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U.S. Department
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Traffic Safety
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EVALUATION OF NHTSA MODIFIED VOLKSWAGEN
RABBITS MDB-TO-CAR SIDE IMPACT TEST OF
A 19° CRABBED MOVING DEFORMABLE BARRIER
TO A 1981 VOLKSWAGEN RABBIT AT 34.4 MPH

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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 baseline 1981 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 ⁰ , 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 October 6, 1983 and the ambient temperature was 60 ⁰ 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 1981 Volkswagen Rabbit 2-door hatchback was impacted on the left side by a Moving Deformable Barrier (MDB) on October 6, 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 60° counterclockwise with respect to the longitudinal axis of the struck vehicle. The impact point was to be 37 inches forward of the vehicle center of gravity which is defined by accident investigation to be the midpoint of the wheelbase.

To simulate this collision, the MDB was to be towed into the stationary Volkswagen Rabbit at 34.4 mph with the MDB's wheels crabbed clockwise to 19°. The actual test speed was 34.4 mph and the actual impact point was 38.5 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 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: Volkswagen of America

MAKE/MODEL: Volkswagen Rabbit

VIN: 1VWAB0171BV064206

BODY STYLE: 2-Door Hatchback

MODEL YEAR: 1981

NHTSA NO.: R & D

COLOR: White

ENGINE DATA: TYPE: Transverse

CYLINDERS: 4

DISPLACEMENT 105 CID

TRANSMISSION DATA: 4 Speed Manual

DATE VEHICLE RECEIVED: 9/20/83

ODOMETER READING: 000021

DEALER'S NAME AND ADDRESS: Volkswagen North
6500 N. High Street
Worthington, Oh 43085

ACCESSORIES:

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

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

VEHICLE MANUFACTURED BY: Volkswagen of America

DATE OF MANUFACTURE: 1/81

GVWR: 2822 LBS.,

GAWR: FRONT 1609 LBS., REAR 1278 LBS.

VEHICLE TIRE DATA

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

TIRES ON VEHICLE (MFG. & LINE, SIZE): Goodyear/Mini Custom P155/80D13

BIAS PLY, BELTED, OR RADIAL: Bias Ply

PLY RATING: 2

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	340	LBS.
-------------	-----	------	------------	-----	------

LEFT FRONT	660	LBS.	LEFT REAR	350	LBS.
------------	-----	------	-----------	-----	------

TOTAL FRONT WEIGHT	1270	LBS.	(64.8 % OF TOTAL VEHICLE WEIGHT)
--------------------	------	------	----------------------------------

TOTAL REAR WEIGHT	690	LBS.	(35.2 % OF TOTAL VEHICLE WEIGHT)
-------------------	-----	------	----------------------------------

TOTAL DELIVERED WEIGHT	1960	LBS.
------------------------	------	------

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 25 9/16	;LF 25 1/4	;RR 25 5/16	;LR 25 1/8
---------------------	------------	------------	-------------	------------

PRE-TEST ATTITUDE:	RF 24 7/16	;LF 24	;RR 22 3/4	;LR 22 7/16
--------------------	------------	--------	------------	-------------

POST-TEST ATTITUDE:	RF 23 9/16	;LF 24 11/16	;RR 22 3/8	;LR 23 5/16
---------------------	------------	--------------	------------	-------------

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 187 LBS. CARGO:

RIGHT FRONT	670	LBS.	RIGHT REAR	552	LBS.
-------------	-----	------	------------	-----	------

LEFT FRONT	700	LBS.	LEFT REAR	573	LBS.
------------	-----	------	-----------	-----	------

TOTAL FRONT WEIGHT	1370	LBS.	(54.9 % OF TOTAL VEHICLE WEIGHT)
--------------------	------	------	----------------------------------

TOTAL REAR WEIGHT	1125	LBS.	(45.1 % OF TOTAL VEHICLE WEIGHT)
-------------------	------	------	----------------------------------

TOTAL TEST WEIGHT	2495	LBS.
-------------------	------	------

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

TEST FLUID DATA

TEST FLUID TYPE: RED STODDARD SOLVENT # 2; SPEC. GRAVITY: 0.764
KINEMATIC VISCOSITY: 0.99 CENTISTOKES
"USEABLE" CAPACITY*: NA GALLONS
TEST VOLUME: 4.0 GALLONS
FUEL SYSTEM CAPACITY (DATA FROM OWNERS MANUAL): 10.0 GALLONS
DETAILS OF FUEL SYSTEM: DNA

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

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

VEHICLE LOAD (UP TO CAPACITY): FRONT 27 psi; REAR 27 psi
RECOMMENDED TIRE SIZE: P155/80D13 LOAD RANGE X B, C,
VEHICLE CAPACITY: TYPES OF SEATS: Front - Bucket
Rear - Bench
NUMBER OF OCCUPANTS (DESIGNATED SEATING CAPACITY): 2 FRONT
2 REAR
CARGO LOAD 185 LBS. 4 TOTAL
TOTAL 785 LBS.

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

TEST CONDITIONS

TEST NUMBER: 831006

DATE OF TEST: October 6, 1983

TIME OF TEST: 12:15

WIND VELOCITY: 10-18 mph 207° SW

HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 60° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 74° F

SUBJECT VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
VEHICLE TEST WEIGHT (LBS.)	2495	2493
MDB TEST WEIGHT (LBS.)	2990	3000
MDB VELOCITY (MPH)*	34.4	34.4
IMPACT POINT (INCHES)**	38.5	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>Left Side Window & Sill, B-Pillar</u>	<u>Left Side Window, Header Padding</u>
Chest	<u>Padding</u>	<u>Padding</u>
Abdomen	<u>Padding</u>	<u>Padding</u>
Left Knee	<u>Padding</u>	<u>Left Quarter Panel</u>
Right Knee	<u>Left Knee</u>	<u>Left Knee</u>

DOOR OPENING:

	LEFT	RIGHT
Front	<u>Separated From Hinges</u>	<u>Easy</u>
Rear	<u>DNA</u>	<u>DNA</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
Front	<u>Yes</u>	<u>Yes, Approx. 8 Inches</u>
Rear	<u>No</u>	<u>No</u>

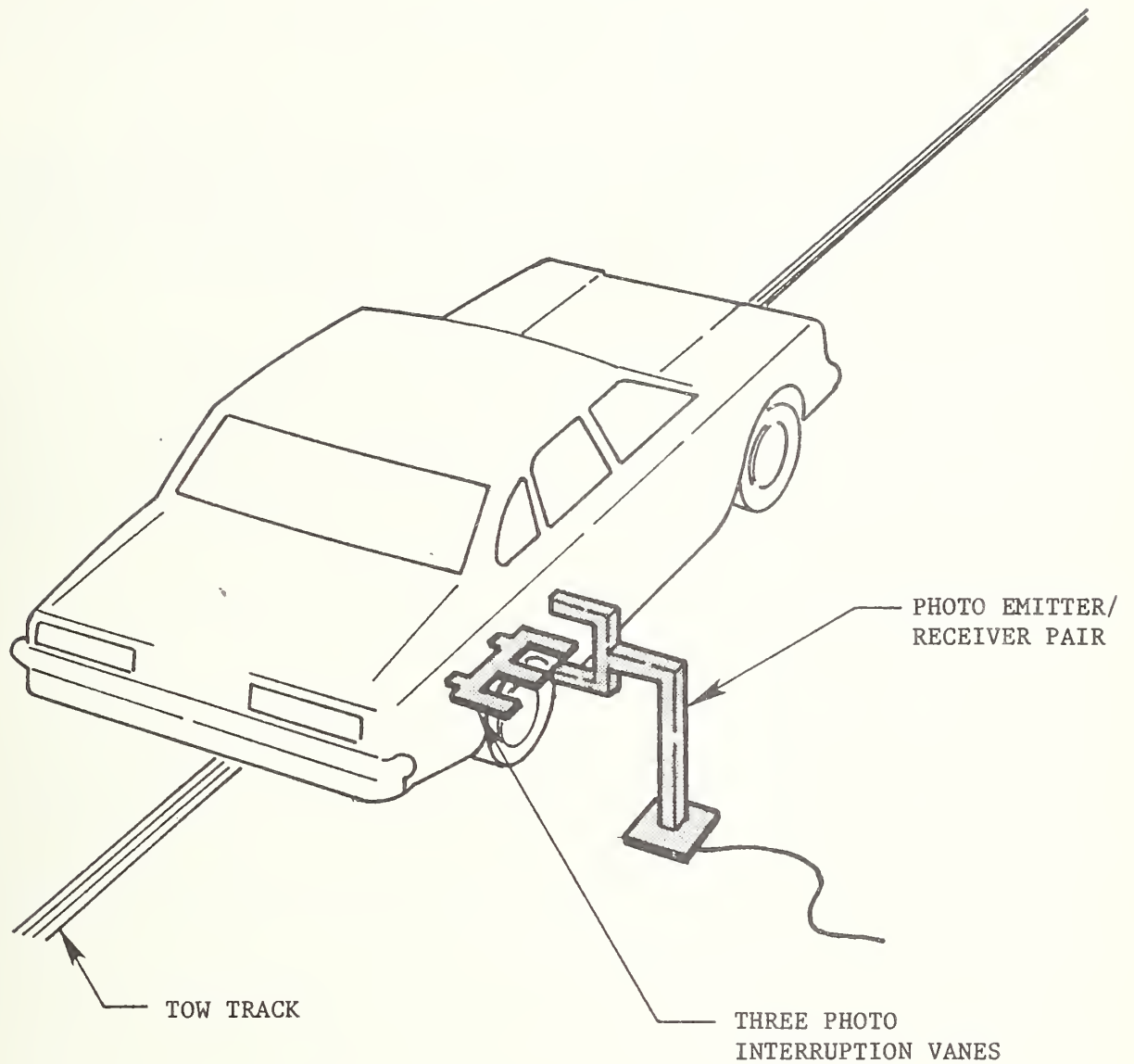
GLAZING DAMAGE:

Windshield and backlight undamaged, both left side windows shattered.

OTHER NOTABLE IMPACT EFFECTS:

Driver's door separated at hinges, B-pillar intruded approximately 13 inches.

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane is located two inches before impact.

The vanes have one foot spacing.

VEHICLE TEST WEIGHT CALCULATION

$$\begin{aligned}\text{Test Weight} &= \text{Unloaded Delivered Weight} + \\ &\quad \text{Number of Dummies} \times 174 \text{ lbs.} + \\ &\quad \text{Cargo Weight} \\ &= 1960 + 2 \times 174 + 185 \text{ lbs.} \\ &= 2493 \text{ lbs.}\end{aligned}$$

To achieve test weight, 4 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

1) Post-test examination conducted on September 26, 1983 of the driver dummy skull revealed unwelded joints that allowed the head to ring. All driver head data channel peak values, the resultants and HIC's are, therefore, unrealistic.

2) Cable separation occurred in data channel PEVXG1 (Driver Pelvis Acceleration X Axis) at approximately 65 msec. The separation occurred late enough into the crash event, that the peak pelvis resultant is felt to be a true resultant.

3) An anomalous spike occurred in data channel IO1YG3 (Passenger Upper Spine Acceleration Y Axis) with a peak at 132.5 msec. This peak is not correlatable with the redundant Upper Spine Y data channel and the remaining pulse shape is sufficiently different from the redundant channel that no peak resultant is reported.

4) Cable separation occurred in the following data channels:

LFDYG1 Vehicle Left Front Door (Position 6) Acceleration Y Axis

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

LFDYG3 Vehicle Left Front Door (Position 9) Acceleration Y Axis

No peak levels or Delta Velocities are reported.

SECTION 3.0
DATA REQUIRED BY R&D

The following pages are included in this section:

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

DUMMY TEMPERATURE CONTROL AND POSITIONING

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

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

DUMMY PLACEMENT AND POSITIONING

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: X FIXED
ADJUSTABLE

TECHNICIANS:

1. E. Grumbling

2. J. Kokoruda

3. N. Echeverria

POSITIONING DATE: 10/6/83

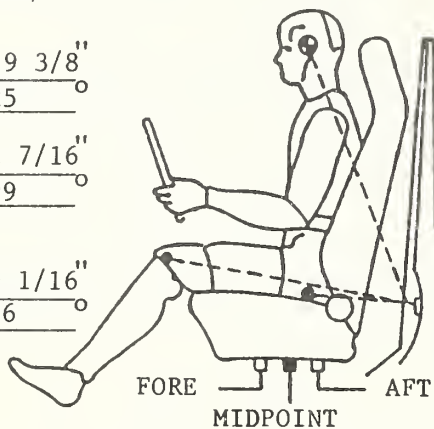
AMBIENT TEMP.: 68° F. TIME: 5:30

DRIVER DUMMY # 06

HEAD 19 3/8"
 TARGET* 25°

KNEE 32 7/16"
 JOINT 99°

APPROX.
 "H" 20 1/16"
 POINT 56°

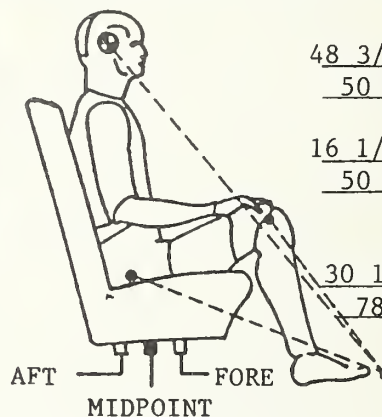


REAR PASSENGER DUMMY # U02

48 3/8" "HEAD
50° TARGET**

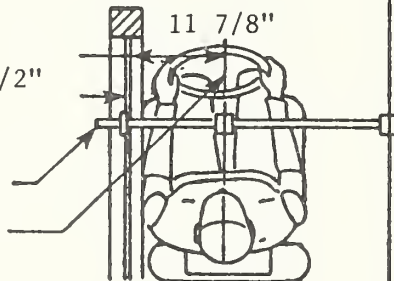
16 1/4" "KNEE
50° JOINT

APPROX.
30 1/2" "H"
78° POINT



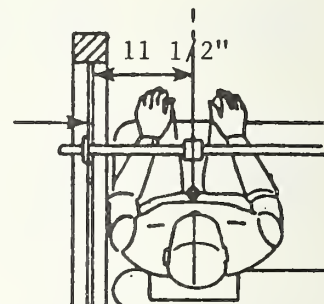
DOOR
 GLASS
 HEIGHT*** 9 1/2"

LATERAL BAR
 ADJUSTABLE
 POINTER



DRIVER
 DUMMY # 06

DOOR
 GLASS
 HEIGHT DNA

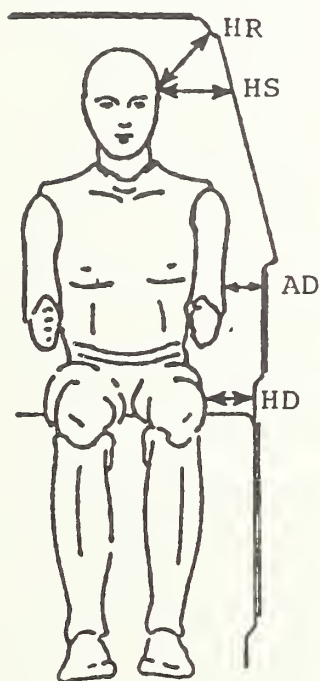
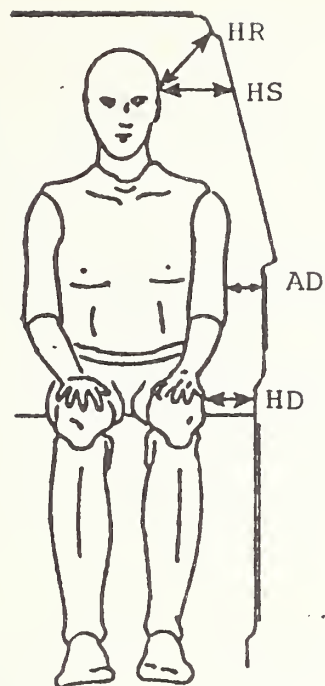


PASSENGER
 DUMMY # U02

*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.

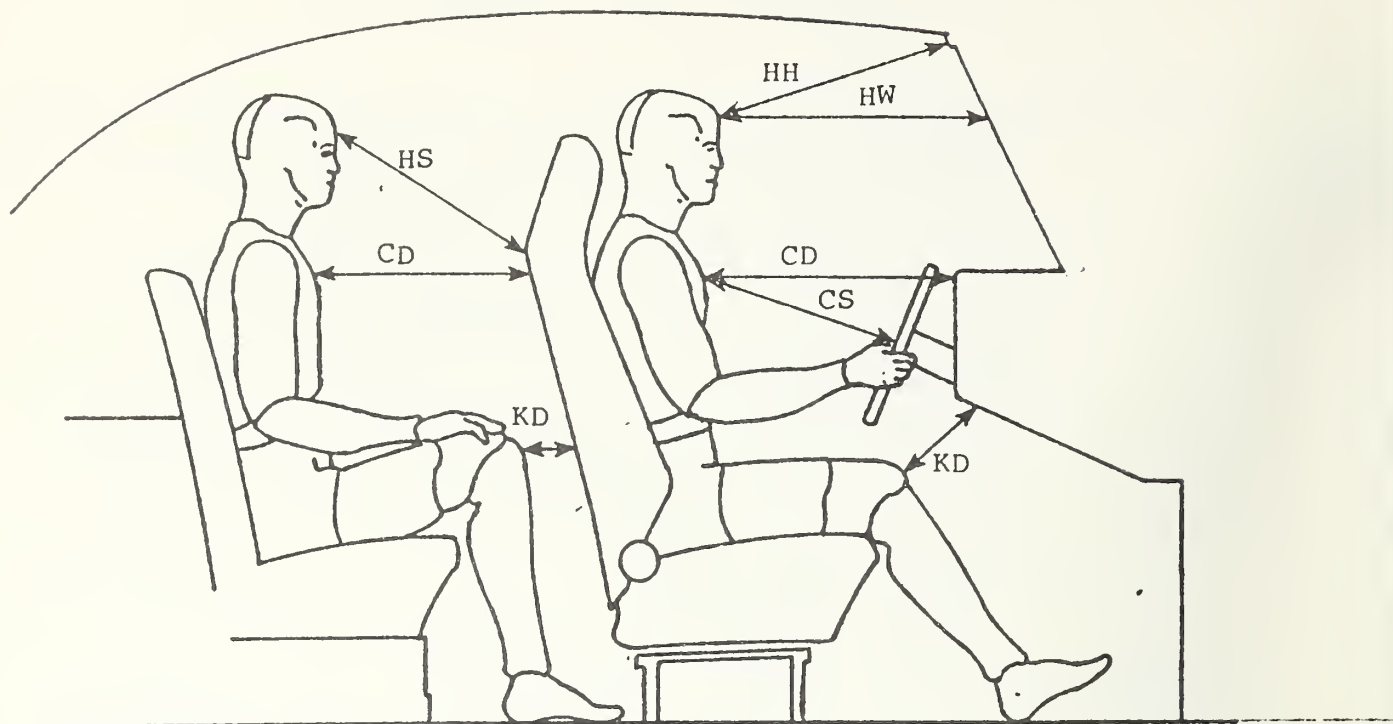
***Door glass height is equal on the right and left side of vehicle at dummy nose level.



	06 DRIVER	U02 PASSENGER
HR	6 11/16	5 1/2
HS	7 5/8	8 3/8
AD	0	1/2
HD	2 3/8	2 1/4

NOTE: ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



	06 DRIVER	U02 PASSENGER
HH	14 13/16	DNA
HW	21 7/16	DNA
HS	DNA	24 1/4
CD	20 7/8	18 1/4
CS	11 7/8	DNA
KDL	3 15/16	3 1/2
KDR	5 3/16	3 3/4

NOTE: ALL MEASUREMENTS IN INCHES

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

DUMMY KINEMATIC SUMMARY

DRIVER

During impact, the dummy's torso contacted the padded driver's door and the head contacted the driver's window sill. The crush of the driver's door trapped the dummy's feet so that the dummy could not fully rebound laterally across the vehicle. The dummy's head and right shoulder contacted the roof approximately at the vehicle centerline. The dummy rebounded toward the driver's door and the head struck the B-Pillar. The dummy came to rest facing forward and sitting on the driver's seat which had displaced laterally inboard approximately eight inches.

PASSENGER

During impact, the dummy's torso contacted the padded left rear occupant side wall and the head contacted the padded side header. The dummy rebounded laterally in an upright position with the feet trapped in the left rear foot well. The dummy came to rest in an upright position 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	8.6	X	X	20.3	20.3	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.5	20.6	X	X
H-Point	16.3	X	X	18.0	18.0	17.9	17.9	17.9	17.9	17.9	17.9	18.1	18.2	18.3	17.2	X
Mid Door	22.5	16.2	17.7	17.6	17.6	17.6	17.5	17.5	17.5	17.5	17.6	17.6	17.7	17.8	17.9	16.6
Window Sill	33.1	X	19.3	19.2	19.1	18.9	18.9	18.9	18.9	18.9	19.0	19.1	19.3	19.3	19.4	19.6
Window Top	53.5	X	X	X	X	X	28.4	26.3	26.2	26.1	26.1	26.2	26.3	26.3	26.8	27.4

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

Axle Height	8.6	X	X	23.1	25.8	27.7	27.3	26.0	25.0	24.5	24.3	23.8	21.8	20.8	X	X
H-Point	16.3	X	X	25.0	40.6	39.9	38.3	35.8	33.1	30.3	27.6	29.1	26.4	23.8	21.5	X
Mid Door	22.5	22.0	23.1	22.6	36.9	35.8	34.1	31.8	29.6	27.5	25.3	31.1	27.6	24.9	22.3	19.3
Window Sill	33.1	X	21.2	21.4	31.2	31.3	30.1	28.6	26.4	24.0	21.4	29.8	27.6	23.8	21.4	20.1
Window Top	53.5	X	X	X	X	X	30.8	28.5	28.9	28.9	28.7	28.8	28.6	28.3	28.1	28.6

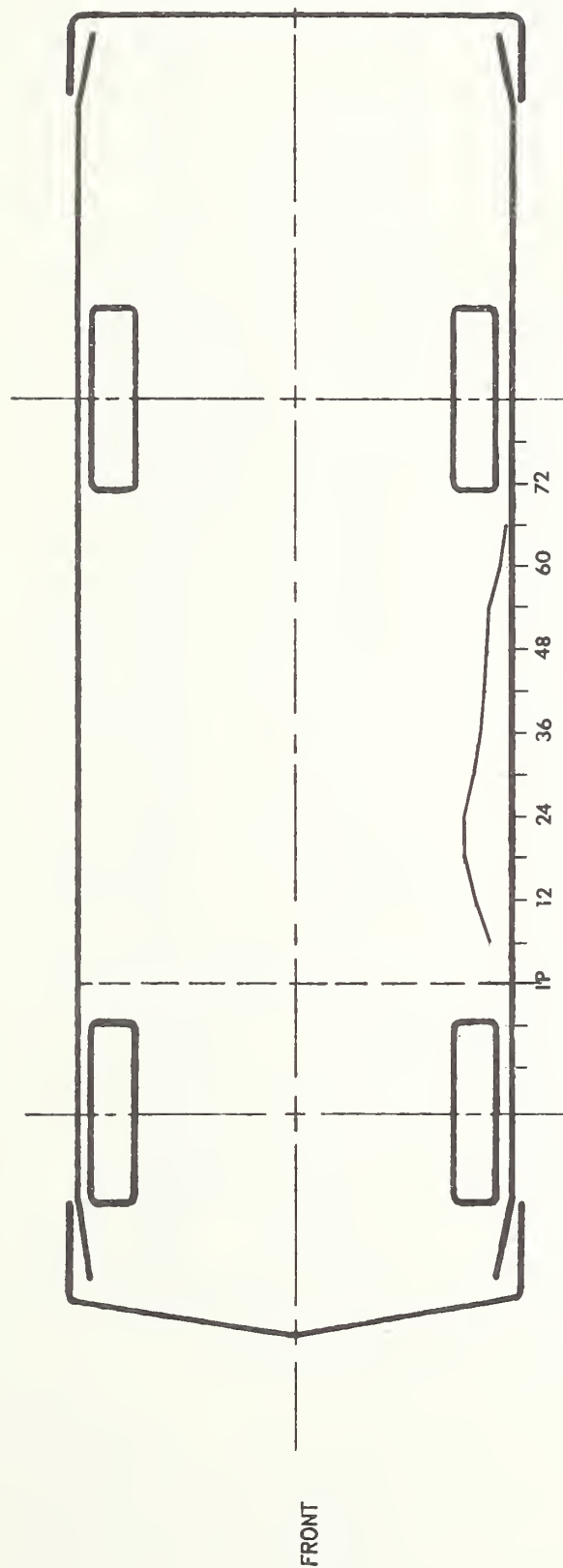
STATIC CRUSH (IN)

Axle Height	8.6	X	X	2.8	5.5	7.3	6.9	5.6	4.6	4.1	3.9	3.4	1.3	0.2	X	X
H-Point	16.3	X	X	7.0	22.6	22.0	20.4	17.9	15.2	12.4	9.7	11.0	8.2	5.5	4.3	X
Mid Door	22.5	5.8	5.4	5.0	19.3	18.2	16.6	14.3	12.1	10.0	7.7	13.5	9.9	7.1	4.4	2.7
Window Sill	33.1	X	1.9	2.2	12.1	12.4	11.2	9.7	7.5	5.1	2.4	10.7	8.3	4.5	2.0	0.5
Window Top	53.5	X	X	X	X	X	2.4	2.2	2.7	2.8	2.6	2.6	2.3	2.0	1.3	1.2

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

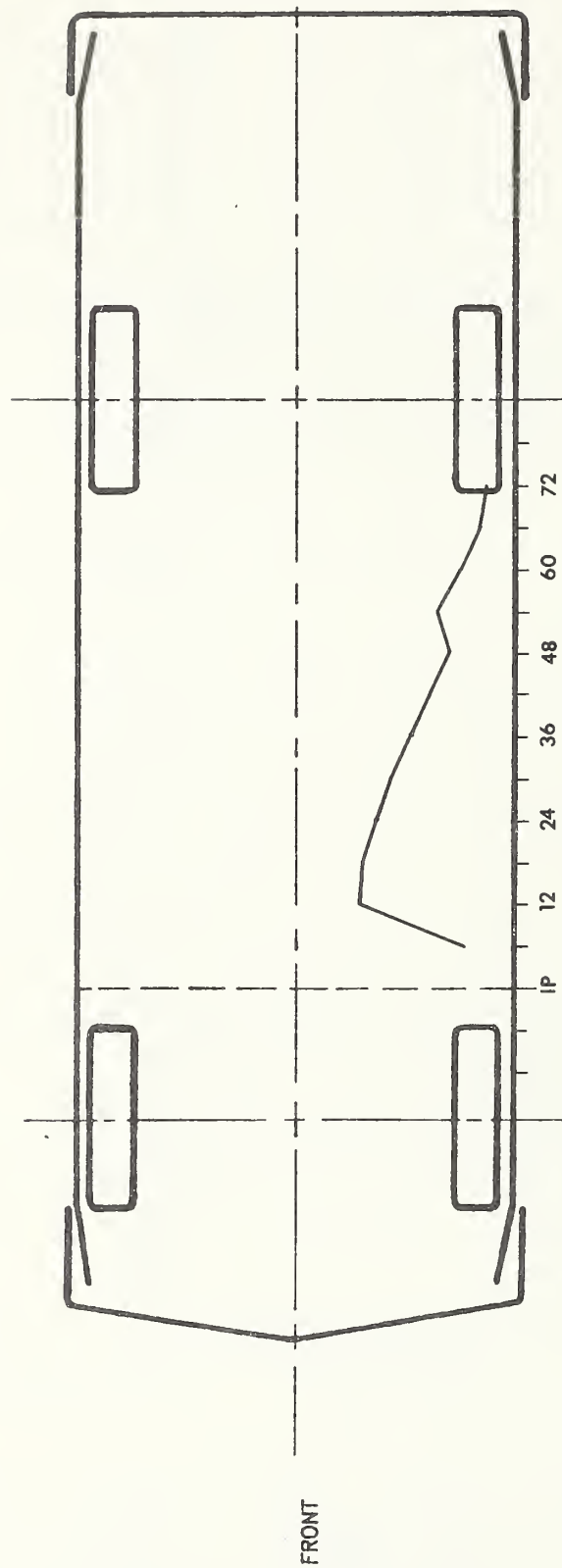
** Reference plane is parallel to and 48 inches from the vehicle longitudinal centerline.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



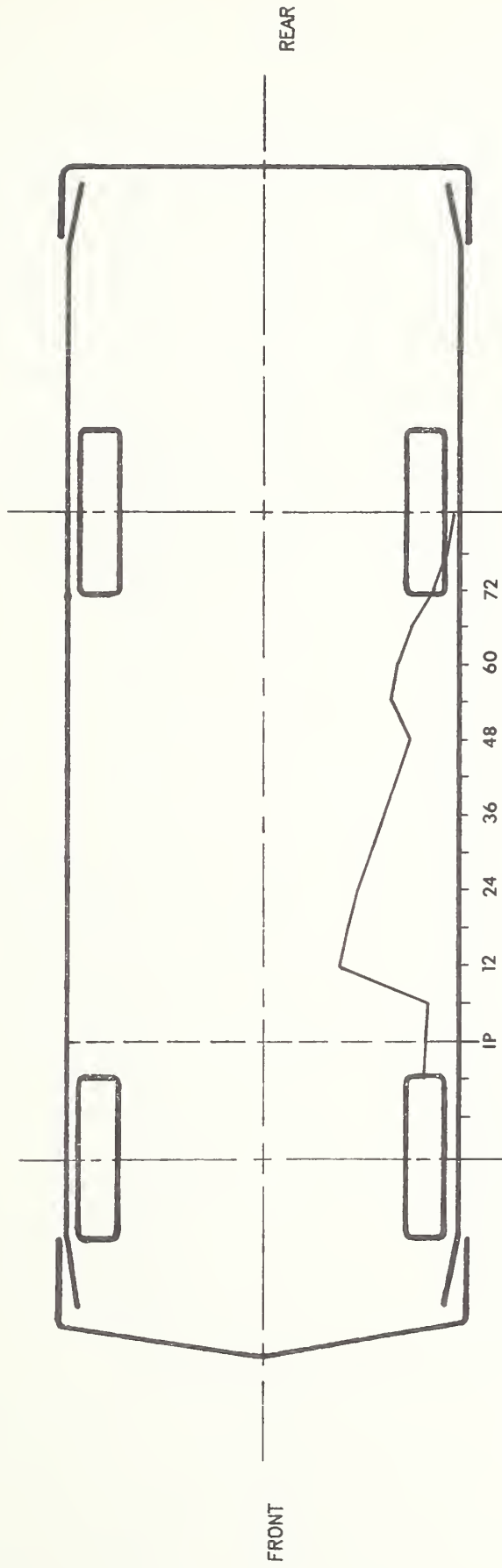
PROFILE LEVEL EQUALS AXLE HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE

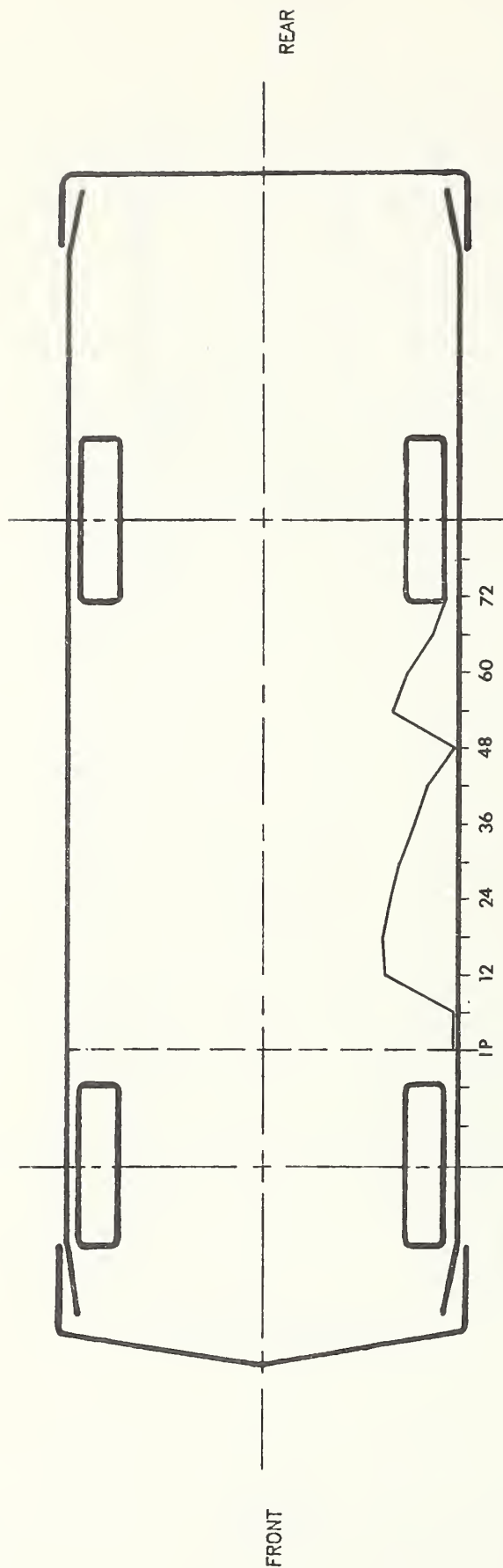


PROFILE LEVEL EQUALS H-POINT HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE

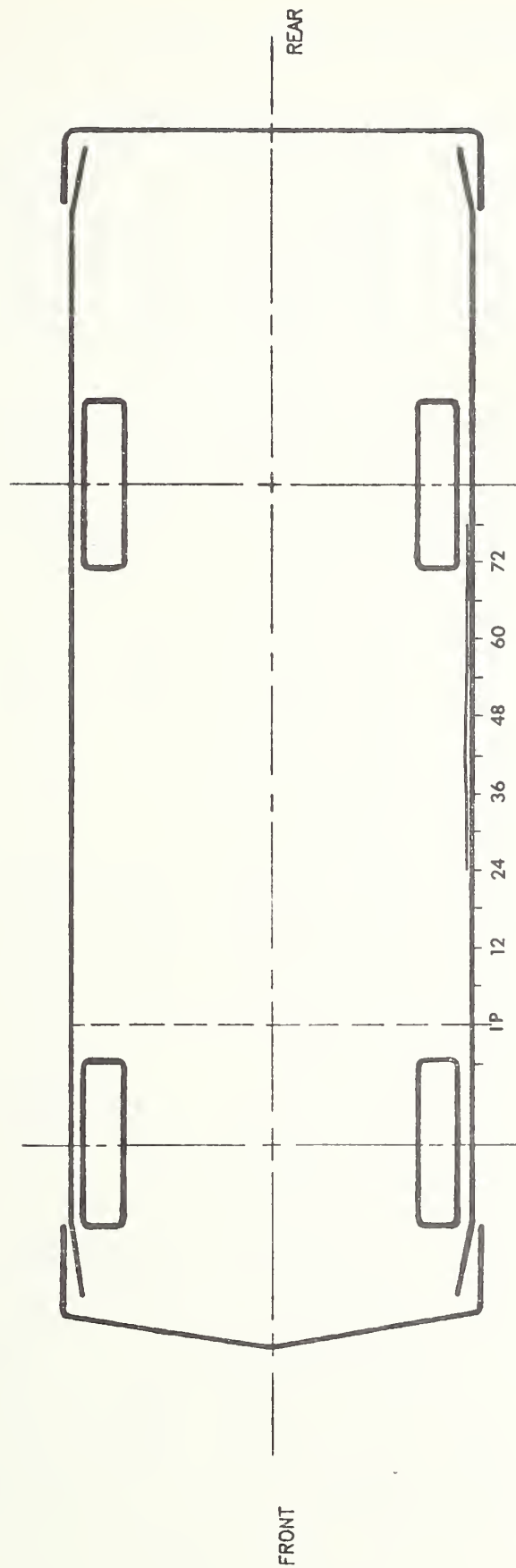


VEHICLE EXTERIOR STATIC CRUSH PROFILE



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 DIRECTION*		NEGATIVE DIRECTION**		POSITIVE DIRECTION*		NEGATIVE DIRECTION**	
	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
HEAD ACCELERATION								
LONGITUDINAL	250.82	79.13	123.00	100.63 γ	45.95	214.25	20.00	98.50
LATERAL	154.82	78.50	236.65	79.88 γ	35.55	83.00	19.93	217.50
VERTICAL	247.89	78.75	102.94	79.38 γ	31.39	113.88	24.25	80.25
RESULTANT		297.37 à 79.38 γ				51.18 à 214.25		
HIC	1528.65	from 70.63 to 105.88 γ				196.72	from 78.50 to 128.38	
CHEST ACCELERATION								
UPPER SPINE								
LONGITUDINAL	13.76	72.50	33.46	64.38	10.88	203.13	26.16	98.75
LATERAL (P)***	129.12	63.75	34.28	84.38	---	--- γ	---	--- γ
LATERAL (R)***	132.13	63.75	33.68	84.38	19.50	112.50	7.33	201.88
VERTICAL	17.45	52.50	11.87	98.75	14.11	80.00	10.56	122.50
RESULTANT (P)		133.39 à 63.75				---	--- γ	
RESULTANT (R)		136.30 à 63.75				31.48 à 111.88		
DELTA V (MPH)****		30.9 à 80.00 (P)				---	---	(P) γ
		32.7 à 80.00 (R)				16.5 à 175.00 (R)		
LOWER SPINE								
LONGITUDINAL	31.84	75.00	41.89	61.25	5.53	207.50	33.21	78.13
LATERAL (P)	141.48	57.50	40.97	83.12	26.45	86.88	3.11	221.25
LATERAL (R)	135.12	57.50	39.94	83.12	26.31	86.25	3.74	303.13
VERTICAL	40.86	61.25	8.57	98.75	16.31	80.63	8.36	130.63
RESULTANT (P)		142.98 à 57.50				41.18 à 78.75		
RESULTANT (R)		136.69 à 57.50				40.52 à 78.75		
DELTA V (MPH)		38.4 à 76.25 (P)				18.2 à 126.13 (P)		
		39.1 à 76.28 (R)				17.9 à 124.38 (R)		
LEFT UPPER RIB								
LATERAL (P)	81.86	55.63	7.34	181.87	23.86	108.75	8.09	174.38
LATERAL (R)	80.92	55.00	8.70	182.50	22.82	169.38	10.46	174.38
DELTA V (MPH)		30.5 à 90.75 (P)				26.4 à 193.13 (P)		
		30.6 à 90.75 (R)				24.1 à 192.50 (R)		
LEFT LOWER RIB								
LATERAL (P)	75.06	58.13	19.94	88.13	28.78	91.25	14.68	174.38
LATERAL (R)	72.37	58.13	21.49	88.13	25.71	81.25	13.71	174.38
DELTA V (MPH)		32.9 à 106.25 (P)				27.1 à 198.75 (P)		
		33.6 à 106.00 (R)				22.2 à 195.00 (R)		
PELVIS ACCELERATION								
LONGITUDINAL	---	--- γ	53.68	56.75	13.06	116.50	40.22	81.75
LATERAL	201.23	53.63	22.50	80.50	55.28	84.75	7.89	116.88
VERTICAL	64.25	58.38	11.98	60.50	24.19	94.38	7.51	133.88
RESULTANT		205.16 à 53.63 γ				65.06 à 84.75		
DELTA V (MPH)		32.3 à 62.38				20.0 à 103.38		

SIDE IMPACT DUMMY DATA SUMMARY CONTD

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE		NEGATIVE		POSITIVE		NEGATIVE	
	<u>DIRECTION*</u>		<u>DIRECTION**</u>		<u>DIRECTION*</u>		<u>DIRECTION**</u>	
	<u>MAX</u>	<u>TIME</u>	<u>MAX</u>	<u>TIME</u>	<u>MAX</u>	<u>TIME</u>	<u>MAX</u>	<u>TIME</u>
	<u>(in)</u>	<u>(msec)</u>	<u>(in)</u>	<u>(msec)</u>	<u>(in)</u>	<u>(msec)</u>	<u>(in)</u>	<u>(msec)</u>
RIB DEFLECTION †	0.04	8.38	1.58	78.88	0.06	170.50	1.29	121.50

* 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

‡See TEST ANOMALIES

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

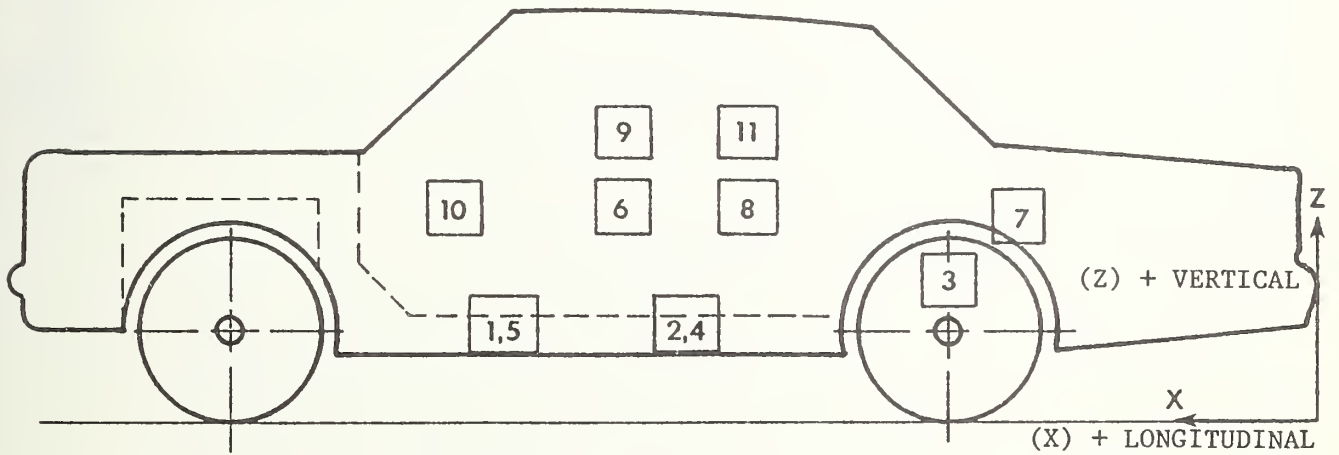
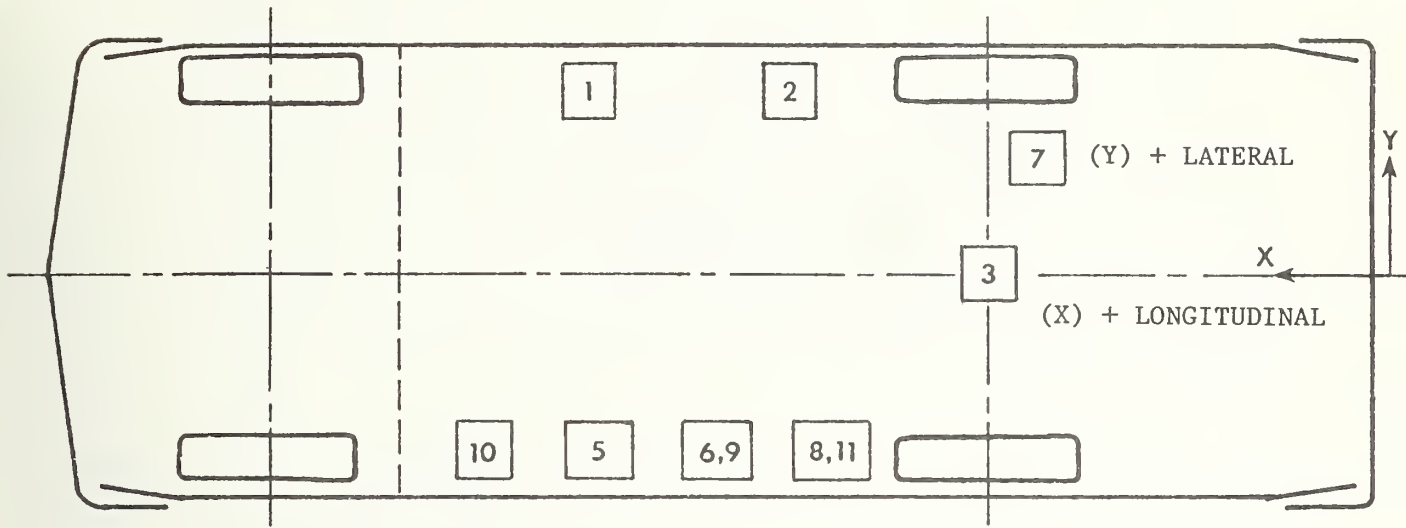
NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	RIGHT SILL AT FRONT SEAT (LONGITUDINAL)	83.3	23.8	9.5				
	(LATERAL)	$\Delta V = -6.5$ mph à 140.00 msec			1.74	183.25	6.66	84.25
	(VERTICAL)	$\Delta V = 12.4$ mph à 140.00 msec			13.20	85.38	3.90	38.75
	(RESULTANT)				5.96	76.50	5.46	90.00
						14.69 à 85.25		
2	RIGHT SILL AT REAR SEAT (LONGITUDINAL)	61.3	24.6	8.0				
	(LATERAL)	$\Delta V = -6.0$ mph à 140.00 msec			2.09	183.63	6.37	84.00
	(VERTICAL)	$\Delta V = 15.2$ mph à 140.00 msec			15.89	85.13	3.41	154.13
	(RESULTANT)				4.95	96.75	4.64	40.25
						17.13 à 85.00		
3	REAR DECK OVER AXLE (LONGITUDINAL)	32.0	0.0	6.0				
	(LATERAL)	$\Delta V = -7.1$ mph à 140.00 msec			4.04	186.50	6.11	79.63
	(VERTICAL)	$\Delta V = 20.1$ mph à 140.00 msec			20.60	86.50	2.17	168.75
	(RESULTANT)				12.35	112.13	11.68	74.88
						21.92 à 86.50		
4	LEFT SILL AT REAR SEAT (LATERAL)	61.0	-24.6	8.5				
		$\Delta V = 14.6$ mph à 123.75 msec			28.82	80.63	8.38	86.38
5	LEFT SILL AT FRONT SEAT (LATERAL)	83.6	-24.6	9.8				
		$\Delta V = 10.1$ mph à 81.00 msec			40.02	22.38	31.05	87.63
6	LEFT FRONT DOOR CENTERLINE (LATERAL)	82.0	-27.0	22.5	---	---	---	---
						Y		Y
7	RIGHT REAR COMPARTMENT (LONGITUDINAL)	31.0	15.4	13.5				
					3.49	183.63	7.68	85.75
8	MIDREAR OF LEFT FRONT DOOR (LATERAL)	60.5	-26.3	23.4	---	---	---	---
						Y		Y
9	UPPER LEFT FRONT DOOR CENTERLINE (LATERAL)	82.0	-23.0	31.4	---	---	---	---
						Y		Y
10	MIDFRONT OF LEFT FRONT DOOR (LATERAL)	99.5	-26.3	20.6				
		$\Delta V = 22.6$ mph à 30.50 msec			138.58	14.00	39.21	61.63
11	UPPER REAR OF LEFT FRONT DOOR (LATERAL)	70.8	-26.0	31.8				
		$\Delta V = 22.3$ mph à 57.75 msec			147.74	55.88	34.43	111.38

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

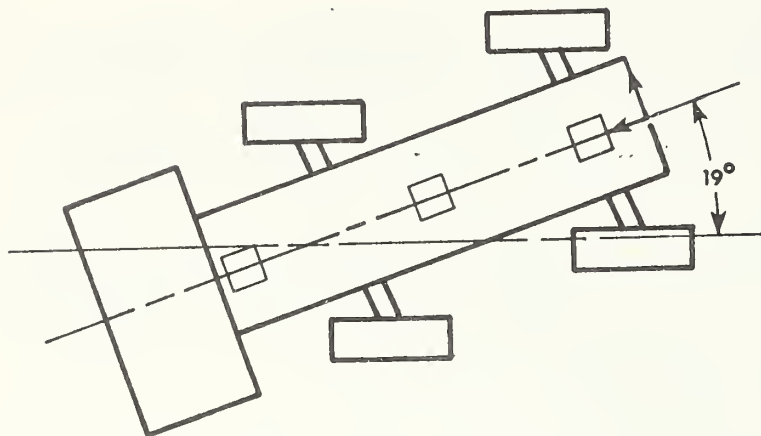
All measurements of accelerometer locations in inches.

Y See TEST ANOMALIES

VEHICLE ACCELEROMETER LOCATIONS



MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY



NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	CENTER OF GRAVITY	74.5	0.0	11.5				
	(LONGITUDINAL)	$\Delta V = -14.4 \text{ mph } \hat{a} \text{ } 140.00 \text{ msec}$			0.99	162.25	9.30	98.75
	(LATERAL)	$\Delta V = -3.0 \text{ mph } \hat{a} \text{ } 140.00 \text{ msec}$			1.52	121.63	4.43	93.00
	(VERTICAL)				13.42	125.75	9.51	135.00
	(RESULTANT)				13.92 $\hat{a}$ 125.75			
2	FRONT FRAME MEMBER	130.3	0.0	11.3				
	(LONGITUDINAL)	$\Delta V = -12.7 \text{ mph } \hat{a} \text{ } 140.00 \text{ msec}$			3.46	5.88	9.61	91.00
3	REAR FRAME MEMBER	23.3	0.0	11.5				
	(LONGITUDINAL)	$\Delta V = -13.6 \text{ mph } \hat{a} \text{ } 140.00 \text{ msec}$			0.95	225.88	8.77	97.38

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

All measurements of accelerometer locations in inches.

HIGH SPEED CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead	Photosonics 1B	8	762	Vehicle dynamics
2	Overhead	Photosonics 1B	25	775	Close-up of impact point
3	Onboard MDB	Stalex	25	1000	Close-up of impact point
4	Onboard MDB	Photosonics 1B	13	1000	Driver kinematics
5	Ground level - right	Hycam	25	450	Overall view
6	Ground level - left	Photosonics 1B	17	795	Overall view
7	Onboard vehicle	Photosonics 1B	8	812	Driver kinematics - front view
8	Onboard vehicle	Photosonics 1B	8	805	Driver kinematics
9	Onboard vehicle	Photosonics 1B	8	797	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

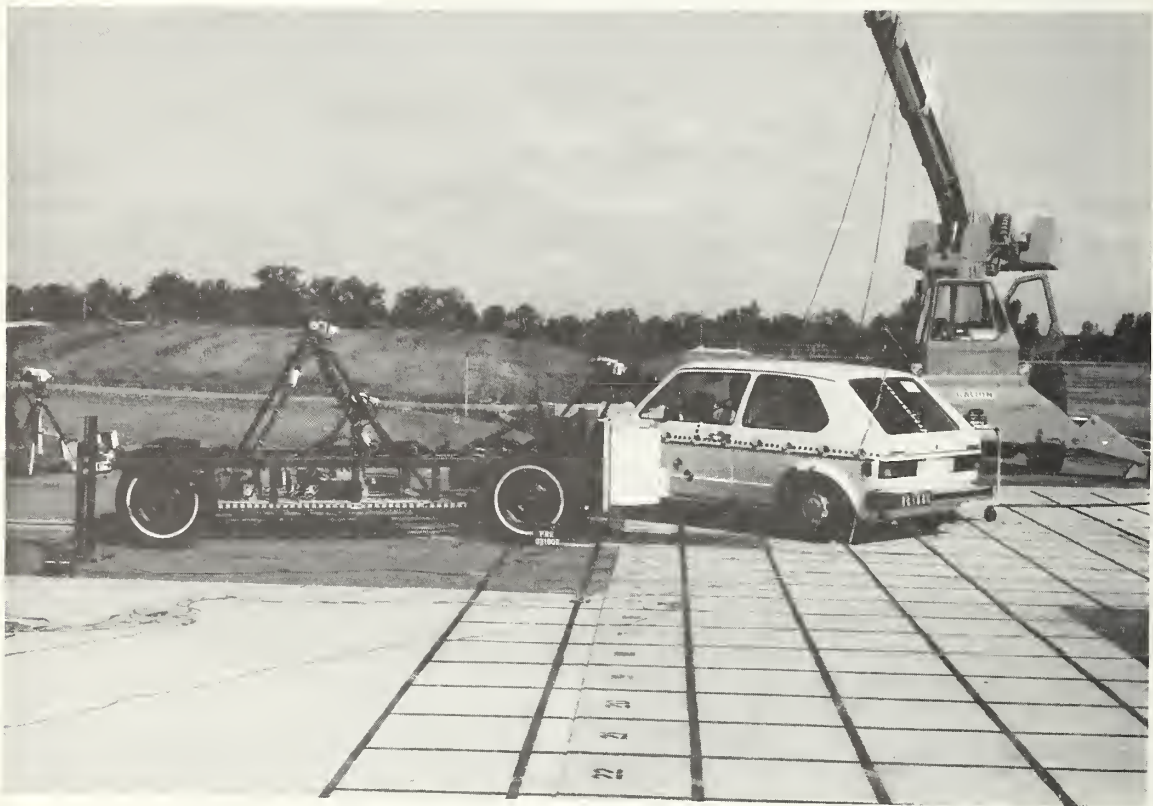


Figure A-2. PRE-TEST OVERALL - VIEW 2



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 DRIVER DUMMY - VIEW 1

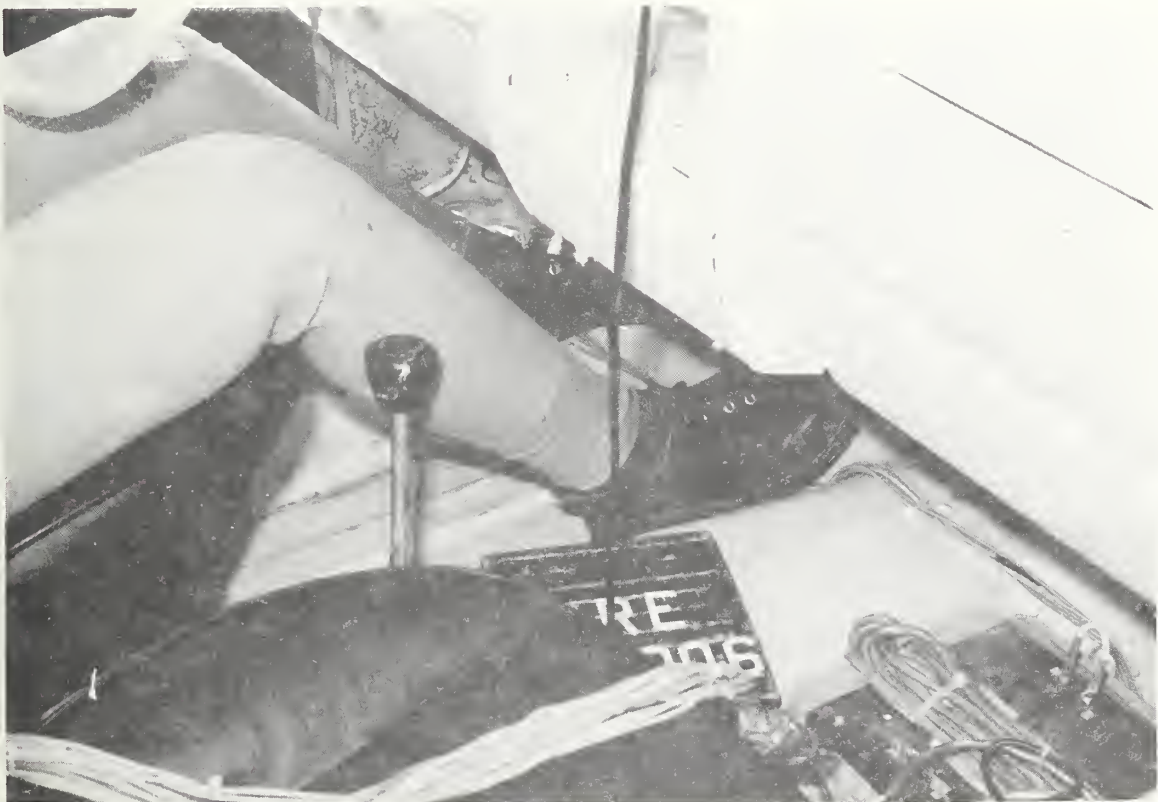


Figure A-8. PRE-TEST DRIVER DUMMY - VIEW 2



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



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



Figure A-11. PRE-TEST DRIVER'S PADDING



Figure A-12. CRASH EVENT PHOTOGRAPH



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

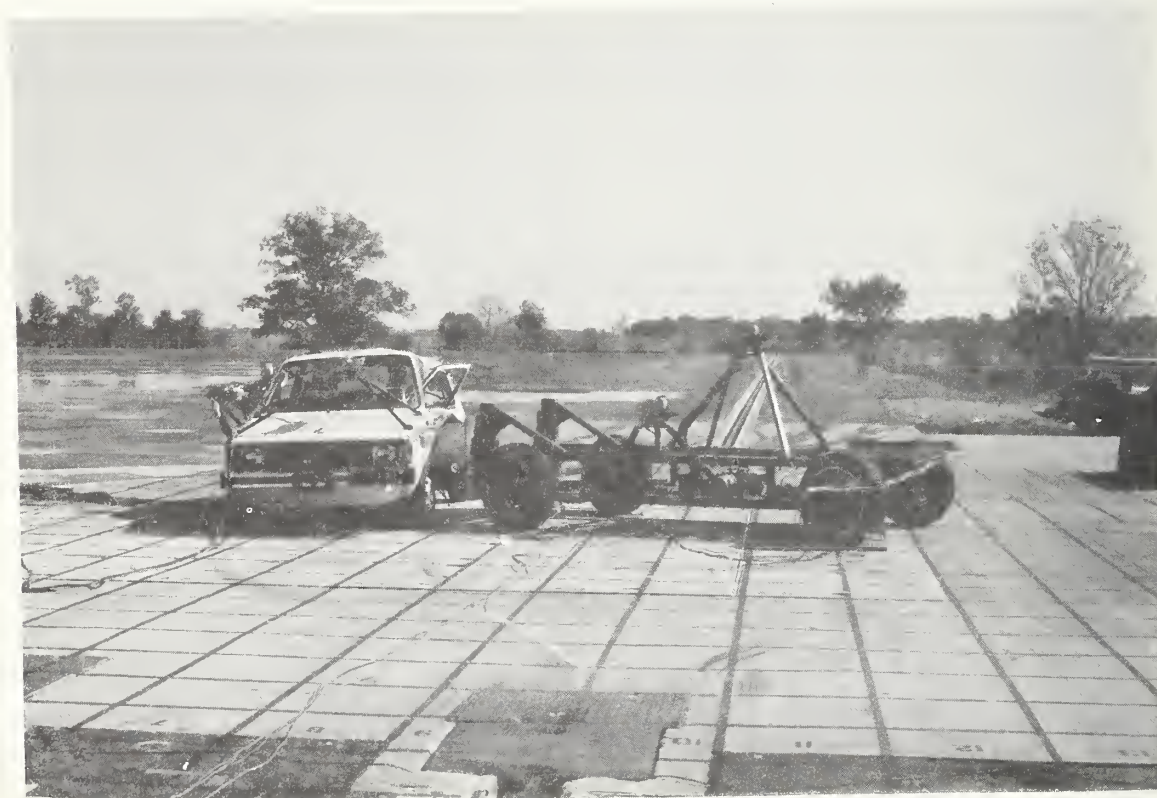


Figure A-14. POST-TEST OVERALL - VIEW 2



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

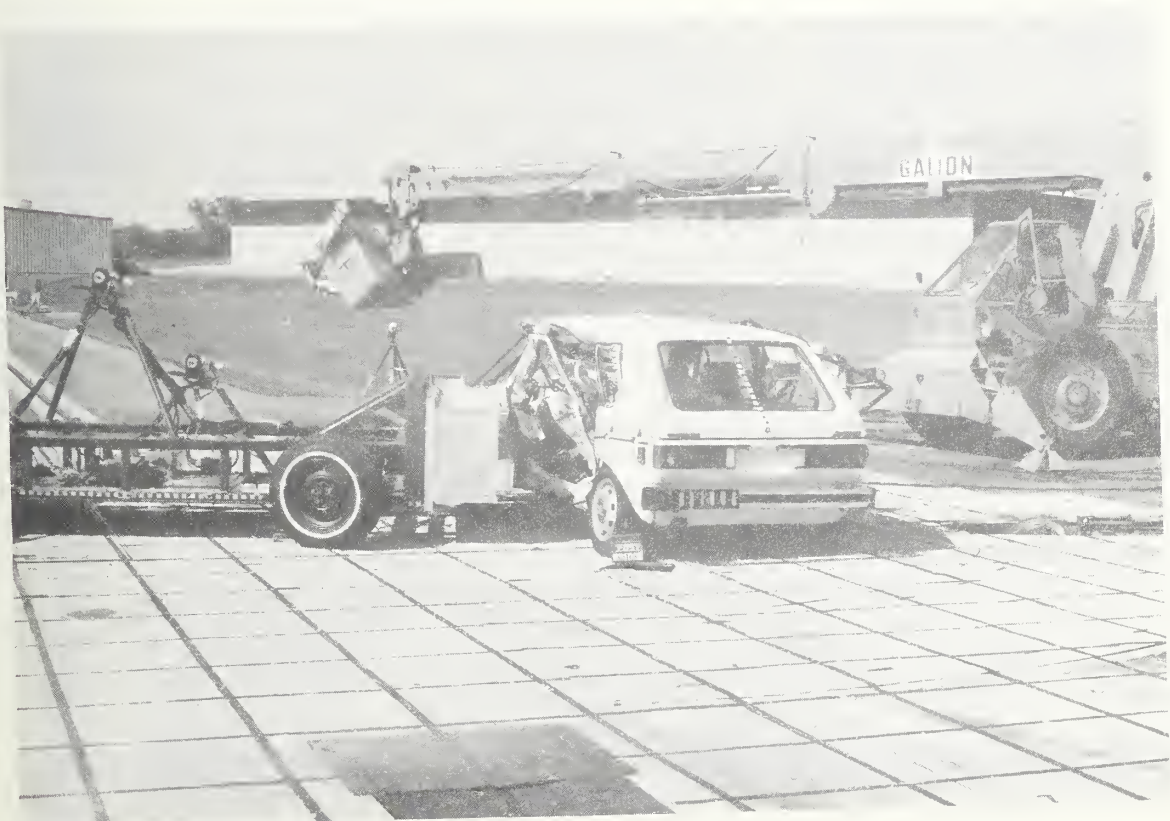


Figure A-16. POST-TEST OVERALL - VIEW 4



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

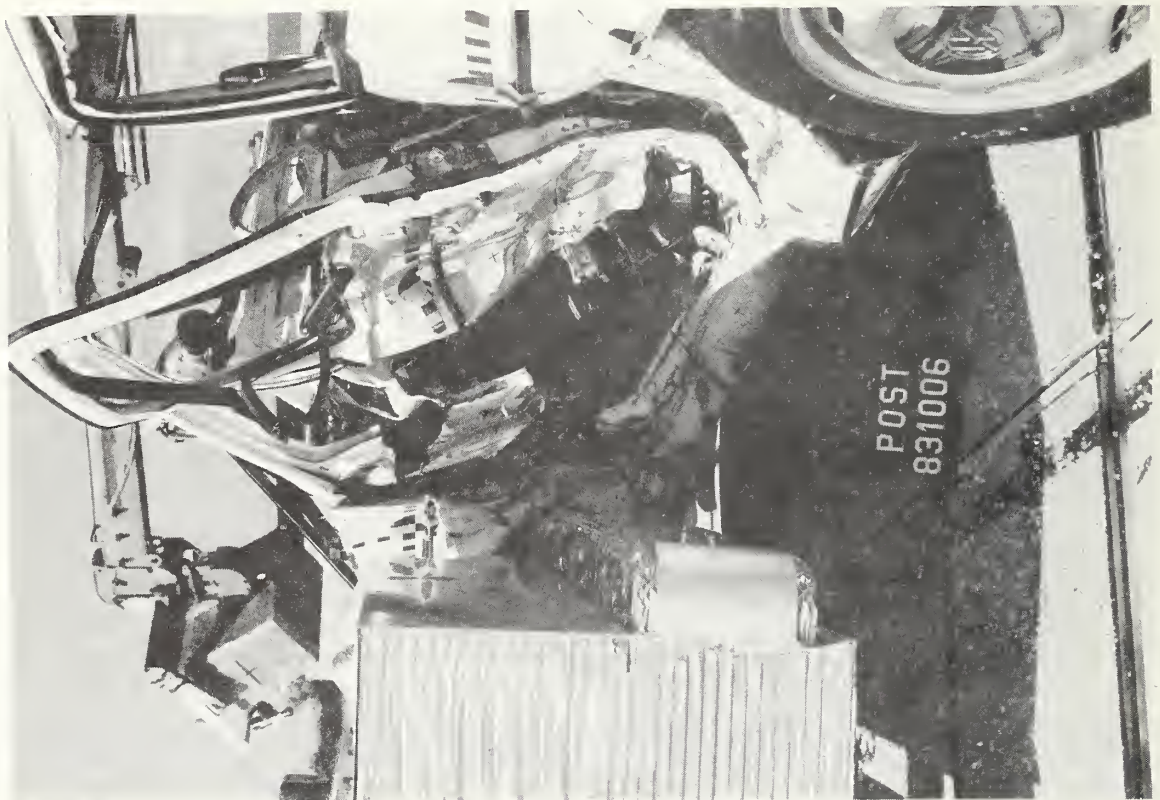


Figure A-18. POST-TEST CLOSEUP - VIEW 2

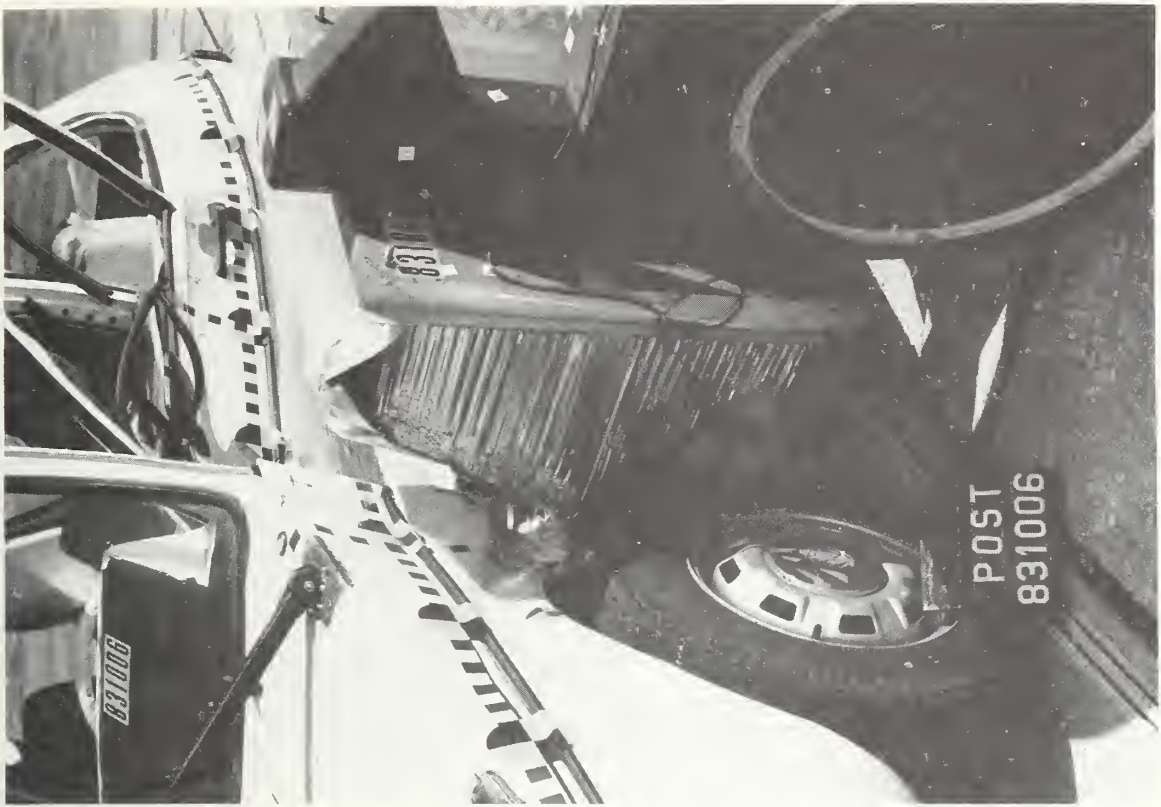


Figure A-19. POST-TEST CLOSEUP - VIEW 3



Figure A-20. POST-TEST DRIVER DUMMY - VIEW 1

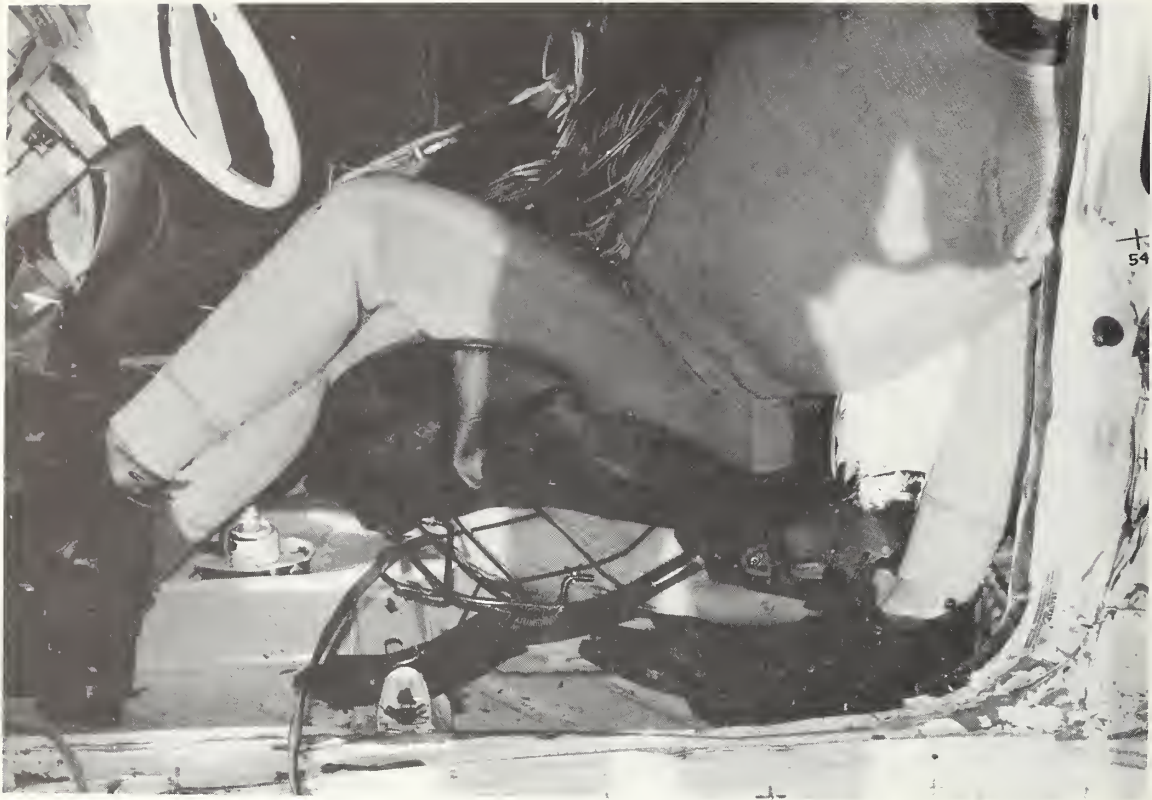


Figure A-21. POST-TEST DRIVER DUMMY - VIEW 2



Figure A-22. POST-TEST DRIVER DUMMY - VIEW 3



Figure A-23. POST-TEST PASSENGER DUMMY - VIEW 1



Figure A-24. POST-TEST PASSENGER DUMMY - VIEW 2



Figure A-25. POST-TEST VEHICLE DAMAGE - VIEW 1

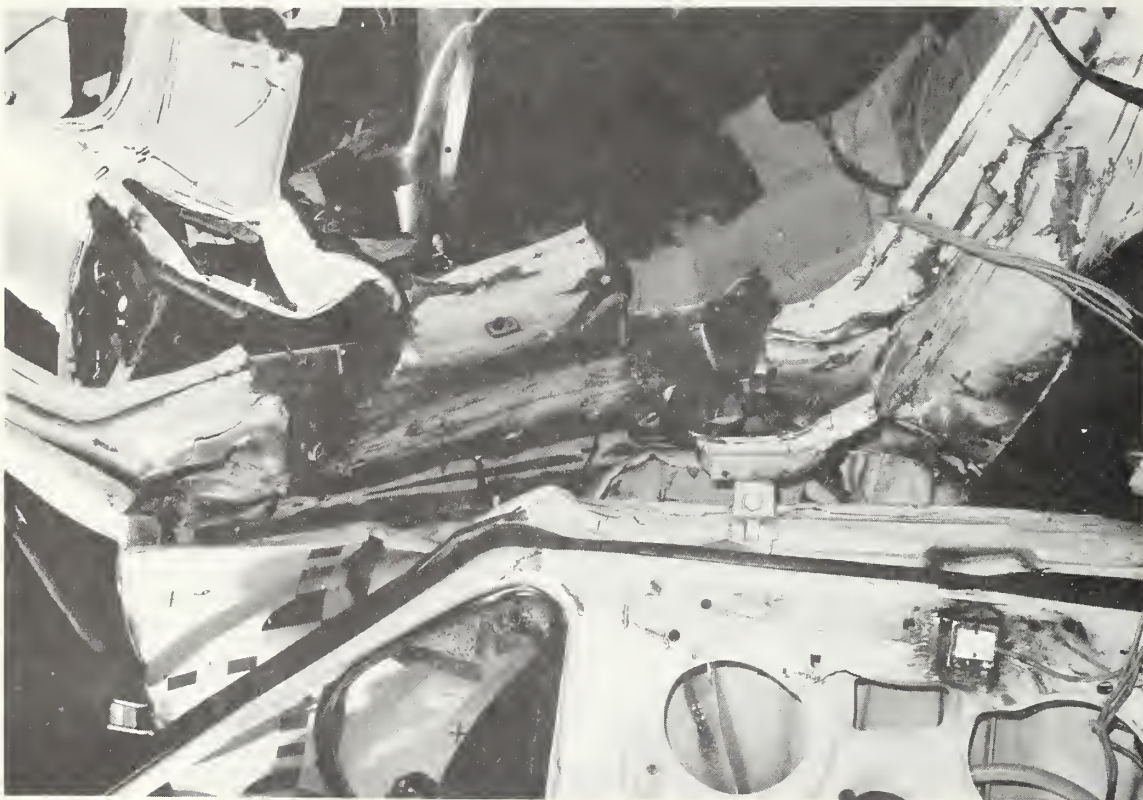


Figure A-26. POST-TEST VEHICLE DAMAGE - VIEW 2

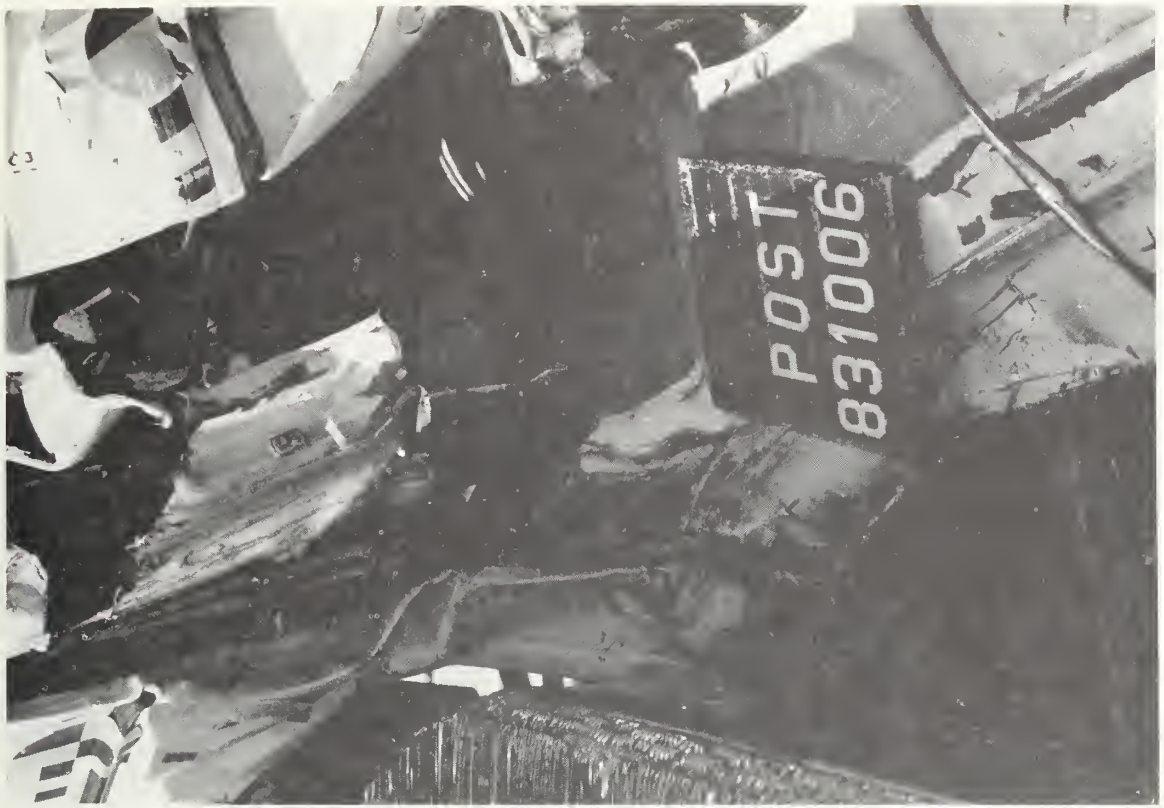


Figure A-27. POST-TEST VEHICLE DAMAGE - VIEW 3

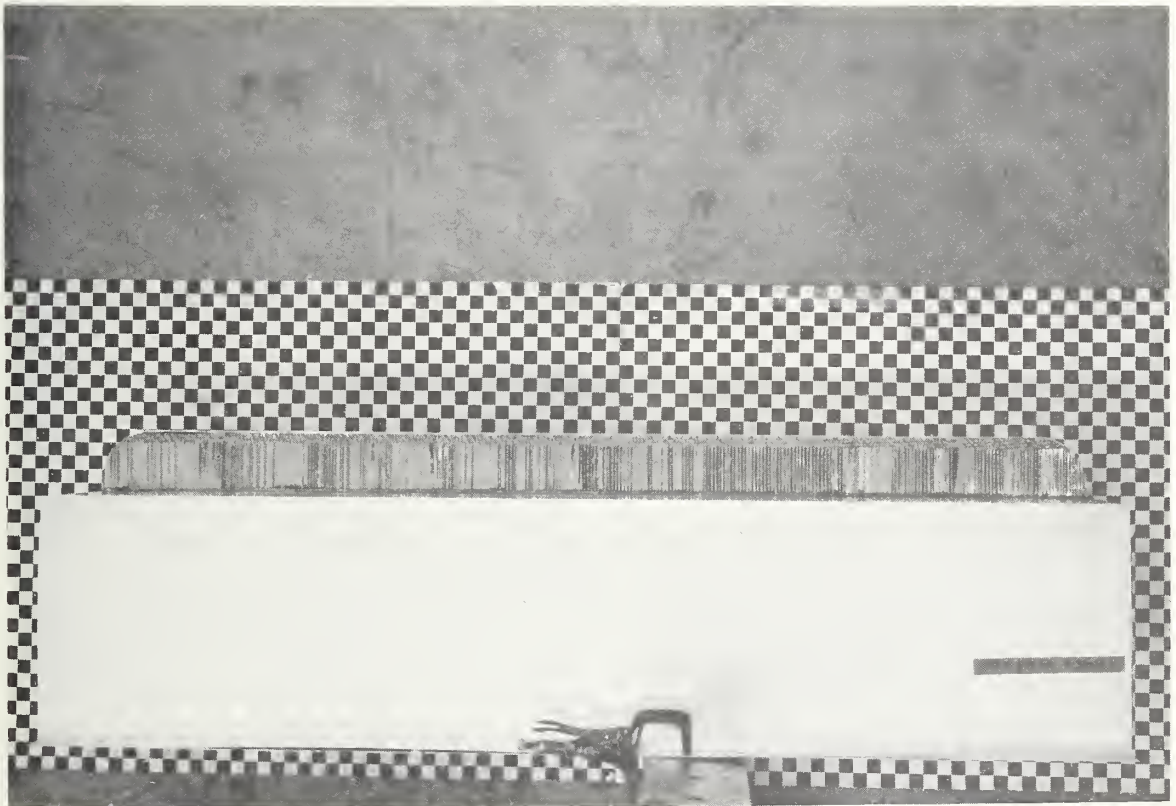


Figure A-28. PRE-TEST MDB FACE - VIEW 1

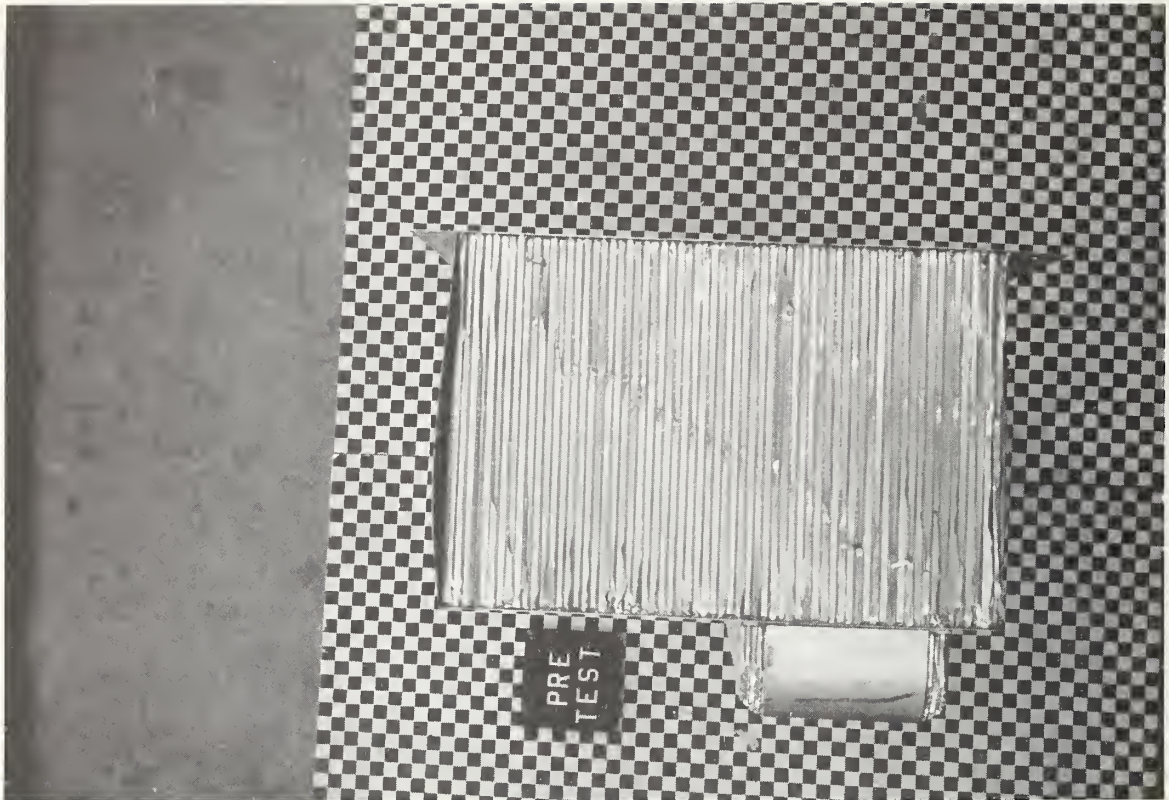


Figure A-29. PRE-TEST MDB FACE - VIEW 2

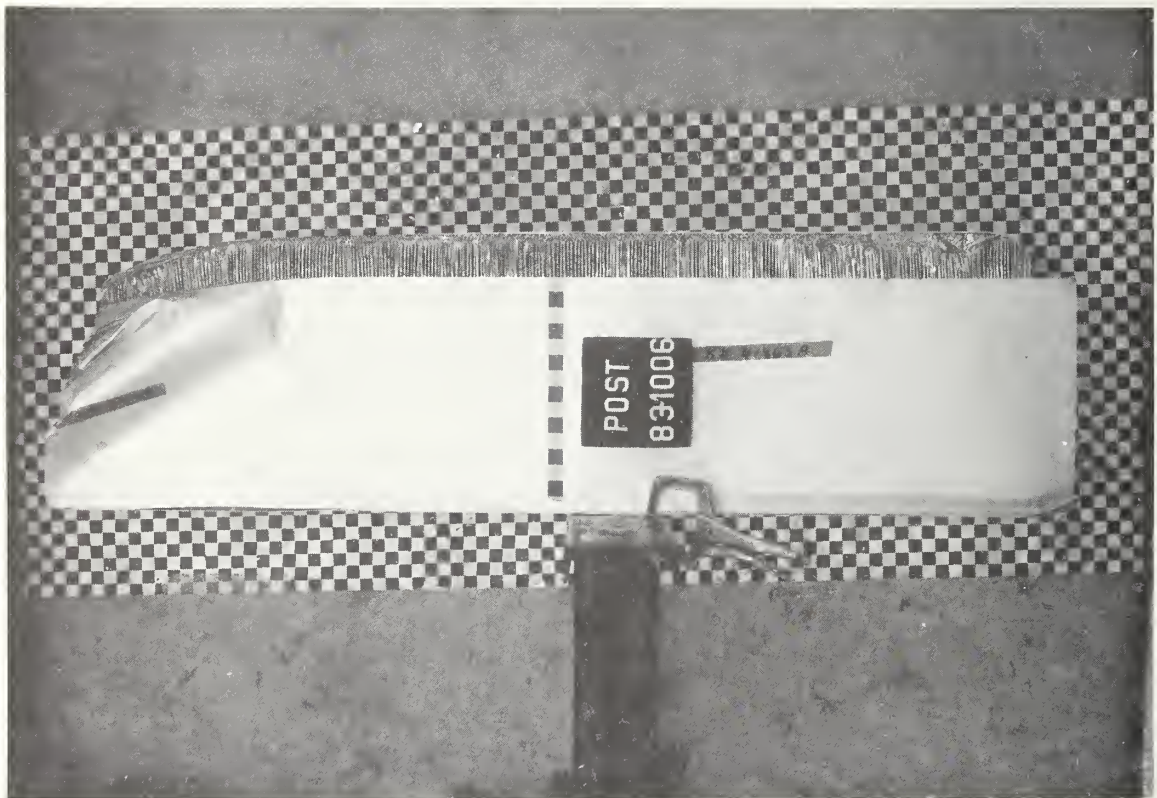


Figure A-30. POST-TEST MDB FACE - VIEW 1

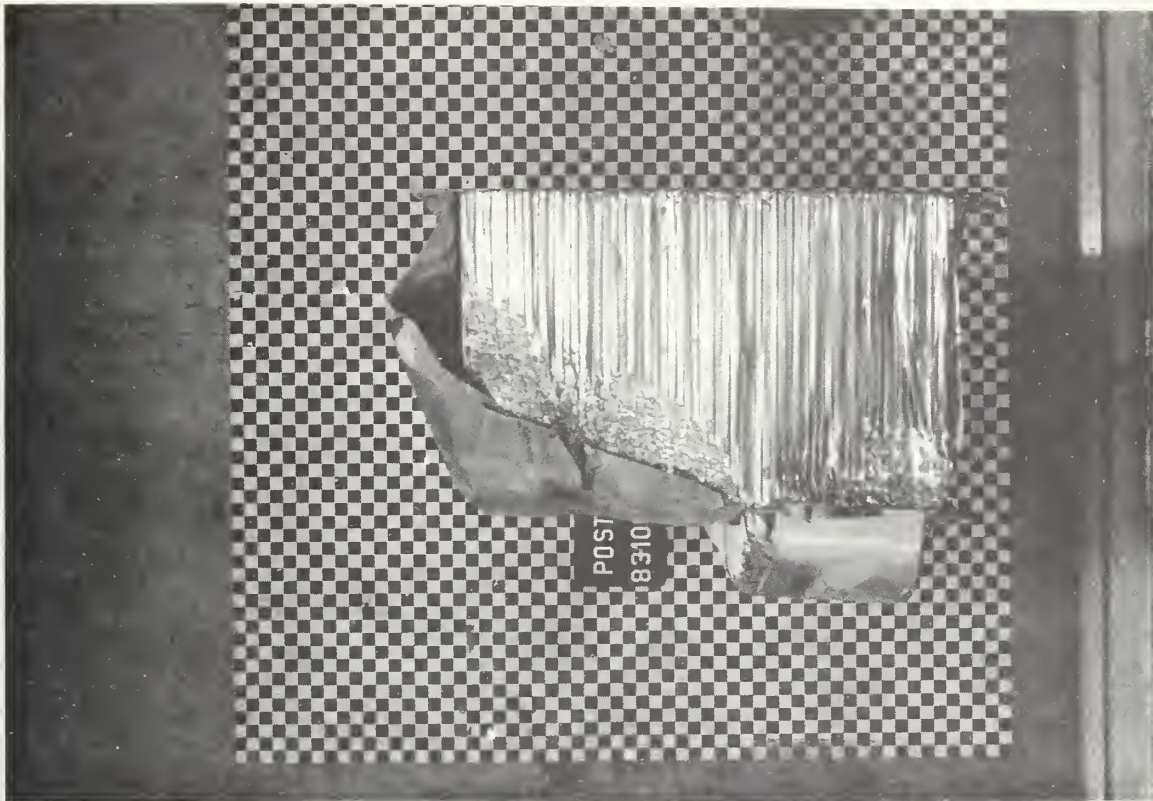


Figure A-31. POST-TEST MDB FACE - VIEW 2

APPENDIX B
DATA PLOT PRESENTATION

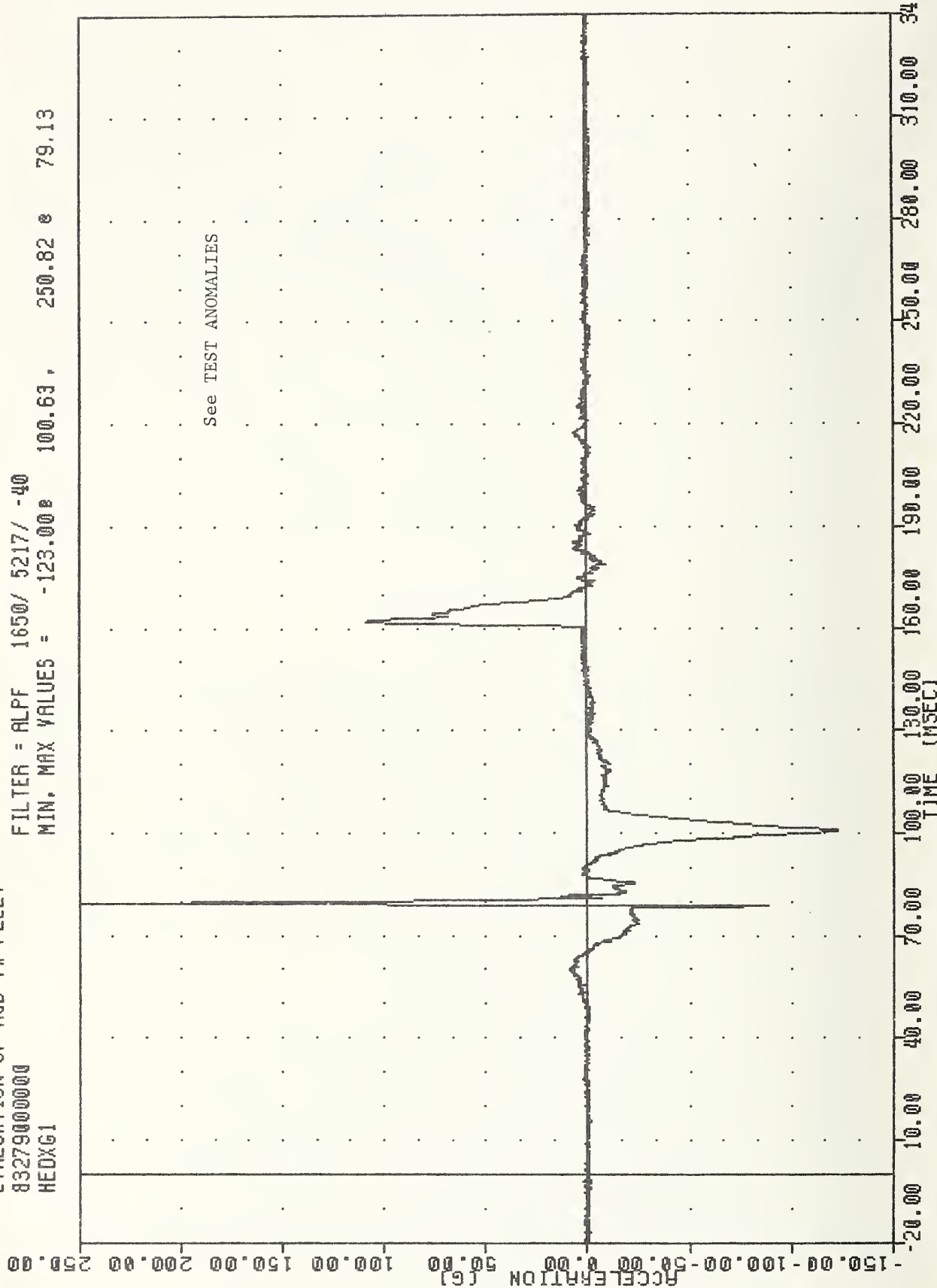
Data plots generated from the crash test data are presented on the following pages. All data are recorded on magnetic tape for inclusion in the NHTSA crash test data base system. All data were filtered according to SAE J211, except that dummy thorax data were filtered using the HSRI filter.

TRC , 831006
EVALUATION OF MOD VV FLEET
83279000000
HEDXG1

PLOT DATE 18-OCT-83 14:48:08

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -123.00 100.63 , 250.82 79.13



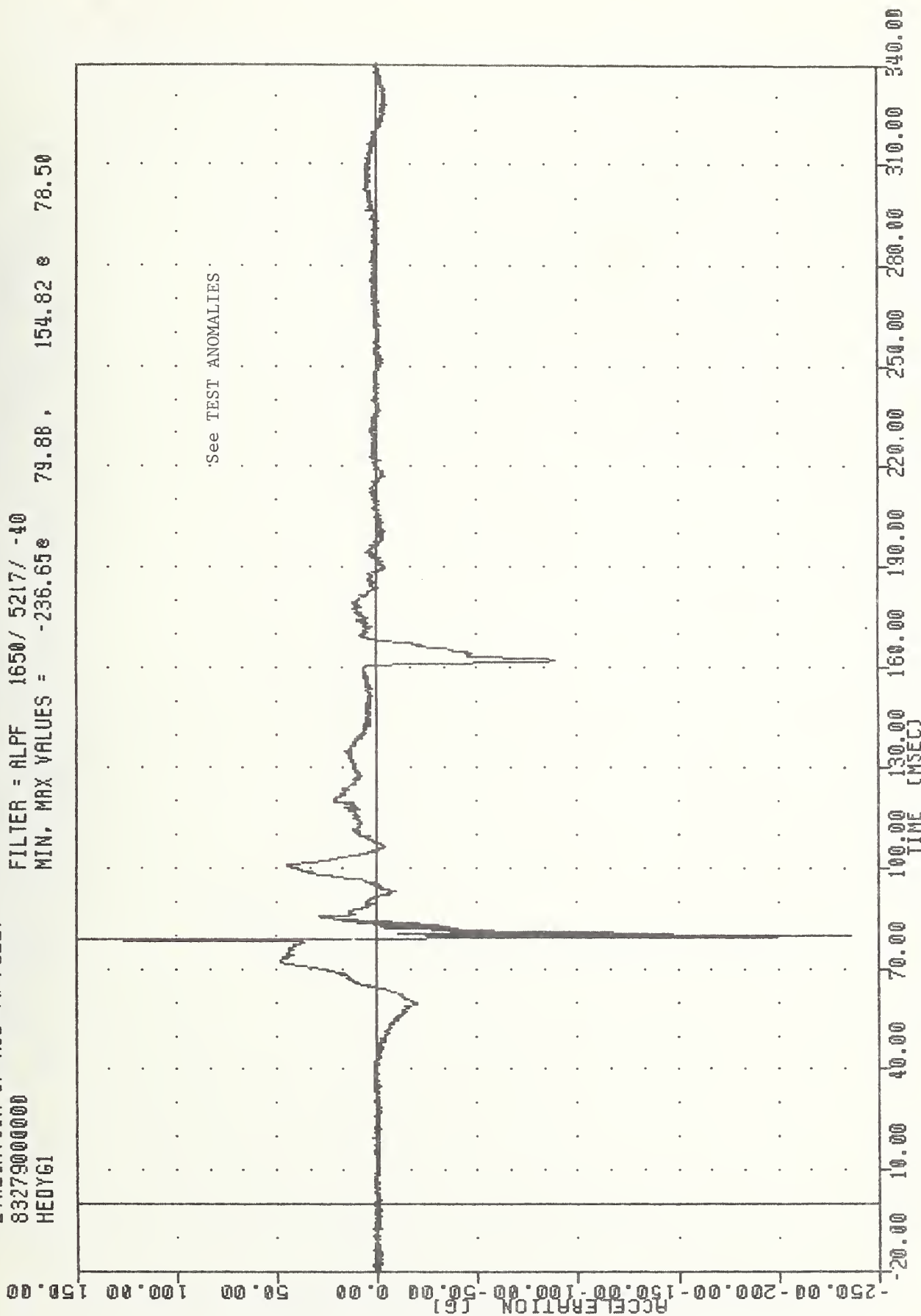
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD ACCELERATION X AXIS

TRC , 831006
 EVALUATION OF MOD VW FLEET
 832790000000
 HEDY61

PLOT DATE 18-OCT-83 14:48:08

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -236.65e 79.88, 154.82 e 78.50

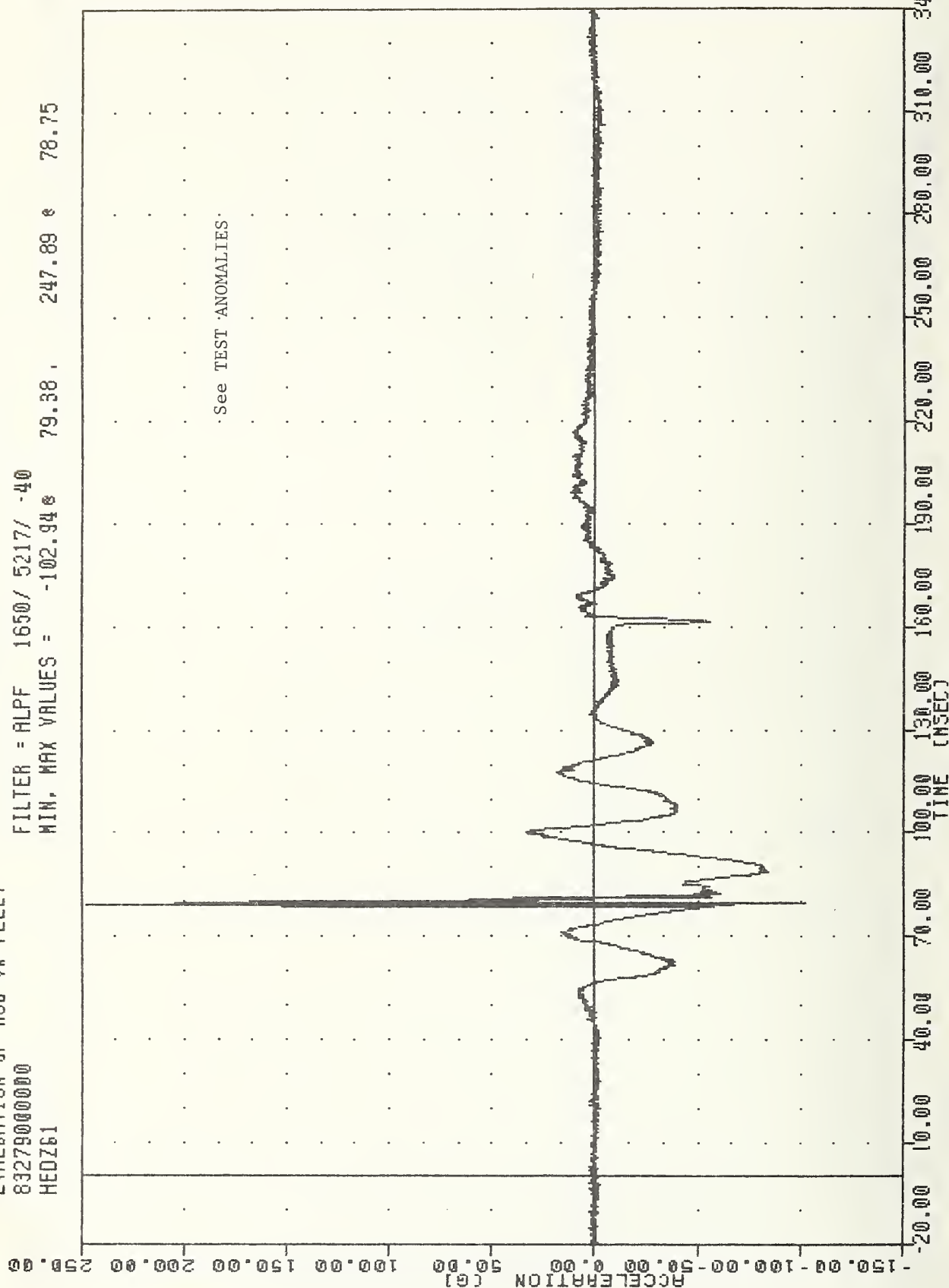


TAC 831006
EVALUATION OF MOD VN FLEET
83279000000
HEDZ61

PLOT DATE 18-OCT-83 14:48:08

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = -102.94 79.38 247.89 78.75



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD ACCELERATION Z AXIS

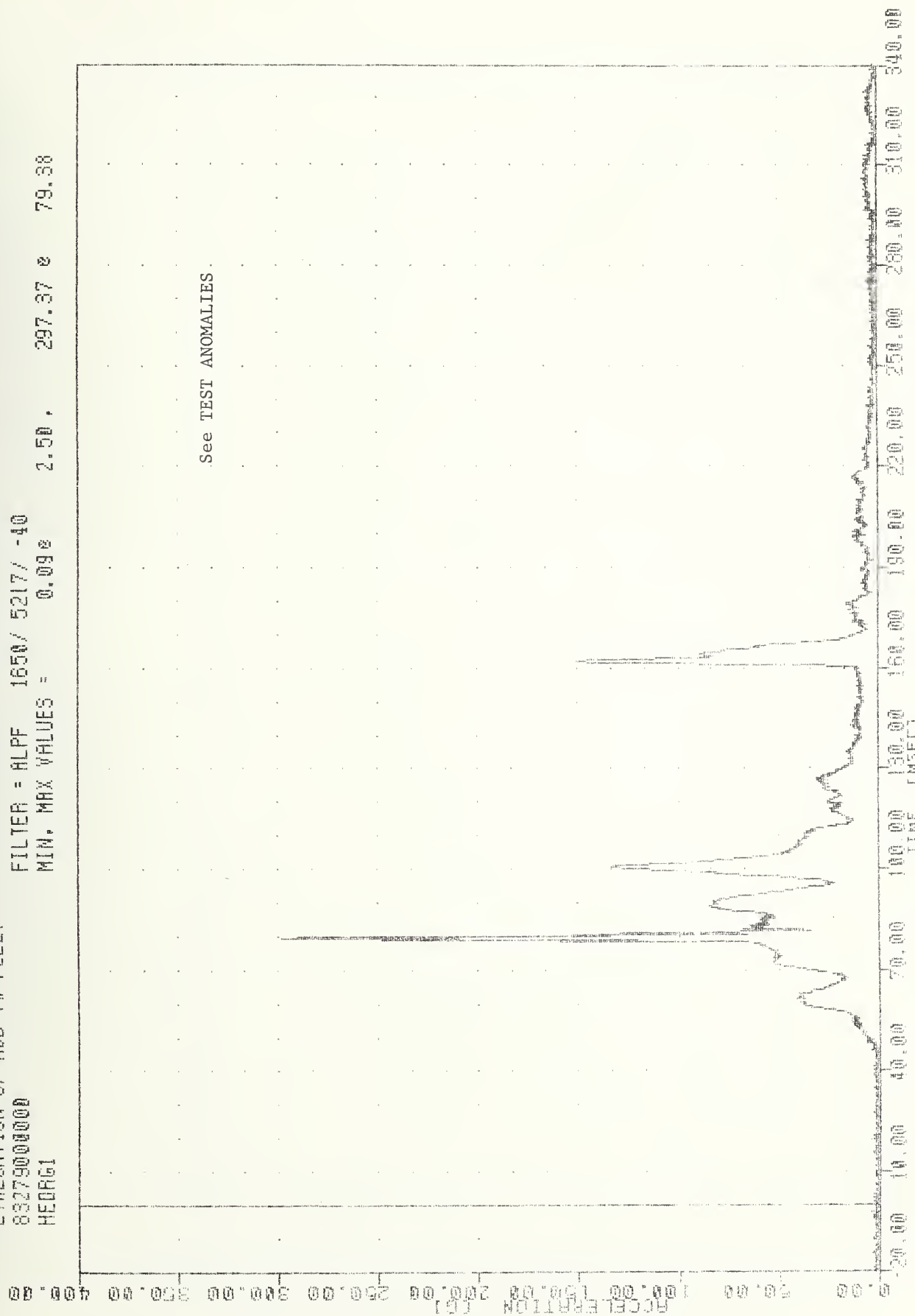
TRC , 831006
EVALUATION OF MDD VW FLEET
8327900000
HEADG1

PLOT DATE 7-OCT-83 10:33:32

FILTER = ALPF 165N/ 5217/ -40

MIN. MAX VALUES = 0.09e 2.50 , 297.37 e 79.38

See TEST ANOMALIES.



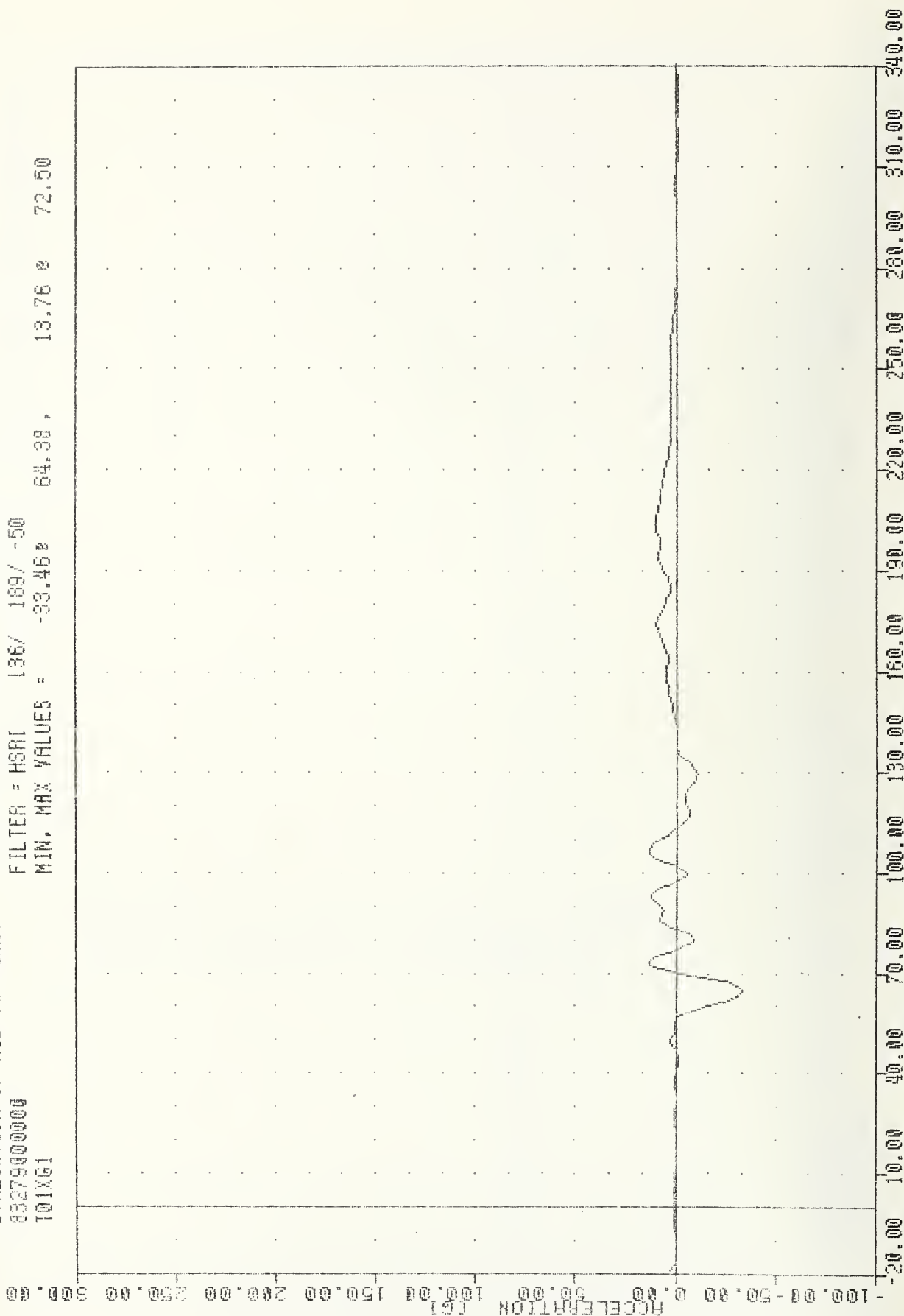
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD RESULTANT

TRC , 831006
 EVALUATION OF MOD VW FLEET
 832790000000
 T01X61

PLOT DATE 7-Jul-83 16.04:21

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -33.46 64.38 13.78 72.50

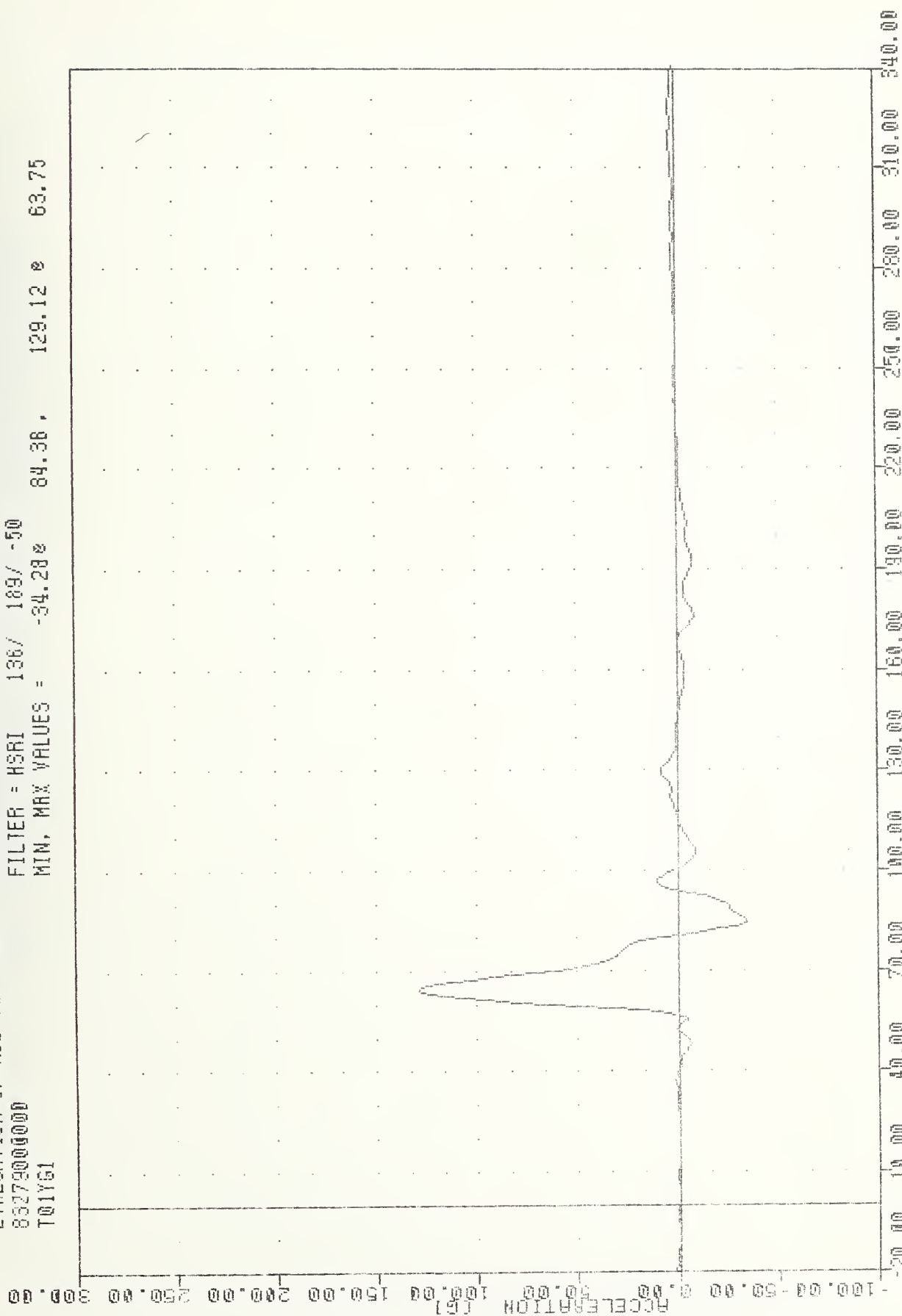


TRC 831006
 EVALUATION OF MD0 VW FLEET
 83279000000
 T01Y61

PL01 DATE 7-Jul-80 10.34:21

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -34.28e 84.38e 129.12 e 63.75

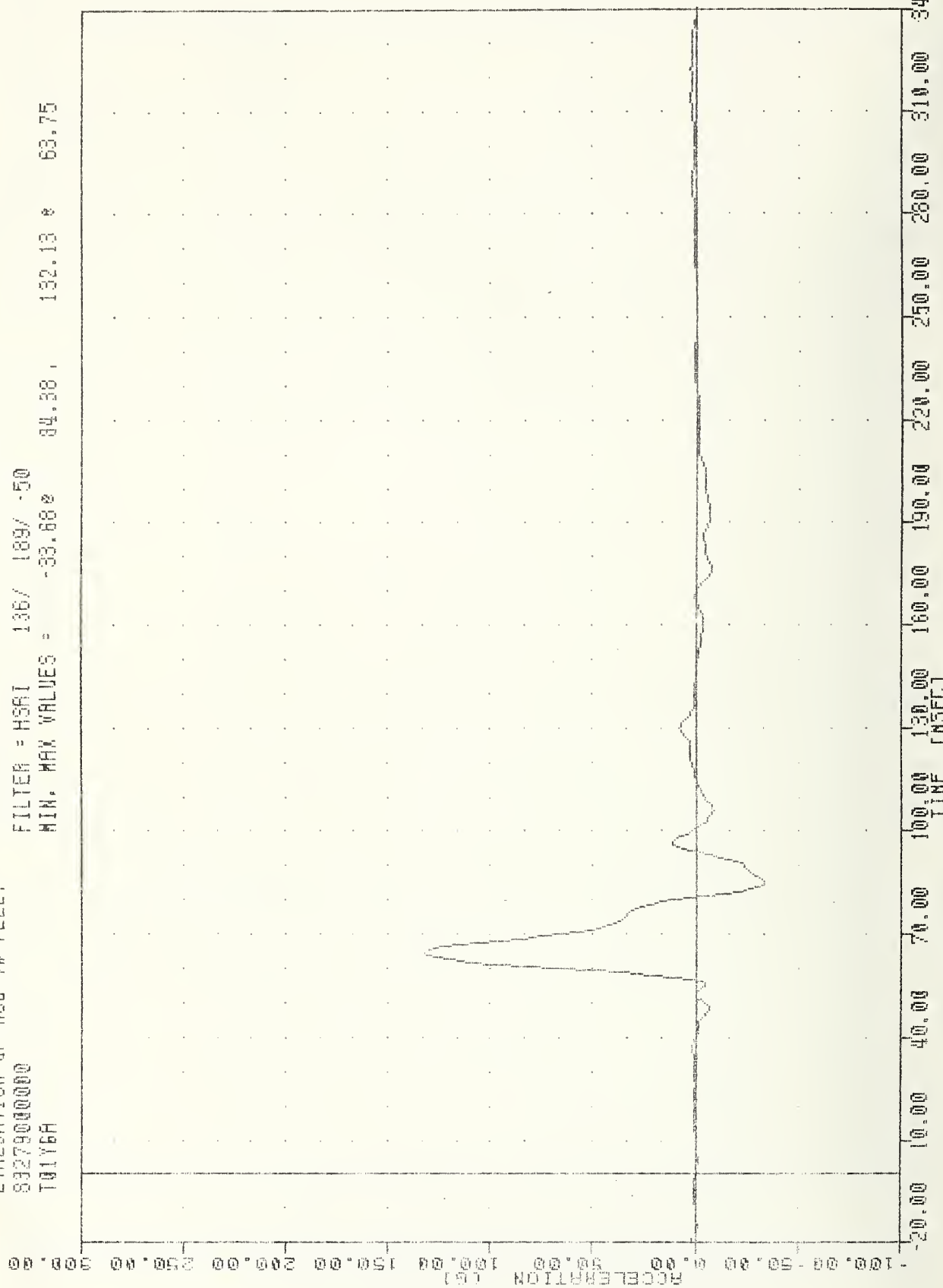


TAC 83J006
EVALUATION OF R00 VM FLEET
83279000000
T01Y6H

PLUT DATE 7-OCT-83 10:34:21

FILTER = H3AI 136/ 189/ -50

MIN. MAX VALUES = -33.68 84.38 132.13 * 63.75

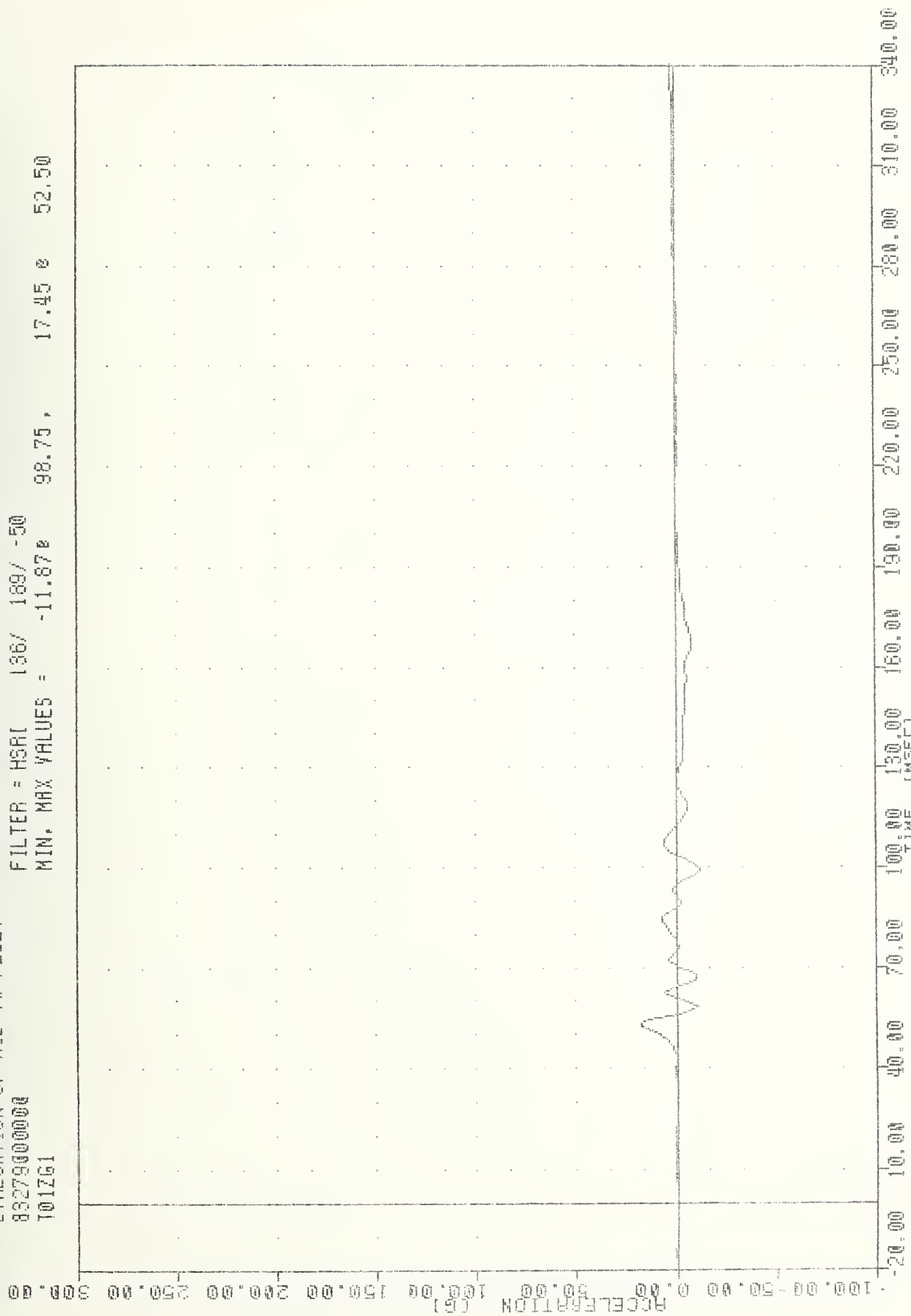


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER UPPER SPINE ACCELERATION -2 Y AXIS

TRC , 831006
EVALUATION OF MOD YW FLEET
832790000000
101761

PLU DATE 7-001-80 10.00:21

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -11.67e 98.75, 17.45 e 52.50



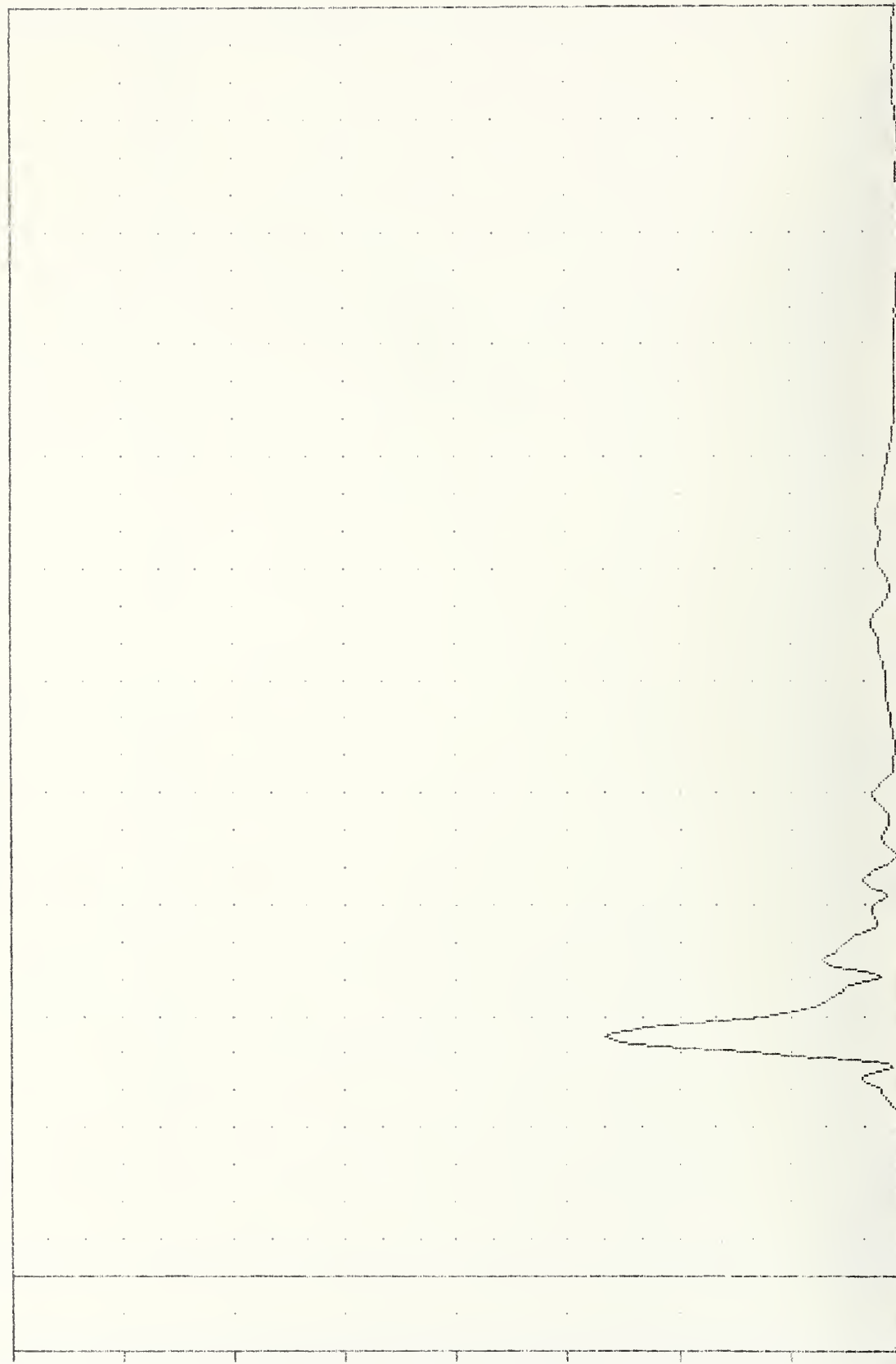
TRC , 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 T01RG1

PLU1 DATE 7-Jul-65 16.05:21

FILTER = HSR1 136/ 189/ -50

MIN. MAX VALUES = 0.220 38.75 , 133.39 63.75

ACCELERATION [G]



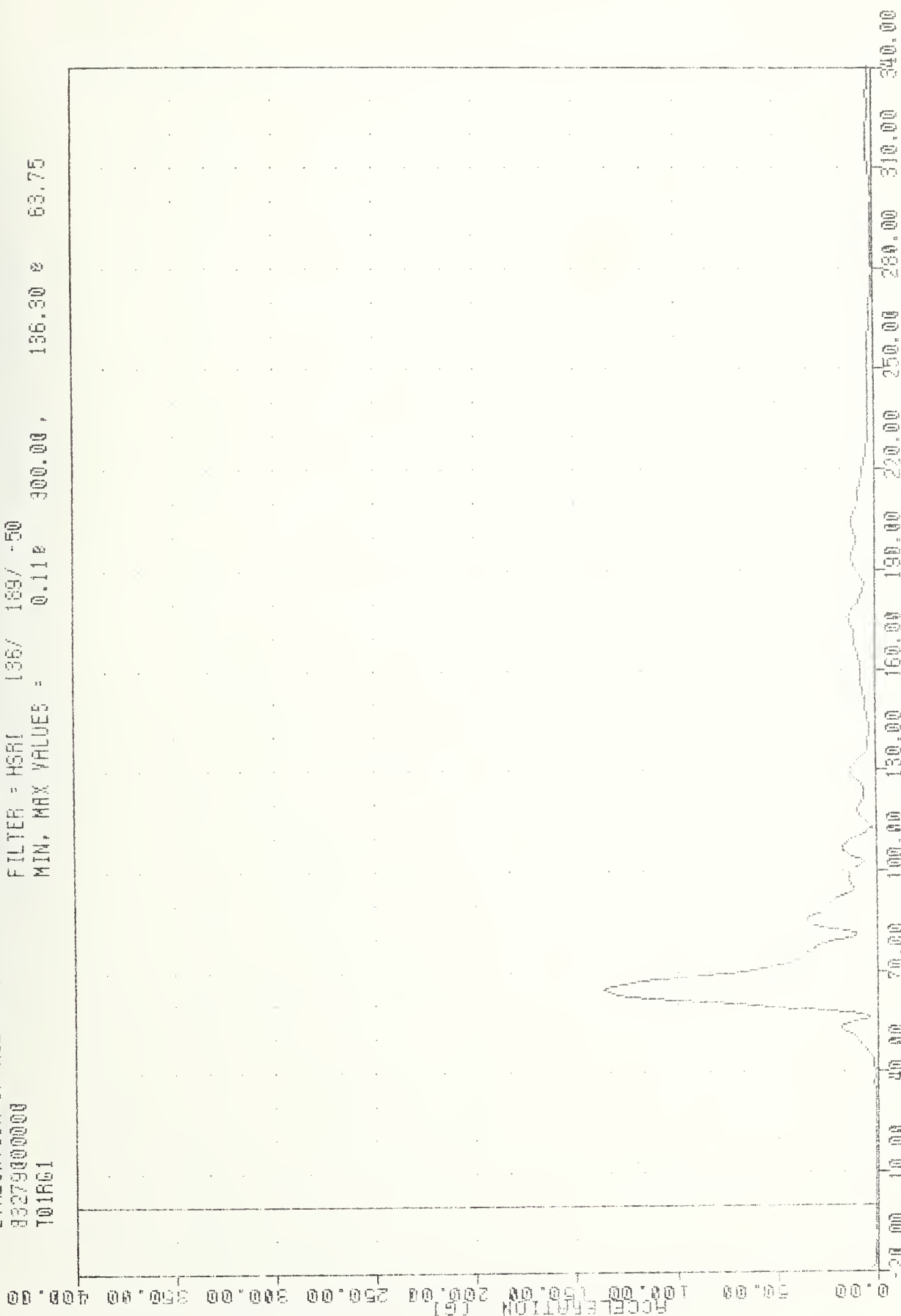
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE RESULTANT

TRL 831006
EVALUATION OF MOD VW FLEET
83279000000
T01RG1

PLD: DATE 7 oct-60 10:00:30

FILTER = HSRF 136/ 189/ -50

MIN. MAX VALUES = 0.110 300.00, 136.30 63.75

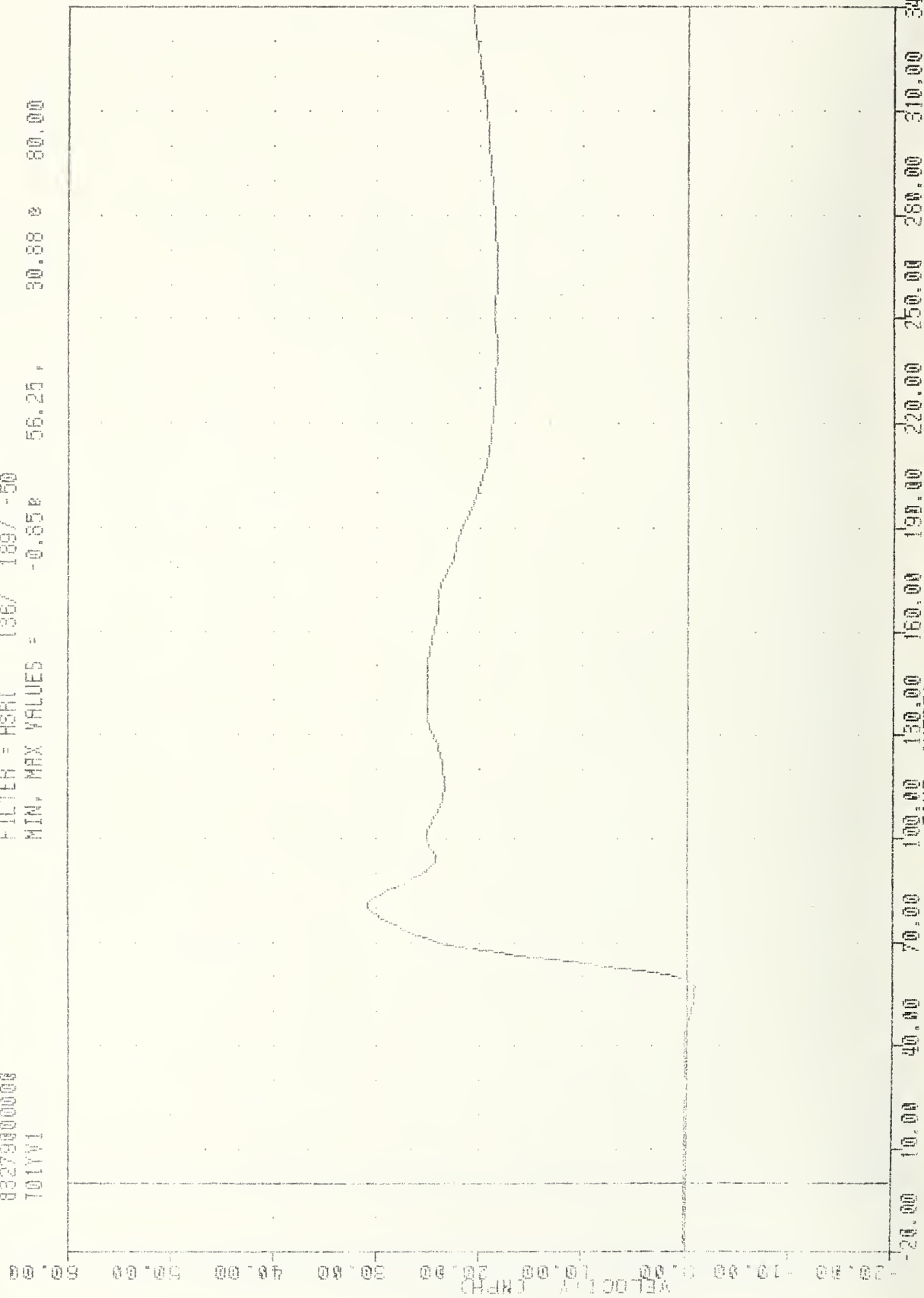


TRC
EVALUATION OF NOD YW FLEET
832798000008
701YV1

PLU1 DATE 7-JUL-83 10:56:02

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.658 56.25 30.88 80.00



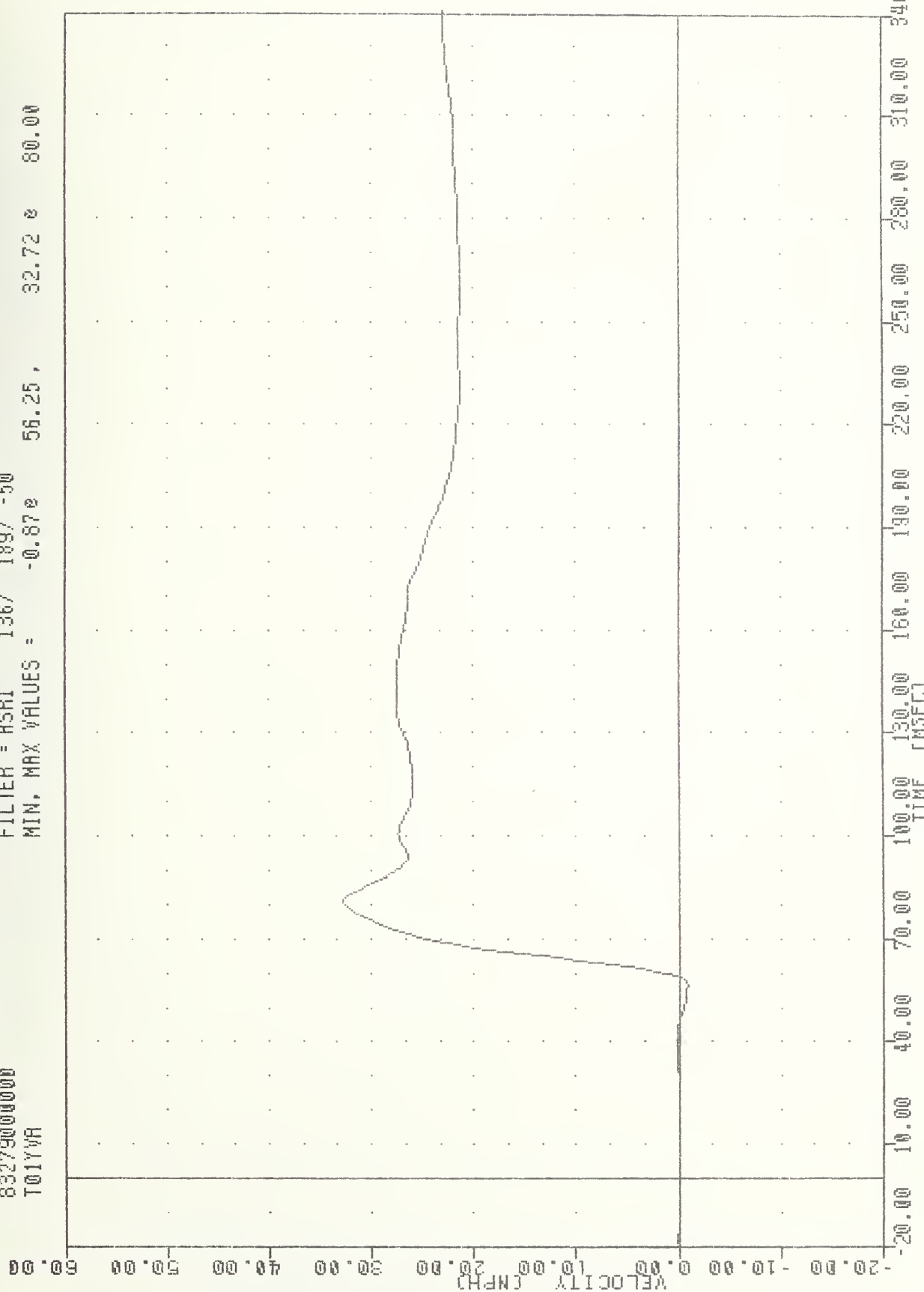
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING T01Y61

TRC , 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 T01YVA

PLOT DATE 7-0UL-83 10:36:02

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.872 56.25, 32.72 80.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YGA

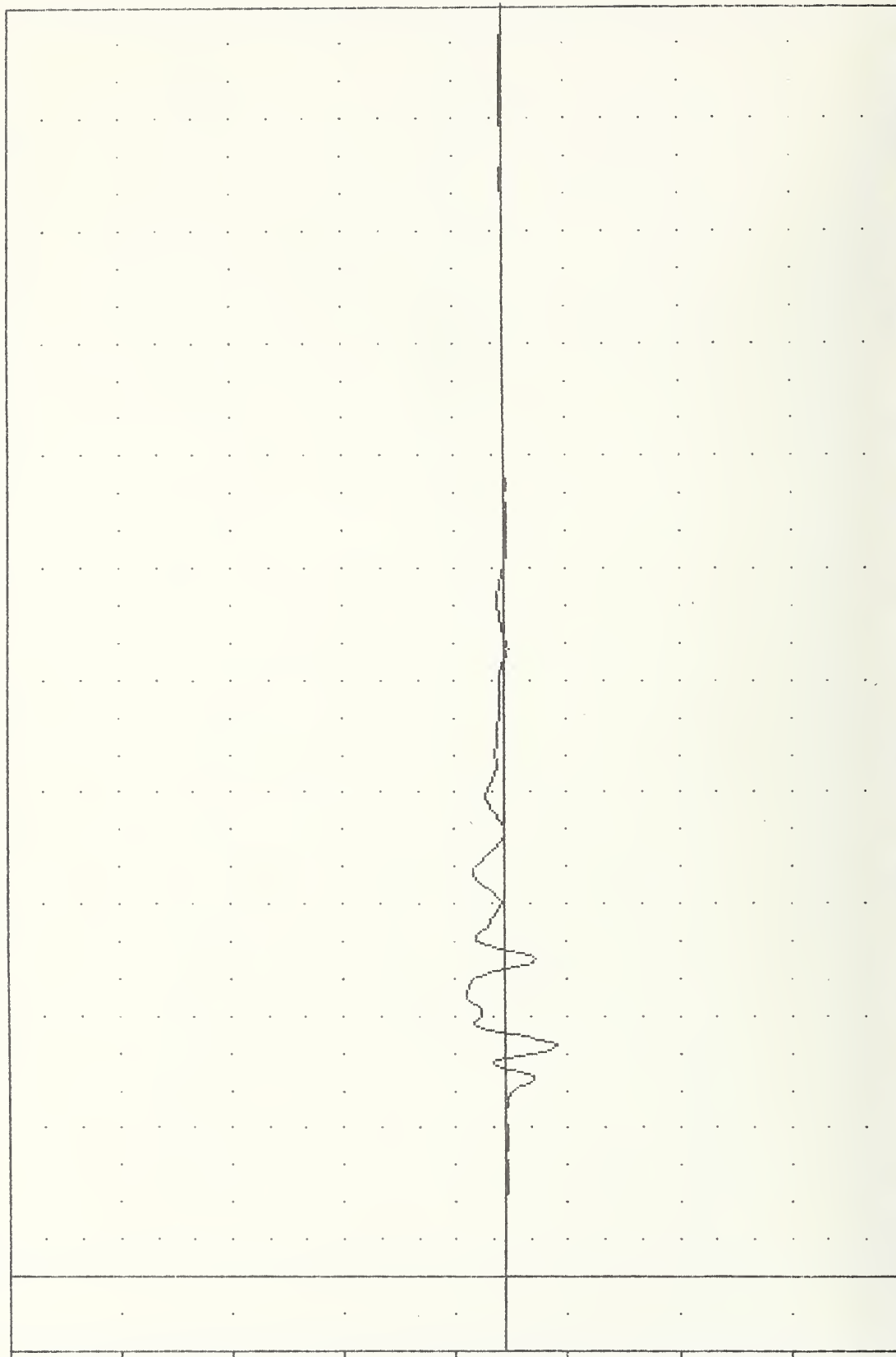
TRC
EVALUATION OF MOD VW FLEET
83279000000
T12XG1

PLOT DATE 7-OCT-83 10:34:21

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -41.89g 61.25, 31.84 g 75.00

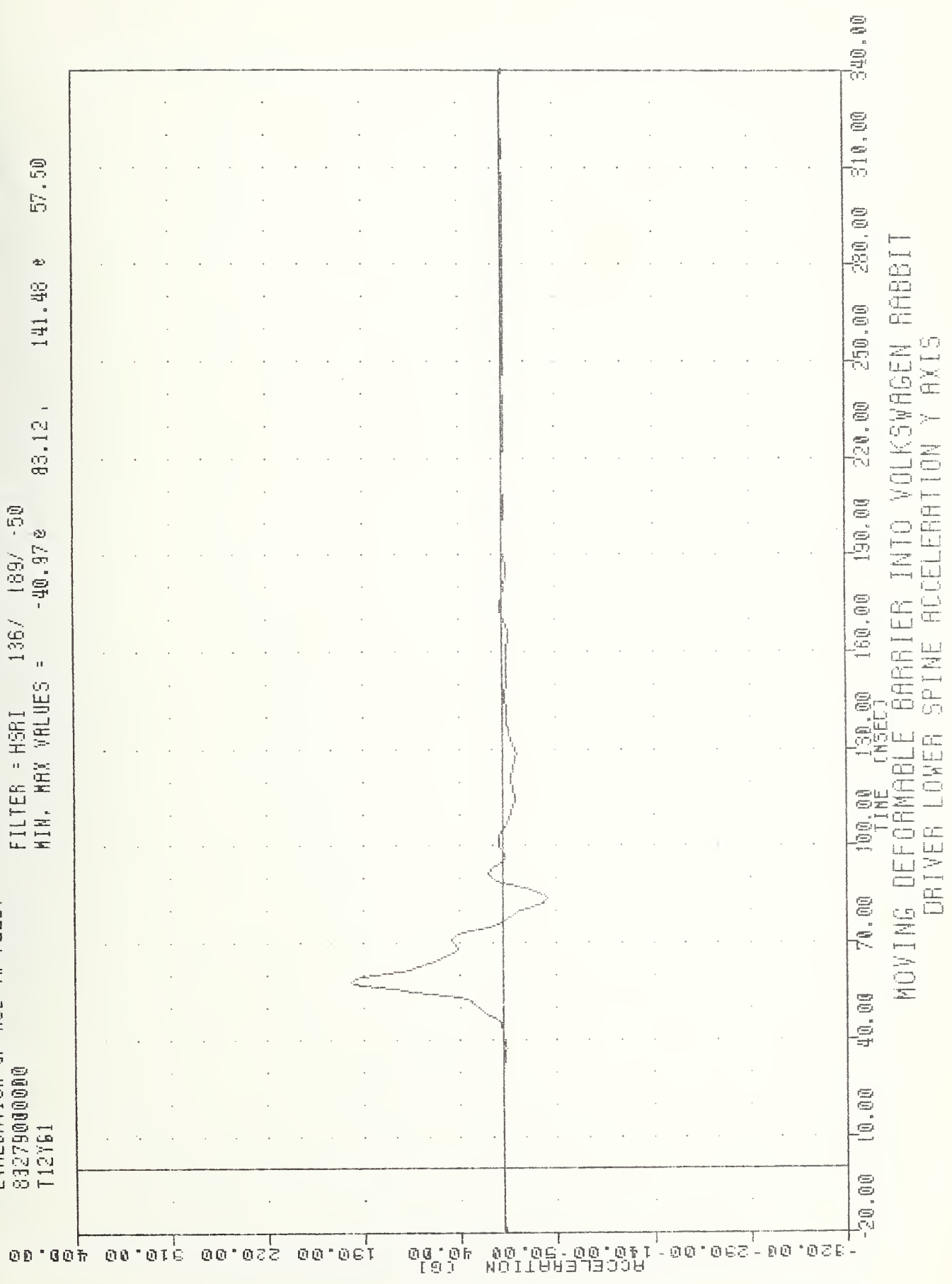
ACCELERATION (G)



TIME (MSEC)

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

IHC , 831005
 EVALUATION OF MOD VW FLEET
 83279000000
 T12Y61
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -40.97e 83.12, 141.48 e 57.50
 PLOT DATE 7-OCT-83 10:34:21



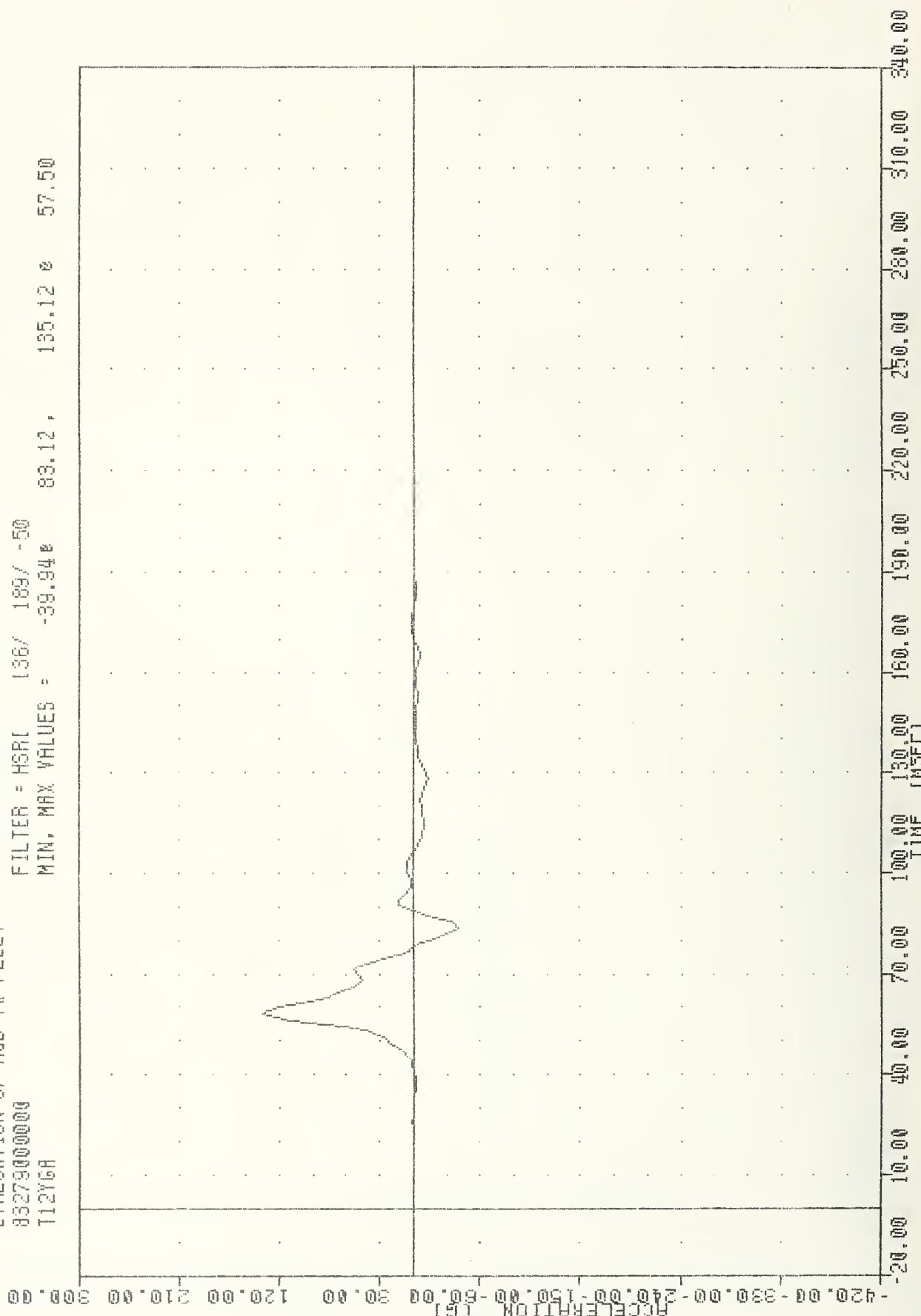
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE ACCELERATION Y AXIS

TRC 831006
 EVALUATION OF MOD YW FLEET
 83279000000
 T12YGR

PLOT DATE 7-OCT-83 10:34:21

FILTER = HSR1 136/ 189/ -50

MIN. MAX VALUES = -39.94e 83.12, 135.12 e 57.50

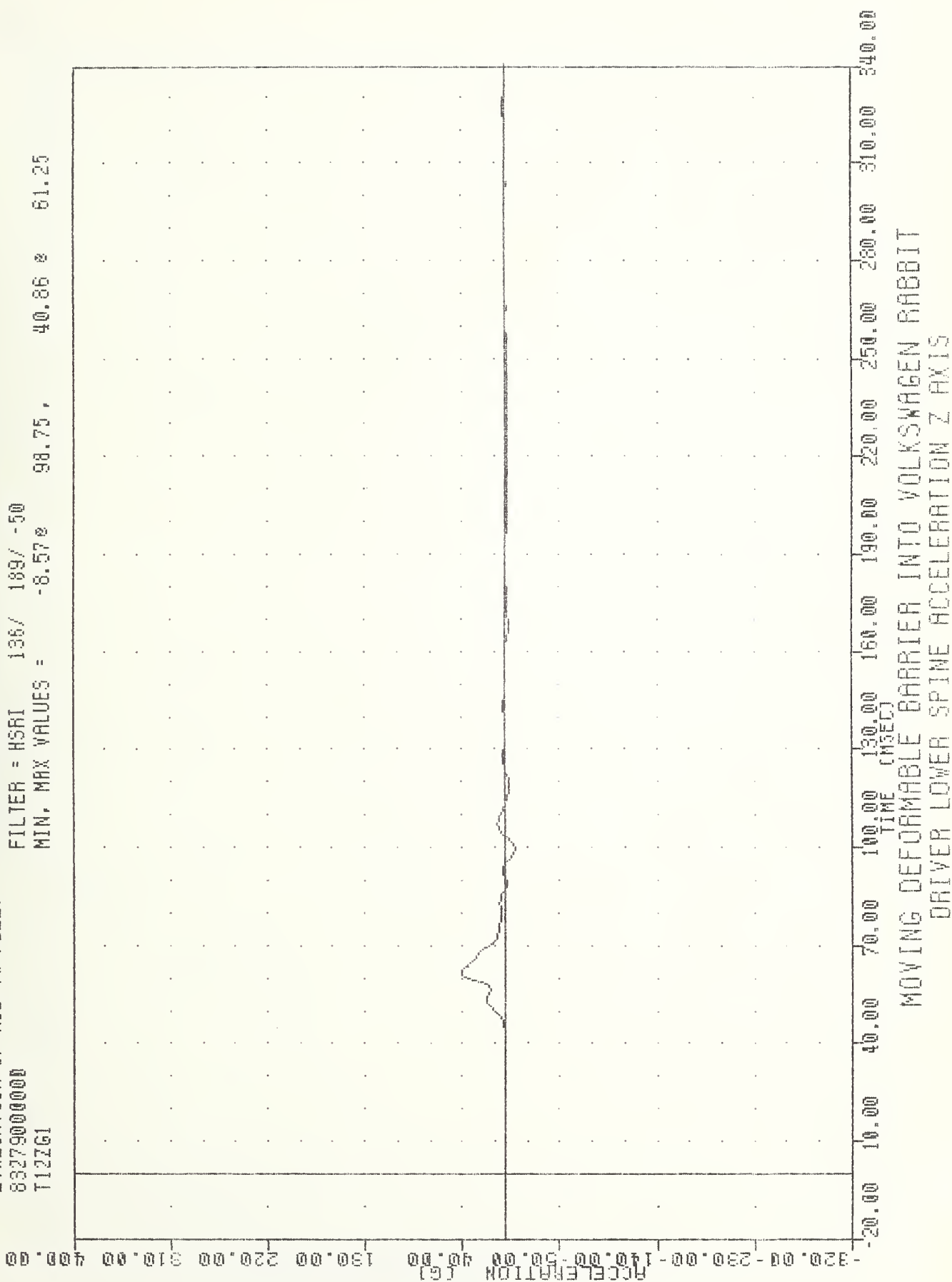


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE ACCELERATION -2 Y AXIS

TRC , 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 T127G1

PLOT DATE 7-OCT-83 10:34:21

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -8.57% 40.86% 61.25

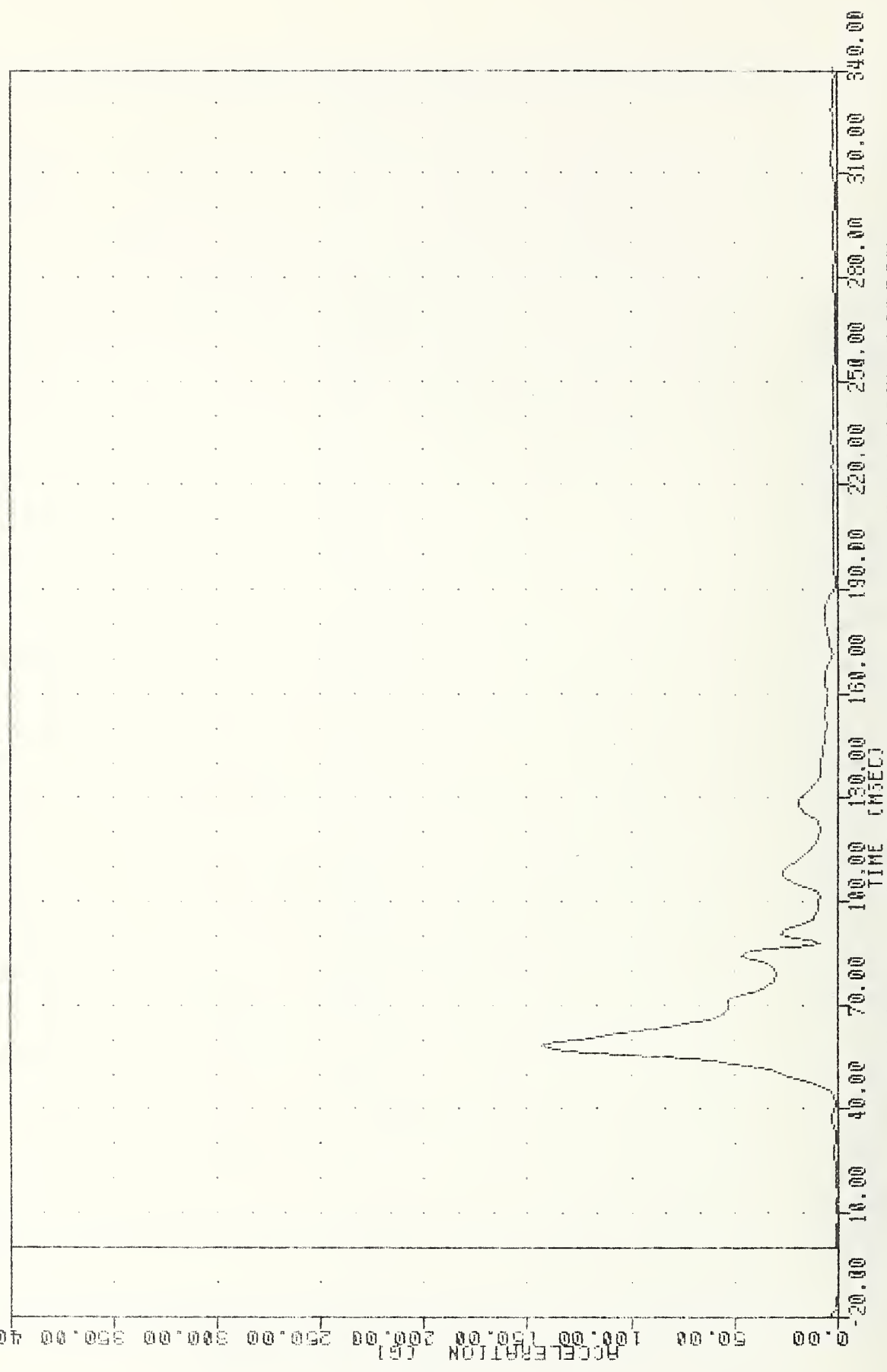


TRC , 851006
 EVALUATION OF MDD VW FLEET
 832750000000
 T12RG1

PLT DATE 7-OCT-85 10:04:21

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.030 -12.50, 142.98 0 57.50

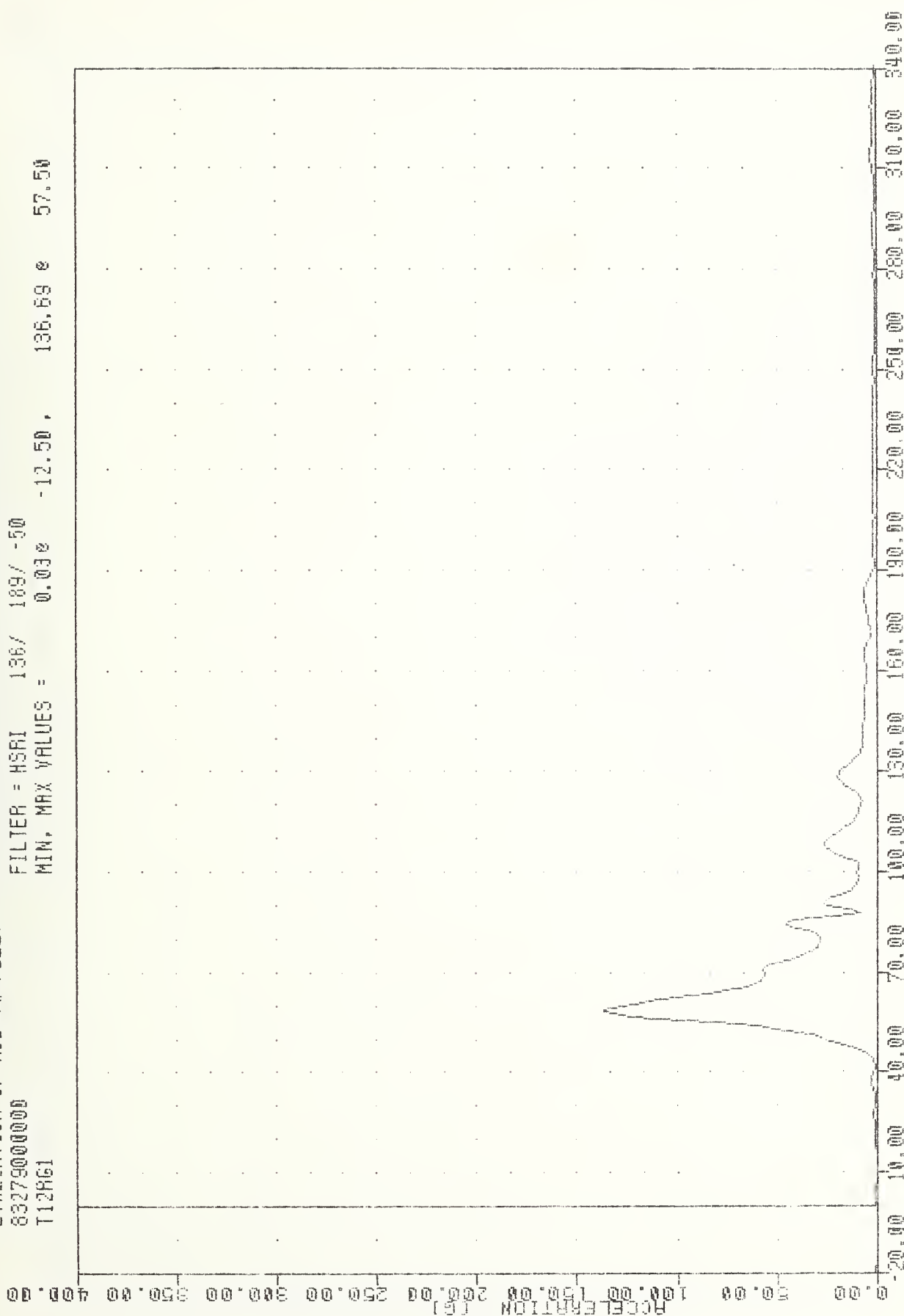


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE RESULTANT

TRC , 831006
 EVALUATION OF MOD VN FLEET
 83279000000
 T12861

PLD: DATE 7 JUL 80 10:33:30

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = 0.030 -12.50, 136.69 0 57.50



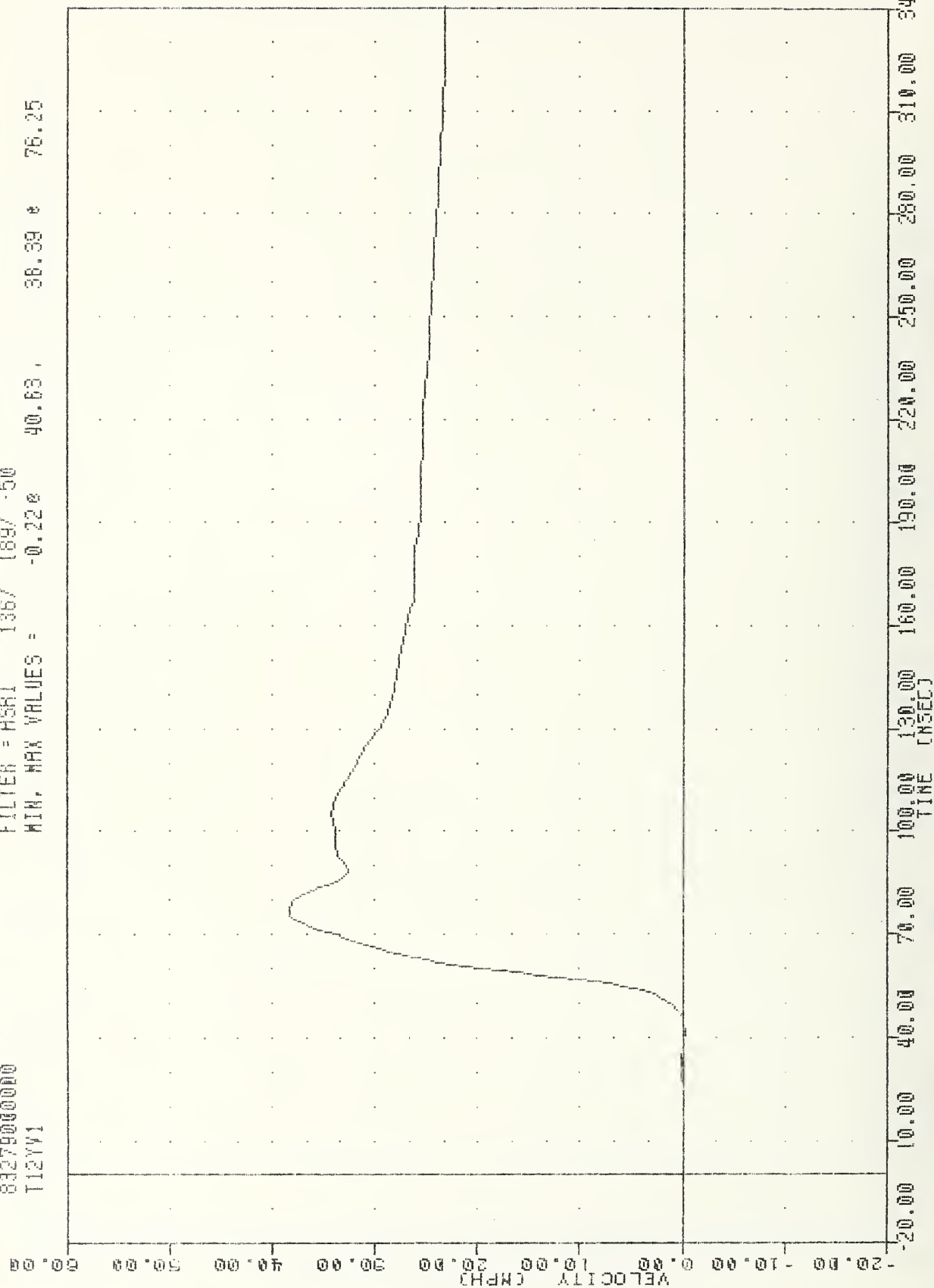
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE RESULTANT USING T12YGA

TAC 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 T12YV1

PLU1 DATE 7-JUL-83 10:06:02

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.228 40.63 , 36.39 * 76.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12Y61

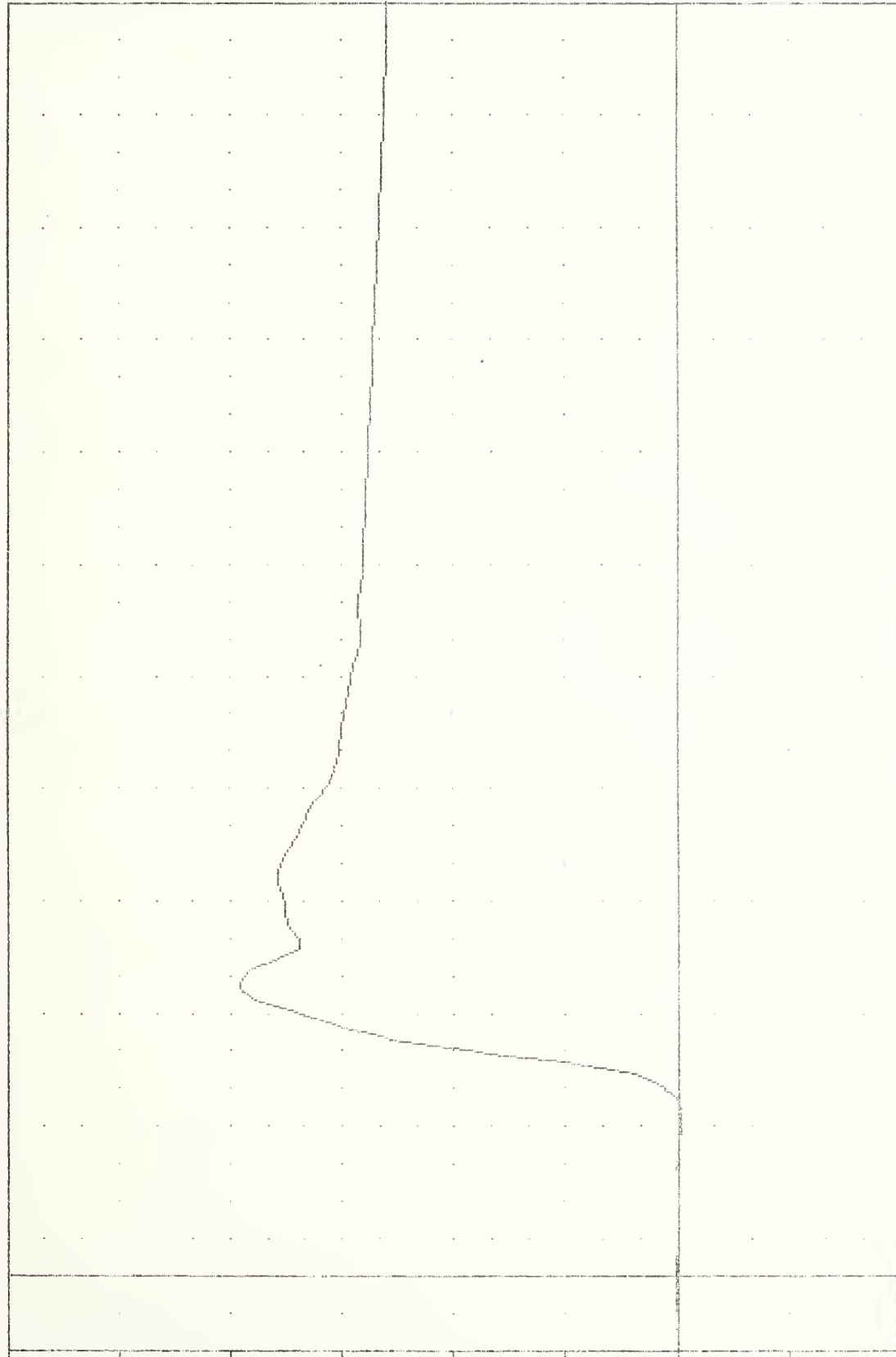
TRC , 831000
 EVALUATION OF MGD VW FLEET
 83279000000
 T12YVA

PLU DATE 7-01-83 10:36:02

FILTER = HSAI 136/ 189/ -50

MIN, MAX VALUES = -0.338 40.63, 39.09 76.88

VELOCITY (MPH)

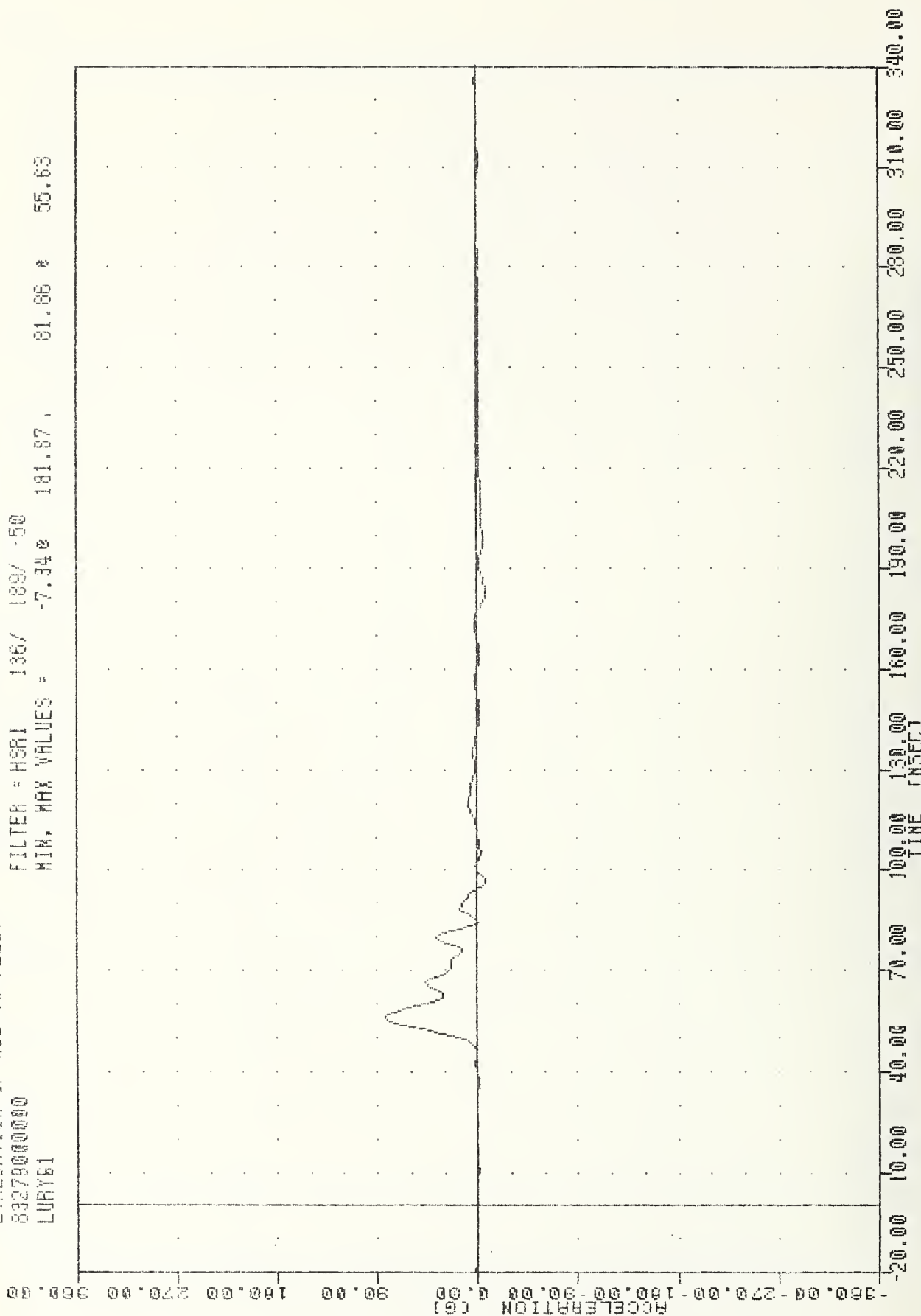


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T12Y6A

TAC , 831006
 EVALUATION OF MOD VW FLEET
 832790000000
 LURY61

PL01 DATE 7-OCT-83 10:34:21

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -7.348 181.87 , 81.86 8 55.63



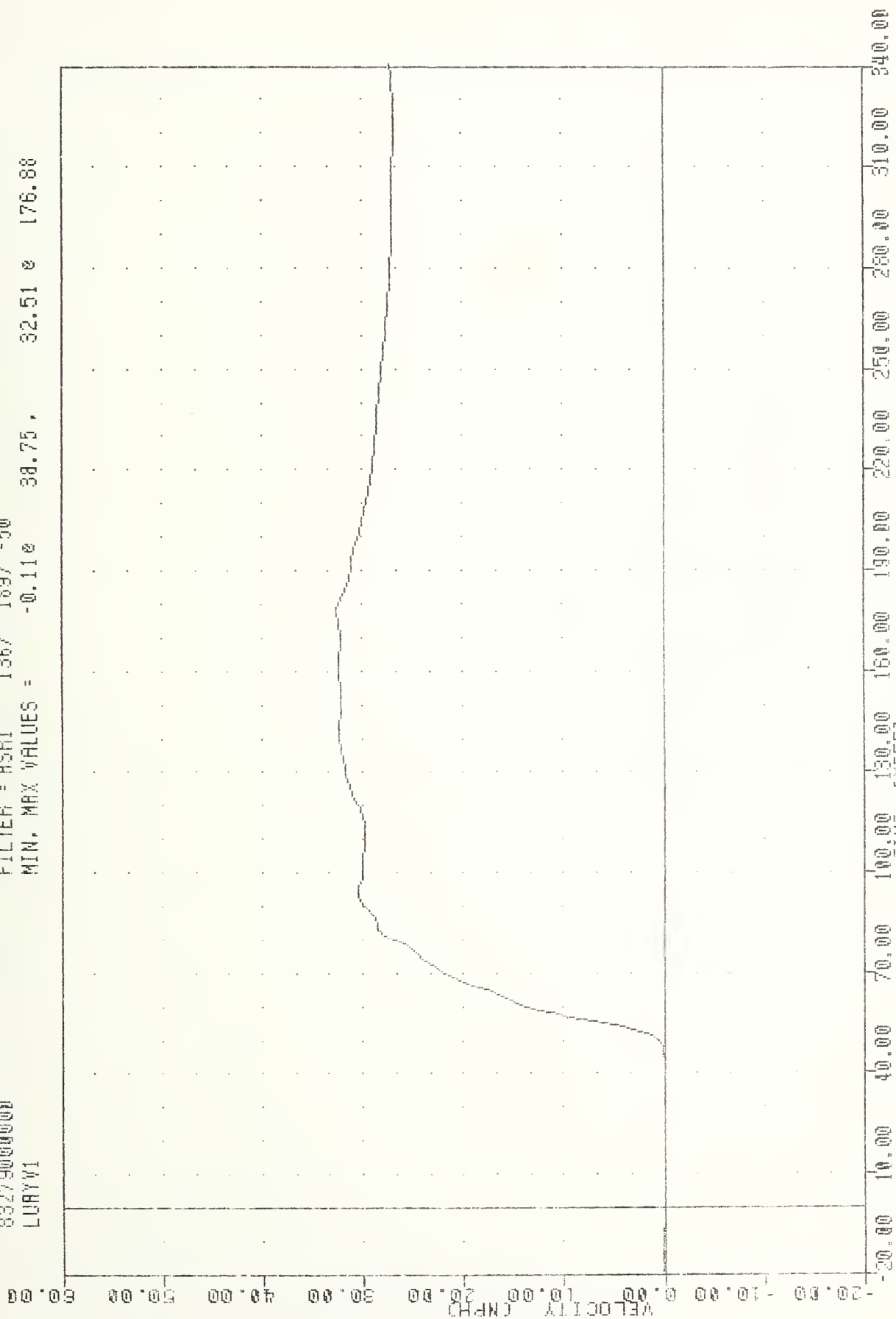
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LEFT UPPER RIB ACCELERATION Y AXIS

TRC . 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 LURYW1

PLU1 DATE 7-001-83 10.00:02

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.110 38.75 32.51 0 176.88



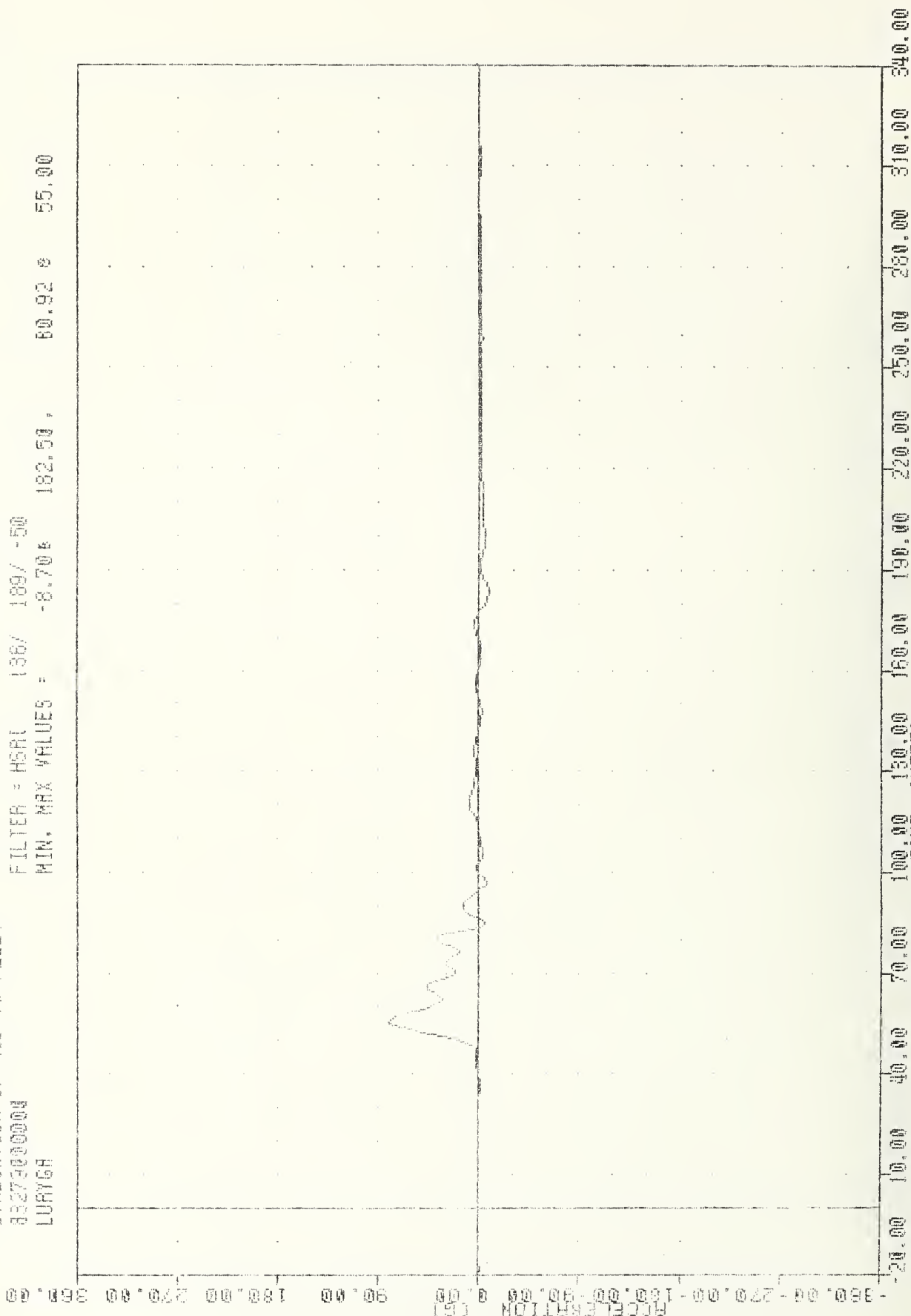
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURY61

TRC , 831006
 EVALUATION OF MOD YW FLEET
 8327300000
 LURYGR

PLOT DATE 7-ULF-83 10:34:21

FILTER = HSR 136/ 189/ -50

MIN. MAX VALUES = -8.70 182.50 60.92 55.00

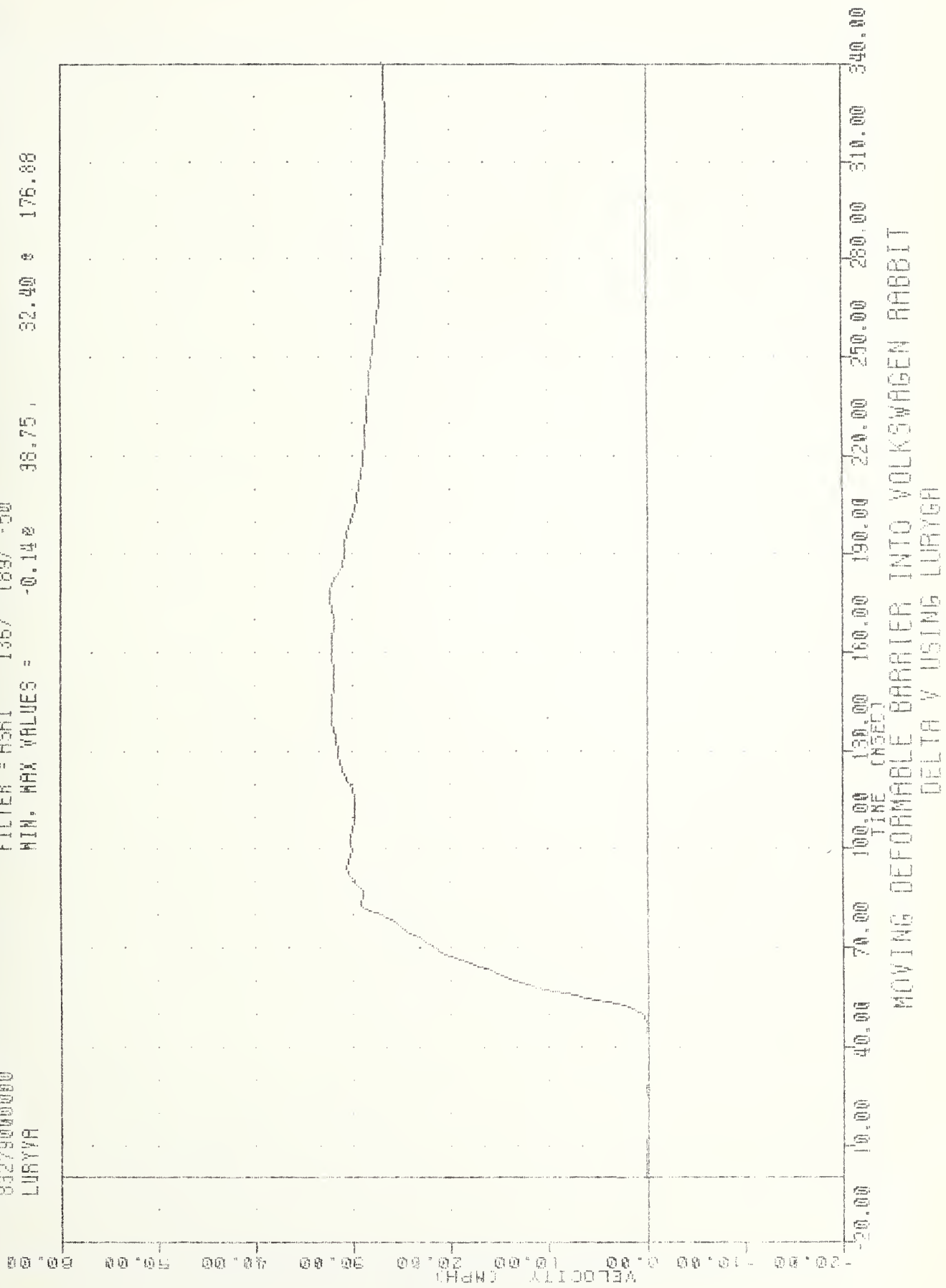


TAC , 831006
 EVALUATION OF MOD VN FLEET
 83279000000
 LURYVA

PLOT DATE 7 JUL 83 10:56:02

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.140 38.75 32.40 176.88

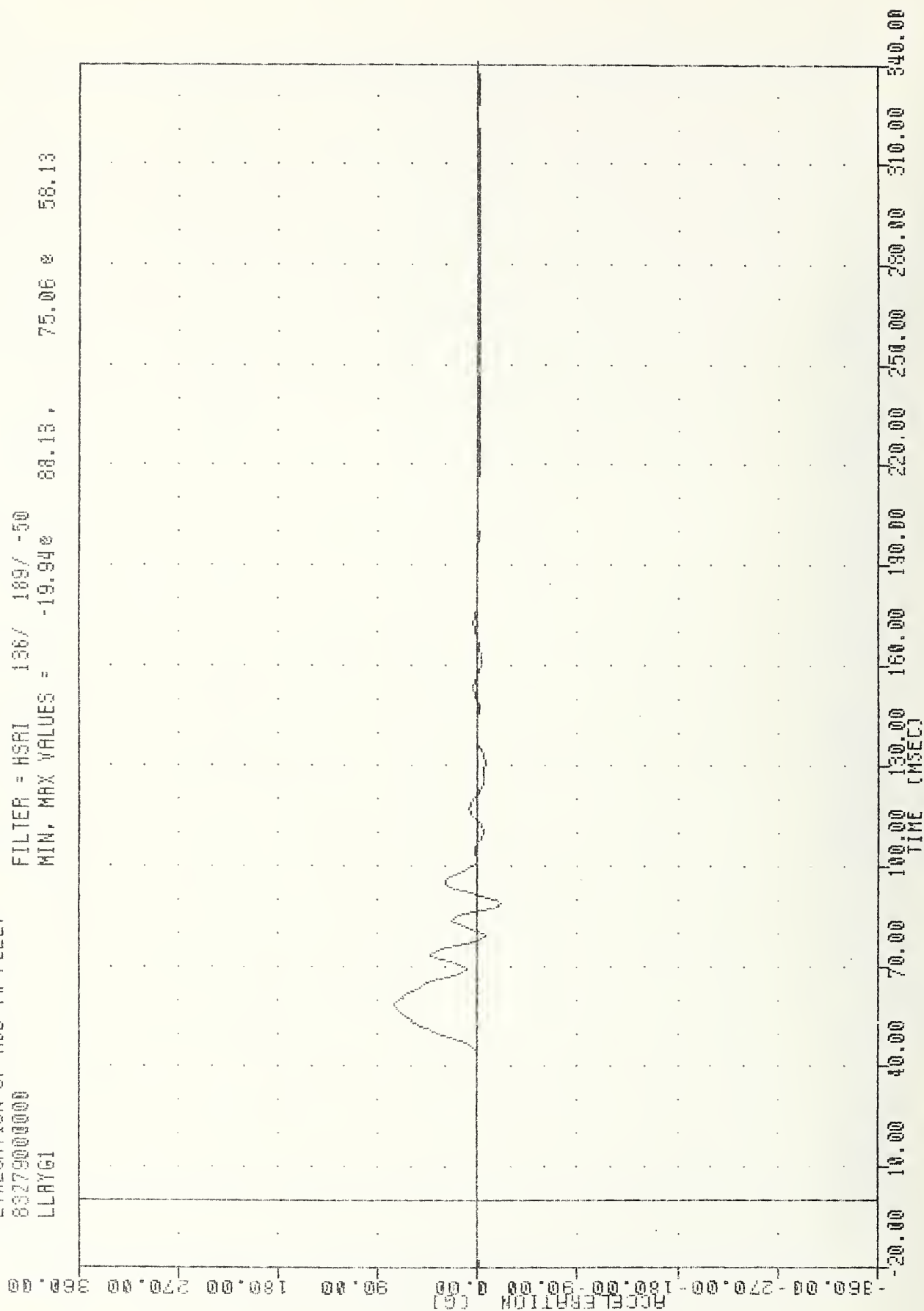


TRC 031000
 EVALUATION OF MDD VW FLEET
 83279000000
 LLAGI

PLU DATE 7-JUL-83 10.04:21

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -19.940 88.13, 75.06 & 58.13

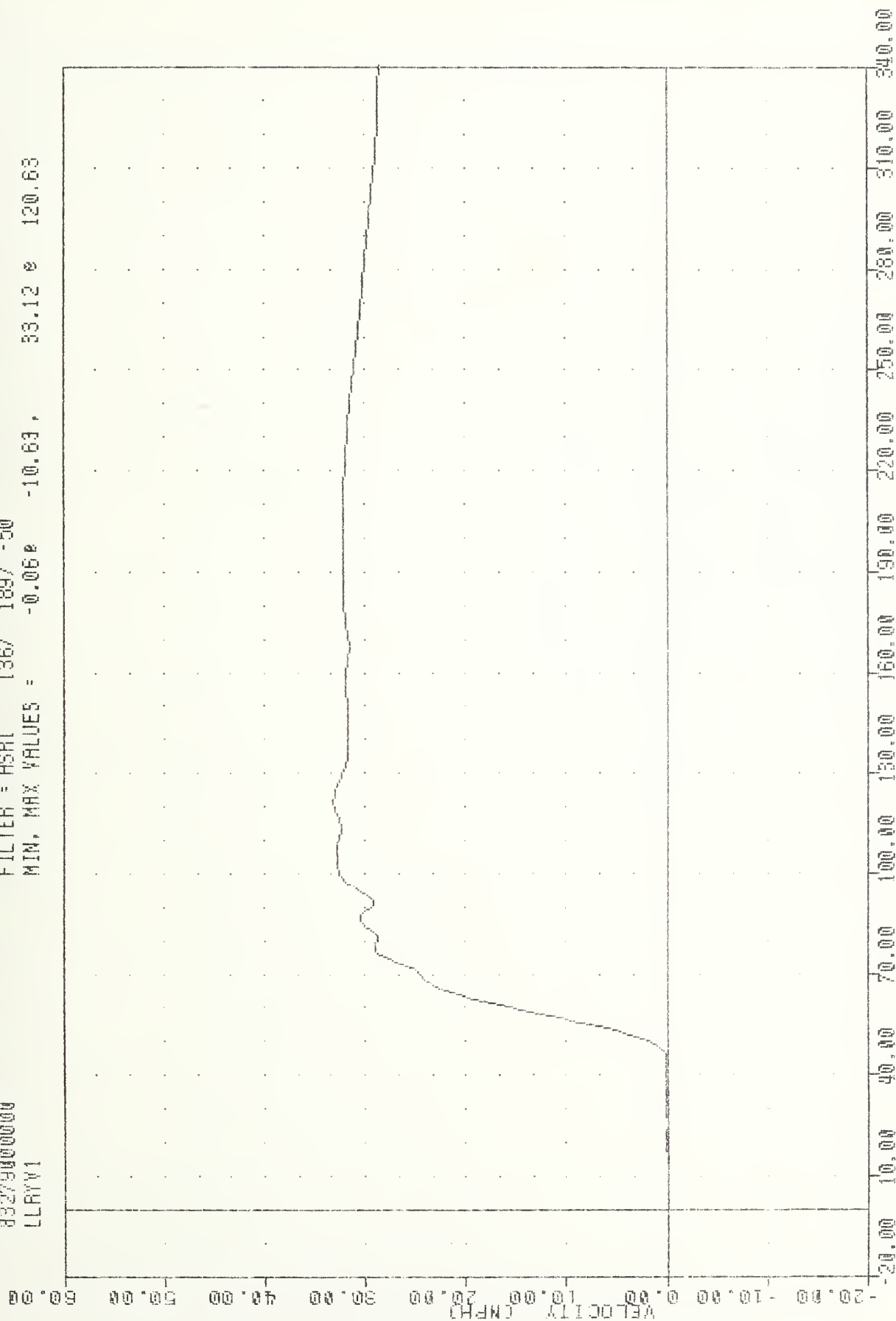


TRC 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 LLRYV1

PLUT DATE 7-06-100 10:00:00

FILTER = HSRI 136/ 189/ -50

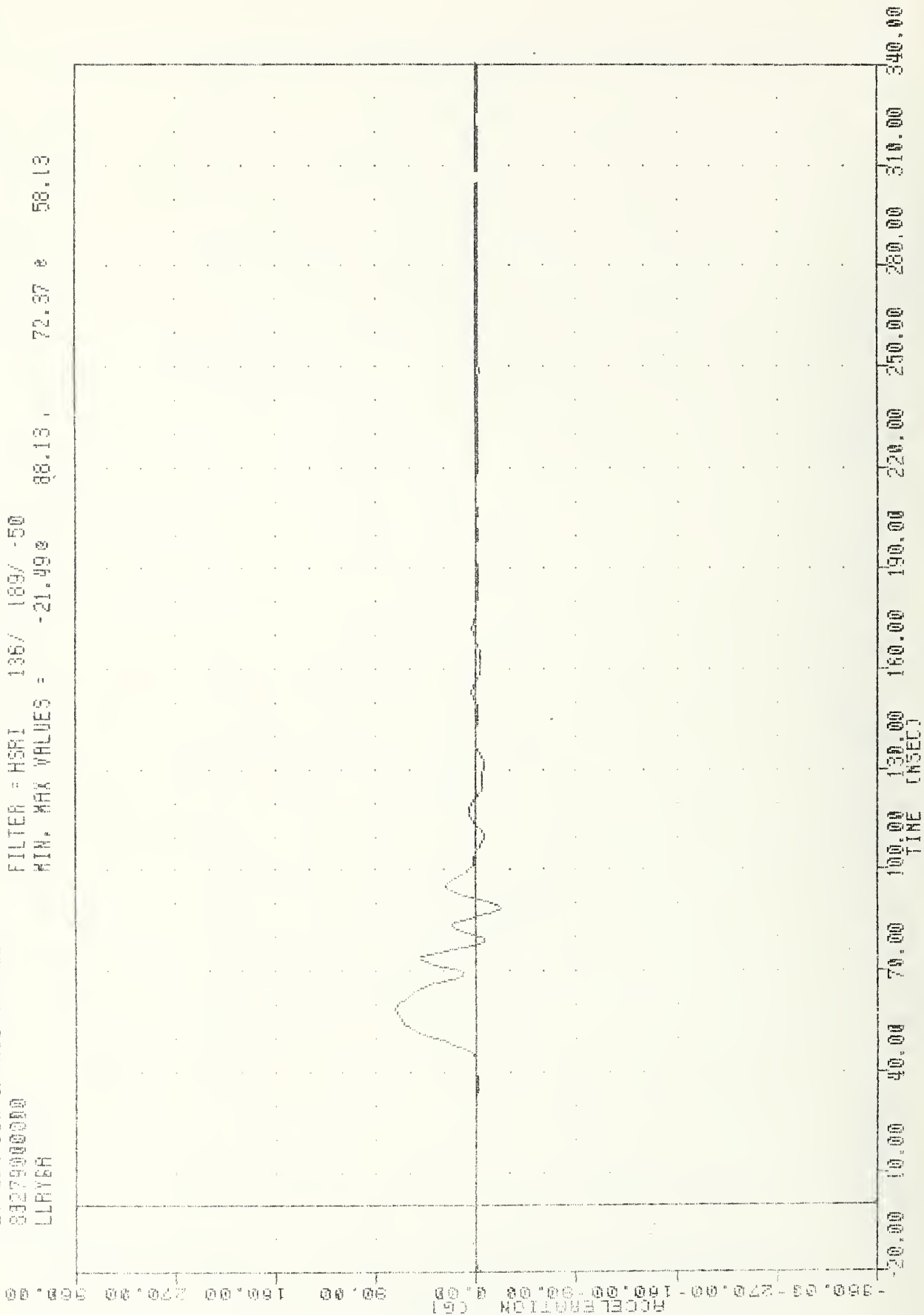
MIN, MAX VALUES = -0.060 -10.63, 33.12 0 120.63



TAC 831006
EVALUATION OF MOD VW FLEET
83279000000
LLRYER

PL01 URTE 7-OCT-83 10734121

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -21.490 88.13 72.37 58.13



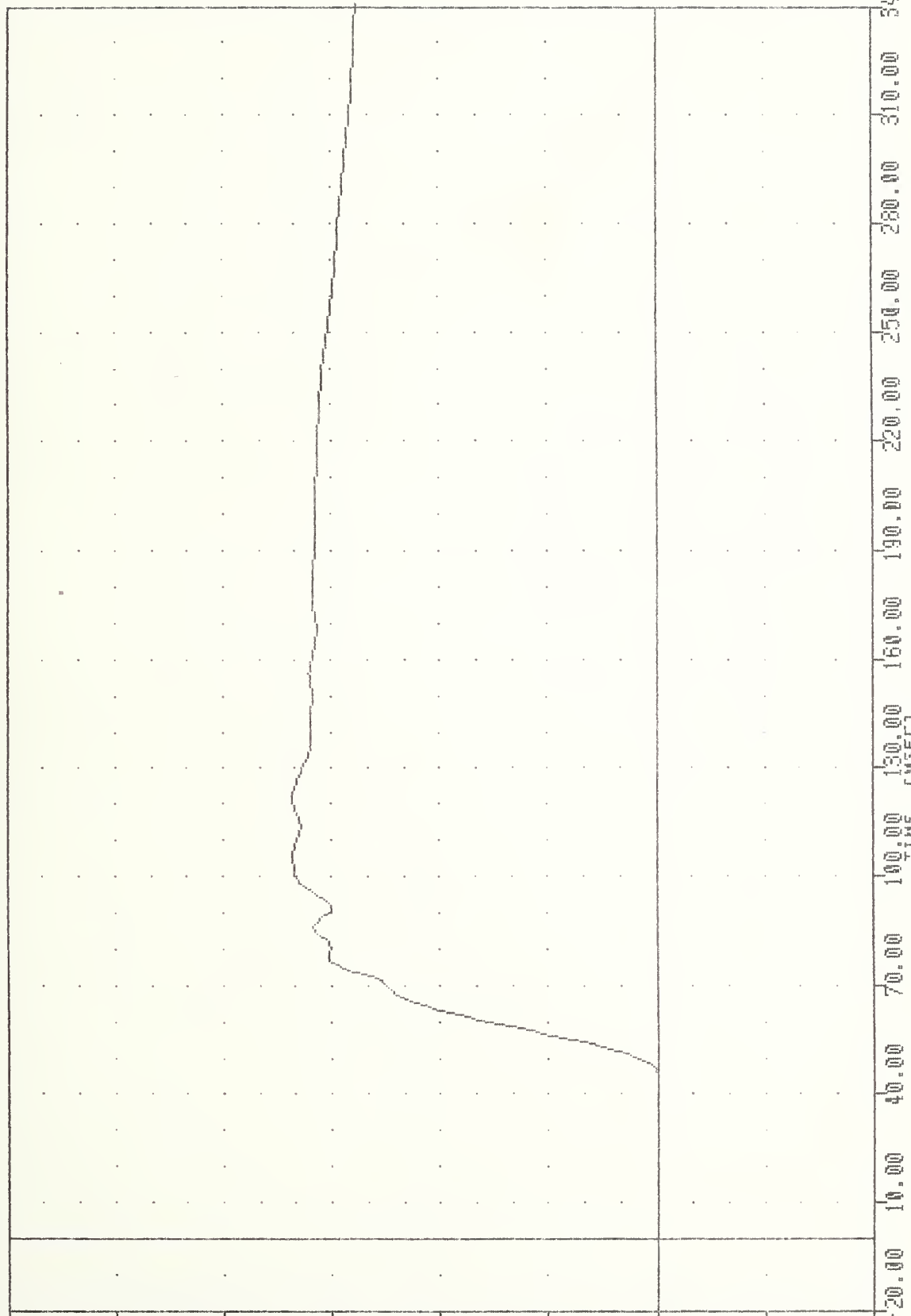
TRC , 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 LLYVA

PLU DATE 7-JUL-83 10:36:02

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.11e 40.00, 33.60 e 121.25

VELOCITY (CM/SEC)



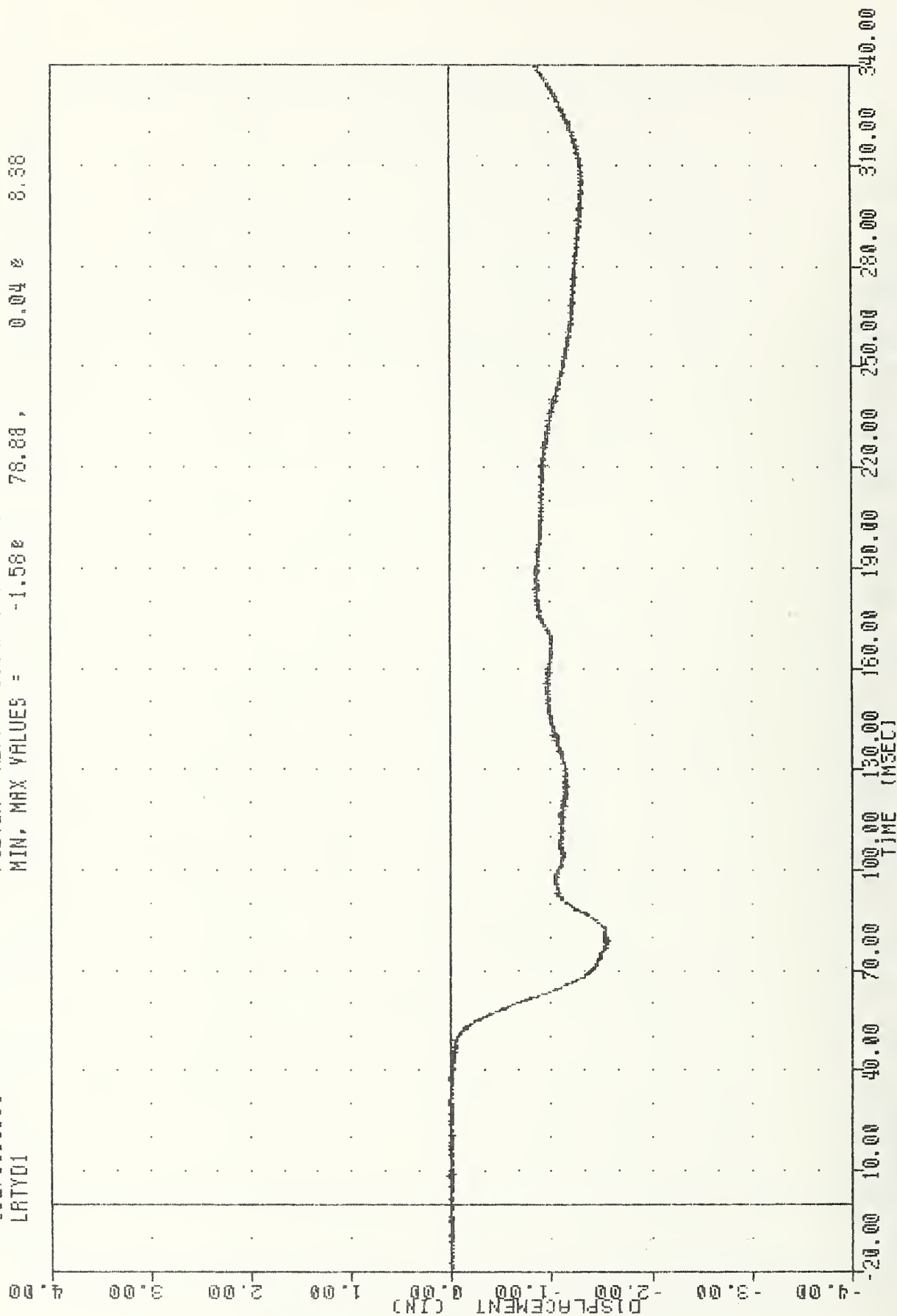
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LLYVA

TAC , 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 LATY01

PLOT DATE 7-OCT-83 10:33:32

FILTER = ALPF 1650/ 5217/ -40

MIN, MAX VALUES = -1.58e 78.88, 0.04 e 8.38



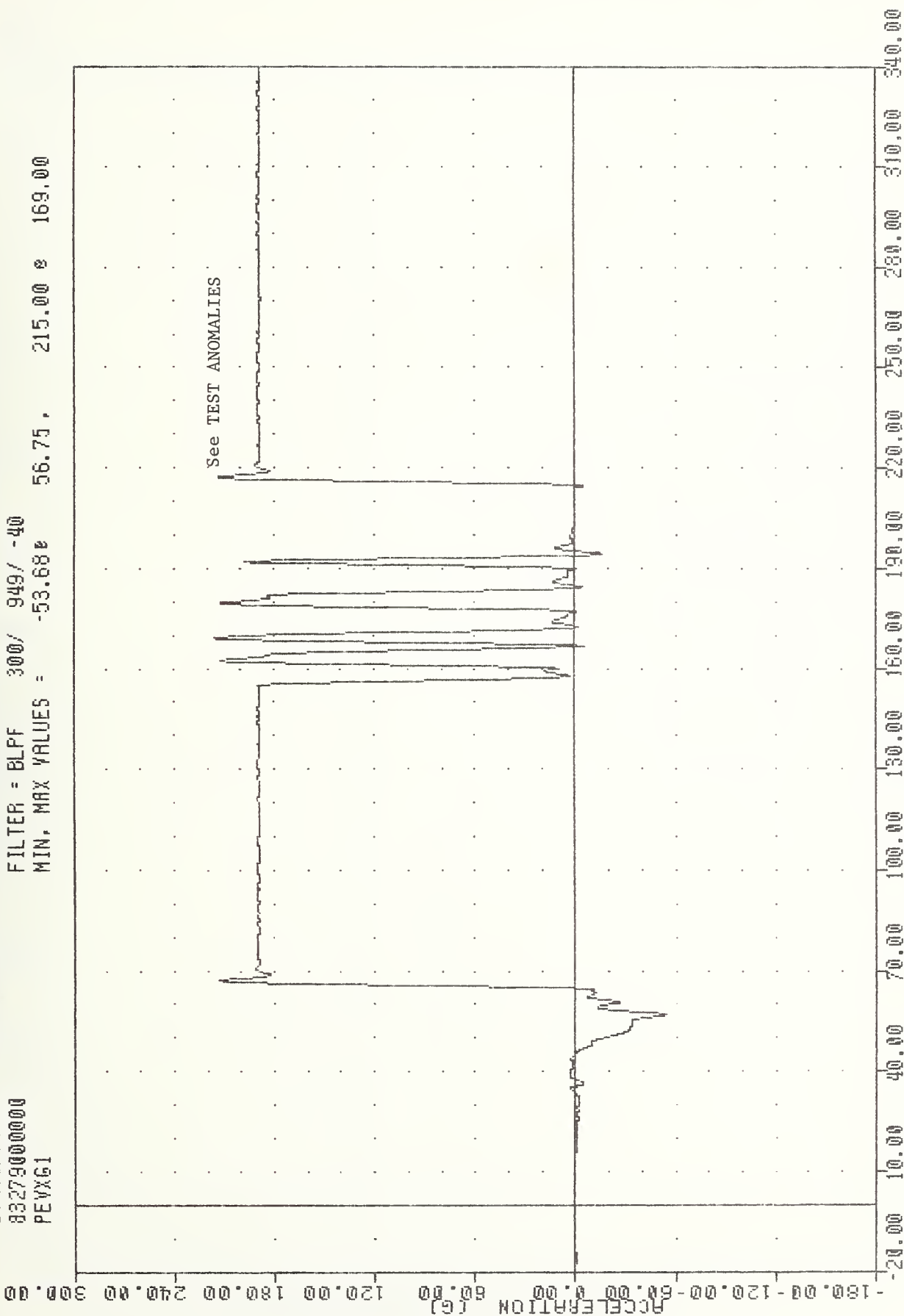
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LEFT RIB TO SPINE DISPLACEMENT INCHES

IRC , 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 PEVX61

PLU1 DATE 7-JUL-83 10.33.32

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -53.68g 56.75, 215.00 g 169.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PELVIS ACCELERATION X AXIS

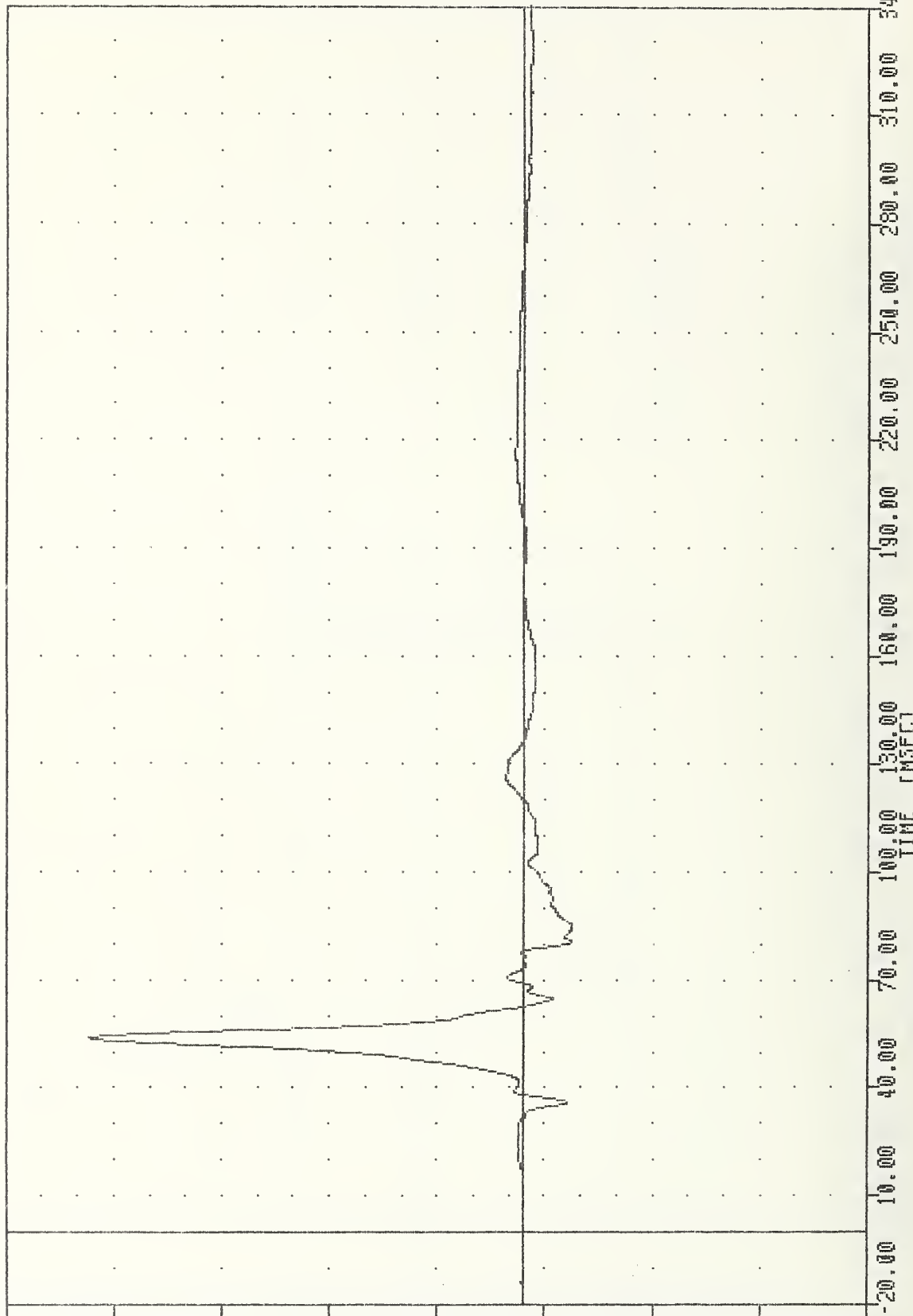
TRC , 831006
 EVALUATION OF MDD VW FLEET
 83279000000
 PEVYG1

PLOT DATE 7-OCT-83 10:33:32

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -22.500 80.50, 201.23 53.63

ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PELVIS ACCELERATION Y AXIS

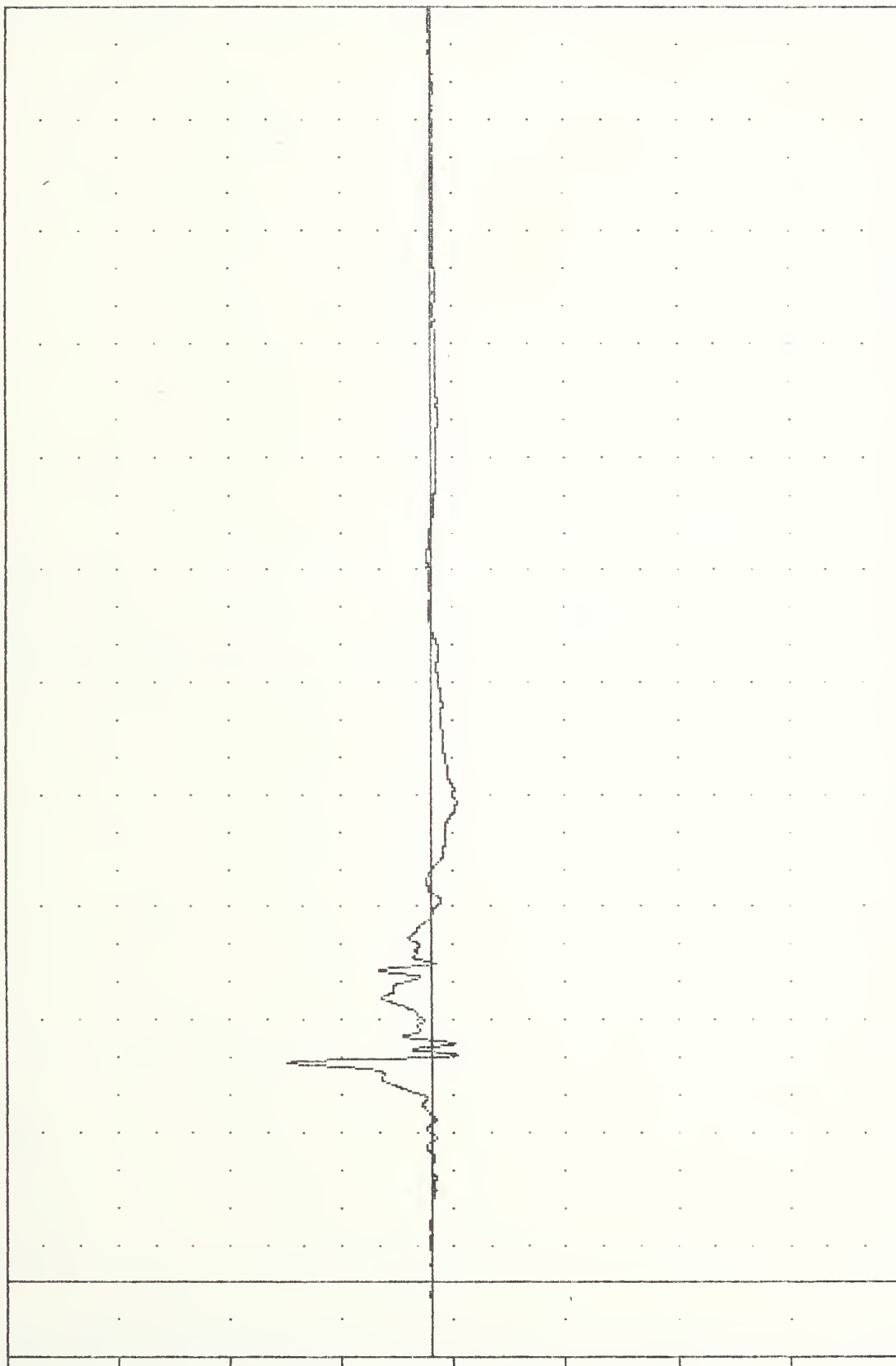
TAC 831006
 EVALUATION OF MOD VN FLEET
 83279000000
 PEVZ61

PLOT DATE 7-001-83 10:33:32

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -11.98e 60.50, 64.25 e 58.38

ACCELERATION (G)



TIME (MSEC)

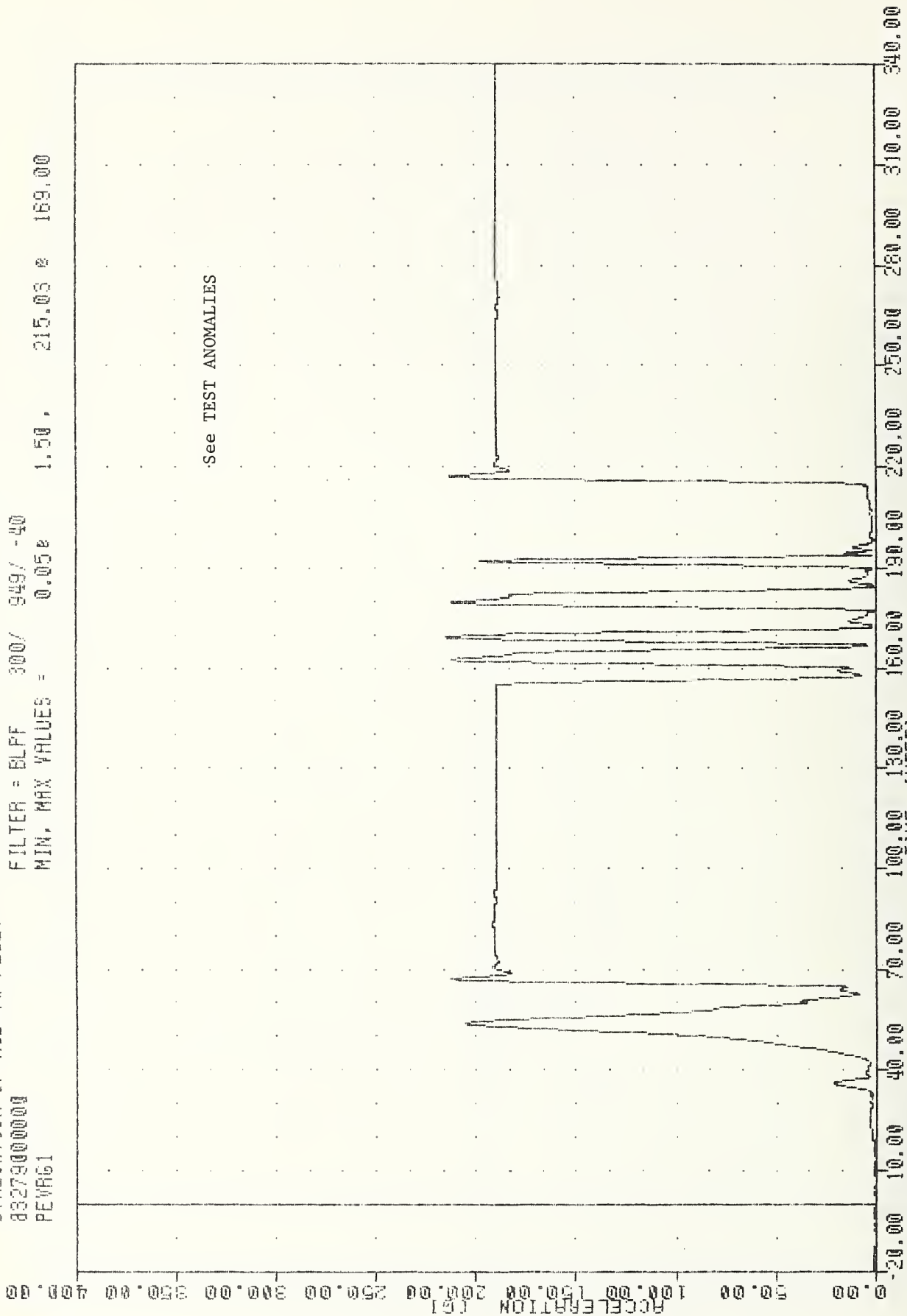
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PELVIS ACCELERATION Z AXIS

TRC 831005
EVALUATION OF MOD YW FLEET
83279000000
PEVR61

PLOT DATE 7-OCT-83 10:33:32

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 0.05e 1.50. 215.03 e 169.00



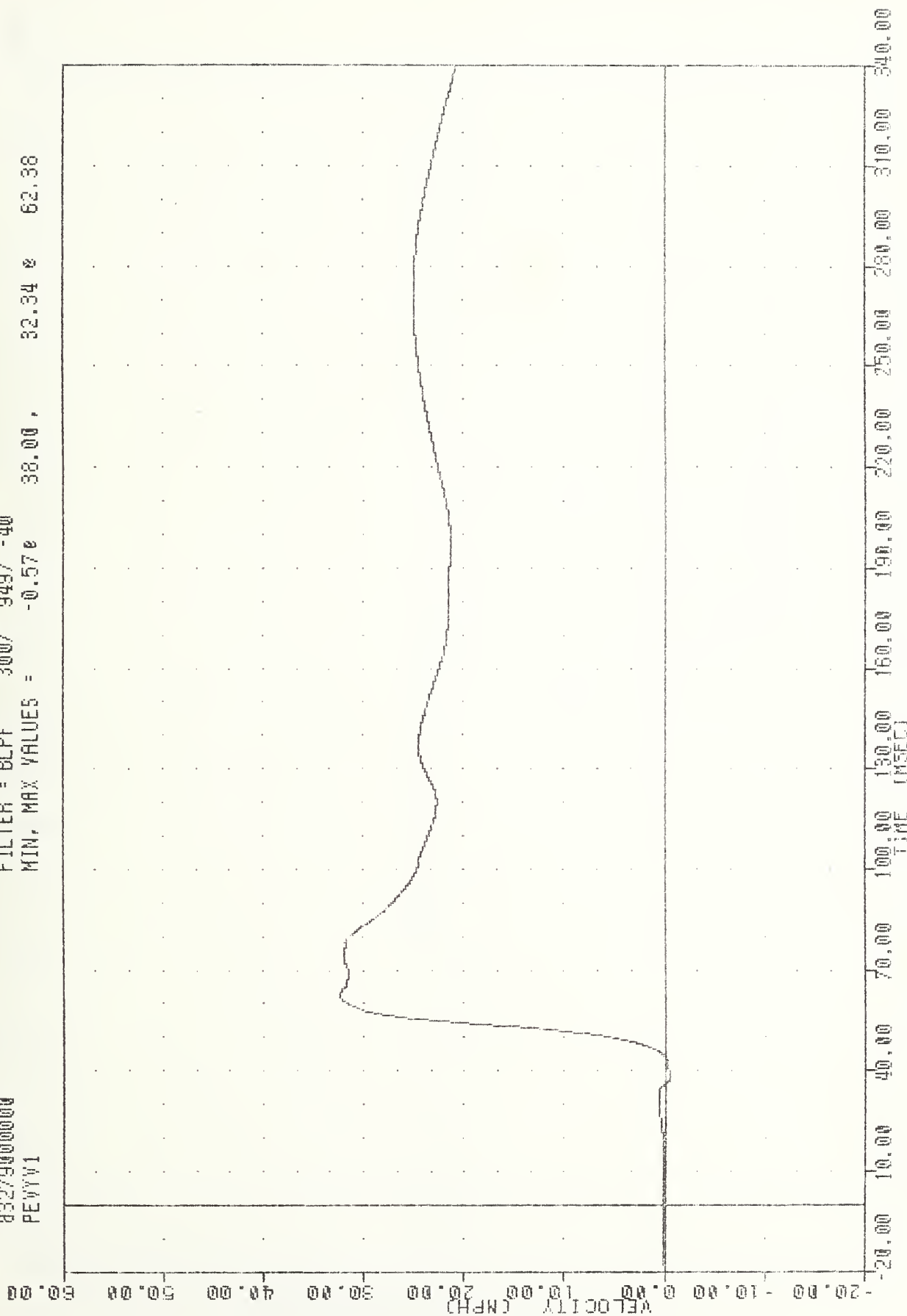
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER PELVIS RESULTANT

TRC , 831005
 EVALUATION OF MOD VV FLEET
 832790000000
 PEVYV1

PLOT DATE 7-ULI-03 10:36:44

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -0.570 38.00, 32.34 0 62.38



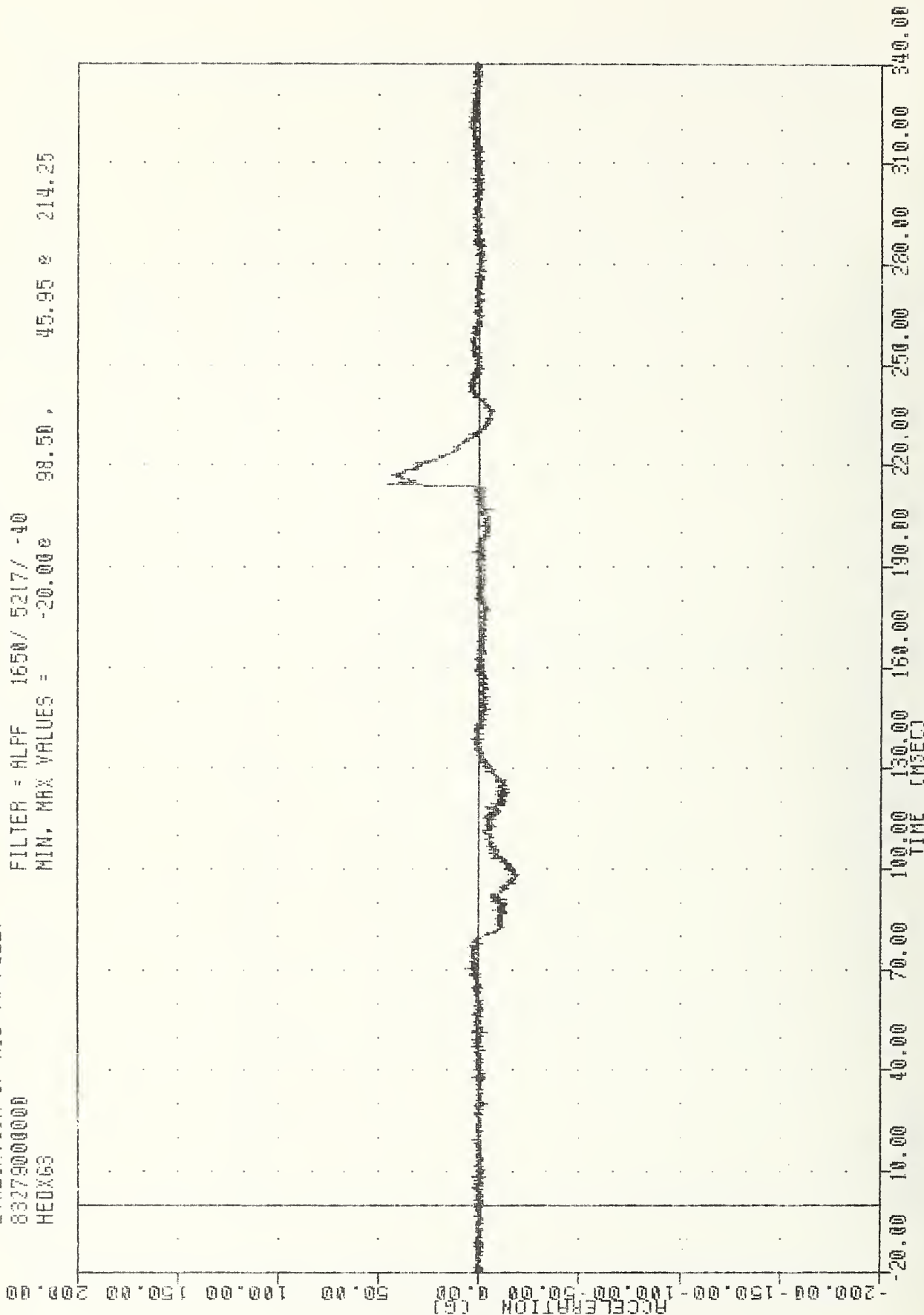
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING PEVYGI

TBC
 EVALUATION OF MDD VW FLEET
 83279000000
 HEDX63

PLOT DATE 7-OCT-83 10:33:32

FILTER = ALPF 1650/ 5217/ -40

MIN, MAX VALUES = -20.00e 98.50, 45.95 e 214.25



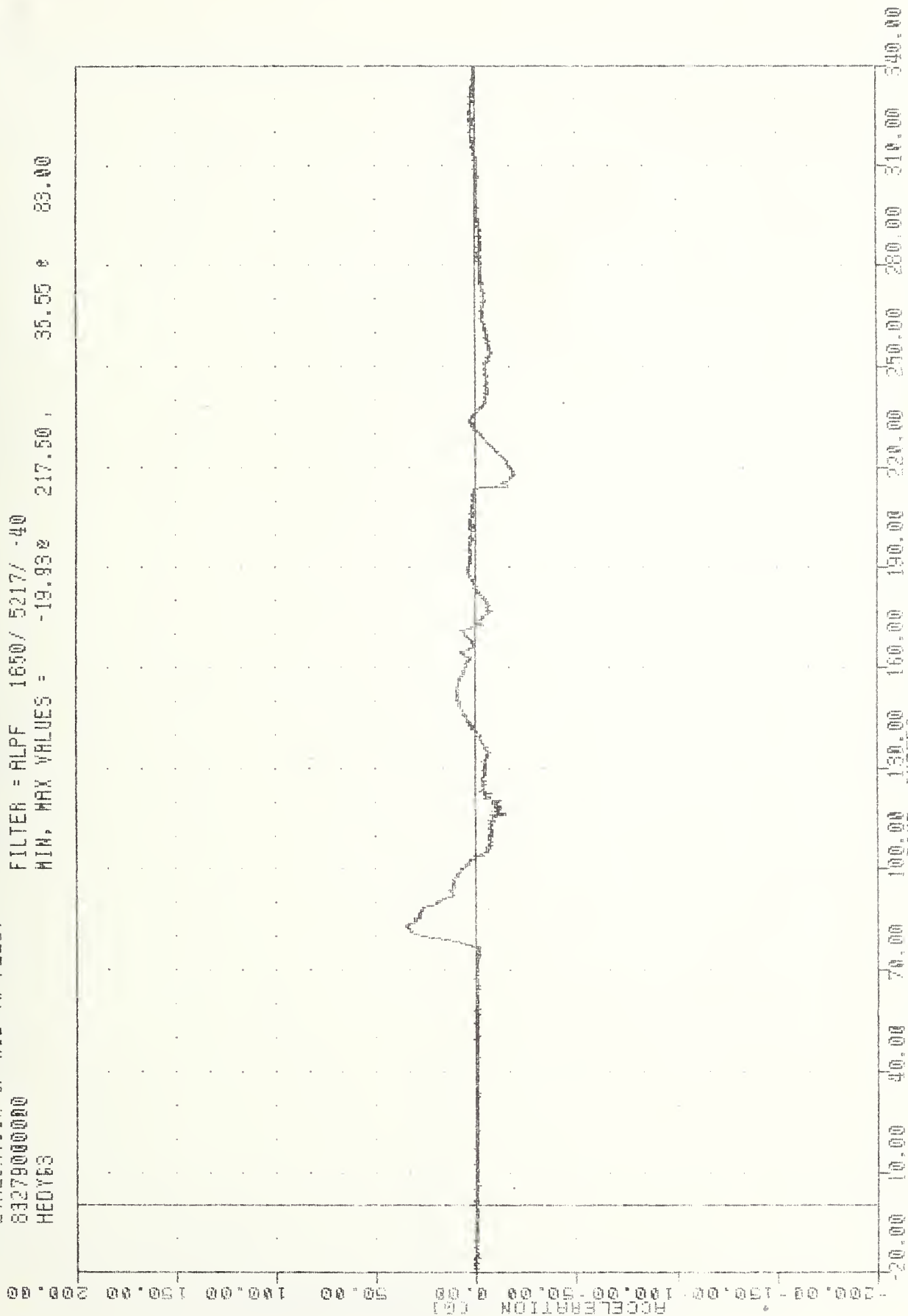
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER HEAD ACCELERATION X AXIS

TAC , 831006
 EVALUATION OF MOD VW FLEET
 8327000000
 HEDY83

PLOT DATE 7-JUL-83 10:33:32

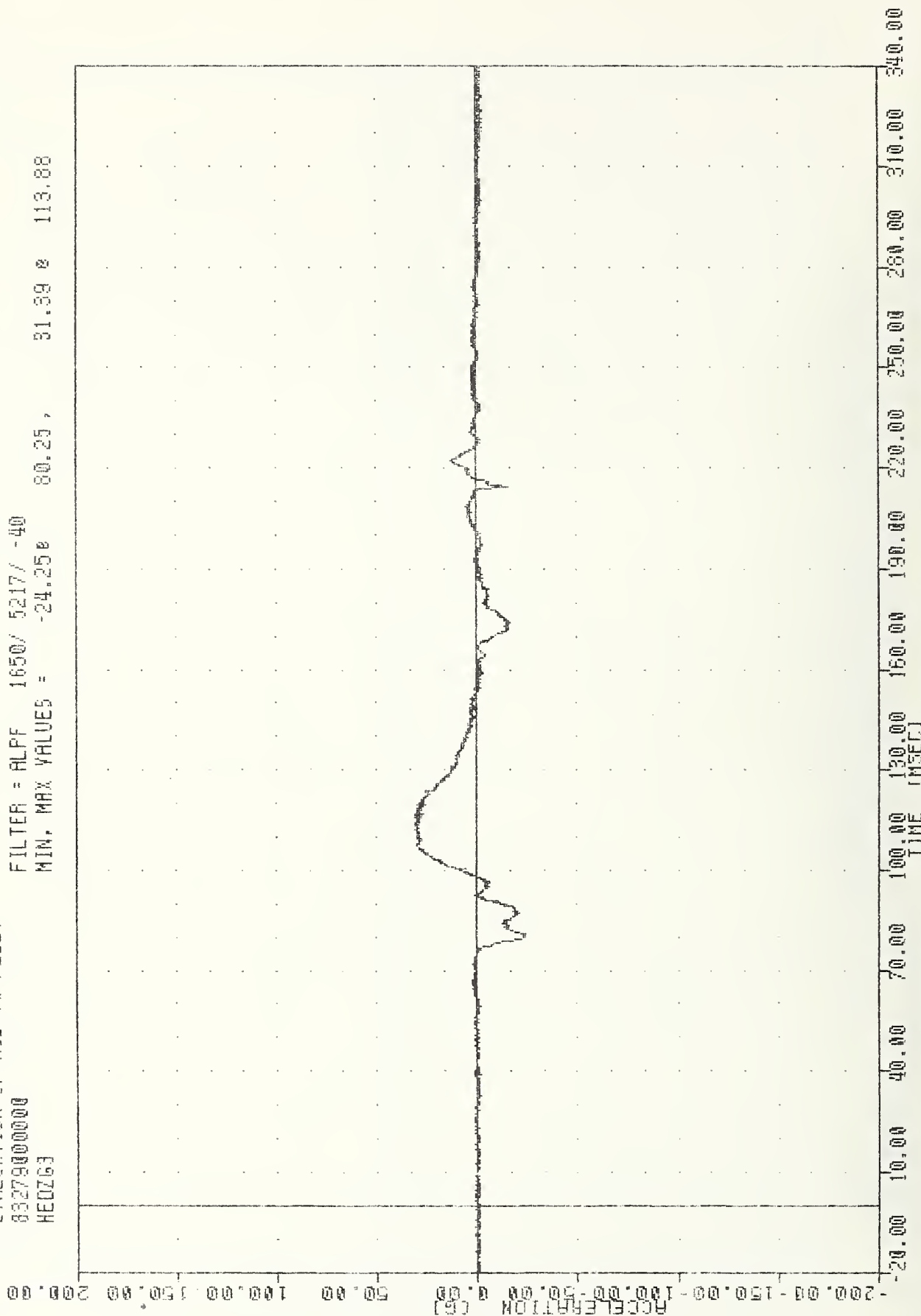
FILTER = ALPF 1650/ 5217/ -40

MIN, MAX VALUES = -19.93% 217.50, 35.55 * 83.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER HEAD ACCELERATION Y AXIS

TRC , 831006 PLOT DATE 7-OCT-83 10:33:32
 EVALUATION OF NOD YW FLEET
 832780000000
 HEDZ63
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -24.250 80.25, 31.39 113.88



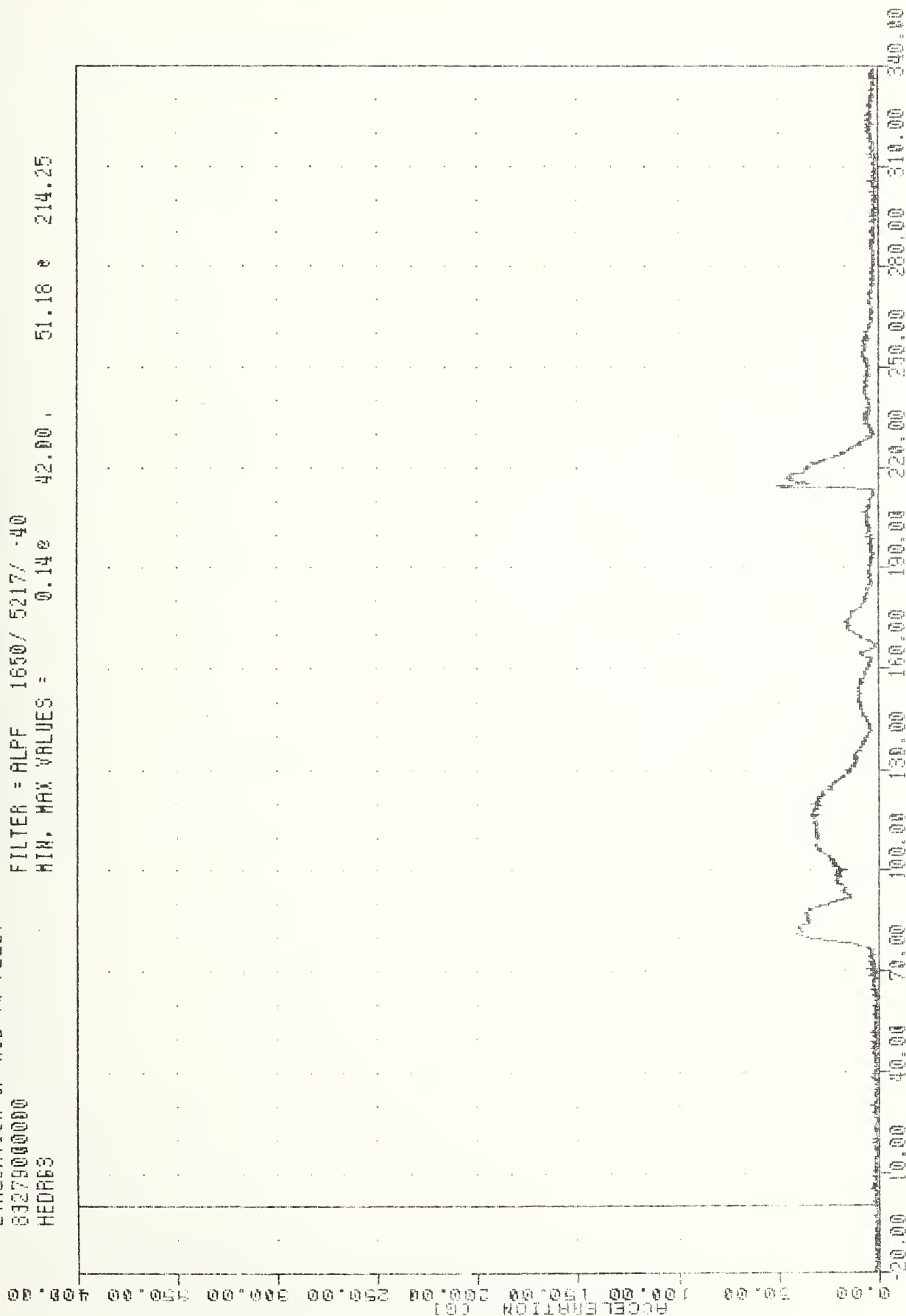
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER HEAD ACCELERATION Z AXIS

TAC
EVALUATION OF MOD VN FLEET
832790000000
HEDRES

PLOT DATE 7-001-83 10:33:32

FILTER = ALPF 1650/ 5217/ -40

MIN. MAX VALUES = 0.14e 42.00, 51.18 e 214.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD RESULTANT

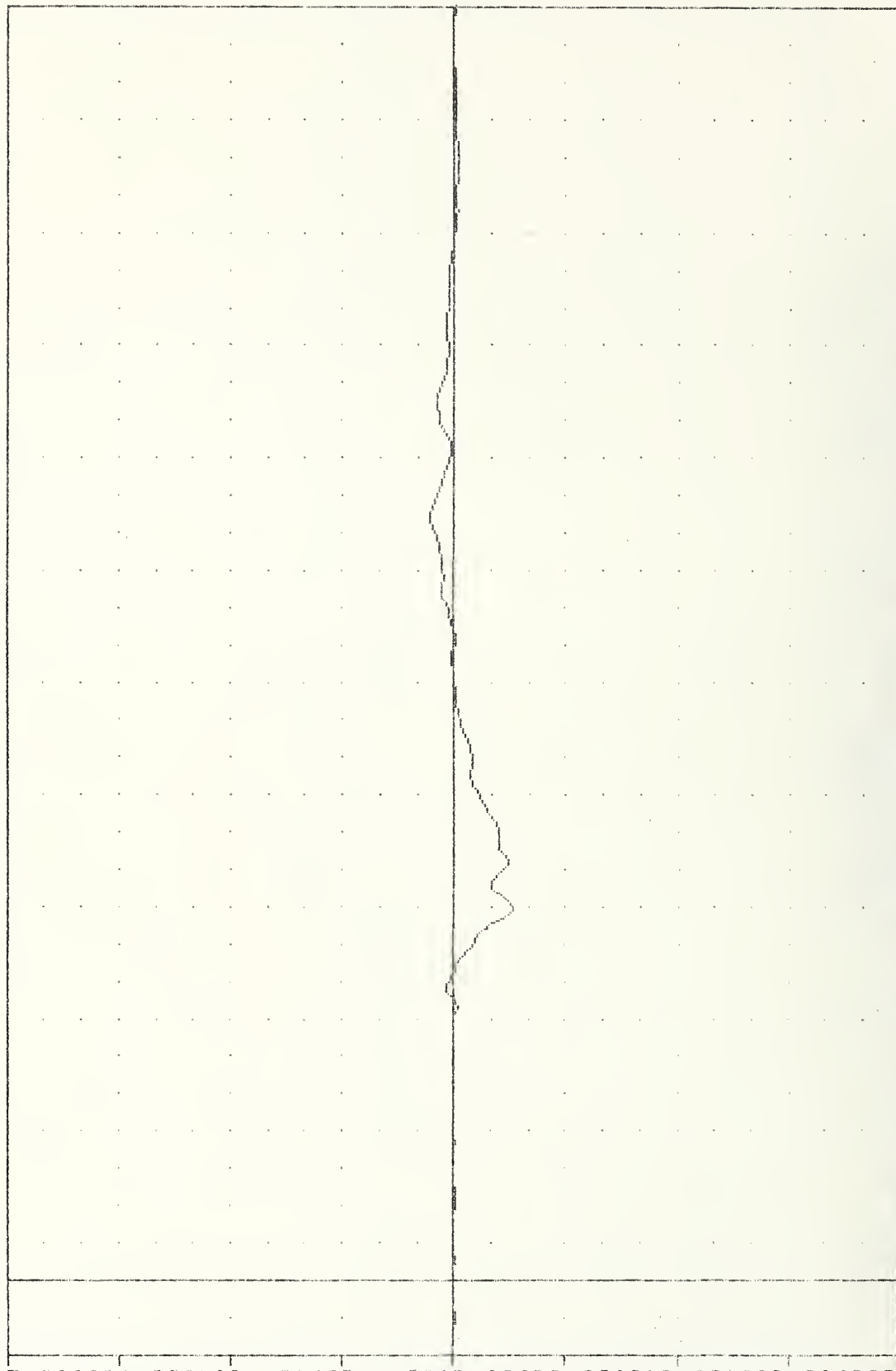
IRC . 831006
 EVALUATION OF MOD YW FLEET
 83279000000
 T01XG3

PLOT DATE 7-OCT-88 10:34:21

FILTER = HSR(136/ 189/ -50

MIN. MAX VALUES = -26.16e 98.75, 10.88 e 203.13

ACCELERATION (G)



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

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

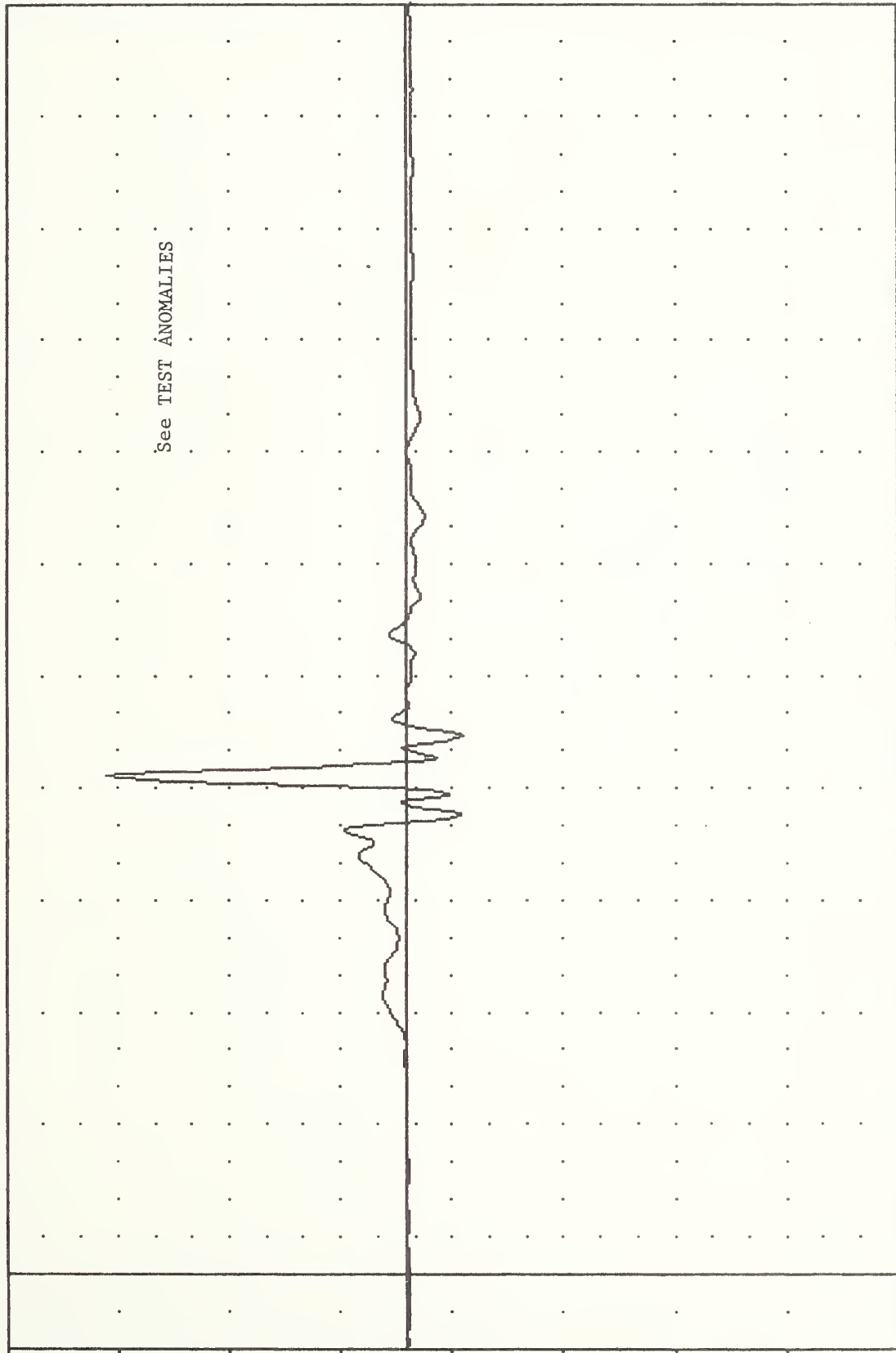
TRC , 831006
 EVALUATION OF MOD YV FLEET
 83279000000
 T01Y63

PLOT TIME 18 JUL 1983 14:40:29

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -24.87 143.13, 135.23 132.50

ACCELERATION (G)



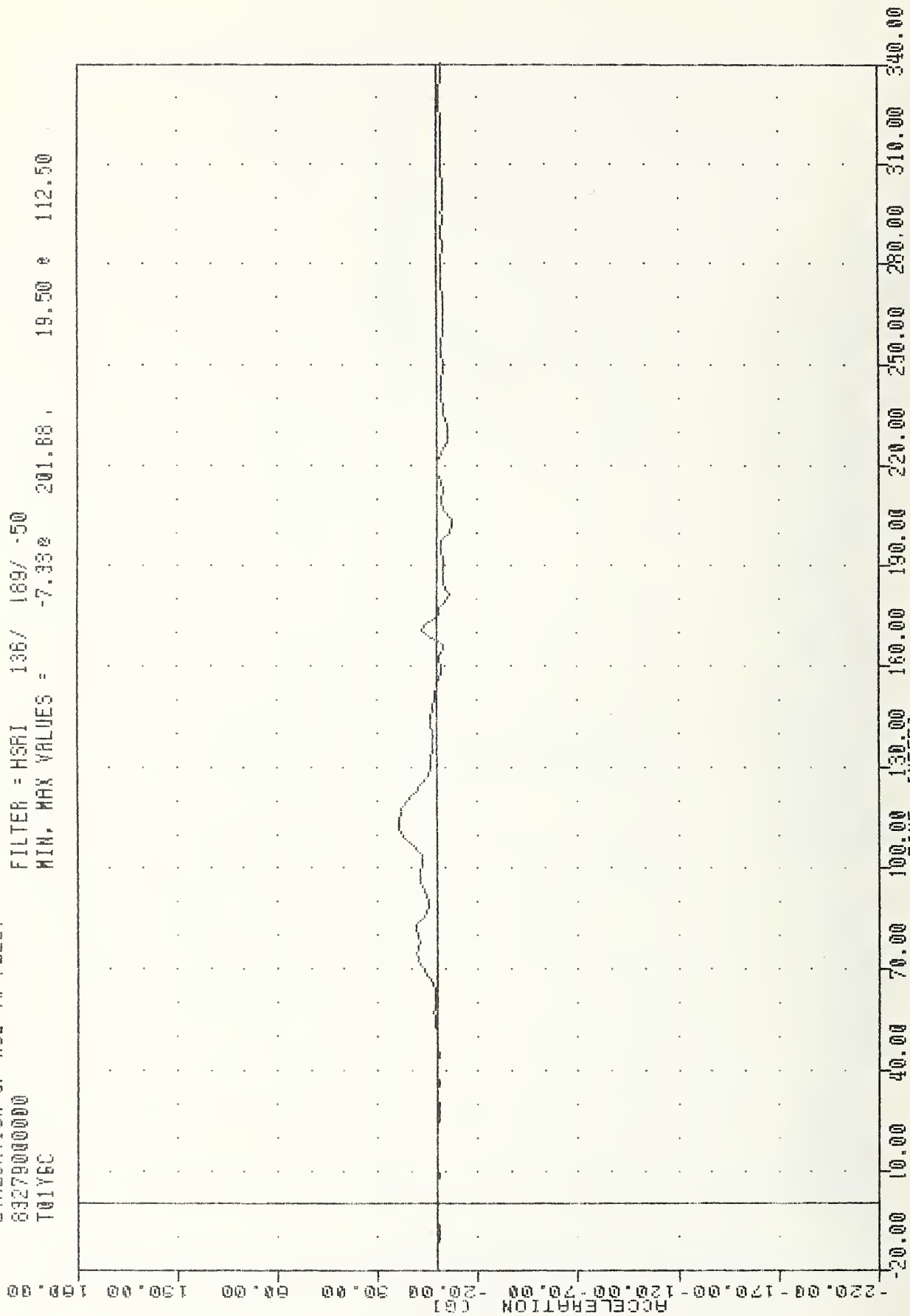
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE ACCELERATION Y AXIS

TAC , 831006
 EVALUATION OF MOD VW FLEET
 832790000000
 T01Y6C

PLOT DATE 7-OCT-83 10:34:21

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -7.33e 201.88, 19.50 e 112.50

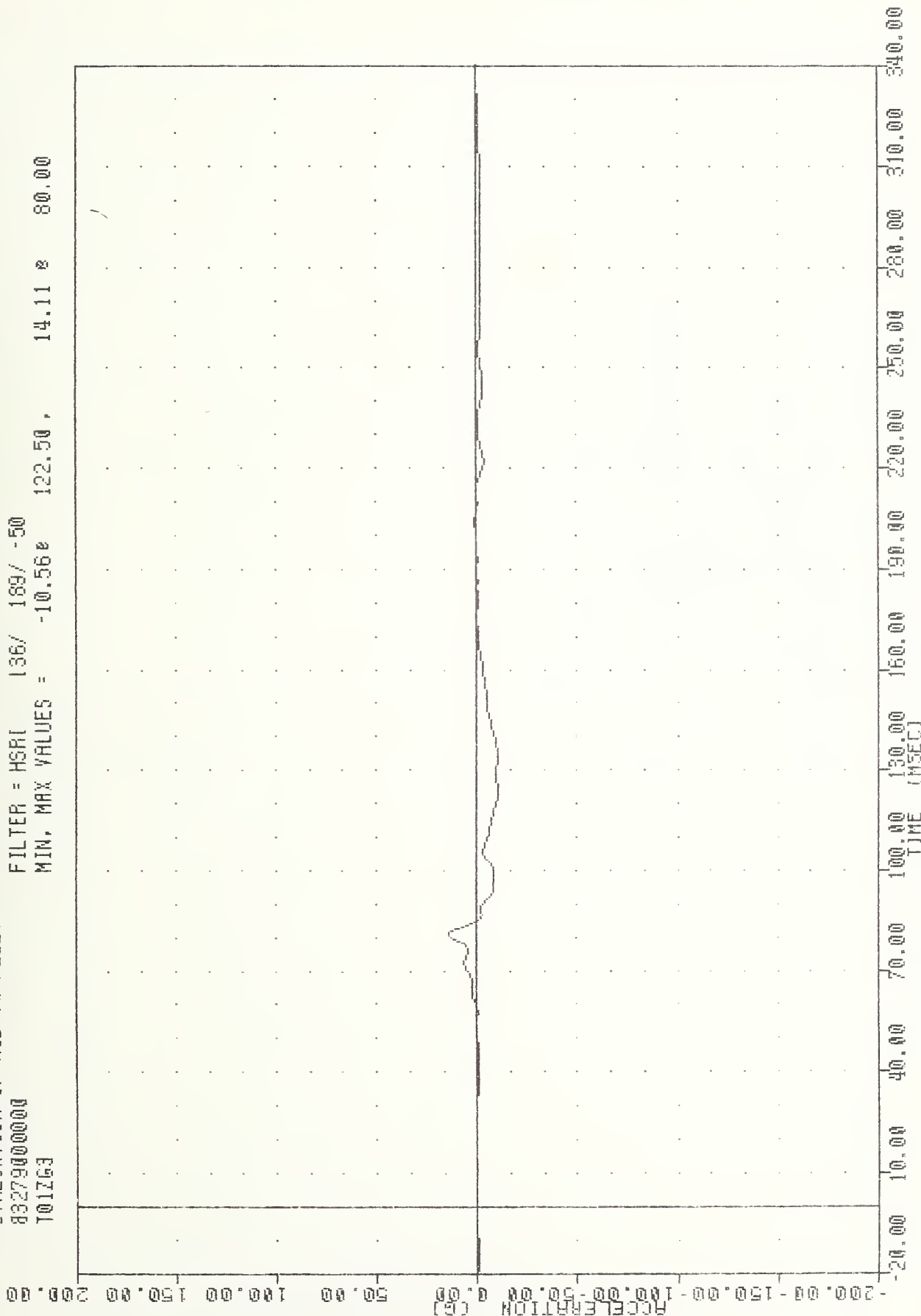


TRC , 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 T01Z63

PLU1 DATE 7-OCT-83 10:54:21

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -10.56e 122.50 , 14.11 e 80.00



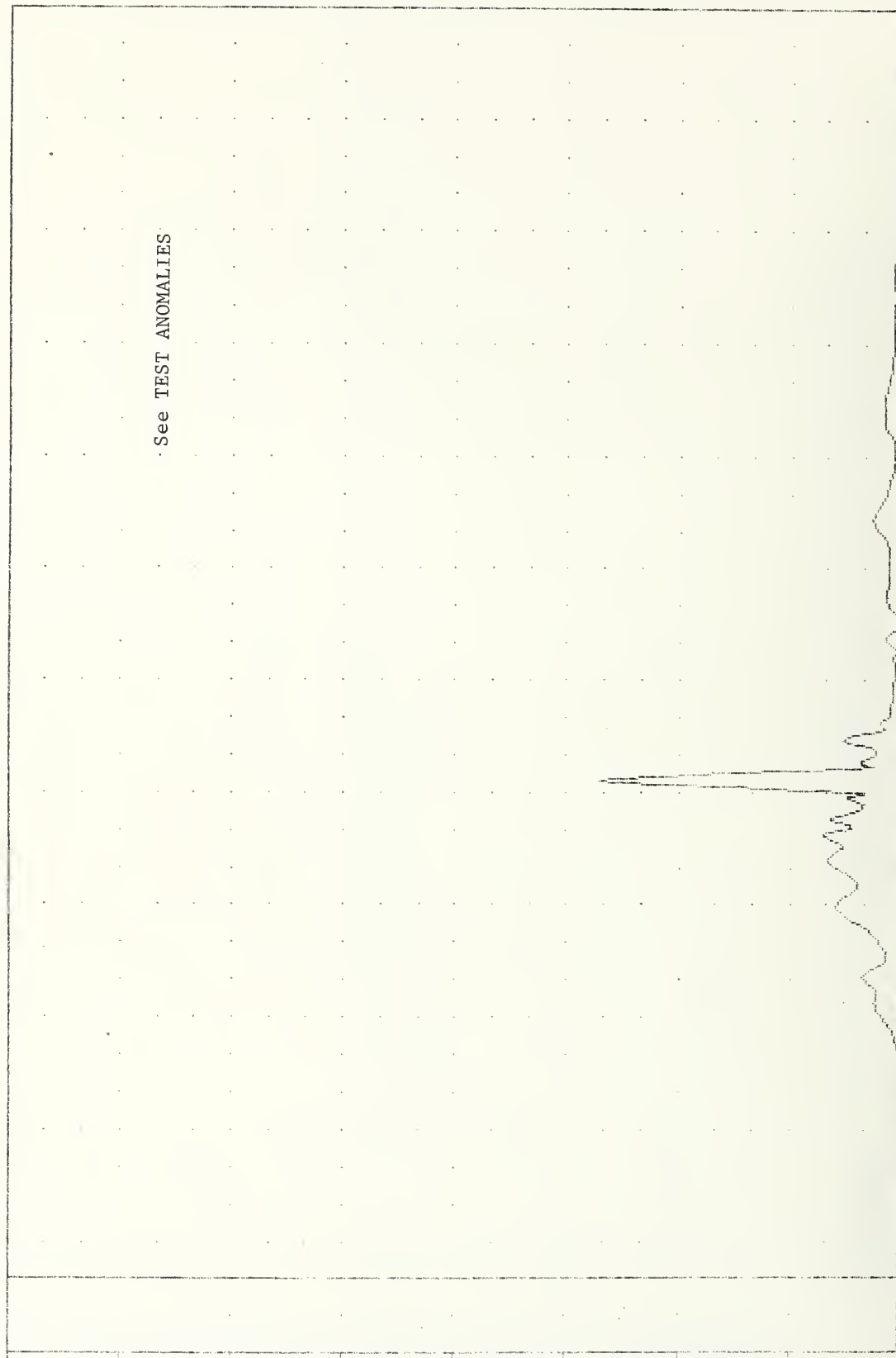
TAC
EVALUATION OF MOD VN FLEET
6327900000
T01R53

PLOT DATE 7-OCT-83 10:34:21

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.07% 8.75 , 135.87 e 132.50

ACCELERATION G



See TEST ANOMALIES

0.00 50.00 100.00 150.00 200.00 250.00 300.00 350.00 400.00

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE RESULTANT

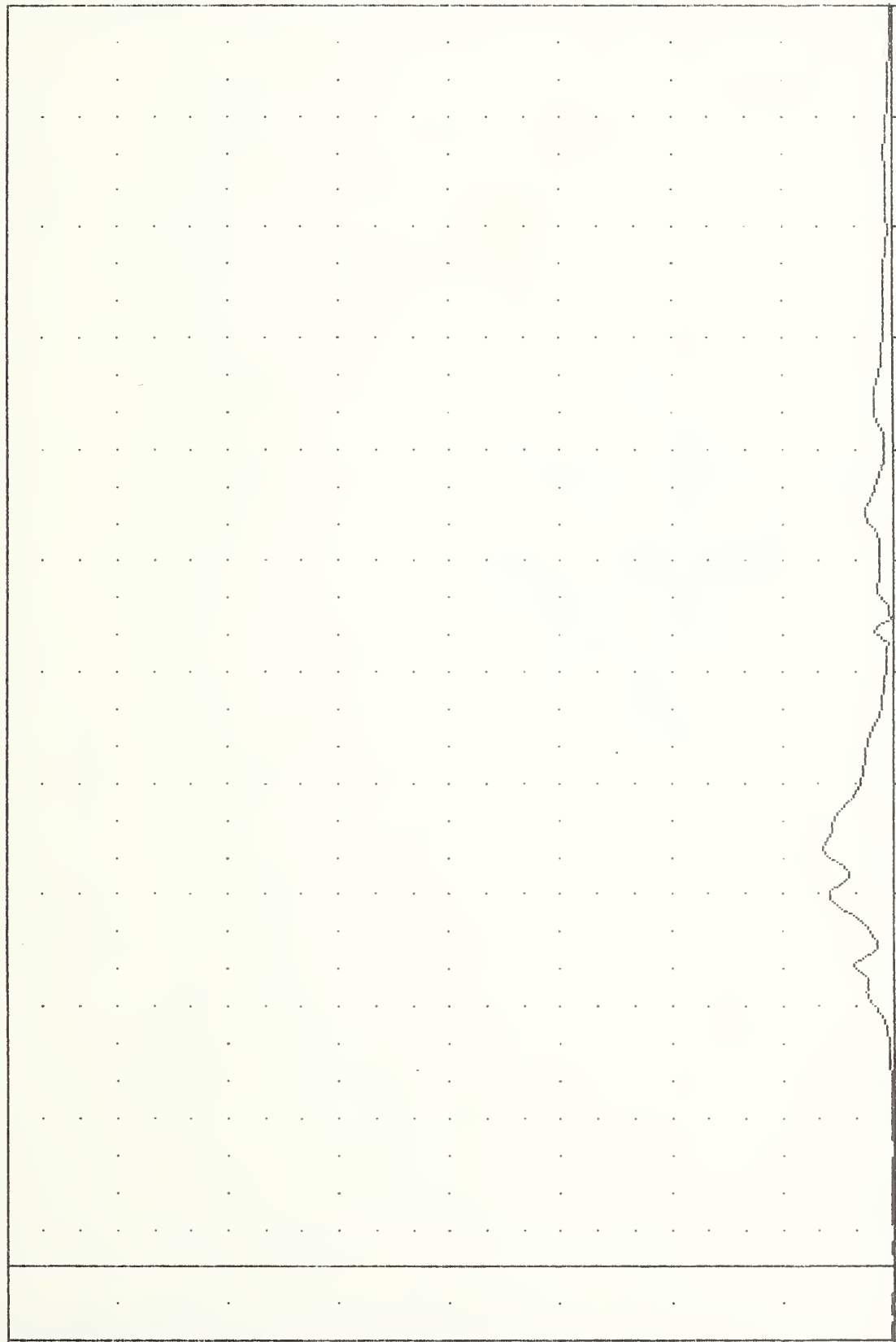
TRC , 831006
EVALUATION OF MOD VW FLEET
832790000000
T01R63

PLU1 URLE 7-JUL-83 10:33:36

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.092 -2.50 , 31.48 e 111.88

ACCELERATION (G)
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00



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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE RESULTANT USING T01Y6C

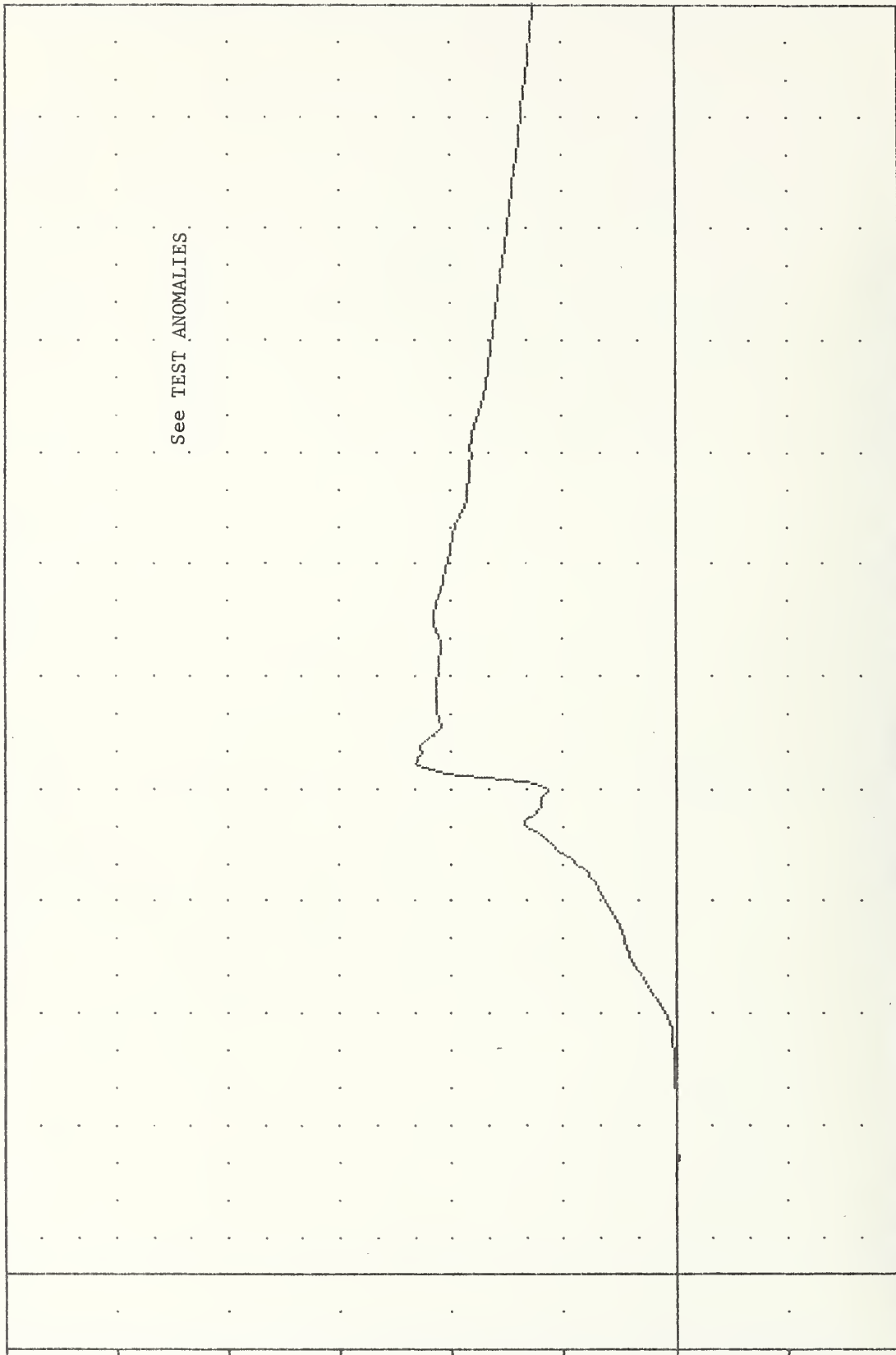
TAC 831006
 EVALUATION OF MOD VN FLEET
 83279000000
 T01YV3

PLOT DATE 7-OCT-83 10:36:02

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.200 30.62 23.19 136.25

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
 TIME (MSEC)

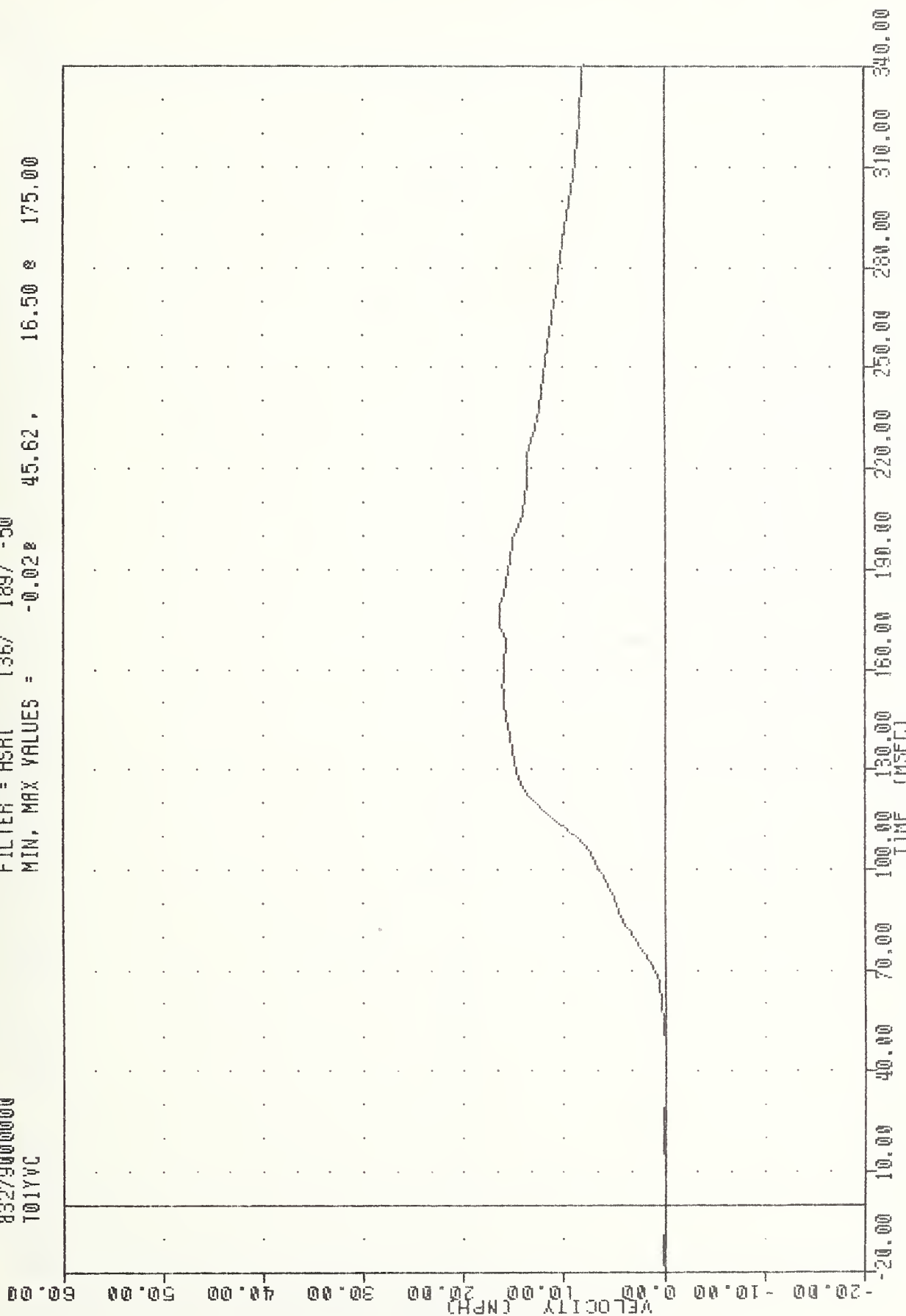
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YG3

IRC , 831000b
 EVALUATION OF MOD VN FLEET
 832790000000
 T01YVC

PLU1 UNIT 7-JUL-83 10:30:02

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.028 45.62, 16.50 175.00



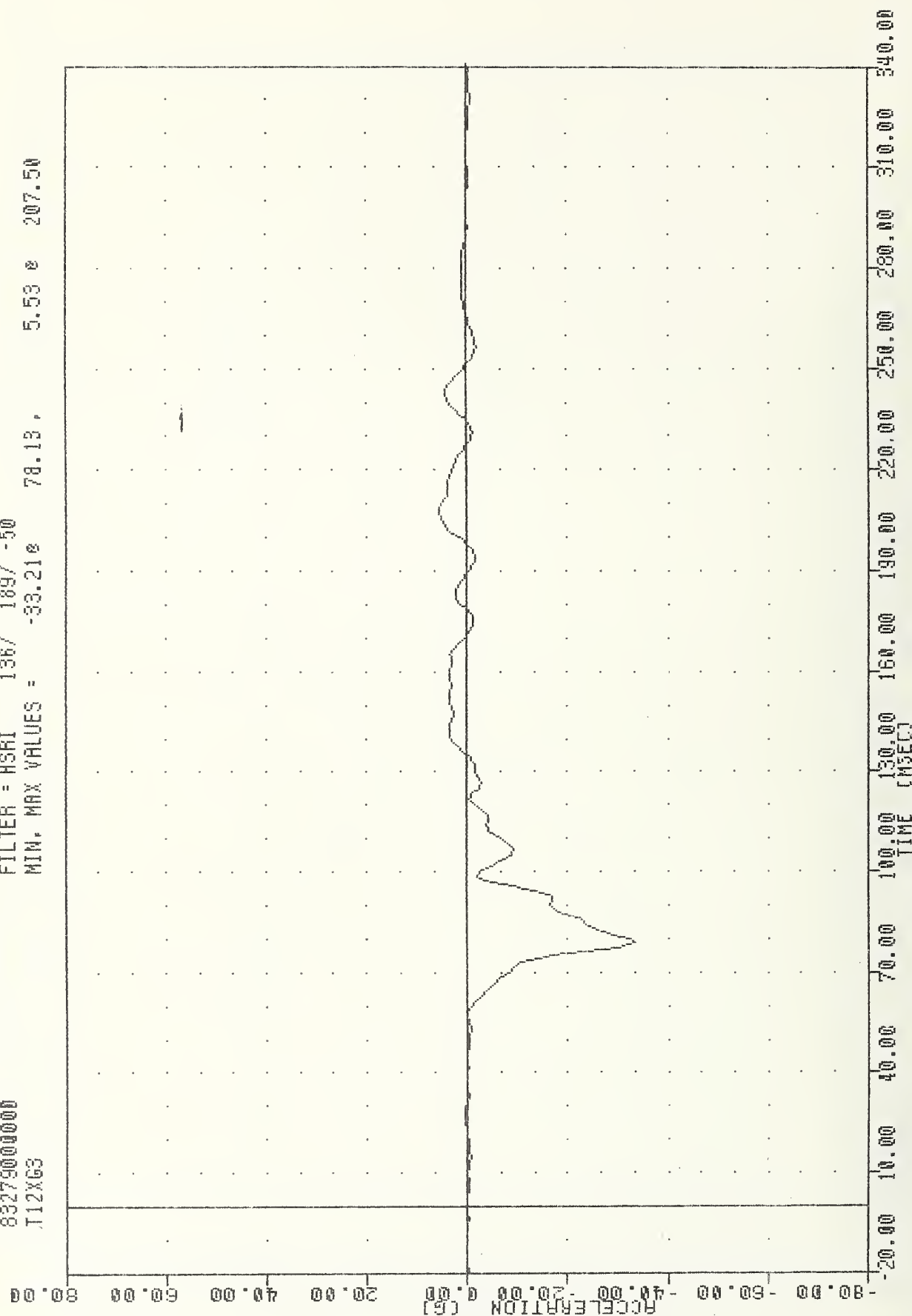
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YVC

TRC 8310005
 EVALUATION OF MDD VW FLEET
 83279000000
 J12XG3

PLU: DATE 7-OCT-85 10:54:21

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -33.21e 78.13, 5.53 e 207.50

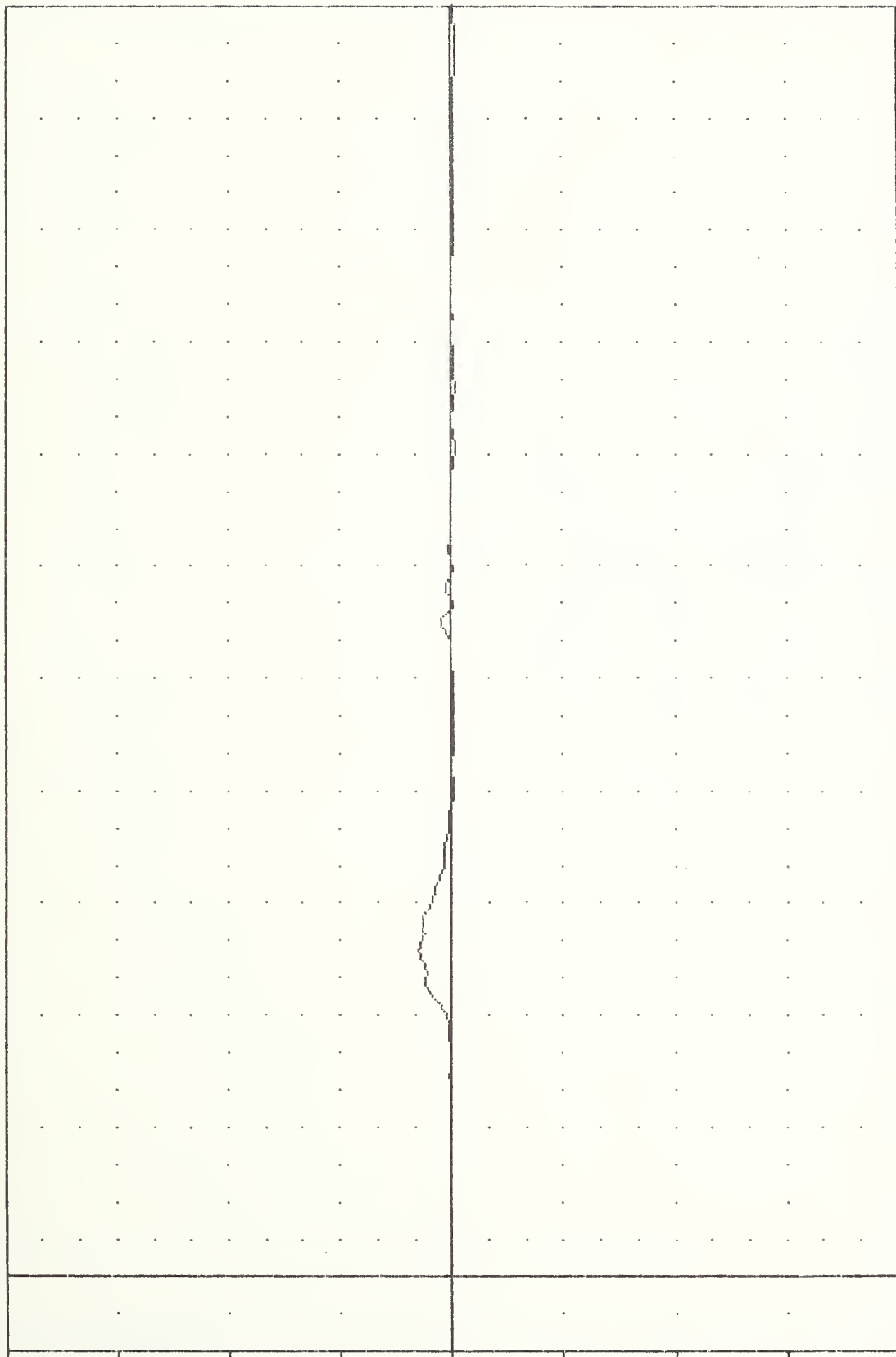


TAC 831005
EVALUATION OF MOD YW FLEET
83279000000
T12Y63

PLU1 DATE 7-ULF-83 10:34.21

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -3.118 221.25, 26.45 * 86.88

ACCELERATION (G)



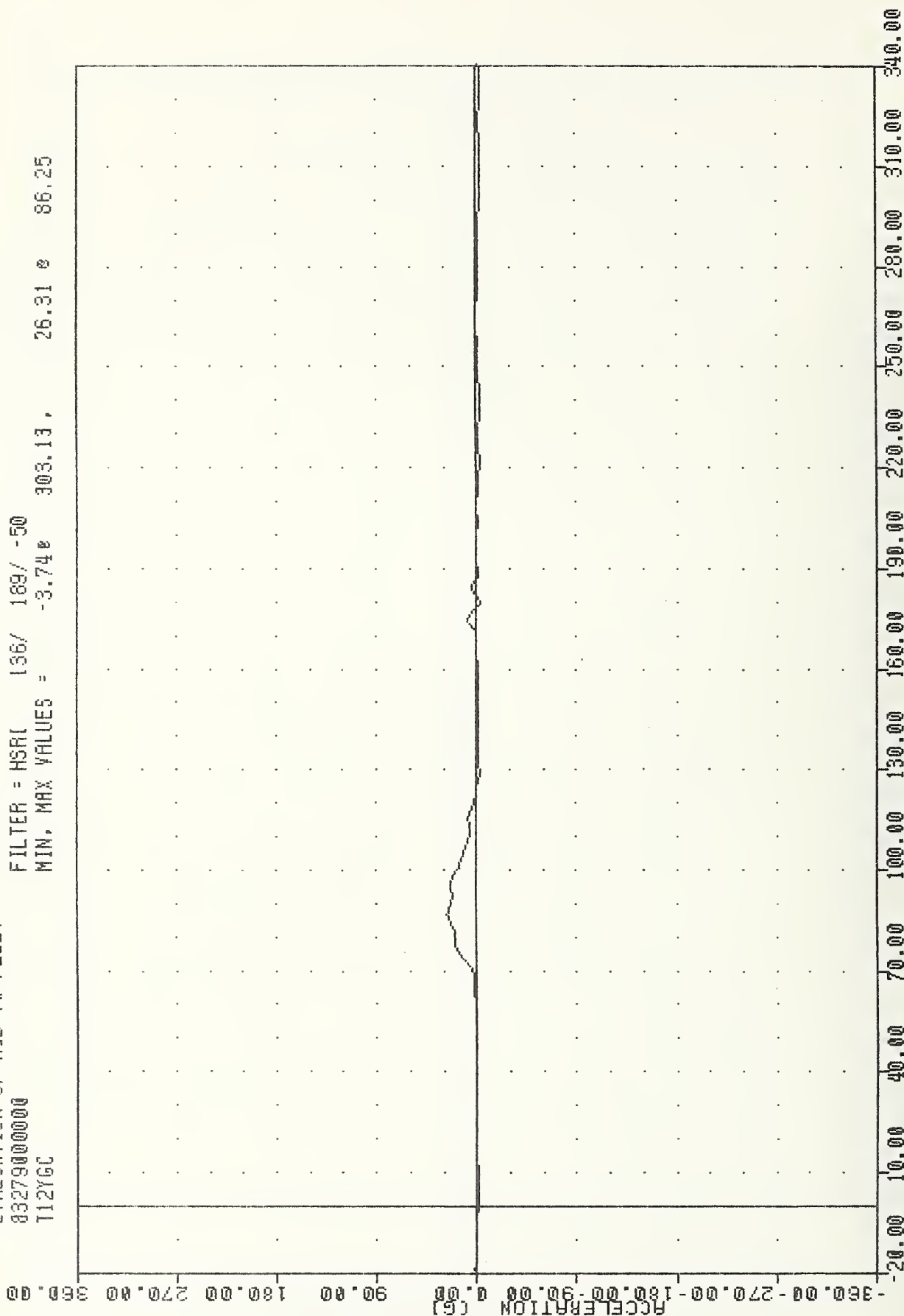
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (msec)

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

TRC 831006
EVALUATION OF MOD VW FLEET
83279000000
T12Y6C

PLOT DATE 7 OCT 83 10:34:21

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -3.74e 303.13, 26.31 e 86.25



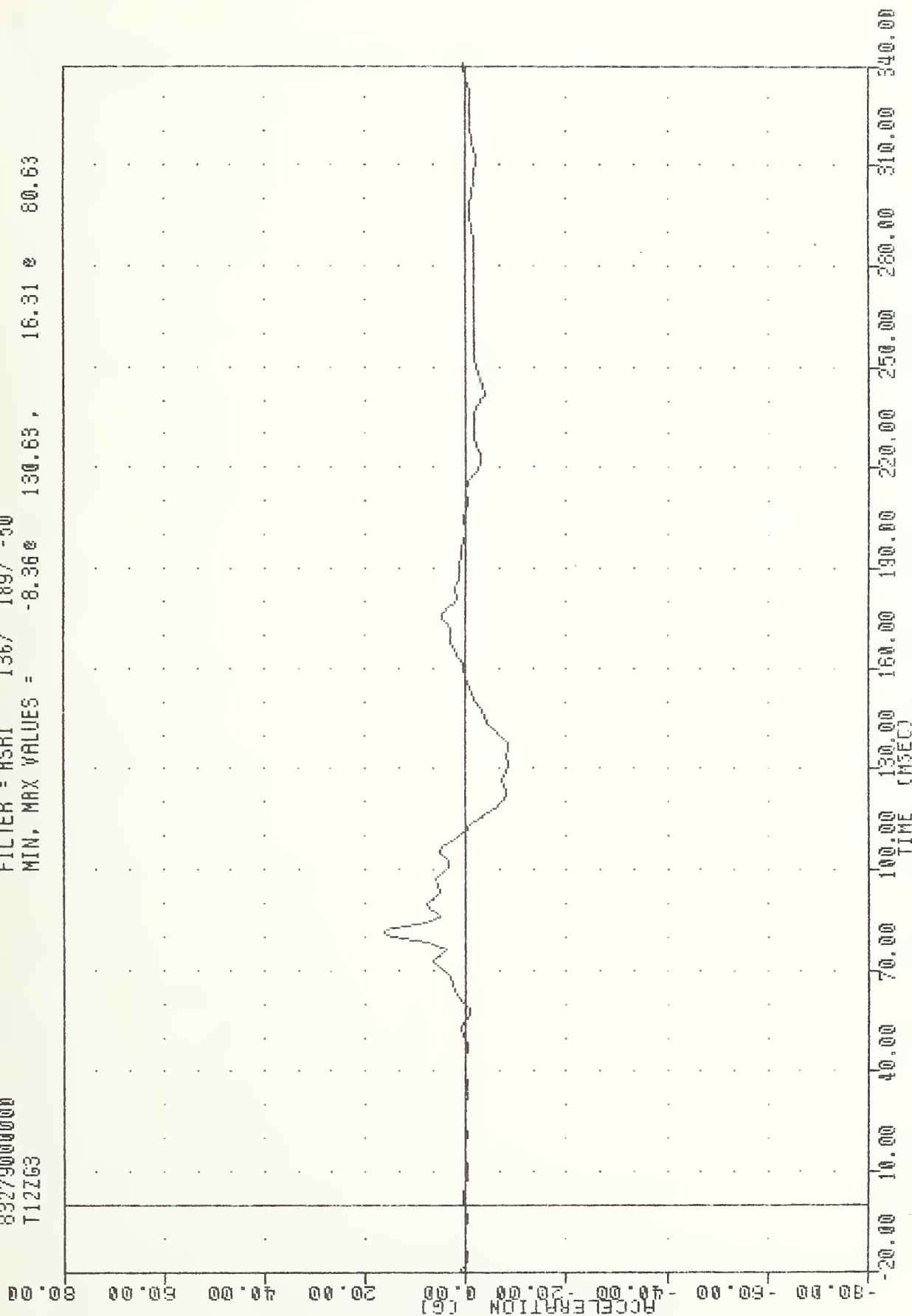
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LOWER SPINE ACCELERATION -2 Y AXIS

IRL 831006
EVALUATION OF MOD VW FLEET
832790000000
T12ZG3

PLU1 DATE 7-OCT-83 10:34:21

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -8.360 130.63, 16.31 80.63



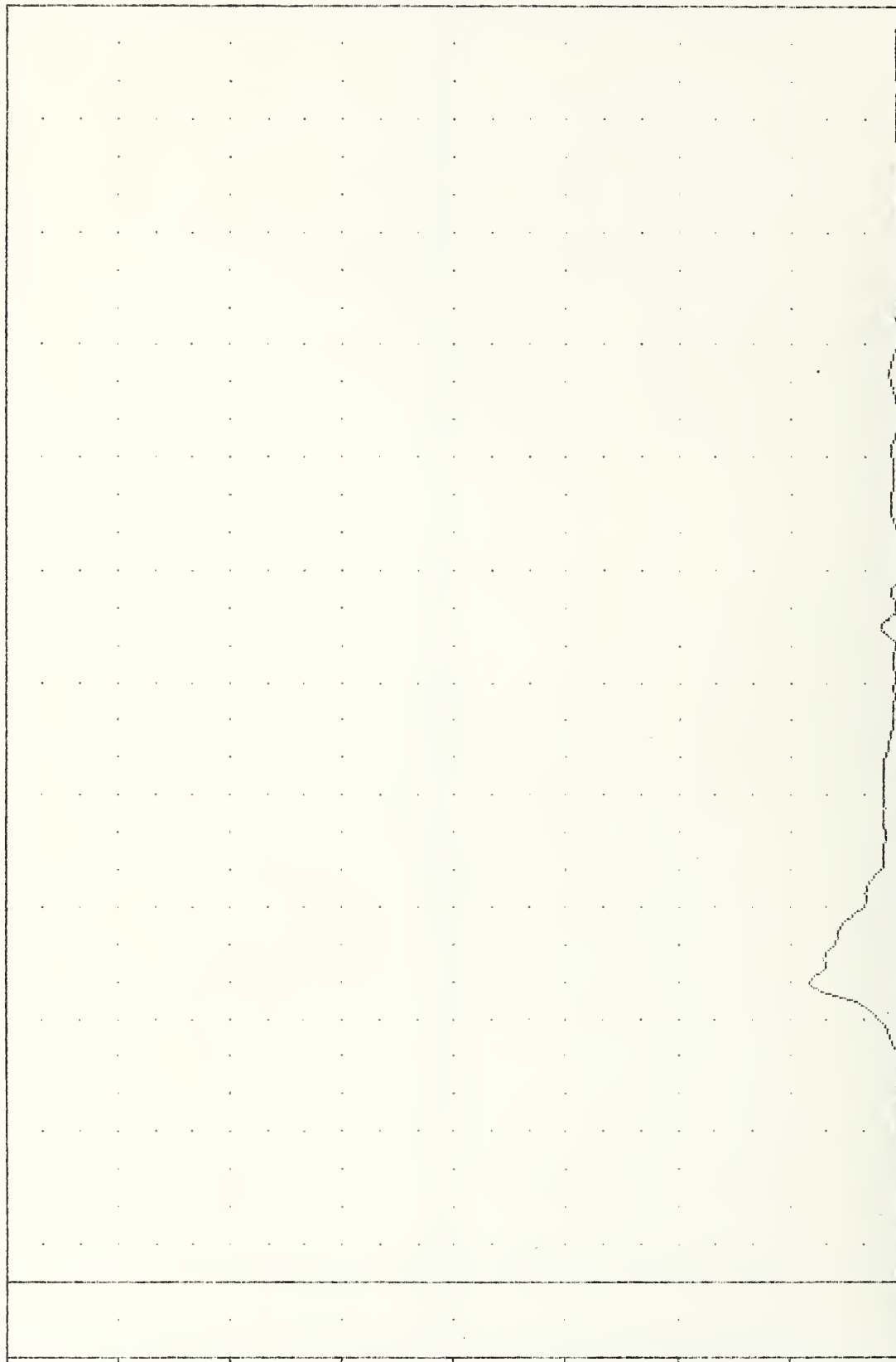
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LOWER SPINE ACCELERATION Z AXIS

IRL , 831006
 EVALUATION OF MOD YW FLEET
 83275000000
 T12R63

FLUT DATE 7-JUL-83 10:04:21

FILTER = HSRL 136/ 189/ -50
 MIN. MAX VALUES = 0.100 -6.25 41.18 78.75

ACCELERATION (G)



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

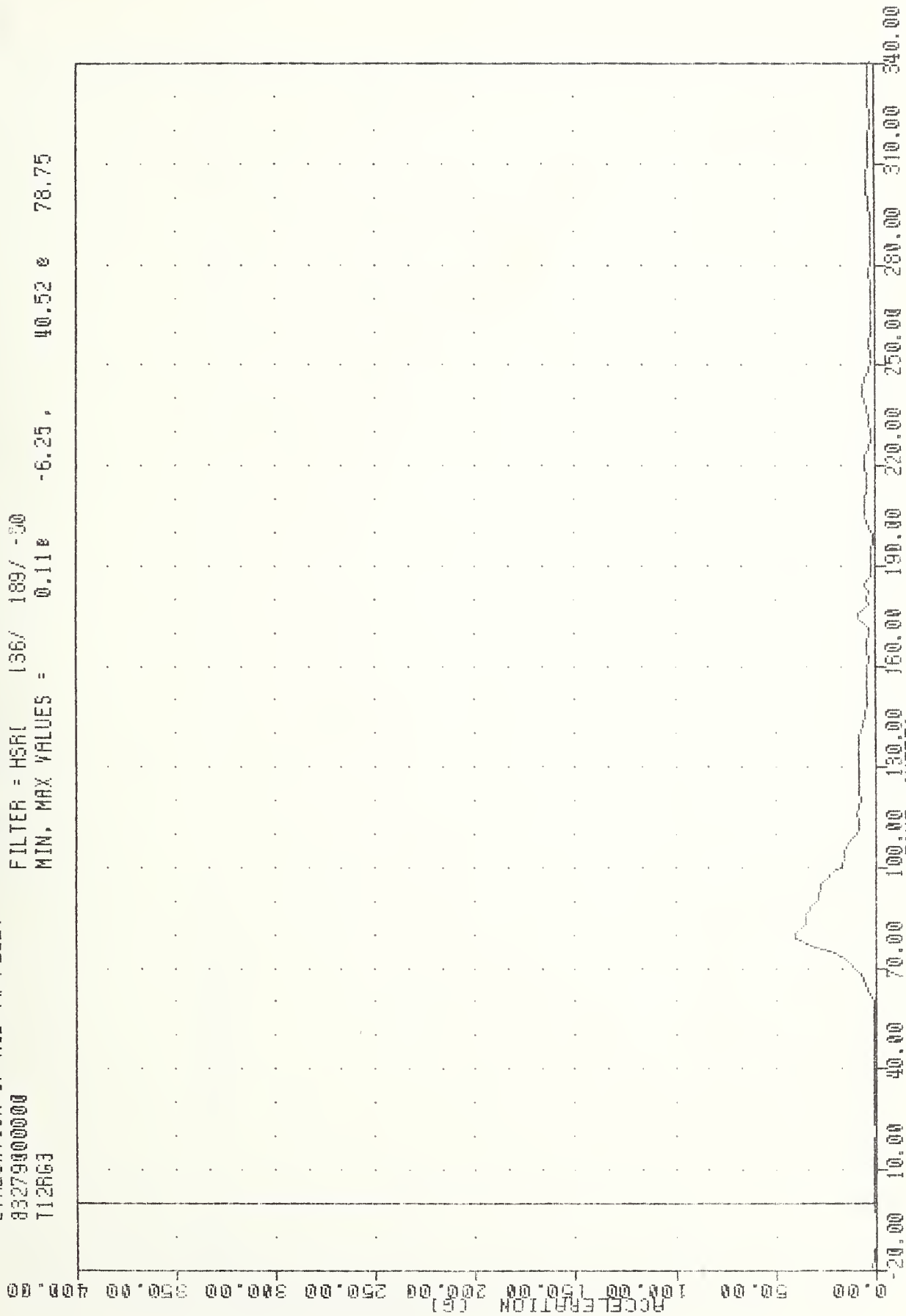
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LOWER SPINE RESULTANT

TRC , 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 T12R63

PLOT DATE 7-JUL-83 10:30:58

FILTER = HSR 136/ 189/ -50

MIN. MAX VALUES = 0.11e -6.25e 40.52e 78.75



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

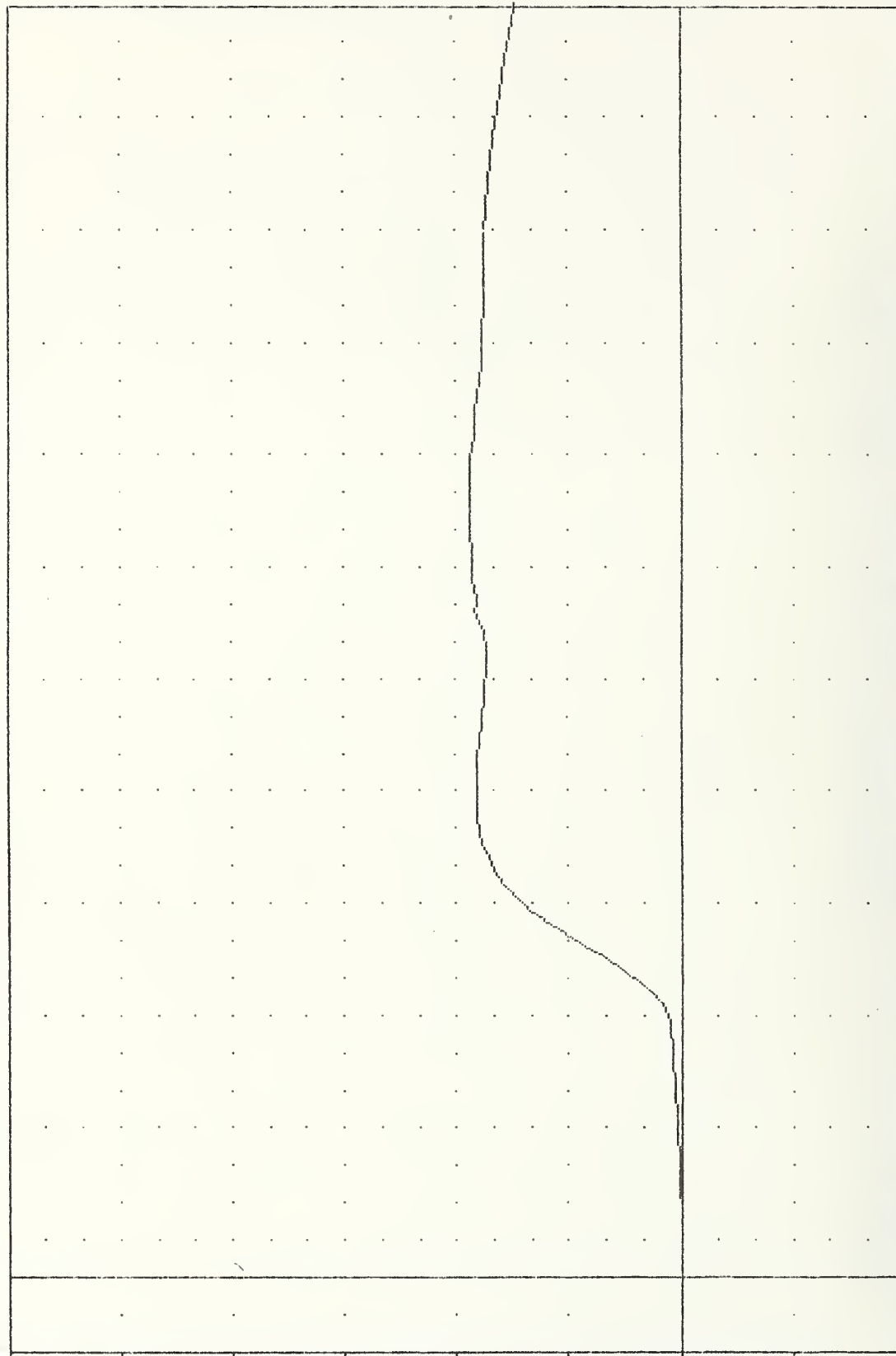
TRC , 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 T12Y43

PLU DATE 7-OCT-83 10.30:02

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.028 -15.63, 18.83 @ 211.87

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
 TIME (msec)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

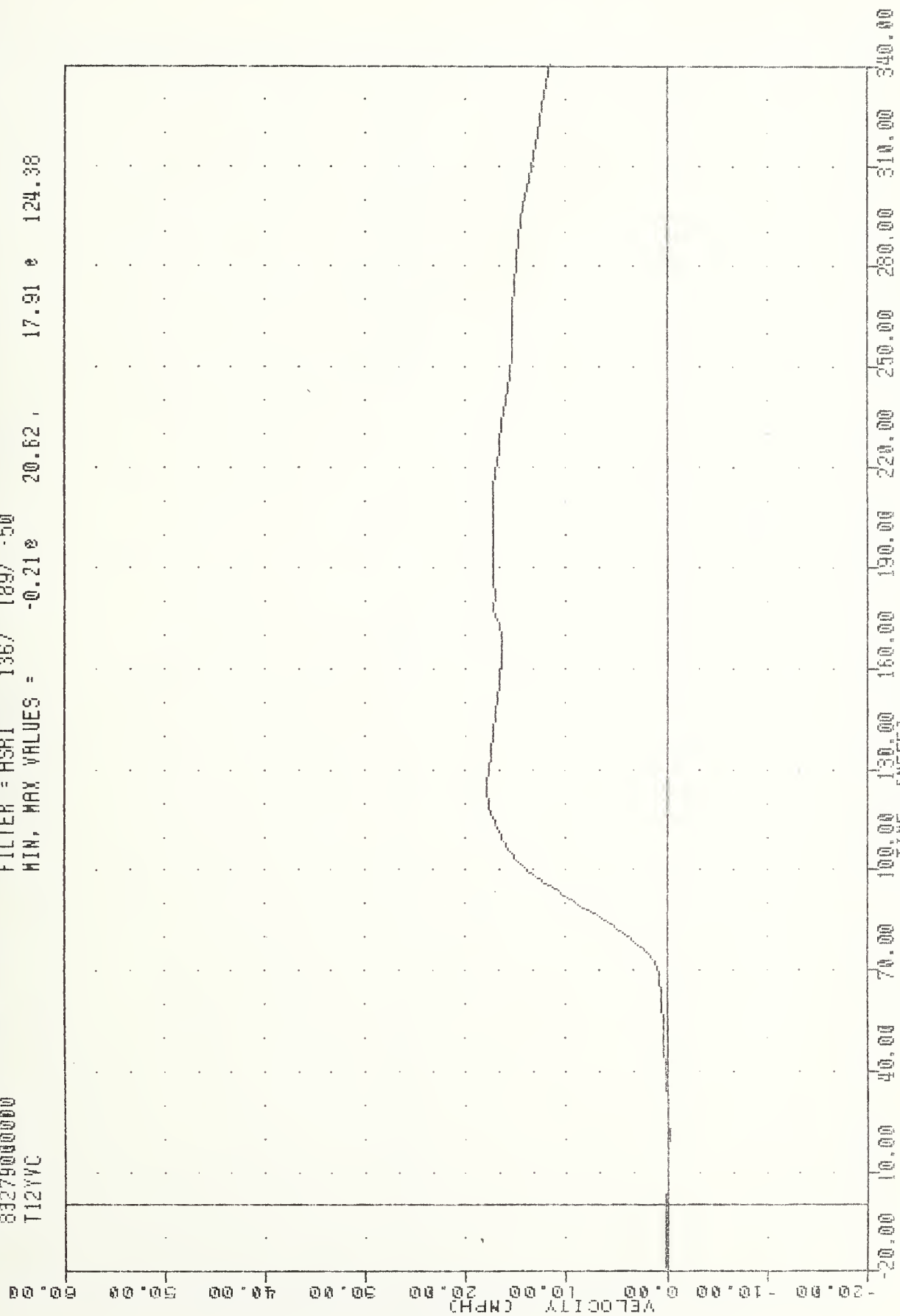
DELTA V USING T12Y63

THL , 831000
EVALUATION OF MOD VW FLEET
832790000000
T12YVC

PLU DATE 7-00-11-03 10:00:02

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.218 20.62, 17.91 124.38



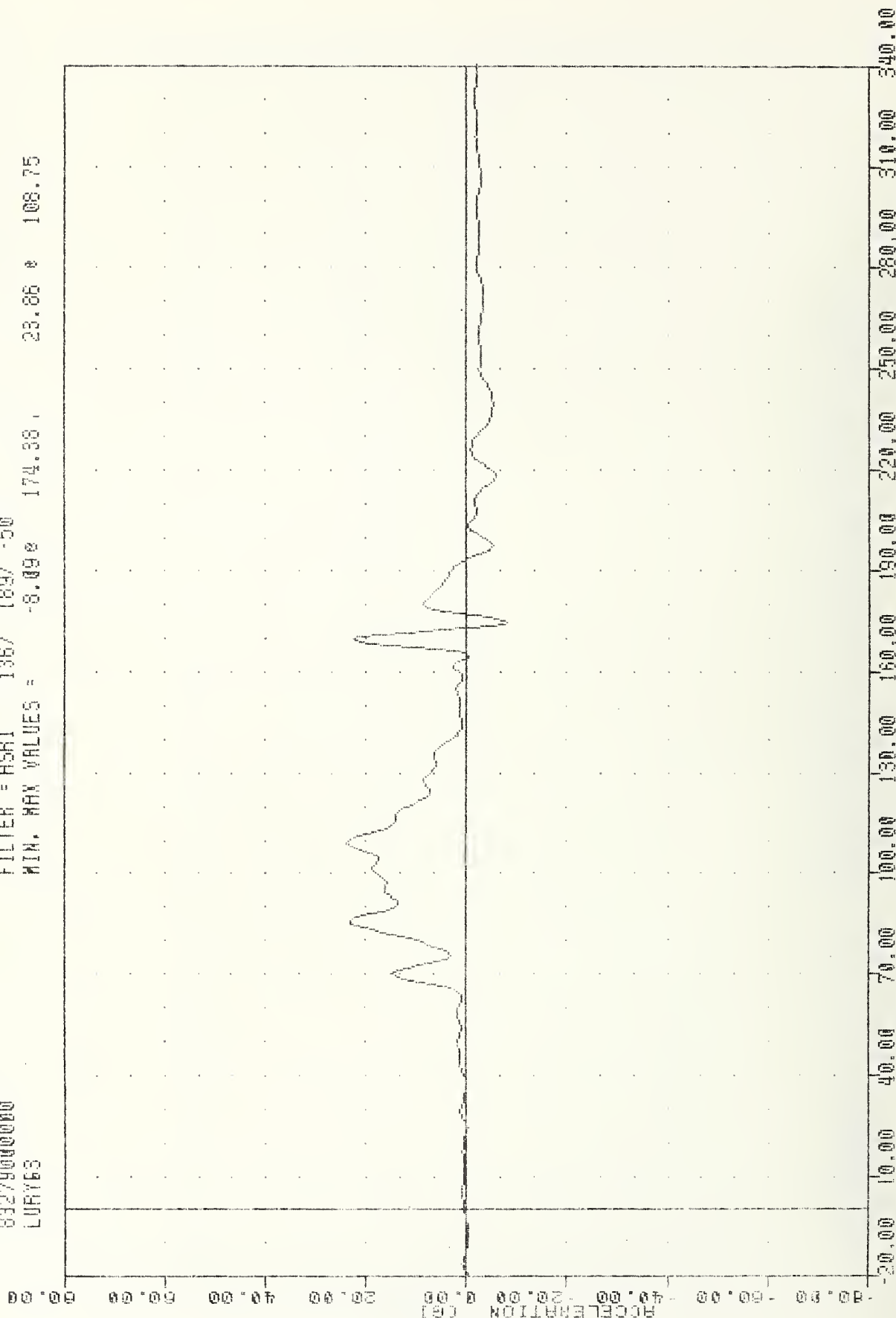
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING T12YVC

TAC 831005
 EVALUATION OF MOD VW FLEET
 83279000000
 LURY63

PLOT DATE 7-OCT-83 10:34:21

FILTER = HSRI 186/ 189/ -50

MIN. MAX VALUES = -8.09 174.38 23.86 * 108.75



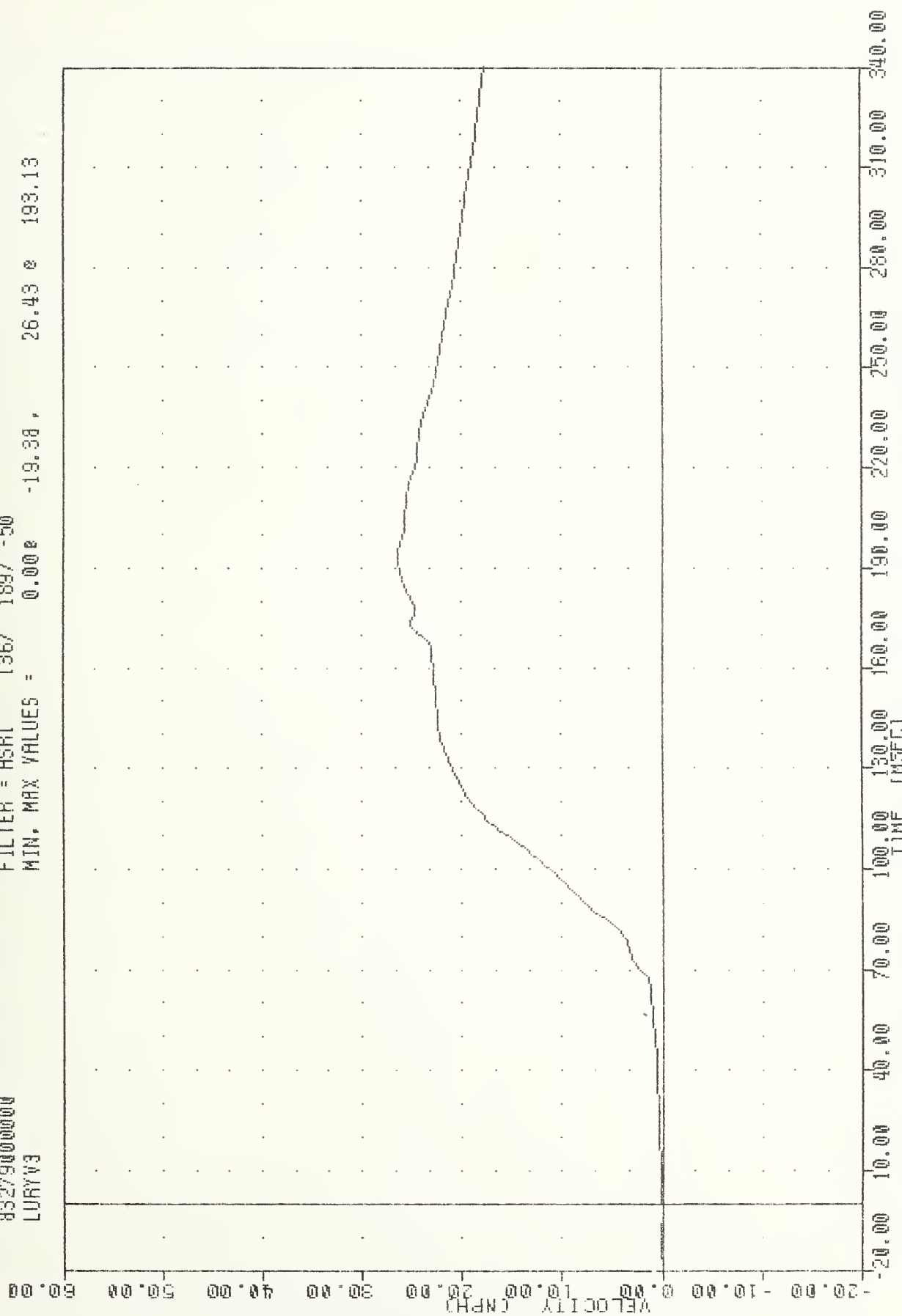
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LEFT UPPER RIB ACCELERATION Y AXIS

TRC
EVALUATION OF MOD VV FLEET
83279000000
LURYV3

PLOT DATE 7-JUL-83 10:36:02

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.00e -19.38 , 26.43 e 193.13



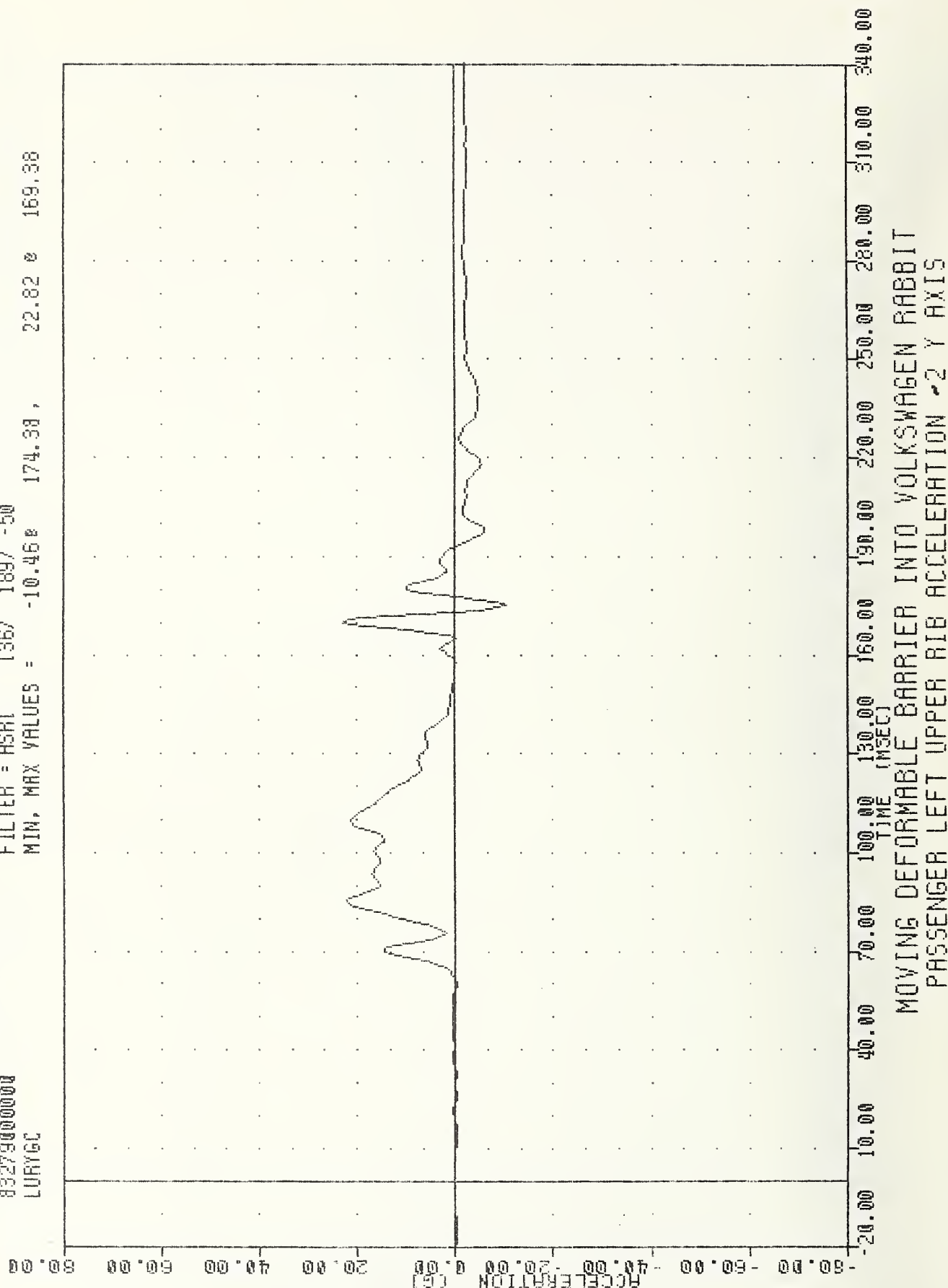
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LURYG3

TRC
EVALUATION OF MOD VN FLEET.
83279000000
LURYGC

PLUT DATE 7-OCT-83 10:34:21

FILTER = HSR1 136/ 189/ -50

MIN, MAX VALUES = -10.46g 174.38, 22.82 g 169.38

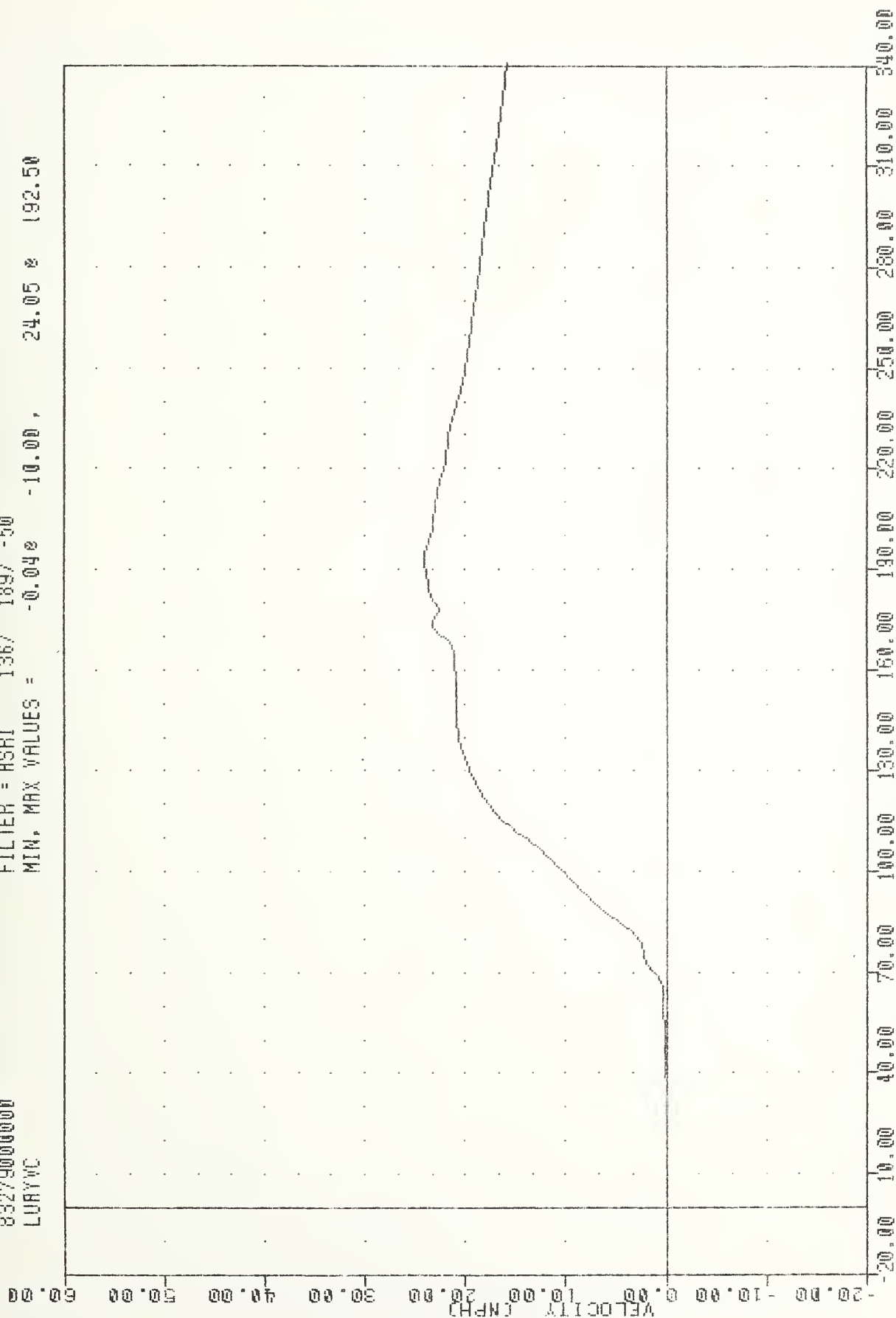


INC 831006
 EVALUATION OF MDD VW FLEET
 8327900000
 LURYVC

PLOT DATE 7-OCT-83 10:35:02

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.048 -10.00, 24.05 192.50



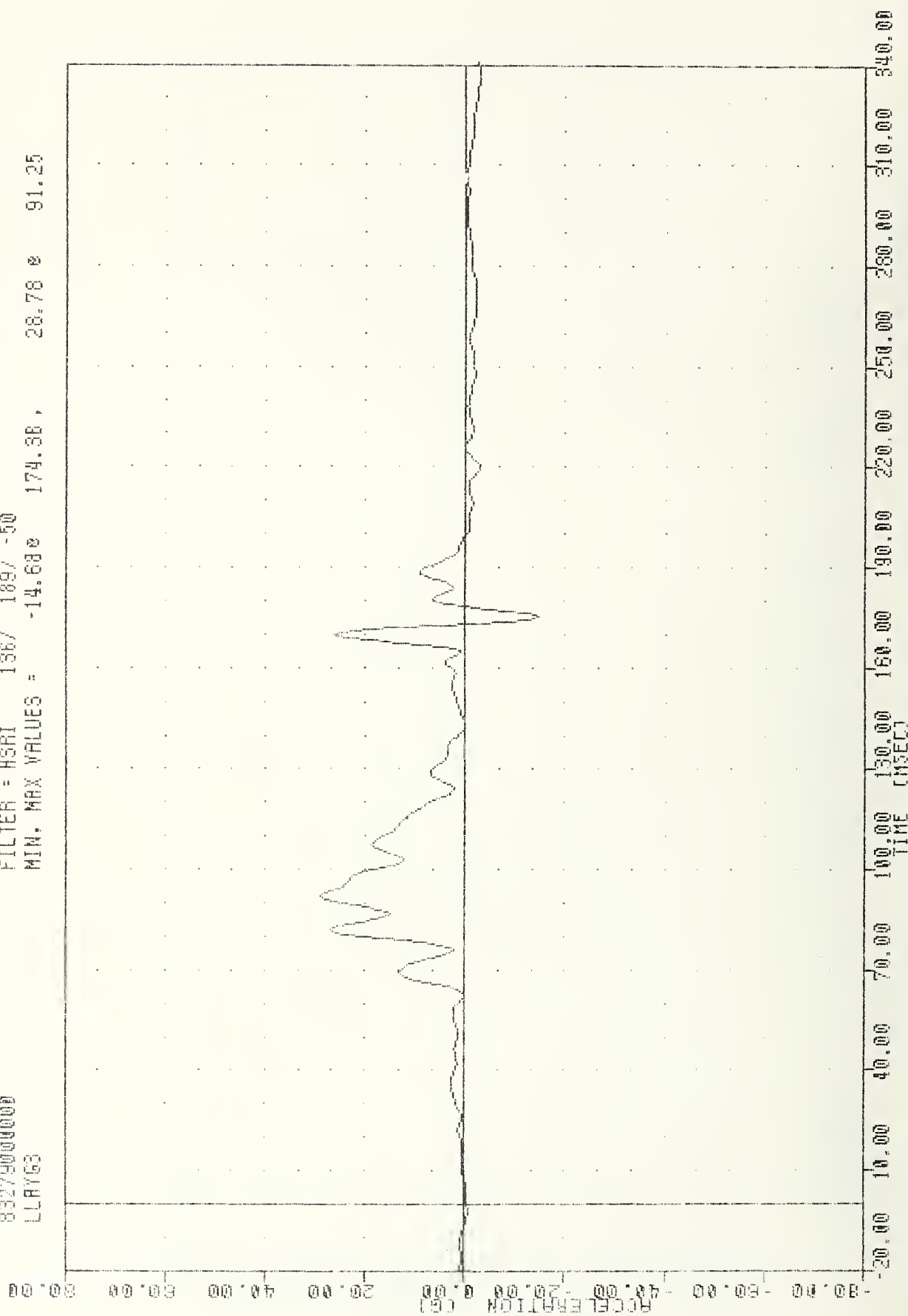
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURY6C

TAC , 831005
 EVALUATION OF M80 VW FLEET
 832790000000
 LLAY63

PLOT UNIT 7-OCT-83 10:34:21

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -14.680 174.36 , 28.78 0 91.25



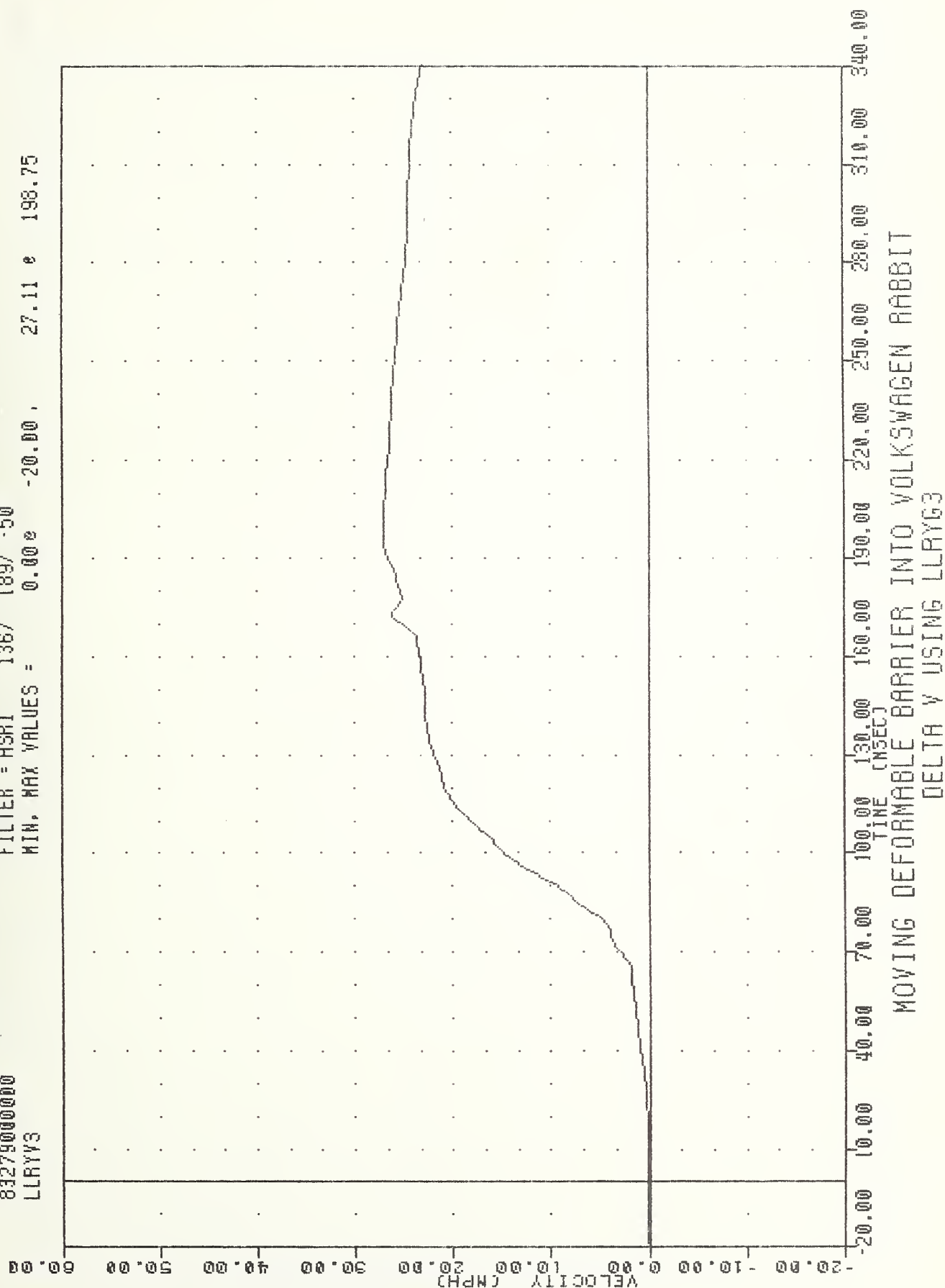
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LEFT LOWER RIB ACCELERATION Y AXIS

TAC 831005
 EVALUATION OF MOD VN FLEET
 83279000000
 LLRYV3

PLU1 DATE 7-JUL-83 10:36:02

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.000 -20.00, 27.11 193.75

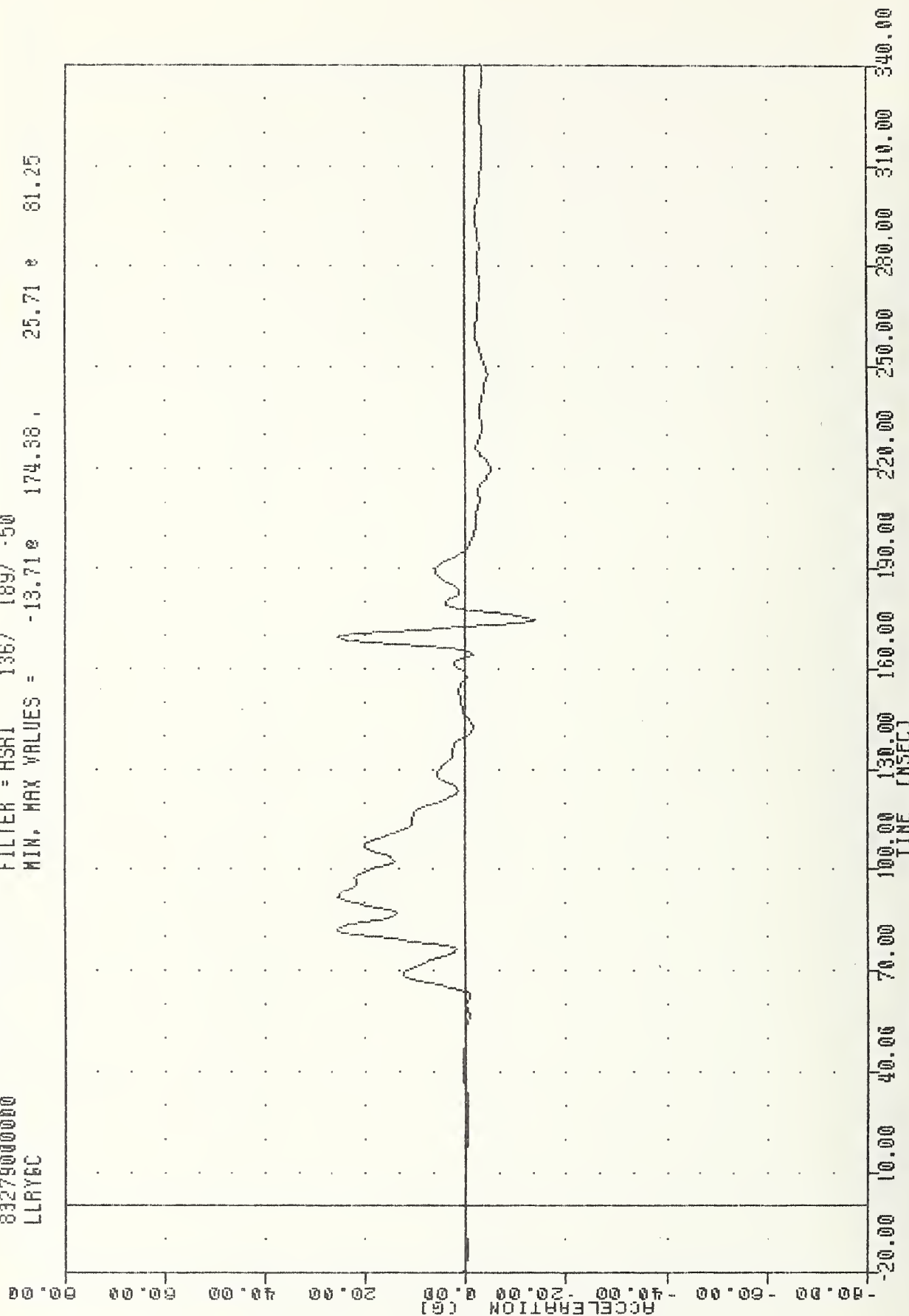


THC , 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 LIRYEC

PLU1 DATE 7-JUL-88 10:54:21

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -13.71e 174.38 , 25.71 e 81.25



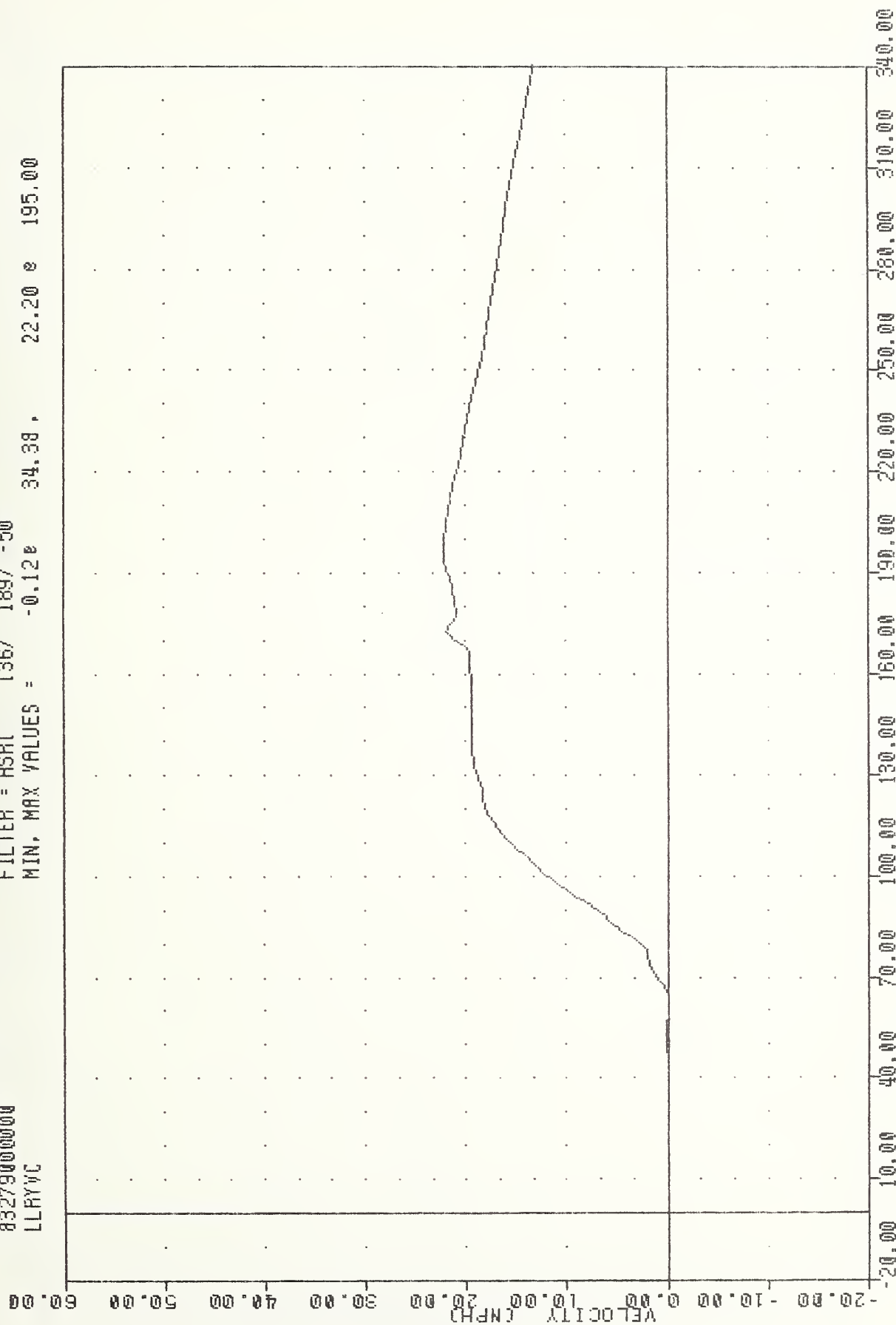
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LEFT LOWER RIB ACCELERATION #2 Y AXIS

IRC 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 LLRYVC

PLOT DATE 7-JUL-83 10:56:02

FILTER = HSR(136/ 189/ -50

MIN, MAX VALUES = -0.12e 34.38, 22.20 e 195.00



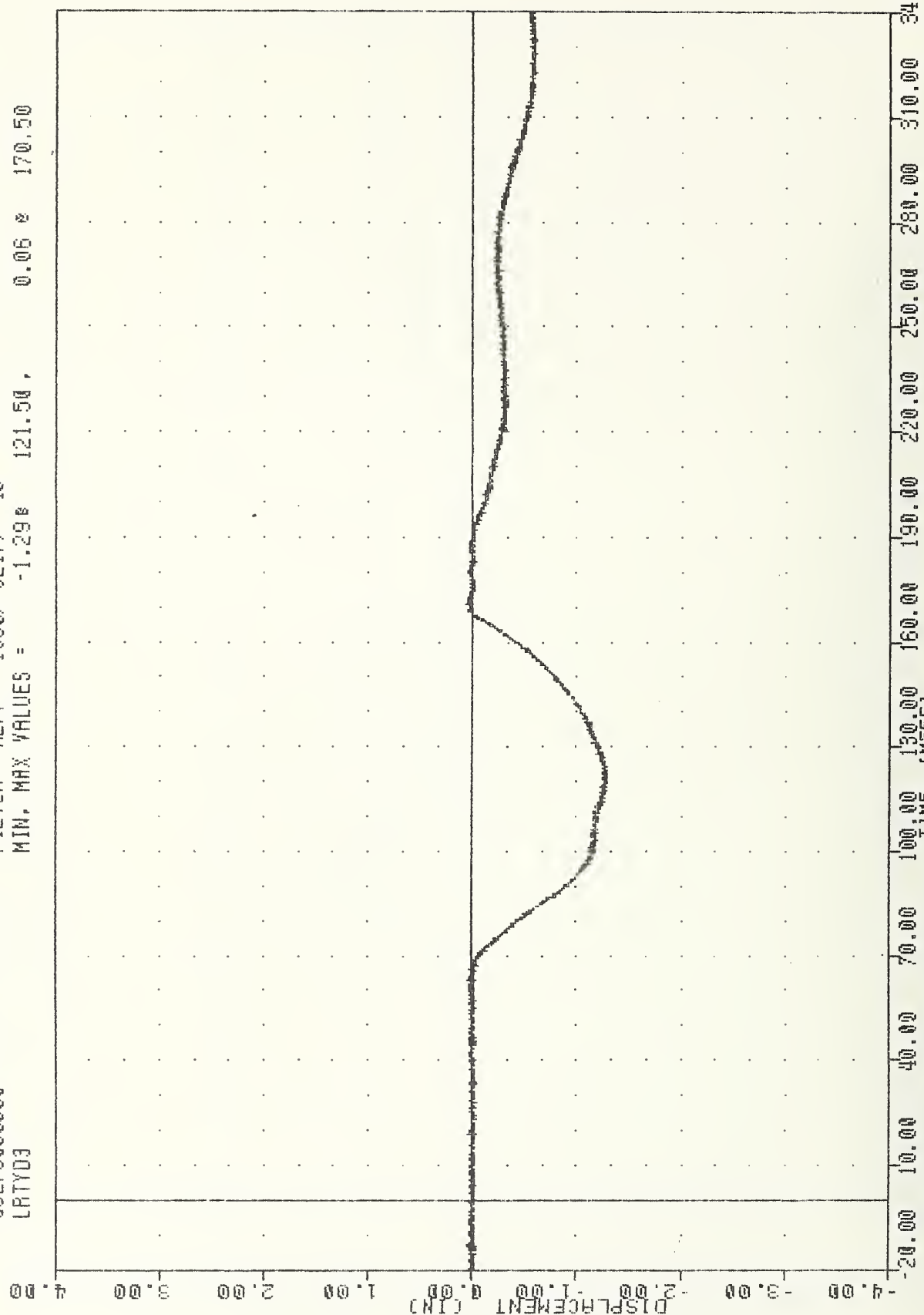
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LLRYVC

TRL , 831000b
 EVALUATION OF MCD VW FLEET
 832790000000
 LRTYD3

FLUI UNIL 11-JUL-83 10:48:03

FILTER = ALPF 1850/ 5217/ -40

MIN. MAX VALUES = -1.298 121.50 , 0.06 170.50



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

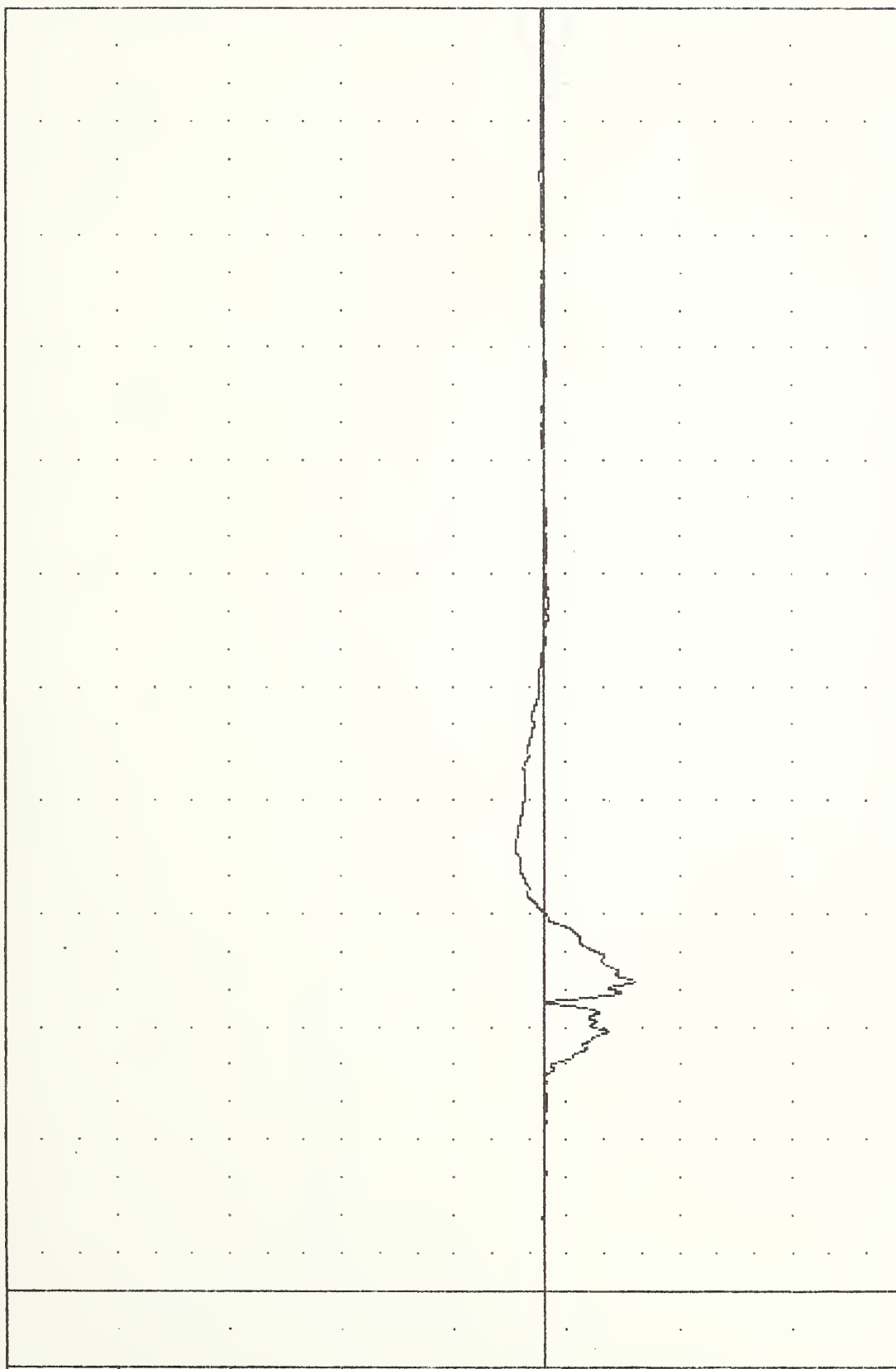
TRC , 831006
 EVALUATION OF MOD YW FLEET
 83279000000
 PEVXG3

PLU1 DATE 11-01-85 10:46:05

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -40.228 81.75, 13.06 116.50

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
 TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PELVIS ACCELERATION X AXIS

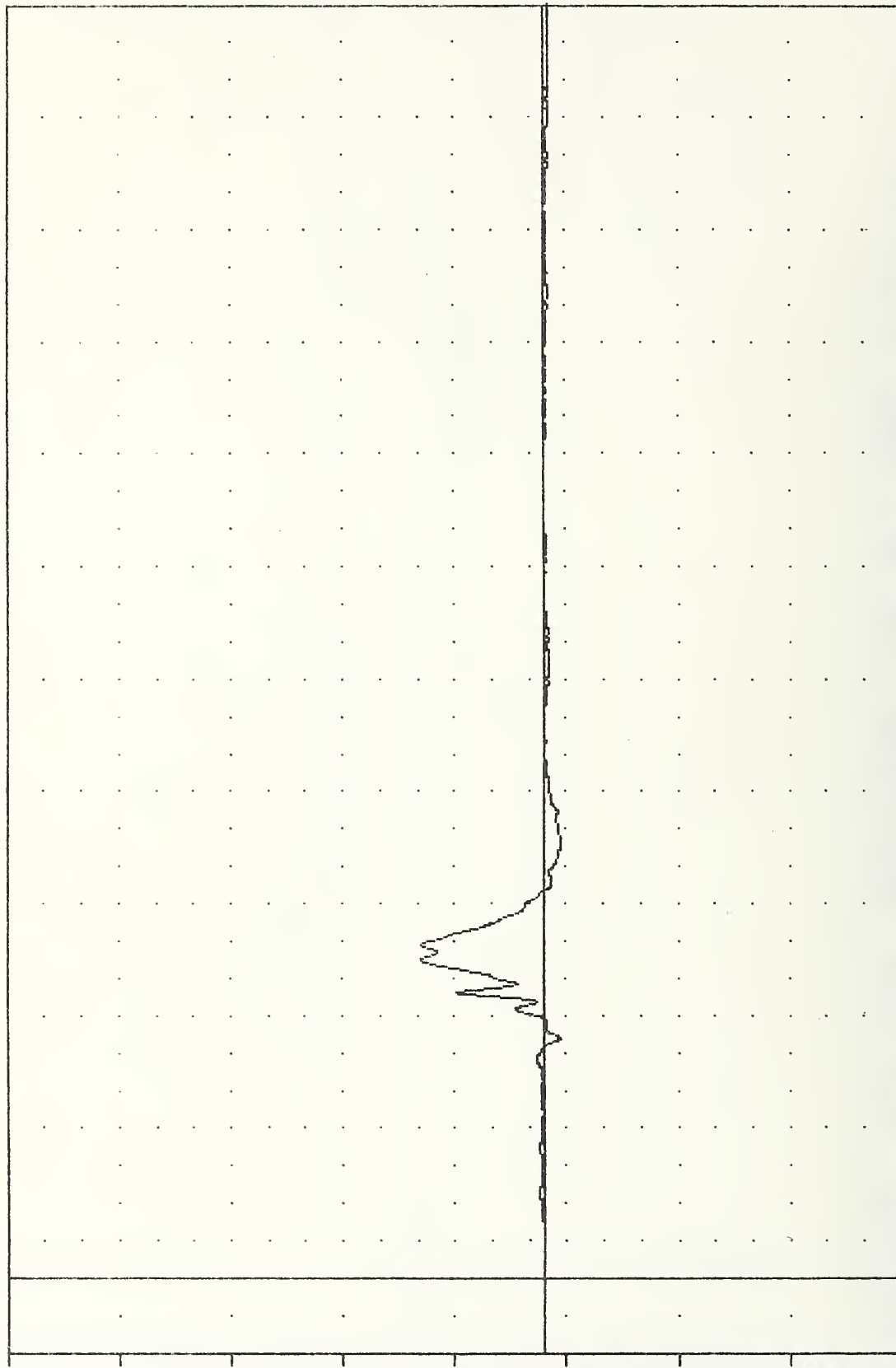
IHL
 EVALUATION OF MOD VV FLEET
 83279000000
 PEVTC3

PLOT DATE 11-01-85 10:40:00

FILTER = 8LFF 300/ 949/ -40

MIN. MAX VALUES = -7.89e 116.88, 55.28 e 84.75

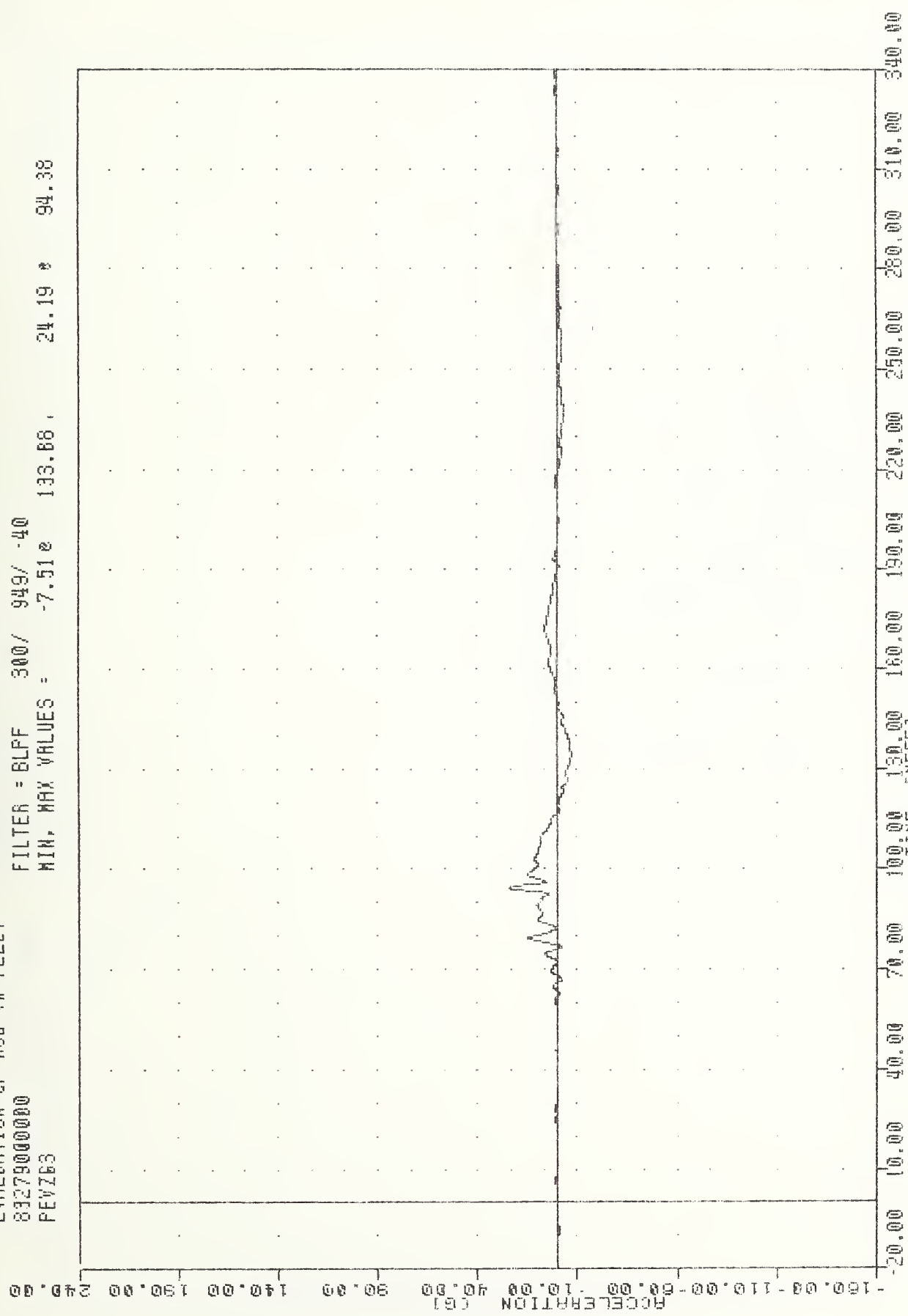
ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PELVIS ACCELERATION Y AXIS

IAC , 83J006-
 EVALUATION OF MOD VN FLEET
 83279000000
 PEVZ63

DATE 11-00-85 10740.05
 FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -7.51e 133.88 , 24.19 e 94.38

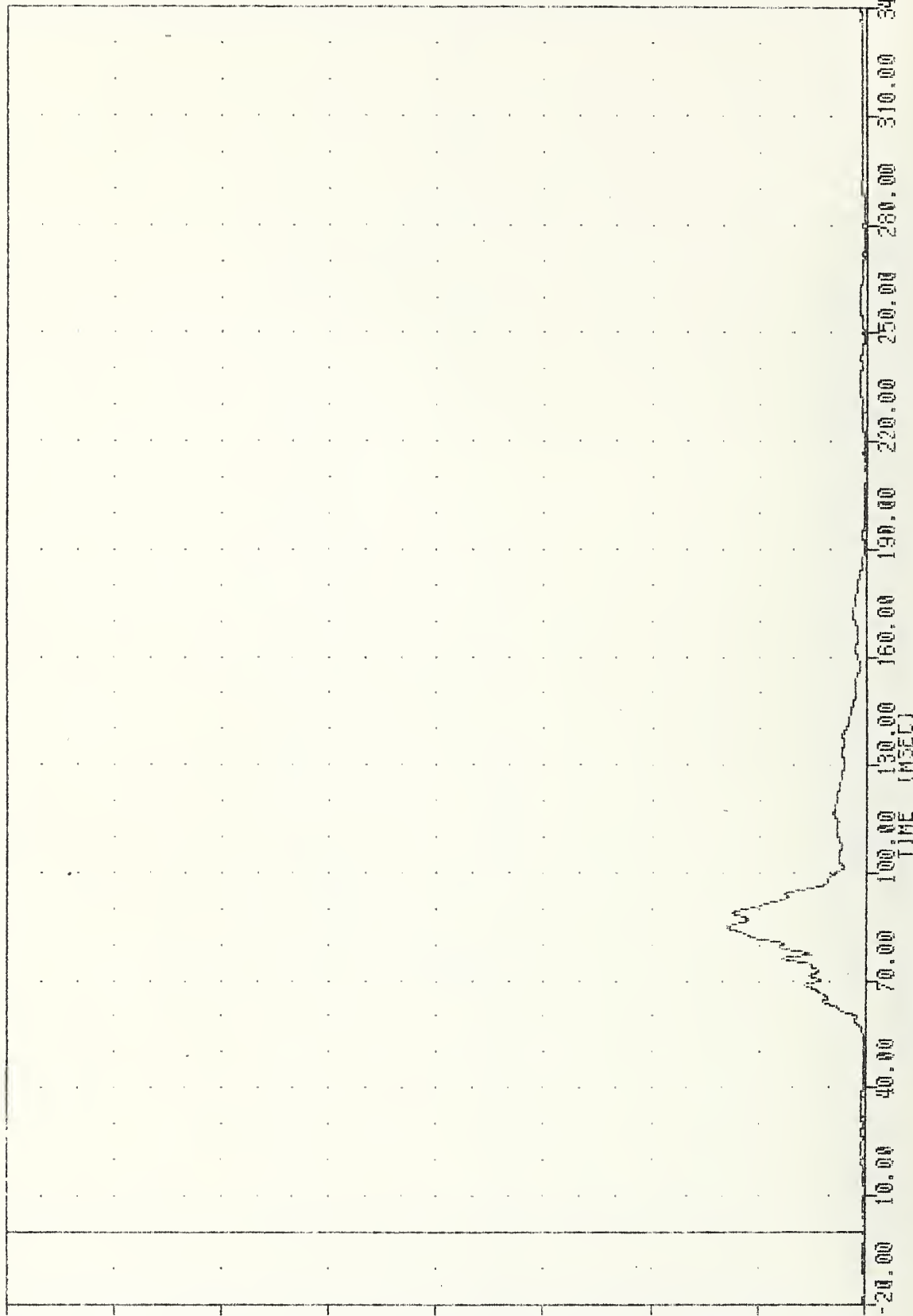


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PELVIS ACCELERATION Z AXIS

TRC 831006
 EVALUATION OF MOD VN FLEET
 83279000000
 PEVR63

PLU DATE 7 JUL 83 10:36:23
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 0.072 -14.25, 85.06 84.75

ACCELERATION (G)



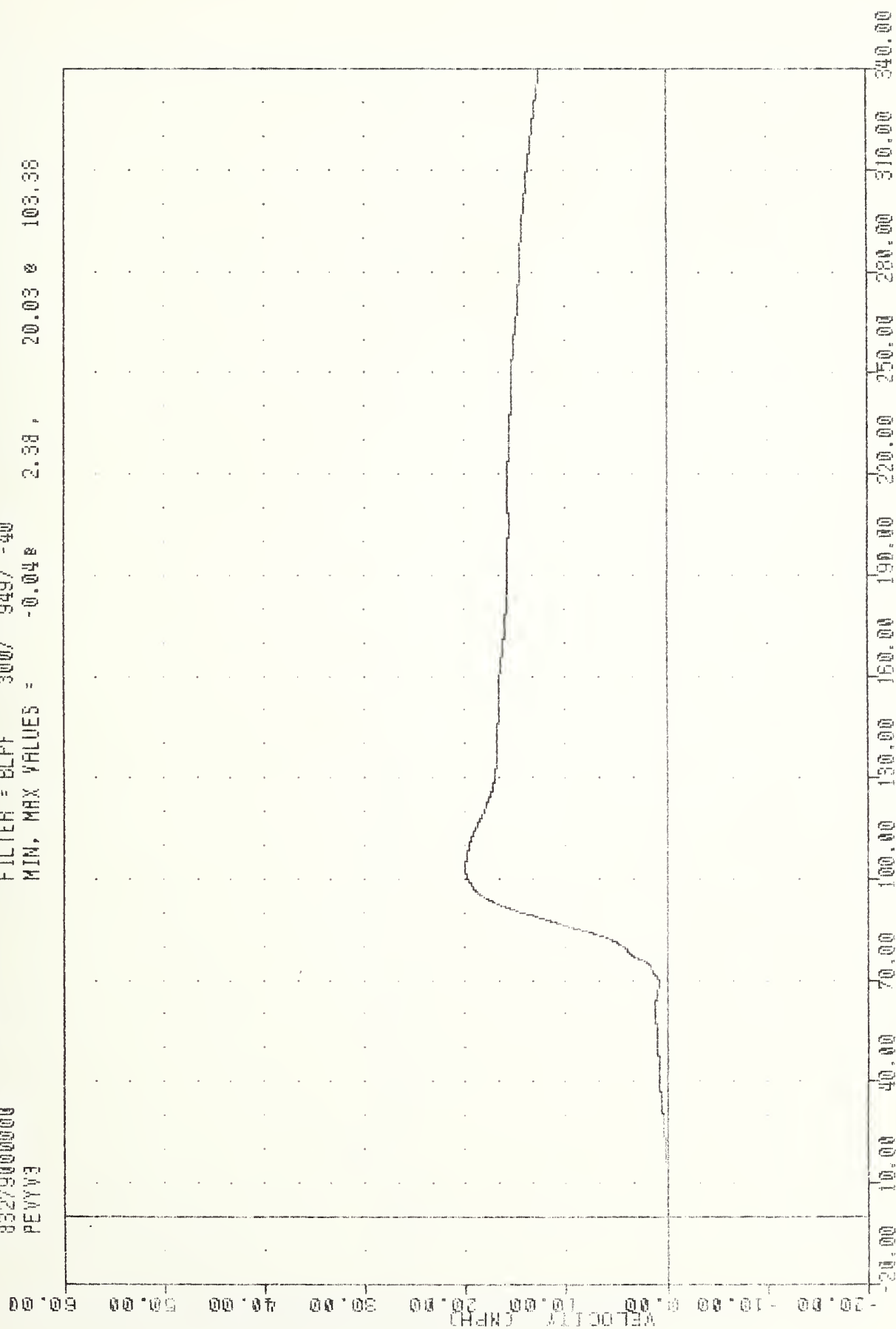
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PELVIS RESULTANT

TRC
EVALUATION OF MOD VW FLEET
83279000000
PEVYV3

PLUT DATE 7-001-60 10.00:20

FILTER = BLPF 300/ 949/ -40

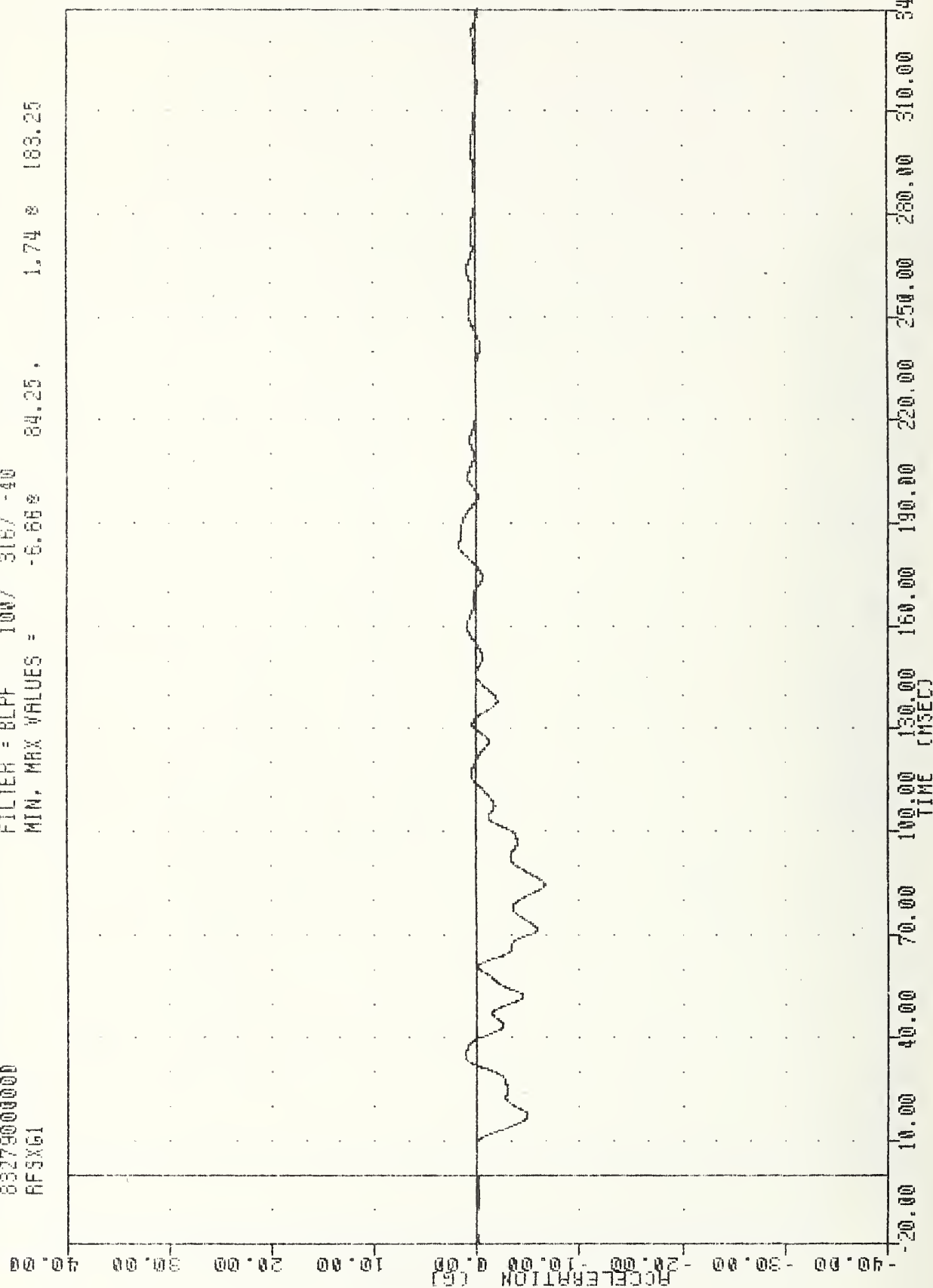
MIN, MAX VALUES = -0.048 2.38, 20.03 @ 103.38



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING PEVY63

INL 001006
 EVALUATION OF MOD VW FLEET
 83279000000
 RFSXG1

PLU DATE -11-001-85 10.00:00
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -6.669 84.25, 1.74 183.25



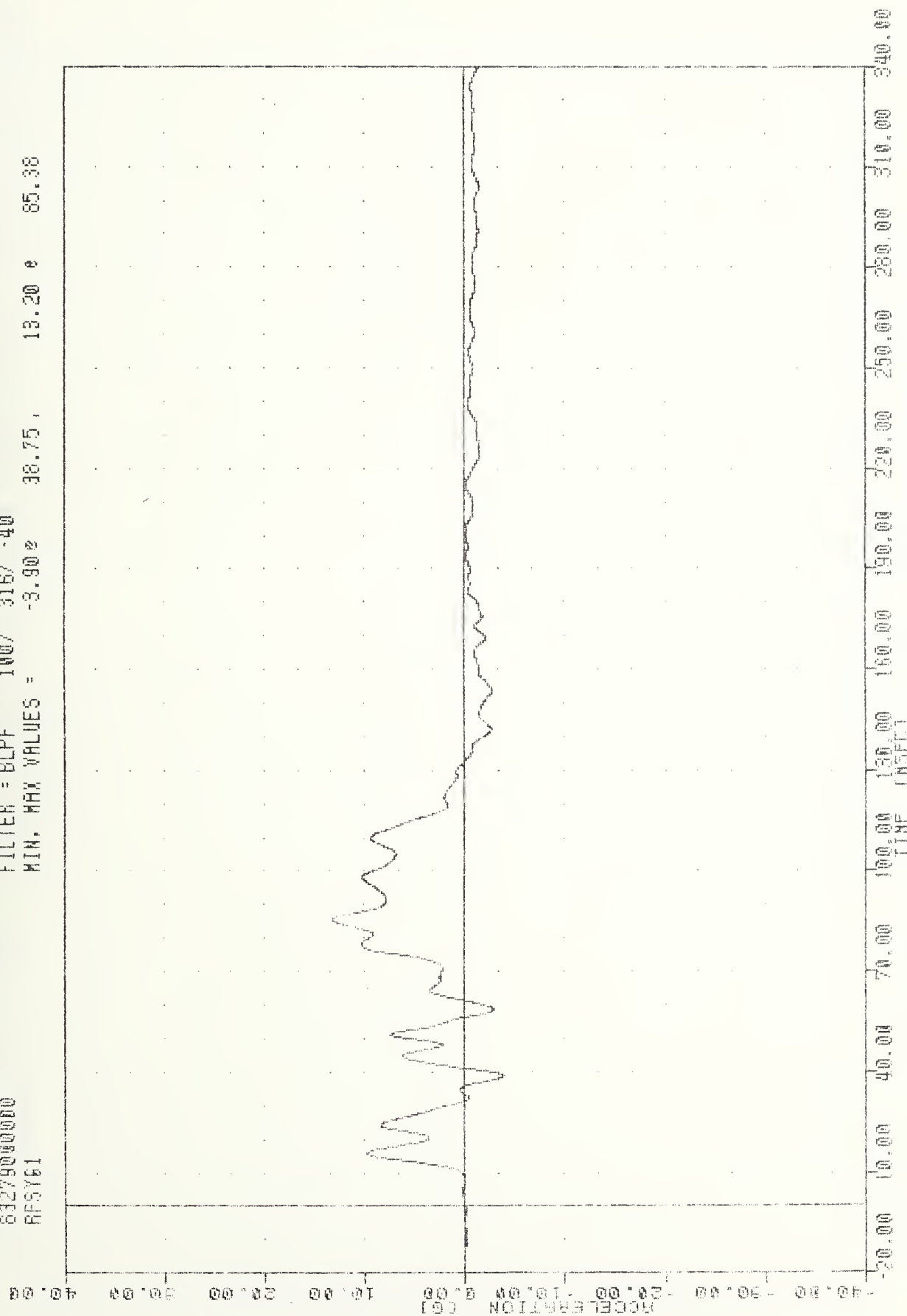
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT FRONT SILL ACCELERATION X AXIS

TRC
EVALUATION OF HQD VW FLEET
63279000000
RFSY61

PL0, DATE 11 Oct-83 10 10.03

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -3.90 38.75 13.20 85.38



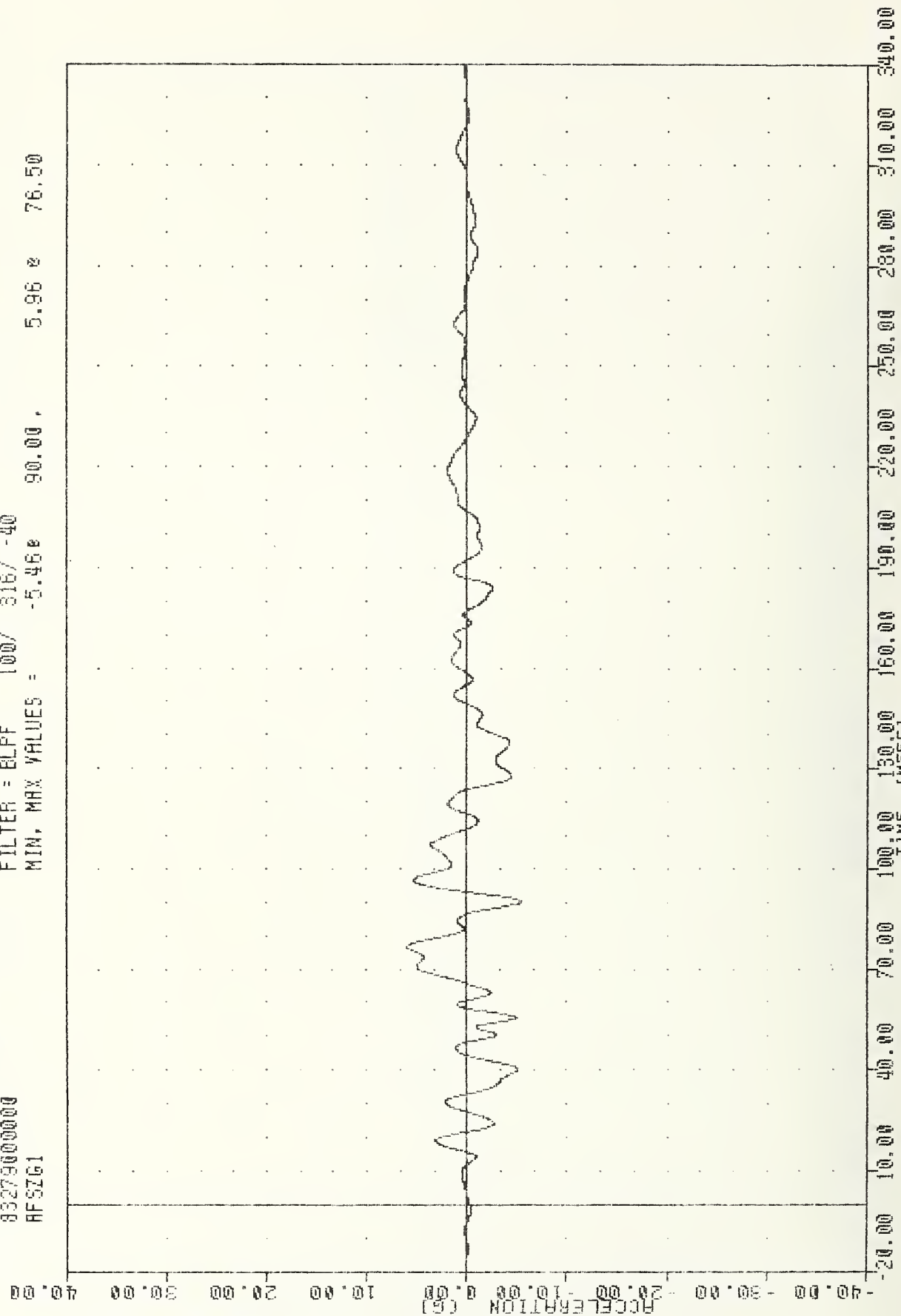
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT FRONT SILL ACCELERATION Y AXIS

TRC , 831005
 EVALUATION OF MOD VW FLEET
 83279000000
 AFSZG1

PLDT DATE 7-001-80 10:00:56

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -5.46e 90.00 , 5.96 e 76.50



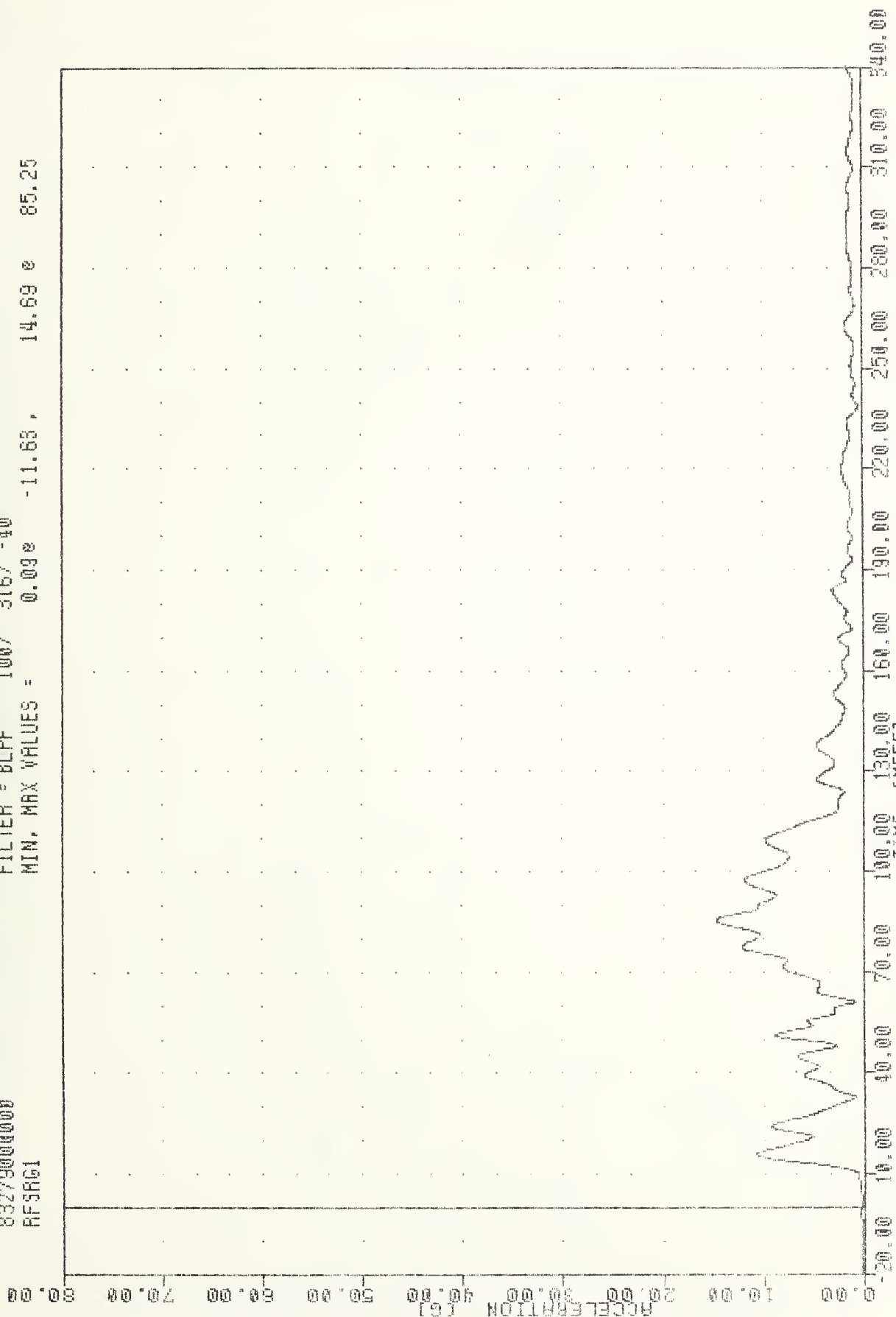
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT FRONT SILL ACCELERATION Z AXIS

TRU 831005
 EVALUATION OF M00 VW FLEET
 83279000000
 RF5RG1

PLU DATE 10-00-00 10-00-23

FILTER = BLPF 100/ 316/ -40

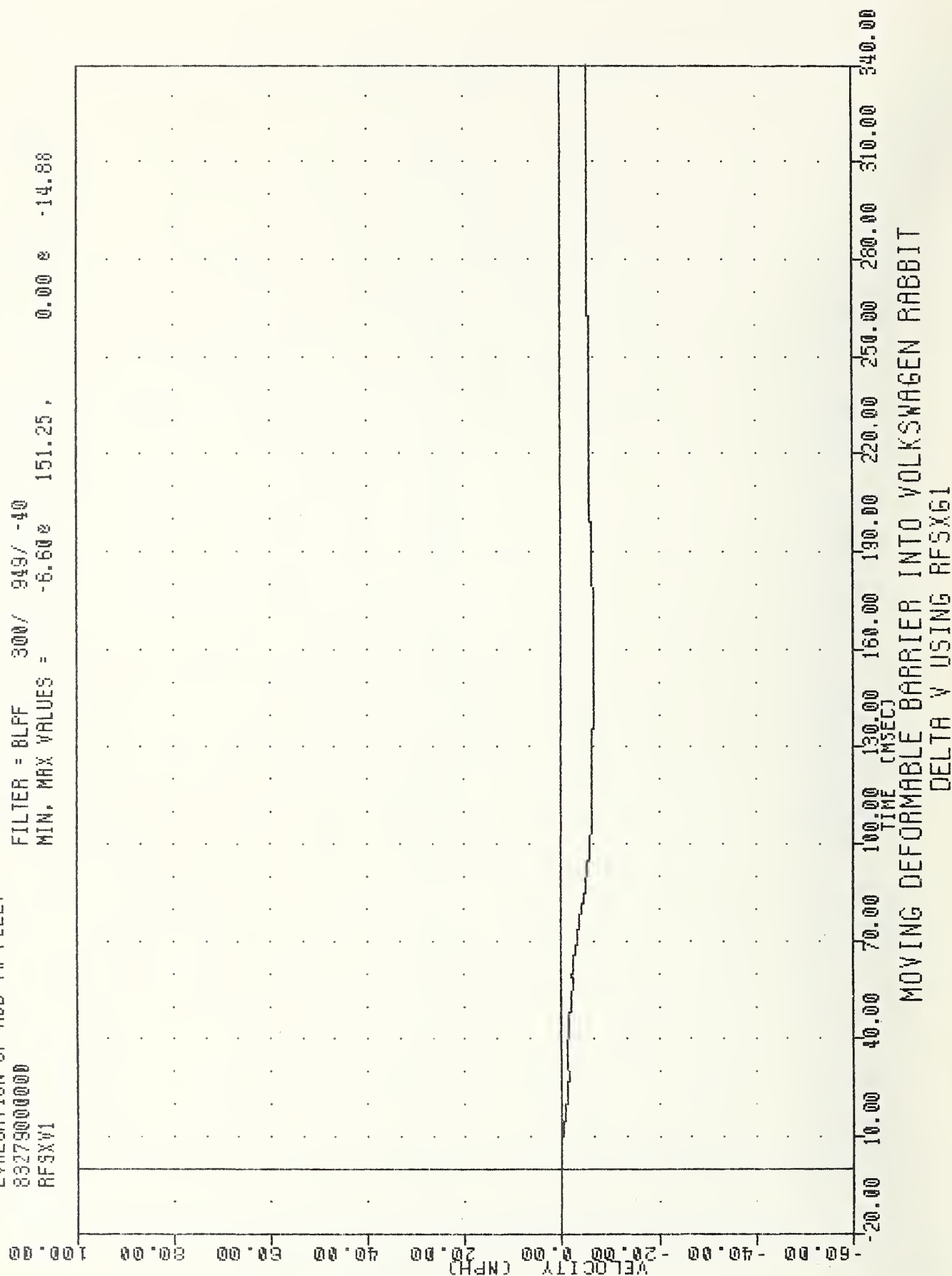
MIN. MAX VALUES = 0.09e -11.63, 14.69 e 85.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT FRONT BOLL RESULTANT

IRL 031006
 EVALUATION OF MOD VW FLEET
 83279000000
 RFSXV1

PLU1 DATE 7 JUL 83 10:00:26
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -6.60 151.25 0.00 8 -14.88

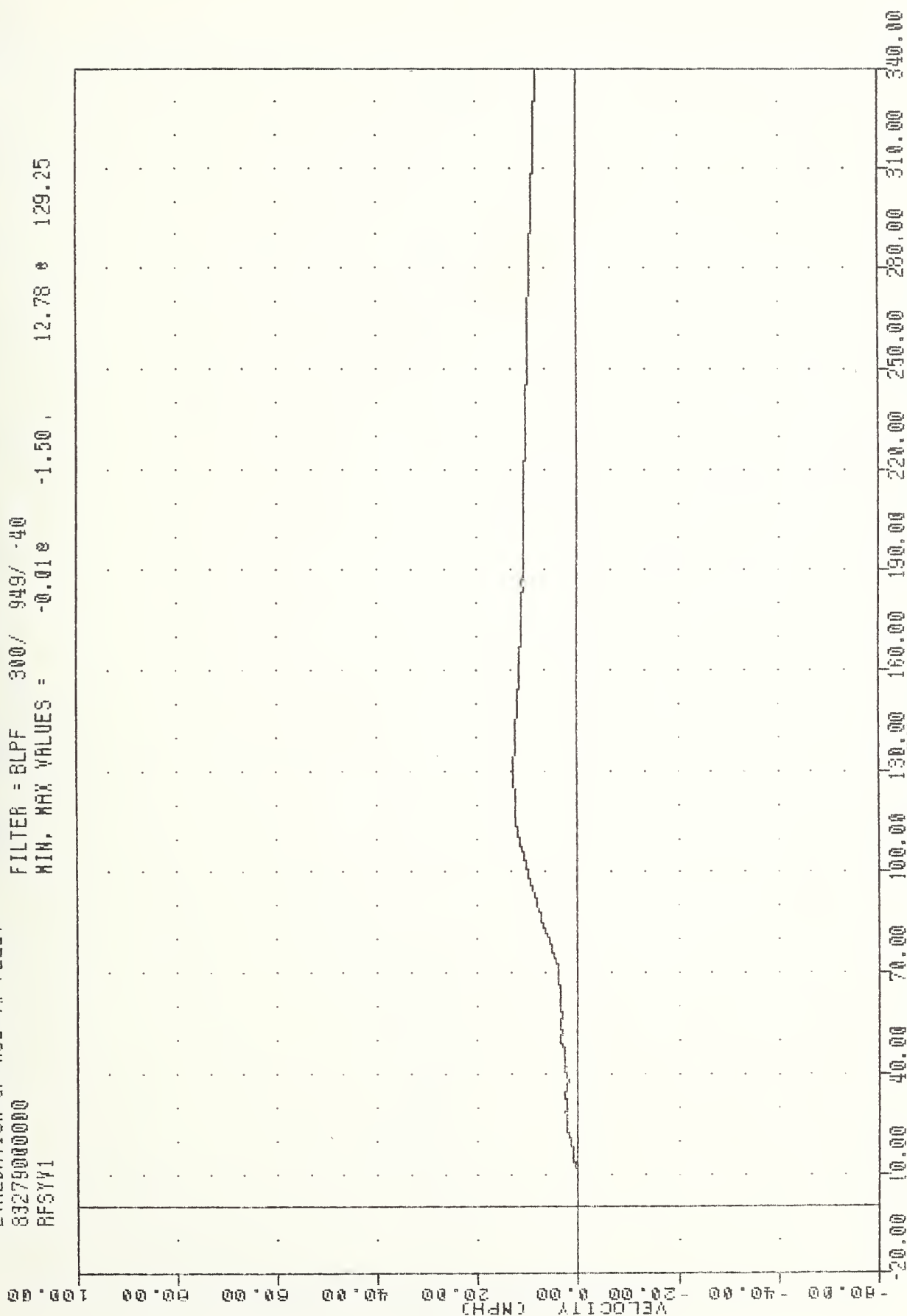


IHL
EVALUATION OF MOD VN FLEET
832790000000
RFSY41

PL01 unit 7-jul-85 10.00.26

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.01e -1.50, 12.78 * 129.25

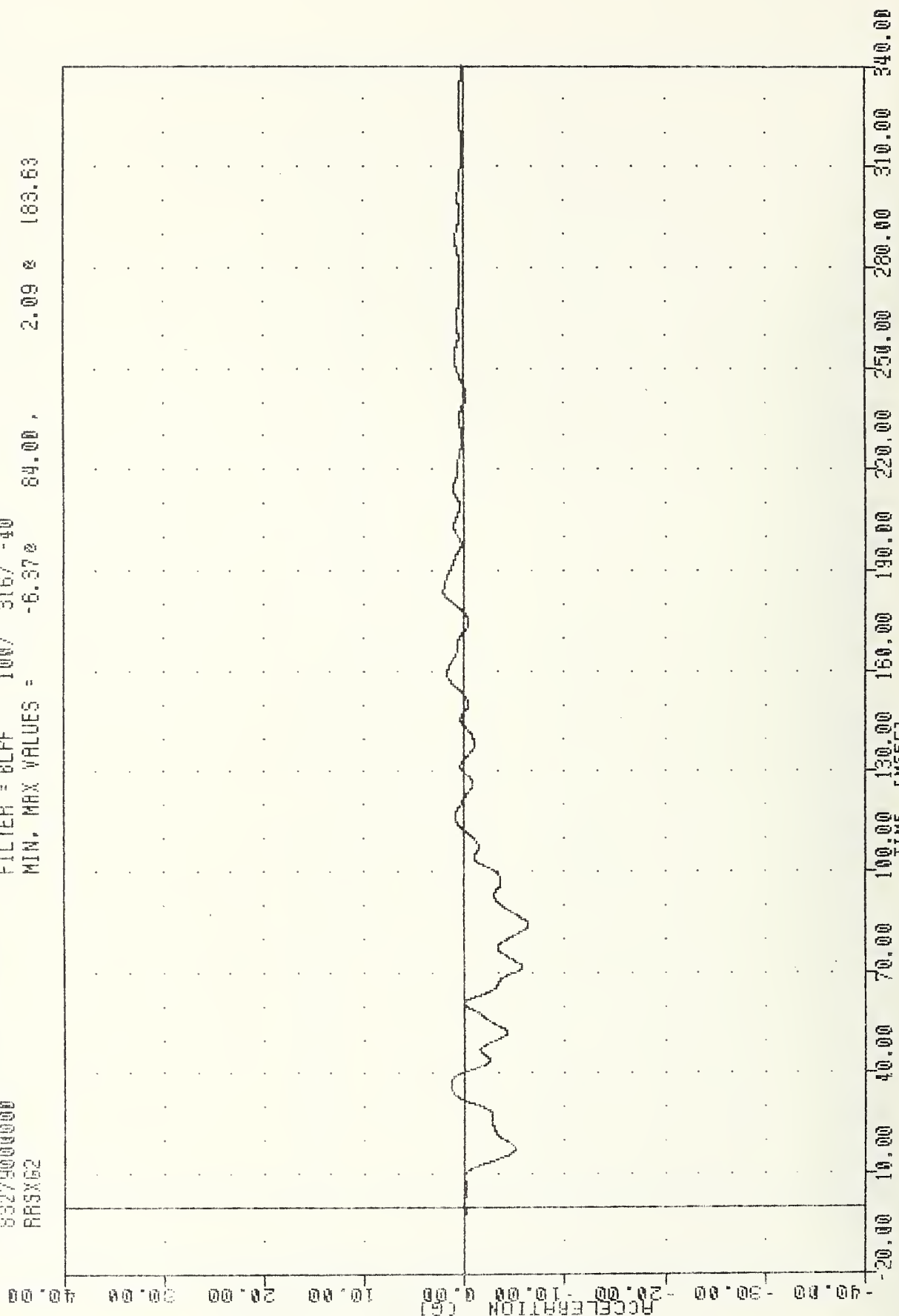


IHL
 EVALUATION OF MOD VW FLEET
 832780000000
 RRSX62

PLOT DATE 7-OCT-80 10:00:50

FILTER = BLFF 100/ 316/ -40

MIN. MAX VALUES = -6.370 84.00 , 2.09 183.63



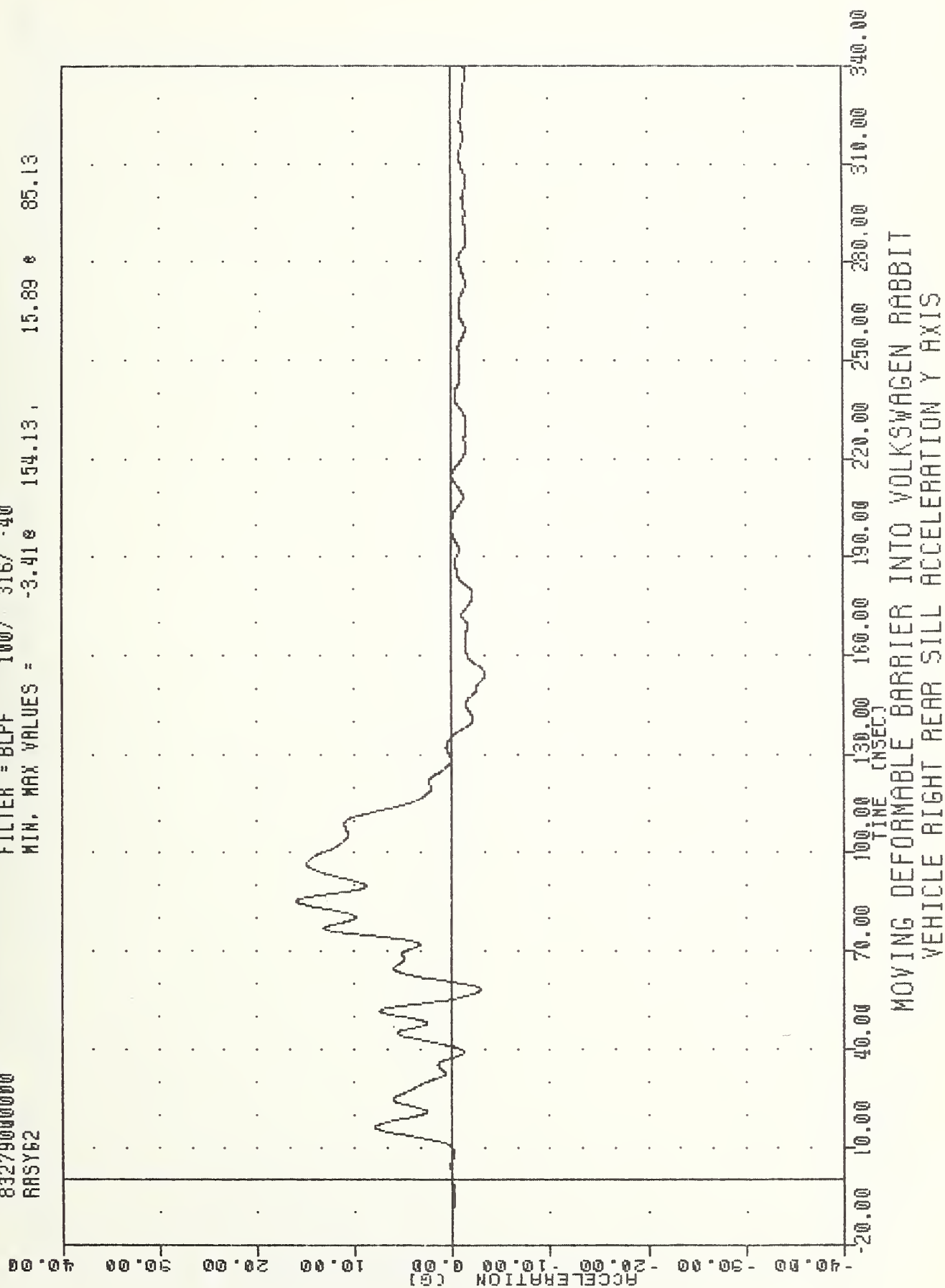
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT REAR SILL ACCELERATION X AXIS

TAC
EVALUATION OF MOD VW FLEET
83279000000
RASY62

PL01 DATE 7-JUL-83 10:30:58

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -3.41e 154.13, 15.89 e 85.13

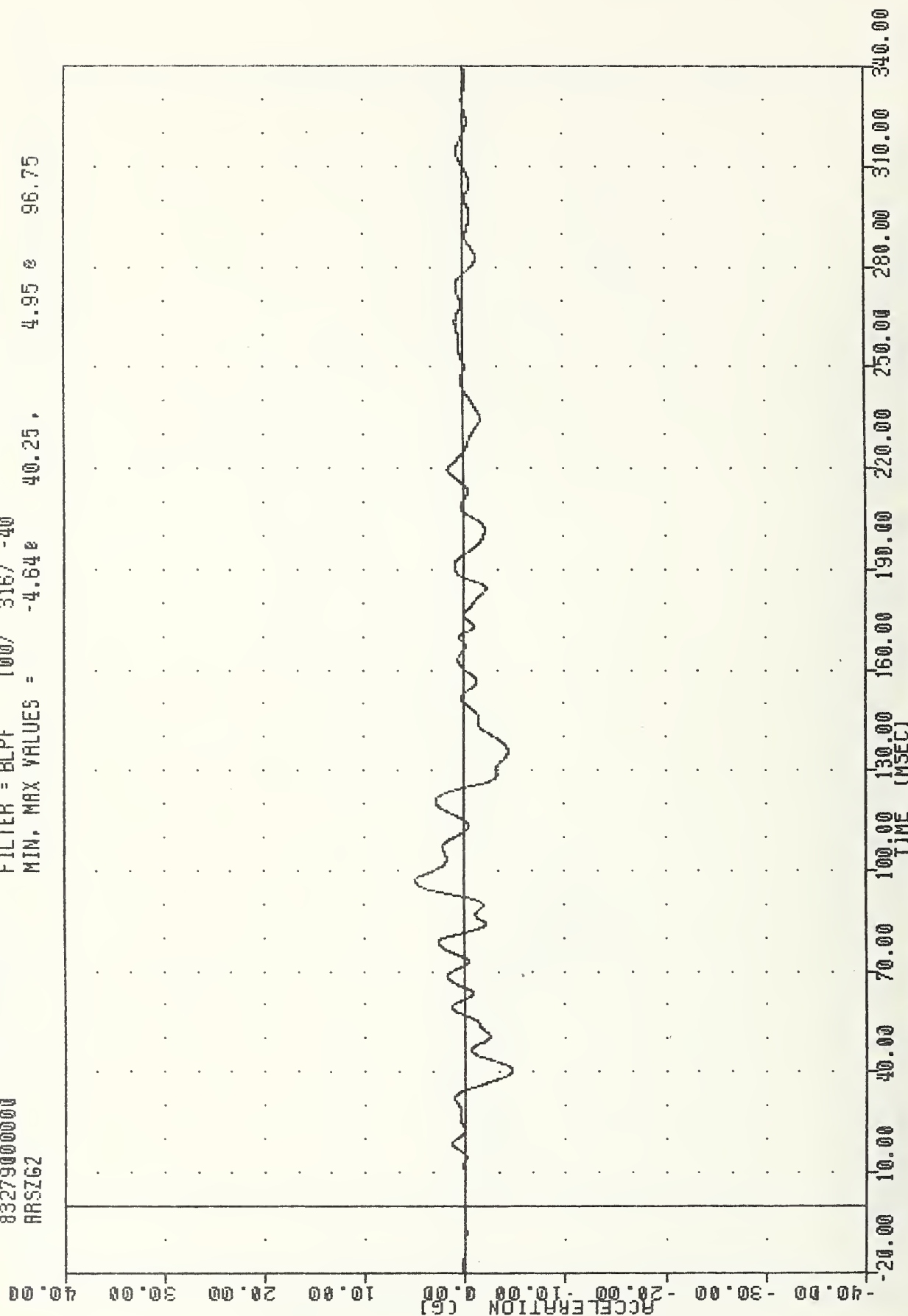


IKL 83100b
EVALUATION OF MOD VN FLEET
83279000000
ARSZG2

FLUI UNIE 7-JUL-83 10.30:53

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -4.64e 40.25, 4.95 e 96.75

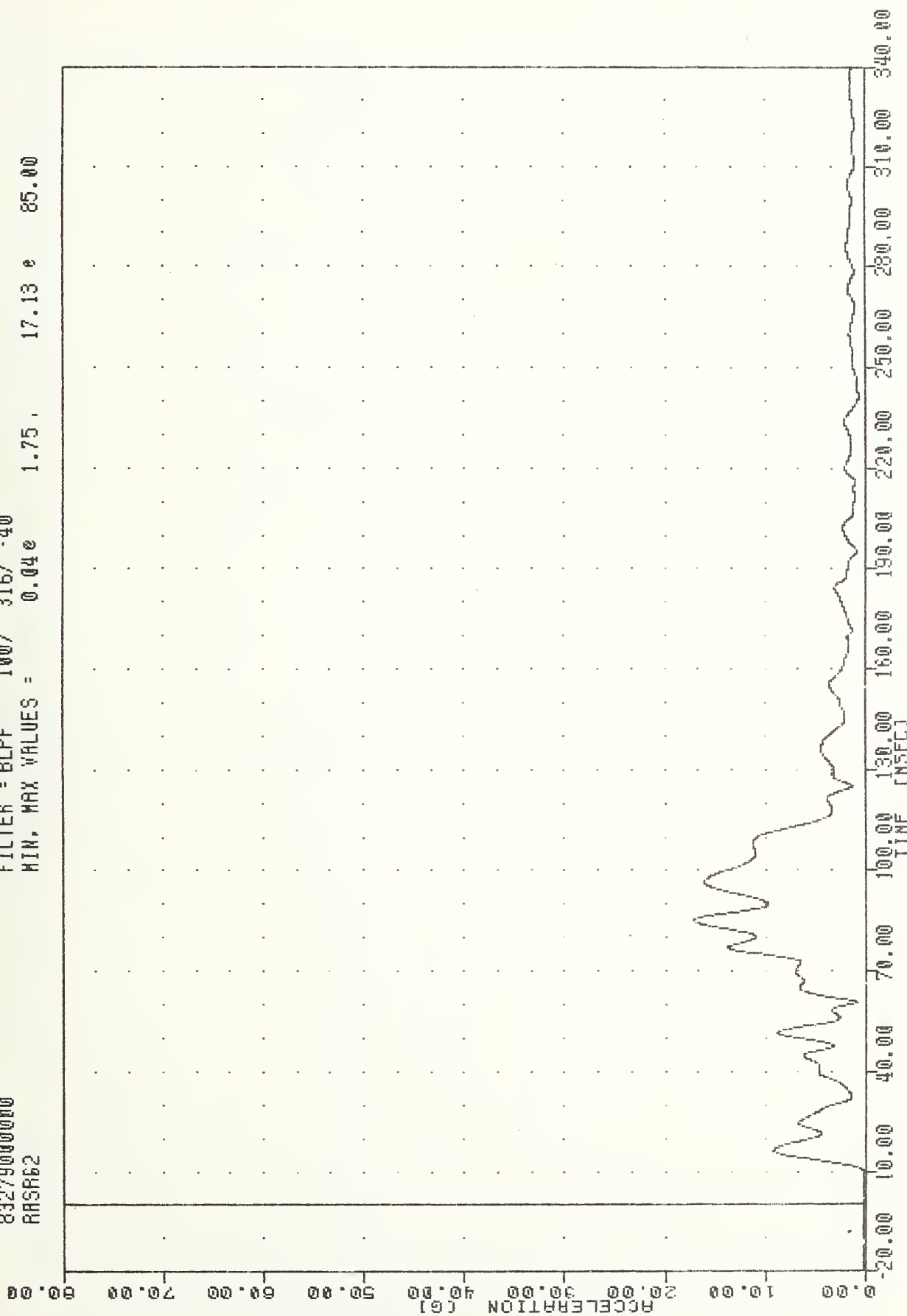


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT REAR SILL ACCELERATION Z AXIS

TRC , 831006
 EVALUATION OF MOD VN FLEET
 83279000000
 RASR62

PLU1 UHLE 7-JUL-83 10:36:23

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = 0.04e 1.75. 17.13 e 85.00

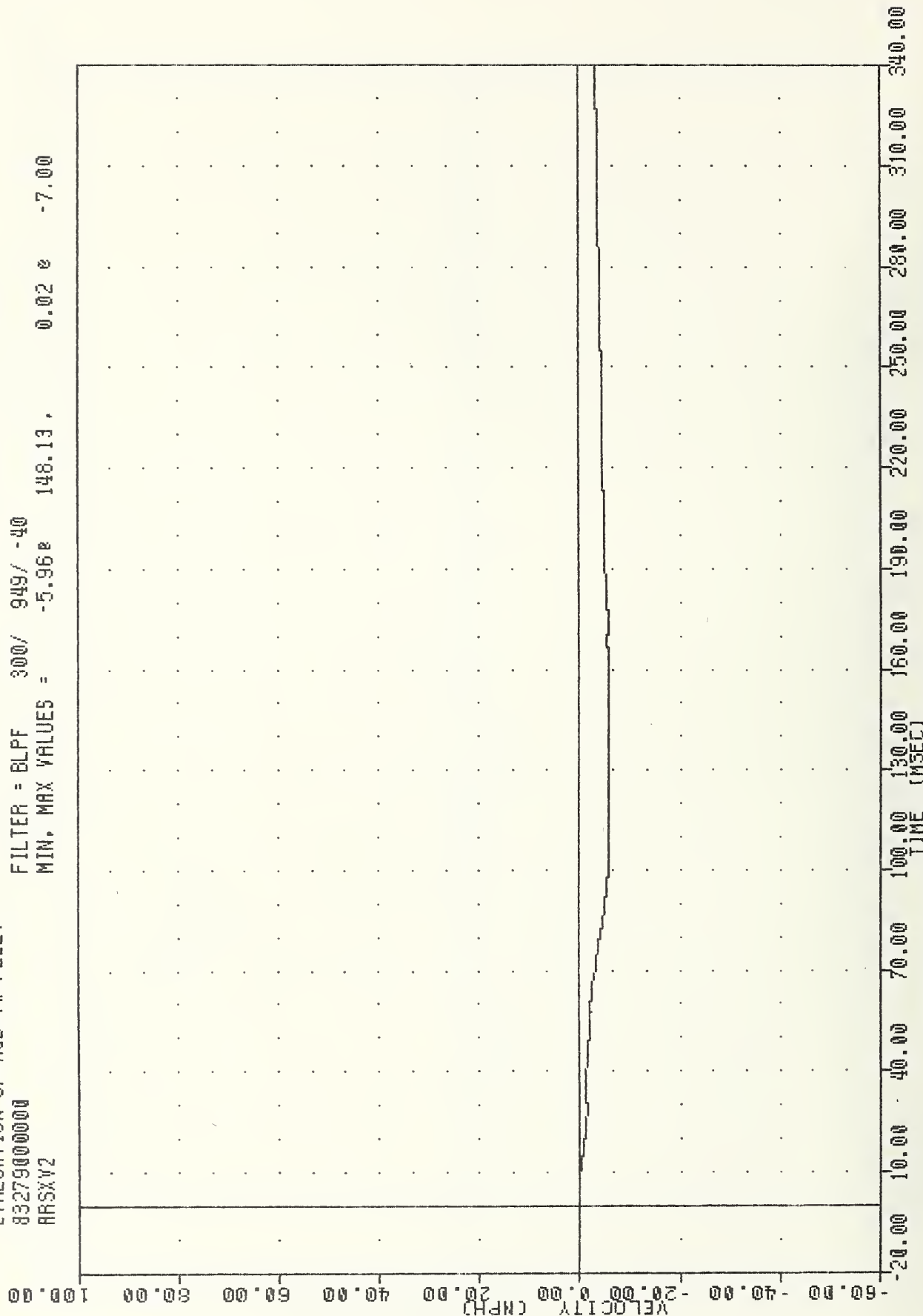


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT REAR SILL RESULTANT

TAC , 831006
 EVALUATION OF MOD YW FLEET
 83279000000
 ARSXV2

PLOT DATE 7-UCT-83 10:38:25

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -5.96e 148.13, 0.02 e -7.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING ARSXG2

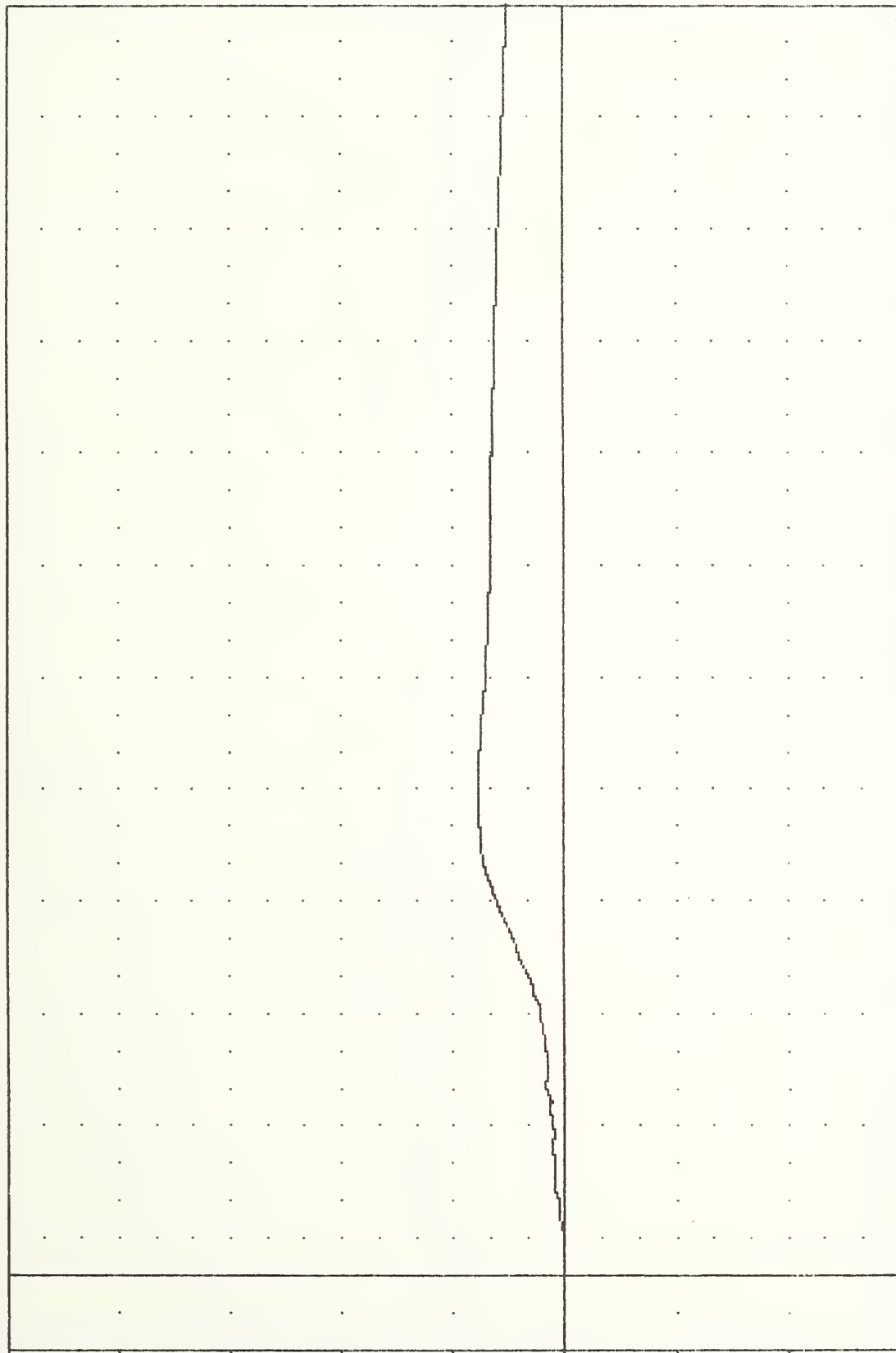
INC 831006
 EVALUATION OF MDD VW FLEET
 83279000000
 RRSYV2

Plot DATE 7-UL-85 10:38:28

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -0.02e 5.63, 15.47 e 130.25

100.00
 80.00
 60.00
 40.00
 20.00
 0.00
 -20.00
 -40.00
 -60.00
 -80.00
 -100.00



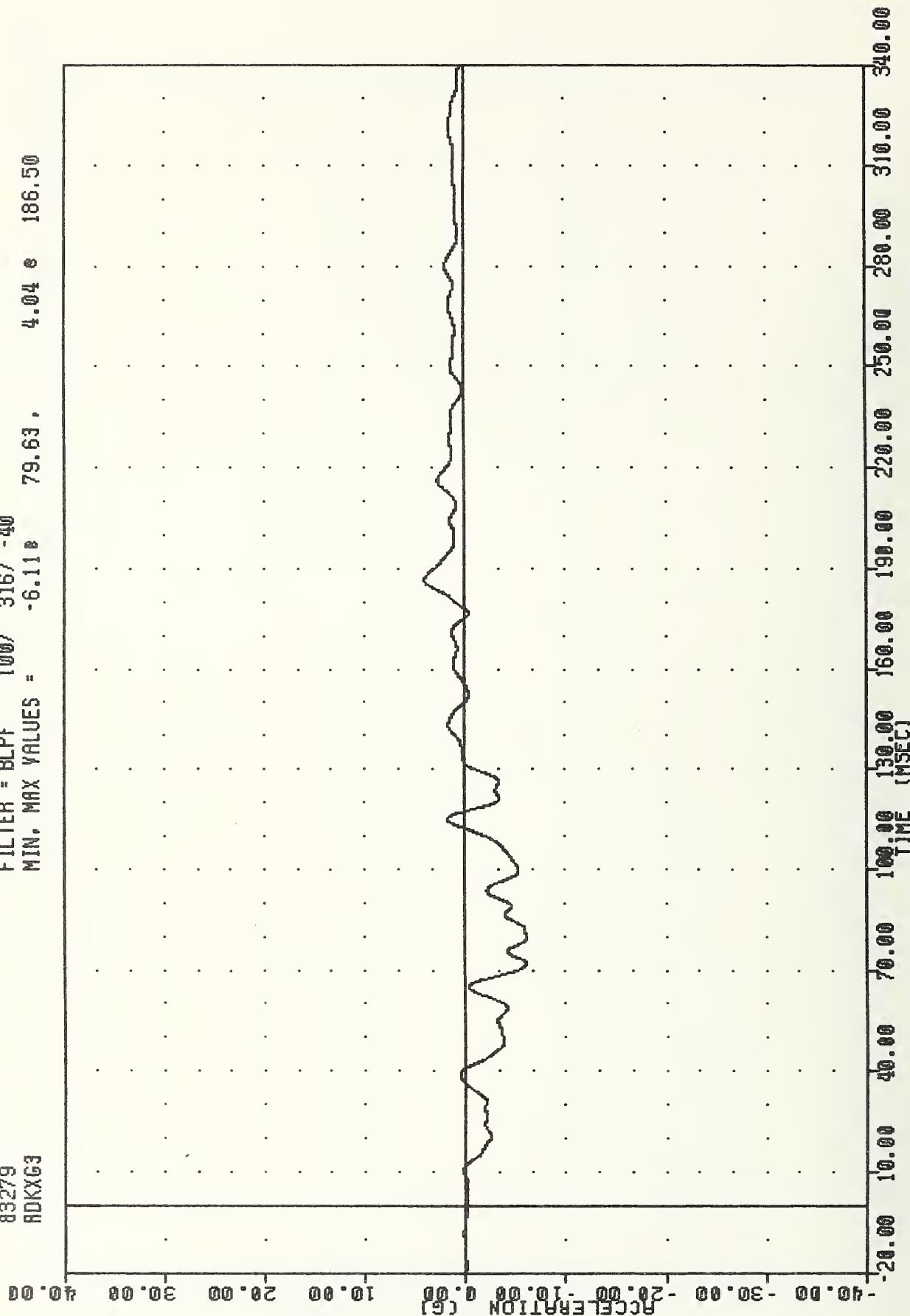
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING RRSYG2

SRL26 , 831006
 NOV BAR INTO VOLKS RABBIT
 83279
 ADKXG3

PLU1 unitE 25-DEC-80 14.17:50

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -6.11e 79.63 , 4.04 e 186.50



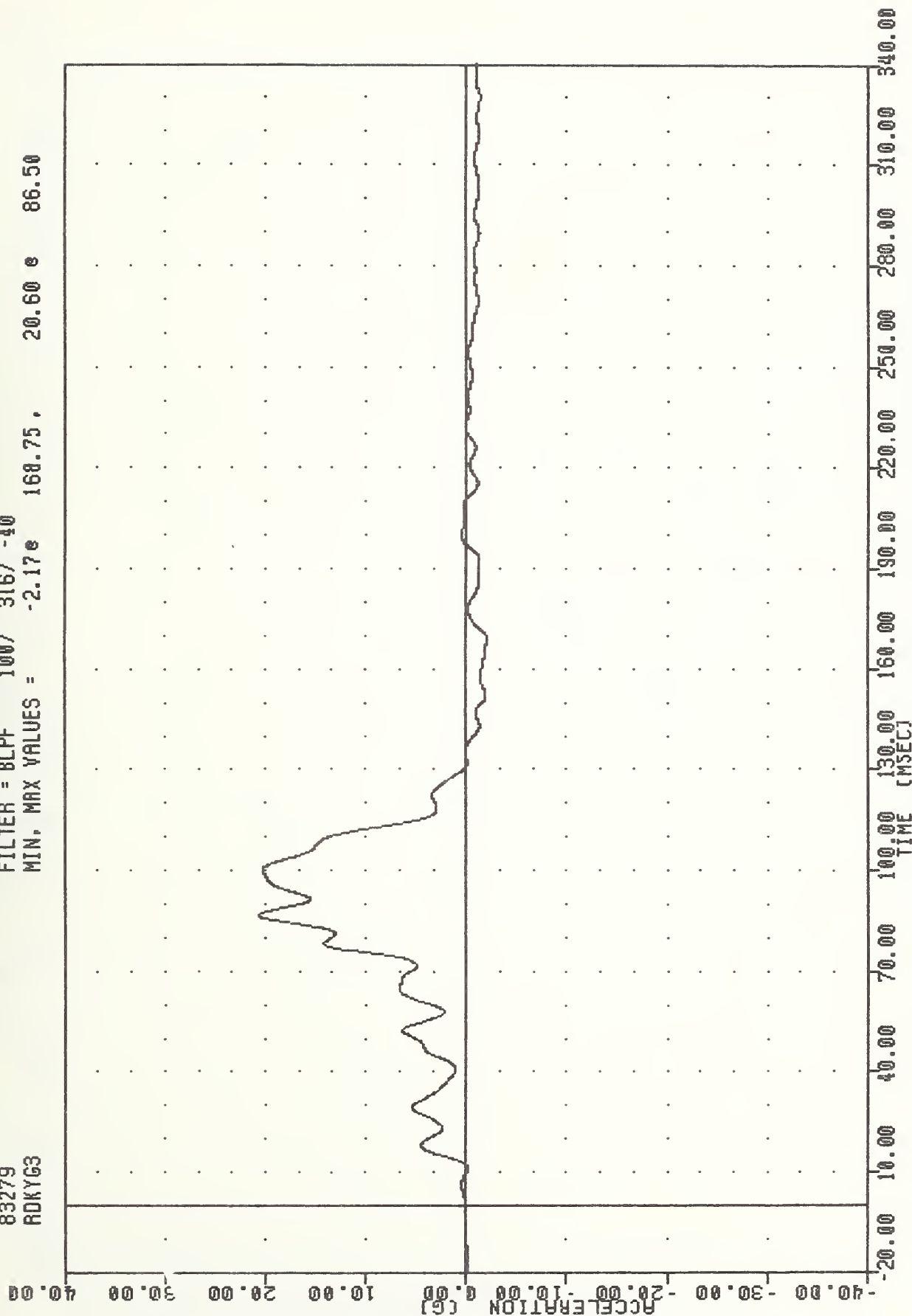
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE REAR DECK ACCELERATION X AXIS

SRL26 , 831006
MOV BAR INTO VOLKS RABBIT
83279
RDY63

PLOT DATE 25-Jul-83 14.17:53

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -2.17e 168.75, 20.60 e 86.50



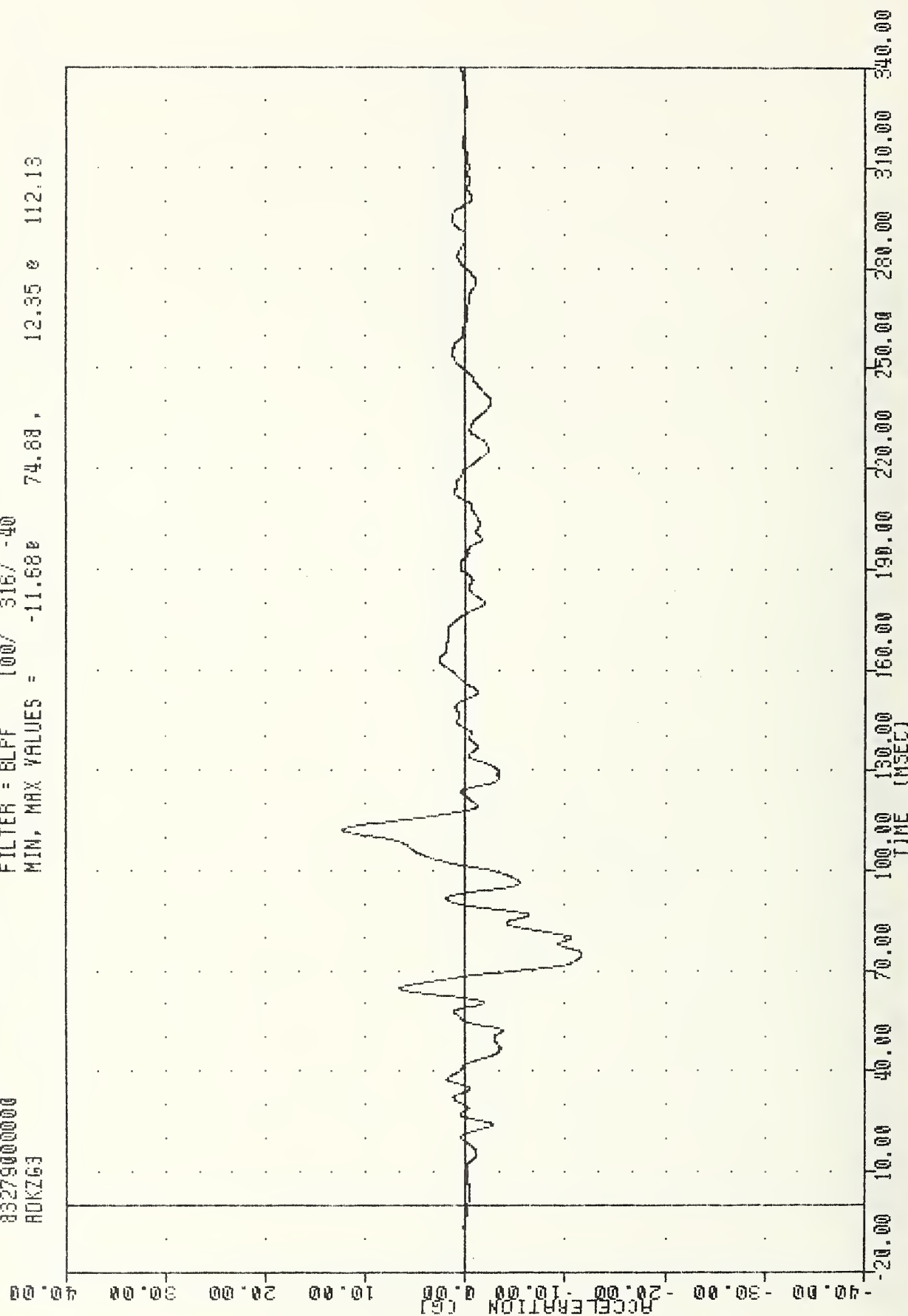
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE REAR DECK ACCELERATION Y AXIS

TRC , 83T006
 EVALUATION OF MOD VW FLEET
 83279000000
 ADKZG3

PLU, DATE : 7 JUL 1983 10:30:56

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -11.680 74.88 , 12.35 0 112.13



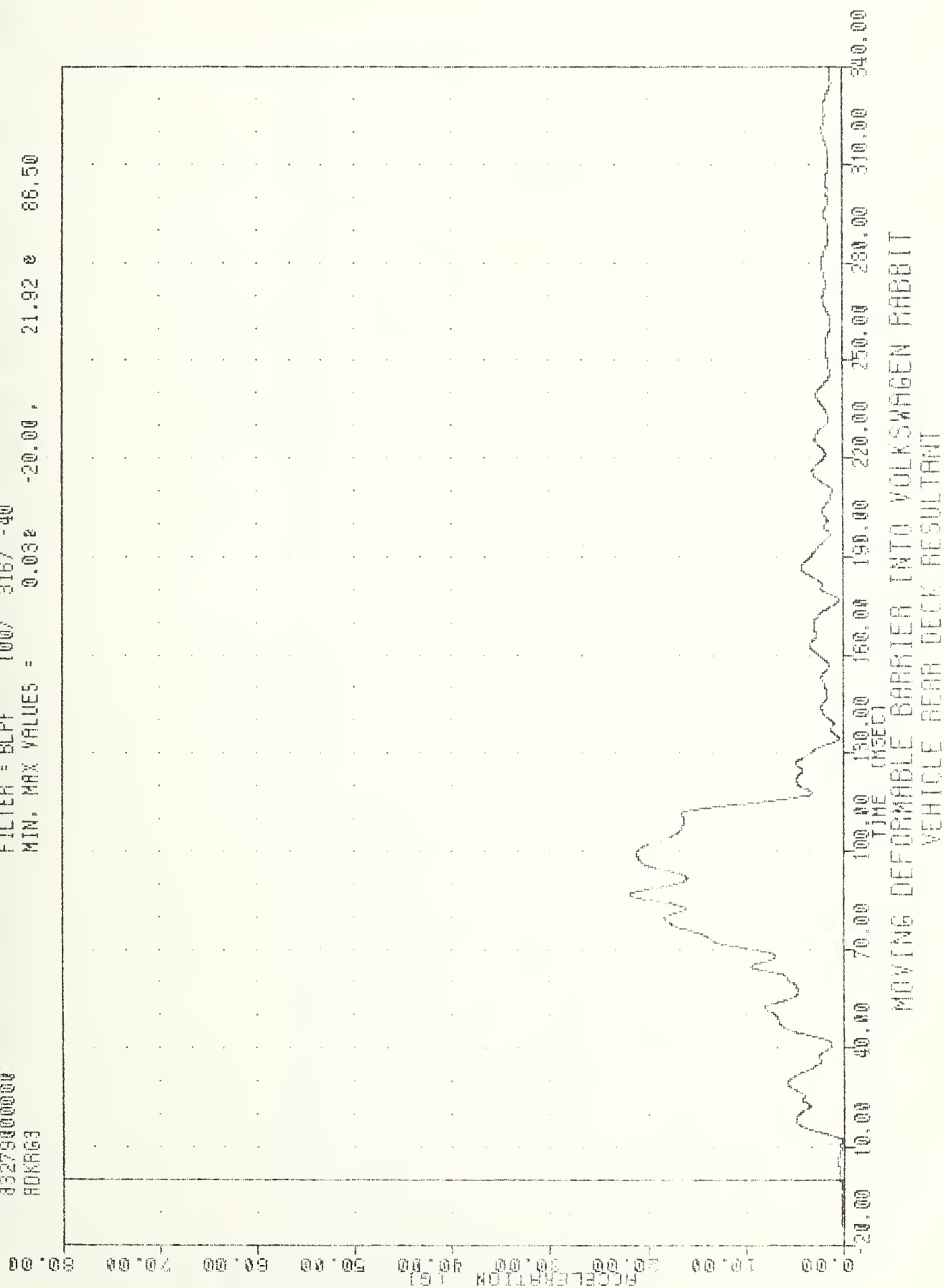
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE REAR DECK ACCELERATION Z AXIS

TRC , 831006
 EVALUATION OF MOD VN FLEET
 83279800000
 AOKRG3

PLU1 DATE 7-01-73 10:36:23

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = 0.032 -20.00, 21.92 86.50



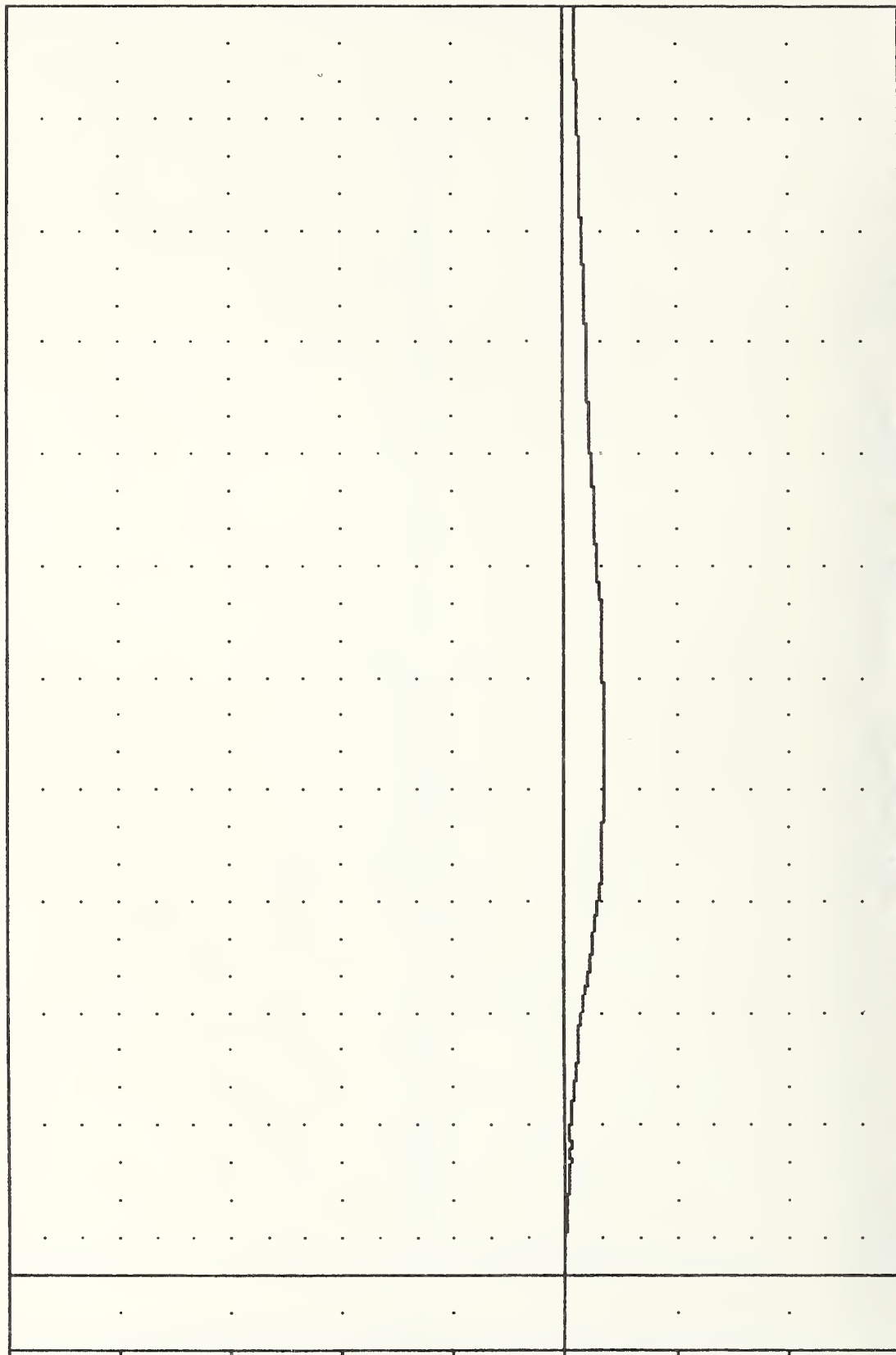
- SRL2b , 001006
 NOV BAR INTO VOLKS RABBIT
 83279
 RDKXV3

PLU, dAIL 25 OCT-80 14:00:25

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -7.248 132.38 , 0.00 8 -9.13

100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00

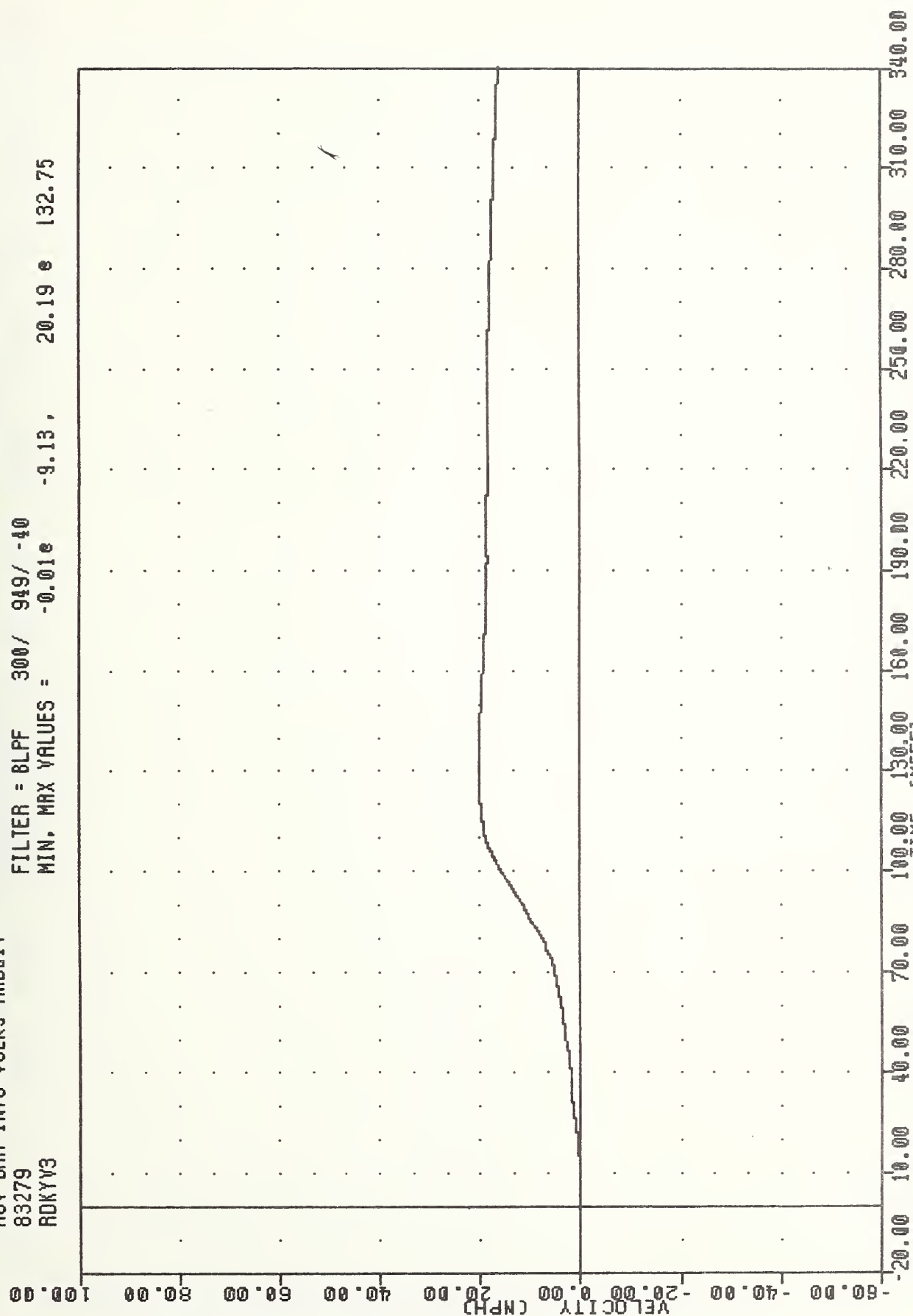


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING RDKXG3

0ML20 031000
 MOY BAR INTO VOLKS RABBIT
 83279
 RDKYV3

PLU1 WATE 20.19 14.23:25

FILTER = 8LPF 300/ 949/ -40
 MIN. MAX VALUES = -0.01e -9.13, 20.19 e 132.75



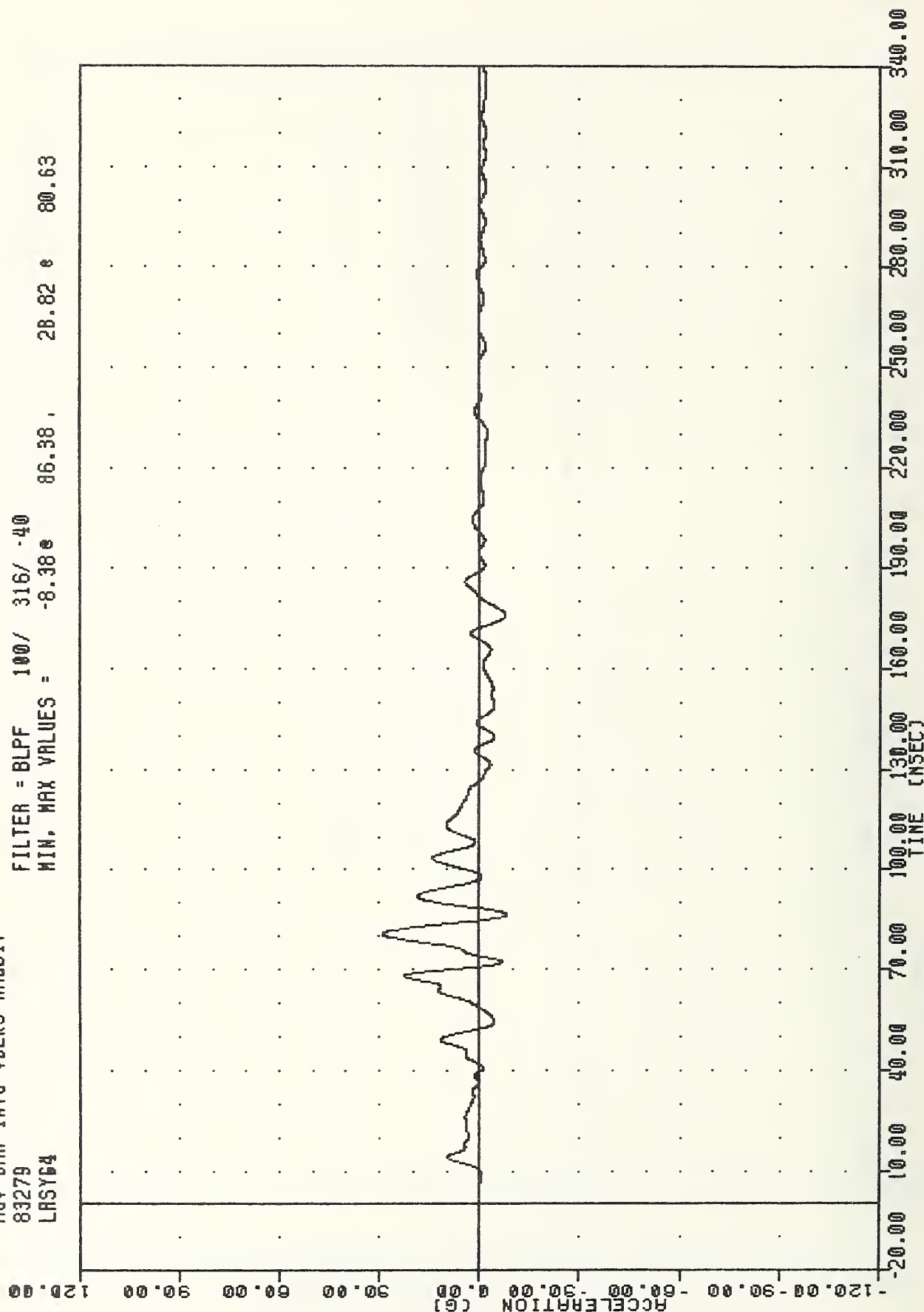
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA Y USING RDKY63

SAL2b , 831005
 MOV BAR INTO VOLKS RABBIT
 83279
 LASY64

PLU1 WHIE 25-ULI-83 14.11:53

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -8.38e 86.38 , 28.82 e 80.63

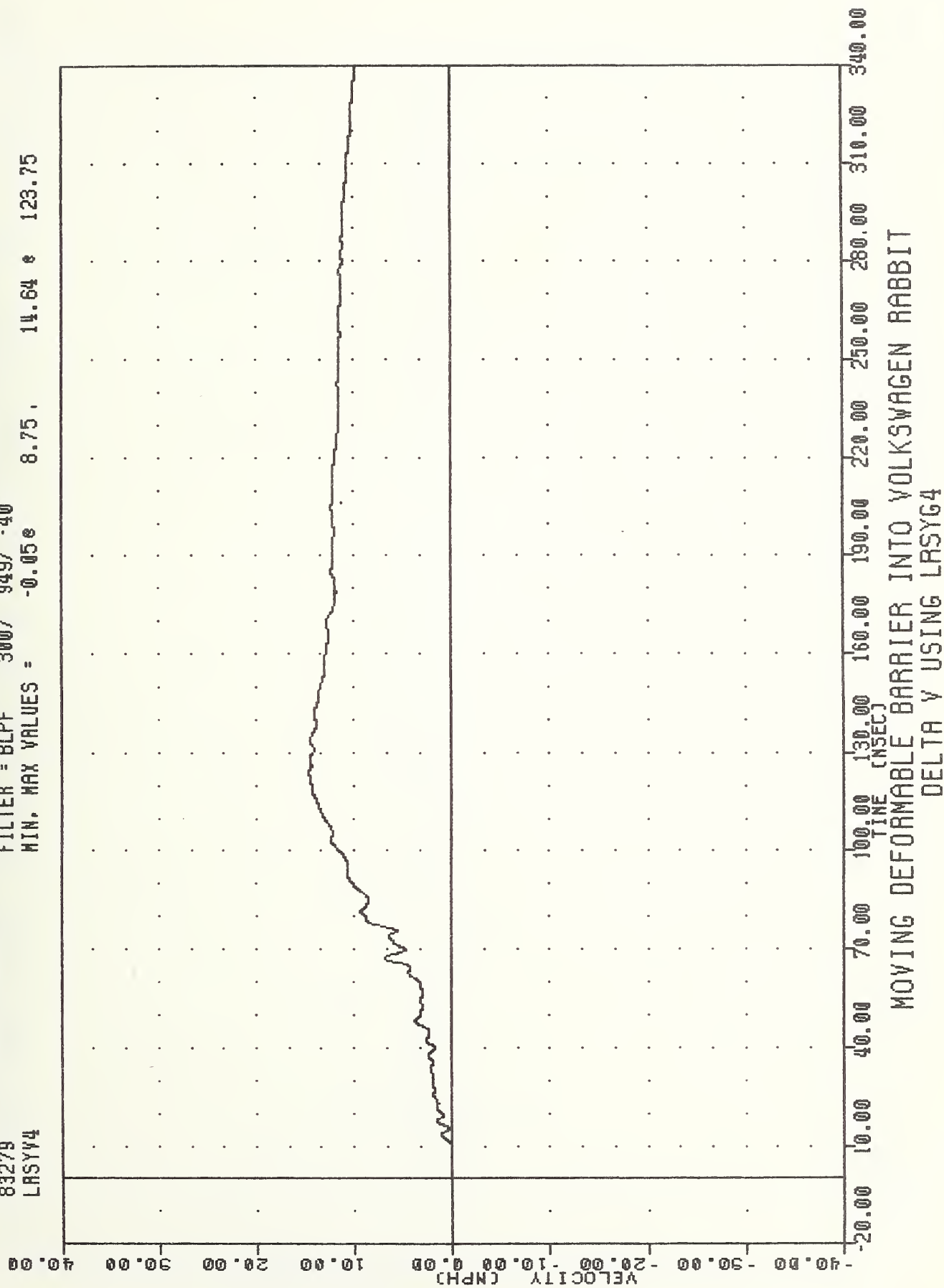


SAL26 , 031006
 MOV BAR INTO VOLKS RABBIT
 83279
 LASY44

PL01 DATE 25 OCT 85 14:22:29

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.05e 8.75, 14.64 e 123.75



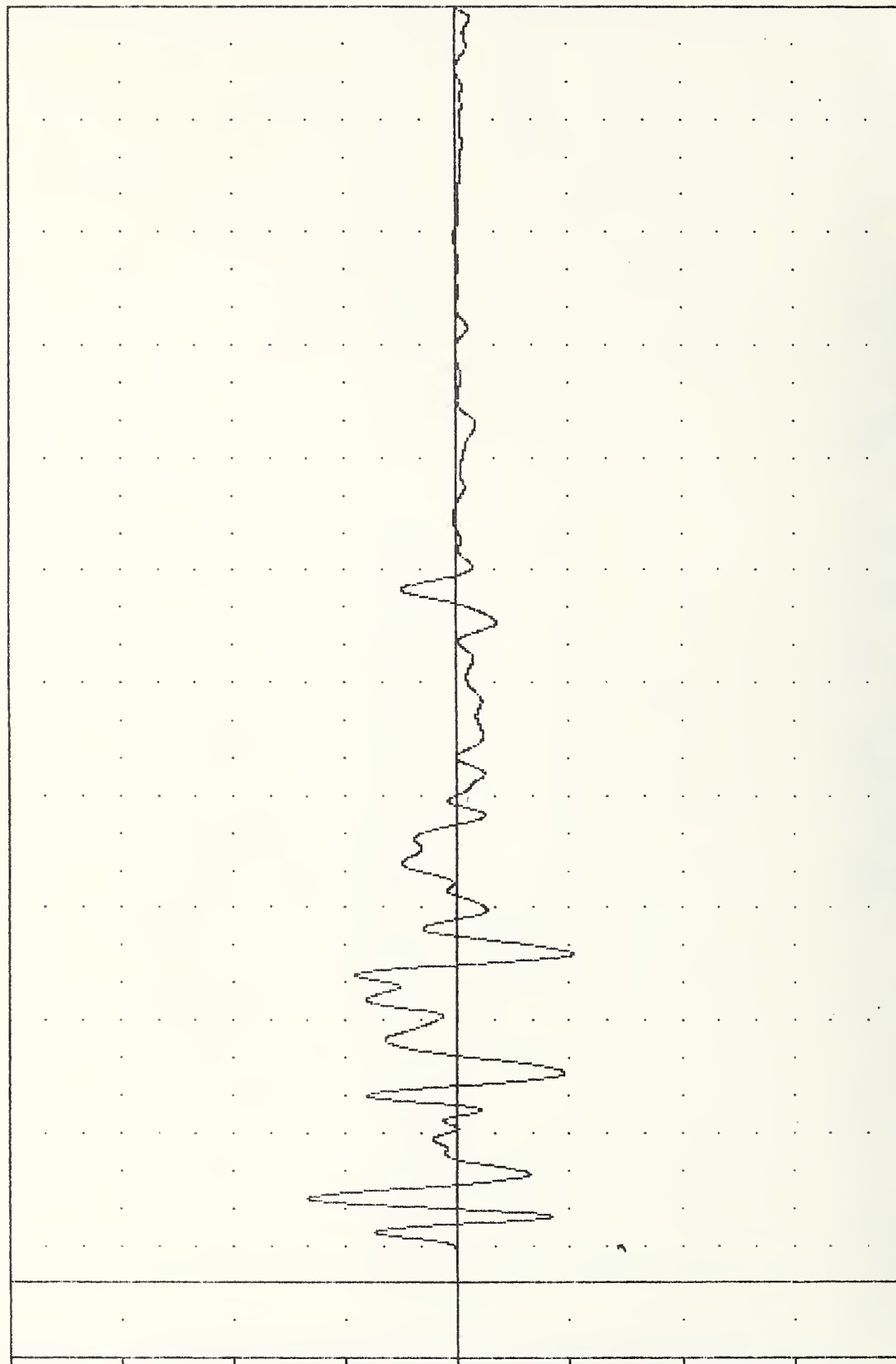
TAC , 83J006
 EVALUATION OF MOD VW FLEET
 83279000000
 LPSY65

PL01 DATE 7-JUL-83 10:30.58

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -31.05e 87.63 , 40.02 e 22.38

ACCELERATION (G)



TIME (msec)

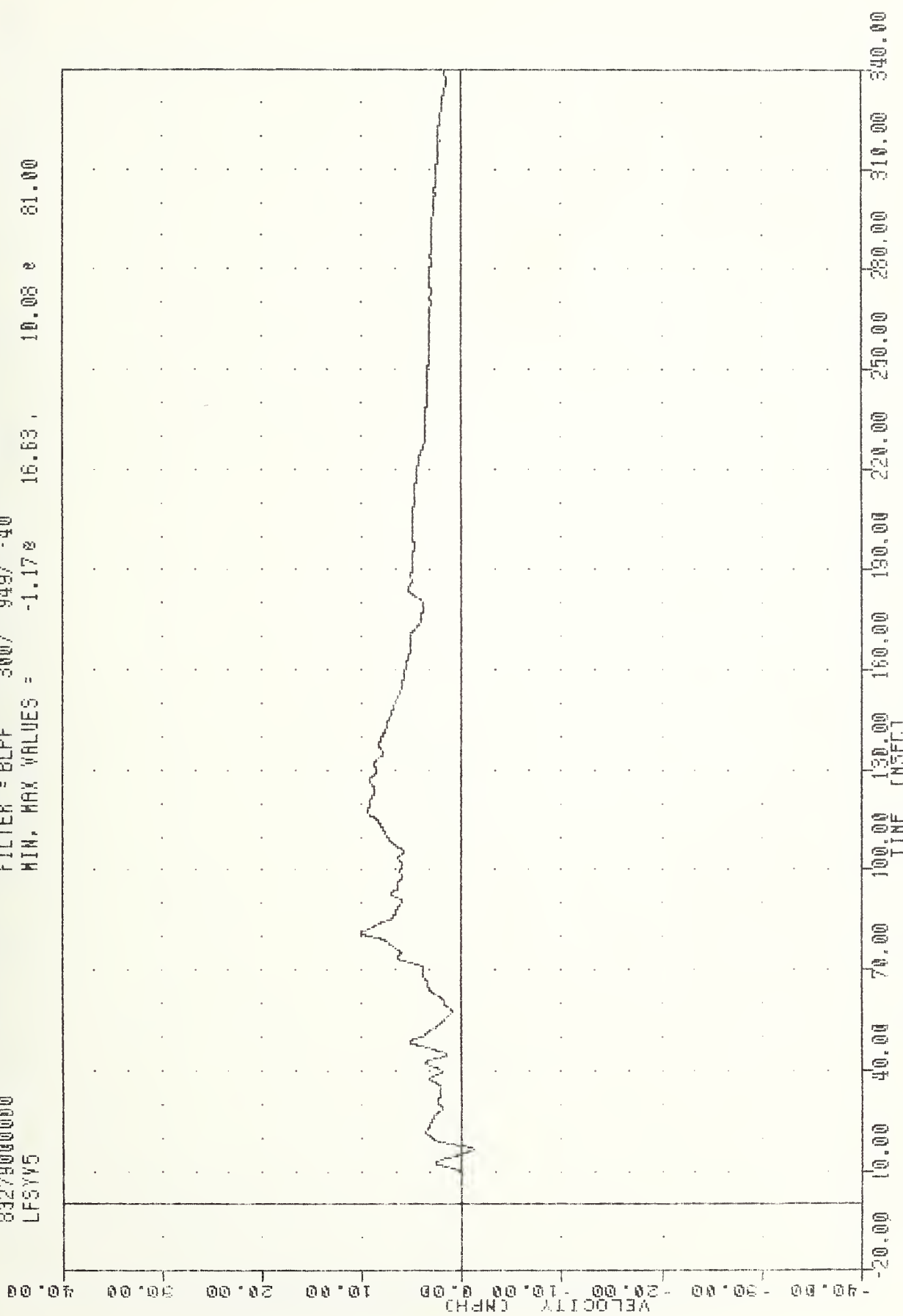
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT FRONT SILL ACCELERATION Y AXIS

IHC
 EVALUATION OF HOO VN FLEET
 83275000000
 LFSY95

PLU1 DATE 7-0UL-83 10:50:28

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -1.178 16.63 10.08 e 81.00



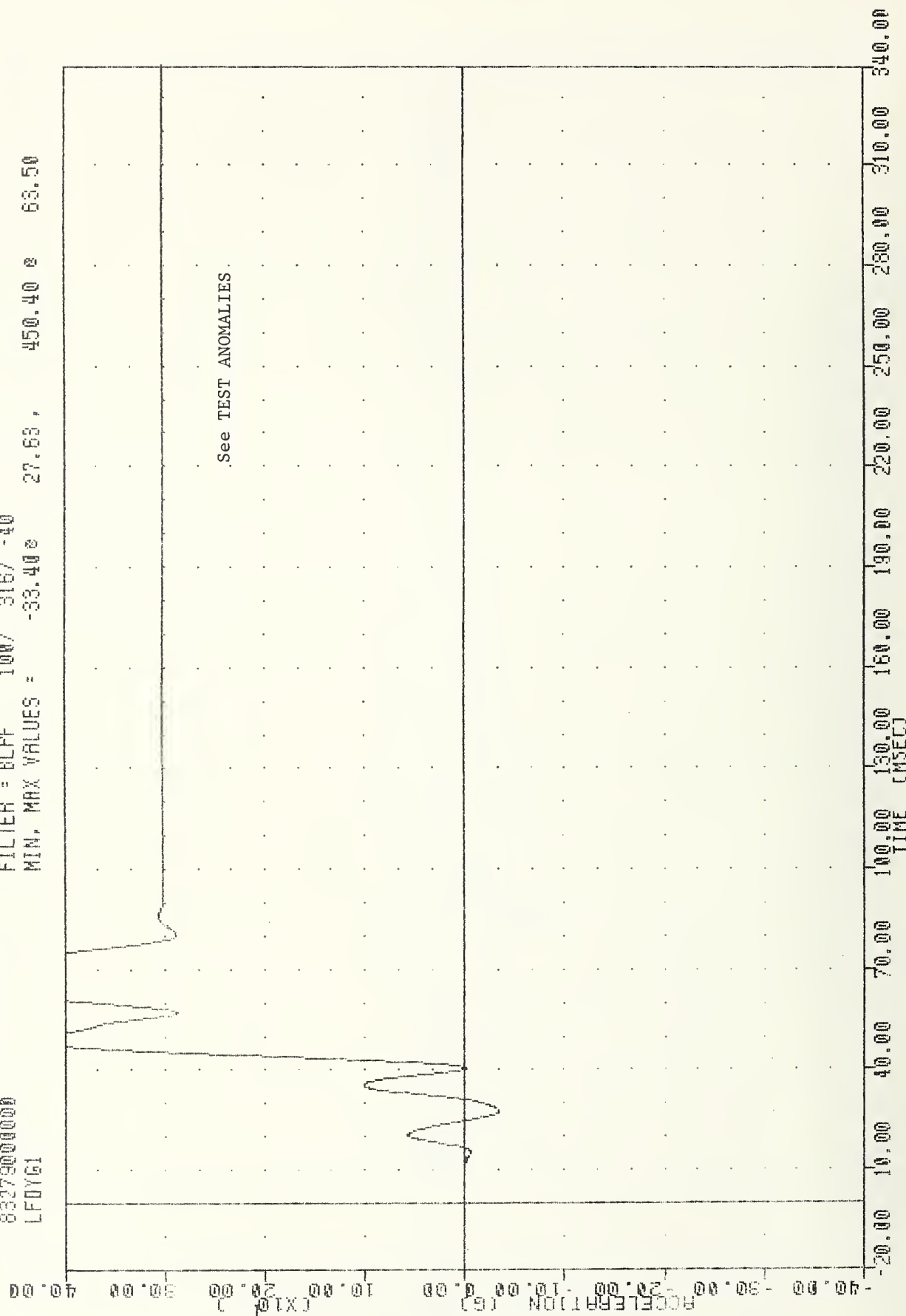
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LFSY65

TRC
EVALUATION OF MDD VW FLEET
832790000000
LFDY61

PLU1 DATE 7-JUL-83 10:36:58

FILTER = BLFF 100/ 316/ -40

MIN, MAX VALUES = -33.40 27.63, 450.40 63.50

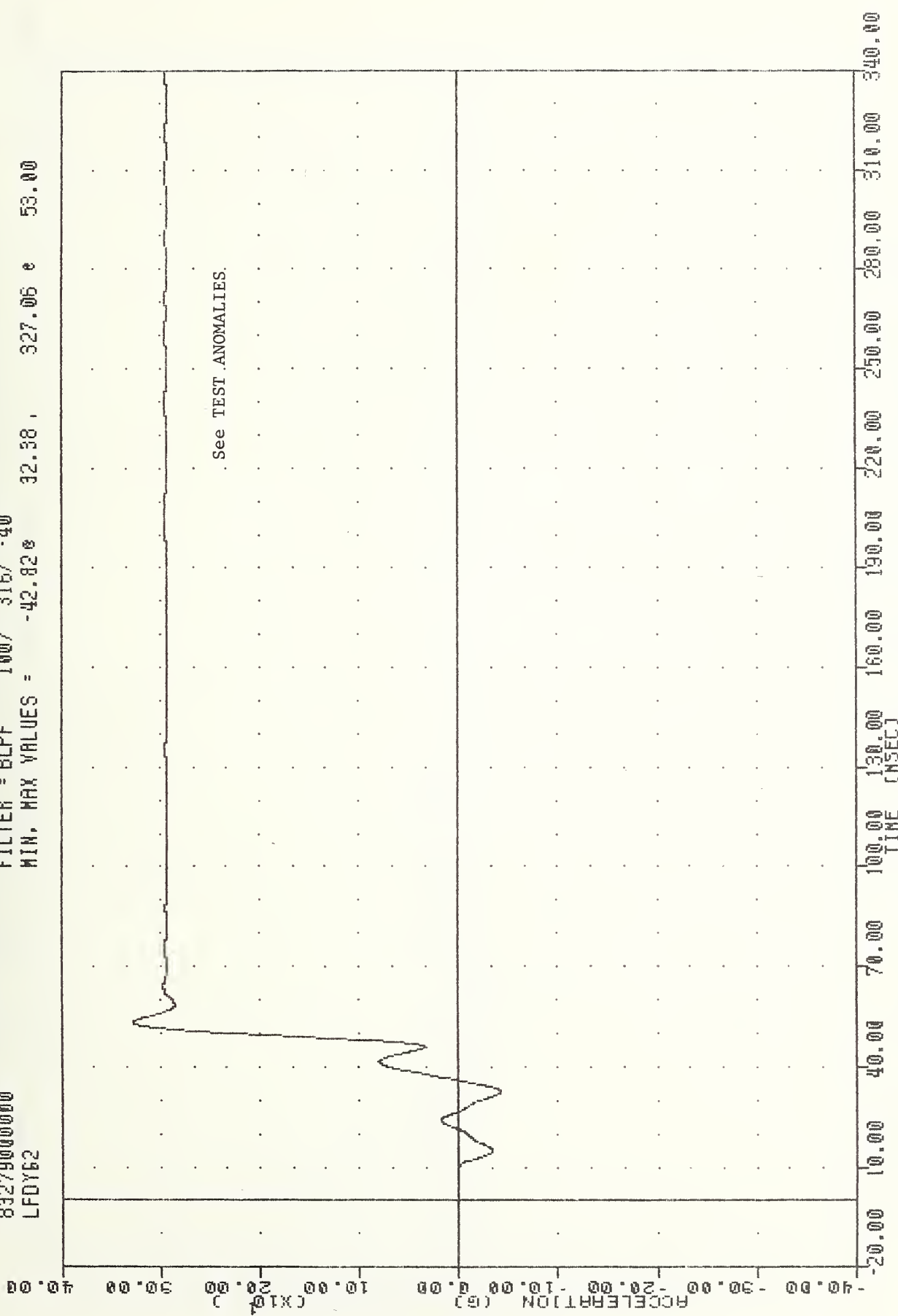


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR (POSITION 6) ACCELERATION Y AXIS

IHC
EVALUATION OF MOD VW FLEET
83279000000
LFDY62

PLU1 DATE 7-JUL-83 10:36:58

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -42.82 32.38, 327.05 53.00



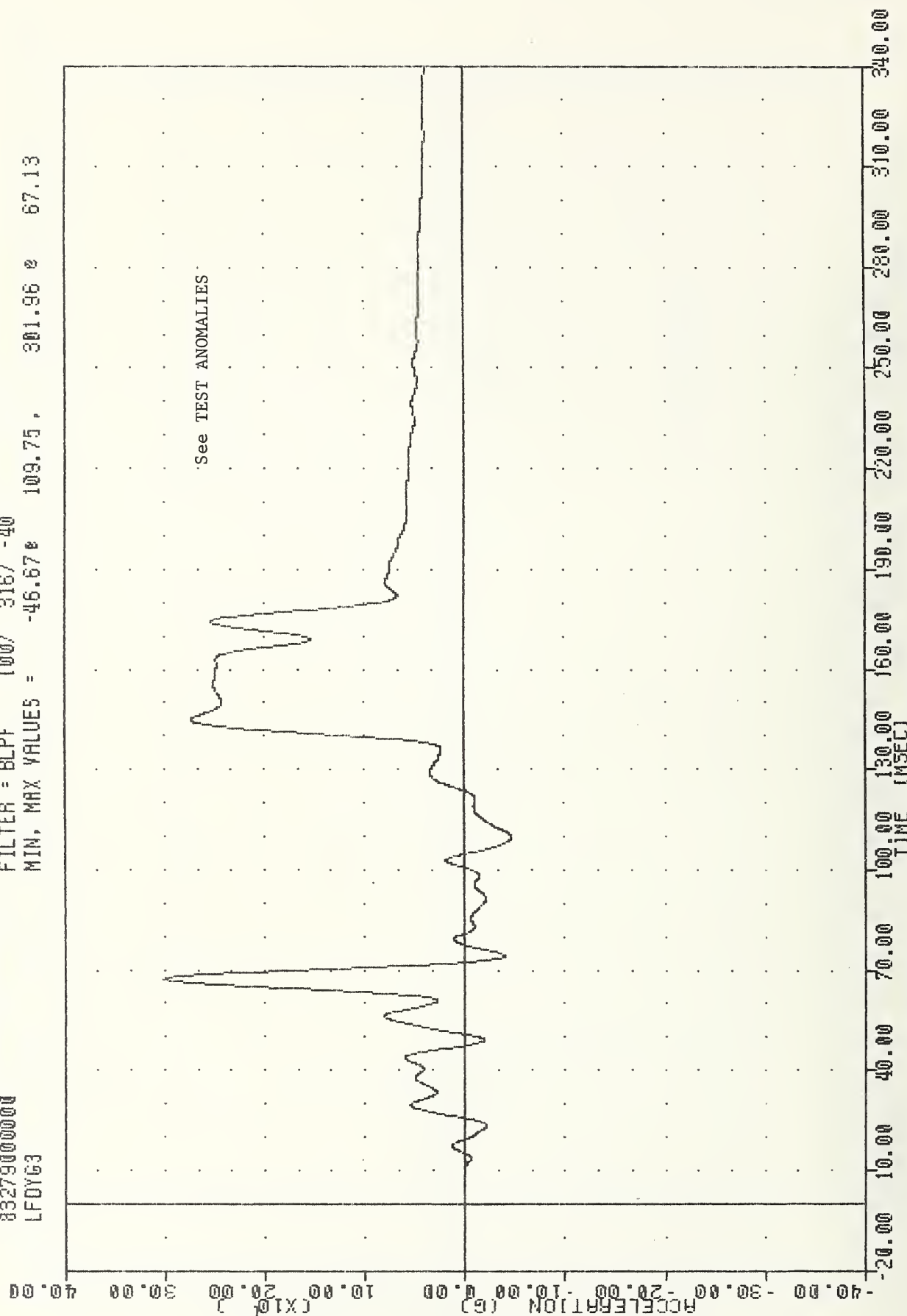
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR (POSITION 8) ACCELERATION Y AXIS

IRC , 831006
EVALUATION OF MOD VW FLEET
83279000000
LFDY63

PLU1 DATE 7-001-83 10:36:58

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -46.67e 109.75, 301.96 e 67.13



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

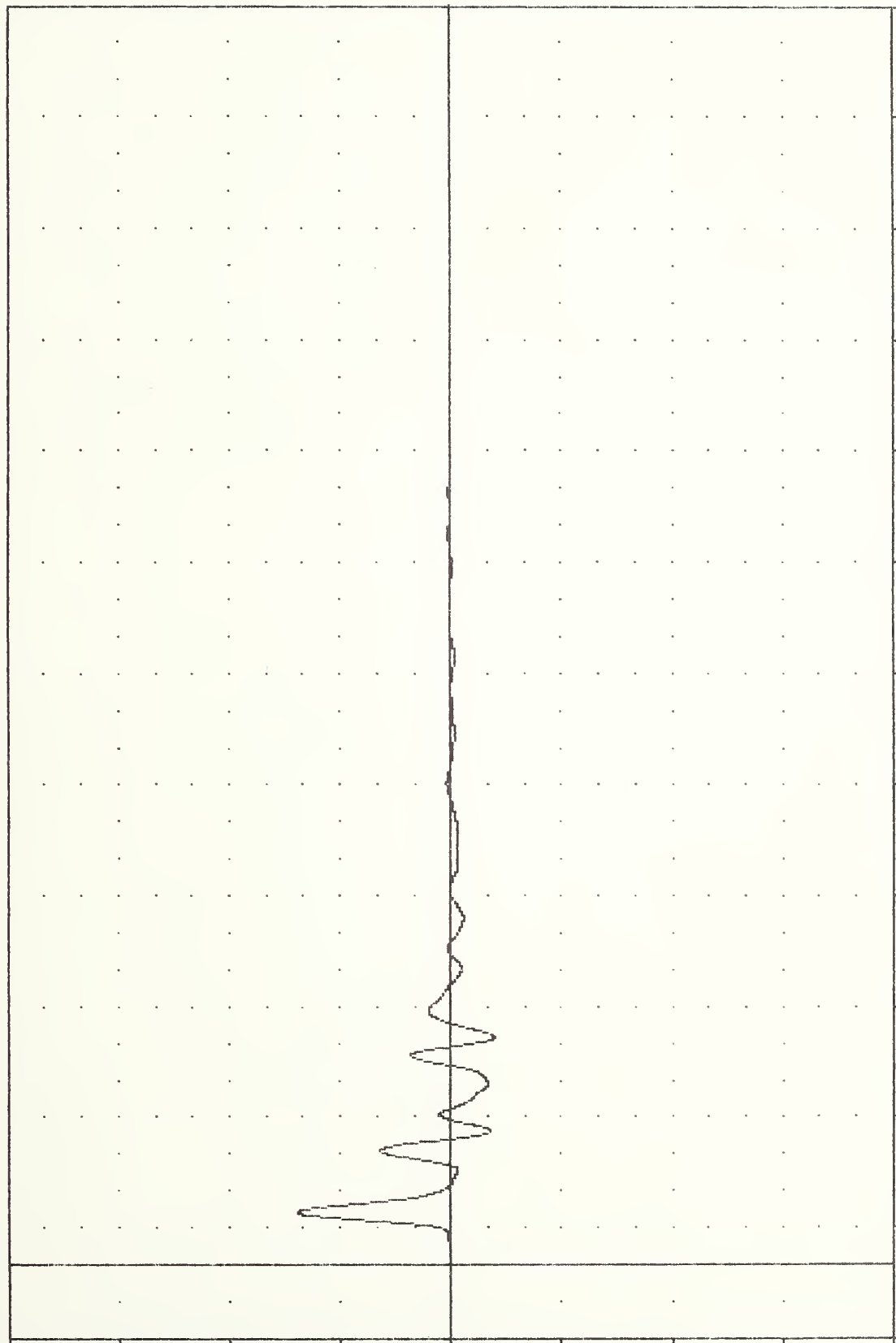
TRC , 831006
 EVALUATION OF MOD VW FLEET
 832790000000
 LFDY64

PLOT DATE 7-OCT-83 10:36:56

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -39.21e 61.63, 138.58 e 14.00

ACCELERATION (G)
 (X10⁻²)



TIME (MSEC)

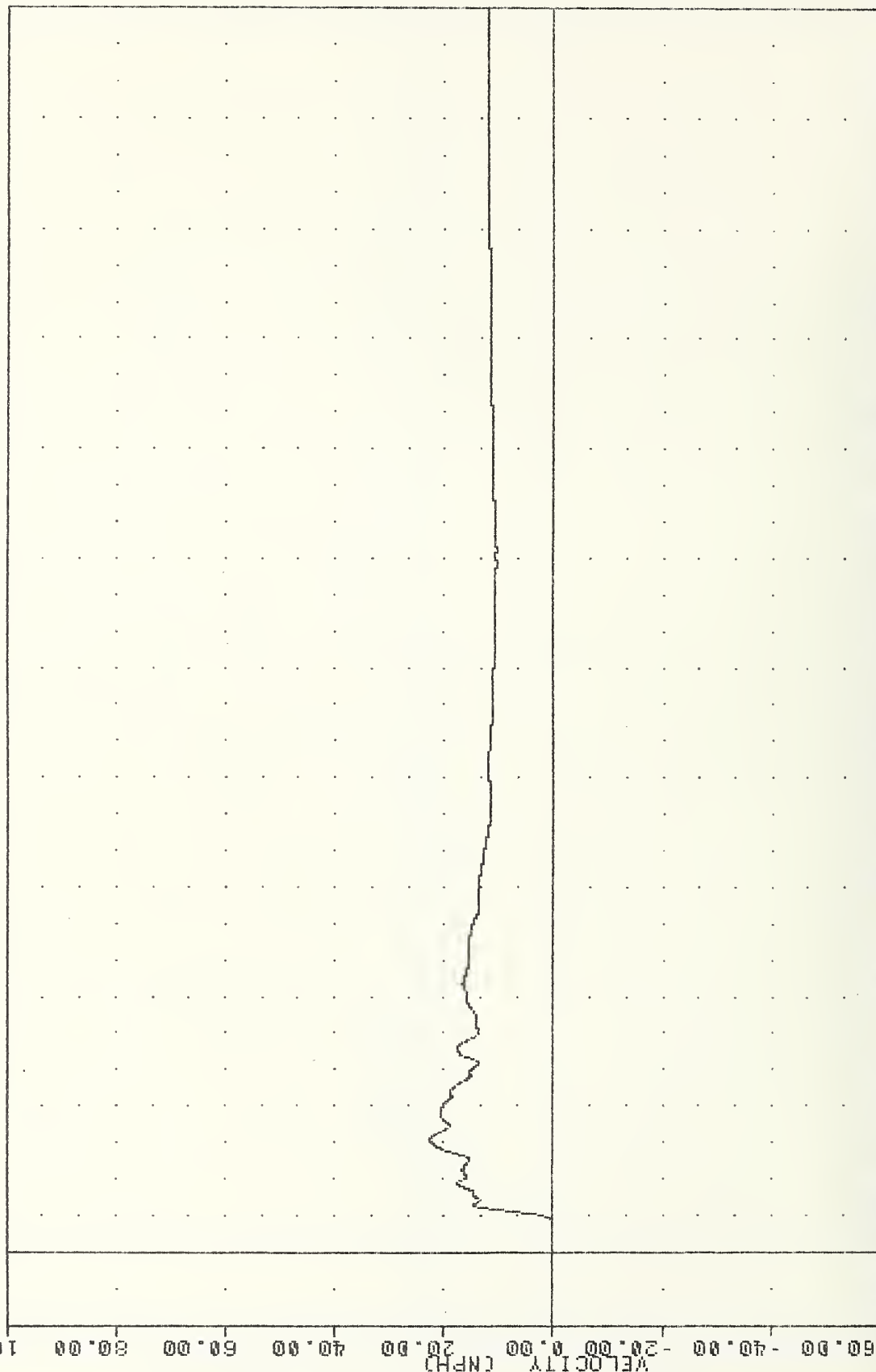
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT FRONT DOOR (POSITION 10) ACCELERATION Y AXIS

INC 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 LFDYV4

PLU1 UH1E 7-UC1-83 10:36:28

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -0.020 2.63, 22.57 0 30.50

100.00
 80.00
 60.00
 40.00
 20.00
 0.00
 -20.00
 -40.00
 -60.00
 -80.00
 -100.00



-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
 DELTA V USING LFDYV4

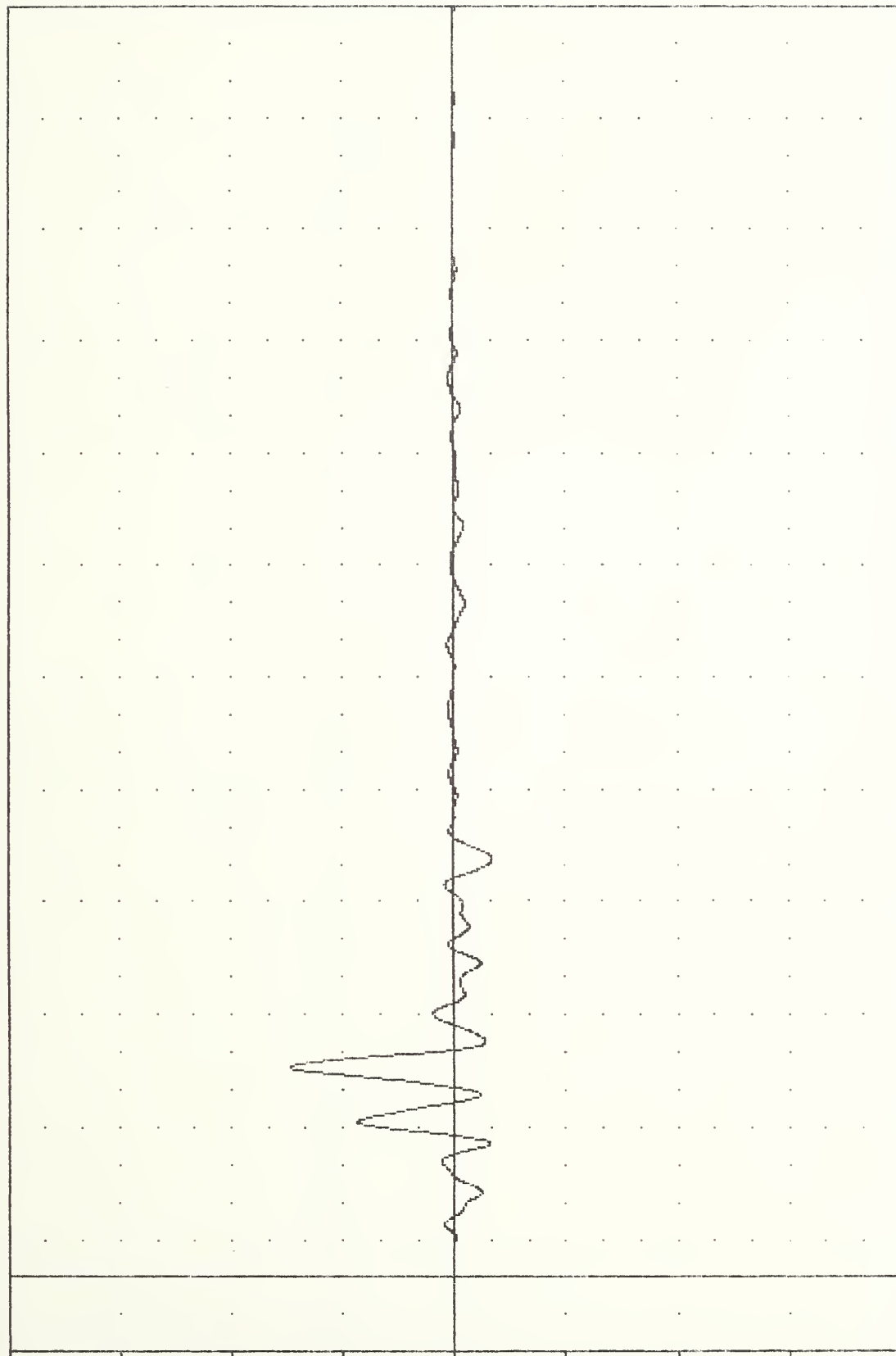
TAC
EVALUATION OF MOD VN FLEET
83279000000
LFDY65

PLU1 UN1E 7-001-83 10:50:56

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -34.438 111.38 147.74 e 55.88

ACCELERATION (g)
(x10⁴)

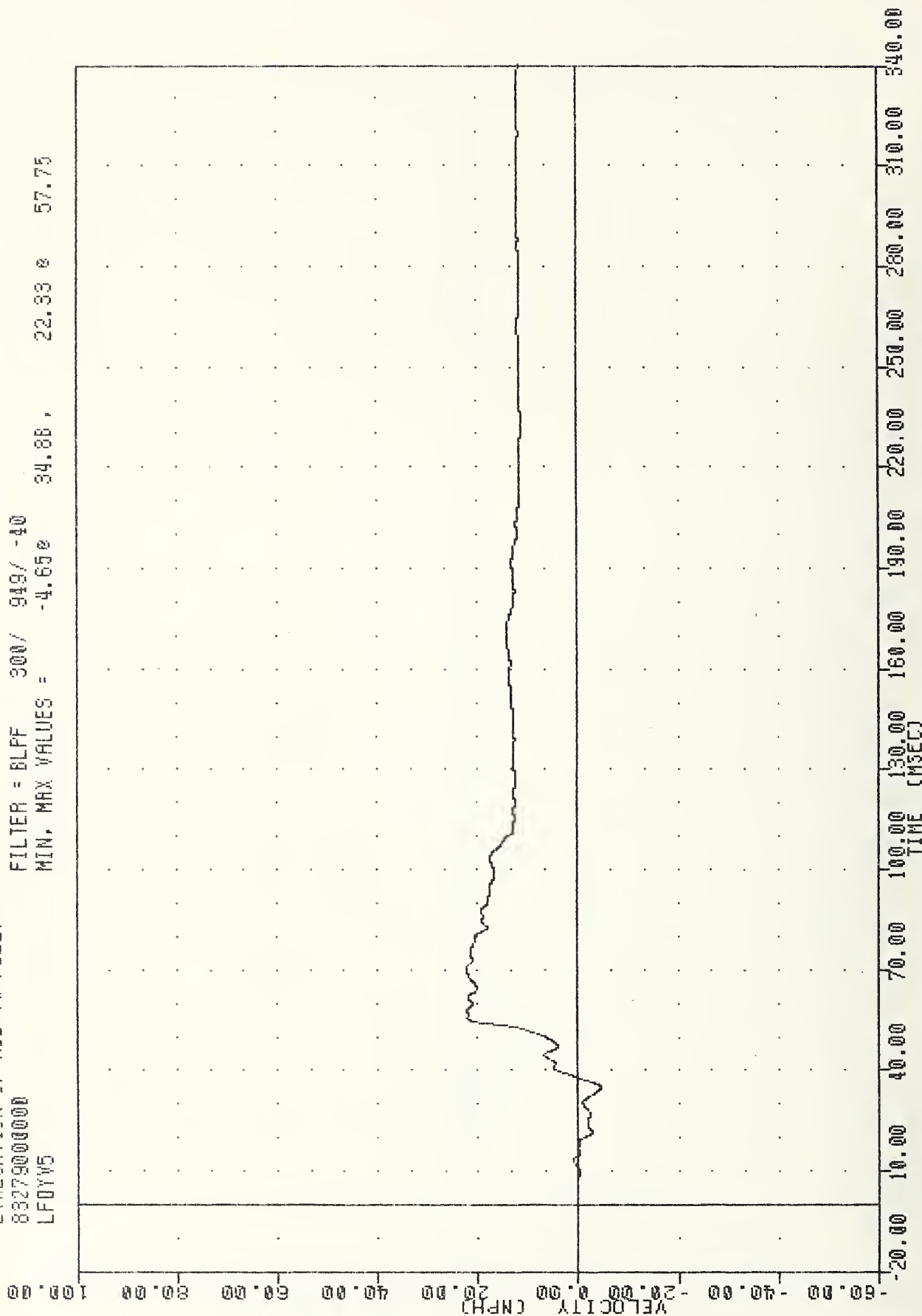


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR (POSITION 11) ACCELERATION Y AXIS

TRC , 831006
EVALUATION OF MOD VW FLEET
83279000000
LFDYV5

PLOT DATE 7-OCT-83 10:38:28

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -4.65e 34.86 , 22.33 e 57.75



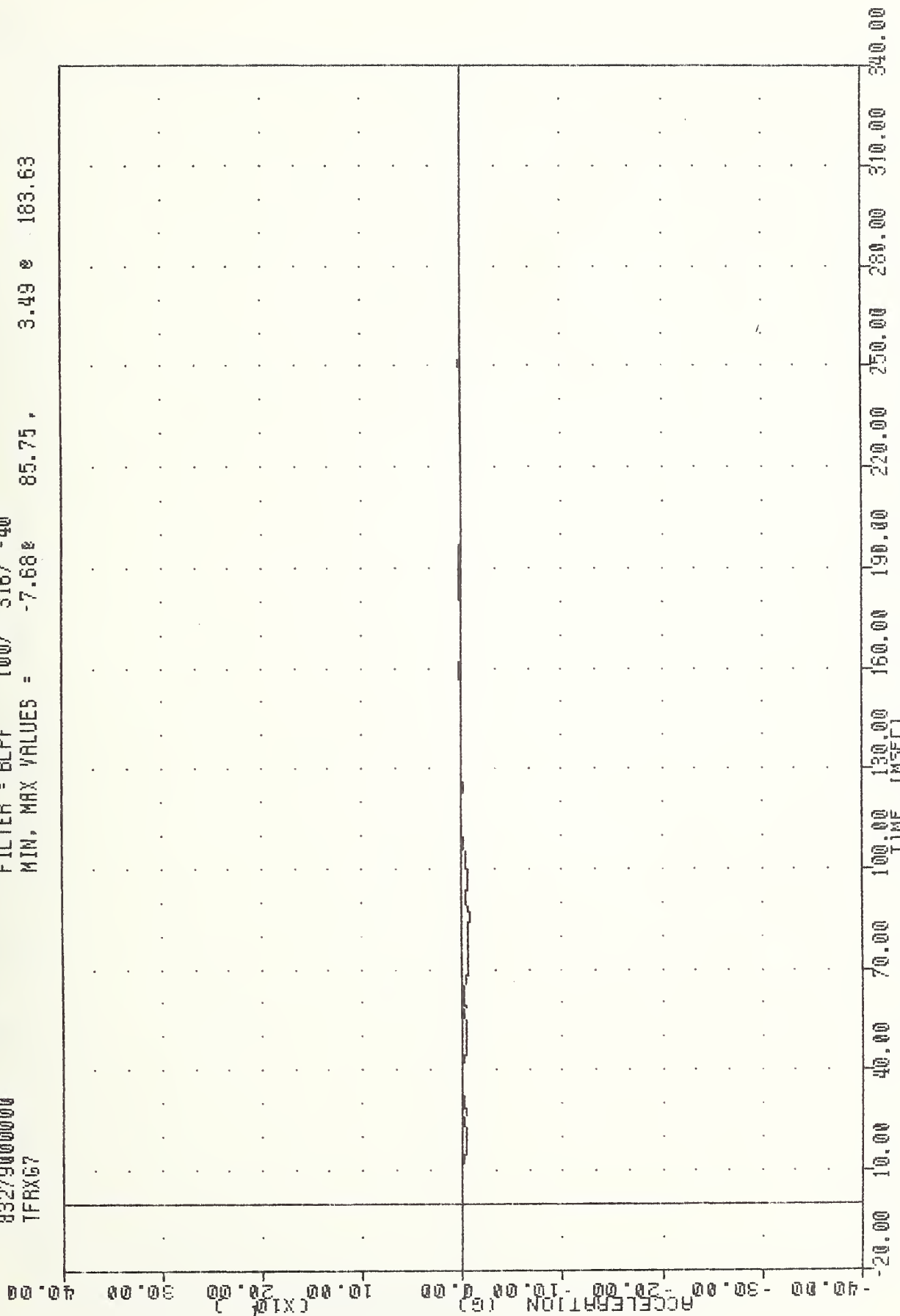
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LFDY65

TRC
EVALUATION OF MOD YW FLEET
83279000000
TFRXG7

PLUI DATE 7-OCT-83 10:36:58

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -7.68e 85.75, 3.49 e 183.63



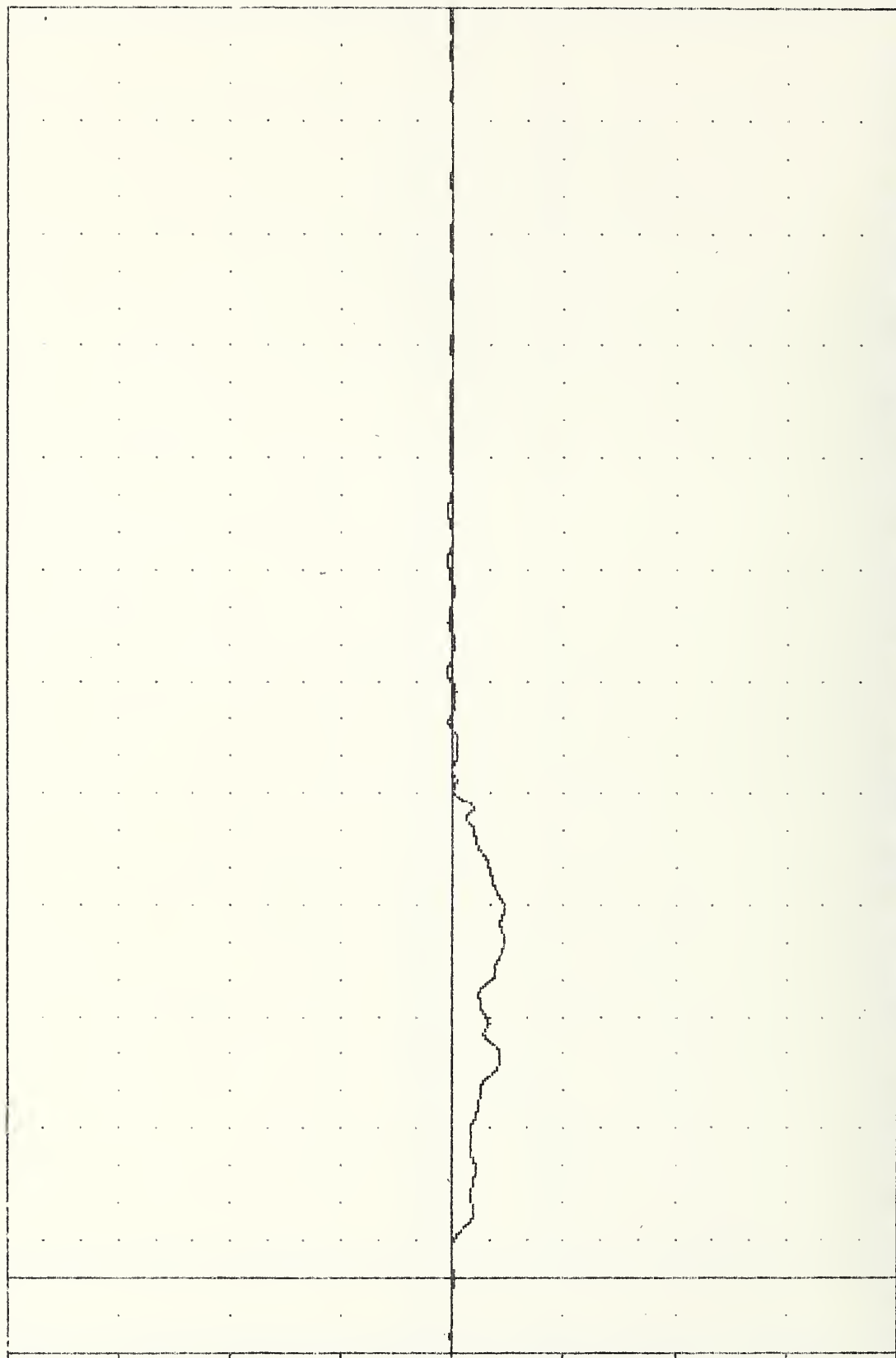
TRC 831006
 EVALUATION OF MOD VV FLEET
 83279000000
 BCCXG

PLOT DATE 7-JUL-83 10:30:50

FILTER = BLFF 100/ 316/ -40

MIN. MAX VALUES = -9.30E 98.75, 0.99 E 162.25

ACCELERATION [G]



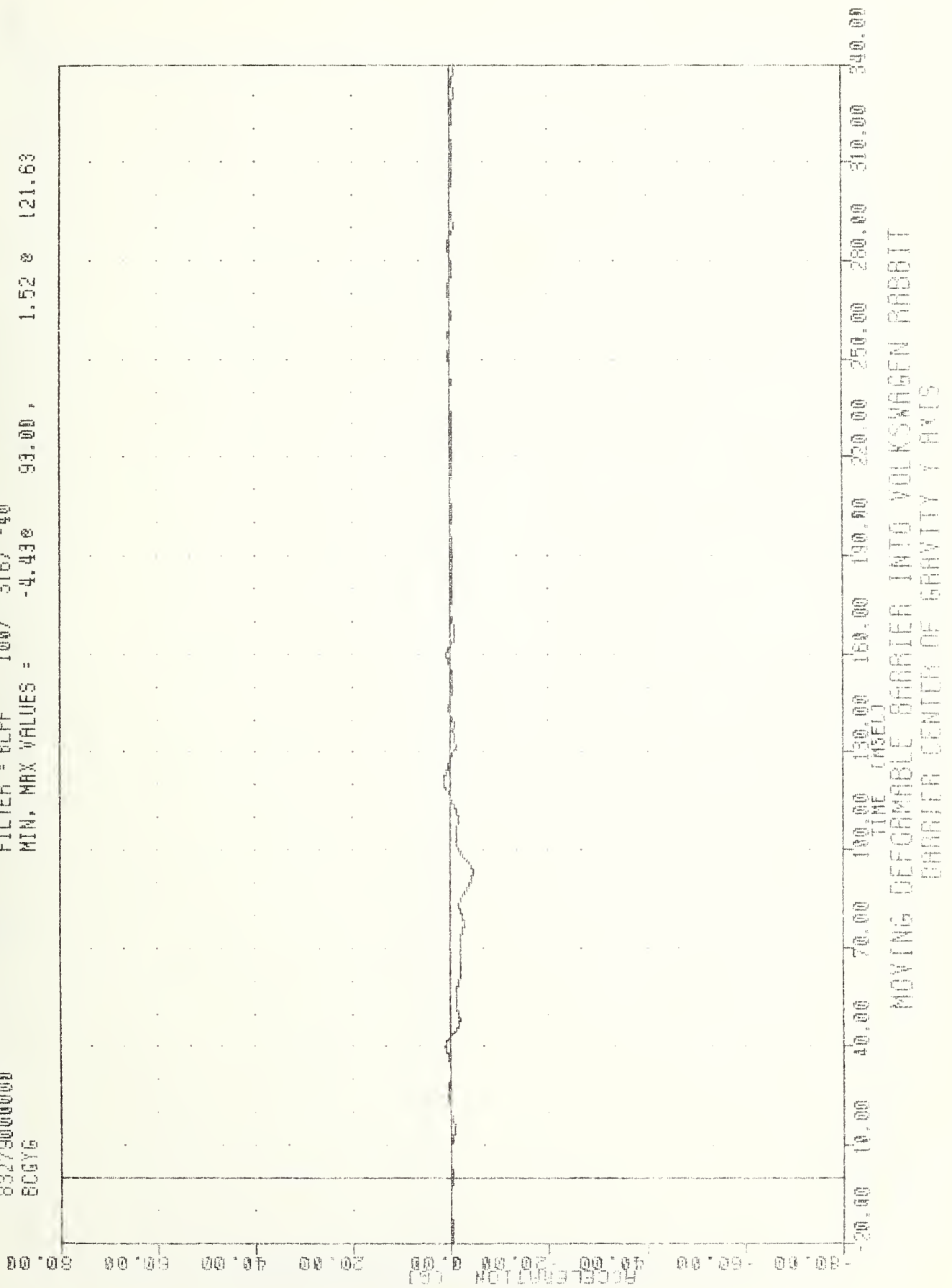
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER CENTER OF GRAVITY X AXIS

TRC
EVALUATION OF MOD VW FLEET
832790000000
BCGYG

PLU1 UN1E 7-UL1-80 10:36:58

FILTER = 8LFF 100/ 316/ -40

MIN. MAX VALUES = -4.43e 93.00, 1.52 e 121.63

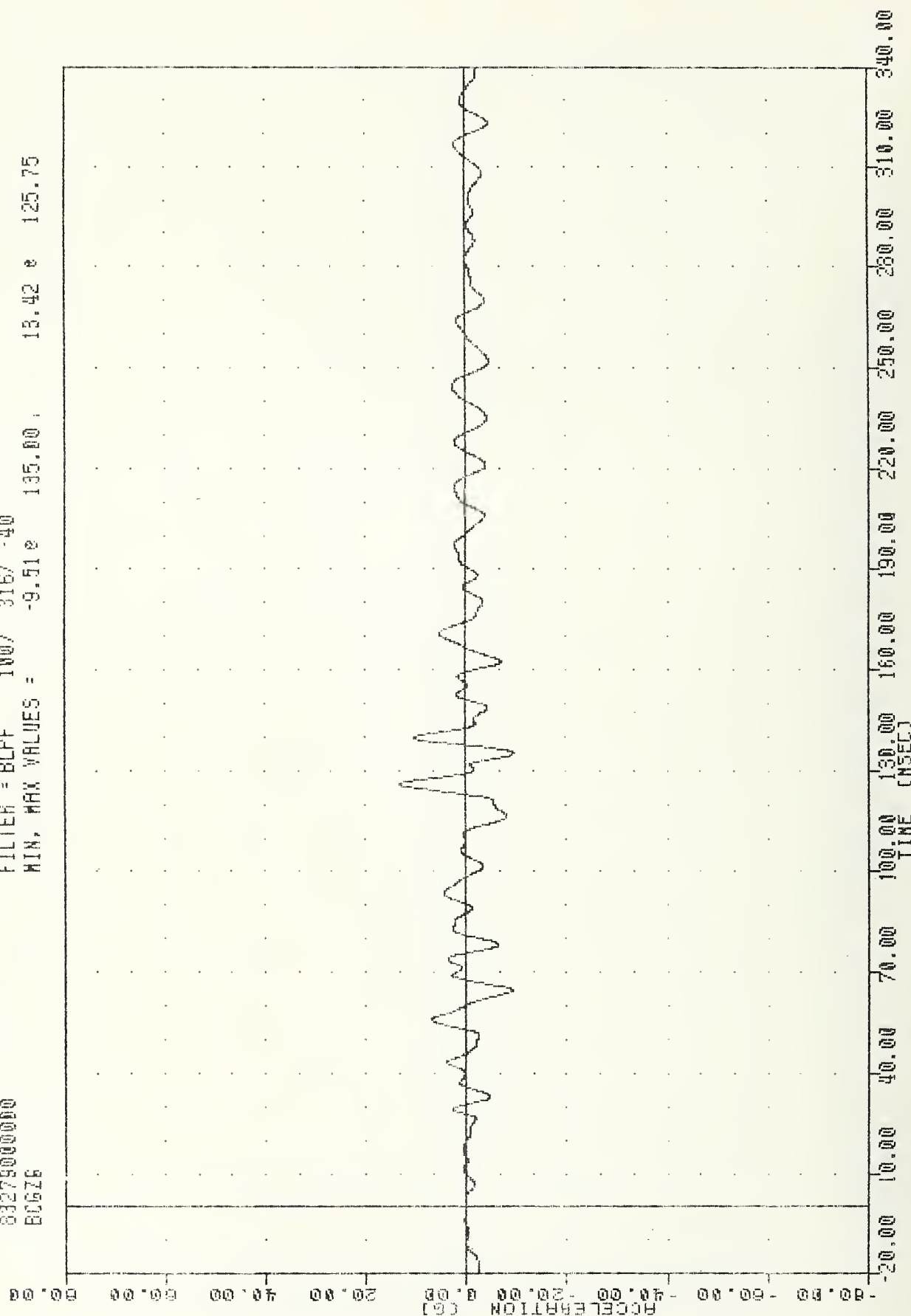


TAC 831006
 EVALUATION OF MOD VN FLEET
 83279000000
 BCGZE

PL01 DATE 7-OCT-83 10:36:58

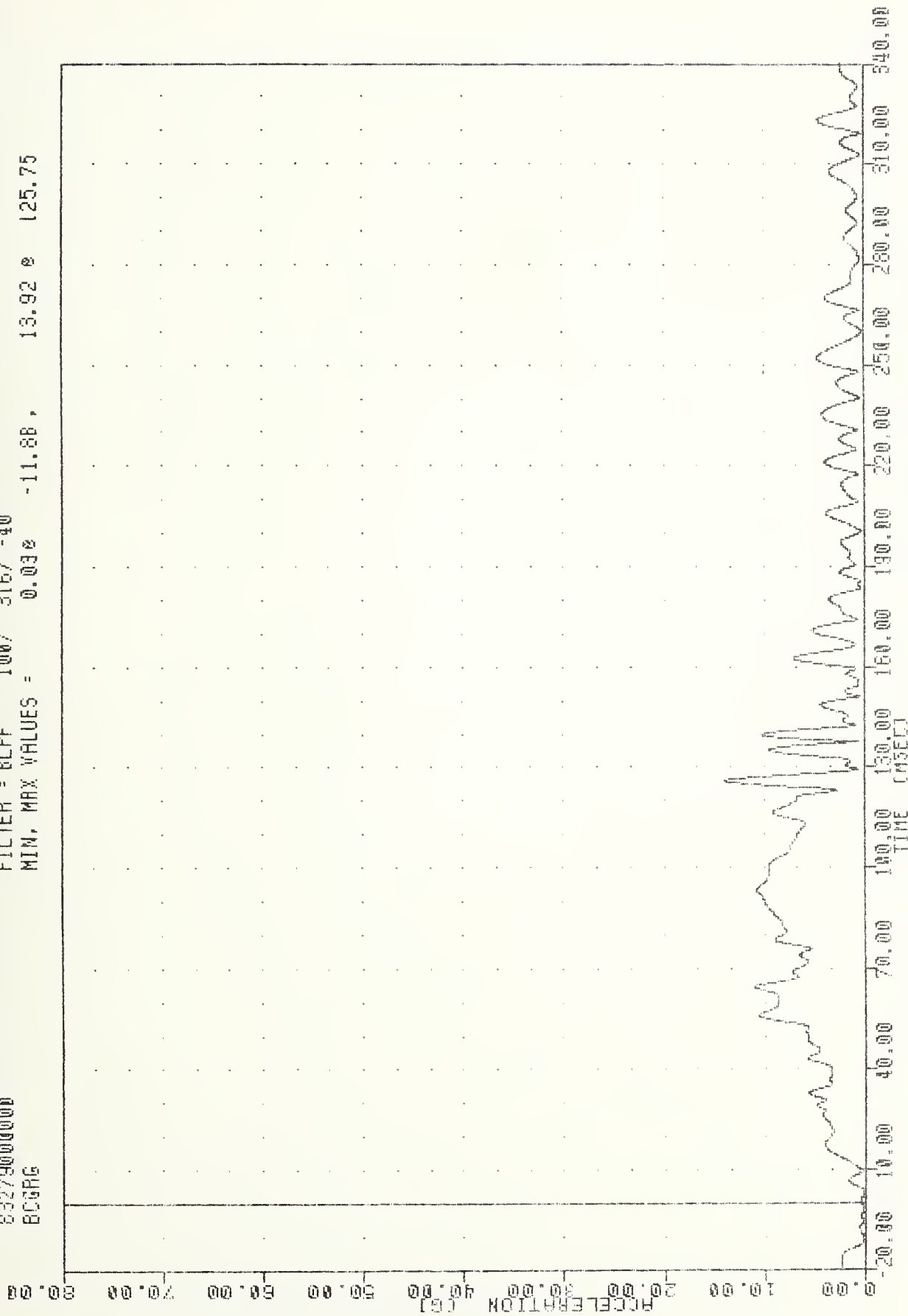
FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -9.51e 135.00, 13.42 e 125.75



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

TRC 831006
 EVALUATION OF MOD VW FLEET
 83279000000
 BCGRG
 PLUT DATE 7-JUL-83 10:58:23
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = 0.038 -11.88, 13.92 125.75



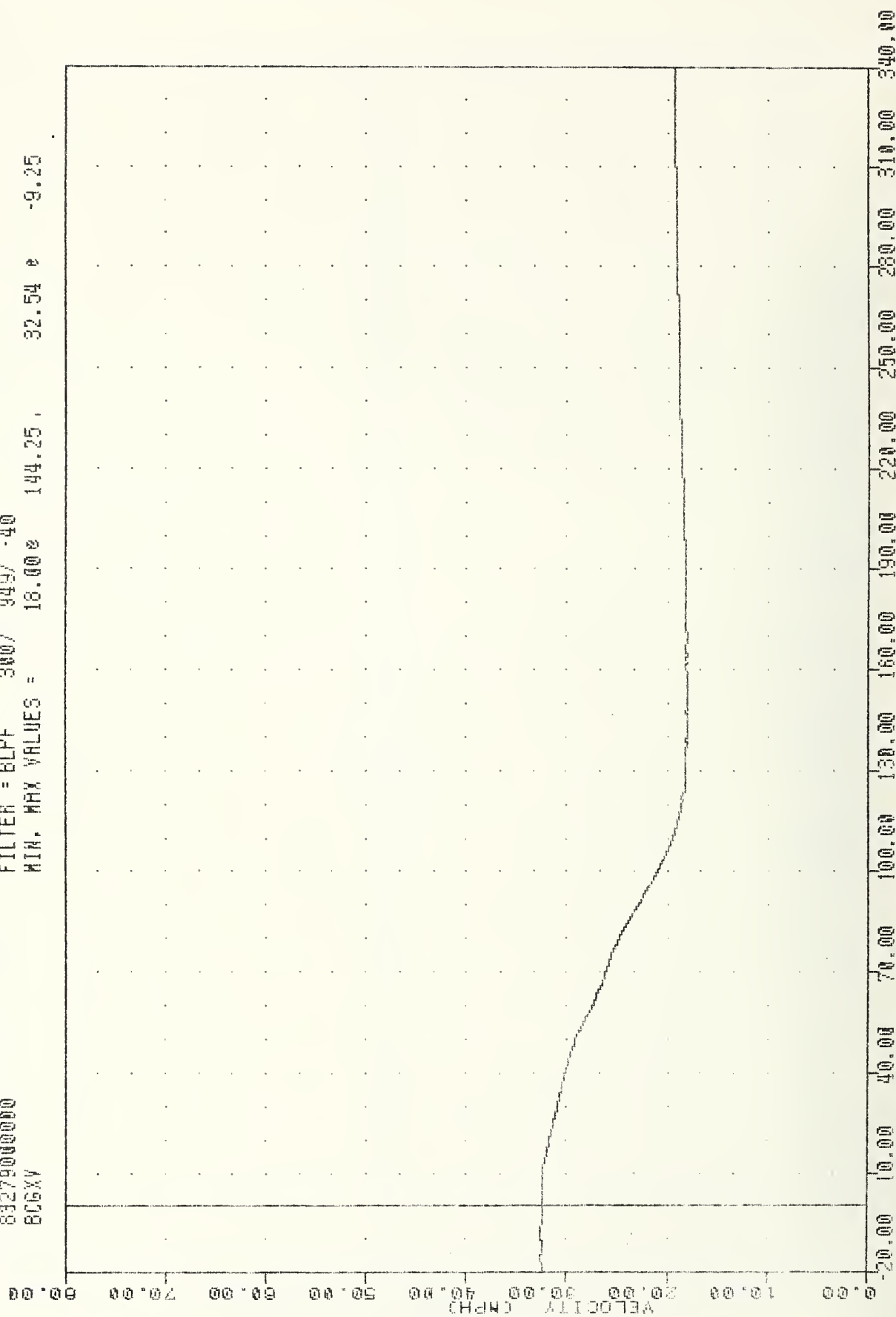
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER CG RESULTANT

TAC , 831006
 EVALUATION OF MOD VN FLEET
 83279000000
 BCGXV

FLUT DATE 7-OCT-83 10:38:28

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 18.000 144.25 , 32.54 0 -9.25



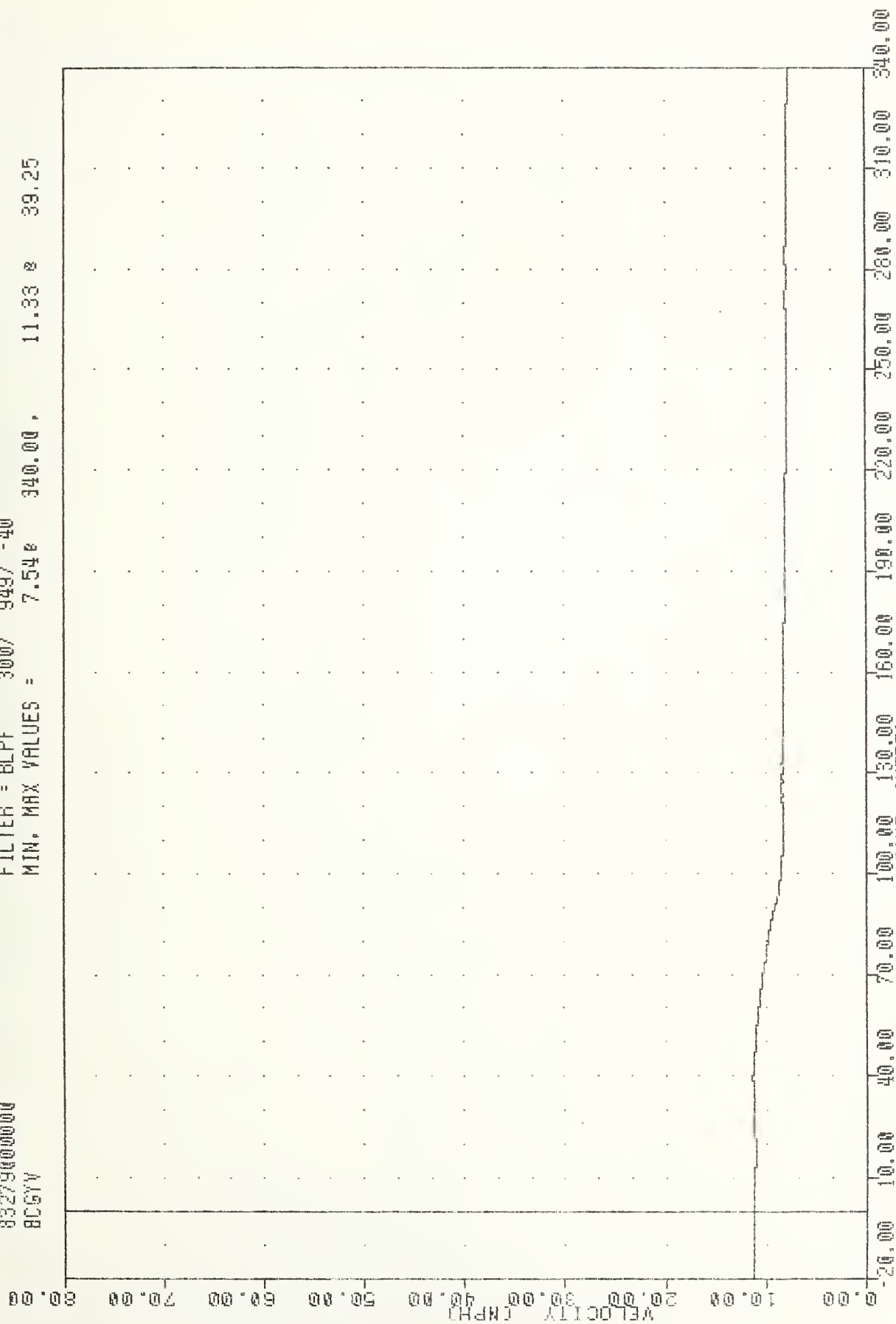
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING BCGXG

TRC
EVALUATION OF MDD YW FLEET
83279000000
BCGY

PLOT DATE 7-JUL-83 10:38:28

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = 7.54e 340.00, 11.33 e 39.25



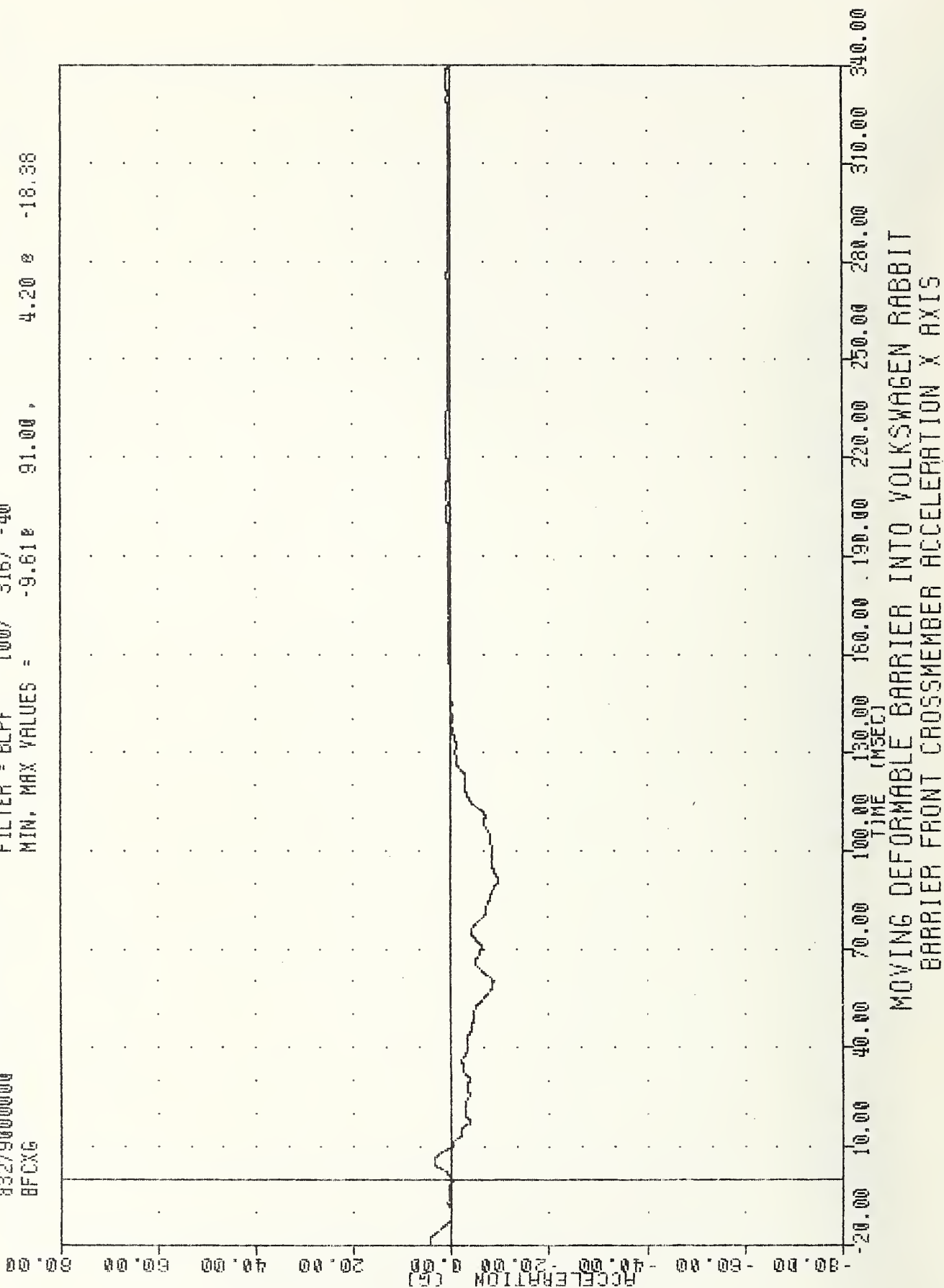
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING BCGYG

TRC , 831006
 EVALUATION OF MOD YW FLEET
 83279000000
 BFCXG

PLU1 DATE 7-JUL-83 10:36:56

FILTER = BLPF 100/ 316/ -40

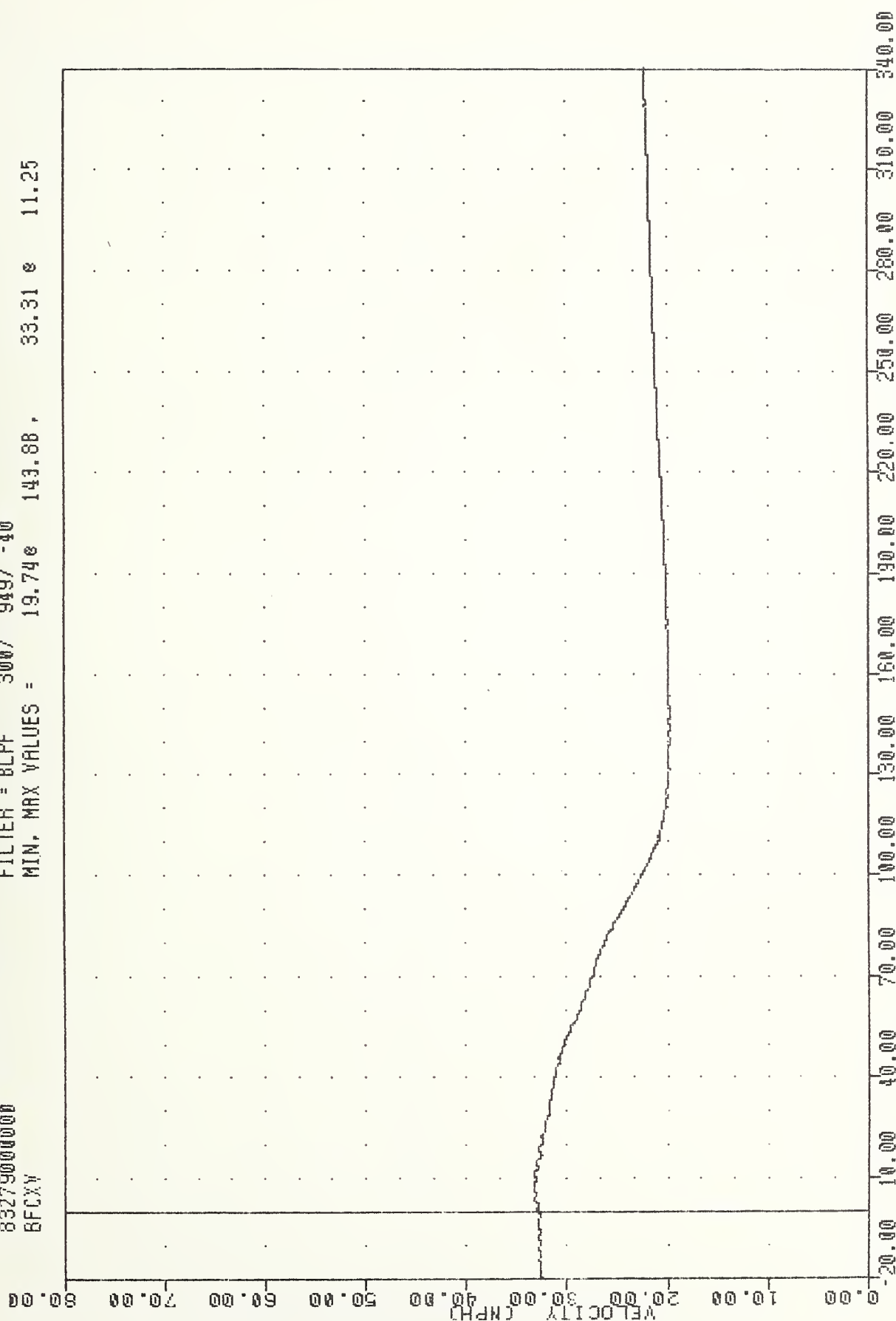
MIN, MAX VALUES = -9.61e 91.00, 4.20 e -18.38



TRC , 831006
 EVALUATION OF MDD VW FLEET
 83279000000
 BFCXY

PLOT DATE 7-OCT-83 10:38:28

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 19.74e 143.88, 33.31 e 11.25



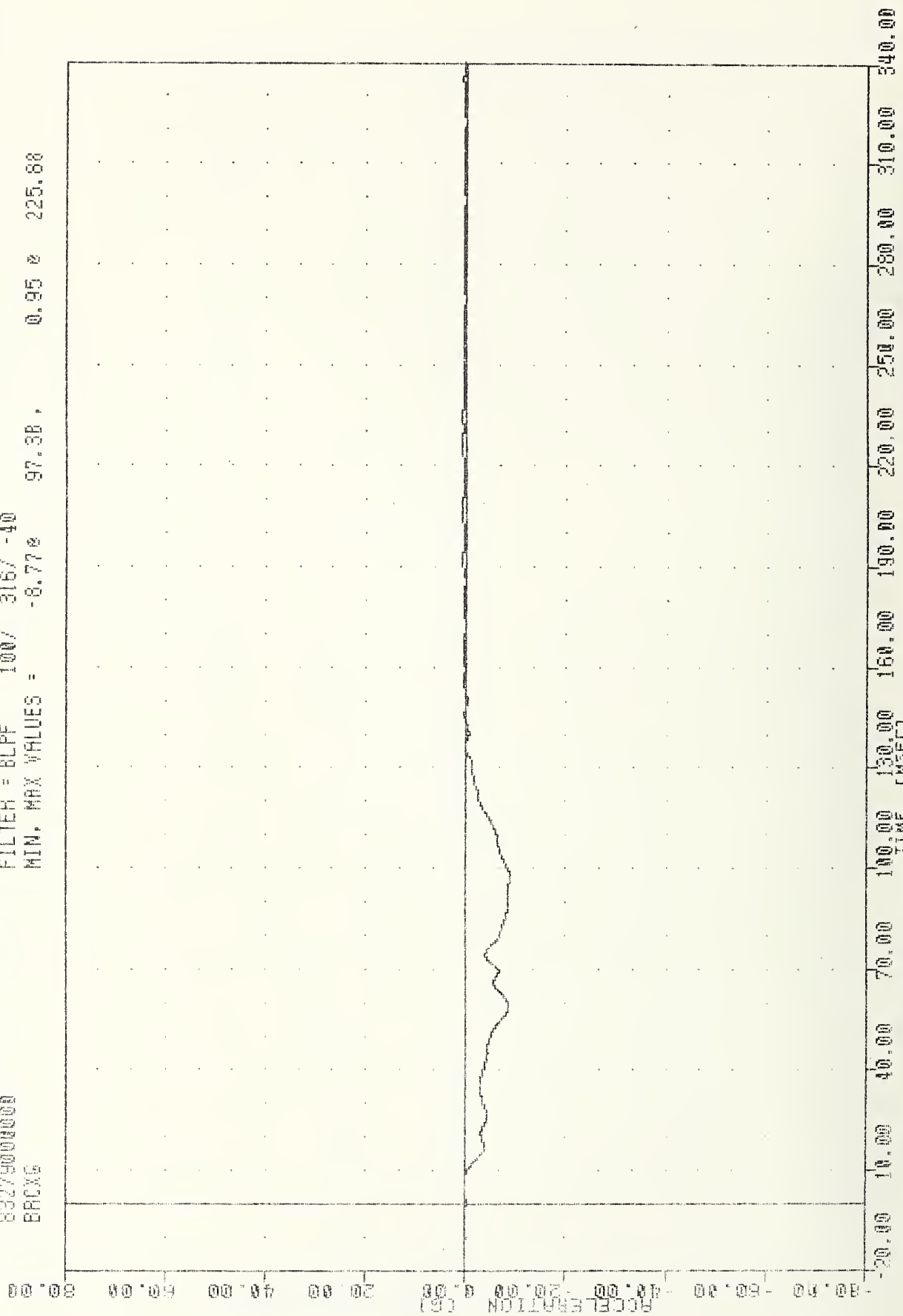
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING BFCXG

TRC 831006
EVALUATION OF MOD VW FLEET
832790000000
BRXG

PLU1 UR1E 7-UCT-83 10:30:58

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -8.77e 97.38, 0.95 e 225.88



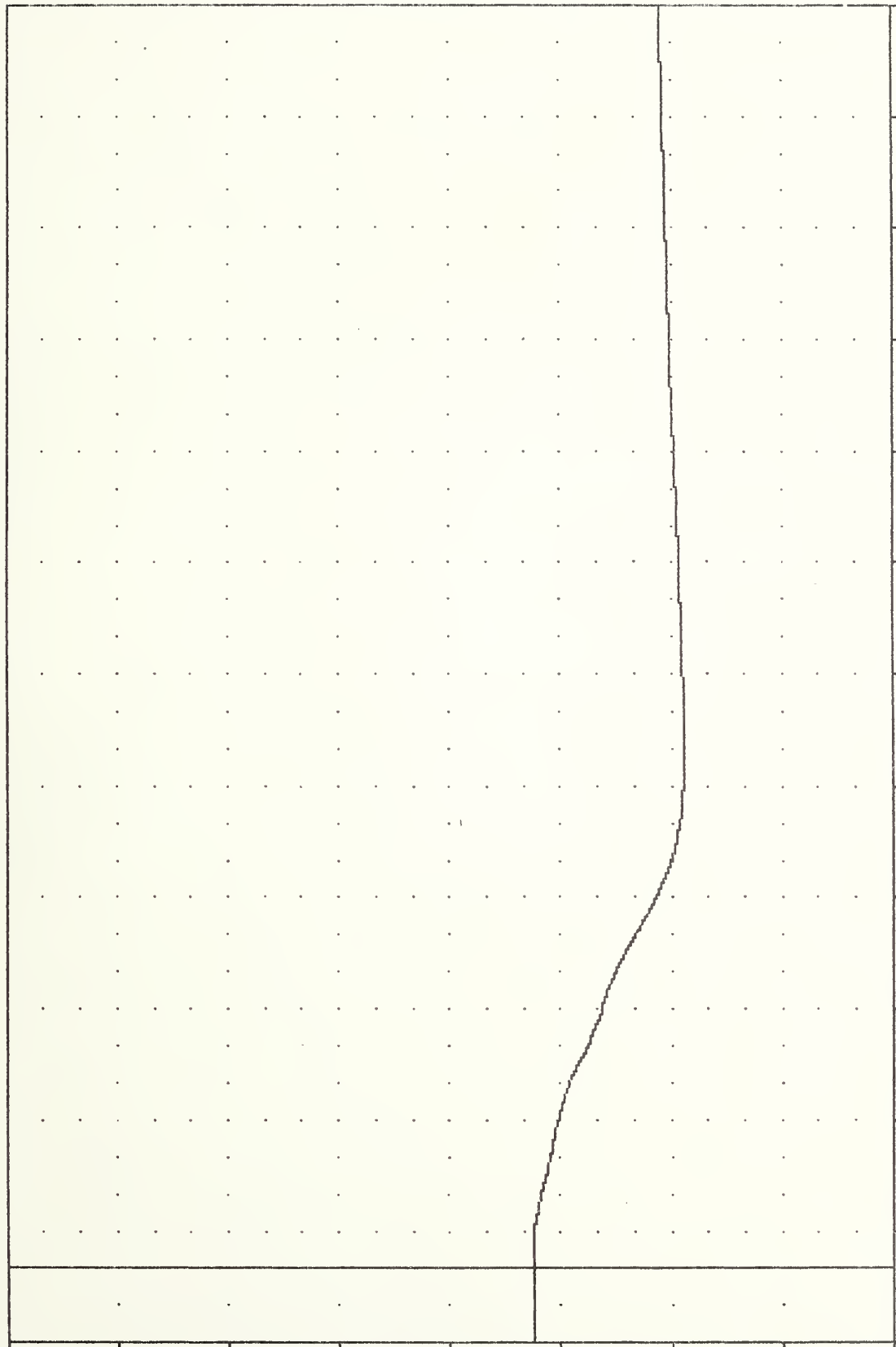
TAC
EVALUATION OF MOD VW FLEET
83279000000
BRXY

PLU1 DATE 7-OCT-83 10:36:28

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = 18.85 138.38 32.51 -8.75

VELOCITY (MPH)



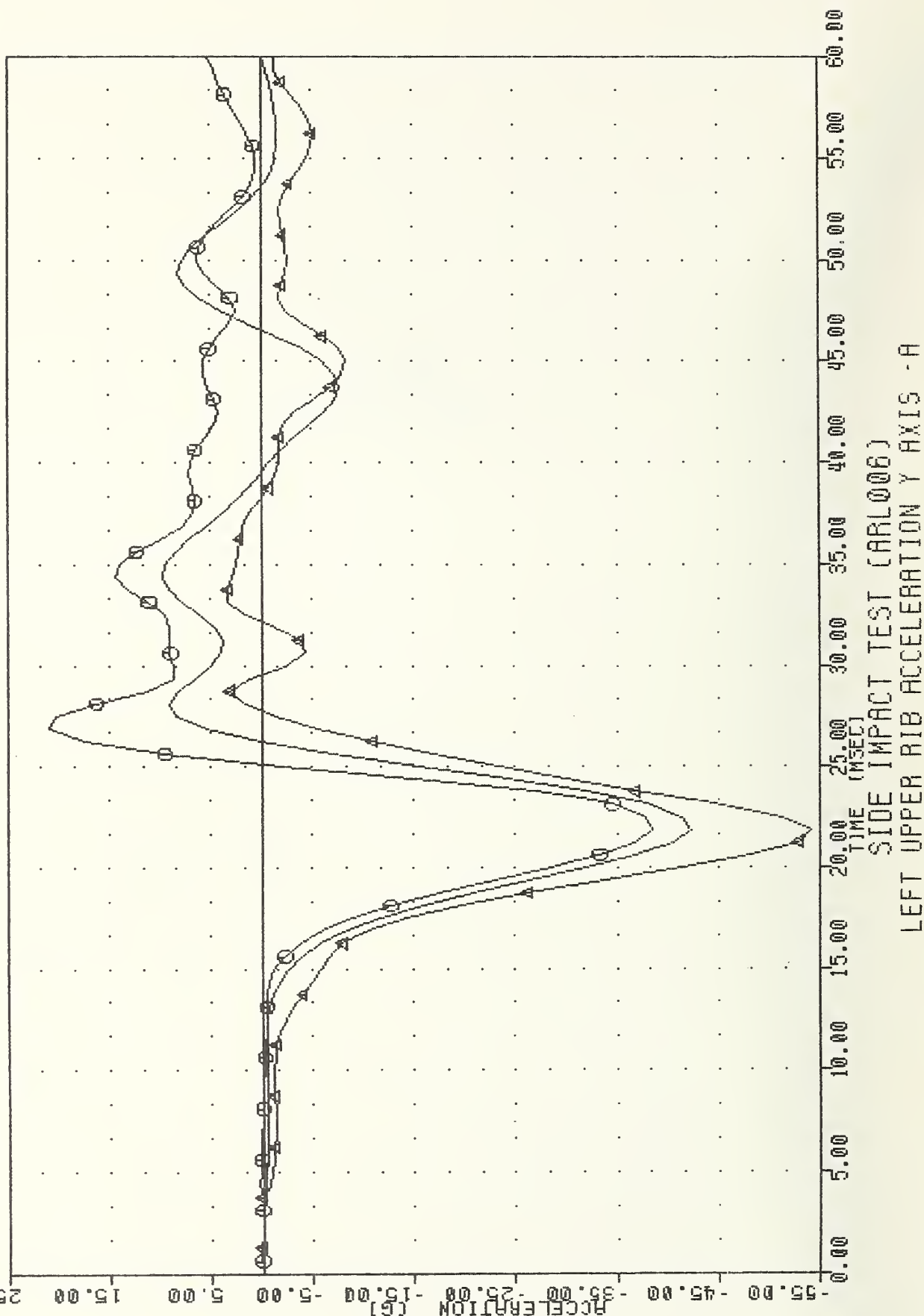
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING BRXYG

•

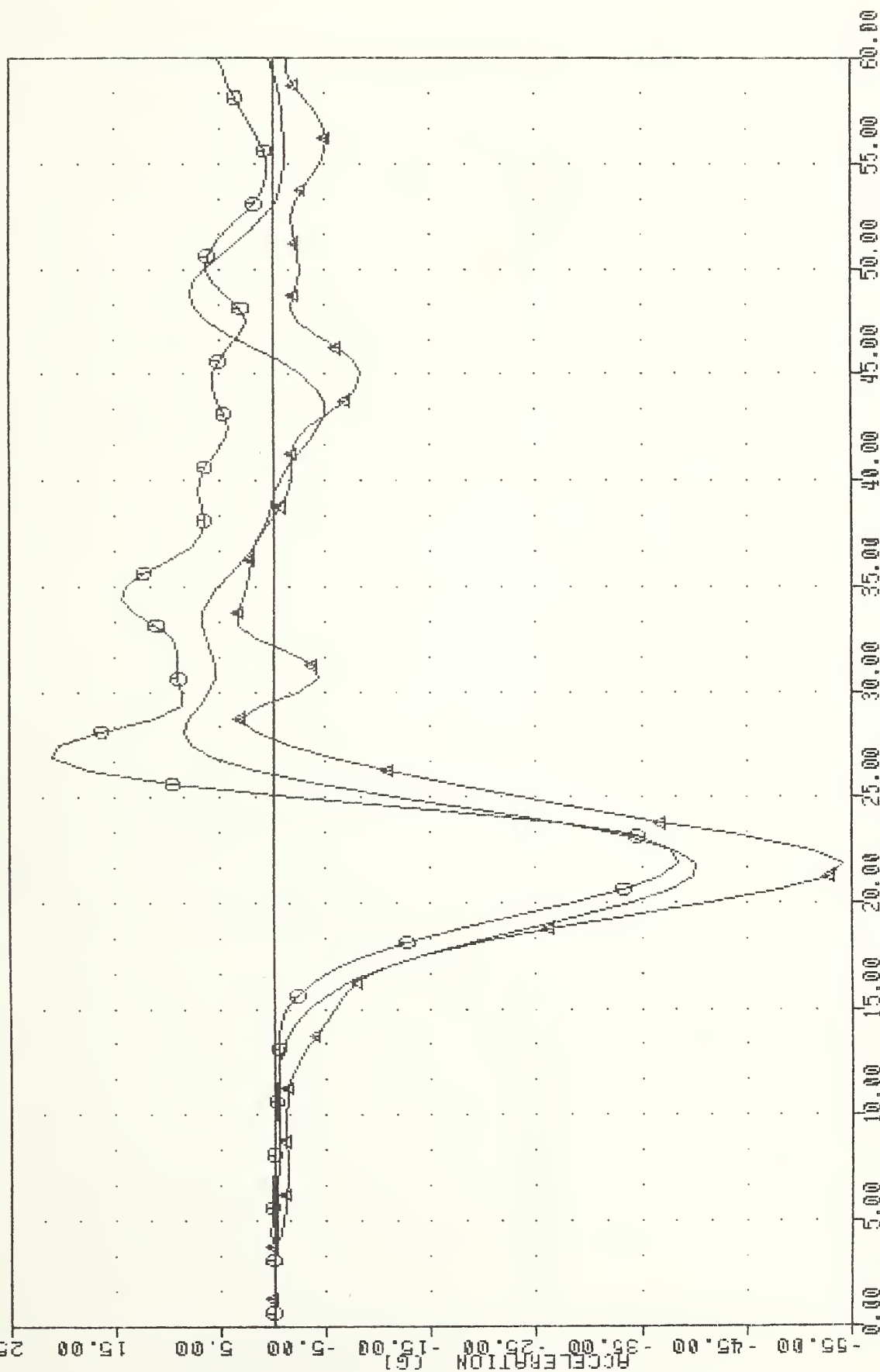
•

APPENDIX C
DUMMY CERTIFICATION

VRTC SRL26 , HRL6CA65 SID THORAX 6 BODY 318 CHL 63 83277 PL01 UMIE 4-UC1-83 14:32.22
 LURYGA FILTER = HSRI 136/ 189/ -50 MIN. MAX = -42.24 8 21.25 9.65 33.75
 MN-250 0 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -38.44 8 21.25 26.25
 MN-250 A FILTER = HSRI 136/ 189/ -50 MIN. MAX = -54.08 8 21.25 33.13

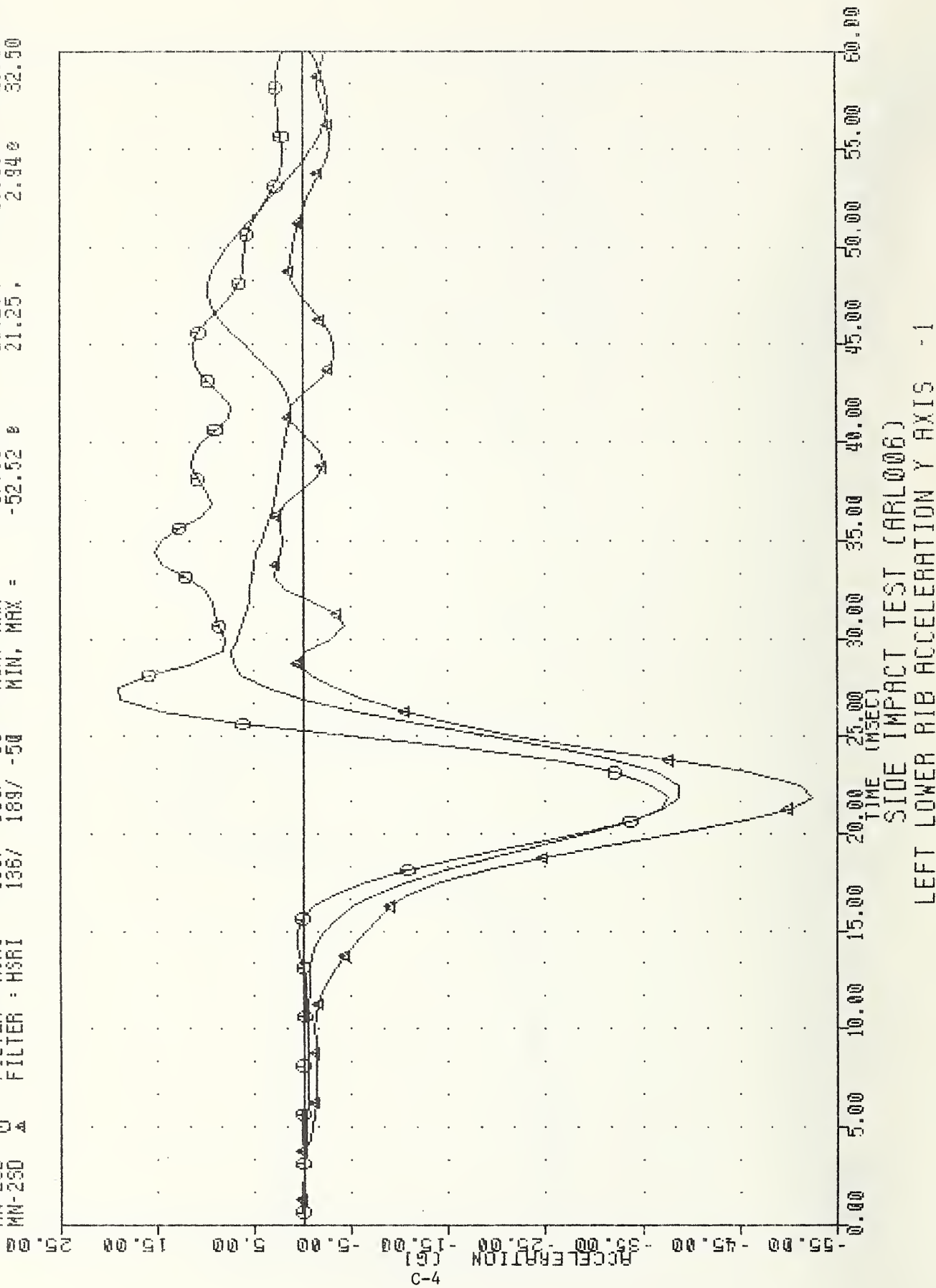


VRIC SRL26 , ARL6C865 SID THORAX 6 BODY 318 CAL 65 83277 PLOT DATE 4-0CT-83 14:35:29
 LURY61 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -40.21 21.25 8.452 27.50
 MN-250 0 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -38.44 21.25 20.920 26.25
 MN-250 4 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -54.08 21.25 3.310 33.13

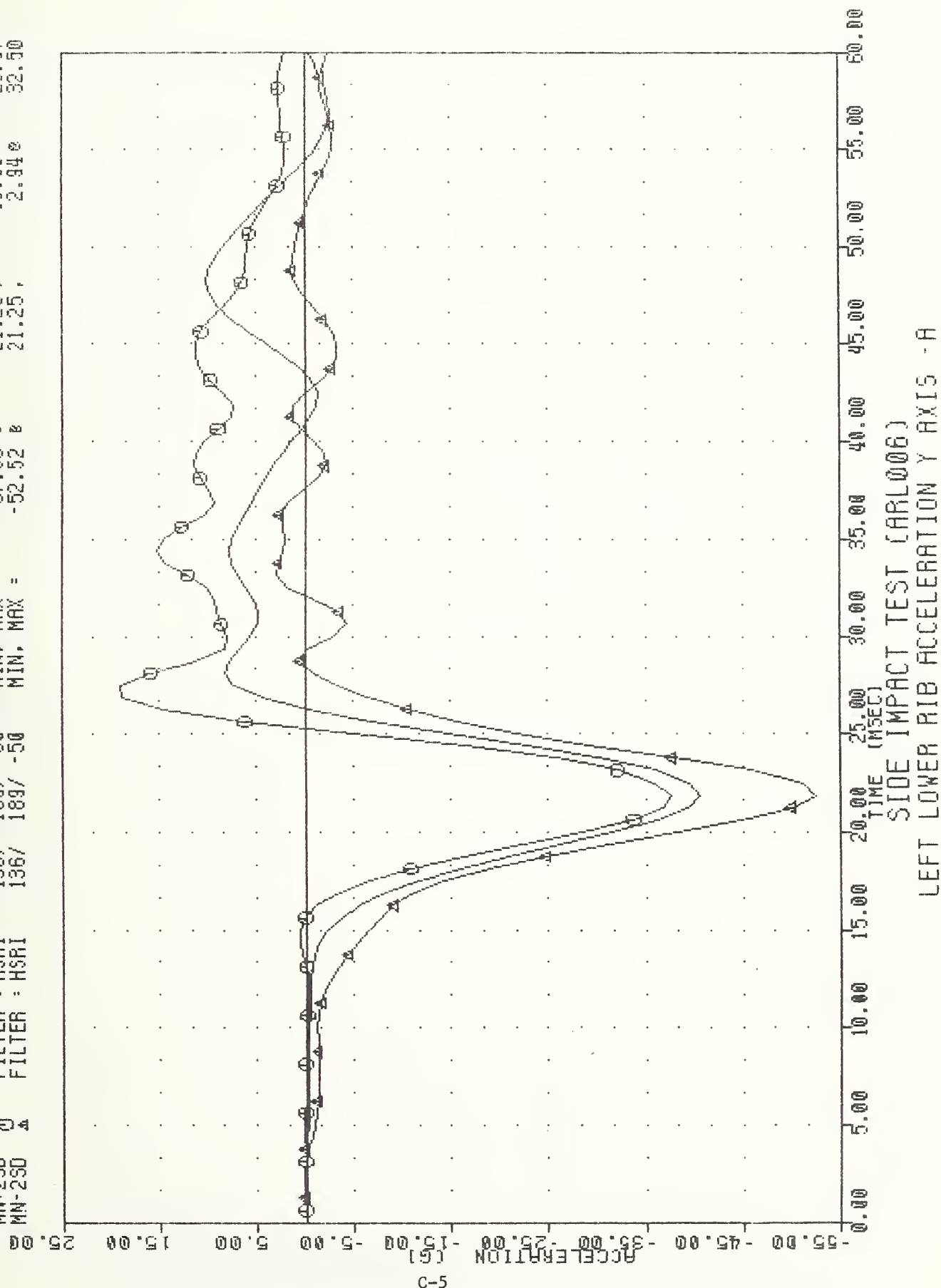


SIDE IMPACT TEST (ARL006)
 LEFT UPPER RIB ACCELERATION Y AXIS -1

WRIC SRL26 • ARL6C865 SID THORAX 6 BODY 318 CAL 65 83277 PL0T DATE 4-OCT-83 14:23:49
 LLRYG1 FILTER : H3RI 136/ 189/ -50 MIN. MAX = -38.79 9.66 46.88
 MN-250 Q FILTER : H3RI 136/ 189/ -50 MIN. MAX = -37.66 9.66 46.87
 MN-250 A FILTER : H3RI 136/ 189/ -50 MIN. MAX = -52.52 9.66 46.87



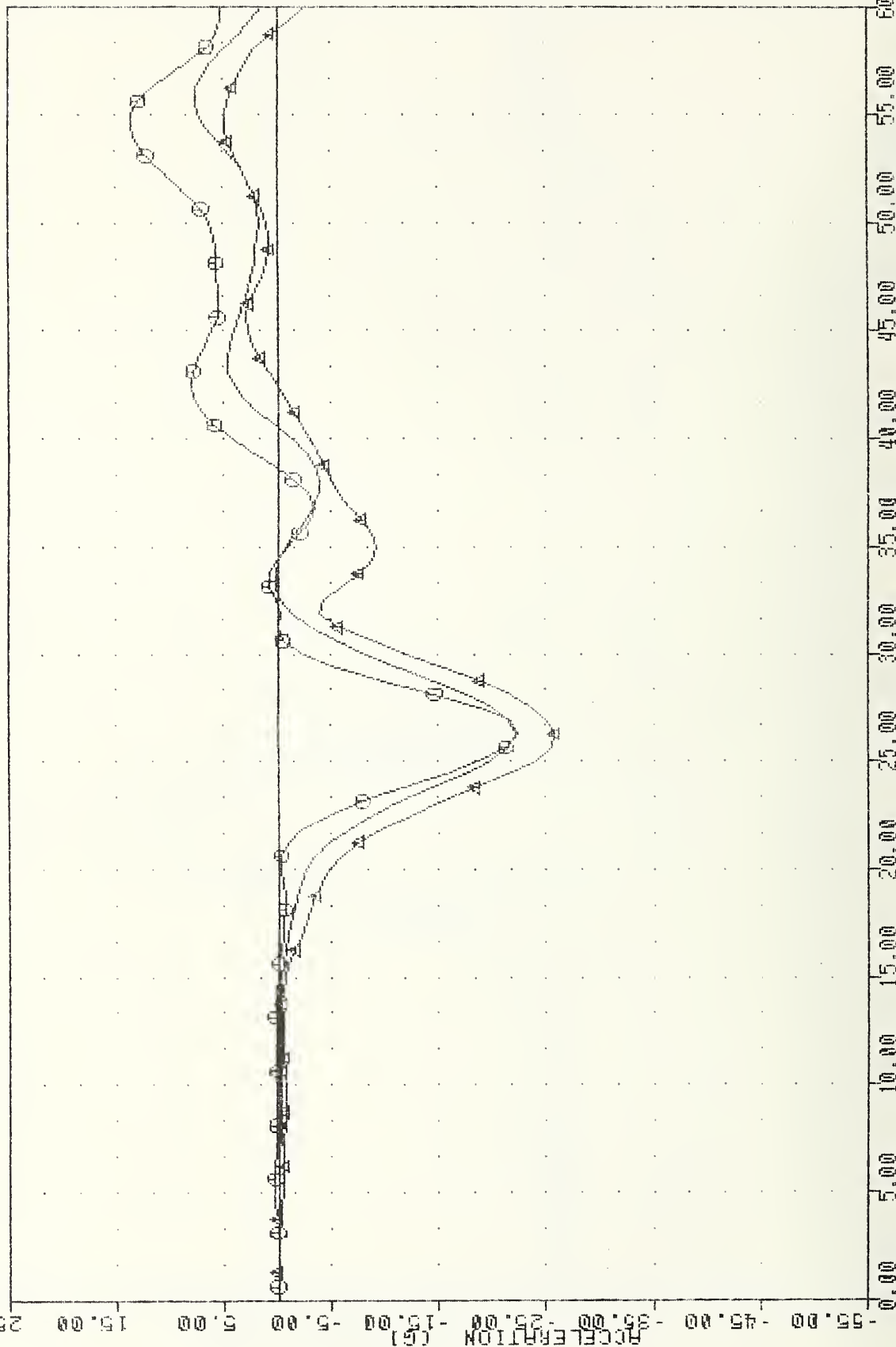
VRIC SRL26 , ARL5CA65 SID THORAX 6 BODY 318 CAL 65 83277 PLOT DATE 4-JUL-83 14:51:04
 LLA/CA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -40.58 21.25 10.00 47.50
 MN-250 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -37.66 21.25 19.00 26.87
 MN-250 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -52.52 21.25 2.94 32.50



SIDE IMPACT TEST (ARL006)

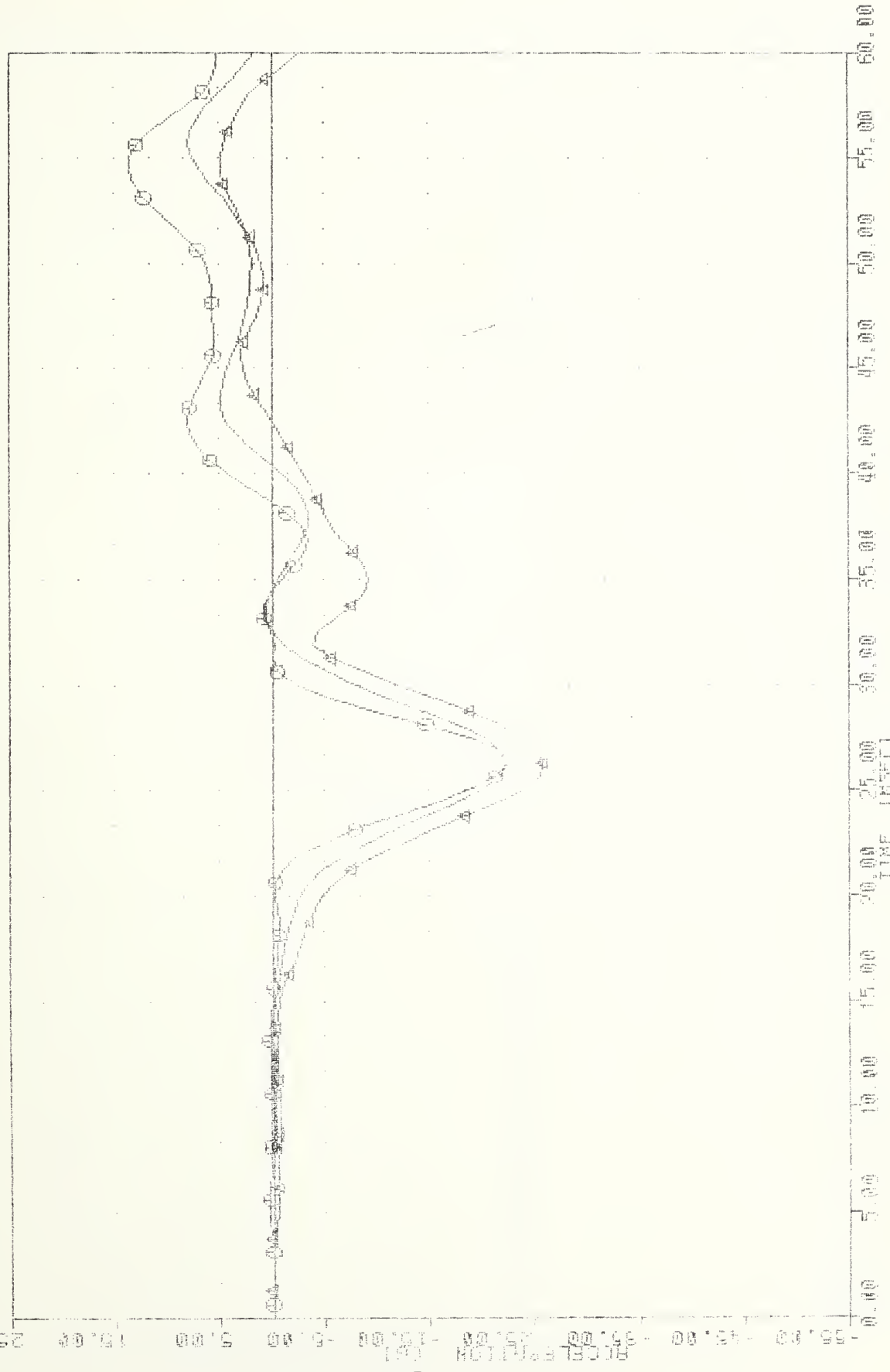
LEFT LOWER RIB ACCELERATION Y AXIS -A

VRIC SRL26 , ARLSCH65 SID THORAX 6 BODY 318 CAL 65 83277 PLOT DATE 4-001-83 14:26:01
 T12Y6A FILTER : HSRI 136/ -50 MIN, MAX = -22.11 25.63 7.572 55.00
 MN+250 0 FILTER : HSRI 136/ -50 MIN, MAX = -22.37 25.63 13.542 53.75
 MN-250 A FILTER : HSRI 136/ -50 MIN, MAX = -25.84 25.63 4.852 53.75



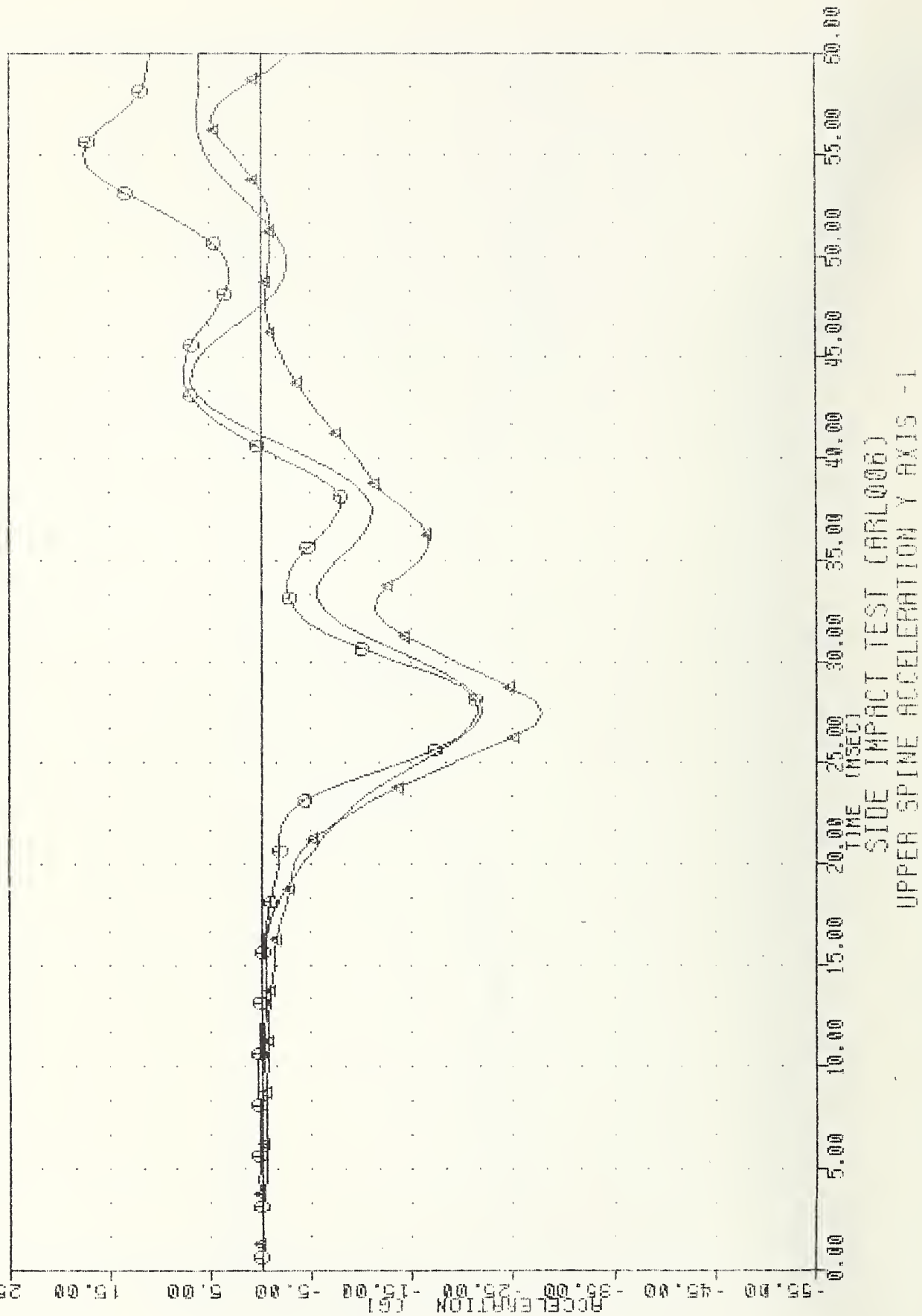
SIDE IMPACT TEST (ARL0006)
 LOWER SPINE ACCELERATION Y AXIS -A

VOID SRL28 , ARL6065 SID THORAX 6 JULY 518 UHL 53 83277 FLU1 WHE 4-UL1-03 14:27:32
 TLT261 FILTER : HSR1 136/ 189/ -50 MIN. MAX = -22.30 25.63 7.87 55.00
 MN-250 0 FILTER : HSR1 136/ 189/ -50 MIN. MAX = -22.37 25.63 13.54 53.75
 MN-250 2 FILTER : HSR1 136/ 189/ -50 MIN. MAX = -25.84 25.63 4.95 53.75

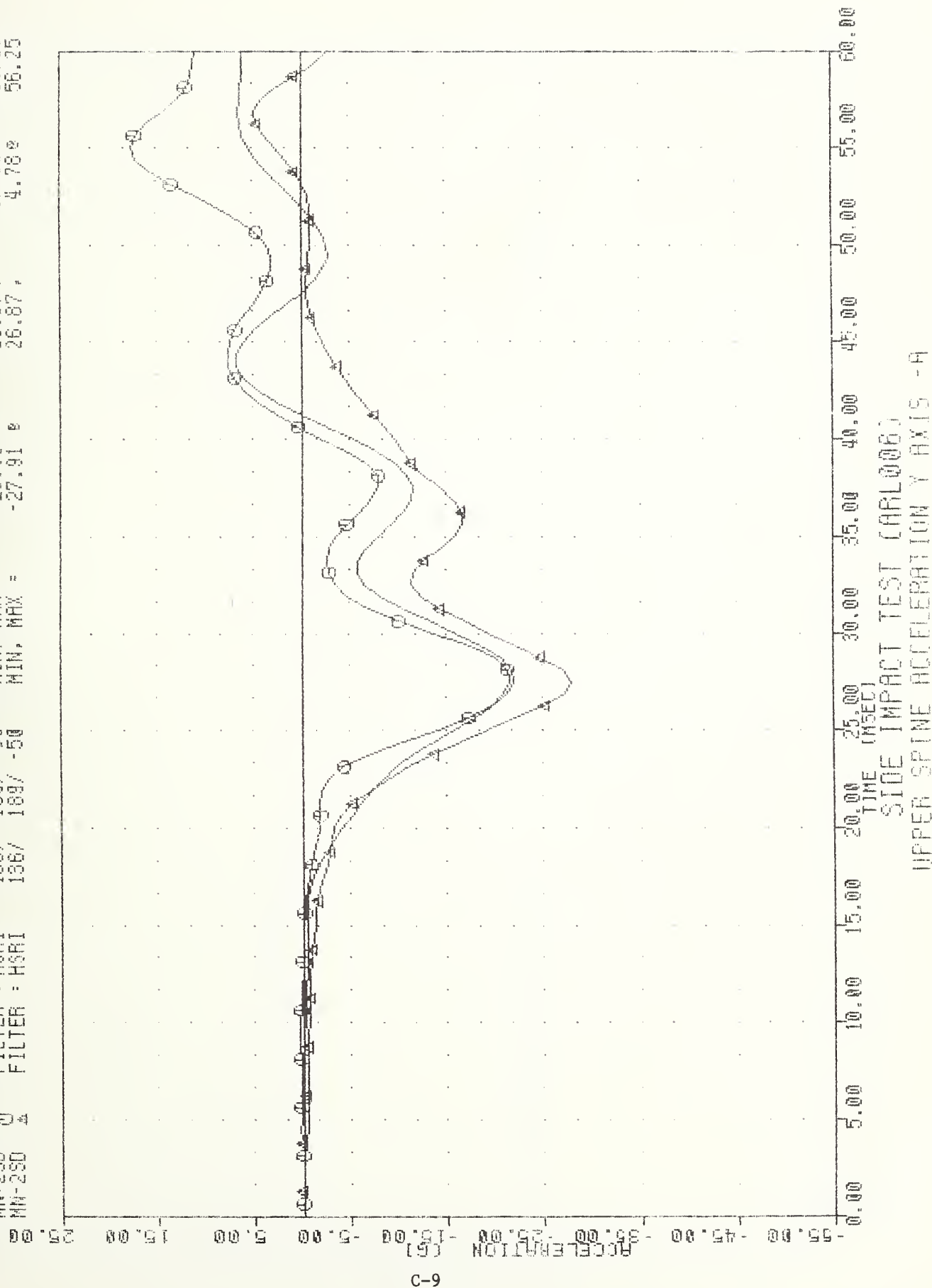


SIDE IMPACT TEST (ARL6065)
 LOWER SPINE ACCELERATION (HXL) - V

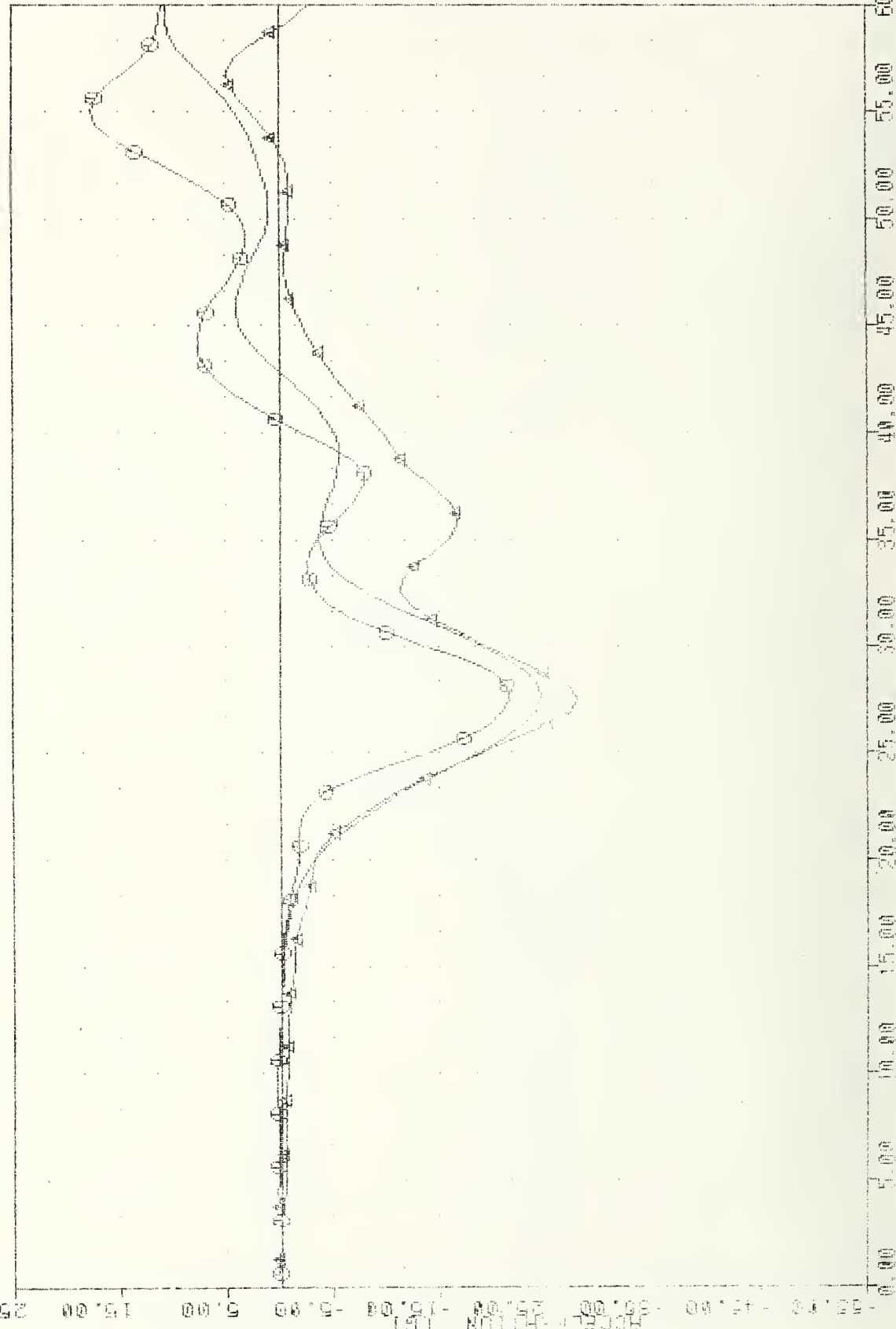
VRIC SRL26 - ARL6DA65 SID THORAX 6 BODY 318 CAL 65 83277 PLOT TIME 4-ULT-03 14:24.44
 TO1Y61 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -21.96 8 26.87 26.87 43.13
 MN-250 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -21.53 8 17.54 17.54 54.38
 MN-250 A FILTER : HSRI 136/ 189/ -50 MIN. MAX = -27.91 8 4.78 4.78 56.25



WRTC SRL26 , HRL6C865 SID THORAX 6 BODY 318 CAL 63 83277 PLUI UNLE 4-OCT-83 14:20:00
 101Y6A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -22.00 2 6.582 43.13
 MN-280 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -21.58 0 17.540 54.38
 MN-280 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -27.91 0 4.762 56.25

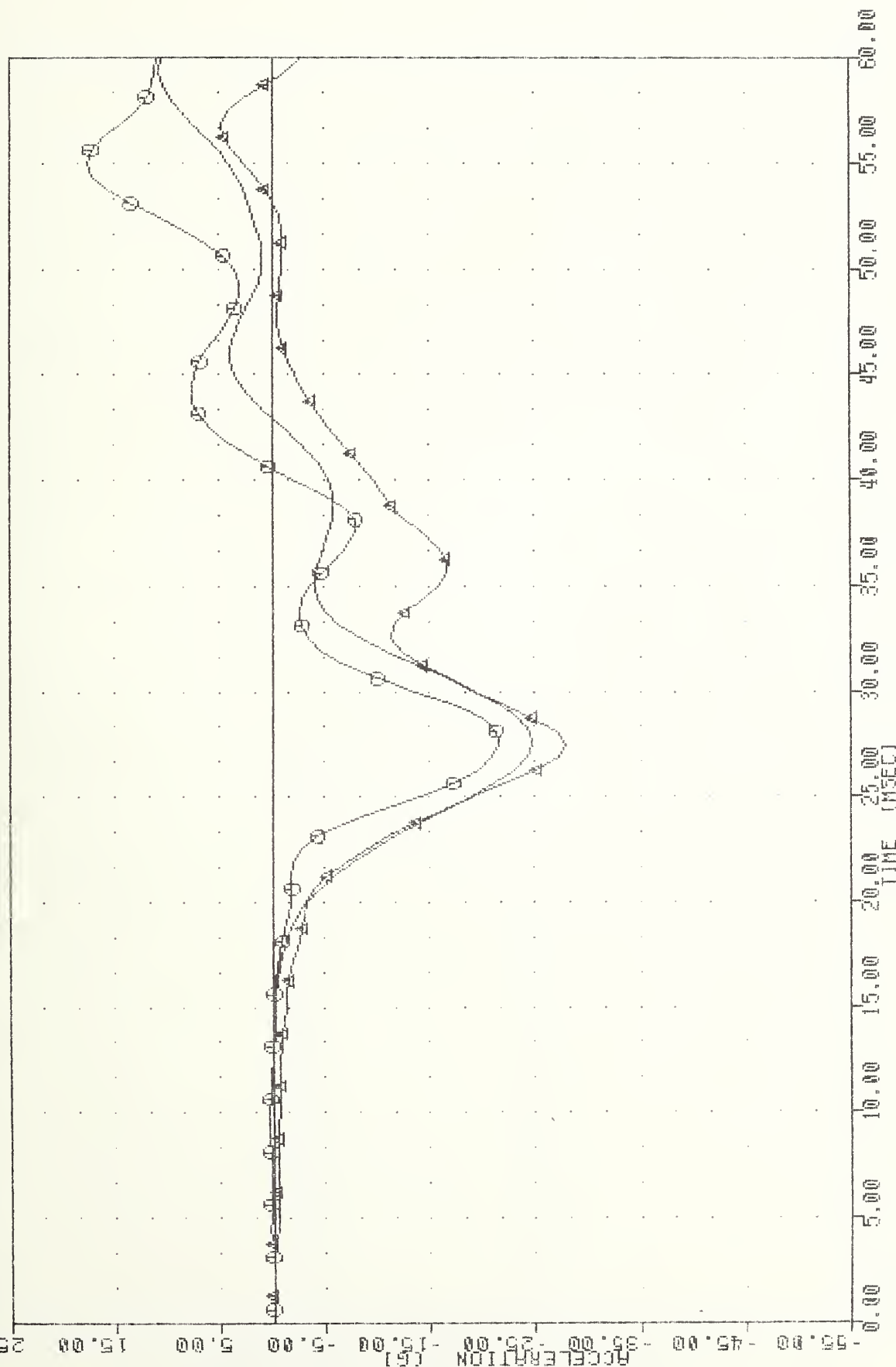


VRIC SRL26 U02CAL66 S10 THORAX UN2 BODY 330 CAL 55 83277 -24.60 26.87 10 56 10:15.9/
 TOIYGI FILTER : H3RI 136/ 189/ -50 MIN. MAX = -21.58 26.87 17 54 56.75
 NN-2SD 0 FILTER : H3RI 136/ 189/ -50 MIN. MAX = -27.91 26.87 4.78 56.25
 NN-2SD 4 FILTER : H3RI 136/ 189/ -50 MIN. MAX =



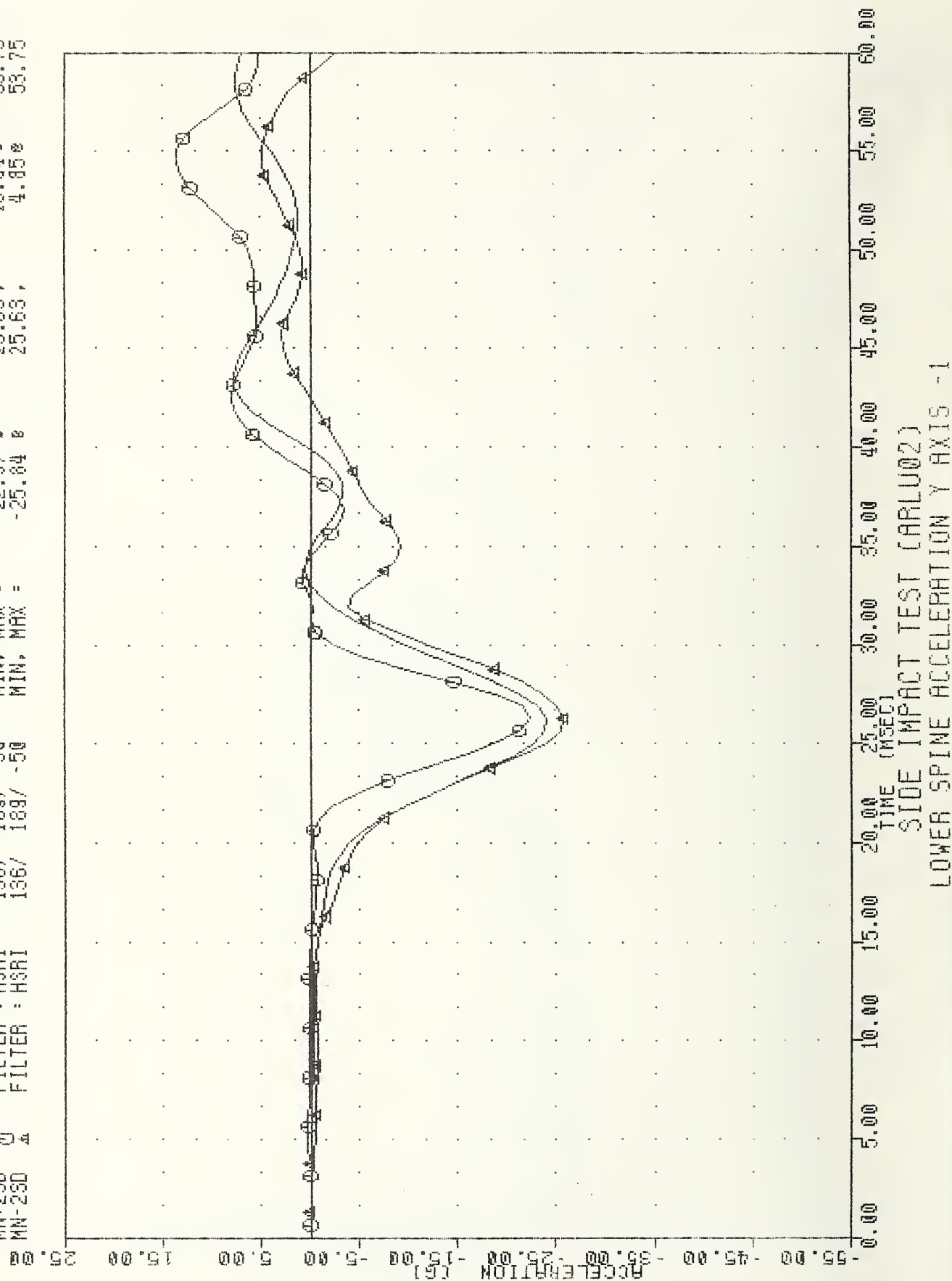
SIDE IMPACT TEST (ARLU02)
 UPPER SPINE ACCELERATION Y AXIS -1

VRIC SRL26 , U02CAL56 SID THORAX U02 B00V 83W LAL 66 83277 FLUI UHIE 5-OCT-83 15:17.02
 T01YGA FILTER : HSRI 136/ 189/ -50 MIN. MAX = -24.76 0 26.87, 10.650 58.75
 MN+280 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -21.68 0 26.87, 17.540 54.38
 MN-250 4 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -27.91 0 26.87, 4.780 56.25

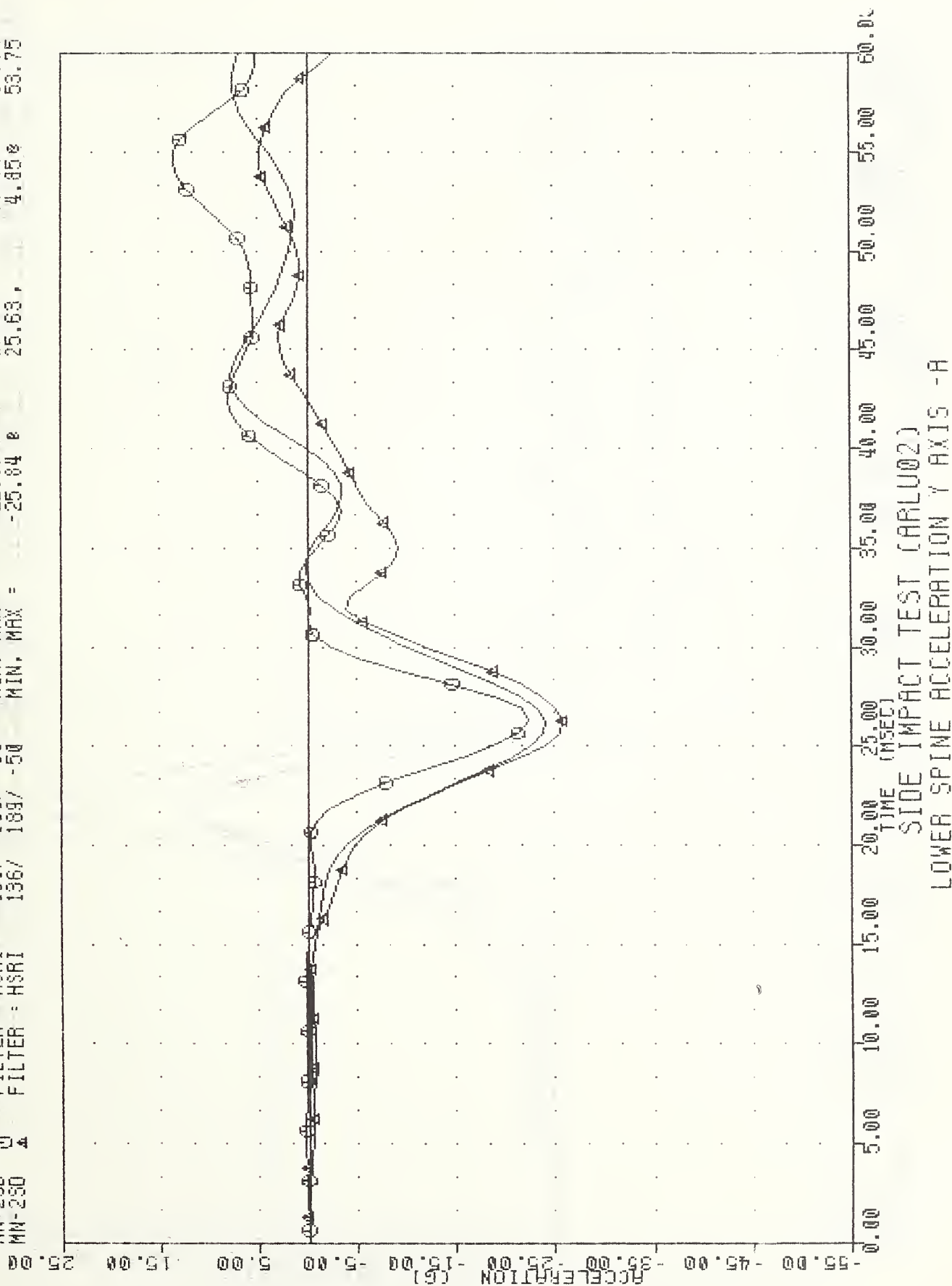


SIDE IMPACT TEST (ARLU02)
 UPPER SPINE ACCELERATION Y AXIS -A

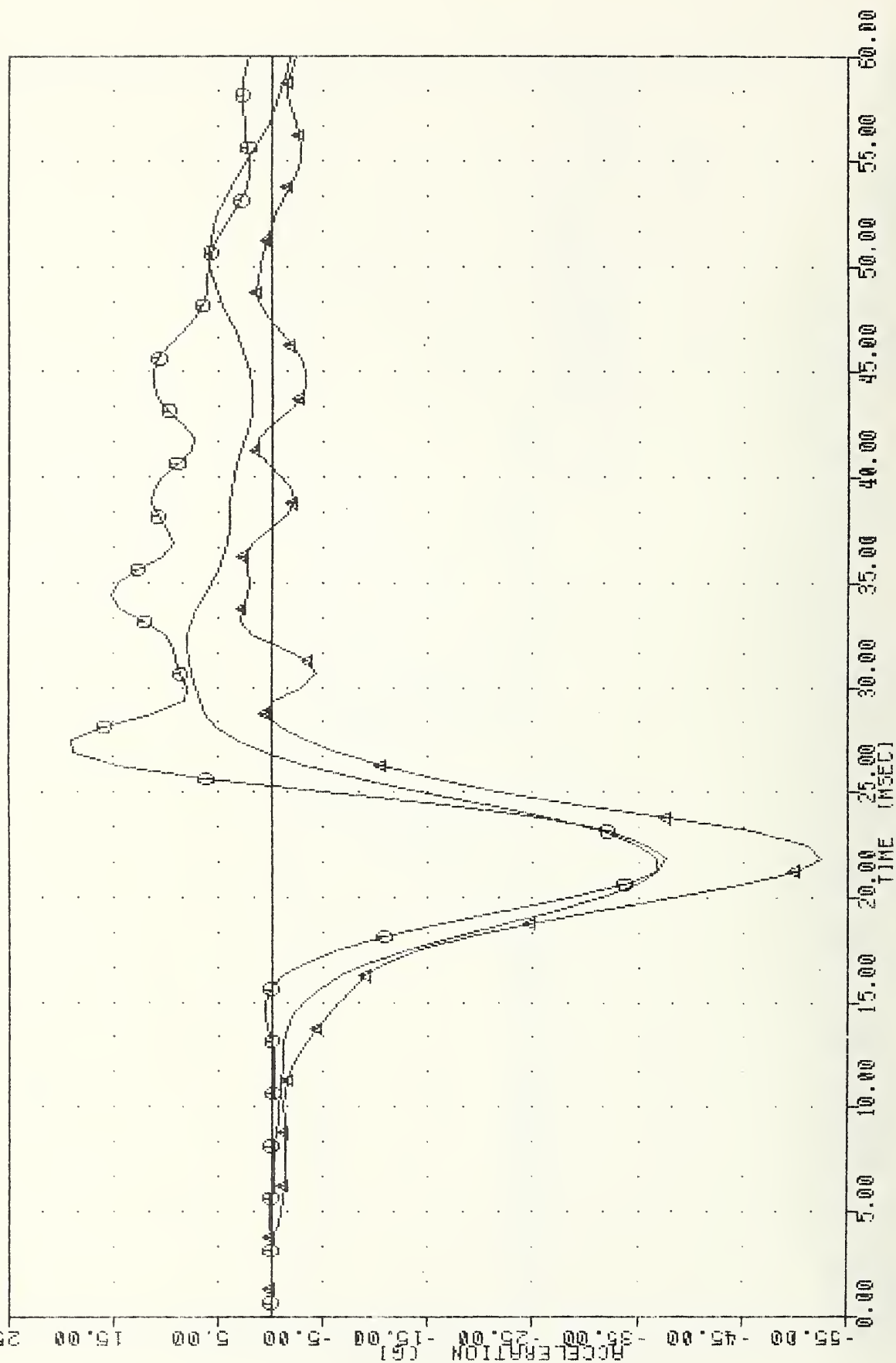
VRIC SRL26 , U02CRL66 S10 IHURHX UN2 BODY 830 CHL 66 83277 PLOT DATE 5-UC1-83 15:18:31
 T12Y61 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -24.01 25.63 43.13
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -22.37 25.63 53.75
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.84 25.63 53.75



VRIC SRL26 . U02CAL66 SID THORAX U02 BODY 830 CARL 66 83277/ PLOT DATE 5-001-83 15:19:40
 T12YGR FILTER : HSRI 136/ 189/ -50 MIN. MAX = -23.98 25.63 7.65 43.13
 MN-280 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -22.37 25.63 13.64 53.75
 MN-280 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -25.84 25.63 4.85 53.75

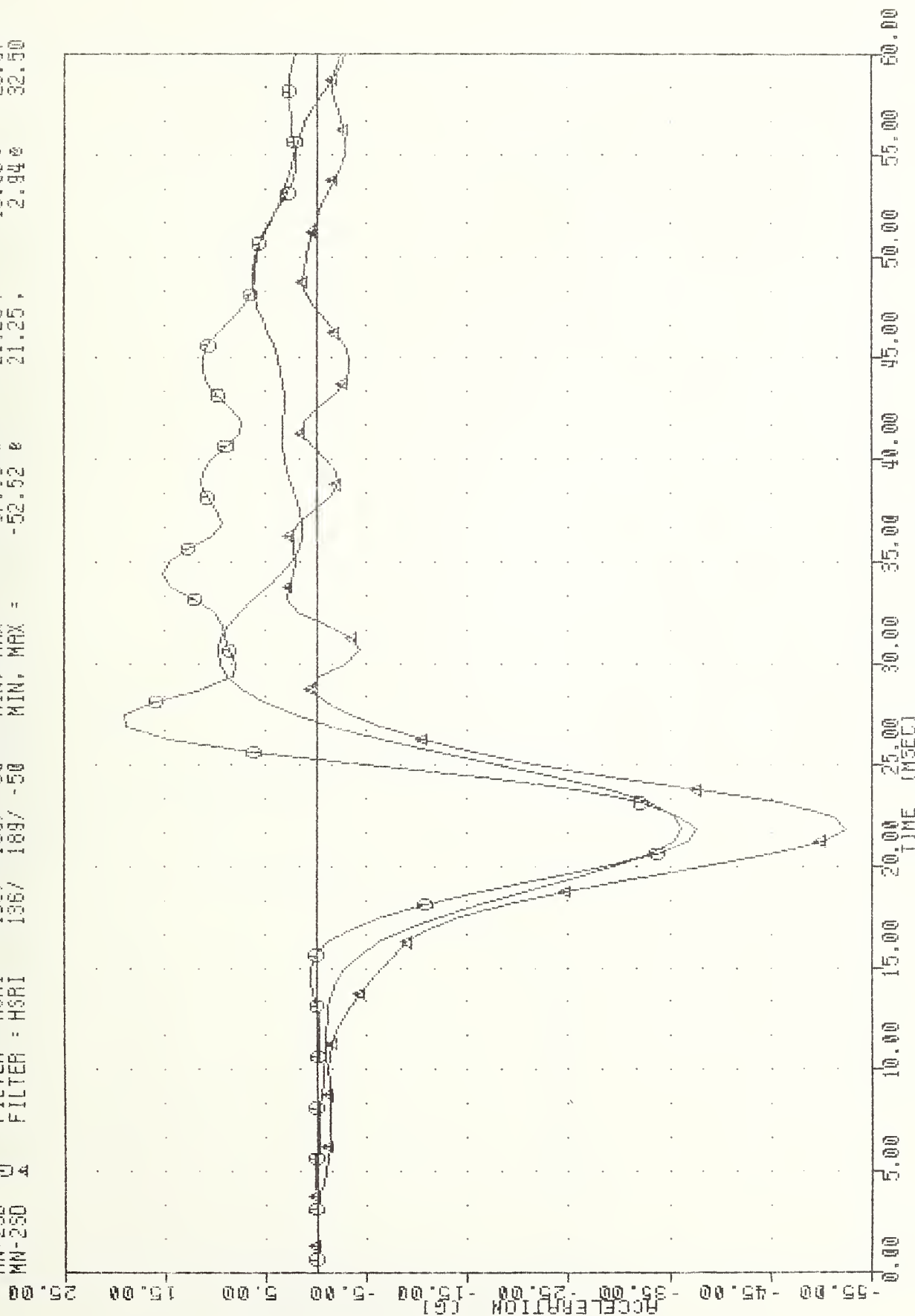


VRTC 5RL26 . U02CAL66 SID THORAX U02 BODY 830 CHL 66 83277 PLOT DATE 5-DEC-83 15:20:44
 LLRY61 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -36.85 21.25 7.91 31.25
 MN+250 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -37.66 21.25 19.00 26.87
 MN-250 A FILTER : HSRI 136/ 189/ -50 MIN. MAX = -52.52 21.25 2.94 32.50

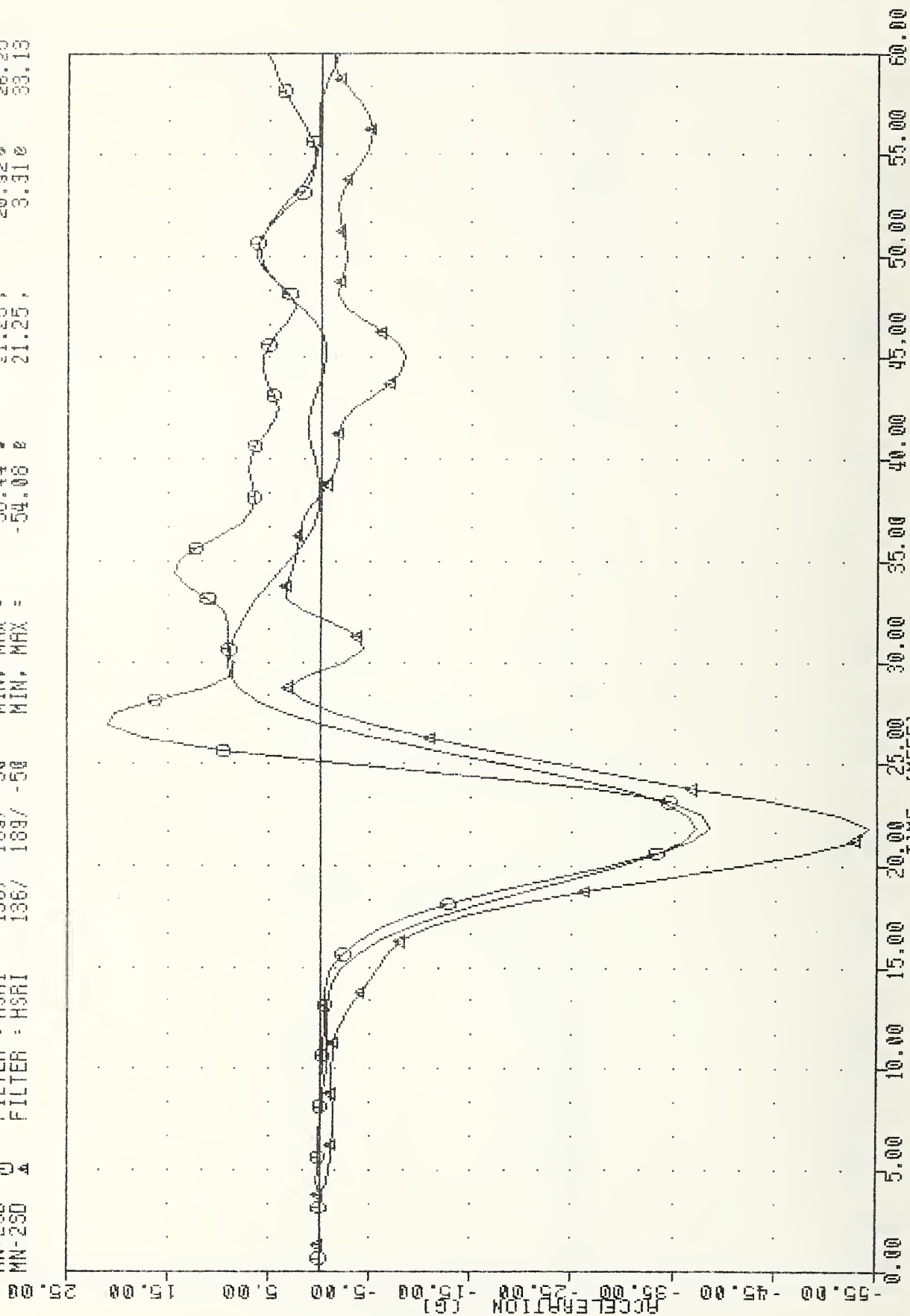


SIDE IMPACT TEST (ARLU02)
 LEFT LOWER RIB ACCELERATION Y AXIS -1

VRIC SRL26 • U02CAL66 SID THORAX UN2 BODY 83W CHL 65 83277 FLUT UHIE 3-UL1-83 19:21:34
 LLRYGA FILTER = HSRI 136/ 189/ -50 MIN. MAX = -36.23 21.25 3.69 30.00
 MN+2SD 0 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -37.66 21.25 19.00 26.37
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -52.52 21.25 2.94 32.50

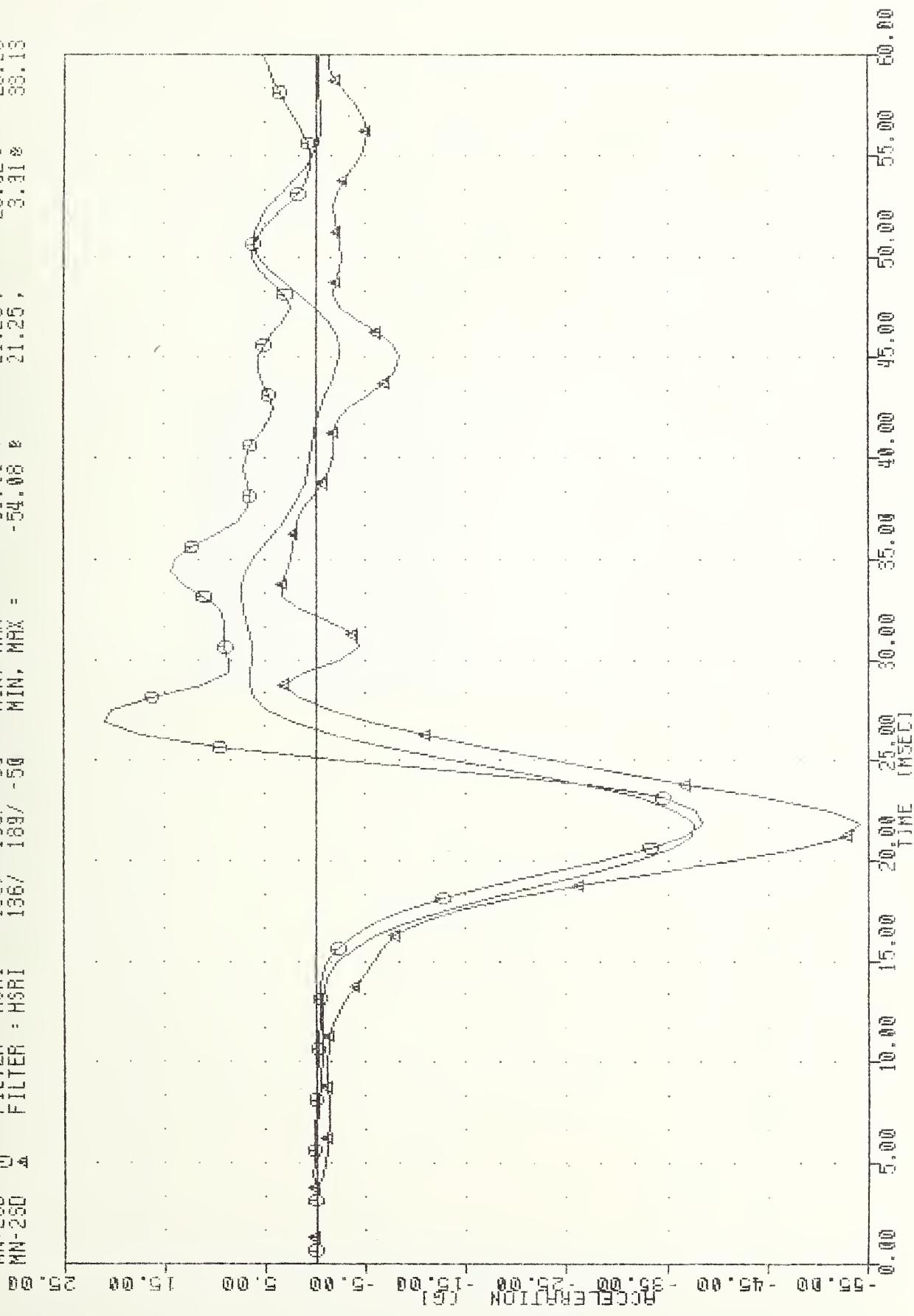


VRIC SRL26 , U02CAL66 SID THORAX U02 BODY 830 CAL 66 83277 PLOT DATE 5-WC1-83 15:22:34
 LURY61 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -37.12 21.25 8.950 29.38
 MN-250 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -38.44 21.25 20.920 26.25
 MN-250 A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -54.08 21.25 3.310 33.13



SIDE IMPACT TEST (ARLU02)
 LEFT UPPER RIB ACCELERATION Y AXIS -1

VRTC 3RL26 SID THORAX U02 BODY 830 CAL 66 83277
 LURY68 136/ 189/ -50 MIN, MAX = -37.72 21.25 7.40 32.50
 MN-250 136/ 189/ -50 MIN, MAX = -38.44 21.25 20.92 26.25
 MN-250 136/ 189/ -50 MIN, MAX = -54.08 21.25 3.31 33.13



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

TL 242 .S872 1983

Stultz, J.

Evaluation of NHTS
Volkswagen Rabbit

Form DOT F 1720.2 (8-70)
FORMERLY FORM DOT F 1700.11.1

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