

DOT 4596

EVALUATION OF NHTSA MODIFIED
VOLKSWAGEN RABBITS

MDB-TO-CAR SIDE IMPACT TEST OF
A 26° CRABBED MOVING DEFORMABLE BARRIER
TO A 1976 VOLKSWAGEN RABBIT
AT 29.2 MPH

PREPARED BY:
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FINAL REPORT
OCTOBER 1983

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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16. Abstract This test report documents one of a series of twelve crash tests to evaluate the NHTSA's Modified Volkswagen Rabbits. Testing was conducted on a 1976 Volkswagen Rabbit 2-door hatchback with structural modification designated as Optimized at the TRCO Crash Test Facility, East Liberty, Ohio. The test vehicle was impacted on the left side by a moving deformable barrier, crabbled to 26°, at 29.2 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 September 14, 1983 and the ambient temperature was 68°F.		
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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	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
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	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 add 32)	degrees Fahrenheit	°F

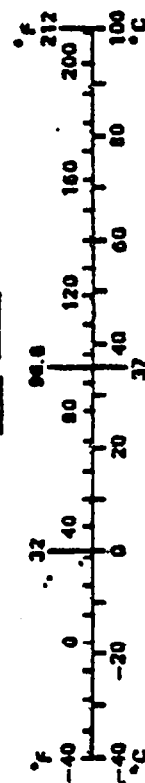


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SECTION 1.0
PURPOSE AND INTRODUCTION

PURPOSE

The main purpose of this test was to evaluate the NHTSA fleet of modified Volkswagen Rabbits with and without padding. The vehicle was tested using conditions not currently contained in a Federal Motor Vehicle Safety Standard.

INTRODUCTION

A stationary 1976 Volkswagen Rabbit 2-door hatchback was impacted on the left side by a Moving Deformable Barrier (MDB) on September 14, 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 90° counterclockwise with respect to the longitudinal axis of the struck vehicle. The leading edge of contact was to be 37 inches forward of the vehicle center of gravity which is defined by accident investigation to be the midpoint of the wheelbase. To simulate this collision, the MDB was to be towed into the stationary Volkswagen Rabbit at 29.1 mph with the MDB's wheels crabbed clockwise to 26°. The actual test speed was 29.2 mph and the actual leading edge was 37. inches forward of the midpoint of the Volkswagen Rabbit's wheelbase.

The vehicle was structurally modified to the level designated "Optimized". The driver door and left rear occupant wall contained three inches of padding.

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: Volkswagenwerk AG

MAKE/MODEL: Volkswagen Rabbit

VIN: 1763093270

BODY STYLE: 2-Door Hatchback

MODEL YEAR: 1976

NHTSA NO.: R & D

COLOR: Yellow

ENGINE DATA: TYPE: Transverse

CYLINDERS: 4

DISPLACEMENT 97 CID

TRANSMISSION DATA: 4 Speed Manual

DATE VEHICLE RECEIVED: 8/22/83

ODOMETER READING: 65012

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

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

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

REMARKS:

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

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

VEHICLE MANUFACTURED BY: Volkswagenwerk AG

DATE OF MANUFACTURE: 3/76

GVWR: 2777 LBS.,

GAWR: FRONT 1609 LBS., REAR 1278 LBS.

* Rocker panel on driver's side, behind wheel opening on right rear fender, inside floor under both front seats rusted through.

VEHICLE TIRE DATA

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

TIRES ON VEHICLE (MFG. & LINE, SIZE): Right Front - Uniroyal Rally 280 -
155 SR 13
All others - Alliance Steel Belted
Radial 155 SR 13

BIAS PLY, BELTED, OR RADIAL: Radial

PLY RATING: 4

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	610	LBS.	RIGHT REAR	345	LBS.
LEFT FRONT	610	LBS.	LEFT REAR	340	LBS.
TOTAL FRONT WEIGHT	1220	LBS.	{64.0 % OF TOTAL VEHICLE WEIGHT}		
TOTAL REAR WEIGHT	685	LBS.	{36.0 % OF TOTAL VEHICLE WEIGHT}		
TOTAL DELIVERED WEIGHT	1905	LBS.			

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 26 5/16	;LF 25 13/16	;RR 24 13/16	;LR 24 15/16
PRE-TEST ATTITUDE:	RF 24 3/4	;LF 24 1/2	;RR 23 1/4	;LR 22 15/16
POST-TEST ATTITUDE:	RF 24 1/8	;LF 25 1/8	;RR 22 7/16	;LR 23 1/4

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 142 LBS. CARGO:

RIGHT FRONT	655	LBS.	RIGHT REAR	525	LBS.
LEFT FRONT	680	LBS.	LEFT REAR	535	LBS.
TOTAL FRONT WEIGHT	1335	LBS.	{55.7 % OF TOTAL VEHICLE WEIGHT}		
TOTAL REAR WEIGHT	1060	LBS.	{44.3 % OF TOTAL VEHICLE WEIGHT}		
TOTAL TEST WEIGHT	2395	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*: 10.5 GALLONS

TEST VOLUME: 3.0 GALLONS

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

DETAILS OF FUEL SYSTEM: DNA

ELECTRIC FUEL PUMP: No

FUEL INJECTION: No

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

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

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

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

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

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

CARGO LOAD 142 LBS.

TOTAL 642 LBS.

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

TEST CONDITIONS

TEST NUMBER: 830914

DATE OF TEST: September 14, 1983

TIME OF TEST: 11:55

WIND VELOCITY: 6-18 mph 218° W

HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 68° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 71° F

SUBJECT VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
VEHICLE TEST WEIGHT (LBS.)	2395	2395
MDB TEST WEIGHT (LBS.)	2990	3000
MDB VELOCITY (MPH)*	29.2	29.1
IMPACT POINT (INCHES)**	37.	37

DUMMIES

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

* As measured over final one foot of travel.

** As measured forward of the midpoint of the 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 header, padding</u>
Chest	<u>Padding</u>	<u>Padding</u>
Abdomen	<u>Padding</u>	<u>Padding</u>
Left Knee	<u>Padding</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>Yes (Driver's seat)</u>
Rear	<u>No</u>	<u>No</u>

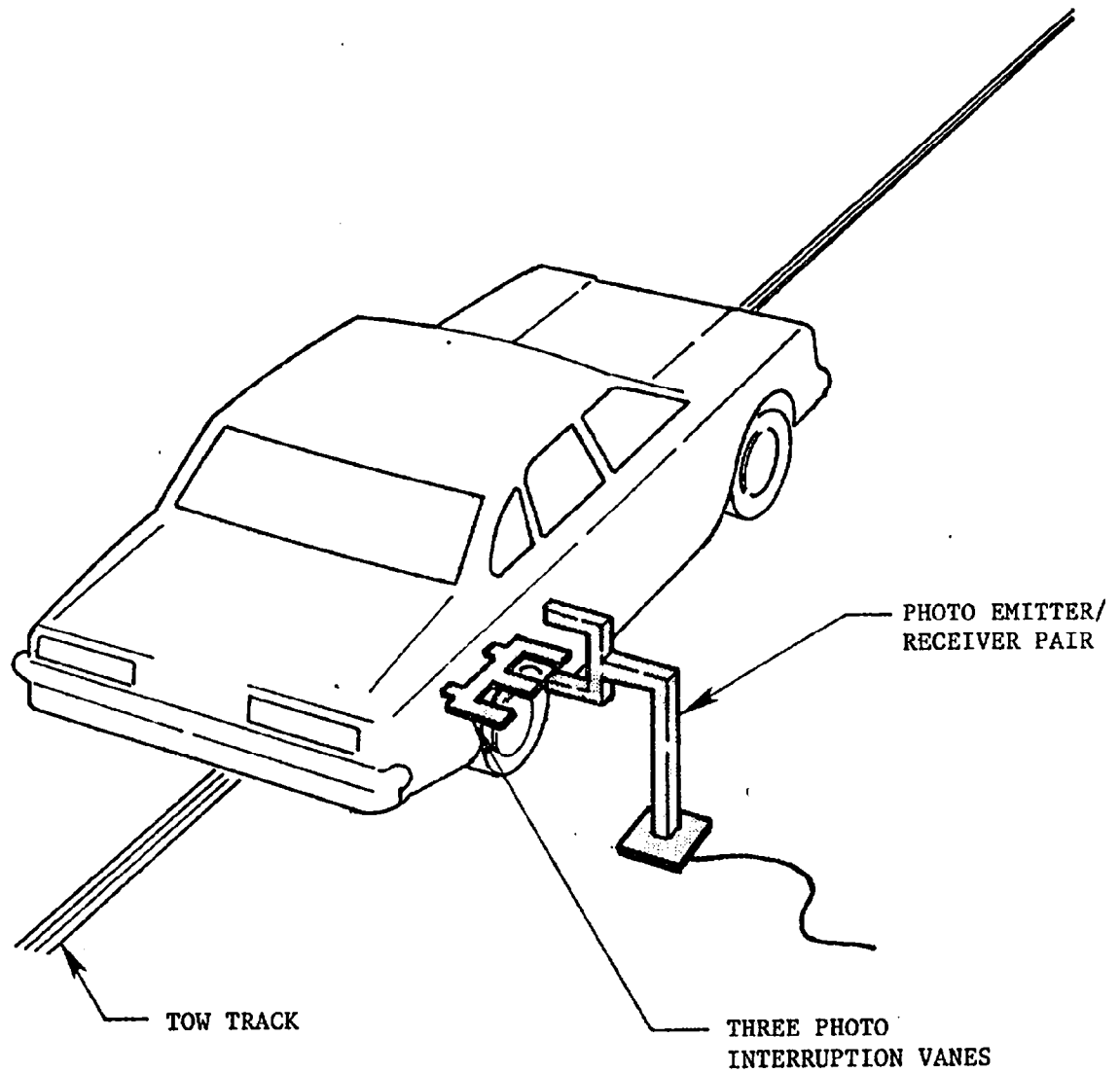
GLAZING DAMAGE:

Windshield cracked, driver's door window out of track on top and leading edge, rear window on driver's side separated intact.

OTHER NOTABLE IMPACT EFFECTS:

Floor panel in front of driver's seat buckled downward and separated at seam of floor panel and firewall.

IMPACT VELOCITY MEASUREMENT SYSTEM



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

VEHICLE TEST WEIGHT CALCULATION

$$\begin{aligned}\text{Test Weight} &= \text{Unloaded Delivered Weight} + \\ &\quad \text{Number of Dummies} \times 174 \text{ lbs.} + \\ &\quad \text{Cargo Weight} \\ &= 1905 + 2 \times 174 + 142 \text{ lbs.} \\ &= 2395 \text{ lbs.}\end{aligned}$$

To achieve test weight, the exhaust system and starter motor were removed and 3 gallons of Stoddard Solvent was added in the fuel tank. The weight of the test vehicle was measured by placing each wheel on a Loadmeter Corporation Hiway Loadometer.

TEST ANOMALIES

The cables of two vehicle accelerometers were separated during the test. They were:

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

LFDYG5 - Left Front Door (Position 11) Acceleration Y Axis

No peak levels or delta velocities were reported. Both accelerometer cables were repaired.

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.

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

DUMMY IN-VEHICLE POSITION RECORDING SHEET

VEHICLE NHTSA NO. R&D

MFR./MAKE/MODEL: Volkswagen Rabbit

FRONT SEAT TYPE: BENCH
x BUCKET
SPLIT BENCH

ADJUSTER TYPE: x MANUAL
POWER

BUCKET SEAT BACK TYPE: FIXED
x ADJUSTABLE

TECHNICIANS:

1. Joe Kokoruda

2. Ed Grumbling

3. Nick Echeverria

POSITIONING DATE: 9/14/83

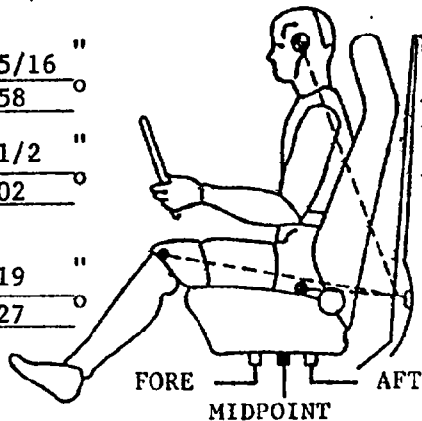
AMBIENT TEMP.: 66° F. TIME: 5:30

DRIVER DUMMY # 06

HEAD 20 5/16 "
 TARGET* 58 °

KNEE 31 1/2 "
 JOINT 102 °

APPROX.
 "H" 19 "
 POINT 127 °

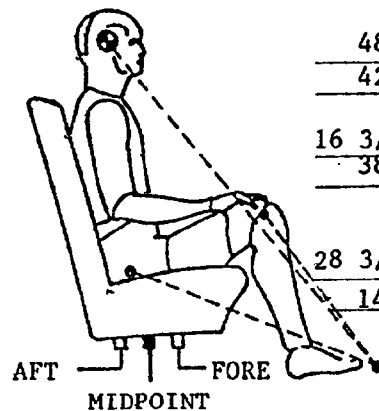


REAR PASSENGER DUMMY # U02

48 "HEAD
42 °TARGET**

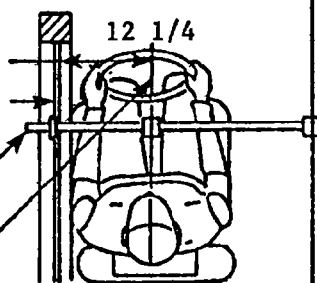
16 3/4 "KNEE
38 °JOINT

APPROX.
28 3/4 " "H"
14 °POINT †



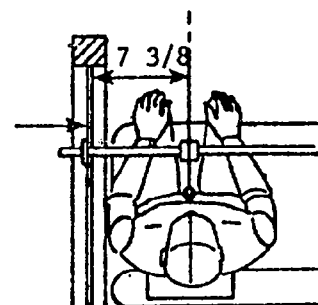
DOOR
 GLASS
 HEIGHT*** 9 3/4

LATERAL BAR
 ADJUSTABLE
 POINTER



DRIVER
 DUMMY # 06

DOOR
 GLASS
 HEIGHT DNA



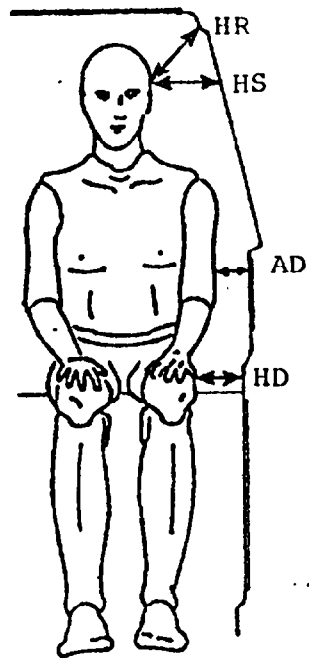
PASSENGER
 DUMMY # U02

*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.

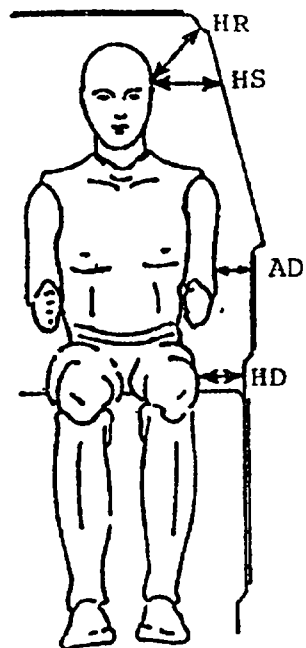
† Due to structural modifications interference, the "H" Point location was estimated.



06

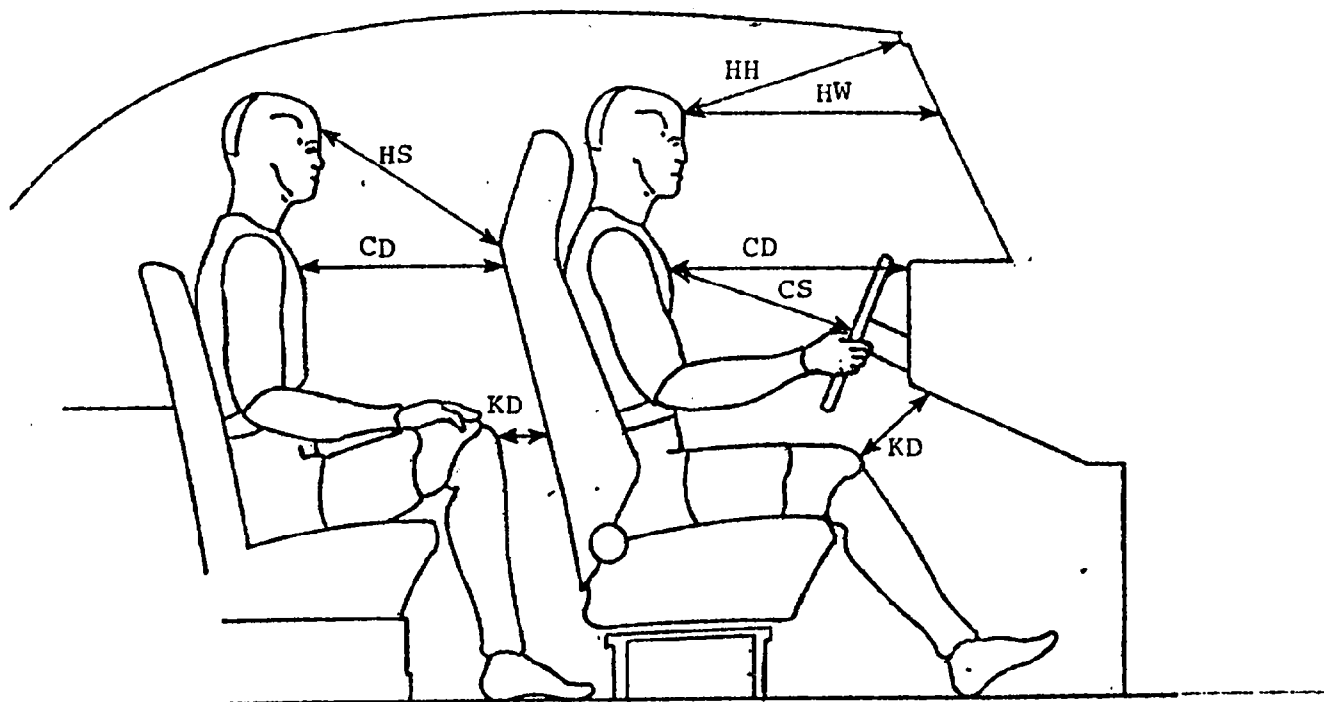
J02

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



NOTE: ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



	06 DRIVER	U02 PASSENGER
HH	14 7/8	DNA
HW	21 7/8	DNA
HS	DNA	21 3/4
CD	22 3/8	17 3/4
CS	14 1/8	DNA
KDL	8 1/2	3 3/8
KDR	8 7/16	3 3/8

NOTE: ALL MEASUREMENTS IN INCHES

DUMMY KINEMATIC SUMMARY

DRIVER

During impact, the dummy's torso contacted the padded driver's door and the head contacted the driver's window and window sill. The dummy rebounded from the driver's door and its buttocks contacted the front passenger's side wall and window sill. The dummy came to rest sitting in the front passenger's seat leaning toward the driver's side.

PASSENGER

During impact, the dummy's torso contacted the padded left rear occupant side wall and the head contacted the side window and side header. The dummy rebounded and the head contacted the right rear passenger side wall. The dummy came to rest laying across the rear seat with its head against the right rear side wall.

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

LOCATION	HEIGHT (in)	6	0	6	12	18	24	30	36	42	48	54	60	66	72	78
PRE-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)																
Axle Height	9.0	X	X	18.8	18.8	18.8	18.7	18.8	18.8	18.8	18.7	18.8	18.9	19.0	X	X
H-Point	16.1	X	X	16.6	16.8	16.7	16.7	16.8	16.8	16.8	16.8	16.8	16.9	16.9	X	X
Mid Door	23.0	15.3	16.6	16.3	16.6	16.5	16.4	16.4	16.4	16.4	16.4	16.4	16.5	16.6	16.8	15.8
Window Sill	33.5	X	18.6	18.2	18.1	18.0	18.0	17.9	17.9	17.8	17.8	18.1	18.1	18.1	18.3	18.4
Window Top	51.3	X	X	X	X	X	25.6	25.3	25.2	25.1	25.0	25.0	25.1	25.2	25.4	25.8

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

Axle Height	9.0	X	X	24.4	24.9	24.5	23.9	23.4	22.9	22.5	21.7	21.1	20.3	19.6	X	X
H-Point	16.1	X	X	26.5	26.9	26.9	26.6	26.4	26.2	25.9	25.6	25.1	24.6	23.8	X	X
Mid Door	23.0	21.2	22.9	23.9	24.5	24.4	24.5	24.6	24.7	24.7	24.7	25.0	25.1	24.9	22.2	19.3
Window Sill	33.5	X	19.9	21.0	24.1	23.6	23.4	23.5	23.5	23.8	24.1	25.8	24.6	24.1	21.9	20.3
Window Top	51.3	X	X	X	X	X	27.3	26.9	26.6	26.5	26.4	26.4	26.4	26.4	26.5	26.6

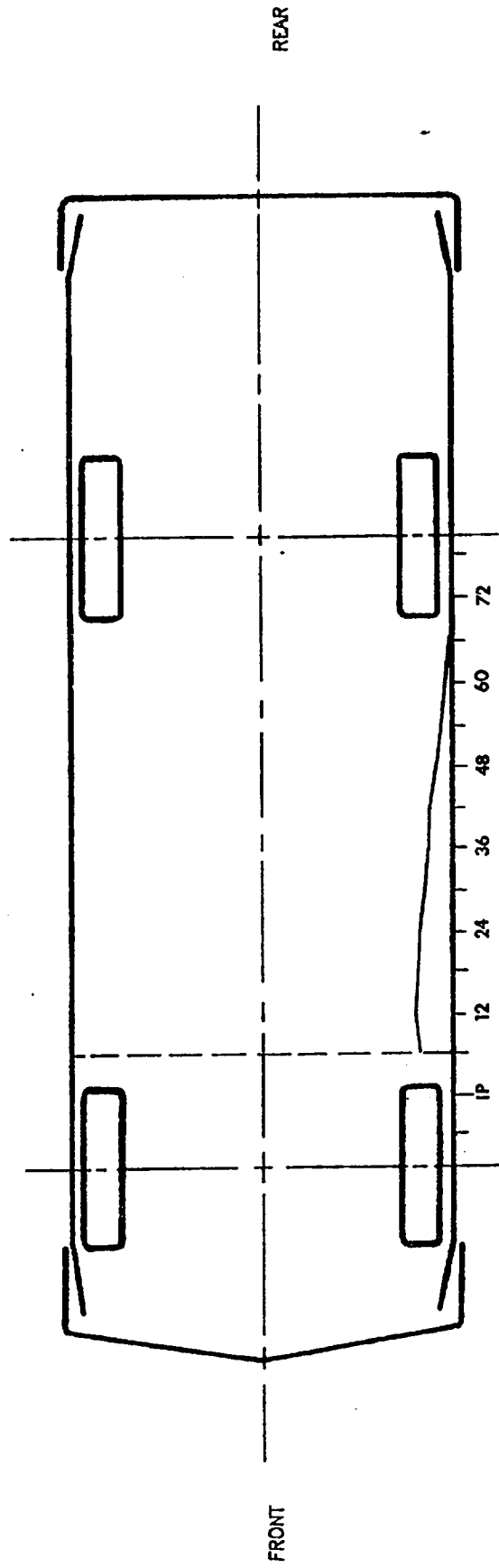
STATIC CRUSH (IN)

Axle Height	9.0	X	X	5.6	6.1	5.7	5.2	4.6	4.1	3.7	3.0	2.3	1.4	0.6	X	X
H-Point	16.1	X	X	9.9	10.1	10.2	9.9	9.6	9.4	9.1	8.8	8.3	7.7	6.9	X	X
Mid Door	23.0	5.9	6.3	7.6	7.9	7.9	8.1	8.3	8.3	8.3	8.3	8.6	8.6	8.3	5.4	3.5
Window Sill	33.5	X	1.3	2.8	6.0	5.6	5.4	5.6	5.6	6.0	6.3	7.7	6.5	6.0	3.6	1.9
Window Top	51.3	X	X	X	X	X	1.7	1.6	1.4	1.4	1.4	1.4	1.3	1.2	1.1	0.8

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

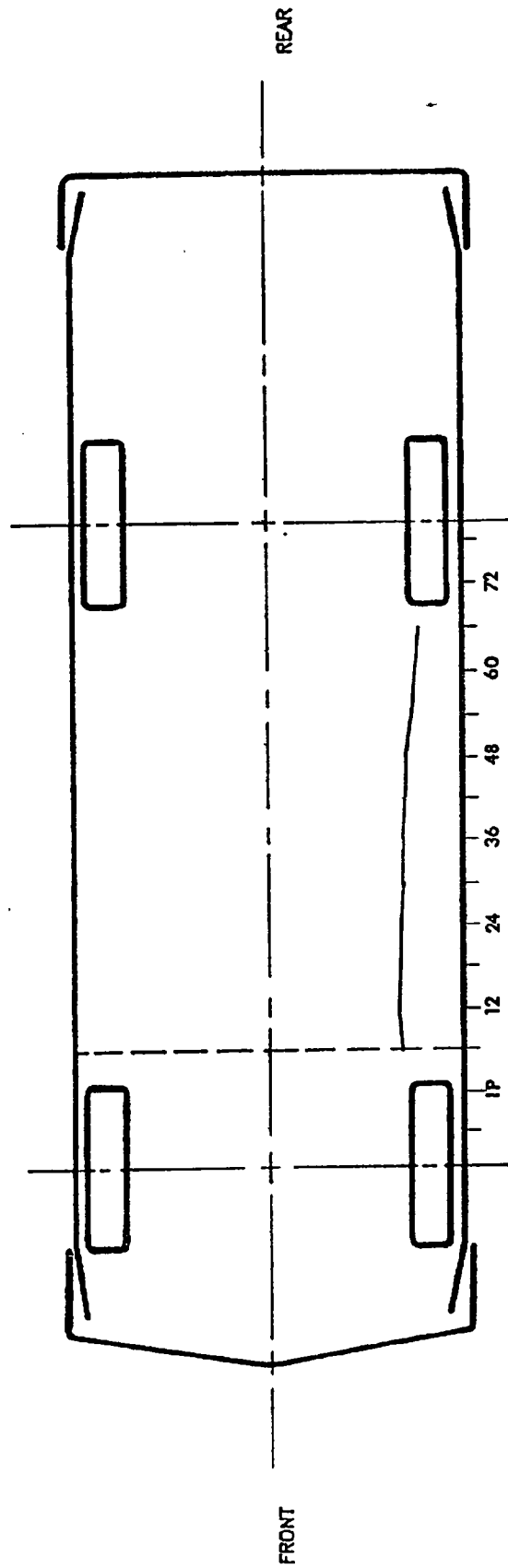
** Reference plane is parallel to and 48 inches from the vehicle longitudinal centerline.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



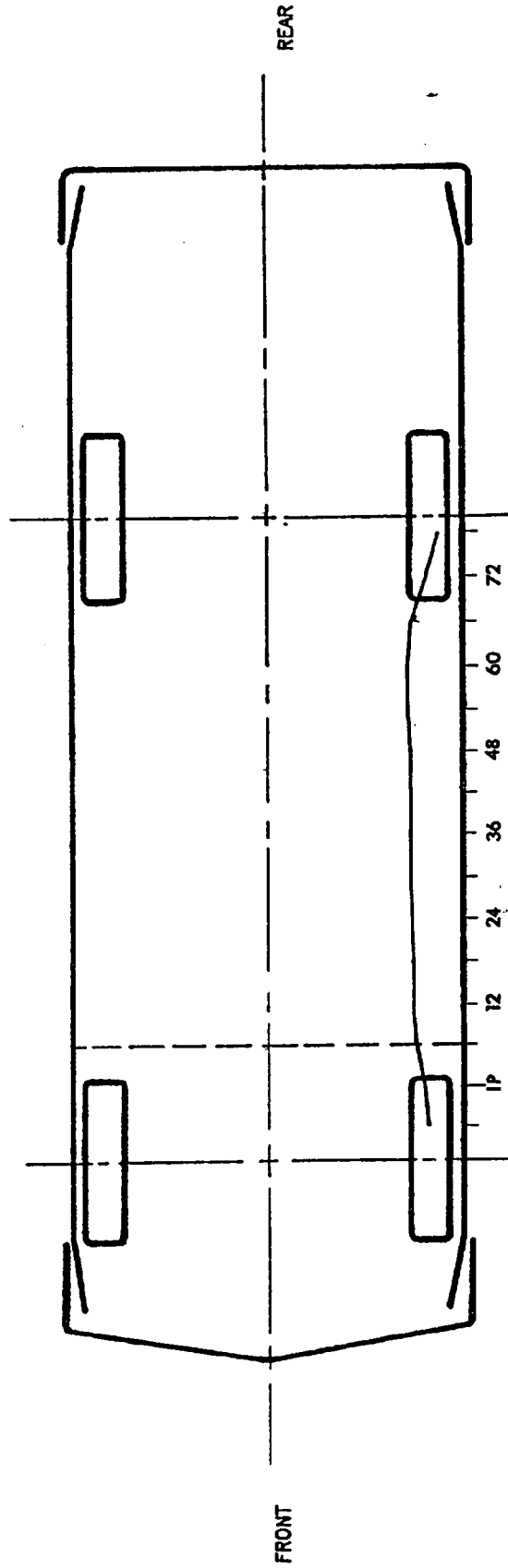
PROFILE LEVEL EQUALS AXLE HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



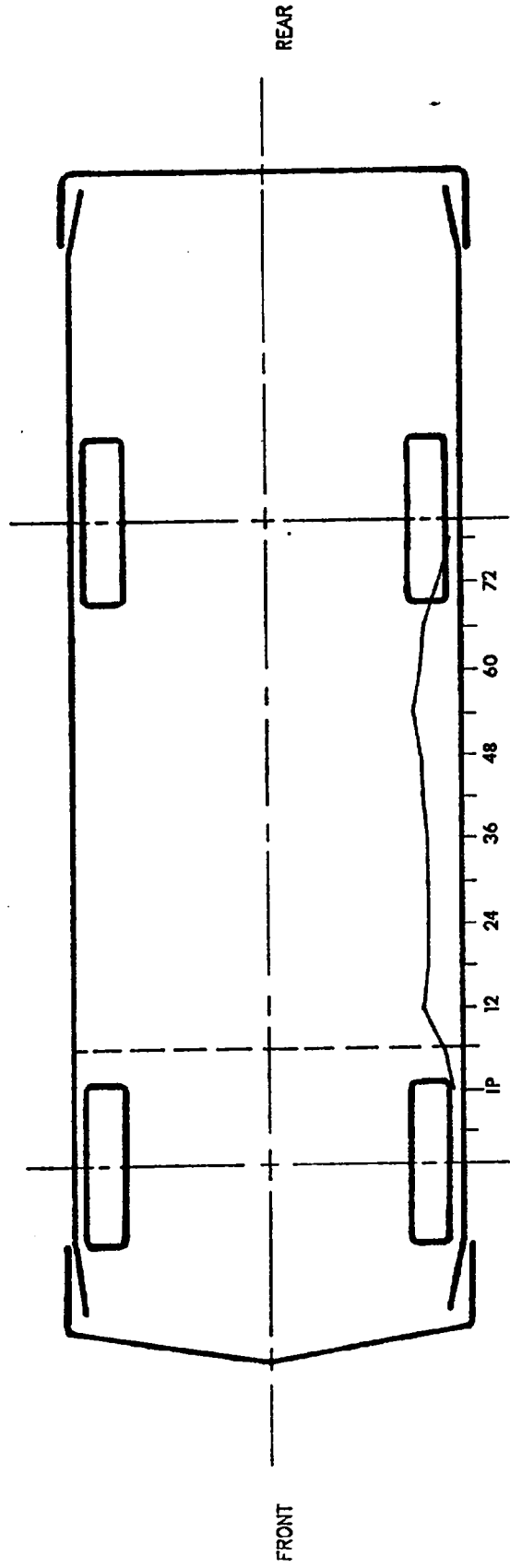
PROFILE LEVEL EQUALS H-POINT HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



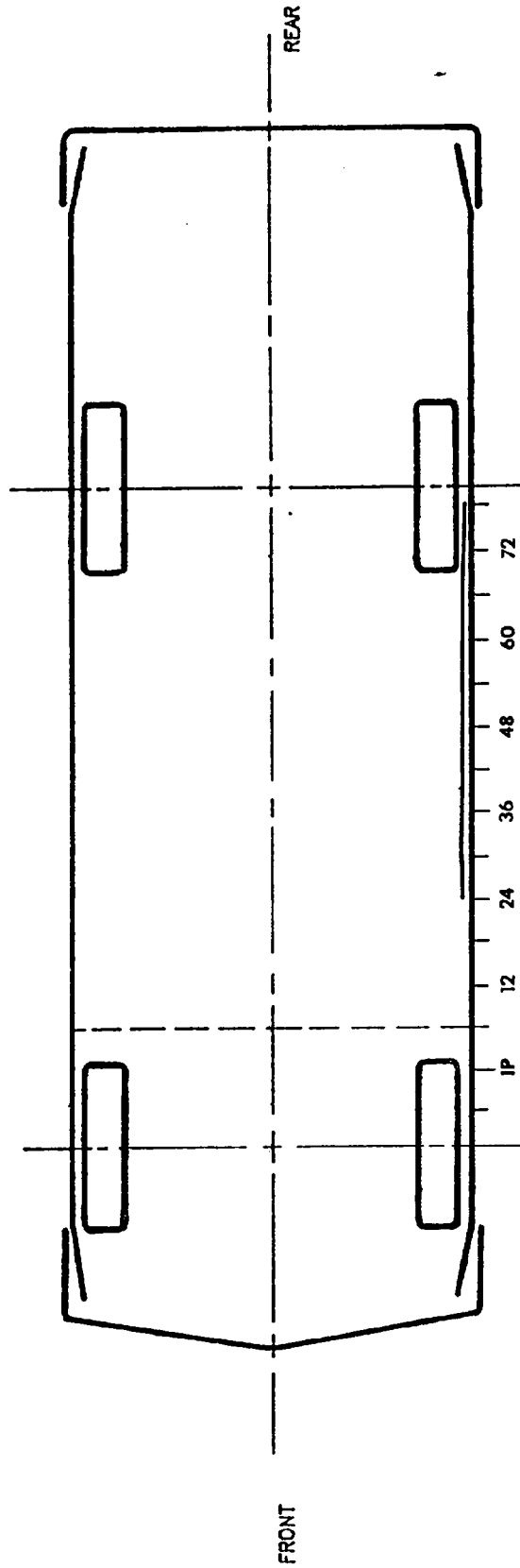
PROFILE LEVEL EQUALS MID-DOOR HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW SILL HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT
 IP EQUALS PROJECTED IMPACT POINT

SIDE IMPACT DUMMY DATA SUMMARY

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE		NEGATIVE		POSITIVE		NEGATIVE	
	DIRECTION*		DIRECTION**		DIRECTION*		DIRECTION**	
	MAX	TIME	MAX	TIME	MAX	TIME	MAX	TIME
	(g)	(msec)	(g)	(msec)	(g)	(msec)	(g)	(msec)
HEAD ACCELERATION								
LONGITUDINAL	5.65	151.88	25.28	77.50	19.13	189.63	29.73	51.75
LATERAL	31.85	78.38	10.65	36.50	84.25	51.88	17.82	202.25
VERTICAL	7.25	46.00	51.23	65.00	41.71	60.88	22.18	47.00
RESULTANT		53.83 @ 68.38				89.99 @ 51.75		
HIC	270.83	from 44.63 to 81.75				420.40 from 46.25 to 65.50		
CHEST ACCELERATION								
UPPER SPINE								
LONGITUDINAL	10.81	67.50	14.05	61.25	3.98	207.50	26.75	60.00
LATERAL (P)***	58.96	38.75	26.75	59.38	28.06	52.50	5.99	159.38
LATERAL (R)***	60.79	38.75	29.27	59.38	29.63	52.50	5.42	160.63
VERTICAL	13.27	58.13	9.66	73.75	7.71	35.63	13.00	60.62
RESULTANT (P)		59.57 @ 38.75				32.37 @ 60.62		
RESULTANT (R)		61.38 @ 38.75				32.51 @ 60.62		
DELTA V (MPH)****		22.7 @ 56.25 (P)				20.0 @ 90.00 (P)		
		23.8 @ 56.25 (R)				20.1 @ 90.00 (R)		
LOWER SPINE								
LONGITUDINAL	19.42	47.50	18.28	60.00	10.98	61.87	14.79	45.62
LATERAL (P)	72.67	35.00	24.62	58.75	54.10	40.00	15.64	64.38
LATERAL (R)	72.99	35.00	27.26	58.75	54.83	40.00	14.76	65.00
VERTICAL	19.09	58.13	7.09	73.75	14.14	46.25	5.03	61.25
RESULTANT (P)		73.25 @ 35.00				55.60 @ 40.00		
RESULTANT (R)		73.57 @ 35.00				56.37 @ 40.00		
DELTA V (MPH)		27.7 @ 50.00 (P)				23.1 @ 57.50 (P)		
		28.4 @ 50.63 (R)				23.8 @ 57.50 (R)		
LEFT UPPER RIB								
LATERAL (P)	58.31	33.75	9.46	70.63	42.71	43.75	6.29	128.13
LATERAL (R)	58.26	33.75	14.19	70.00	45.01	43.75	7.30	128.75
DELTA V (MPH)		21.9 @ 66.88 (P)				23.5 @ 99.38 (P)		
		22.2 @ 66.88 (R)				22.9 @ 100.00 (R)		
LEFT LOWER RIB								
LATERAL (P)	60.81	33.75	29.86	63.75	49.07	43.75	18.83	62.50
LATERAL (R)	62.48	33.75	26.15	63.75	47.02	43.75	18.07	61.87
DELTA V (MPH)		22.9 @ 88.75 (P)				21.3 @ 60.00 (P)		
		23.4 @ 88.75 (R)				21.6 @ 60.00 (R)		
PELVIS ACCELERATION								
LONGITUDINAL	10.52	48.00	23.31	41.50	3.54	99.00	44.60	36.13
LATERAL	73.18	26.75	20.80	48.63	138.24	37.38	7.23	25.63
VERTICAL	14.40	35.50	11.34	20.50	16.53	39.50	5.53	81.50
RESULTANT		74.83 @ 26.63				142.54 @ 37.38		
DELTA V (MPH)		27.0 @ 112.75				22.2 @ 67.50		

SIDE IMPACT DUMMY DATA SUMMARY CONTD

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE		NEGATIVE		POSITIVE		NEGATIVE	
	DIRECTION*		DIRECTION**		DIRECTION*		DIRECTION**	
	MAX	TIME	MAX	TIME	MAX	TIME	MAX	TIME
	(in)	(msec)	(in)	(msec)	(in)	(msec)	(in)	(msec)
RIB DEFLECTION †	0.11	185.50	1.54	58.00	0.08	125.75	1.82	67.38

* LONGITUDINAL: FORWARD
 LATERAL: RIGHTWARD
 VERTICAL: UPWARD

**LONGITUDINAL: REARWARD
 LATERAL: LEFTWARD
 VERTICAL: DOWNWARD

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

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

† Compression: Negative

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

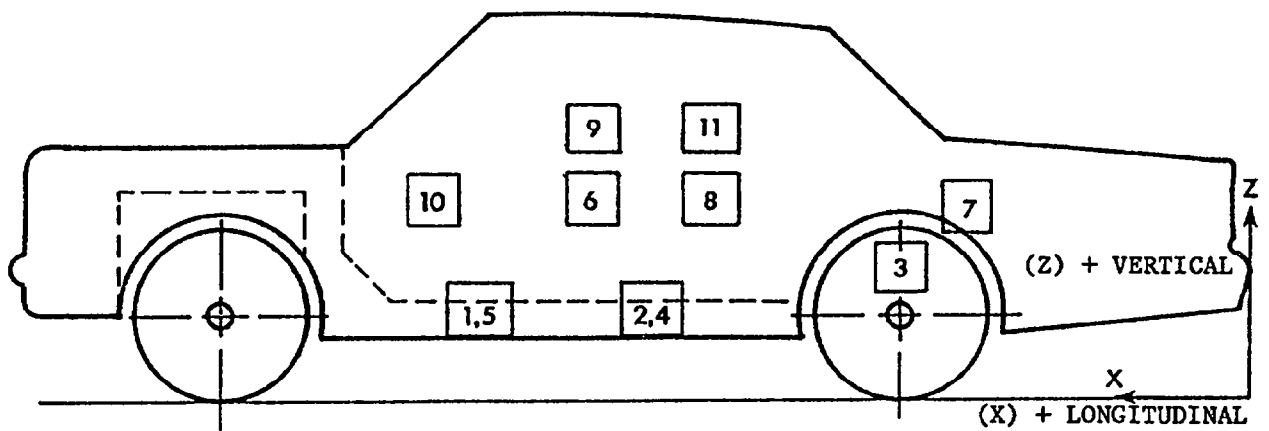
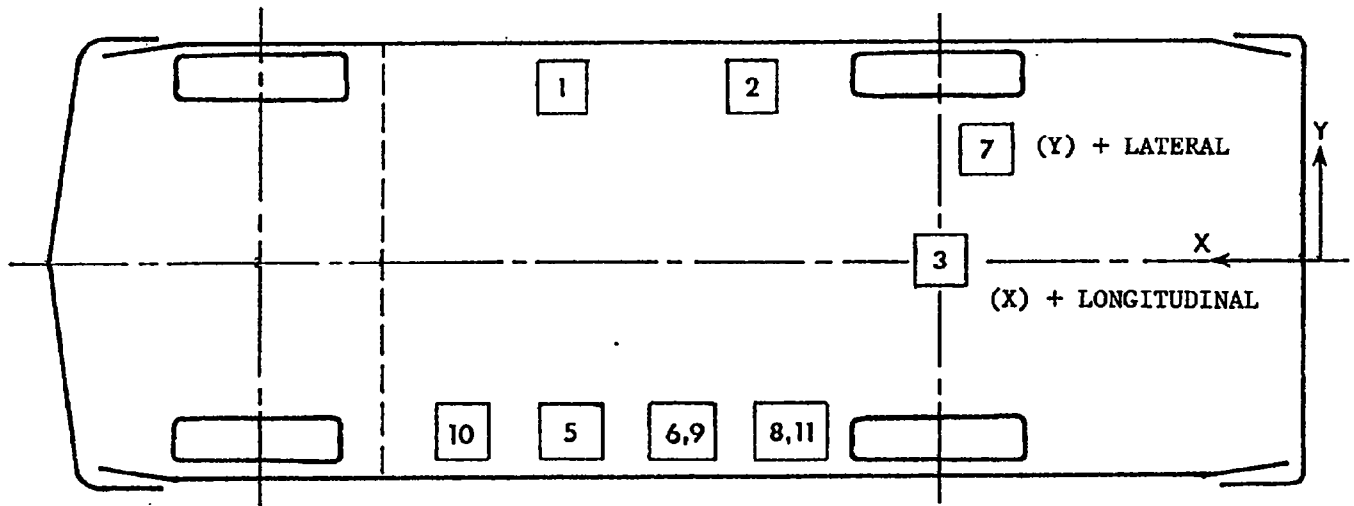
NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	RIGHT SILL AT FRONT SEAT (LONGITUDINAL)	83.3	23.1	10.5				
	(LATERAL)	$\Delta V = -2.4 \text{ mph @ } 115.00 \text{ msec}$			4.18	63.50	6.41	14.13
	(VERTICAL)	$\Delta V = 13.9 \text{ mph @ } 115.00 \text{ msec}$			21.31	11.13	3.22	142.00
	(RESULTANT)				7.82	23.13	8.74	43.38
					21.88 @ 11.25			
2	RIGHT SILL AT REAR SEAT (LONGITUDINAL)	61.3	23.4	9.0				
	(LATERAL)	$\Delta V = -1.3 \text{ mph @ } 115.00 \text{ msec}$			4.10	63.13	5.99	14.00
	(VERTICAL)	$\Delta V = 15.7 \text{ mph @ } 115.00 \text{ msec}$			25.57	11.00	2.38	165.63
	(RESULTANT)				9.01	21.13	6.47	75.50
					25.80 @ 11.13			
3	REAR DECK OVER AXLE (LONGITUDINAL)	32.0	0.0	7.6				
	(LATERAL)	$\Delta V = -1.8 \text{ mph @ } 115.00 \text{ msec}$			5.22	44.38	11.31	24.25
	(VERTICAL)	$\Delta V = 18.4 \text{ mph @ } 115.00 \text{ msec}$			21.82	48.63	3.23	93.00
	(RESULTANT)				4.19	36.50	6.05	24.00
					24.92 @ 24.75			
4	LEFT SILL AT REAR SEAT (LATERAL)	61.0	-23.3	8.9				
		$\Delta V = 11.0 \text{ mph @ } 115.00 \text{ msec}$			29.58	18.63	28.84	25.75
5	LEFT SILL AT FRONT SEAT (LATERAL)	83.6	-23.4	10.1				
		$\Delta V = 6.9 \text{ mph @ } 115.00 \text{ msec}$			67.06	13.13	30.53	25.13
6	LEFT FRONT DOOR CENTERLINE (LATERAL)	81.3	-26.0	23.3				
		$\Delta V = 21.9 \text{ mph @ } 12.75 \text{ msec}$			181.21	13.50	54.98	20.75
7	RIGHT REAR COMPARTMENT (LONGITUDINAL)	31.0	15.4	14.6				
					4.63	50.25	7.24	25.50
8	MIDREAR OF LEFT FRONT DOOR (LATERAL)	60.0	-25.8	23.7	---	---	---	--- Y
9	UPPER LEFT FRONT DOOR CENTERLINE (LATERAL)	81.9	-25.8	32.4				
		$\Delta V = 22.6 \text{ mph @ } 24.63 \text{ msec}$			79.89	25.88	71.06	31.50
10	MIDFRONT OF LEFT FRONT DOOR (LATERAL)	99.6	-26.0	22.2				
		$\Delta V = 15.0 \text{ mph @ } 12.00 \text{ msec}$			110.92	9.25	20.55	28.00
11	UPPER REAR OF LEFT FRONT DOOR (LATERAL)	70.5	-25.8	32.5	---	---	---	--- Y

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

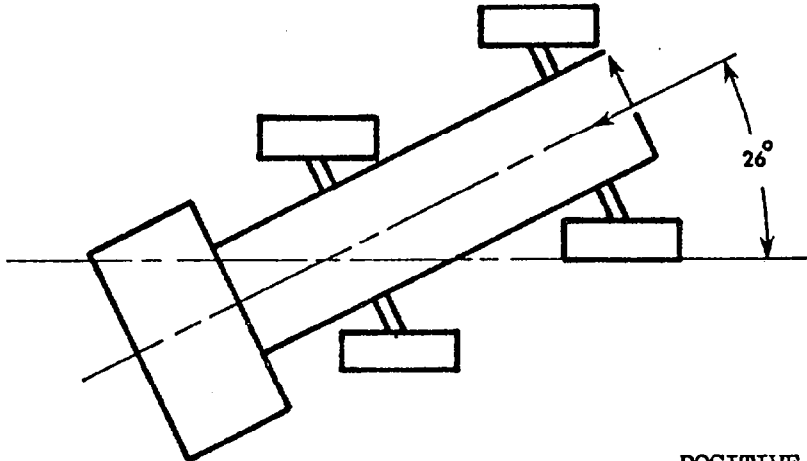
All measurements of accelerometer locations in inches.

Y See TEST ANOMALIES

VEHICLE ACCELEROMETER LOCATIONS



MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY



NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	CENTER OF GRAVITY	74.5	0.0	11.5				
	(LONGITUDINAL)	$\Delta V = -13.3 \text{ mph @ } 115.00 \text{ msec}$			1.60	117.88	14.27	41.63
	(LATERAL)	$\Delta V = -3.0 \text{ mph @ } 115.00 \text{ msec}$			1.71	73.25	7.93	32.25
	(VERTICAL)				13.71	70.25	17.49	61.38
	(RESULTANT)					18.35 @ 61.25		
2	FRONT FRAME MEMBER	130.3	0.0	11.3				
	(LONGITUDINAL)	$\Delta V = -14.0 \text{ mph @ } 115.00 \text{ msec}$			0.74	118.00	13.84	43.50
3	REAR FRAME MEMBER	23.3	0.0	11.5				
	(LONGITUDINAL)	$\Delta V = -12.6 \text{ mph @ } 115.00 \text{ msec}$			1.71	116.25	12.89	40.00

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

All measurements of accelerometer locations in inches.

HIGH SPEED CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead	Photosonics 1B	8	787	Vehicle dynamics
2	Overhead	Photosonics 1B	25	797	Close-up of impact point
3	Onboard MDB	Stalex	25	500	Close-up of impact point
4	Onboard MDB	Photosonics 1B	13	812	Driver kinematics
5	Ground level - right	Hycam	25	770	Overall view
6	Ground level - left	Photosonics 1B	17	812	Overall view
7	Onboard vehicle	Photosonics 1B	8	805	Driver kinematics - front view
8	Onboard vehicle	Photosonics 1B	8	782	Driver kinematics
9	Onboard vehicle	Photosonics 1B	8	792	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	26'10"	58'8"	45"
6	-20'11"	-13'	45"

Origin of Coordinate System is Point of Impact

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

NON-GOVERNMENT FURNISHED TRANSDUCER INFORMATION

PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NUMBER	SERIAL NUMBER	MFR.	DATE OF LAST CALIBRATION	SENSITIVITY	DESIRED FULL SCALE (ENGR. UNITS)
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

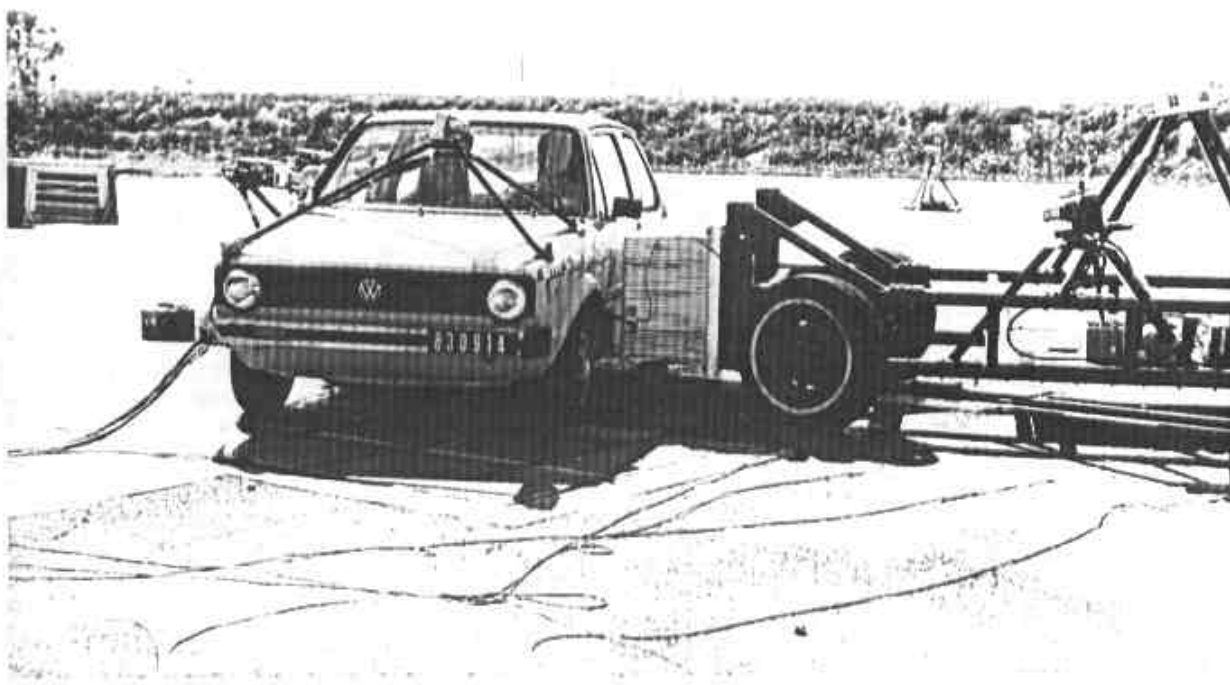


Figure A-2. PRE-TEST OVERALL - VIEW 2

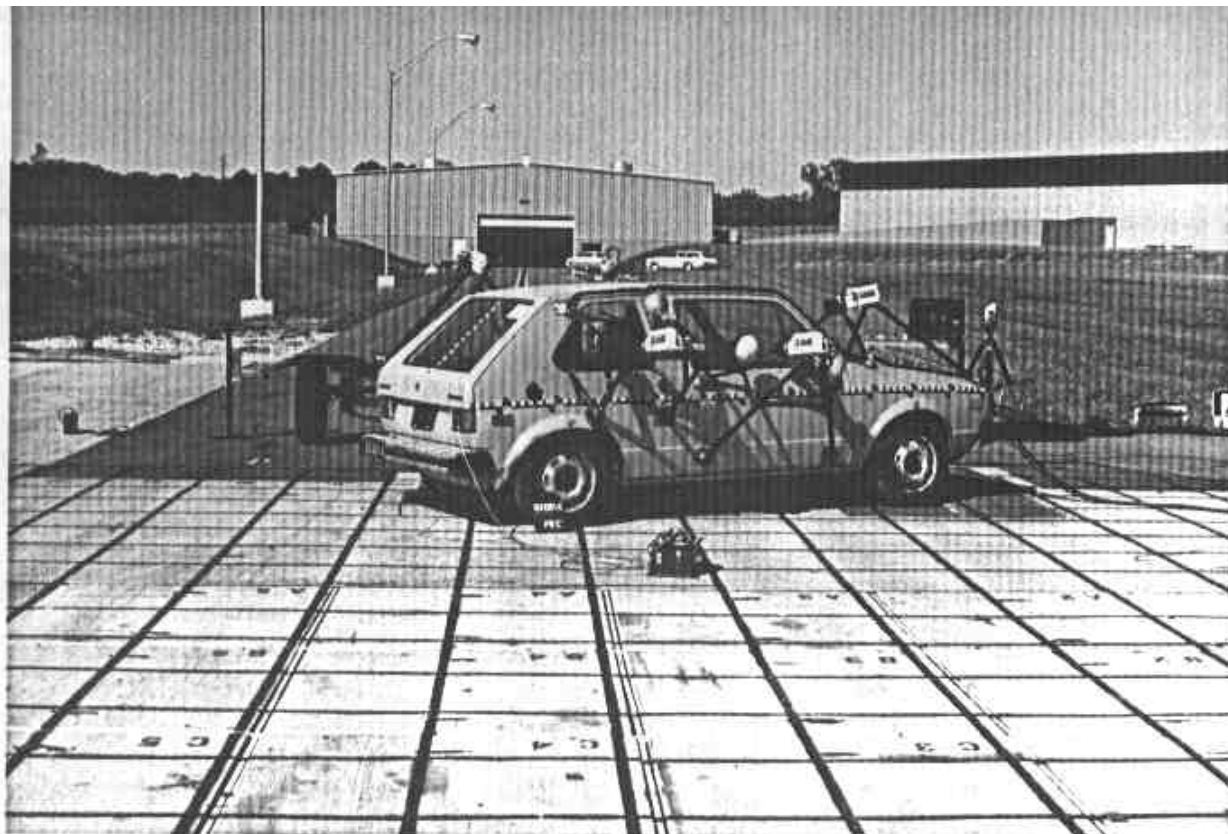


Figure A-3. PRE-TEST OVERALL - VIEW 3

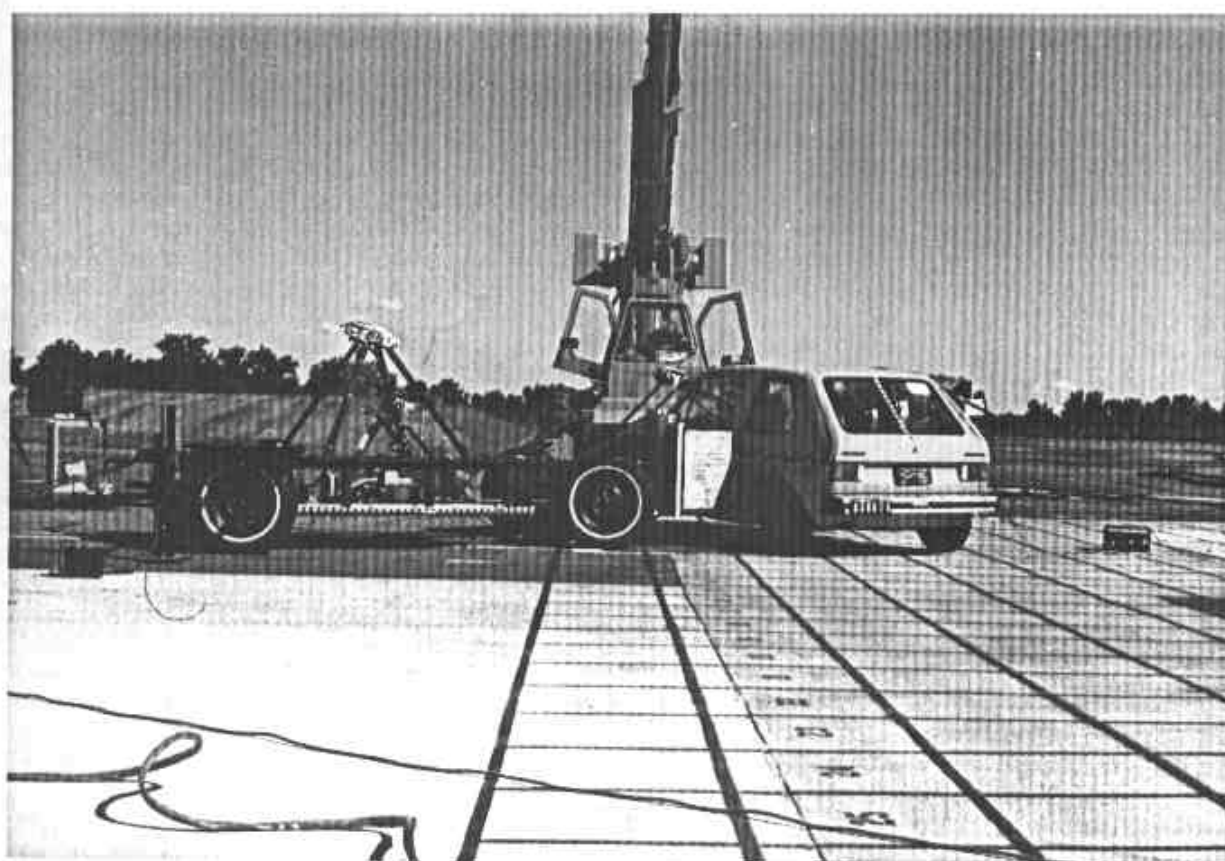


Figure A-4. PRE-TEST OVERALL - VIEW 4



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



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

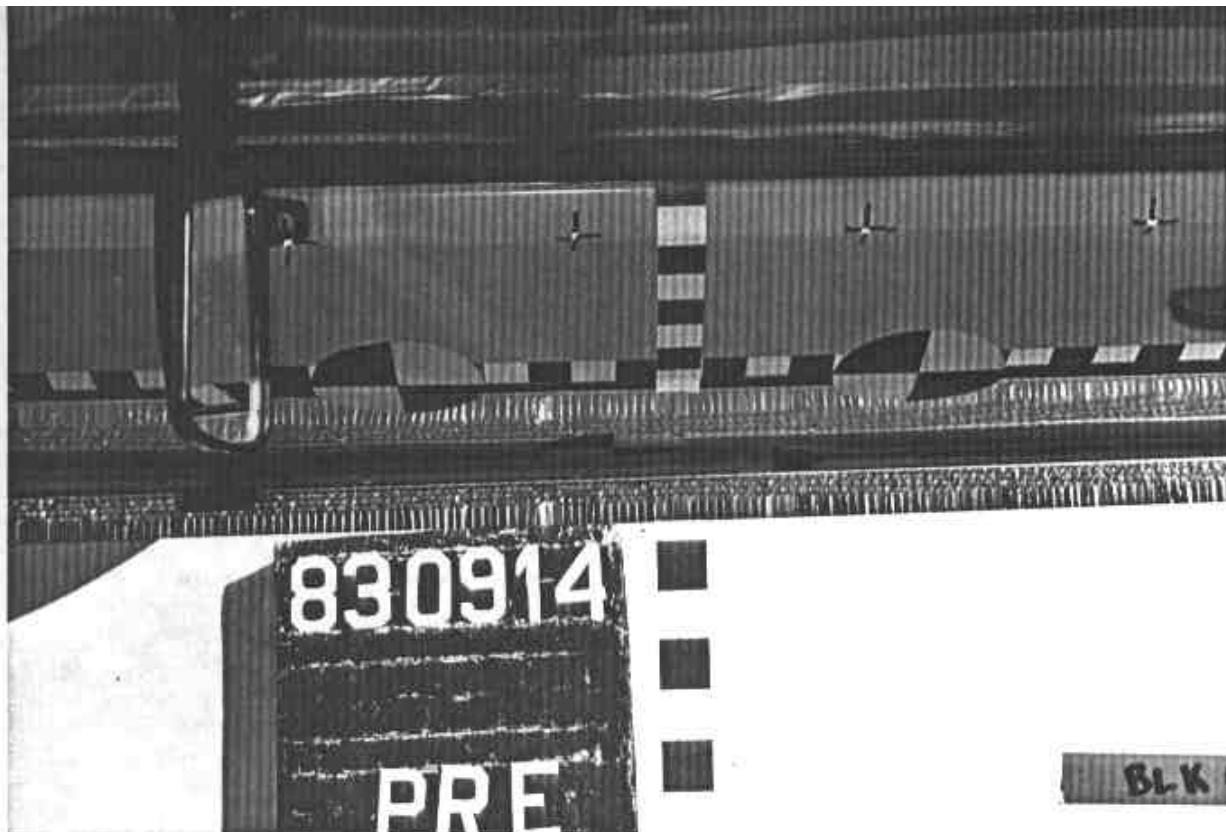


Figure A-7. PRE-TEST CLOSEUP - VIEW 3



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



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



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



Figure A-11. CRASH EVENT PHOTOGRAPH

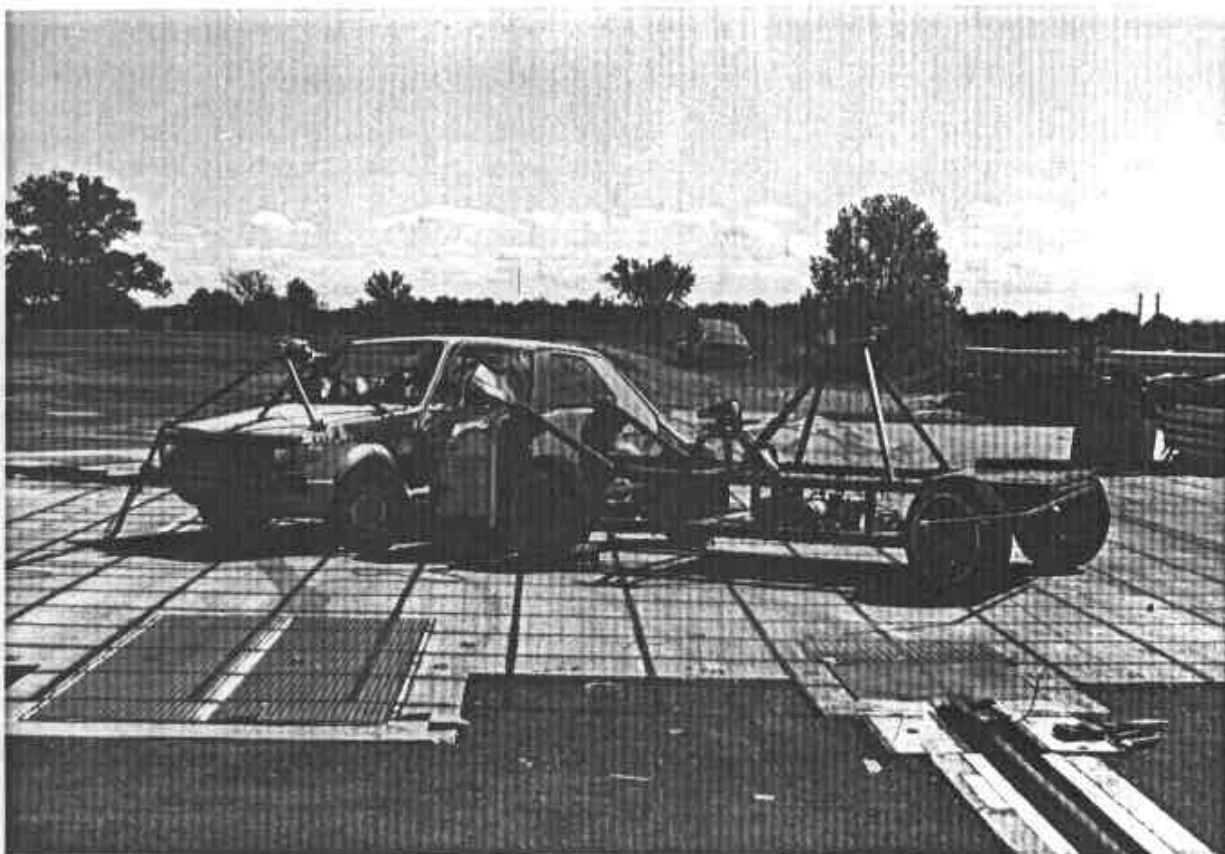


Figure A-12. POST-TEST OVERALL - VIEW 1



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

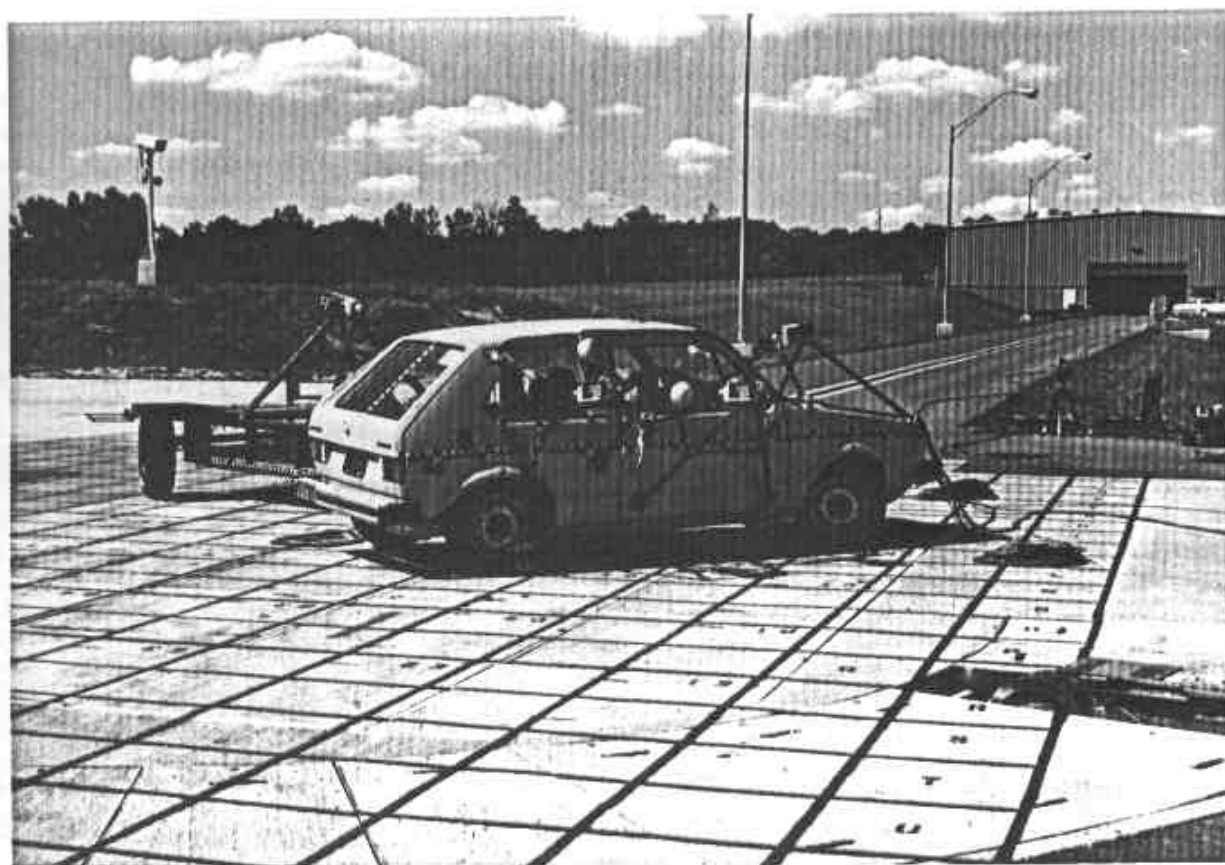


Figure A-14. POST-TEST OVERALL - VIEW 3

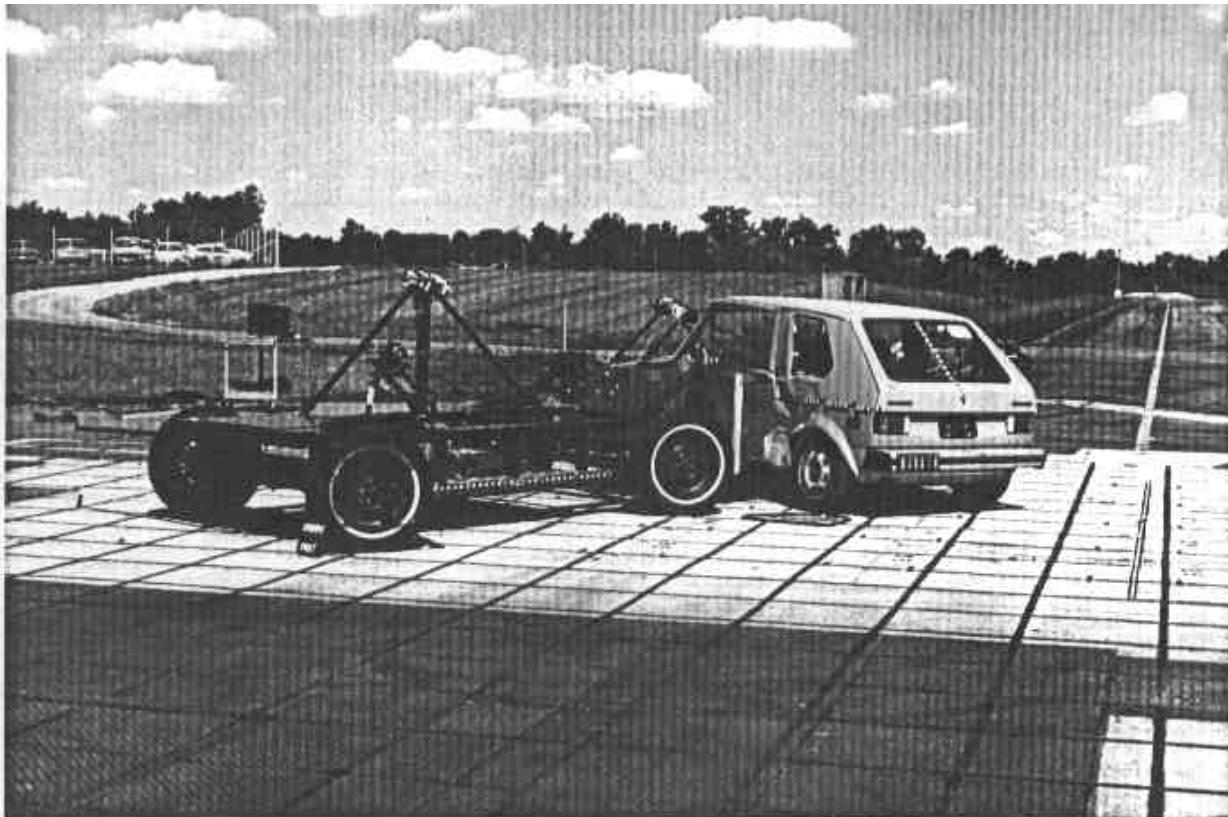


Figure A-15. POST-TEST OVERALL - VIEW 4

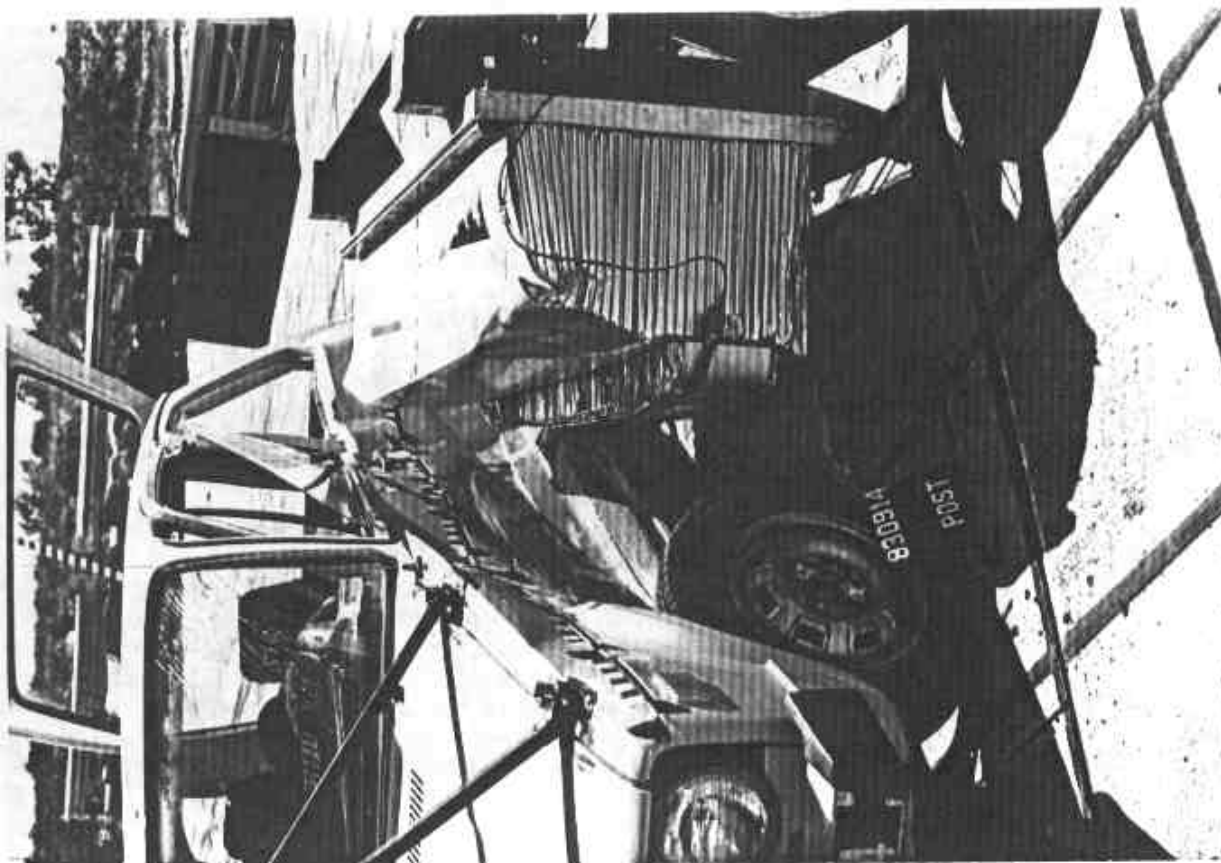


Figure A-16. POST-TEST CLOSEUP - VIEW 1

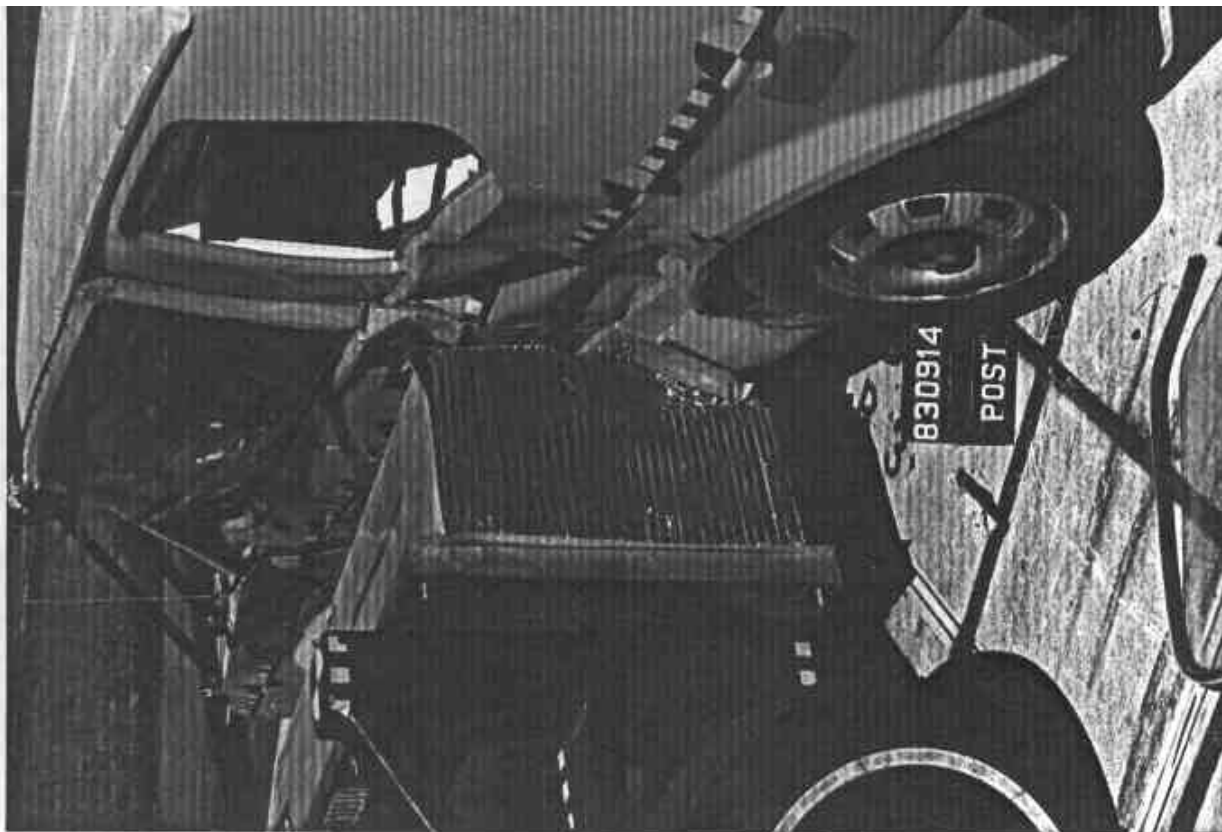


Figure A-17. POST-TEST CLOSEUP - VIEW 2



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



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

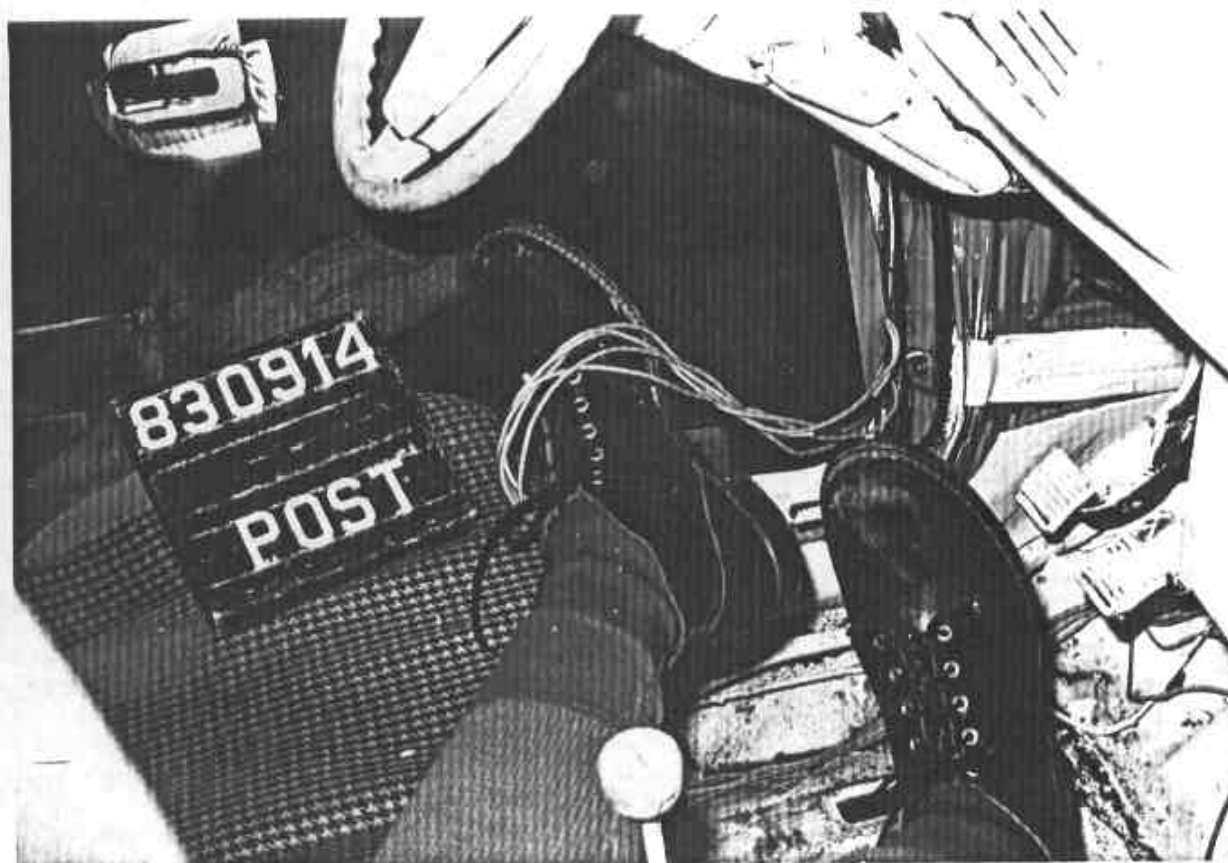


Figure A-20. POST-TEST DRIVER DUMMY - VIEW 3

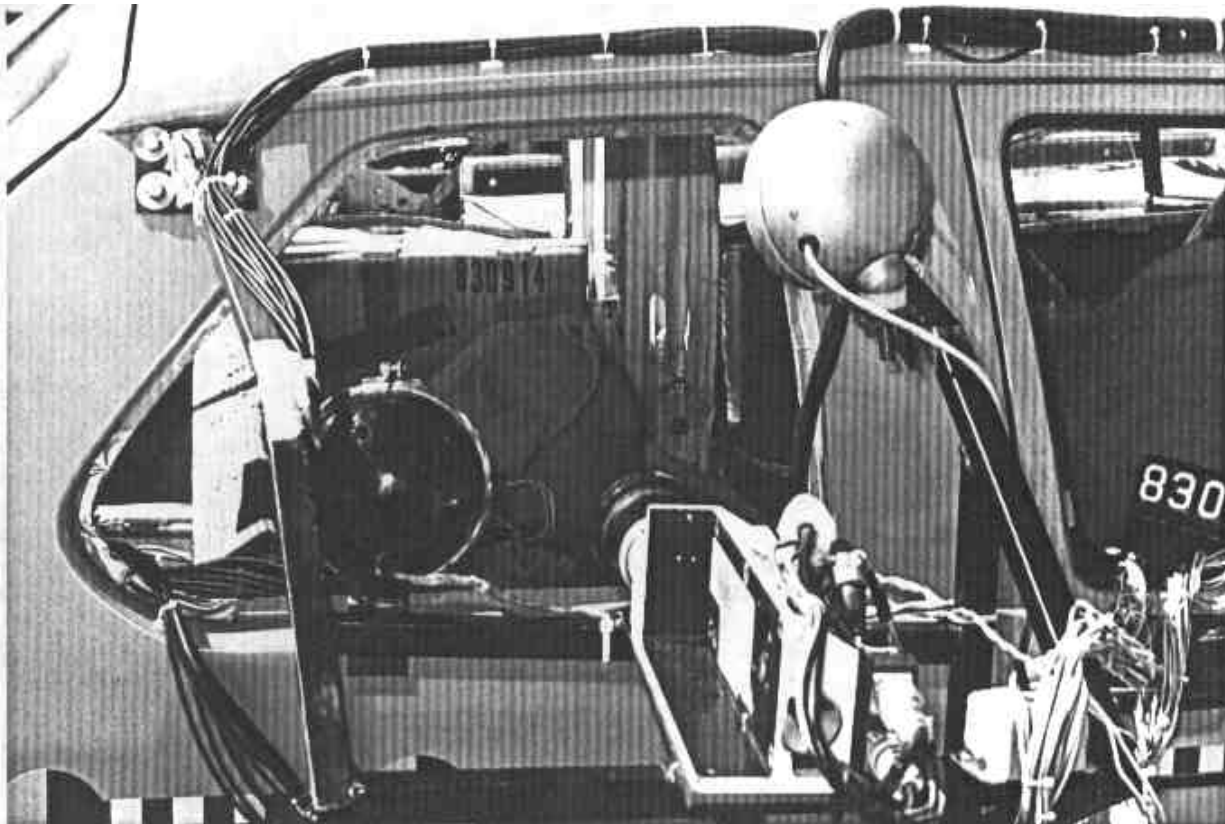


Figure A-21. POST-TEST PASSENGER DUMMY - VIEW 1



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



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

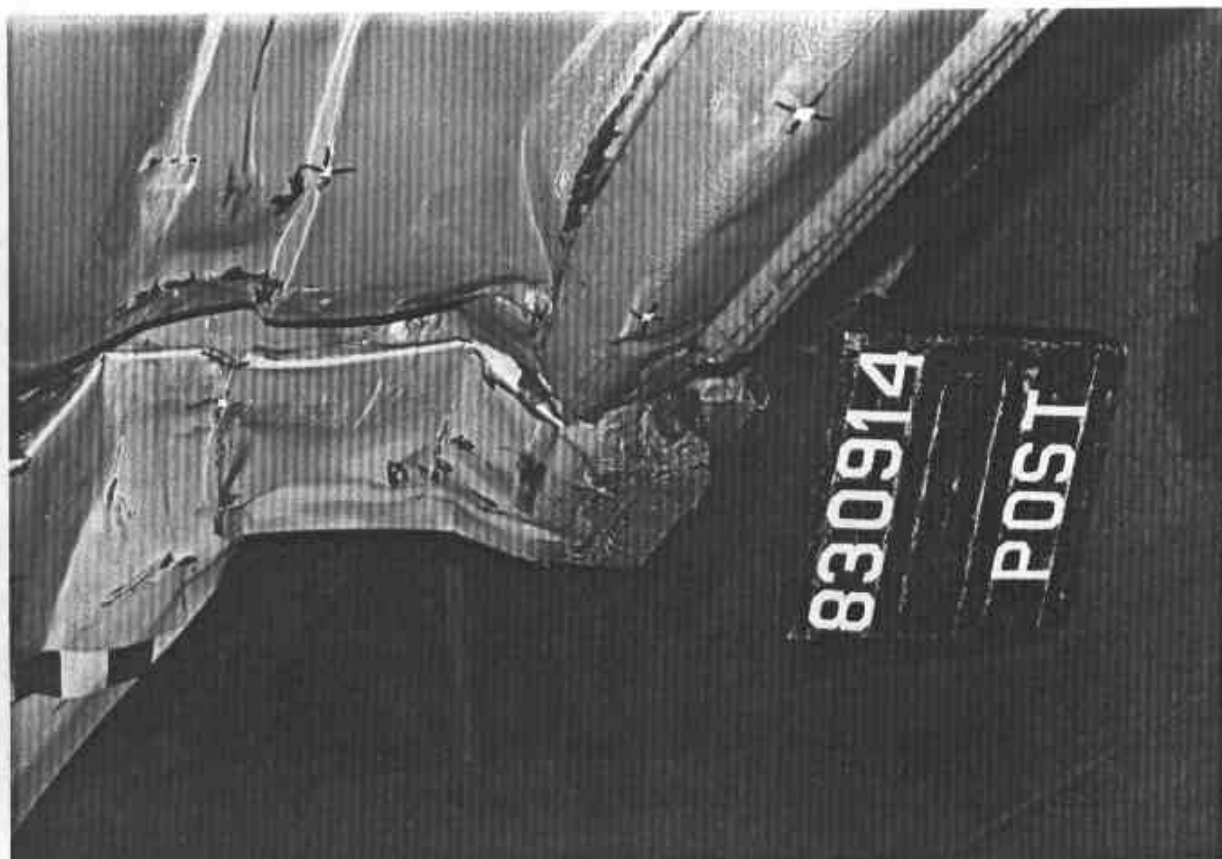


Figure A-24. POST-TEST VEHICLE DAMAGE - VIEW 1



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

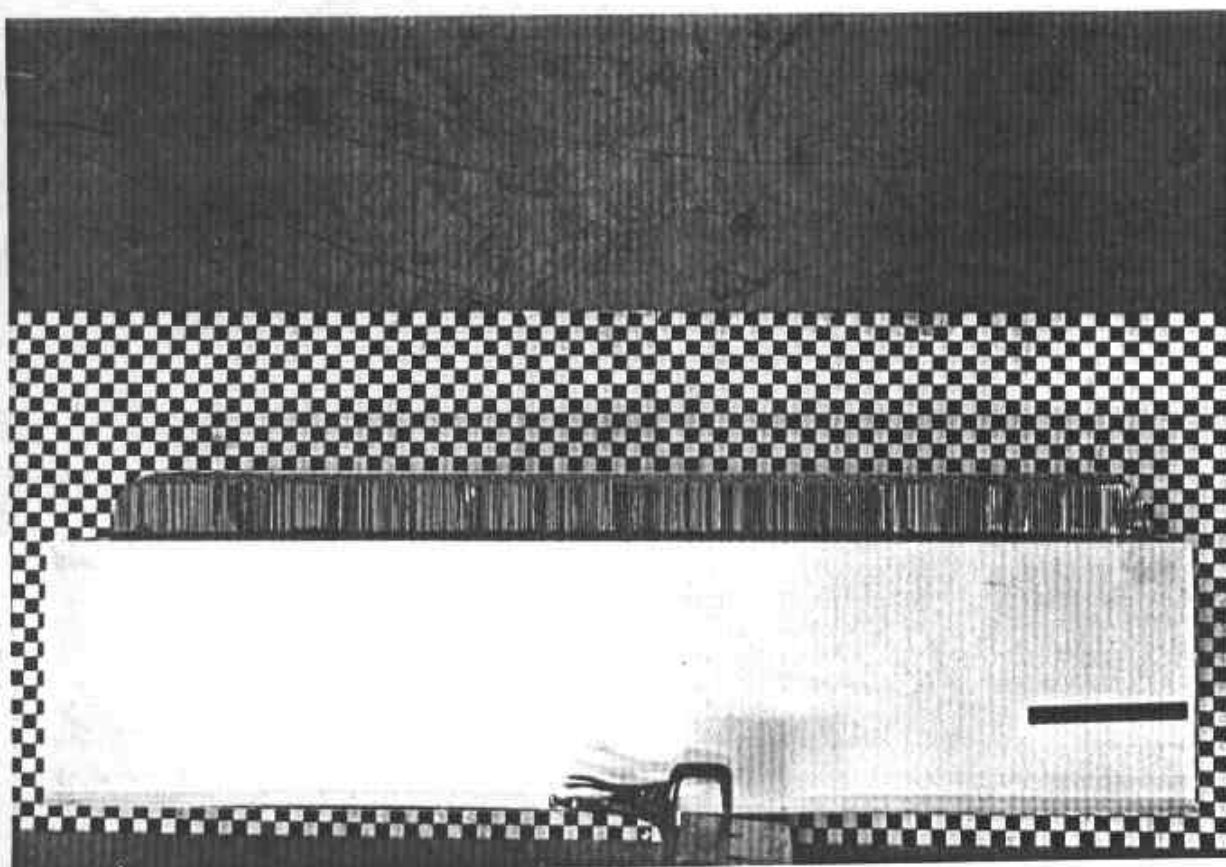


Figure A-26. PRE-TEST MDB FACE - VIEW 1

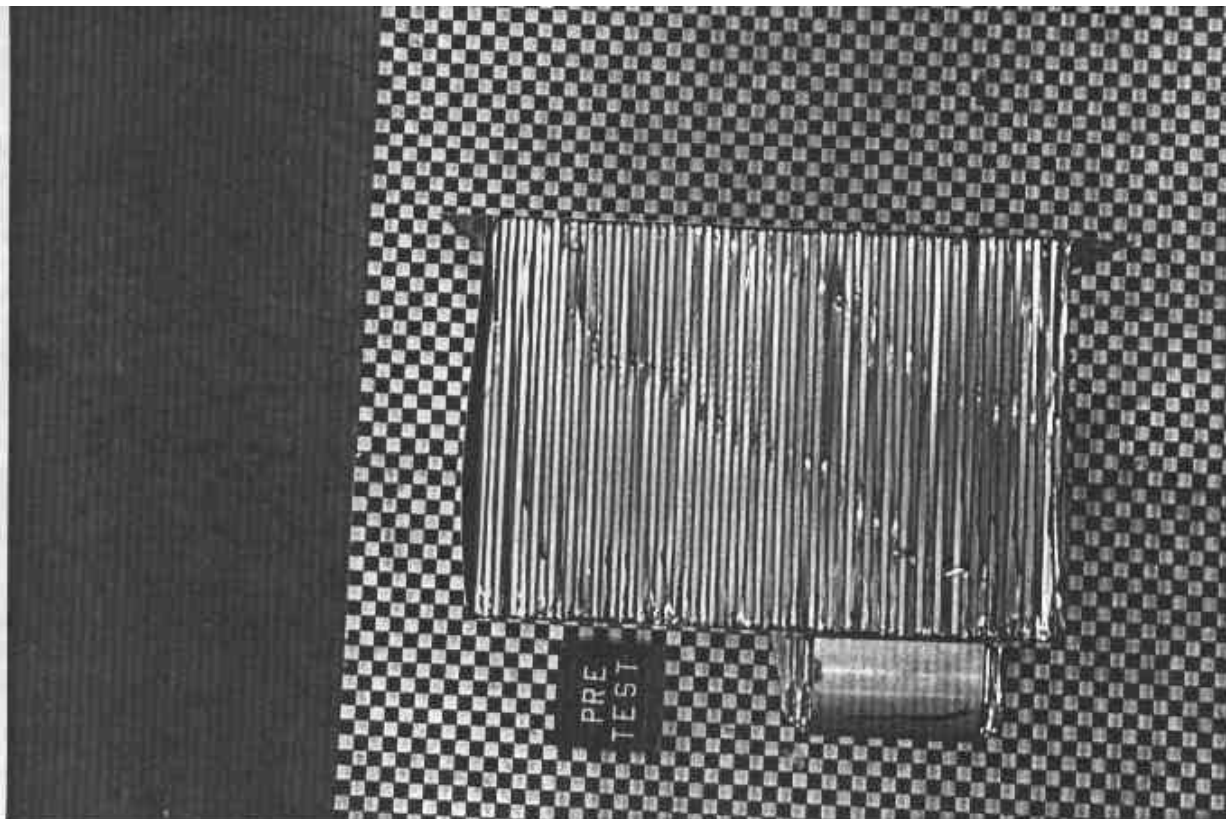


Figure A-27. PRE-TEST MDB FACE - VIEW 2

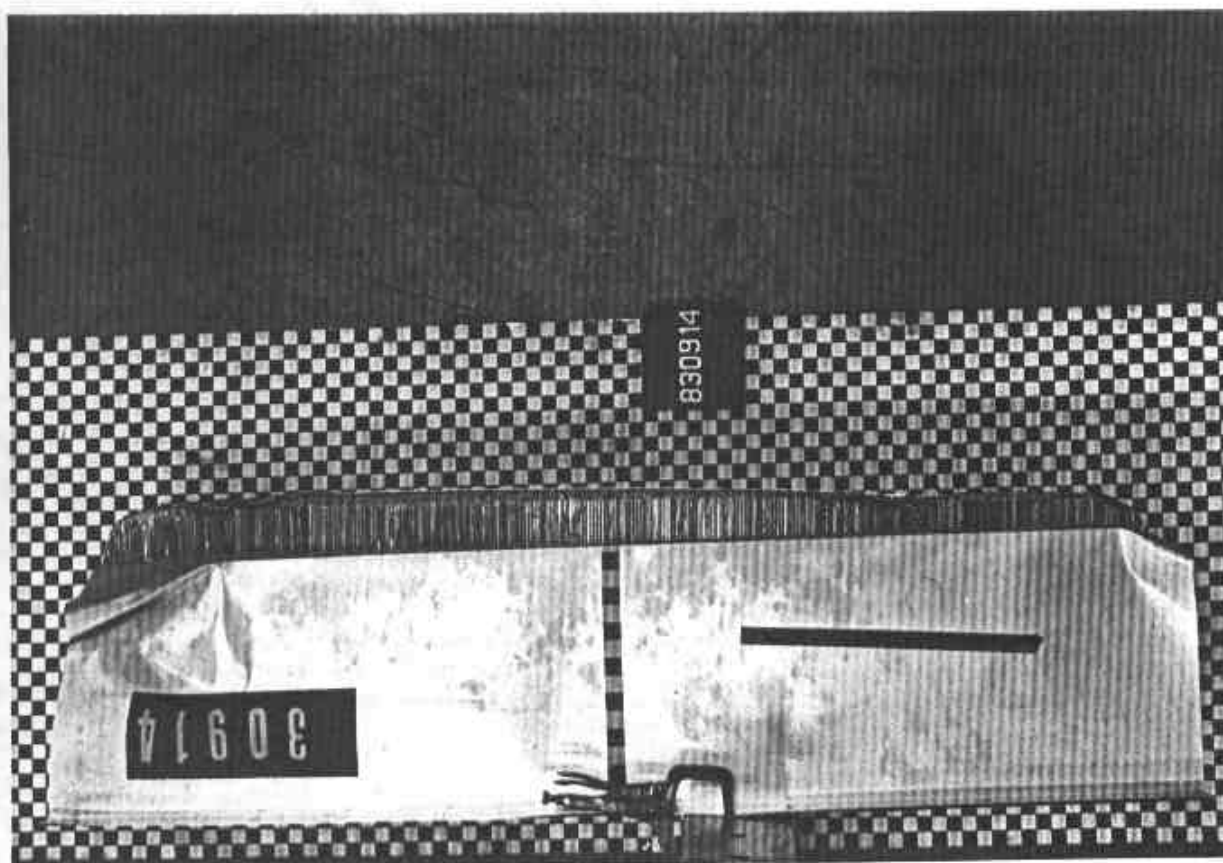


Figure A-28. POST-TEST MDB FACE - VIEW 1

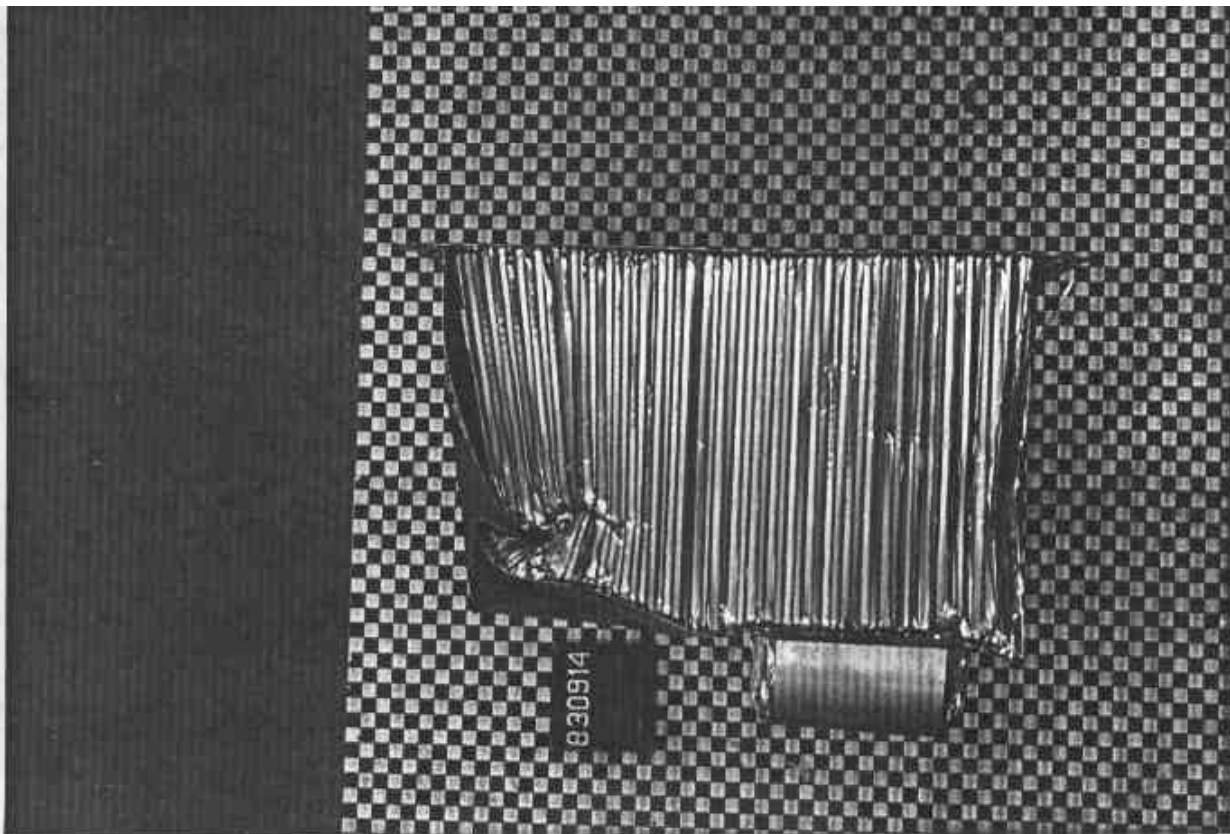


Figure A-29. POST-TEST MDB FACE - VIEW 2



Figure A-30. INSTRUMENTATION SETUP

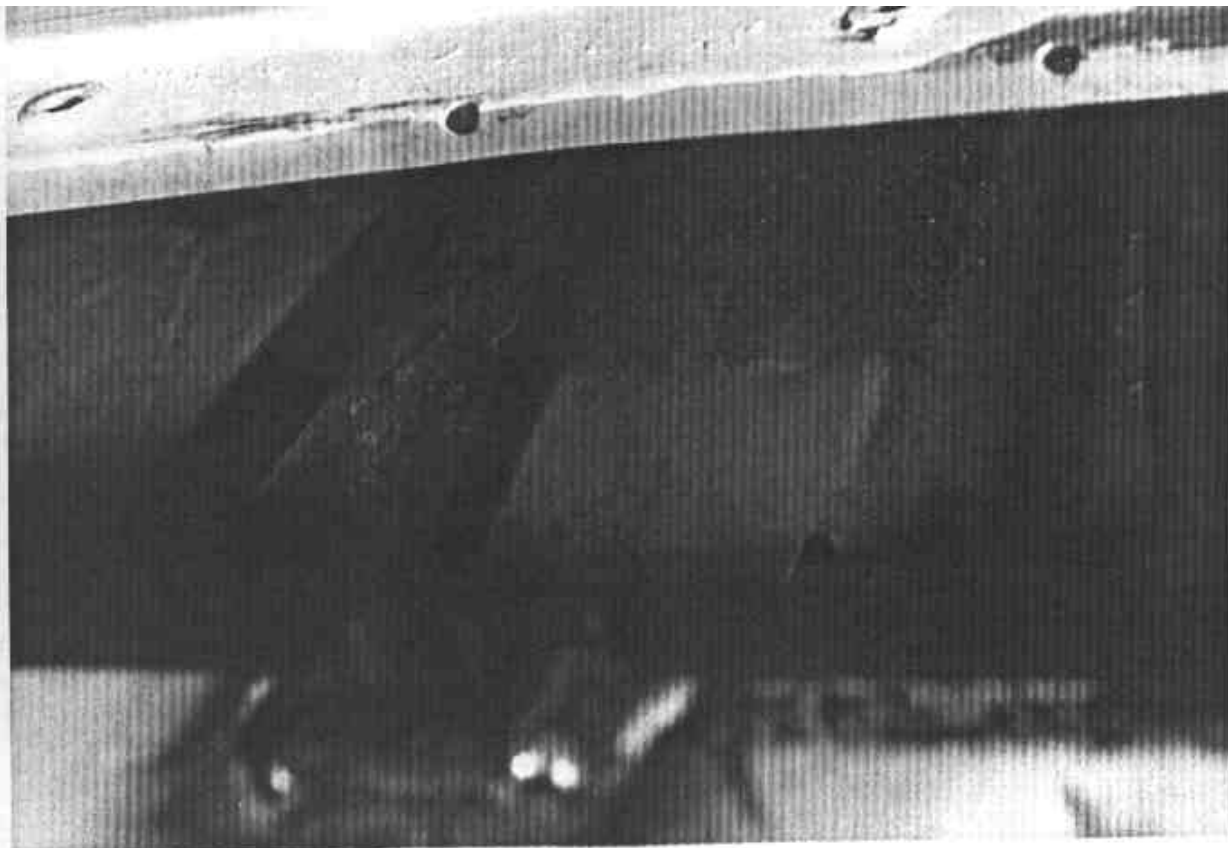


Figure A-31. VEHICLE INITIAL RUSTED CONDITION - VIEW 1

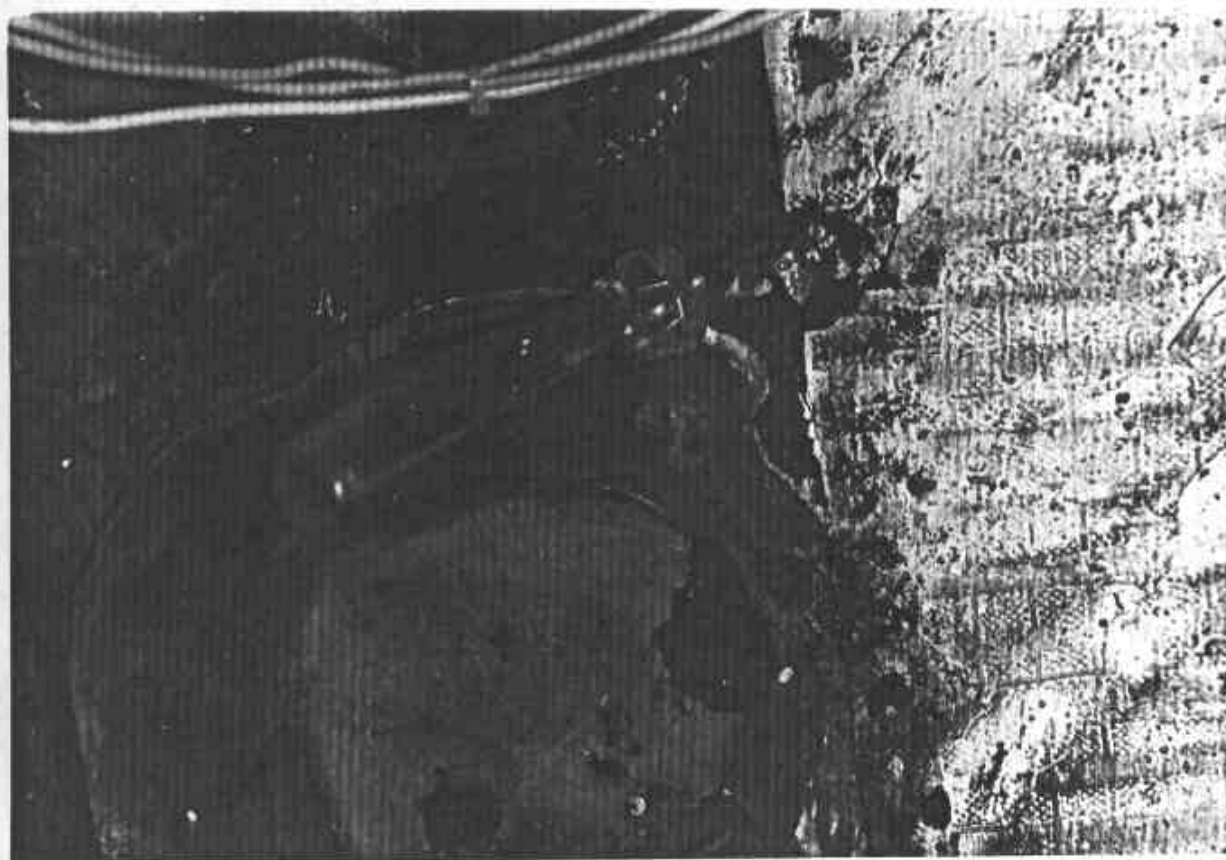


Figure A-32. VEHICLE INITIAL RUSTED CONDITION - VIEW 2



Figure A-33. VEHICLE INITIAL RUSTED CONDITION - VIEW 3

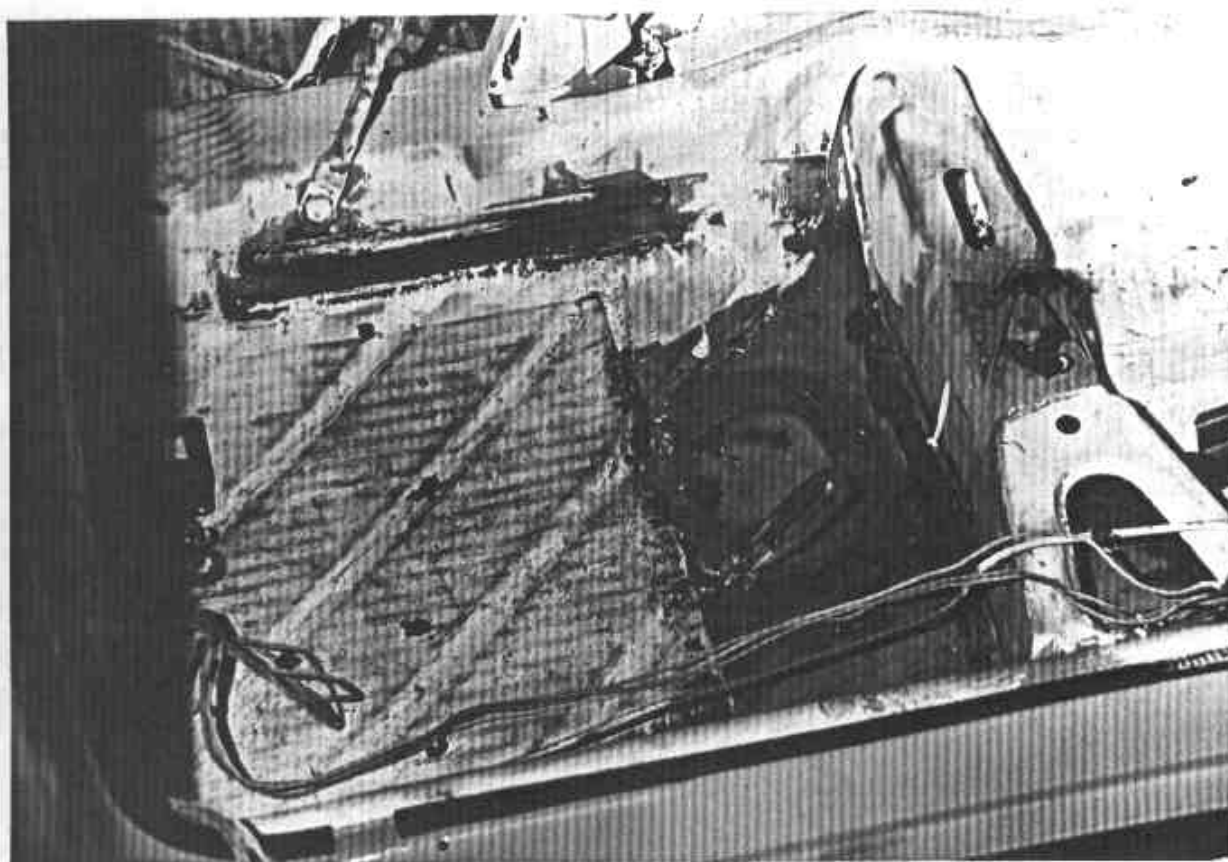


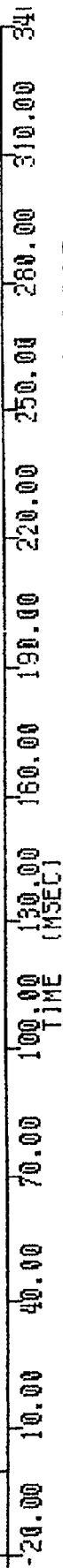
Figure A-34. VEHICLE INITIAL RUSTED CONDITION - VIEW 4

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.

100

00-151-251

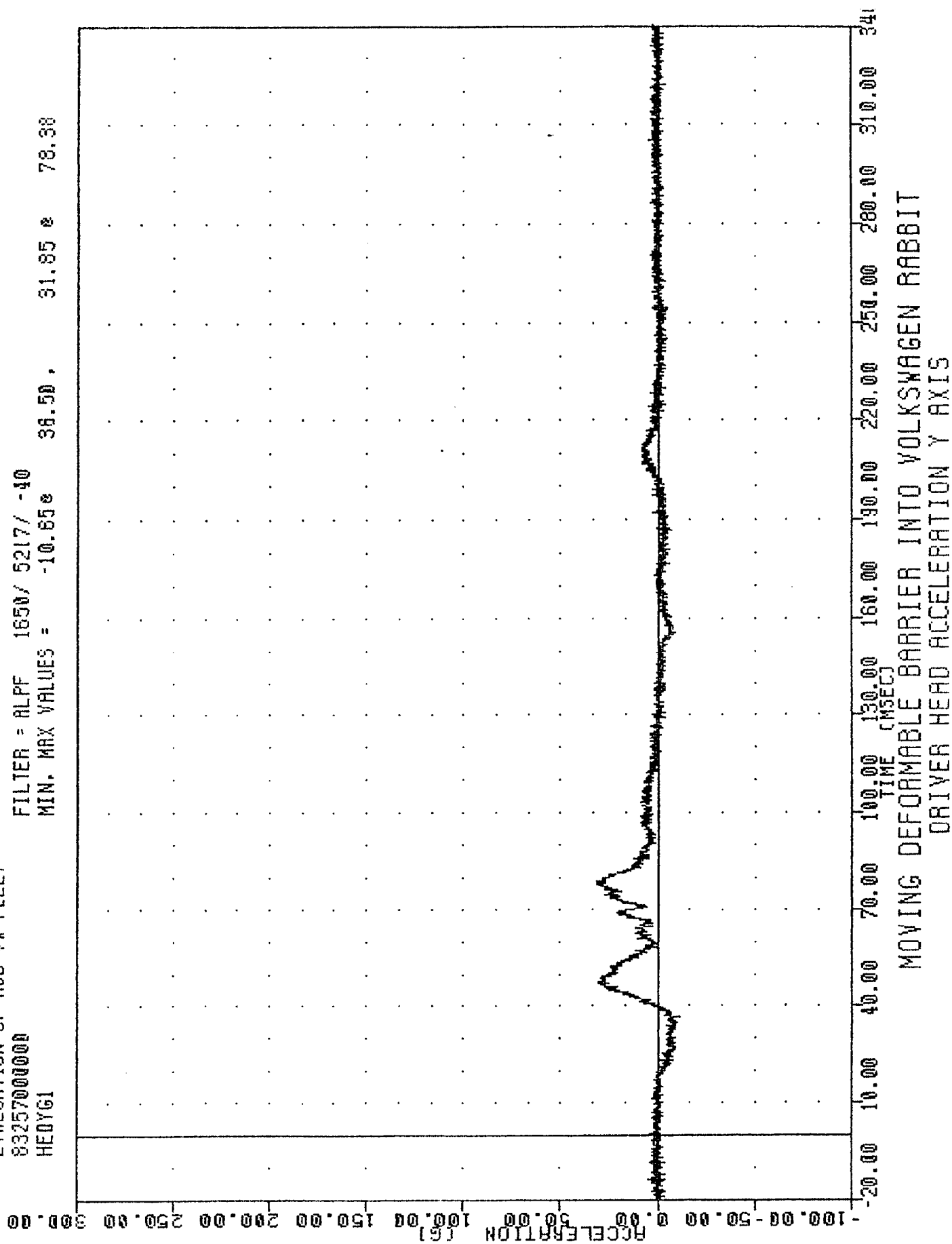


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD ACCELERATION X AXIS

TRC
 EVALUATION OF M00 VW FLEET
 83257000000
 HEDY61

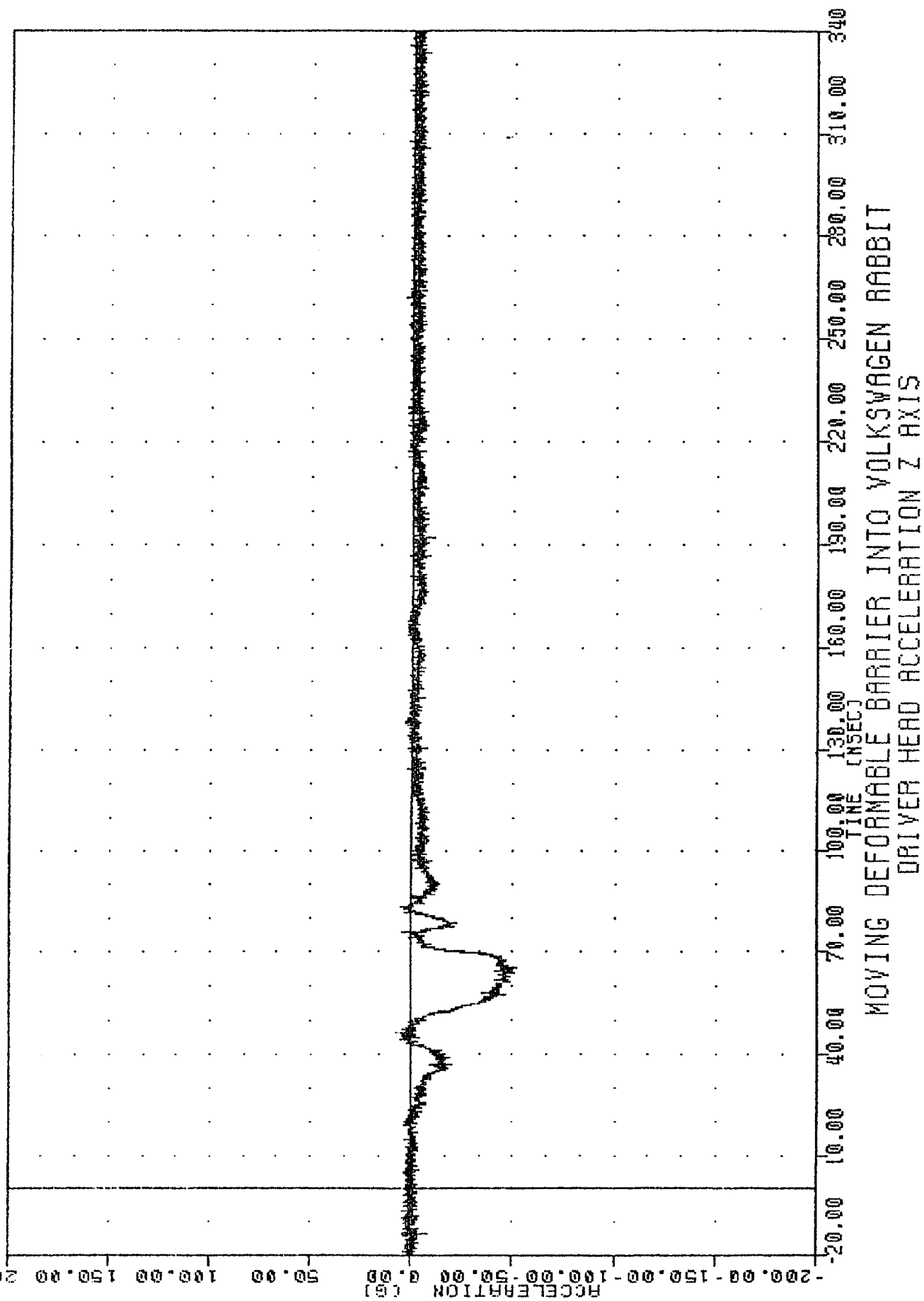
830914
 18-SEP-83 13:20.13

FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -10.65e 36.50, 31.85 e 73.38



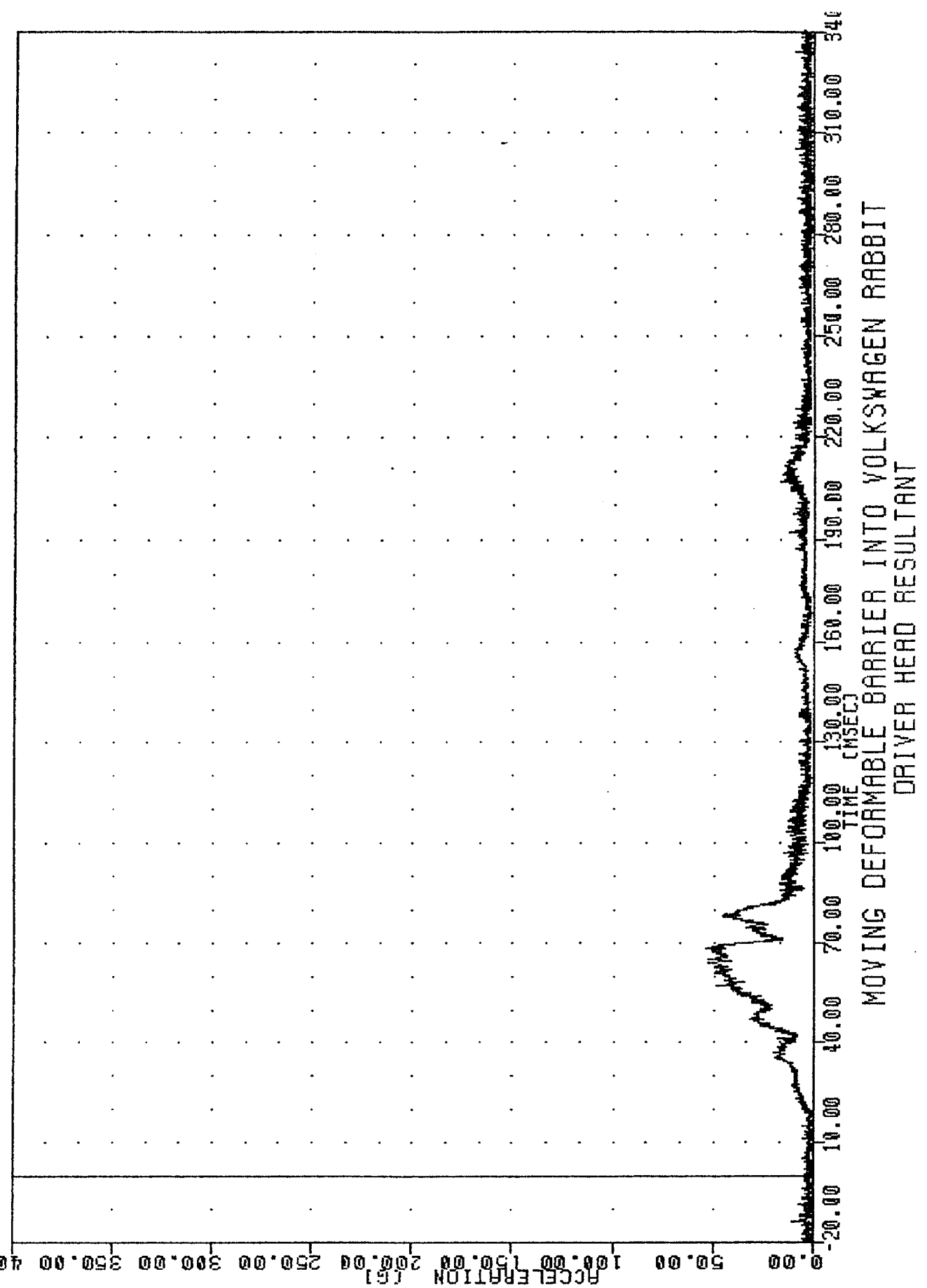
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER HEAD ACCELERATION Y AXIS

TEST DATE 13 SEP 88 13:20
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -51.23 65.00 7.25 46.00
 EVALUATION OF MOB VN FLEET
 8325700000
 HEDZ81



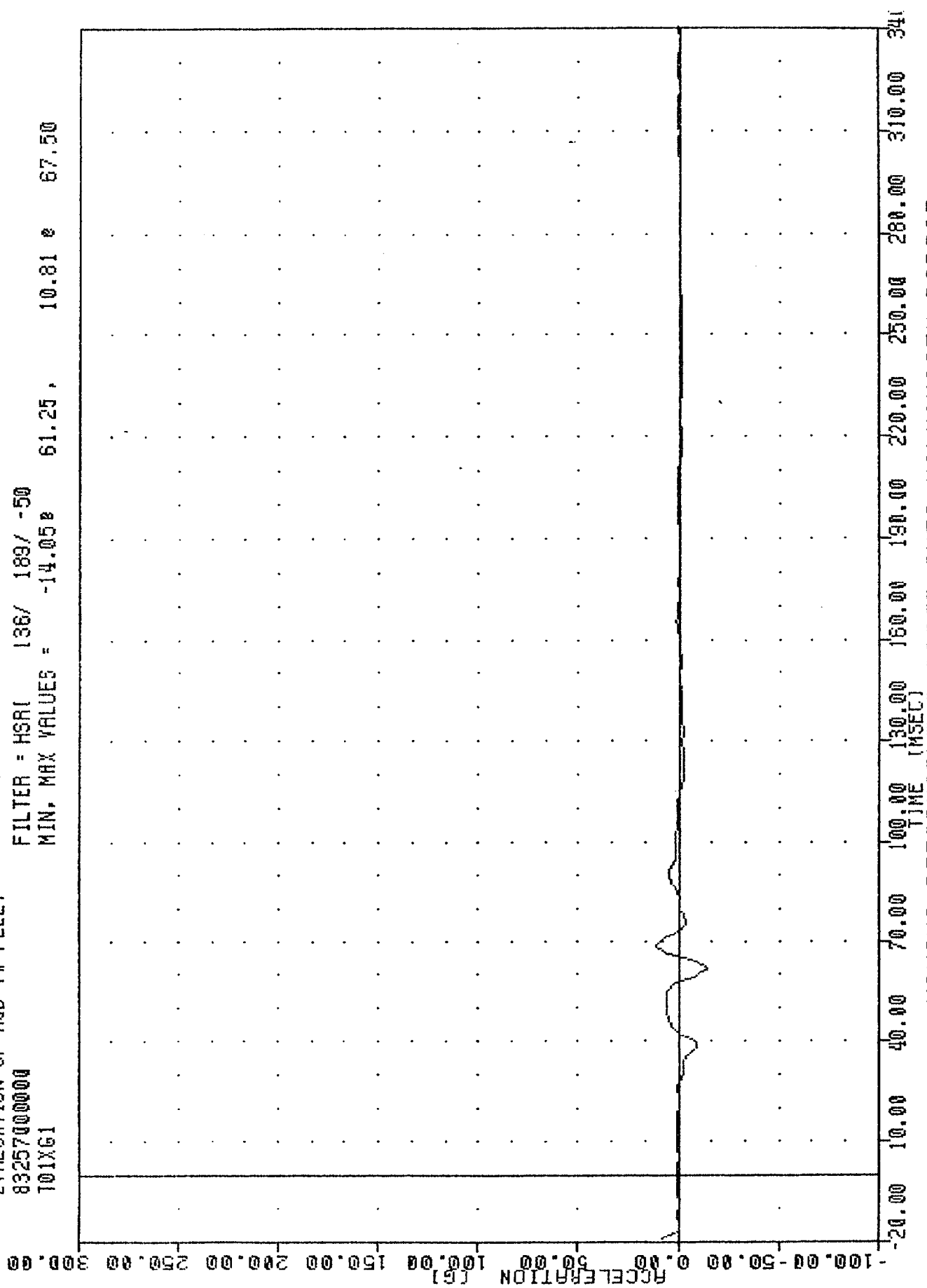
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER HEAD ACCELERATION Z AXIS

INC 830314
 EVALUATION OF MDD VV FLEET
 83257000000
 HEADG1
 FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = 0.24e 10.75, 53.83 e 68.38
 PLOT DATE 19-SEP-83 13:20:13



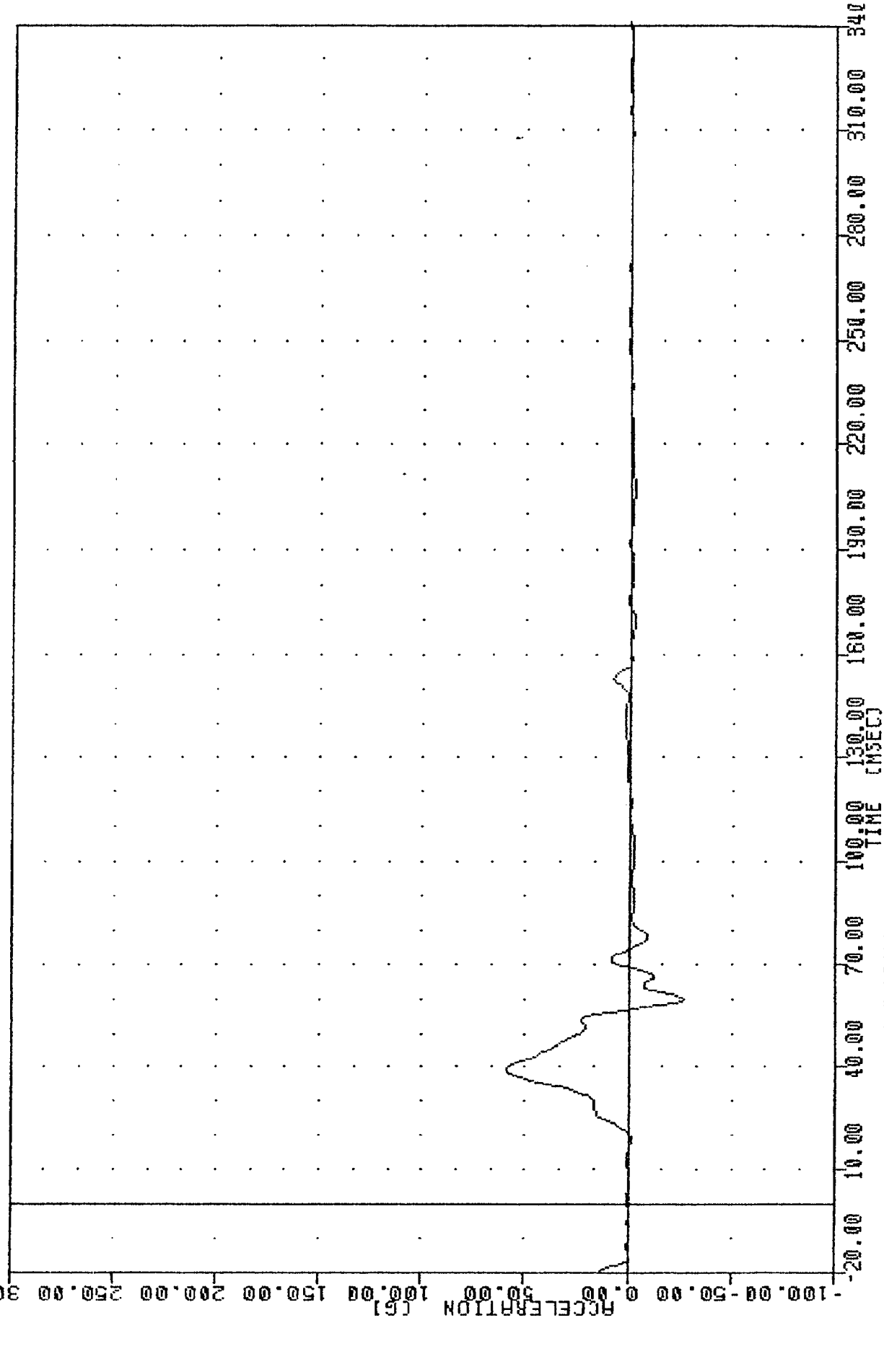
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER HEAD RESULTANT

INC 830514
 EVALUATION OF MOD YW FLEET
 83257000000
 101XG1
 TEST DATE 13 SEP 83 13:28
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -14.058 61.25, 10.81 e 67.50



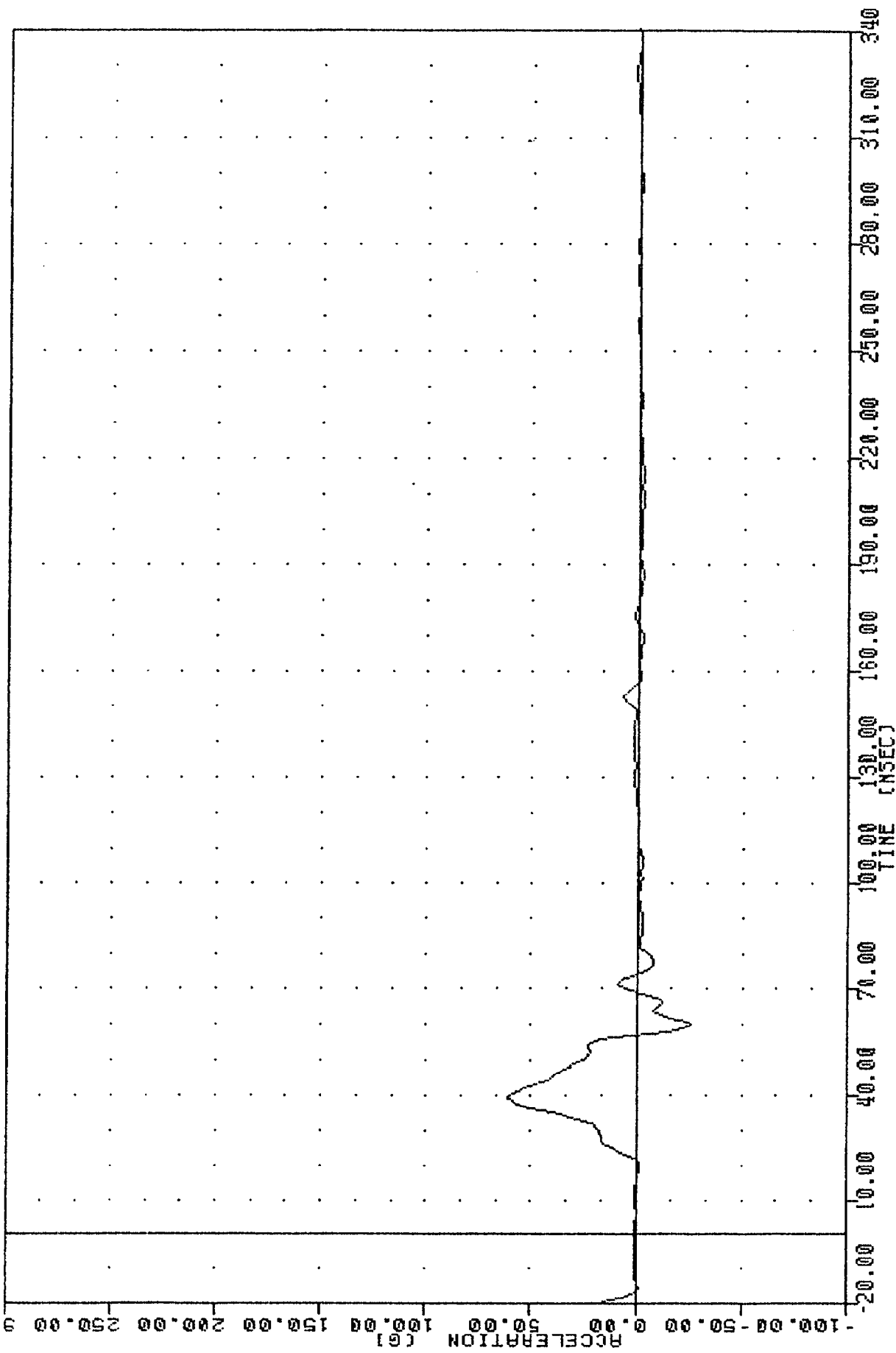
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE ACCELERATION X AXIS

INC 830619 13 SEP 03 13:28:47
 EVALUATION OF MOD VW FLEET
 83257001000
 T01Y61
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -26.75e 59.38e 58.96e 38.75



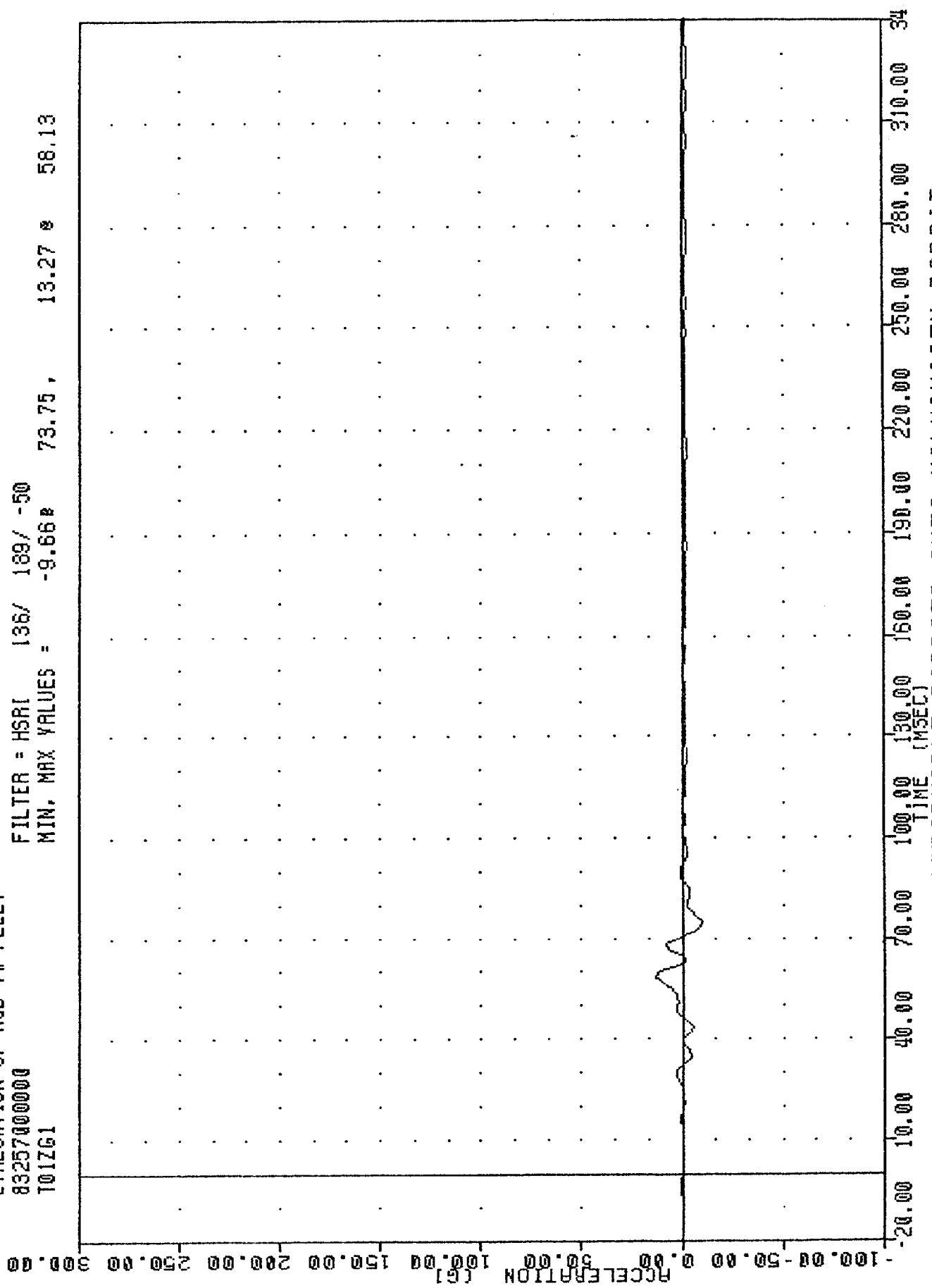
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE ACCELERATION Y AXIS

83257000000
 T01Y6A
 EVALUATION OF MOD VN FLEET
 83257000000
 T01Y6A
 FILTER = HSRI 136/ 188/ .50
 MIN, MAX VALUES = -25.97 59.38 60.79 38.75
 13:28



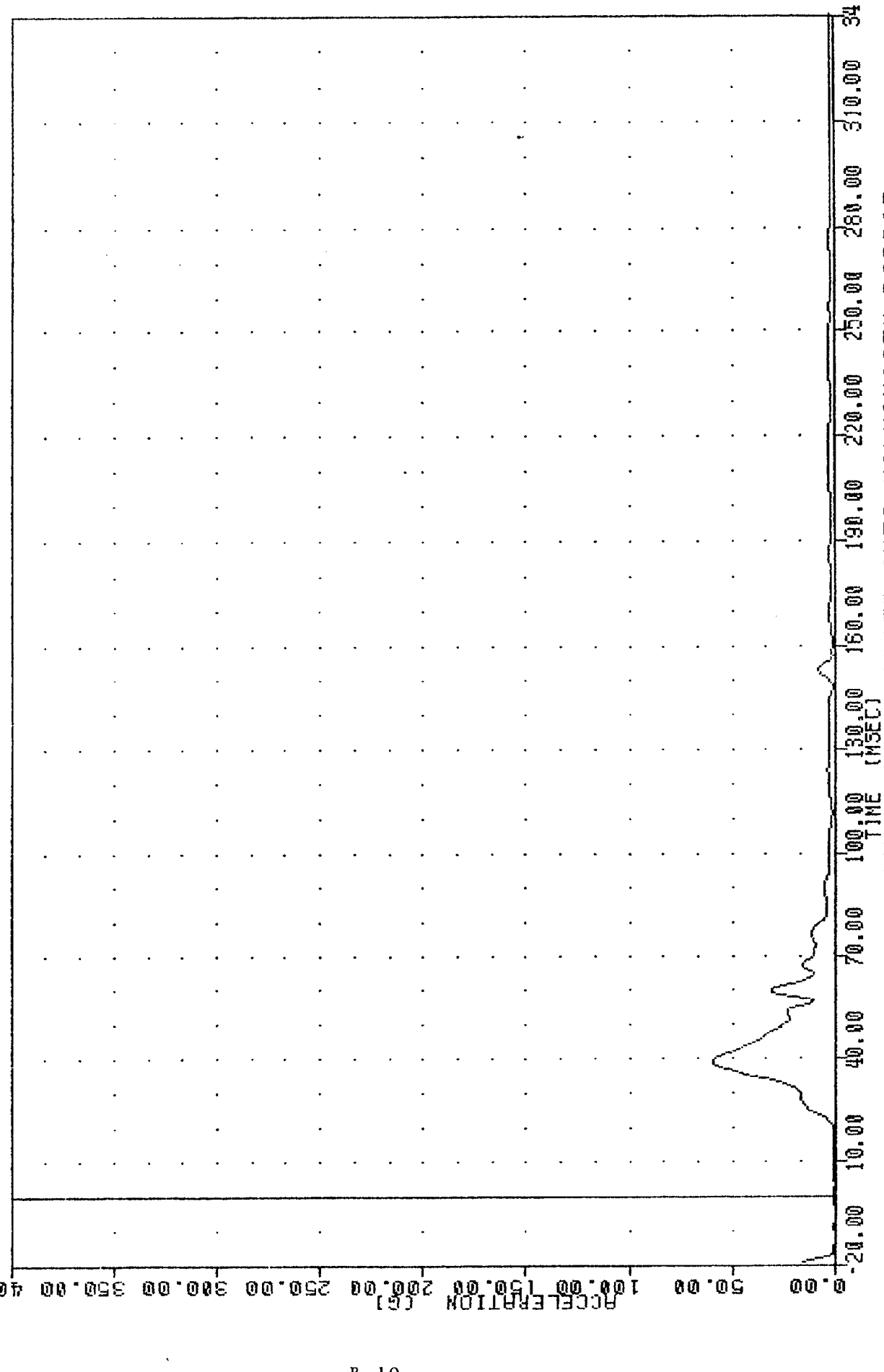
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE ACCELERATION -2 Y AXIS

MC 830514 TEST DATE 10-SEP-83 13:41:33
 EVALUATION OF MOD VV FLEET
 83257000000
 701ZG1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -9.66 73.75, 13.27 58.13



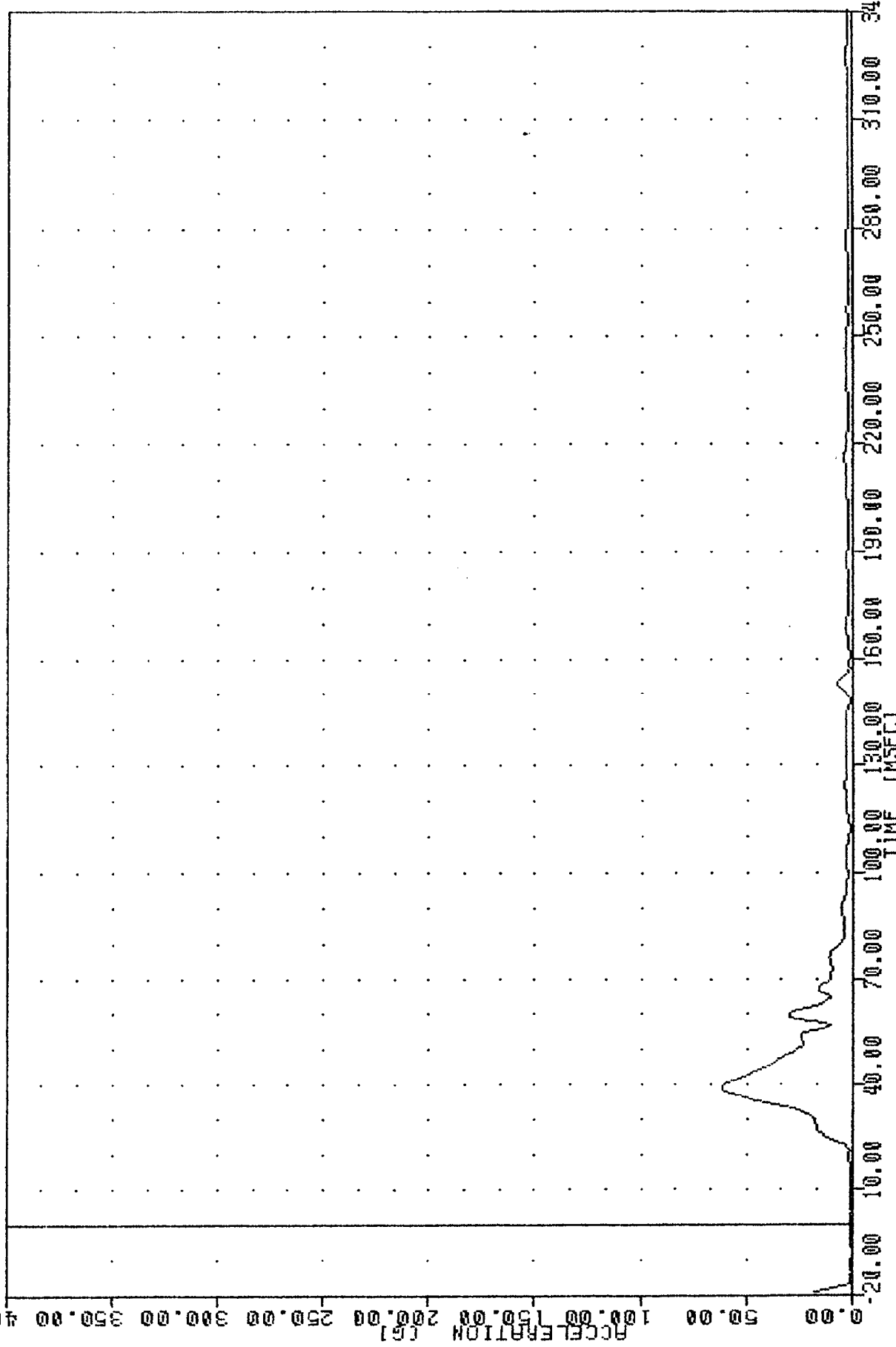
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE ACCELERATION Z AXIS

MC 830314 13-SEP-03 13:20:48
 EVALUATION OF MOD YN FLEET
 83257000000
 T01RG1
 FILTER = HSR 138/ 189/ -50
 MIN. MAX VALUES = 0.14e -13.75, 59.57 e 38.75



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE RESULTANT

MC 330314 13:27:36
 EVALUATION OF MOD VW FLEET
 83257000000
 701RG1
 FILTER = HSR1 136/ 189/ -50
 MIN. MAX VALUES = 0.198 -14.37, 61.38 38.75

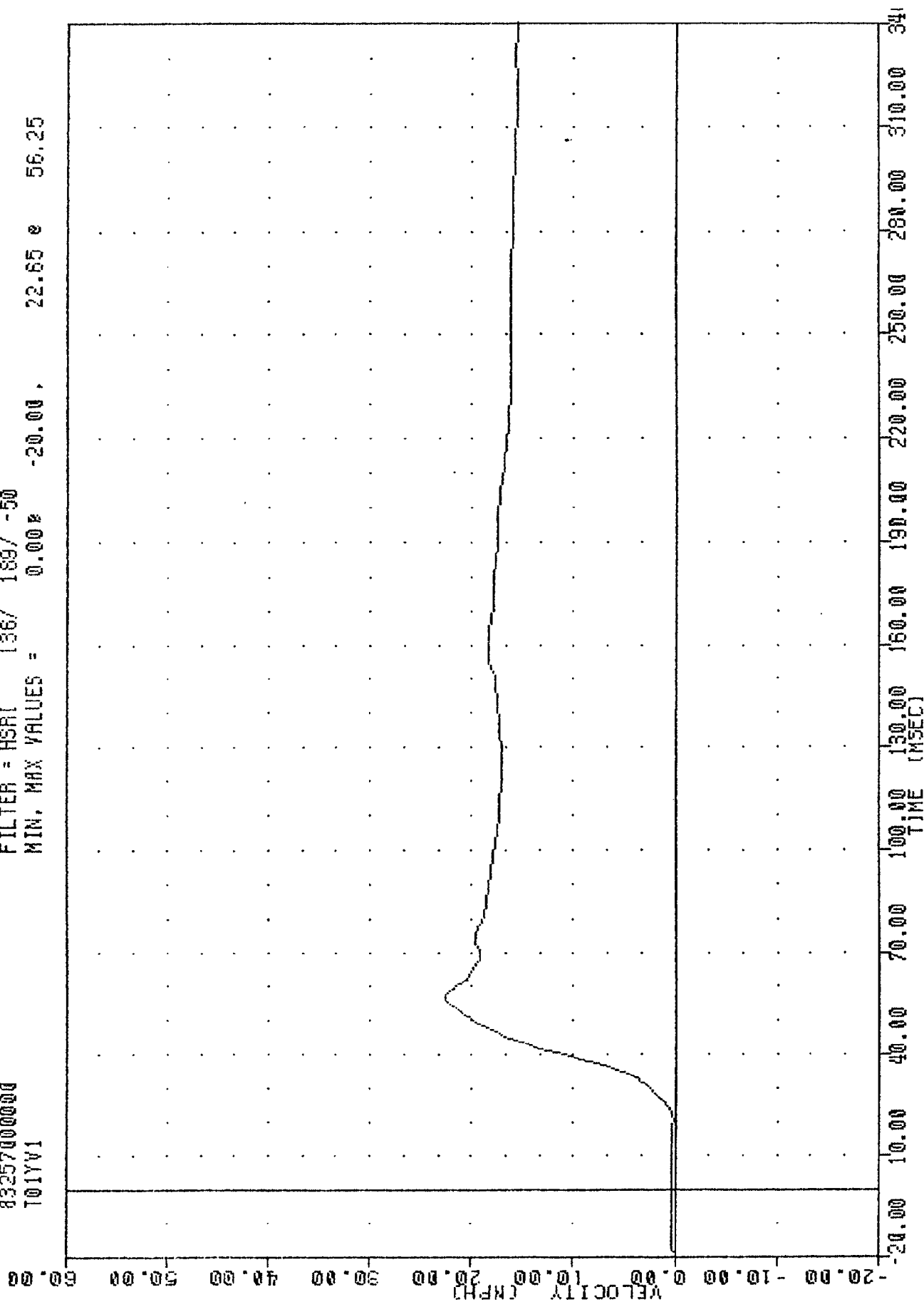


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE RESULTANT USING T01YGA

MC 83001
 EVALUATION OF MOD YW FLEET
 83257000000
 T01YV1

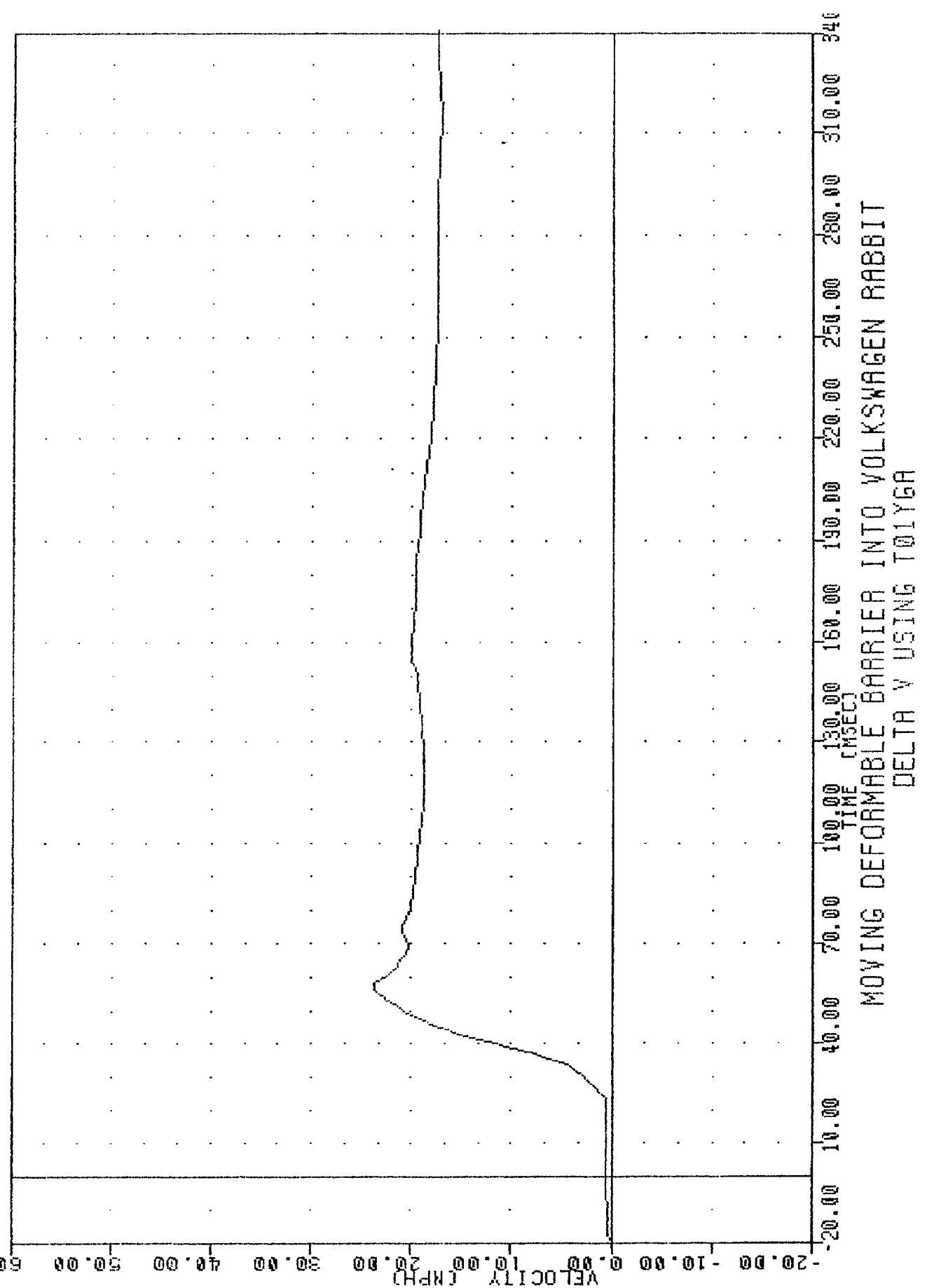
TEST DATE 12-30-03 13:30:01

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = 0.00% -20.00, 22.65 @ 56.25

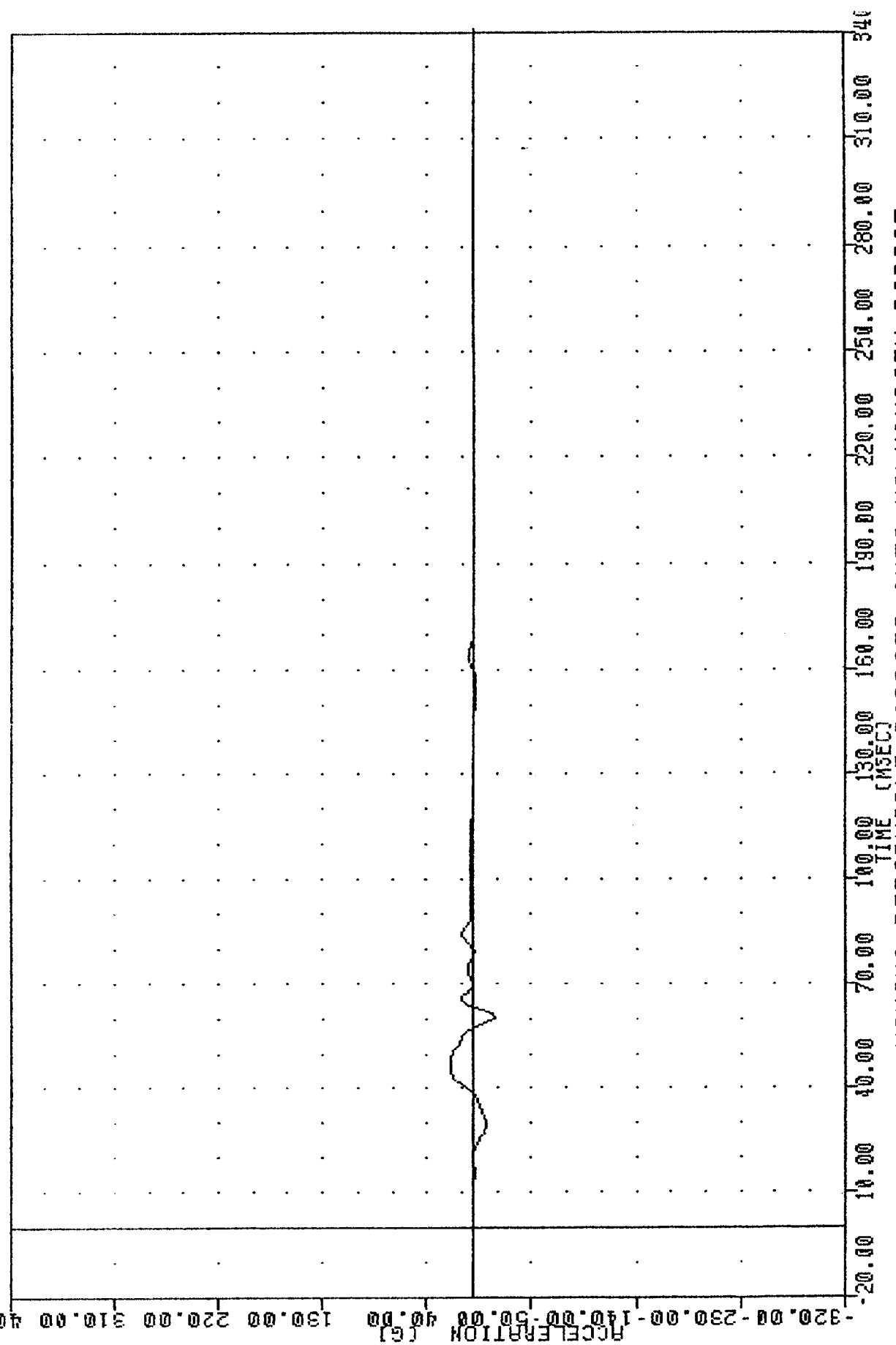


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YV1

INC 830514
 EVALUATION OF MDD VW FLEET
 83257000000
 T01YVA
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.00s -20.00, 23.75 s 56.25
 PLOT DATE 19-SEP-83 13:33:04

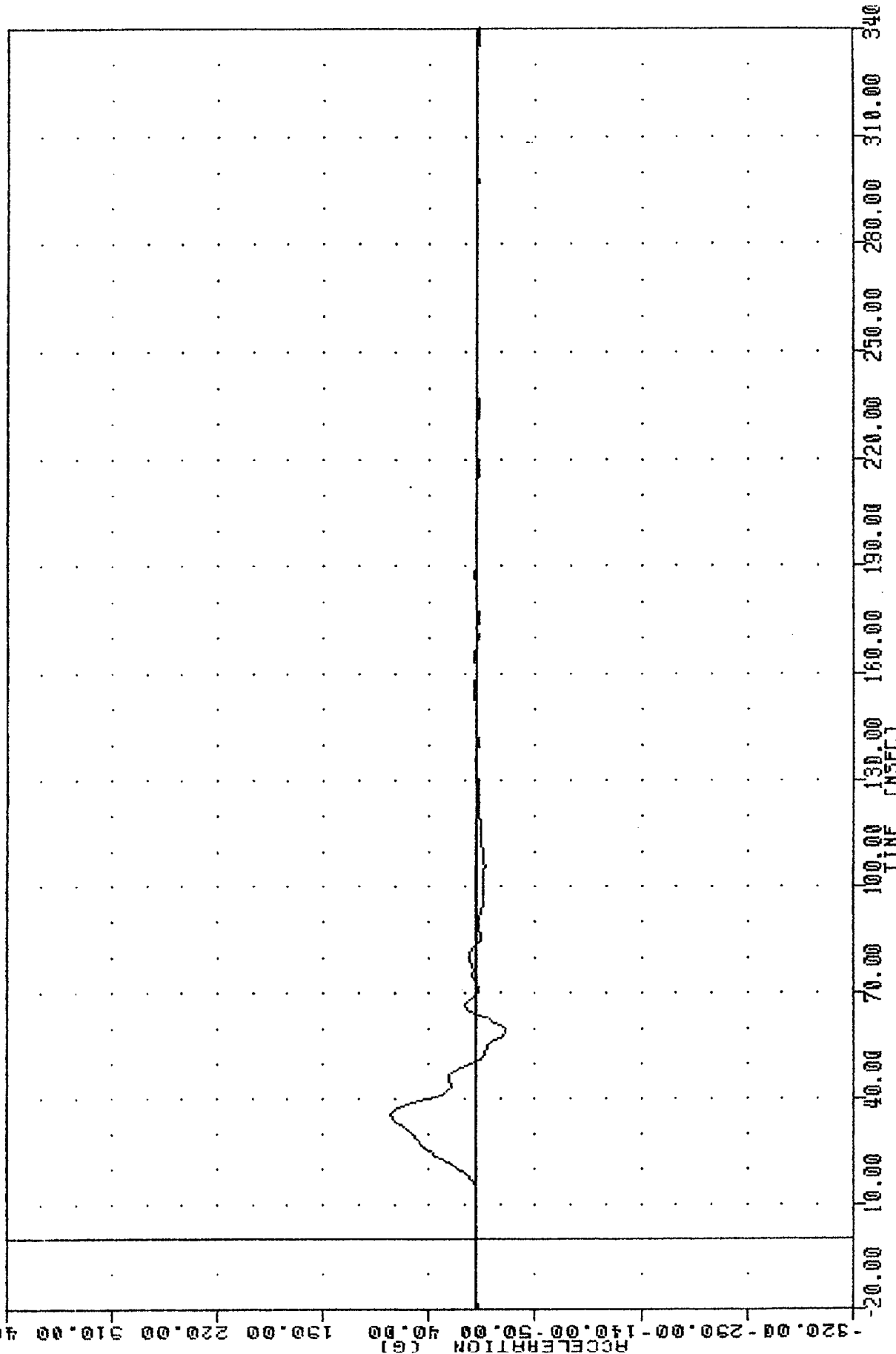


INC 830314 TEST DATE 13-SEP-88 13:20:47
 EVALUATION OF MDD VW FLEET
 832570000000
 T12XG1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -18.29g 60.00, 19.42 g 47.50



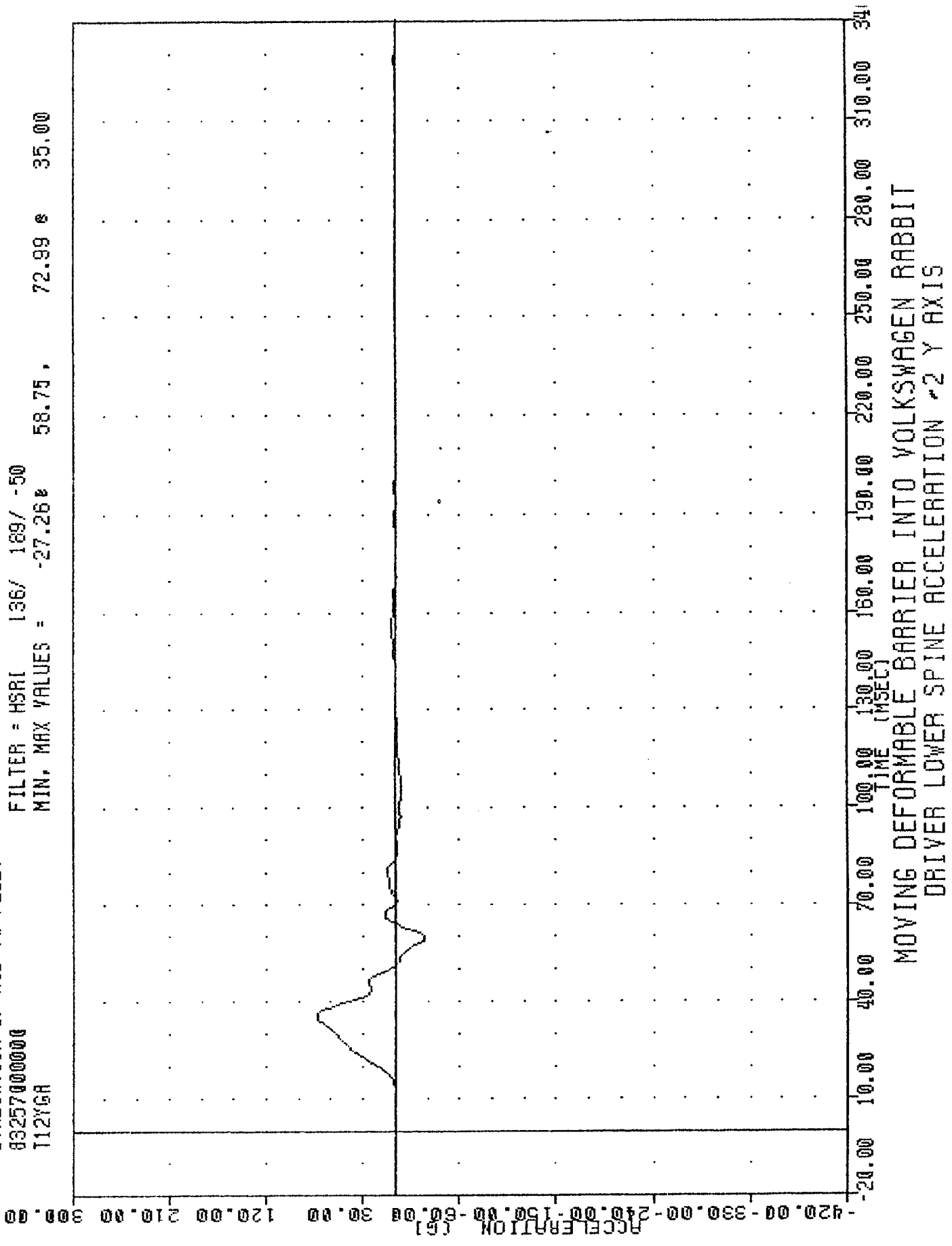
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE ACCELERATION X AXIS

TEST DATE 03/28/80
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -24.62g 58.75, 72.67 g 35.00
 EVALUATION OF MOD VN FLEET
 83257000000
 T12Y61

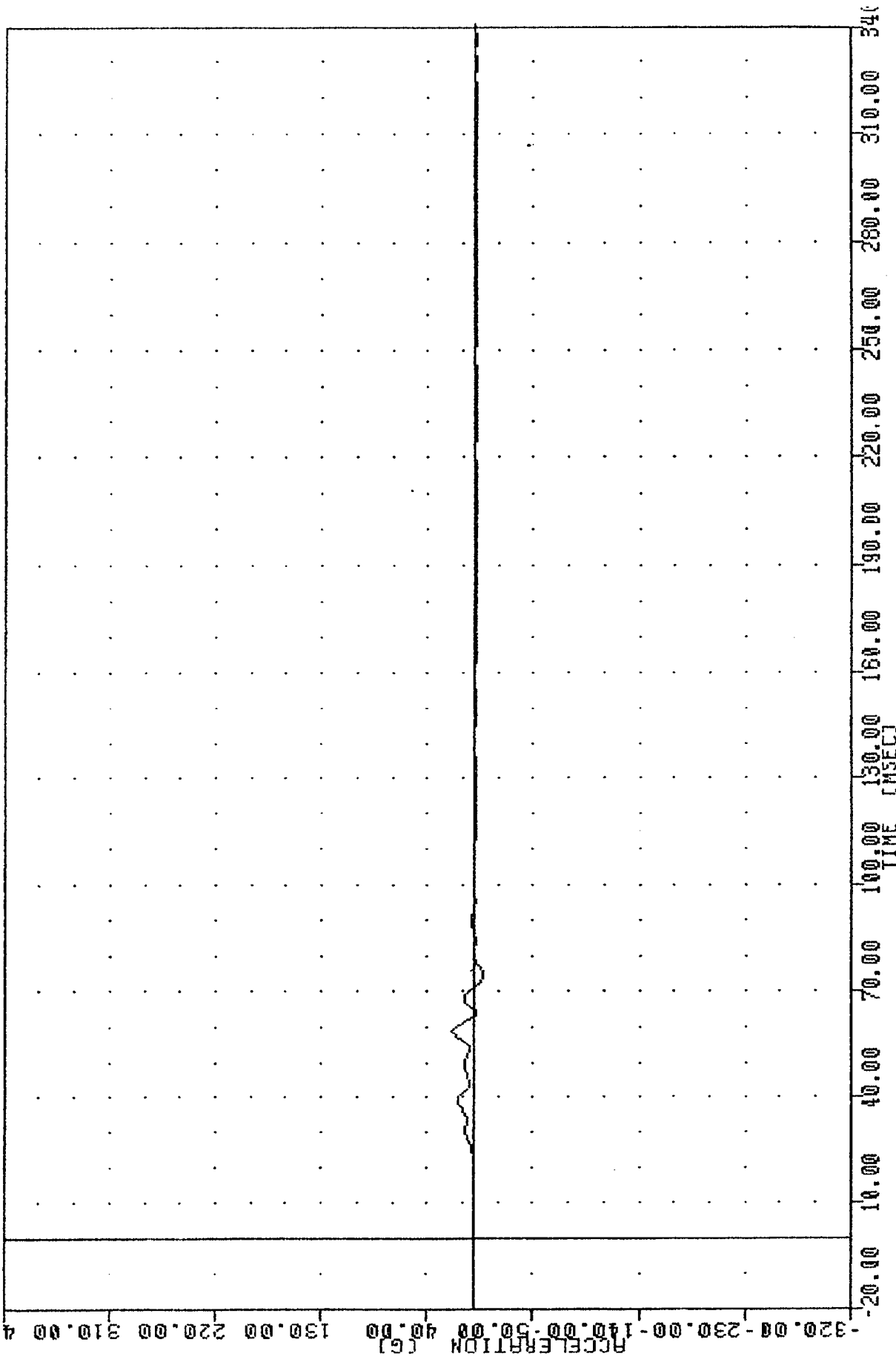


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE ACCELERATION Y AXIS

INC 830314
 EVALUATION OF MOD YW FLEET
 832570000000
 T12YGR
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -27.26% 58.75, 72.99 % 35.00
 PLOT DATE 13 SEP 83 13:28:47

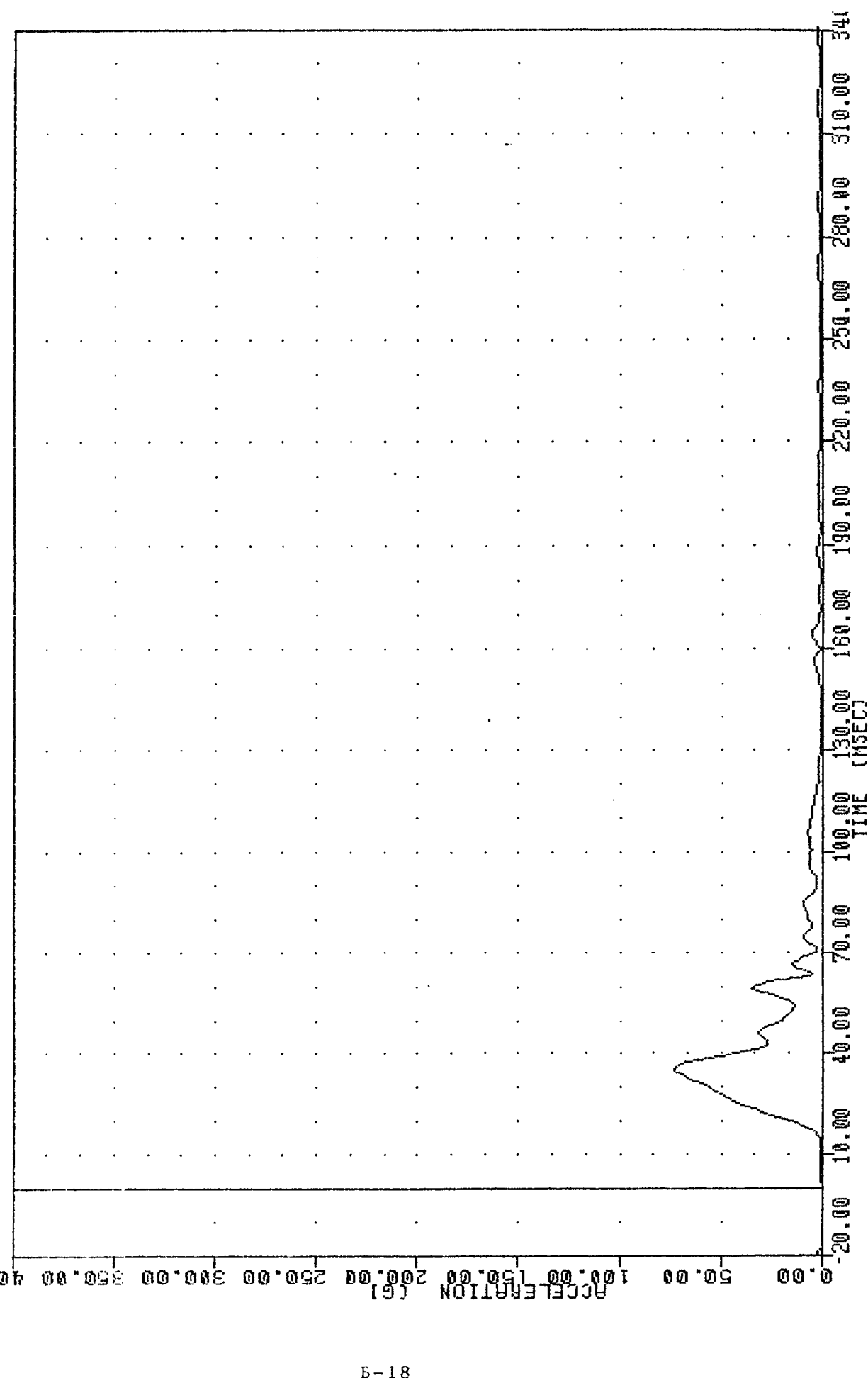


TMC 8300111 13 SEP 83 13:28:47
 EVALUATION OF MOD VN FLEET
 83257000000
 T127G1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -7.09e 73.75, 19.09 e 58.13

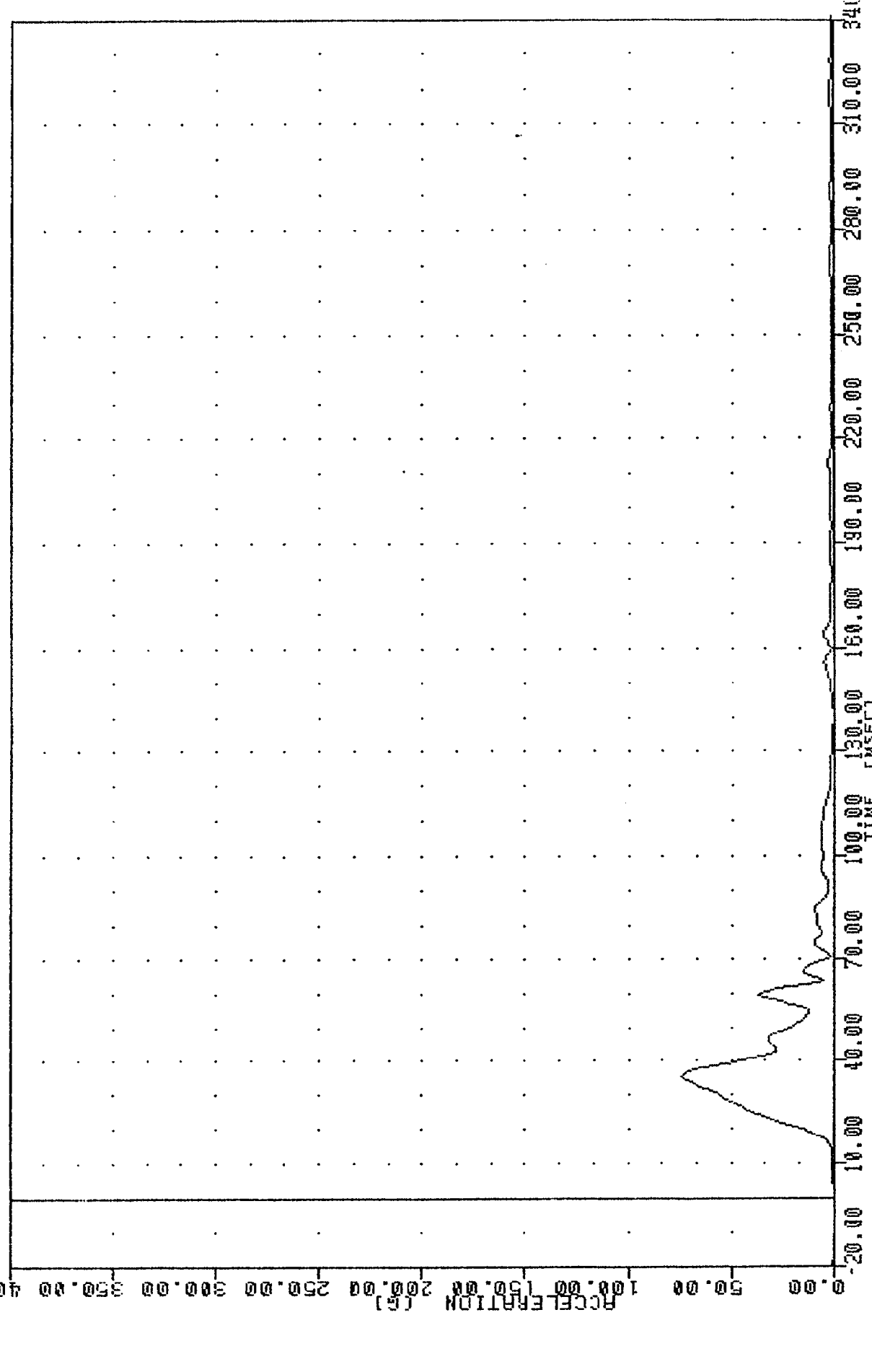


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE ACCELERATION Z AXIS

INC 830314 19-SEP-83 13:26.47
 EVALUATION OF MDD VW FLEET
 83257000000
 T12RG1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.03% -1.88, 73.25% 35.00

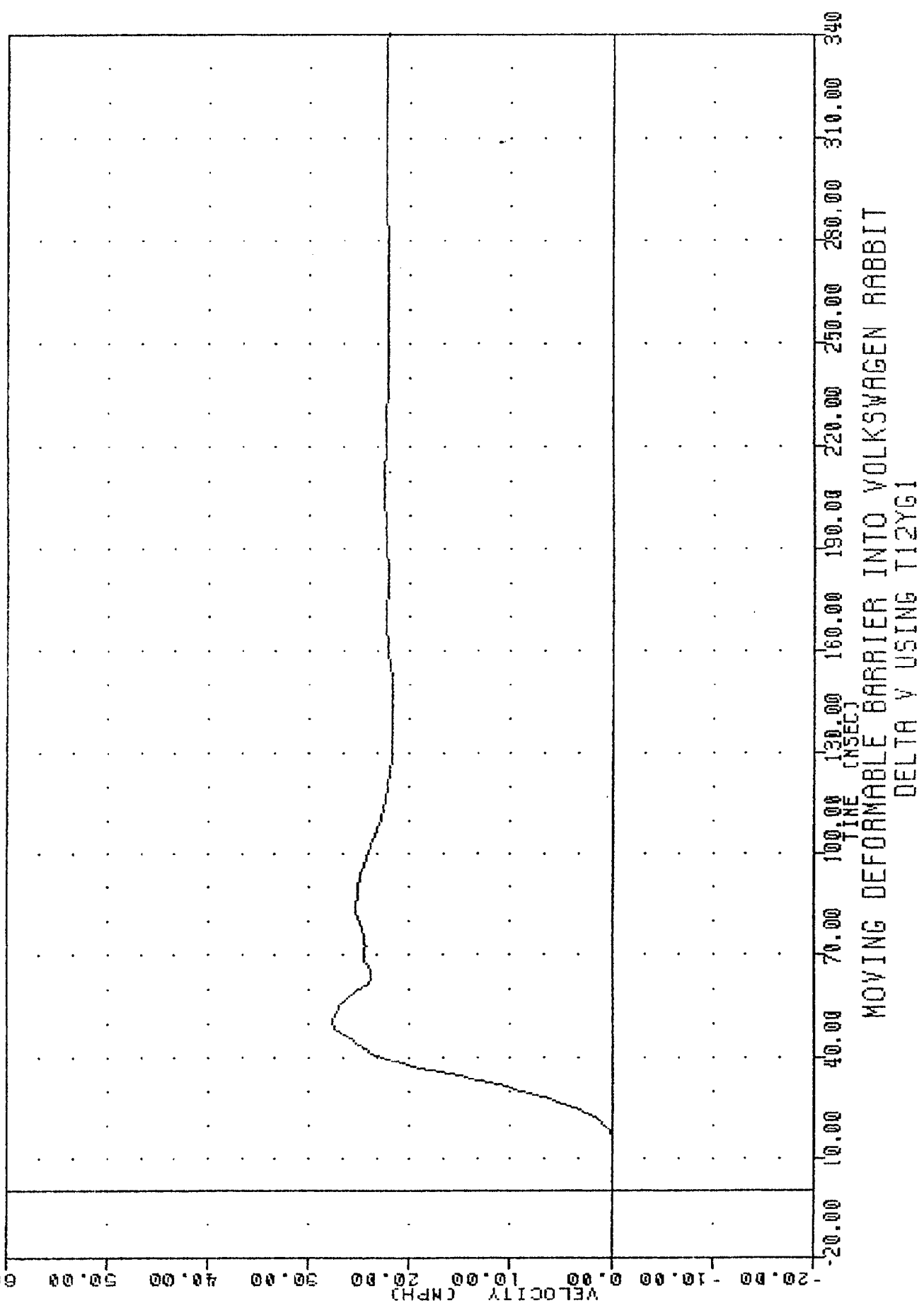


INC 830574 13-SEP-83 13:24:38
 EVALUATION OF MOD VV FLEET
 83257000000
 T12RG1
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = 0.11e -6.88, 73.57 e 35.00

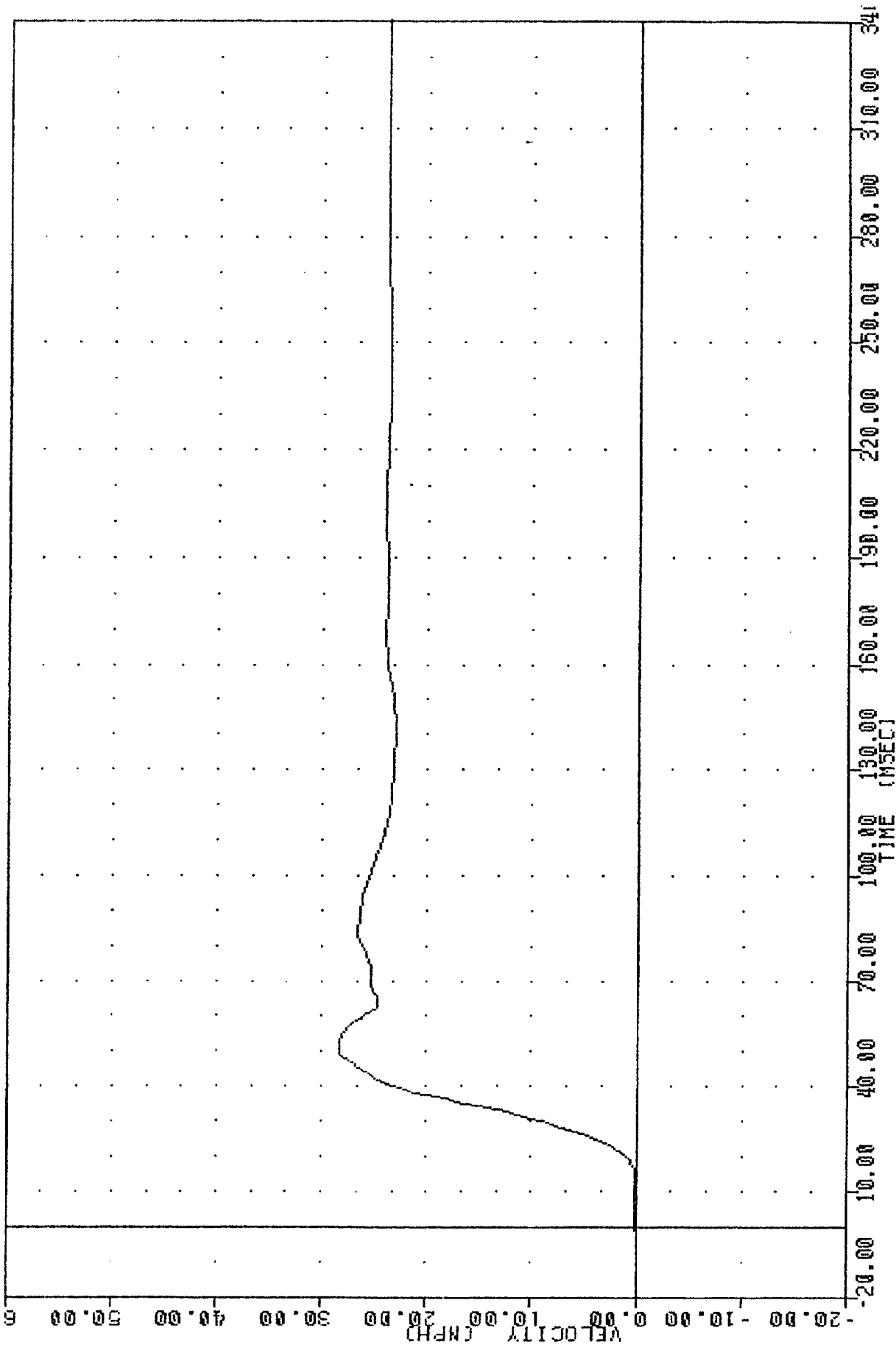


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE RESULTANT USING T12YGA

THE
 EVALUATION OF MOD VN FLEET
 83257000000
 T12YV1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.092 13.13 27.65 50.00
 13-SEP-03 13:33:04

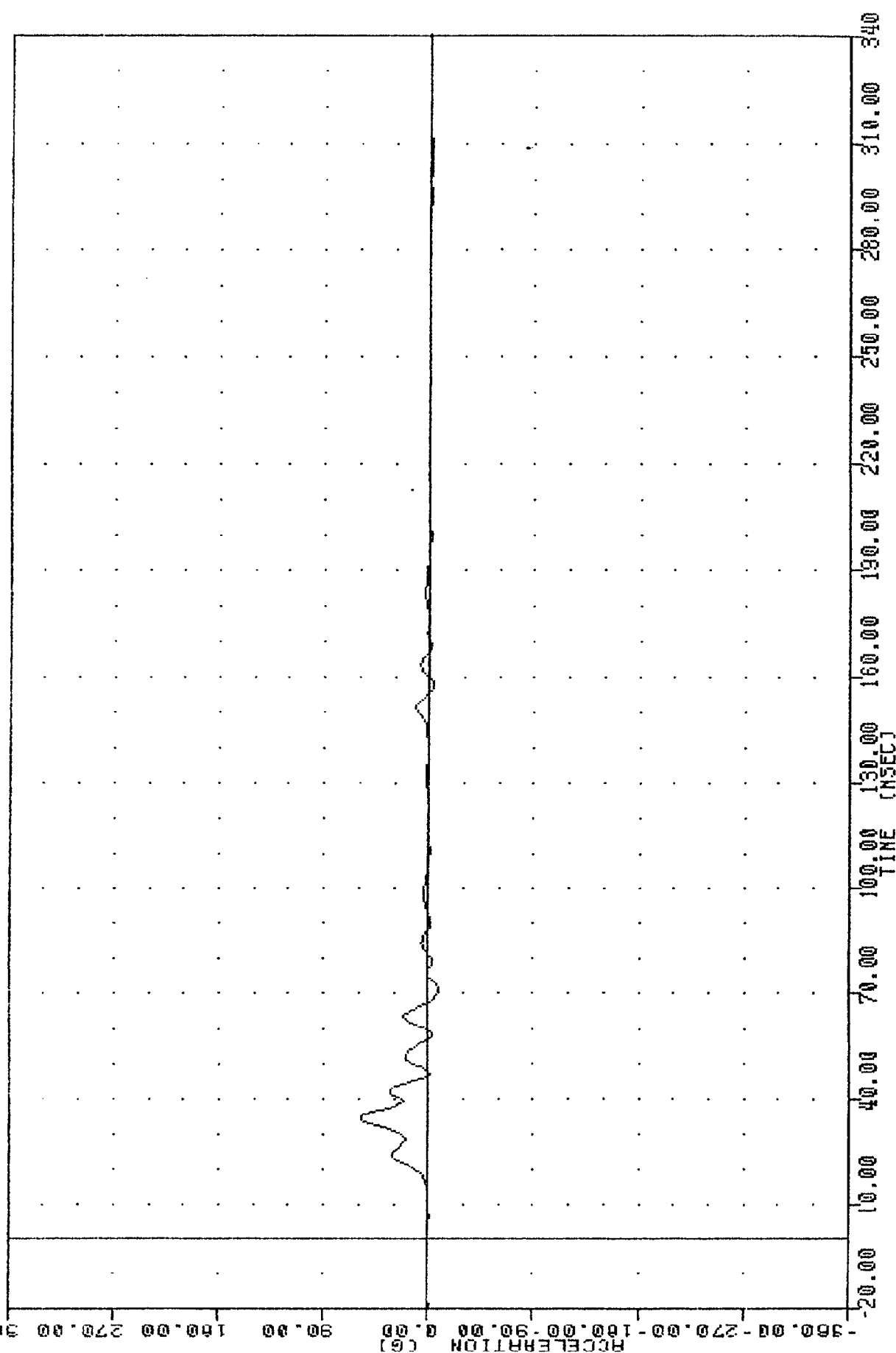


MC 830001
 EVALUATION OF MOD YW FLEET
 83257000000
 T12YVA
 TEST DATE 10-SEP-83 13:30:04
 FILTER = HSR(136/ 189/ -50
 MIN, MAX VALUES = -0.01E -18.13, 28.41 E 50.63



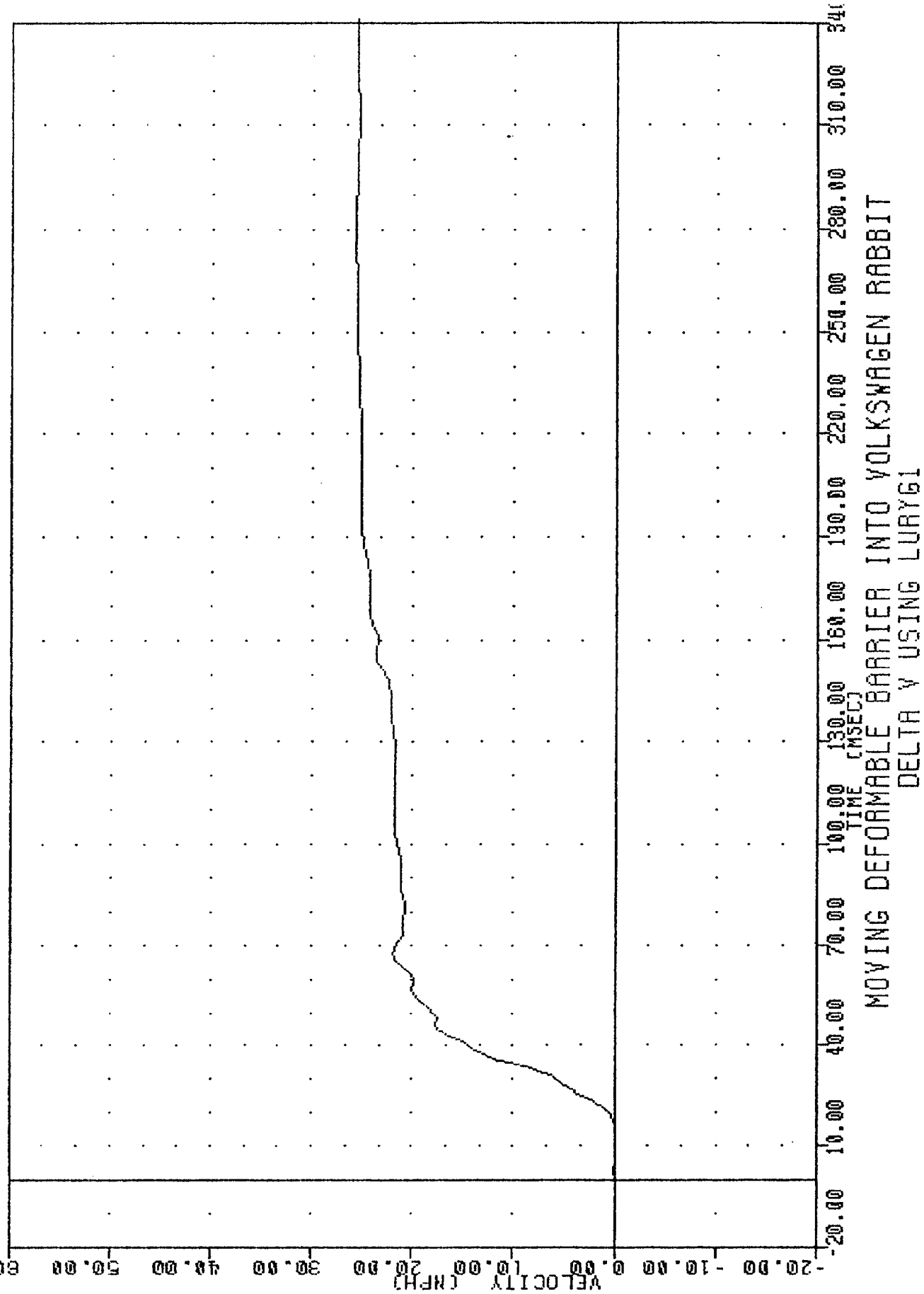
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12YGA

13 SEP 88 13:26:47
 EVALUATION OF MOD VN FLEET
 832570000000
 LURY61
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -9.46e 70.63 , 58.31 e 33.75



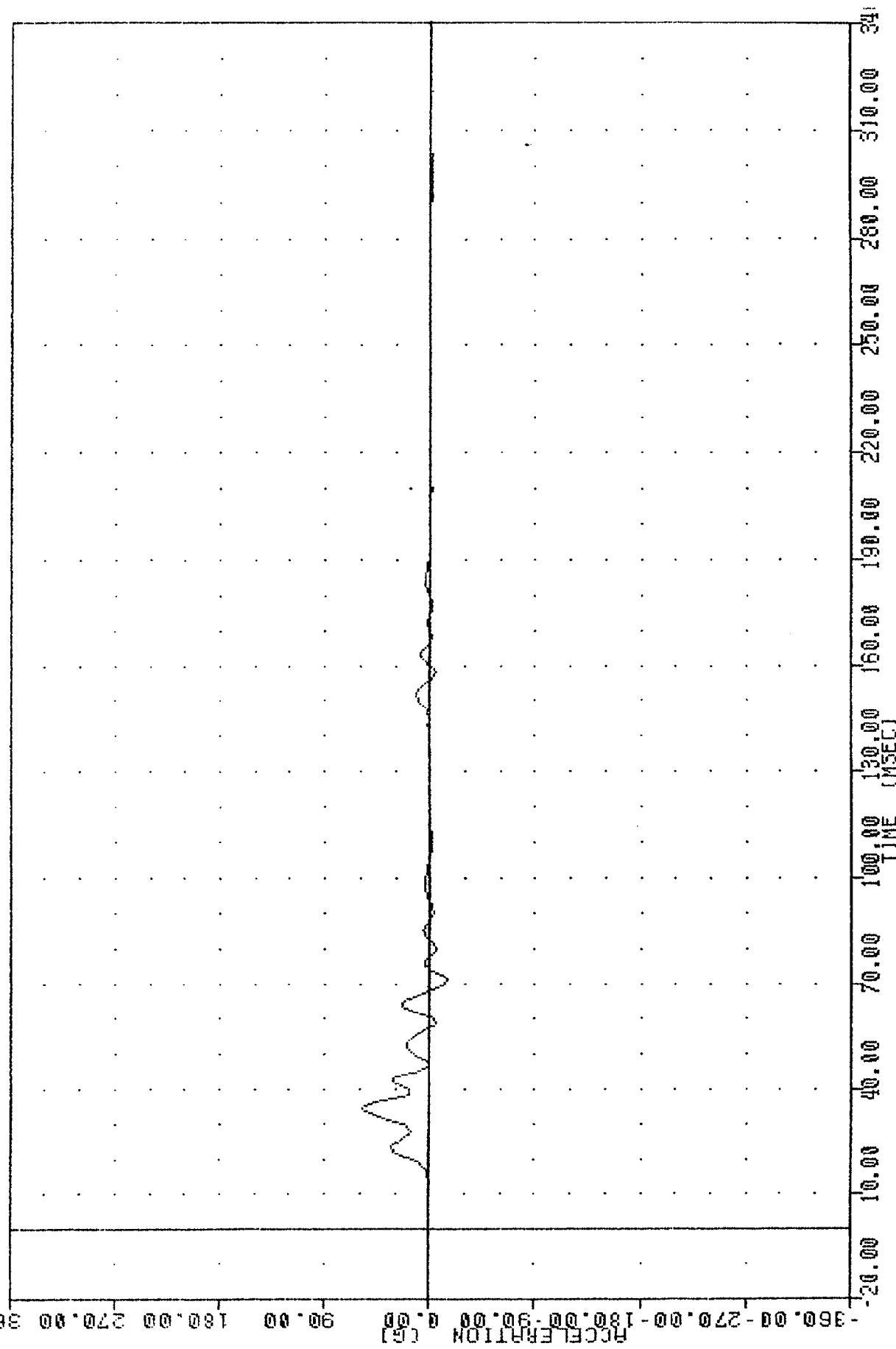
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LEFT UPPER RIB ACCELERATION Y AXIS

INC 7836714 13-SEP-83 13:30:04
 EVALUATION OF MOD VV FLEET
 83257000000
 LURYV1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.070 12.50 25.70 273.75



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYG1

7330514
 EVALUATION OF MOD YW FLEET
 83257000000
 LURYGA
 FILTER = HSR1 136/ 189/ -50
 MIN, MAX VALUES = -14.19e 70.00, 58.26 e 33.75
 13 SEP 83 13:28

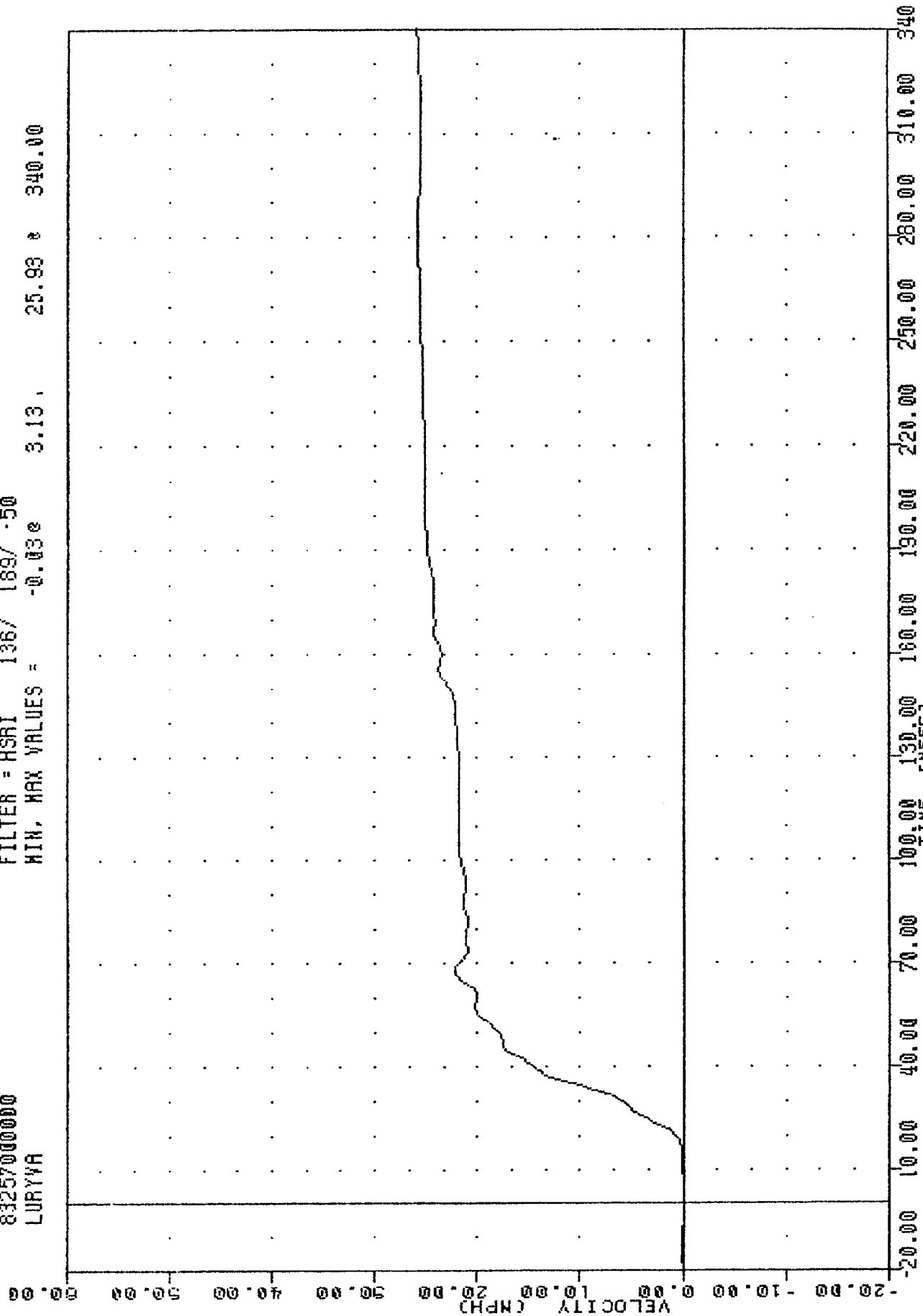


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LEFT UPPER RIB ACCELERATION -2 Y AXIS

TBC
 EVALUATION OF MOD VV FLEET
 83257000000
 LURYVA

PLOT DATE 19-SEP-83 13:33:04

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.030 3.13, 25.93 * 340.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYGA

TRC
EVALUATION OF MOD VW FLEET
832570000000
LLAYG1

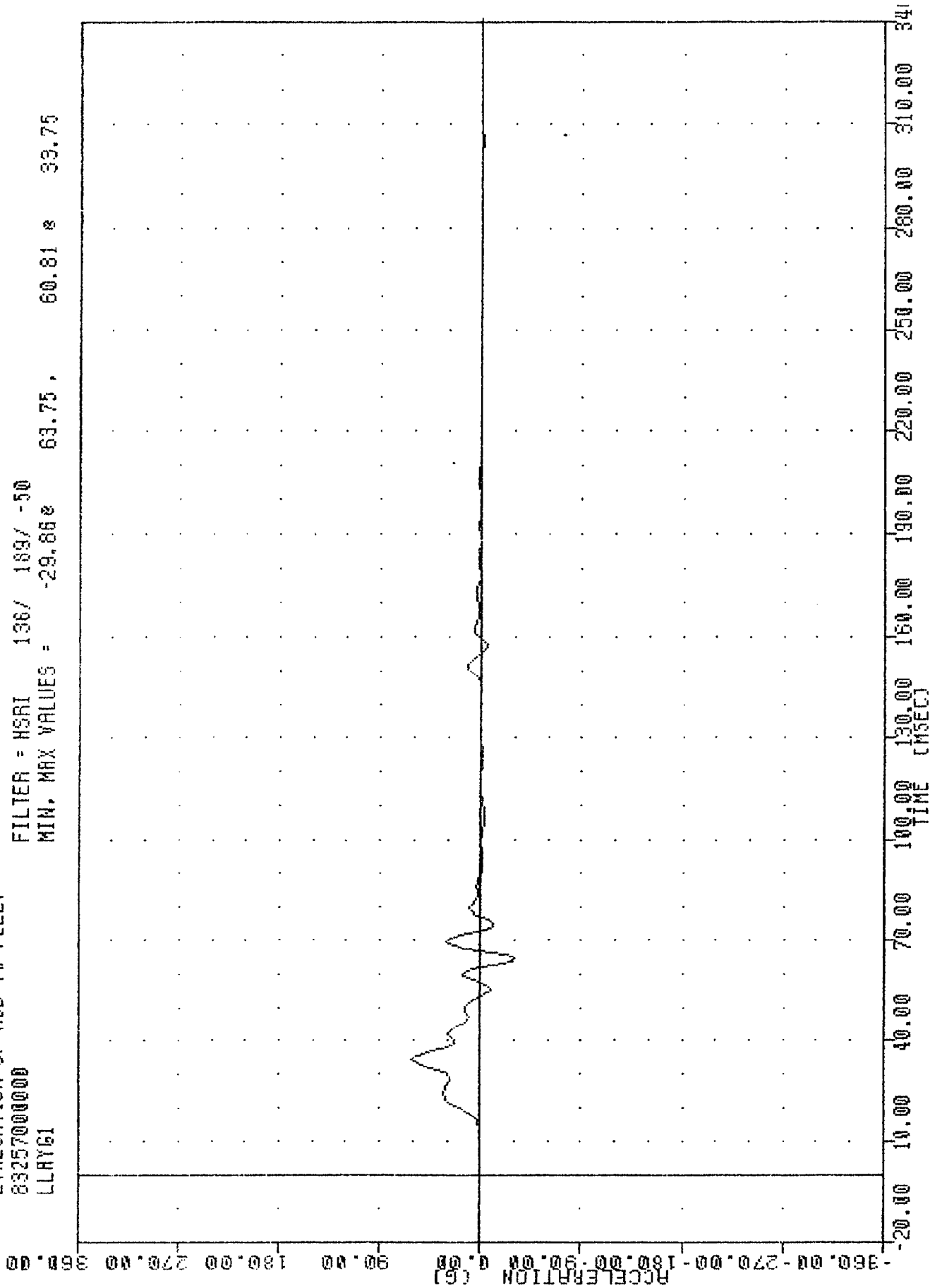
830314

PLOT DATE

19-SEP-83

13:26:47

FILTER = NSRI 136/ 189/ -50
MIN. MAX VALUES = -29.86e 63.75, 60.81 s 33.75



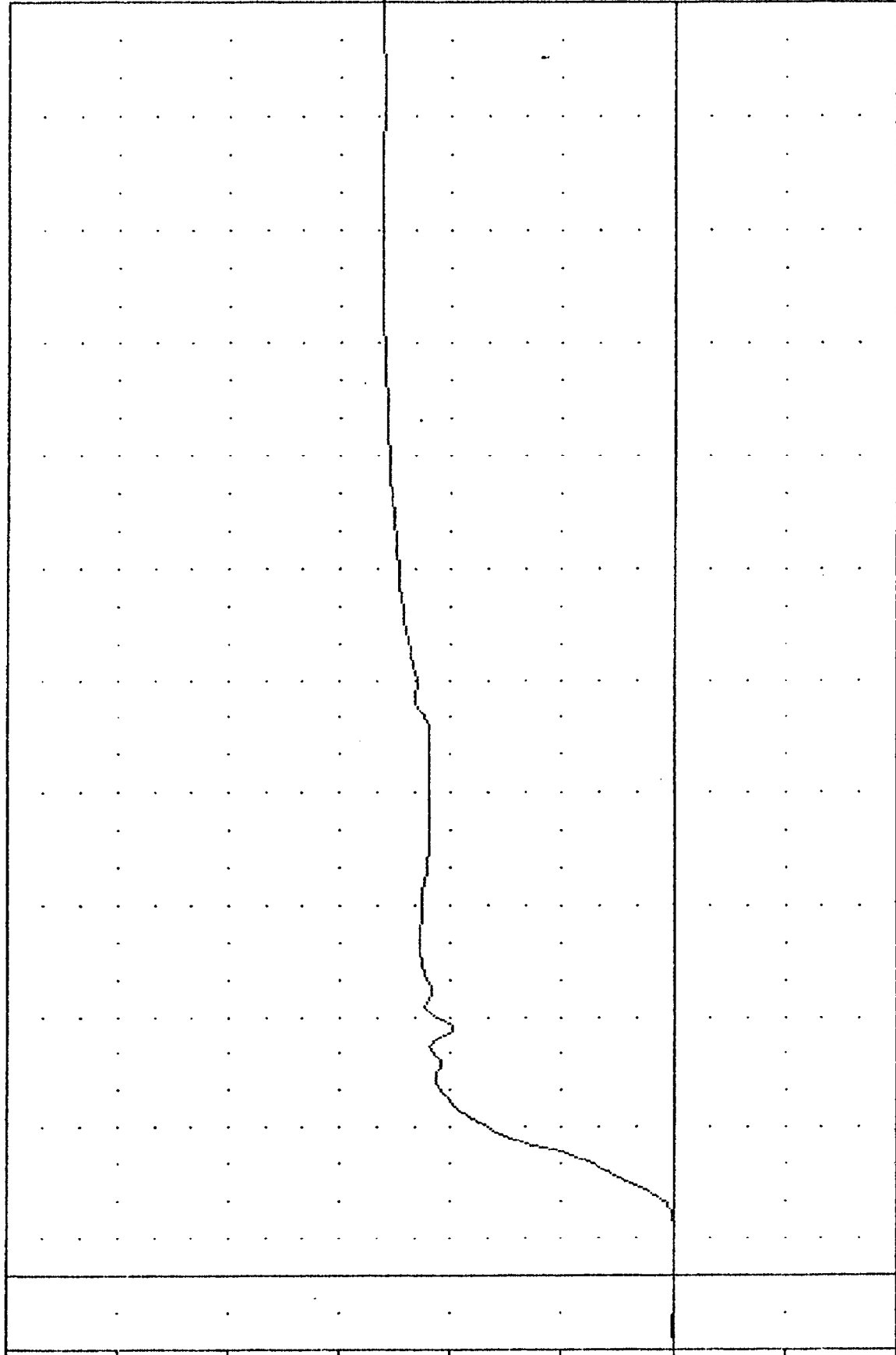
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LEFT LOWER RIB ACCELERATION Y AXIS

THC
EVALUATION OF MOD YW FLEET
83257000000
LLRYV1

PLOT DATE 20-SEP-83 09:18:59

FILTER = HSR1 136/ 189/ -50
MIN, MAX VALUES = -0.06e 10.00, 26.24 e 285.62

VELOCITY (MPH)



-20.00 -10.00 0.00 10.00 20.00 30.00 40.00 50.00 60.00

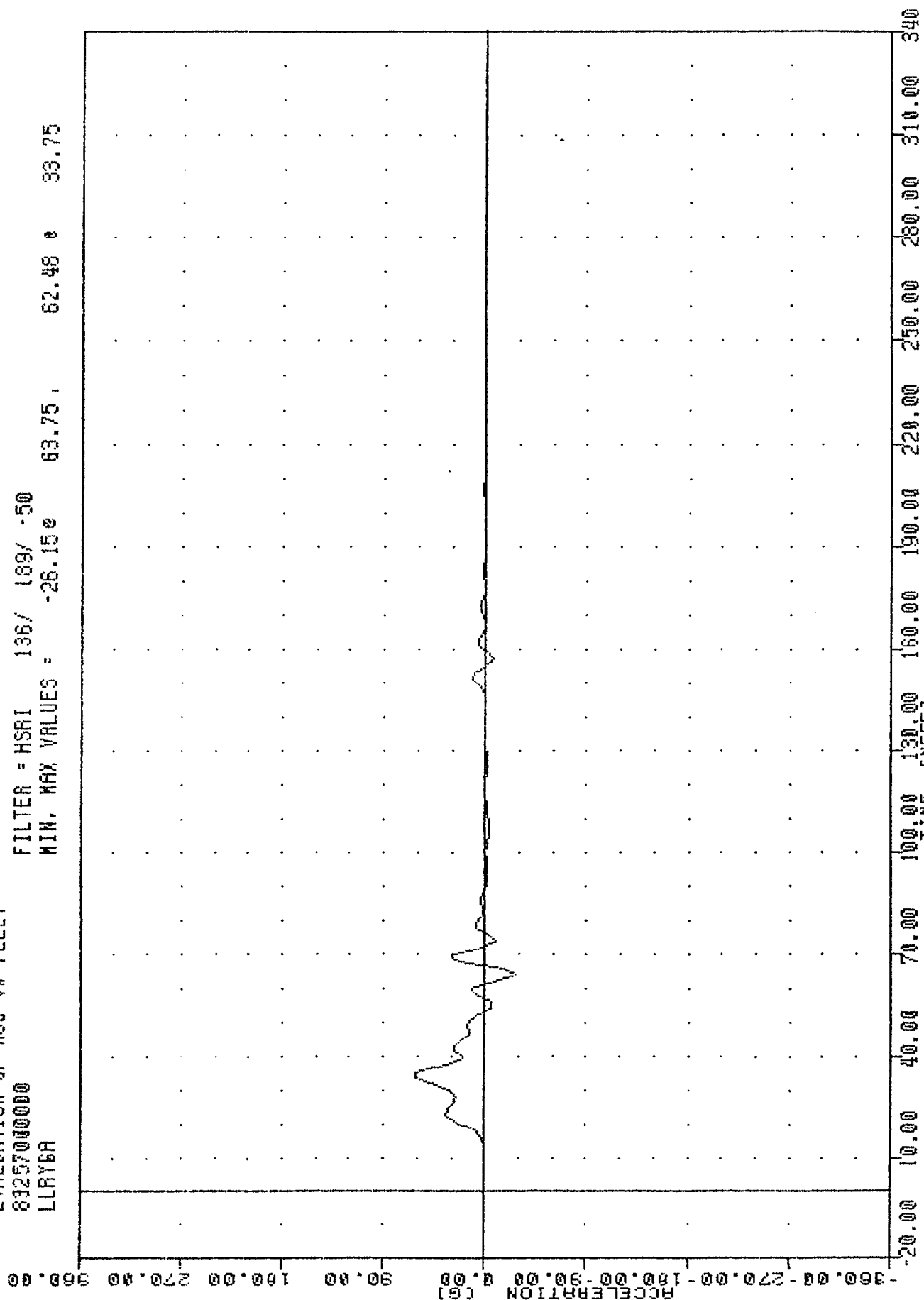
0.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LLRYG1

TAC
EVALUATION OF MOD VV FLEET
83257000000
LLRY6A

PLOT DATE 19-SEP-83 13:26:47

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -26.150 63.75, 62.48 33.75



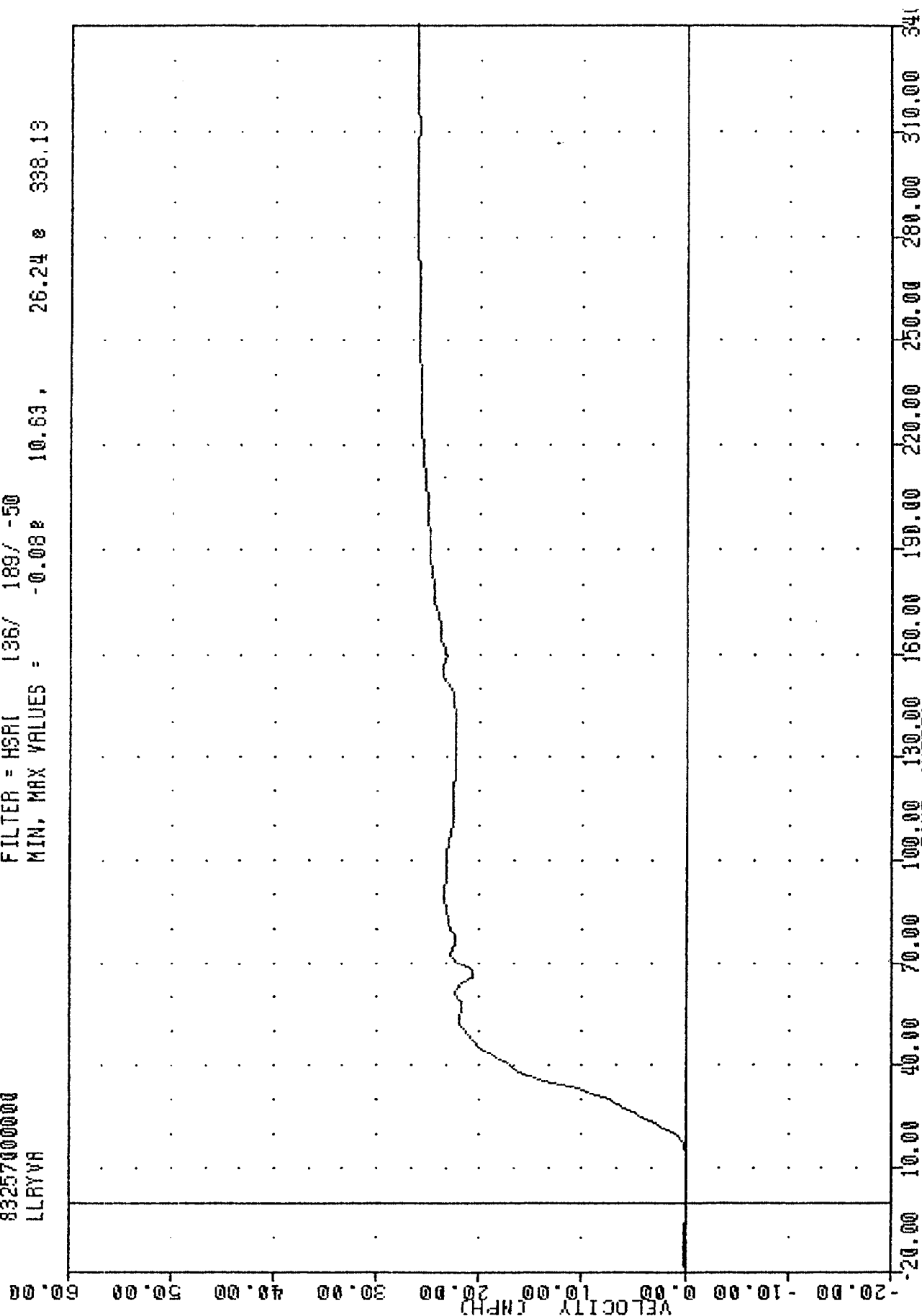
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LEFT LOWER RIB ACCELERATION #2 Y AXIS

TRC
 EVALUATION OF MOD YW FLEET
 83257000000
 LLYYVA

PLOT DATE 19-SEP-83 13:33:04

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.08 10.63, 26.24 338.13



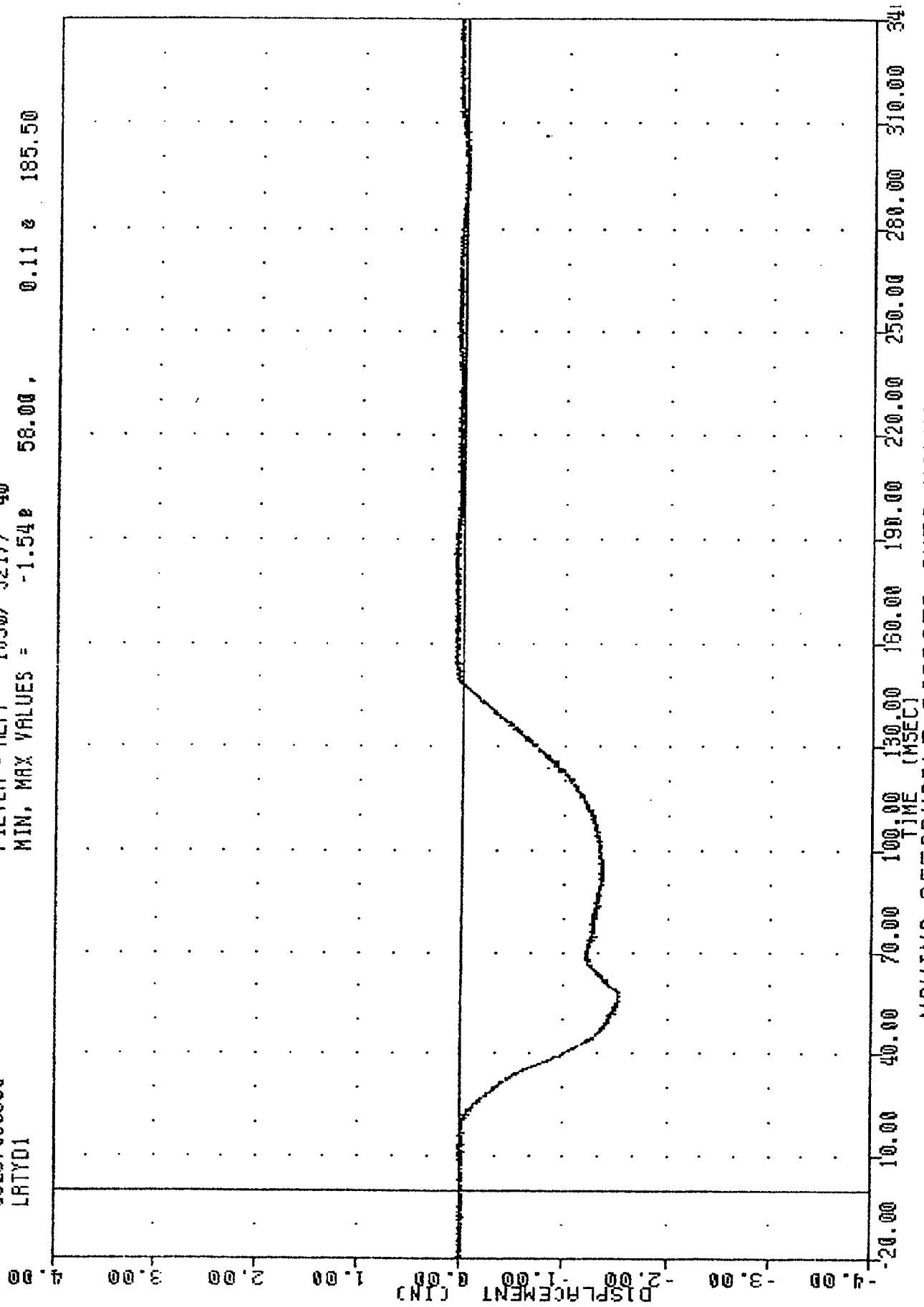
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LLYYGA

TRC
EVALUATION OF MOD YW FLEET
83257000000
LRTYD1

PLOT DATE 19-SEP-83 13:20:15

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -1.54e 58.00, 0.11 e 185.50

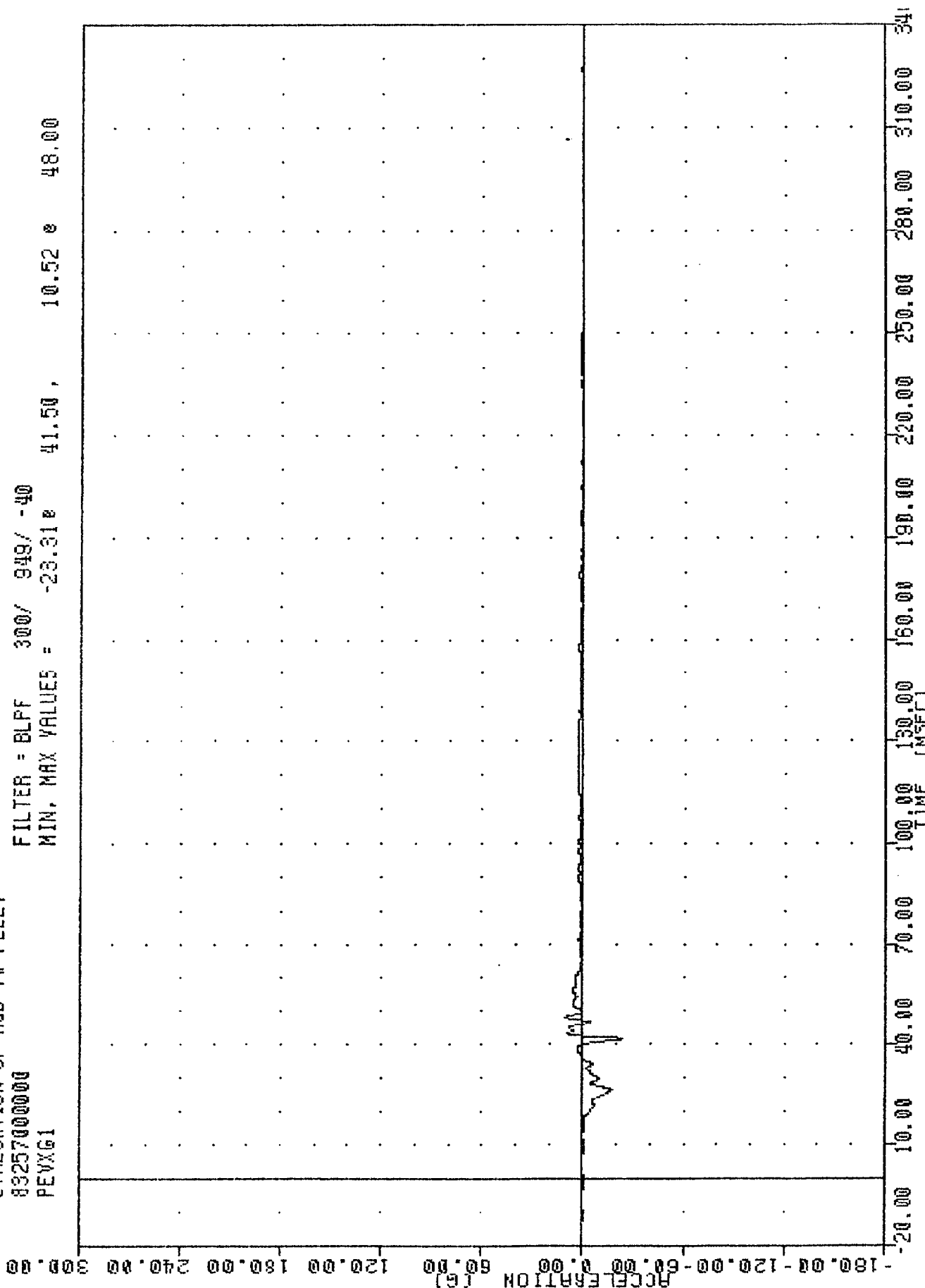


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LEFT RIB TO SPINE DISPLACEMENT INCHES

TRC
EVALUATION OF MOD VW FLEET
83257000000
PEVXG1

PLOT DATE 19-SEP-83 13:20:15

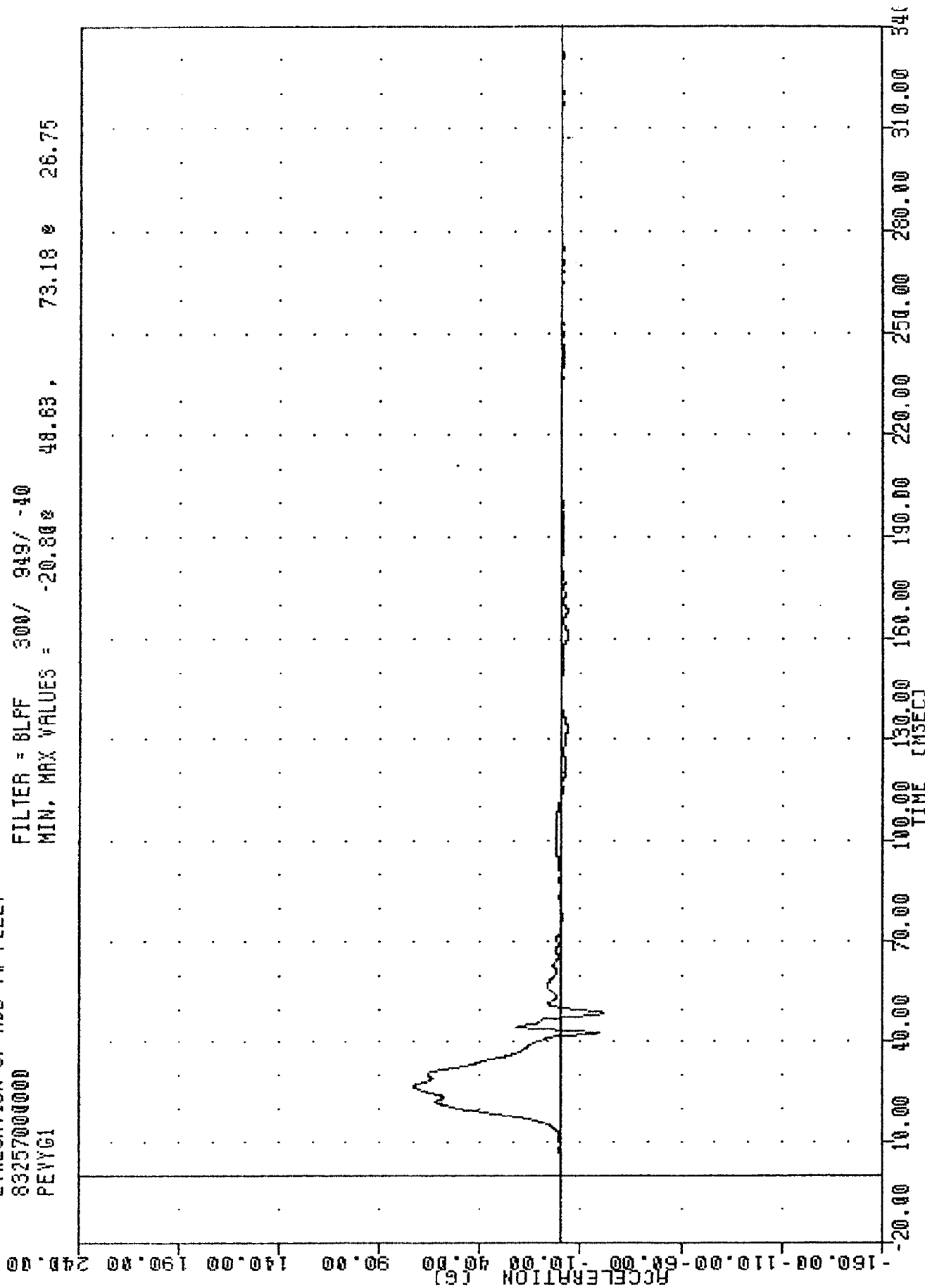
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -23.31e 41.50, 10.52 e 48.00



TRC
EVALUATION OF MDD VW FLEET
83257000000
PEYVG1

PLUT DATE 19-SEP-83 13:20:13

FILTER = 8LFF 300/ 949/ -40
MIN, MAX VALUES = -20.80 48.63, 73.18 26.75



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER PELVIS ACCELERATION Y AXIS

TRC

830914

EVALUATION OF MOD VW FLEET

83257000000

FEVZ61

PLUT DATE

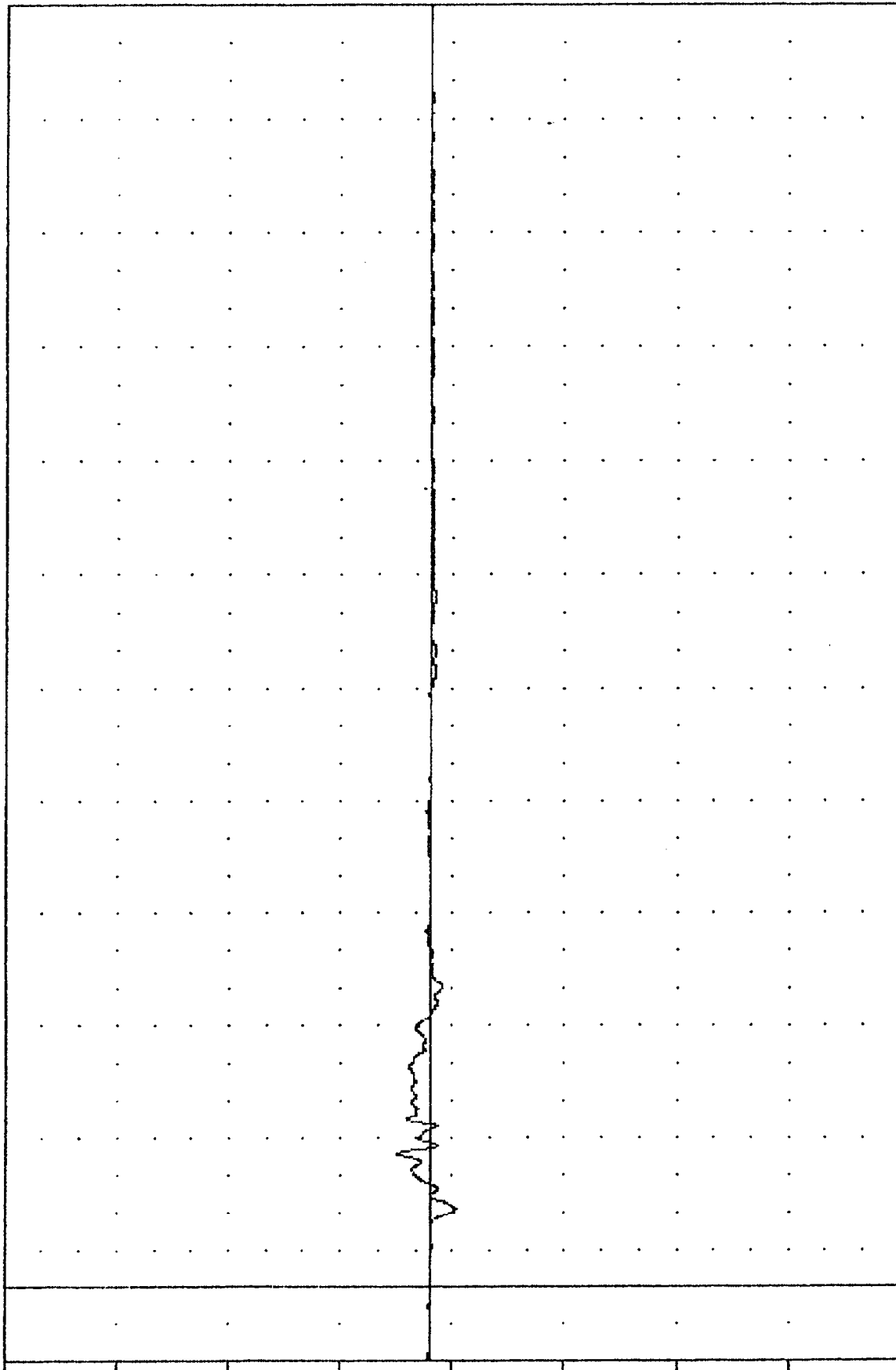
19-SEP-83

13:20:15

FILTER = BLPF 300/ 949/ .40

HIN, MAX VALUES = -11.348 20.50 14.40 35.50

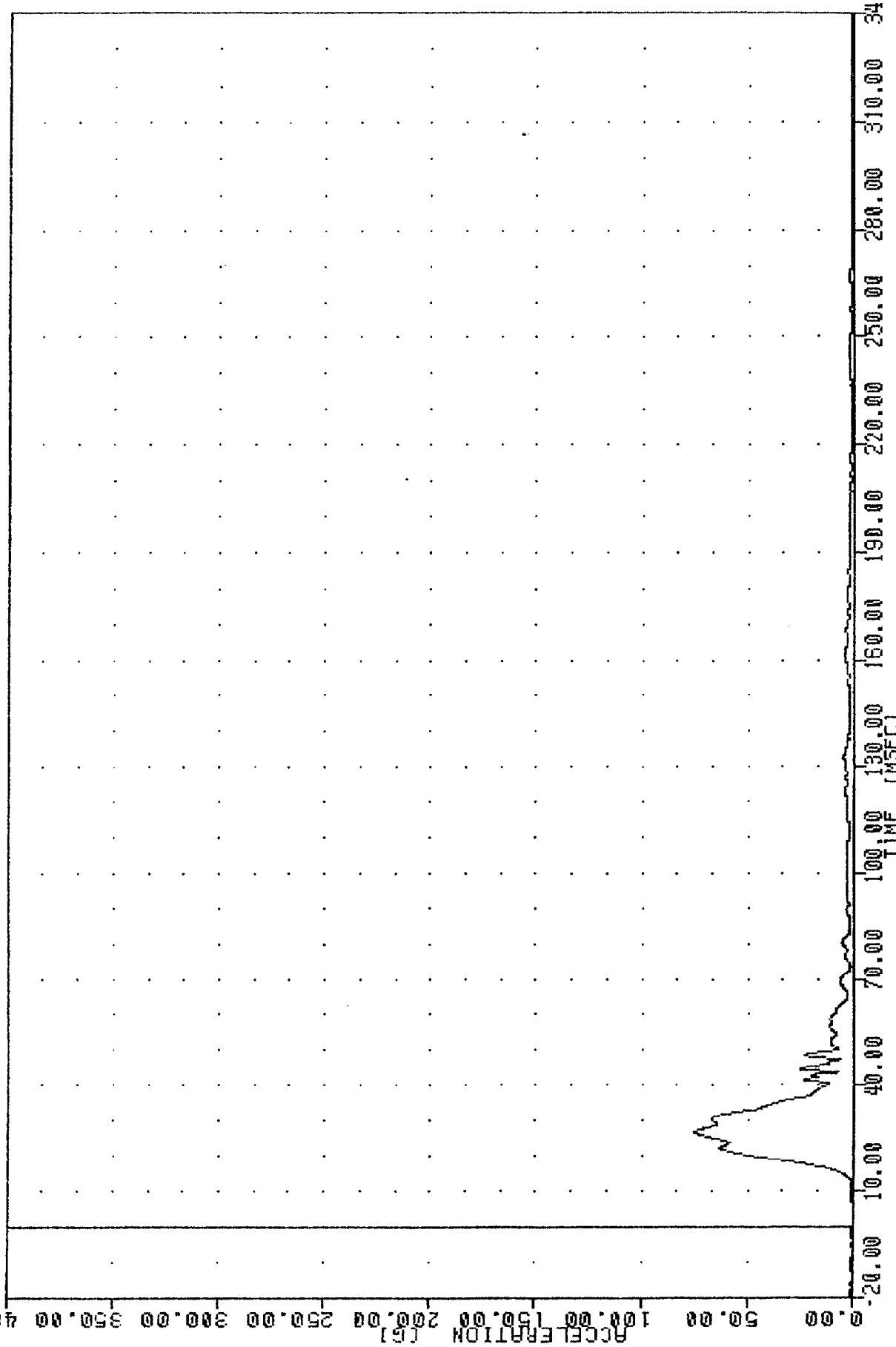
ACCELERATION [G]



-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
DRIVER PELVIS ACCELERATION Z AXIS

INC 830314 19 SEP 83 13:26.13
 EVALUATION OF MOD YW FLEET
 83257000000
 PEVRG1
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 0.03e -14.00, 74.83 e 26.63

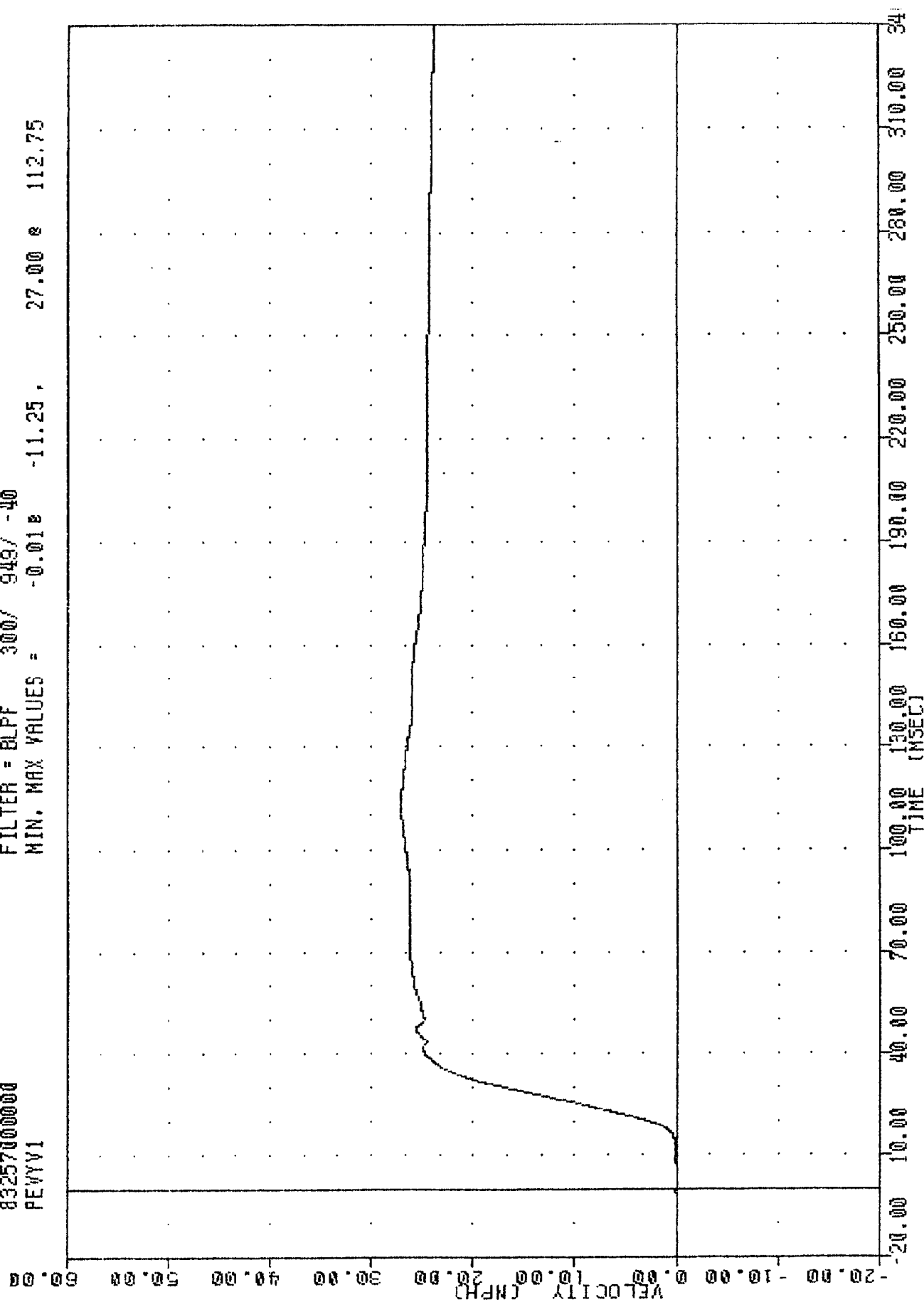


TRC
EVALUATION OF MOD YN FLEET
8325700000
PEVYV1

PLOT DATE 19-SEP-83 13:33:52

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.01e -11.25, 27.00 e 112.75

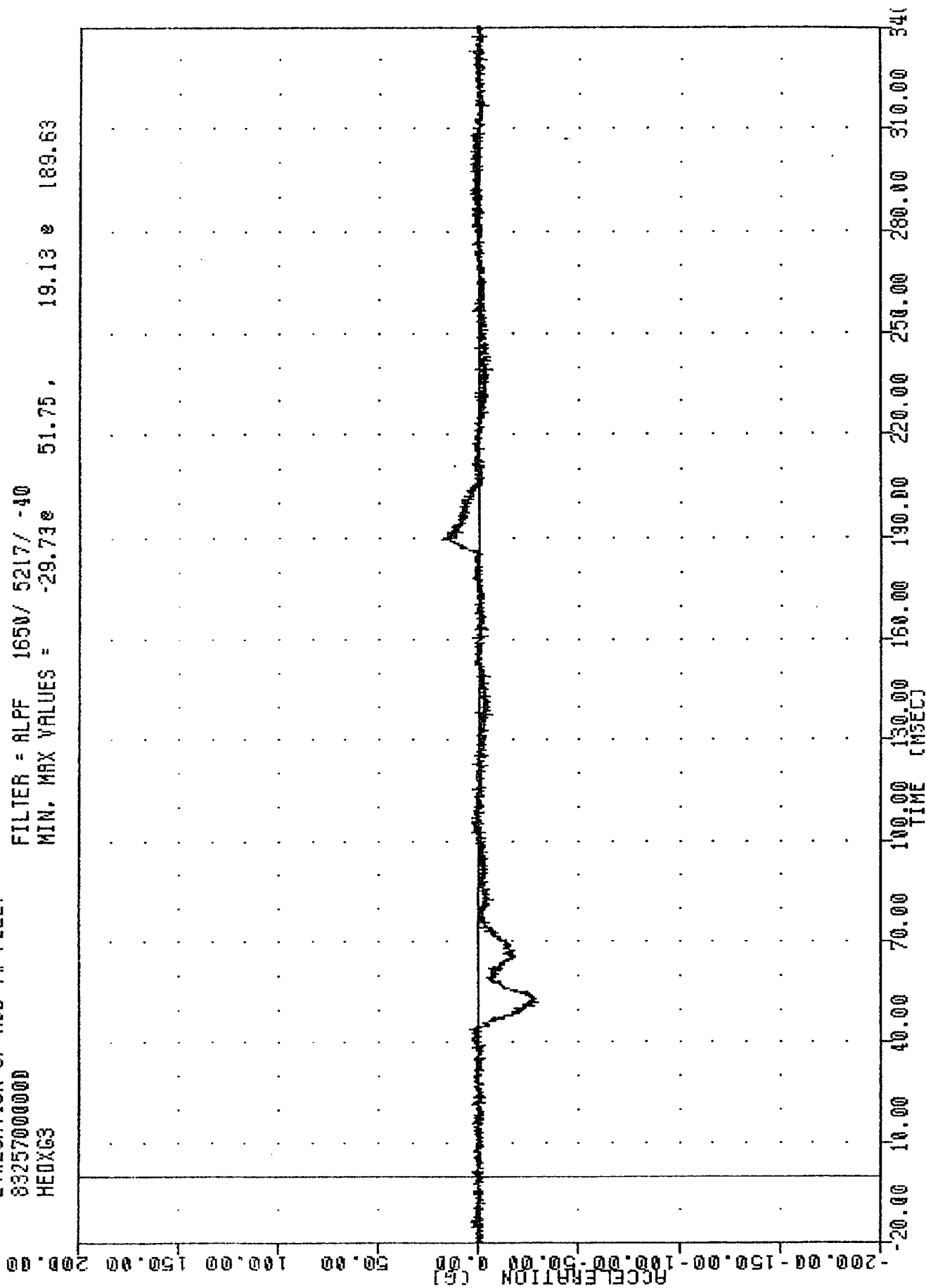


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING PEVYGI

TRC
EVALUATION OF MDD VW FLEET
83257000000
HE0XG3

PLUT DATE 19-SEP-83 13:20:15

FILTER = ALPF 1650/ 5217/ -40
MIN. MAX VALUES = -29.73e 51.75, 19.13 e 189.63

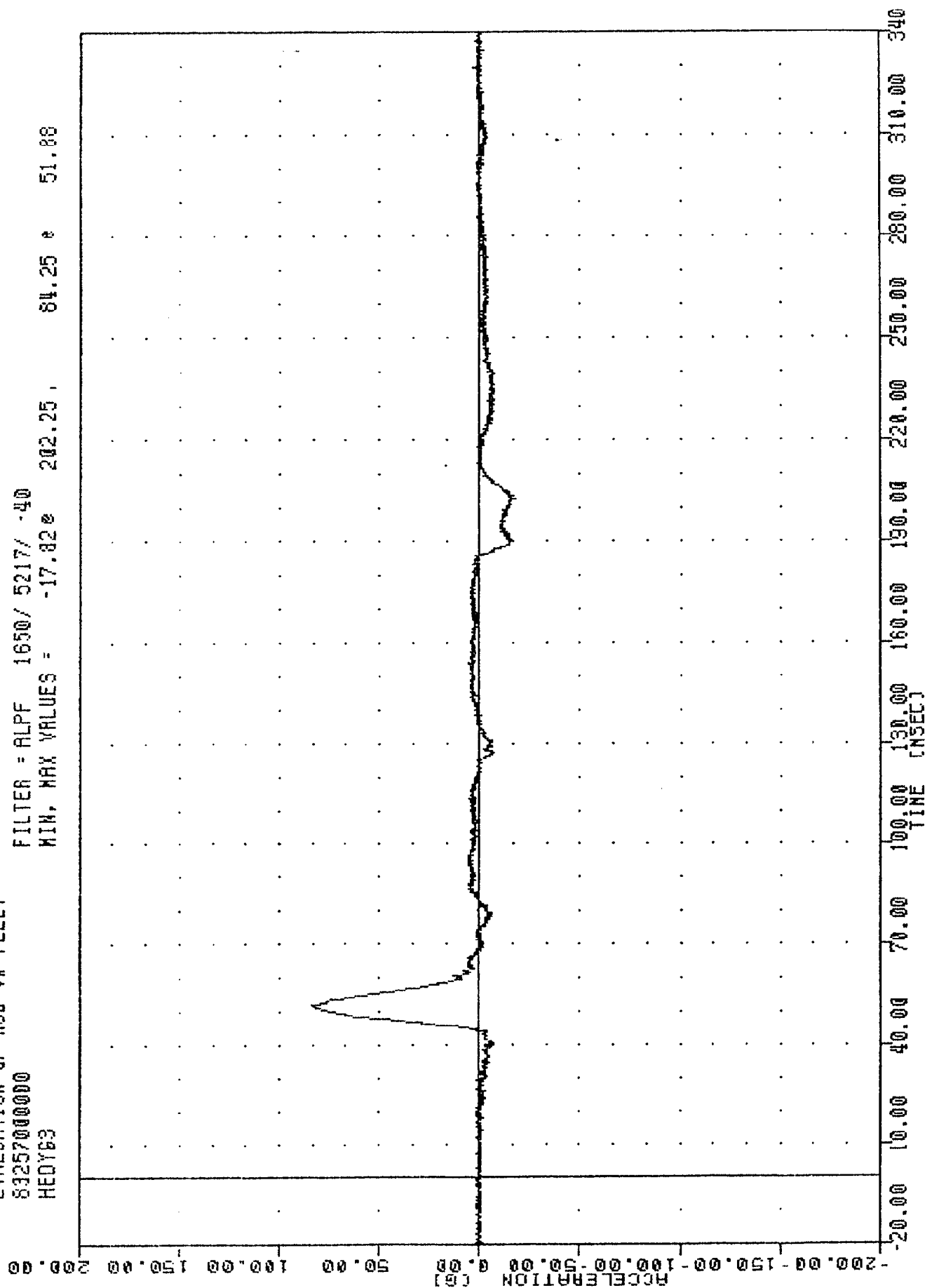


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD ACCELERATION X AXIS

TAC
 EVALUATION OF MOD VN FLEET
 83257000000
 HEDY63

PLOT DATE 19-SEP-83 13:20:15

FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -17.82e 202.25 , 84.25 e 51.88

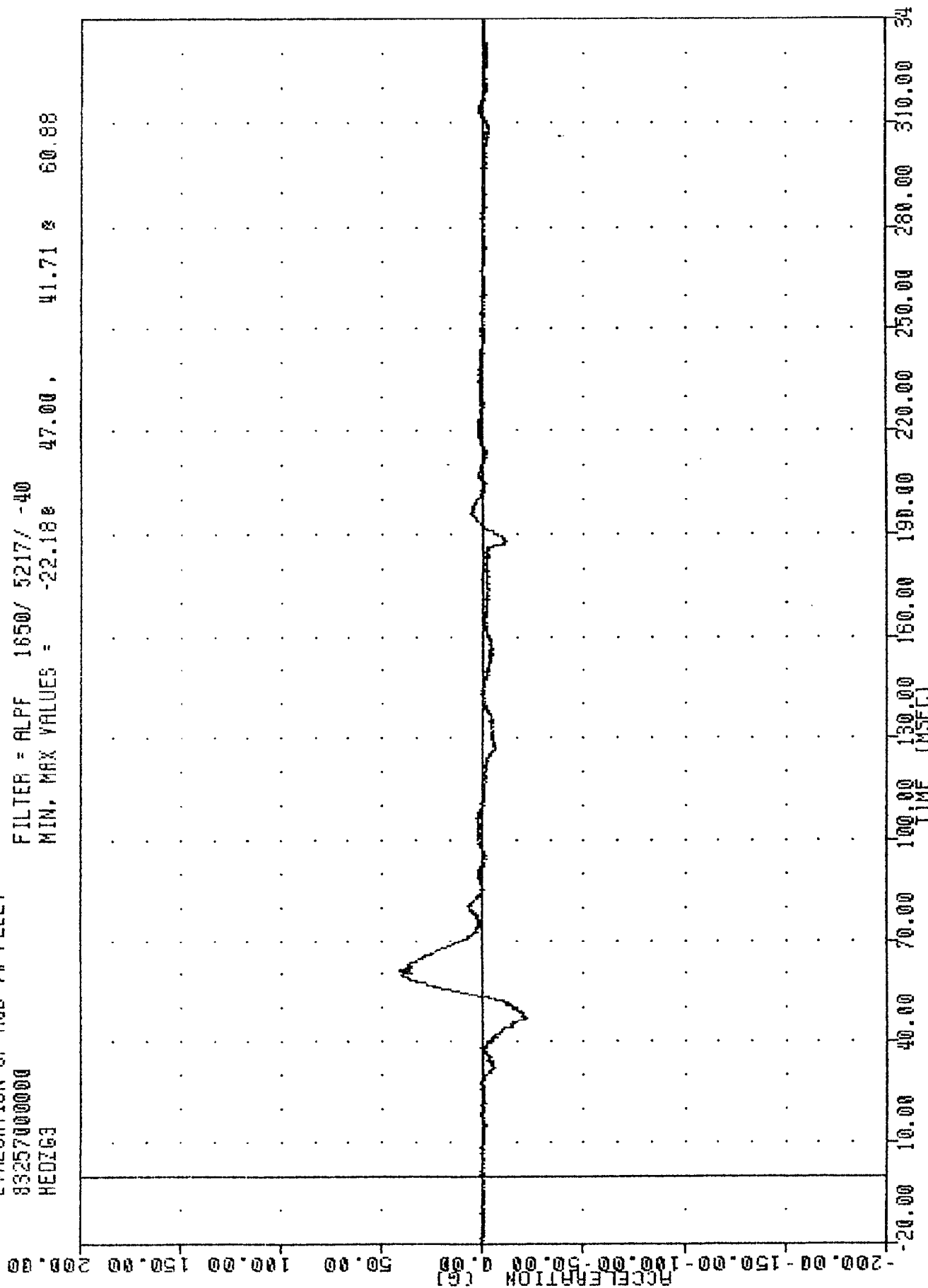


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER HEAD ACCELERATION Y AXIS

TAC , 630914
 EVALUATION OF MOD YW FLEET
 83257000000
 HEDIG3

PLOT DATE 19-SEP-83 13:20:15

FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -22.18e 47.00, 41.71 e 60.88

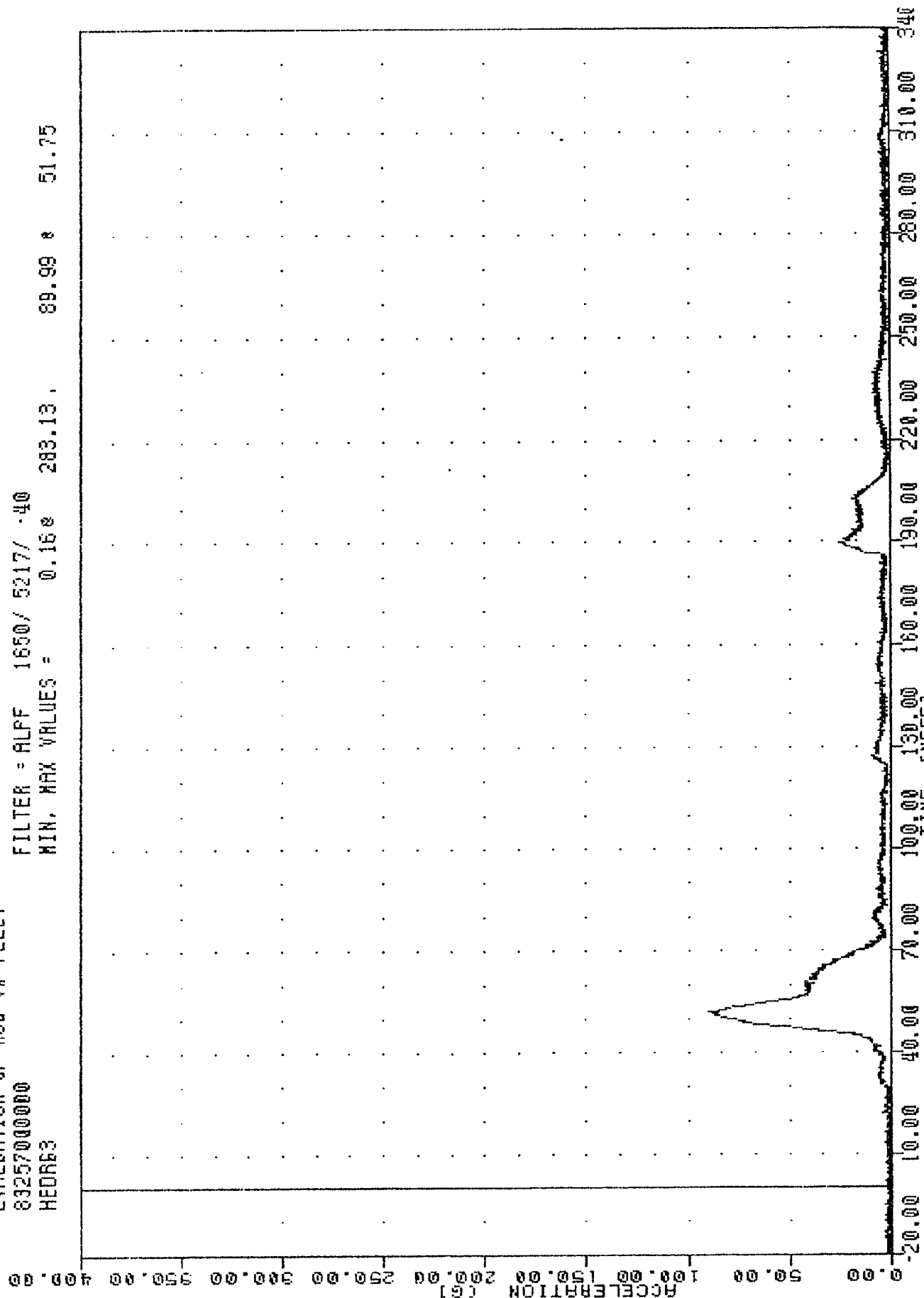


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER HEAD ACCELERATION Z AXIS

TAC
EVALUATION OF MOD VW FLEET
83257000000
HEAD63

PLOT DATE 19-SEP-83 13:20:15

FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = 0.168 283.13 , 89.99 * 51.75

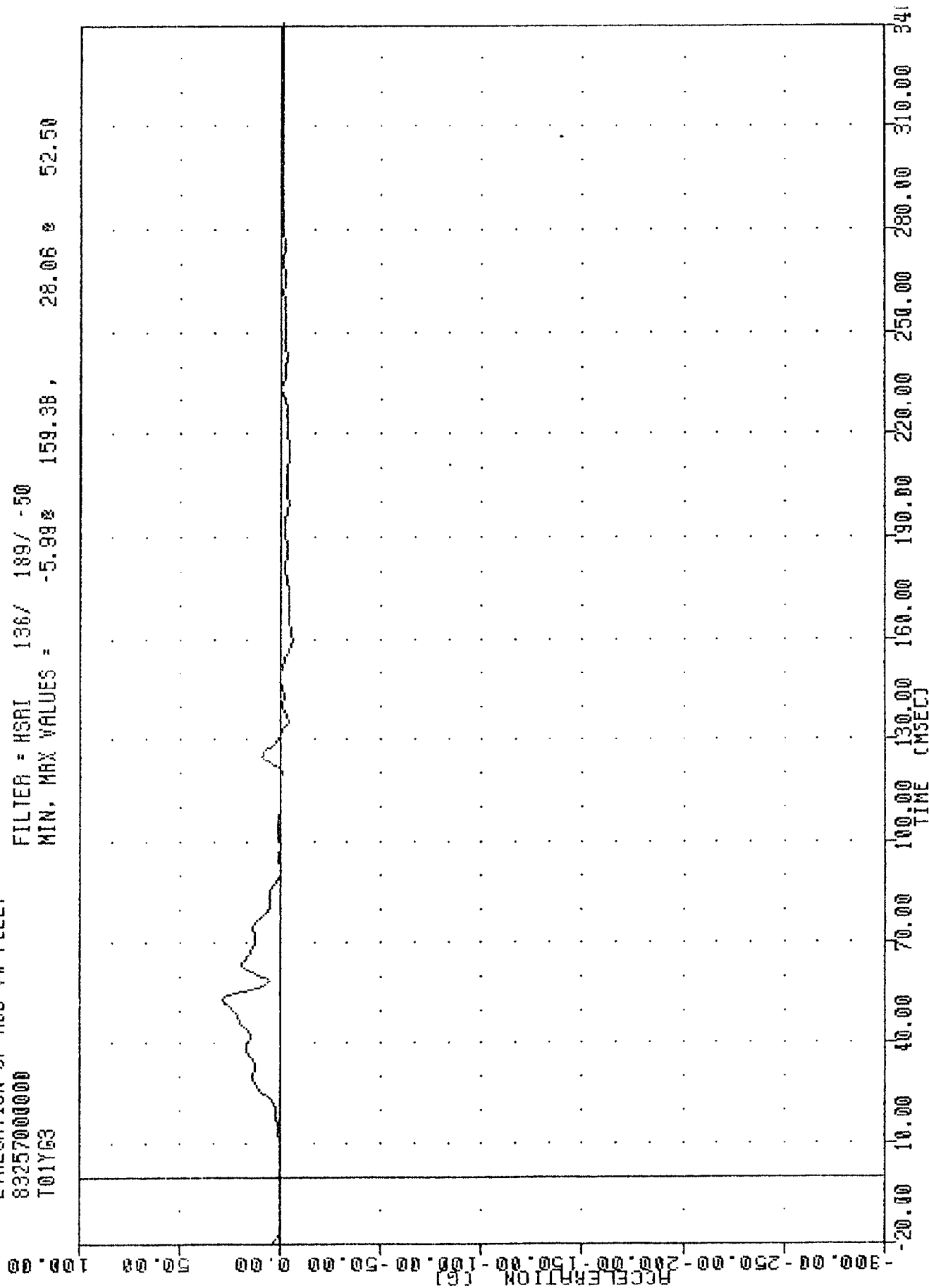


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD RESULTANT

TRC
EVALUATION OF MDD VW FLEET
832570000000
T01Y63

PLOT DATE 19-SEP-83 15:41:53

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -5.99% 159.38, 28.06 % 52.50

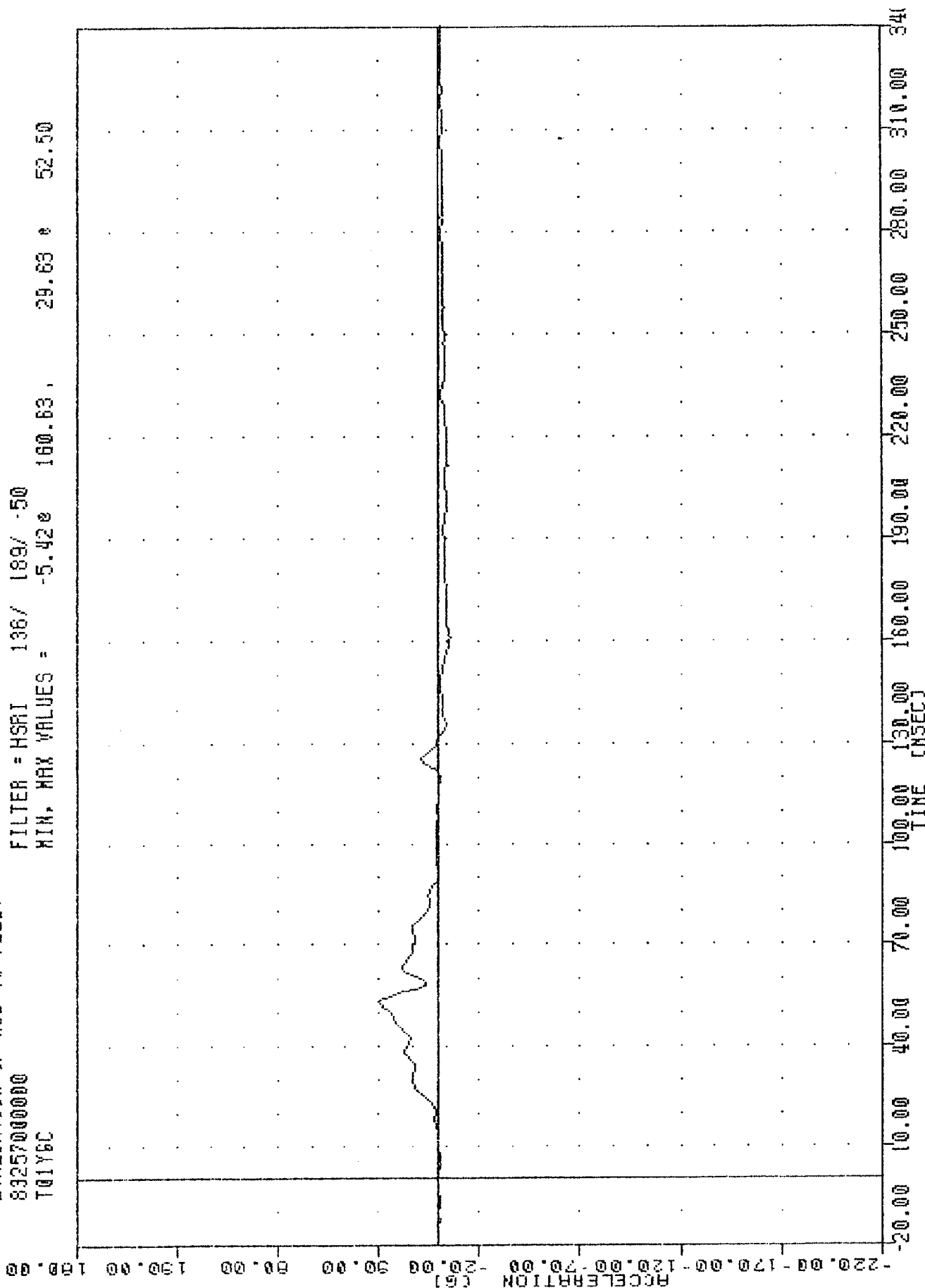


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE ACCELERATION Y AXIS

TAC
EVALUATION OF 800 VW FLEET
83257000000
T01Y6C

PLOT DATE 19-SEP-83 13:26:47

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -5.428 160.63 29.63 52.50



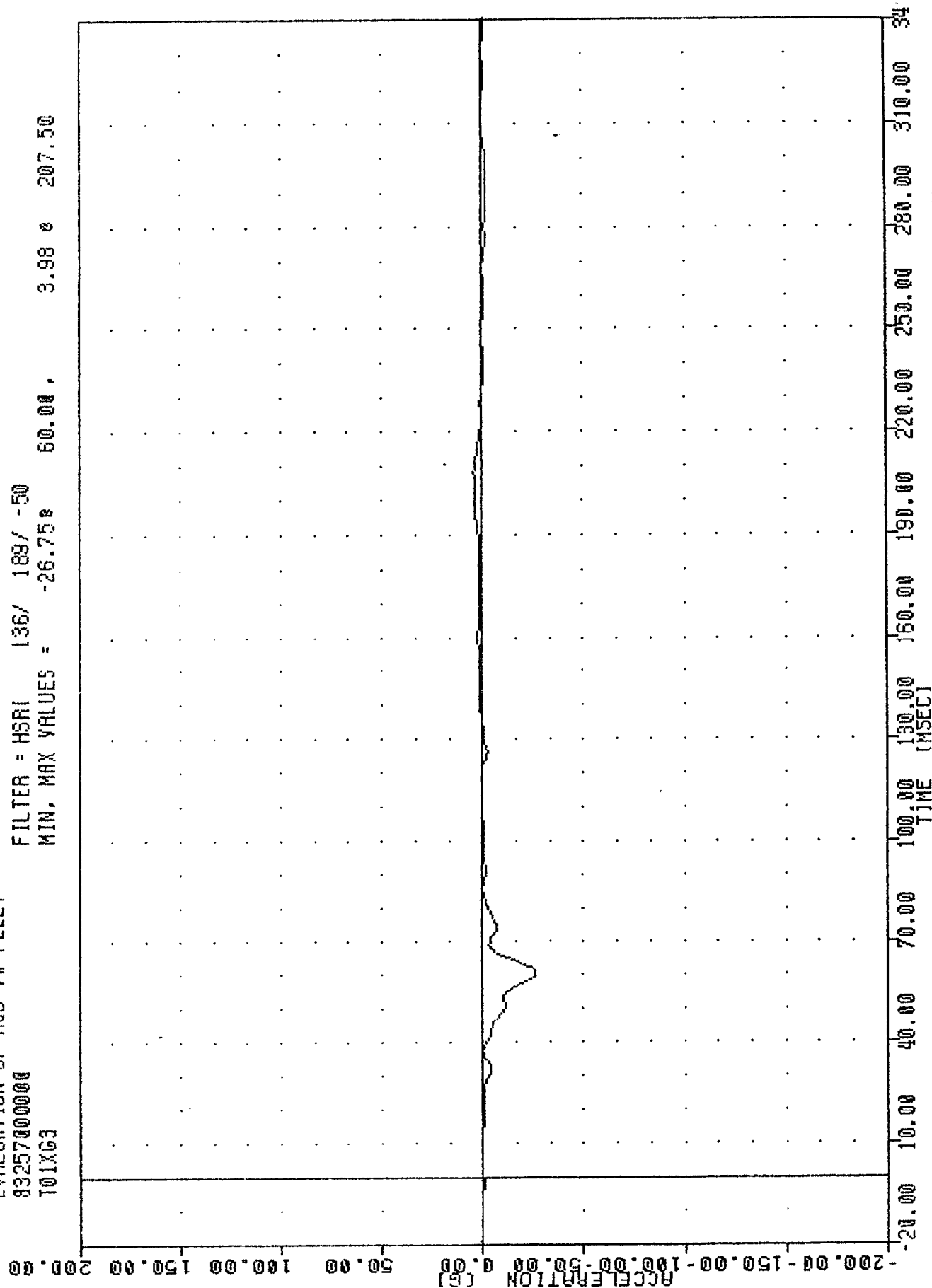
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE ACCELERATION -2 Y AXIS

TRC , 830914
 EVALUATION OF MOD YW FLEET
 83257000000
 T01XG3

PLOT DATE 19-SEP-83 13:26:47

FILTER = HSAI 136/ 183/ -50

MIN. MAX VALUES = -26.75 60.00 , 3.98 207.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER 9PTNF ACCELERATION X AXIS

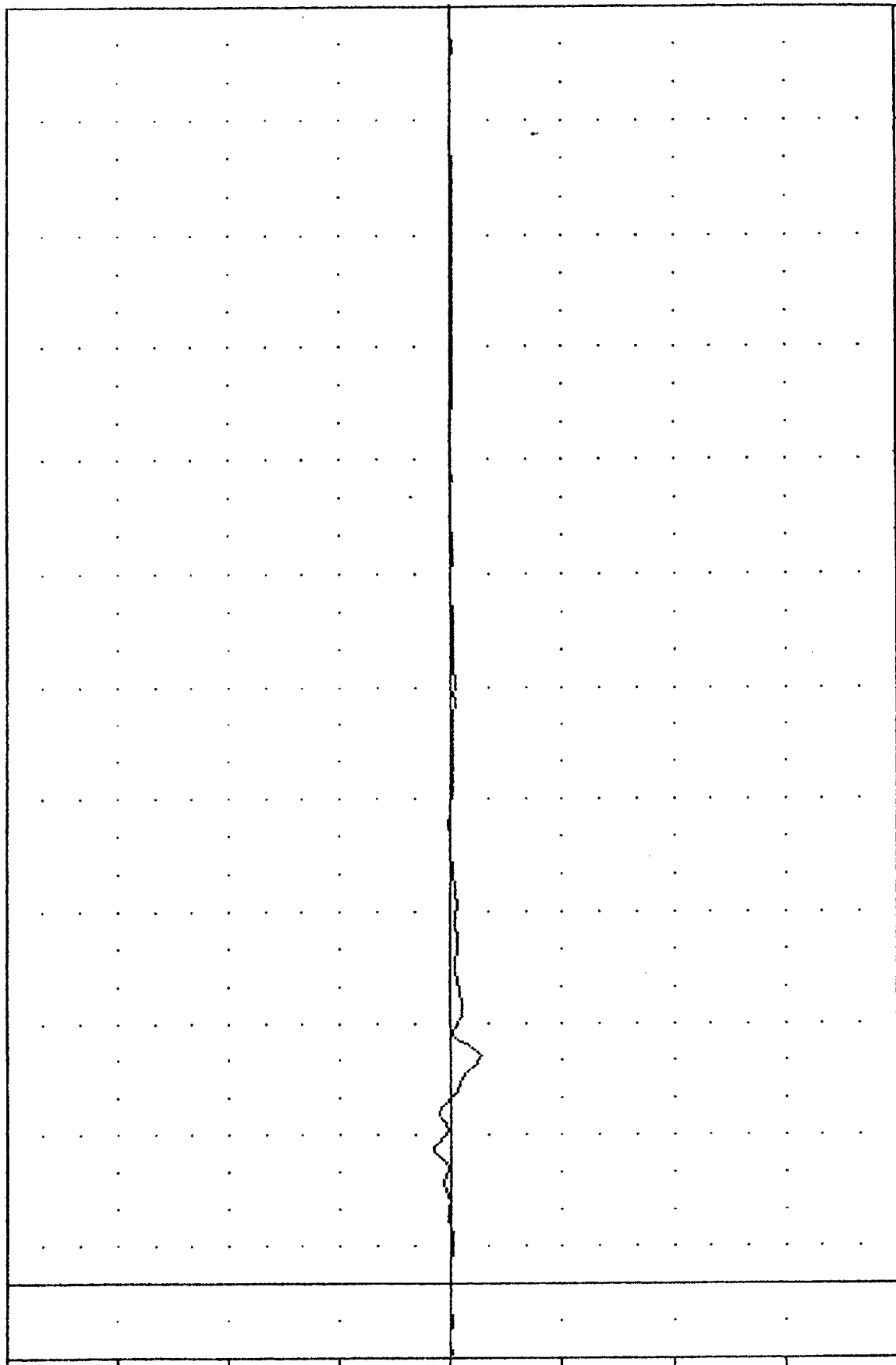
TRC
EVALUATION OF MOD YW FLEET
83257000000
T01ZG3

PLOT DATE 19-SEP-83 13:26:47

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -13.00 60.62, 7.71 35.63

ACCELERATION (G)



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

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

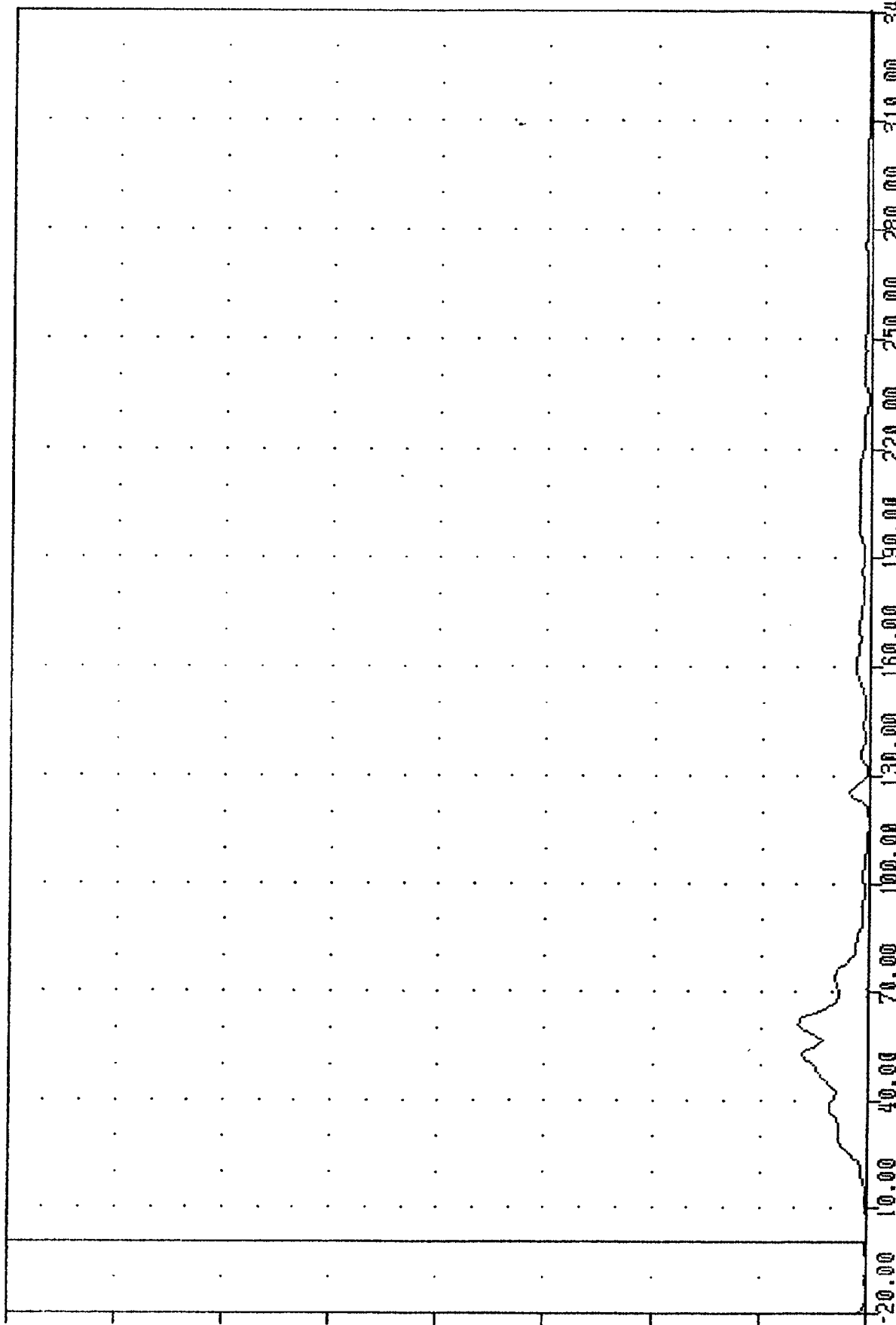
TRC
EVALUATION OF MOD VW FLEET
83257000000
T01R63

PLOT DATE 19-SEP-83 13:28:47

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.09e 4.38 , 32.37 e 60.62

ACCELERATION (G)

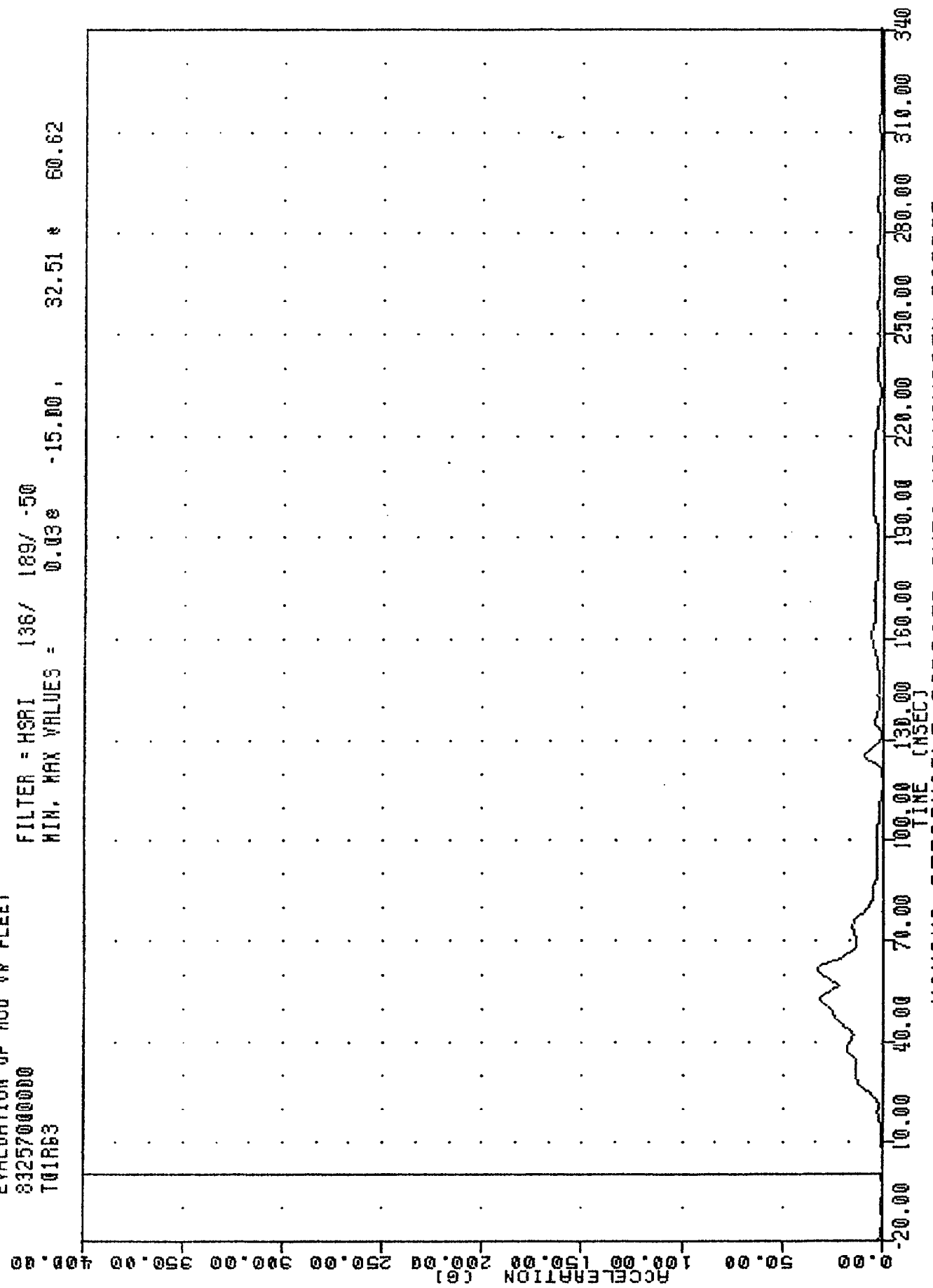


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE RESULTANT

TRC
 EVALUATION OF MOD VW FLEET
 83257000000
 T01R63

PLOT DATE 19-SEP-83 13:27:56

FILTER = H3RI 136/ 189/ -50
 MIN. MAX VALUES = 0.038 -15.00, 32.51 * 60.62

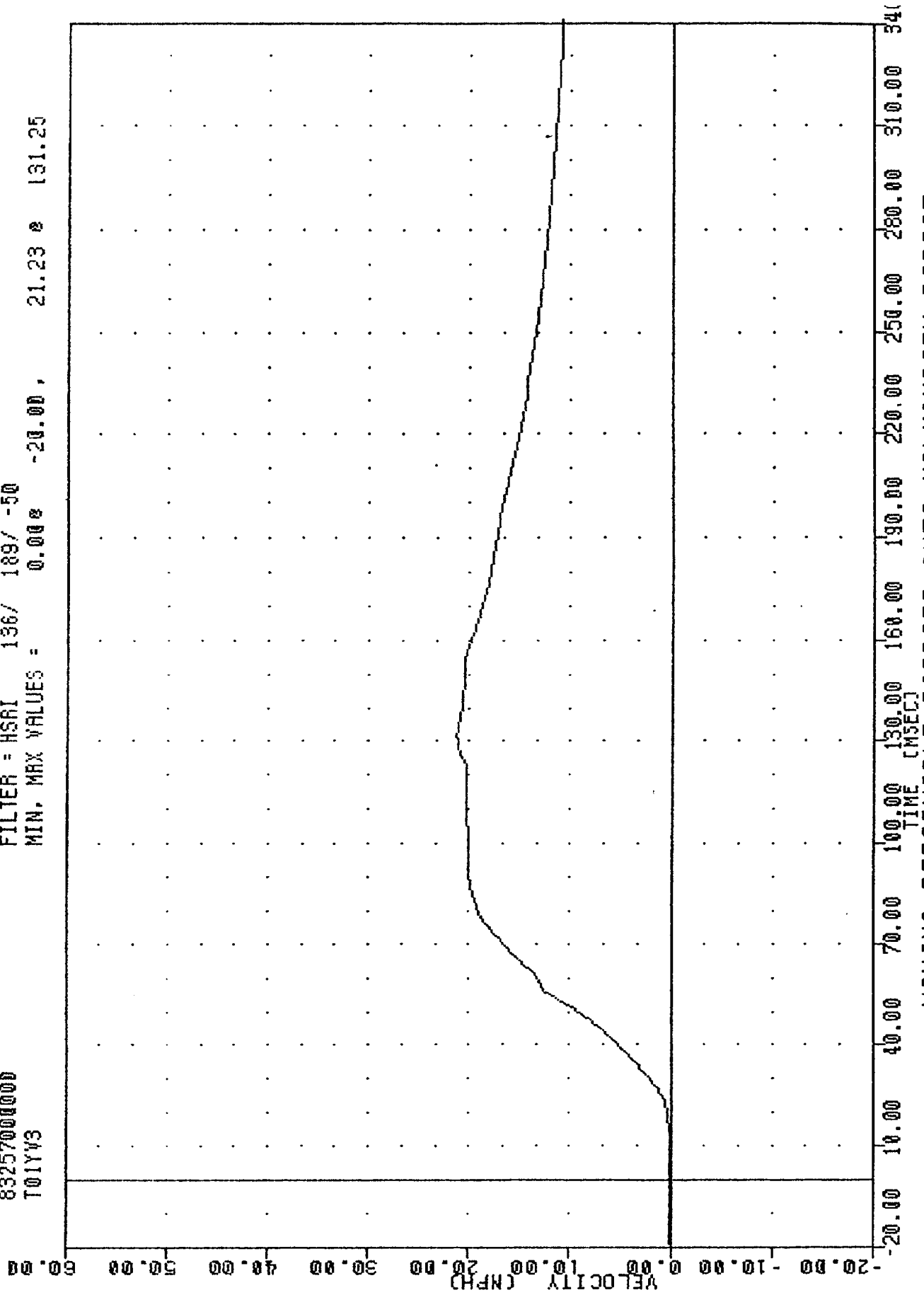


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE RESULTANT USING T01YGC

TRC
 EVALUATION OF MDD VW FLEET
 83257000000
 T01YV3

PLOT DATE 19-SEP-83 13:33:04

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.000 -20.00, 21.23 @ 131.25

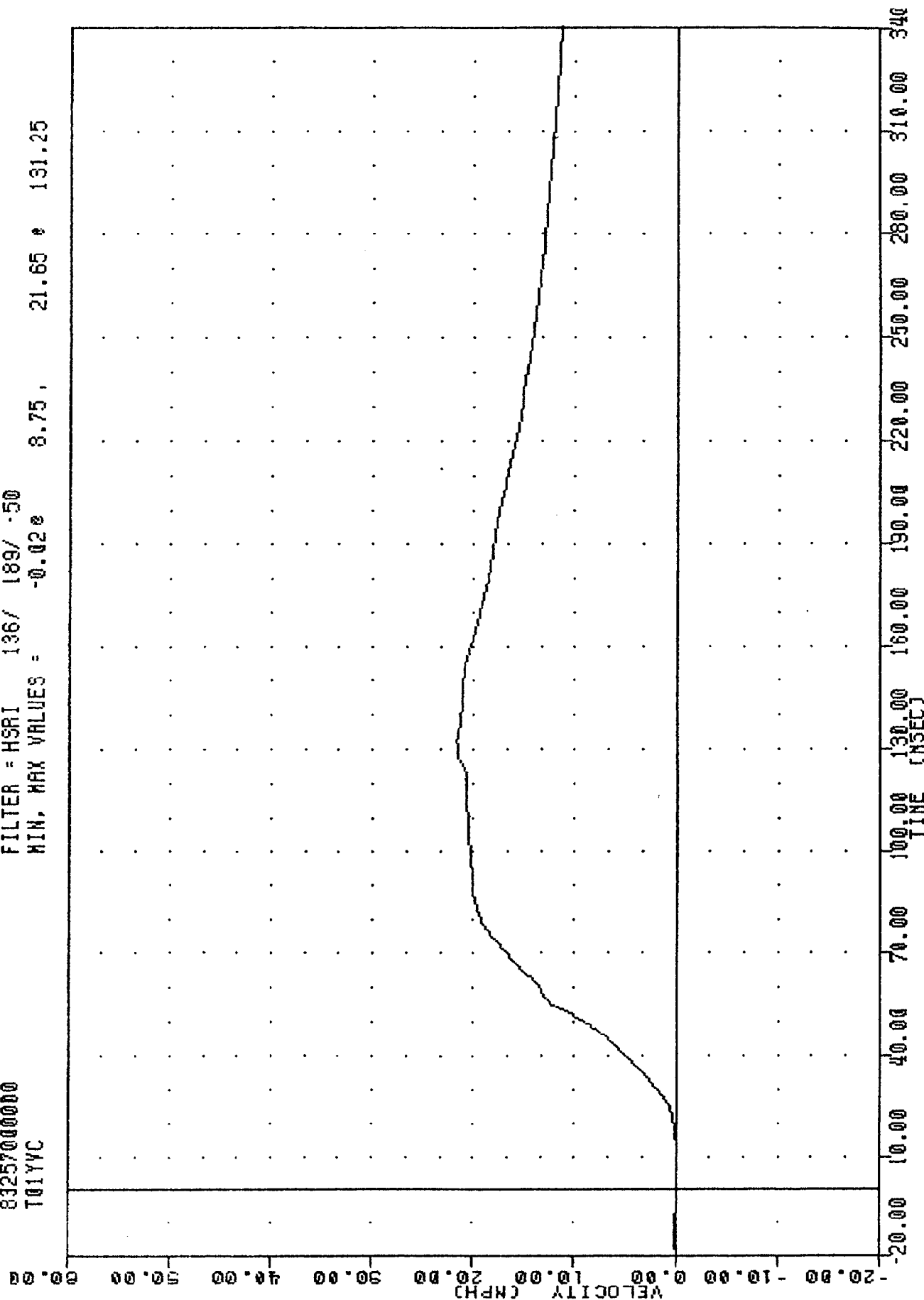


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01Y63

TAC
 EVALUATION OF MOD VW FLEET
 83257000000
 T01YVC

PLOT DATE 19-SEP-83 13:33:04

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.020 8.75 , 21.65 * 131.25

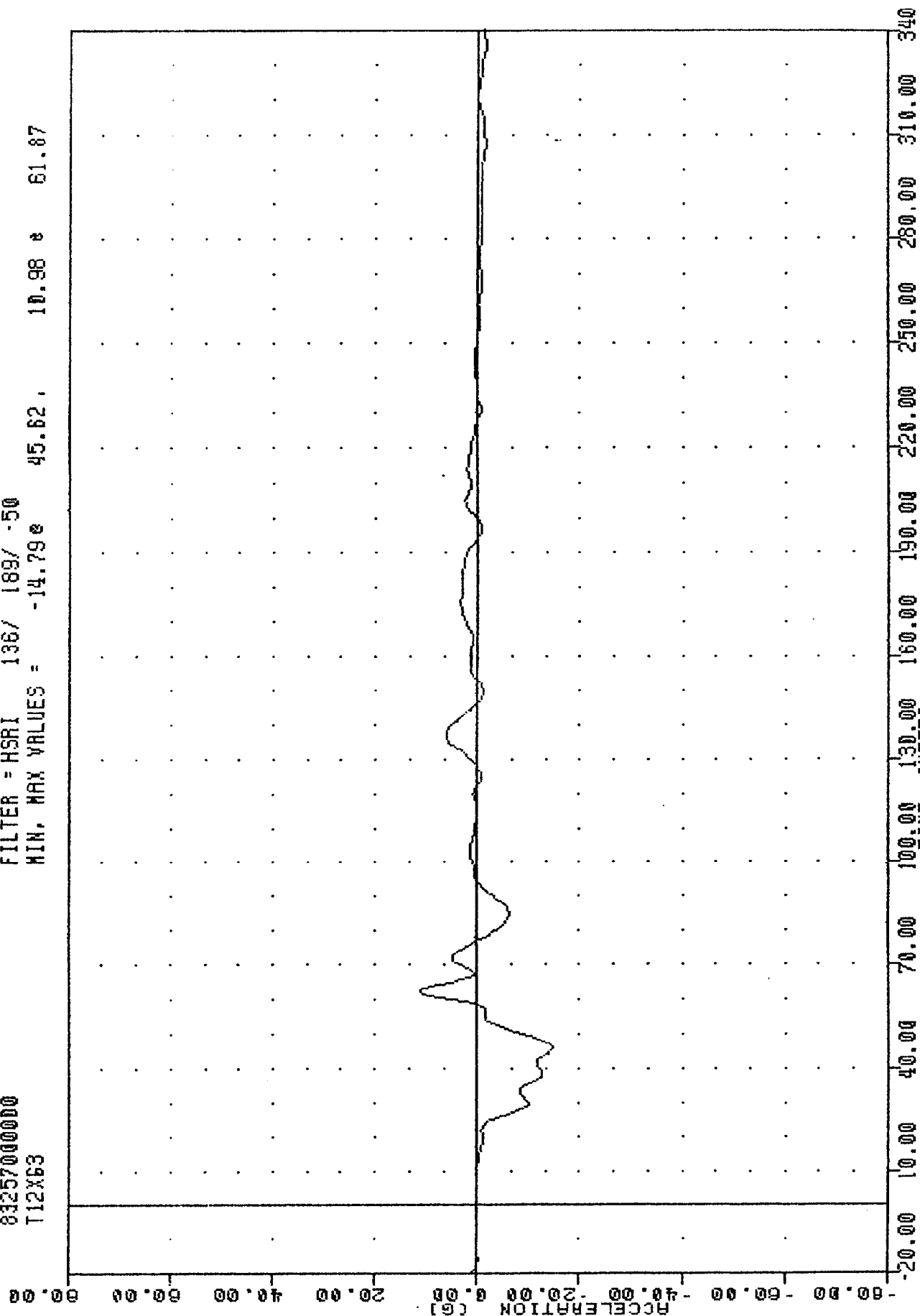


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YVC

TAC
 EVALUATION OF MOD VW FLEET
 83257000000
 T12X63

PLOT DATE 19-SEP-83 15:41:53

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -14.79e 45.82, 10.98 e 61.87

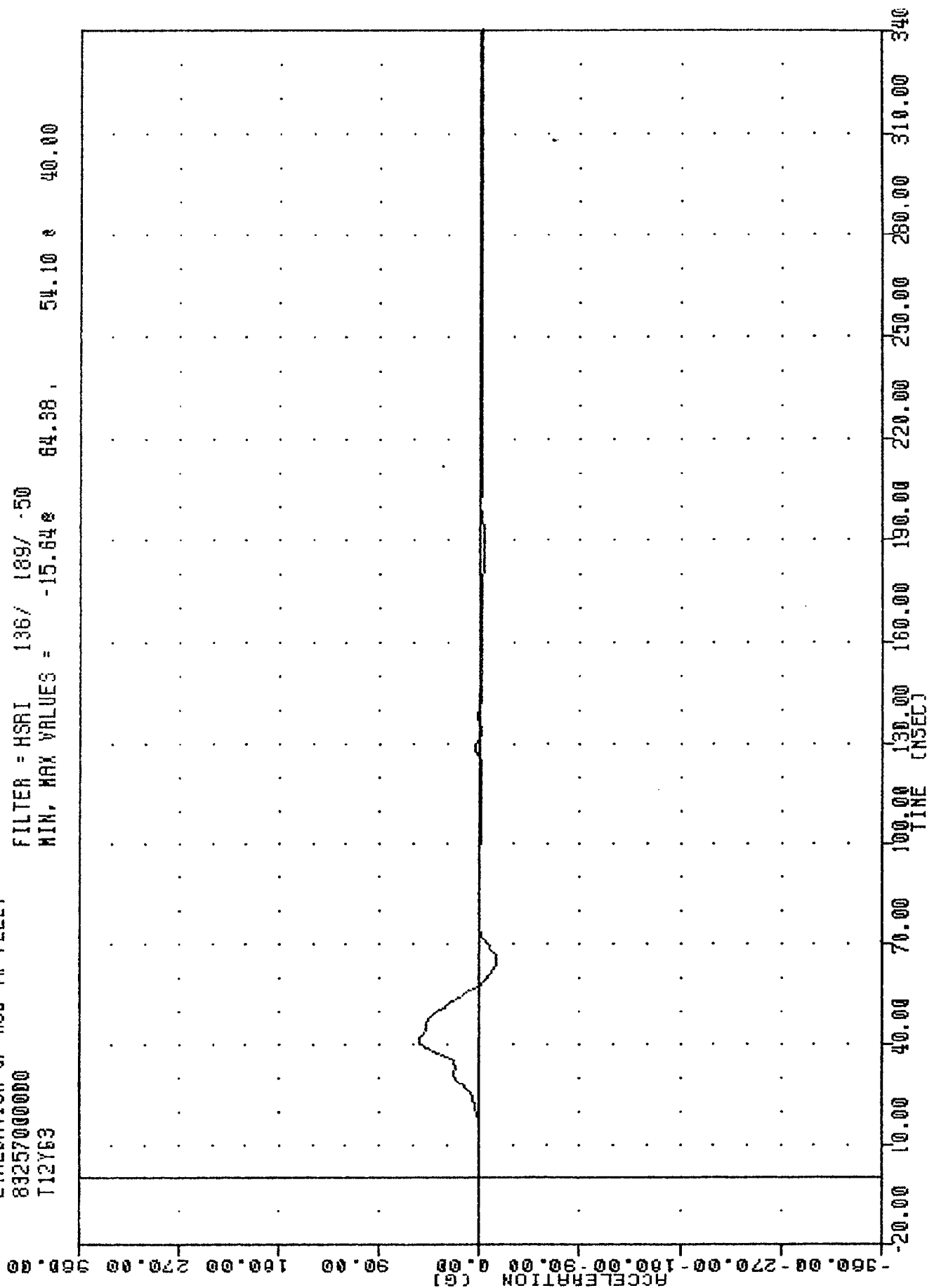


TAC
EVALUATION OF MOD VW FLEET
83257000000
T12Y63

PLOT DATE 19-SEP-83 13:26:47

FILTER = HSRI 136/ 189/ .50

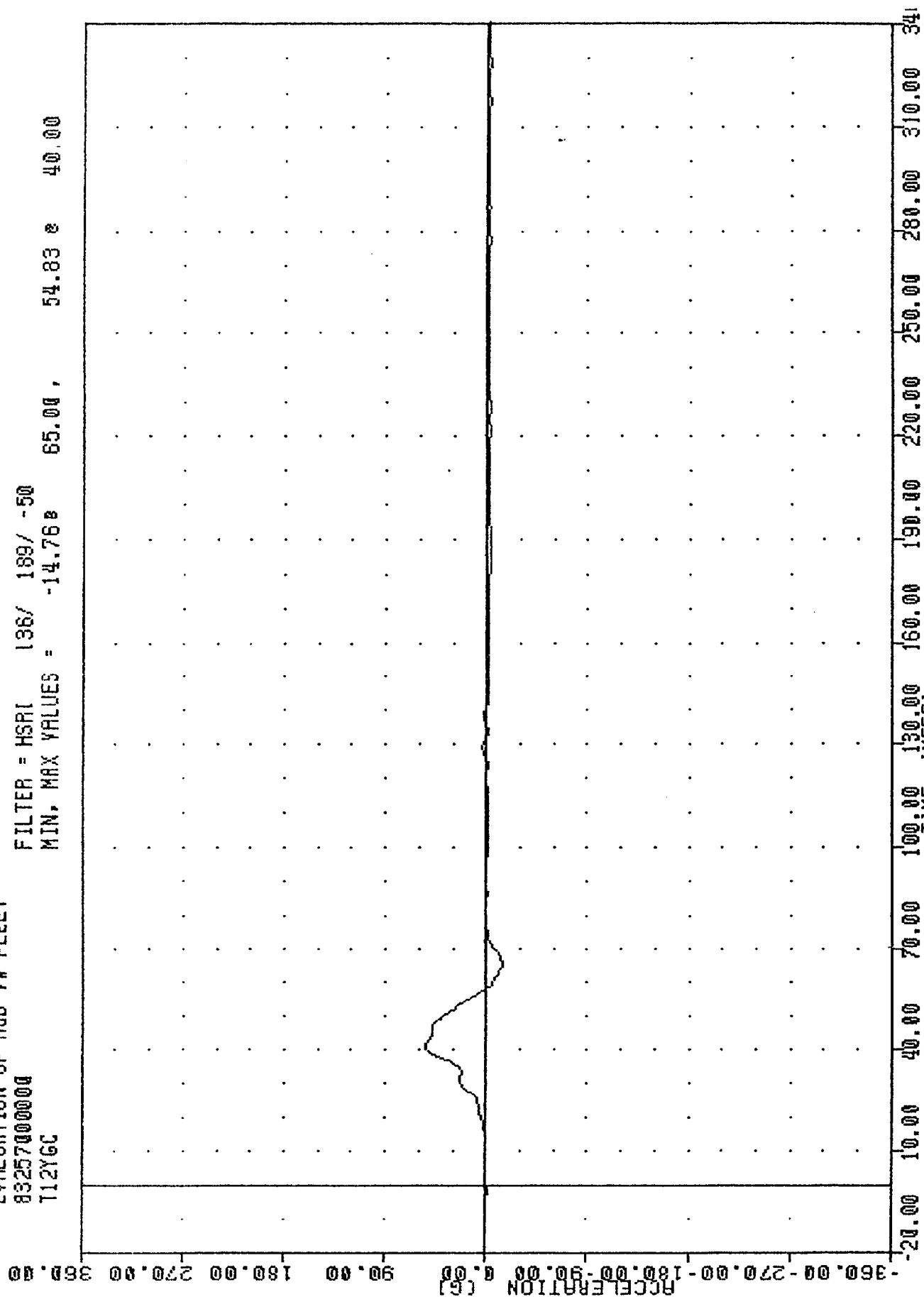
MIN, MAX VALUES = -15.64g 64.38 , 54.10 g 40.00



TRC
EVALUATION OF MOD YW FLEET
83257000000
T12YGC

PLOT DATE 19-SEP-83 13:26:47

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -14.76 65.00, 54.83 40.00



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

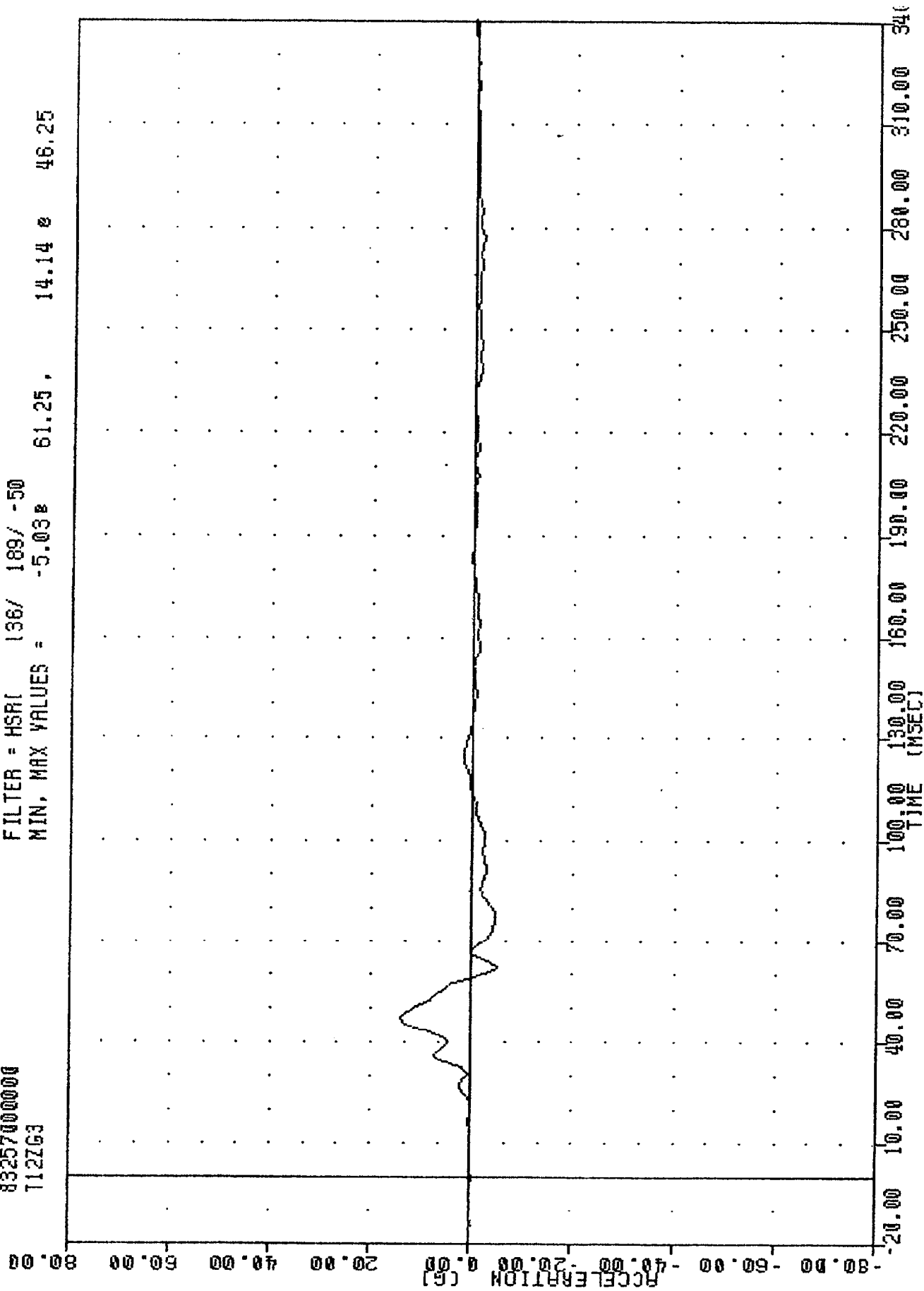
TRC
EVALUATION OF MOD YW FLEET
83257000000
T12ZG3

, 830914

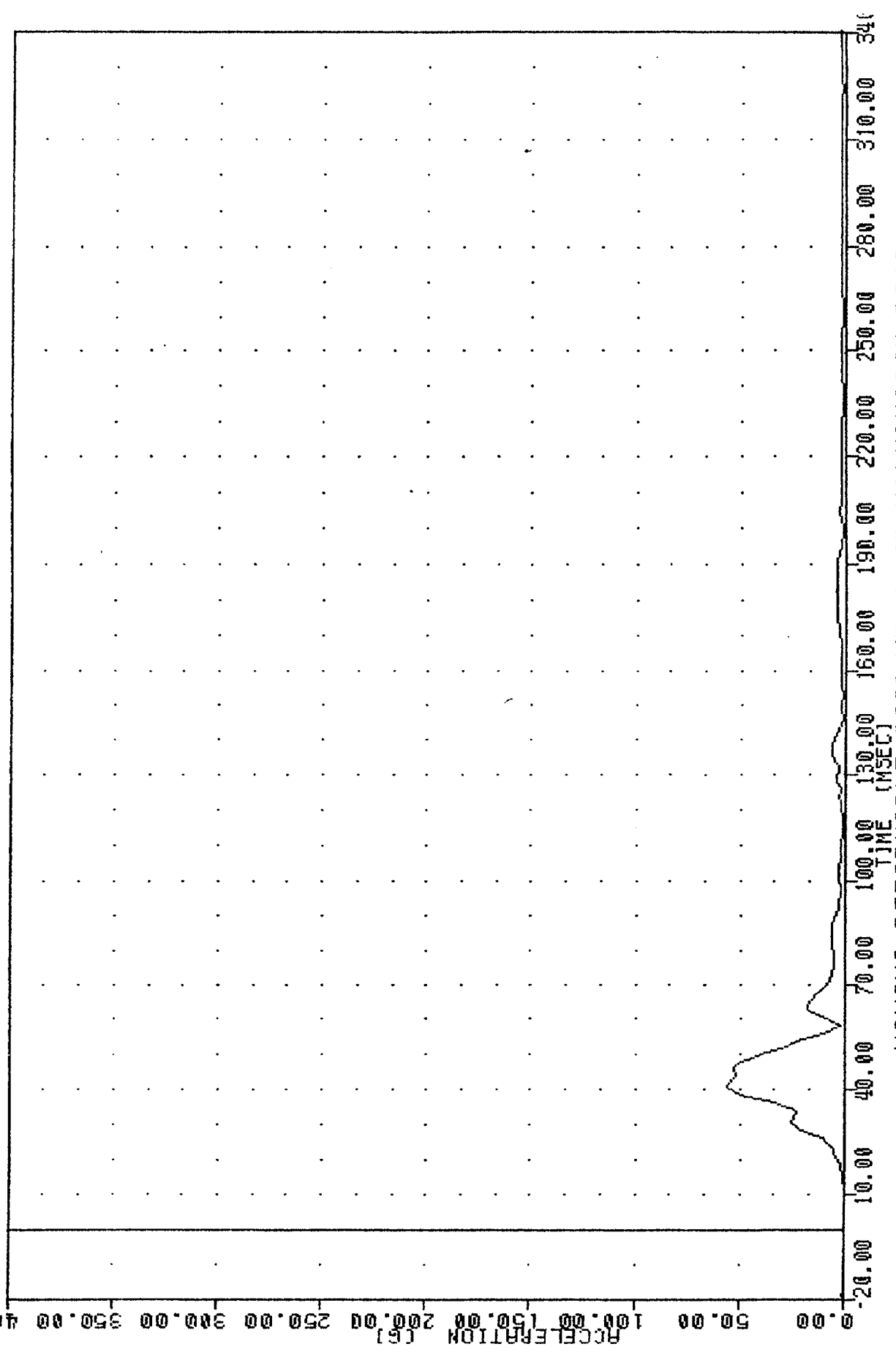
PLOT DATE 19-SEP-83 15:41:53

FILTER = HSR1 136/ 189/ -50

MIN, MAX VALUES = -5.03E 61.25, 14.14 E 46.25



MC 830000
 EVALUATION OF MOD YW FLEET
 83257000000
 T12R63
 TEST DATE 13-SEP-83 13:20:47
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.02 7.50 , 55.60 40.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LOWER SPINE RESULTANT

830631

TEST DATE

13-SEP-83

13:21:36

83257000000

EVALUATION OF MOD VV FLEET

83257000000

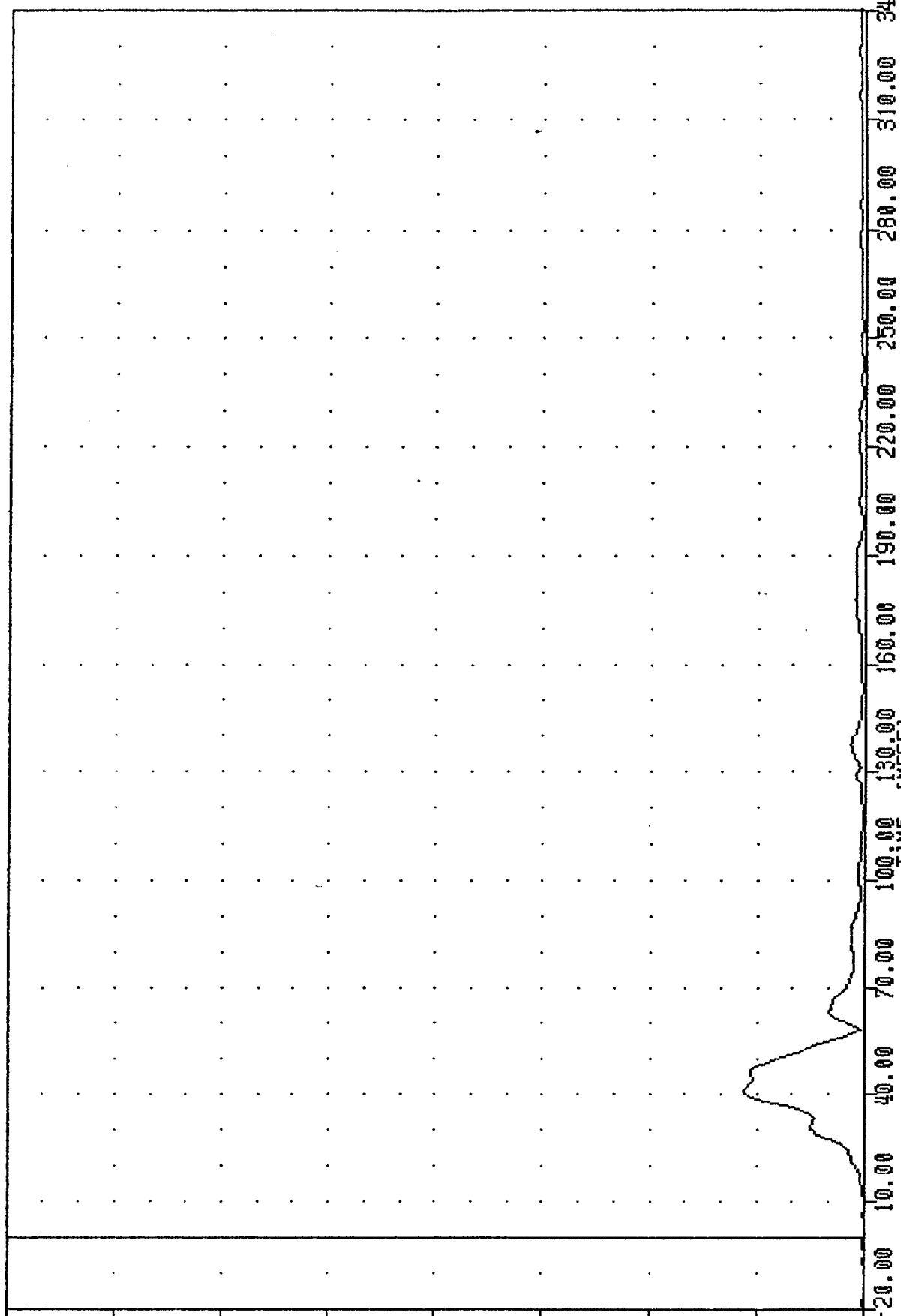
T12RG3

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.08 56.31 40.00

-10.00

ACCELERATION (G)



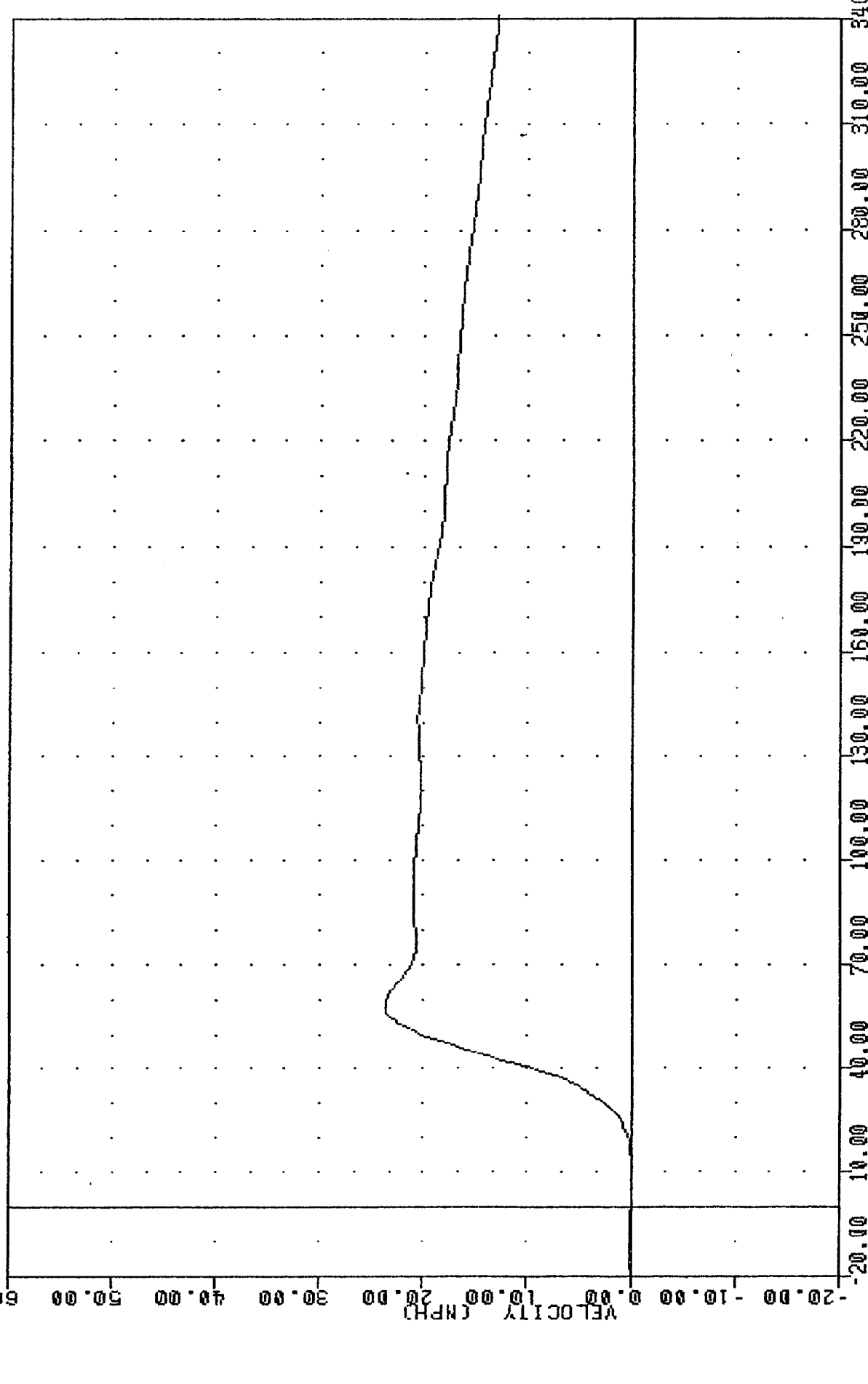
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LOWER SPINE RESULTANT USING T12YGC

MC 830514
 EVALUATION OF MOD VN FLEET
 83257000000
 T12YV3
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.028 6.88, 23.14 s 57.50
 TLOT DATE 13-SEP-83 13:33:04



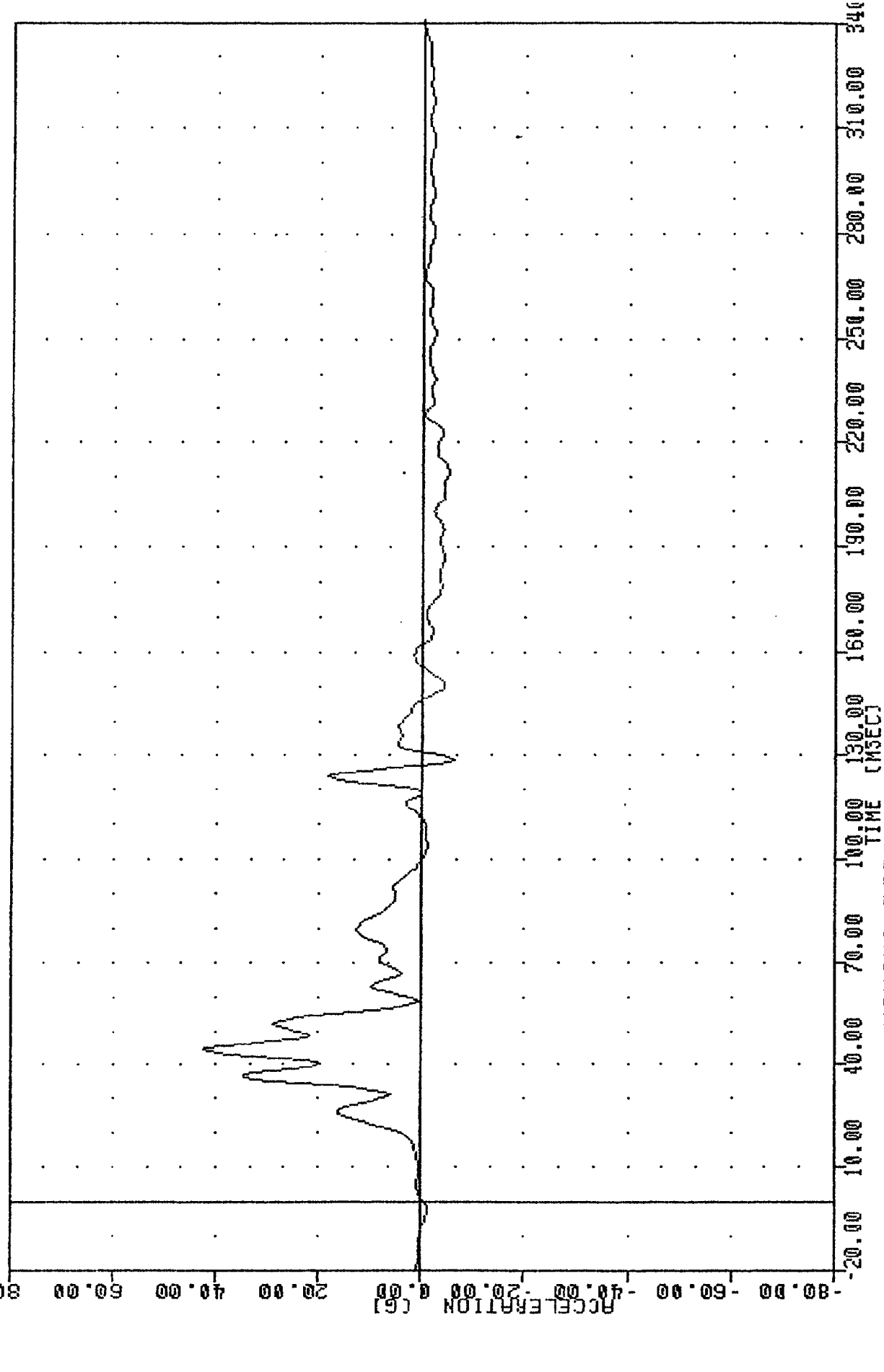
-20.00 10.00 20.00 30.00 40.00 50.00 60.00
 VELOCITY (MPH)
 0.00 10.00 20.00 30.00 40.00 50.00 60.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12YG3

T12YVC
 832570000000
 EVALUATION OF MDD VM FLEET
 832570000000
 T12YVC
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.05e 9.37 , 23.76 e 57.50
 T12YVC
 832570000000
 EVALUATION OF MDD VM FLEET
 832570000000
 T12YVC



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12YGC

INC 830514 13-SEP-03 13:41:33
 EVALUATION OF MOD VN FLEET
 83257000000
 LURYC3
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -6.298 128.13 42.71 43.75



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

TEST DATE 13 SEP 83 13:41 JJJ

83060000

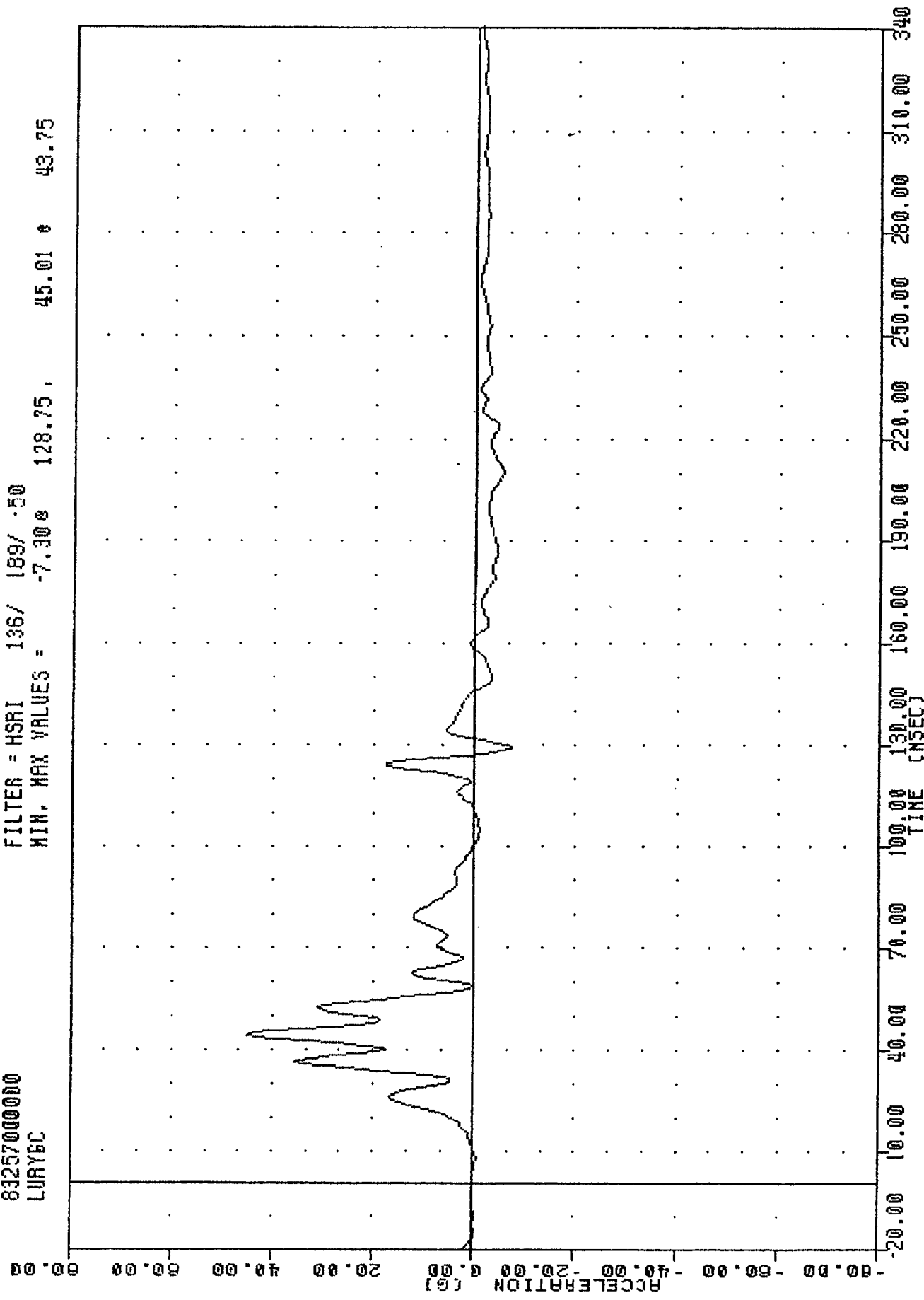
EVALUATION OF MOD VN FLEET

832570000000

LURY6C

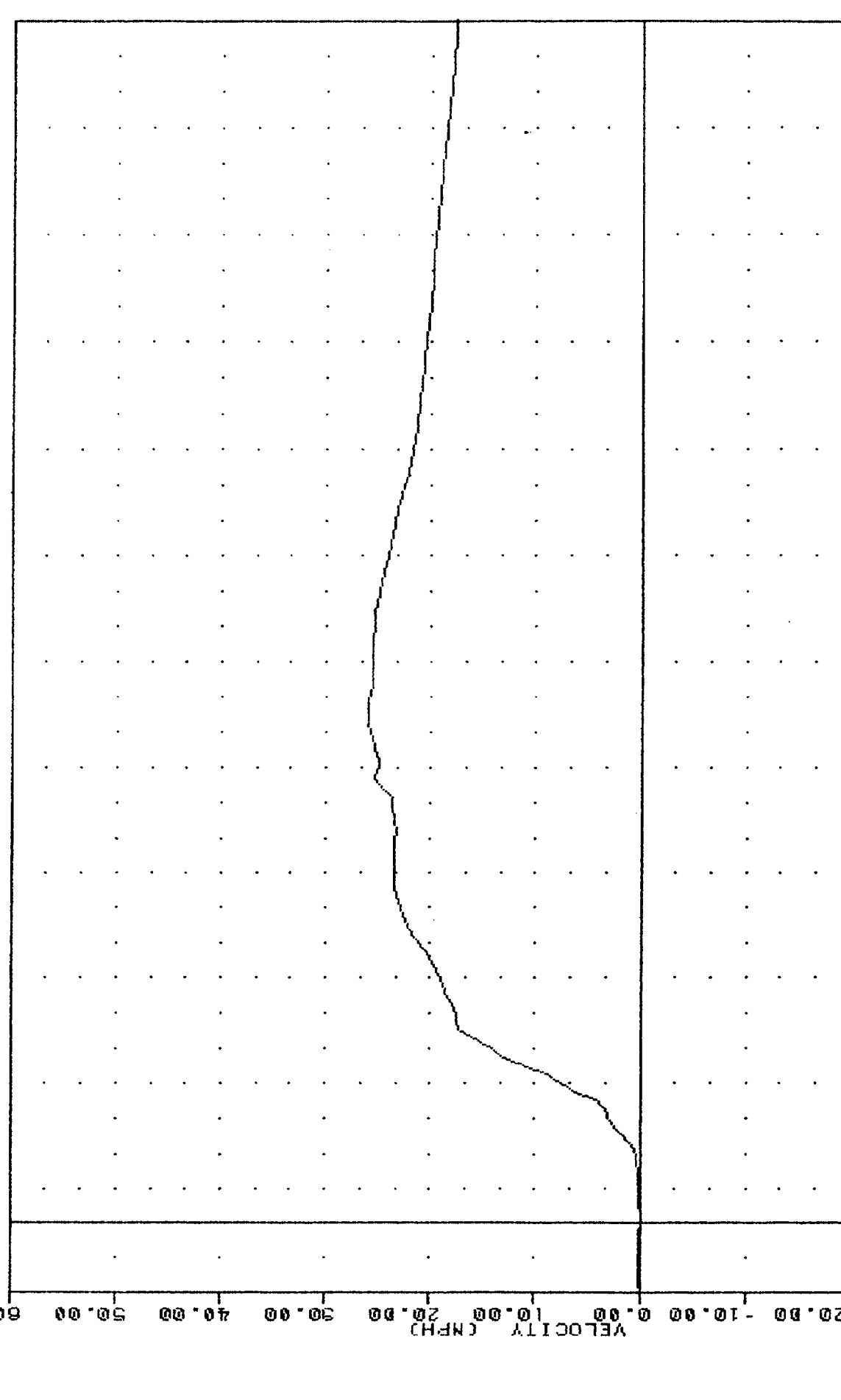
FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -7.30g 128.75, 45.01 g 43.75



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

MC 830512 13-SEP-03 13:53:04
 EVALUATION OF MOD VN FLEET
 83257000000
 LURYV3
 FILTER = HSRI 136/ 189/ .50
 MIN, MAX VALUES = -0.018 0.63, 26.05 * 145.63

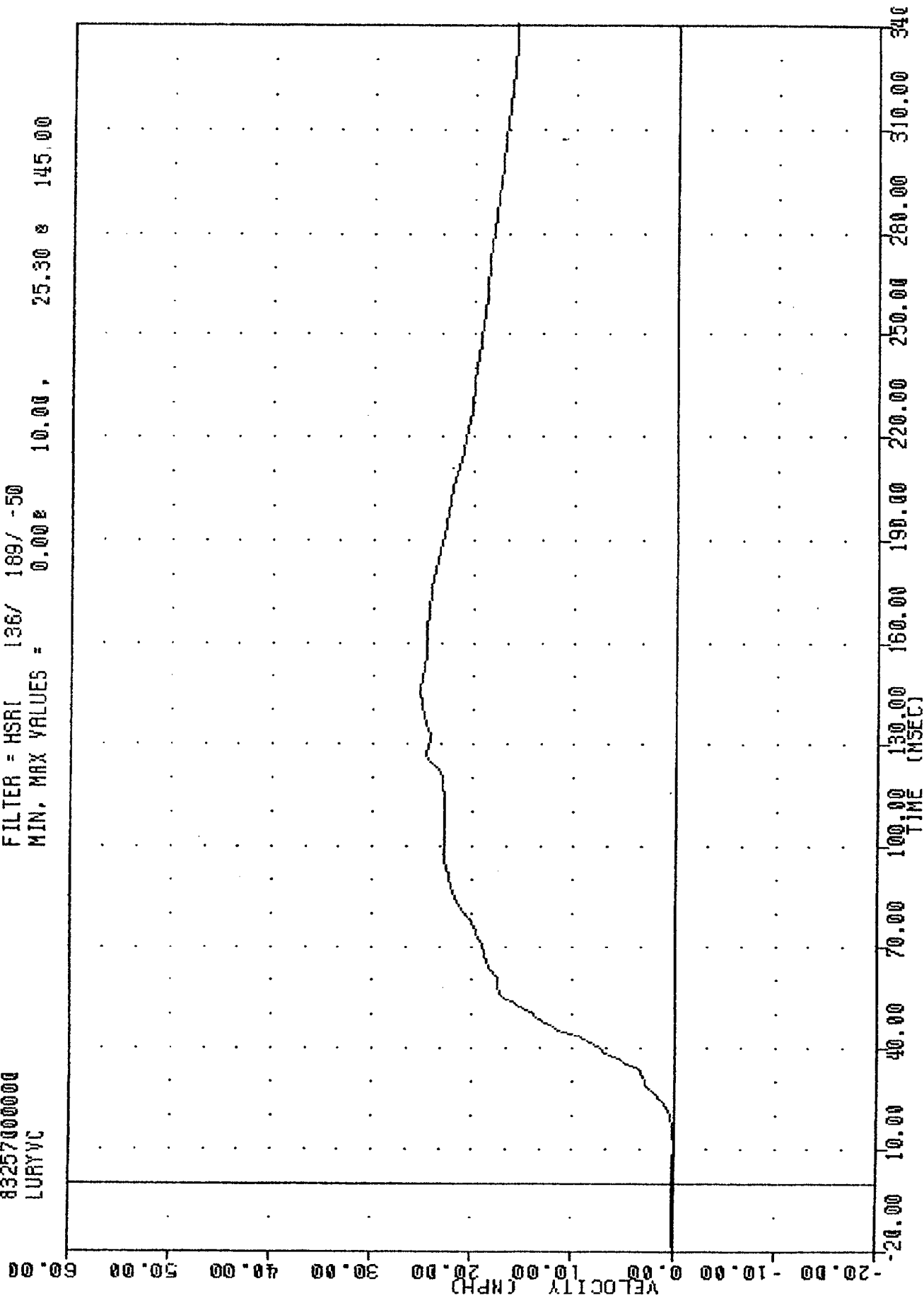


-20.00 10.00 20.00 30.00 40.00 50.00 60.00
 VELOCITY (MPH)
 -20.00 10.00 20.00 30.00 40.00 50.00 60.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYV3

MC 830514
 EVALUATION OF MDD YW FLEET
 83257000000
 LURYVC

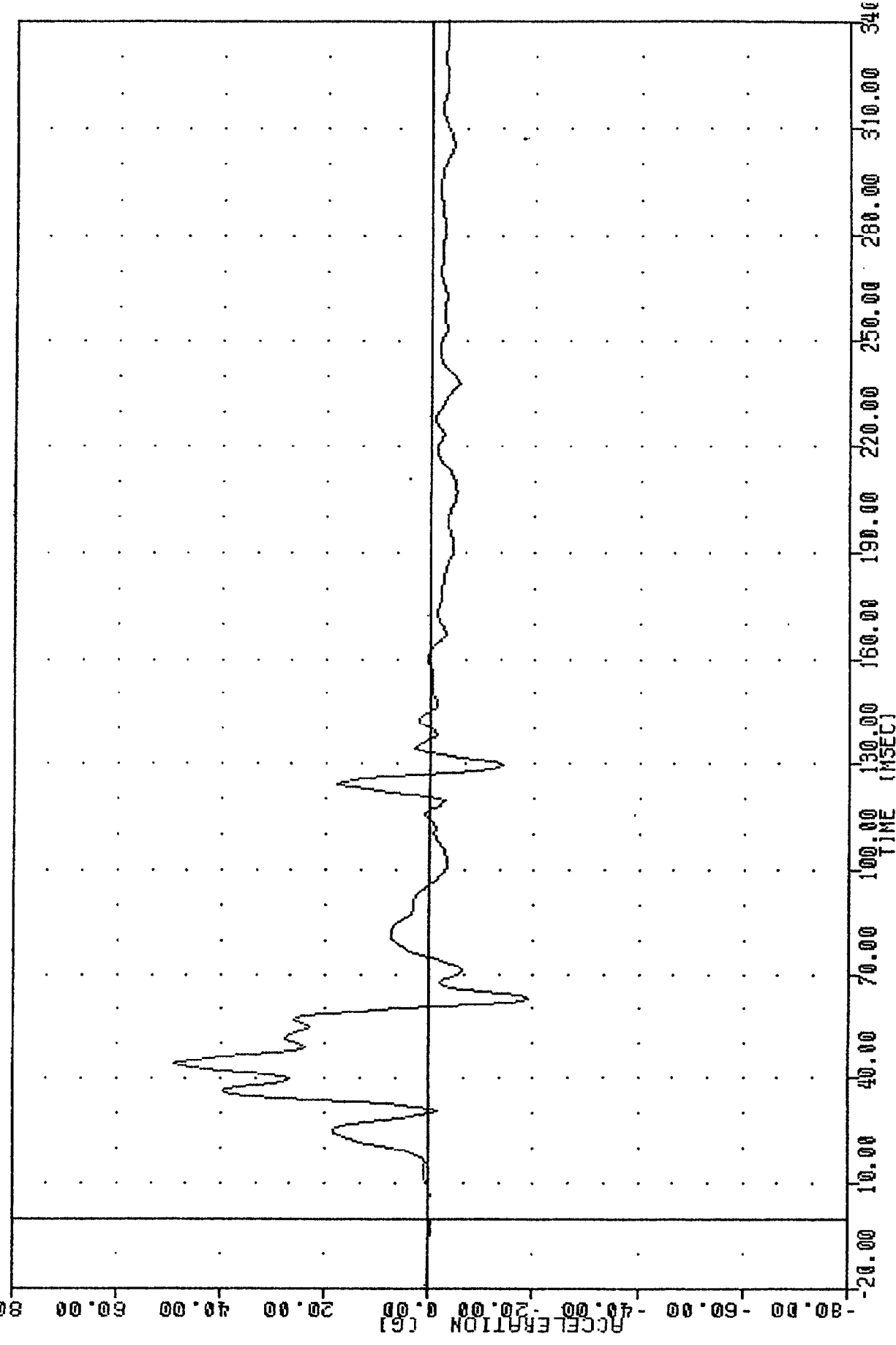
PLOT DATE 13-SEP-83 13:53:04

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.00 10.00 25.30 145.00



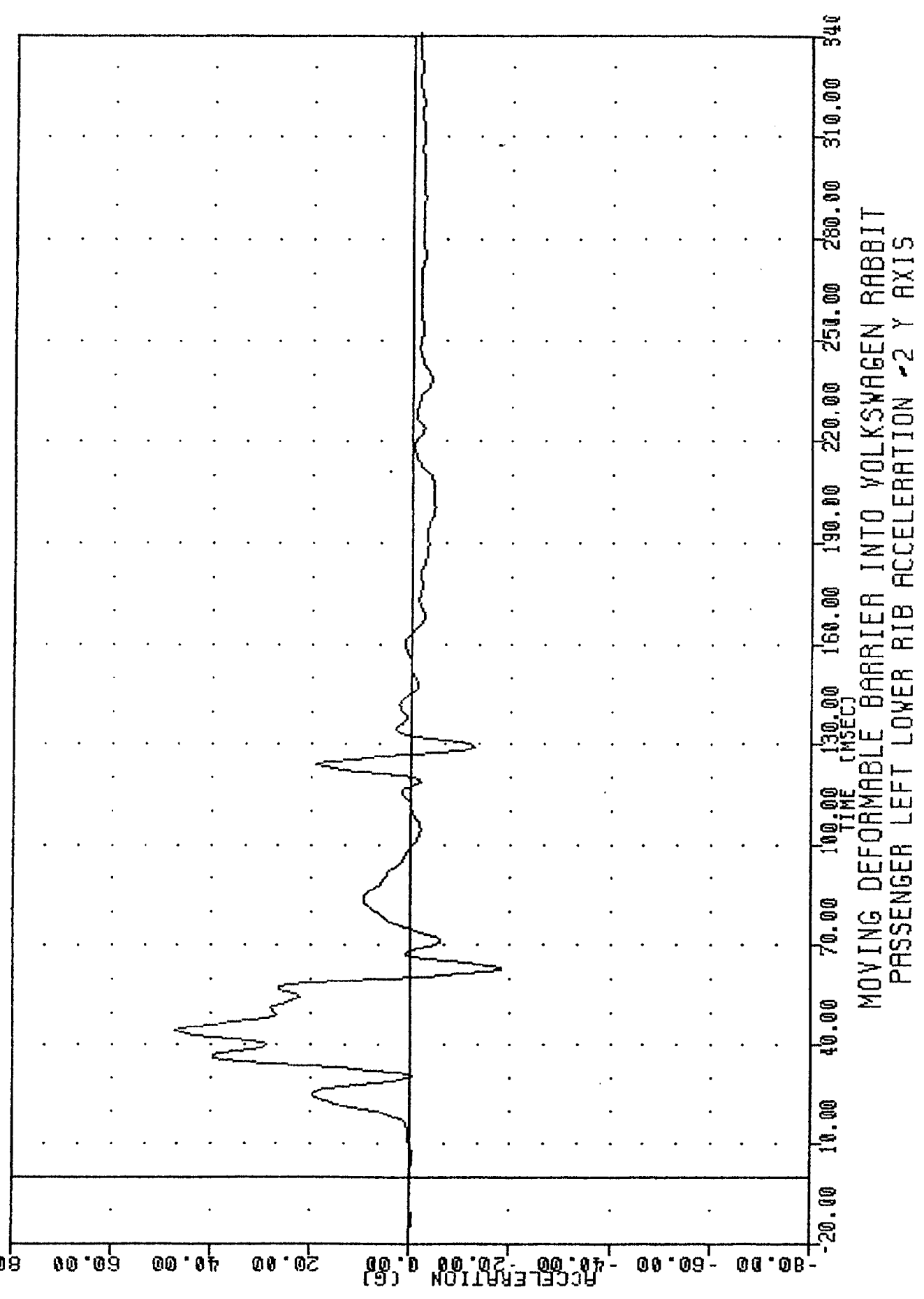
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYGC

MC 830374
 EVALUATION OF MOD YN FLEET
 83257000000
 LLYG3
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -18.83 62.50 , 49.07 43.75
 13-SEP-83 13:41:33

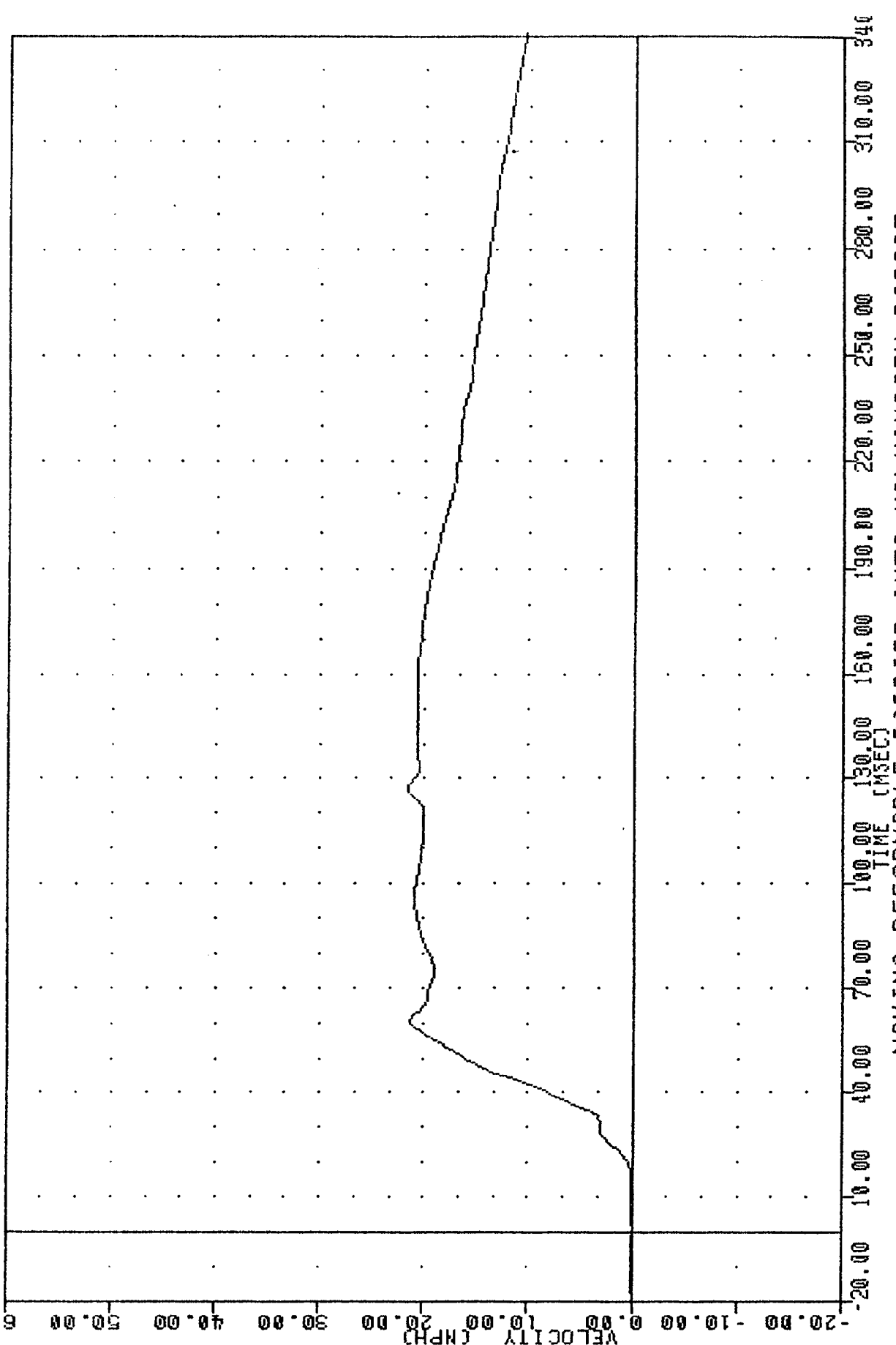


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LEFT LOWER RIB ACCELERATION Y AXIS

INC 830314
 EVALUATION OF MOD V/W FLEET
 83257000000
 LLYG
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -18.07e 61.87, 47.02 e 43.75
 PLOT DATE 18-SEP-83 10:41:33



TRC 830914 19-SEP-83 13:33:04
 EVALUATION OF NDD VV FLEET
 83257000000
 LLYV3
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = 0.00e -20.00, 21.56 e 126.25

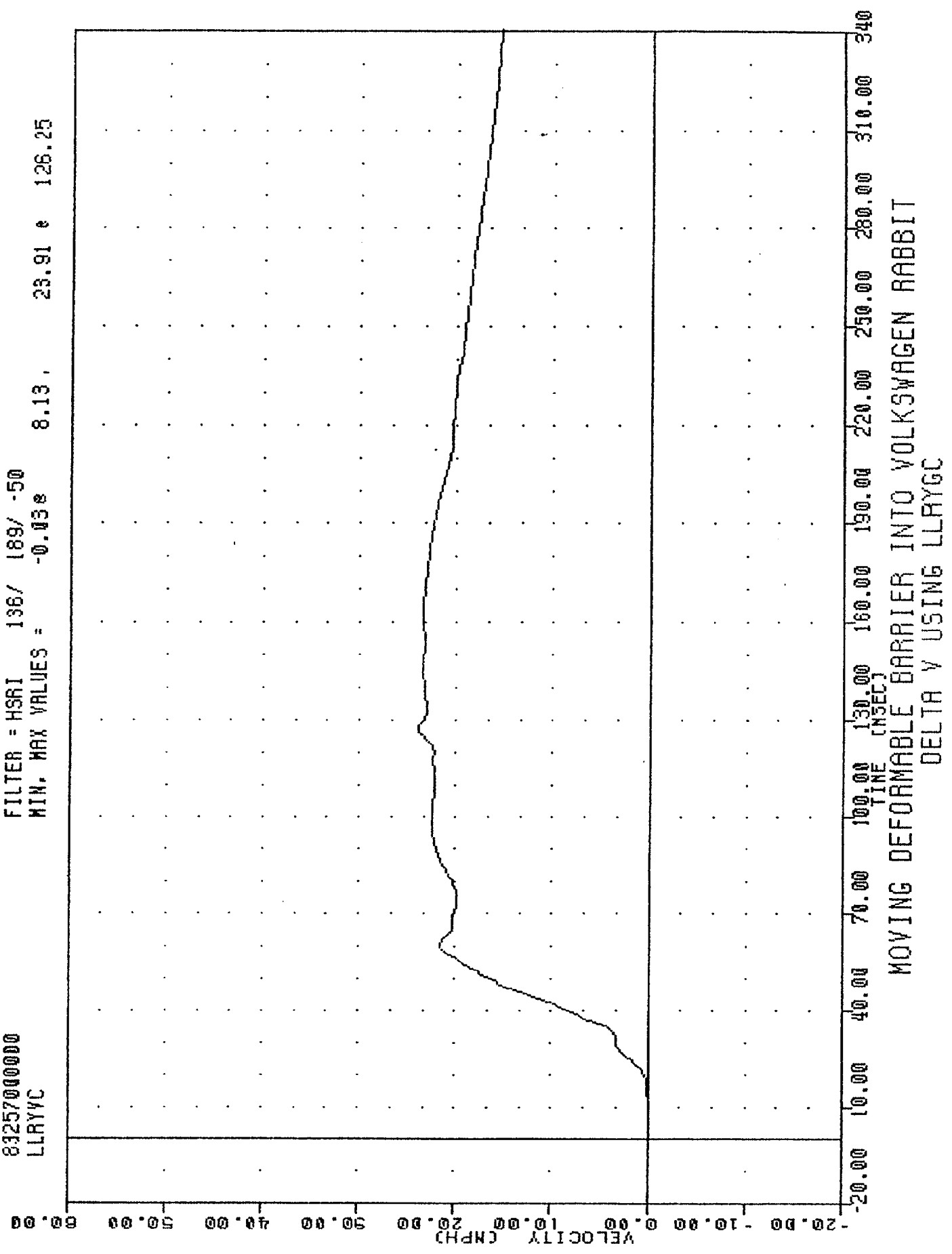


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LLYV3

TMC
 EVALUATION OF MOD VW FLEET
 83257000000
 LLRYVC

830514
 13-SEP-63 13:33:04

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.038 8.13, 23.91 & 126.25

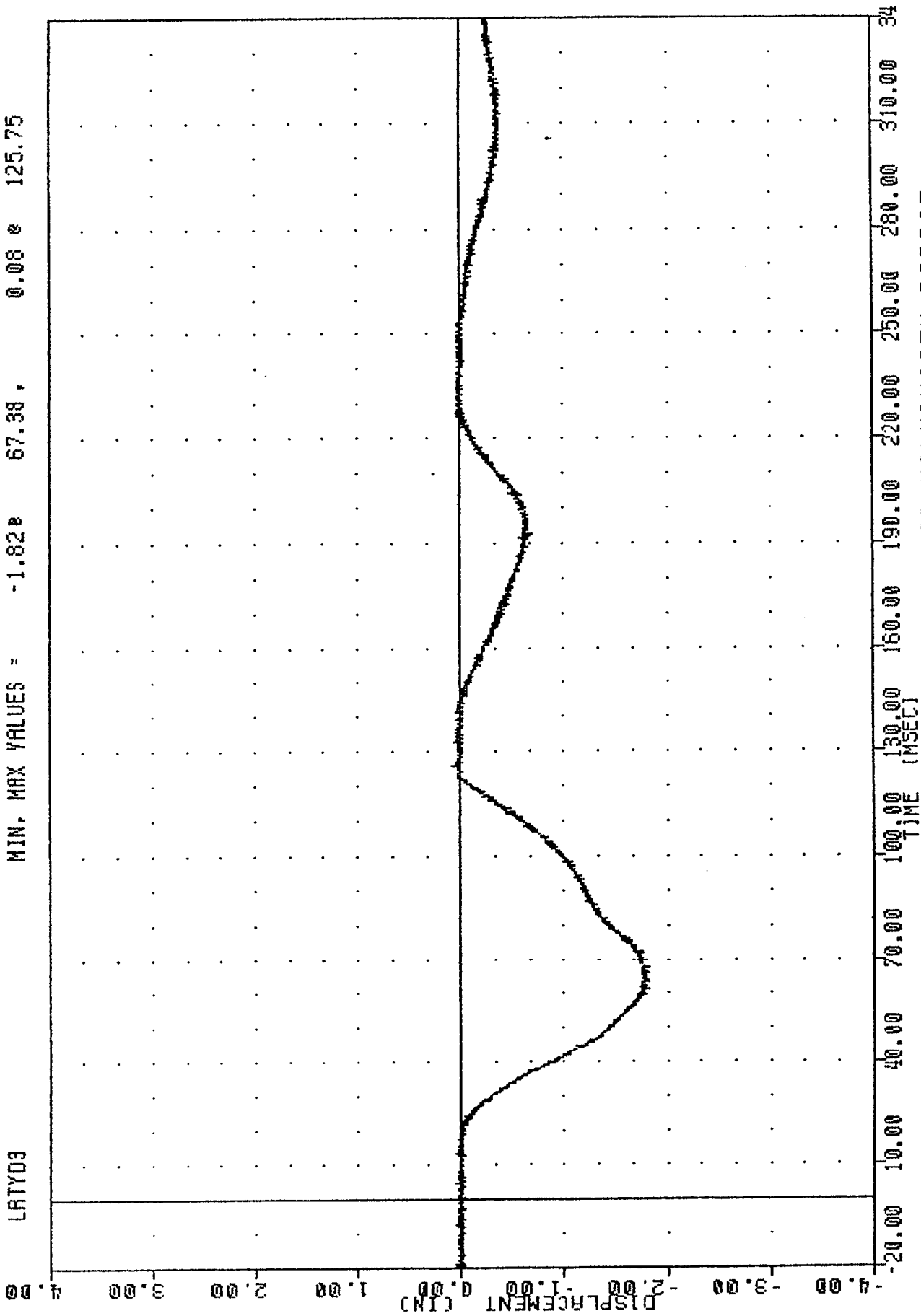


IRC
 EVALUATION OF MOD VN FLEET
 83257000000
 LRTYD3

, 830914

PLUT DATE 19-SEP-83 13:22:31

FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -1.82e 67.38, 0.08 e 125.75



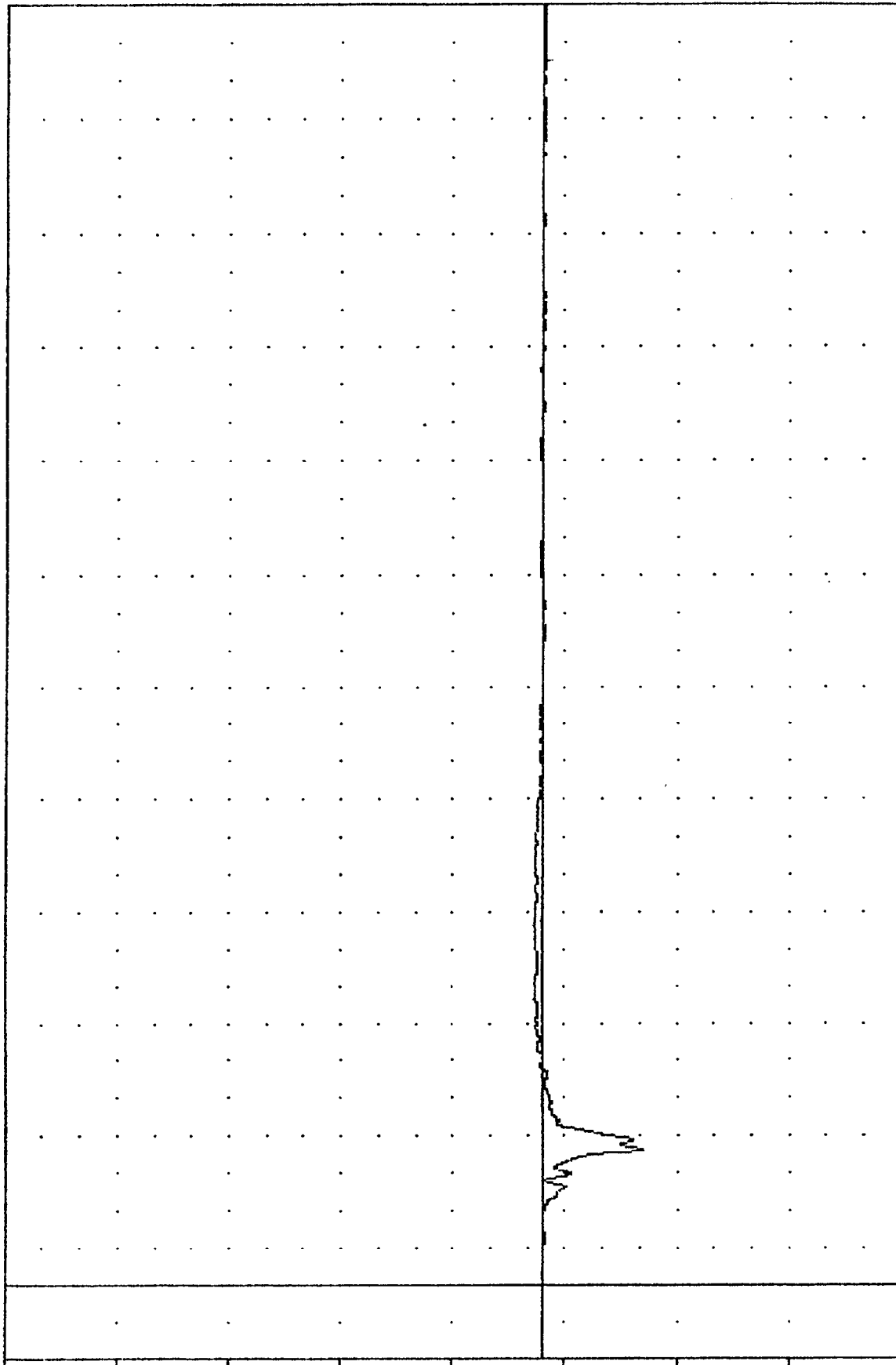
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LEFT RIB TO SPINE DISPLACEMENT INCHES

TRC
EVALUATION OF MOD VV FLEET
83257000000
PEVXG3

PLOT DATE 20-SEP-83 09:17:24

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -44.60 36.13, 3.54 99.00

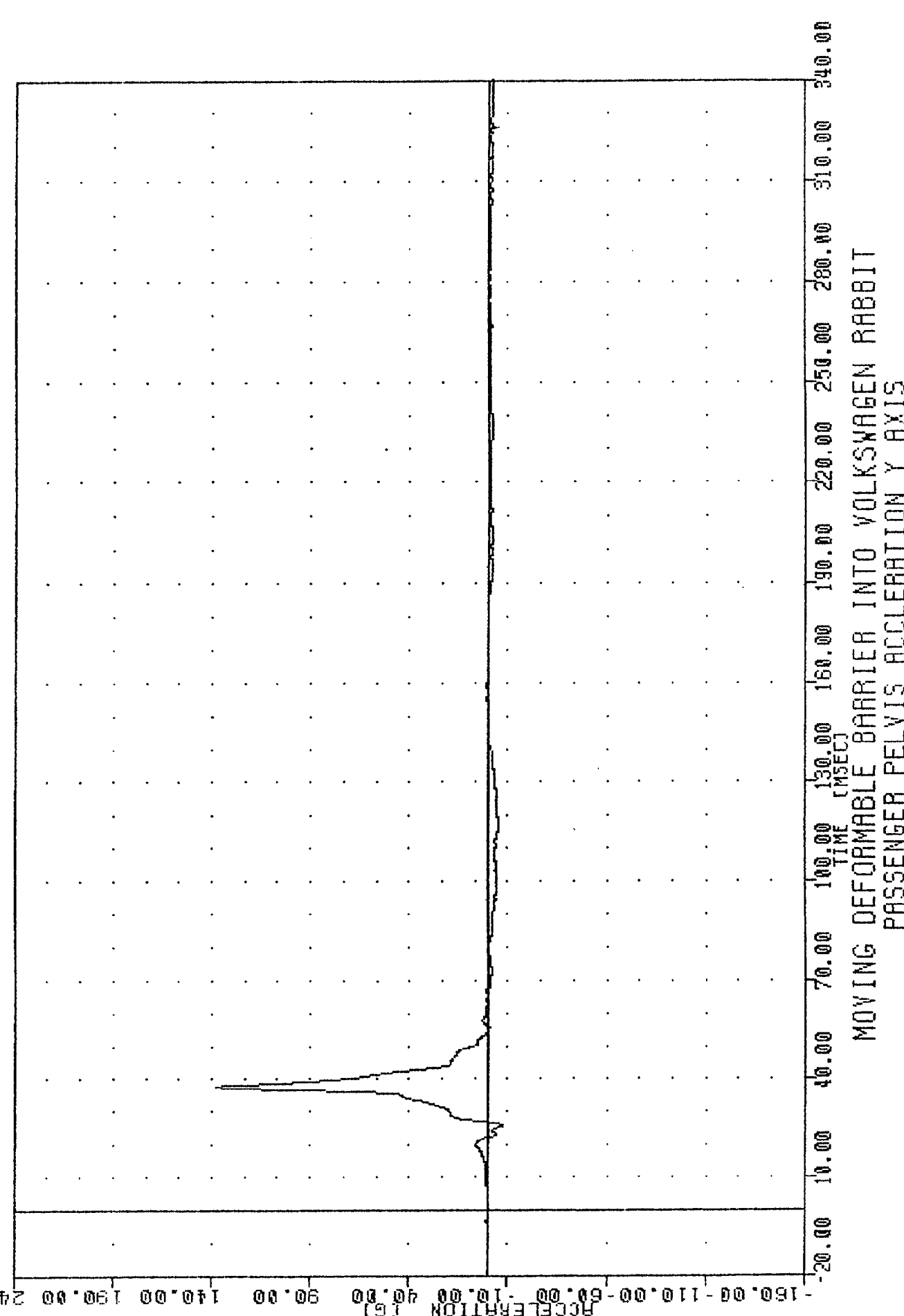
ACCELERATION [G]
-160.00 -110.00 -60.00 -10.00 40.00 90.00 140.00 190.00 240.00



-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)

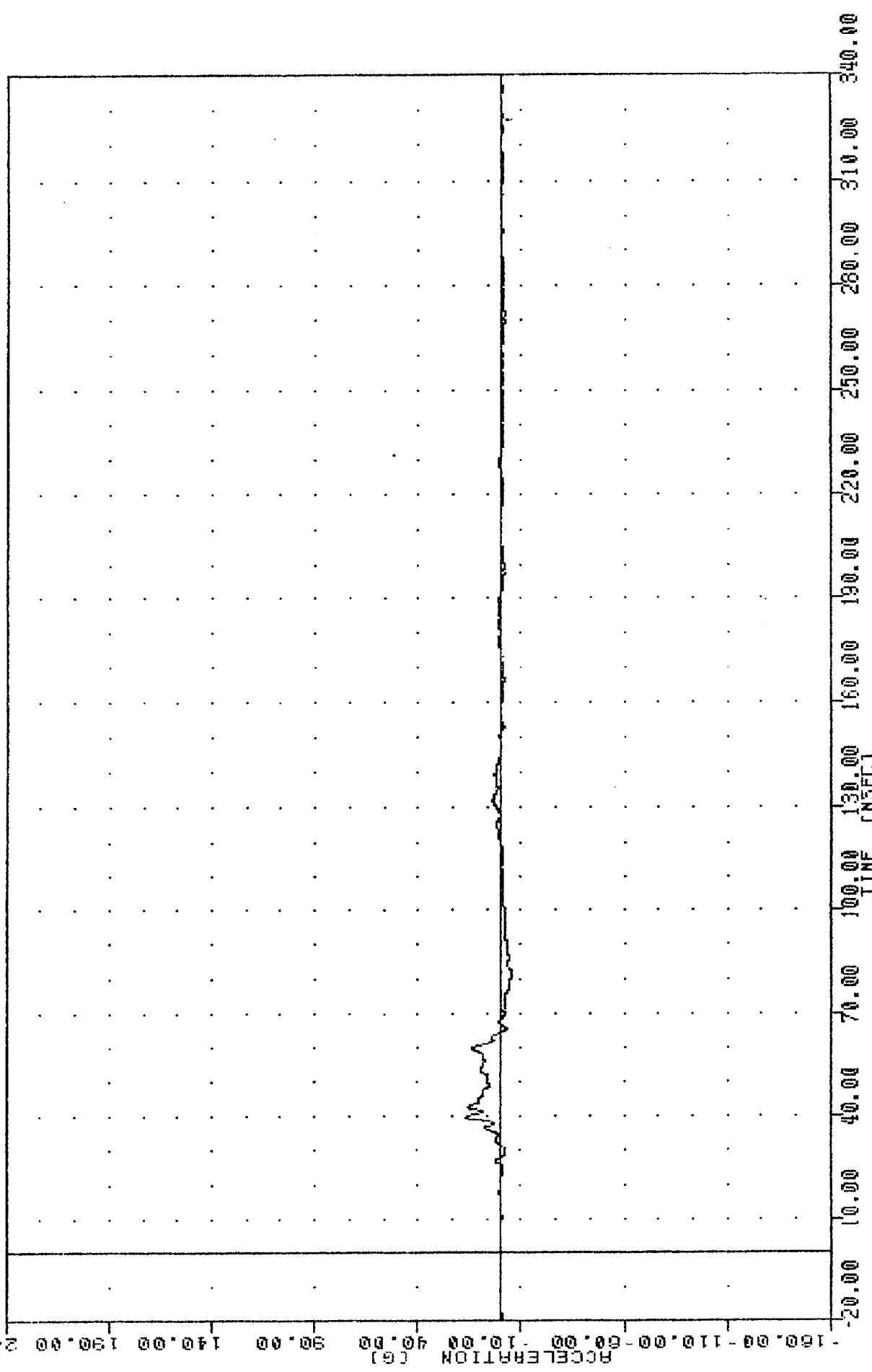
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER PELVIS ACCELERATION X AXIS

TRC 830914
 EVALUATION OF MDD VW FLEET
 83257000000
 PEY63
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -7.230 25.63, 138.24 0 37.38
 PLOT DATE 20-SEP-83 09:17:24



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PELVIS ACCELERATION Y AXIS

TAC 830914
 EVALUATION OF MOD VN FLEET
 83257000000
 PEVZ63
 FILTER = BLPF 300/ 949/ .40
 MIN, MAX VALUES = -5.53e 81.50, 16.53 e 39.50
 PLOT DATE 20-SEP-83 09:17:24

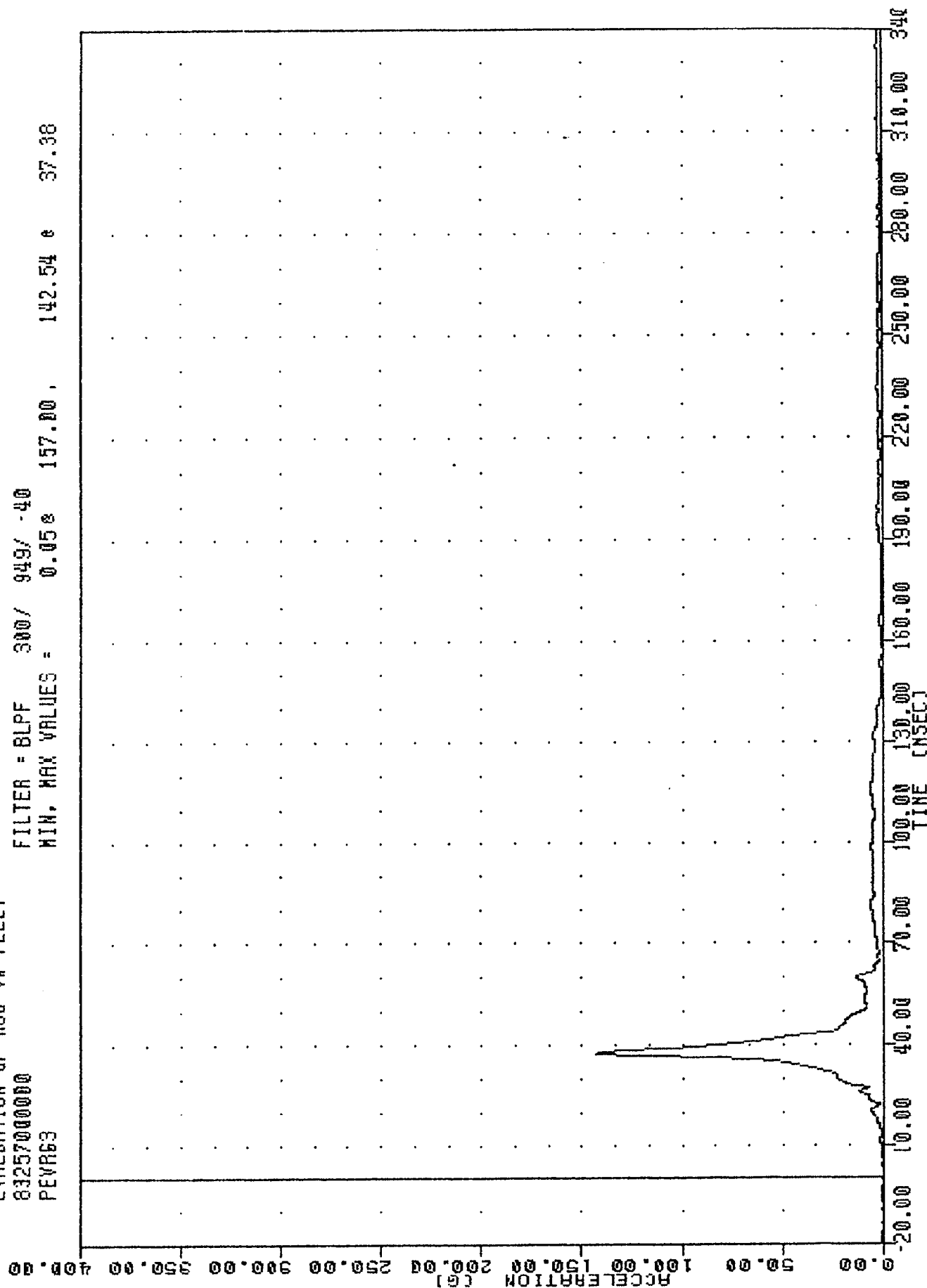


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PELVIS ACCELERATION Z AXIS

TAC
EVALUATION OF MOD VW FLEET
83257000000
PEVR63

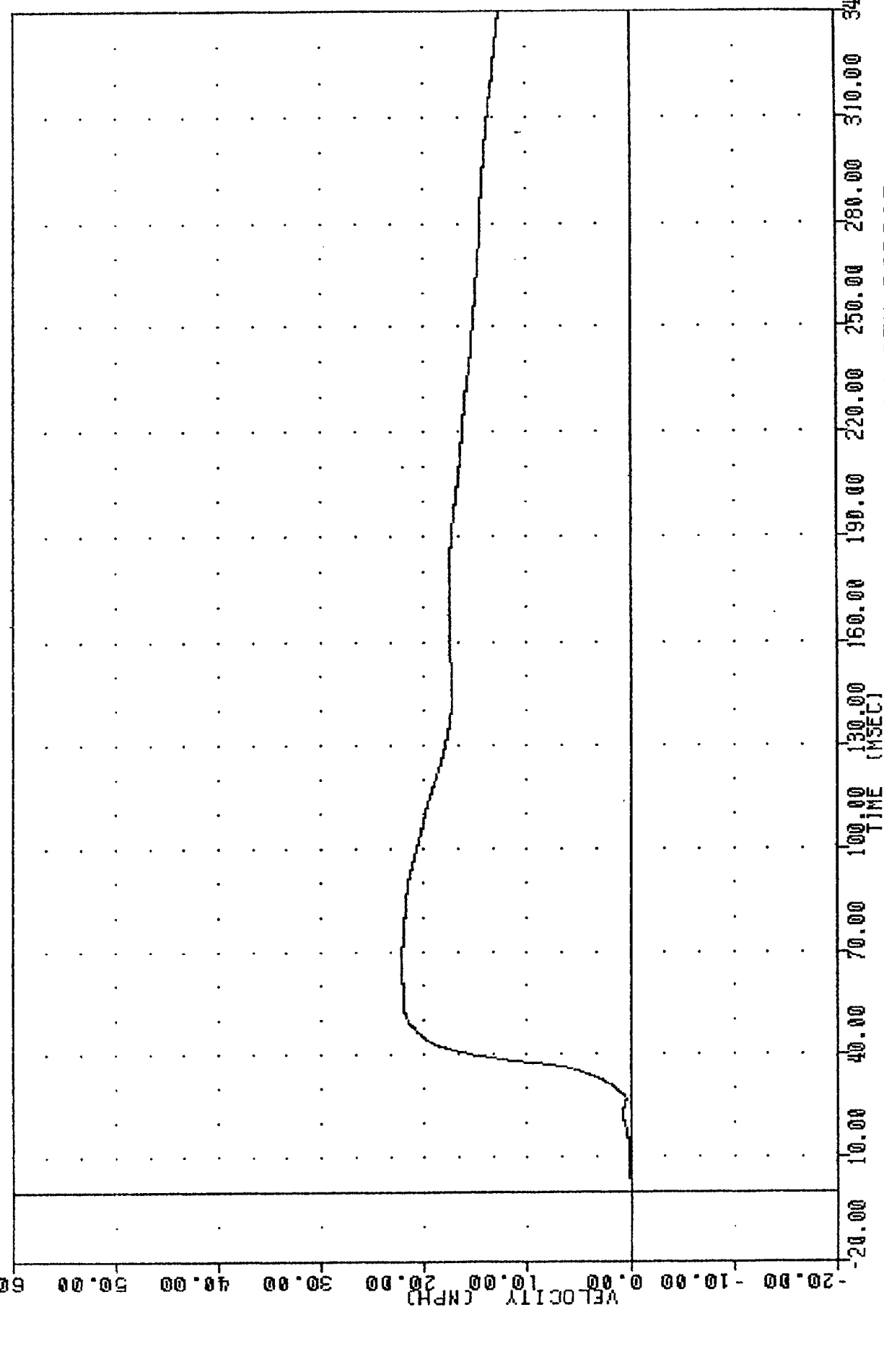
PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = 0.05e 157.00 , 142.54 e 37.38



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER PELVIS RESULTANT

INC 830514 13-SEP-83 13:50:11
 EVALUATION OF MOD VN FLEET
 83257000000
 PEVYV3
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.02e -12.50 , 22.16 e 67.50

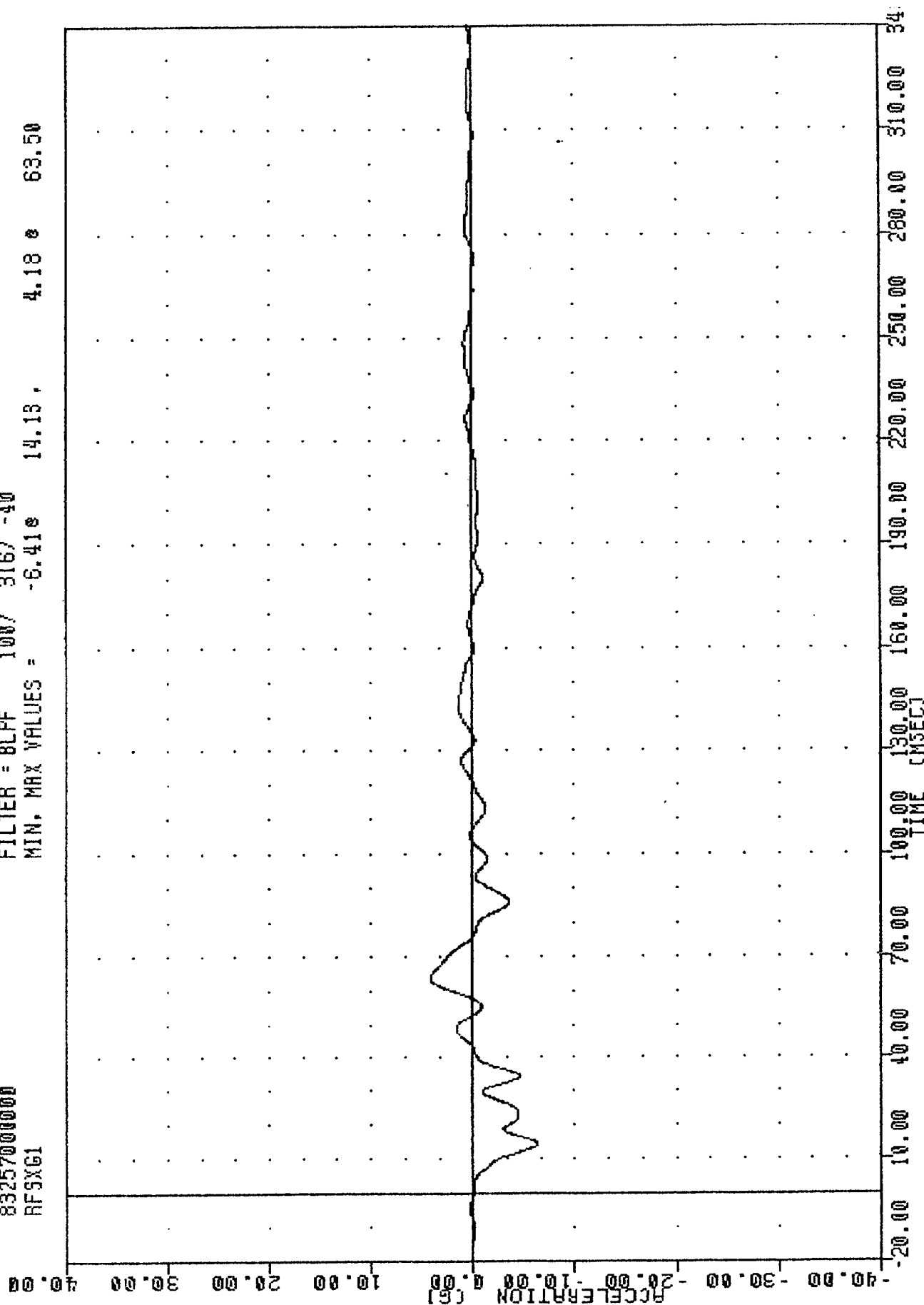


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING PEVYV3

TAC
EVALUATION OF MDD VW FLEET
83257000000
RFSXG1

PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -6.41s 14.13s 4.18s 63.50



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

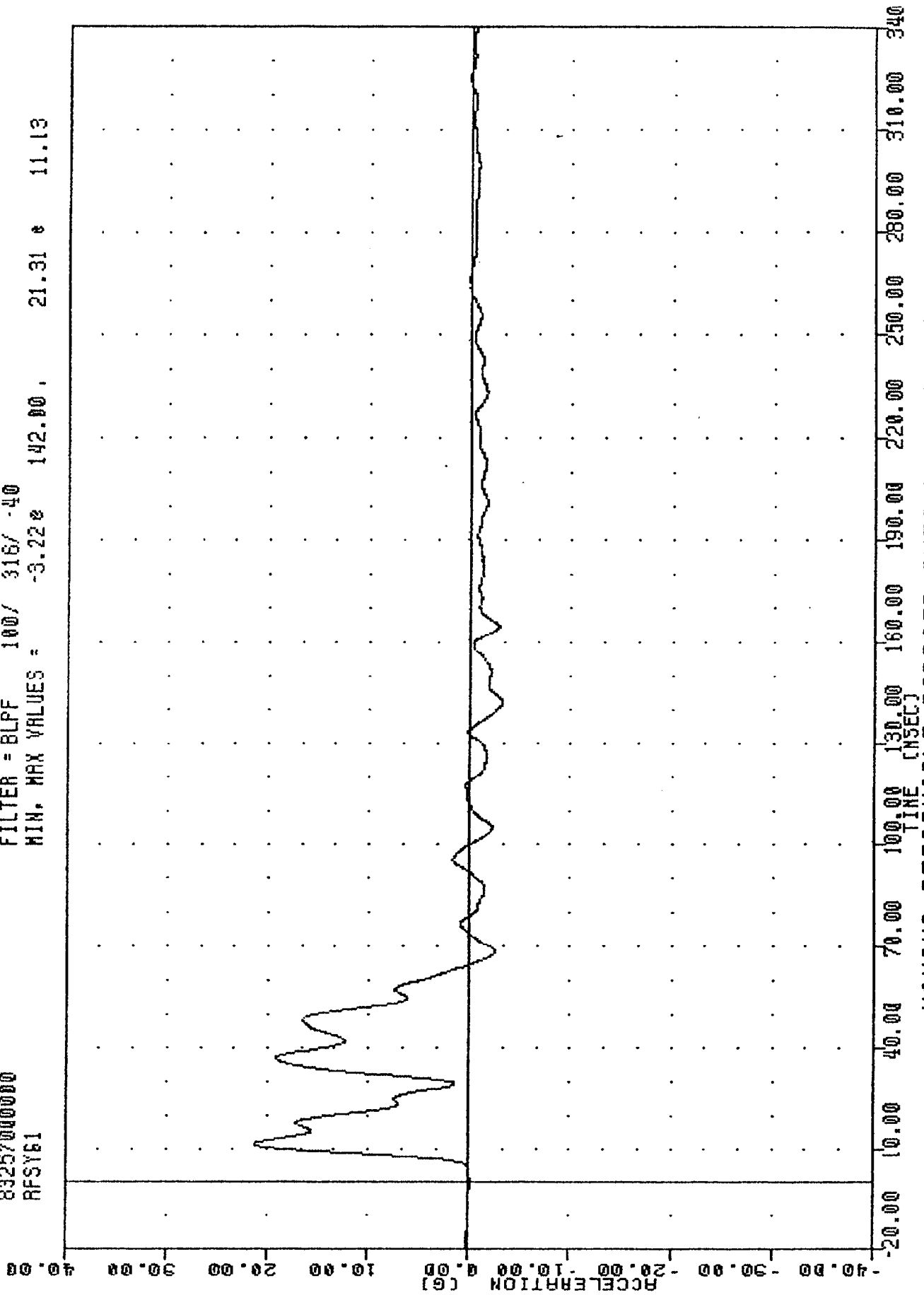
THC
EVALUATION OF MOD VV FLEET
83257000000
RFSY61

, 830914

19-SEP-83

13:22:31

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -3.22e 142.00, 21.31 e 11.13



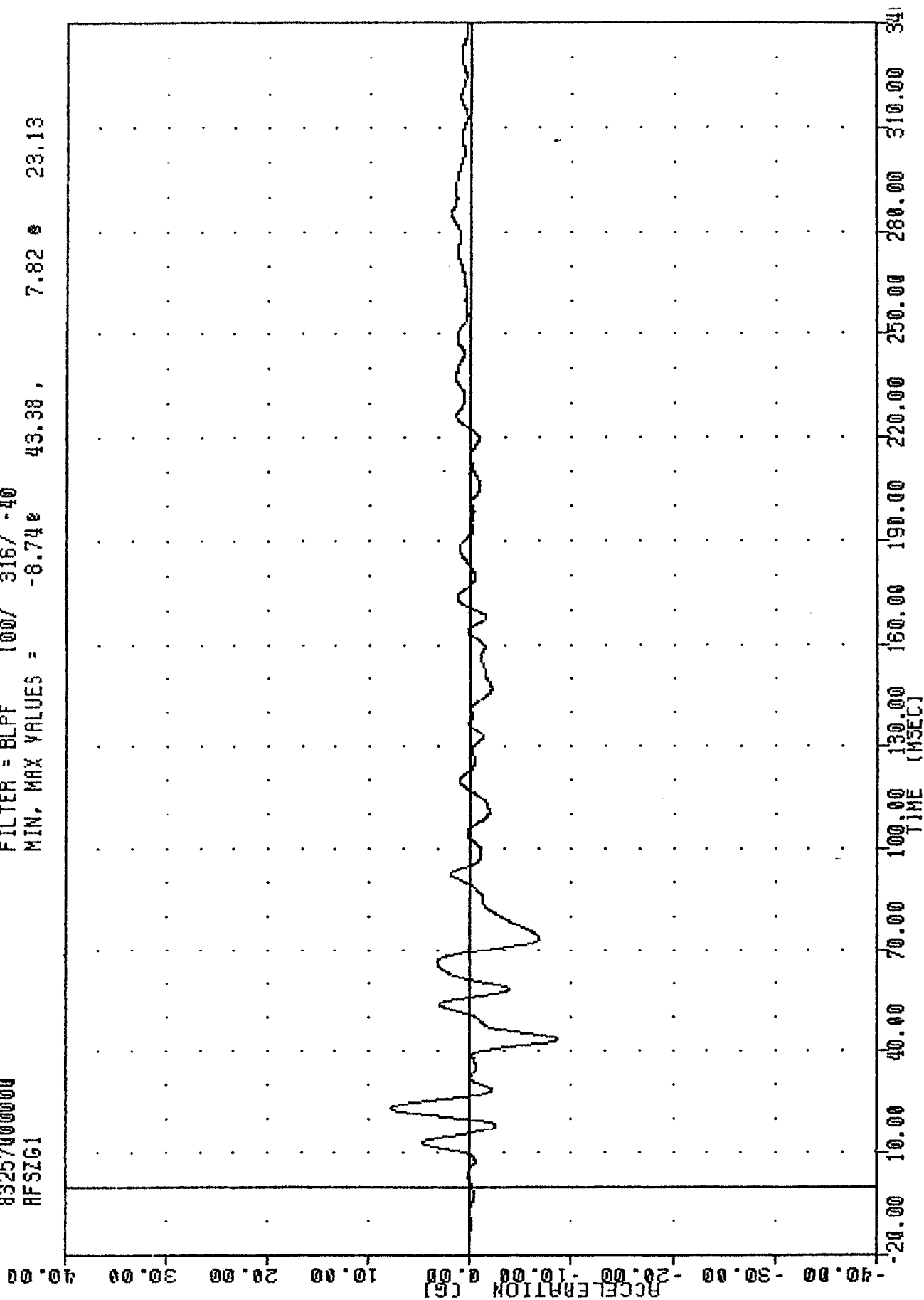
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT FRONT SILL ACCELERATION Y AXIS

TRC
EVALUATION OF MOD YW FLEET
83257400000
RFSZG1

, 830914

PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -8.74e 43.38, 7.82 e 23.13



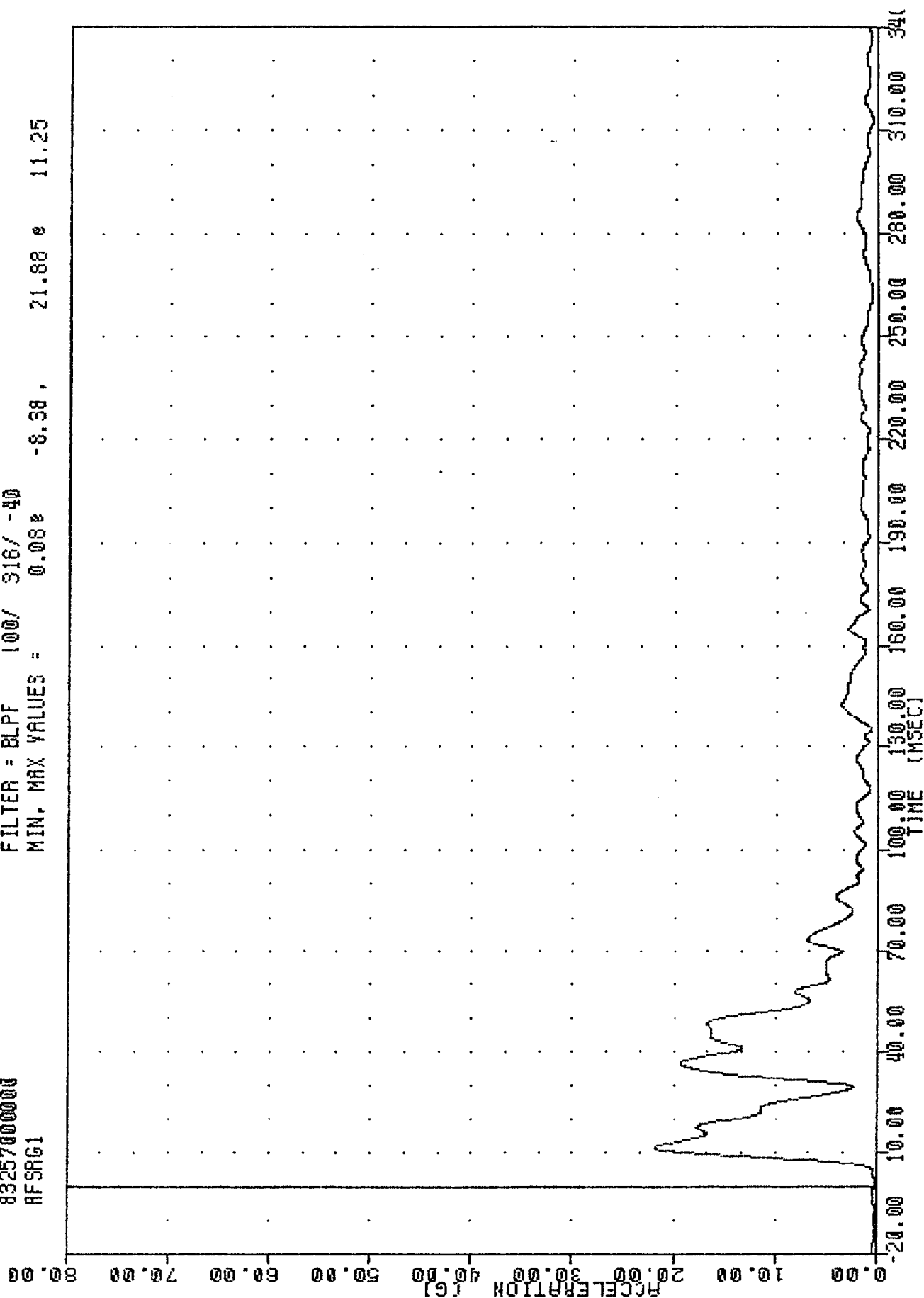
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT FRONT SILL ACCELERATION Z AXIS

TRC
EVALUATION OF MOD YW FLEET
83257000000
RFSRG1

PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = 0.068 -8.38 21.88 11.25

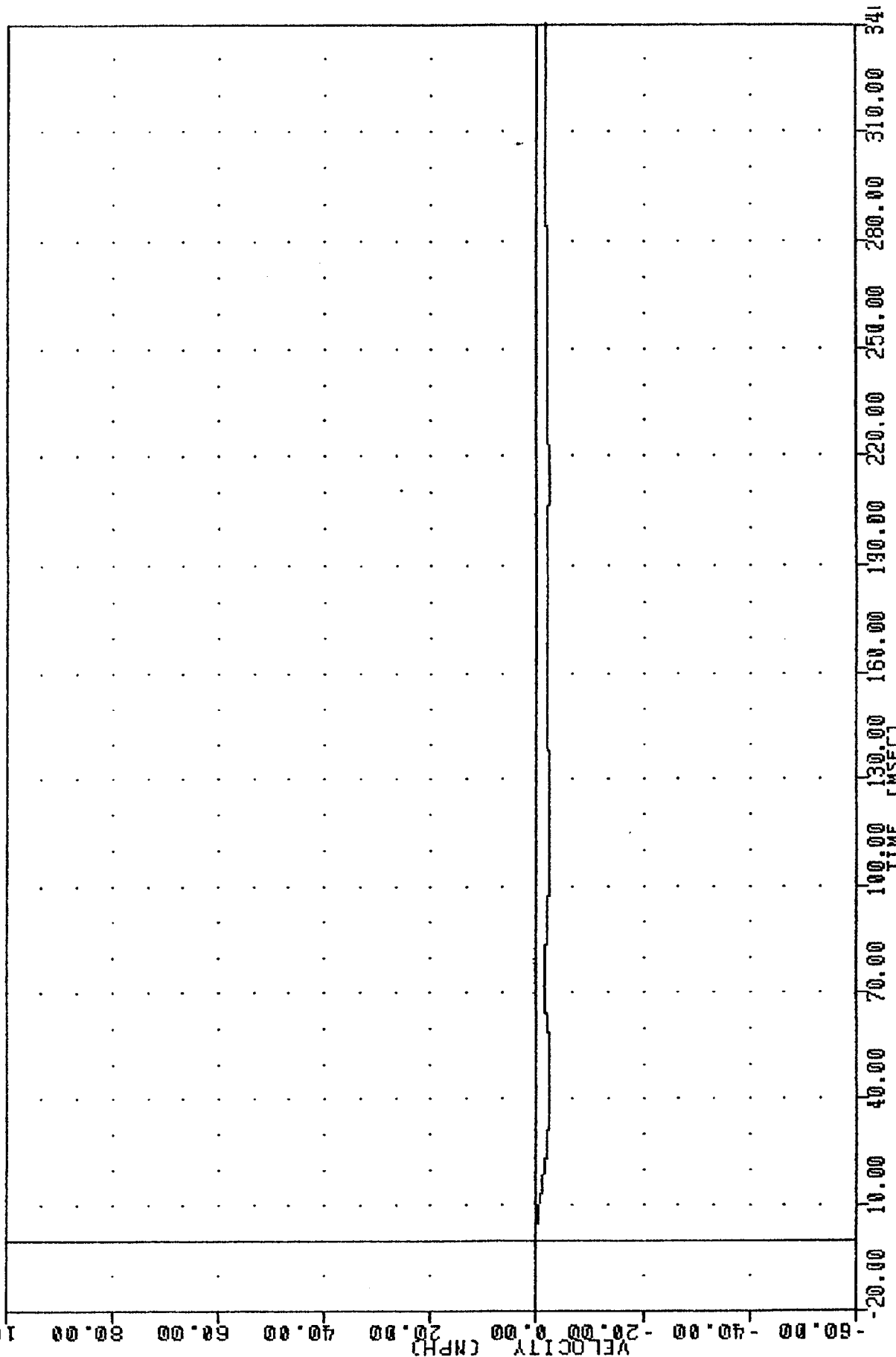


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT FRONT SILL RESULTANT

TAC
EVALUATION OF MDD VW FLEET
832570000000
RFSXV1

PLOT DATE 19-SEP-83 13:56:11

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -2.528 39.38, 0.018 -4.75



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING RFSXG1

THC
EVALUATION OF MOD VN FLEET
83257000000
RFSYV1

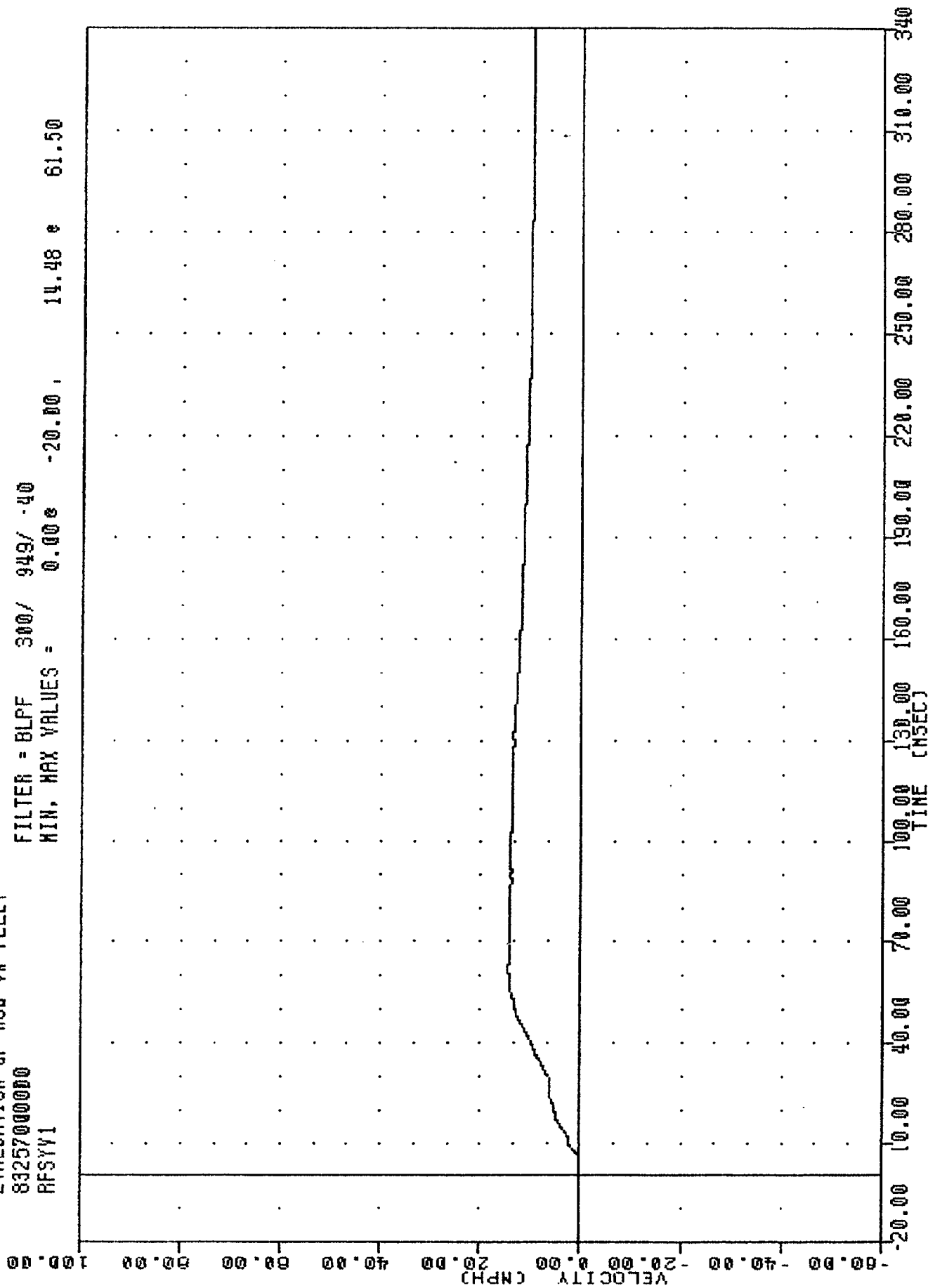
830914

PLOT DATE

19-SEP-83

13:56:11

FILTER = BLPF 300/ 943/ -40
MIN. MAX VALUES = 0.00e -20.00, 14.48 e 61.50

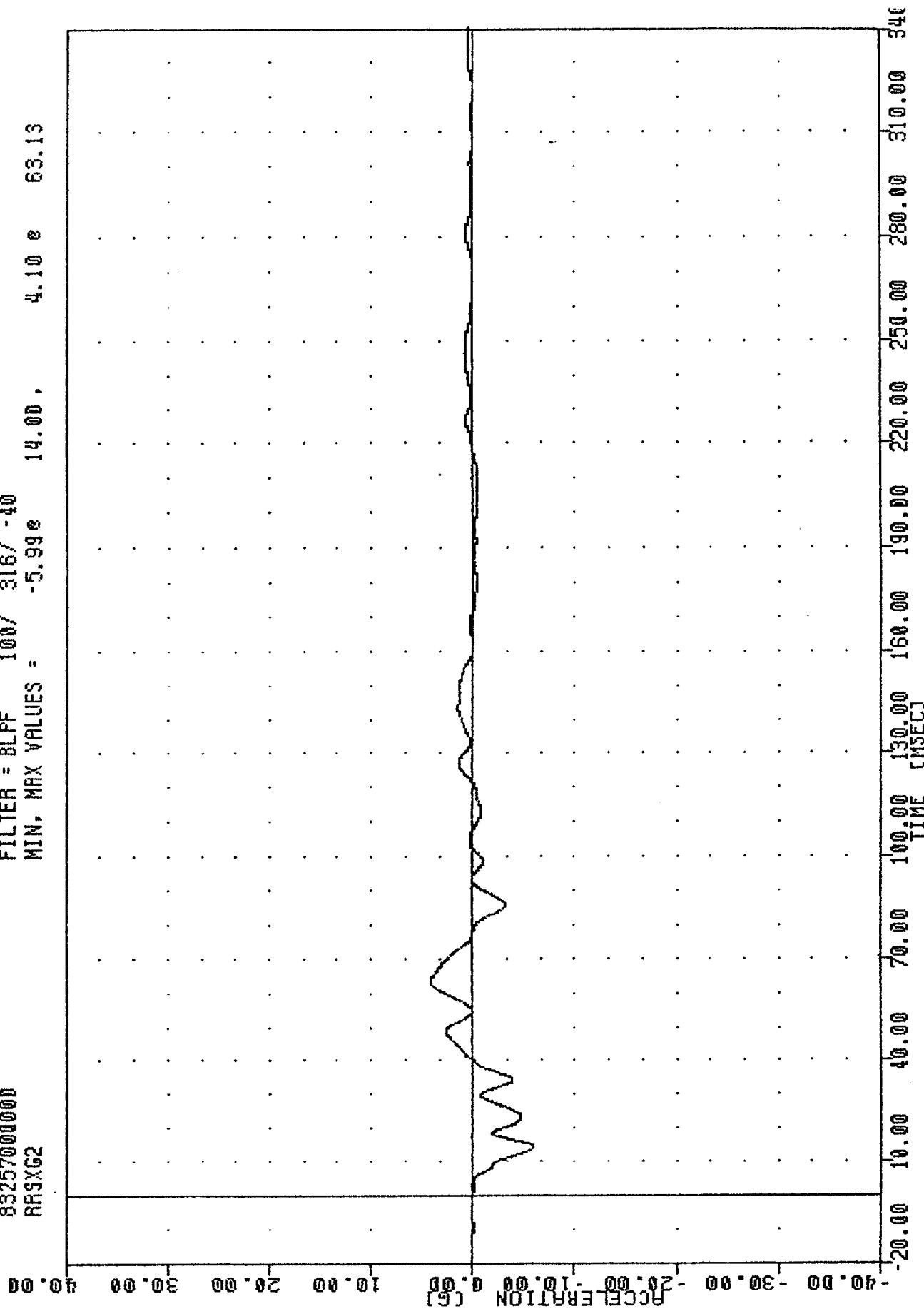


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING RFSYGI

TRC
EVALUATION OF MOD VN FLEET
83257000000
RRSXG2

PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -5.99e 14.00, 4.10 e 63.13



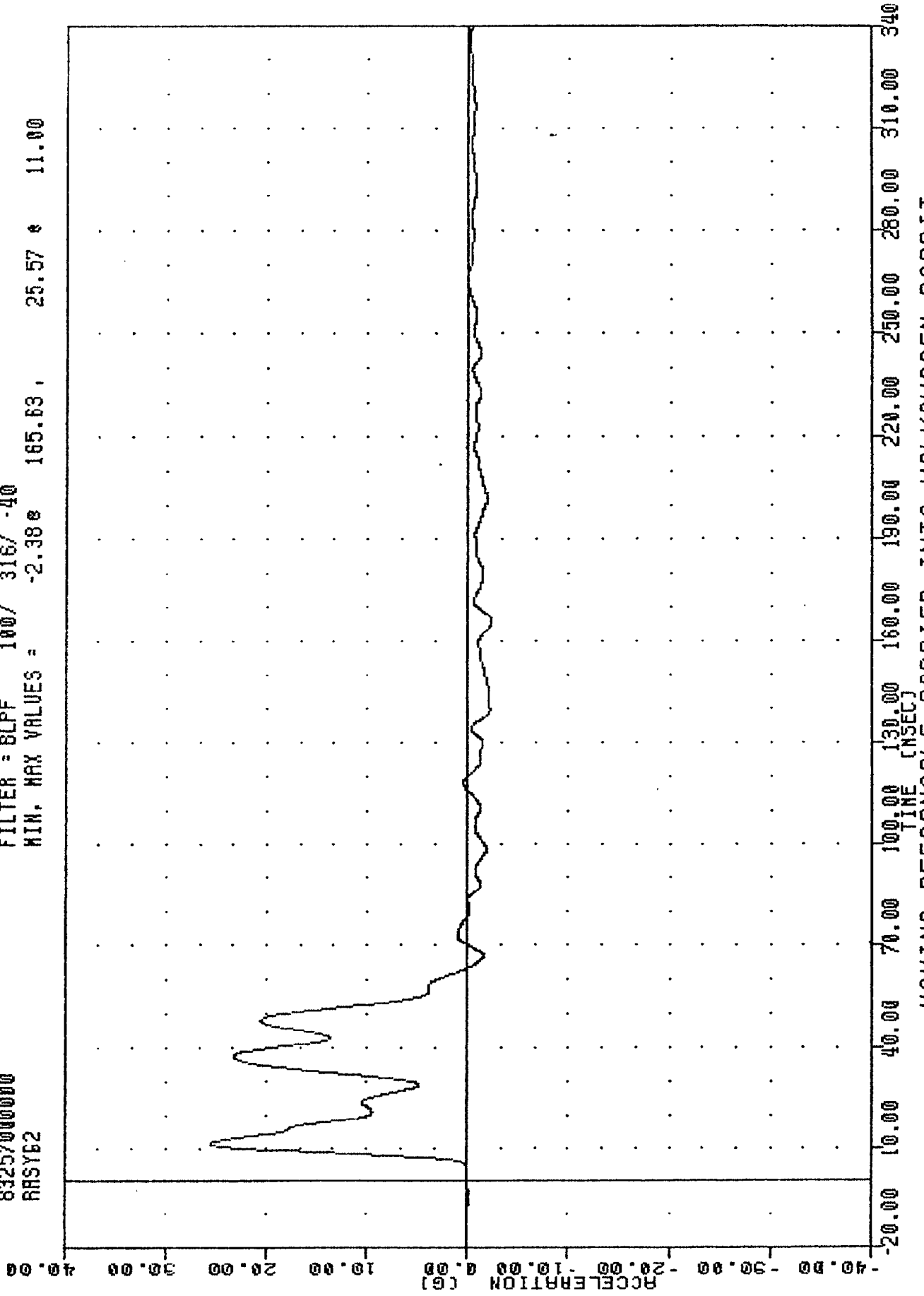
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT REAR SILL ACCELERATION X AXIS

THC
EVALUATION OF MDO VN FLEET
83257000000
RMSY62

PLUT DATE 19-SEP-83

13:22:31

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -2.38e 165.63, 25.57 e 11.00

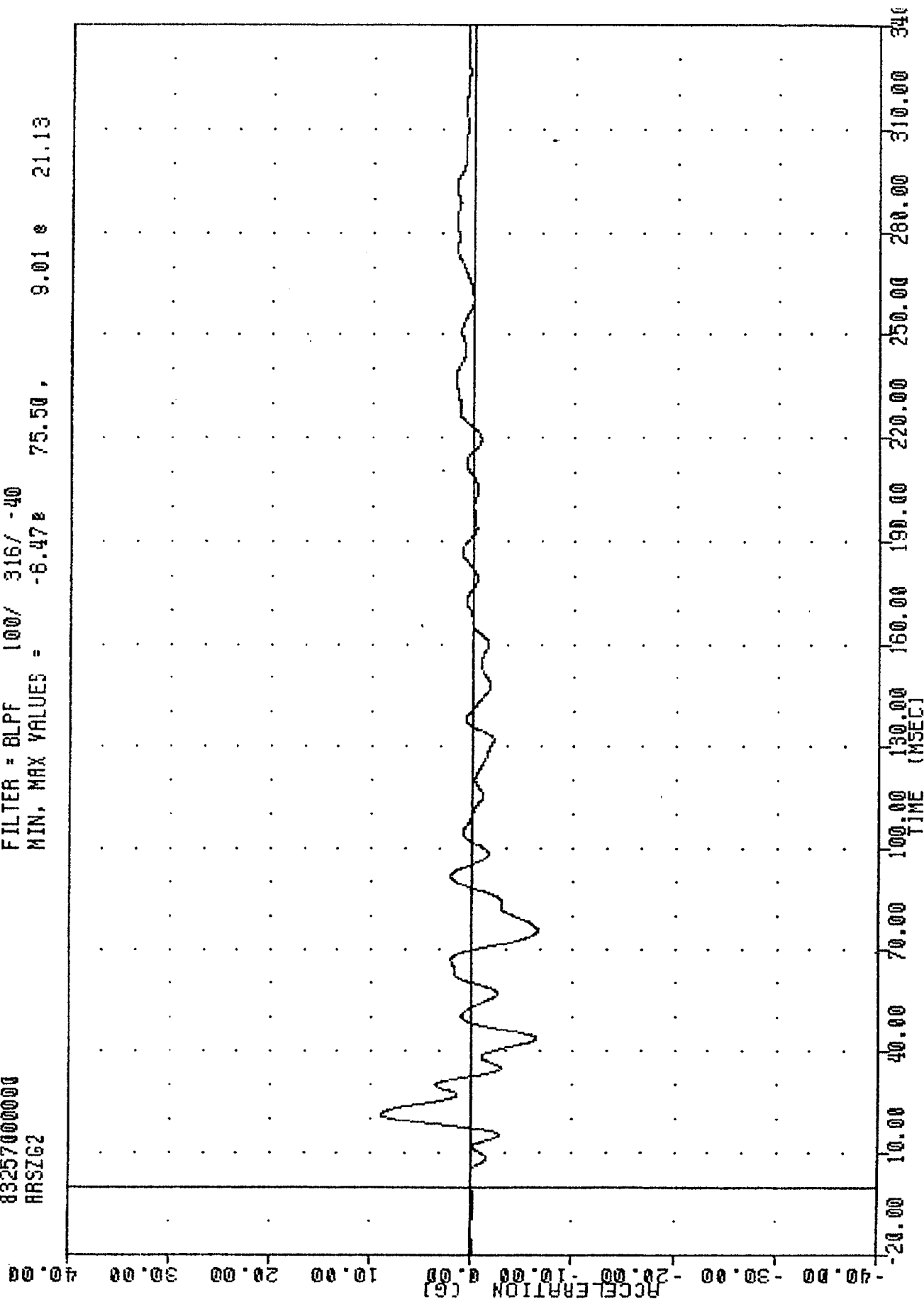


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT REAR SILL ACCELERATION Y AXIS

TRC
EVALUATION OF MGD YW FLEET
83257000000
ARSIG2

PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -6.47e 75.50, 9.01e 21.13

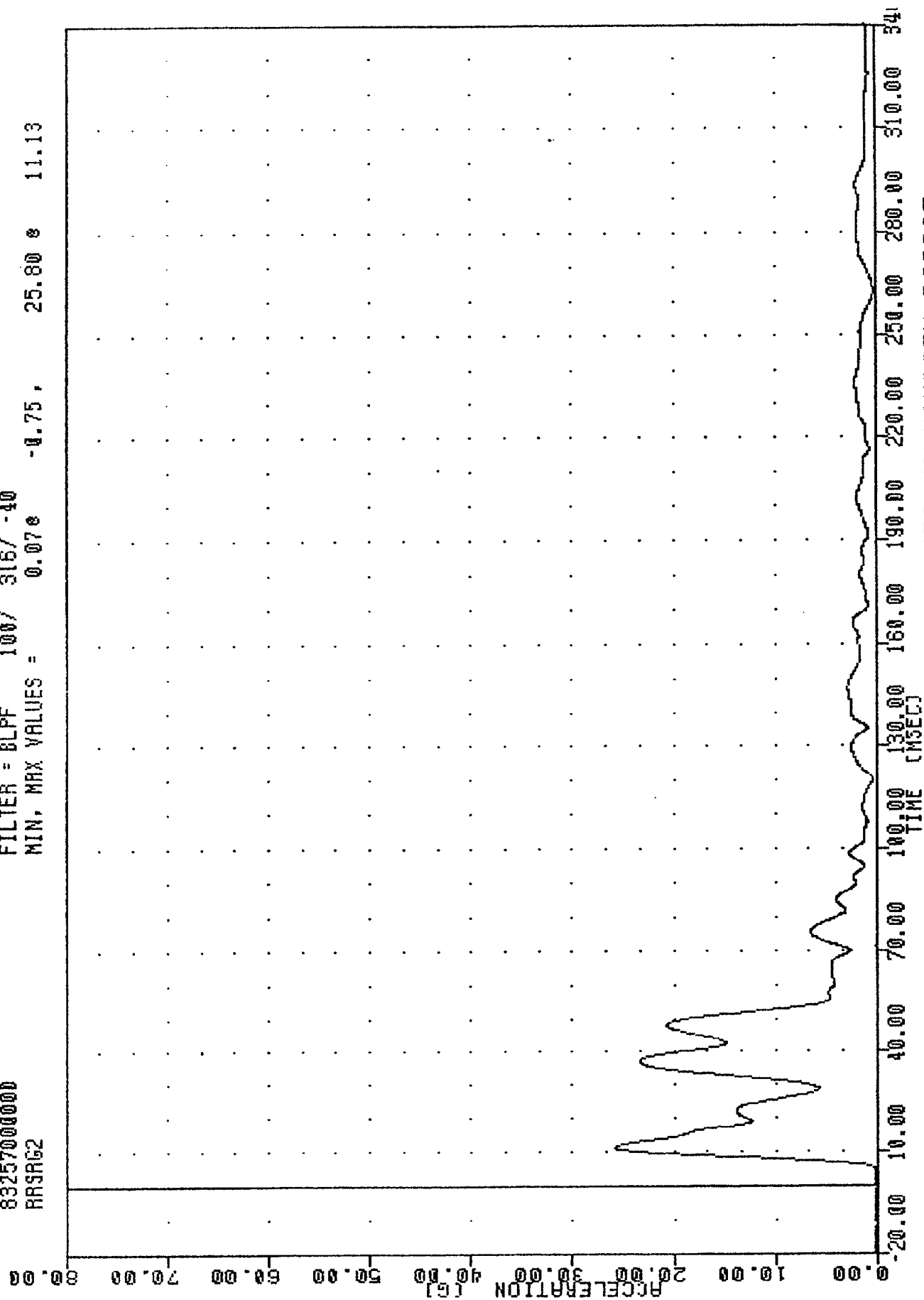


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT REAR SILL ACCELERATION Z AXIS

TRC
EVALUATION OF MDD VW FLEET
83257000000
RRSRG2

PLOT DATE 19-SEP-83 13:22:31

FILTER = 8LPF 100/ 316/ -40
MIN, MAX VALUES = 0.07e -0.75, 25.80e 11.13

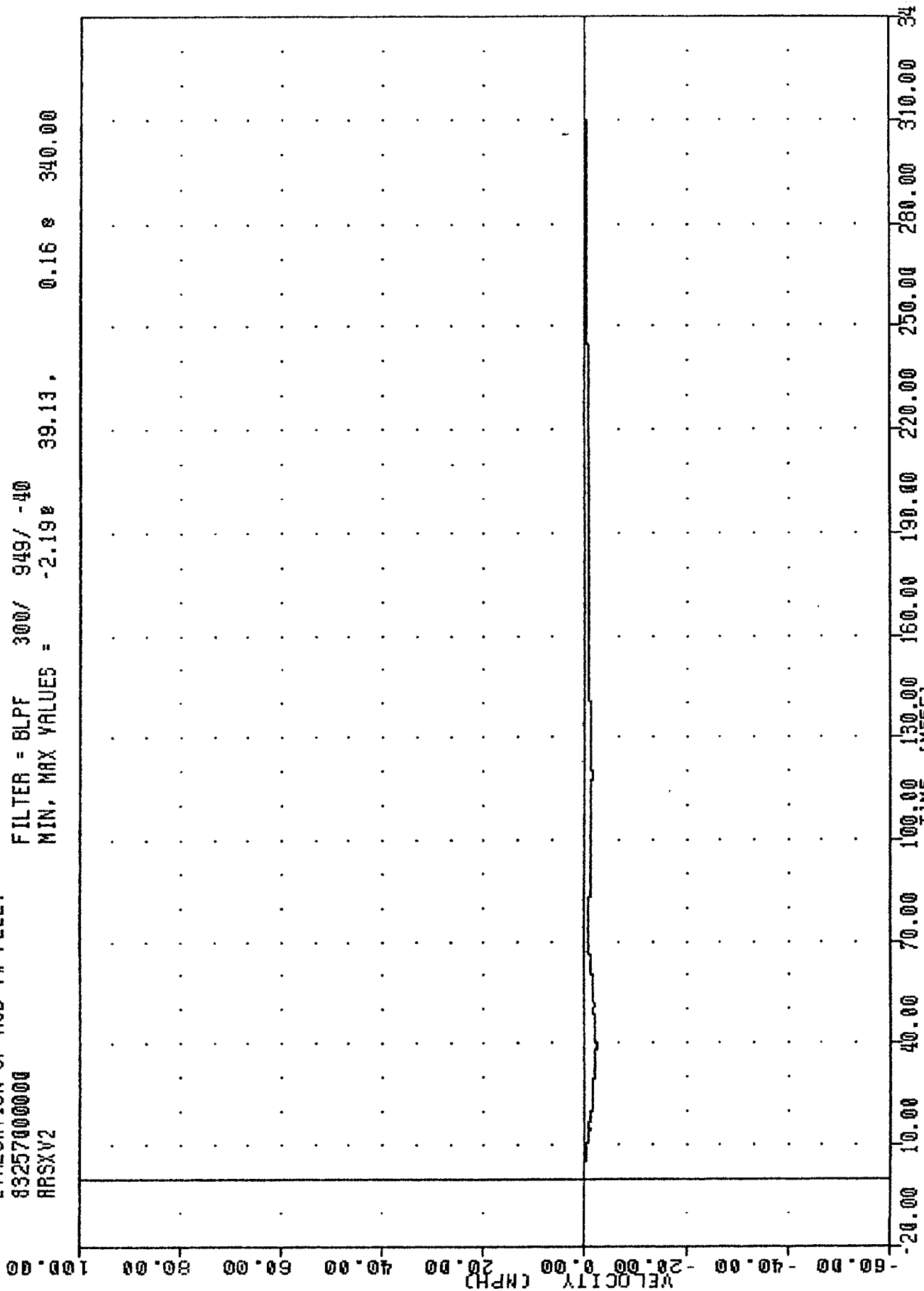


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT REAR SILL RESULTANT

TRC
EVALUATION OF MOD VV FLEET
83257000000
RRSXV2

PLOT DATE 19-SEP-83 13:56:11

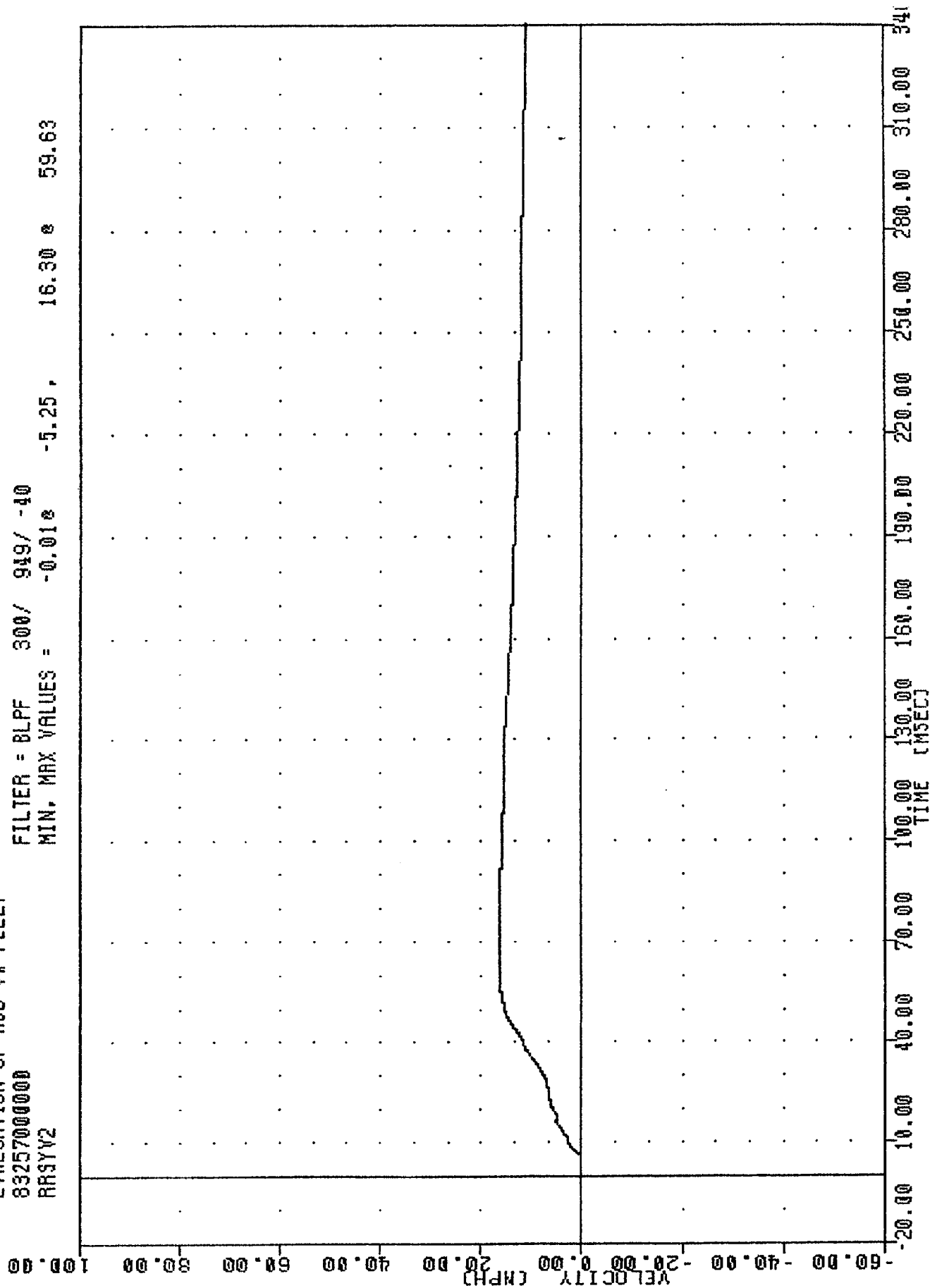
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -2.19e 39.13, 0.16 s 340.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING RRSXG2

TRC
 EVALUATION OF MDD VW FLEET
 83257000000
 RRSYV2

PLOT DATE 19-SEP-83 13:56:11
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.01e -5.25, 16.30 e 59.63



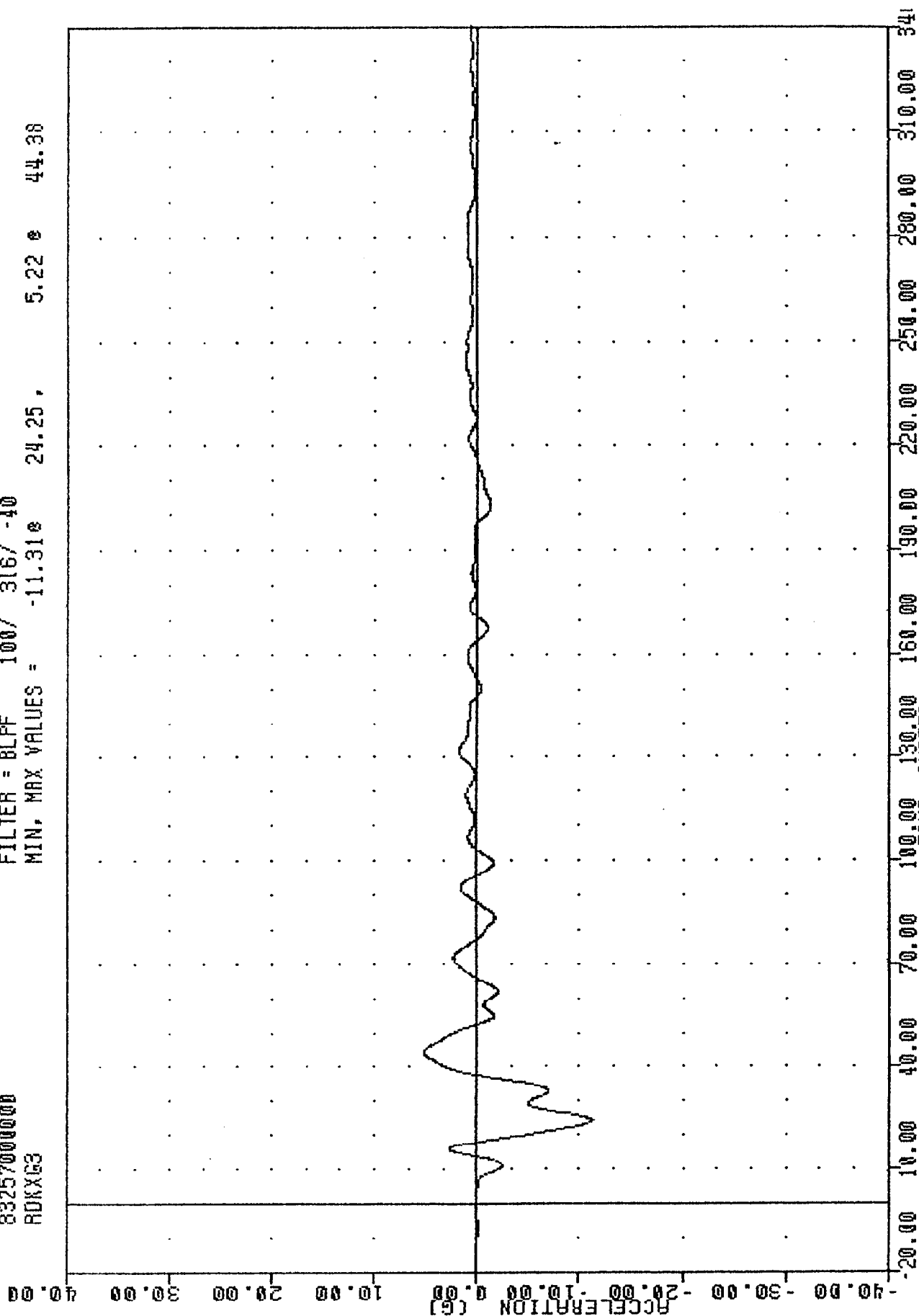
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING RRSY62

TRC
EVALUATION OF MDD VV FLEET
83257000000
RDXG3

PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -11.31e 24.25, 5.22 e 44.38

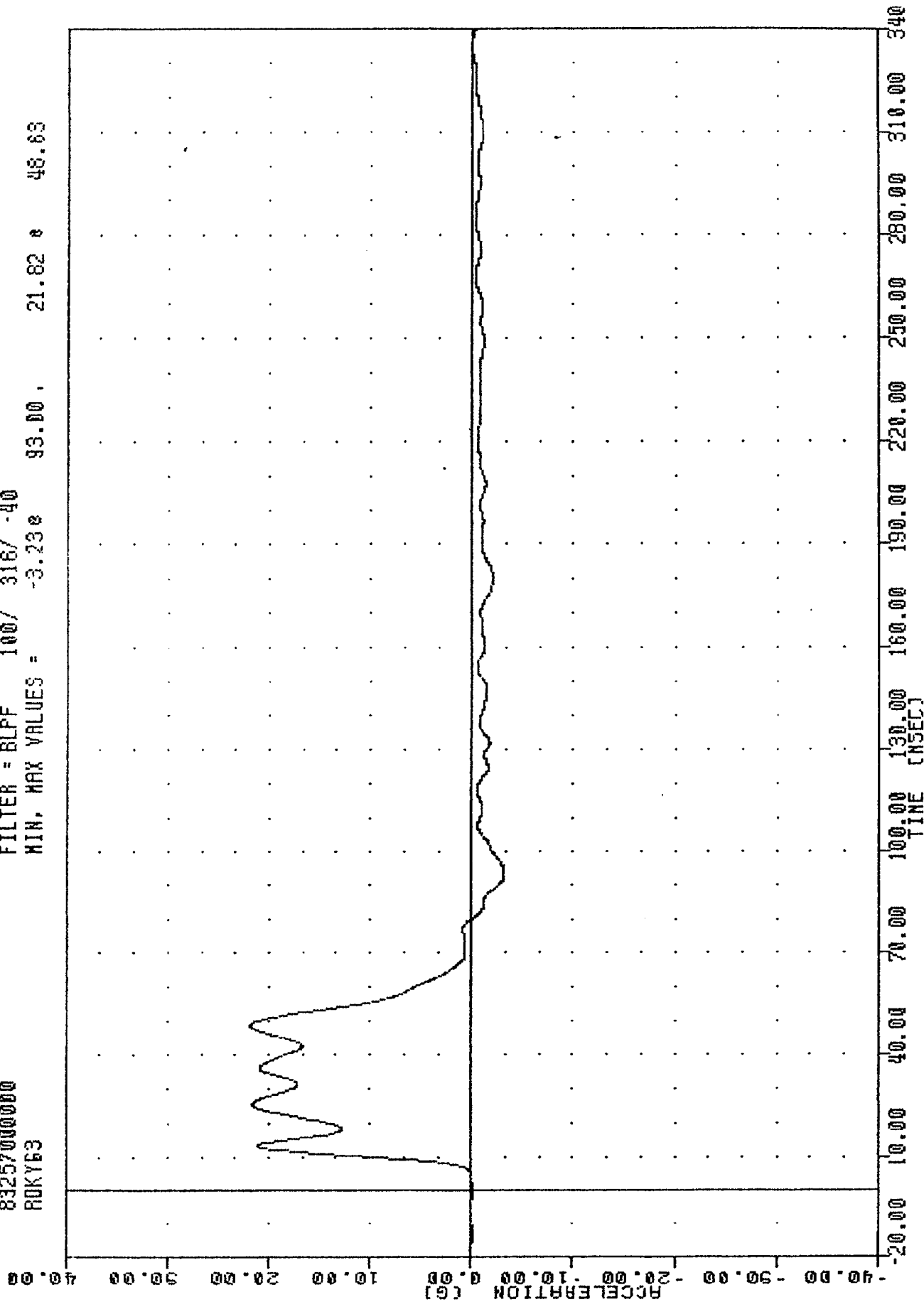


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE REAR DECK ACCELERATION X AXIS

TAC
EVALUATION OF MOD VN FLEET
83257000000
RDKY63

PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -3.23e 93.00, 21.82 e 48.83



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

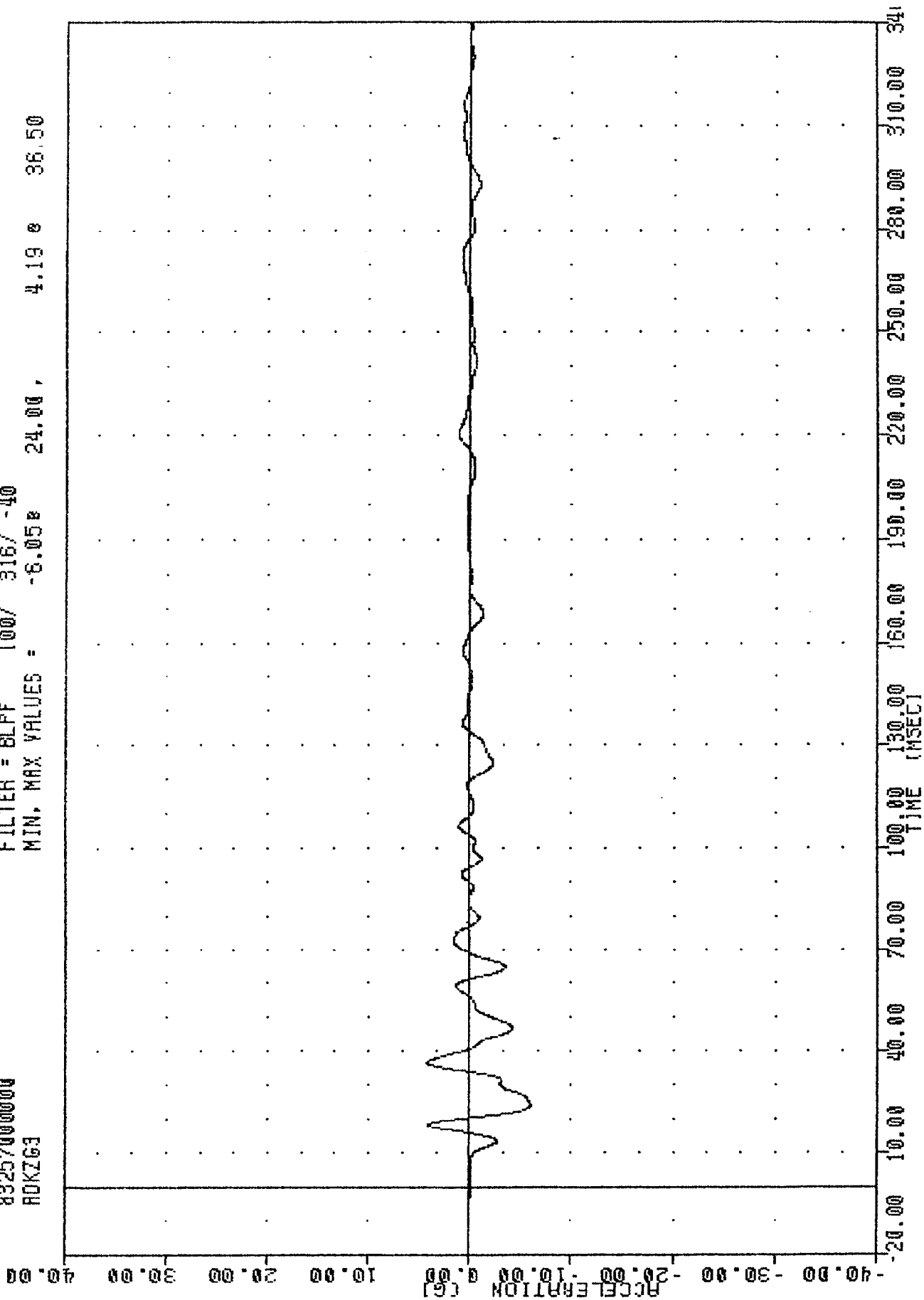
IRC
EVALUATION OF MOD YW FLEET
83257000000
RDKZ63

830914

PLOT DATE 13-SEP-83

13:22:31

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -8.05g 24.00, 4.19 g 36.50



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

THC 830914 13-SEP-83 13:22:31

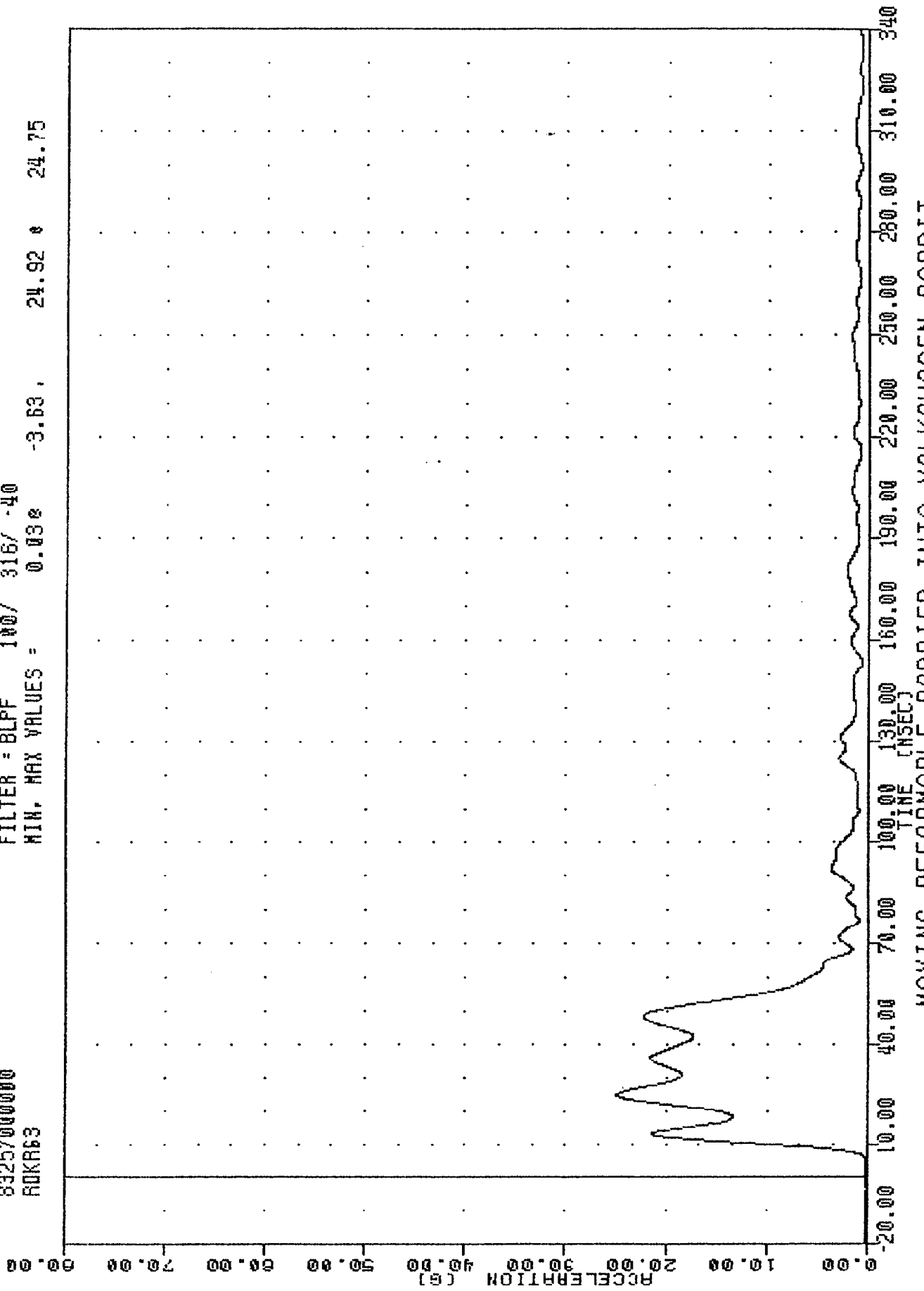
EVALUATION OF MOD YN FLEET

83257000000

ROKRB3

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = 0.030 -3.63, 24.92 24.75

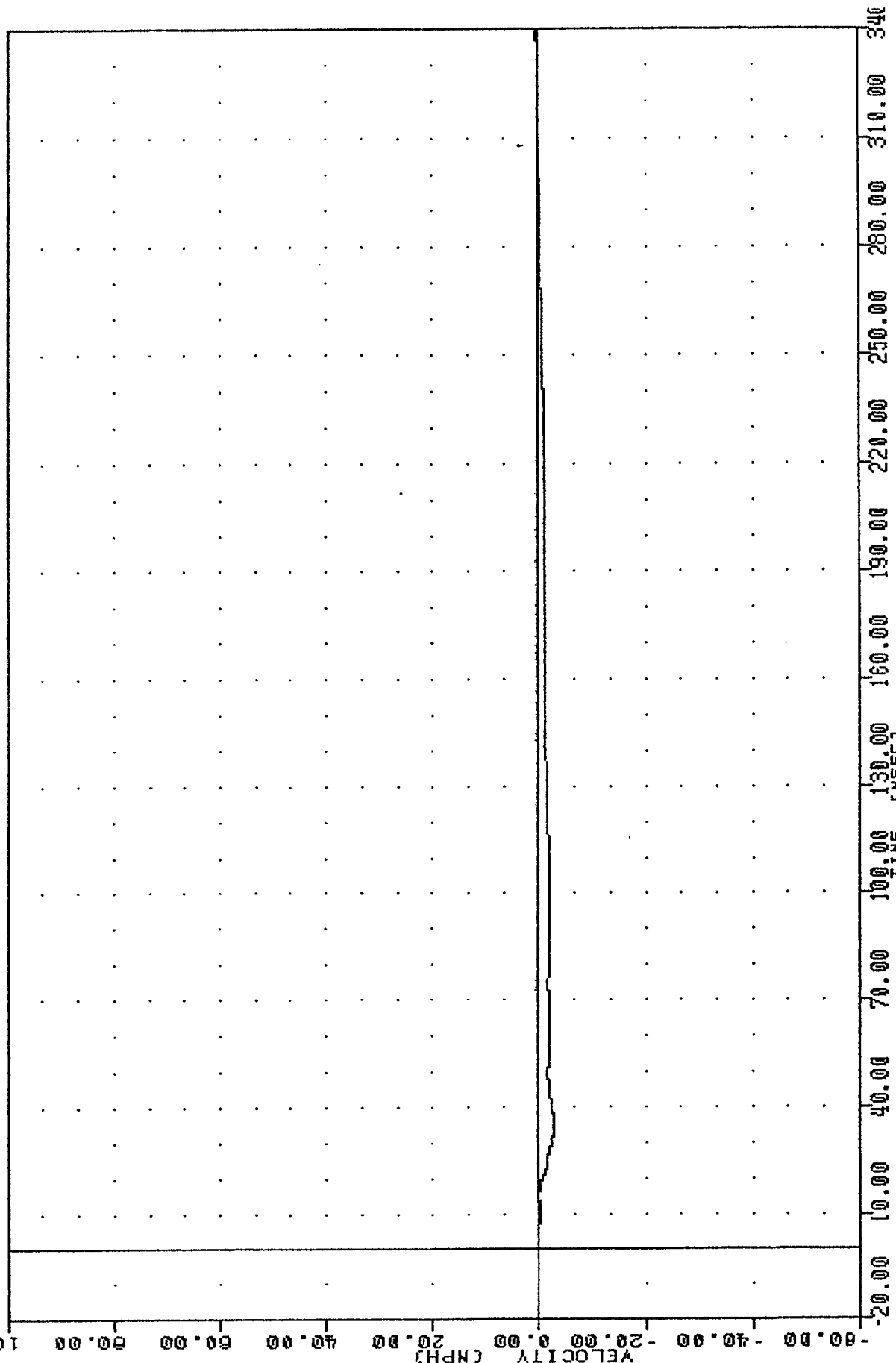


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE REAR DECK RESULTANT

TBC
 EVALUATION OF MOD VN FLEET
 83257000000
 RDKXV3

PLOT DATE 19-SEP-83 13:56:11

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 33.38, 0.43 @ 340.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

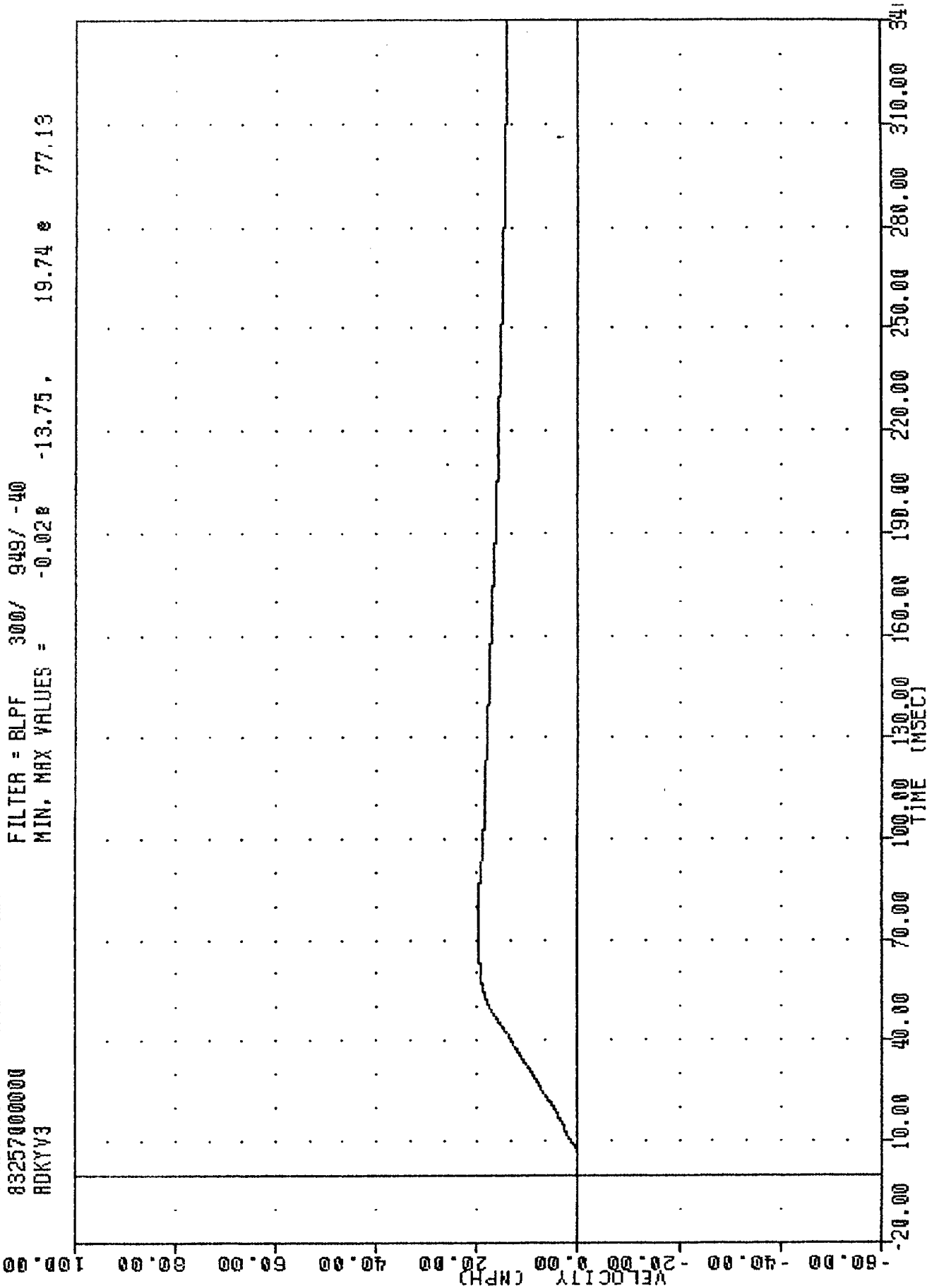
DELTA V USING RDKXG3

TPC
EVALUATION OF MOD YW FLEET
83257000000
ADKYV3

830914

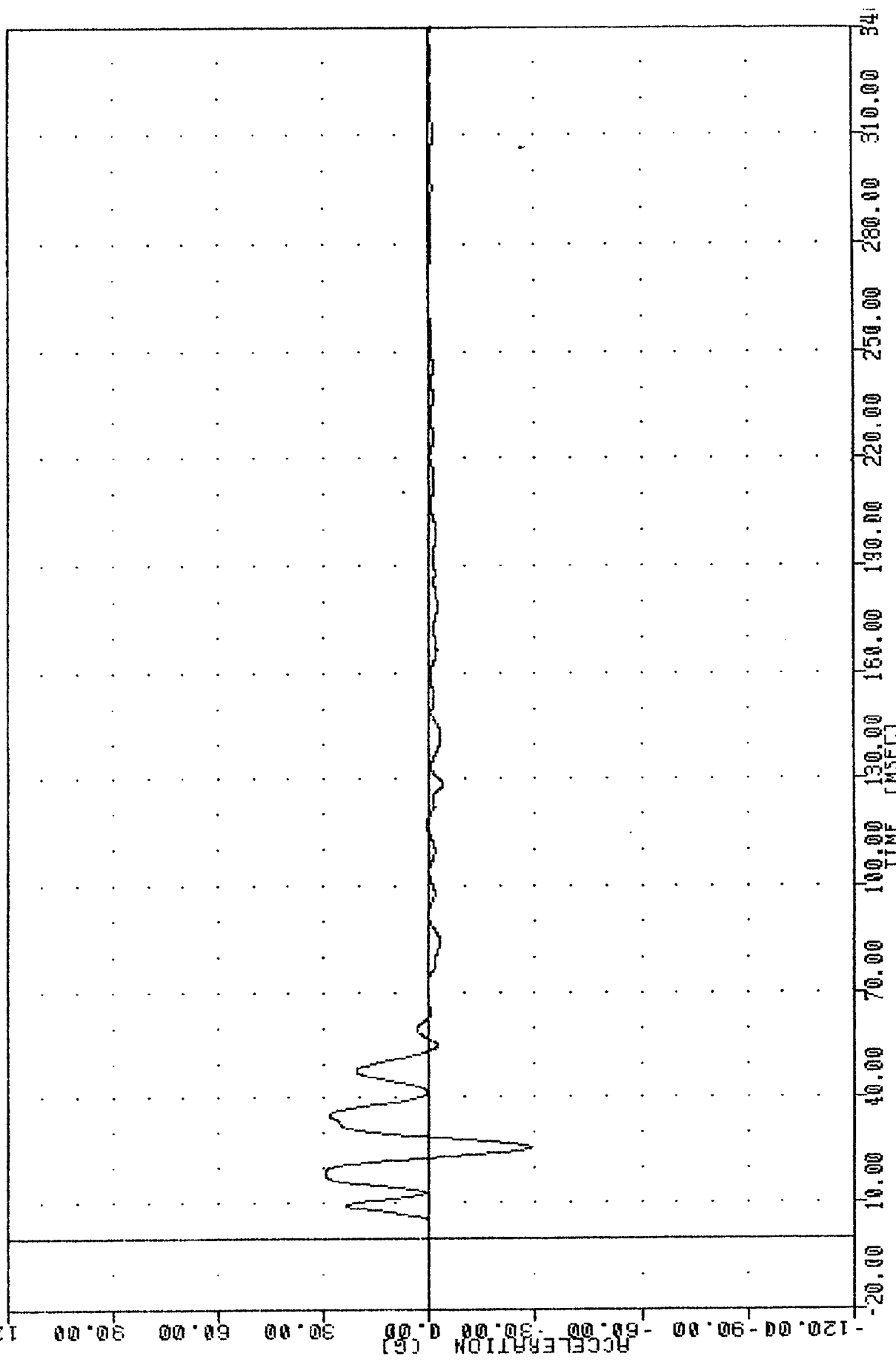
PLOT DATE 19-SEP-83 13:56:11

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.028 -13.75, 19.74 e 77.13



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING RDKYG3

THC
EVALUATION OF MOD VW FLEET
83257000000
LRSYG4
PLOT DATE 19-SEP-83 13:22:31
FILTER = BLPF 100/ 316/ -10
MIN, MAX VALUES = -28.84 25.75 , 29.58 18.63

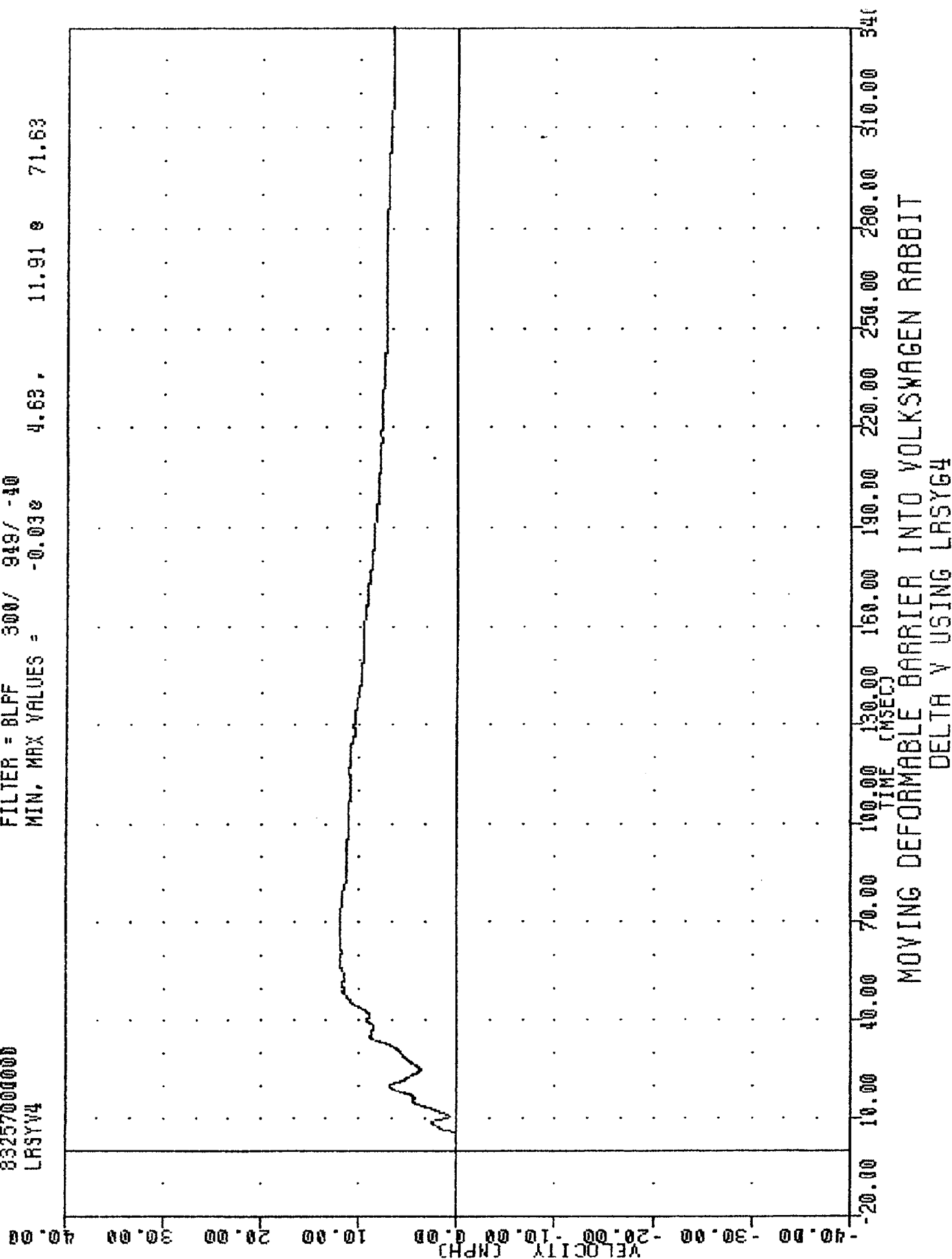


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT REAR SILL ACCELERATION Y AXIS

TRC
EVALUATION OF MDD VW FLEET
83257000000
LRSYV4

PLOT DATE 18-SEP-83 13:55:11

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.030 4.63, 11.91 0 71.63



THC
EVALUATION OF MOD YN FLEET
83257000000
LFSY65

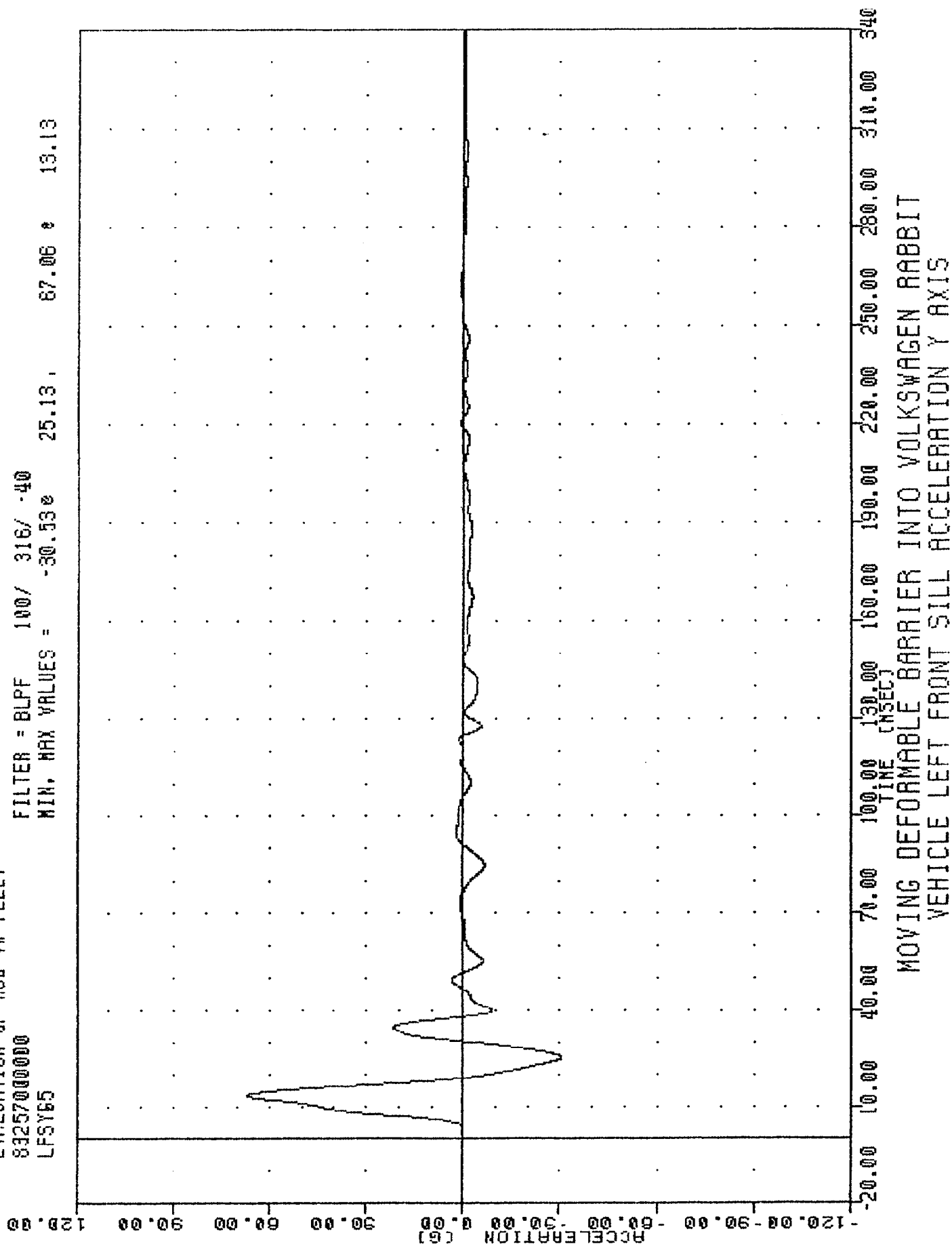
830914

PLUT DATE

19-SEP-83

13:22:31

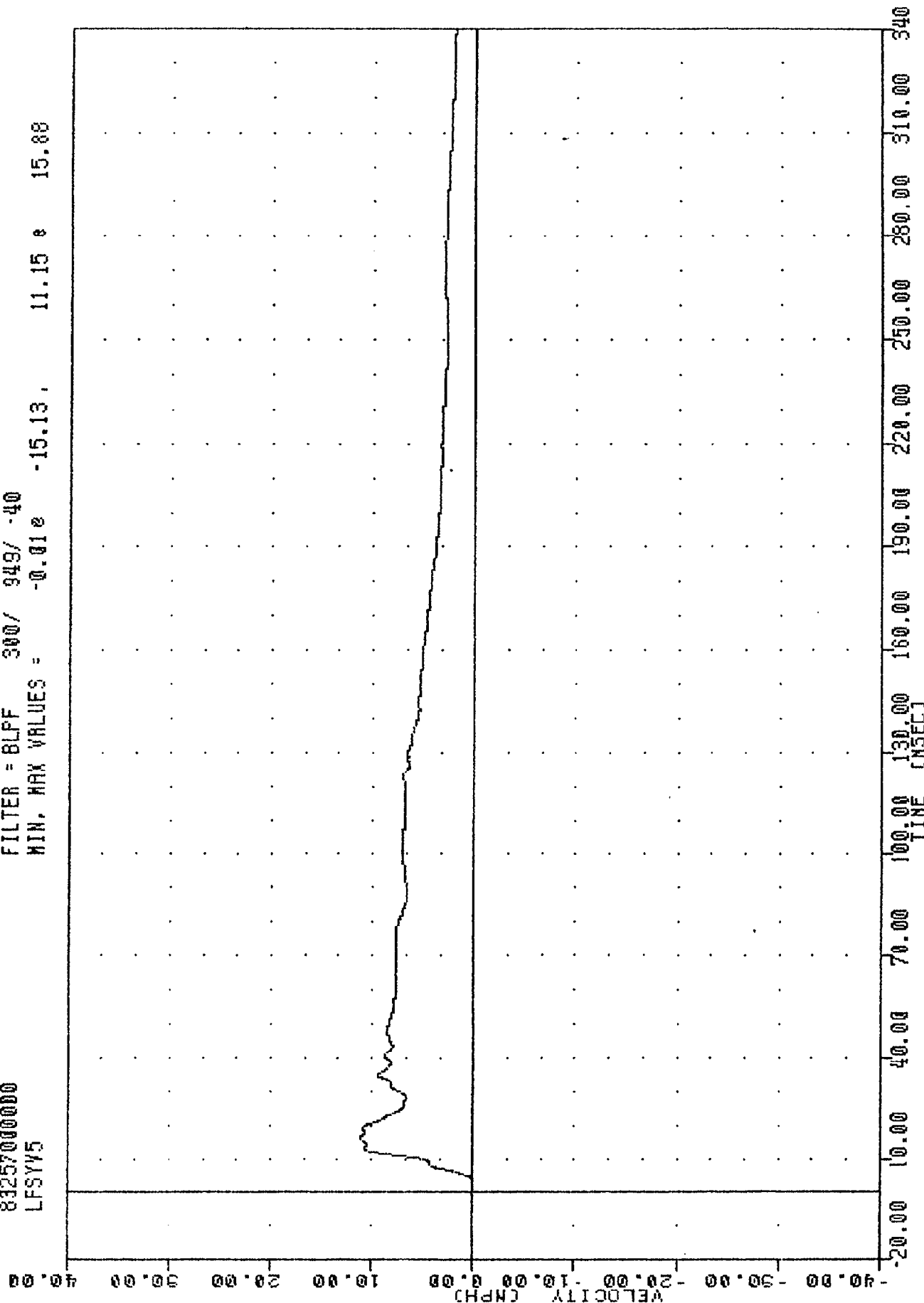
FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -30.53e 25.13, 87.06 e 13.13



INC 830514
 EVALUATION OF MOD VN FLEET
 83257000000
 LFSYV5

PLUT DATE 18-SEP-83 13:56:11

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -0.01e -15.13, 11.15 & 15.88



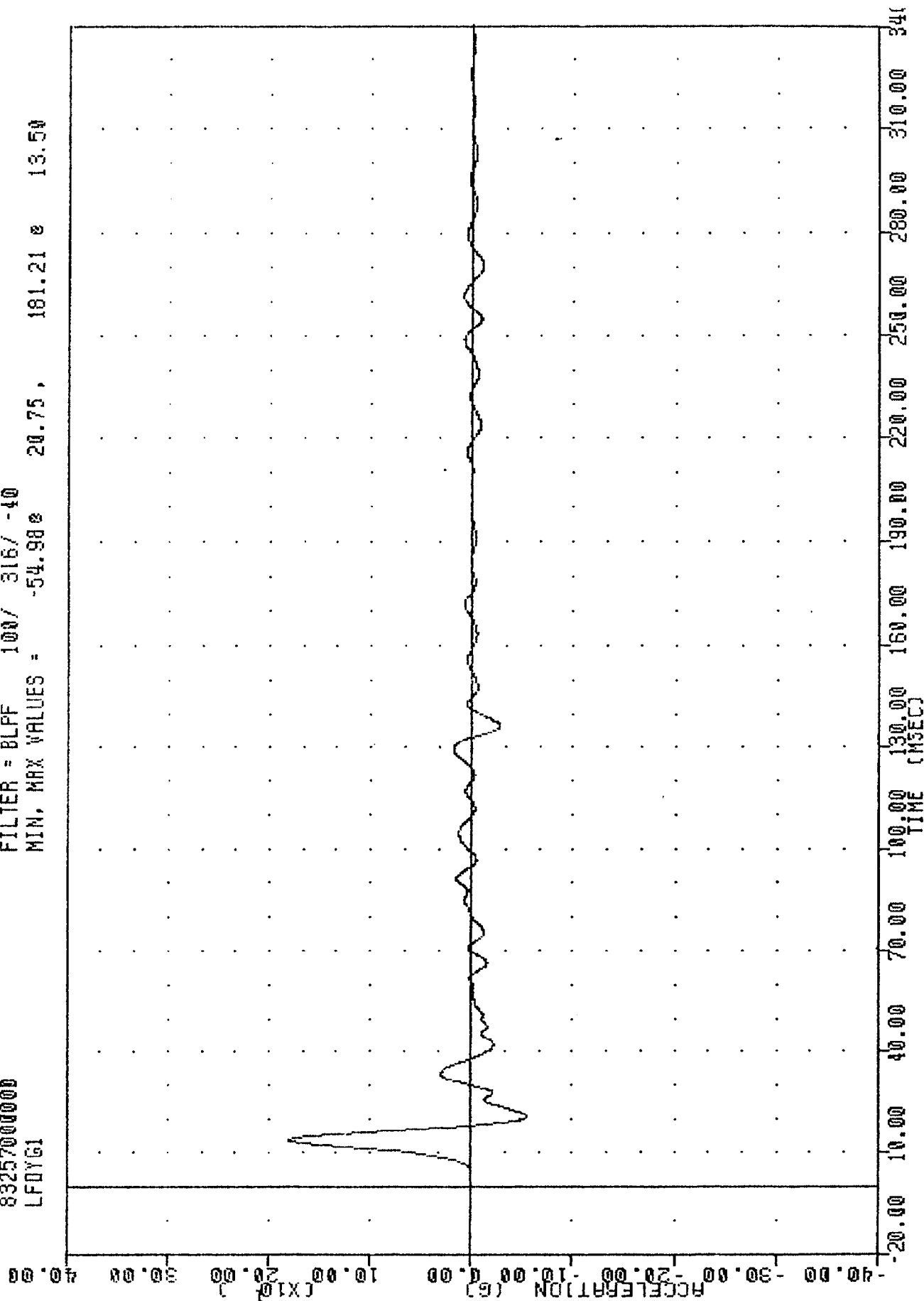
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LFSYG5

TRC
EVALUATION OF MOD VN FLEET
83257000000
LFDYGI

830914

PLOT DATE 18-SEP-83 13:22:31

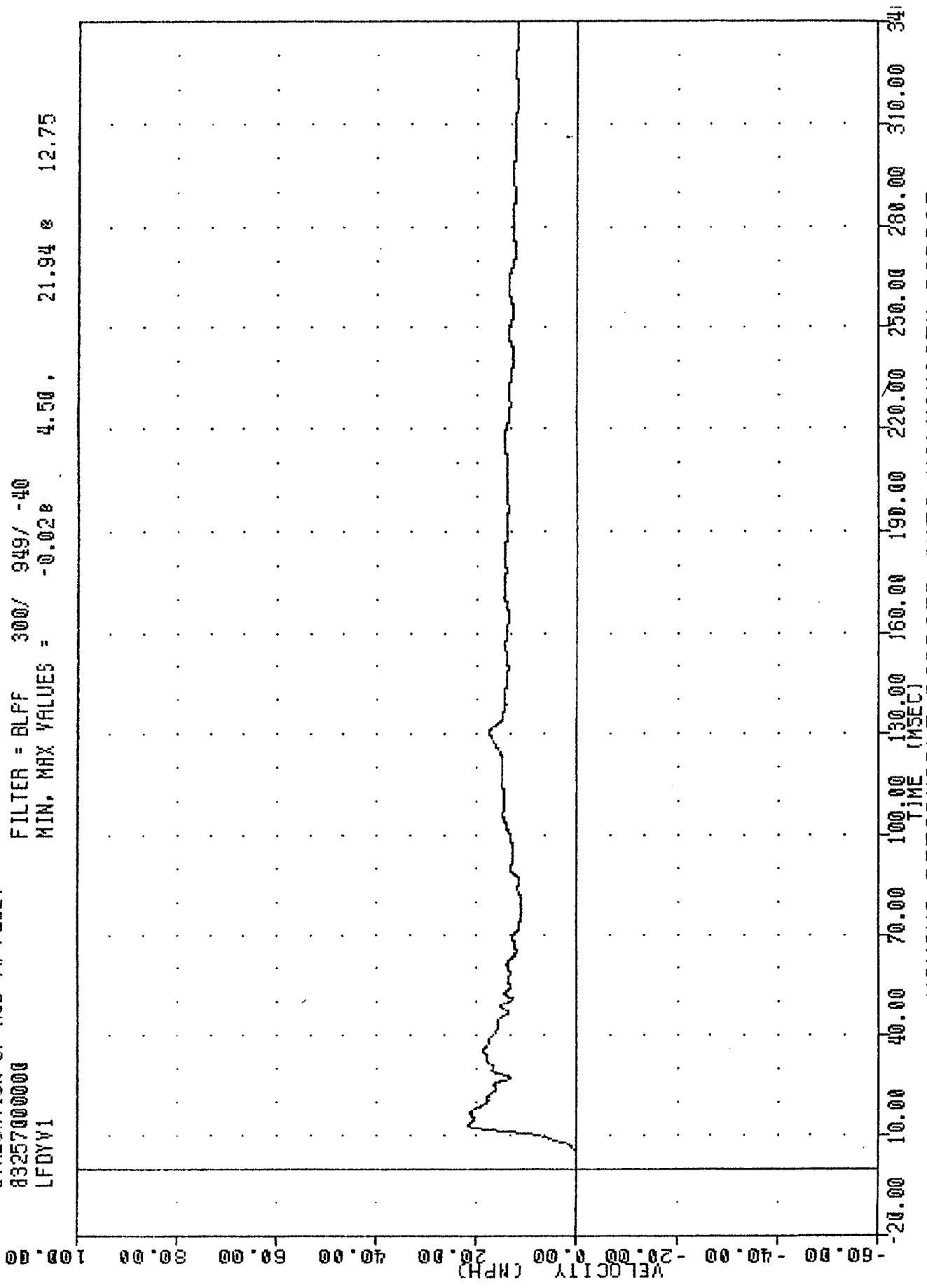
FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -54.980 20.75, 181.21 & 13.50



TRC
 EVALUATION OF MOD YW FLEET
 83257000000
 LFDYV1

830914
 19-SEP-83 13:56:11

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.028 4.50, 21.94 e 12.75



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LFDYGI

THC
 EVALUATION OF MOD YW FLEET
 83257000000
 LFDY62

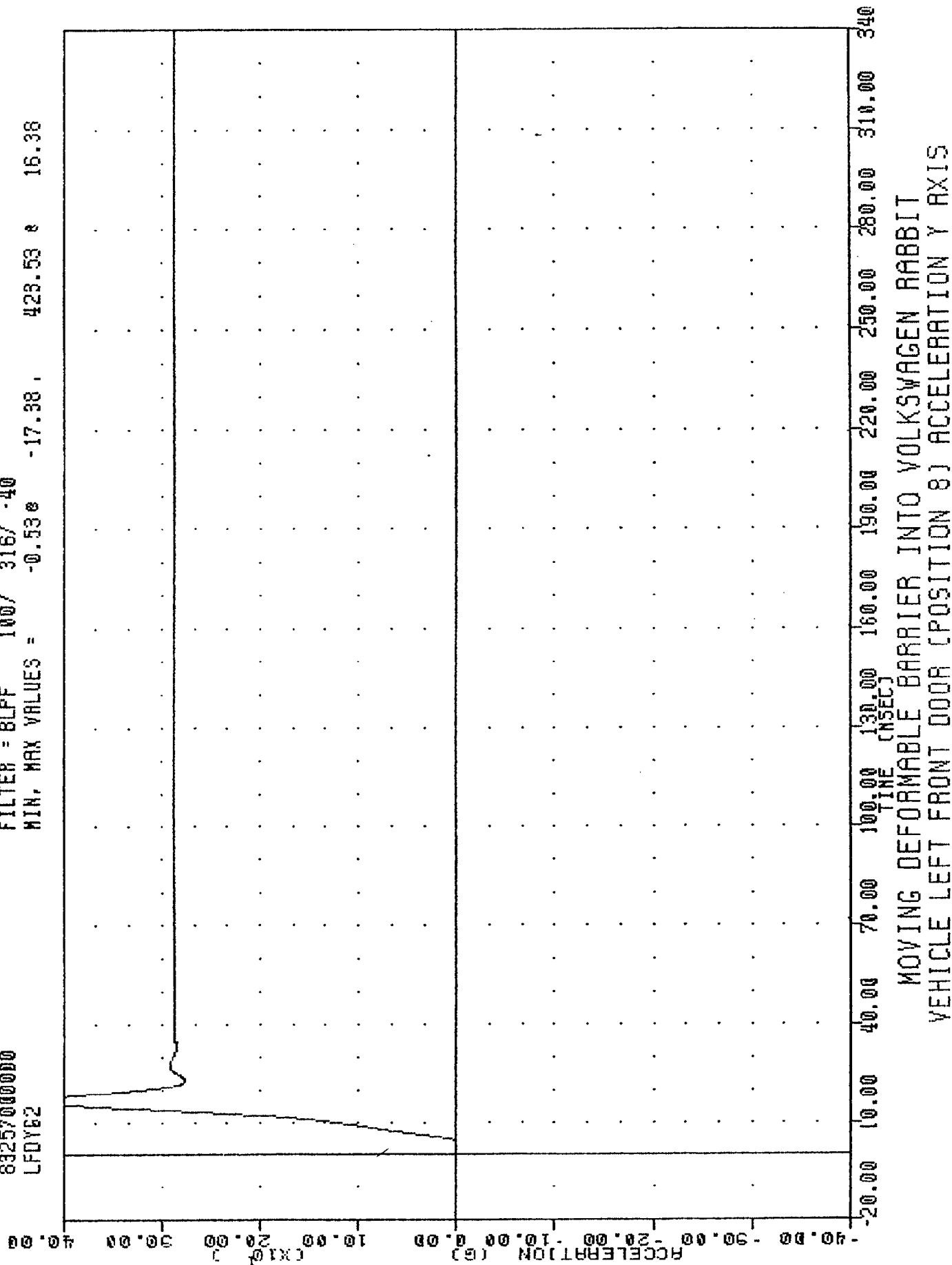
830914

PLUT DATE

19-SEP-83

13:22:31

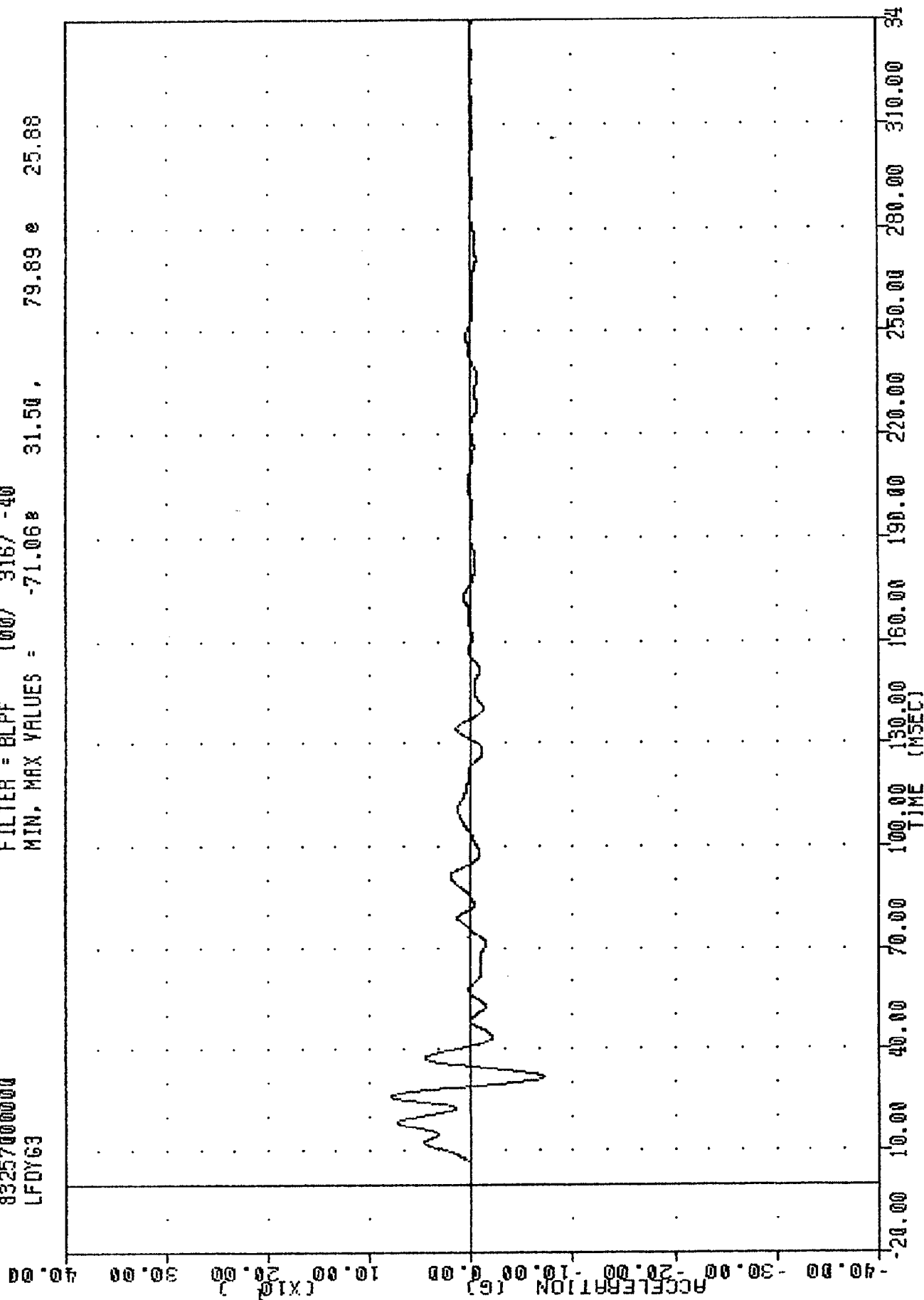
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -0.538 -17.38 423.53 16.38



TRC
EVALUATION OF MOD YW FLEET
83257000000
LFDY63

PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -71.06e 31.50, 79.89 e 25.88

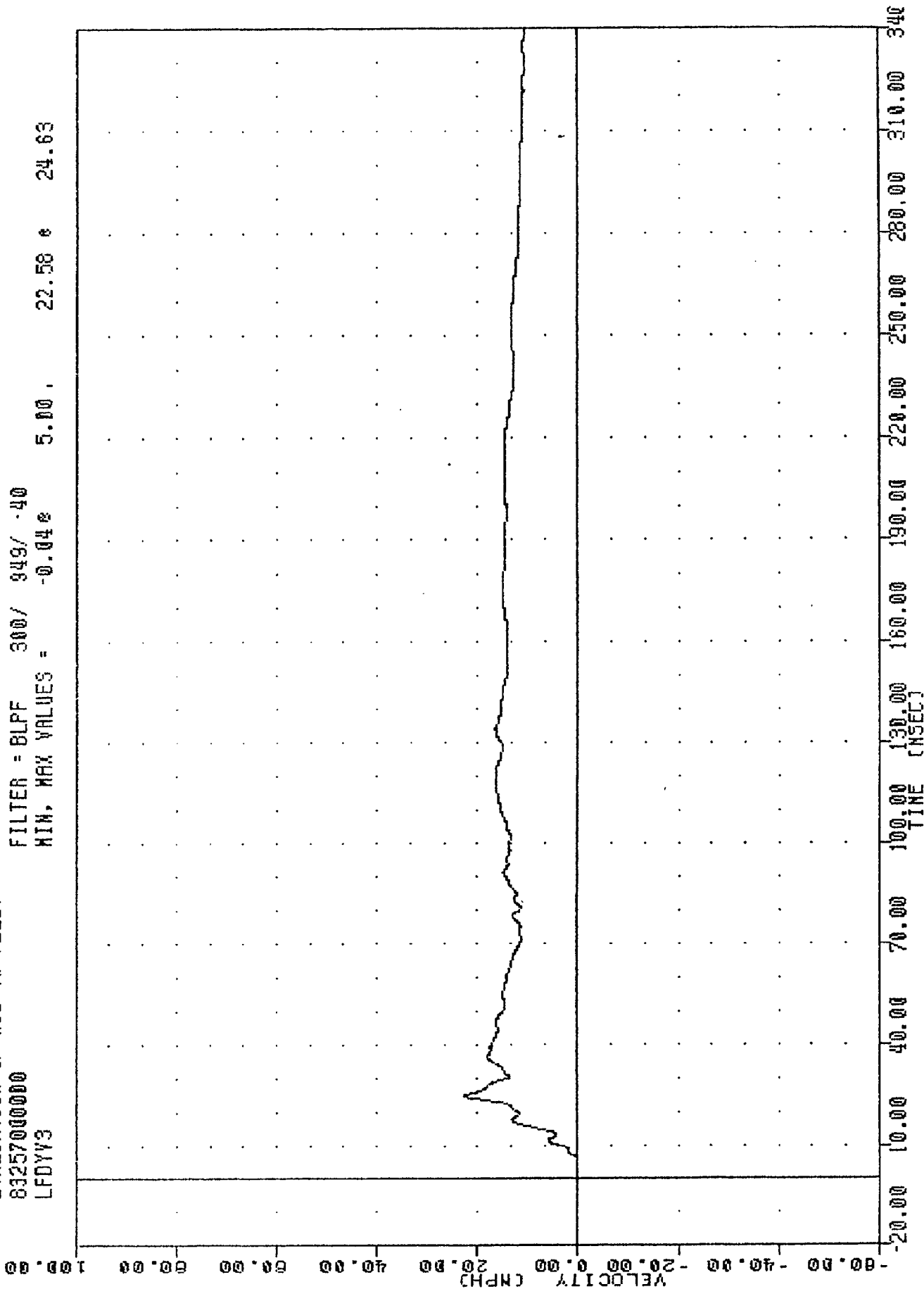


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR (POSITION 9) ACCELERATION Y AXIS

TAC
EVALUATION OF MOD VN FLEET
83257000000
LFDYV3

PLOT DATE 19-SEP-83 13:56:11

FILTER = BLPF 300/ 349/ -40
MIN. MAX VALUES = -0.04 5.00 22.58 24.63

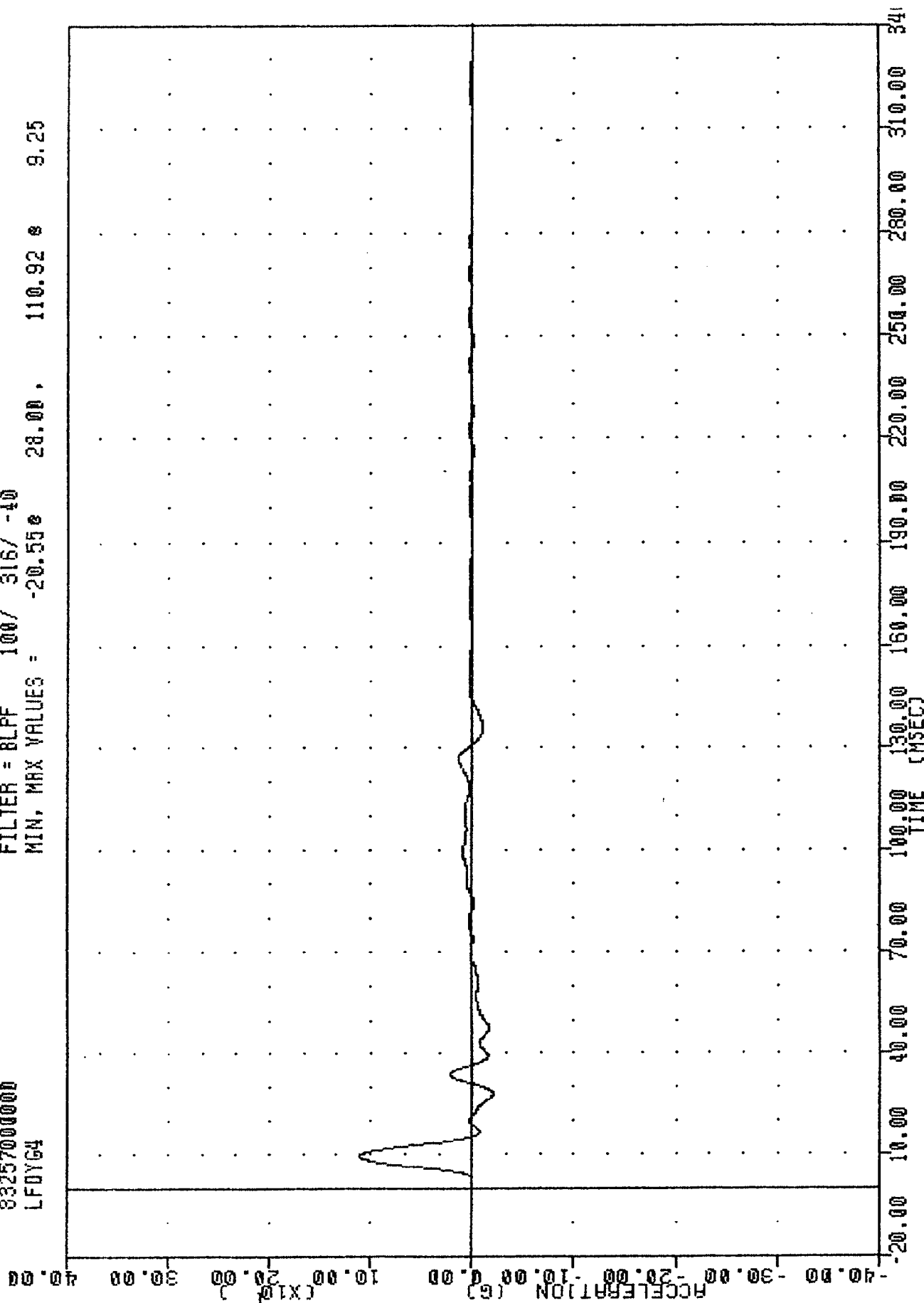


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LFDYV3

TRC
EVALUATION OF MOD VY FLEET
83257000000
LF0Y64

PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -20.550 28.00, 110.92 9.25



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

IRC

, 830914

EVALUATION OF MOD YW FLEET

83257000000

LFOYV4

PLOT DATE

19-SEP-83

13:56:11

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -0.01e -14.63, 19.10 e 340.00

100.00

80.00

60.00

40.00

20.00

0.00

-20.00

-40.00

-60.00

-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

34

TIME (MSEC)

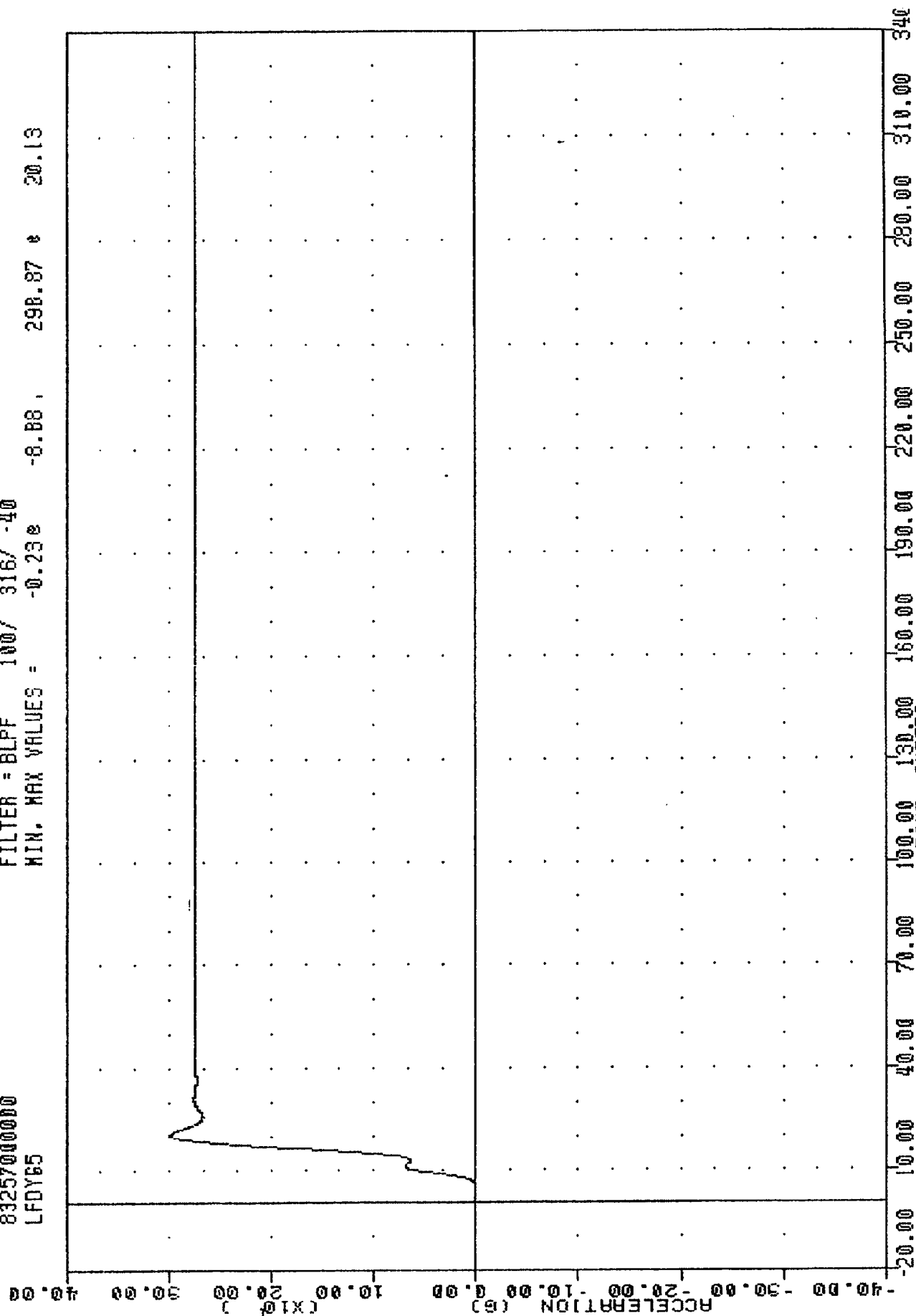
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING LFOYV4

TAC
EVALUATION OF MOD VW FLEET
83257000000
LFDY65

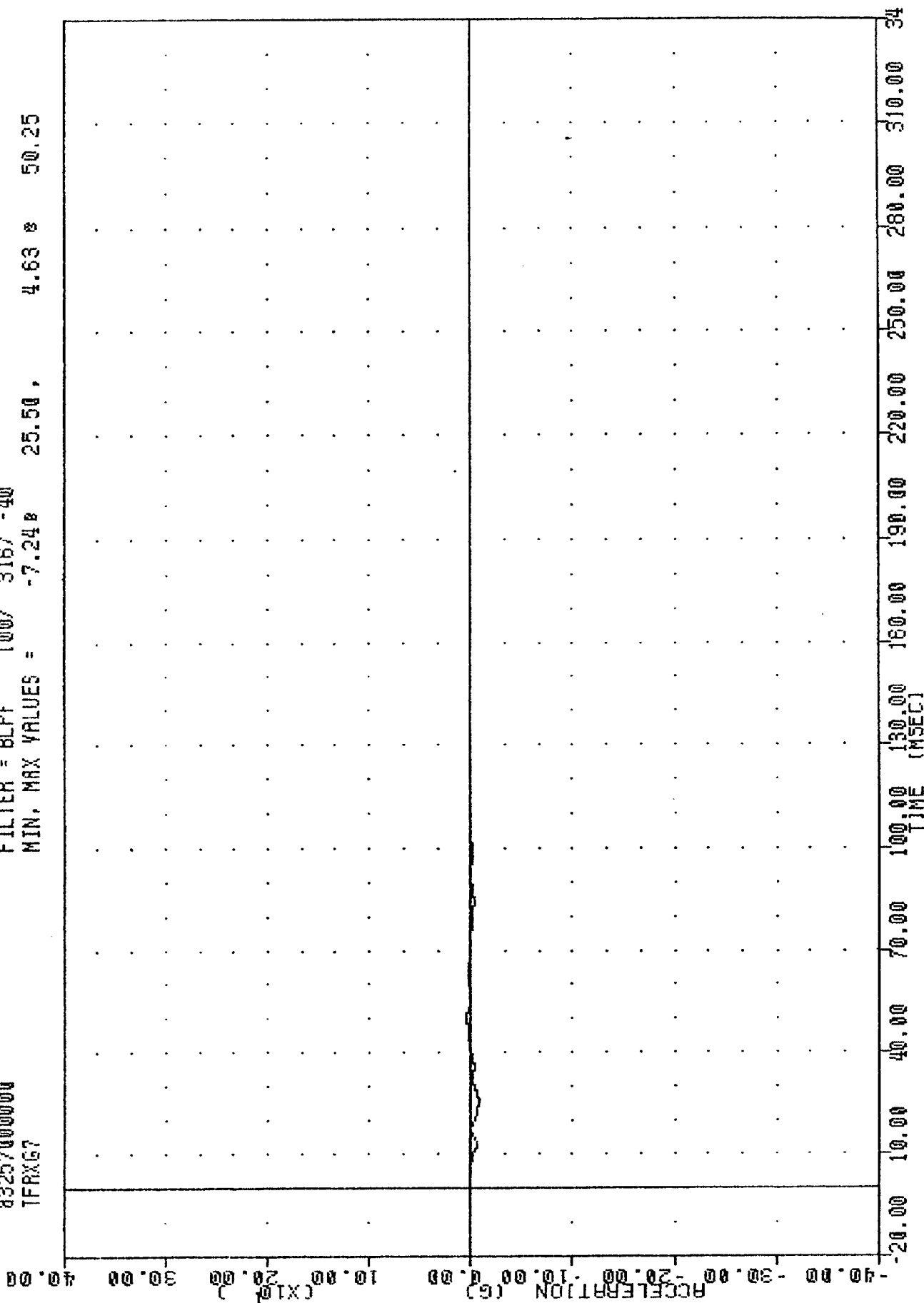
PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -0.23 e -8.88 , 298.87 e 20.13



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

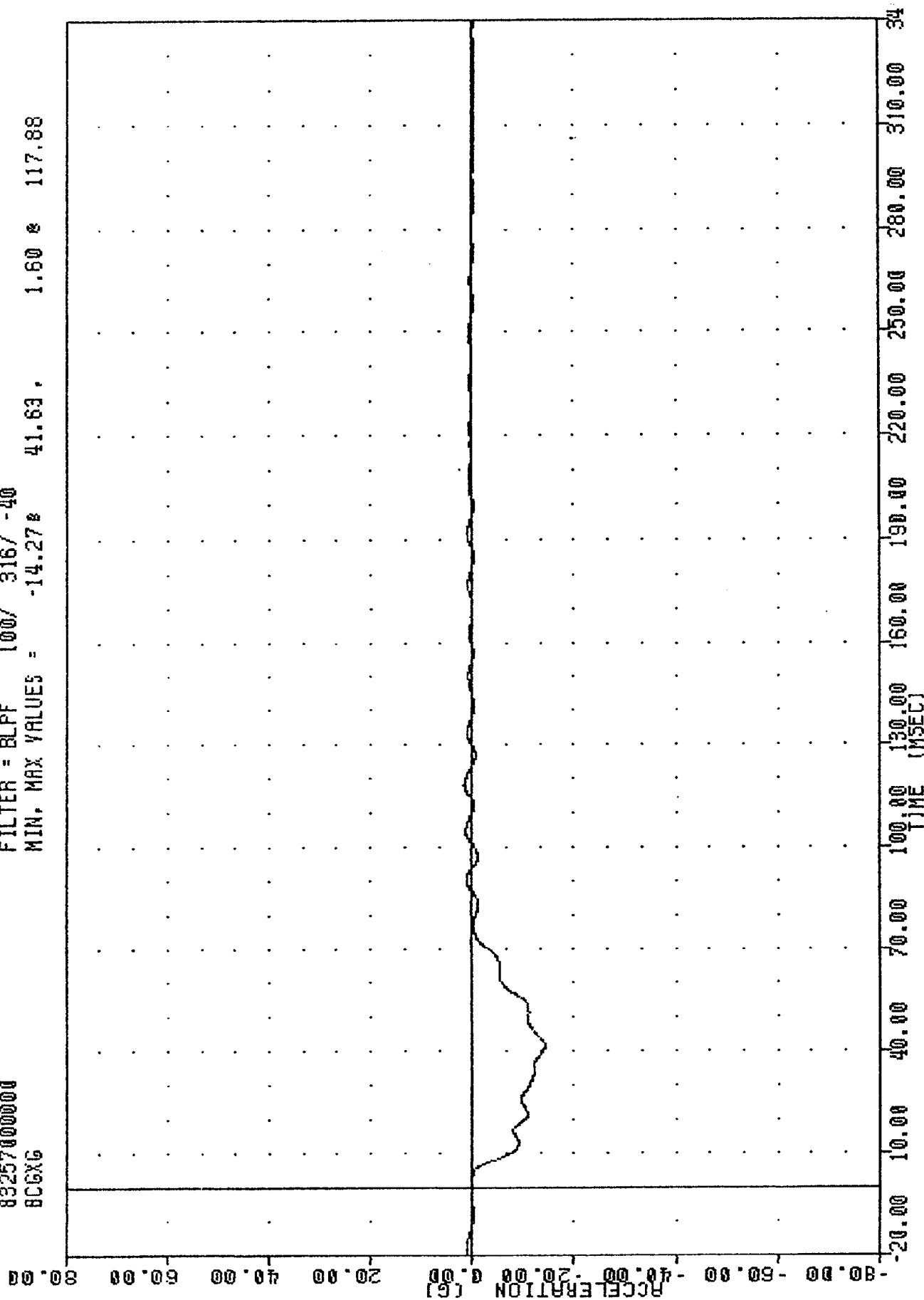
MC 830514
 EVALUATION OF MOD YN FLEET
 83257000000
 TFRXG7
 TEST DATE 10-SEP-83 13:25:01
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -7.248 25.50, 4.63 & 50.25



C 830
 EVALUATION OF MOD VV FLEET
 83257000000
 8C6XG

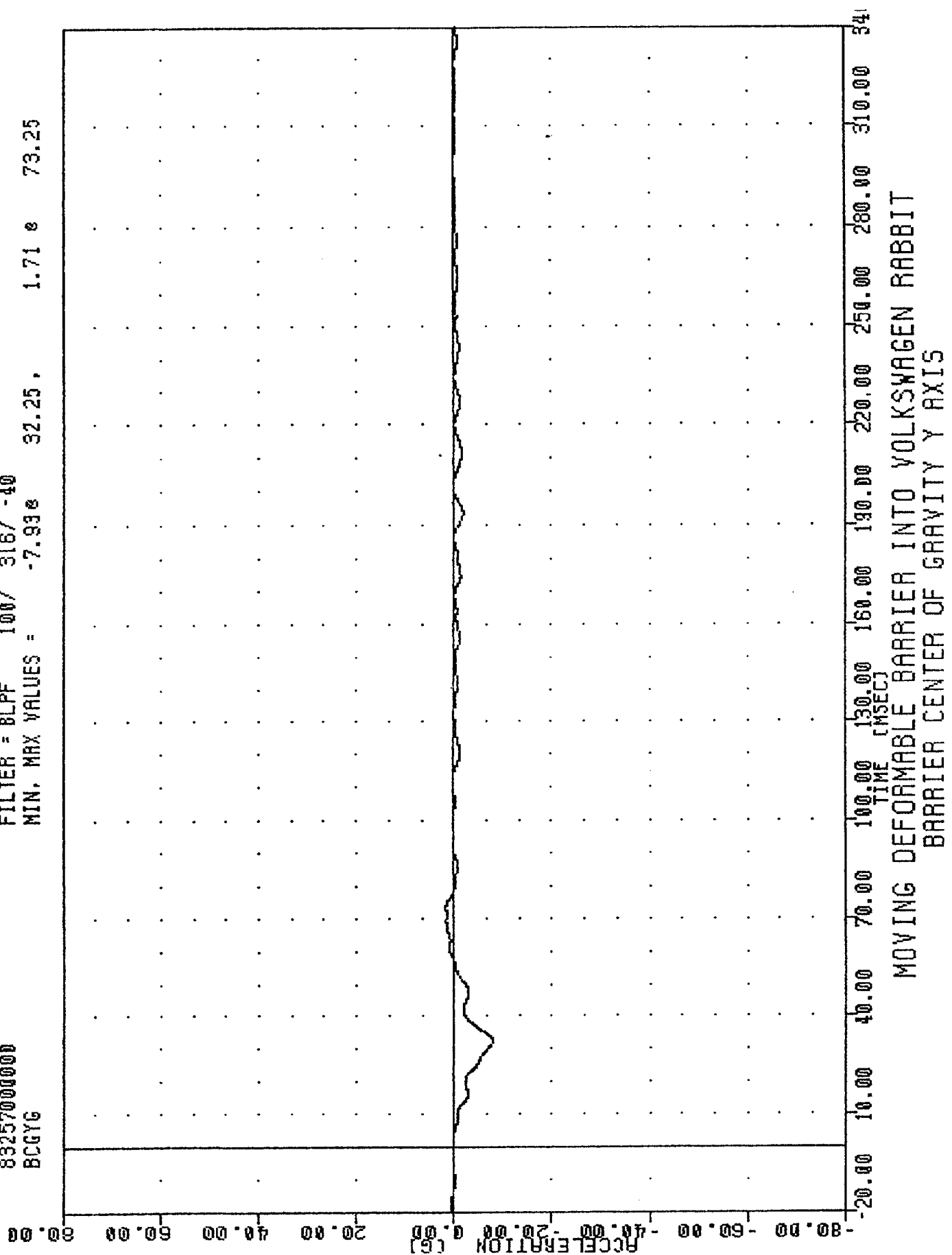
T 0000-SE 03:21

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -14.27% 41.63. 1.60 s 117.88

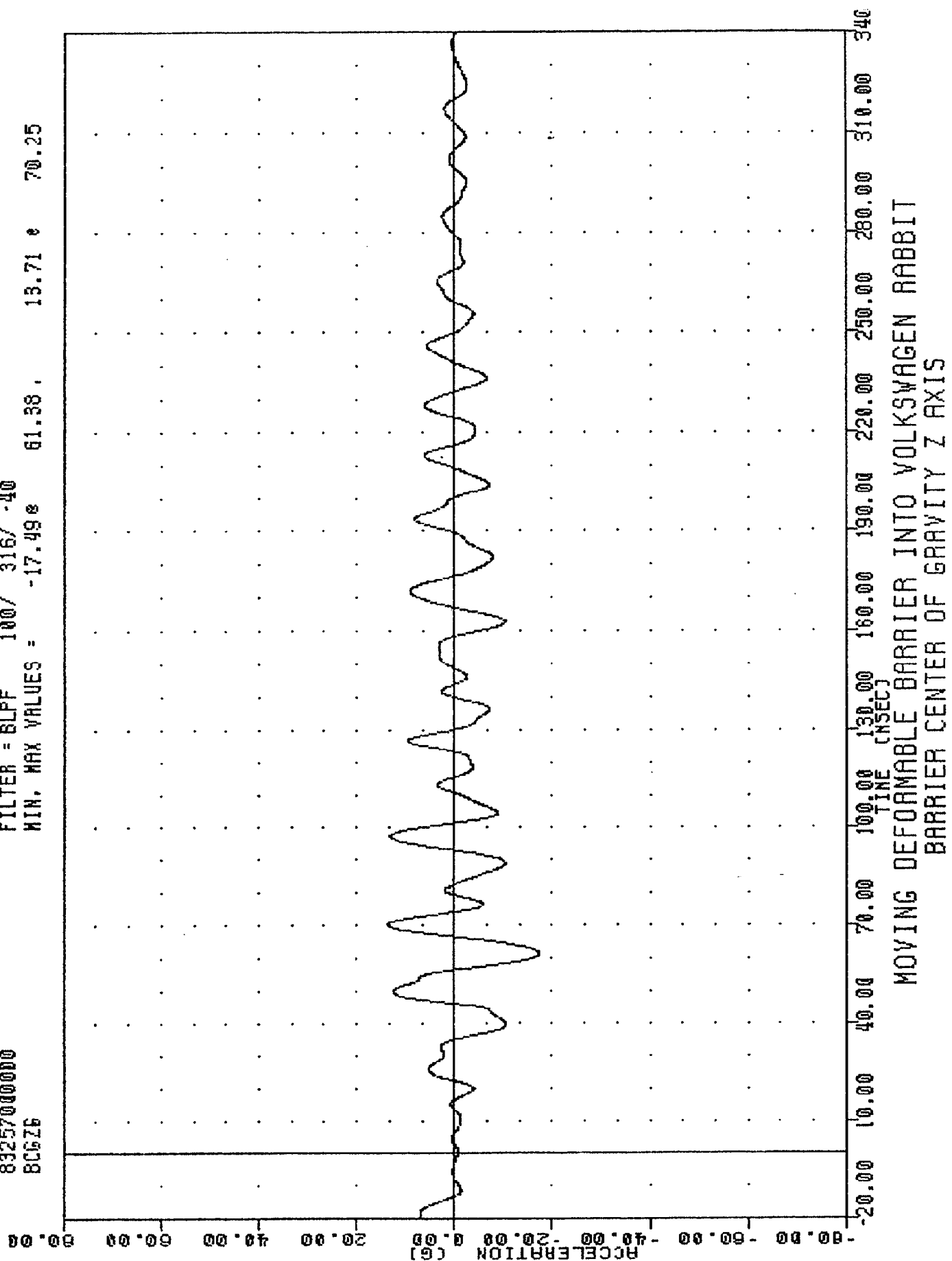


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER CENTER OF GRAVITY X AXIS

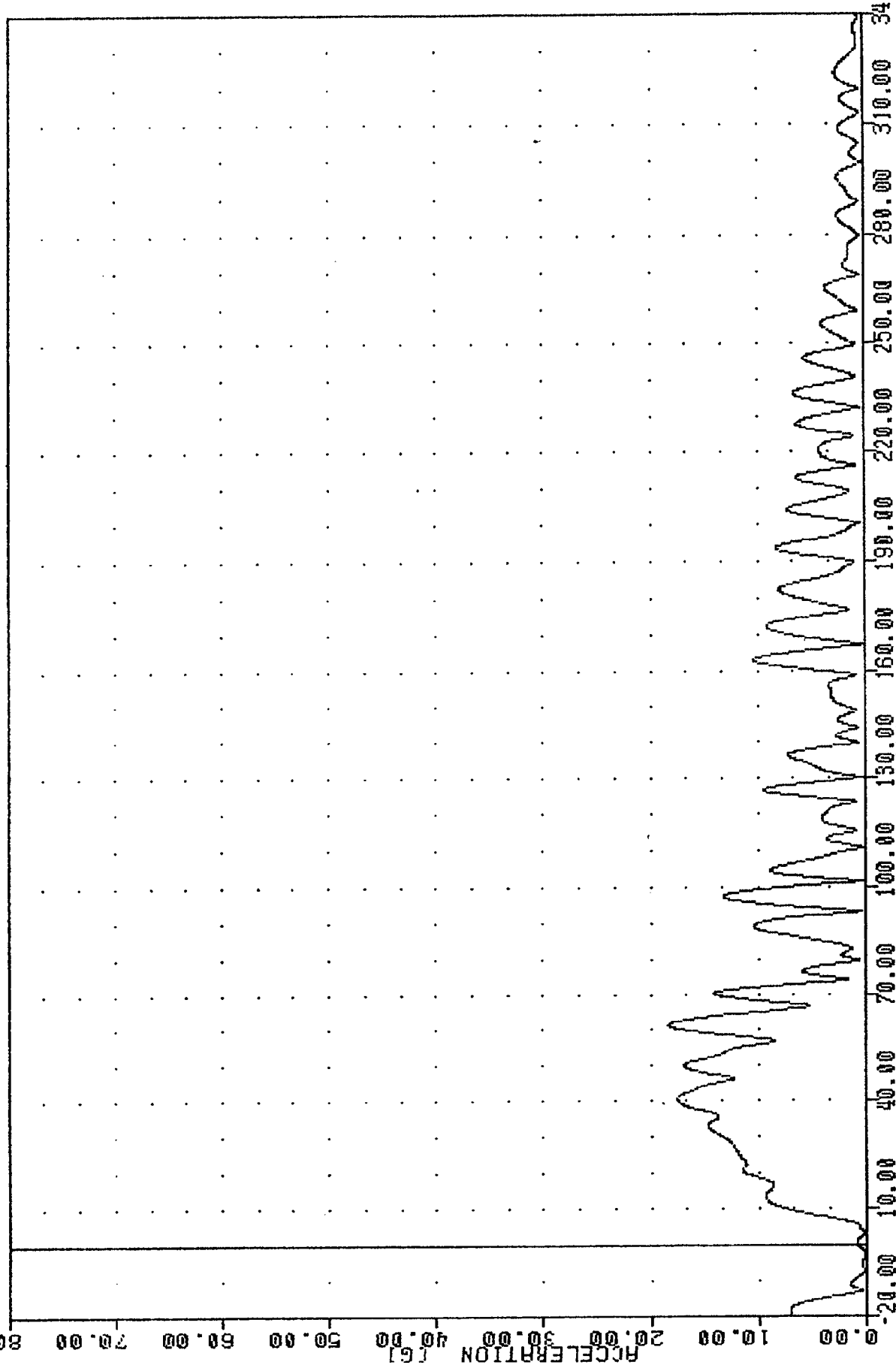
73300000
 EVALUATION OF MOD YW FLEET
 83257000000
 BCGYG
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -7.93e 32.25, 1.71 e 73.25



INC 830512 TEST DATE 10-SEP-83 13:22:01
 EVALUATION OF KOD VN FLEET
 83257000000
 BCGZ6
 FILTER = 6LPF 100/ 316/ -40
 MIN. MAX VALUES = -17.49g 61.38. 13.71 e 70.25

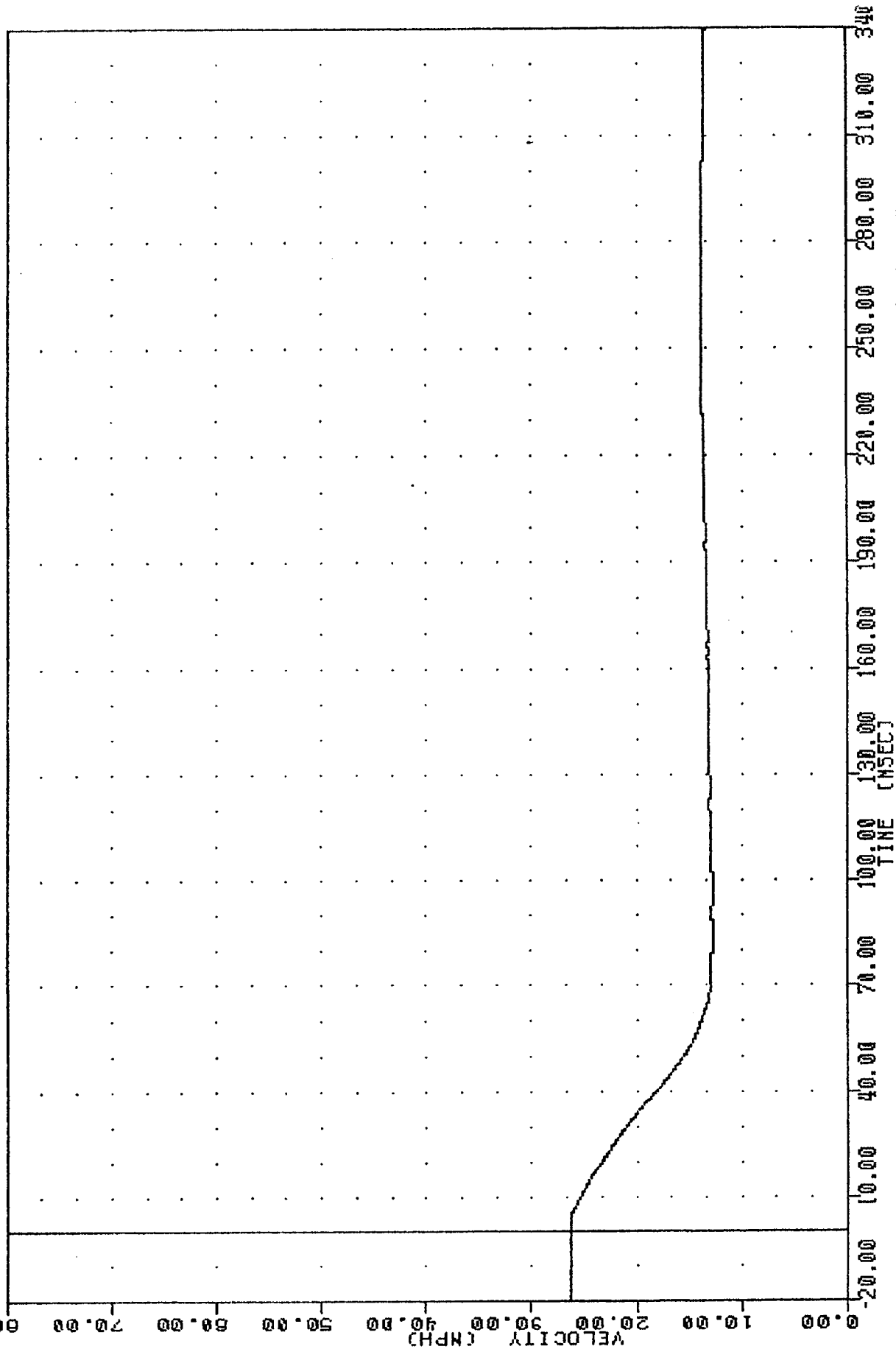


MC 83001
 EVALUATION OF MOD YW FLEET
 83257000000
 BCGRG
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = 0.05 2.75, 18.35 61.25
 TEST DATE 83-SEP-03 13:21



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER CG RESULTANT

TEST DATE 03-SEP-80 13:50:44
 FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 12.70 99.25, 28.27 14.50
 EVALUATION OF MOD VN FLEET
 83257000000
 BCGXY

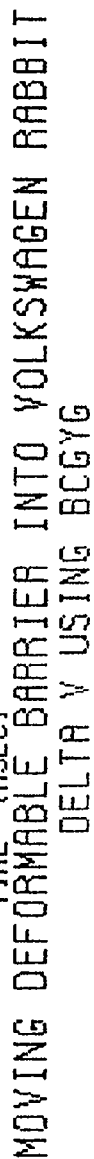


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING BCGXG

1

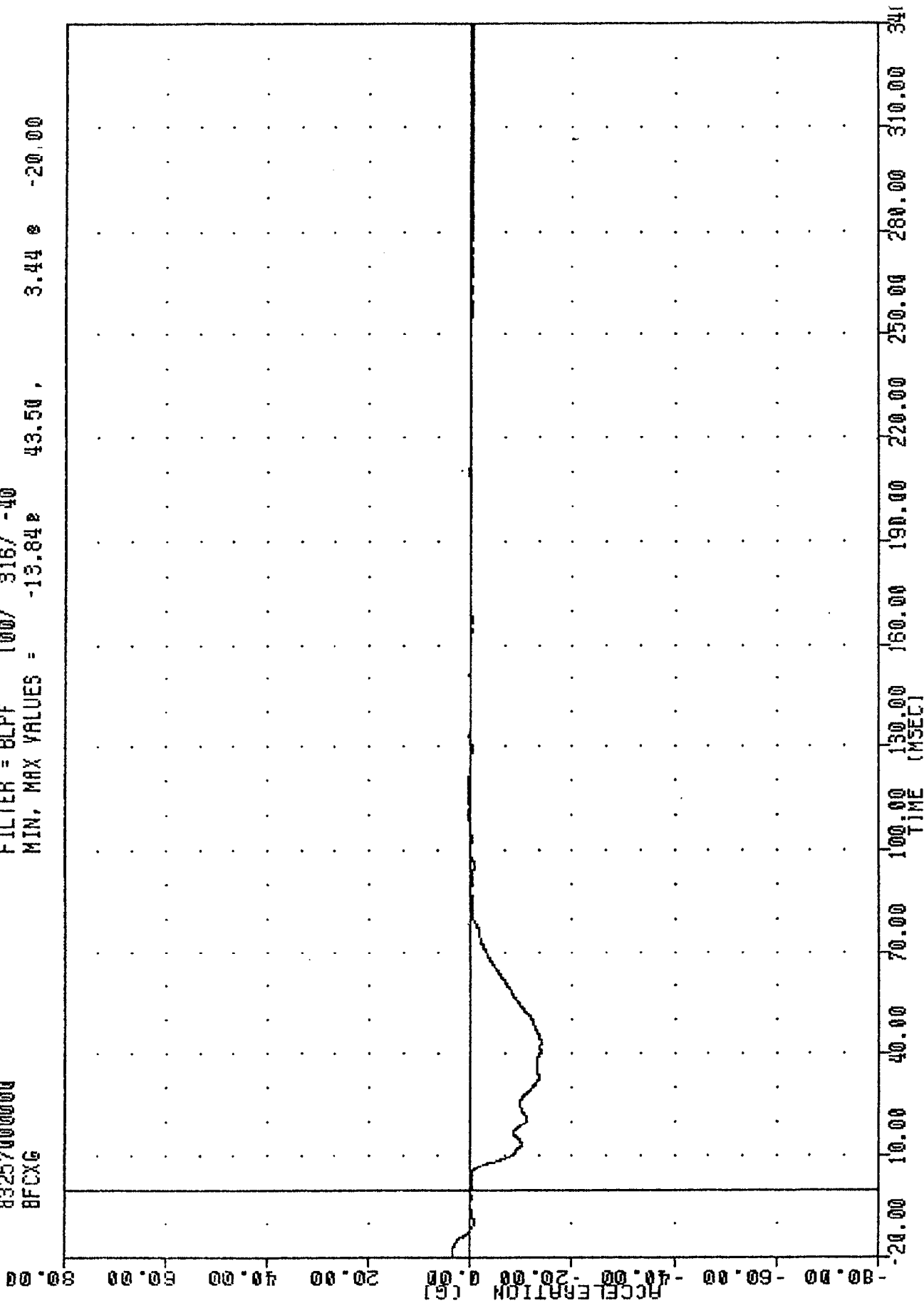
1

	MIN.	MAX	VALUES	=	7.208	340.00	12.83	8	-17.00
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830644
 EVALUATION OF MOD YV FLEET
 83257000000
 BFCXG

830644
 13:20:04
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -13.84 43.50 3.44 -20.00

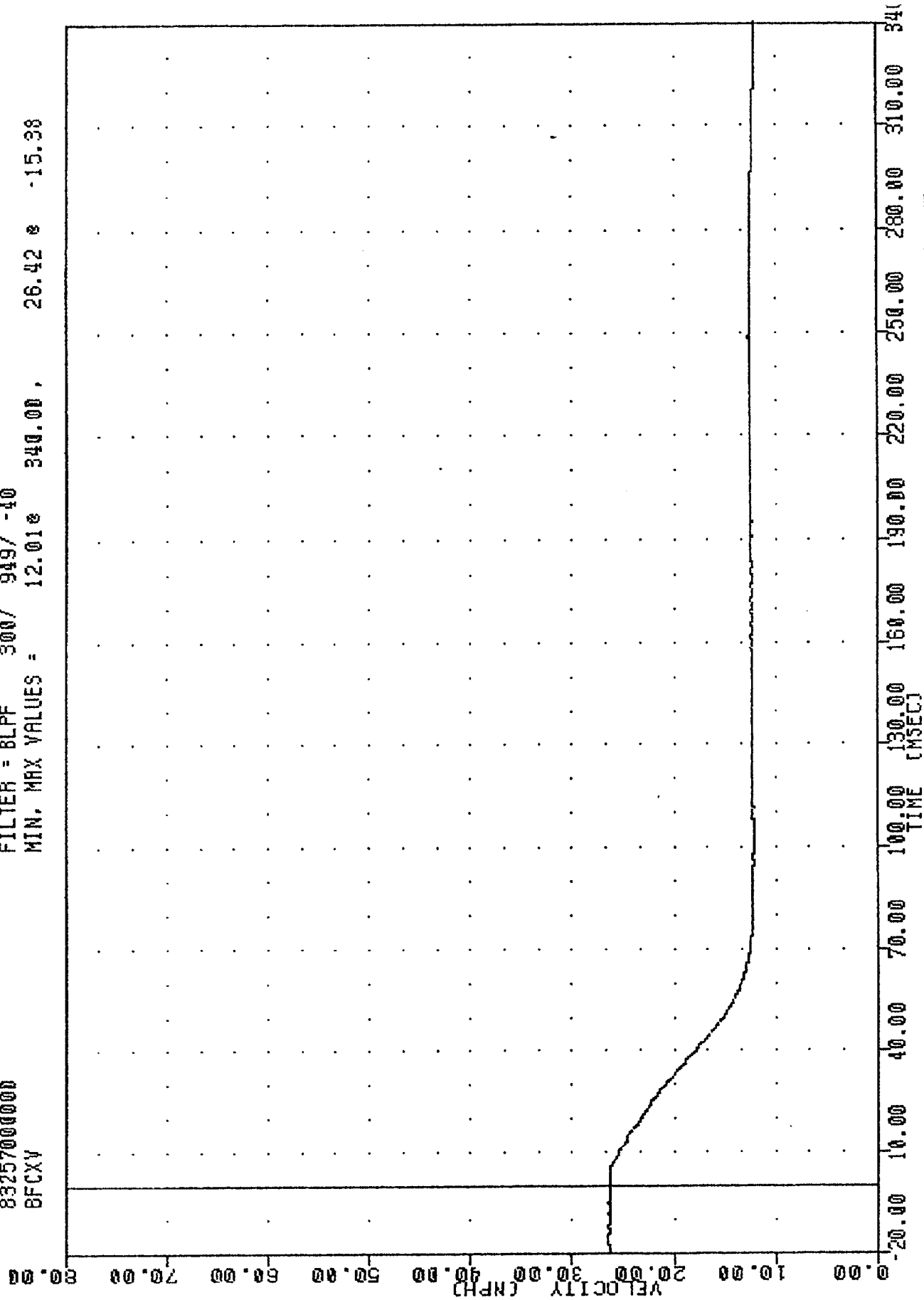


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER FRONT CROSSMEMBER ACCELERATION X AXIS

TRC
EVALUATION OF MDD VW FLEET
83257000000
BFCXV

PLOT DATE 19-SEP-83 13:56:11

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = 12.01e 340.00, 26.42 e -15.38



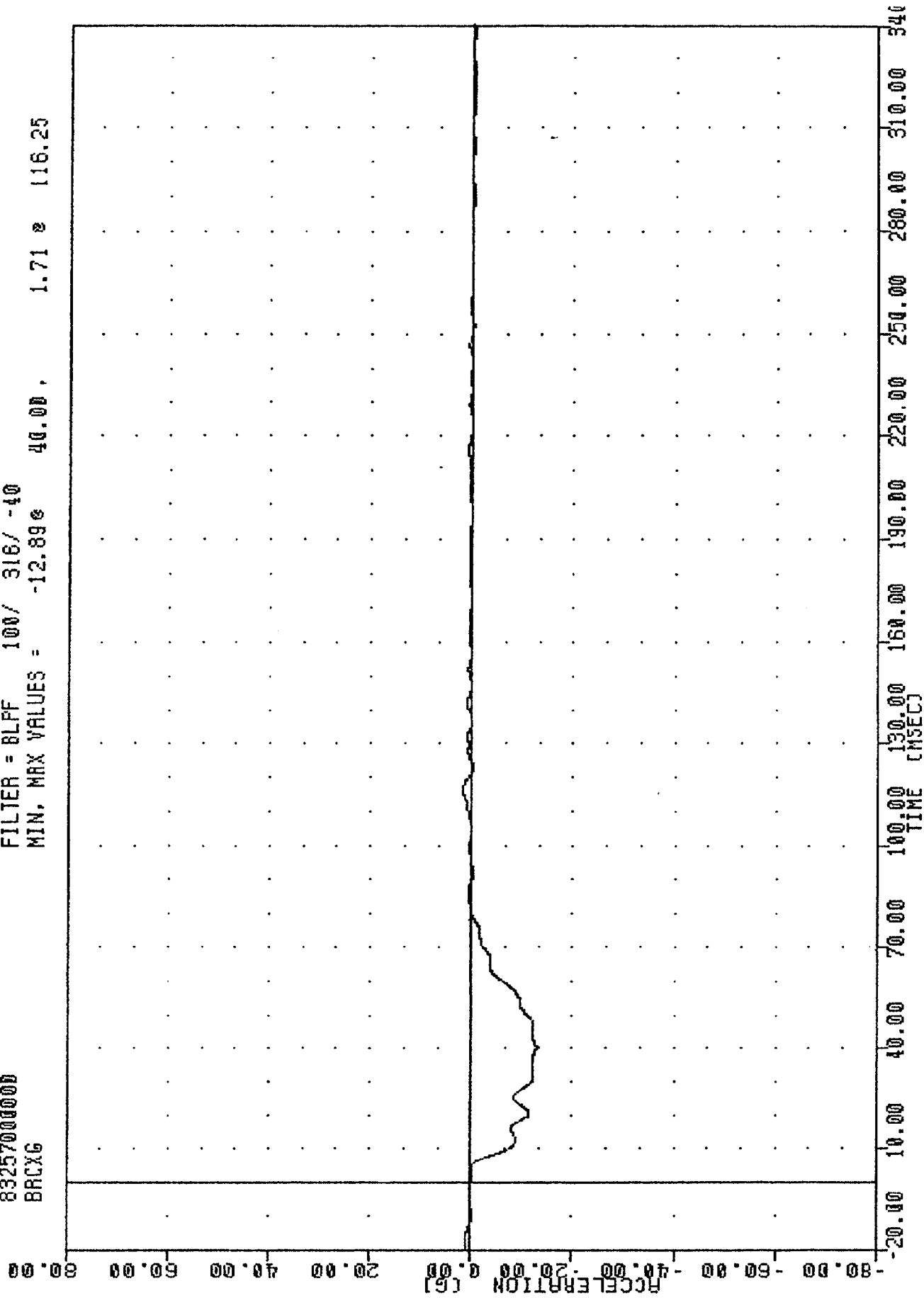
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING BFCXG

TRC
 EVALUATION OF MDD VN FLEET
 83257000000
 BRXG

PLOT DATE 19-SEP-83 13:22:31

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -12.896 40.00, 1.71 116.25

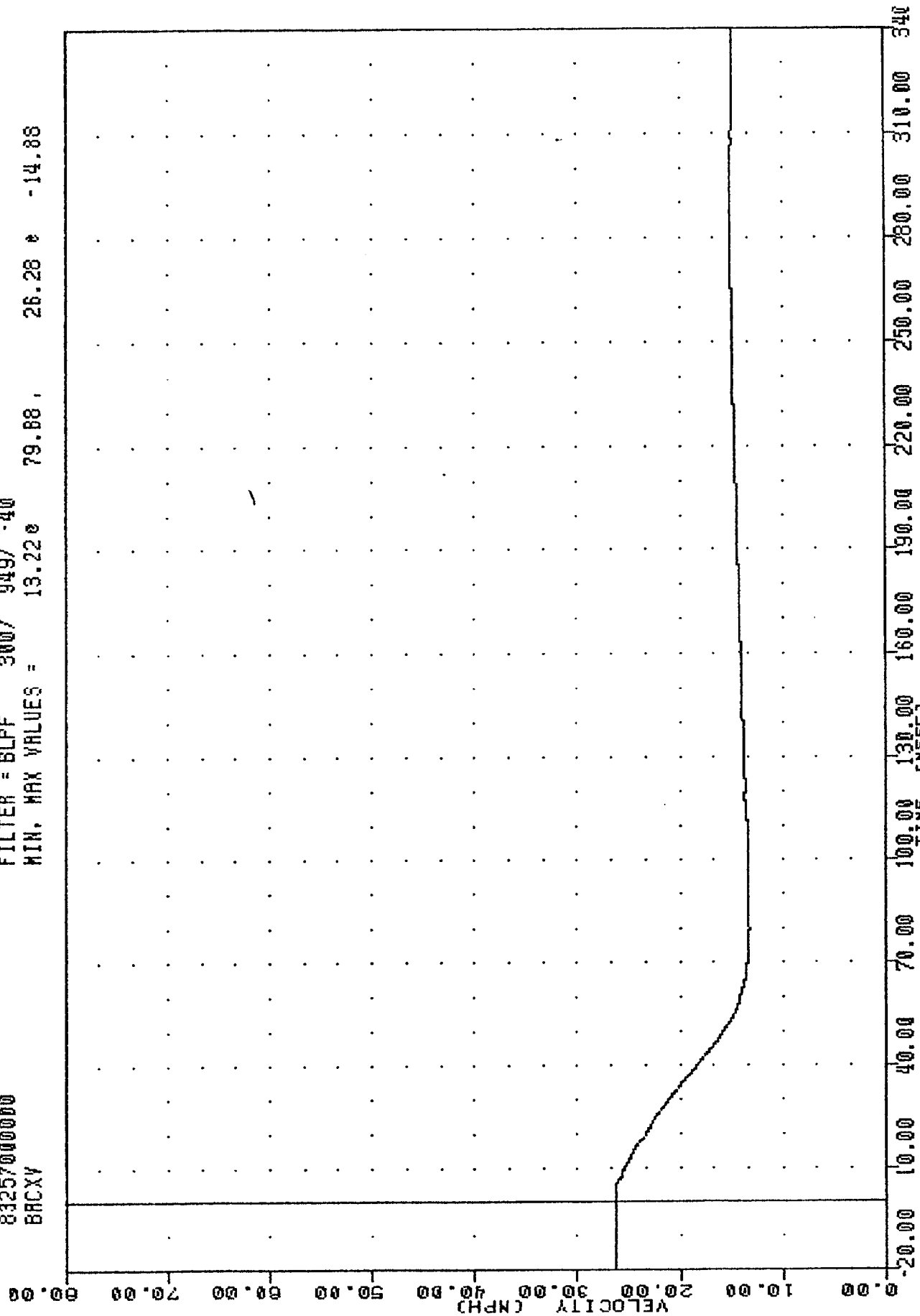


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER REAR CROSSMEMBER ACCELERATION X AXIS

TAC
EVALUATION OF MOD VN FLEET
83257000000
BRCXY

PLOT DATE 19-SEP-83 13:56:11

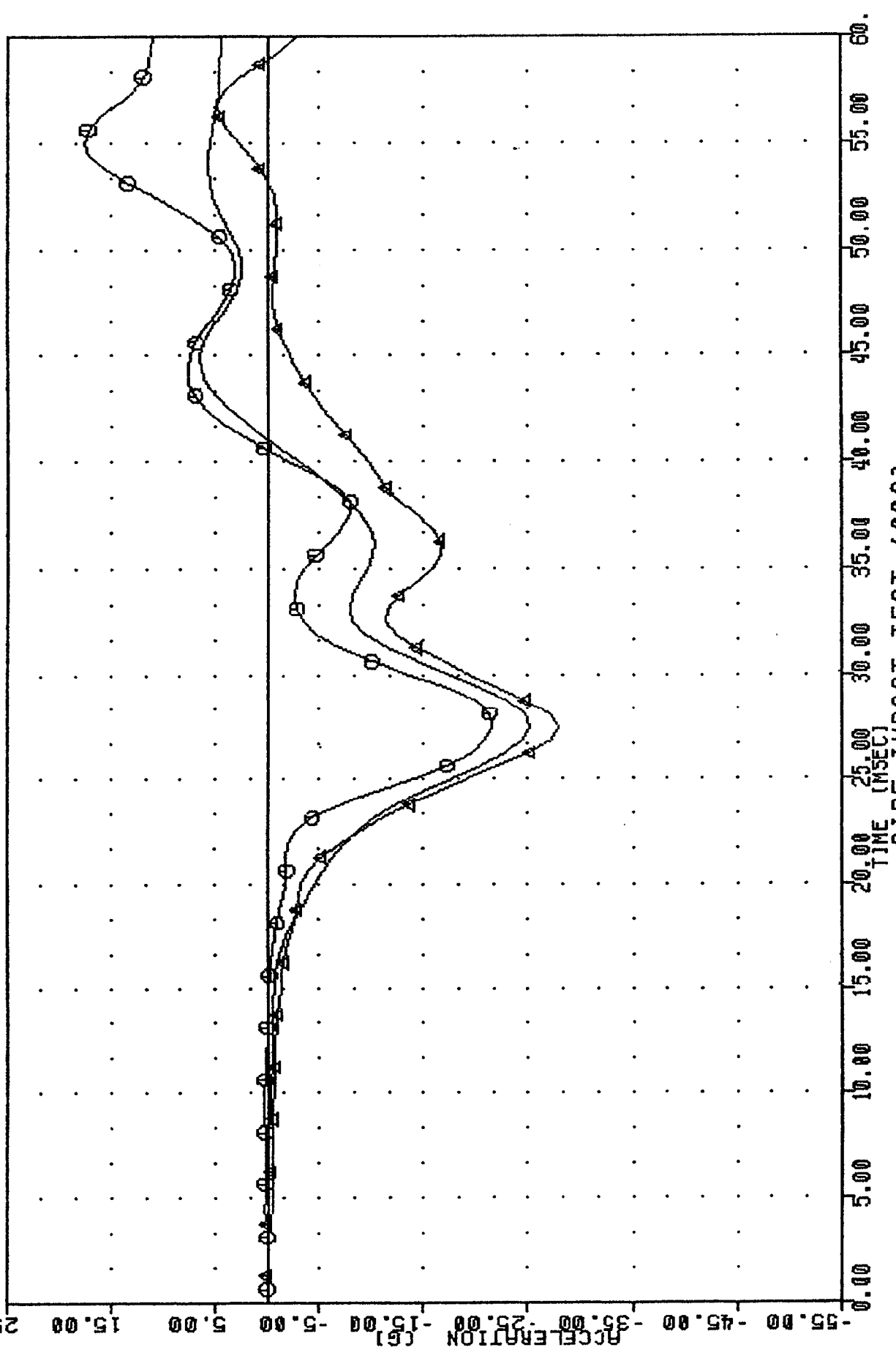
FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = 13.22 79.88 26.28 -14.88



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING BRCXG

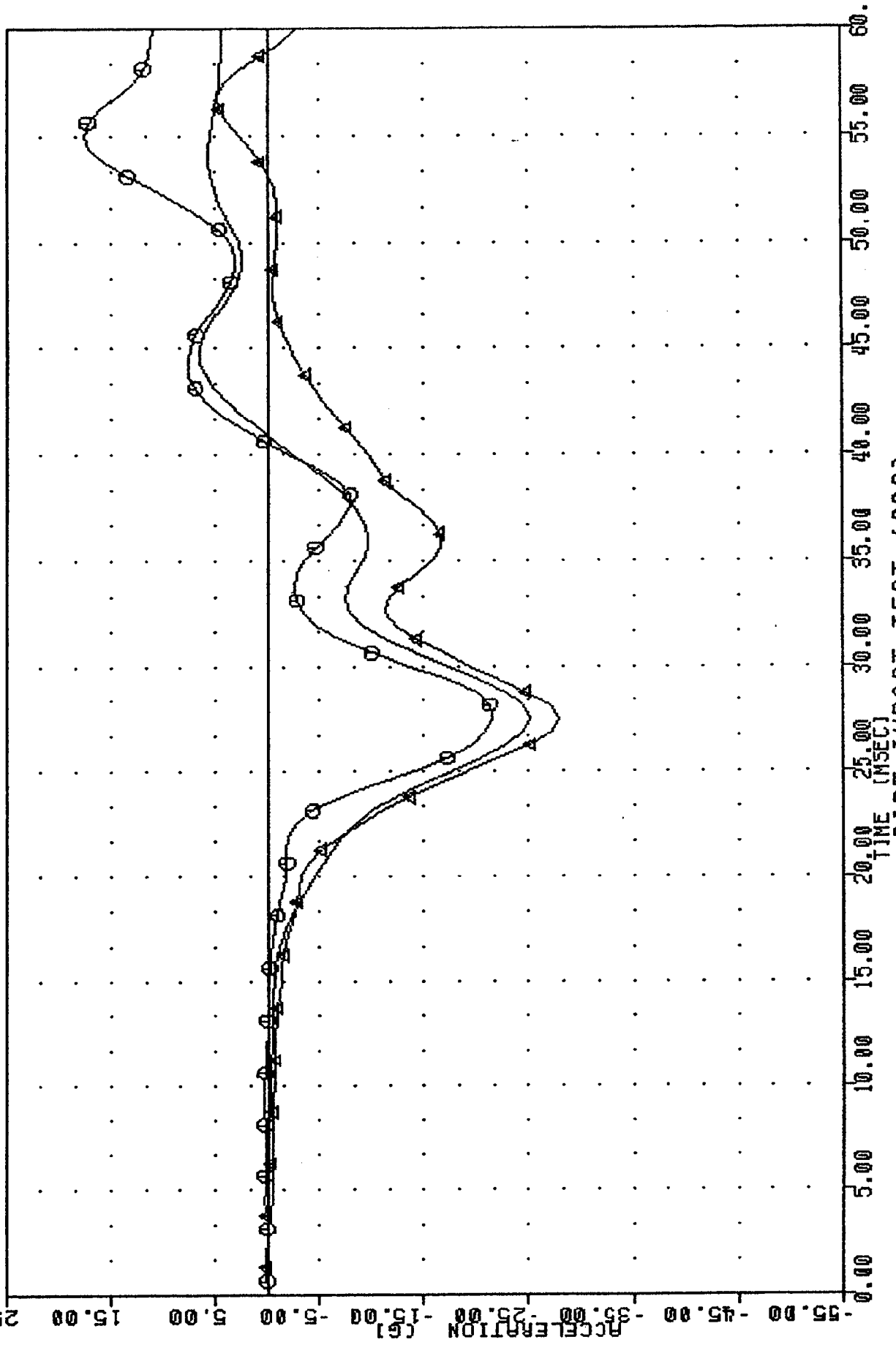
APPENDIX C
DUMMY CERTIFICATION

VRTC SHL26 , ARL6 CAL61 , SID THORAX 6 BODY 318 CHL 61
 TO1 YGR FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.19
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -21.58
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -27.91
 PLUT DATE 12-SEP-83 16:06:03
 26.87, 6.398
 26.87, 17.548
 26.87, 4.788



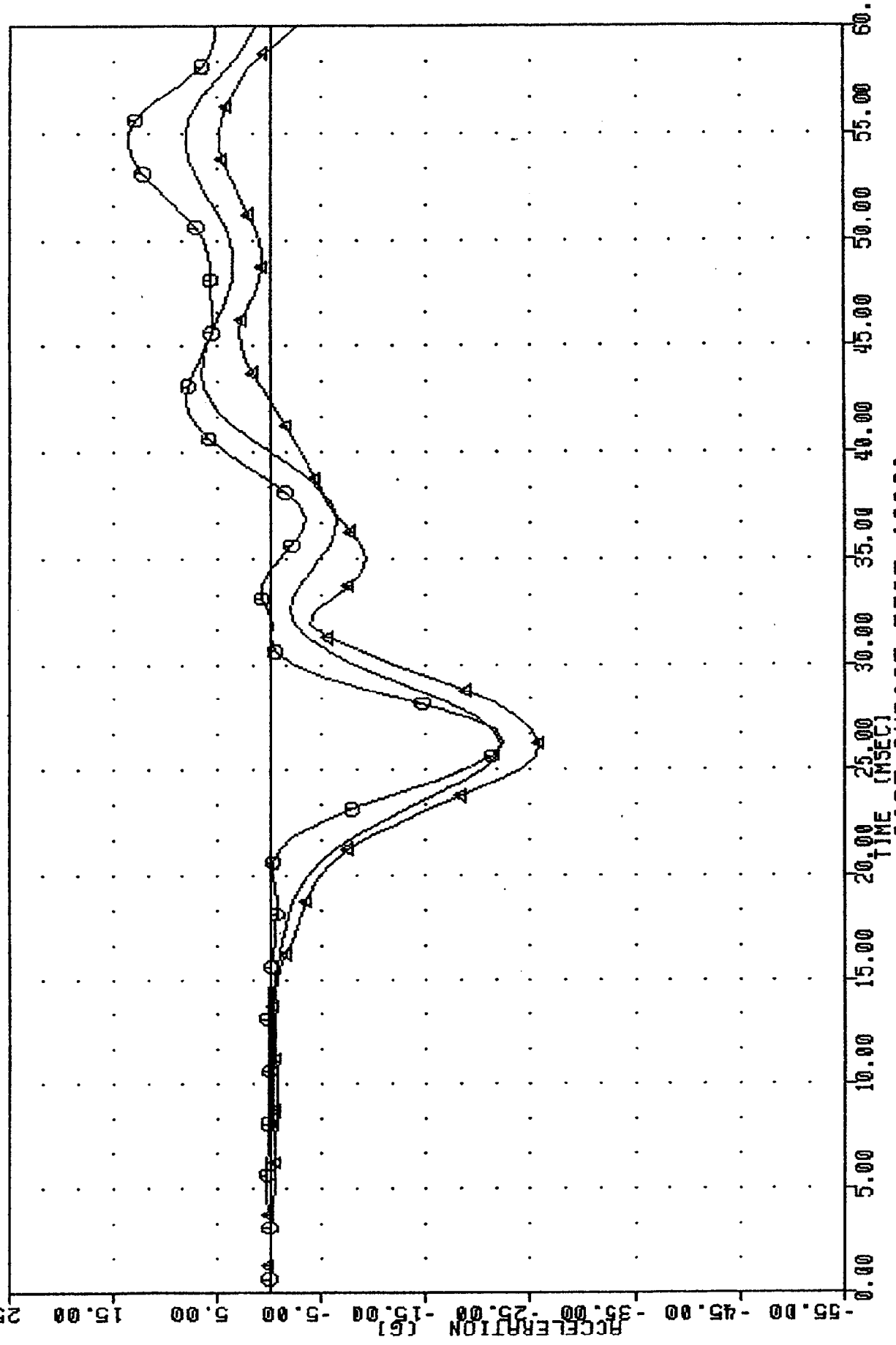
SIDE IMPACT TEST (006)
 UPPER SPINE ACCELERATION Y AXIS -A

VRIC SRL26 , ARL6 CAL61 SID THORAX 6 BODY 318 CHL 61 83252 PLUT DATE 12-SEP-83 13:30:03
 T01Y61 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.05 26.87, 6.428 44.38
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -21.58 26.87, 17.54 54.38
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -27.91 26.87, 4.78 56.25



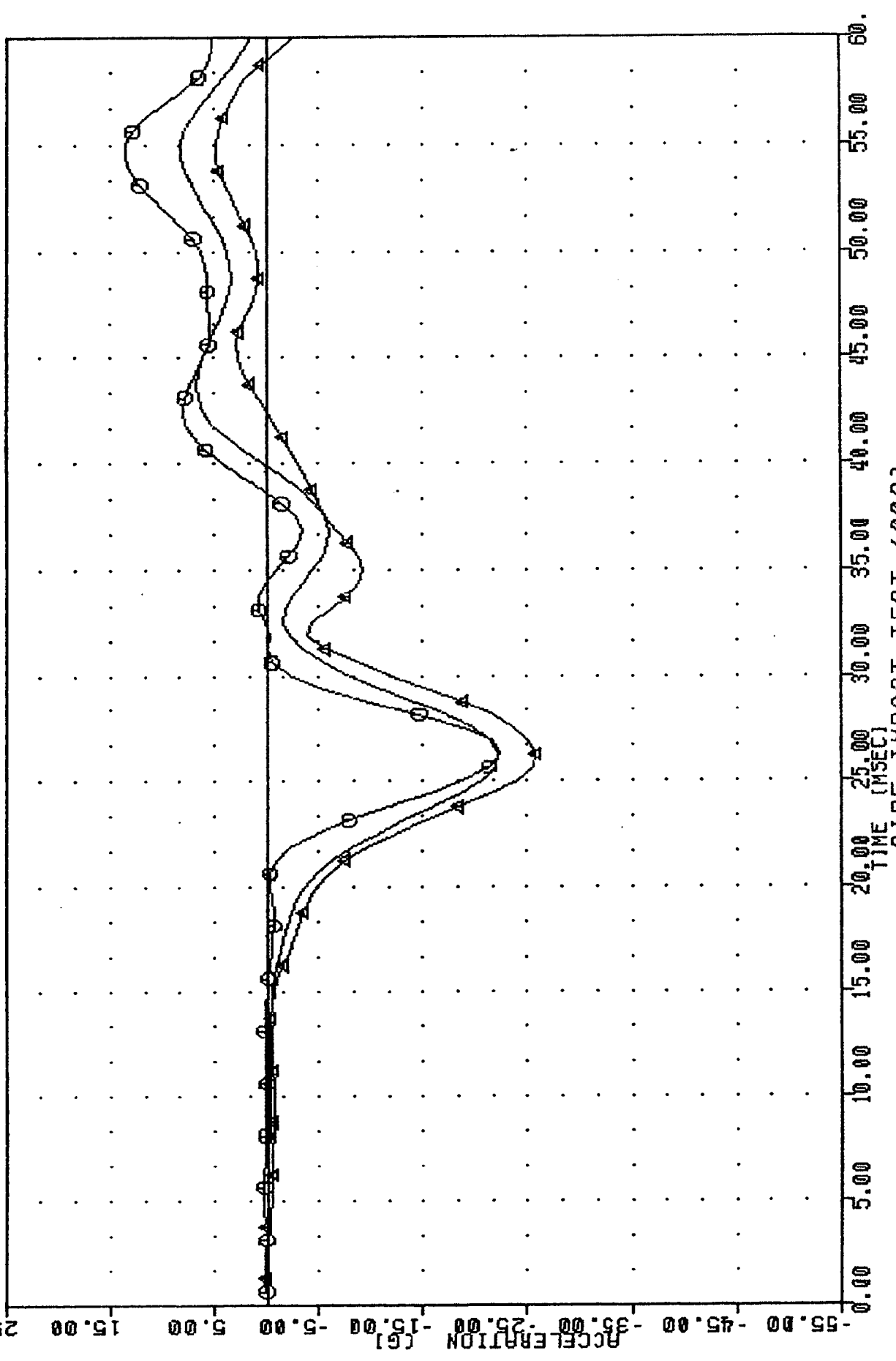
SIDE IMPACT TEST (006)
 UPPER SPINE ACCELERATION Y AXIS -1

VRIC 3AL26, ARL6 CAL61, SID THORAX B BODY 318 CAL 61, 83252, 12-SEP-83, 15:11:10
 T12YGA, FILTER = HSRI, 136/ 189/ -50, MIN, MAX = -22.09, 8.06, 54.38
 MN-2SD, FILTER = HSRI, 136/ 189/ -50, MIN, MAX = -22.37, 13.54, 53.75
 MN-2SD, FILTER = HSRI, 136/ 189/ -50, MIN, MAX = -25.84, 4.85, 53.75



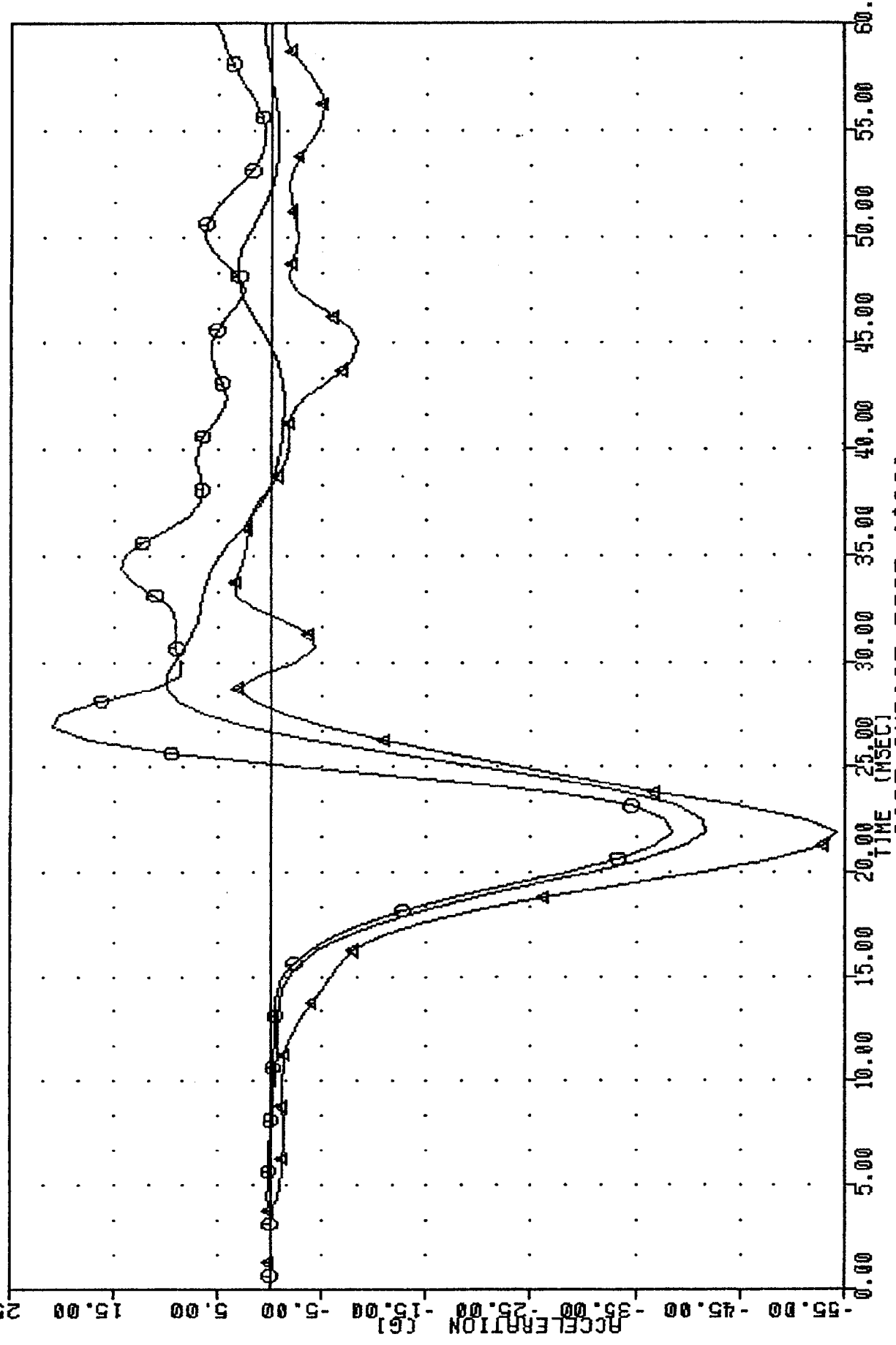
SIDE IMPACT TEST (006)
 LOWER SPINE ACCELERATION Y AXIS -A

VRTC SRL26 , ARL6 CAL61 SIU THORAX 6 BODY 318 CAL 61
 T12Y61 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -22.23 8 25.63 8 8.20 8 54.38
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -22.37 8 25.63 8 13.54 8 53.75
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN. MAX = -25.84 8 25.63 8 4.85 8 53.75



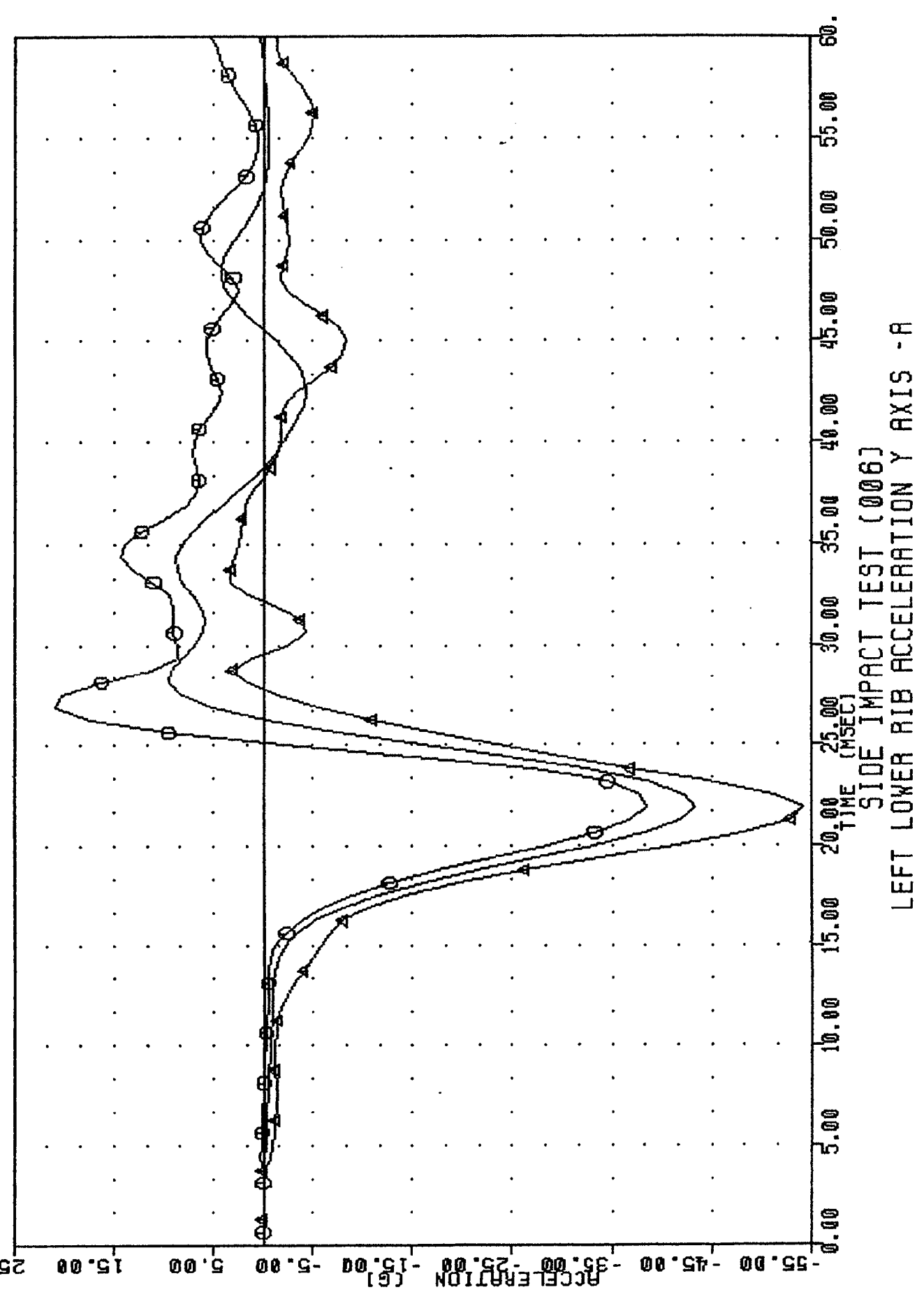
SIDE IMPACT TEST (006)
 LOWER SPINE ACCELERATION Y AXIS -1

VRTC SRL26 , ARL6 CALG1 , SIO THORAX 6 BODY 318 CAL 61 83252 PL0T DATE 12-SEP-83 14:28:47
 LURYG1 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -41.67 9.94 26.13
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -38.44 20.92 26.25
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -54.08 3.31 33.13

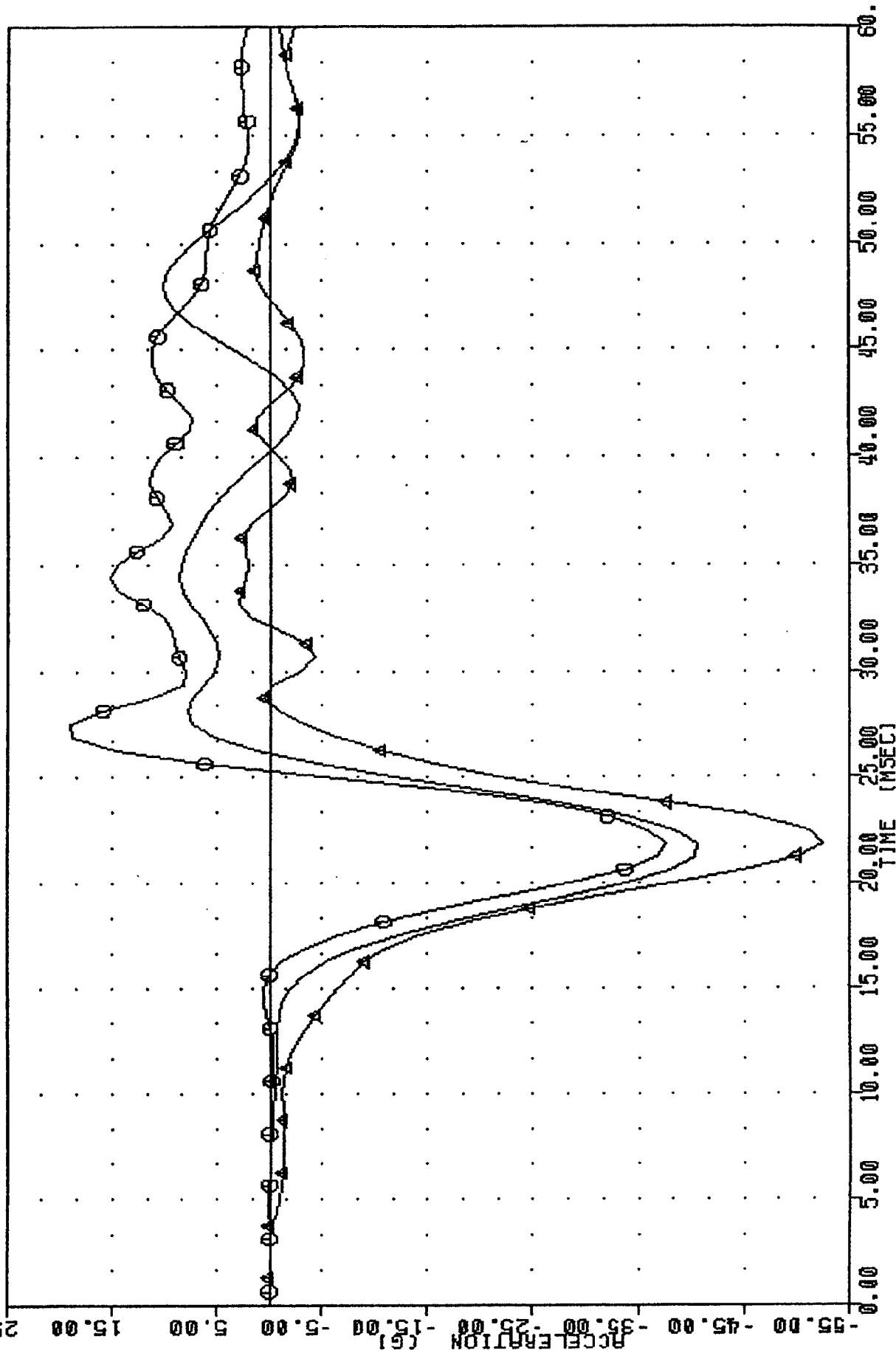


SIDE IMPACT TEST (006)
 LEFT UPPER RIB ACCELERATION Y AXIS -1

VRTU CHL26, ARLO LAL61, SIU THORAX 6 BOUT 318 CHL 61, 83252, 12 SEP 83, 14:30:00
 LURYGA FILTER: HSRI 136/ 189/ -50 MIN, MAX = -43.32 21.25, 9.49 27.50
 MN-2SD 0 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -38.44 21.25, 20.92 26.25
 MN-2SD 1 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -54.08 21.25, 3.31 33.13

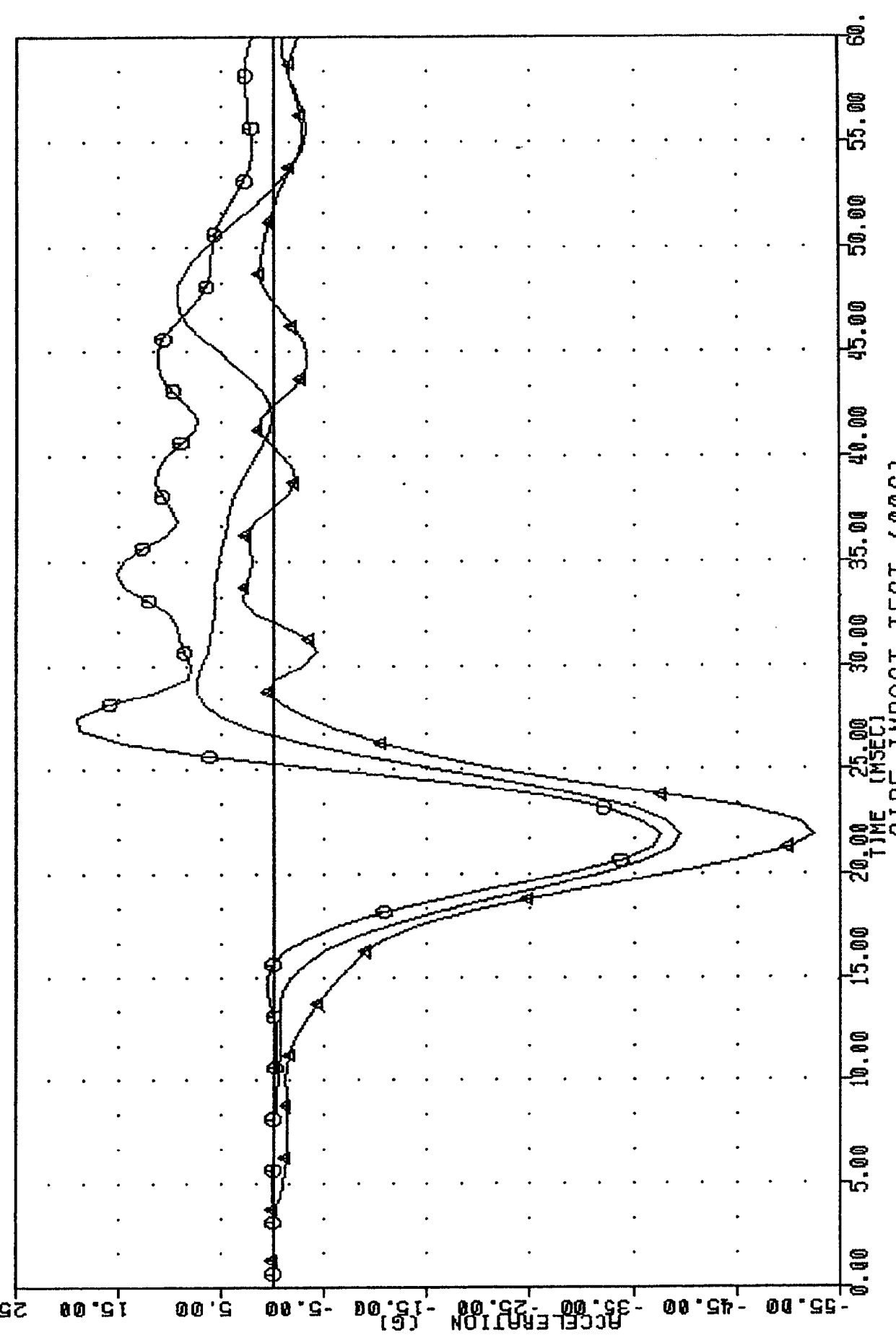


VRIC 3HL26 , ARLO CHL61 SID MORNA 8 BOU 318 CHL 6J 83252 PLUT DATE 12 SEP 63 14.27:44
 LLRYGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -40.70 21.25 10.06 47.50
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -37.68 21.25 19.00 26.87
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -52.52 21.25 2.94 32.50



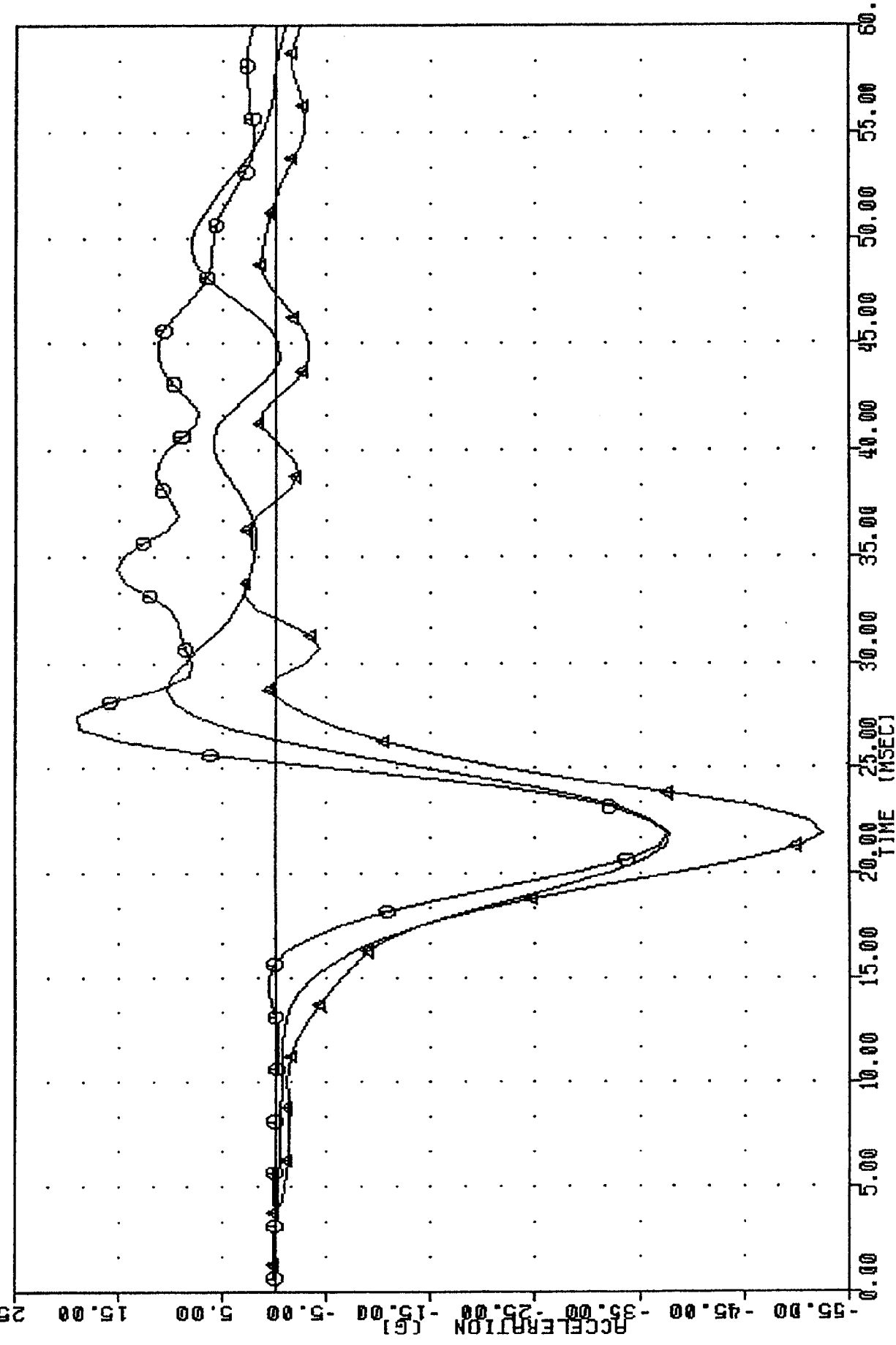
SIDE IMPACT TEST (006)
 LEFT LOWER RIB ACCELERATION Y AXIS -A

VRI C 3HL26 * ARLO CHL61 SIU THORAX 6 BOUT 318 CHL 61 83202 12-SEP-83 14:26:17
 LLRYG1 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -39.53 9.30 46.88
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -37.66 19.00 26.87
 MN-2SD A FILTER = HSRI 136/ 189/ -50 MIN, MAX = -52.52 2.94 32.50



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

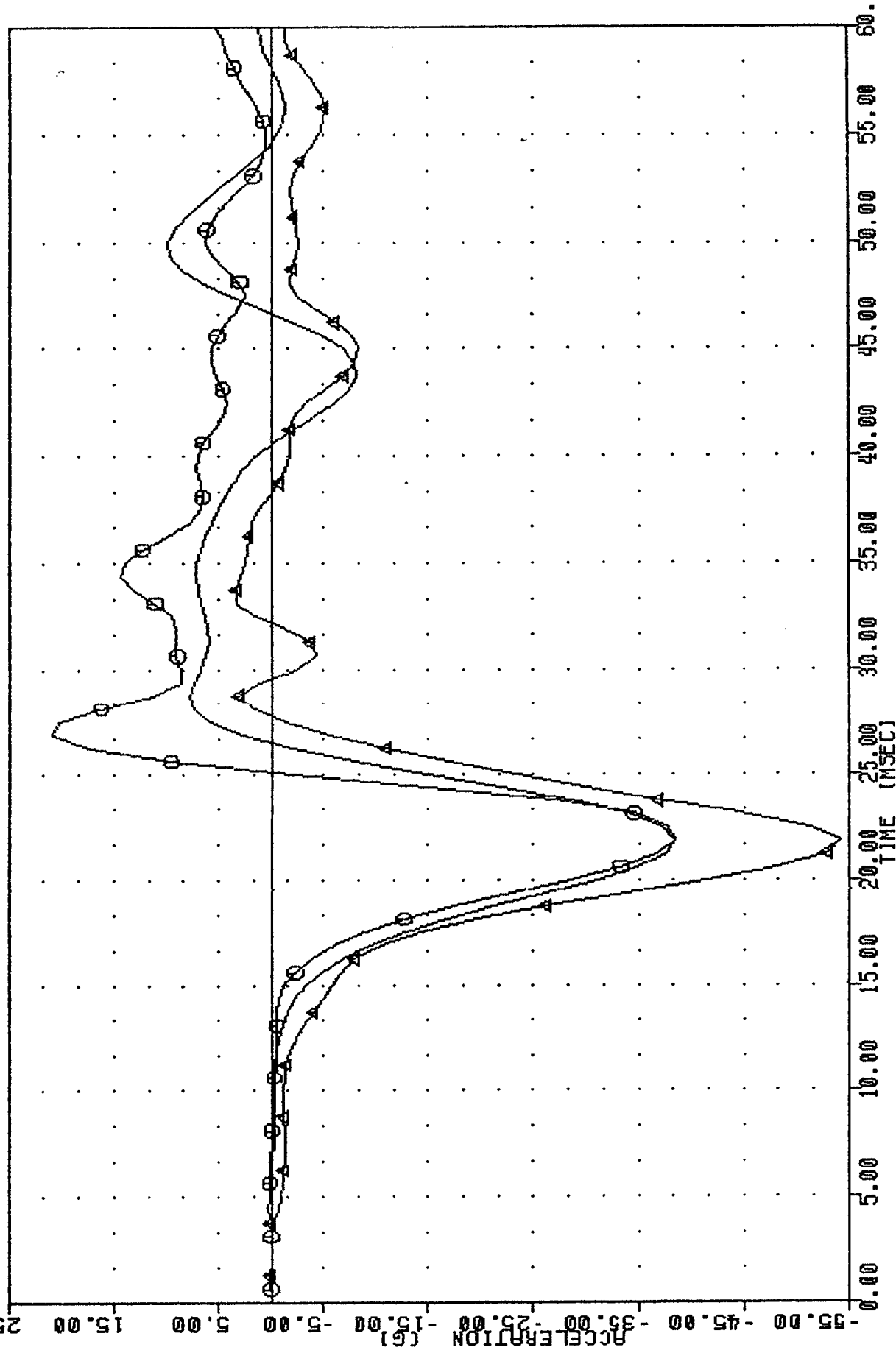
VRT C 38126 , U02 CHL 62 SID THORAX U02 BODY 630 CAL 02 63235 PLUT DATE 12 SEP 63 10:38:34
 LLRYGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -37.78 21.25 10.24 28.13
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -37.66 21.25 19.00 26.87
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -52.52 21.25 2.94 32.50



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

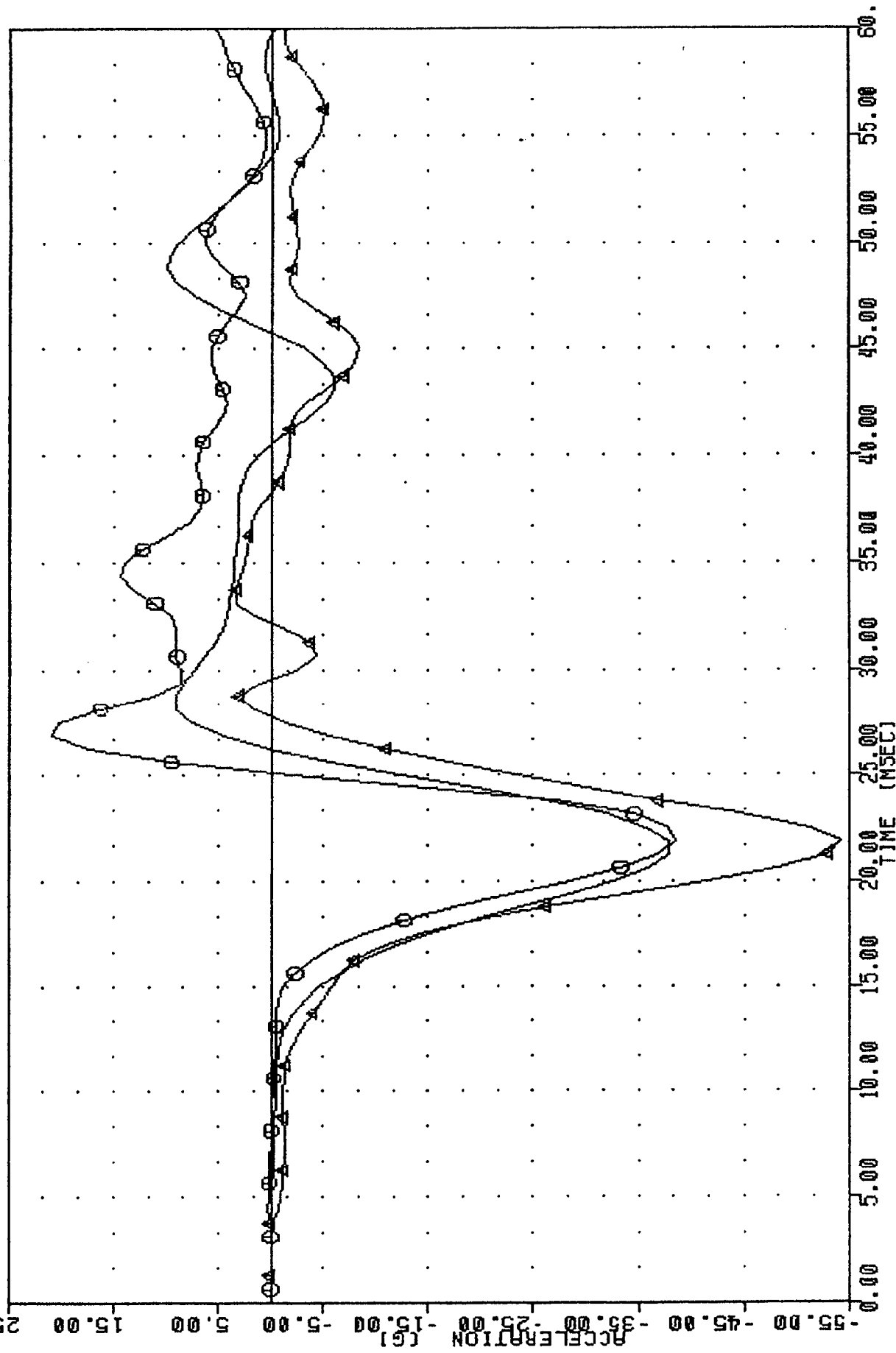
VRTC 3RL26 , U02 CHL62 SIU THORAX U02 BODY 85W CARL 02 63235
 LURYGA FILTER : HSRI 136/ 189/ -50 MIN. MAX = -38.48
 MN-250 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -38.44
 MN-250 A FILTER : HSRI 136/ 189/ -50 MIN. MAX = -54.08

PLUT DATE 12 SEP 83 10:00:03
 21.25 9.76
 21.25 20.92
 21.25 3.31
 26.25 33.13



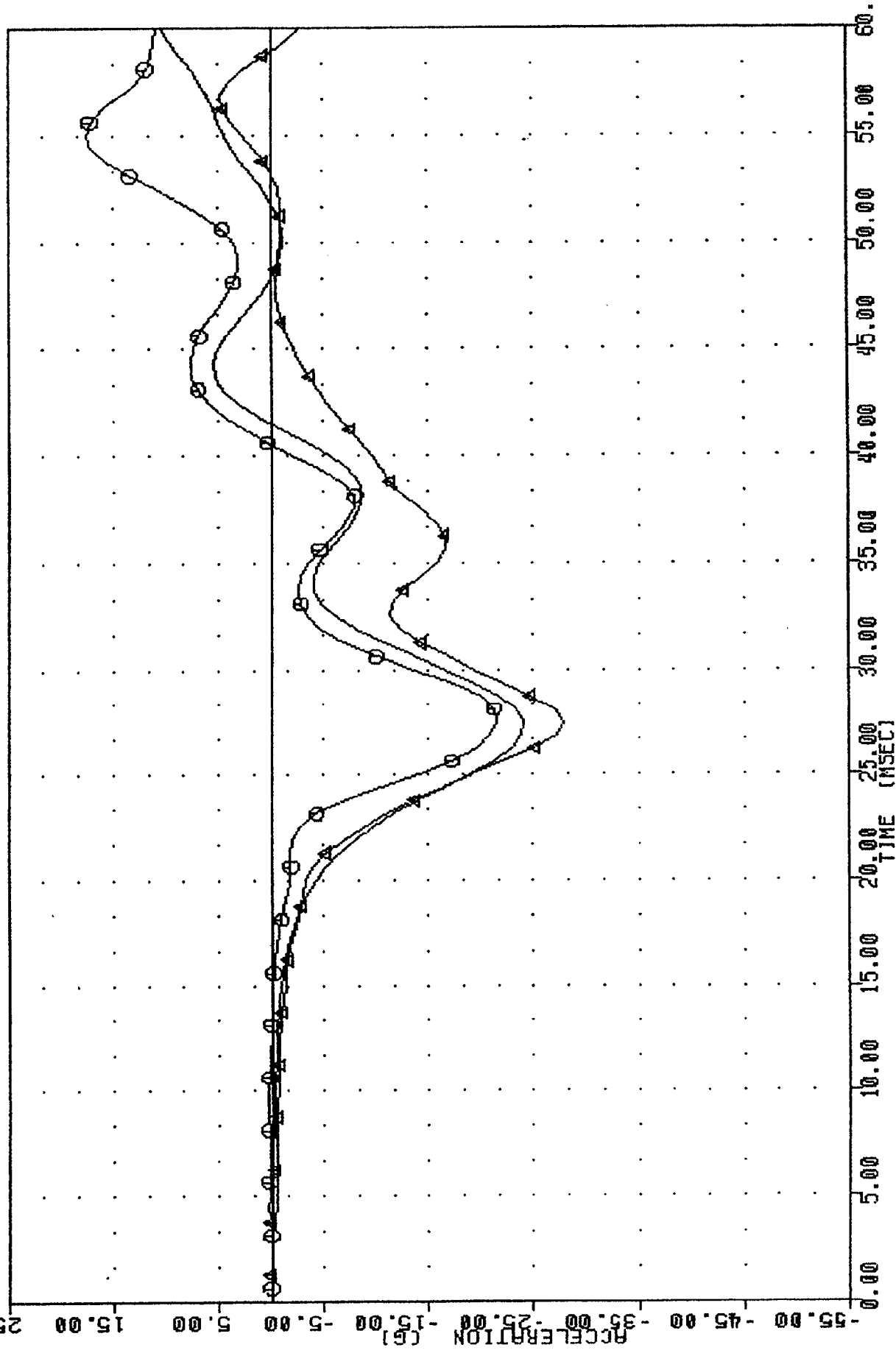
SIDE IMPACT TEST (U02)
 LEFT UPPER RIB ACCELERATION Y AXIS -A

VRT C-3M126, U02 CHL 62, S10 THORAX U02 BODY 850 CARL 02, 63235, 12-SEP-83, 16:09:54
 LURYGI FILTER = HSRI 136/ 189/ -50 MIN, MAX = -37.79 9.77 48.13
 MN-250 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -38.14 20.92 26.25
 MN-250 A FILTER = HSRI 136/ 189/ -50 MIN, MAX = -54.08 3.31 33.13



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

VRTC SNL26 , U02 CHL62 SIU THORAX U02 BODY 650 CAL 02 65235 PLOT DATE 12 SEP-83 13.45:34
 T01 YGR FILTER = HSRI 136/ 189/ -50 MIN, MAX = -24.07 26.87 10.86 60.00
 MN-250 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -21.58 26.87 17.54 54.38
 MN-250 A FILTER = HSRI 136/ 189/ -50 MIN, MAX = -27.91 26.87 4.78 56.25



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

[illegible]