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SIDE IMPACT AGGRESSIVENESS
ATTRIBUTES

MDB-TO-CAR SIDE IMPACT TEST OF
A 19⁰ CRABBED MOVING DEFORMABLE BARRIER
TO A 1981 VOLKSWAGEN RABBIT
AT 46.4 MPH

PREPARED BY:
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FINAL REPORT
SEPTEMBER 1984

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 side impact aggressiveness attributes of various deformable barrier face configurations. The configurations to be used are designated as "Lowered Stiffness", "Altered Profile" and "Lowered Bumper". In addition, four pole tests will be conducted. Testing was conducted on a 1981 baseline Volkswagen Rabbit 2-door hatchback at the TRCO Crash Test Facility, East Liberty, Ohio. The test vehicle was impacted on the left side by a moving deformable barrier designated as "Lowered Stiffness" crabbled to 19 ⁰ , at 46.4 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 passenger position. The test date was July 13, 1984 and the ambient temperature was 79 ⁰ 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				
tap	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	
	(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

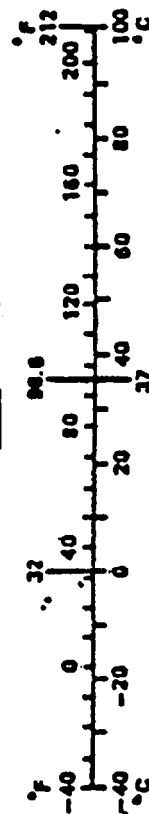


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SECTION 1.0
PURPOSE AND INTRODUCTION

PURPOSE

The main purpose of this test was to evaluate the side impact aggressiveness of a deformable barrier face designated as "Lowered Stiffness". In all, there will be twelve crash tests involving deformable barrier faces designated as "Lowered Stiffness", "Altered Profile" and "Lowered Bumper". In addition, four pole tests will be conducted. 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 July 13, 1984. The test was to simulate an intersection collision with the striking vehicle traveling at 35 mph and the struck vehicle traveling at 17.5 mph. The orientation angle of the striking vehicle was 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 46.3 mph with the MDB's wheels crabbed clockwise to 19°. The actual test speed was 46.4 mph and the actual impact point was 38.0 inches forward of the midpoint of the Volkswagen Rabbit's wheelbase. The vehicle was structurally unmodified and contained no additional 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.

SECTION 2.0
GENERAL TEST AND VEHICLE PARAMETER DATA

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

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Volkswagen of America, Inc.

MAKE/MODEL: Volkswagen Rabbit

VIN: 1VWBG0179BX011002

BODY STYLE: 2-Door Hatchback

MODEL YEAR: 1981

NHTSA NO.: R & D

COLOR: Tan

ENGINE DATA: TYPE: Transverse CYLINDERS: 4 DISPLACEMENT 97 CID

TRANSMISSION DATA: 4 Speed Manual

DATE VEHICLE RECEIVED: 6/29/84

ODOMETER READING: 93031

DEALER'S NAME AND ADDRESS: Volkswagen North
Worthington, Ohio

ACCESSORIES:

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

REMARKS:

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

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

VEHICLE MANUFACTURED BY: Volkswagen of America, Inc.

DATE OF MANUFACTURE: 10/80

GVWR: 2822 LBS.,

GAWR: FRONT 1609 LBS., REAR 1278 LBS.

VEHICLE TIRE DATA

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

TIRES ON VEHICLE (MFGR. & LINE, SIZE): Michelin P 155/80R13

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	640	LBS.	RIGHT REAR	340	LBS.
LEFT FRONT	650	LBS.	LEFT REAR	345	LBS.
TOTAL FRONT WEIGHT	1290	LBS.	(65.3 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	685	LBS.	(34.7 % OF TOTAL VEHICLE WEIGHT)		
TOTAL DELIVERED WEIGHT	1975	LBS.			

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 24 1/16	;LF 24 3/8	;RR 23 13/16	;LR 24 3/16
PRE-TEST ATTITUDE:	RF 24 3/16	;LF 23 3/4	;RR 21 13/16	;LR 21 1/2
POST-TEST ATTITUDE:	RF 25 3/8	;LF 23 3/8	;RR 21 11/16	;LR 20 3/8

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 0 LBS. CARGO:

RIGHT FRONT	685	LBS.	RIGHT REAR	545	LBS.
LEFT FRONT	685	LBS.	LEFT REAR	575	LBS.
TOTAL FRONT WEIGHT	1370	LBS.	(55.0 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	1120	LBS.	(45.0 % OF TOTAL VEHICLE WEIGHT)		
TOTAL TEST WEIGHT	2490	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: 8.0 GALLONS

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

DETAILS OF FUEL SYSTEM: DNA

ELECTRIC FUEL PUMP: No

FUEL INJECTION: Yes

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

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

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

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

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

NUMBER OF OCCUPANTS (DESIGNATED SEATING CAPACITY): 2 FRONT

CARGO LOAD 185 LBS. 2 REAR
4 TOTAL

TOTAL 785 LBS.

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

TEST CONDITIONS

TEST NUMBER: 840713

DATE OF TEST: July 13, 1984

TIME OF TEST: 10:00

WIND VELOCITY: 3-6 mph NW

HUMIDITY: 46%

AMBIENT TEMPERATURE AT IMPACT AREA: 79° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 78° F

SUBJECT VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
VEHICLE TEST WEIGHT (LBS.)	2508	2490
MDB TEST WEIGHT (LBS.)	2990	3000
MDB VELOCITY (MPH)*	46.4	46.3
IMPACT POINT (INCHES)**	38.0	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 vehicle's wheelbase.

VISIBLE DUMMY CONTACT POINTS:

	DRIVER 06	PASSENGER U02
Head	<u>Driver Sill, Seat Back, Ground</u>	<u>Roof, Side Header</u>
Chest	<u>Inner Door Panel, Ground</u>	<u>Inner Quarter Panel</u>
Abdomen	<u>Inner Door Panel, Ground</u>	<u>Front Seat Back, Inner Quarter Panel</u>
Left Knee	<u>Dash, Separated At Impact</u>	<u>Front Seat Back, Inner Quarter Panel</u>
Right Knee	<u>Dash, Separated At Impact</u>	<u>Front Seat Back, Left Knee</u>

DOOR OPENING:

	LEFT	RIGHT
Front	<u>Separated During Test</u>	<u>NA</u>
Rear	<u>DNA</u>	<u>DNA</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
Front	<u>Yes</u>	<u>NA</u>
Rear	<u>No</u>	<u>No</u>

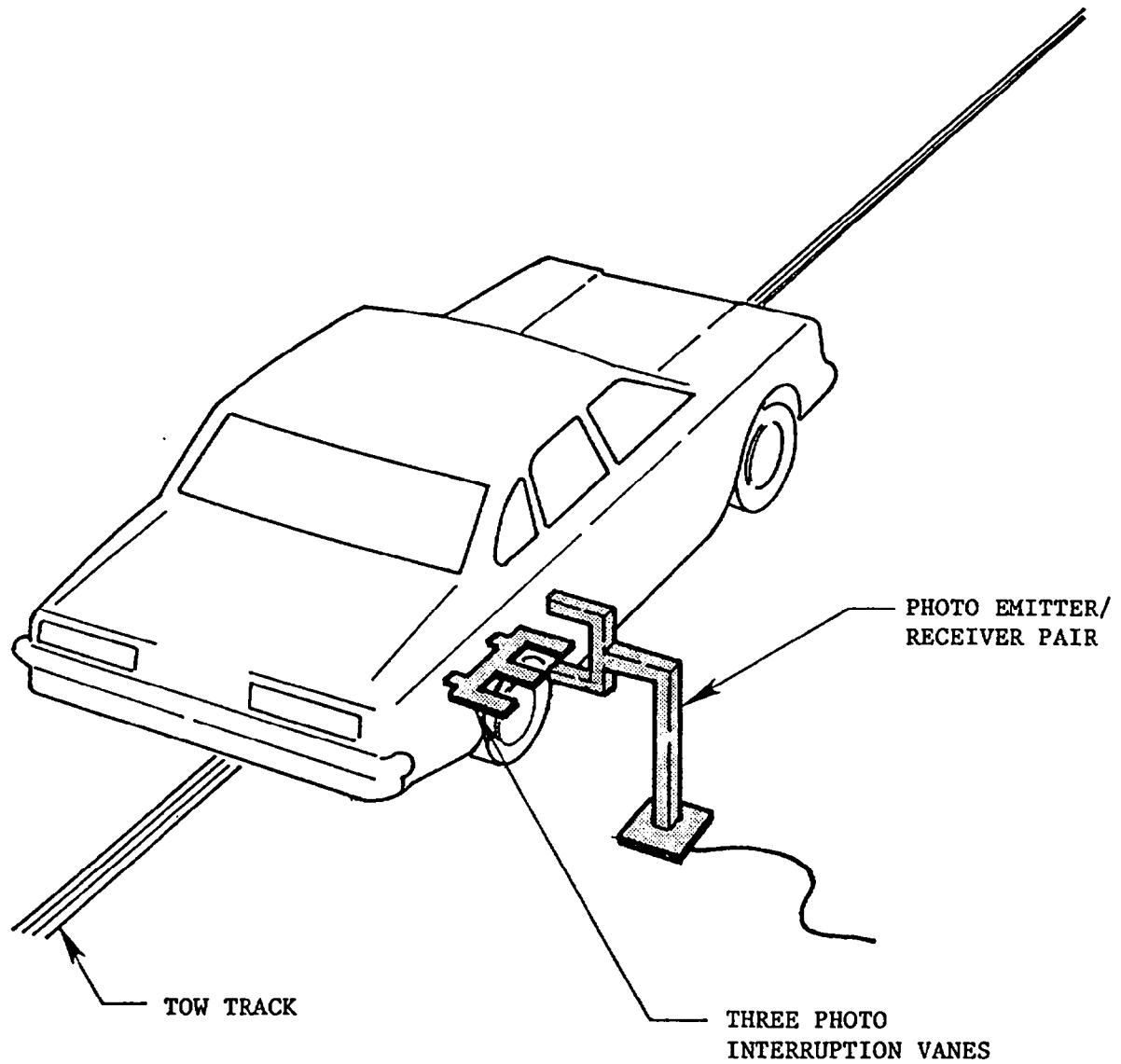
GLAZING DAMAGE: Windshield shattered.

OTHER NOTABLE IMPACT EFFECTS:

Driver travelled outside the vehicle after impact,

landing on the ground.

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane is located two inches before impact.

The vanes have one foot spacing.

VEHICLE TEST WEIGHT CALCULATION

Test Weight = Unloaded Delivered Weight +
 Number of Dummies X 174 lbs. +
 Cargo Weight
 = 1975 + 2 X 174 + 185 lbs.
 = 2508 lbs.

To achieve test weight, 8.0 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 Left Front Door Accelerometer in Position 11, LFDYG5, was found to have a physical problem, possibly due to excessive strain on the front door.

SECTION 3.0
DATA REQUIRED BY R & D

The following pages are included in this section:

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

DUMMY TEMPERATURE CONTROL AND POSITIONING

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

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

DUMMY PLACEMENT AND POSITIONING

SIDE IMPACT DUMMY

DRIVER DSP

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 behind steering column.
LOWER TORSO	Midsagittal plane is vertical and centered behind steering column.
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: X BENCH
 BUCKET
 SPLIT BENCH

ADJUSTER TYPE: X MANUAL
 POWER

BUCKET SEAT BACK TYPE: FIXED
 X ADJUSTABLE

TECHNICIANS:

1. B. Miller

2. D. LeVally

3. M. Garrison

POSITIONING DATE: 7/13/84

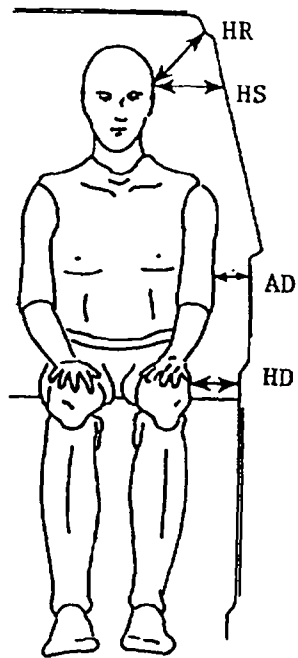
AMBIENT TEMP.: 70° F. TIME: 5:30

DRIVER DUMMY # <u>06</u> HEAD <u>19 1/2</u> " ° TARGET*<u>35</u> KNEE <u>32 3/8</u> " ° JOINT <u>101</u> APPROX. "H" <u>18 1/4</u> " ° POINT <u>126</u>	REAR PASSENGER DUMMY # <u>U02</u> <u>50 9/16</u> "HEAD <u>54</u> " °TARGET** <u>18 1/16</u> "KNEE <u>52</u> " °JOINT APPROX. "H" <u>29 5/16</u> " ° POINT <u>72</u>
DOOR GLASS HEIGHT*** <u>10 7/8</u> " <u>10 3/4</u> " LATERAL BAR ADJUSTABLE POINTER DRIVER DUMMY # <u>06</u>	DOOR GLASS HEIGHT <u>12 3/8</u> " <u>DNA</u> PASSENGER DUMMY # <u>U02</u>

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

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

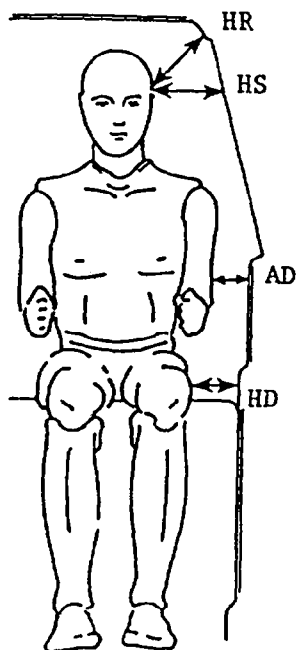
***Door glass height is equal on the right and left side of vehicle at dummy nose level.



DRIVER
06

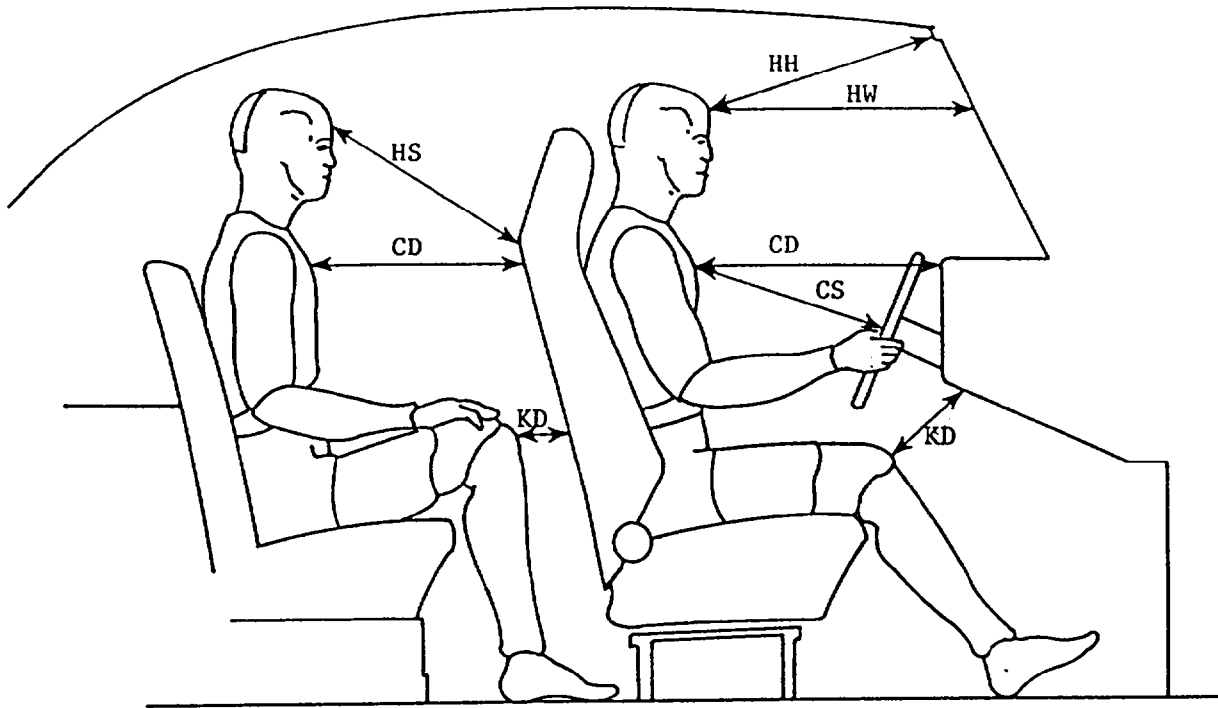
PASSENGER
U02

HR	6 1/2	7 3/8
HS	7 5/8	9 7/8
AD	4 1/2	5 1/2
HD	6 1/2	6 1/8



ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



DRIVER
06

PASSENGER
U02

HH	13 7/8	DNA
HW	20 1/2	DNA
HS	DNA	23 1/4
CD	20 1/16	17 1/16
CS	12 3/16	DNA
KDL	5 3/16	3 13/16
KDR	4 9/16	3 7/8

ALL MEASUREMENTS IN INCHES

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

DUMMY KINEMATIC SUMMARY

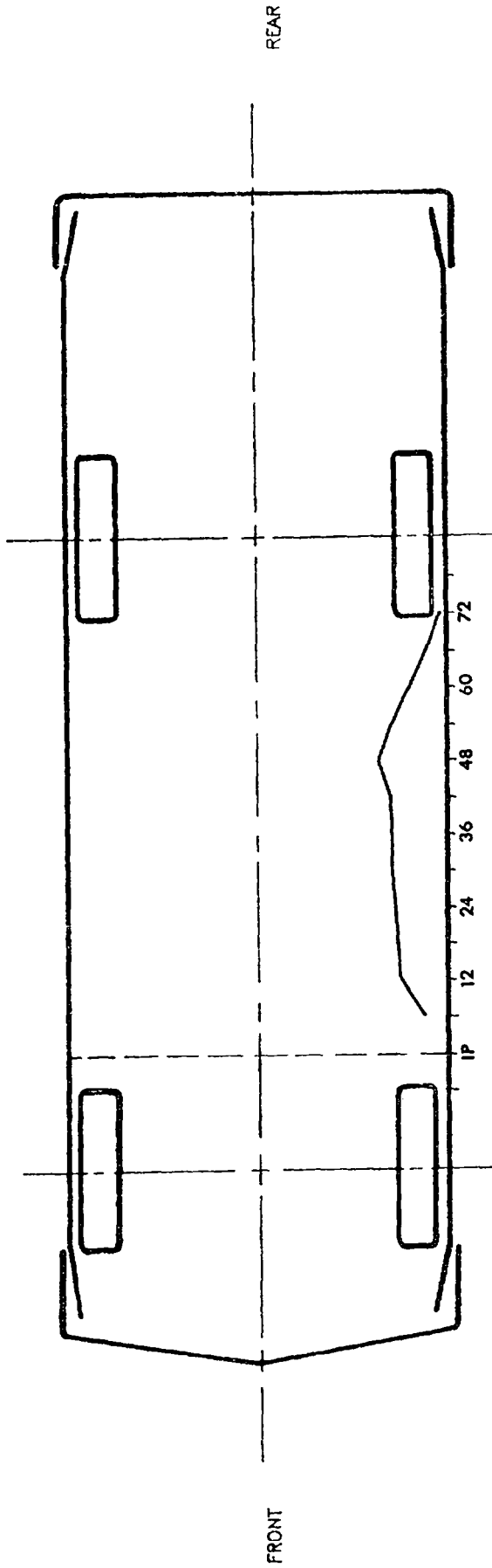
DRIVER

During impact, the dash panel below the steering column burst inward, hitting the dummy's knees. The left hip of the dummy contacted the inner panel as the door caved in. As the buttocks swung to the right, the dummy's left shoulder and chest contacted the window sill and door panel. The head went outside the vehicle's boundaries as the torso travelled to the passenger side of the car. The buttocks travelled outside the passenger's front window and the legs detached at the knees. As the body rotated toward the right the dummy travelled back to the driver's side of the car in a head first spiral. The dummy continued to travel outside the car as the driver's door separated from the vehicle. After contacting the asphalt and rolling approximately 1 1/2 times, the dummy came to rest lying on his back.

PASSENGER

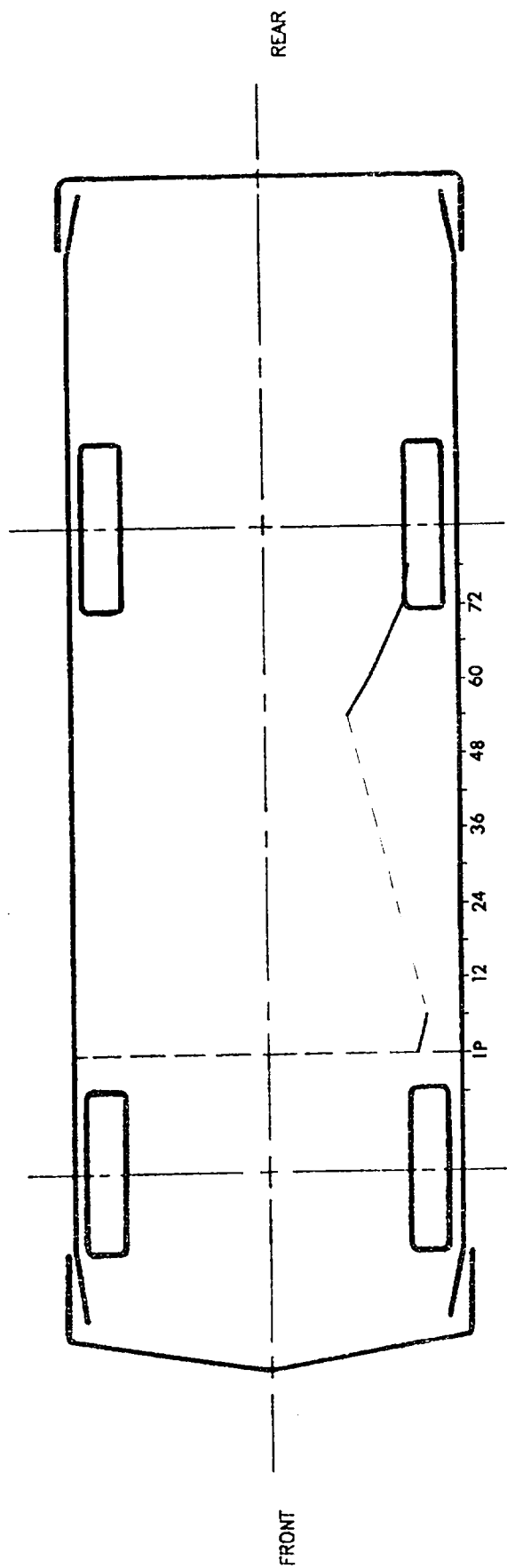
During impact, the back of the driver's seat contacted the passenger's knees. At the same time, the B-pillar crushed in, hitting the dummy's left knee and calf. As the left leg and hip rebounded from the door panel towards the right, the dummy's torso leaned left. The passenger's head then hit the roof above the window as the driver's seat continued to come back, trapping the lower legs between the B-pillar and the seat back. The dummy came to rest in a partially upright position with his legs trapped to the left and his upper torso leaning right toward the far side passenger position.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



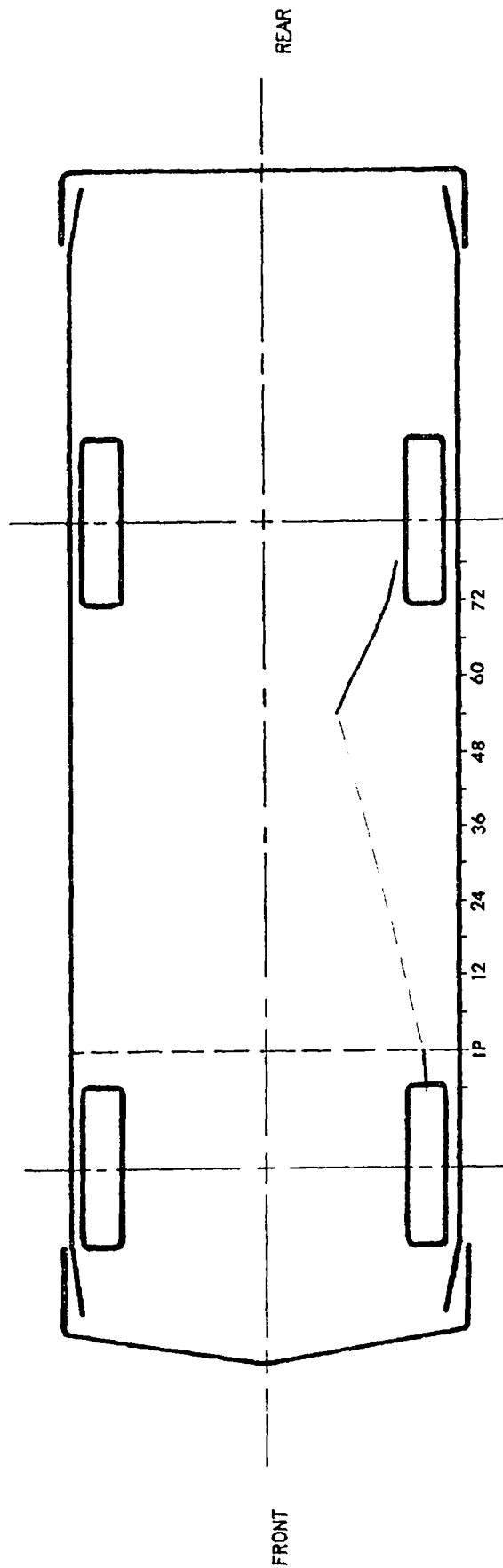
PROFILE LEVEL EQUALS AXLE HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



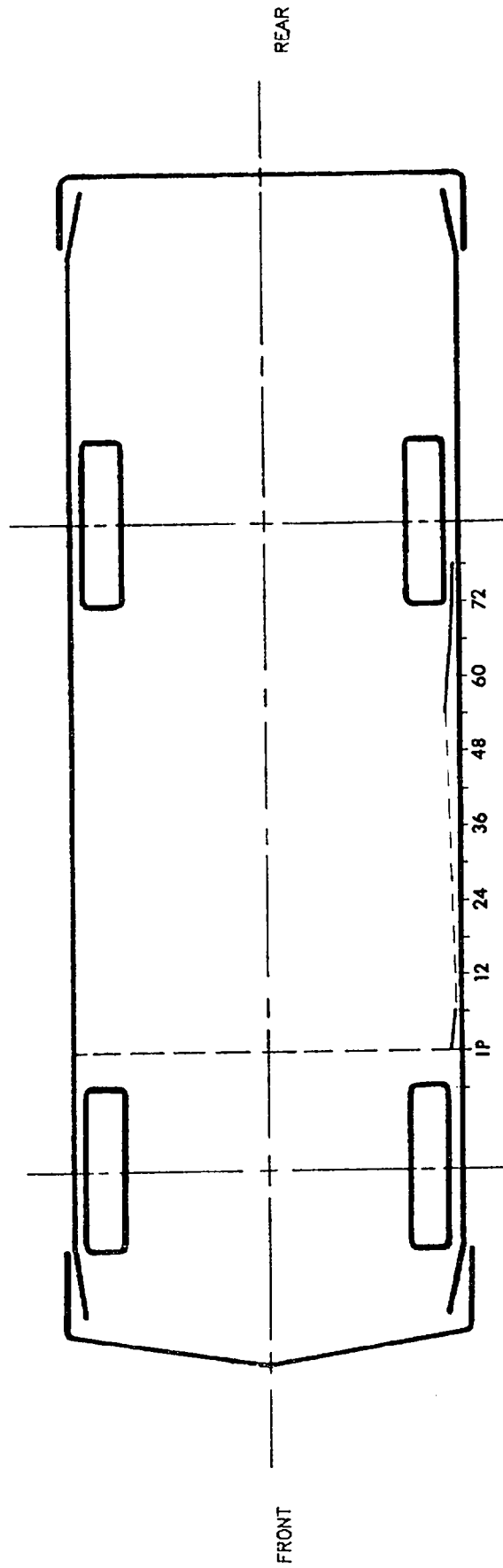
PROFILE LEVEL EQUALS H-POINT HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



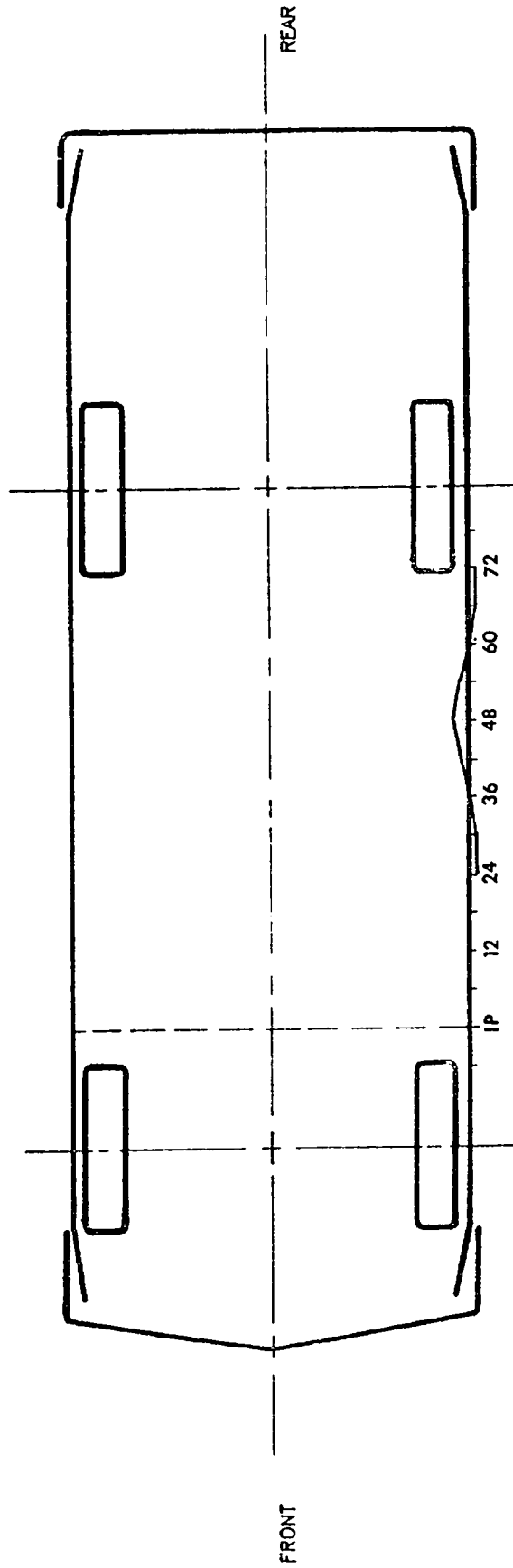
PROFILE LEVEL EQUALS MID-DOOR HEIGHT
IP EQUALS PROJECTED IMPACT POINT

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	41.48	150.13	179.82	88.63	19.45	93.25	92.51	85.00
LATERAL	78.05	68.38	37.14	80.63	98.91	81.75	23.06	95.50
VERTICAL	21.68	43.25	114.45	78.13	140.47	88.88	58.43	78.38
RESULTANT		197.79 @	88.38			162.31 @	85.13	
HIC	3990.50	from 62.50 to 94.50			2546.00	from 78.00 to 92.25		
CHEST ACCELERATION								
UPPER SPINE								
LONGITUDINAL	26.77	80.63	86.85	55.00	11.09	74.38	114.26	81.25
LATERAL (P)***	182.02	53.12	38.53	46.88	165.19	80.63	17.40	71.25
LATERAL (R)***	192.93	53.12	37.55	46.88	152.65	80.63	18.78	71.25
VERTICAL	23.25	41.87	26.99	58.75	12.52	60.62	25.08	91.87
RESULTANT (P)		197.65 @	53.75			198.44 @	81.25	
RESULTANT (R)		207.89 @	53.75			189.25 @	81.25	
DELTA V (MPH)****		31.3 @	63.13 (P)			26.0 @	106.88 (P)	
		34.6 @	63.75 (R)			25.6 @	106.88 (R)	
LOWER SPINE								
LONGITUDINAL	74.87	59.38	42.94	52.50	40.22	93.13	55.33	76.25
LATERAL (P)	157.84	50.63	30.39	71.25	107.69	80.00	30.43	93.13
LATERAL (R)	161.13	51.88	65.43	66.25	111.79	80.63	30.38	93.75
VERTICAL	40.77	53.12	5.34	70.63	39.65	76.88	12.29	96.25
RESULTANT (P)		165.87 @	51.25			119.53 @	77.50	
RESULTANT (R)		171.05 @	51.88			121.23 @	77.50	
DELTA V (MPH)		45.7 @	63.13 (P)			36.8 @	89.38 (P)	
		42.9 @	63.13 (R)			38.6 @	90.00 (R)	
LEFT UPPER RIB								
LATERAL (P)	167.70	46.88	13.09	41.25	134.51	75.62	7.62	96.88
LATERAL (R)	163.93	46.88	13.42	41.25	127.51	75.62	11.49	96.88
DELTA V (MPH)		41.4 @	76.25 (P)			28.9 @	95.63 (P)	
		41.4 @	76.25 (R)			30.5 @	95.63 (R)	
LEFT LOWER RIB								
LATERAL (P)	208.20	45.62	32.73	70.00	156.97	74.37	82.05	63.13
LATERAL (R)	196.89	45.62	49.65	70.00	168.66	74.37	27.97	96.25
DELTA V (MPH)		43.3 @	67.50 (P)			24.8 @	93.13 (P)	
		42.8 @	66.88 (R)			32.1 @	93.13 (R)	
ELVIS ACCELERATION								
LONGITUDINAL	85.79	74.13 @	136.38	48.25	21.76	56.50	92.47	69.25
LATERAL	256.21	40.50	273.46	74.63 @	145.00	69.25	53.99	50.88
VERTICAL	80.03	48.88	123.90	74.50 @	30.47	96.50	15.13	98.38
RESULTANT		306.07 @	74.63 @			171.98 @	69.25	
DELTA V (MPH)		30.7 @	72.00 @			30.9 @	90.75	

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)
DEFLECTION	+	1.82	70.38	--- ε	--- ε	1.03	90.50	0.21	129.63

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

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

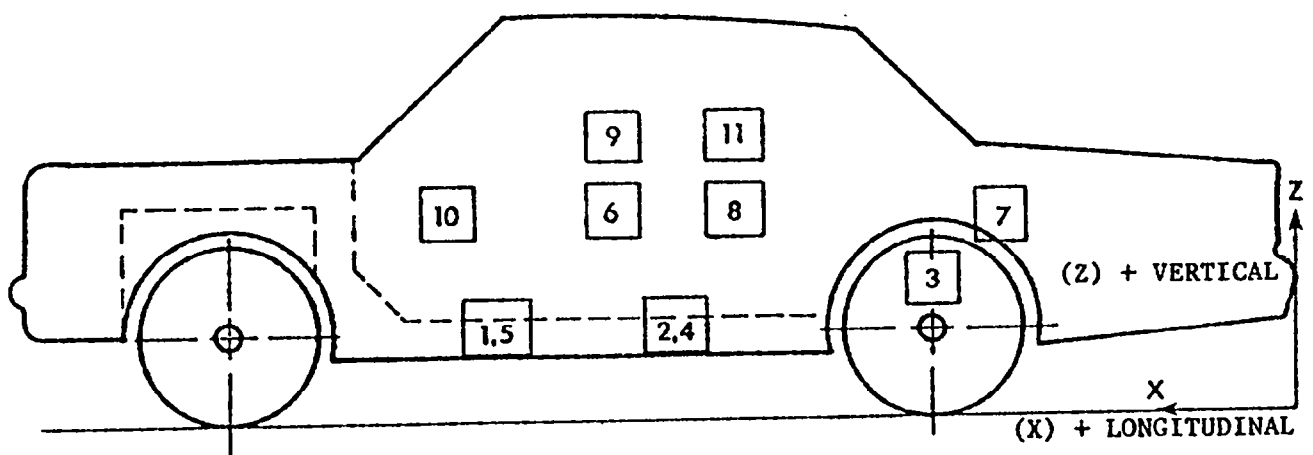
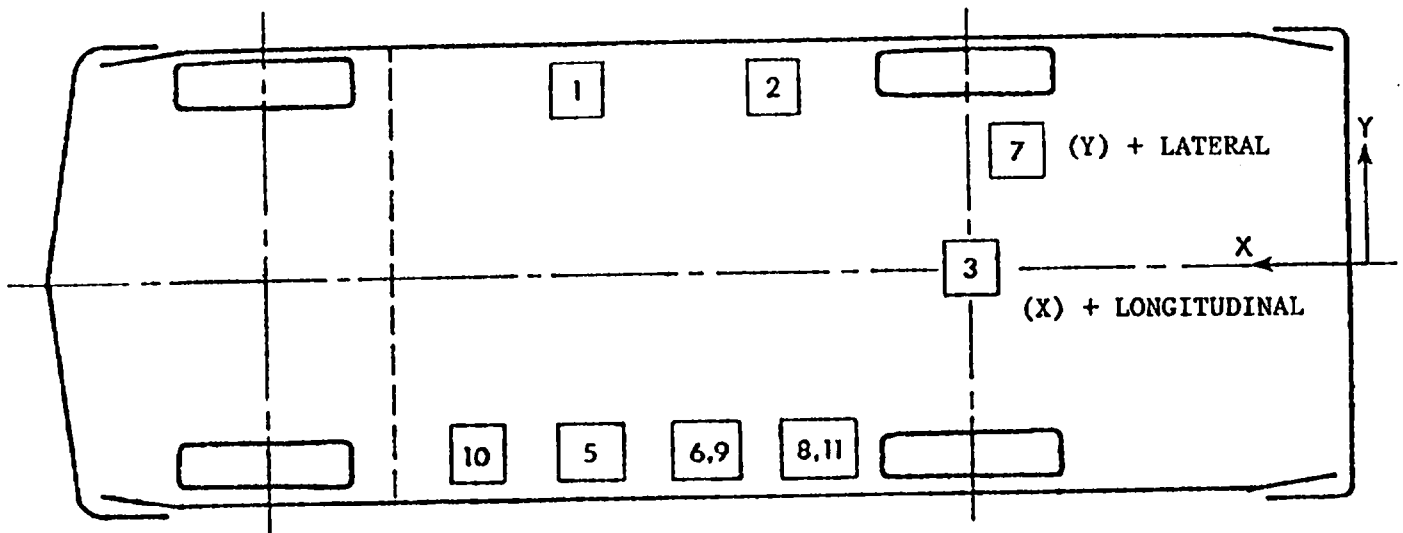
For dummy channels, Delta V is the velocity change at the approximate time of separation from the contact area.

Impression: Positive

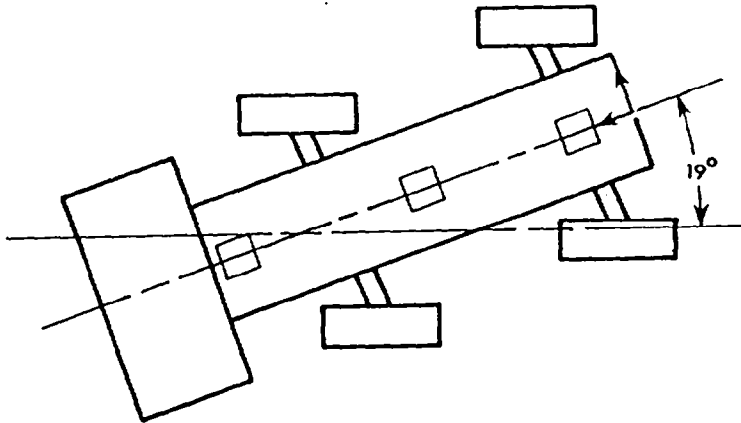
There were no negative values in the time interval of interest.

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

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)	$\Delta V = -18.6 \text{ mph @ } 165.88 \text{ msec}$			---	---	12.92	57.50
	(LATERAL)	$\Delta V = -4.7 \text{ mph @ } 165.88 \text{ msec}$			2.93	27.38	5.87	87.50
	(VERTICAL)				11.29	72.13	9.68	89.63
	(RESULTANT)				17.23 @ 72.13			
2	FRONT FRAME MEMBER	130.3	0.0	11.3				
	(LONGITUDINAL)	$\Delta V = -19.9 \text{ mph @ } 165.88 \text{ msec}$			2.83	131.88	12.82	78.75
3	REAR FRAME MEMBER	23.3	0.0	11.5				
	(LONGITUDINAL)	$\Delta V = -17.4 \text{ mph @ } 165.88 \text{ msec}$			0.29	157.50	12.22	57.38

* 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.

εThere were no positive values in the time interval of interest.

HIGH SPEED CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead	Photosonic 1B	8	475	Vehicle dynamics
2	Overhead	Photosonic 1B	25	520	Close-up of impact point
3	Onboard MDB	Photosonic 1B	25	500	Close-up of impact point
4	Onboard MDB	Stalex	13	497	Driver kinematics
5	Ground level - right	Hycam	25	500	Overall view
6	Ground level - left	Photosonic 1B	17	526	Overall view
7	Onboard vehicle	Photosonic 1B	8	782	Driver kinematics - front view
8	Onboard vehicle	Photosonic 1B	8	795	Driver kinematics
9	Onboard vehicle	Photosonic 1B	8	787	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)
BCGXG	Accel	4-202-0001	18845	Bell Howell	5/2/84	0.237 MV/G	50 G
BCGYG	Accel	4-202-0001	18858	Bell Howell	5/2/84	0.236 MV/G	50 G
BCGZG	Accel	4-202-0001	18857	Bell Howell	5/2/84	0.239 MV/G	50 G
BFCXG	Accel	4-202-0001	18240	Bell Howell	5/2/84	0.239 MV/G	50 G
BRCXG	Accel	4-202-0001	19022	Bell Howell	5/2/84	0.220 MV/G	50 G

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

APPENDIX A
PHOTOGRAPHS



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



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

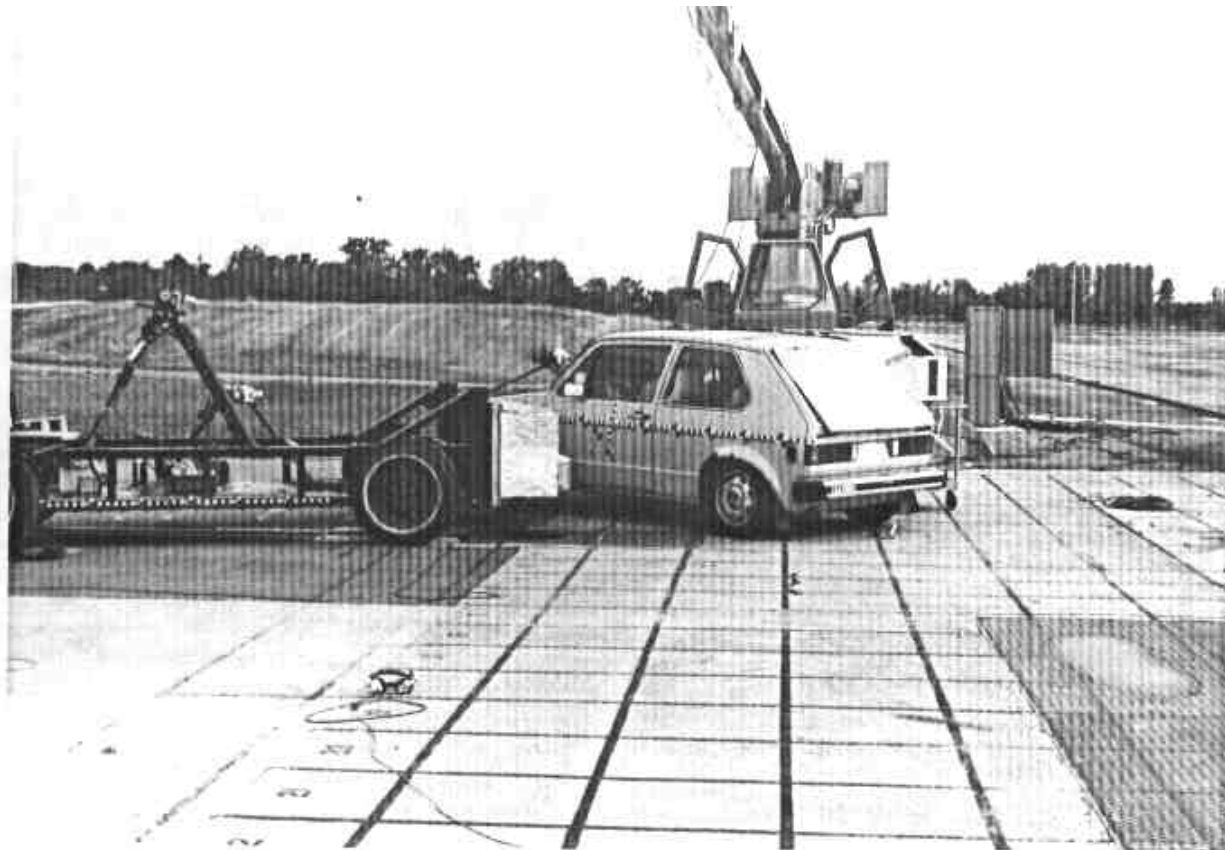


Figure A-3. PRE-TEST OVERALL -- VIEW 3

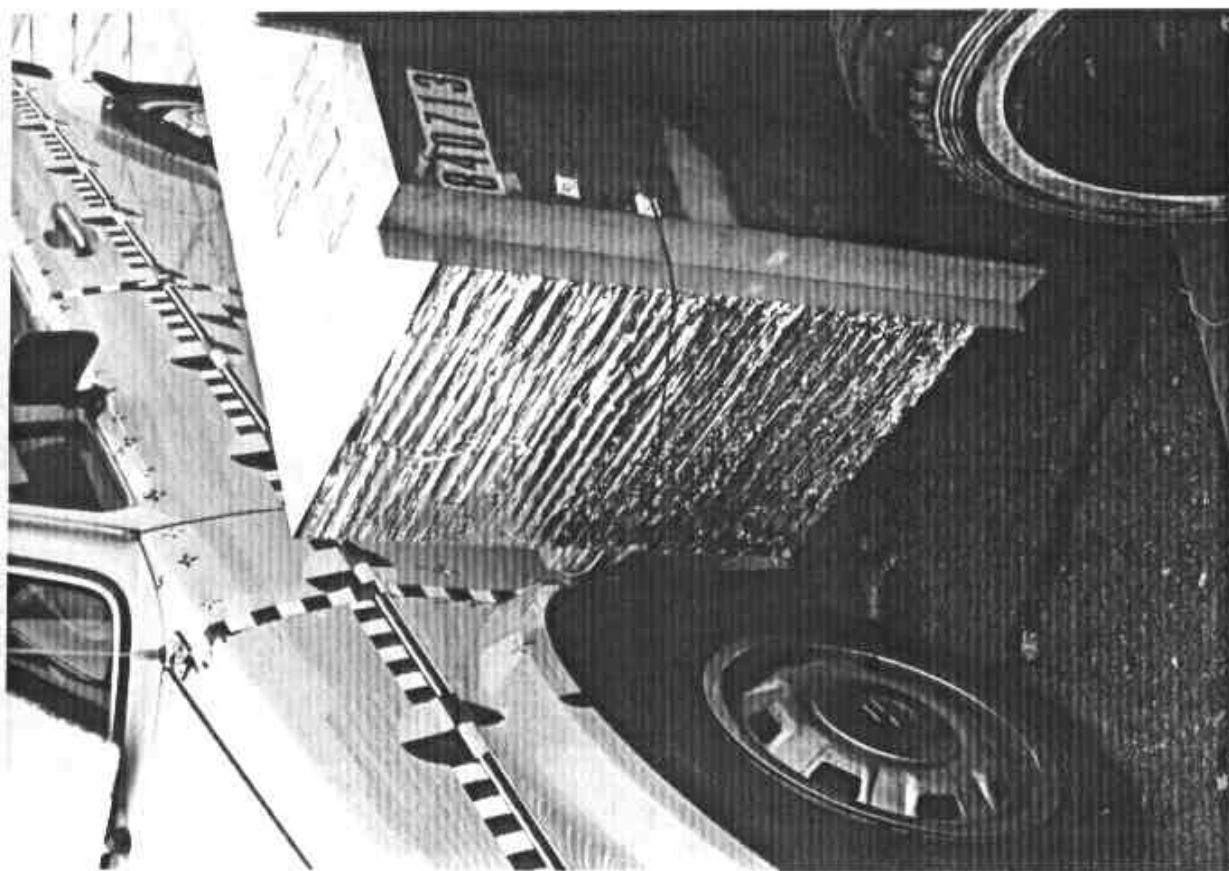


Figure A-4. PRE-TEST CLOSEUP -- VIEW 1
A-3

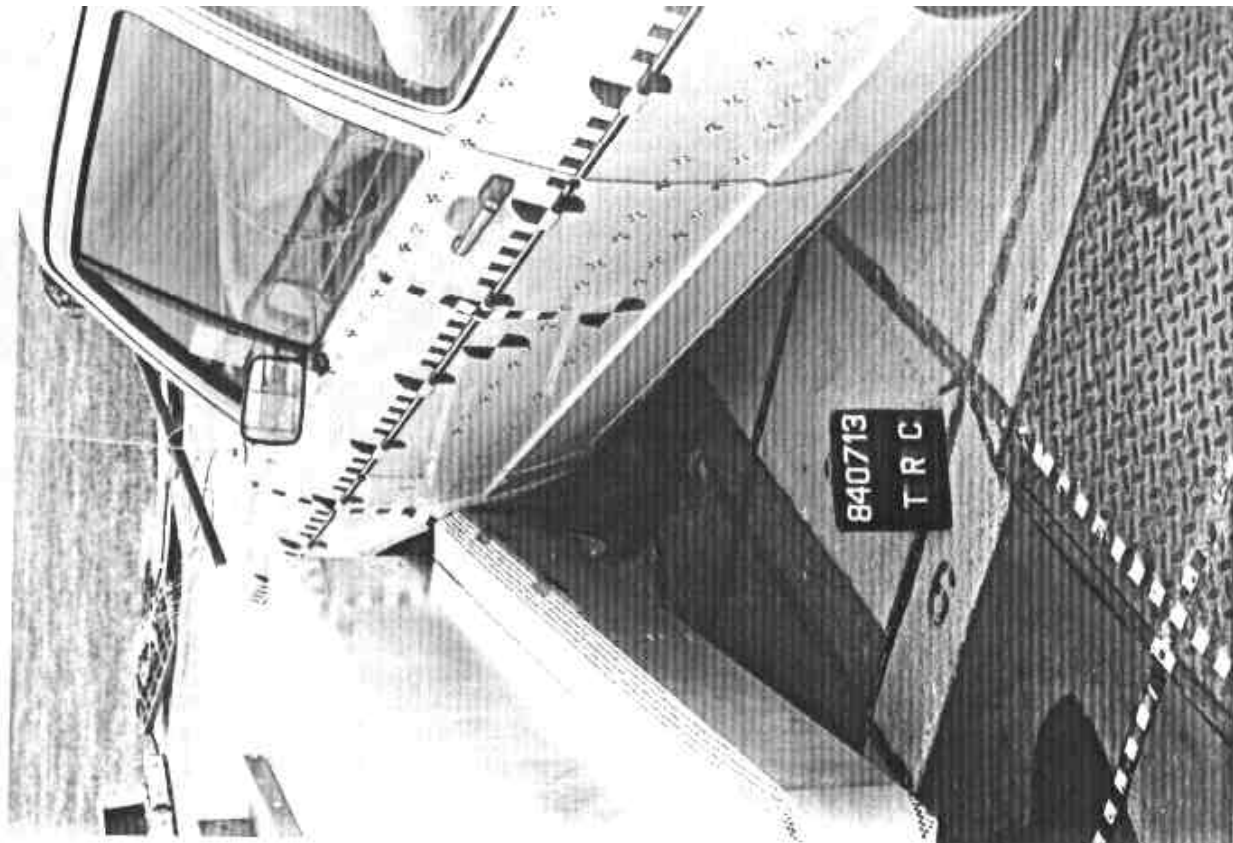


Figure A-5. PRE-TEST CLOSEUP - VIEW 2



Figure A-6. PRE-TEST CLOSEUP - VIEW 3

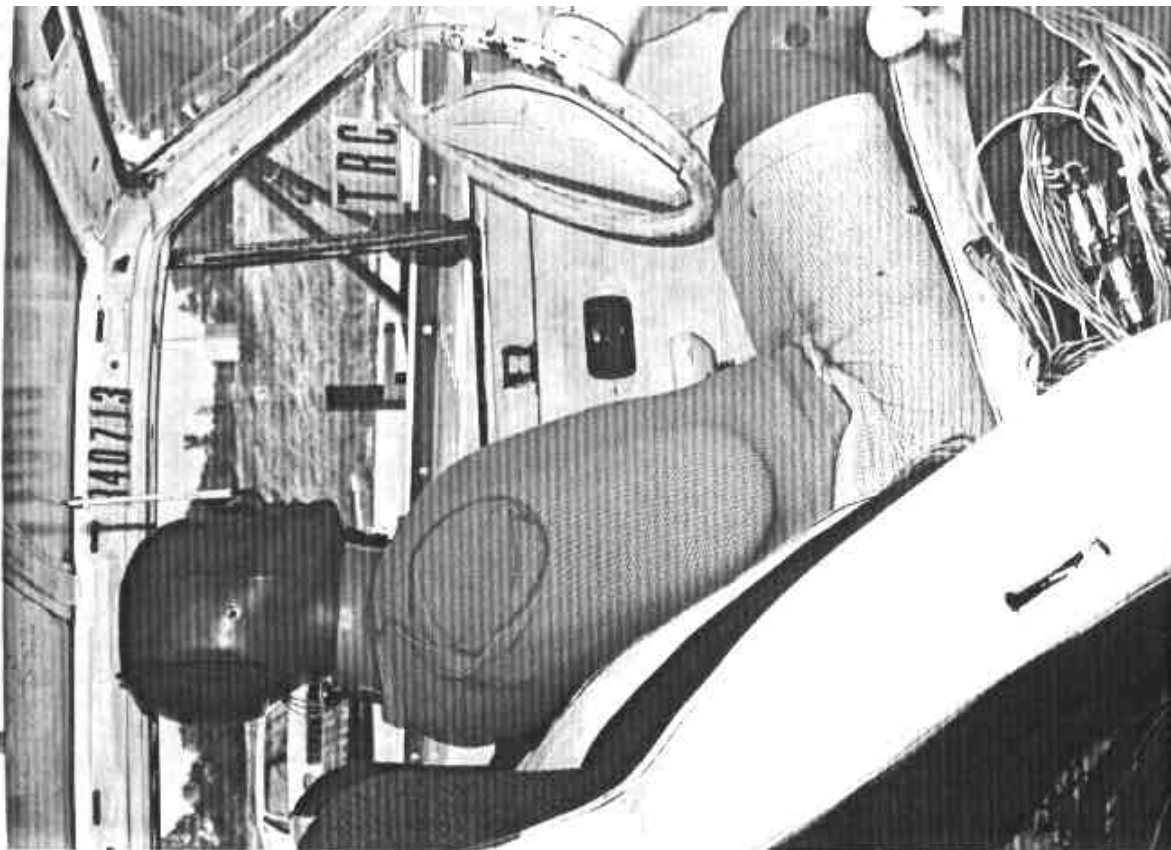


Figure A-7. PRE-TEST DRIVER DUMMY VIEW 1

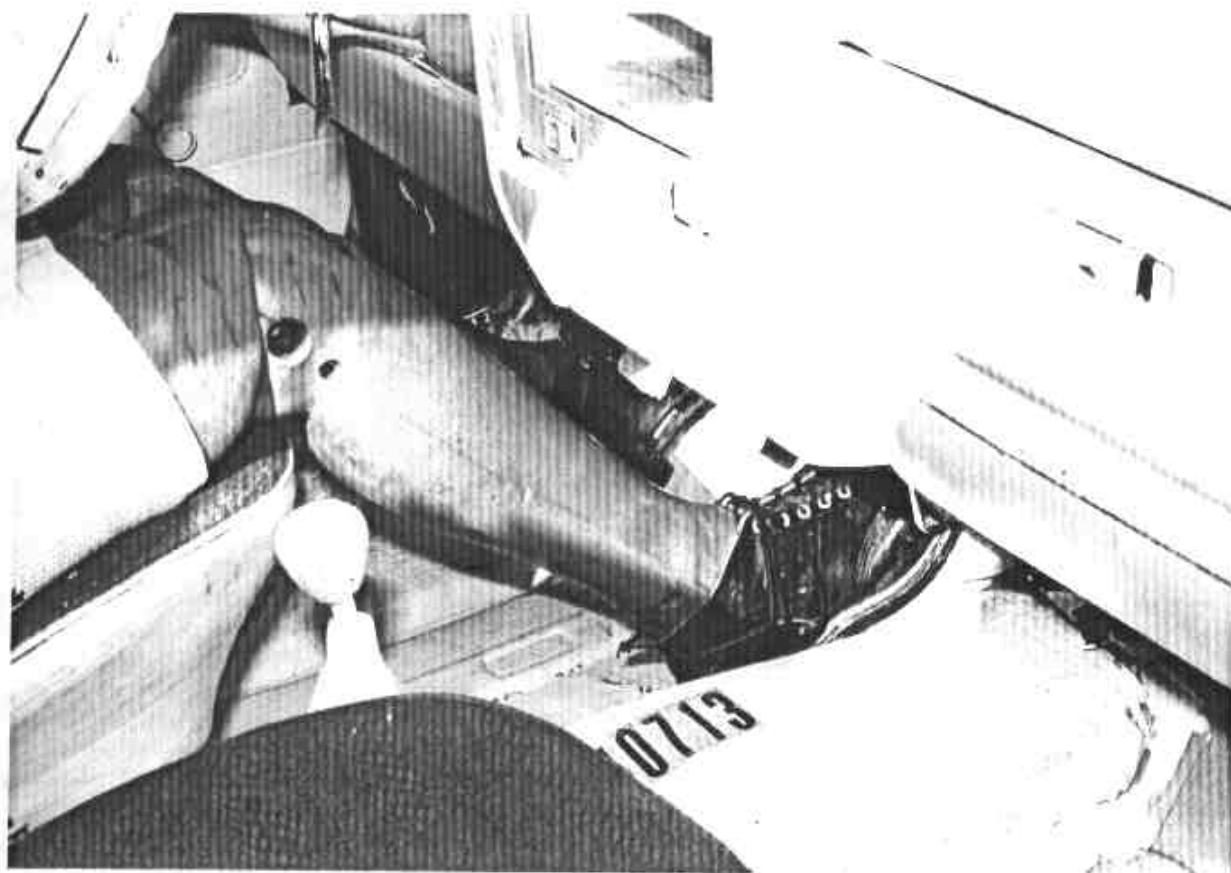


Figure A-8. PRE-TEST DRIVER DUMMY - VIEW 2
A-5



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

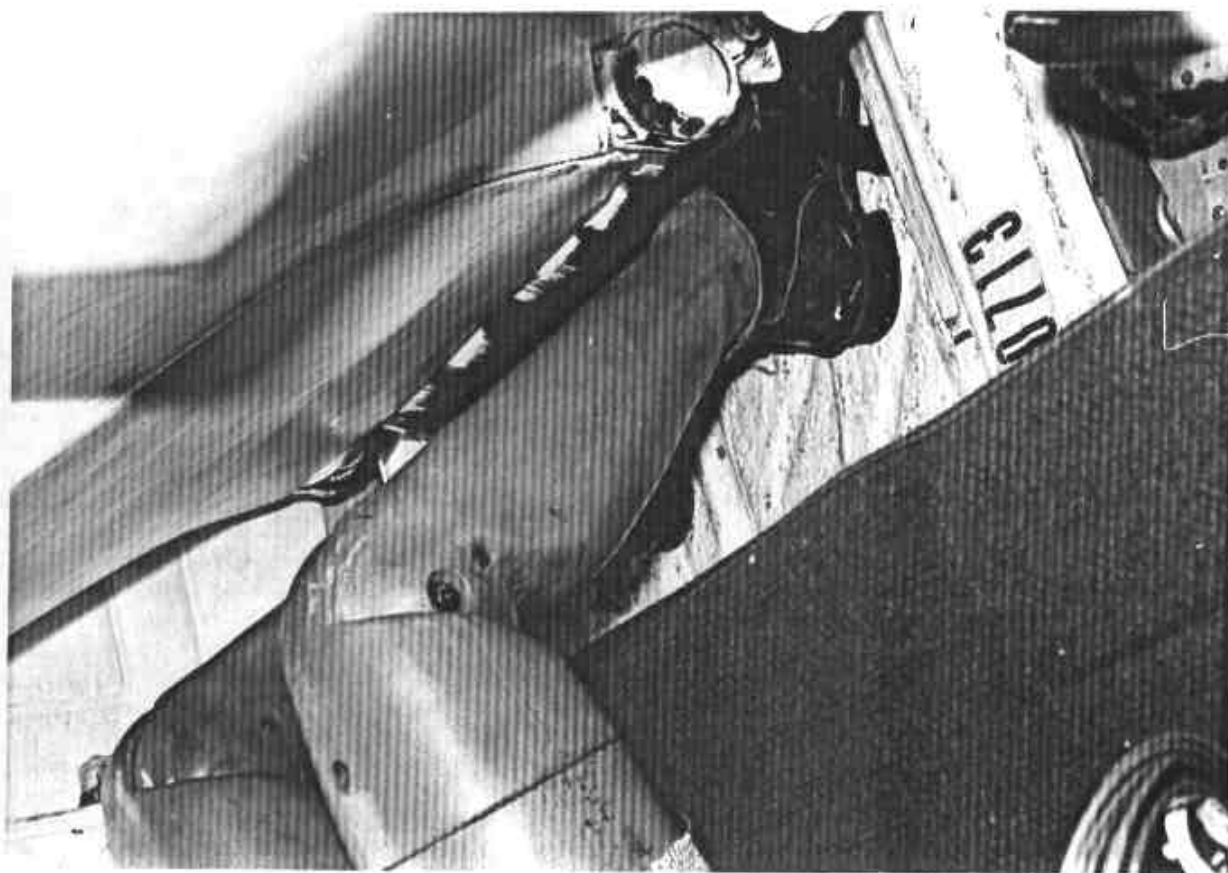


Figure A-10. PRE-TEST PASSENGER DUMMY - VIEW 2

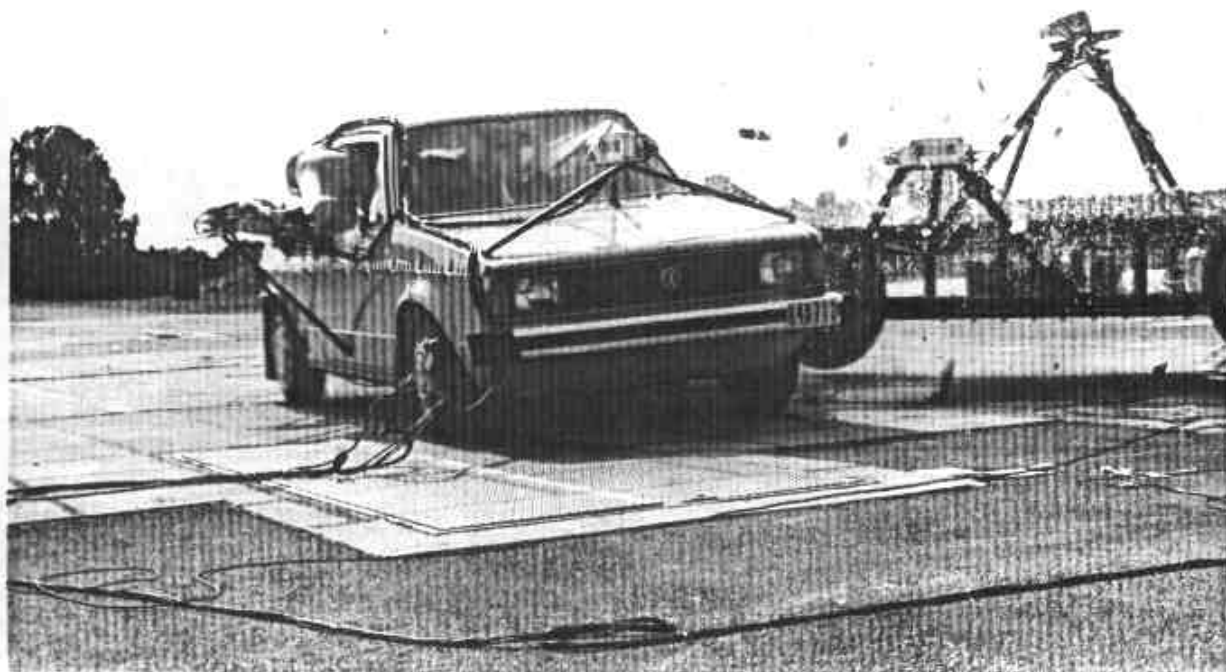


Figure A-11. CRASH EVENT PHOTOGRAPH

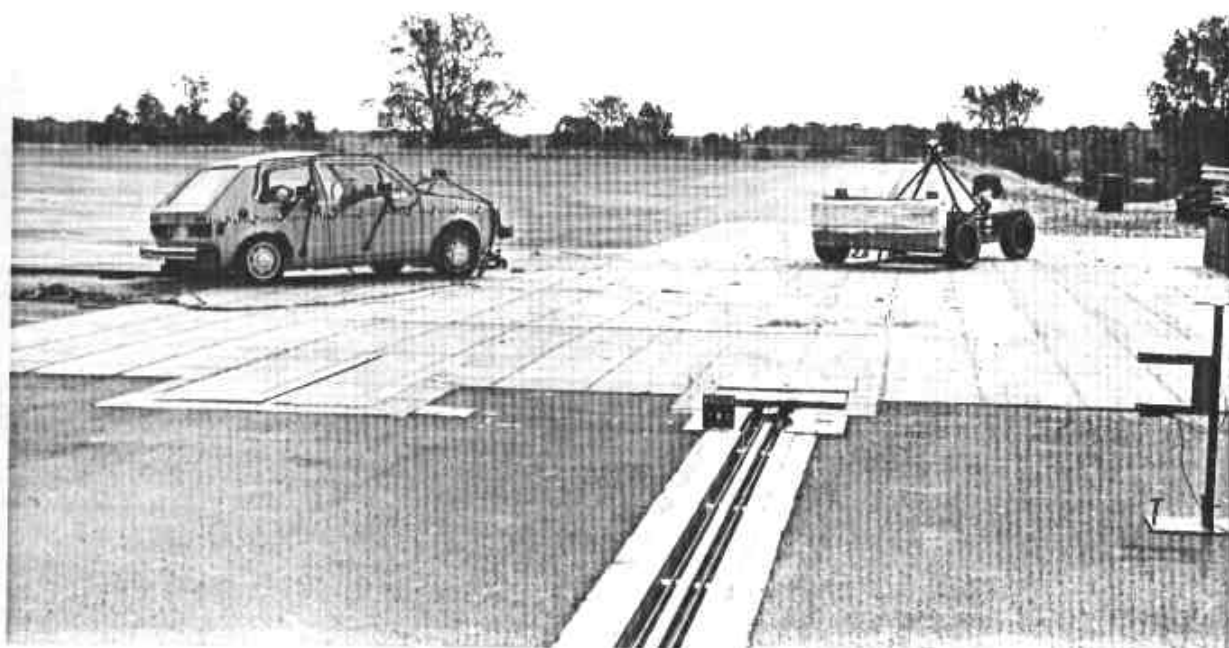


Figure A-12. POST-TEST OVERALL - VIEW 1
A-7



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



Figure A-14. POST-TEST OVERALL - VIEW 3
A-8

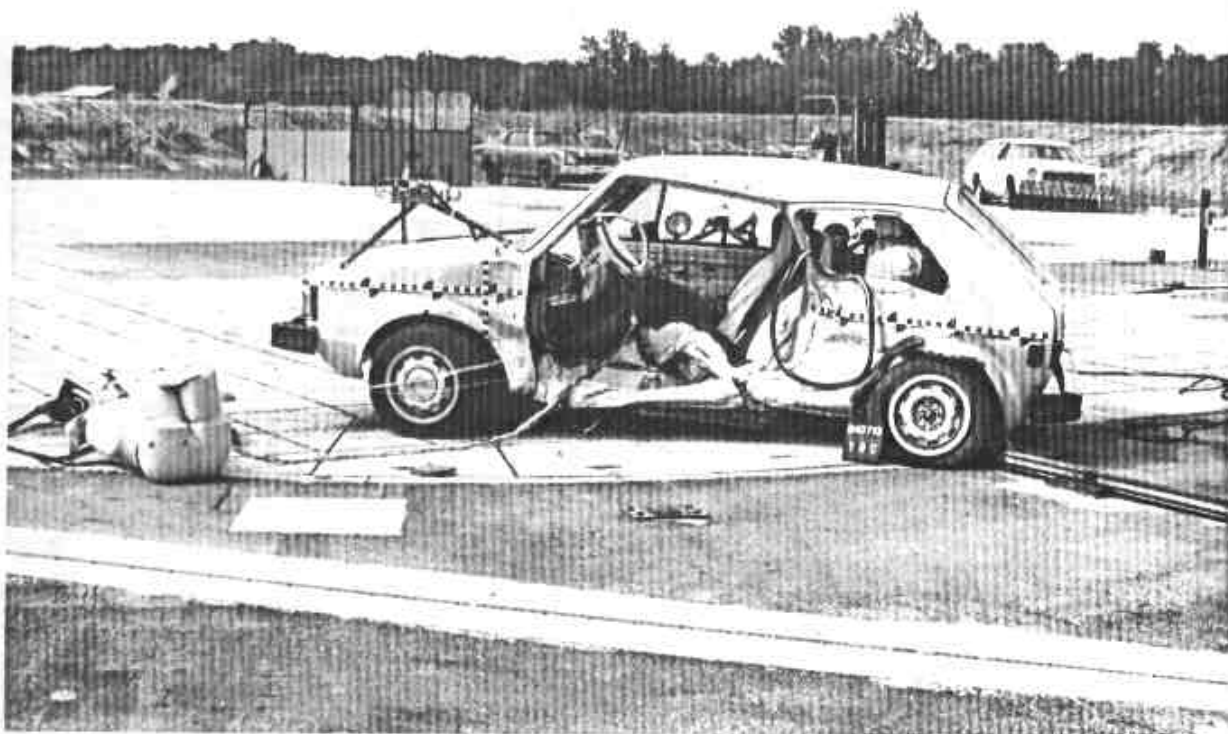


Figure A-15. POST-TEST OVERALL - VIEW 4

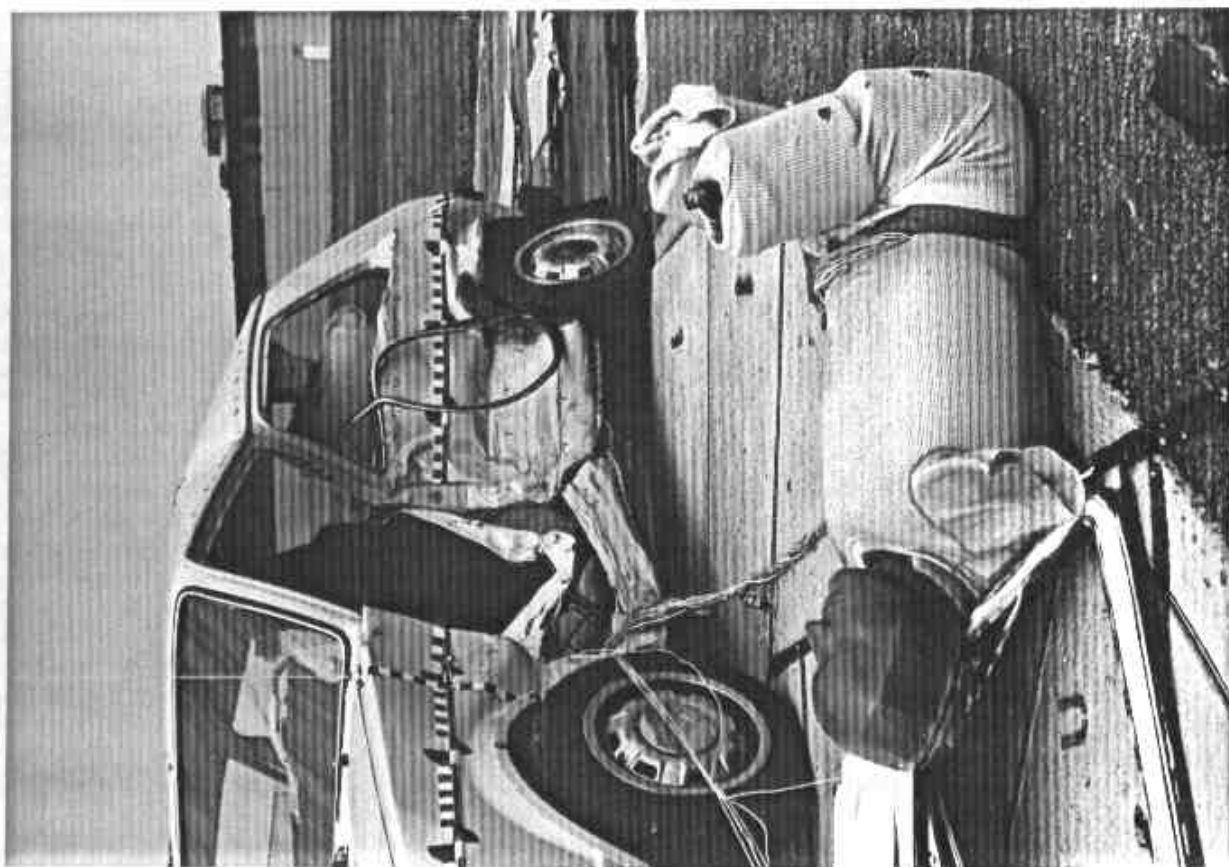


Figure A-16. POST-TEST DRIVER DUMMY - VIEW 1
A-9

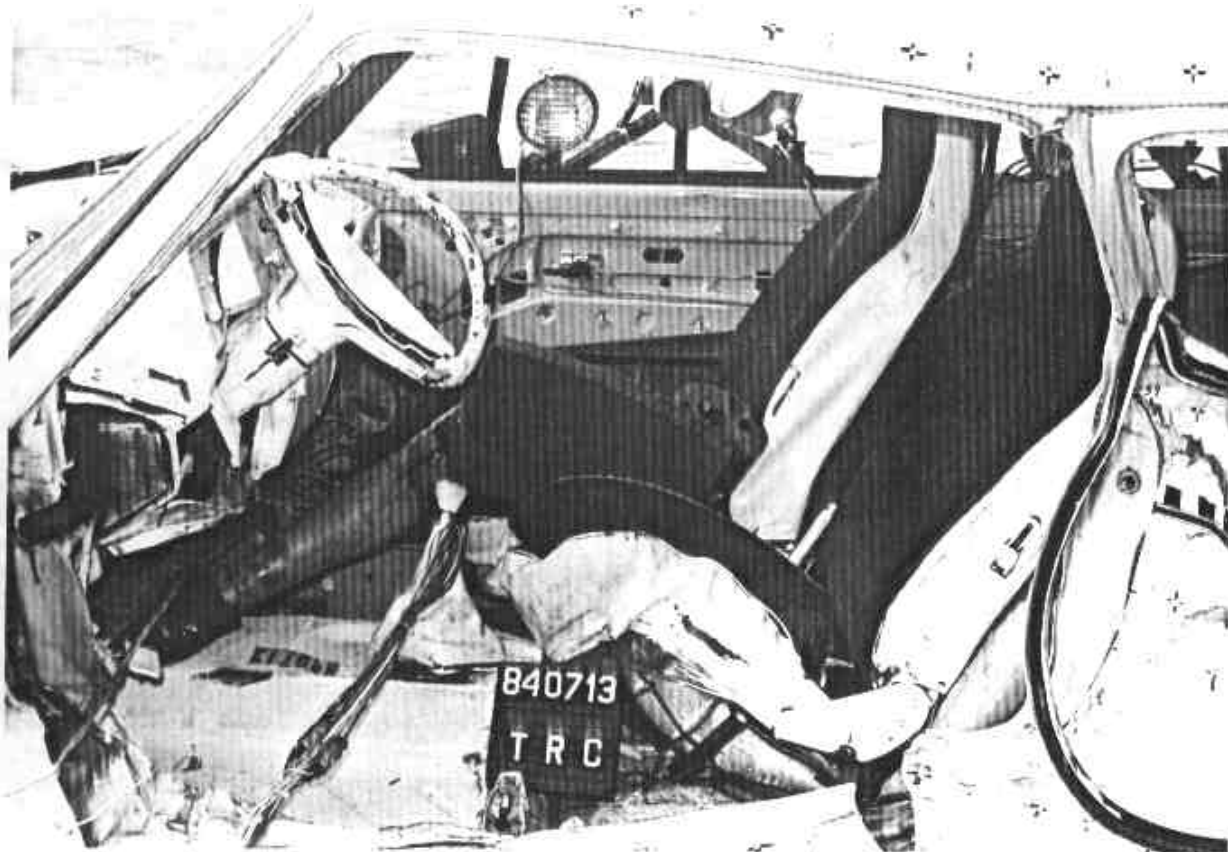


Figure A-17. POST-TEST DRIVER DUMMY - VIEW 2



Figure A-18. POST-TEST PASSENGER DUMMY - VIEW 1
A-10

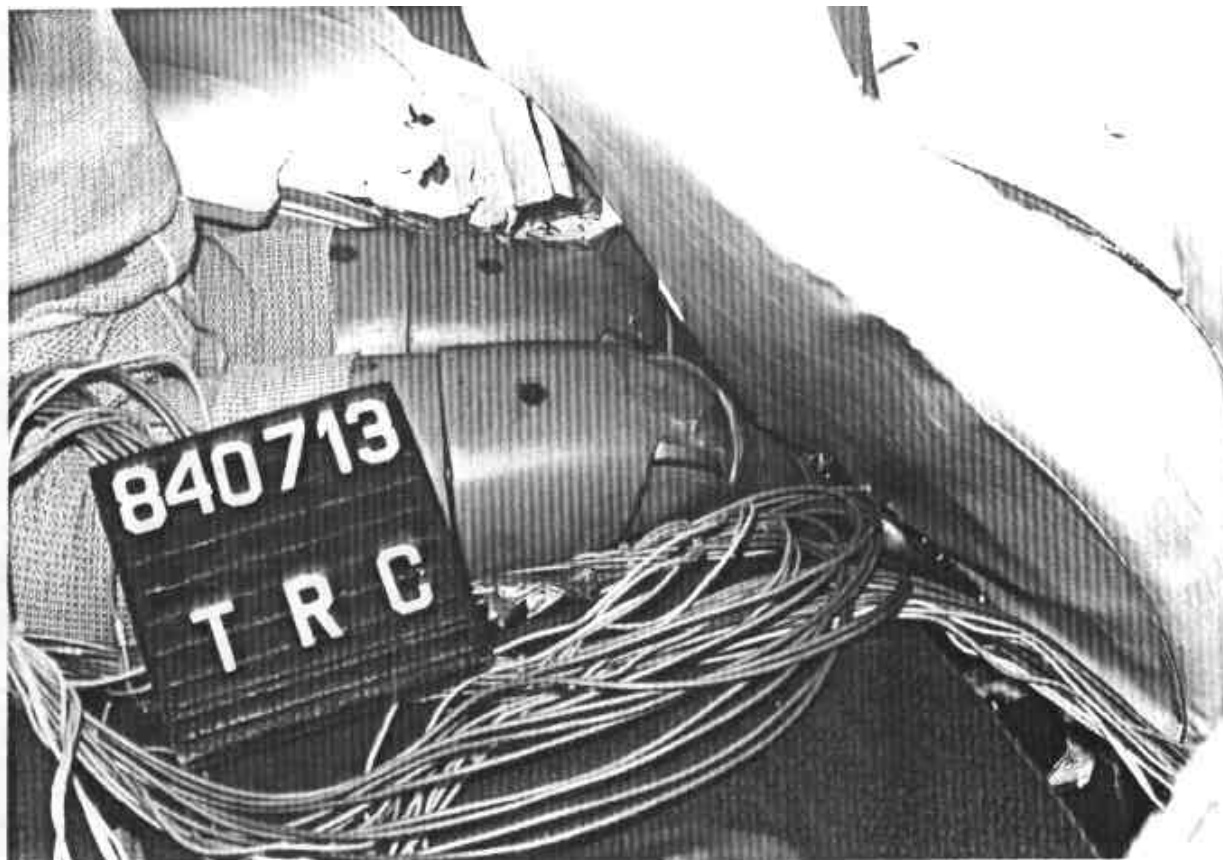


Figure A-19. POST-TEST PASSENGER DUMMY - VIEW 2

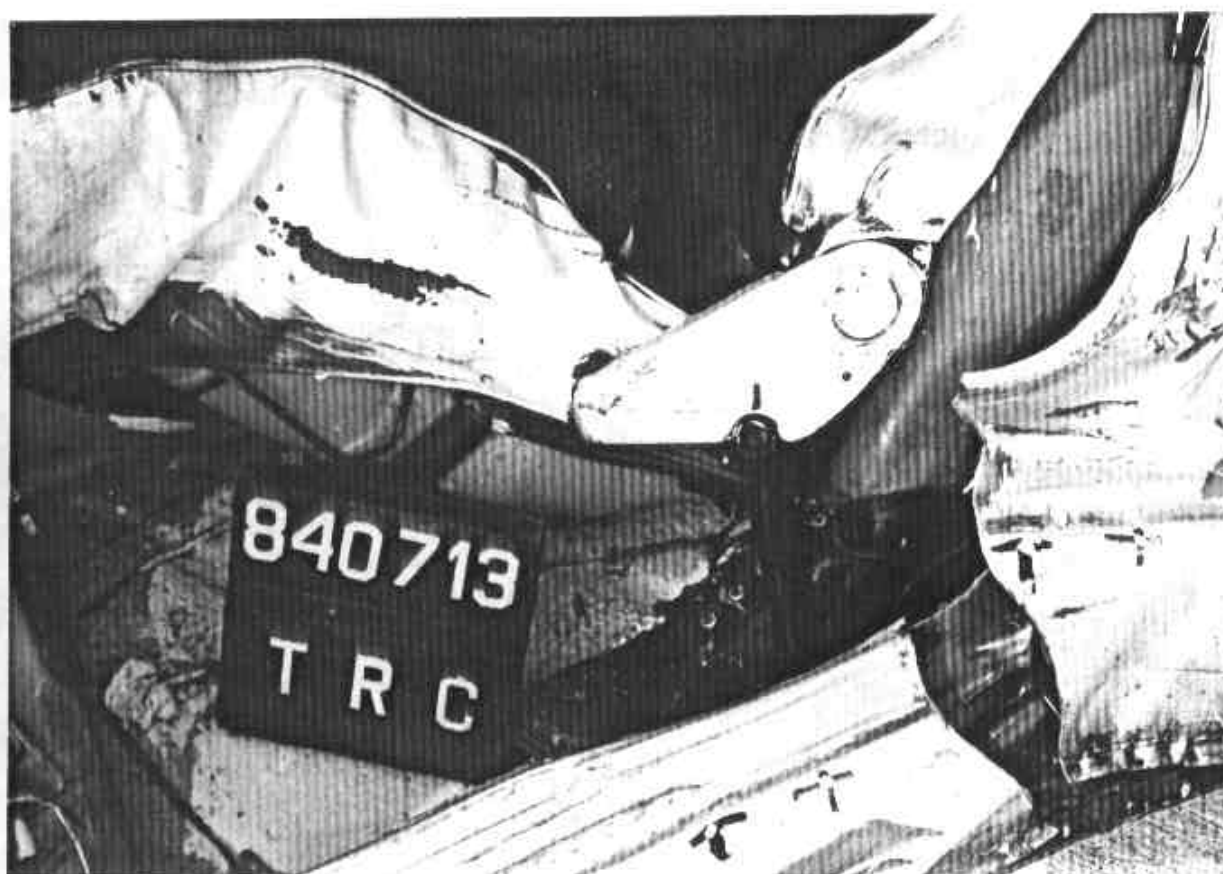


Figure A-20. POST-TEST PASSENGER DUMMY - VIEW 3

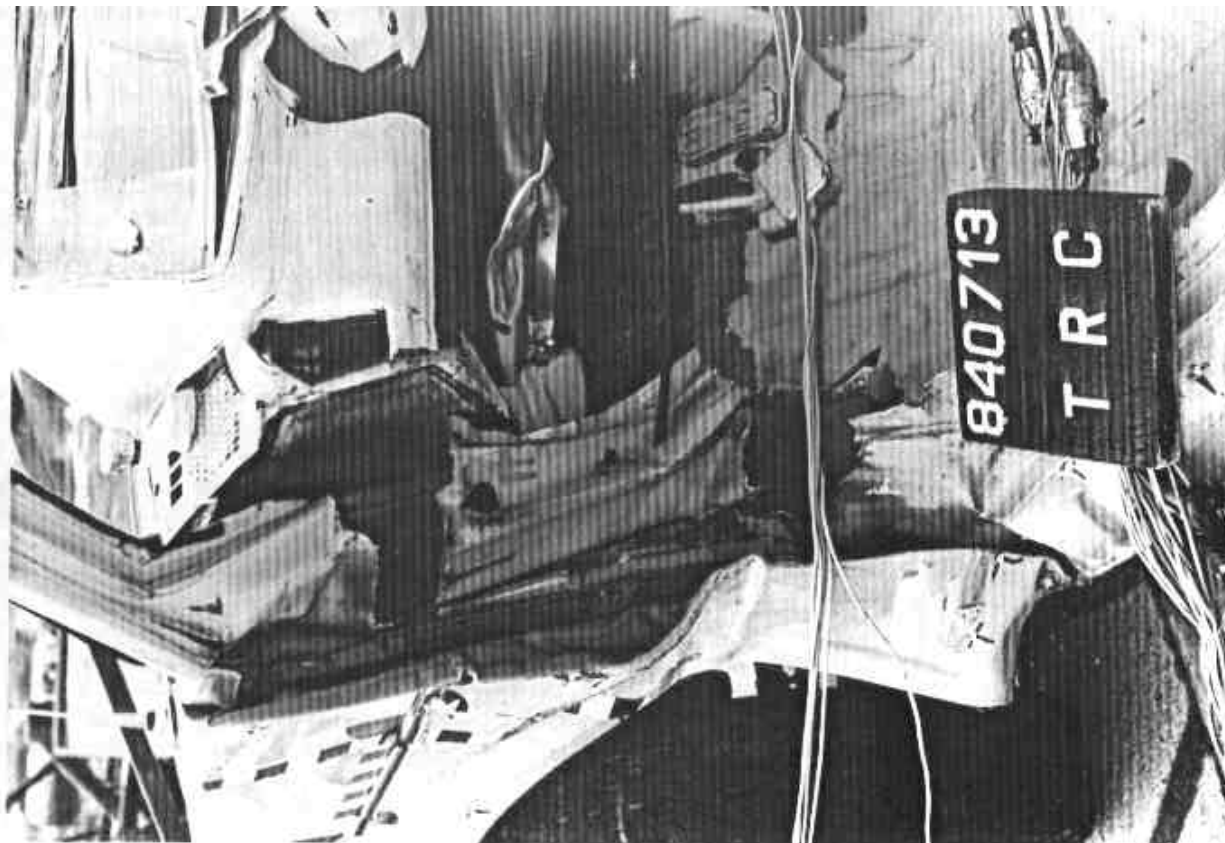


Figure A-21. POST-TEST VEHICLE DAMAGE

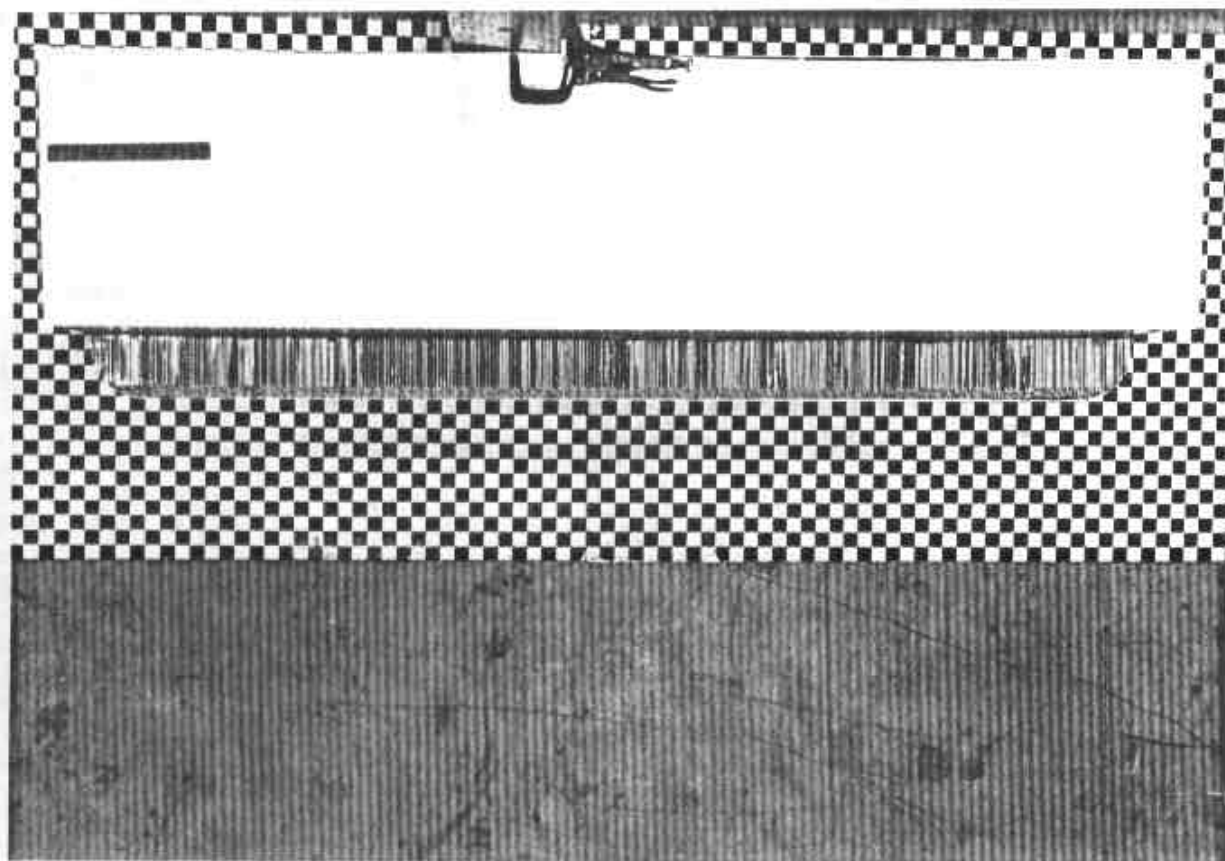


Figure A-22. PRE-TEST MDB FACE - VIEW 1
A-12

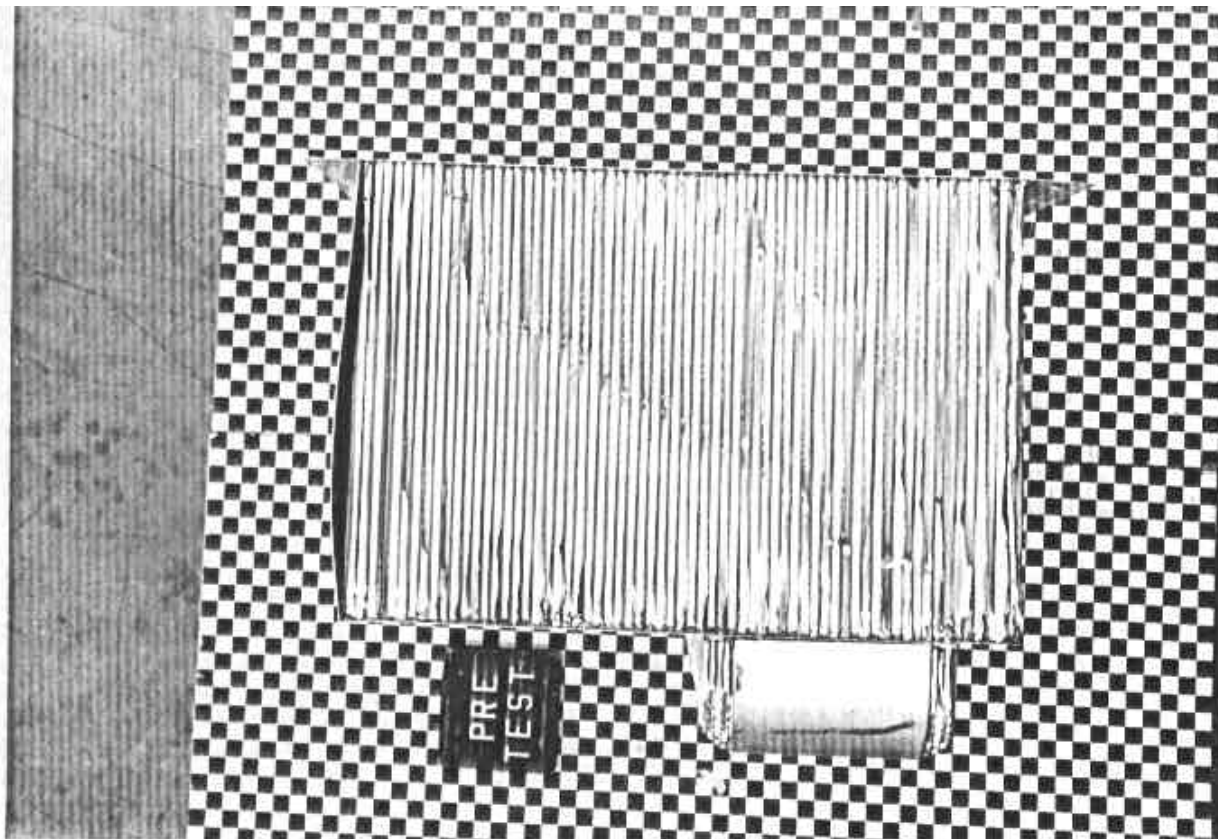


Figure A-23. PRE-TEST MDB FACE - VIEW 2

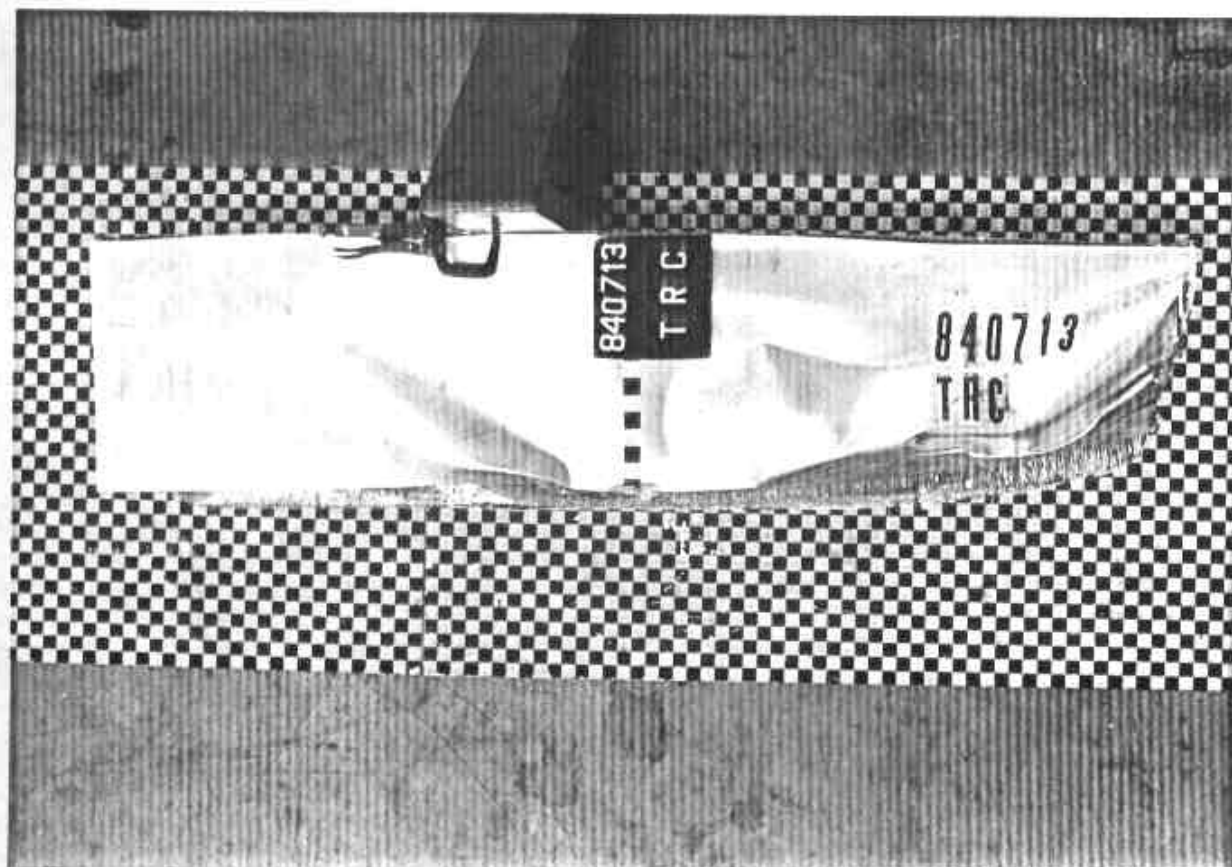


Figure A-24. POST-TEST MDB FACE - VIEW 1
A-13

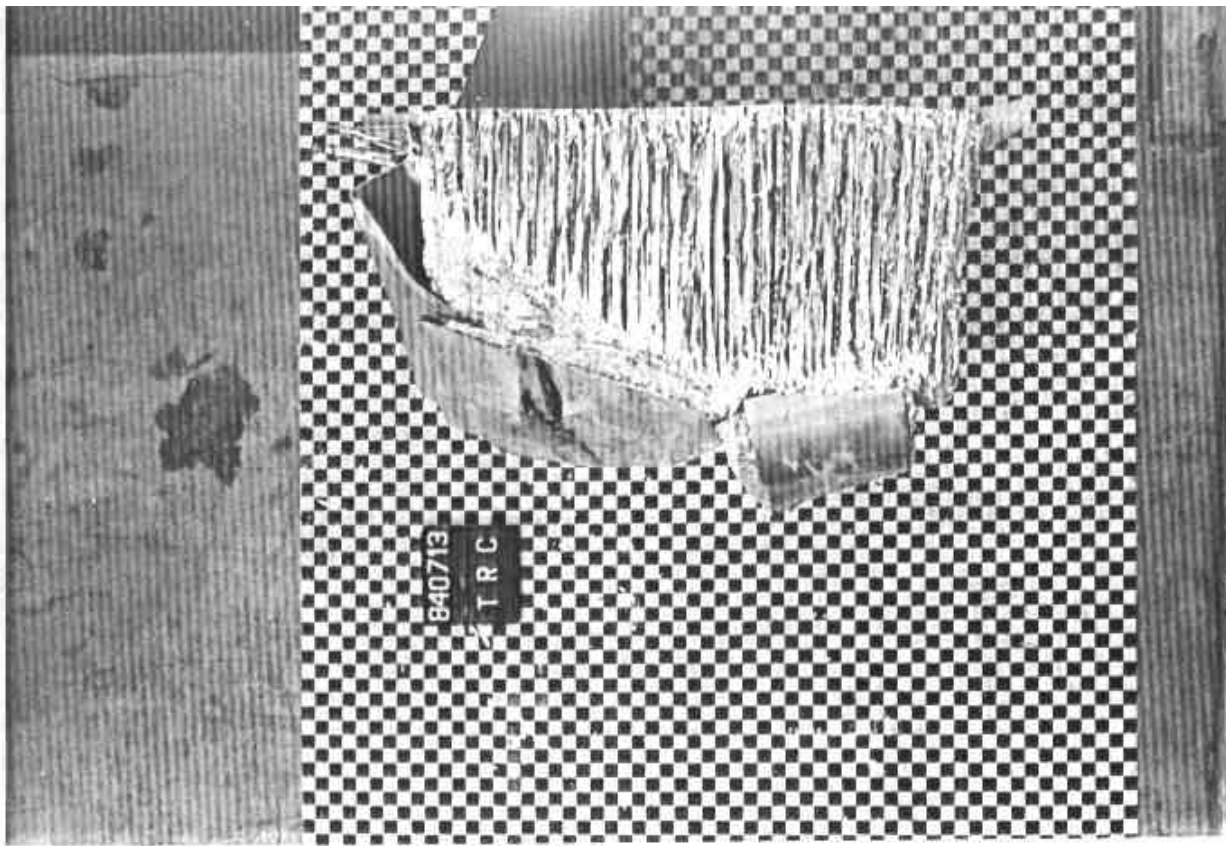


Figure A-25. POST-TEST MDB FACE - VIEW 2

APPENDIX B
DATA PLOT PRESENTATION

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

TEST NO. 0710 PLOT DATE 13 AUG 81 14:17:03

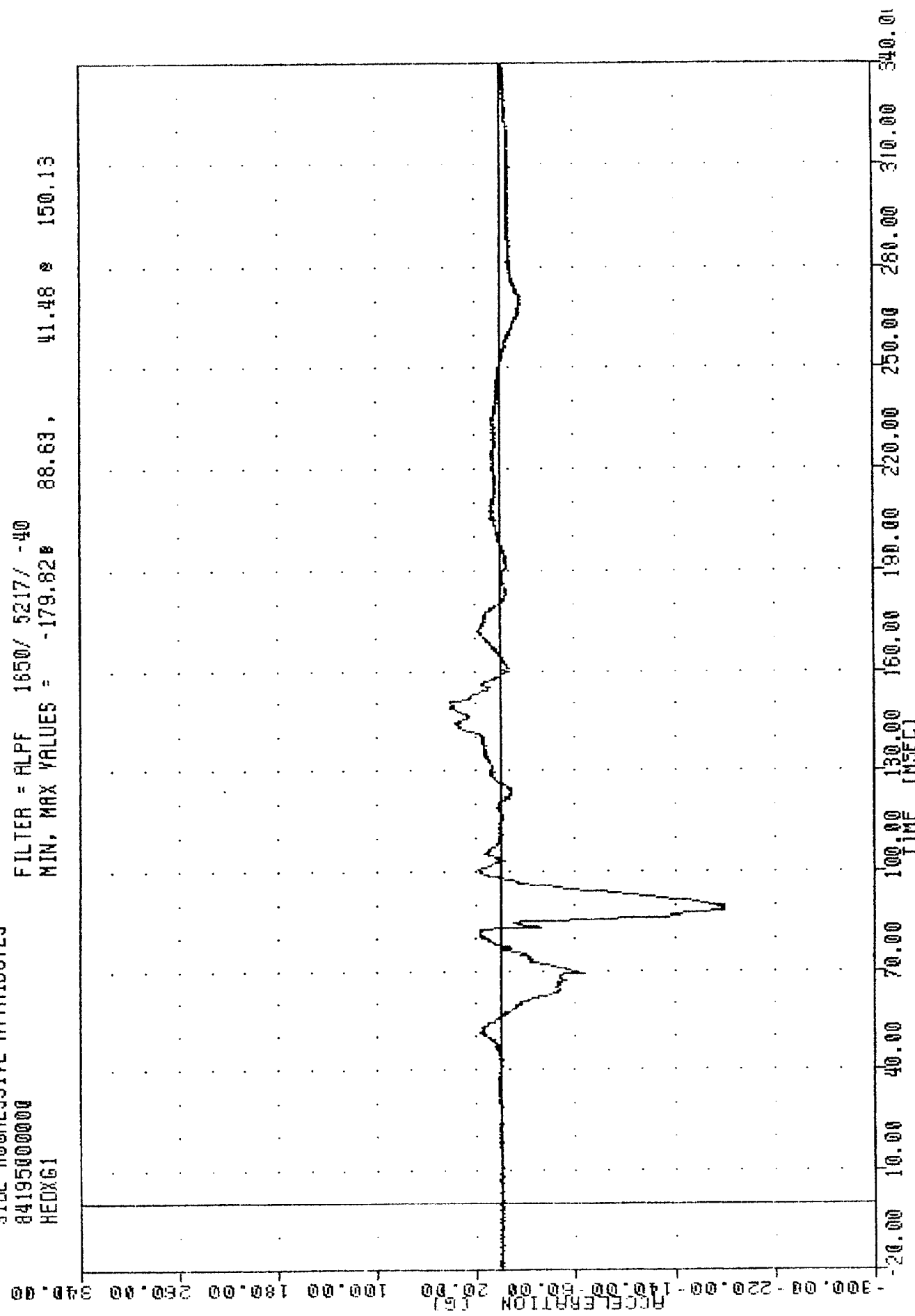
SIDE AGGRESSIVE ATTRIBUTES

84195000000

HEDXG1

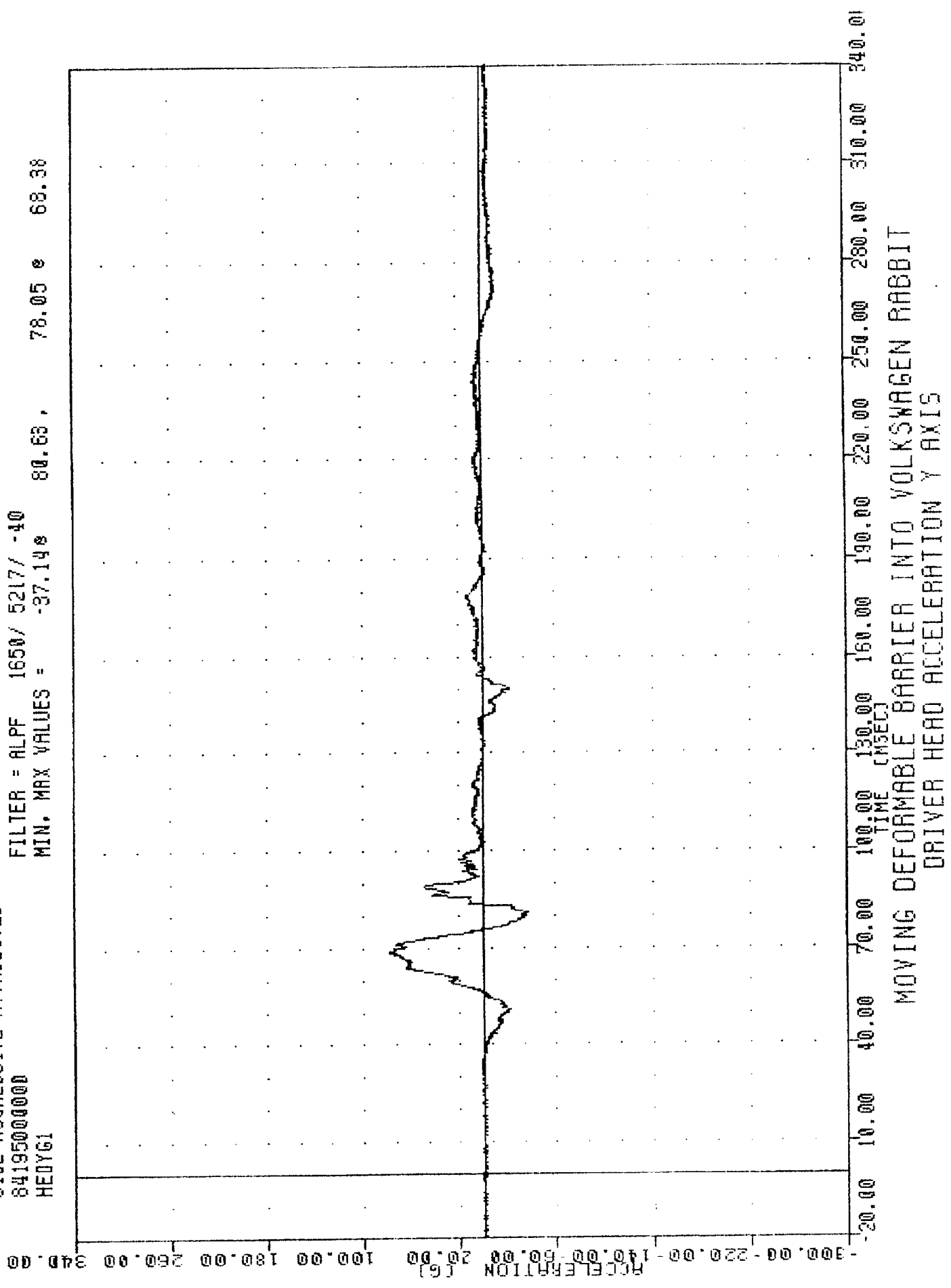
FILTER = ALPF 1650/ 5217/ -40

MIN, MAX VALUES = -179.82 88.63, 41.48 150.13

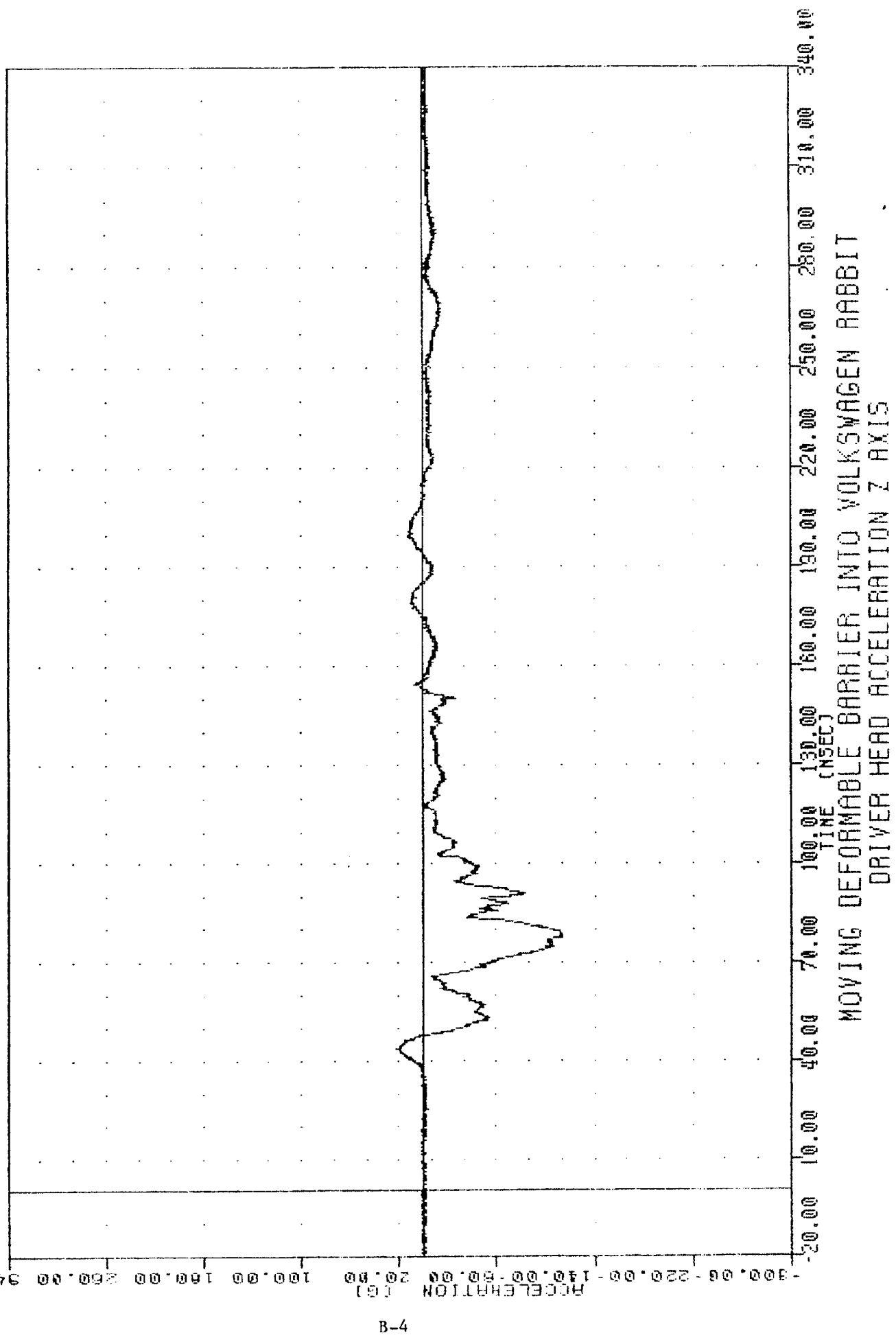


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD ACCELERATION X AXIS

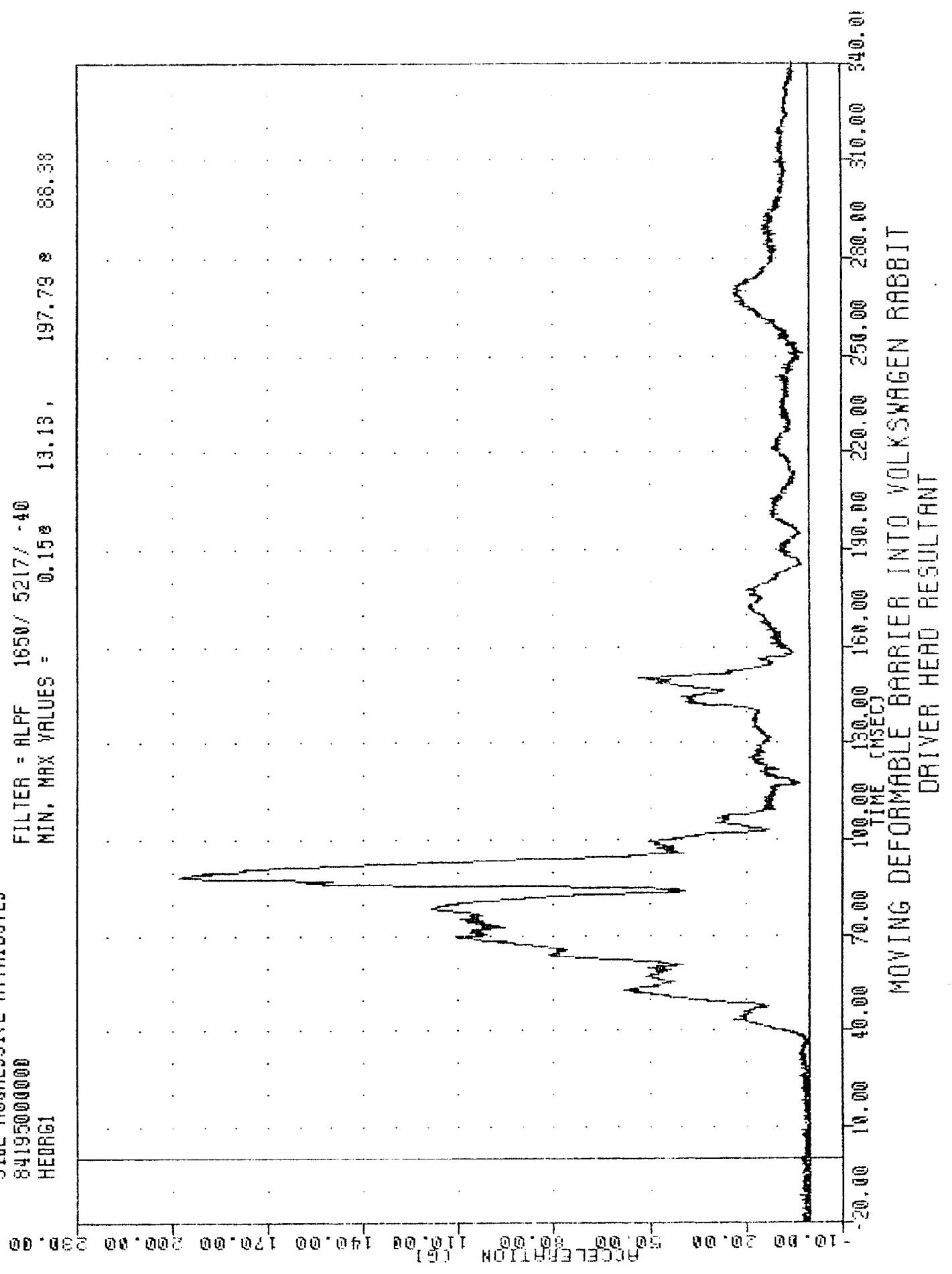
TAC 040715, 15-106-84 14:17:05
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 HEDYG1
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -37.14s 80.63, 78.05 e 69.38



TRAIL 713 PLATE 13-8-81 17:00
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 HEDZ61
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -114.45e 78.13, 21.68 e 43.25



THE 00715
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 HEADG1
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = 0.158 13.13, 197.79 88.38
 13-NOV-84 14:17:03



TAC 840715 30 JUL 84 10:33:42

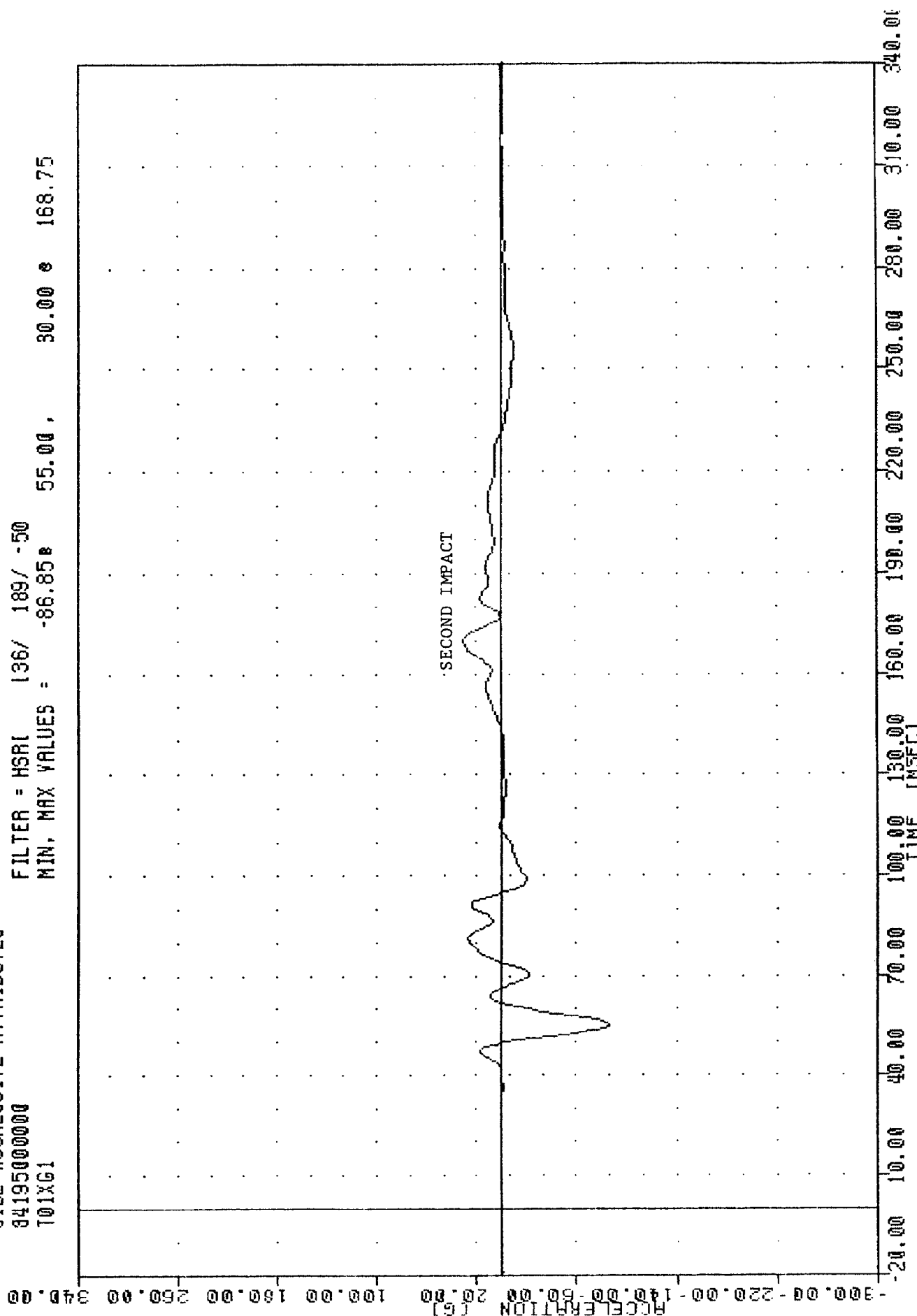
SIDE AGGRESSIVE ATTRIBUTES

84195000000

T01XG1

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -86.858 55.00, 30.00 168.75



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

TRC 040715, 30 JUL-84 10:33:42

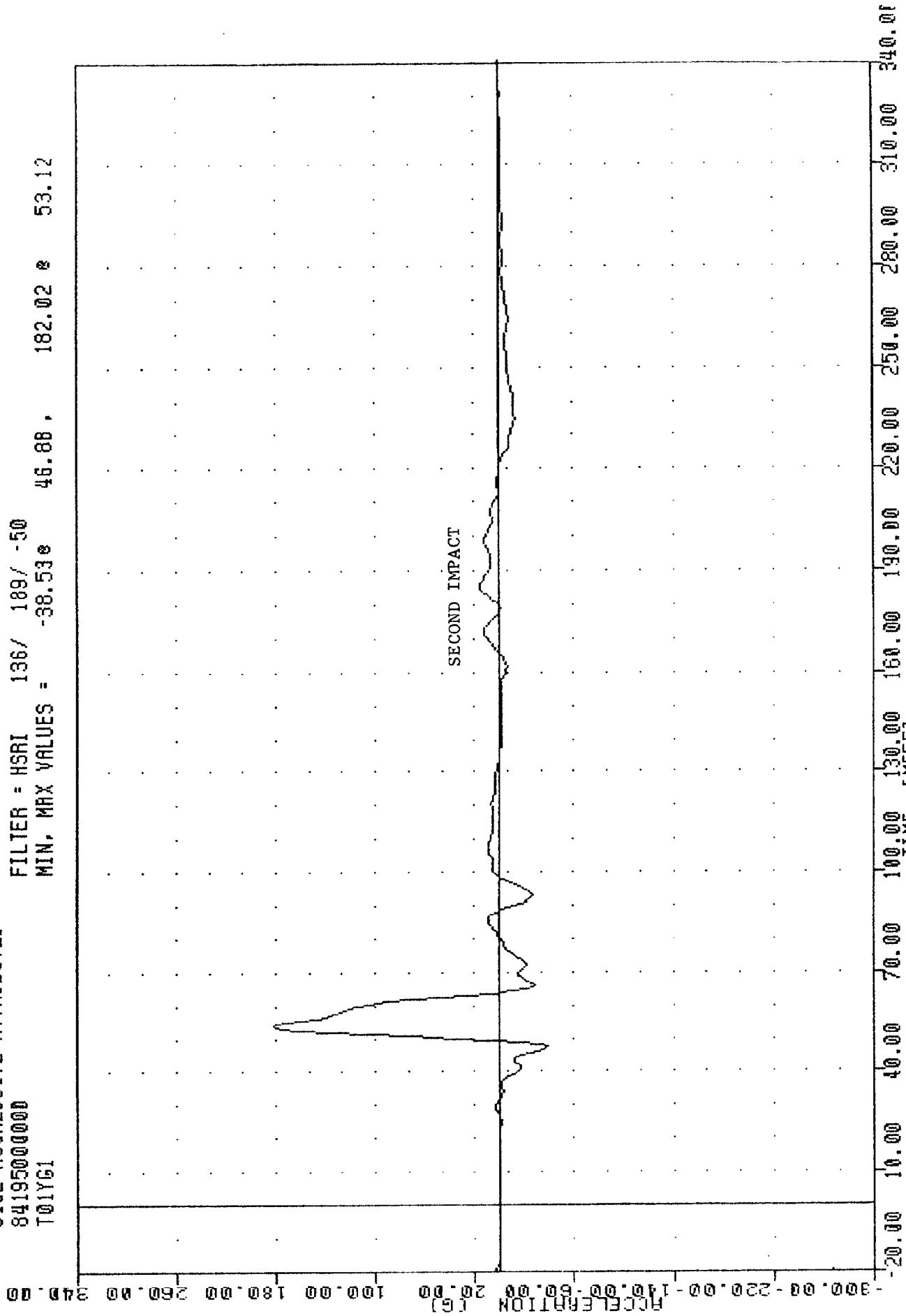
SIDE AGGRESSIVE ATTRIBUTES

84195000000

T01Y61

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -38.538 46.88, 182.02 53.12

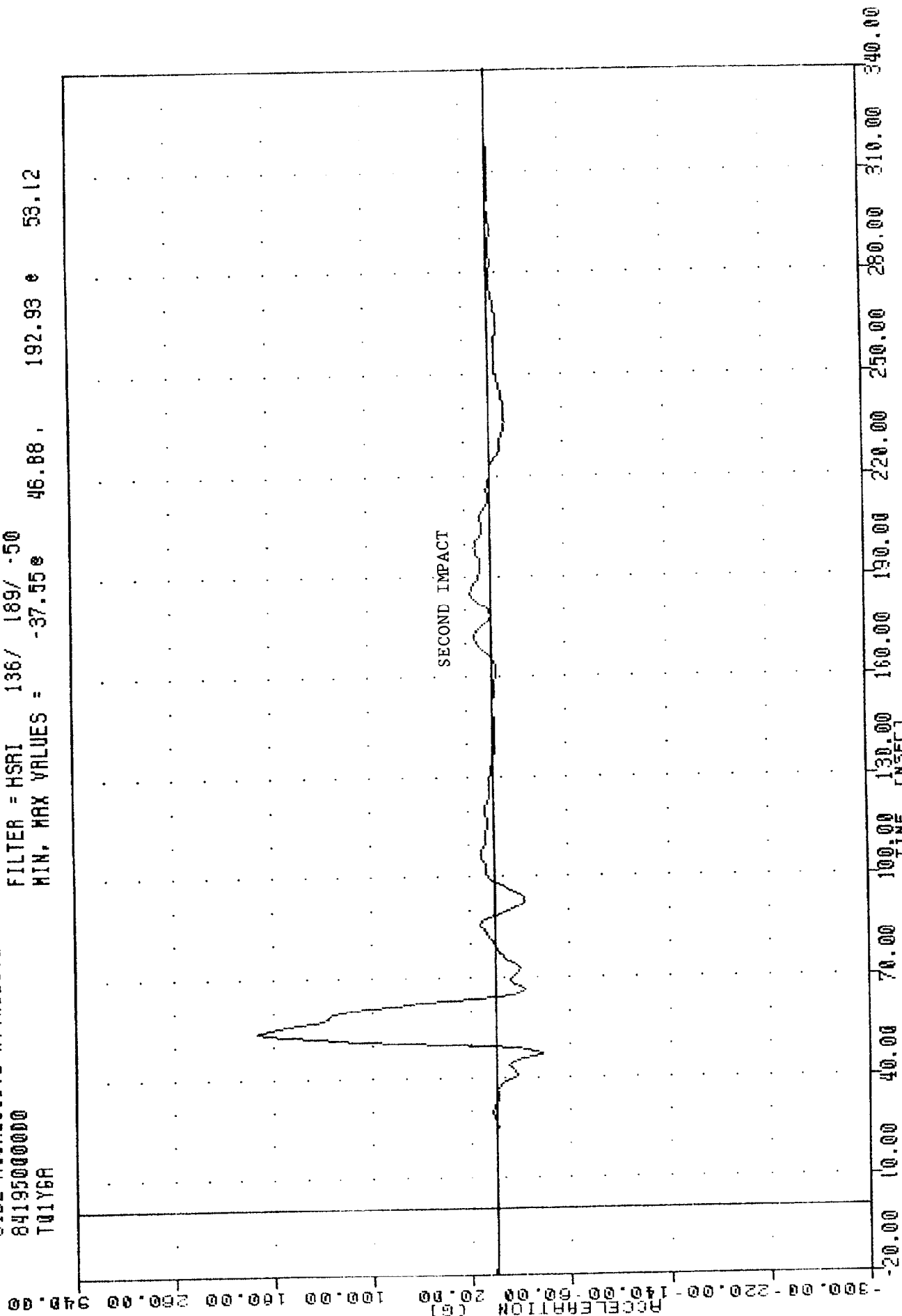


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER UPPER SPINE ACCELERATION Y AXIS

TRC 040713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 TQ1Y6A

PLUT DATE 30 JUL 84 10:33:42

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -37.55 46.88 192.93 53.12



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

10-33:42

30 JUL 84

PLOT DATE

040715

THE

84195000000

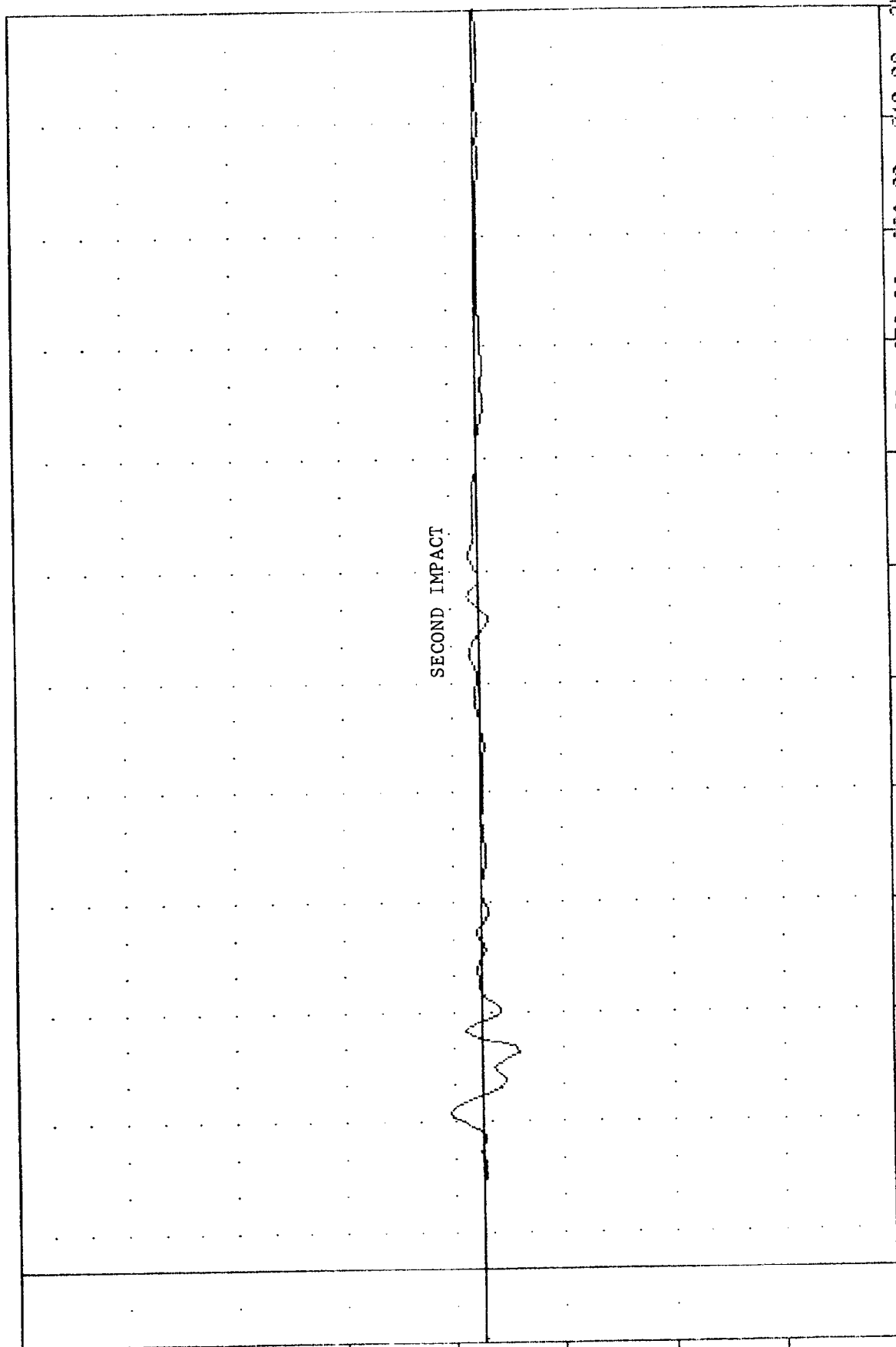
SIDE AGGRESSIVE ATTRIBUTES

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -26.998 58.75 23.25 41.87

T01761

ACCELERATION (G)

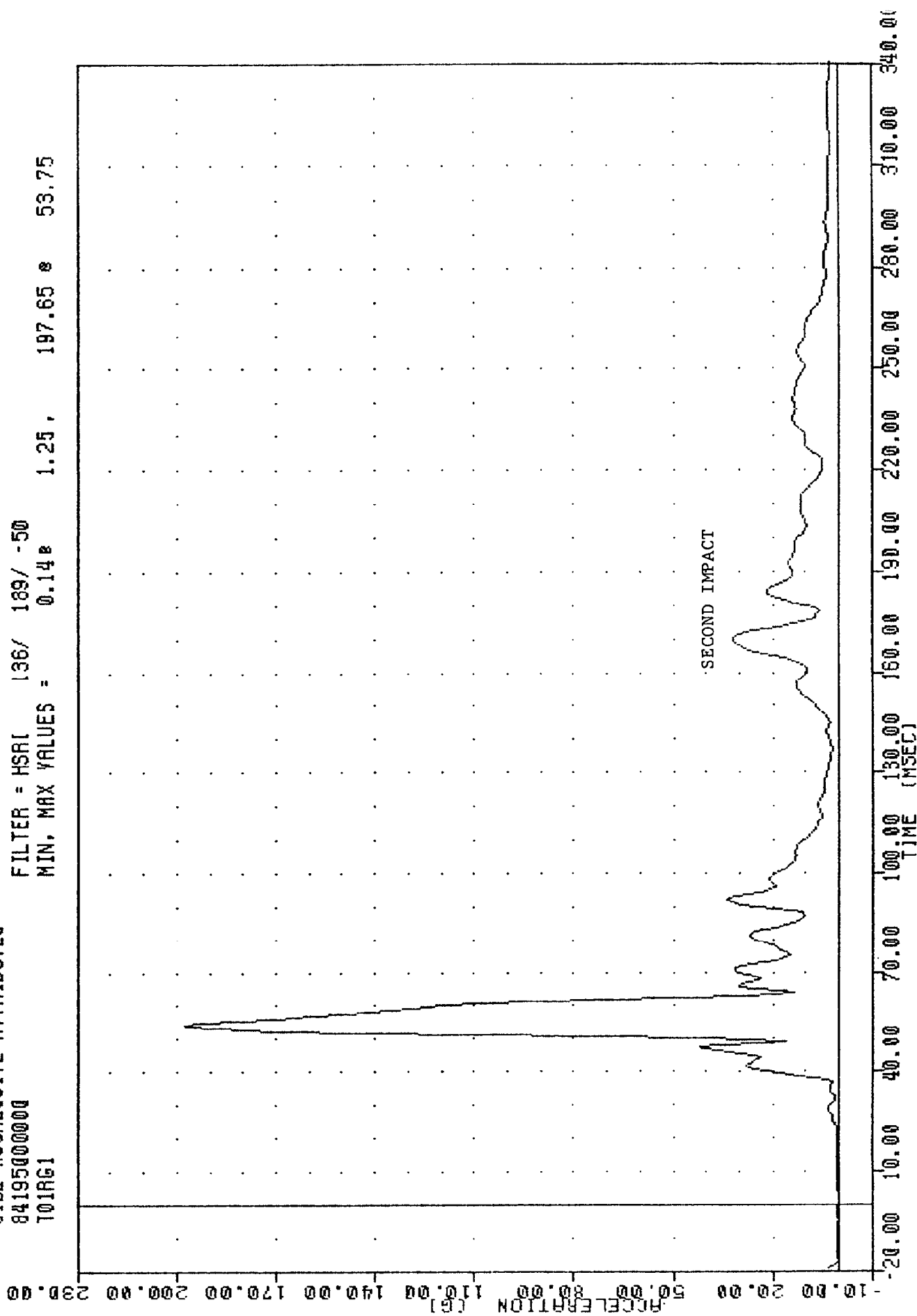


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER UPPER SPINE ACCELERATION Z AXIS

71071
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T01RG1

PL DAT 30 JUL 80 1:21

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = 0.14e 1.25, 197.65 e 53.75



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE RESULTANT

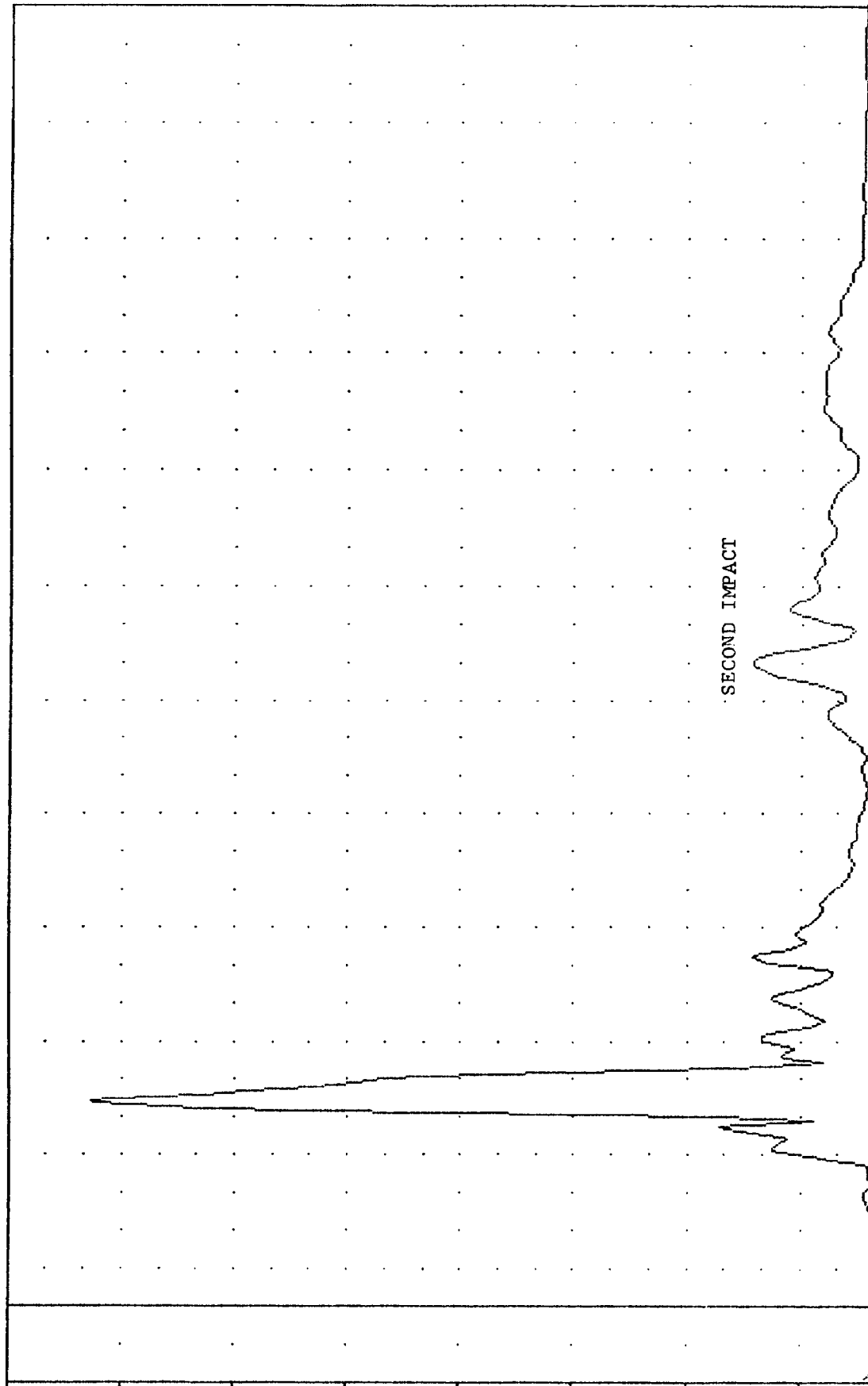
TR 713
 SIDE AGGRESSIVE ATTRIBUTES
 8419500000
 T01RGA

PL 30 1:26:40

FILTER = HSRL 136/ 189/ -50

MIN. MAX VALUES = 0.26 11.25, 207.89 53.75

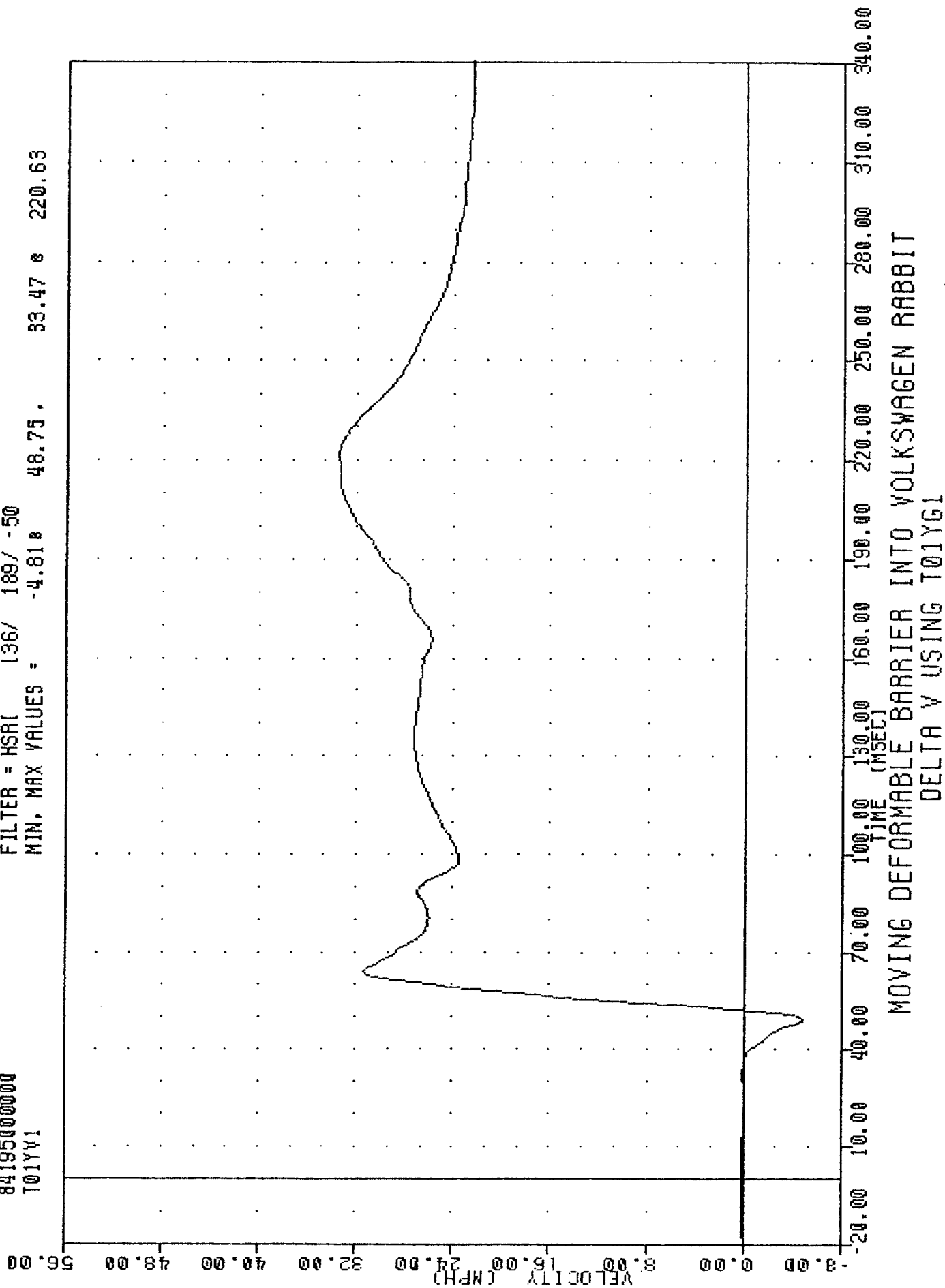
ACCELERATION (G)



TIME (MSEC)

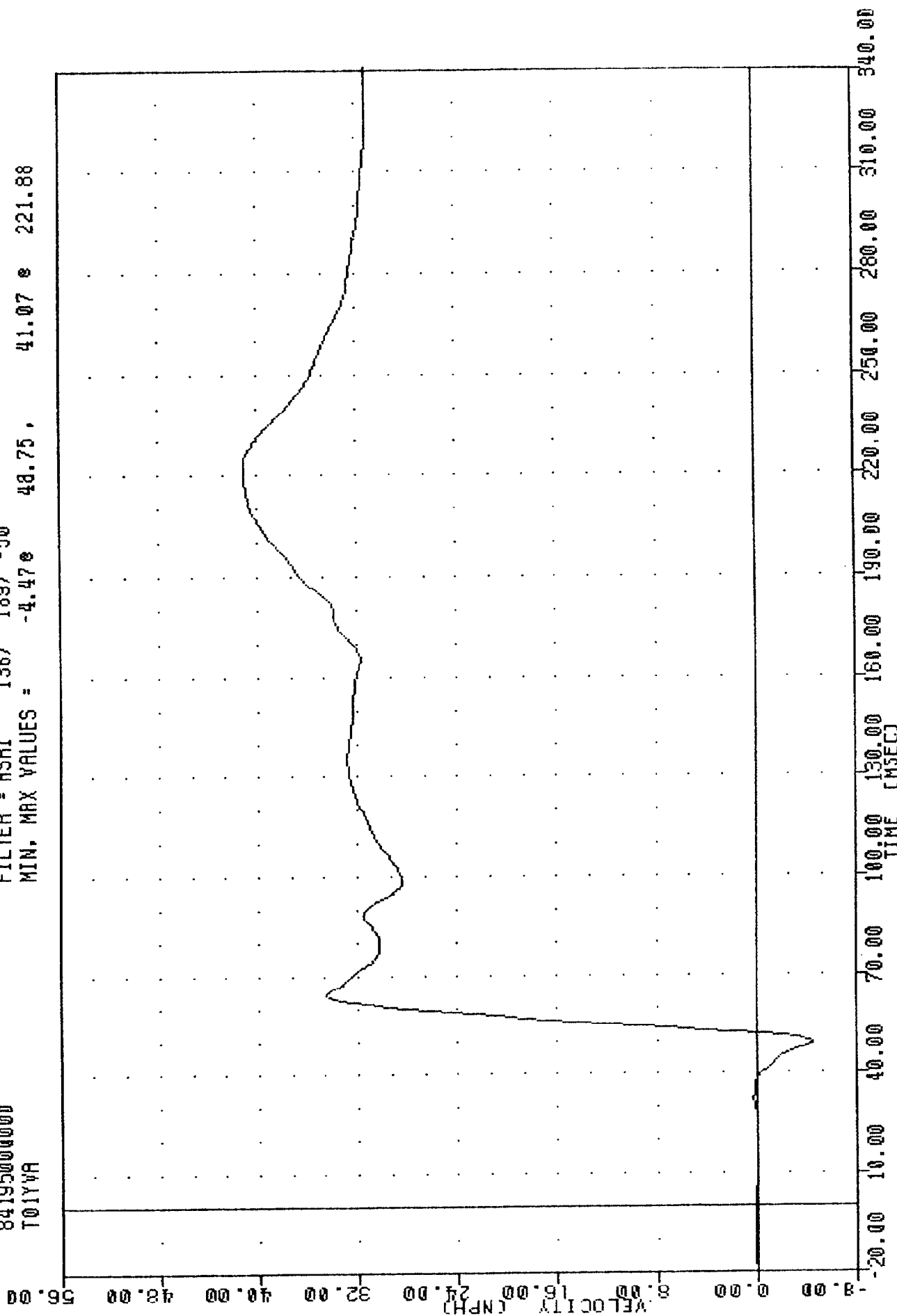
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER UPPER SPINE RESULTANT USING T01YGA

T01YV1
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T01YV1
 FILTER = HSAI 136/ 189/ -50
 MIN. MAX VALUES = -4.81 48.75, 33.47 220.63
 PLOT DATE 30 JUL 80 10:22:10



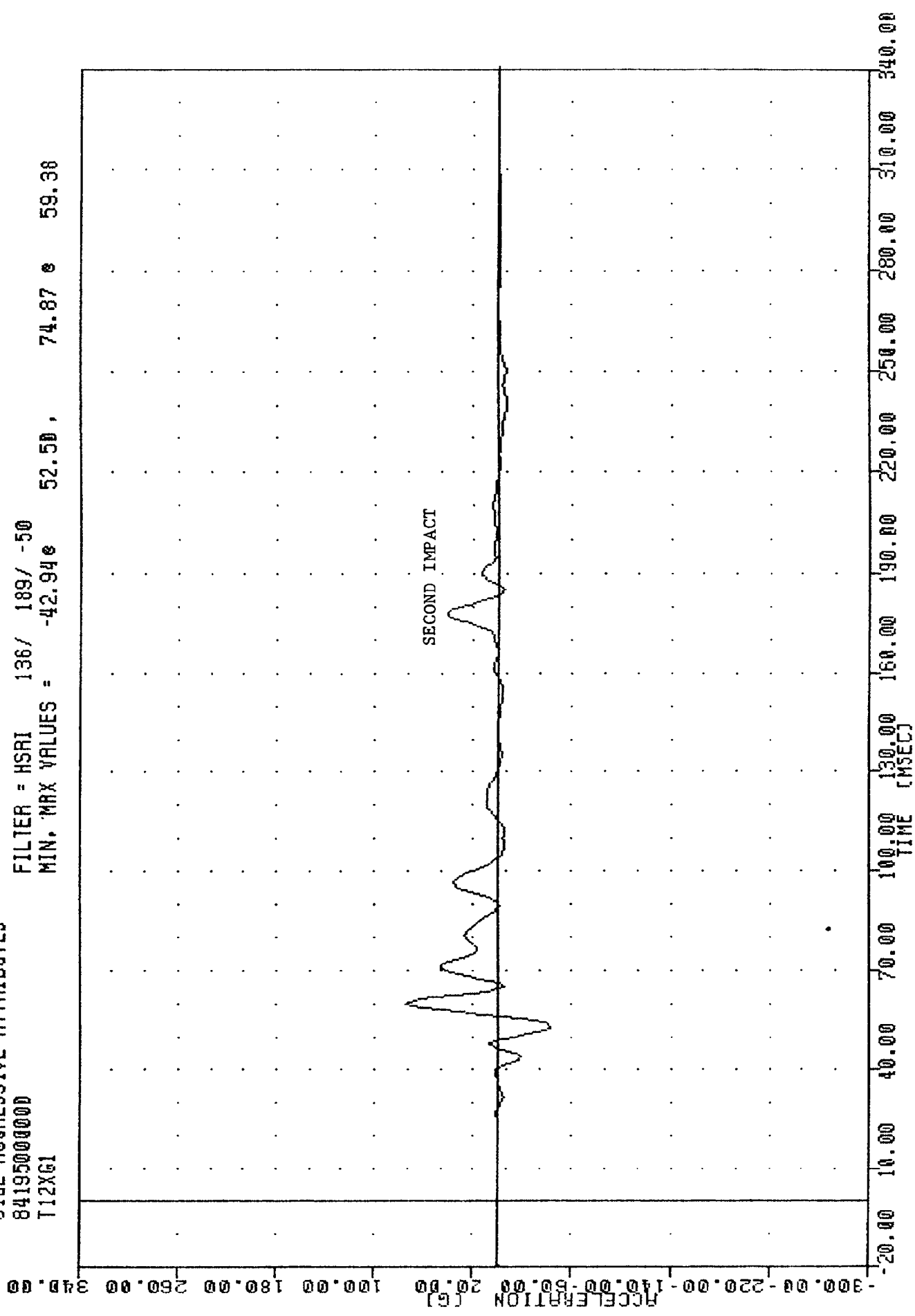
TR 713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T01YVA

PL 30 1 2:1
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -4.47 48.75 41.07 221.88



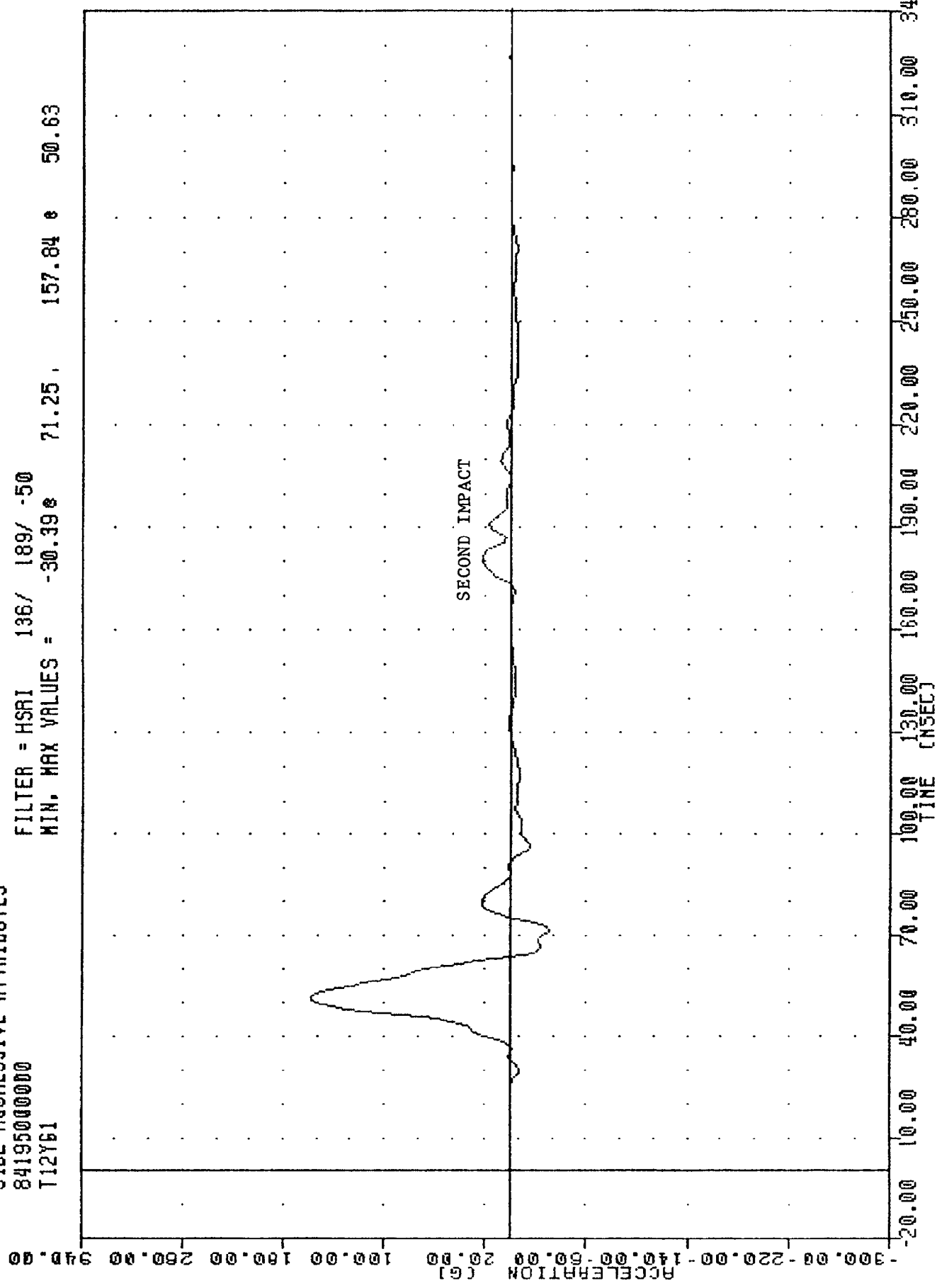
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YGA

TAG 00713, PLOT DATE 30 JUL 84 10:38:42
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T12XG1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -42.94g 52.50, 74.87g 59.38



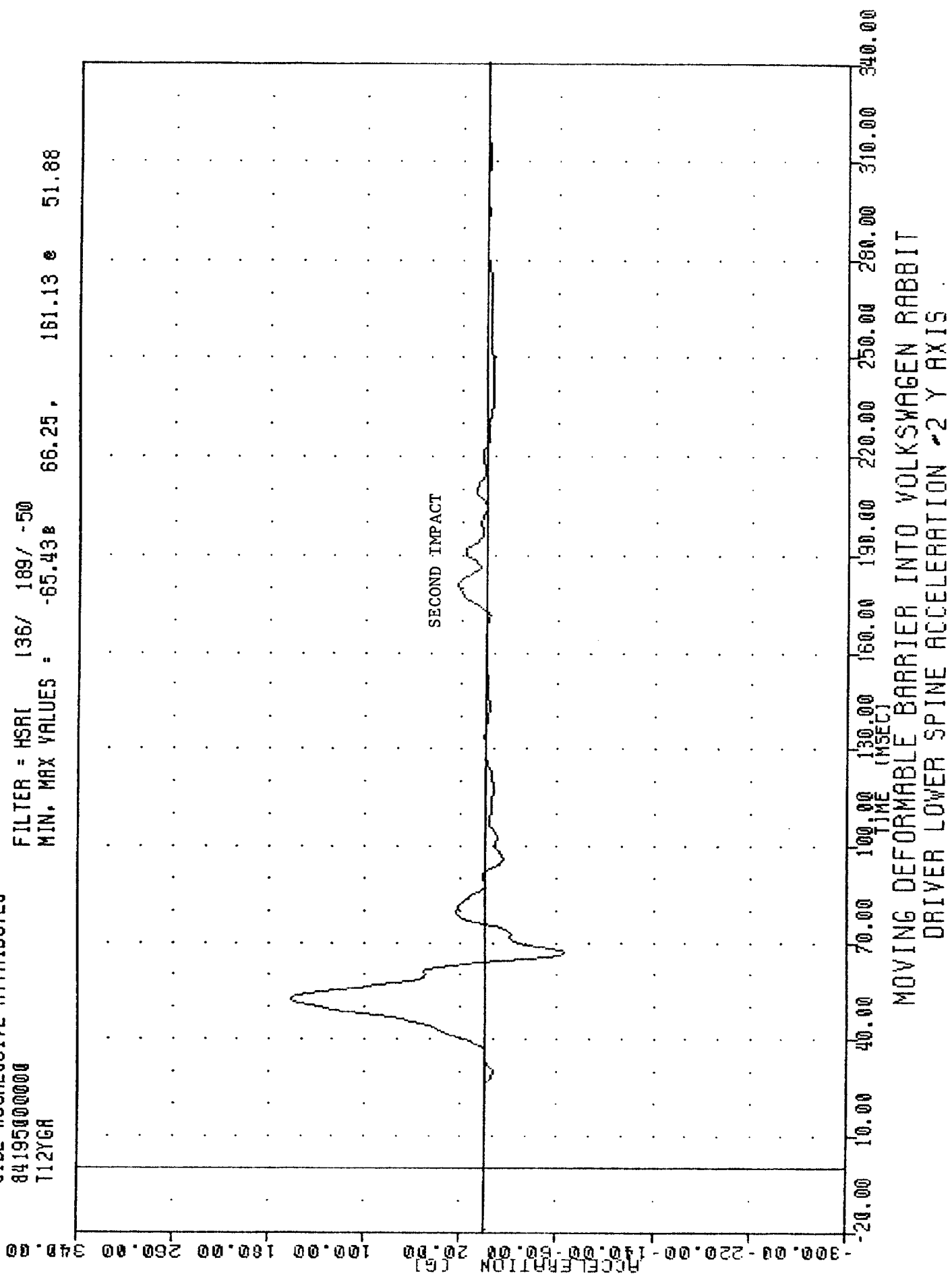
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE ACCELERATION X AXIS

TAG 713, 30 JUL 84 10:33:42
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T12Y61
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -30.39 71.25 157.84 50.63

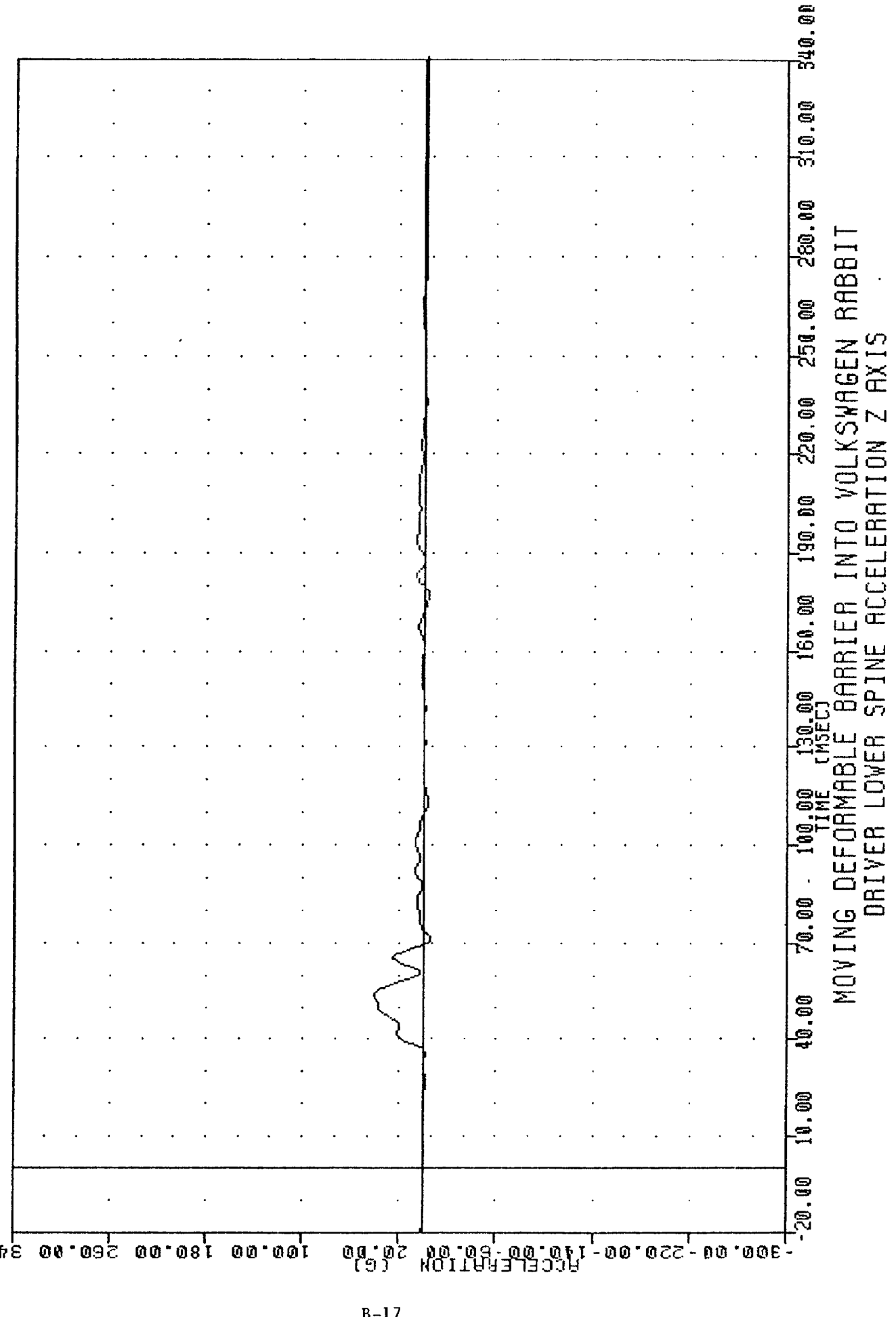


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER LOWER SPINE ACCELERATION Y AXIS

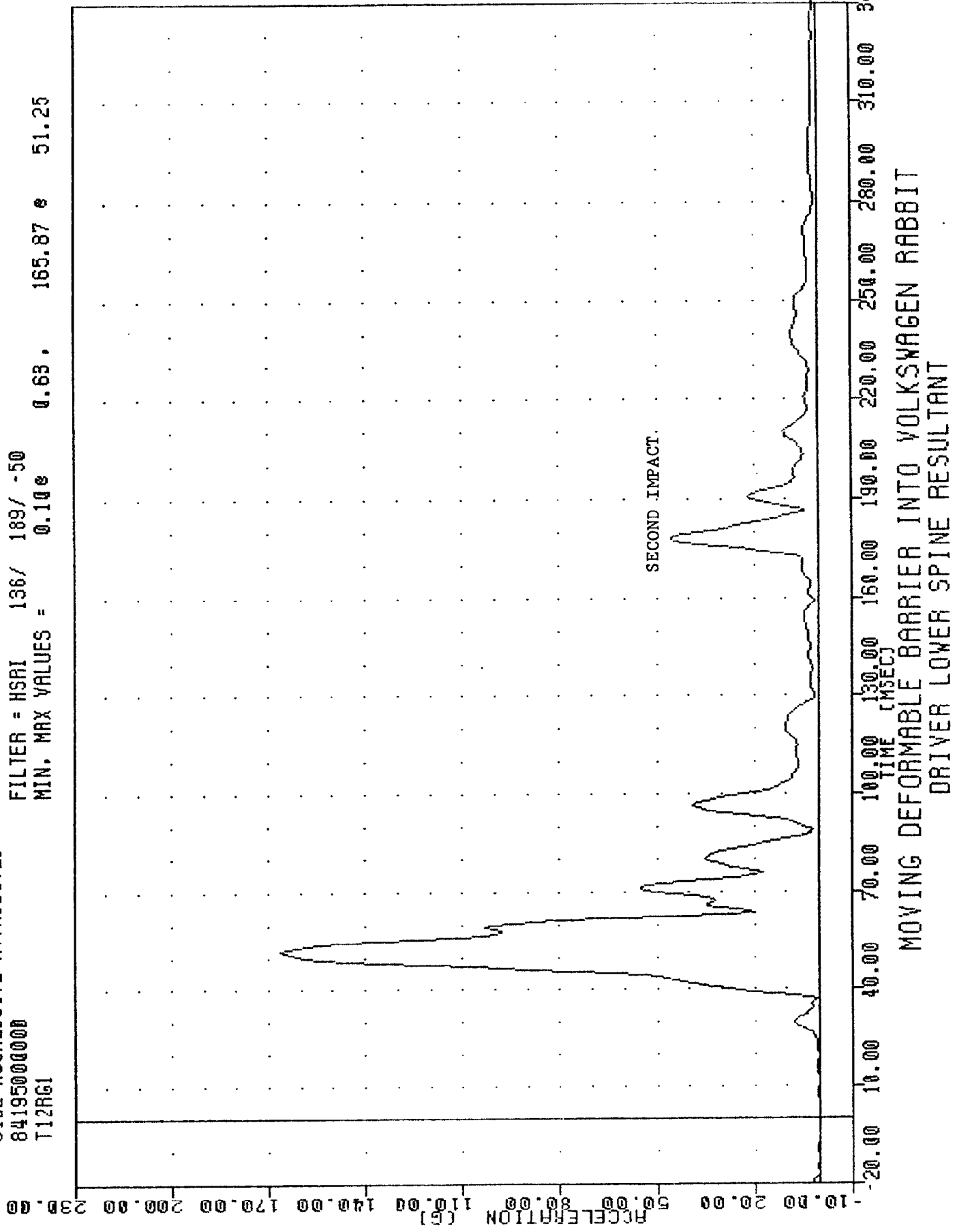
THE 0715 30 JUL 84 10:33:42
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T12YGR
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -65.43 66.25 161.13 51.88



TAG 00715 PLOT DATE 30 JUL 84 10:33:42
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T12ZG1
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -5.34g 70.63, 40.77 g 53.12



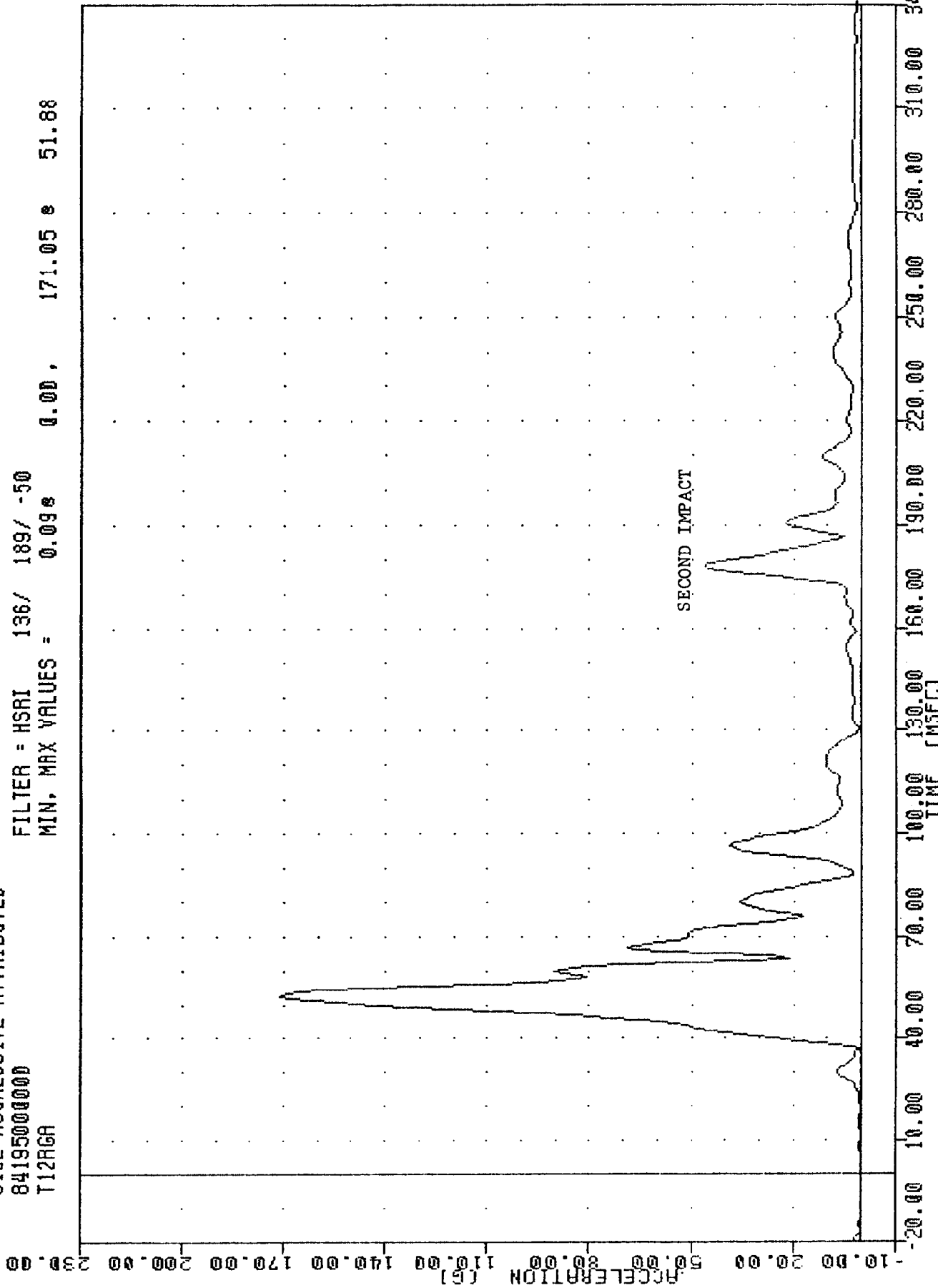
TRC 840713, 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T12RG1
 PLOT DATE 30 JUL 84 11:31:22
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.10e 0.63, 165.87 e 51.25



T12RGA, 71
 SIDE AGGRESSIVE ATTRIBUTES
 8419500000
 T12RGA

PL 3000L-8 15:4

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.00, 171.05 e 51.88



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

TLC 840713

PLOT DATE 30-JUL-84 10:42:17

SIDE AGGRESSIVE ATTRIBUTES

84195000000

FILTER = HSRI 136/ 189/ -50

T12YV1

MIN. MAX VALUES = -0.700 32.50 46.34 223.13

VELOCITY (MPH)

50.00

48.00

46.00

44.00

42.00

40.00

38.00

36.00

34.00

32.00

30.00

28.00

26.00

24.00

22.00

20.00

18.00

16.00

14.00

12.00

10.00

8.00

6.00

4.00

2.00

0.00

-2.00

-4.00

-6.00

-8.00

-10.00

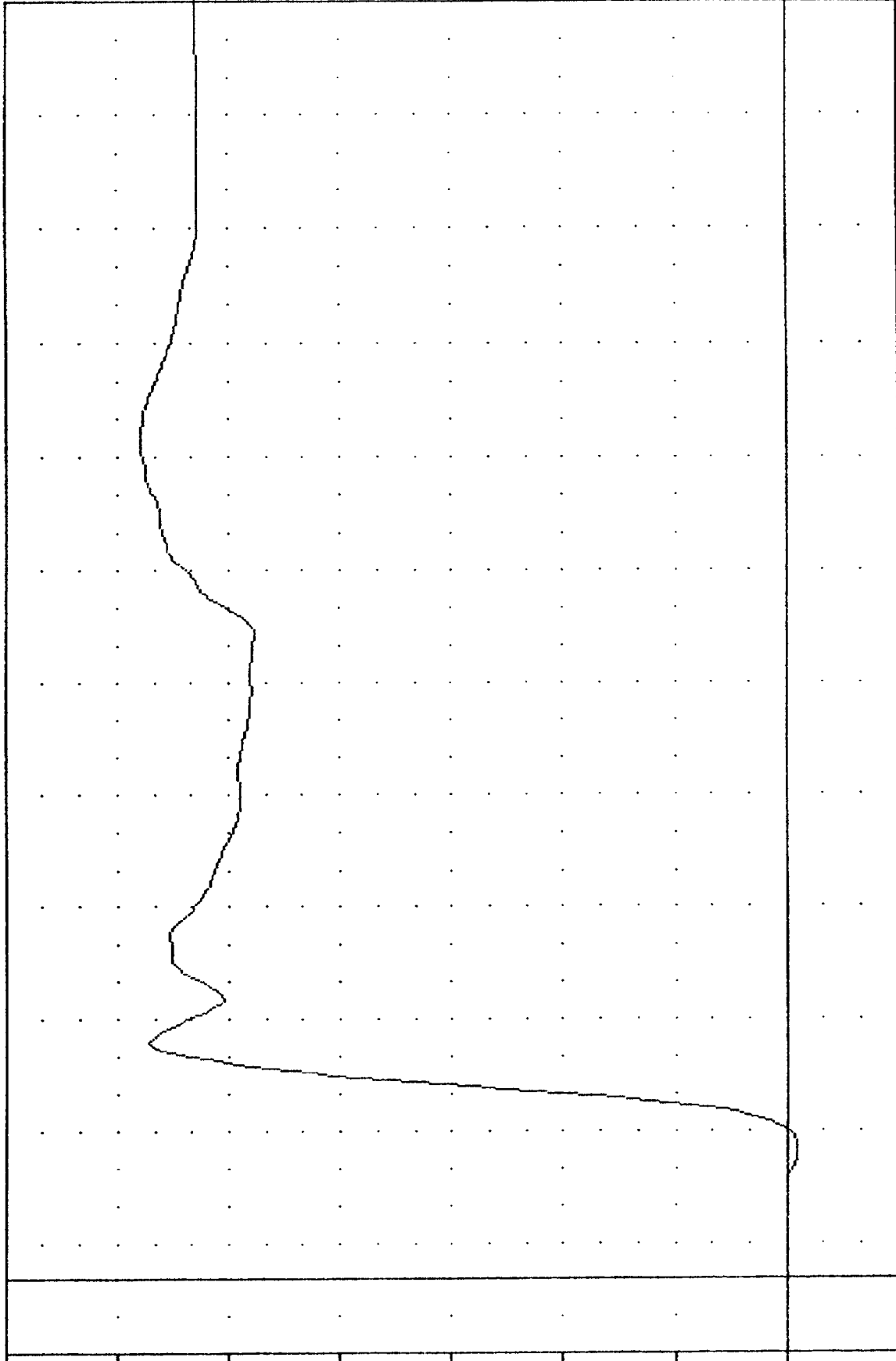
-12.00

-14.00

-16.00

-18.00

-20.00



-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 T12YV1

TRC 840713 30-JUL-84 10:42:17

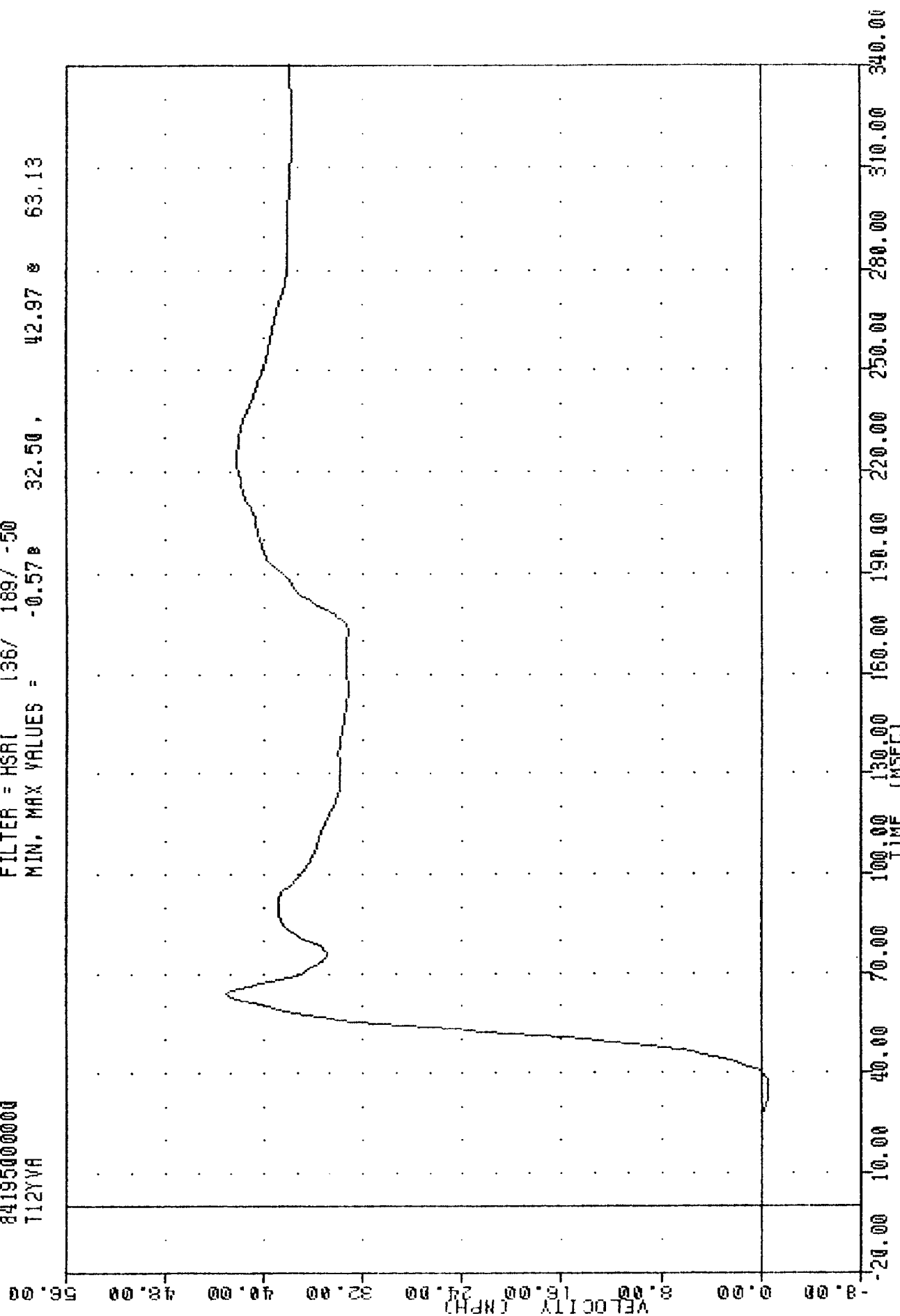
SIDE AGGRESSIVE ATTRIBUTES

8419500000

T12YVA

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -0.57 32.50, 42.97 63.13



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING T12YGA

TAC 840713 PLUT DATE 30-JUL-84 10:33:42

SIDE AGGRESSIVE ATTRIBUTES

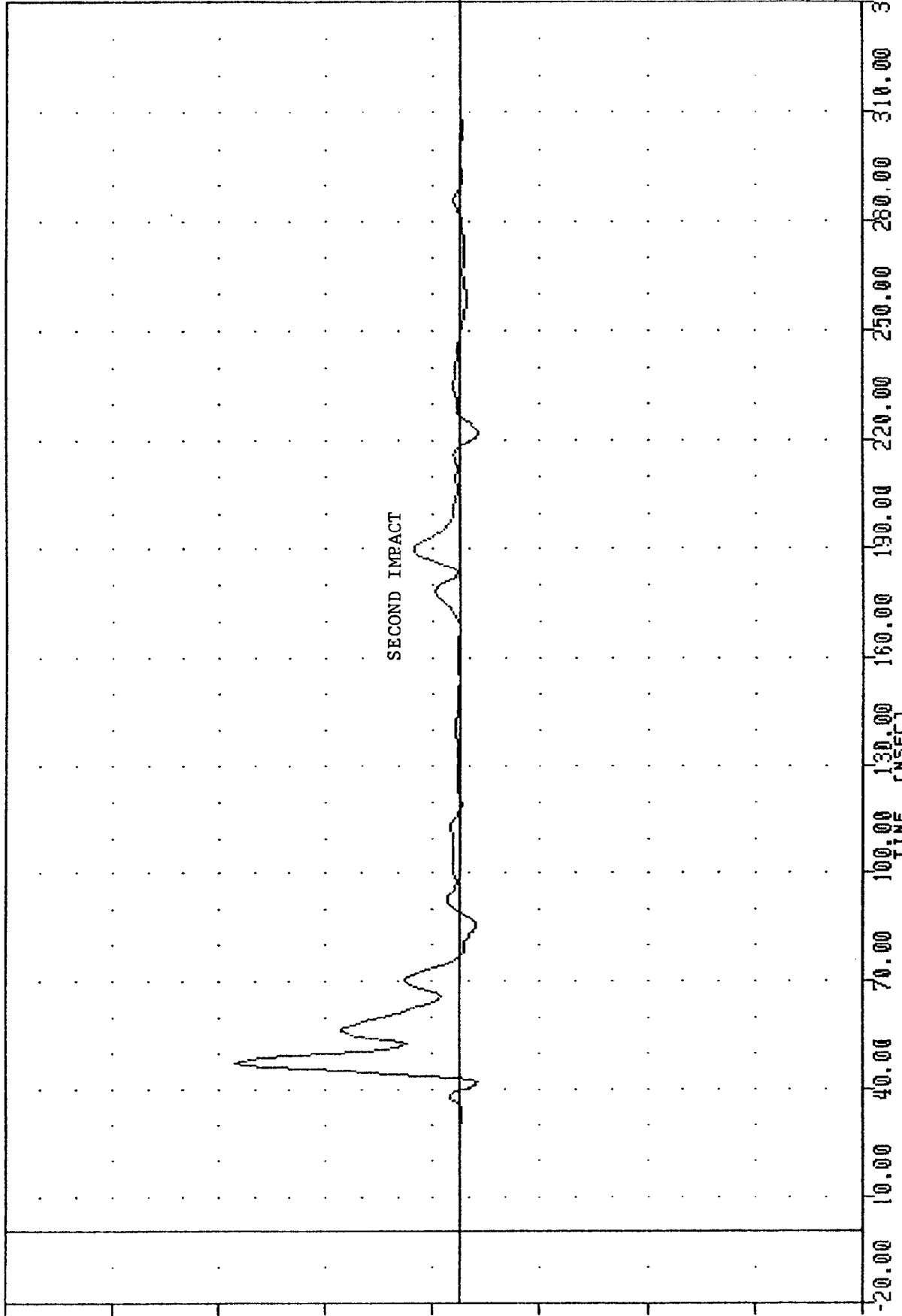
84195000000

LURY61

FILTER = HSRI 136/ 189/ -50

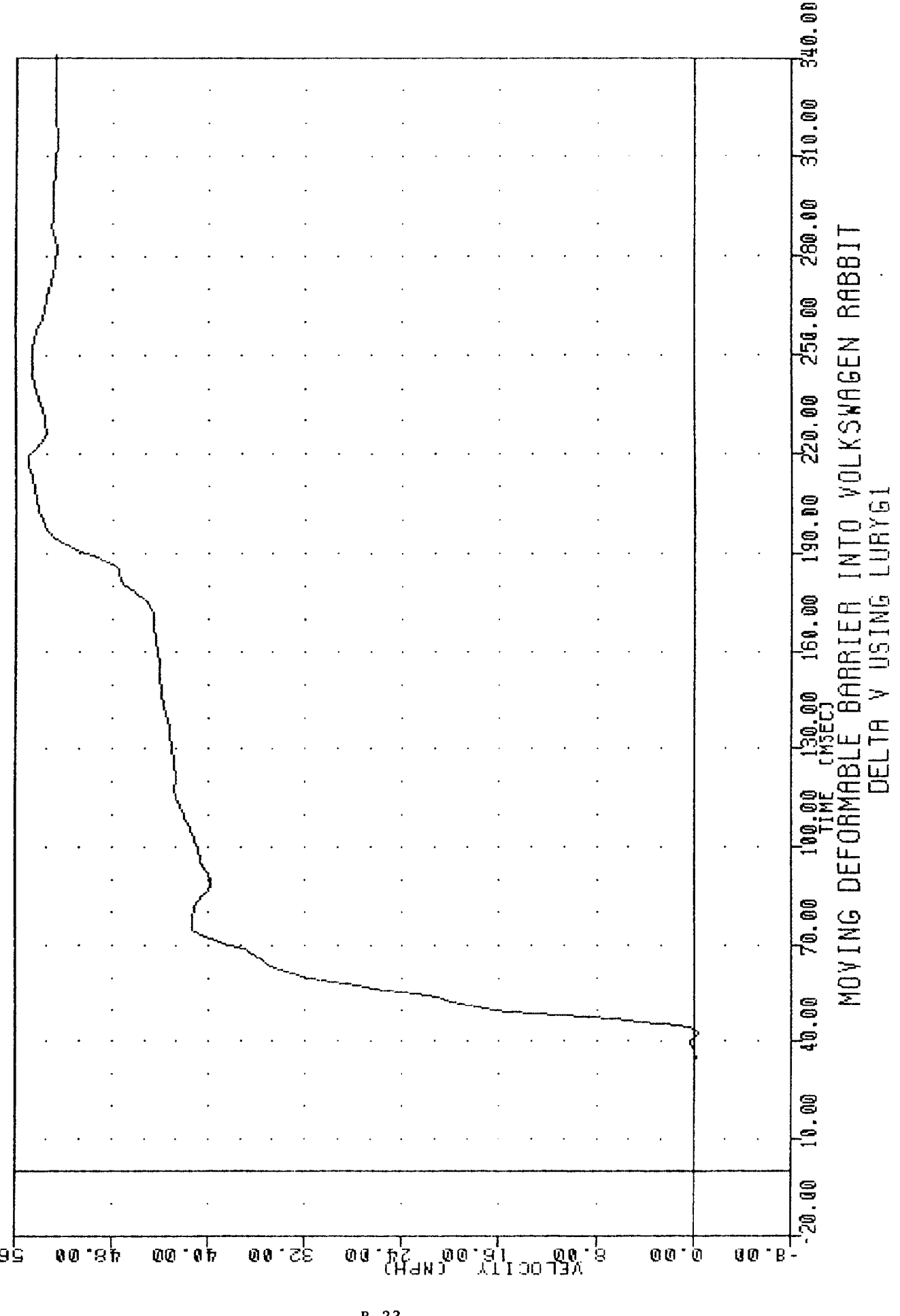
MIN. MAX VALUES = -13.90e 221.25, 167.70 e 46.88

ACCELERATION (G)



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

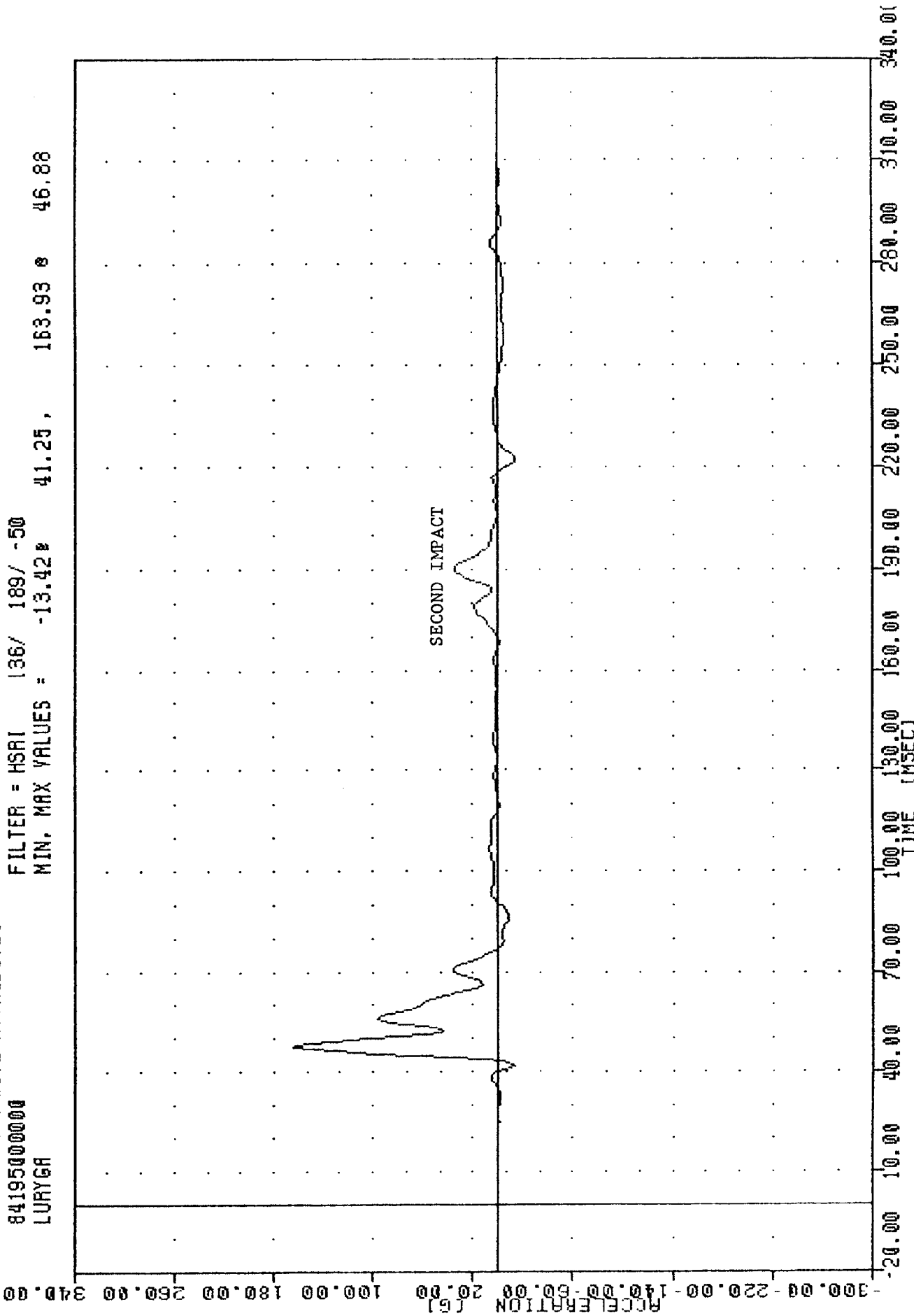
TAG 040713, 040713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LURYV1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.34 42.50, 54.97 217.50
 PLOT DATE 30 JUL-84 10:42:17



TAC 840713 30-JUL-84 10:33:42

SIDE AGGRESSIVE ATTRIBUTES
84195000000
LURYGA

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -13.42 41.25, 163.93 46.88



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

TAC 840713

SIDE AGGRESSIVE ATTRIBUTES

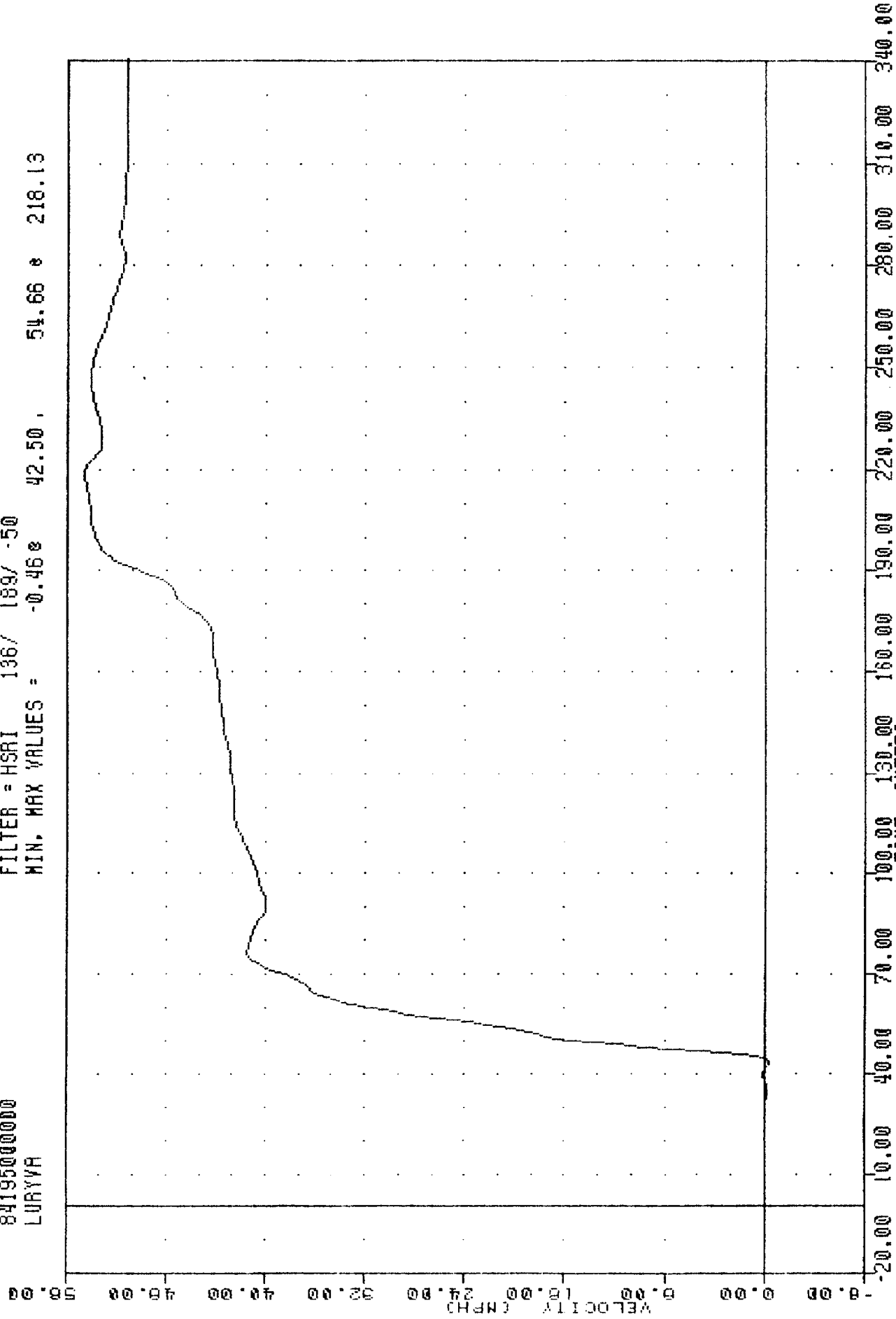
84195000000

LURYVA

PLDT DATE 30-JUL-84 10:42:17

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.46 54.66 218.13



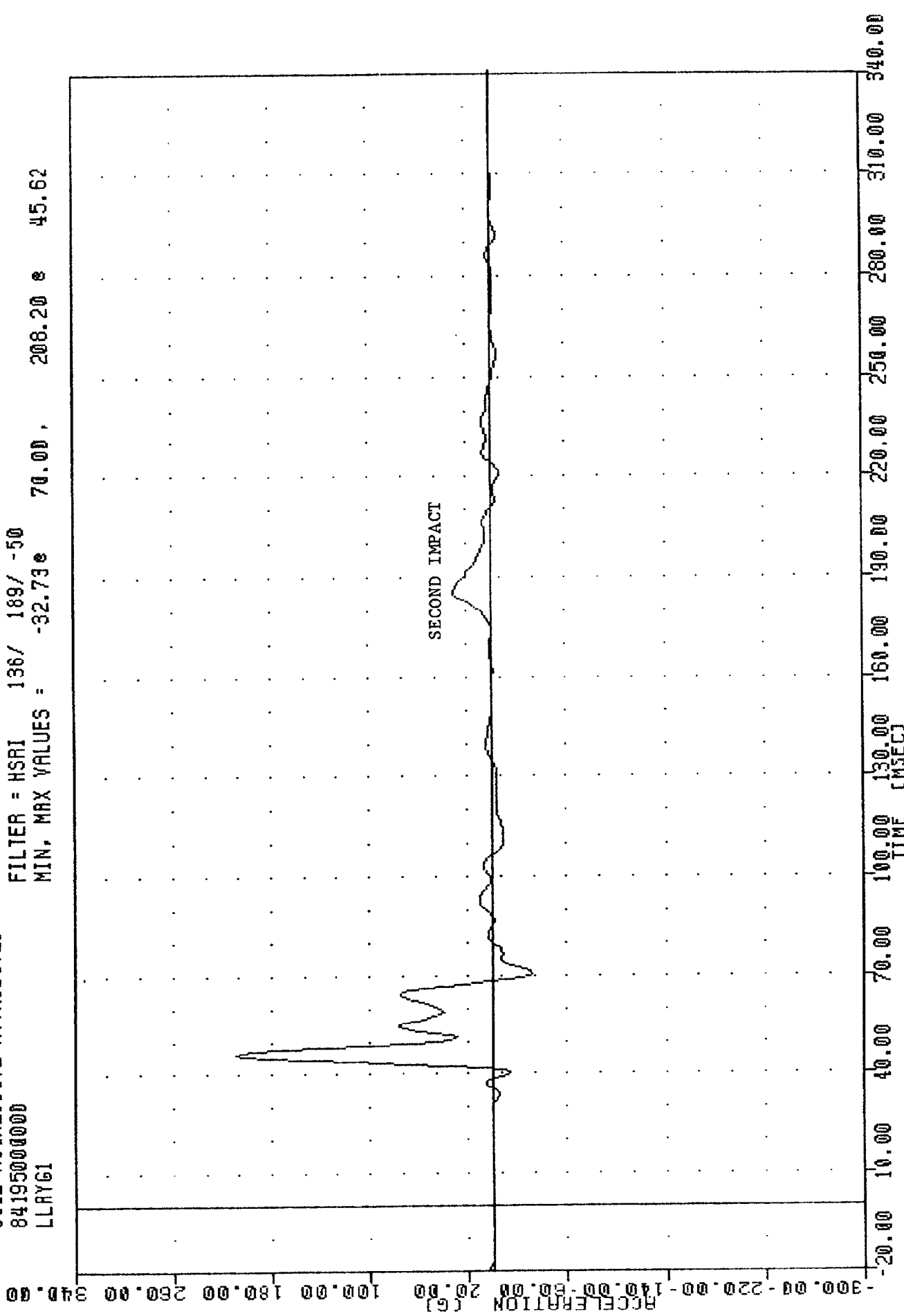
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING LURYGA

TAC 840713 30-JUL-84 10:33:42

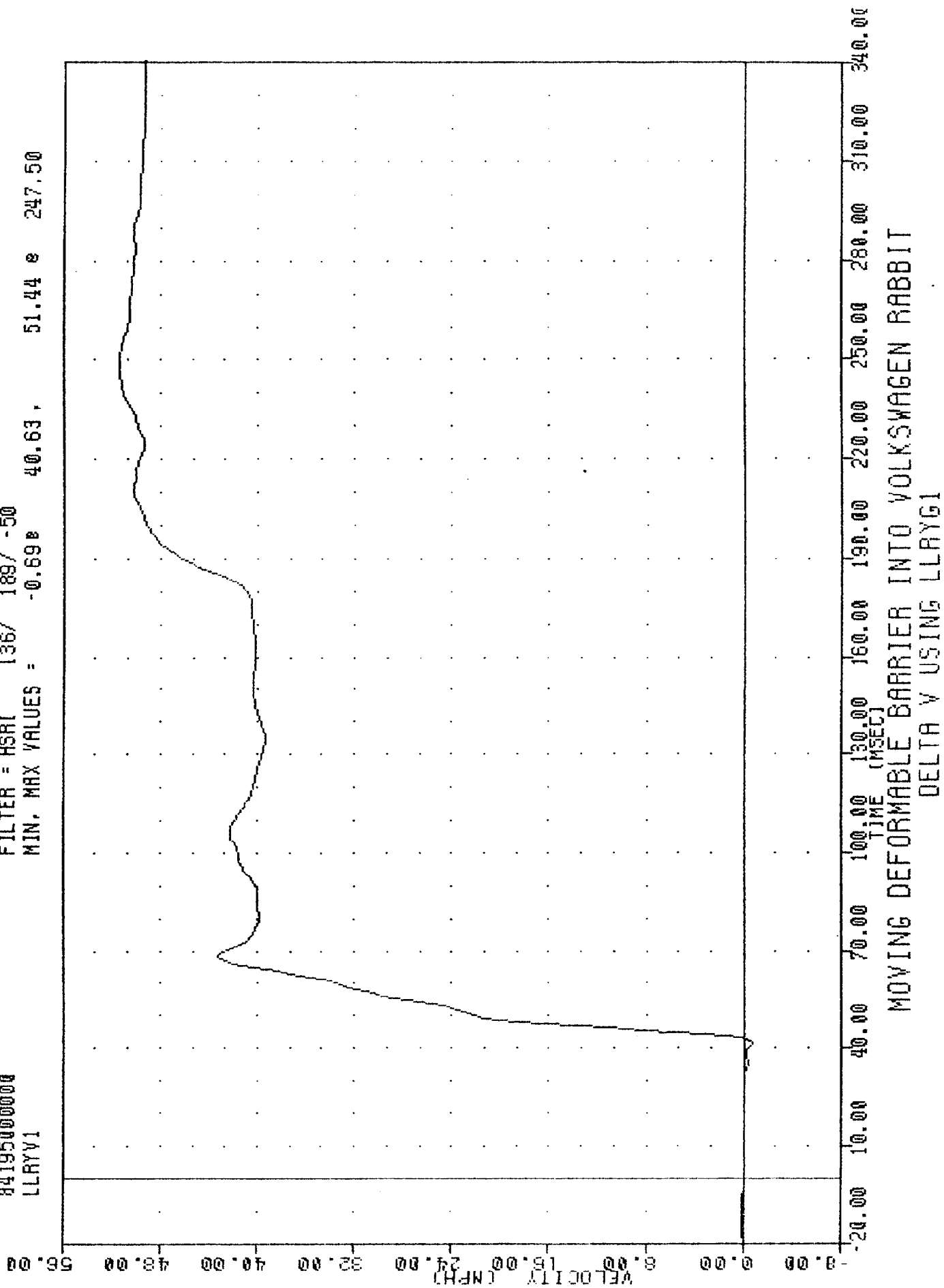
SIDE AGGRESSIVE ATTRIBUTES
84195000000
LLAYG1

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -32.73e 70.00, 208.20 e 45.62

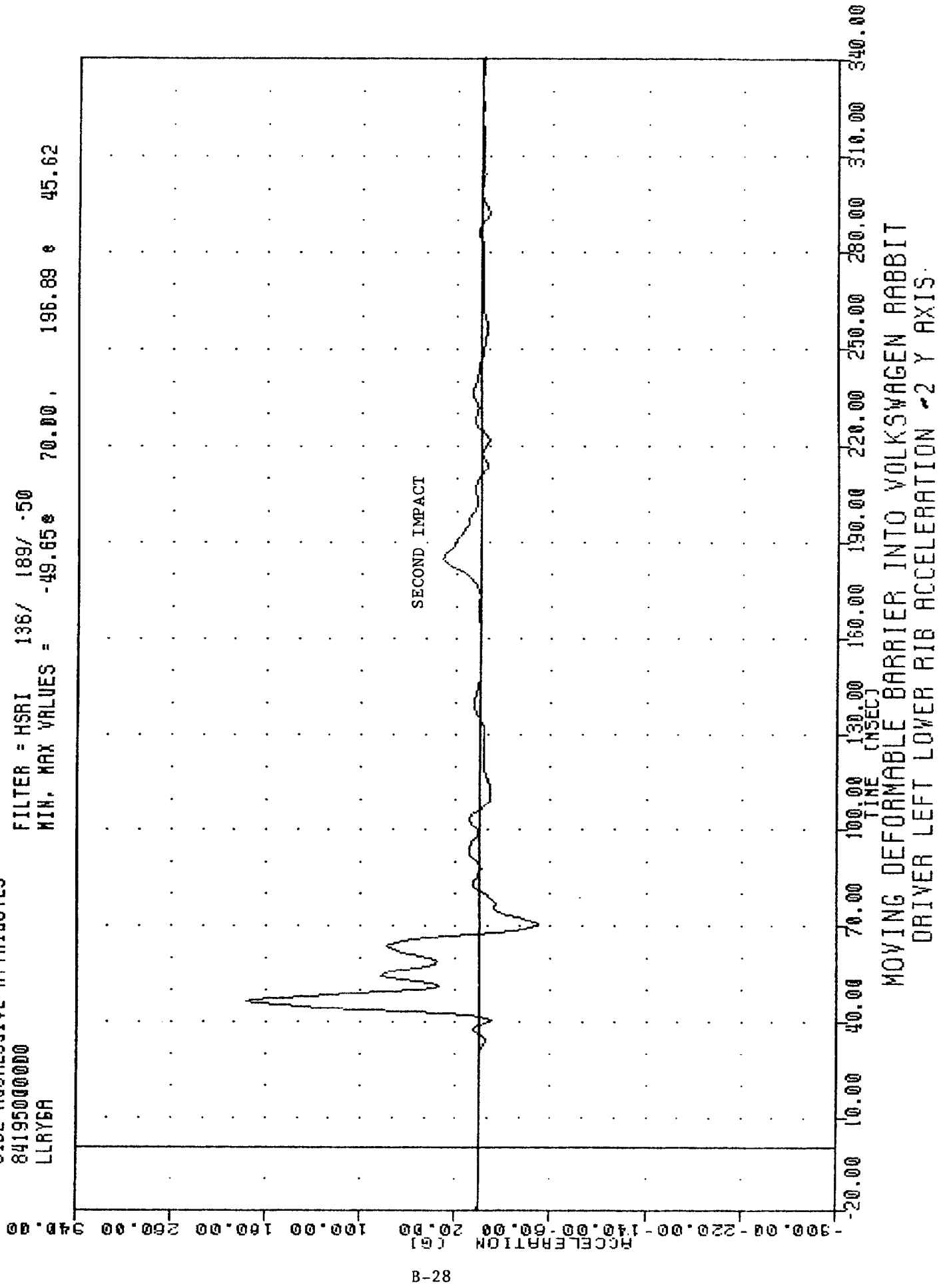


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LEFT LOWER RIB ACCELERATION Y AXIS

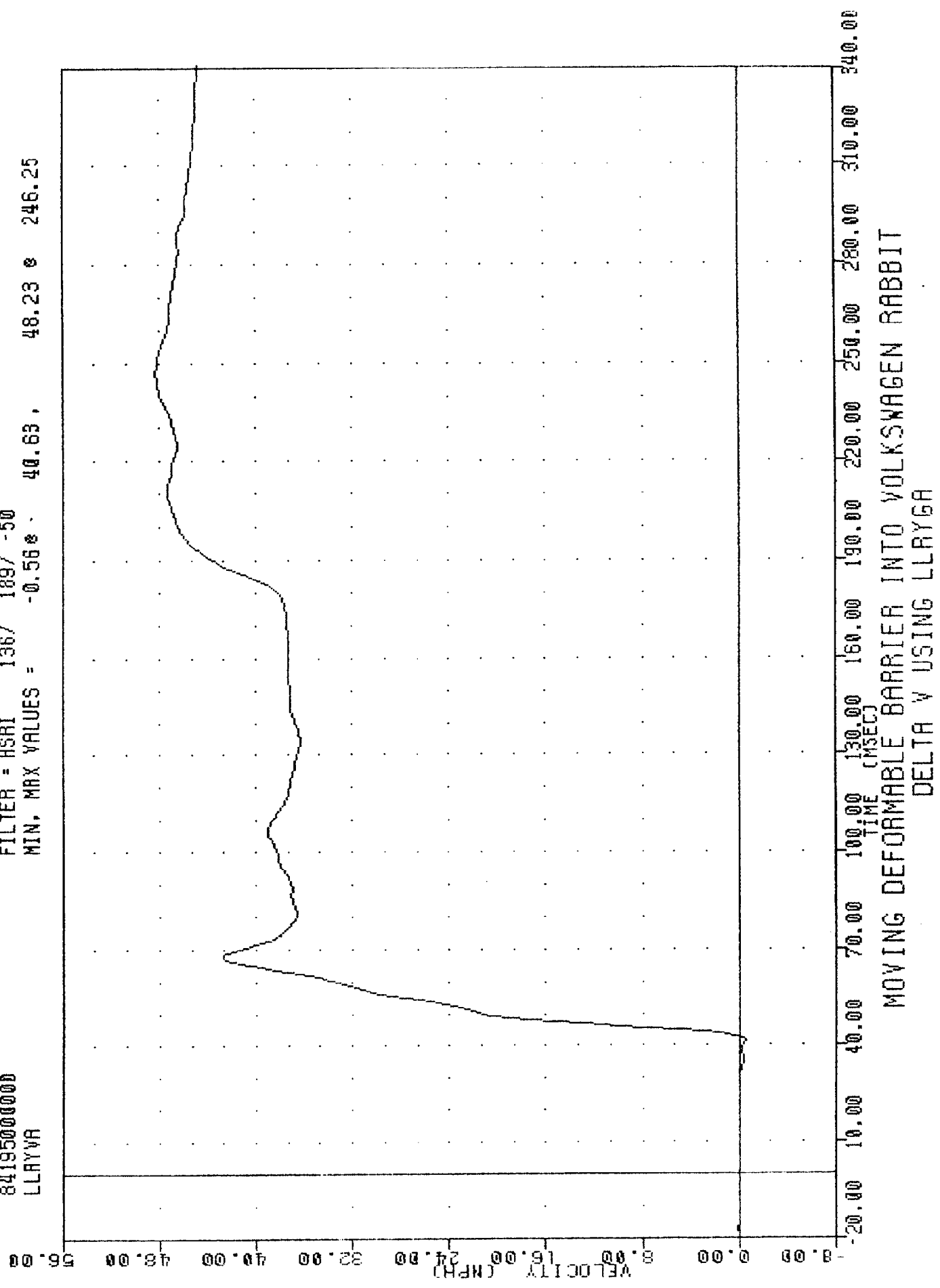
TRC 840713 PLOT DATE 30-JUL-84 10:42:17
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LRAYV1
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.698 40.63, 51.44 e 247.50



TRC 840713, 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LLY6A
 FILTER = HSRI 136/ 189/ .50
 MIN, MAX VALUES = -49.65 70.00, 196.89 45.62
 30-JUL-84 10:33:42



INC 840715
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LLRYVR
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 40.63, 48.23 @ 246.25
 PLOT DATE 30 JUL 84 10:42:17



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LLRYGA

1071

DATE 10 AUG 84

TIME 17:05

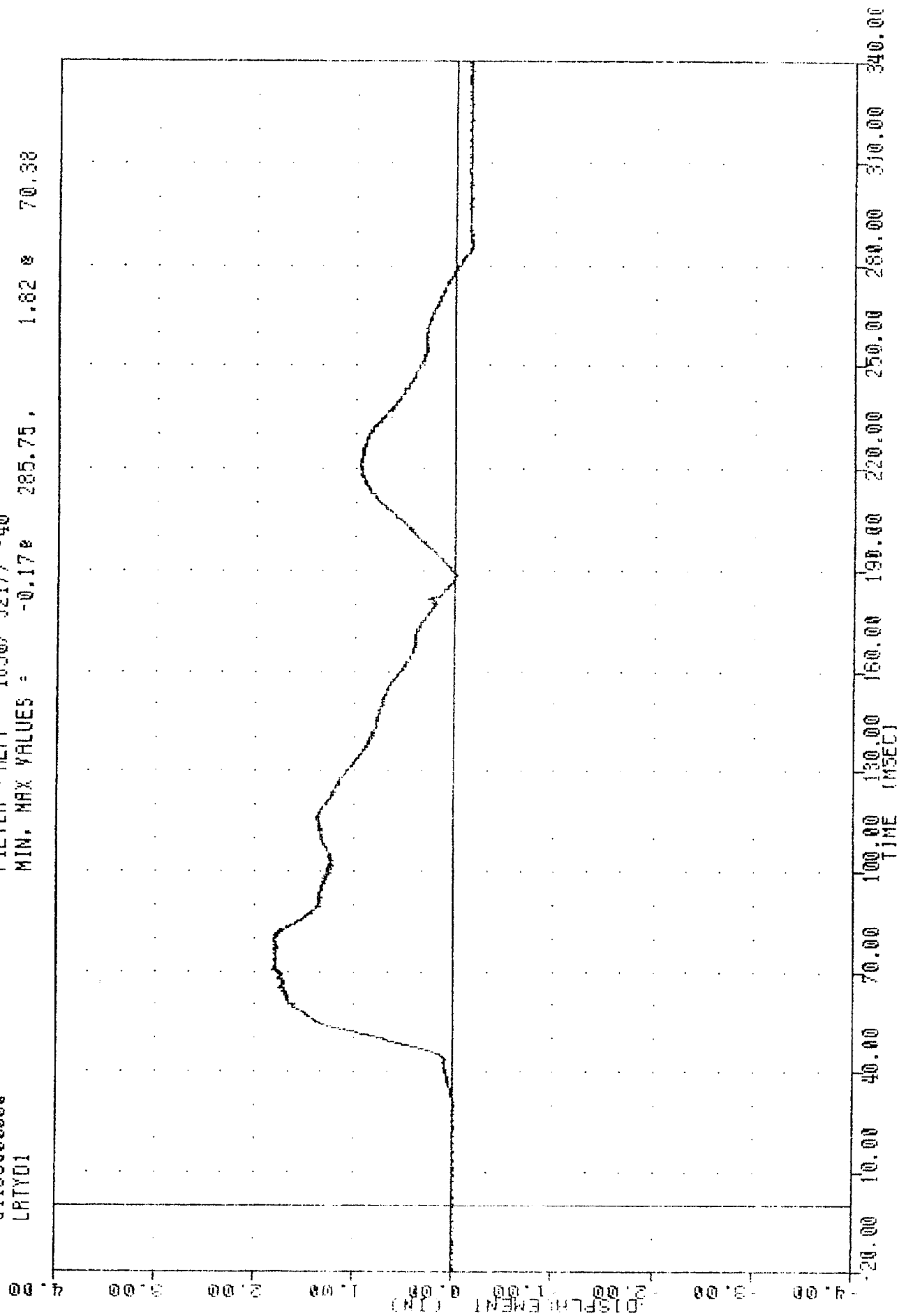
SIDE AGGRESSIVE ATTRIBUTES

84195000000

LRTY01

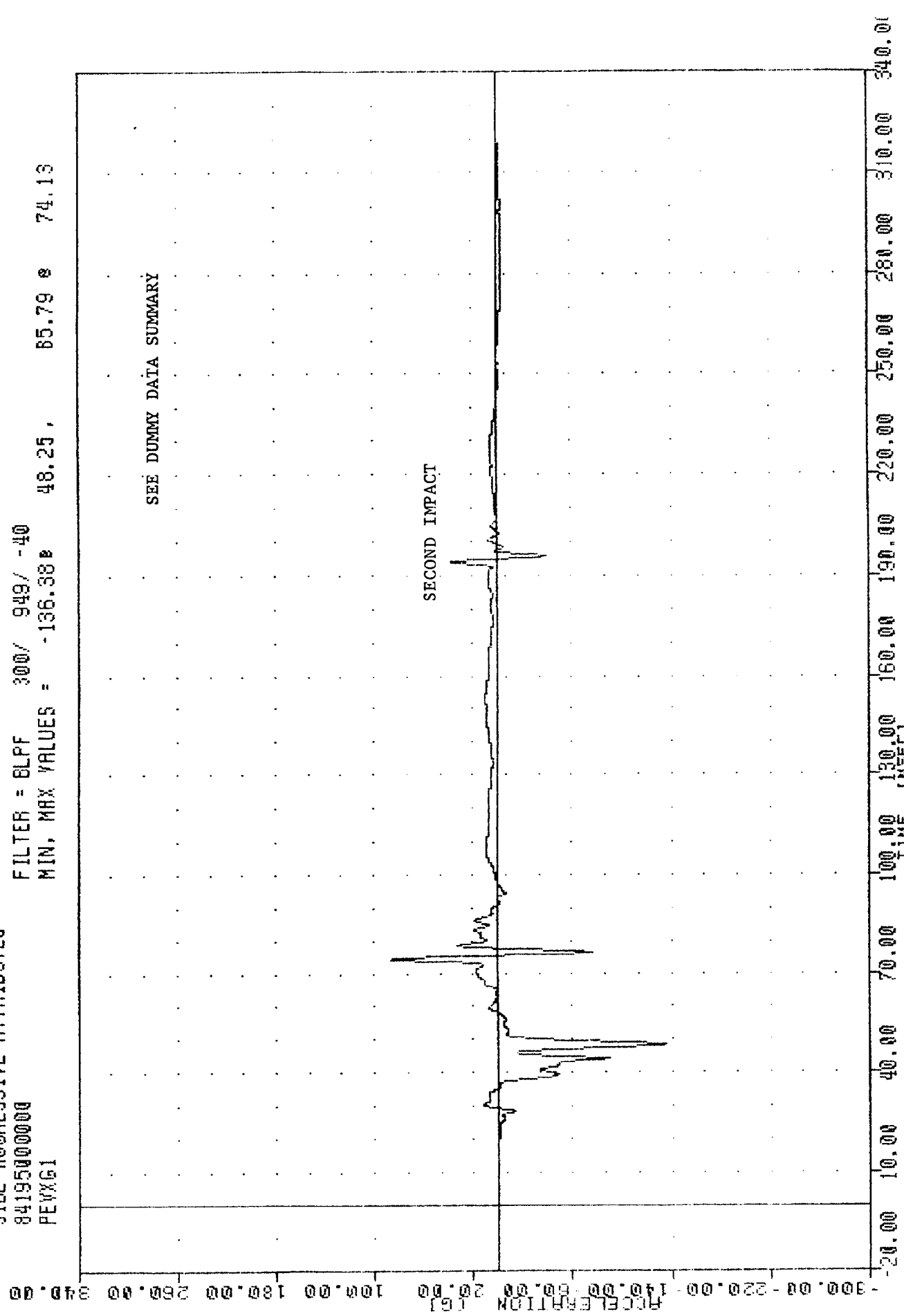
FILTER = ALFF 1650/ 5217/ -40

MIN. MAX VALUES = -0.17e 285.75, 1.82 e 70.38



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

TMC 0713 15 AUG 84 14:17:03
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 PEVXG1
 FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -136.38 48.25, 65.79 74.13

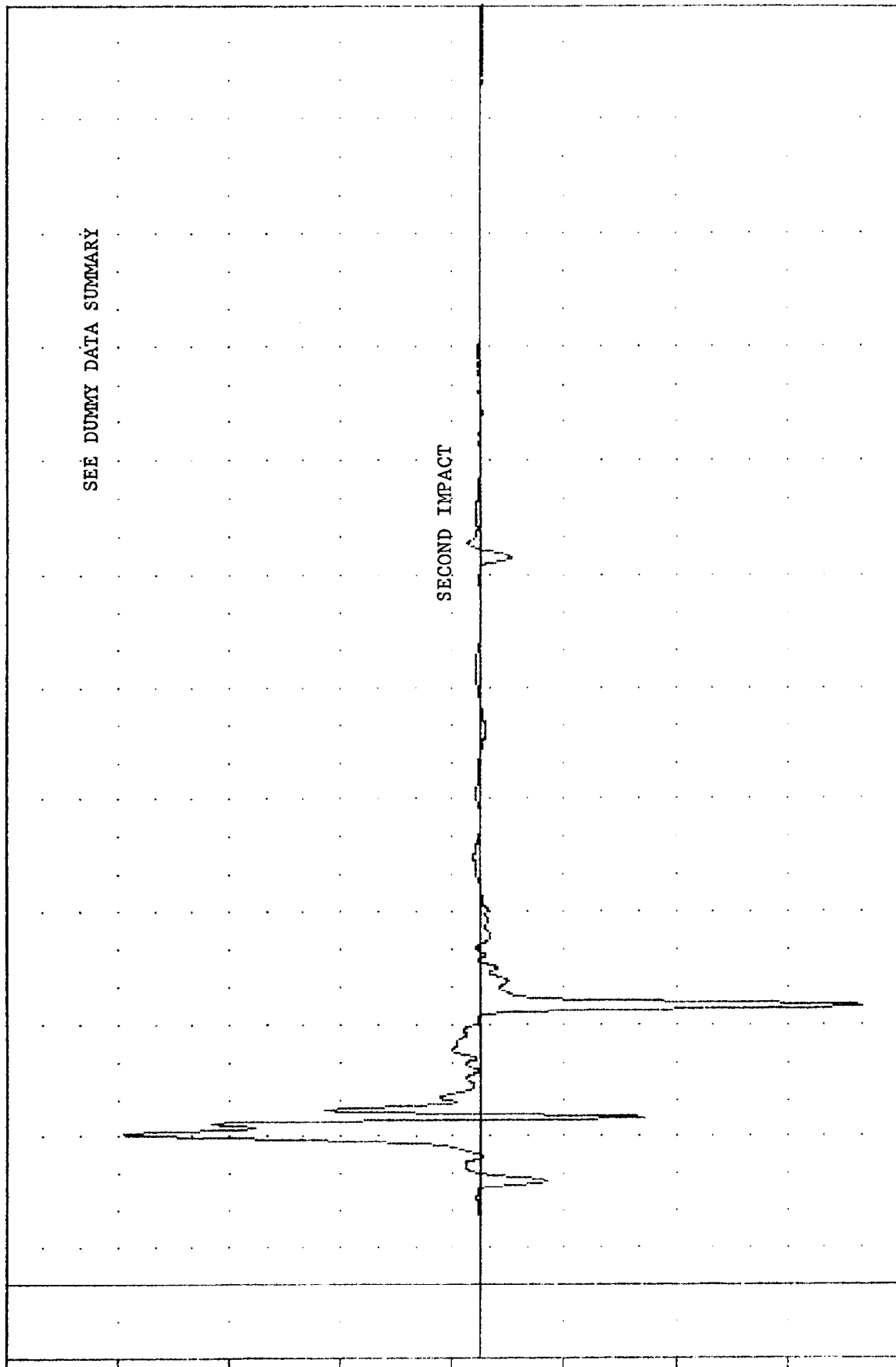


SEE DUMMY DATA SUMMARY

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PELVIS ACCELERATION X AXIS

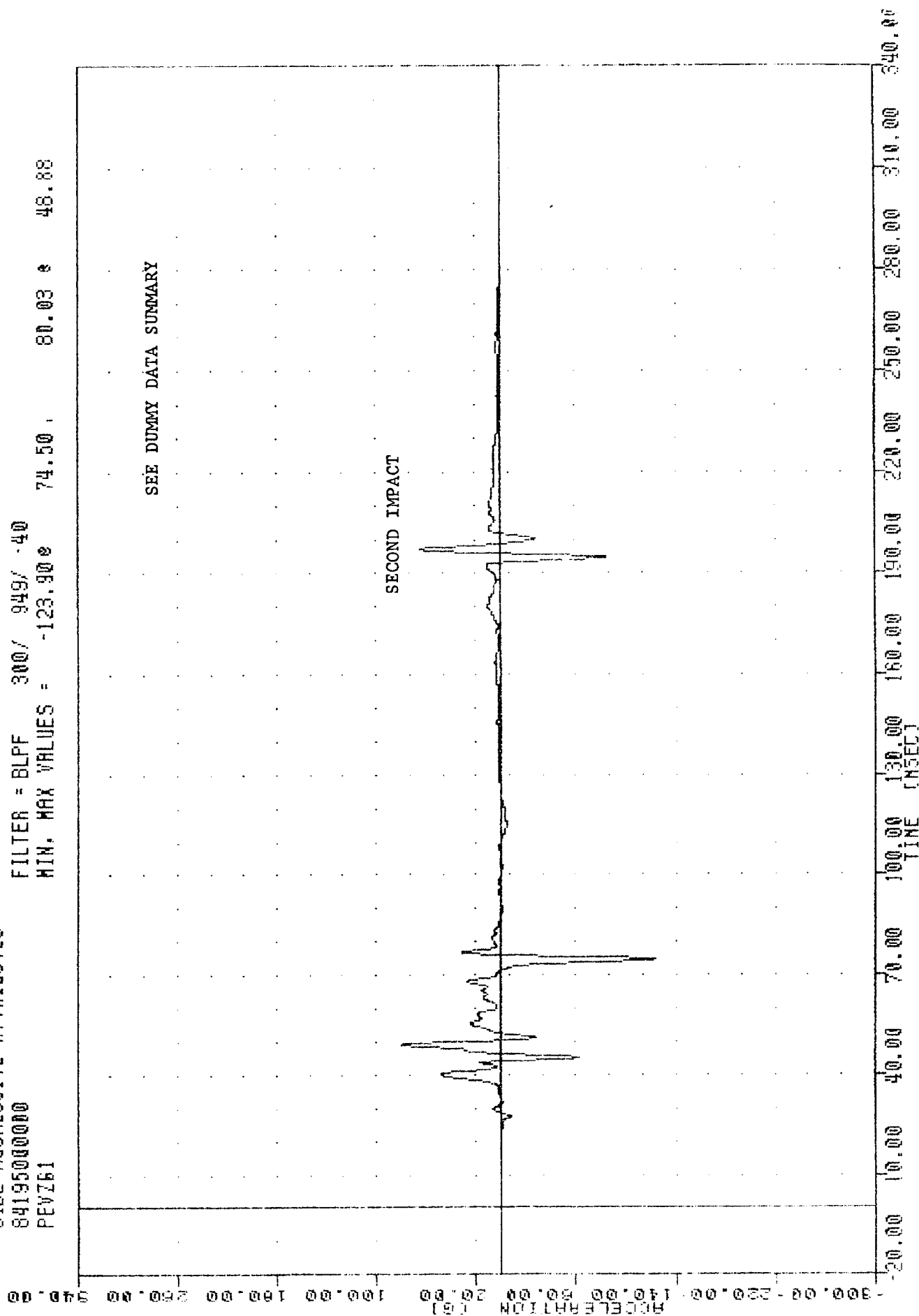
THE [REDACTED] 040713 [REDACTED] 13 DEC 84 14:17:03
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 PEVYG1
 FILTER = 8LPF 300/ 949/ -40
 MIN. MAX VALUES = -273.468 74.63, 256.21 & 40.50

ACCELERATION [G]



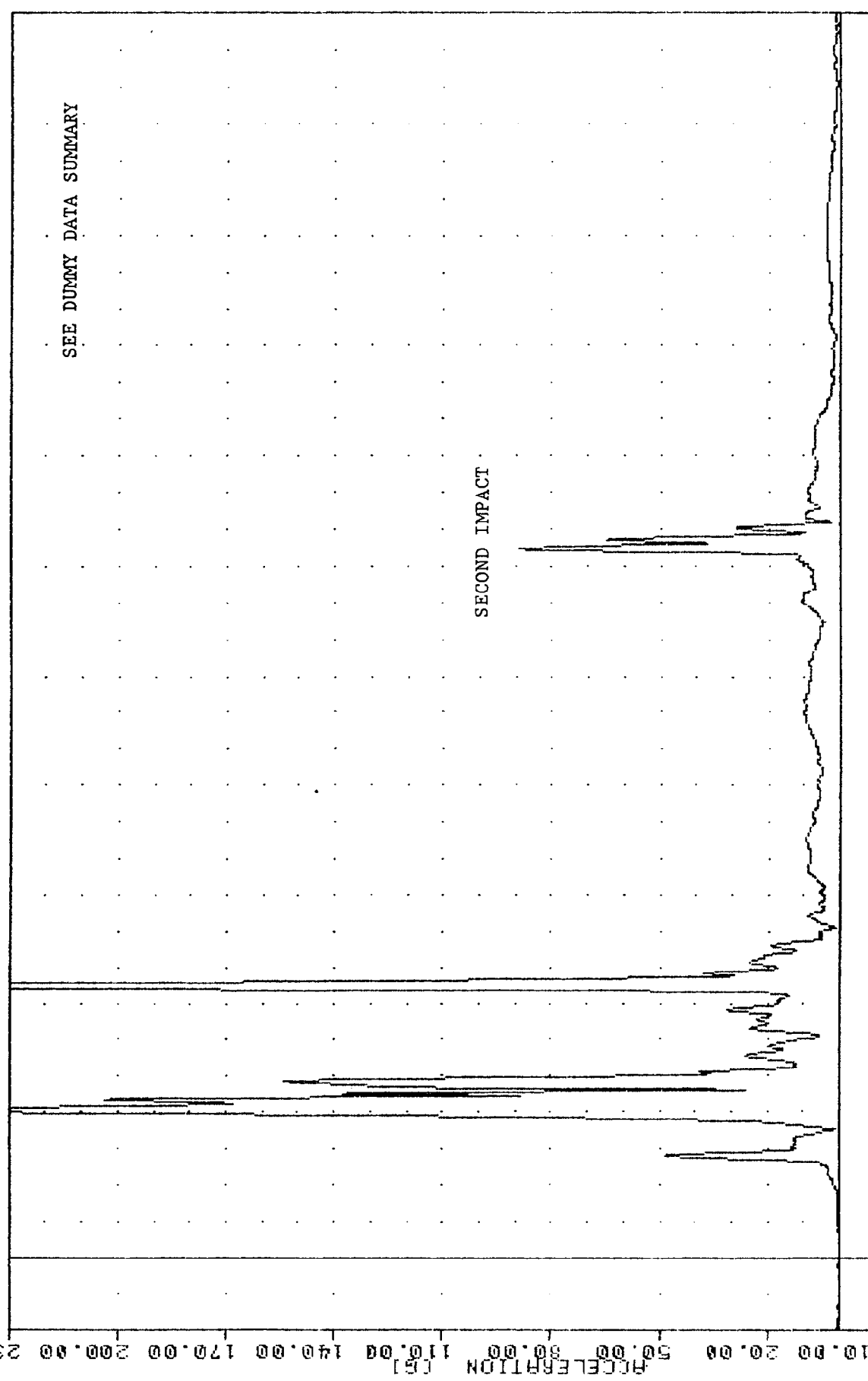
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME [MSEC]
 MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PELVIS ACCELERATION Y AXIS

TAC 713 PLATE 13-06-8 12:07:00
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 PEVZ61
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -123.900 74.50 80.03 48.88



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PELVIS ACCELERATION Z AXIS

T 071 PULS 1 06-07:00
 SIDE AGGRESSIVE ATTRIBUTES
 8419500000
 PEVRG1
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 0.07 306.07 74.63
 -7.38

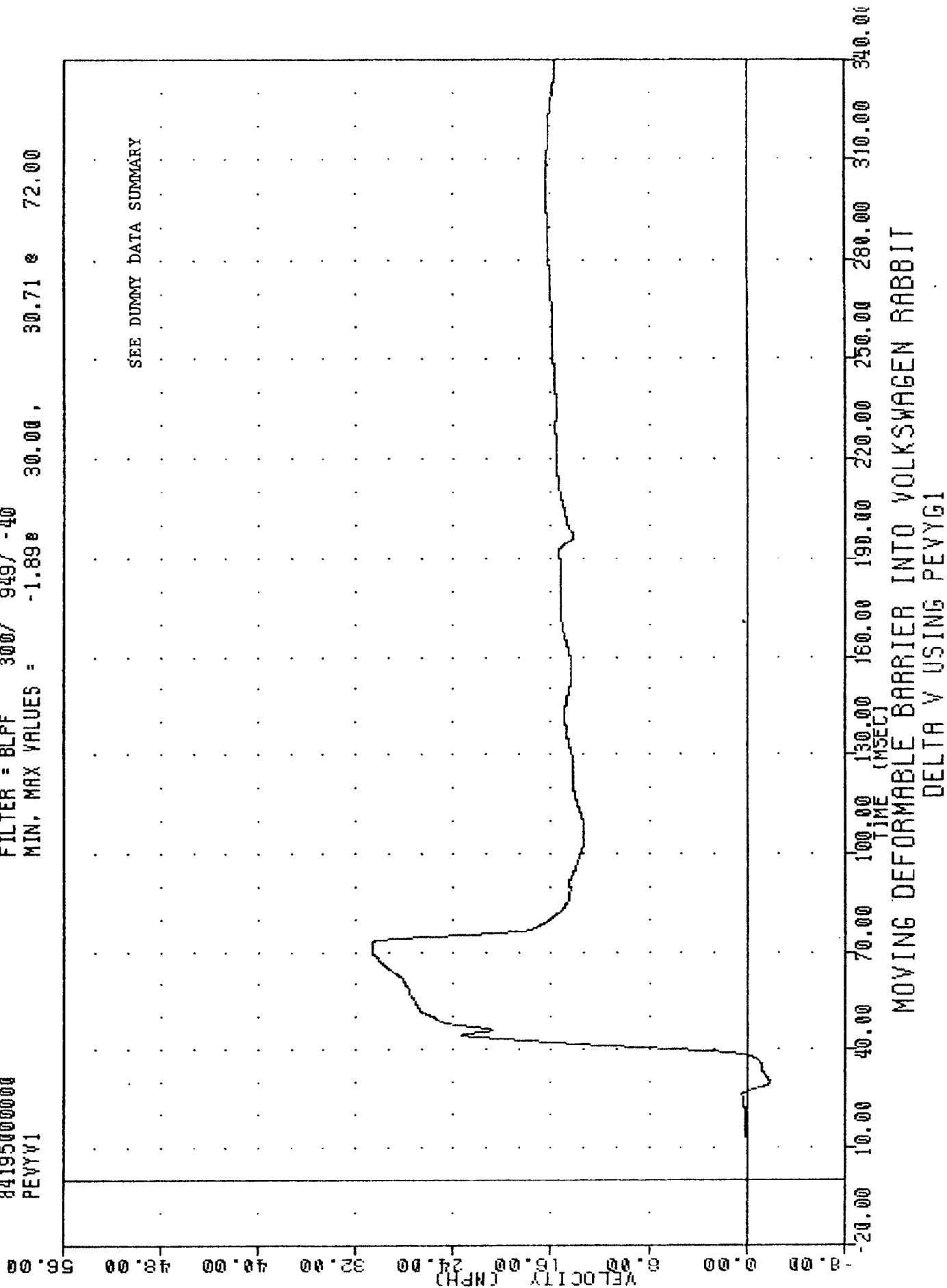


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DRIVER PELVIS RESULTANT

TRC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 PEVYV1

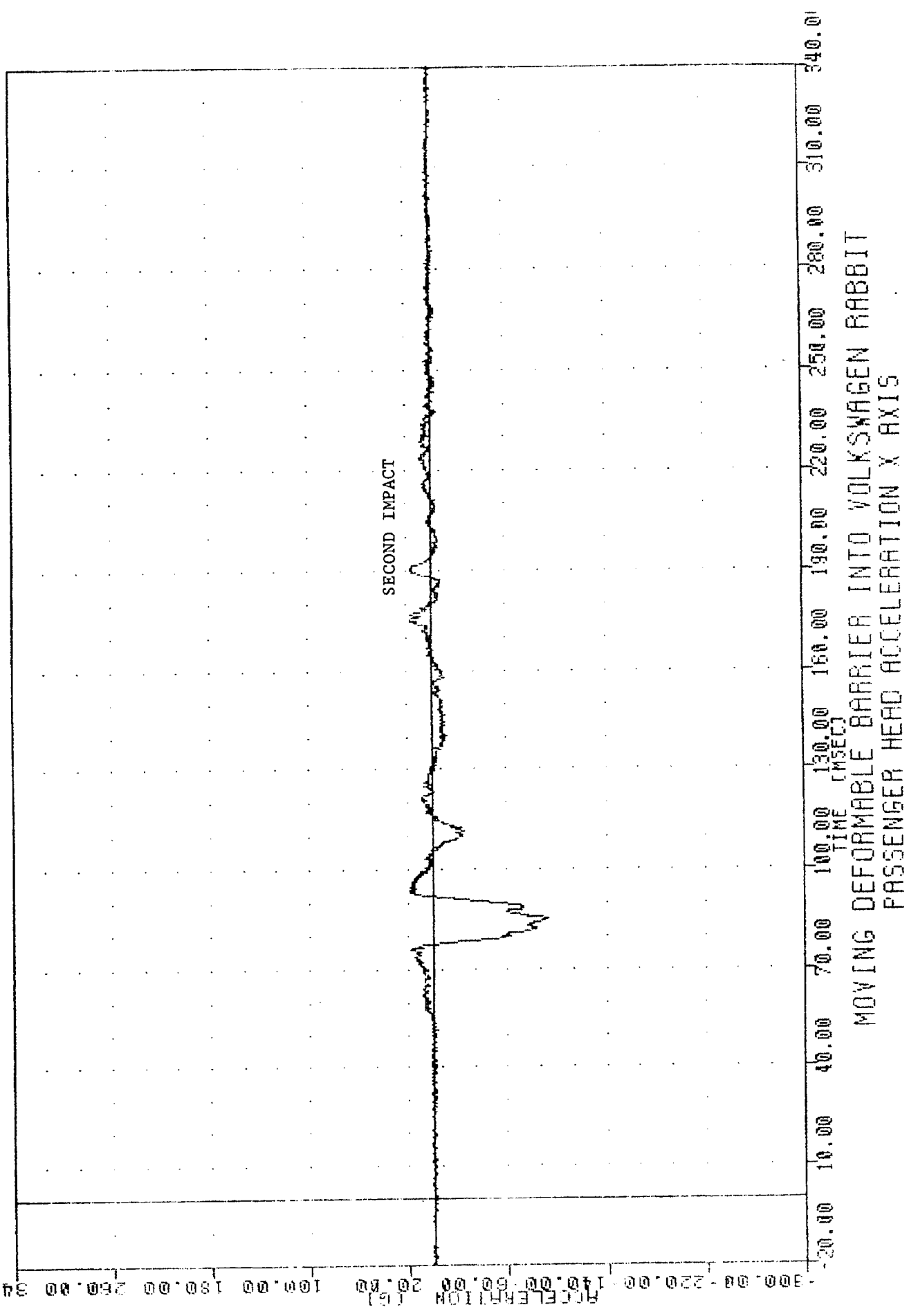
PLOT DATE 30-JUL-84 10:45:48

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -1.89e 30.00, 30.71 e 72.00

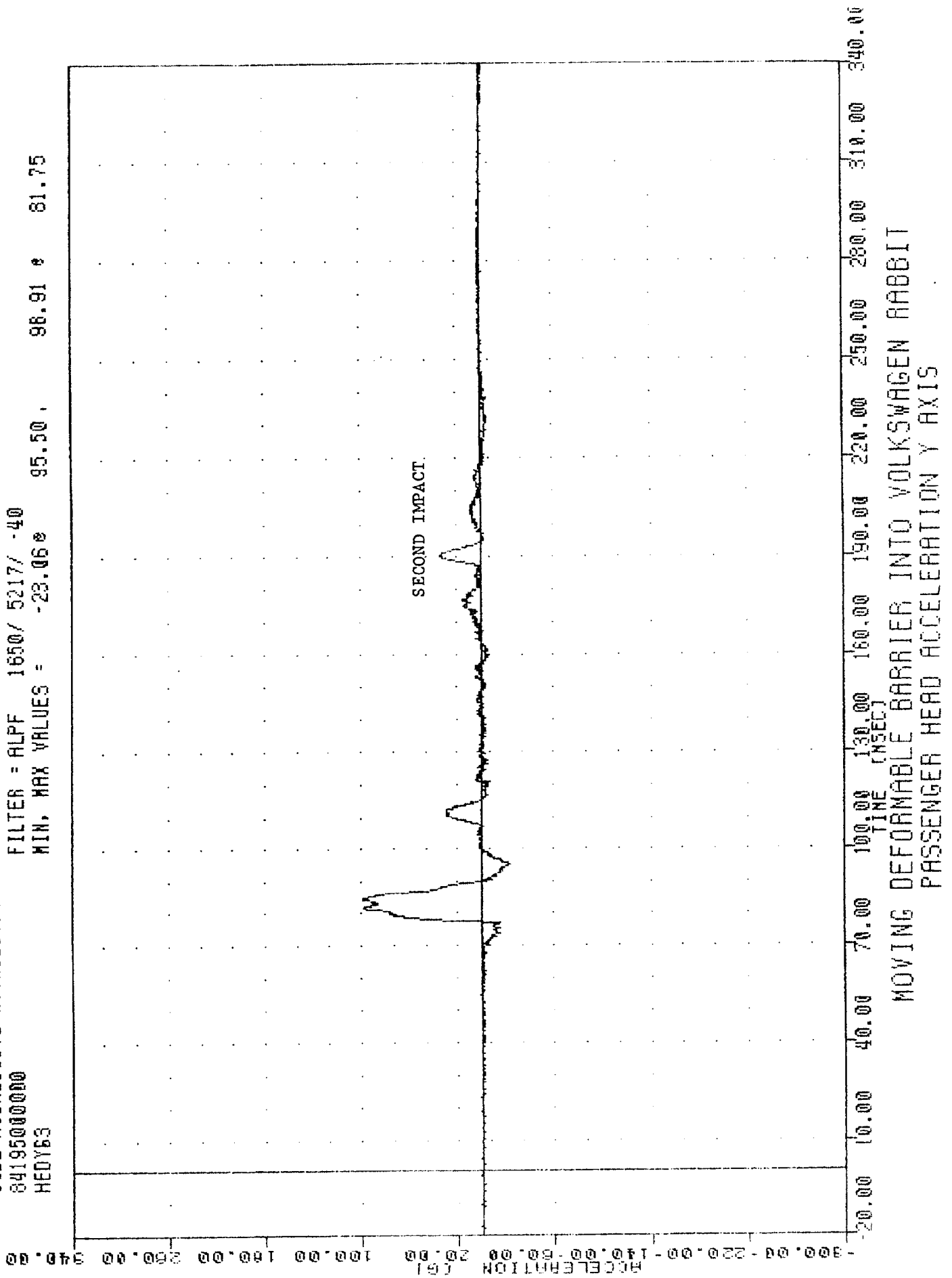


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING PEVYV1

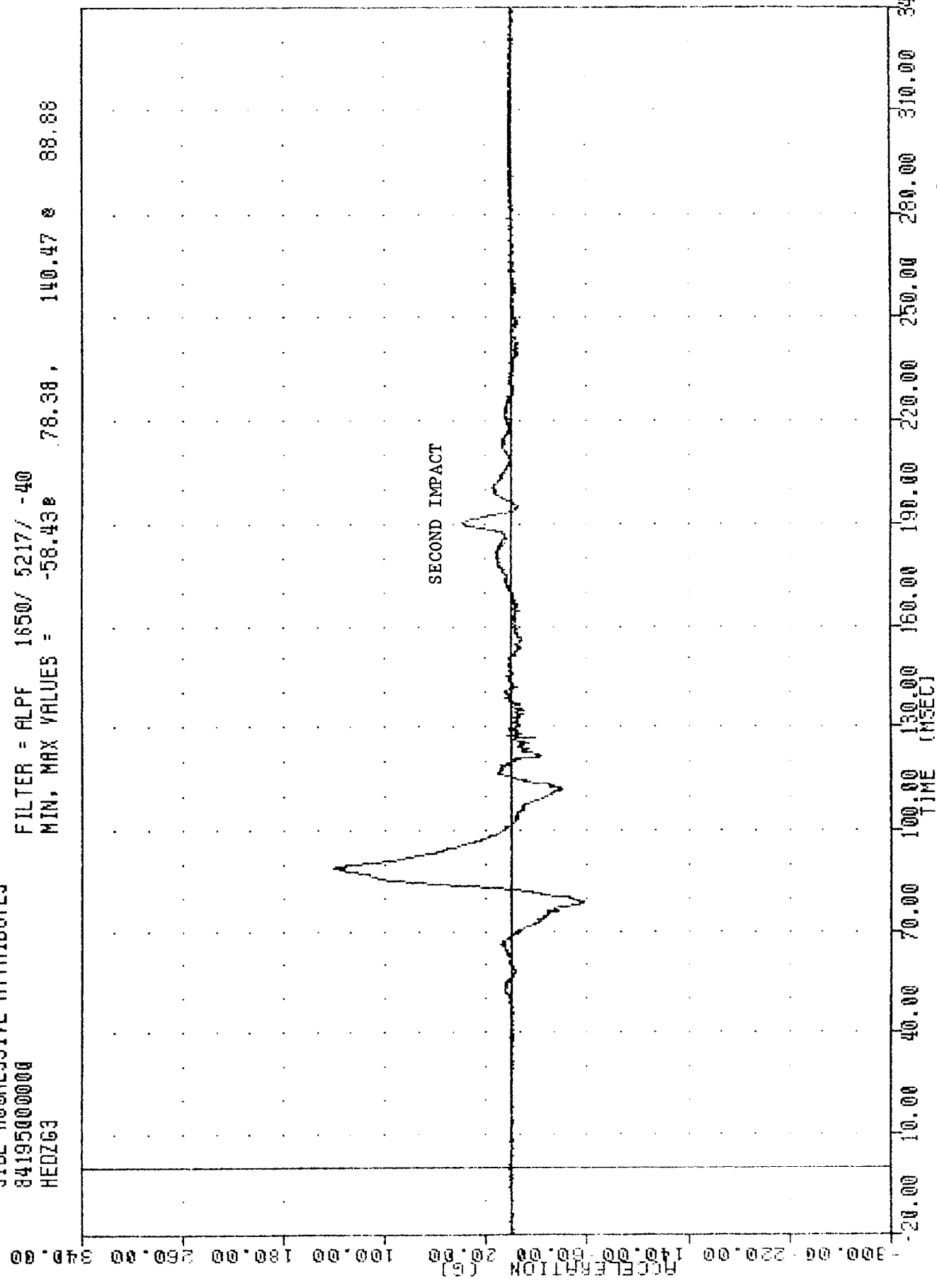
TMC, 040713, 13 AUG 84 14:17:05
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 HEDXG3
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -92.510 85.00, 19.45 93.25



TRC 713, 040713 PLATE 13-756-84 1477:00
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 HEDY63
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -23.06 95.50 98.91 81.75



TAC 000713 PLOT DATE 13 MAR 84 14:17:00
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 HEDZ63
 FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -58.43 78.38, 140.47 88.88

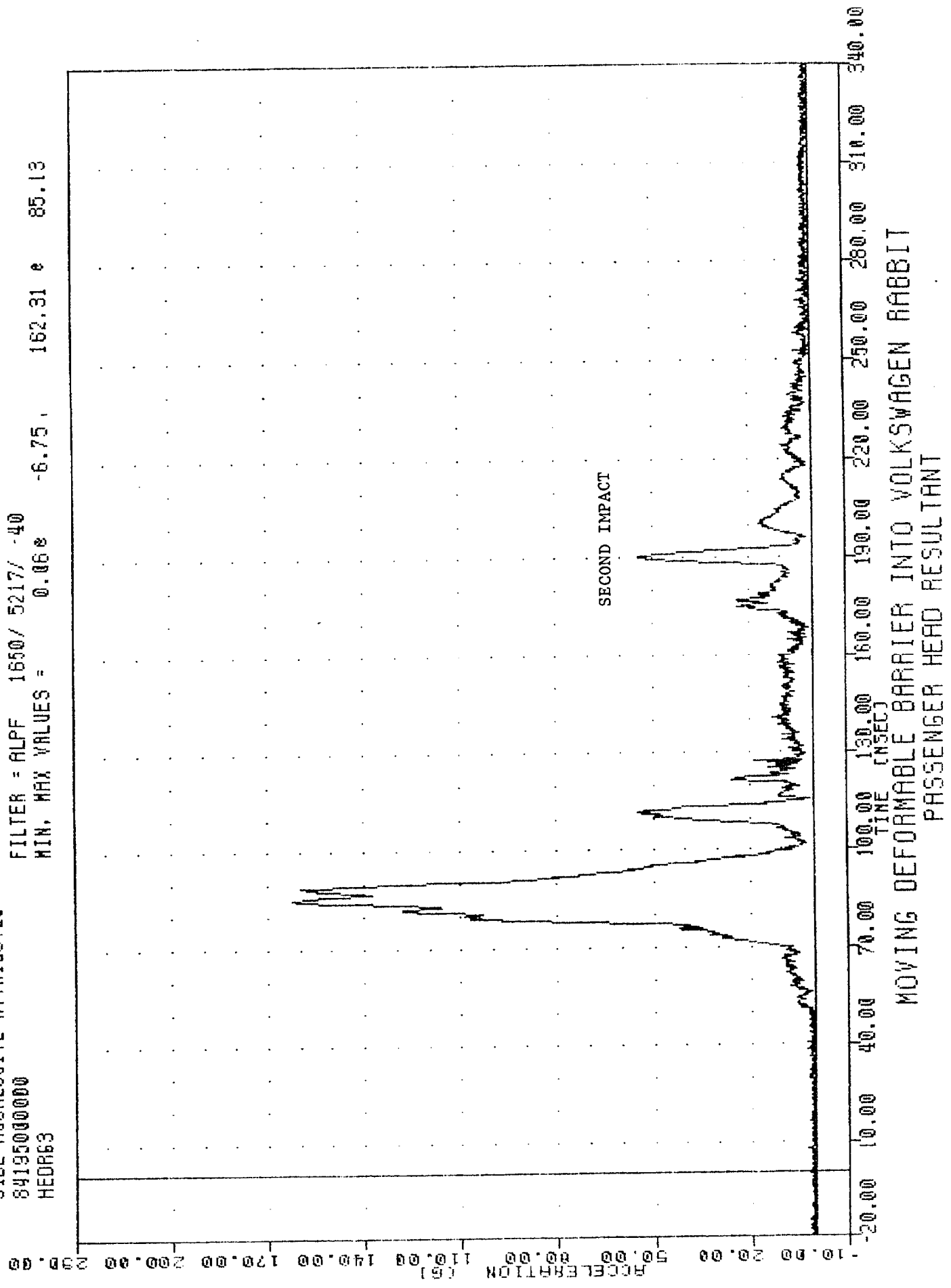


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER HEAD ACCELERATION Z AXIS

THE , 040713, PLATE 12 066-83 1417:03

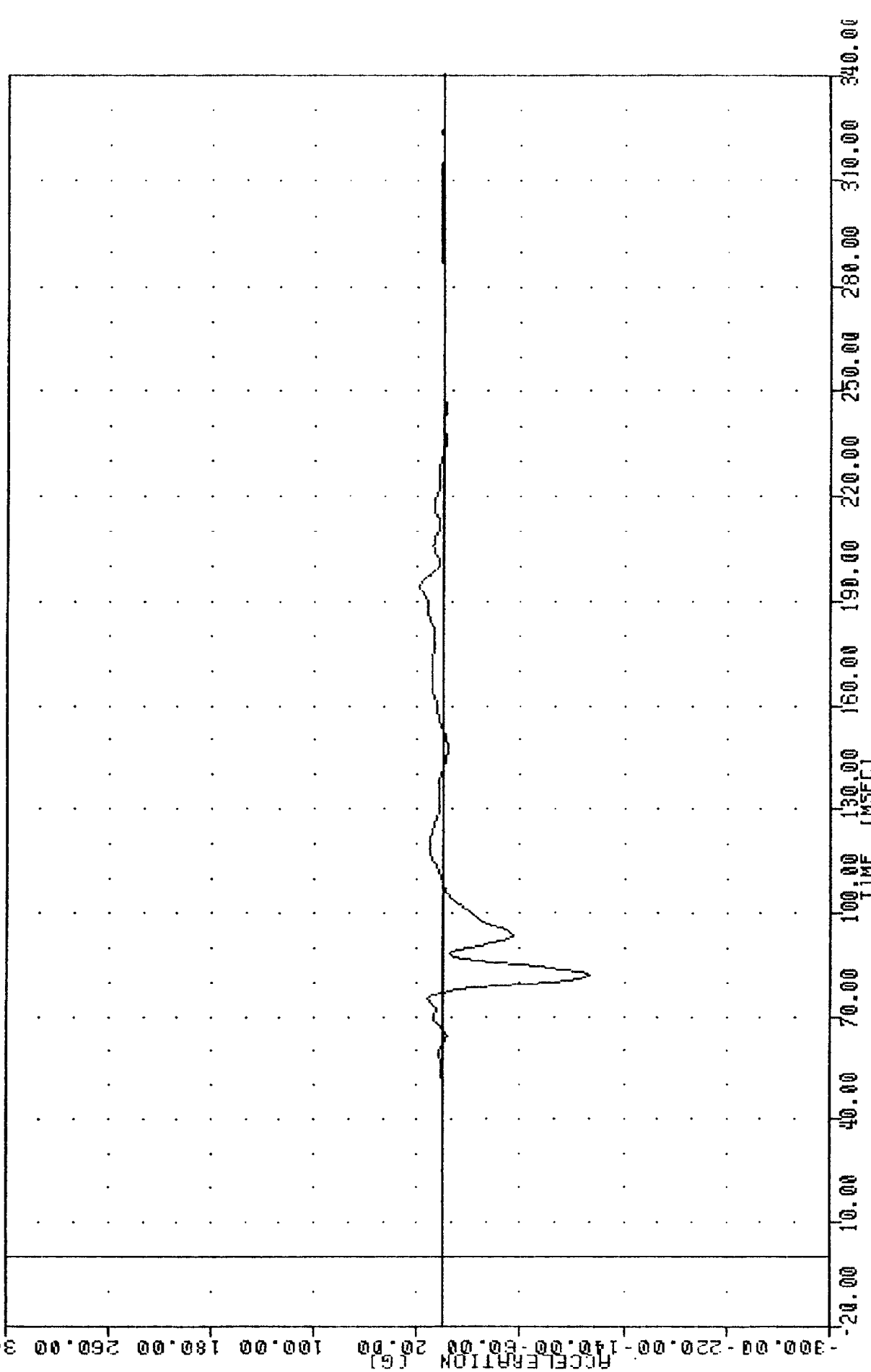
SIDE AGGRESSIVE ATTRIBUTES
84195000000
HEAD63

FILTER = ALPF 1650/ 5217/ -40
MIN. MAX VALUES = 0.068 -6.75, 162.31 e 85.13



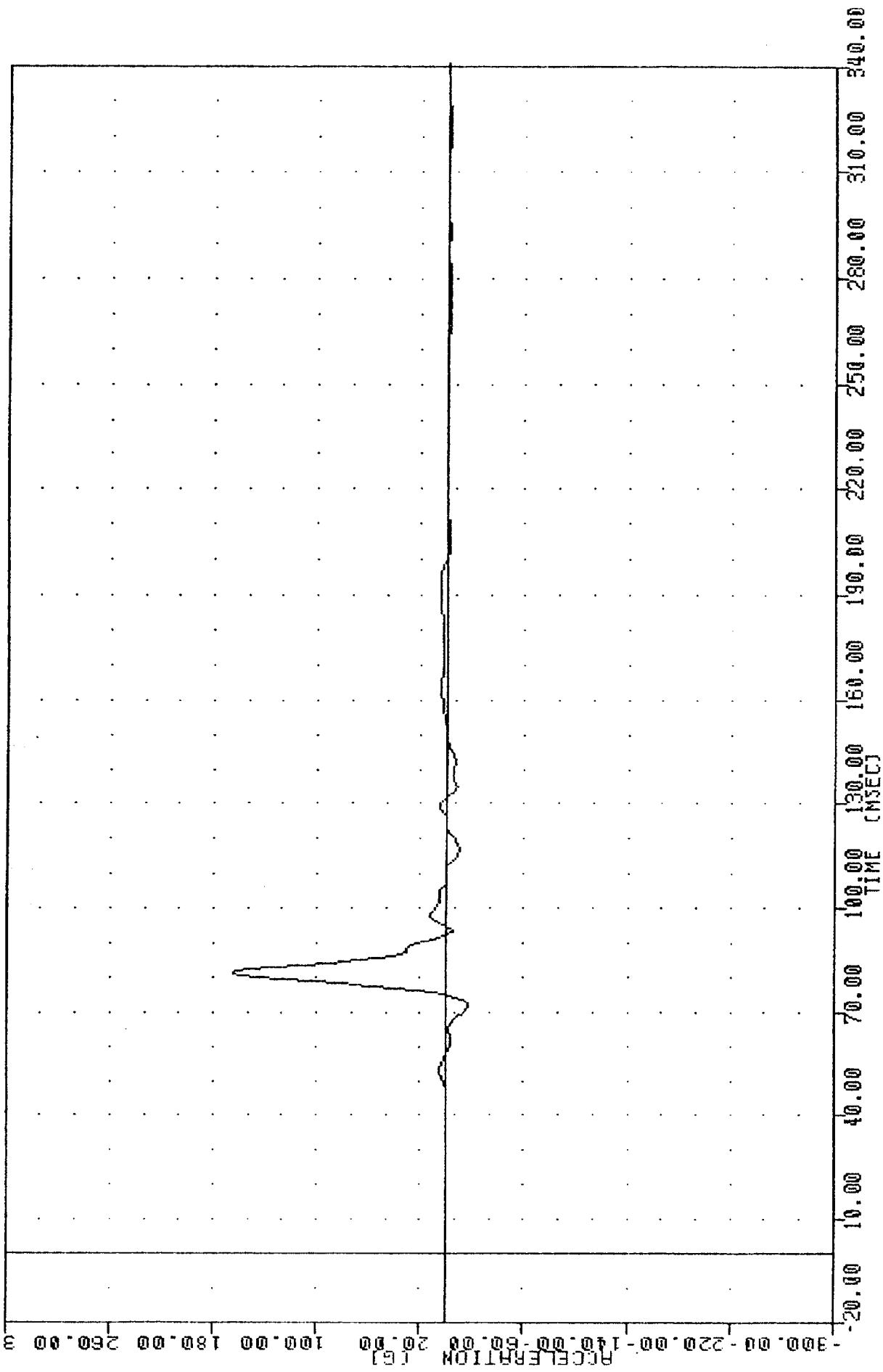
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD RESULTANT

INU 840713 PLUI DHIE 30-JUL-84 10:33:42
 S AG 136/ 189/ -50
 84195000000
 T01XG3 MIN, MAX VALUES = -114.26 81.25, 18.12 193.75



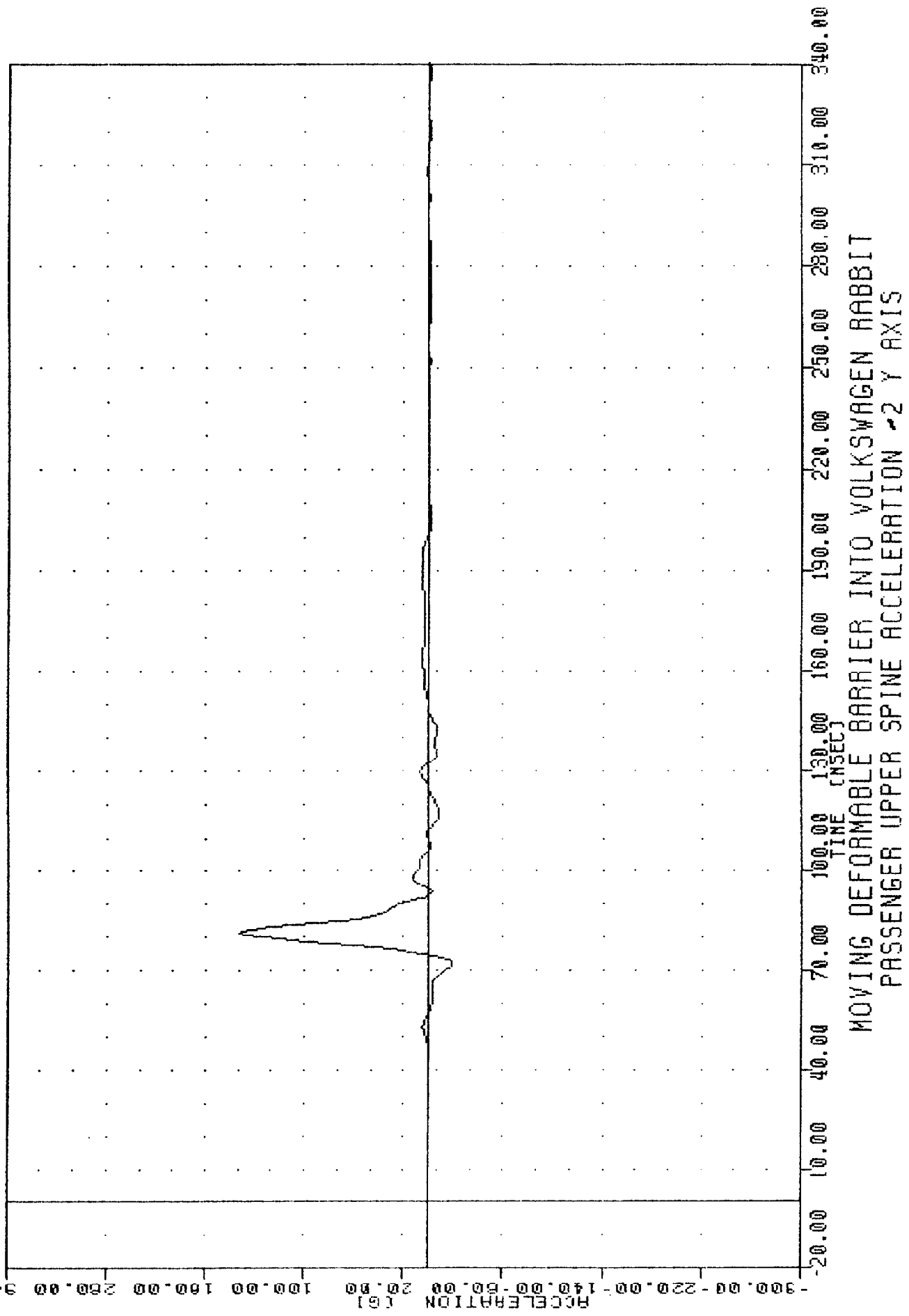
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE ACCELERATION X AXIS

TRC 840713 PLOT DATE 30-JUL-84 10:33:42
 SIDE AGGRESSIVE INTRUSIVES
 84195000000 FILTER = HSRI 136/ 189/ -50
 T01YG3 MIN. MAX VALUES = -17.40% 71.25, 165.19 % 80.63

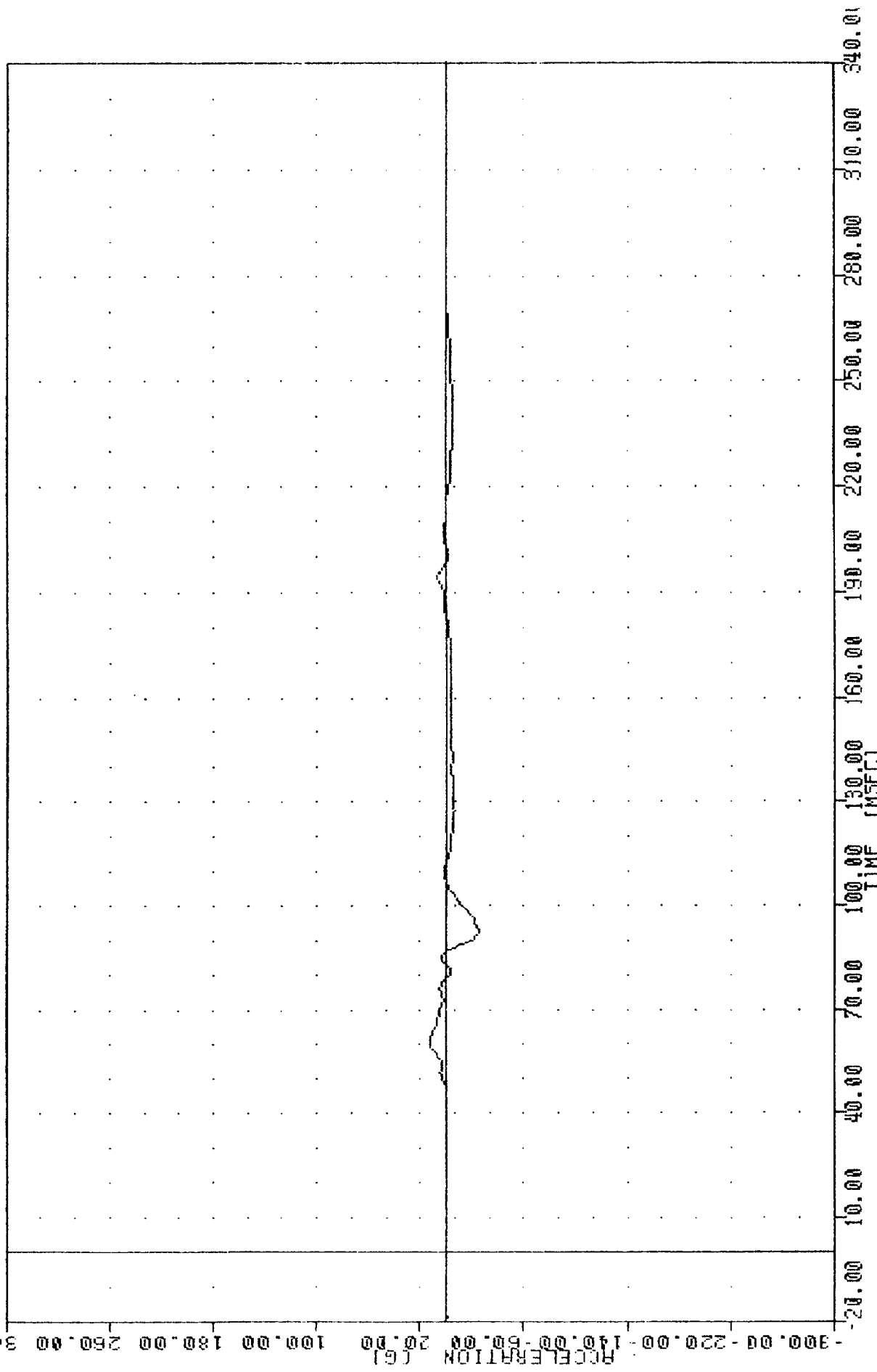


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE ACCELERATION Y AXIS

TRC 840713
 SIZE 8662381V C NTR 100TES
 84195000000
 T01Y6C
 PLOT DATE 30-JUL-84 10:33:42
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -18.78e 71.25, 152.65 e 80.63



TRC 840713 30-JUL-84 10:33:42
 84195000000 FILTER = HSR1 136/ 189/ -50
 701ZG3 MIN. MAX VALUES = -25.08g 91.87, 12.52 g 60.62



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

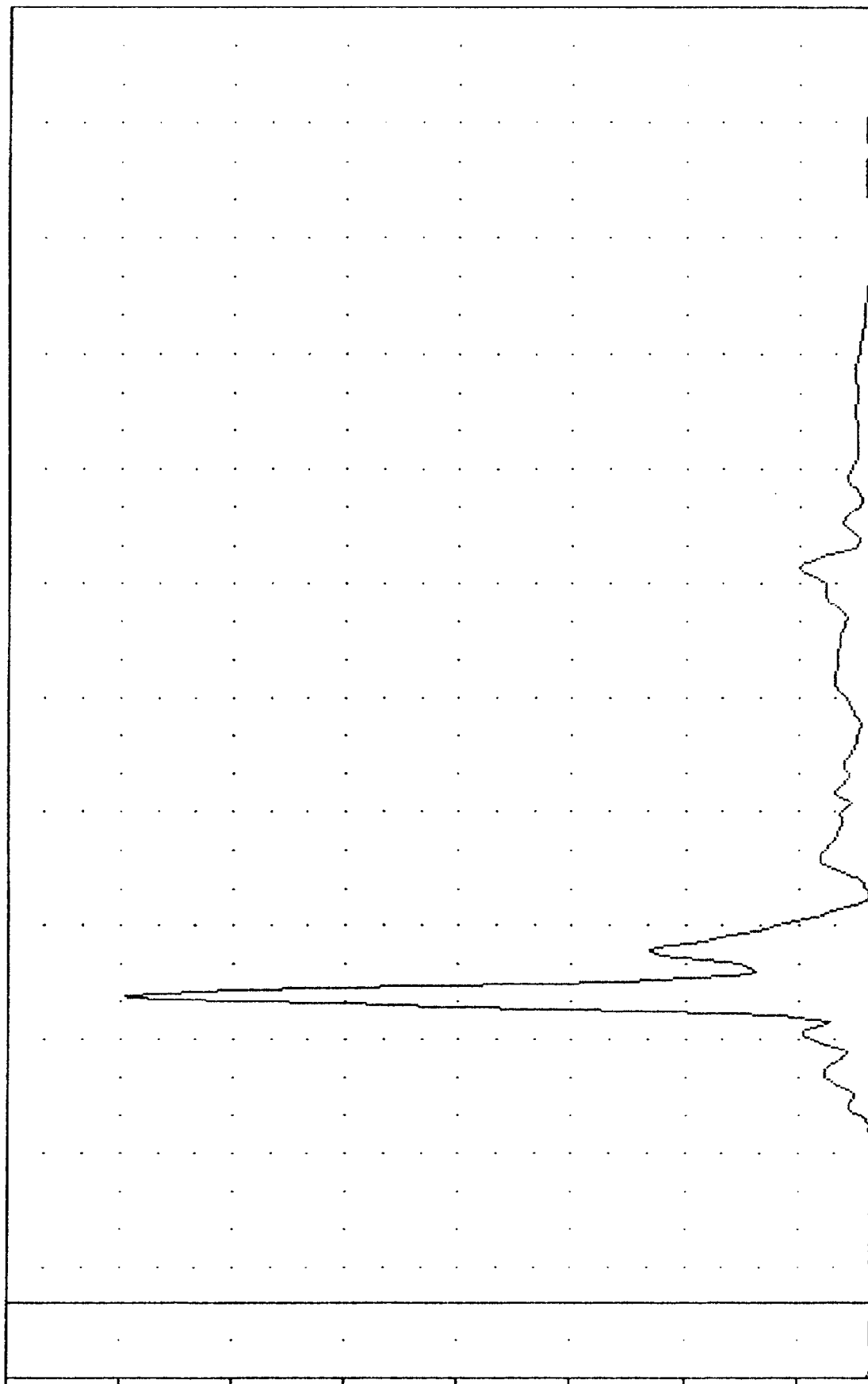
TAC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 TQ1R63

PLUT DATE 30-JUL-84 11:31:22

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.10e 20.00, 198.44 e 81.25

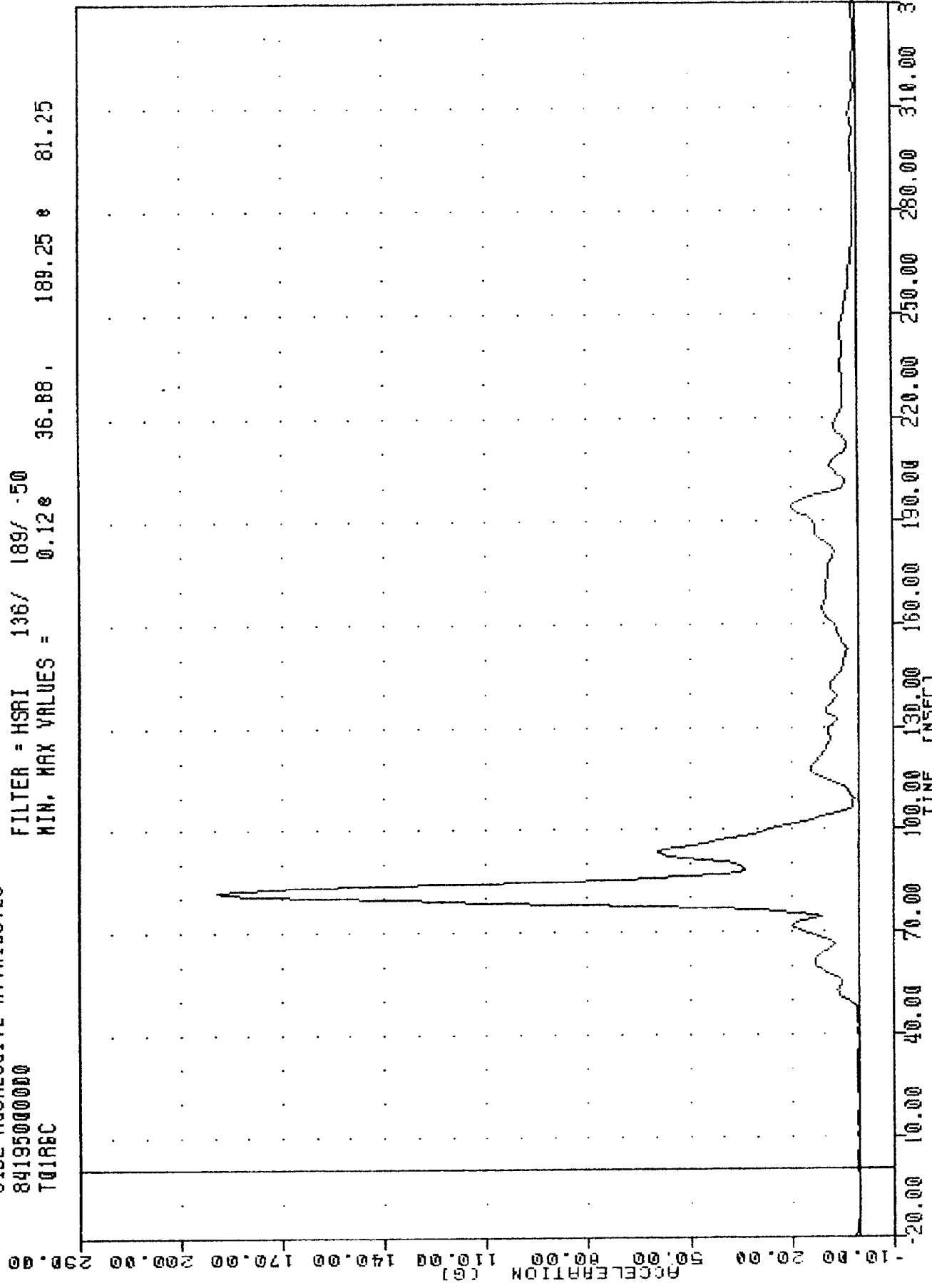
ACCELERATION (G)



TIME (NSEC)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE RESULTANT

TAC 044713 PLOT DATE 30 JUL -84 11:23:40
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T01R6C
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.128 36.88 189.25 81.25

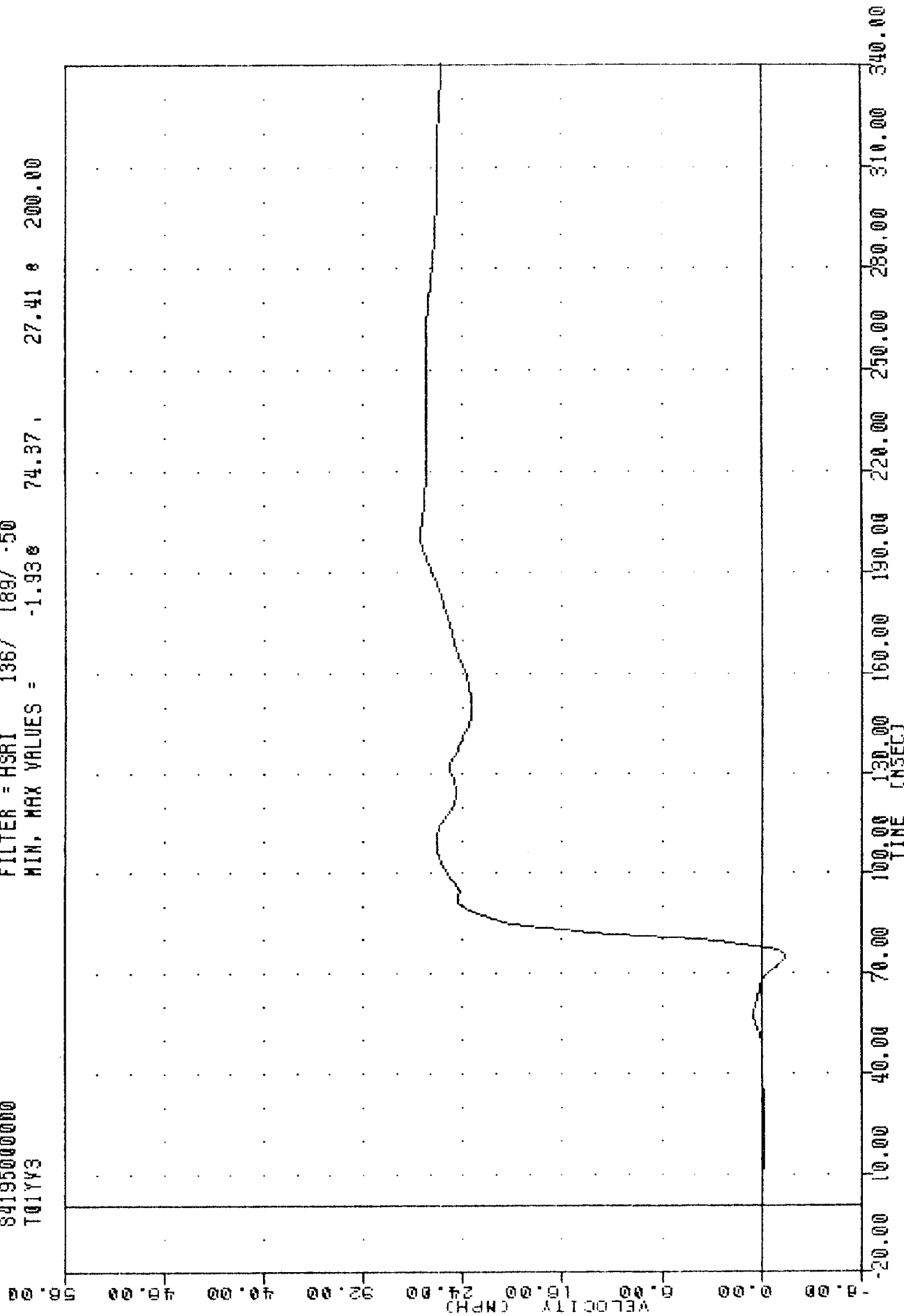


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER UPPER SPINE RESULTANT USING T01YGC

TRC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T01YV3

PLOT DATE 30-JUL-84 10:42:17

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -1.93e 74.37 , 27.41 e 200.00

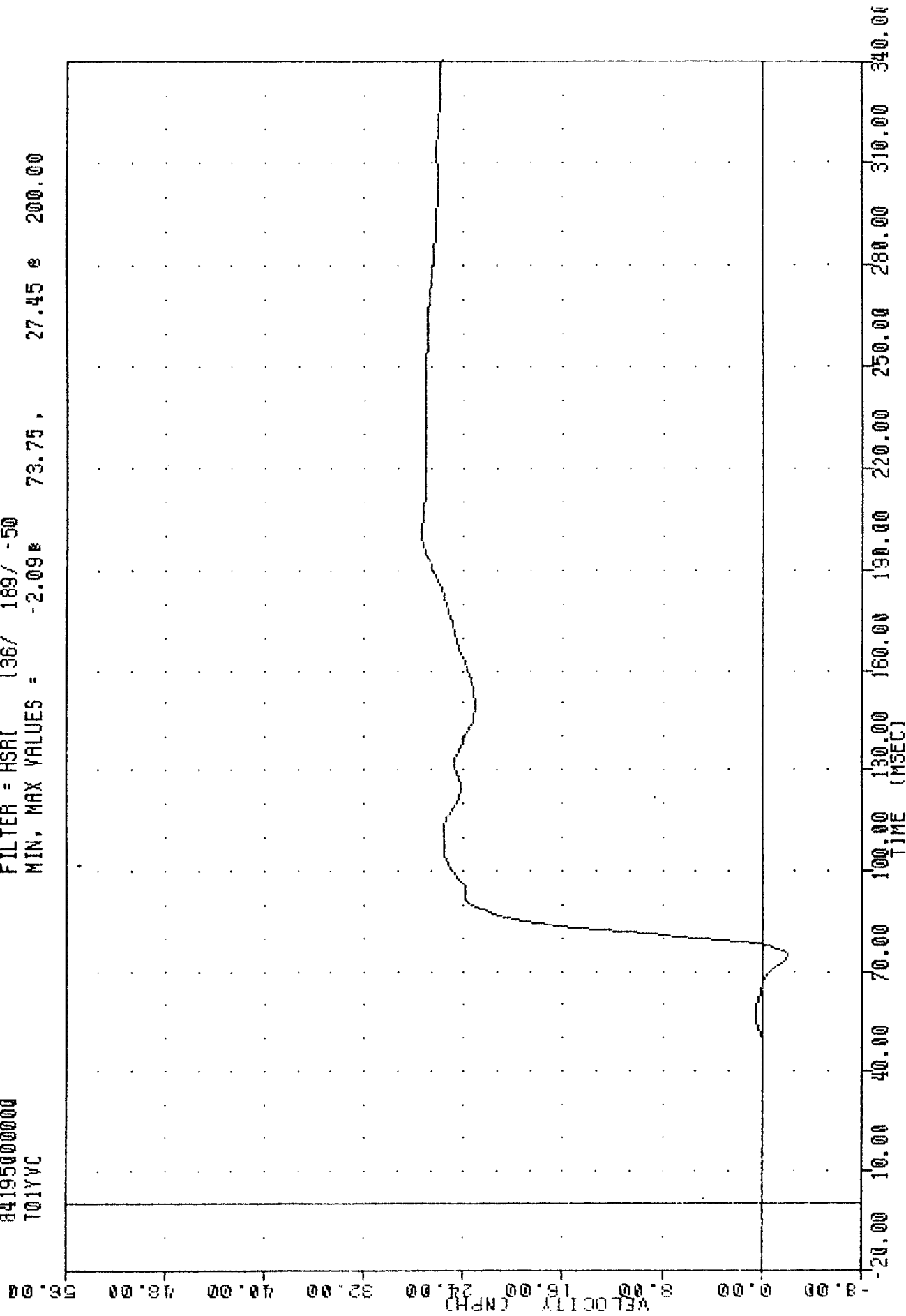


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YV3

TRC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T01YVC

PLOT DATE 30-JUL-84 10:42:17

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -2.09 73.75, 27.45 200.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING T01YGC

TRC 840713 PLOT DATE 30-JUL-84 10:33:42

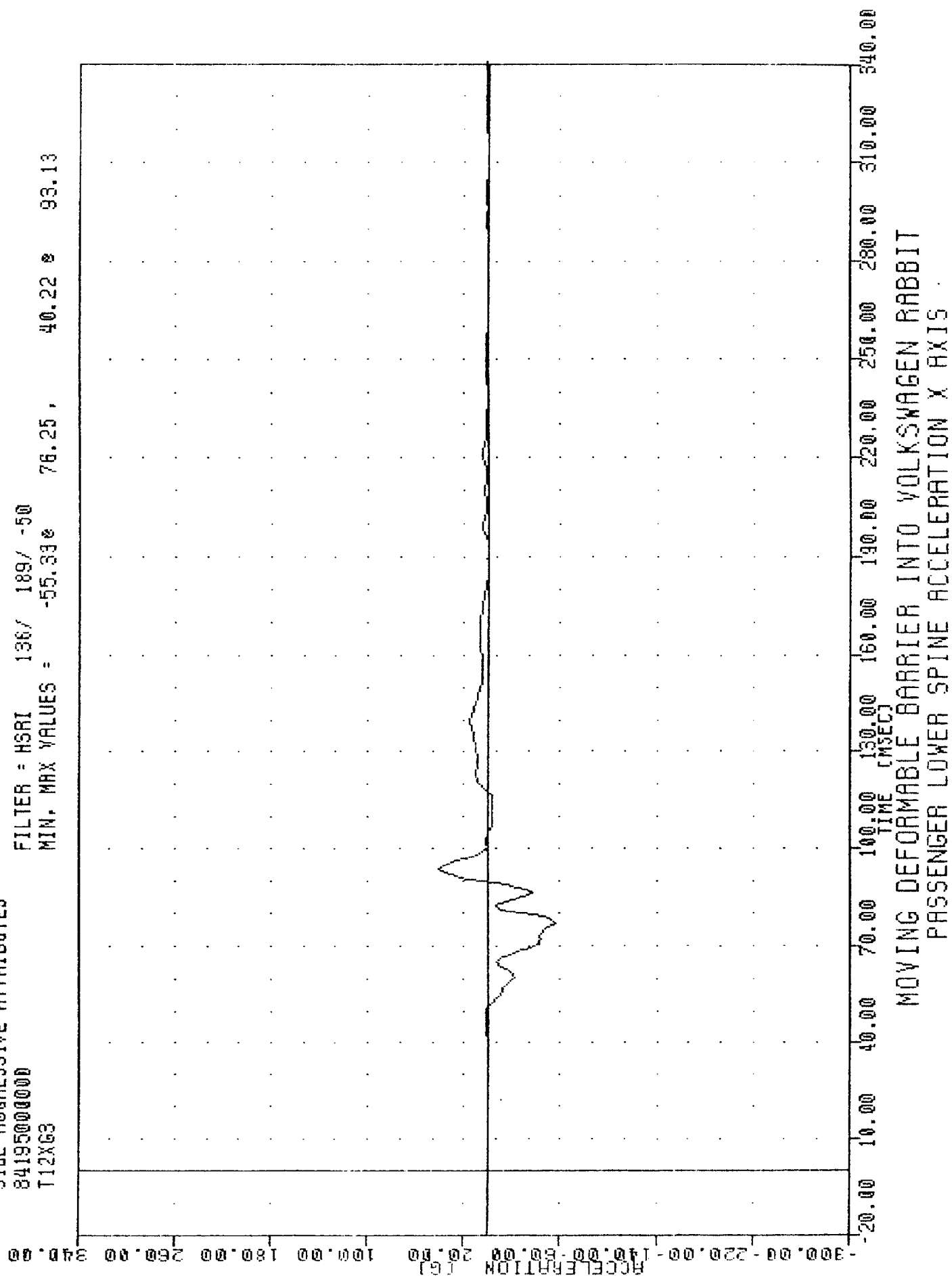
SIDE AGGRESSIVE ATTRIBUTES

84195000000

T12XG3

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -55.33% 76.25 , 40.22 % 93.13

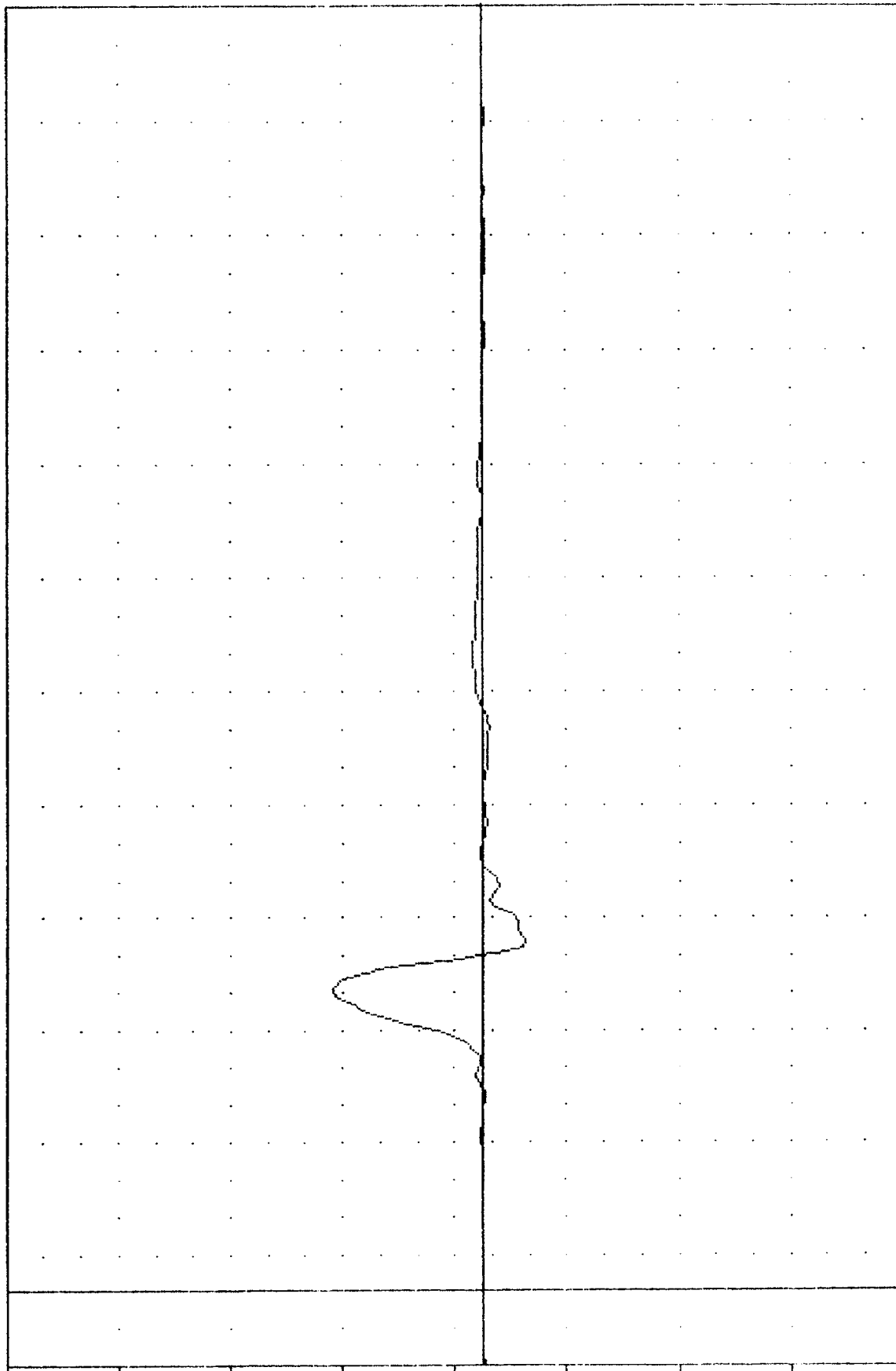


TAC 84V713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T12Y63

PLOT DATE 30-JUL-84 10:33:42

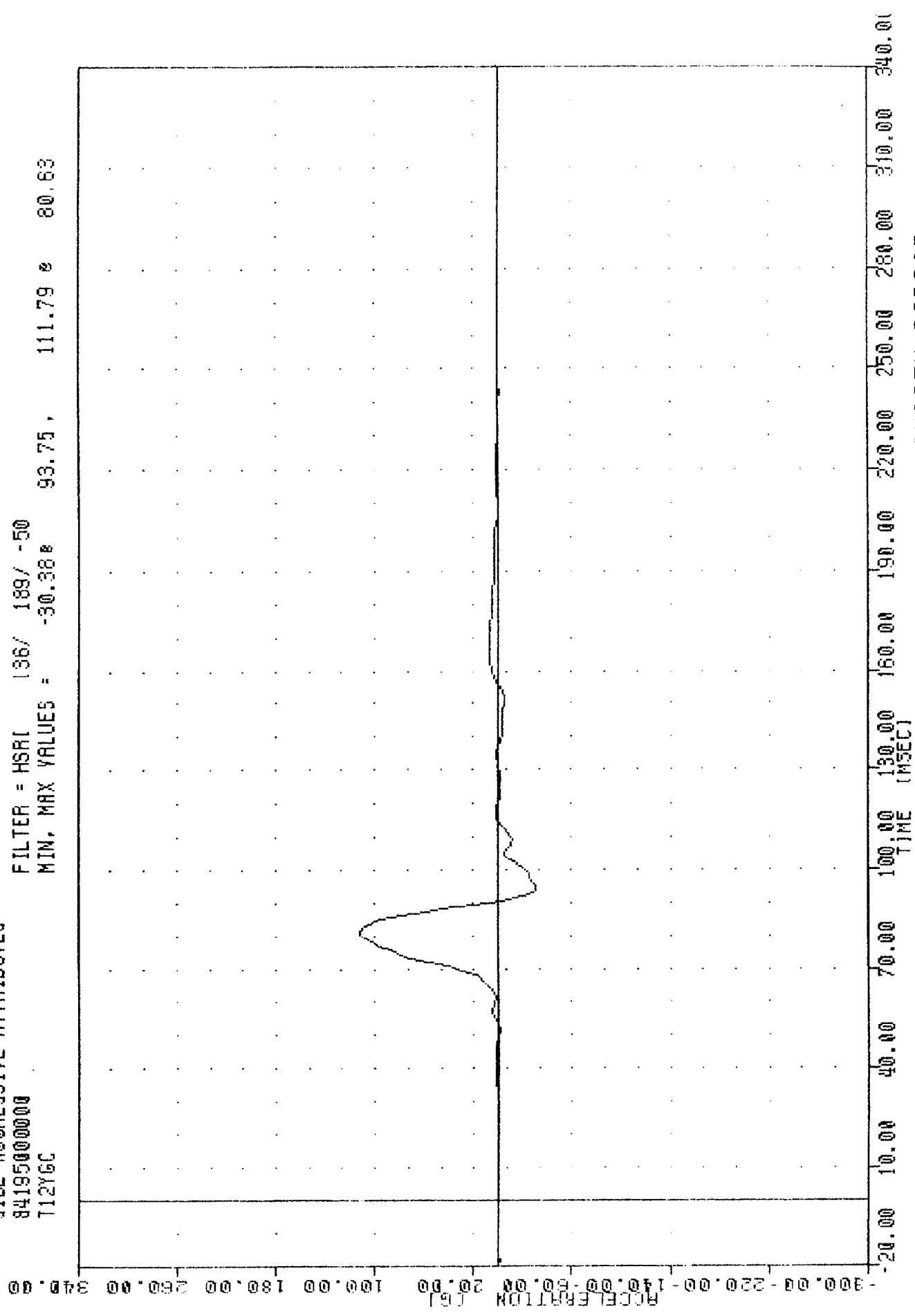
FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -30.43e 93.13, 107.69 e 80.00

ACCELERATION (G)



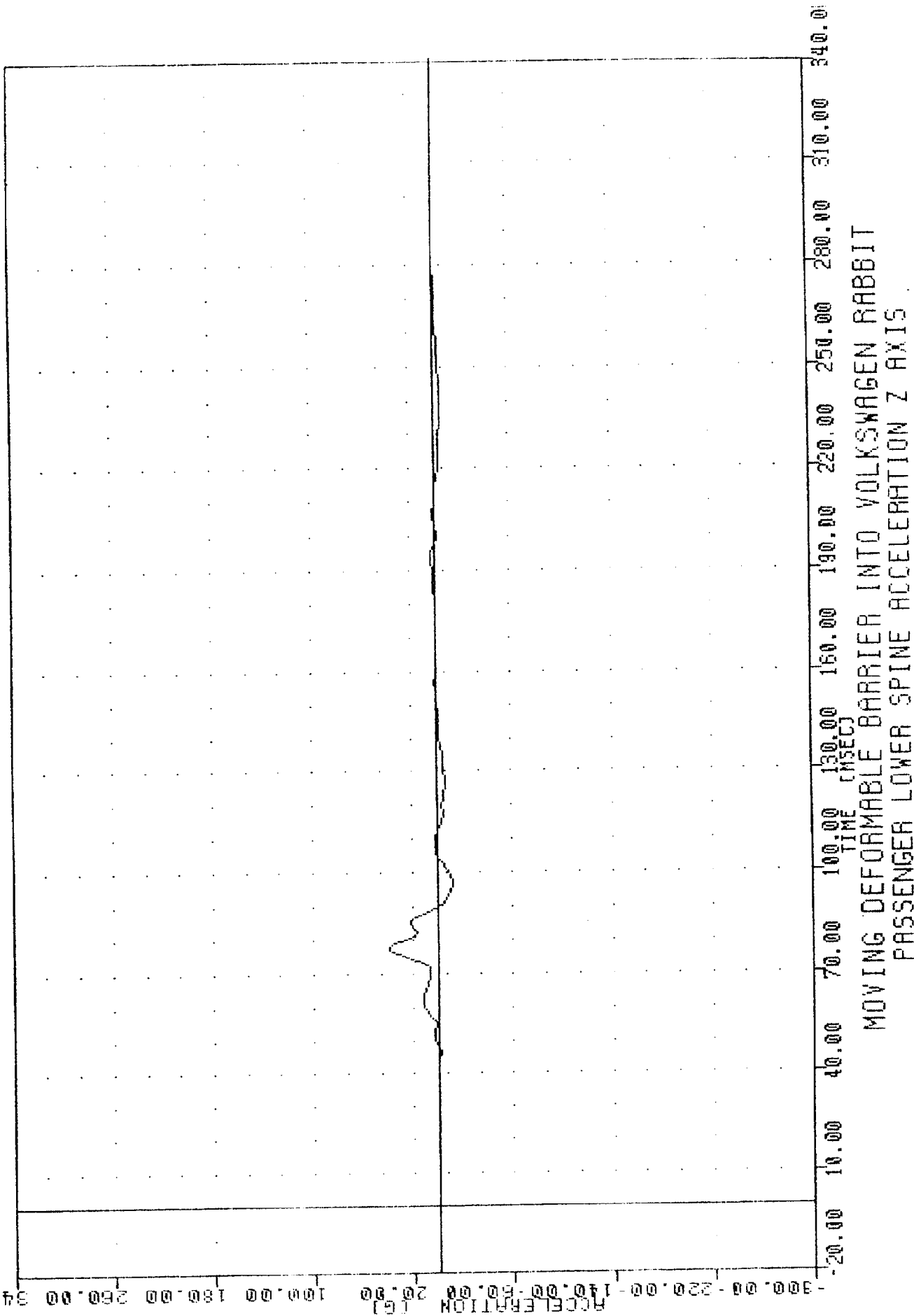
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER LOWER SPINE ACCELERATION Y AXIS

TRC 840713 PLOT DATE 30-JUL-84 10:33:42
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 712Y6C
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -30.38% 93.75, 111.79 & 80.63



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

TRC 840713, 840713 PLOT DATE 30 JUL 84 10:53:42
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T12ZG3
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -12.29e 96.25, 39.65 e 76.88



TRC 840713 PLOT DATE 30-JUL-84 11:31:22

SIDE AGGRESSIVE ATTRIBUTES

84195000000

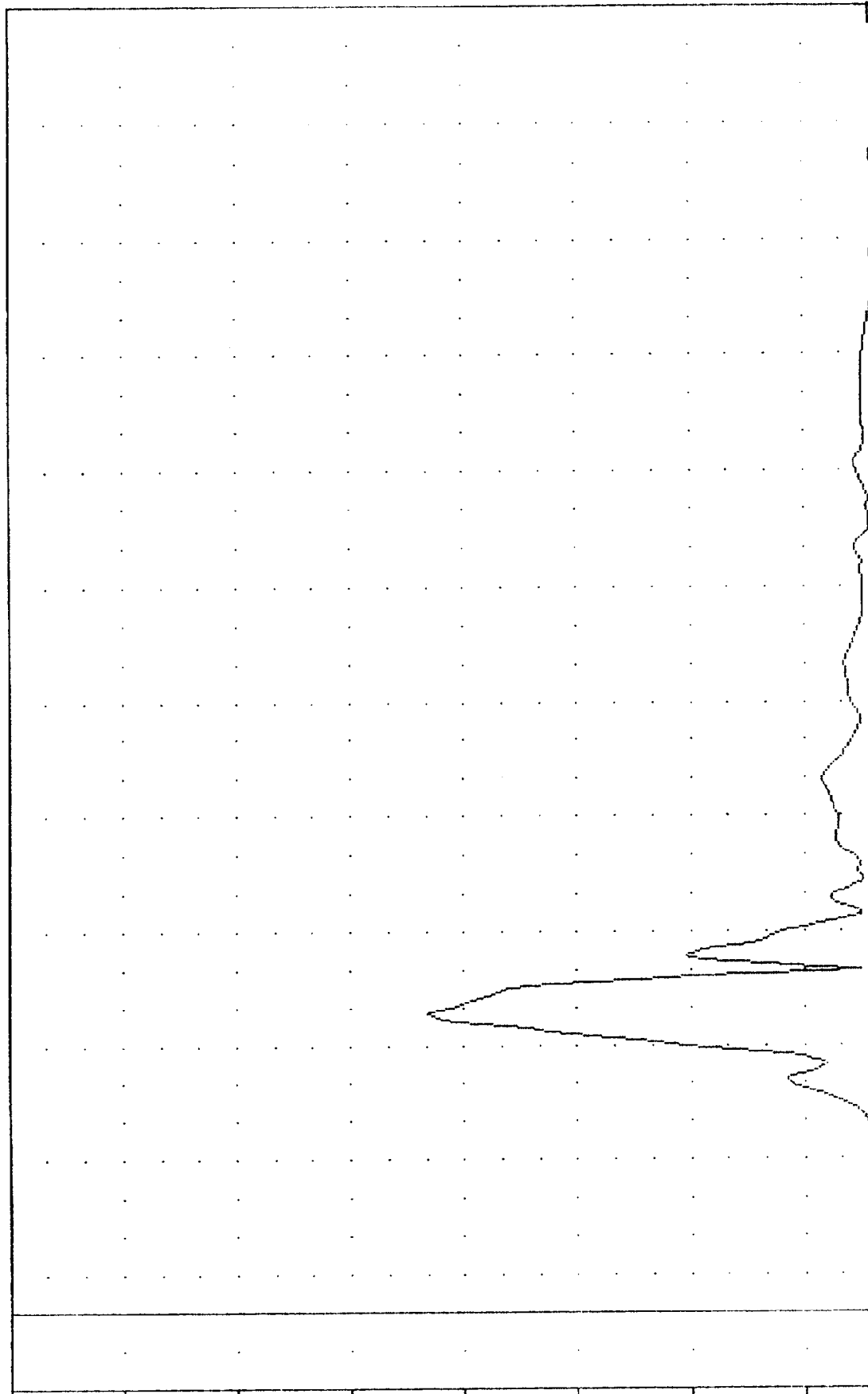
T12RG3

FILTER = HSR1 136/ 189/ -50

MIN. MAX VALUES = 0.03e

-4.38, 119.53 e 77.50

ACCELERATION [G]



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LOWER SPINE RESULTANT

15:00:00

13:00:00

PLC

713

TR

SIDE AGGRESSIVE ATTRIBUTES

84195000000

T12RGC

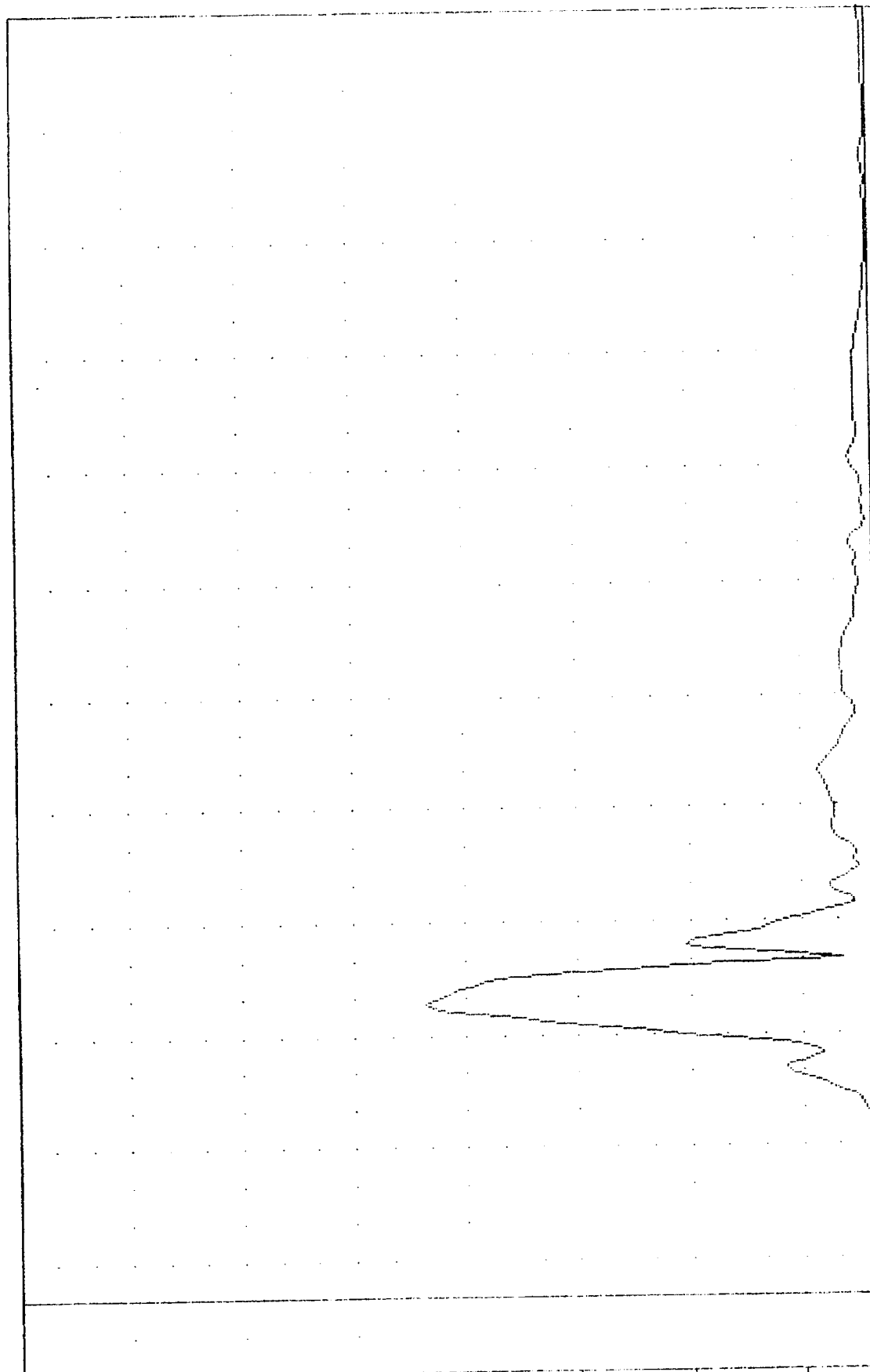
FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.04e

9.37. 121.23 e 77.50

ACCELERATION (G)

TIME (MSEC)



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

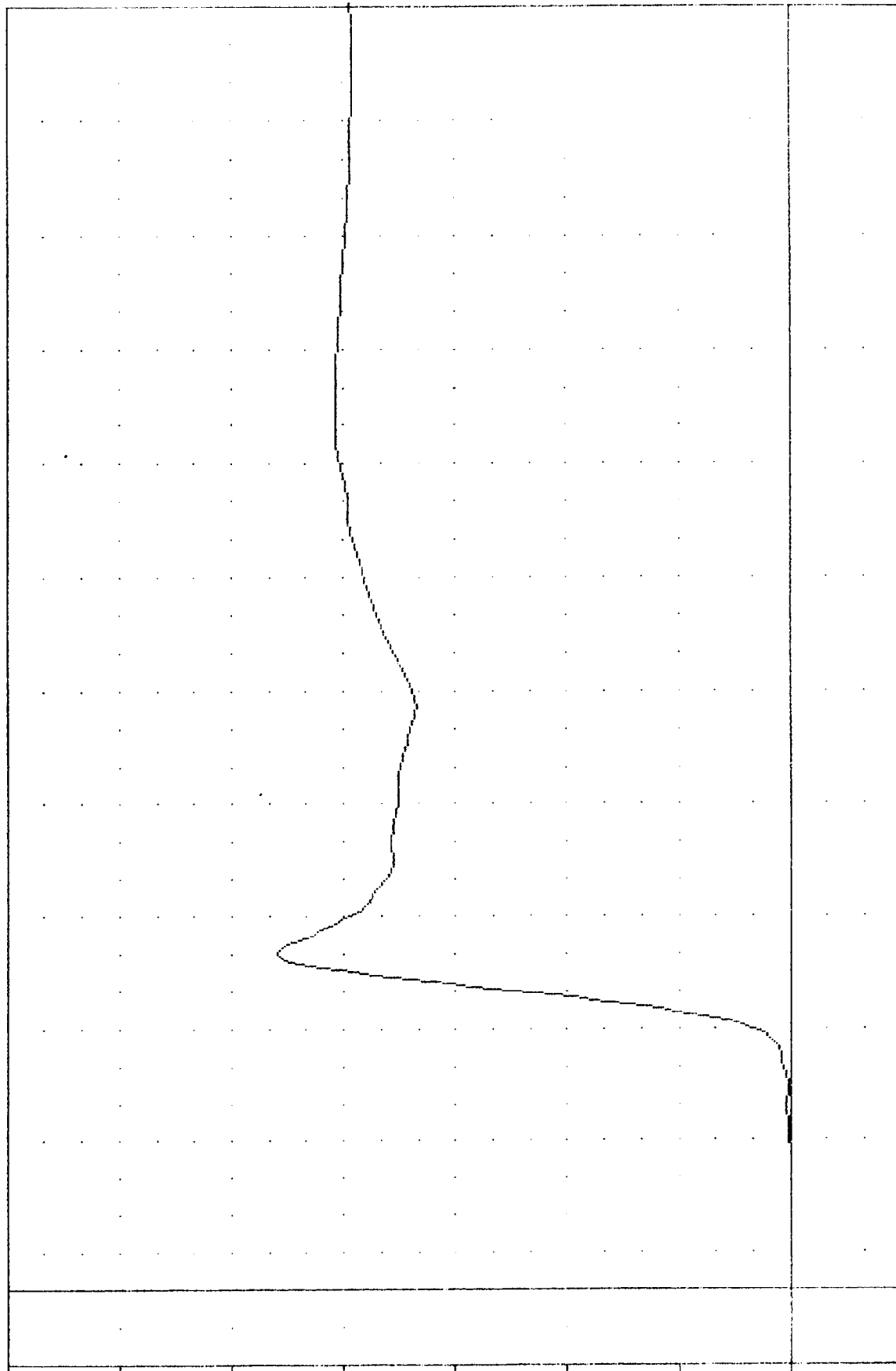
TRC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 T12YV3

PLOT DATE 30-JUL-84 10:42:17

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.138 22.50 36.77 e 89.38

VELOCITY (MPH)



-8.00 0.00 8.00 16.00 24.00 32.00 40.00 48.00 56.00

-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
 DELTA V USING T12Y63

TAC 840713 PLOT DATE 30-JUL-84 10:42:17

SIDE AGGRESSIVE ATTRIBUTES

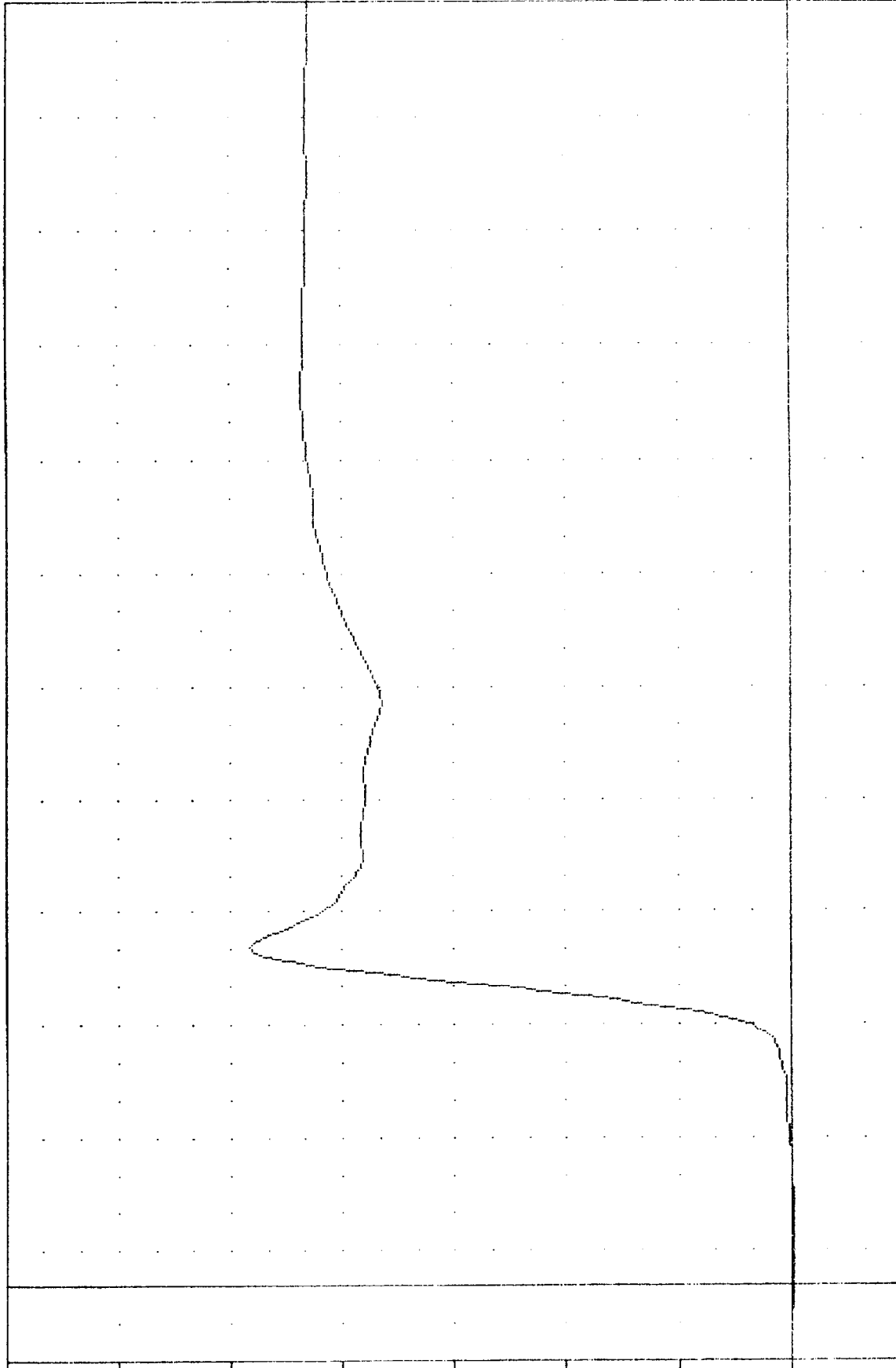
84195000000

T12YVC

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.26 16.87 38.58 90.00

VELOCITY (MPH)



TIME (msec)

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING T12YGC

TAC 840713 PLOT DATE 30-JUL-84 10:33:42

SIDE AGGRESSIVE ATTRIBUTES

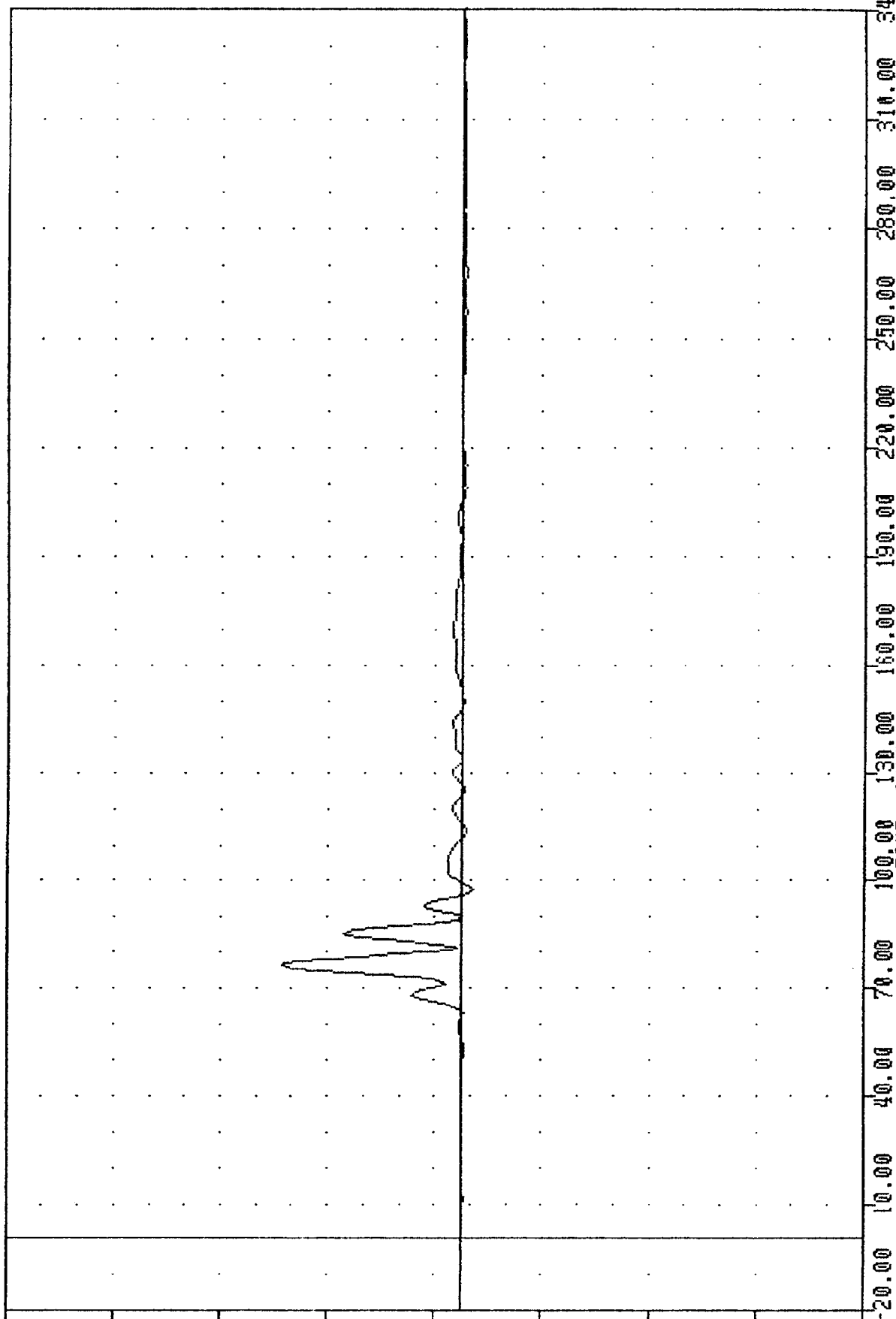
84195000000

LURY63

FILTER = HSRI 136/ 189/ .50

MIN. MAX VALUES = -7.62e 96.88 , 134.51 e 75.62

ACCELERATION [G]

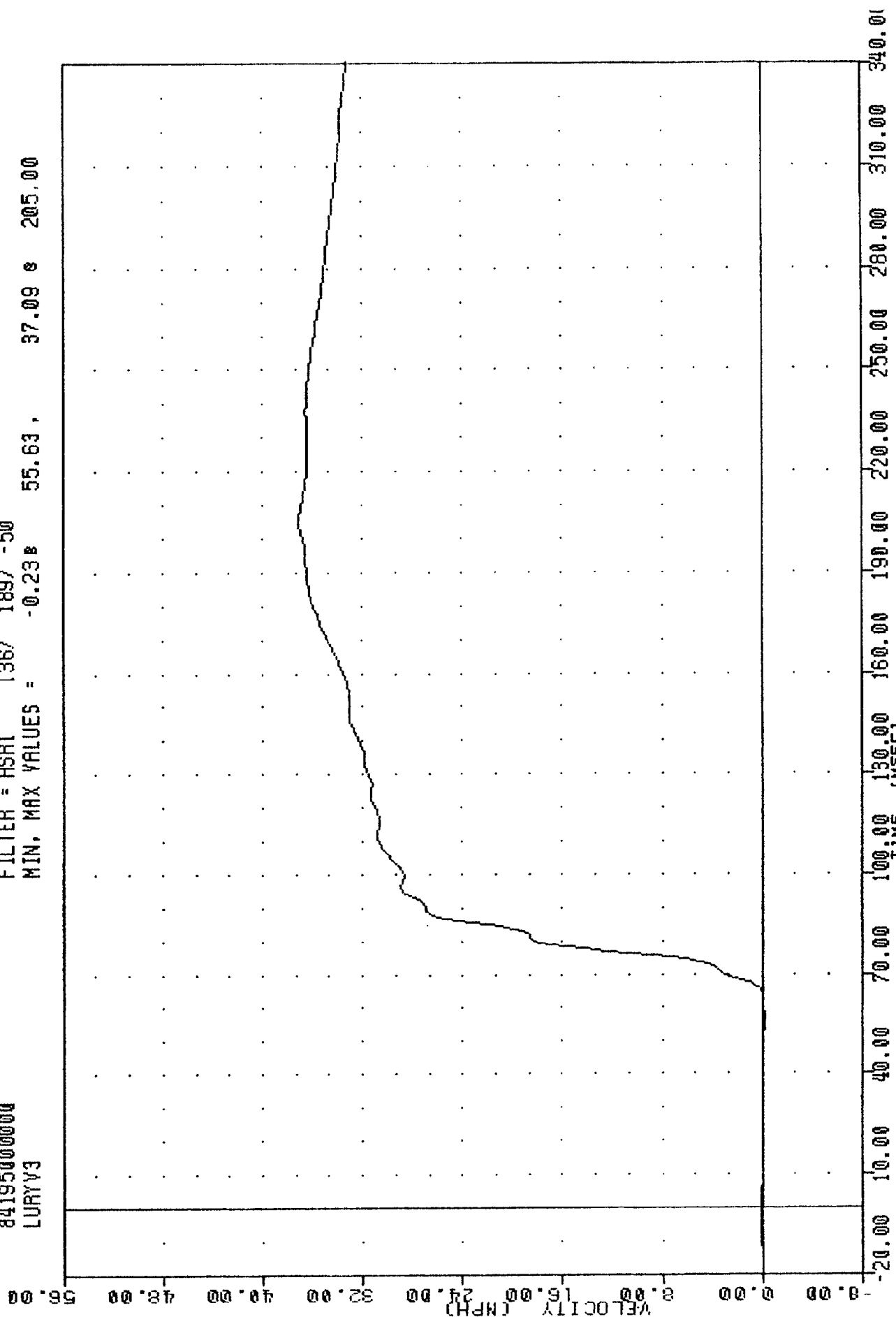


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LEFT UPPER RIB ACCELERATION Y AXIS

TRC , 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LURYV3

PLOT DATE 30-JUL-84 10:42:17

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.23 55.63 , 37.09 205.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURYG3

TRC 840713 30-JUL-84 10:33:42

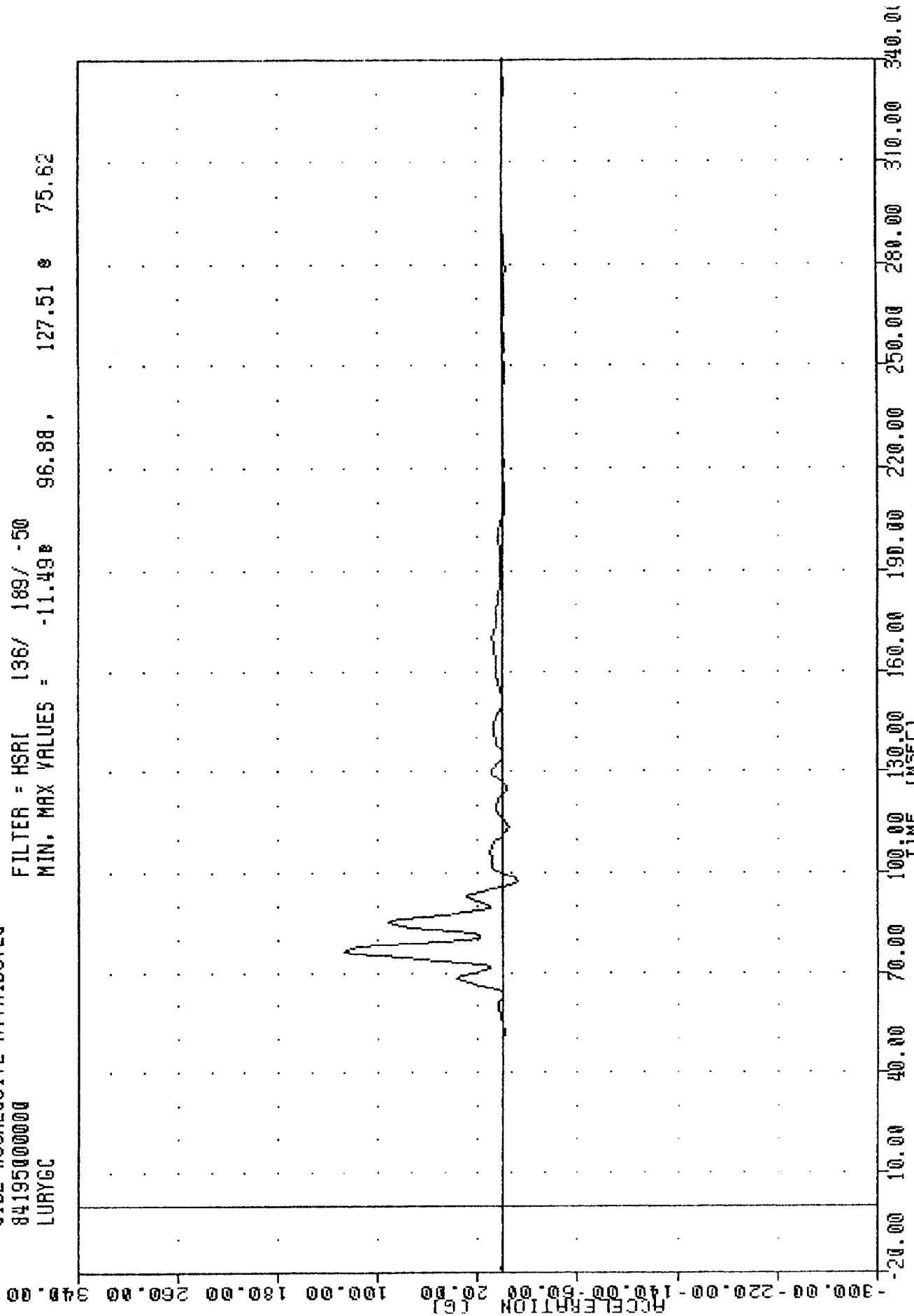
SIDE AGGRESSIVE ATTRIBUTES

84195000000

LURYGC

FILTER = HSRI 136/ 189/ -50

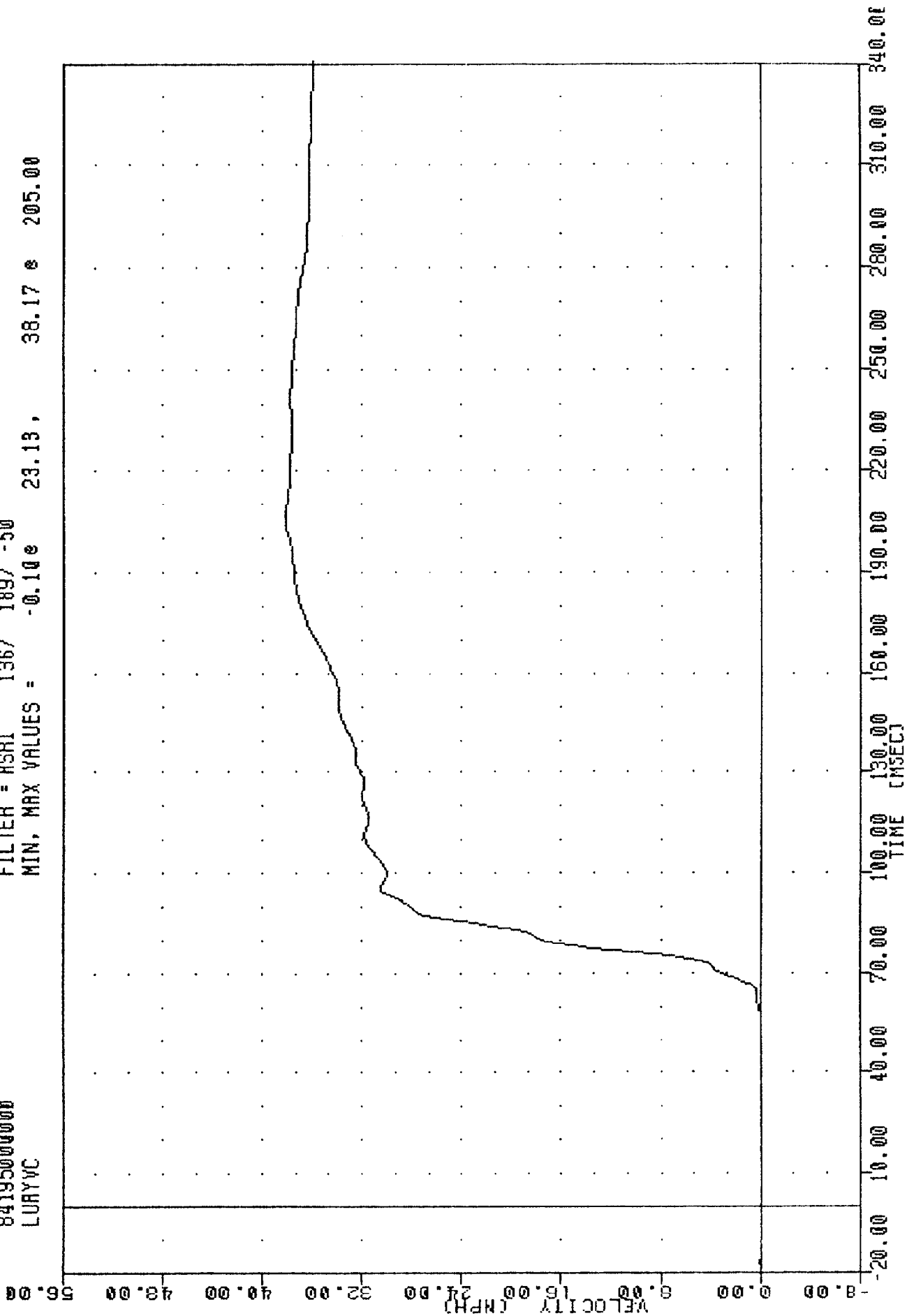
MIN. MAX VALUES = -11.49 96.88 127.51 75.62



TAC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LURYVC

PLOT DATE 30-JUL-84 10:42:17

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.10e 23.13, 38.17 e 205.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LURY6C

TRC

840713

PLOT DATE

30-JUL-84

10:33:42

SIDE AGGRESSIVE ATTRIBUTES

84195000000

FILTER = HSRI 136/ 189/ -50

LLRYG3

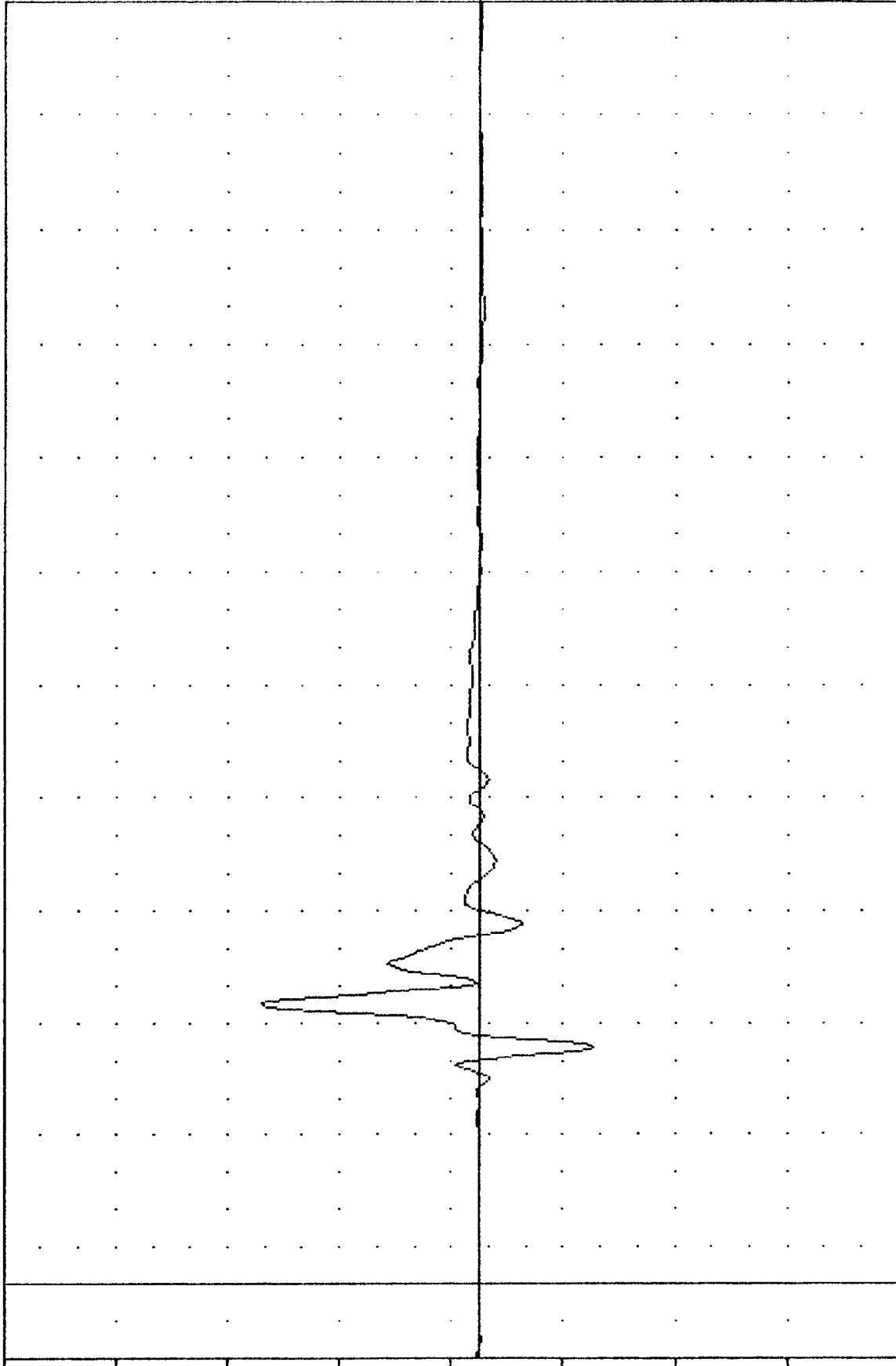
MIN. MAX VALUES = -82.05e

63.13,

156.97 e

74.37

ACCELERATION (G)



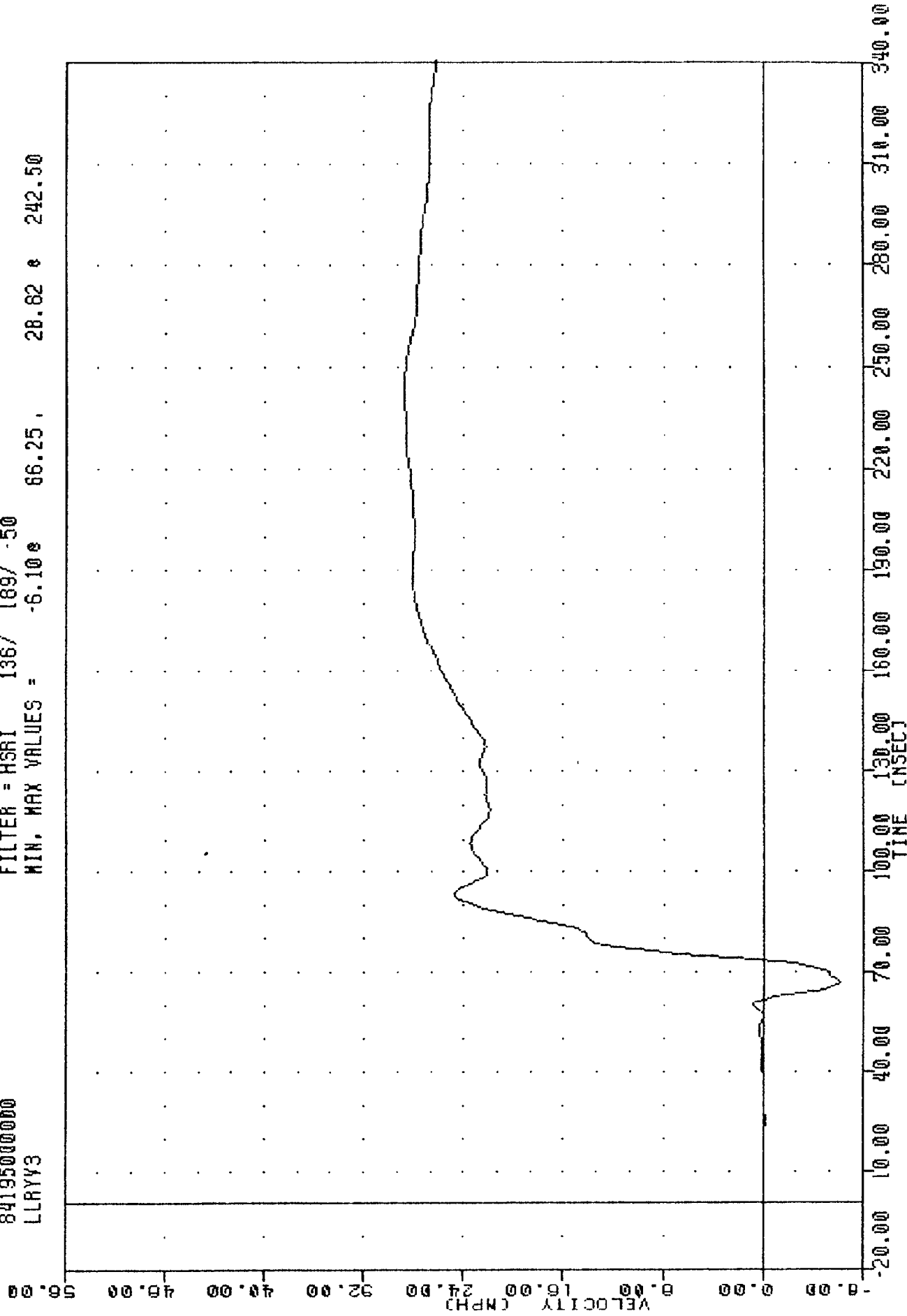
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

PASSENGER LEFT LOWER RIB ACCELERATION Y AXIS

TAC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LLRYV3

PLOT DATE 30-JUL-84 10:42:17

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -6.10s 66.25s 28.82s 242.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LLRYG3

TRC

840713

PLUT DATE

30-JUL-84

10:33:42

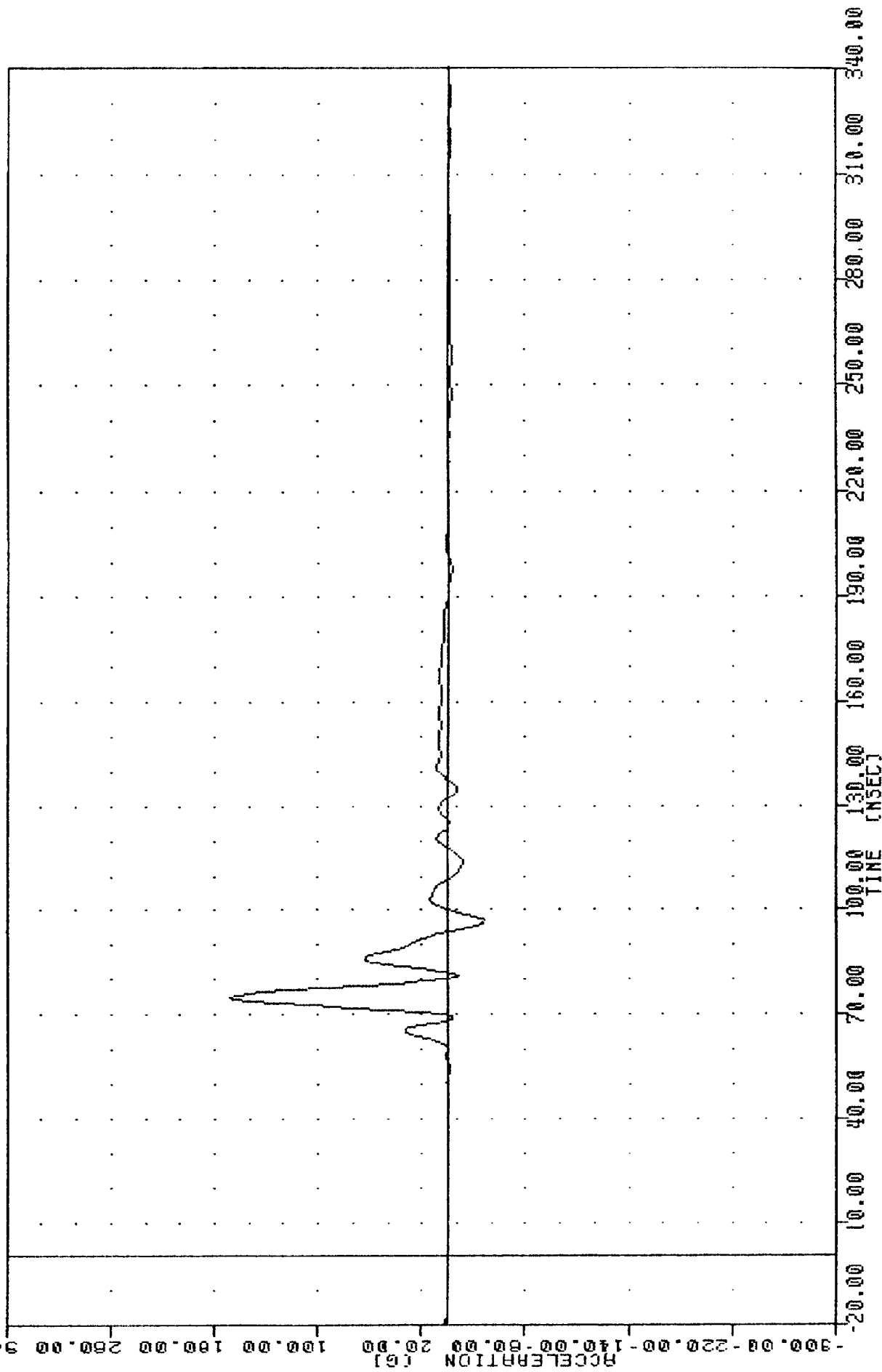
SIDE AGGRESSIVE ATTRIBUTES

FILTER = HSRI 136/ 189/ .50

MIN, MAX VALUES = -27.97 96.25 168.66 74.37

84135000000

LLRY6C



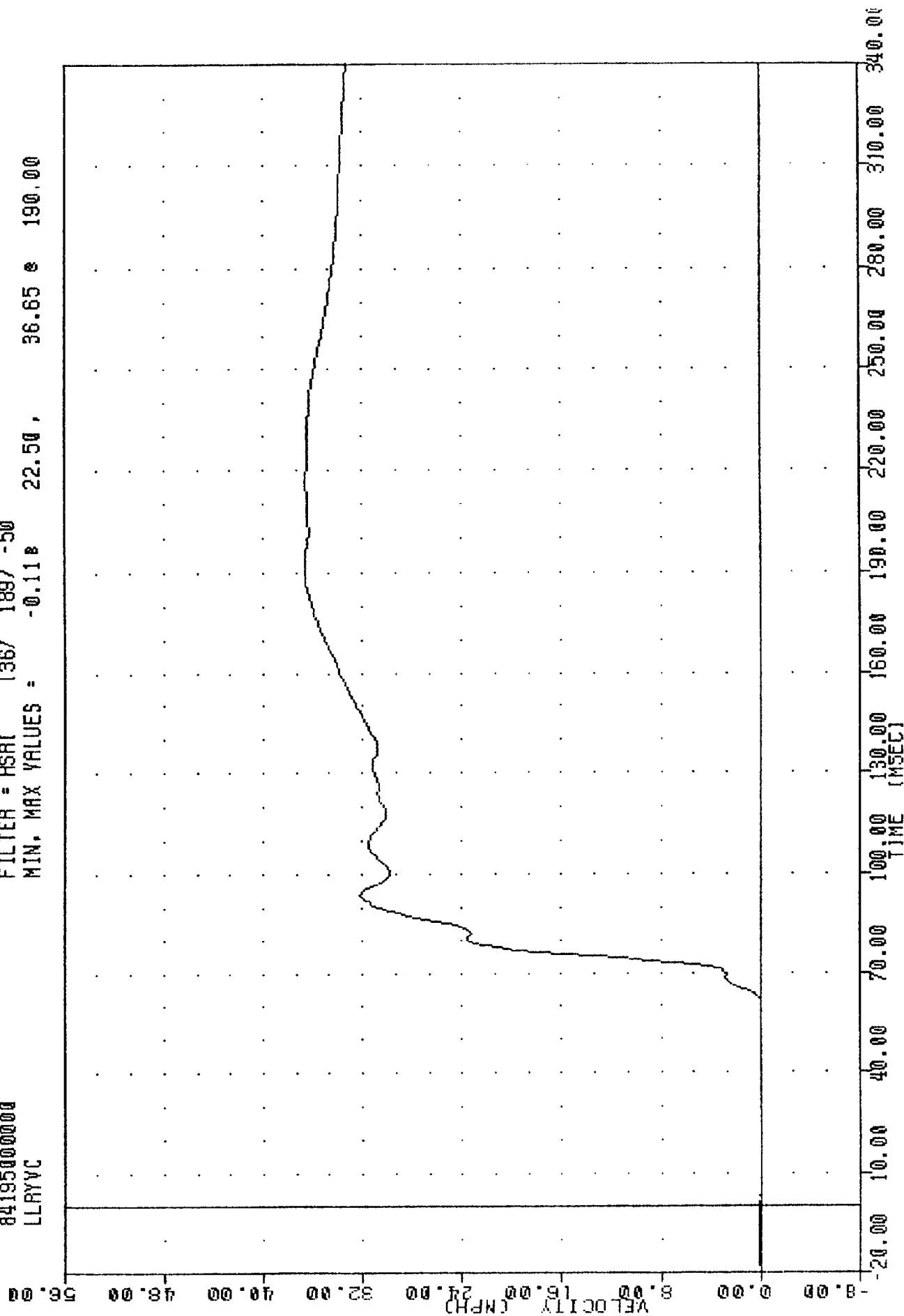
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LEFT LOWER RIB ACCELERATION -2 Y AXIS

TRC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LLRYVC

PLOT DATE 30-JUL-84 10:42:17

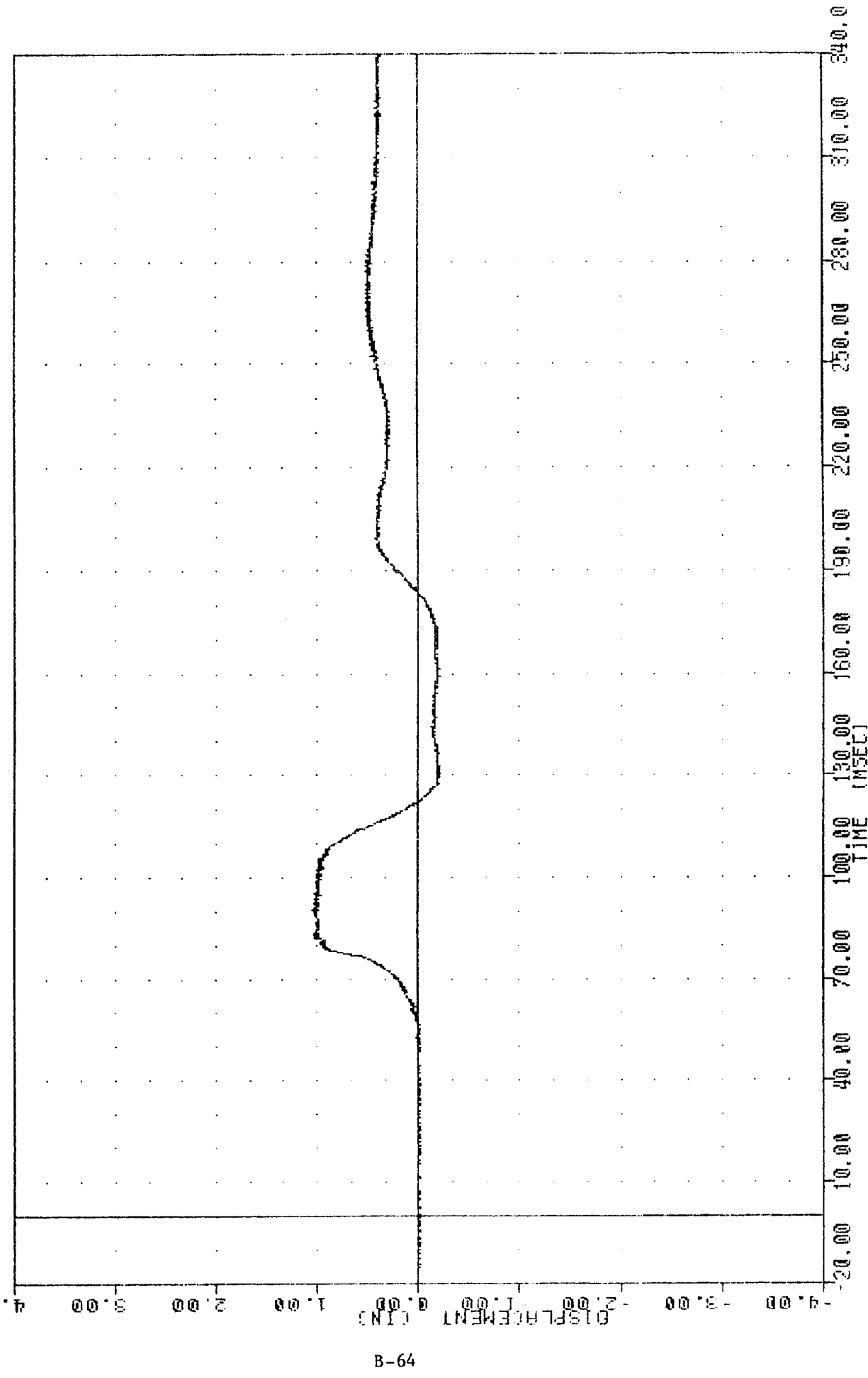
FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -0.118 22.50 , 36.65 @ 190.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LLRYVC

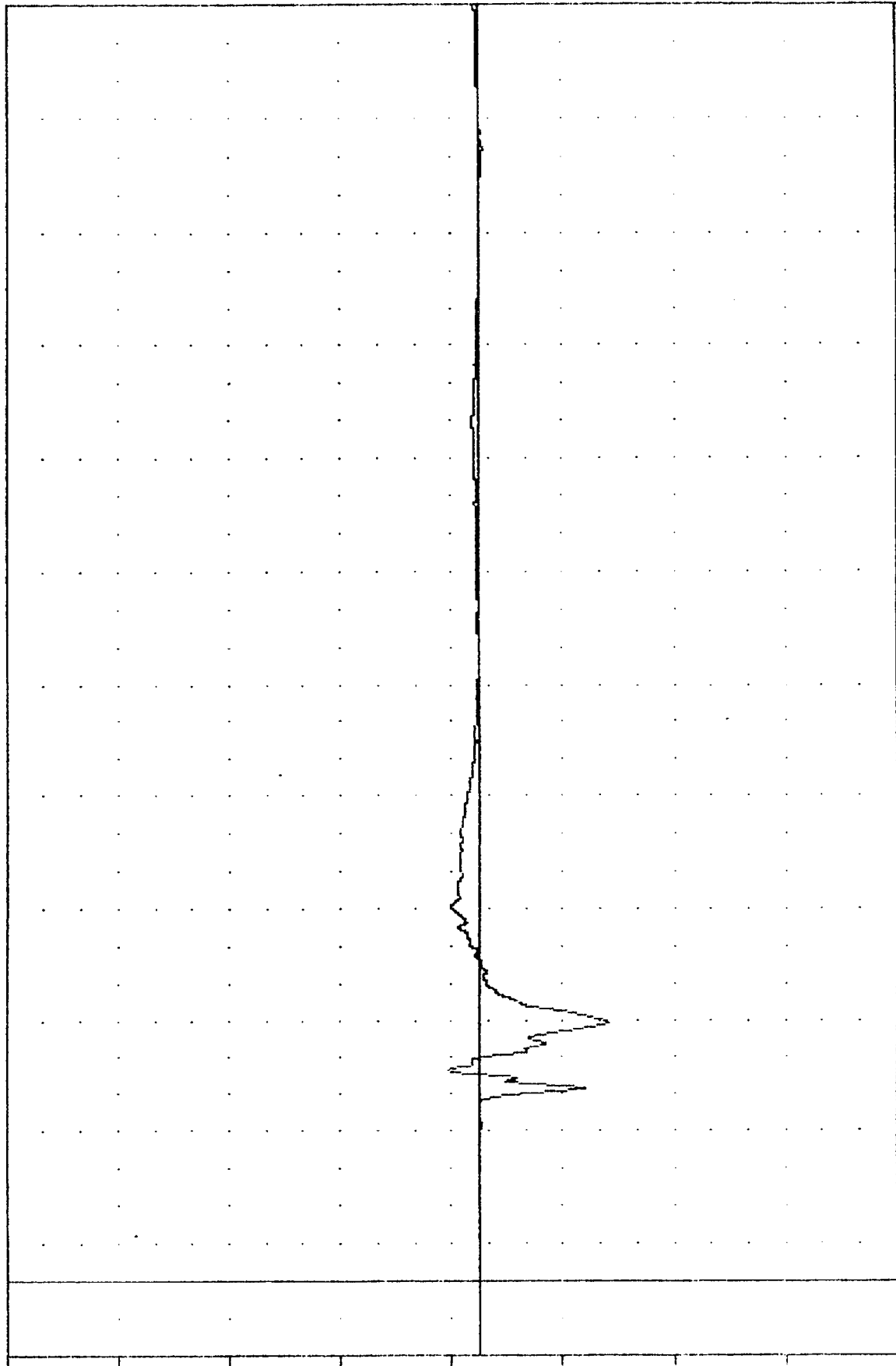
THE 040715 PLOT DATE 15 AUG 64 14:18:20
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LRTY03
 FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -0.218 129.63, 1.03 @ 90.50



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

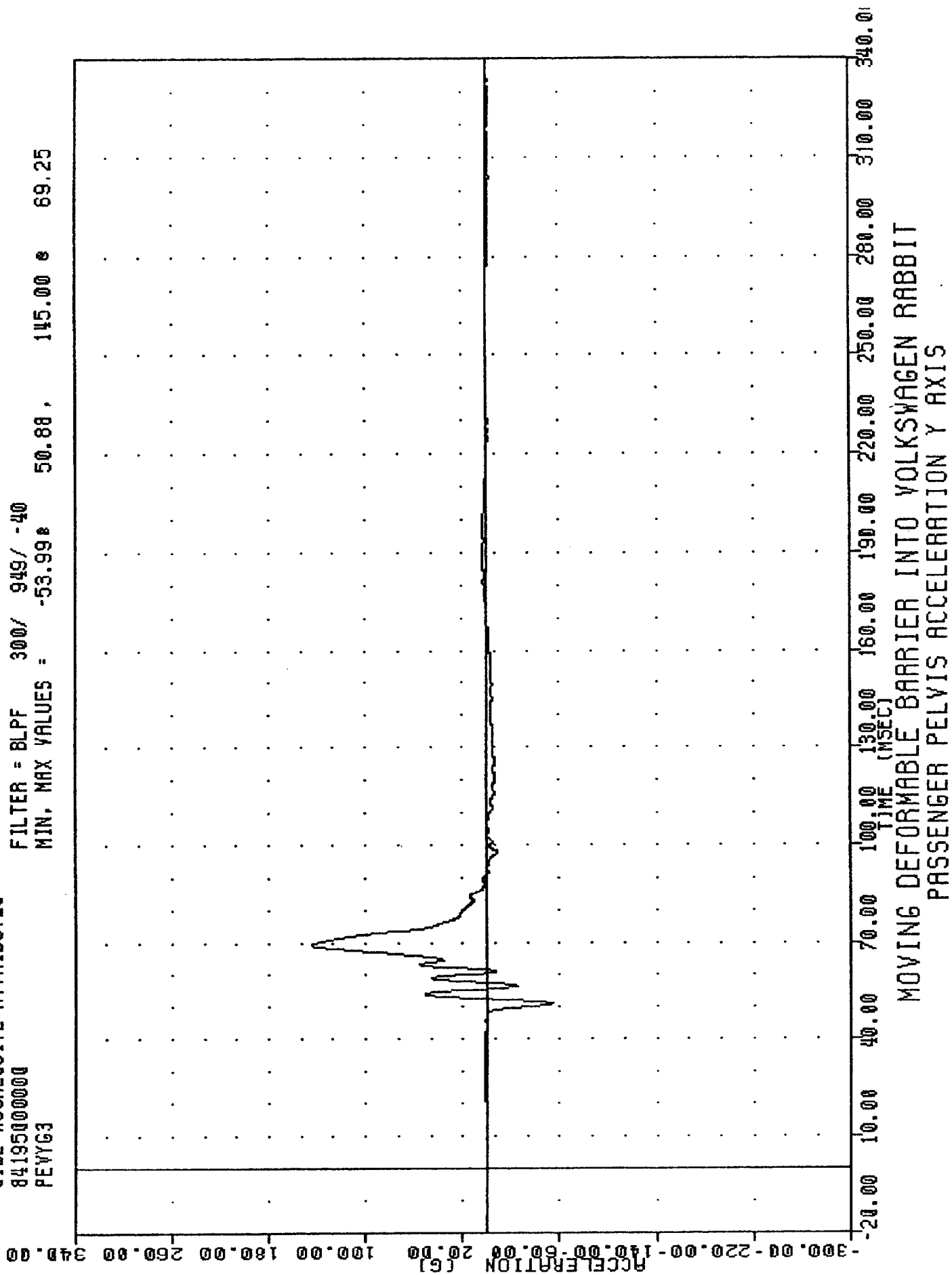
INC 040713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 PEVXG3
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -92.47 69.25 21.76 56.50
 PLOT DATE 13 AUG 84 14:18:20

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

TRC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 PEYGC3
 FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -53.99 50.88, 145.00 69.25
 PLOT DATE 14-MDG-84 12:15:24



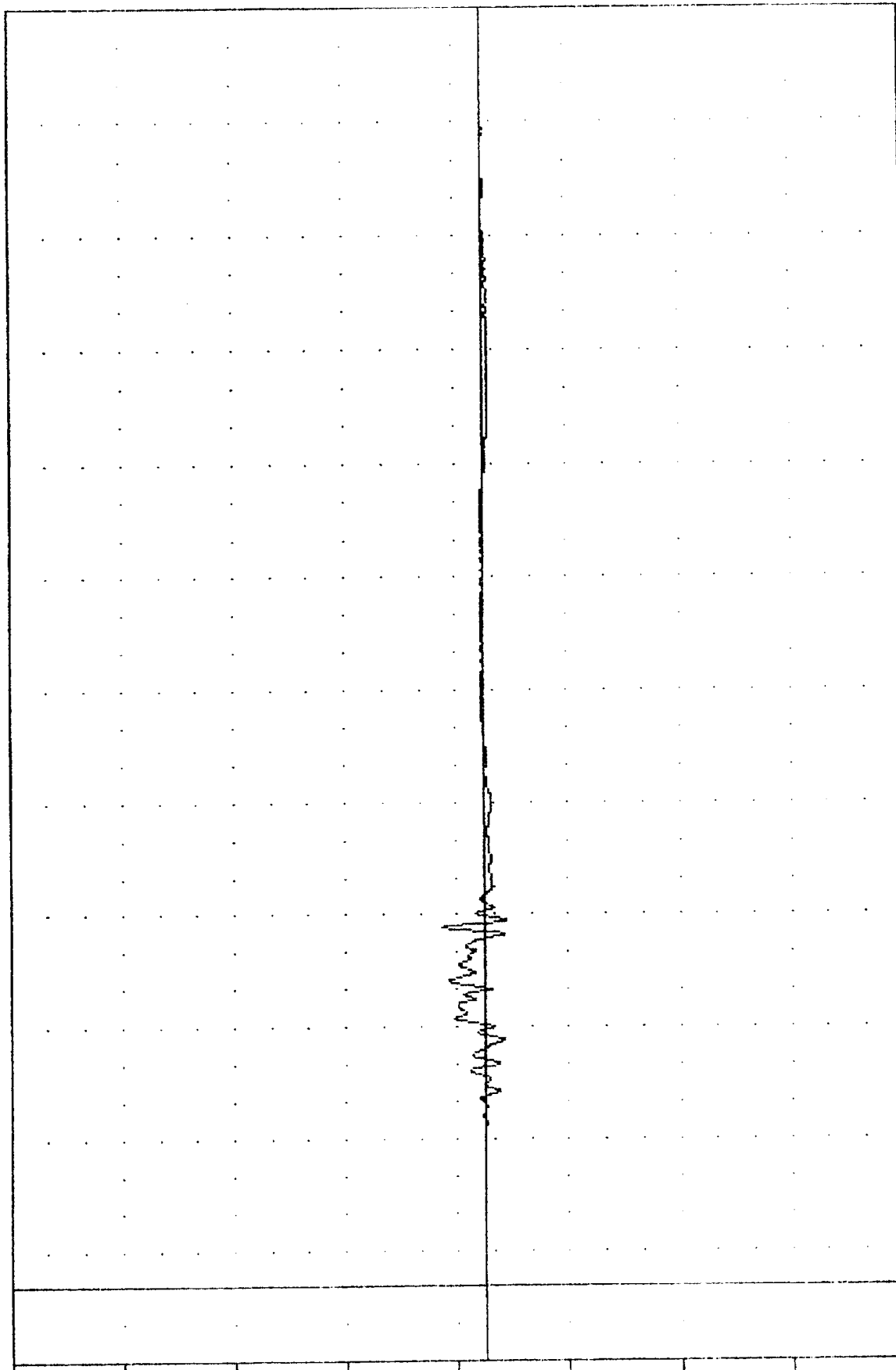
TAC 040713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 PEVZ63

PLAT DATE 13 NOV 84 14:13:20

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -15.13e 98.38, 30.47 * 96.50

ACCELERATION (G)



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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 PASSENGER PELVIS ACCELERATION Z AXIS

TRC
[REDACTED], 040713

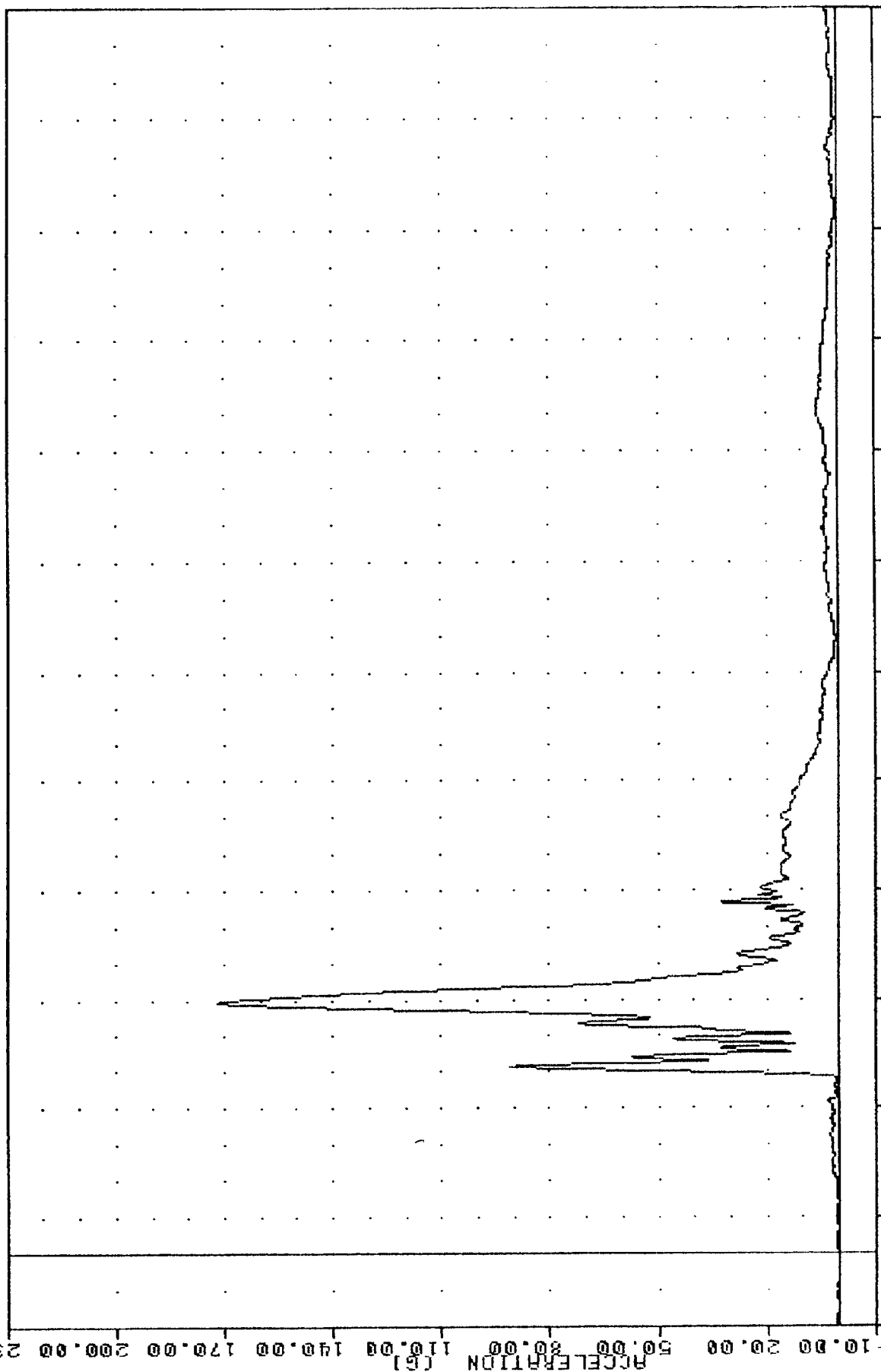
SIDE AGGRESSIVE ATTRIBUTES

0000005617B

Page 3

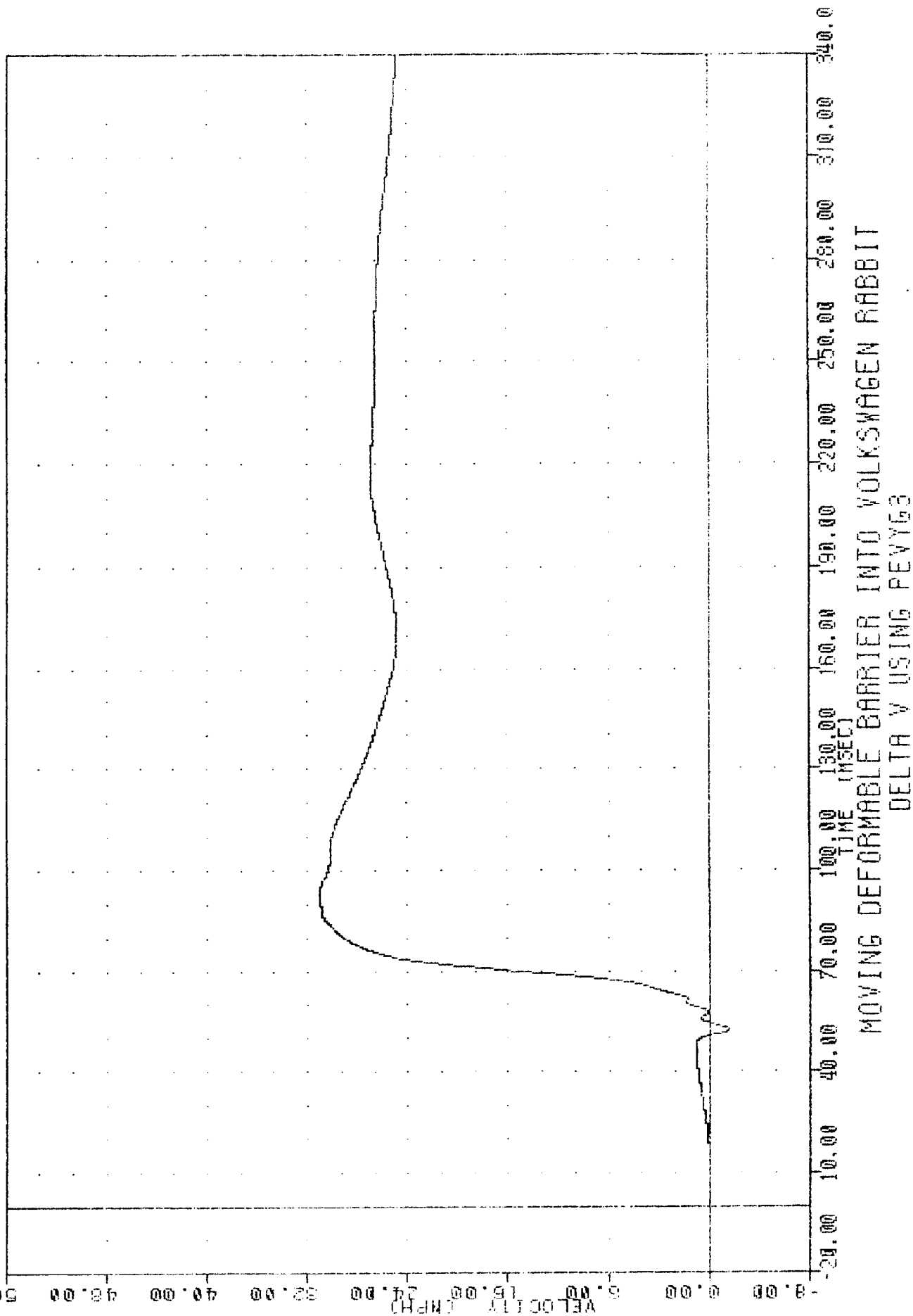
FILTER = BLPF 300/656 07-949-40

MIN.	MAX	VALUES	=	0.10	-7.38	171.98	69.25
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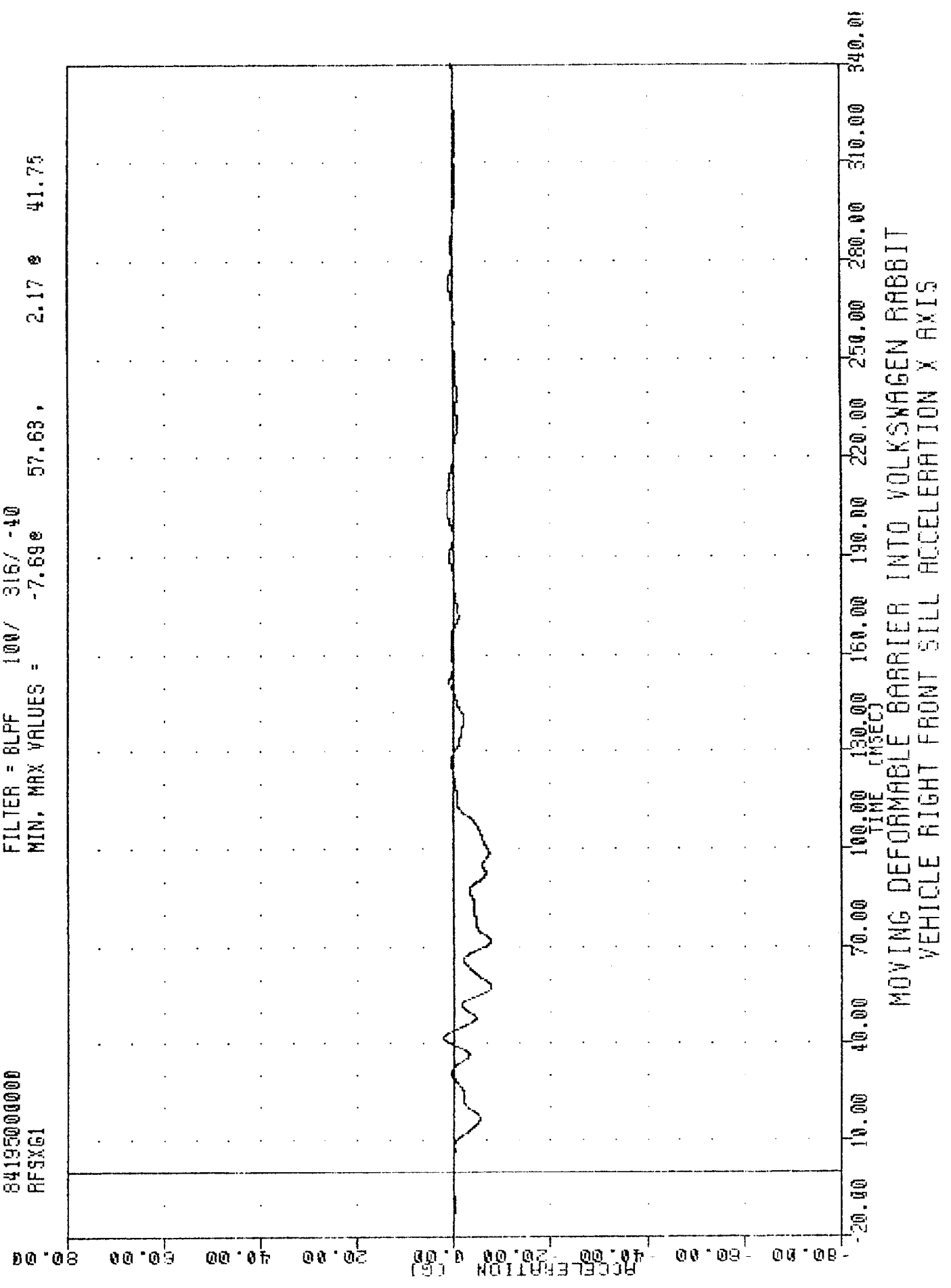


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
TIME (MSEC)
PASSENGER PELVIS RESULTANT

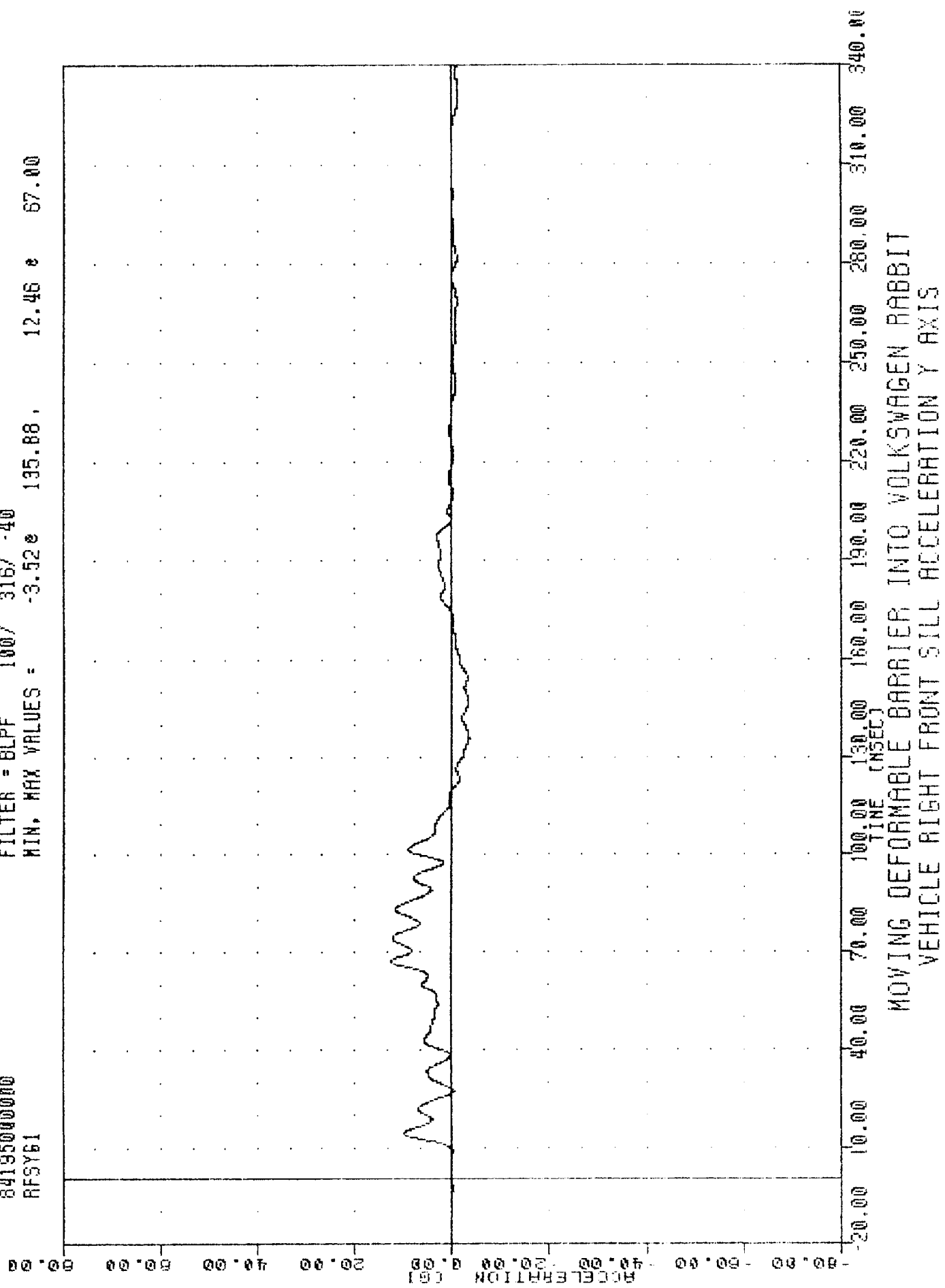
THE 0710 PLOT DATE 15-06-81 15:45
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 PEVYV3
 FILTER = 8LPF 300/ 949/ -40
 MIN. MAX VALUES = -1.628 52.50 30.99 90.75



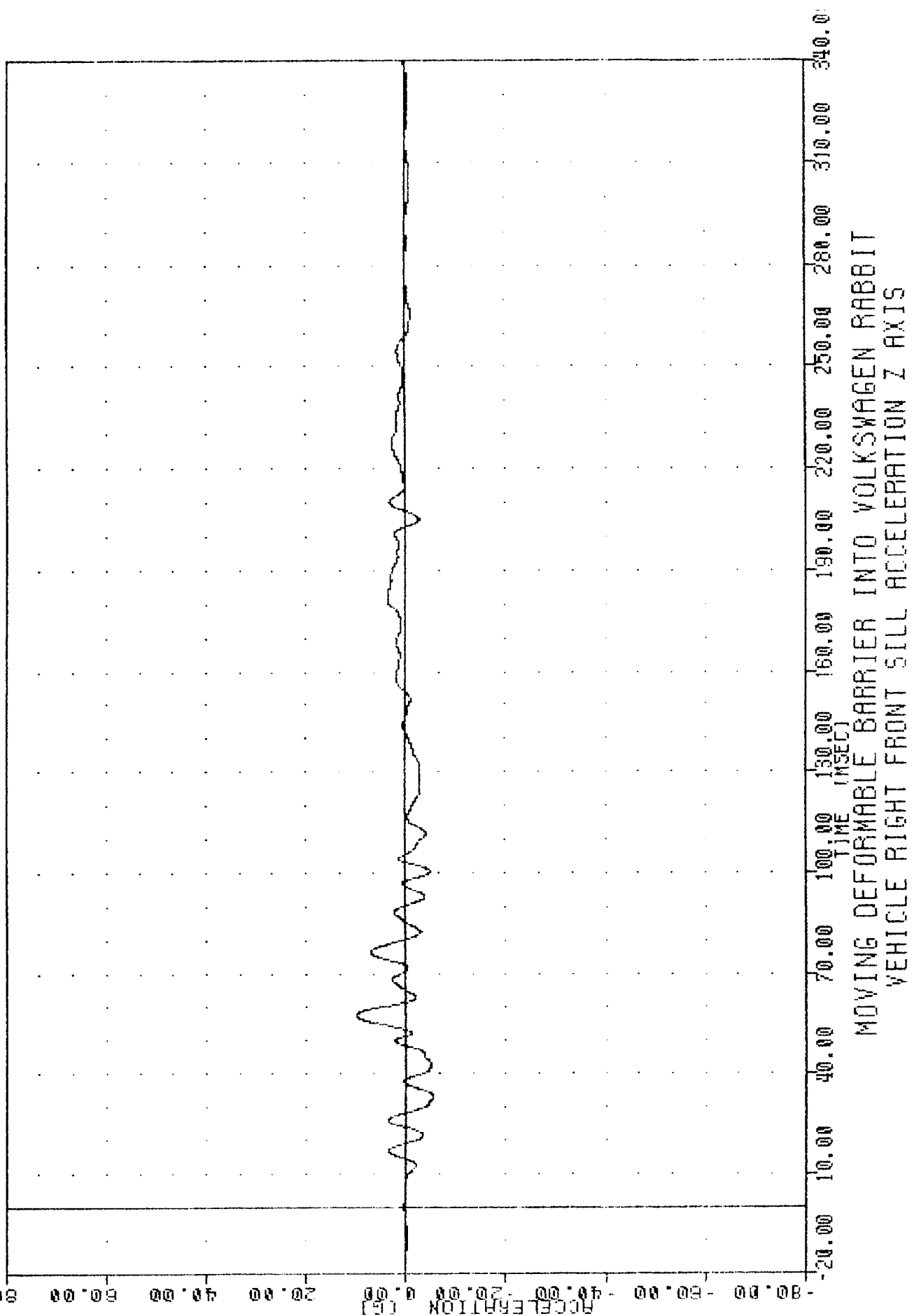
TAC 040713 PLOT DATE 15 NOV 84 14:18:26
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 RFSXG1
 FILTER = 8LFF 100/ 316/ -40
 MIN, MAX VALUES = -7.69e 57.63, 2.17 e 41.75



TRC 040713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 RFSY61
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -3.52e 135.88 , 12.46 e 67.00
 PLT DATE 13 NOV 84 14:18:20



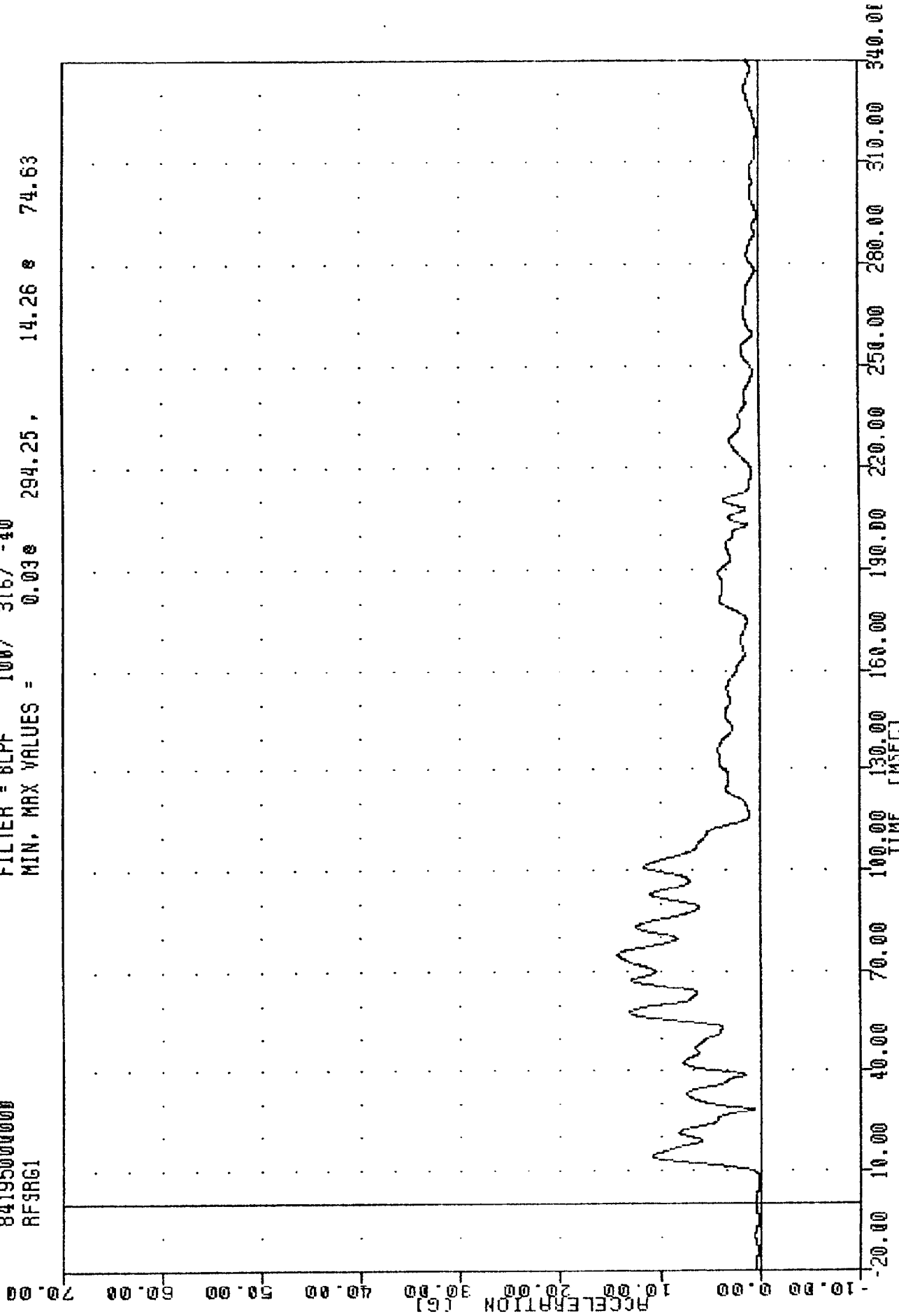
THE 0713 PLOT DATE 10-06-84 14:18:20
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 AFSZG1
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -5.45e 32.75, 10.03 e 57.63



TAC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 RF3RG1

PLOT DATE 30-JUL-84 17:17:16

FILTER = 8LPF 100/ 316/ -40
 MIN. MAX VALUES = 0.03 294.25, 14.26 74.63



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT FRONT SILL RESULTANT

TAC 090713 13-06-84 14:15:45

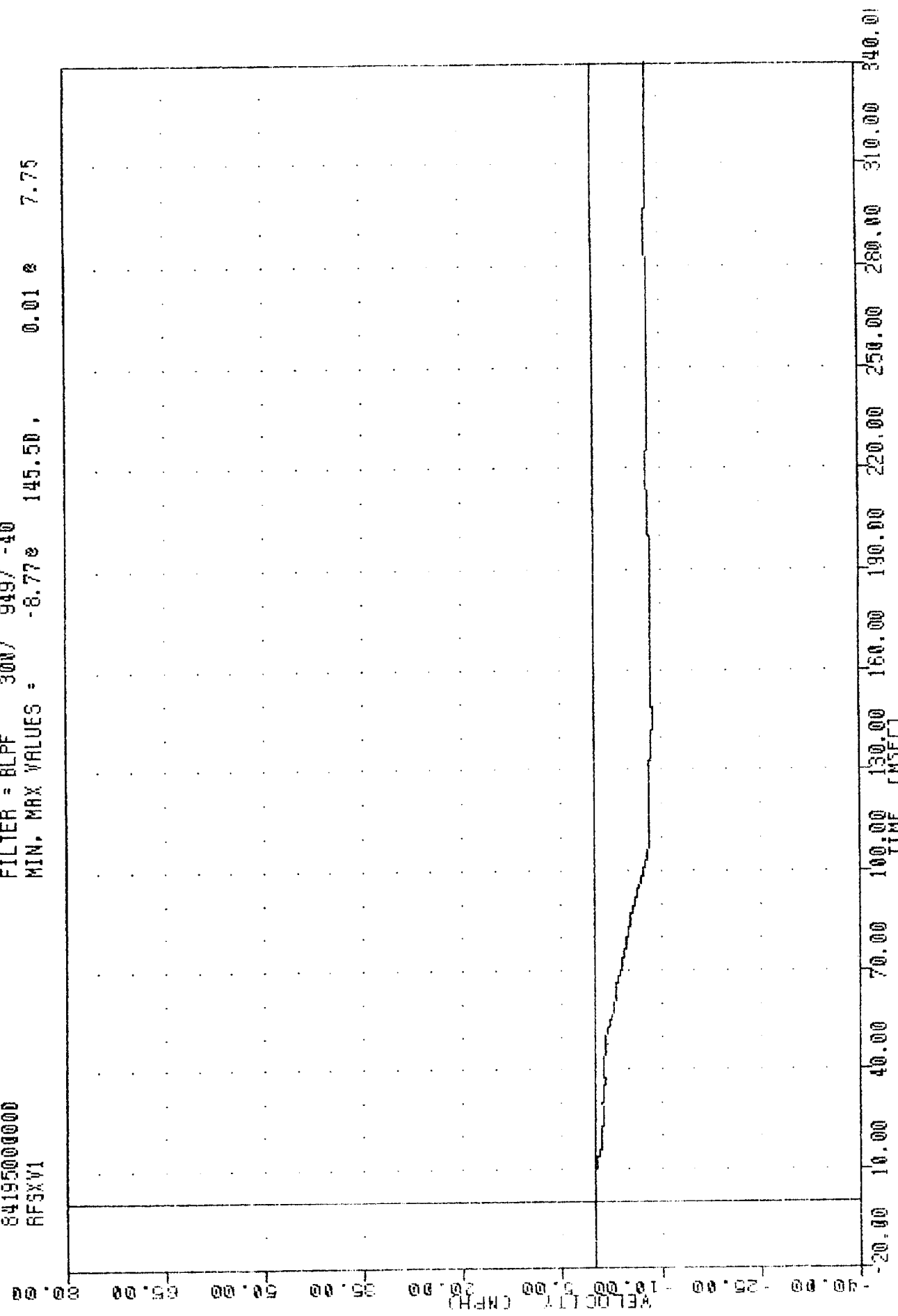
SIDE AGGRESSIVE ATTRIBUTES

84195000000

AFSXV1

FILTER = BLPF 300/ 949/ -40

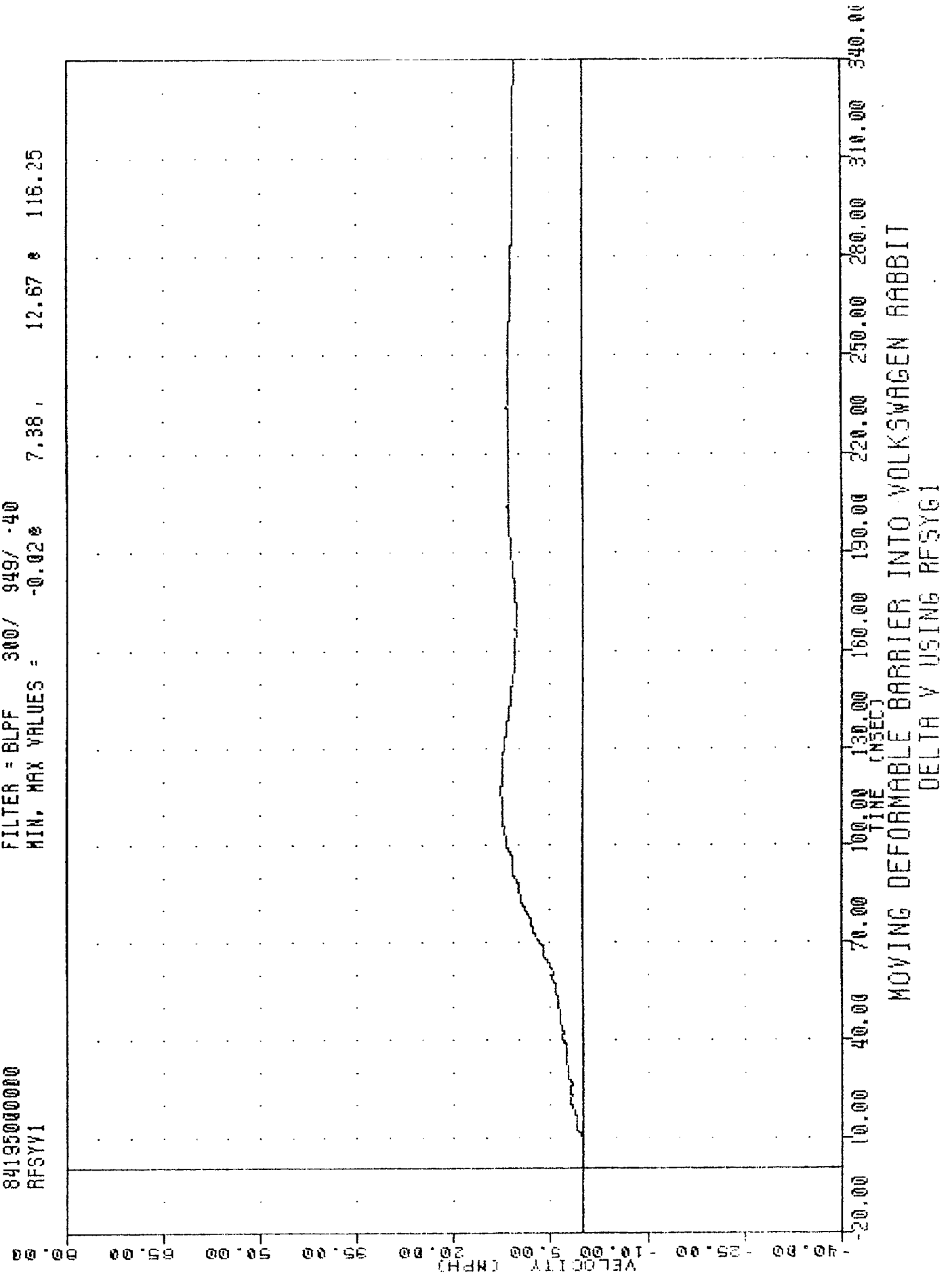
MIN. MAX VALUES = -8.77e 145.50 0.01 e 7.75



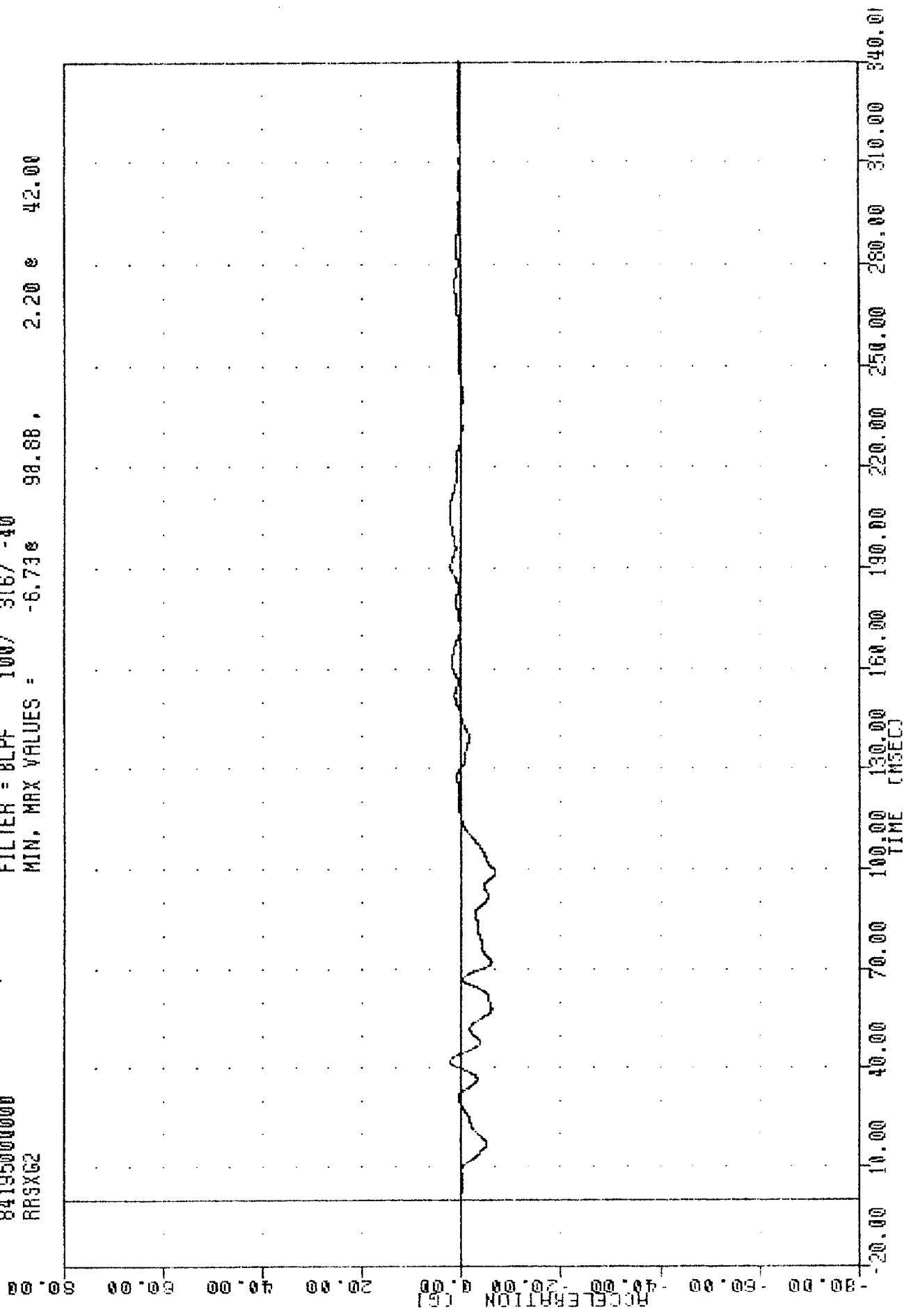
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING AFSXG1

TRC 040713, 040713
 SIDE AGGRESSIVE ATTRIBUTES
 841350000000
 RFSYV1
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.02 7.38 12.67 116.25
 PLOT DATE 13-06-84 14:13:43



THE 040715 PLOT DATE 15-NOV-84 14:18:20
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 RRSXG2
 FILTER = 8LPF 100/ 316/ -40
 MIN. MAX VALUES = -6.73 98.88 2.20 42.00



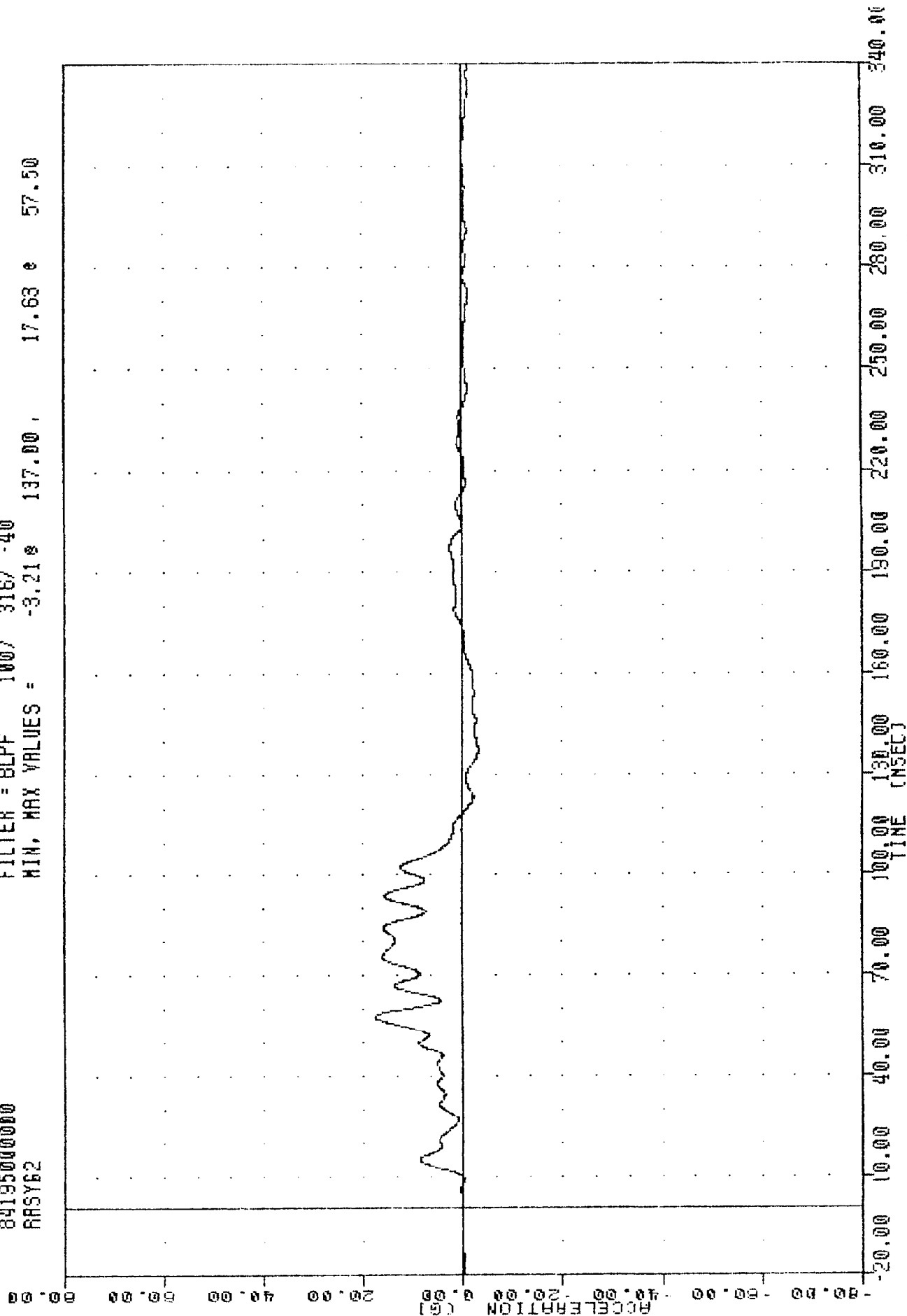
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT REAR SILL ACCELERATION X AXIS.

TAC 040713
 SIDE AGGRESSIVE ATTRIBUTES
 841950000000
 RRSY62

PLG DATE 13-06-81 14:03:20

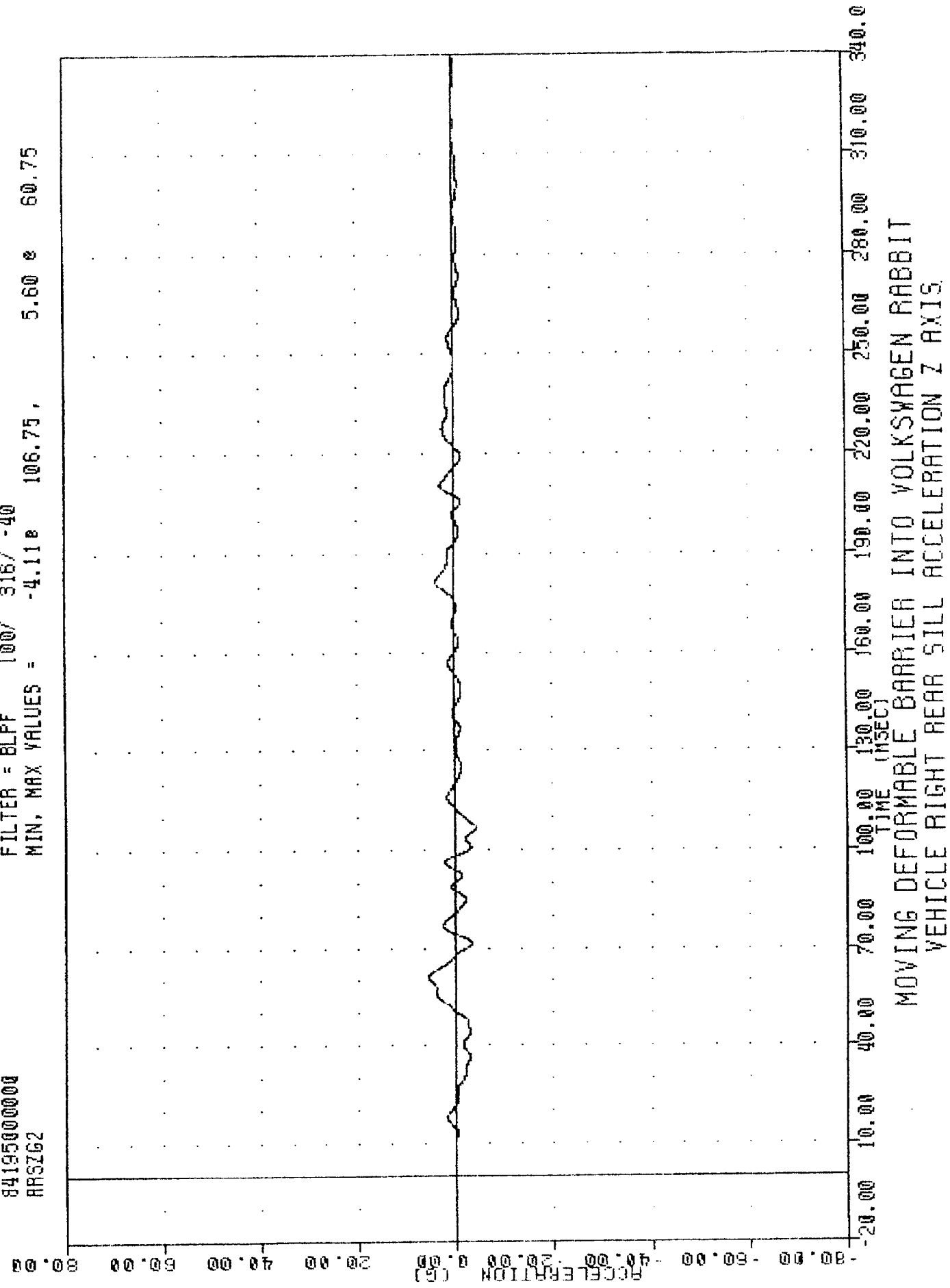
FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -3.21g 137.00 , 17.63 g 57.50



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

TAG 00710 PLATE 1000G-8 10008:20
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 RRSZG2
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -4.11e 106.75, 5.60 e 60.75

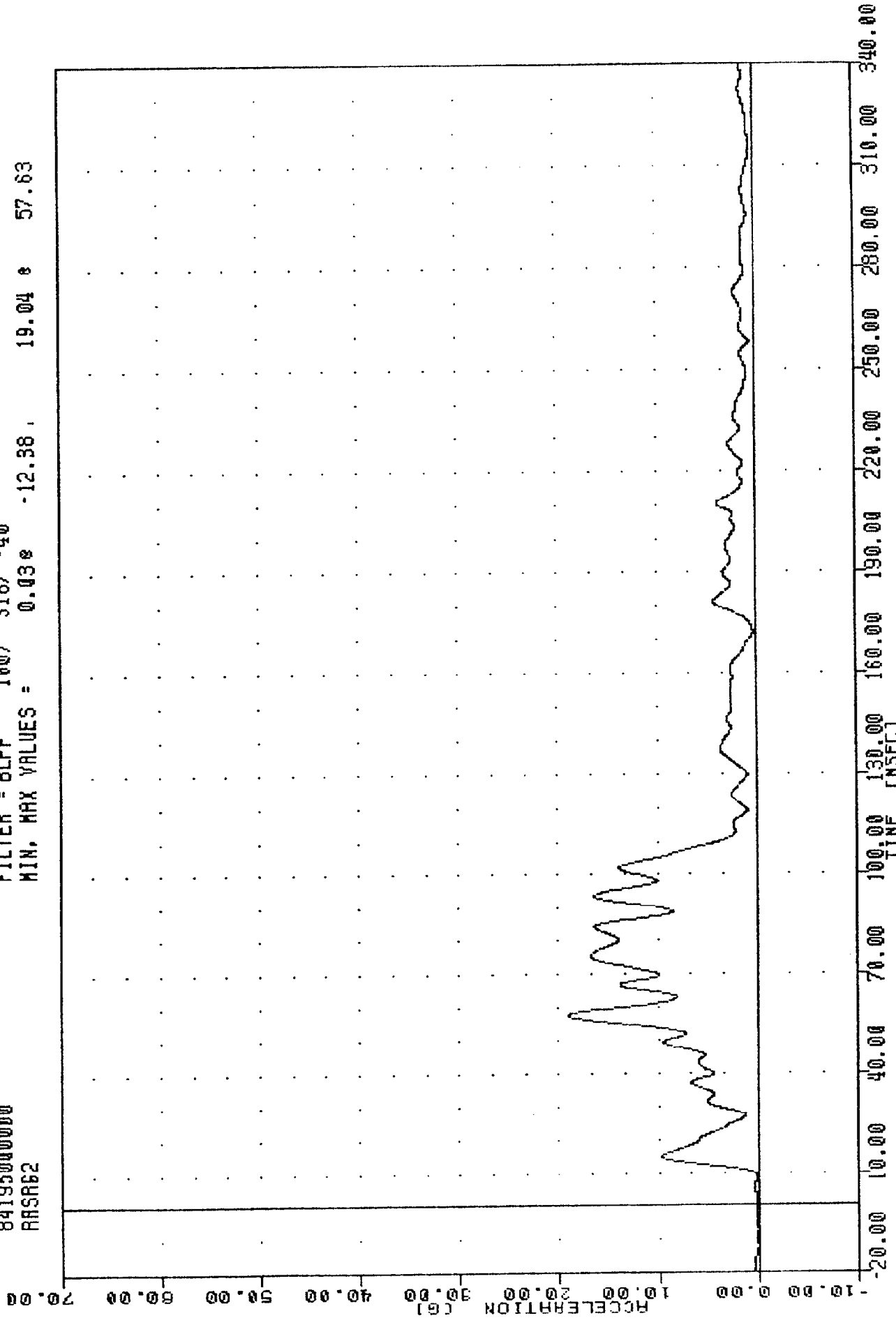


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT REAR SILL ACCELERATION Z AXIS

TAC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 RASR62

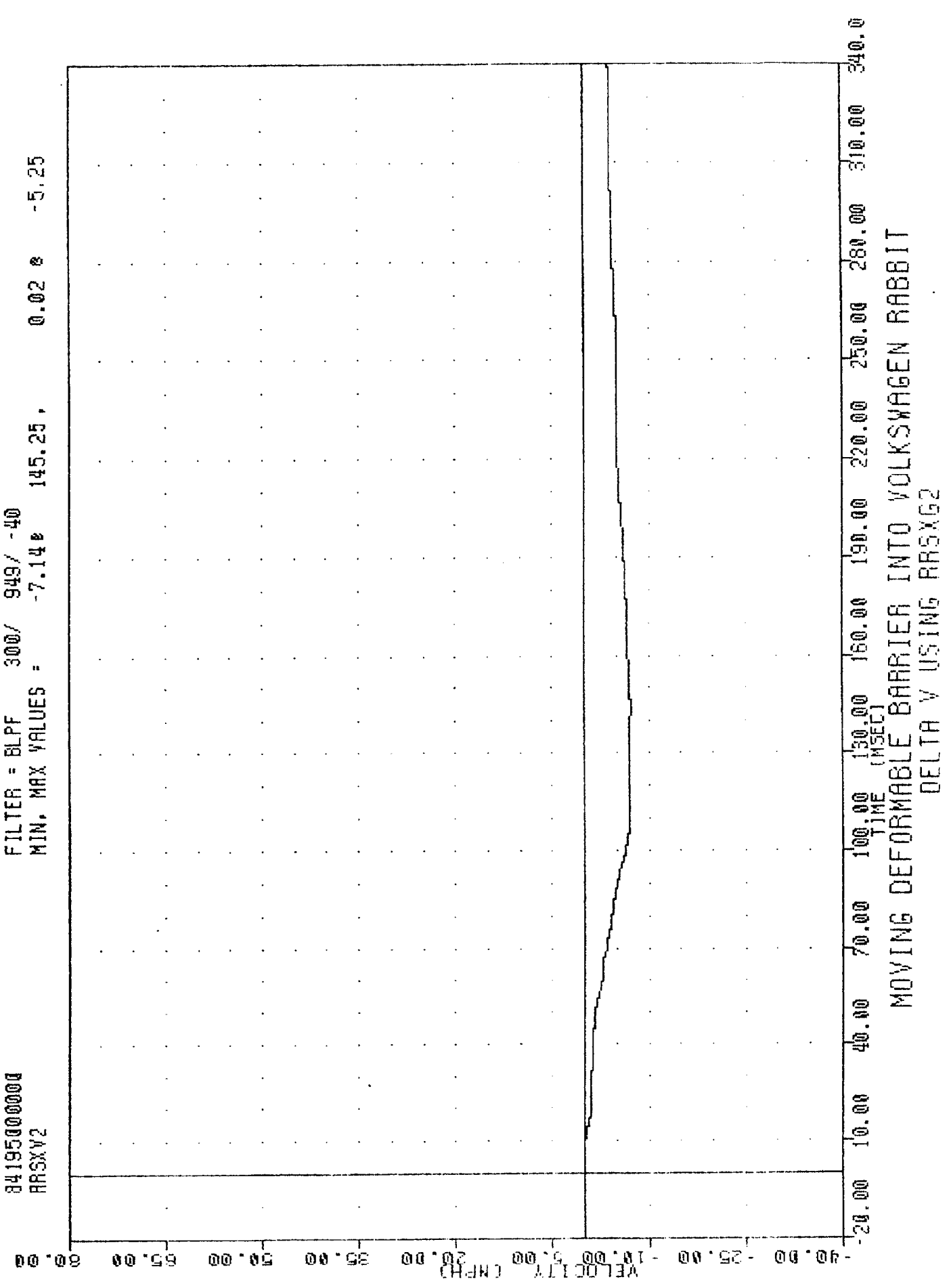
PLOT DATE 30-JUL-84 11:17:16

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = 0.03e -12.38 , 19.04 e 57.63



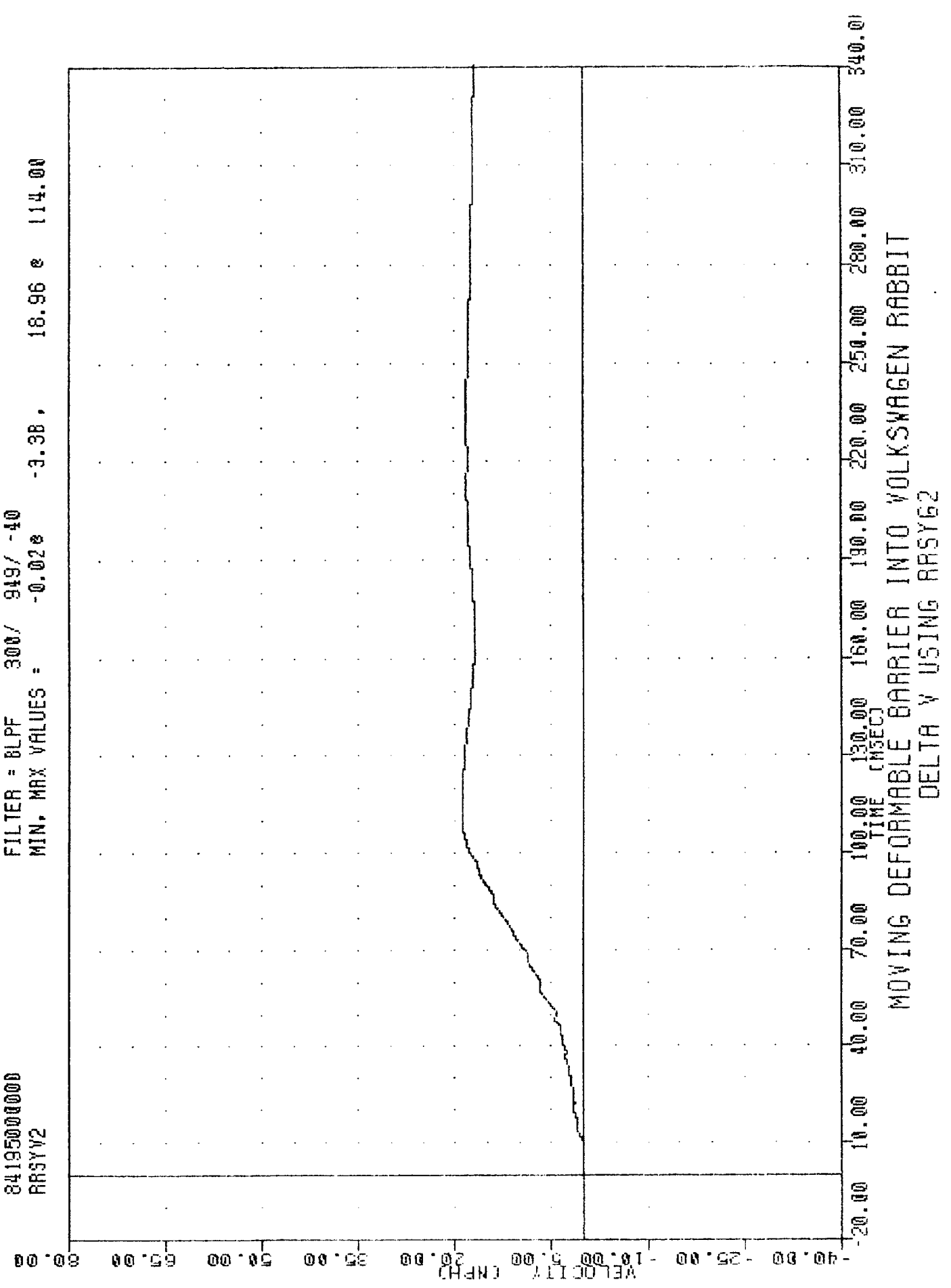
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE RIGHT REAR SILL RESULTANT

INC 040715
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 RRSXY2
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -7.14e 145.25, 0.02 e -5.25
 PLOT DATE 15 AUG 84 14:15:45

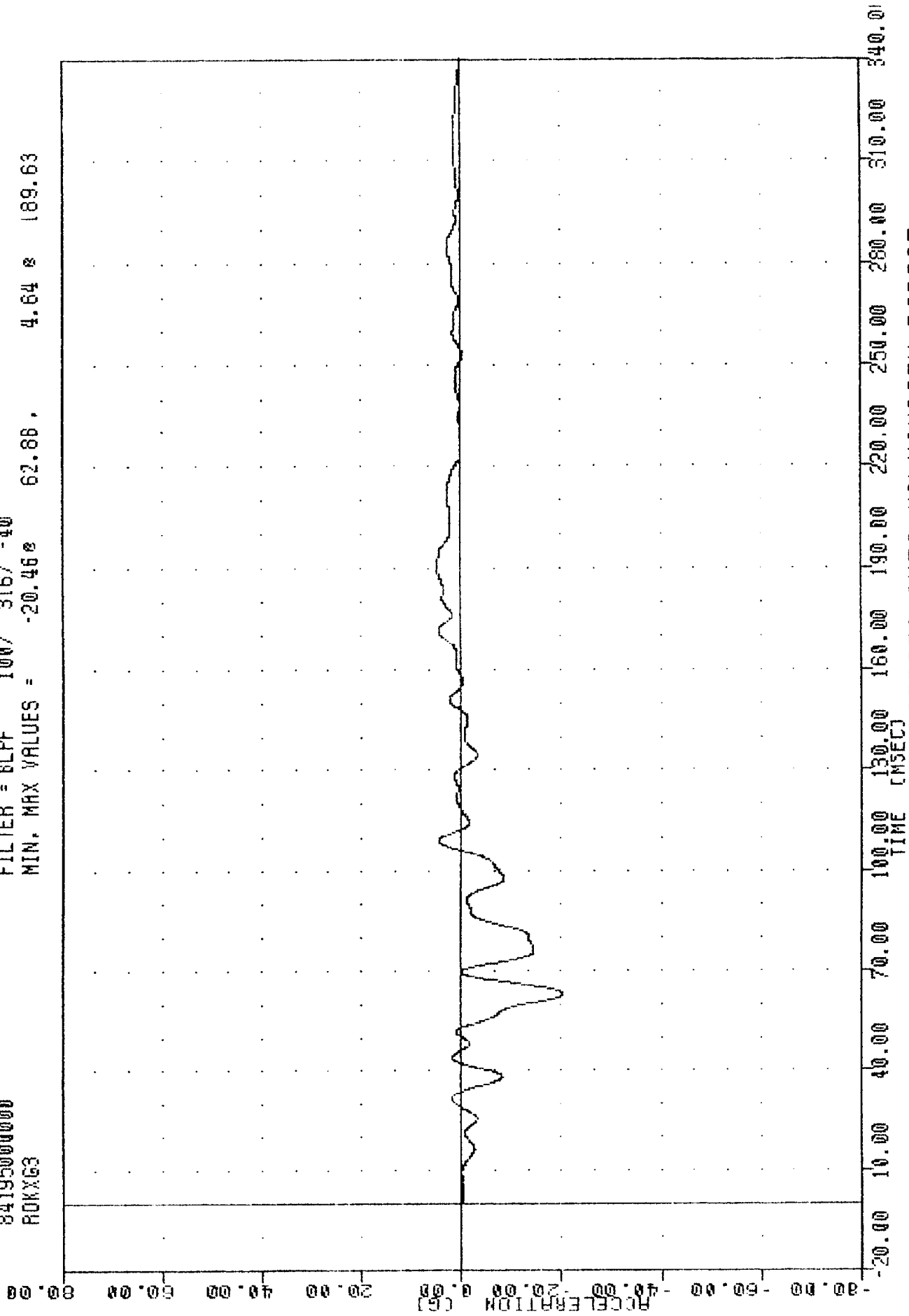


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING RRSXG2

TMC 040715 PLOT DATE 15 AUG 84 14:13:45
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 RRSYV2
 FILTER = BLPF 300/ 919/ -40
 MIN. MAX VALUES = -0.028 -3.38. 18.96 114.00

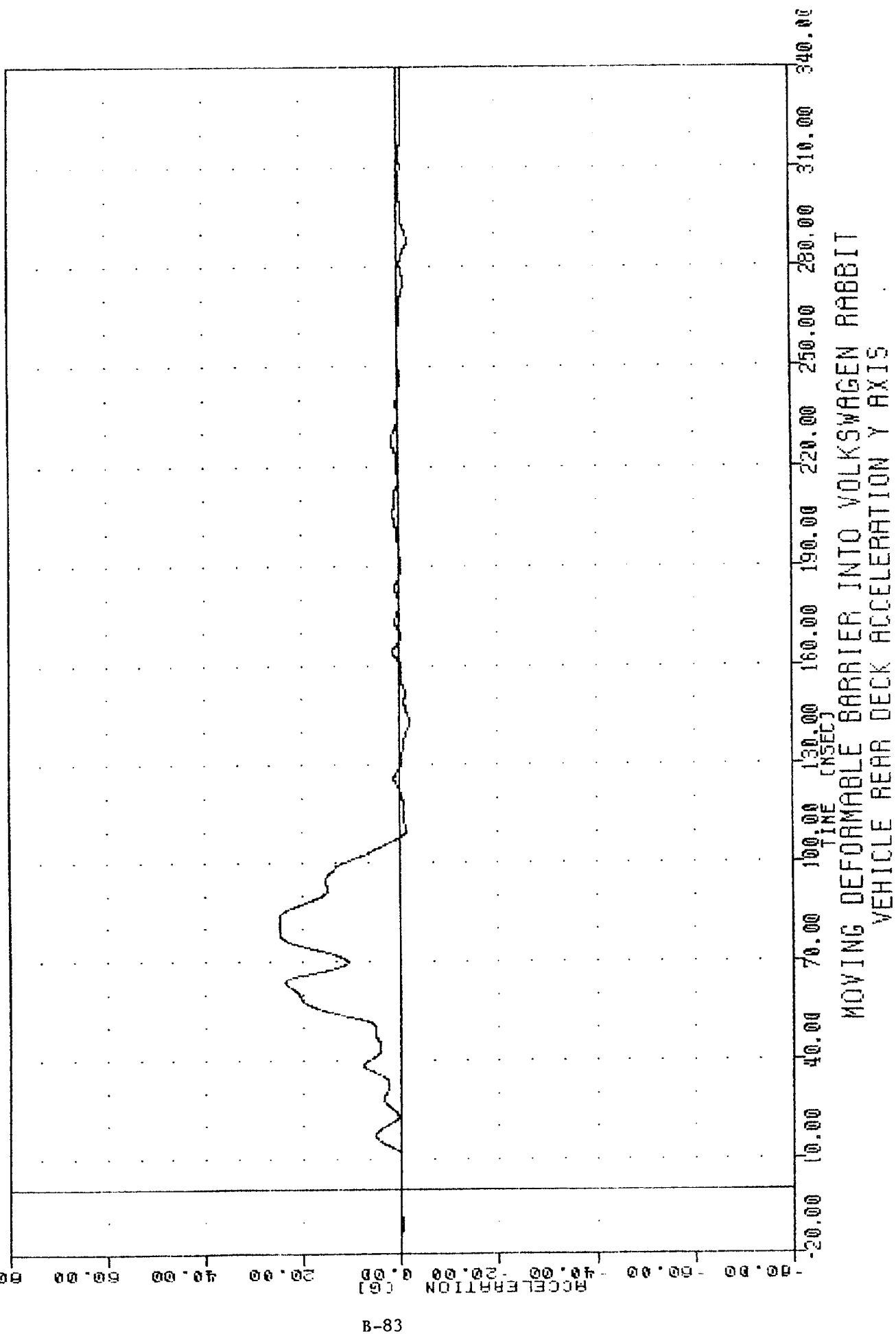


THE 040713 PLOT DATE 13-NOV-84 14:18:20
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 ROKXG3
 FILTER = 8LPF 100/ 316/ -40
 MIN. MAX VALUES = -20.468 62.88 4.64 s 189.63



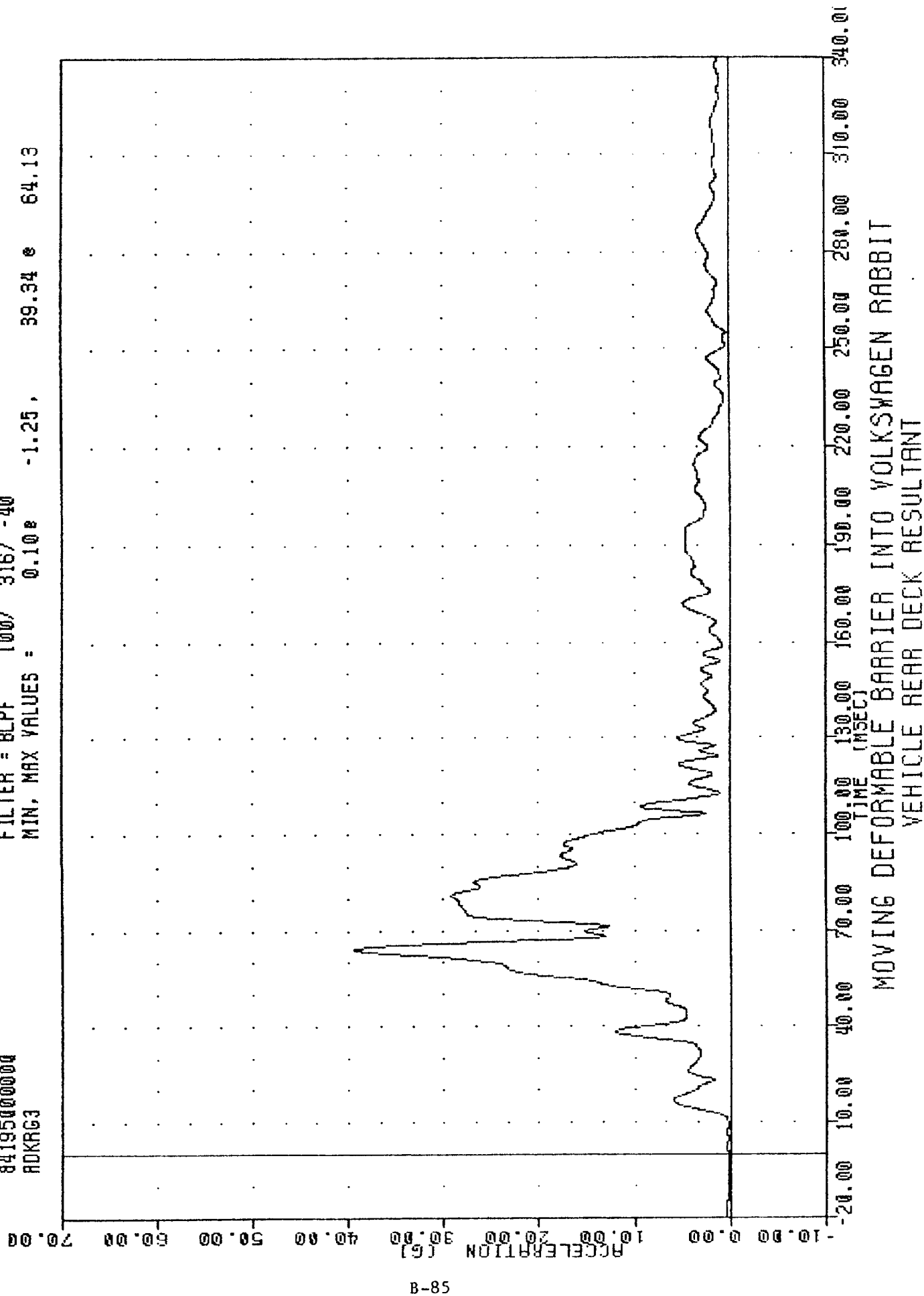
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE REAR DECK ACCELERATION X AXIS

TRC 840713, 13-008-84 14-10:20
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 ROKY63
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -2.13e 142.63, 24.80 e 79.38



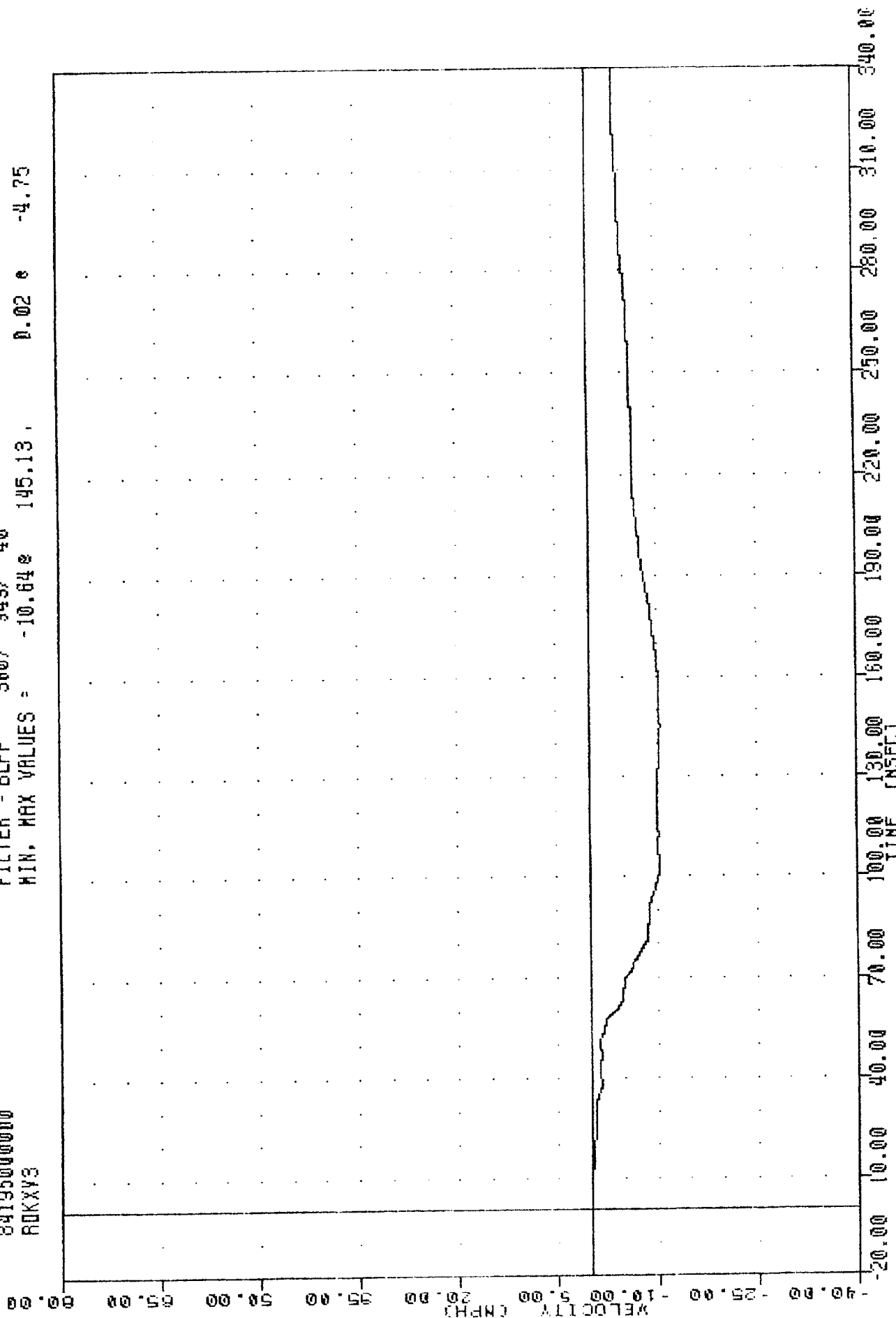
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE REAR DECK ACCELERATION Y AXIS

TRC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 ADKRG3
 PLOT DATE 30-JUL-84 11:17:16
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = 0.10e -1.25, 39.34 e 64.13



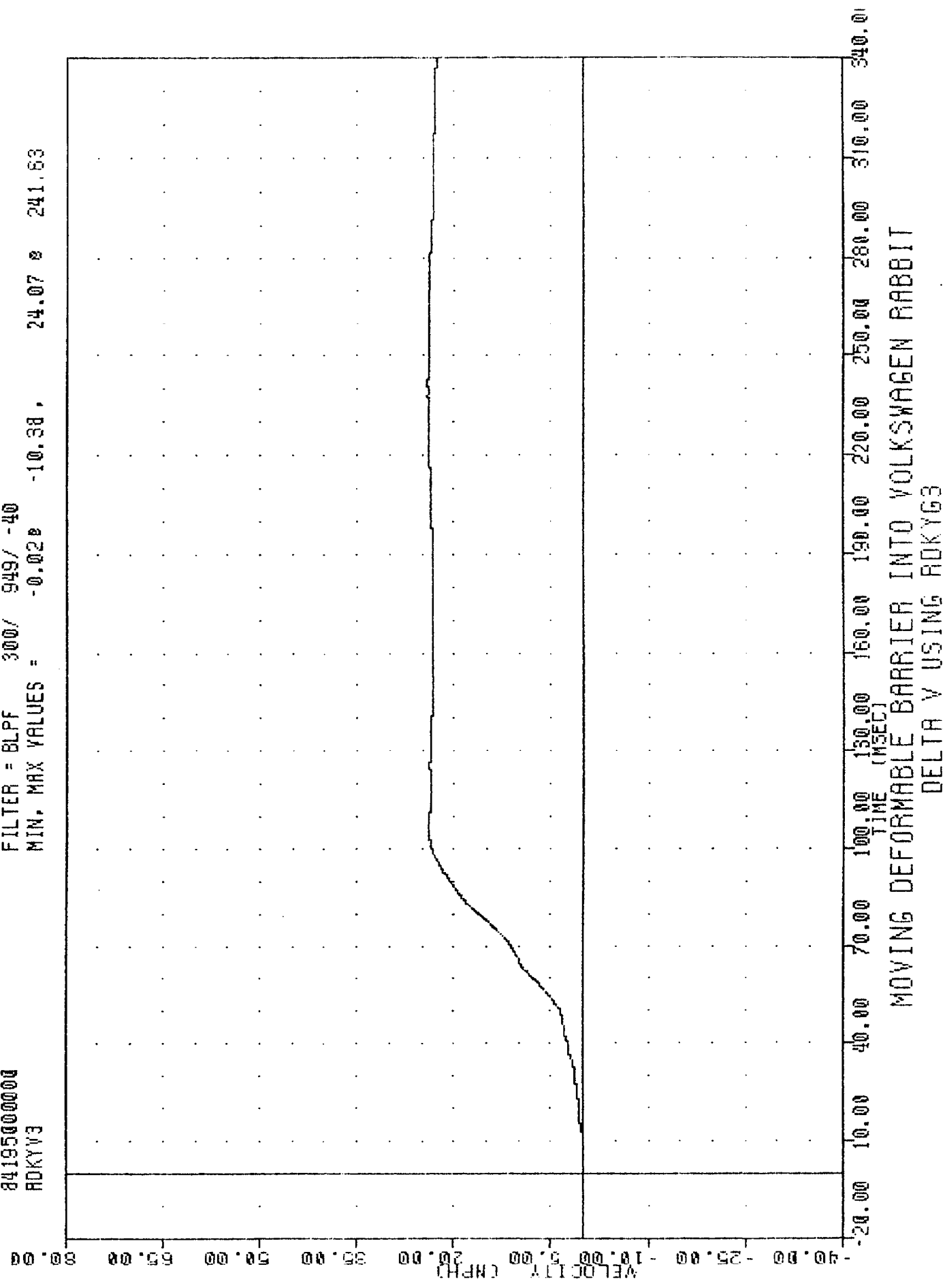
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE REAR DECK RESULTANT

TRC 040713 13 NOV 84 14:13:43
 SIDE AGGRESSIVE ATTRIBUTES
 84135000000
 RDKXV3
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -10.64e 145.13, 0.02 e -4.75



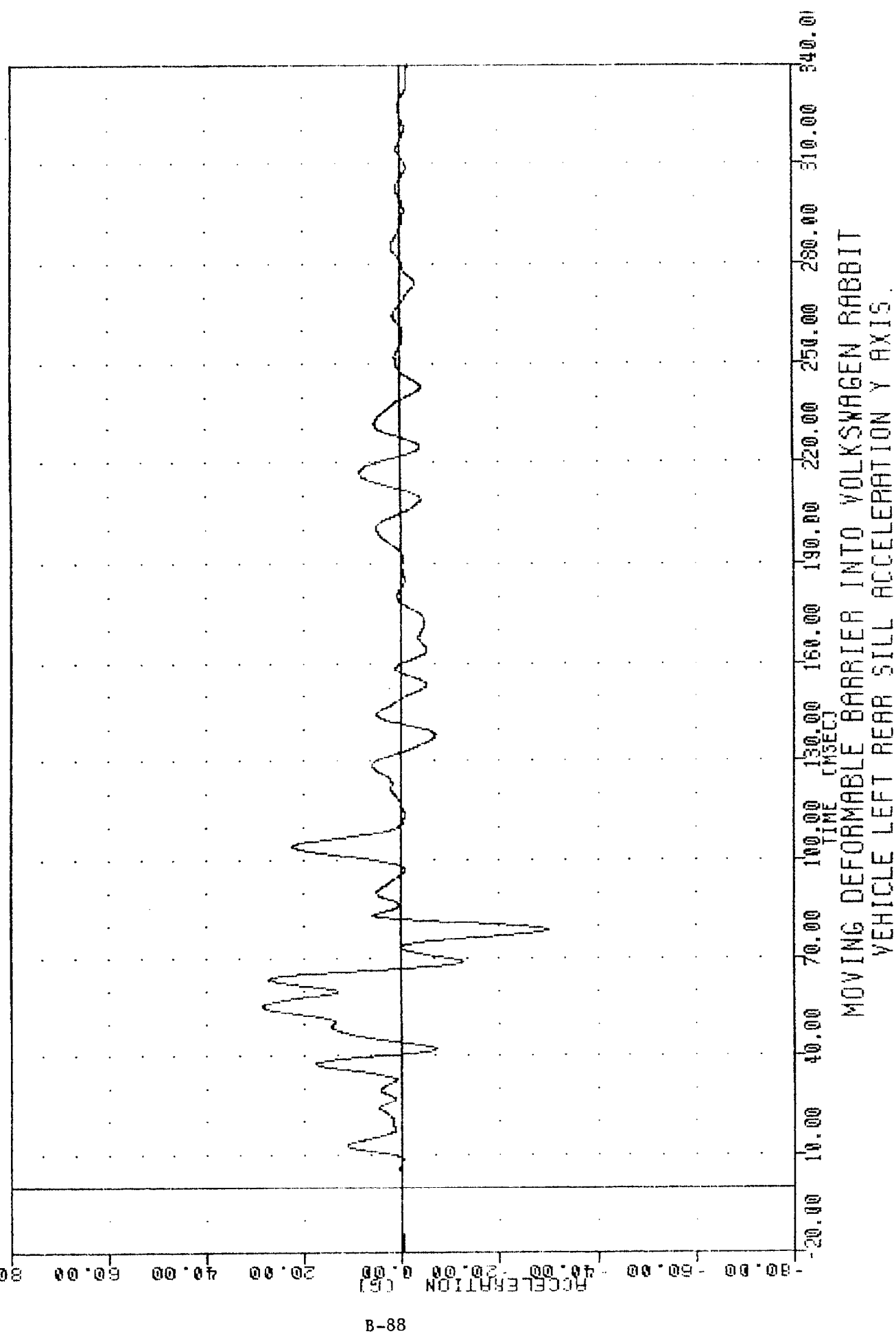
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING RDKXG3

THE 10710 10 AUG 84 15:43
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 RDKYV3
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.020 -10.38 24.07 241.63



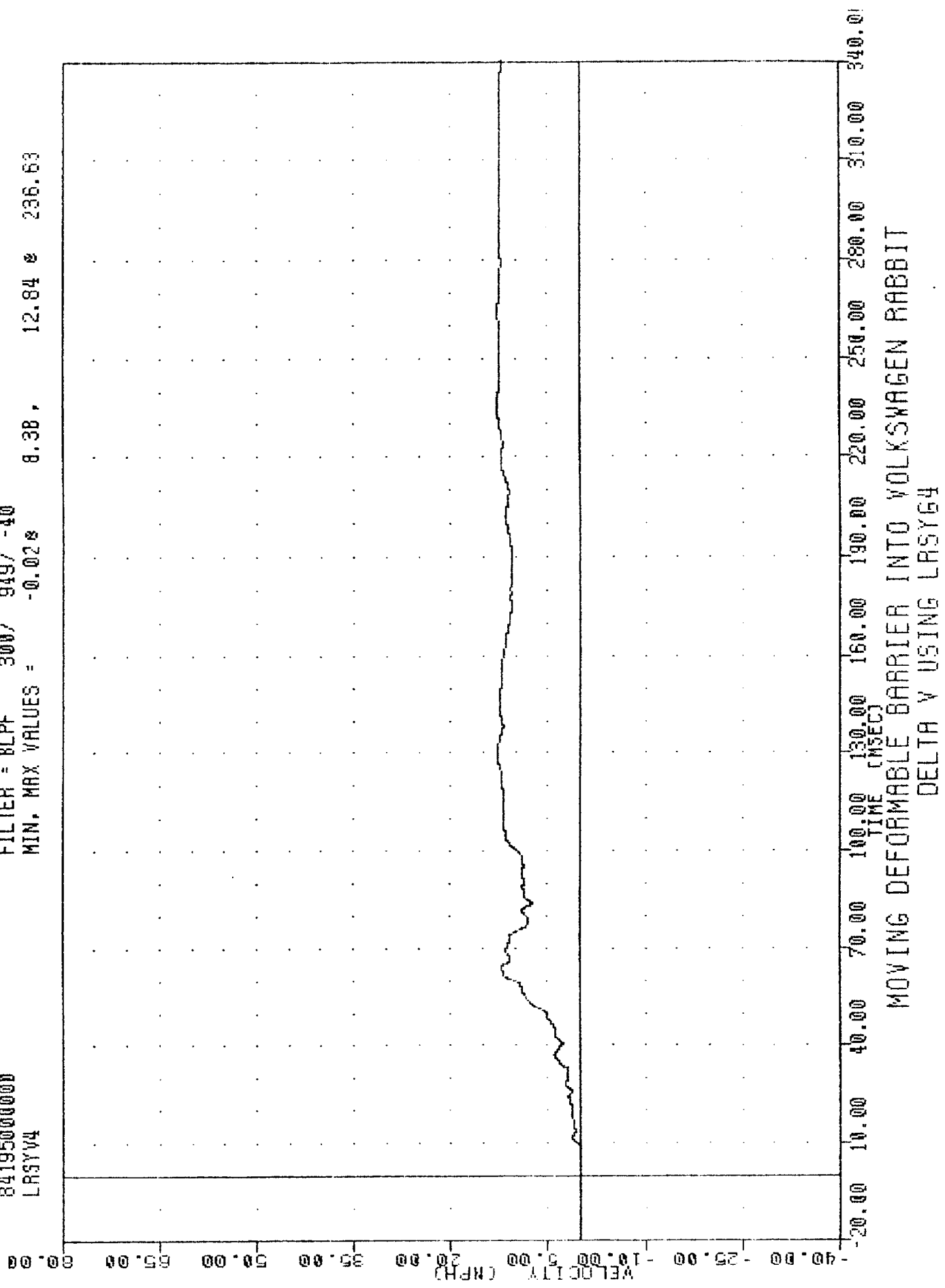
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING RDKY63

TAG 0710, 15 AUG 81 14:18:20
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LRSY64
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -30.02e 78.50, 28.43 e 55.13

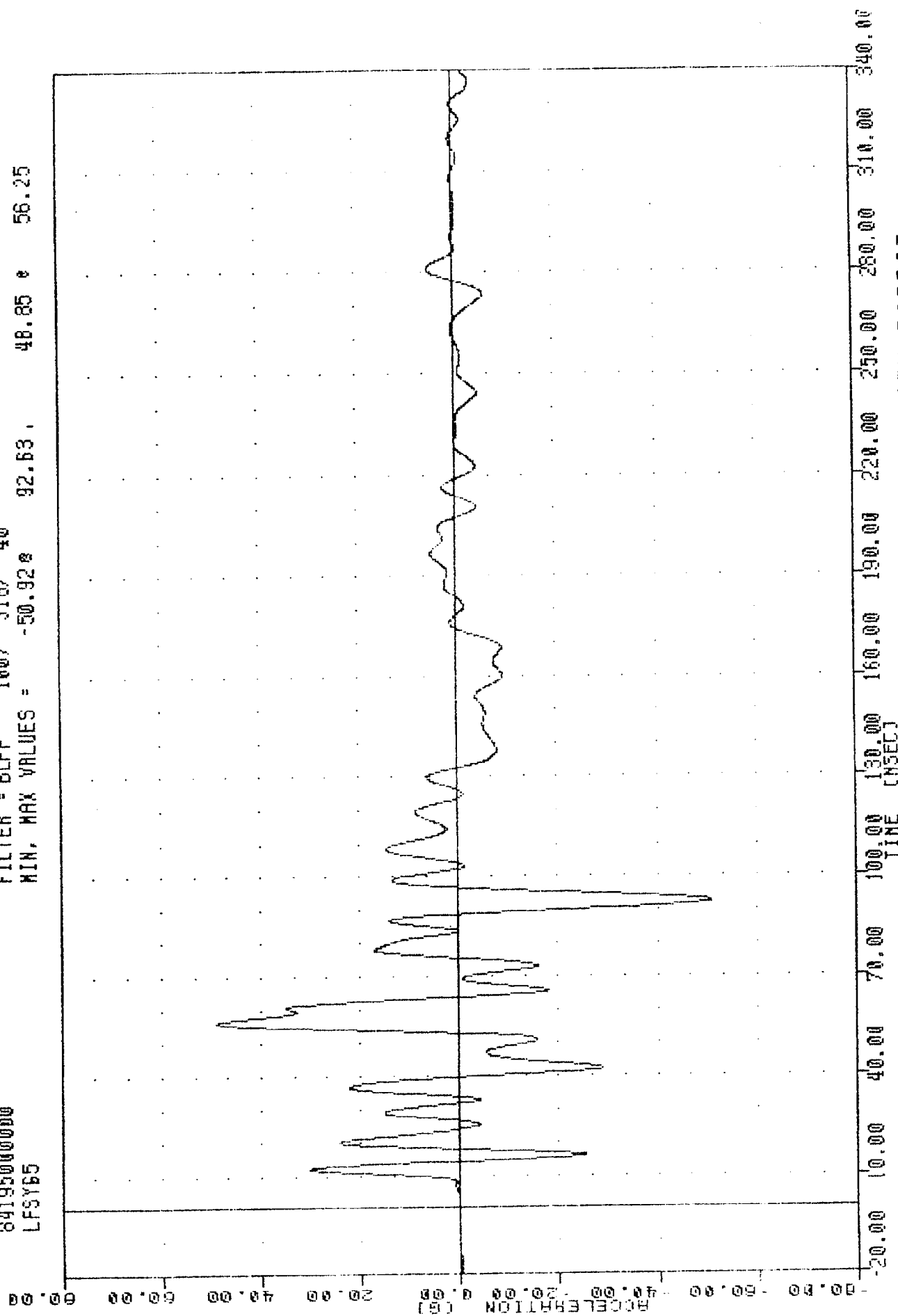


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT REAR SILL ACCELERATION Y AXIS.

THE [REDACTED] 040713 [REDACTED] PLOT DATE 13 AUG 84 14:15:43
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LRSYV4
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.028 8.38 12.84 236.63

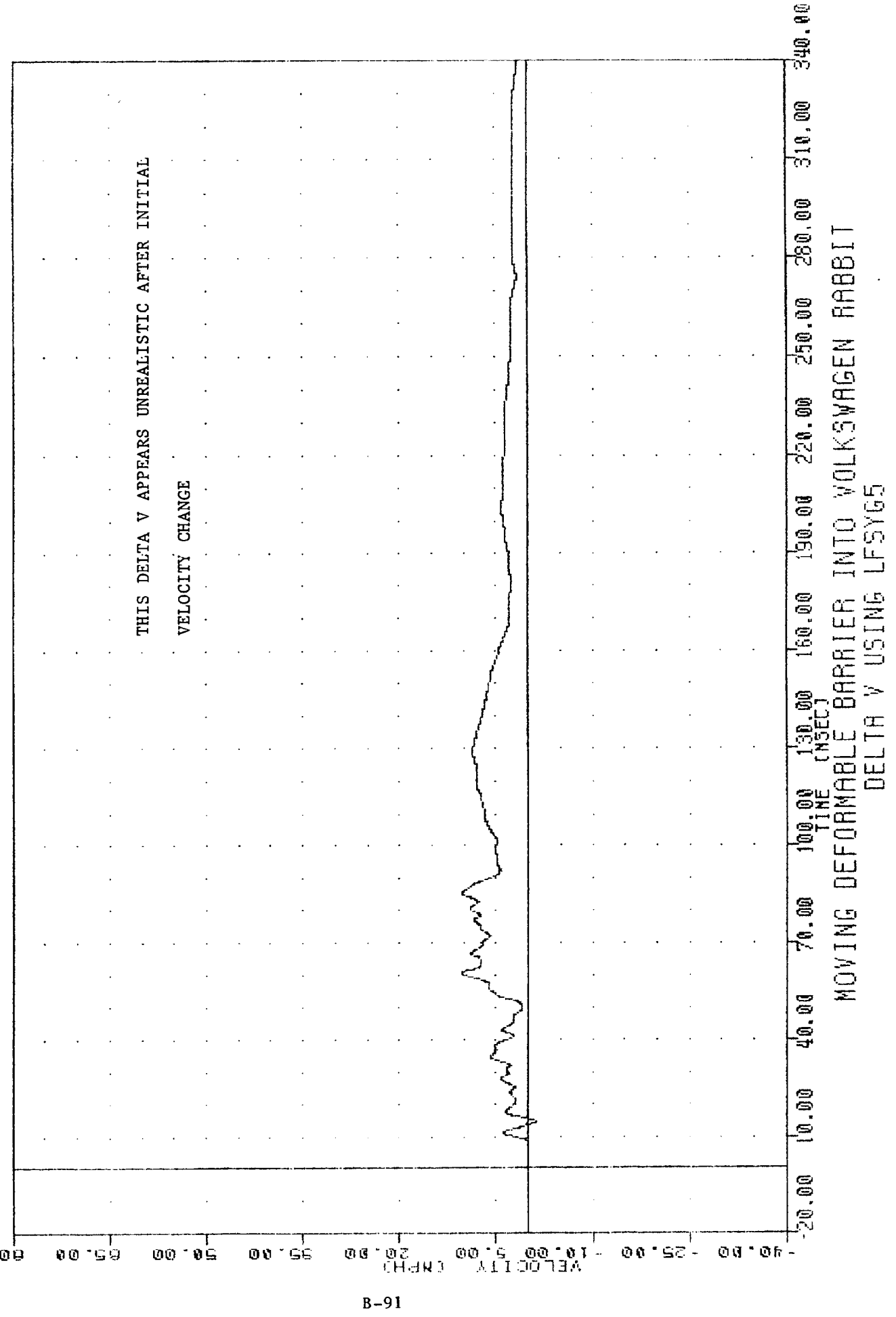


TAC 040713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LFSY65
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -50.928 92.63 48.85 56.25
 PLOT DATE 13 NOV 84 14:10:20



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

TRC 040713, 040713
 SIDE AGGRESSIVE ATTRIBUTES
 84185000000
 LFSYV5
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -1.328 14.38, 10.33 60.50
 PLOT DATE 13 NOV 84 14:13:43



TAC 840713 PLOT DATE: 30-JUL-84 12:04:50

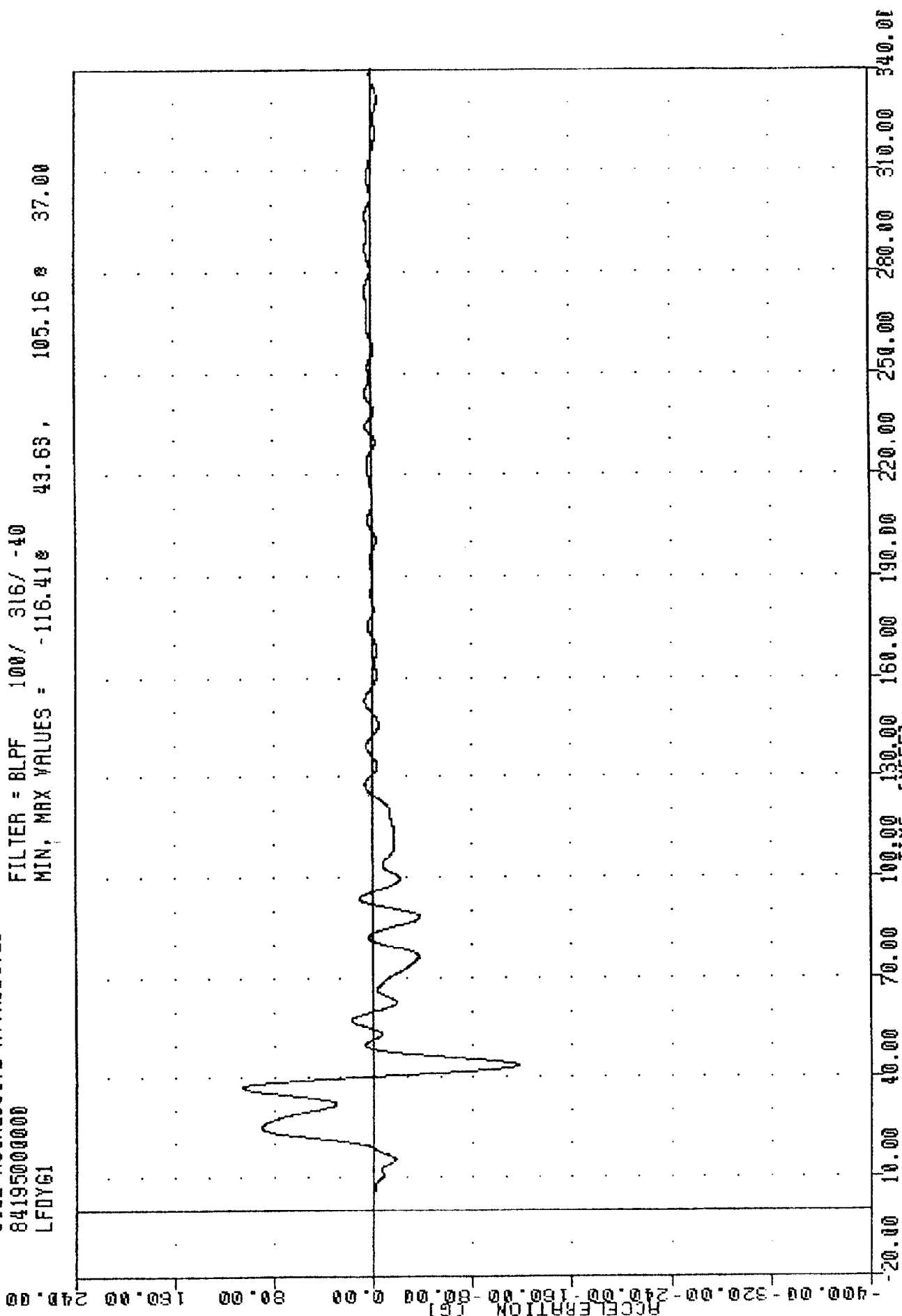
SIDE AGGRESSIVE ATTRIBUTES

84195000000

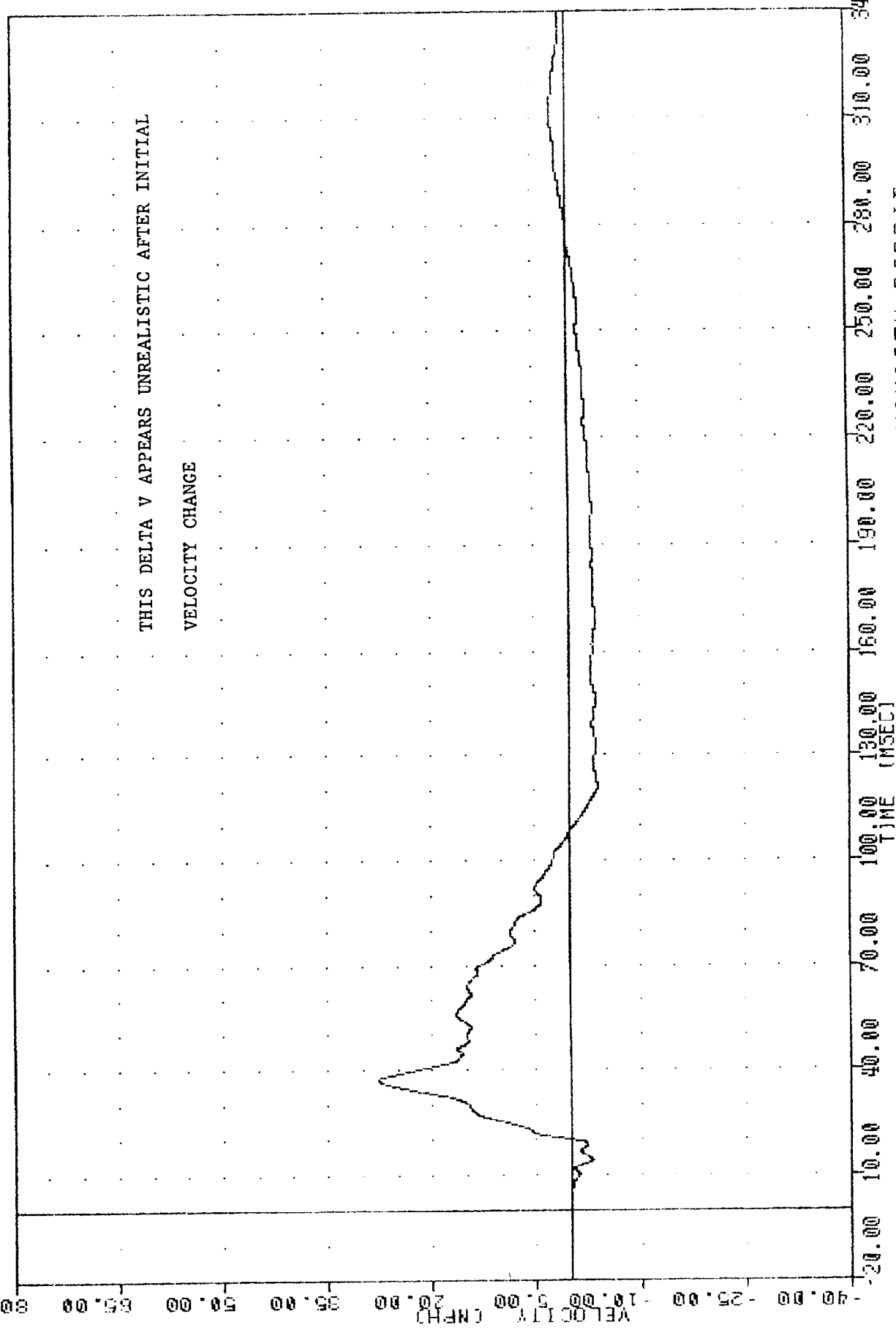
LFDY61

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -116.41e 43.63, 105.16 e 37.00

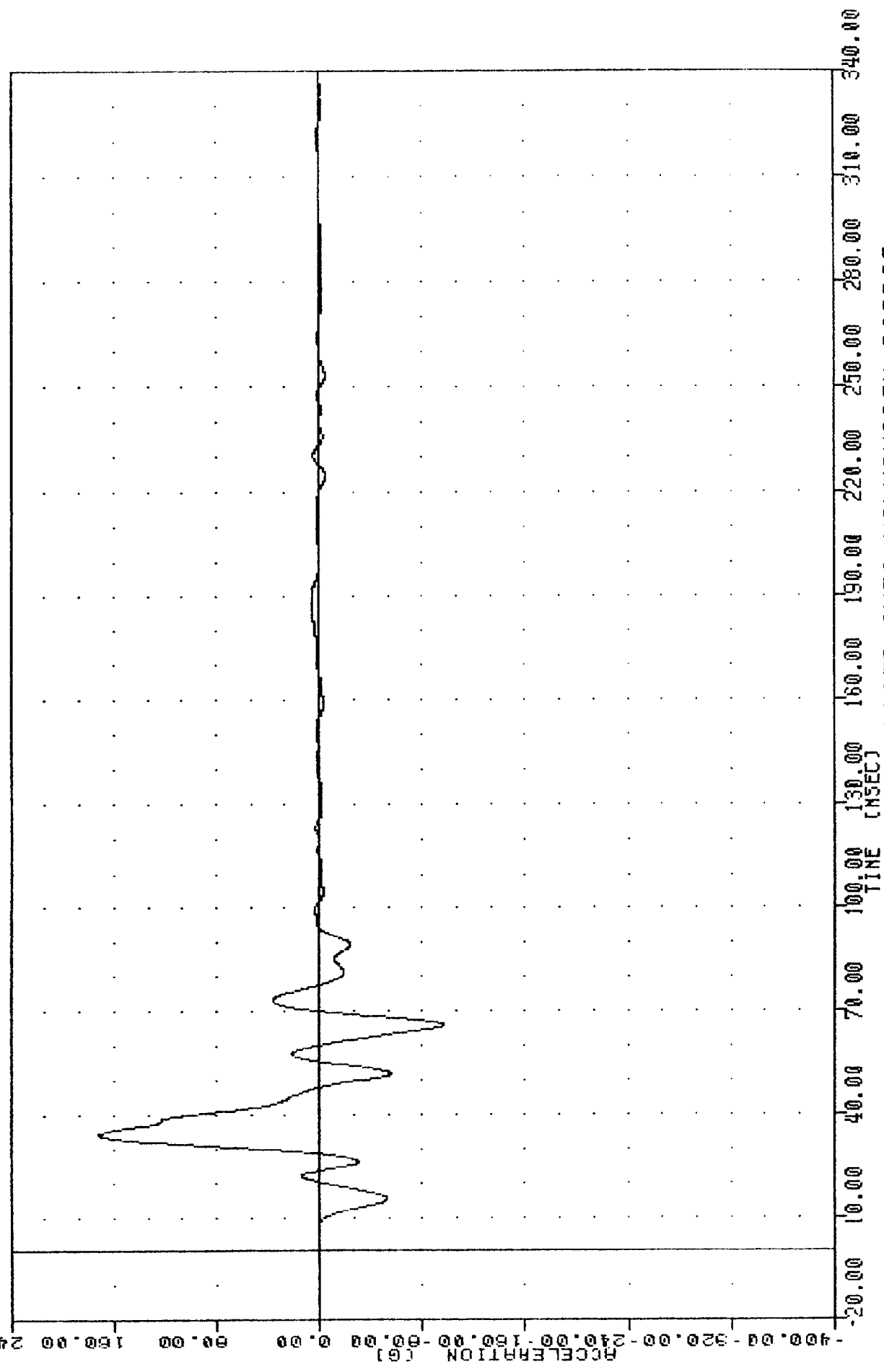


THE 84195000000 LFDYV1
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LFDYV1
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -4.058 121.13, 27.76 @ 37.25
 PLOT DATE 15 AUG 84 14:15:45



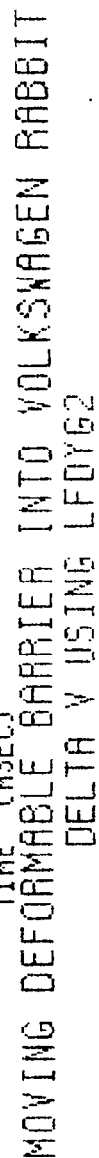
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LFDYGI

TAC 040713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LFOY62
 PLOT DATE 30 JUL 84 12:04:50
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -97.27 65.88 171.23 34.13

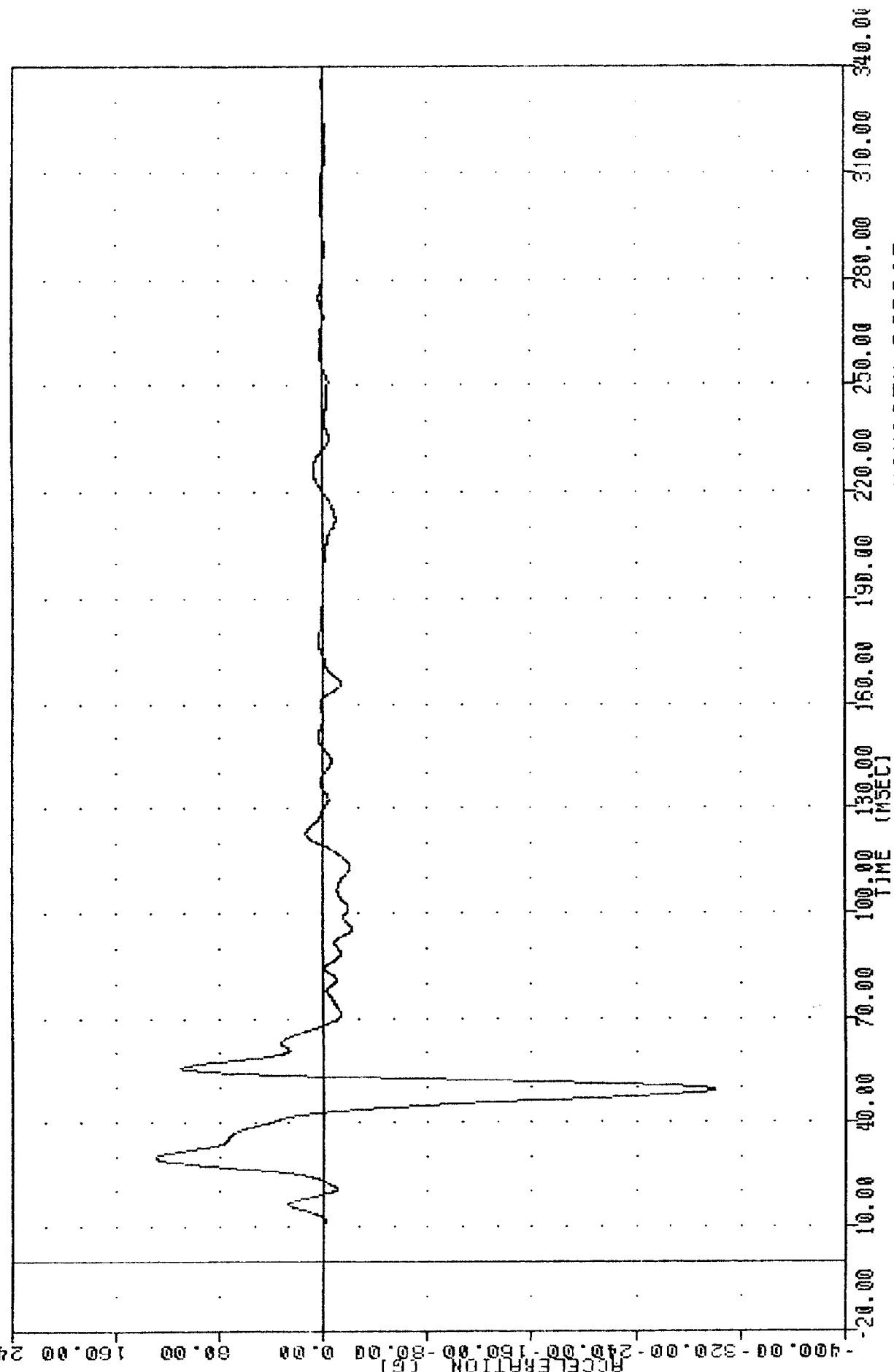


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 VEHICLE LEFT FRONT DOOR (POSITION 8) ACCELERATION.Y AXIS

MIN.	MAX. VALUES =	-9.160	24.13	27.99	44.75
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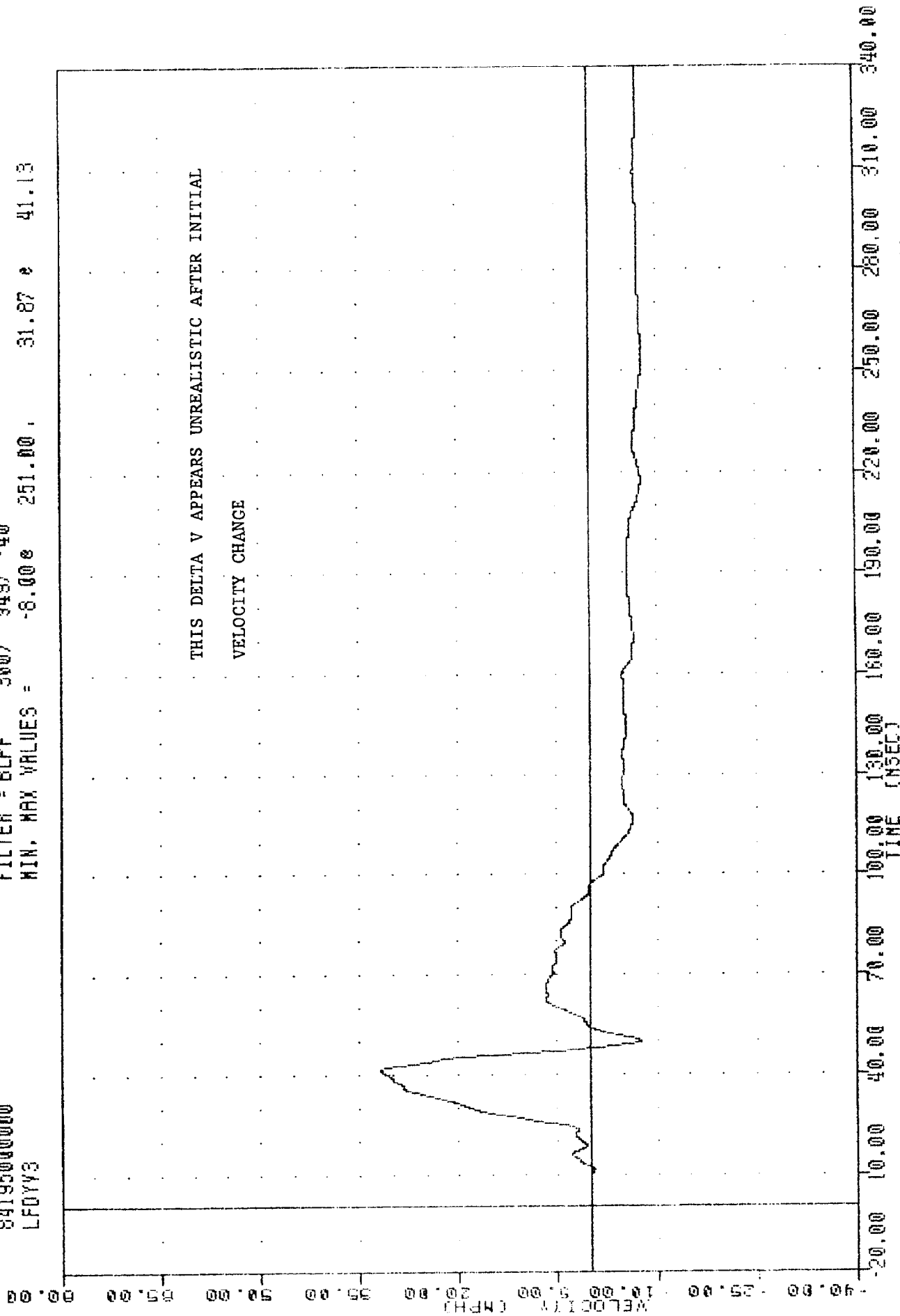
TRC 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LFOYG3
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -299.47 49.25, 129.80 29.75
 PLOT DATE 30-JUL-84 12:04:50



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

TR 711 PL 13-8-8 13:4
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LFDYV3

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -8.00e 251.00, 31.87 e 41.13



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LFDYV3

TAC 840713 PLOT DATE 30 JUL 84 12:04:50

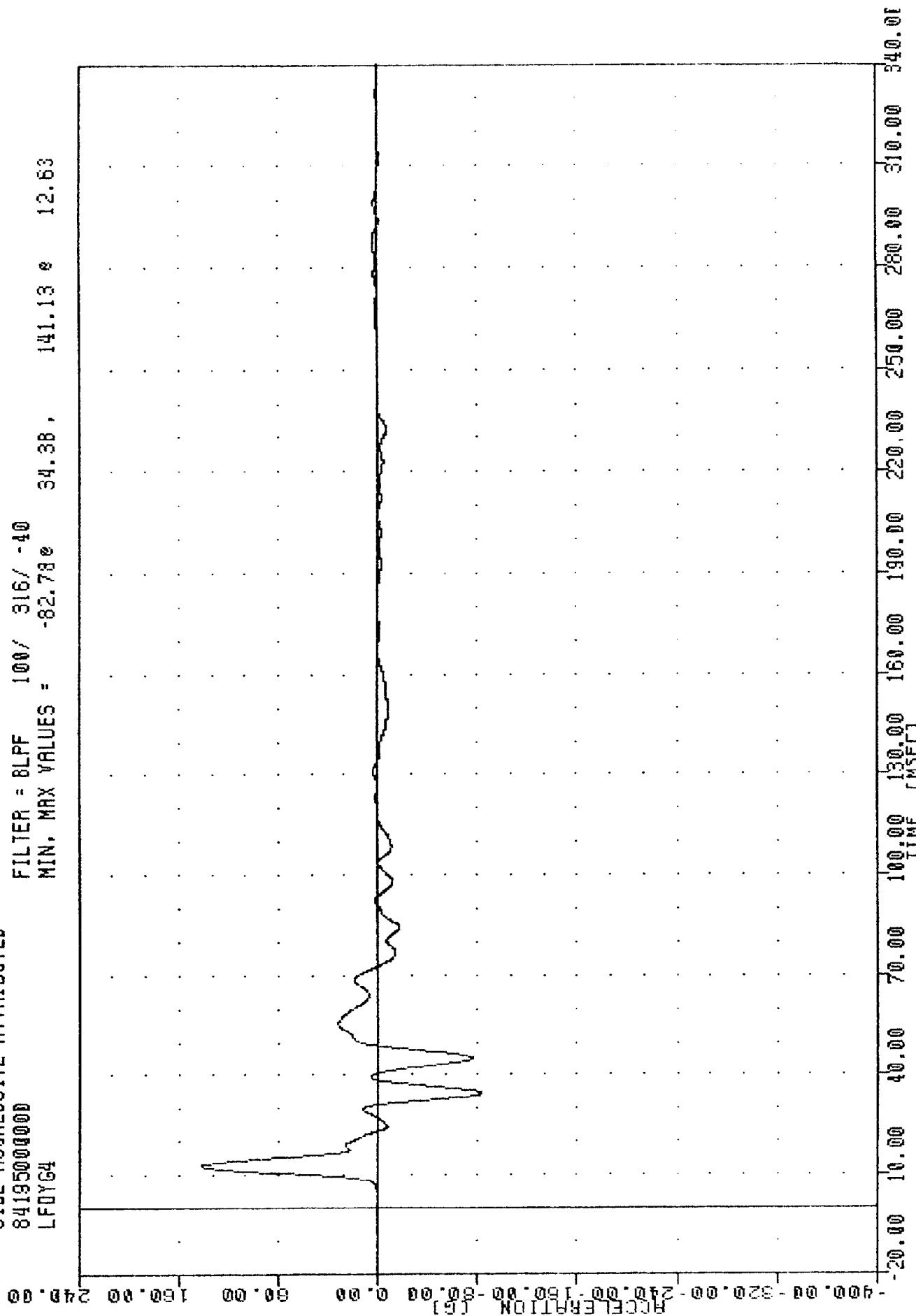
SIDE AGGRESSIVE ATTRIBUTES

84135000000

LFDY64

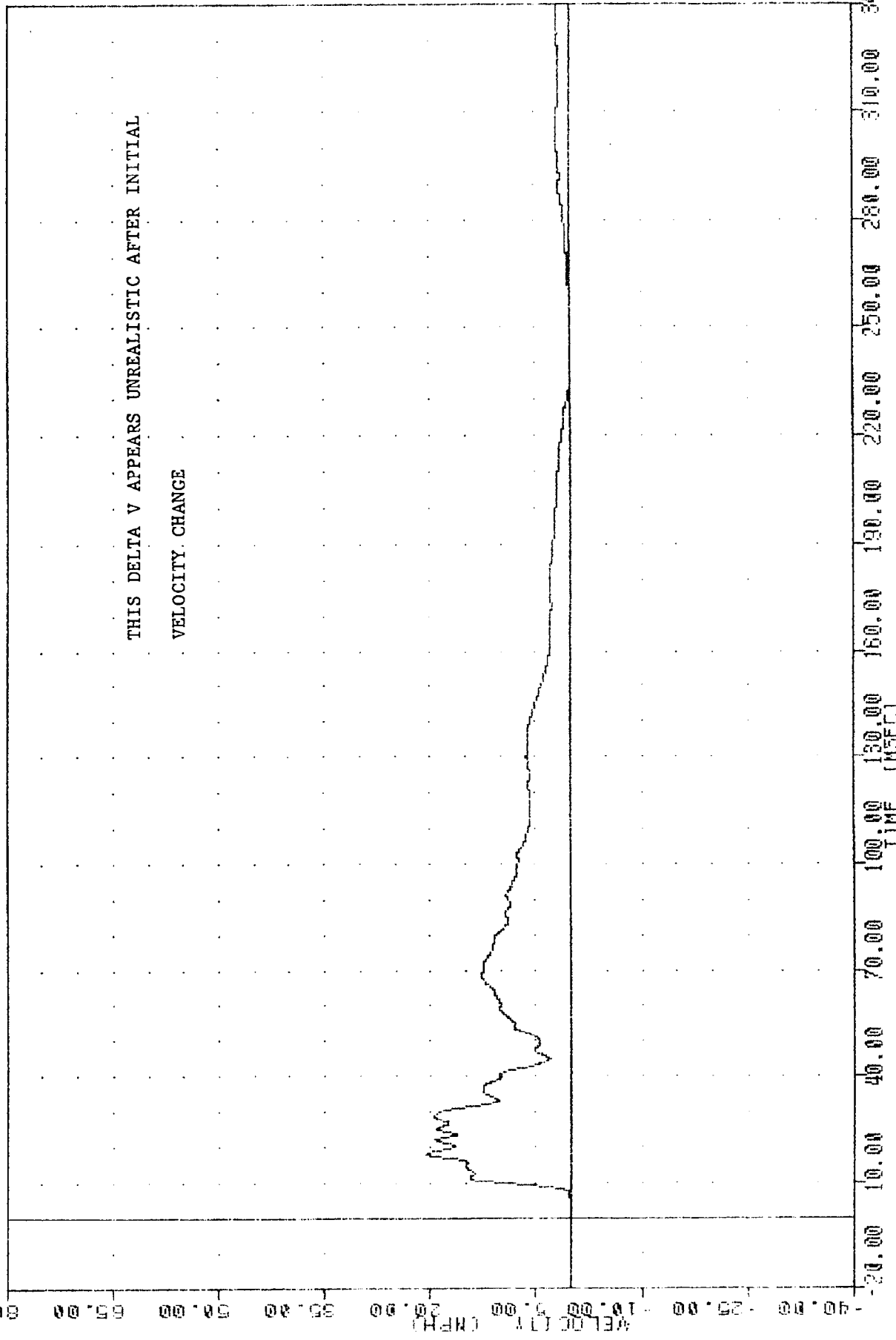
FILTER = 8LPF 100/ 316/ -40

MIN, MAX VALUES = -82.78e 34.38, 141.13 e 12.63



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

THE 0710 PLOT DATE 15-06-84 15:45
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LFOYV4
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.02e -15.38 20.57 e 18.00

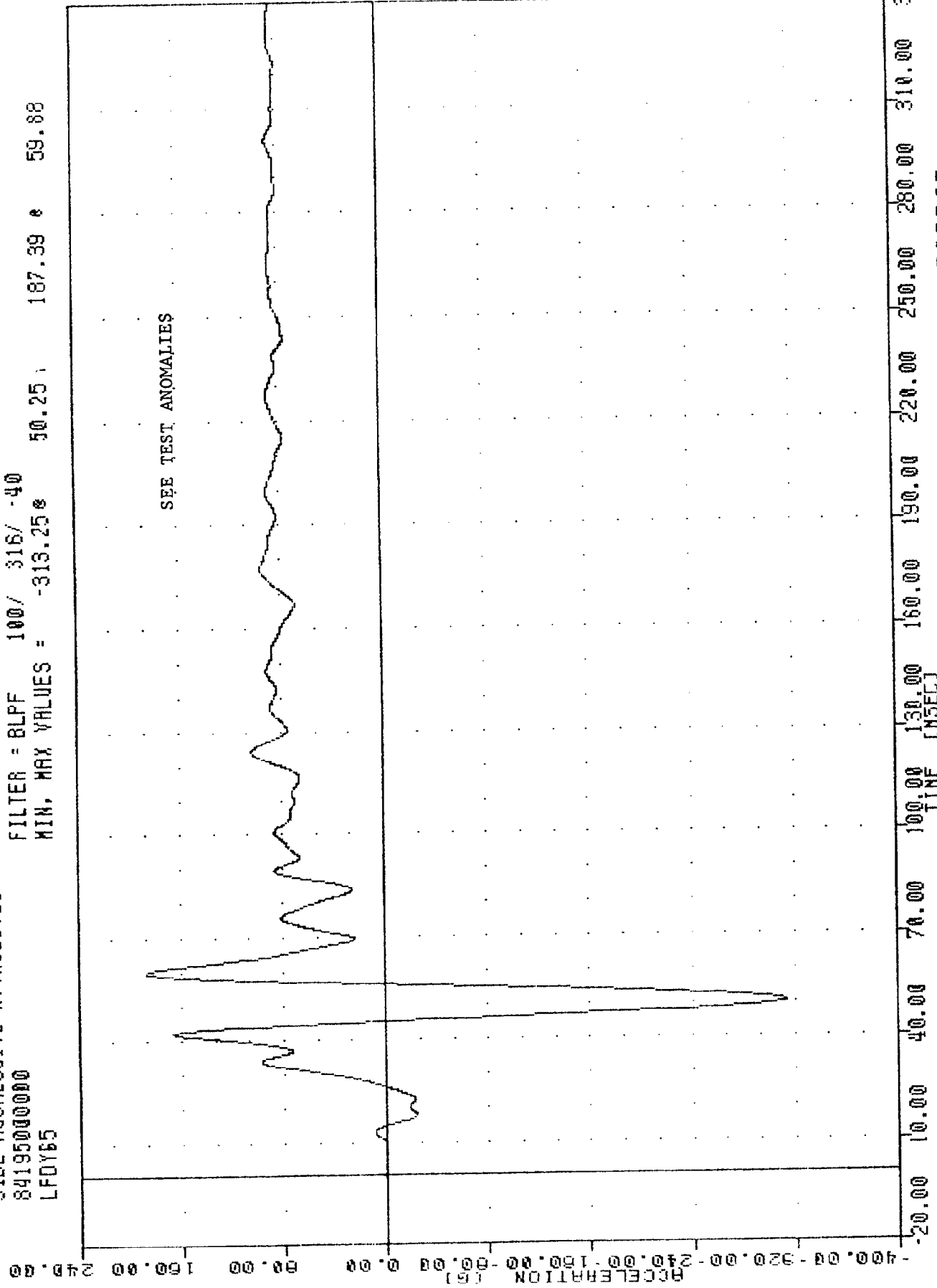


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LFOYV4

TRC 040713
SIDE AGGRESSIVE ATTRIBUTES
84195000000
LFDY65

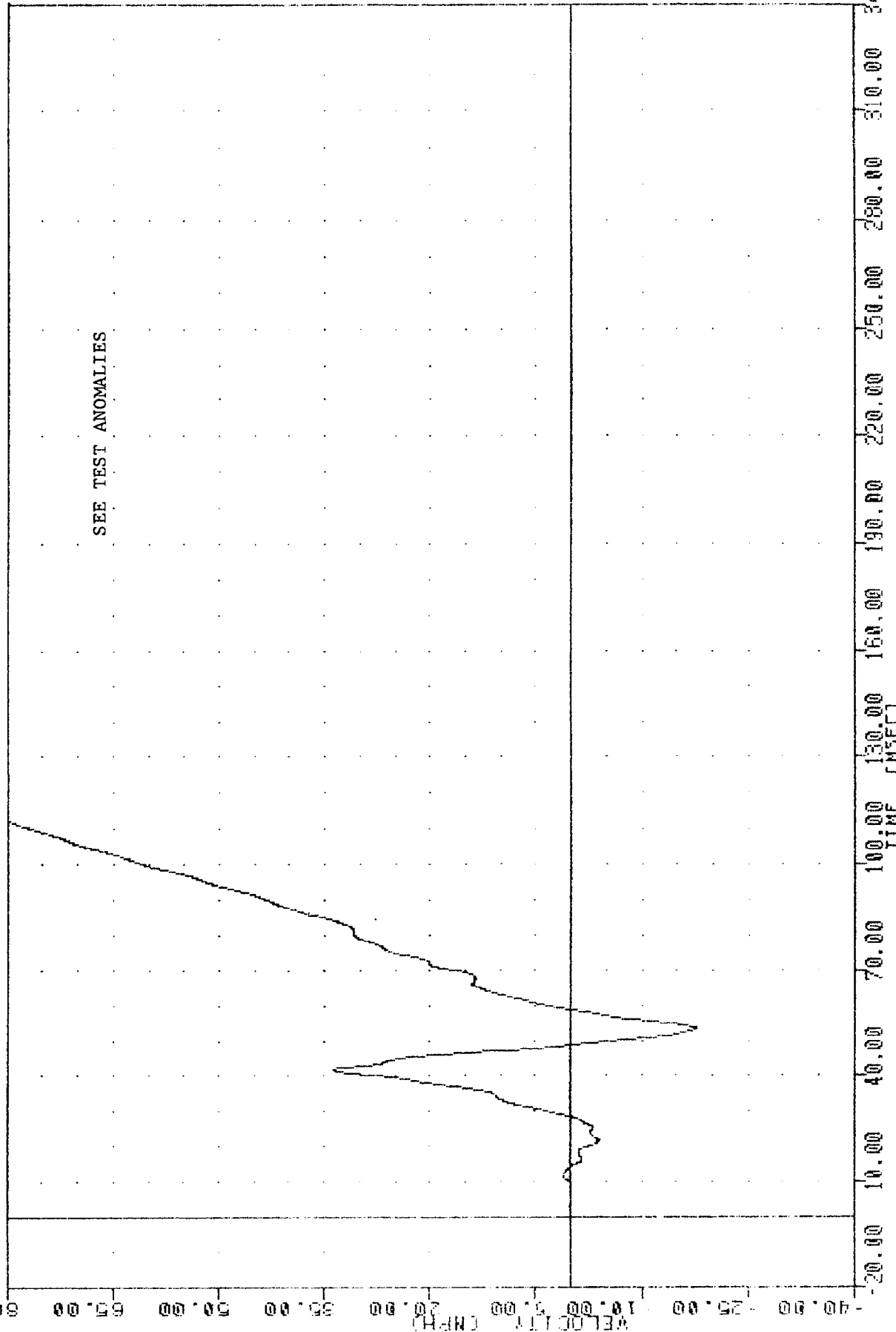
PLUT DATE 30 JUL 84 12:04:50

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -313.25 50.25 187.39 59.88



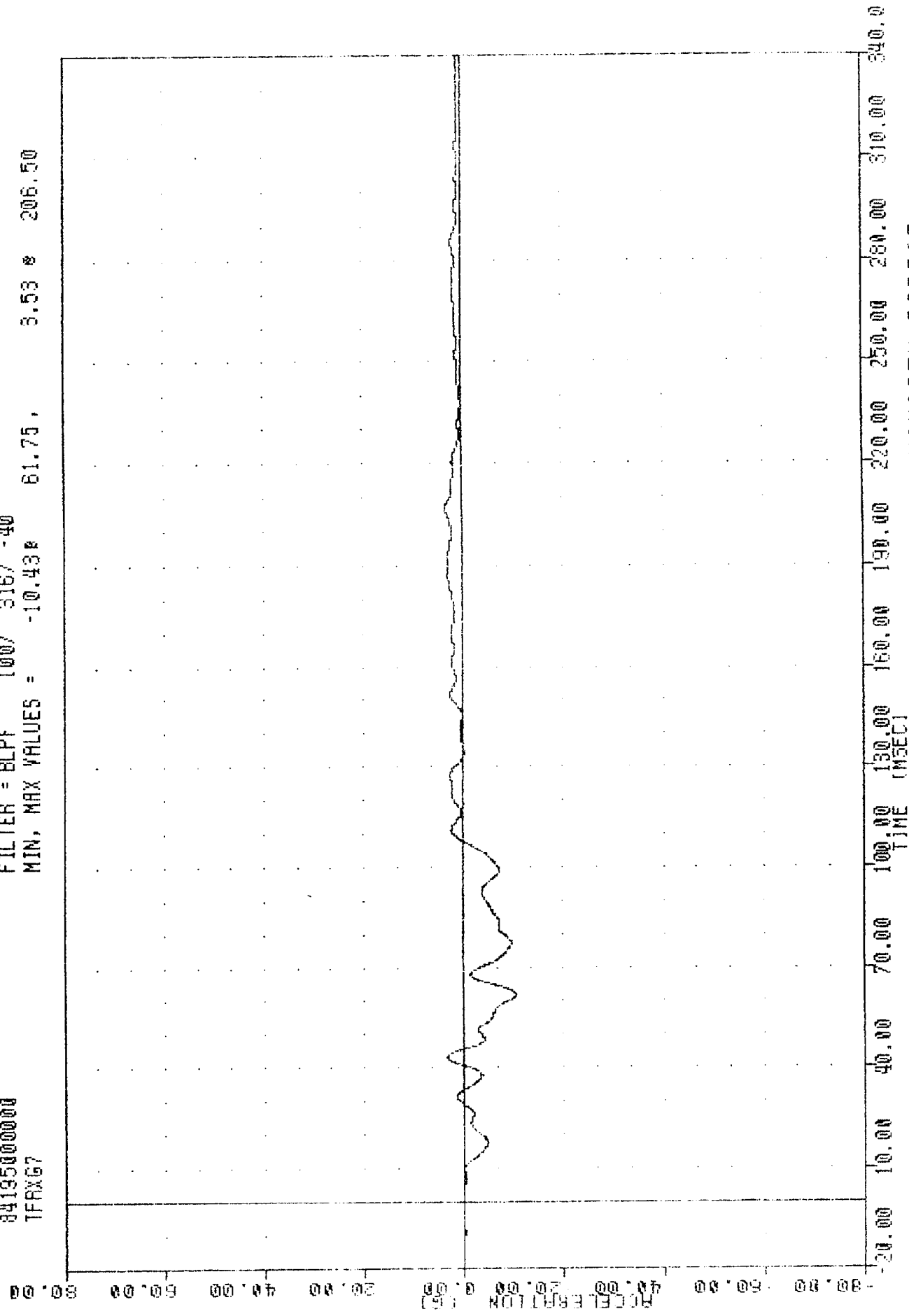
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR (POSITION 11) ACCELERATION Y AXIS

THE [REDACTED] 040713 [REDACTED] PLOT DATE 13 AUG 84 14:15:45
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 LFDYV5
 FILTER = 8LPF 300/ 949/ -40
 MIN. MAX VALUES = -17.682 53.50, 497.58 & 340.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING LFDY65

INC 000715 PLOT DATE 13-MAR-84 14:18:20
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 TFRXG7
 FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -10.438 61.75, 3.53 206.50



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

TRC 840713 30-JUL-84 12:04:50

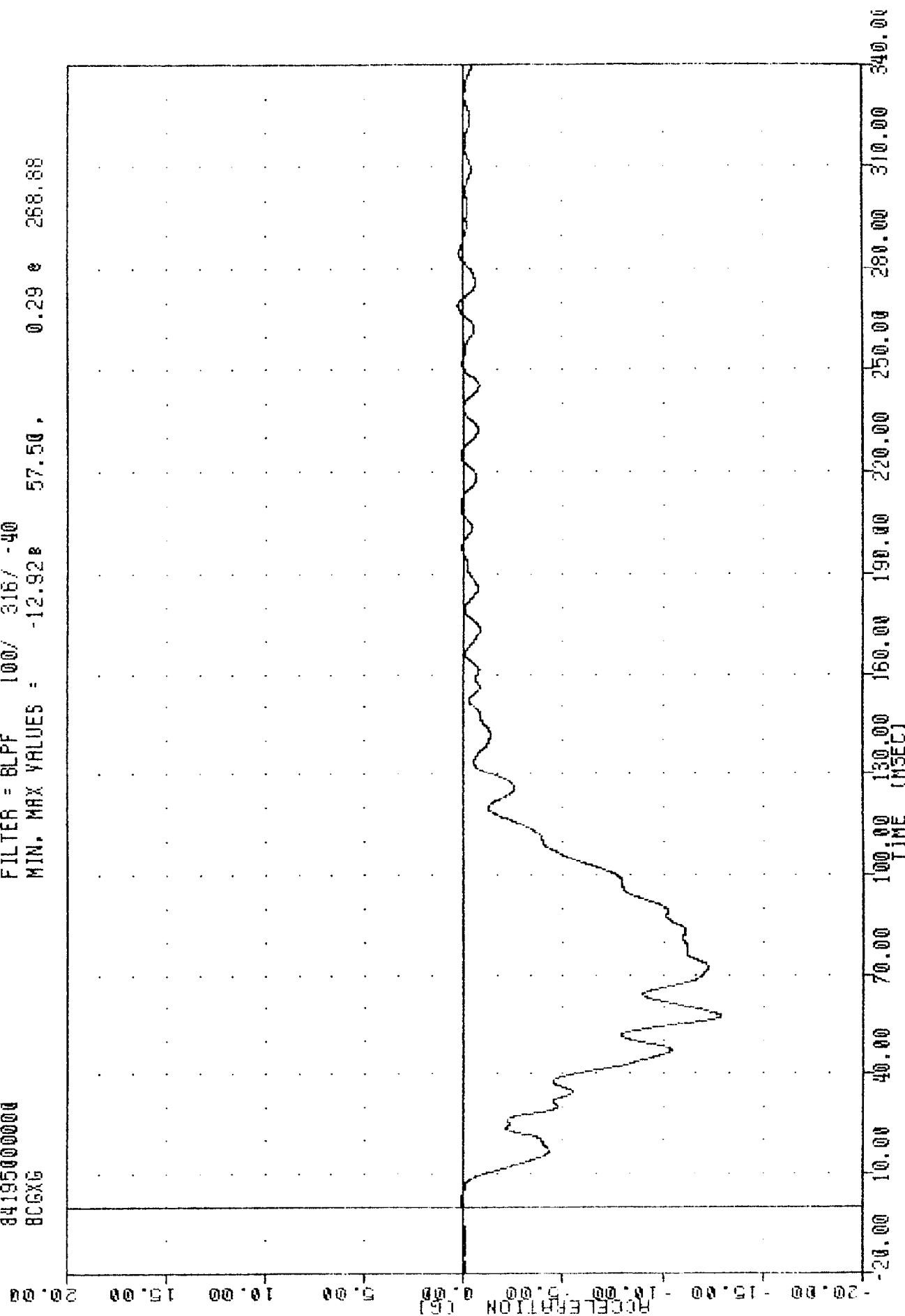
SIDE AGGRESSIVE ATTRIBUTES

84195000000

BCGXG

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -12.92 57.50 0.29 268.88

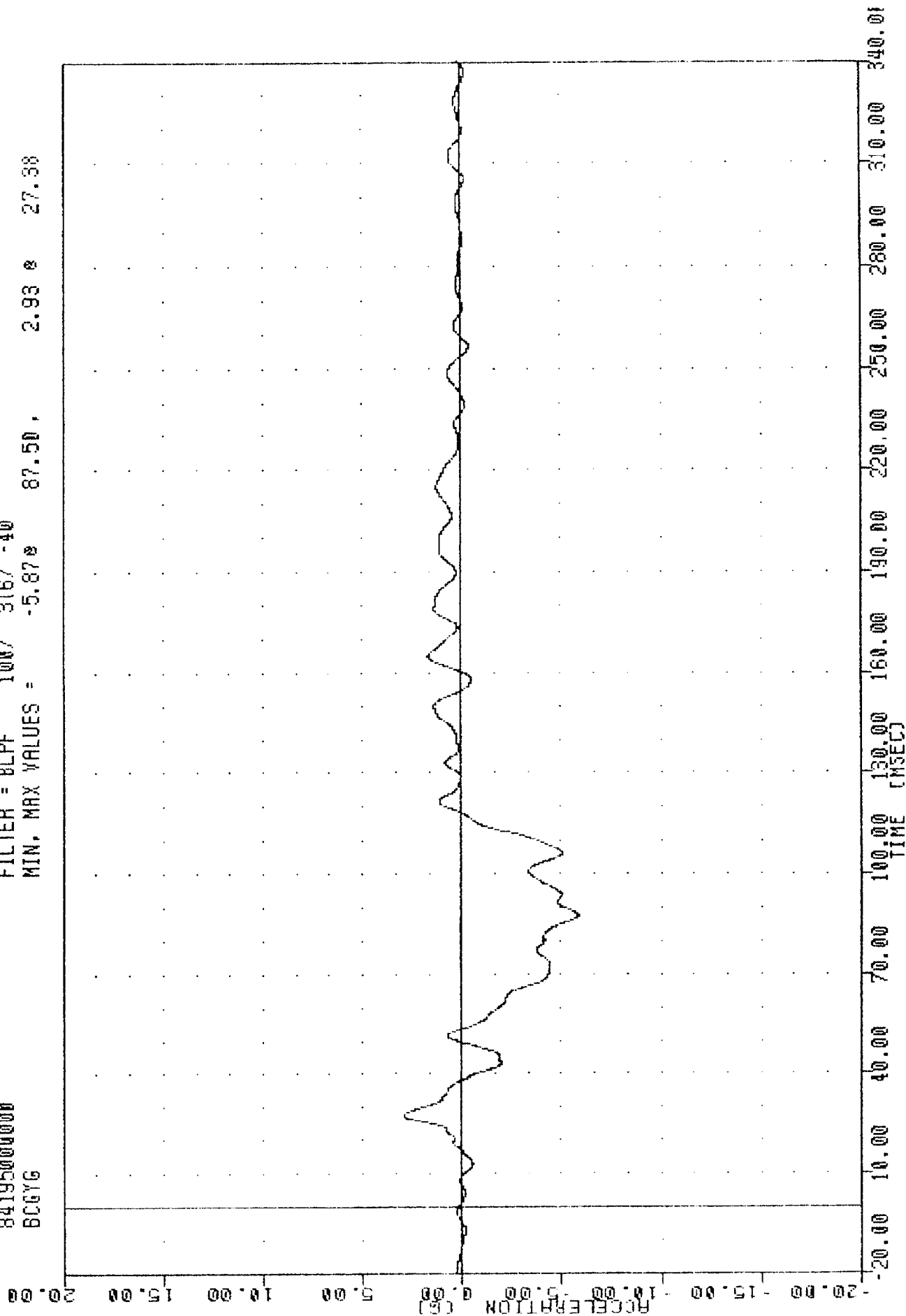


TRC 840713
SIDE AGGRESSIVE ATTRIBUTES
84195000000
BCGYG

PLOT DATE 30-JUL-84 12:04:50

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -5.87g 87.50, 2.93g 27.38

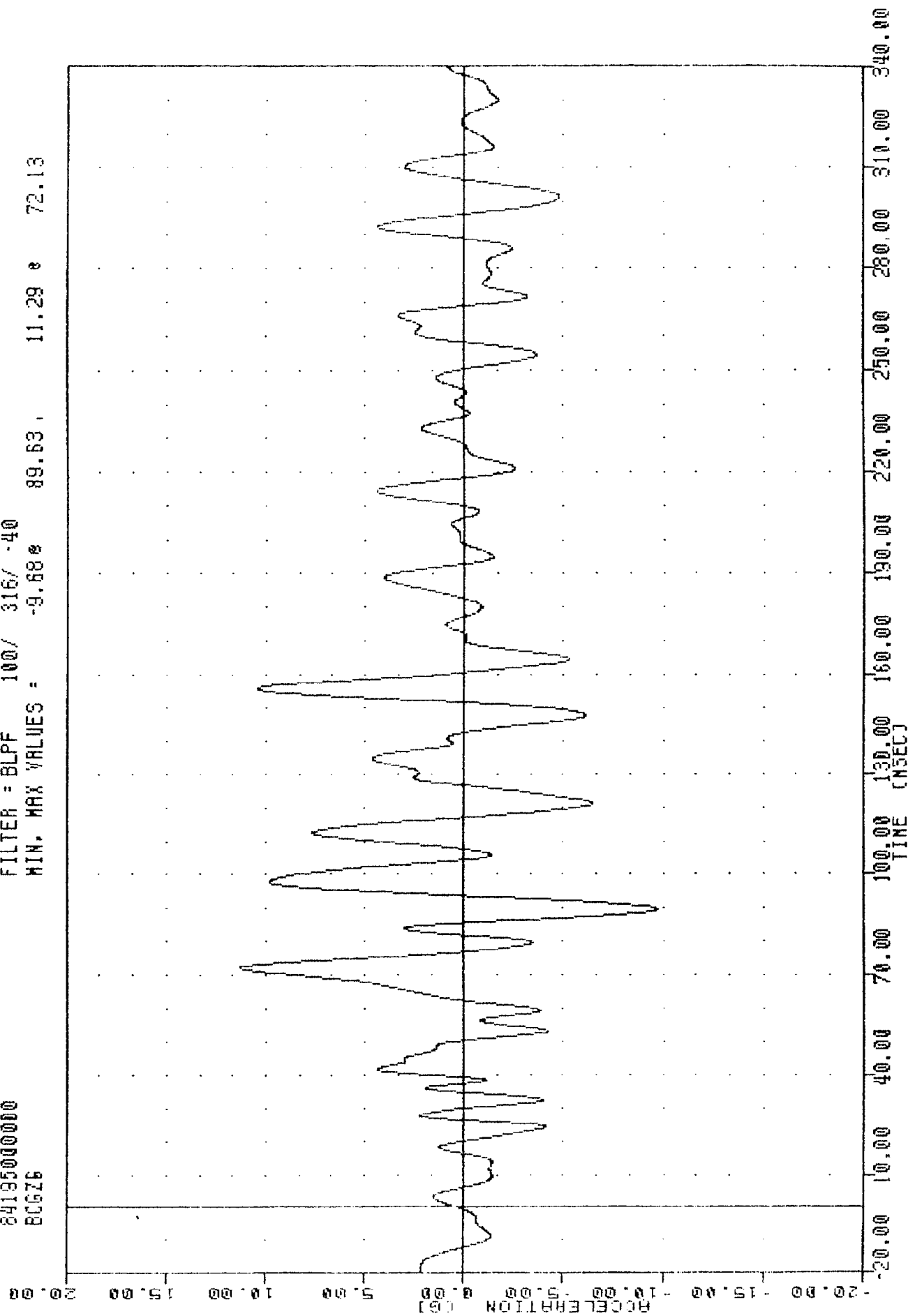


TAC , 840713
SIDE AGGRESSIVE ATTRIBUTES
84135000000
BCGZ6

PLOT DATE 30-JUL-84 12:04:50

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -9.68 89.63 11.29 72.13

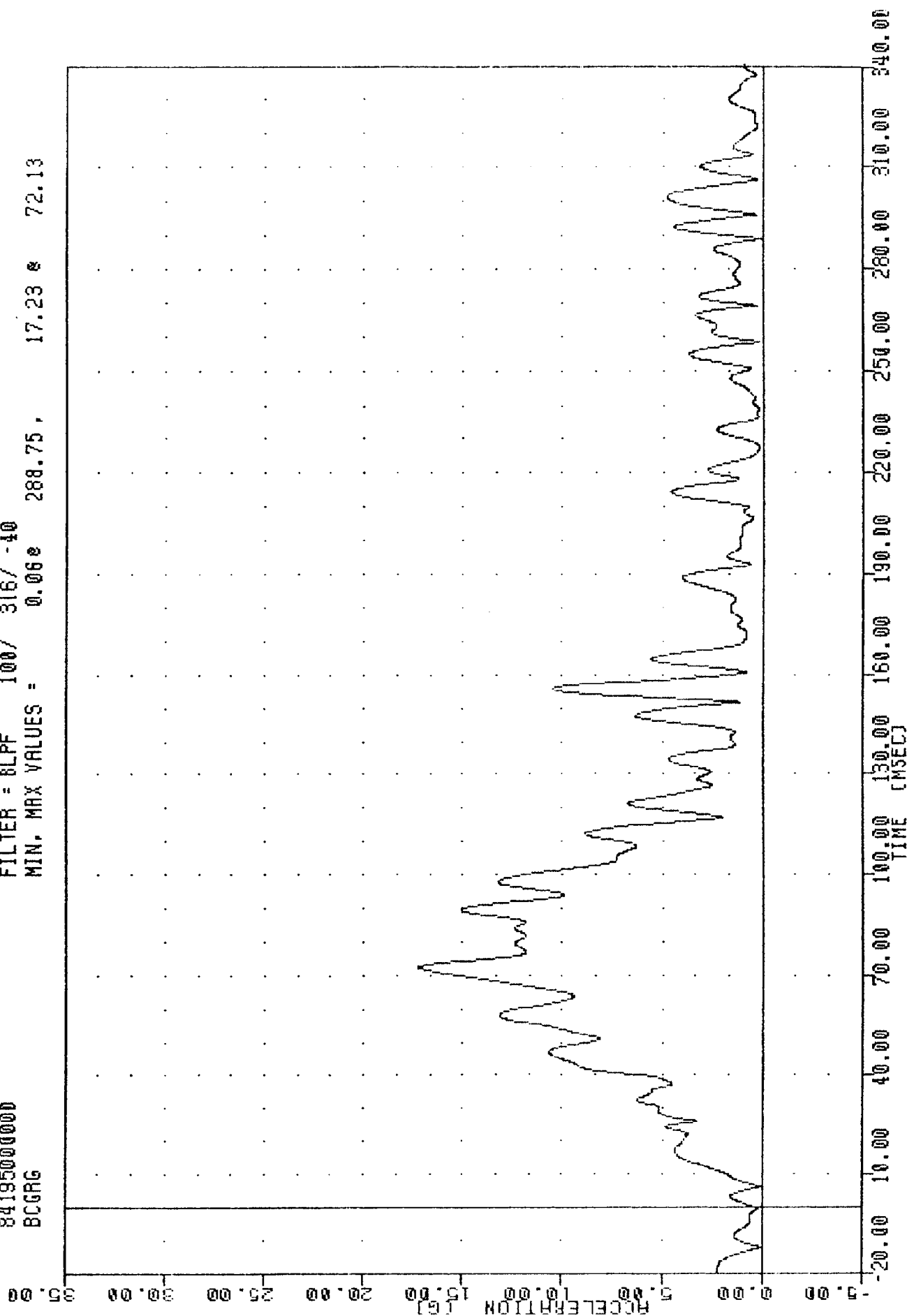


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER CENTER OF GRAVITY Z AXIS

TRC , 840713
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 BCGRG

PLOT DATE 30-JUL-84 11:17:16

FILTER = 8LPF 100/ 316/ -40
 MIN. MAX VALUES = 0.062 288.75 , 17.23 72.13

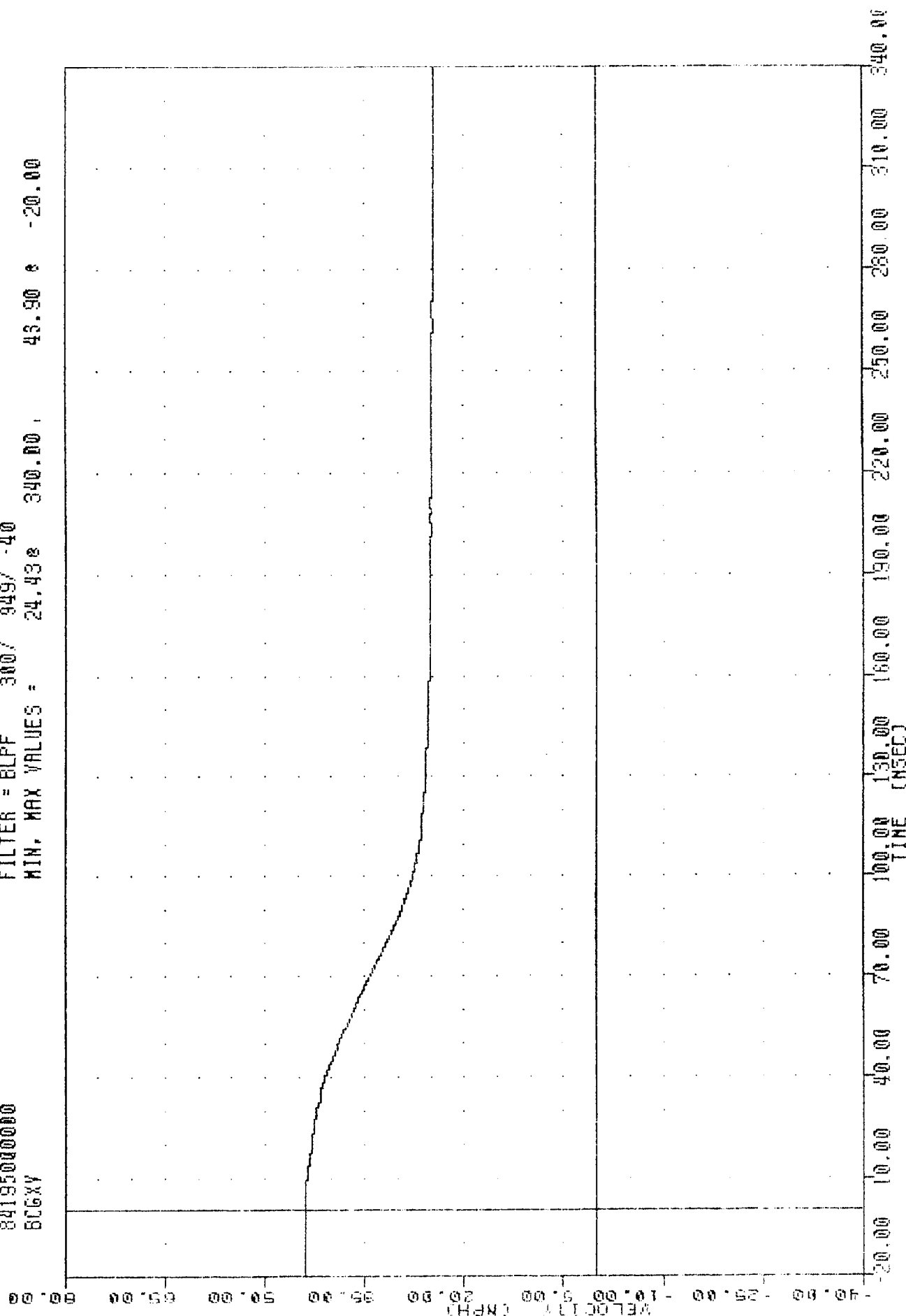


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 BARRIER CG RESULTANT

THE
SIDE AGGRESSIVE ATTRIBUTES
84195000000
BCGXY

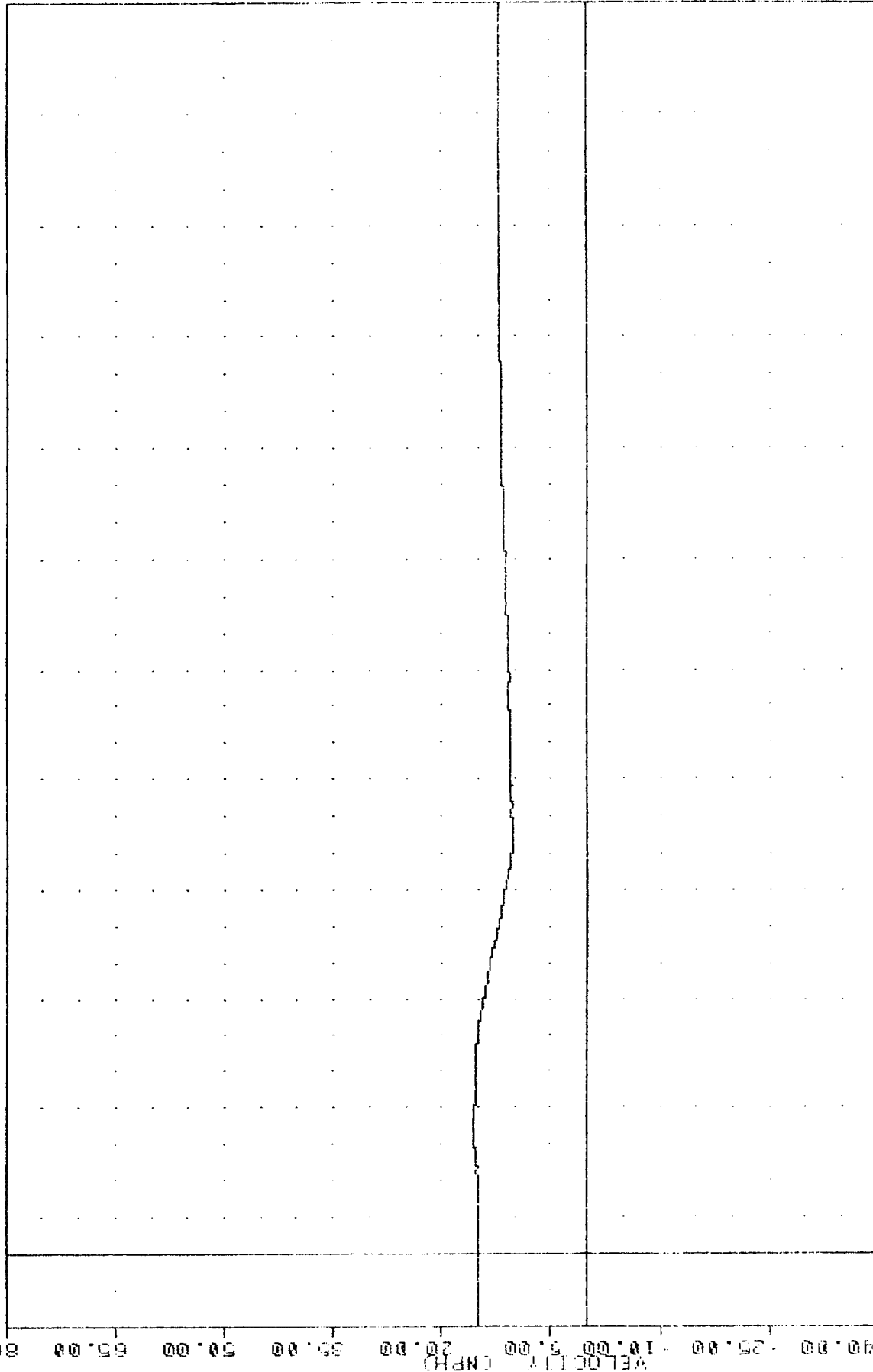
PLT DATE 13 NOV 64 14:15:45

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = 24.43 340.00 43.90 -20.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING BCGXG

THE 0710 PLOT DATE 10-JUG-81 15:45
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 BCGYV
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 10.26e 115.00, 15.61 e 35.75



-40.00
 -35.00
 -30.00
 -25.00
 -20.00
 -15.00
 -10.00
 -5.00
 0.00
 5.00
 10.00
 15.00
 20.00
 25.00
 30.00
 35.00
 40.00

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

MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING BCGYV

THC 840713 PLOT DATE 30 JUL 84 12:04:50

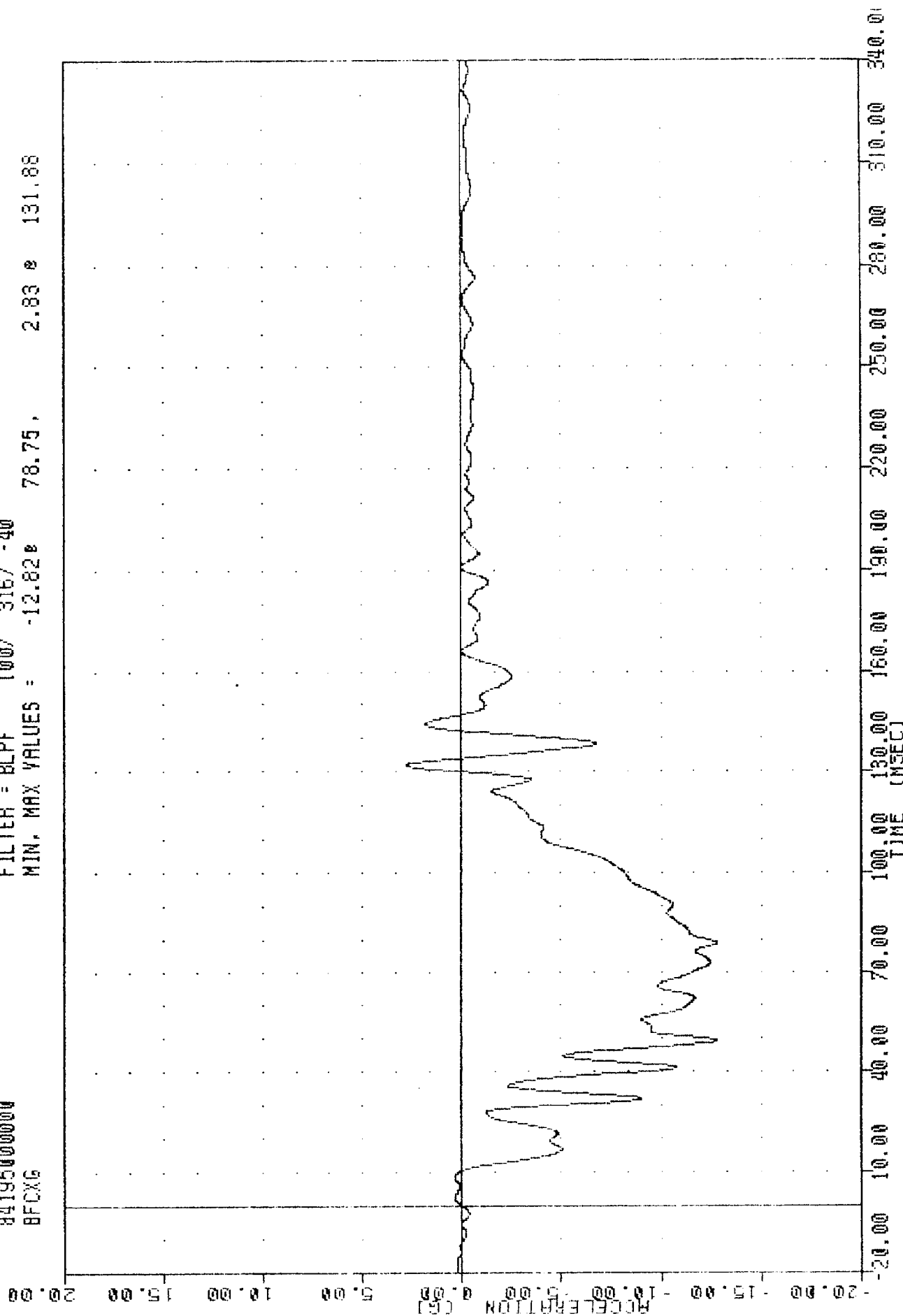
SIDE AGGRESSIVE ATTRIBUTES

84195000000

BFCXG

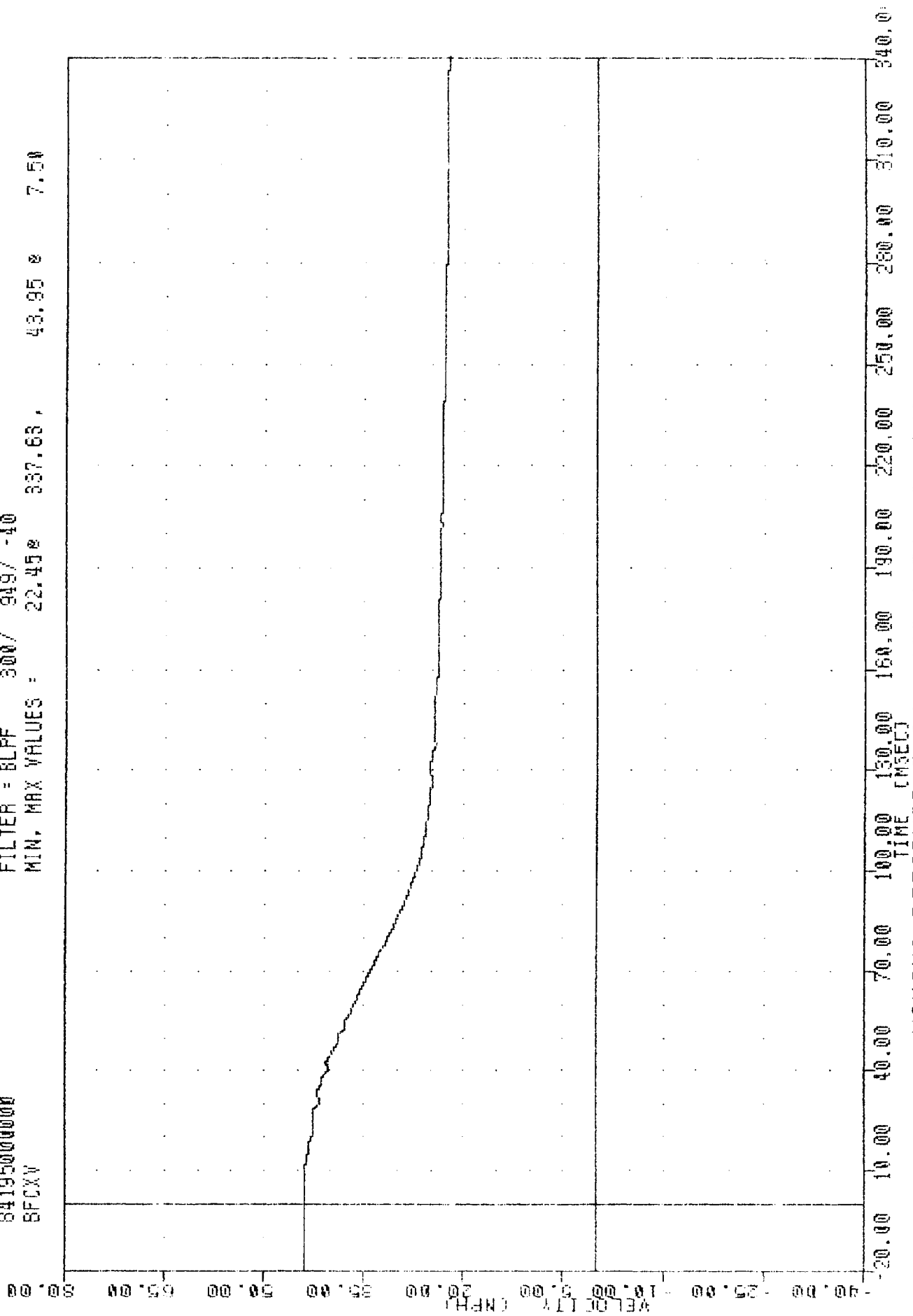
FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -12.82 78.75, 2.83 131.88



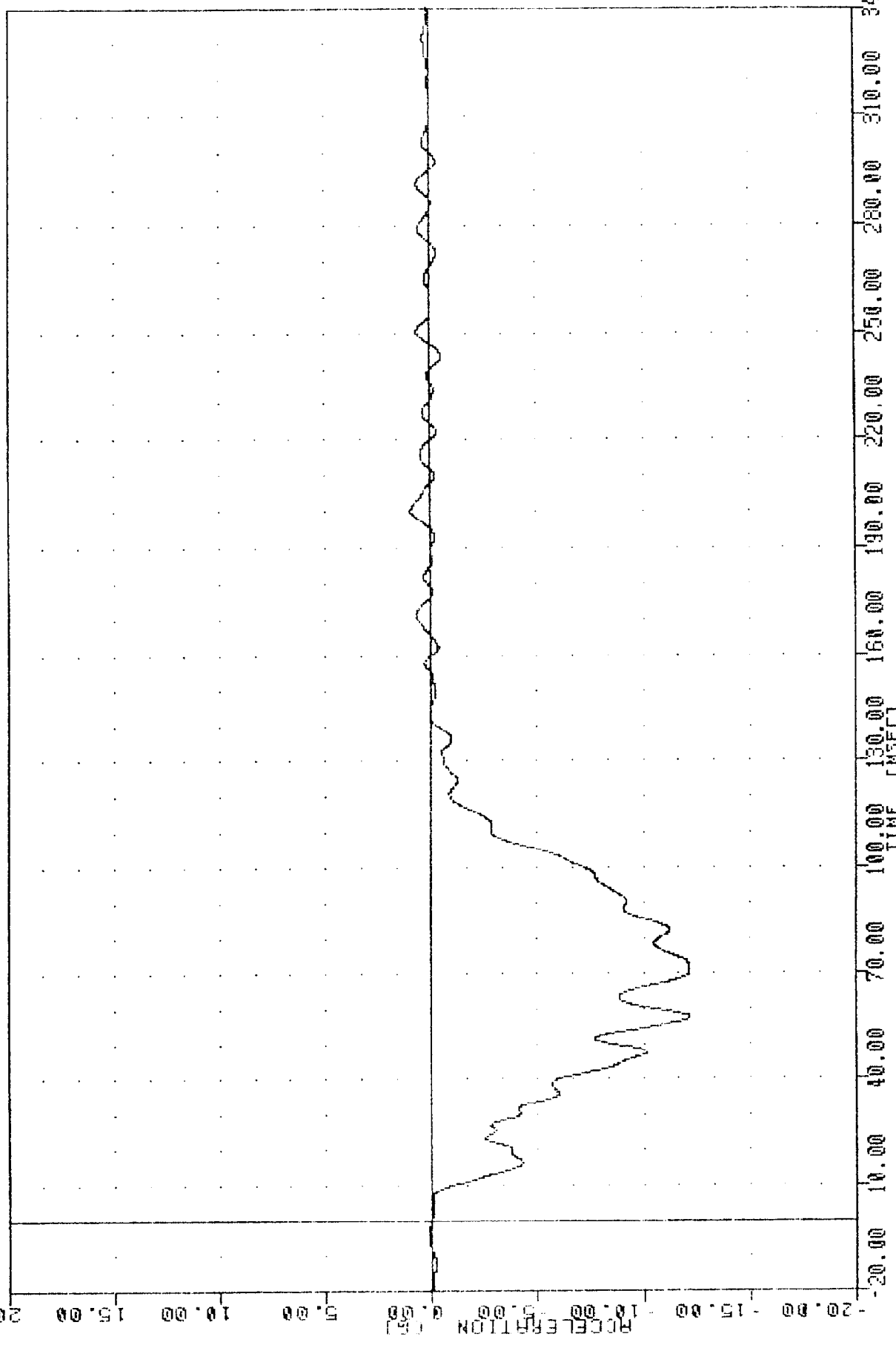
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER FRONT CROSSMEMBER ACCELERATION X AXIS

THE 84195000000
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 BFCXV
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = 22.450 337.63, 43.95 7.50
 PLOT DATE 10 AUG 81 14:15:45



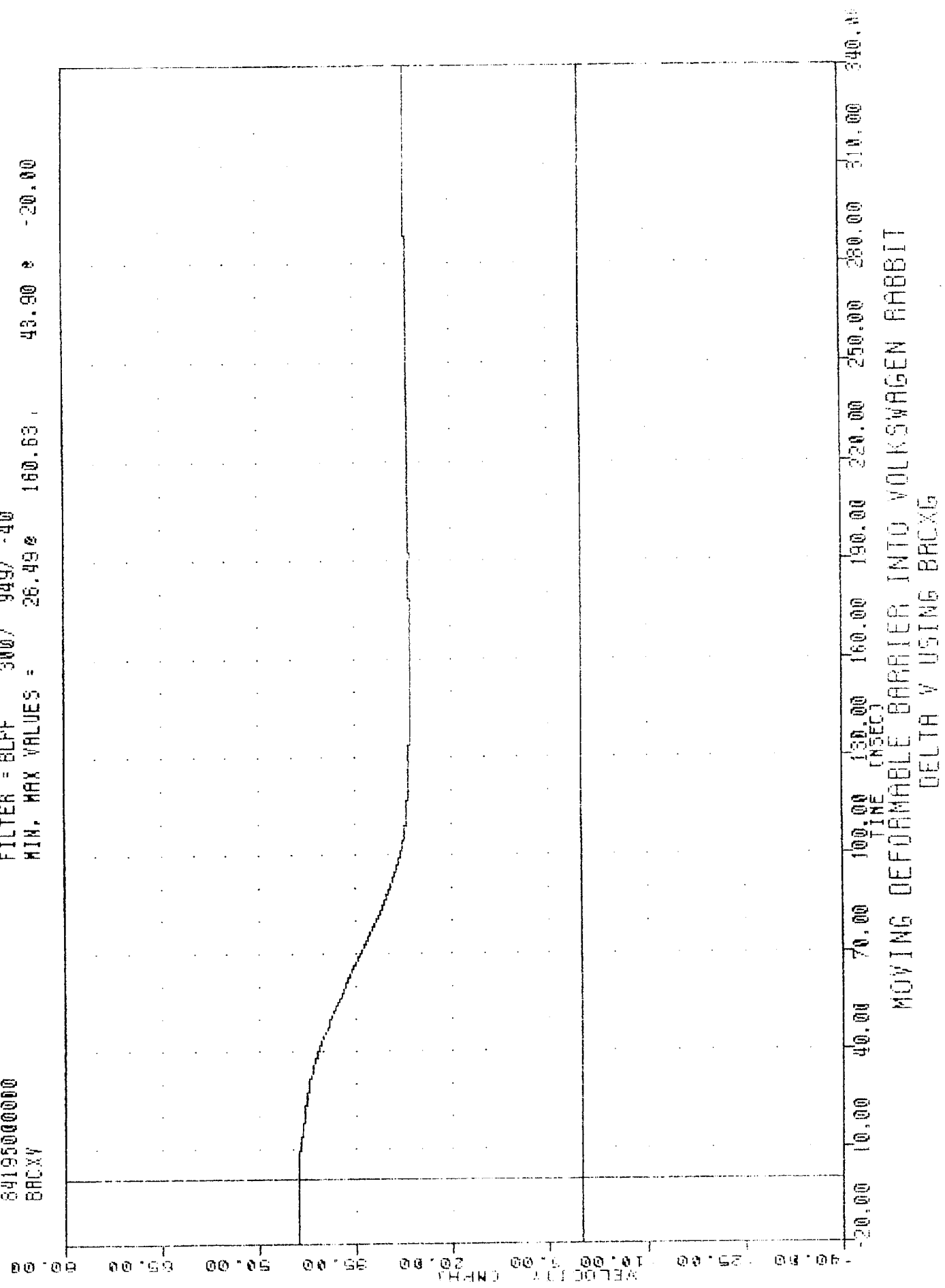
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING BFCXG

TRC 040713 PLOT DATE 30 JUL 84 12:04:56
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 BRCXG
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -12.228 57.38 0.95 200.00



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

TR 713 PLATE 13-8-8 1:43
 SIDE AGGRESSIVE ATTRIBUTES
 84195000000
 BACXY
 FILTER = BLFF 300/ 949/ -40
 MIN. MAX VALUES = 26.49 160.63 43.90 -20.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
 DELTA V USING BACXG