

DOT

755

SIDE IMPACT AGGRESSIVENESS
ATTRIBUTES

CAR-TO-POLE SIDE IMPACT TEST OF A 45° CRABBED
MOVING 1981 VOLKSWAGEN RABBIT
INTO A FIXED RIGID POLE
AT 19.95 MPH

PREPARED BY:
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FINAL REPORT
AUGUST 1984

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
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16. Abstract This test report documents a pole crash test conducted under NHTSA Contract DTNH22-82-A-08401, Task Order SRL 92 entitled, "Side Impact Aggressiveness Attributes". Testing was conducted on a 1981 diesel Volkswagen Rabbit 2-door hatchback at the TRCO Crash Test Facility, East Liberty, Ohio. The test vehicle was towed into a fixed, rigid pole, crabbled at a 45 degree angle with a velocity of 19.95 mph. The impact point was 34.5 inches forward of the vehicle wheelbase centerline. Vehicle accelerations were measured, along with occupant responses of two side impact dummies. 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 June 29, 1984 and the ambient temperature was 68° F.			
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

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

Approximate Conversions from Metric Measures

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



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SECTION 1.0
PURPOSE AND INTRODUCTION

PURPOSE

The purpose of this crash test was to assess occupant safety when a vehicle impacts a pole at a 45° angle, 35 inches forward of the vehicle wheelbase centerline. The vehicle was tested using conditions not currently contained in a Federal Motor Vehicle Safety Standard.

INTRODUCTION

A 1981 diesel Volkswagen Rabbit 2-door hatchback was towed into a fixed, rigid pole on June 29, 1984, with the driver's side of the car leading at a 45° angle. The intended test speed and impact point were 20 mph and 35 inches forward of the wheelbase centerline respectively. Actual impact velocity was 19.95 mph and the actual impact point was 34.5 inches forward of the wheelbase centerline. This test was conducted to assess occupant safety under the previous stated impact conditions.

The General Test and Vehicle Parameter Data are contained in Section 2. Section 3 contains all data required by R & D. Pre-test and post-test vehicle and dummy photographs are found in Appendix A. Appendix B contains all Data Plots, and Appendix C consists of the Dummy Certification Data.

SECTION 2.0
GENERAL TEST AND VEHICLE PARAMETER DATA

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

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Volkswagen of America, Inc.

MAKE/MODEL: Volkswagen Rabbit Diesel VIN: 1VWCG9179BV012014

BODY STYLE: 2-Door Hatchback MODEL YEAR: 1981

NHTSA NO.: R & D COLOR: Silver

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

TRANSMISSION DATA: 4 Speed Manual

DATE VEHICLE RECEIVED: 5/9/84 ODOMETER READING: 43770

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING	No	AUTOMATIC TRANSMISSION	No
POWER BRAKES	No	AUTOMATIC SPEED CONTROL	No
POWER SEATS	No	TILTING STEERING WHEEL	No
POWER WINDOWS	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	Yes	AIR CONDITIONING	No
RADIO	No	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): Continental Radial 155 SR 13

BIAS PLY, BELTED, OR RADIAL: Radial

PLY RATING: 3

IS SPARE TIRE "SPACE SAVER"? No

IS SPARE TIRE STANDARD EQUIPMENT? No

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

RIGHT FRONT	650	LBS.	RIGHT REAR	372	LBS.
LEFT FRONT	655	LBS.	LEFT REAR	383	LBS.
TOTAL FRONT WEIGHT	1305		LBS. (63.3 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	755		LBS. (36.7 % OF TOTAL VEHICLE WEIGHT)		
TOTAL DELIVERED WEIGHT	2060		LBS.		

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 25 3/8	;LF 25 1/8	;RR 23 1/2	;LR 23 7/16
PRE-TEST ATTITUDE:	RF 24	;LF 23 3/4	;RR 20 3/8	;LR 20 3/8
POST-TEST ATTITUDE:	RF 22 3/4	;LF 26 1/4	;RR 20 1/4	;LR 20 7/8

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 168 LBS. CARGO:

RIGHT FRONT	670	LBS.	RIGHT REAR	620	LBS.
LEFT FRONT	690	LBS.	LEFT REAR	600	LBS.
TOTAL FRONT WEIGHT	1360		LBS. (52.7 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	1220		LBS. (47.3 % OF TOTAL VEHICLE WEIGHT)		
TOTAL TEST WEIGHT	2580		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: 10.0 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: P 175/70R 13 LOAD RANGE X B, C,
VEHICLE CAPACITY: TYPES OF SEATS: Front - Bucket
Rear - Bench
NUMBER OF OCCUPANTS (DESIGNATED SEATING CAPACITY): 2 FRONT
2 REAR
CARGO LOAD 185 LBS. 4 TOTAL
TOTAL 785 LBS.

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

TEST CONDITIONS

TEST NUMBER: 840629

DATE OF TEST: June 29, 1984

TIME OF TEST: 12:00

WIND VELOCITY: 4-8 mph 12° N

HUMIDITY: 54 %

AMBIENT TEMPERATURE AT IMPACT AREA: 68° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 69° F

SUBJECT VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
VEHICLE TEST WEIGHT (LBS.)	2580	2593
VEHICLE VELOCITY (MPH)*	19.9	20
IMPACT POINT (INCHES)**	34.5	35

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>Side Glass, Window Sill, Pole</u>	<u>Side Header, Side Glass, Sunroof Guide</u>
Chest	<u>Driver's Inner Door Panel</u>	<u>Left Rear Quarter Panel</u>
Abdomen	<u>Driver's Inner Door Panel</u>	<u>Left Rear Quarter Panel</u>
Left Knee	<u>Driver's Inner Door Panel</u>	<u>Left Rear Quarter Panel</u>
Right Knee	<u>Left Knee</u>	<u>Left Knee</u>

DOOR OPENING:

	LEFT	RIGHT
Front	<u>Popped Open During Impact</u>	<u>Easy</u>
Rear	<u>DNA</u>	<u>DNA</u>

SEAT MOVEMENT:

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

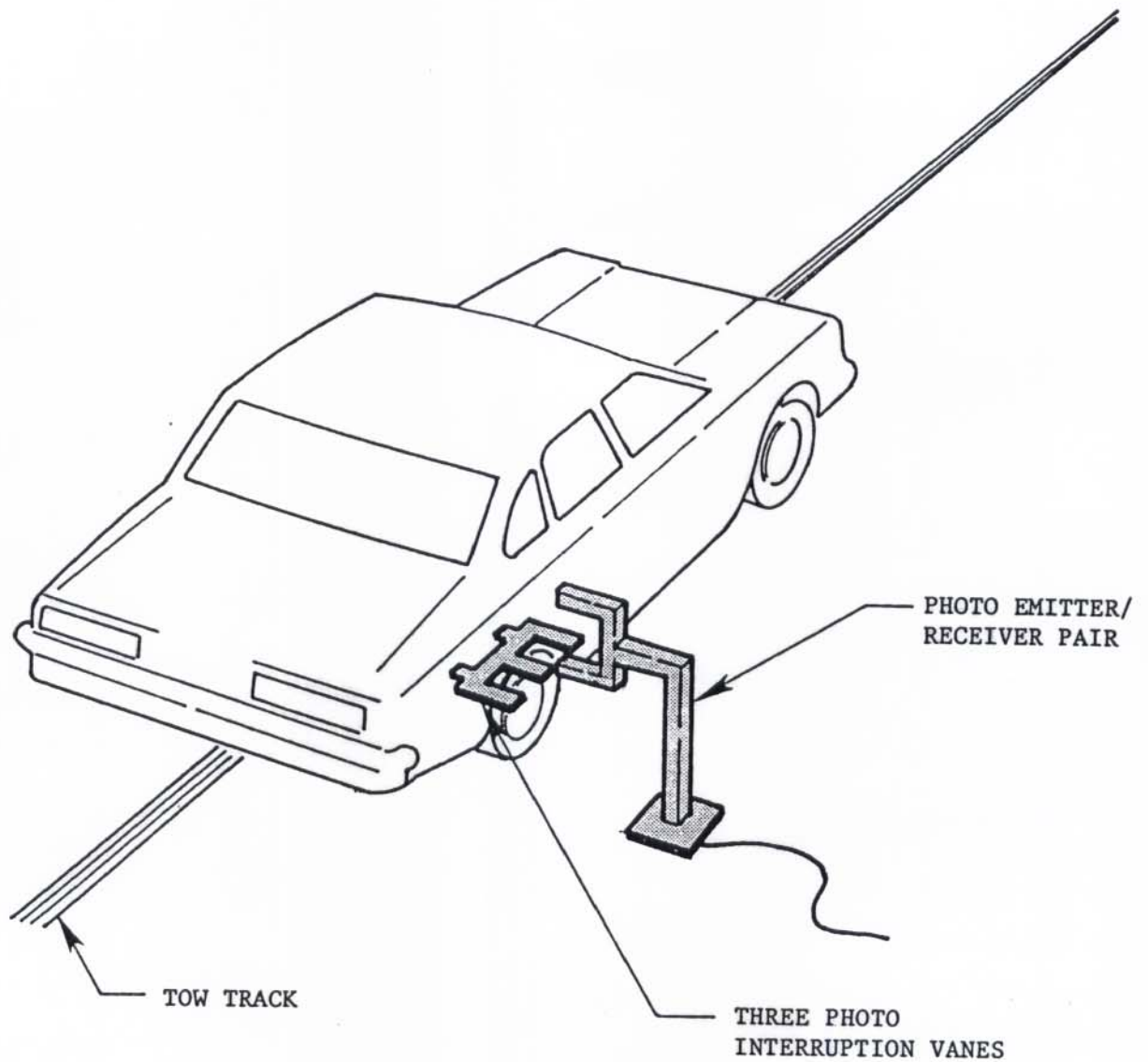
GLAZING DAMAGE:

Entire windshield severely cracked and left side popped out of frame; all left side windows shattered; no backlight damage.

OTHER NOTABLE IMPACT EFFECTS:

Driver's seat rotated approximately 45 degrees clockwise.

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane is located two inches before impact.

The vanes have one foot spacing.

VEHICLE TEST WEIGHT CALCULATION

$$\begin{aligned}\text{Test Weight} &= \text{Unloaded Delivered Weight} + \\ &\quad \text{Number of Dummies X 174 lbs.} + \\ &\quad \text{Cargo Weight} \\ &= 2060 + 2 \times 174 + 185 \text{ lbs.} \\ &= 2593 \text{ lbs.}\end{aligned}$$

To achieve test weight, 10.0 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

1. Data from the passenger left lower rib accelerometer, LLRYG3, should be disregarded after approximately 250 msec. A mechanical failure occurred at this time.

2. The cable to the vehicle's left front door accelerometer in Position 8, LFDYG2, was severed after impact. Disregard data after 150 msec.

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

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

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

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

DUMMY IN-VEHICLE POSITION RECORDING SHEET

VEHICLE NHTSA NO. R & D

MFR./MAKE/MODEL: Volkswagen Rabbit

FRONT SEAT TYPE: BENCH
X BUCKET
 SPLIT BENCH

ADJUSTER TYPE: X MANUAL
 POWER

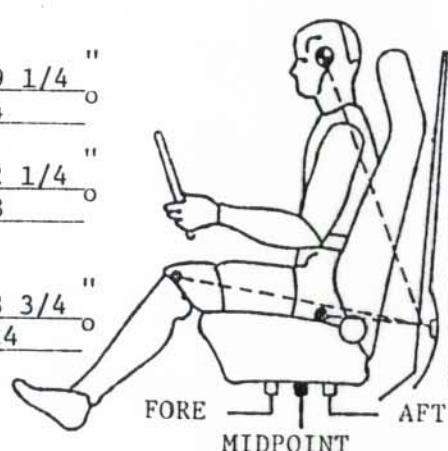
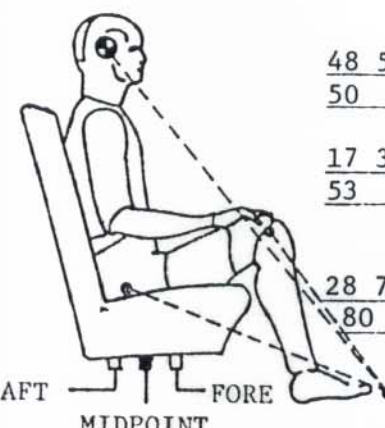
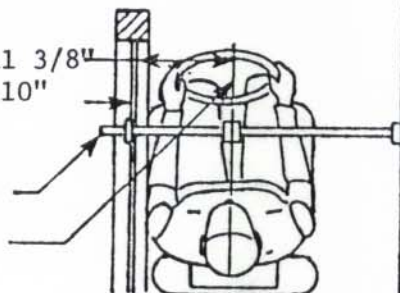
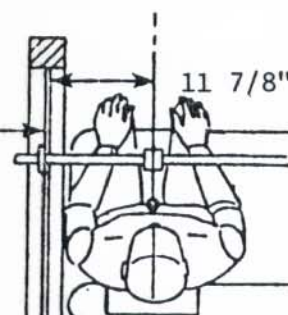
BUCKET SEAT BACK TYPE: FIXED
X ADJUSTABLE

TECHNICIANS:

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

POSITIONING DATE: 6/29/84

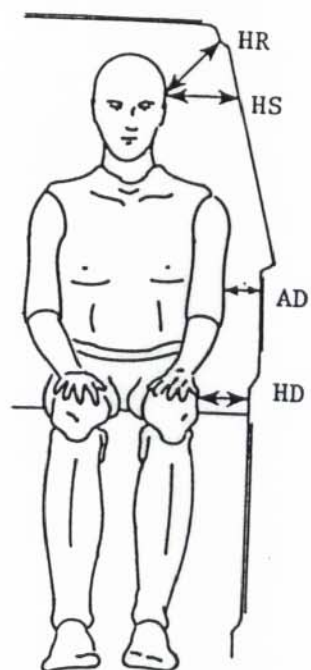
AMBIENT TEMP.: 66° F. TIME: 6:30

DRIVER DUMMY # 06  HEAD <u>19 1/4</u>" TARGET*<u>44</u>" KNEE <u>32 1/4</u>" JOINT <u>98</u>" APPROX. "H" <u>18 3/4</u>" POINT <u>124</u>" FORE AFT MIDPOINT	REAR PASSENGER DUMMY # U02  <u>48 5/8</u>" HEAD <u>50</u>" TARGET** <u>17 3/4</u>" KNEE <u>53</u>" JOINT APPROX. <u>28 7/8</u>" "H" <u>80</u>" POINT AFT FORE MIDPOINT
DOOR GLASS HEIGHT*** <u>11 3/8</u>" <u>10</u>" LATERAL BAR ADJUSTABLE POINTER  DRIVER DUMMY # 06	DOOR GLASS HEIGHT <u>11 7/8</u>" <u> </u> 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.

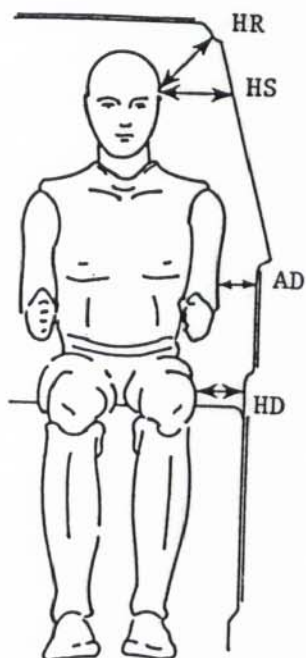
***Door glass height is equal on the right and left side of vehicle at dummy nose level.



DRIVER
06

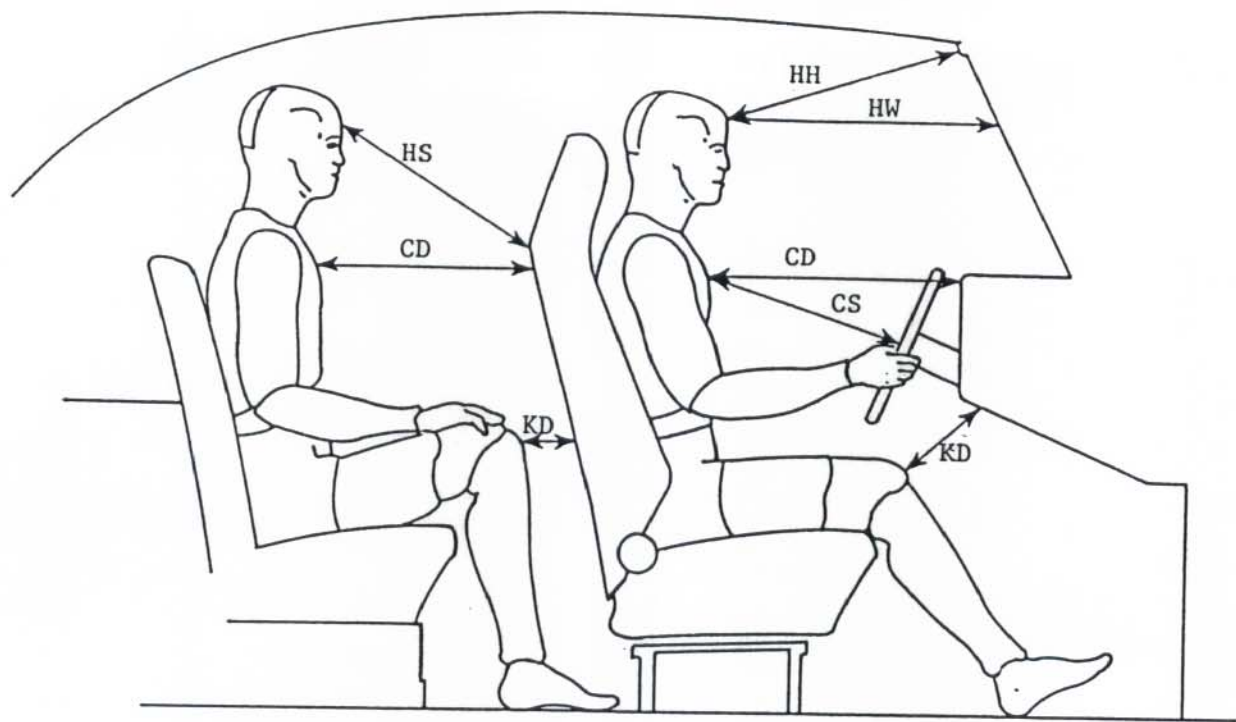
PASSENGER
U02

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



ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



DRIVER
06

PASSENGER
U02

HH	13 3/4	DNA
HW	20 7/8	DNA
HS	DNA	21 5/8
CD	19 13/16	18 1/8
CS	13 1/8	DNA
KDL	4 9/16	3 1/16
KDR	5 1/16	3 7/16

ALL MEASUREMENTS IN INCHES

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

DUMMY KINEMATIC SUMMARY

DRIVER

During impact, the dummy's torso contacted the driver's inner door panel and the head went through the driver's window, which broke on impact, and struck the fixed, rigid pole. The dummy then rebounded from the driver's door across the front occupant compartment. Final resting position showed the dummy's buttocks in the passenger seat and the torso facing the driver's side. The legs were extended across the occupant compartment with the back of the knees caught against the floor stick shift. The dummy's head was resting on the driver's side window sill.

PASSENGER

The passenger dummy began in an upright position, centered behind the driver with the feet placed under the driver's seat. During impact, the dummy's torso hit the rear quarter panel and the left side of the head hit the C-Pillar. As the torso rotated toward the window, the dummy rebounded from the seat back and the torso hit the driver's seat back while the head impacted the sunroof guide and then struck the driver's seat head rest. Meanwhile, the driver's seat had fallen backwards, rotating toward the left side door, thereby trapping the passenger's lower legs between the B-Pillar and the driver's seat back. As the dummy rebounded from the passenger quarter panel, the torso fell towards the right side passenger position. With the lower legs trapped, the dummy came to rest in a partially upright position, stretched across the rear occupant compartment and skewed 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	8.0	X	X	20.3	20.3	20.3	20.3	20.3	20.4	20.4	20.4	20.5	20.6	20.6	X	X
H-Point	18.0	X	18.2	18.3	18.3	18.1	18.1	18.1	18.1	18.1	18.1	18.3	18.3	18.4	16.9	X
Mid Door	21.0	16.9	18.1	18.0	17.9	17.9	17.8	17.8	17.7	17.7	17.8	17.9	17.9	18.1	18.3	16.2
Window Sill	32.0	20.4	20.0	19.7	19.6	19.5	19.4	19.4	19.4	19.3	19.3	19.4	19.5	19.5	19.6	19.7
Window Top	50.0	X	X	X	X	X	27.3	27.0	26.8	26.7	26.6	26.6	26.7	26.9	27.2	27.6

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

Axle Height	8.0	X	X	27.8	34.5	37.3	38.3	37.3	33.3	28.8	25.4	23.9	23.1	22.4	X	X
H-Point	18.0	X	26.4	26.8	33.4	36.5	36.0	32.0	26.1	21.3	16.2	22.1	21.3	20.6	18.2	X
Mid Door	21.0	24.4	26.4	26.8	33.2	36.4	35.8	31.5	25.6	20.6	16.1	21.6	21.0	20.3	19.6	16.9
Window Sill	32.0	25.6	26.3	27.6	32.8	35.5	34.7	30.4	24.5	19.6	15.9	23.7	22.9	22.1	21.5	20.7
Window Top	50.0	X	X	X	X	X	36.3	36.4	33.4	33.4	32.3	31.6	30.5	29.6	29.3	28.8

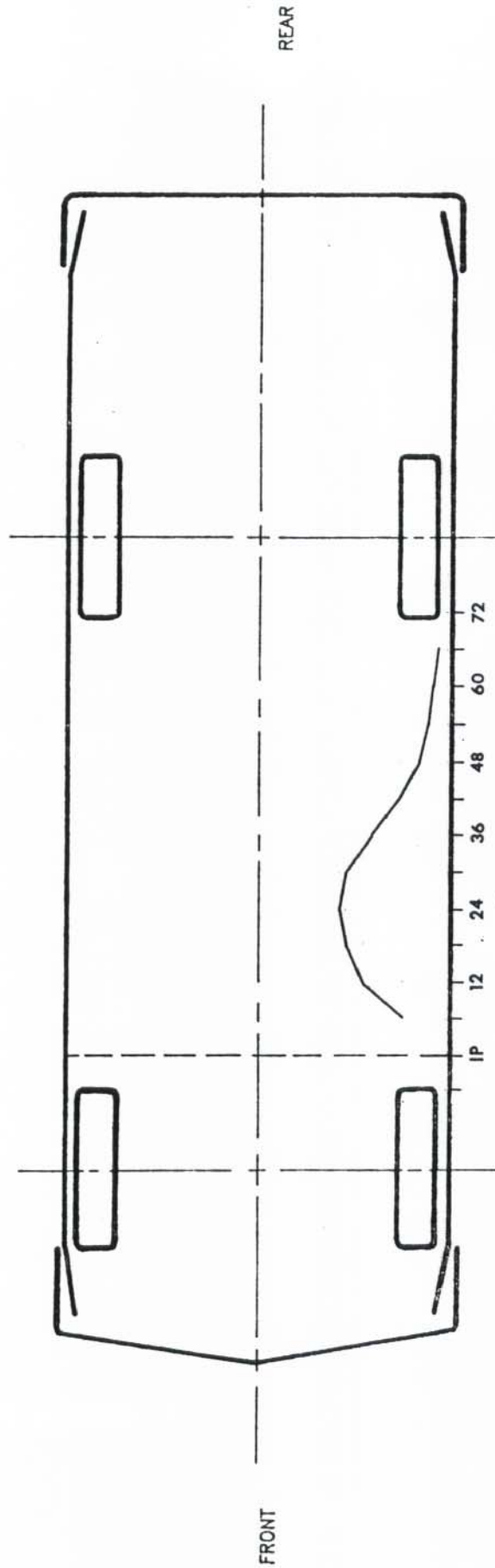
STATIC CRUSH (IN)

Axle Height	8.0	X	X	7.5	14.2	17.0	18.0	17.0	12.9	8.4	5.0	3.4	2.5	1.8	X	X
H-Point	18.0	X	8.2	8.5	15.1	18.4	17.9	13.9	8.0	3.2	-1.9	3.8	3.0	2.2	1.3	X
Mid Door	21.0	7.5	8.3	8.8	15.3	18.5	18.0	13.7	7.9	2.9	-1.7	3.7	3.1	2.2	1.3	0.7
Window Sill	32.0	5.2	6.3	7.9	13.2	16.0	15.3	11.0	5.1	0.3	-3.4	4.3	3.4	2.6	1.9	1.0
Window Top	50.0	X	X	X	X	X	9.0	9.4	6.6	6.7	5.7	5.0	3.8	2.7	2.1	1.2

* Projected impact point is 35 inches forward of driver's side wheelbase midpoint. Column readings are front to rear from left to right.

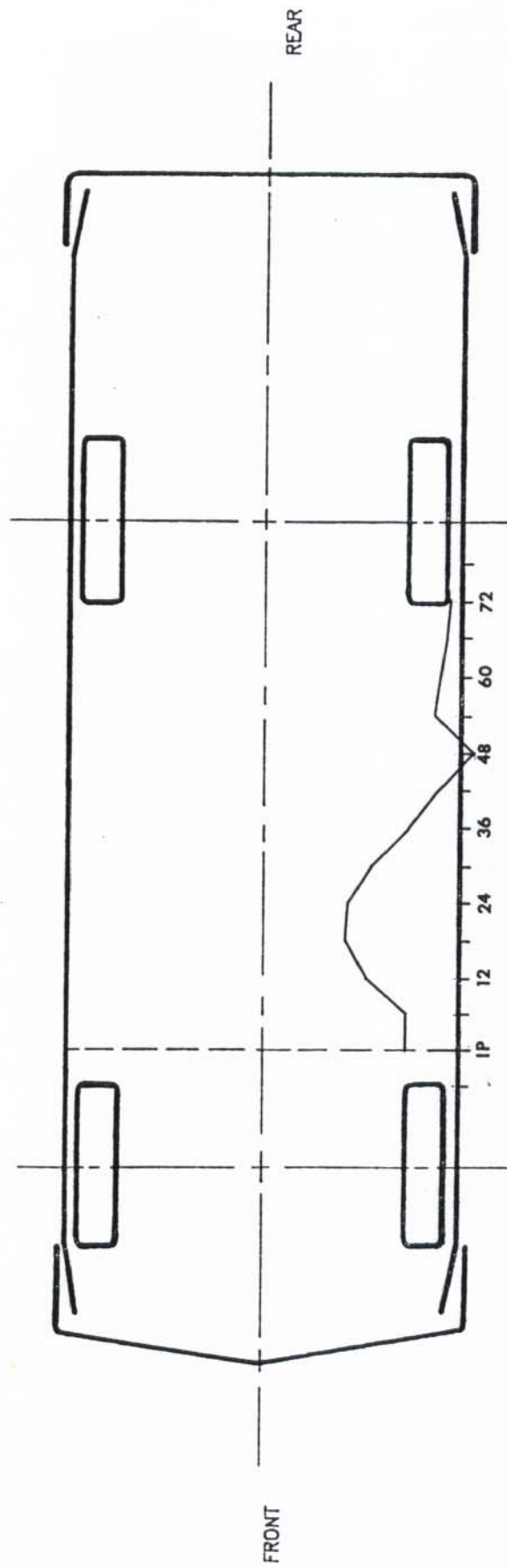
** Reference plane is parallel to and 48 inches from the vehicle longitudinal centerline.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



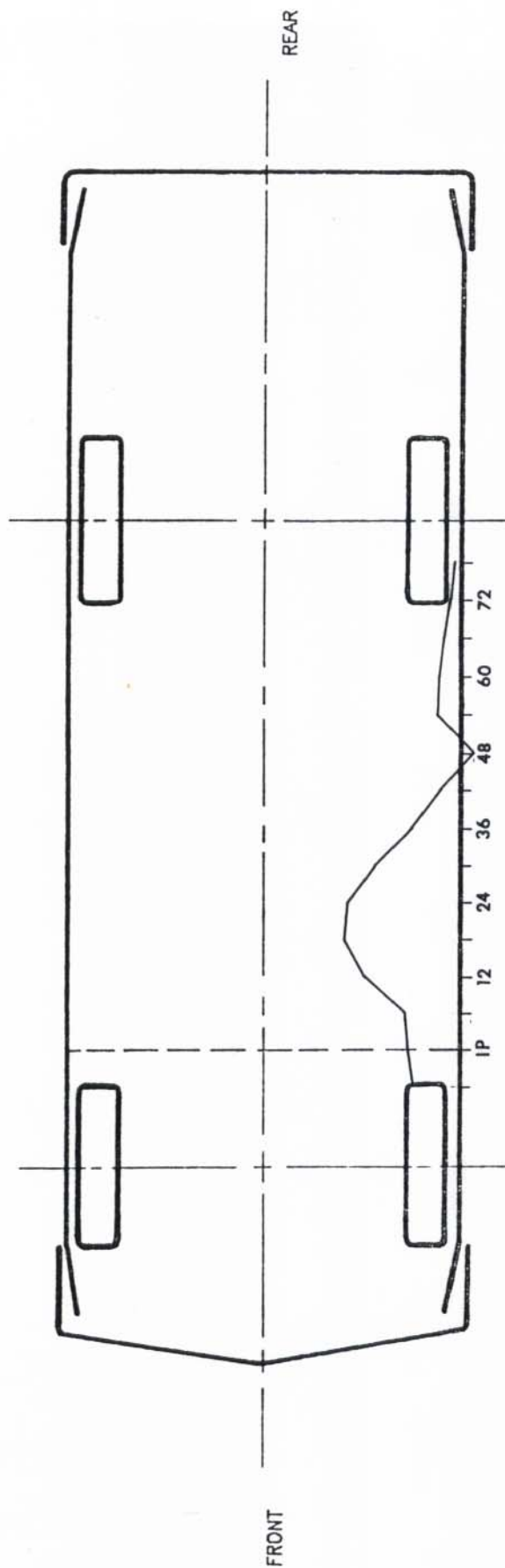
PROFILE LEVEL EQUALS AXLE HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



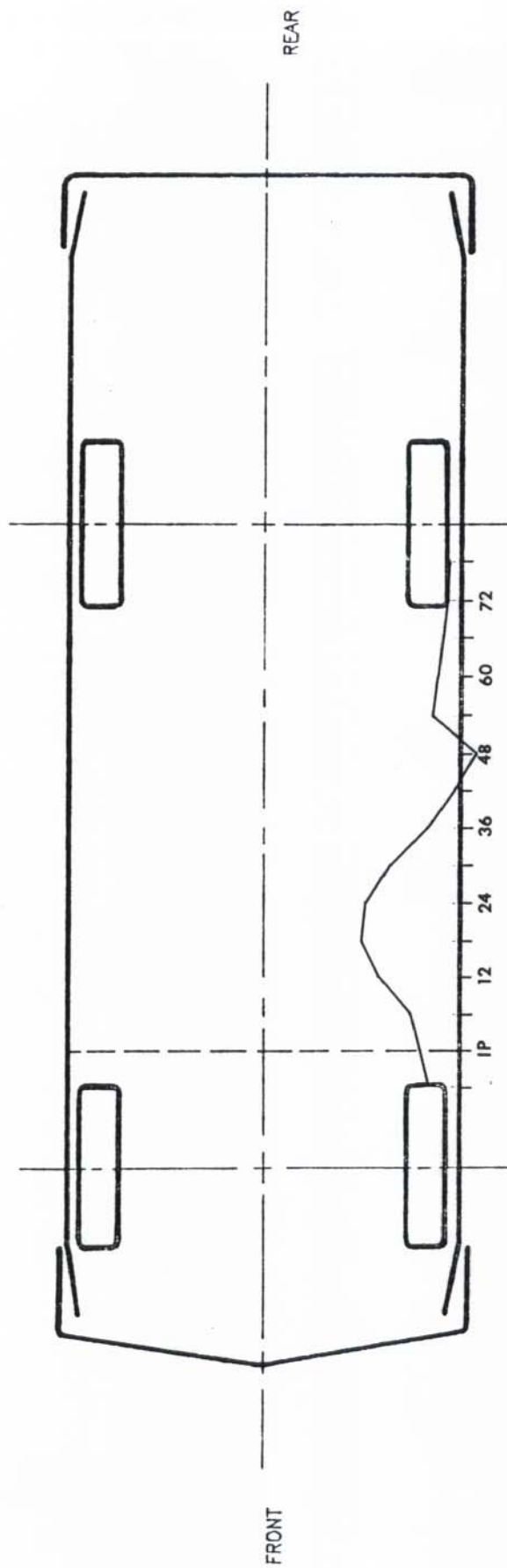
PROFILE LEVEL EQUALS H-POINT HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



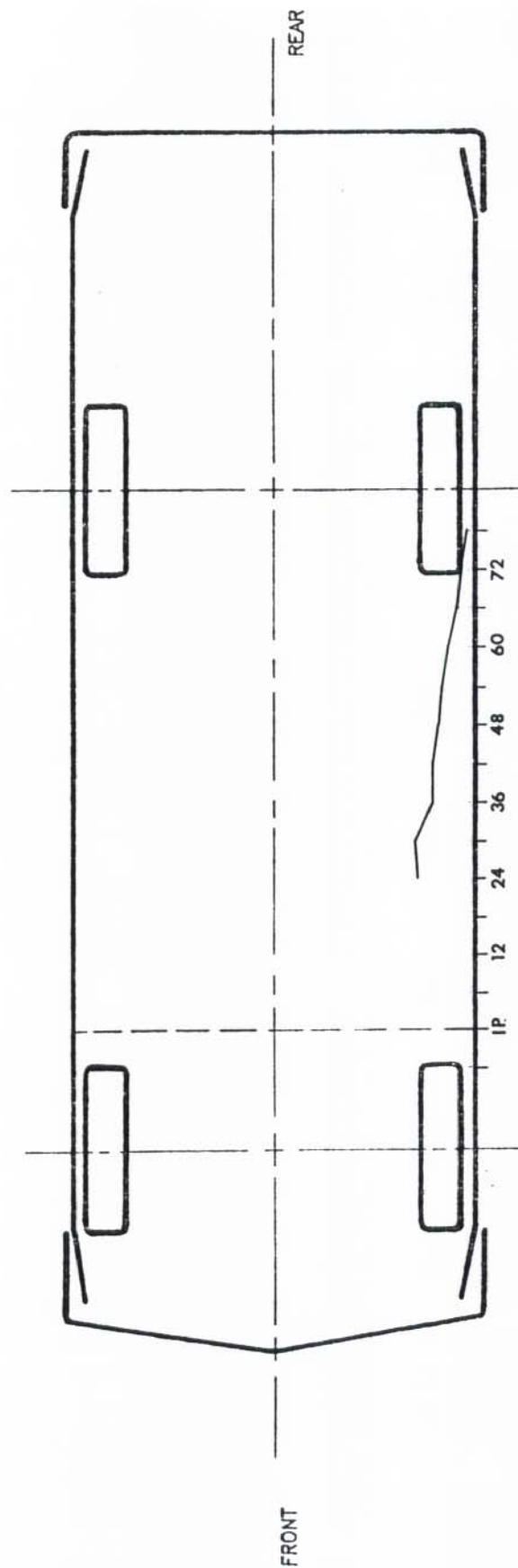
PROFILE LEVEL EQUALS MID-DOOR HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW SILL HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT
 IP EQUALS PROJECTED IMPACT POINT

SIDE IMPACT DUMMY DATA SUMMARY

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE		NEGATIVE		POSITIVE		NEGATIVE	
	DIRECTION*		DIRECTION**		DIRECTION*		DIRECTION**	
	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
HEAD ACCELERATION								
LONGITUDINAL	26.50	113.38	218.98	106.50	11.03	338.63	23.62	188.13
LATERAL	19.31	143.13	5.59	76.00	73.65	81.75	90.84	188.13
VERTICAL	8.89	272.63	45.53	114.88	24.89	88.63	18.36	95.50
RESULTANT		219.60 @	106.50			93.96 @	188.13	
HIC	976.83	from 105.25 to 107.75			150.66	from 79.75 to 85.50		
CHEST ACCELERATION								
UPPER SPINE								
LONGITUDINAL	13.87	125.00	55.45	111.25	2.52	96.88	12.19	138.13
LATERAL (P)***	27.13	91.87	9.14	133.75	24.27	124.38	5.42	147.50
LATERAL (R)***	27.77	91.87	8.83	133.75	24.83	124.38	5.26	147.50
VERTICAL	6.51	79.38	23.66	110.63	2.78	123.12	2.84	87.50
RESULTANT (P)		61.94 @	111.25			24.74 @	123.75	
RESULTANT (R)		61.71 @	111.25			25.28 @	124.38	
DELTA V (MPH)****		17.5 @	126.25 (P)			18.3 @	143.13 (P)	
		16.9 @	126.25 (R)			17.7 @	143.13 (R)	
LOWER SPINE								
LONGITUDINAL	8.36	111.25	18.08	88.75	4.51	93.75	15.78	140.00
LATERAL (P)	41.55	83.75	5.13	140.63	16.92	125.00	5.29	160.63
LATERAL (R)	41.25	83.75	4.89	140.63	17.09	125.63	5.64	159.38
VERTICAL	9.99	85.63	13.19	110.63	5.12	143.75	2.71	88.13
RESULTANT (P)		44.53 @	84.38			19.24 @	123.75	
RESULTANT (R)		44.18 @	84.38			19.27 @	124.38	
DELTA V (MPH)		21.5 @	131.25 (P)			13.1 @	143.13 (P)	
		21.8 @	131.25 (R)			12.9 @	143.13 (R)	
LEFT UPPER RIB								
LATERAL (P)	38.46	69.38	4.35	133.12	20.78	113.13	7.63	168.75
LATERAL (R)	37.75	69.38	5.35	133.75	19.24	113.13	7.59	168.75
DELTA V (MPH)		21.7 @	130.00 (P)			14.3 @	177.50 (P)	
		21.8 @	129.38 (R)			17.3 @	178.13 (R)	
LEFT LOWER RIB								
LATERAL (P)	36.80	69.38	8.95	110.00	14.48	115.00	6.55	180.00 Y
LATERAL (R)	37.80	70.00	6.16	110.00	16.75	115.00	6.20	168.13
DELTA V (MPH)		22.7 @	135.63 (P)			11.9 @	176.88 (P)Y	
		23.3 @	135.63 (R)			14.6 @	176.88 (R)	
PELVIS ACCELERATION								
LONGITUDINAL	4.66	54.50	27.59	79.88	1.93	78.63	16.97	132.00
LATERAL	63.36	80.50	11.39	52.38	10.54	108.75	4.25	122.63
VERTICAL	14.85	83.25	4.00	126.88	2.65	95.00	3.30	86.63
RESULTANT		68.87 @	80.50			17.22 @	131.88	
DELTA V (MPH)		21.1 @	100.00			12.3 @	183.13	

SIDE IMPACT DUMMY DATA SUMMARY CONTD

		<u>DRIVER DUMMY</u>				<u>PASSENGER DUMMY</u>			
		<u>POSITIVE</u>		<u>NEGATIVE</u>		<u>POSITIVE</u>		<u>NEGATIVE</u>	
		<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	†	1.74	134.75	---	---ξ	1.10	145.00	---	---ξ

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

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

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

† Compression: Positive

γ See TEST ANOMALIES

ξ There are no negative values in the time interval of interest.

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	RIGHT SILL AT FRONT SEAT (LONGITUDINAL) (LATERAL) (VERTICAL) (RESULTANT)	83.4	23.3	10.2				
		$\Delta V = -14.6 \text{ mph @ } 230.50 \text{ msec}$			0.06	30.88	6.97	145.63
		$\Delta V = 13.3 \text{ mph @ } 230.50 \text{ msec}$			9.10	72.00	0.77	172.00
					6.46	100.63	4.21	38.50
						10.01 @ 137.50		
2	RIGHT SILL AT REAR SEAT (LONGITUDINAL) (LATERAL) (VERTICAL) (RESULTANT)	61.4	23.7	8.5				
		$\Delta V = -12.8 \text{ mph @ } 230.50 \text{ msec}$			0.85	36.38	6.07	145.50
		$\Delta V = 18.6 \text{ mph @ } 230.50 \text{ msec}$			8.18	99.88	---	---
					5.40	153.13	4.47	39.00
						9.90 @ 100.13		
3	REAR DECK OVER AXLE (LONGITUDINAL) (LATERAL) (VERTICAL) (RESULTANT)	32.0	0.0	6.3				
		$\Delta V = -13.6 \text{ mph @ } 230.50 \text{ msec}$			1.74	41.00	8.21	139.00
		$\Delta V = 19.1 \text{ mph @ } 230.50 \text{ msec}$			7.82	165.13	0.93	24.75
					2.55	143.88	3.54	70.75
						11.03 @ 161.25		
4	LEFT SILL AT REAR SEAT (LATERAL)	61.0	-23.6	8.5				
		$\Delta V = 17.2 \text{ mph @ } 221.13 \text{ msec}$			10.94	99.75	1.52	18.38
5	LEFT SILL AT FRONT SEAT (LATERAL)	83.4	-23.5	10.2				
		$\Delta V = 15.6 \text{ mph @ } 99.13 \text{ msec}$			37.66	64.88	27.44	71.25
6	LEFT FRONT DOOR CENTERLINE (LATERAL)	81.3	-26.2	23.4				
		$\Delta V = 17.2 \text{ mph @ } 105.00 \text{ msec}$			43.60	21.63	22.89	48.25
7	RIGHT REAR COMPARTMENT (LONGITUDINAL)	31.0	-15.4	13.5				
					1.16	40.00	5.97	137.25
8	MIDREAR OF LEFT FRONT DOOR (LATERAL)	61.3	---	---	---	---	---	---

9	UPPER LEFT FRONT DOOR CENTERLINE (LATERAL)	82.2	-26.1	32.3				
		$\Delta V = 19.1 \text{ mph @ } 102.63 \text{ msec}$			64.06	29.25	94.50	73.63
10	MIDFRONT OF LEFT FRONT DOOR (LATERAL)	99.9	-26.0	22.3				
					106.82	11.75	35.78	17.38
11	UPPER REAR OF LEFT REAR DOOR (LATERAL)	71.3	-26.1	32.3				
		$\Delta V = 20.5 \text{ mph @ } 140.75 \text{ msec}$			42.36	66.63	80.33	72.63

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

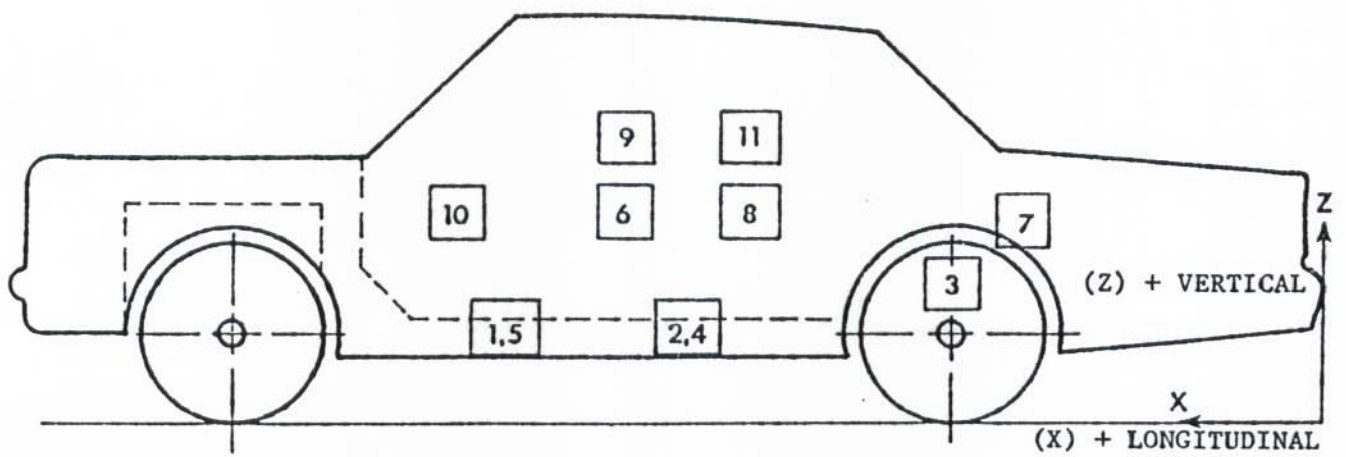
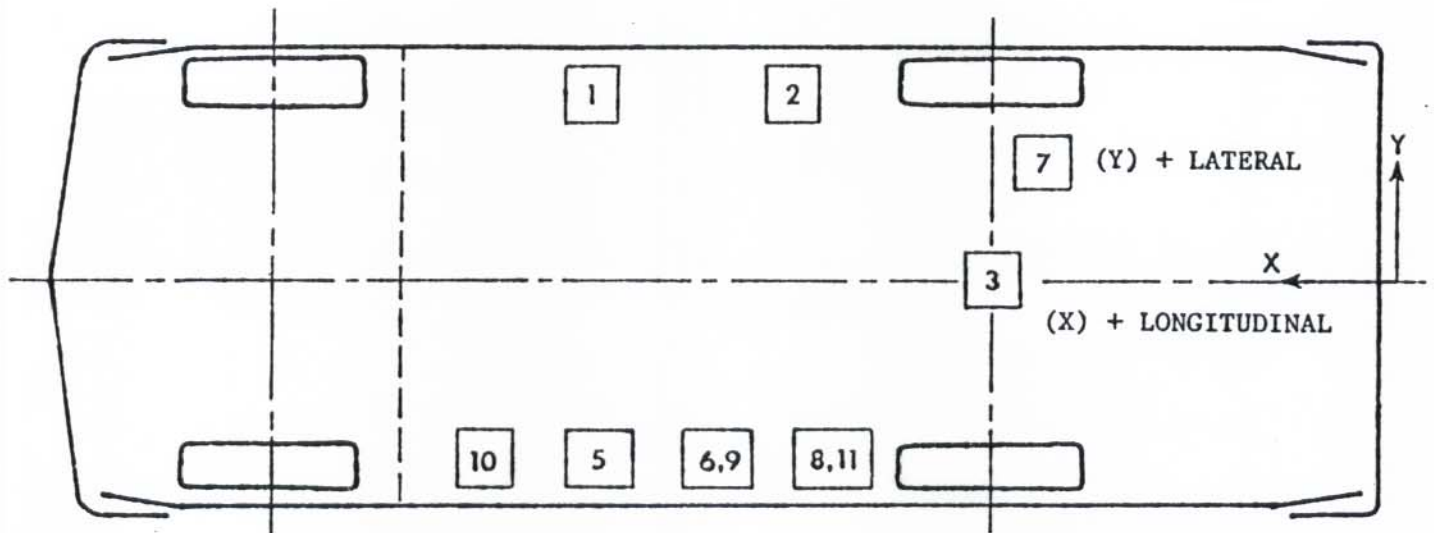
All measurements of accelerometer locations in inches.

See TEST ANOMALIES

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

Delta V appears unrealistic after initial velocity change.

VEHICLE ACCELEROMETER LOCATIONS



FIXED POLE LOAD CELL LOCATIONS AND DATA SUMMARY

CELL NO. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
				MAX (lb)	TIME (msec)	MAX (lb)	TIME (msec)
1	17.75	-3.25	72.5	2248.58	144.13	10386.57	55.75
2	17.75	3.25	72.5	7273.40	33.50	7428.26	138.75
3	17.75	-3.25	4.0	706.9	141.63	12785.74	45.00
4	17.75	3.25	4.0	5888.76	35.88	11845.76	143.00
TOTAL FORCE				---	---ξ	21806.20	86.63

*Reference Facing Pole Front
X - Pole Base (+ forward)
Y - Pole Centerline (+ right)
Z - Ground Level (+ up)

All location measurements are in inches.

Compression - Negative

ξ There are 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	25	540	Impact point
2	Overhead	Photosonic 1B	13	550	Vehicle dynamics
3	Left side	Photosonic 1B	13	492	Vehicle dynamics
4	Behind pole	Photosonic 1B	25	507	Impact point
5	Onboard - front	Photosonic 1B	8	792	Driver kinematics
6	Onboard - driver side	Photosonic 1B	8	815	Driver kinematics
7	Onboard - back seat	Photosonic 1B	8	795	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	-3' 1/2"	2"	17'3"
2	13'11"	10'3"	13'3"
3	-3'5"	-24'4"	52'1/2"
4	12'9"	5'3/4"	32

Origin of Coordinate System is Point of Impact

- +X = Forward of Impact Side of Pole with Respect to Striking Vehicle's Velocity Vector
- +Y = Rightward from Centerline of Pole
- +Z = Upward with Respect to Striking Vehicle's Velocity Vector

APPENDIX A
PHOTOGRAPHS

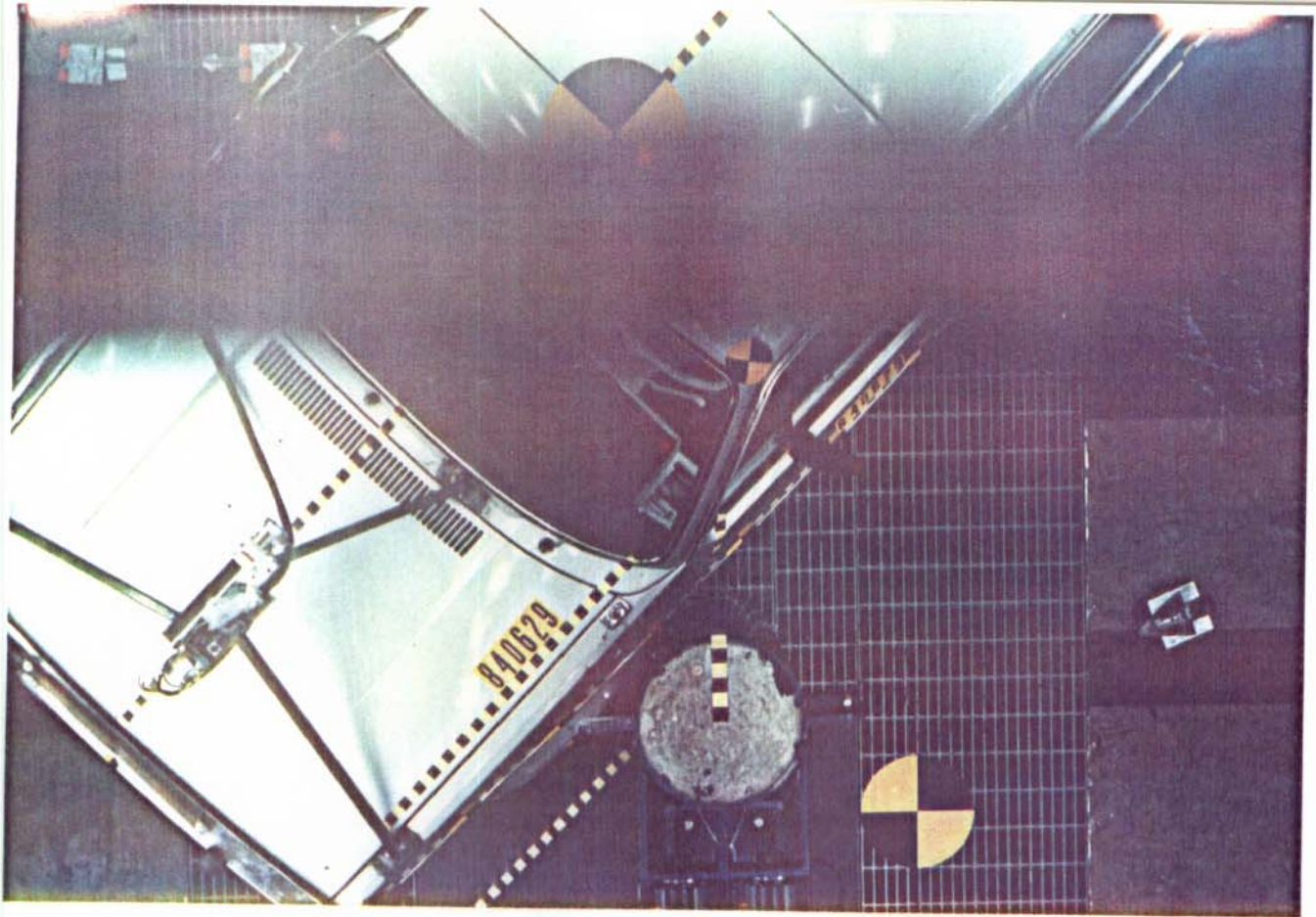


Figure A-1. PRE-TEST OVERALL - VIEW 1



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



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

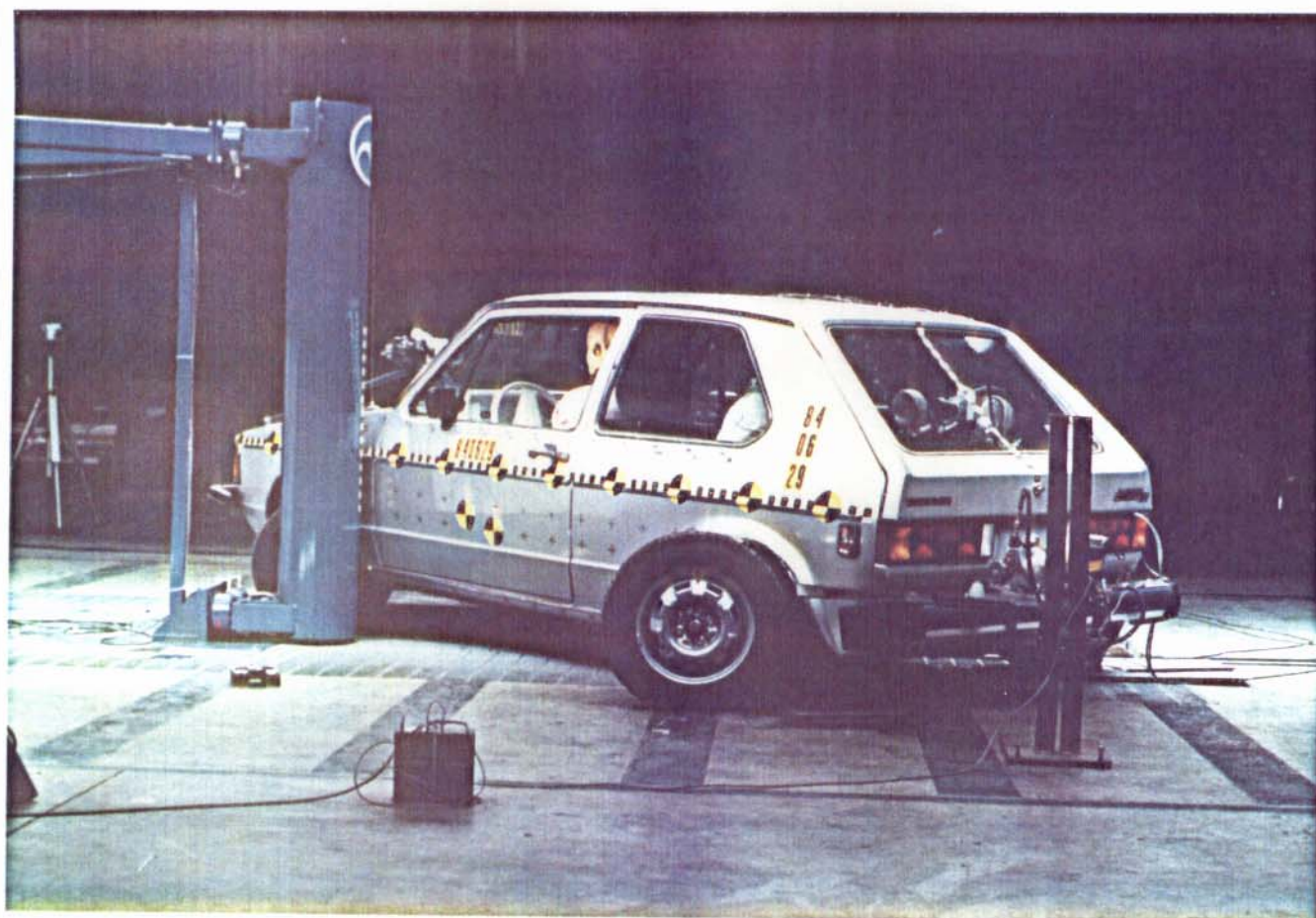


Figure A-4. PRE-TEST OVERALL - VIEW 4
A-3

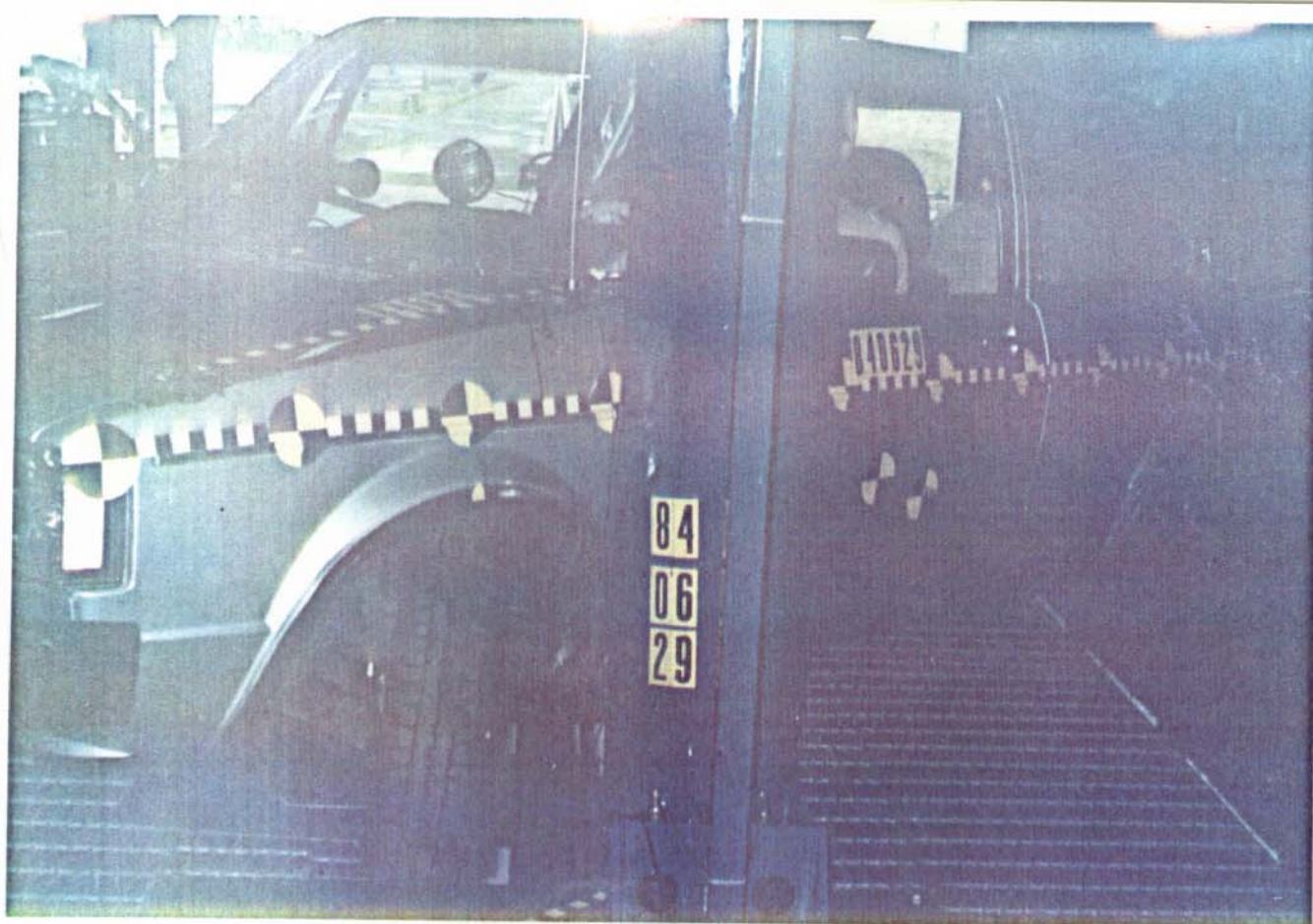


Figure A-5. PRE-TEST CLOSEUP

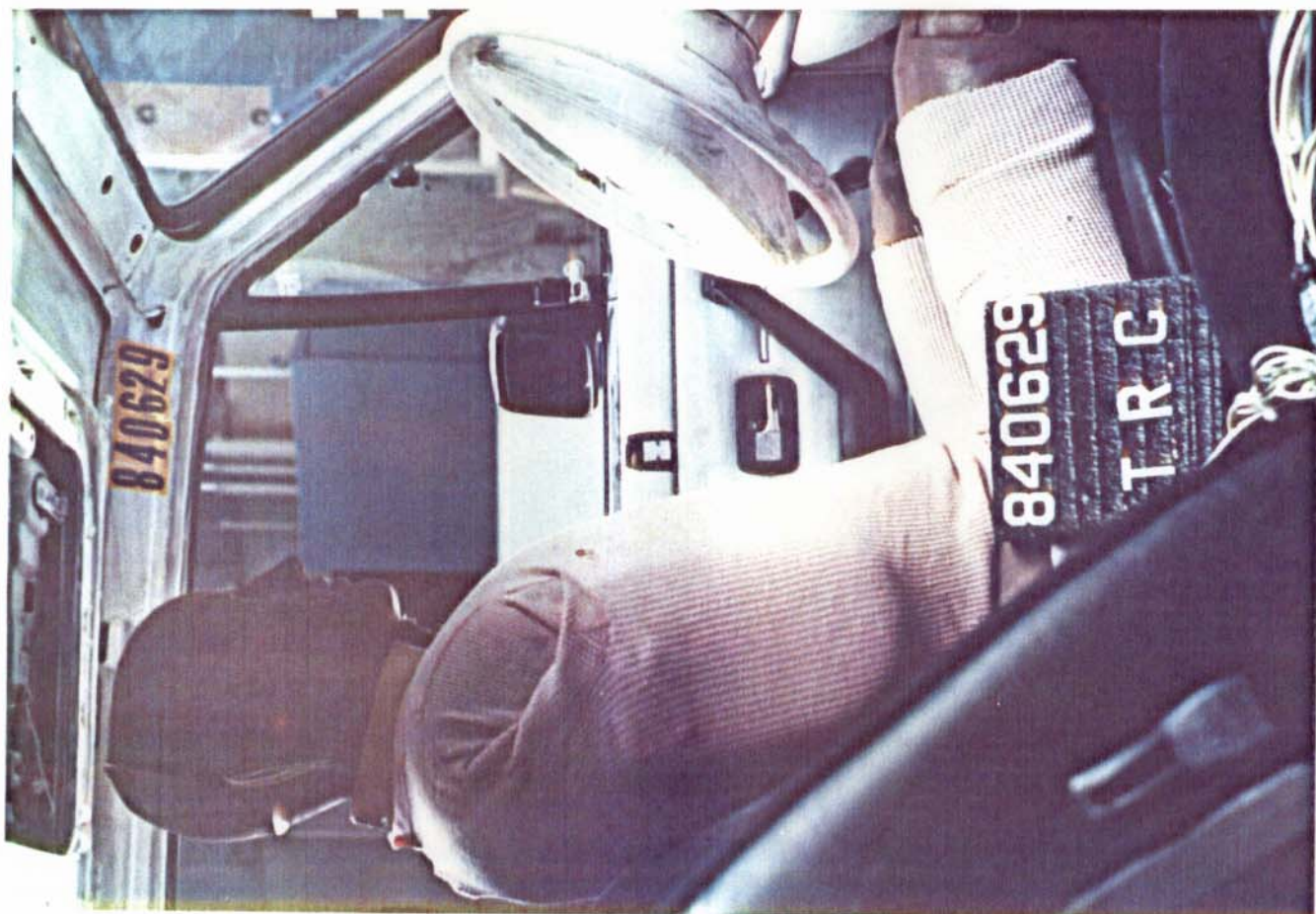


Figure A-6. PRE-TEST DRIVER DUMMY - VIEW 1
A-4

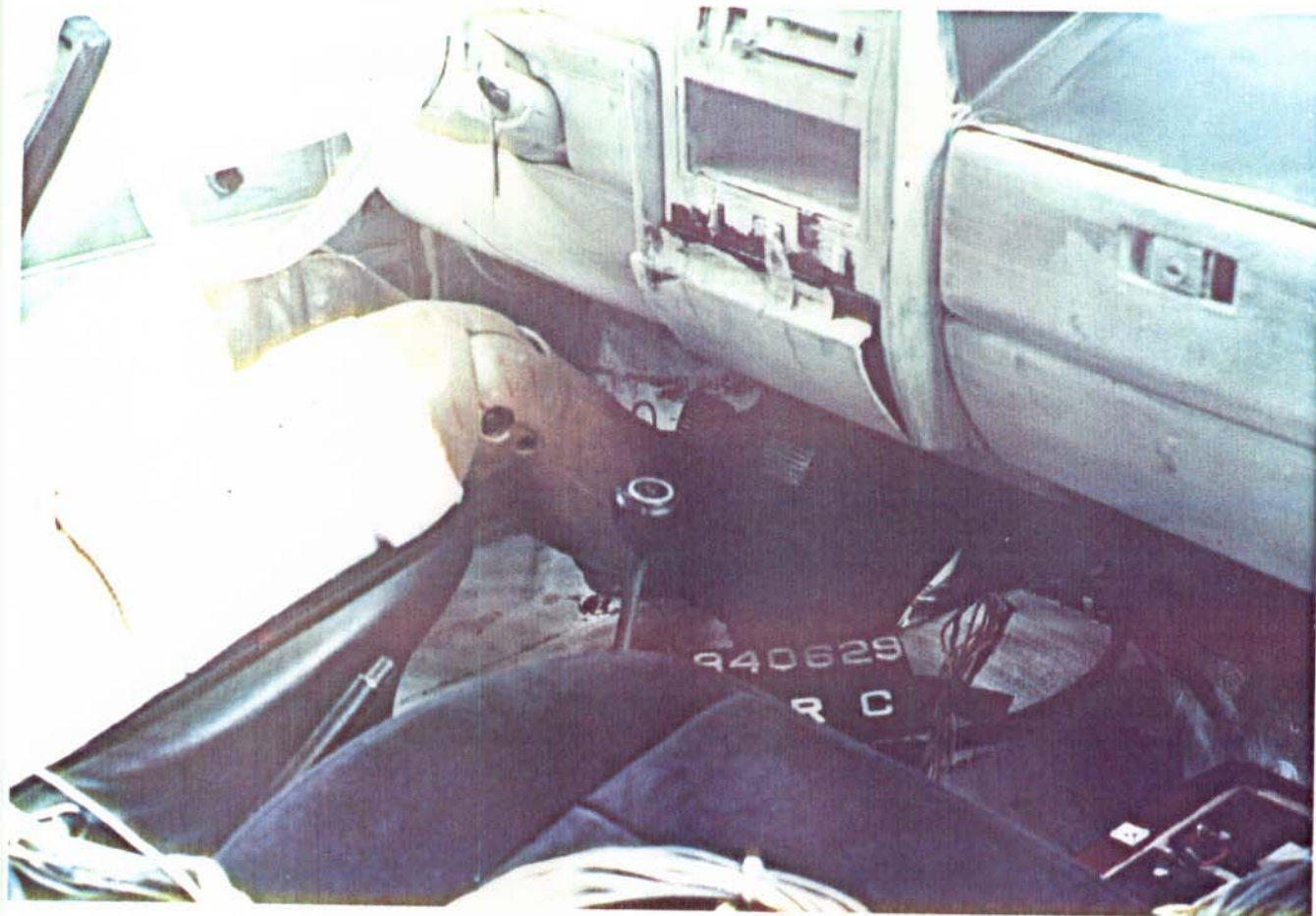


Figure A-7. PRE-TEST DRIVER DUMMY - VIEW 2



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

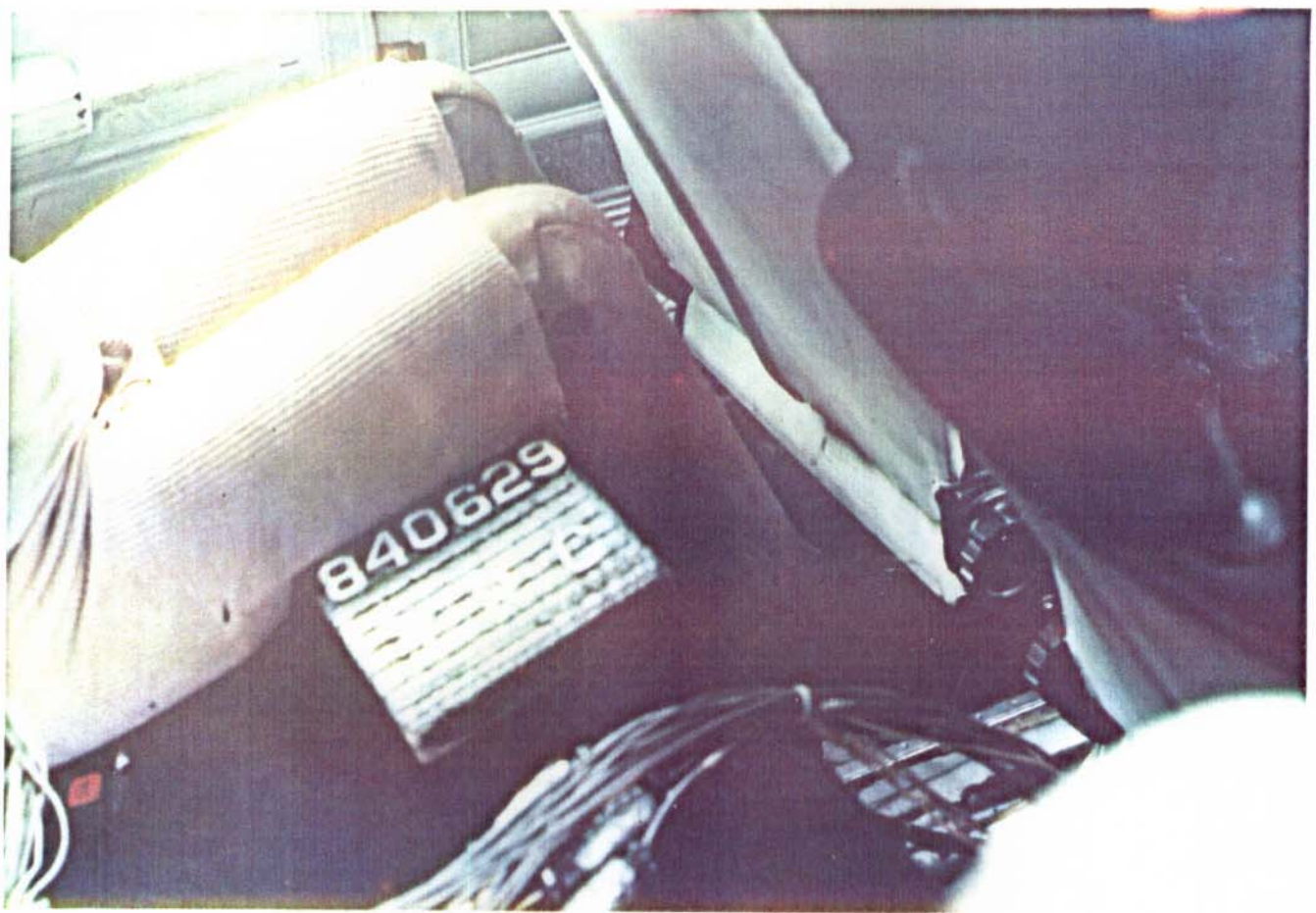


Figure A-9. PRE-TEST PASSENGER DUMMY - VIEW 2

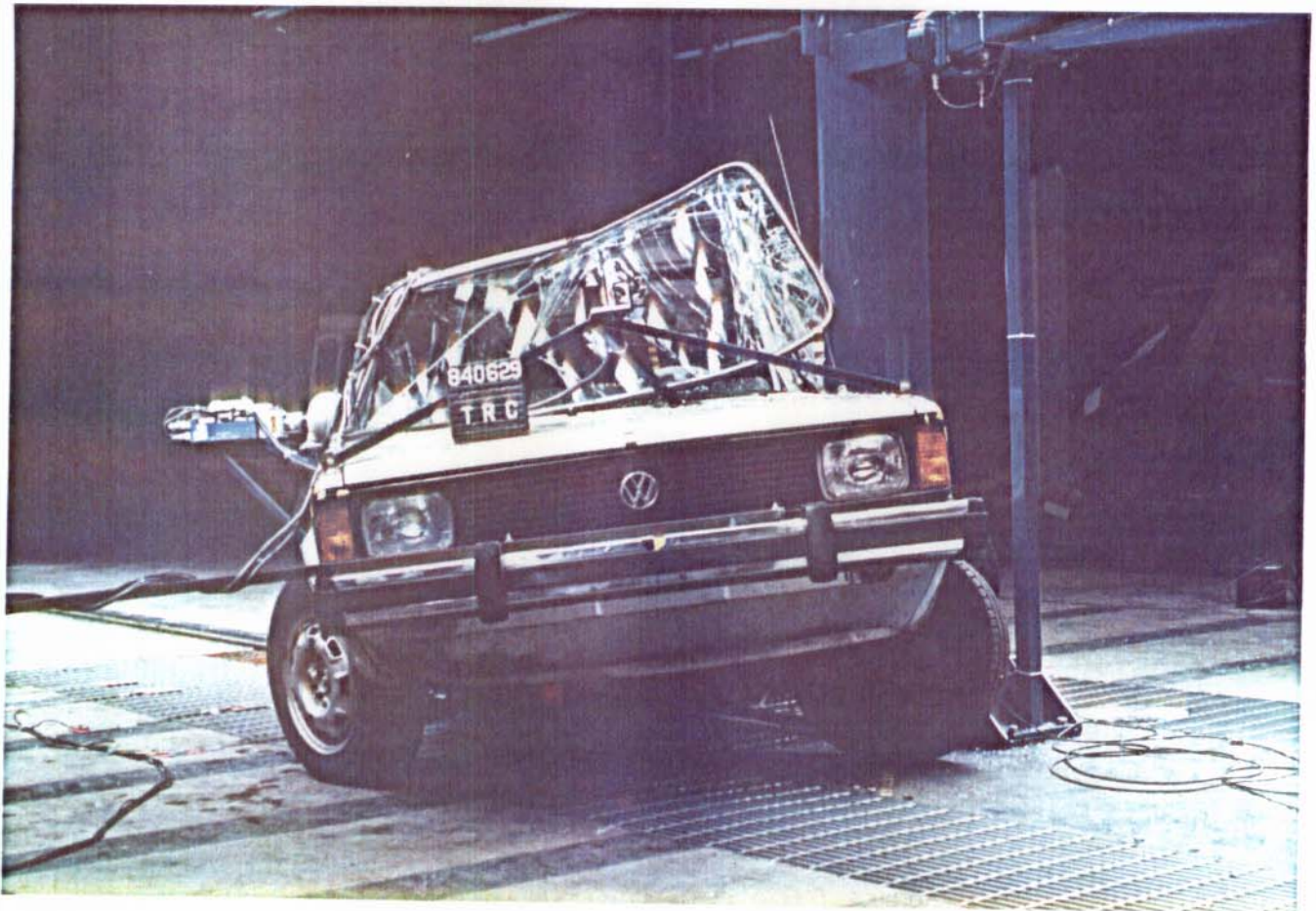


Figure A-10. POST-TEST OVERALL - VIEW 1
A-6



Figure A-11. POST-TEST OVERALL - VIEW 2



Figure A-12. POST-TEST OVERALL - VIEW 3
A-7

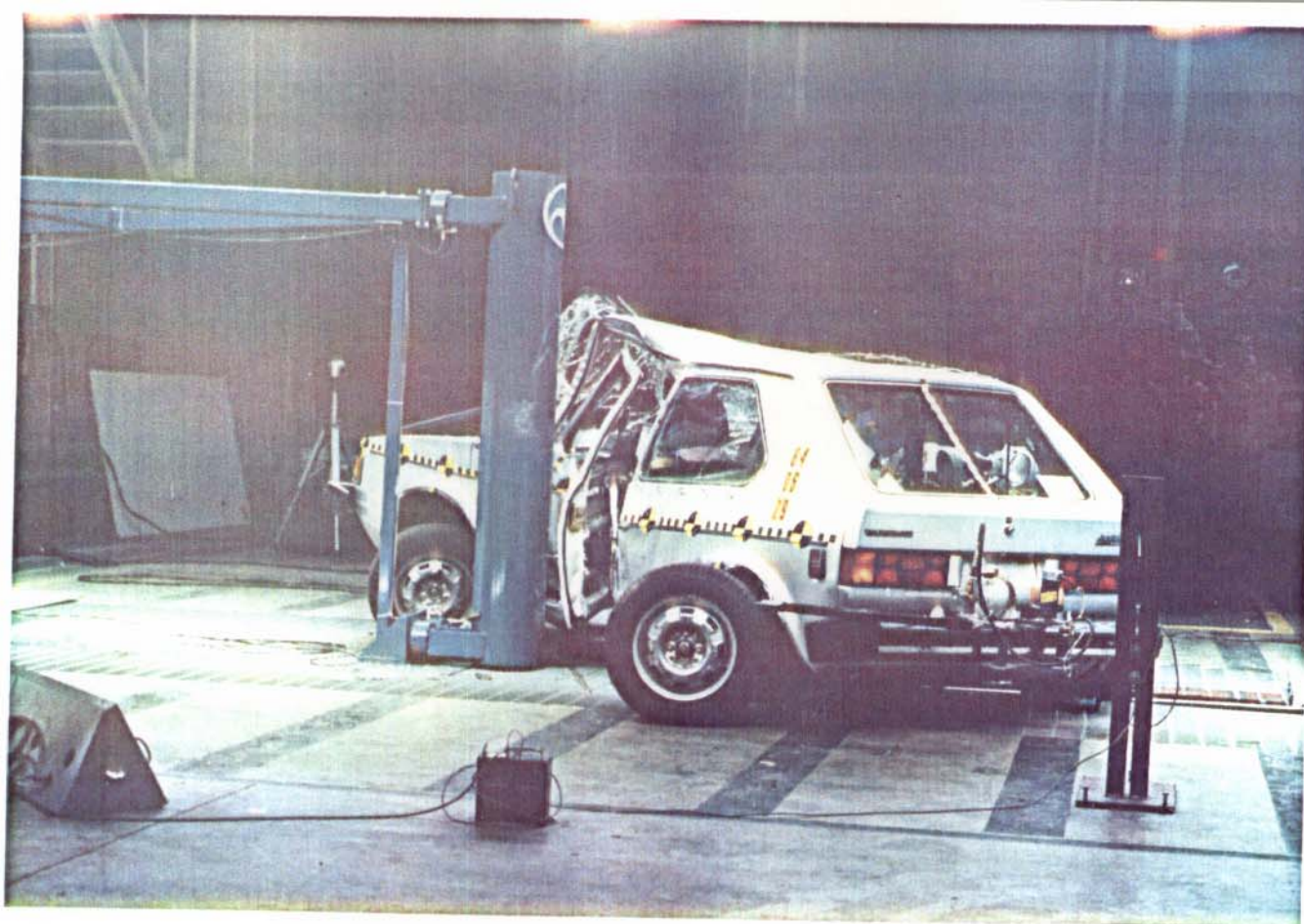


Figure A-13. POST-TEST OVERALL - VIEW 4

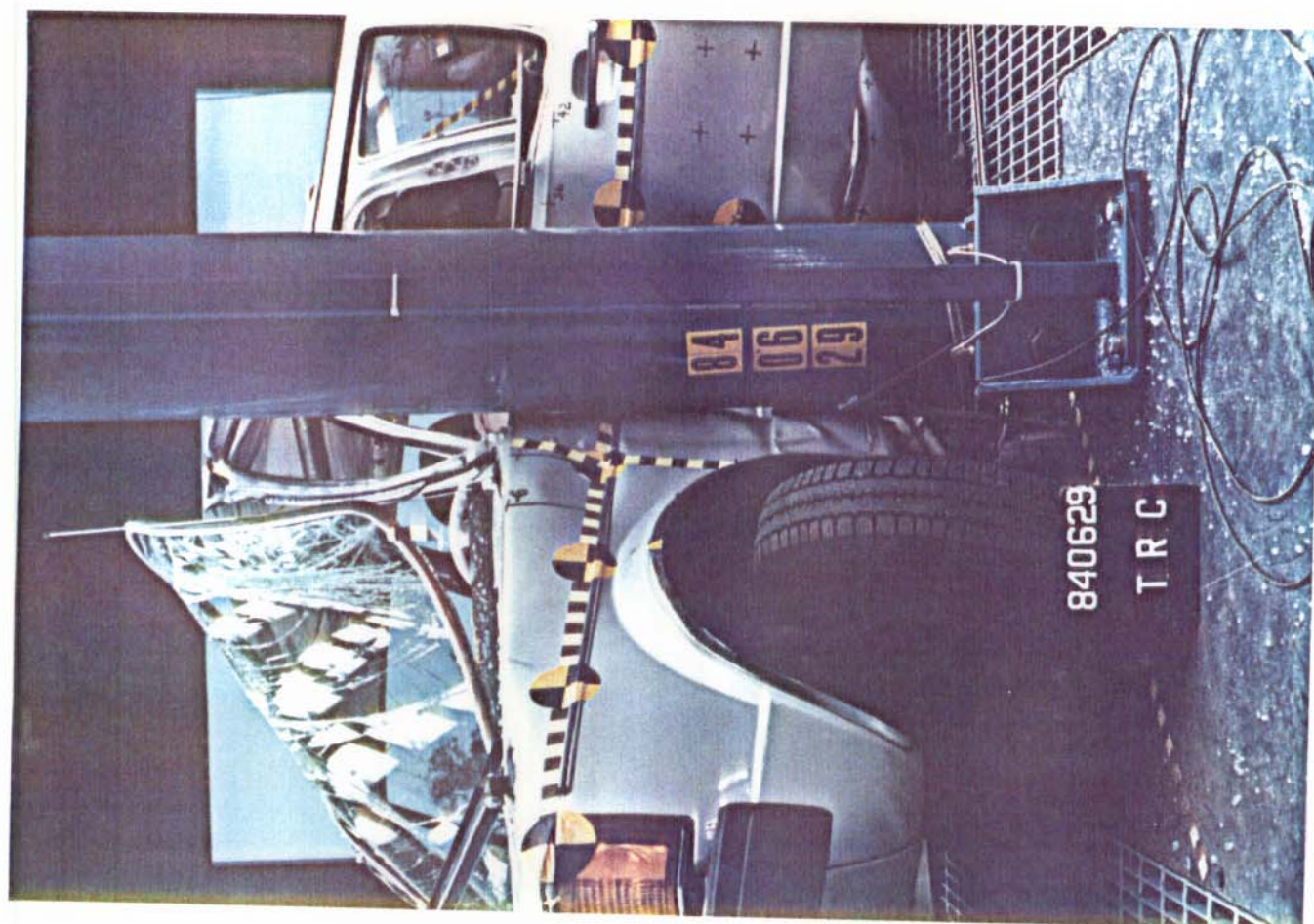


Figure A-14. POST-TEST CLOSEUP - VIEW 1
A-8



Figure A-15. POST-TEST CLOSEUP - VIEW 2

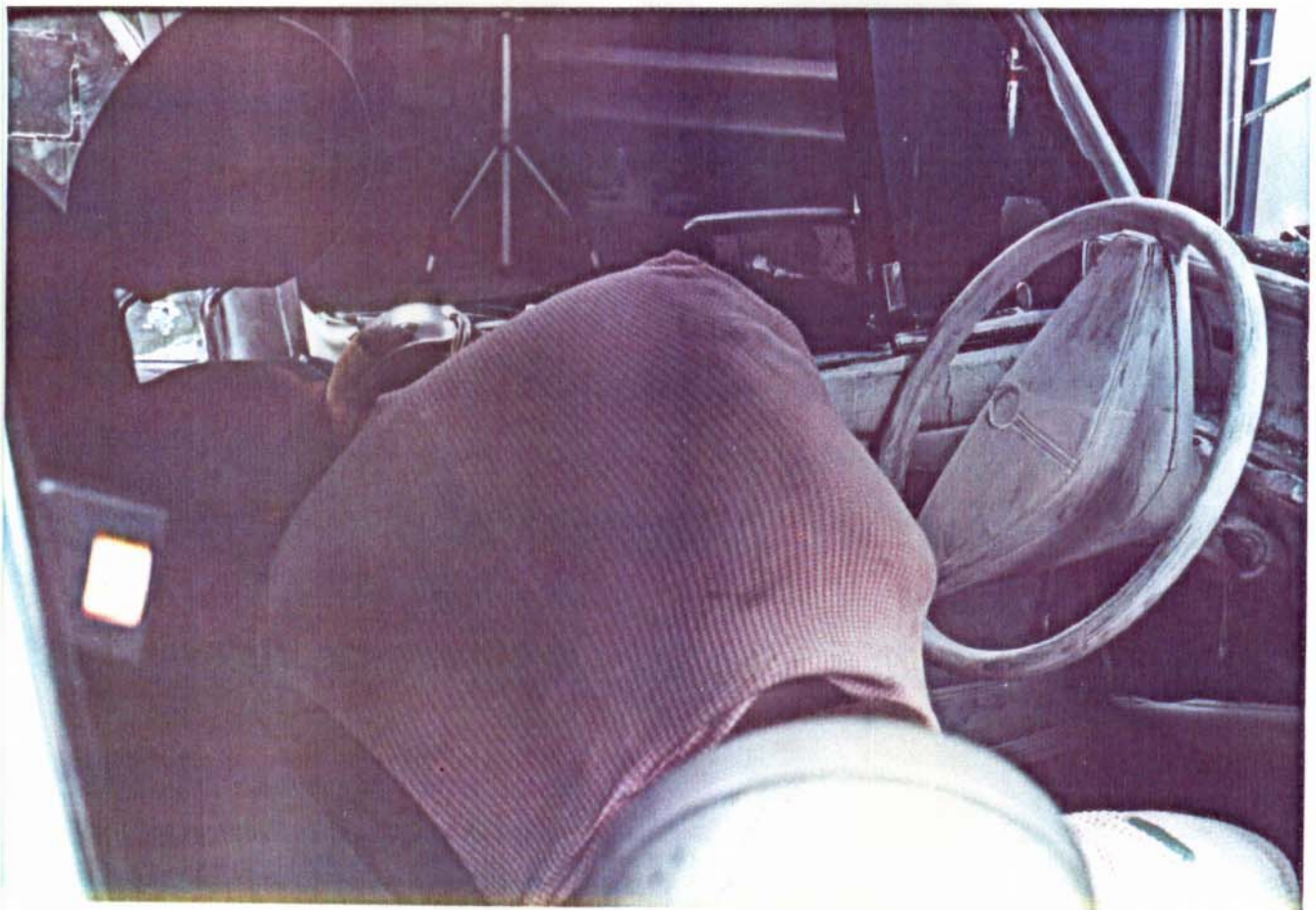


Figure A-16. POST-TEST DRIVER DUMMY - VIEW 1
A-9

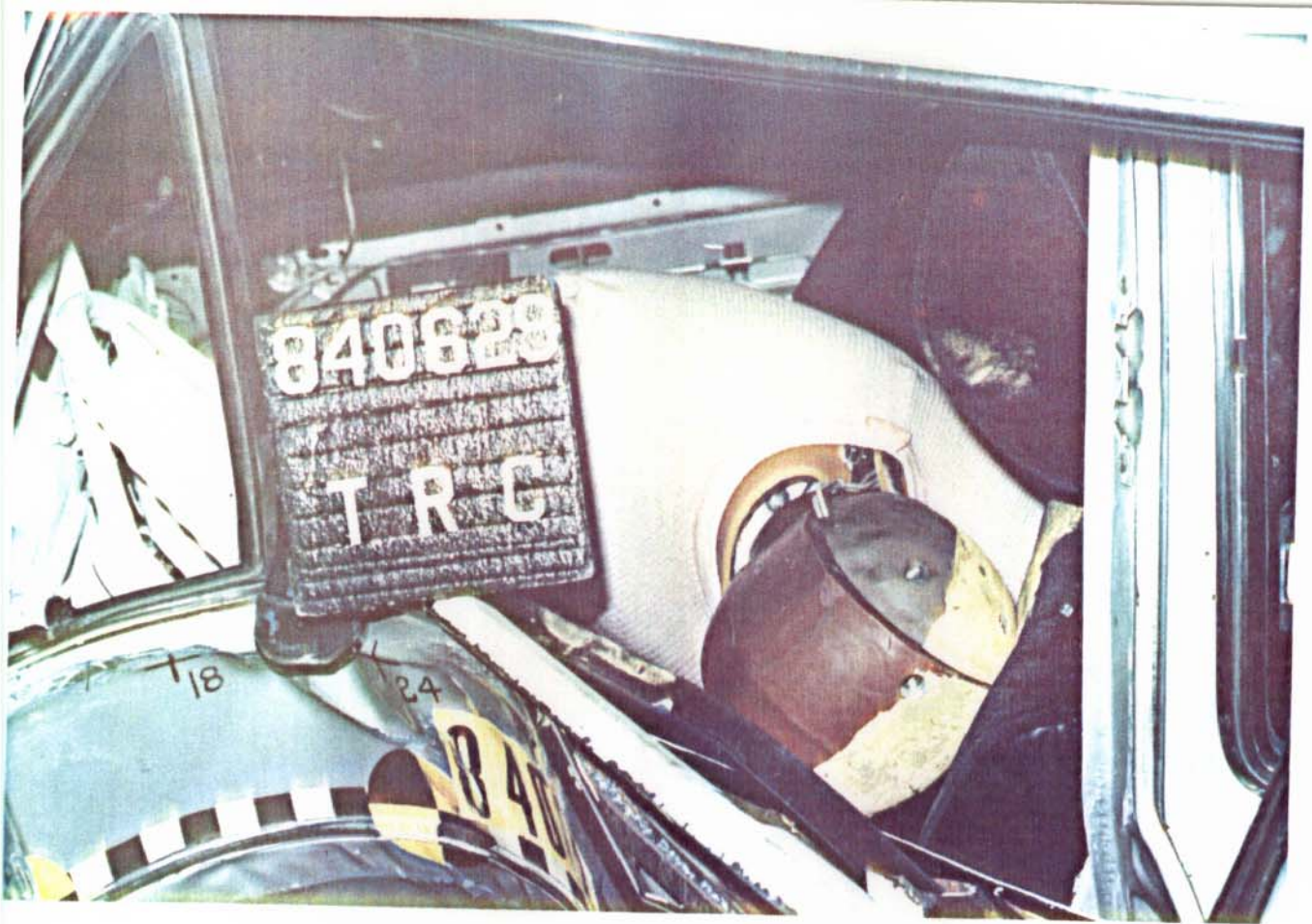


Figure A-17. POST-TEST DRIVER DUMMY - VIEW 2

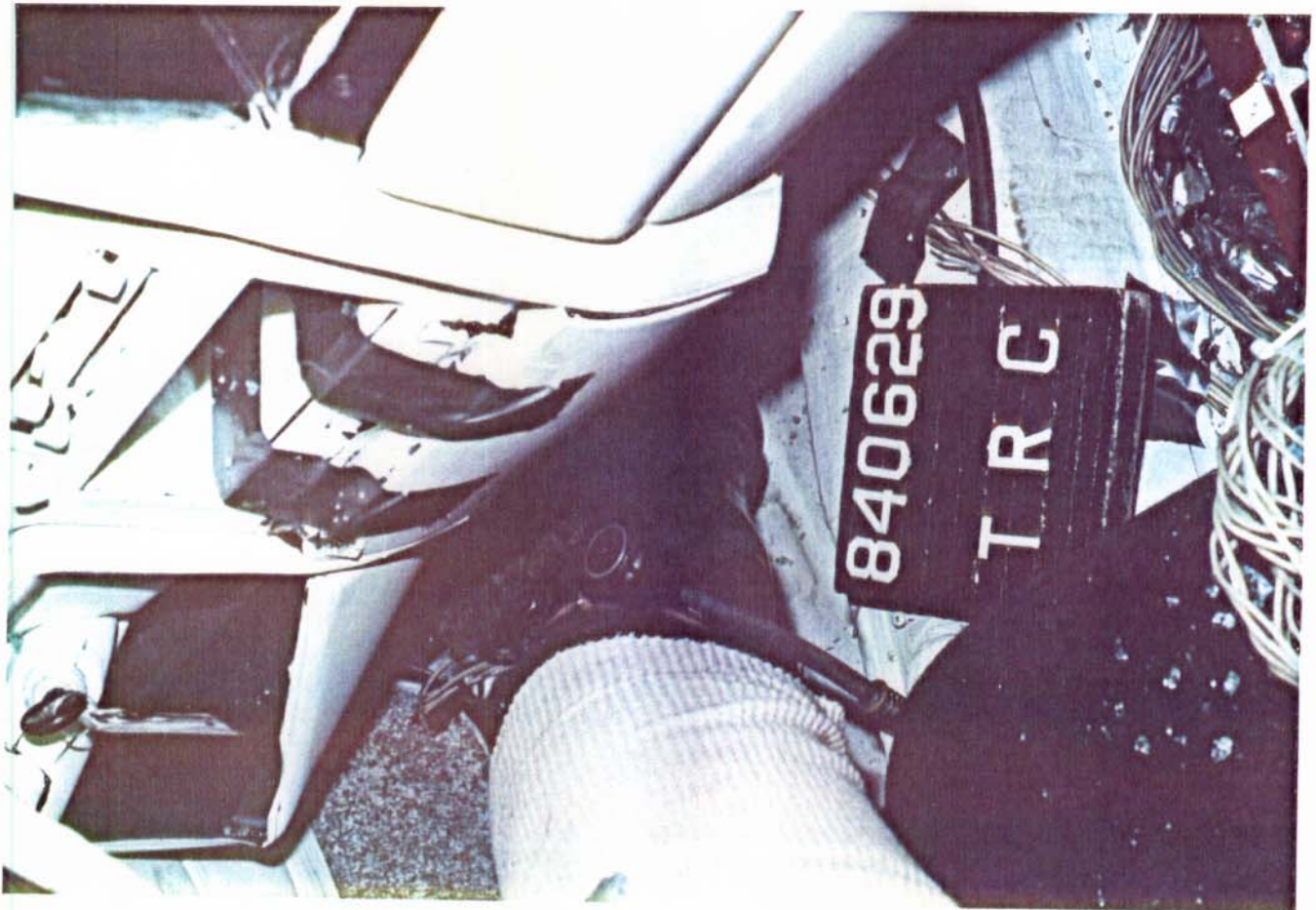


Figure A-18. POST-TEST DRIVER DUMMY - VIEW 3
A-10

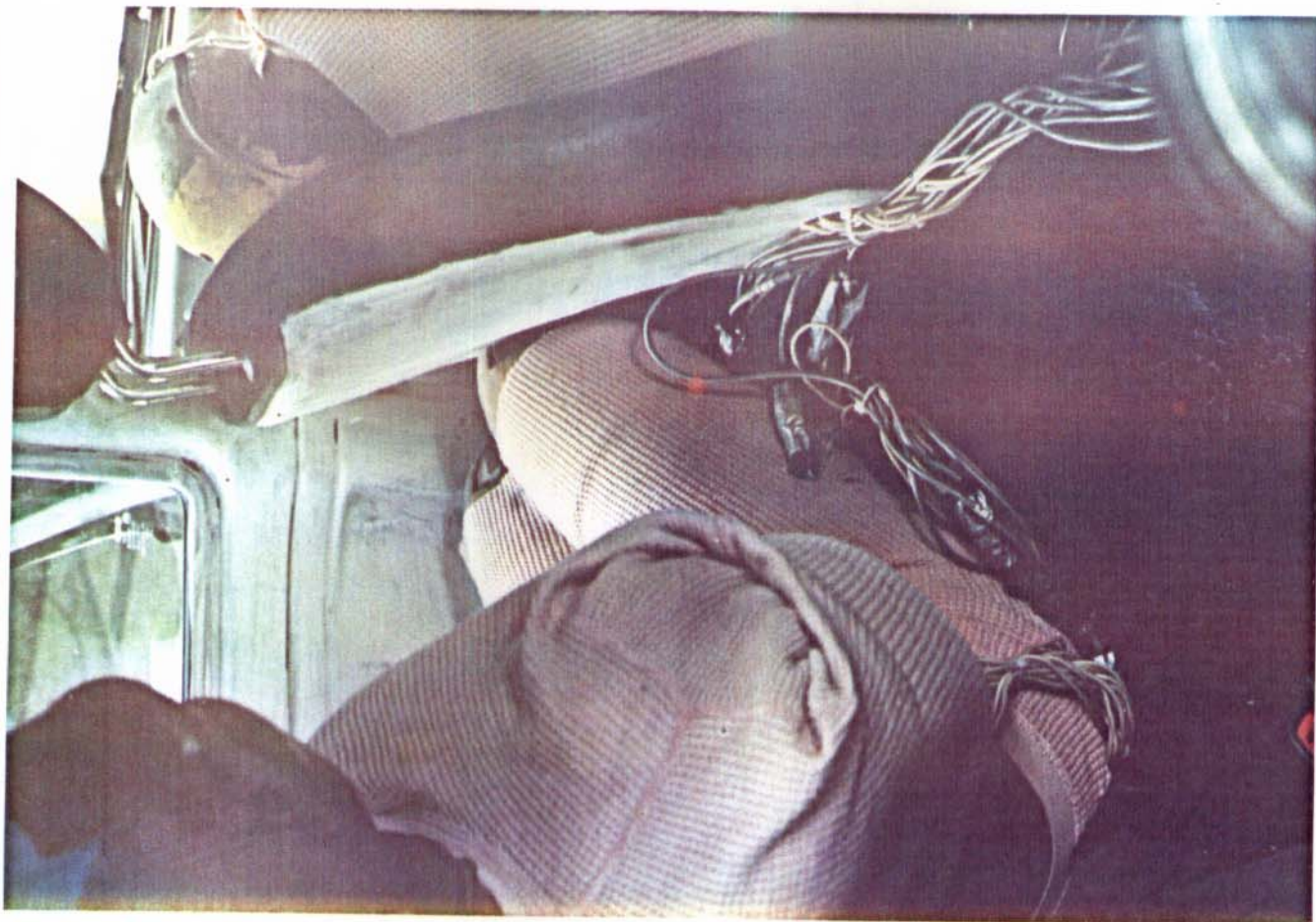


Figure A-19. POST-TEST PASSENGER DUMMY - VIEW 1



Figure A-20. POST-TEST PASSENGER DUMMY - VIEW 2
A-11

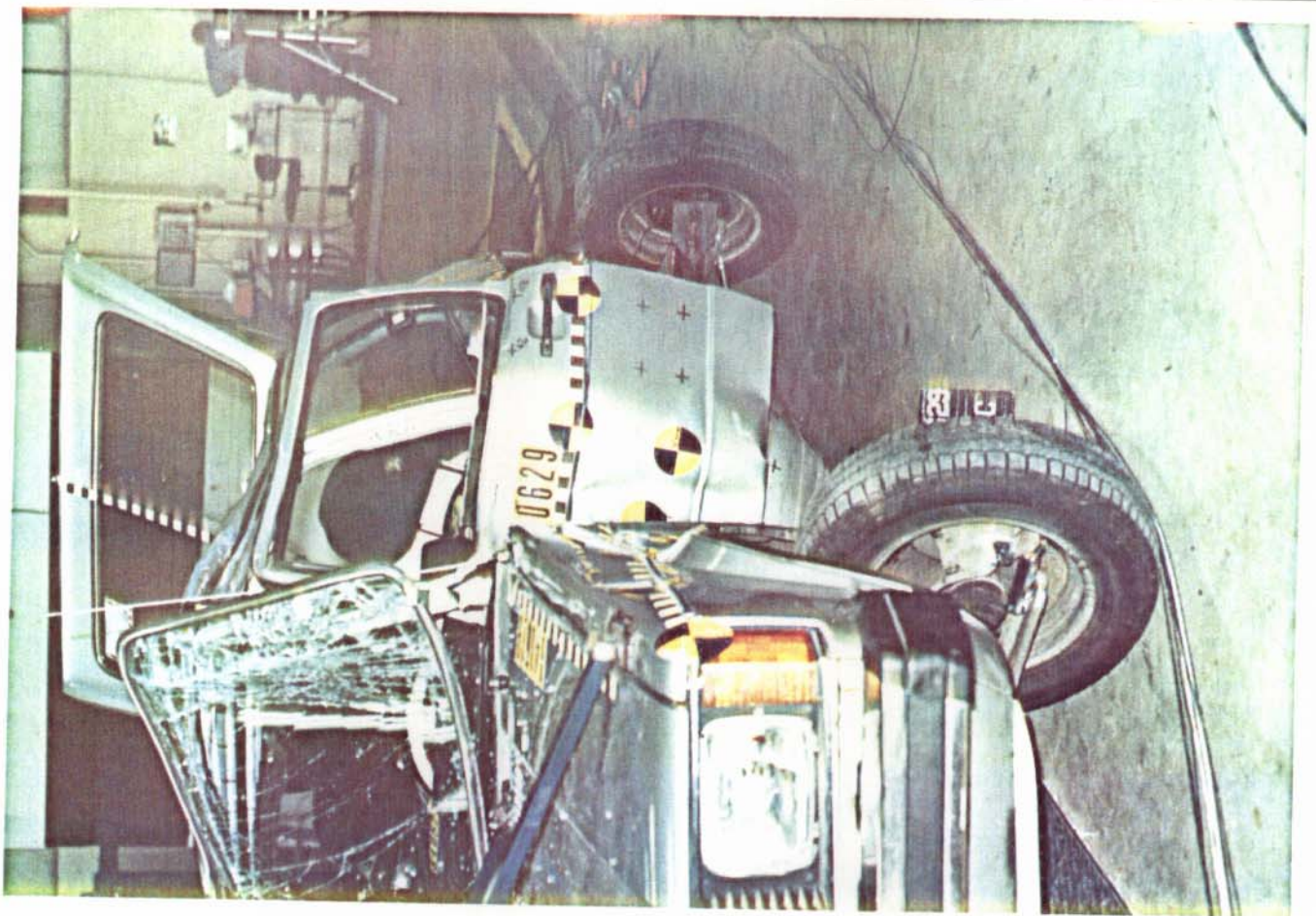


Figure A-21. POST-TEST VEHICLE DAMAGE - VIEW 1

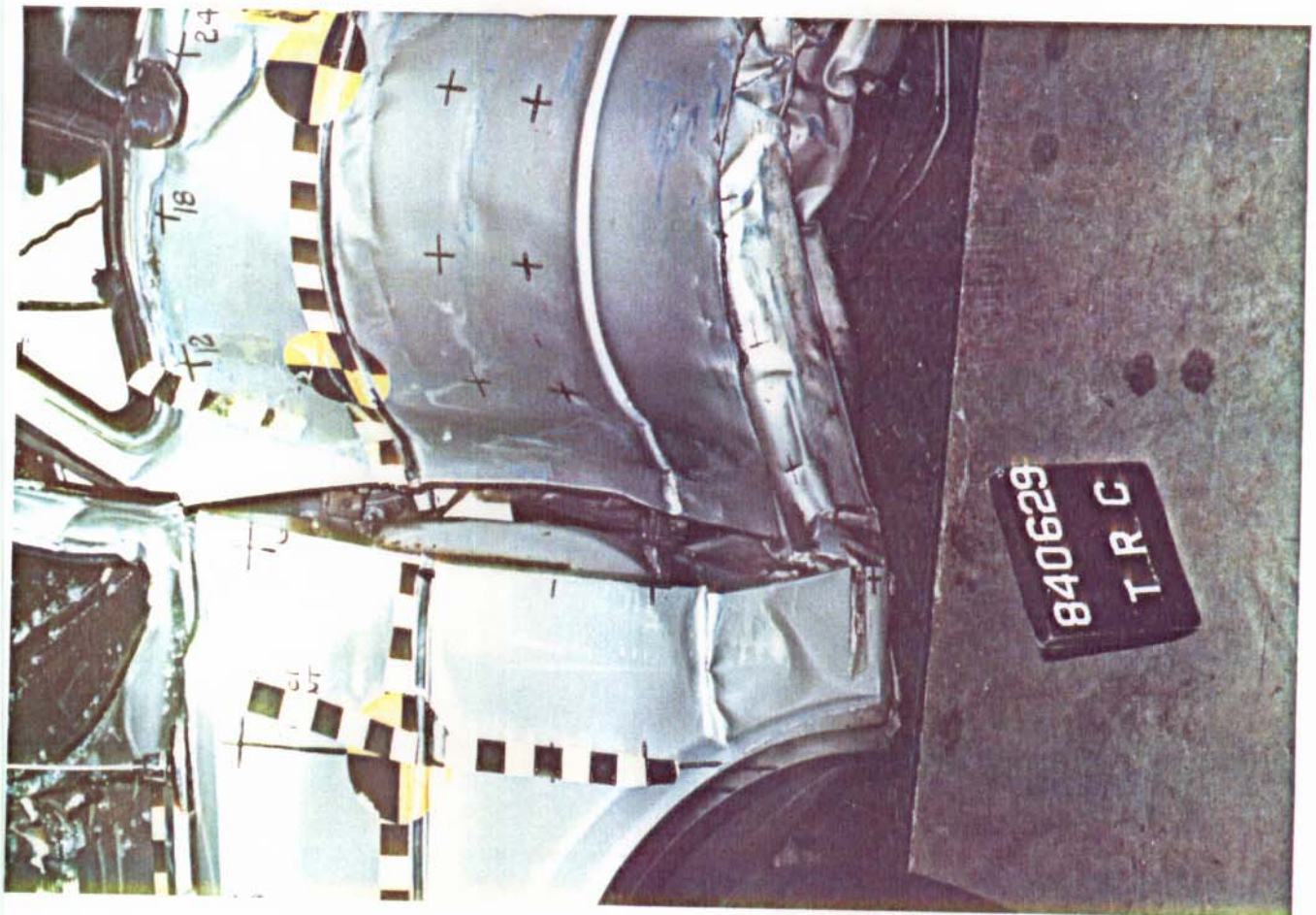


Figure A-22. POST-TEST VEHICLE DAMAGE - VIEW 2
A-12

APPENDIX B

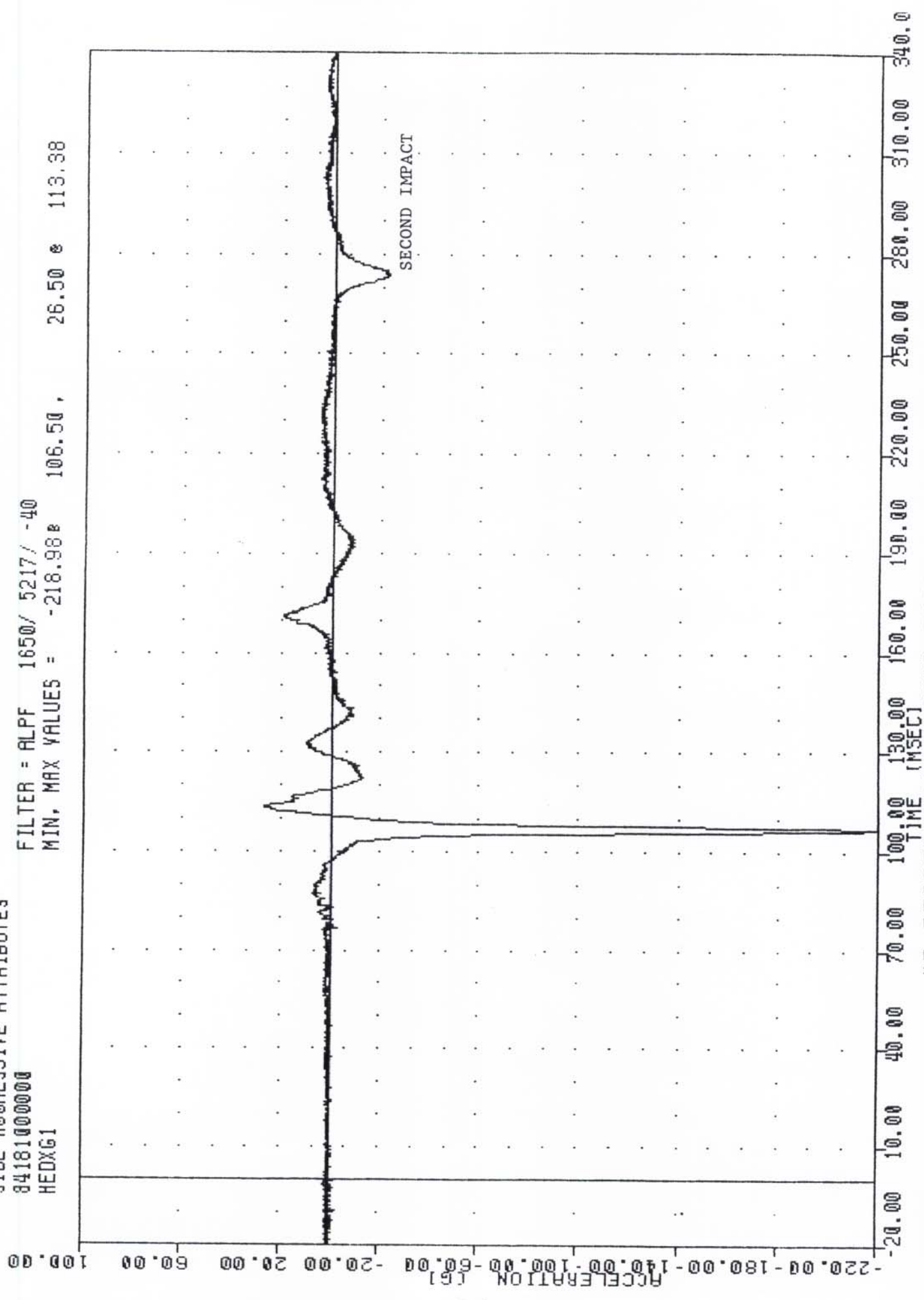
DATA PLOT PRESENTATION

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 , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
HEDXG1

PLOT DATE 1-AUG-84 10:49:50

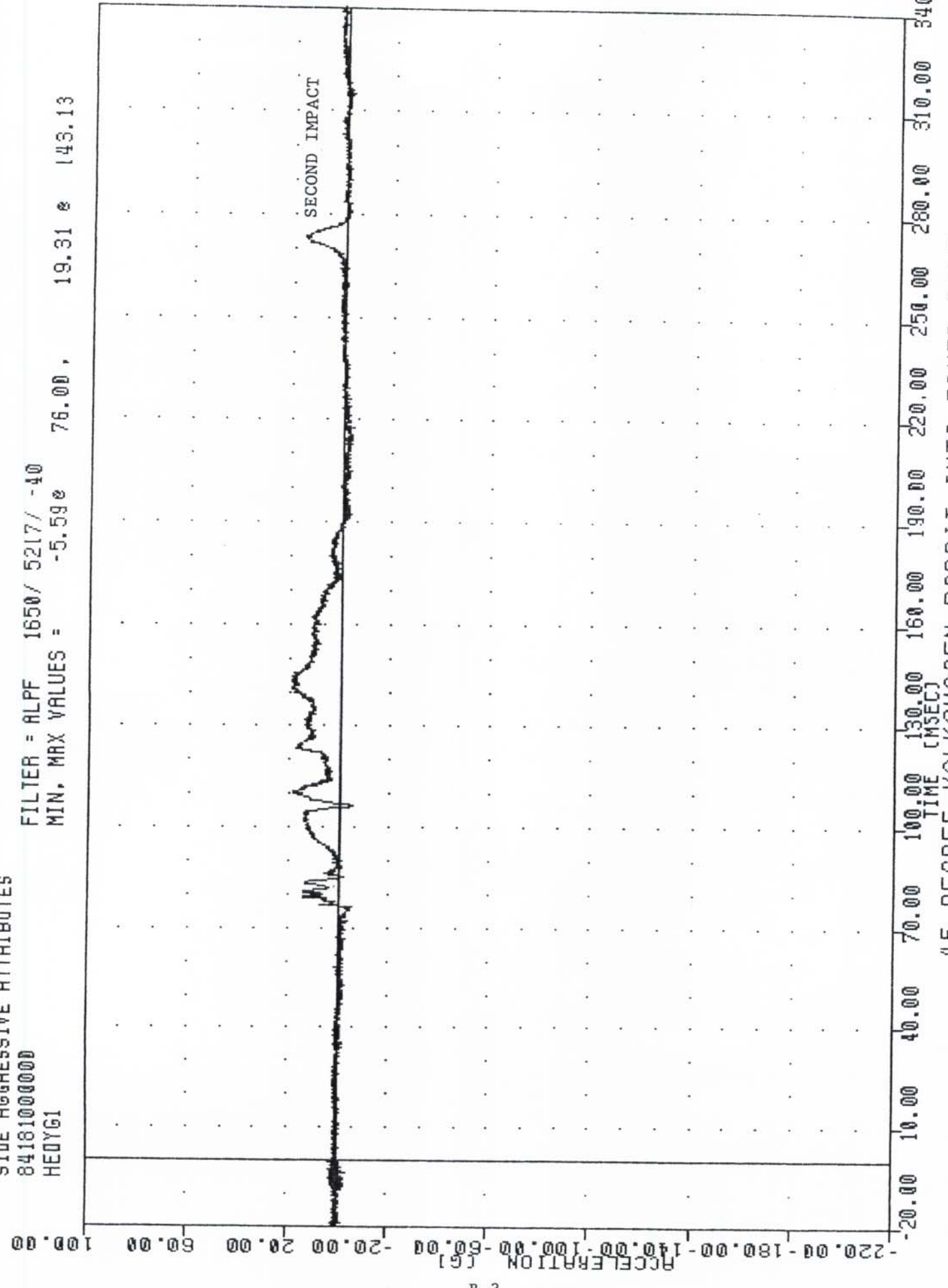
FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -218.98 106.50, 26.50 113.38



45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER HEAD ACCELERATION X AXIS

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
HEDY61

PLOT DATE 1-AUG-84 10:49:50
FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -5.59e 76.00, 19.31 & 143.13

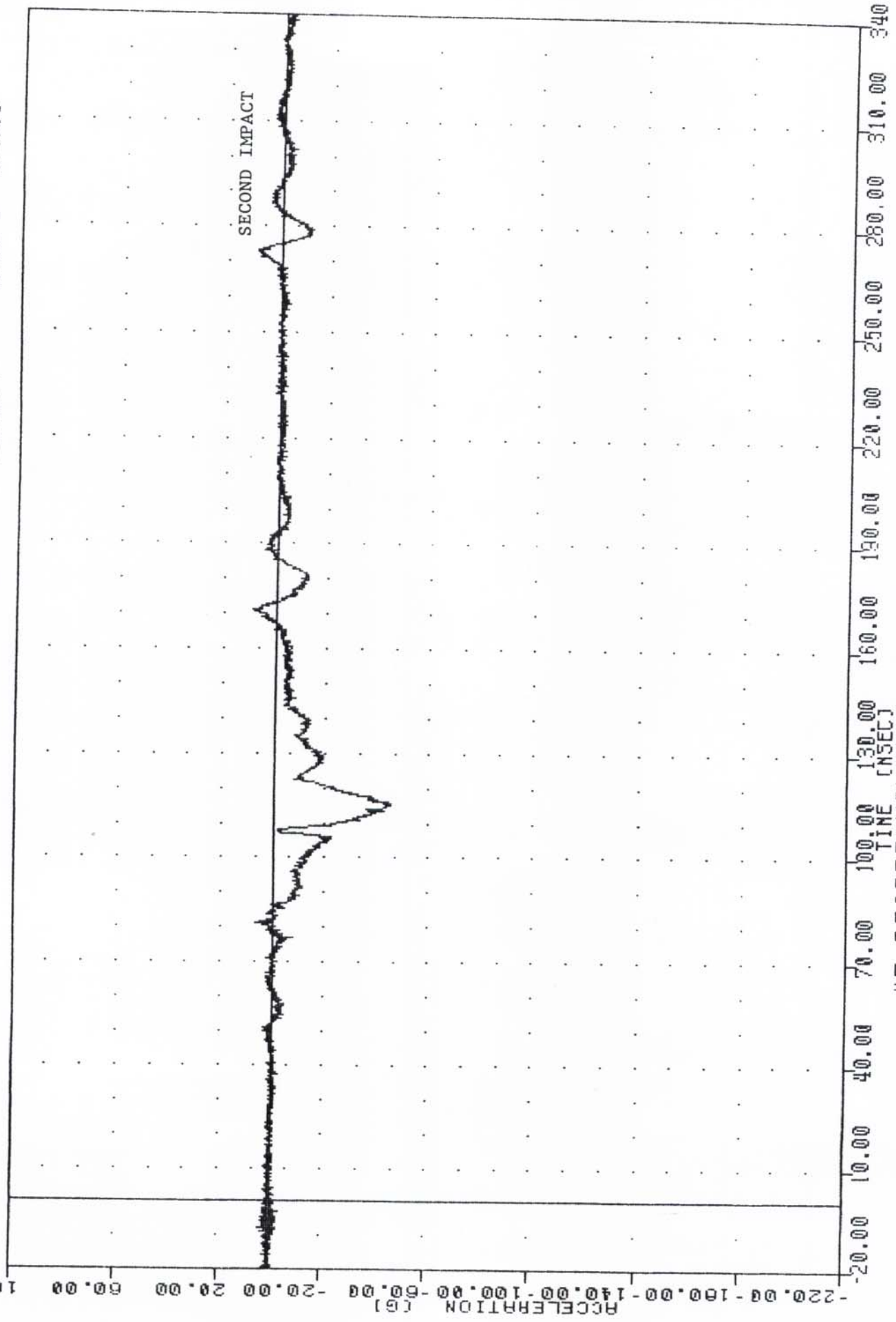


B-3

45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER HEAD ACCELERATION Y AXIS

TAC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
HEDZ61

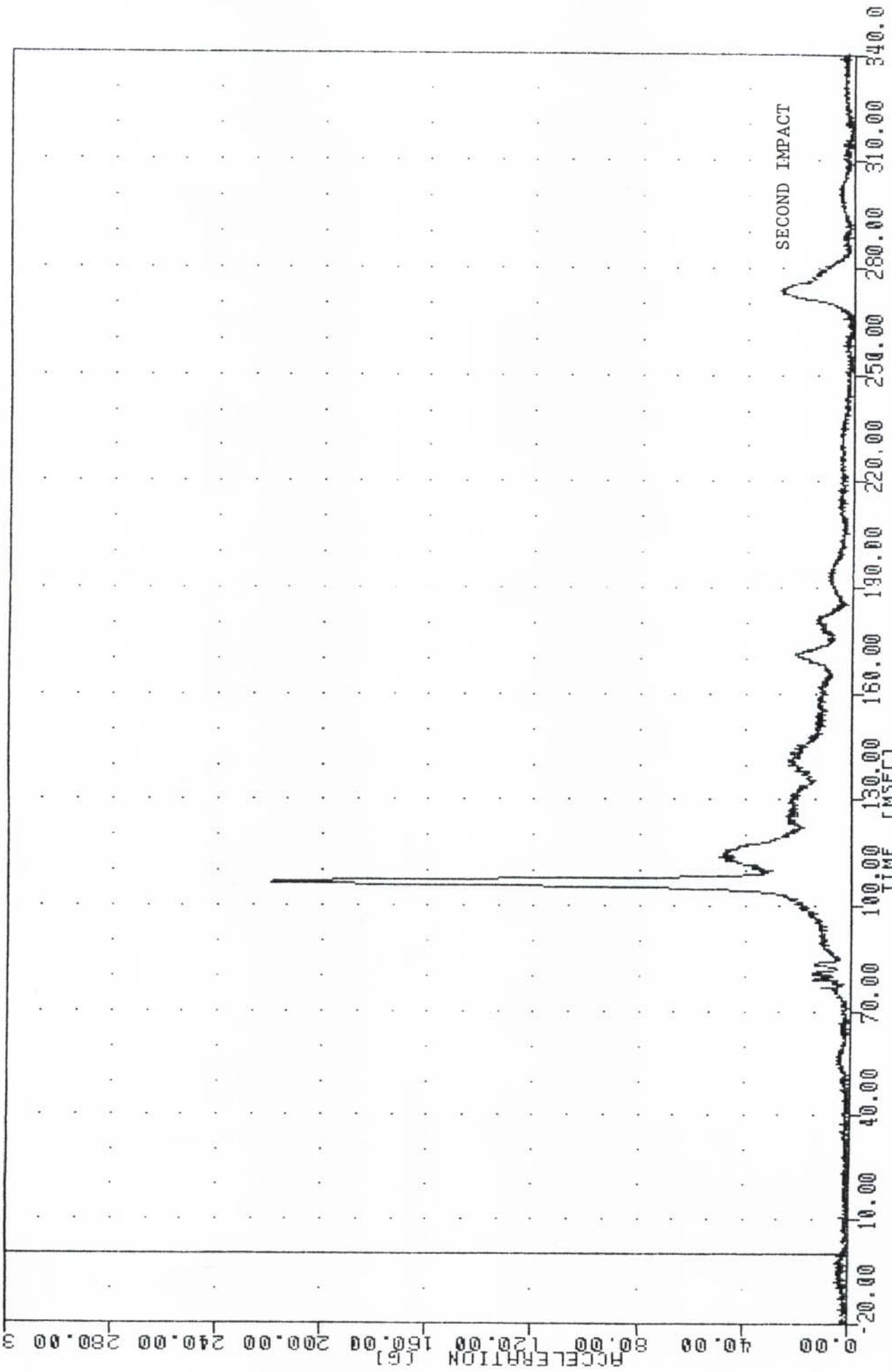
PLOT DATE 1-AUG-84 10:49:50
FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -45.53e 114.88 , 8.89 e 272.63



45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER HEAD ACCELERATION Z AXIS

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
HEORG1

PLOT DATE 1-AUG-84 10:49:50
FILTER = ALPF 1650 / 5217 / -40
MIN. MAX VALUES = 0.160 16.63, 219.60 0 106.50

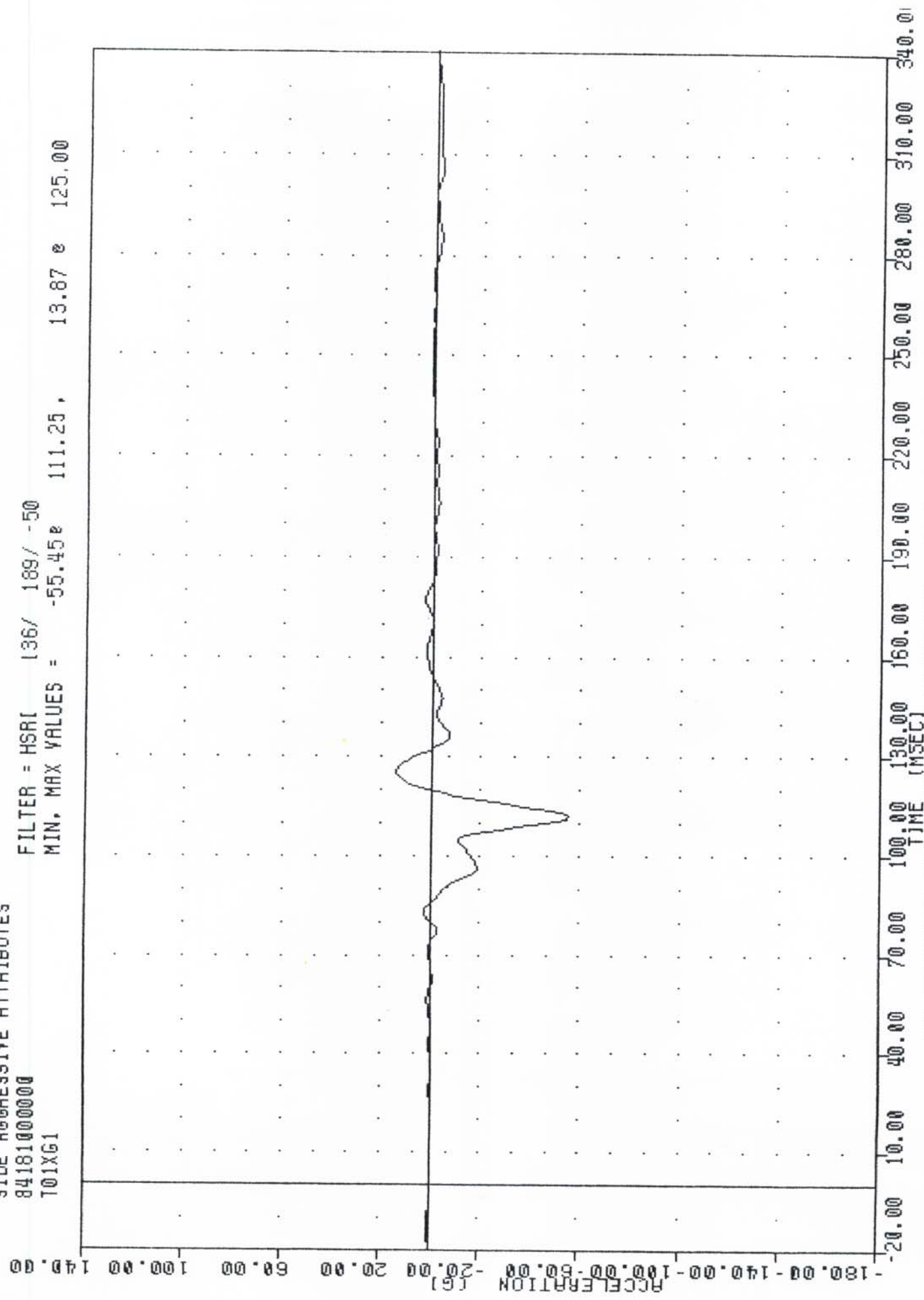


45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER HEAD RESULTANT

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01XG1

PLOT DATE 1-AUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -55.45e 111.25, 13.87 e 125.00



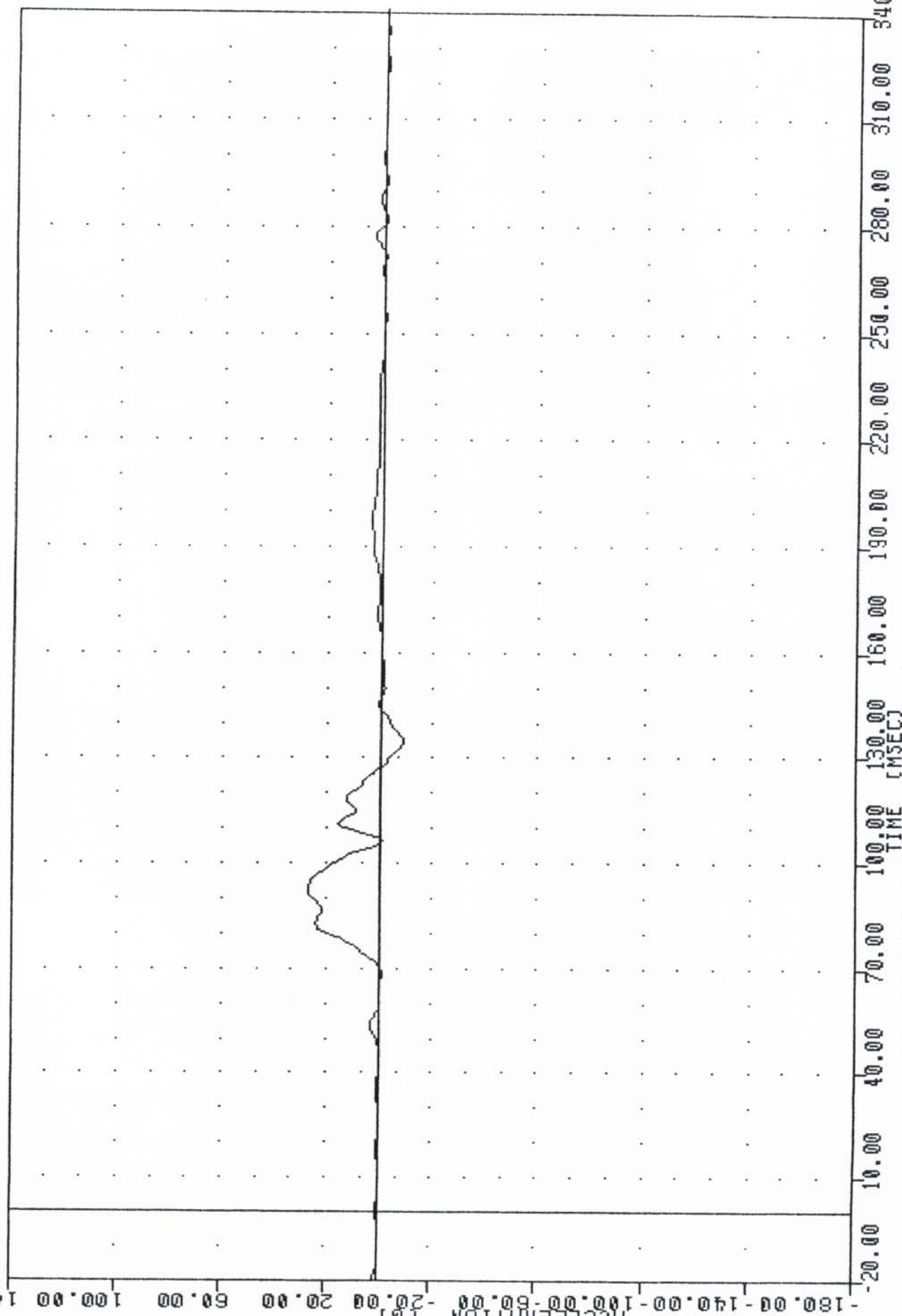
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER UPPER SPINE ACCELERATION X AXIS

TRC 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01YG1

PLU1 DATE 1-AUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -9.14e 133.75, 27.13 s 91.87

ACCELERATION (G)



B-7

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER UPPER SPINE ACCELERATION Y AXIS

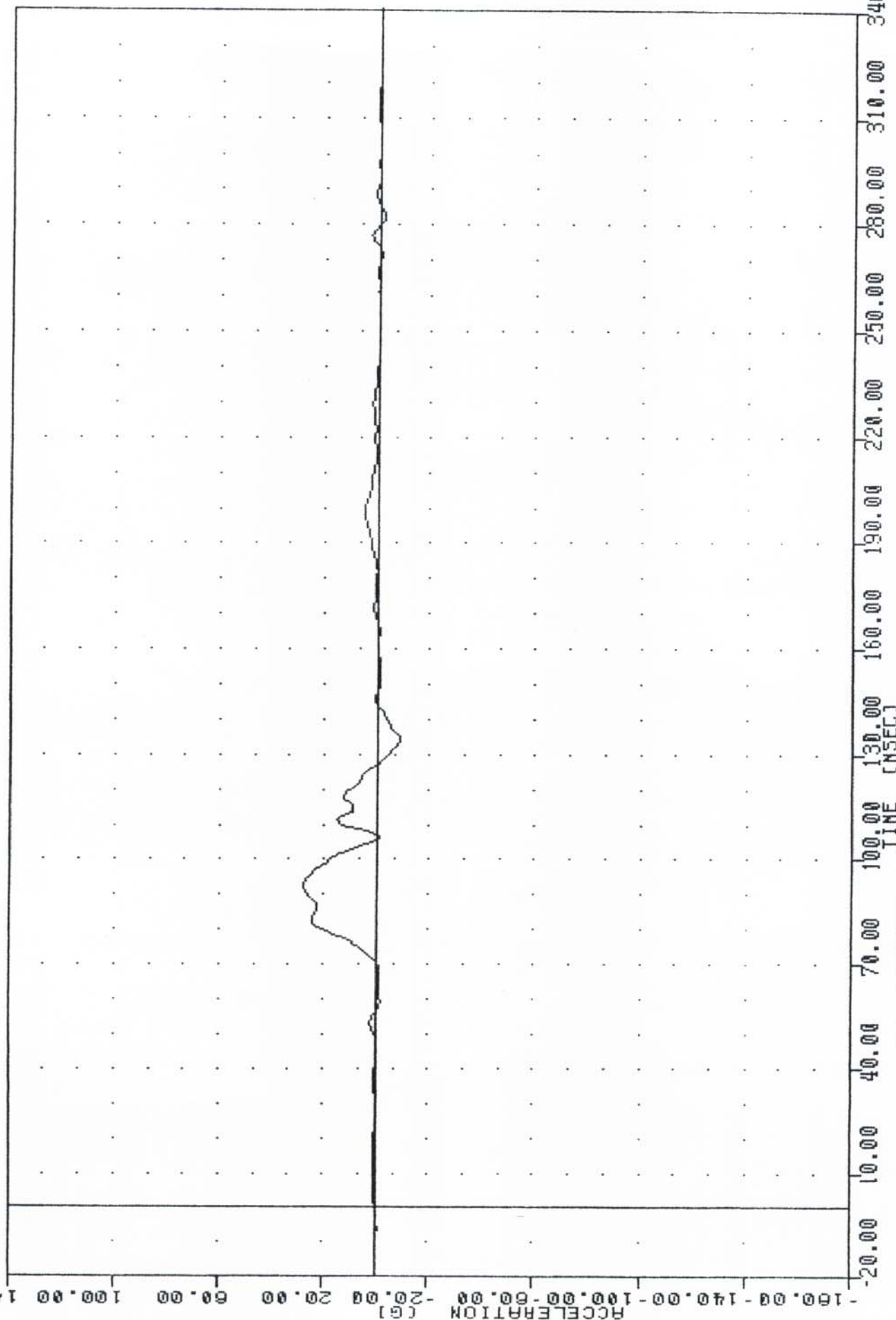
THC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01Y6A

PLUI DATE 1-HUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -8.83e 133.75, 27.77 e 91.87

ACCELERATION (G)



B-8

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER UPPER SPINE ACCELERATION -2 Y AXIS

ThL 840623

SIDE AGGRESSIVE ATTRIBUTES

84181000000

101ZG1

PLUI DATE

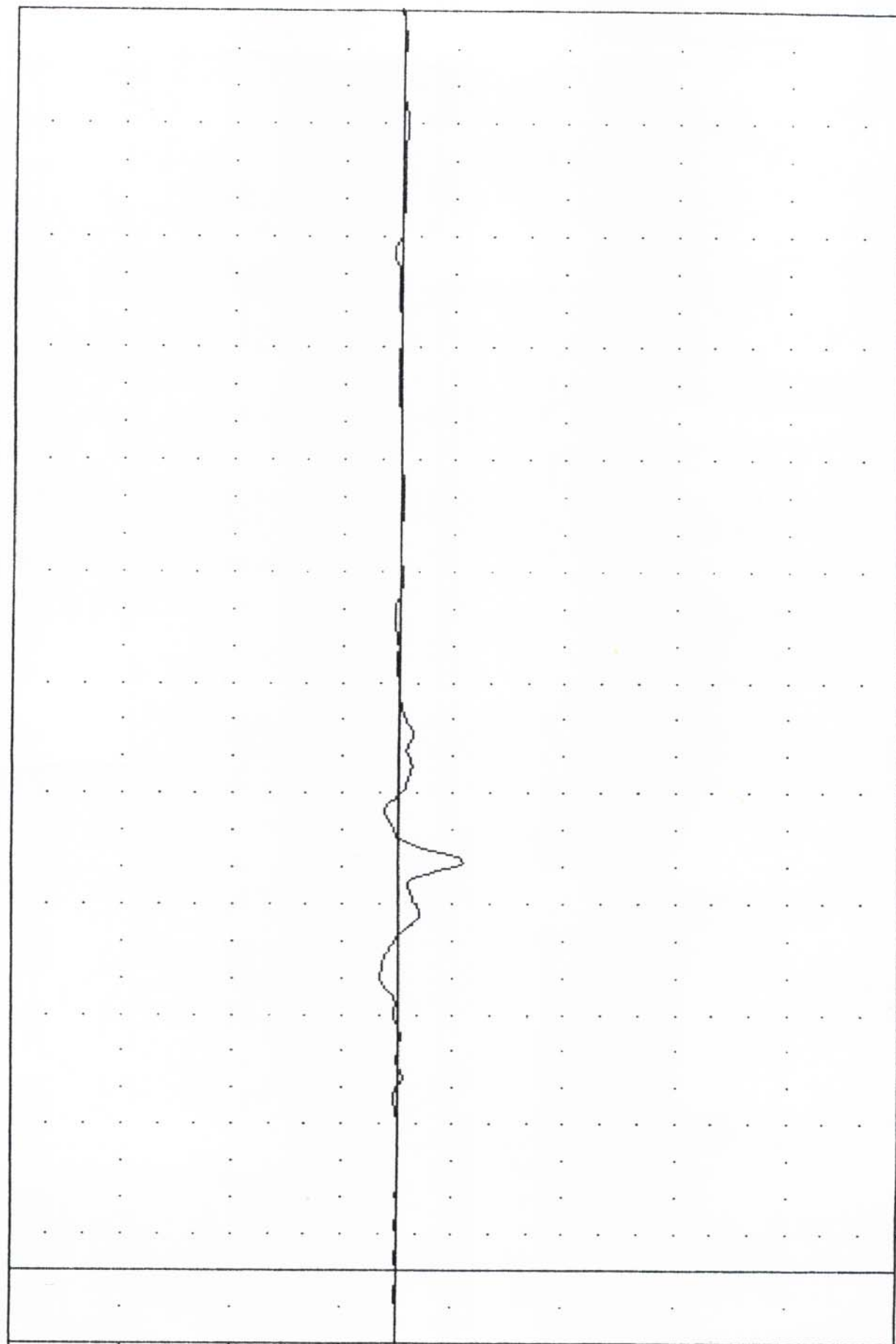
1-HUG-84

10:53:28

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -23.66 110.63, 6.51 79.38

ACCELERATION (G)



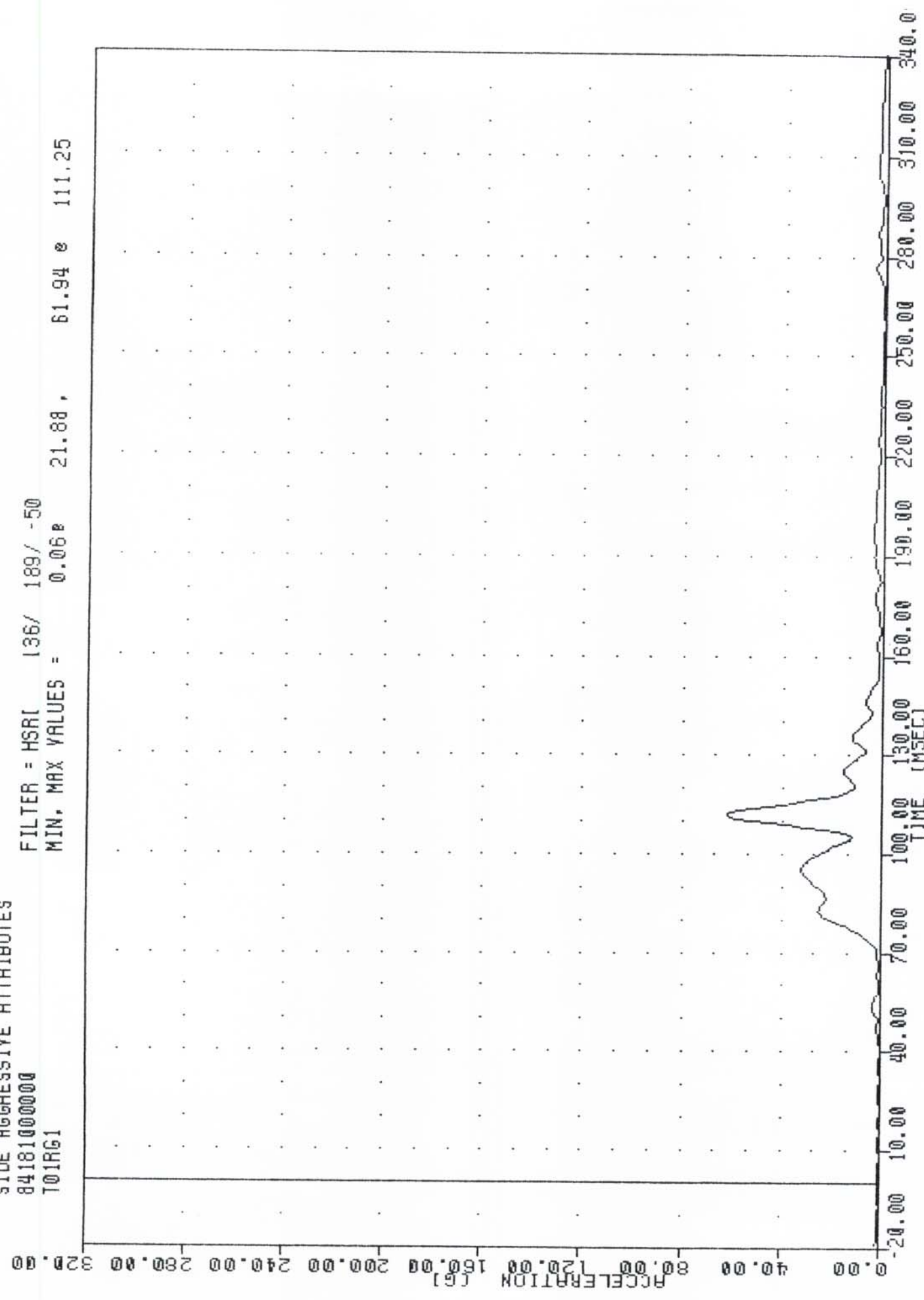
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE

DRIVER UPPER SPINE ACCELERATION Z AXIS

TIME 040629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01RG1

PLU1 DATE 1-MUG-84 10:53:28

FILTER = HSR1 136/ 189/ -50
MIN, MAX VALUES = 0.068 21.88, 61.94 @ 111.25



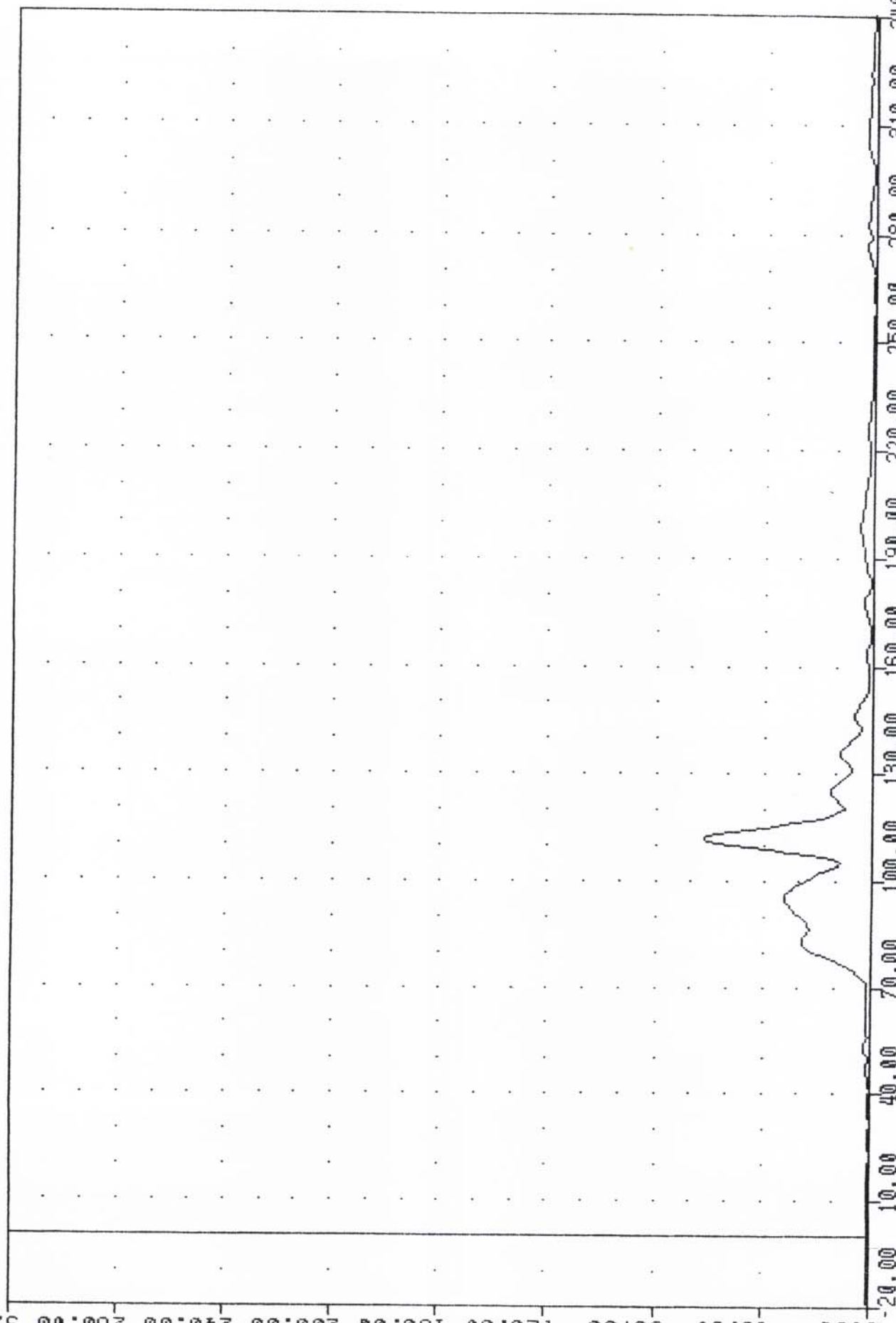
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER UPPER SPINE RESULTANT

TIME 040629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01RGA

PLU1 DATE 1-JUN-84 10:35:33

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = 0.020 31.25, 61.71 @ 111.25

ACCELERATION (G)

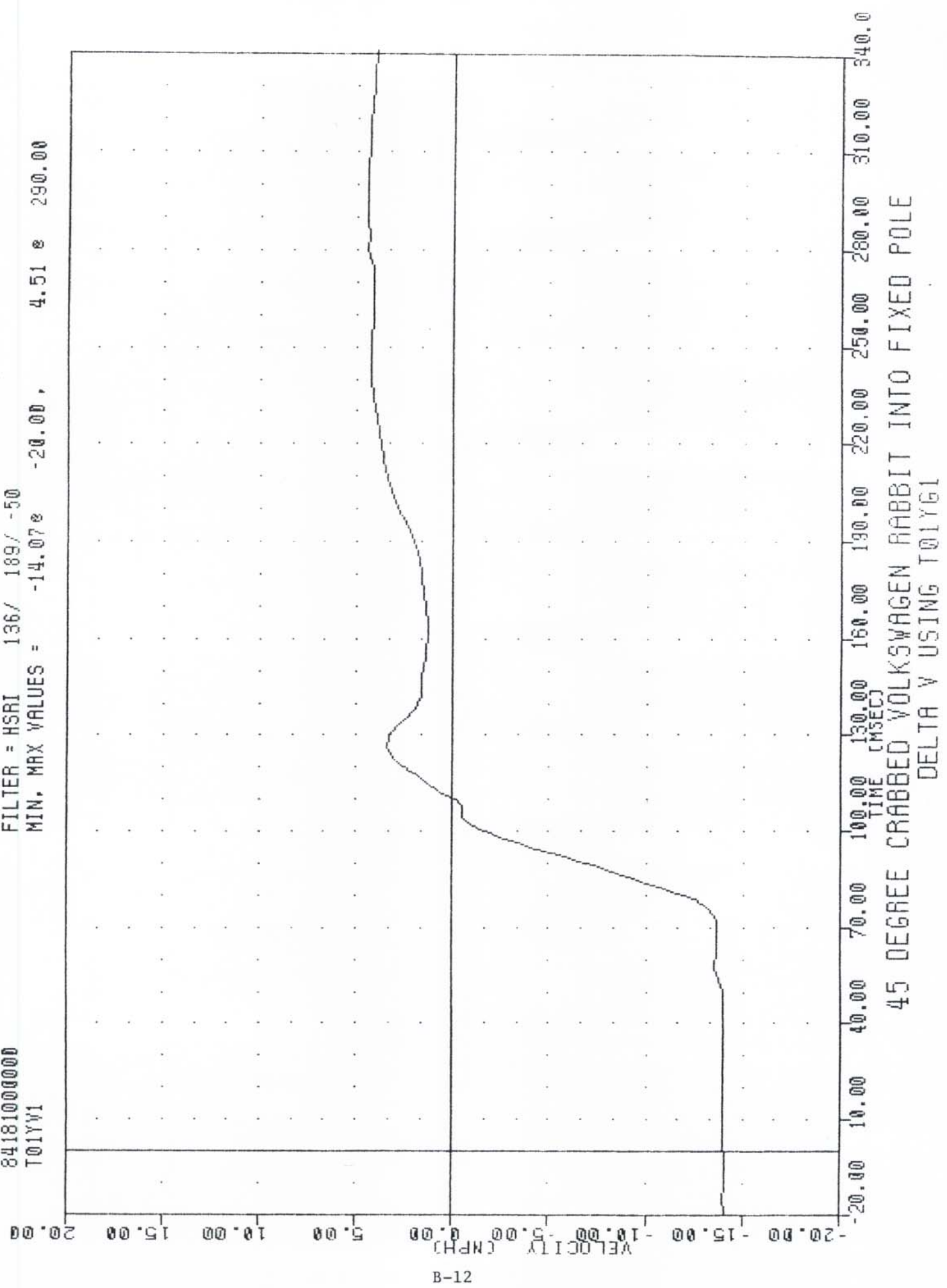


B-11

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER UPPER SPINE RESULTANT USING T01YGA

TKL 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01YV1

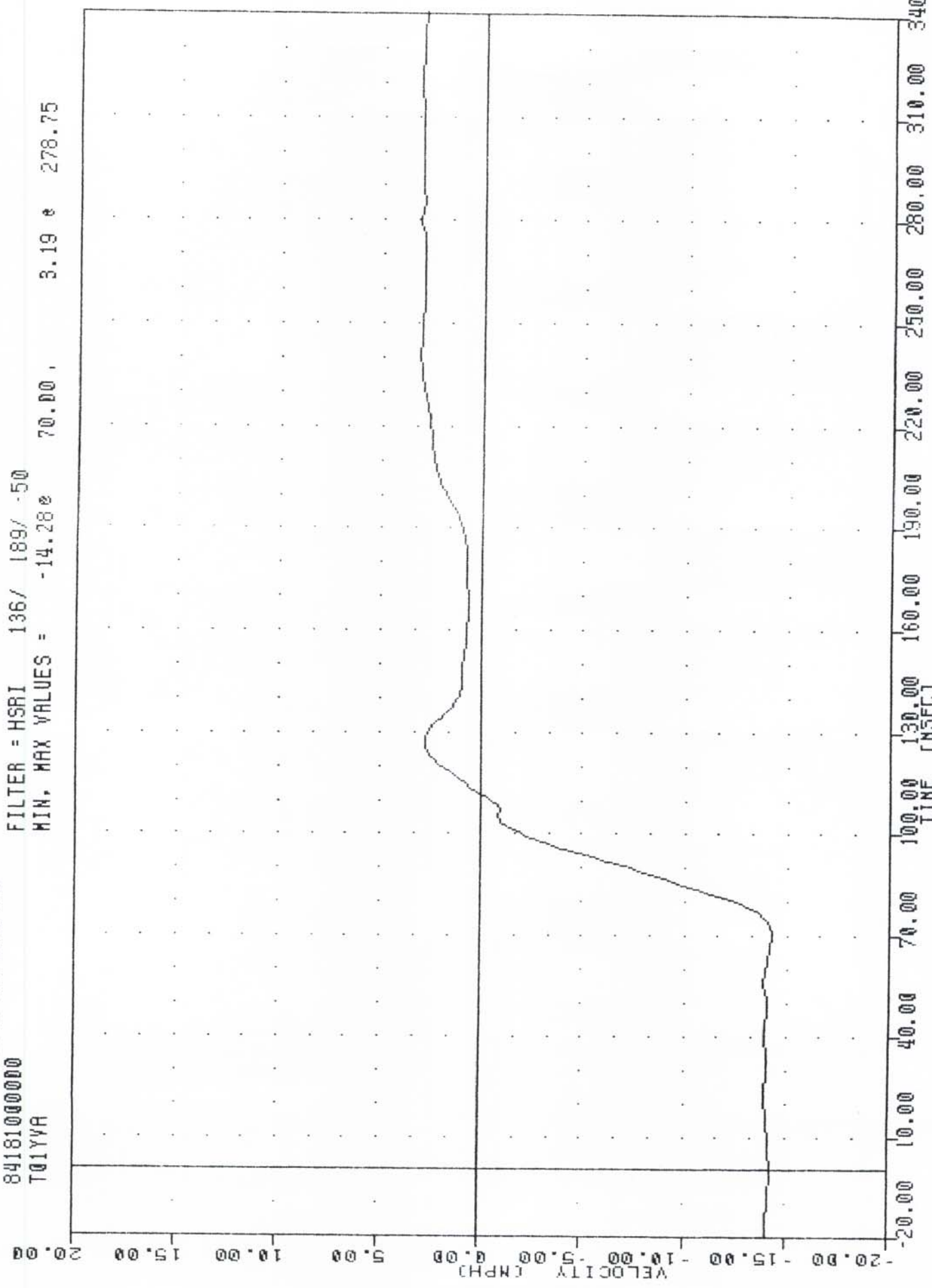
PLU1 DATE 1-HUG-84 14:25:13
FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -14.07e -20.00, 4.51 e 290.00



THU 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01YVA

PLU1 DATE 1-HUG-84 14:25:13

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -14.28 70.00 , 3.19 278.75



B-13

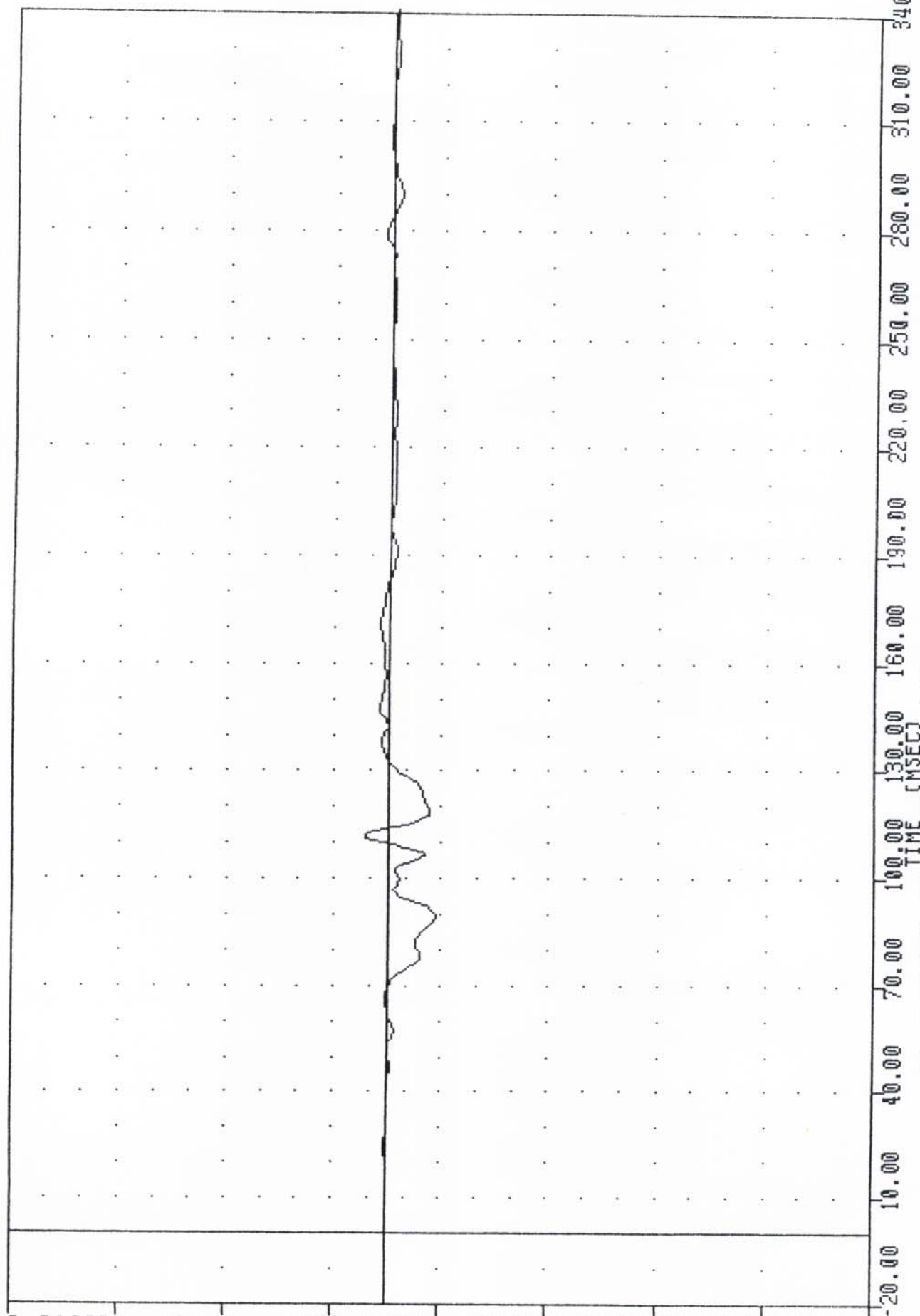
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING T01YGA

Thc , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T12XG1

PLU1 DATE 1-HUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -18.08e 88.75, 8.36 e 111.25

ACCELERATION (G)



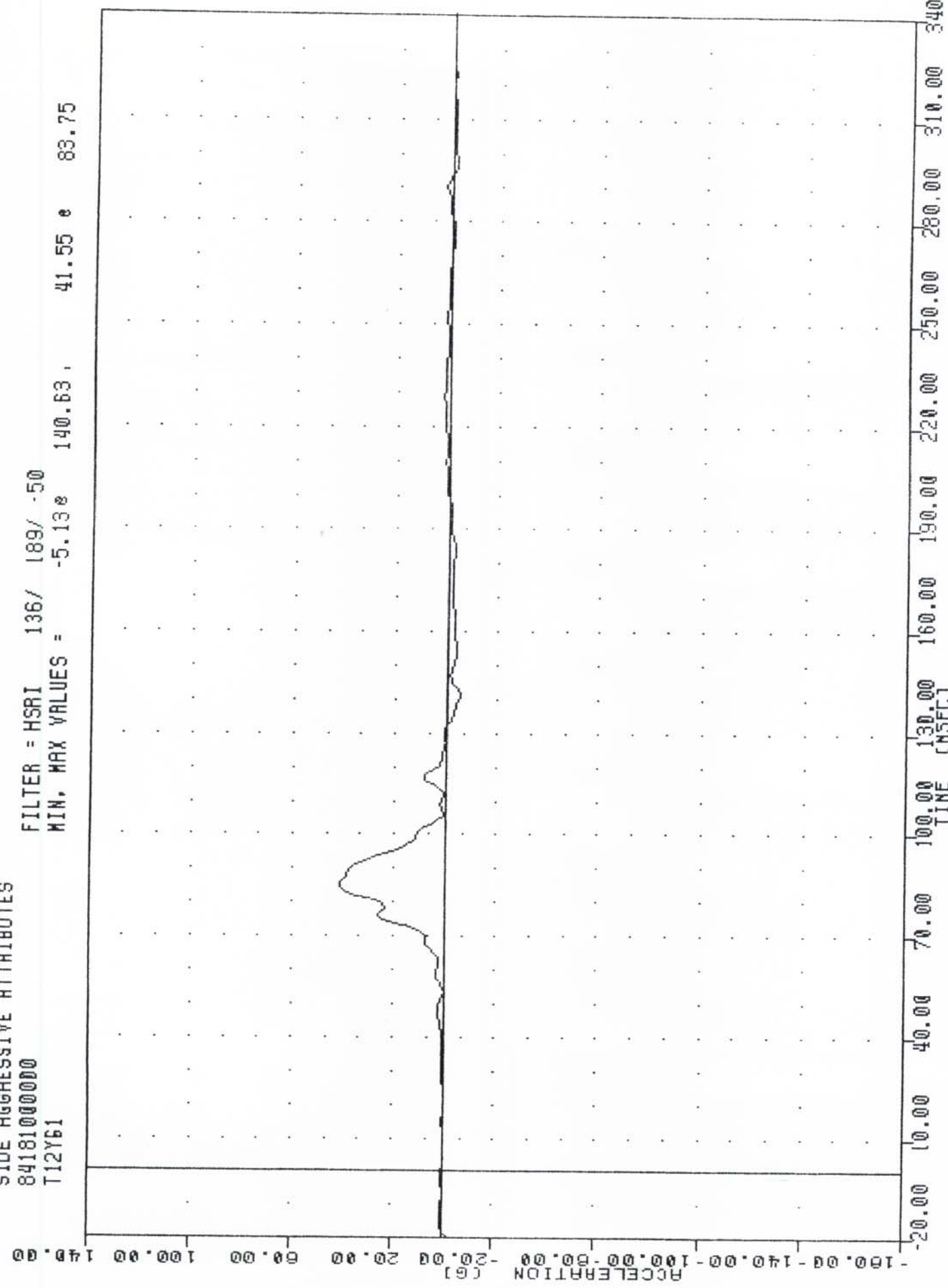
B-14

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER LOWER SPINE ACCELERATION X AXIS

The
 SIDE AGGRESSIVE ATTRIBUTES
 84181000000
 T12Y61

PLU1 DATE 1-HUB-84 10:53:28

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -5.13e 140.63, 41.55 e 83.75

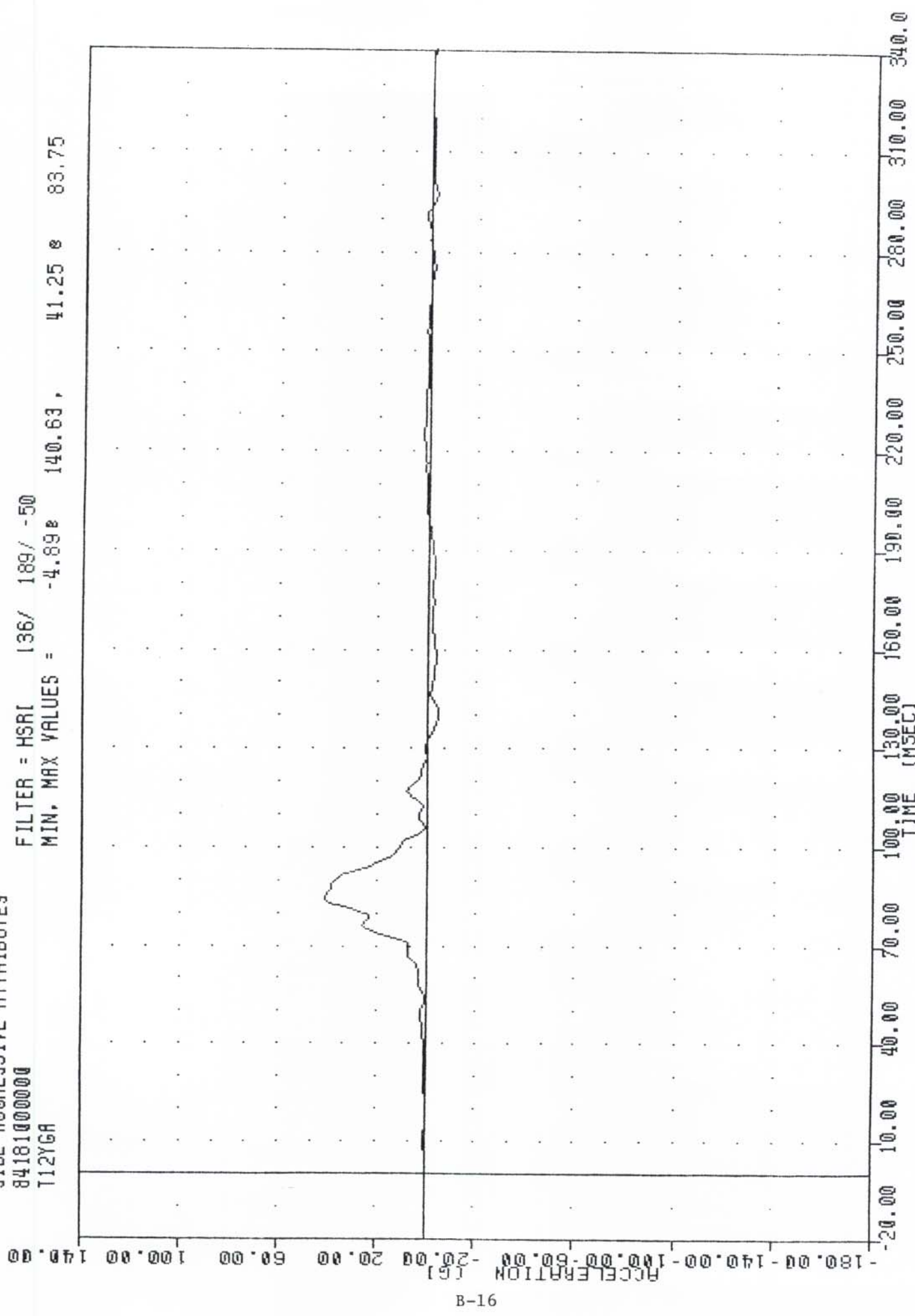


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
 DRIVER LOWER SPINE ACCELERATION Y AXIS

TIME 040623
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T12YGA

PLU1 DATE 1-NOV-84 10:33:28

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -4.89E 140.63, 41.25 E 83.75



B-16

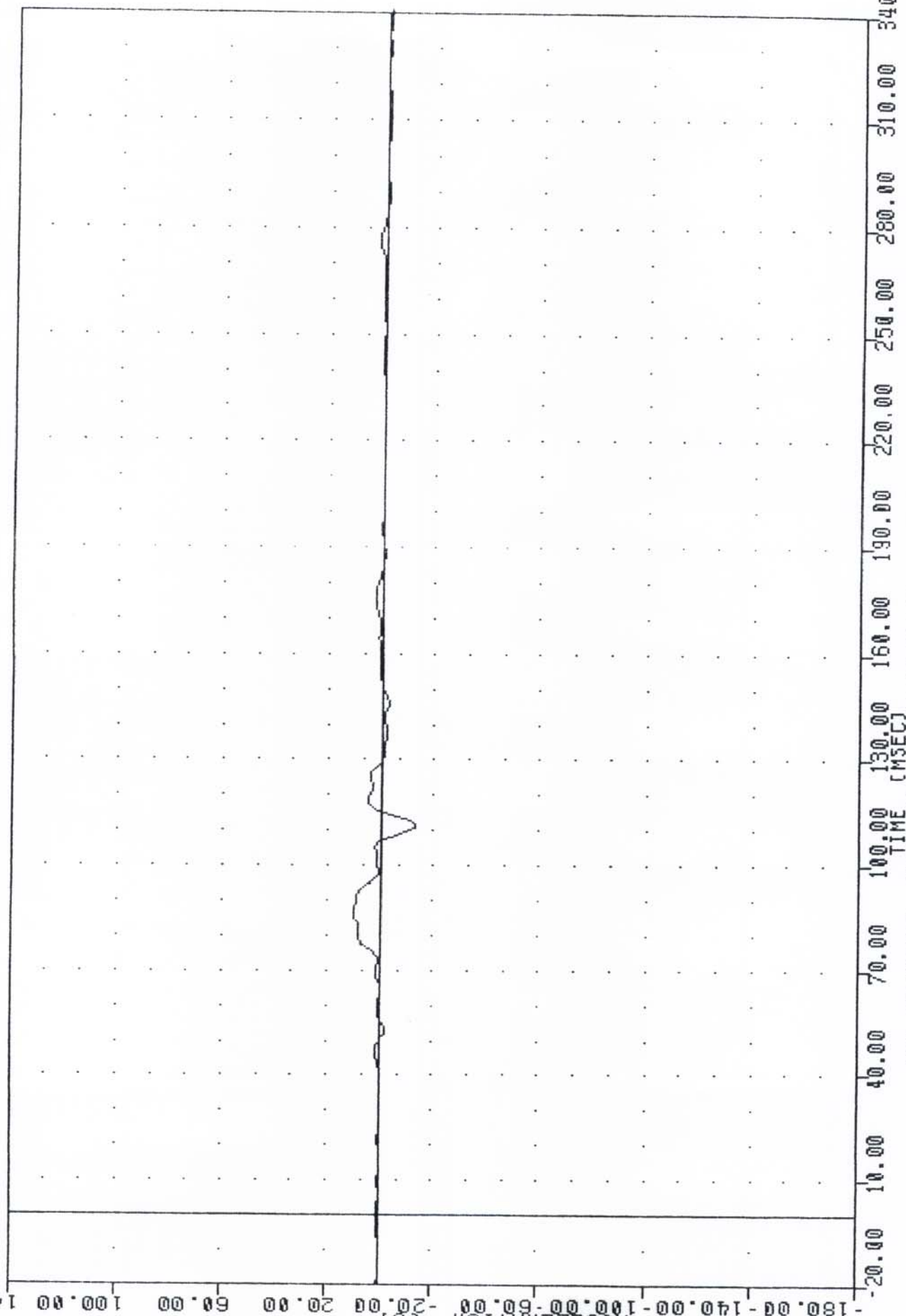
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER LOWER SPINE ACCELERATION -2 Y AXIS

THL 840623
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T12ZG1

PLUI DATE 1-HUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -13.198 110.63, 9.99 85.63

ACCELERATION (G)



B-17

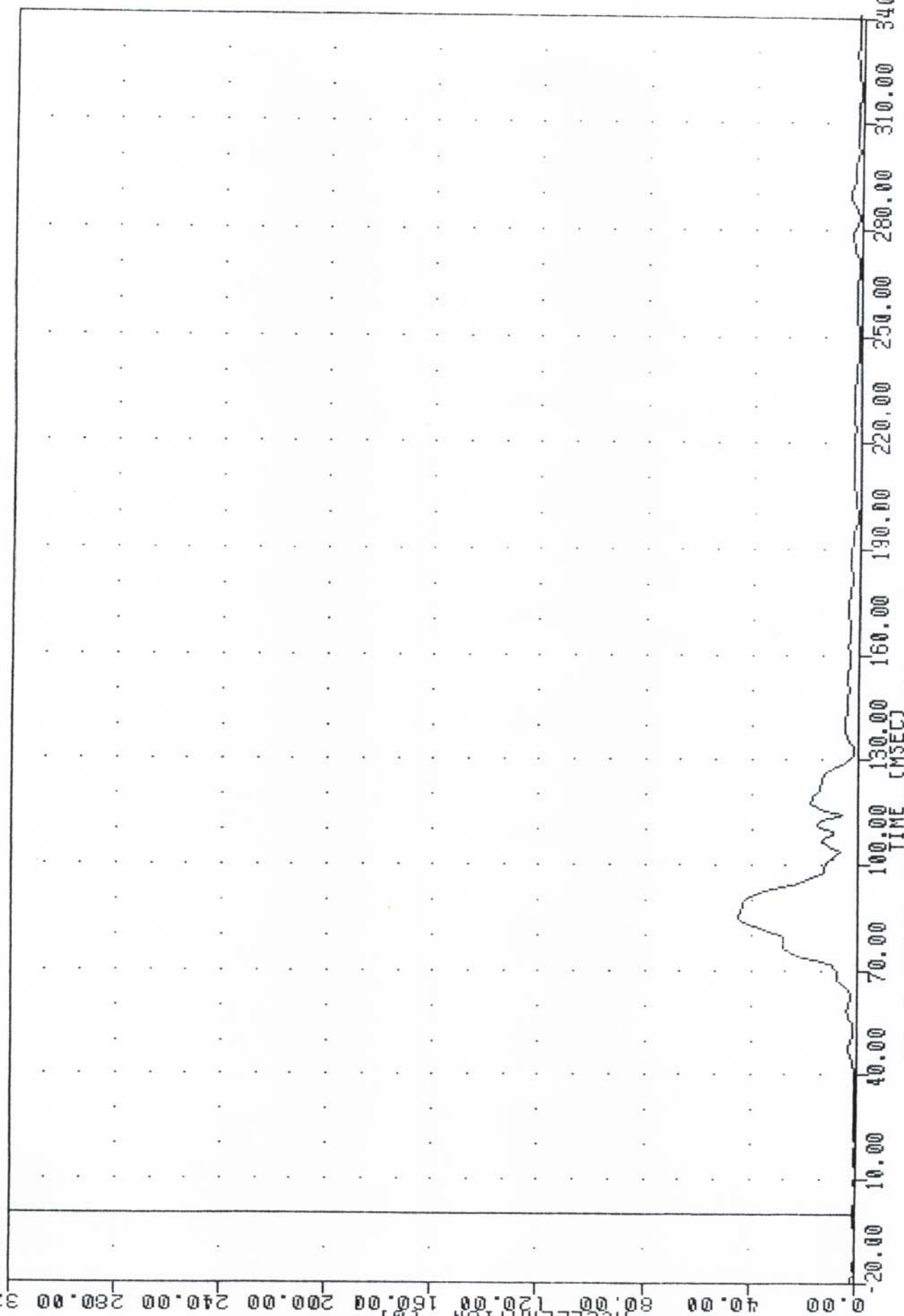
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER LOWER SPINE ACCELERATION Z AXIS

Thu, 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T12RG1

PLU1 DATE 1-HUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = 0.07e 11.88, 44.53 e 84.38

ACCELERATION (G)



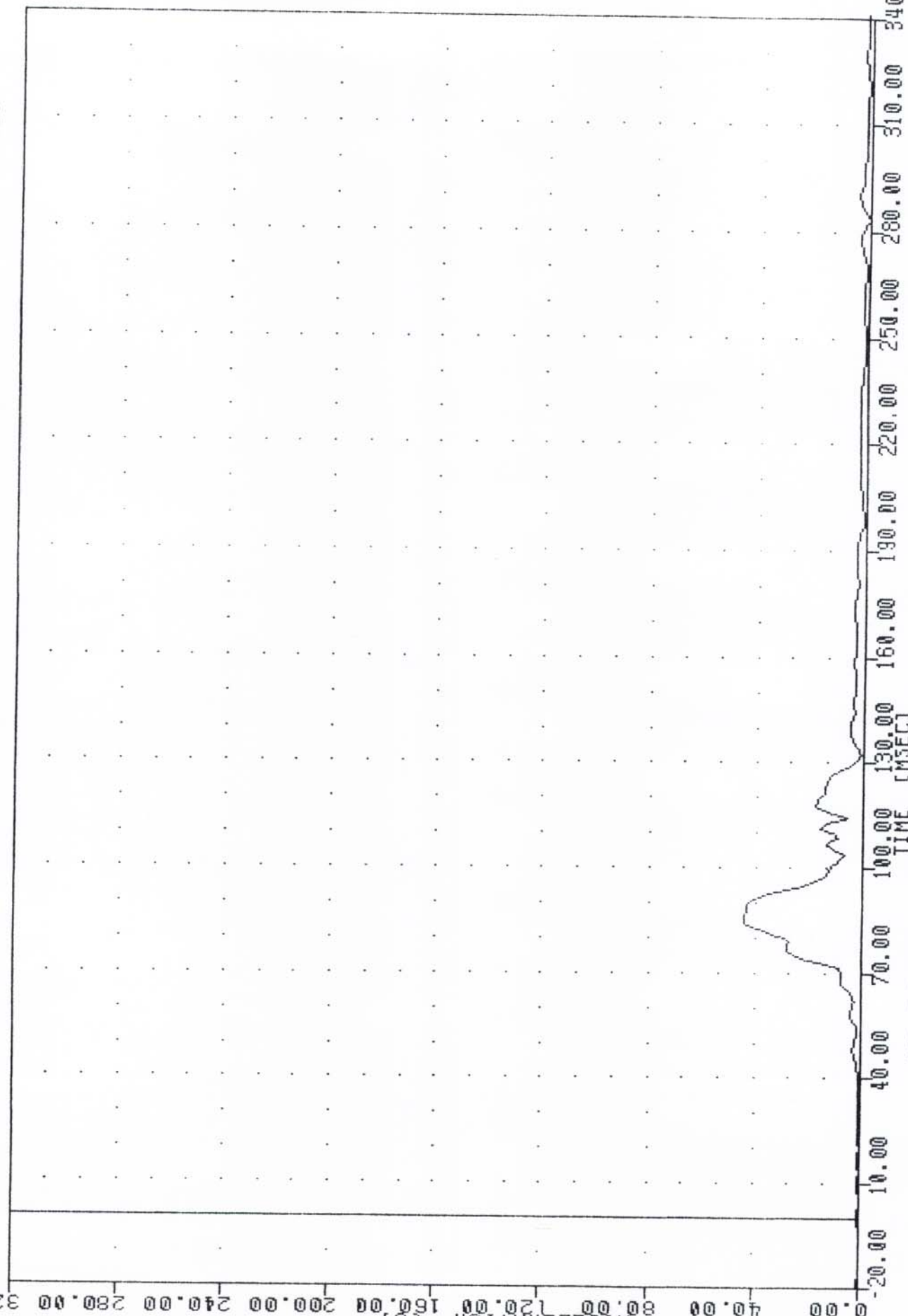
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER LOWER SPINE RESULTANT

TIME 040623
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T12RGA

PLU1 DATE 1-HUG-84 10:55:33

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = 0.06e 4.38, 44.18 e 84.38

ACCELERATION (G)
320.00
280.00
240.00
200.00
160.00
120.00
80.00
40.00
0.00

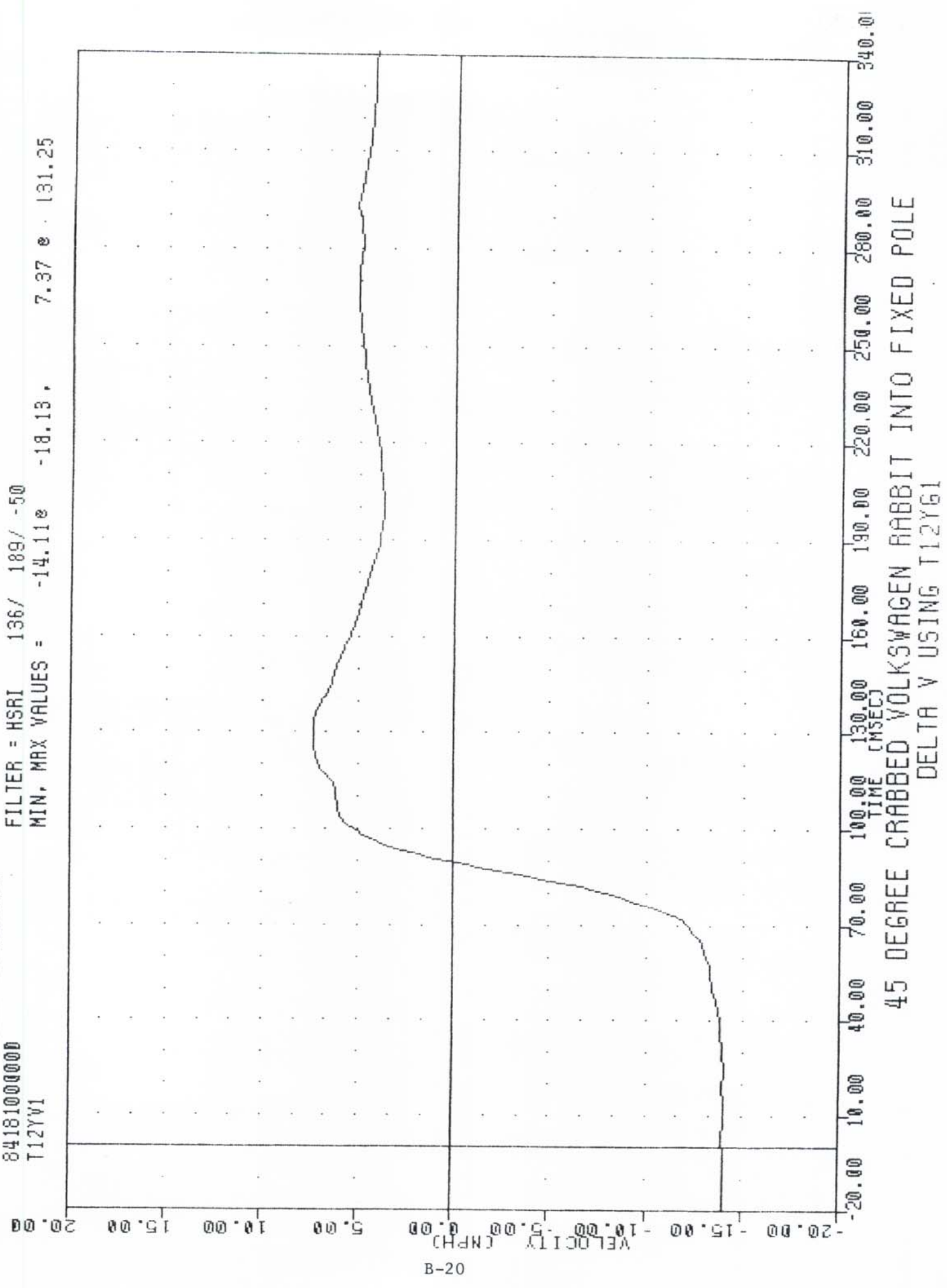


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER LOWER SPINE RESULTANT USING T12YGA

THU 040629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T12YV1

PLU1 DATE 1-HUG-84 14:27:20

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -14.11e -18.13, 7.37 e 131.25



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING T12Y61

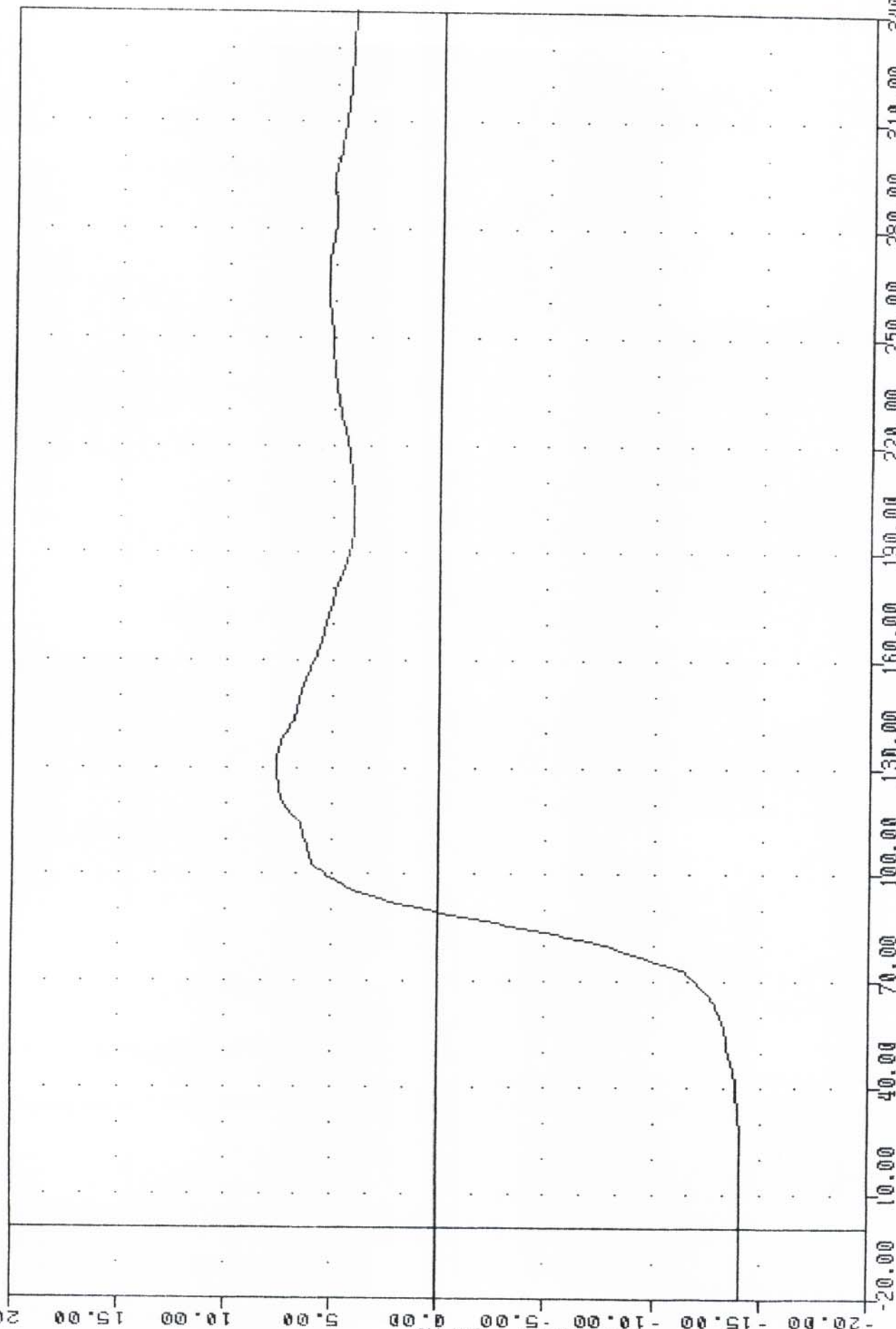
TAC 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T12YVA

PLU1 DATE 1-HUG-84 14:27:20

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -14.11 7.65 131.25

VELOCITY (MPH)

B-21



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING T12YGA

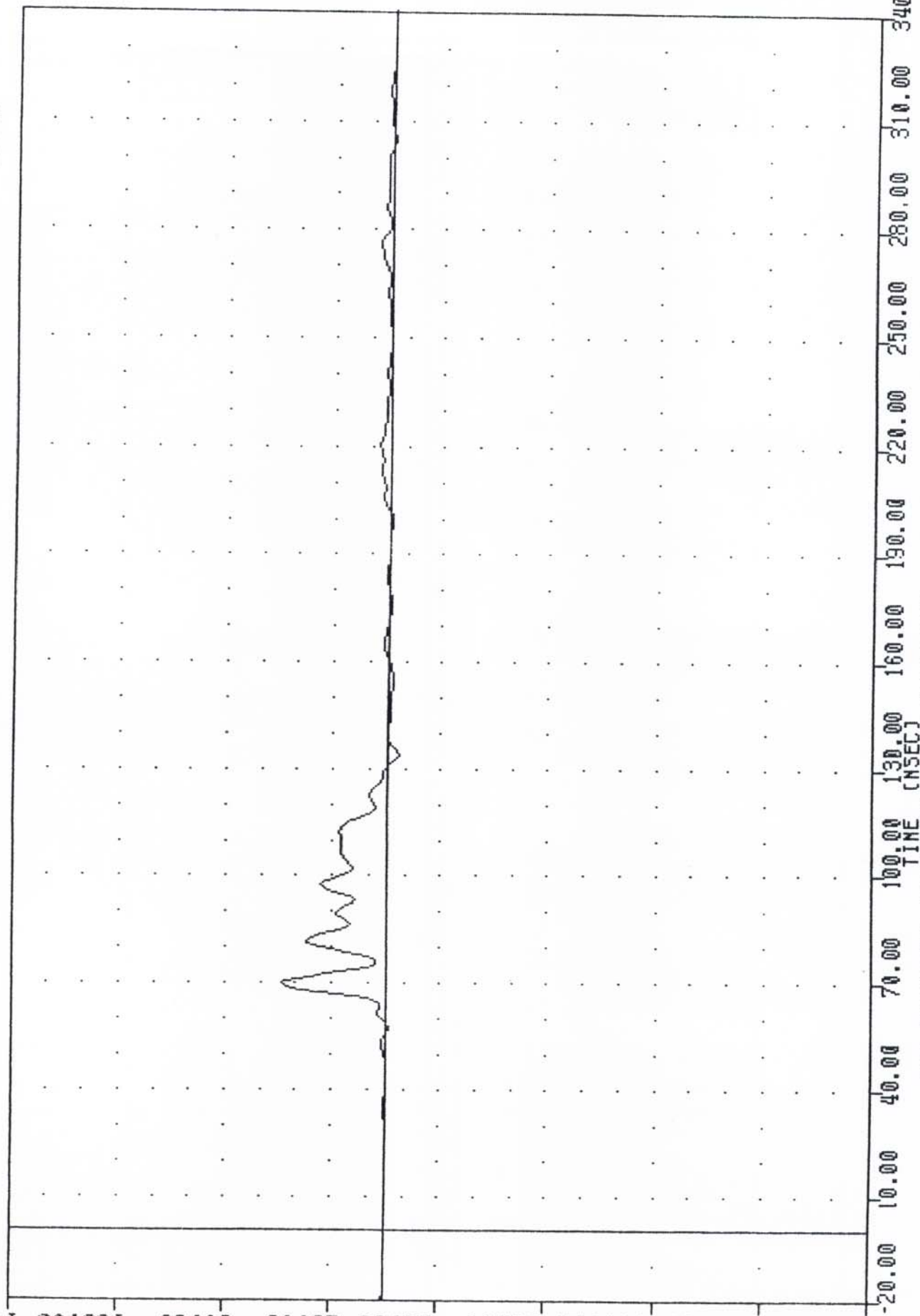
THU, 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LURY61

PLU1 DATE 1-HUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -4.35e 133.12, 38.46 e 69.38

ACCELERATION (G)

B-22

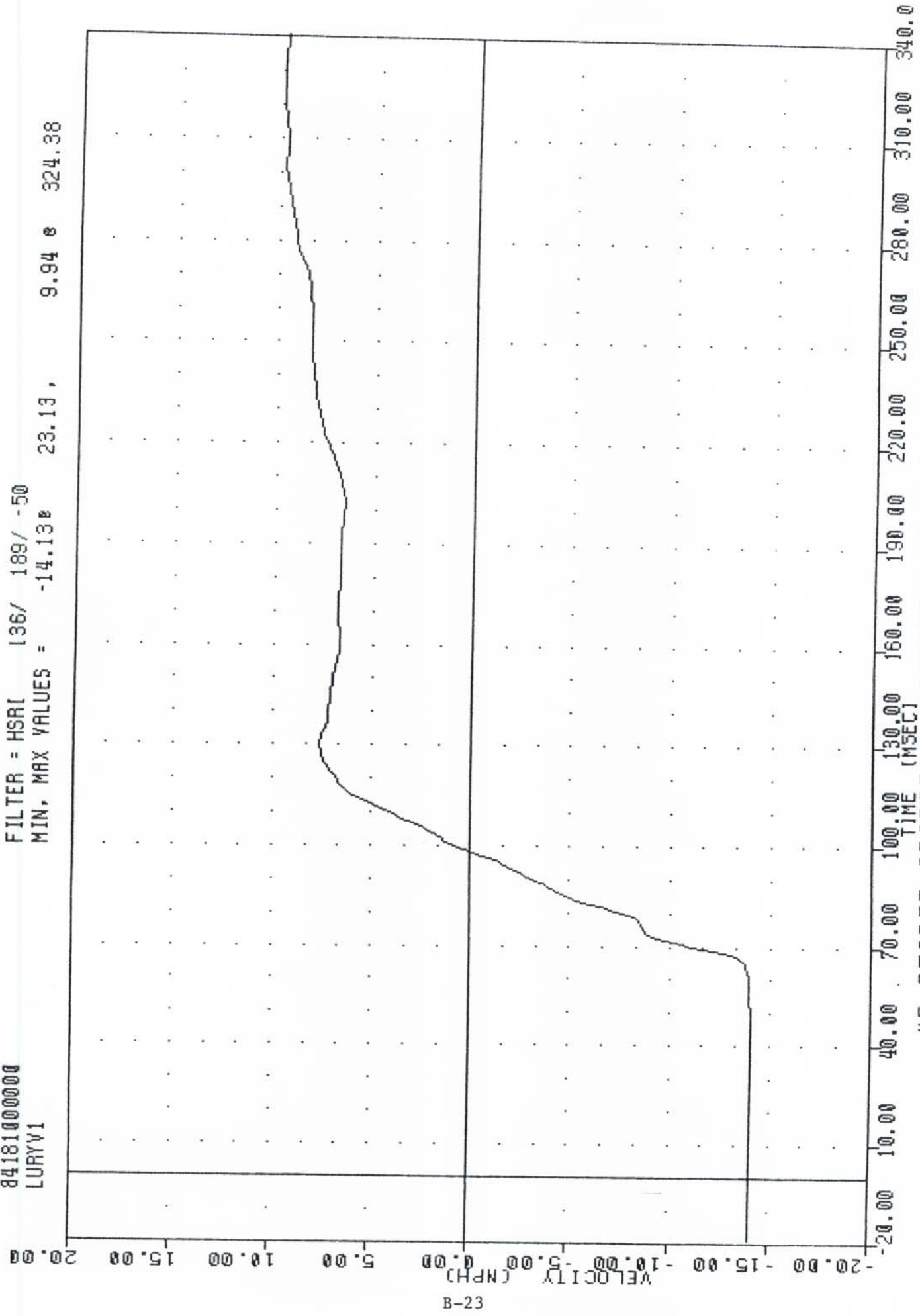


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER LEFT UPPER RIB ACCELERATION Y AXIS

THC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LURYV1

PLUI DATE 1-HUG-84 14:27:20

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -14.13 23.13, 9.94 324.38



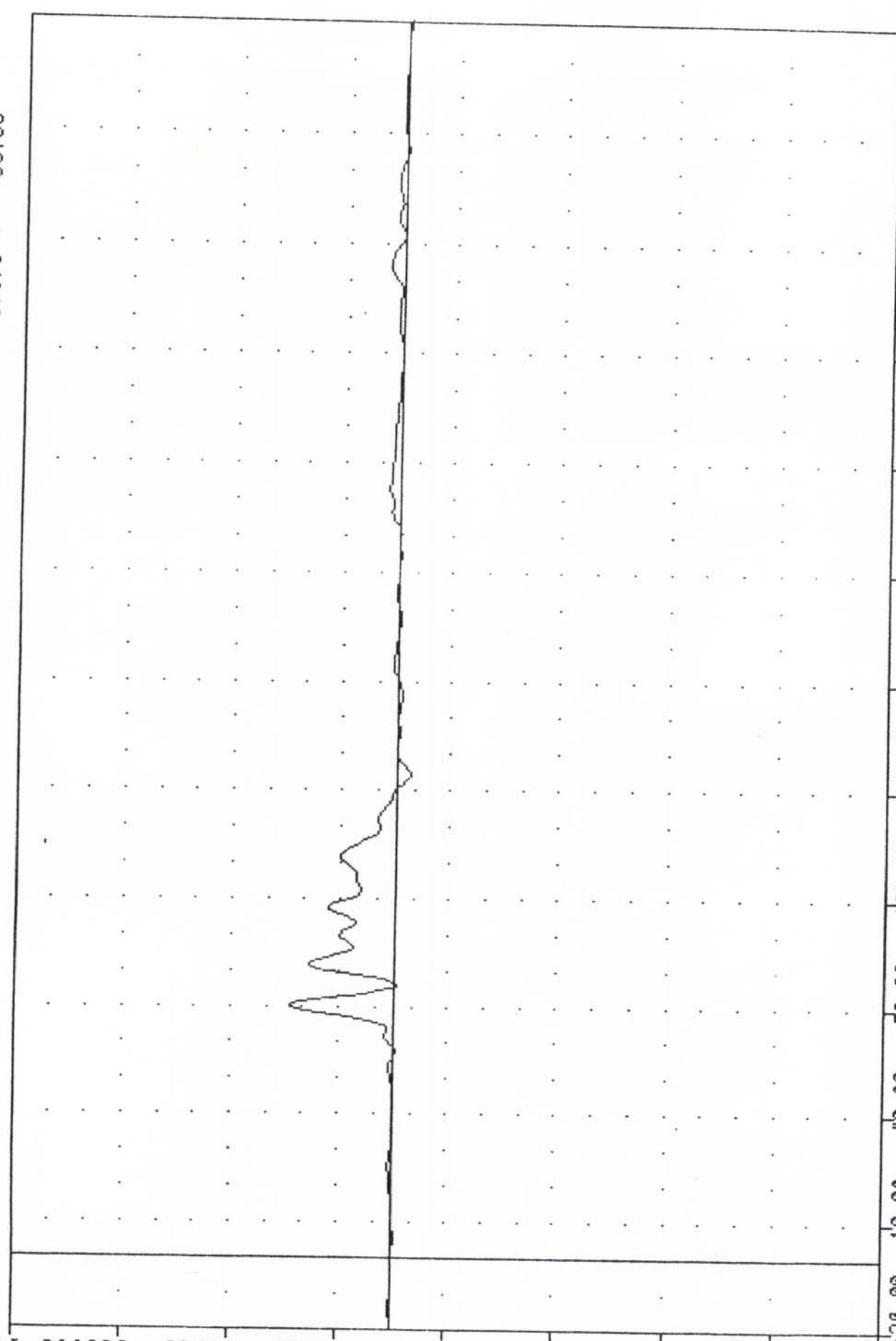
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LURYGI

THC 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LURYGA

PLOT DATE 1-AUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -5.35e 133.75, 37.75 e 69.38

ACCELERATION (G)
-180.00 -140.00 -100.00 -60.00 -20.00 00 20.00 60.00 100.00 140.00

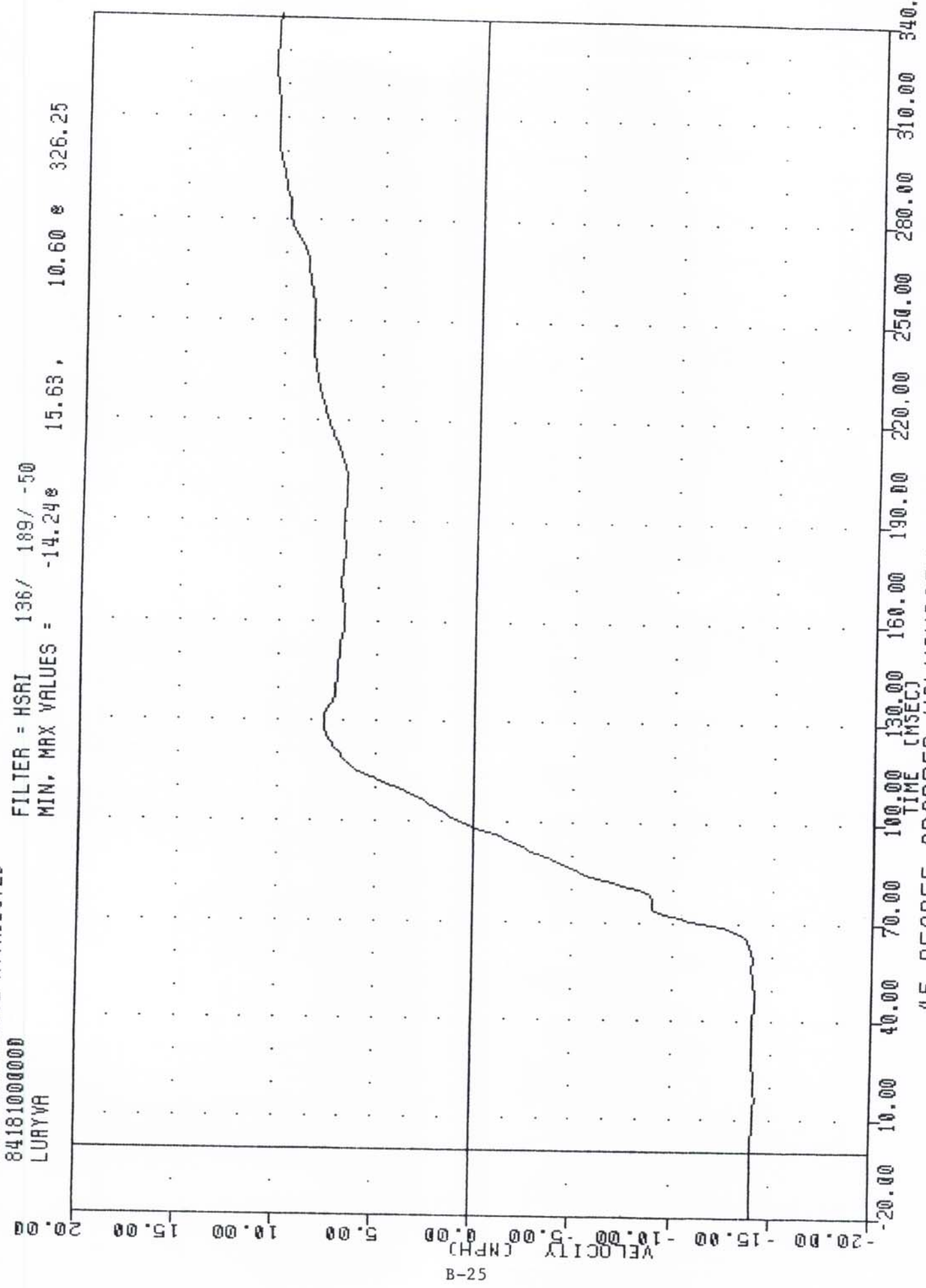


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER LEFT UPPER RIB ACCELERATION -2 Y AXIS

THC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LURYVA

PLOT DATE 1-AUG-84 14:27:20

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -14.24 15.63, 10.60 326.25



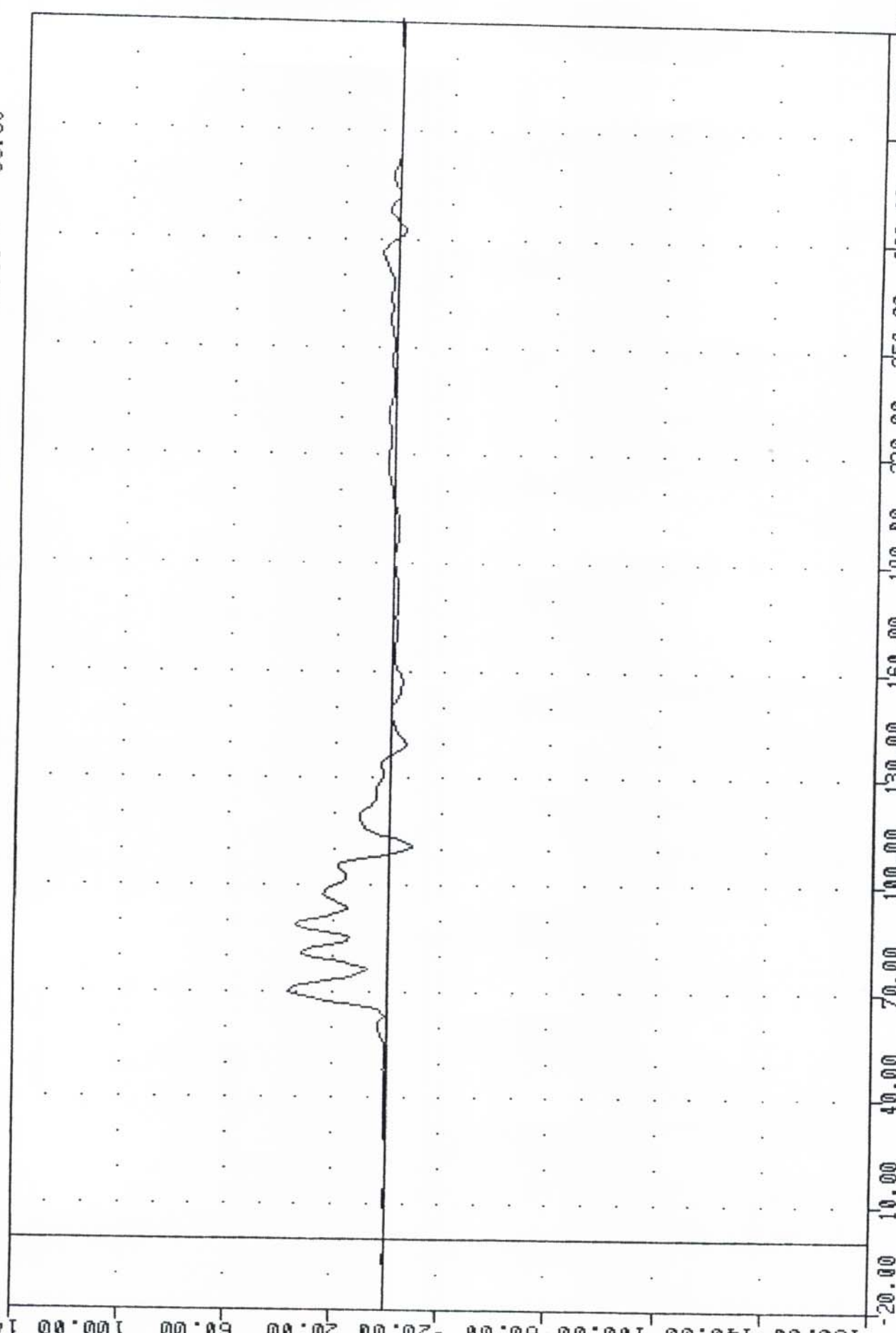
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LURYVA

TML 840623
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LLAYG1

PLU1 DATE 1-HUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -8.95 110.00, 36.80 69.38

ACCELERATION (G)
-180.00 -140.00 -100.00 -60.00 -20.00 20.00 60.00 100.00 140.00

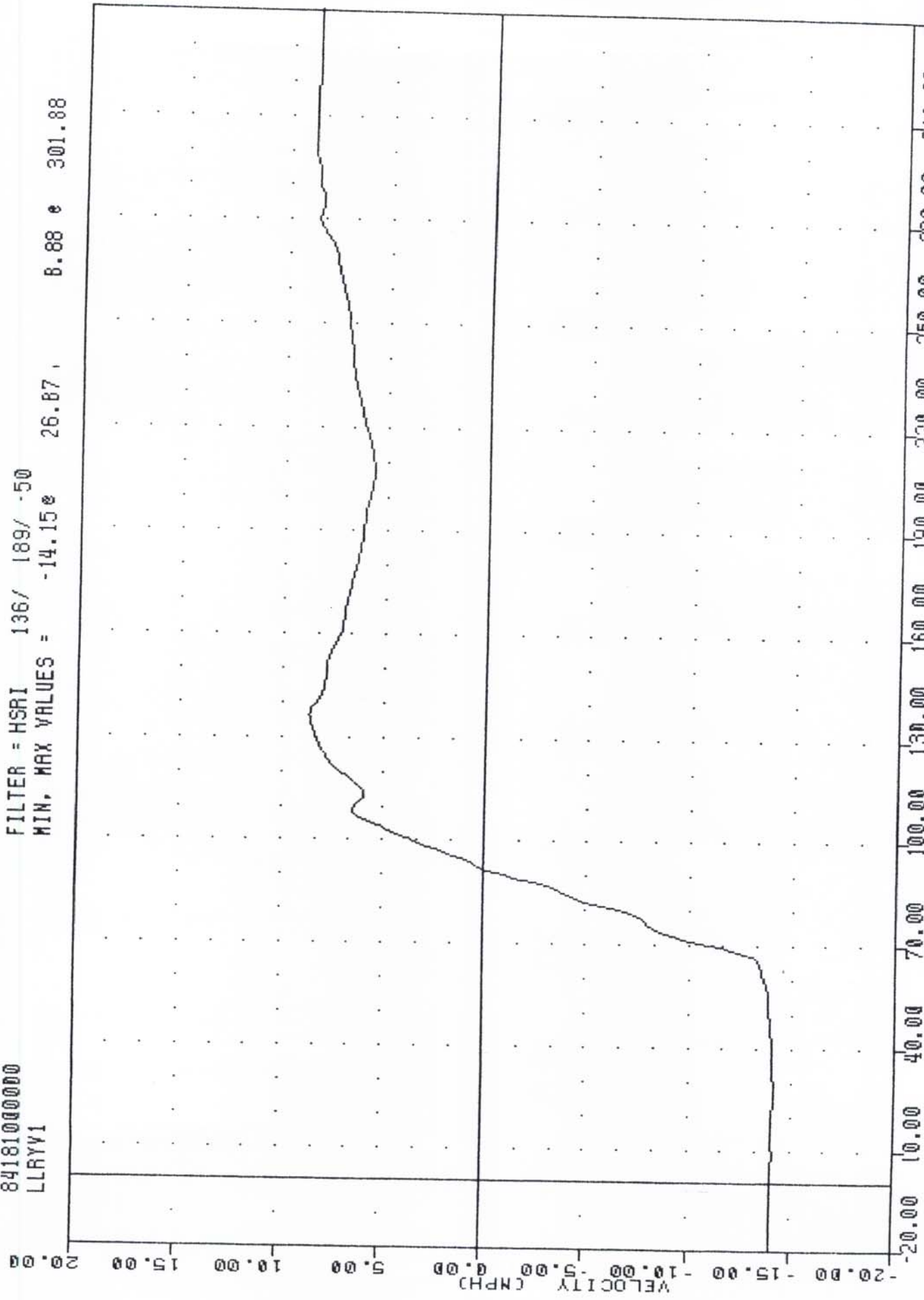


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER LEFT LOWER RIB ACCELERATION Y AXIS

THC 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LLRYV1

PLUI DATE 1-AUG-84 14:27:20

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -14.15 26.87, 8.88 301.88



B-27

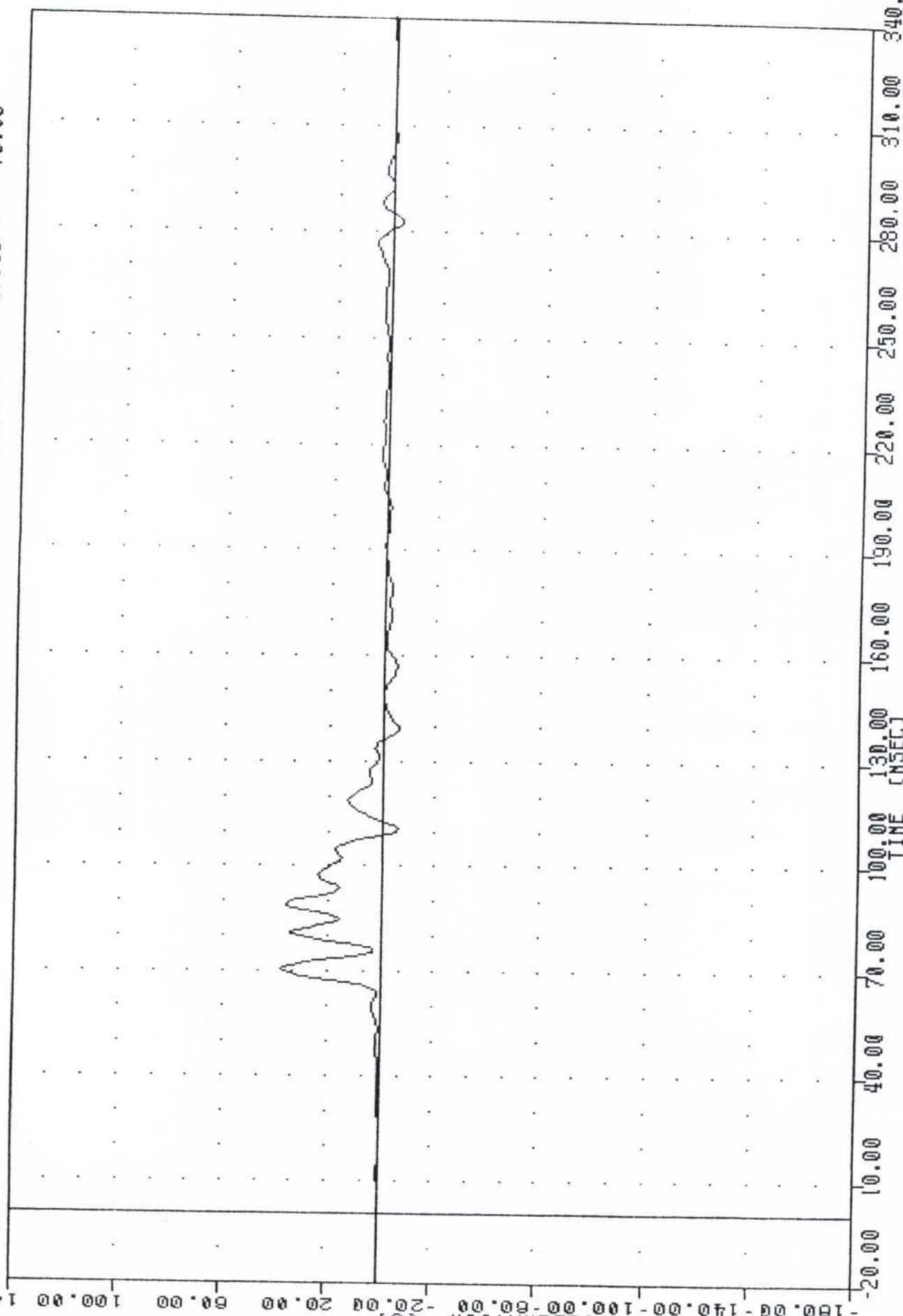
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LLRYG1

THC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LLRY6A

PLOT DATE 1-AUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -6.16e 110.00, 37.80 e 70.00

ACCELERATION (G)



B-28

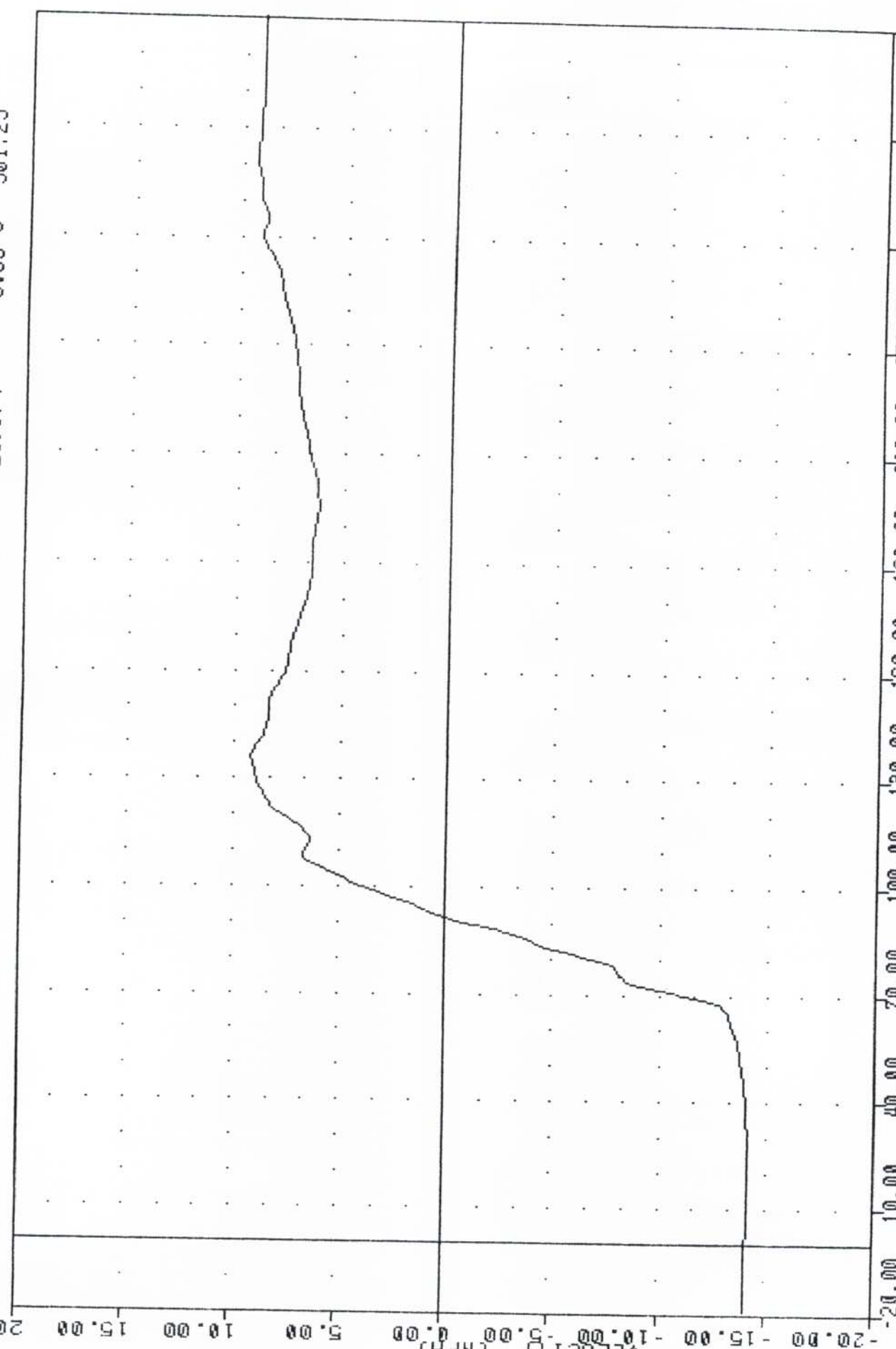
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER LEFT LOWER RIB ACCELERATION -2 Y AXIS

TAC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LLRYVA

PLOT DATE 1-AUG-84 14:27:20

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -14.19* 26.87 , 9.35 * 301.25

B-29
VELOCITY (MPH)
-20.00 -15.00 -10.00 -5.00 0.00 5.00 10.00 15.00 20.00

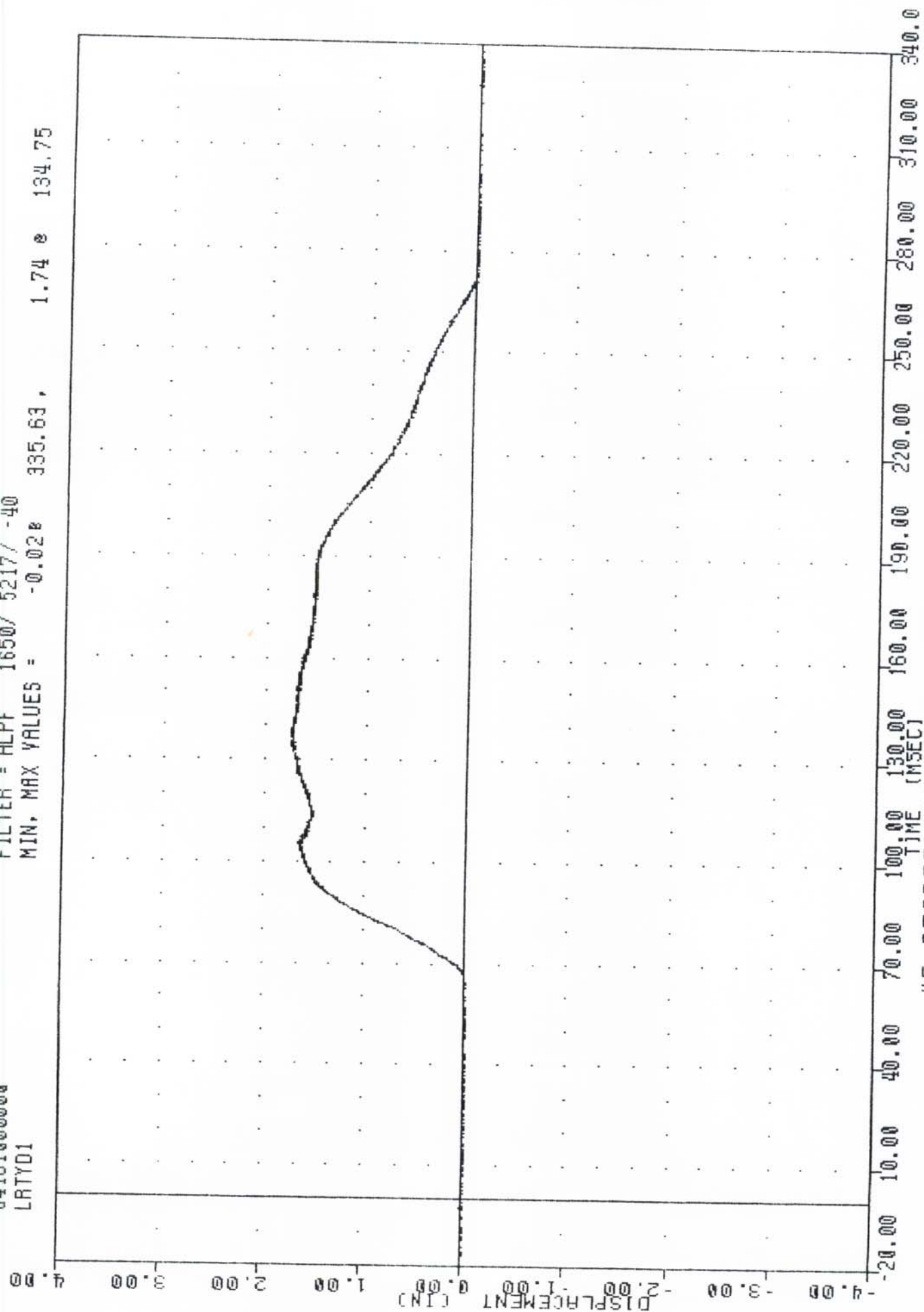


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LLRYGA

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LRTYD1

PLOT DATE 1-AUG-84 10:49:50

FILTER = ALPF 1650/ 5217/ -40
MIN. MAX VALUES = -0.028 335.63, 1.74 134.75



B-30

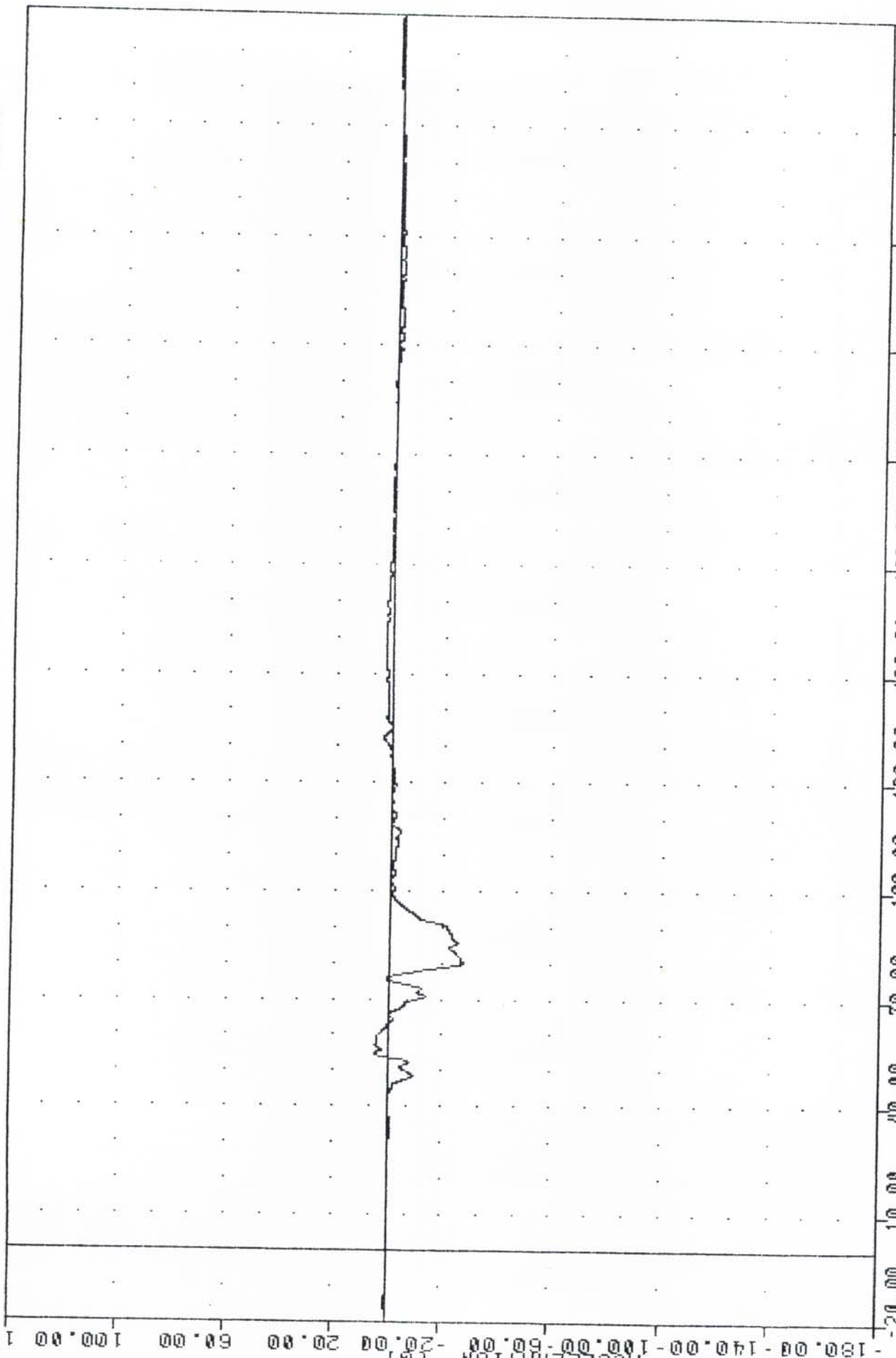
45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER LEFT RIB TO SPINE DISPLACEMENT INCHES

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
PEVXG1

PLOT DATE 1-AUG-84 10:49:50

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -27.59g 79.88g 4.66g 54.50

ACCELERATION (G)

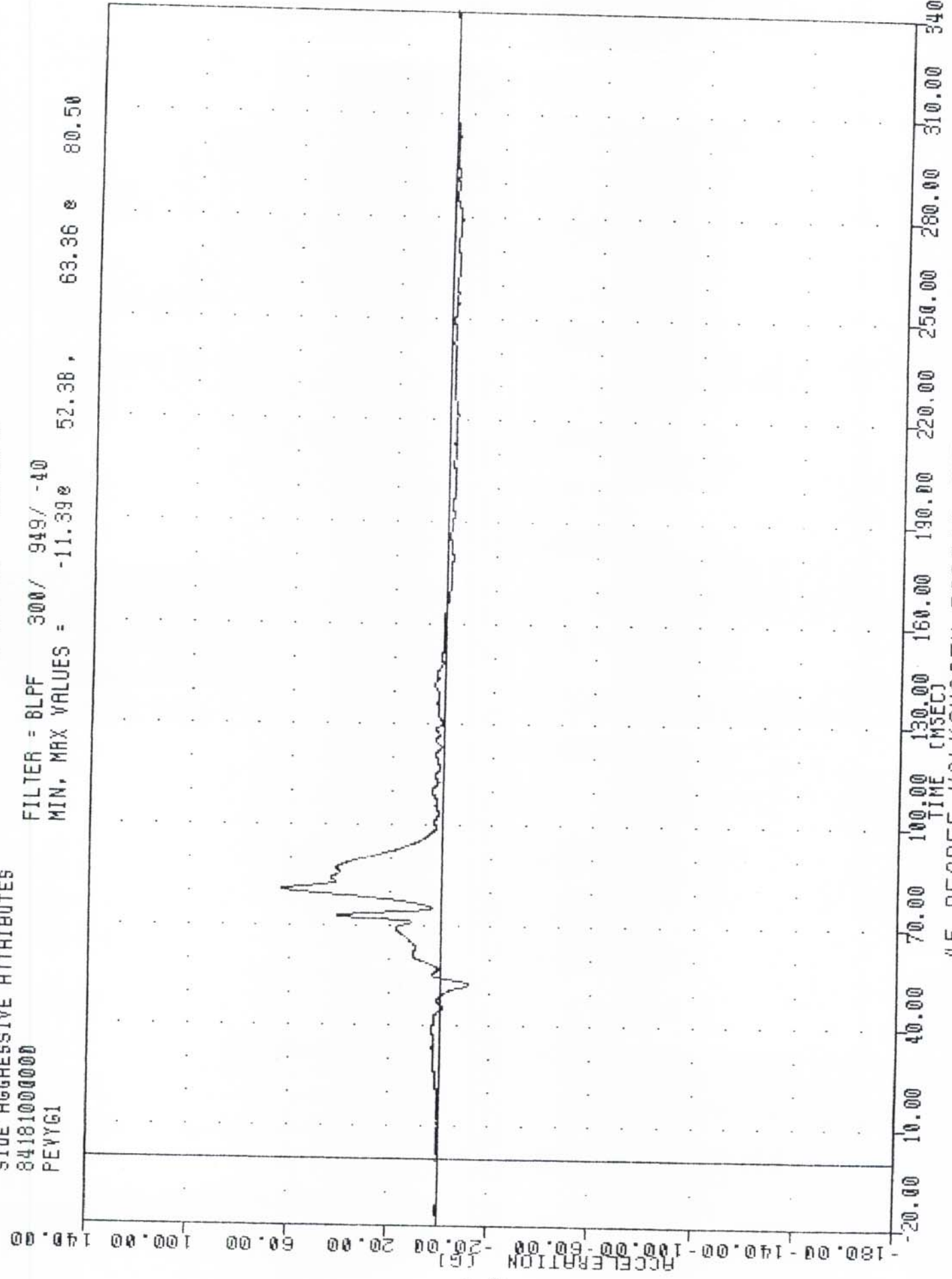


45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER PELVIS ACCELERATION X AXIS

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
PEVYG1

PLOT DATE 1-AUG-84 10:49:50

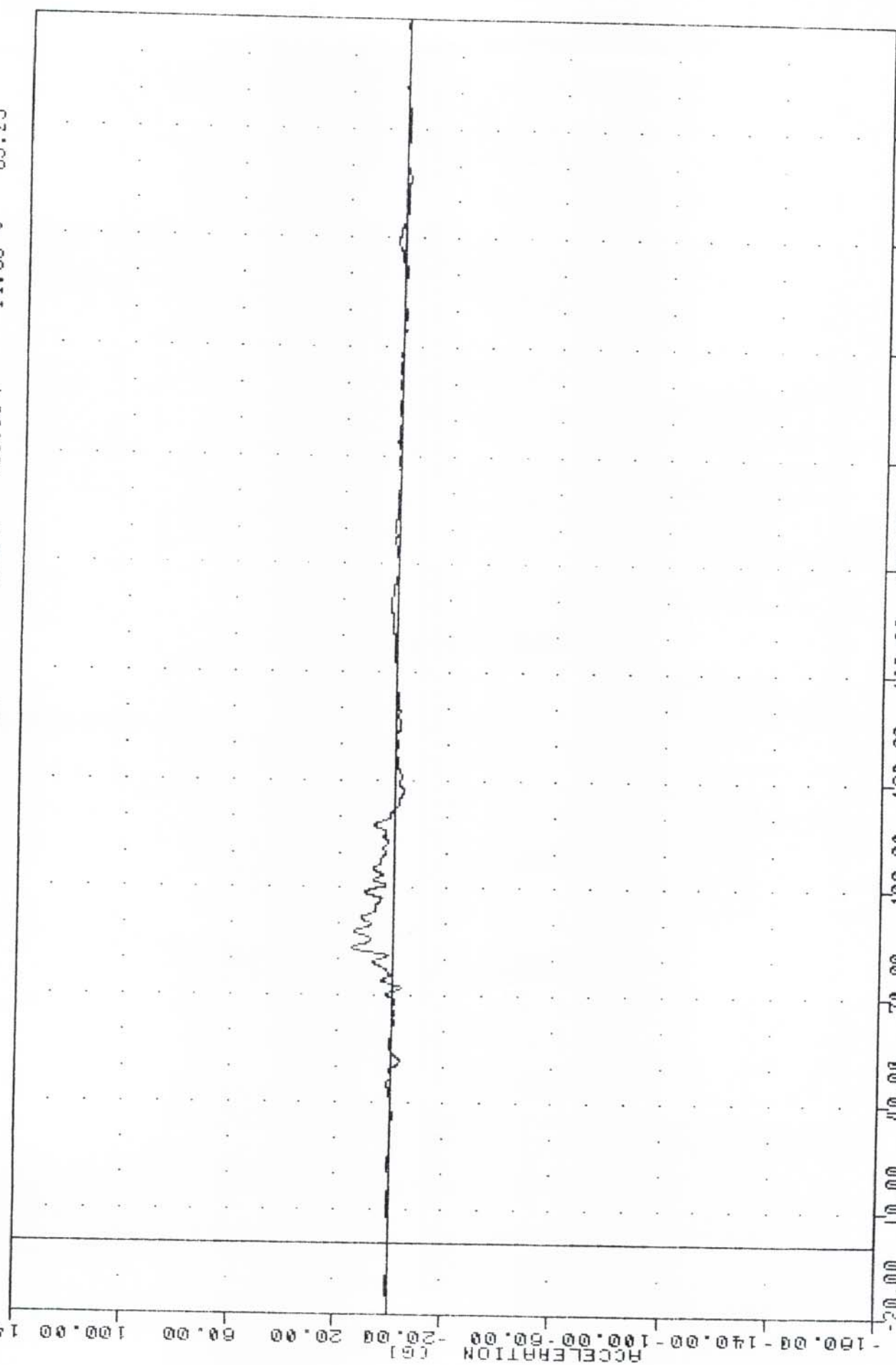
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -11.39e 52.38, 63.36 e 80.50



45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER PELVIS ACCELERATION Y AXIS

TAC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
PEVZ61

PLOT DATE 1-AUG-84 10:49:50
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -4.00e 126.88 , 14.85 e 83.25



B-33

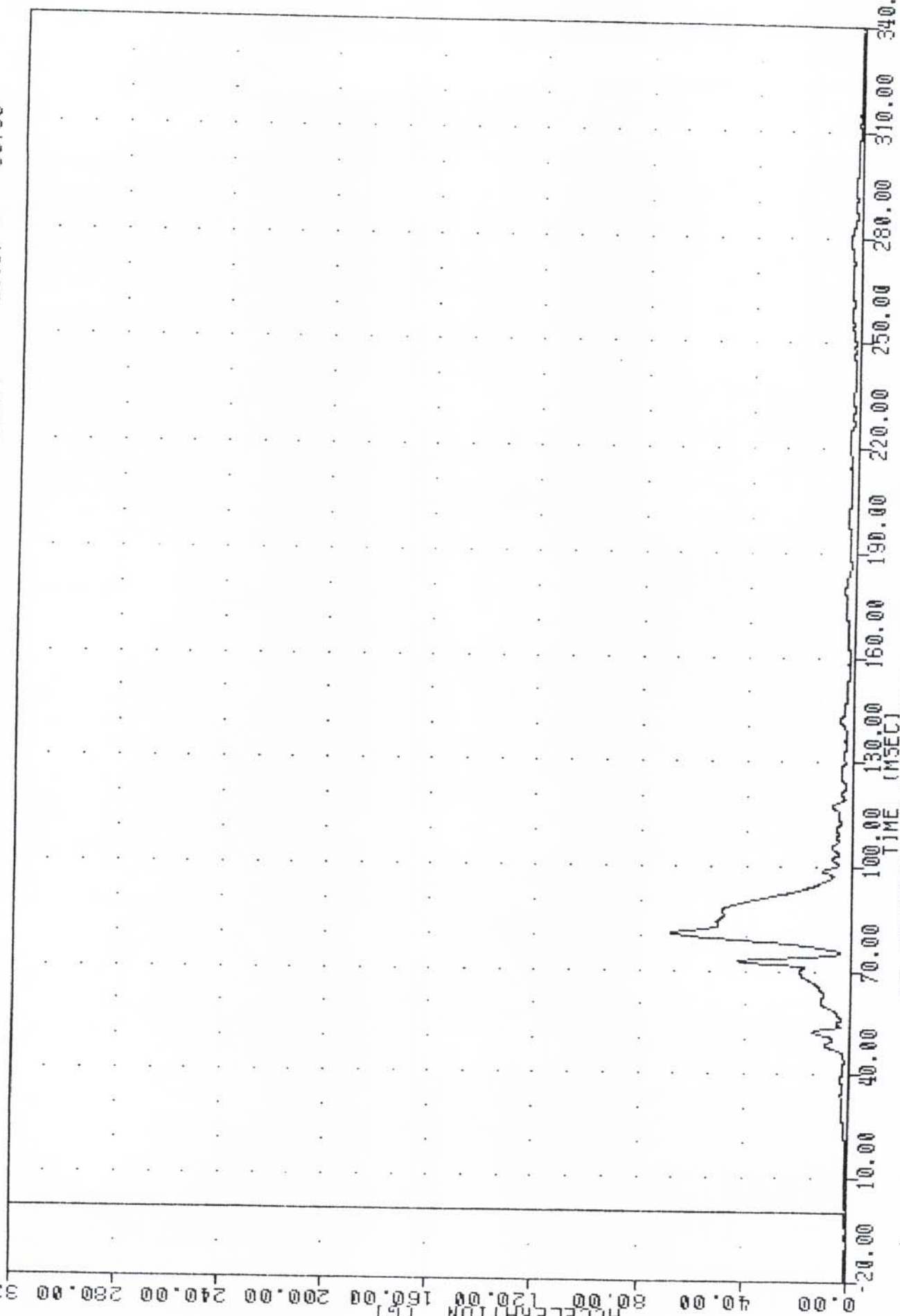
45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER PELVIS ACCELERATION Z AXIS

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
PEVRG1

PLOT DATE 1-AUG-84 10:49:50

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = 0.18e -8.75, 68.87 e 80.50

ACCELERATION (G)



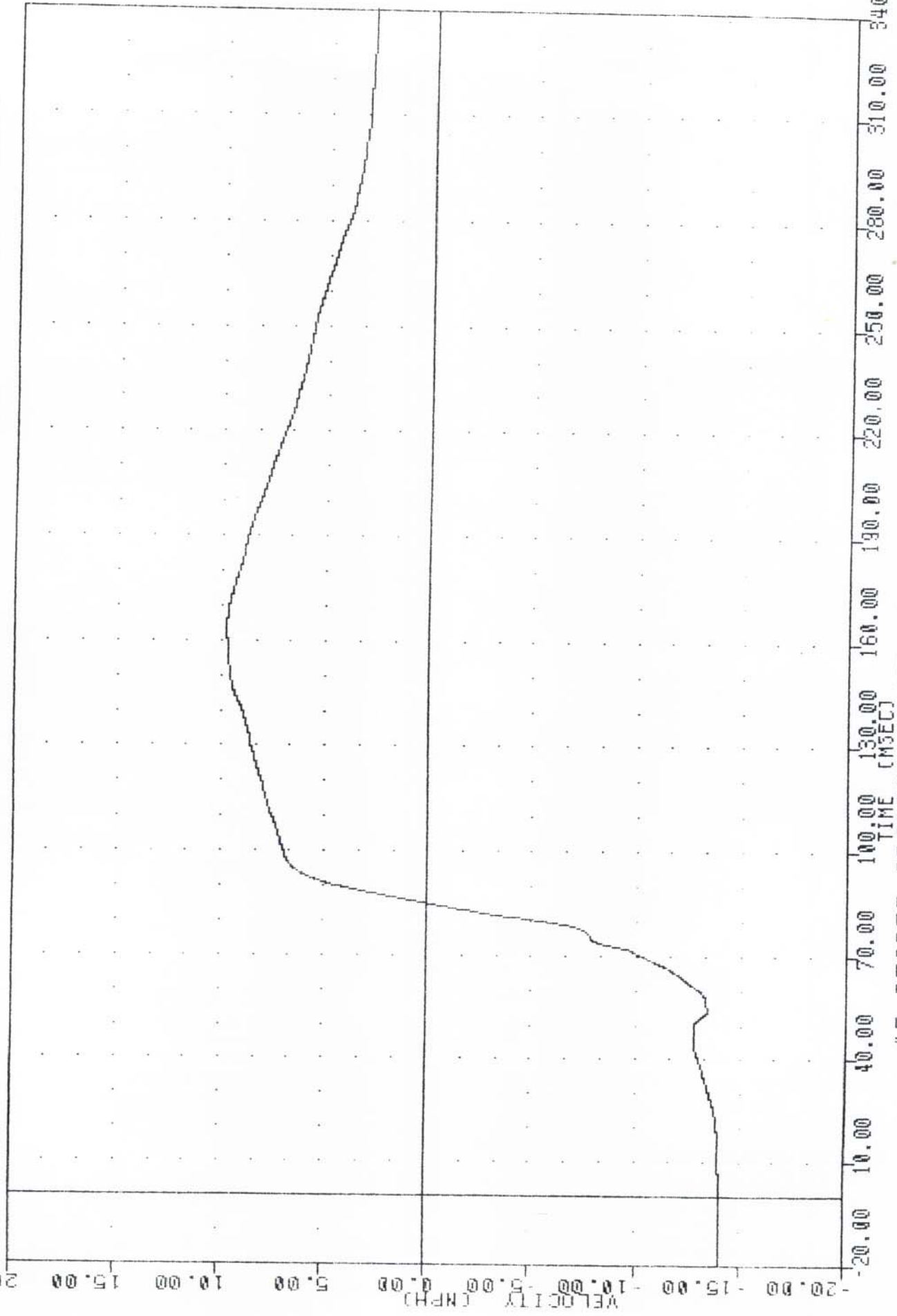
45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
DRIVER PELVIS RESULTANT

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
PEYV1

PLOT DATE 1-AUG-84 14:35:30

FILTER = BLPF 300 / 949 / -40
MIN, MAX VALUES = -14.070 -3.25 , 9.75 0 163.25

VELOCITY (MPH)

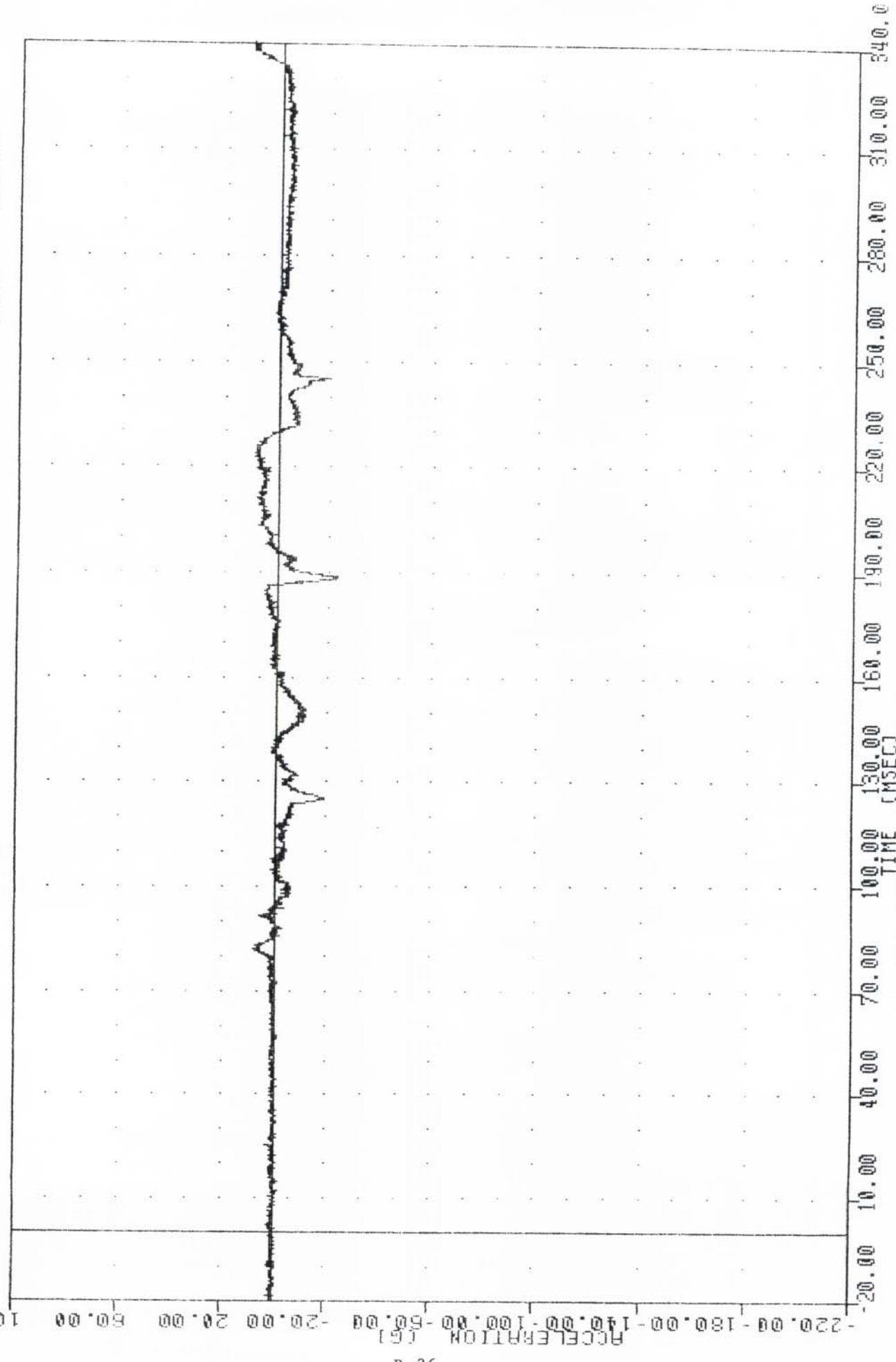


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING PEYV1

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
HEDXG3

PLOT DATE 1-AUG-84 10:49:50

FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -23.62e 188.13, 11.03 e 338.63

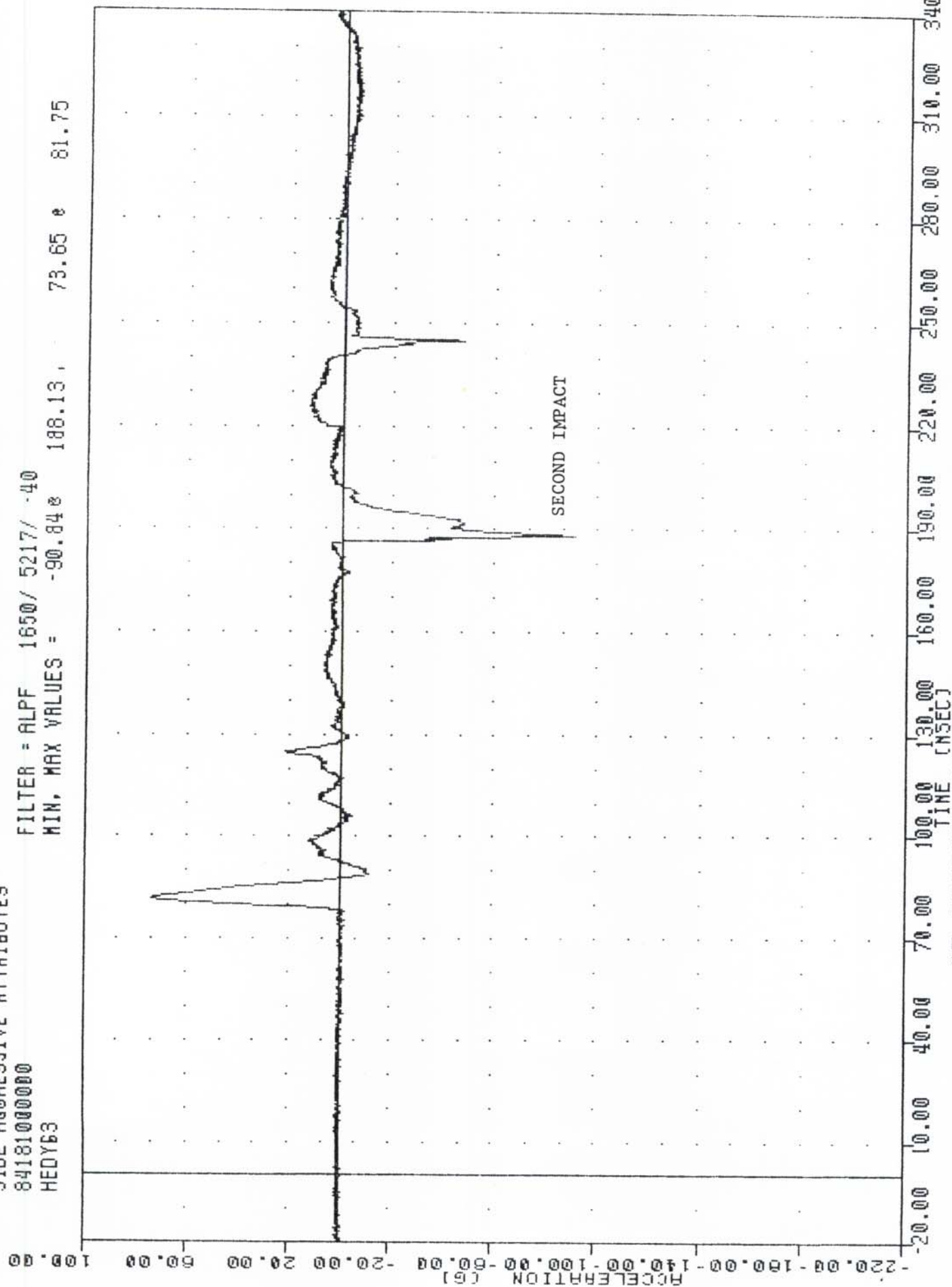


45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER HEAD ACCELERATION X AXIS

TAC 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
HEDY63

PLOT DATE 1-AUG-84 10:49:50

FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -90.848 188.13, 73.65 e 81.75



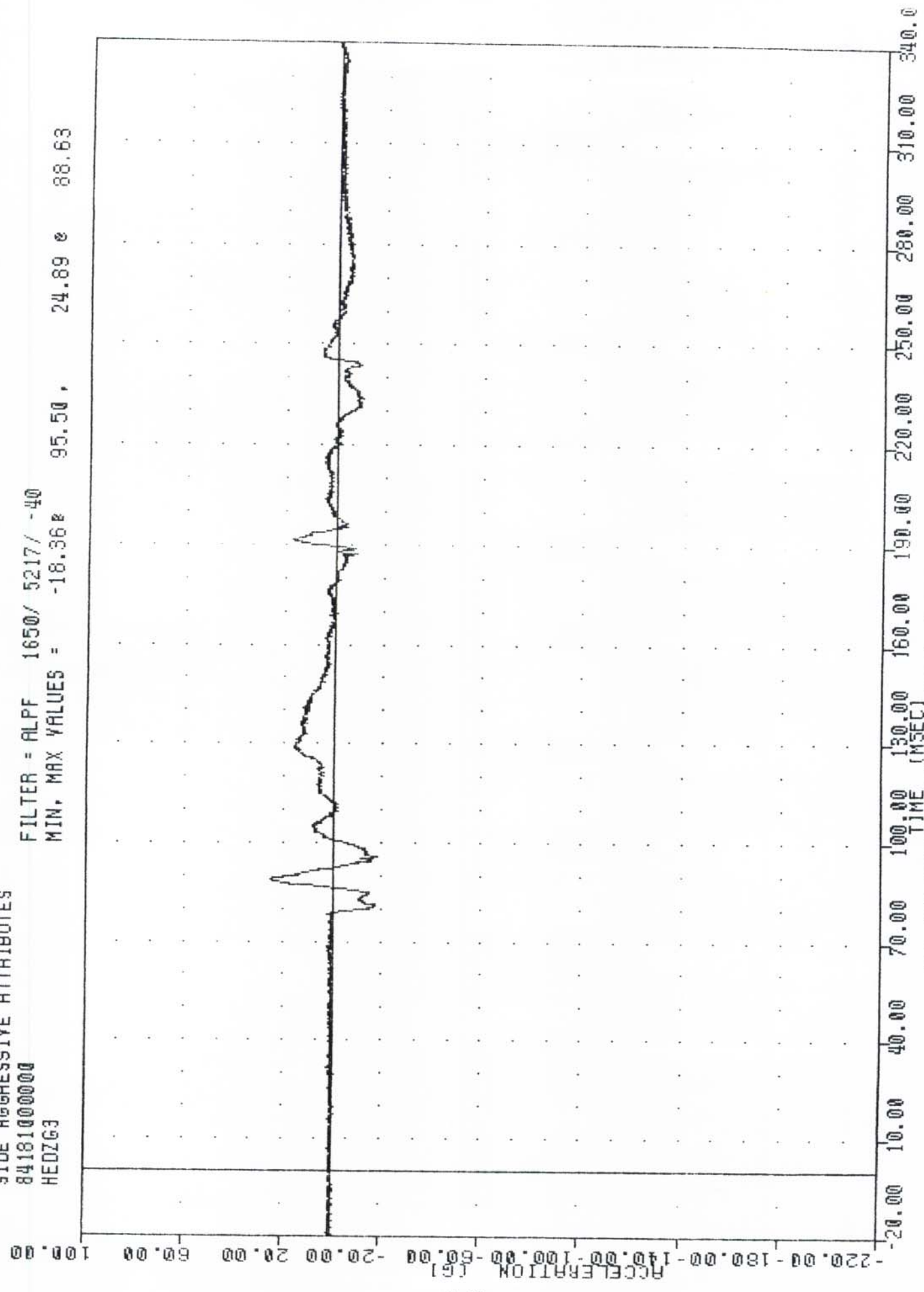
B-37

45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER HEAD ACCELERATION Y AXIS

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
HEDZG3

PLOT DATE 1-AUG-84 10:49:50

FILTER = ALPF 1650/ 5217/ -40
MIN. MAX VALUES = -18.36 95.50 , 24.89 88.63

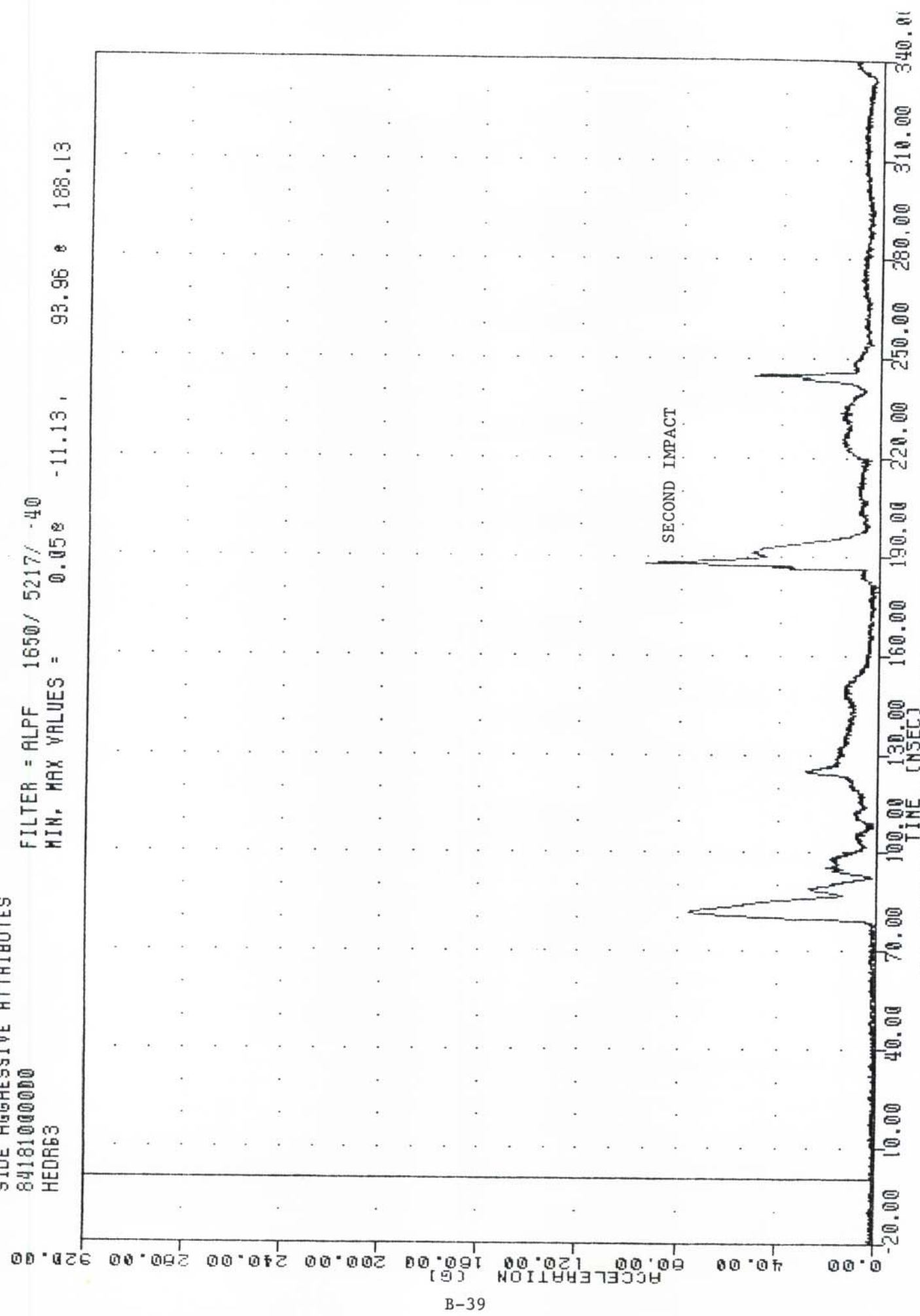


45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER HEAD ACCELERATION Z AXIS

TAC ,840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
HEDR63

PLOT DATE 1-AUG-84 10:49:50

FILTER = ALPF 1650/ 5217/ -40
MIN. MAX VALUES = 0.05g -11.13, 93.96 g 188.13



45 DEGREE VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER HEAD RESULTANT

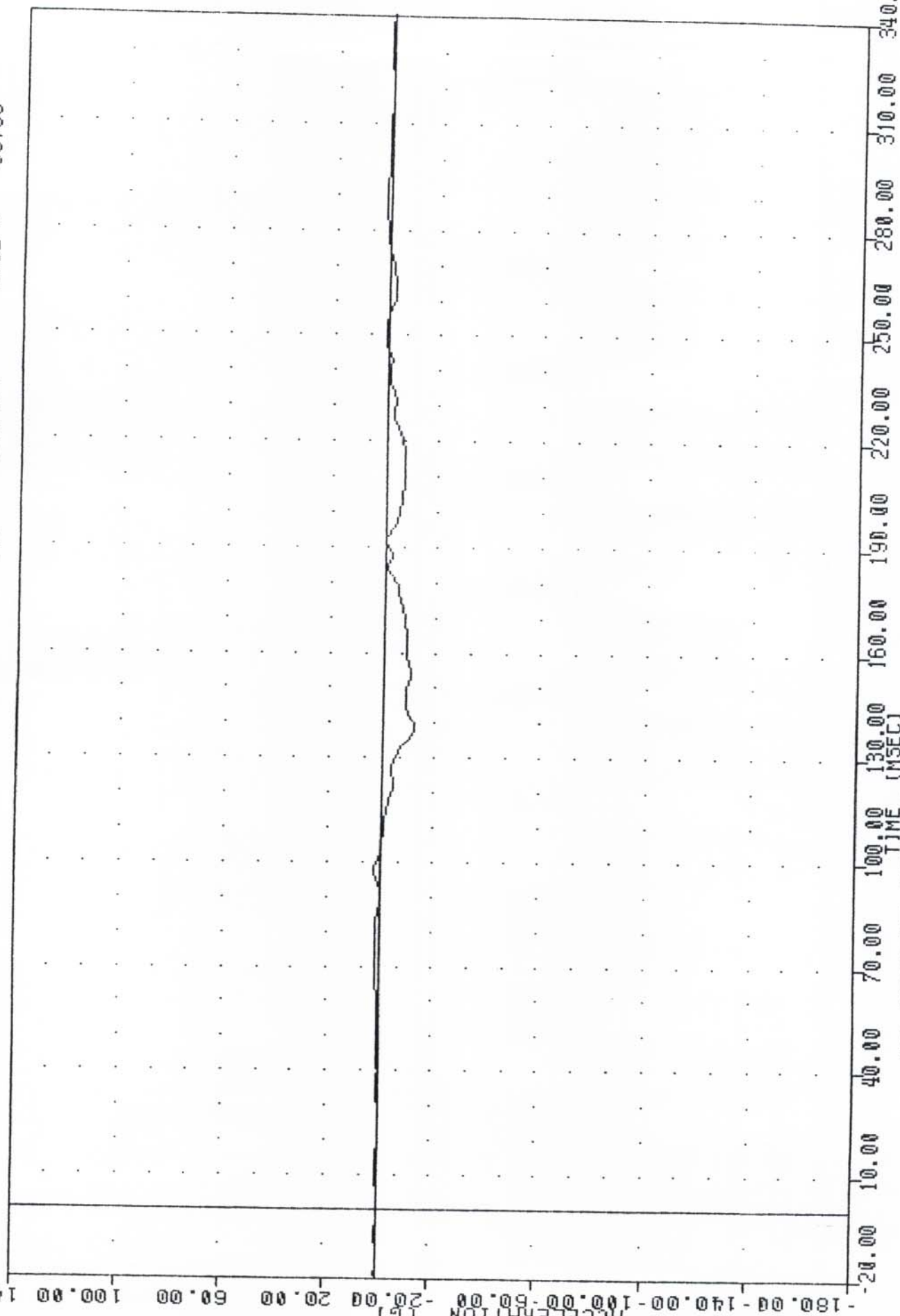
TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01XG3

PLU1 DATE 1-AUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -12.19 138.13, 2.52 96.88

ACCELERATION (G)

B-40

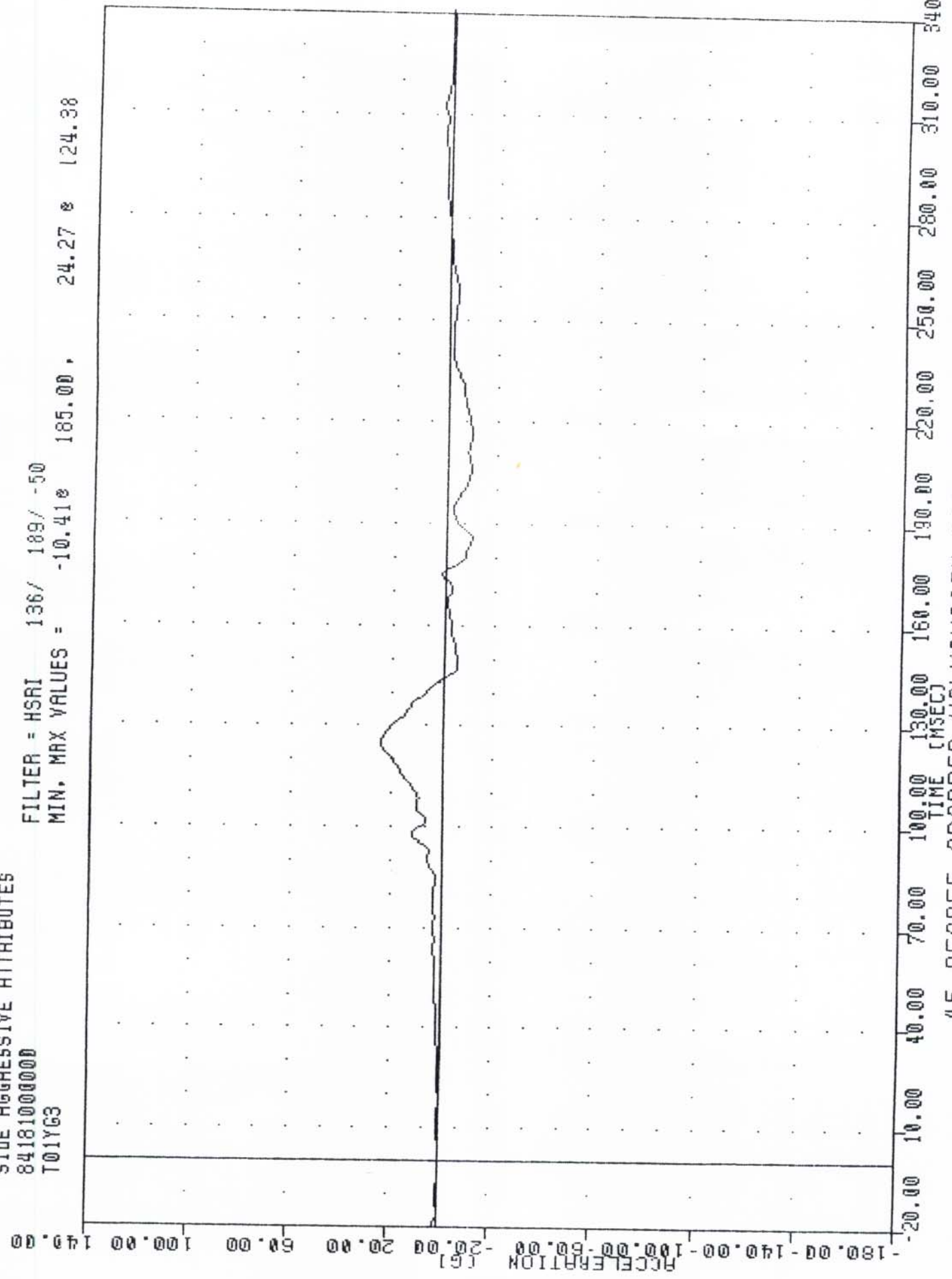


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER UPPER SPINE ACCELERATION X AXIS

THC , 840629
 SIDE AGGRESSIVE ATTRIBUTES
 84181000000
 T01YG3

PLOT DATE 1-AUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -10.418 185.00, 24.27 124.38

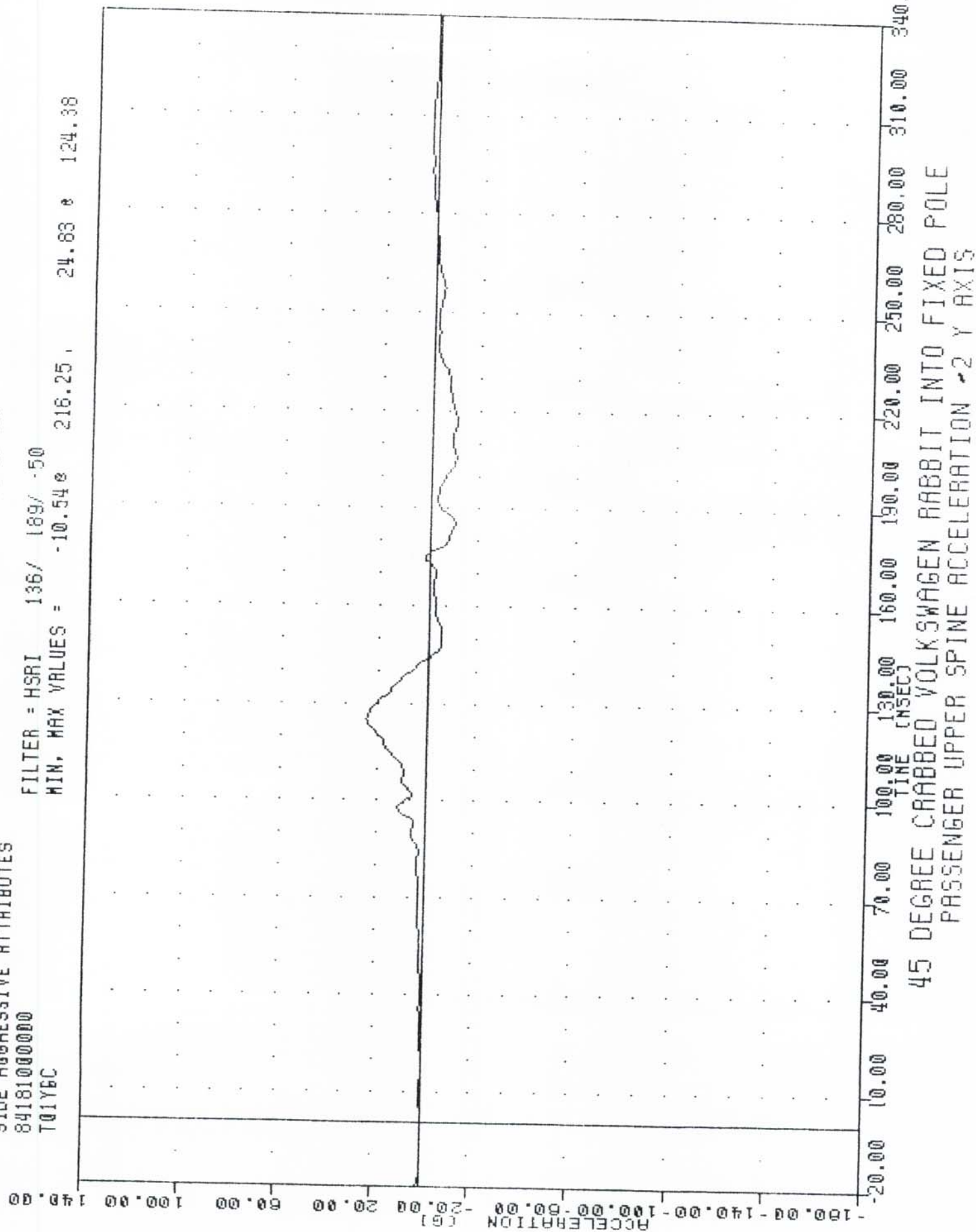


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
 PASSENGER UPPER SPINE ACCELERATION Y AXIS

TAC
840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01Y6C

PL01 DATE 1-HUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -10.54g 216.25, 24.83g 124.38

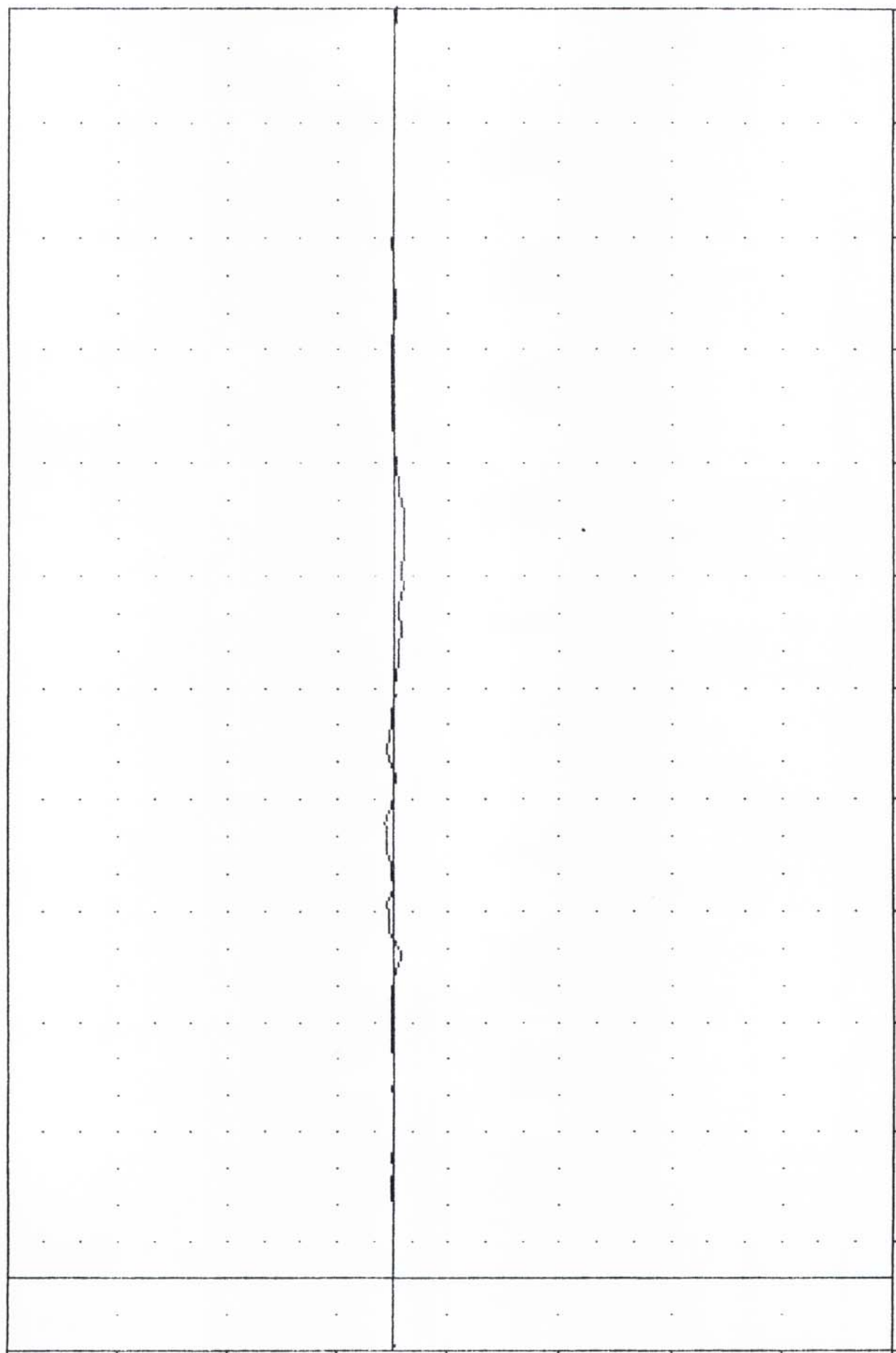


THL 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01ZG3

PLUI DATE 1-HUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -3.81g 203.75, 2.78 g 123.12

ACCELERATION (G)



B-43

-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

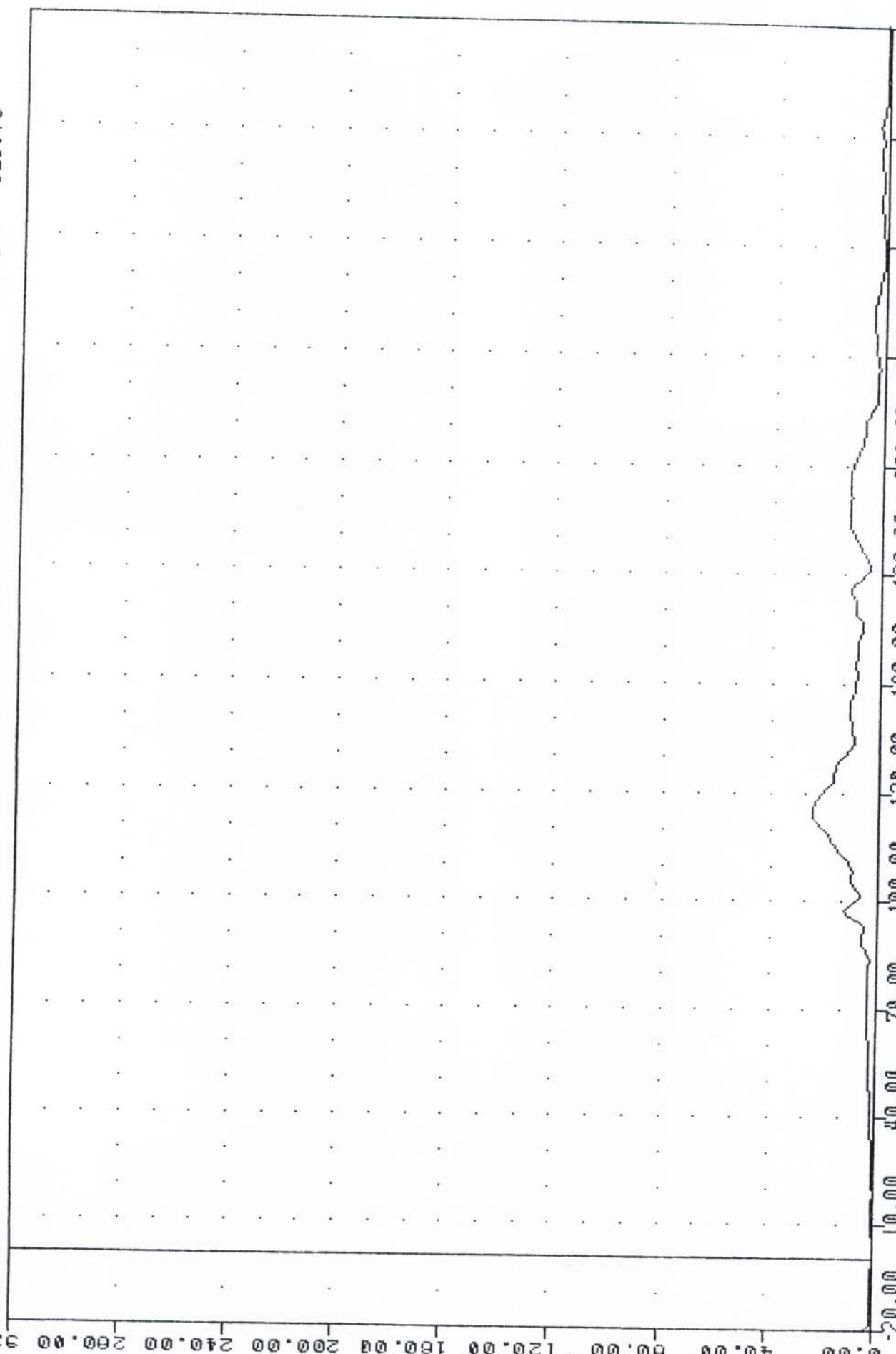
TIME (MSEC)
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER UPPER SPINE ACCELERATION Z AXIS

THL 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01R63

PLU1 DATE 1-AUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = 0.118 18.13, 24.74 123.75

ACCELERATION (G)



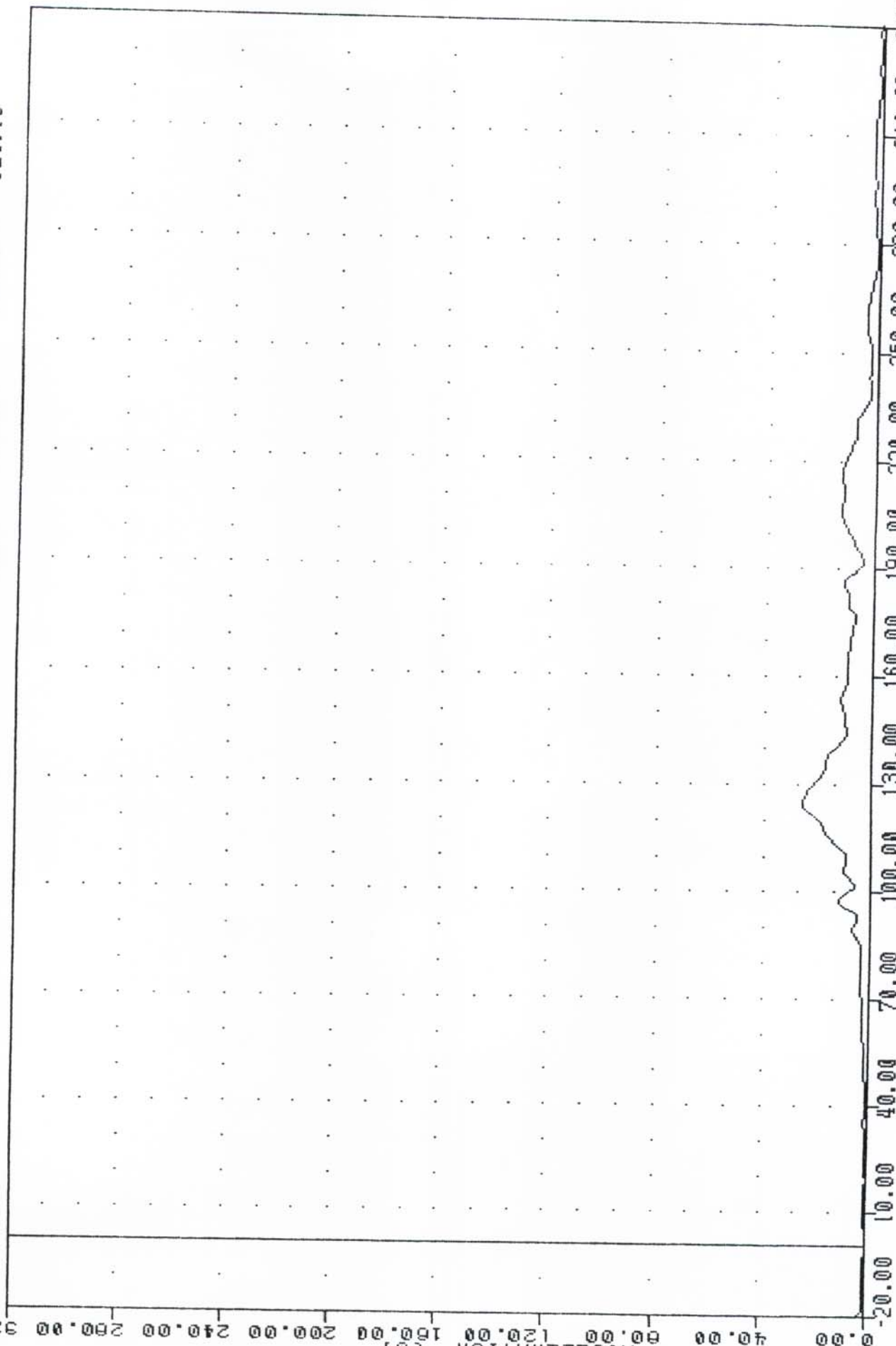
B-44

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER UPPER SPINE RESULTANT

PLG DATE 1 NOV 84 10:03:35
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01R6C

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = 0.068 -0.63, 25.28 e 124.38

ACCELERATION (G)

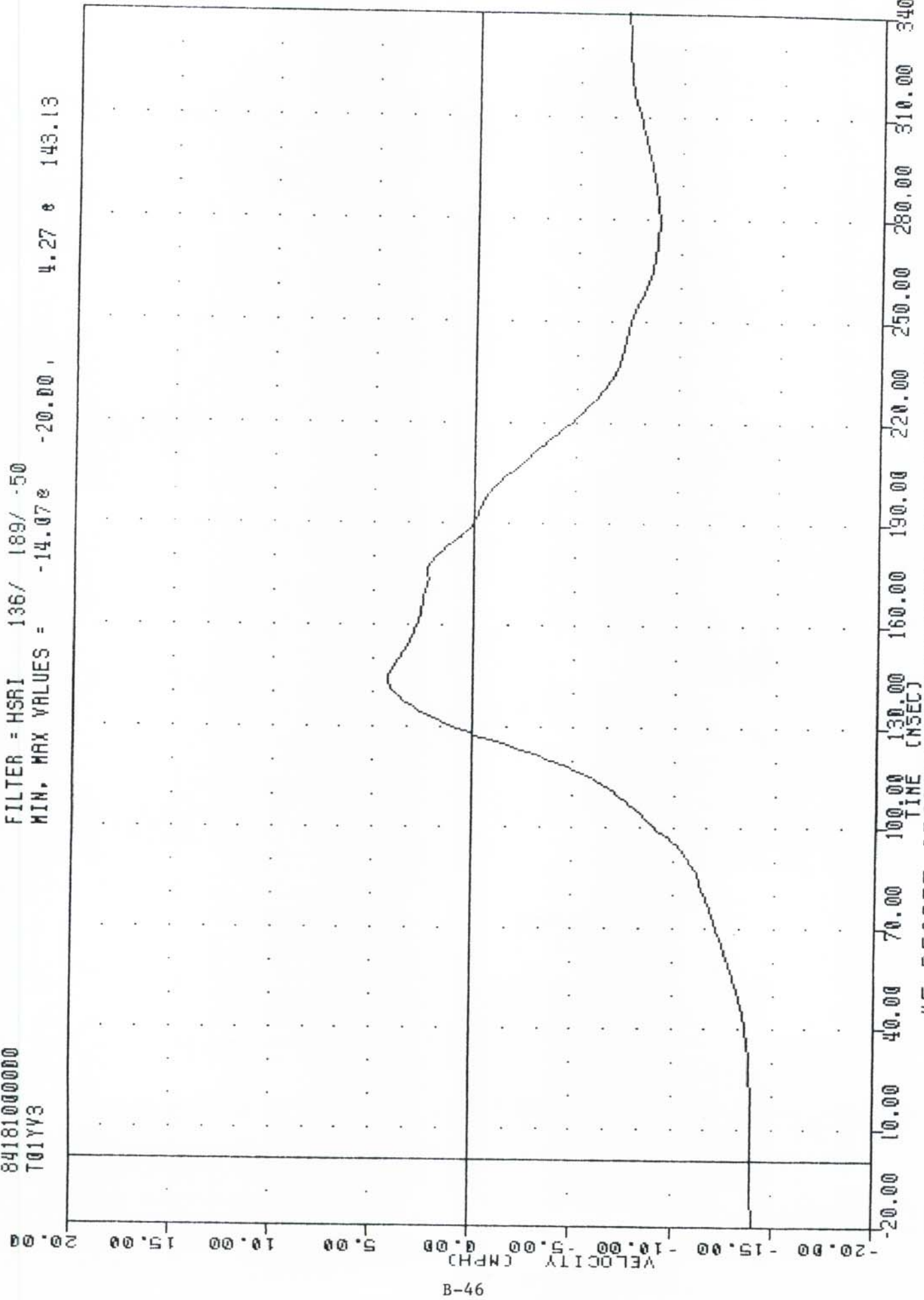


B-45

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER UPPER SPINE RESULTANT USING T01YGC

TRC 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01YV3

PLD1 DATE 1-HUG-84 14:27:20
FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -14.07e -20.00, 4.27 e 143.13



B-46

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING T01YG3

Thc , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T01YVC

PLU1 DATE 1-HUG-84 14:27:20

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -14.07e -20.00, 3.62 e 143.13

20.00

15.00

10.00

5.00

0.00

B-47

-5.00

-10.00

-15.00

-20.00

VELOCITY (MPH)

-20.00

10.00

40.00

70.00

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

340.00

TIME (MSEC)

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING T01YGC

T11C 040625

SIDE AGGRESSIVE ATTRIBUTES

84181000000

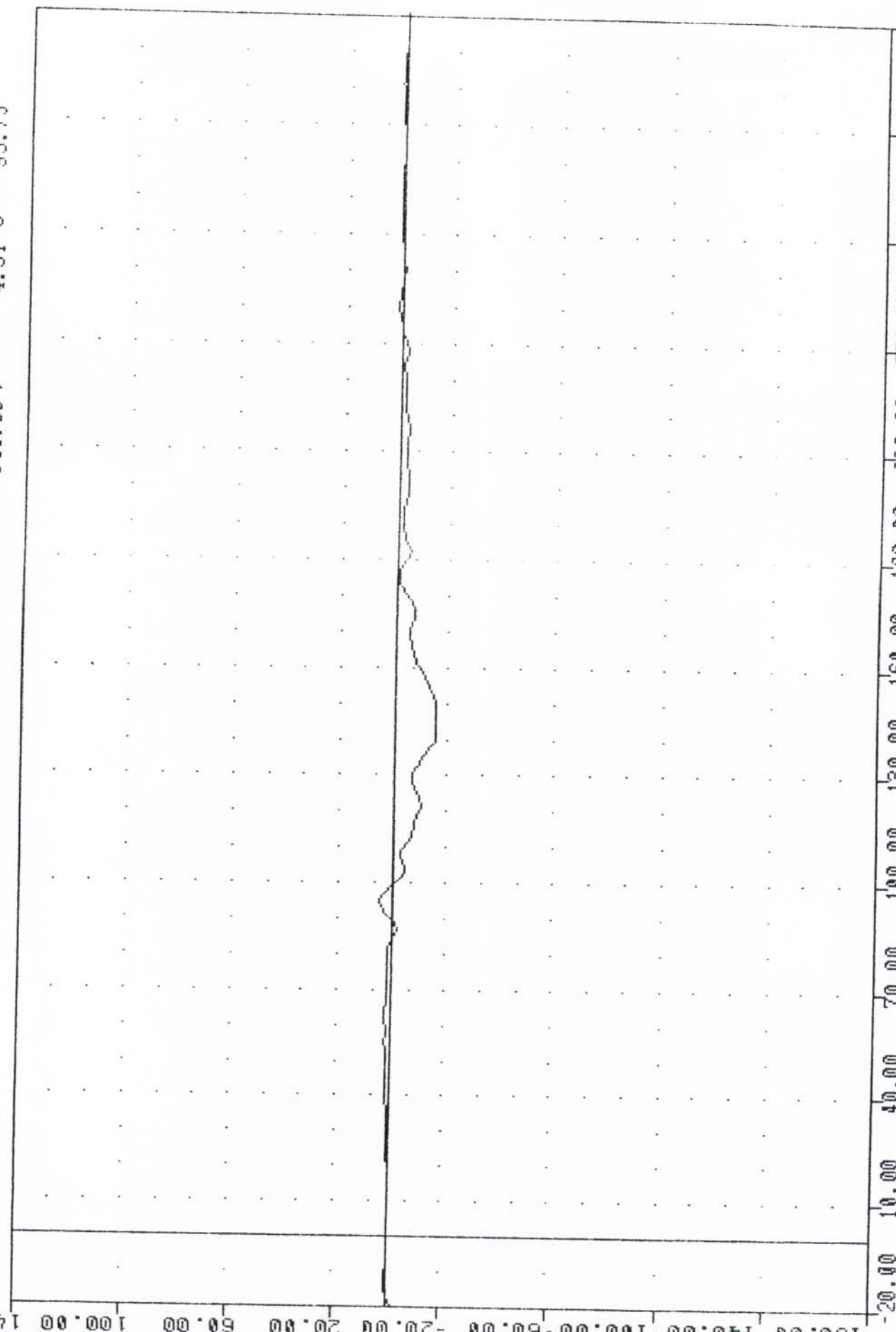
T12XG3

PLU1 DATE 1-MUG-84 10:53:28

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -15.788 140.00, 4.51 8 93.75

ACCELERATION (G)



B-48

340.00

310.00

280.00

250.00

220.00

190.00

160.00

130.00

100.00

70.00

40.00

10.00

-20.00

TIME (MSEC)

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER LOWER SPINE ACCELERATION X AXIS

TH. 629
SIDE AGGRESSIVE ATTRIBUTES

84181000000

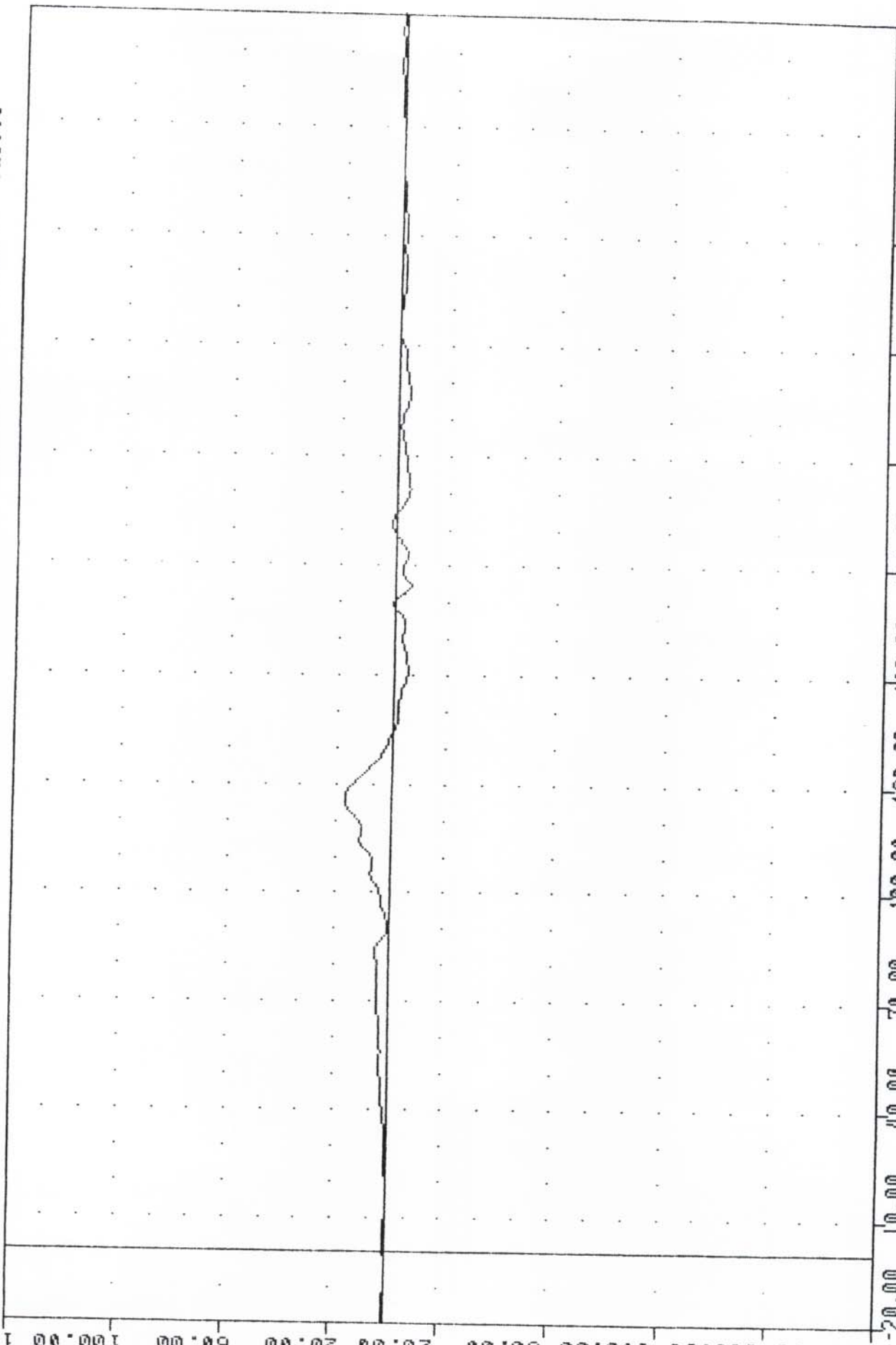
T12Y63

PLG. DATE 11/08/84 10:31:28

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -5.948 183.75, 16.92 e 125.00

ACCELERATION (G)
-160.00 -140.00 -120.00 -100.00 -80.00 -60.00 -40.00 -20.00 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00



310.00 340.00

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER LOWER SPINE ACCELERATION Y AXIS

TIME 040625

SIDE AGGRESSIVE ATTRIBUTES

84181000000

712YGC

PLU1 DATE

1-nu6-84

1w.33:28

FILTER = HSRI

136/ 189/ -50

MIN. MAX VALUES =

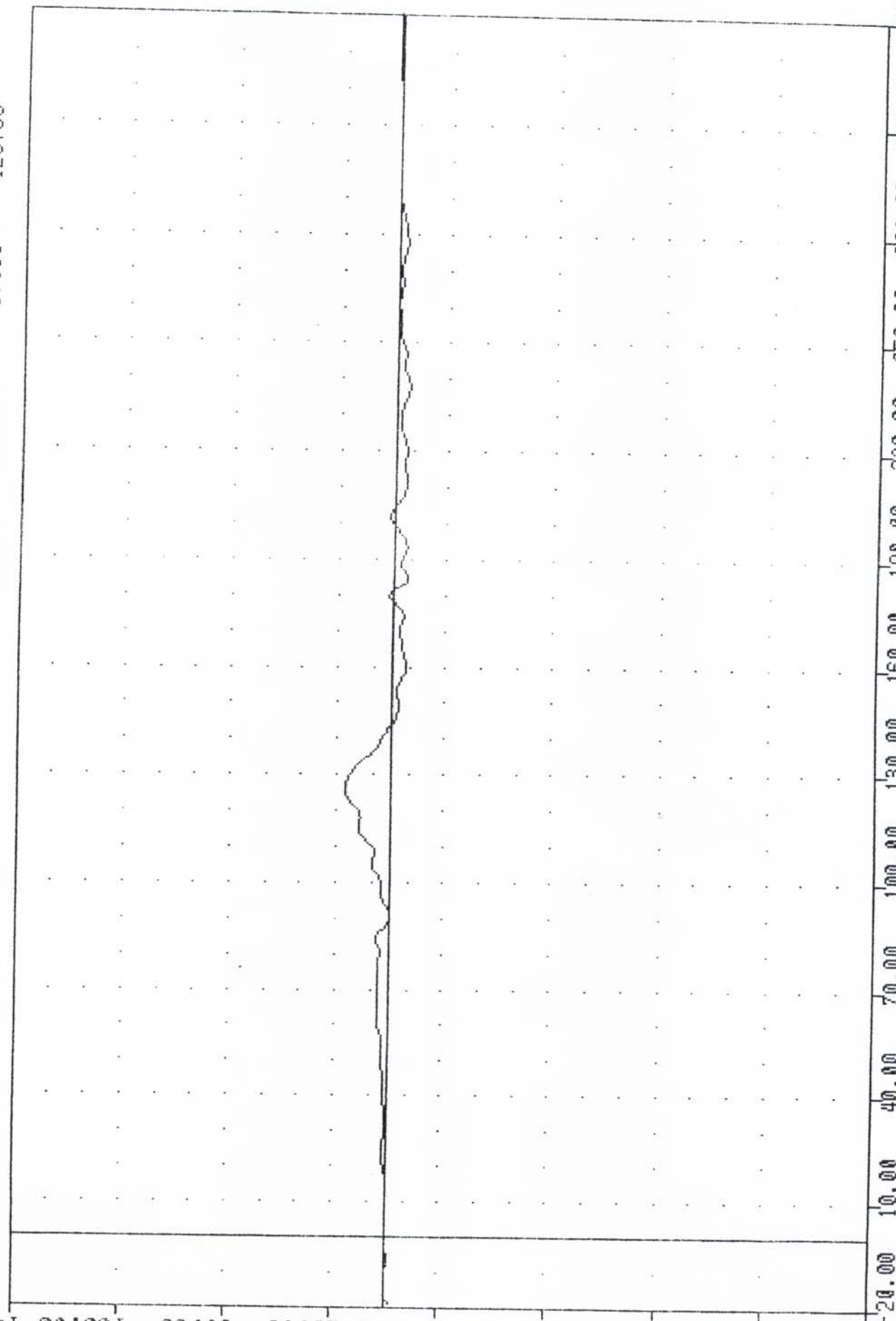
-5.78e

184.38,

17.09 e

125.63

ACCELERATION (G)



340.00

310.00

280.00

250.00

220.00

190.00

160.00

130.00

100.00

70.00

40.00

10.00

-20.00

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE

PASSENGER LOWER SPINE ACCELERATION -2 Y AXIS

TRC 070628

SIDE AGGRESSIVE ATTRIBUTES

84181000000

T12ZG3

PLC DATE

1 1008-84

16 JUL 28

FILTER = HSRI

136/ 189/ -50

MIN, MAX VALUES =

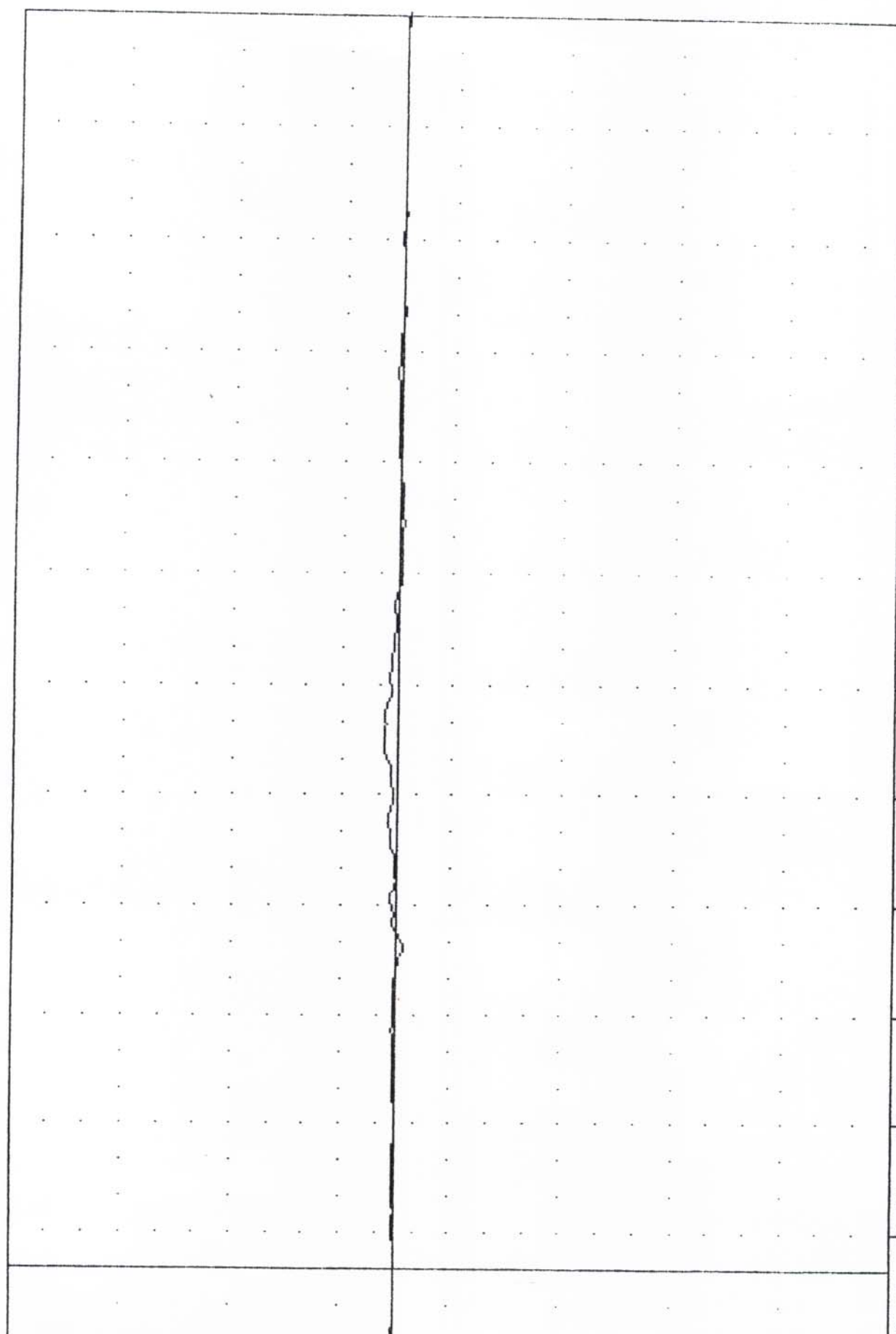
-2.71e

88.13,

5.12 e

143.75

ACCELERATION (G)

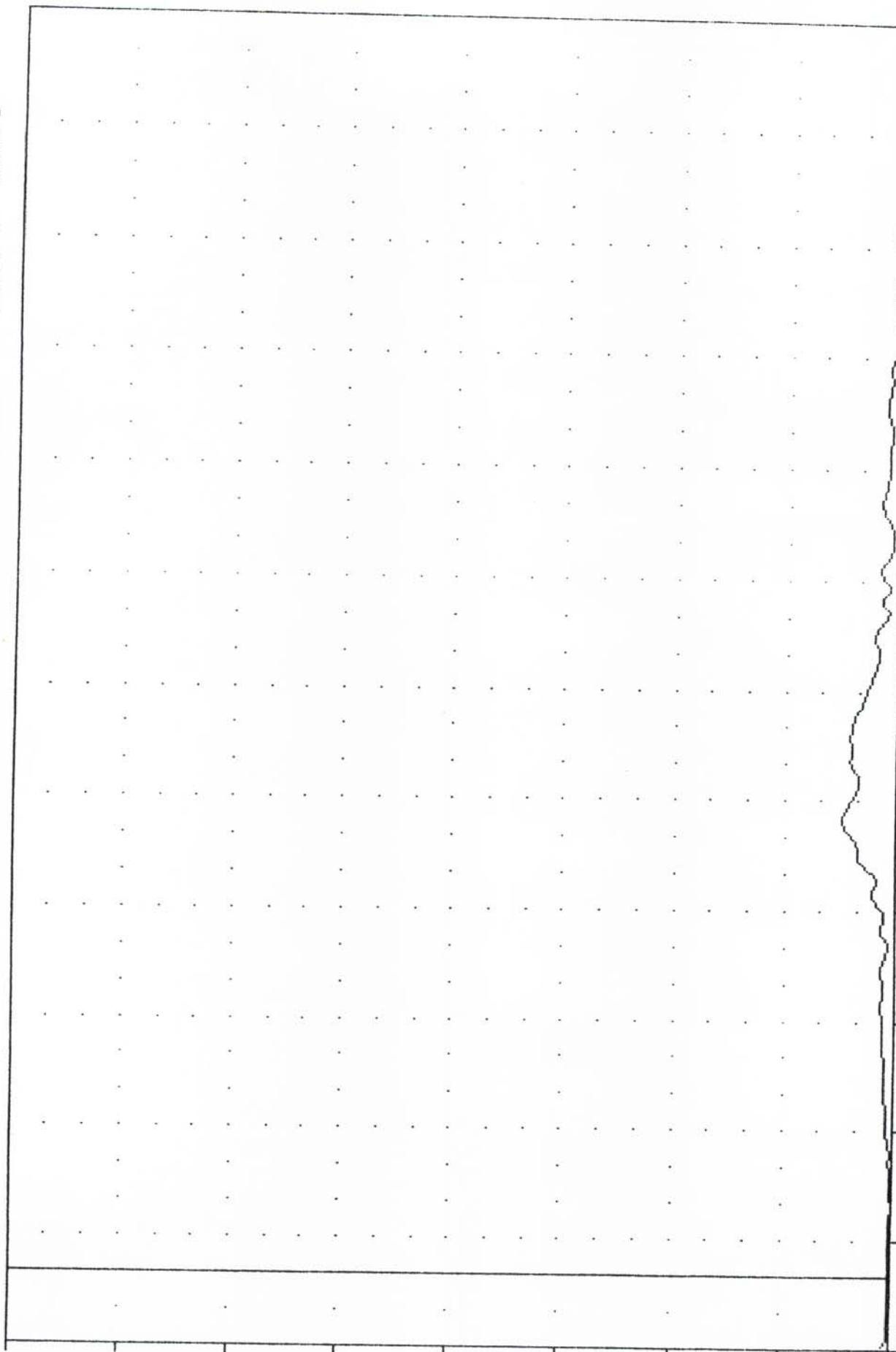


PLC. DATE 10-3-20
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T12RG3

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.228 19.38, 19.24 8 123.75

ACCELERATION (G)



0.00 40.00 80.00 120.00 160.00 200.00 240.00 280.00 320.00

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER LOWER SPINE RESULTANT

PLC, JATL 1 006-8 10:5:30

PLC, J62L
SIDE AGGRESSIVE ATTRIBUTES

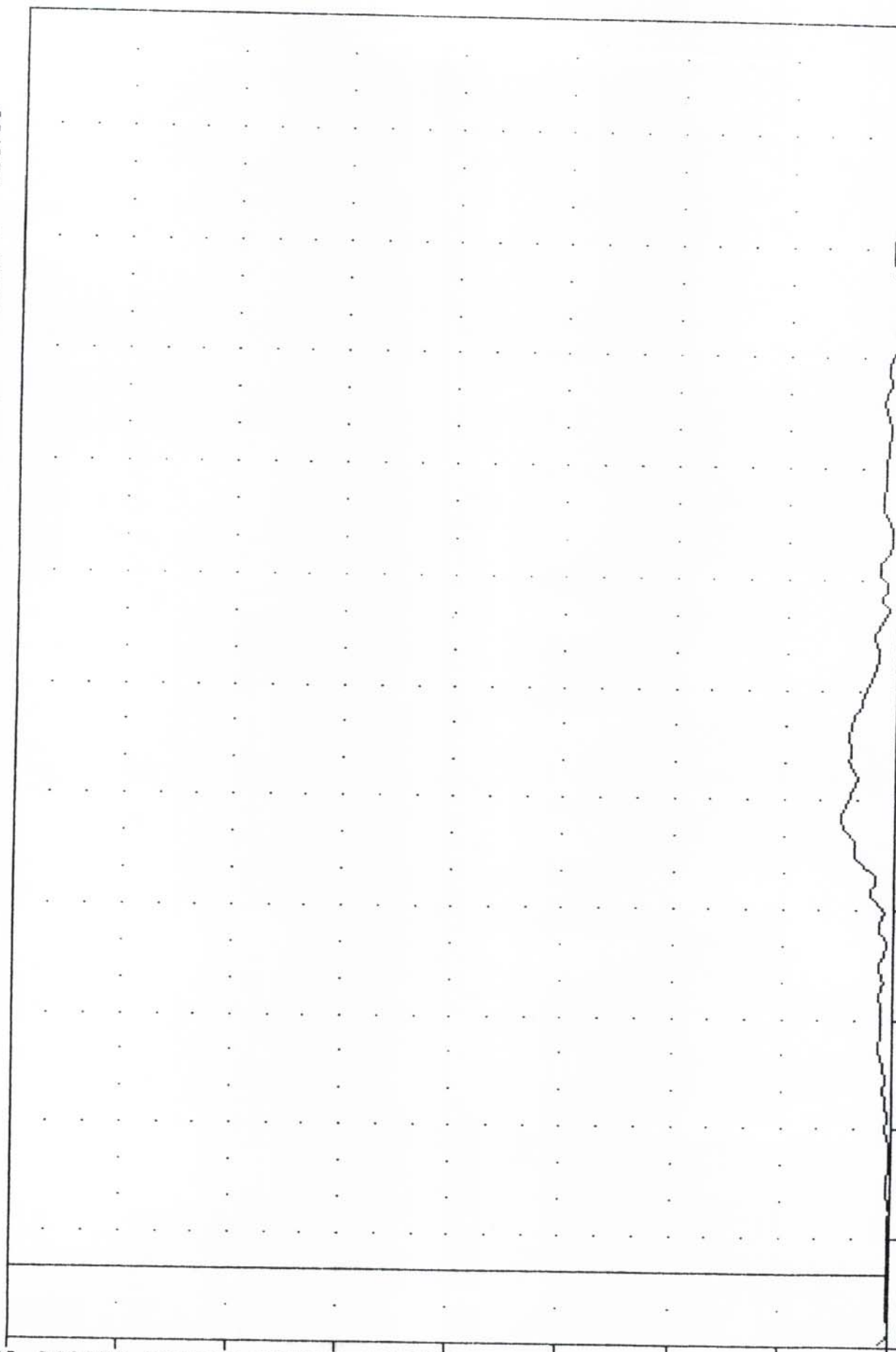
84181000000

T12RGC

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.19 16.87, 19.27 124.38

ACCELERATION (G)



0.00 40.00 80.00 120.00 160.00 200.00 240.00 280.00 320.00

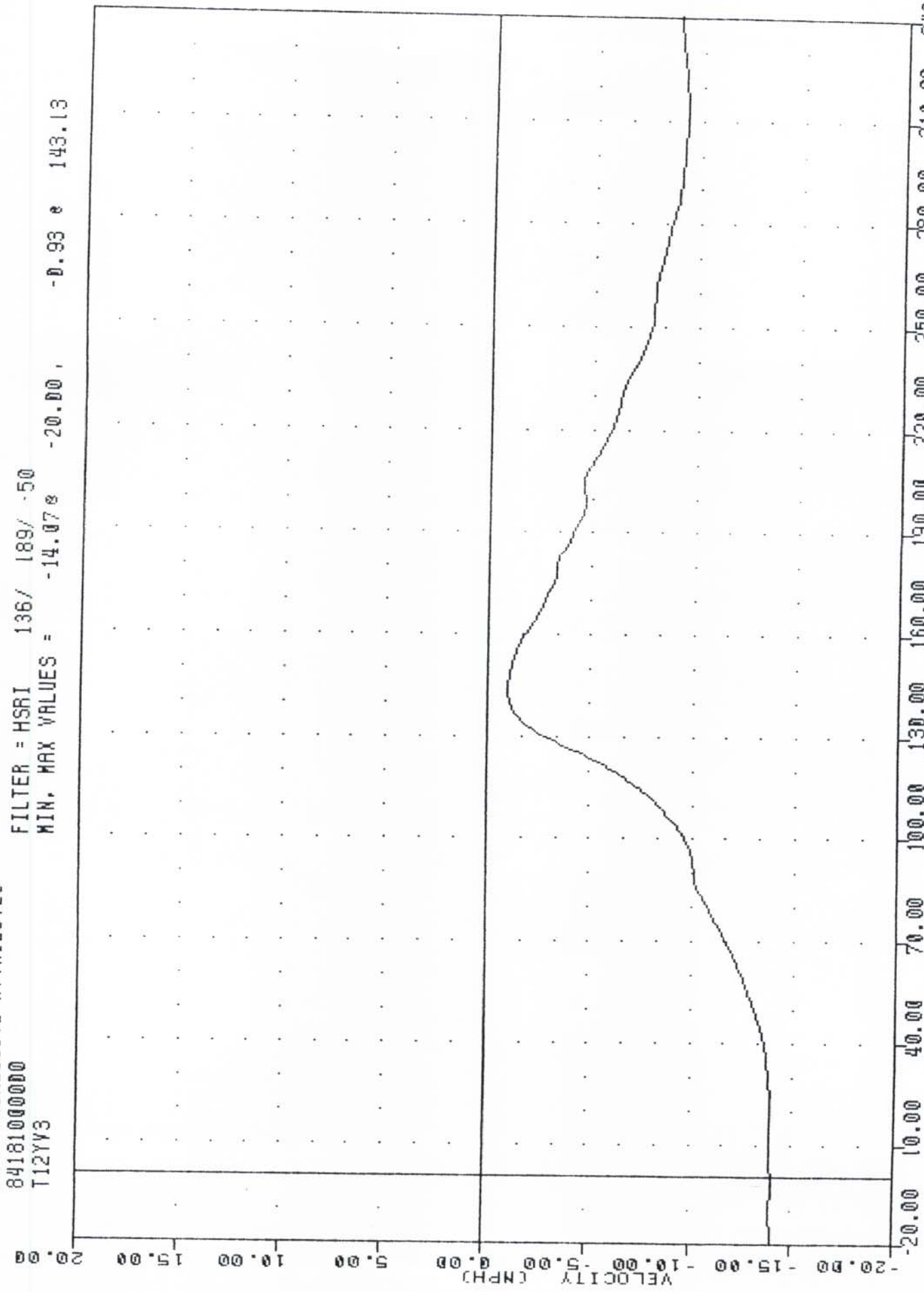
0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER LOWER SPINE RESULTANT USING T12YGC

TRC 040629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T12YV3

PLU: DATE 1-nov-84 14.2/120

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -14.070 -20.00, -0.93 143.13



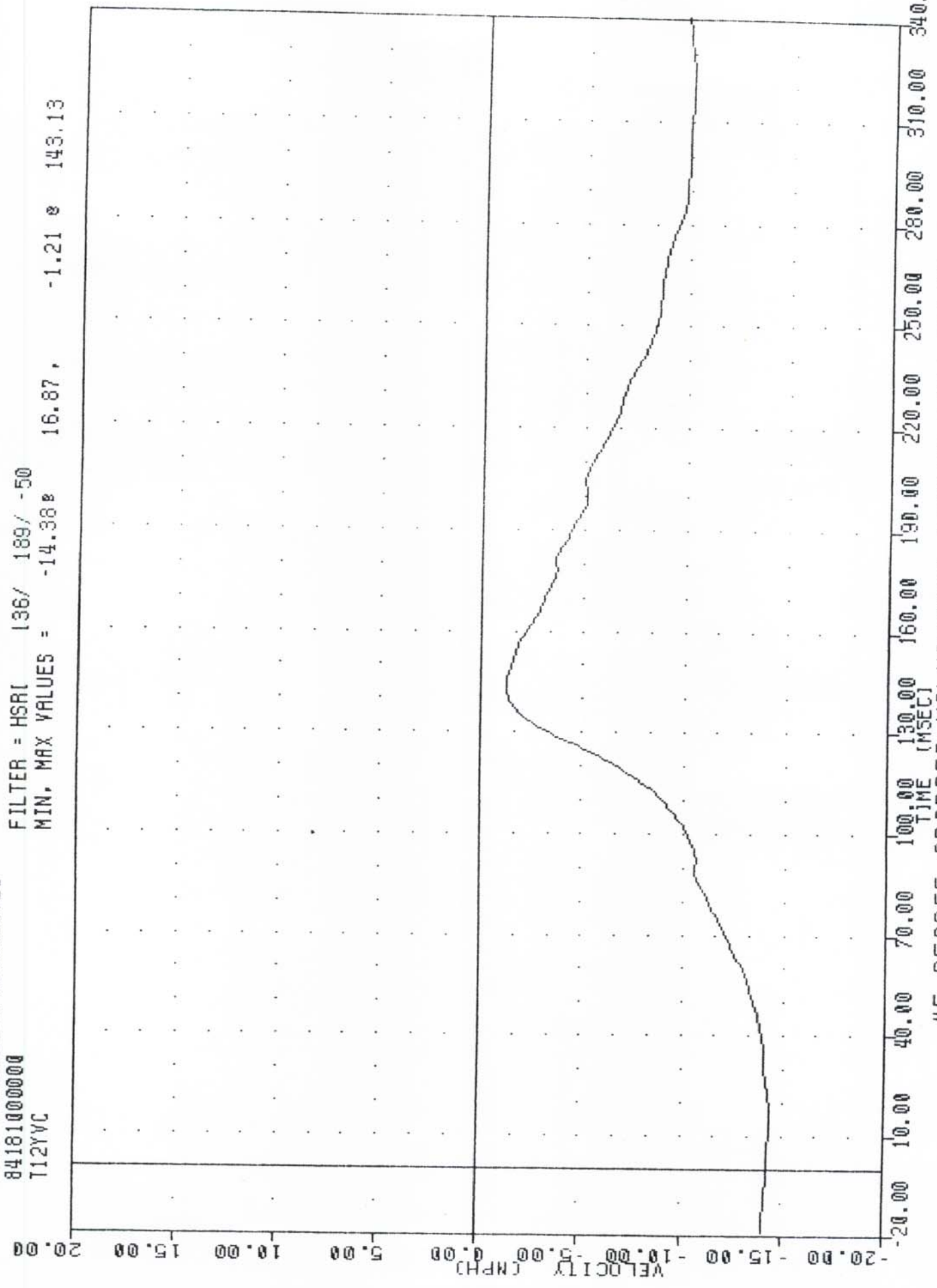
B-54

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING T12YV3

THU, 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
T12YVC

PLU1 DATE 1-MUG-84 14:27:20

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -14.38 16.87, -1.21 143.13



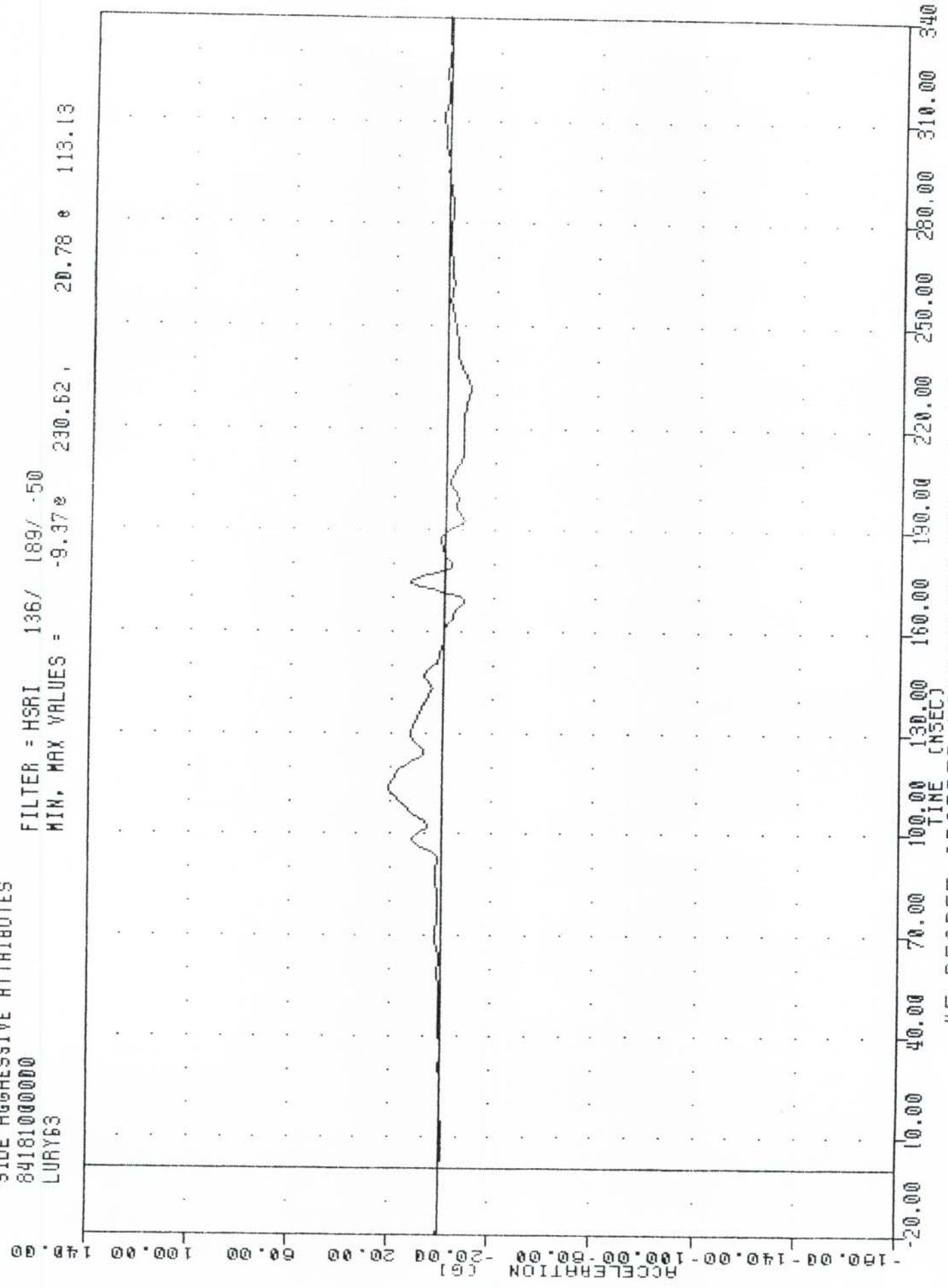
B-55

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING T12YGC

TRC
 SIDE AGGRESSIVE ATTRIBUTES
 84181000000
 LURY63

PLD, DATE 11006-84 10.03.28

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -9.37e 230.52, 20.78 e 113.13



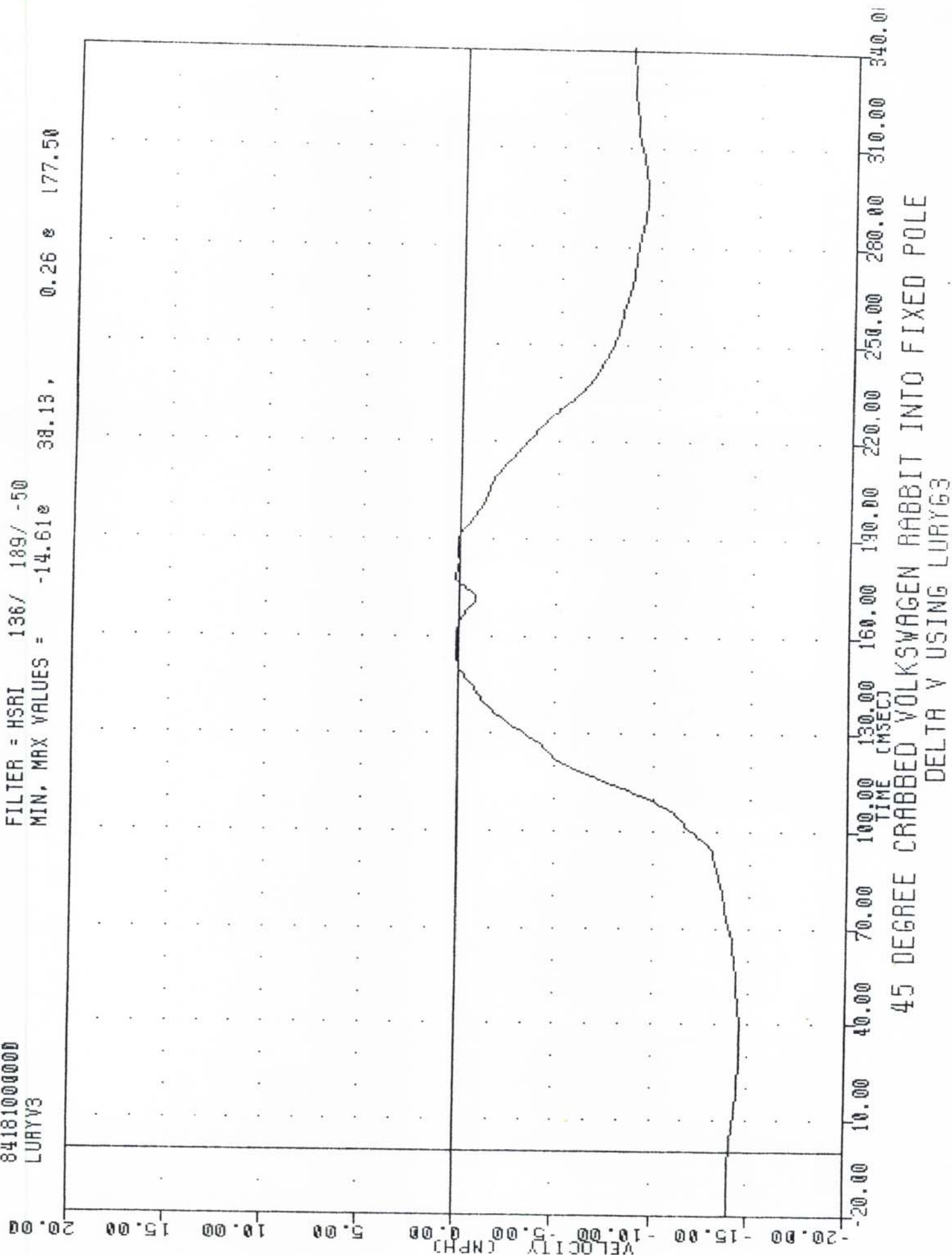
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
 PASSENGER LEFT UPPER RIB ACCELERATION Y AXIS

T... 0620
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LURYV3

PLU, DATL 1 JG-8 1 17:27:20

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -14.610 38.13, 0.26 177.50

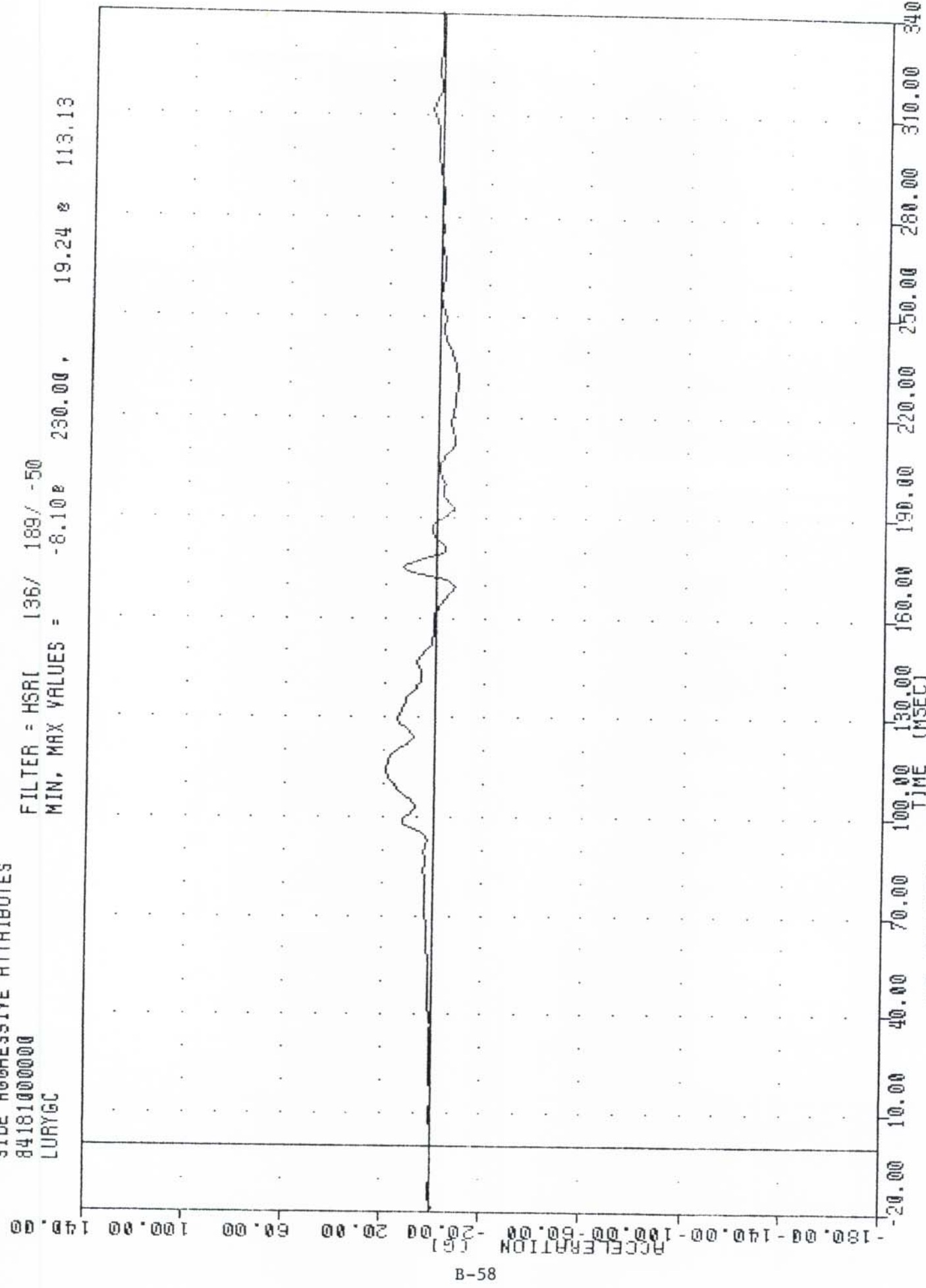
B-57



TIME 040623
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LURYGC

PLU1 DATE 1 JUL 64 10:33:20

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -8.10E 230.00, 19.24 E 113.13

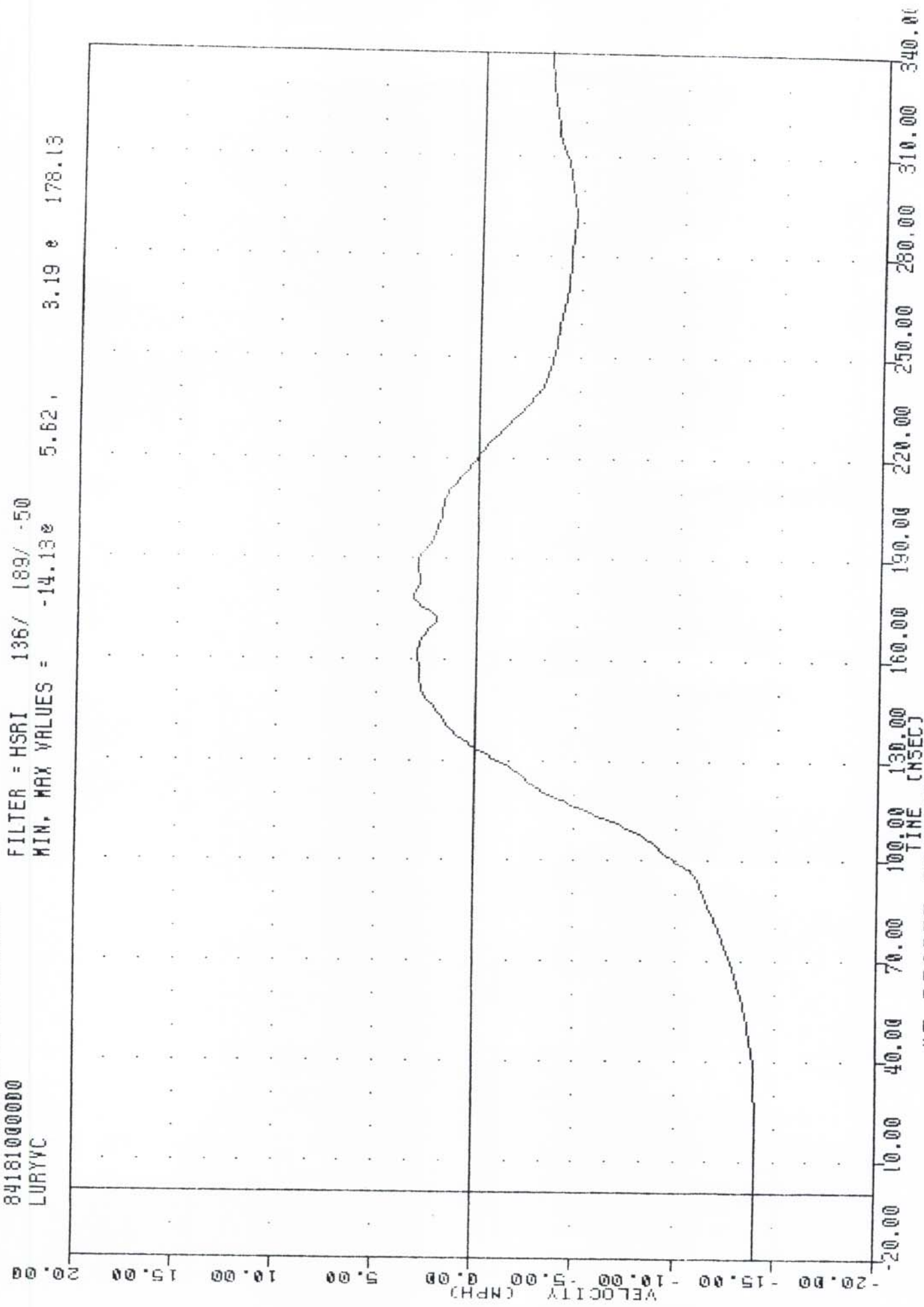


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER LEFT UPPER RIB ACCELERATION -2 Y AXIS

TRC
 SIDE AGGRESSIVE ATTRIBUTES
 84181000000
 LURYVC

PLG. JATE 1 106-84 14.27:20

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -14.13e 5.62, 3.19 e 178.13



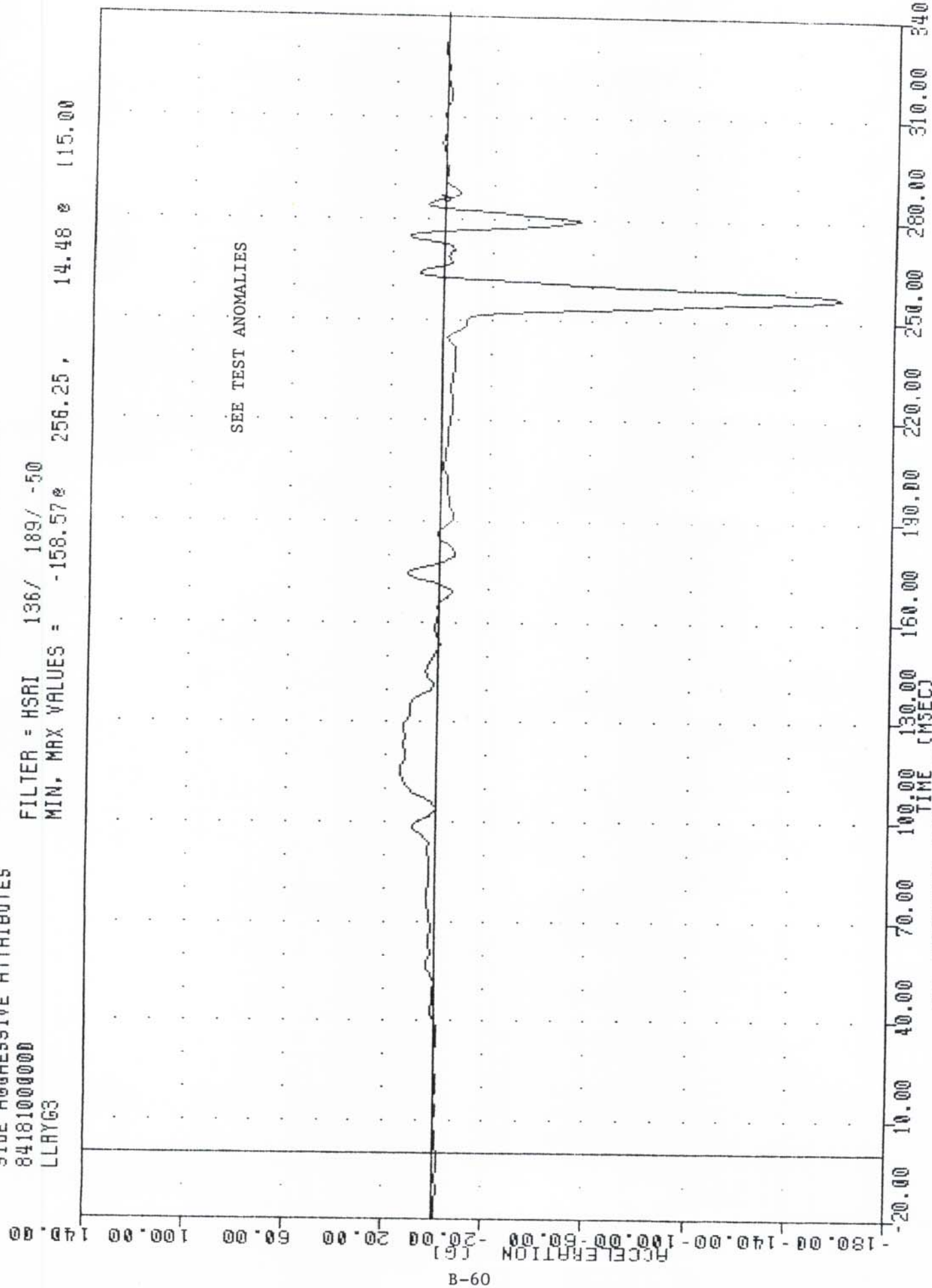
B-59

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
 DELTA V USING LURYGC

TIME 020620
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LLAY63

PLC, DRTL 1 006-8- 10.3:20

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -158.57 256.25, 14.48 115.00



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER LEFT LOWER RIB ACCELERATION Y AXIS

062
SIDE AGGRESSIVE ATTRIBUTES

84181000000

LLRYV3

PL DAT

06-06-71

11:27:10

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -35.34 340.00,

-2.22 176.88

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

-20.00

B-61

VELOCITY (MPH)

SEE TEST ANOMALIES

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

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LLRYG3

PLC DATE 11-6-81 10:31:20

629

SIDE AGGRESSIVE ATTRIBUTES

84181000000

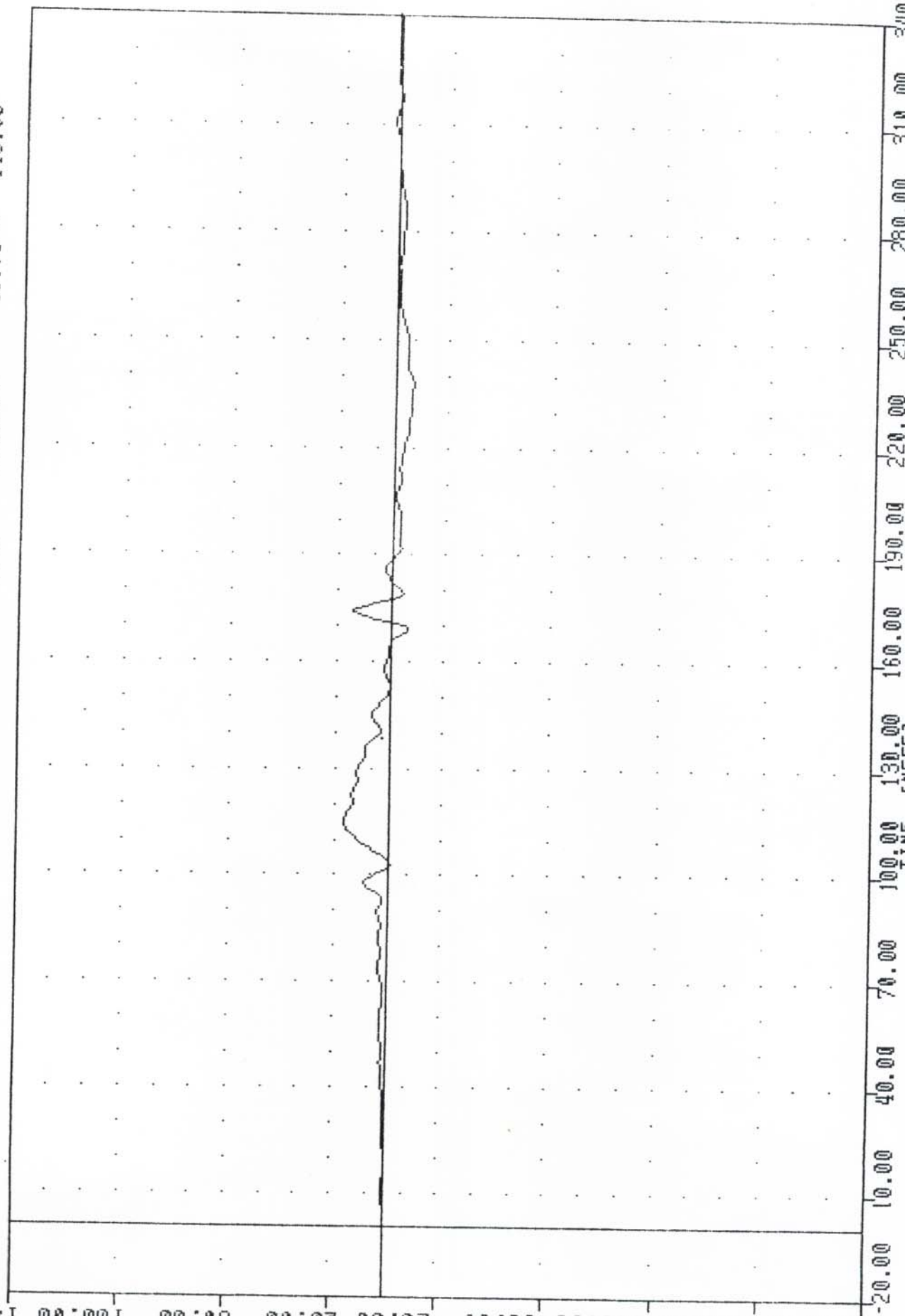
LLAY6C

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -6.76e 236.88, 16.75 e 115.00

ACCELERATION (G)

B-62



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER LEFT LOWER RIB ACCELERATION #2 Y AXIS

PL. DATE 1.27.2

062
SIDE AGGRESSIVE ATTRIBUTES

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -14.112 -6.88 , 0.44 2 176.88

84181000000
LLAYVC

20.00 15.00 10.00 5.00 0.00 -5.00 -10.00 -15.00 -20.00

B-63

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

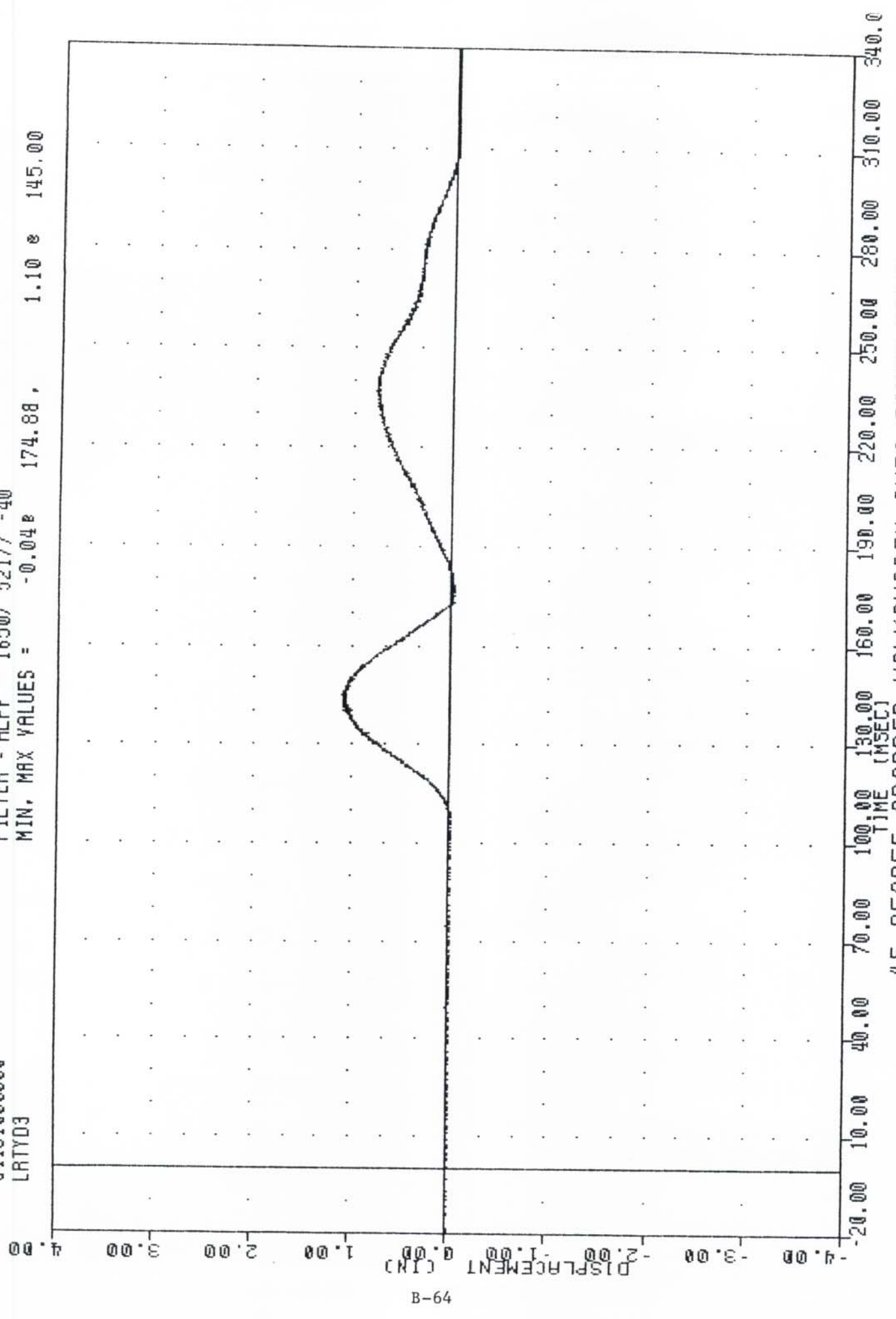
TIME (MSEC)

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LLAYVC

0620
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LRTY03

PLV, DATE 10 06-87 10:09:51

FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -0.048 174.88, 1.10 & 145.00



45 DEGREE CRABBED VOLKSWAGEN INTO FIXED POLE
PASSENGER LEFT RIB TO SPINE DISPLACEMENT INCHES

THU , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
PEVXG3

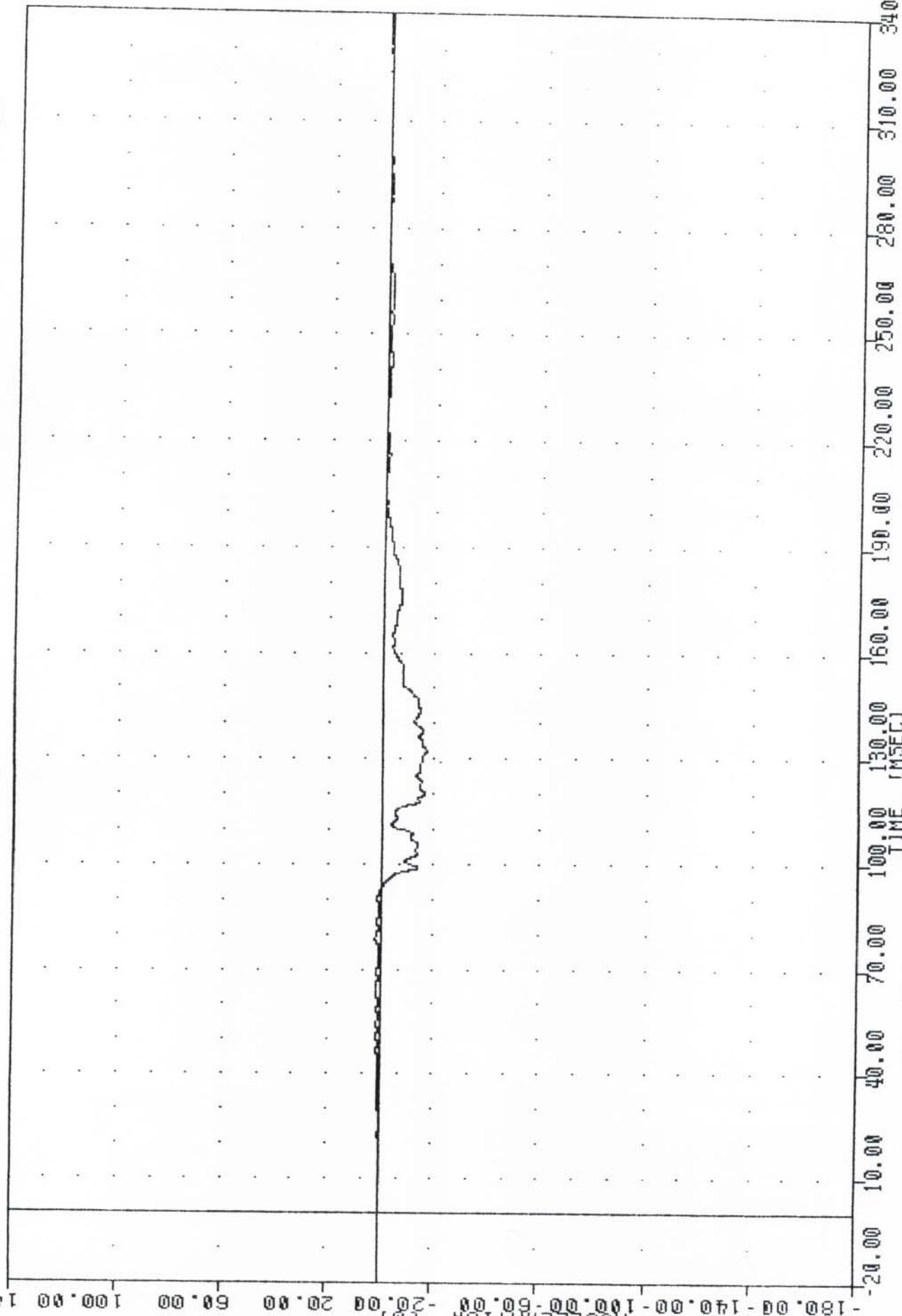
PLUI DATE 1-HUG-84 11:06:29

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -16.97e 132.00, 1.93 e 78.63

ACCELERATION (G)

B-65



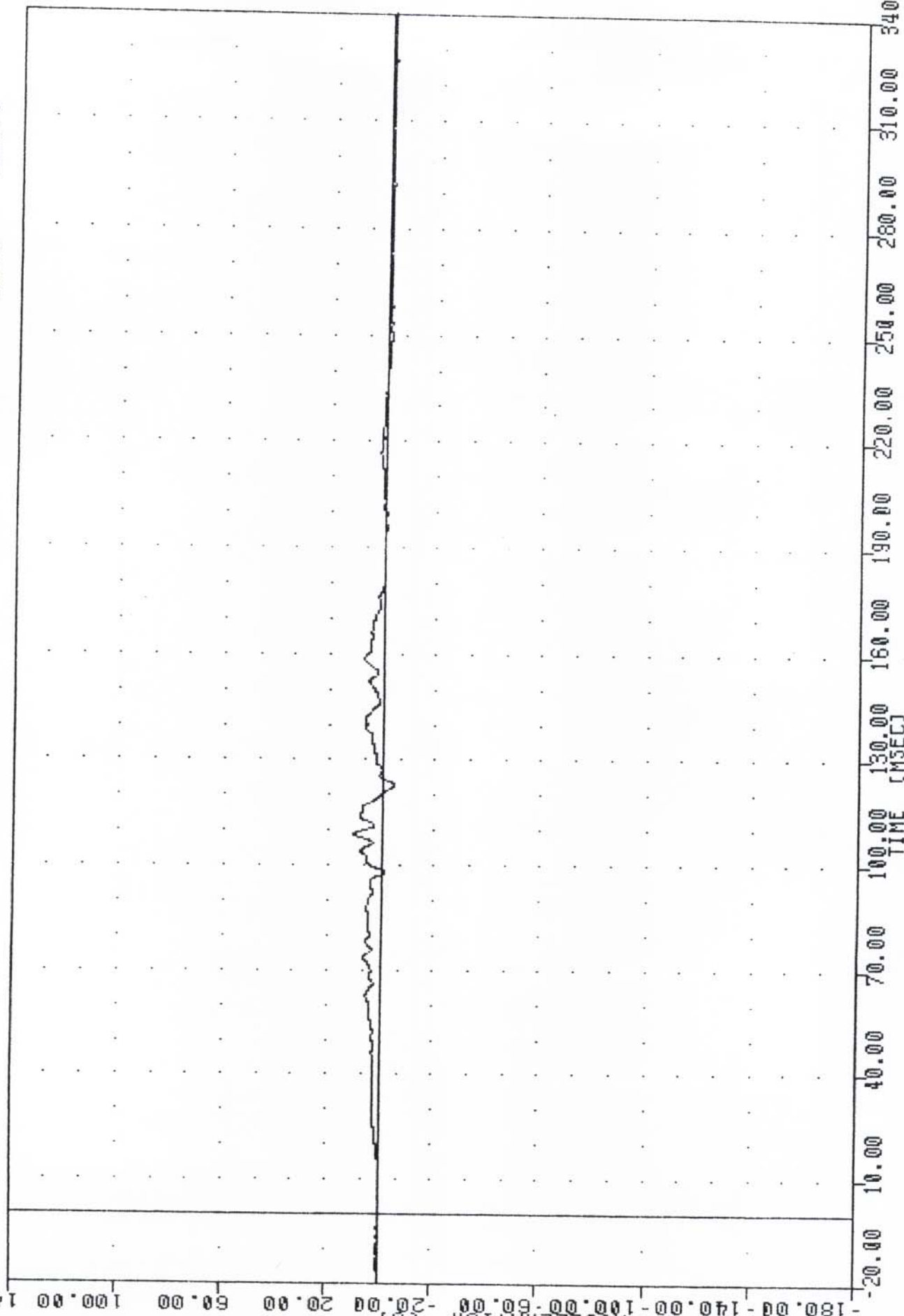
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER PELVIS ACCELERATION X AXIS

TRC , 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
PEYGC3

PLOT DATE 1-AUG-84 11:06:29

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -4.25e 122.63, 10.54 e 108.75

ACCELERATION (G)



B-66

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER PELVIS ACCELERATION Y AXIS

THC 840629

SIDE AGGRESSIVE ATTRIBUTES

84181000000

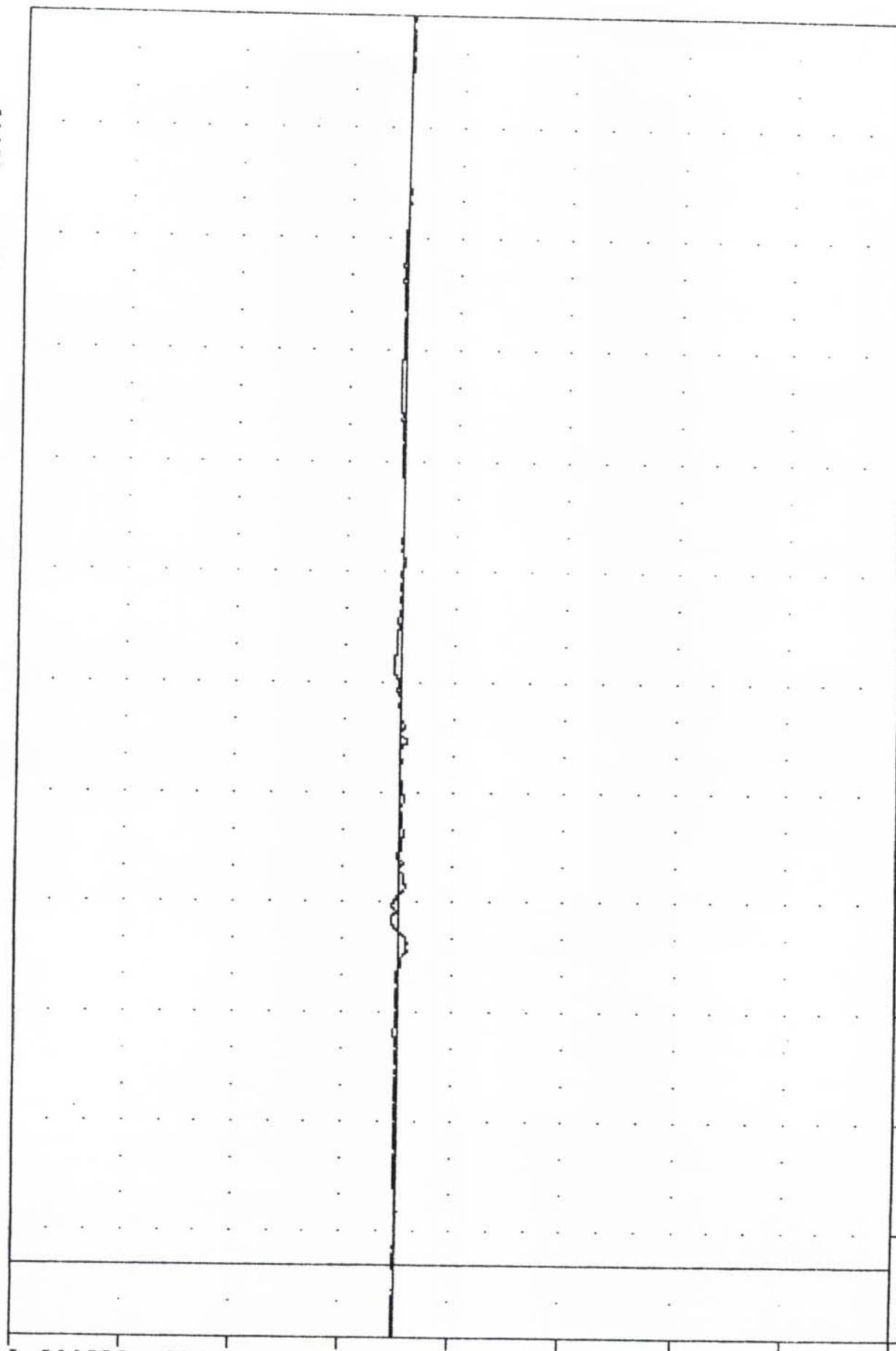
PEVZ63

PLUT DATE 1-AUG-84 11:06:29

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -3.30e 86.63, 2.65 e 95.00

ACCELERATION (G)



20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00

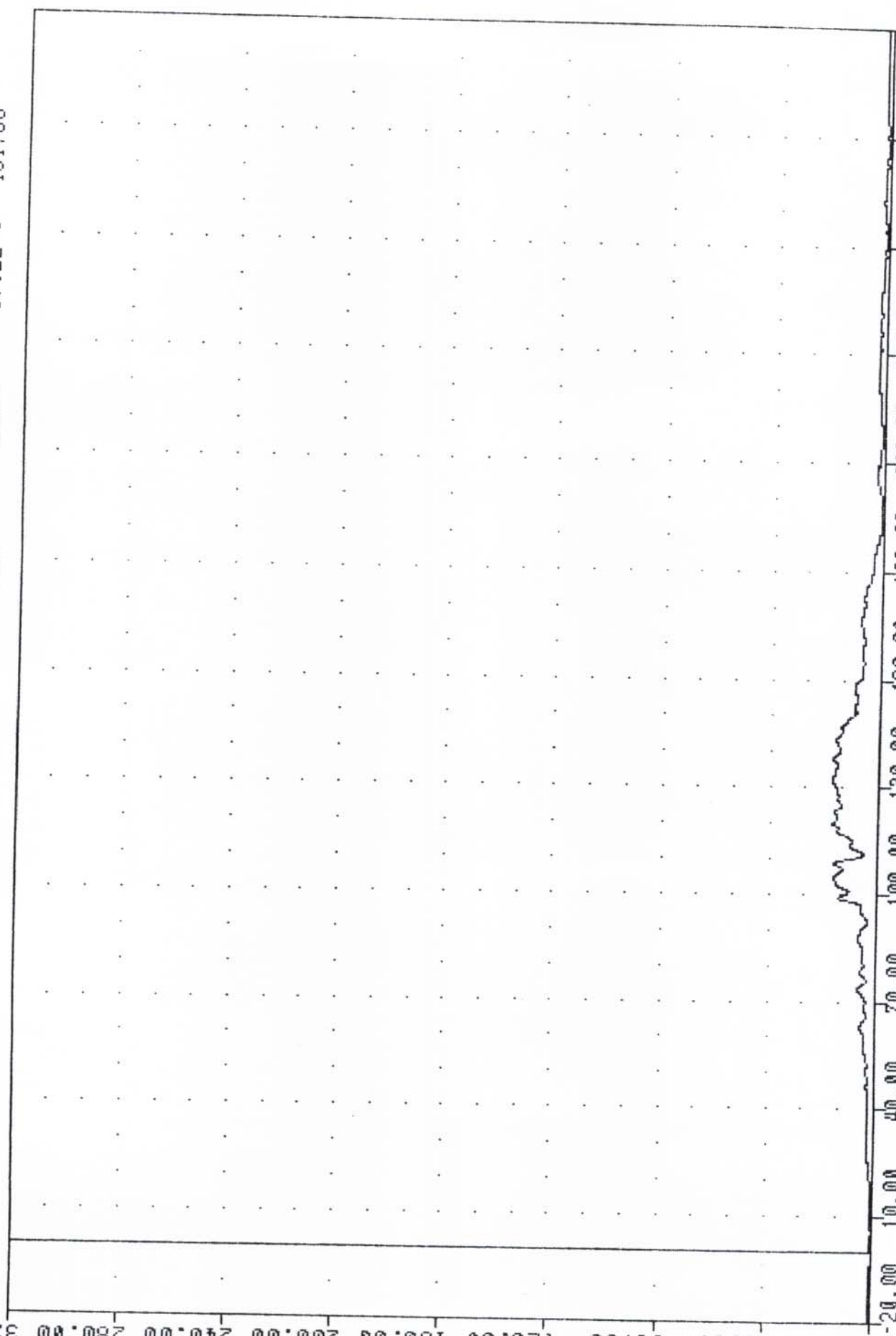
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER PELVIS ACCELERATION Z AXIS

THC, 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
PEVRG3

PLUI DATE 1-AUG-84 11:11:11

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = 0.11e -1.88, 17.22 e 131.88

ACCELERATION (G)



B-68

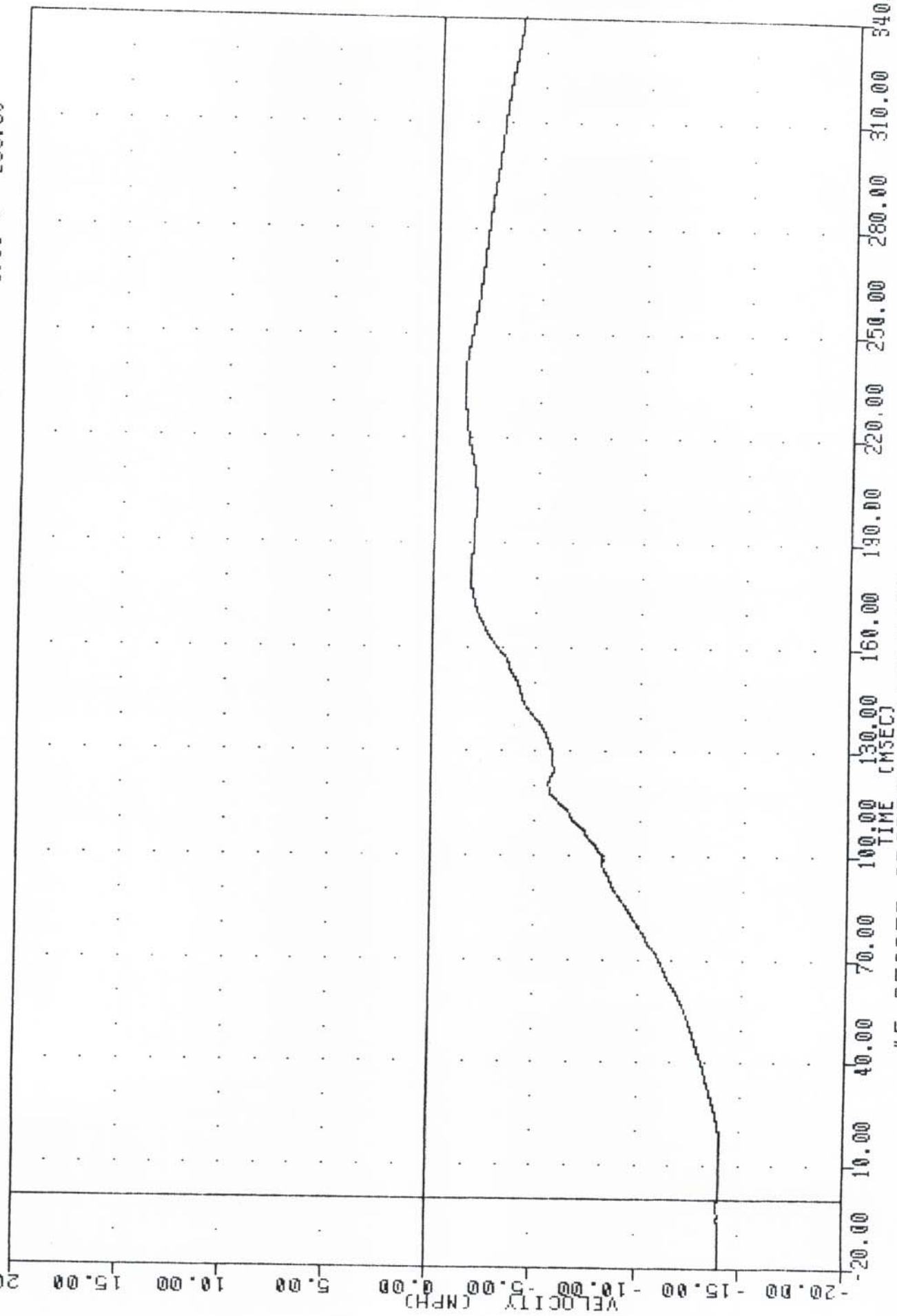
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
PASSENGER PELVIS RESULTANT

T110
SIDE AGGRESSIVE ATTRIBUTES
84181000000
PEVYV3

PLU1 DATE 1-MJG-84 14:49:15

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -14.10e 15.38, -1.35 e 236.38

B-69

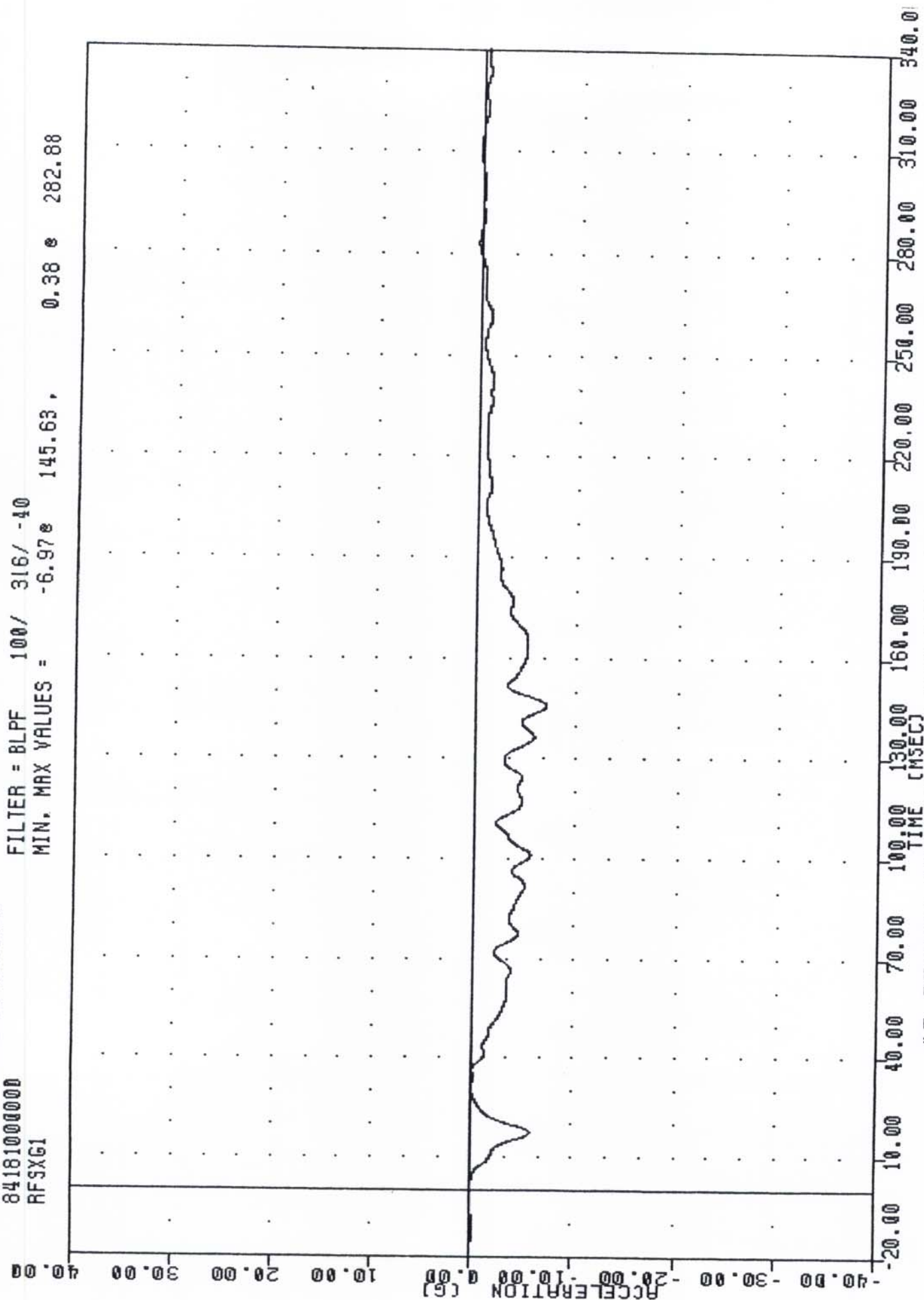


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING PEVY63

Thu 040625
SIDE AGGRESSIVE ATTRIBUTES
84181000000
RFSXG1

PLU1 DATE 25-JUL-84 09:03:11

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -6.97e 145.63, 0.38 e 282.88



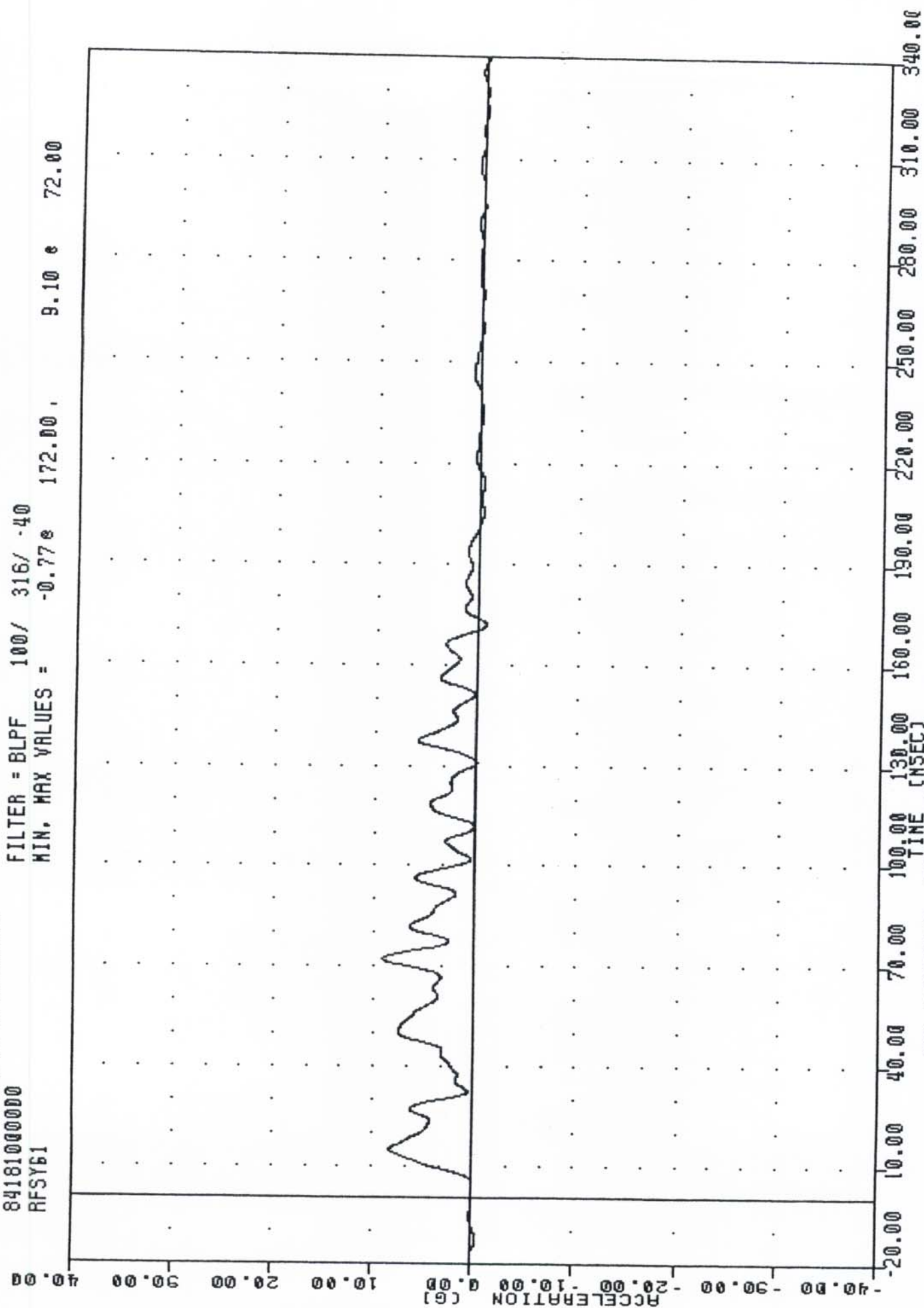
B-70

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE RIGHT FRONT SILL ACCELERATION X AXIS

TRC
SIDE AGGRESSIVE ATTRIBUTES
84181000000
RFSY61

PLG. DATE 25 JUL-84 05.03:11

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -0.77e 172.00, 9.10 e 72.00



B-71

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE RIGHT FRONT SILL ACCELERATION Y AXIS

062
SIDE AGGRESSIVE ATTRIBUTES

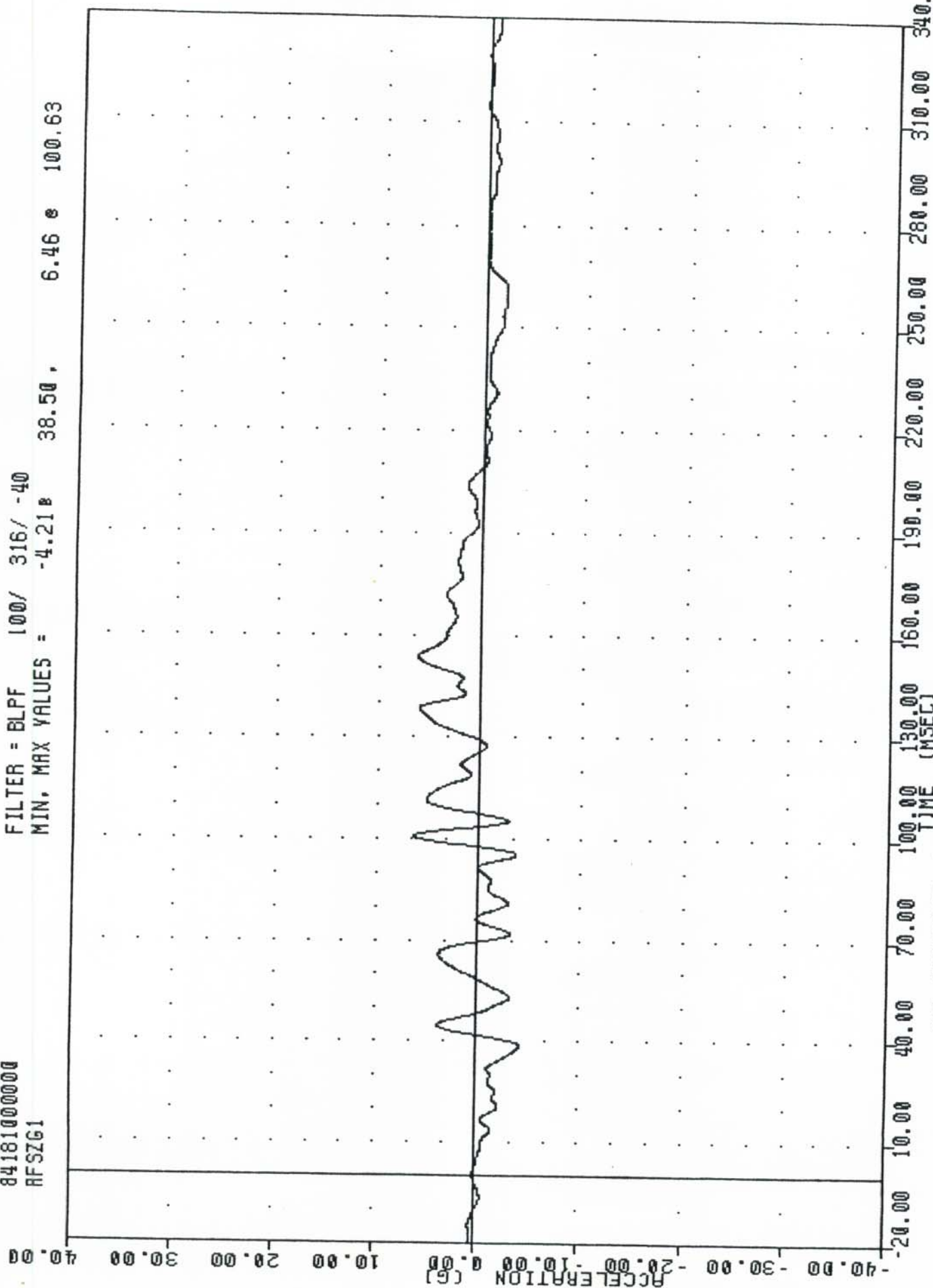
84181000000

RFSZG1

PU DATE 2 JUL 80 3:11

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -4.21 38.50 6.46 100.63



B-72

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE RIGHT FRONT SILL ACCELERATION Z AXIS

PL 062 JAT 25 "L-8" 0 4:41

84181000000
RFSRG1

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = 0.068 2.25, 10.01 8 137.50

ACCELERATION (G)

80.00

70.00

60.00

50.00

40.00

30.00

20.00

10.00

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

-350.00

-360.00

-370.00

-380.00

-390.00

-400.00

-410.00

-420.00

-430.00

-440.00

-450.00

-460.00

-470.00

-480.00

-490.00

-500.00

-510.00

-520.00

-530.00

-540.00

-550.00

-560.00

-570.00

-580.00

-590.00

-600.00

-610.00

-620.00

-630.00

-640.00

-650.00

-660.00

-670.00

-680.00

-690.00

-700.00

-710.00

-720.00

-730.00

-740.00

-750.00

-760.00

-770.00

-780.00

-790.00

-800.00

-810.00

-820.00

-830.00

-840.00

-850.00

-860.00

-870.00

-880.00

-890.00

-900.00

-910.00

-920.00

-930.00

-940.00

-950.00

-960.00

-970.00

-980.00

-990.00

-1000.00

-1010.00

-1020.00

-1030.00

-1040.00

-1050.00

-1060.00

-1070.00

-1080.00

-1090.00

-1100.00

-1110.00

-1120.00

-1130.00

-1140.00

-1150.00

-1160.00

-1170.00

-1180.00

-1190.00

-1200.00

-1210.00

-1220.00

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-1590.00

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-1890.00

-1900.00

-1910.00

-1920.00

-1930.00

-1940.00

-1950.00

-1960.00

-1970.00

-1980.00

-1990.00

-2000.00

-2010.00

-2020.00

-2030.00

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-2060.00

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-2090.00

-2100.00

-2110.00

-2120.00

-2130.00

-2140.00

-2150.00

-2160.00

-2170.00

-2180.00

-2190.00

-2200.00

-2210.00

-2220.00

-2230.00

-2240.00

-2250.00

-2260.00

-2270.00

-2280.00

-2290.00

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-2470.00

-2480.00

-2490.00

-2500.00

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-2580.00

-2590.00

-2600.00

-2610.00

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-2670.00

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-2700.00

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-2770.00

-2780.00

-2790.00

-2800.00

-2810.00

-2820.00

-2830.00

-2840.00

-2850.00

-2860.00

-2870.00

-2880.00

-2890.00

-2900.00

-2910.00

-2920.00

-2930.00

-2940.00

-2950.00

-2960.00

-2970.00

-2980.00

-2990.00

-3000.00

-3010.00

-3020.00

-3030.00

-3040.00

-3050.00

-3060.00

-3070.00

-3080.00

-3090.00

-3100.00

-3110.00

-3120.00

-3130.00

-3140.00

-3150.00

-3160.00

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-3190.00

-3200.00

-3210.00

-3220.00

PLC DATE 1...8-8... 11:19:11

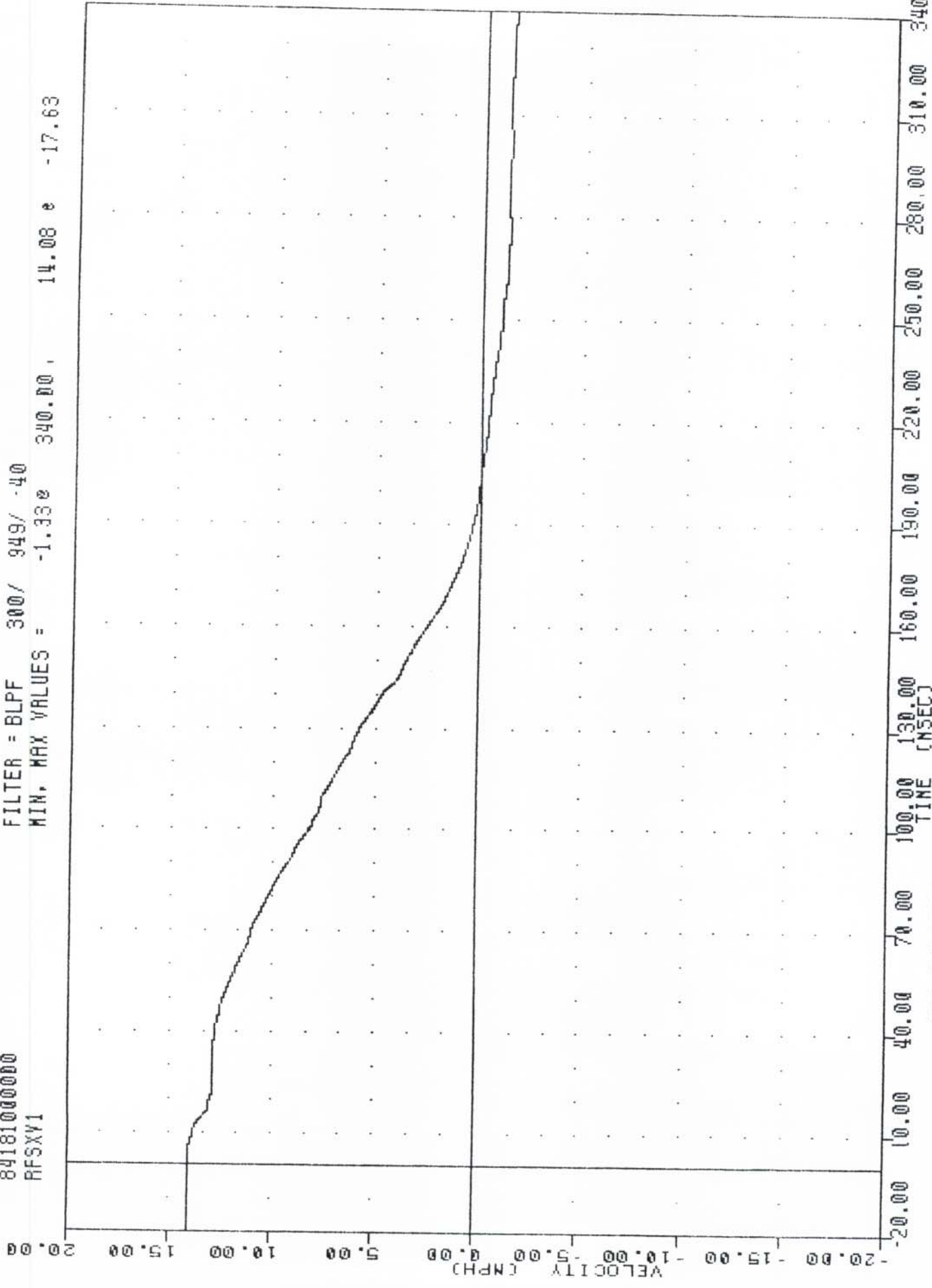
SIDE AGGRESSIVE ATTRIBUTES

84181000000

RFSXY1

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -1.33e 340.00, 14.08 e -17.63



B-74

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING RFSXG1

062
SIDE AGGRESSIVE ATTRIBUTES

84181000000

AFSYV1

PLC, DATE

UG-C

17:49:10

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -14.12e -10.88, -0.35 e 334.50

20.00 15.00 10.00 5.00 0.00 -5.00 -10.00 -15.00 -20.00

B-75

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)

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING RFSYGI

PL 002
SIDE AGGRESSIVE ATTRIBUTES

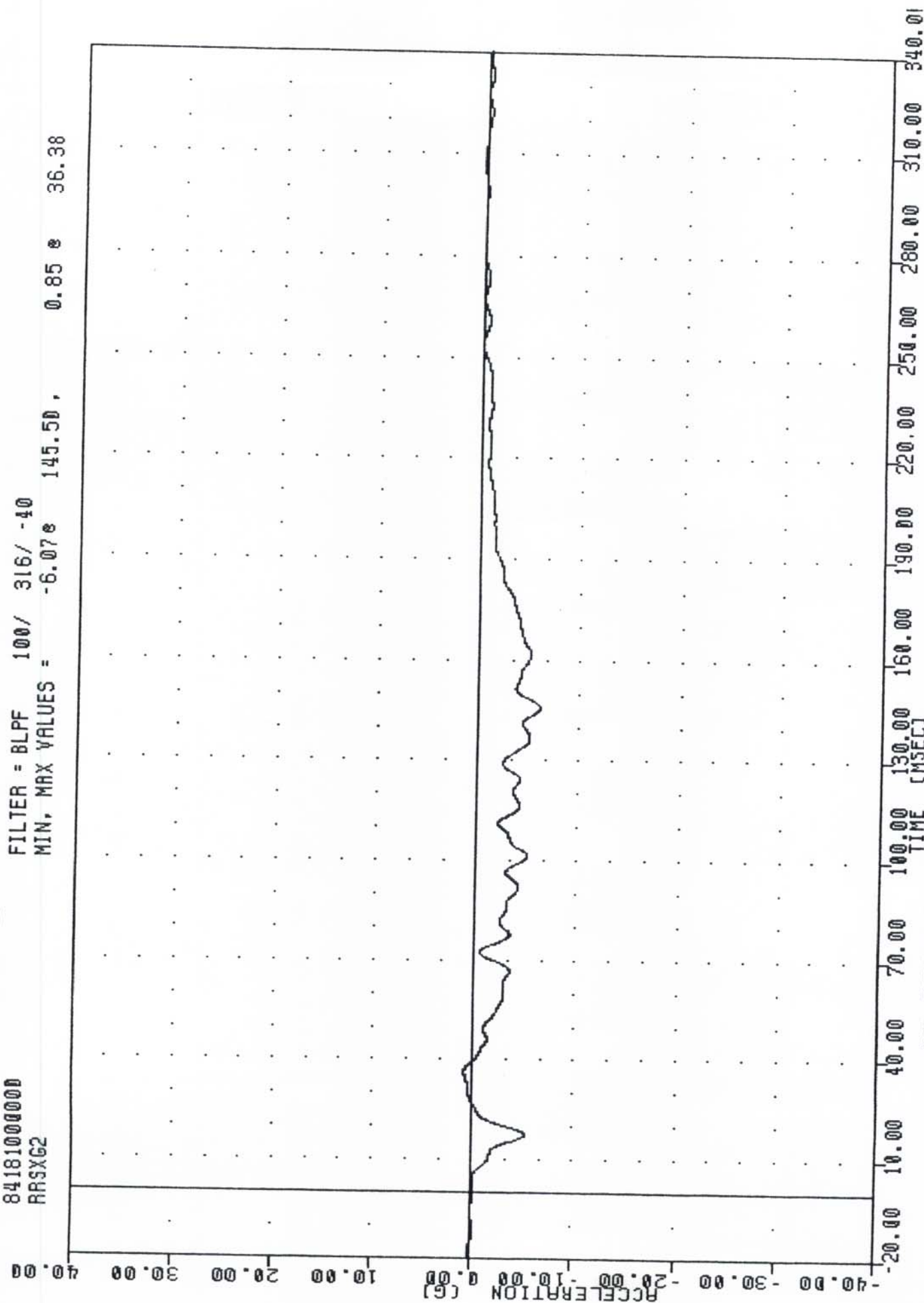
84181000000

RRSXG2

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES =

-6.078 145.50, 0.85 36.38



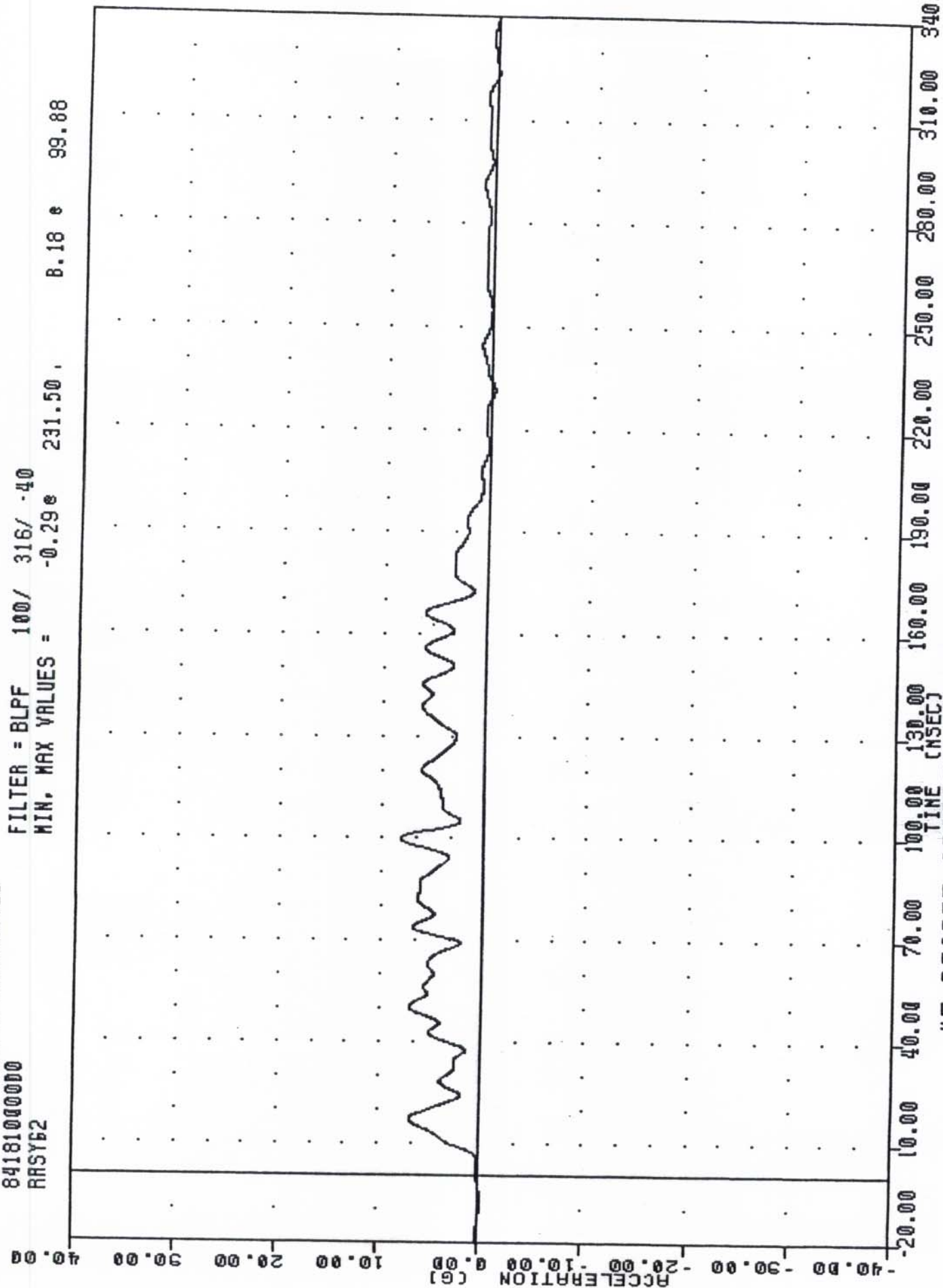
B-76

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE RIGHT REAR SILL ACCELERATION X AXIS

TRC 040629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
RRSY62

PLG, DATE 25 JUL-84 05.03:11

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -0.29e 231.50, B.18 e 99.88



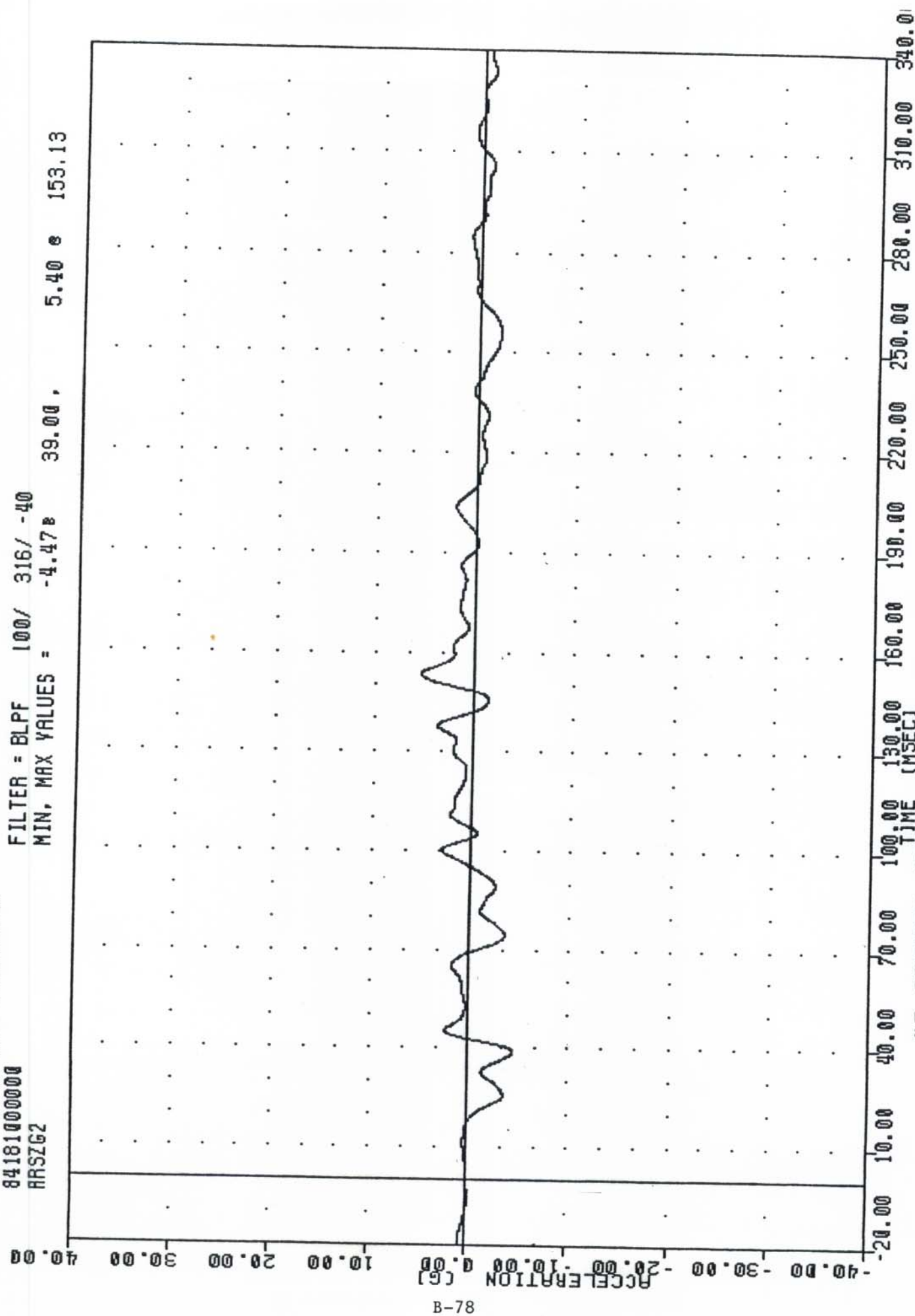
B-77

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE RIGHT REAR SILL ACCELERATION Y AXIS.

TRC
SIDE AGGRESSIVE ATTRIBUTES
84181000000
ARSZG2

PLG, DATE 25-JUL-84 09.53:11

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -4.478 39.00, 5.40 153.13

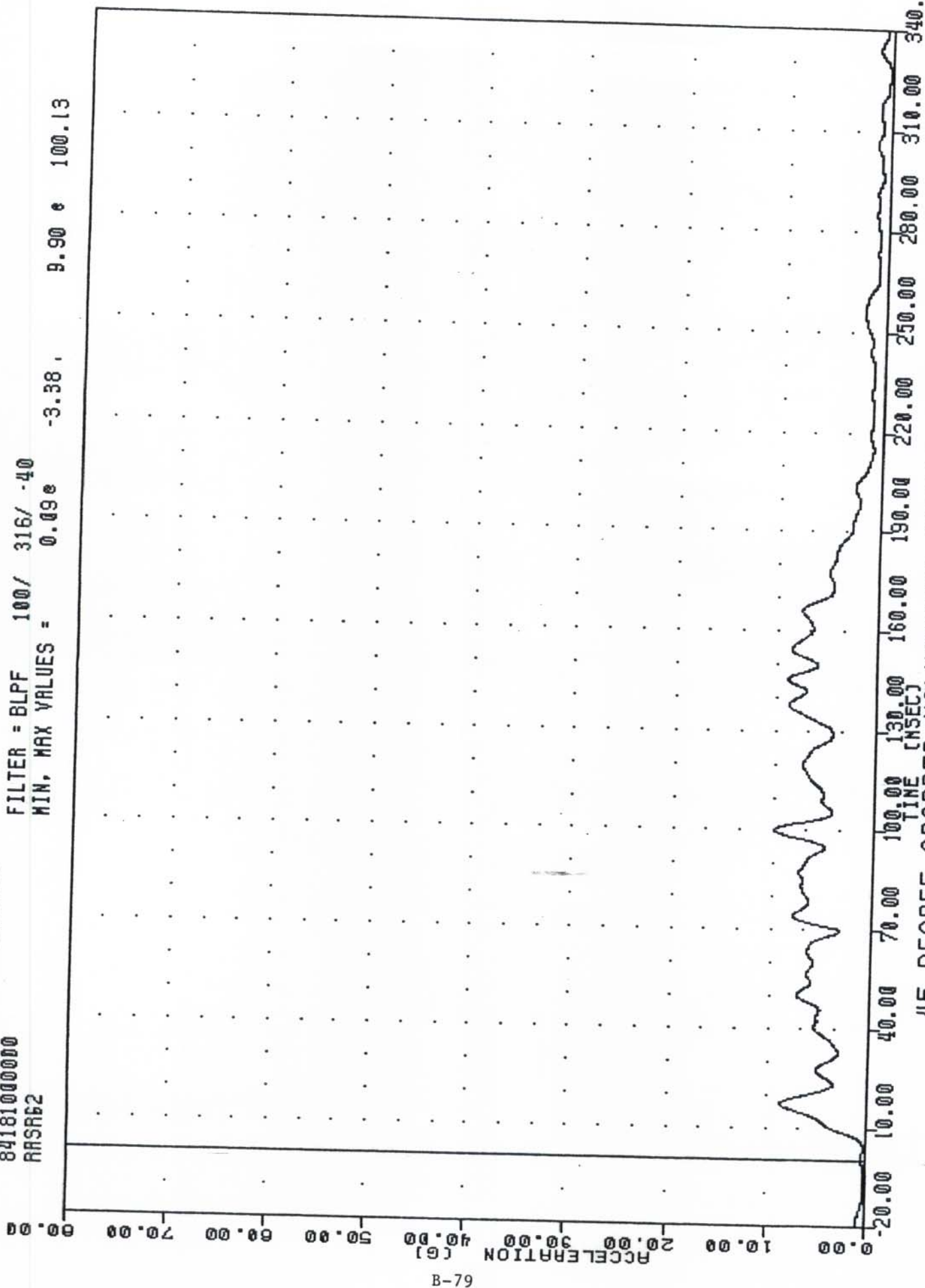


B-78

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE RIGHT REAR SILL ACCELERATION Z AXIS

PLG, DATE 25 JUL-84 05:04:44
SIDE AGGRESSIVE ATTRIBUTES
84181000000
RRSR62

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = 0.09e -3.38, 9.90 e 100.13



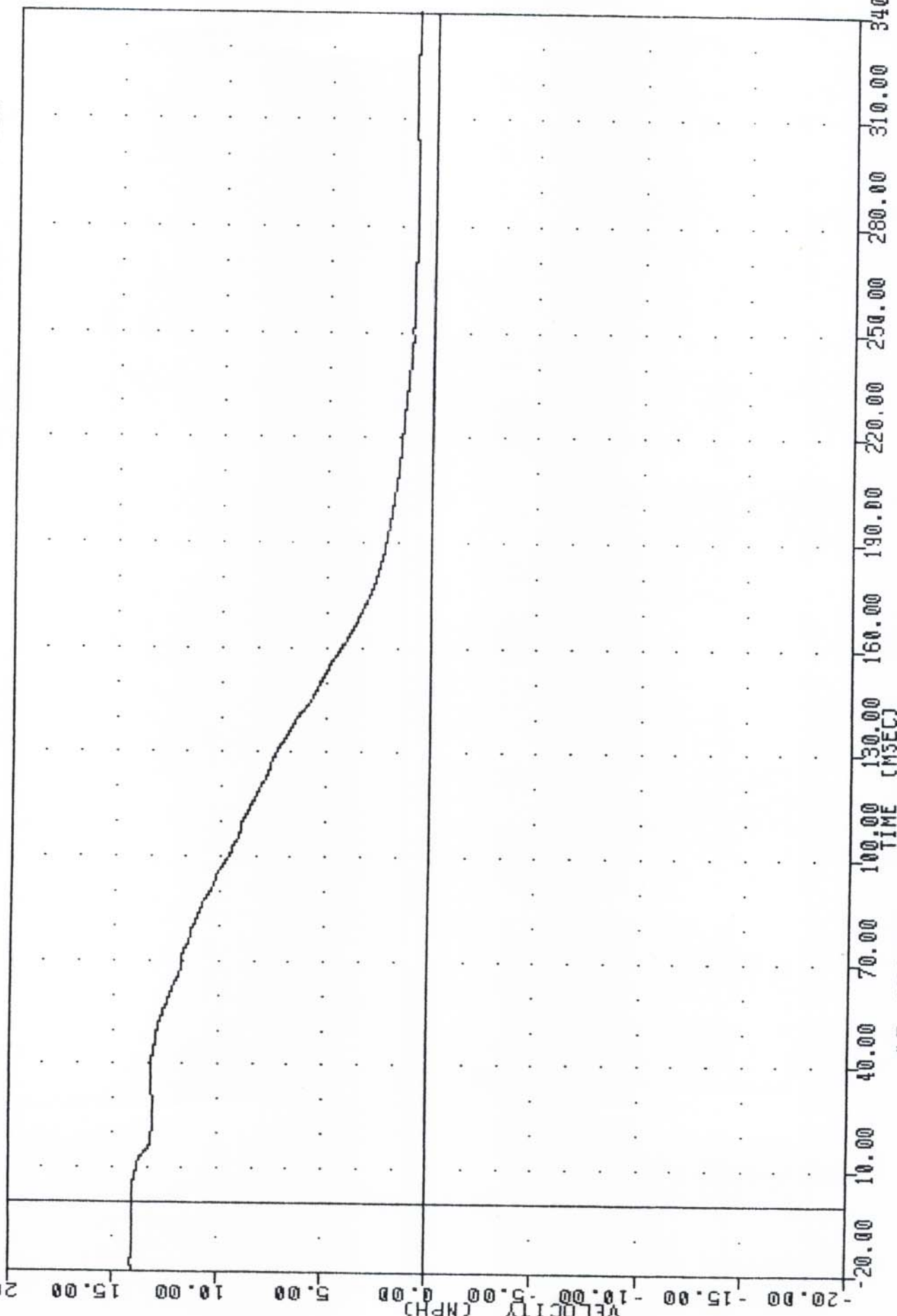
THL 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
RRSXV2

PLOT DATE 1-AUG-84 14:49:15

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = 0.87e 340.00, 14.08 e -17.50

VELOCITY (MPH)

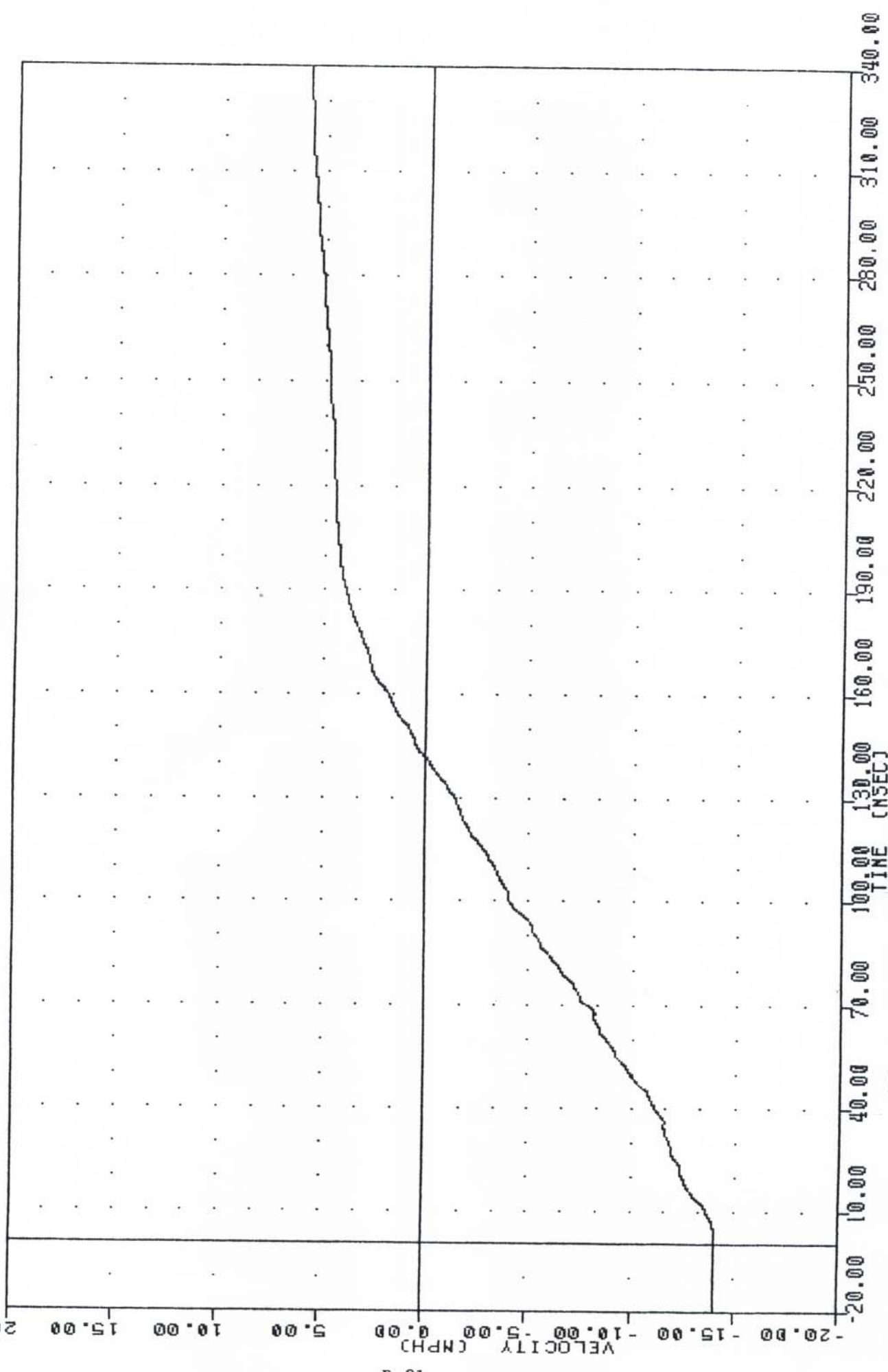
B-80



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING RRSXG2

TRC, 040629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
RRSYV2

PLU1 DATE 1-mu6-84 14:49:15
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -14.078 -6.25, 5.86 340.00



B-81

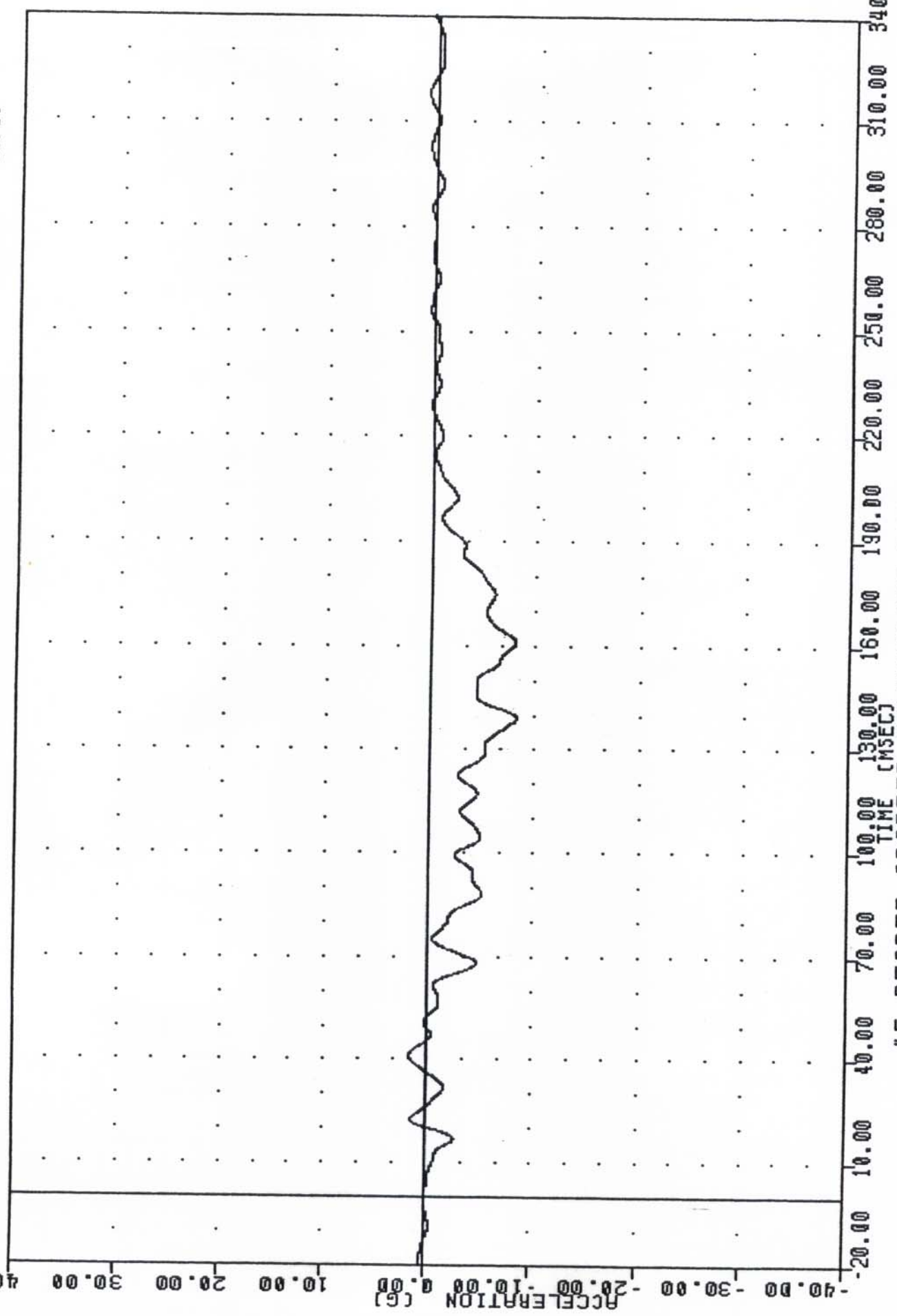
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING RRSYG2

TF 0620
SIDE AGGRESSIVE ATTRIBUTES
84181000000
RDKXG3

PLC DAT 21 -L-8- 00:3:1

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -8.21e 139.00, 1.74 e 41.00

B-82



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE REAR DECK ACCELERATION X AXIS

TR 629

SIDE AGGRESSIVE ATTRIBUTES

84181000000

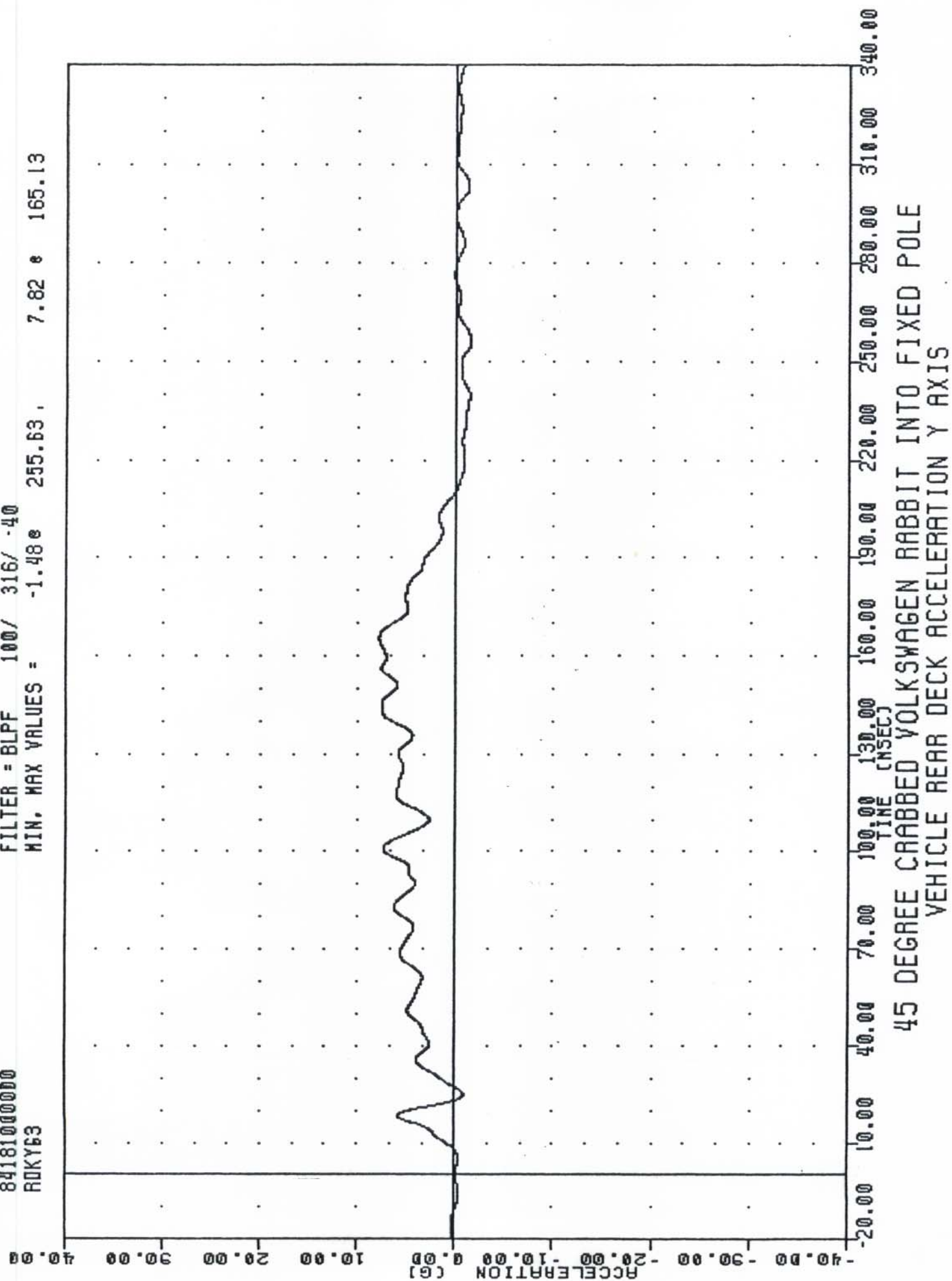
ROKY63

PLC RATE 25 1-8 00:03:11

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -1.48e 255.63, 7.82 e 165.13

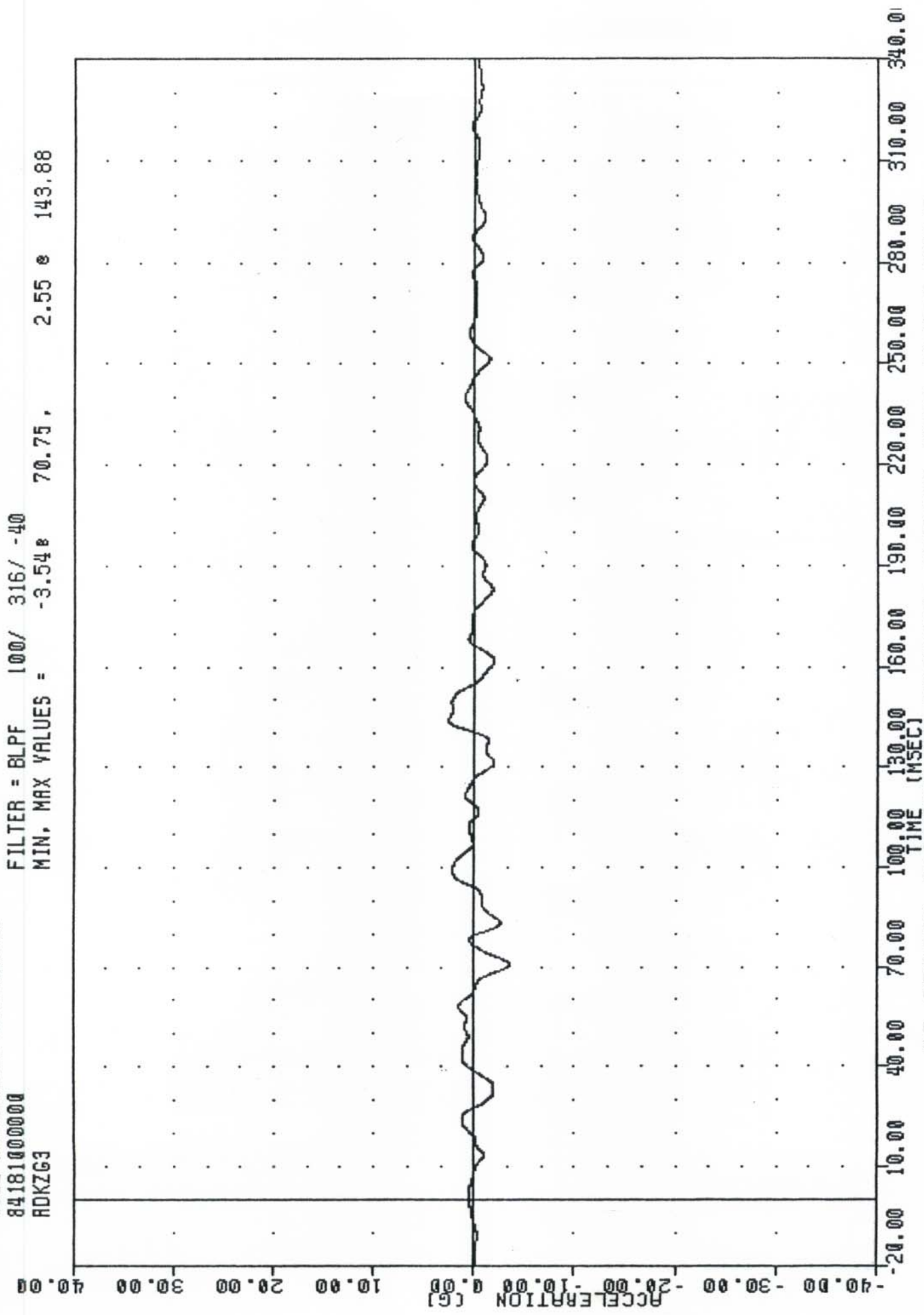
B-83



062
SIDE AGGRESSIVE ATTRIBUTES
84181000000
RDKZG3

PLC DATL 21 L-8 0 3:1
FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -3.54 70.75, 2.55 143.88

B-84



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE REAR DECK ACCELERATION Z AXIS

FILE DATE 20 JUL-81 00:44

FILE 0621
SIDE AGGRESSIVE ATTRIBUTES

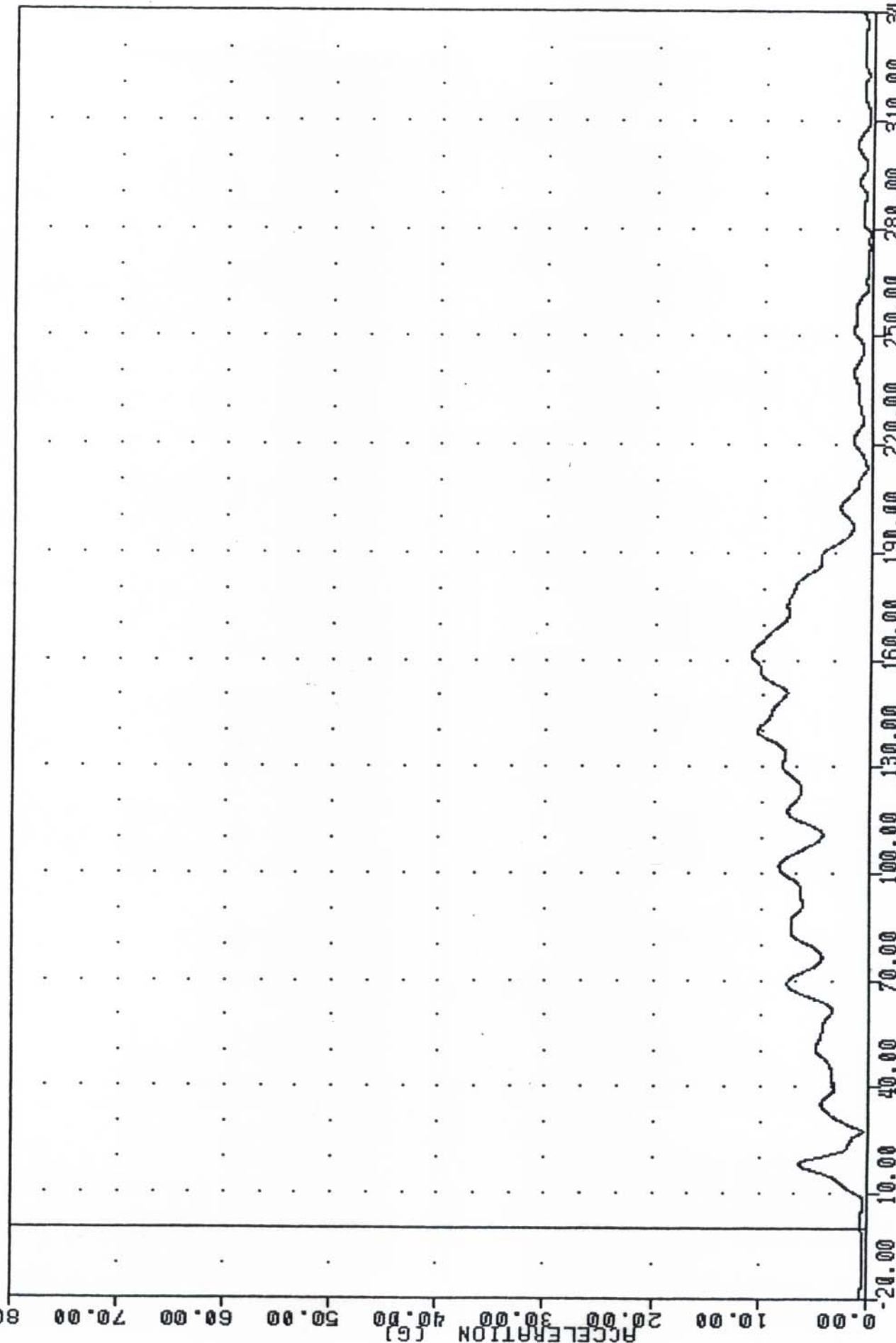
84181000000

ADKRG3

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = 0.128 278.38, 11.03 161.25

ACCELERATION (G)



B-85

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE REAR DECK RESULTANT

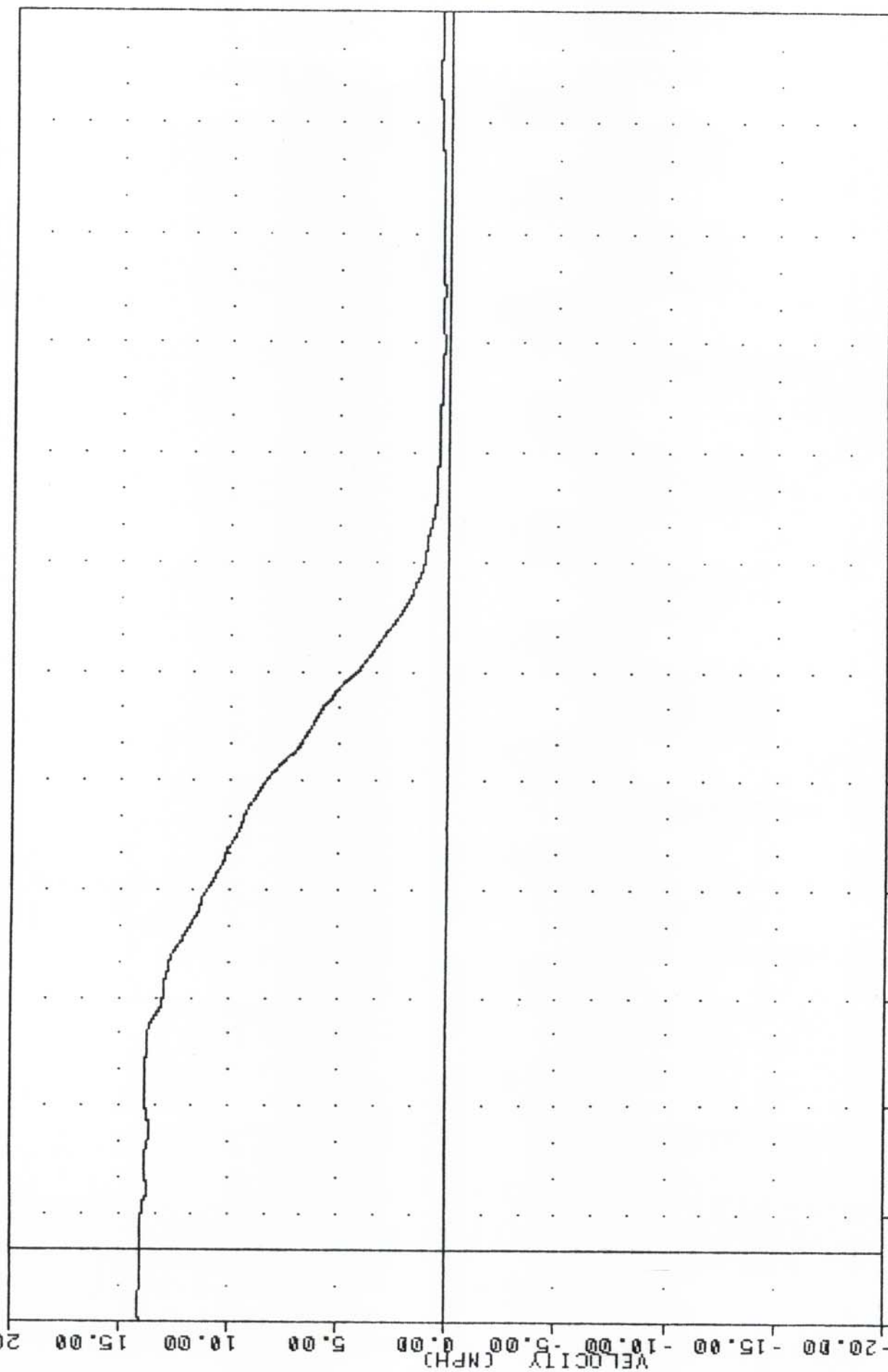
TNU 040623
SIDE AGGRESSIVE ATTRIBUTES
84181000000
RDKXV3

PLU1 DATE 1-mjG-b4 14.49:13

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = 0.268 249.88, 14.10 0 -15.50

20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00

B-86



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING RDKXG3

Thu 040625

SIDE AGGRESSIVE ATTRIBUTES

84181000000

RDYV3

PLU1 DATE

1-MUG-84

14:49:15

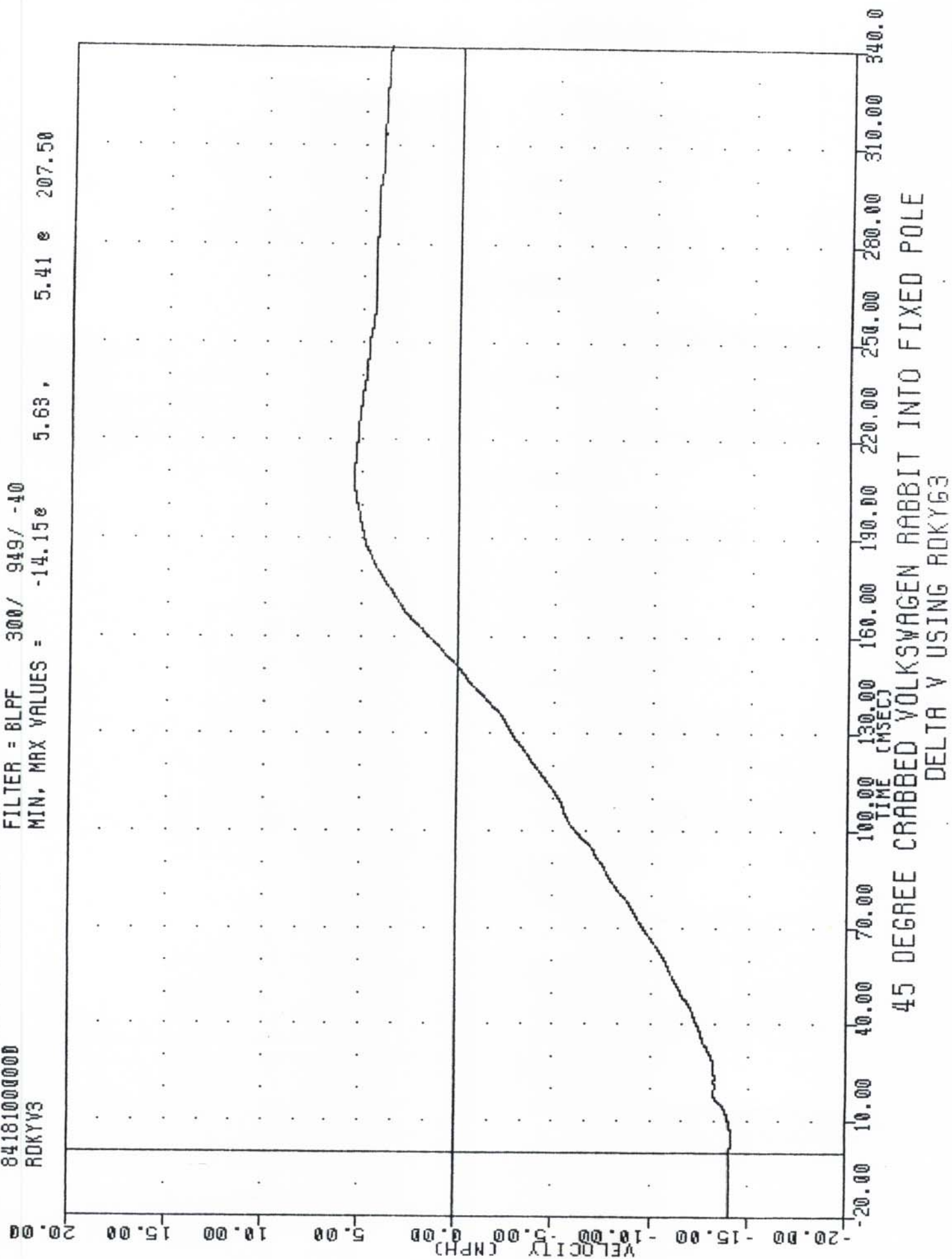
FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -14.15e

5.63,

5.41 e 207.50

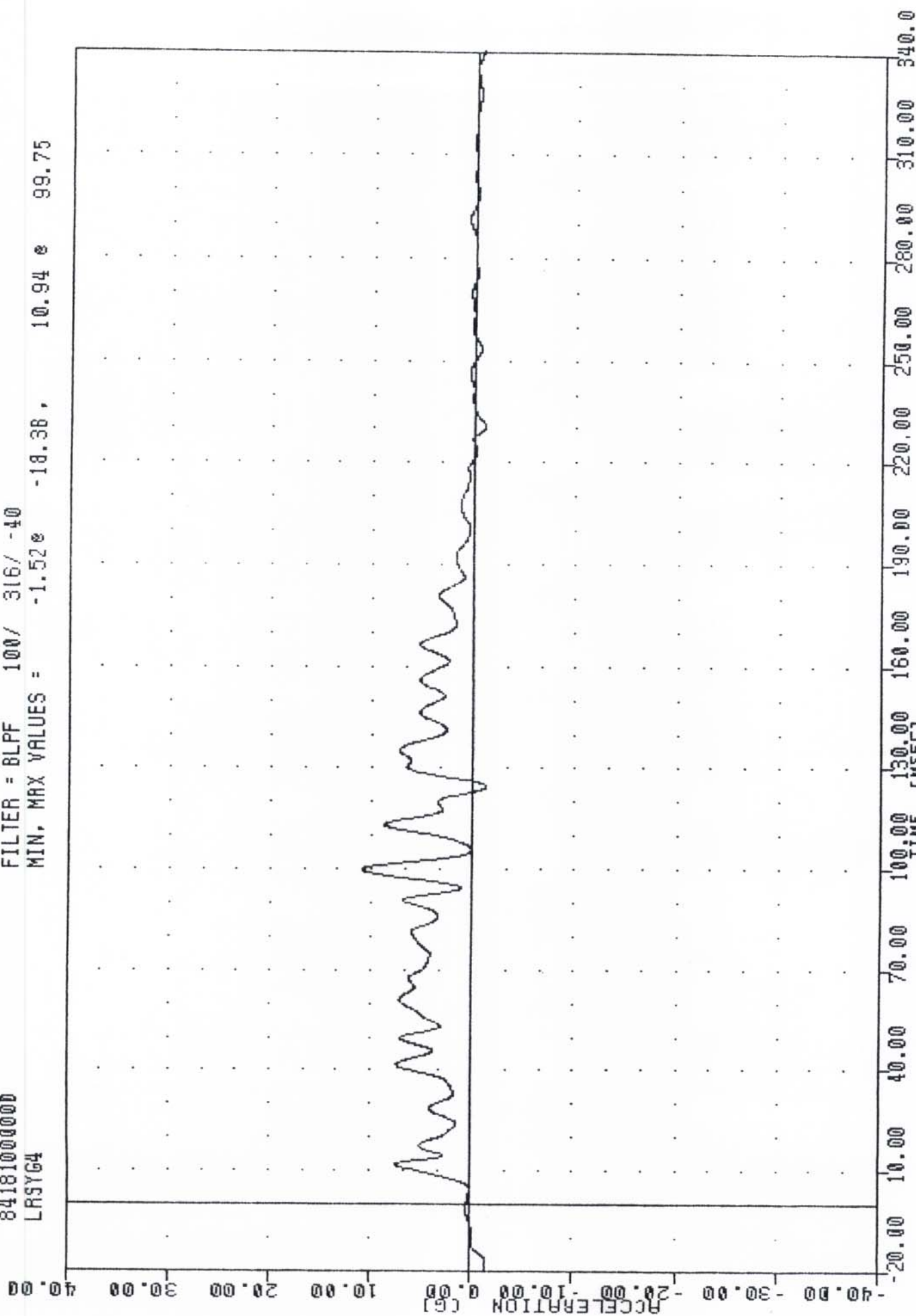
B-87



TIN
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LRSYG4

PLC, DRTL 1 JG-8z 1.06:20

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -1.520 -18.38, 10.94 99.75



B-88

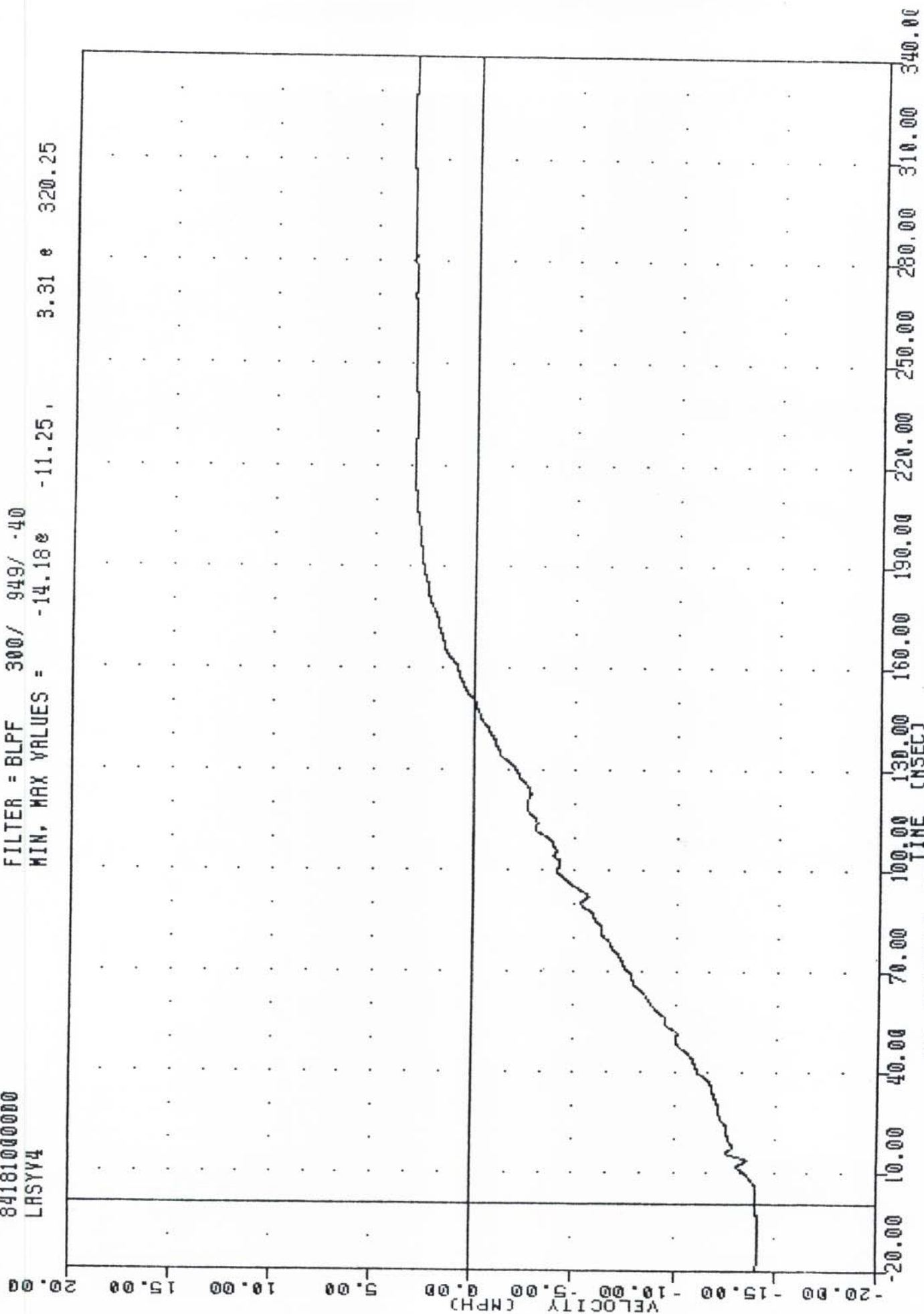
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE LEFT REAR SILL ACCELERATION Y AXIS.

The
 SIDE AGGRESSIVE ATTRIBUTES
 84181000000
 LRSYV4

PLG, DATE 1 106-84 14.43:15

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -14.18e -11.25, 3.31 e 320.25

B-89

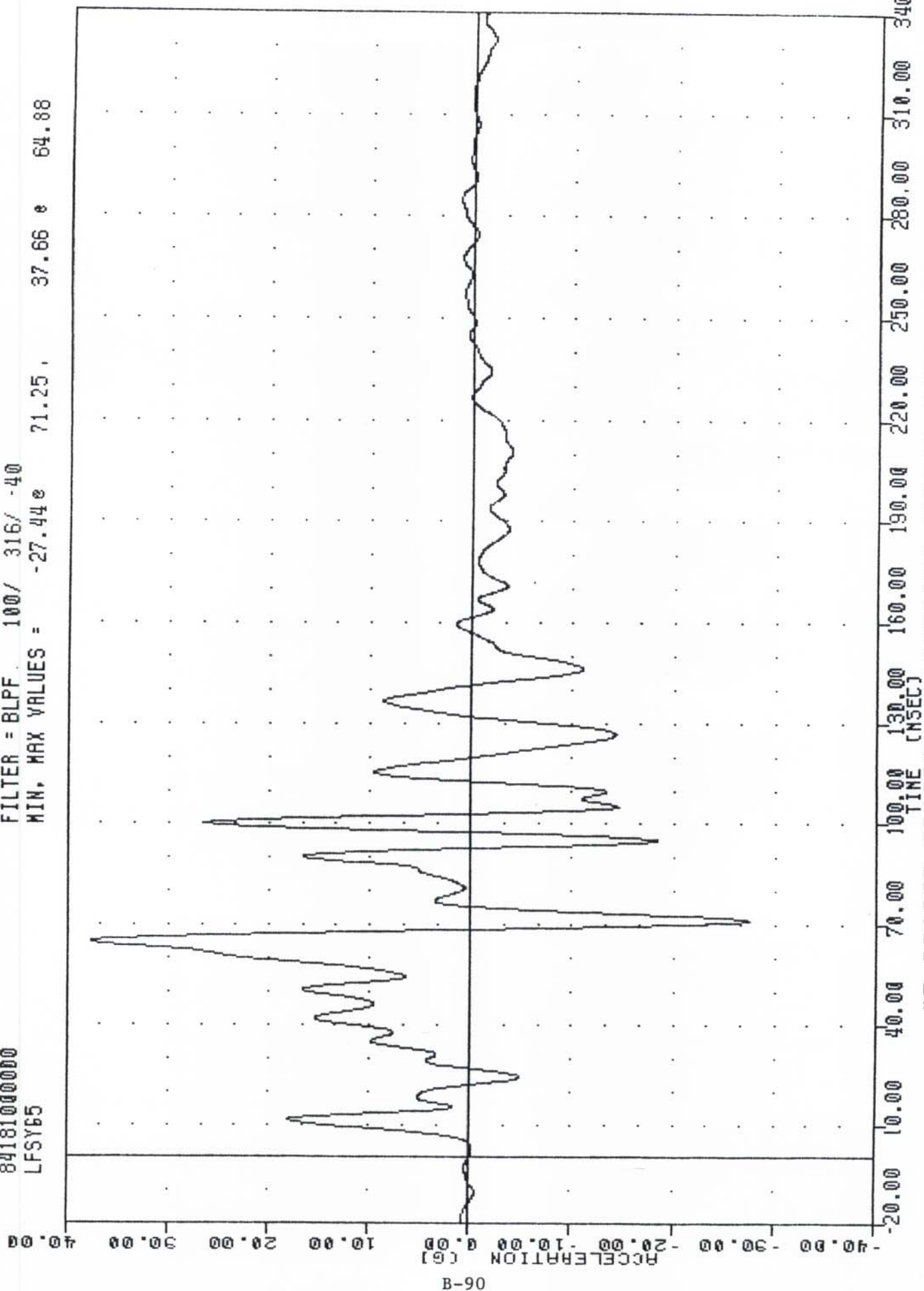


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
 DELTA V USING LRSYG4

Thc 840629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LFSY65

PLU1 DATE 1-nov-84 11:50:29

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -27.44e 71.25, 37.66 e 64.88



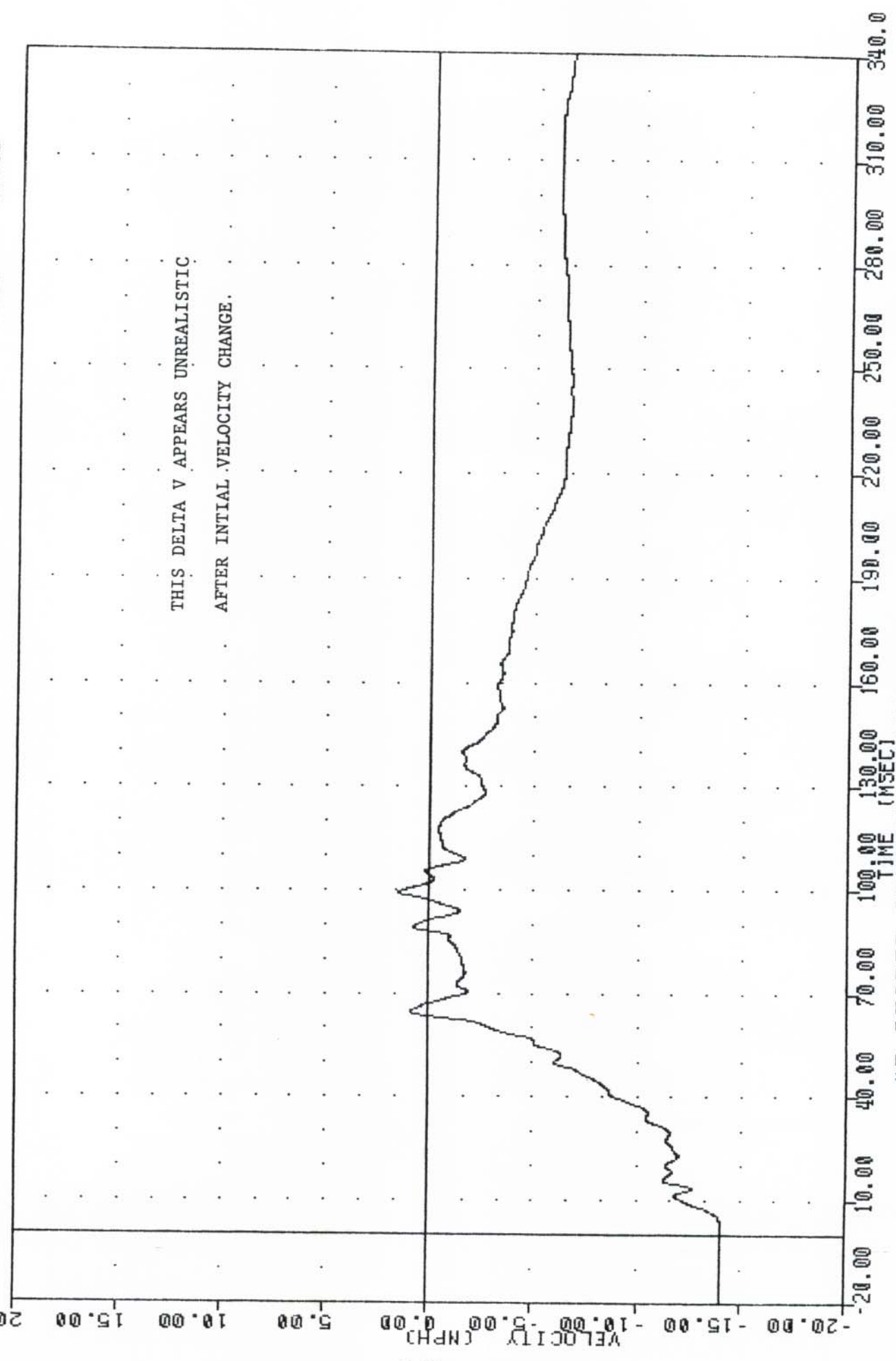
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE LEFT FRONT SILL ACCELERATION Y AXIS.

7100
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LFSYV5

PLC, DATA 1106-04 14:49:13

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -14.100 -11.00, 1.48 0 99.13

B-91

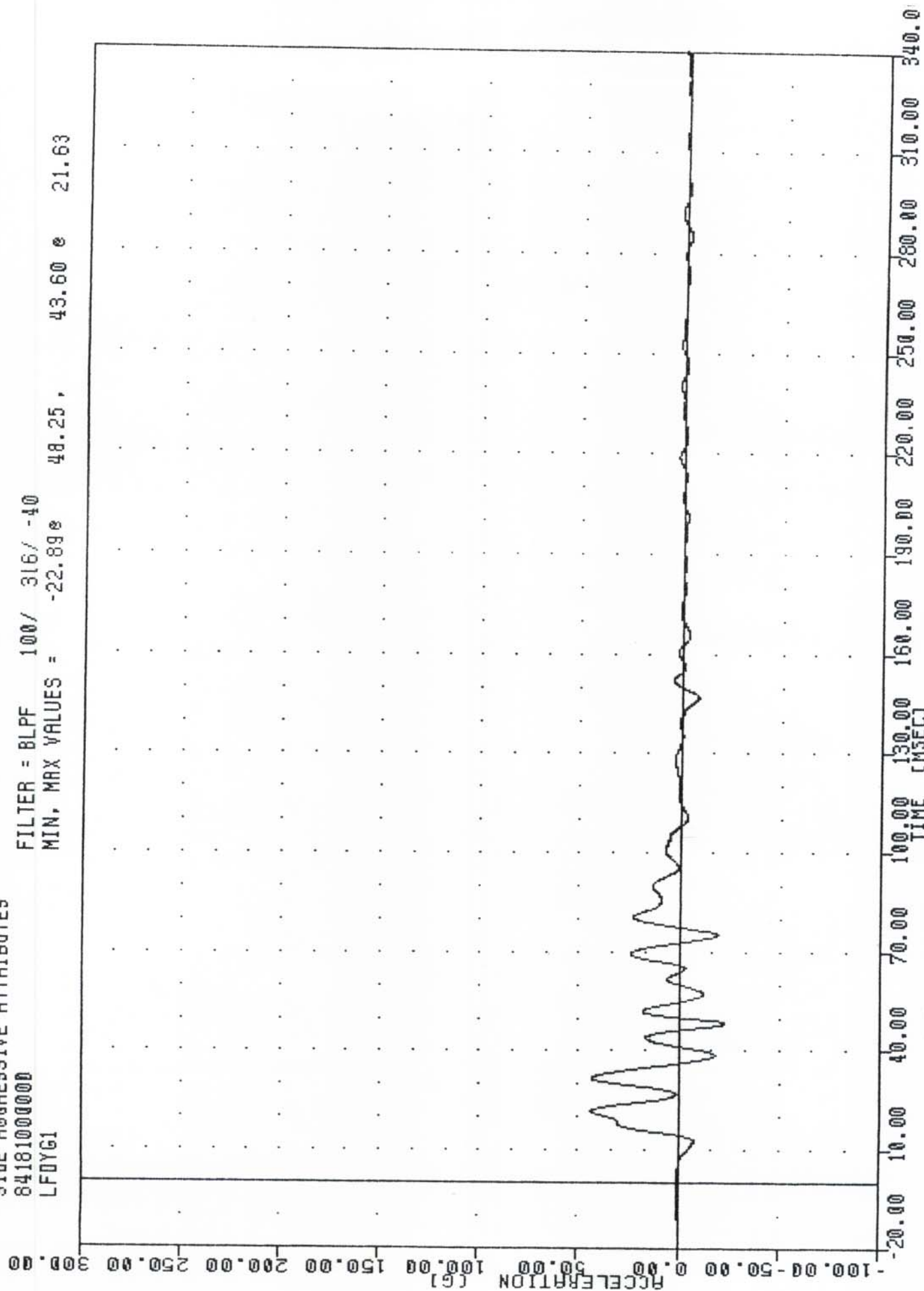


45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LFSYG5

TIN 040629
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LF0Y61

PLU1 DATE 1-MUG-84 11:06:29

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -22.89g 48.25, 43.60 g 21.63



B-92

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE LEFT FRONT DOOR (POSITION 6) ACCELERATION Y AXIS

T110 020620
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LFOYV1

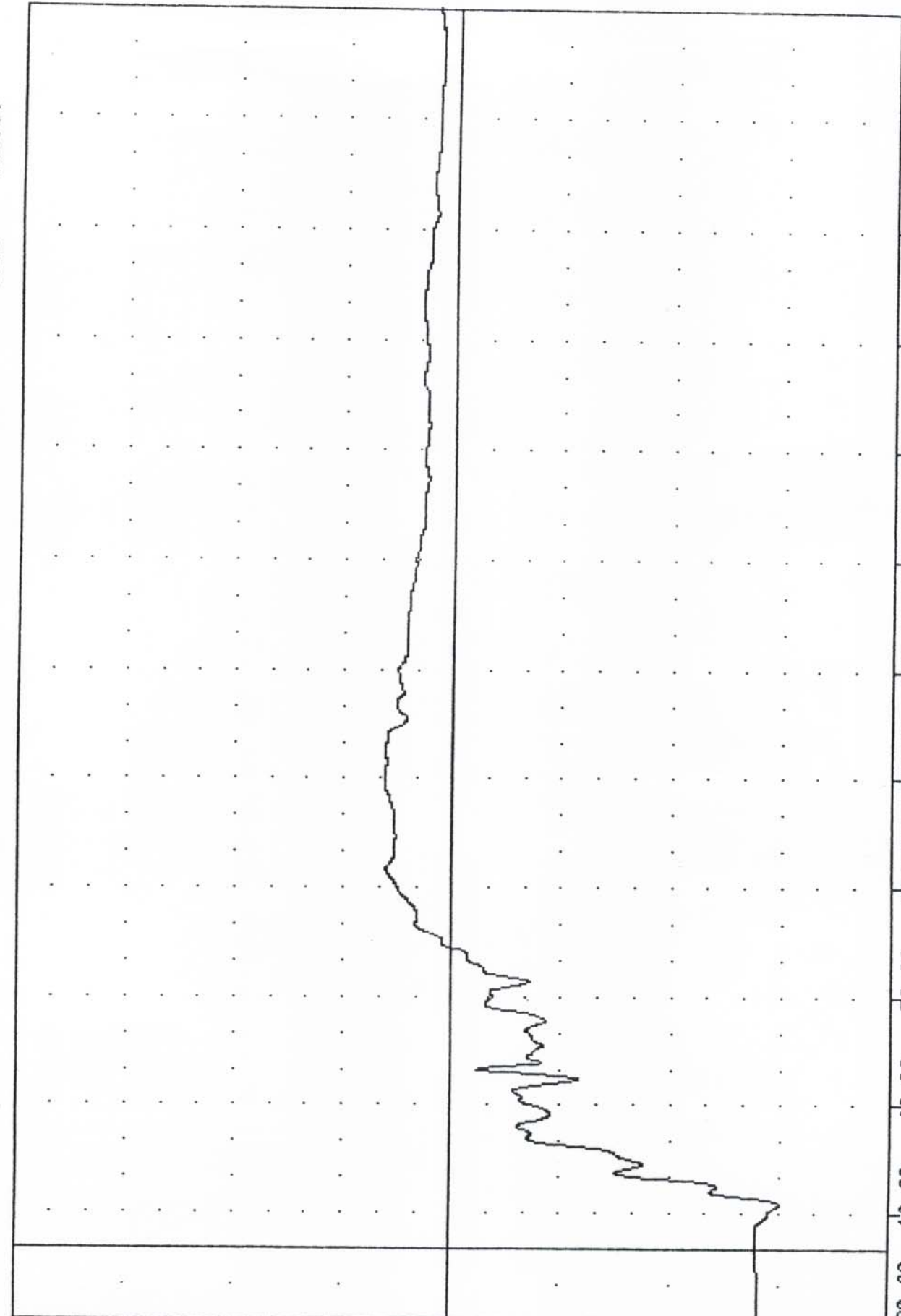
PLU, DATL

1 106-67

1 1.49:10

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -15.000 12.50, 3.15 e 138.50

B-93
VELOCITY (MPH)
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00



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

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LFOYGI

PL 102
SIDE AGGRESSIVE ATTRIBUTES

84181000000
LFOY62

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -33.72 26.38

243.17 158.25

SEE TEST ANOMALIES

ACCELERATION (G)

B-94

TIME (MSEC)

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE LEFT FRONT DOOR (POSITION 8) ACCELERATION Y AXIS

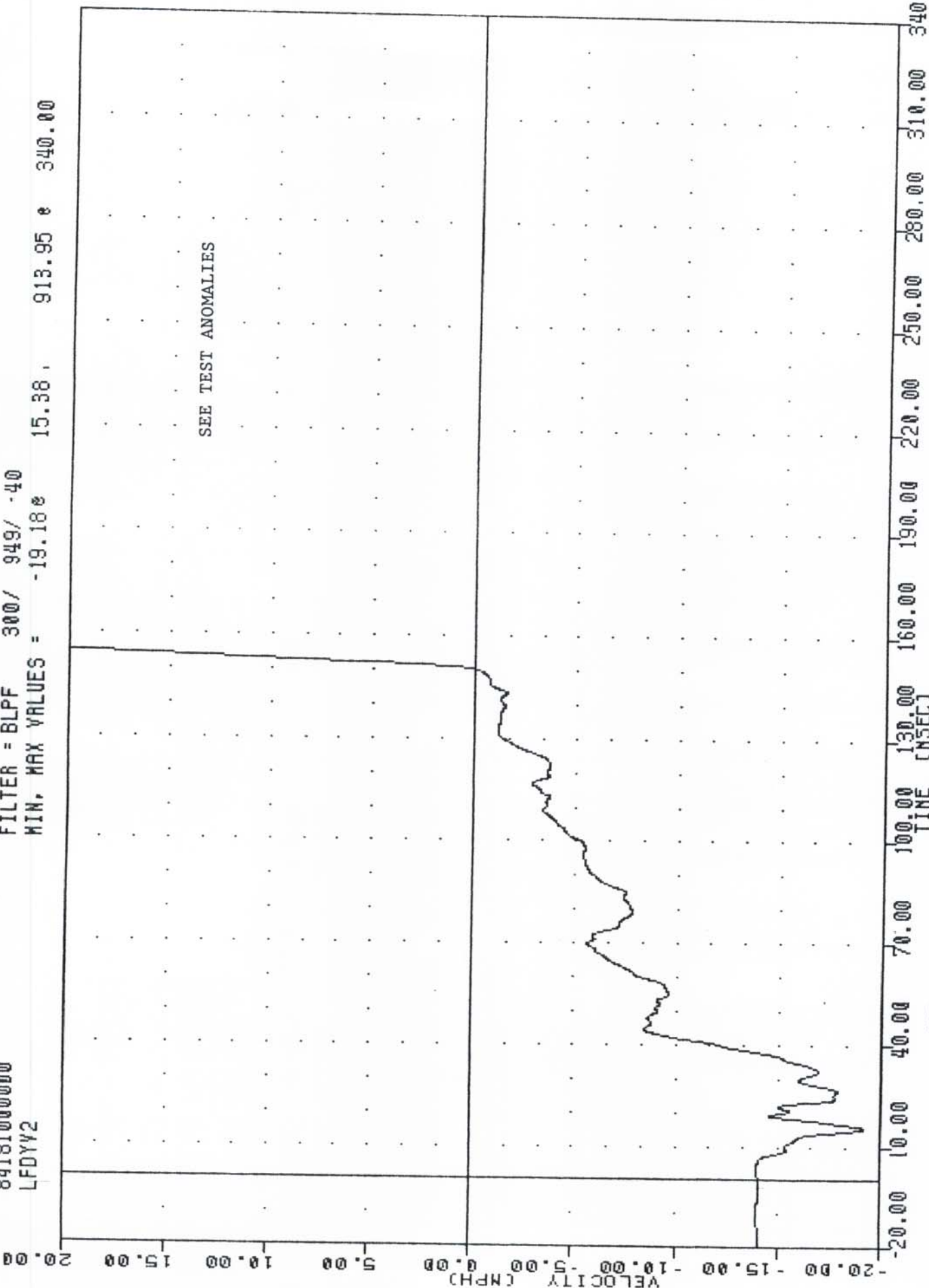
PL 1 016-8 1 0003:1F
SIDE AGGRESSIVE ATTRIBUTES

84181000000

LFDYV2

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -19.18 15.38, 913.95 340.00



B-95

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LFDYV2

052
SIDE AGGRESSIVE ATTRIBUTES

84181000000

LFDY63

FILTER = BLPF

100/ 316/ -40

MIN, MAX VALUES =

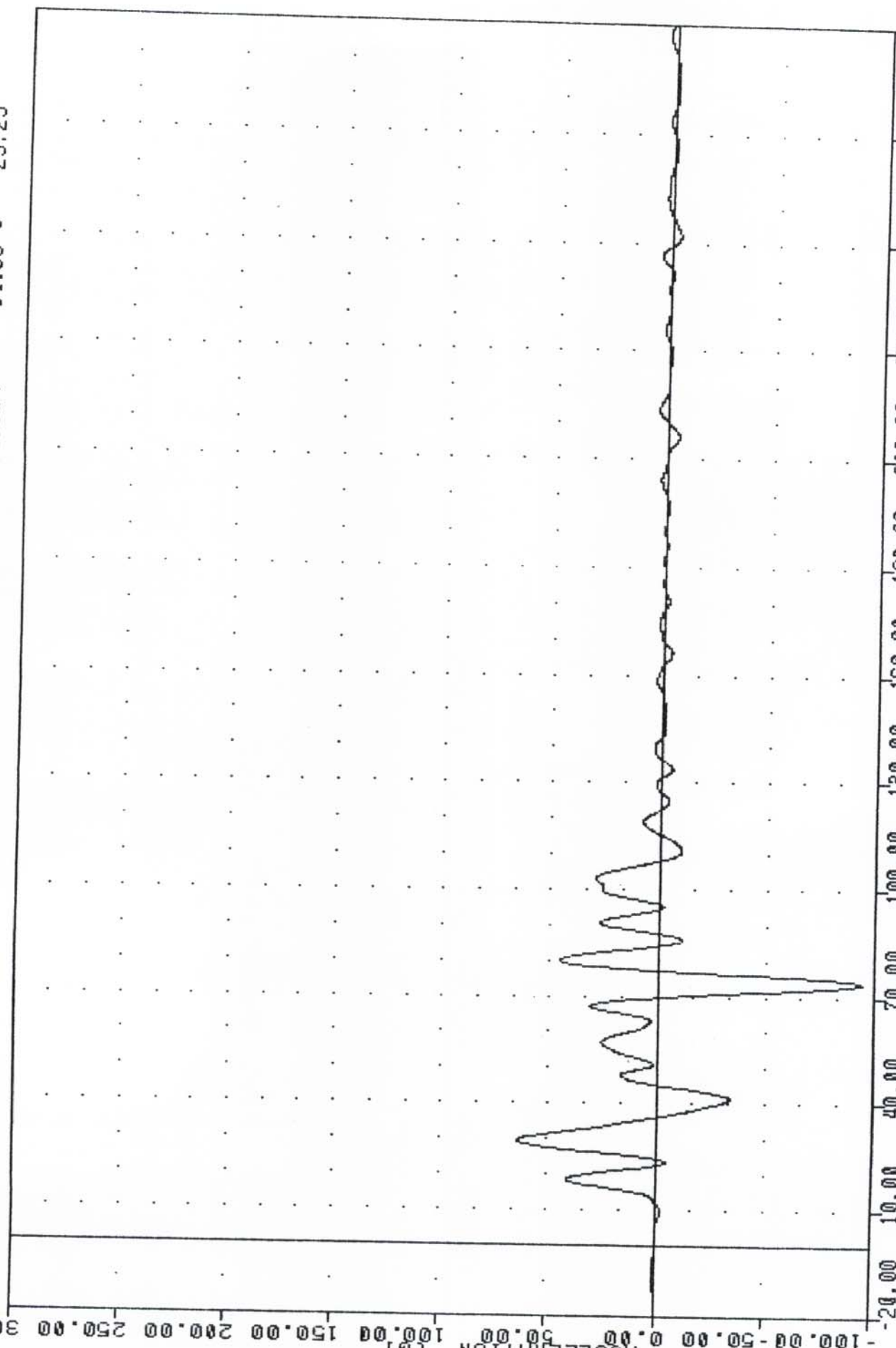
-94.50

73.63,

64.06

29.25

ACCELERATION (G)



340.00

310.00

280.00

250.00

220.00

190.00

160.00

130.00

100.00

70.00

40.00

10.00

-20.00

TIME (MSEC)

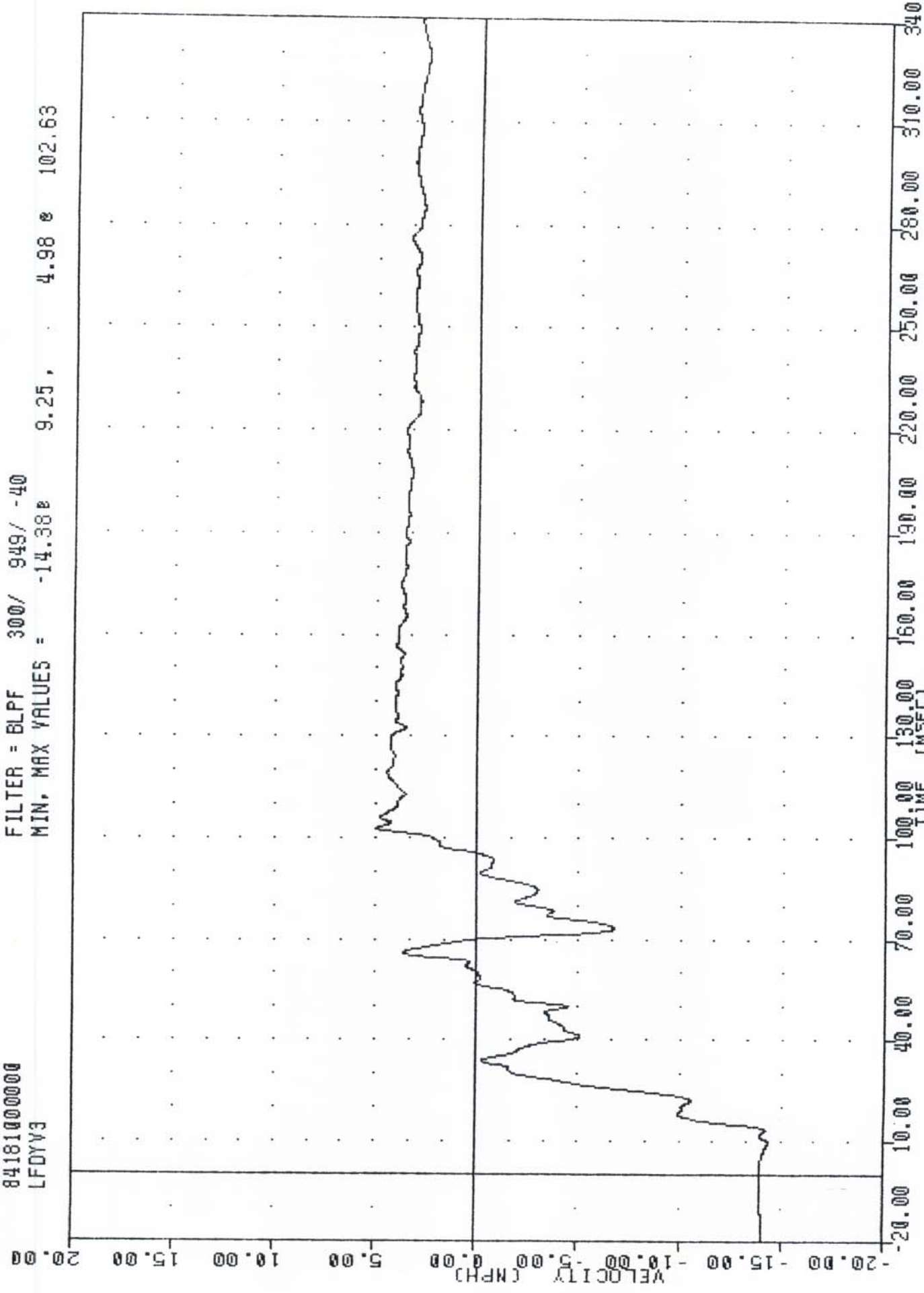
45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE LEFT FRONT DOOR (POSITION 9) ACCELERATION Y AXIS

PL 062
SIDE AGGRESSIVE ATTRIBUTES

84181000000
LFDYV3

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -14.38 9.25,

4.98 102.63



B-97

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LFDYV3

PLC DATE 1 06-8 11:06:20

SIDE AGGRESSIVE ATTRIBUTES

84181000000

LF0YG4

FILTER = BLPF

100/ 316/ -40

MIN, MAX VALUES =

-35.78e

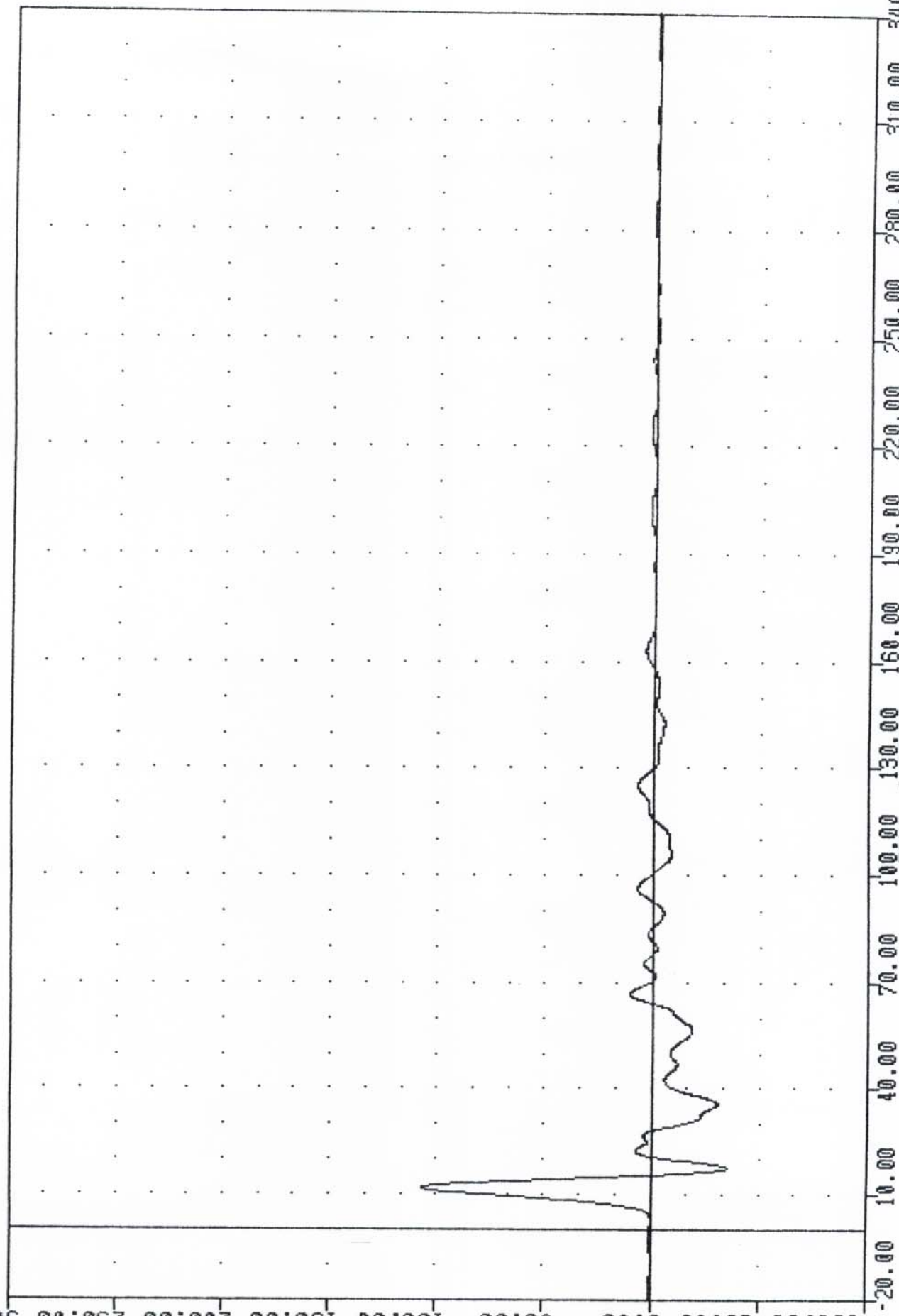
17.38,

106.82 e

11.75

ACCELERATION [G]

B-98



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE

VEHICLE LEFT FRONT DOOR (POSITION 10) ACCELERATION Y AXIS

062
SIDE AGGRESSIVE ATTRIBUTES

PL... DATE

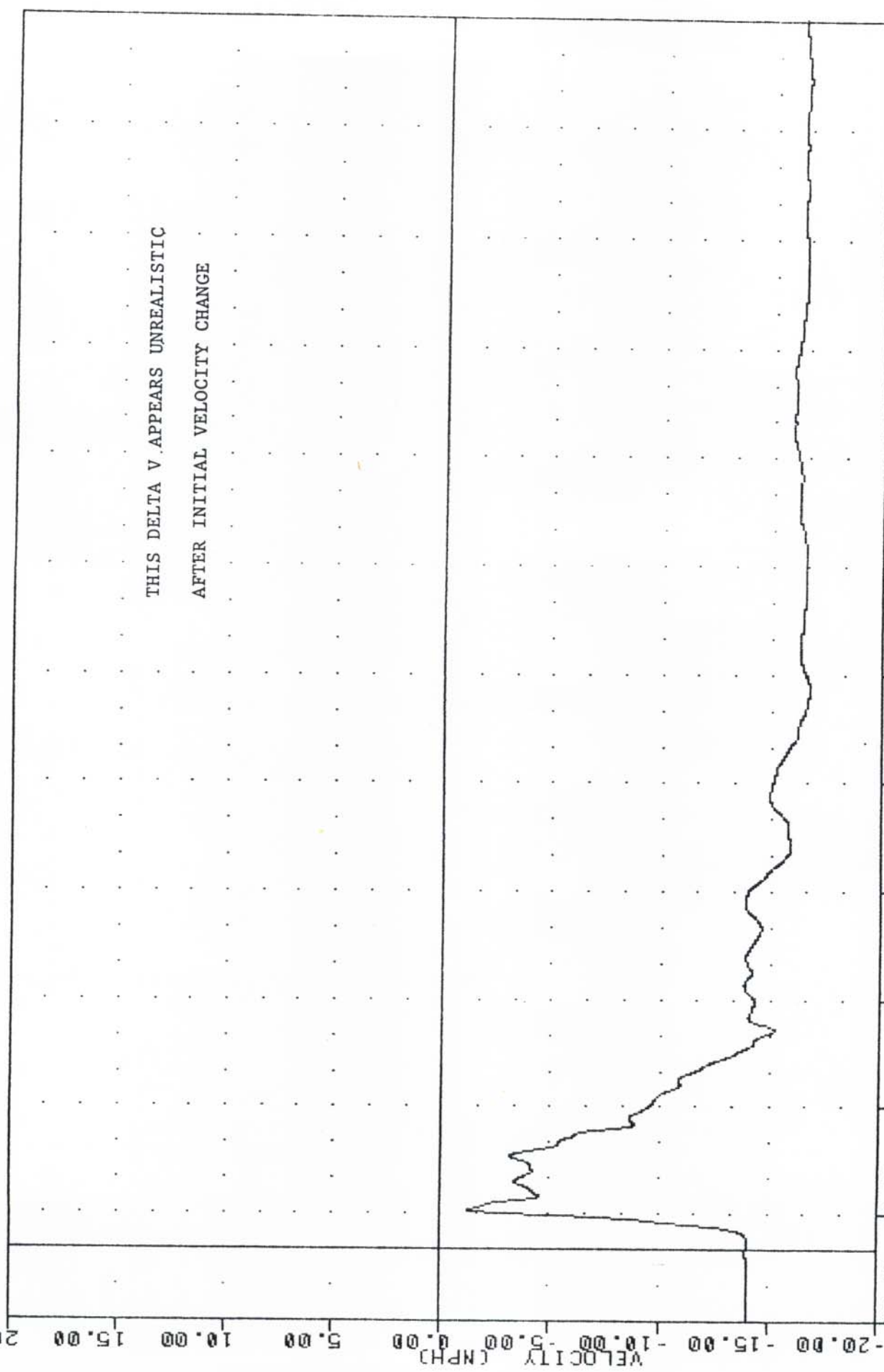
...JG... 1...9:1...

84181000000
LFDYV4

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -16.75e 156.50, -1.28 e 10.88

B-99

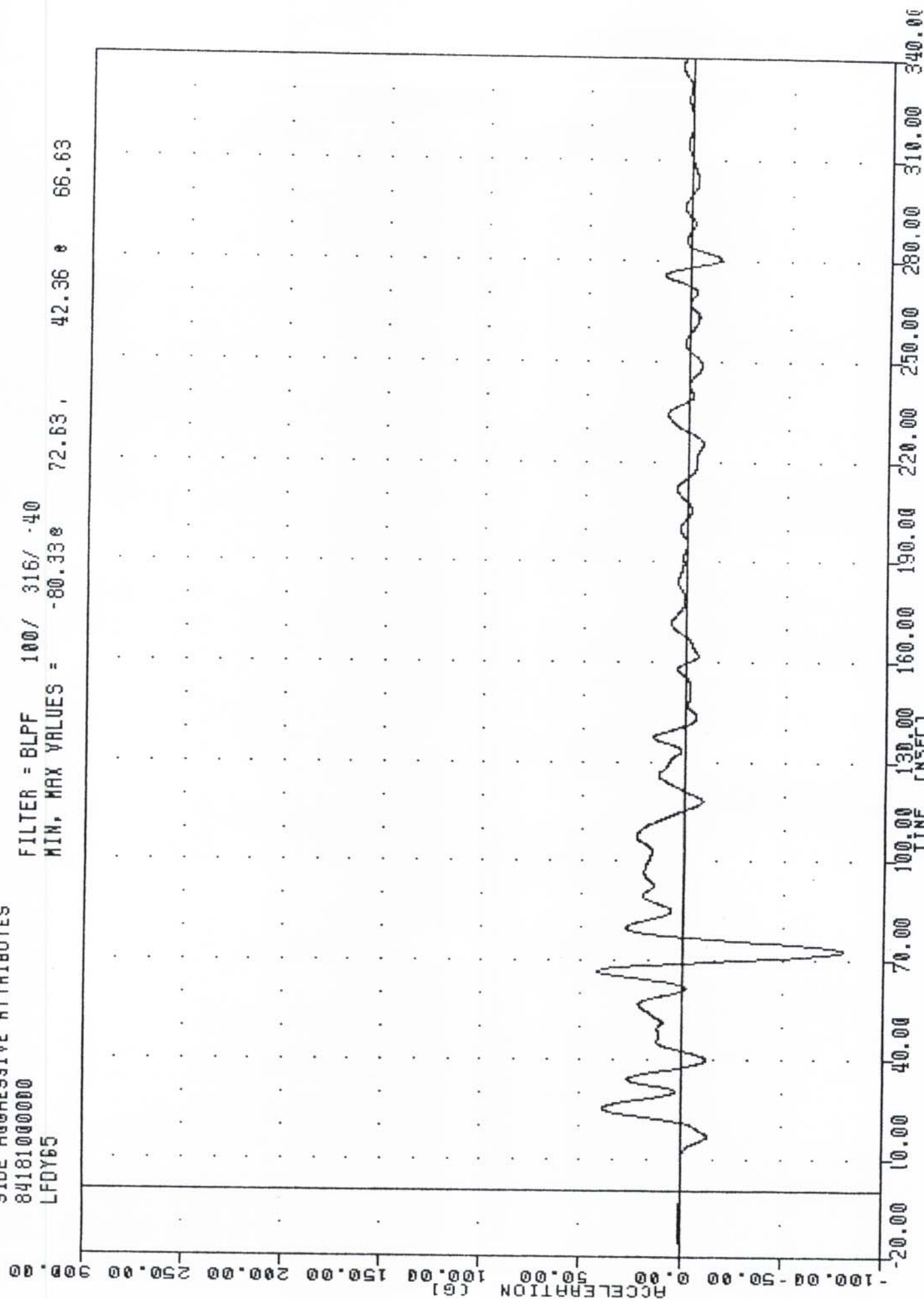


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
DELTA V USING LFDY64

PLC DATE 1...6-8... 11:3:20
SIDE AGGRESSIVE ATTRIBUTES
84181000000
LFDY65

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -80.33e 72.63, 42.36 e 66.63



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
VEHICLE LEFT FRONT DOOR (POSITION 11) ACCELERATION Y AXIS

PL 062
SIDE AGGRESSIVE ATTRIBUTES

84181000000

LFDYV5

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -15.84 19.50, 7.06 211.25

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

-20.00

B-101

VELOCITY (MPH)

-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

45.00

50.00

55.00

60.00

65.00

70.00

75.00

80.00

85.00

90.00

95.00

100.00

105.00

110.00

115.00

120.00

125.00

130.00

135.00

140.00

145.00

150.00

155.00

160.00

165.00

170.00

175.00

180.00

185.00

190.00

195.00

200.00

205.00

210.00

215.00

220.00

225.00

230.00

235.00

240.00

245.00

250.00

255.00

260.00

265.00

270.00

275.00

280.00

285.00

290.00

295.00

300.00

305.00

310.00

315.00

320.00

325.00

330.00

335.00

340.00

345.00

350.00

355.00

360.00

365.00

370.00

375.00

380.00

385.00

390.00

395.00

400.00

405.00

410.00

415.00

420.00

425.00

430.00

435.00

440.00

445.00

450.00

455.00

460.00

465.00

470.00

475.00

480.00

485.00

490.00

495.00

500.00

505.00

510.00

515.00

520.00

525.00

530.00

535.00

540.00

545.00

550.00

555.00

560.00

565.00

570.00

575.00

580.00

585.00

590.00

595.00

600.00

605.00

610.00

615.00

620.00

625.00

630.00

635.00

640.00

645.00

650.00

655.00

660.00

665.00

670.00

675.00

680.00

685.00

690.00

695.00

700.00

705.00

710.00

715.00

720.00

725.00

730.00

735.00

740.00

745.00

750.00

755.00

760.00

765.00

770.00

775.00

780.00

785.00

790.00

795.00

800.00

805.00

810.00

815.00

820.00

825.00

830.00

835.00

840.00

845.00

850.00

855.00

860.00

865.00

870.00

875.00

880.00

885.00

890.00

895.00

900.00

905.00

910.00

915.00

920.00

925.00

930.00

935.00

940.00

945.00

950.00

955.00

960.00

965.00

970.00

975.00

980.00

985.00

990.00

995.00

1000.00

1005.00

1010.00

1015.00

1020.00

1025.00

1030.00

1035.00

1040.00

1045.00

1050.00

1055.00

1060.00

1065.00

1070.00

1075.00

1080.00

1085.00

1090.00

1095.00

1100.00

1105.00

1110.00

1115.00

1120.00

1125.00

1130.00

1135.00

1140.00

1145.00

1150.00

1155.00

1160.00

1165.00

1170.00

1175.00

1180.00

1185.00

1190.00

1195.00

1200.00

1205.00

1210.00

1215.00

1220.00

1225.00

1230.00

1235.00

1240.00

1245.00

1250.00

1255.00

1260.00

1265.00

1270.00

1275.00

1280.00

1285.00

1290.00

1295.00

1300.00

1305.00

1310.00

1315.00

1320.00

1325.00

1330.00

1335.00

1340.00

1345.00

1350.00

1355.00

1360.00

1365.00

1370.00

1375.00

1380.00

1385.00

1390.00

1395.00

1400.00

1405.00

1410.00

1415.00

1420.00

1425.00

1430.00

1435.00

1440.00

1445.00

1450.00

1455.00

1460.00

1465.00

1470.00

1475.00

1480.00

1485.00

1490.00

1495.00

1500.00

1505.00

1510.00

1515.00

1520.00

1525.00

1530.00

1535.00

1540.00

1545.00

1550.00

1555.00

1560.00

1565.00

1570.00

1575.00

1580.00

1585.

062
SIDE AGGRESSIVE ATTRIBUTES

84181000000

TFRXG7

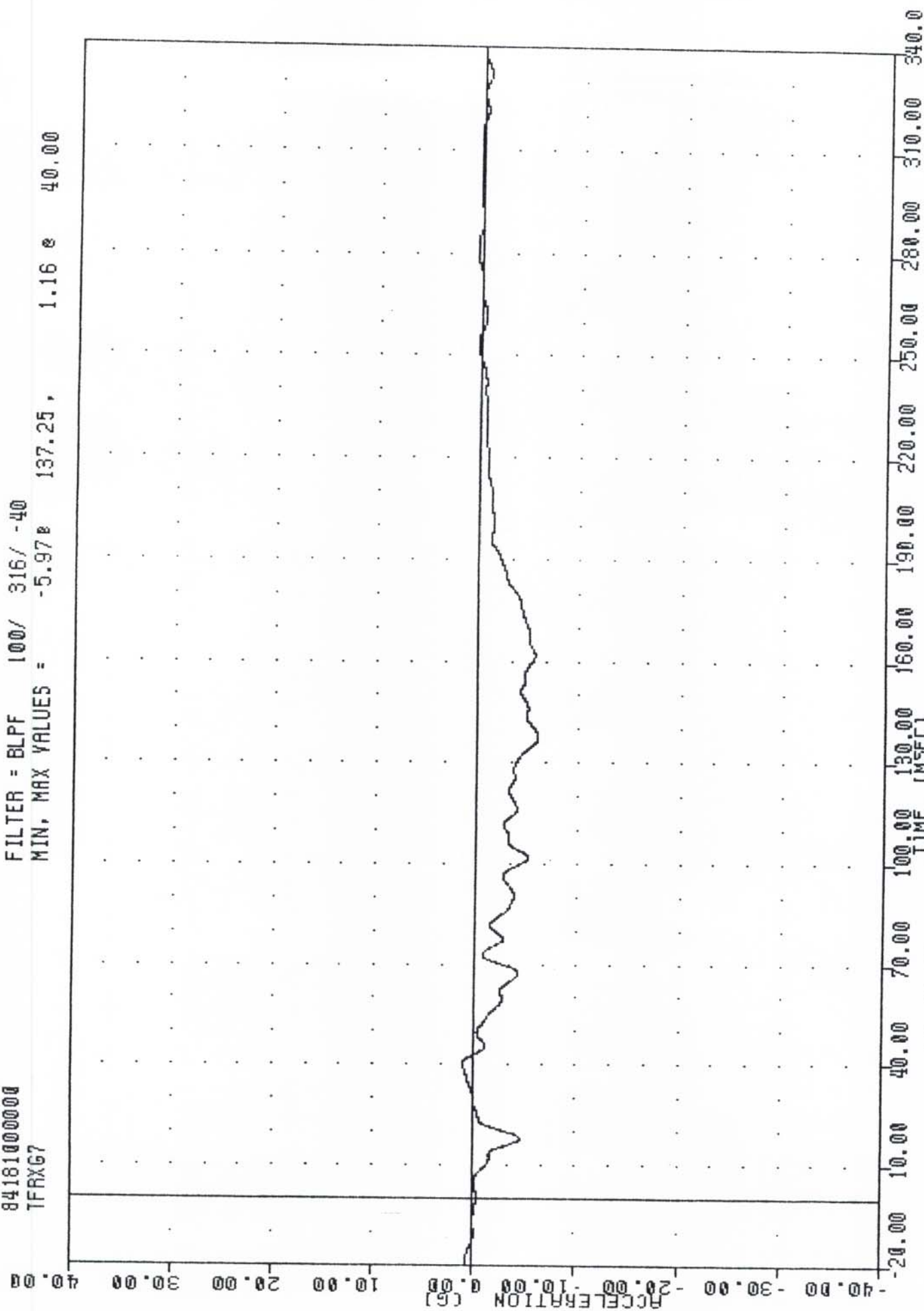
PL. DAT

..JG-L

..J6:20

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -5.97e 137.25, 1.16e 40.00



B-102

PLC DATE 1..6:2

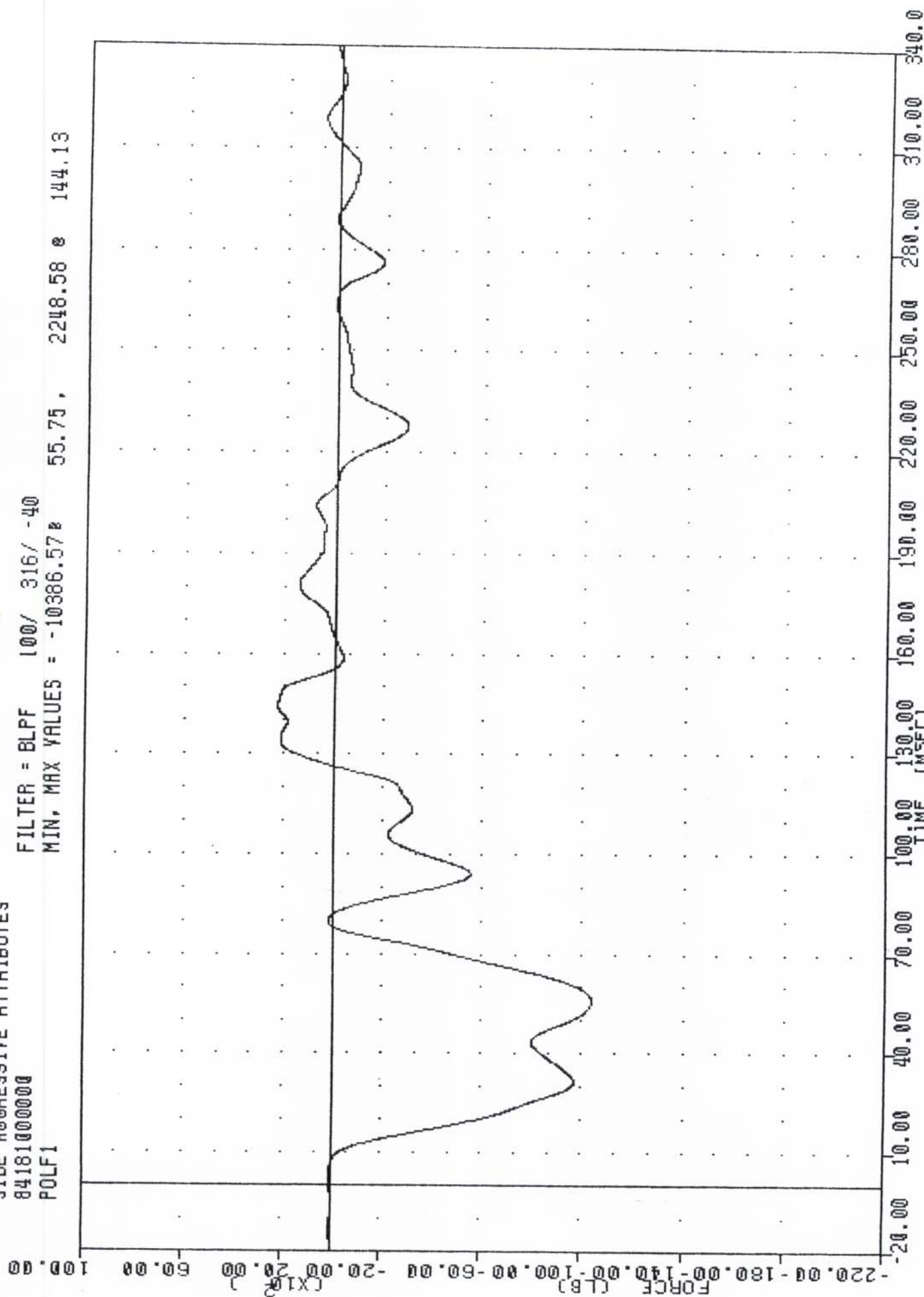
SIDE AGGRESSIVE ATTRIBUTES

84181000000

POLF1

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -10386.57 55.75, 2248.58 144.13



062
SIDE AGGRESSIVE ATTRIBUTES

84181000000

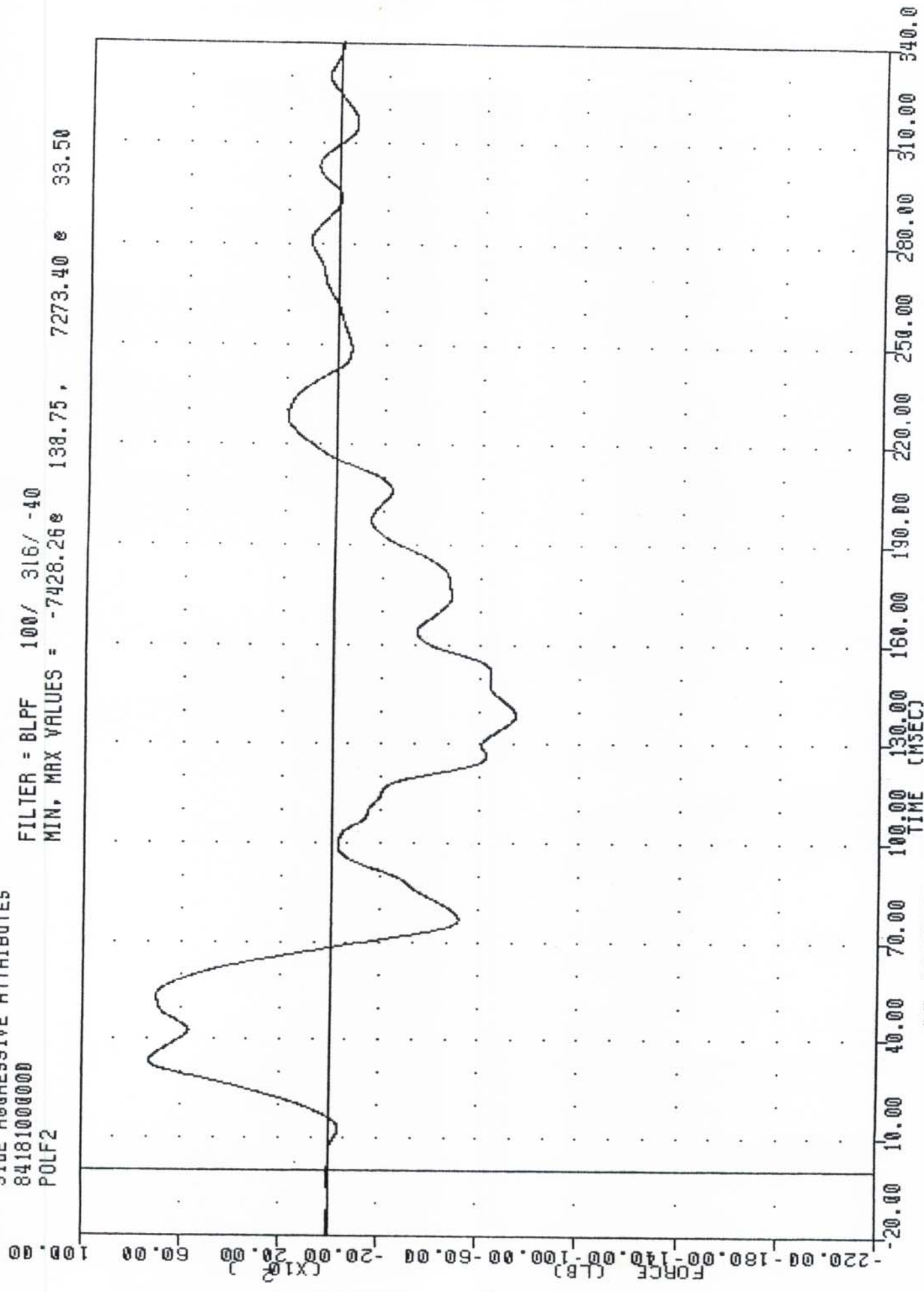
POLF2

PL... DATE

1..6:2

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -7428.26e 138.75, 7273.40 e 33.50



45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
FIXED POLE FORCE 2

PL 023
023
SIDE AGGRESSIVE ATTRIBUTES

84181000000

POLFS

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -12785.74 45.00 , 1686.71 317.00

100.00
60.00
20.00
-20.00
-60.00
-100.00
-140.00
-180.00
-220.00

(X10²)

FORCE (LBS)

-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)

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
FIXED POLE FORCE 3

004
SIDE AGGRESSIVE ATTRIBUTES

84181000000

POLF4

FILTER = BLPF

100/ 316/ -40

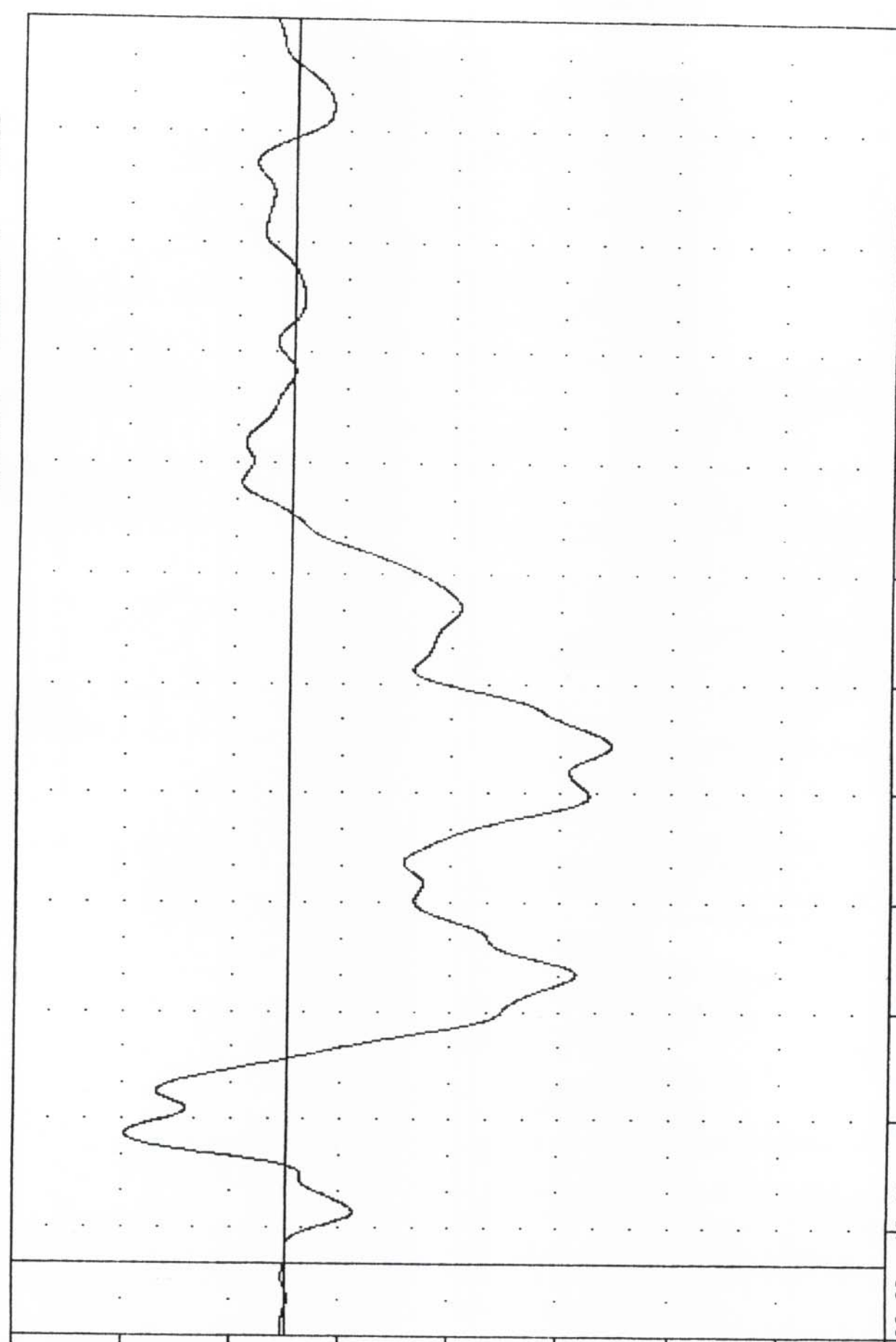
MIN. MAX VALUES = -11845.76e

143.00,

5868.76 e

35.88

100.00 60.00 20.00 00 20.00 60.00 100.00 140.00 180.00 220.00 260.00 300.00 340.00



TIME (MSEC)

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
FIXED POLE FORCE 4

SIDE AGGRESSIVE HITRAILBUIES

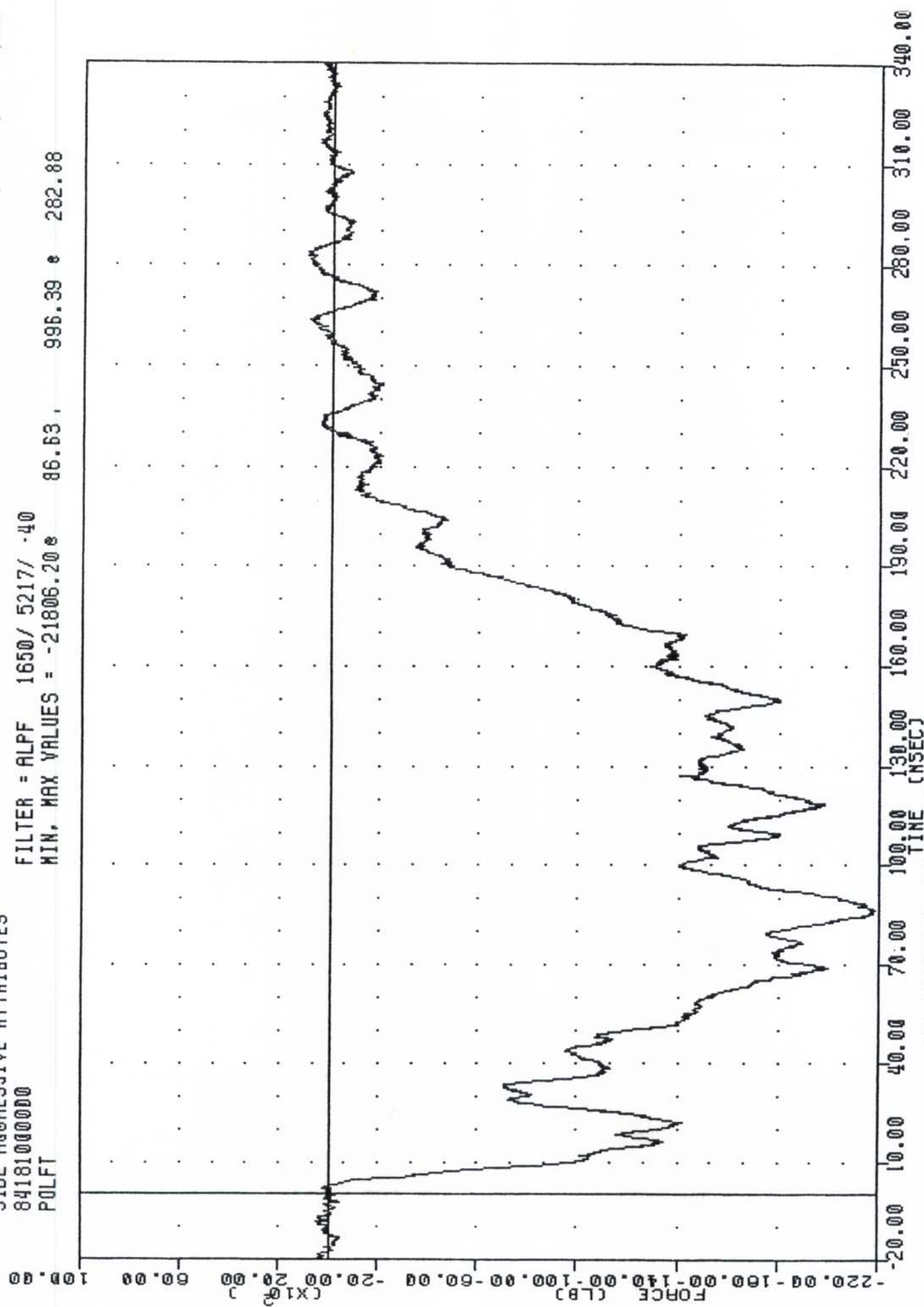
84181000000

POLFT

FILTER = ALPF 1650/ 5217/ -40

MIN, MAX VALUES = -21806.20 86.63,

996.39 282.88

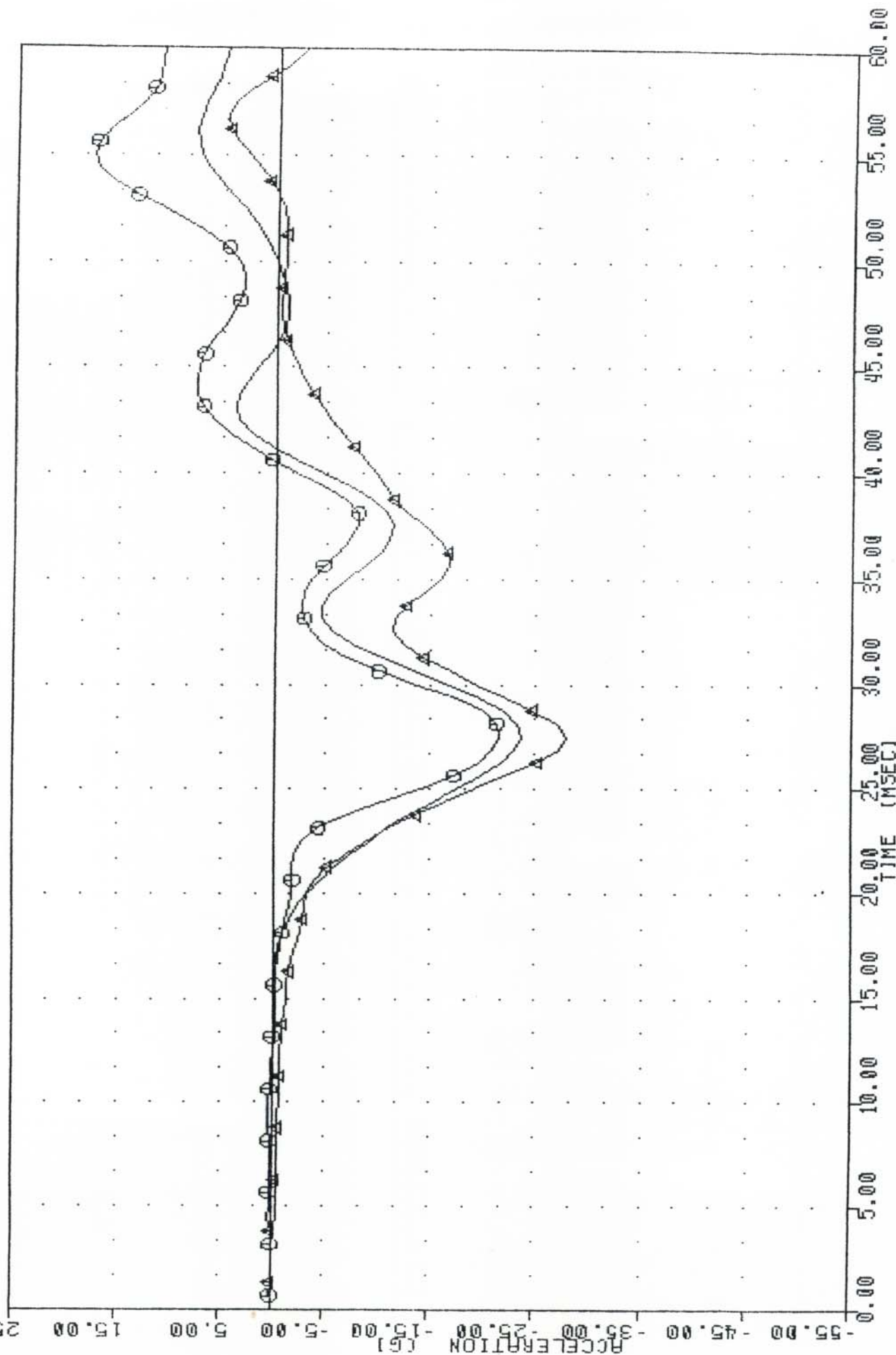


B-107

45 DEGREE CRABBED VOLKSWAGEN RABBIT INTO FIXED POLE
TOTAL OF FOUR POLE CHANNELS

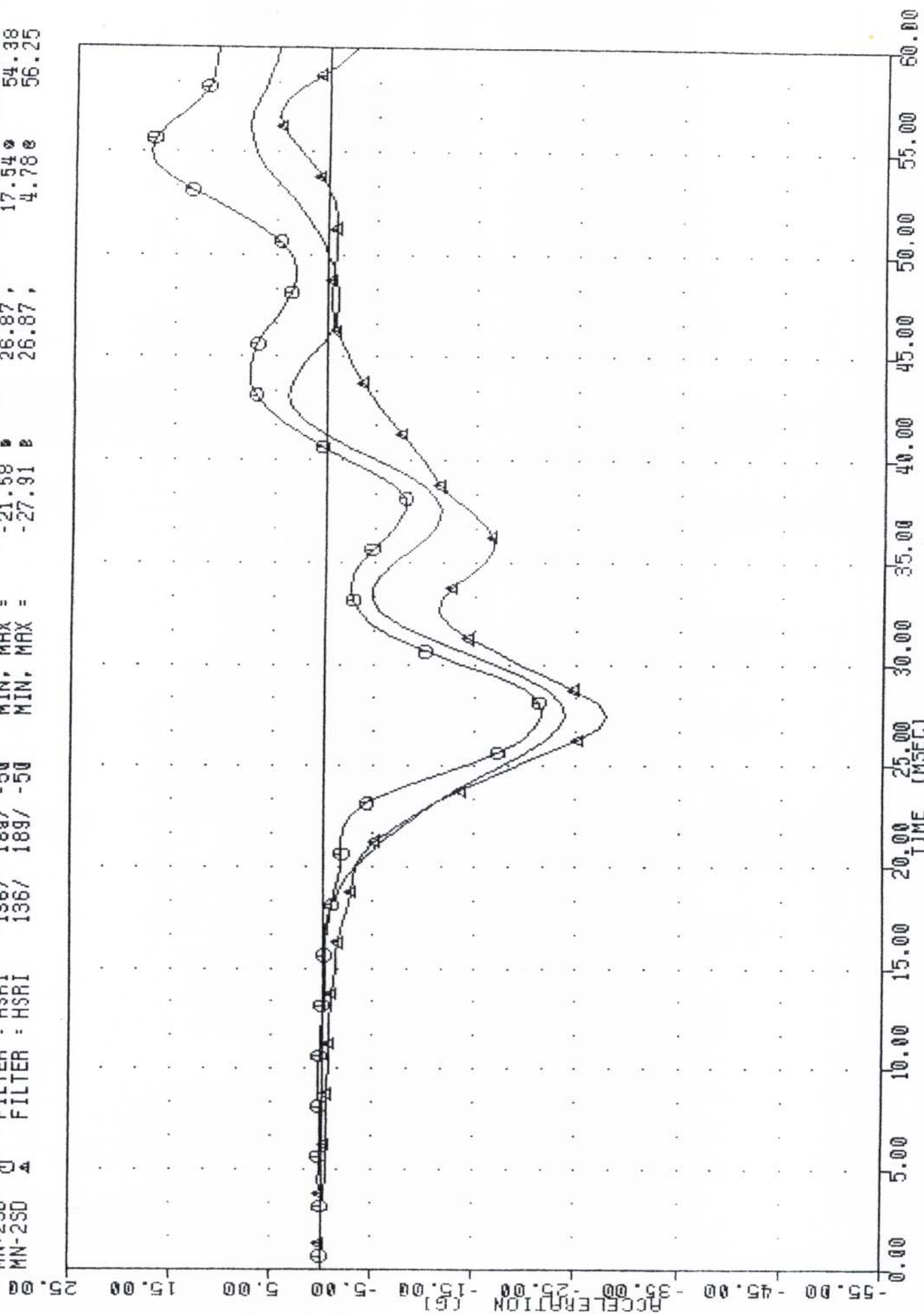
APPENDIX C
DUMMY CERTIFICATION

VRIC SRL92 • SI006106 SID THORAX 006 BODY 318 CAL106 84184 PLOT DATE 3-JUL-84 15:38:45
 TO1YGI FILTER = HSRI 136/ 189/ -50 MIN. MAX = -23.68 7.68 55.63
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -21.58 7.68 54.38
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -27.91 26.87 56.25

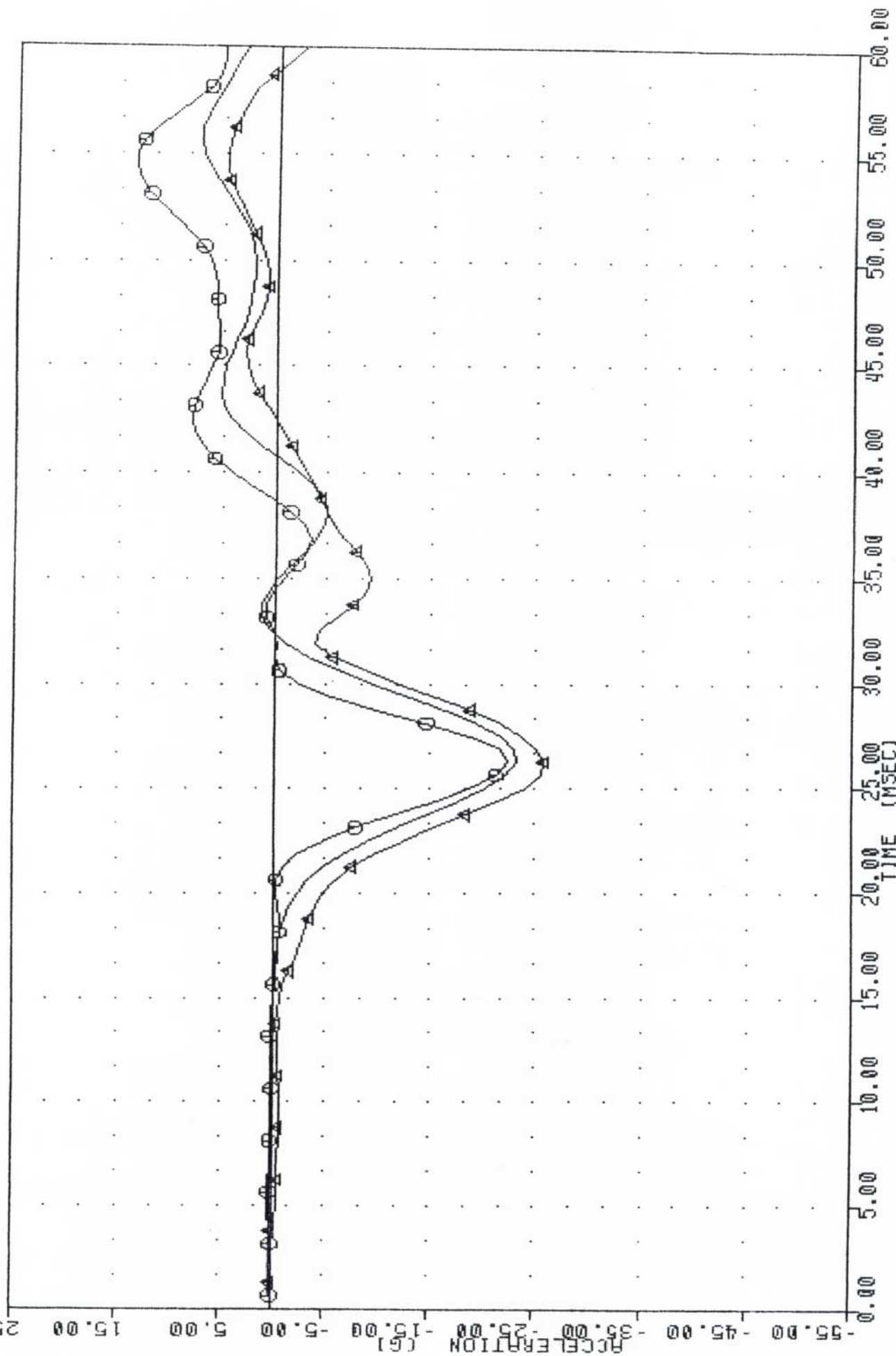


SIDE IMPACT TEST (006)
 UPPER SPINE ACCELERATION Y AXIS - 1

VRIC SRL92 • SI006106 SID THORAX 006 BODY 318 CAL106 84184 PLOT DATE 3-JUL-84 15:40:45
 TOIYGA FILTER = HSRI 136/ 189/ -50 MIN. MAX = -23.83 7.70 55.63
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -21.58 7.70 54.38
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -27.91 4.78 56.25

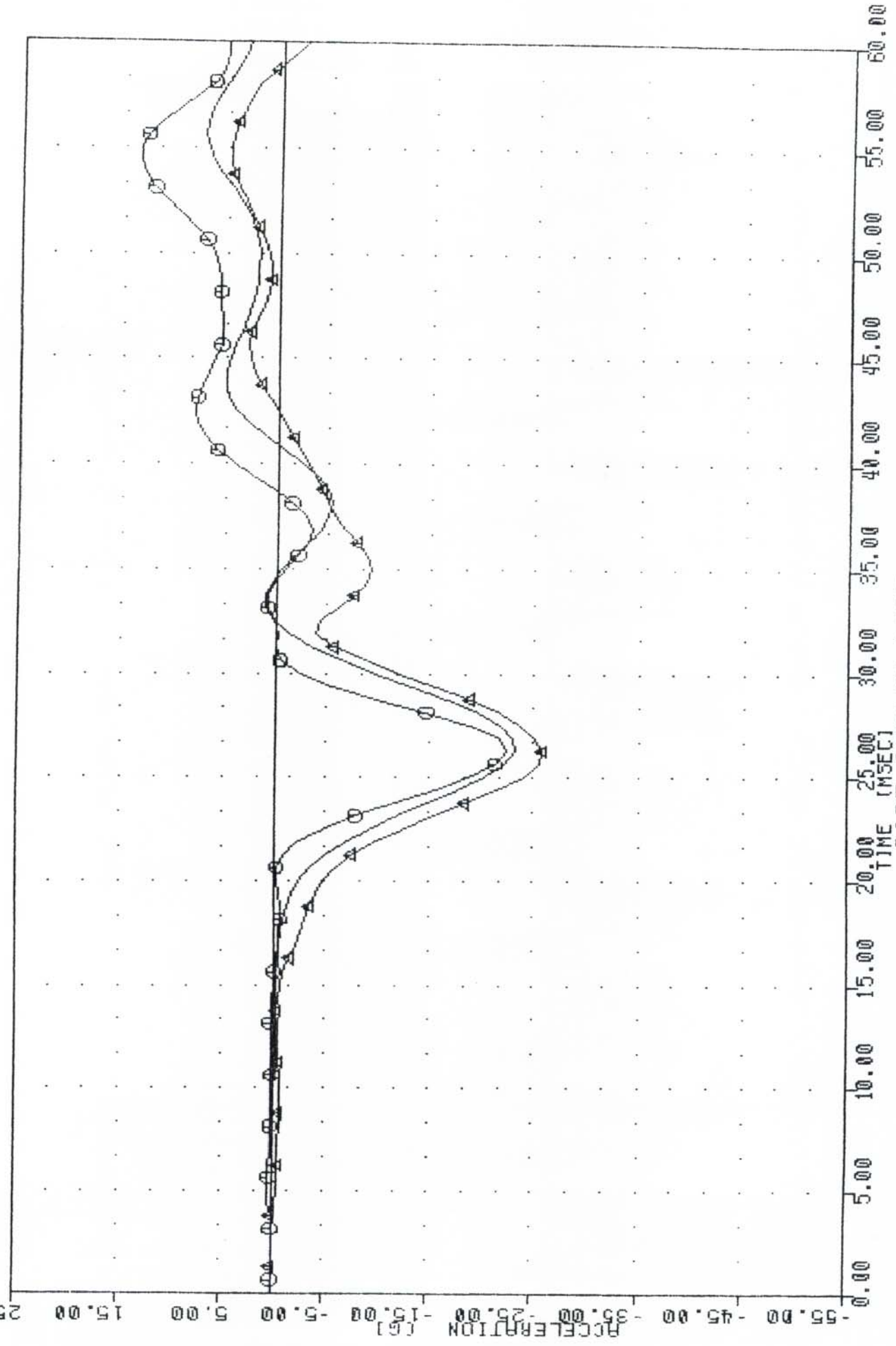


VRIC SRL92 • SI006106 SID THORAX 006 BODY 318 CAL106 84184 PLOT DATE 5-JUL-84 14:50:19
 T12Y61 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -23.17 7.35 55.00
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -22.37 13.54 53.75
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN. MAX = -25.84 4.85 53.75



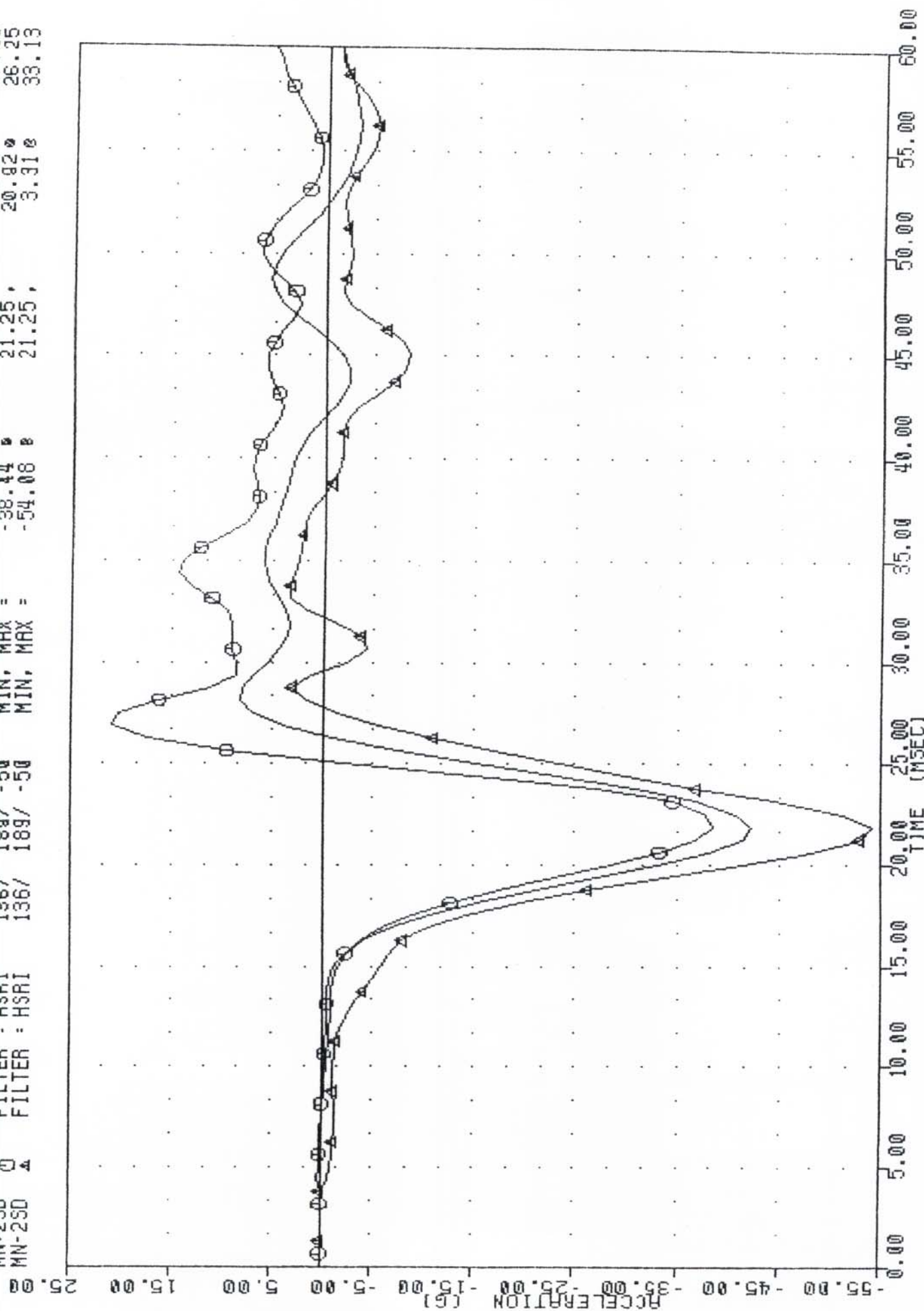
SIDE IMPACT TEST (006)
 LOWER SPINE ACCELERATION Y AXIS - 1

VRIC SRL92 • SI006106 SID THORAX 006 BODY 318 CAL106 84184 PLOT DATE 5-JUL-84 14:52:40
 T12YGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -23.17 7.23 55.00
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -22.37 13.54 53.75
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.84 25.63 53.75

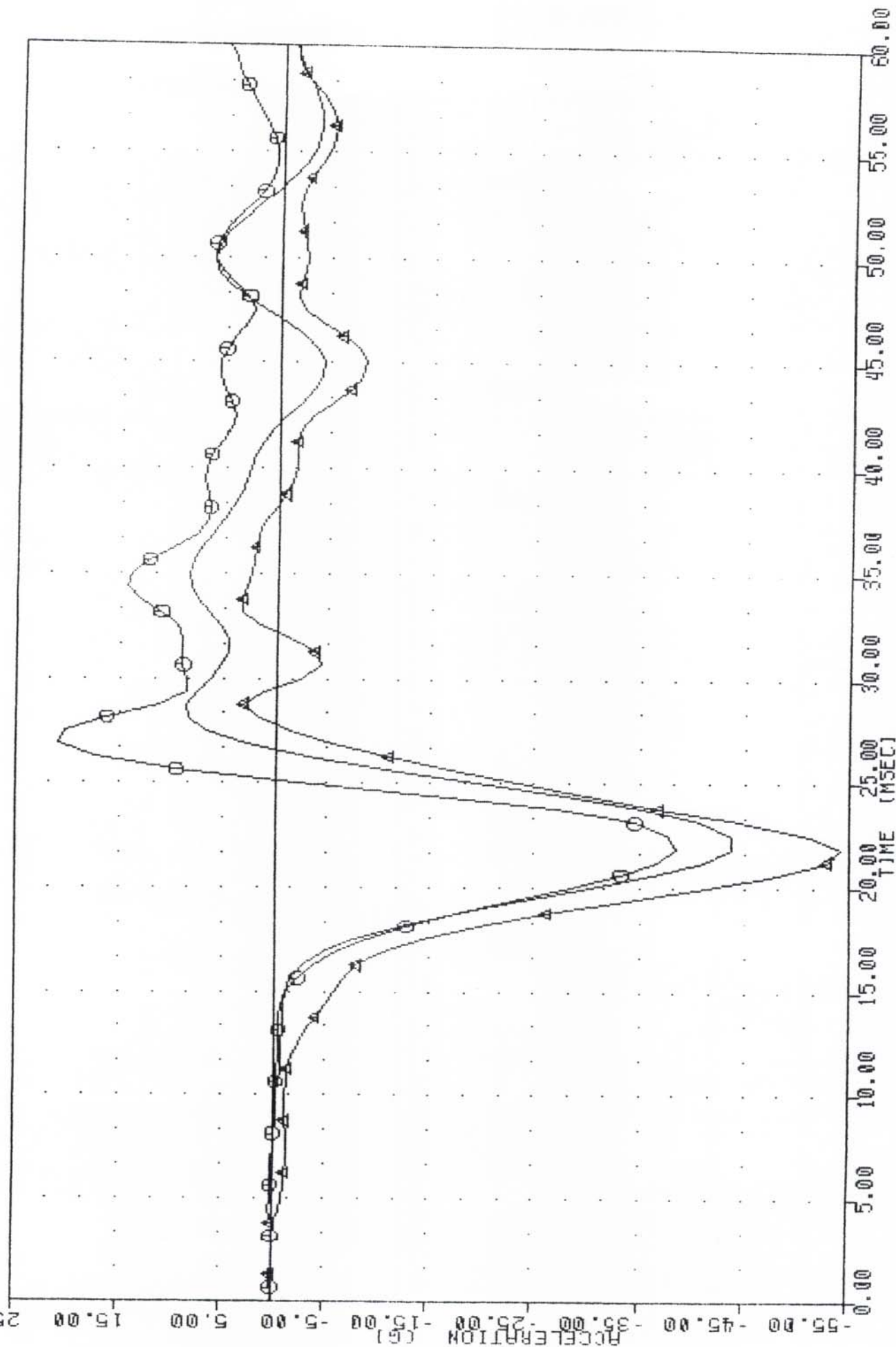


SIDE IMPACT TEST (006)
 LOWER SPINE ACCELERATION Y AXIS - A

VRIC SRL92 • SI006106 SID THORAX 006 BODY 318 CAL106 84184 PLOT DATE 5-JUL-84 14:58:16
 LURYGI FILTER = HSRI 136/ 189/ -50 MIN. MAX = -42.40 8 21.25 8 8.08 8 27.50
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -38.44 8 21.25 8 20.82 8 26.25
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -54.08 8 21.25 8 3.31 8 33.13

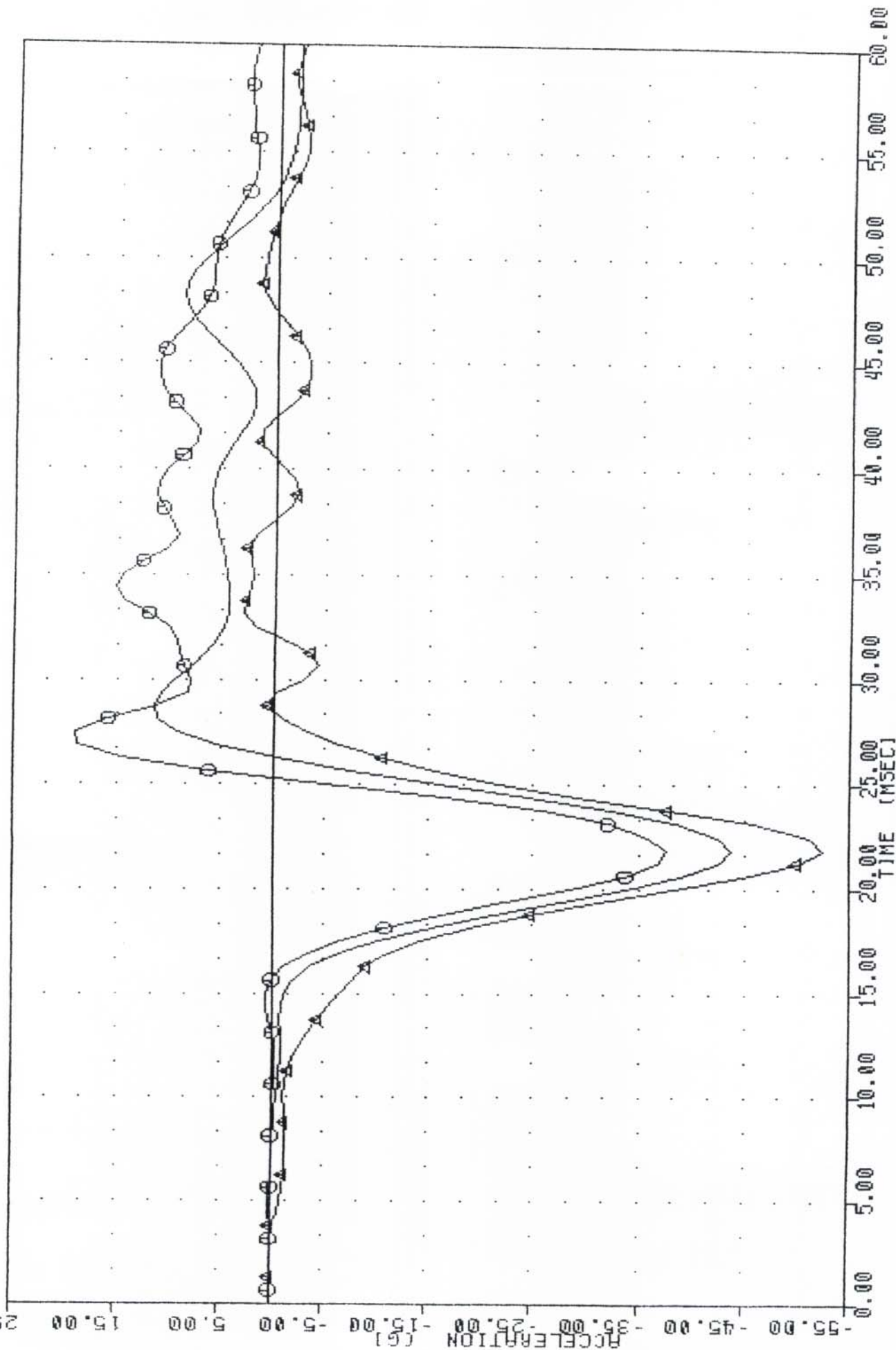


VRTC SRL92 • SI006106 SID THORAX 006 BODY 318 CAL106 84184 5-JUL-84 14:53:59
 LURYGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -43.79 8.54 28.13
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -38.44 20.92 26.25
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -54.08 3.31 33.13



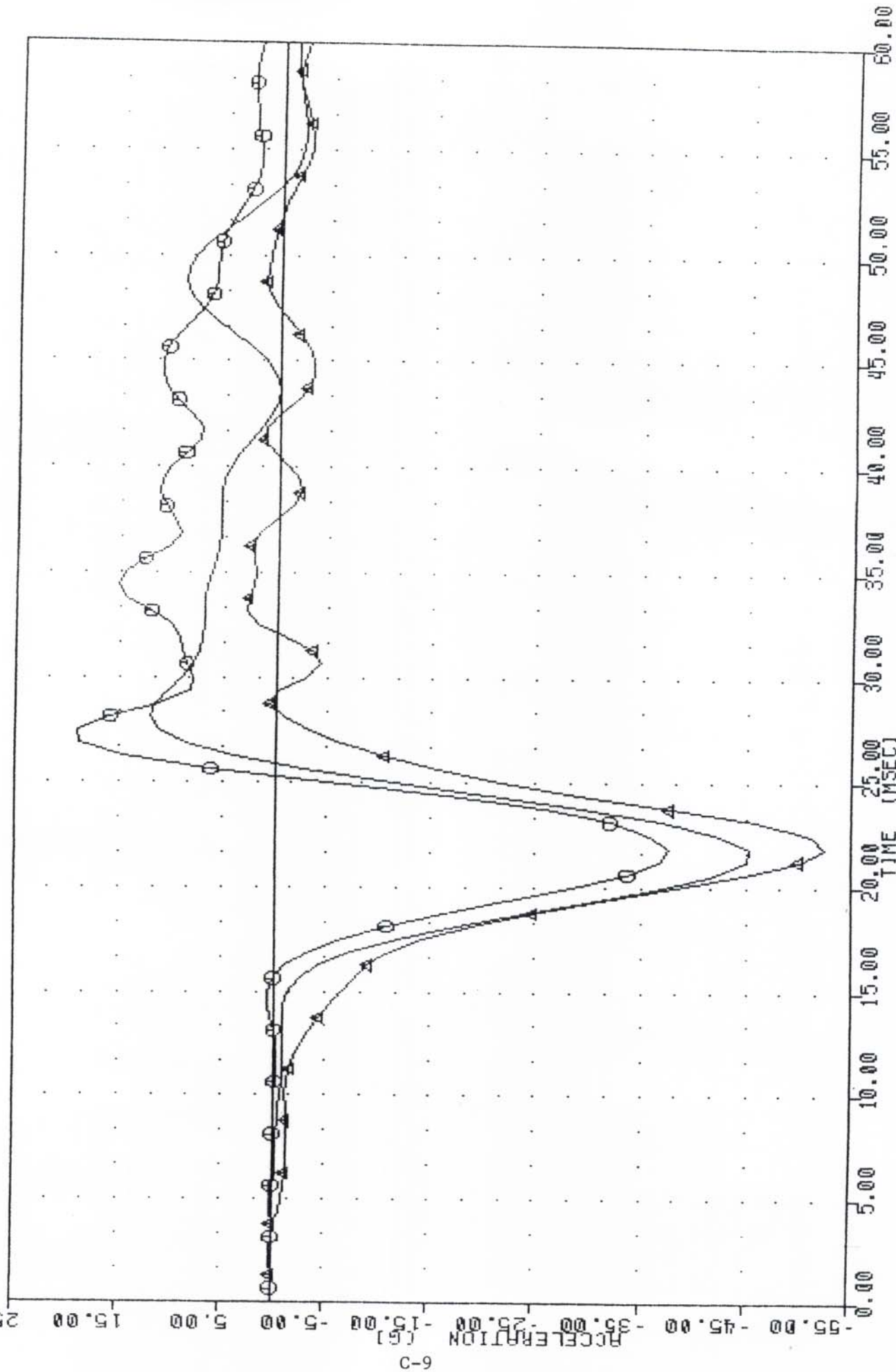
SIDE IMPACT TEST (006)
 LEFT UPPER AIR ACCELERATION Y AXIS - A

VRIC SRL92 • SI006106 SID THORAX 006 BODY 318 CAL106 84184 PLOT DATE 5-JUL-84 14:55:16
 LLRYG1 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -43.83 21.25 11.46 28.13
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -37.66 21.25 19.00 26.87
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -52.52 21.25 2.94 32.50



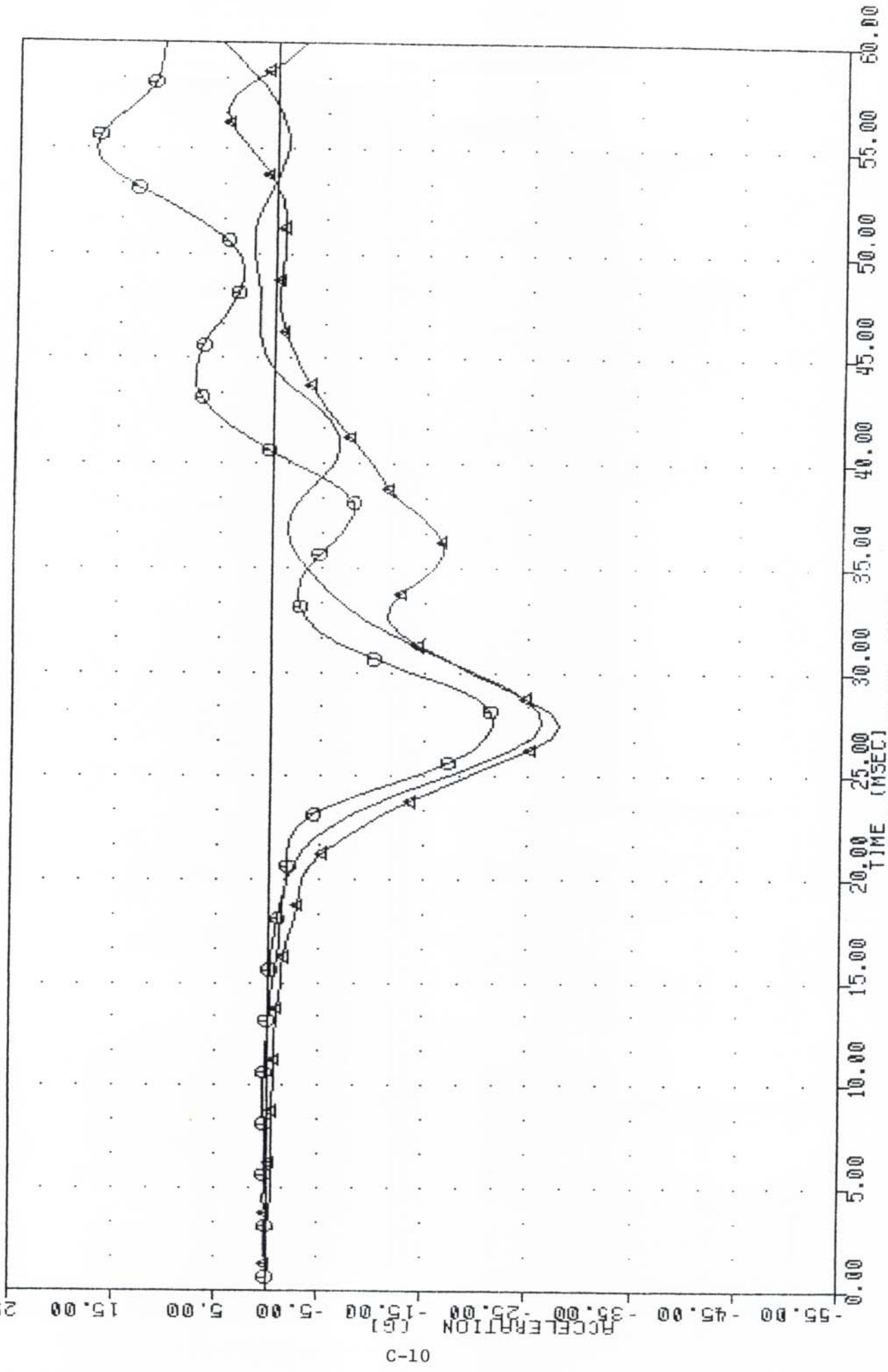
SIDE IMPACT TEST (006)
 LEFT LOWER RIR ACCELERATION Y AXIS - 1

VRTC SRL92 • SI006106 SID THORAX 006 BODY 318 CAL106 84184 5-JUL-84 14:56:13
 LLRYGA FILTER : HSRI 136/ 189/ -50 MIN. MAX = -45.29 21.25 27.50
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -37.66 21.25 26.87
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -52.52 21.25 32.50



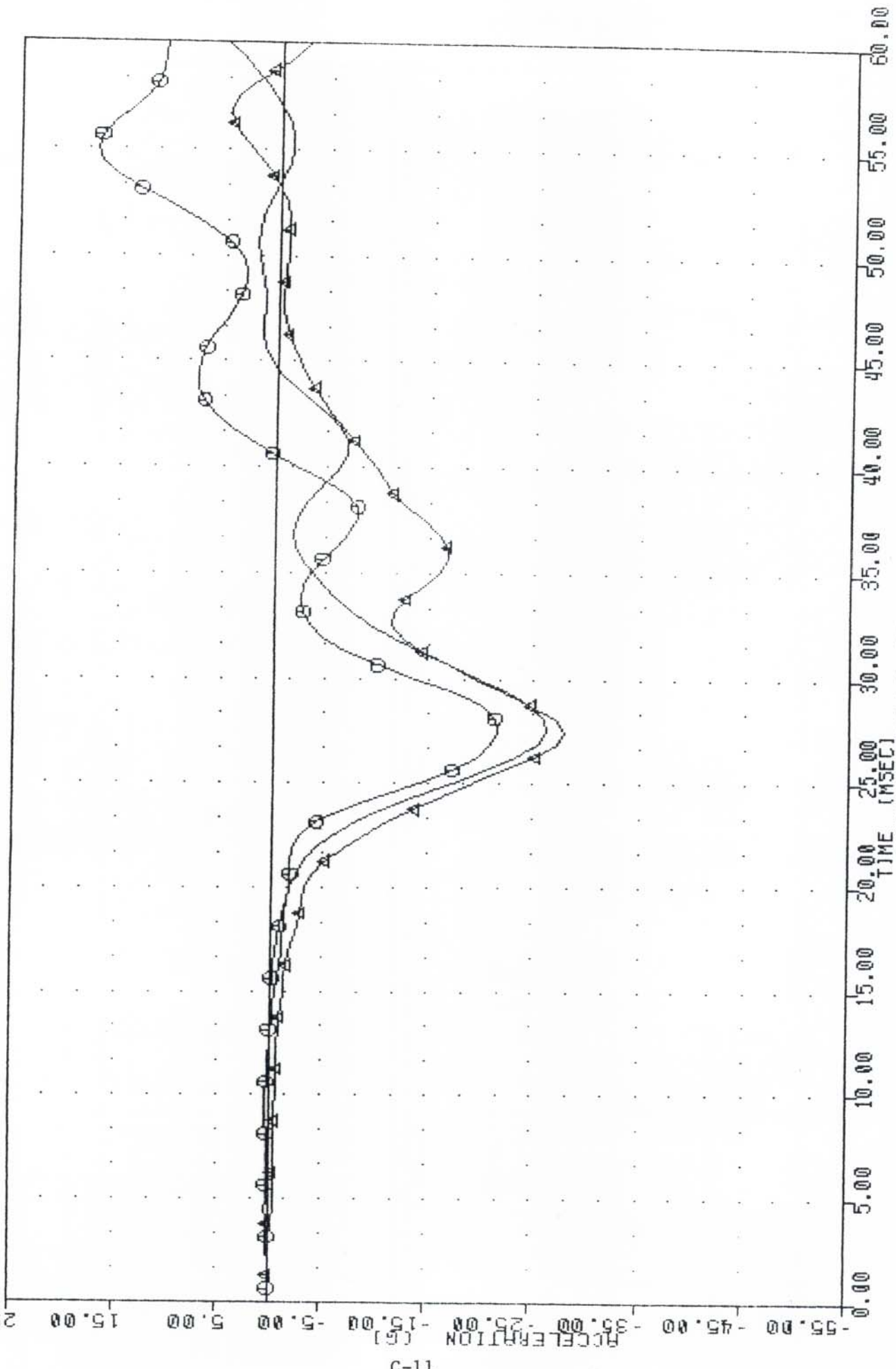
SIDE IMPACT TEST (006)
 LEFT LOWER RIR ACCELERATION Y AXIS - A

VRIC SRL92 • SIU02107 SID THORAX U02 BODY 830 CAL107 84185 PLOT DATE 3-JUL-84 15:38:12
 TO1YGI FILTER : HSRI 136/ 189/ -50 MIN, MAX = -26.18 6.93 60.00
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -21.58 17.54 54.38
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -27.91 26.87 56.25



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

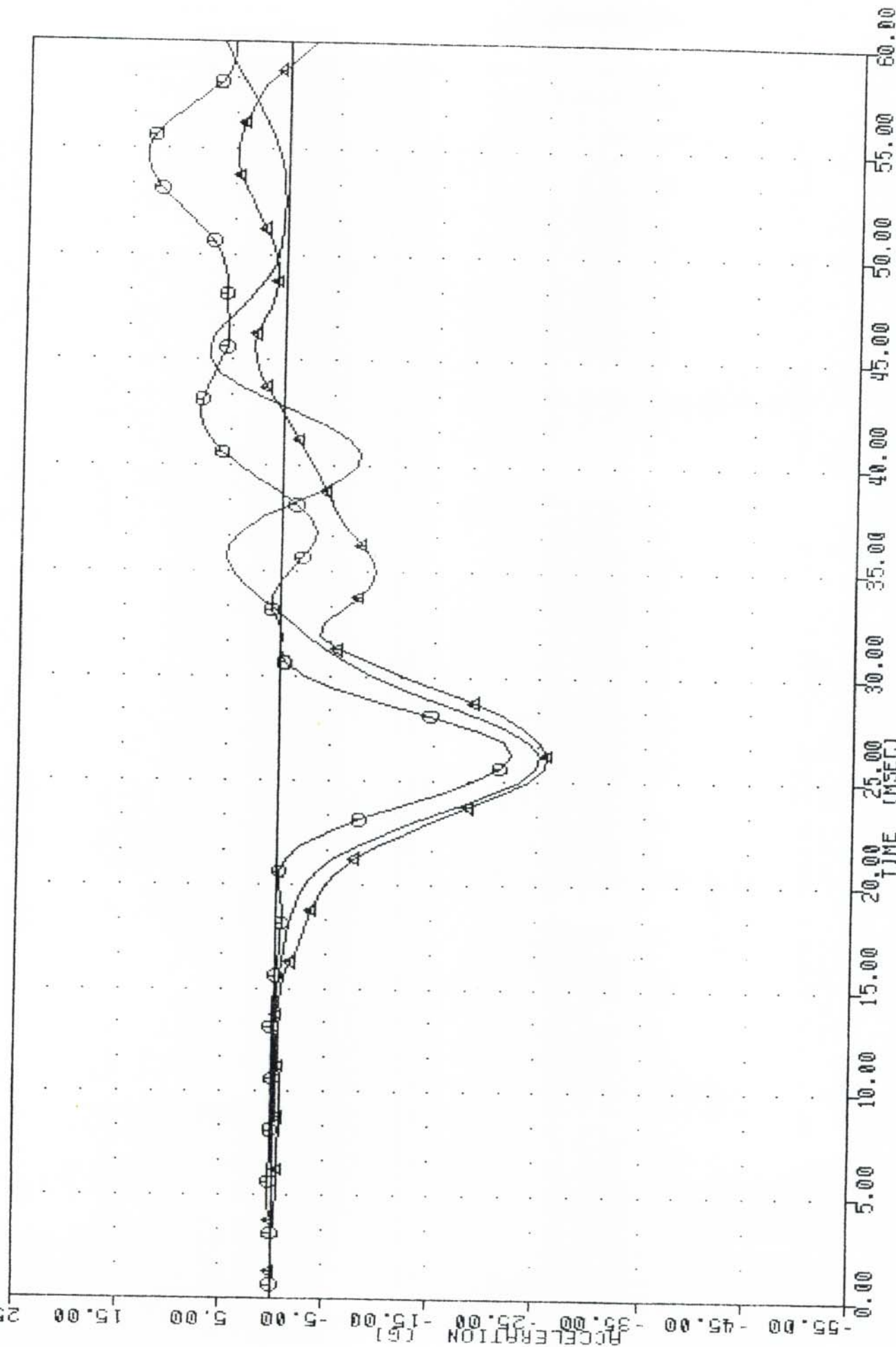
VRTC SRL92 • SIU02107 SID THORAX U02 BODY 830 CAL107 84185 3-JUL-84 15:40:05
 T01YGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -26.23 6.83 60.00
 MN-2SD U FILTER : HSRI 136/ 189/ -50 MIN, MAX = -21.58 17.54 54.38
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -27.91 4.78 56.25



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

VRIC SRL92 • SIU02107 SID THORAX U02 BODY 830 CAL107 84185
 T12Y61 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.08 25.63
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -22.37 25.63
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.84 25.63

3-JUL-84 15:43:01
 7.19 45.00
 13.54 53.75
 4.85 53.75



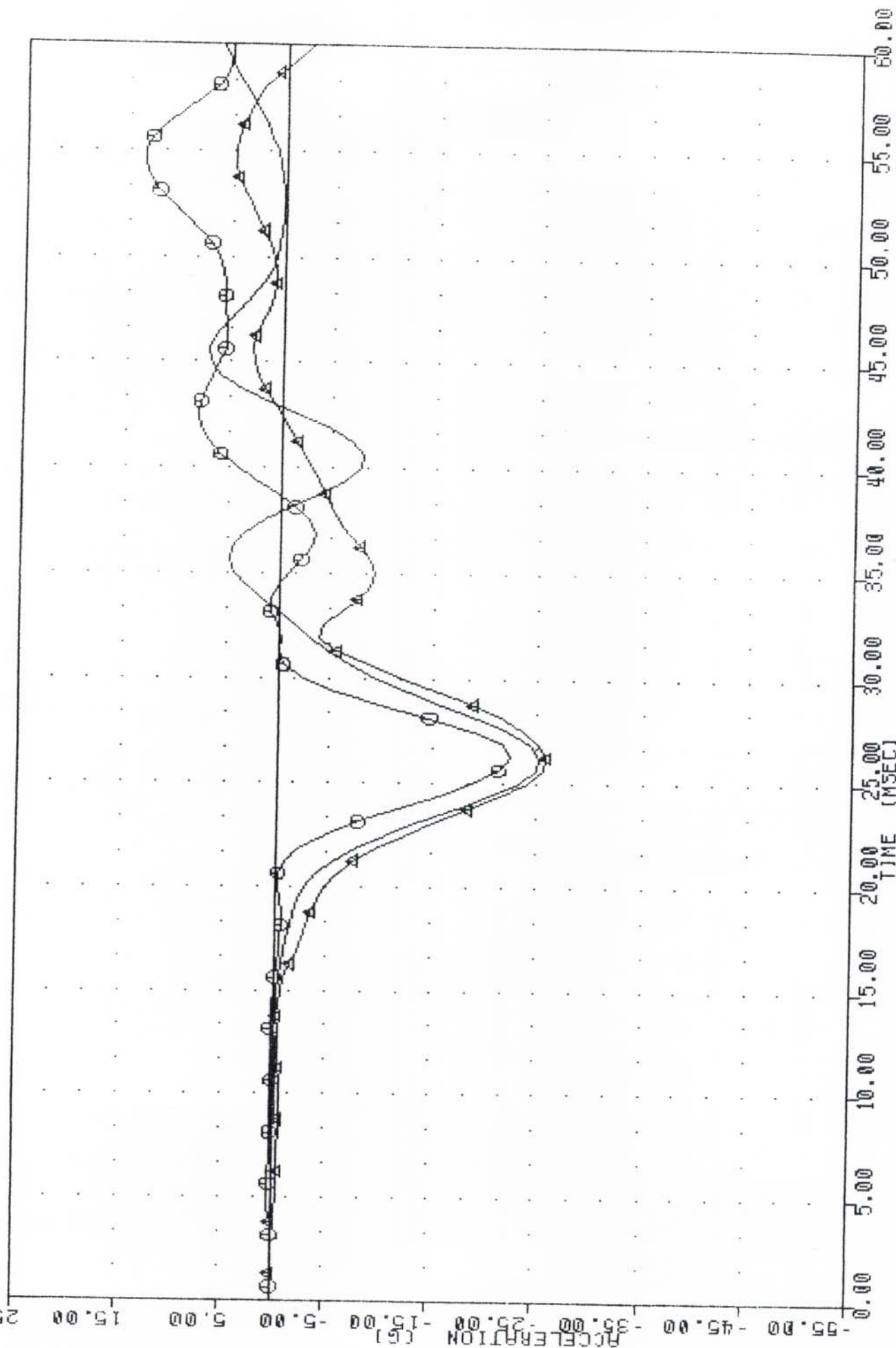
C-12

SIDE IMPACT TEST (U02)

LOWER SPINE ACCELERATION Y AXIS - 1

VRTC SRL92 , SIU02107 SID THORAX U02 BODY 830 CAL107 84185
 T12YGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.22 25.63
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -22.37 25.63
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.84 25.63

5-JUL-84 14:51:21
 7.09 45.00
 13.54 53.75
 4.85 53.75

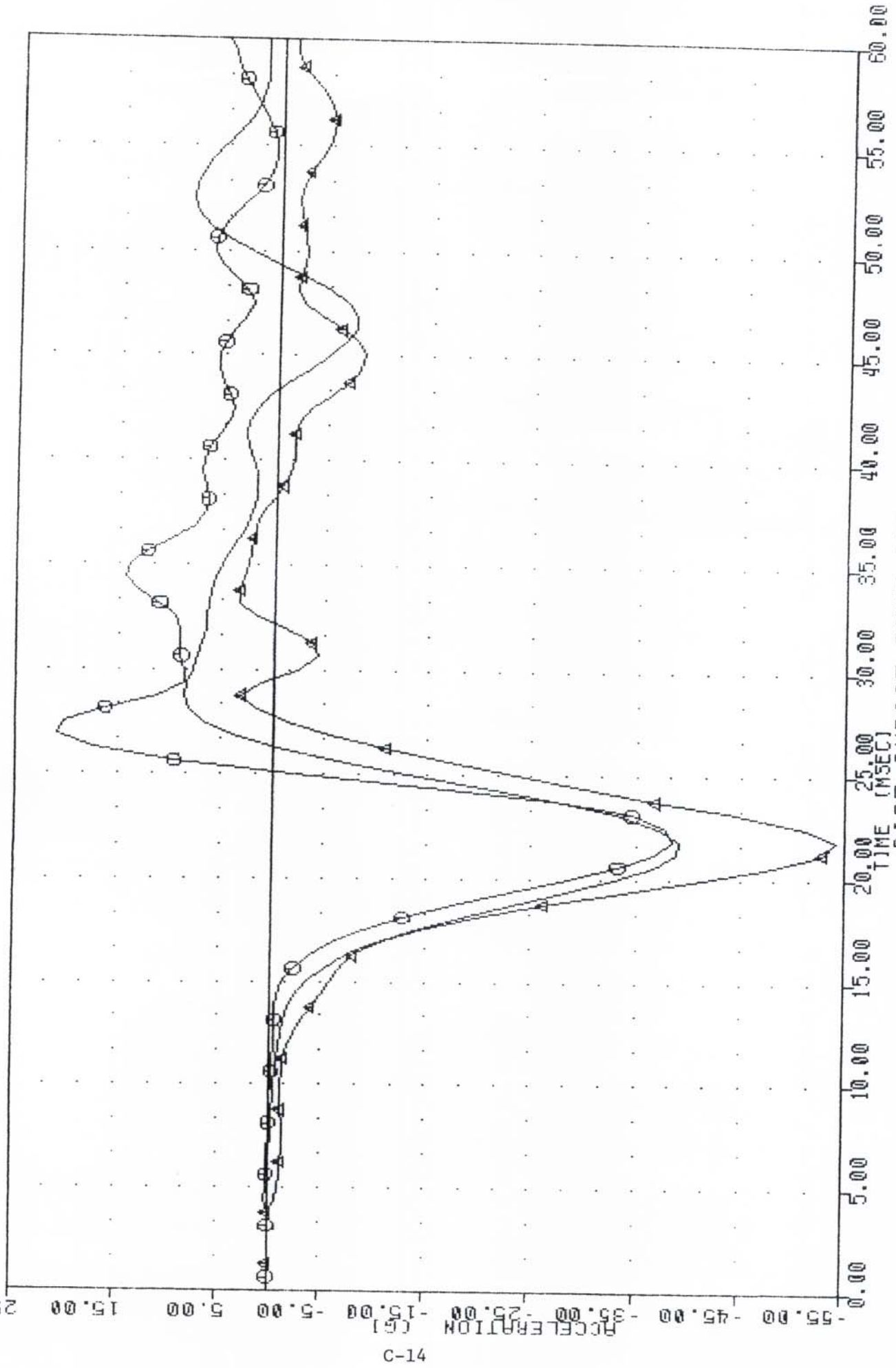


SIDE IMPACT TEST (U02)

INWER SPTMF ACCELERATION Y AXIS - A

WRTC SRL92 • SIU02107 SID THORAX U02 BODY 830 CAL107 84185
 LURVGI FILTER : HSRI 136/ 189/ -50 MIN, MAX = -39.13 e
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -38.44 e
 MN-2SD A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -54.08 e

PLOT DATE 5-JUL-84 14:57:43
 21.25 28.13
 21.25 28.25
 21.25 33.13

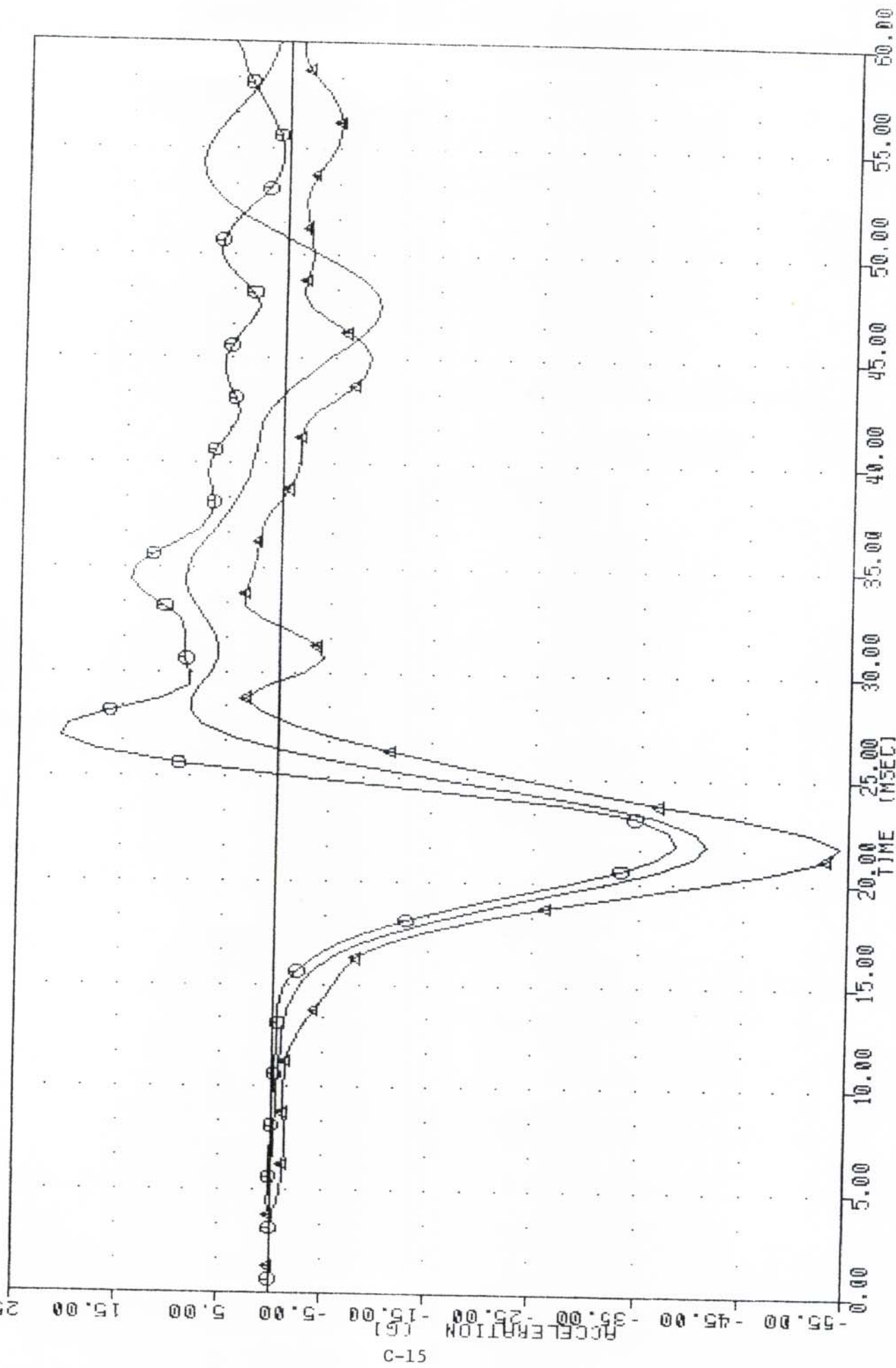


SIDE IMPACT TEST (U02)

LEFT UPPER RIB ACCELERATION Y AXIS - 1

VRTC SRL92 • SIU02107 SID THORAX U02 BODY 830 CAL107 84185
 LURYGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -41.50
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -38.44
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -54.08

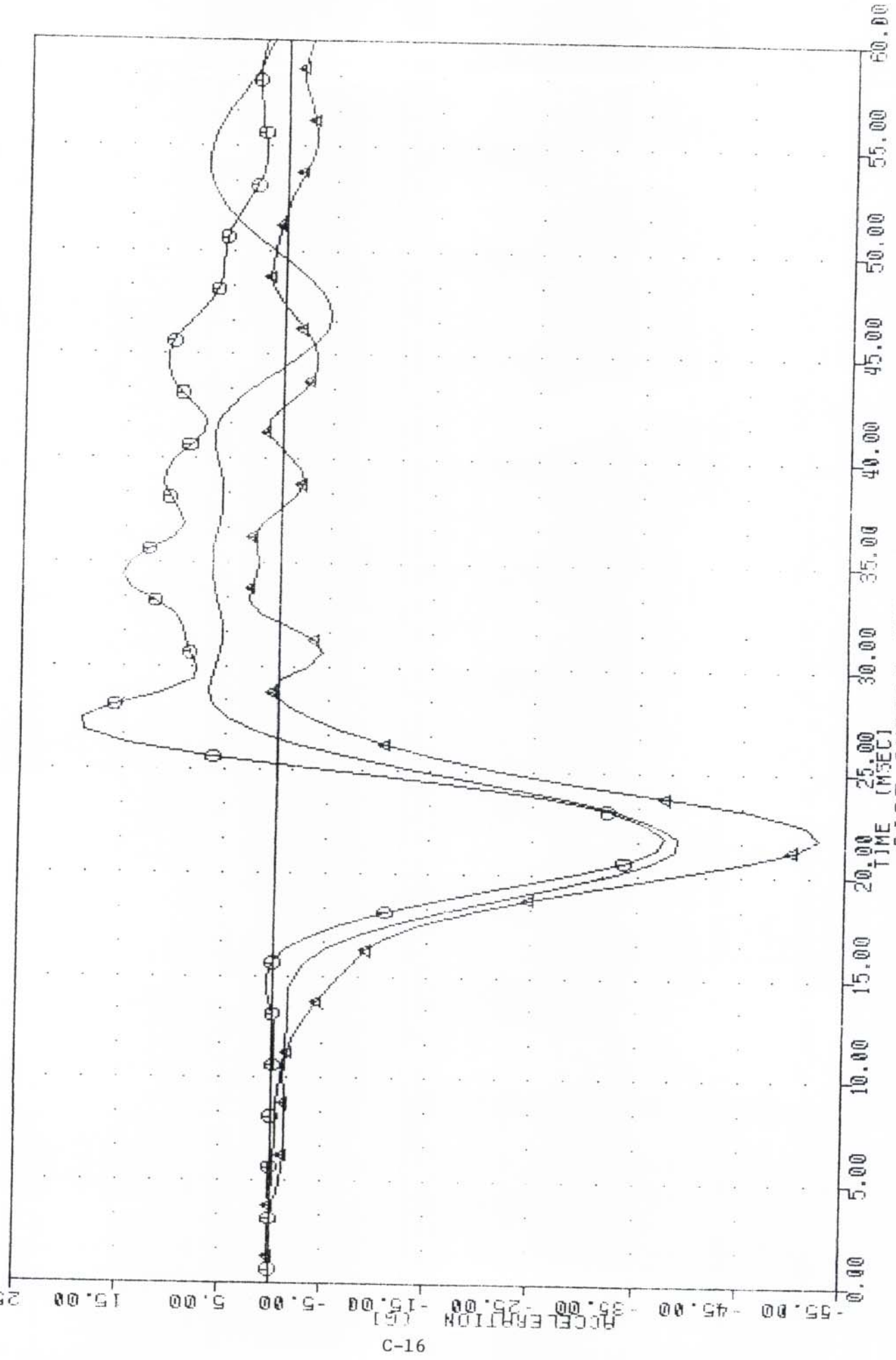
5-JUL-84 14:55:42
 21.25, 9.03e 33.75
 21.25, 20.82e 26.25
 21.25, 3.31e 33.13



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

VRIC SRL92 • SIU02107 SID THORAX U02 BODY 830 CAL107 84185
 LLRYG1 FILTER : H3RI 136/ 189/ -50 MIN, MAX = -38.91 21.25
 MN-2SD 0 FILTER : H3RI 136/ 189/ -50 MIN, MAX = -37.66 21.25
 MN-2SD A FILTER : H3RI 136/ 189/ -50 MIN, MAX = -52.52 21.25

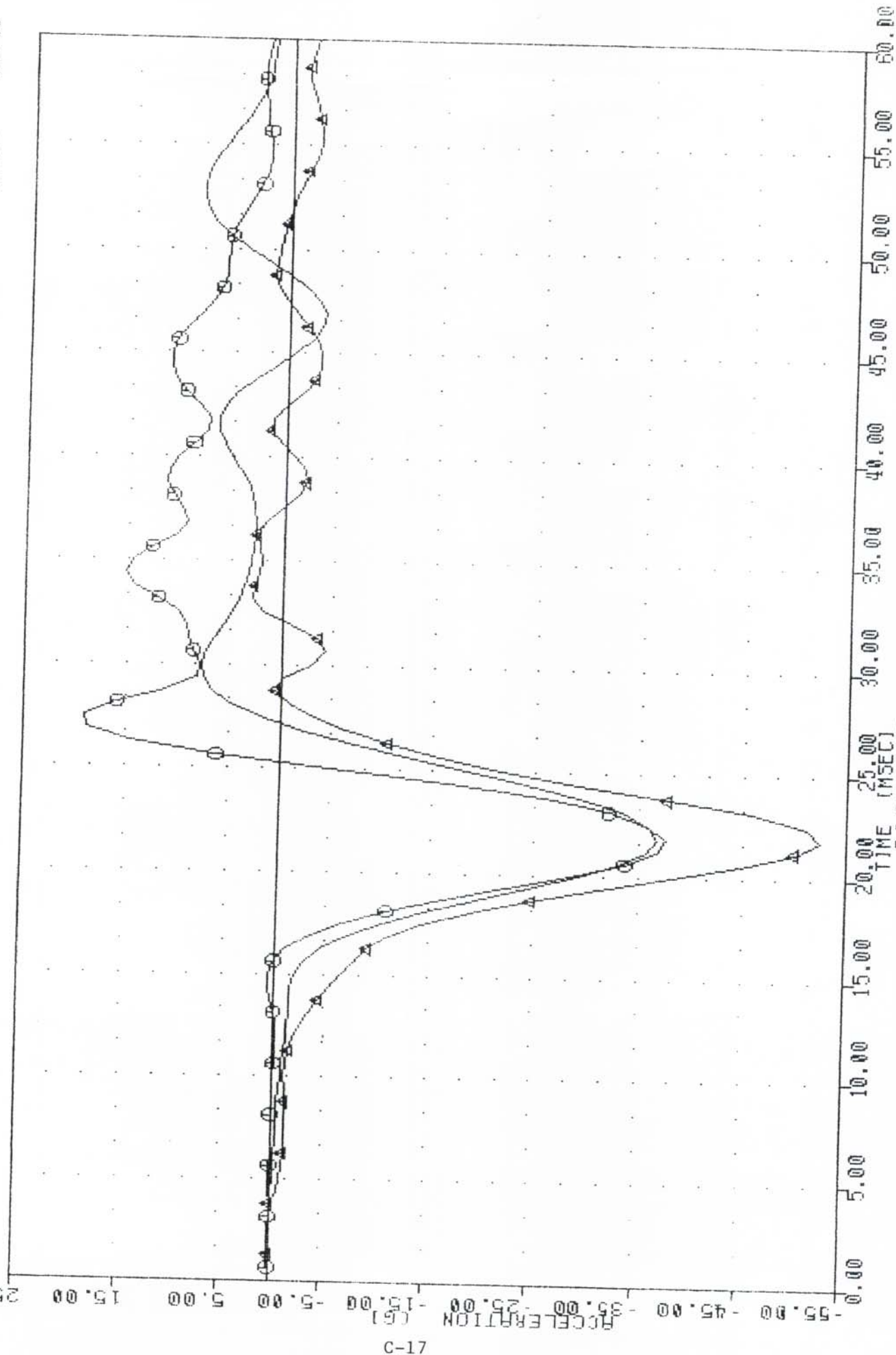
5-JUL-84 14:53:29
 7.60 53.75
 19.00 26.87
 2.94 32.50



SIDE IMPACT TEST (U02)

LEFT LOWER RIB ACCELERATION Y AXIS - 1

VRIC SRL92 • SIU02107 SID THORAX U02 BODY 830 CAL107 84185 PLOT DATE 5-JUL-84 14:54:28
 LLYGHA FILTER : HSRI 136/ 189/ -50 MIN. MAX = -36.73 8.36 51.88
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -37.66 10.00 26.87
 MN-2SD 4 FILTER : HSRI 136/ 189/ -50 MIN. MAX = -52.52 2.94 32.50



SIDE IMPACT TEST (U02)

LEFT LOWER RIB ACCELERATION Y AXIS - A