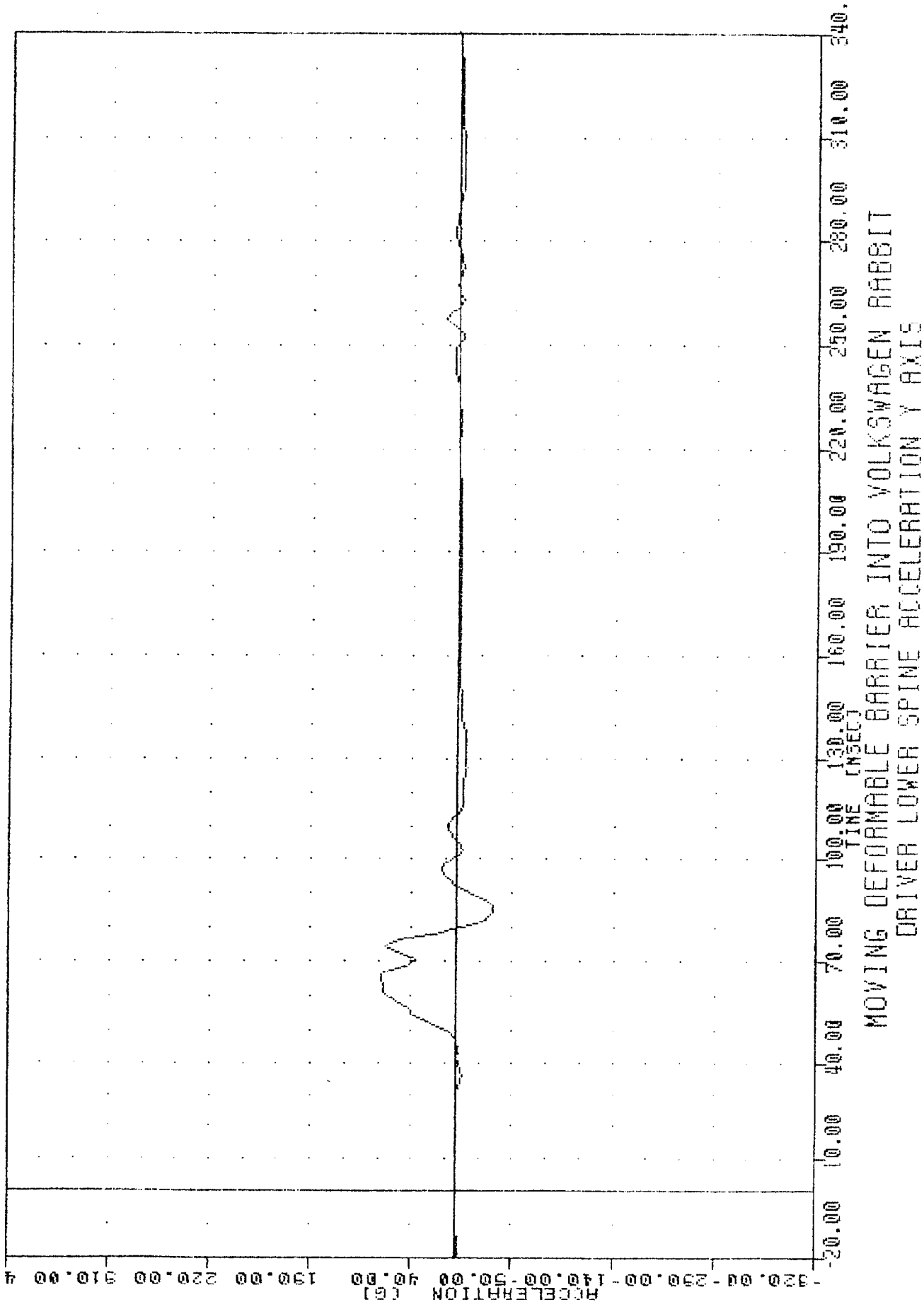
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YGA

THE [REDACTED] 831193 [REDACTED] [REDACTED] [REDACTED] 15.31.42
 EVALUATION OF MOD VN FLEET
 83313000000
 T12XG1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -23.98e 60.62, 21.62 e 73.75



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

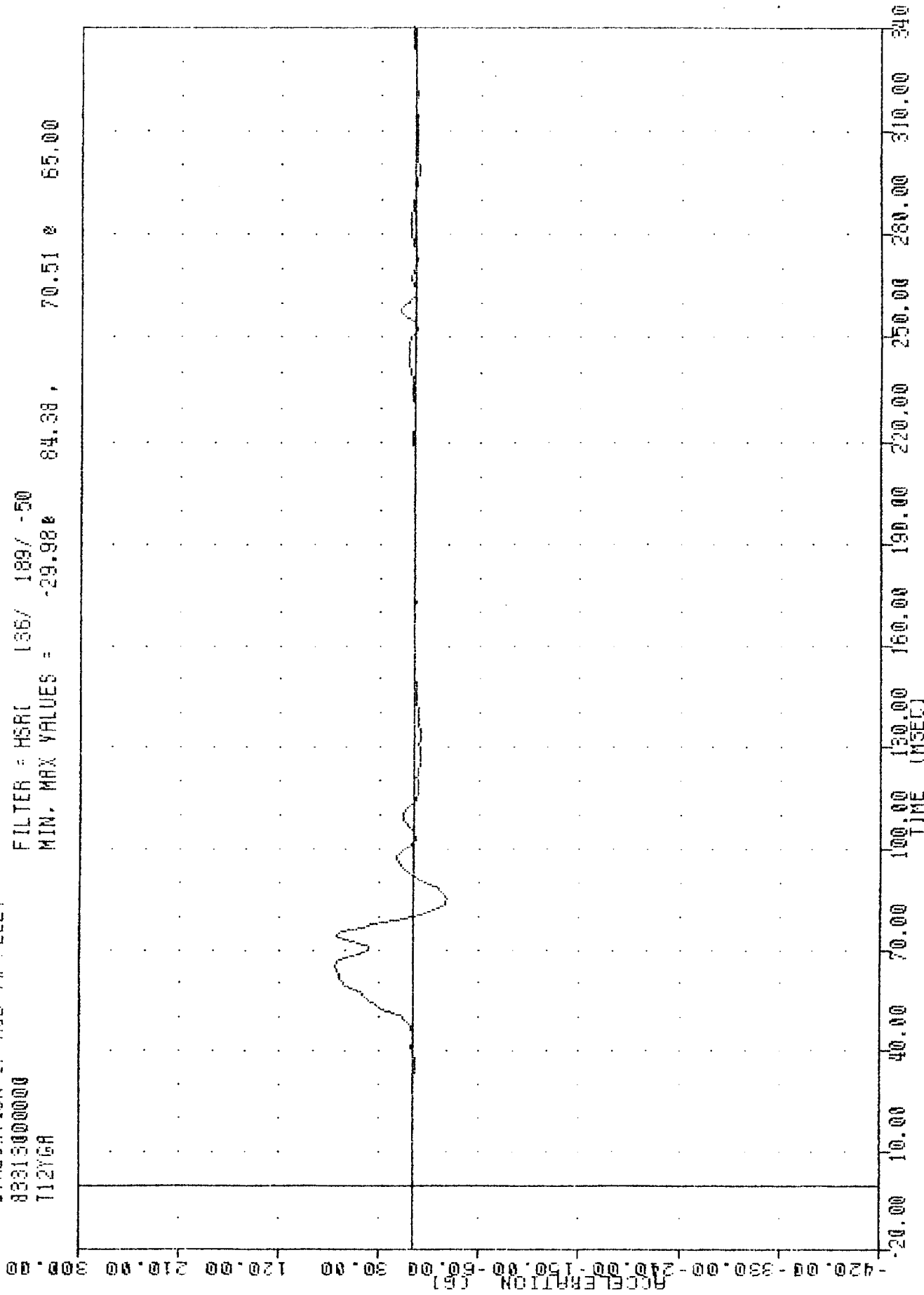
TMC 833130000000
 EVALUATION OF MOD VW FLEET
 833130000000
 T12Y61
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -32.37 84.58 67.91 85.00
 15-NOV-88 15:31:42



INC 831108
 EVALUATION OF MOD VN FLEET
 833150000000
 712Y6R

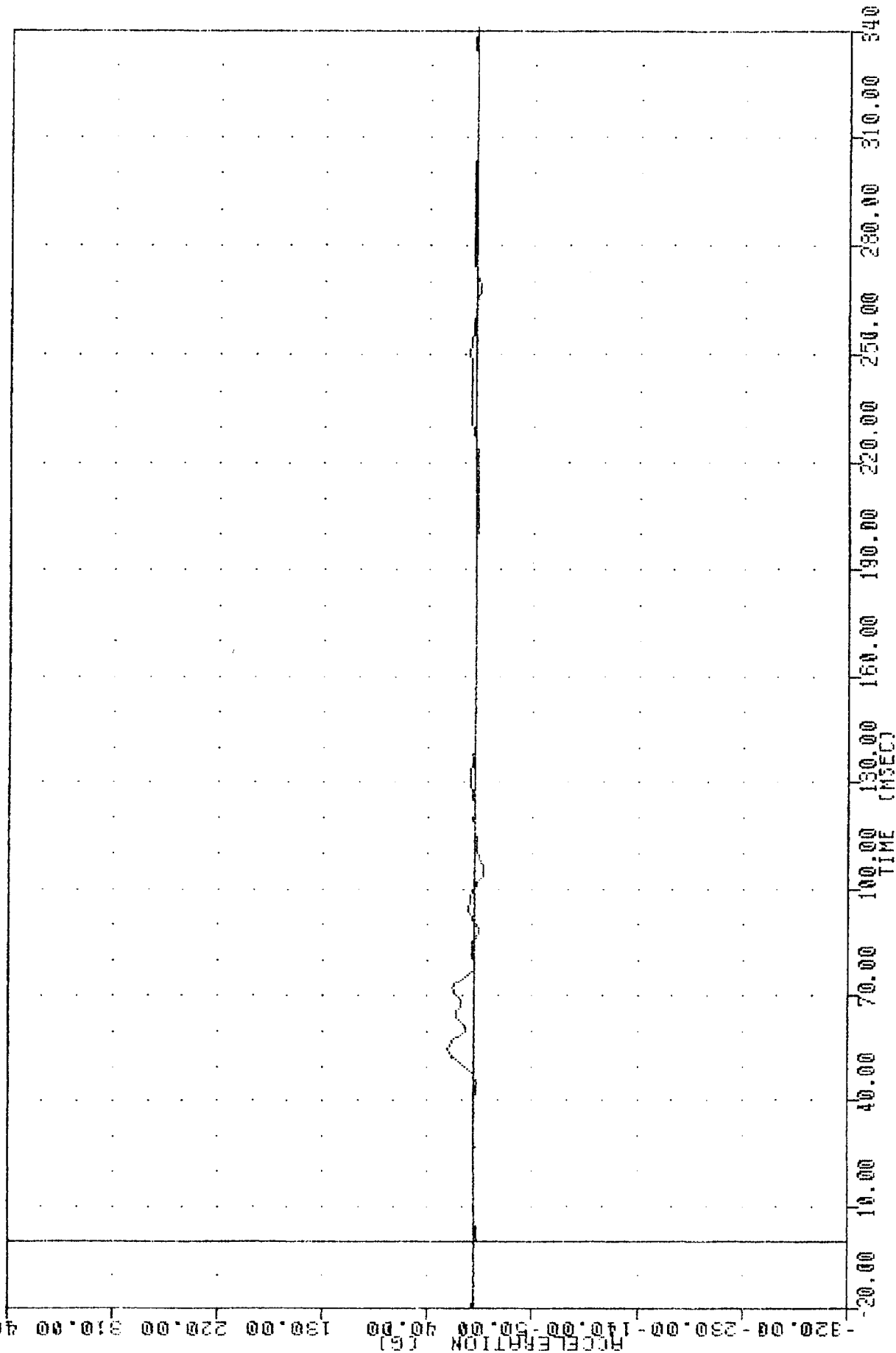
FLOT DATE 14-NOV-83 15:31:42

FILTER = HSR1 136/ 189/ -50
 MIN. MAX VALUES = -29.98 84.38 70.51 65.00



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

THE [REDACTED] 831103 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
 EVALUATION OF MOD VW FLEET
 833130000000
 T12ZG1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -7.94 105.00, 22.72 54.38
 PCOT DATE 14 NOV 83 15:31:42



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

831703

14 NOV 83

13:31:42

13:31:42

13:31:42

EVALUATION OF MOD VW FLEET

833130000000

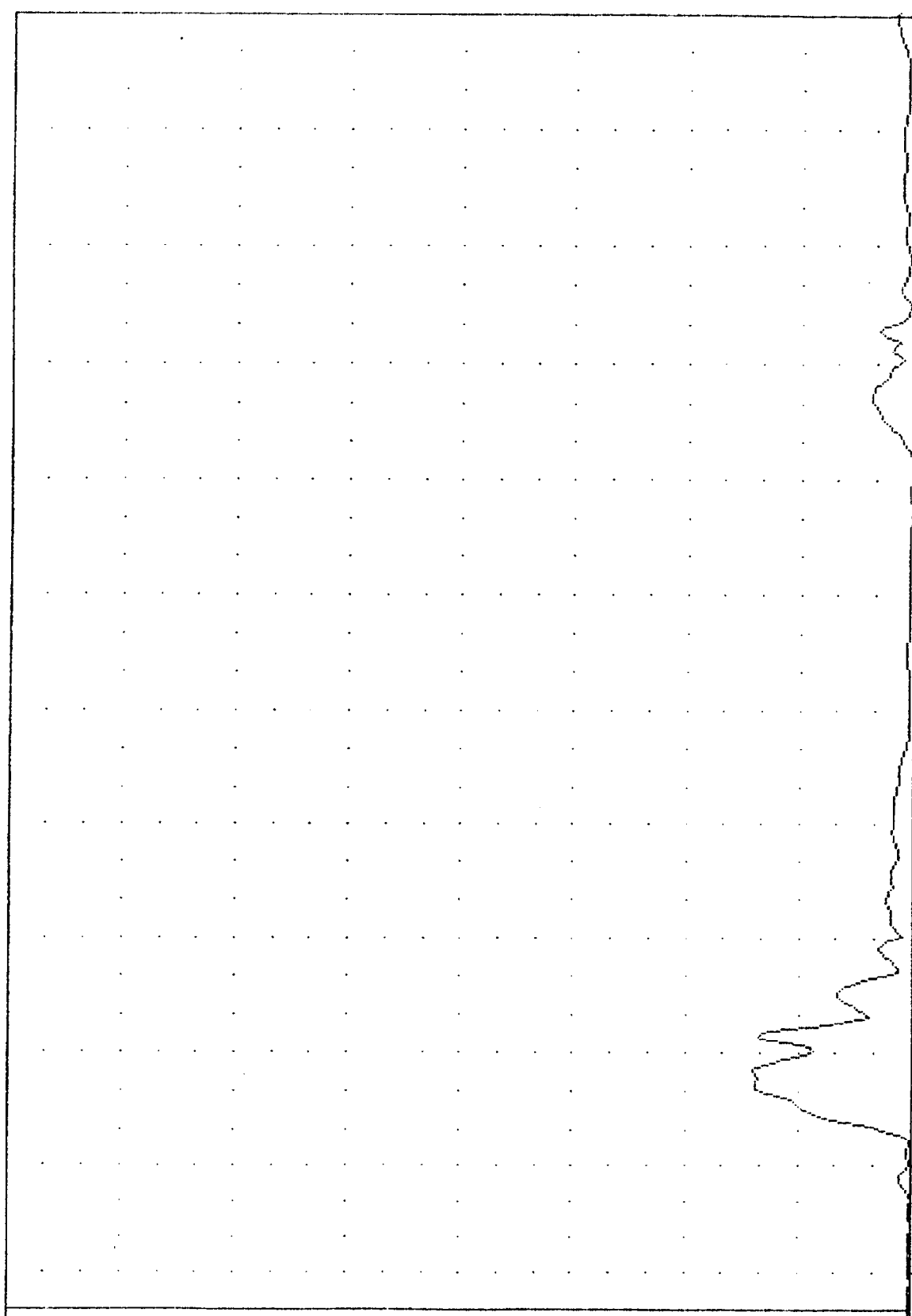
T12R61

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.05e 21.88, 69.80 e 64.38

ACCELERATION (G)

400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00



-20.00 0.00 50.00 100.00 150.00 200.00 250.00 300.00 350.00 400.00

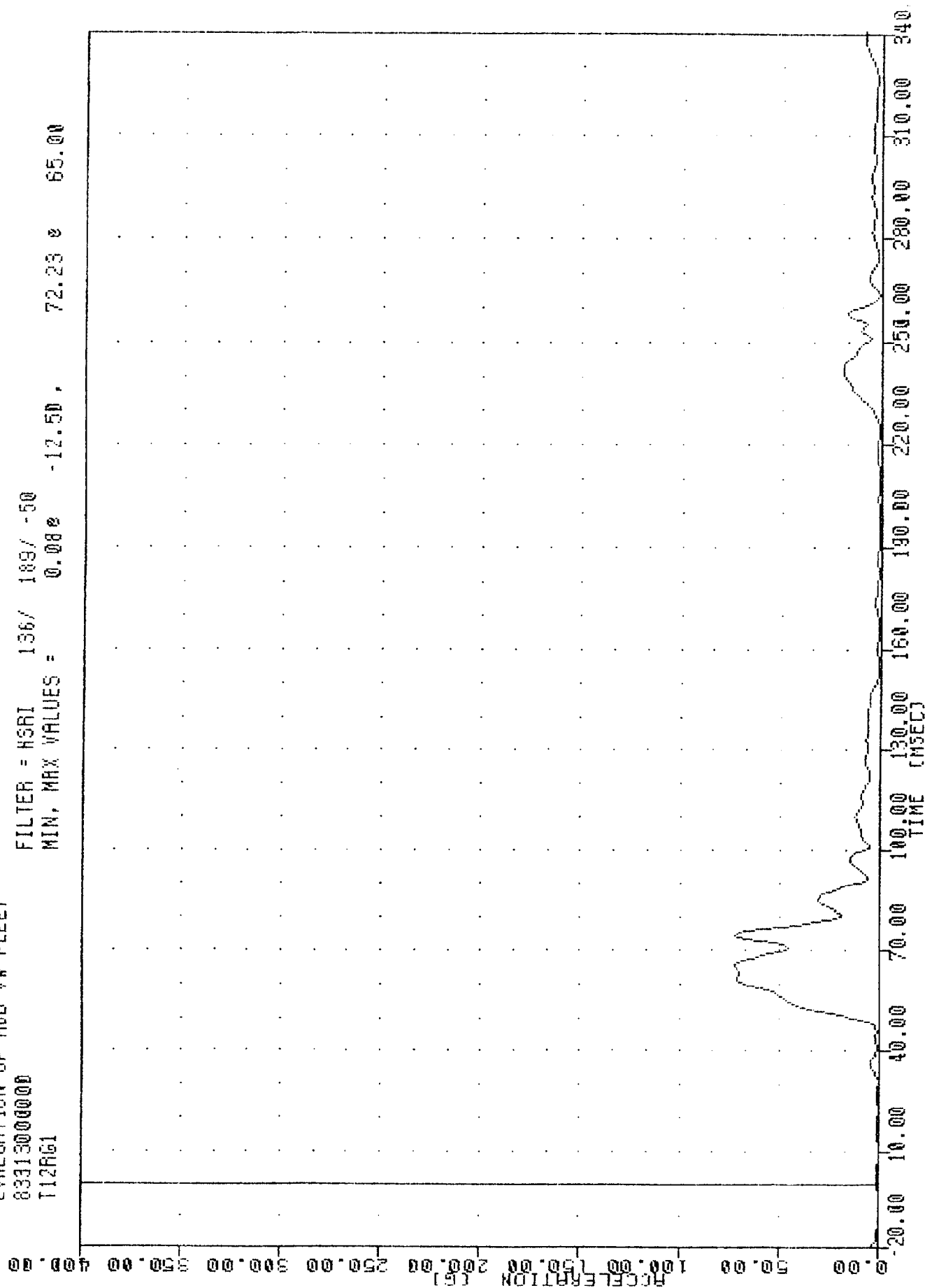
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LOWER SPINE RESULTANT

INC 831 J09
 EVALUATION OF MOD VN FLEET
 833130000000
 T12R61

RUN DATE 14-NOV-83 15:32:55

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = 0.00e -12.50, 72.23 e 65.00

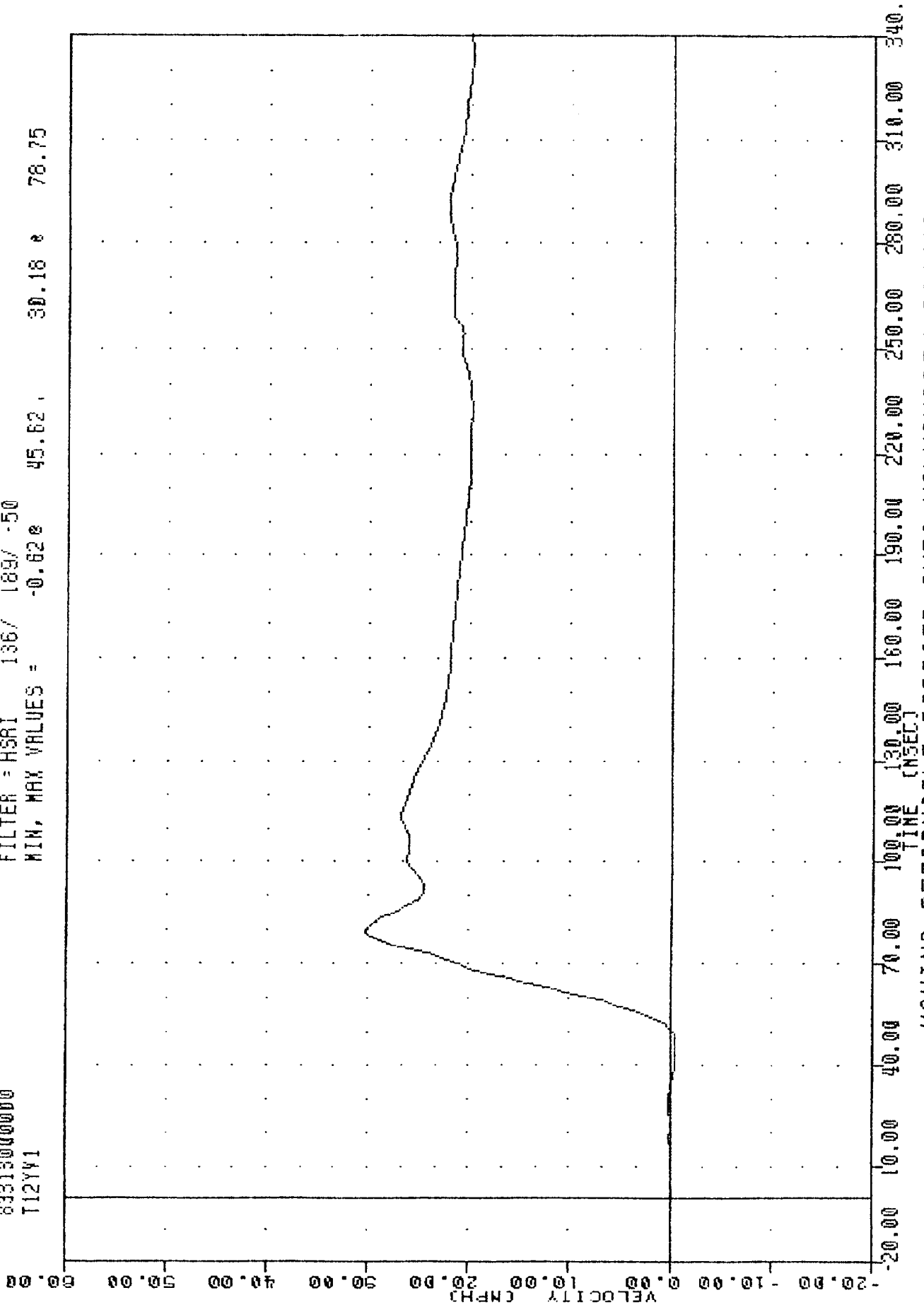


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE RESULTANT USING T12YGA

6331100
 EVALUATION OF MOD VW FLEET
 63313000000
 T12Y41

TEST DATE 13 NOV 83 09:17:40

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.628 45.62, 30.18 e 78.75

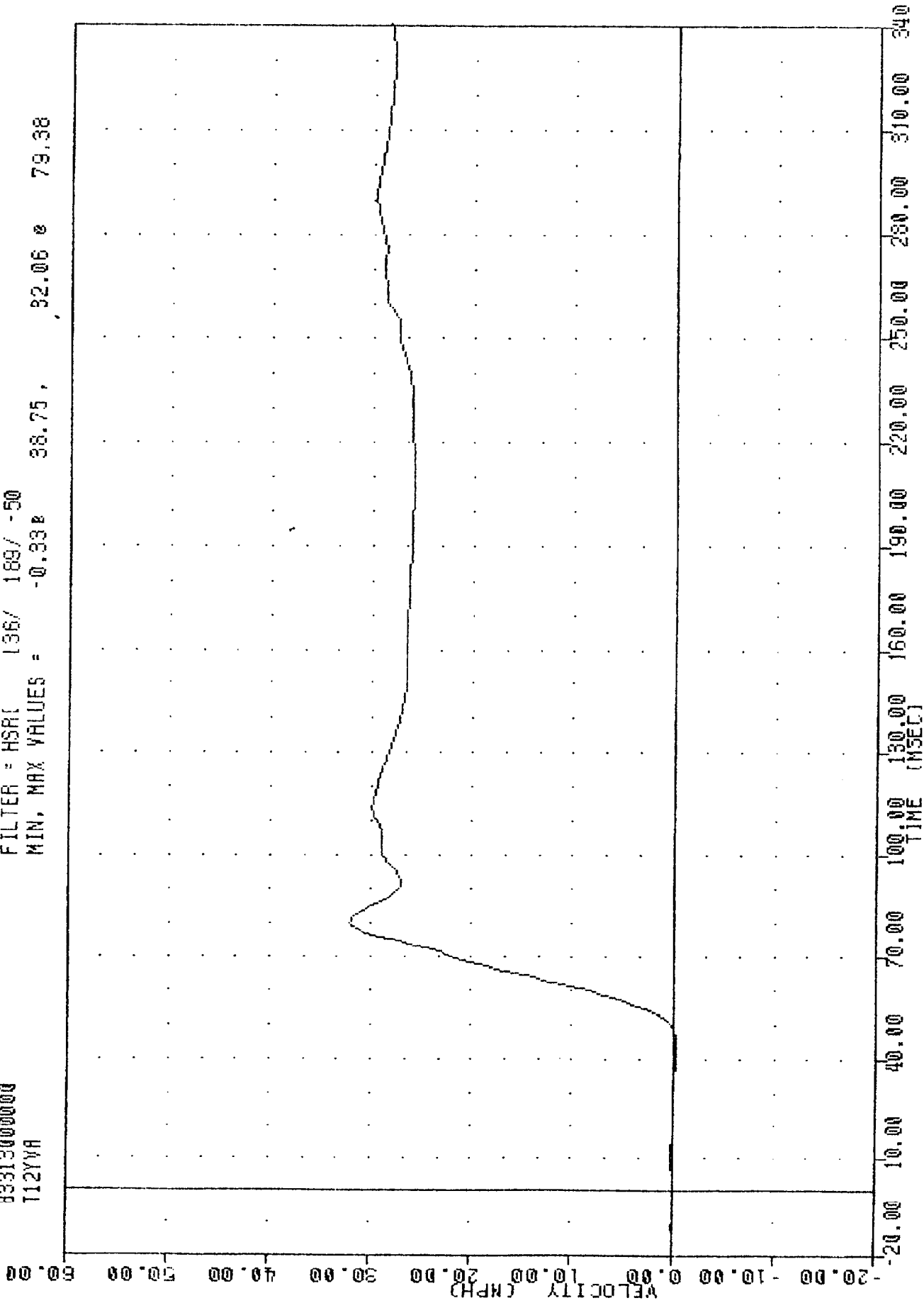


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12Y61

IRL
 EVALUATION OF MDD YW FLEET
 833130000000
 T12YVA

PLOT DATE 15-NDV-83 09:17:46

FILTER = HSR(136/ 189/ -50
 MIN, MAX VALUES = -0.338 38.75, 32.06 79.38

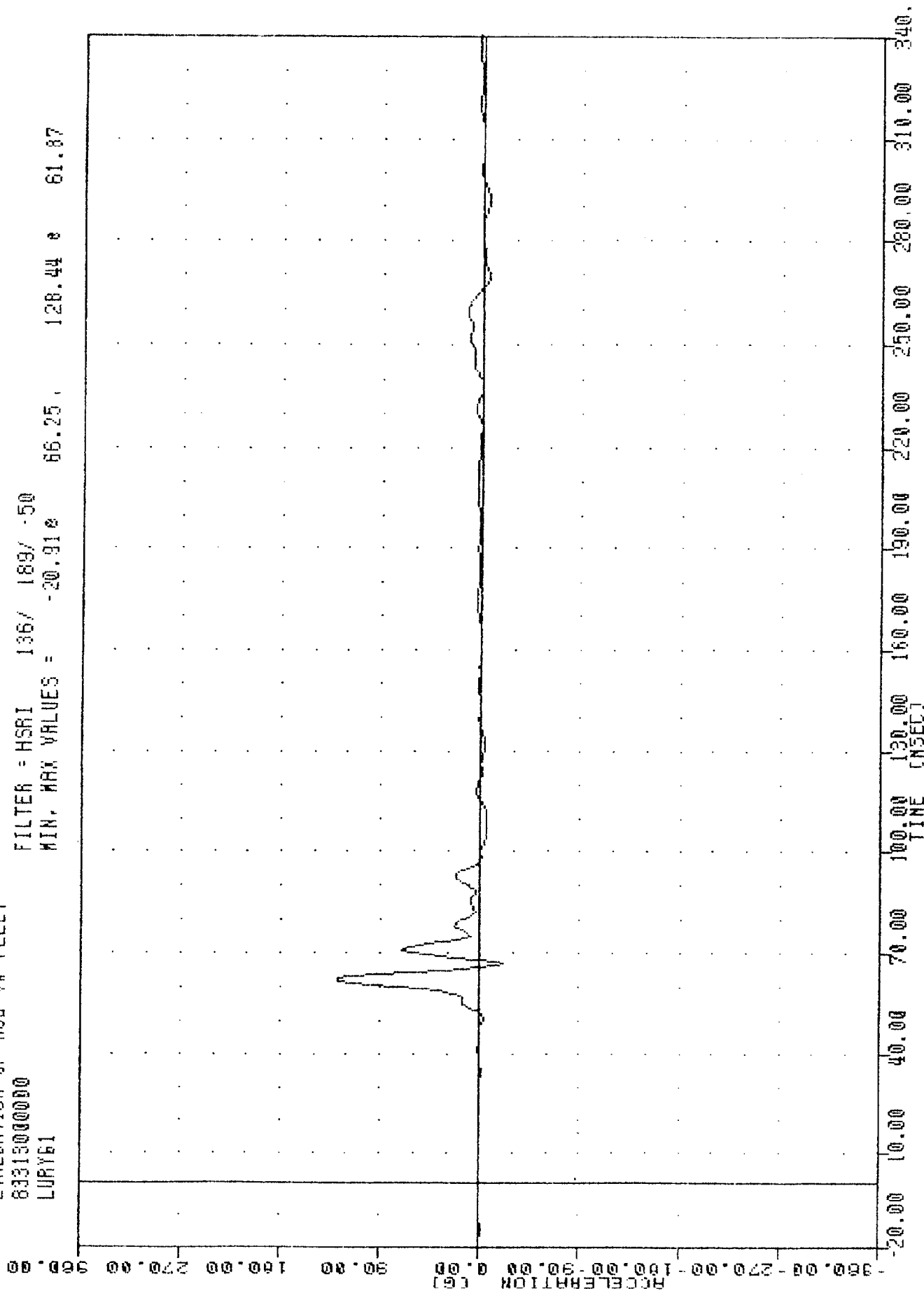


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12YGA

TAC 831109
EVALUATION OF MOD VN FLEET
833130000000
LURY61

PLOT DATE 14-NOV-83 15:31:42

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -20.91e 66.25, 128.44 e 61.87



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

INC
EVALUATION OF MOD VN FLEET
83313000000
LURYV1

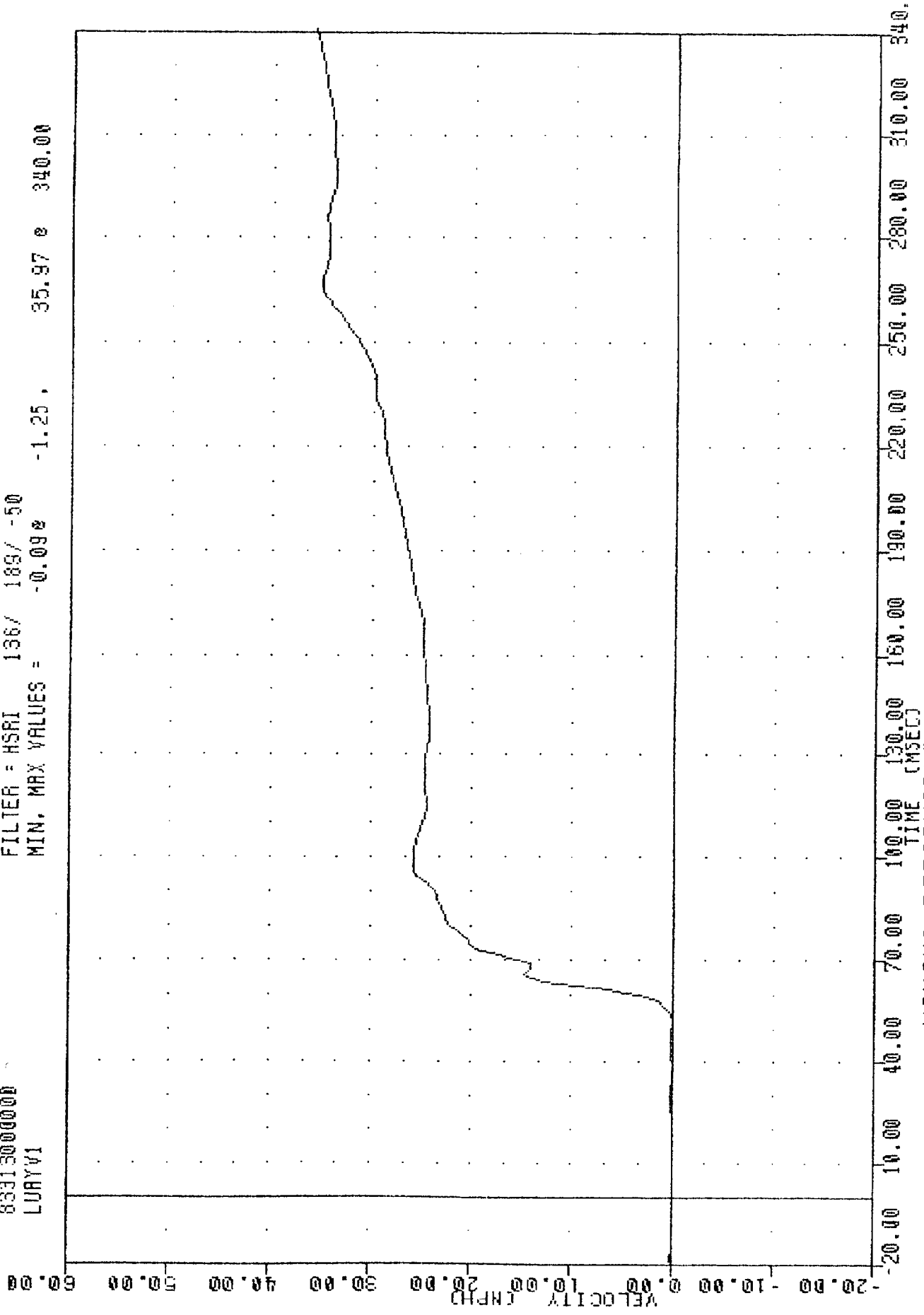
831109

PLOT DATE

15-NOV-83

09:17:46

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.092 -1.25 35.97 340.00

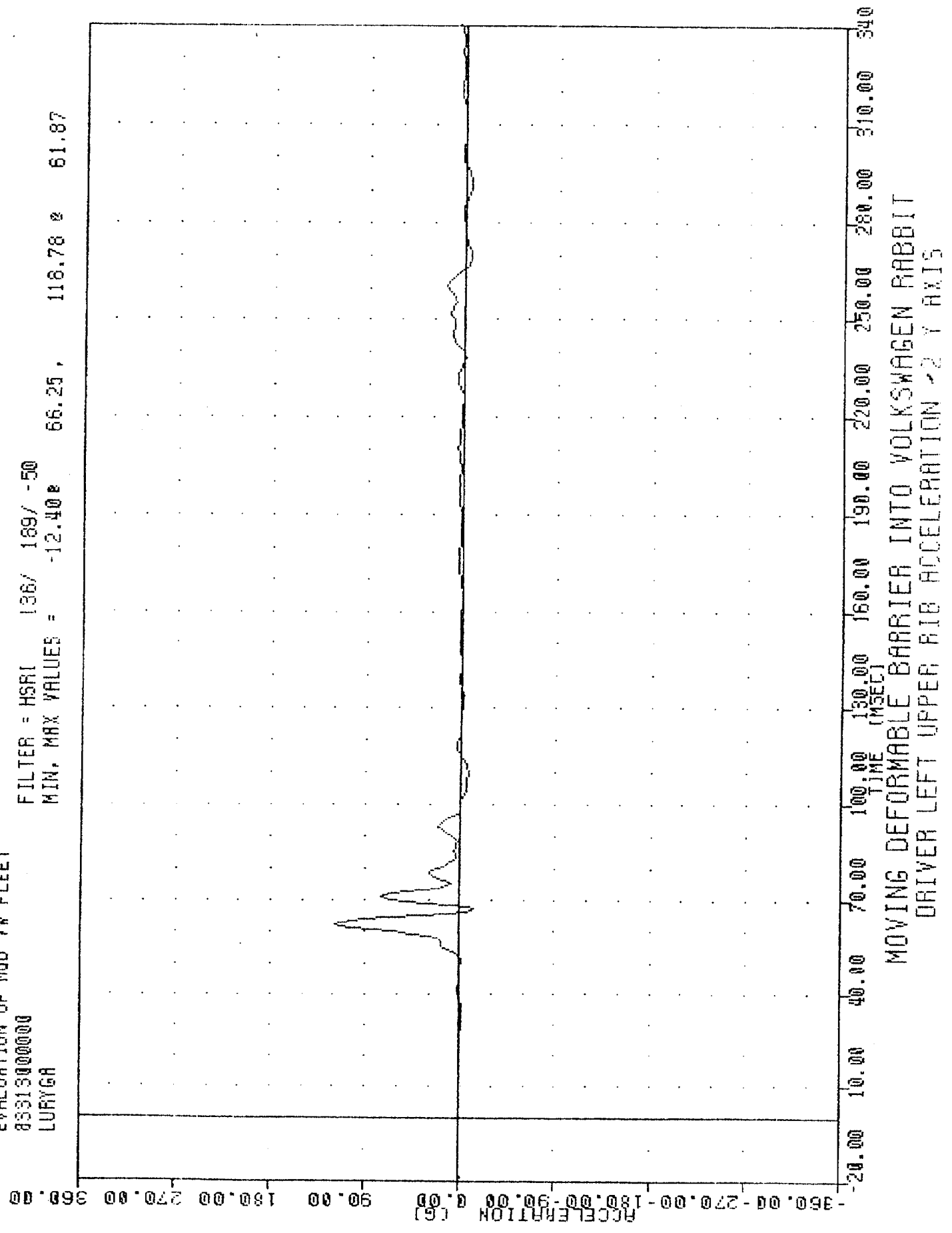


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LURY61

IRC
 EVALUATION OF MOD YW FLEET
 833130000000
 LURYGA

PLOT DATE 14-NOV-83 15:31:42

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -12.40e 66.25, 118.78 e 61.87



081103

15-NOV-83

09:17:46

EVALUATION OF MOD VN FLEET

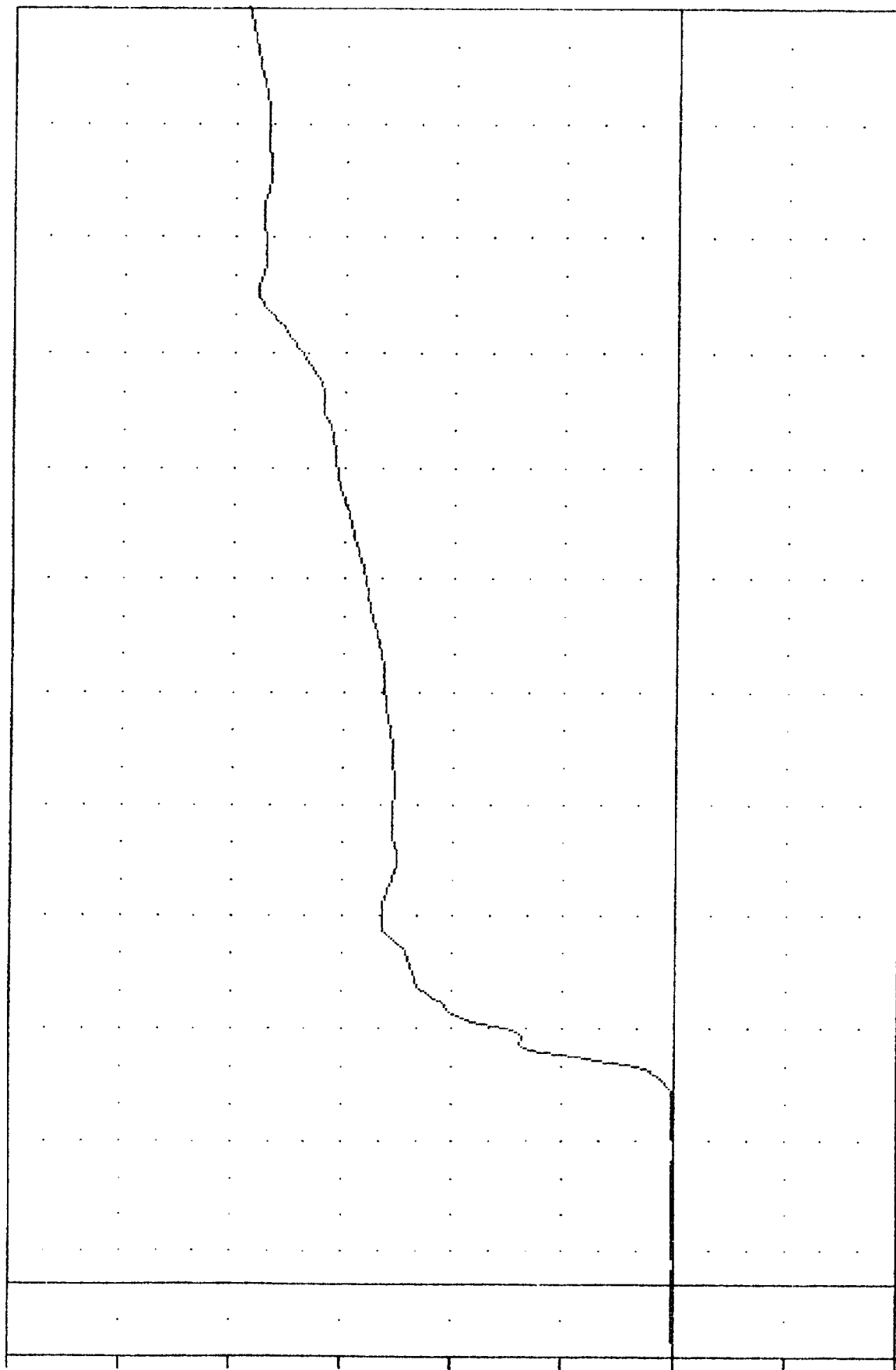
83315000000

LURYVA

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.05 e 37.50 , 38.93 e 340.00

VELOCITY (MPH)



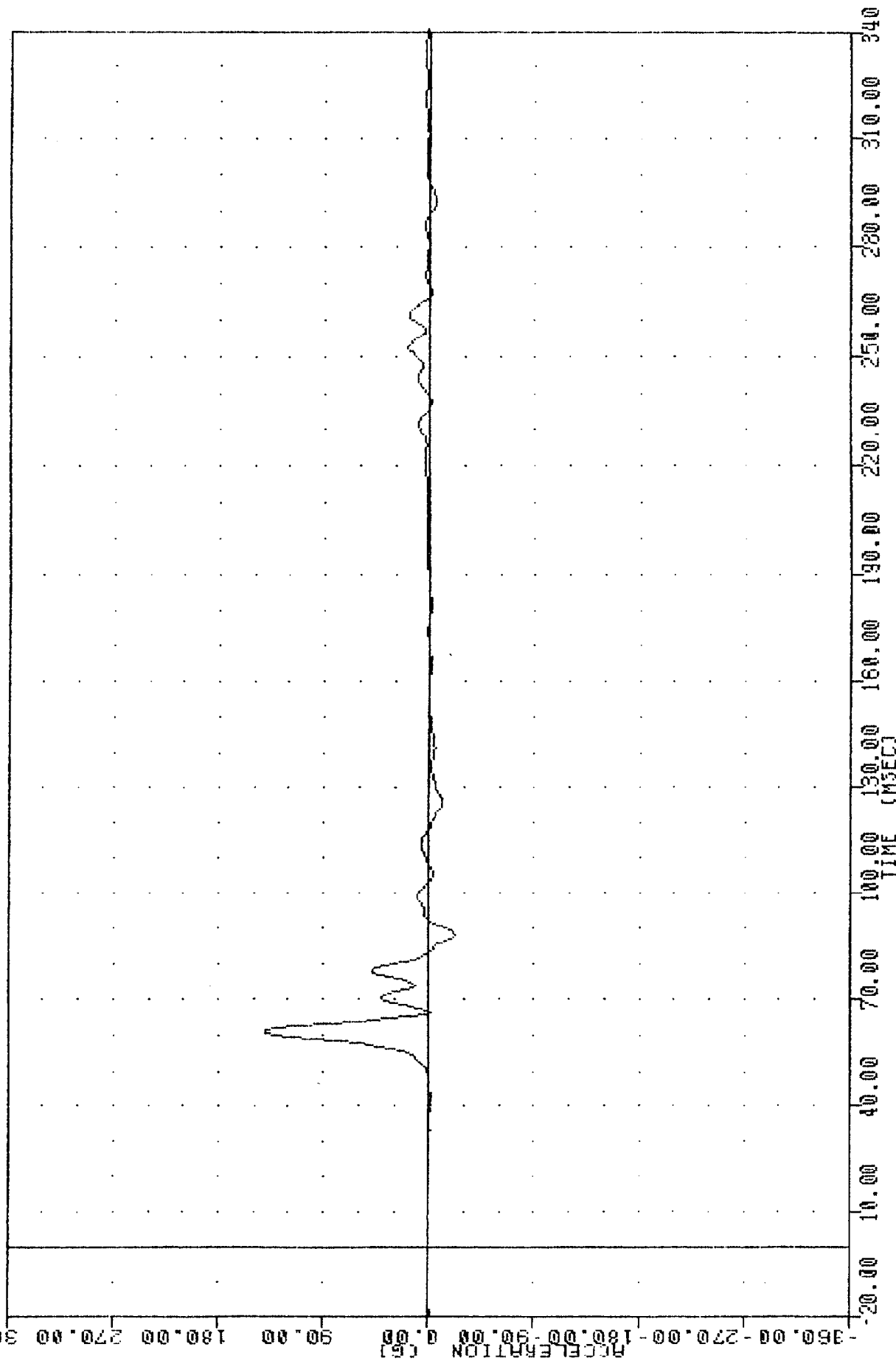
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LURYGA

THE
EVALUATION OF MOD VN FLEET
83913000000
LLAY61

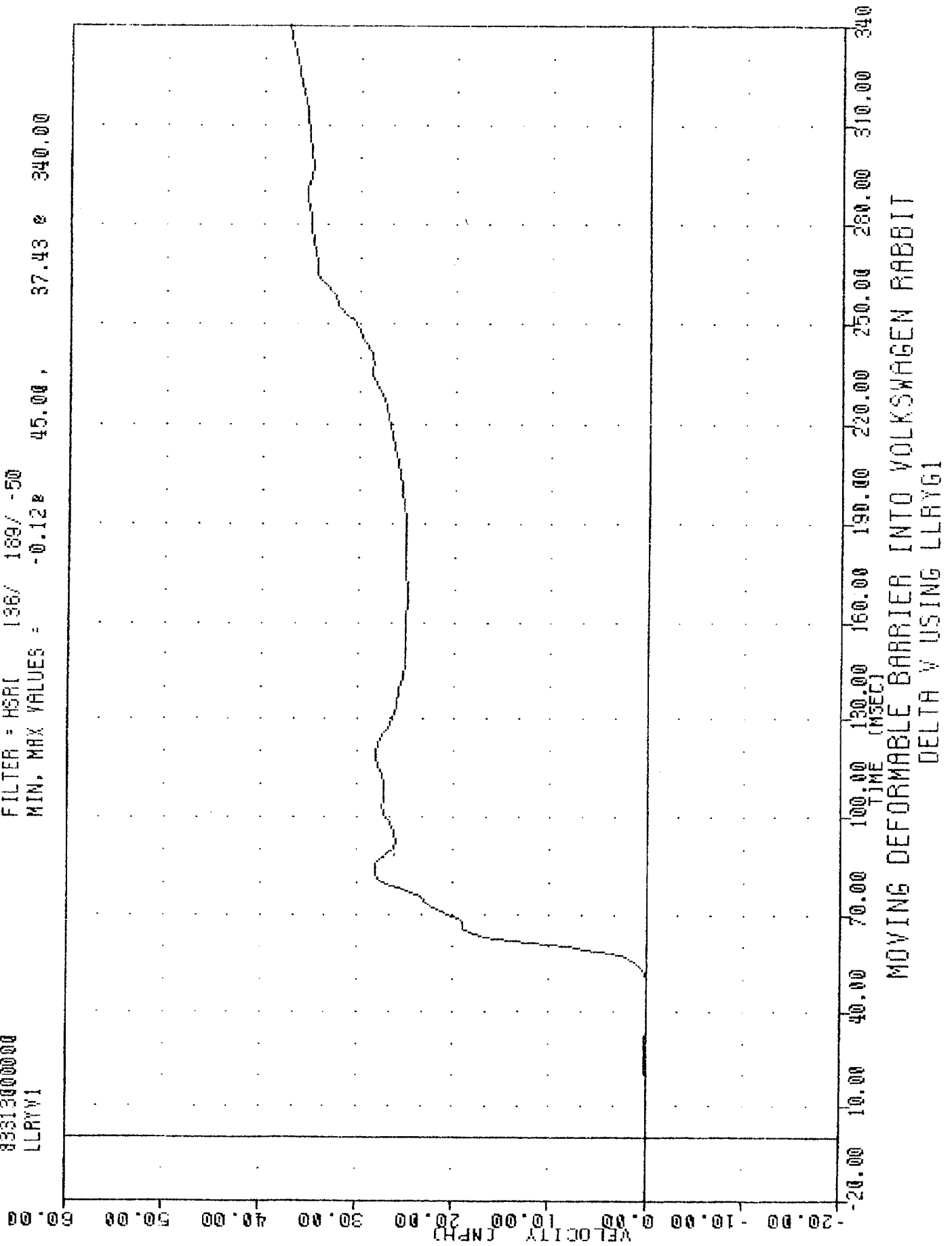
FILE NAME 14 NOV 83 10:31:12

FILTER = HSAI 136/ 189/ -50
MIN. MAX VALUES = -22.57g 87.50, 140.67g 80.00



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

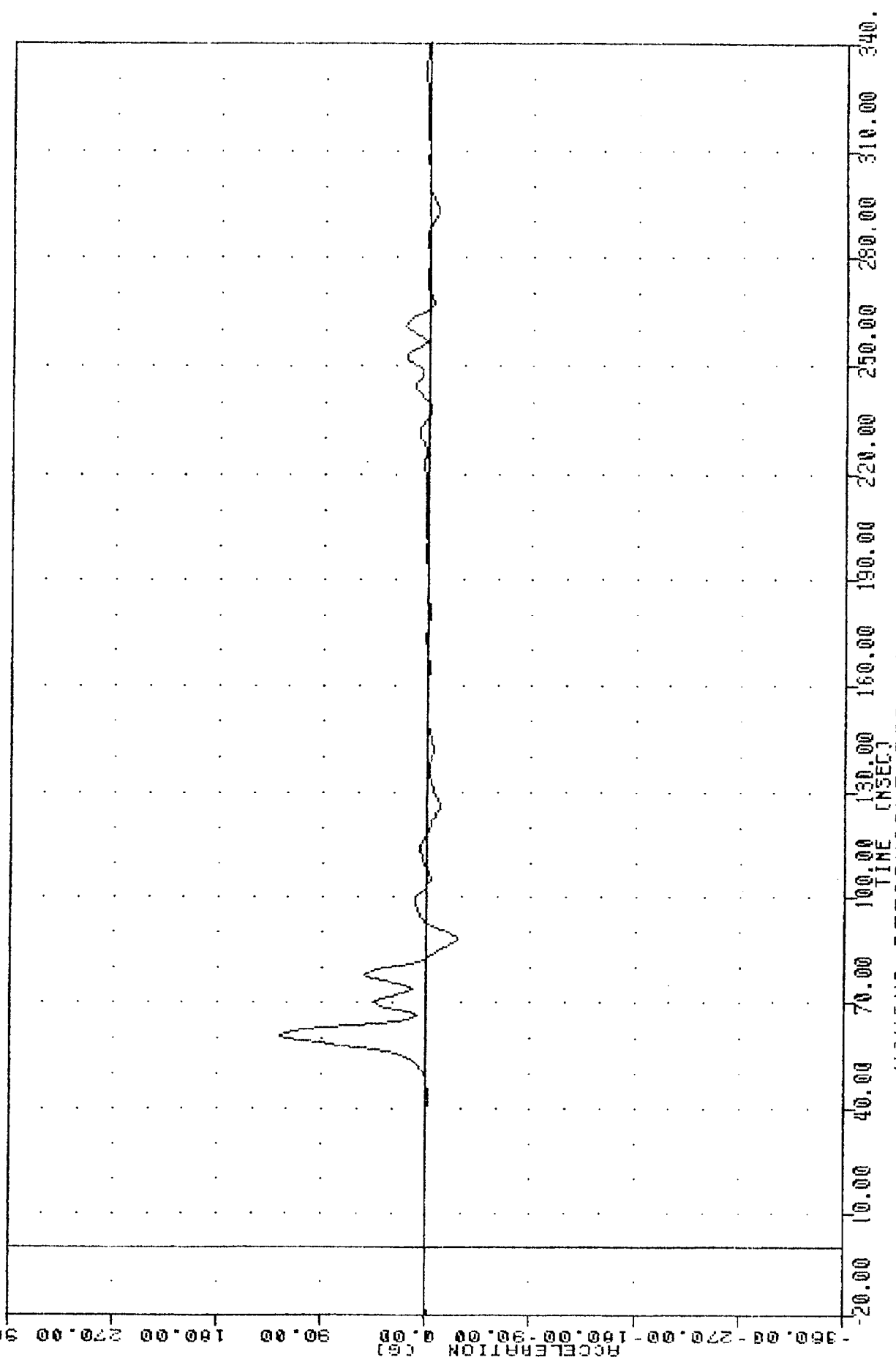
83313000000
 EVALUATION OF MOD VW FLEET
 83313000000
 LLYYV1
 FILTER = HSR1 136/ 189/ -50
 MIN, MAX VALUES = -0.12e 45.00, 37.43 e 340.00
 PLOT DATE 13 NOV 83 08:17.48



TMC
 EVALUATION OF MOD VN FLEET
 83313000000
 LLYRER

831108
 PLUT DATE 14-NOV-83 15:31:42

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -26.30 87.50 127.27 e 60.62

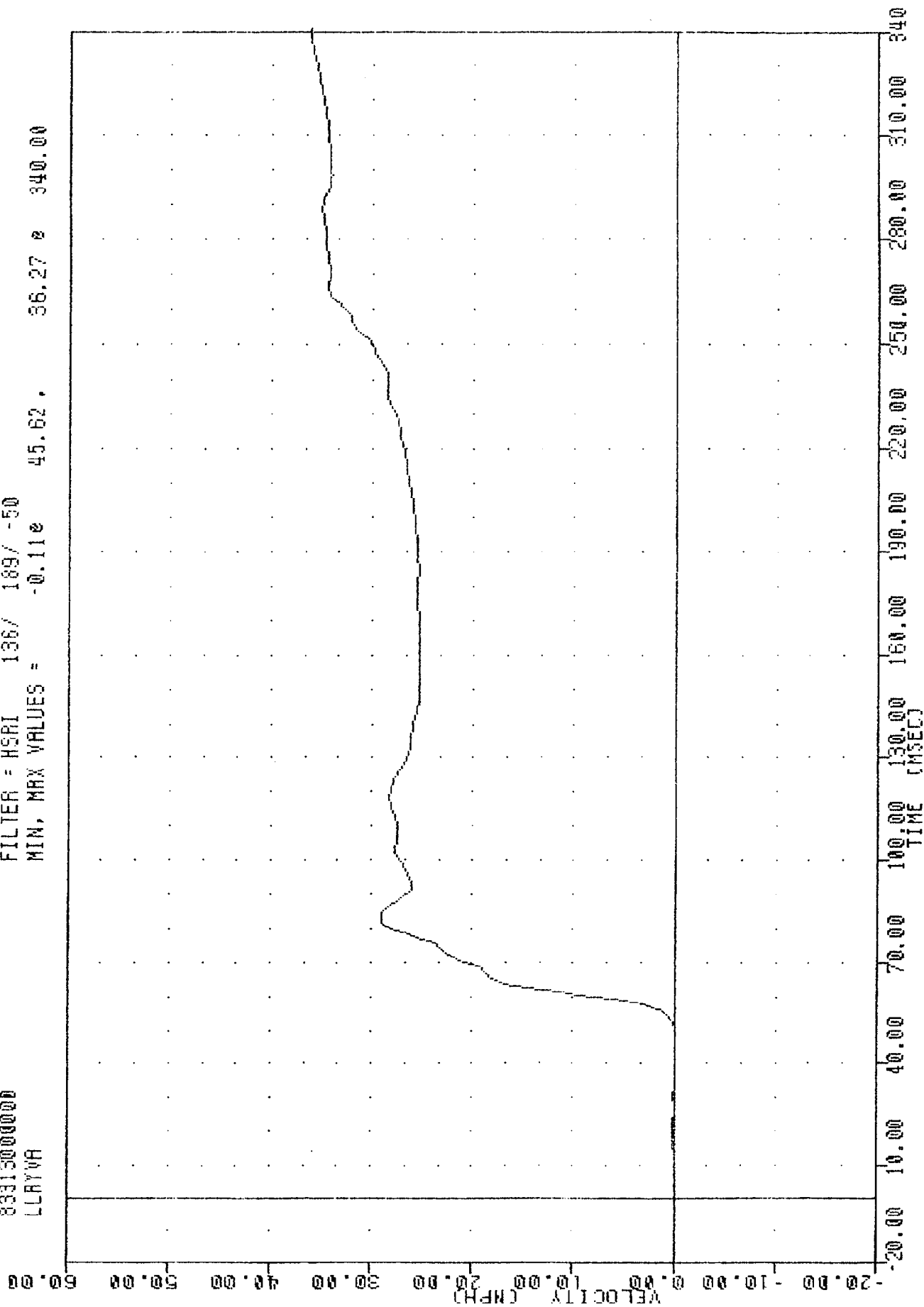


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LEFT LOWER RIB ACCELERATION -2 Y AXIS

TRC
EVALUATION OF MDD VW FLEET
833130000000
LLRYVA

831709
PLOT DATE 15-NOV-83 09:17:48

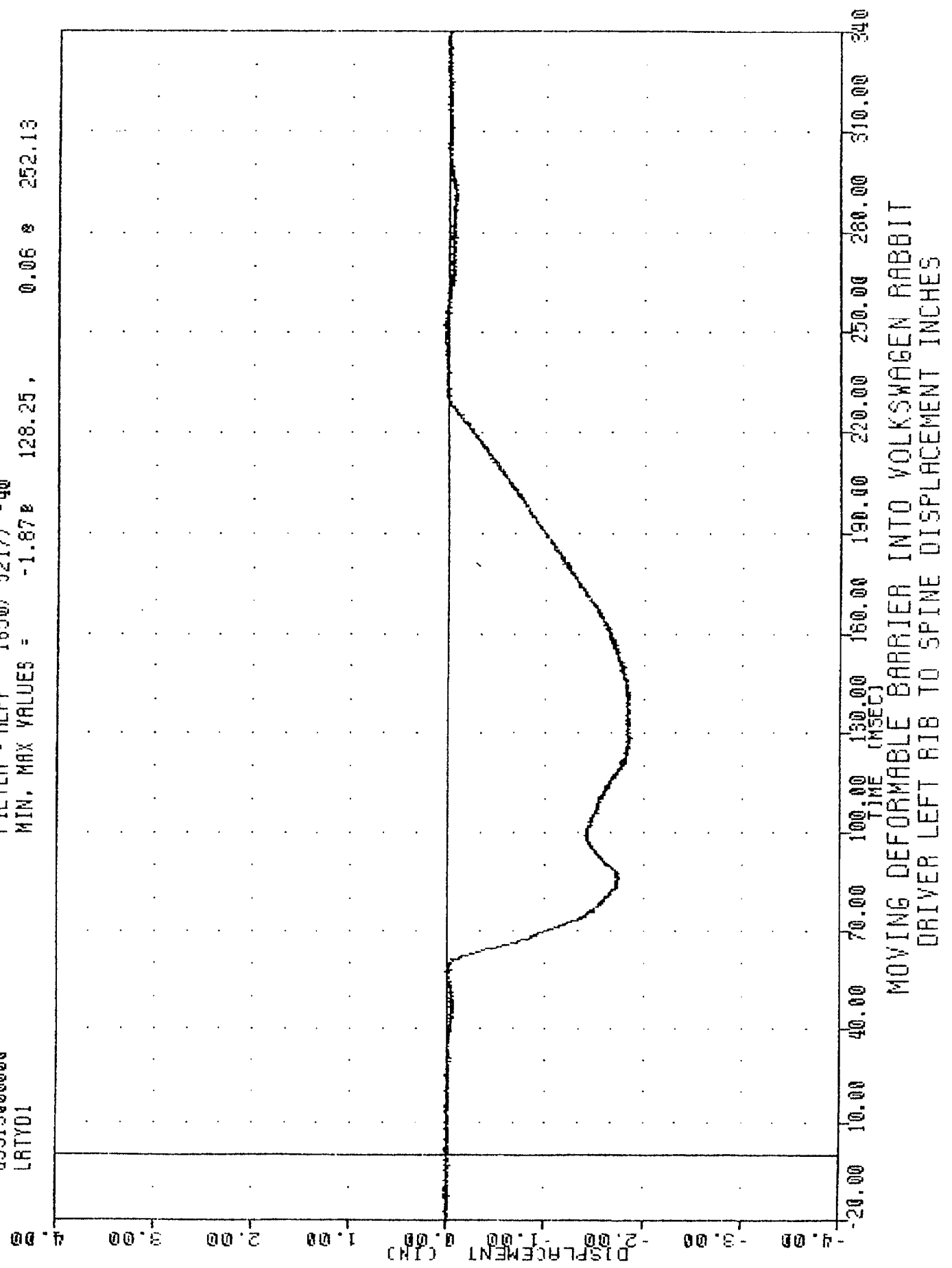
FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -0.11e 45.62, 36.27 e 340.00



831103
 EVALUATION OF MOD VW FLEET
 8313000000
 LRTY01

PLOT DATE 14 NOV 83 13:30:43

FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -1.87 128.25, 0.06 252.13

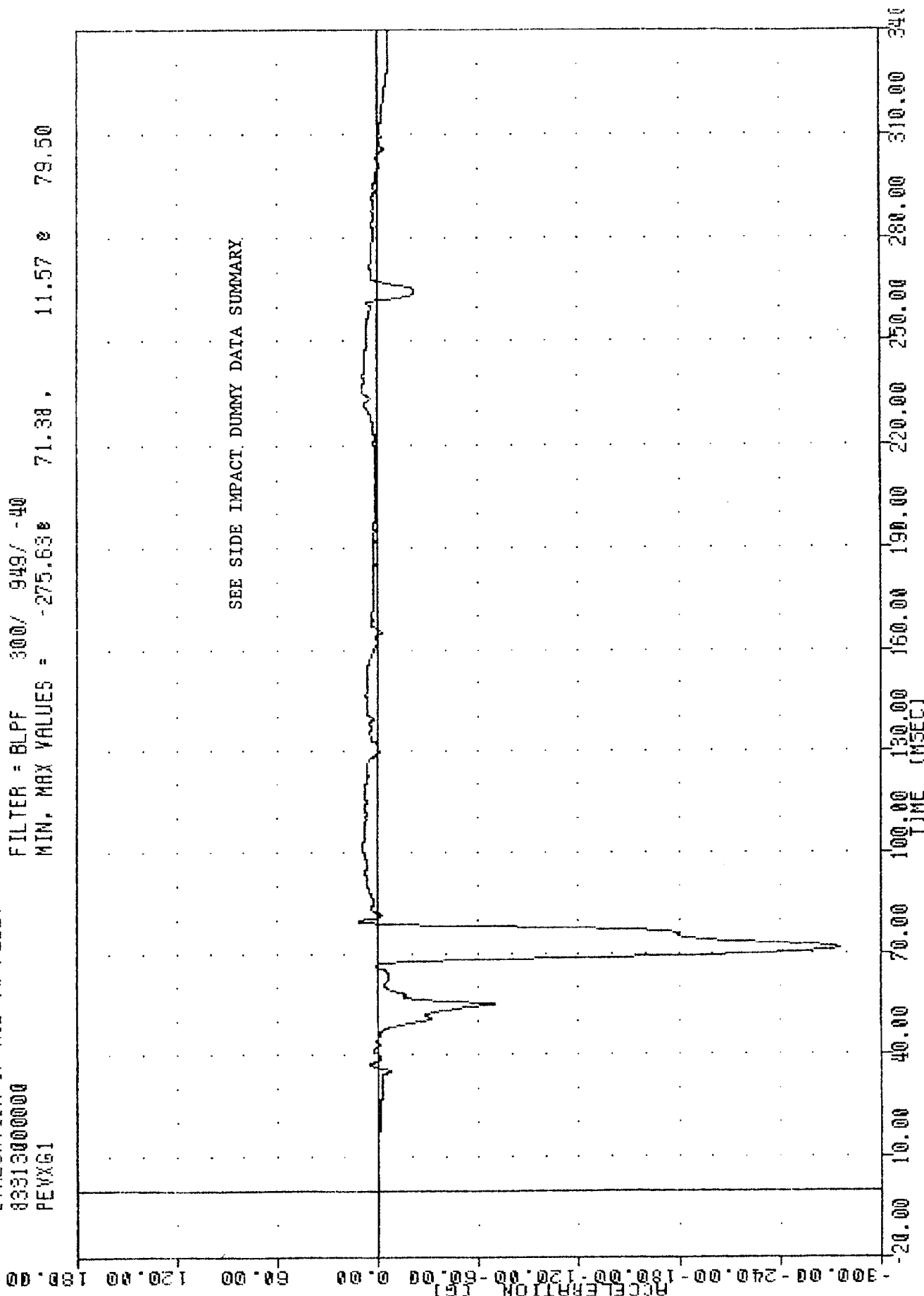


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LEFT RIB TO SPINE DISPLACEMENT INCHES

TRC
EVALUATION OF MOD YW FLEET
833130000000
PEVXG1

PLOT DATE 14-NOV-83 15:30:45

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -275.63 71.38 11.57 79.50

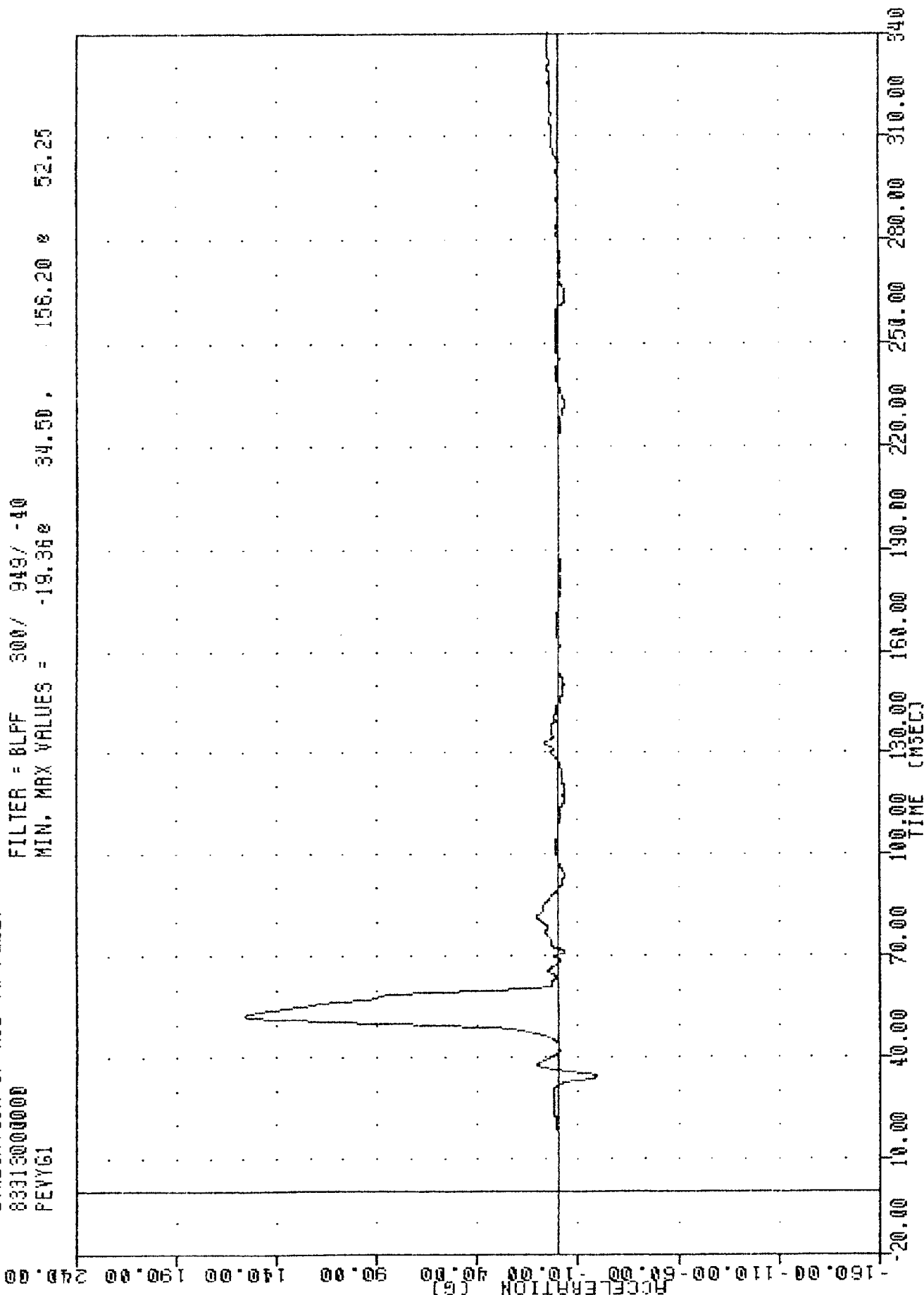


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER PELVIS ACCELERATION X AXIS

TMC 831108
 EVALUATION OF MOD VM FLEET
 833130000000
 PEVYG1

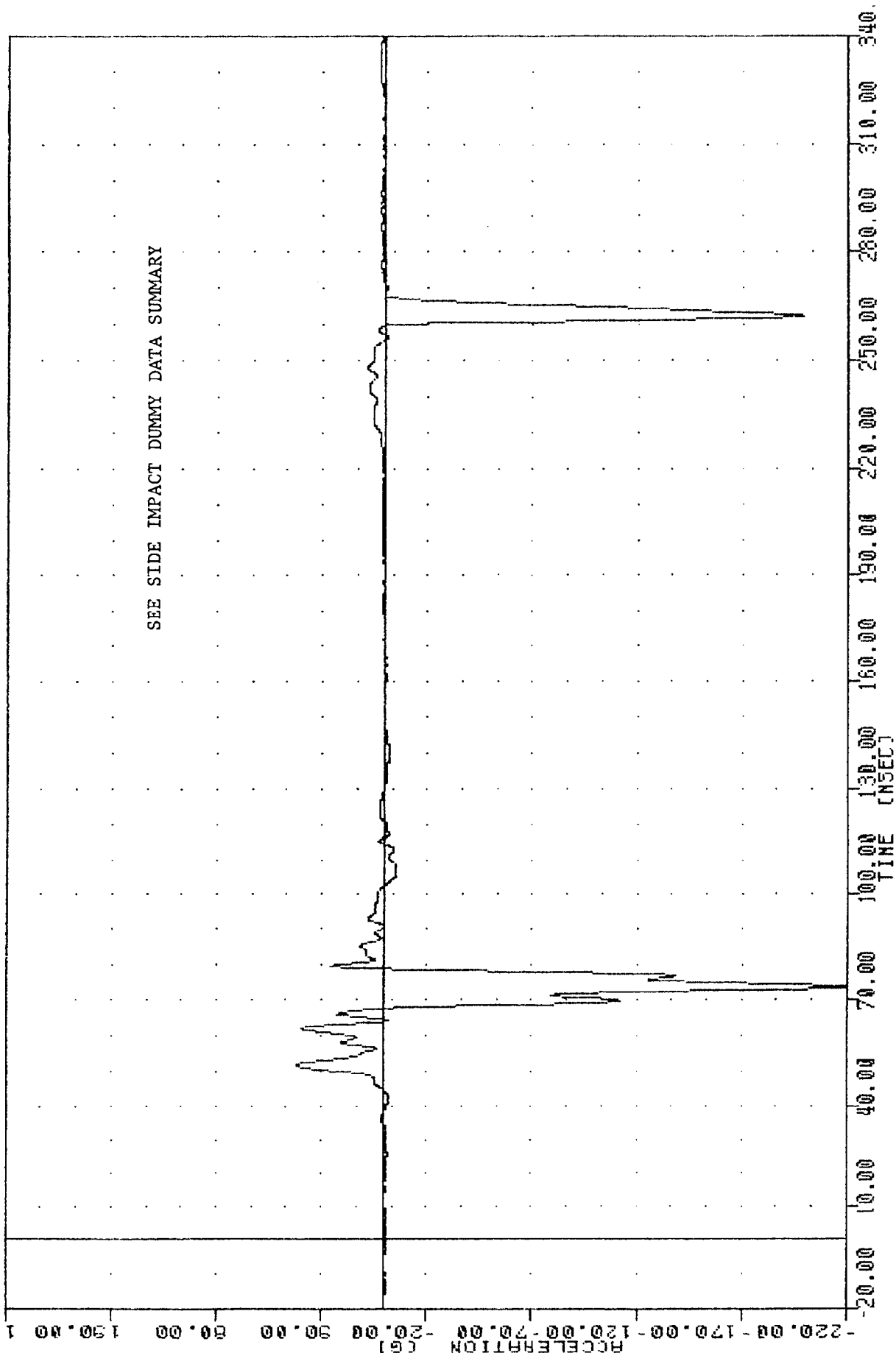
FDOT DATE 14 NOV 83 13:30:43

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -19.36 156.20 52.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PELVIS ACCELERATION Y AXIS

TMC 703103 14 NOV 03 13:30:43
 EVALUATION OF MOD VW FLEET
 83313000000
 PEVZ61
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -219.320 73.58 , 42.05 * 51.63



SEE SIDE IMPACT DUMMY DATA SUMMARY

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PELVIS ACCELERATION Z AXIS

PLT DATE 14-NOV-83 13:30:43

EVALUATION OF M00 YW FLEET

83313000000

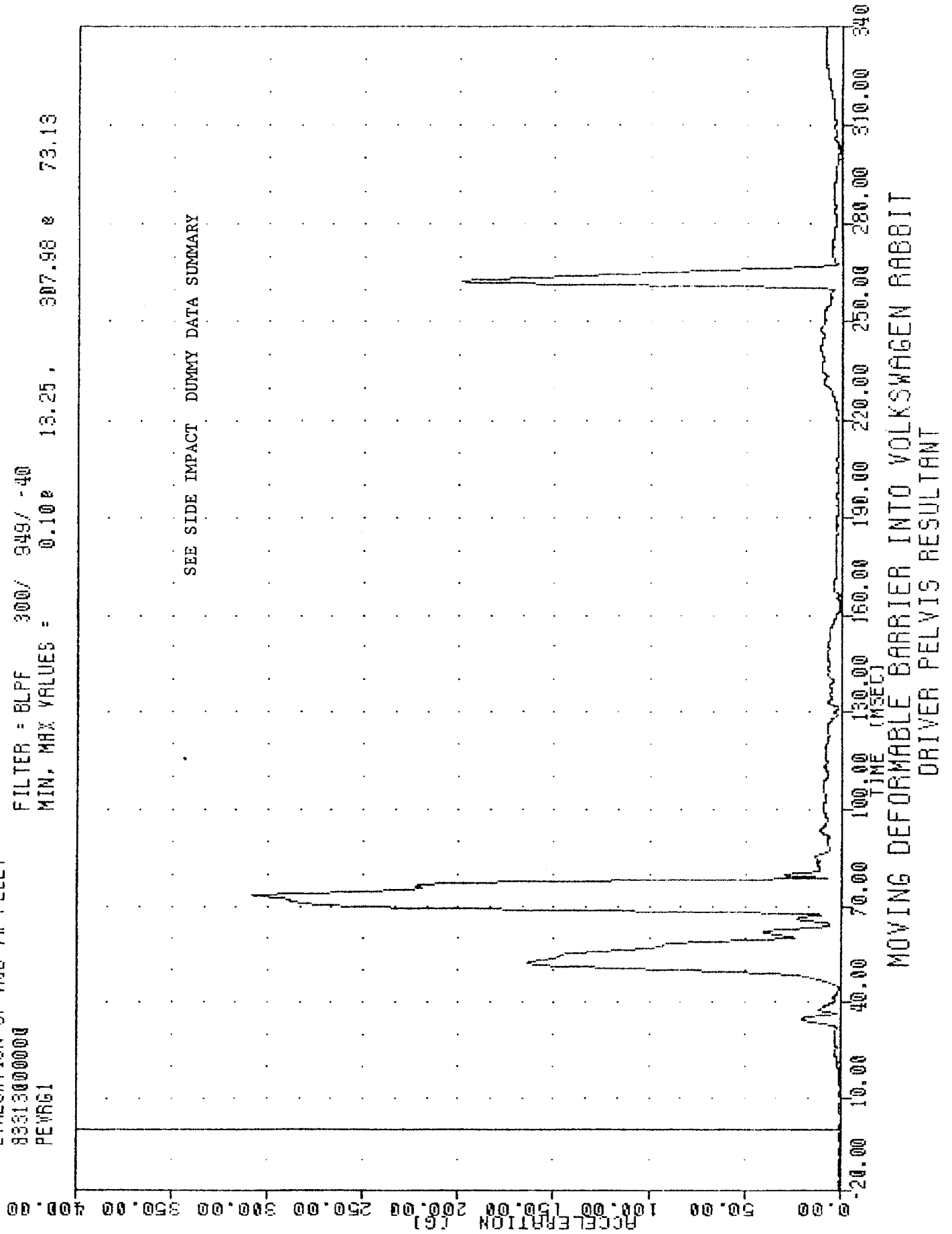
PEVRG1

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 0.10e

307.98 e 73.13

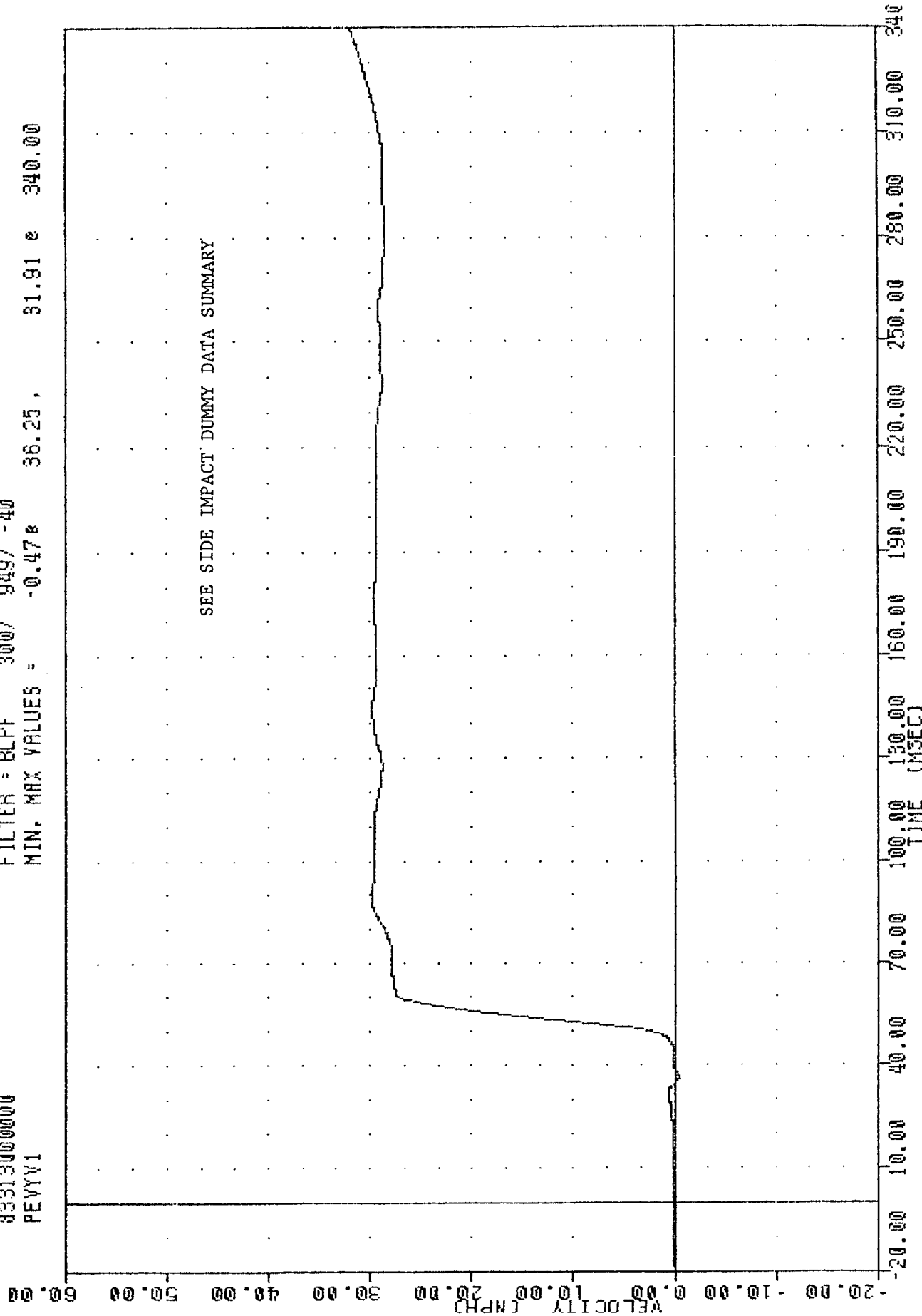
SEE SIDE IMPACT DUMMY DATA SUMMARY



TRC
EVALUATION OF MOD VW FLEET
83313000000
PEVYV1

PLOT DATE 15-NOV-83 09:18:23

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.478 36.25, 31.91 & 340.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING PEVYV1

TRC 831JWS 14 NOV 83 10:30:40

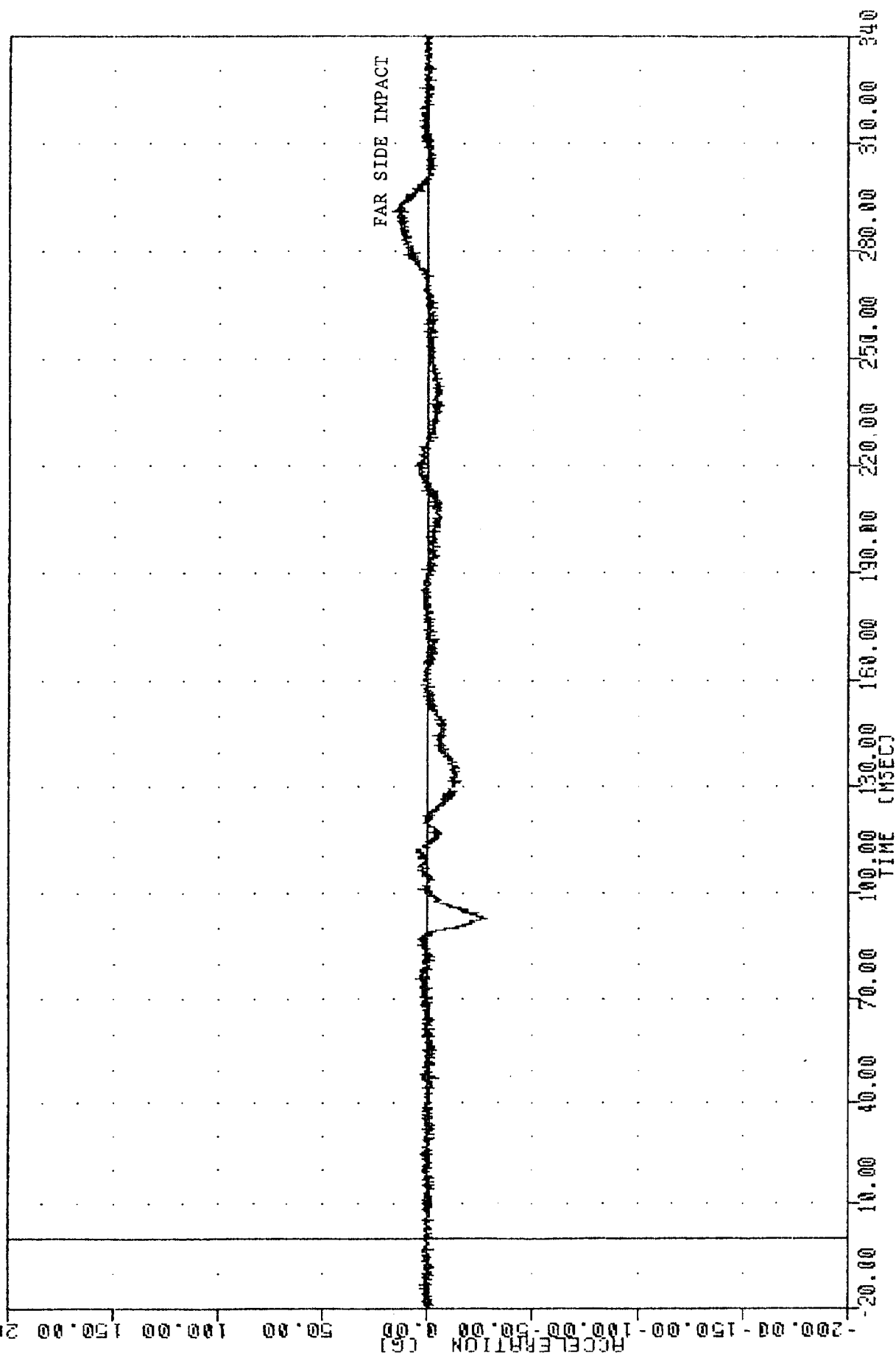
EVALUATION OF MDD VW FLEET

833130000000

HEADX63

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -28.32 92.50 16.85 290.88

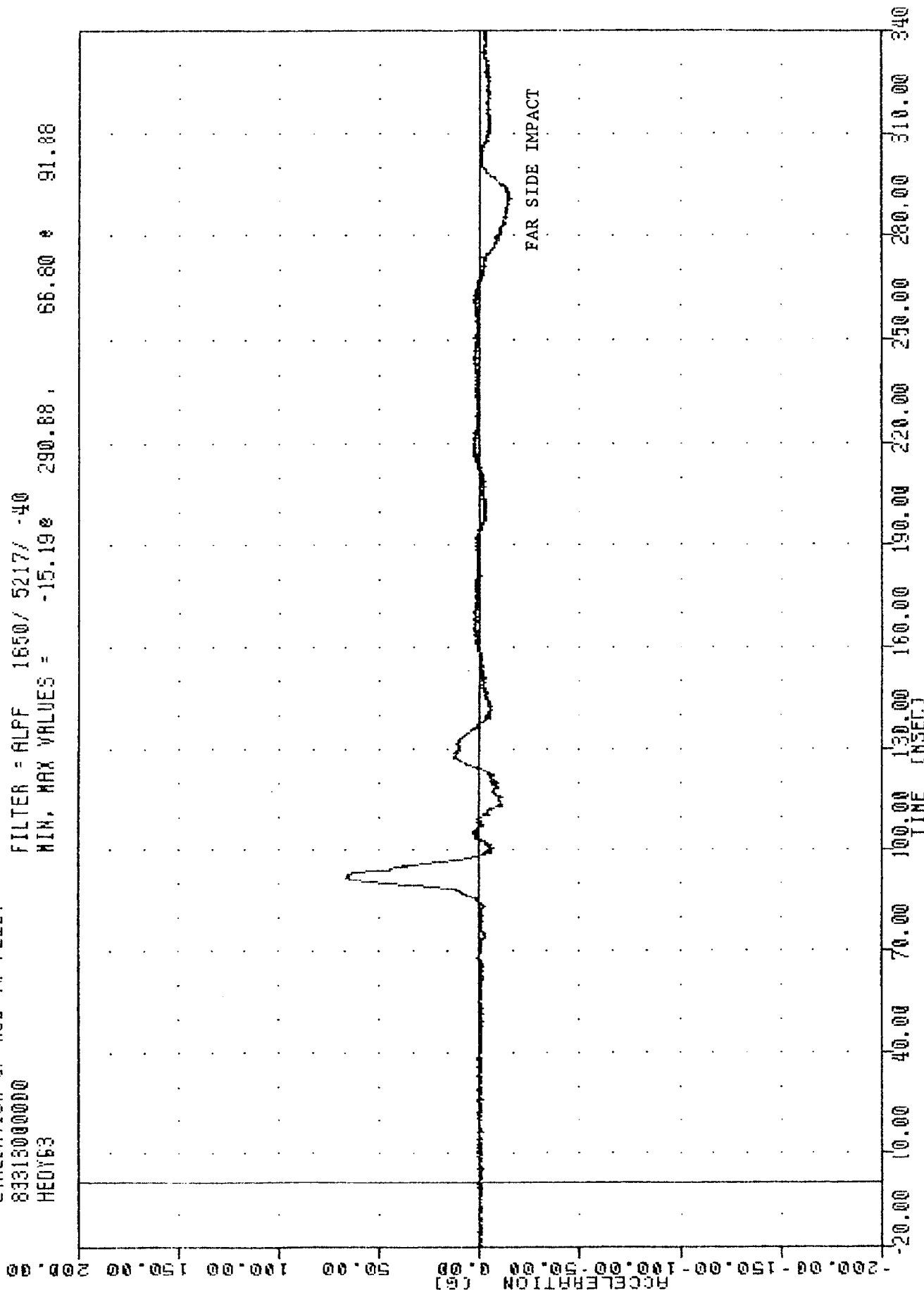


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD ACCELERATION X AXIS

THE
EVALUATION OF MOD VN FLEET
83313000000
HEDY63

PLUT DATE 14-NOV-83 15:30:45

FILTER = ALPF 1650/ 5217/ -40
MIN. MAX VALUES = -15.19e 290.88 , 66.80 e 91.88

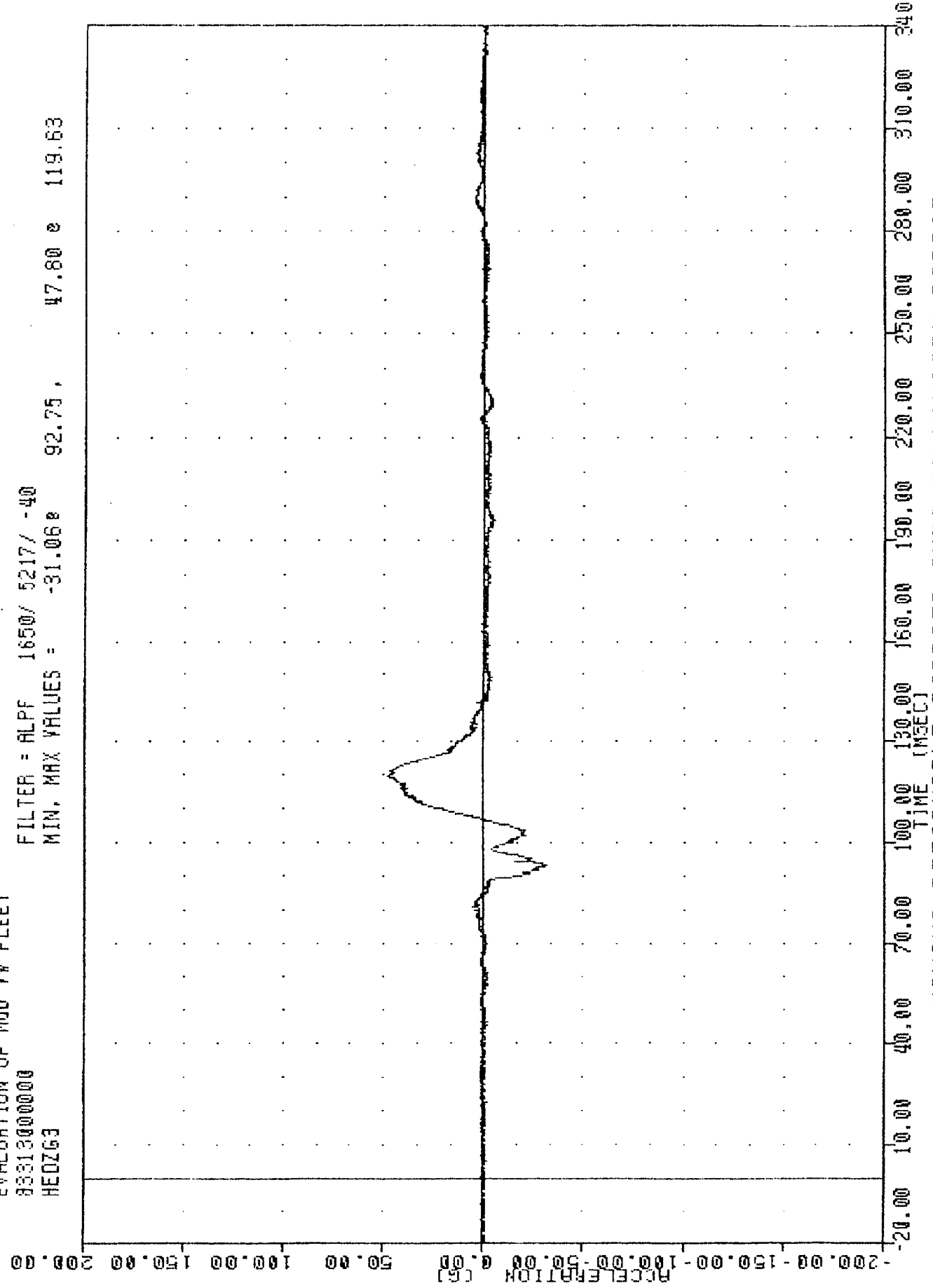


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD ACCELERATION Y AXIS

TRC
 EVALUATION OF MOD YW FLEET
 833130000000
 HEDZG3

PLOT DATE 14-NOV-83 15:30:45

FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -31.068 92.75 , 47.80 2 119.63



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER HEAD ACCELERATION Z AXIS

THC 831108 14-NOV-83 15:30:45

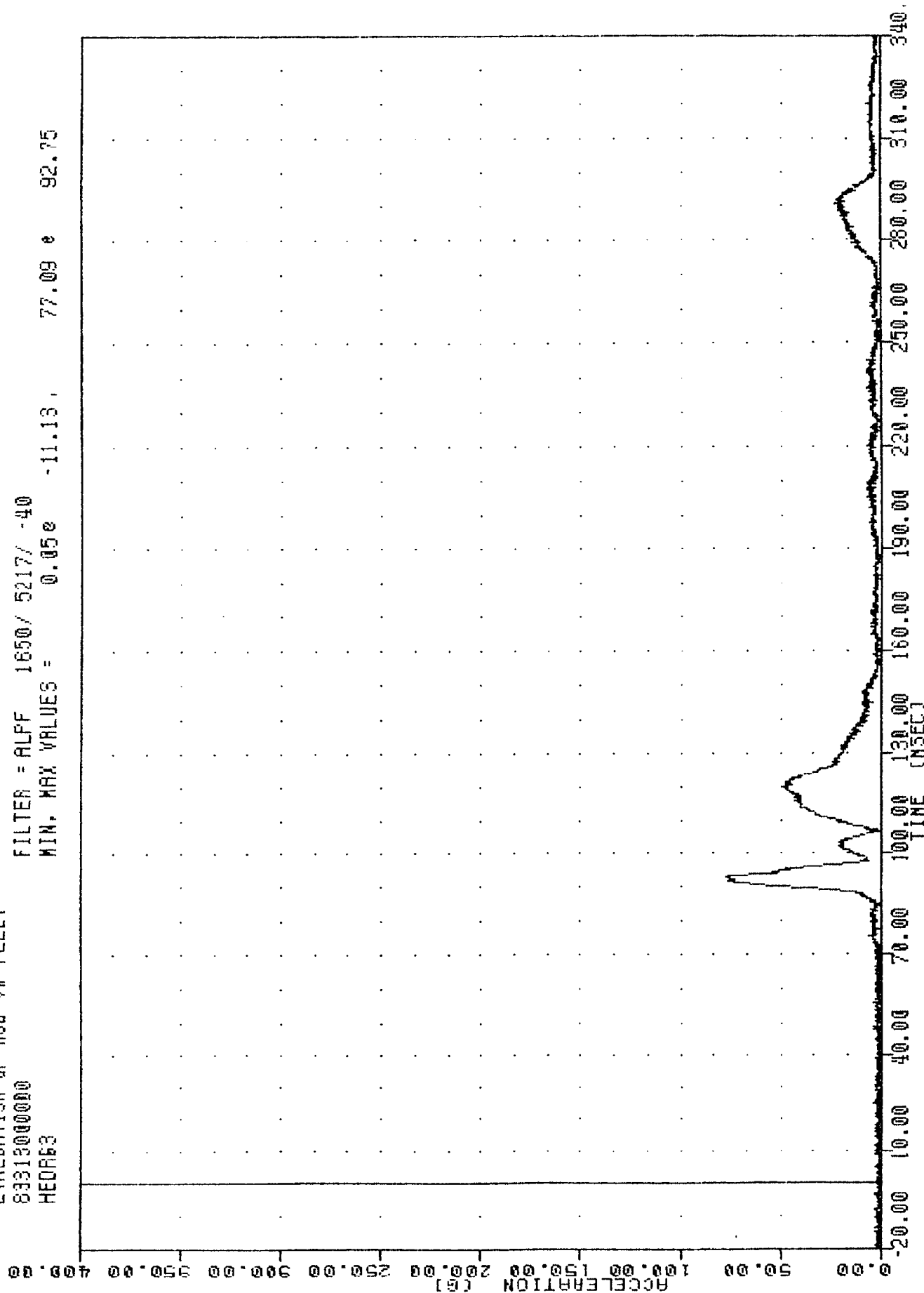
EVALUATION OF NOO VW FLEET

83313000000

HEAD63

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = 0.05e -11.13, 77.09 e 92.75



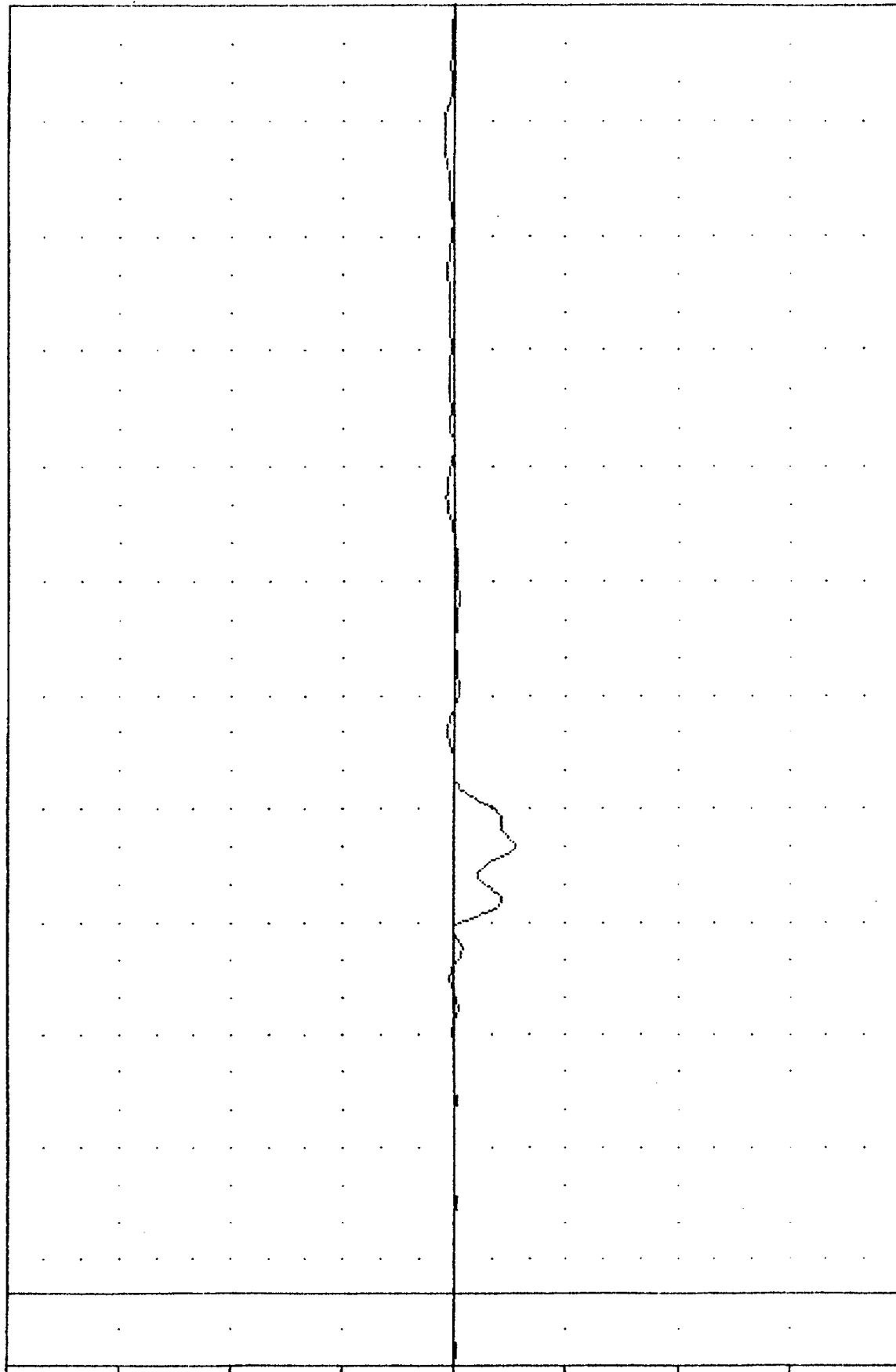
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD RESULTANT

TRC , 831109
 EVALUATION OF MOD YW FLEET
 833130000000
 101XG3

PLOT DATE 14-NOV-83 15:31:42

FILTER = HSRI 136/ 183/ -50
 MIN, MAX VALUES = -27.75e 119.38 , 4.98 e 308.13

ACCELERATION [G]

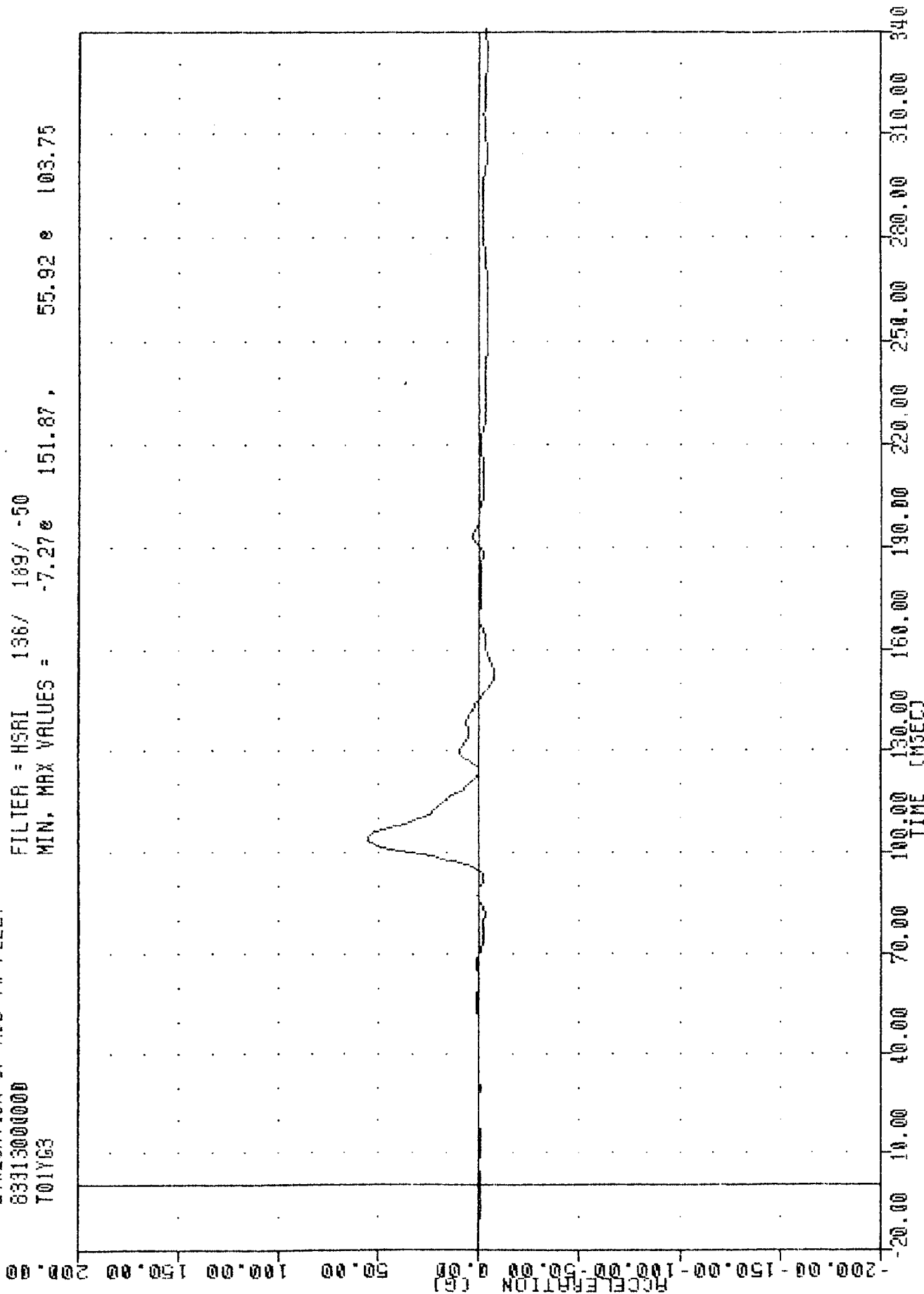


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE ACCELERATION X AXIS

TRC 831109
EVALUATION OF MDD VW FLEET
83113000000
701Y63

PLOT DATE 14-NOV-83 15:31:42

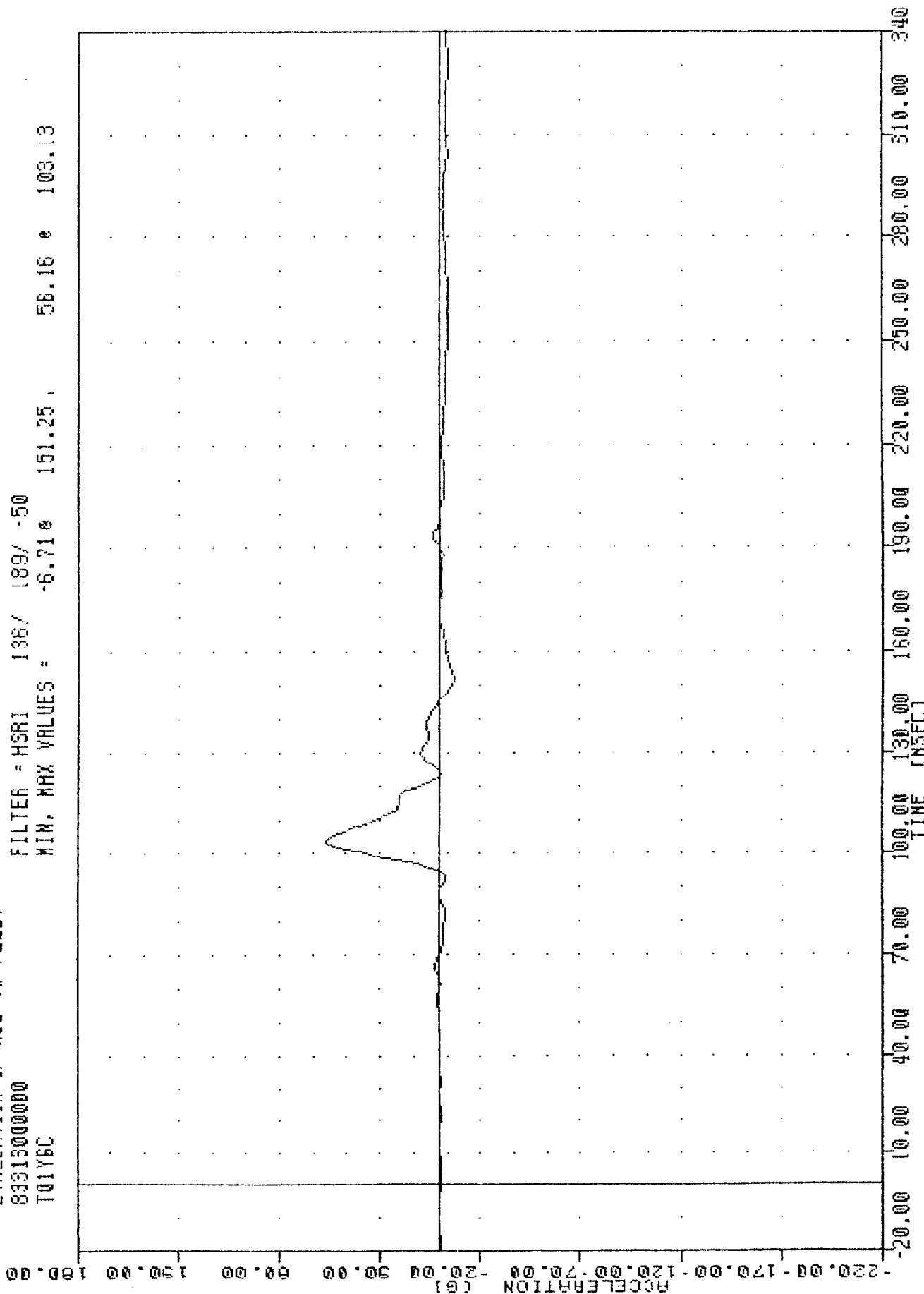
FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -7.27e 151.87, 55.92 e 103.75



TBC
 EVALUATION OF MOD VW FLEET
 833130000000
 T01Y6C

FLUT DATE 14-NOV-83 15:31:42

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -6.718 151.25 56.16 e 103.13

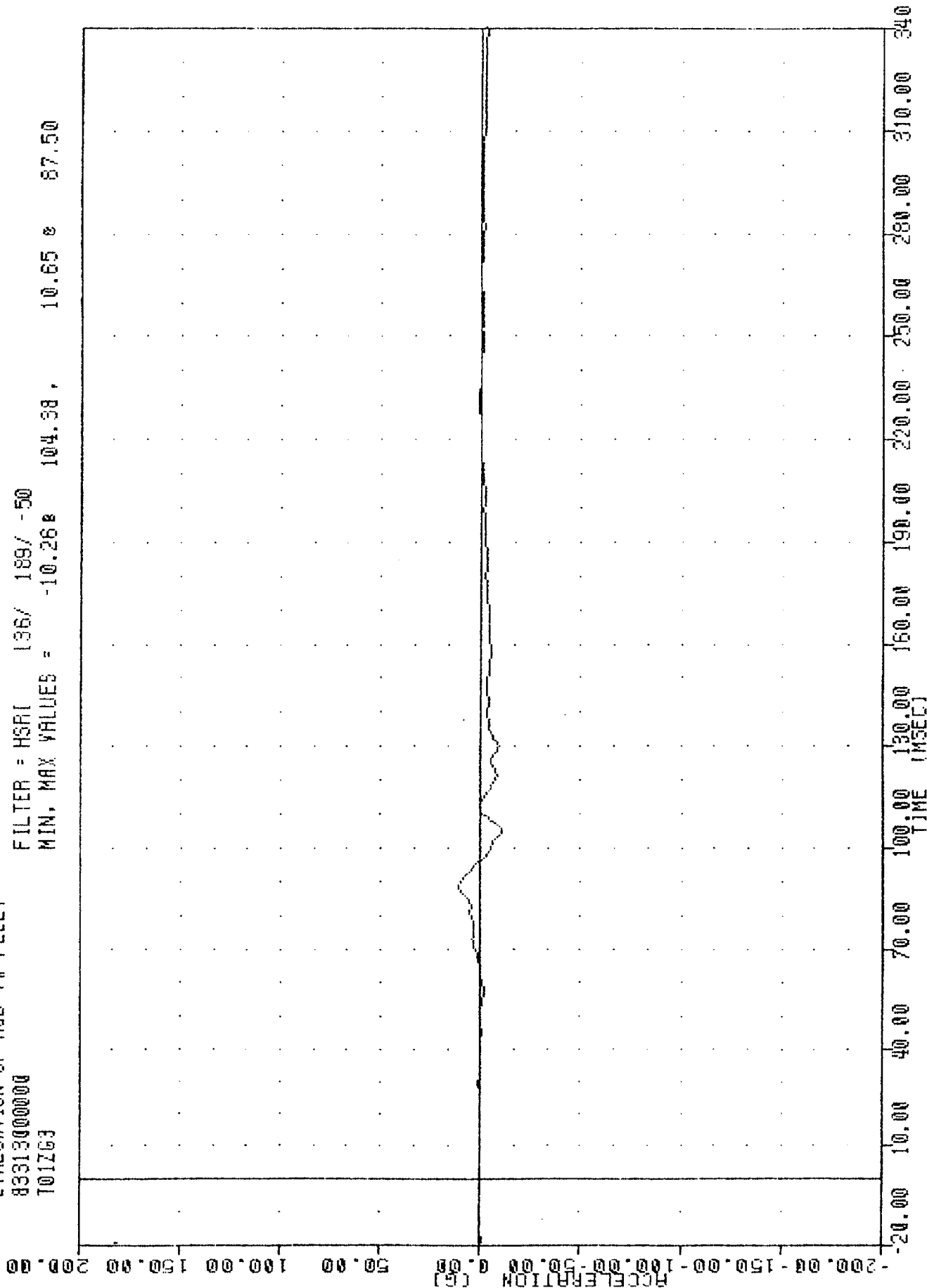


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE ACCELERATION -2 Y AXIS

IHC
 EVALUATION OF MOD VW FLEET
 833130000000
 701ZG3

PLOT DATE 14-NOV-88 15:31:42

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -10.268 104.38, 10.65 87.50

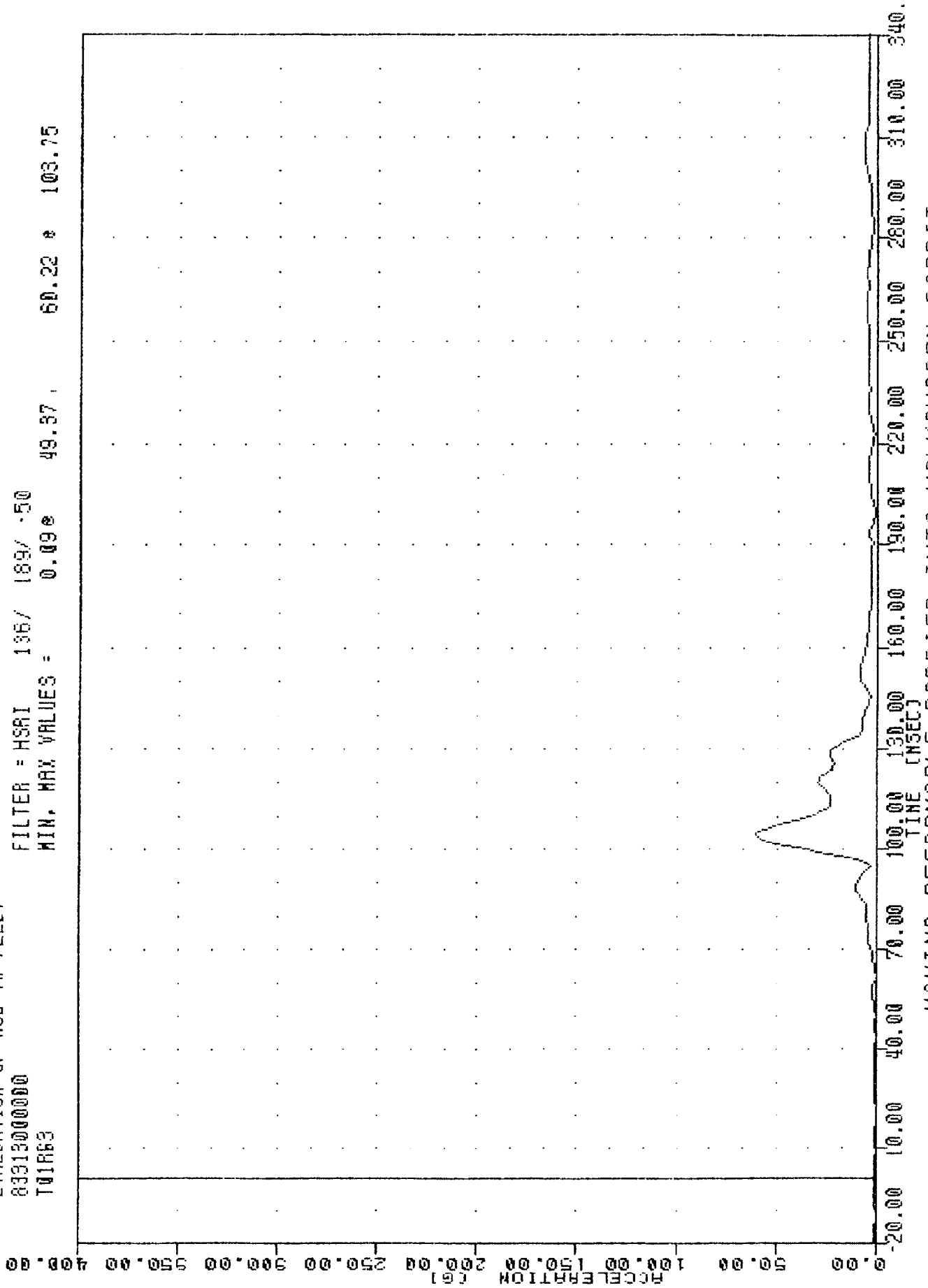


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE ACCELERATION Z AXIS

TAC
EVALUATION OF MOD VW FLEET
83313000000
T01R63

PLOT DATE 14-NOV-83 15:31:42

FILTER = HSRI 136/ 189/ .50
MIN. MAX VALUES = 0.09 49.37 60.22 103.75

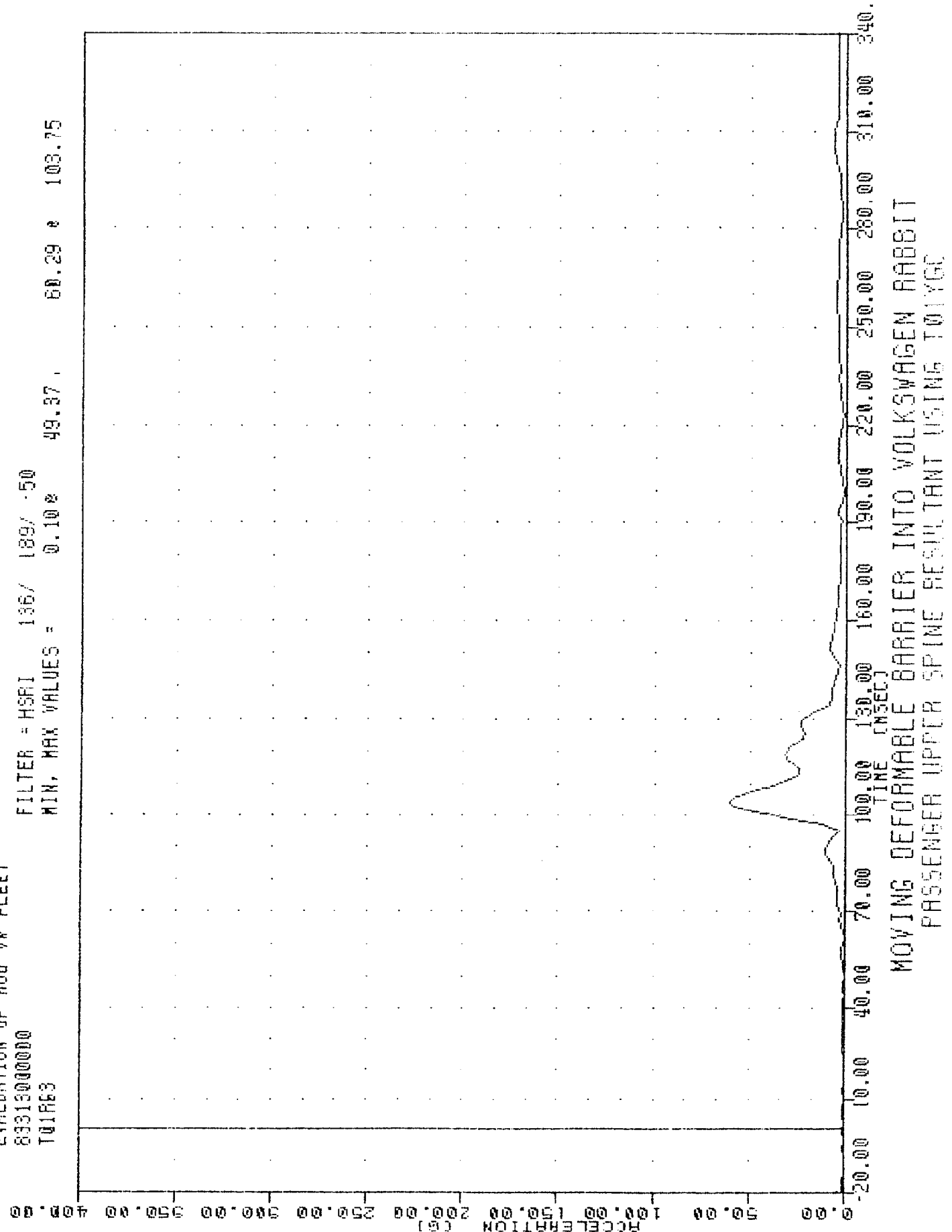


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE RESULTANT

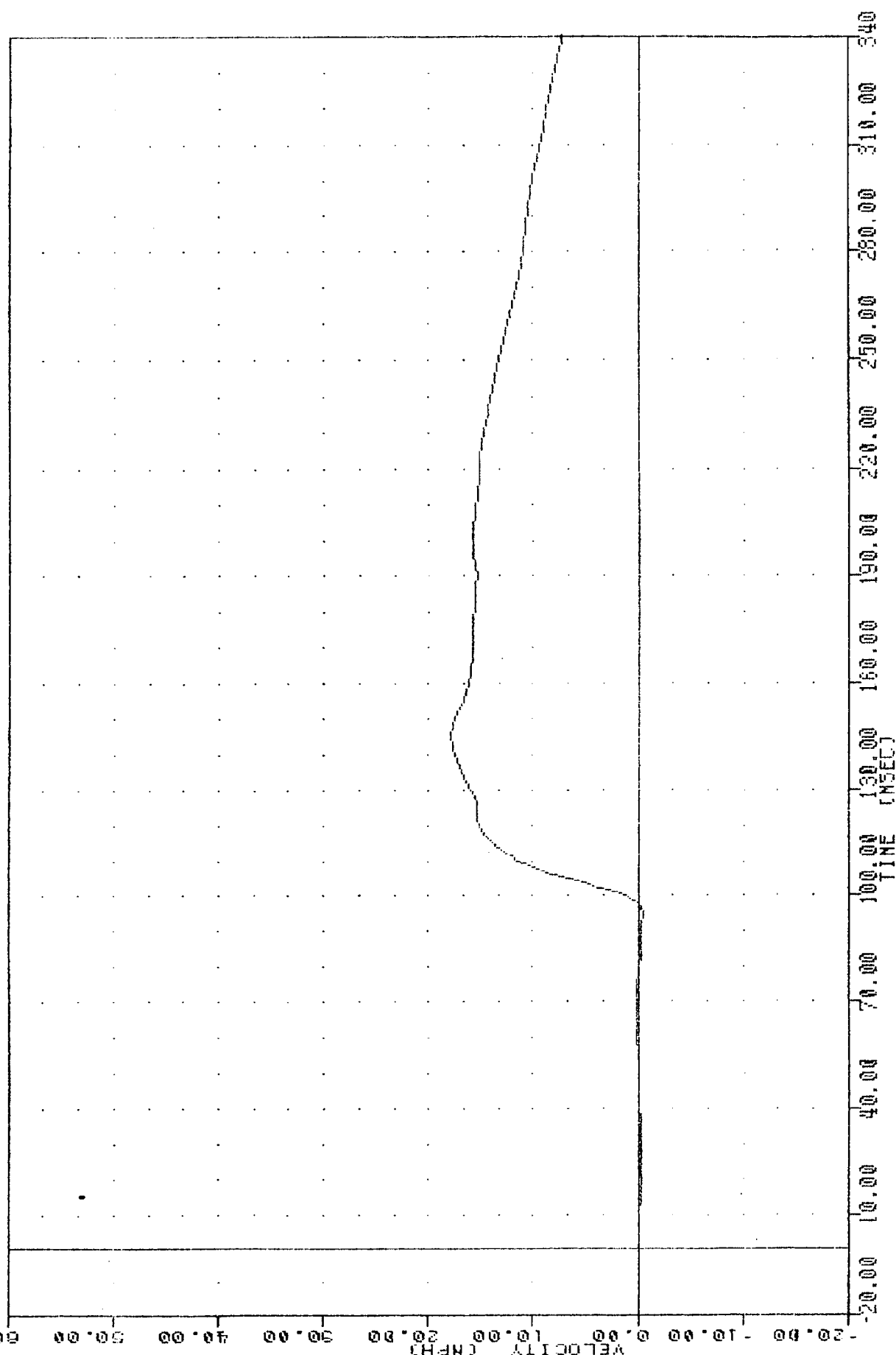
TAC
 EVALUATION OF 800 VW FLEET
 833130000000
 T01R63

FLUT DATE 14-NOV-83 15:32:53

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = 0.10e 49.37, 80.29 e 103.75

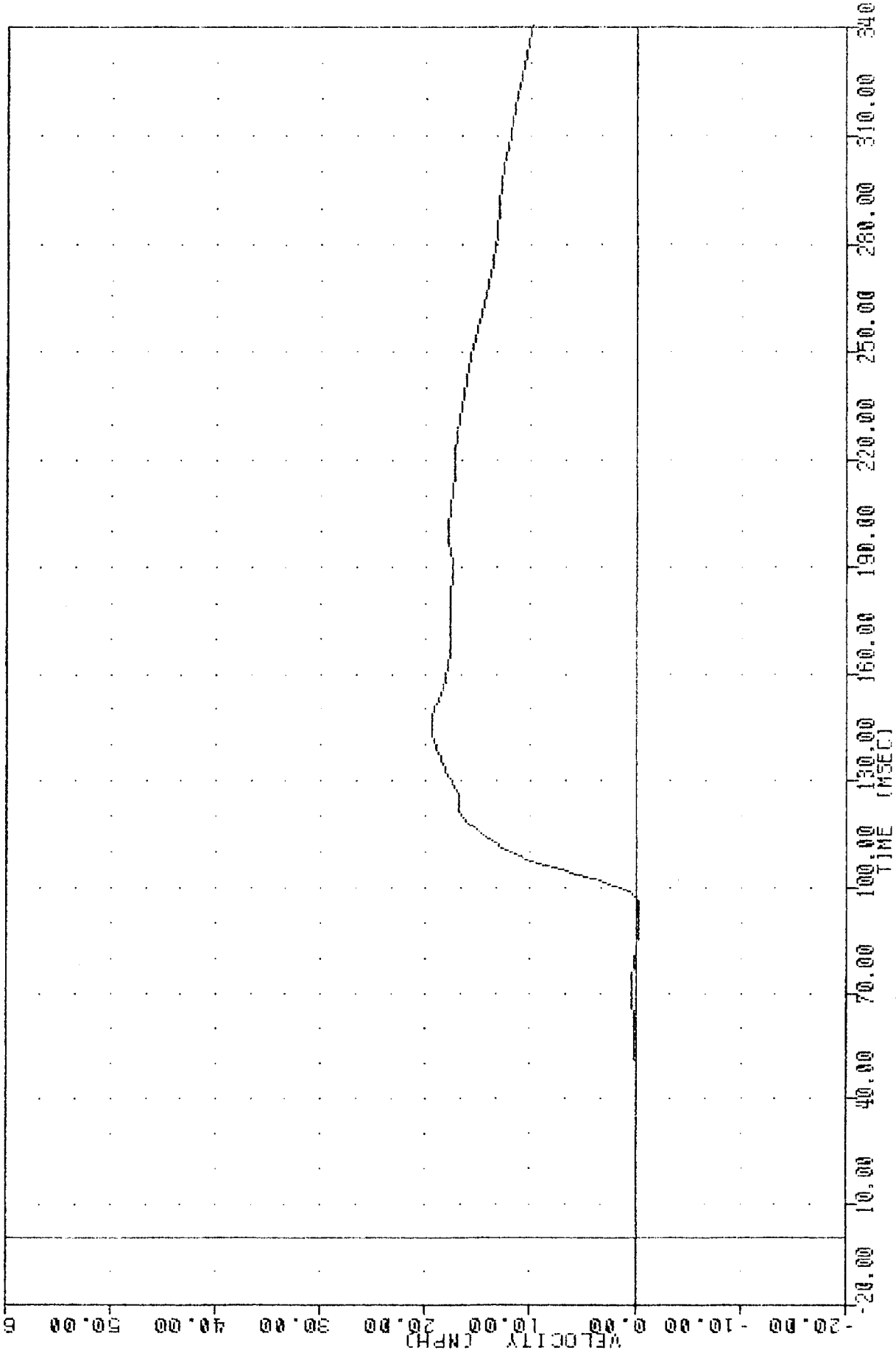


TMC 7-03105 13 NOV 63 03:17:40
 EVALUATION OF MOD VN FLEET
 83313000000
 T01YV3
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.47e 93.75, 17.84 e 145.00



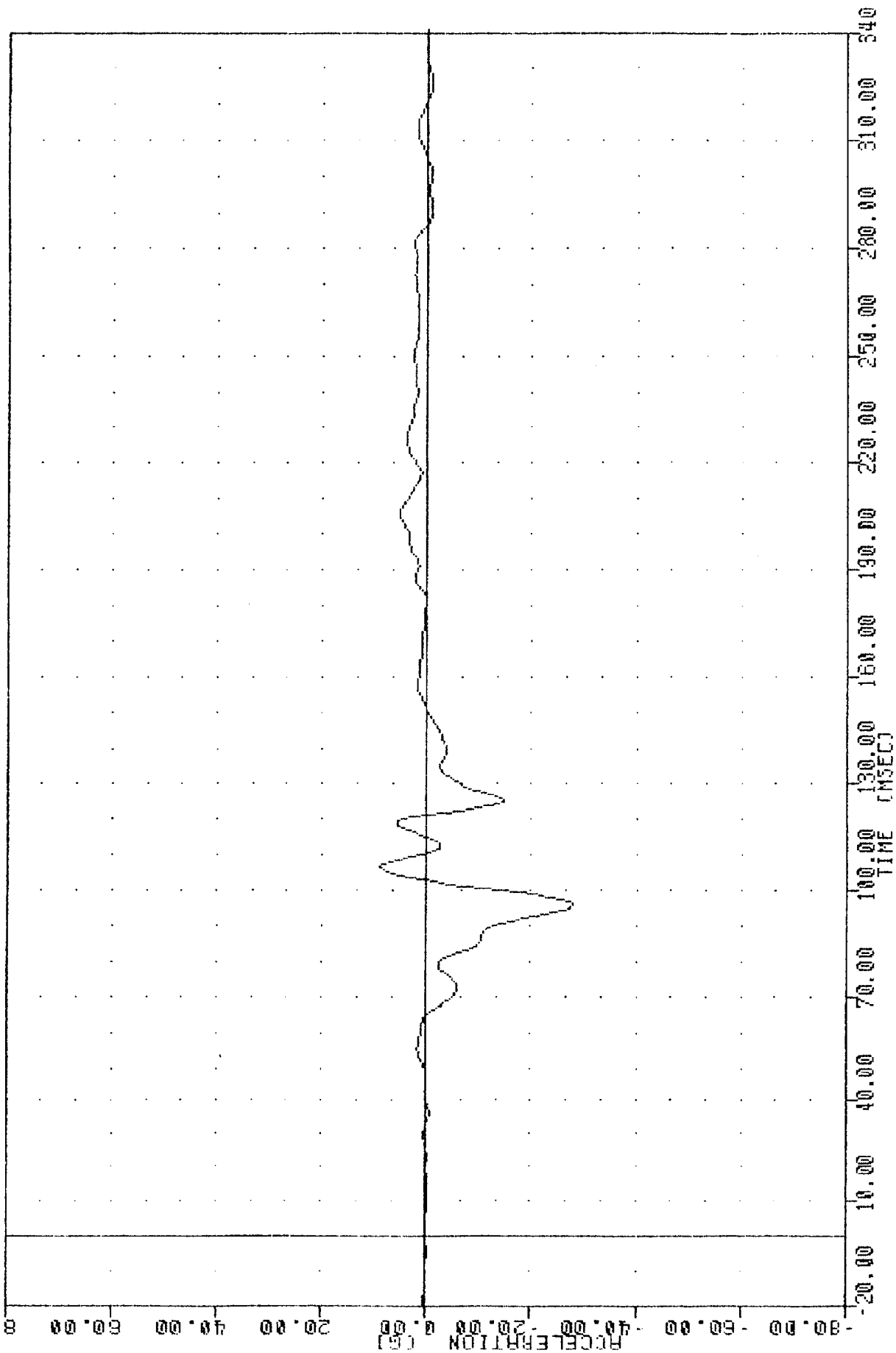
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01Y63

TMC 831103 13 NOV 83 03:17:00
 EVALUATION OF MOD VW FLEET
 83313000000
 T01YVC
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.400 93.75, 19.47 & 145.00



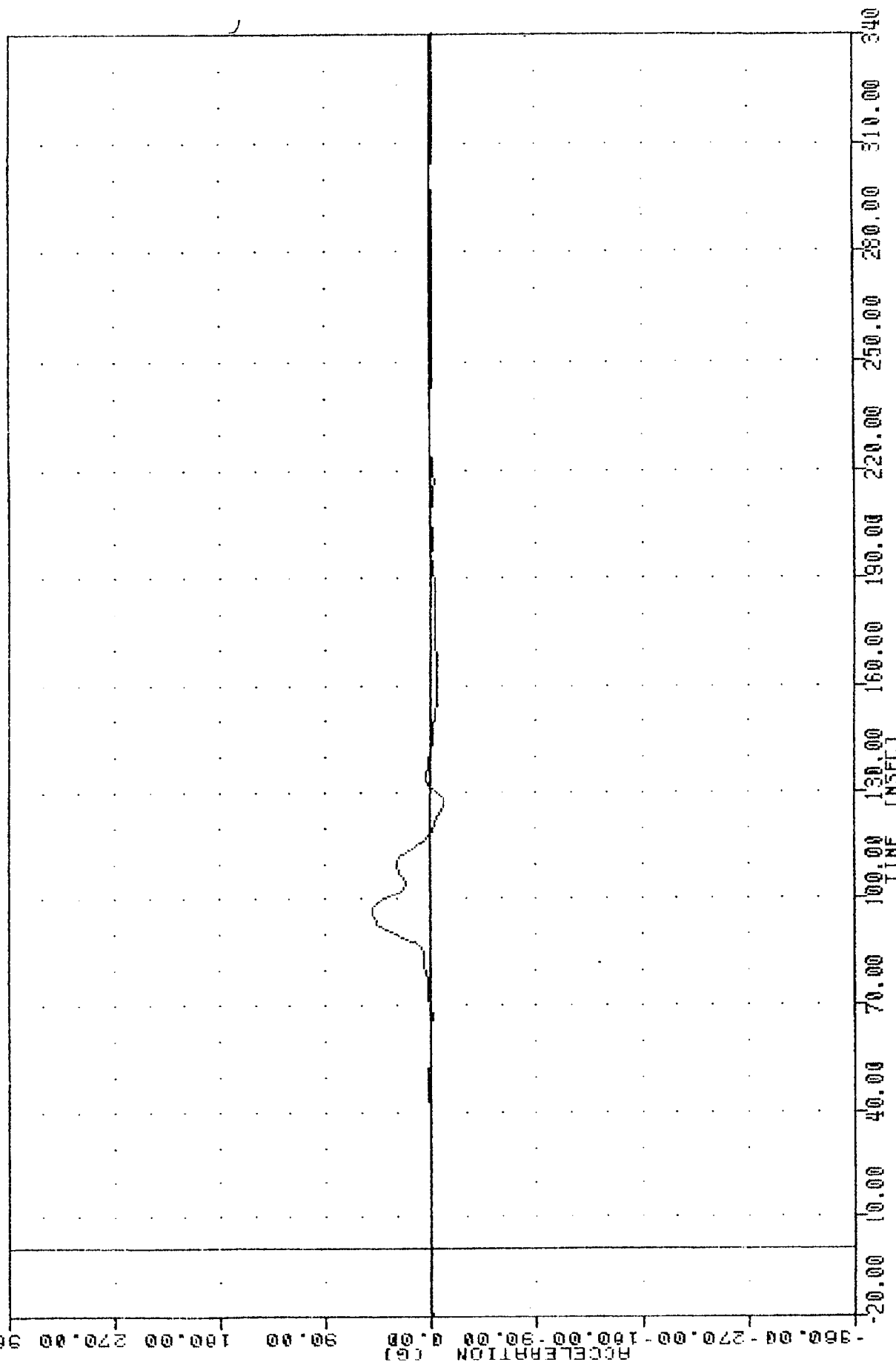
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YGC

TIME 7:31 PM 13 NOV 83 13:31.42
 EVALUATION OF MOD VW FLEET
 83313000000
 T12X63
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -28.07e 95.00, 8.94 e 105.62



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

THE 831100 11 NOV 80 1031:46
 EVALUATION OF MOD VW FLEET
 83313000000
 T12Y63
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -11.90e 126.25
 50.33 e 96.25

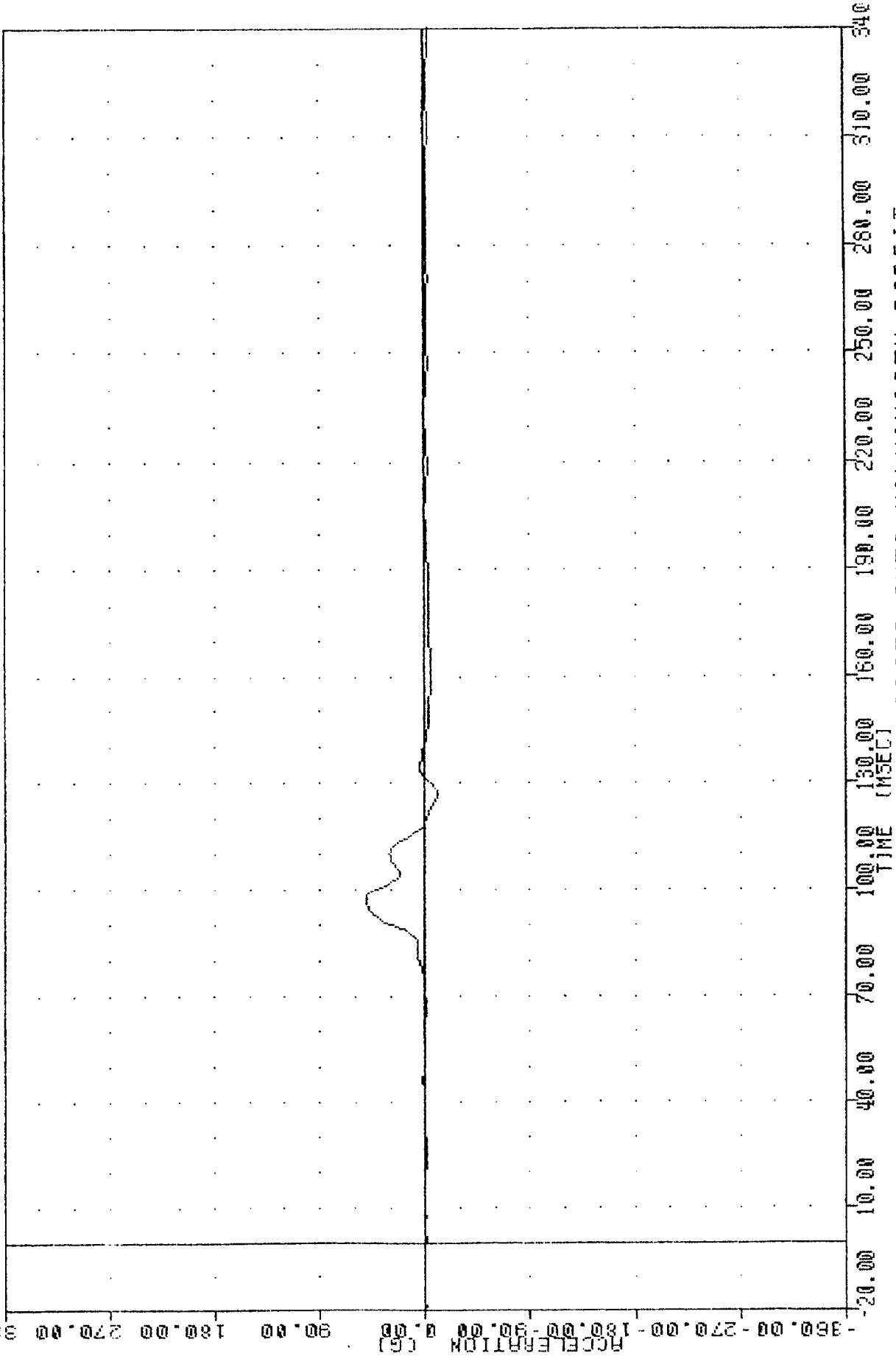


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LOWER SPINE ACCELERATION Y AXIS

HMC 7-831 103
 EVALUATION OF MOD YW FLEET
 833130000000
 112YGC

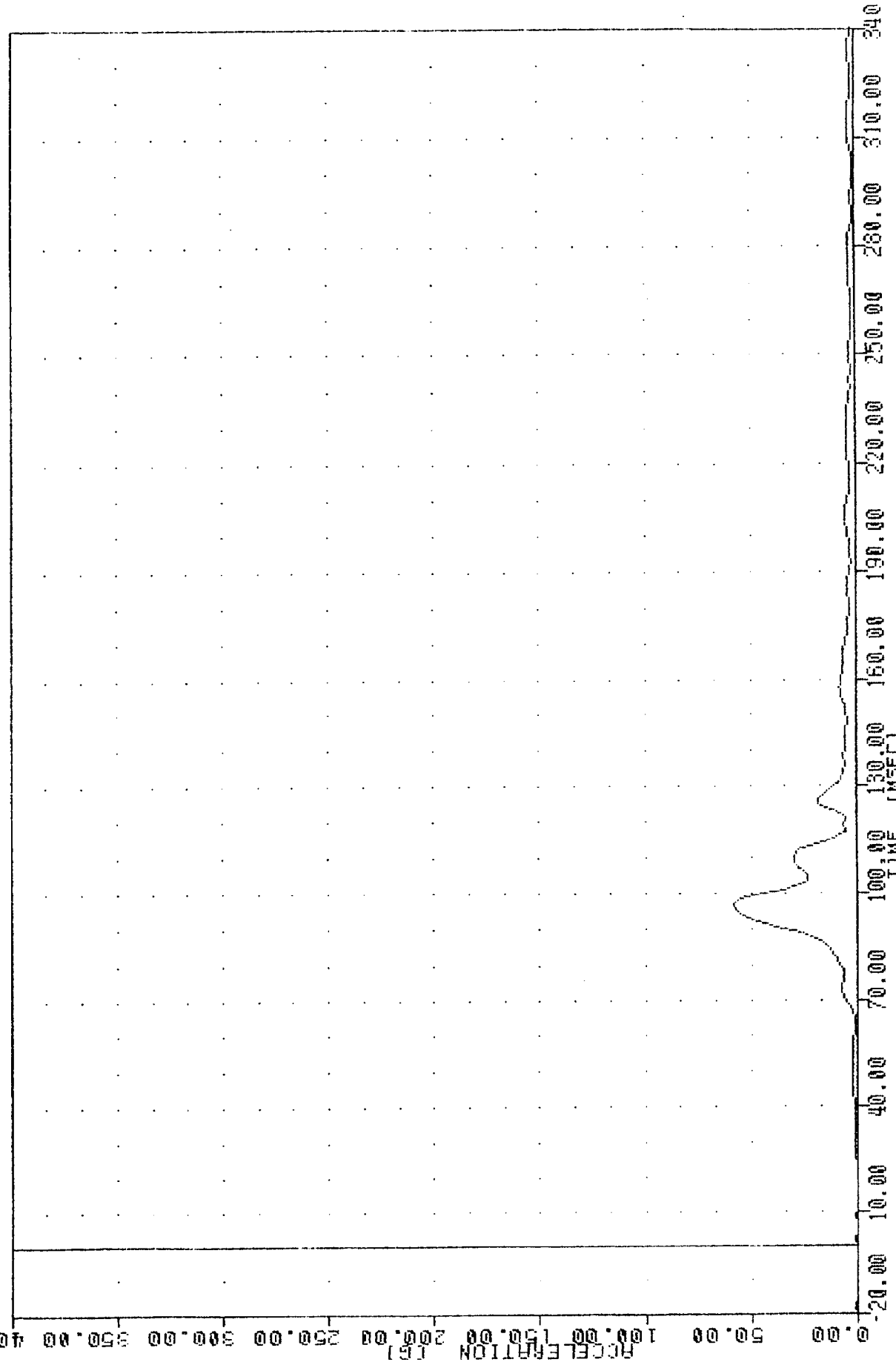
FLEET DATE 14 NOV 83 13:31 PM

FILTER = HSRI 136/ 169/ -50
 MIN. MAX VALUES = -11.75% 126.25, 50.58% 96.25



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

83313000000
 112863
 EVALUATION OF MOD VN FLEET
 83313000000
 112863
 FILTER = HSR1 188/ 189/ -50
 MIN, MAX VALUES = 0.00% 4.38, 58.05% 95.63

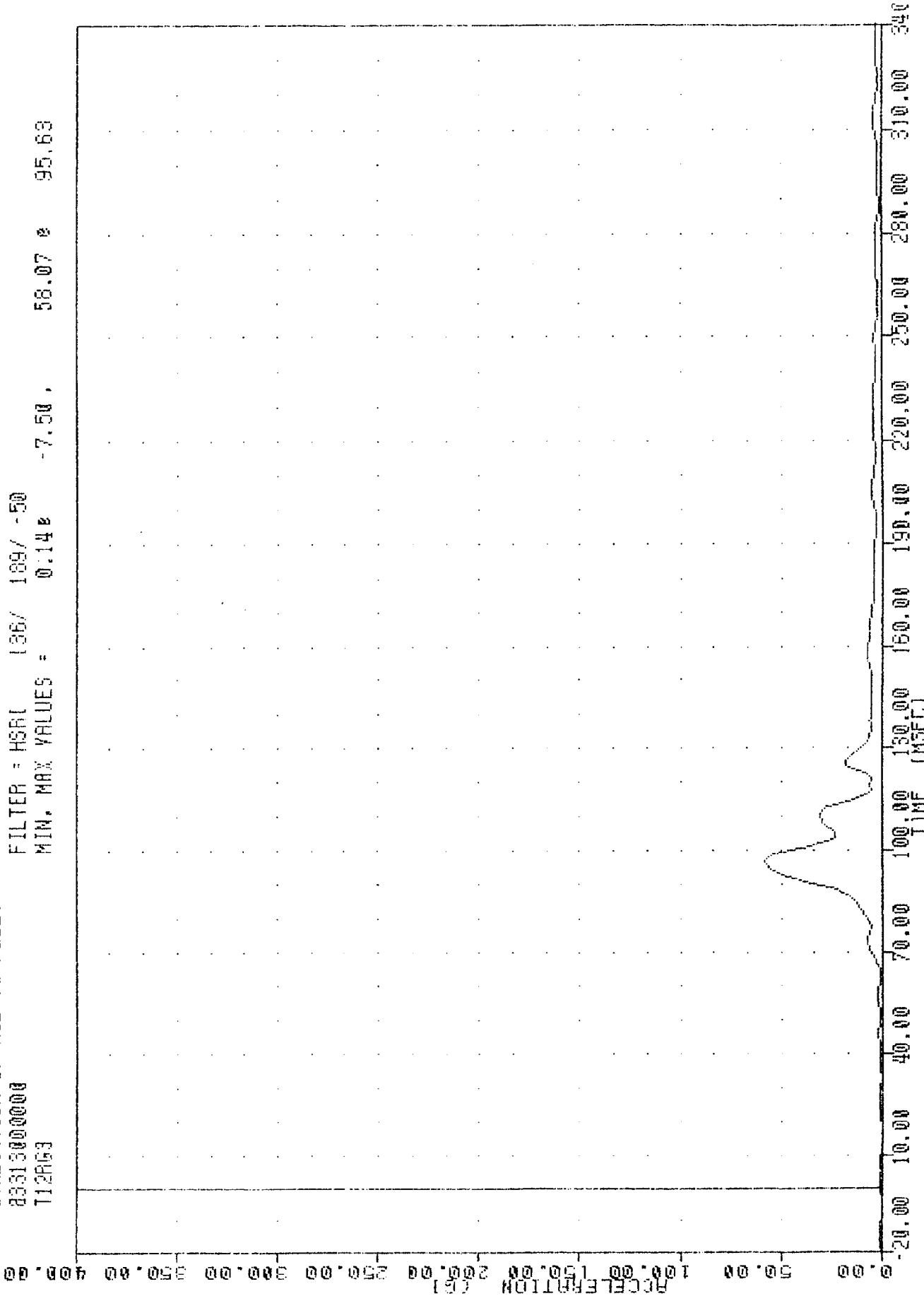


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LOWER SPINE RESULTANT

TBC
 EVALUATION OF MOD VW FLEET
 23313000000
 T12R63

PLOT DATE 14-NOV-83 15:32:55

FILTER = HSRL 136/ 189/ -50
 MIN. MAX VALUES = 0.148 -7.50 58.07 95.63

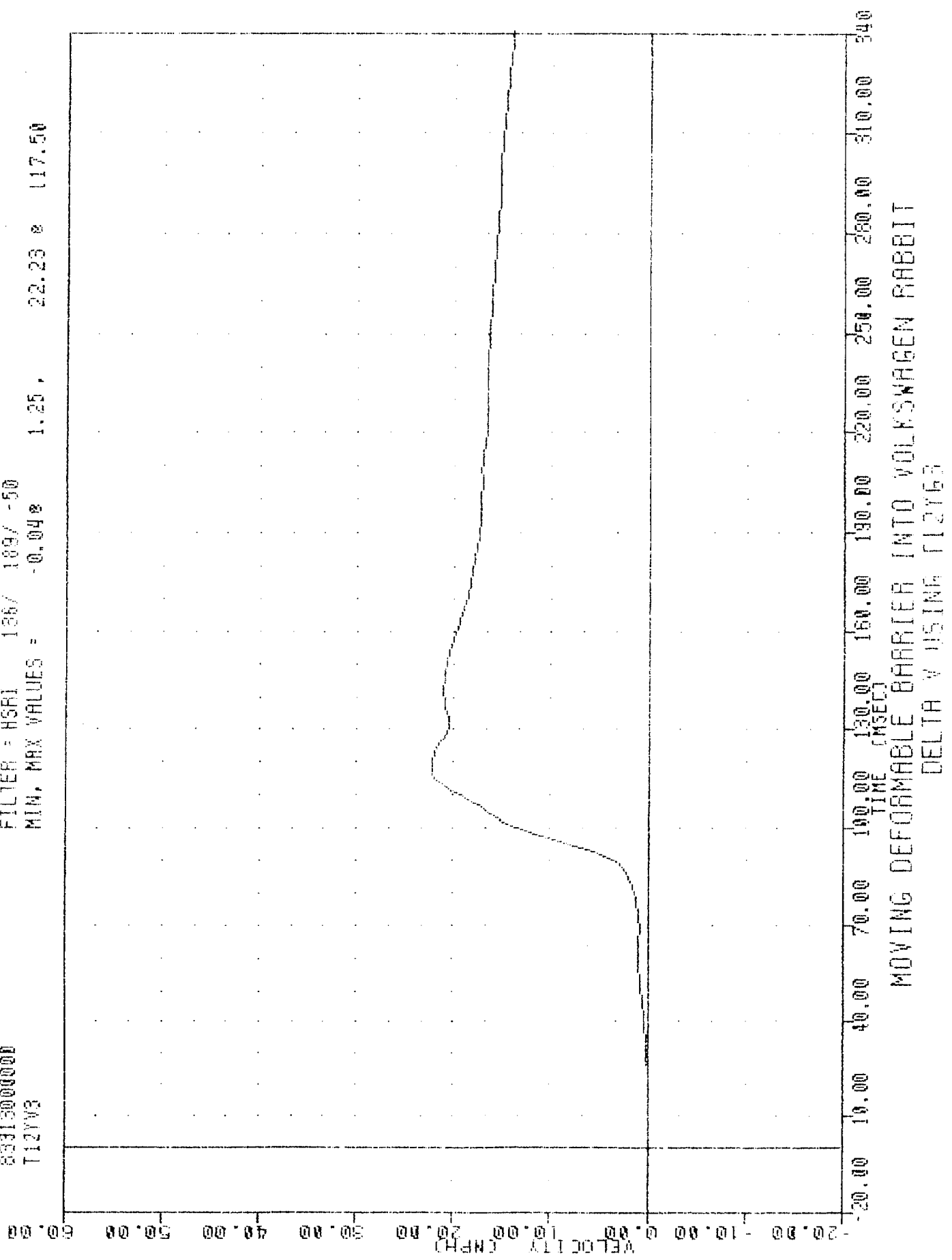


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LOWER SPINE RESULTANT USING T12Y6C

8313000000
 EVALUATION OF NDD VW FLEET
 8313000000
 T12YV3

TEST DATE 12-ND-83 17:40

FILTER = HSRI 186/ 189/ -50
 MIN, MAX VALUES = -0.048 1.25, 22.23 @ 117.50



POST OFFICE

703

831100

8311740

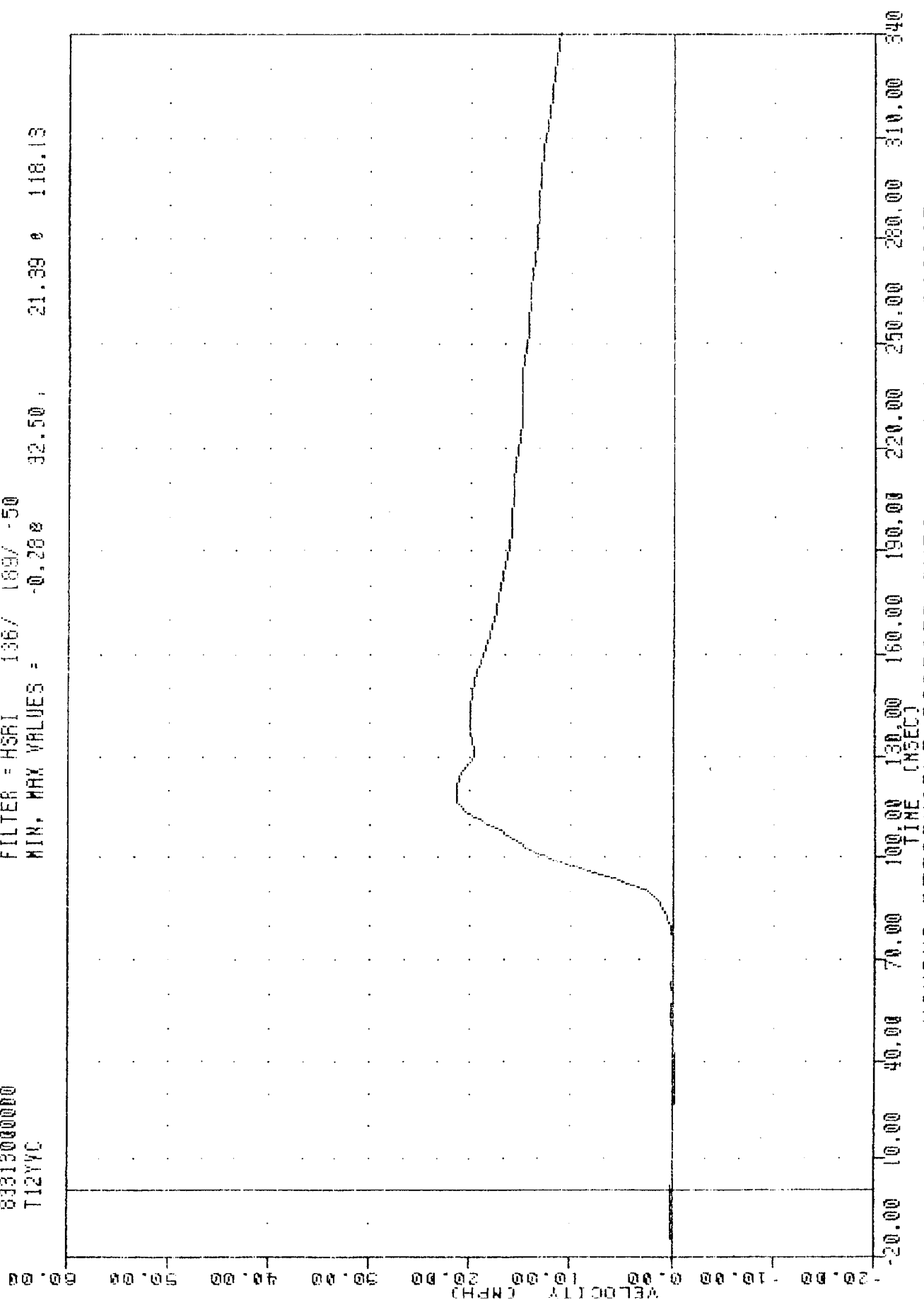
EVALUATION OF MOD VN FLEET

833130000000

FILTER = HSRI 186/ 189/ -50

T12YYC

MIN, MAX VALUES = -0.280 32.50, 21.39 0 118.13



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING T12YGC

THC 831103 14 NOV 83 13:31:42

EVALUATION OF MOD VN FLEET

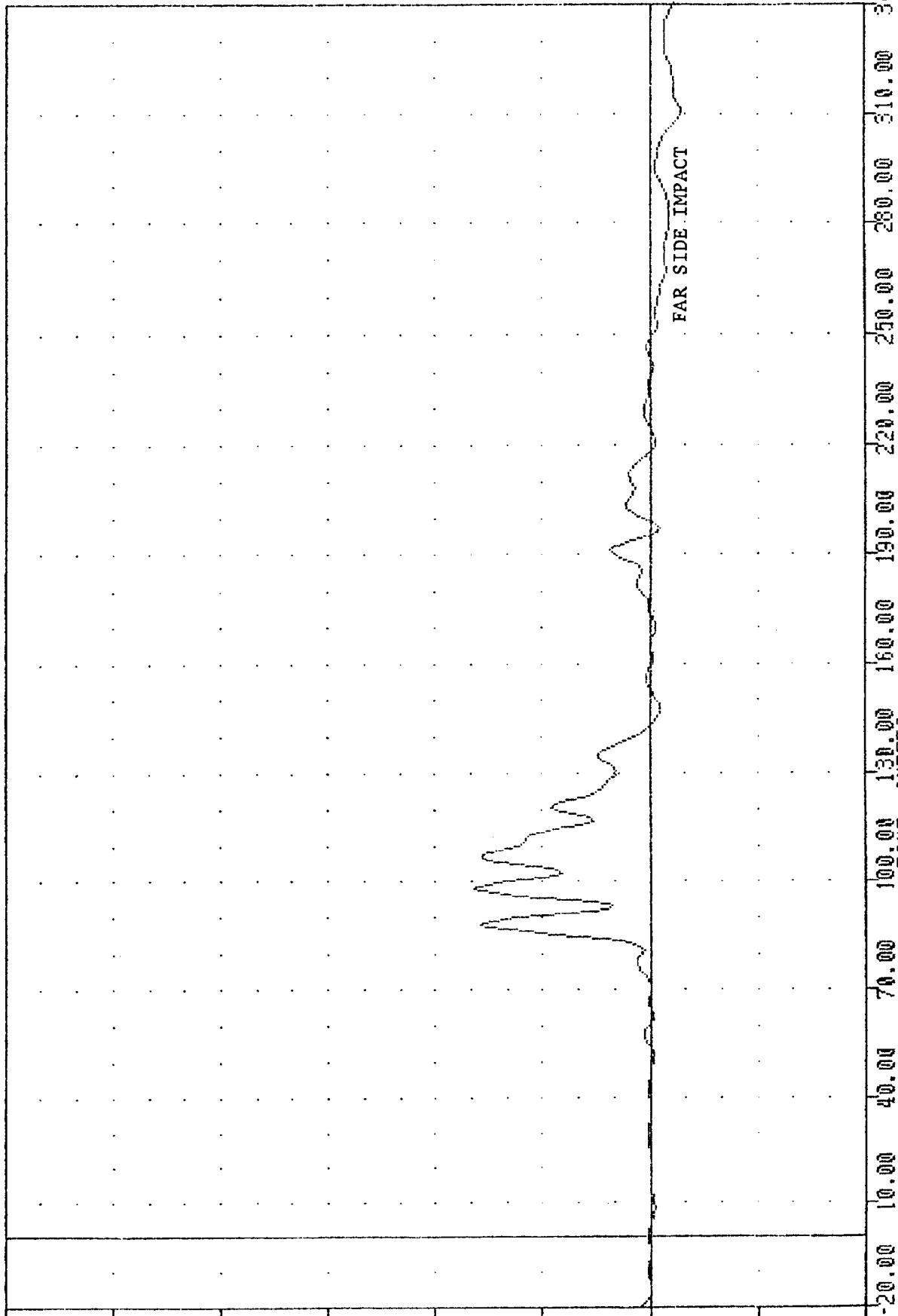
833130000000

LURIES

FILTER = HSRI 136/ 189/ -50

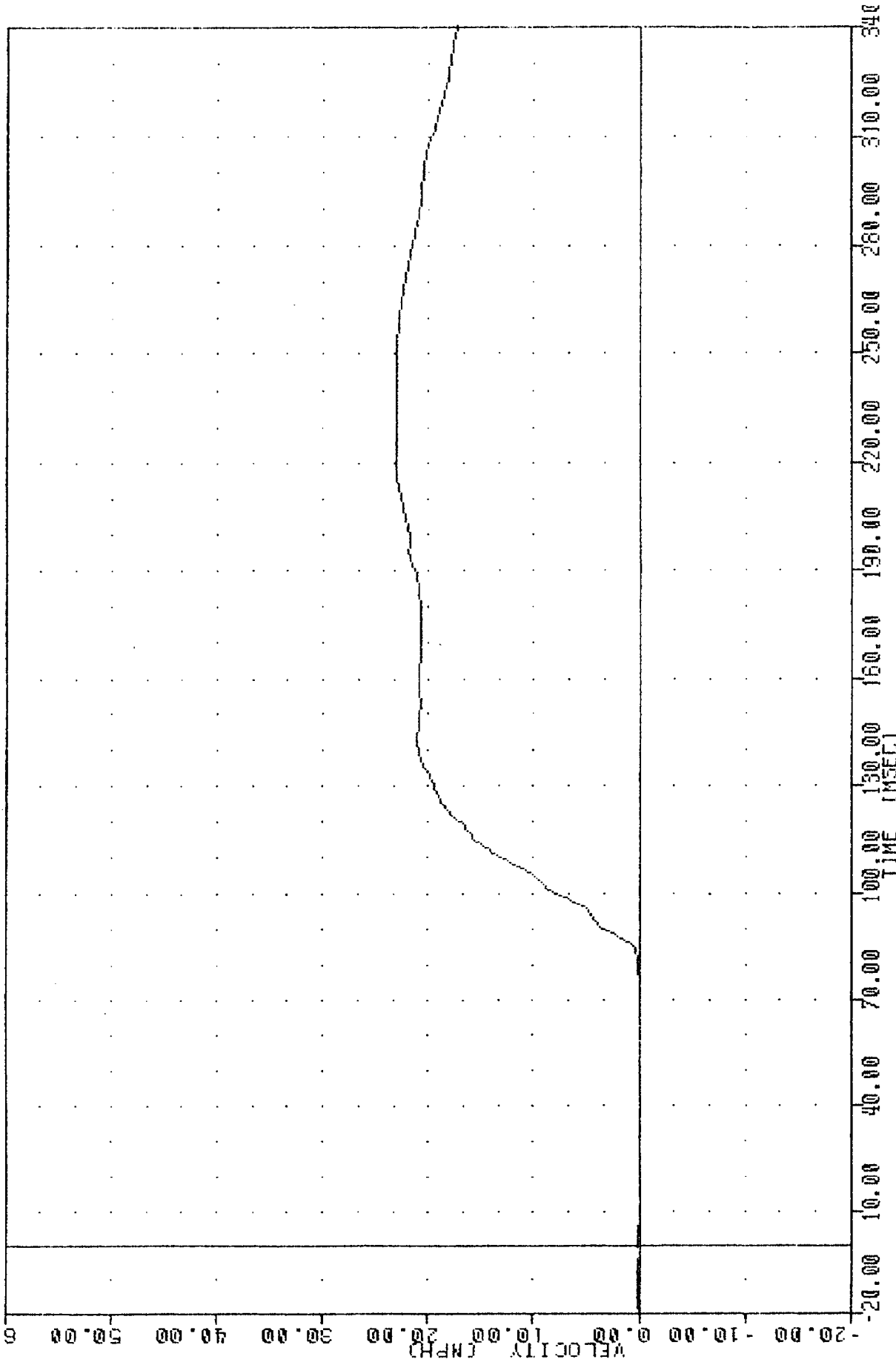
MIN. MAX VALUES = -5.75e 309.38, 32.74 e 97.50

ACCELERATION (G)



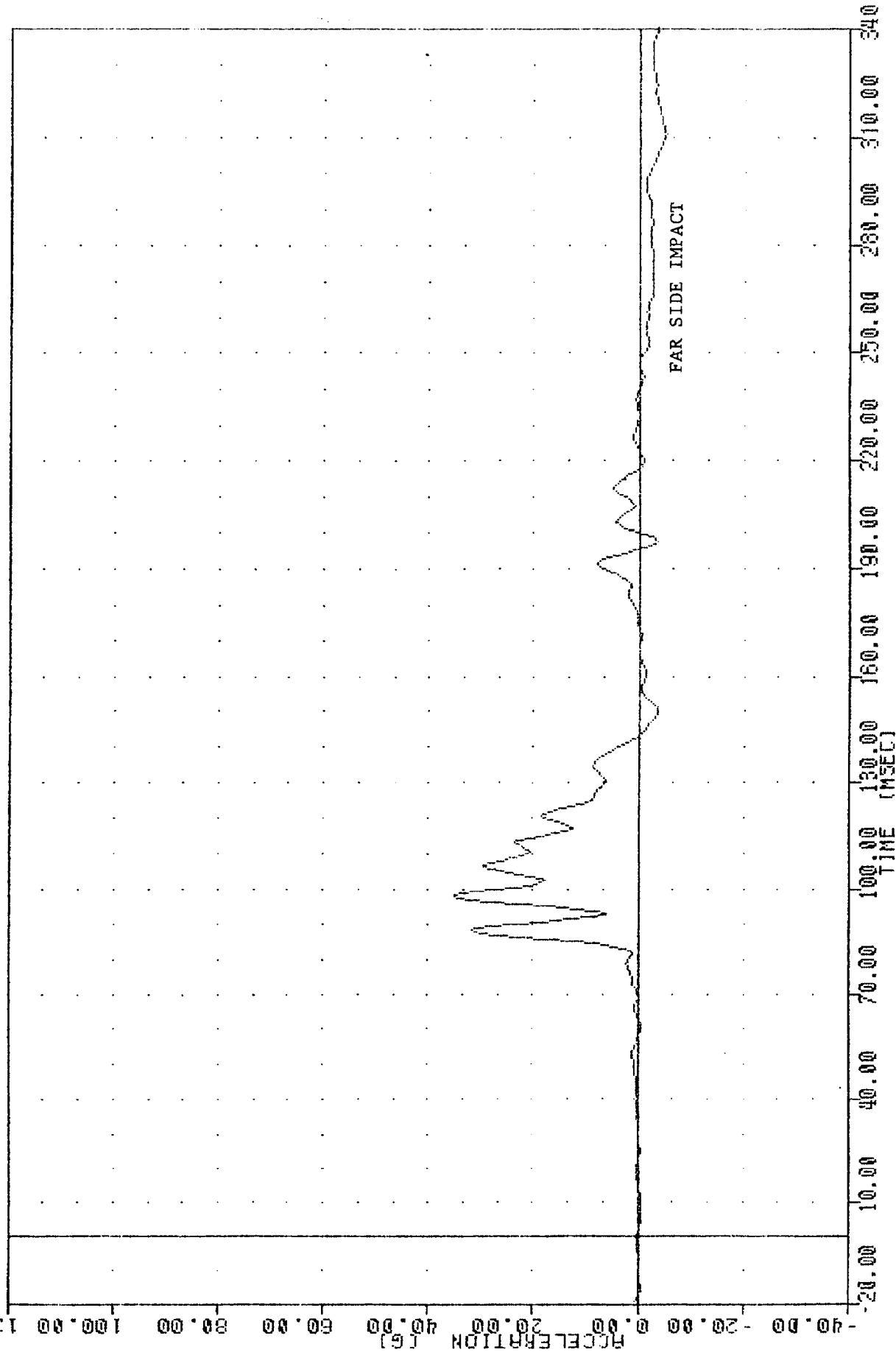
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LEFT UPPER RIB ACCELERATION Y AXIS

83313000000
 LURYV3
 EVALUATION OF MOD YW FLEET
 83313000000
 FILTER = HSRI 136/ 129/ -50
 MIN. MAX VALUES = -0.200 53.75, 23.00 & 237.50
 13 NOV 83 05.17.40



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYG3

INC 831103
 EVALUATION OF MOD VV FLEET
 83313000000
 LURYGC
 FILTER = HSR(136/ 109/ -50
 MIN. MAX VALUES = -5.11e 310.63, 34.94 e 97.50
 PLOT DATE 14 NOV 83 10:31:42

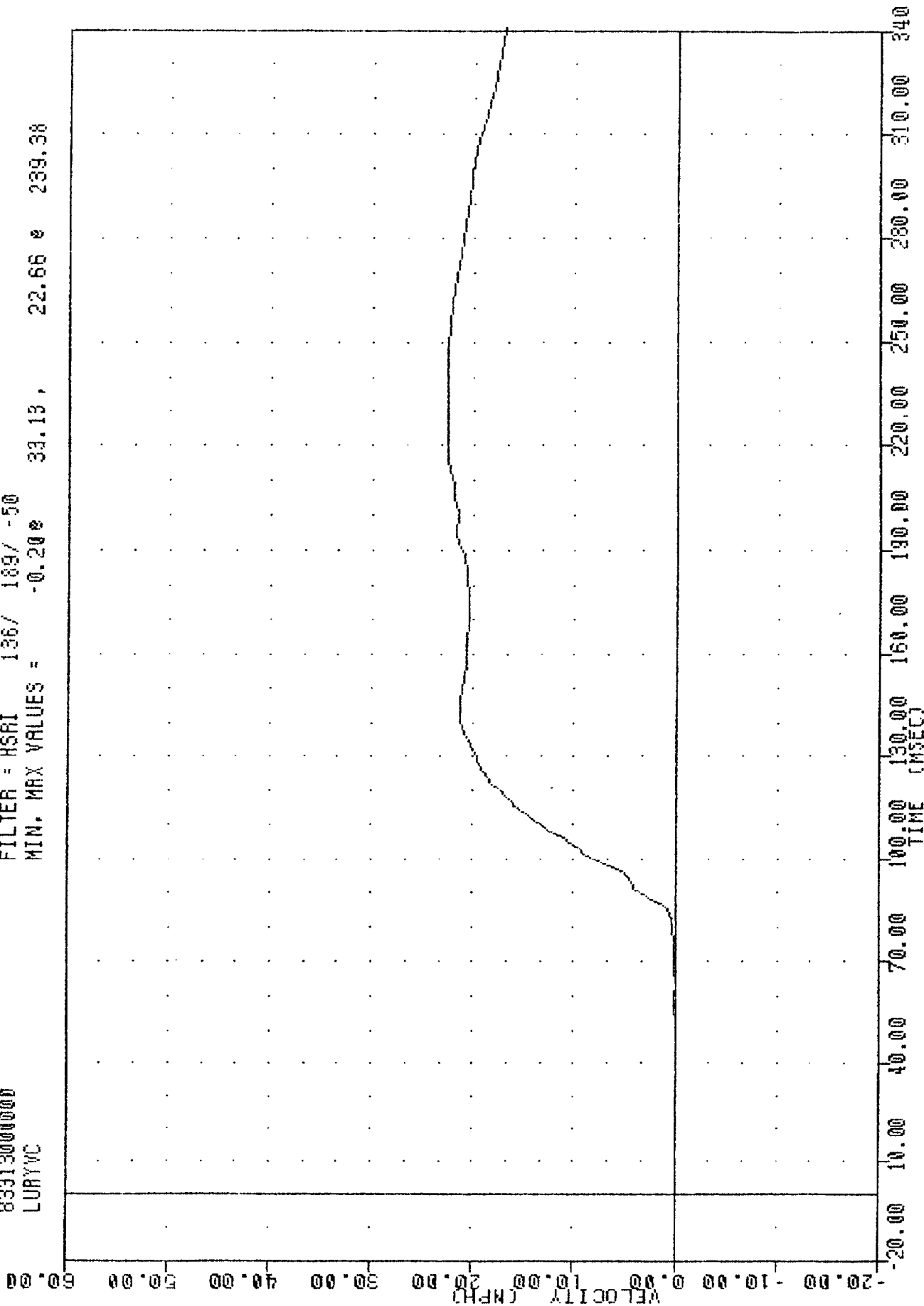


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LEFT UPPER RIB ACCELERATION -2 Y AXIS

TMC
 EVALUATION OF MOD VW FLEET
 83313000000
 LURYVC

PLOT DATE 15-NOV-83 09:17:16

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.200 33.13, 22.66 & 239.38

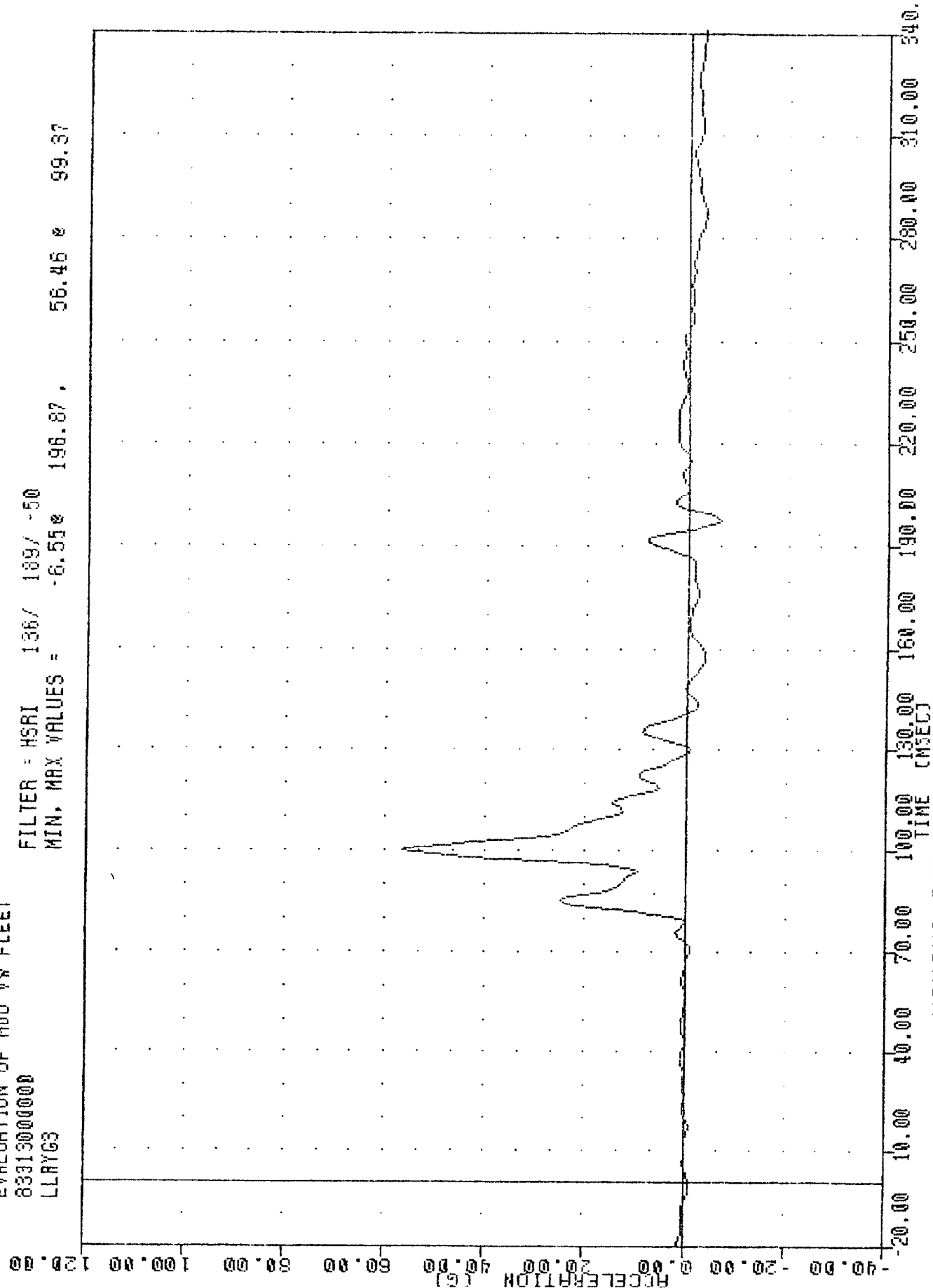


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYGC

INC 831108
 EVALUATION OF MOD VN FLEET
 833130000000
 LLRYG3

PLOT DATE 14-NOV-83 15:31:12

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -6.55% 196.87, 56.46% 99.37

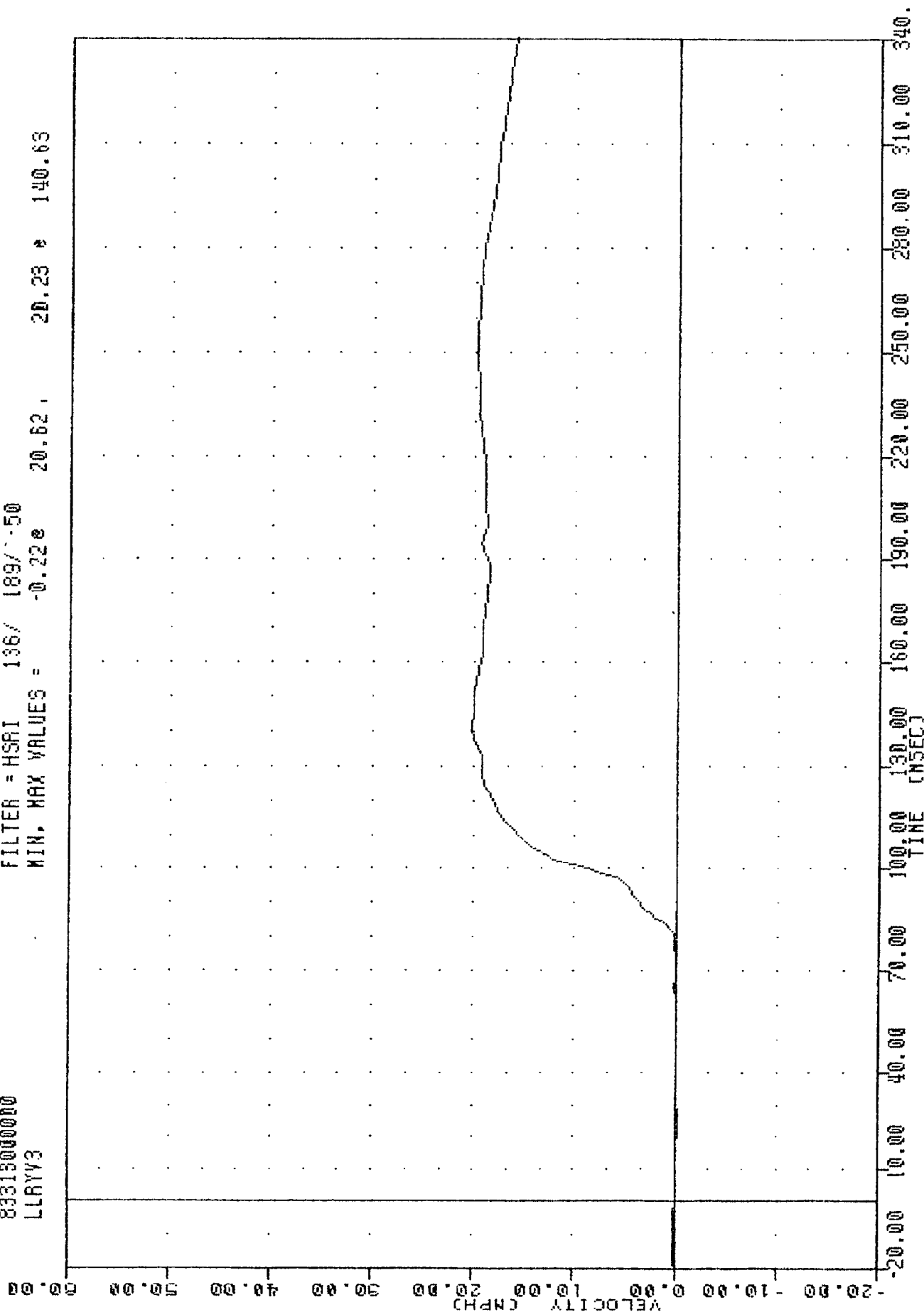


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LEFT LOWER RIB ACCELERATION Y AXIS

THE
EVALUATION OF MOD VV FLEET
83318000000
LLRYV3

PLOT DATE 15-NOV-83 09:17:46

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.22e 20.62, 20.23 e 140.63

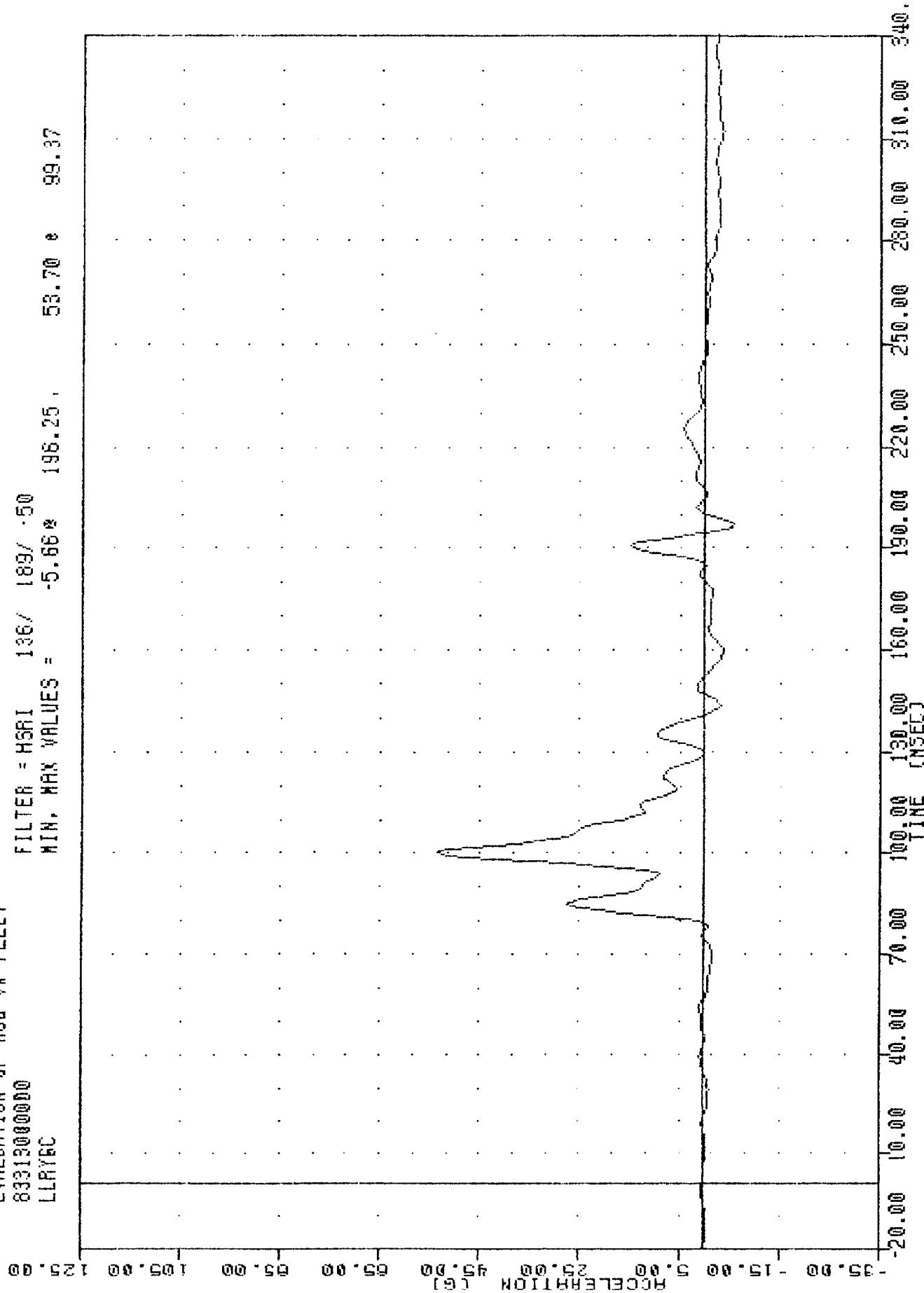


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LLRYG3

TAC
 EVALUATION OF MOD VN FLEET
 83313000000
 LLYEC

PLUT DATE 14-NOV-83 15:31:42

FILTER = HSRI 136/ 189/ .50
 MIN. MAX VALUES = -5.66 53.70 99.37



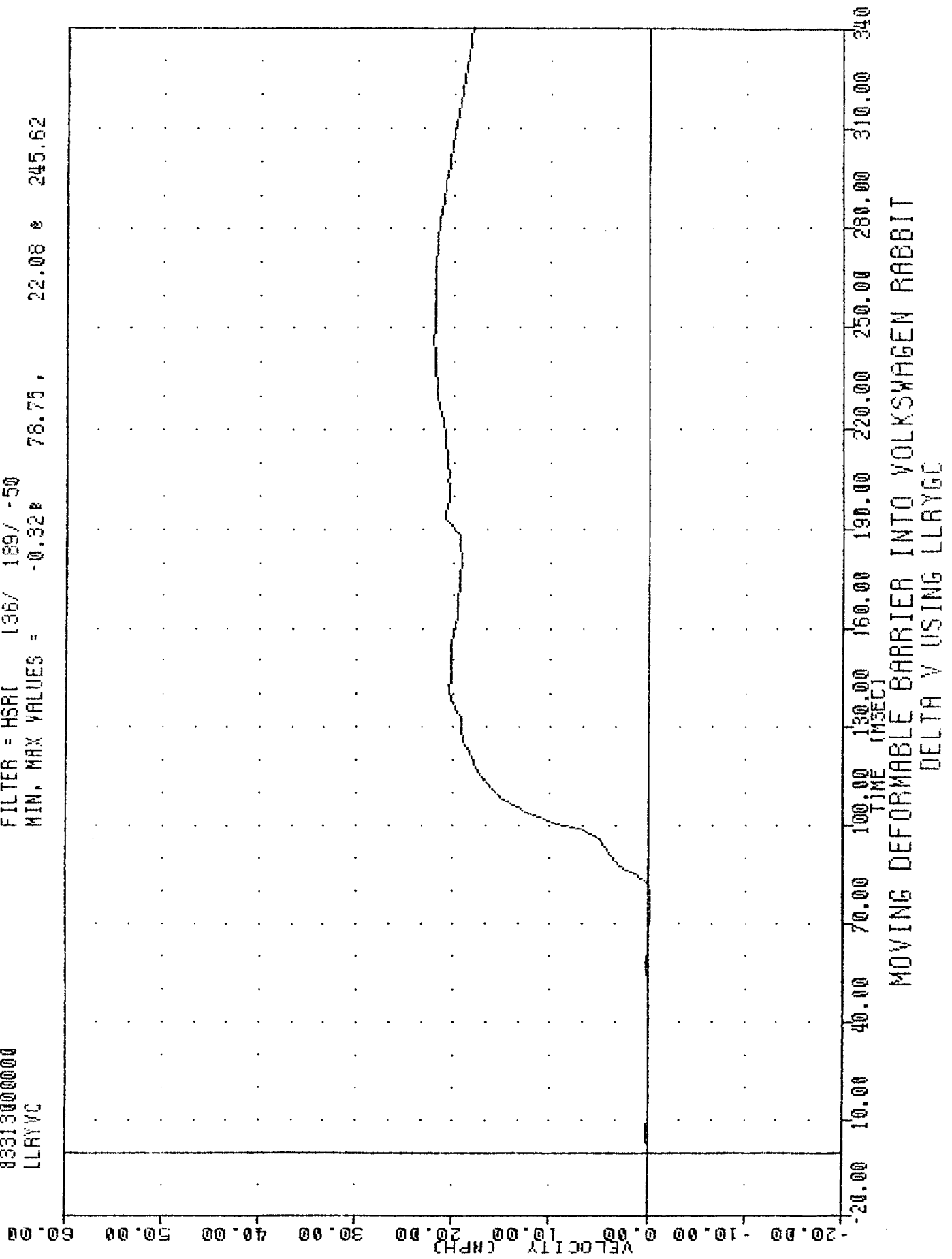
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LEFT LOWER RIB ACCELERATION -Z Y AXIS

IRC
 EVALUATION OF MOD VN FLEET
 83313000000
 LLYVC

831109

15-NOV-83
 09:17:46

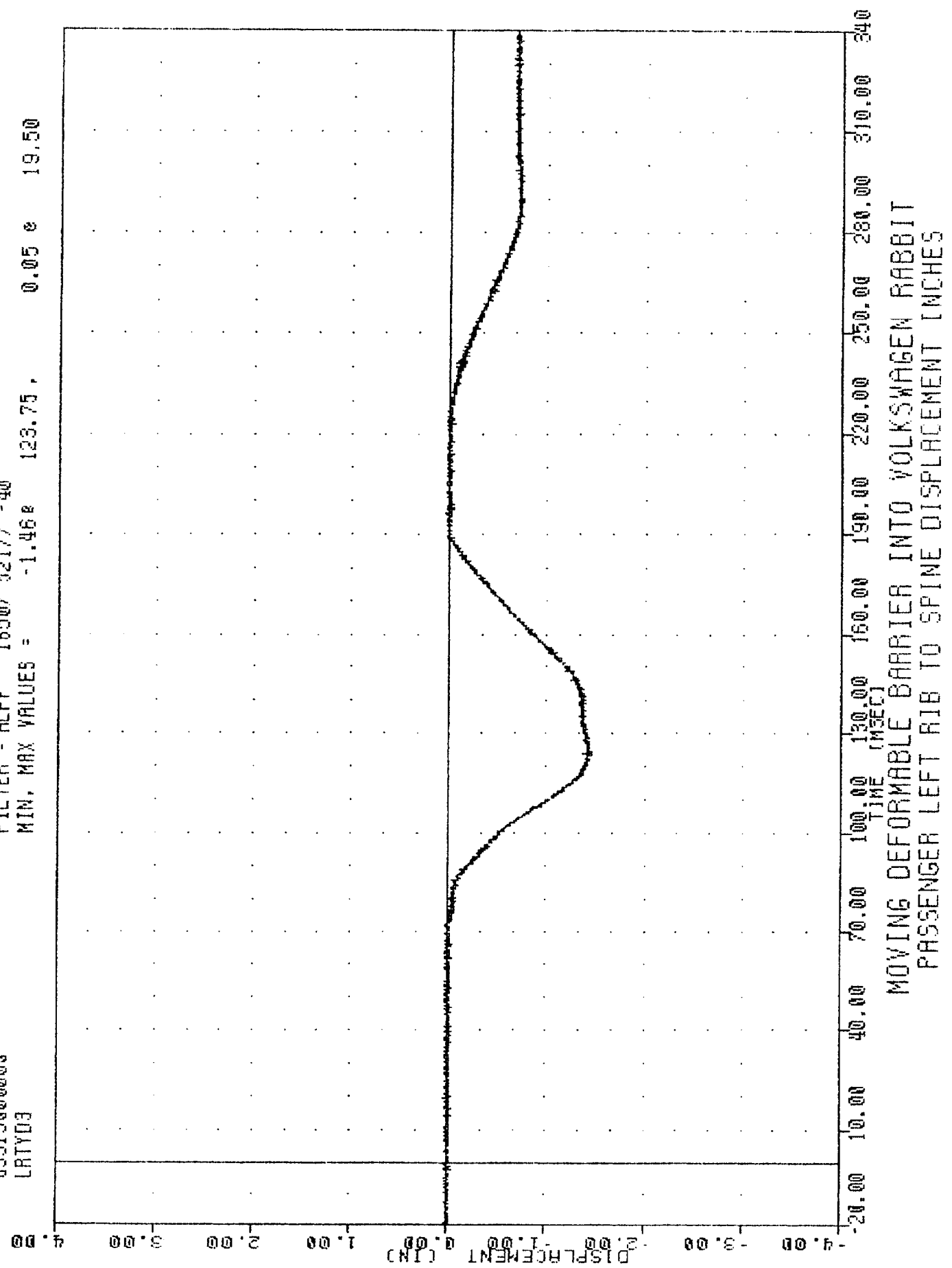
FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.32% 78.75, 22.08 @ 245.62



MC 83103
 EVALUATION OF MOD VW FLEET
 83313000000
 LRTYD3

TEST DATE 14-NOV-83 15:33:17

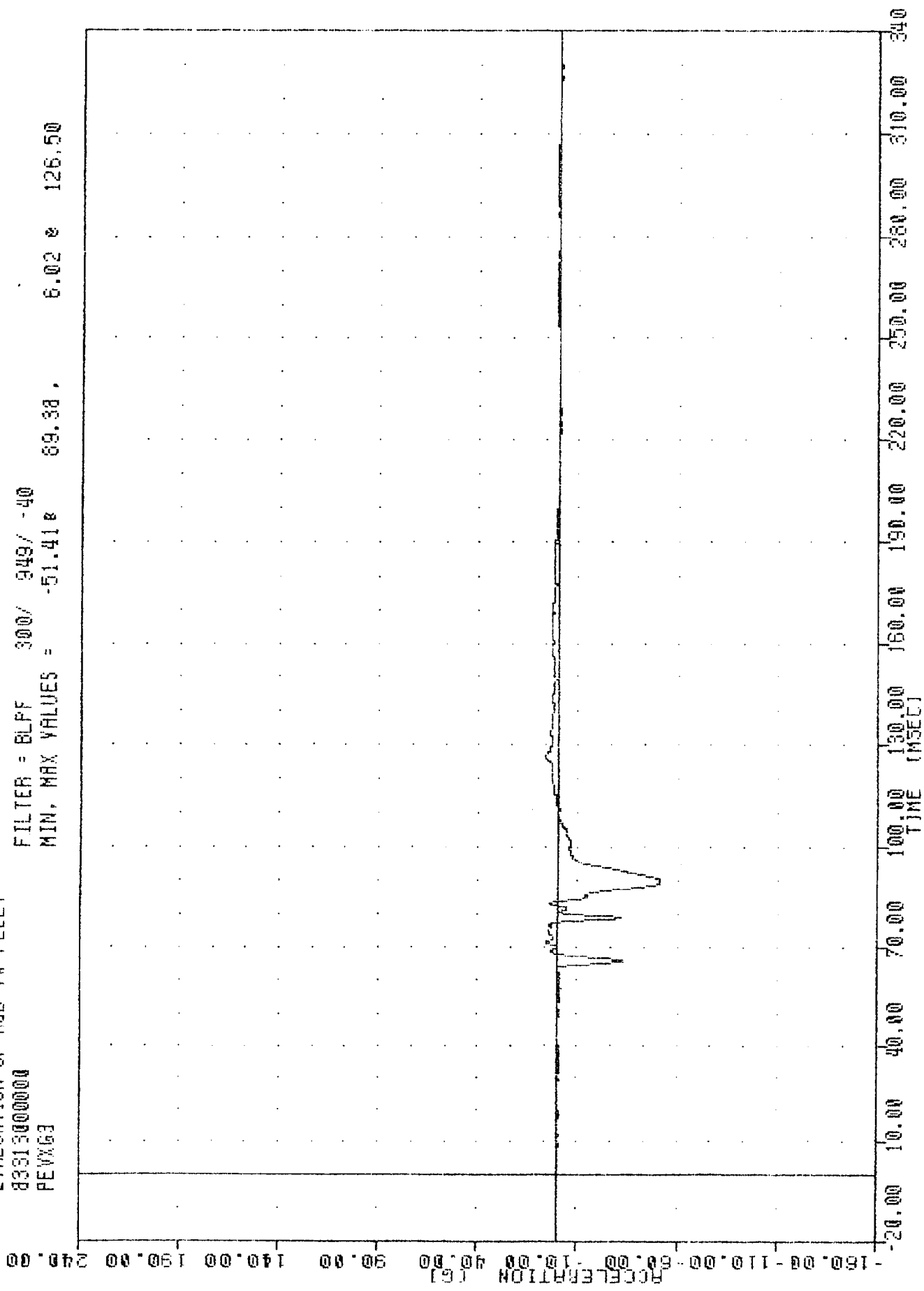
FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -1.46e 123.75, 0.05 e 19.50



INC
EVALUATION OF MOD VW FLEET
83813000000
PEVX63

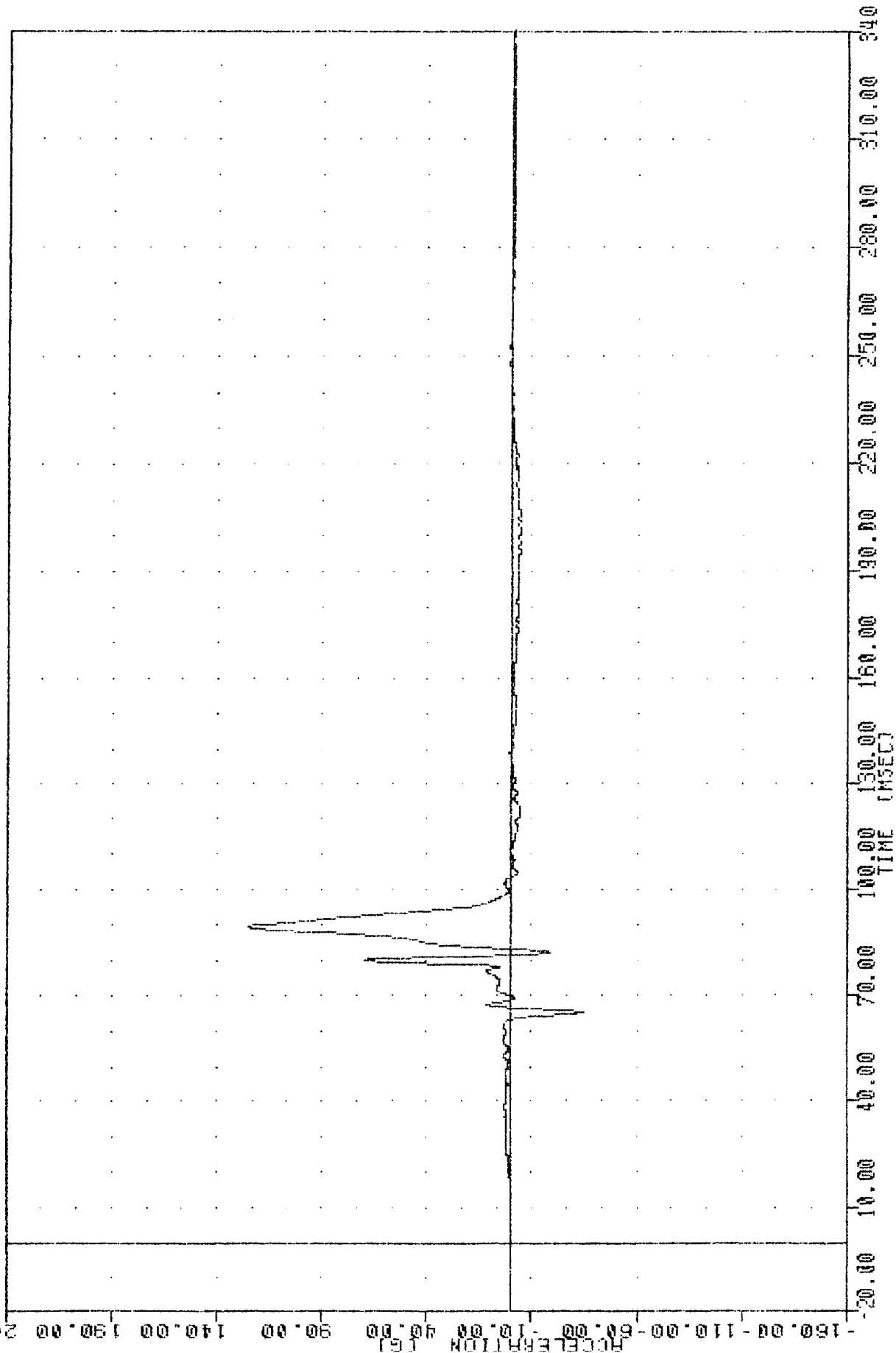
TEST DATE 14 NOV 83 10:33:17

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -51.418 69.38, 6.02 @ 126.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER PELVIS ACCELERATION X AXIS

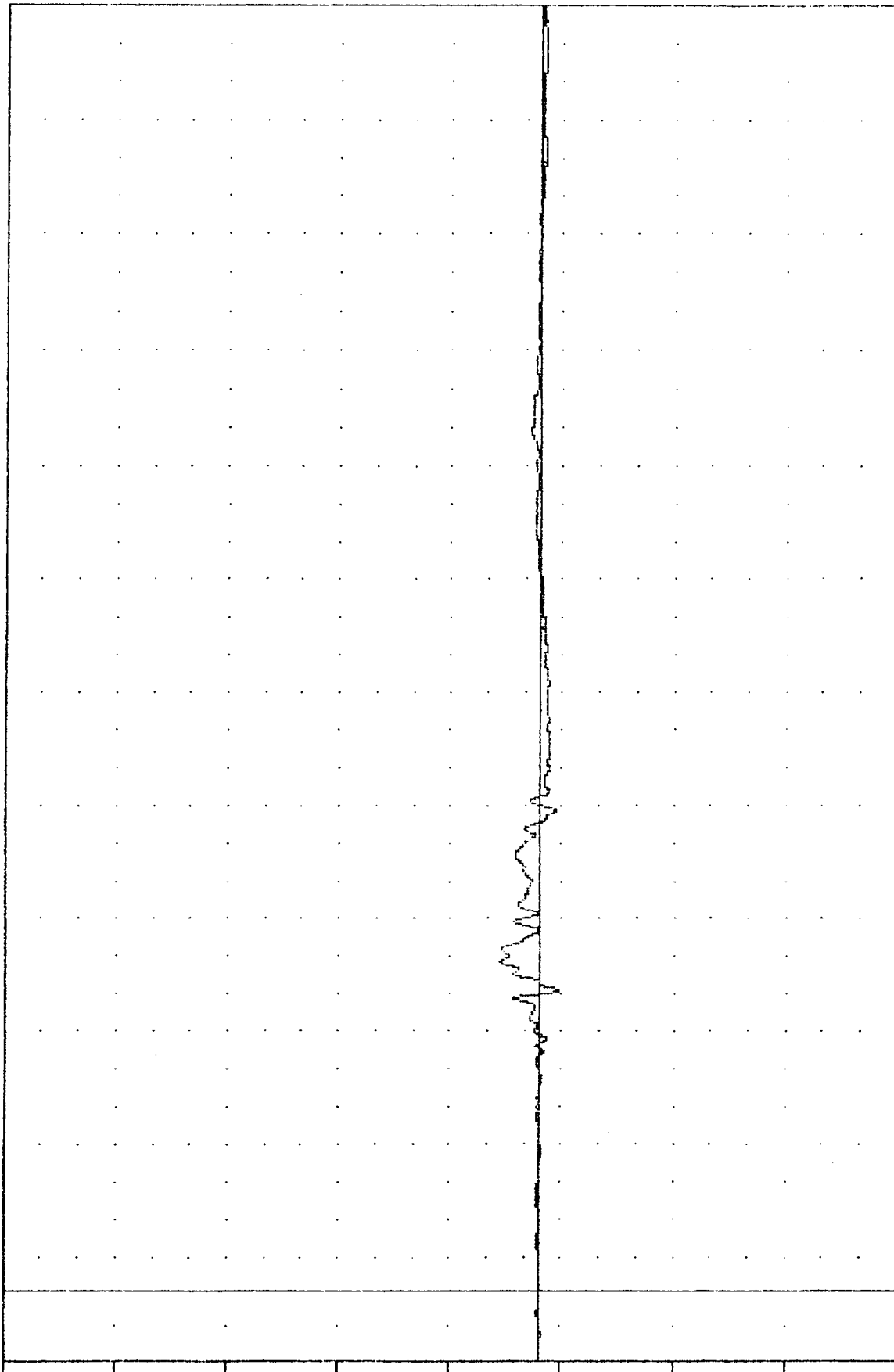
THE [REDACTED] 831103 [REDACTED] 14 NOV 83 10:33:17
 EVALUATION OF MDD VW FLEET
 83313000000
 PEVY63
 FILTER = BLPF 300/ 919/ -40
 MIN. MAX VALUES = -34.73e 64.88, 125.01 e 89.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PELVIS ACCELERATION Y AXIS

THE [REDACTED] 83108 [REDACTED] 14-NOV-85 15:33:17
 EVALUATION OF MOD VN FLEET
 83313000000
 PEVZ63
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -8.22e 80.88 17.66 88.50

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



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PELVIS ACCELERATION Z AXIS

14 NOV 83

15:35:38

831103

831103

831103

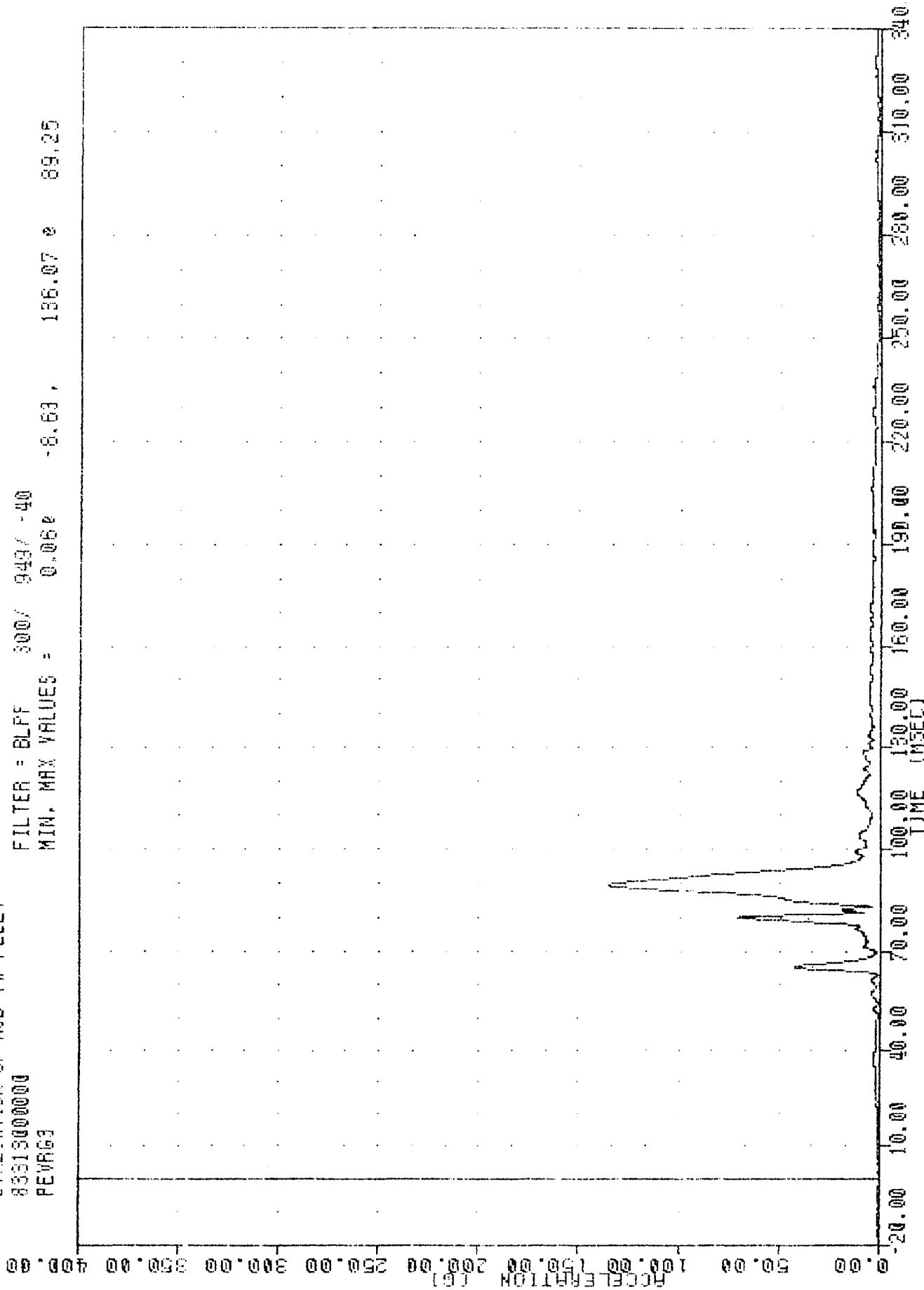
EVALUATION OF MOD YW FLEET

8313000000

PEVRG3

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 0.060 -8.63 136.07 e 89.25

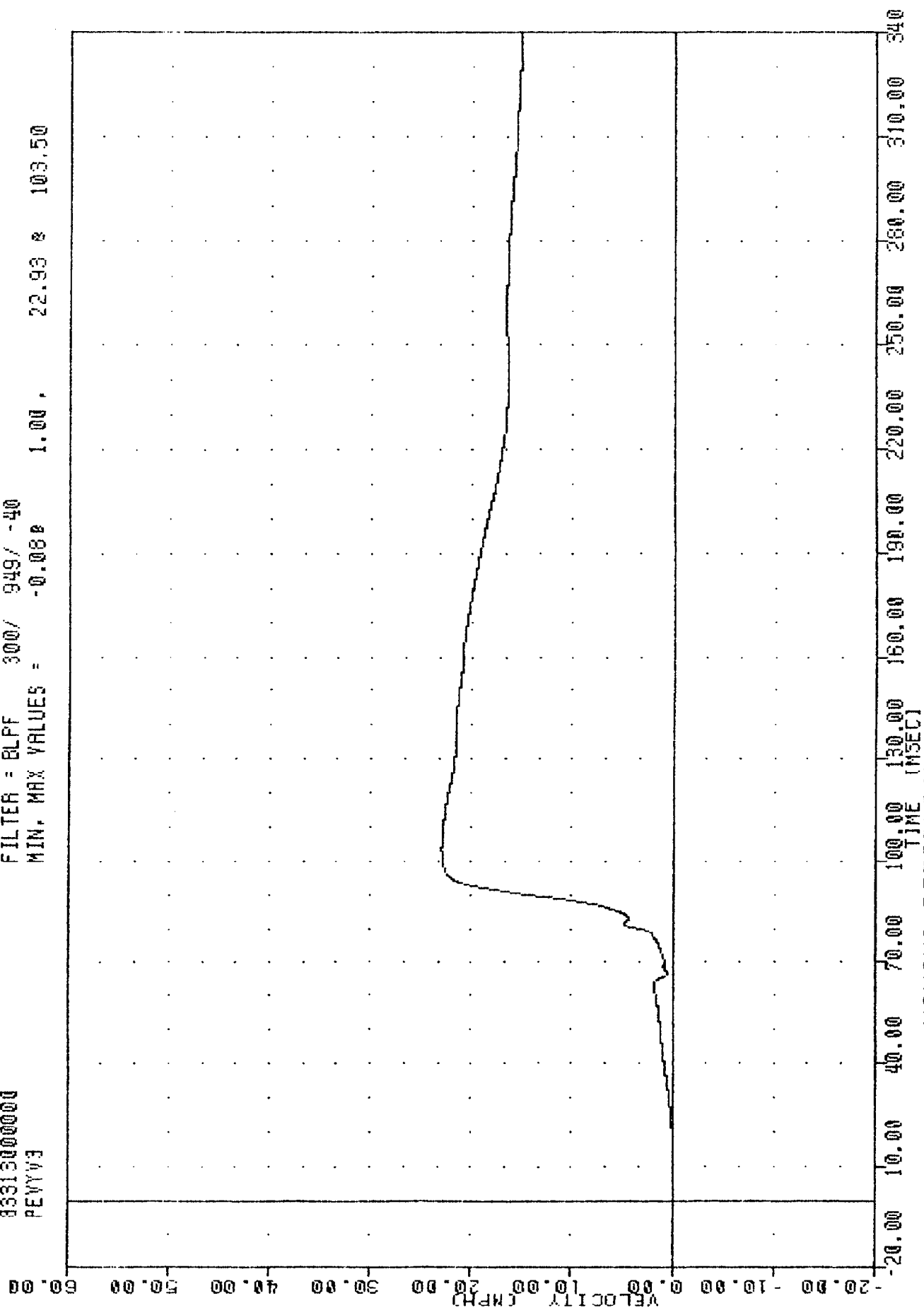


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER PELVIS RESULTANT

INC 831109
 EVALUATION OF MOD YW FLEET
 833130000000
 PEVYV3

PLOT DATE 15-NOV-83 09:18:40

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.088 1.00 22.93 103.50

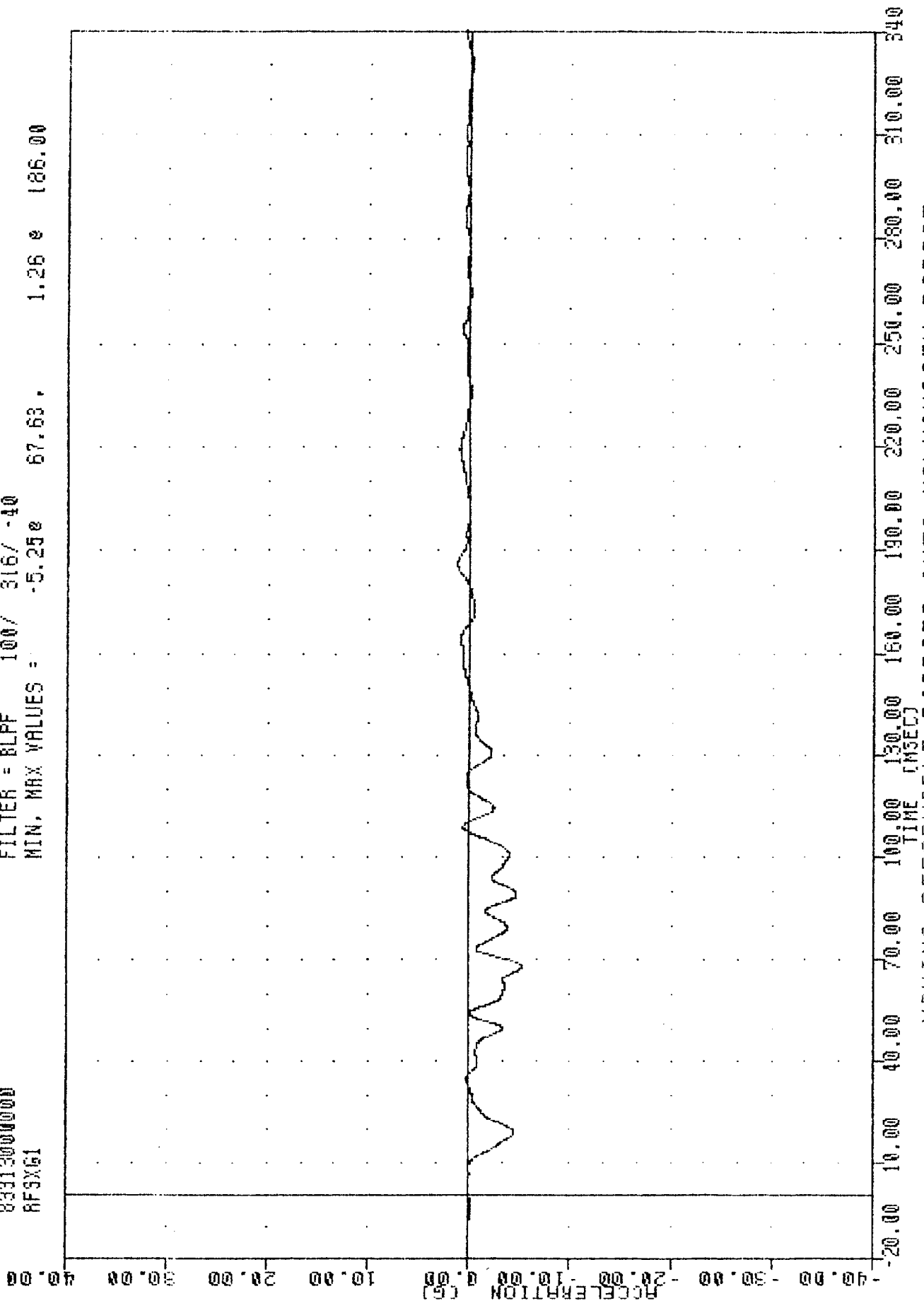


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING PEVY63

TRC
 EVALUATION OF MOD VW FLEET
 83313000000
 RFXG61

PLOT DATE 14 NOV 83 15:33:17

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -5.25e 67.63, 1.26 e 186.00

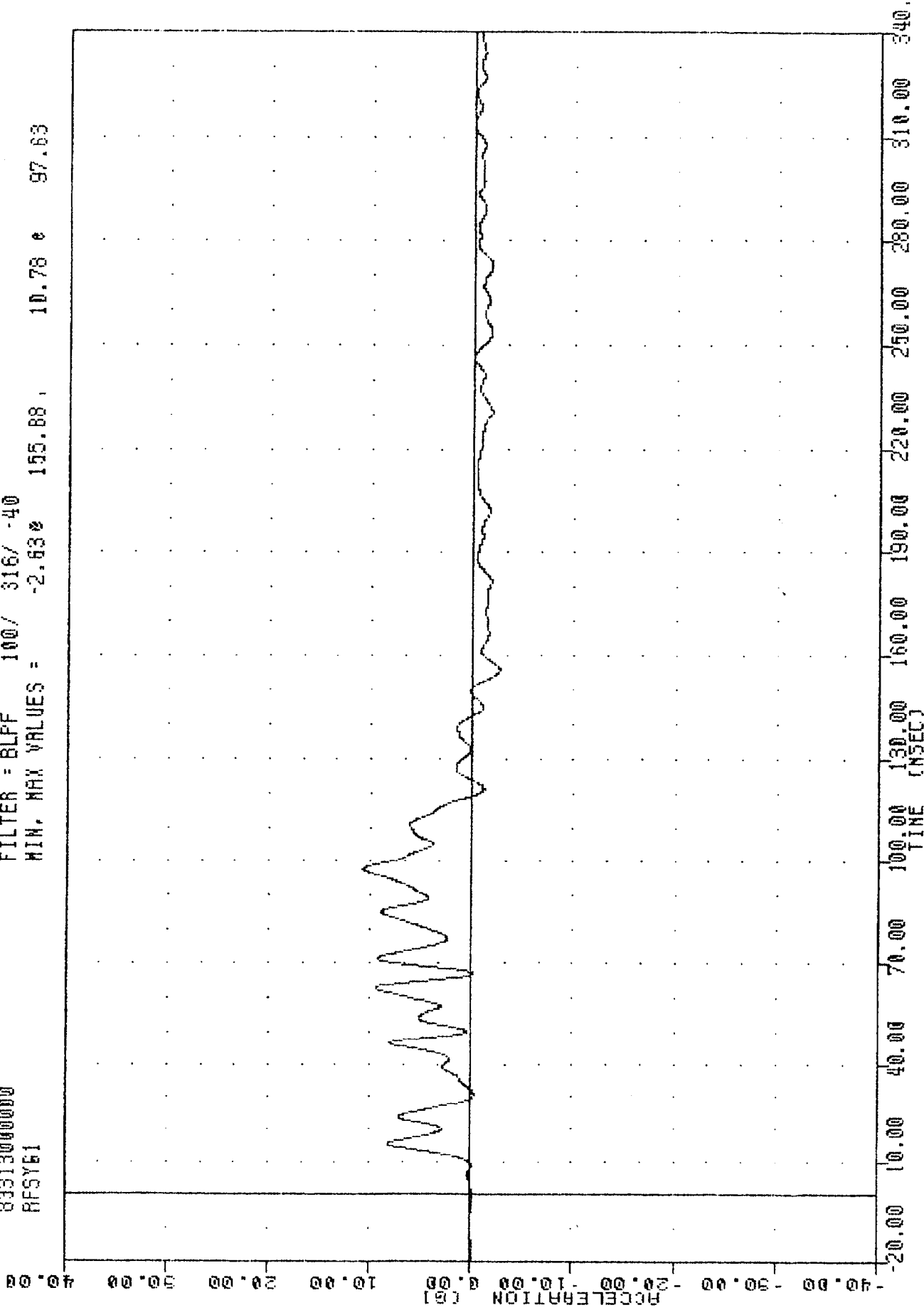


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT FRONT SILL ACCELERATION X AXIS

THE
EVALUATION OF MOD VN FLEET
83313000000
RFSY51

PLUT DATE 14-NOV-83 15:33:17

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -2.630 155.88 10.78 97.63

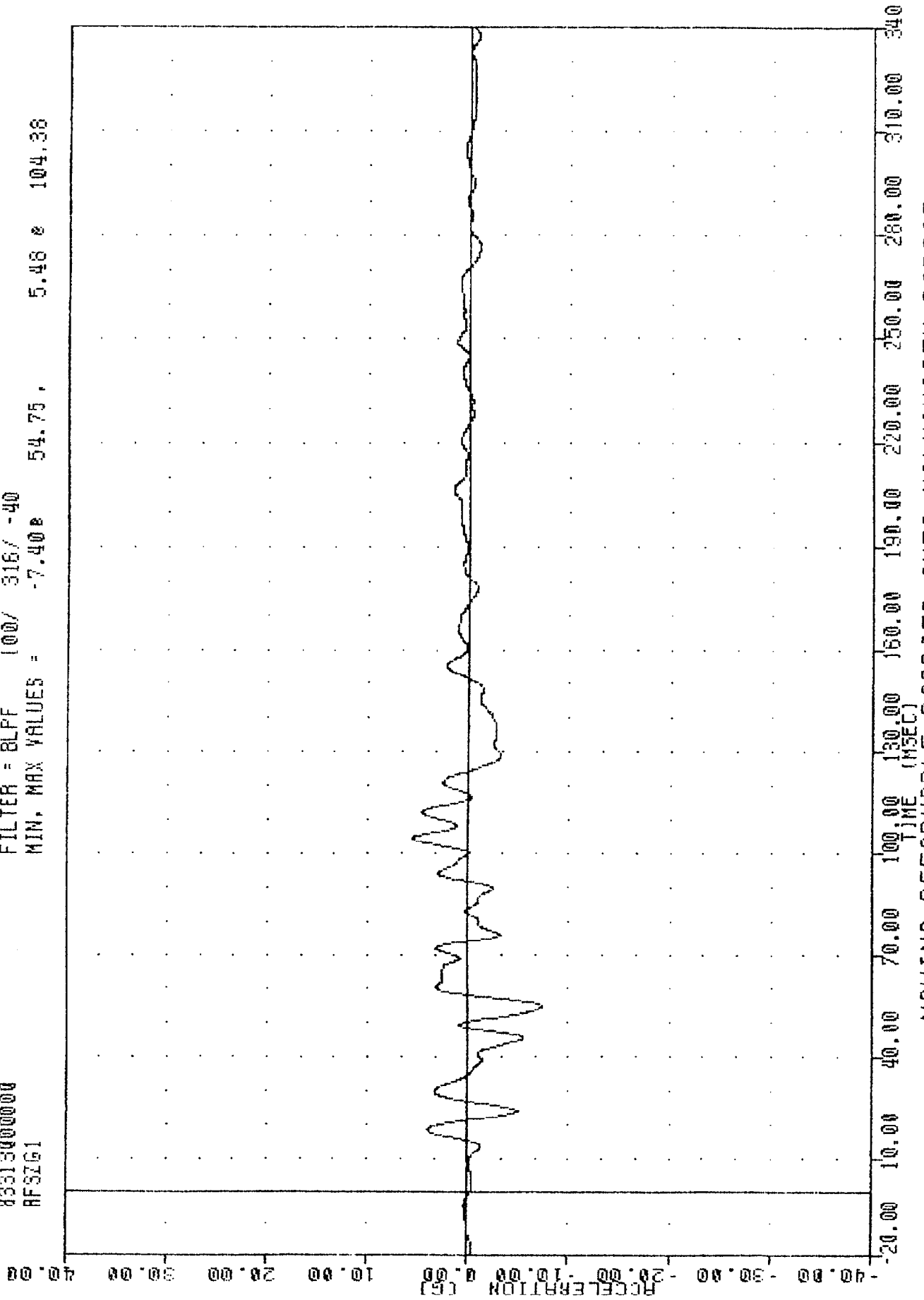


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT FRONT SILL ACCELERATION Y AXIS

IRC
EVALUATION OF MOD VW FLEET
83313000000
RFSZG1

PLOT DATE 14-NOV-83 15:33:17

FILTER = 8LFF 100/ 316/ -40
MIN. MAX VALUES = -7.40e 54.75, 5.48 e 104.38



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

PLUT DATE: 14-NOV-83 15:35:33

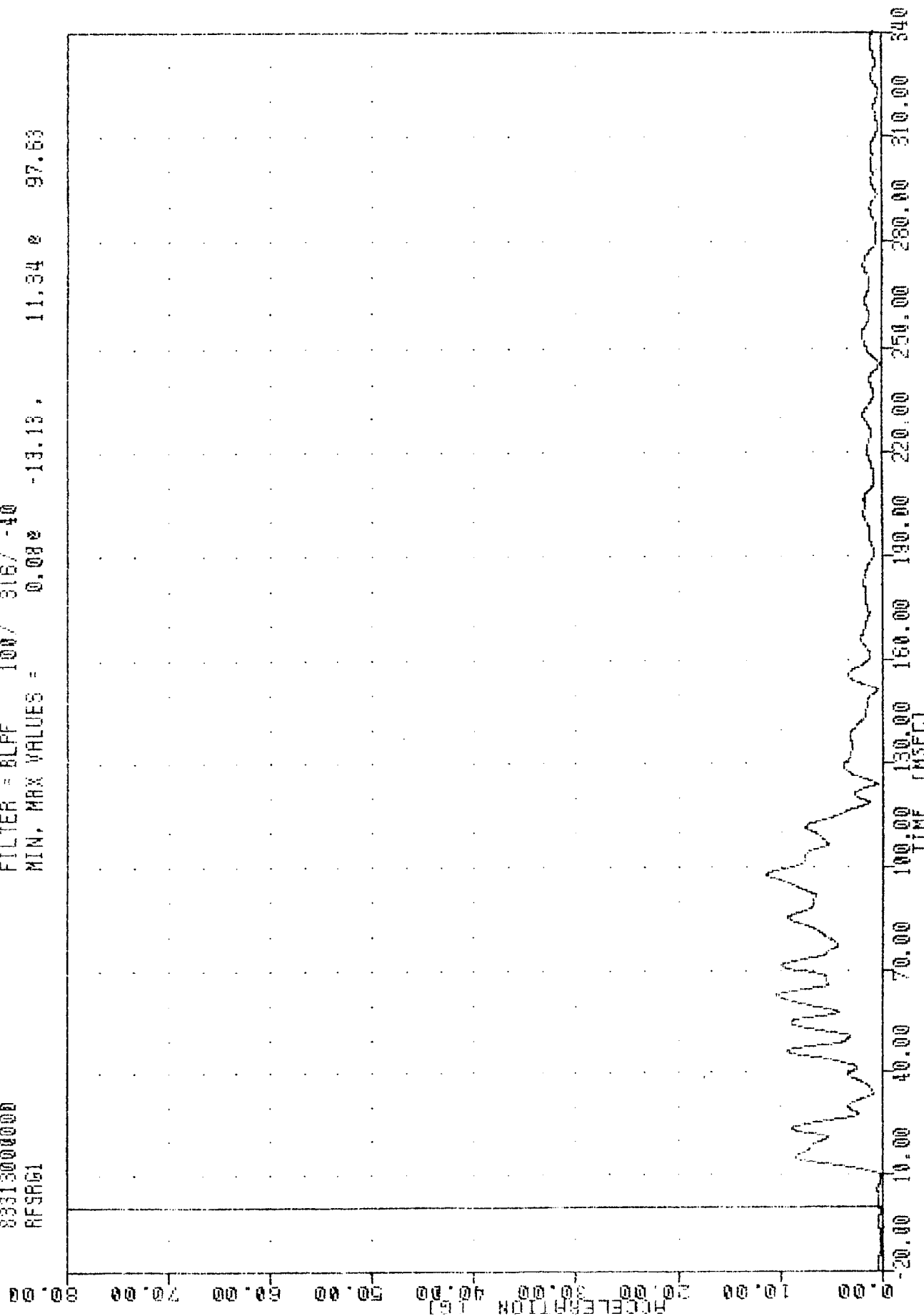
833130000000

833130000000

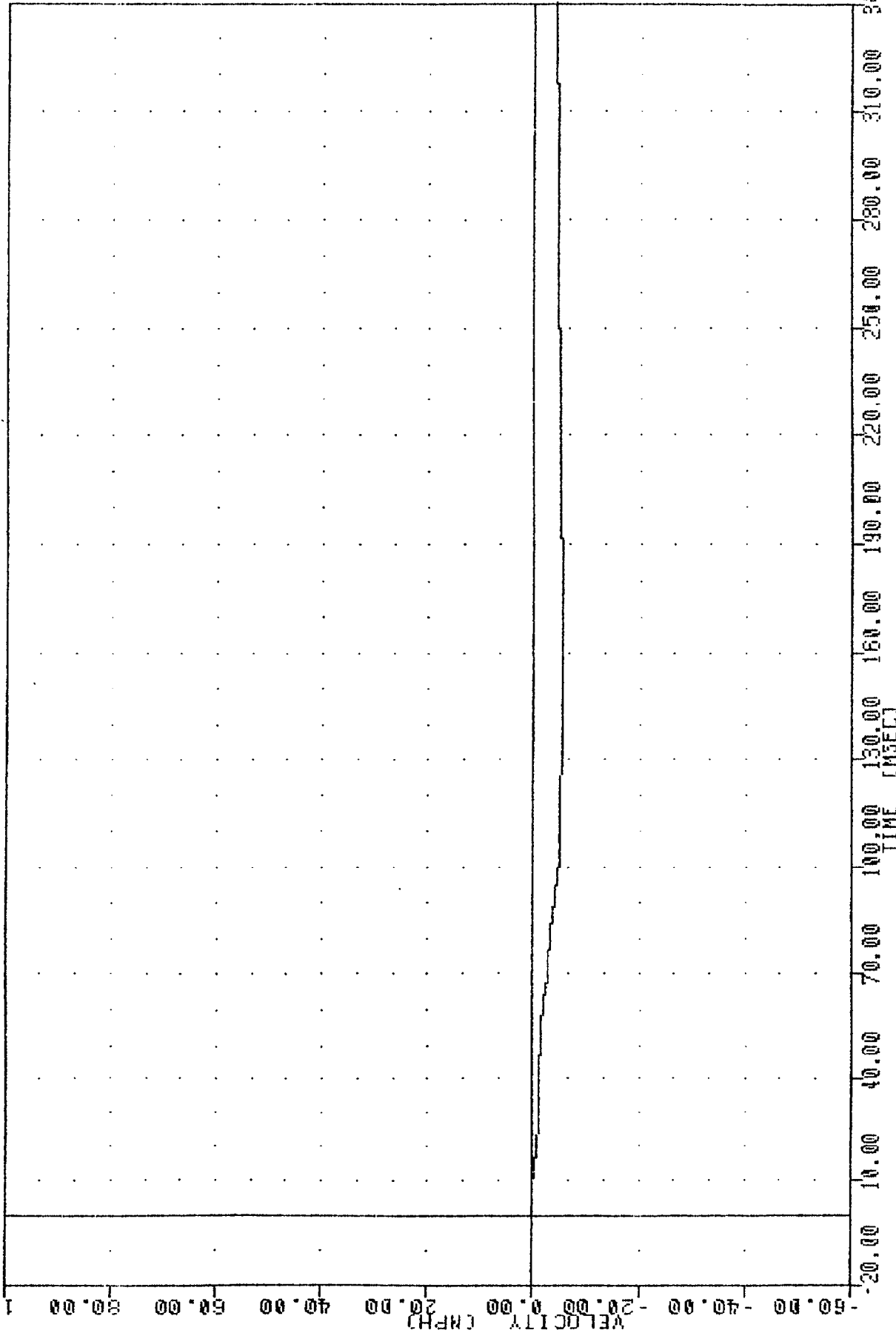
RFSRG1

FILTER = BLPF 100 / 316 / -40

MIN. MAX VALUES = 0.08e -13.13, 11.34 e 97.63



TRC 831109 13-NOV-83 09:18:40
 EVALUATION OF MDD VW FLEET
 83313000000
 RFSXV1
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -5.568 147.25 0.01 2 -12.68

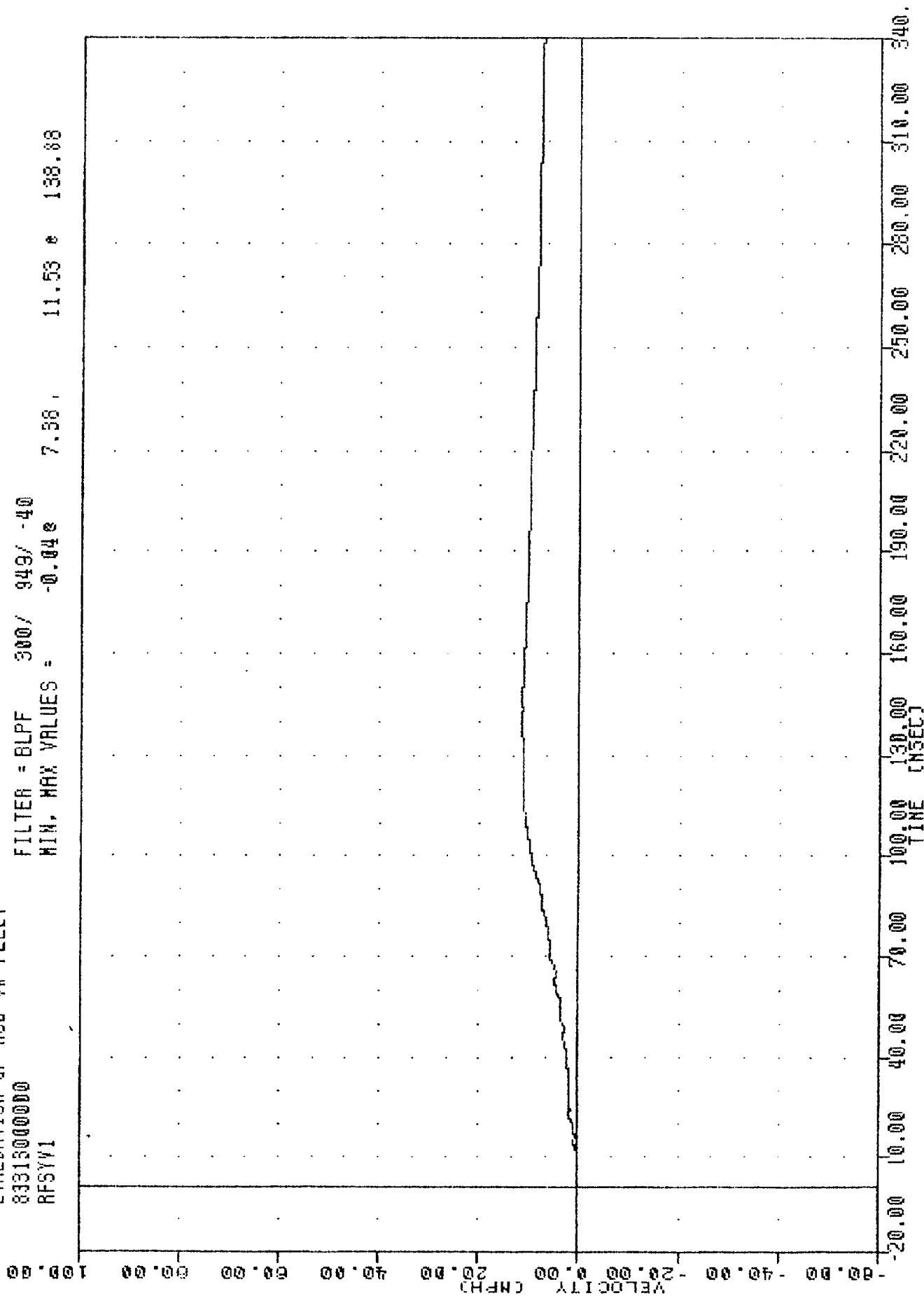


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING RFSXG1

THE
EVALUATION OF MOD VN FLEET
83313000000
RFSYV1

831108
15-NOV-88 09:18:40

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.048 7.38 11.53 138.88

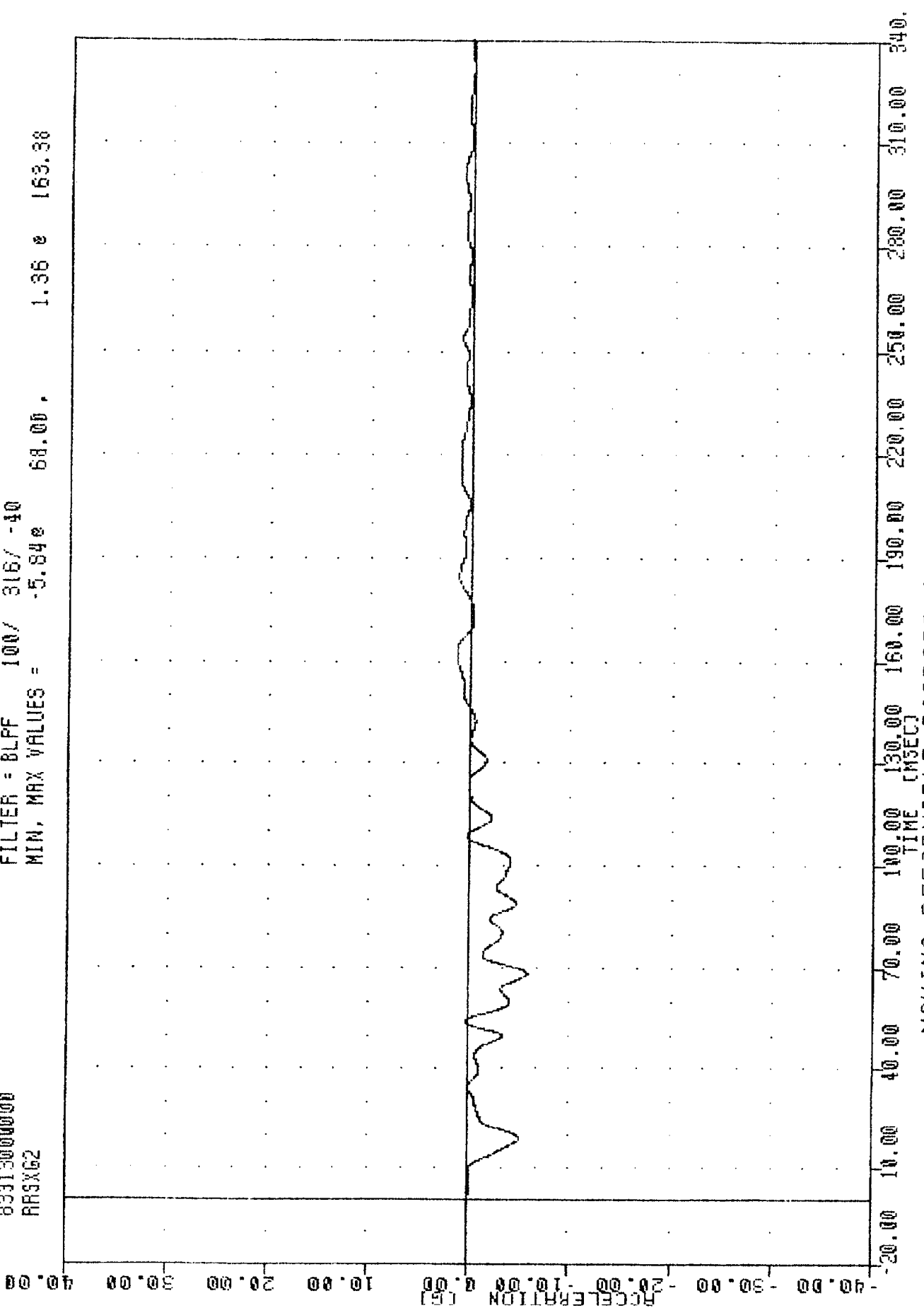


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING RFSYGI

THE 831103
 EVALUATION OF MOD VW FLEET
 83313000000
 RRSXG2

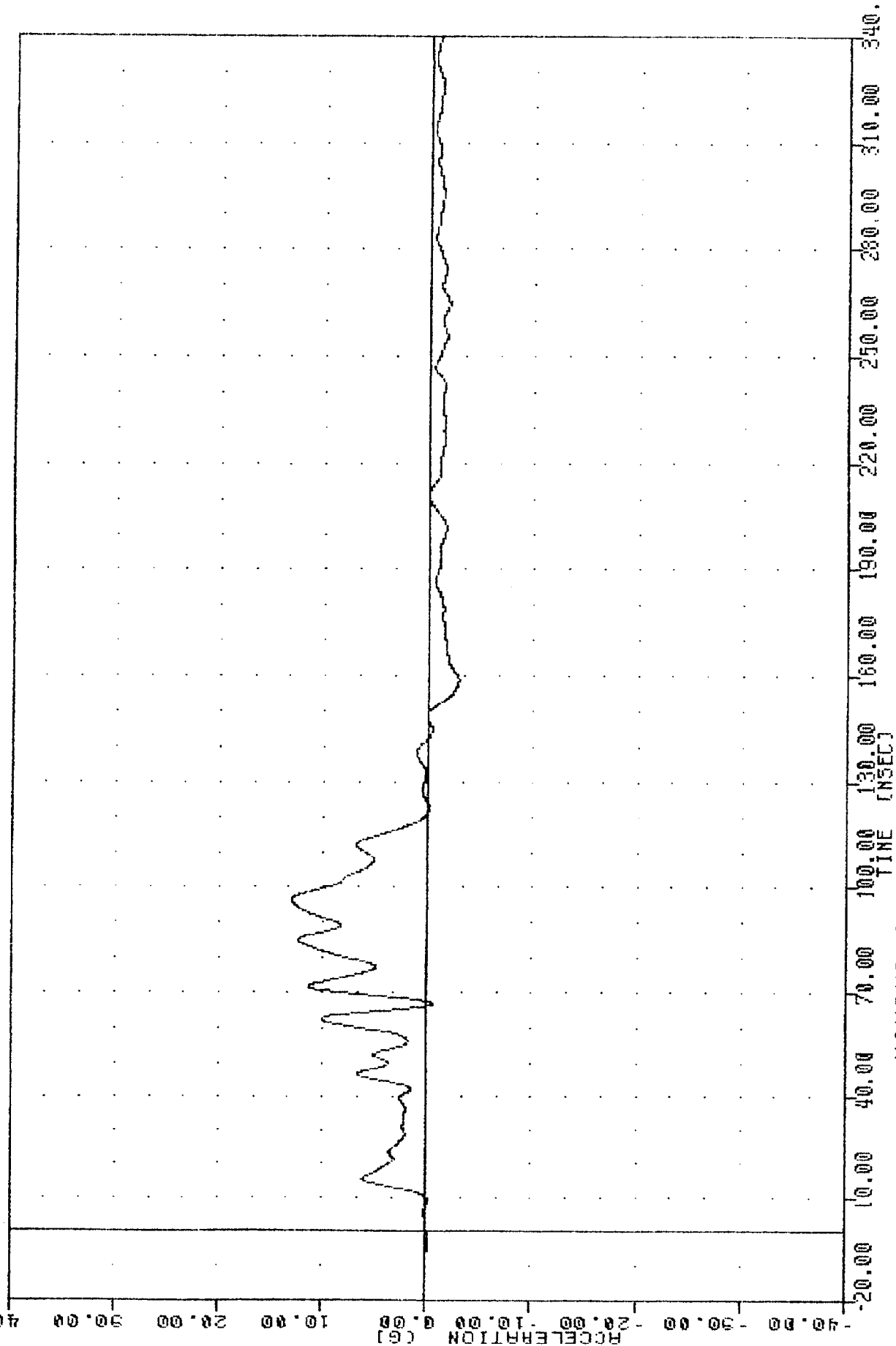
PLOT DATE 14-NOV-83 15:33:17

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -5.84e 68.00, 1.36 e 163.38



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

TMC 7,03103
 EVALUATION OF MOD VW FLEET
 83313000000
 RASY62
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -2.82e 158.88 , 13.01 e 96.25
 PLOT DATE 14-NOV-83 13:33.17

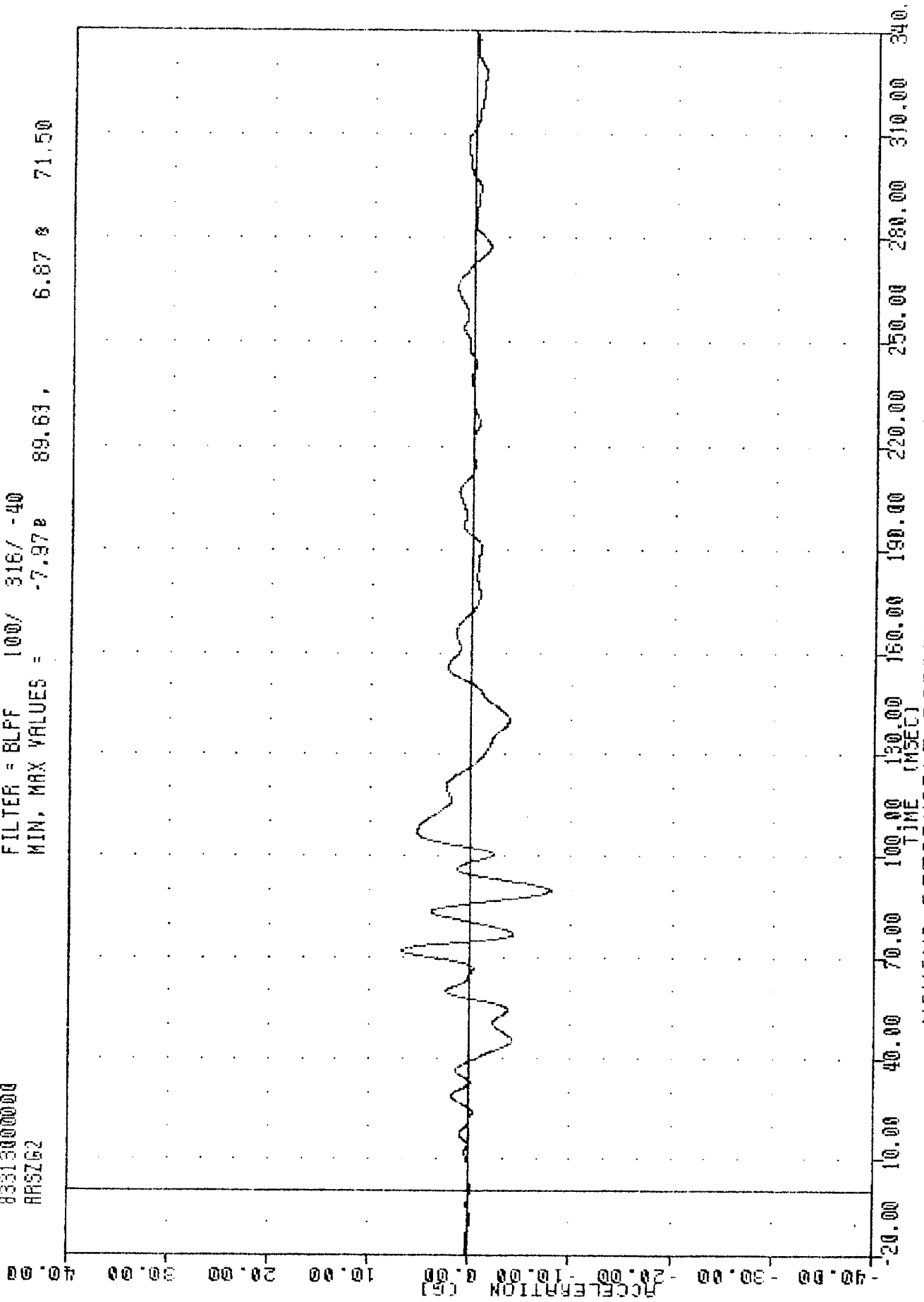


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT REAR SILL ACCELERATION Y AXIS

831109
 EVALUATION OF MOD VW FLEET
 833130000000
 RRSZG2

831109
 14 NOV 83
 15:33:17

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -7.97e 89.63, 6.87 s 71.50



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

PCOT DATE 14-NOV-83 15:35:38

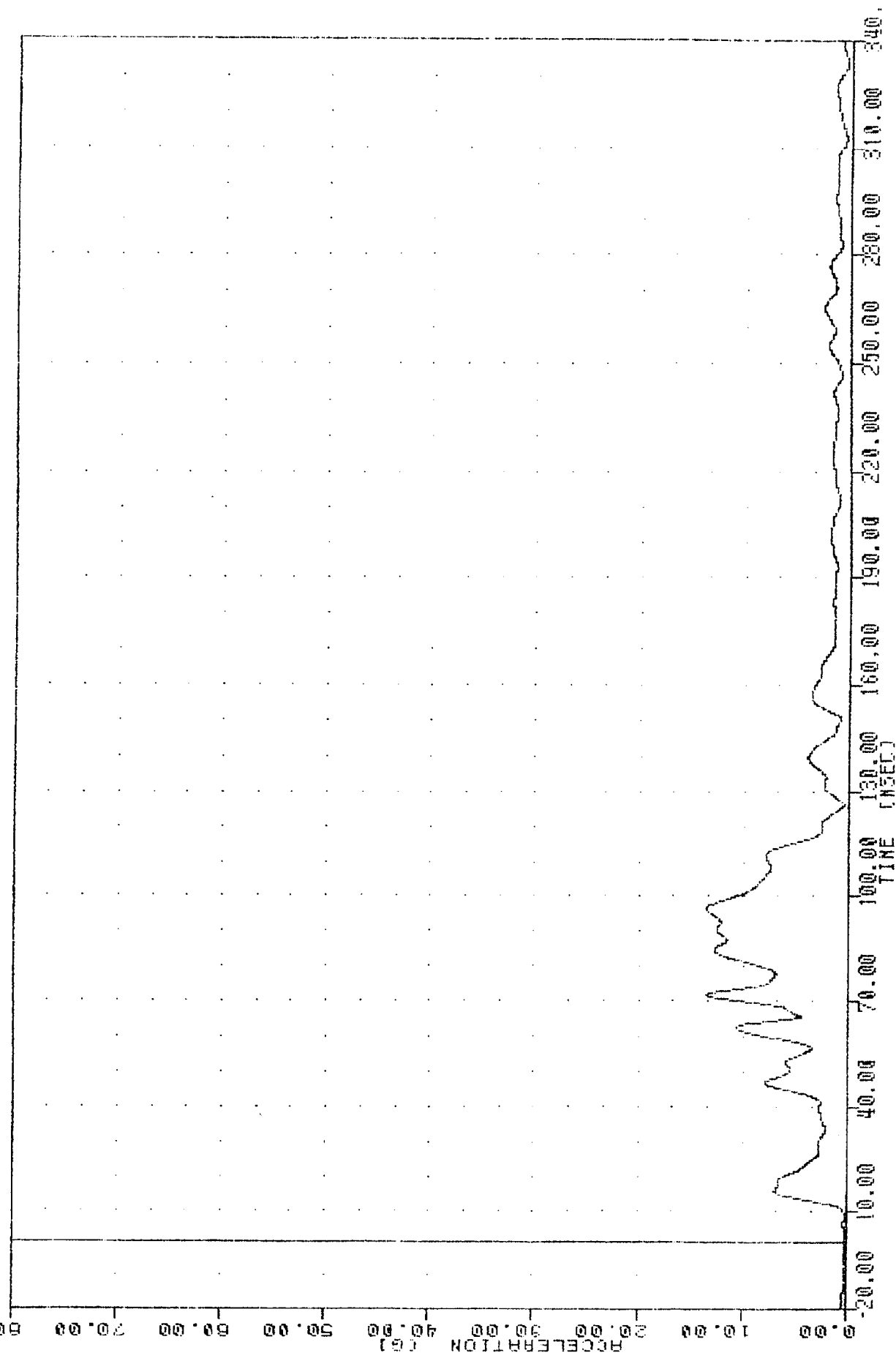
FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = 0.012 -7.13 13.51 96.38

EVALUATION OF MOD VN FLEET

83315000000

ARSAB2



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT REAR STILL RESULTANT

8311W3

PLOT DATE

13-NOV-83

09:18:40

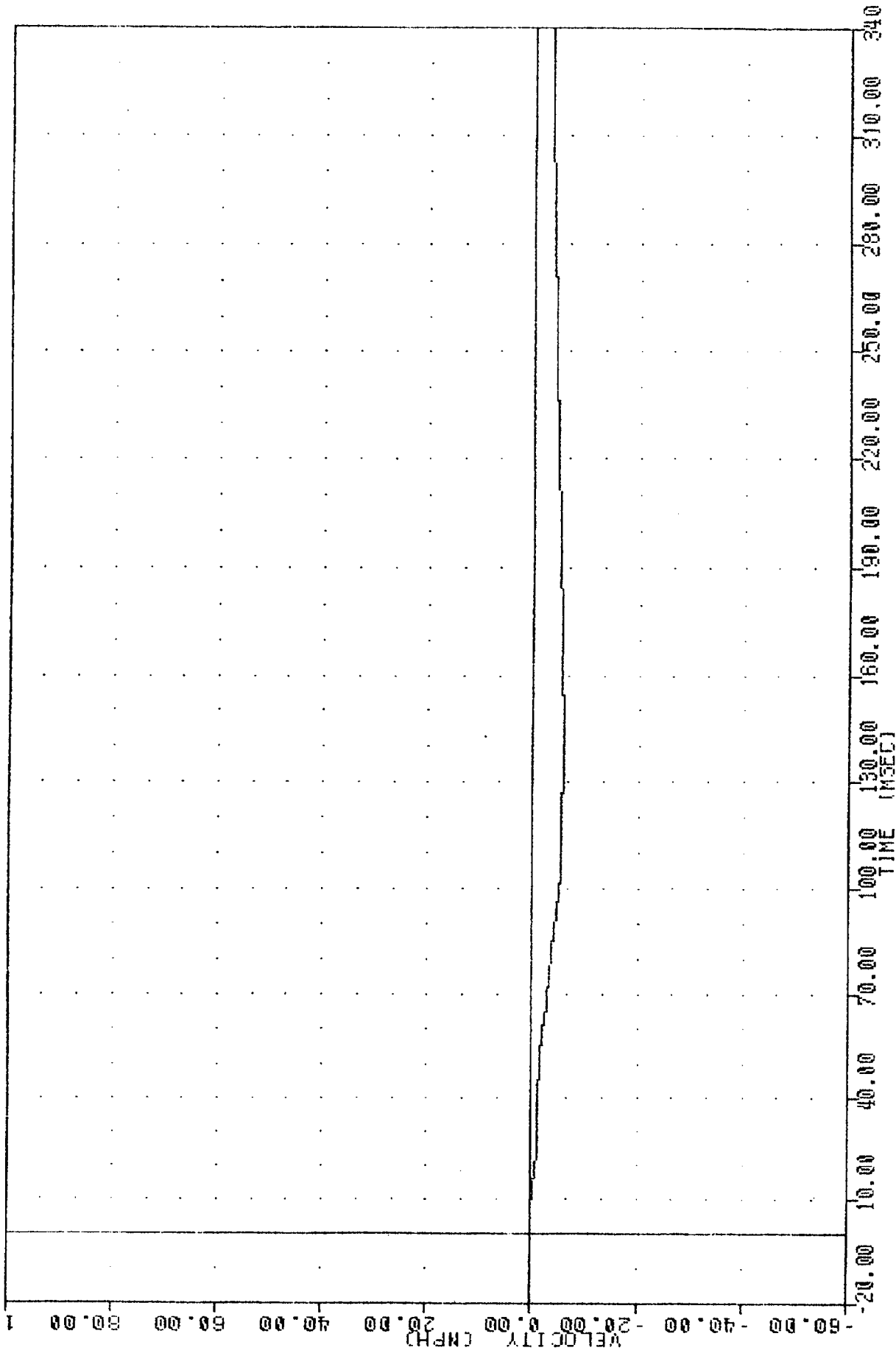
EVALUATION OF MOD VW FLEET

833130000000

RRSXV2

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -5.73e 141.38, 0.00 e -17.13



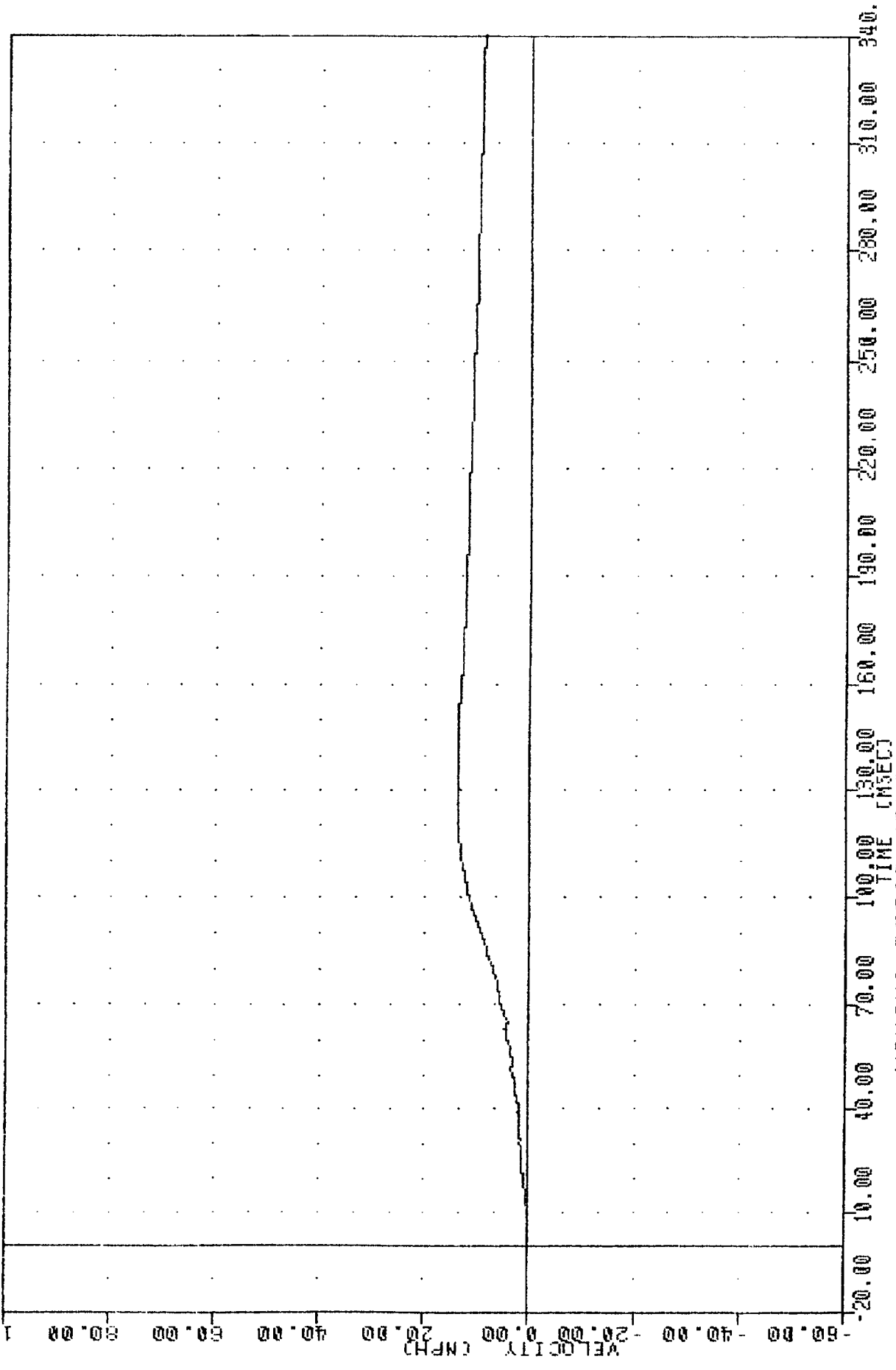
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING RRSXG2

INC 831108
 EVALUATION OF MOD YW FLEET
 833130000000
 RRSYV2

PLAN DATE 15-NOV-83 09:18:40

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.028 7.13, 13.80 e 146.88

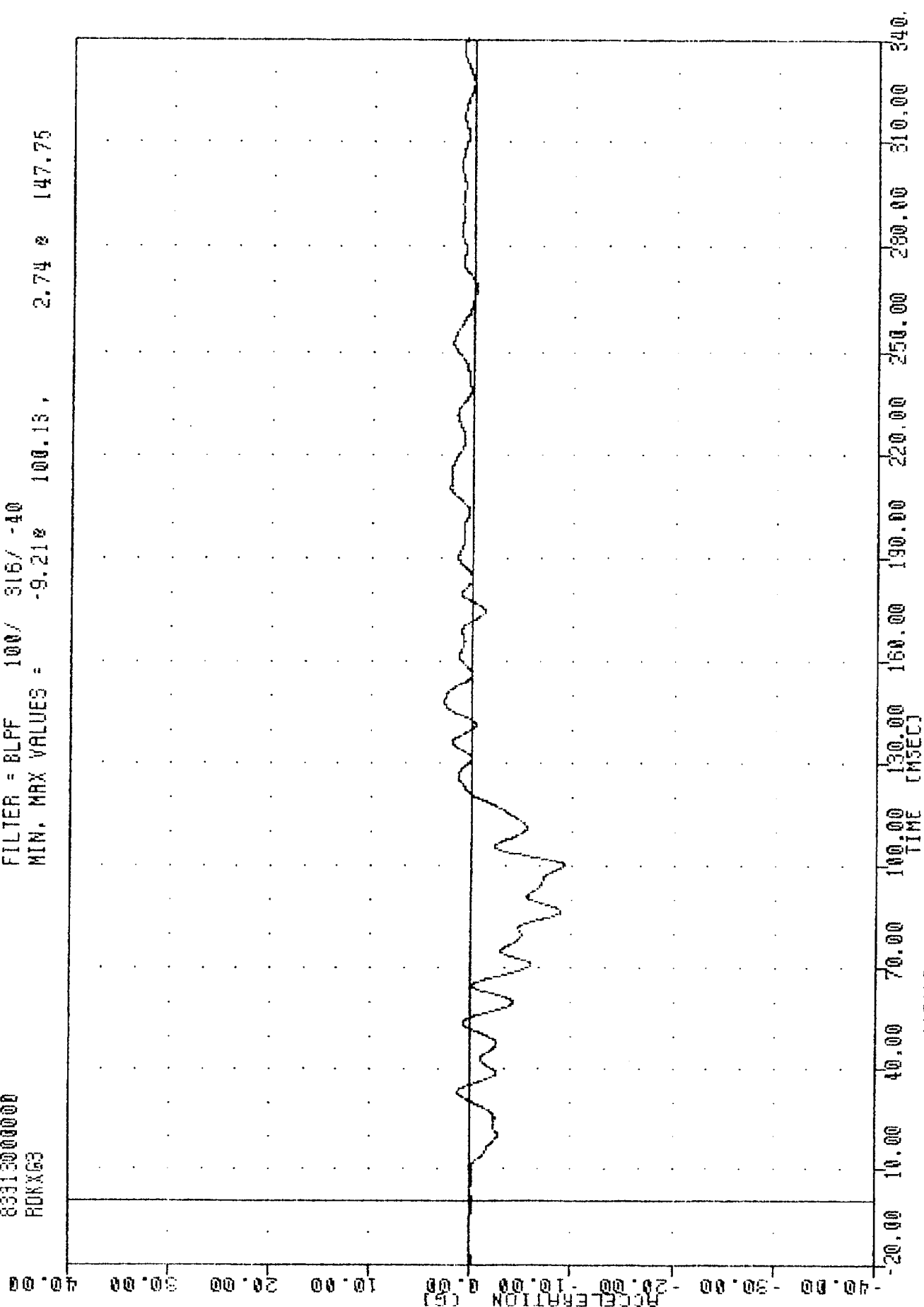


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING RRSY62

8331300000
 EVALUATION OF MOD VV FLEET
 83313000000
 ROKX63

8331300000
 14 NOV 83 10:33.17

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -9.21e 100.13, 2.74 e 147.75



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

831103 14 NOV 83 15:33:17

EVALUATION OF MOD VW FLEET

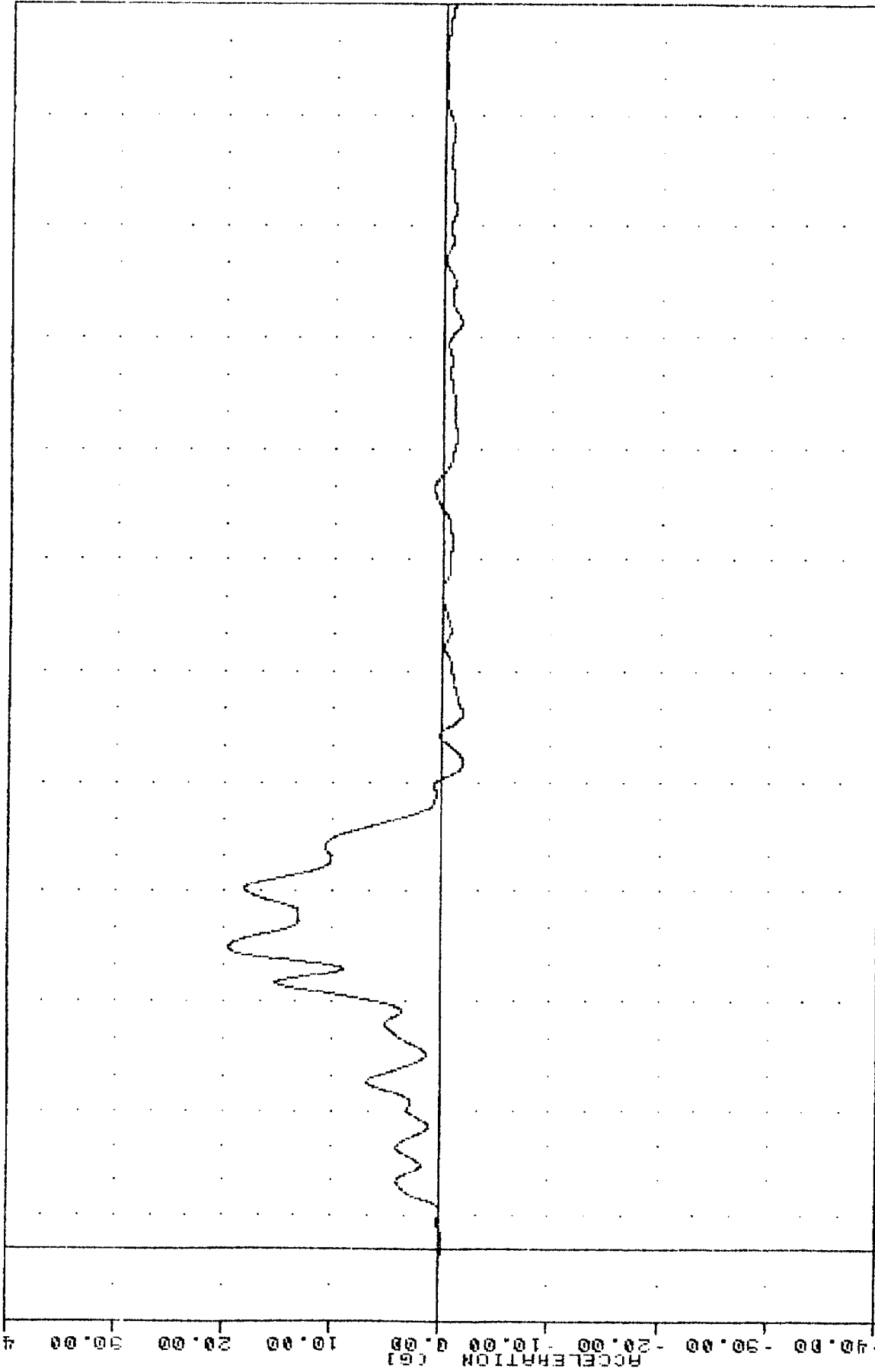
83315000000

RDY53

FILTER = BLPF 100/ 316/ .40

MIN. MAX VALUES = -1.920 135.00 19.56 84.63

ACCELERATION (G)

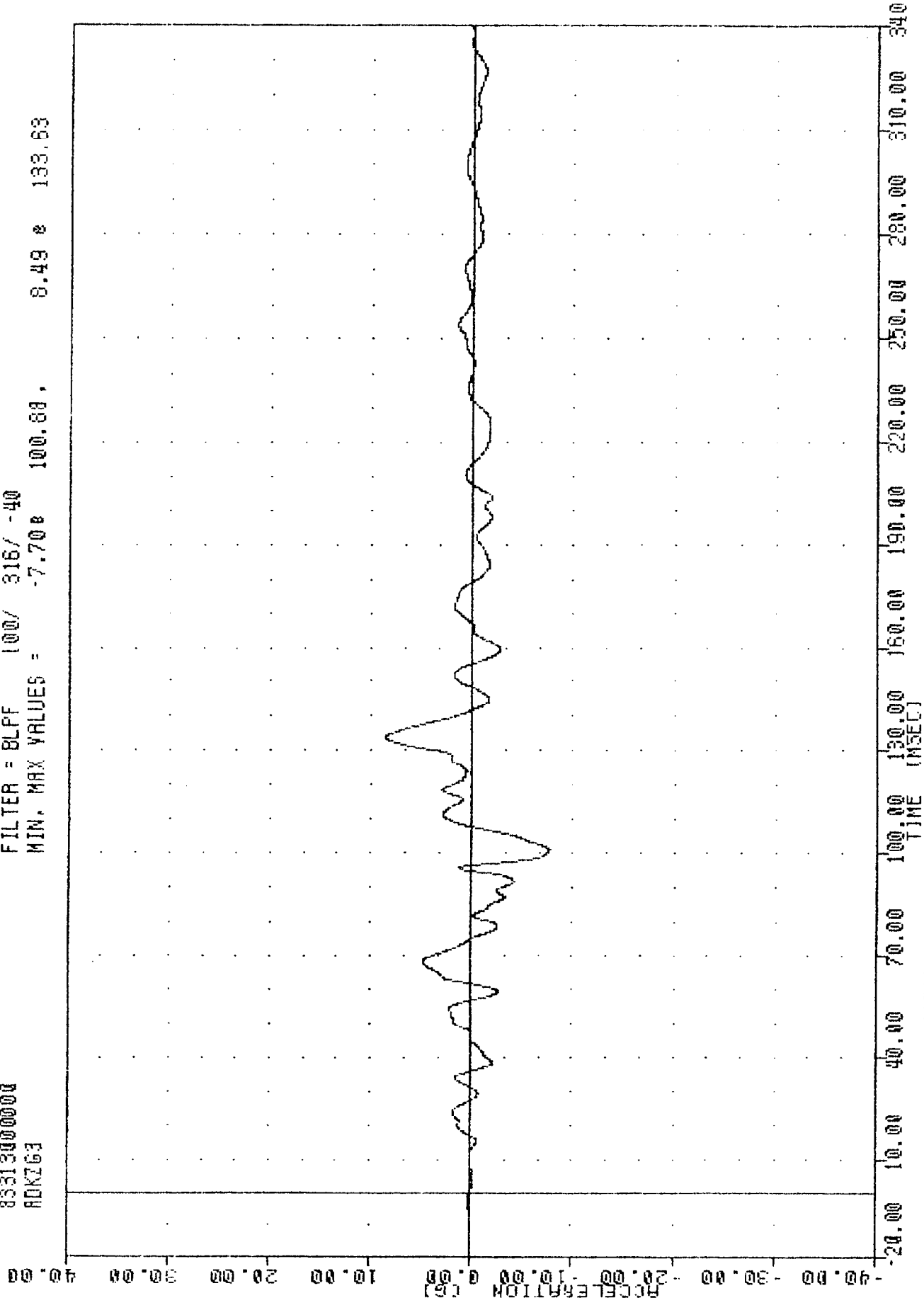


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE REAR DECK ACCELERATION Y AXIS

IRL 831103
 EVALUATION OF MOD V'N FLEET
 83313000000
 RDKZG3

FLUT DATE 14-NOV-83 15:33:17

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -7.708 100.88, 8.49 133.53



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

TEST DATE 14 NOV 83 13:35.50

EVALUATION OF MOD VW FLEET

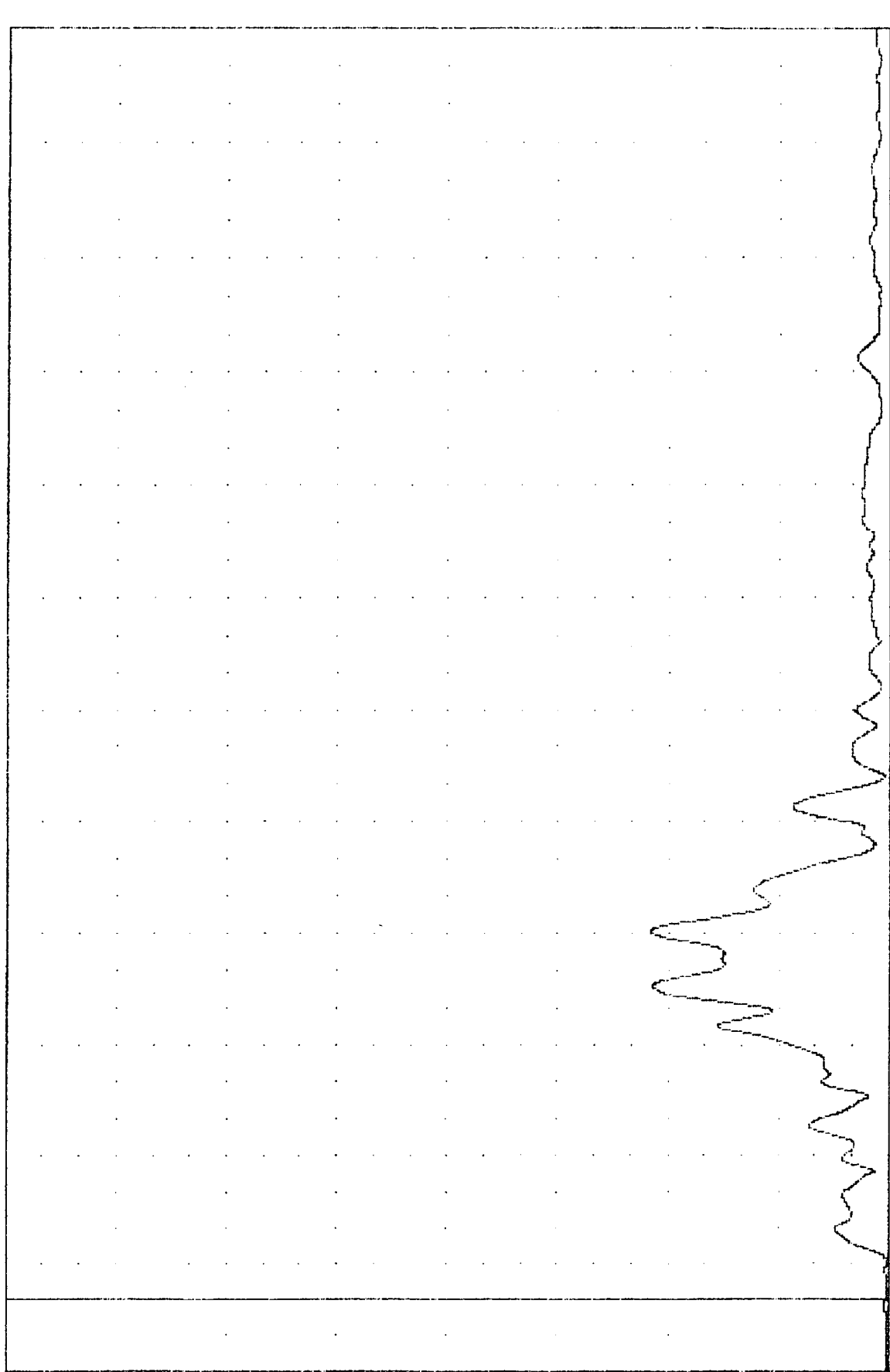
83313000000

ADKRG3

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = 0.09% -16.13, 21.67 @ 100.50

ACCELERATION (G)



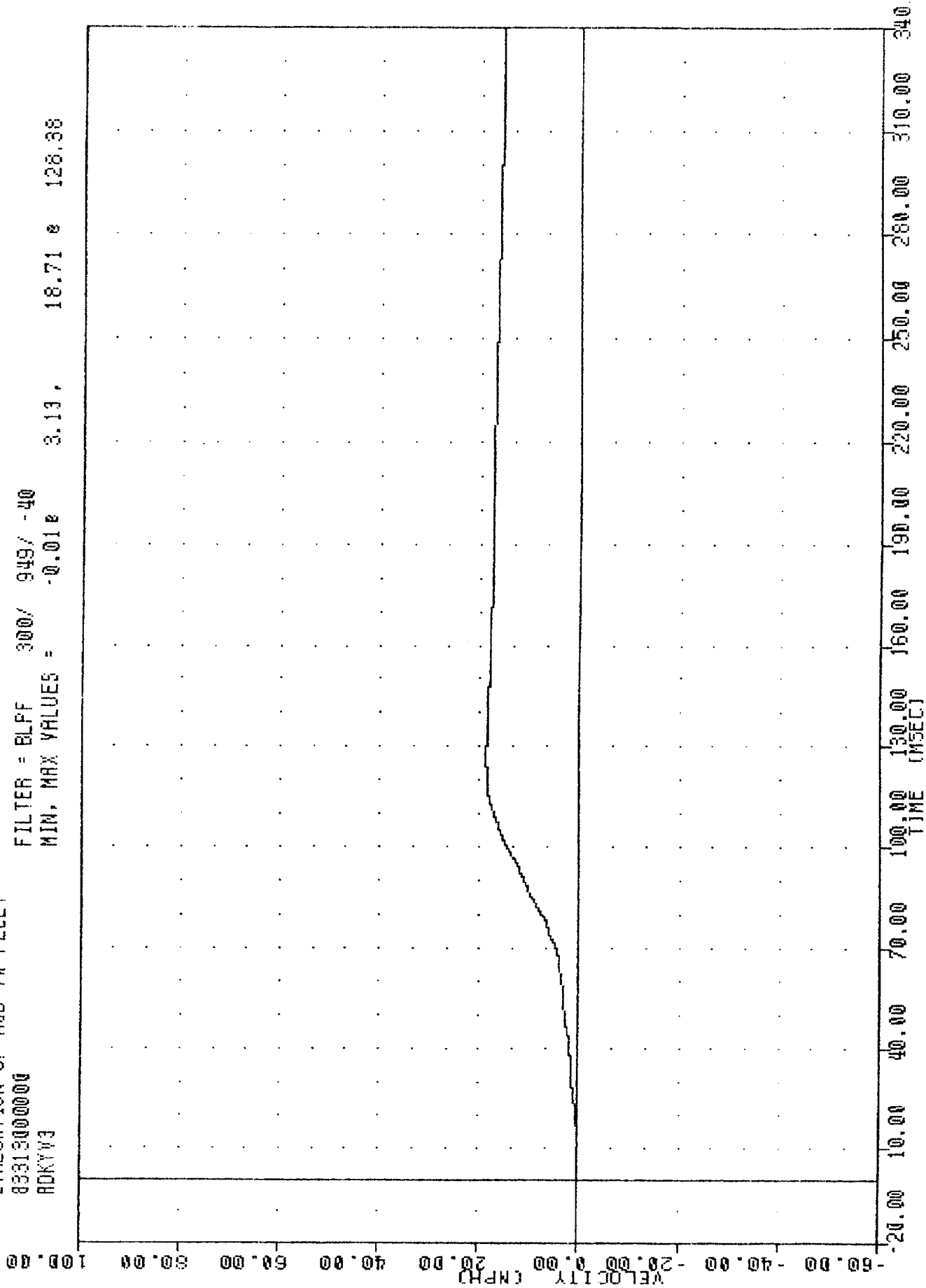
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE REAR DECK RESULTANT

INC 831109
 EVALUATION OF MOD VN FLEET
 833130000000
 RDKYV3

PLOT DATE 15-NOV-83 09:18:40

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.018 3.13 18.71 128.38

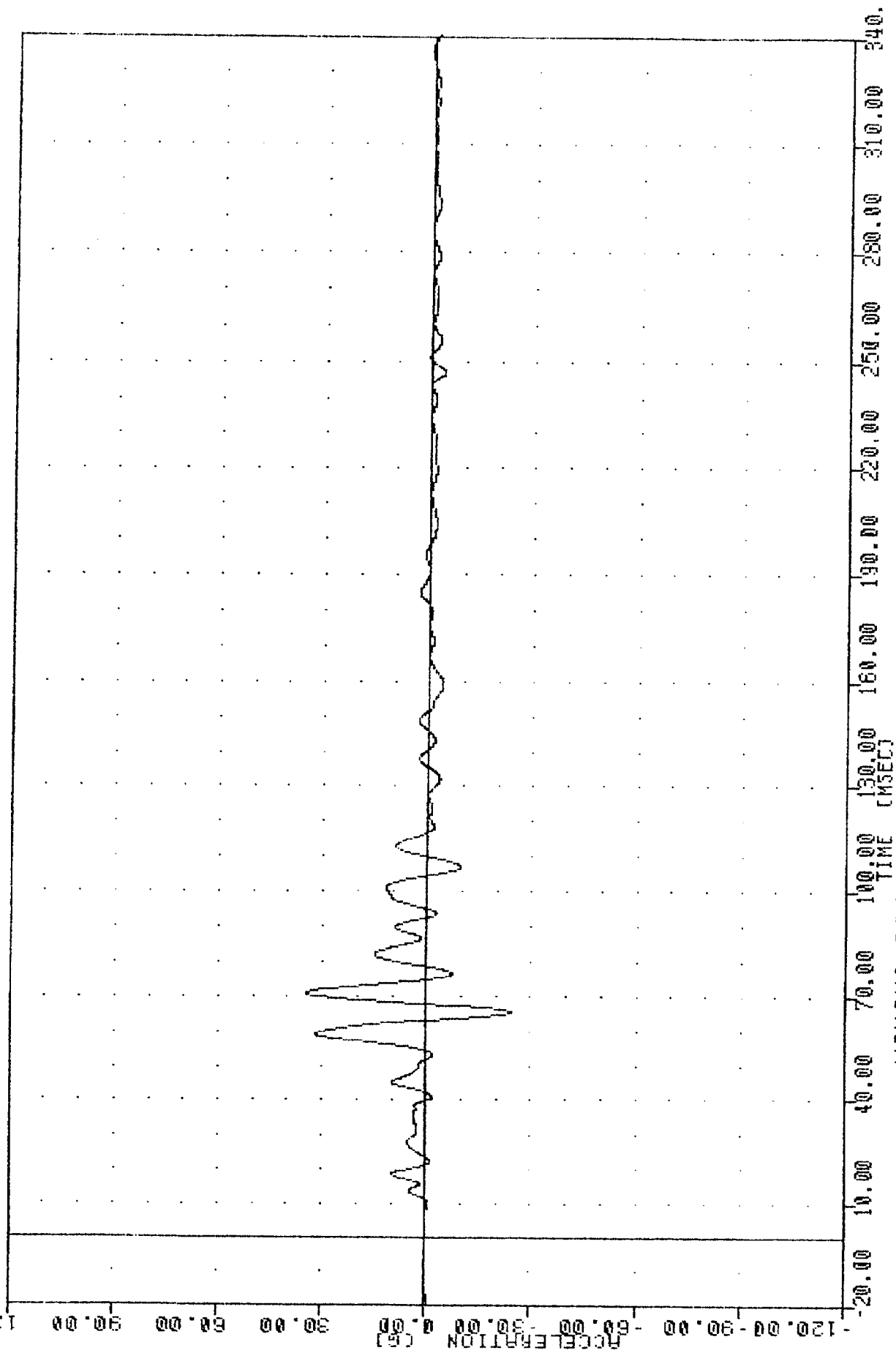


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING RDKYGB

83313000000
 EVALUATION OF MDD VW FLEET
 83313000000
 LRSYG4

TEST DATE 14 NOV 83 10:33:17

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -24.95e 65.25, 34.61 e 70.50

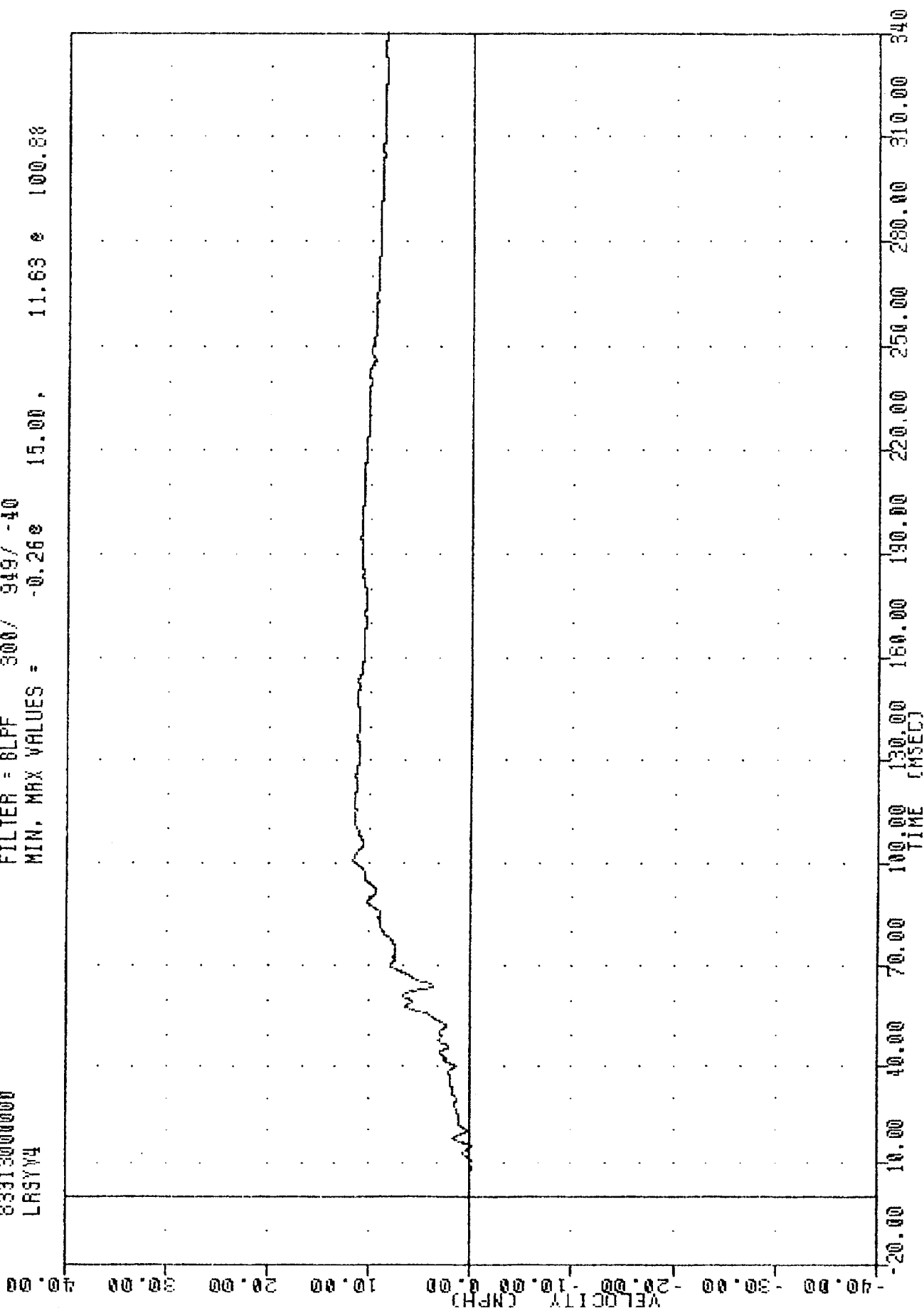


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT REAR SILL ACCELERATION Y AXIS

TRC 831709
EVALUATION OF MDD VW FLEET
83313000000
LRSYV4

PLUT DATE 15-NOV-83 09:18:40

FILTER = 8LPF 300/ 949/ -40
MIN. MAX VALUES = -0.260 15.00 11.63 100.88

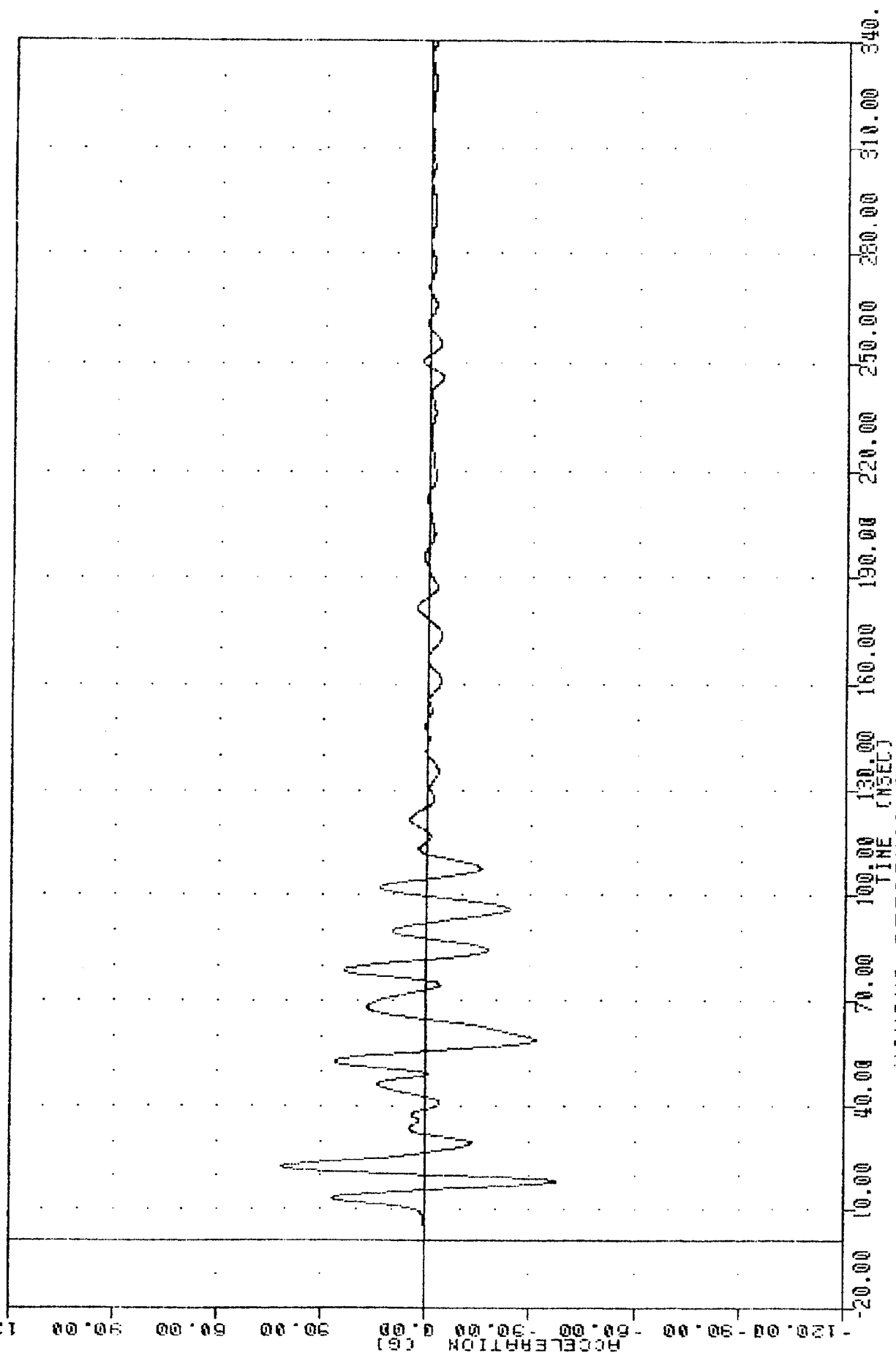


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LRSY64

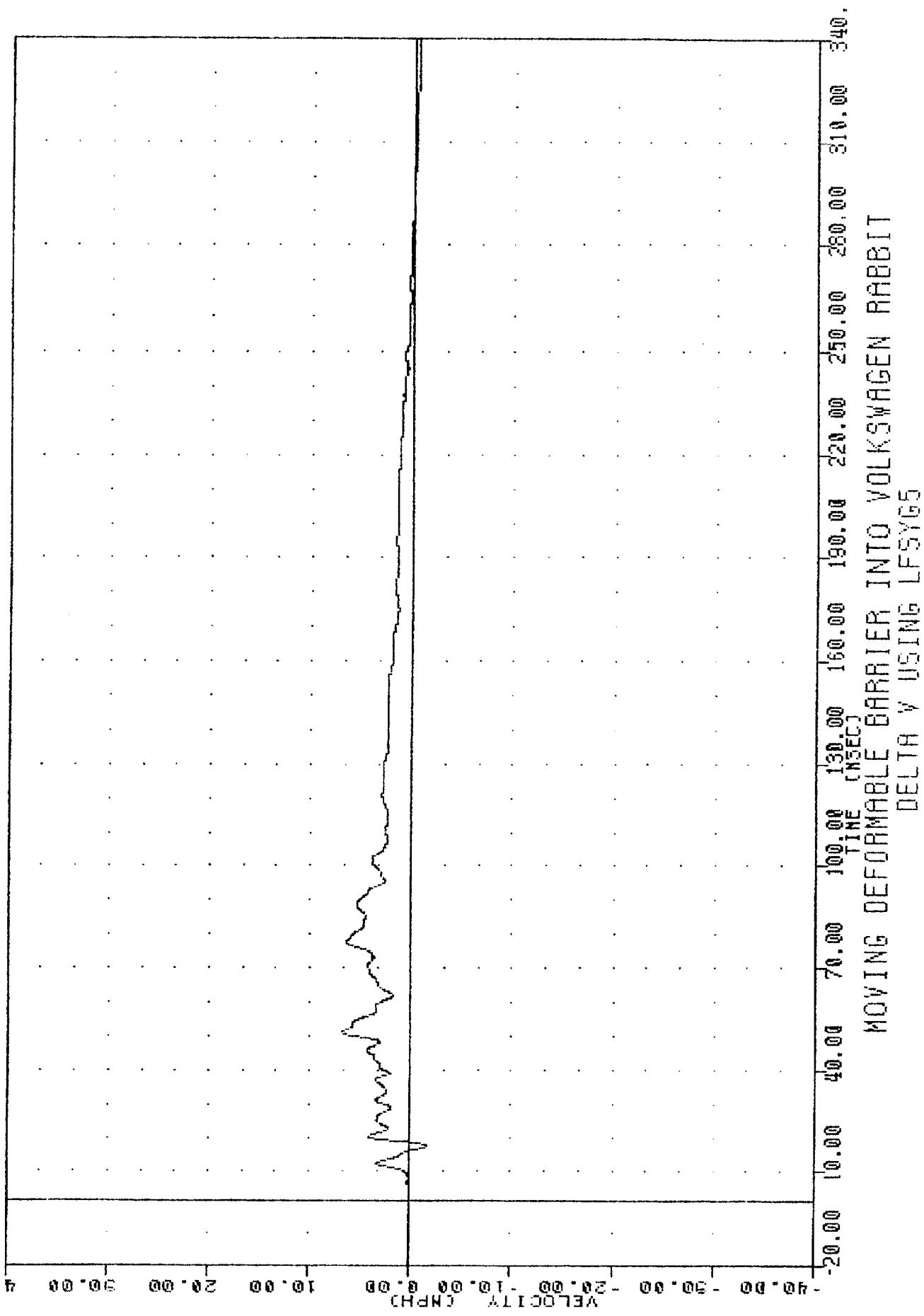
831109 14 NOV 83 15:33:17

EVALUATION OF MOD VN FLEET
83313000000
LFSY65

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -37.38 17.88 41.29 22.25



MC 83103
 EVALUATION OF MOD VN FLEET
 83315000000
 LFSY75
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -1.728 17.25 6.84 51.00
 FEUT DATE 13-NOV-83 08:18:40



831703 14-NOV-83 15:33:17

EVALUATION OF MDD VW FLEET

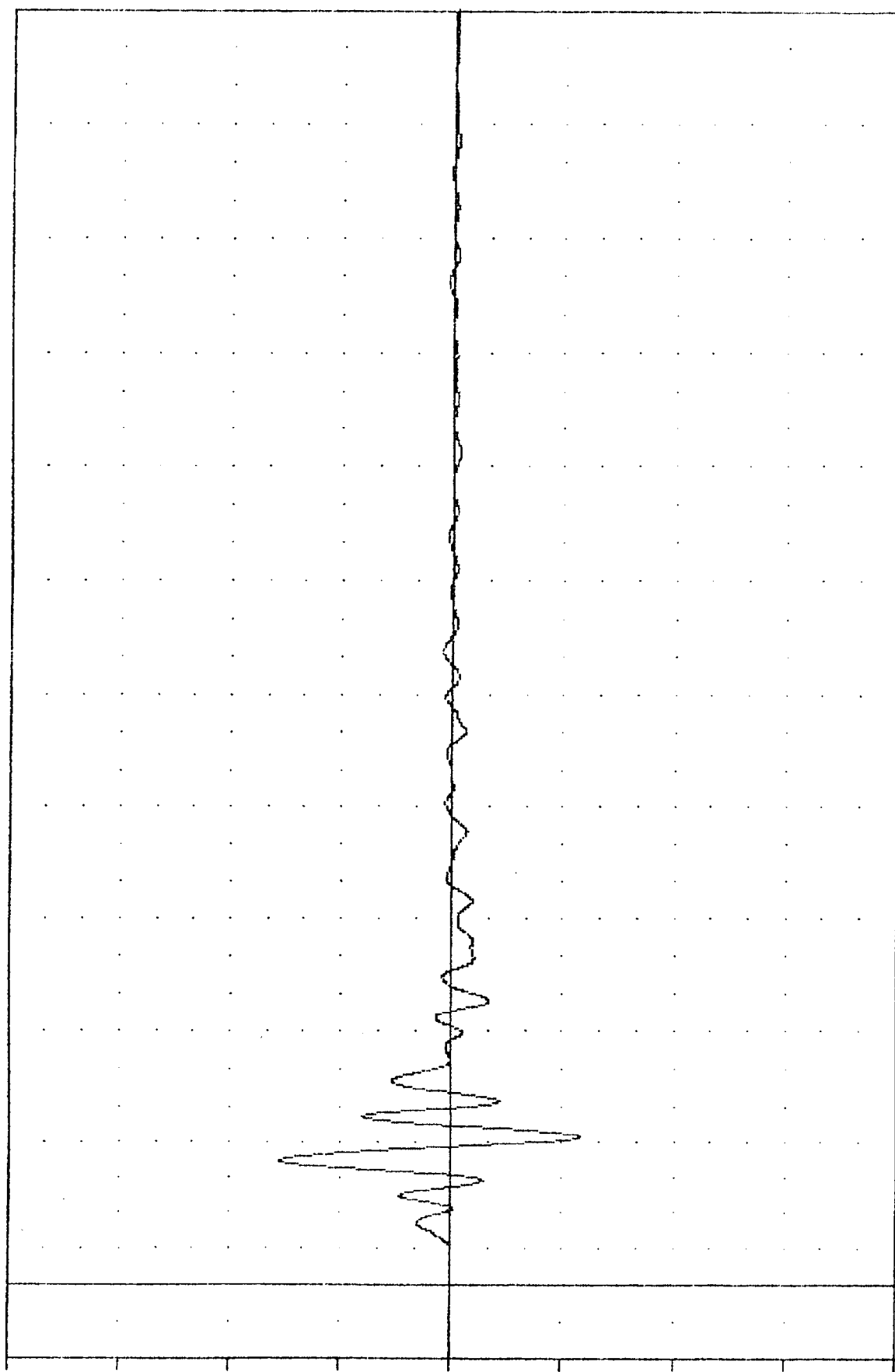
833130000000

LFOY61

FILTER = 8LFF 100/ 316/ -40

MIN. MAX VALUES = -116.65 41.50 155.33 34.63

ACCELERATION (G) (X10¹)



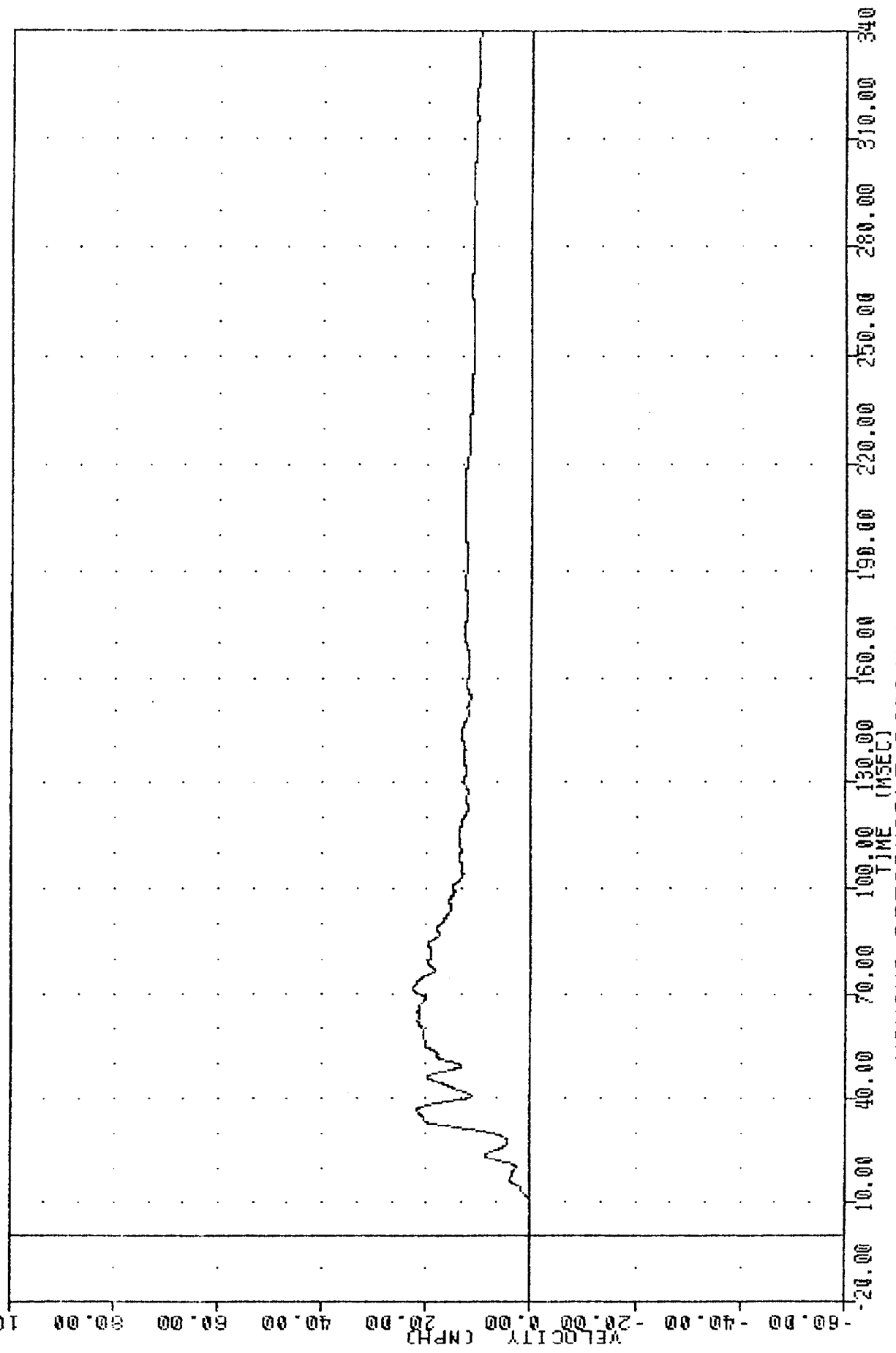
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

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

IRC
 EVALUATION OF MOD YW FLEET
 833130000000
 LFDYV1

PLUT DATE 15-NOV-83 09:18:40

FILTER = BLPF 3000/ 949/ -40
 MIN. MAX VALUES = 0.00 22.62 71.13

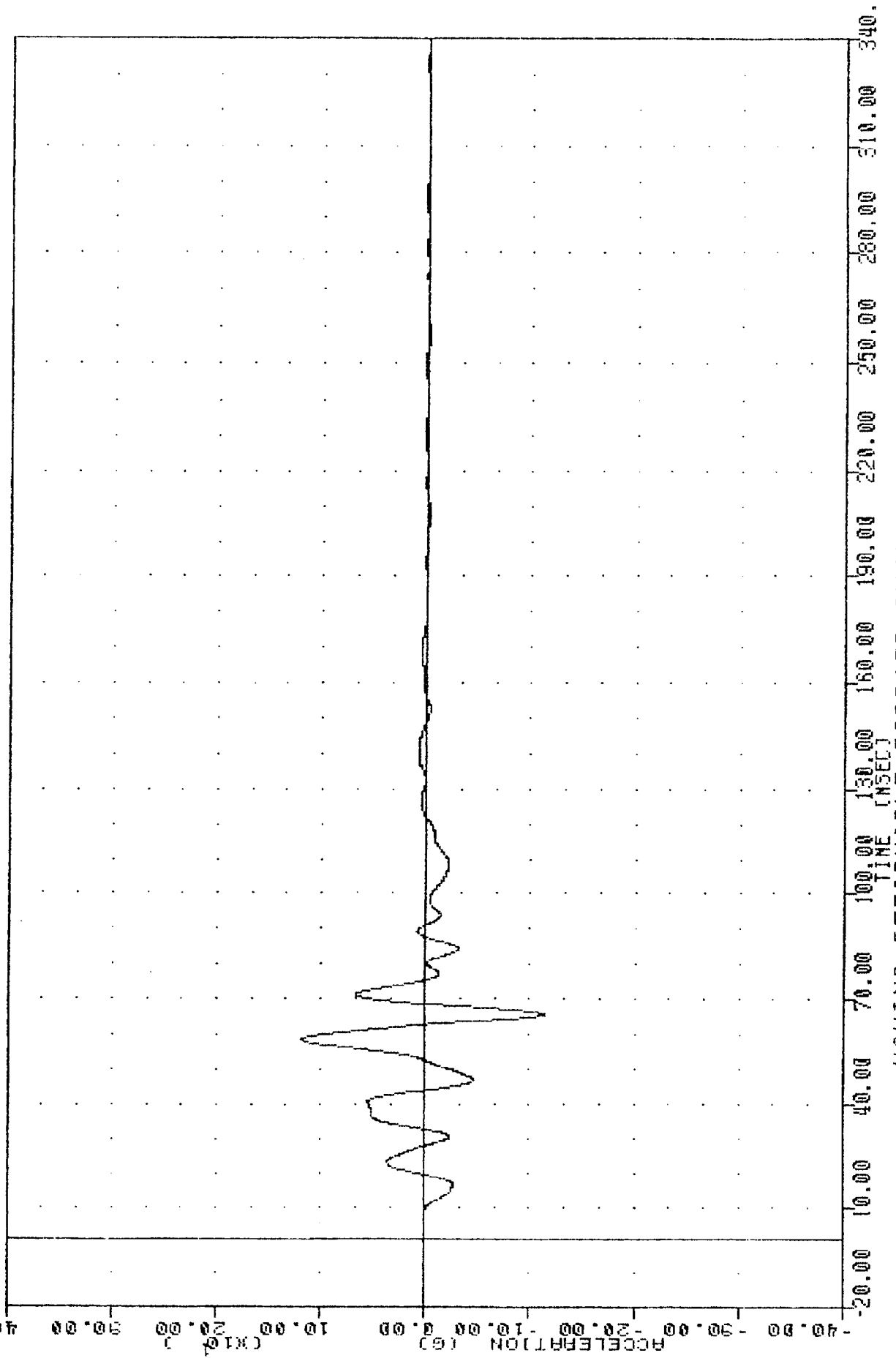


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LFDYGI

833105 14-NOV-83 15:33:17

EVALUATION OF MOD VN FLEET
83313000000
LFOY62

FILTER = BLPF 100/ 315/ -40
MIN. MAX VALUES = -114.87g 65.50 119.10 * 58.38

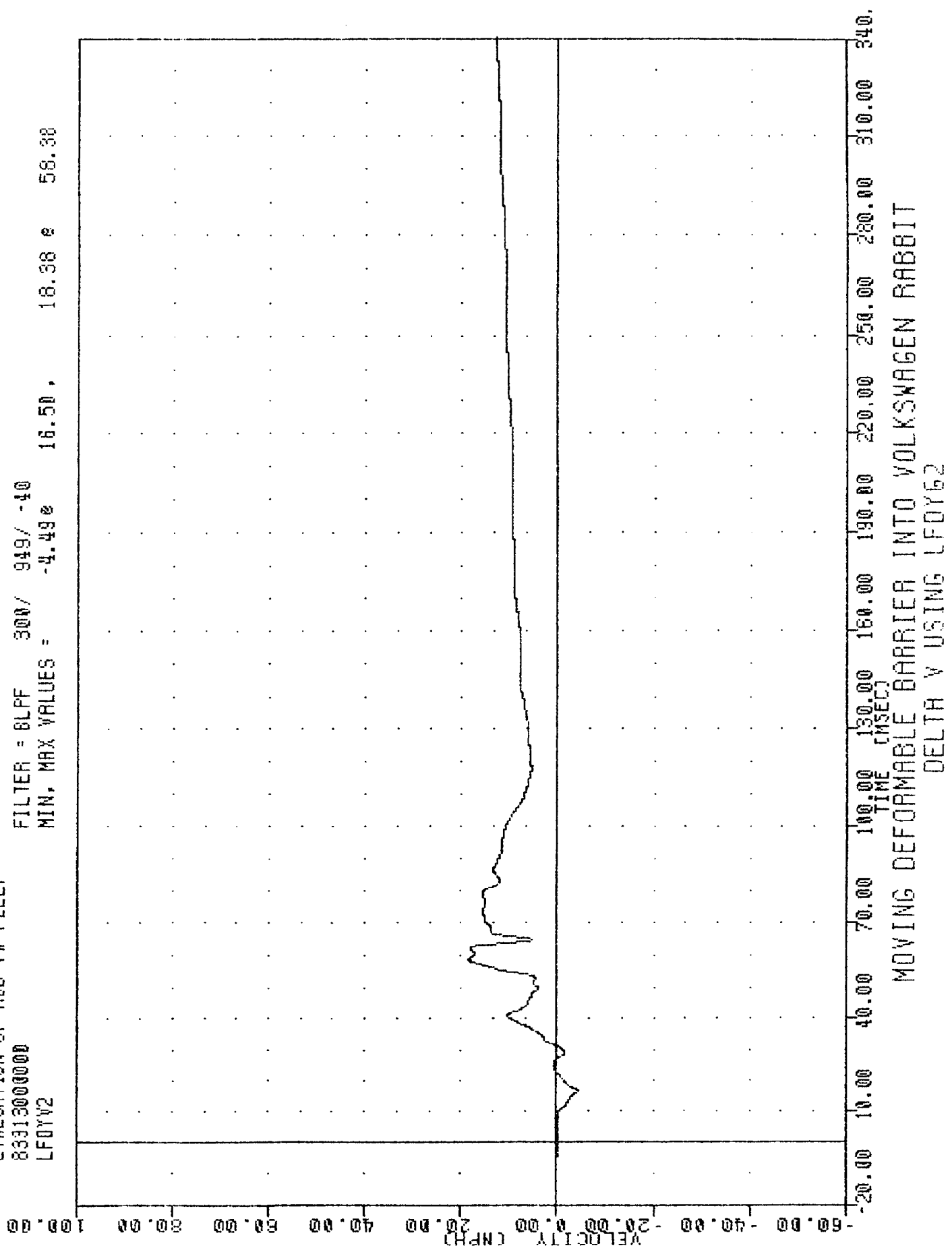


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR (POSITION 8) ACCELERATION Y AXIS

TRC
 EVALUATION OF M00 VW FLEET
 83313000000
 LFOYV2

831109
 15-NOV-83 09:18:10

FILTER = 8LFF 300/ 949/ -10
 MIN. MAX VALUES = -4.49 16.50 18.38 58.38



MC 831109

EVALUATION OF MOD VW FLEET

833130000000

LFOY63

PLUT DATE

14-NOV-83

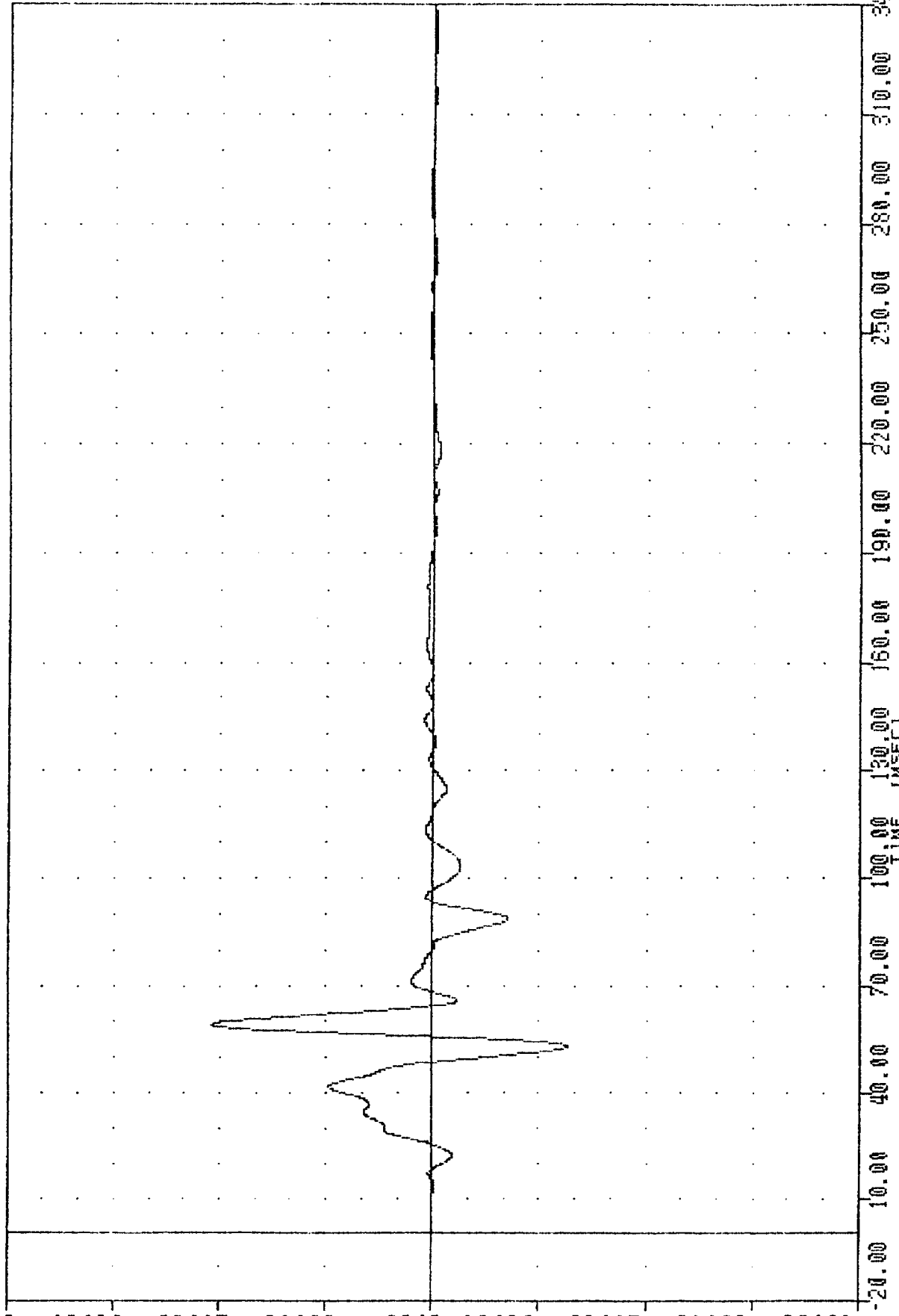
15:33:17

FILTER = BLPF 100/ 318/ -40

MIN. MAX VALUES = -127.48e 53.00 . 207.96 e 59.13

ACCELERATION (G)

(X10⁻²)



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

THC 831109 15-NOV-83 09:18:40

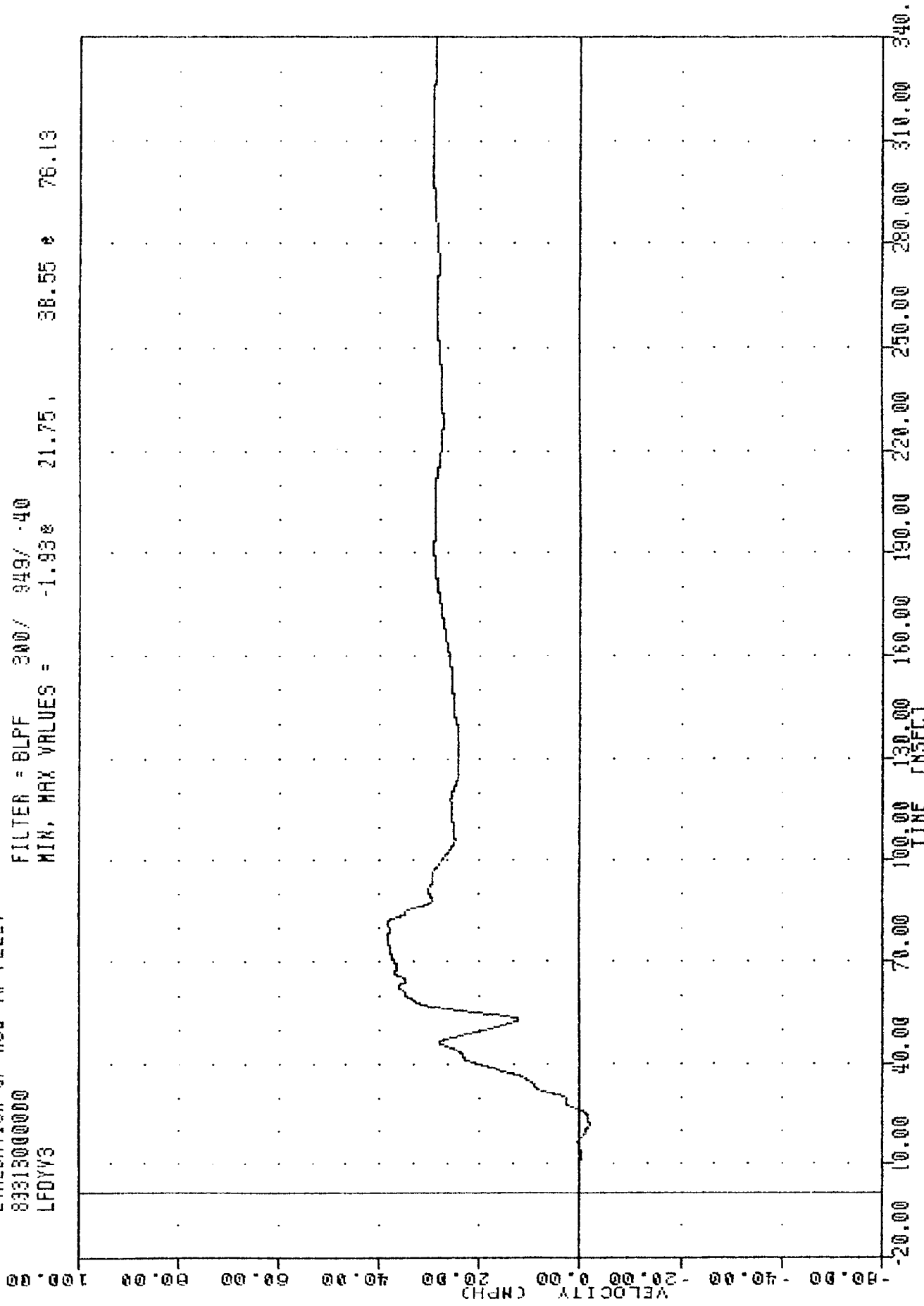
EVALUATION OF MOD VN FLEET

833130000000

LFDYV3

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -1.93% 21.75, 38.55 & 76.13



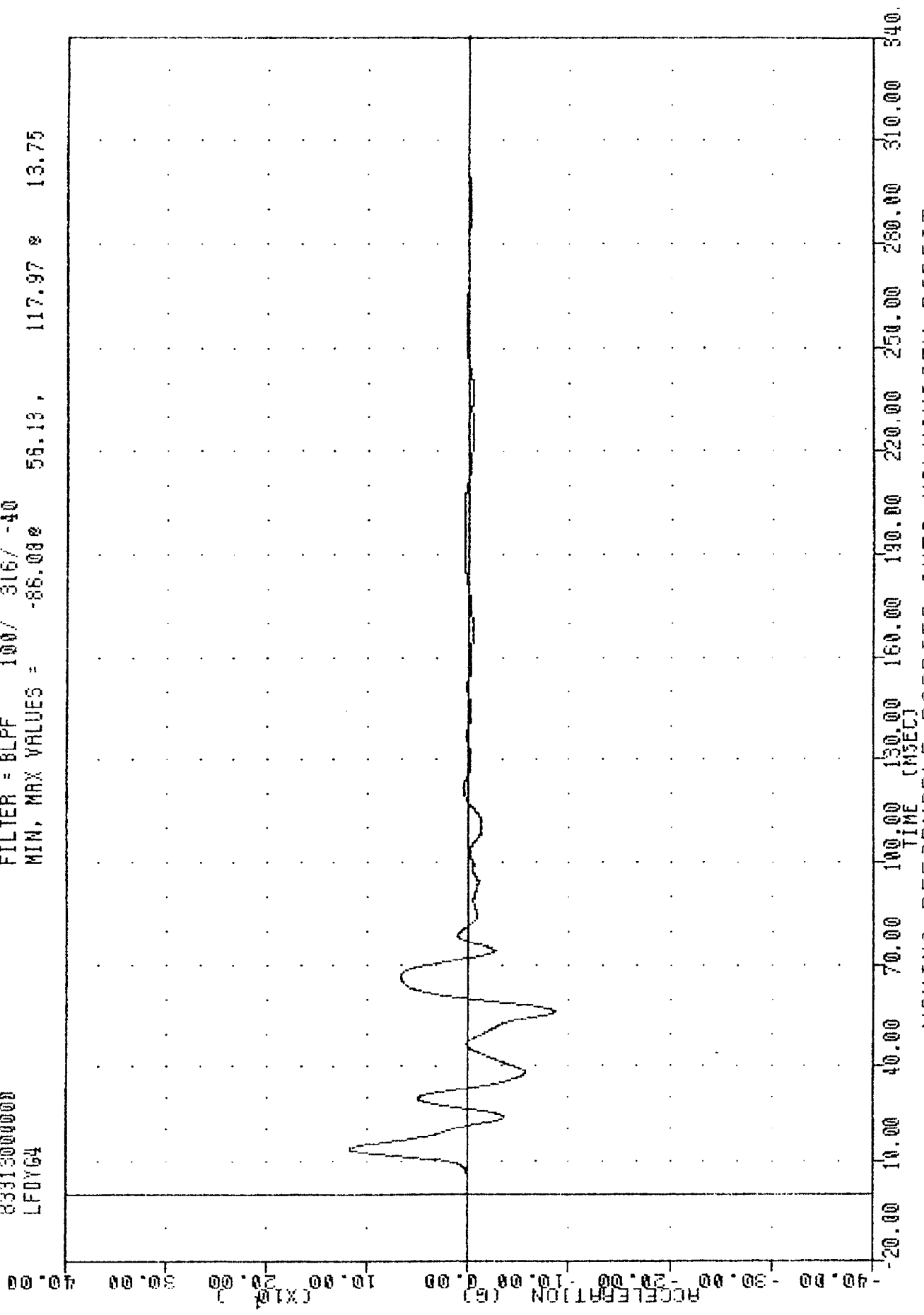
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING LFDYV3

TRC
 EVALUATION OF MDD VW FLEET
 83313000000
 LFDY64

831108
 14-MAY-83
 15:33:17

FILTER = 8LPP 100/ 316/ -40
 MIN, MAX VALUES = -86.08 58.13, 117.97 13.75

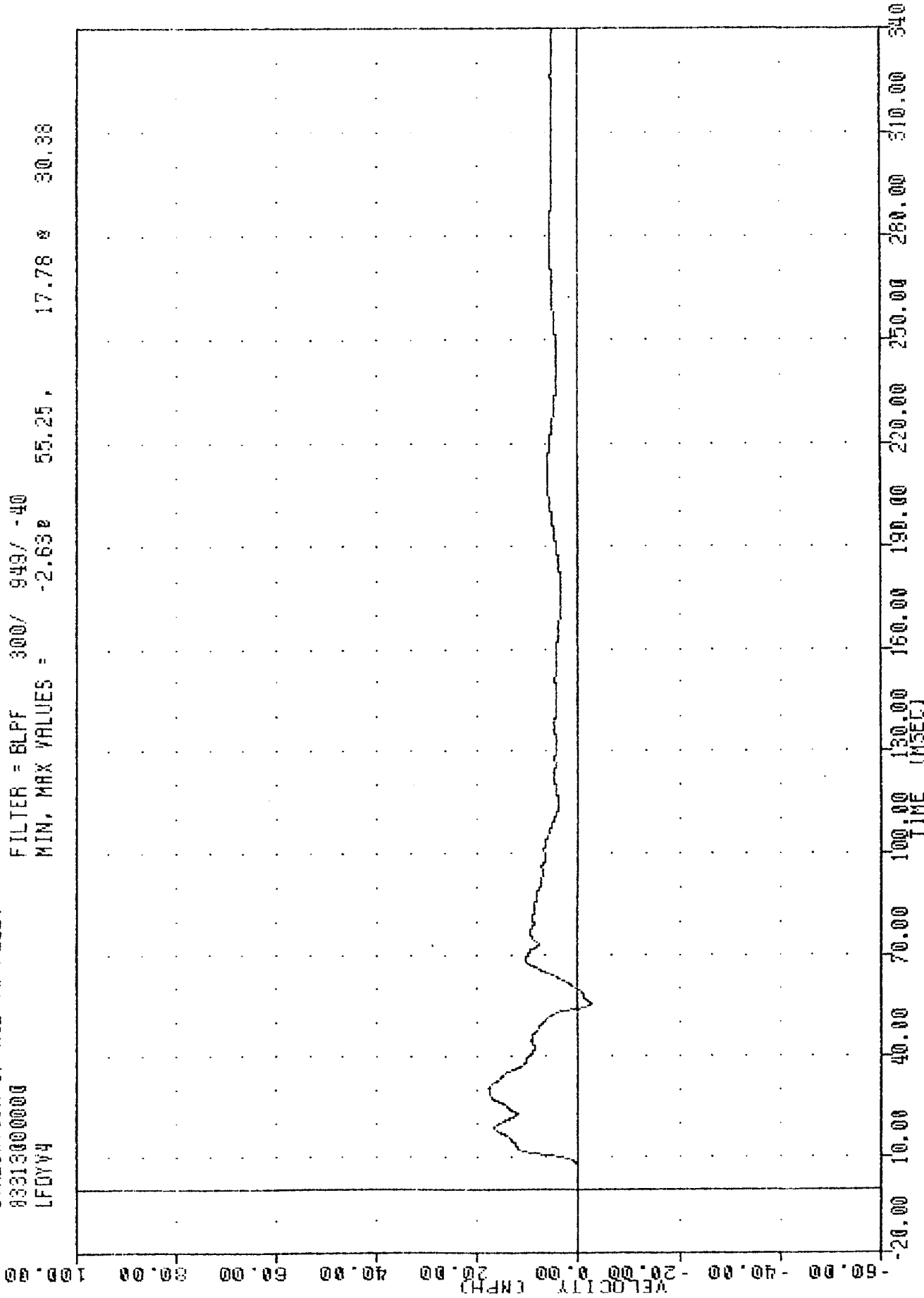


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT FRONT DOOR (POSITION 10) ACCELERATION Y AXIS

IRC
 EVALUATION OF MOD YW FLEET
 8313000000
 LFDYV4

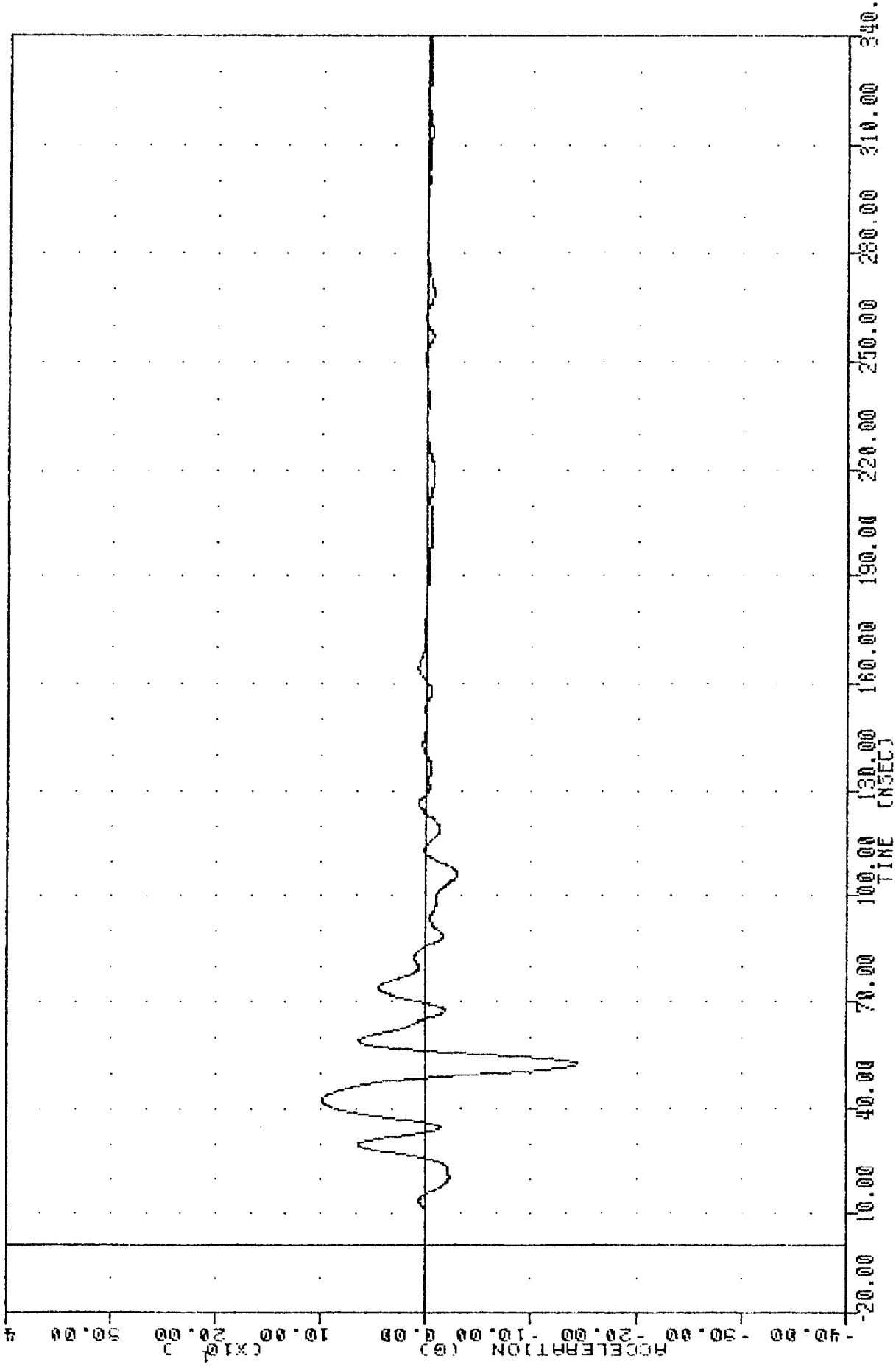
831108
 15-NOV-83 09:18:40

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -2.63e 55.25, 17.78 e 30.38



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LFDYV4

THE 831103 14 NOV 83 10:33.17
 EVALUATION OF MOD VW FLEET
 83313000000
 LFDY65
 FILTER = BLPF 100/ 315/ -40
 MIN, MAX VALUES = -144.32 98.62 42.38

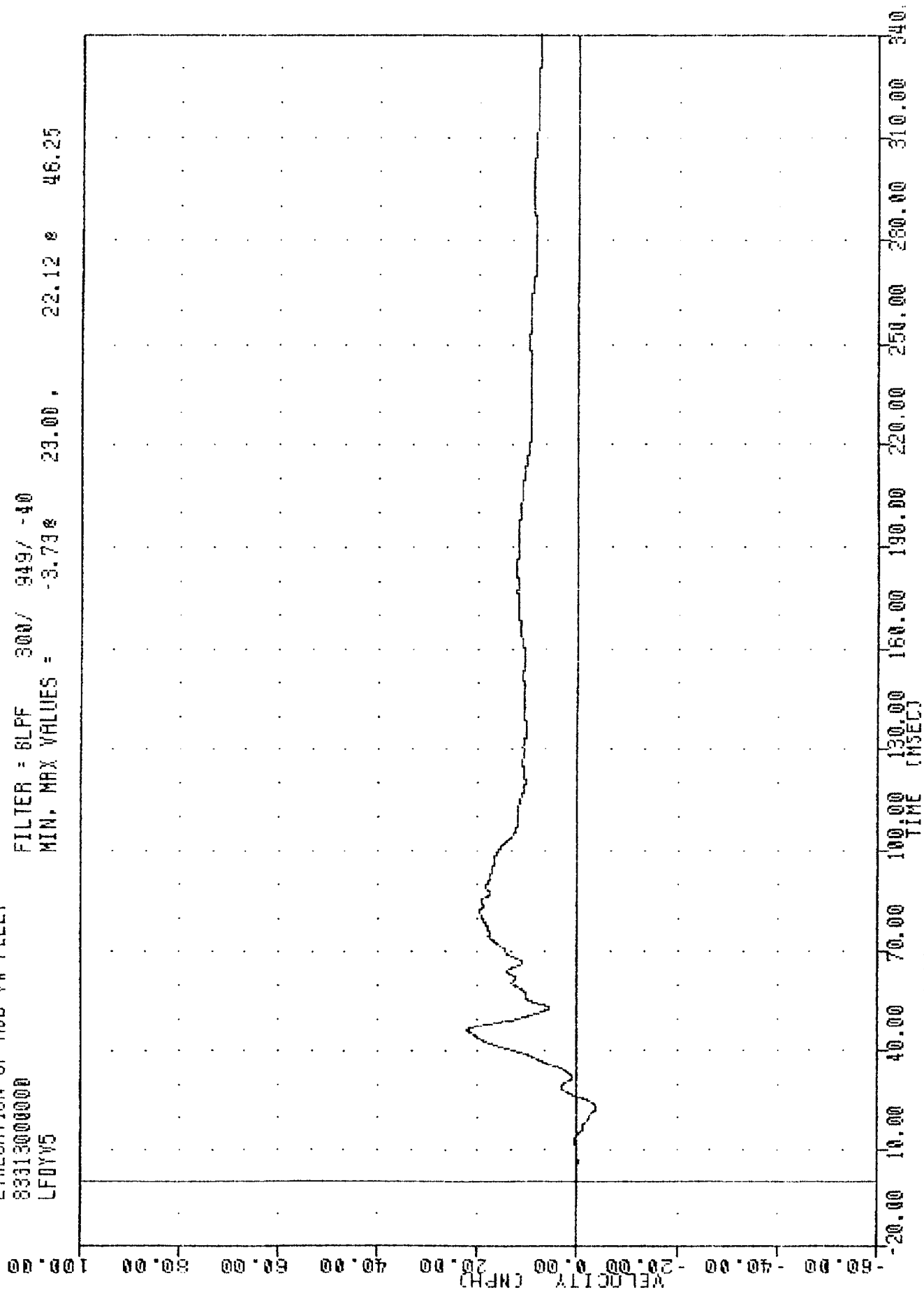


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT FRONT DOOR (POSITION 11) ACCELERATION Y AXIS

TRC 831TWS
EVALUATION OF MOD VN FLEET
833130000000
LFDYV5

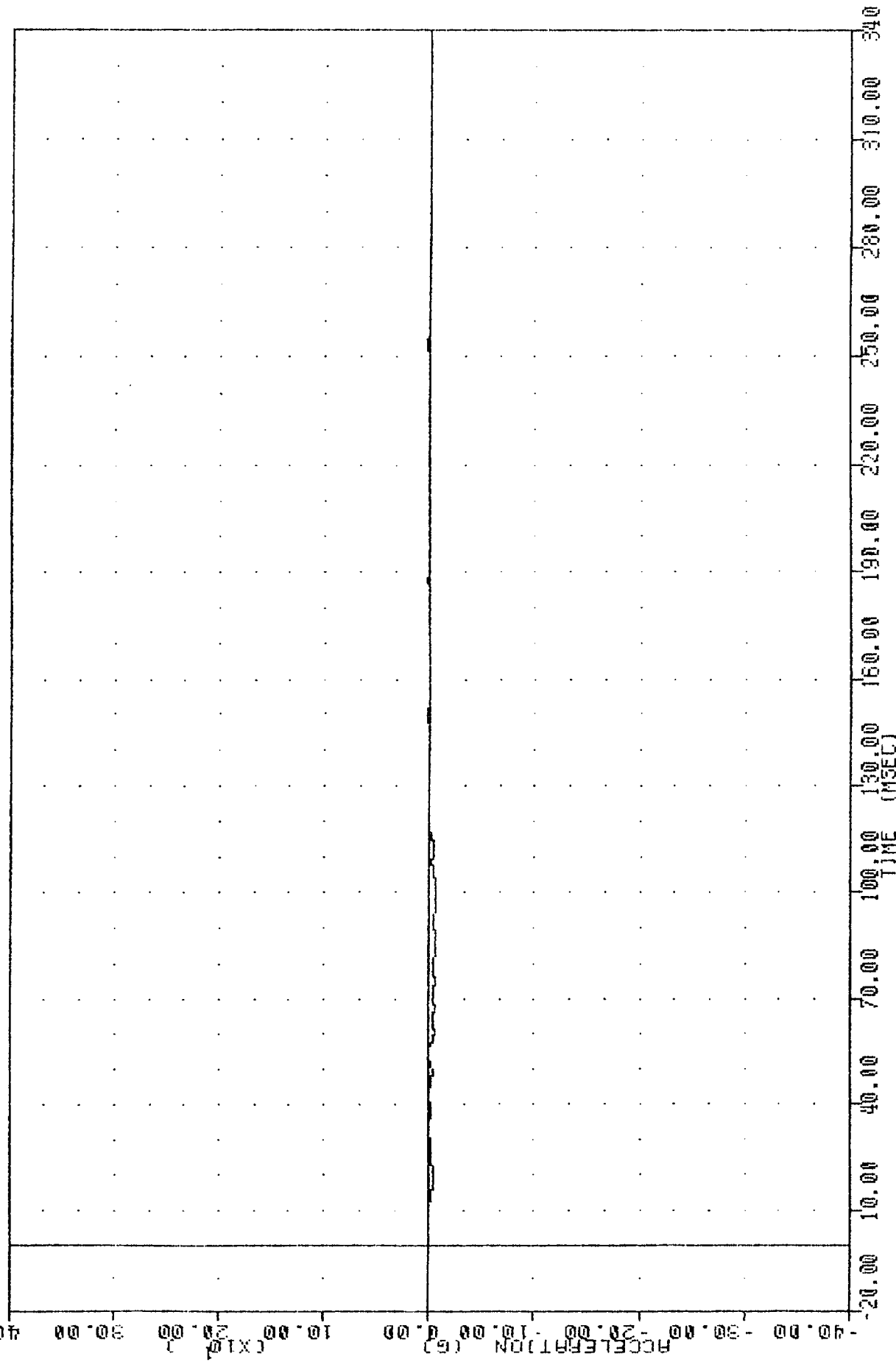
PLOT DATE 13-NOV-83 09:18:40

FILTER = 8LPF 300/ 949/ -40
MIN. MAX VALUES = -3.73 23.00 22.12 46.25



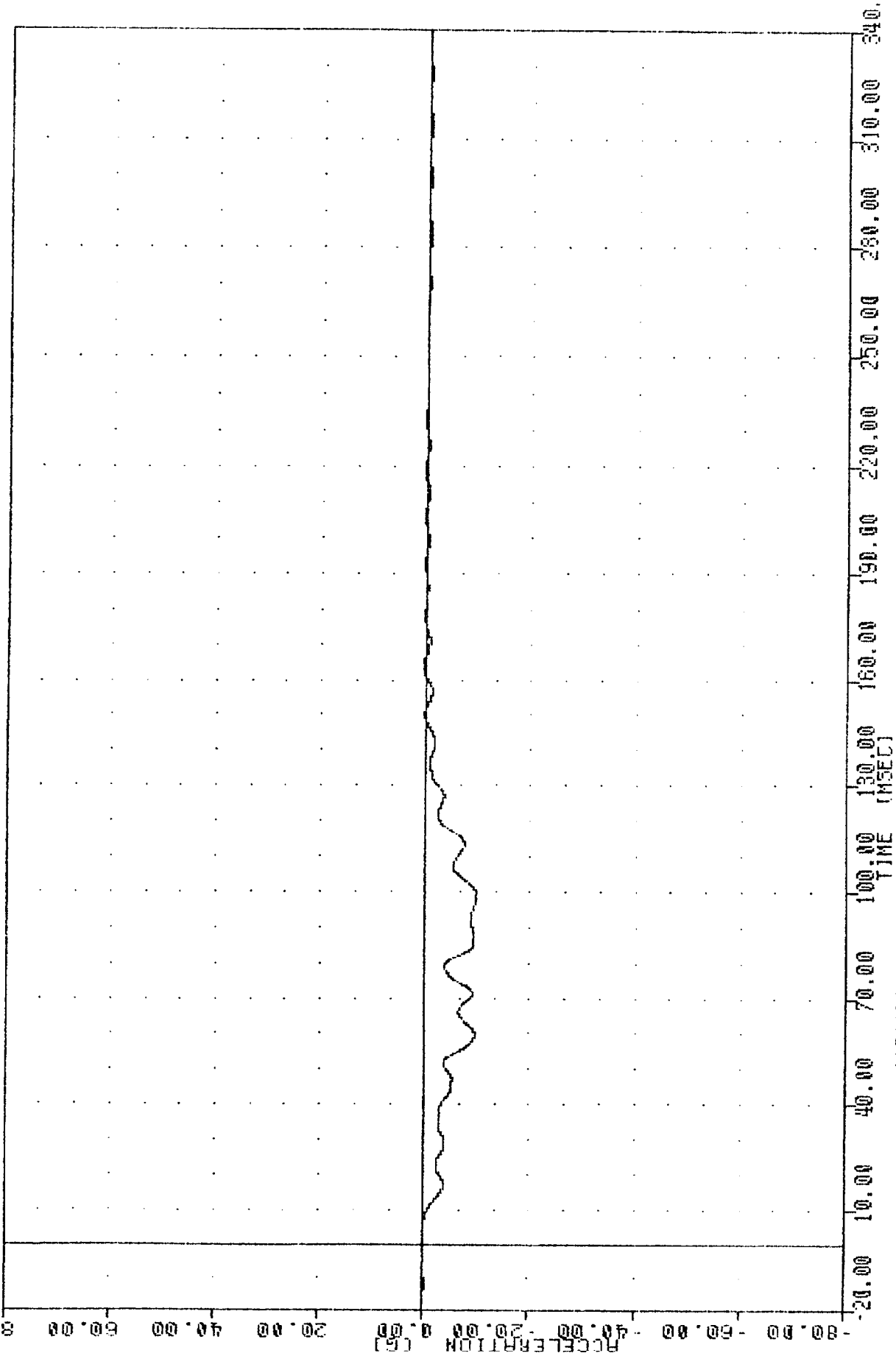
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LFDY65

INC 831103
 EVALUATION OF MOD YW FLEET
 83313000000
 IFRXG7
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -6.10e 96.50, 1.89 e 149.63
 PLOT DATE 14-NOV-83 15:33:17



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

831103
 EVALUATION OF MOD VW FLEET
 8313000000
 BCGXG
 FILTER = BLPF 100/ 315/ -40
 MIN. MAX VALUES = -9.84e 97.88, 0.72 e 163.50
 TEST DATE 19 NOV 83 13:33:17

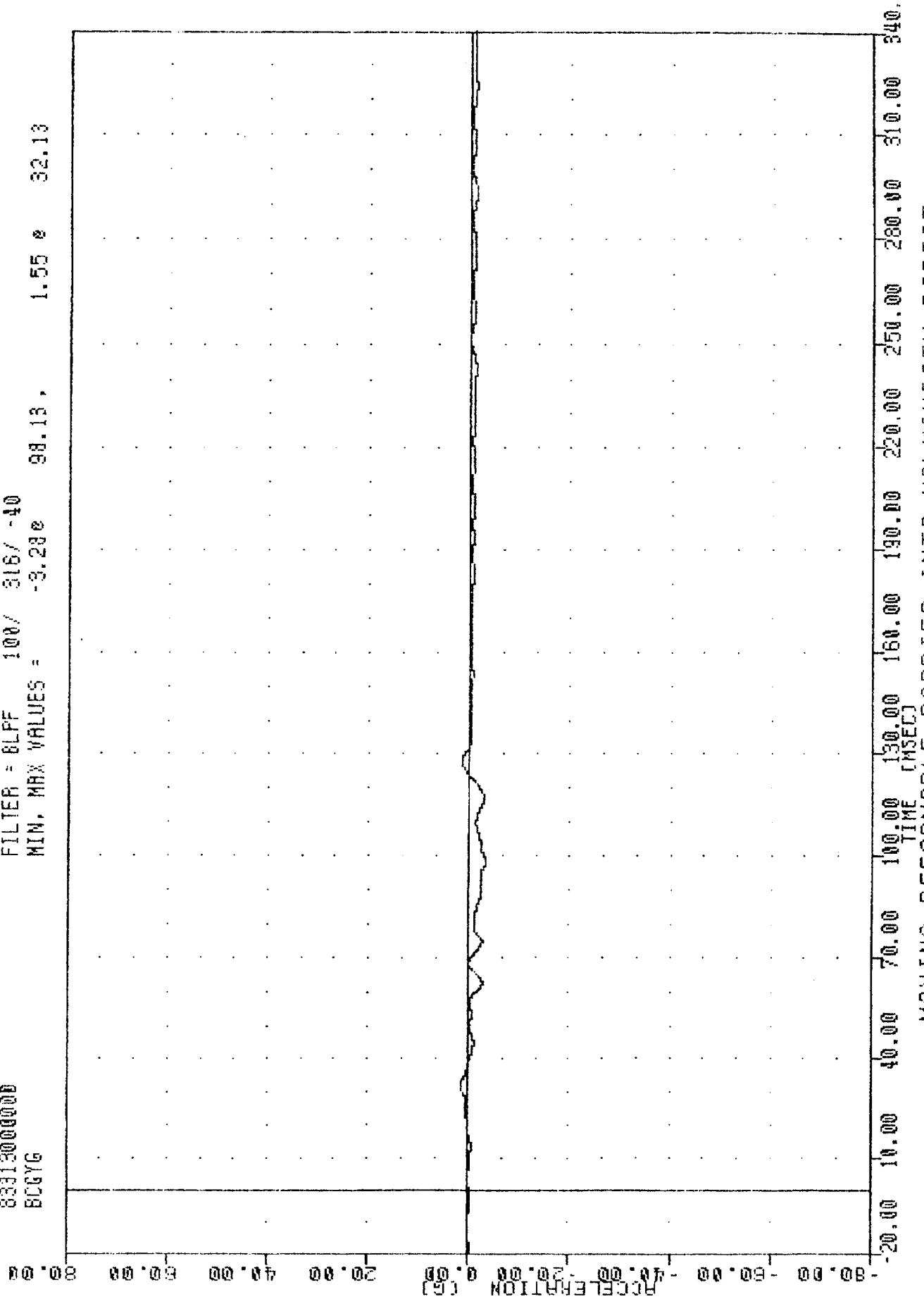


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER CENTER OF GRAVITY X AXIS

TRC
EVALUATION OF MDO VW FLEET
83313000000
BCGYG

PLOT DATE 14-NOV-83 15:33:17

FILTER = 8LFF 100/ 316/ -40
MIN. MAX VALUES = -3.28e 98.13, 1.55 e 32.13

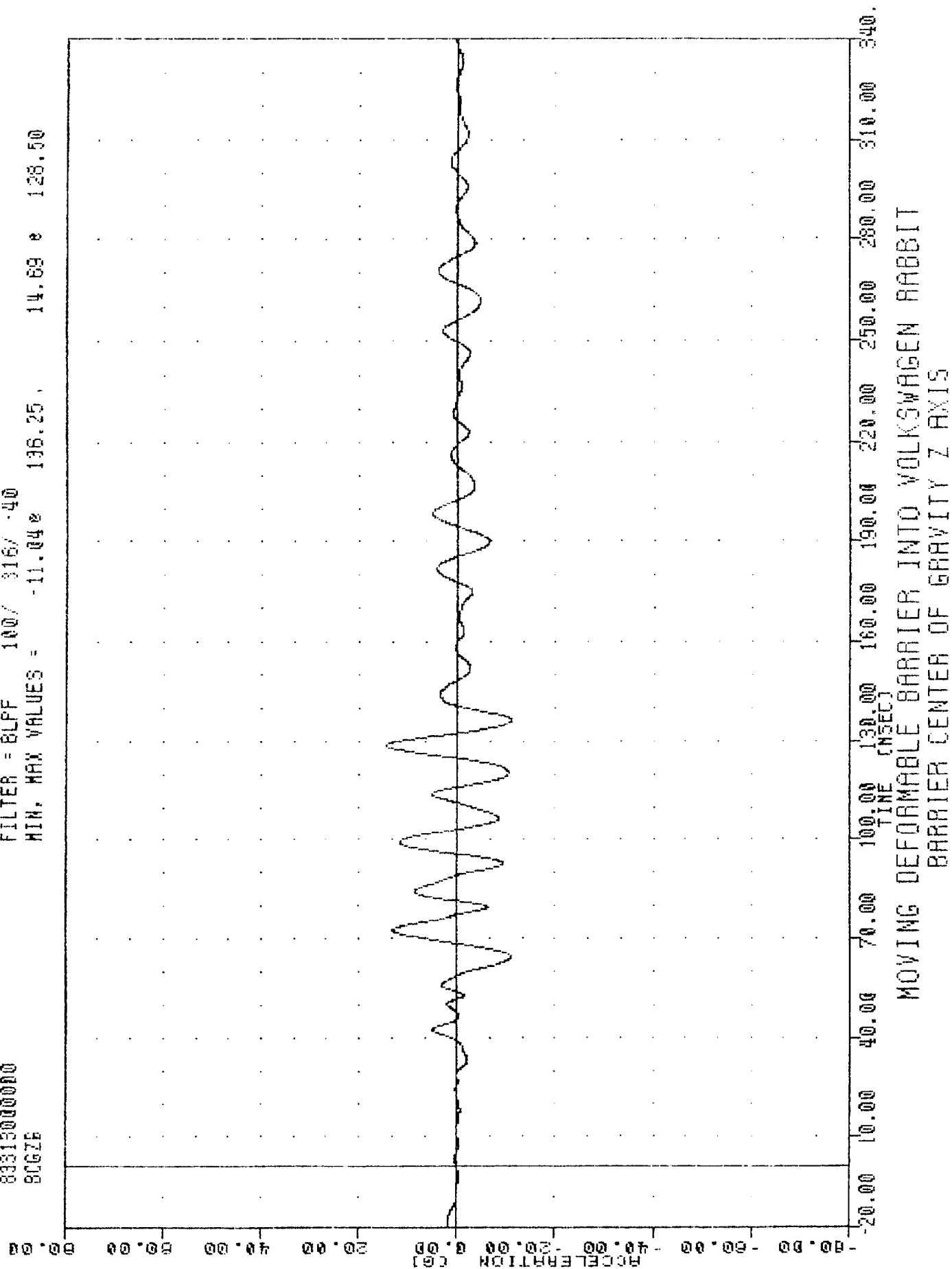


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER CENTER OF GRAVITY Y AXIS

TAC
EVALUATION OF MOD VN FLEET
83313000000
80GZE

FLUT DATE 14-NOV-83 15:33:17

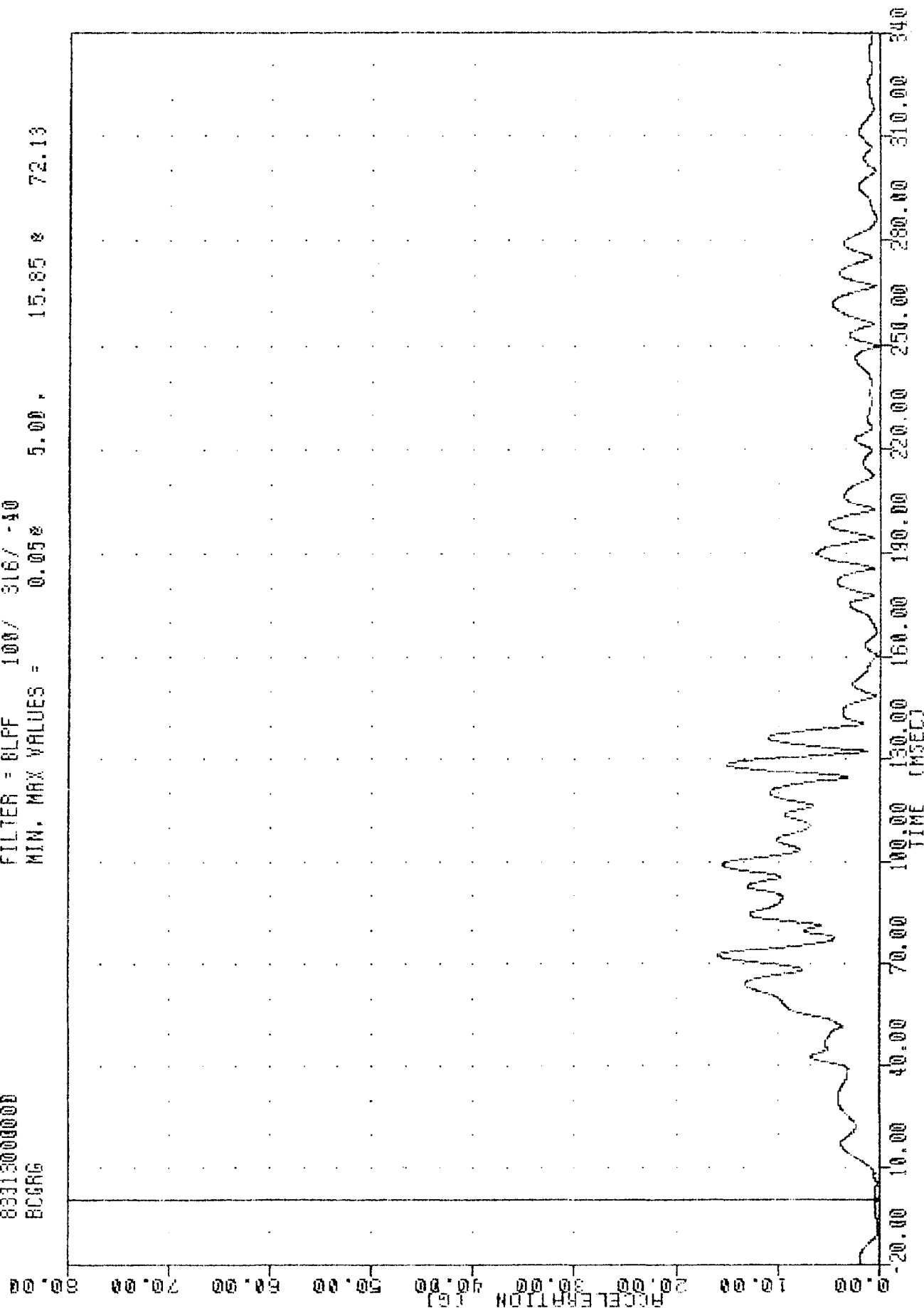
FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -11.04e 136.25, 14.69 e 128.50



IHC
 EVALUATION OF MOD VW FLEET
 83313000000
 BCGRG

831109
 14-NOV-83 15:35:33

FILTER = 8LFF 100/ 316/ -40
 MIN. MAX VALUES = 0.05% 5.00, 15.85 & 72.13

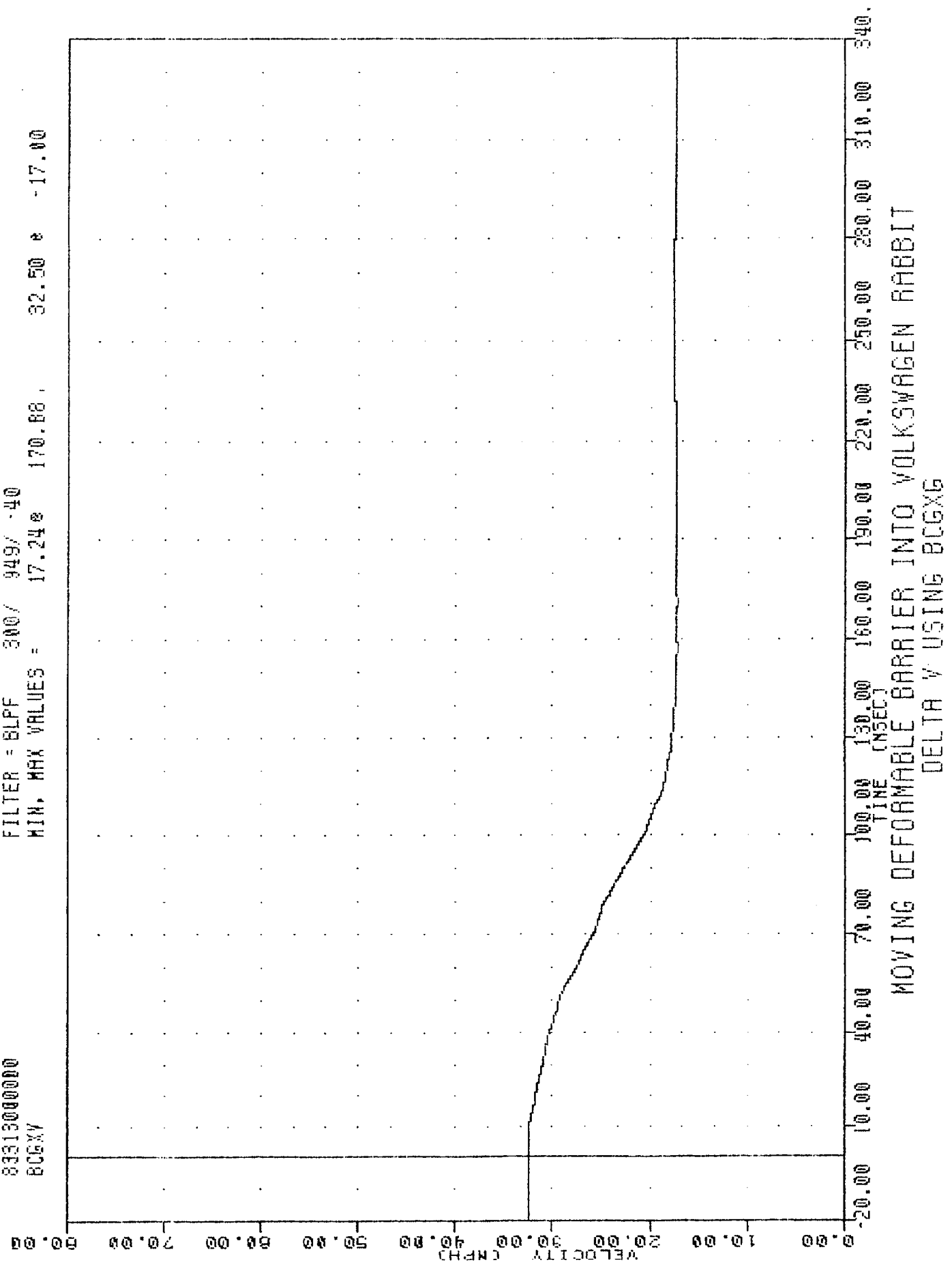


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER CG RESULTANT

TMC
 EVALUATION OF MOD VN FLEET
 83313000000
 BCGXY

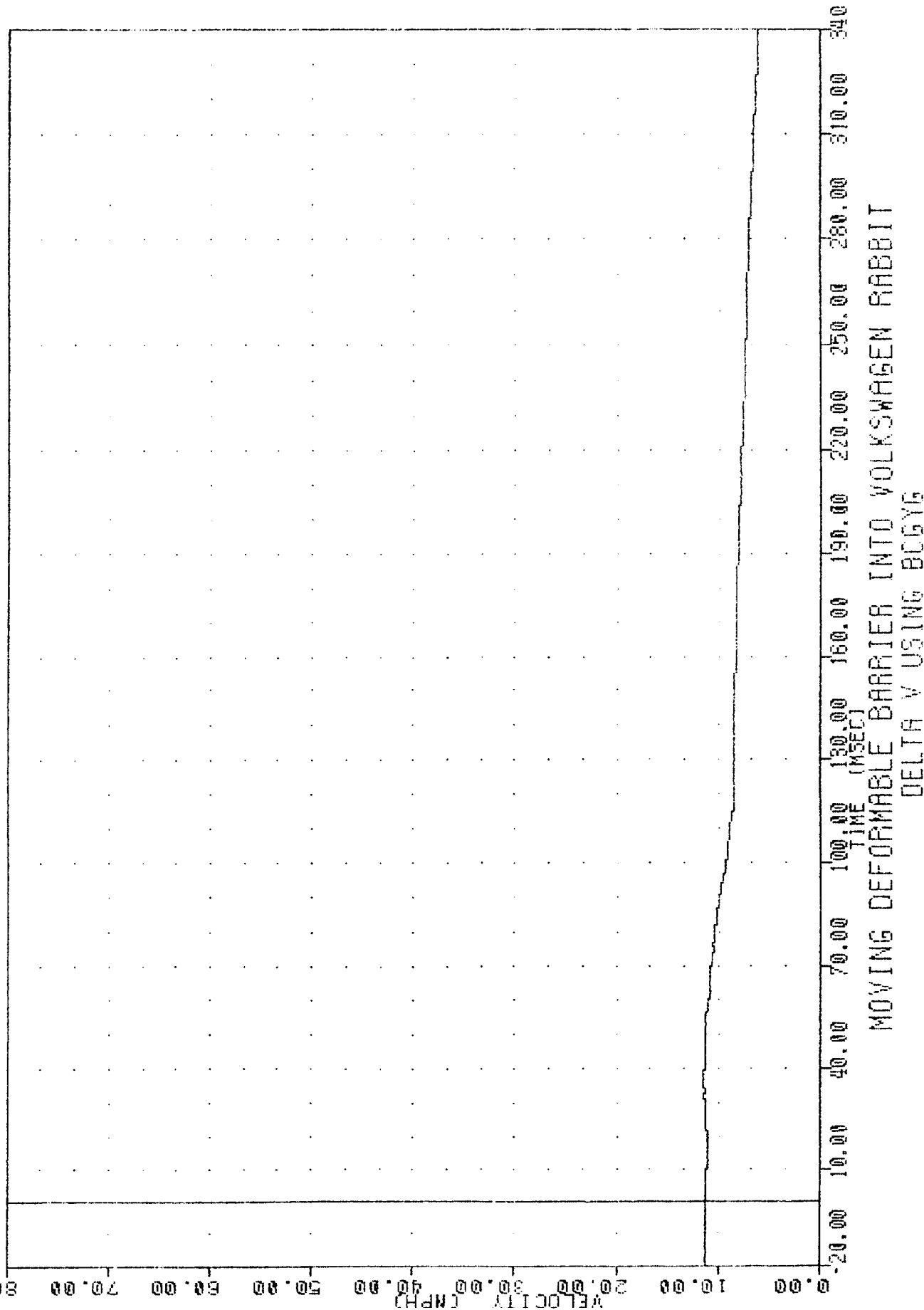
PLOT DATE 15-NOV-83 09:16:40

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 17.248 170.88 32.50 -17.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING BCGXG

TRC
 EVALUATION OF MOD VW FLEET
 83313000000
 BCGYV
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 6.01e 340.00. 11.35 e 36.50
 PLOT DATE 15-NOV-83 09:18:40



THC

.831009

EVALUATION OF MGD YN FLEET

83313000000

BFCXG

PLOT DATE

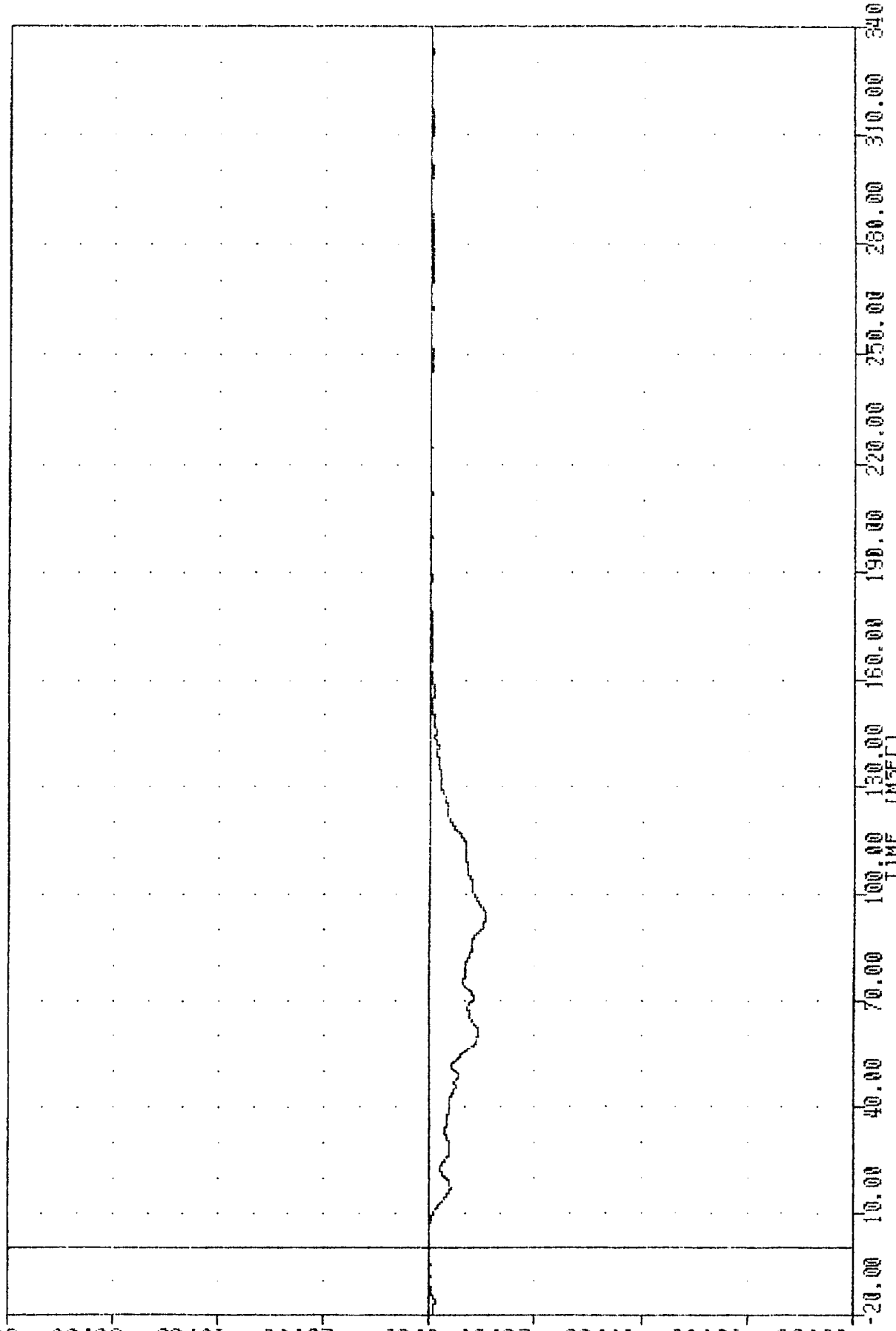
14-NOV-83

15:33:17

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -10.638 93.38, 0.24 e -10.63

ACCELERATION (G)

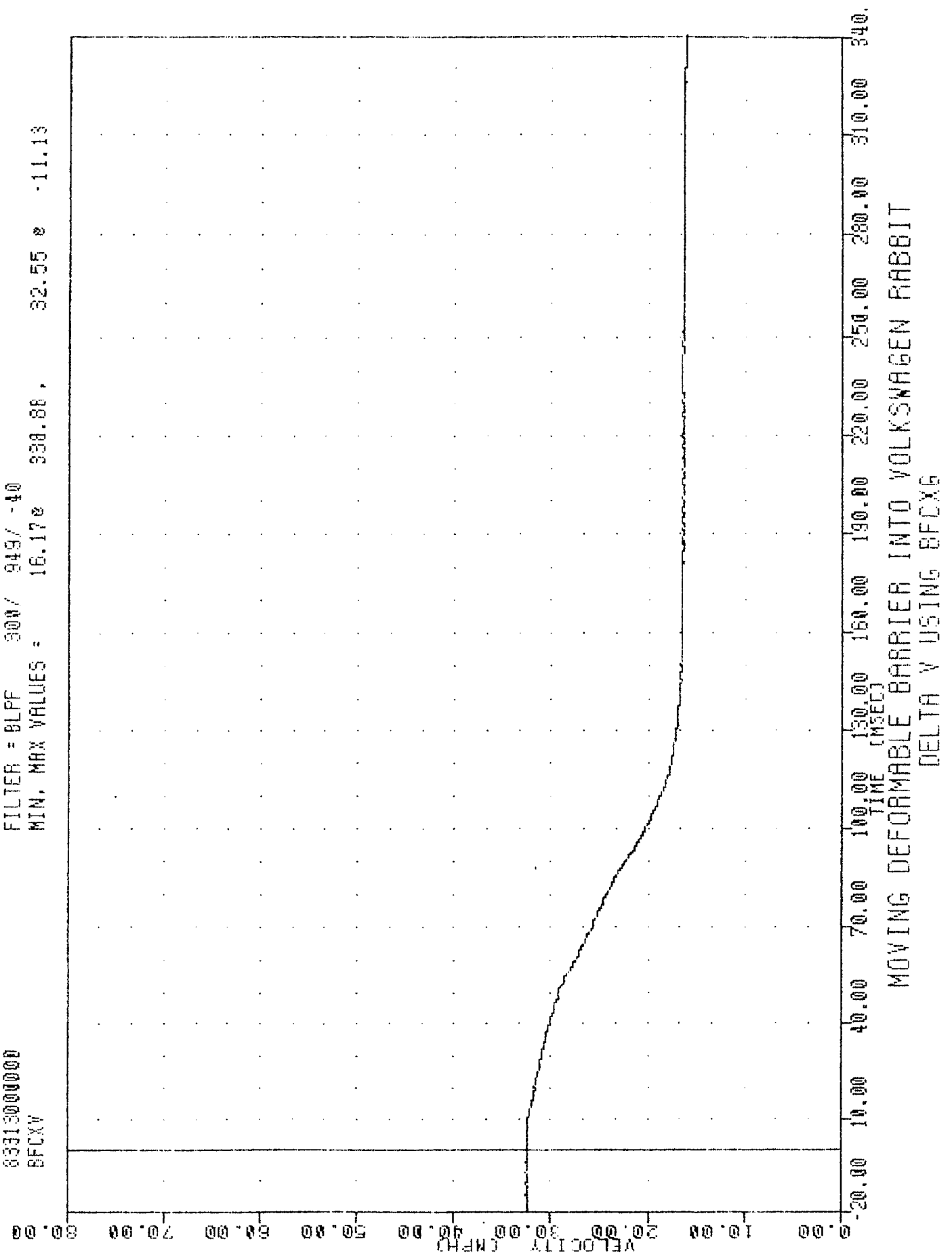


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER FRONT CROSSMEMBER ACCELERATION X AXIS

TMC
 EVALUATION OF MOD VW FLEET
 83313000000
 BFCXV

831109
 15-NOV-83 09:18:40

FILTER = BLPF 30W/ 949/ -40
 MIN. MAX VALUES = 16.17e 338.88, 32.55 e -11.13



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING BFCXG

7831003 14 NOV 83 10:33.17

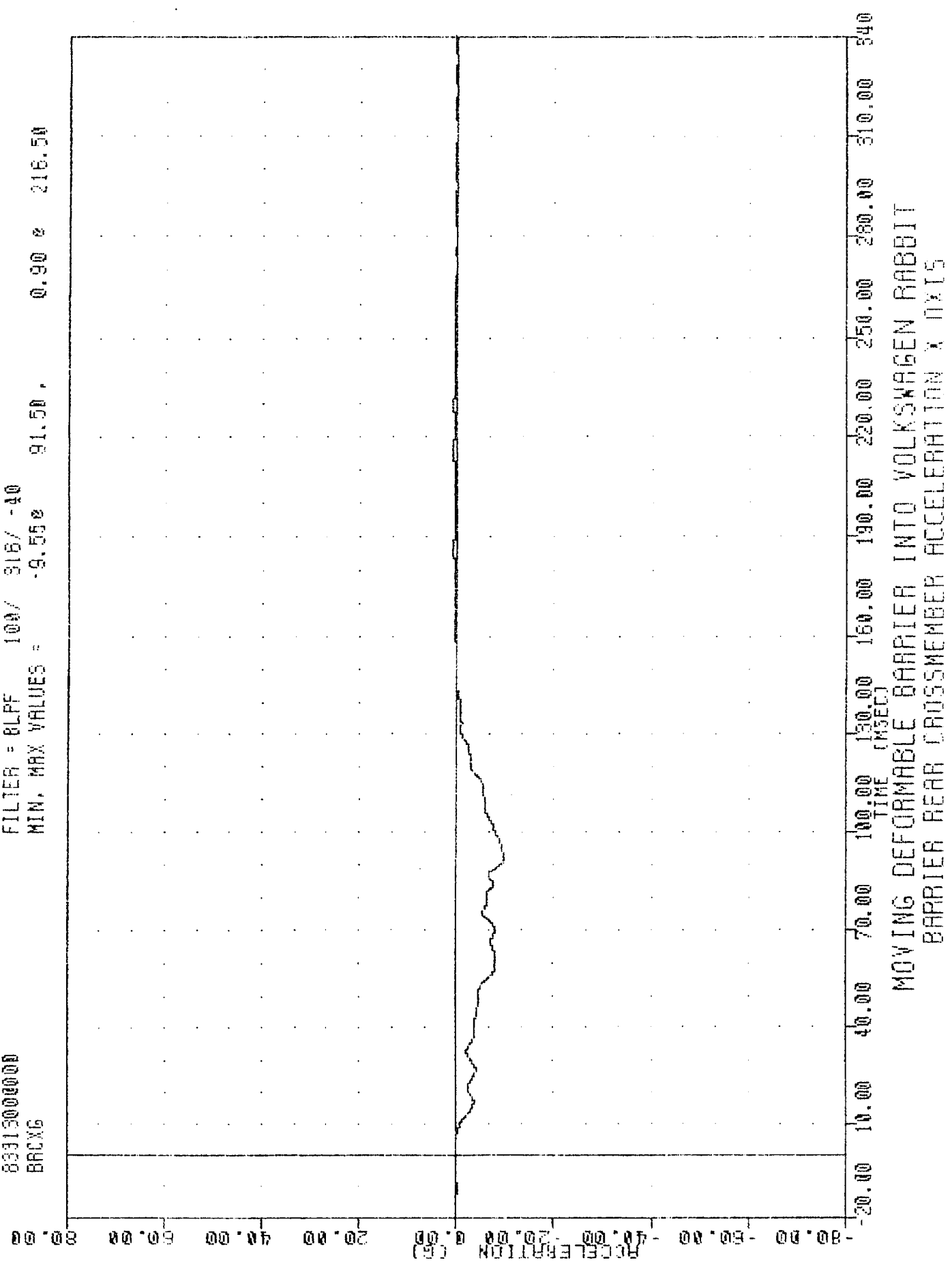
EVALUATION OF MOD VW FLEET

833150000000

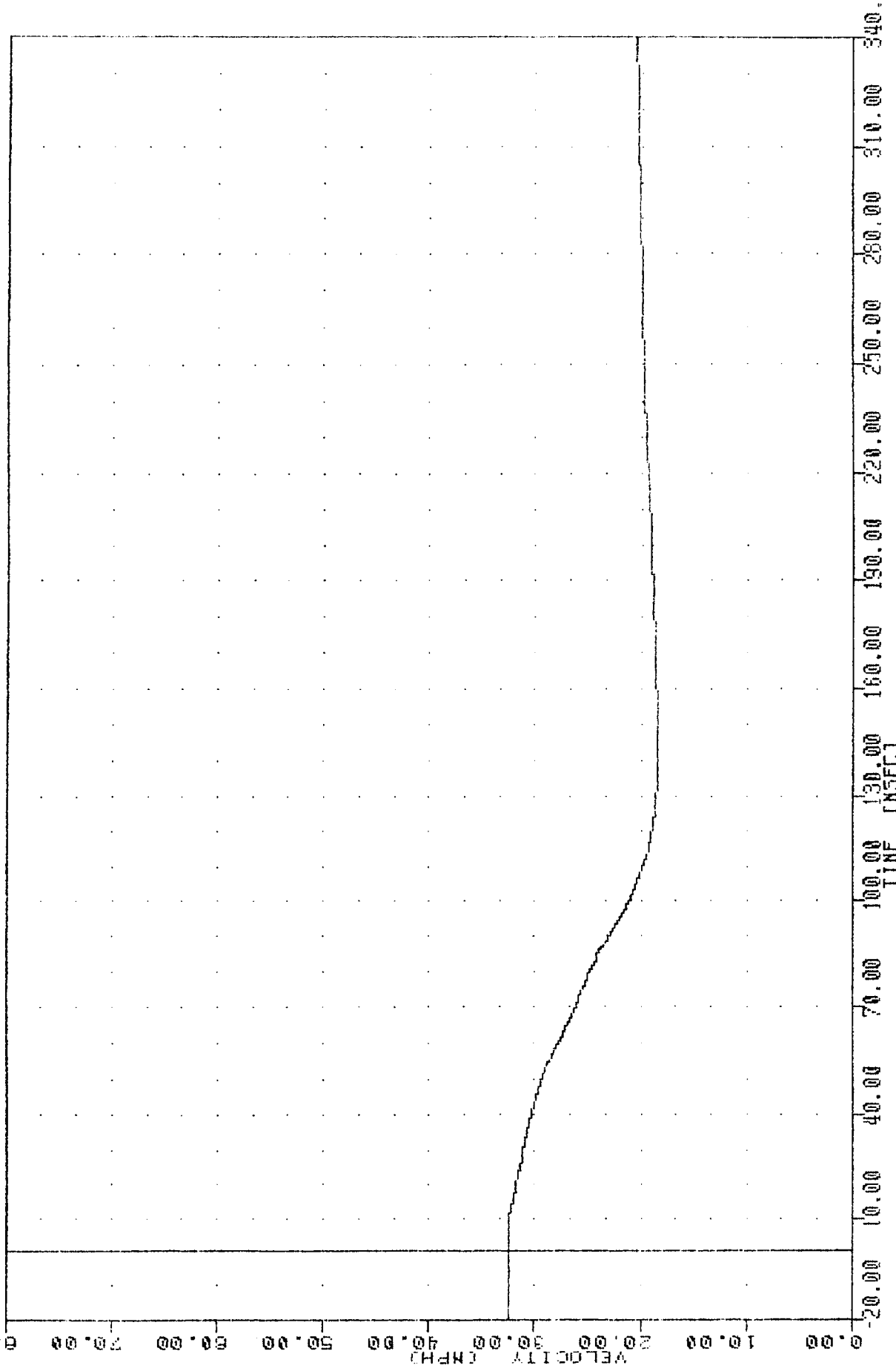
BRXG

FILTER = 8LPF 100/ 316/ -40

MIN. MAX VALUES = -9.550 91.50 0.90 216.50



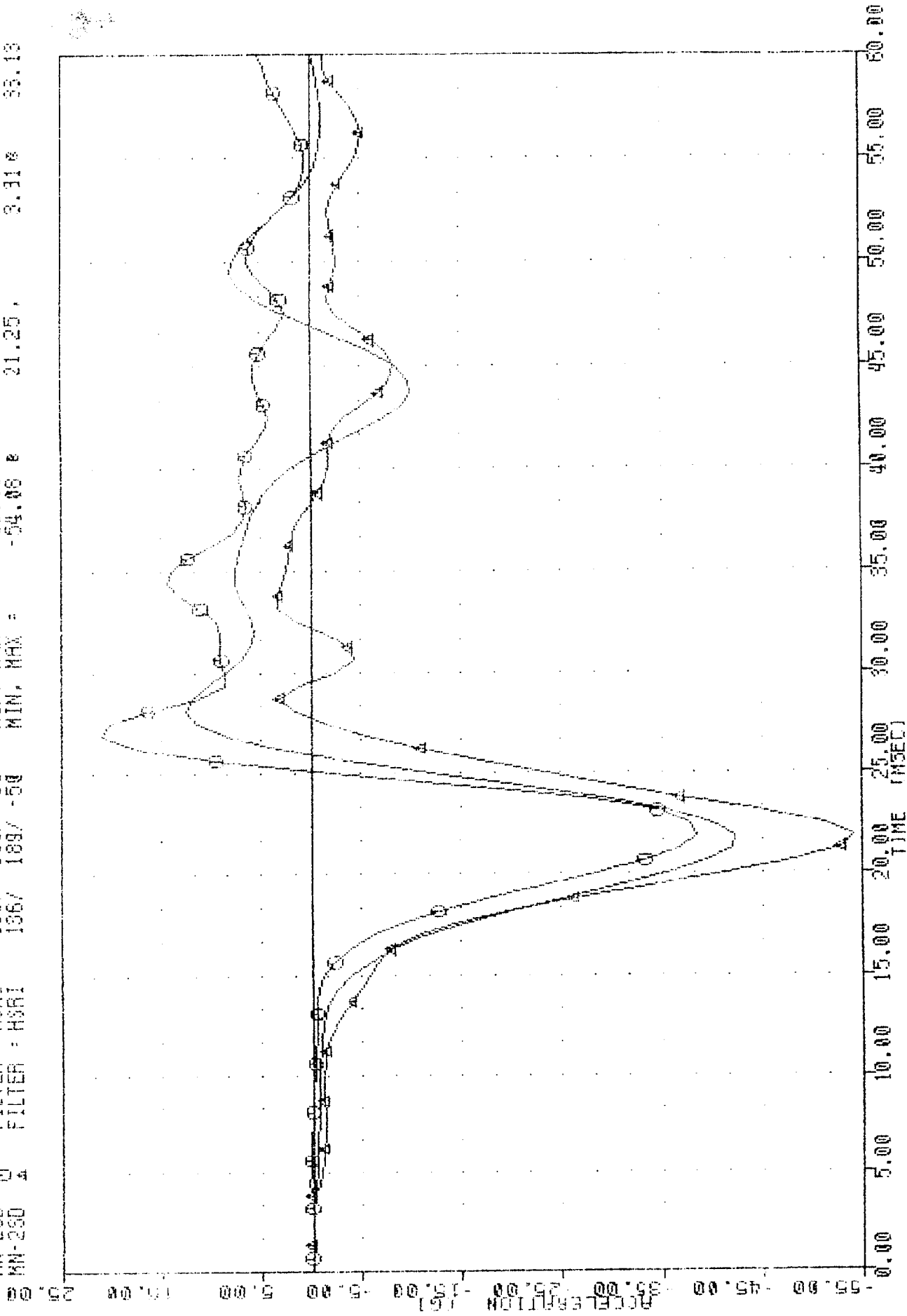
83313000000
 EVALUATION OF MOD VW FLEET
 83313000000
 BRCXY
 FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 18.428 141.75, 32.51 * -16.63
 13 NOV 83 09:18:40



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING BRCXG

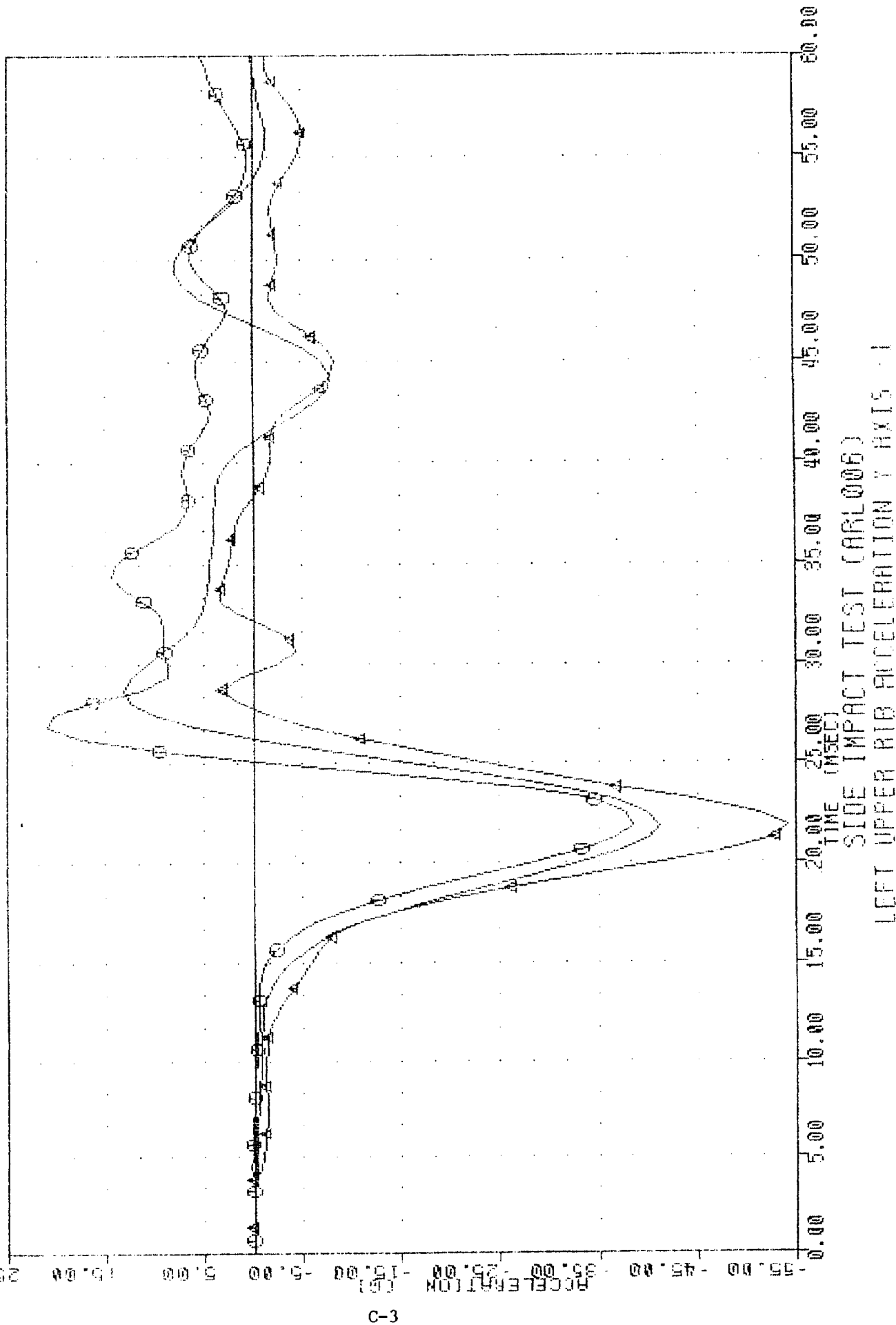
APPENDIX C
DUMMY CERTIFICATION

FILE: SMC26 PROJECT: 72 DATE: 15:55:30
 FILTER: HSRI MIN: MAX = -42.30 21.25
 FILTER: HSRI MIN: MAX = -38.44 21.25
 FILTER: HSRI MIN: MAX = -54.06 21.25
 KN-250 0
 KN-250 4

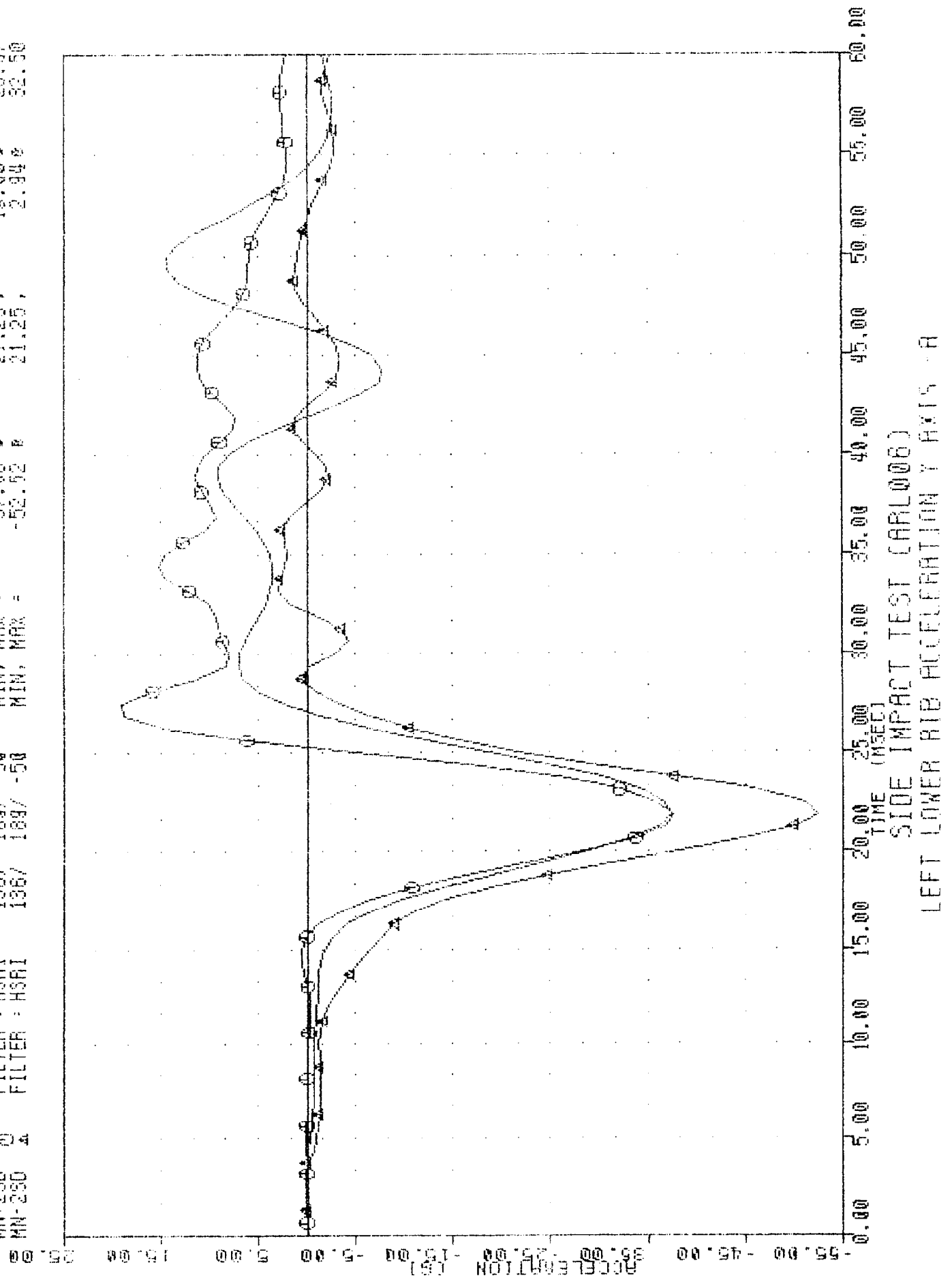


SIDE IMPACT TEST (CARL006)
 LEFT UPPER RIB ACCELERATION Y AXIS -R

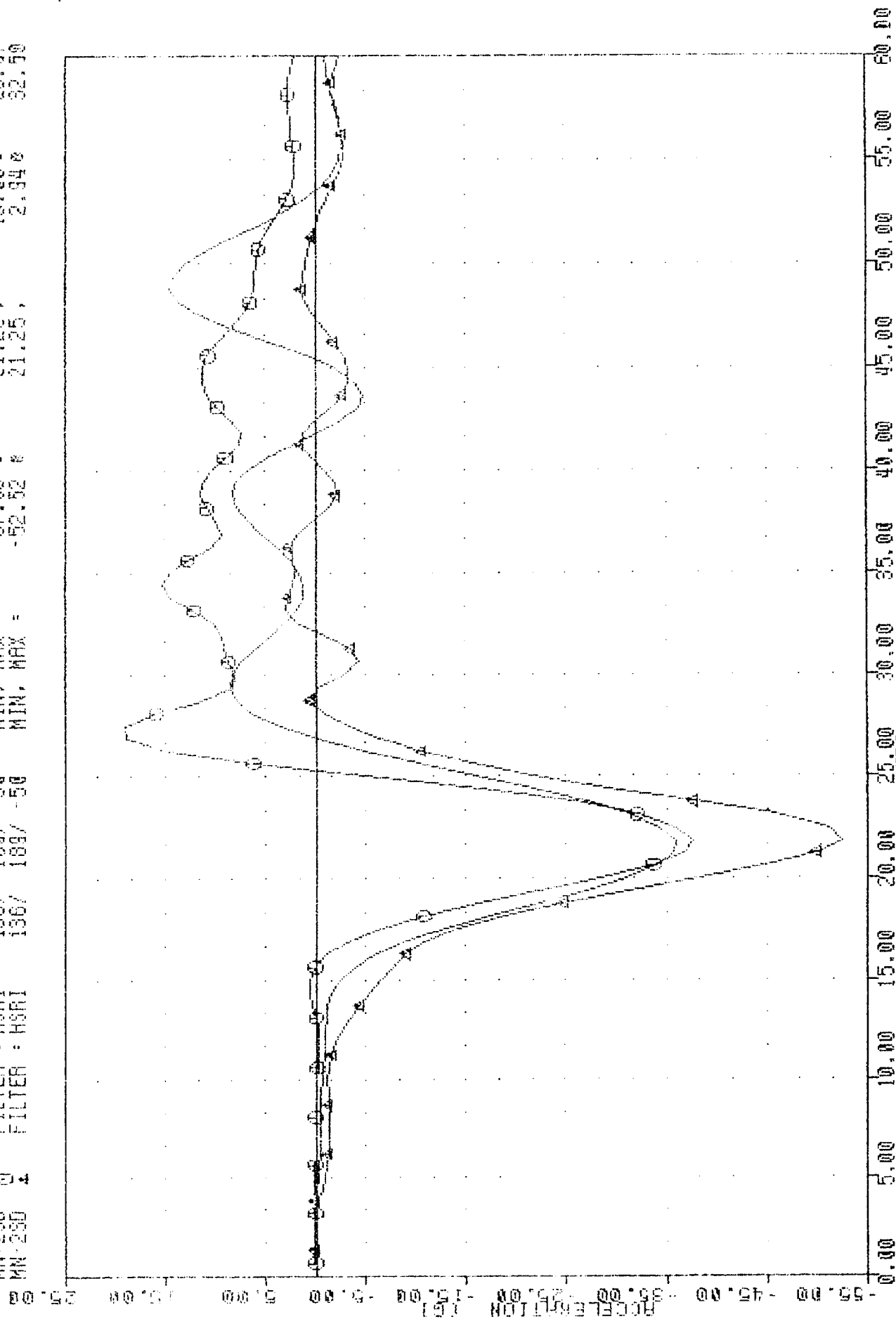
VRTG SRE26 , HRL6CH72 STD THURAX 0 BODY 318 CHL 72 83308 4-NOV-83 15:52:56
 LURY61 FILTER : H3RI 1367 189/ -50 MIN. MAX : -41.20 21.25 28.13
 MN-250 0 FILTER : H3RI 1367 189/ -50 MIN. MAX : -38.44 21.25 28.28
 MN-250 4 FILTER : H3RI 1367 189/ -50 MIN. MAX : -54.06 21.25 33.13



VHC 3RL26
 LLA YGA
 MN-230 0
 MN-230 A
 FILTER : H3RI
 FILTER : H3RI
 FILTER : H3RI
 ST0 THORAX & BODY 318
 136/ 189/ -50
 136/ 189/ -50
 136/ 189/ -50
 CHL 72
 MIN. MAX =
 MIN. MAX =
 MIN. MAX =
 83308
 -37.44 s
 -37.88 s
 -52.92 s
 PLOT DATE
 21.25
 21.25
 21.25
 4-NOV-83
 14.43 s
 19.00 s
 2.94 s
 16:02:34
 48.25
 26.87
 32.50

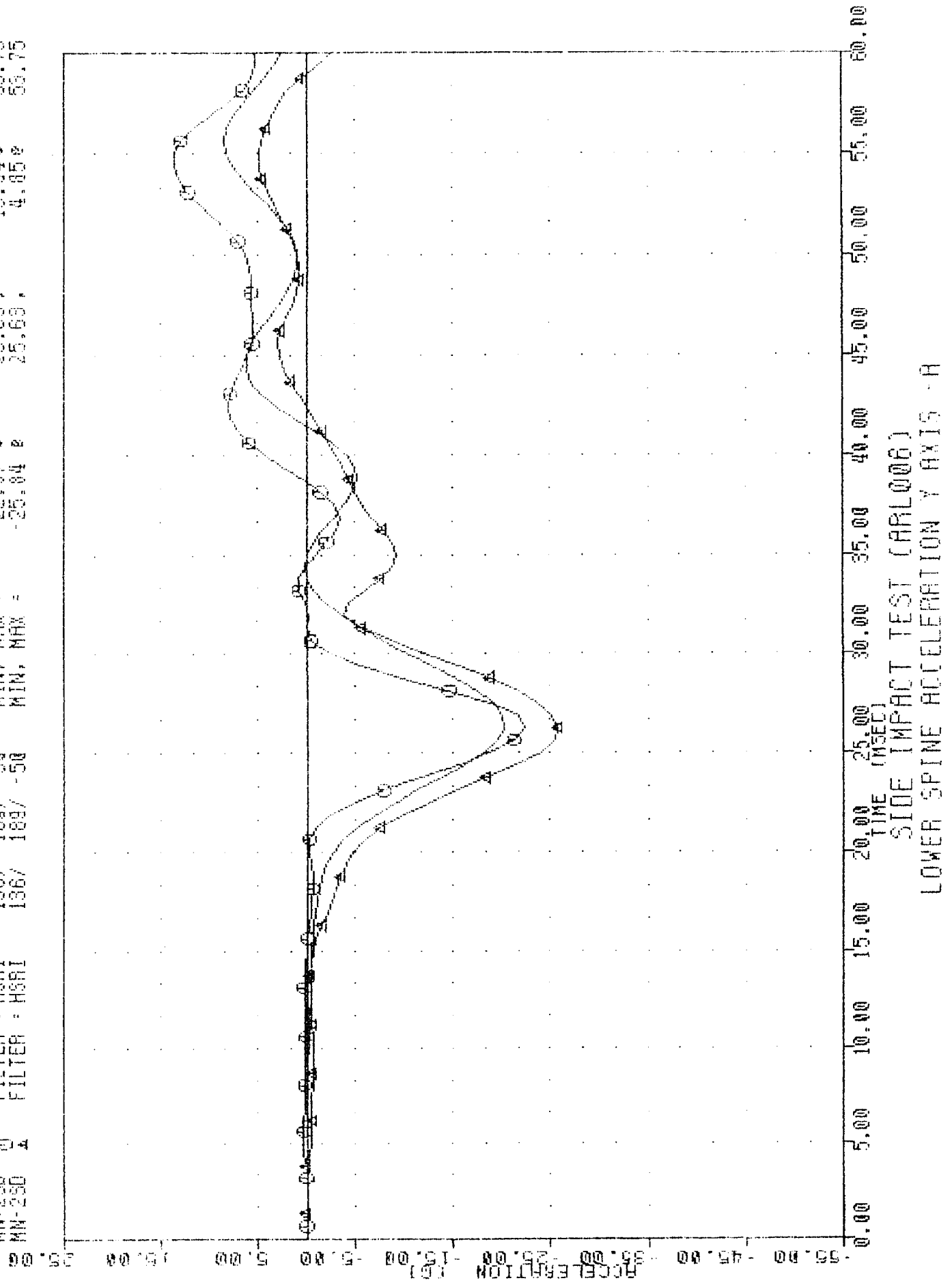


VITE SRE26 , HRL00072 510 THURAX 0 BODY 310 CAL 2 83308 4-NOV-83 15:50:36
 LLRY61 FILTER : H8RI 1367 1897 -50 MIN, MAX = -35.87 21.25 14.45 48.13
 MN-280 0 FILTER : H8RI 1367 1897 -50 MIN, MAX = -37.66 21.25 19.80 26.97
 MN-280 4 FILTER : H8RI 1367 1897 -50 MIN, MAX = -52.52 21.25 2.94 32.50

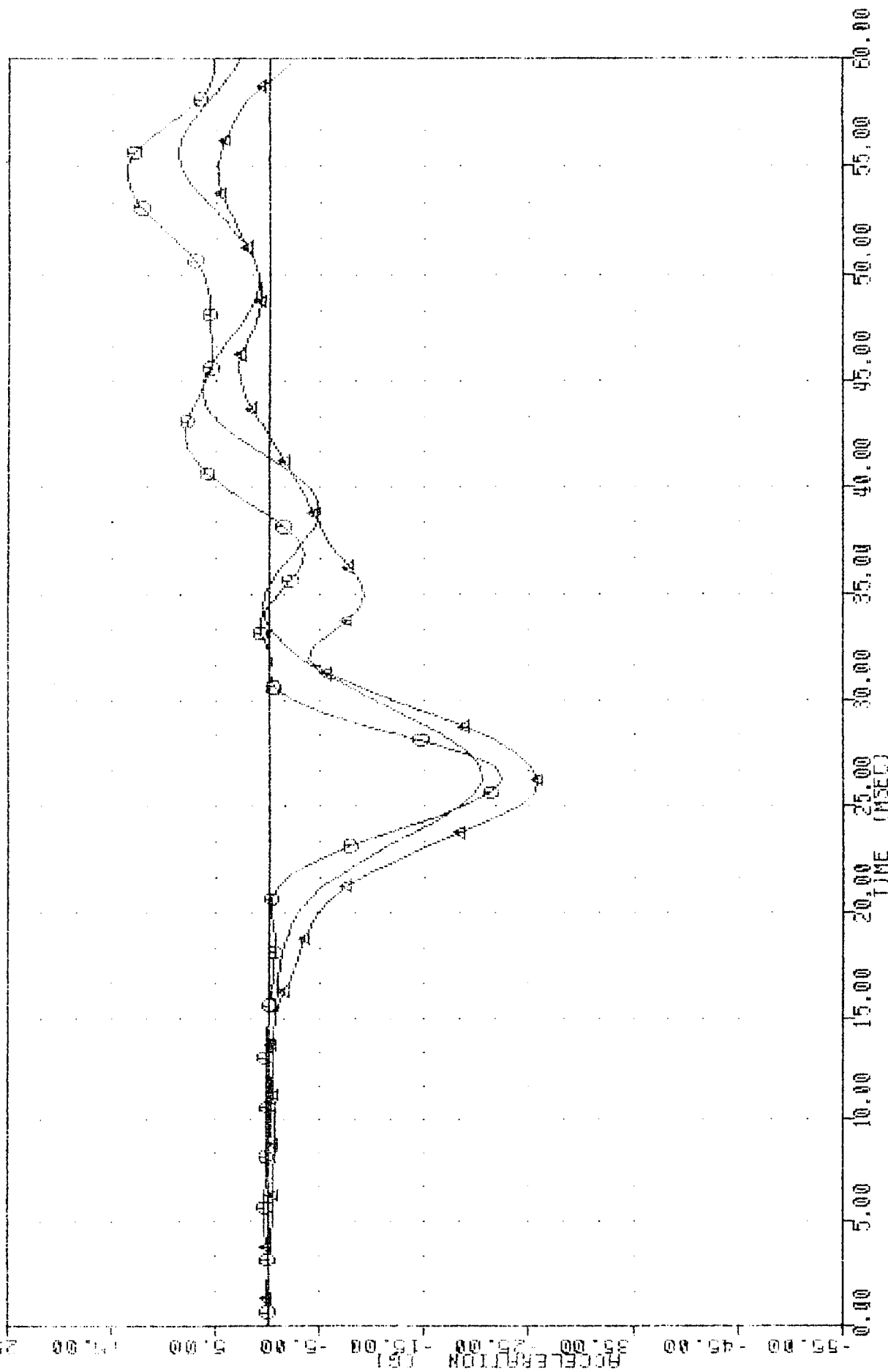


SIDE IMPACT TEST (ARL0008)
 LEFT LOWER RIB ACCELERATION Y AXIS -1

FILE: SHL20, HRL60872, S10 THORAX, BODY, C16 CHL 22, 83306, PLOT DATE 4-NOV-83, 16:10:20
 T12Y68, FILTER: HSRI, 136/ 189/ -50 MIN, MAX = -20.19, 8.37, 25.83, 25.80
 MN-250, FILTER: HSRI, 136/ 189/ -50 MIN, MAX = -22.27, 13.54, 25.83, 53.75
 MN-250, FILTER: HSRI, 136/ 189/ -50 MIN, MAX = -25.84, 25.83, 25.83, 53.75

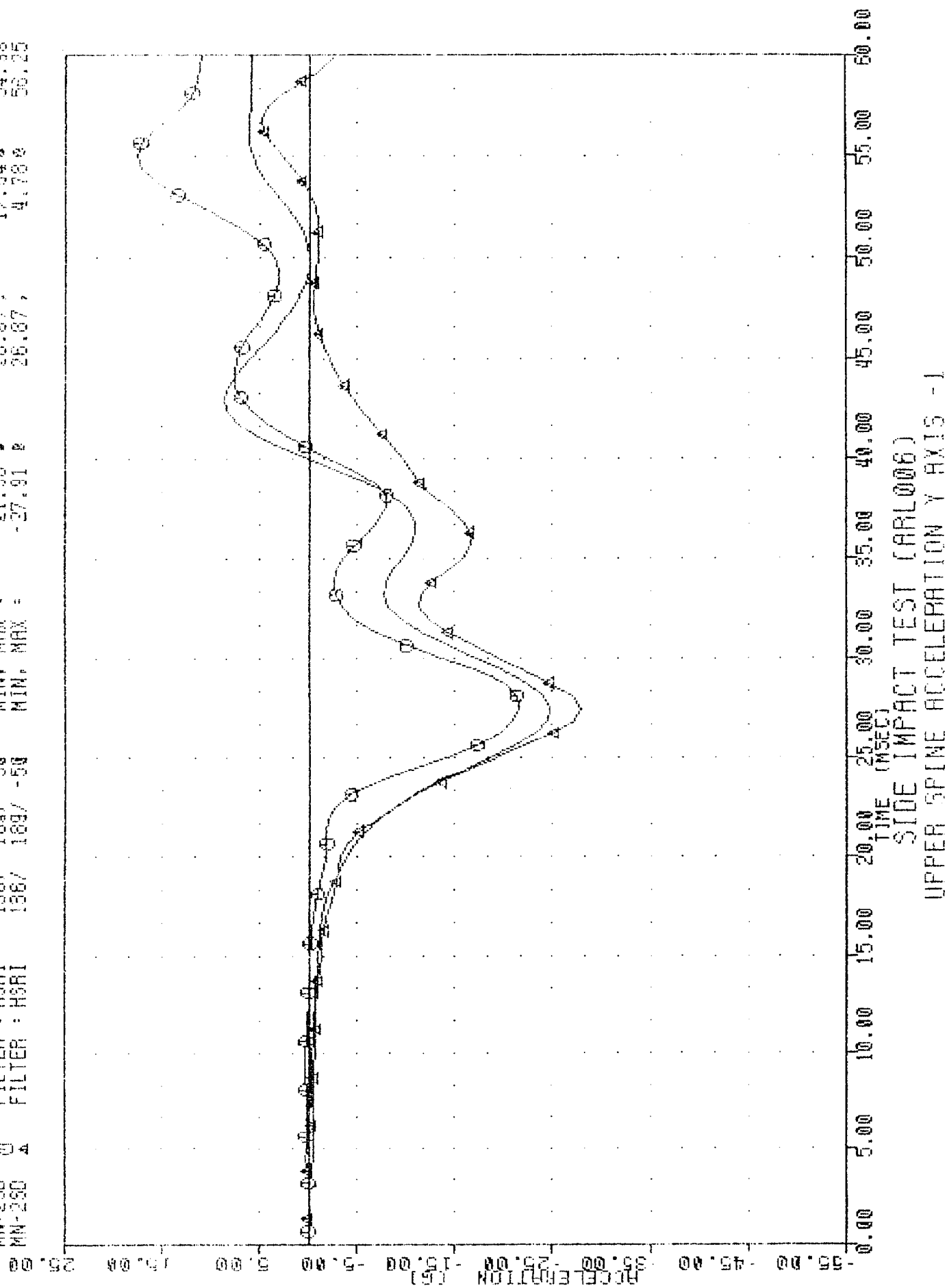


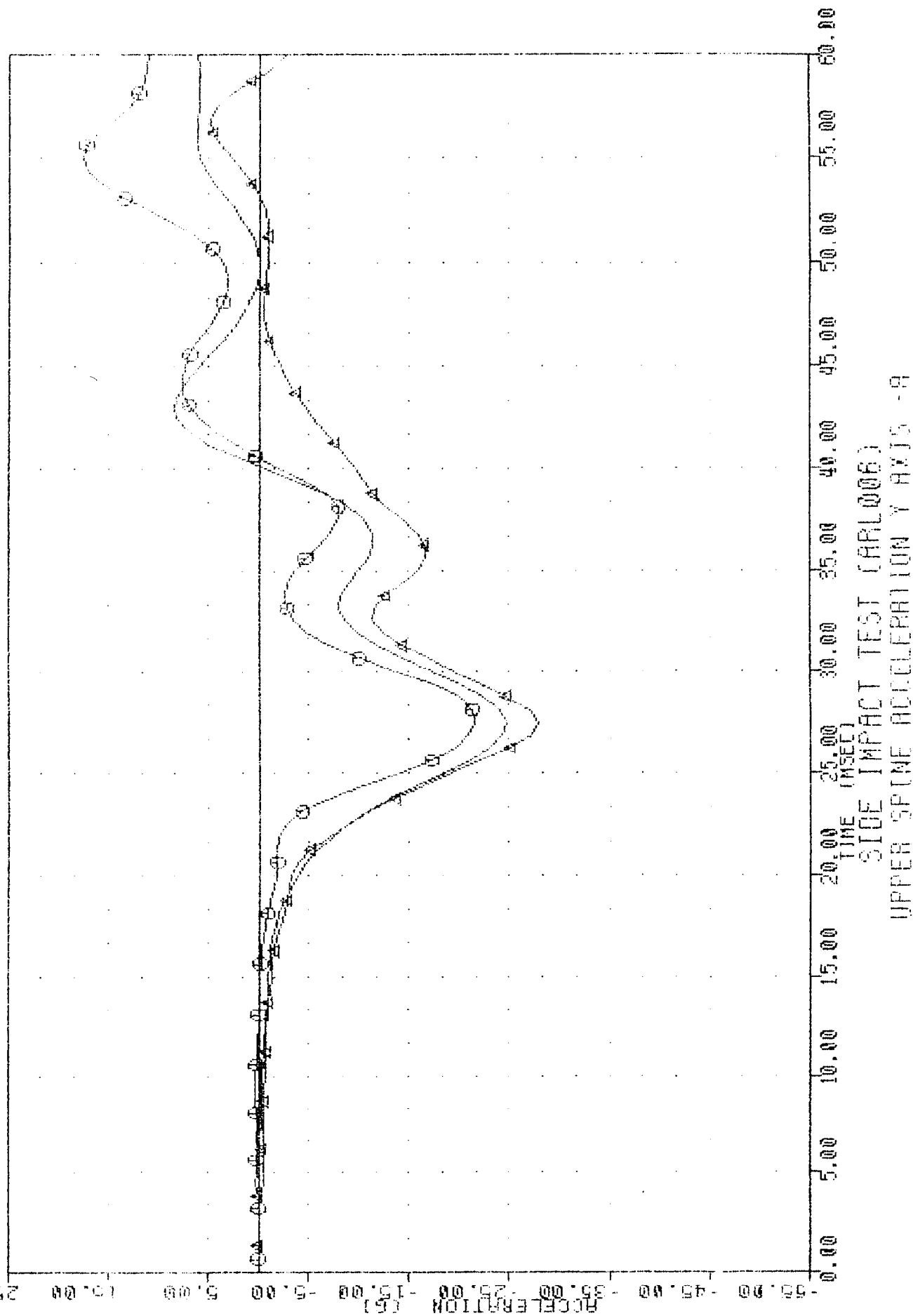
MIN. MAX. 310 100000 5.000Y 310 CAL 22 033005 1-NOV-83 18:06:31
 T12Y61 FILTER : HSRI 136/ 189/ -50 MIN. MAX. = -20.41 2 25.66 2 35.00
 MIN-230 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX. = -22.97 2 25.66 2 53.75
 MIN-230 4 FILTER : HSRI 136/ 189/ -50 MIN. MAX. = -25.84 2 25.66 2 53.75



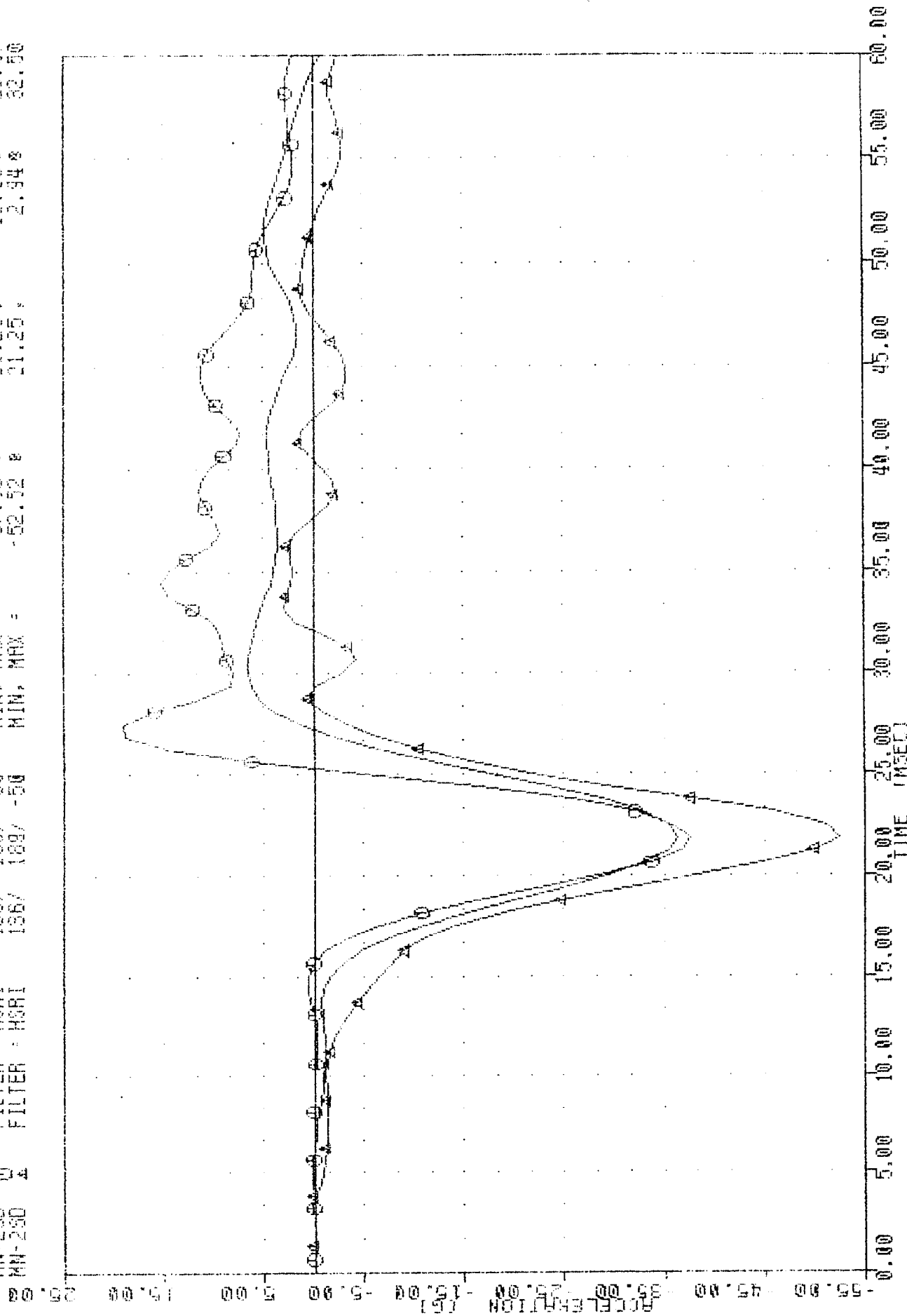
SIDE IMPACT TEST (CARL0008)

LOWER SPINE ACCELERATION Y AXIS -1

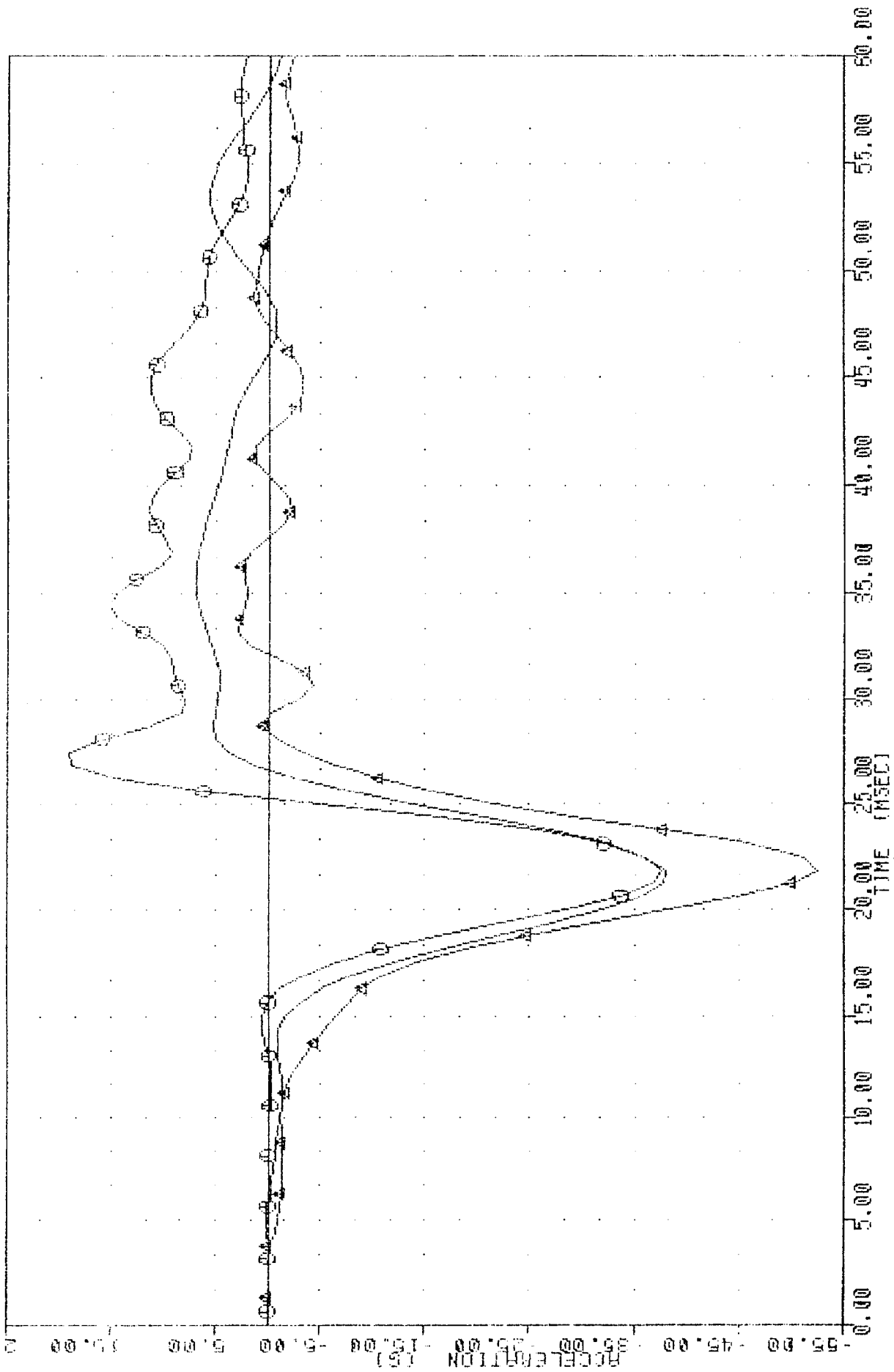
[illegible]

[illegible]

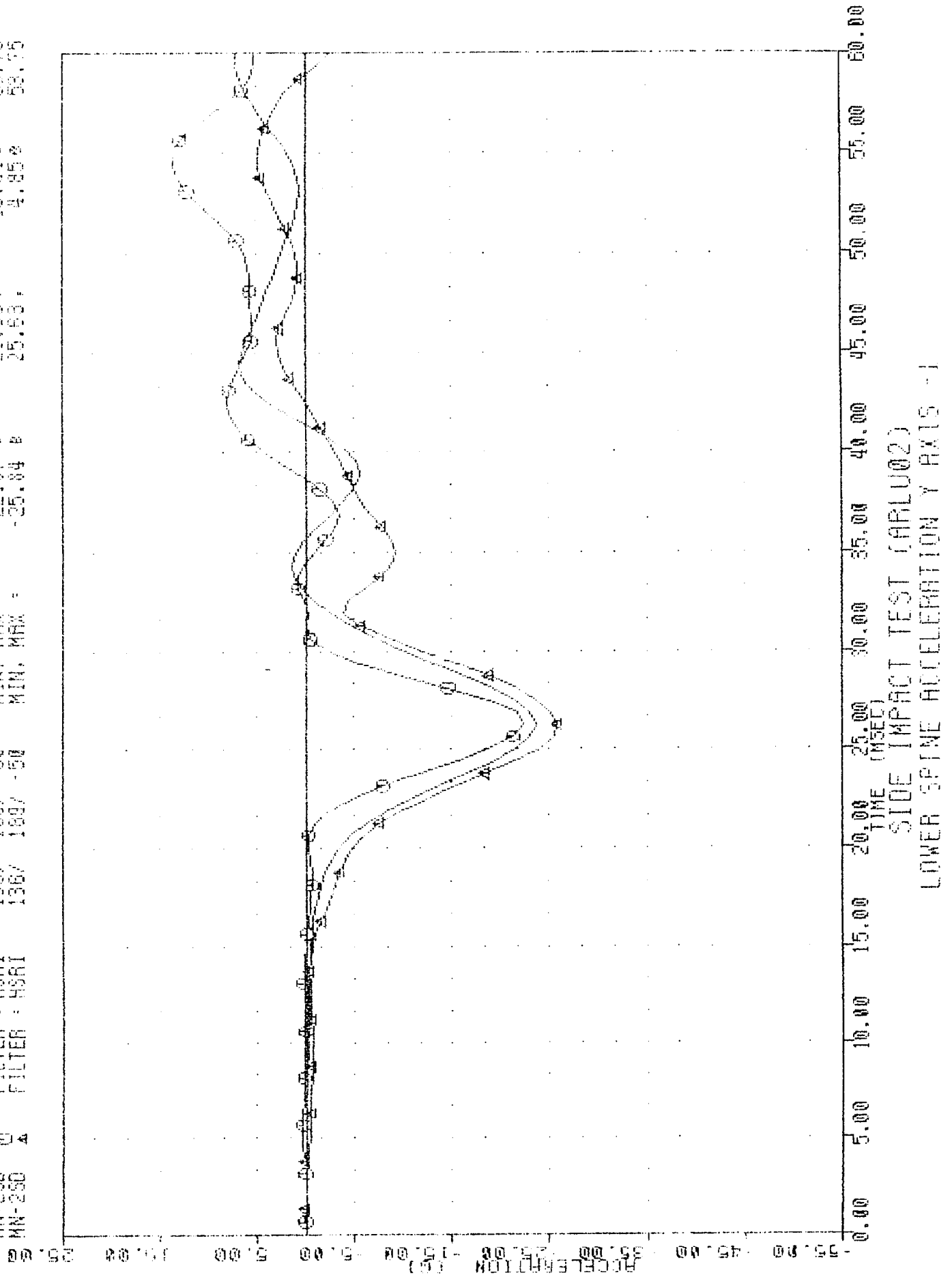
WTC 30126, PWCAL73, 310, 10000, 002, 800, 850, 75, 83500, 4-NOV-83, 15:04:37
 LLRIGH, FILTER: HSRI, 1367, 1897, -50, MIN, MAX, -36.36, 21.25, 29.36
 MN+250, 0, FILTER: HSRI, 1367, 1897, -50, MIN, MAX, -37.66, 21.25, 26.37
 MN-250, 1, FILTER: HSRI, 1367, 1897, -50, MIN, MAX, -52.52, 21.25, 32.50



SIDE IMPACT TEST (ARLU02)
 LEFT LOWER RIB ACCELERATION Y AXIS -A

[illegible]

FILE: SML26, UNCCAL23, SIO THORAX 002, 6000, 75, 60300, 4-NOV-83, 15:46:14
 FILTER: HSRI, 1367, 133, -50, MIN, MAX, -23.59, 25.93, 29.38
 FILTER: HSRI, 1367, 133, -50, MIN, MAX, -22.37, 25.93, 29.75
 MN-250, 0, 1367, 133, -50, MIN, MAX, -25.84, 25.93, 29.75
 MN-250, 4, 1367, 133, -50, MIN, MAX, -25.84, 25.93, 29.75



NAME	DATE	TIME	LOCATION	STATUS	REMARKS
JOHN DOE	1997-01-01	10:00	1000	OK	
JANE SMITH	1997-01-01	10:05	1000	OK	
BOB JONES	1997-01-01	10:10	1000	OK	
ALICE BROWN	1997-01-01	10:15	1000	OK	
CHARLIE GREEN	1997-01-01	10:20	1000	OK	
DAVID WHITE	1997-01-01	10:25	1000	OK	
EMILY BLACK	1997-01-01	10:30	1000	OK	
FRED BROWN	1997-01-01	10:35	1000	OK	
GRACE JONES	1997-01-01	10:40	1000	OK	
HELEN SMITH	1997-01-01	10:45	1000	OK	
IRVING BROWN	1997-01-01	10:50	1000	OK	
JACK WHITE	1997-01-01	10:55	1000	OK	
JILL GREEN	1997-01-01	11:00	1000	OK	
JOHN BLACK	1997-01-01	11:05	1000	OK	
JANE BROWN	1997-01-01	11:10	1000	OK	
BOB WHITE	1997-01-01	11:15	1000	OK	
ALICE GREEN	1997-01-01	11:20	1000	OK	
CHARLIE BROWN	1997-01-01	11:25	1000	OK	
DAVID WHITE	1997-01-01	11:30	1000	OK	
EMILY GREEN	1997-01-01	11:35	1000	OK	
FRED BROWN	1997-01-01	11:40	1000	OK	
GRACE WHITE	1997-01-01	11:45	1000	OK	
HELEN GREEN	1997-01-01	11:50	1000	OK	
IRVING BROWN	1997-01-01	11:55	1000	OK	
JACK WHITE	1997-01-01	12:00	1000	OK	
JILL GREEN	1997-01-01	12:05	1000	OK	
JOHN BROWN	1997-01-01	12:10	1000	OK	
JANE WHITE	1997-01-01	12:15	1000	OK	
BOB GREEN	1997-01-01	12:20	1000	OK	
ALICE BROWN	1997-01-01	12:25	1000	OK	
CHARLIE WHITE	1997-01-01	12:30	1000	OK	
DAVID GREEN	1997-01-01	12:35	1000	OK	
EMILY BROWN	1997-01-01	12:40	1000	OK	
FRED WHITE	1997-01-01	12:45	1000	OK	
GRACE GREEN	1997-01-01	12:50	1000	OK	
HELEN BROWN	1997-01-01	12:55	1000	OK	
IRVING WHITE	1997-01-01	13:00	1000	OK	
JACK GREEN	1997-01-01	13:05	1000	OK	
JILL BROWN	1997-01-01	13:10	1000	OK	
JOHN WHITE	1997-01-01	13:15	1000	OK	
JANE GREEN	1997-01-01	13:20	1000	OK	
BOB BROWN	1997-01-01	13:25	1000	OK	
ALICE WHITE	1997-01-01	13:30	1000	OK	
CHARLIE GREEN	1997-01-01	13:35	1000	OK	
DAVID BROWN	1997-01-01	13:40	1000	OK	
EMILY WHITE	1997-01-01	13:45	1000	OK	
FRED GREEN	1997-01-01	13:50	1000	OK	
GRACE BROWN	1997-01-01	13:55	1000	OK	
HELEN WHITE	1997-01-01	14:00	1000	OK	
IRVING GREEN	1997-01-01	14:05	1000	OK	
JACK BROWN	1997-01-01	14:10	1000	OK	
JILL WHITE	1997-01-01	14:15	1000	OK	
JOHN GREEN	1997-01-01	14:20	1000	OK	
JANE BROWN	1997-01-01	14:25	1000	OK	
BOB WHITE	1997-01-01	14:30	1000	OK	
ALICE GREEN	1997-01-01	14:35	1000	OK	
CHARLIE BROWN	1997-01-01	14:40	1000	OK	
DAVID WHITE	1997-01-01	14:45	1000	OK	
EMILY GREEN	1997-01-01	14:50	1000	OK	
FRED BROWN	1997-01-01	14:55	1000	OK	
GRACE WHITE	1997-01-01	15:00	1000	OK	
HELEN GREEN	1997-01-01	15:05	1000		

