

EVALUATION OF THE BIOSID DUMMY
MDB-TO-CAR SIDE IMPACT TEST OF A 26° CRABBED
MOVING DEFORMABLE BARRIER
1988 FORD TAURUS
4-DOOR SEDAN
33.5 MPH

PREPARED BY:
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FINAL REPORT
MAY - JUNE, 1990

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
400 SEVENTH STREET, S.W.
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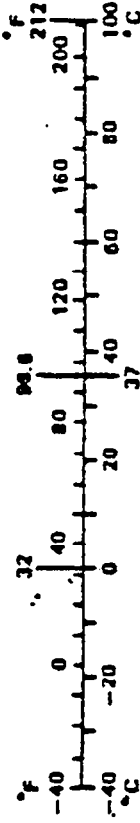
METRIC CONVERSION FACTORS

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	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	
	(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



Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.																												
4. Title and Subtitle EVALUATION OF THE BIOSID DUMMY MDB-To-Car Side Impact Test of a 26° Crabbed Moving Deformable Barrier into a 1987 Ford Taurus 4-door sedan at 33.5 MPH		5. Report Date MAY - JUNE, 1990																												
		6. Performing Organization Code																												
7. Author(s) N.A. El-Habash, Project Engineer, TRC		8. Performing Organization Report No. 900514																												
9. Performing Organization Name and Address Vehicle Research and Test Center 10820 State Route 347 East Liberty, Ohio 43319		10. Work Unit No. (TRAIS)																												
		11. Contract or Grant No. DTNH22-88-C-07292																												
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration 400 Seventh St., S.W., Washington, D.C. 20590		13. Type of Report and Period Covered FINAL REPORT MAY - JUNE, 1990																												
		14. Sponsoring Agency Code																												
15. Supplementary Notes This test was conducted as part of VRTC Project No. VRTC-89-0138 Evaluation of the BioSid Dummy																														
16. Abstract This test report documents a crash test to evaluate the response of BioSid dummies in a moving deformable barrier into stationary vehicle side impact crash test. Testing was conducted on a 1988 Ford Taurus 4-door Sedan at the TRC Crash Test Facility, East Liberty, Ohio. The test vehicle was impacted on the left side by a moving deformable barrier, crabbed to 26°, at 33.5 mph. The test was a simulation of a 90° intersection collision with the striking vehicle travelling 30 mph and the struck vehicle travelling at 15 mph. Occupant responses of two side impact dummies were measured. One dummy was located in the driver's designated seating position and one was located in the left rear seating position. The test date was May 14, 1990 and the ambient temperature was 70°F.																														
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17. Key Words BioSid Dummy Occupant Response Moving barrier Crash Testing		18. Distribution Statement Available from: National Technical Information Service Springfield, Virginia 22161																												
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages	22. Price																											

TABLE OF CONTENTS

SECTION	TITLE	PAGE
1.0	PURPOSE AND TEST SUMMMARY	1-1
2.0	GENERAL TEST AND VEHICLE PARAMETER DATA	2-1
3.0	DATA REQUIRED BY R&D	3-1
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	DATA PLOT PRESENTATION	B-1
APPENDIX C	DUMMY CERTIFICATION	C-1

LIST OF PHOTOGRAPHS

<u>DESCRIPTION</u>	<u>FIGURE</u>
PRE-TEST VEHICLE FRONT AND BARRIER VIEW	A-1
POST-TEST VEHICLE FRONT AND BARRIER VIEW	A-2
PRE-TEST VEHICLE RIGHT SIDE VIEW	A-3
POST-TEST VEHICLE RIGHT SIDE VIEW	A-4
PRE-TEST VEHICLE REAR AND BARRIER VIEW	A-5
POST-TEST VEHICLE REAR AND BARRIER VIEW	A-6
PRE-TEST VEHICLE LEFT AND BARRIER VIEW	A-7
PRE-TEST VEHICLE LEFT SIDE VIEW	A-8
PRE-TEST VEHICLE LEFT FRONT CLOSE-UP VIEW	A-9
POST-TEST VEHICLE LEFT FRONT CLOSE-UP VIEW	A-10
PRE-TEST VEHICLE LEFT REAR CLOSE-UP VIEW	A-11
POST-TEST VEHICLE LEFT REAR CLOSE-UP VIEW	A-12
PRE-TEST VEHICLE TOP - VIEW 1	A-13
PRE-TEST VEHICLE TOP - VIEW 2	A-14
POST-TEST VEHICLE TOP - VIEW 1	A-15
POST-TEST VEHICLE TOP - VIEW 2	A-16
PRE-TEST LEFT FRONT DOOR ACCELEROMETERS VIEW	A-17
PRE-TEST LEFT FRONT SILL ACCELEROMETER VIEW	A-18
PRE-TEST LEFT REAR DOOR ACCELEROMETERS VIEW	A-19
PRE-TEST LEFT REAR SILL ACCELEROMETER VIEW	A-20
PRE-TEST RIGHT FRONT SILL ACCELEROMETER VIEW	A-21
PRE-TEST RIGHT REAR SILL ACCELEROMETER VIEW	A-22
PRE-TEST TRUNK AREA ACCELEROMETER - VIEW 1	A-23
PRE-TEST TRUNK AREA ACCELEROMETER - VIEW 2	A-24
PRE-TEST DRIVER AND PASSENGER DUMMIES LEFT SIDE VIEW	A-25
POST-TEST DRIVER AND PASSENGER DUMMIES LEFT SIDE VIEW	A-26
PRE-TEST DRIVER AND PASSENGER DUMMIES RIGHT SIDE VIEW	A-27
POST-TEST DRIVER AND PASSENGER DUMMIES RIGHT SIDE VIEW	A-28
PRE-TEST DRIVER DUMMY - VIEW 1	A-29
PRE-TEST DRIVER DUMMY - VIEW 2	A-30
PRE-TEST DRIVER DUMMY - VIEW 3	A-31

LIST OF PHOTOGRAPHS, CONT'D.

<u>DESCRIPTION</u>	<u>FIGURE</u>
POST-TEST DRIVER DUMMY VIEW	A-32
PRE-TEST PASSENGER DUMMY VIEW	A-33
POST-TEST PASSENGER DUMMY VIEW	A-34
POST-TEST DRIVER DUMMY CONTACT VIEW	A-35
POST-TEST PASSENGER DUMMY CONTACT VIEW	A-36
POST-TEST BARRIER FACE - VIEW 1	A-37
POST-TEST BARRIER FACE - VIEW 2	A-38

SECTION 1.0
PURPOSE AND TEST SUMMARY

PURPOSE

The purpose of this test was to evaluate the response of BioSid dummies in a moving deformable barrier into stationary vehicle side impact test. The vehicle was tested using conditions not currently contained in a Federal Motor Vehicle Safety Standard.

INTRODUCTION

A stationary 1988 Ford Taurus 4-door sedan was impacted on the left side by a Moving Deformable Barrier (MDB) on May 14, 1990. The test was to simulate an intersection collision with the striking vehicle travelling at 30 mph and the struck vehicle travelling at 15 mph. The orientation angle of the striking vehicle was 90° counterclockwise with respect to the longitudinal axis of the struck vehicle. The leading edge of contact was to be 37 inches forward of the midpoint of the wheelbase.

To simulate this collision, the MDB was to be towed into the stationary Ford Taurus at 33.5 mph with MDB's wheels crabbed clockwise to 26°. The actual test speed was 33.5 mph and the actual leading edge of contact was 36.5 inches forward of the midpoint of the Ford Taurus's wheelbase.

Section 2 contains General Test and Vehicle Parameter Data. Section 3 contains data required by R & D. Appendix A contains pre-test and post-test vehicle and dummy photographs. Appendix B contains Data Plots. Appendix C contains Dummy Certification Data.

SECTION 2.0

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Ford Motor Company

MAKE/MODEL: Ford Taurus

VIN: 1FABP50D0JG175545

BODY STYLE: 4-door sedan

MODEL YEAR: 1988

NHTSA NO.: NA

COLOR: BLUE

ENGINE DATA: TYPE: transverse CYLINDERS: 4 DISPLACEMENT: 2.5 liter

TRANSMISSION DATA: 3 SPEED, MANUAL, X AUTOMATIC, X FWD, RWD, 4WD

DATE VEHICLE RECEIVED: 5/07/90

ODOMETER READING: 45691

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING Yes
POWER BRAKES Yes
POWER SEATS No
POWER WINDOWS No
TINTED GLASS Yes
RADIO Yes
CLOCK No
OTHER None

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

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 VEHICLE'S CERTIFICATION LABEL:

VEHICLE MANUFACTURED BY: Ford Motor Company

DATE OF MANUFACTURE: 1/88

VIN: 1FABP50D0JG175545

GVWR: 4615 LBS

GAWR: FRONT: 2594 LBS., REAR: 2135 LBS.

TEST VEHICLE INFORMATION CONTINUED

VEHICLE TIRE DATA:

RECOMMENDED COLD TIRE PRESSURE: FRONT 35 psi; REAR 35 psi

TIRES ON VEHICLE (MFR. & LINE, SIZE): Goodyear/Invicta P205/70R14

BIAS PLY, BELTED, OR RADIAL: Radial

PLY RATING: 2

IS SPARE TIRE "SPACE SAVER"? No

IS SPARE TIRE STANDARD EQUIPMENT? Yes

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

RIGHT FRONT	947 LBS.	RIGHT REAR	575 LBS.
LEFT FRONT	959 LBS.	LEFT REAR	588 LBS.
TOTAL FRONT WEIGHT	1906 LBS.	(62.1% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1163 LBS.	(37.9% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	3069 LBS.		

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 27.0;	LF 26.9;	RR 24.4;	LR 24.2
PRE-TEST ATTITUDE:	RF 26.8;	LF 26.6;	RR 22.6;	LR 22.6
POST-TEST ATTITUDE:	RF 26.1;	LF 26.9;	RR 21.8;	LR 22.2

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 281 LBS. CARGO:

RIGHT FRONT	1046 LBS.	RIGHT REAR	777 LBS.
LEFT FRONT	1084 LBS.	LEFT REAR	791 LBS.
TOTAL FRONT WEIGHT	2130 LBS.	(57.6% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1568 LBS.	(42.4% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	3698 LBS.		

WEIGHT OF BALLAST SECURED IN VEHICLE TRUNK AREA: 50 LBS.

TEST VEHICLE INFORMATION CONTINUED

TEST FLUID TYPE

TEST FLUID TYPE: PURPLE STODDARD SOLVENT 2; SPEC. GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

"USABLE" CAPACITY*: NA GALLONS

TEST VOLUME: 0 GALLONS

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

DETAILS OF FUEL SYSTEM: DNA

ELECTRIC FUEL PUMP: DNA

FUEL INJECTION: DNA

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.:

RECOMMENDED COLD TIRE PRESSURE: FRONT 35 psi; REAR 35 psi

RECOMMENDED TIRE SIZE: P205/70R14 LOAD RANGE X B, C

NUMBER OF OCCUPANTS (DESIGNATED SEATING CAPACITY): 2 FRONT

3 REAR

CARGO LOAD 150 LBS.

5 TOTAL

TOTAL 900 LBS.

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

VEHICLE TEST WEIGHT CALCULATION

Test Weight = Unloaded Delivered Weight +
(Number of Dummies X 165 lbs.) +
Cargo Weight*

To achieve test weight, the exhaust system, battery alternator, front and rear bumpers, radiator, master cylinder, distributor, valve covers and air cleaner were removed. The fuel tank was empty. The weight of the test vehicle was measured by placing each wheel on a KJ Law Force Plate.

*A total test weight of 3690 pounds was used to duplicate a previous side impact test using a Ford Taurus.

TEST CONDITIONS

TEST NUMBER: 900514

DATE OF TEST: 5/14/90

TIME OF TEST: 1439

DRIVER DUMMY TEMPERATURE: 70° F

PASSENGER DUMMY TEMPERATURE: 72° F

AMBIENT TEMPERATURE AT IMPACT AREA: 70° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 69° F

MAX. LENGTH = 189.0 MAX. WIDTH = 71.8 TOP WIDTH = 44.0

WHEELBASE = 106.0 C.G. = 45.0 REARWARD OF FRONT WHEEL CENTERLINE

LEFT FRONT DOOR: UNLOCKED WINDOW: UP

LEFT REAR DOOR: UNLOCKED WINDOW: UP

RIGHT FRONT DOOR: UNLOCKED WINDOW: DOWN

RIGHT REAR DOOR: UNLOCKED WINDOW: DOWN

EMERGENCY BRAKE: ON

TRANSMISSION: NEUTRAL

STEERING COLUMN: NON-ADJUSTABLE

SEAT TRACKS: MID POSITION

SEAT BACK ANGLE: 23.5°

TYPES OF SEATS: FRONT - BUCKET; REAR - BENCH

TIRE PRESSURE: FRONT 35 psi; REAR 35 psi

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

TEST CONDITIONS, CONTINUED

SUBJECT VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
VEHICLE TEST WEIGHT (LBS.)	3698	3690
MDB TEST WEIGHT (LBS.)	2903	2900
MDB VELOCITY (MPH)*	33.5	33.5
IMPACT POINT (INCHES)**	36.5	37.0

DUMMY DATA

	<u>DRIVER</u>	<u>LEFT REAR PASSENGER</u>
TYPE:	BioSid	BioSid
SERIAL NO.:	001	002
INSTRUMENTATION:		
HEAD	3 accel.	3 accel
SHOULDER	1 accel., 3 force, & 1 displ.	1 accel. & 1 displ.
UPPER SPINE	4 accel.	3 accel.
LEFT UPPER THORAX RIB	2 accel. & 1 displ.	2 accel. & 1 displ.
LEFT CENTER THORAX RIB	2 accel. & 1 displ.	2 accel. & 1 displ.
LEFT LOWER THORAX RIB	2 accel. & 1 displ.	2 accel. & 1 displ.
LOWER SPINE	4 accel.	4 accel.
LEFT UPPER ABDOMEN	1 accel. & 1 displ.	1 accel. & 1 displ.
LEFT LOWER ABDOMEN	1 accel. & 1 displ.	1 accel. & 1 displ.
PELVIS	3 accel. & 3 force	3 accel.

RESTRAINT SYSTEM: Both dummies were unrestrained.

*As measured over final one foot of travel.

**As measured forward of the midpoint of the test vehicle's wheelbase.

POST-IMPACT DUMMY/VEHICLE DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #001	PASSENGER #002
HEAD	<u>Roof</u>	<u>Left C-pillar</u>
CHEST	<u>Left front door</u>	<u>Left rear door</u>
ABDOMEN	<u>Left front door</u>	<u>Left rear door</u>
LEFT KNEE	<u>Left front door</u>	<u>Left rear door</u>
RIGHT KNEE	<u>Left knee</u>	<u>Left knee</u>

DOOR OPENING:

	LEFT	RIGHT
FRONT	<u>*</u>	<u>Easy</u>
REAR	<u>*</u>	<u>Easy</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
FRONT	<u>NA</u>	<u>NA</u>
REAR	<u>NA</u>	<u>NA</u>

GLAZING DAMAGE:

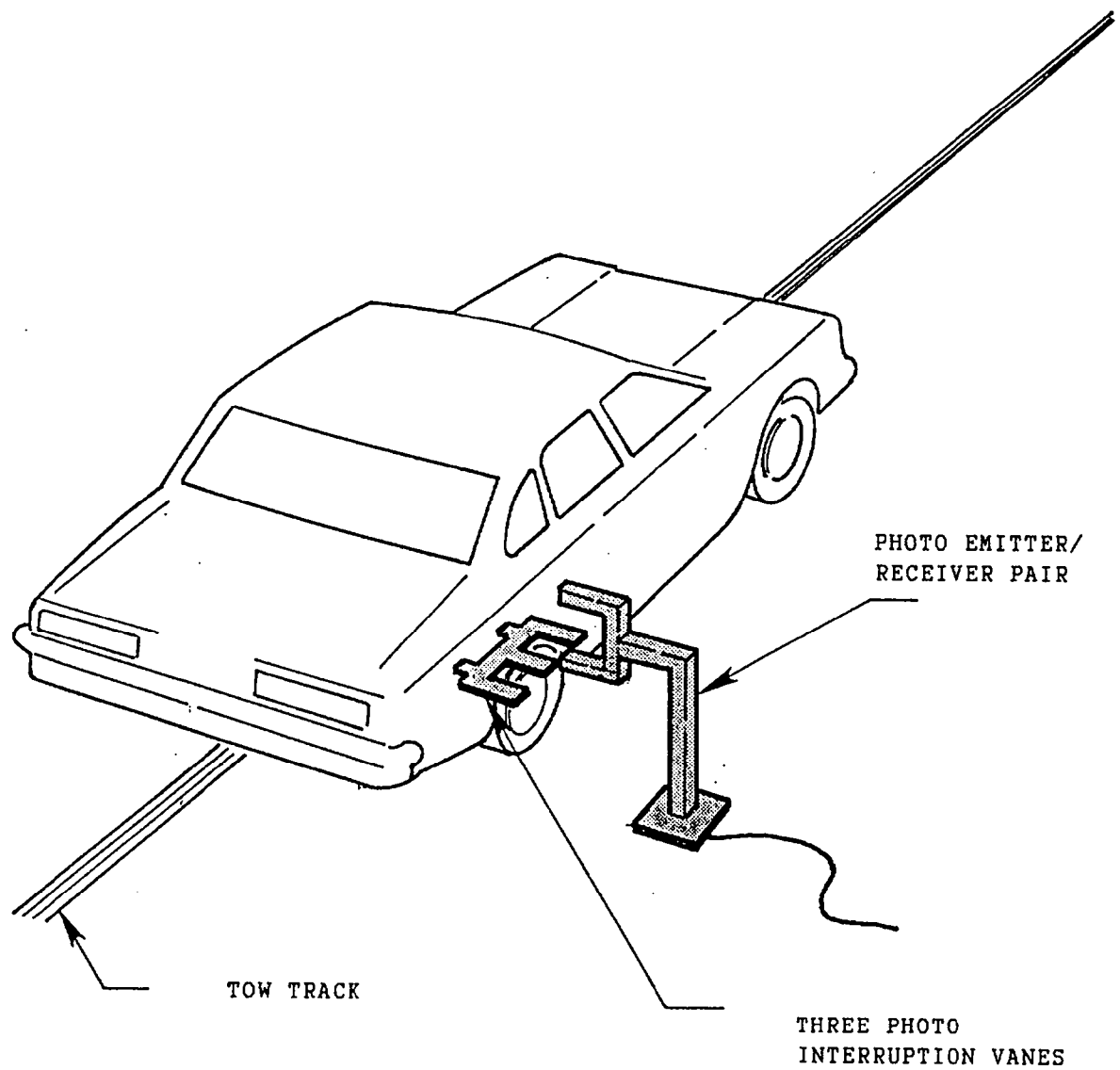
The left side windows were shattered. The windshield
was cracked.

OTHER NOTABLE IMPACT EFFECTS:

None

*The left front door to be opened later by VRTC.

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane clears emitter/receiver two inches before impact.

The vanes have one foot spacing.

TEST ANOMALIES

The driver's left shoulder Y-axis accelerometer, SHLYG1, data was questionable at 161.2 and 238.2 milliseconds.

The driver's left shoulder Y-axis velocity, SHLYV1, data was affected by the above anomalies.

The left rear passenger's left shoulder Y-axis accelerometer, SHLYG4, data was questionable at 48.8 and 161.2 milliseconds.

The left rear passenger's left shoulder Y-axis velocity, SHLYV4, data was affected by the above anomalies.

SECTION 3.0

DATA REQUIRED BY R&D

The following pages are included in this section:

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

DUMMY TEMPERATURE CONTROL AND POSITIONING

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

The following Side Impact Dummy Seating Procedure summarizes the steps taken to position the instrumented, calibrated dummies in the test vehicle.

SIDE IMPACT DUMMY SEATING PROCEDURE

1. Seat Positioning

- A. Place seat at the longitudinal midpoint of fore to aft adjustment (forward most locking position to rear most locking position). If no locking position is available at mid-travel, use the position immediately rearward of mid-travel.
- B. If the seat back angle is adjustable, place it in the manufacturer's stated nominal design location. If not specified, set it at the first detent rearward of 25°.
- C. Adjustable head restraints are set so that the top surface of the restraint is level with the cg of the dummy's head.
- D. If the seat is equipped with adjustable side or lumbar supports, they are set in their "released" or full back positions.
- E. All other seat adjustments are positioned to their mid-travel locations. If locking positions are not available at these mid-points, use the position immediately rearward, down, left or clockwise of mid-travel. Clockwise is defined looking rear to front or left to right relative to the vehicle. This also applies to adjustable steering columns.

2. H-point Determination

- A. The SAE three-dimensional H-point machine (SAE J826 APR80 - 50th percentile male configuration) is used to locate the H-point for each surrogate.
- B. The H-point machine is positioned on the seat as follows:
 - 1. Bucket or Contoured Seats - The H-point machine is centered on the bucket or contour such that its midsagittal plane is vertical and longitudinal.

2. Bench Seats

- a. driver position - The H-point machine is positioned such that its midsagittal plane is vertical, longitudinal, and contains the steering wheel center point.
 - b. outboard passenger positions - The H-point machine is positioned such that its midsagittal plane is vertical, longitudinal, and the same distance from the longitudinal vehicle centerline as that for the driver position.
 - c. center passenger positions - The H-point machine is positioned such that its midsagittal plane is vertical and contains the longitudinal vehicle centerline.
- C. Locate the H-point position using the steps outlined in sections 4 through 6 of SAE Standard J826 APR80, unless otherwise specified in section 1 or 2 of this document. Record the coordinates of this point, relative to the vehicle, for use in sections 4 and 5 of this document.

3. Test Dummies

- A. This side impact crash test uses the BioSid side impact dummy.
- B. The arm position is fully down and the end of the arm is 1/4" away from the left side of the dummy.
- C. All dummy joints are inspected for mobility prior to each test usage and reset to hold between 1 and 2 g's. This amount just barely restrains the weight of the individual limb when it is extended horizontally.
- D. Each test dummy is clothed in form-fitting cotton stretch underwear with short sleeves and mid-calf length pants. Each foot of the dummy is equipped with a size 11EE shoe which meets the configuration, size, sole, and heel thickness specifications of MIL-S-13192 and weighs 1.25 ± 0.2 pounds. All the above items are supplied by the contractor.

4. Initial Dummy Placement

The BioSid dummy(s) is placed in the vehicle seat with its pelvis positioned such that a lateral line passing through the dummy H-point is perpendicular to the longitudinal centerplane of the vehicle.

A. Bucket or Contoured Seats. The dummy is centered on the bucket or contoured seat such that its midsagittal plane is vertical and longitudinal. The legs are positioned as follows, keeping the femur and tibia centerlines in a plane that is as near to vertical as possible.

1. driver position placement - The right foot of the dummy is initially placed on the undepressed accelerator pedal, with the heel resting on the floorpan as far forward as possible. The knees of the dummy are initially set 8 1/2 inches apart, measured between the center surfaces of the knee.
2. passenger position placement - The knees of the dummy are initially set 8 1/2 inches apart, measured between the center surfaces of the knee. If a center tunnel prevents this, place the feet on either side of the tunnel.
3. center passenger position - The dummy is positioned in the seat as outlined in section 4.A.2 except that its midsagittal plane is vertical and contains the vehicle centerline.

5. Initial Dummy Positioning

A. H-Point Positioning

1. Determine the dummy's H-point target location which is the point .25-inch below the H-point position determined by using the SAE J826 APR80 manikin in section 2.0.
2. With the dummy laterally positioned as in section 4, insert the pelvis angle indicator bar in the hole provided above, and to the

rear of the dummy H-point. Position the longitudinal pelvis angle between 23° and 25° to the horizontal. This may be accomplished by raising the legs or flexing the upper torso forward and allowing the pelvis to rotate. The lateral pelvis angle is to be horizontal.

3. Apply sufficient force on the lower torso in a horizontal and vertical direction to place the dummy H-point at the coordinates obtained in section 5.A.1.
4. If the H-point cannot be placed at the desired coordinates, adjust the pelvis angle within the 2° band and reposition to the coordinates. After repositioning the H-point, any deviation from the desired coordinates is recorded and used to indicate actual H-point locations. This deviation is not to exceed 1/2".

6. Final Dummy Positioning

- A. Driver Position. Without inducing pelvis or torso movement, the dummy's right foot is maintained on the undepressed accelerator pedal with the heel resting as far forward as possible on the floorpan. The left foot is set perpendicular to the lower leg with the heel resting on the floorpan in the same lateral line as the right heel. If possible within these constraints, the dummy's thighs should be in contact with the seatpan.
- B. Front Passenger Positions. Without inducing pelvis or torso movement, place the dummy's feet on the vehicle's toeboard with the heels resting on the floorpan as close as possible to the intersection of the toeboard and floorpan. If the feet cannot be placed on the toeboard, they are set perpendicular to the lower legs and placed as far forward as possible such that the heels rest on the floorpan.
- C. Rear Passenger Positions. Without inducing pelvis or torso movement, the feet are placed flat on the floorpan and beneath the front seat as far forward as possible without front seat interference. If necessary, change the distance between the knees as required to place the feet beneath the seat. Record the new distance.

- D. Vehicles with wheelhouse projections in the passenger compartment. The foot (feet) in question is placed in the wheel of the floorpan/toeboard and not on the wheelhouse projection. This is done by twisting the foot at the ankle, maintaining the upper and lower leg positions outlined in section 4. If this does not resolve the situation, move the leg of the foot in question just enough to achieve the correct position, keeping the femur and tibia centerlines in a plane that is as near to vertical as possible. Record the new distance between the knees.
- E. The knee positions are to be as outlined in section 4, unless modified as in section 6. The plane containing the femur and tibia centerlines for each leg is to be as near to vertical as possible without inducing pelvis or torso movement. Record the distance between the knees for each dummy.
- F. Prior to conducting the test, the dummy position is visually checked. The dummy is to be properly positioned laterally with its midsagittal plane vertical and longitudinal, and the upper torso resting against the seat back. The H-point and pelvis angle are to be within the specified ranges and the foot, knee, and leg placements are to be as outlined. The COTR is to be satisfied with the final dummy position and any deviations from this procedure are to be approved by the COTR.
- G. The final dummy position is recorded. These measurements are to include, but not be limited to, pelvis and head angles as well as actual H-point and head cg locations relative to the vehicle. The straight-line distance from the H-point to the center of the outer ankle bolt is also recorded for one of the legs (eg. left H-point to left ankle bolt).

DUMMY IN-VEHICLE POSITION RECORDING SHEET

MFR./MAKE/MODEL: Ford Motor Company/Taurus

SEAT TYPE: Bench

 X Bucket

 Split bench

ADJUSTER TYPE: X Manual

 Power

 Non-adjustable

TECHNICIANS:

BUCKET SEAT BACK TYPE: Non-adjustable

 X Adjustable reclining

POSITIONING DATE: 5/14/90

AMBIENT TEMP.: 65° F TIME: 1439

1. B. Miller

2. R. Cribley

3. P. Cummins

4.

DRIVER DUMMY* # 001 TYPE: BioSid

Head 19.1"

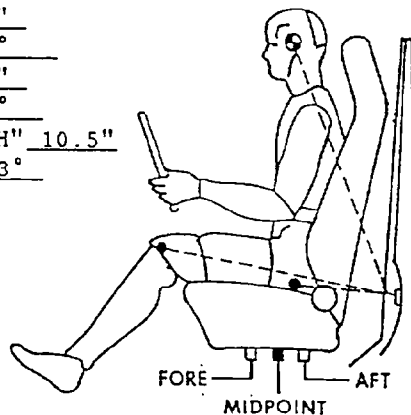
Target 2°

Knee 23.3"

Joint 100°

Approx. "H" 10.5"

Point 143°



PASSENGER DUMMY** # 002 TYPE: BioSid

Head 12.1"

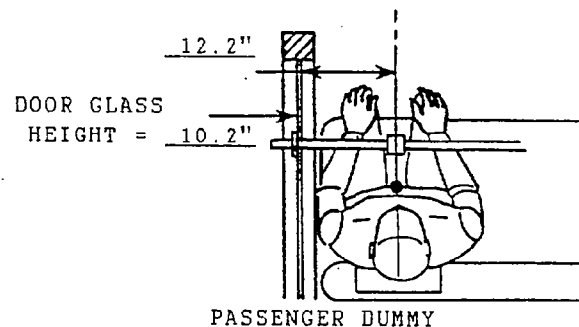
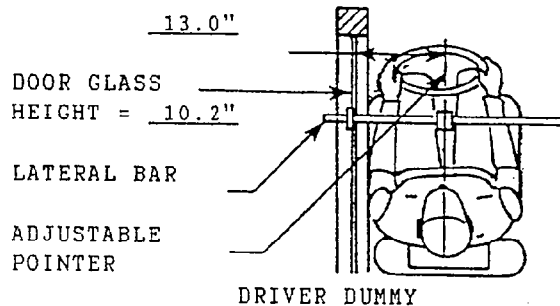
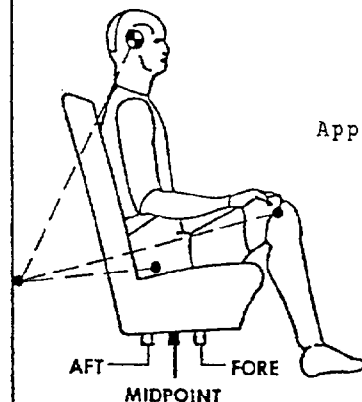
Target 28°

Knee 28.8"

Joint 106°

Approx. "H" 17.4"

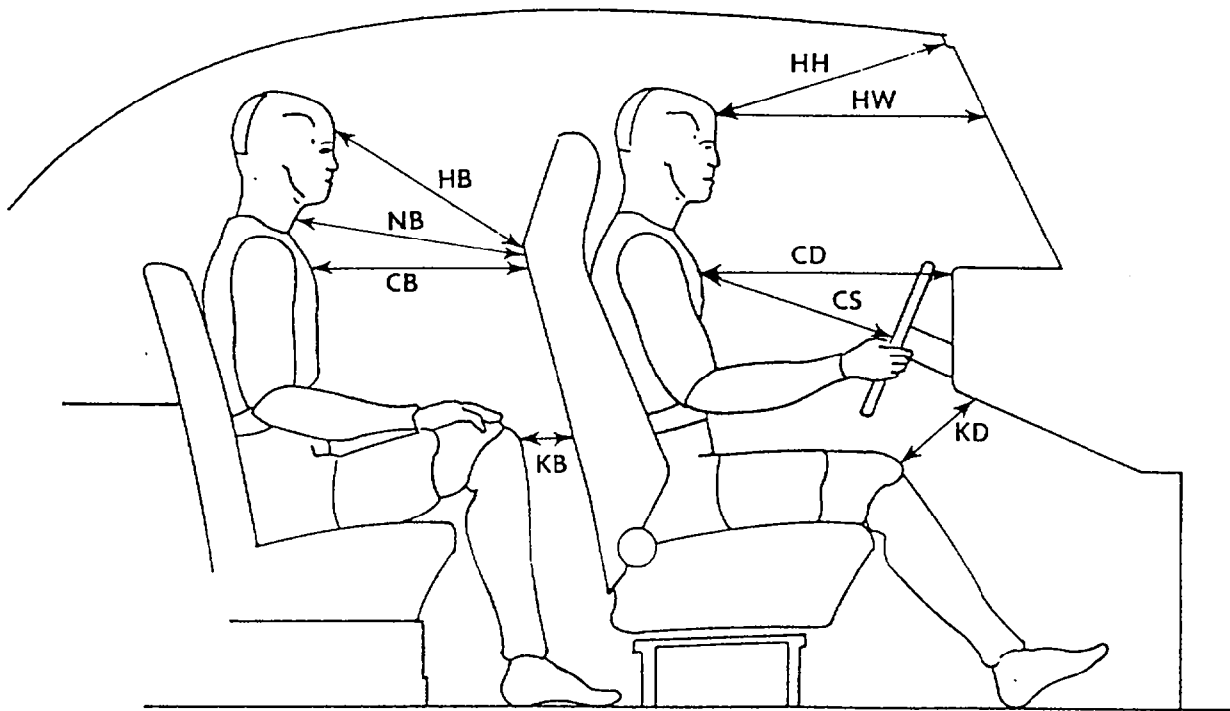
Point 142°



*Driver dummy measurements are referenced to top of left front door striker bolt and all angles referenced to vertical.

**Passenger dummy measurements are referenced to top of left rear door striker bolt and all angles are referenced to vertical.

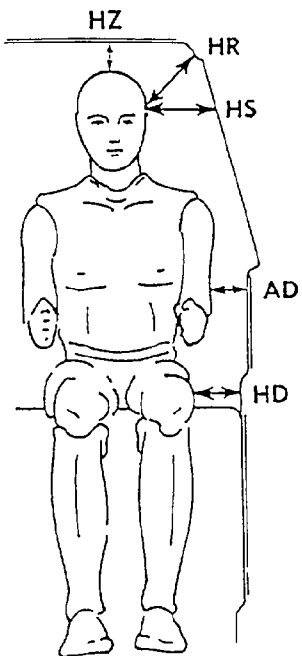
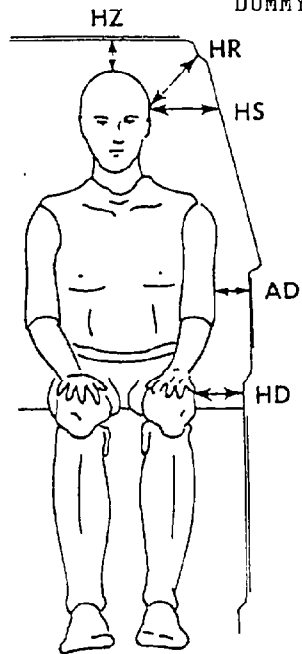
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS



	DRIVER	REAR PASSENGER
HH	15.4	NA
HW	21.6	NA
CD	21.9	NA
CS	13.0	NA
KDL	5.4	NA
KDR	4.6	NA
HB	NA	26.8
NB	NA	25.8
CB	NA	20.4
KBL	NA	6.6
KBR	NA	6.1

ALL MEASUREMENTS ARE IN INCHES.

DUMMY LATERAL CLEARANCE DIMENSIONS



	DRIVER	PASSENGER
HR	6.2	5.8
HS	9.9	7.0
AD	4.8	4.4
HD	8.4	7.1
HZ	4.0	2.0

ALL DISTANCE MEASUREMENTS ARE
IN INCHES.

SAE 3D H-POINT MACHINE LOCATION AND DUMMY LOCATION DATA

	DRIVER #001	PASSENGER #002
SAE 3D H-POINT MACHINE LOCATION:	X = 6.0	X = 11.2
	Z = -12.2	Z = -19.5
DUMMY H-POINT LOCATION:	X = 6.0	X = 11.0
	Z = -12.1	Z = -19.3
DUMMY PELVIC ANGLE:	24°	25°

*The driver location measurements referenced to the left front door striker bolt and the passenger location measurements referenced to the left rear door striker bolt in two-dimensional rectangular coordinates: +X = forward, +Z = upward

All dimensions in inches except as noted.

All angles referenced to horizontal, positive is upward.

DUMMY KINEMATIC SUMMARY

DRIVER

During impact, the dummy's torso contacted the driver's door and the head contacted the roof. The dummy rebounded laterally across the front occupant compartment. The upper torso rotated and the upper back contacted the right front window sill. The left knee contacted the left front door and the right knee contacted the left knee. The dummy came to rest leaning against the right front seat.

PASSENGER

During impact, the dummy's torso contacted the left rear door and the head contacted the left C-pillar. The left knee contacted the left rear door and the right knee contacted the left knee. The dummy rebounded laterally across the rear occupant compartment. The dummy came to rest seated upright in the right rear seat.

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	7
PRE-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)																
Axle Height	11.5	X	X	15.1	14.9	14.9	14.8	14.9	14.8	14.9	14.9	15.2	14.9	15.1	15.2	X
H-Point	20.5	X	12.5	12.2	12.1	12.1	11.9	11.9	11.9	11.8	11.9	12.1	12.1	12.2	12.4	12
Mid Door	25.0	12.6	12.9	12.6	12.5	12.4	12.2	12.2	12.1	12.2	12.2	12.3	12.4	12.4	12.5	12
Window Sill	35.8	16.5	16.1	15.5	15.2	15.2	15.2	15.2	15.1	14.9	14.8	14.9	14.8	14.9	14.9	14
Window Top	53.0	X	X	X	X	X	X	25.0	24.8	24.6	24.7	24.9	24.8	24.8	24.9	24

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

Axle Height	11.5	X	X	20.1	23.9	24.3	24.9	25.3	26.0	26.6	27.4	26.0	22.8	20.4	18.5	X
H-Point	20.5	X	17.2	23.8	25.7	26.9	27.5	28.0	28.6	29.2	29.6	30.1	30.4	30.6	26.6	16
Mid Door	25.0	15.6	16.8	22.5	24.9	25.6	26.1	27.1	27.6	27.2	28.5	28.5	28.6	29.1	26.9	21
Window Sill	35.8	18.5	18.2	20.4	20.9	22.4	23.5	24.4	25.1	25.9	26.9	27.2	27.7	28.2	25.2	20
Window Top	53.0	X	X	X	X	X	X	26.2	26.4	26.7	27.1	27.9	26.6	25.3	24.0	27

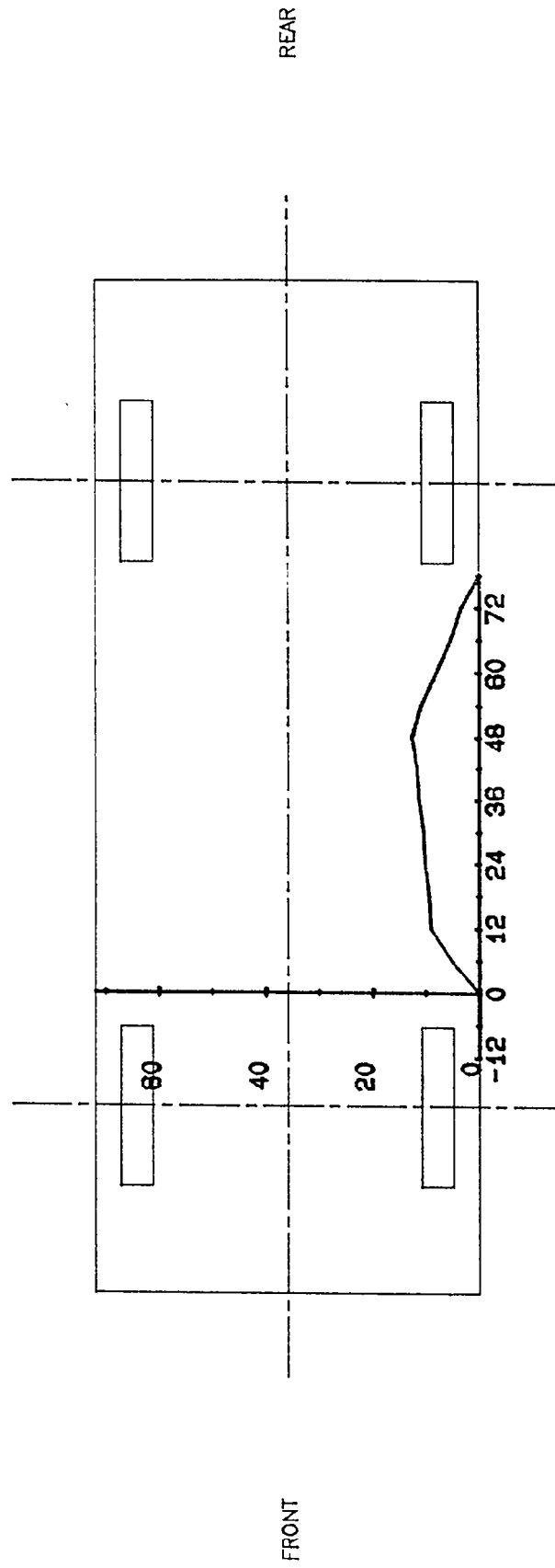
STATIC CRUSH (IN)

Axle Height	11.5	X	X	5.1	9.0	9.4	10.1	10.4	11.2	11.7	12.5	10.8	7.9	5.3	3.3	X
H-Point	20.5	X	4.7	11.6	13.6	14.8	15.6	16.1	16.7	17.4	17.7	18.0	18.3	18.4	14.2	3
Mid Door	25.0	3.0	3.9	9.9	12.4	13.2	13.9	14.9	15.5	15.0	16.3	16.2	16.2	16.7	14.4	8
Window Sill	35.8	2.0	2.1	4.9	5.7	7.2	8.3	9.2	10.0	11.0	12.1	12.3	12.9	13.3	10.3	5
Window Top	53.0	X	X	X	X	X	X	1.2	1.6	2.1	2.4	3.0	1.8	0.5	-0.9	2

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

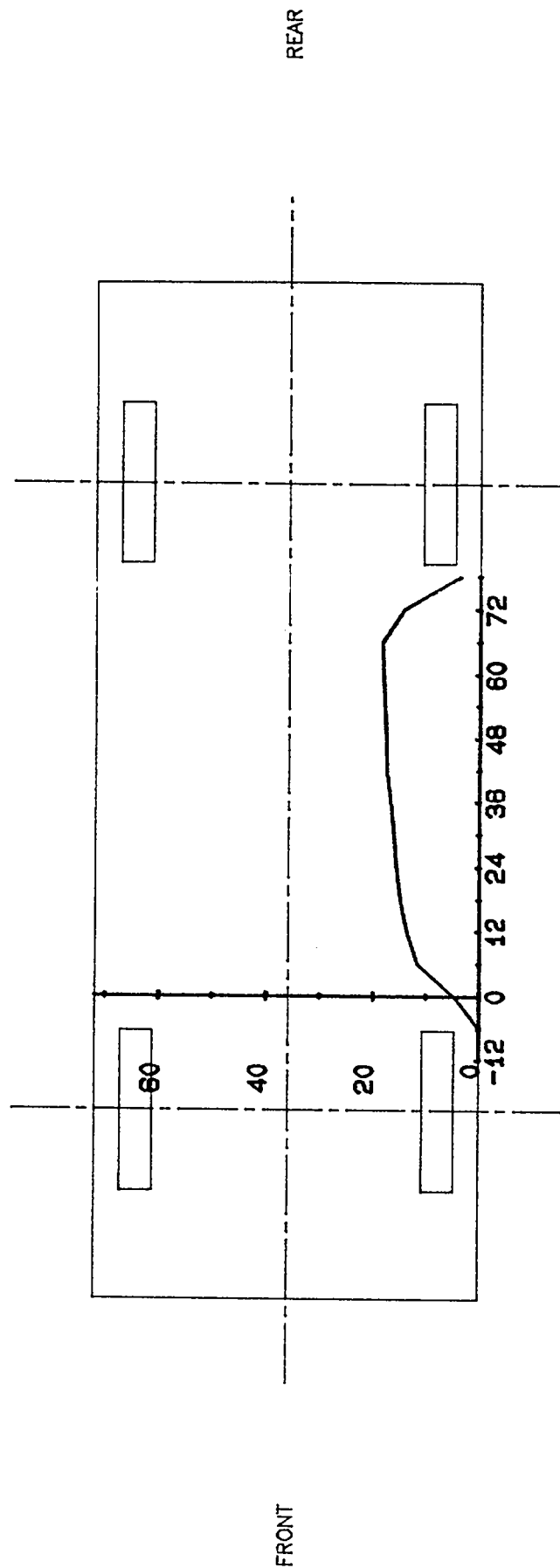
** Reference plane is parallel to and 48 inches from the vehicle longitudinal centerline.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



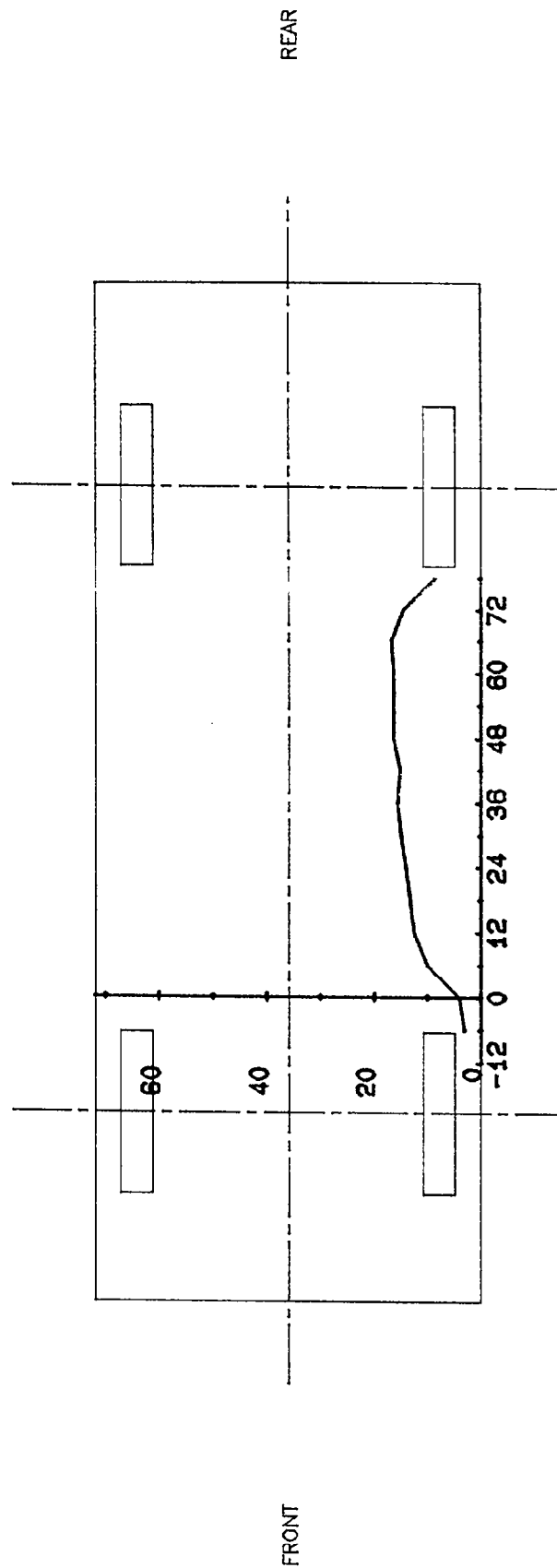
PROFILE LEVEL EQUALS AXLE HEIGHT WHICH IS 11.5" ABOVE GROUND LEVEL
 (0,0) EQUALS PROJECTED IMPACT POINT
 SCALE FACTOR EQUALS 0.032

VEHICLE EXTERIOR STATIC CRUSH PROFILE



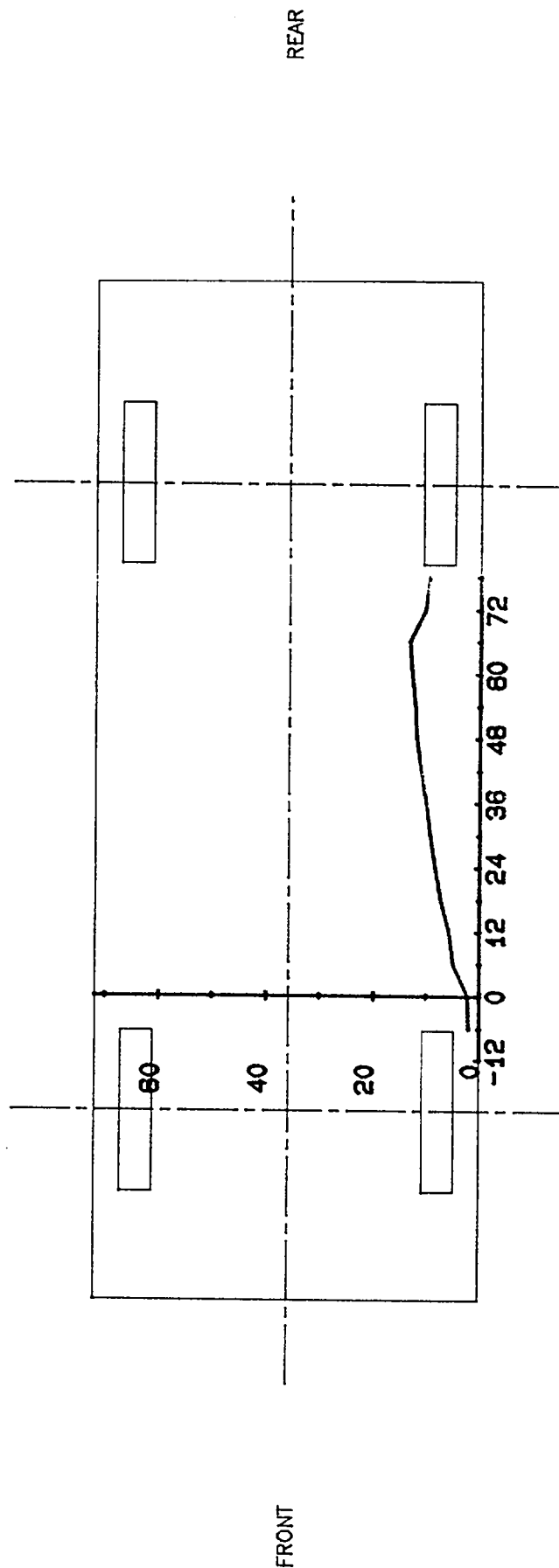
PROFILE LEVEL EQUALS H-POINT HEIGHT WHICH IS 20.5" ABOVE GROUND LEVEL
 (0,0) EQUALS PROJECTED IMPACT POINT
 SCALE FACTOR EQUALS 0.032

VEHICLE EXTERIOR STATIC CRUSH PROFILE



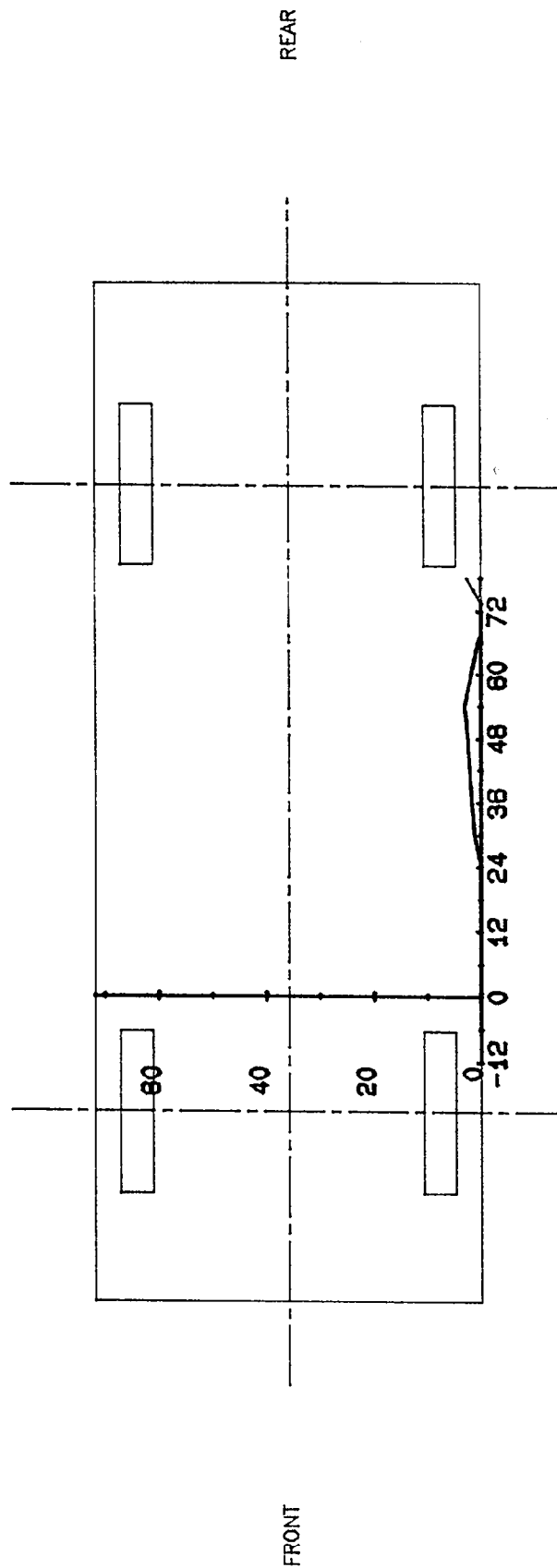
PROFILE LEVEL EQUALS MID DOOR HEIGHT WHICH IS 25.0" ABOVE GROUND LEVEL
 (0,0) EQUALS PROJECTED IMPACT POINT
 SCALE FACTOR EQUALS 0.032

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW SILL HEIGHT WHICH IS 35.8" ABOVE GROUND LEVEL
 (0,0) EQUALS PROJECTED IMPACT POINT
 SCALE FACTOR EQUALS 0.032

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT WHICH IS 53.0" ABOVE GROUND LEVEL
 (0,0) EQUALS PROJECTED IMPACT POINT
 SCALE FACTOR EQUALS 0.032

DUMMY DATA SUMMARY

TEST NUMBER 900514

DRIVER DUMMY

SN: 001

POSITIVE DIRECTION		NEGATIVE DIRECTION	
MAX	MSEC	MAX	MSEC

HEAD

LONGITUDINAL ACCEL. (g)	9.7	231.4	14.1	293.3
LATERAL ACCEL. (g)	24.3	78.4	10.6	231.0
DELTA V (MPH)	23.0	128.1		
VERTICAL ACCEL. (g)	21.1	258.1	53.4	53.3
RESULTANT ACCEL. (g)	56.9	53.3		
HIC	227.0 FROM 44.5 TO 80.5 MSEC			

LEFT SHOULDER

LATERAL ACCEL. (g)	131.6	27.5 Y	63.4	33.7 Y
DELTA V (MPH)	12.4	31.0 Y		
LONGITUDINAL FORCE (N)	218.7	260.4	230.7	40.0
LATERAL FORCE (N)	4594.9	47.5	3537.0	266.9
VERTICAL FORCE (N)	509.0	240.9	2507.1	276.0
LATERAL DISPL. (mm)	54.4	47.8	0.7	278.6

UPPER SPINE

LONGITUDINAL ACCEL. (g)	10.1	280.0	4.4	68.1
LATERAL (P) ACCEL. (g)	55.0	45.0	25.6	265.0
DELTA V (MPH)	25.1	58.8		
LATERAL (R) ACCEL. (g)	55.6	45.0	26.3	265.0
DELTA V (MPH)	25.7	58.8		
VERTICAL ACCEL. (g)	8.5	244.4	4.8	73.8
RESULTANT (P) ACCEL. (g)	55.1	45.0		
RESULTANT (R) ACCEL. (g)	55.8	45.0		

LEFT UPPER THORAX RIB

LATERAL (P) ACCEL. (g)	105.9	40.0	59.3	272.5
DELTA V (MPH)	10.4	31.8		
LATERAL (R) ACCEL. (g)	101.8	40.0	59.6	271.9
DELTA V (MPH)	10.6	31.8		
LATERAL DISPL. (mm)	41.4	47.4	0.0	18.0

DUMMY DATA SUMMARY CONTINUED

TEST NUMBER 900514

DRIVER DUMMY

SN: 001

	POSITIVE		NEGATIVE	
	DIRECTION		DIRECTION	
	MAX	MSEC	MAX	MSEC
LEFT CENTER THORAX RIB				
LATERAL (P) ACCEL. (g)	93.9	38.8	72.1	272.5
DELTA V (MPH)	10.7	30.6		
LATERAL (R) ACCEL. (g)	92.2	26.3	71.0	272.5
DELTA V (MPH)	11.0	30.6		
LATERAL DISPL. (mm)	39.8	47.3	0.1	68.9
LEFT LOWER THORAX RIB				
LATERAL (P) ACCEL. (g)	111.3	26.3	86.1	273.1
DELTA V (MPH)	11.5	30.0		
LATERAL (R) ACCEL. (g)	112.5	26.3	84.9	273.1
DELTA V (MPH)	11.8	30.0		
LATERAL DISPL. (mm)	38.3	46.6	0.0	18.1
THORACIC TRAUMA INDEX				
TTI (P)	84.4			
TTI (R)	84.9			
LOWER SPINE				
LONGITUDINAL ACCEL. (g)	12.3	268.1	9.4	48.8
LATERAL (P) ACCEL. (g)	57.5	38.8	11.2	258.8
DELTA V (MPH)	26.4	58.8		
LATERAL (R) ACCEL. (g)	57.4	38.8	11.6	262.5
DELTA V (MPH)	26.1	58.8		
VERTICAL ACCEL. (g)	14.5	38.1	4.7	50.6
RESULTANT (P) ACCEL. (g)	60.0	38.1		
RESULTANT (R) ACCEL. (g)	59.9	38.1		
LEFT UPPER ABDOMEN				
LATERAL ACCEL. (g)	80.5	35.6	21.2	30.6
DELTA V (MPH)	12.6	29.4		
LATERAL DISPL. (mm)	51.3	42.6	0.0	16.5
LEFT LOWER ABDOMEN				
LATERAL ACCEL. (g)	86.6	21.9	22.0	30.6
DELTA V (MPH)	13.7	28.8		
LATERAL DISPL. (mm)	59.6	43.9	0.1	67.8

DUMMY DATA SUMMARY CONTINUED

TEST NUMBER 900514

DRIVER DUMMY

SN: 001

POSITIVE DIRECTION	NEGATIVE DIRECTION
MAX MSEC	MAX MSEC

PELVIS

LONGITUDINAL ACCEL. (g)	9.8	47.5	18.0	40.6
LATERAL ACCEL. (g)	82.6	34.4	10.5	227.5
DELTA V (MPH)	25.1	46.2		
VERTICAL ACCEL. (g)	12.1	246.9	4.3	90.0
RESULTANT ACCEL. (g)	83.1	34.4		

PELVIS PUBIC SYMPHYSIS

LATERAL FORCE (N)	3407.6	39.5	155.4	117.9
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PELVIS SACRUM

LATERAL FORCE (N)	845.0	87.4	4693.5	36.3
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PELVIS ILIAC

LATERAL FORCE (N)	2058.7	38.6	210.1	55.8
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POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: UPWARD
FORCE: COMPRESSION

NEGATIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: DOWNWARD
FORCE: EXTENSION

NOTES:

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

(P) Primary Sensor

(R) Redundant Sensor

Y See TEST ANOMALIES

DUMMY DATA SUMMARY

TEST NUMBER 900514

PASSENGER DUMMY

SN: 002

POSITIVE DIRECTION		NEGATIVE DIRECTION	
MAX	MSEC	MAX	MSEC

HEAD

LONGITUDINAL ACCEL. (g)	8.8	116.9	34.0	65.3
LATERAL ACCEL. (g)	120.3	64.8	13.8	172.4
DELTA V (MPH)	19.2	78.2		
VERTICAL ACCEL. (g)	17.7	43.0	24.2	60.4
RESULTANT ACCEL. (g)	125.0	64.8		
HIC	592.7 FROM 62.2 TO 68.0 MSEC			

LEFT SHOULDER

LATERAL ACCEL. (g)	83.8	43.8 Y	20.3	162.5 Y
DELTA V (MPH)	13.1	47.8 Y		
LATERAL DISPL. (mm)	13.7	55.1	0.4	32.6

UPPER SPINE

LONGITUDINAL ACCEL. (g)	4.9	87.5	23.2	51.9
LATERAL (P) ACCEL. (g)	41.2	46.3	3.0	133.1
DELTA V (MPH)	18.2	68.1		
VERTICAL ACCEL. (g)	4.5	34.4	7.2	48.1
RESULTANT (P) ACCEL. (g)	47.0	52.5		

LEFT UPPER THORAX RIB

LATERAL (P) ACCEL. (g)	72.0	43.1	6.2	70.0
DELTA V (MPH)	22.3	65.6		
LATERAL (R) ACCEL. (g)	71.6	43.8	4.3	70.6
DELTA V (MPH)	22.0	66.2		
LATERAL DISPL. (mm)	14.8	53.5	0.1	340.0

LEFT CENTER THORAX RIB

LATERAL (P) ACCEL. (g)	74.6	41.9	4.0	128.8
DELTA V (MPH)	18.2	52.5		
LATERAL (R) ACCEL. (g)	73.5	41.9	4.0	100.6
DELTA V (MPH)	18.2	53.1		
LATERAL DISPL. (mm)	17.3	50.9	0.4	116.6

LEFT LOWER THORAX RIB

LATERAL (P) ACCEL. (g)	88.7	40.6	5.2	76.9
DELTA V (MPH)	19.8	53.1		
LATERAL (R) ACCEL. (g)	89.6	40.6	5.9	76.3
DELTA V (MPH)	20.1	53.8		
LATERAL DISPL. (mm)	20.0	49.9	0.7	87.9

THORACIC TRAUMA INDEX

TTI (P)	80.5
TTI (R)	81.0

DUMMY DATA SUMMARY CONTINUED

TEST NUMBER 900514

PASSENGER DUMMY

SN: 002

POSITIVE DIRECTION		NEGATIVE DIRECTION	
MAX	MSEC	MAX	MSEC

LOWER SPINE

LONGITUDINAL ACCEL. (g)	10.4	53.1	22.4	41.9
LATERAL (P) ACCEL. (g)	72.0	40.6	7.7	75.6
DELTA V (MPH)	21.4	56.9		
LATERAL (R) ACCEL. (g)	72.0	40.6	7.7	75.6
DELTA V (MPH)	21.6	56.9		
VERTICAL ACCEL. (g)	44.6	41.2	12.1	78.8
RESULTANT (P) ACCEL. (g)	87.1	41.2		
RESULTANT (R) ACCEL. (g)	87.5	41.2		

LEFT UPPER ABDOMEN

LATERAL ACCEL. (g)	65.8	27.5	12.0	61.2
DELTA V (MPH)	22.1	53.8		
LATERAL DISPL. (mm)	35.9	44.5	0.1	24.1

LEFT LOWER ABDOMEN

LATERAL ACCEL. (g)	83.2	26.9	13.6	21.9
DELTA V (MPH)	22.0	55.6		
LATERAL DISPL. (mm)	35.6	43.1	0.1	160.5

PELVIS

LONGITUDINAL ACCEL. (g)	8.3	59.4	34.5	36.3
LATERAL ACCEL. (g)	115.2	33.1	5.6	99.4
DELTA V (MPH)	23.4	41.9		
VERTICAL ACCEL. (g)	31.5	37.5	6.5	83.1
RESULTANT ACCEL. (g)	118.7	33.7		

POSITIVE DIRECTION

LONGITUDINAL:	FORWARD
LATERAL:	RIGHTWARD
VERTICAL:	UPWARD
FORCE:	COMPRESSION

NEGATIVE DIRECTION

LONGITUDINAL:	REARWARD
LATERAL:	LEFTWARD
VERTICAL:	DOWNWARD
FORCE:	EXTENSION

NOTES:

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

(P) Primary Sensor

(R) Redundant Sensor

Y See TEST ANOMALIES

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900514

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX	G MSEC	MAX	G MSEC
1	RIGHT SILL AT FRONT SEAT	116.5	27.5	12.1				
	LONGITUDINAL				2.6	53.4	5.9	12.1
	LATERAL				21.9	11.9	2.6	204.0
	VERTICAL				4.3	11.0	3.7	94.5
	RESULTANT				23.0	11.9		
	Delta VY is 11.0 MPH @ 66.0 MSEC							
2	RIGHT SILL AT REAR SEAT	82.5	27.5	11.8				
	LONGITUDINAL				5.2	11.6	4.1	52.9
	LATERAL				19.3	12.1	2.2	240.6
	VERTICAL				5.5	62.3	4.9	36.5
	RESULTANT				20.0	12.1		
	Delta VY is 13.4 MPH @ 83.2 MSEC							
3	REAR DECK OVER AXLE	47.8	0.0	16.6				
	LONGITUDINAL				3.7	35.3	8.1	26.1
	LATERAL				19.2	42.3	2.9	216.5
	VERTICAL				12.7	40.8	12.6	48.4
	RESULTANT				22.4	41.5		
	Delta VY is 15.9 MPH @ 102.8 MSEC							
4	LEFT SILL AT REAR SEAT	83.0	-27.5	12.1				
	LATERAL				95.6	12.9	92.1	19.9
	Delta VY is 16.7 MPH @ 13.6 MSEC							
5	LEFT SILL AT FRONT SEAT	116.3	-27.5	12.4				
	LATERAL				96.6	9.3	69.4	21.4
	Delta VY is 18.9 MPH @ 15.9 MSEC							
6	LEFT FRONT DOOR CENTERLINE	114.1	-29.4	30.8				
	LATERAL				56.5	14.0	100.7	31.6
	Delta VY is 20.4 MPH @ 25.1 MSEC							
7	RIGHT TRUNK FLOOR	47.9	14.5	16.6				
	LONGITUDINAL				3.4	52.1	6.3	26.9
8	MIDREAR OF LEFT REAR DOOR	102.3	-29.8	31.4				
	LATERAL				114.4	16.3	117.9	39.1
	Delta VY is 27.5 MPH @ 26.1 MSEC							

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY CONTINUED

TEST NUMBER 900514

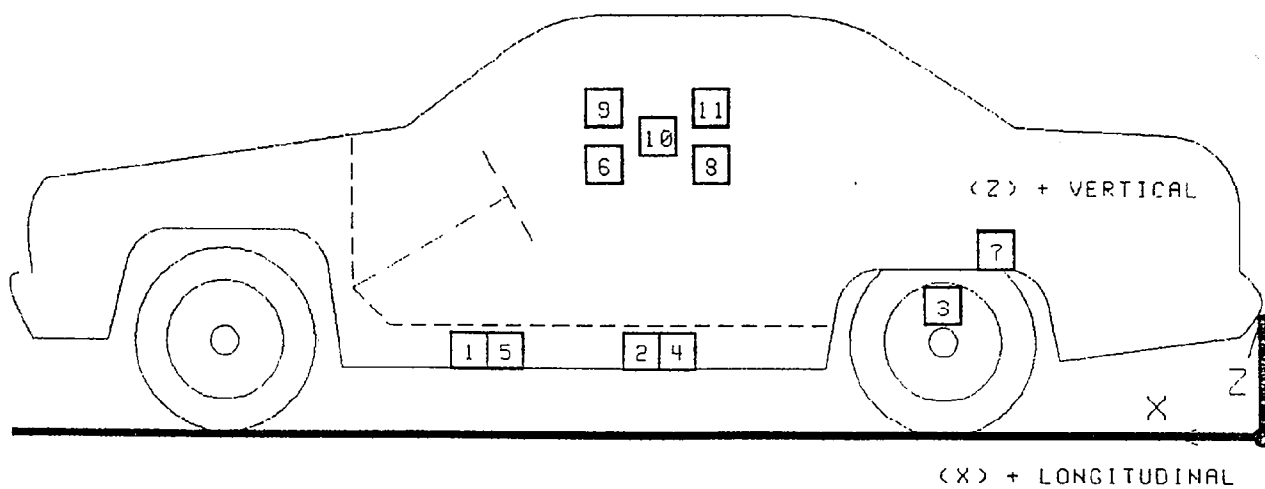
No.	LOCATION	X*	Y*	Z*	POSITIVE		NEGATIVE	
					DIRECTION		DIRECTION	
					MAX G MSEC		MAX G MSEC	
9	UPPER LEFT FRONT DOOR CENTERLINE LATERAL	107.0	-29.9	32.4				
					57.9	20.3	176.1	34.1
					Delta VY is 18.6 MPH @ 25.5 MSEC			
10	MIDFRONT OF LEFT FRONT DOOR LATERAL	67.6	-29.9	31.2				
					64.1	13.4	78.2	32.4
					Delta VY is 19.1 MPH @ 25.5 MSEC			
11	UPPER REAR OF LEFT REAR DOOR LATERAL	71.8	-29.6	33.4				
					77.9	17.4	63.9	36.8
					Delta VY is 24.5 MPH @ 26.0 MSEC			

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

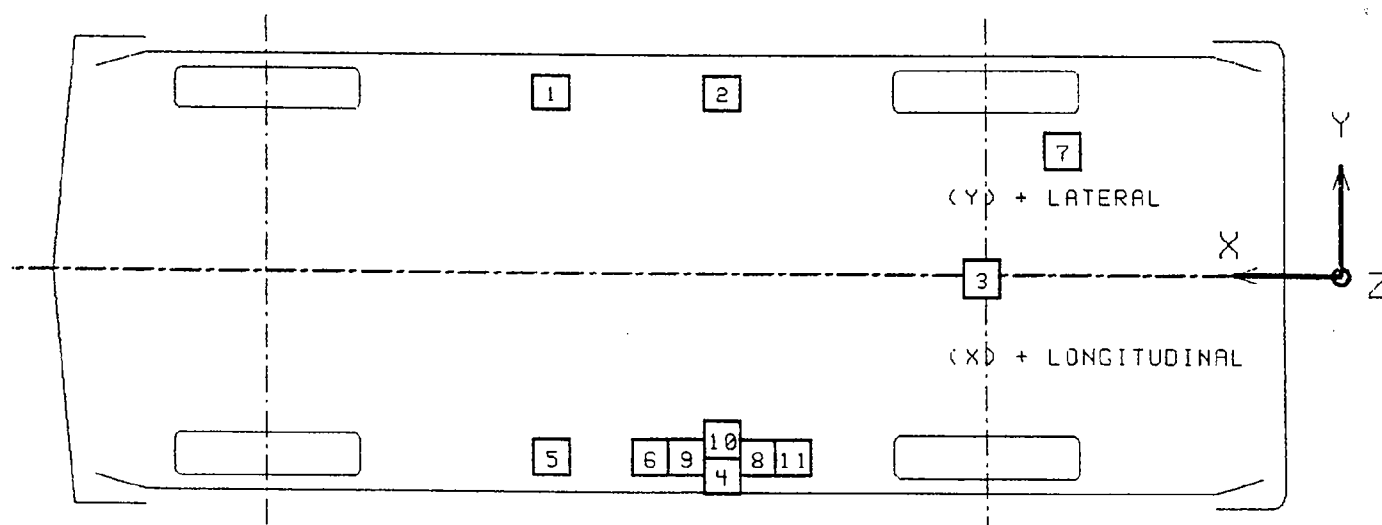
REFERENCE: X: + FORWARD FROM REAR BUMPER
Y: + RIGHTWARD FROM VEHICLE CENTERLINE
Z: + UPWARD FROM GROUND LEVEL

All measurements of accelerometer locations in inches.

VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900514

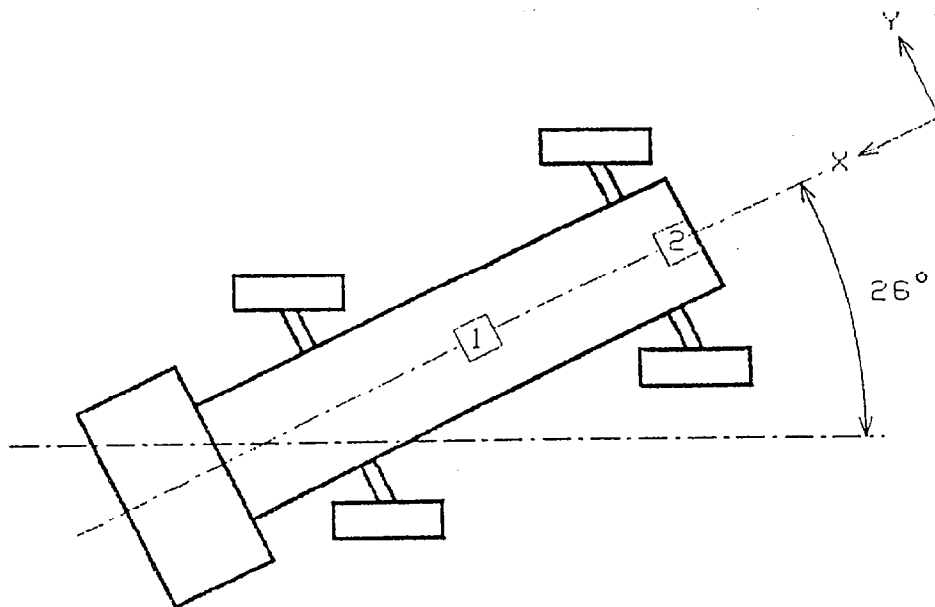
No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX	G MSEC	MAX	G MSEC
1	CENTER OF GRAVITY	74.2	0.3	12.2				
	LONGITUDINAL				1.2	157.8	16.2	37.1
	LATERAL				1.2	62.0	6.0	31.9
	VERTICAL				3.1	70.4	3.0	55.0
	RESULTANT				16.8	37.0		
		Delta VX is 19.9 MPH @ 120.0 MSEC						
		Delta VY is 4.6 MPH @ 120.0 MSEC						
2	REAR FRAME MEMBER	19.2	0.0	12.0				
	LONGITUDINAL				4.3	239.3	105.9	61.5
	LATERAL				4.3	21.8	2.9	102.0
		Delta VX is 32.7 MPH @ 95.8 MSEC						
		Delta VY is -1.6 MPH @ 95.8 MSEC						

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: + FORWARD FROM REAR POINT OF FRAME
Y: + RIGHTWARD FROM BARRIER CENTERLINE
Z: + UPWARD FROM GROUND LEVEL

All measurements of accelerometer locations in inches.

MOVING BARRIER ACCELEROMETER PLACEMENT

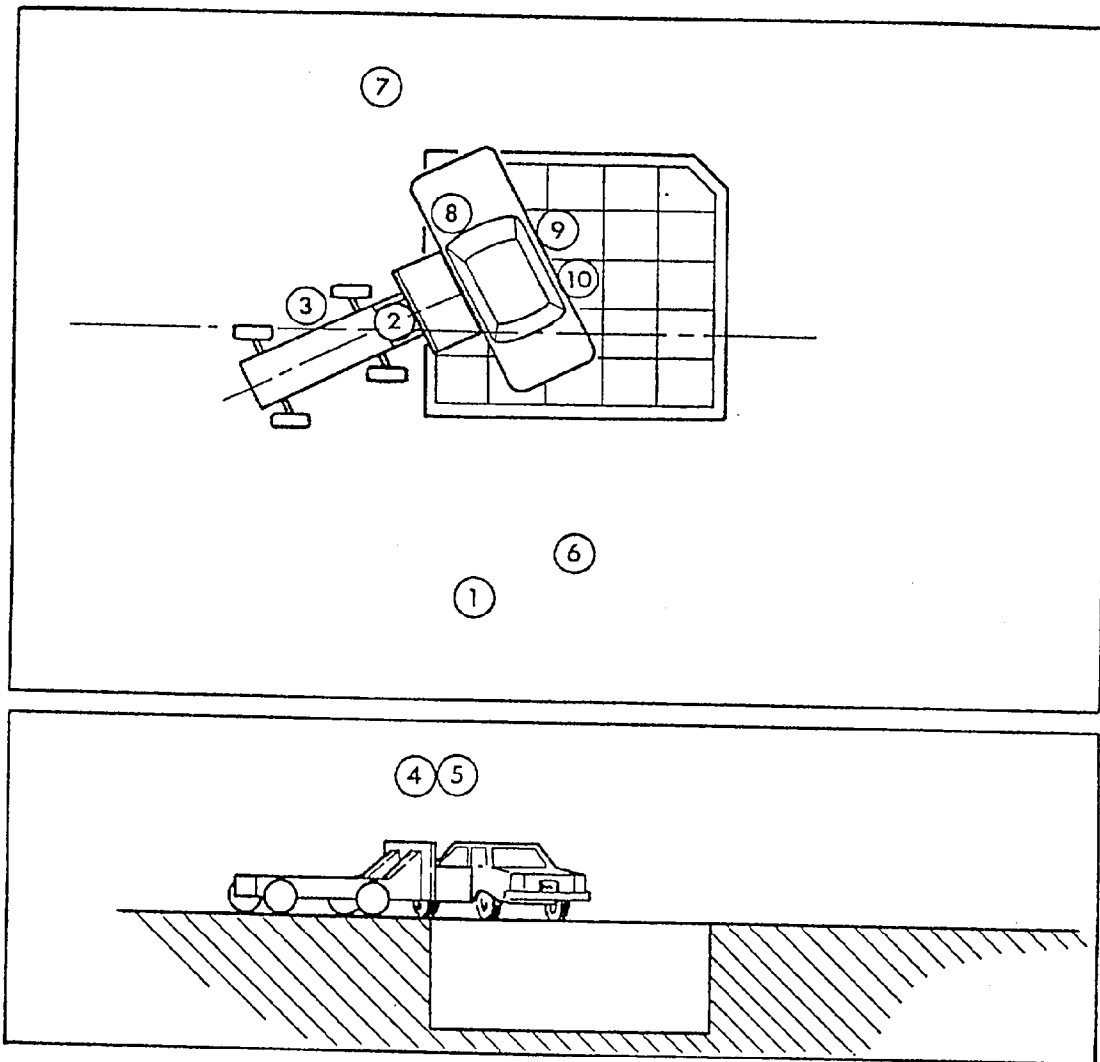


TOP VIEW

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Right side panning	Kodak	25	24	Real time documentation
2	Onboard MDB - wide	Photosonic 1B	13	947	Dummy kinematics
3	Onboard MDB - tight	Photosonic 1B	25	1002	Close-up of impact poin
4	Overhead - wide	Photosonic 1B	8.5	1000	Vehicle dynamics
5	Overhead - tight	Photosonic 1B	25	1000	Close-up vehicle dynami
6	Ground level - right	Photosonic 1B	25	1000	Overall view
7	Ground level - left	Photosonic 1B	25	1002	Overall view
8	Onboard windshield	Photosonic 1B	8	1000	Driver kinematics - Frt
9	Onboard driver	Photosonic 1B	8	1000	Driver kinematics
10	Onboard passenger	Photosonic 1B	8	1005	Passenger kinematics

CAMERA LOCATION



APPENDIX A

PHOTOGRAPHS



Figure A-1. PRE-TEST VEHICLE FRONT AND BARRIER VIEW



Figure A-2. POST-TEST VEHICLE FRONT AND BARRIER VIEW



Figure A-3. PRE-TEST VEHICLE RIGHT SIDE VIEW

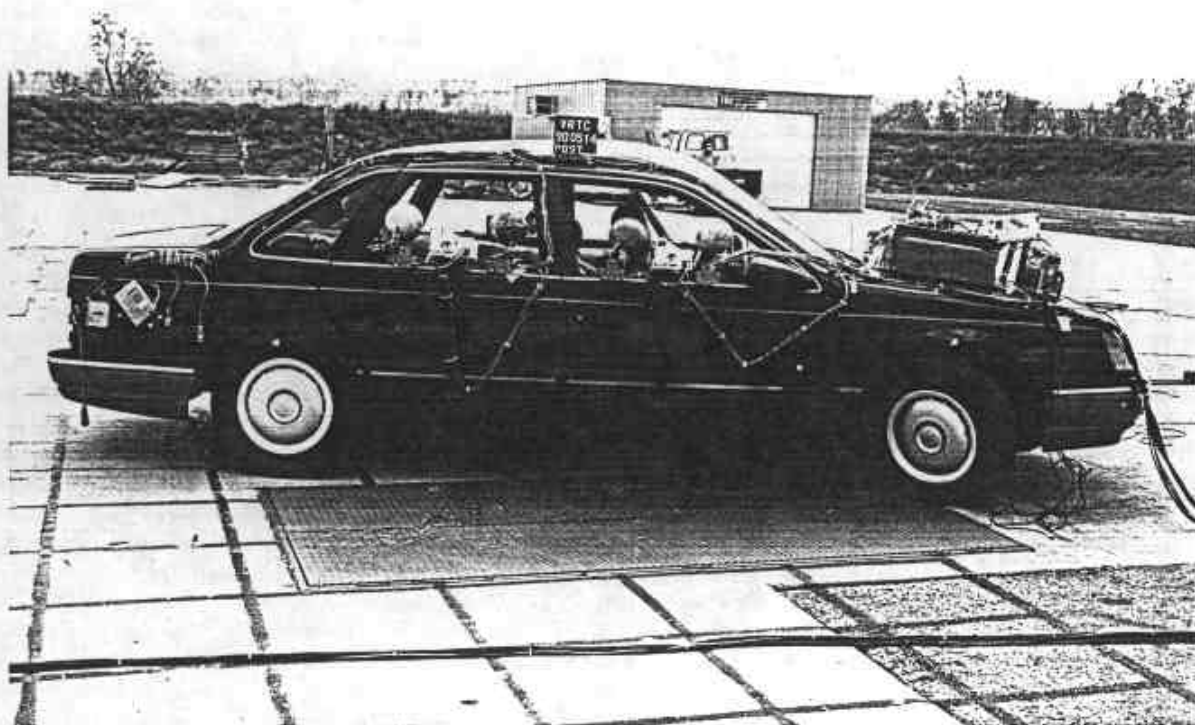


Figure A-4. POST-TEST VEHICLE RIGHT SIDE VIEW



Figure A-5. PRE-TEST VEHICLE REAR AND BARRIER VIEW



Figure A-6. POST-TEST VEHICLE REAR AND BARRIER VIEW

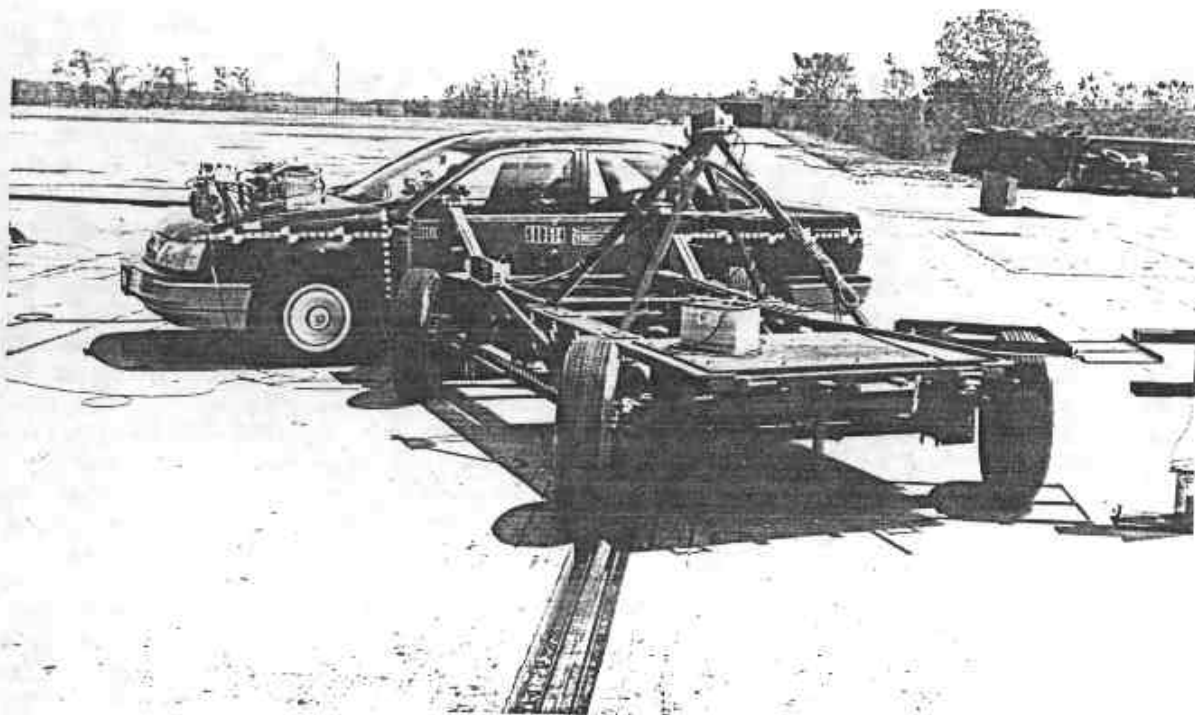


Figure A-7. PRE-TEST VEHICLE LEFT AND BARRIER VIEW

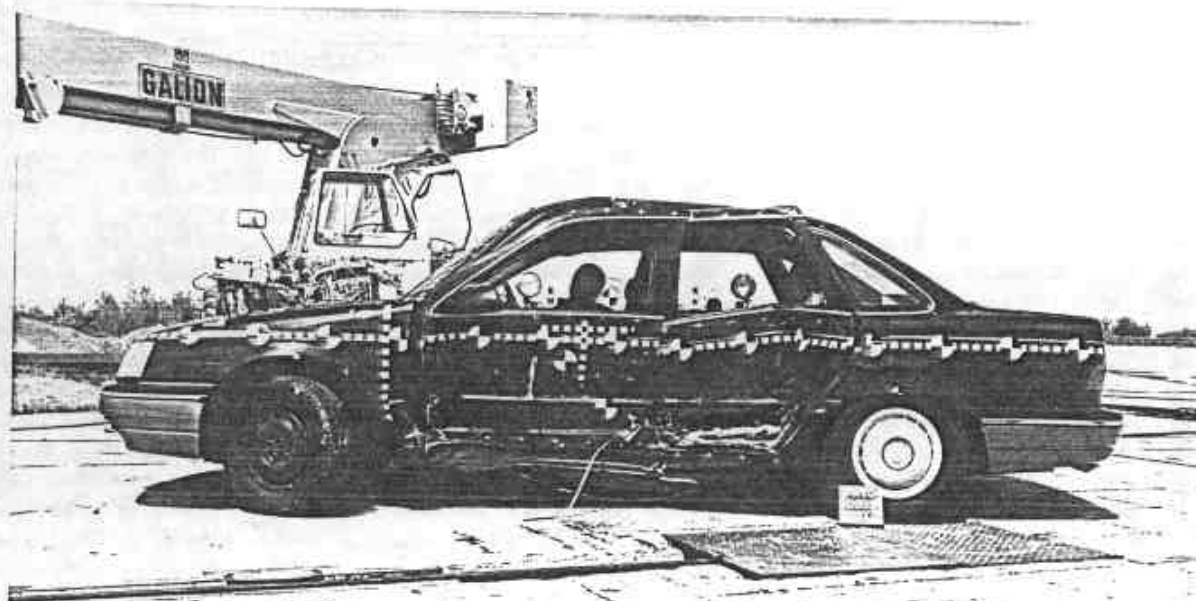


Figure A-8. POST-TEST VEHICLE LEFT SIDE VIEW



Figure A-9. PRE-TEST VEHICLE LEFT FRONT CLOSE-UP VIEW

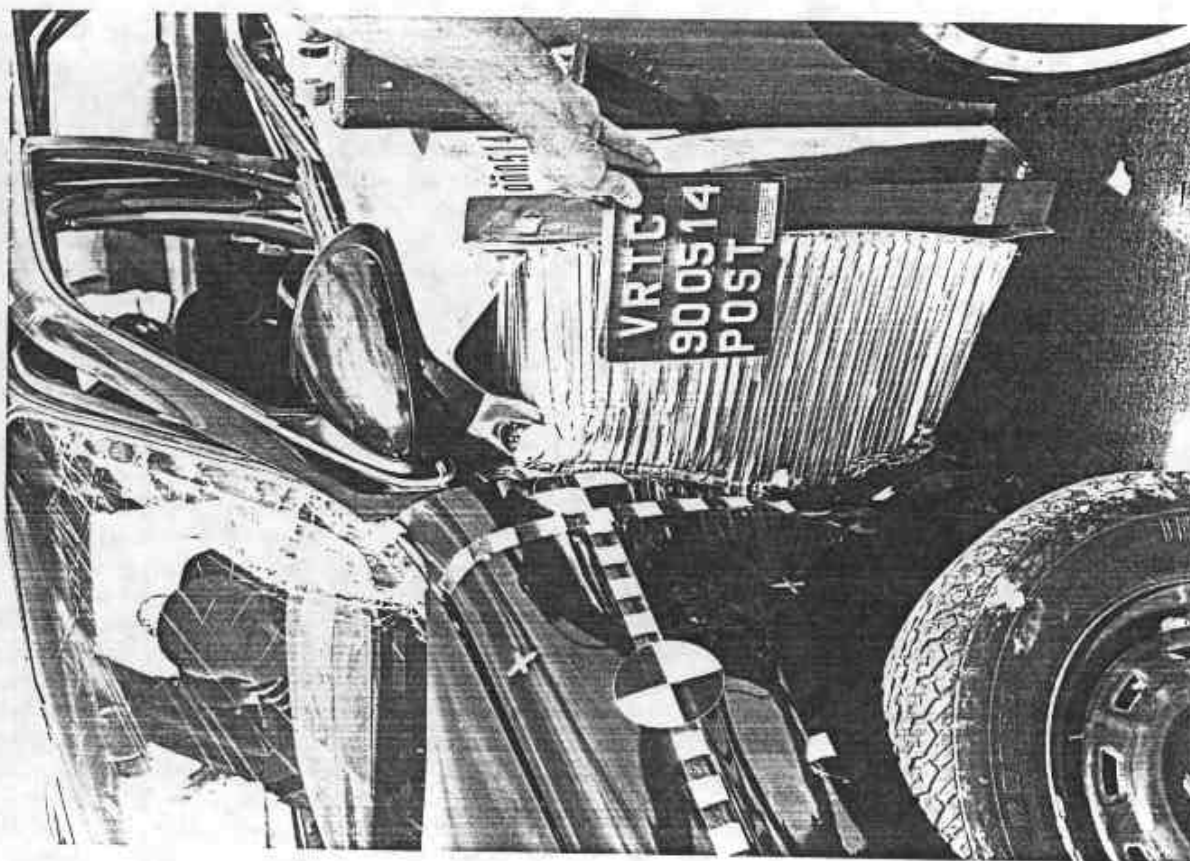


Figure A-10. POST-TEST VEHICLE LEFT FRONT CLOSE-UP VIEW

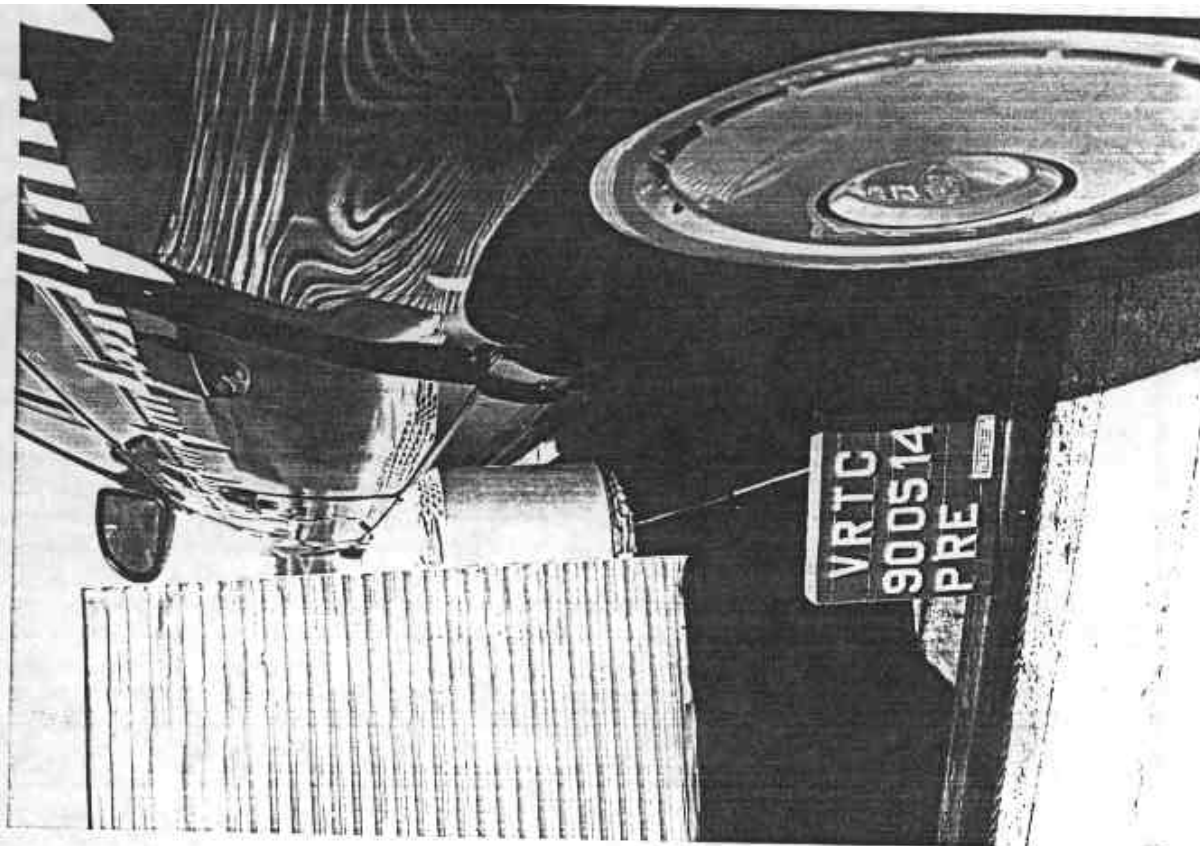


Figure A-11. PRE-TEST VEHICLE LEFT REAR CLOSE-UP VIEW

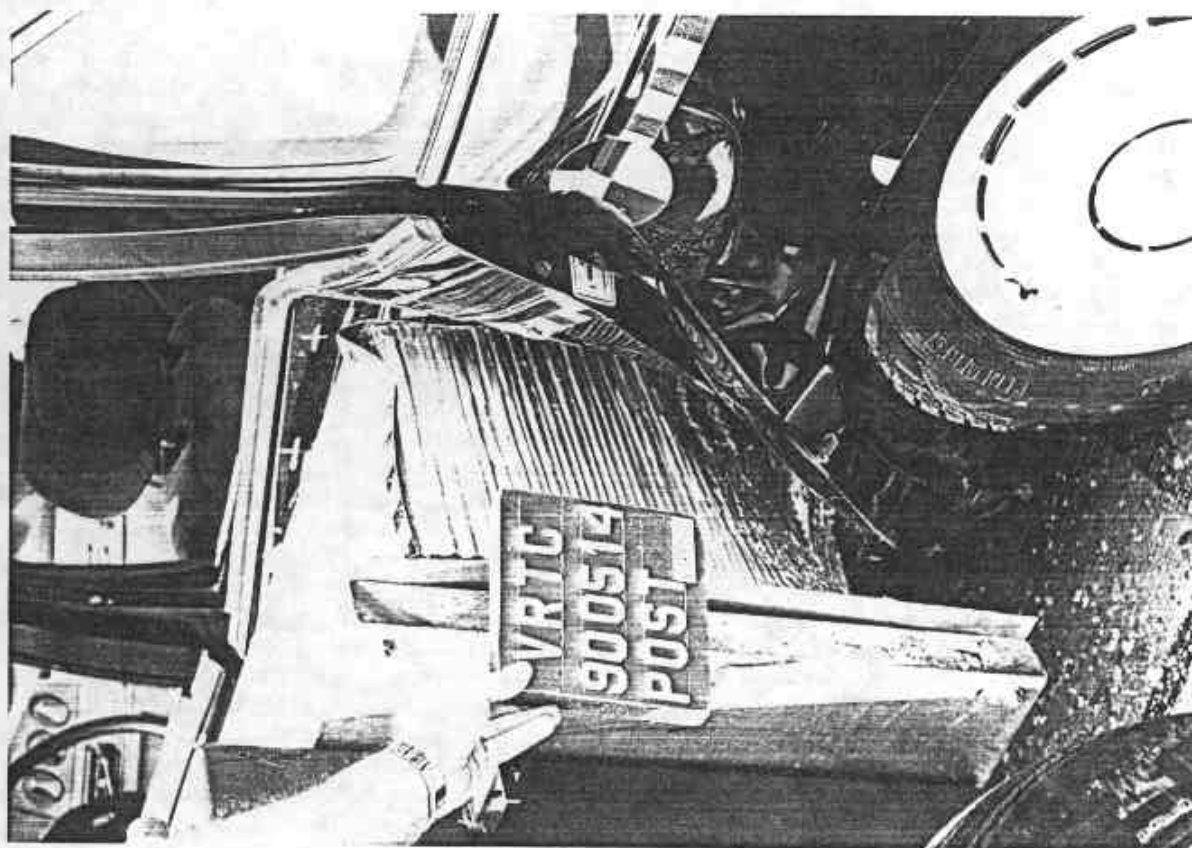


Figure A-12. POST-TEST VEHICLE LEFT REAR CLOSE-UP VIEW

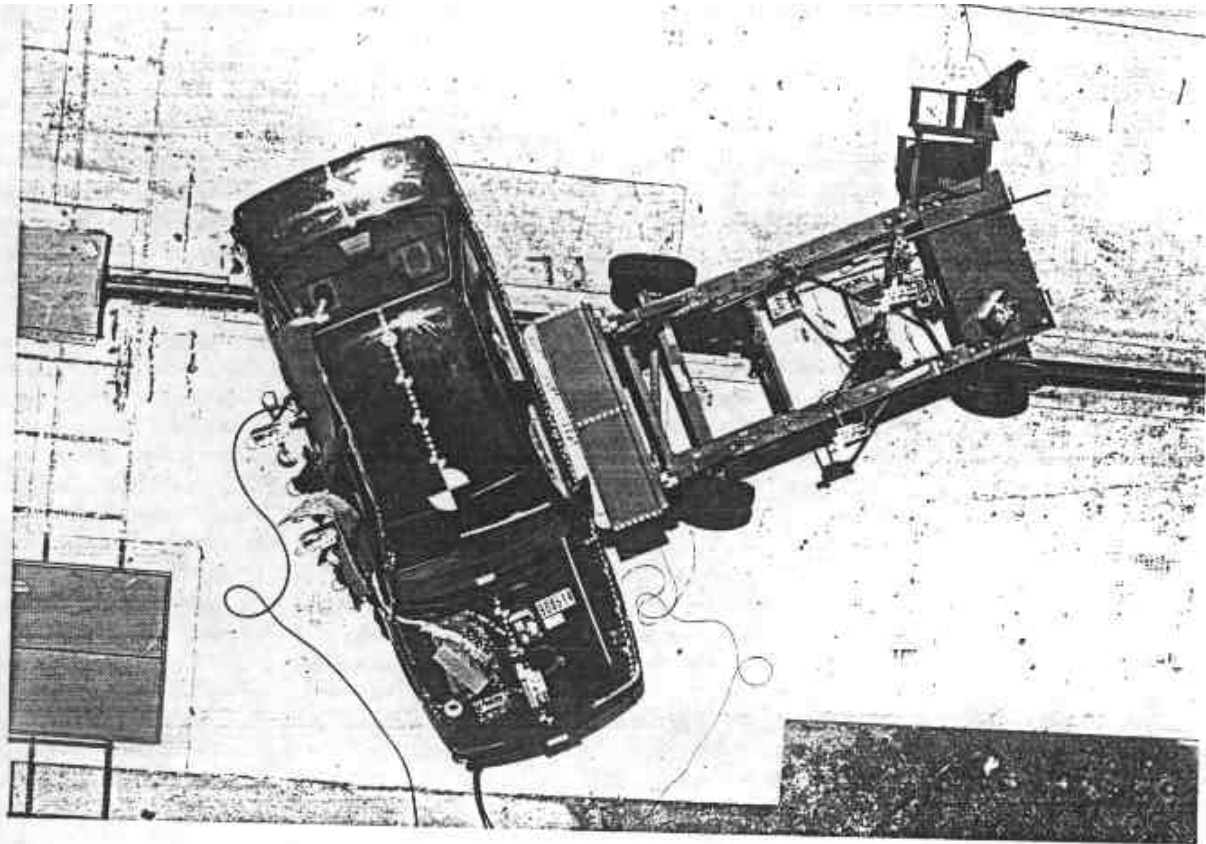


Figure A-13. PRE-TEST VEHICLE TOP - VIEW 1

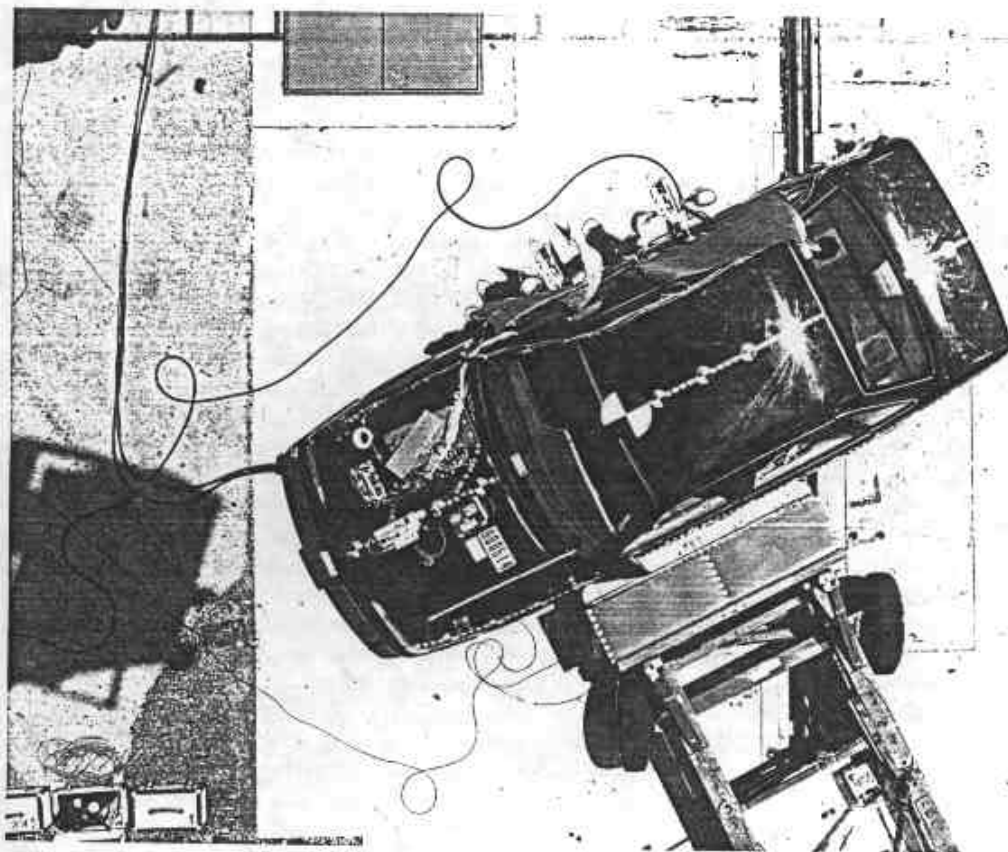


Figure A-14. PRE-TEST VEHICLE TOP - VIEW 2

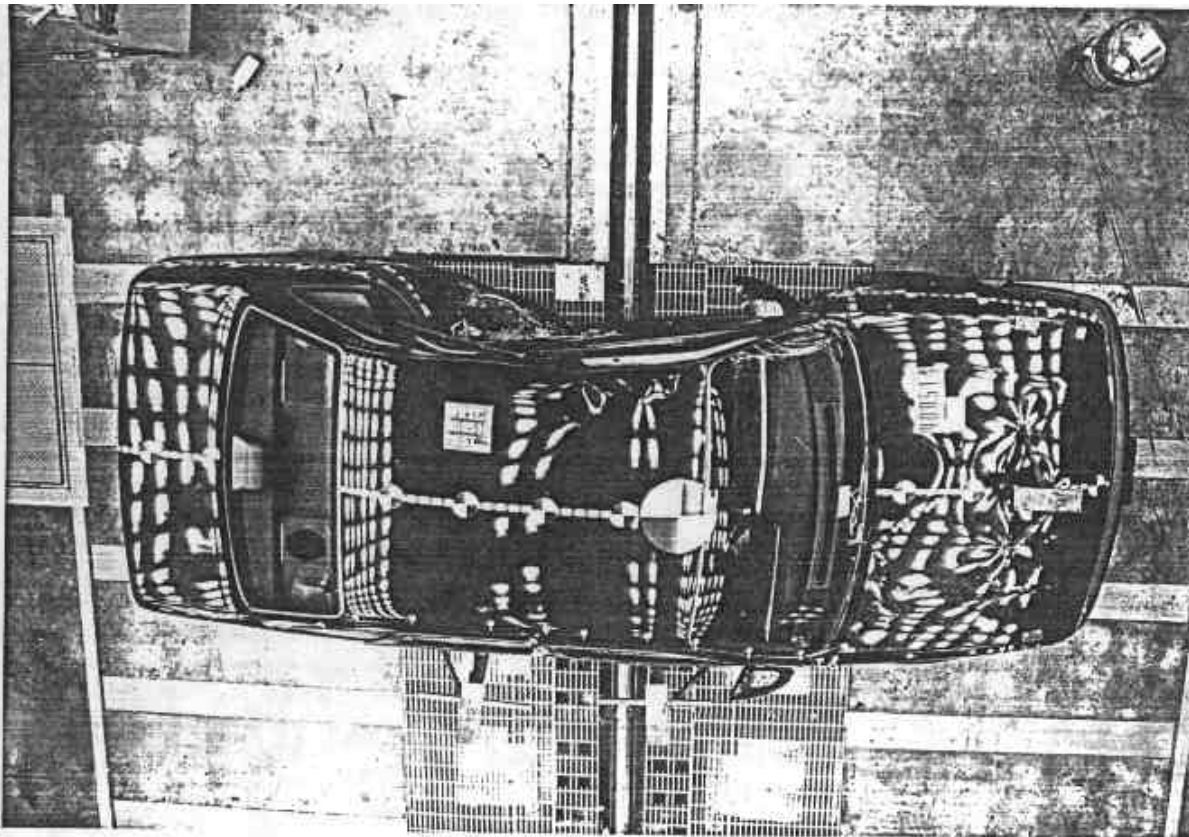


Figure A-15. POST-TEST VEHICLE TOP - VIEW 1

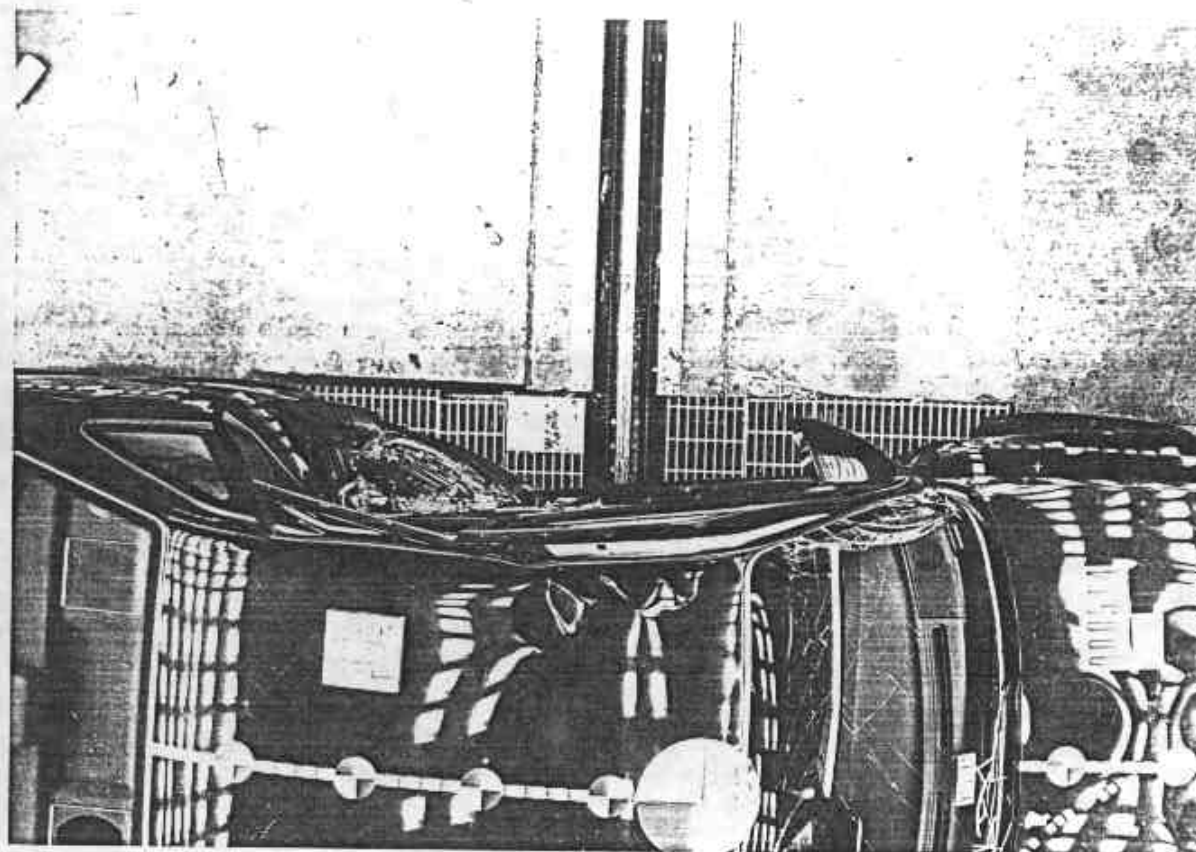


Figure A-16. POST-TEST VEHICLE TOP - VIEW 2



Figure A-17. PRE-TEST LEFT FRONT DOOR ACCELEROMETERS VIEW



Figure A-18. PRE-TEST LEFT FRONT SILL ACCELEROMETER VIEW



Figure A-19. PRE-TEST LEFT REAR DOOR ACCELEROMETERS VIEW

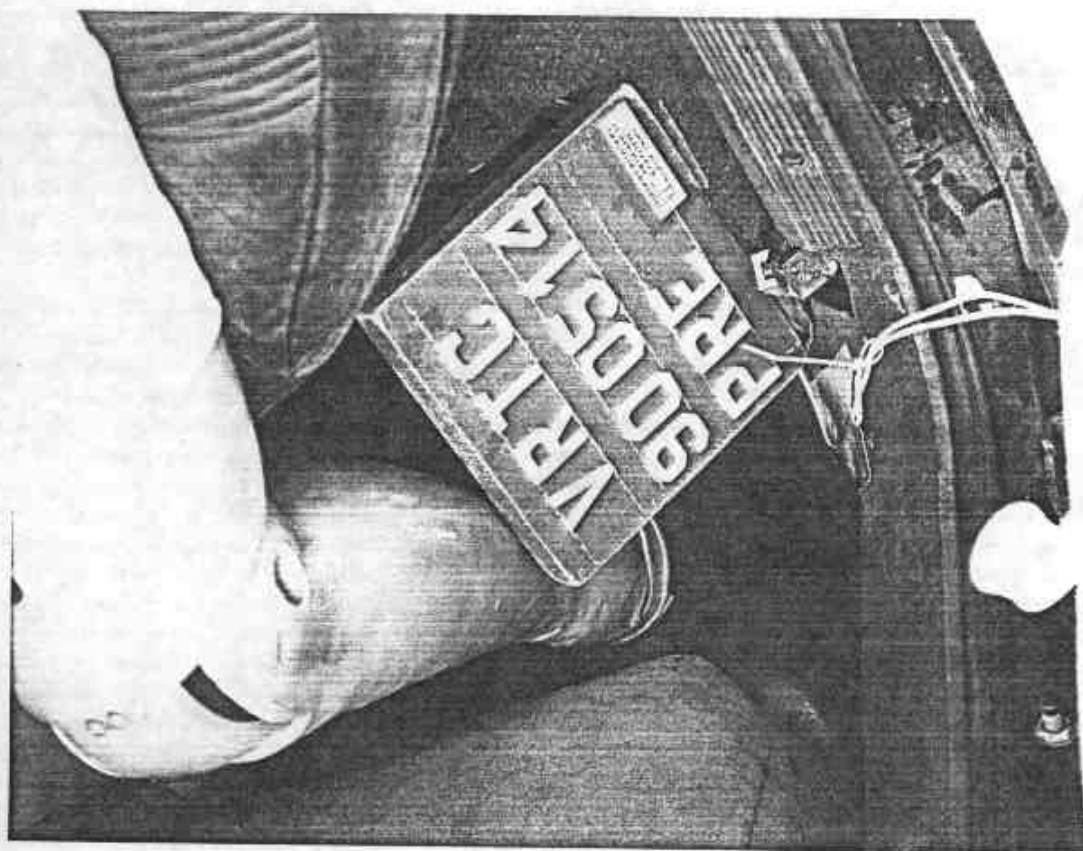


Figure A-20. PRE-TEST LEFT REAR SILL ACCELEROMETER VIEW

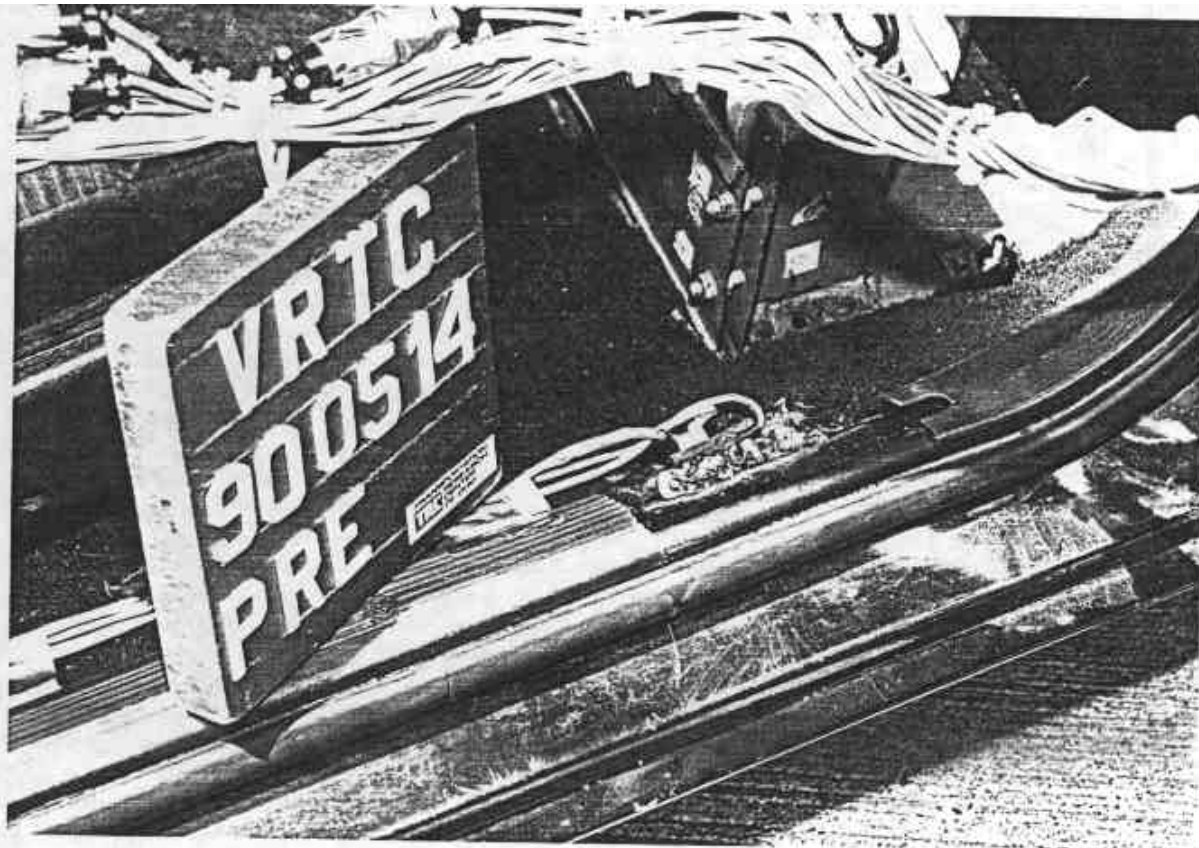


Figure A-21. PRE-TEST RIGHT FRONT SILL ACCELEROMETER VIEW

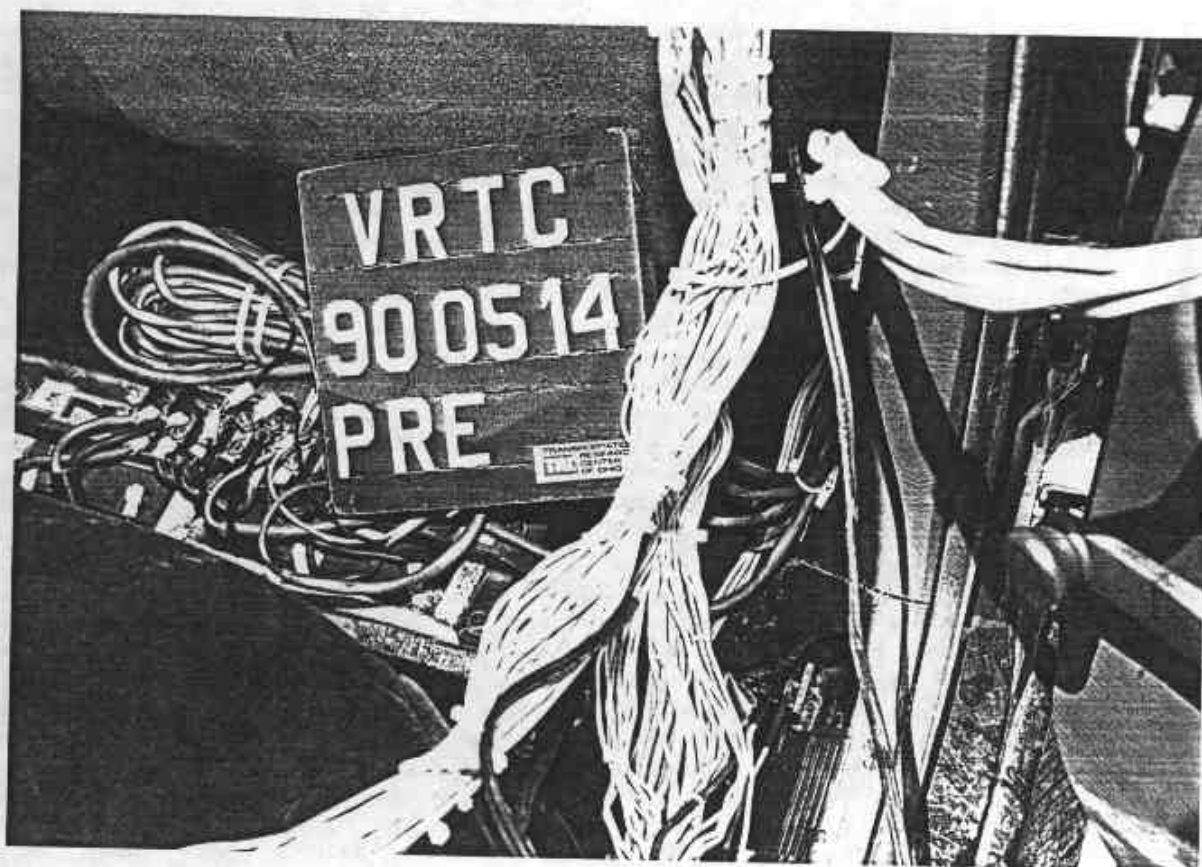


Figure A-22. PRE-TEST RIGHT REAR SILL ACCELEROMETER VIEW

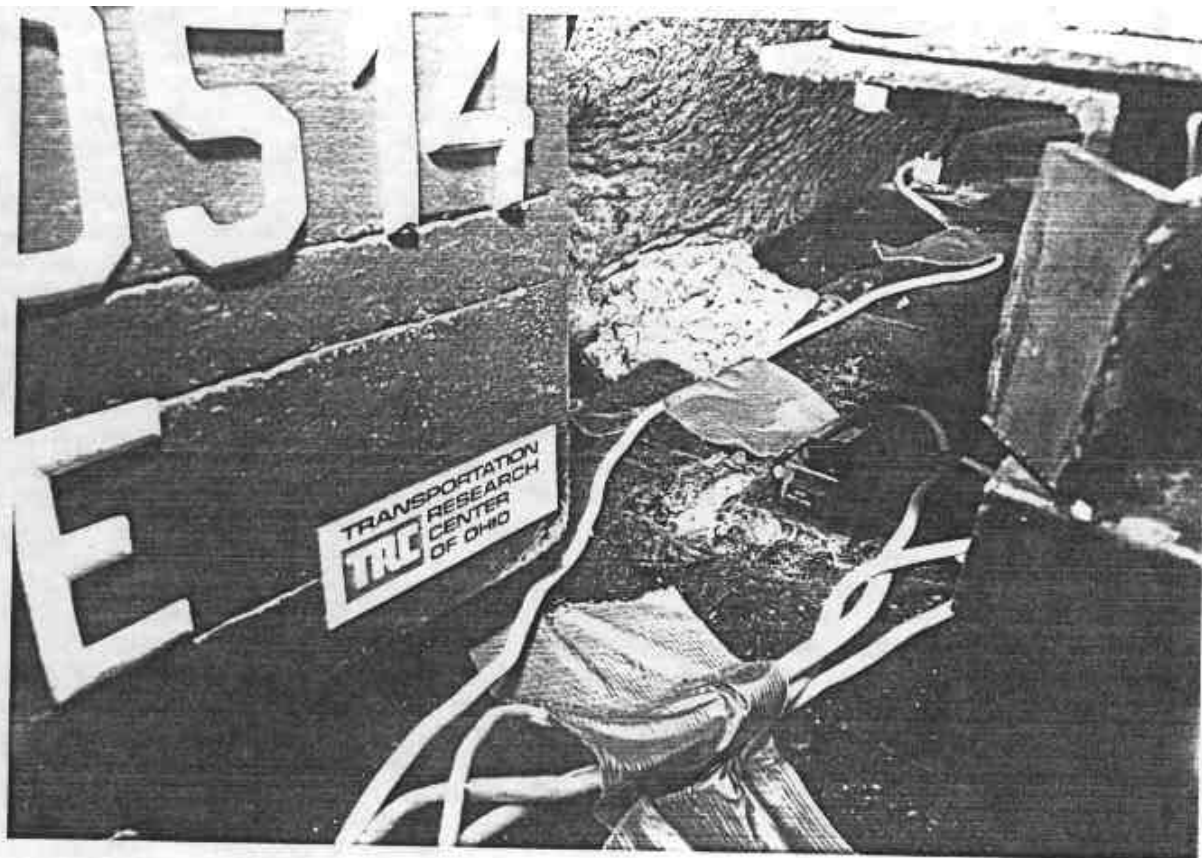


Figure A-23. PRE-TEST TRUNK AREA ACCELEROMETER - VIEW 1

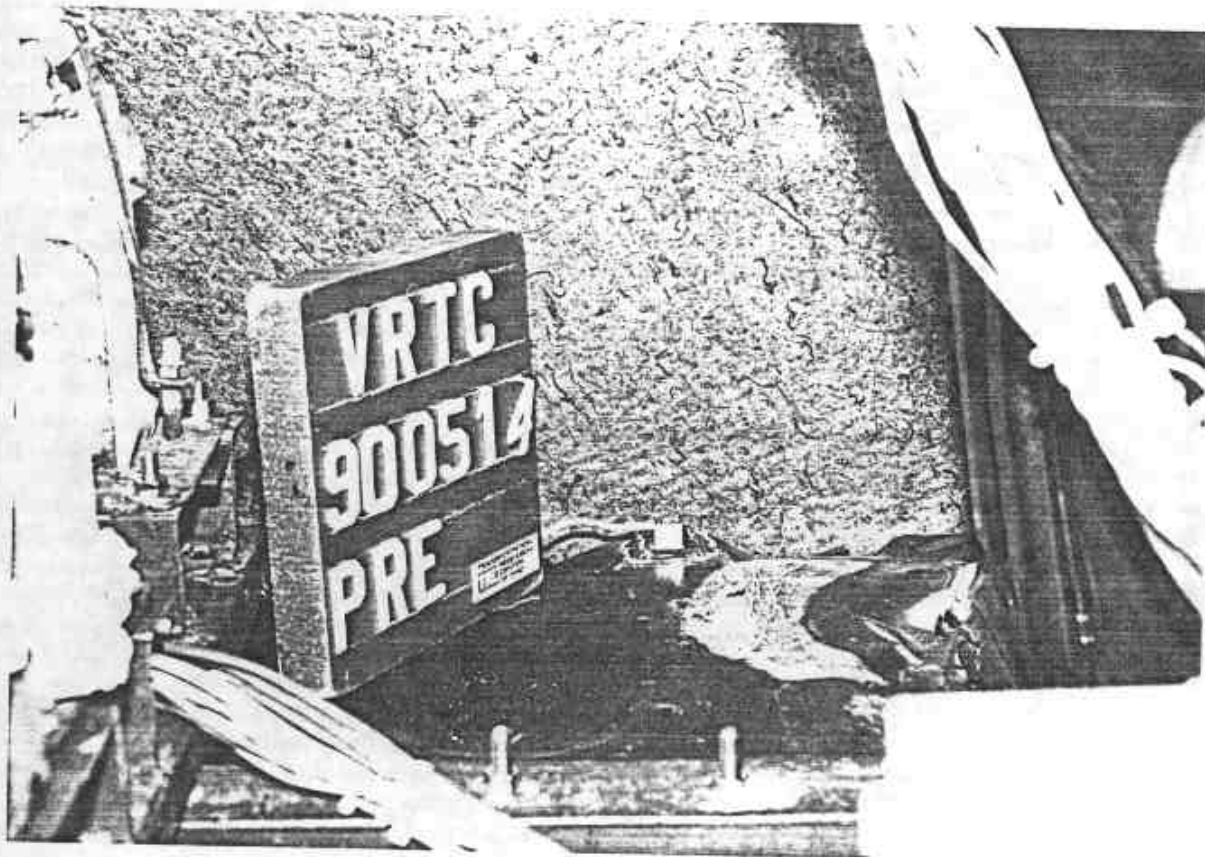


Figure A-24. PRE-TEST TRUNK AREA ACCELEROMETER - VIEW 2

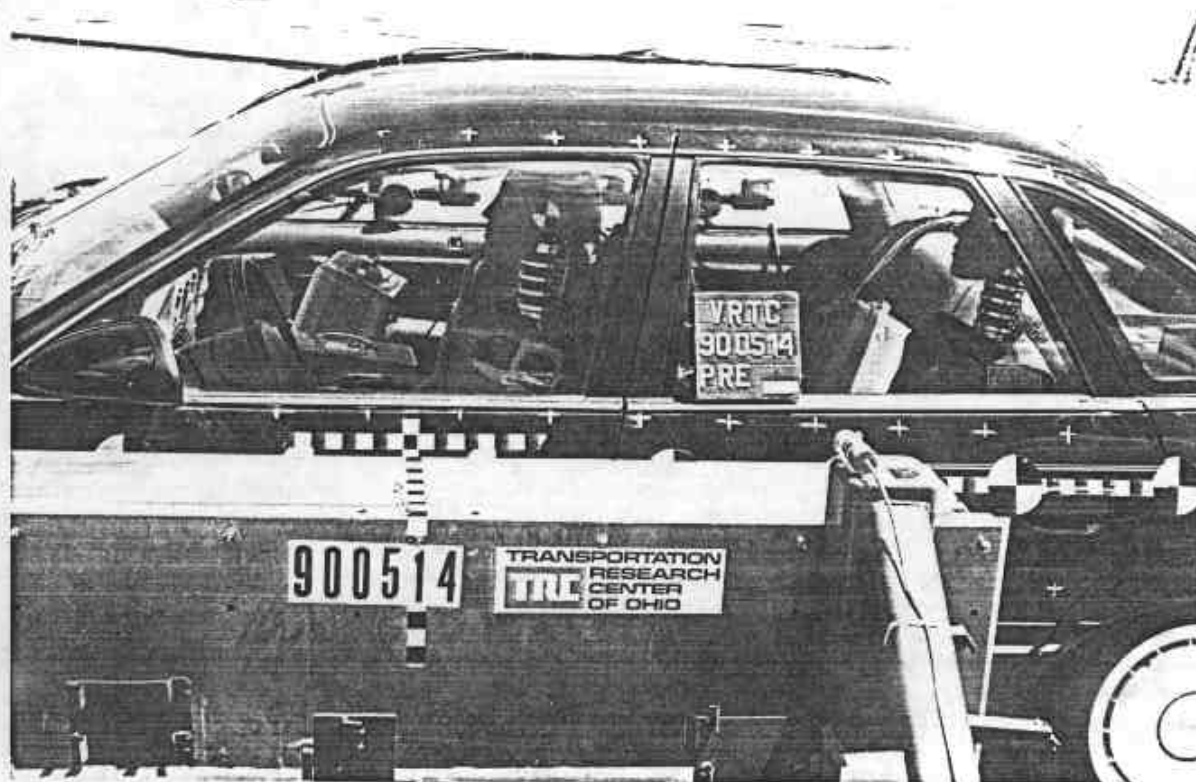


Figure A-25. PRE-TEST DRIVER AND PASSENGER DUMMIES LEFT SIDE VIEW

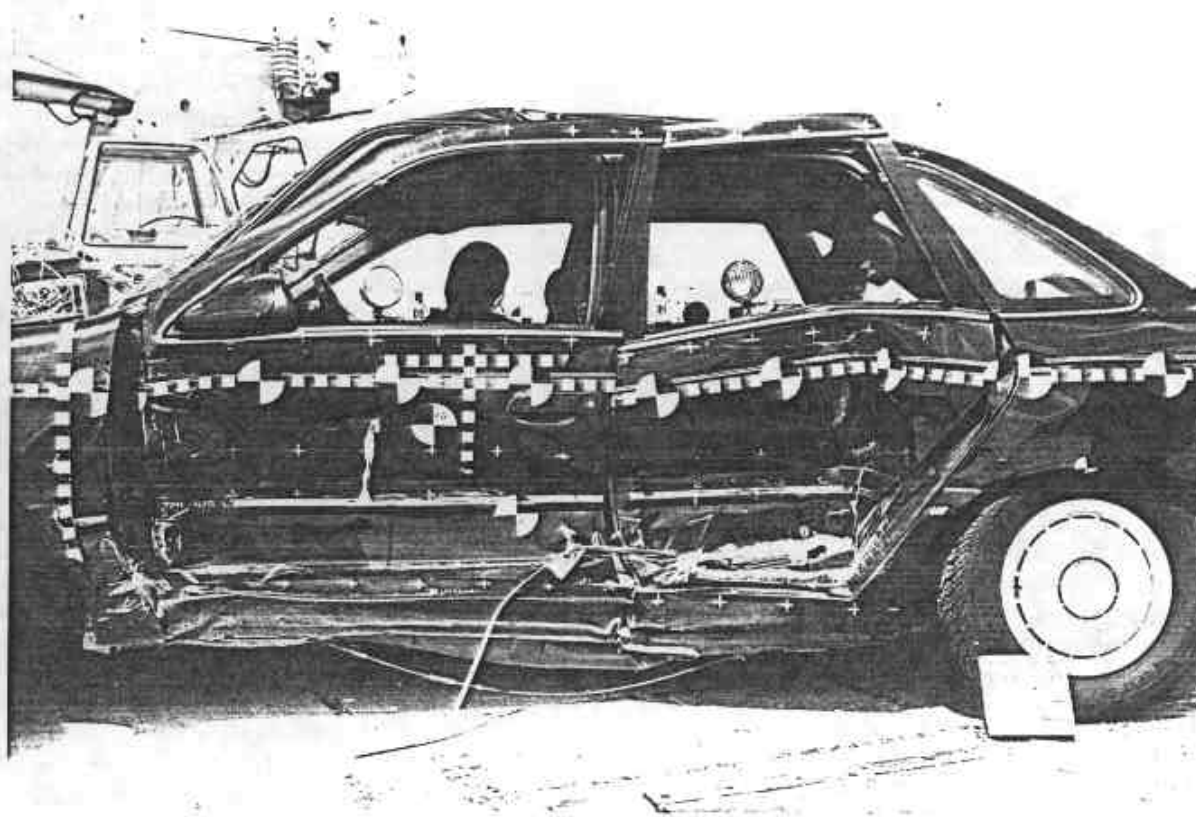


Figure A-26. POST-TEST DRIVER AND PASSENGER DUMMIES LEFT SIDE VIEW

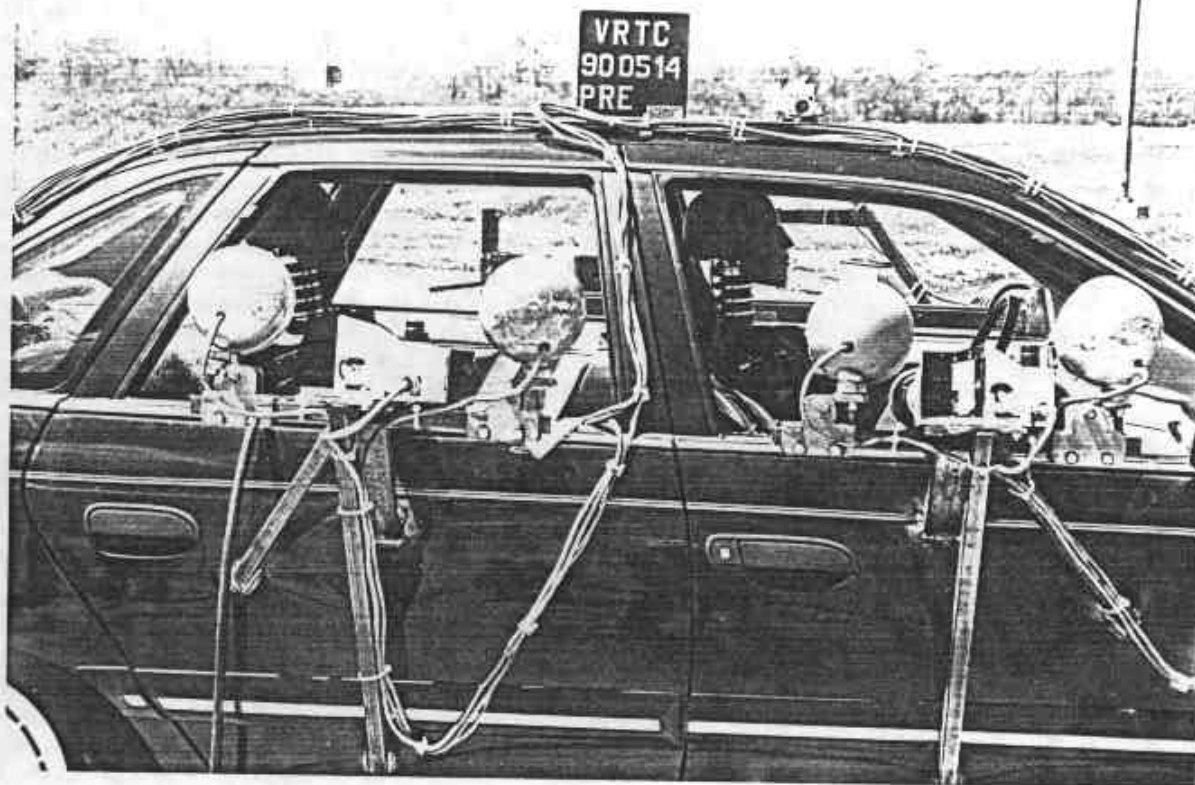


Figure A-27. PRE-TEST DRIVER AND PASSENGER DUMMIES RIGHT SIDE VIEW



Figure A-28. POST-TEST DRIVER AND PASSENGER DUMMIES RIGHT SIDE VIEW



Figure A-29. PRE-TEST DRIVER DUMMY - VIEW 1

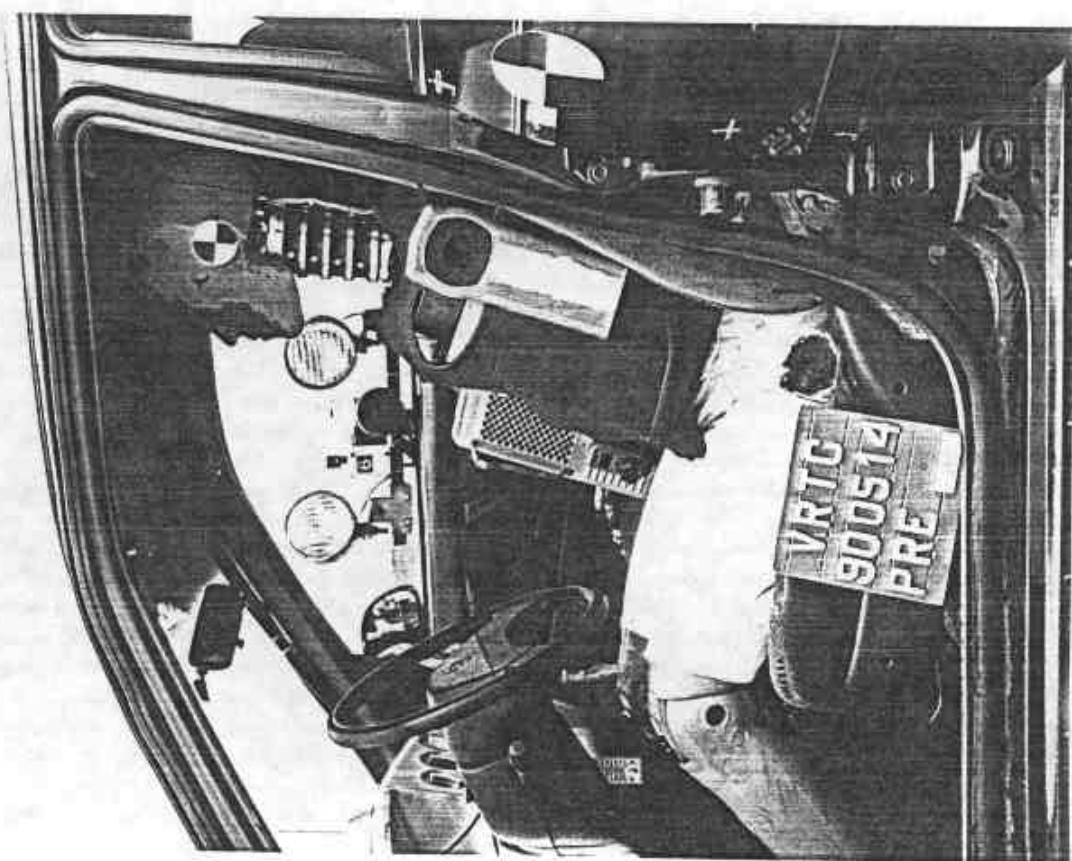


Figure A-30. PRE-TEST DRIVER DUMMY - VIEW 2

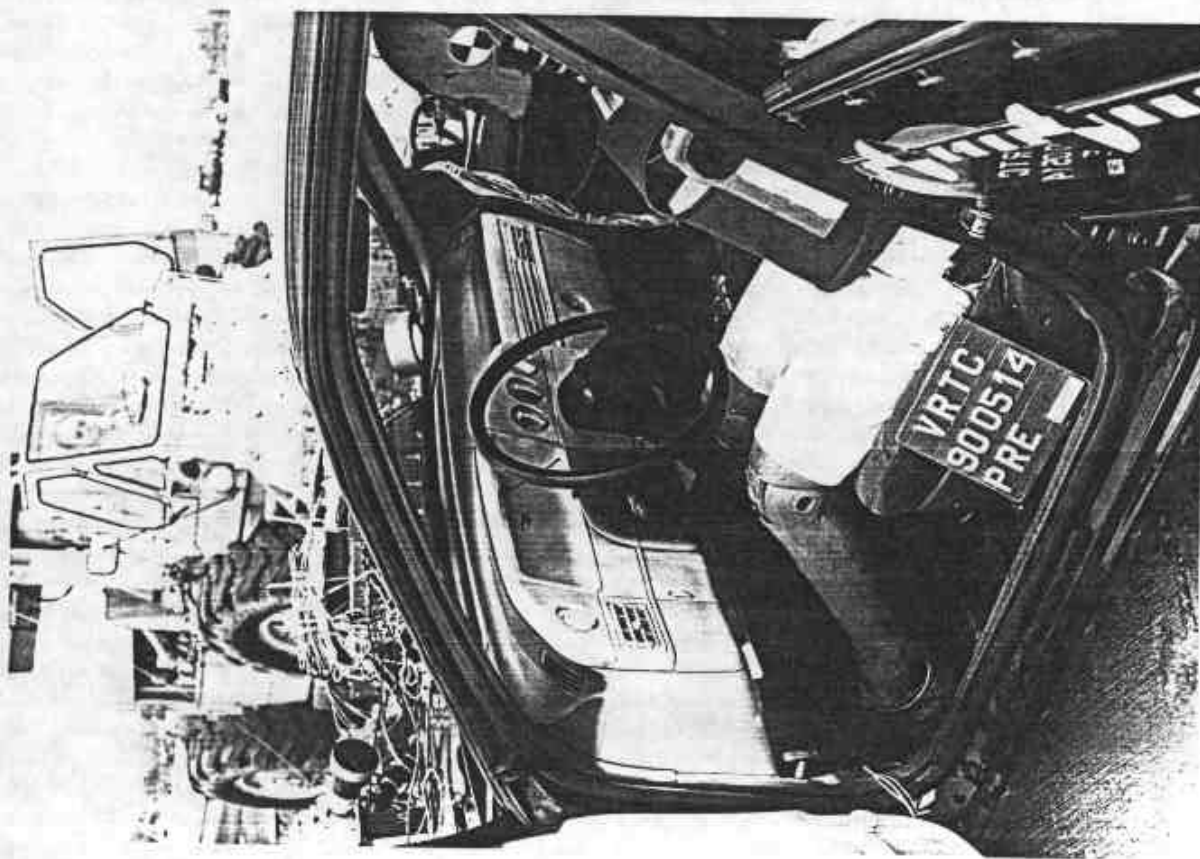


Figure A-31. PRE-TEST DRIVER DUMMY - VIEW 3



Figure A-32. POST-TEST DRIVER DUMMY VIEW



Figure A-33. PRE-TEST PASSENGER DUMMY VIEW



Figure A-34. POST-TEST PASSENGER DUMMY VIEW

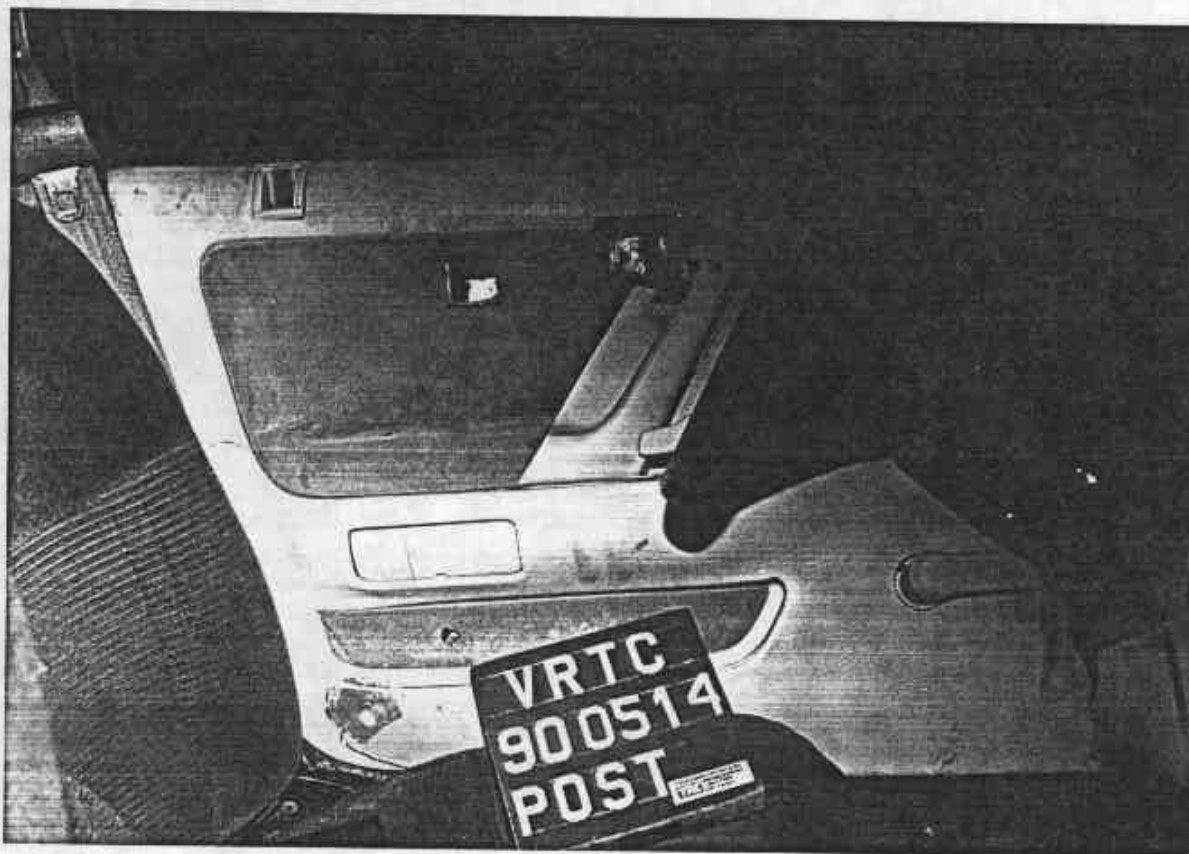


Figure A-35. POST-TEST DRIVER DUMMY CONTACT VIEW

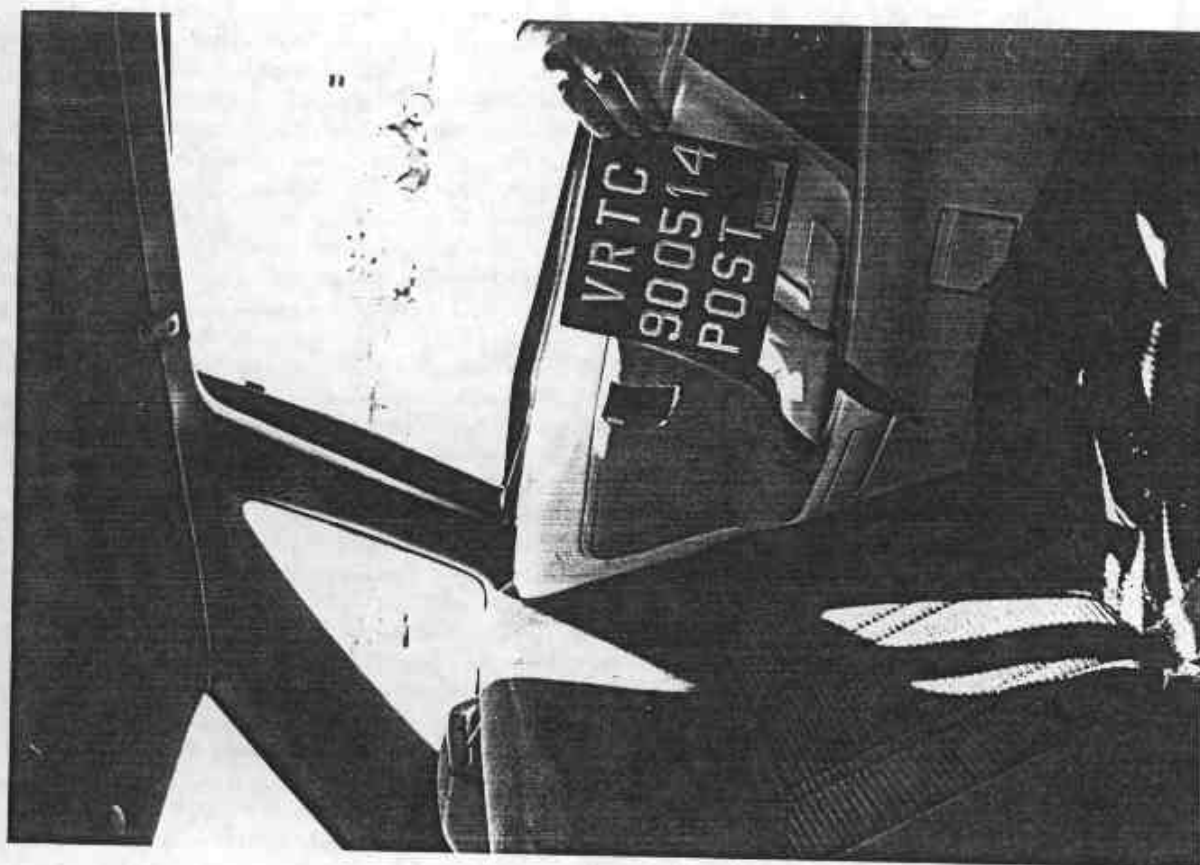


Figure A-36. POST-TEST PASSENGER DUMMY CONTACT VIEW

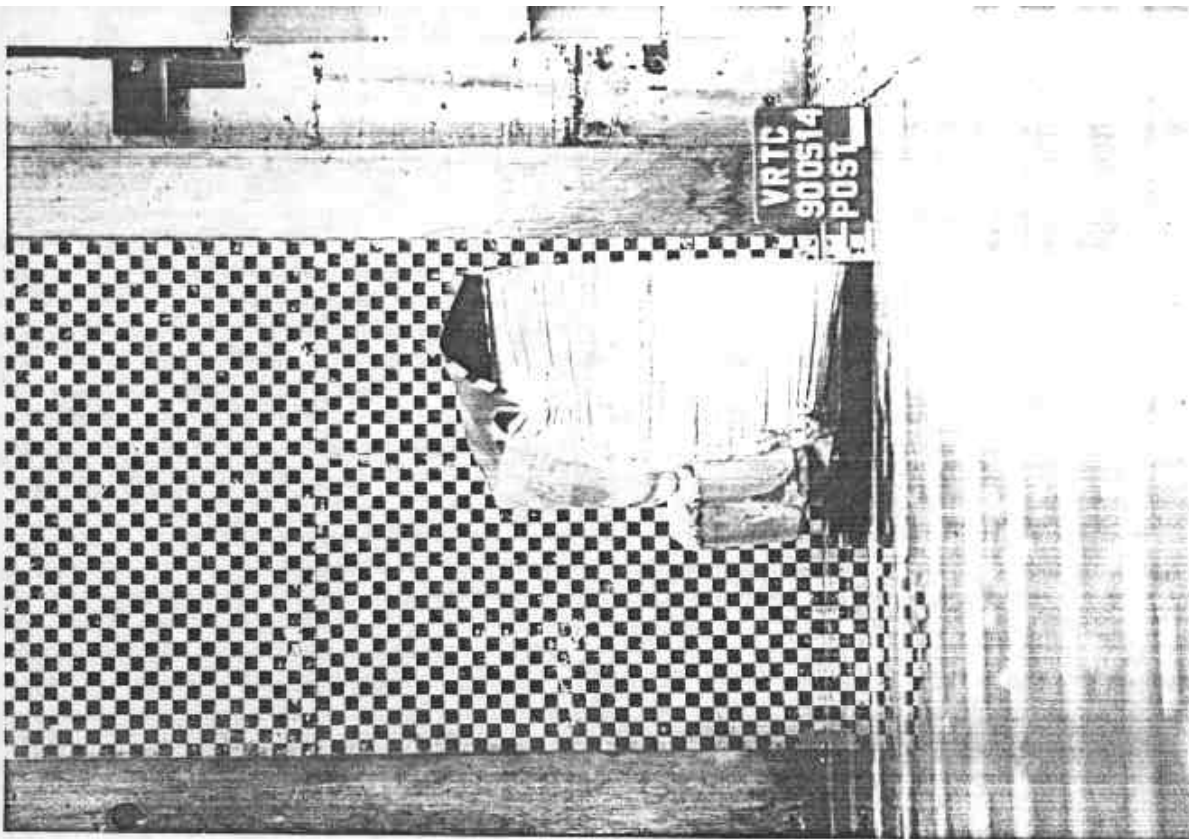


Figure A-37. POST-TEST BARRIER FACE - VIEW 1

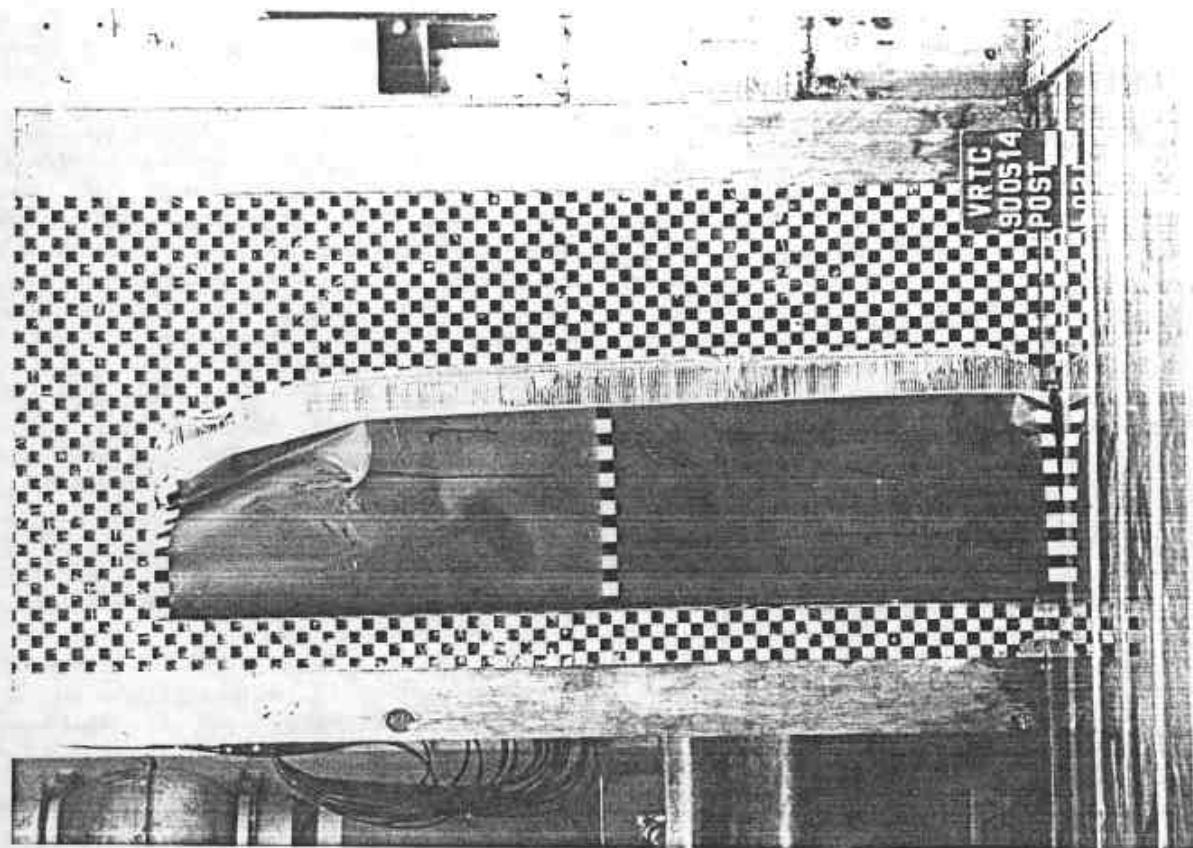


Figure A-38. POST-TEST BARRIER FACE - VIEW 2

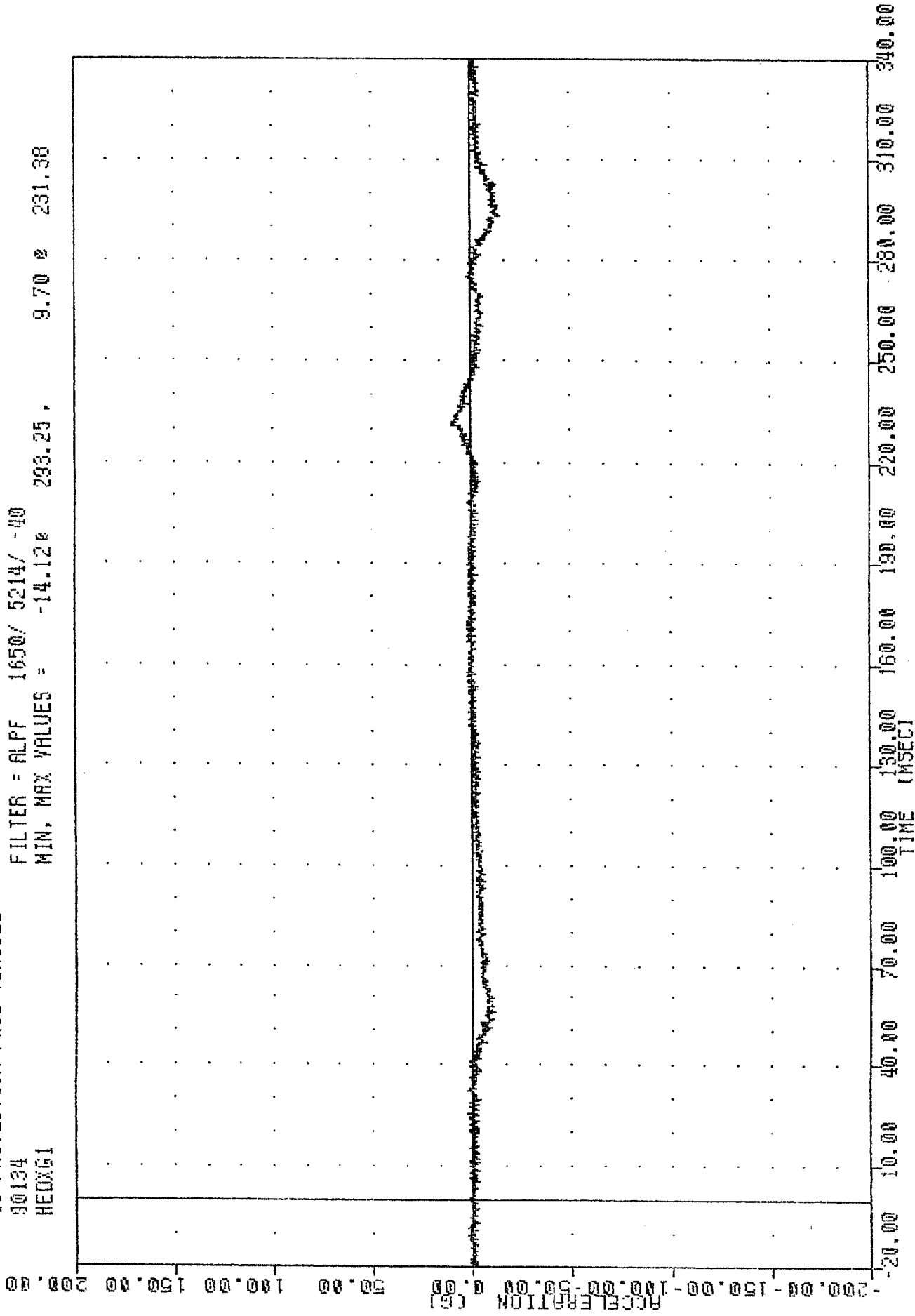
APPENDIX B

DATA PLOT PRESENTATION

Data plots generated from the crash test data are presented on the following pages. All data are recorded on magnetic tape for inclusion in the NHTSA crash test data base system. All data were filtered according to SAE J211b, except that dummy thorax and pelvis data were filtered using the HSRI filter.

101C , 900514
SI PROTECTION PROD VEHICLE
90134
HEDXG1

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -14.120 293.25 , 9.70 2 231.38

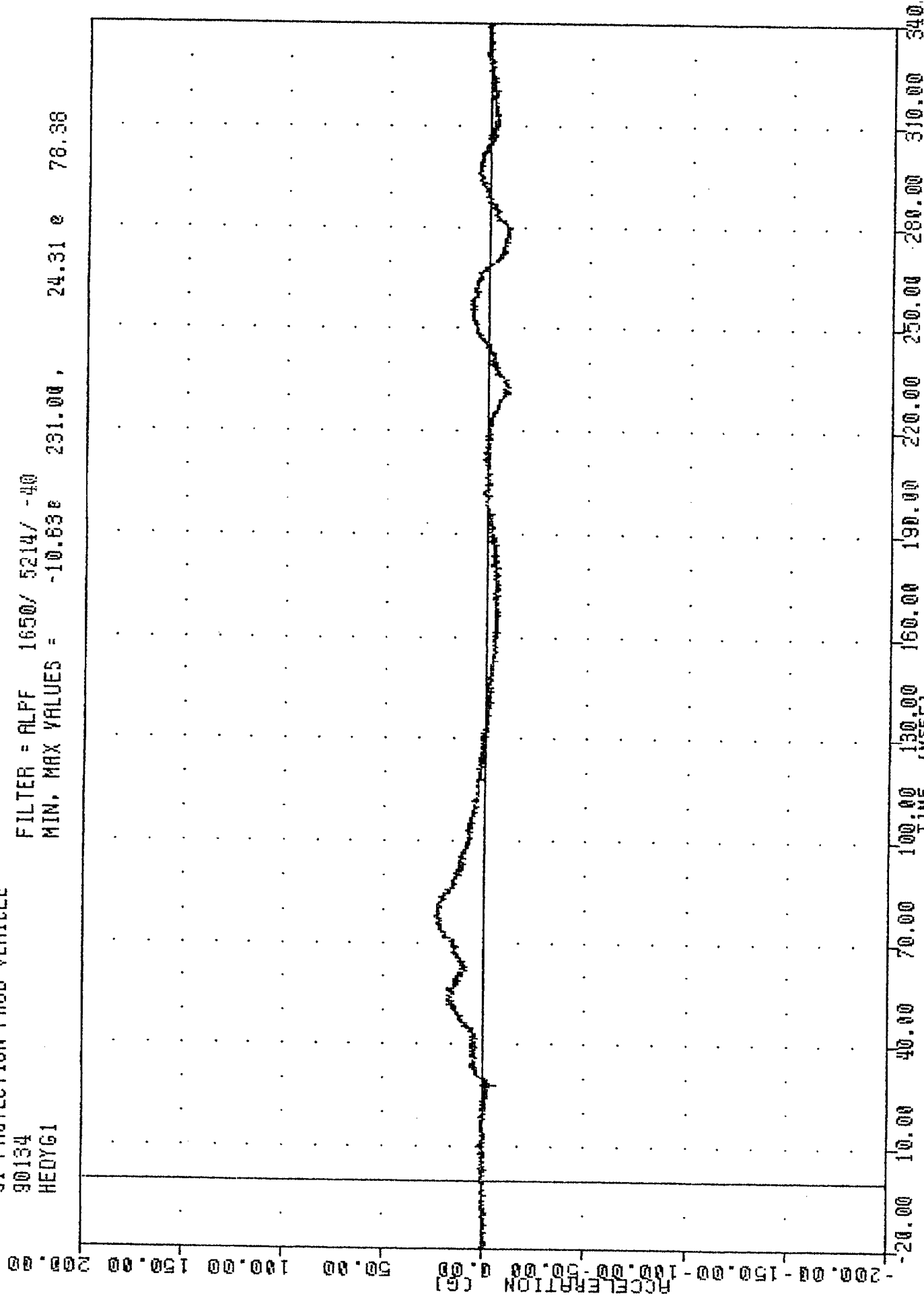


SI PROTECTION PROD VEHICLE

90134
HEDYG1

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -10.63e 231.00,

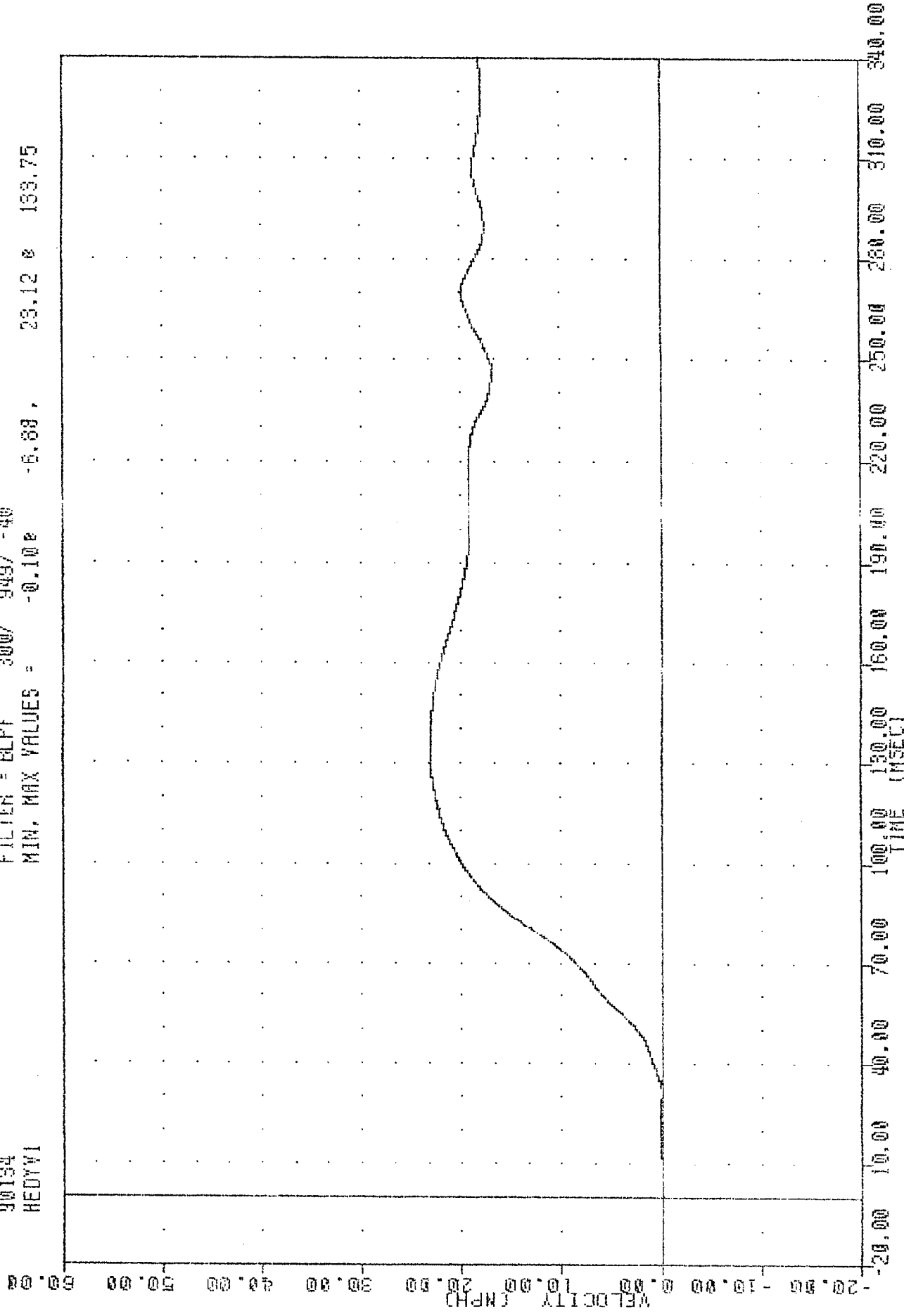
24.31 e 78.38



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER HEAD Y AXIS ACCELERATION

11110
 SI PROTECTION PROD VEHICLE
 90134
 HEDYV1

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.10e -6.68, 23.12 e 133.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
 DRIVER HEAD Y AXIS VELOCITY

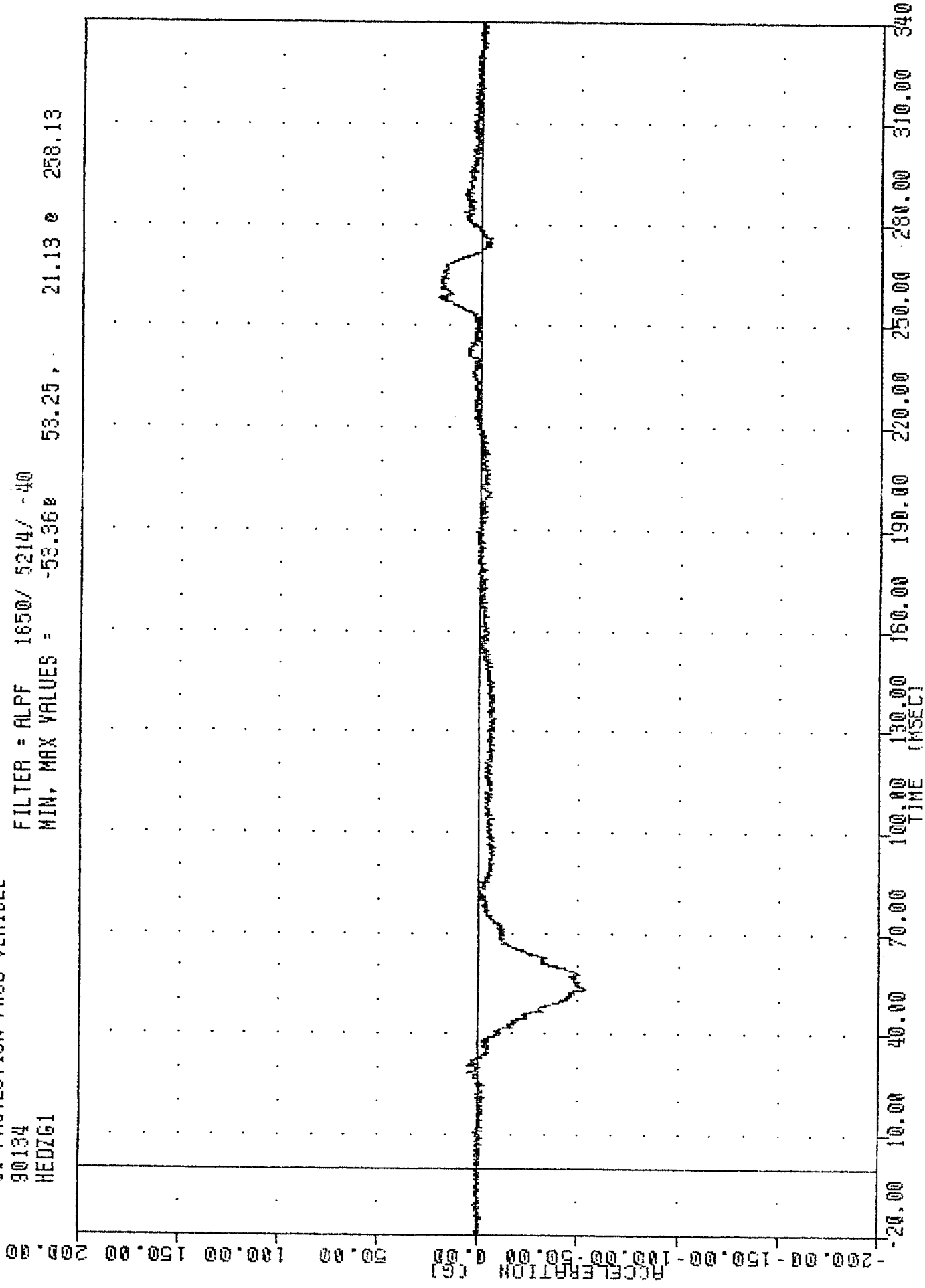
SI PROTECTION PROD VEHICLE

90134
HEDZG1

FILTER = ALPF 1650/ 5214/ -40

MIN, MAX VALUES = -53.36 53.25

21.13 258.13

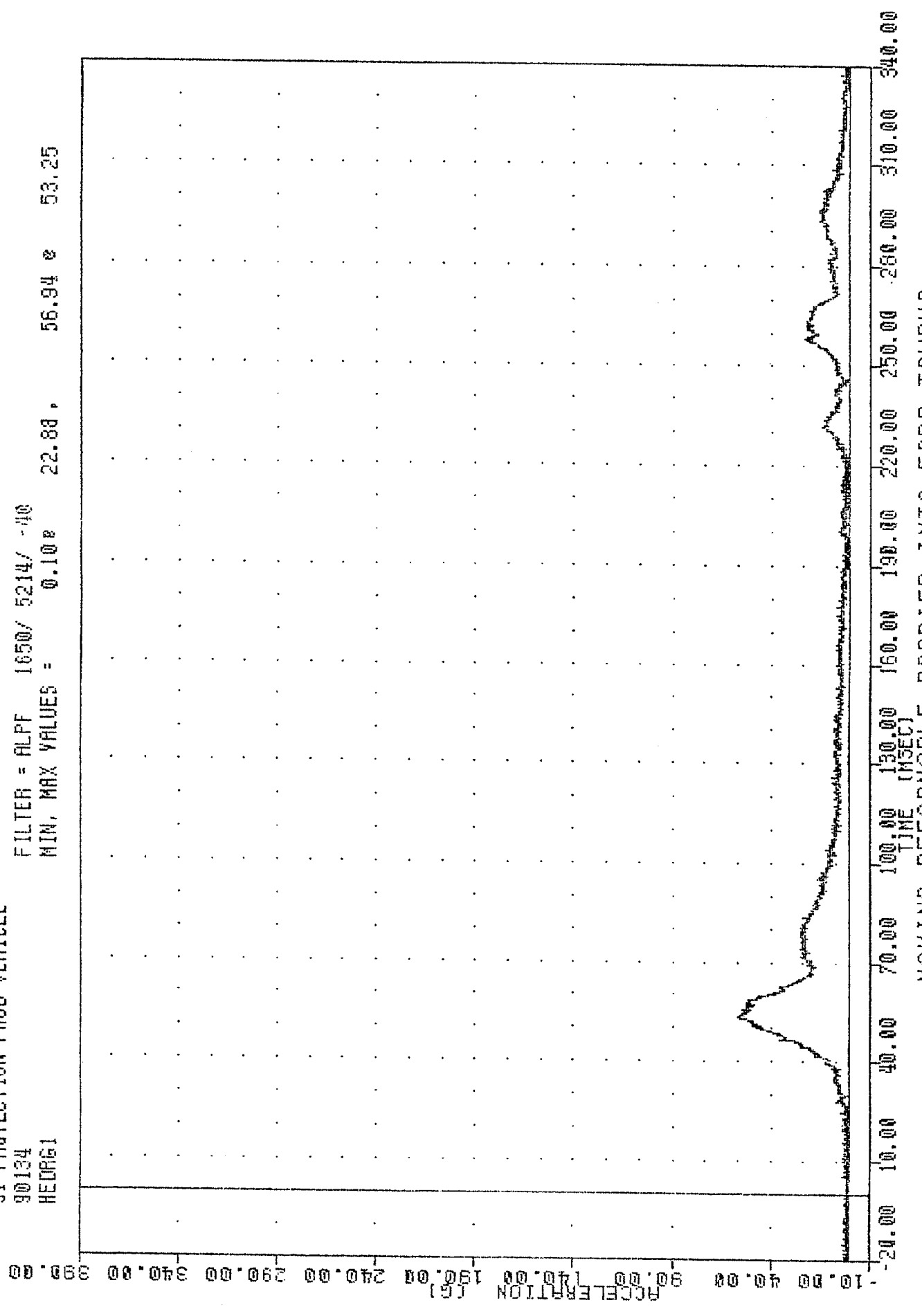


MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER HEAD Z AXIS ACCELERATION

90134
 SI PROTECTION PROD VEHICLE
 90134
 HEDR61

900514

FILTER = ALPF 1650/ 5214/ -40
 MIN, MAX VALUES = 0.10e 22.88, 56.94 e 53.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER HEAD RESULTANT ACCELERATION

31 PROTECTION FROM VEHICLE

90134

SHLYG1

FILTER = HSRI

136/ 189/ -50

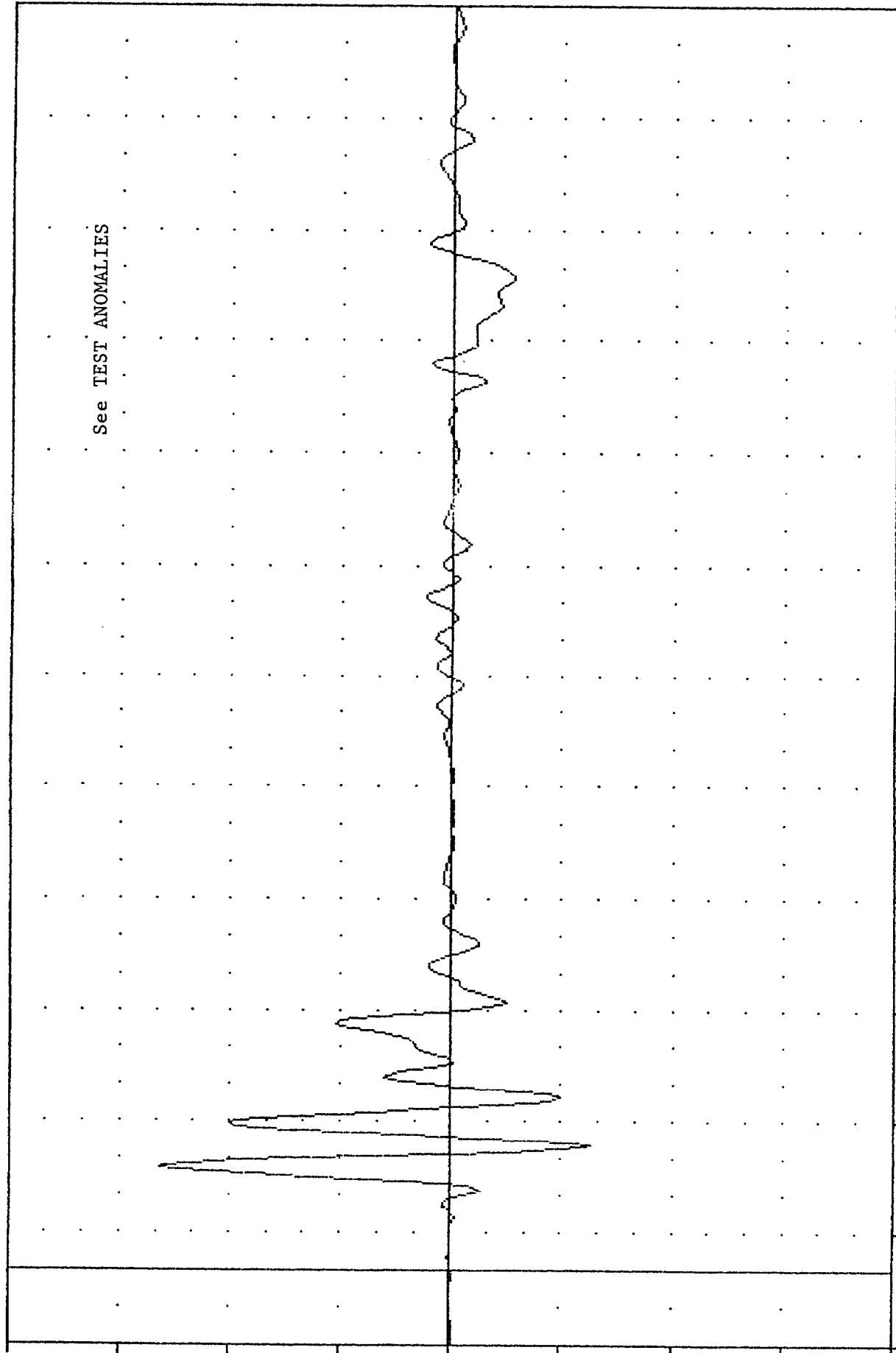
MIN. MAX VALUES = -63.36

33.75,

131.60

27.50

ACCELERATION (G)



340.

280.00

250.00

220.00

190.00

160.00

130.00

100.00

70.00

40.00

10.00

-20.00

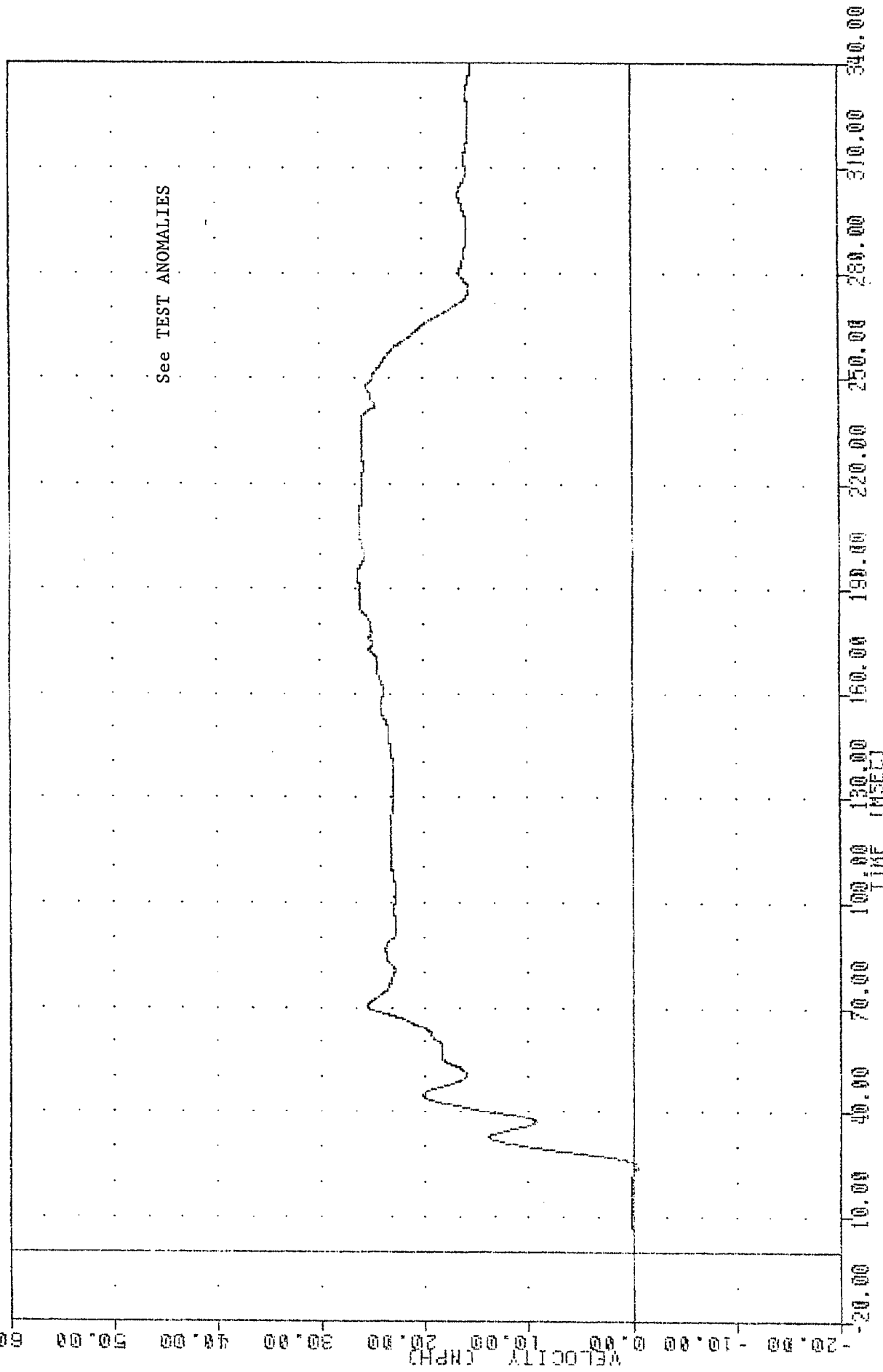
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO FORD TAURUS

DRIVER LEFT SHOULDER Y AXIS ACCELERATION

90134
 SHLYW1
 SI PROTECTION PROD VEHICLE

FILTER = BLPF 300/ 949/ -90
 MIN. MAX VALUES = -0.46e 24.13 , 26.42 e 194.00



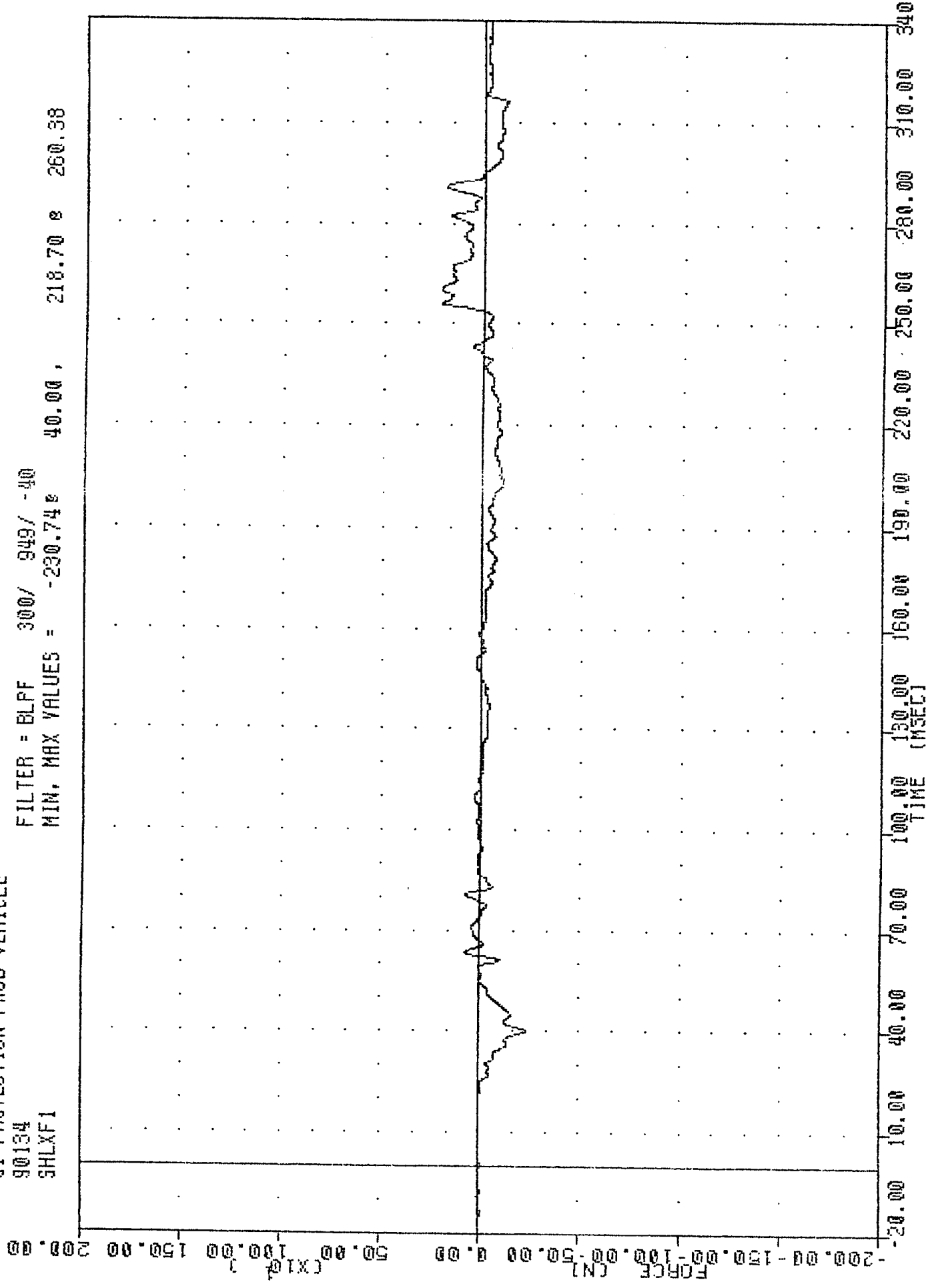
MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
 DRIVER LEFT SHOULDER Y AXIS VELOCITY

SI PROTECTION PROD VEHICLE

90134
SHLXF1

FILTER = BLPF 300/ 949/ -40

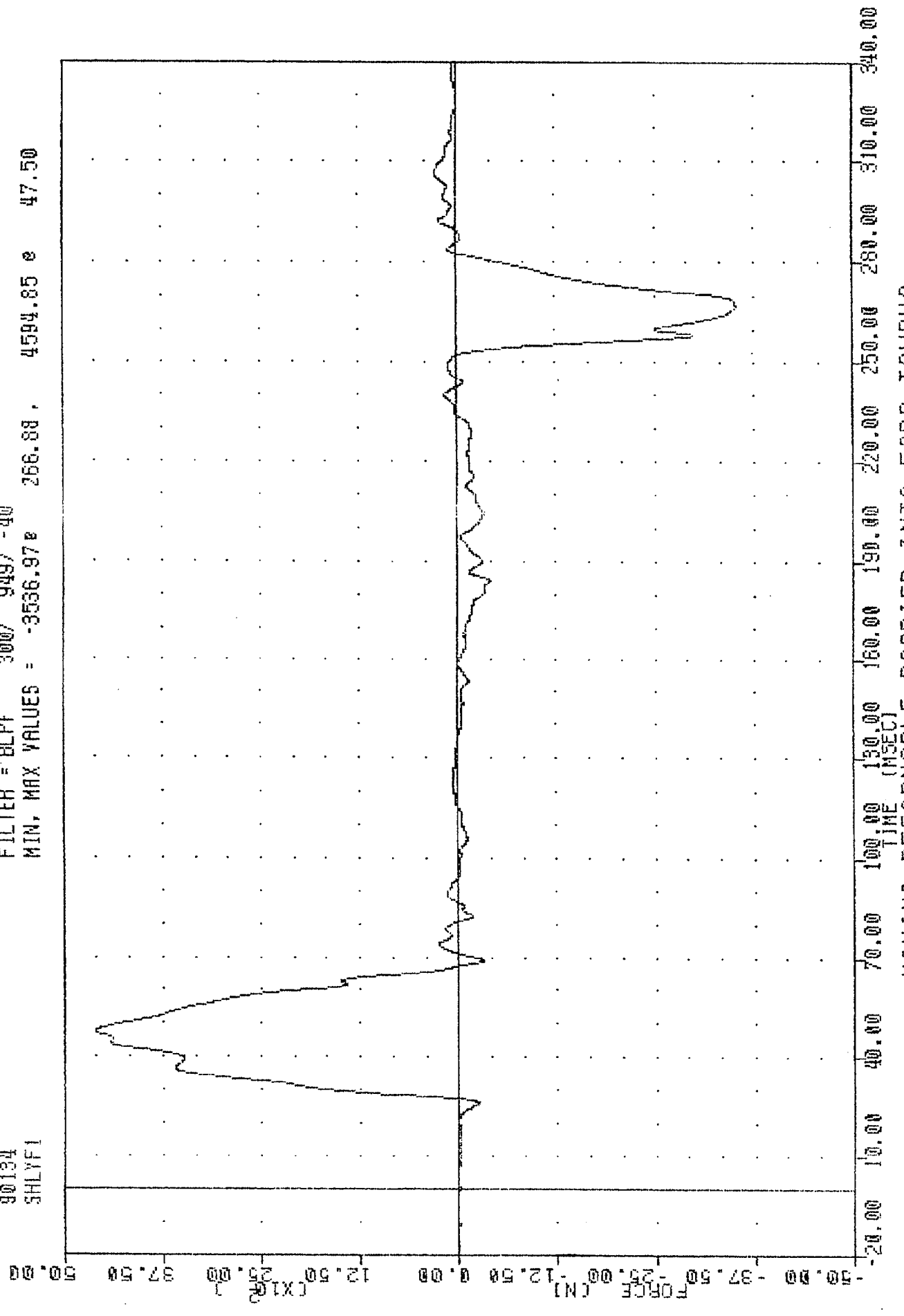
MIN, MAX VALUES = -230.74 40.00, 218.70 260.38



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LEFT SHOULDER X AXIS FORCE

VRIC, 900514
SI PROTECTION PROD VEHICLE
90134
SHLYF1

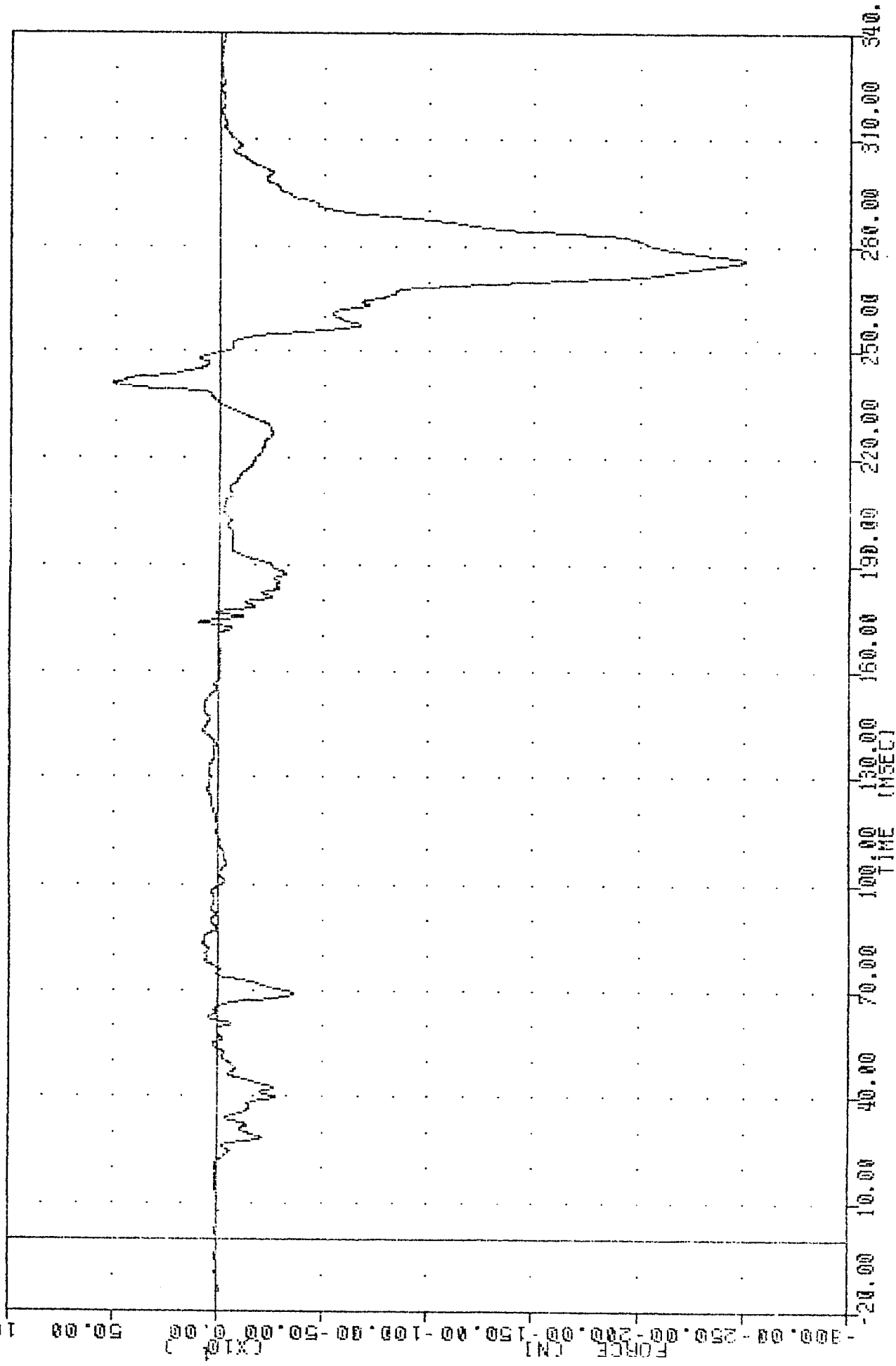
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -3536.97e 266.88e 4594.85e 47.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LEFT SHOULDER Y AXIS FORCE

90134
SHLIF1

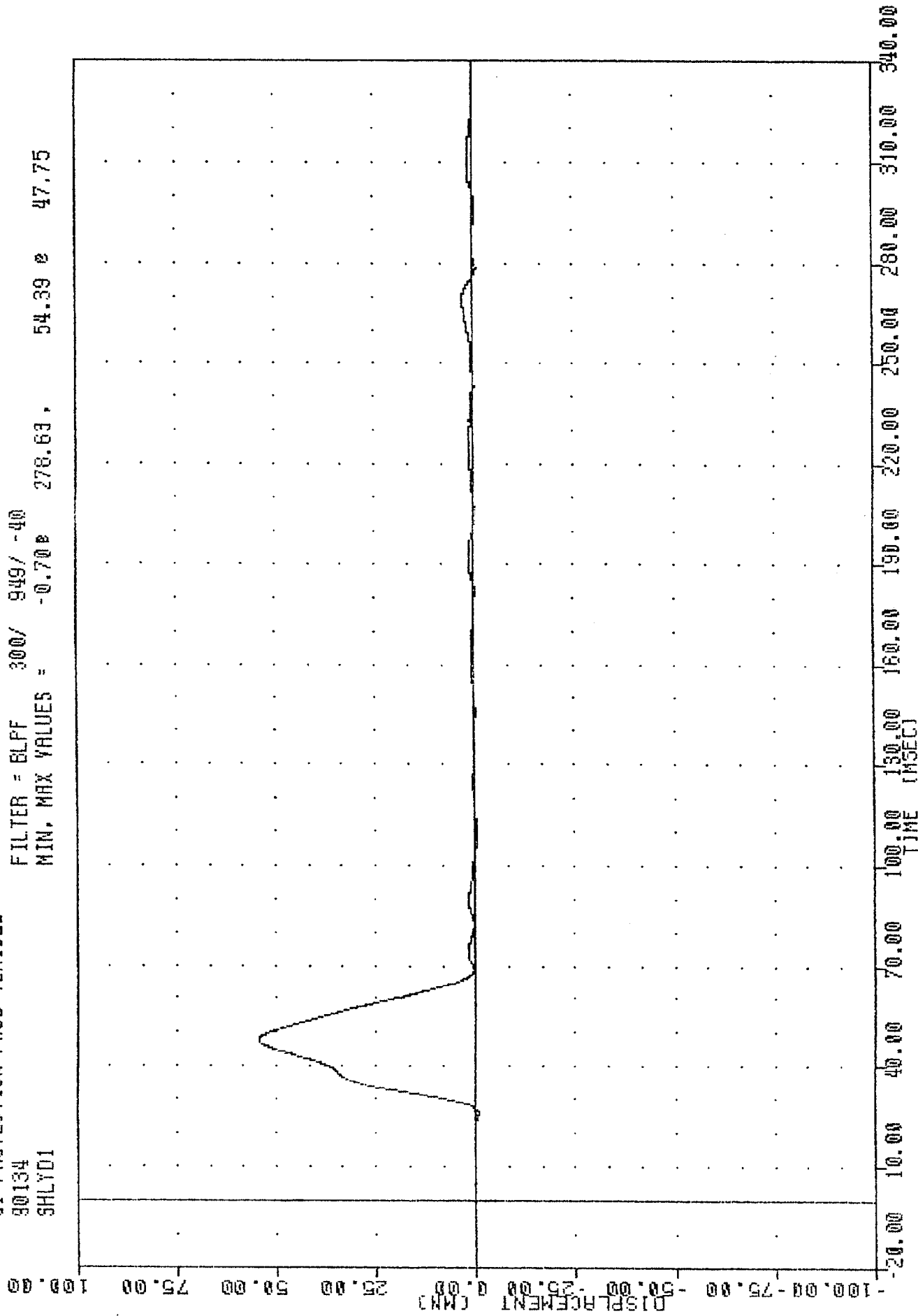
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -2507.13e 276.00, 508.96 e 240.88



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LEFT SHOULDER Z AXIS FORCE

VRIL , 900514
SI PROTECTION PROD VEHICLE
90134
SHLYD1

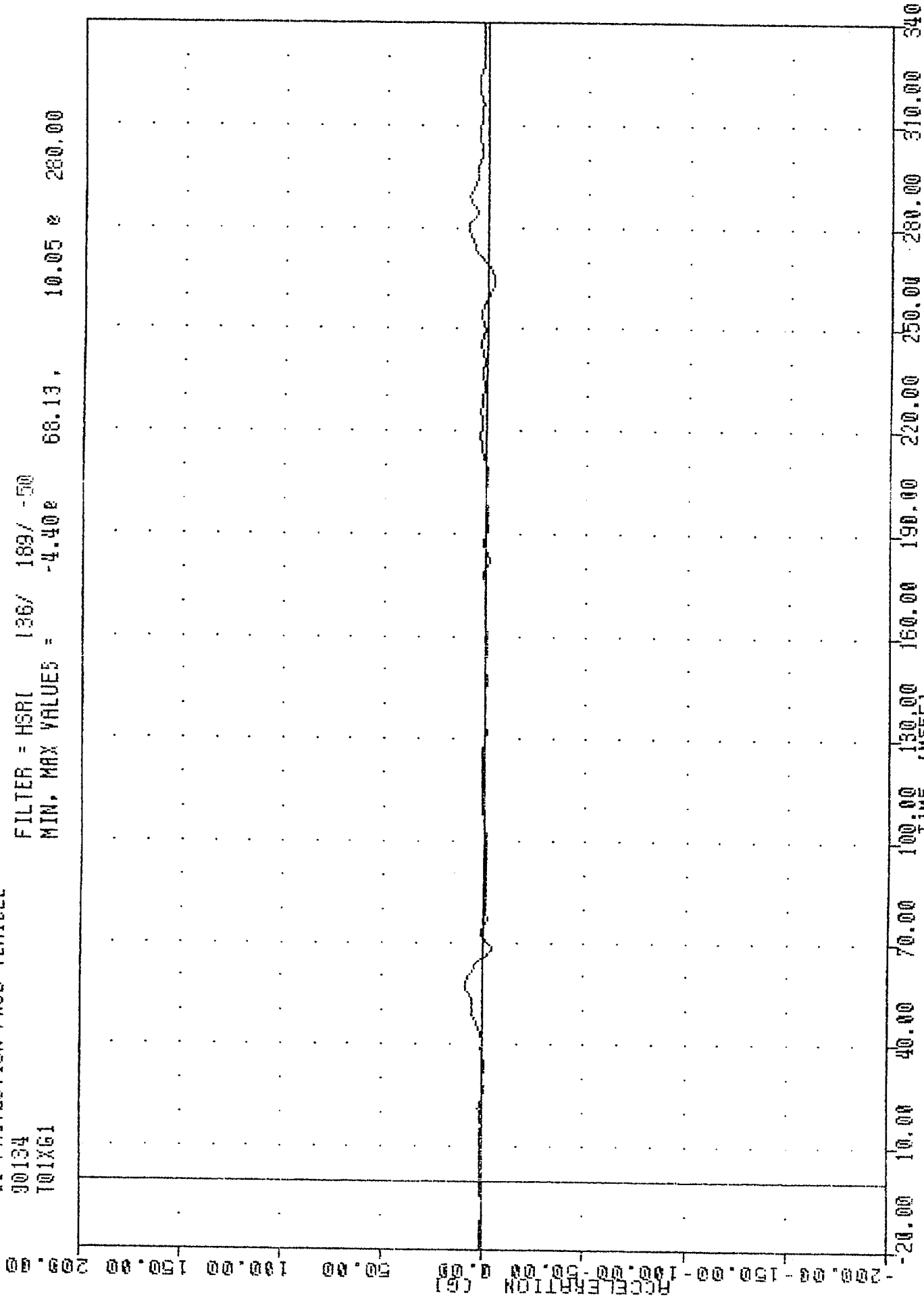
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.70e 278.63, 54.39 e 47.75



SI PROTECTION PROD VEHICLE

90134
T01XG1

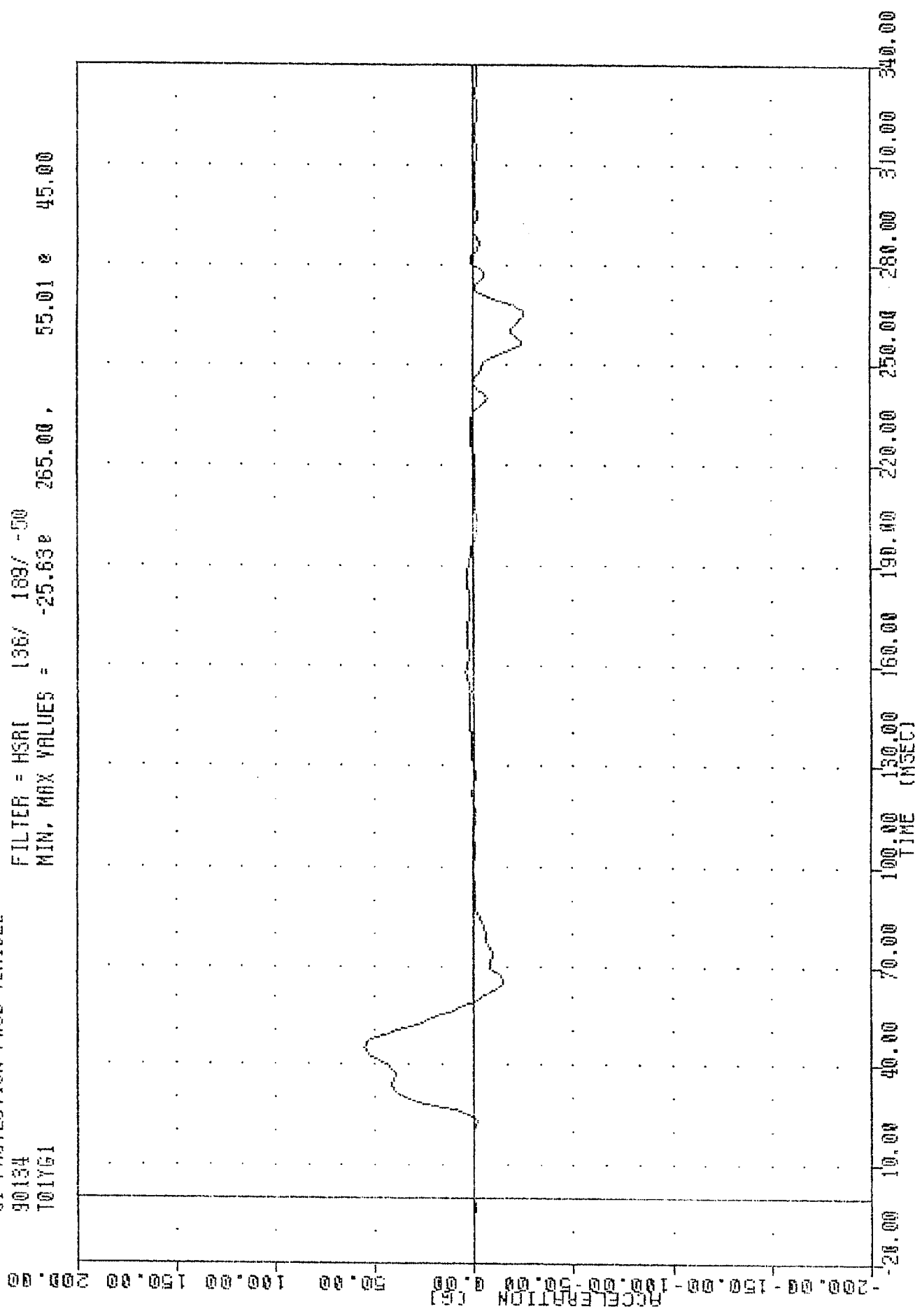
FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -4.40e 68.13, 10.05 e 280.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER UPPER SPINE X AXIS ACCELERATION

VRTC , 900514
 SI PROTECTION PROD VEHICLE
 90134
 T01Y61

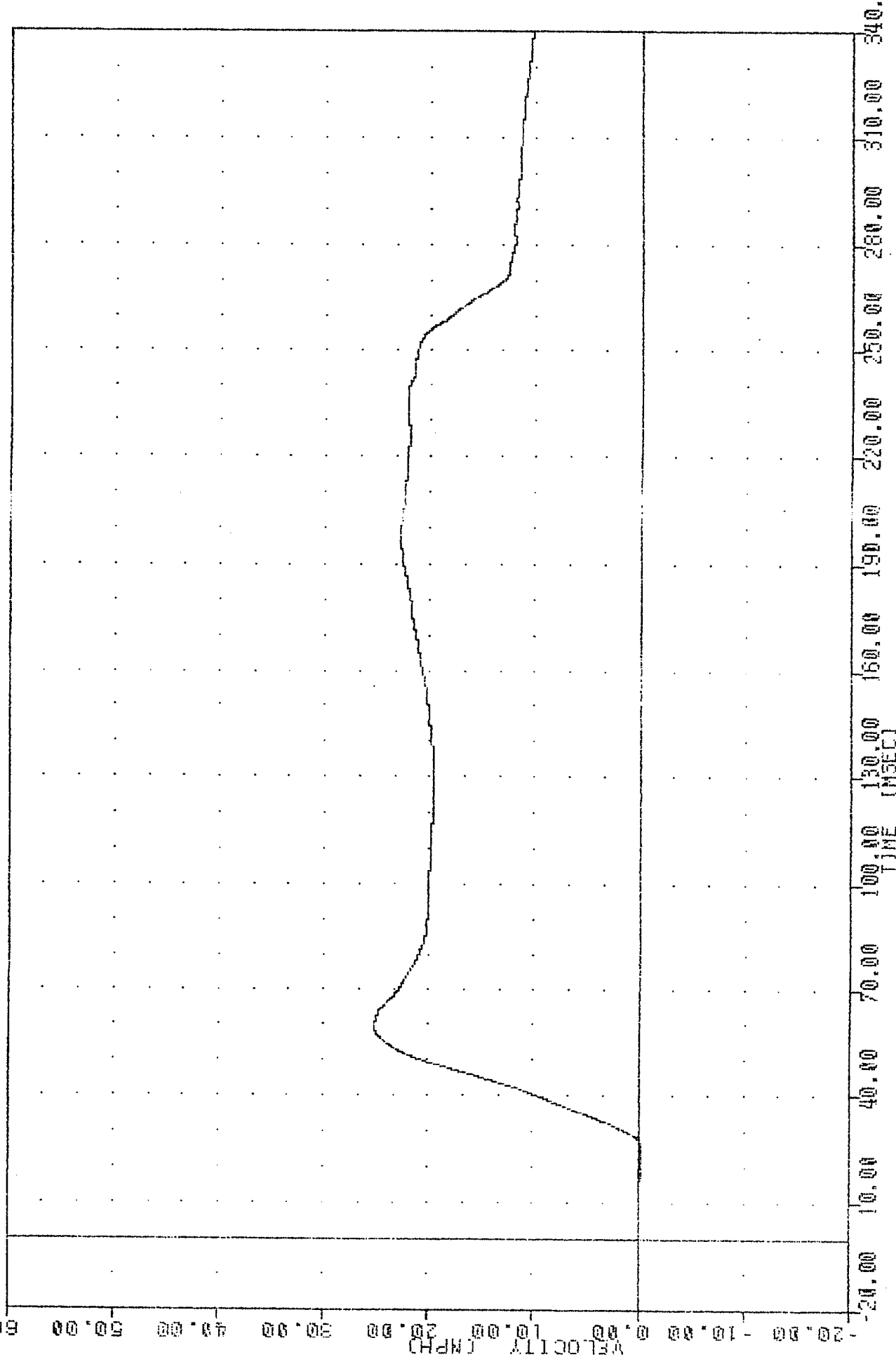
FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -25.63e 265.00 , 55.01 e 45.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER UPPER SPINE Y AXIS ACCELERATION

90134
T01YV1

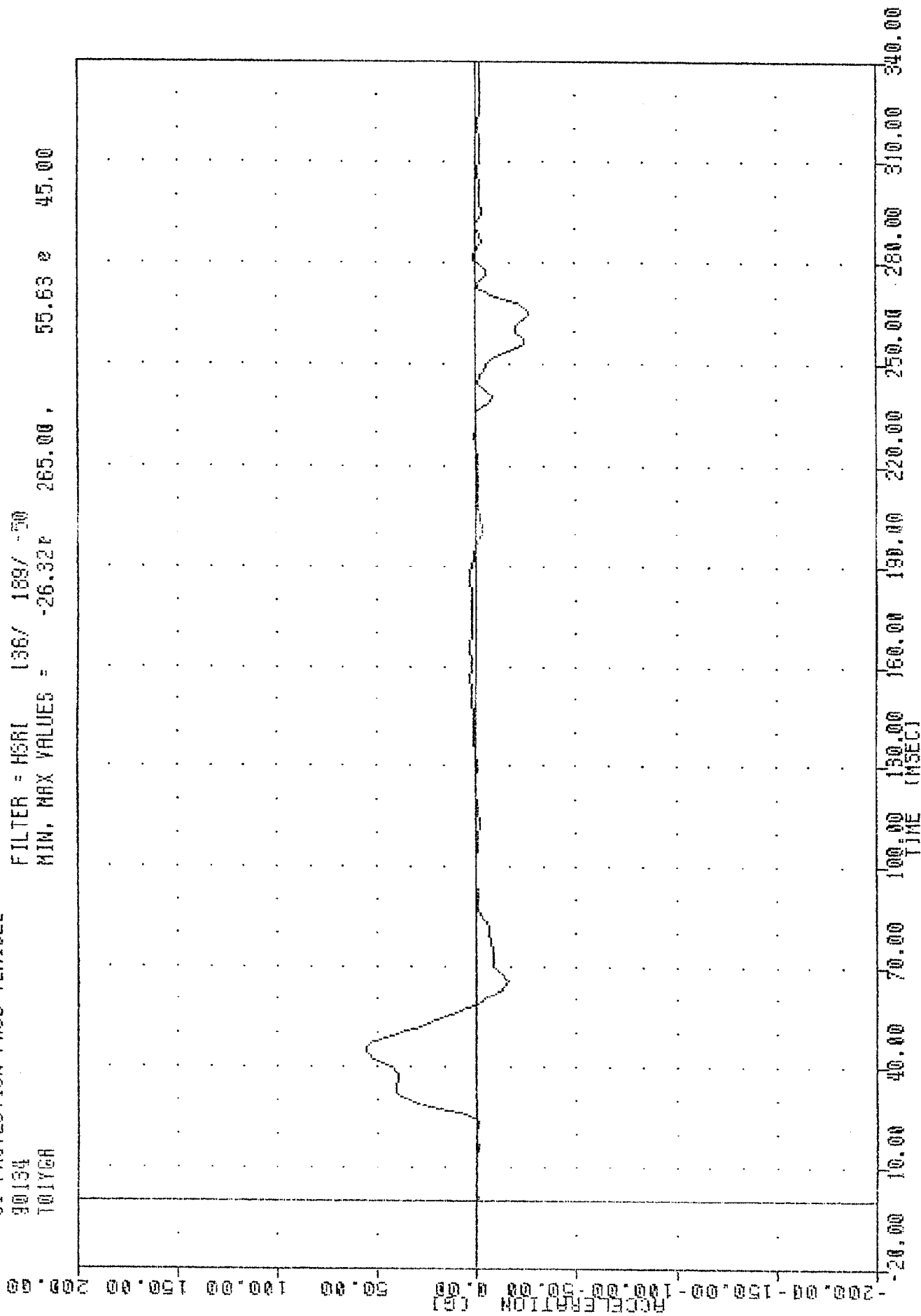
FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.270 25.63 25.13 0 59.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
DRIVER UPPER SPINE Y AXIS VELOCITY

NRIC , 990514
 SI PROTECTION PROD VEHICLE
 90134
 T01YCH

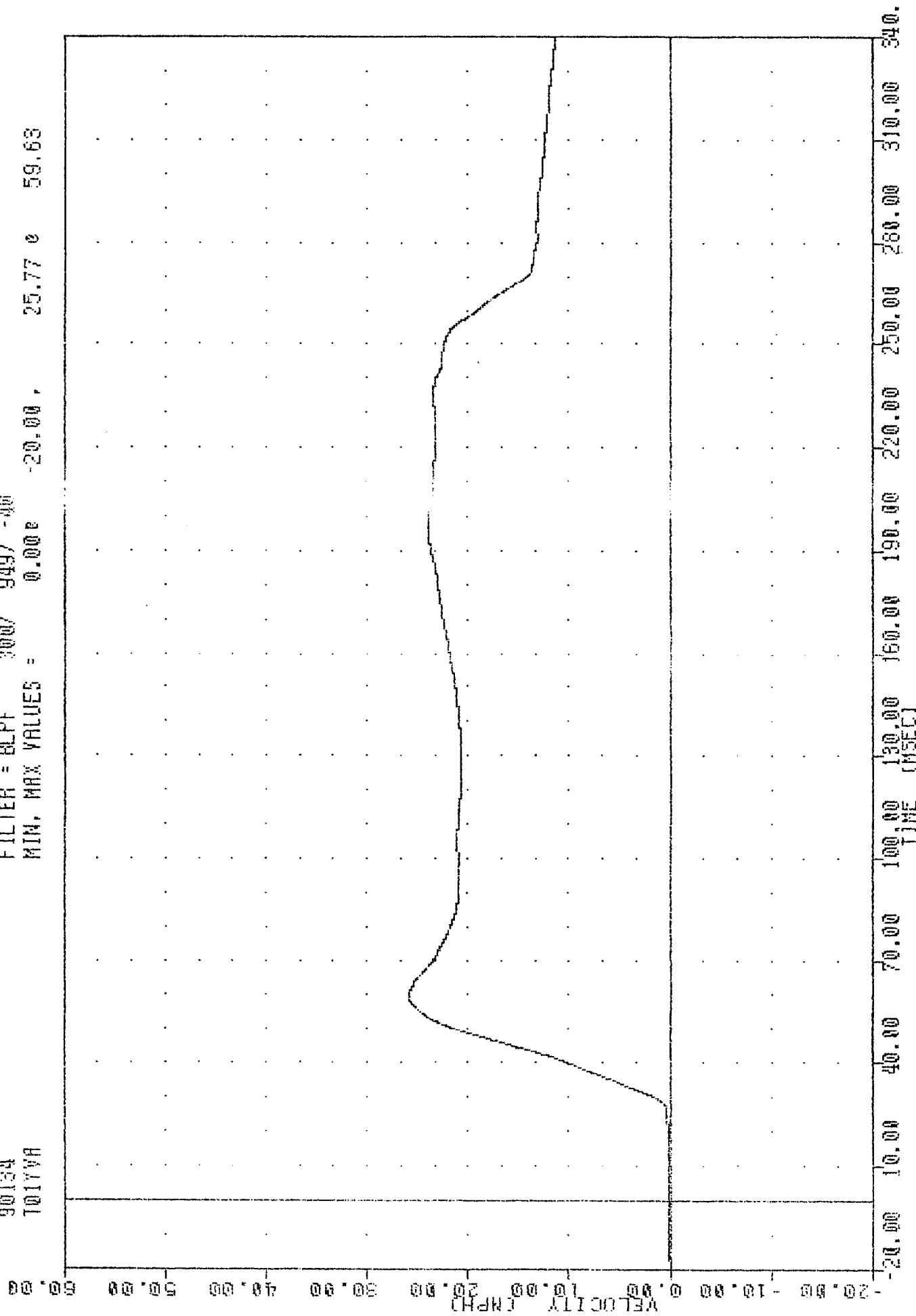
FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -26.32F 265.00 , 55.63 e 45.00



ST PROJECTION PHAD VEHICLE

90134
T017VA

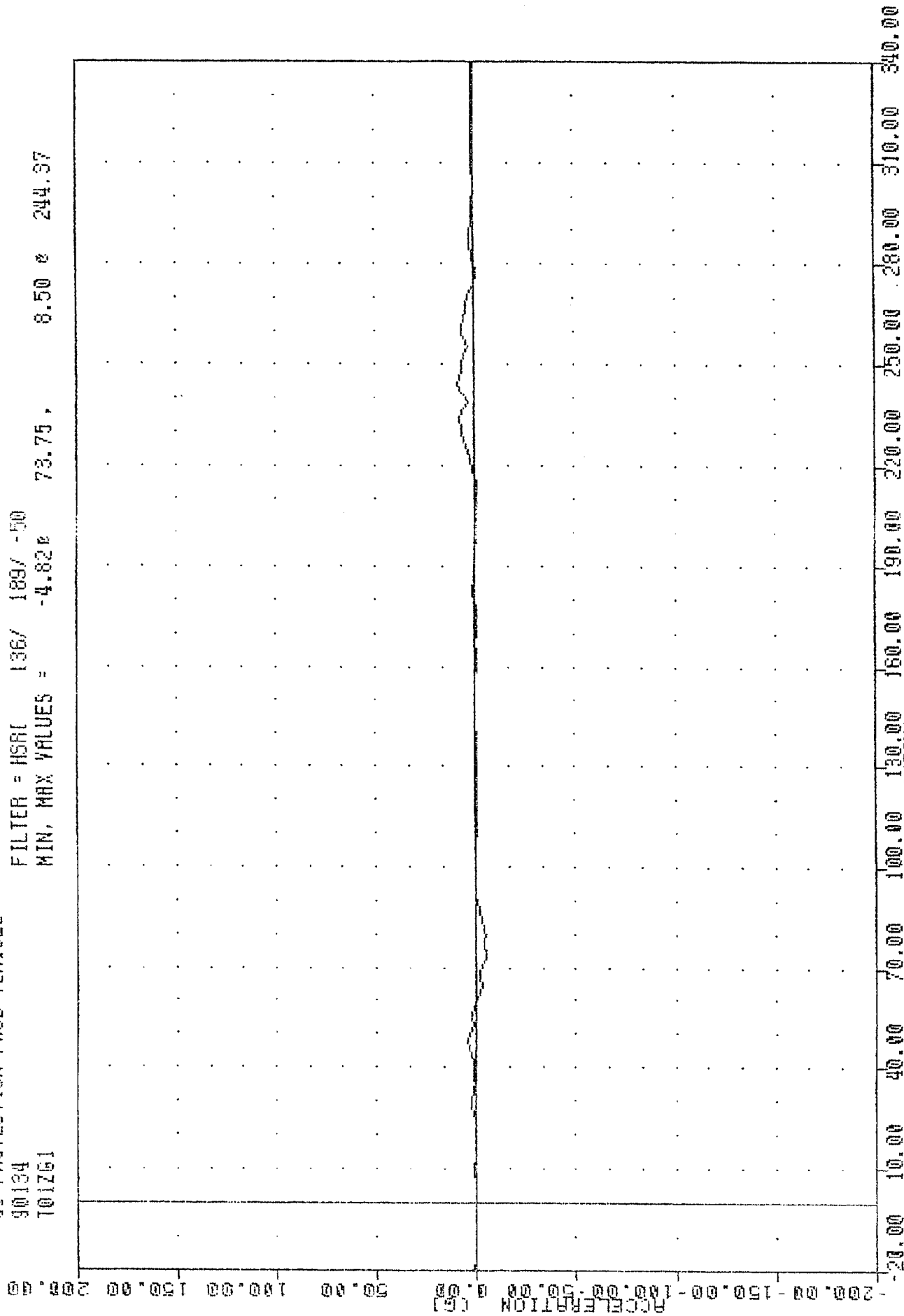
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = 0.00e -20.00, 25.77 e 59.63



MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
DRIVER UPPER SPINE Y AXIS REDUNDANT VELOCITY

VEHICLE 900514
 SI PROTECTION PROD VEHICLE
 90134
 701261

FILTER = HSRL 136/ 189/ -50
 MIN, MAX VALUES = -4.82e 73.75, 8.50 e 244.97



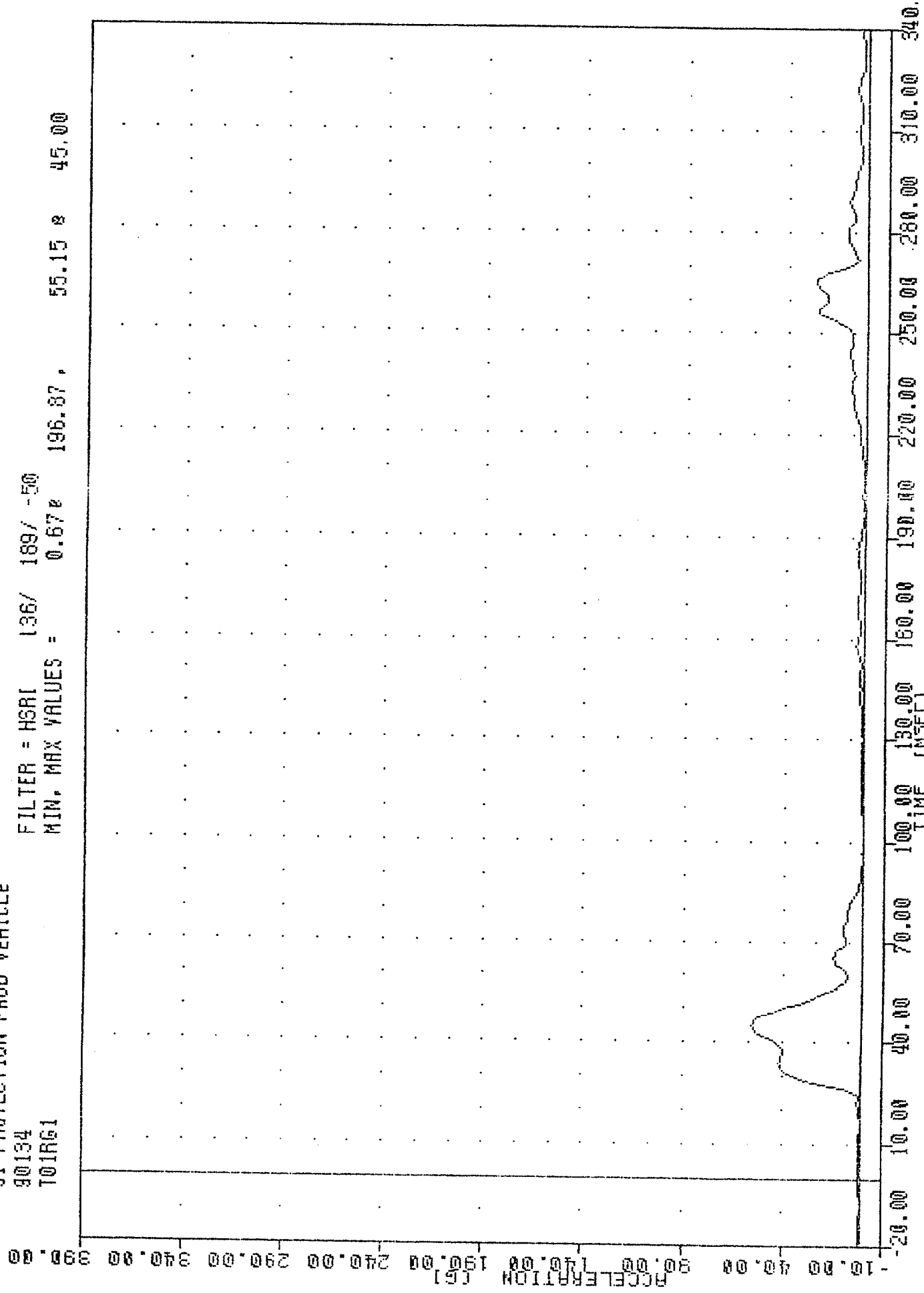
31 PROJECTION FROM VEHICLE

90134

T01R61

FILTER = HSRI 136/ 189/ -50

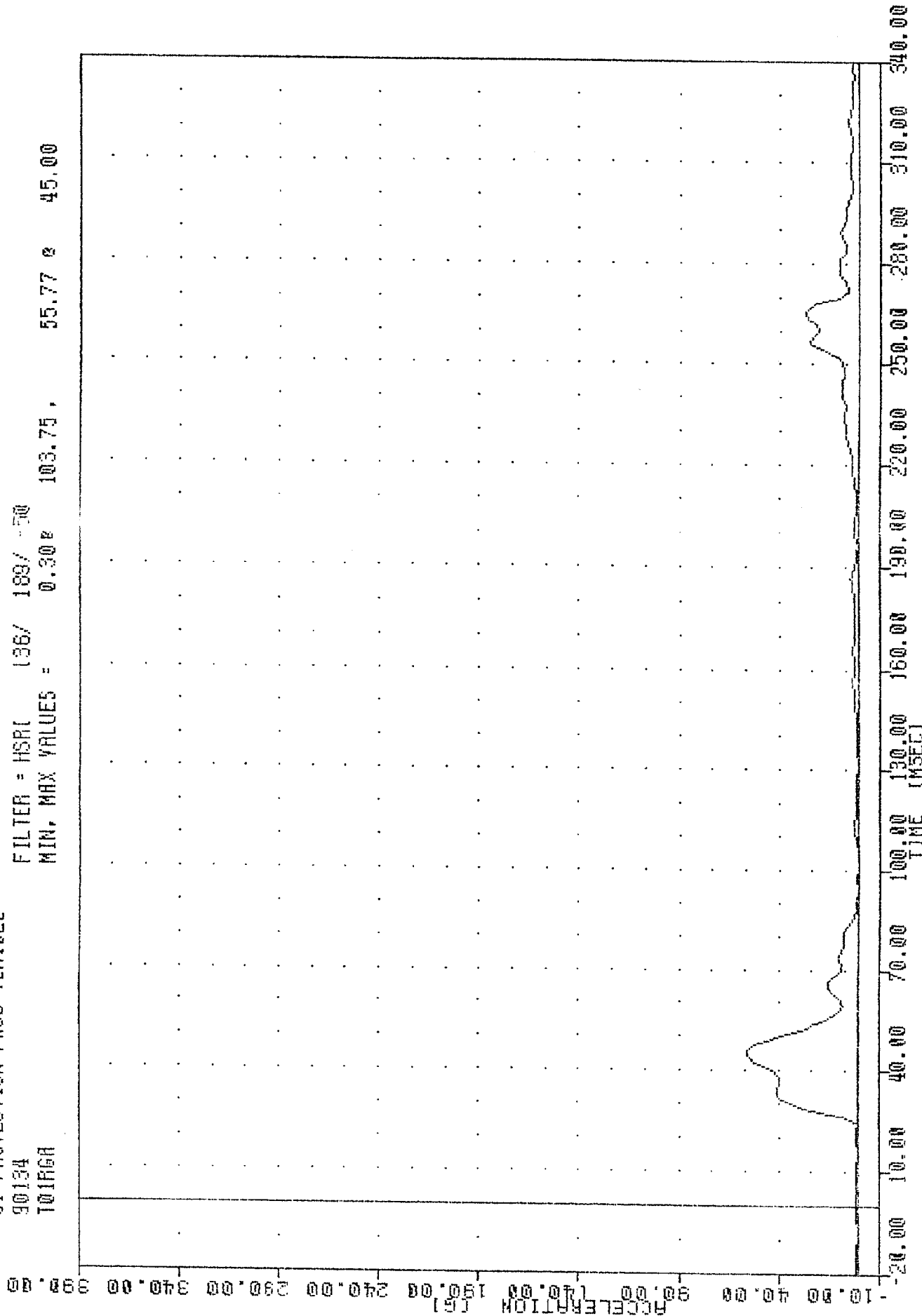
MIN. MAX VALUES = 0.67e 196.87, 55.15 s 45.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER UPPER SPINE RESULTANT ACCELERATION

VRLC , 980514
 SI PROTECTION PROD VEHICLE
 90134
 T01RGA

FILTER = HSR1 136/ 189/ -50
 MIN, MAX VALUES = 0.30 103.75, 55.77 45.00



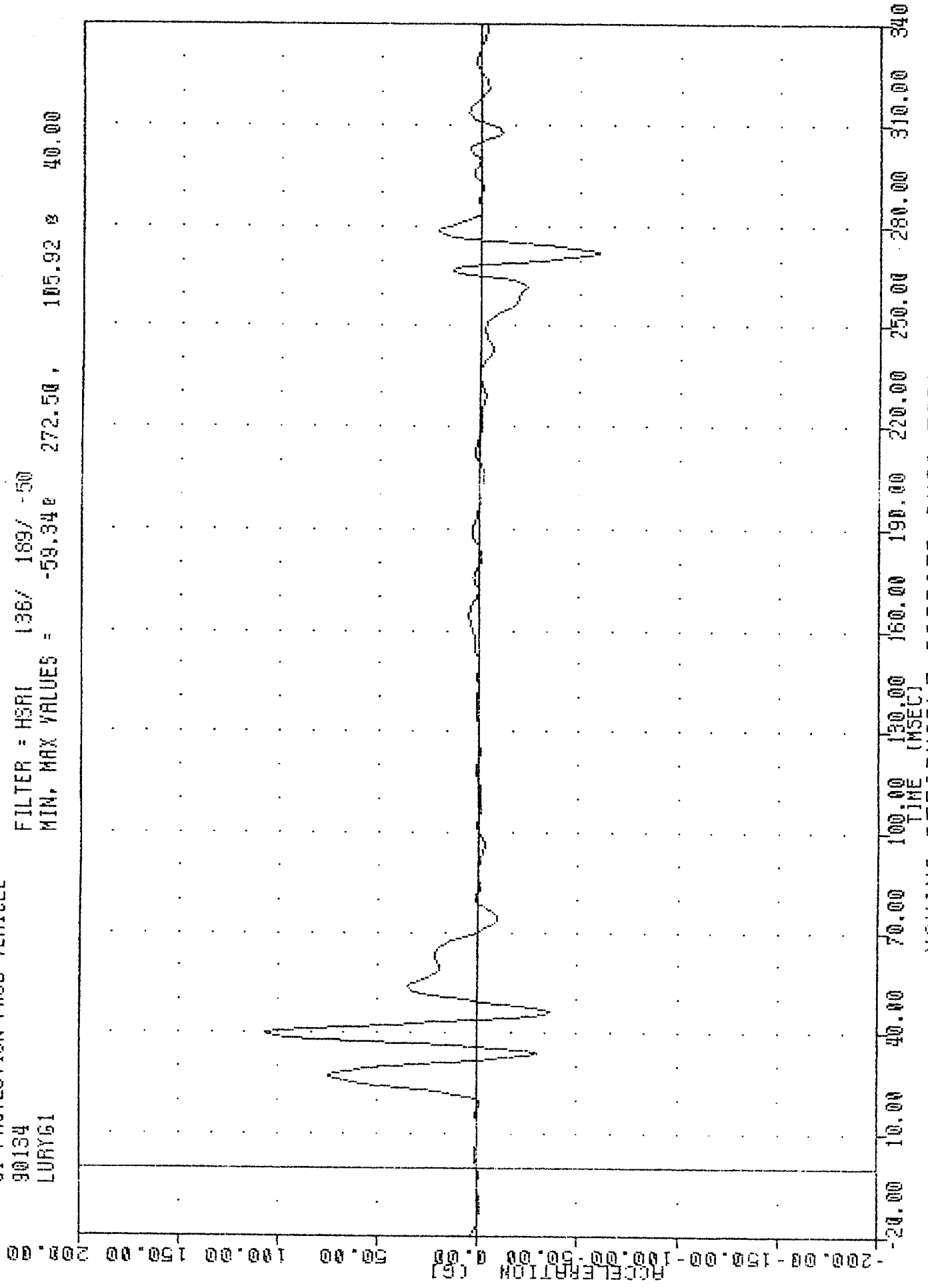
MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER UPPER SPINE REDUNDANT RESULTANT ACCELERATION

SI PROTECTION PROO VEHICLE

90134
LURY61

FILTER = HSRI 136/ 189/ -50

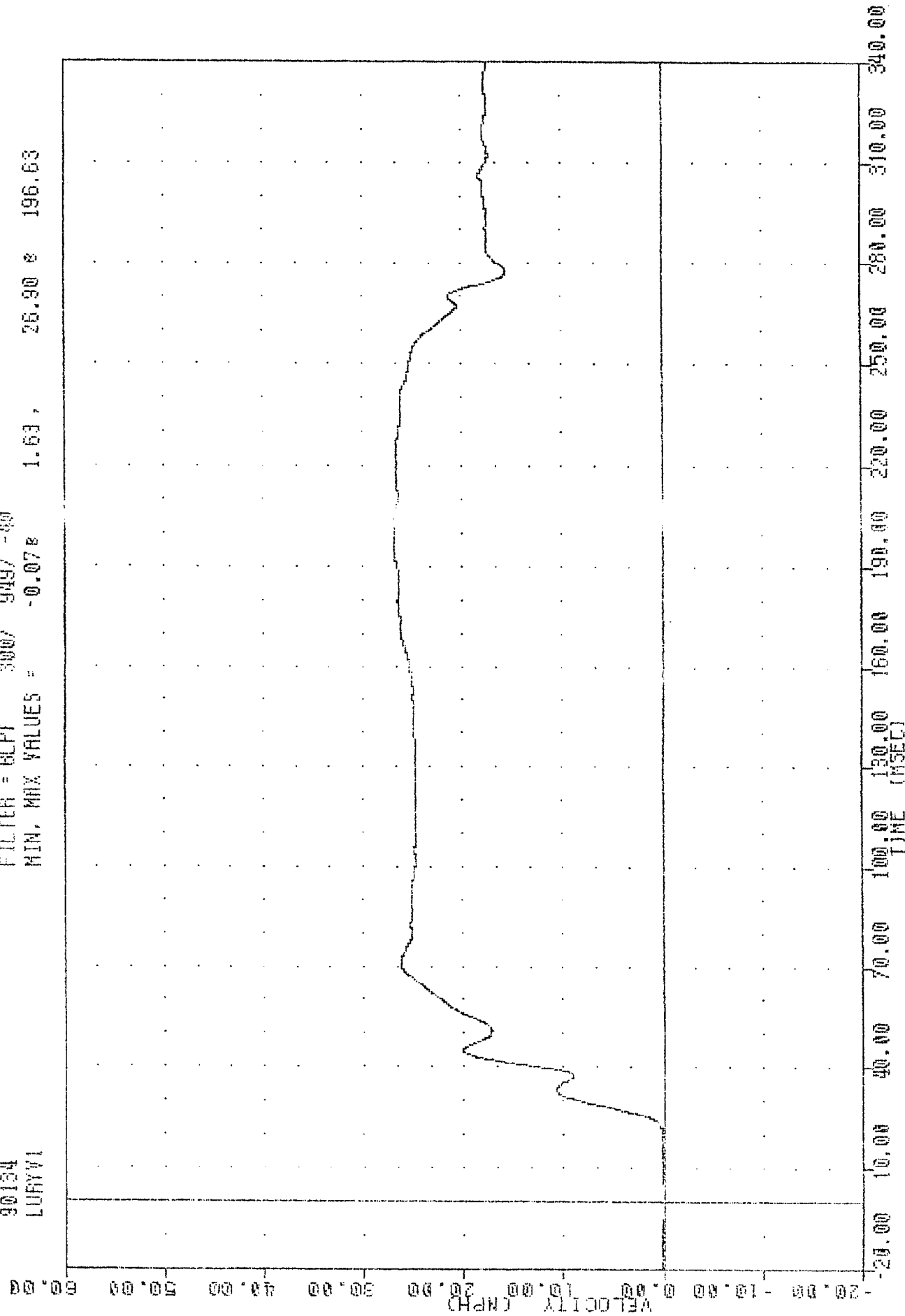
MIN, MAX VALUES = -59.34e 272.50, 105.92 e 40.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LEFT UPPER THORAX RIB Y AXIS ACCELERATION

VAIL , 380514
 SI PROTECTION PASS VEHICLE
 90134
 LURYV1

FILTER = BLPT 300/ 949/ -80
 MIN, MAX VALUES = -0.078 1.63, 26.90 & 196.63



MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
 DRIVER LEFT UPPER THORAX RIB T AXIS VELOCITY

ST PROJECTION PHOD VEHICLE

90134

LURYGA

FILTER = HSRI

136/ 189/ -50

MIN. MAX VALUES =

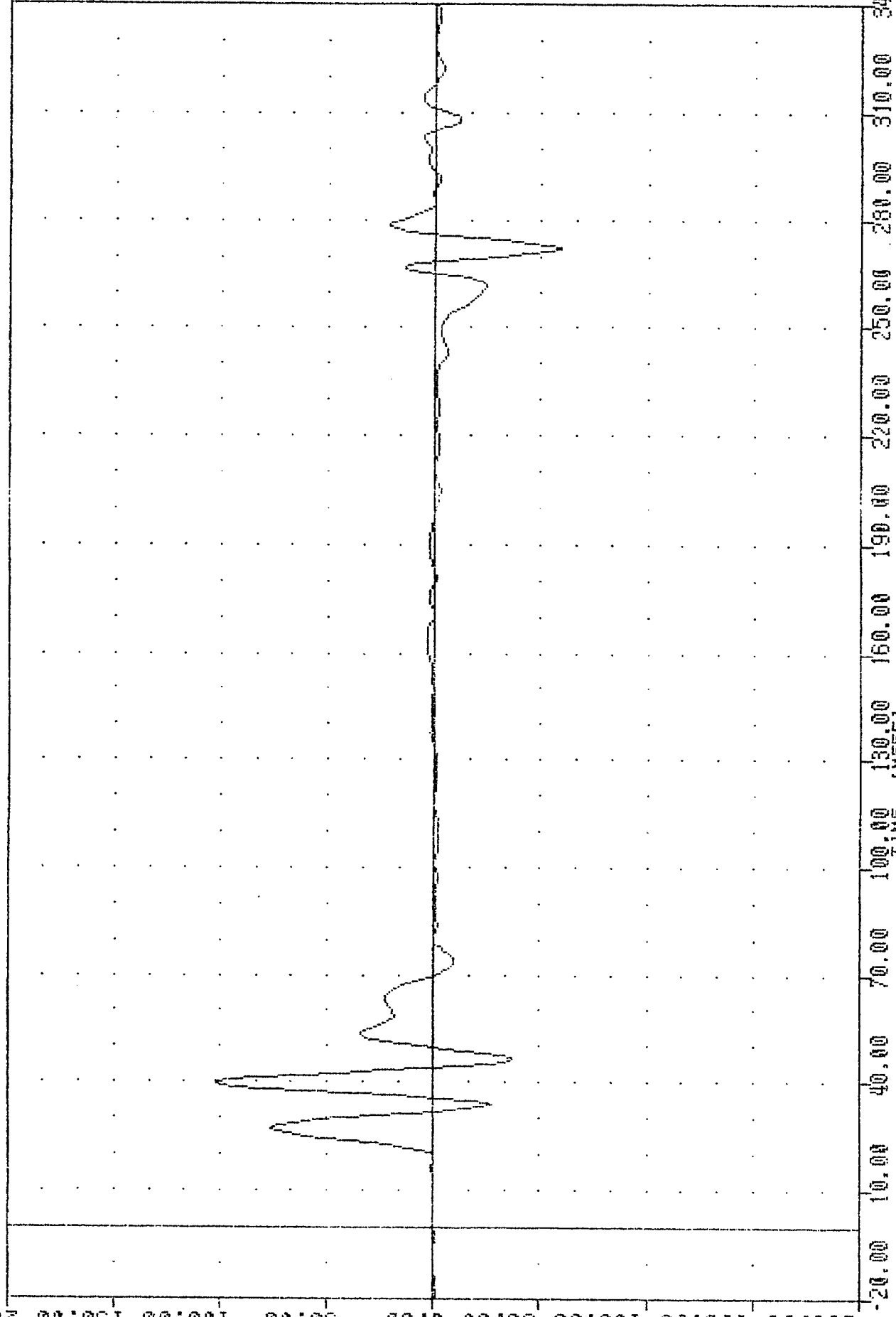
-59.62

271.88,

101.65

2 40.00

ACCELERATION (G)

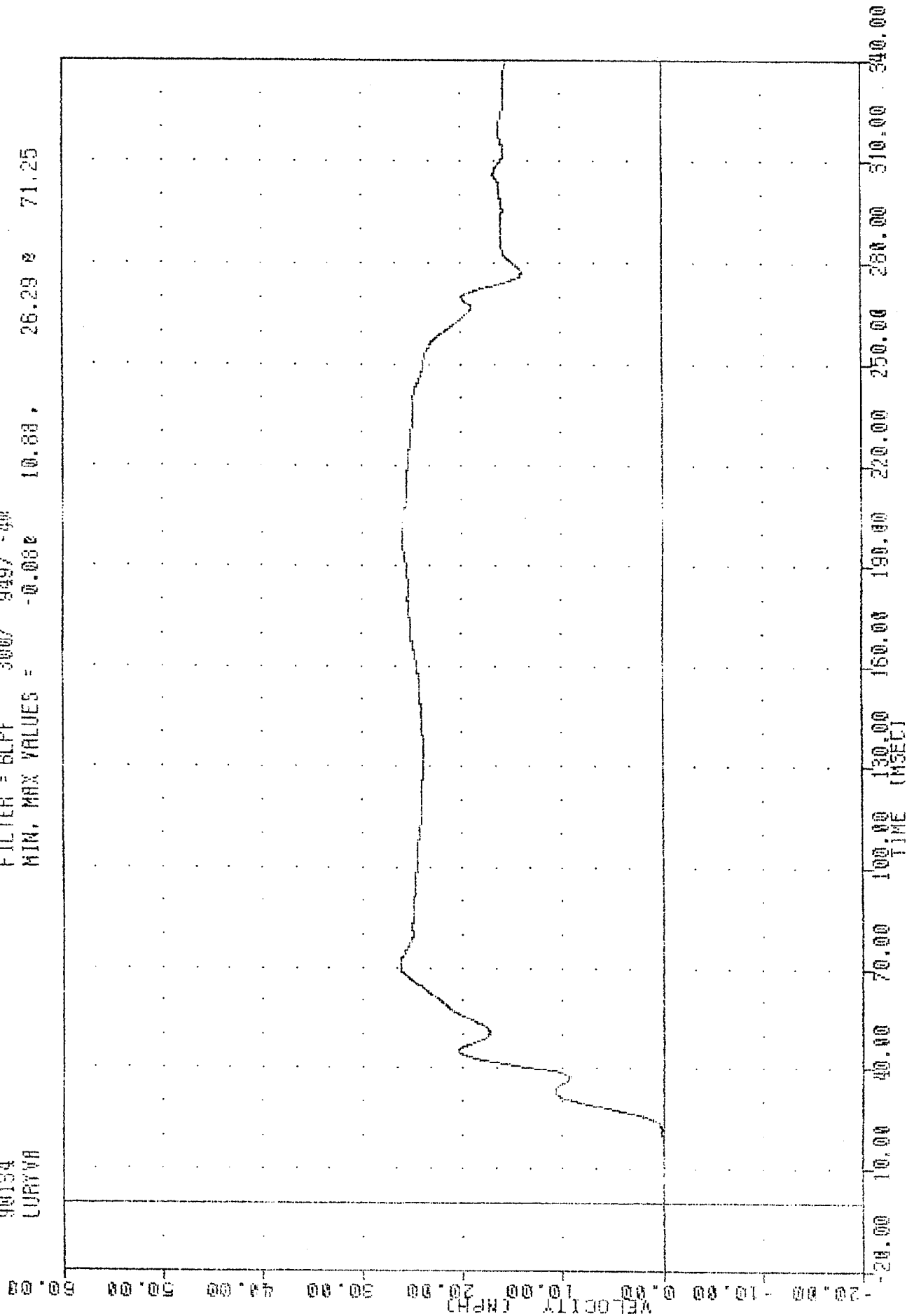


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

DRIVER LEFT UPPER THORAX RIB Y AXIS REDUNDANT ACCELERATION

90134
 SI PROTECTION FROM VEHICLE
 LURYVA

FILTER = 6LFF 300/ 949/ -4%
 MIN. MAX VALUES = -0.000 10.00 26.29 71.25

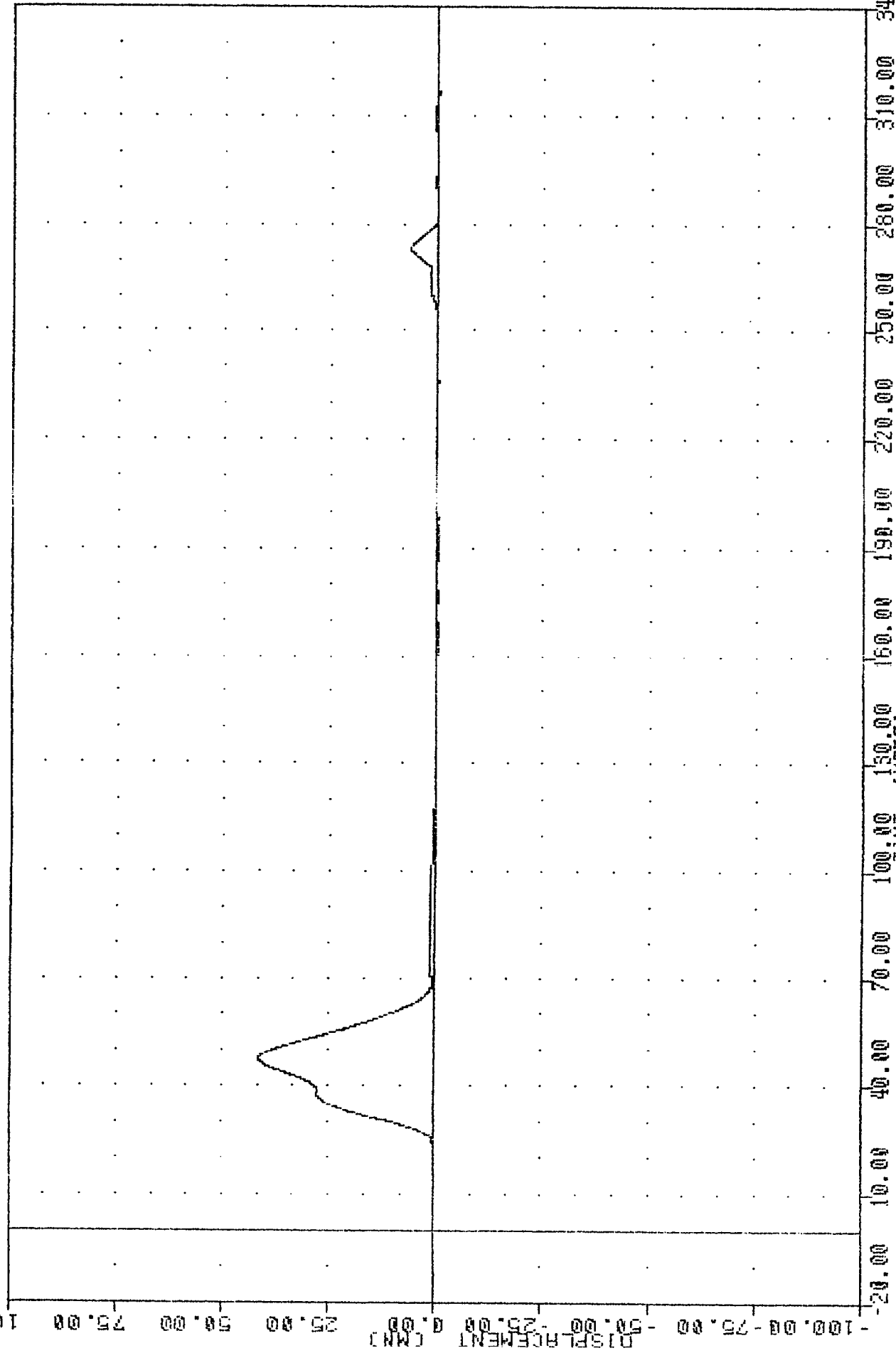


MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
 DRIVER LEFT UPPER THORAX AIB Y AXIS REDUNDANT VELOCITY

SI PROTECTION PROD VEHICLE

20134
LURYD1

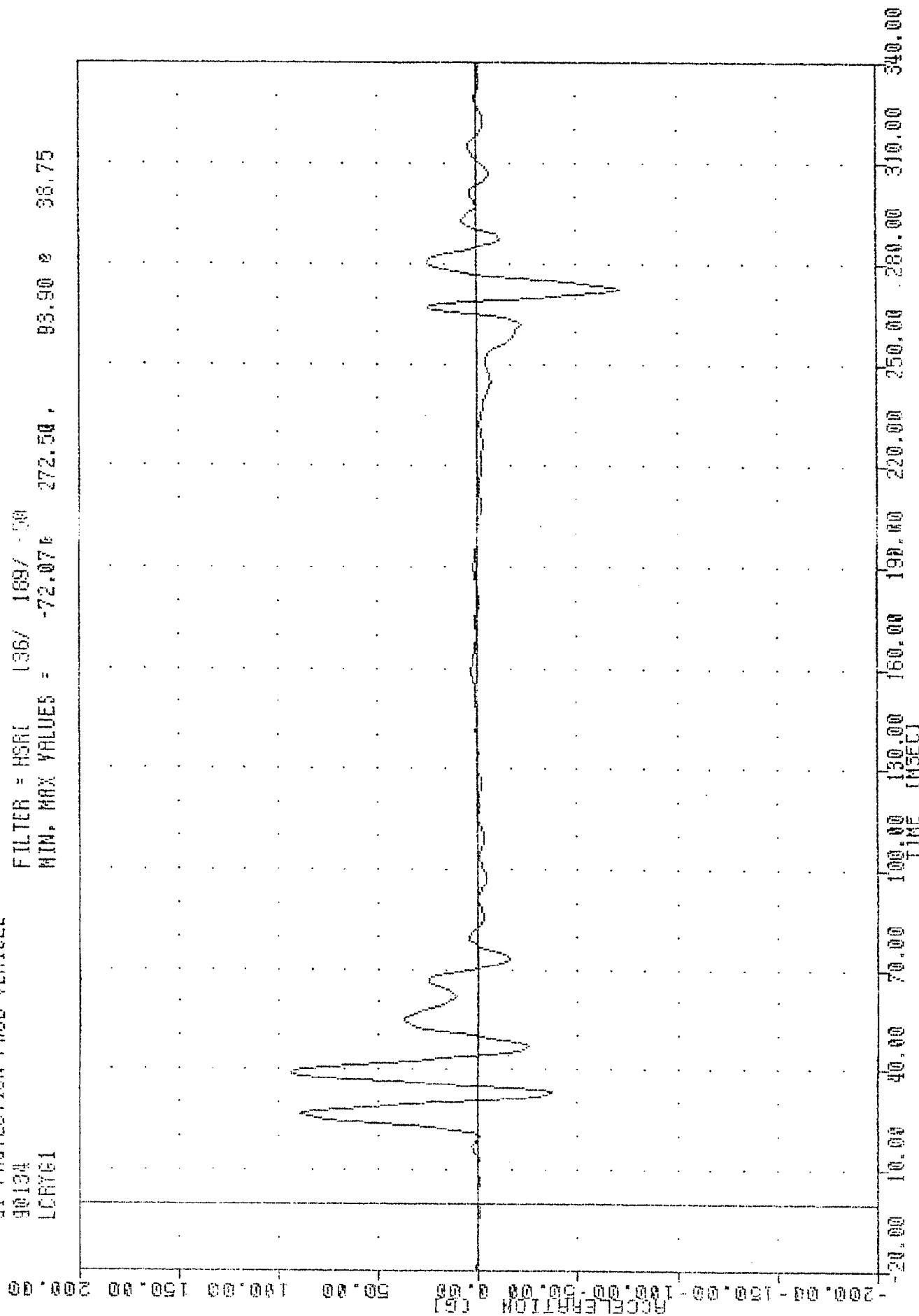
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.208 191.13, 41.35 2 47.38



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LEFT UPPER THORAX AIR DISPLACEMENT

3810
 SI PROTECTION PAD VEHICLE
 90134
 LCR761

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -72.07 272.50 93.90 38.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER LEFT CENTER THORAX RIB Y AXIS ACCELERATION

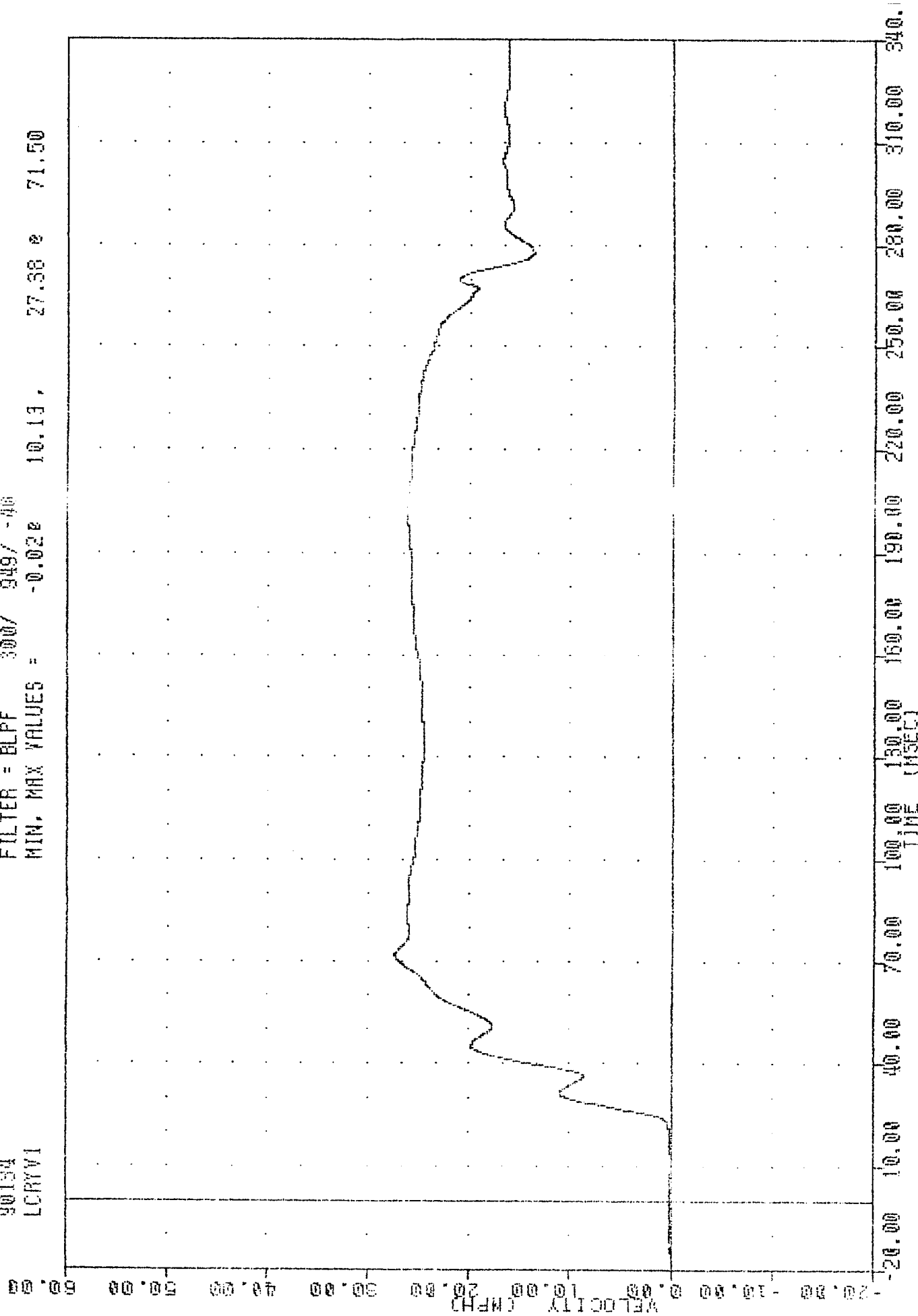
51 PROTECTION FROM VEHICLE

90134

LCRYV1

FILTER = BLPF 300/ 949/ -46

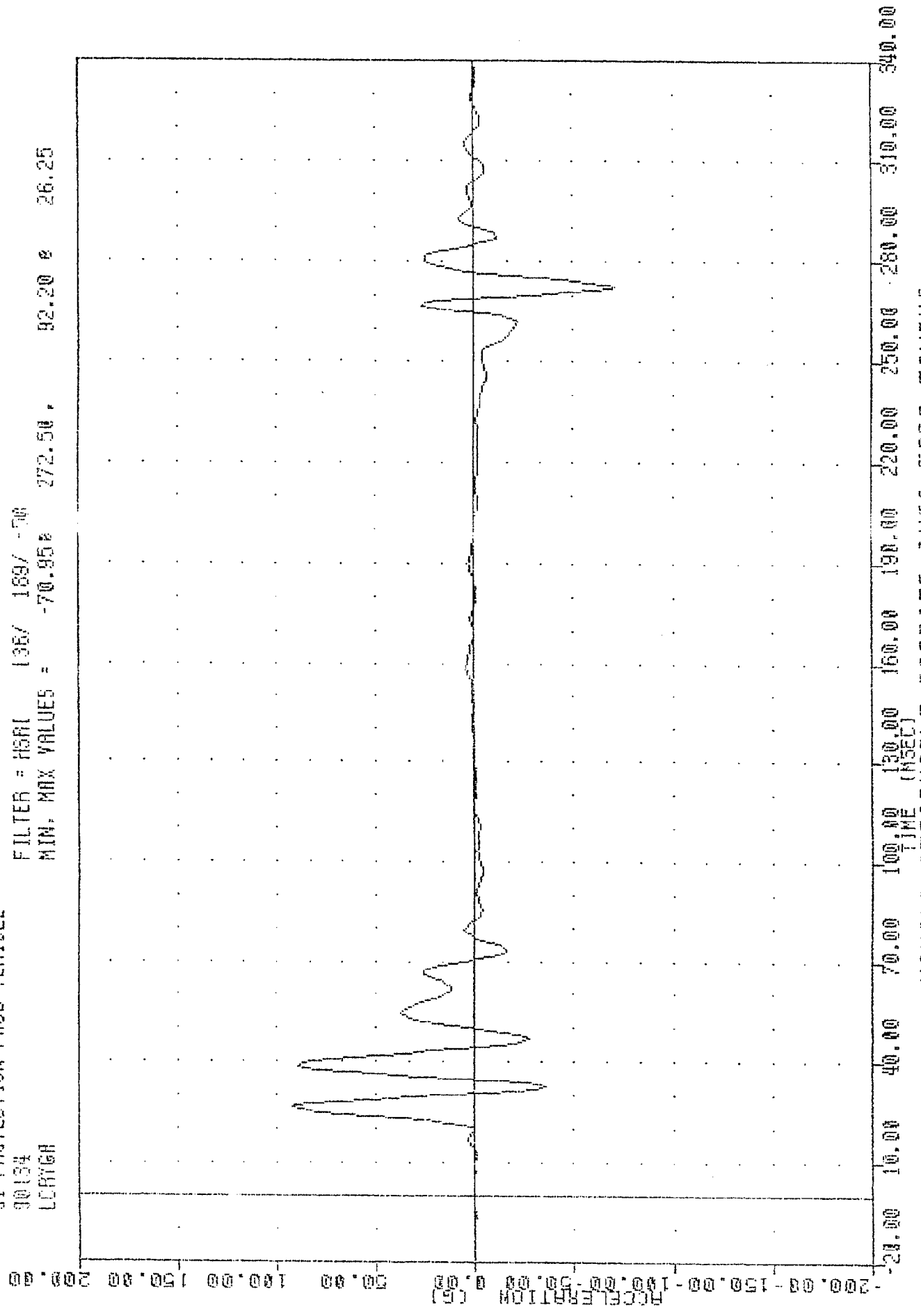
MIN. MAX VALUES = -0.022 10.13 27.38 2 71.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
DRIVER LEFT CENTER THORAX RIB Y AXIS VELOCITY

9010
 31 PROTECTION PROD VEHICLE
 90134
 LCRYGH

FILTER = HSR1 136/ 169/ -70
 MIN, MAX VALUES = -70.95 272.50 92.20 26.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER LEFT CENTER THORAX RIB Y AXIS REDUNDANT ACCELERATION

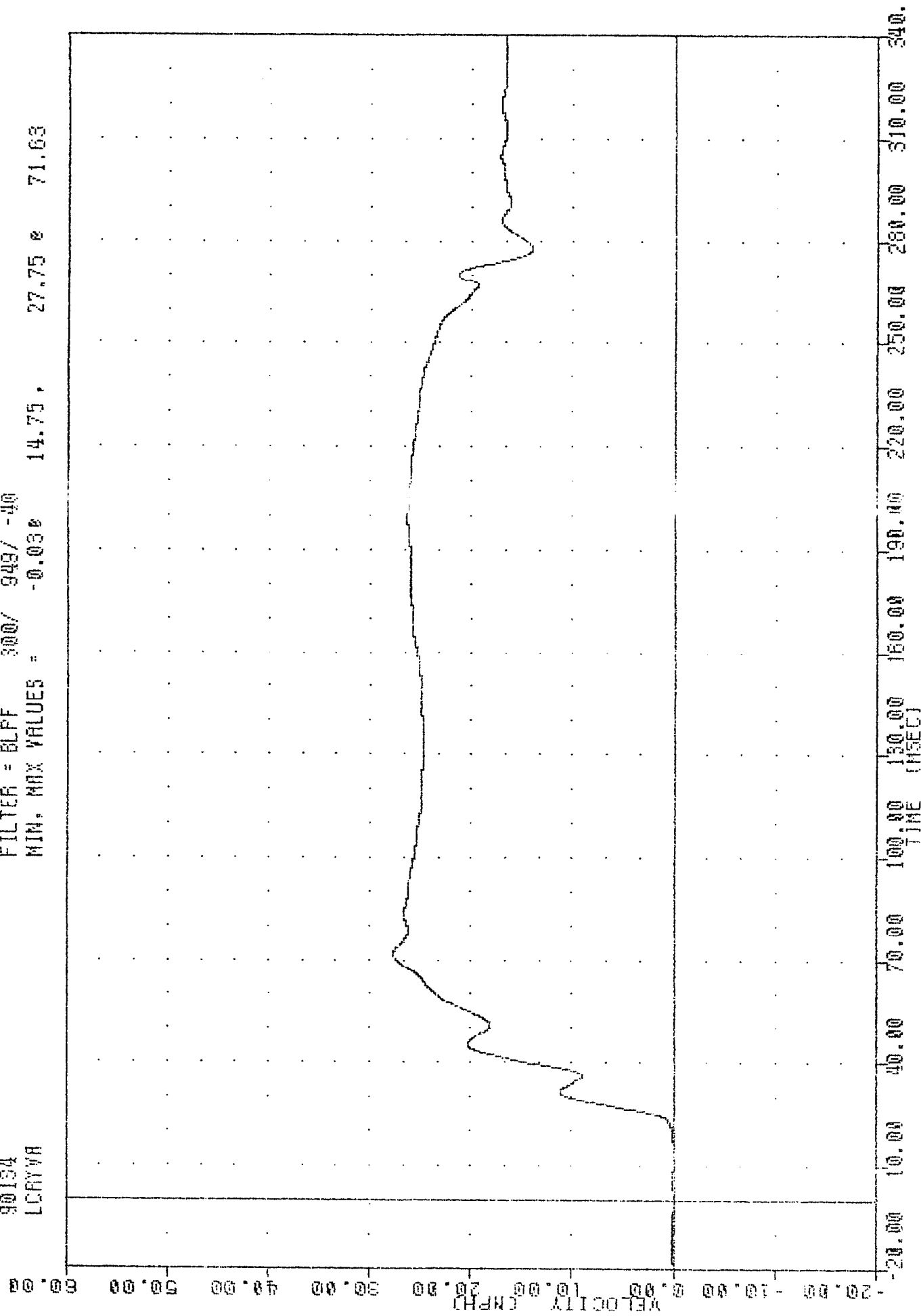
31 PROJECTION FLOOD VEHICLE

90134

LCRYVR

FILTER = BLPF 300/ 943/ -40

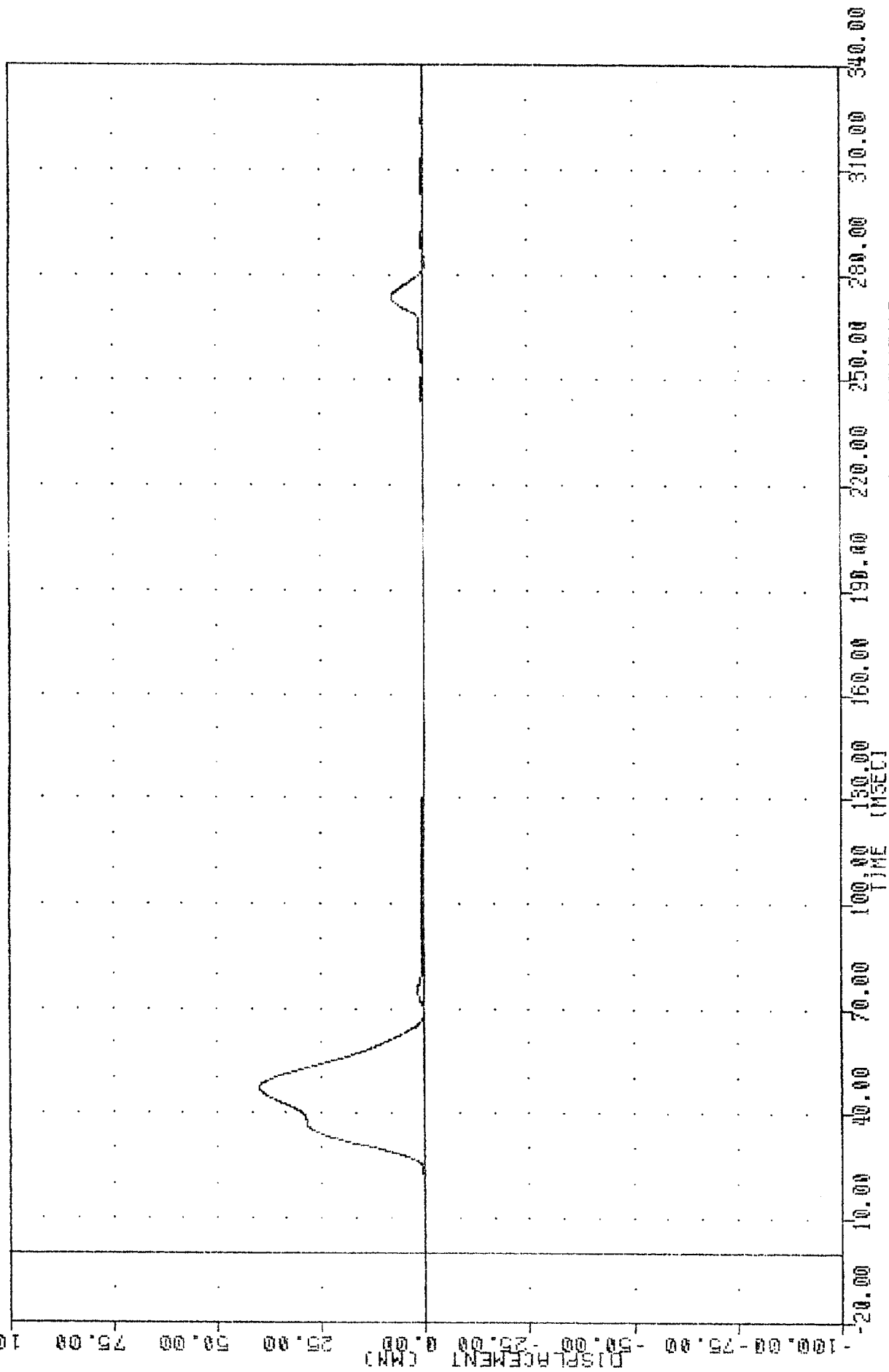
MIN. MAX VALUES = -0.030 14.75 27.75 71.63



MOVING DEFORMABLE BARRIER INTO 10RD TAURUS SENTRA
DRIVER LEFT CENTER THORAX RIB Y AXIS REDUNDANT VELOCITY

VR10 300014
SI PROTECTION PROD VEHICLE
90134
LCRY01

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.390 283.88, 39.79 0 47.25



S1 PROTECTION PROO VEHICLE

90134

LLRY61

FILTER = HSR1

136/ 189/ -50

MIN, MAX VALUES =

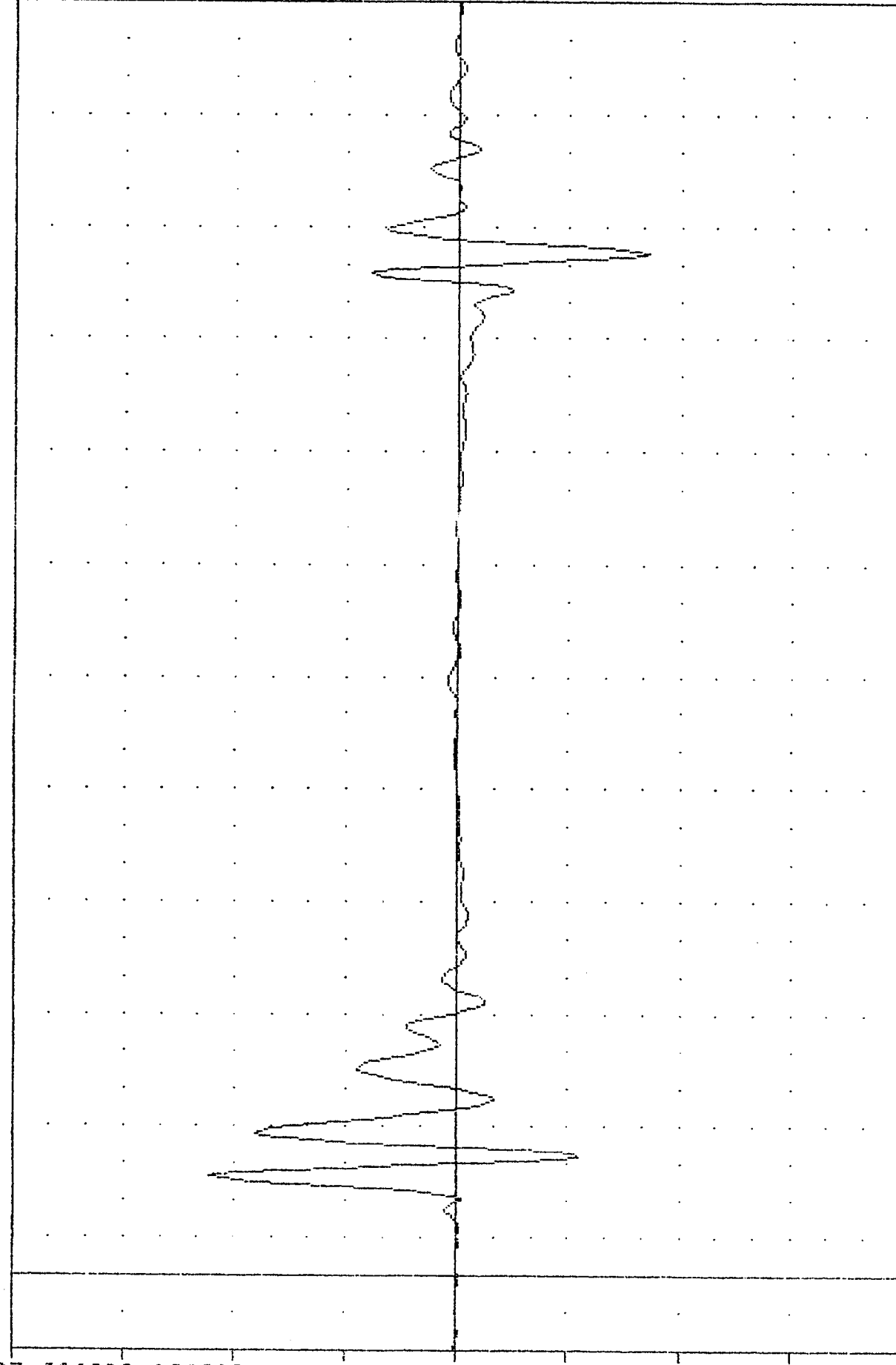
-86.09%

273.13,

111.28 @

26.25

ACCELERATION (G)

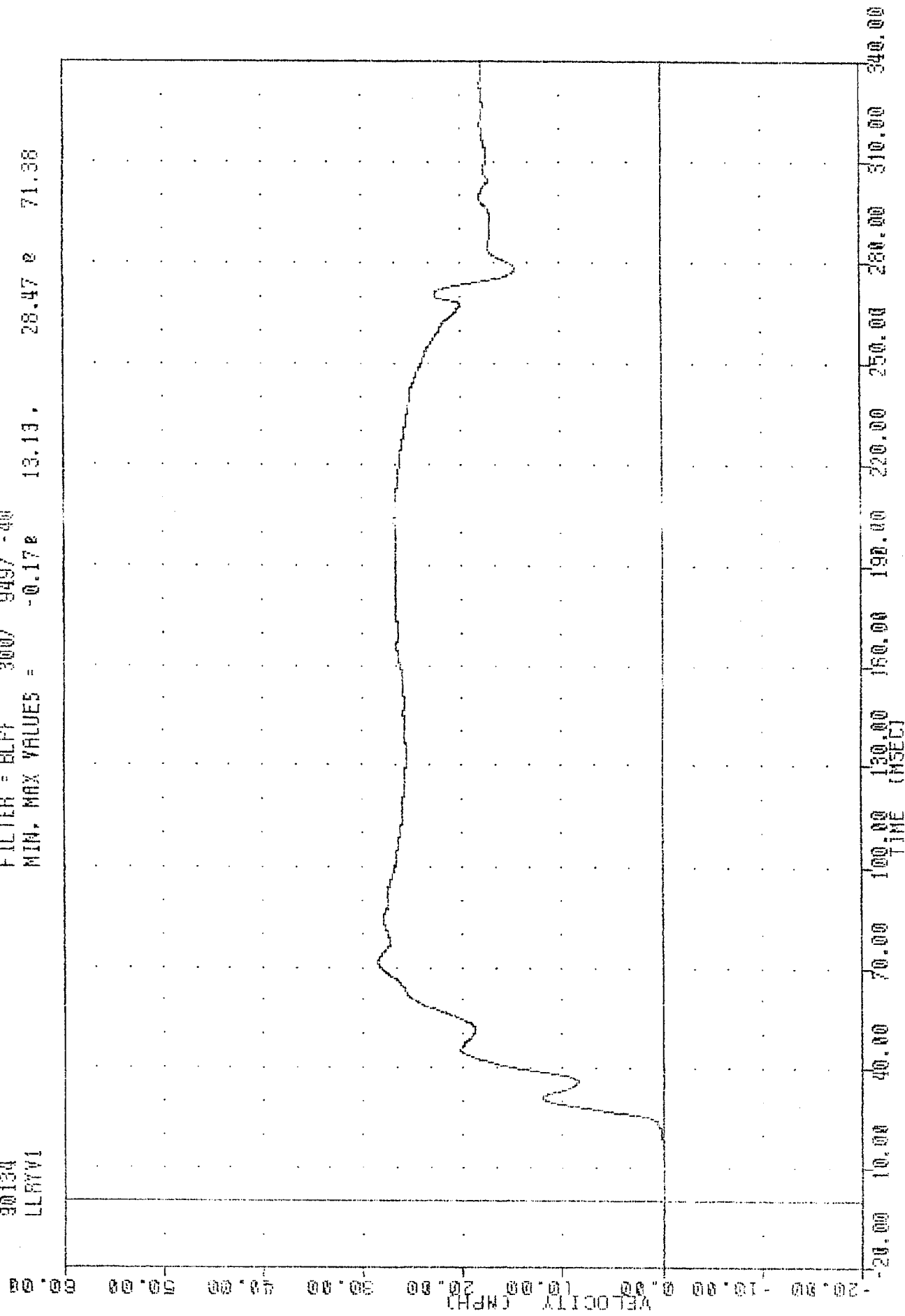


TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LEFT LOWER THORAX RIB Y AXIS ACCELERATION

VEHICLE - 5800314
SI PROTECTION PROD VEHICLE
30134
LLRYV1

FILTER = BLFF 300/ 949/ -40
MIN, MAX VALUES = -0.17e 13.13, 28.47 e 71.38



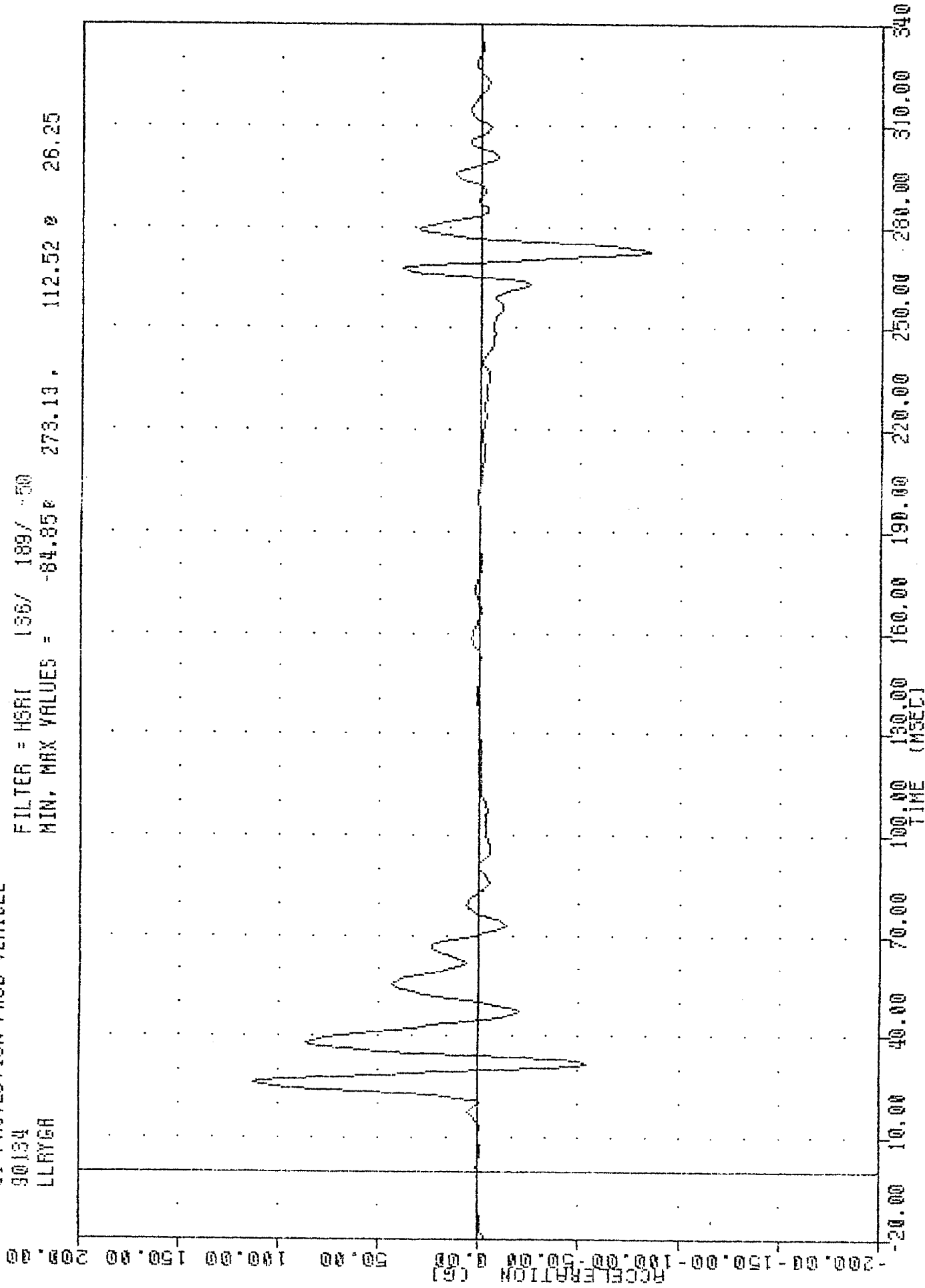
MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
DRIVER LEFT LOWER THORAX RIB 7 AXIS VELOCITY

SI PROTECTION PROD VEHICLE

90134
LLRYGR

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -84.85e 273.13, 112.52 e 26.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LEFT LOWER THORAX RIB Y AXIS REDUNDANT ACCELERATION

VEHICLE # 800514

SI PROTECTION PROD VEHICLE

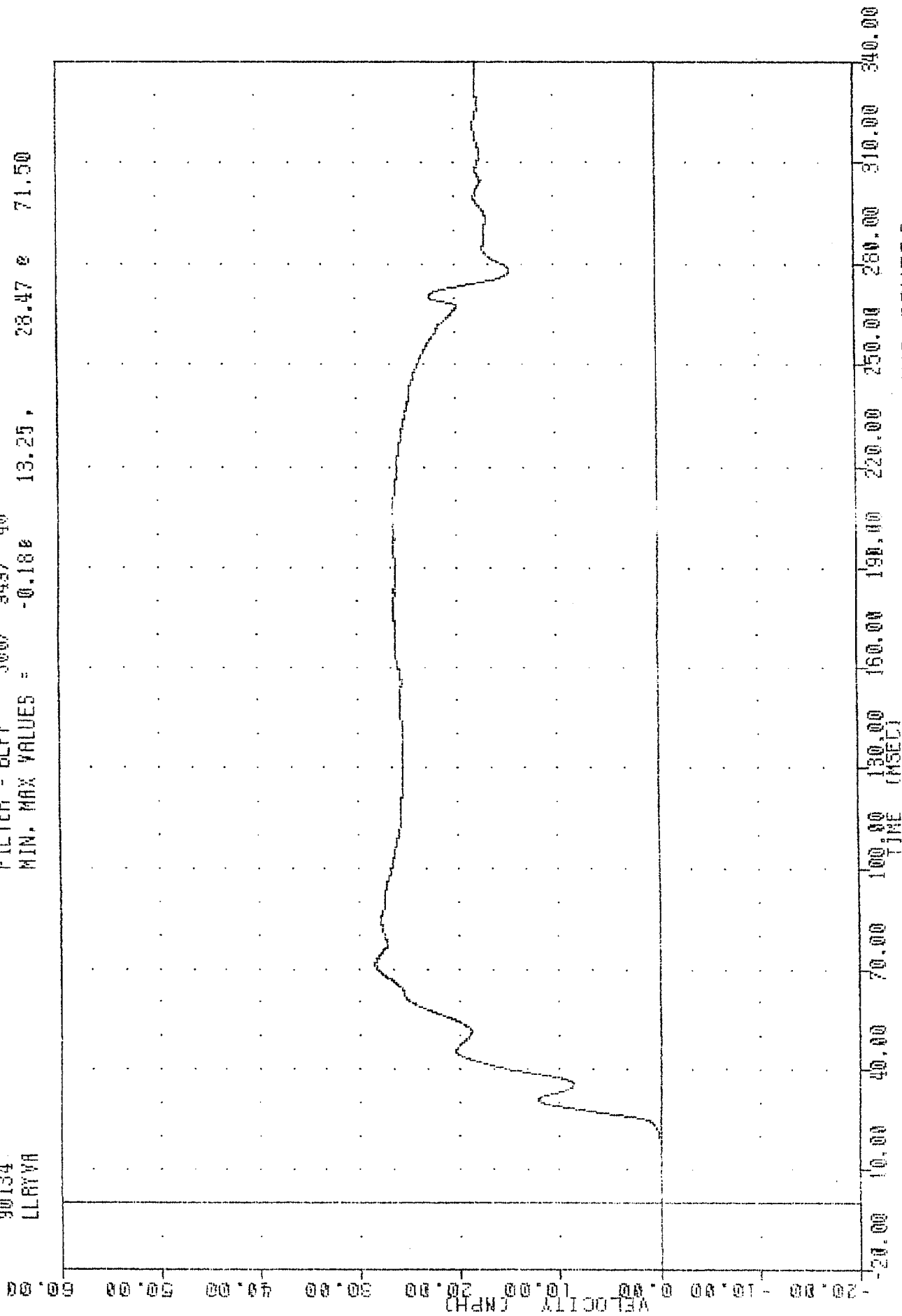
90134

LLRYVA

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.180

28.47 e 71.50



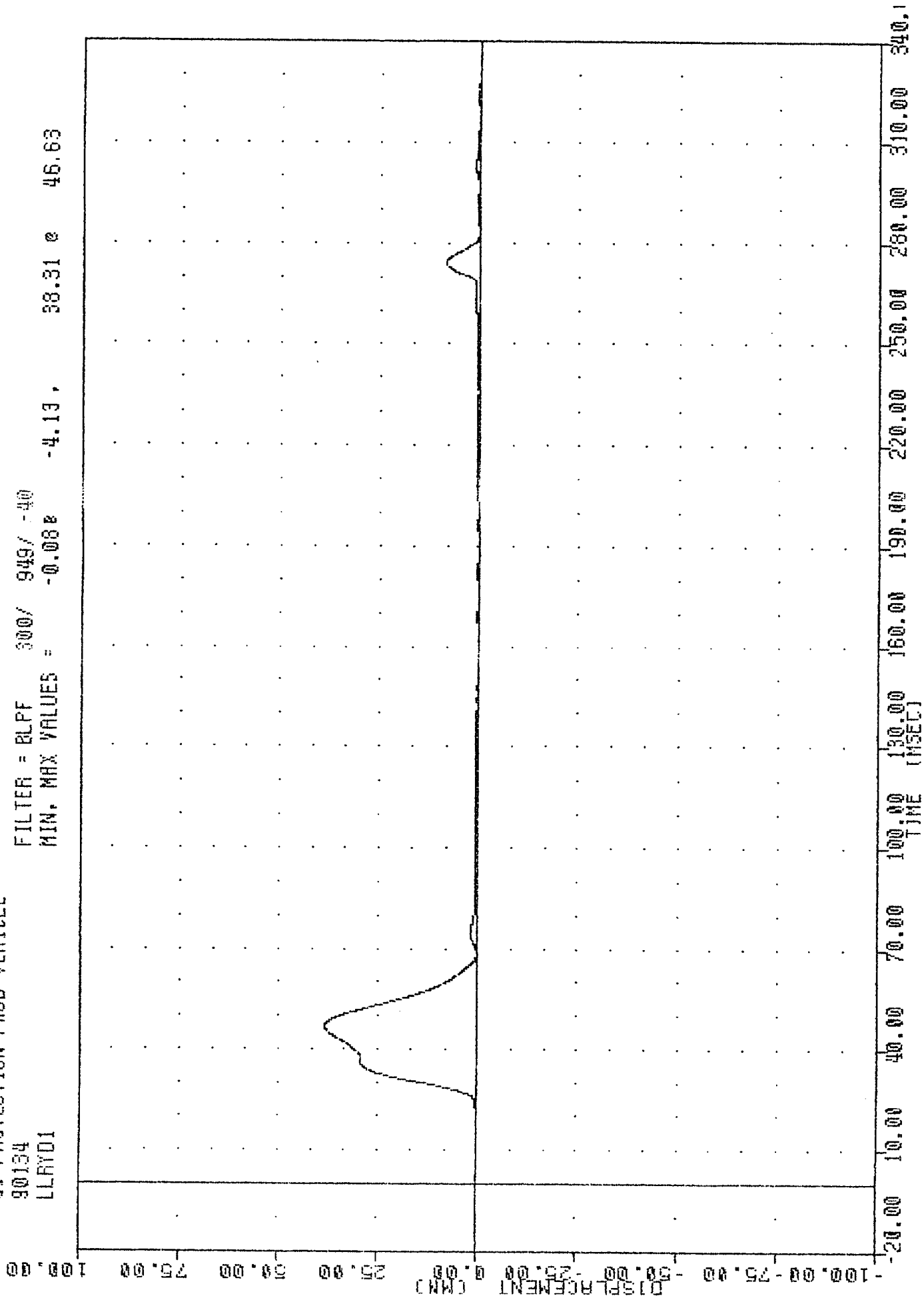
SI PROTECTION PROD VEHICLE

90134

LLRYD1

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.08 4.13 38.31 46.63

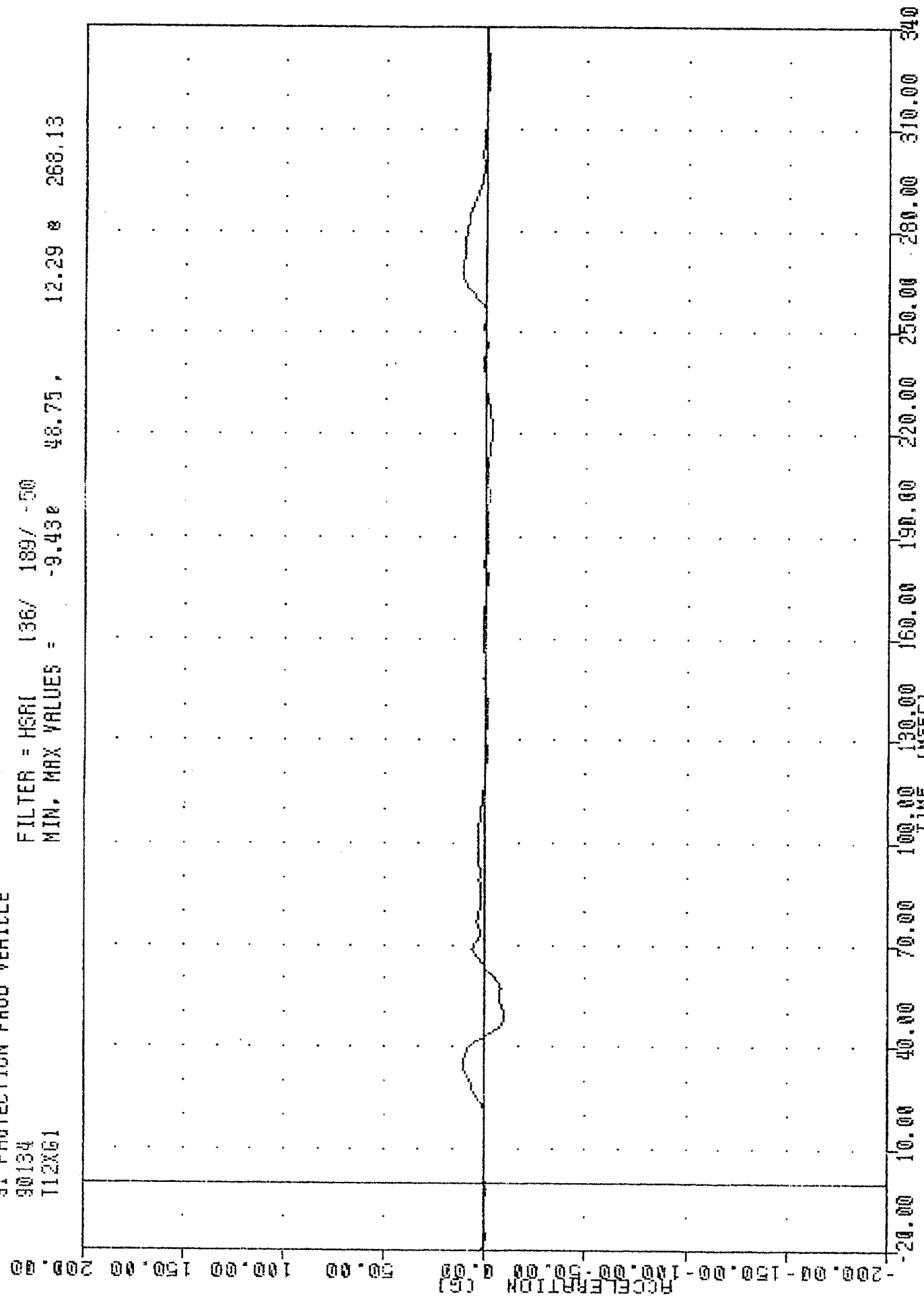


MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LEFT LOWER THORAX RIB DISPLACEMENT

SI PROTECTION PROD VEHICLE

90134
T12XG1

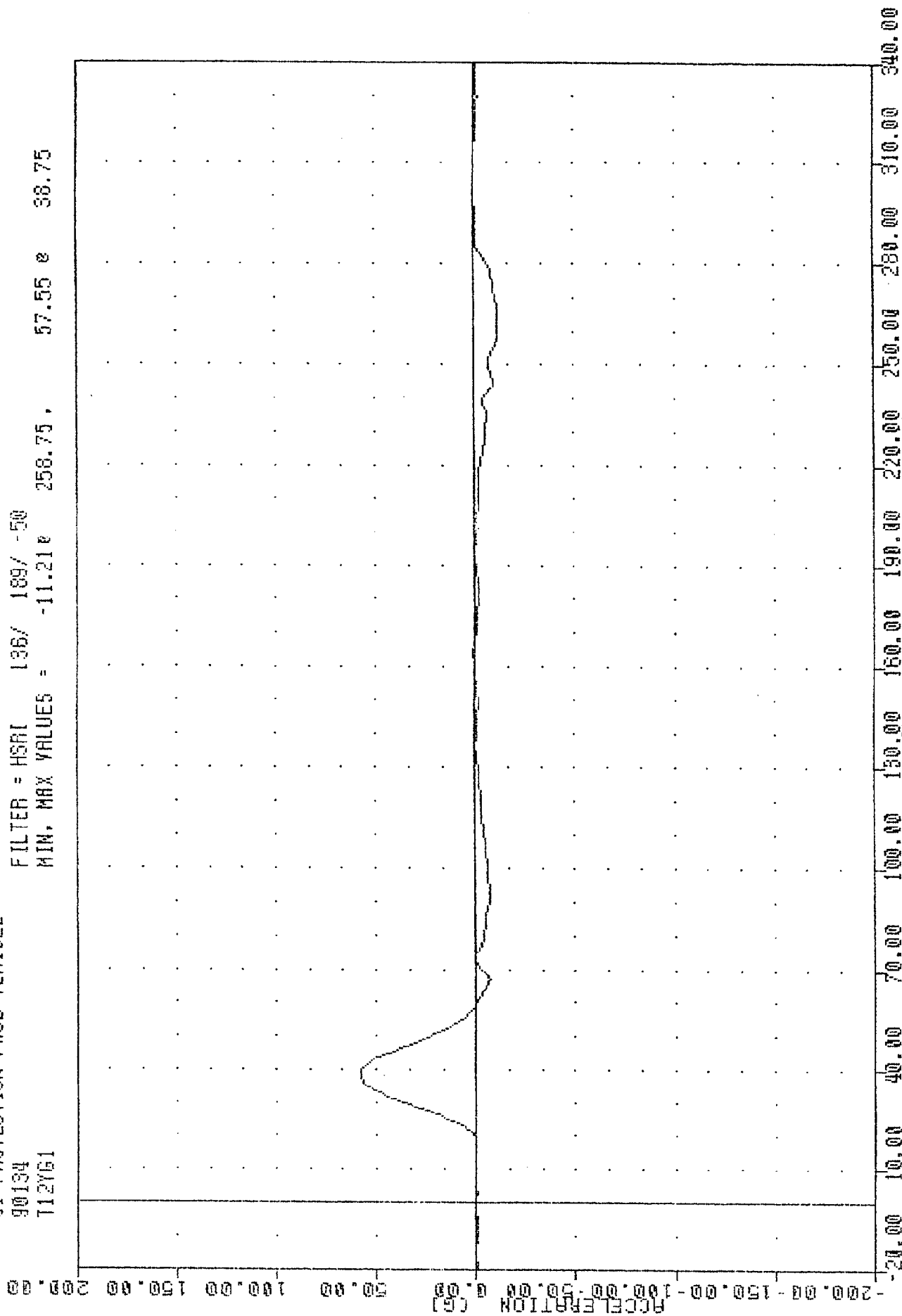
FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -9.43e 48.75, 12.29 e 268.13



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LOWER SPINE X AXIS ACCELERATION

NRFC , 900514
 51 PROTECTION PROD VEHICLE
 90134
 T12YG1

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -11.21e 258.75, 57.55 e 38.75

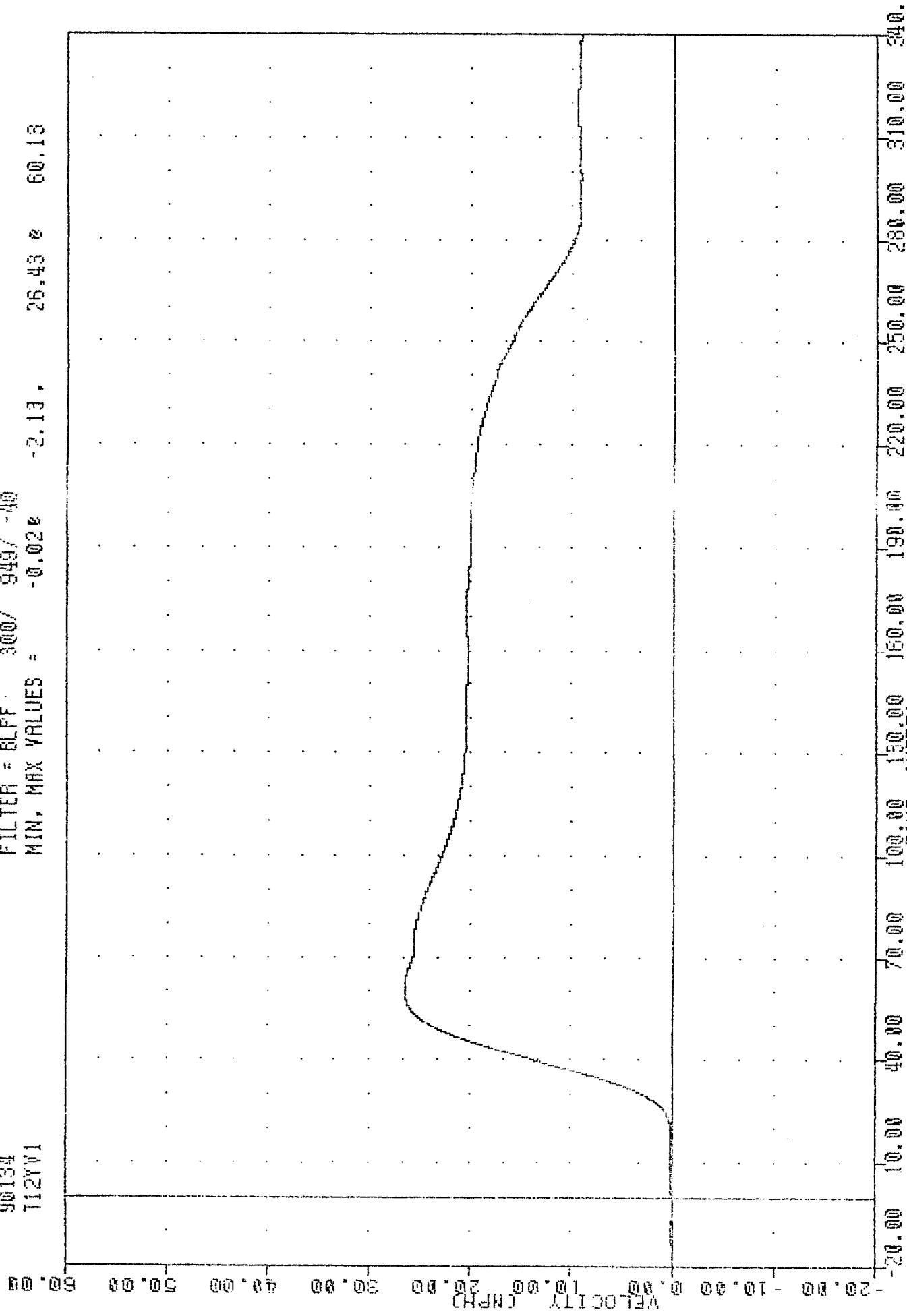


MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER LOWER SPINE Y AXIS ACCELERATION

51 PROTECTION PHOD VEHICLE

90134
T12YV1

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.02 26.43 0 60.13

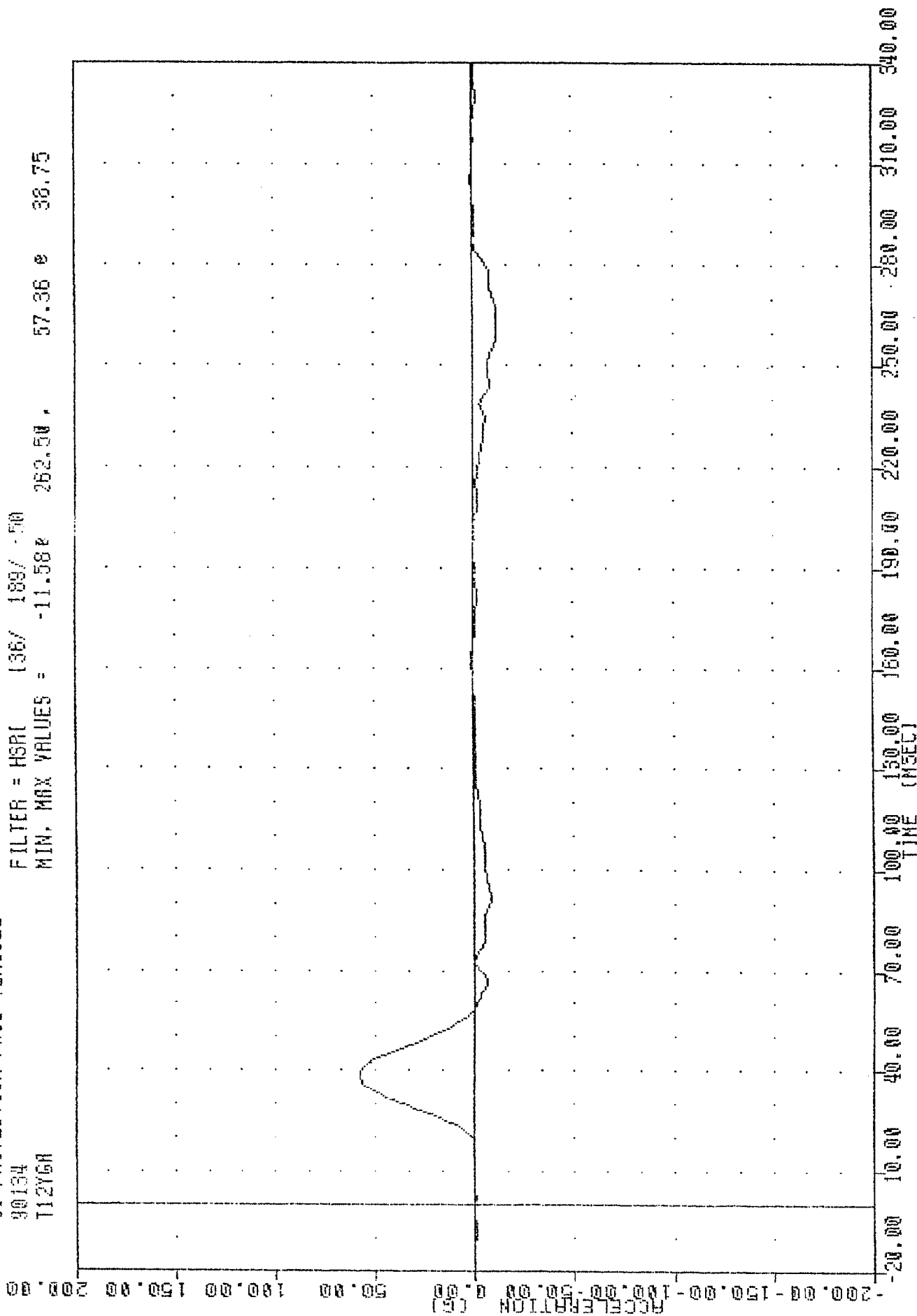


MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
DRIVER LOWER SPINE Y AXIS VELOCITY

VRTC
 31 PROTECTION PROD VEHICLE
 90134
 T12Y6H

* 900514

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -11.58 262.50 57.36 38.75



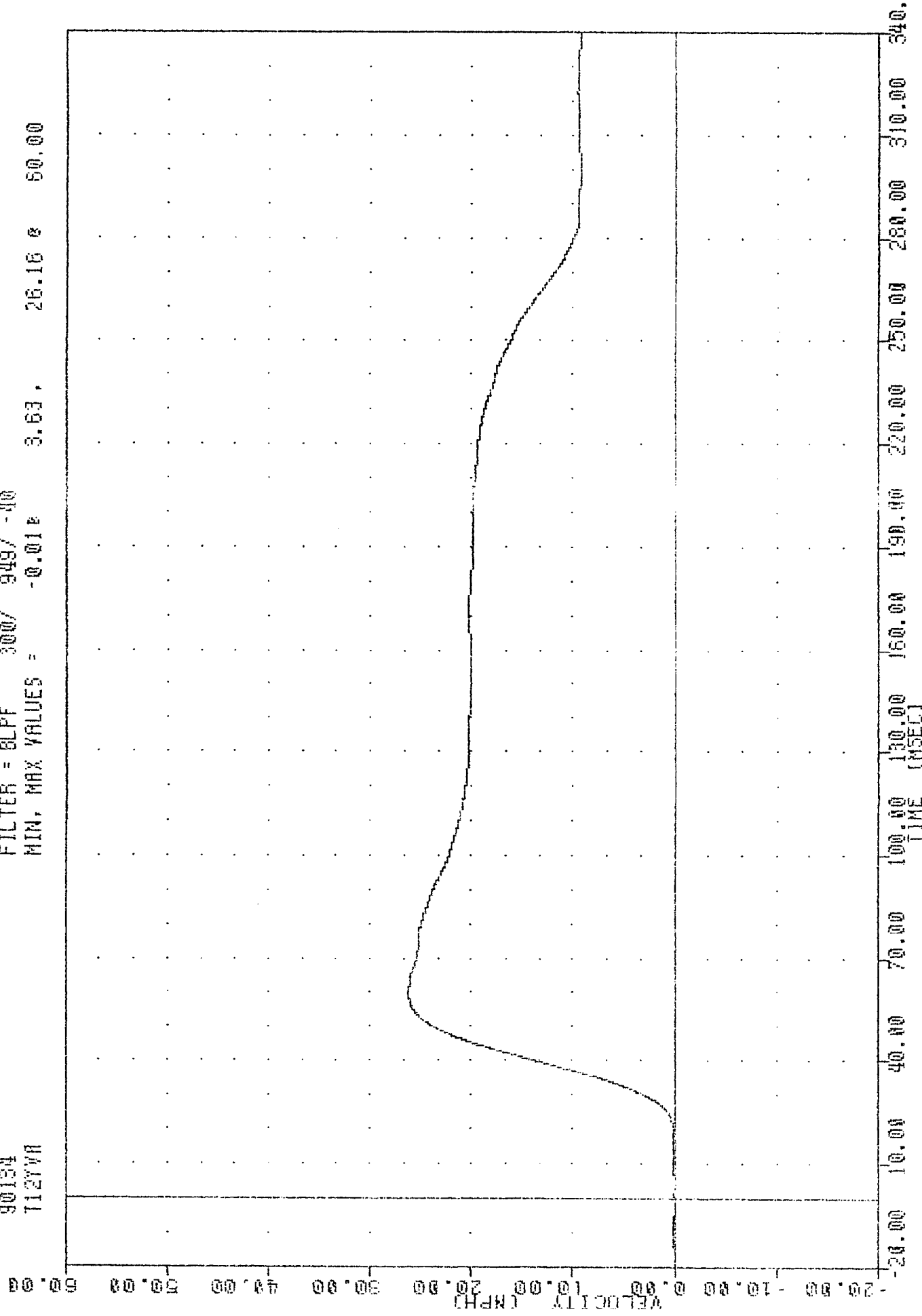
51 PROTECTION FRUO VEHICLE

90134

112TVR

FILTER = 8LFF 300/ 949/ -40

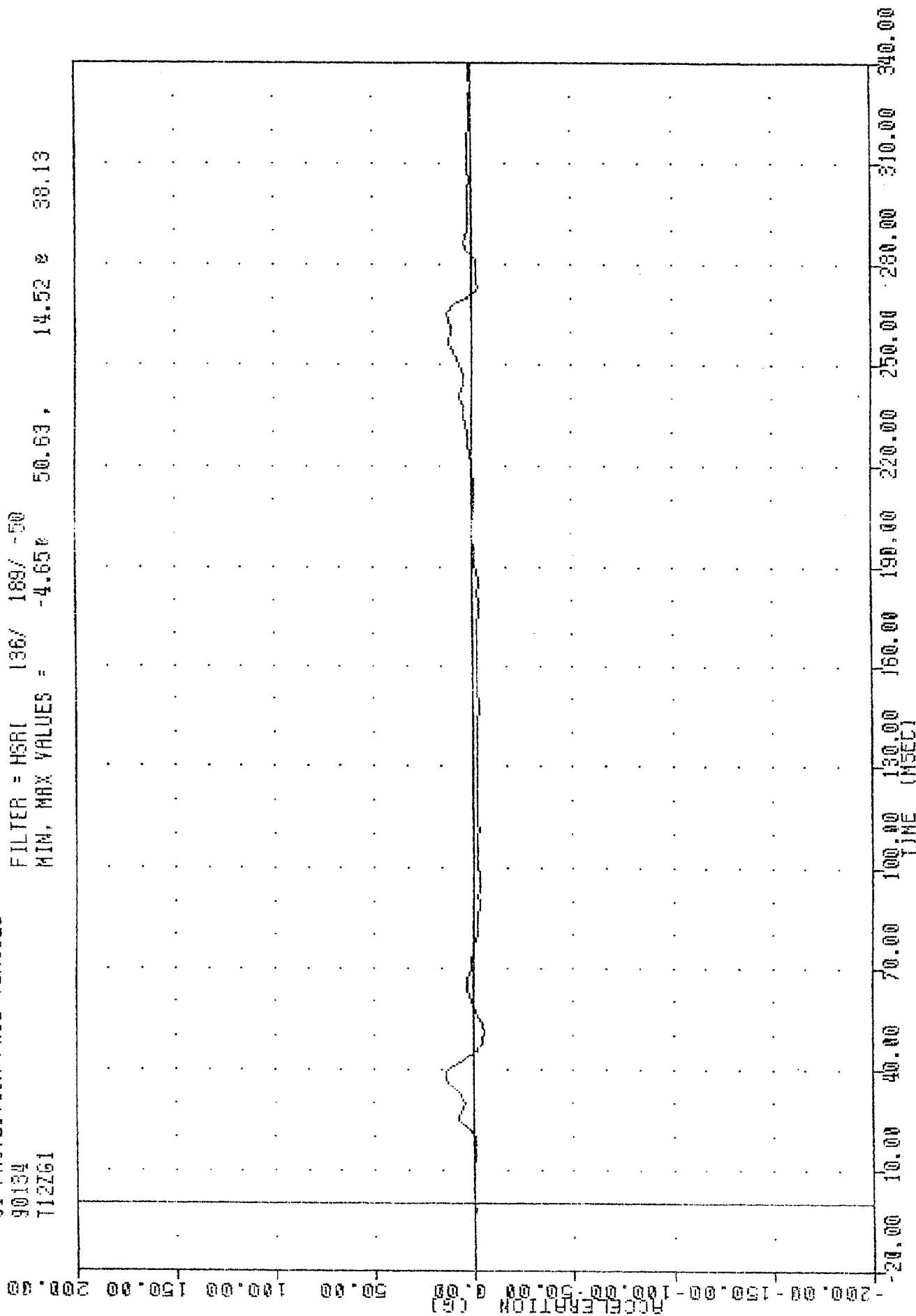
MIN, MAX VALUES = -0.012 3.63 26.16 50.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
DRIVER LOWER SPINE Y AXIS REDUNDANT VELOCITY

VRTO 900514
 SI PROTECTION PROD VEHICLE
 90134
 712761

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -4.65e 50.63, 14.52 e 38.13



31 PROTECTION FROM VEHICLE

90134

712RC1

FILTER = HSRI

136/

189/ -50

MIN. MAX VALUES =

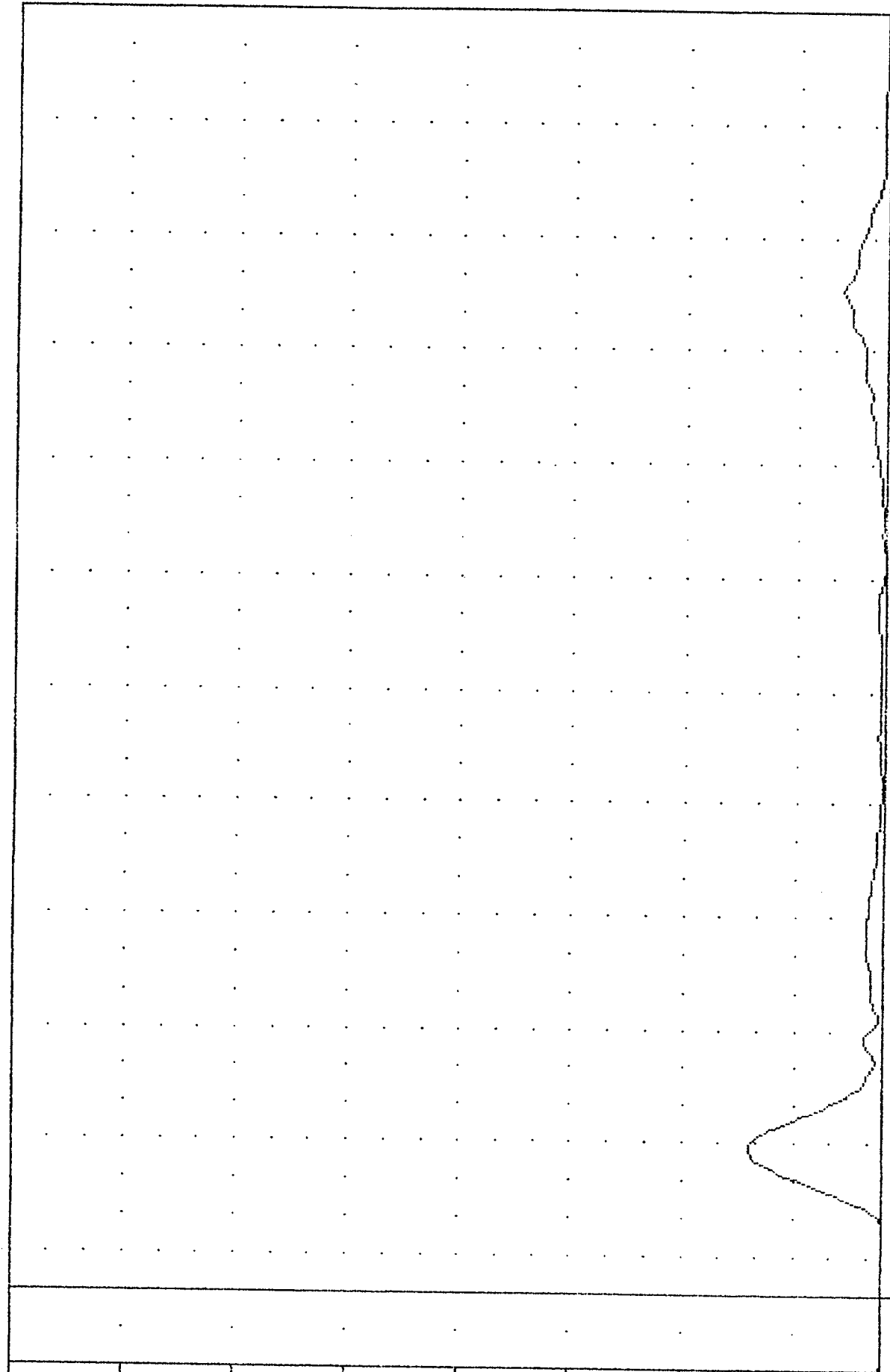
0.04e

-13.75,

60.03 e

38.13

ACCELERATION [G]

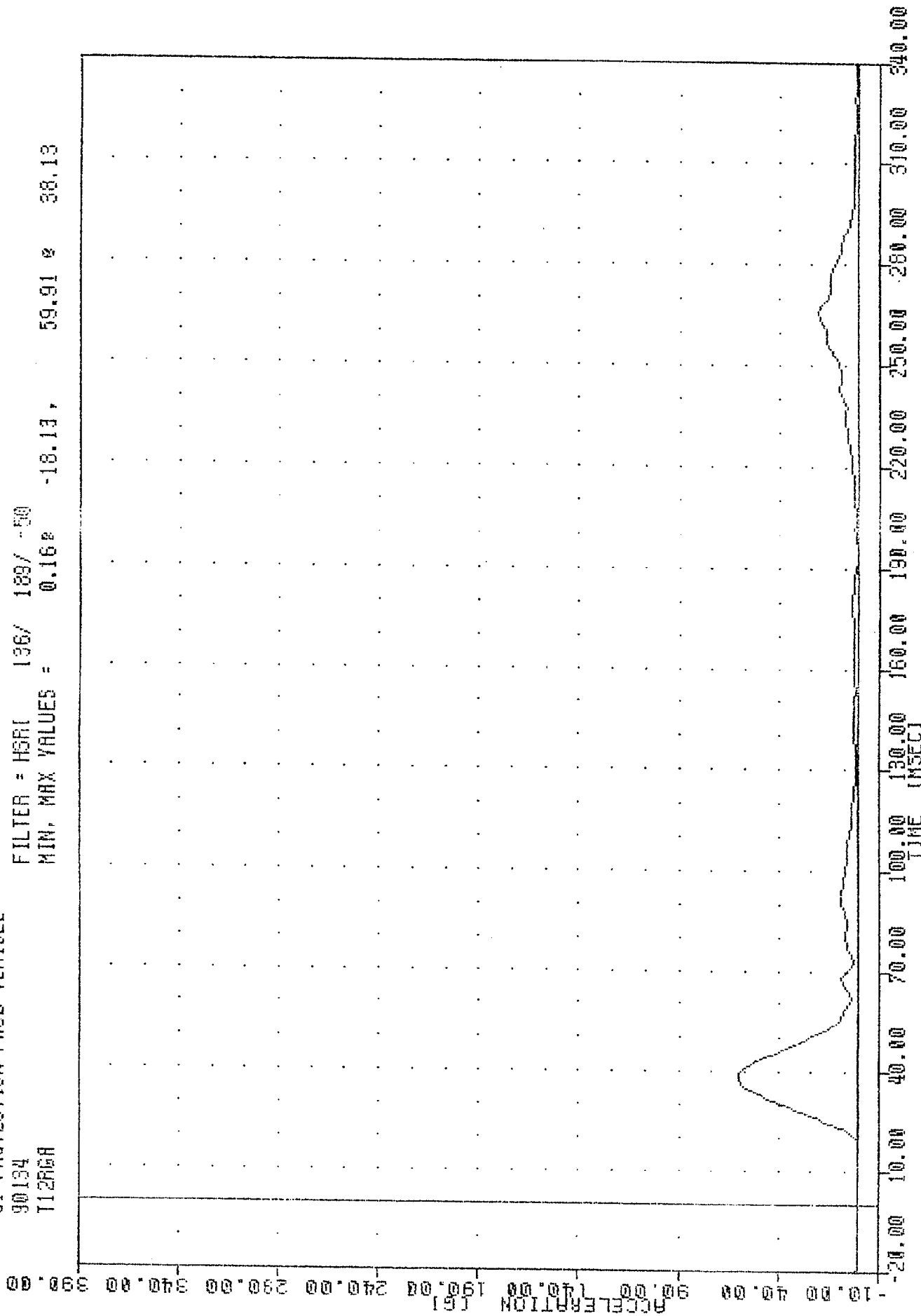


TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LOWER SPINE RESULTANT ACCELERATION

VEHICLE, 900514
 SI PROTECTION PROD VEHICLE
 90134
 T12RGA

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.162 -18.13, 59.91 & 38.13



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER LOWER SPINE REDUNDANT RESULTANT ACCELERATION

SI PROTECTION PAD VEHICLE

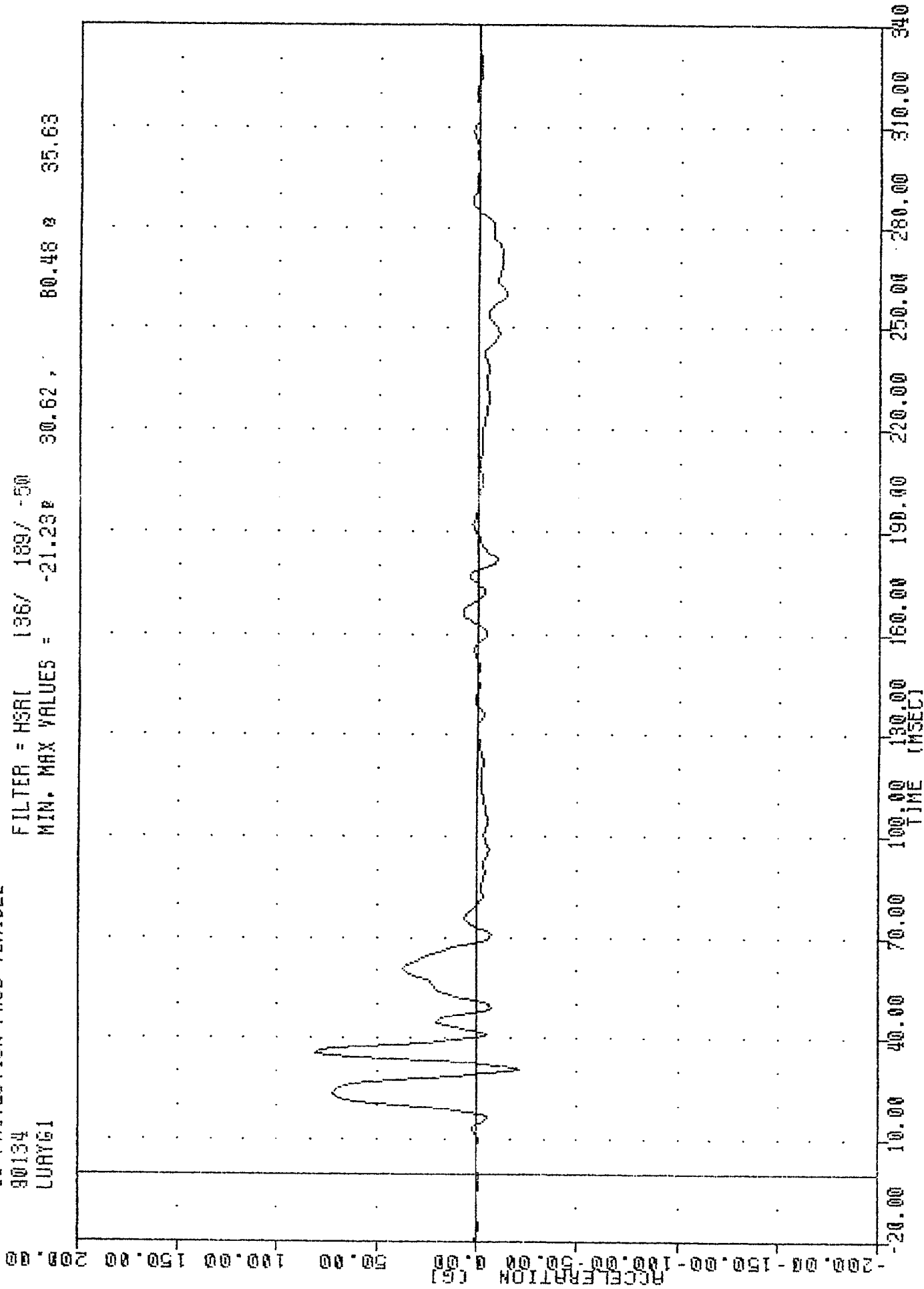
90134

LURY61

FILTER = HSRL 136/ 189/ -50

MIN. MAX VALUES = -21.23 30.62

80.48 35.63

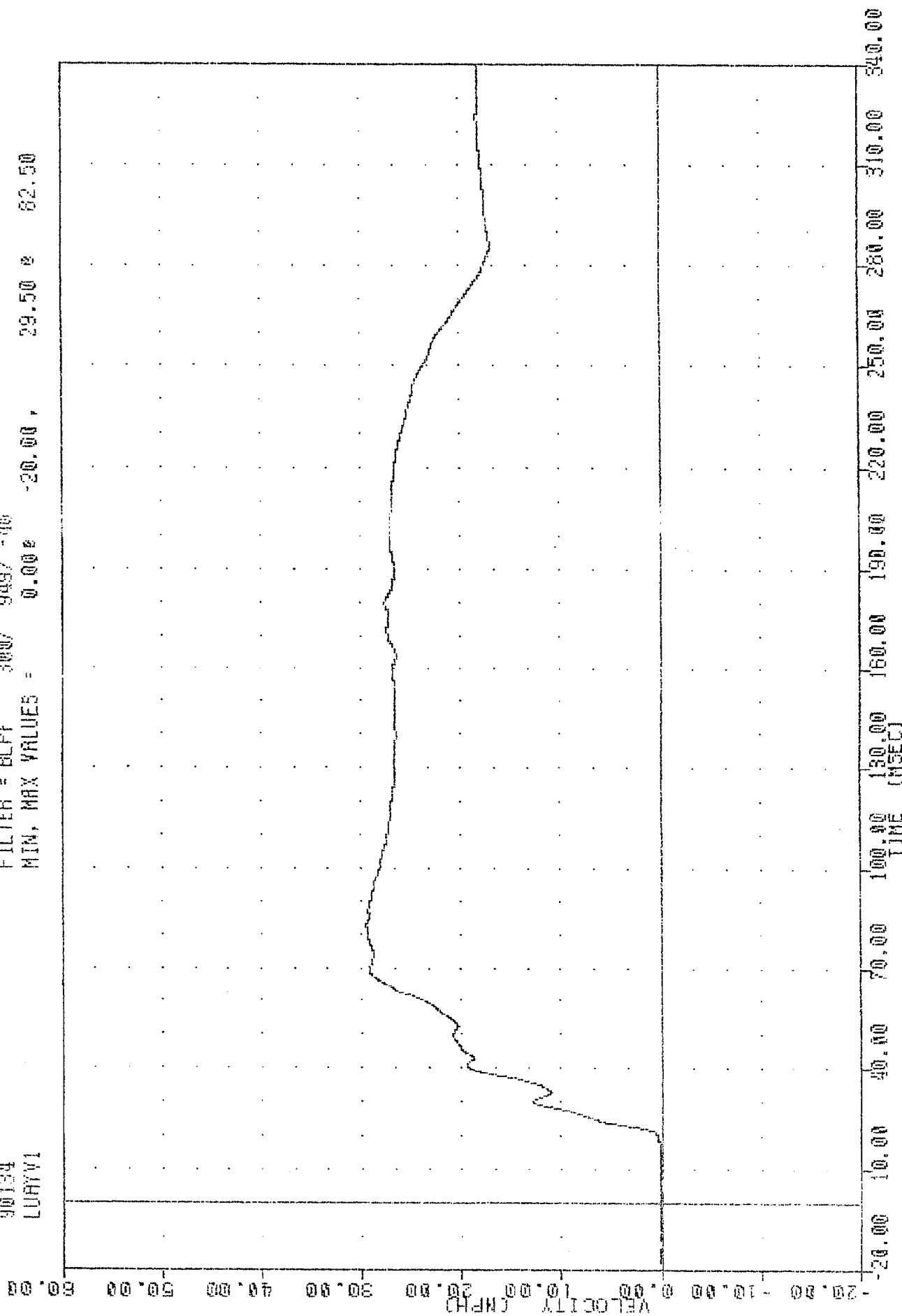


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

DRIVER LEFT UPPER ABDOMEN RIB Y AXIS ACCELERATION

VEHICLE, 300514
 SI PROTECTION PROO VEHICLE
 90134
 LURRYV1

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 0.00e -20.00, 29.50 e 82.50

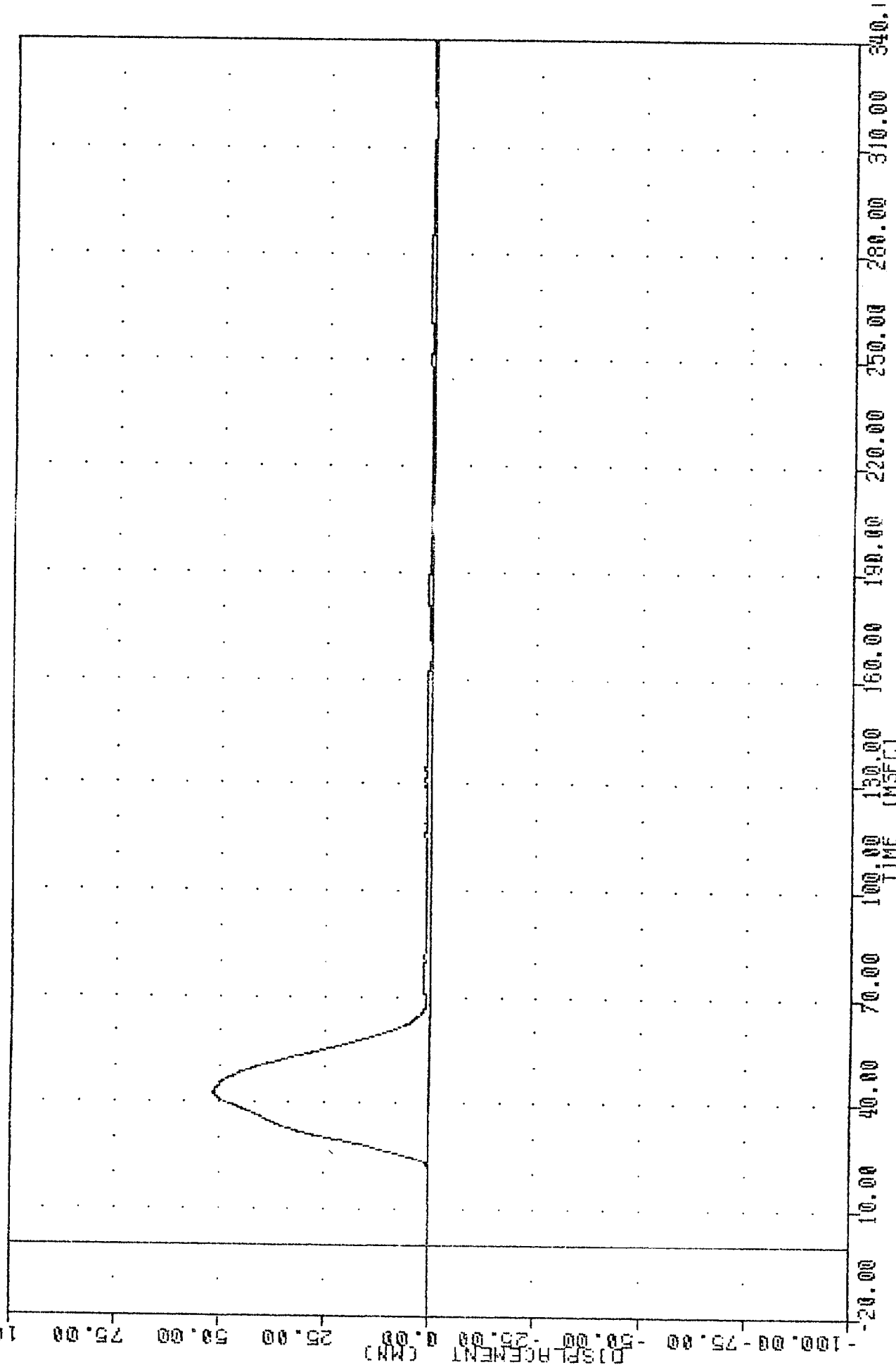


MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
 DRIVER LEFT UPPER ABDOMEN RIB Y AXIS VELOCITY

VEHICLE INFORMATION

90134
LURYD1

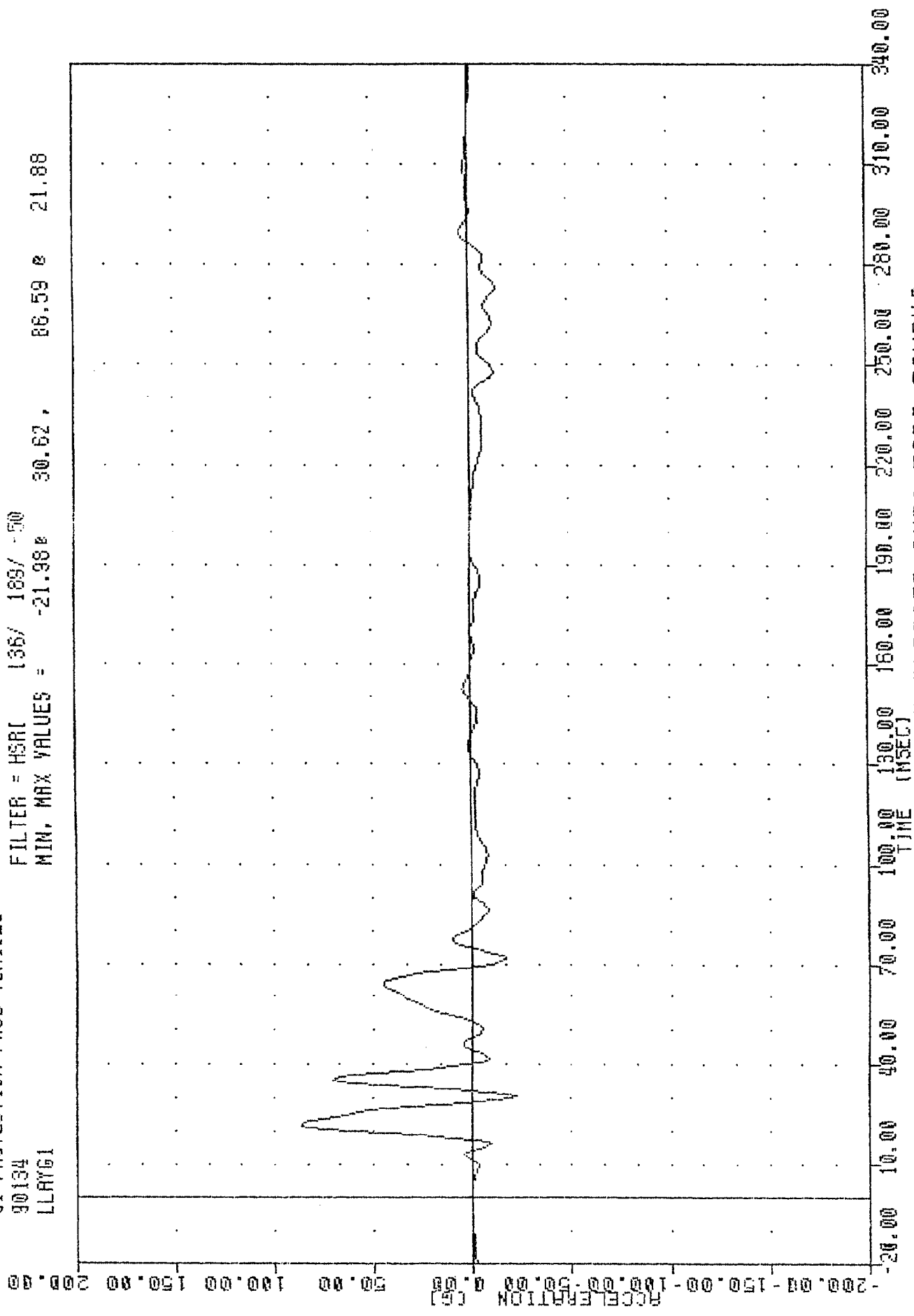
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.068 0.88, 51.31 2 42.63



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER LEFT UPPER ABDOMEN AIB DISPLACEMENT

NRIC , 900514
 SI PROTECTION PROD VEHICLE
 90134
 LLYG1

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -21.98 30.62, 86.59 21.88



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER LEFT LOWER ABDOMEN RIB Y AXIS ACCELERATION

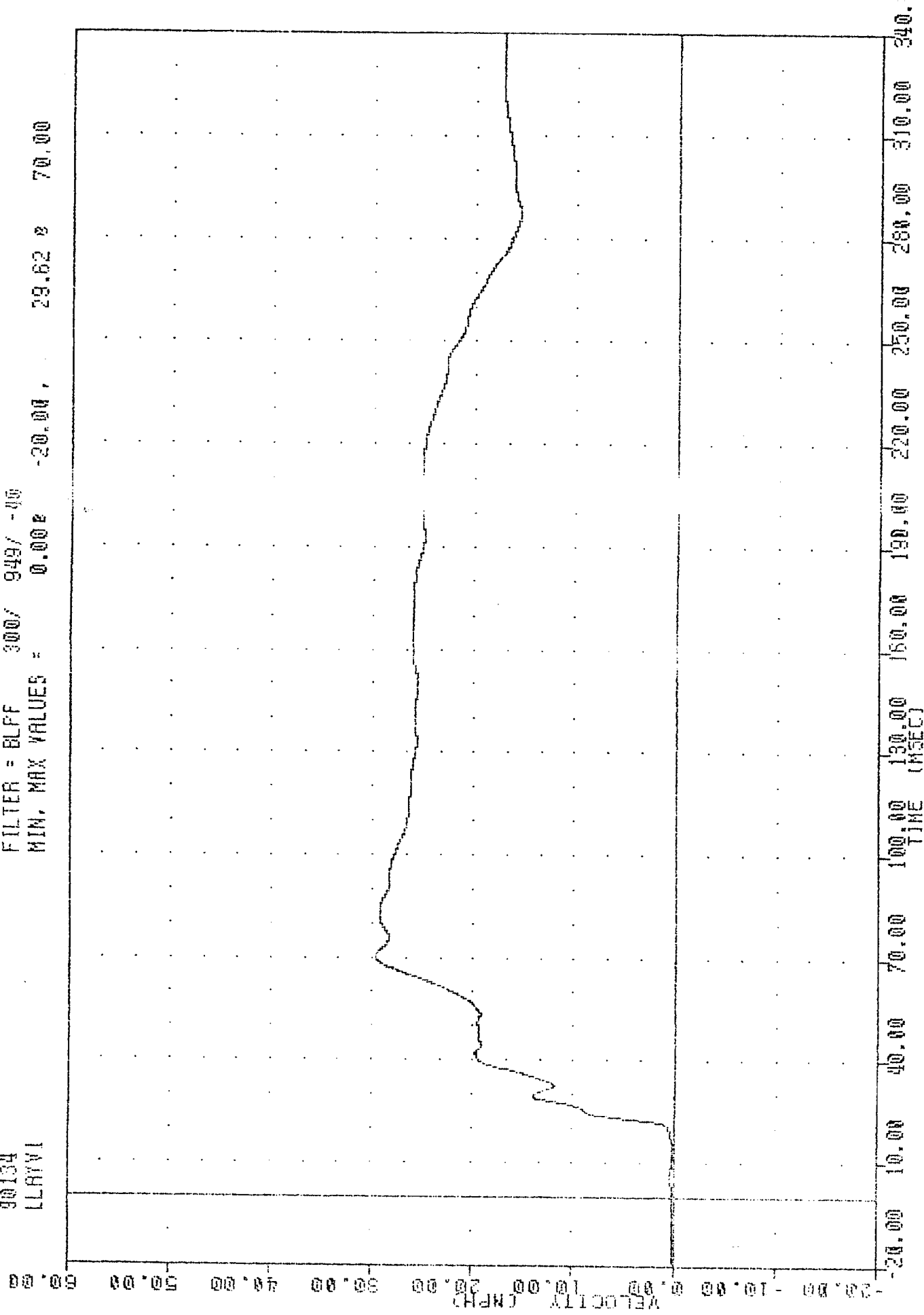
31 COLLISION FROM VEHICLE

90134

LLAYVI

FILTER = BLFF 300/ 949/ -40

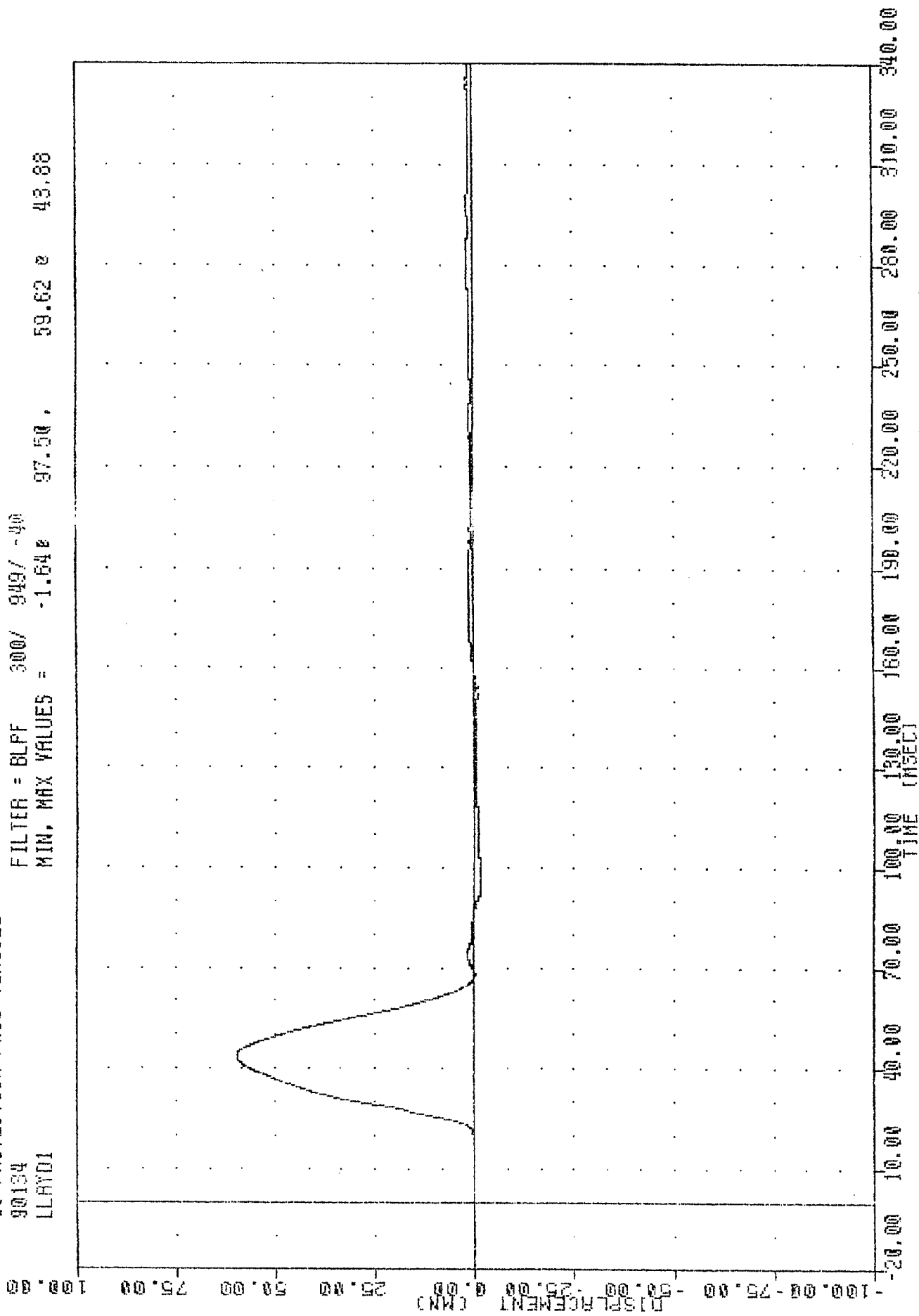
MIN. MAX VALUES = 0.00E -20.00 , 29.62 E 70.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
DRIVER LEFT LOWER ABDOMEN RIB Y AXIS VELOCITY

VRTU , 900514
 SI PROTECTION PROD VEHICLE
 90134
 LLYD1

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -1.64e 97.50, 59.62 e 43.88



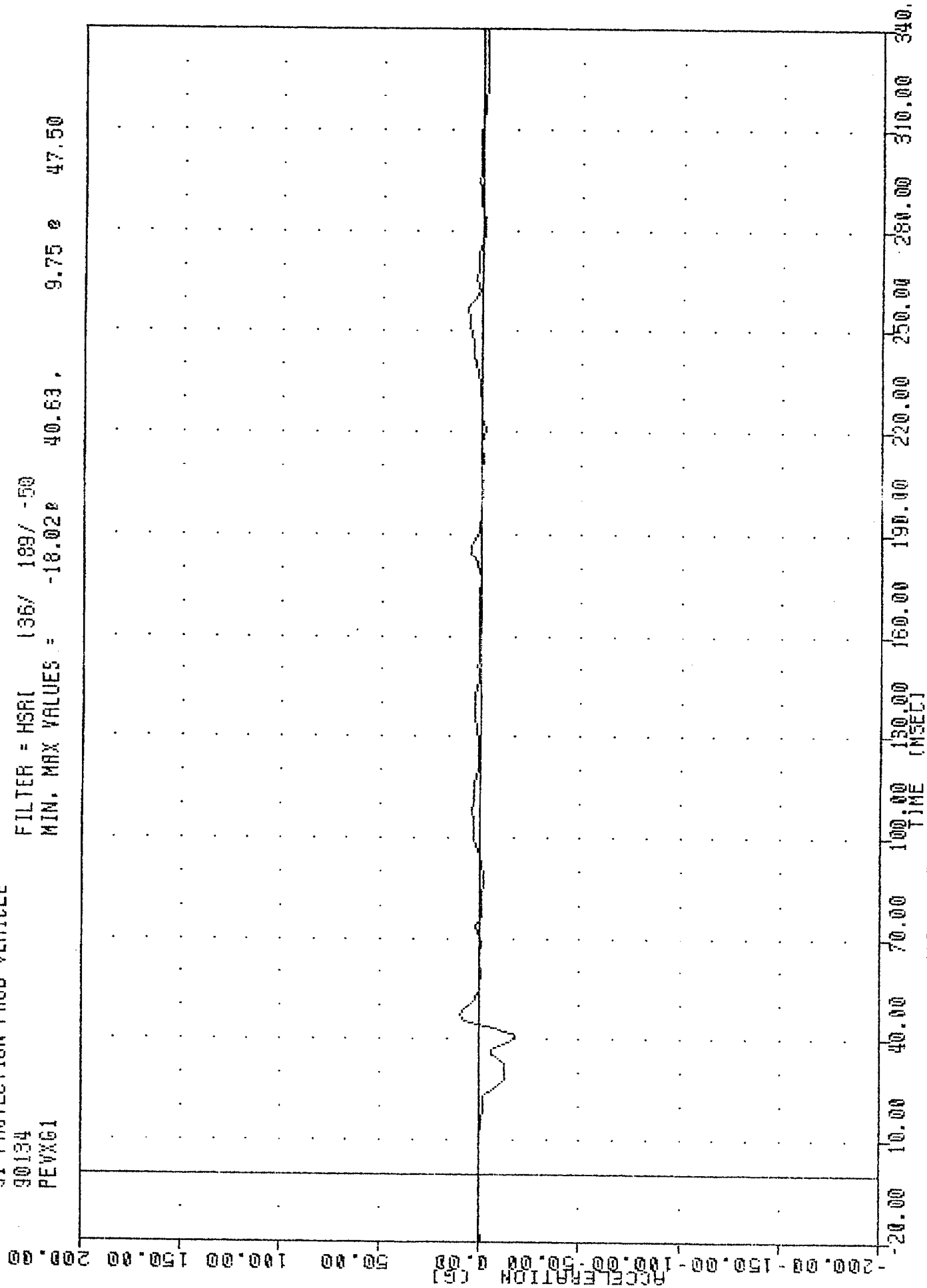
MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER LEFT LOWER ABDOMEN AIR DISPLACEMENT

SI PROTECTION PROD VEHICLE

90134
PEVXG1

FILTER = HSR1 136/ 189/ -50

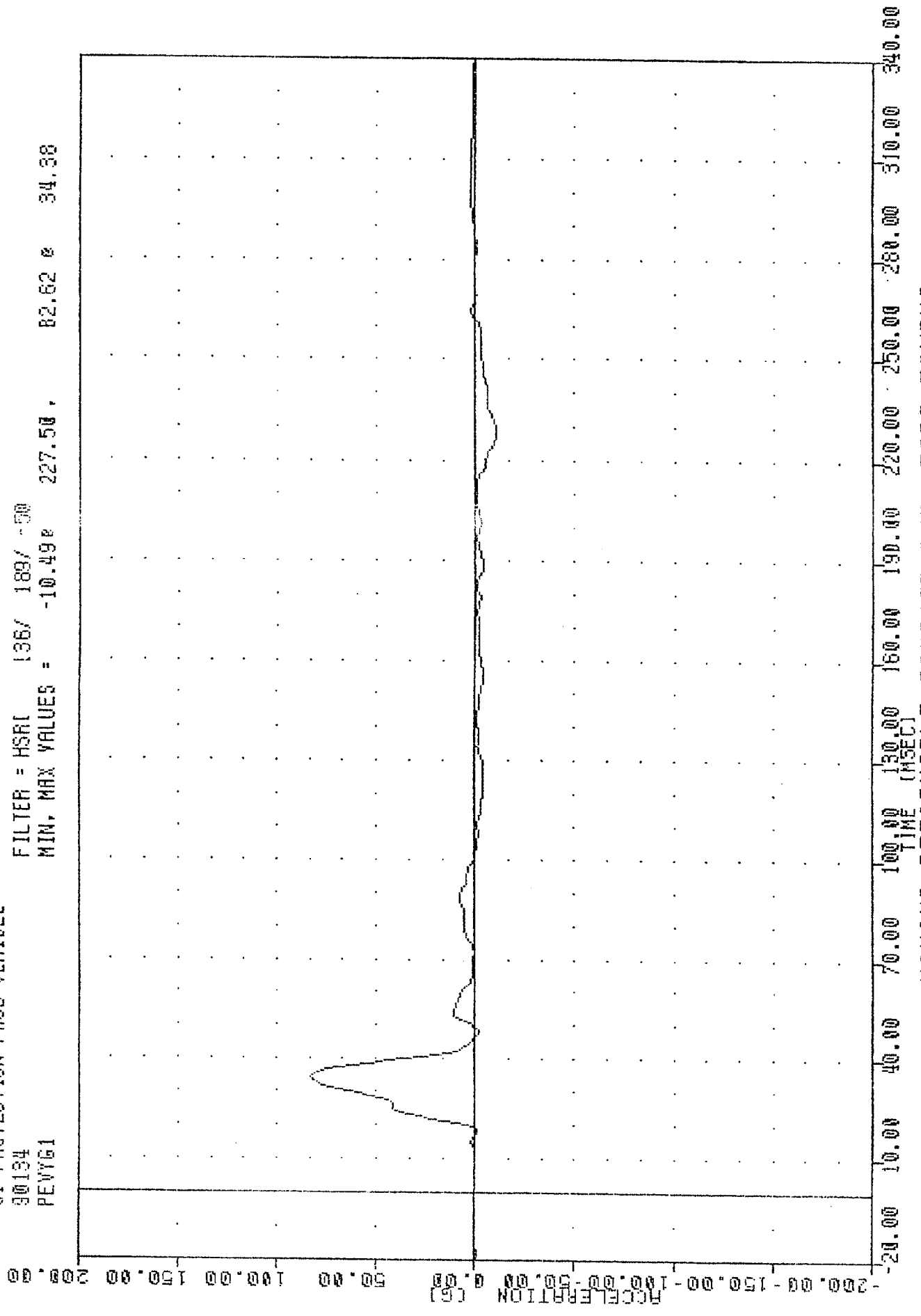
MIN. MAX VALUES = -18.02 40.63 9.75 47.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER PELVIS X AXIS ACCELERATION

VRTC , 900514
 SI PROTECTION PROC VEHICLE
 90134
 PEVY61

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -10.49e 227.50 , 82.62 e 34.38



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER PELVIS Y AXIS ACCELERATION

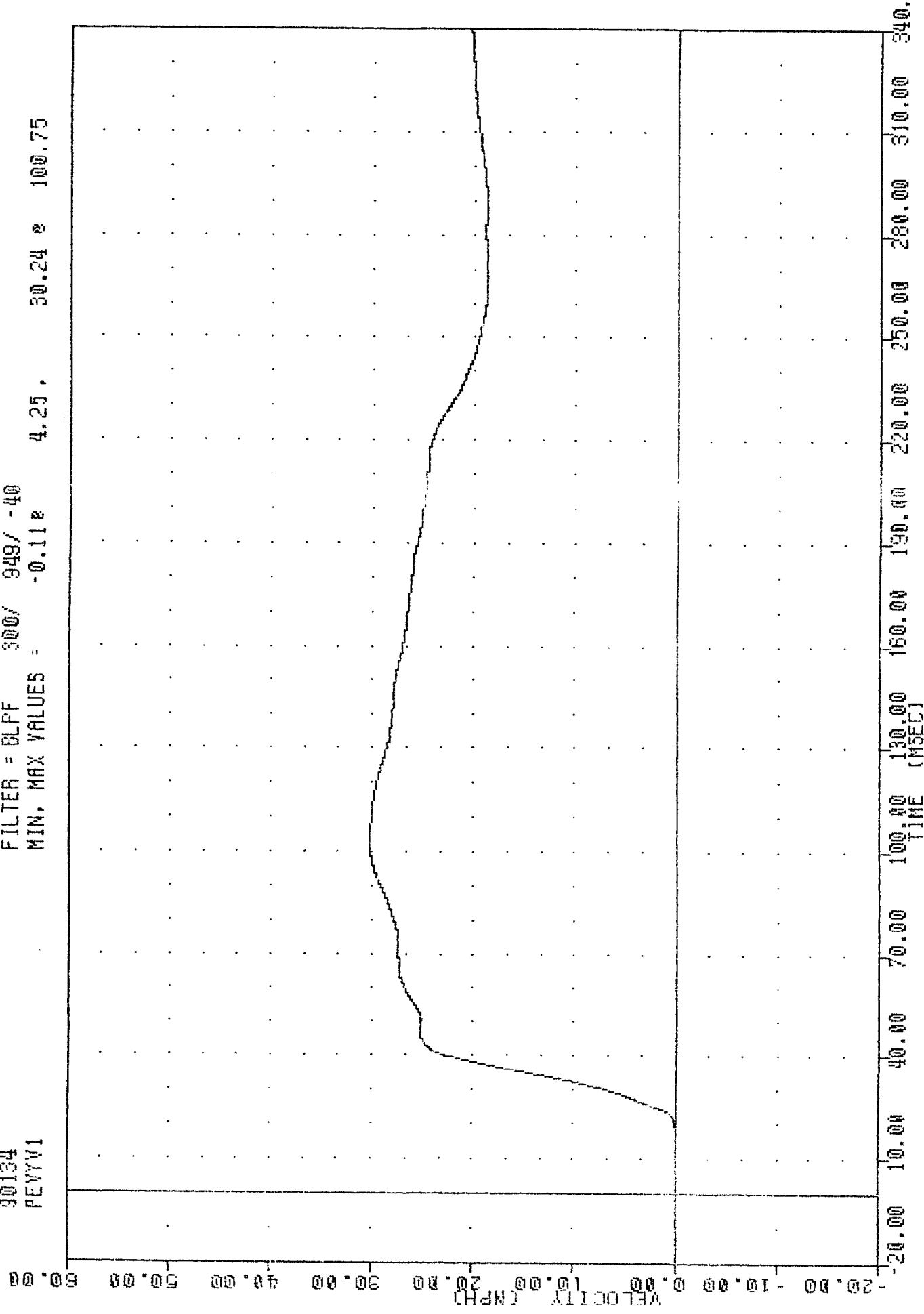
51 PROJECTION FROM VEHICLE

90134

PEVTV1

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -0.11e 4.25, 30.24 e 100.75

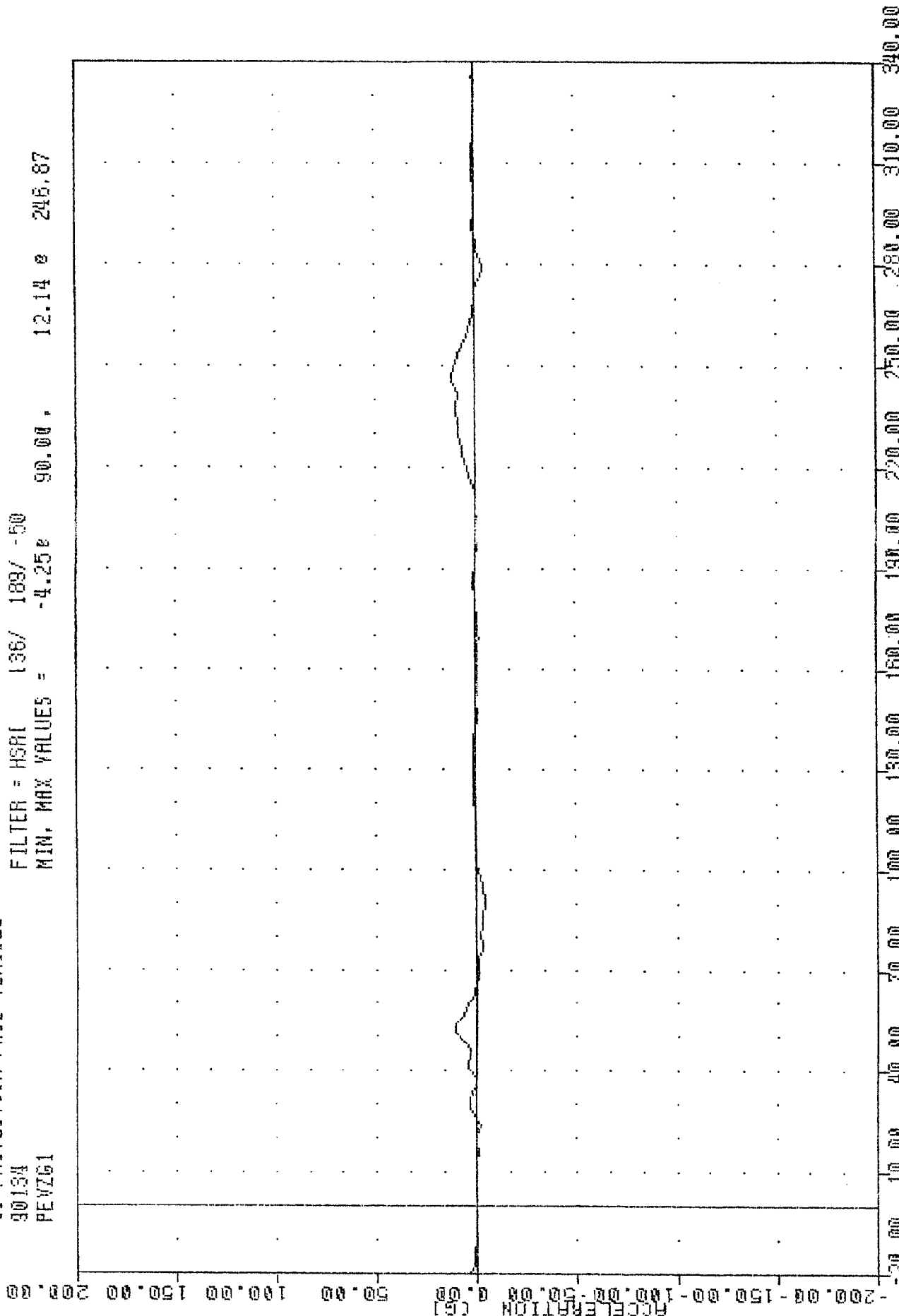


MOVING DEFORMABLE BARRIER INTO FORD TAURUS SENTRA
DRIVER PELVIS Y AXIS VELOCITY

4870 , 800514
 S1 PROTECTION PROD VEHICLE
 90134
 PEVZG1

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -4.25e

90.00 , 12.14 e 246.87



31 COLLISION FROM VEHICLE

90134

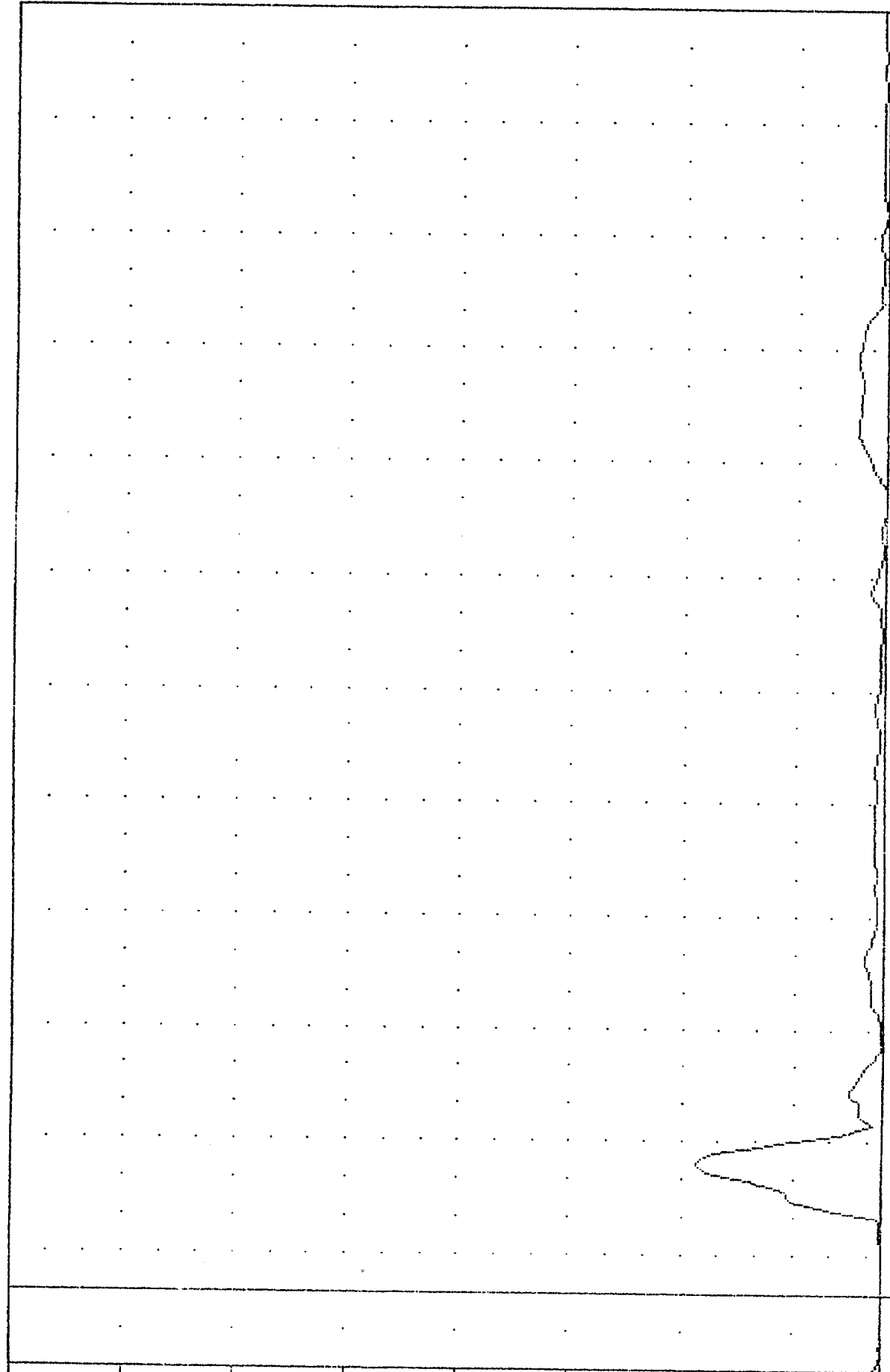
PEVRG1

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.27e

1.25, 83.14 e 34.38

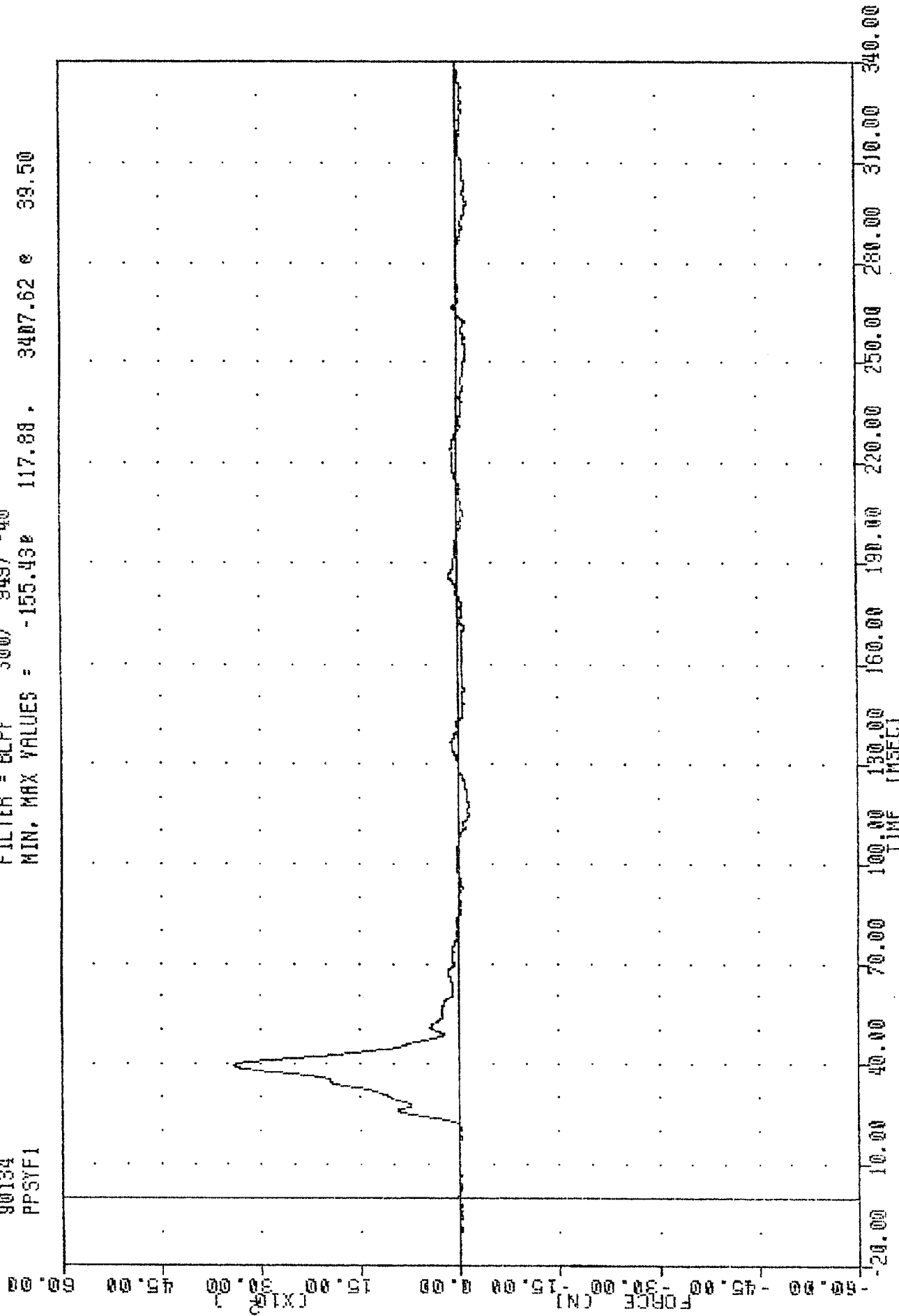
ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER PELVIS RESULTANT ACCELERATION

1000
 SI PROTECTION PROD VEHICLE
 90134
 PPSYF1

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -155.43 117.88 3407.62 39.50

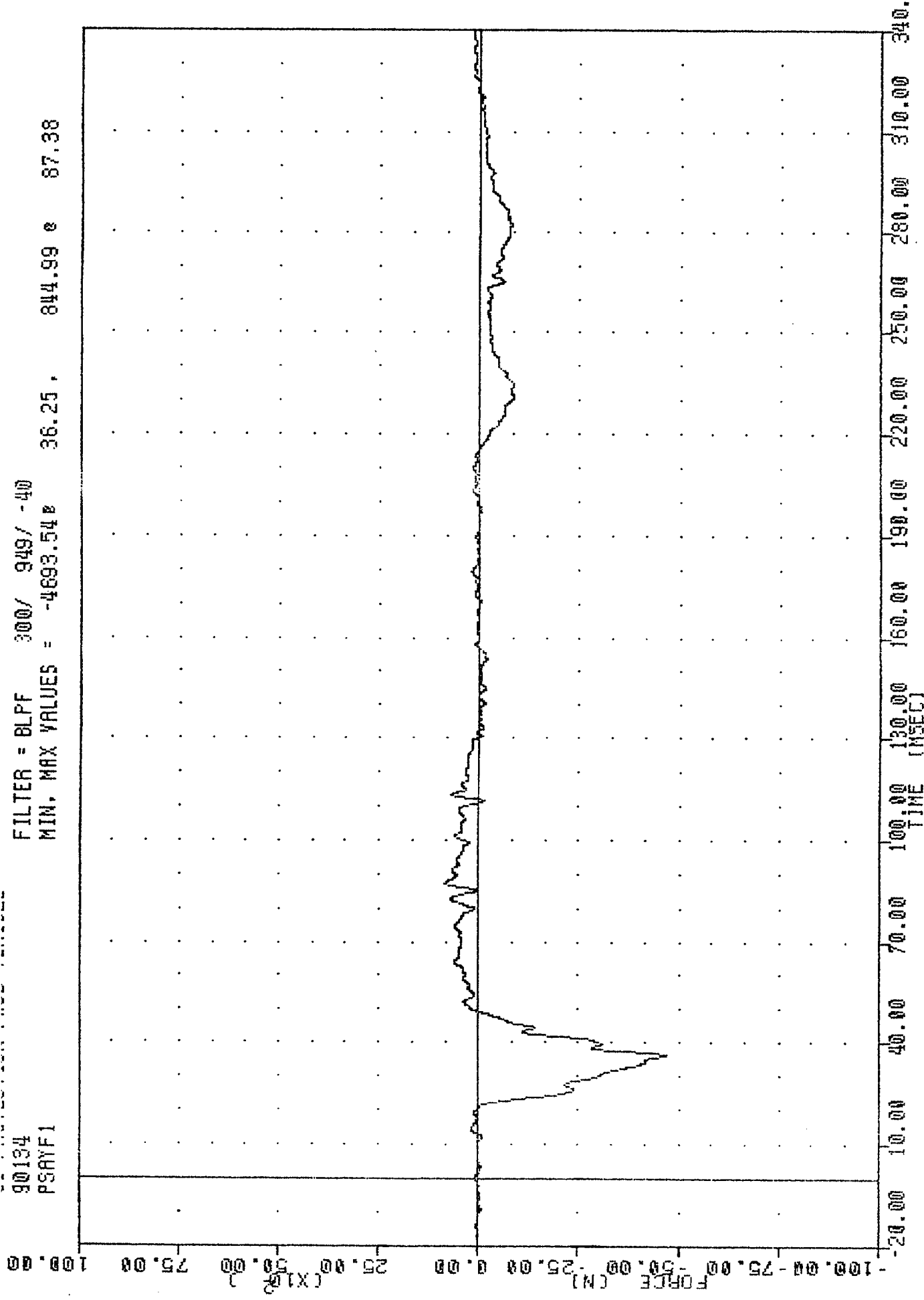


MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER PUBIC SYMPHYSIS Y AXIS FORCE

90134
PSAYF1

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -4693.54 8

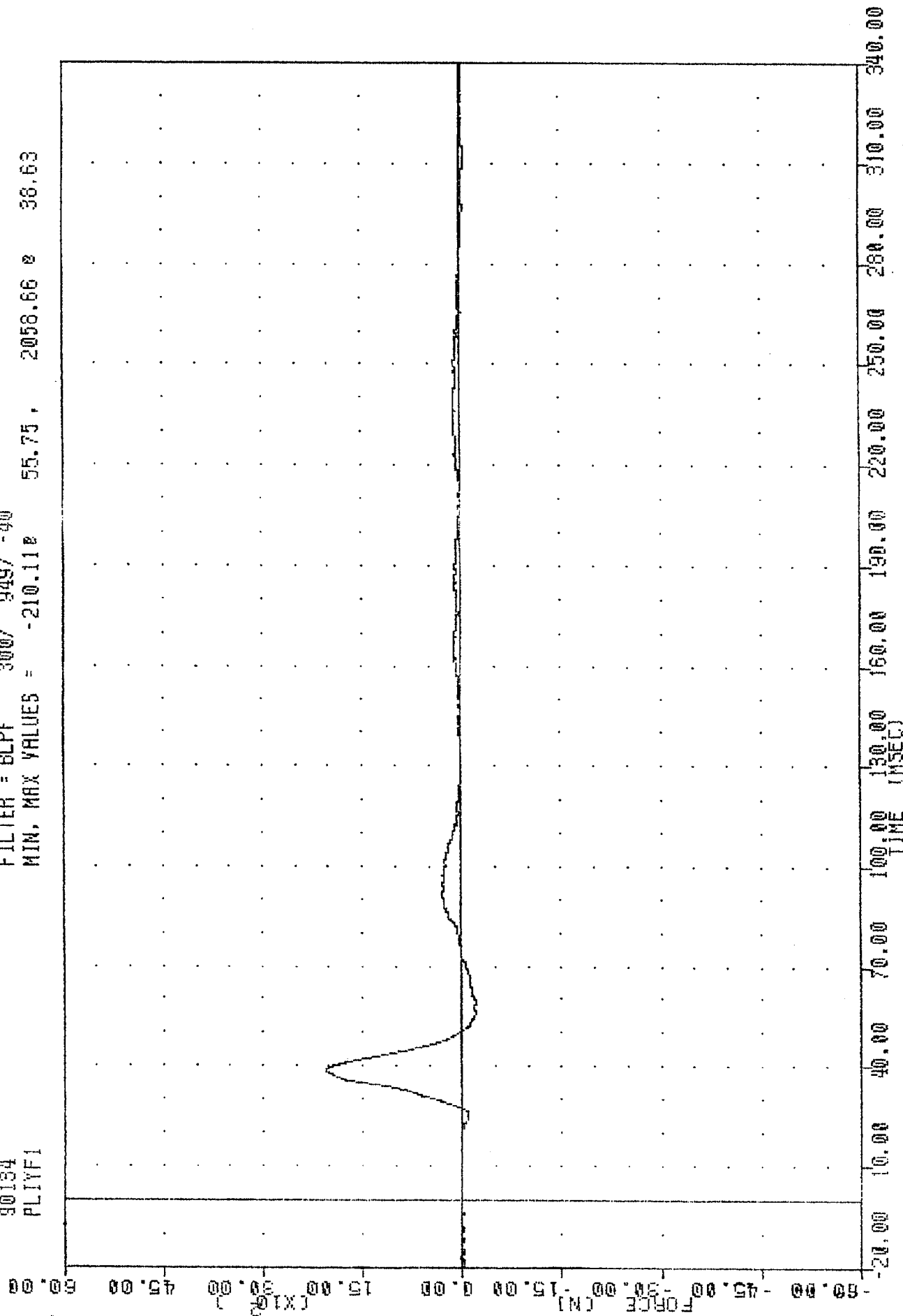
36.25 844.99 87.38



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
DRIVER PELVIS SACRUM Y AXIS FORCE

11110 F 0000114
 SI PROTECTION PROD VEHICLE
 90134
 PLIYF1

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -210.11e 55.75, 2058.66 e 38.63



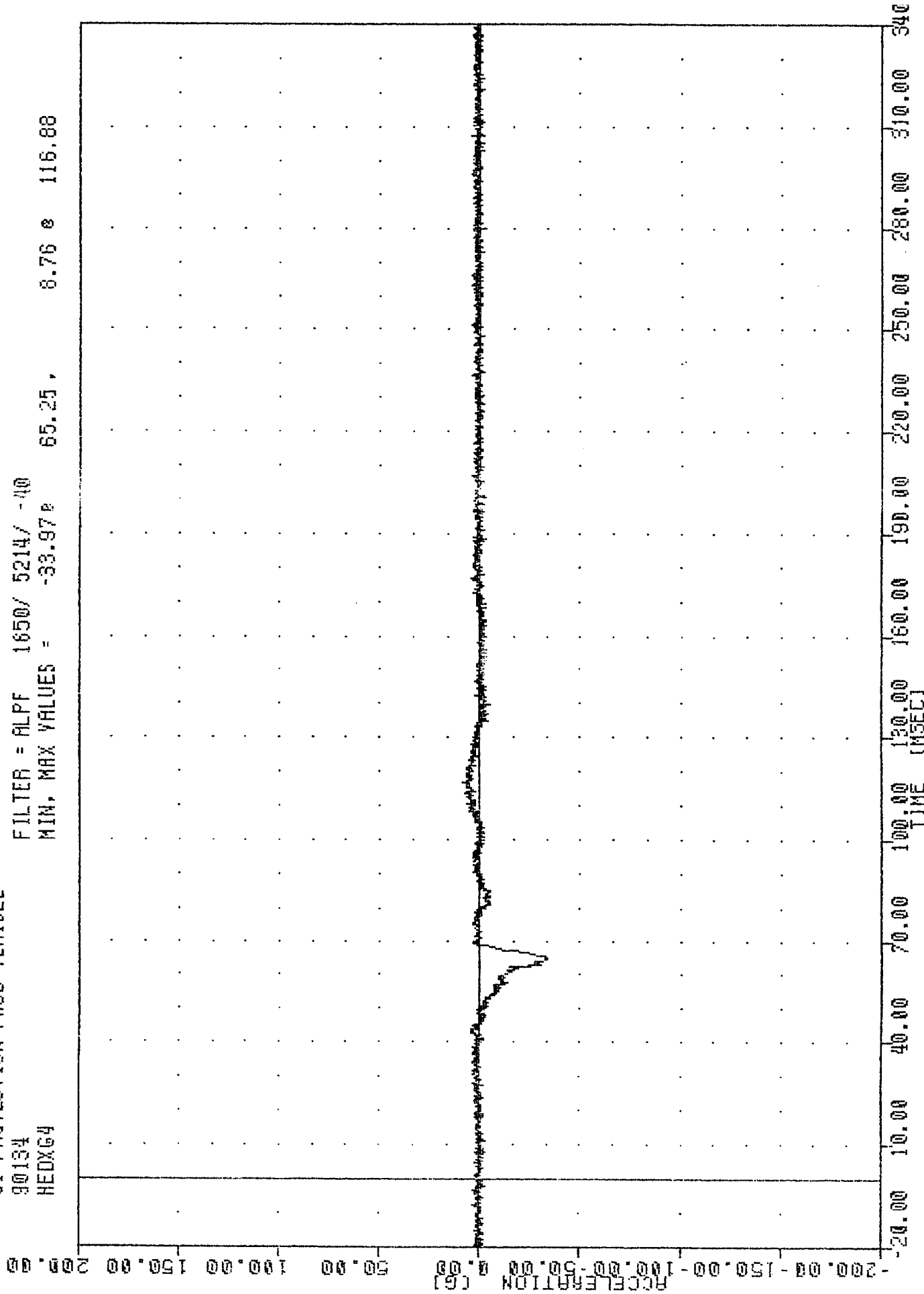
MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 DRIVER PELVIS ILIAC Y AXIS FORCE

SI PROTECTION PROD VEHICLE

90134
HEDXG4

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -33.97 65.25 ,

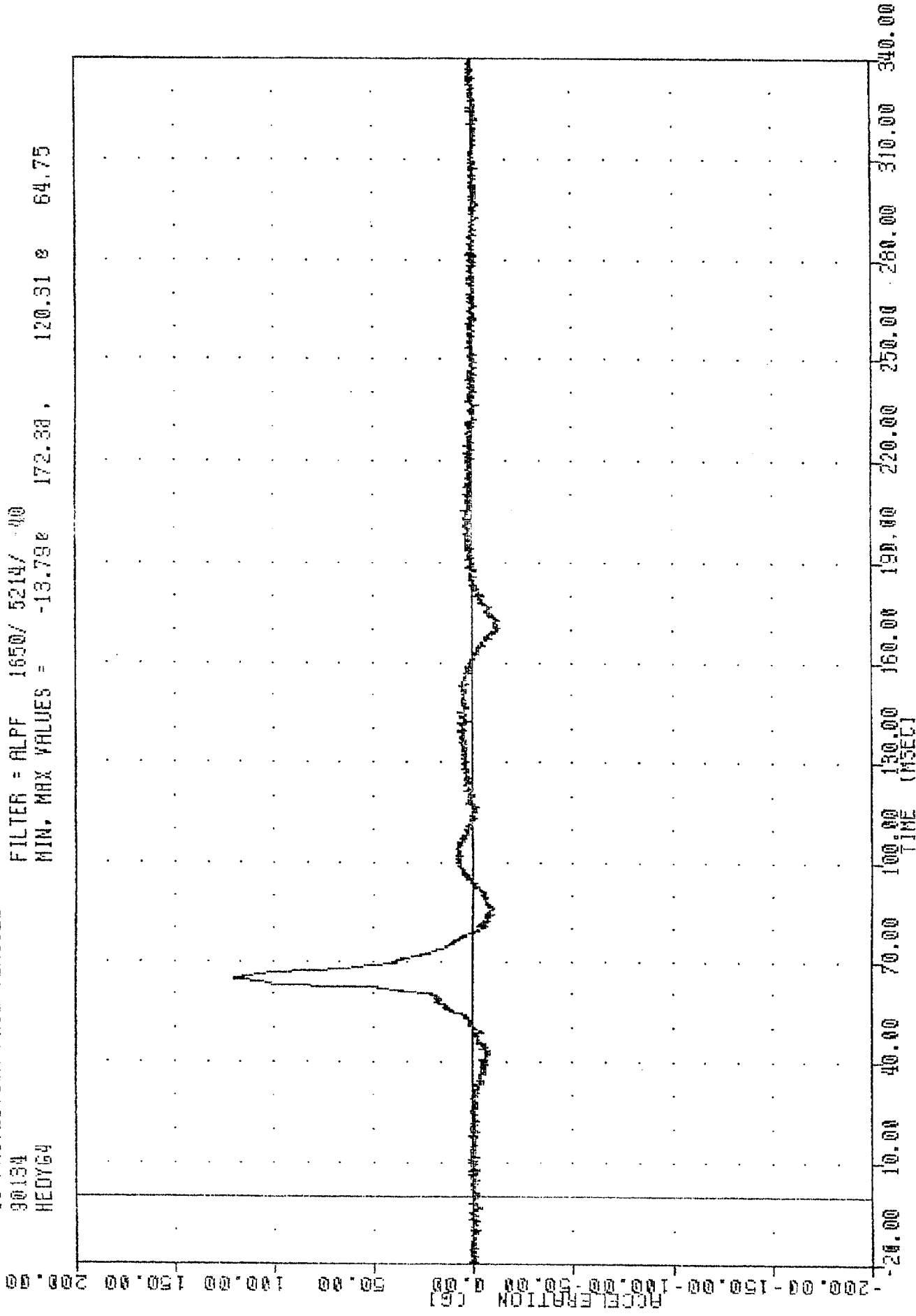
8.76 116.88



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER HEAD X AXIS ACCELERATION

VEHICLE, 900514
 SI PROTECTION PROD VEHICLE
 90134
 HEDY64

FILTER = ALPF 1650/ 5214/ 40
 MIN, MAX VALUES = -13.79e 172.38, 120.31 e 64.75



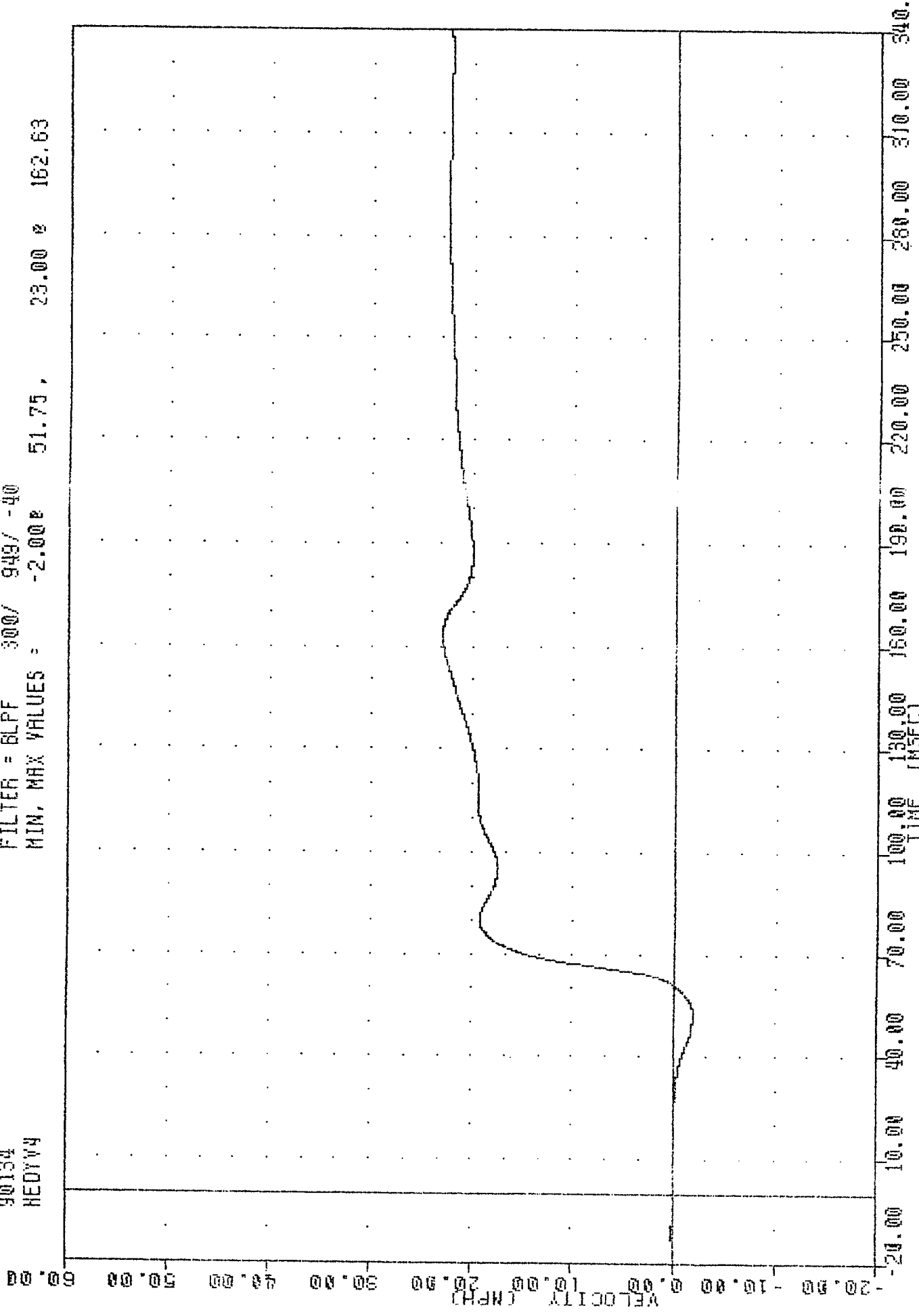
MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER HEAD Y AXIS ACCELERATION

90134

HEDVV4

FILTER = BLPF 300/ 949/ -40

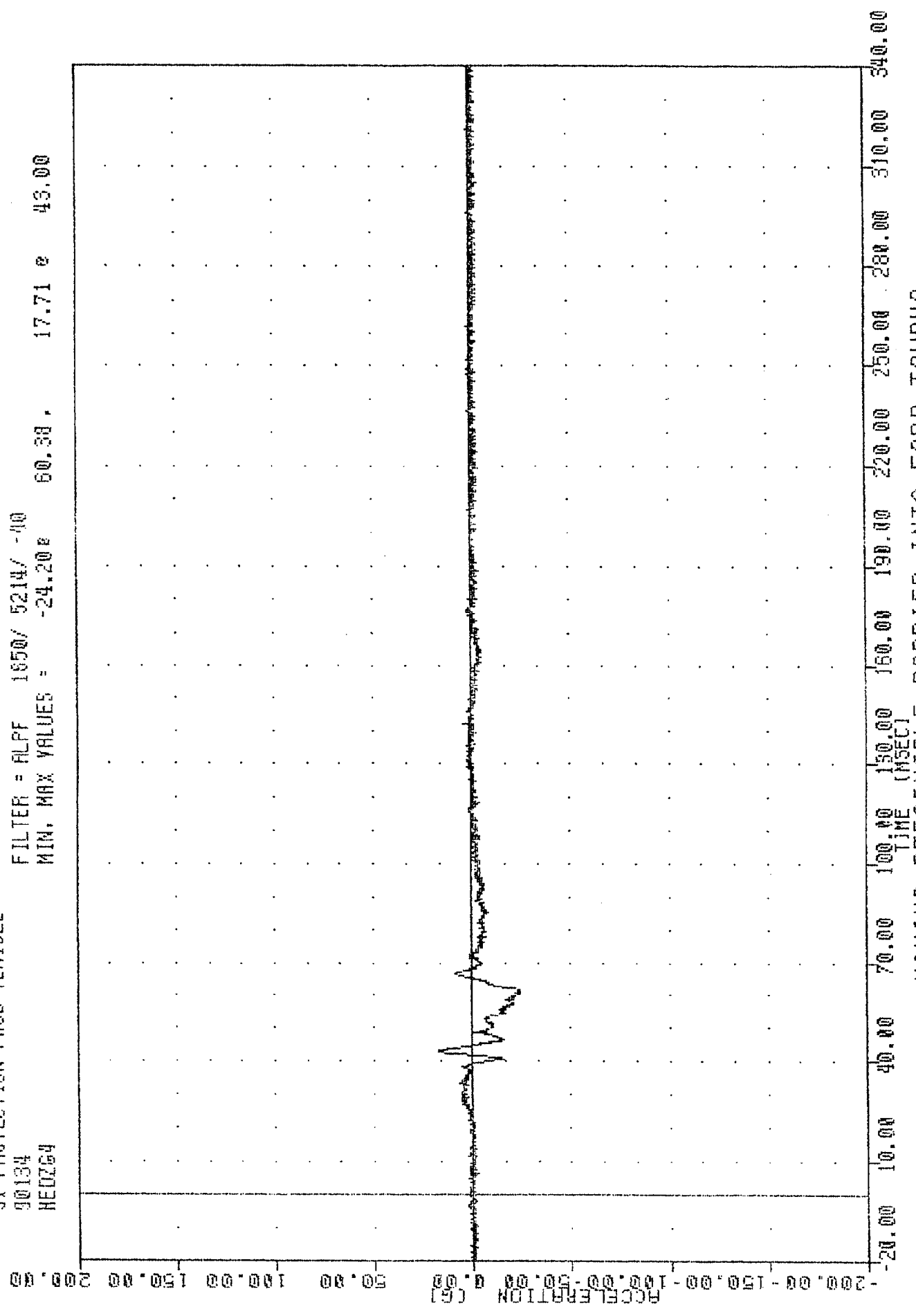
MIN, MAX VALUES = -2.00E 51.75, 23.00 E 162.63



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER HEAD Y AXIS VELOCITY

VRIC , 9N0514
SI PROTECTION PROD VEHICLE
90134
HE0264

FILTER = ALPF 1850/ 5214/ -40
MIN, MAX VALUES = -24.20e 60.38 . 17.71 e 43.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER HEAD Z AXIS ACCELERATION

SI PROTECTION PROD VEHICLE

90134

HEOR64

FILTER = ALPF 1650/ 5214/ -40

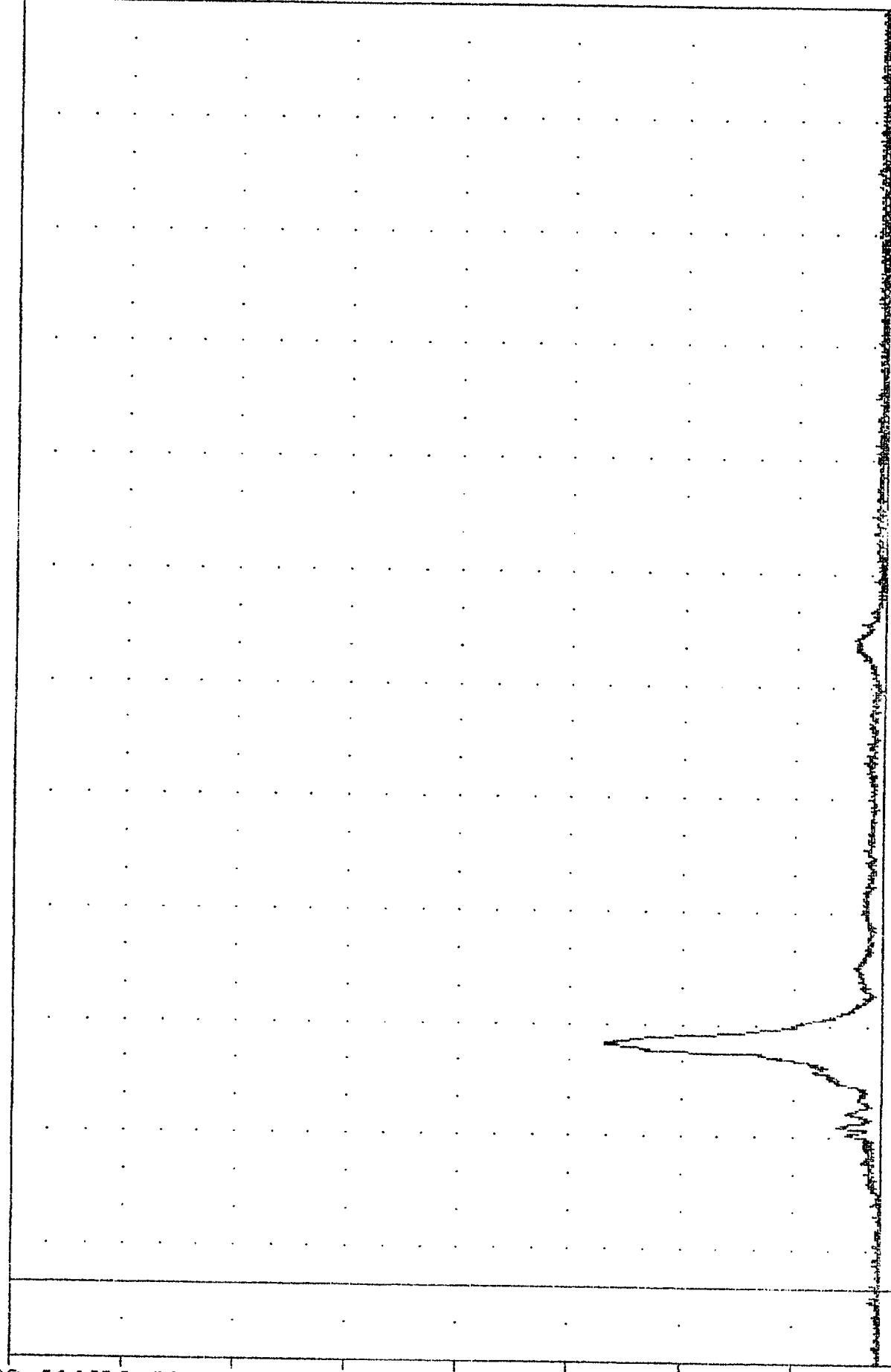
MIN. MAX VALUES = 0.098

20.63 ,

124.97 @

64.75

ACCELERATION (G)



TIME (msec)

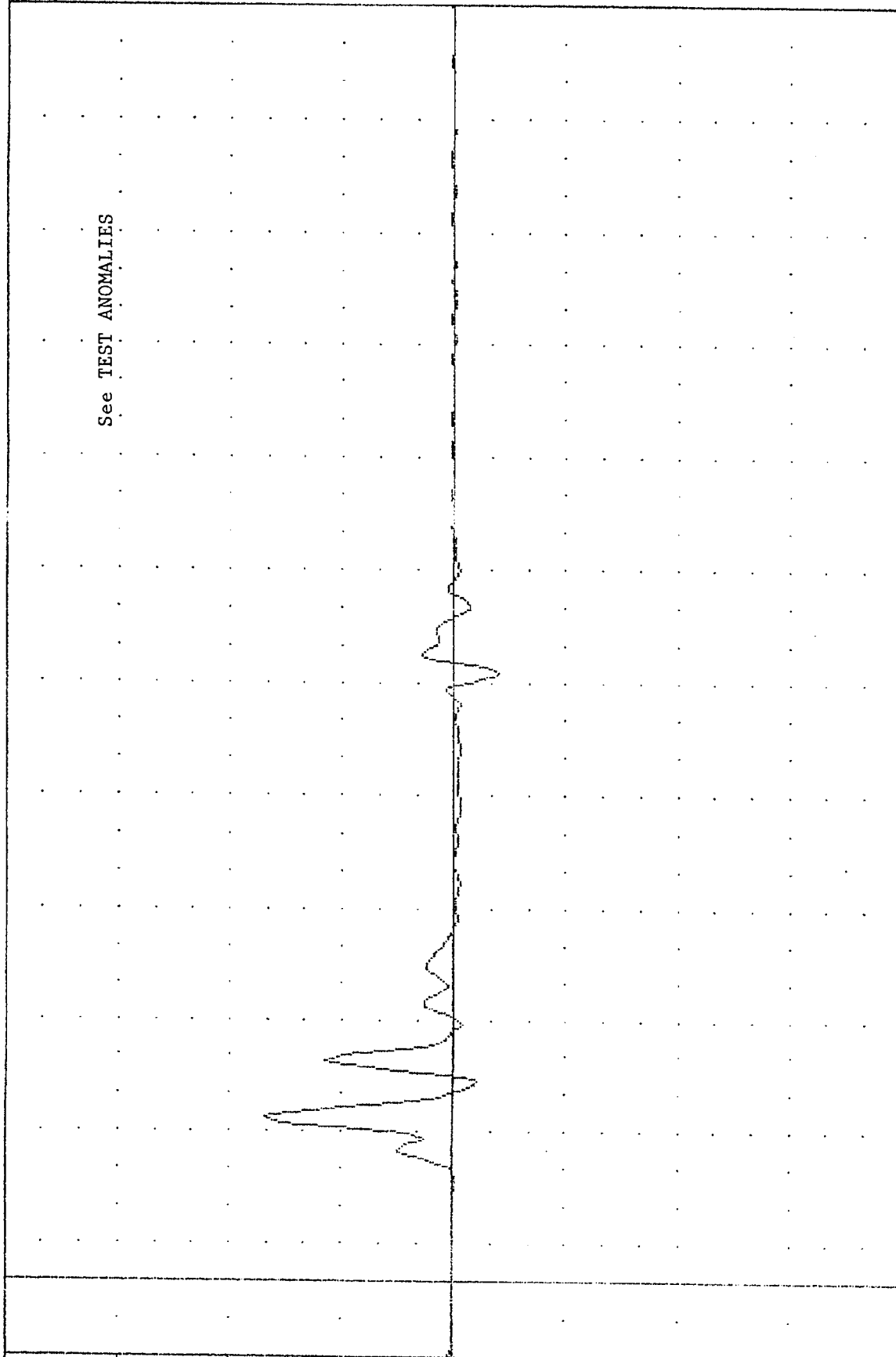
MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER HEAD RESULTANT ACCELERATION

51 PROTECTION GOOD VEHICLE

80134
5HLY64

FILTER = HSR1 136/ 189/ -50
MIN, MAX VALUES = -20.500 162.50 , 83.83 0 43.75

ACCELERATION (G)



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

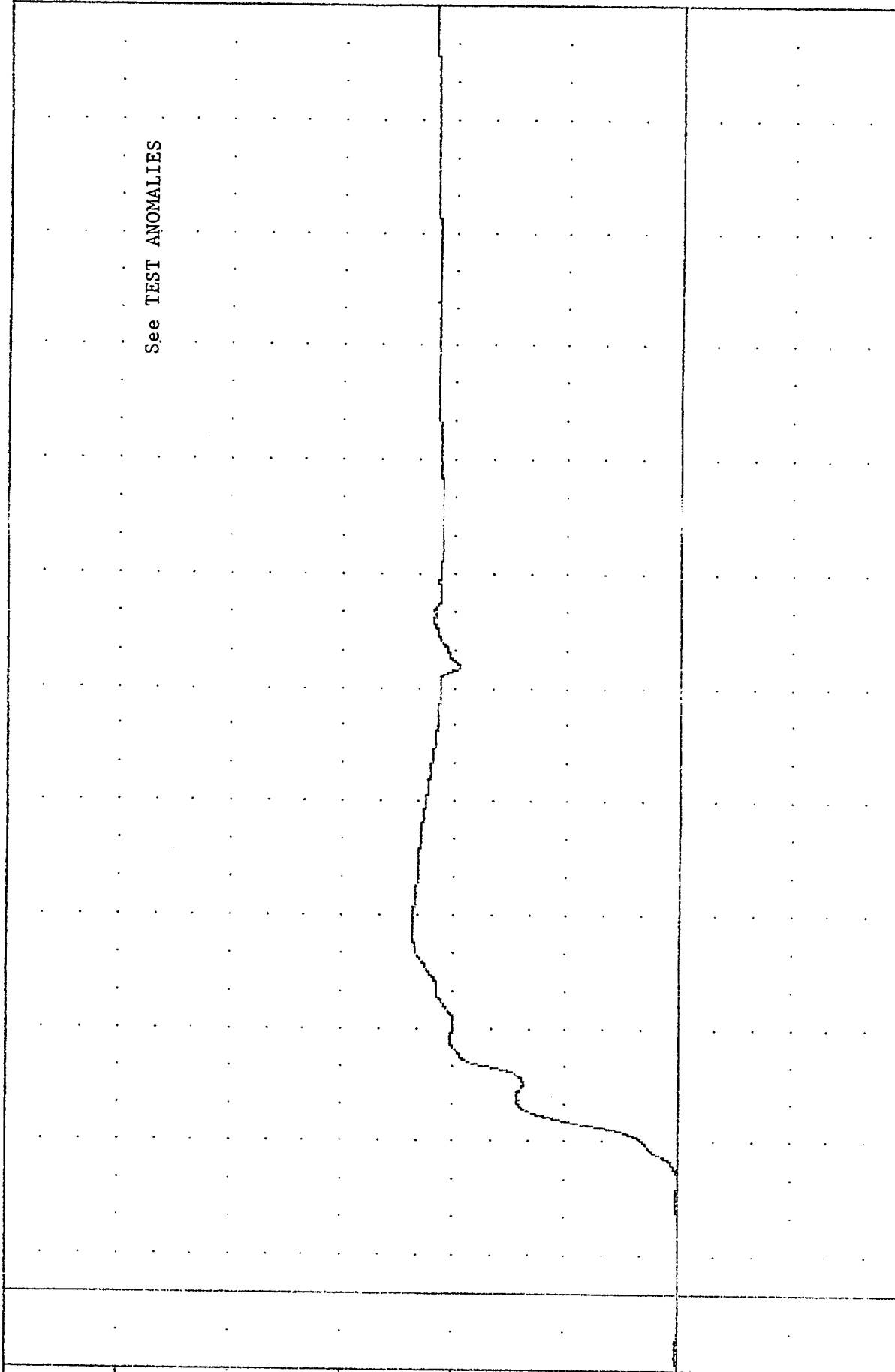
MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LEFT SHOULDER Y AXIS ACCELERATION

30134 SHLYV4

FILTER = BLPF 300/ 849/ -40

MIN. MAX VALUES = -0.090 29.75, 23.73 0 95.75

VELOCITY (MPH)

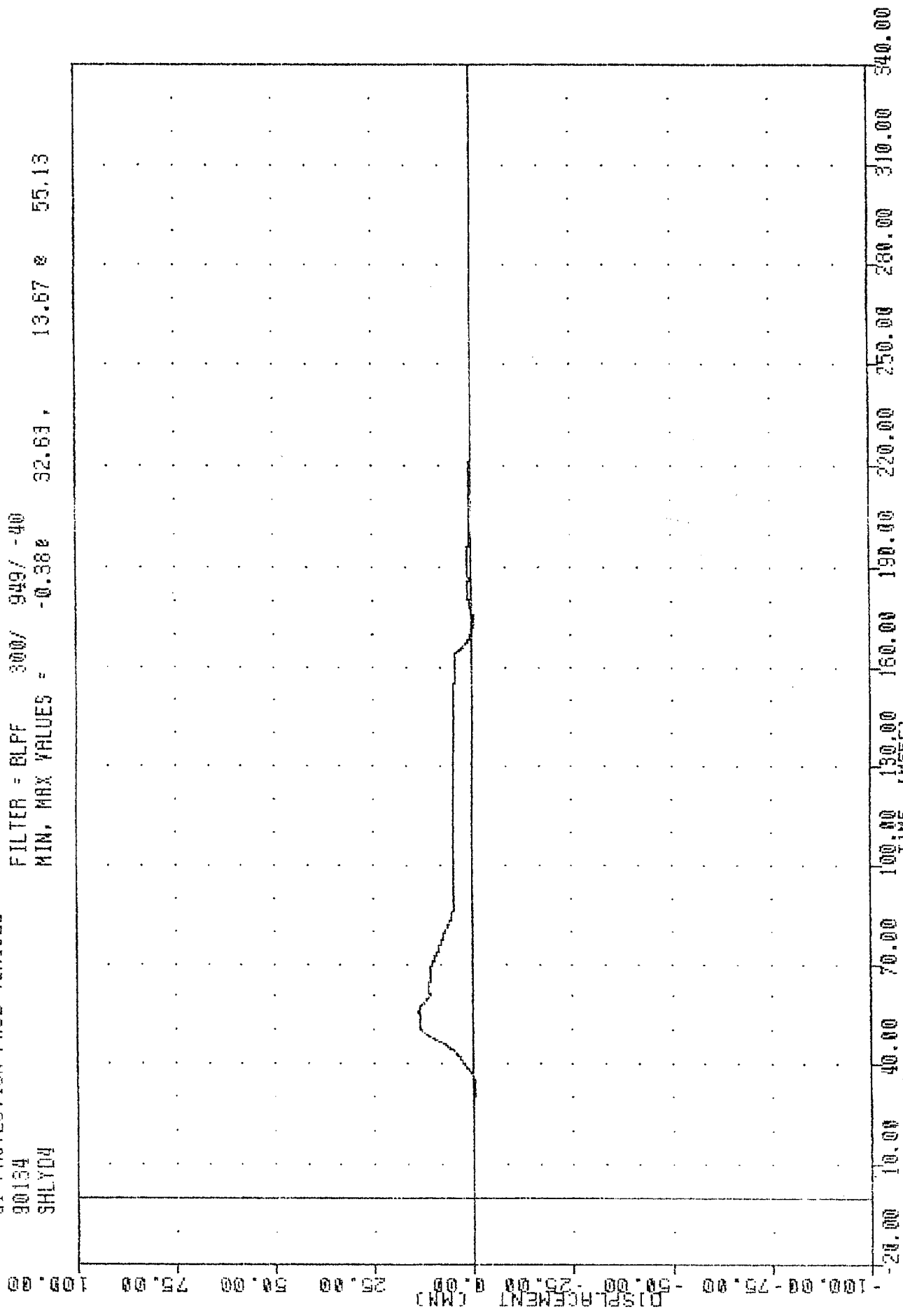


-20.00 10.00 20.00 30.00 40.00 50.00

MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LEFT SHOULDER Y AXIS VELOCITY

VARI, 980514
 SI PROTECTION PROD VEHICLE
 90134
 SHLYD4

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.380 32.63, 13.67 55.13



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER LEFT SHOULDER TO SPINE DISPLACEMENT

SI PROTECTION PROD VEHICLE

90134

T01XG4

FILTER = HSRU 136/ 189/ -50

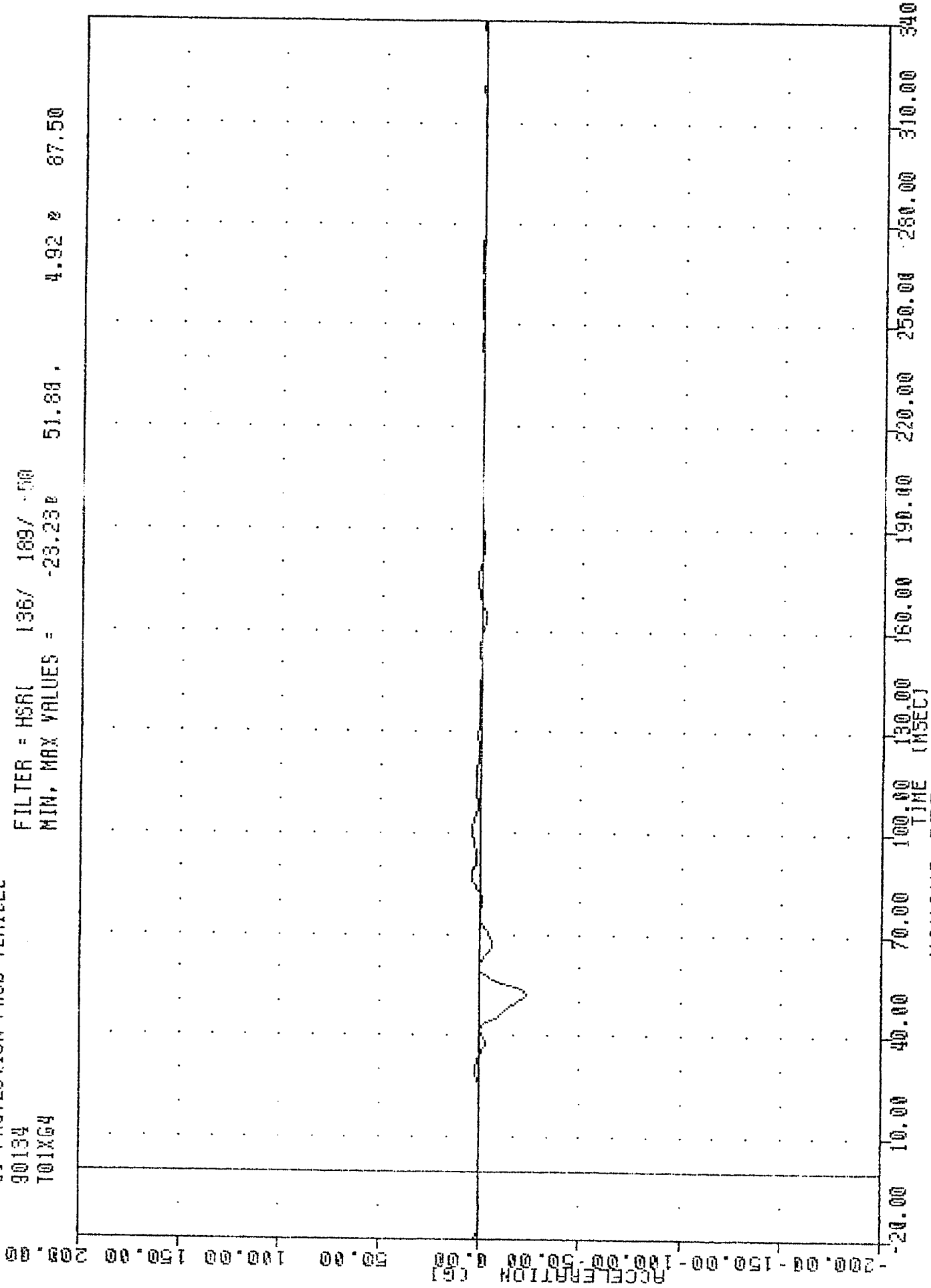
MIN, MAX VALUES =

-23.23

51.88

4.92

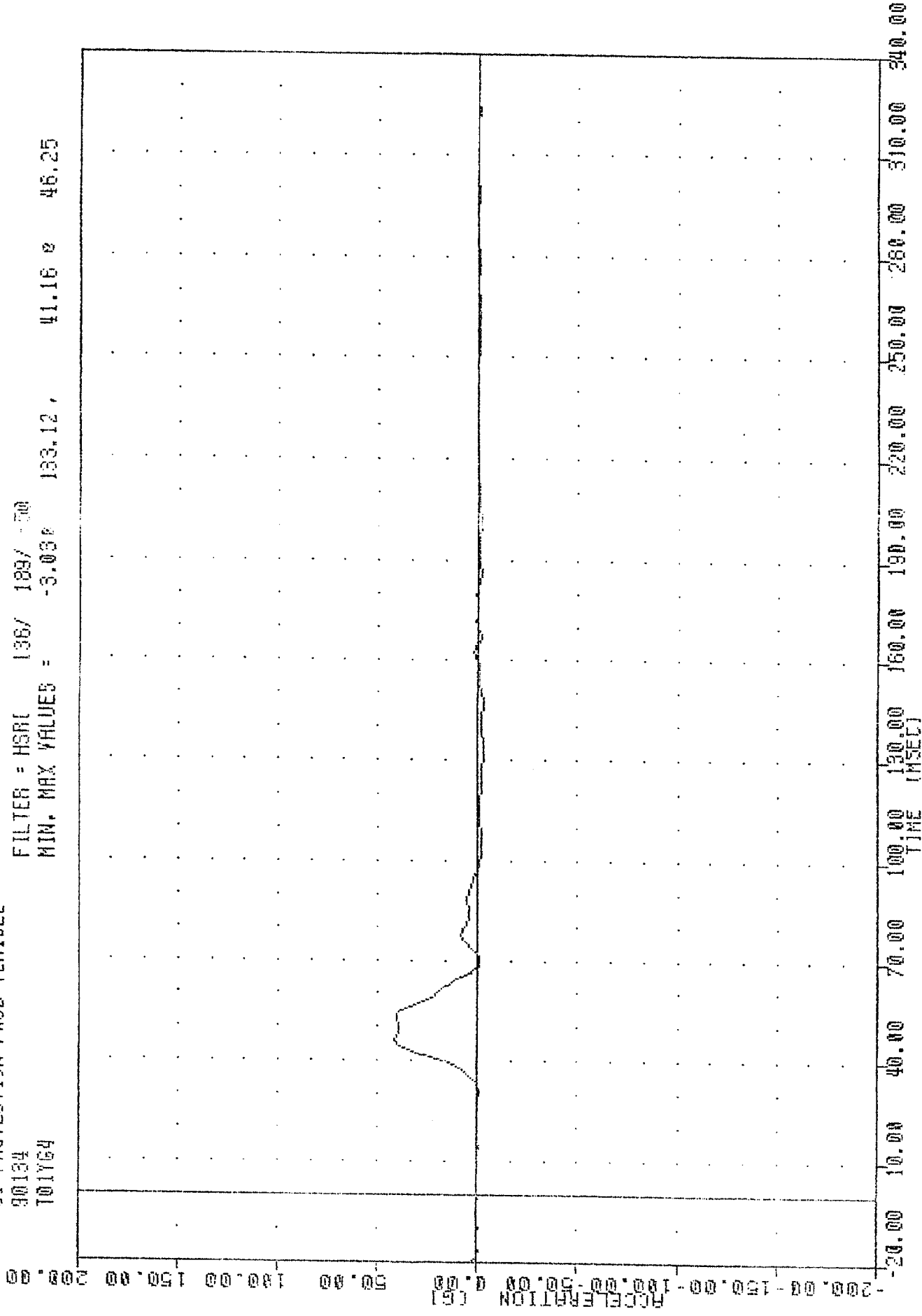
87.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER UPPER SPINE X AXIS ACCELERATION

VRTC , 900514
 SI PROTECTION PROD VEHICLE
 90134
 101Y64

FILTER = HSRL 136/ 189/ -50
 MIN. MAX VALUES = -3.030 133.12, 41.16 0 46.25



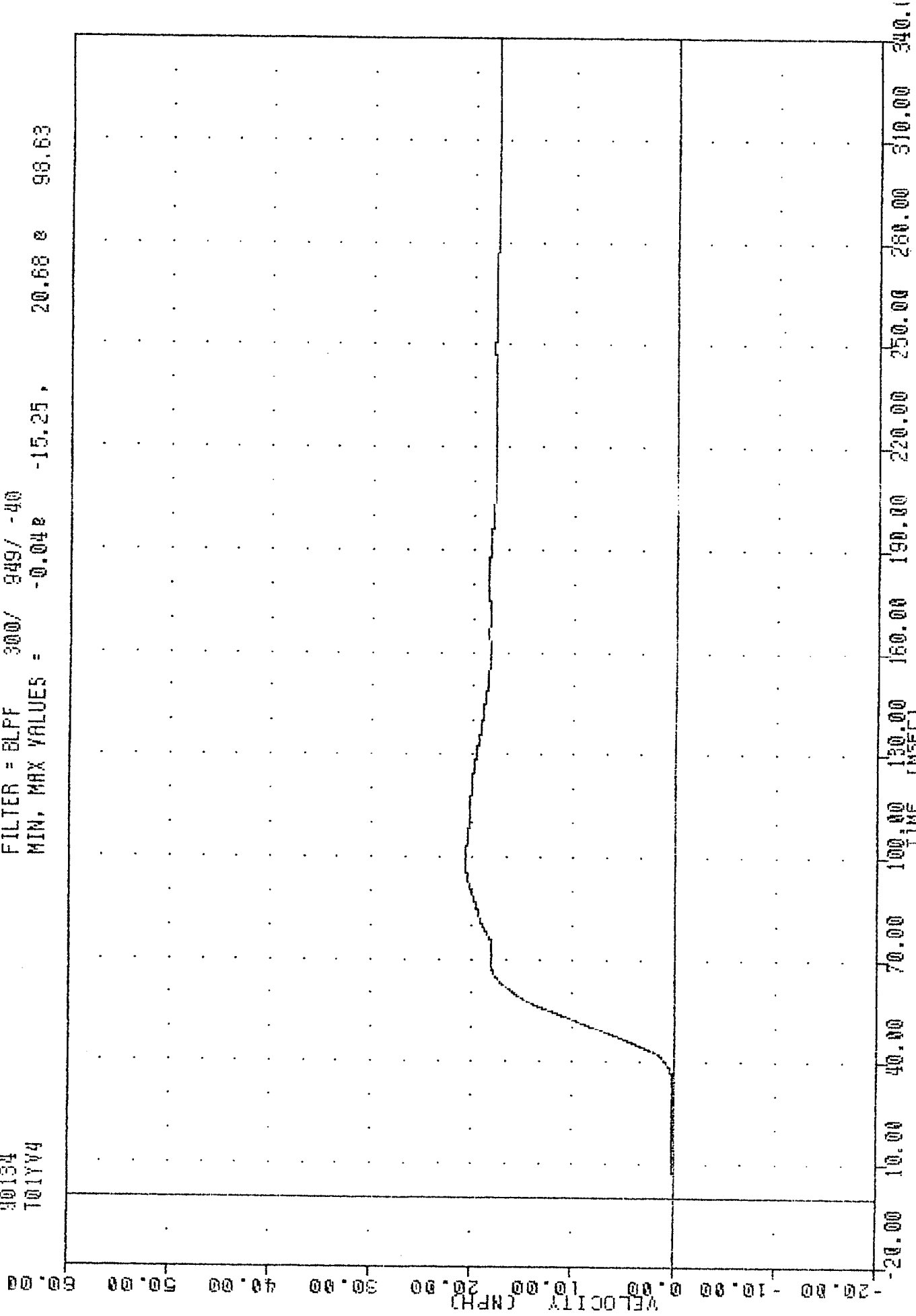
MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER UPPER SPINE Y AXIS ACCELERATION

30134

T01YV4

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -0.04e -15.25, 20.68 e 98.63

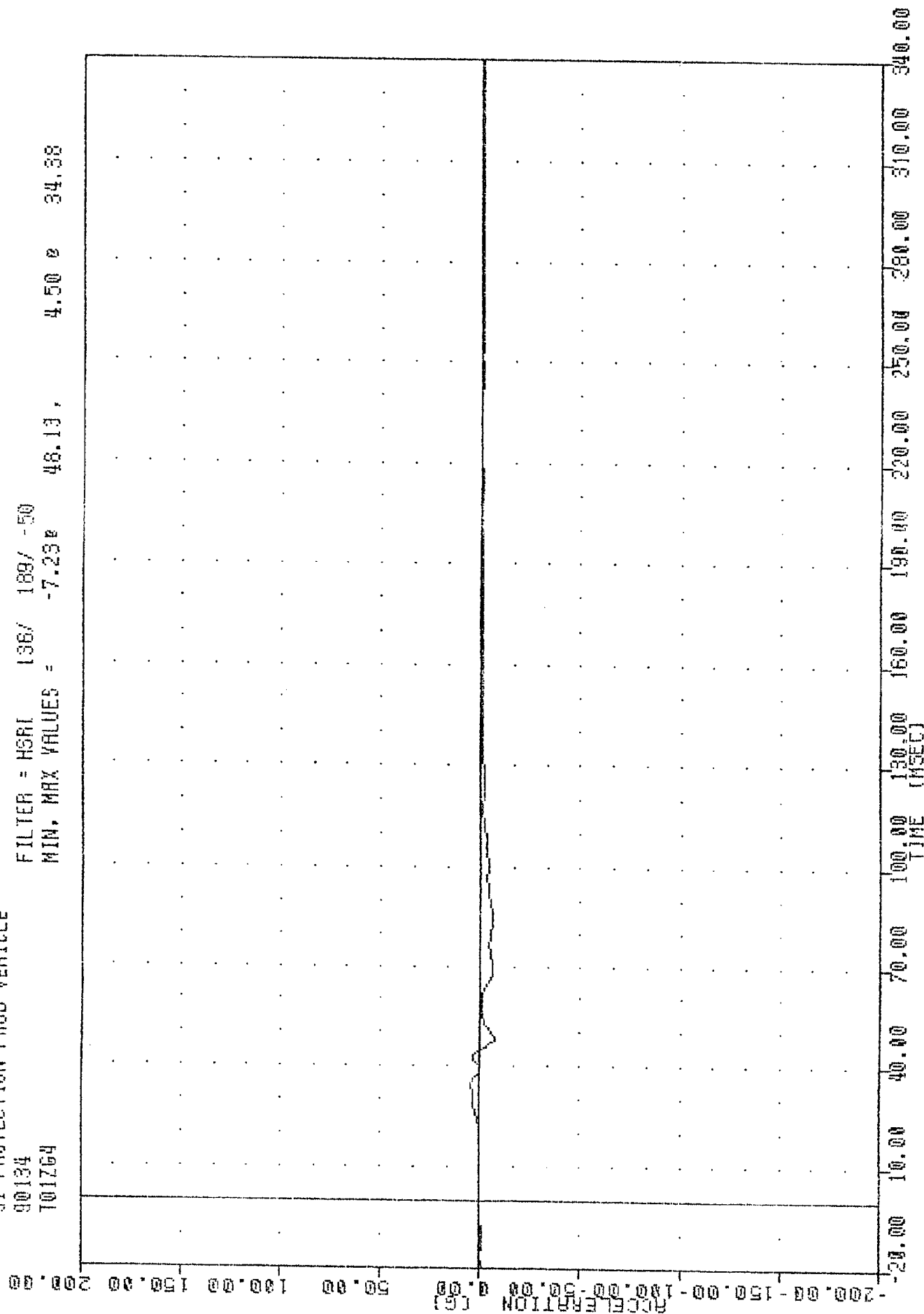


MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER UPPER SPINE Y AXIS VELOCITY

7616
 81 PROTECTION PROD VEHICLE
 90134
 701264

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -7.23 46.13

4.50 34.38



SA COLLECTION FROM VEHICLE

90134

T01R64

FILTER = HSRL 136/ 189/ -50

MIN. MAX VALUES =

0.040

16.87,

47.04 @

52.50

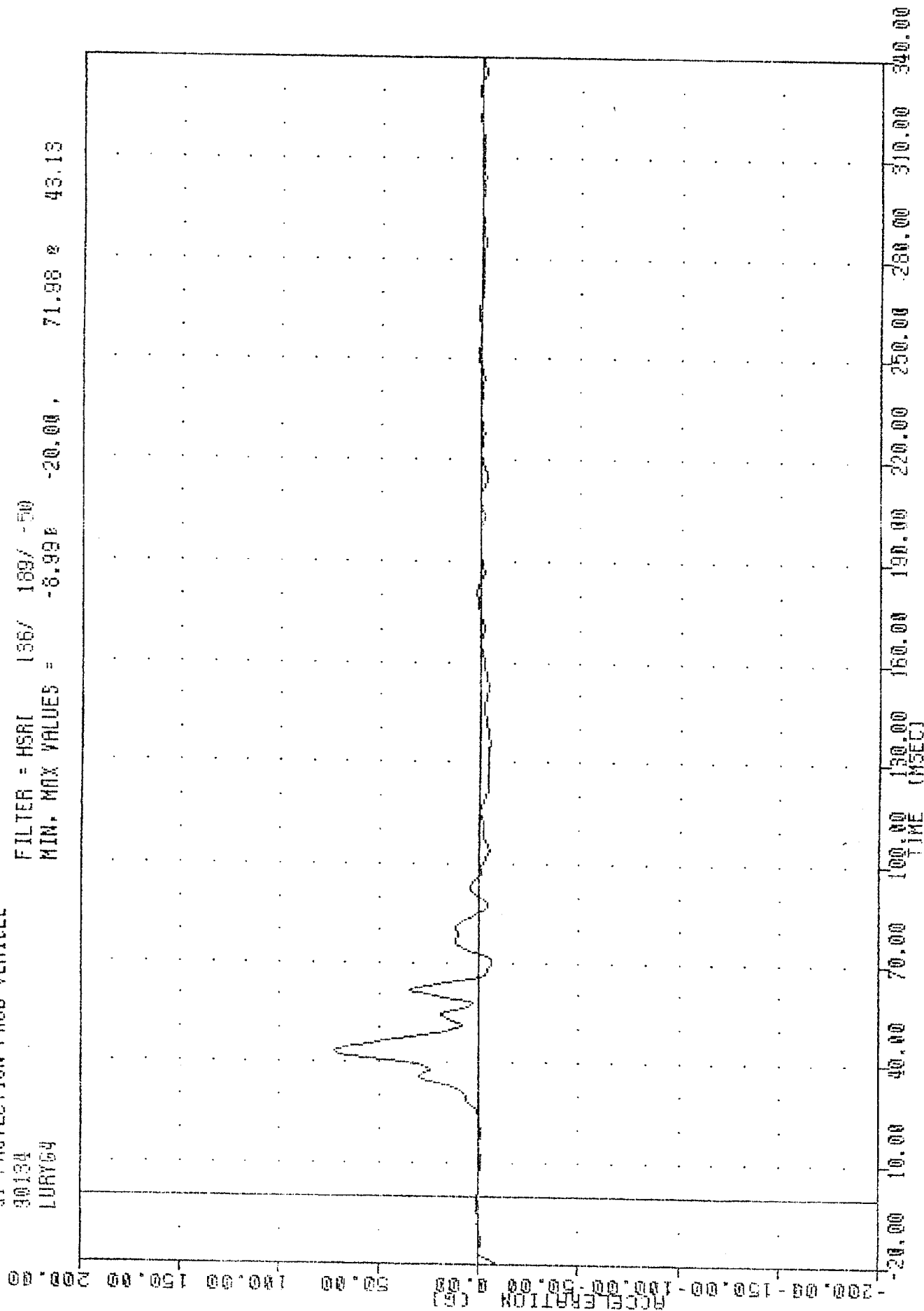
ACCELERATION [G]

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

MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER UPPER SPINE RESULTANT ACCELERATION

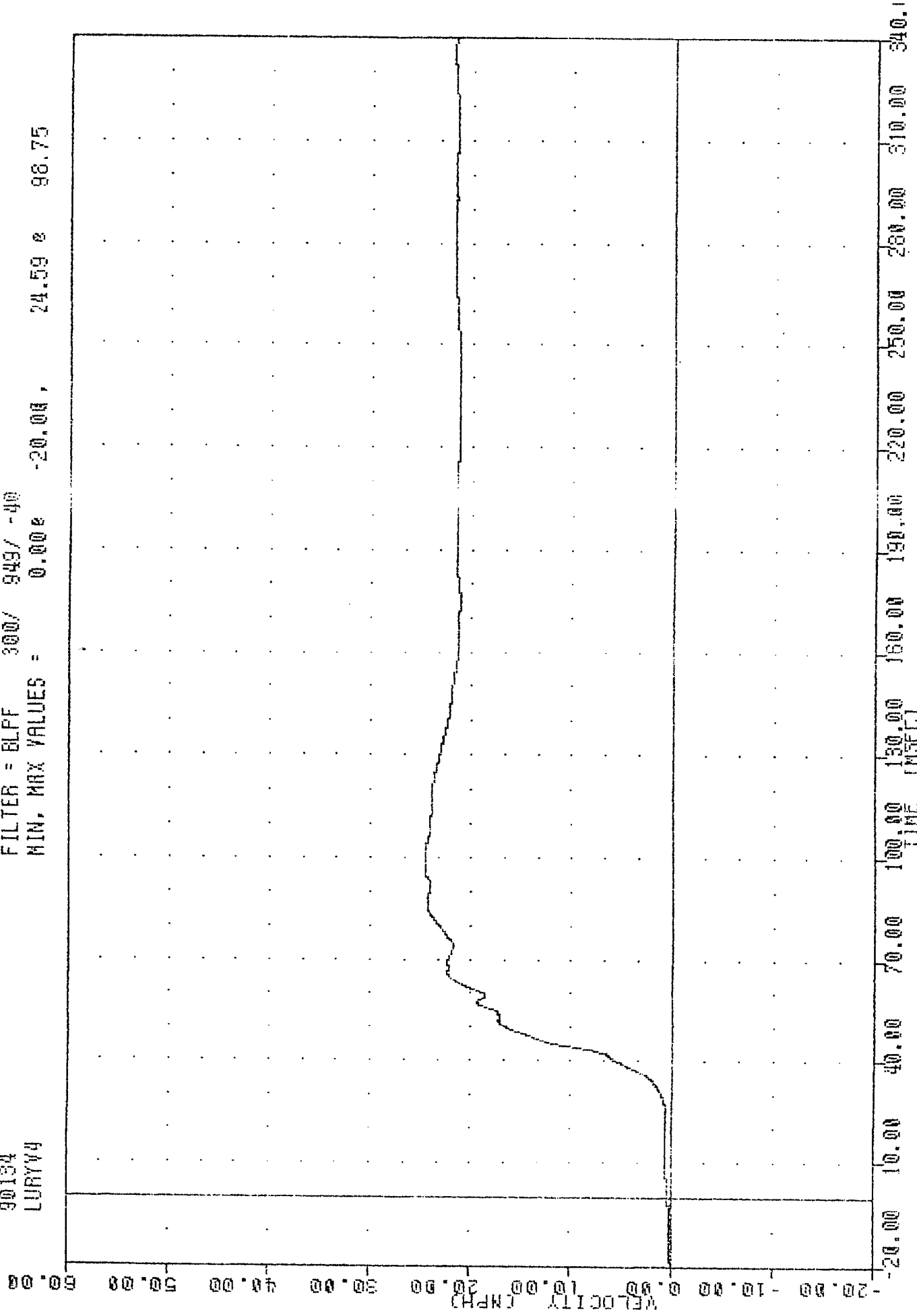
900314
 SI PROTECTION PROD VEHICLE
 90134
 LURY64

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -8.99 71.98 43.13
 -20.00 , 20.00 , 40.00



90134 LURYV4

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = 0.000 -20.00, 24.59 0 98.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LEFT UPPER THORAX RIB Y AXIS VELOCITY

3800314

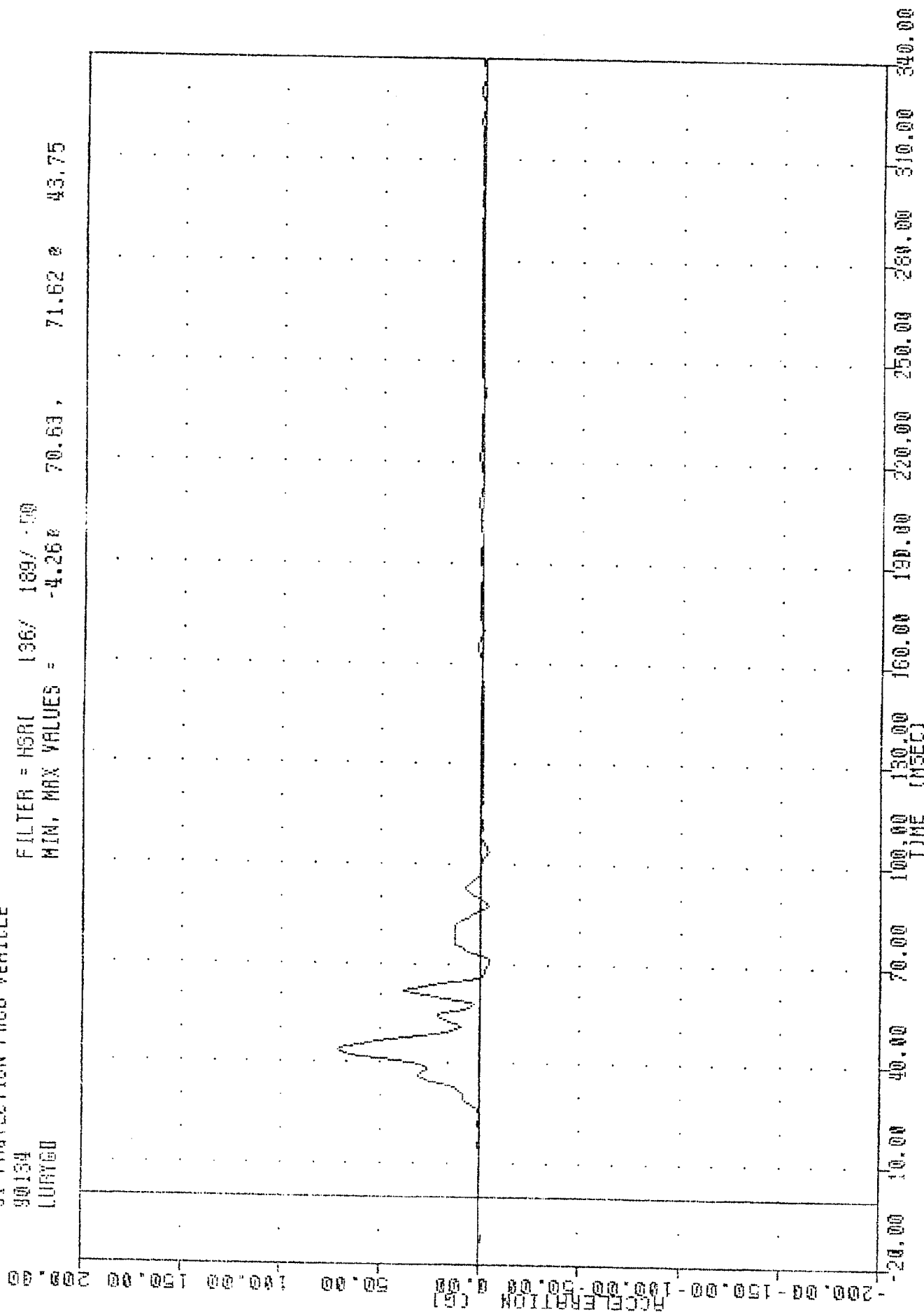
SI PROTECTION PROD VEHICLE

90134

LURVED

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -4.26 70.63, 71.62 43.75



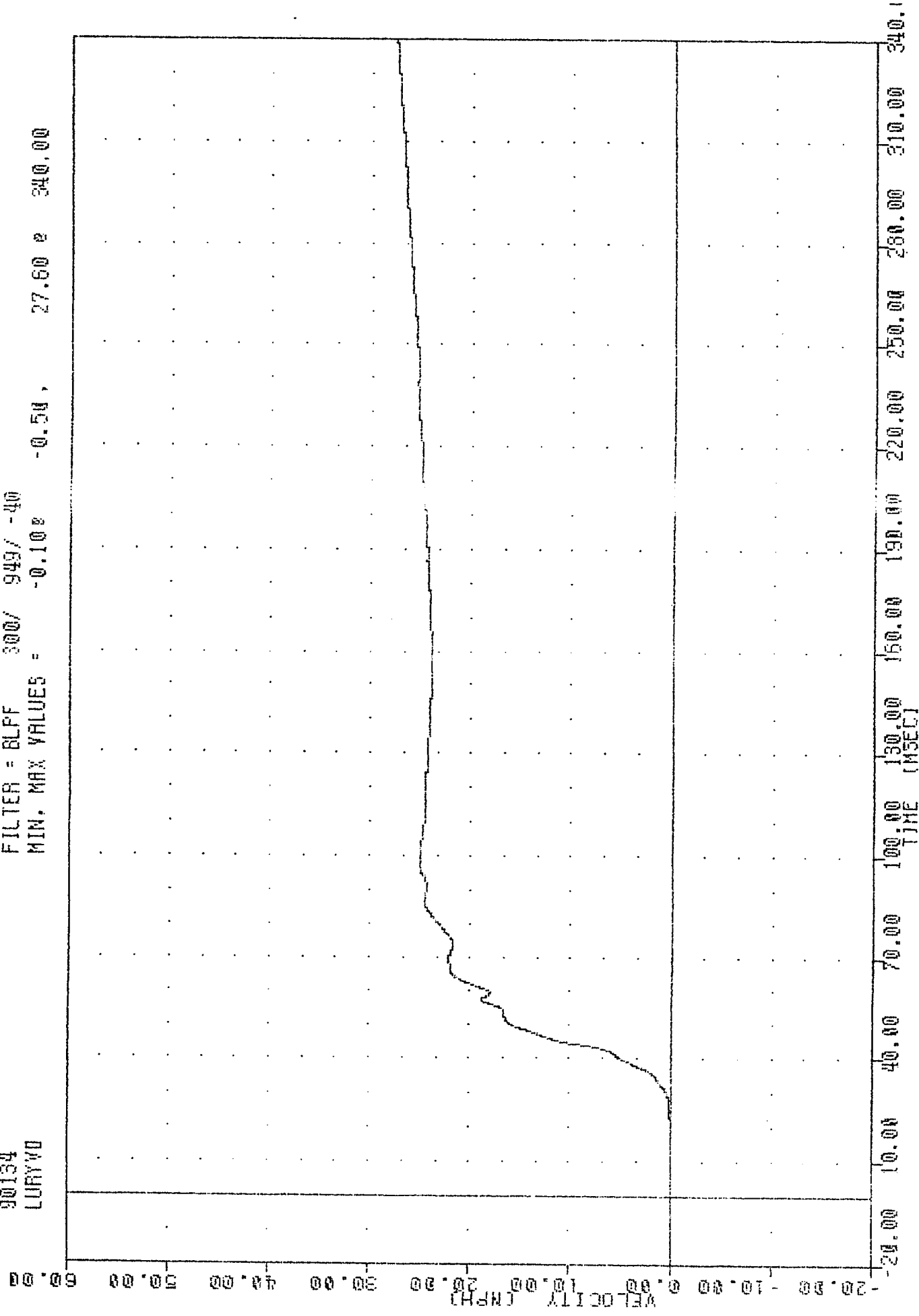
MOVING DEFORMABLE BARRIER INTO FORD TAURUS

LEFT REAR PASSENGER LEFT UPPER THORAX RIB Y AXIS REDUNDANT ACCELERATION

24 INFLATION TUBE VEHICLE

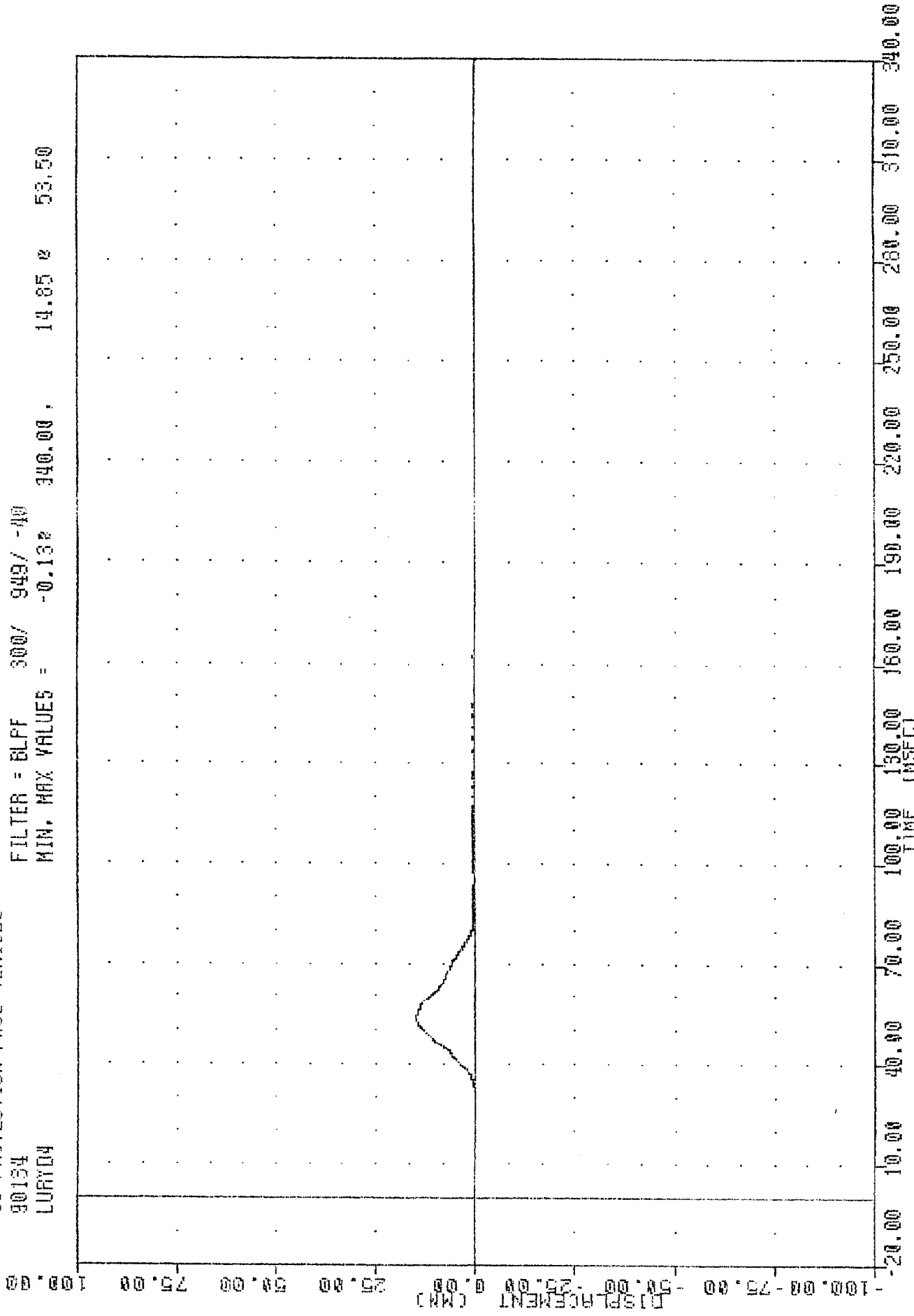
90134
LURYVO

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.10% -0.50, 27.60 2 340.00



VEHICLE 980514
 SI PROTECTION PROD VEHICLE
 90134
 LURYD4

FILTER = BLFF 300/ 949/ -40
 MIN. MAX VALUES = -0.132 340.00 14.85 53.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER LEFT UPPER THORAX AIB DISPLACEMENT

31 PROTECTION PROD VEHICLE

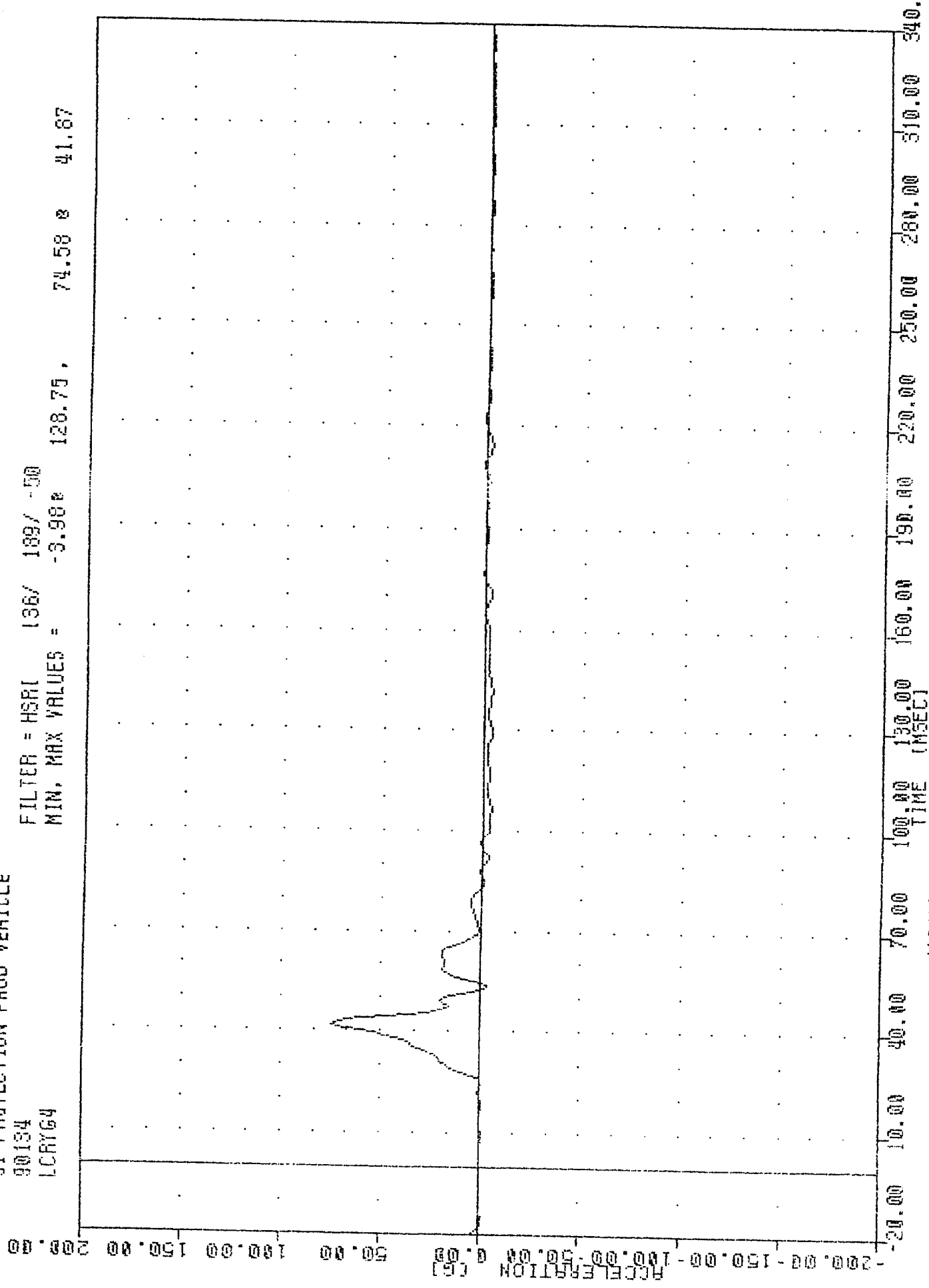
90134

LCRYG4

FILTER = HSRI 136/ 189/ -50

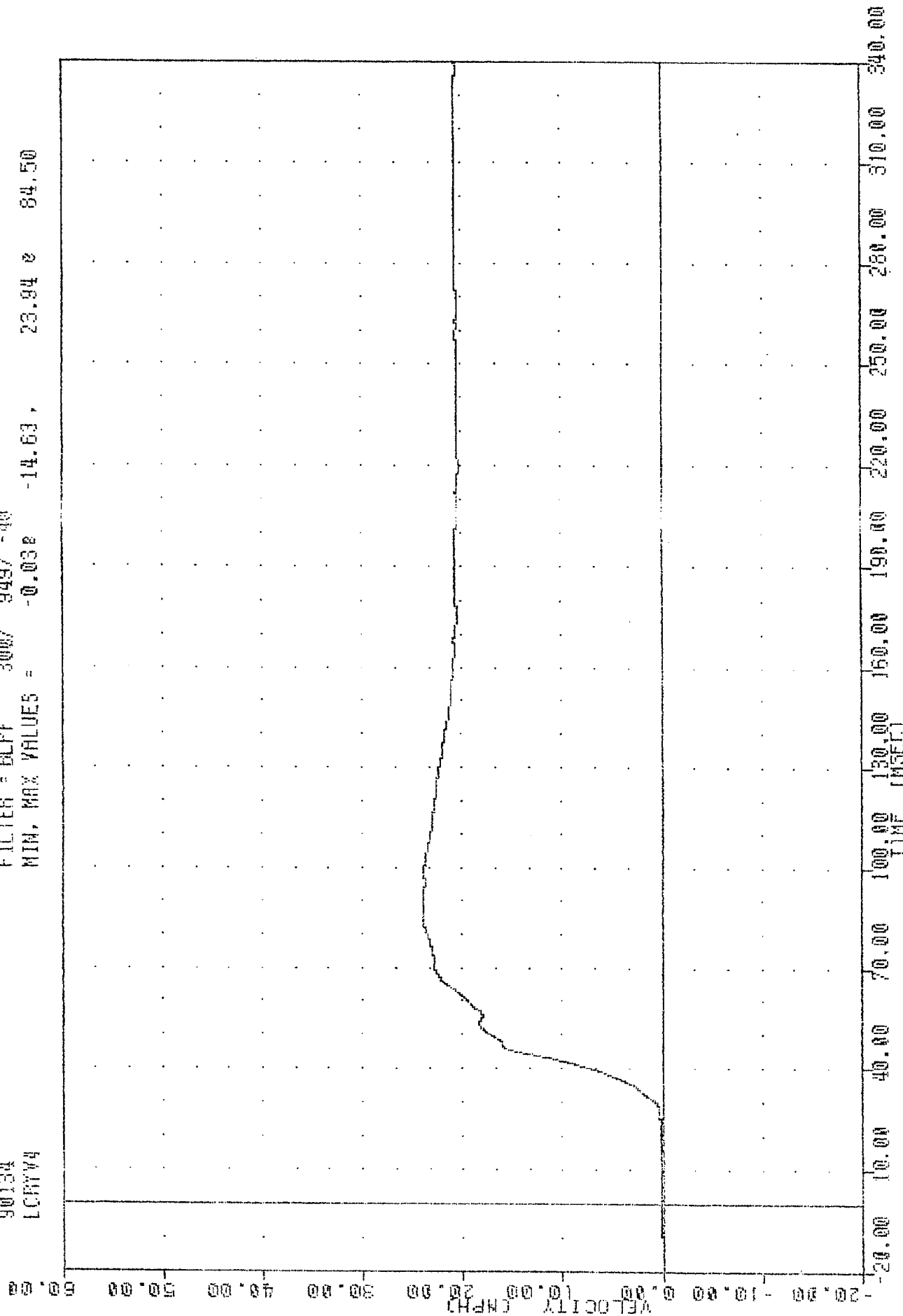
MIN. MAX VALUES =

-3.98 128.75, 74.58 41.87



90134
 LCRYV4
 SI PROTECTION PROD VEHICLE

FILTER = BLFF 300/ 949/ -40
 MIN, MAX VALUES = -0.032 -14.63, 23.94 2 84.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER LEFT CENTER THORAX RIB Y-AXIS VELOCITY

31 PROTECTION PROD VEHICLE

96134

LCRY60

FILTER = HSRI

136/ 189/ -50

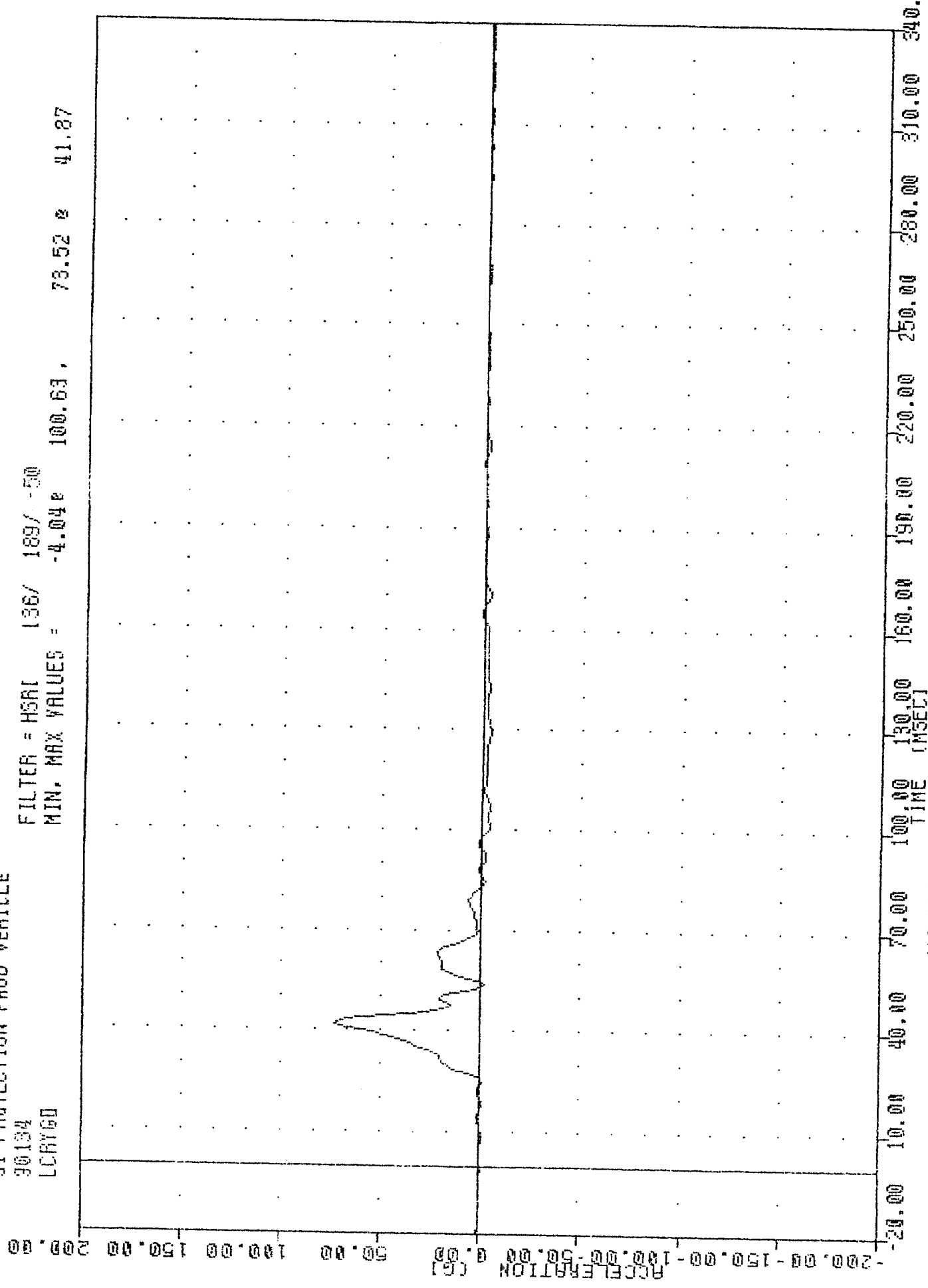
MIN. MAX VALUES =

-4.04e

100.63,

73.52 e

41.87

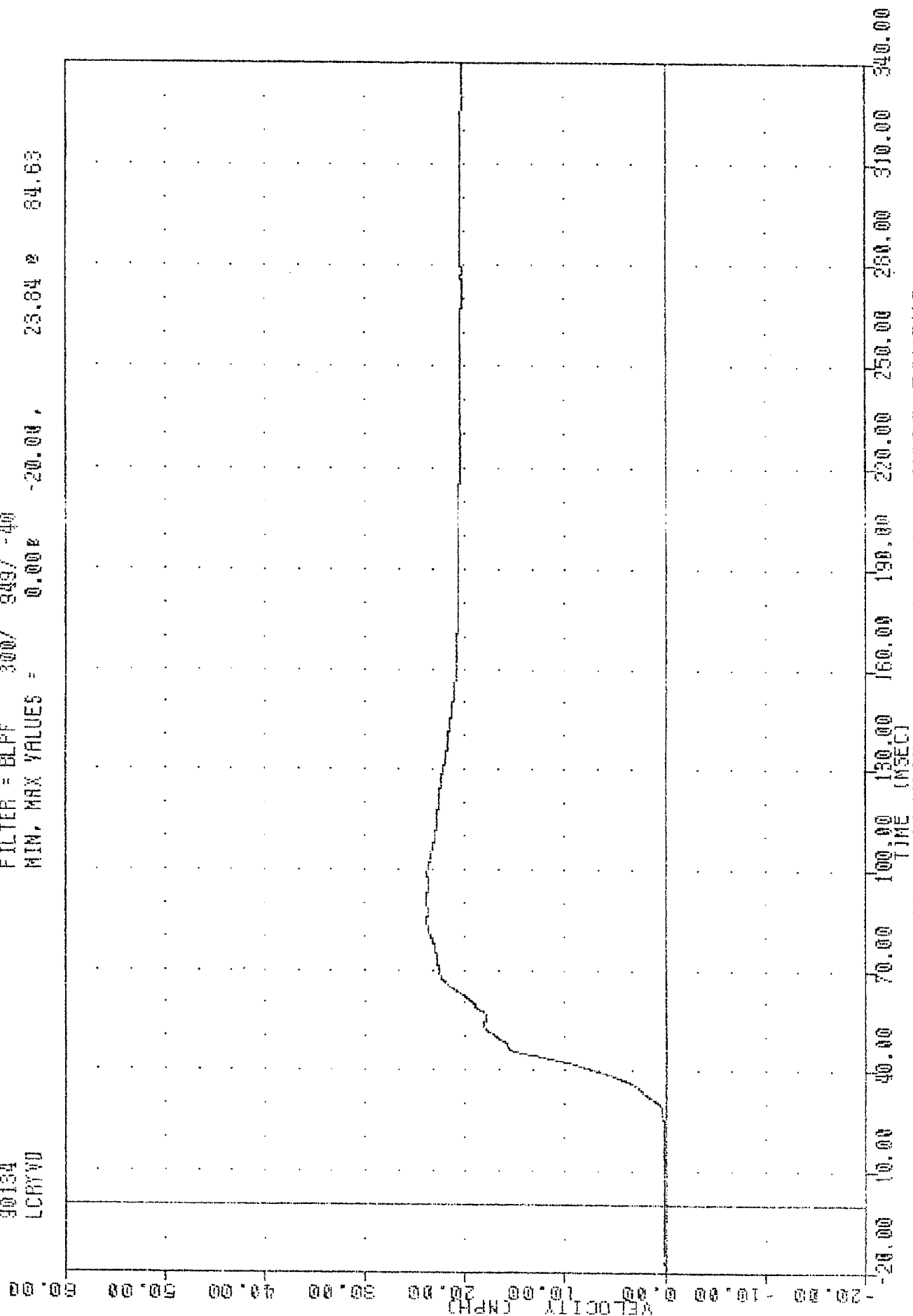


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

LEFT REAR PASSENGER LEFT CENTER THORAX RIB Y AXIS REDUNDANT ACCEL

31 PROTECTION PROD VEHICLE
 90134
 LCRVVD

FILTER = BLPF 300/ 849/ -40
 MIN, MAX VALUES = 0.00% -20.00, 23.84 2 84.63



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER LEFT CENTER THORAX R18 Y AXIS REDUNDANT VELOCITY

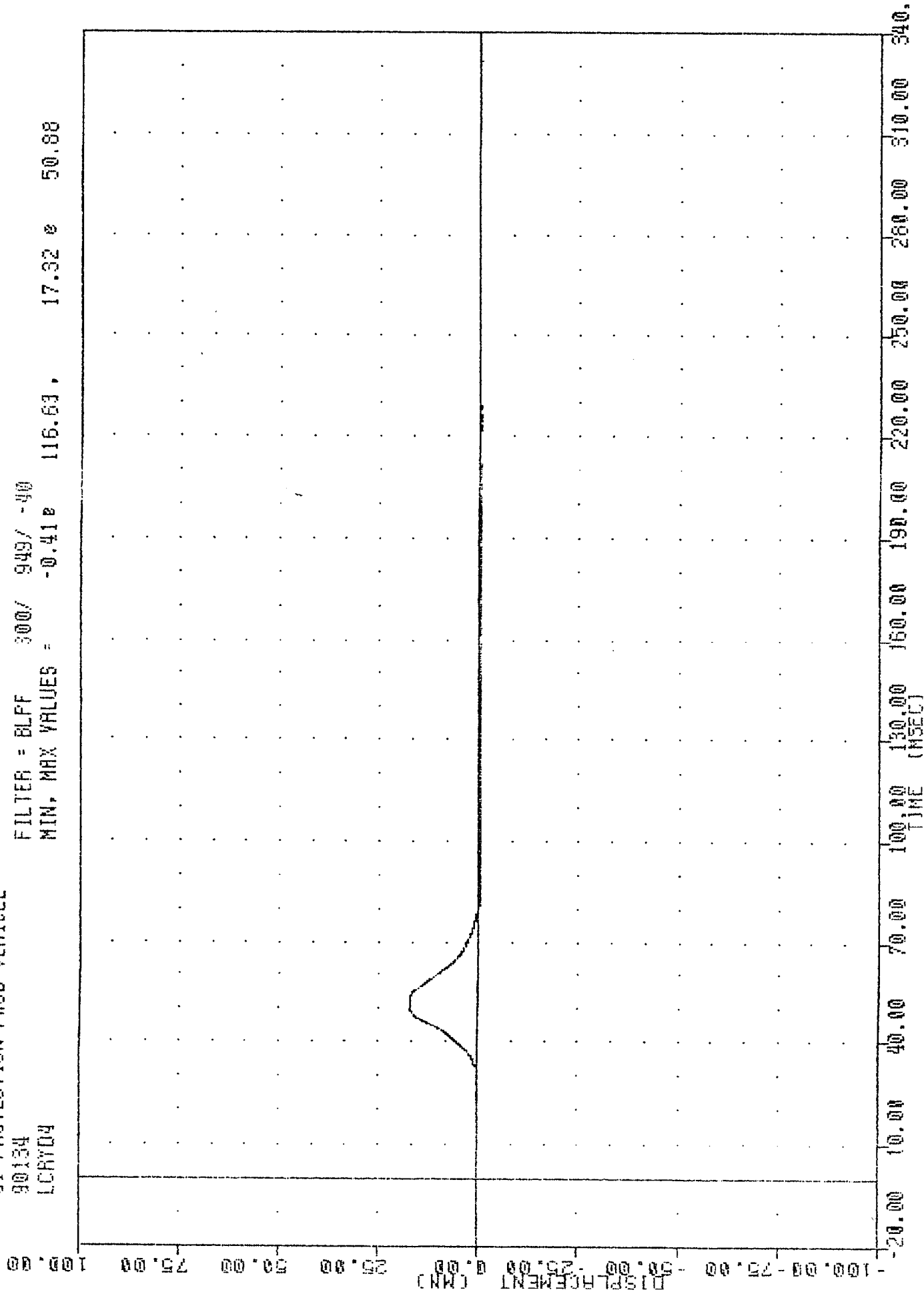
SI PROTECTION PROD VEHICLE

90134

LCRY04

FILTER = BLFF 300/ 949/ -40

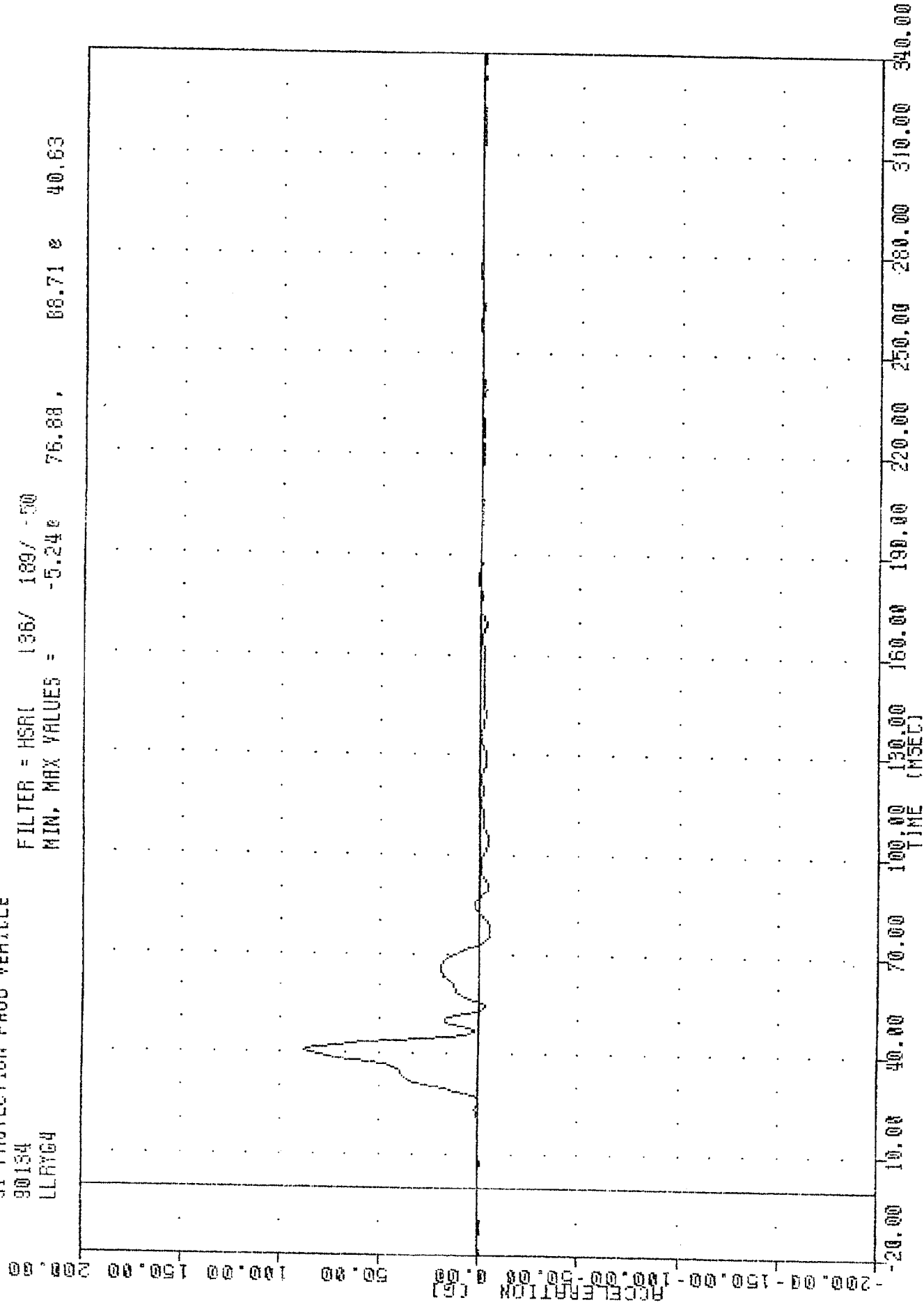
MIN, MAX VALUES = -0.41e 116.63, 17.32 e 50.88



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LEFT CENTER THORAX RIB DISPLACEMENT

900514
SI PROTECTION PROD VEHICLE
90134
LLRYG4

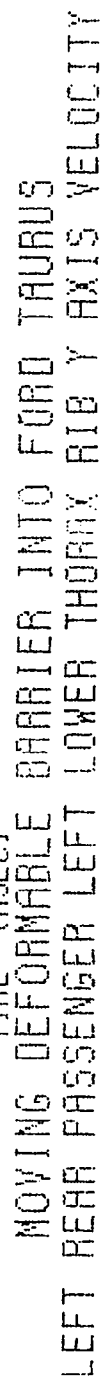
FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -5.24e 88.71 e 40.63



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LEFT LOWER THORAX RIB Y AXIS ACCELERATION

FILTER = BLPF	300/	949/	-40
MIN. MAX VALUES =	-0.04e	-2.63,	24.69 e
			73.88

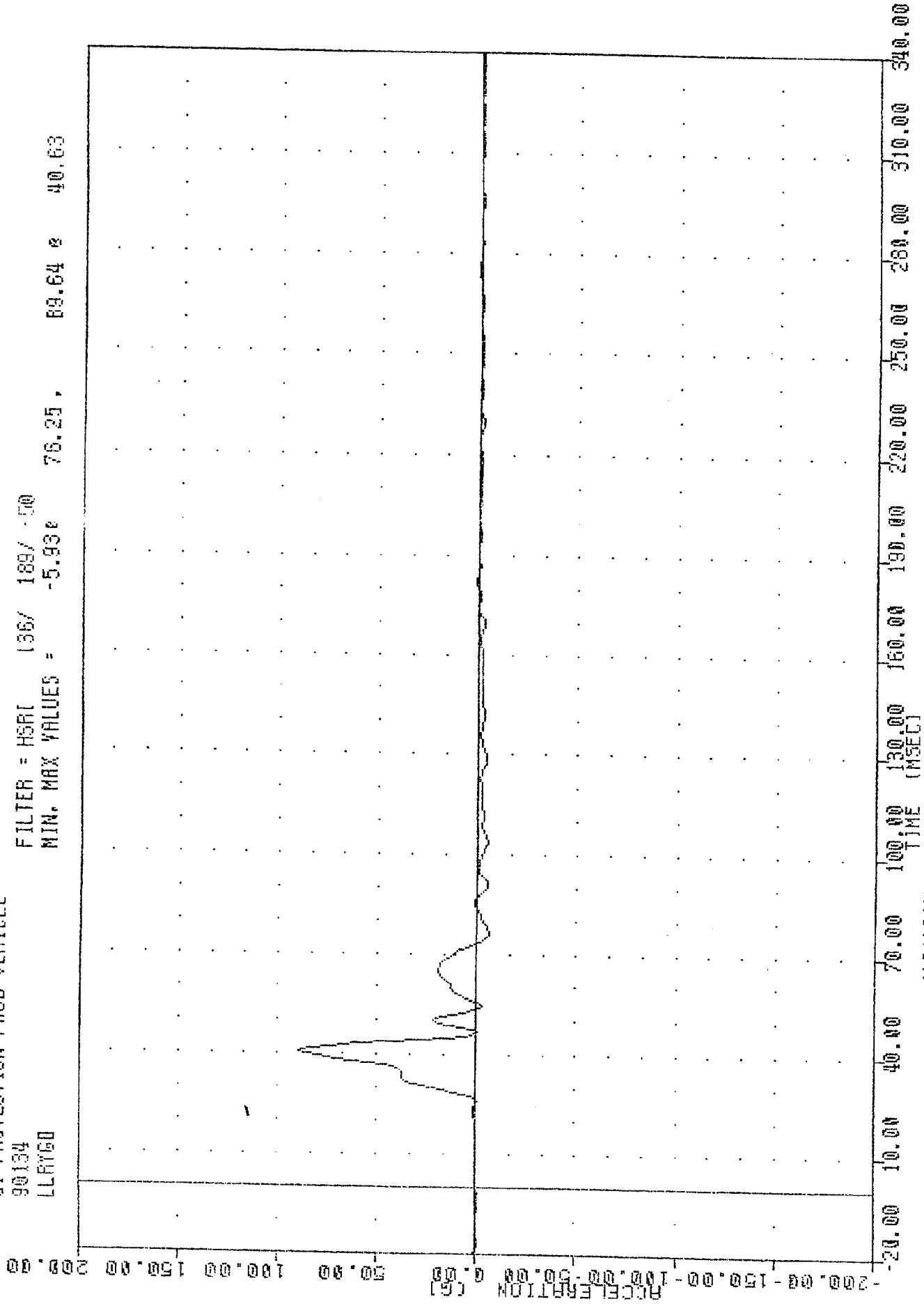
FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.042



90134
SI PROTECTION PROD VEHICLE
90134
LLRYGO

900514

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -5.93e 76.25 , 89.64 e 40.63



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LEFT LOWER THORAX RIB Y AXIS REDUNDANT ACCELERATION

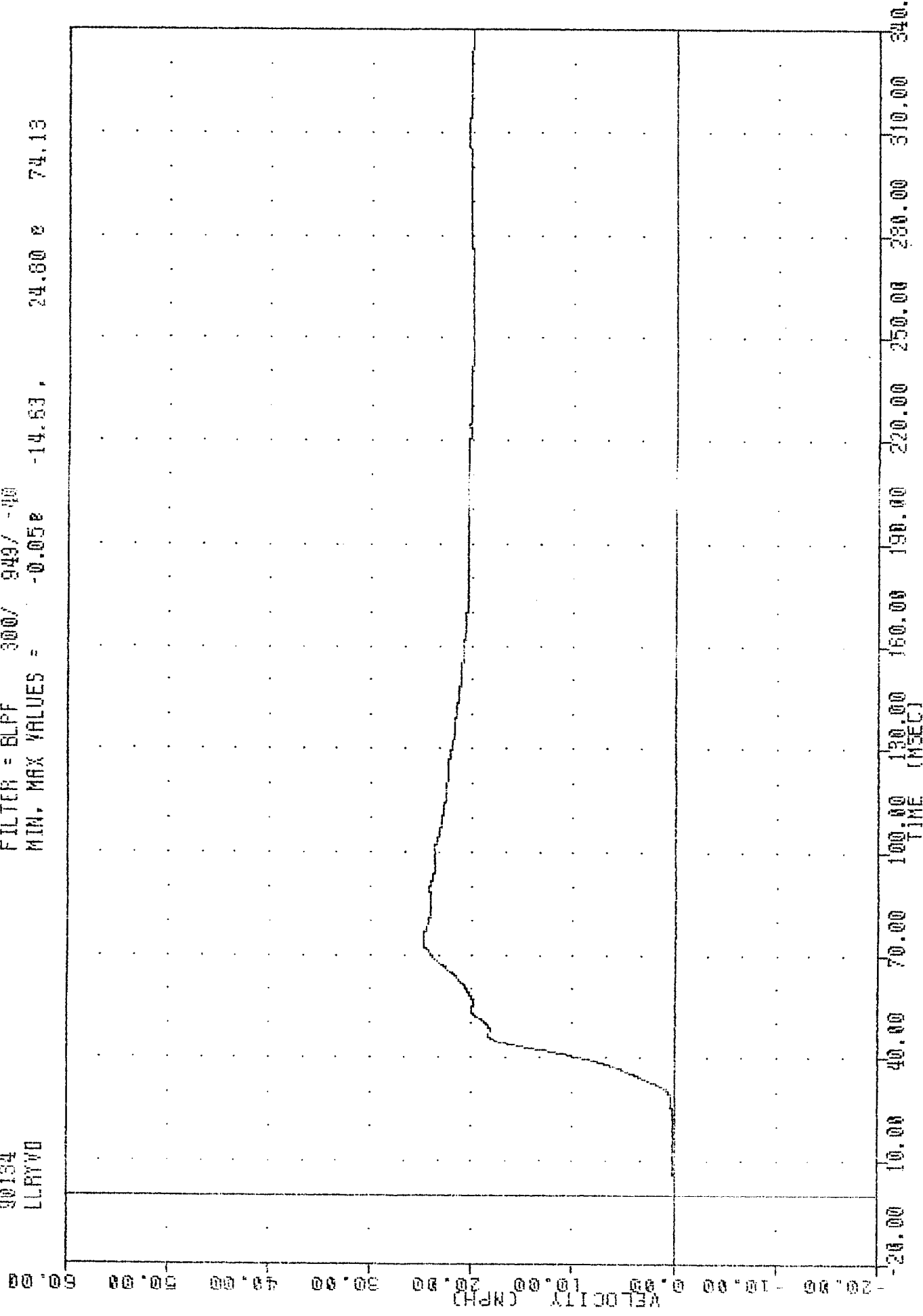
SA CRASHLOCATION TIME VARIABLE

30134

FILTER = BLPF 300/ 949/ -40

LLRYWD

MIN. MAX VALUES = -0.05e -14.53, 24.80 e 74.13

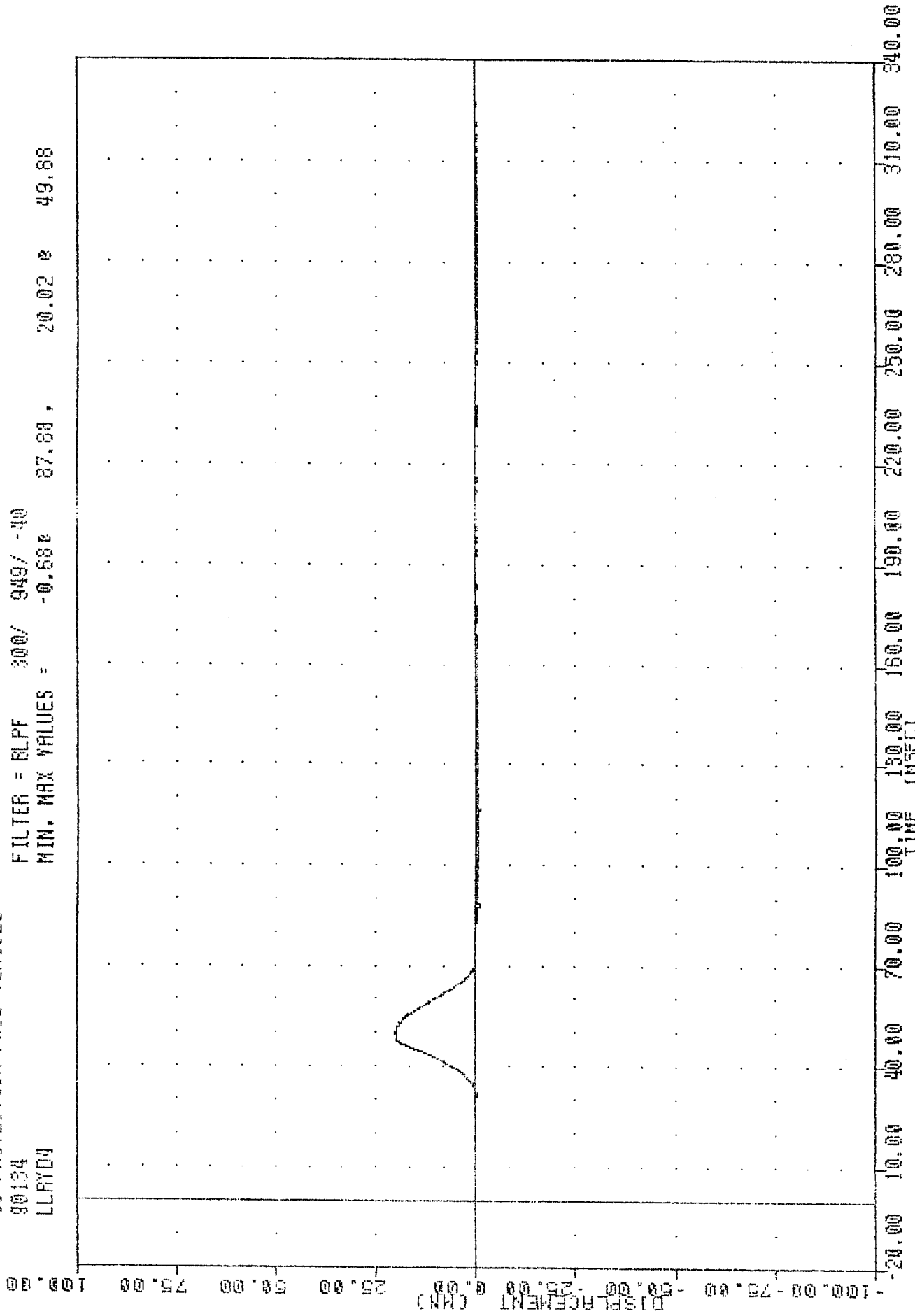


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

LEFT REAR PASSENGER LEFT LOWER THORAX RIB Y AXIS REDUNDANT VELOCITY

VEHICLE, 980514
 SI PROTECTION PHOD VEHICLE
 90134
 LLRYD4

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.58e 87.88, 20.02 e 49.68



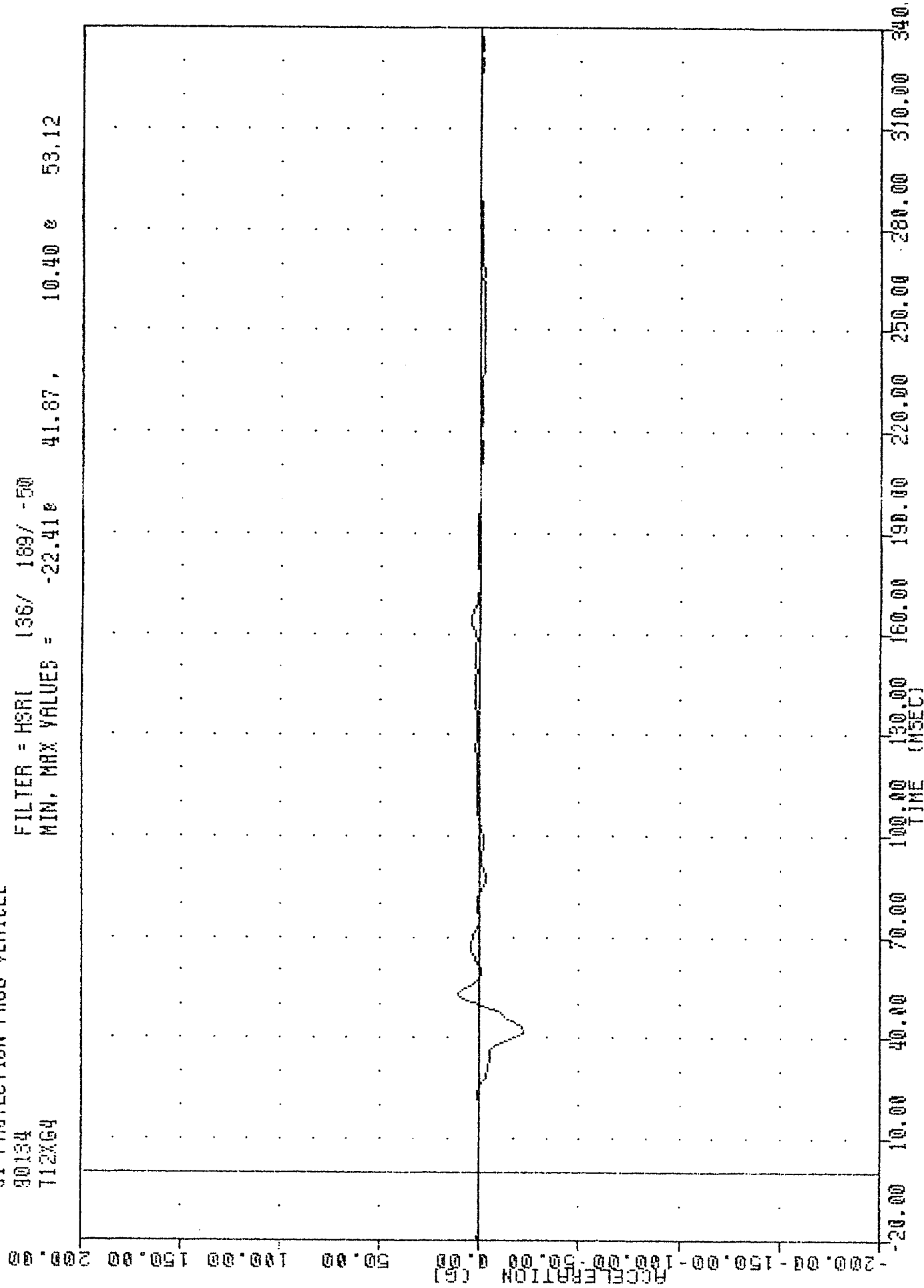
MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER LEFT LOWER THORAX RIB DISPLACEMENT

SI PROTECTION PROD VEHICLE

90134
712X64

FILTER = HSRL 136/ 189/ -50
MIN, MAX VALUES = -22.41e

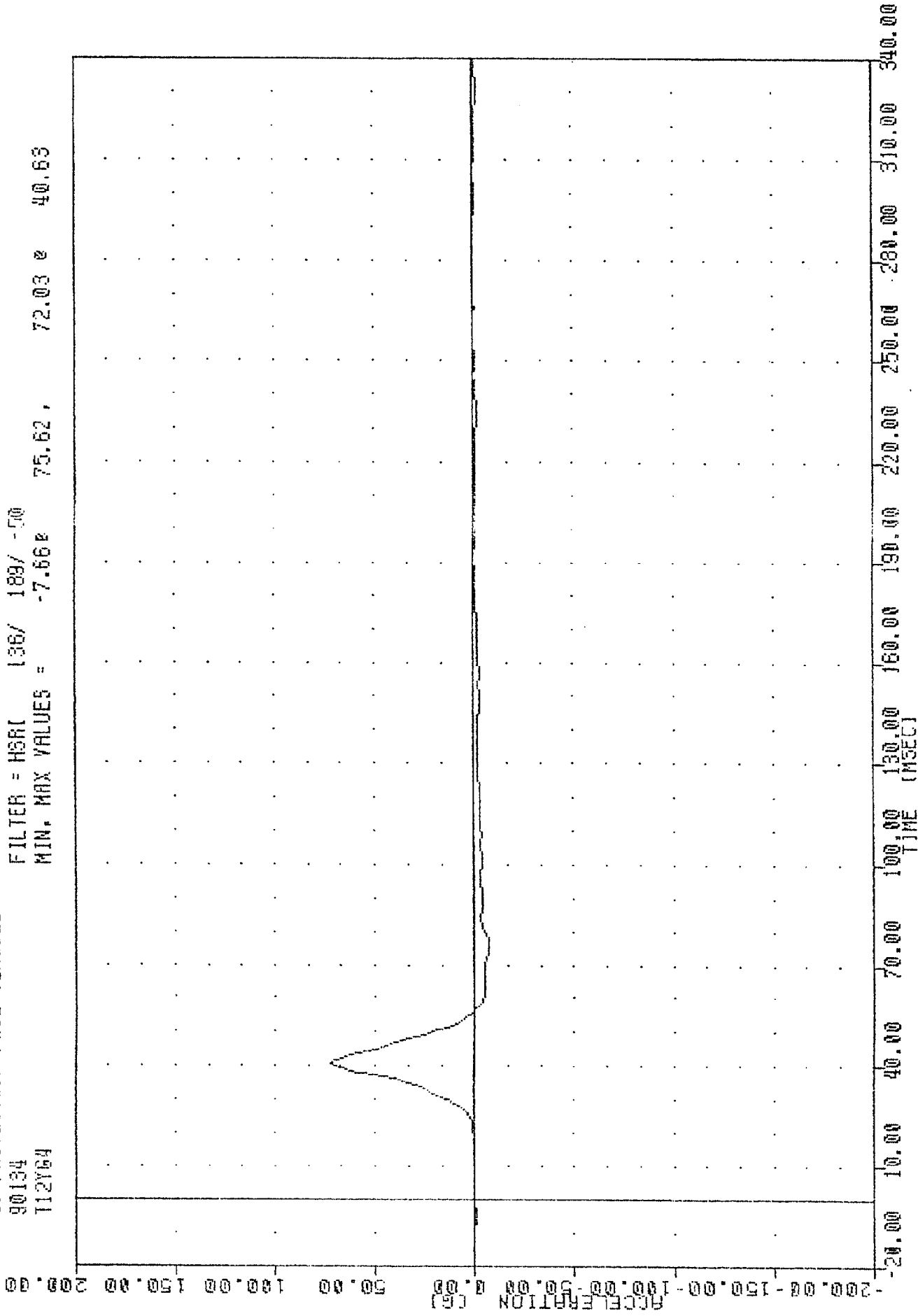
41.87, 10.40 e 53.12



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LOWER SPINE X AXIS ACCELERATION

VRTIC 900514
 SI PROTECTION PROD VEHICLE
 90134
 T12Y64

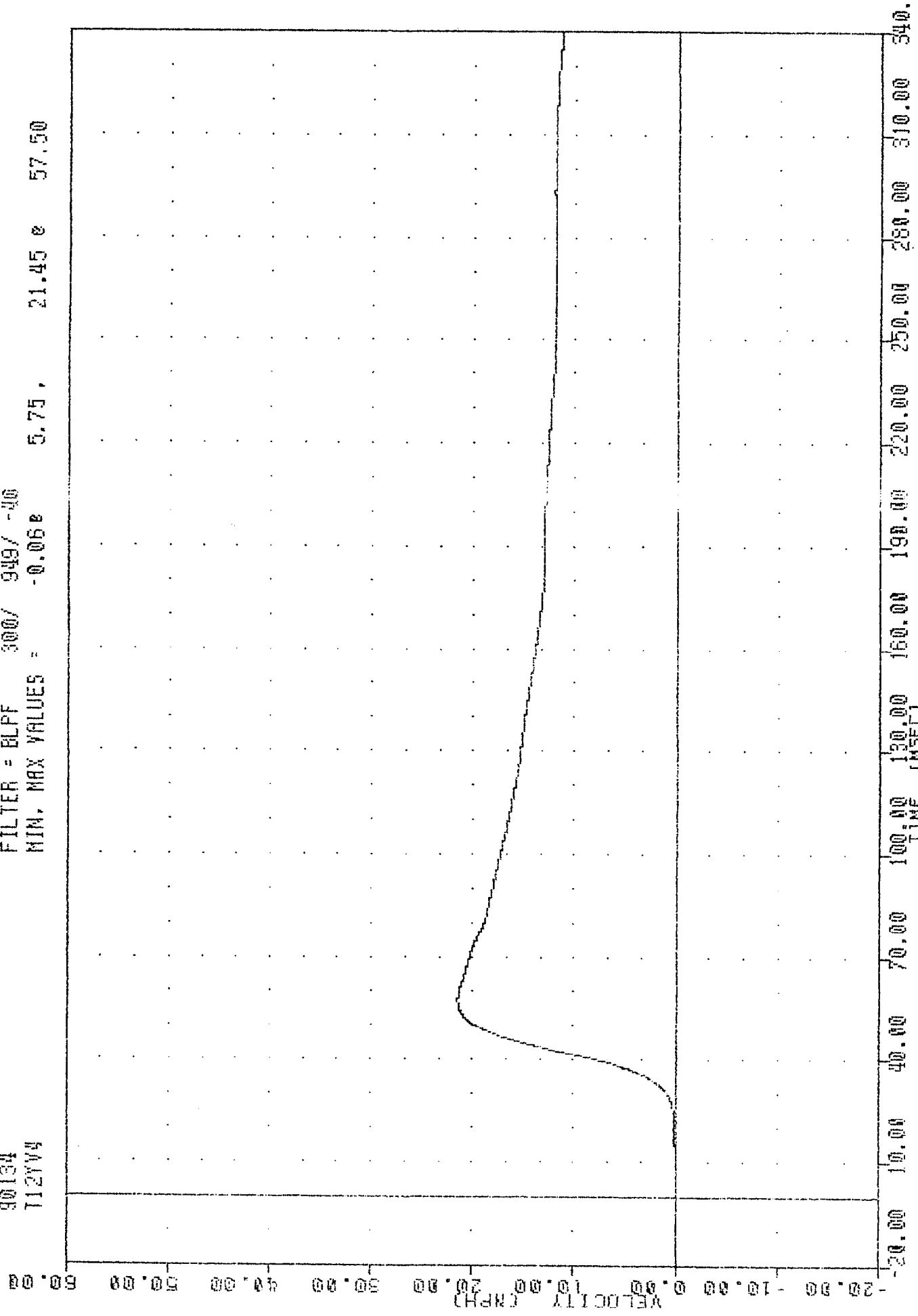
FILTER = HSR1 136/ 189/ -50
 MIN. MAX VALUES = -7.66 75.62, 72.03 40.63



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER LOWER SPINE Y AXIS ACCELERATION

	MIN.	MAX	VALUES	=	-0.068	5.75,	21.45	57.50
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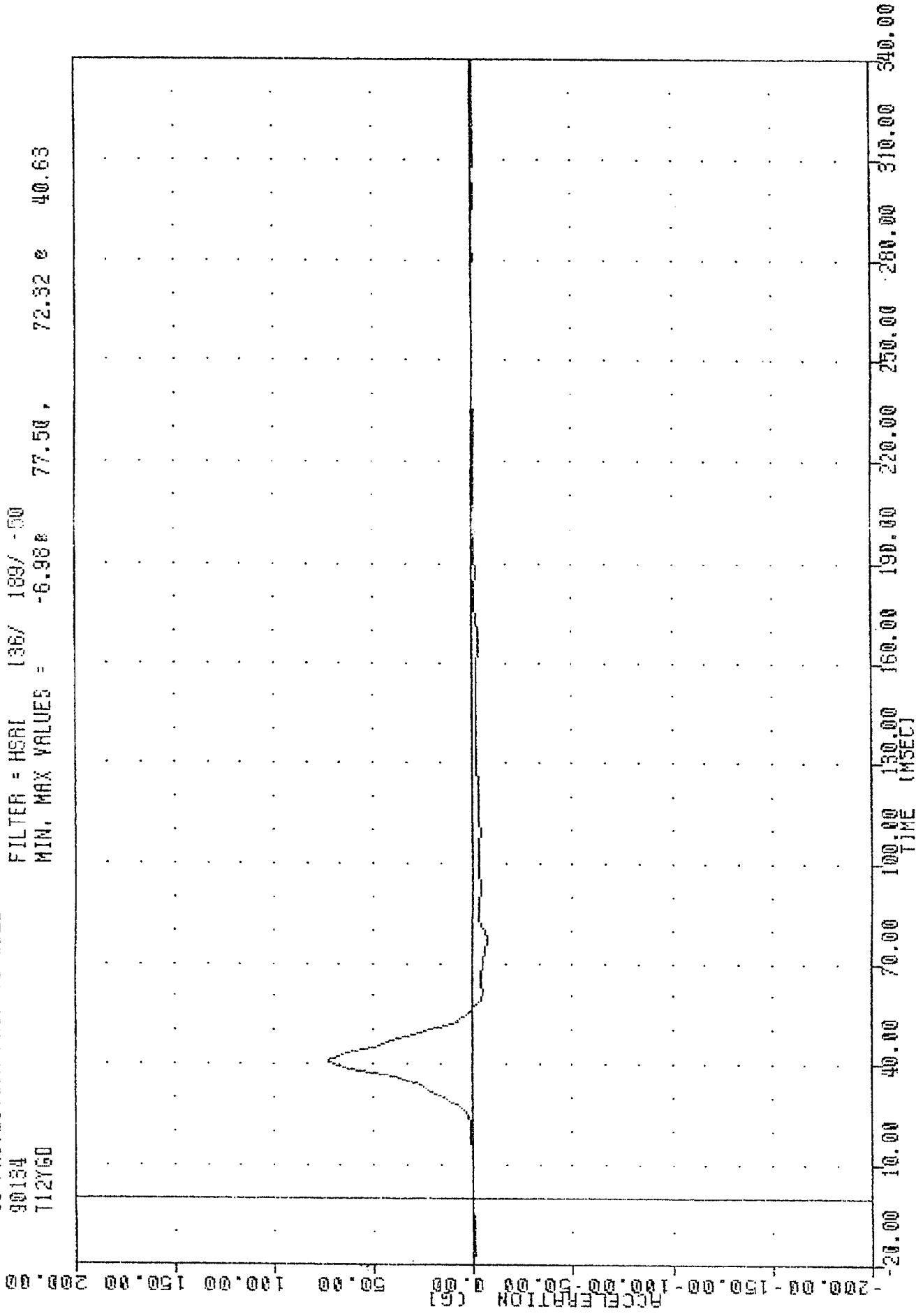
MADE IN
GERMANY



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LOWER SPINE Y AXIS VELOCITY

VRTC 900514
 SI PROTECTION PRDD VEHICLE
 90154
 712760

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -6.98 77.50 , 72.32 e 40.63



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER LOWER SPINE Y AXIS REDUNDANT ACCELERATION

SA INFORMATION FROM YOUNG

90134

FILTER = BLPF 300/ 949/ -40

T12YWD

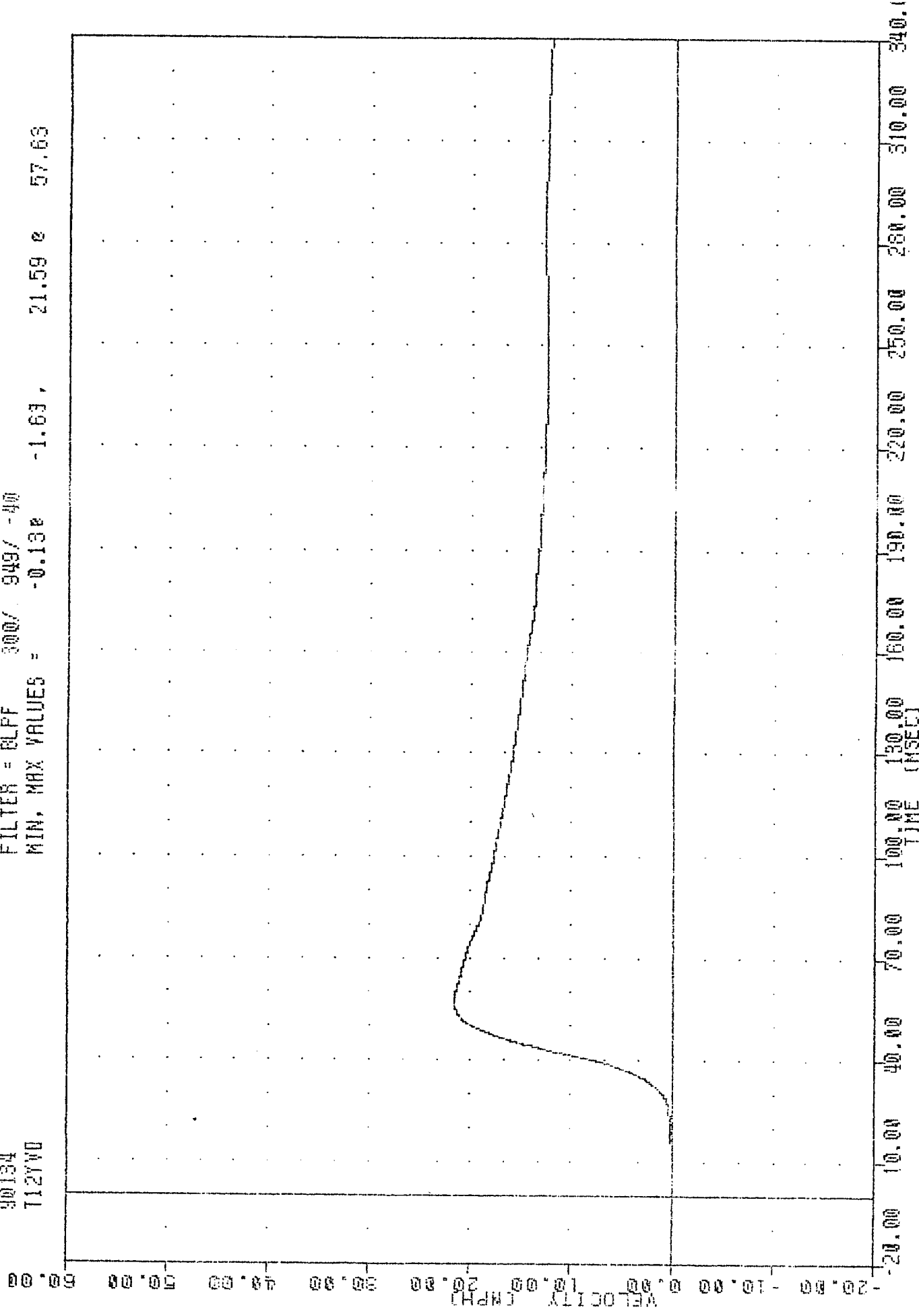
MIN, MAX VALUES =

-0.130

-1.63,

21.59 0

57.63

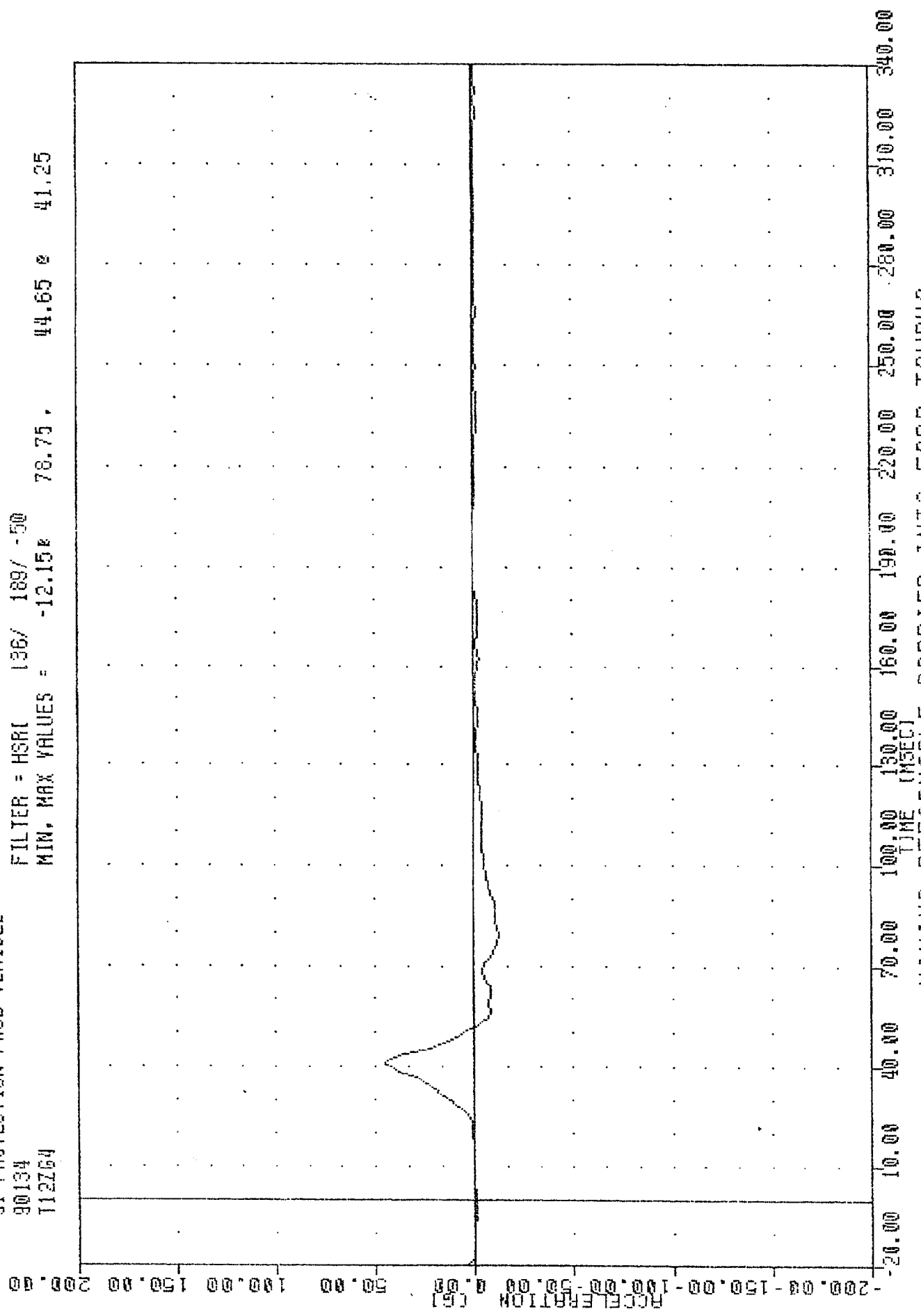


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

LEFT REAR PASSENGER LOWER SPINE Y AXIS REDUNDANT VELOCITY

VRTC 900514
 SI PROTECTION PROD VEHICLE
 90134
 T12Z64

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -12.15% 78.75% 44.65% 41.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER LOWER SPINE Z AXIS ACCELERATION

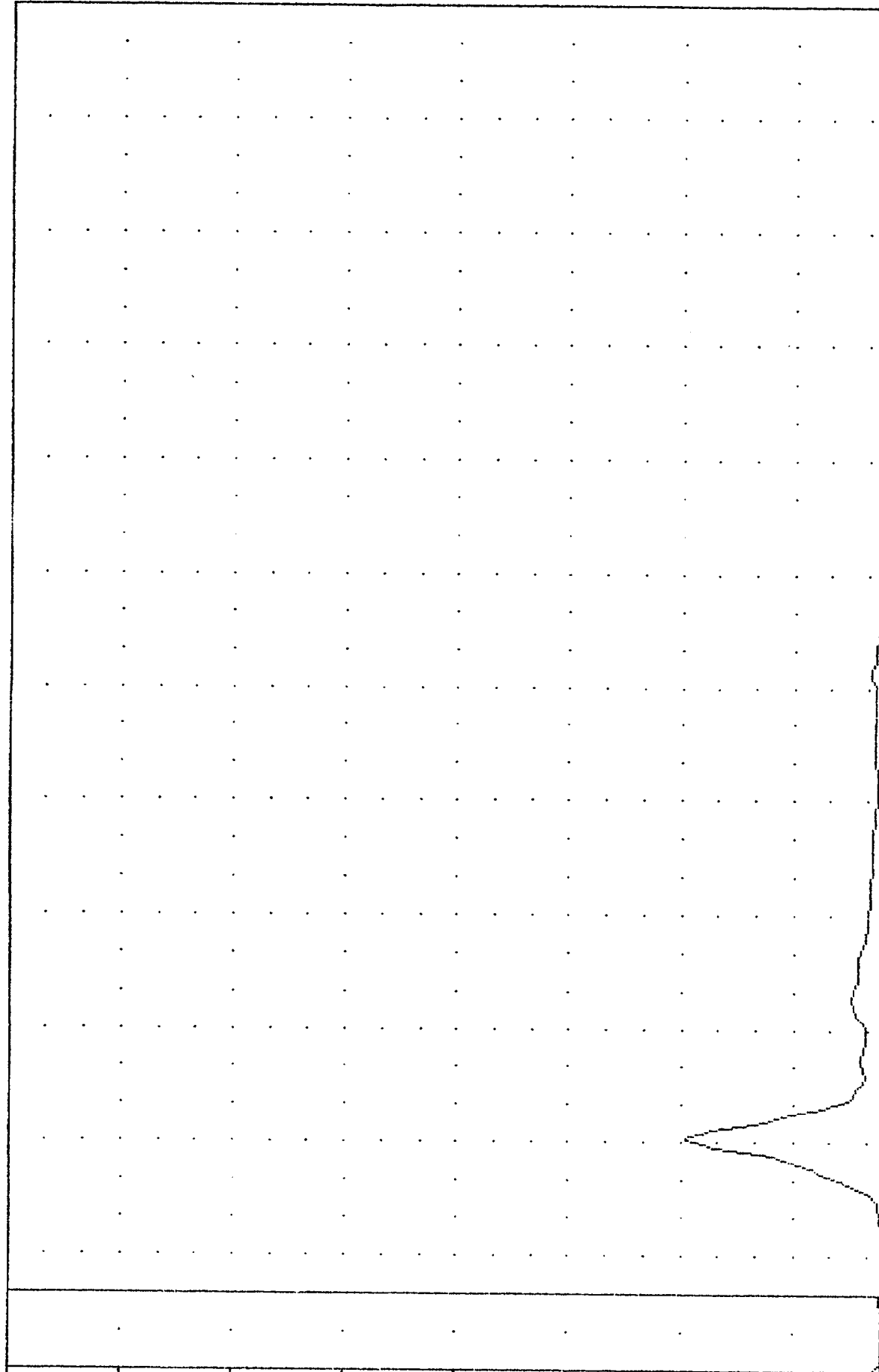
SI PROTECTION PROD VEHICLE

90134
T12R64

FILTER = HSRI 136/ 183/ -50
MIN. MAX VALUES = 0.08e 5.00e

87.08 e 41.25

ACCELERATION (G)



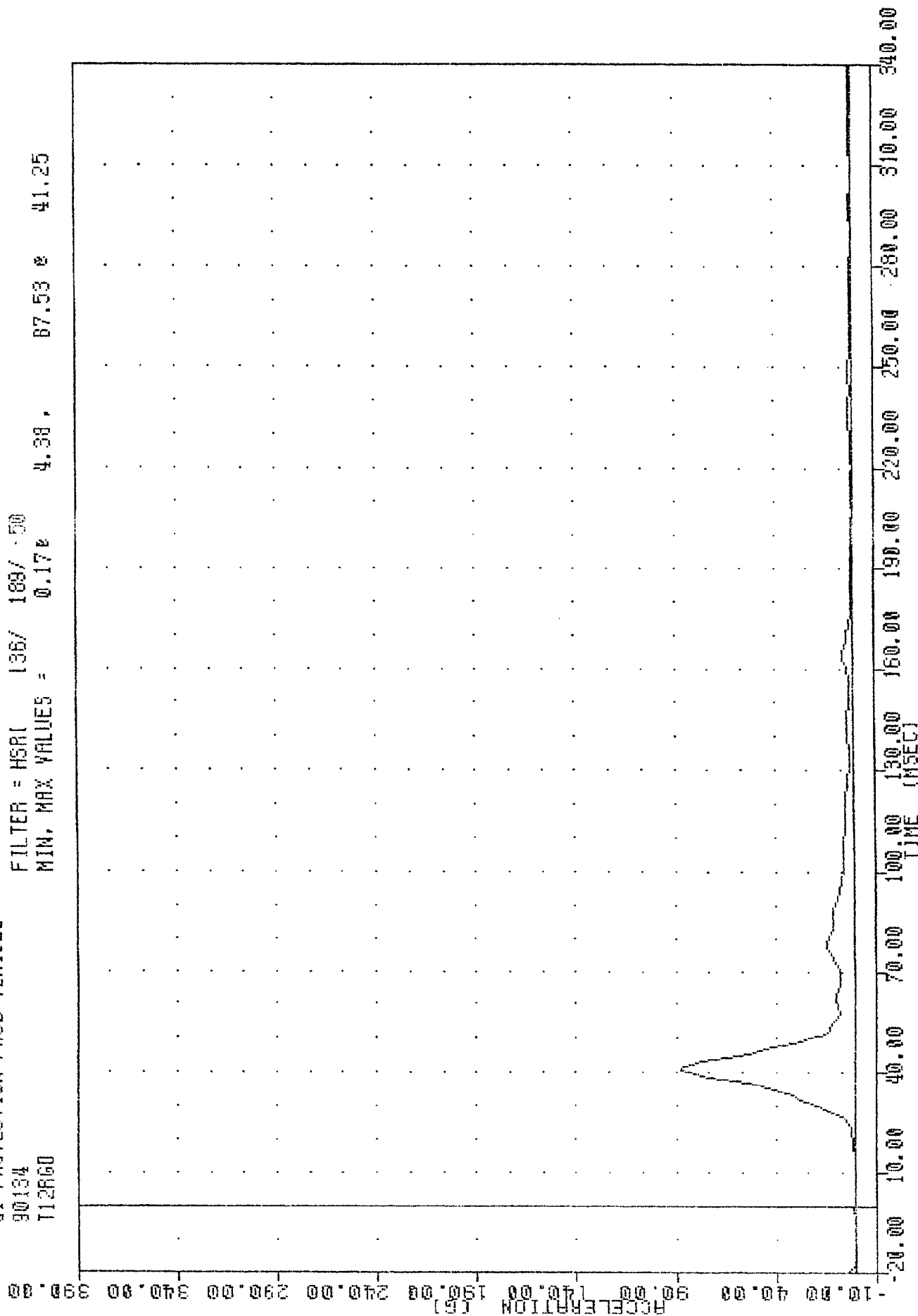
TIME (msec)

MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LOWER SPINE RESULTANT ACCELERATION

VRIC , 900514
 SI PROTECTION PROD VEHICLE
 90134
 T12R60

FILTER = HSRI 136/ 189/ 50
 MIN, MAX VALUES = 0.17g 4.38g

87.53 g 41.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER LOWER SPINE REDUNDANT RESULTANT ACCELERATION

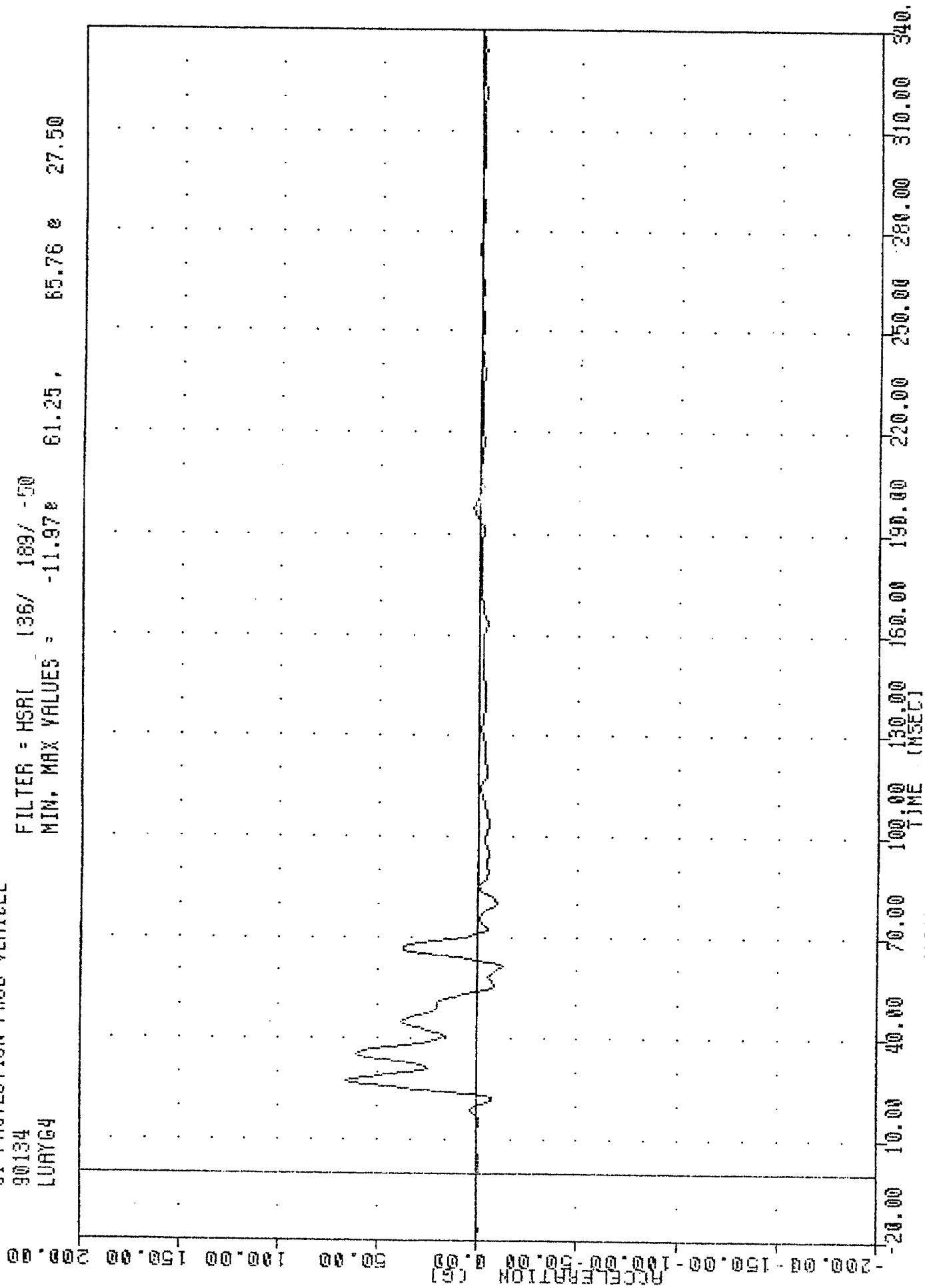
SI PROTECTION PROD VEHICLE

90134

LWAY64

FILTER = HSRI 136/ 189/ -50

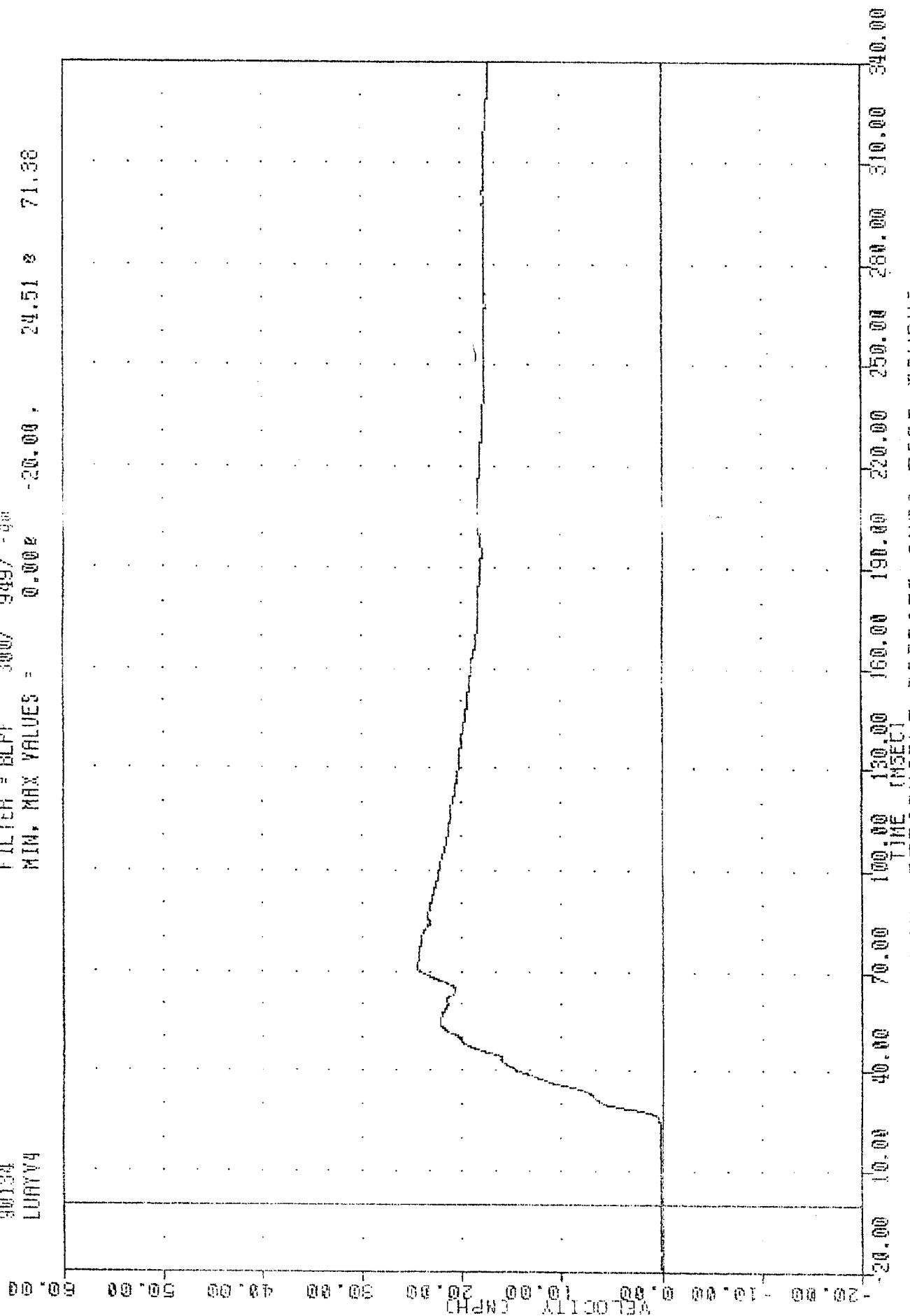
MIN. MAX VALUES = -11.97e 61.25, 65.76 e 27.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS

LEFT REAR PASSENGER LEFT UPPER ABDOMEN RIB Y AXIS ACCELERATION

FILTER = BLFF 300/ 549/ -40
MIN. MAX VALUES = 0.000 -20.00 24.51 8 71.38



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LEFT UPPER ABDOMEN RIB Y AXIS VELOCITY

31 PROJECTION FROM VEHICLE

90134

LURY04

FILTER = BLPF 300/ 949/ -40

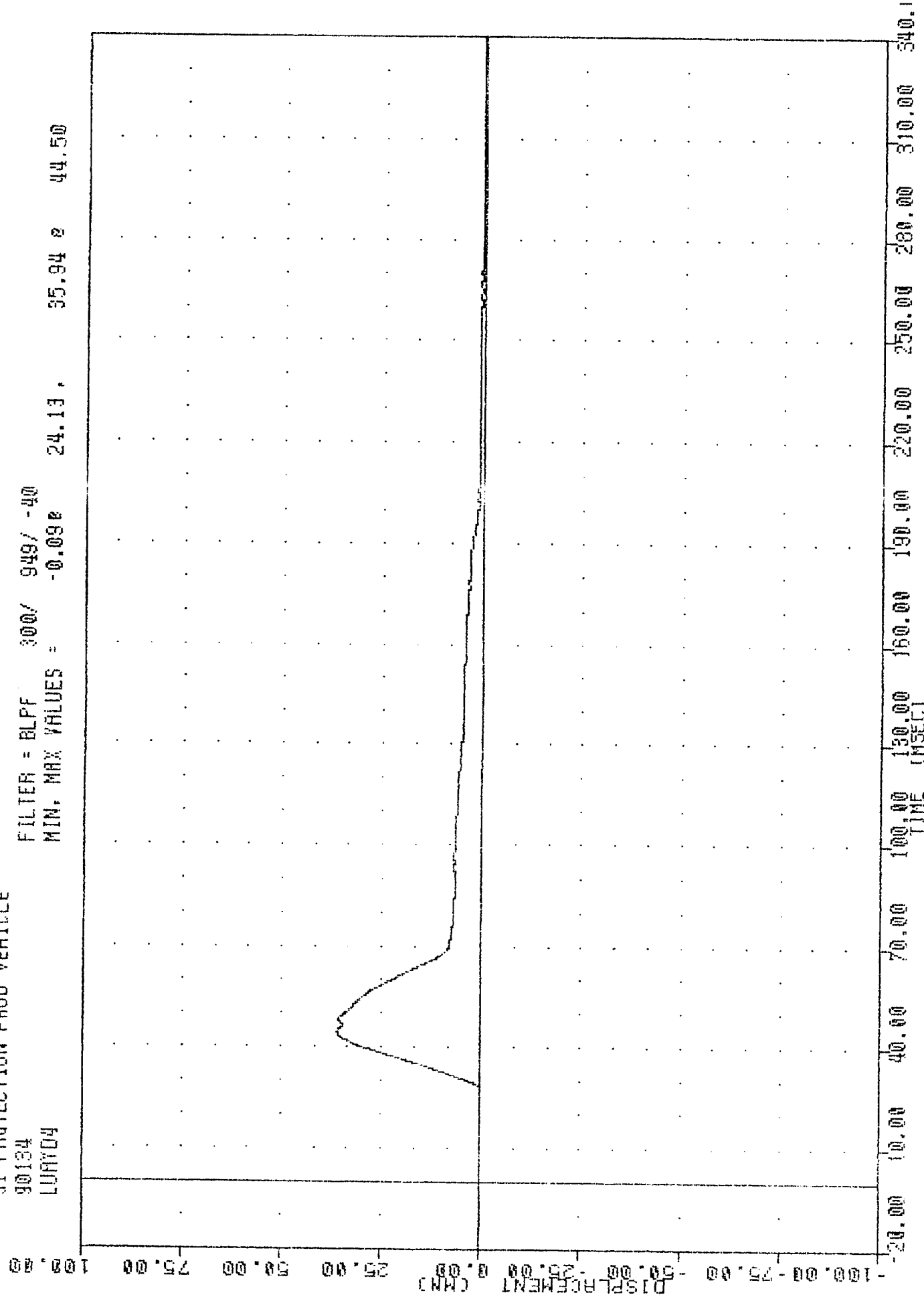
MIN. MAX VALUES =

-0.090

24.13

35.94

44.50

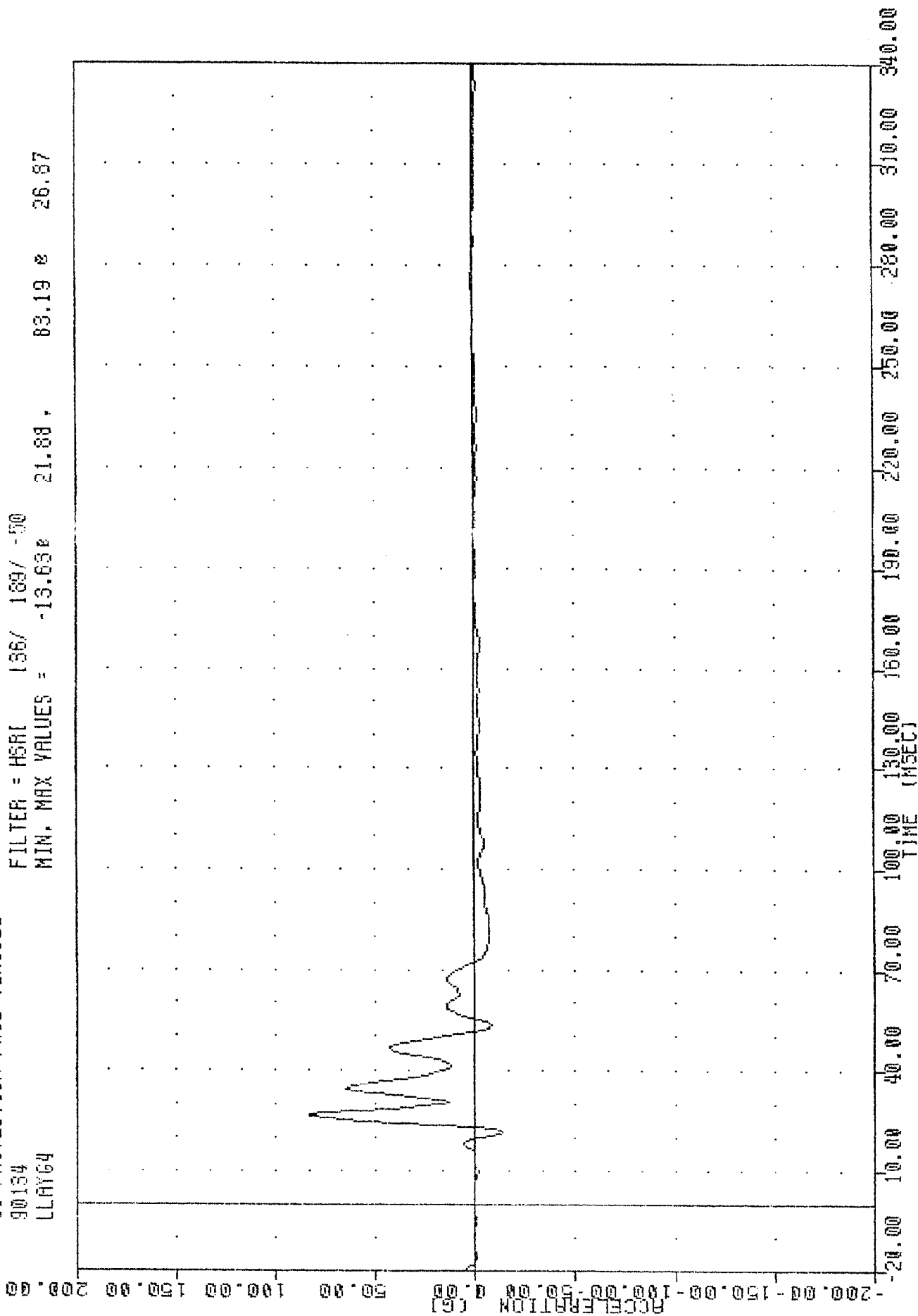


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

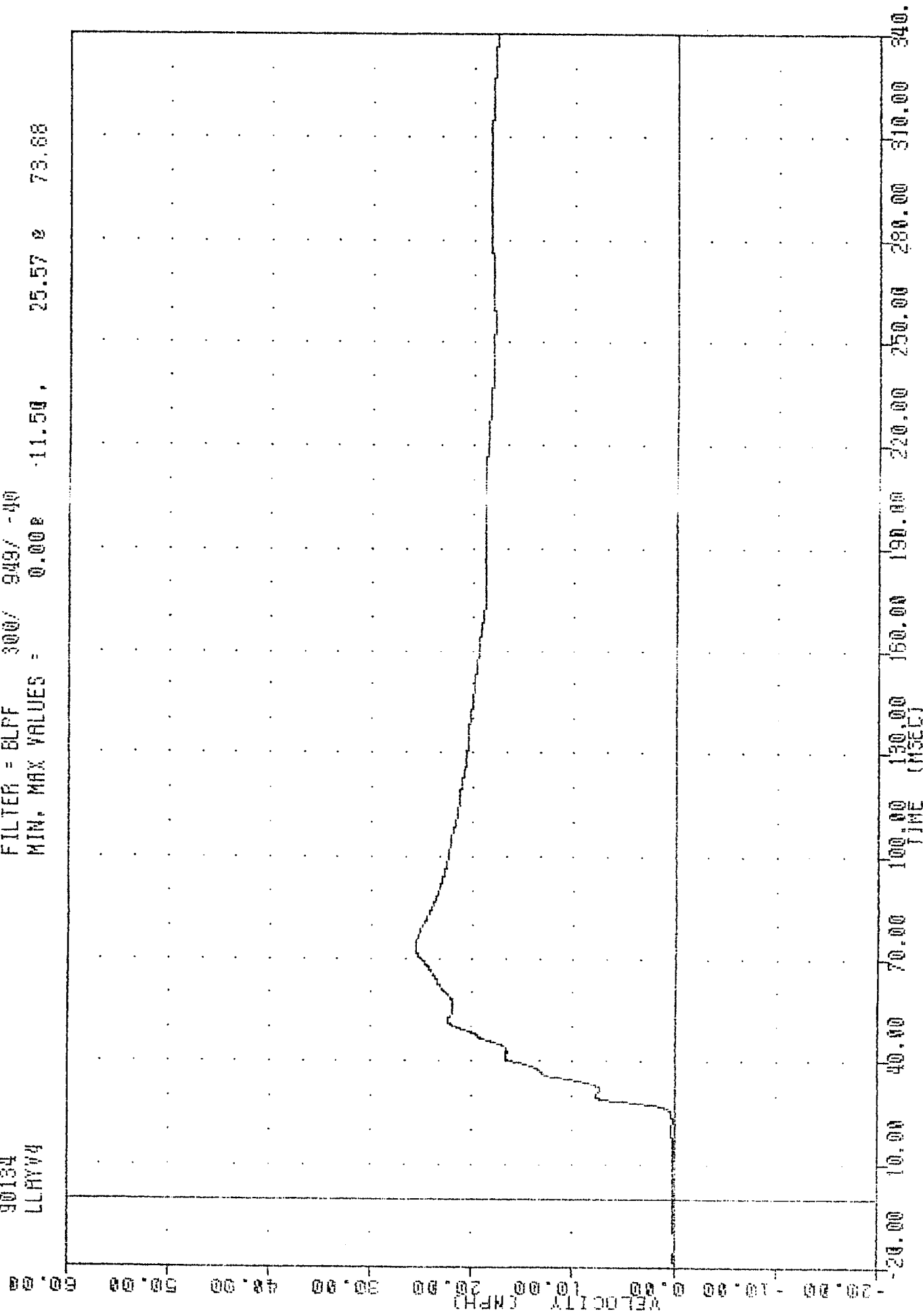
LEFT REAR PASSENGER LEFT UPPER ABDOMEN RIB DISPLACEMENT

VBIIC , 900514
 SI PROTECTION PROO VEHICLE
 90134
 LLAY64

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -13.63 21.88 , 83.19 26.87



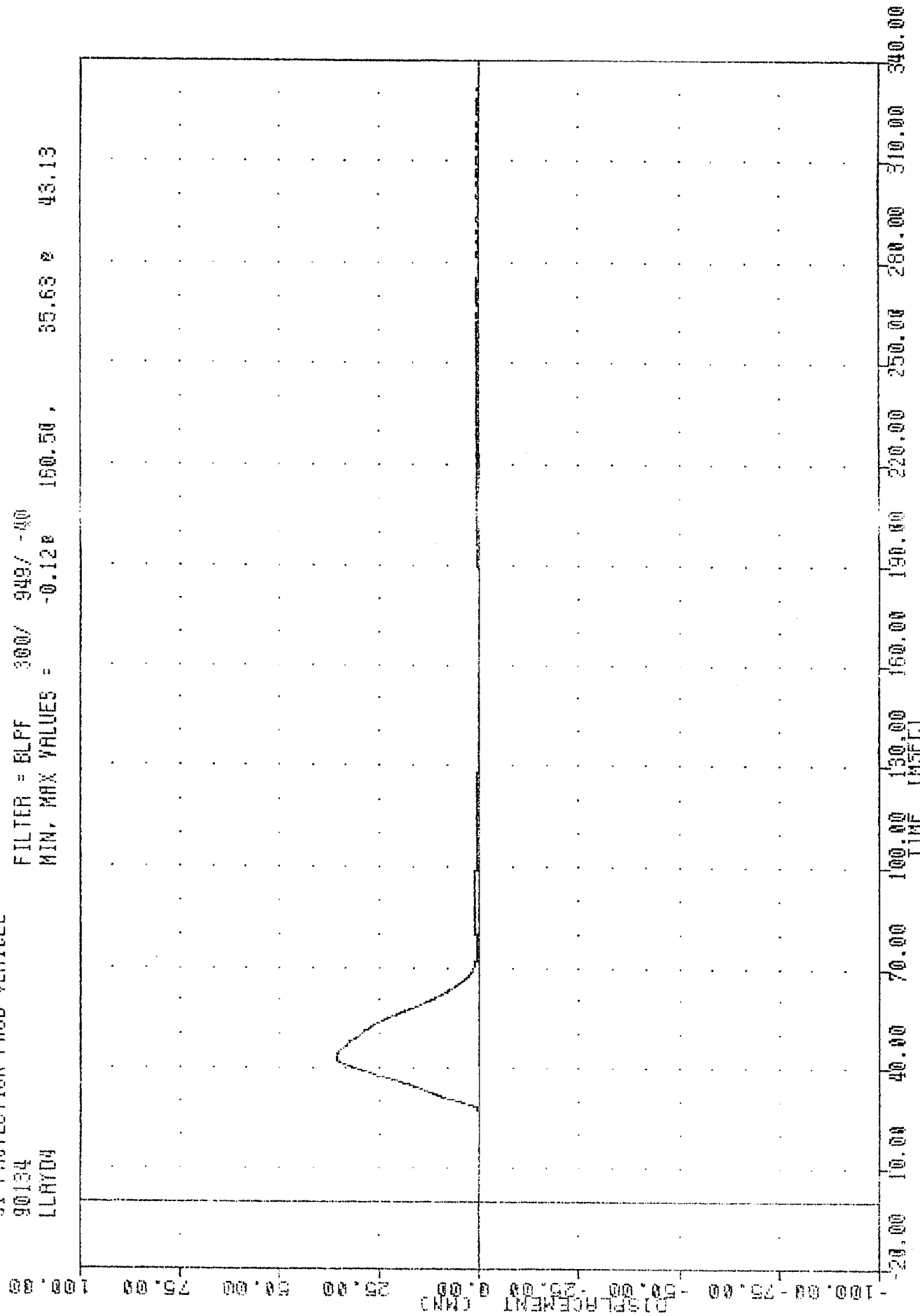
MIN, MAX VALUES =	0.002	-1.50	25.57	73.88
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MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER LEFT LOWER ABDOMEN RIB Y AXIS VELOCITY

VEHICLE, 980514
 SI PROTECTION PASSED VEHICLE
 90134
 LLOYD4

FILTER = BLPF 300/ 948/ -40
 MIN, MAX VALUES = -0.128 160.50 , 35.63 43.13



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER LEFT LOWER ABDOMEN RIB DISPLACEMENT

31 PROJECTION FROM VEHICLE

90134

PEVXG4

FILTER = HSR1

136/ 189/ -50

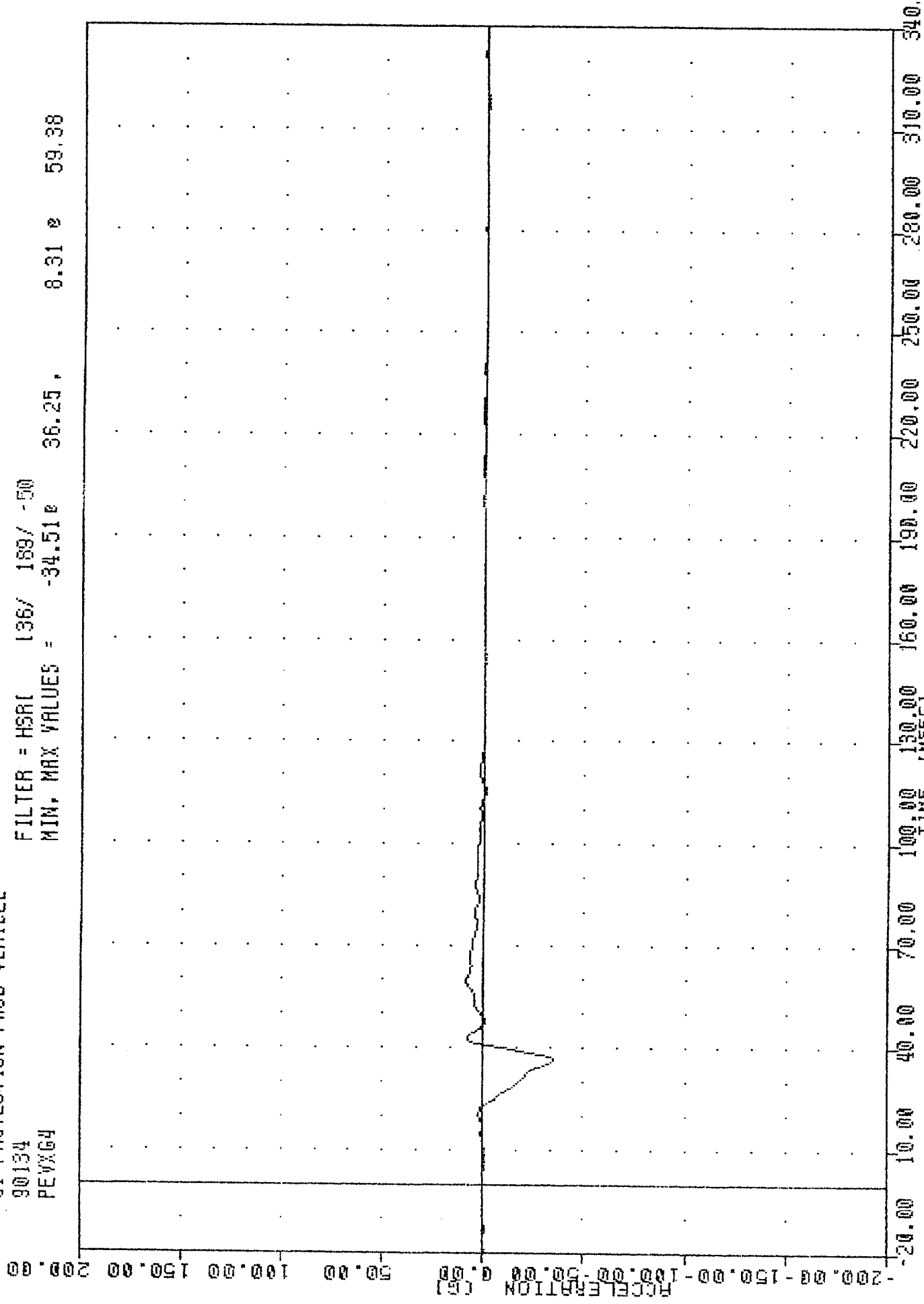
MIN, MAX VALUES =

-34.51e

36.25,

8.31 e

59.38

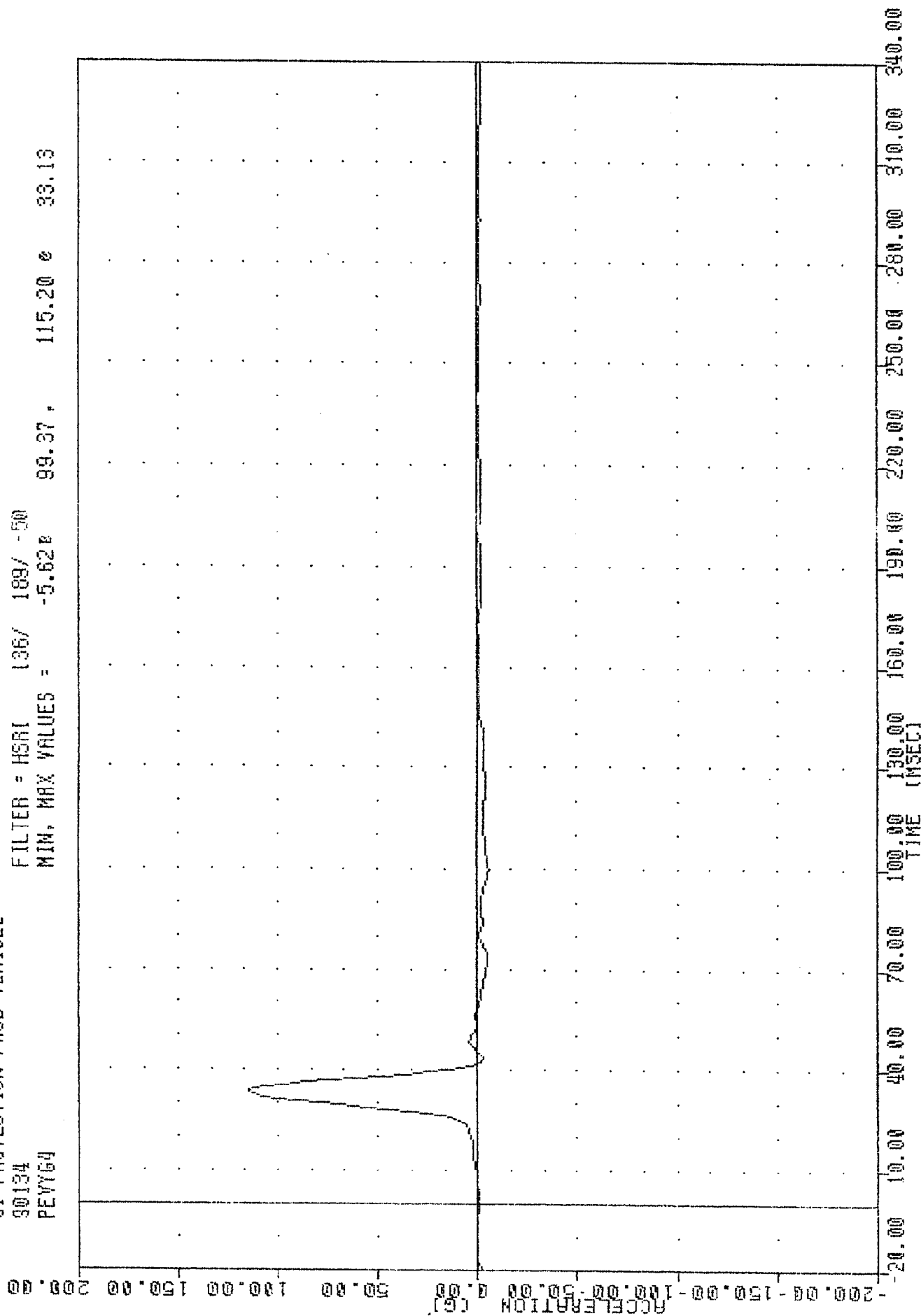


MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER PELVIS X AXIS ACCELERATION

VRTIC , 900514
 SI PROTECTION PROD VEHICLE
 90134
 PEV764

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -5.62 8

99.37 , 115.20 e 33.13



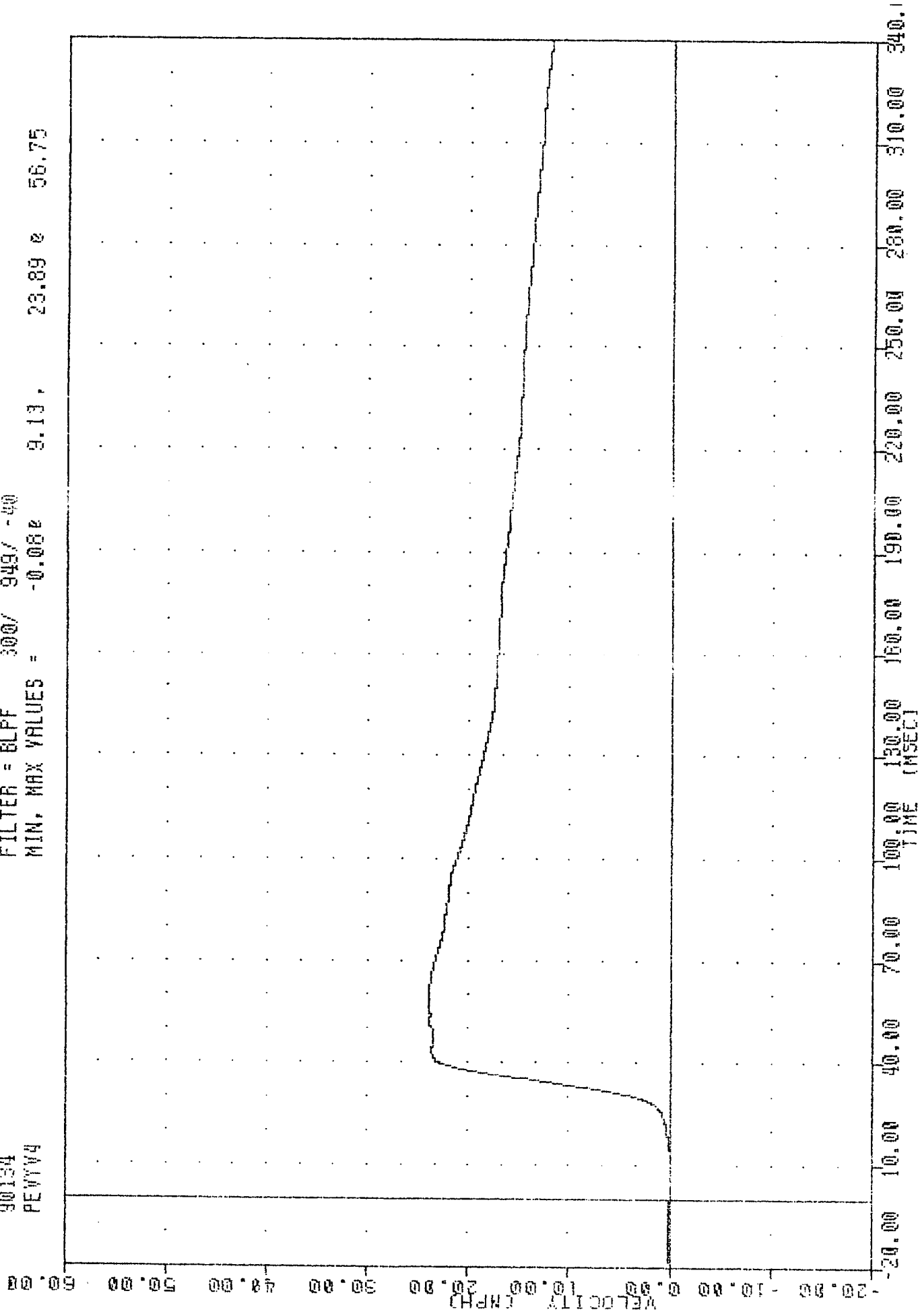
32. COLLISION FROM VEHICLE

90134
PEVYV4

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -0.082

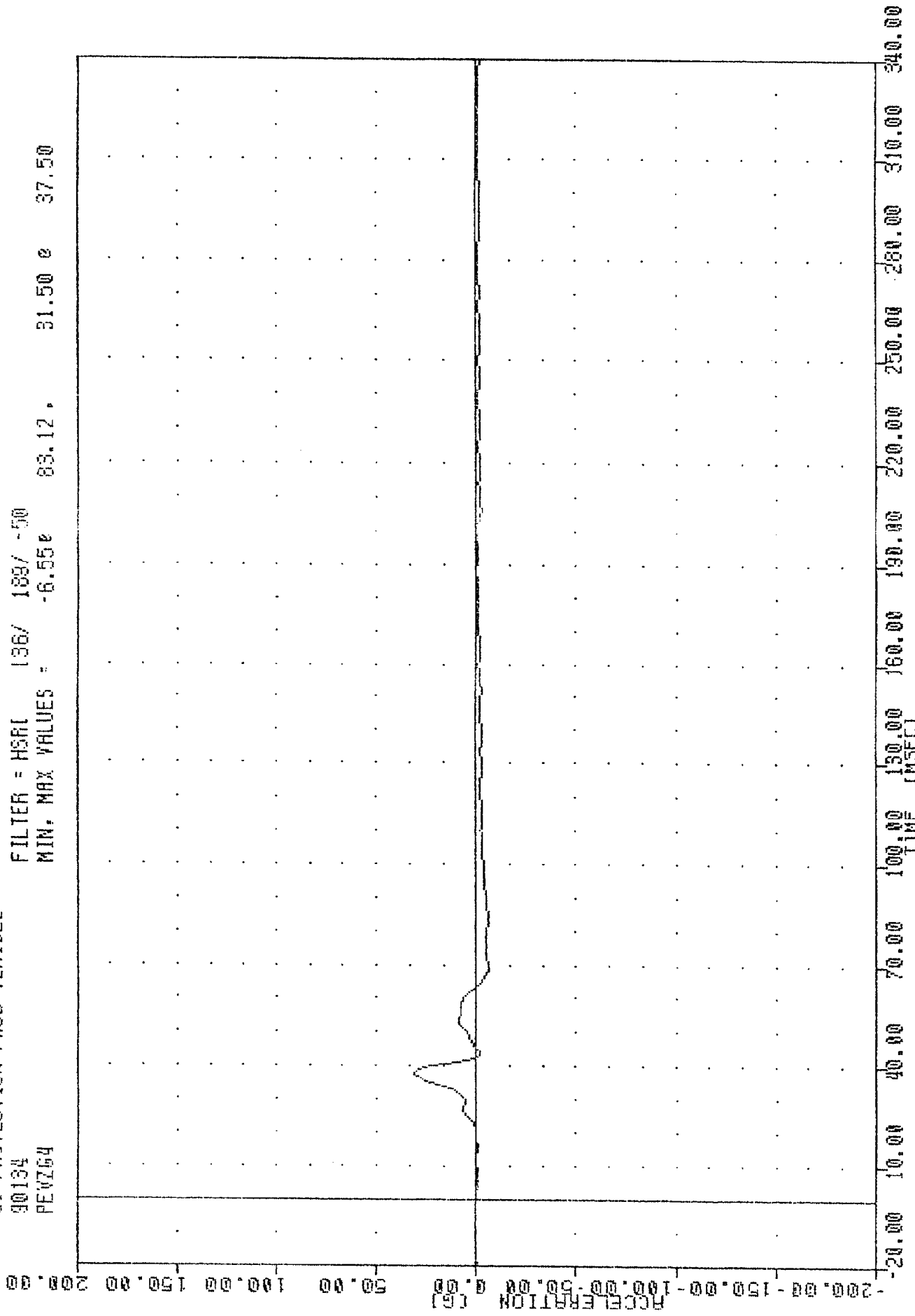
9.13, 23.89 2 56.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER PELVIS Y AXIS VELOCITY

VRIC 900514
 SI PROTECTION PROD VEHICLE
 90134
 PEVZ64

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -6.55e 83.12, 31.50 e 37.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 LEFT REAR PASSENGER PELVIS Z AXIS ACCELERATION

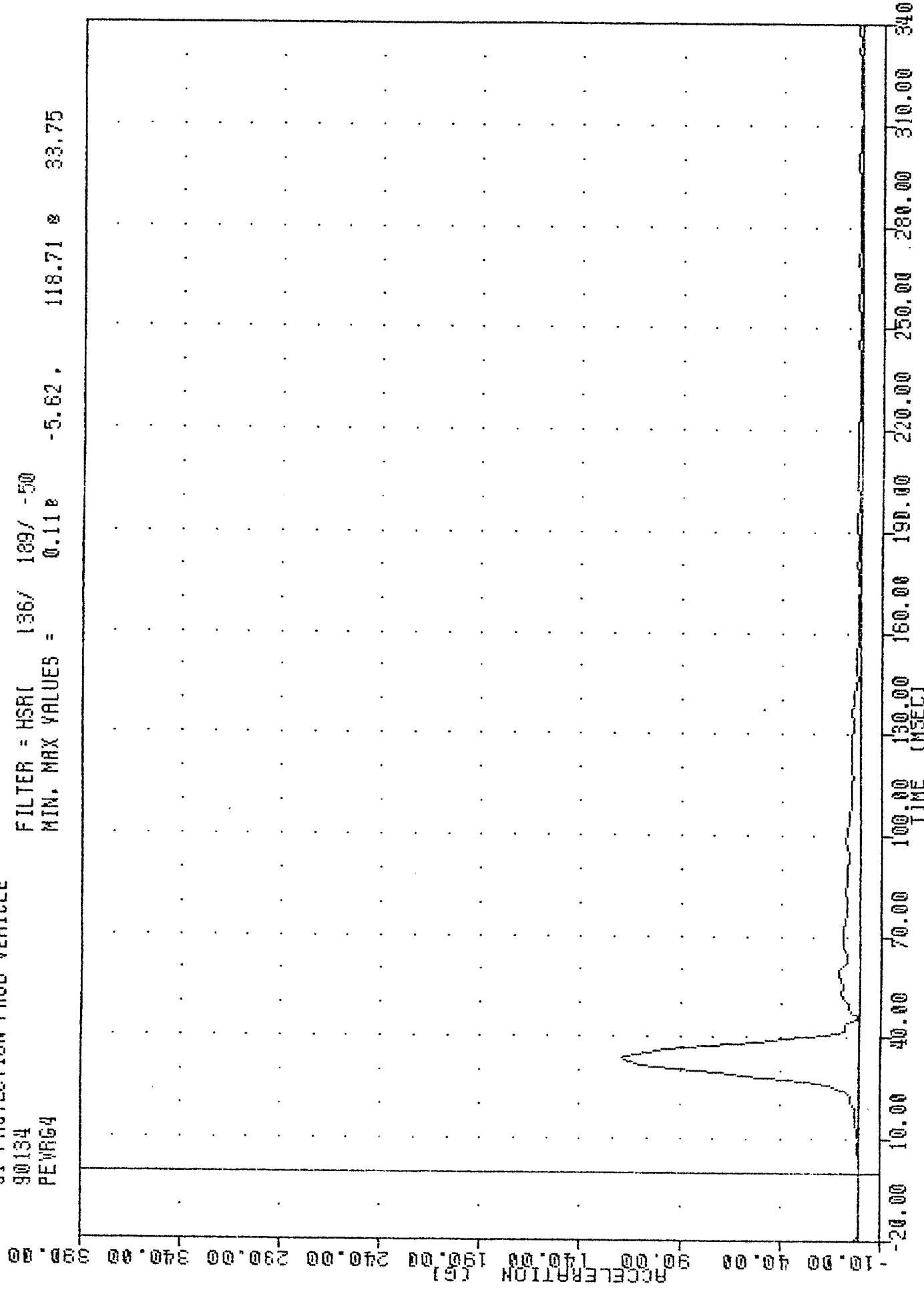
31 PROJECTION FROM VEHICLE

90134

PEVR64

FILTER = HSRI 136/ 189/ -50

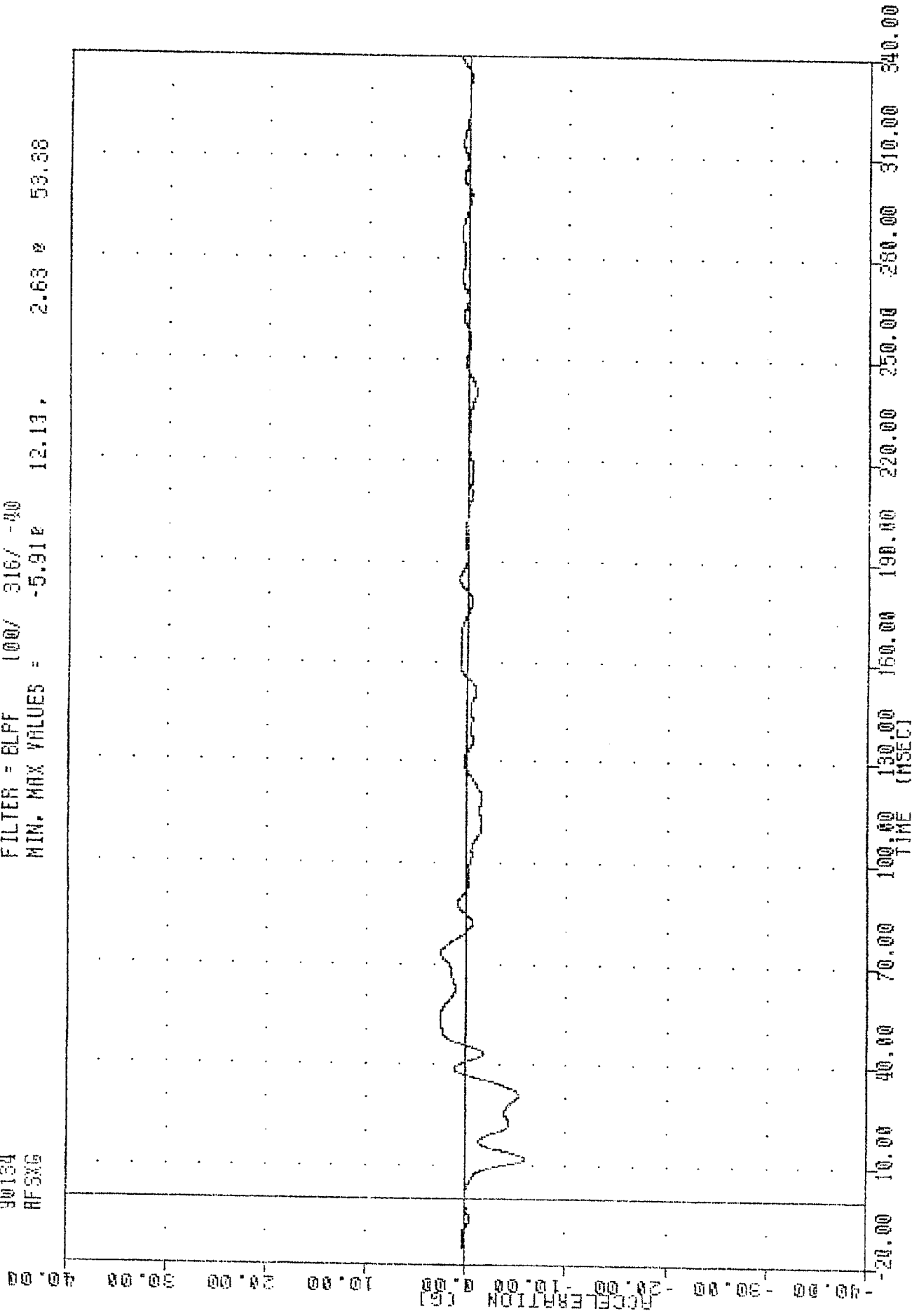
MIN. MAX VALUES = 0.110 -5.62, 118.71 0 33.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
LEFT REAR PASSENGER PELVIS RESULTANT ACCELERATION

900014
SI PROTECTION PROD VEHICLE
90134
AFSXC

FILTER = BLPF 100/ 316/ -30
MIN. MAX VALUES = -5.91e 12.13, 2.63 e 53.38



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE RIGHT FRONT SILL X AXIS ACCELERATION

SI PROTECTION PROD VEHICLE

90134

RFSYG

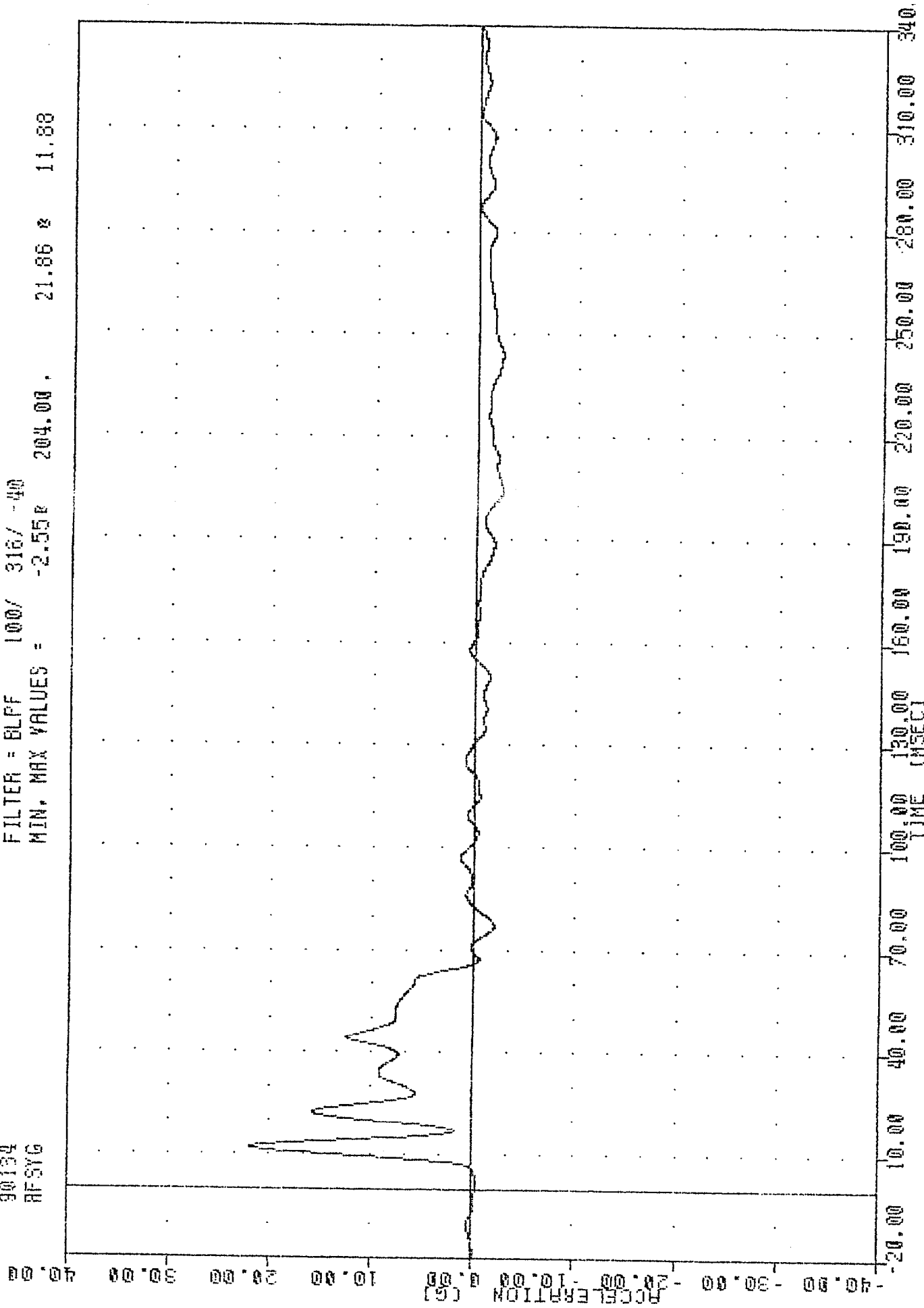
FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES =

204.00.

21.86

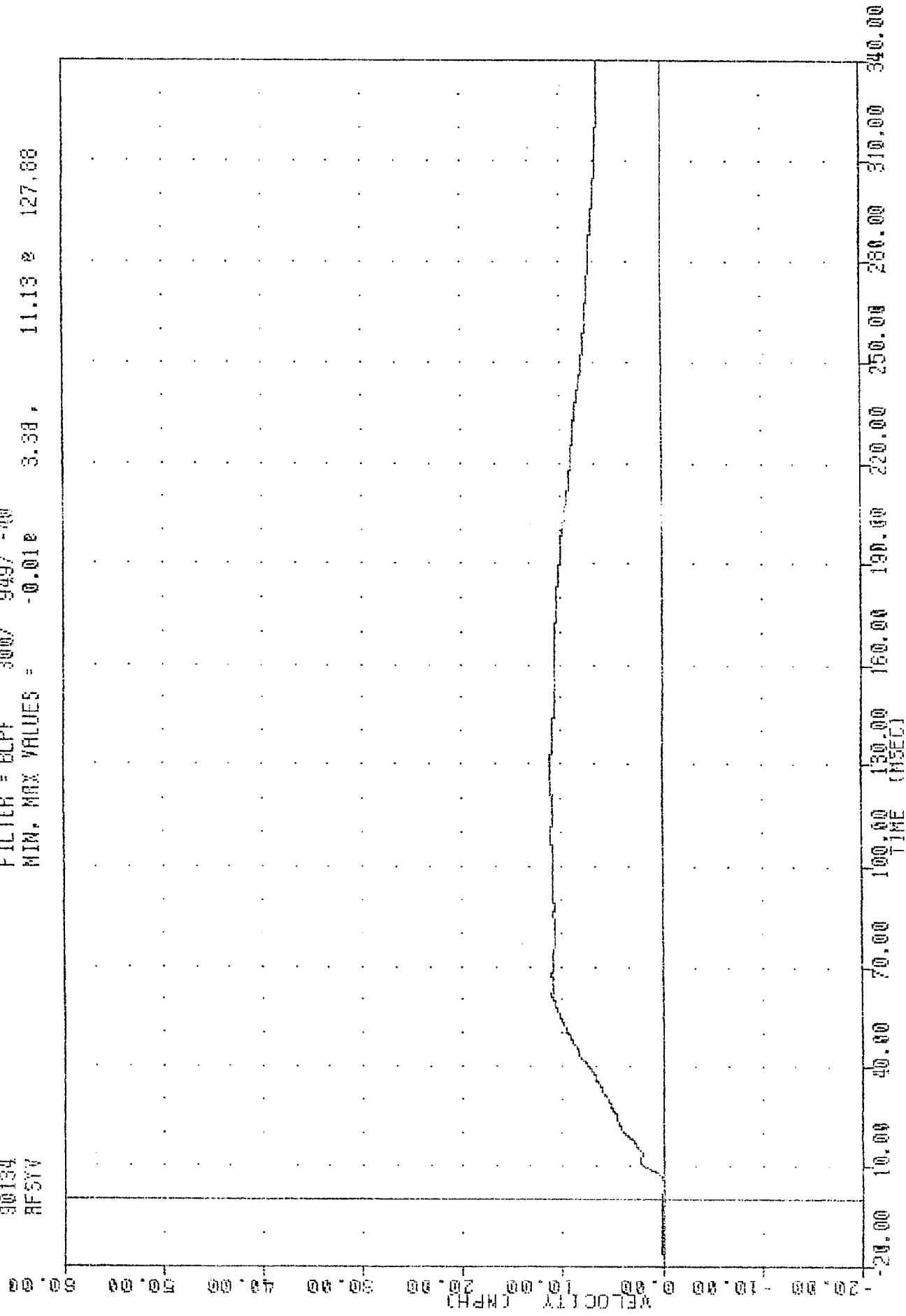
11.88



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE RIGHT FRONT SILL Y AXIS ACCELERATION

VAIL , 300314
 SI PROTECTION PROO VEHICLE
 90134
 RFSYV

FILTER = BLPF 300/ 949/ -00
 MIN. MAX VALUES = -0.01e 3.38 , 11.13 e 127.88



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 VEHICLE RIGHT FRONT SILL Y AXIS VELOCITY

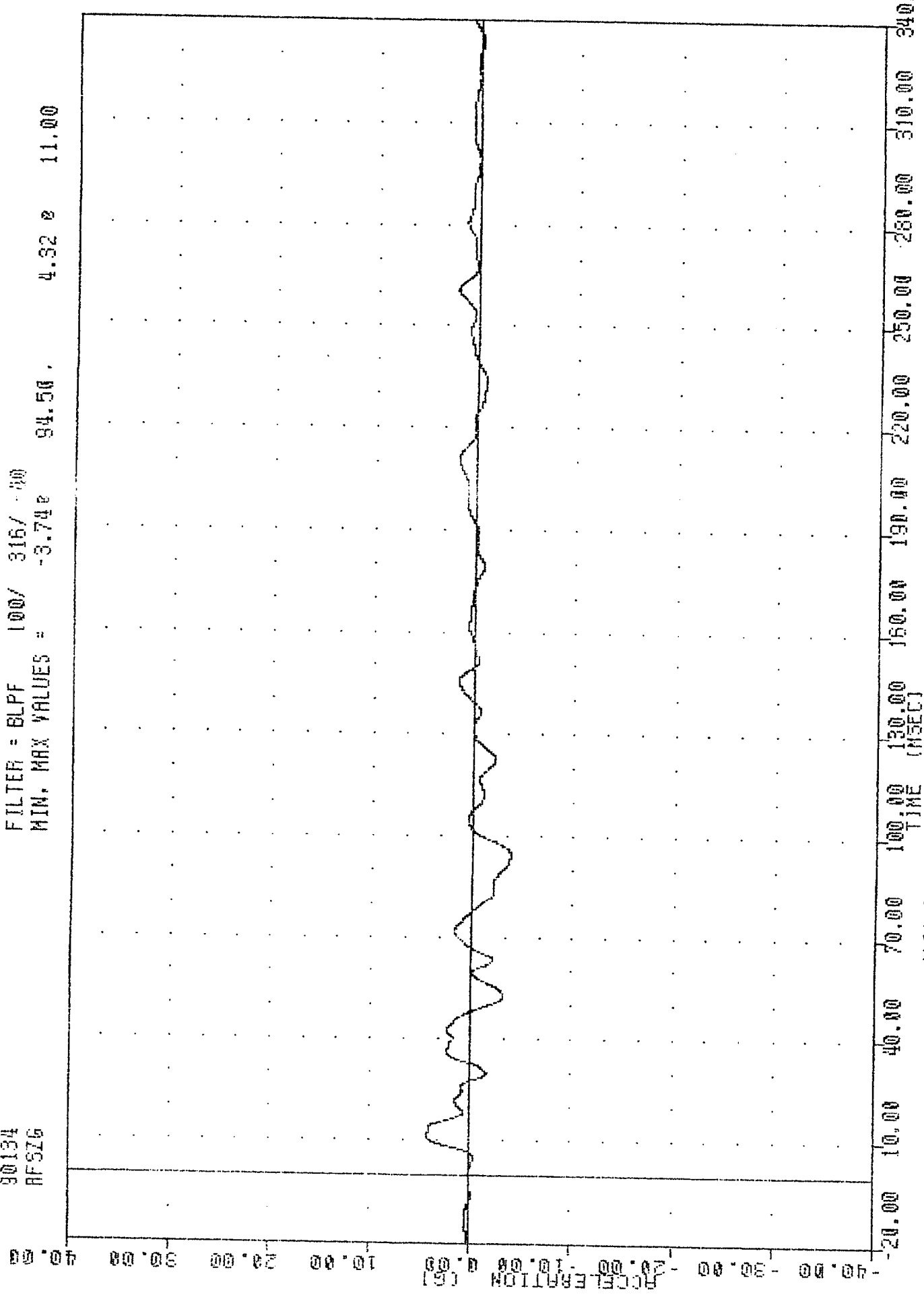
51 PROTECTION PROD VEHICLE

90134

AFS26

FILTER = BLPF 100/ 316/ -50

MIN. MAX VALUES = -3.74e 94.50 , 4.32 e 11.00

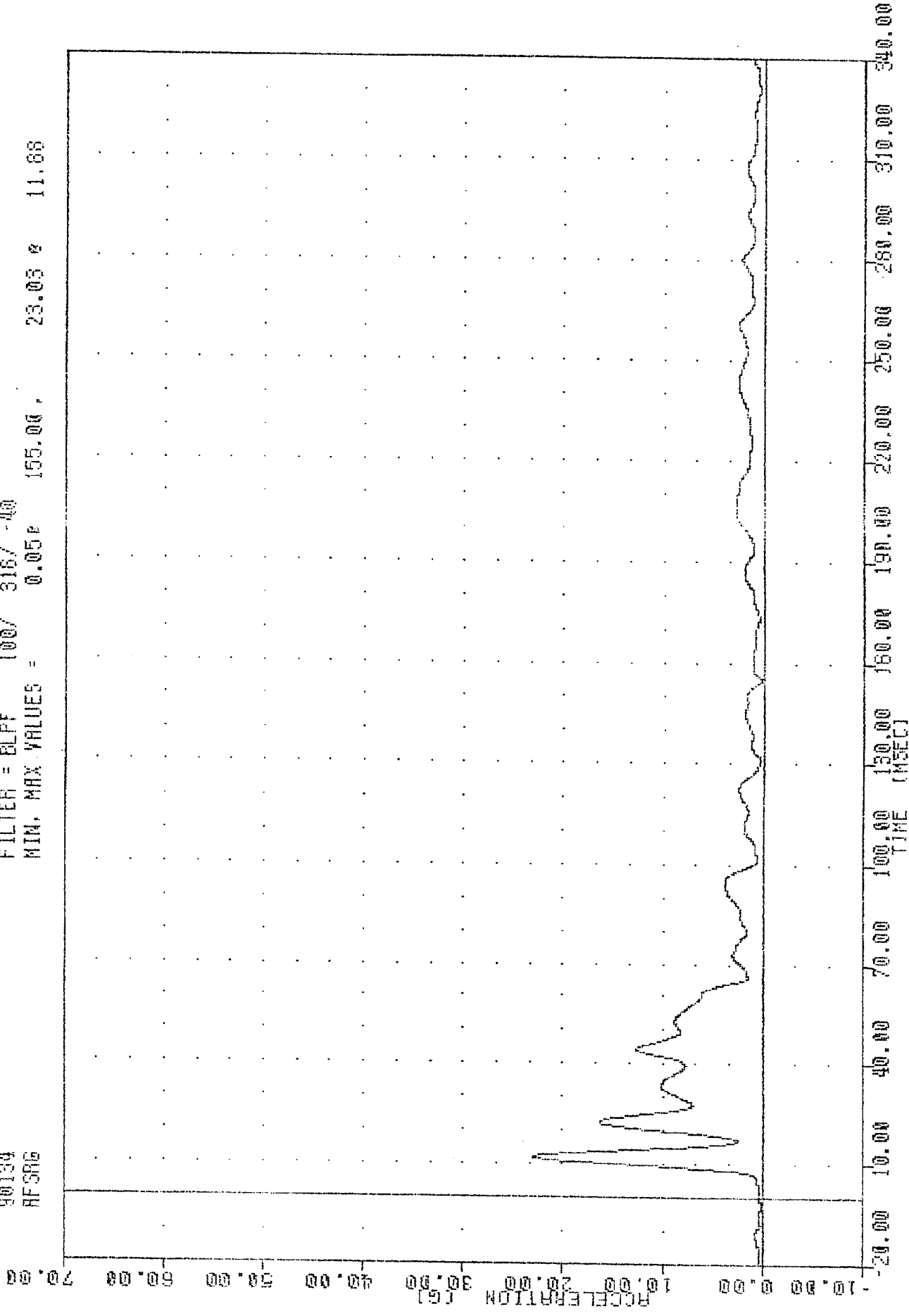


MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE RIGHT FRONT SILL Z AXIS ACCELERATION

90134
 SI PROTECTION PROD VEHICLE
 RFSRG

90134
 380514

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = 0.05 155.00 23.03 11.88



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 VEHICLE RIGHT FRONT SILL RESULTANT ACCELERATION

31 PROTECTION PROD VEHICLE

90134

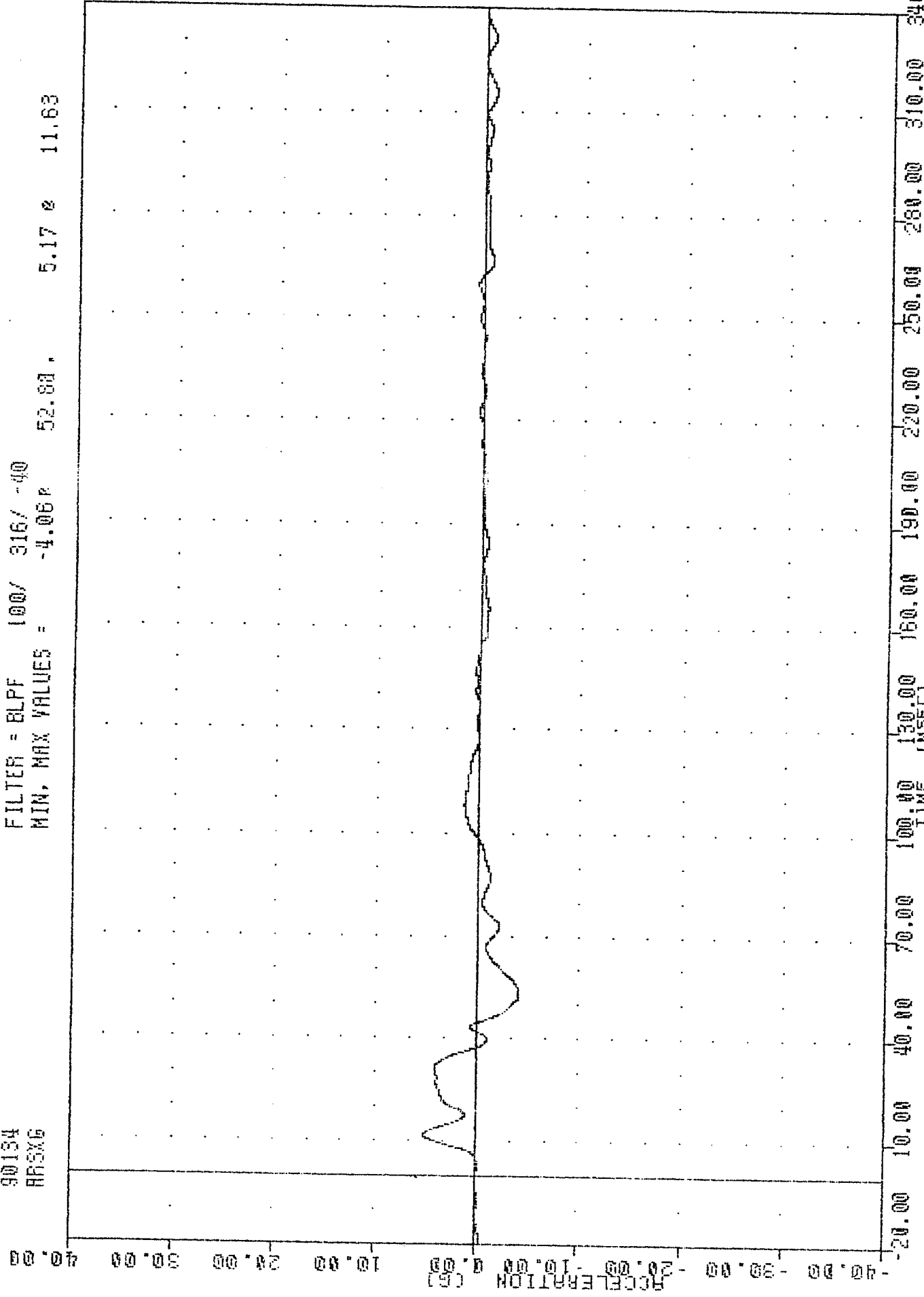
RRSXG

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -4.06%

5.17 @ 11.63

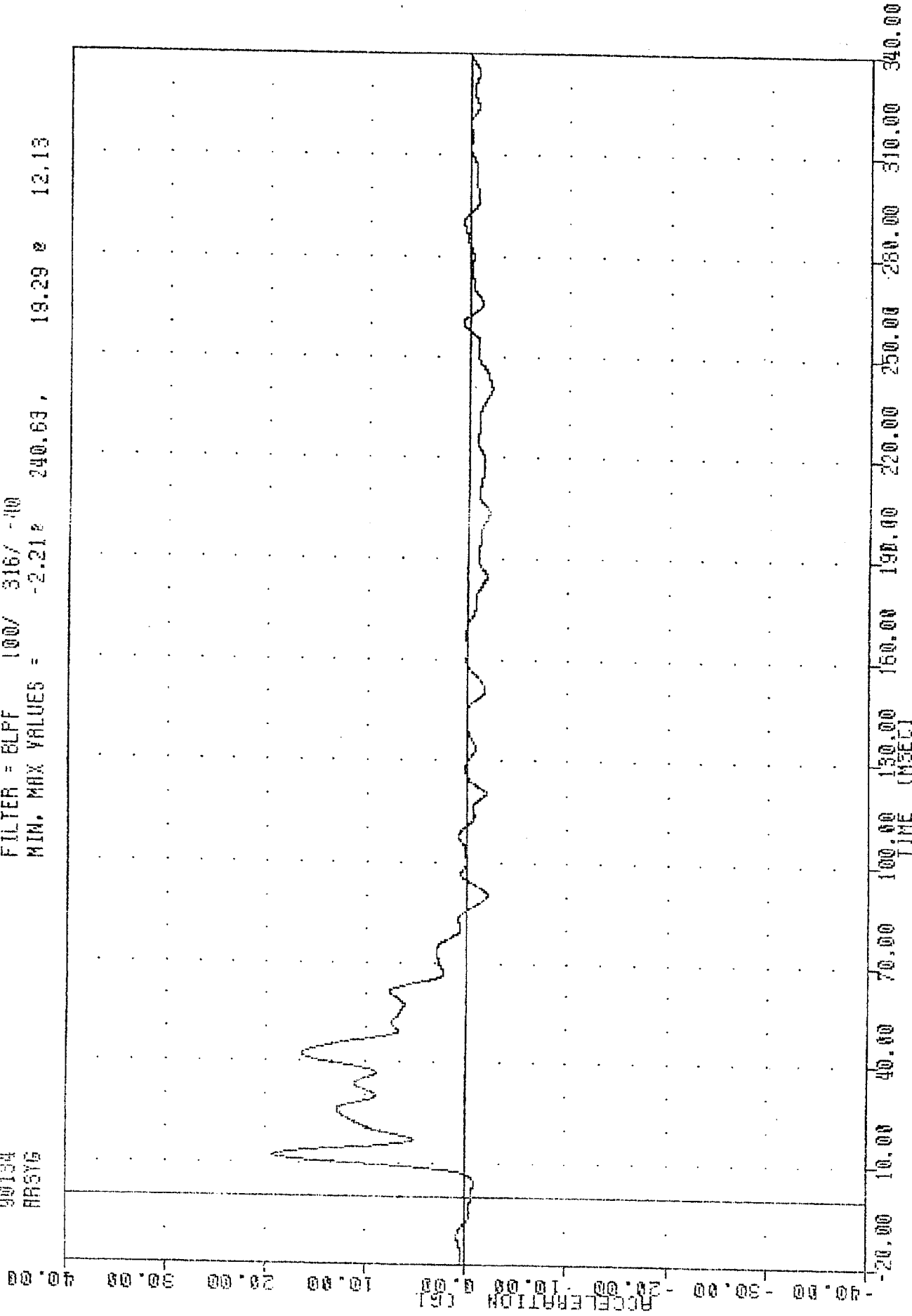
52.80.



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE RIGHT REAR SILL X AXIS ACCELERATION

FILE 900514
SI PROTECTION PROD VEHICLE
90134
AR516

FILTER = BLPF 100/ 316/ -10
MIN. MAX VALUES = -2.212 240.63, 19.29 12.13



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE RIGHT REAR SILL Y AXIS ACCELERATION

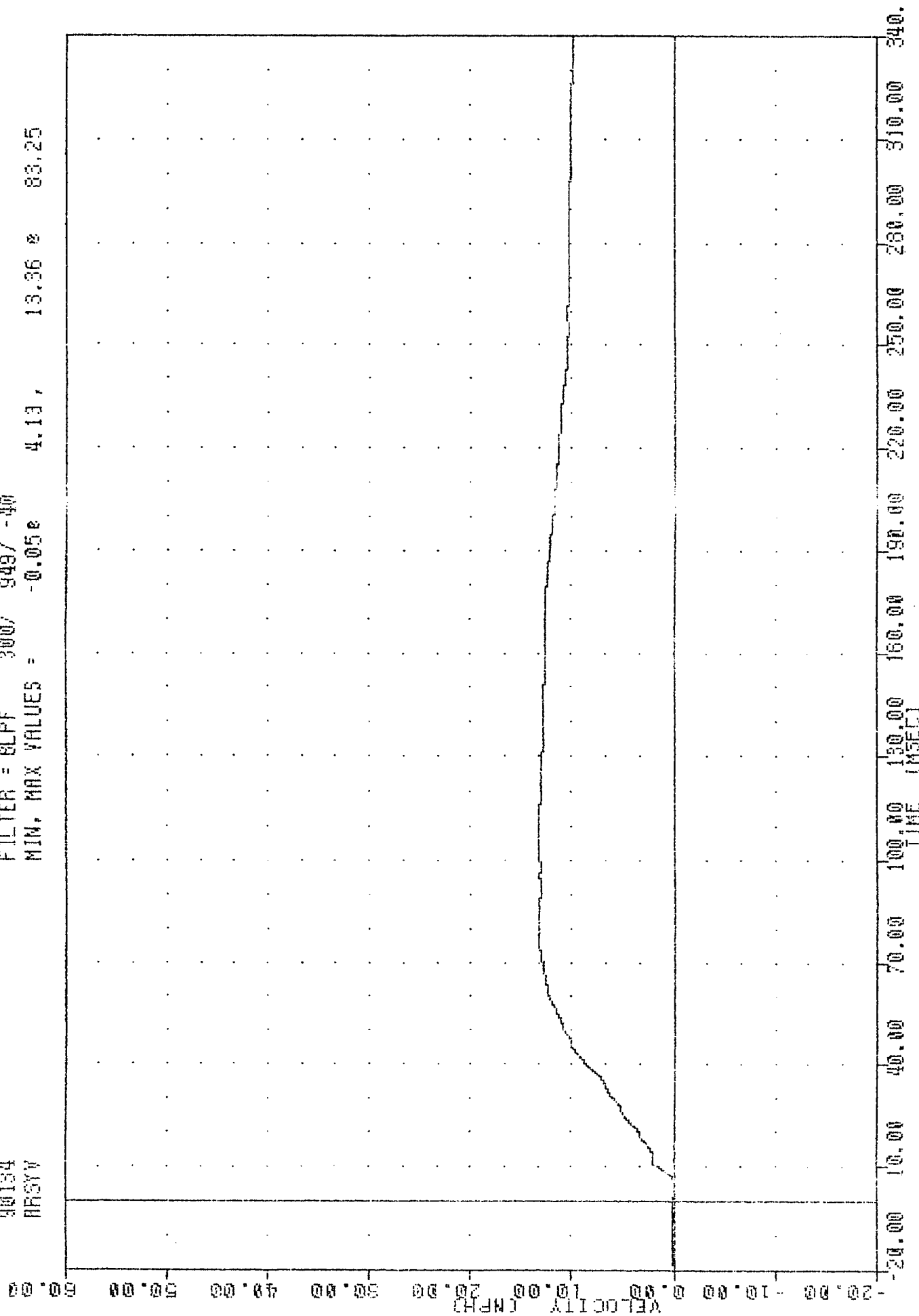
SI PROTECTION FROM VEHICLE

90134

FILTER = BLPF 300/ 949/ -40

ARSYV

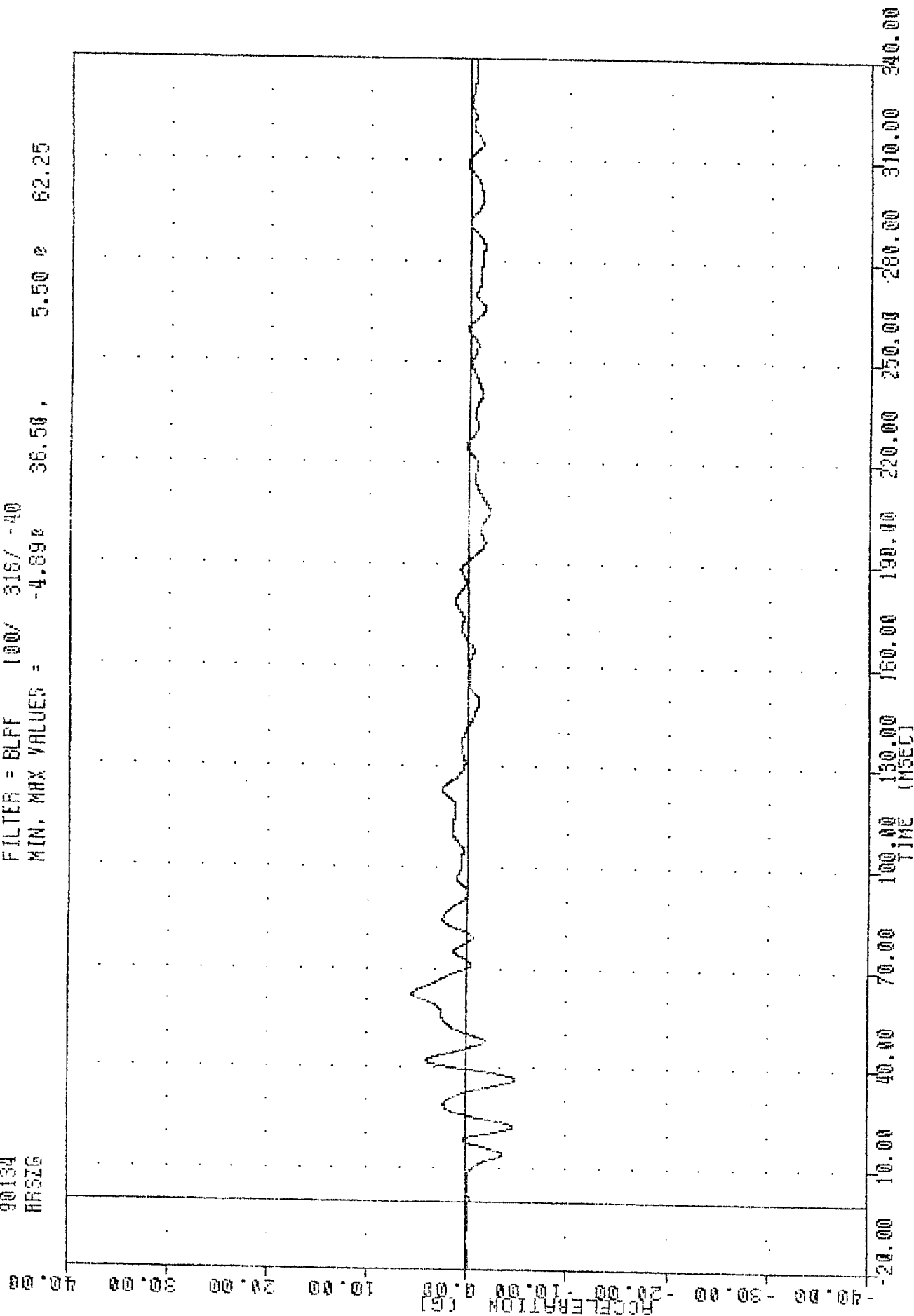
MIN, MAX VALUES = -0.05e 4.13, 13.36 e 83.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE RIGHT REAR SILL Y AXIS VELOCITY

951C , 980514
SI PROTECTION PROD VEHICLE
90134
HR526

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -4.890 36.50 , 5.50 0 62.25



91 FUEL TION PHUD VEHICLE

90134

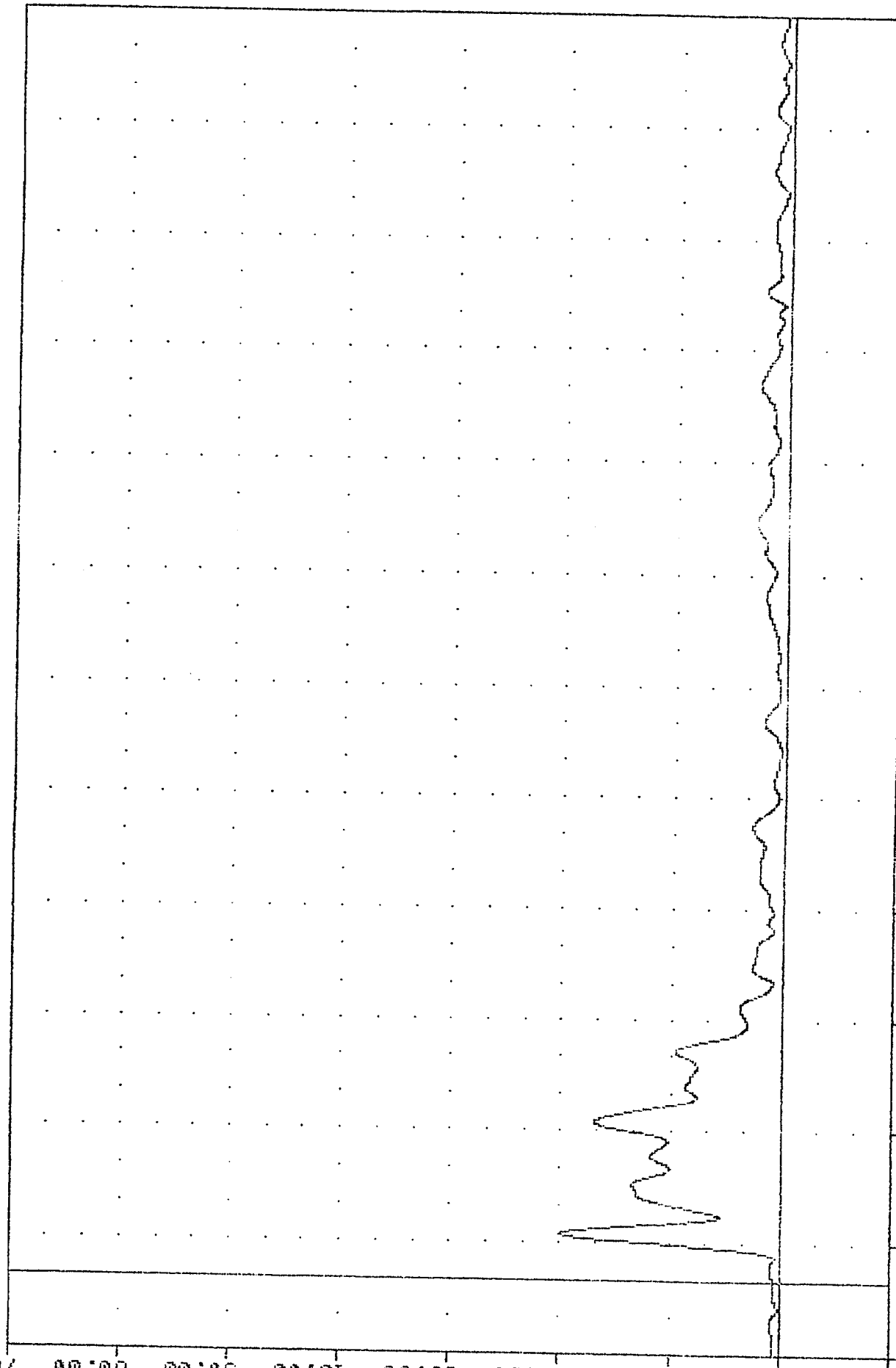
RRSRG

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = 0.200

-7.75, 20.04 @ 12.13

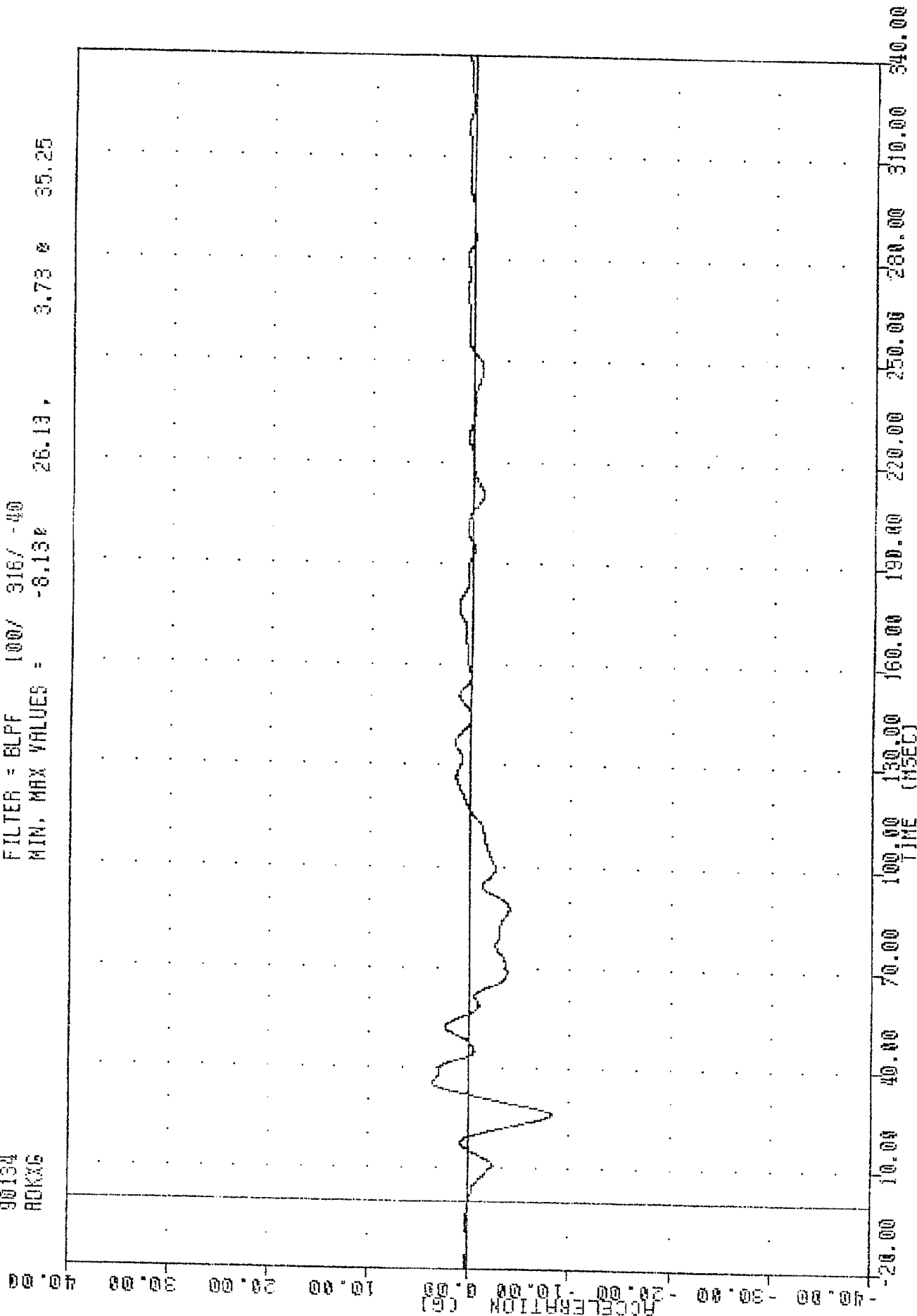
ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE RIGHT REAR SILL RESULTANT ACCELERATION

VEHICLE, 900514
SI PROTECTION PROD VEHICLE
90134
ADKXG

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -8.13e 26.13, 3.73 e 35.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE REAR DECK X AXIS ACCELERATION

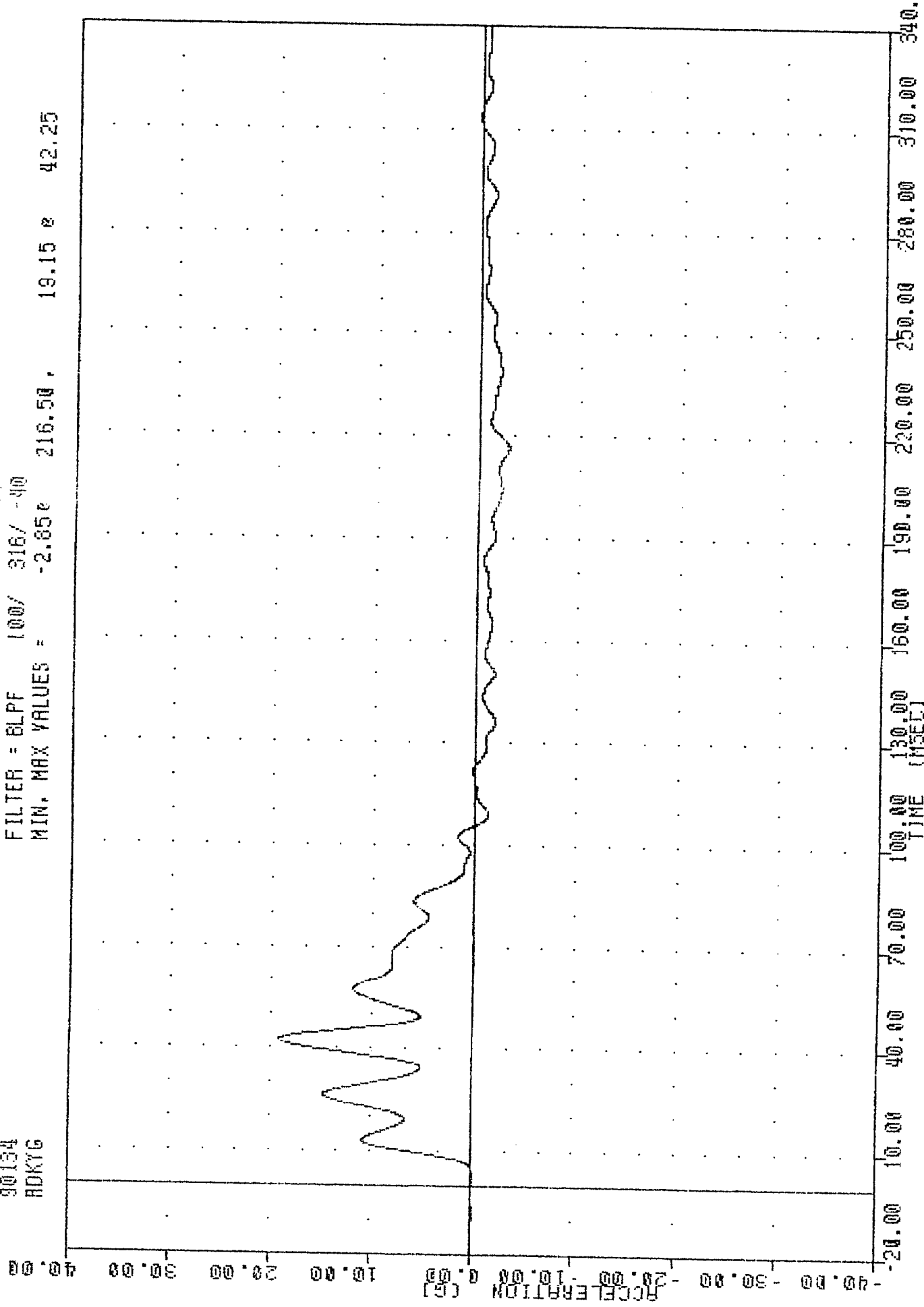
31 PROTECTION PADD VEHICLE

90134

ADKYG

FILTER = BLPF 100/ 316/ -40

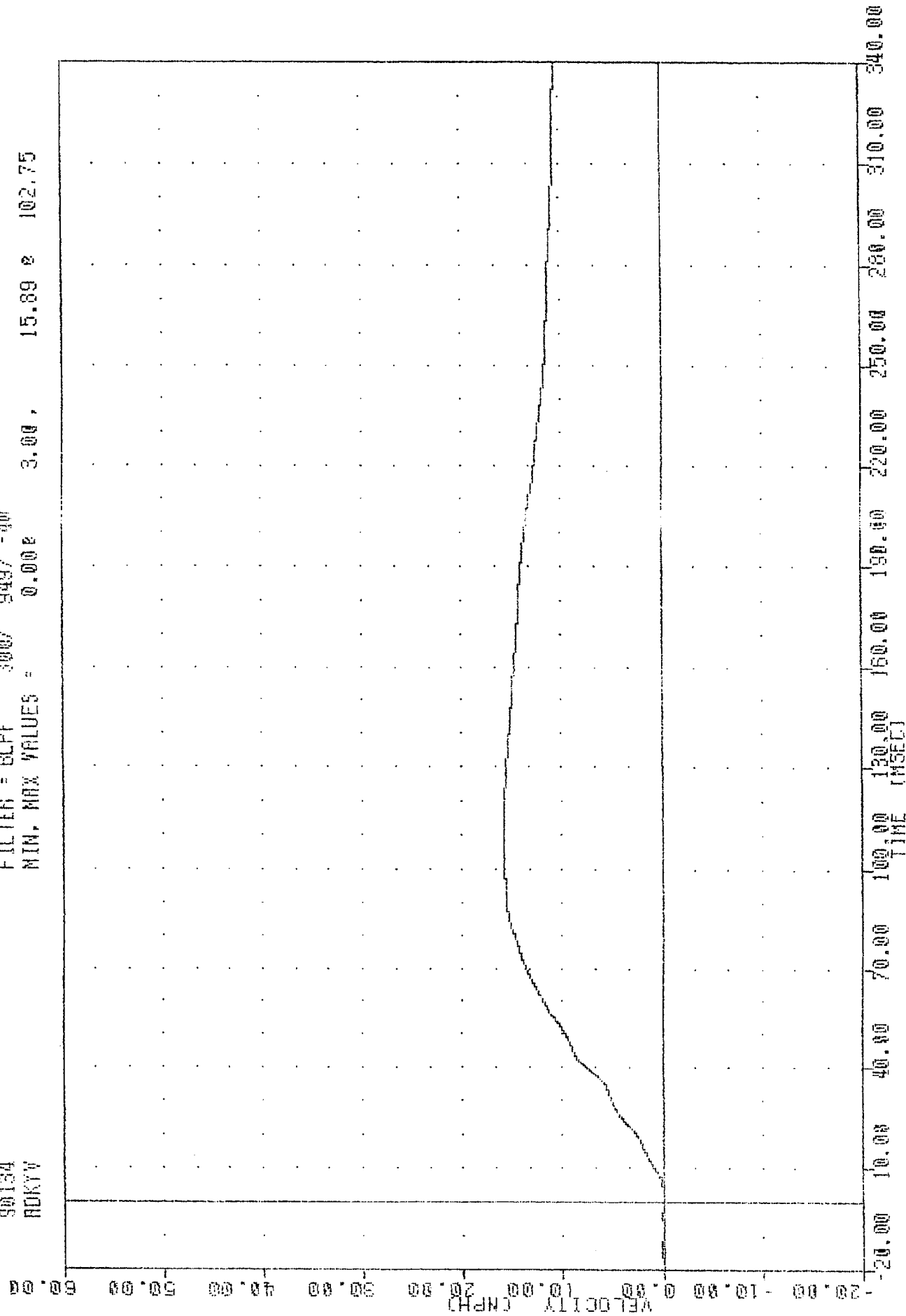
MIN. MAX VALUES = -2.85e 216.50, 19.15 e 42.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE REAR DECK Y AXIS ACCELERATION

880514
 SI PROTECTION PROD VEHICLE
 80134
 ROKTV

FILTER = BLPF 300/ 949/ -90
 MIN. MAX VALUES = 0.00e 3.00, 15.89 e 102.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 VEHICLE REAR DECK Y AXIS VELOCITY

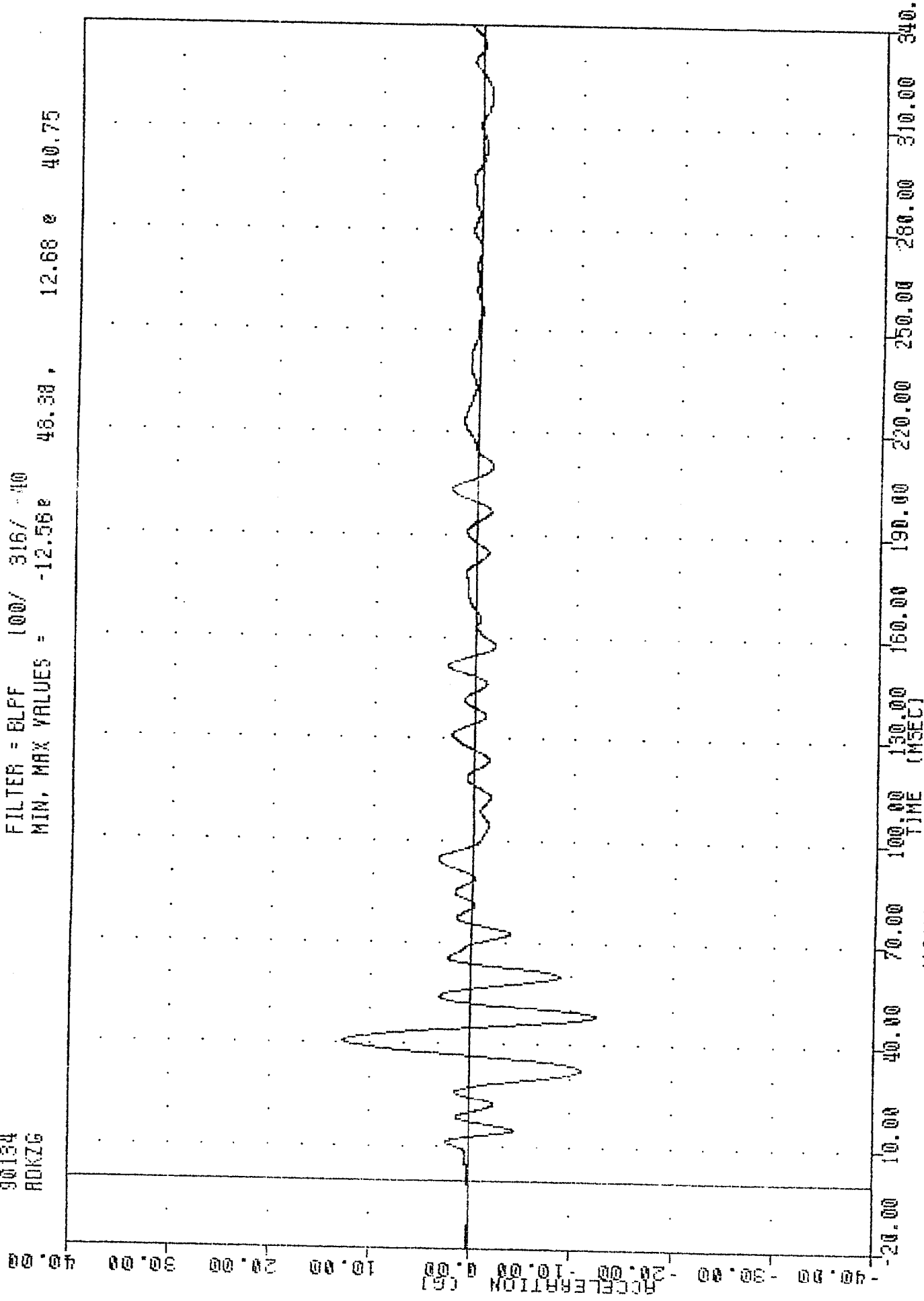
ST PROTECTION PROD VEHICLE

90134

ADKZG

FILTER = BLPF 100/ 316/ -40

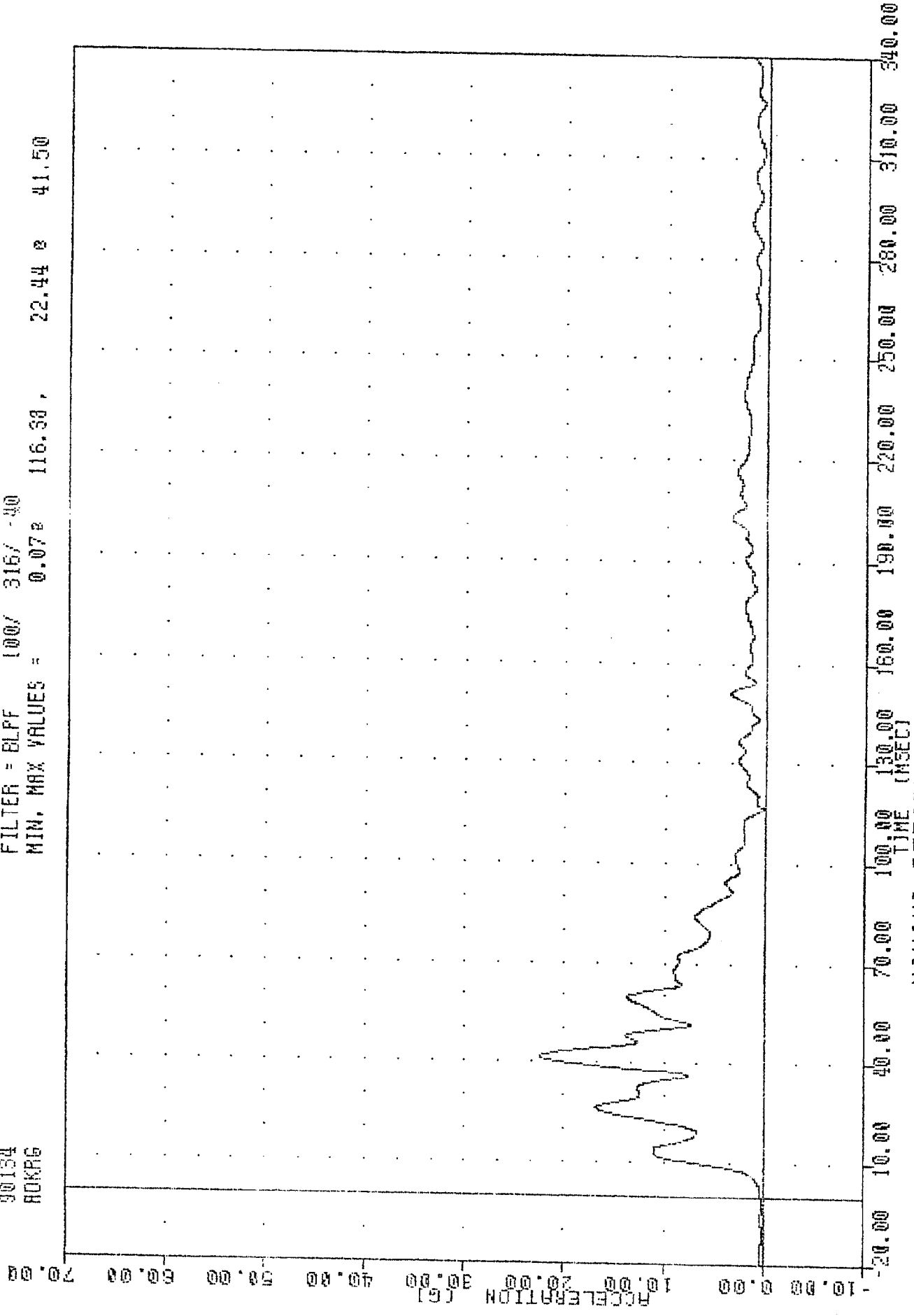
MIN, MAX VALUES = -12.56e 48.38, 12.68 e 40.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE REAR DECK Z AXIS ACCELERATION

VEHICLE, 980514
 SI PROTECTION PROD VEHICLE
 90134
 ROKRG

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = 0.072 116.33, 22.44 2 41.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 VEHICLE REAR DECK RESULTANT ACCELERATION

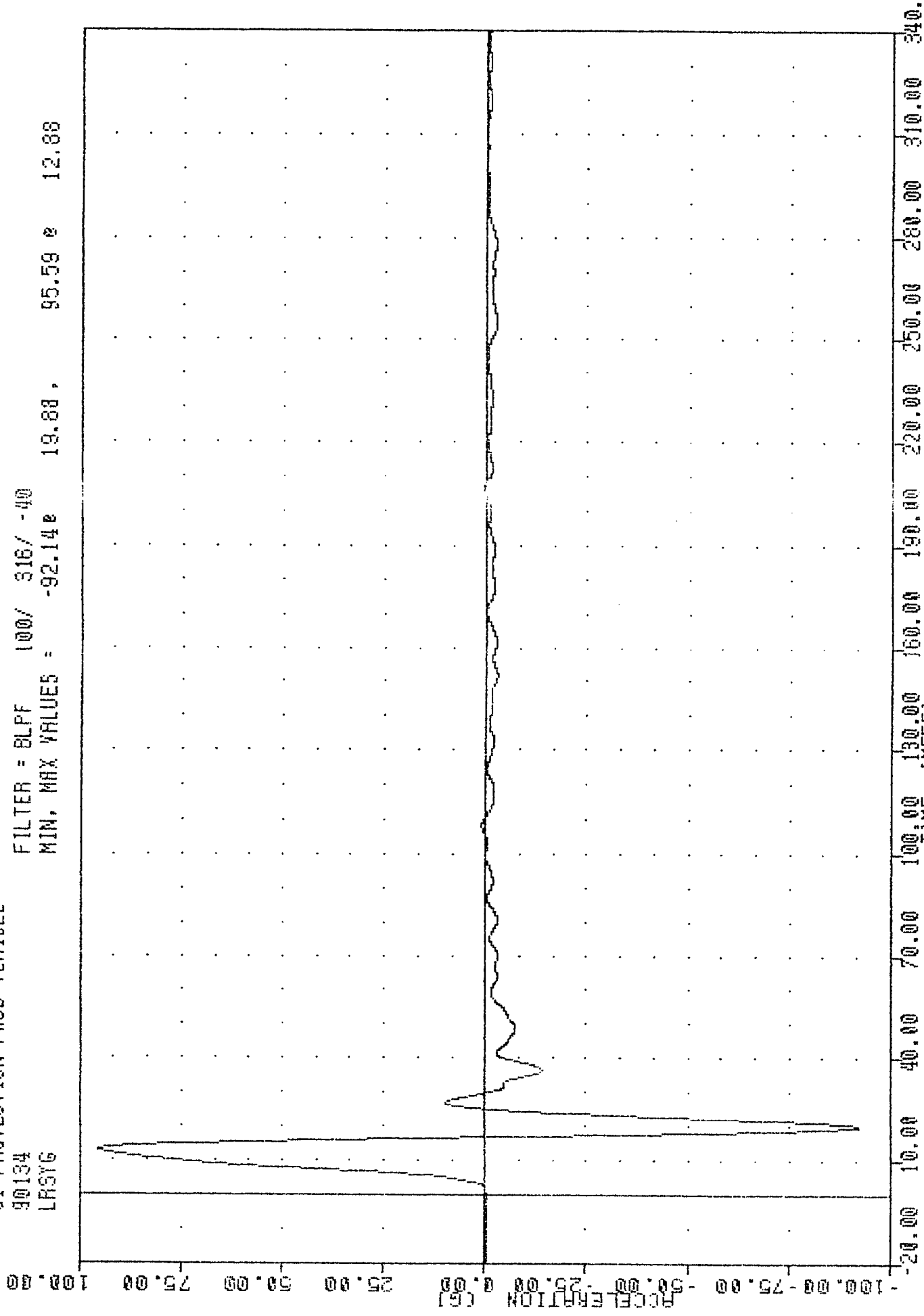
SI PROTECTION PROD VEHICLE

90134

LR3YG

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -92.14e 19.88, 95.59 e 12.88



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT REAR SILL Y AXIS ACCELERATION

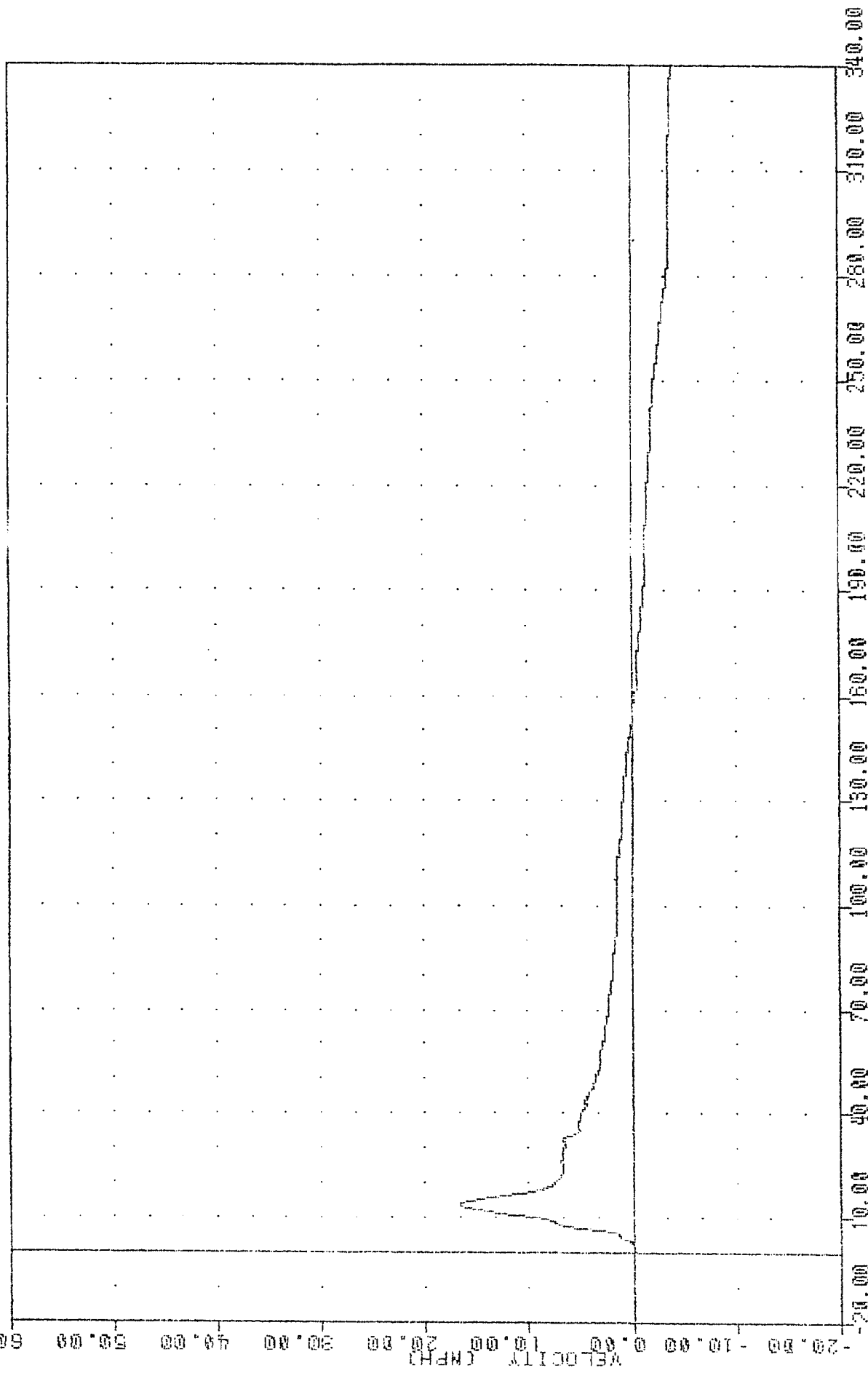
Figure 2

SELF PROTECTION PROGRAM

1000

1000

1000



MOVING DEFORMABLE BARRIER INTO FORO TAURUS
VEHICLE LEFT REAR SILL Y AXIS VELOCITY

31 PROJECTION FROM VEHICLE

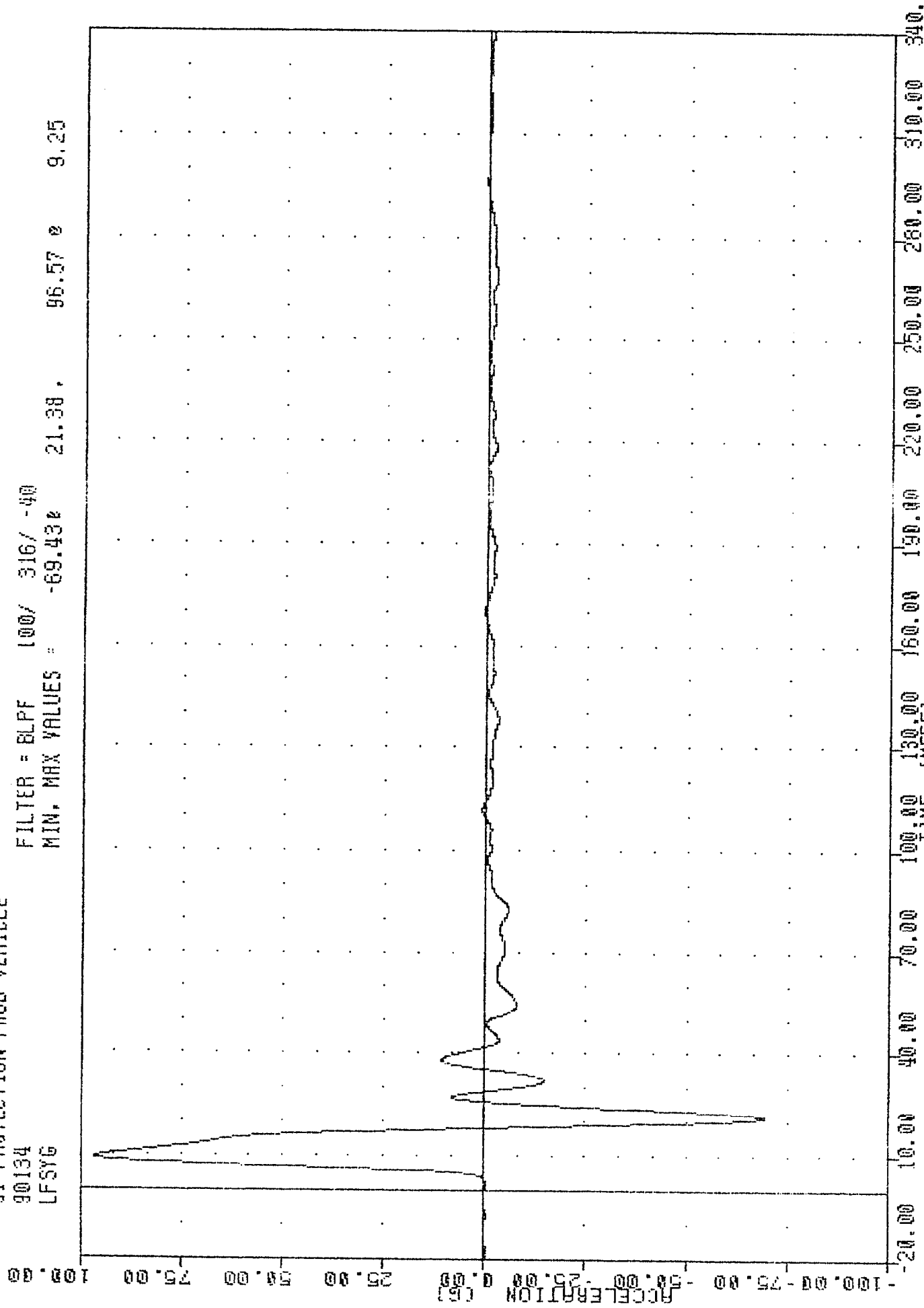
90134

LFSYG

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -69.43 21.38

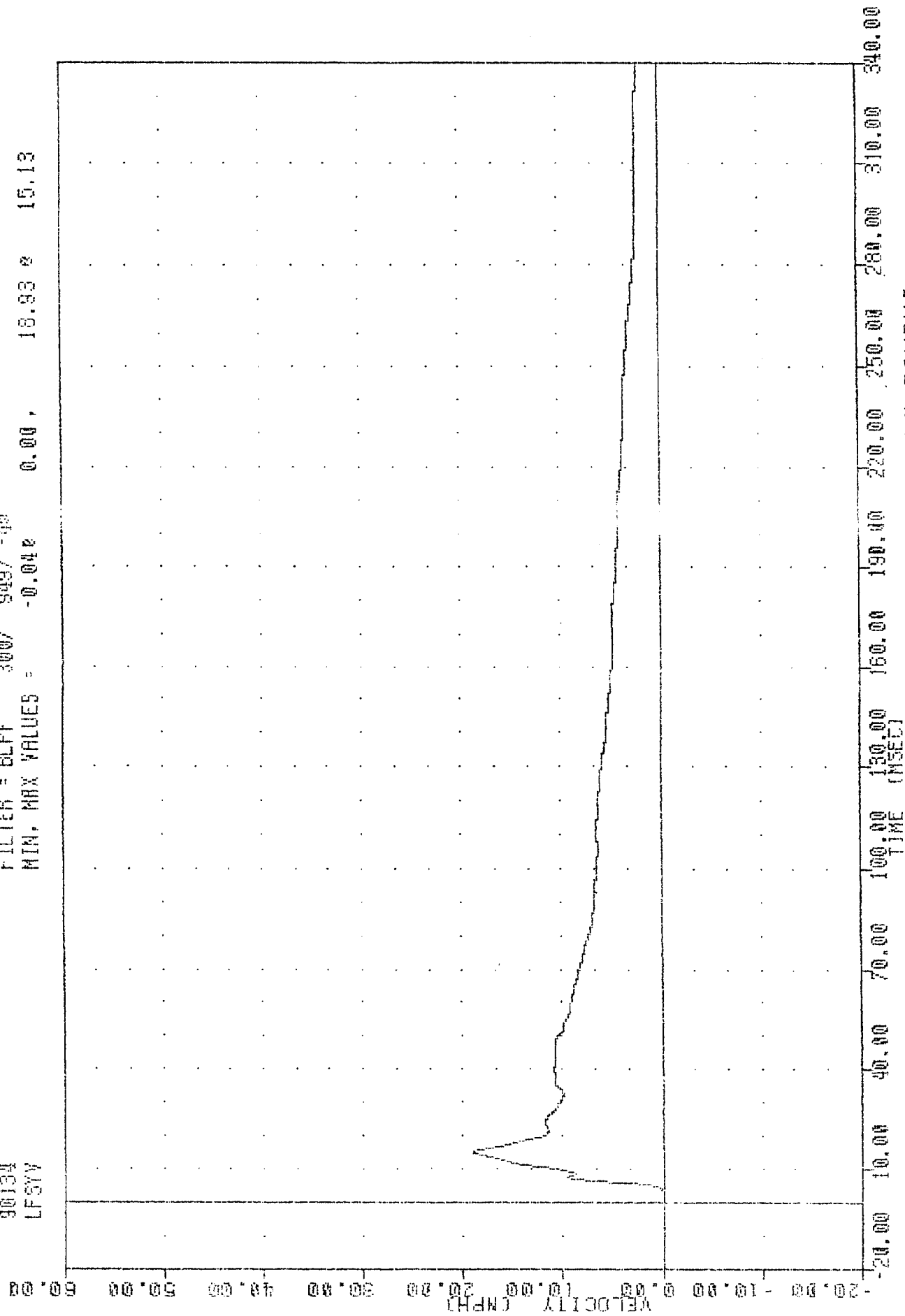
96.57 9.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT FRONT SILL Y AXIS ACCELERATION

VEHICLE, 800514
SI PROTECTION PROD VEHICLE
90134
LFSYV

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.040 0.00, 13.33 15.13



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT FRONT SILL Y AXIS VELOCITY

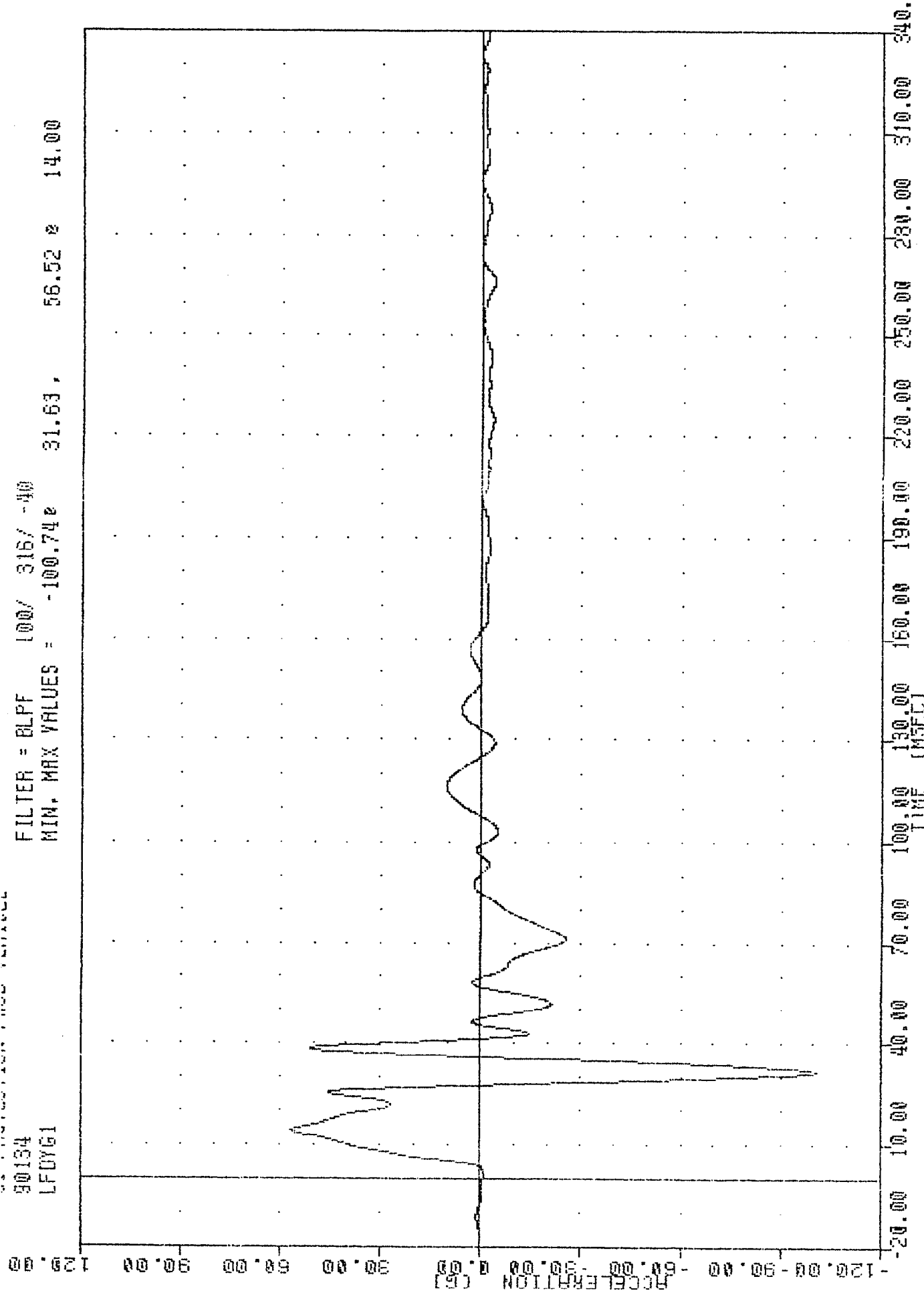
VEHICLE INFORMATION FROM INHABITANT

90134

LFOYG1

FILTER = BLPF 100/ 316/ -40

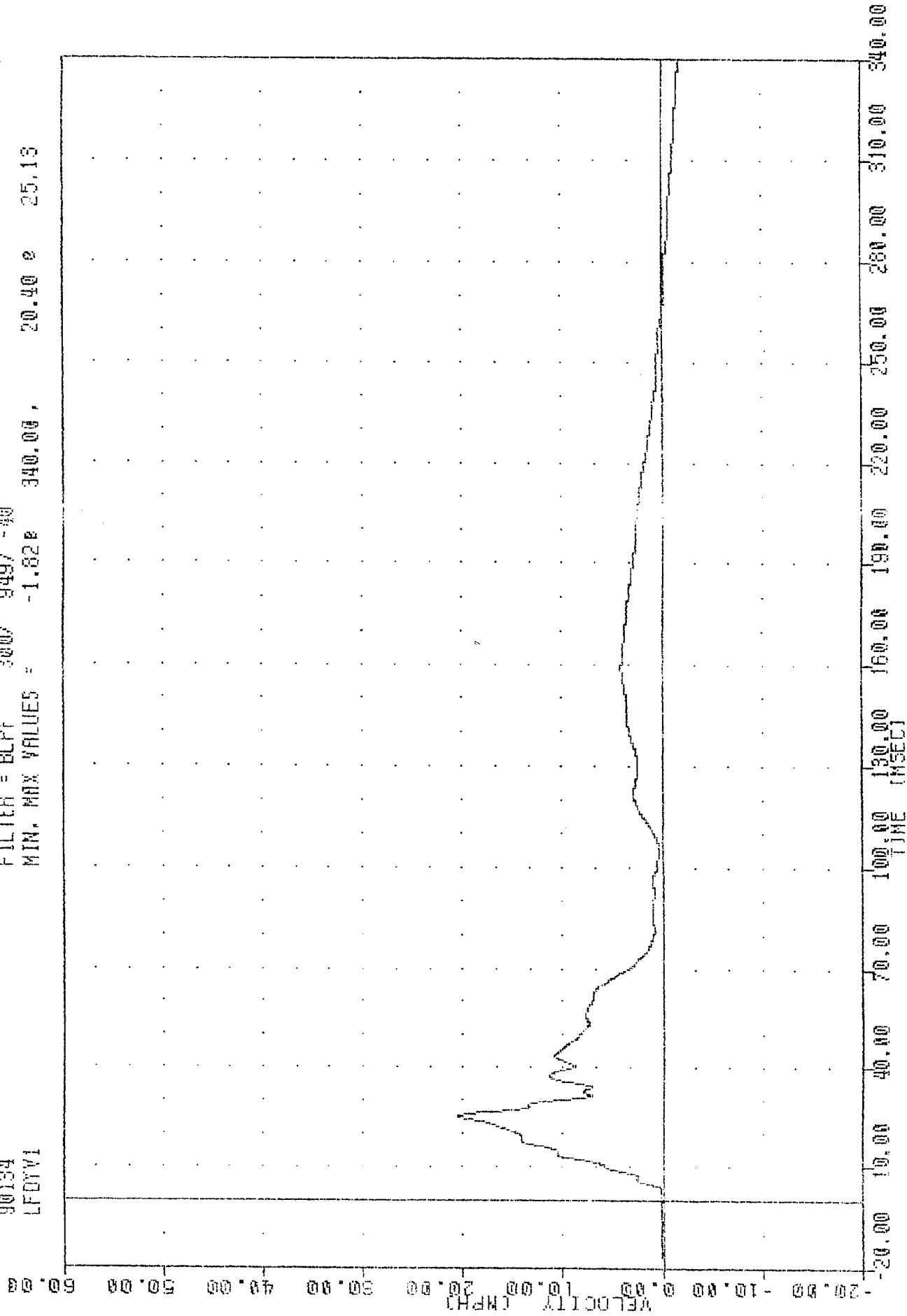
MIN. MAX VALUES = -100.74e 31.63, 56.52 e 14.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT FRONT DOOR (POSITION 6) Y AXIS ACCELERATION

300514
 SI PROTECTION PROD VEHICLE
 90134
 LFDYV1

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -1.82E 340.00, 20.40 e 25.13



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 VEHICLE LEFT FRONT DOOR (POSITION 6) Y AXIS VELOCITY

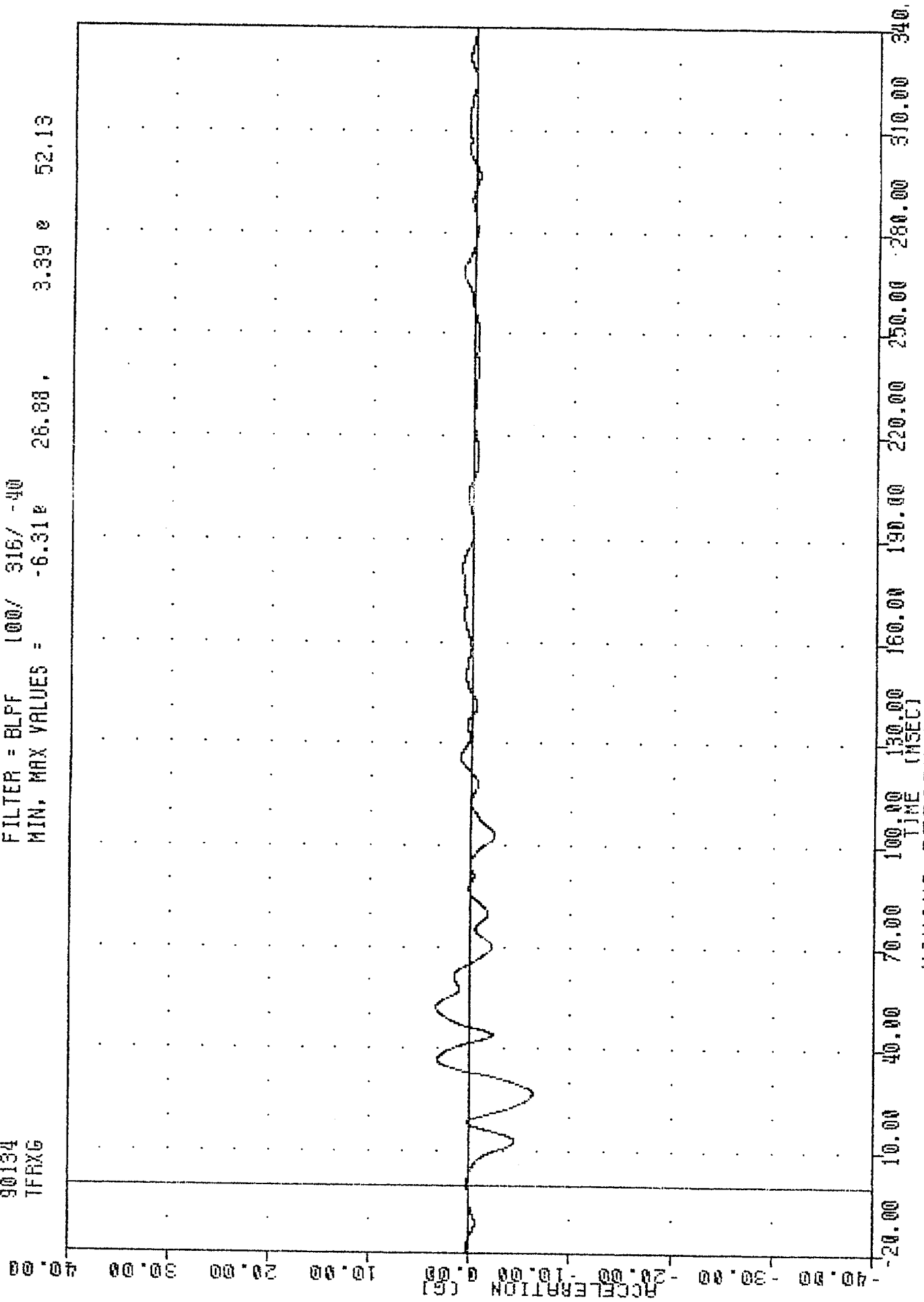
SI PROTECTION PROD VEHICLE

90134

TFRXG

FILTER = BLPF 100/ 316/ -40

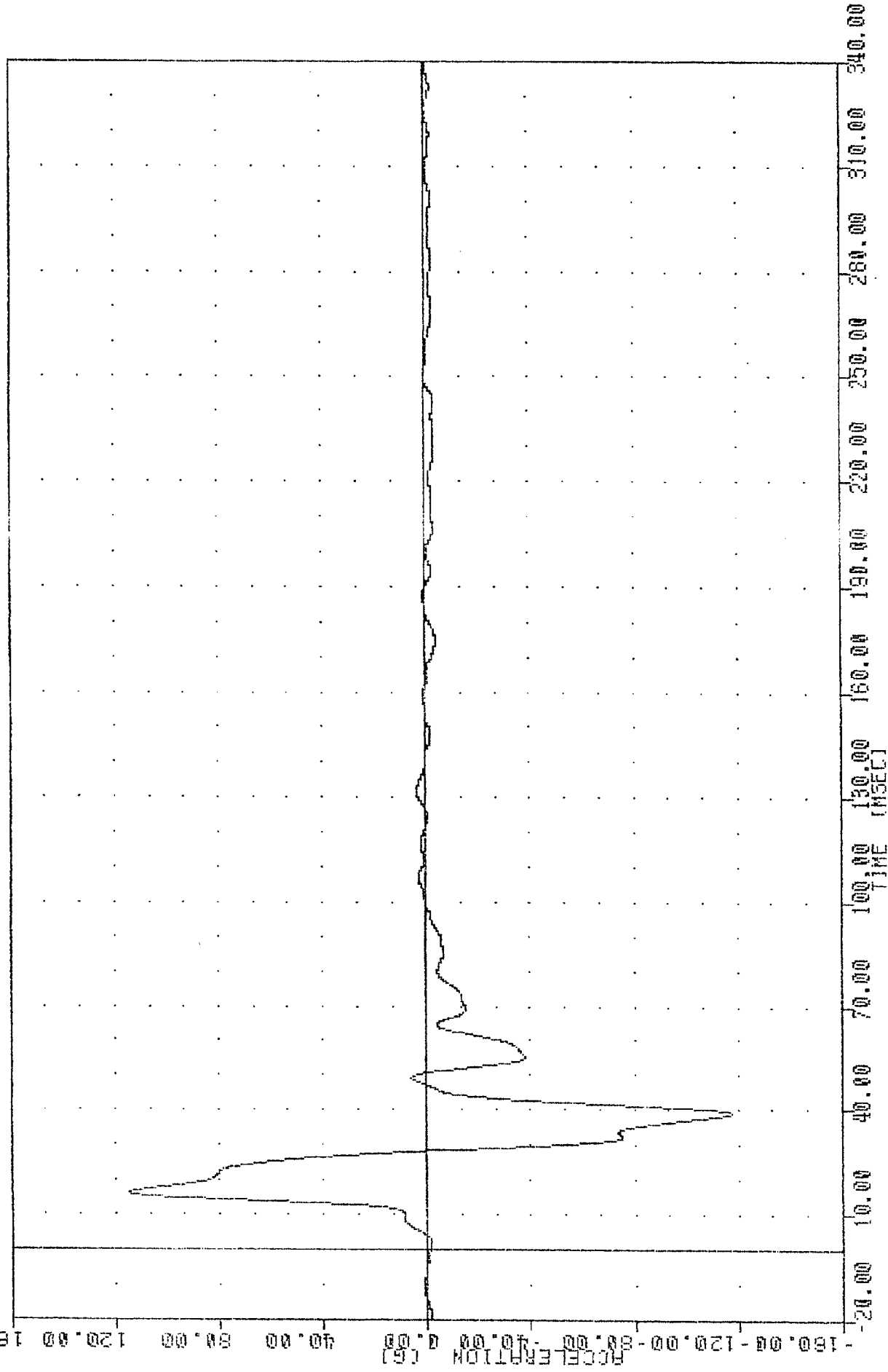
MIN, MAX VALUES = -6.31e 26.88, 3.39 e 52.13



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE TRUNK FLOOR RIGHT X AXIS ACCELERATION

SI PROTECTION PROD VEHICLE
90134
LROY62

FILTER = 6LFF 100/ 316/ -40
MIN. MAX VALUES = -117.88e 39.13, 114.44 e 16.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT REAR DOOR MID REAR (POSITION 8) Y AXIS ACCELERATION

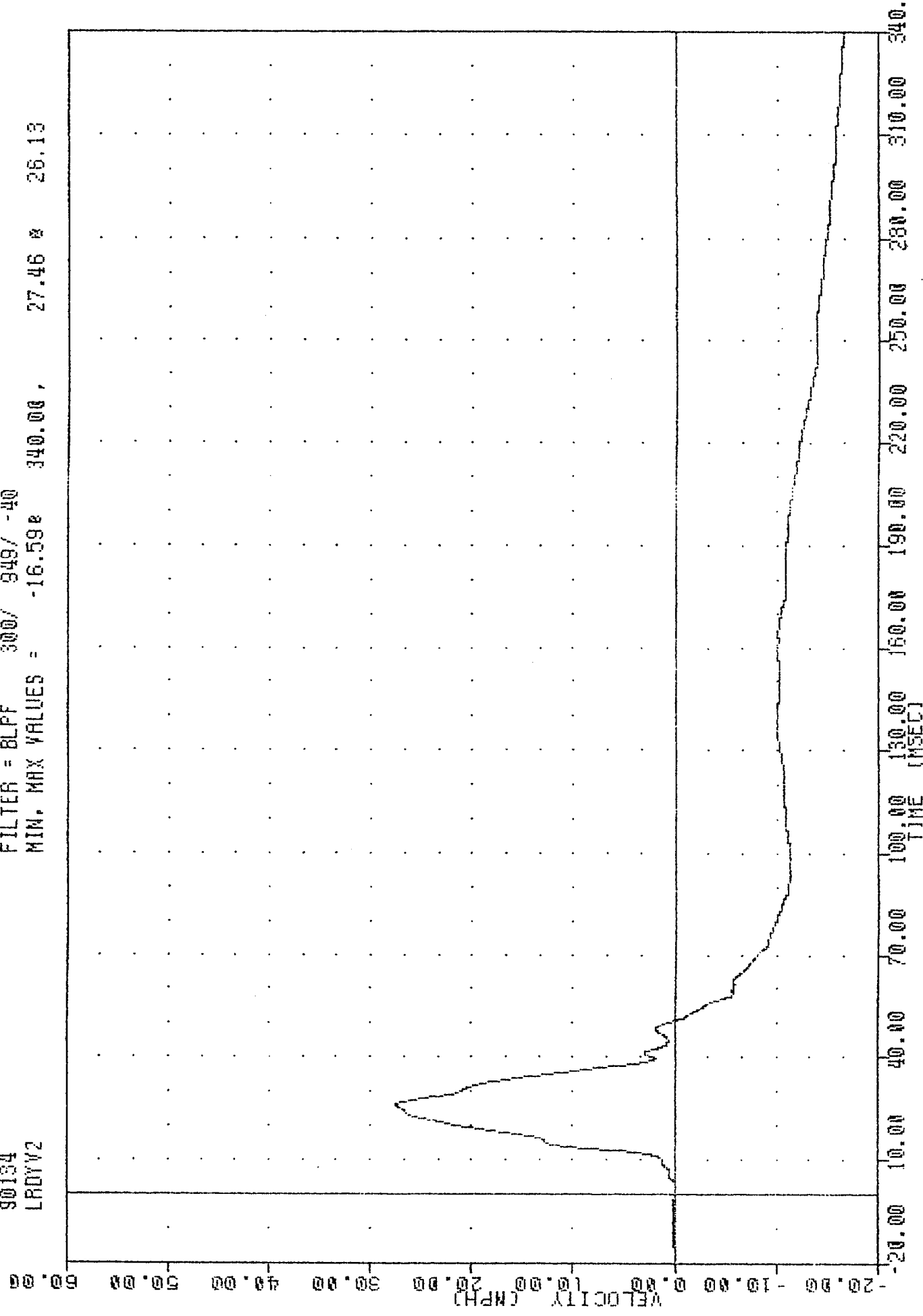
SI PROTECTION FROM VEHICLE

90134

LADYV2

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -16.59e 340.00, 27.46 e 26.13

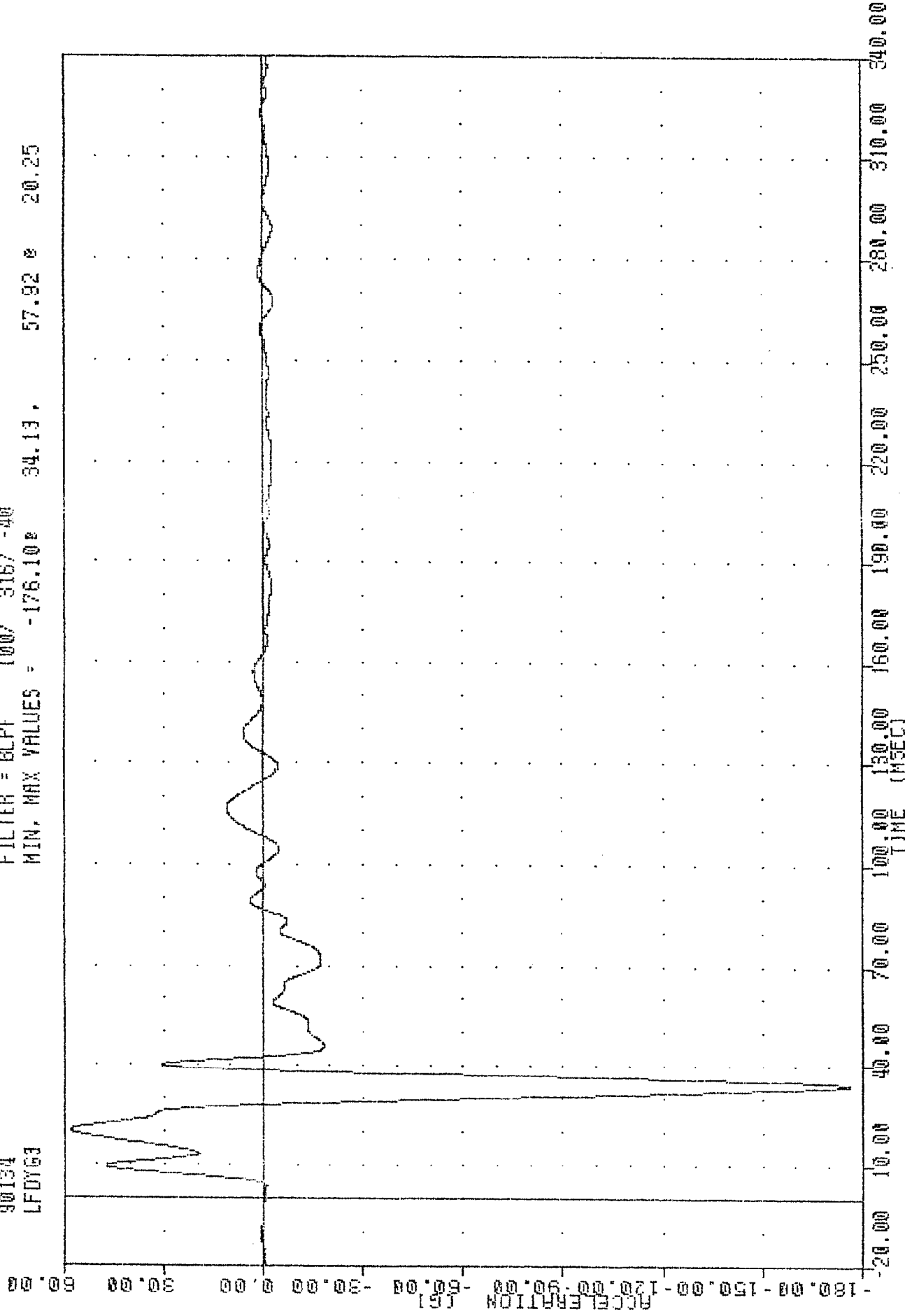


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

VEHICLE LEFT REAR DOOR MID REAR (POSITION 8) Y AXIS VELOCITY

SI PROTECTION PROD VEHICLE
90134
LFDY63

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -176.10 34.13, 57.92 20.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT FRONT DOOR (POSITION 9) Y AXIS ACCELERATION

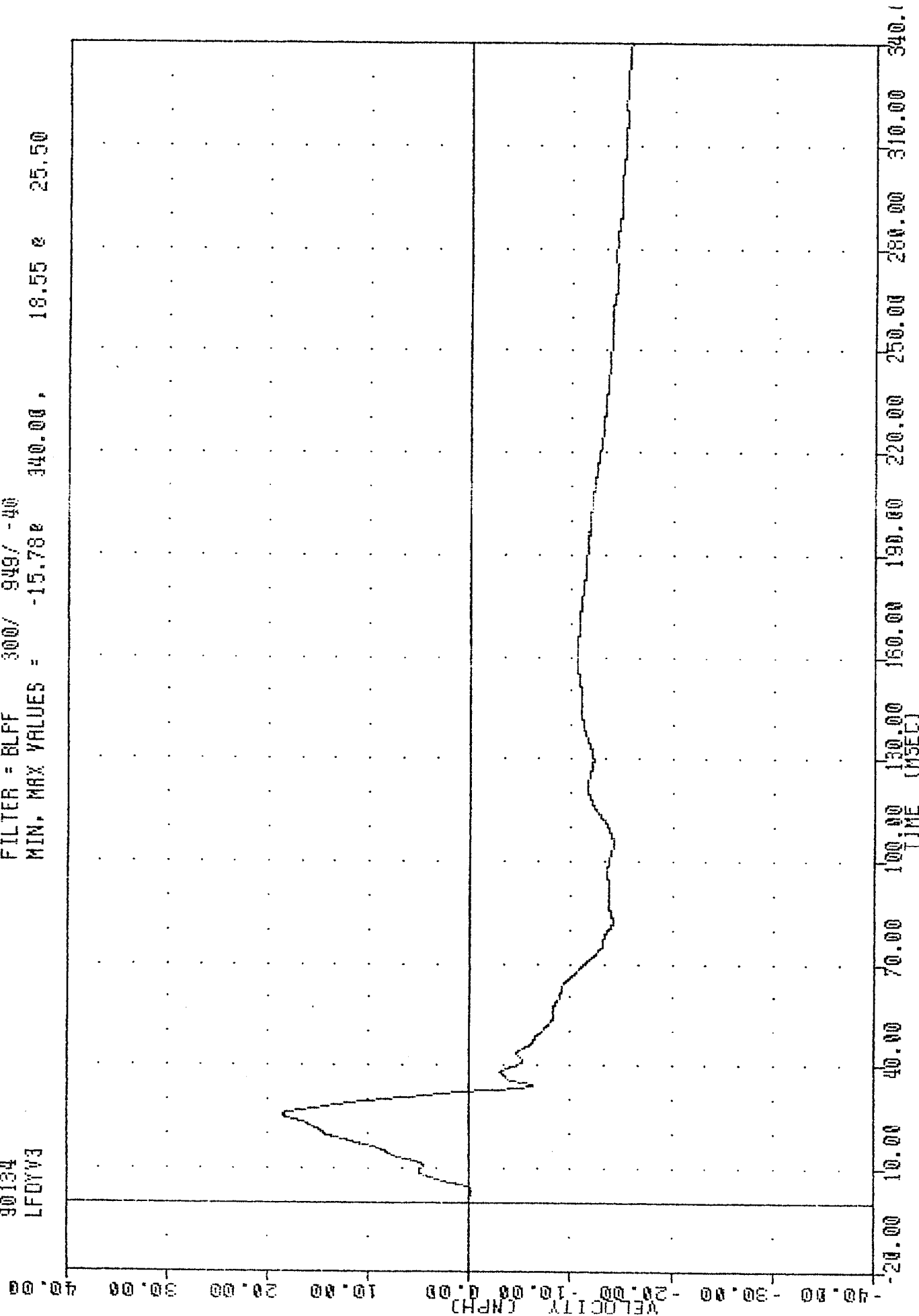
31 PROJECTION FROM VEHICLE

90134

FILTER = BLPF 300/ 949/ -40

LFOYV3

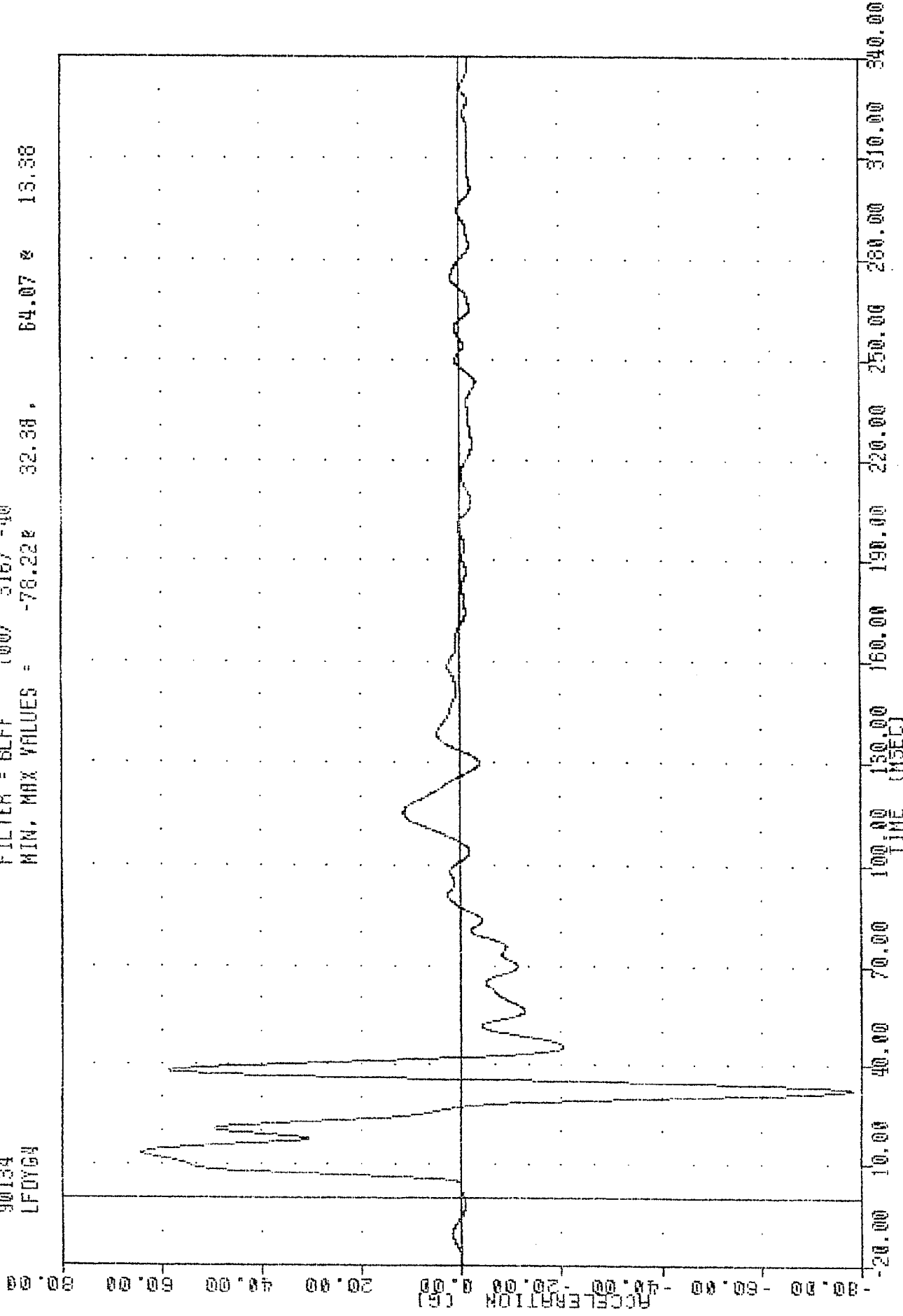
MIN. MAX VALUES = -15.78e 340.00, 18.55 e 25.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT FRONT DOOR (POSITION 9) Y AXIS VELOCITY

SI PROTECTION PROO VEHICLE
90134
LFDY64

FILTER = BLFF 100/ 316/ -40
MIN. MAX VALUES = -78.22 32.38 64.07 13.38



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT FRONT DOOR (POSITION 10) Y AXIS ACCELERATION

31 PROJECTION FROM VEHICLE

90134

LF0YV4

FILTER = BLFF

300/

949/ -40

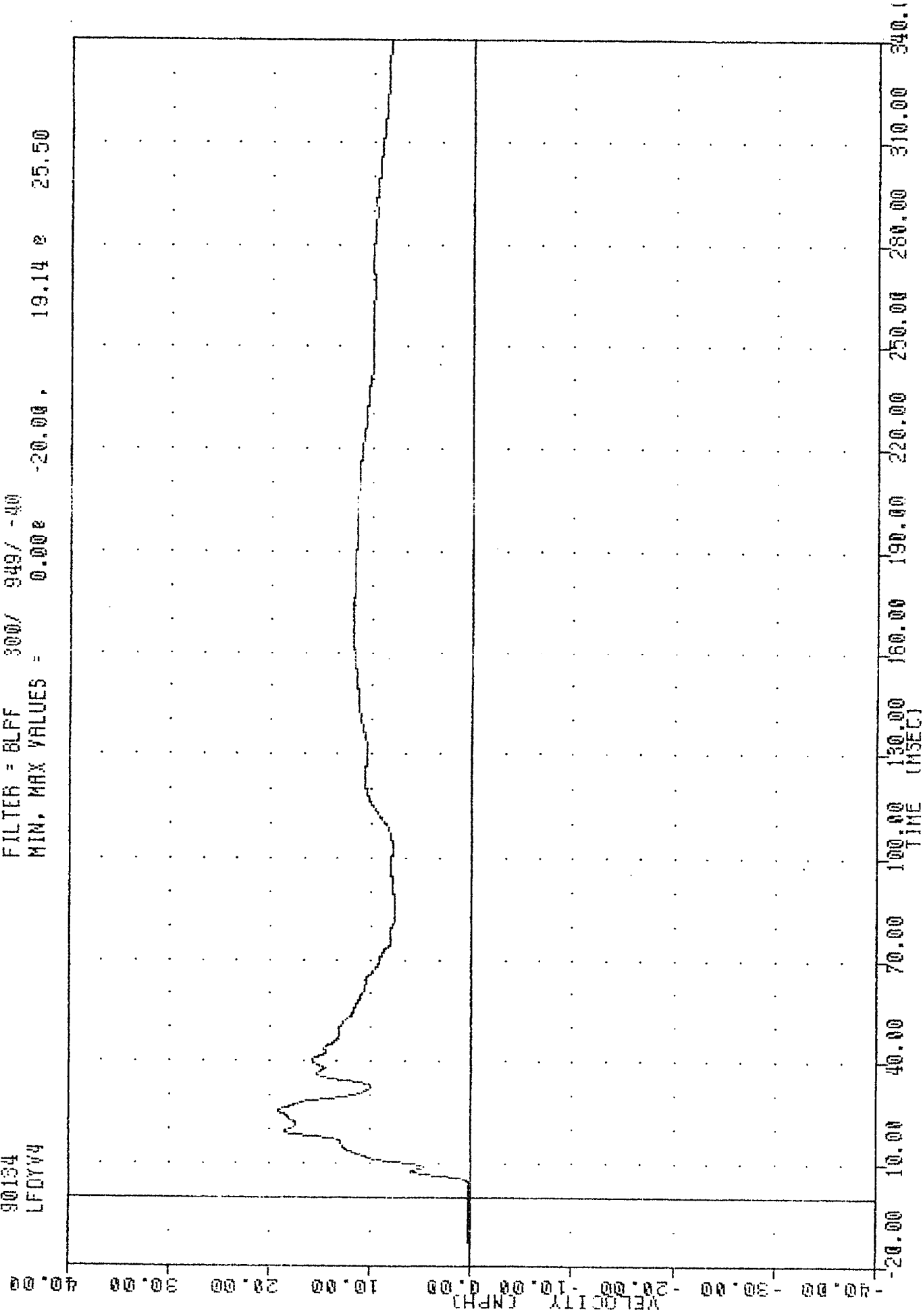
MIN. MAX VALUES =

0.00e

-20.00

19.14

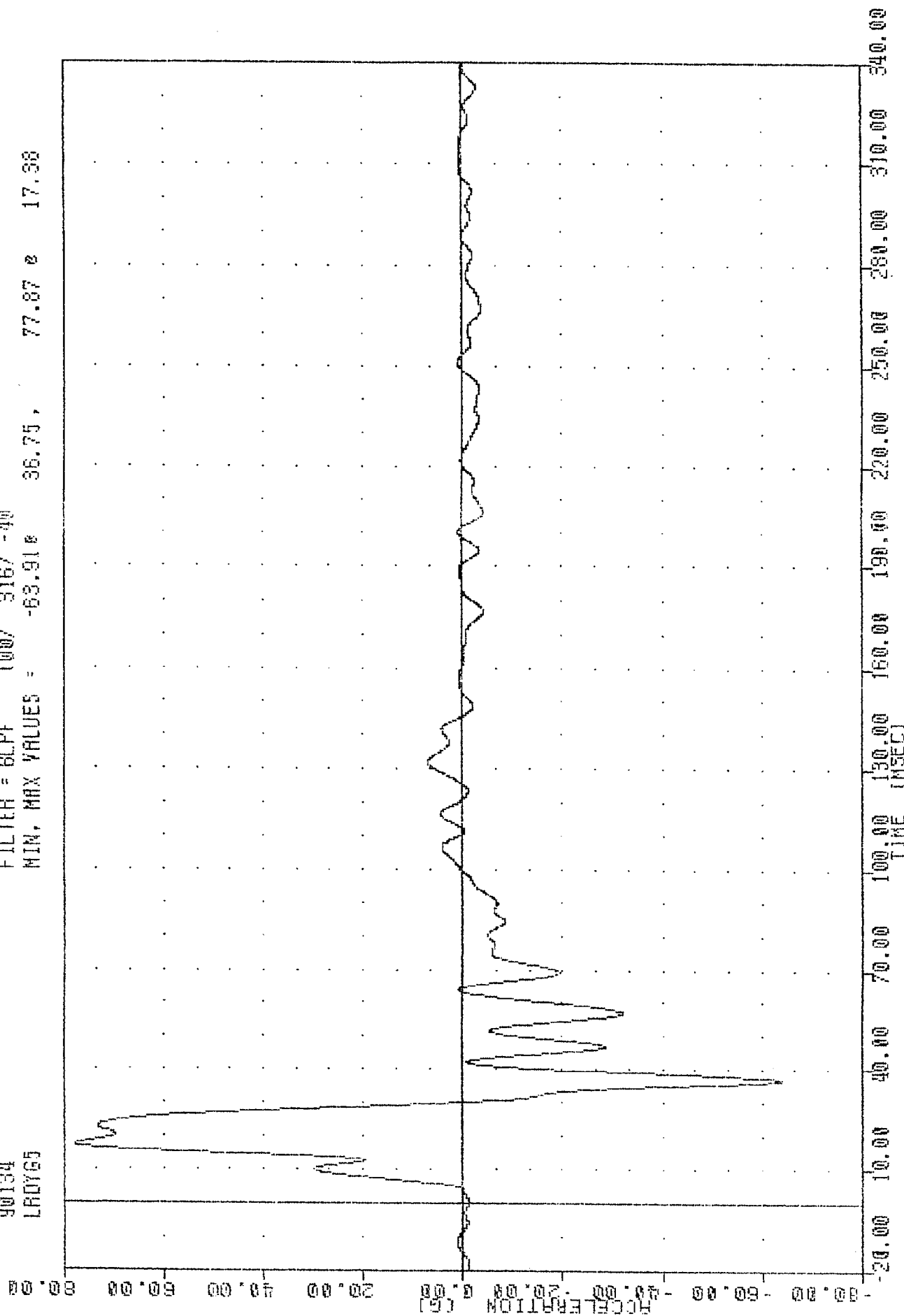
25.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT FRONT DOOR (POSITION 10) Y AXIS VELOCITY

SI PROTECTION PROO VEHICLE
 90134
 LROY65

FILTER = 6LPP 100/ 316/ -40
 MIN, MAX VALUES = -63.91g 36.75, 77.87 g 17.38

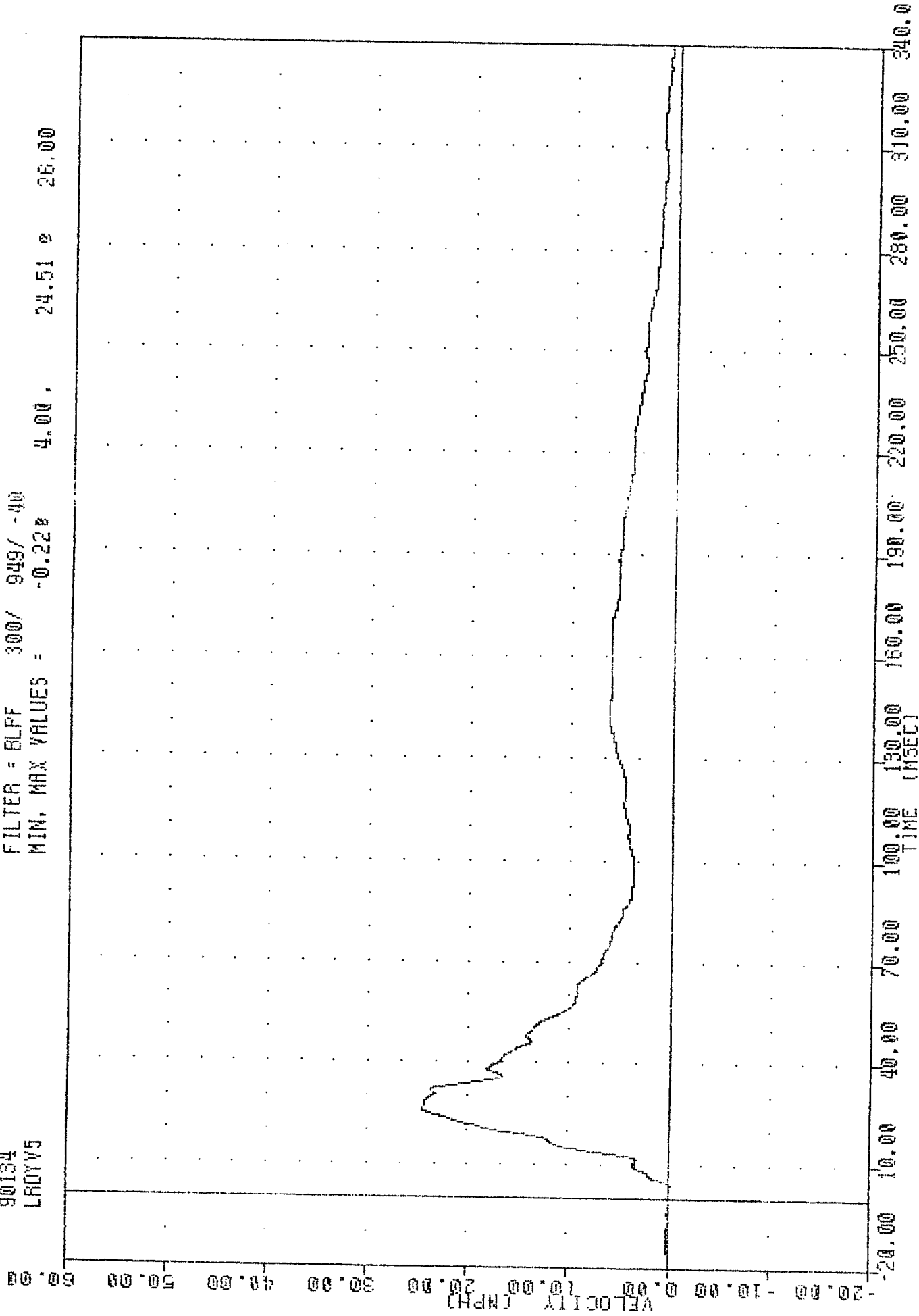


90134

LADYV5

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -0.228 4.00, 24.51 26.00

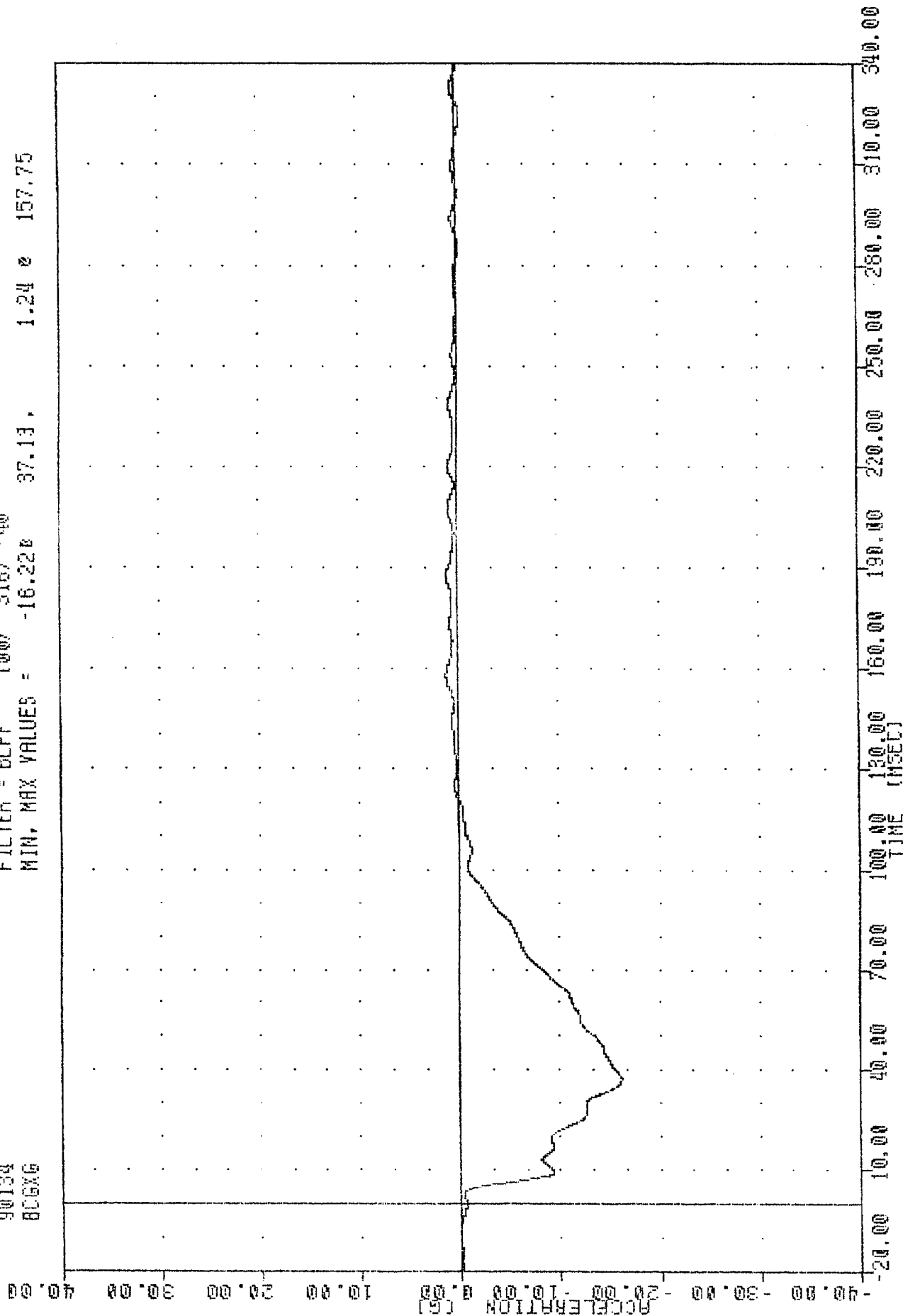


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

VEHICLE LEFT REAR DOOR CENTERLINE (POSITION 11) Y AXIS VELOCITY

900514
 SI PROTECTION PROD VEHICLE
 90134
 BCGXG

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -16.220 37.13, 1.24 157.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 BARRIER CENTER OF GRAVITY X AXIS ACCELERATION

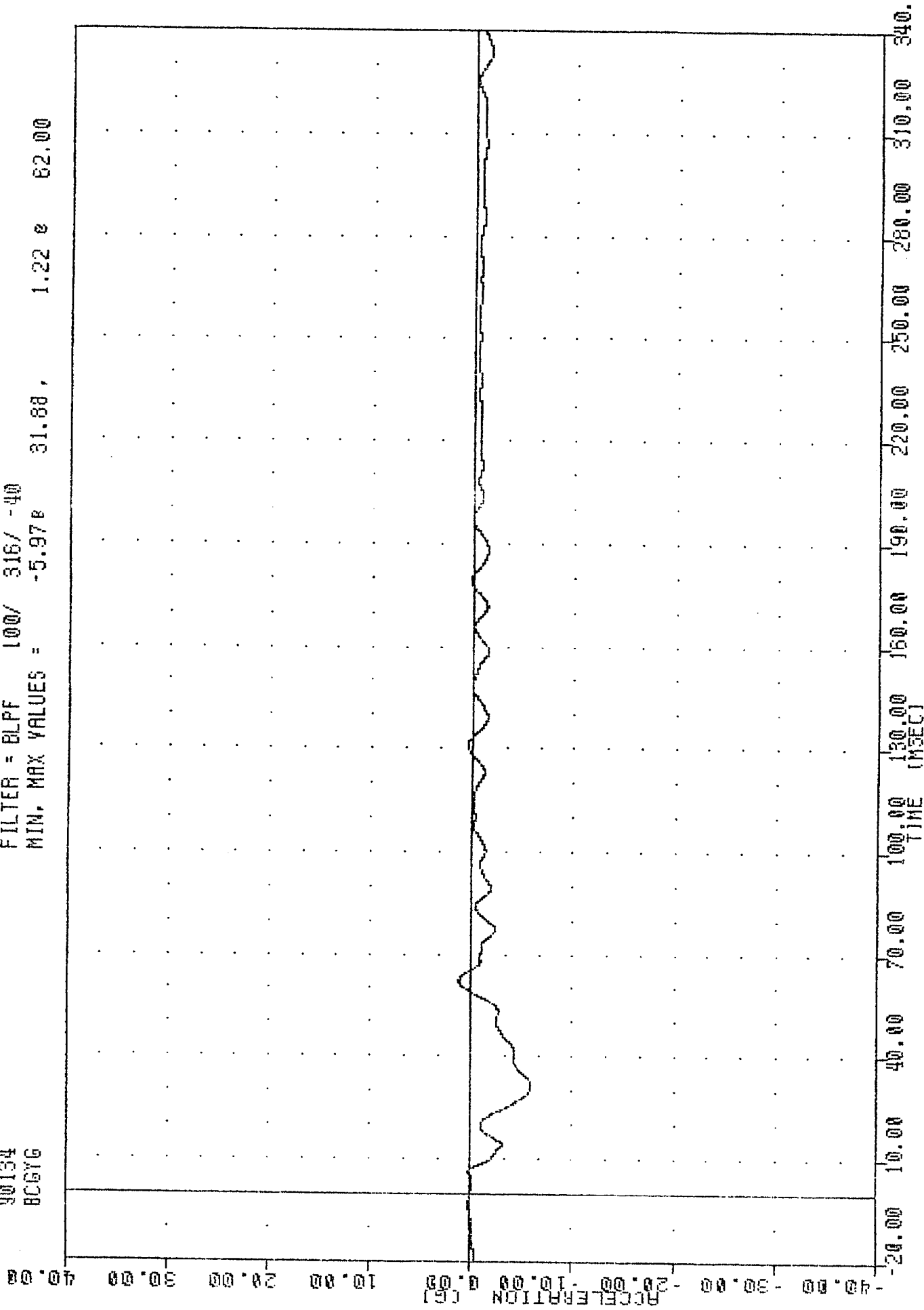
31 PROJECTION FROM VEHICLE

90134

BCGYG

FILTER = BLPF 100/ 316/ -40

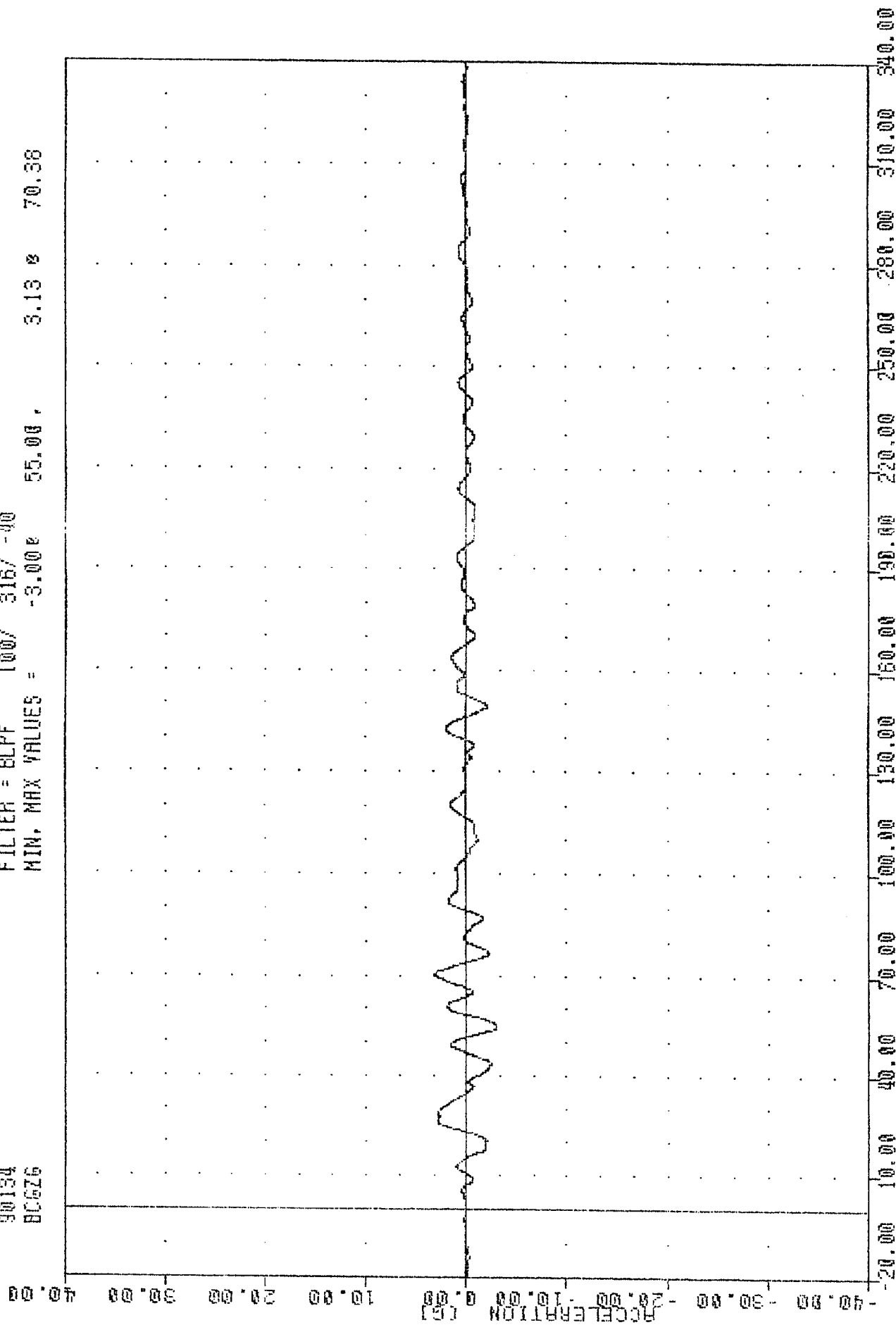
MIN, MAX VALUES = -5.97 31.88, 1.22 62.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
BARRIER CENTER OF GRAVITY Y AXIS ACCELERATION

V81C 900514
 SI PROTECTION PROD VEHICLE
 90134
 BC6Z6

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -3.00% 55.00% 3.13% 70.36



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 BARRIER CENTER OF GRAVITY Z AXIS ACCELERATION

SI PROTECTION PROD VEHICLE

90134

BCGRG

FILTER = BLFF 100/ 316/ -40

MIN, MAX VALUES =

0.140

-11.38,

16.83 2

37.00

70.00

60.00

50.00

40.00

30.00

20.00

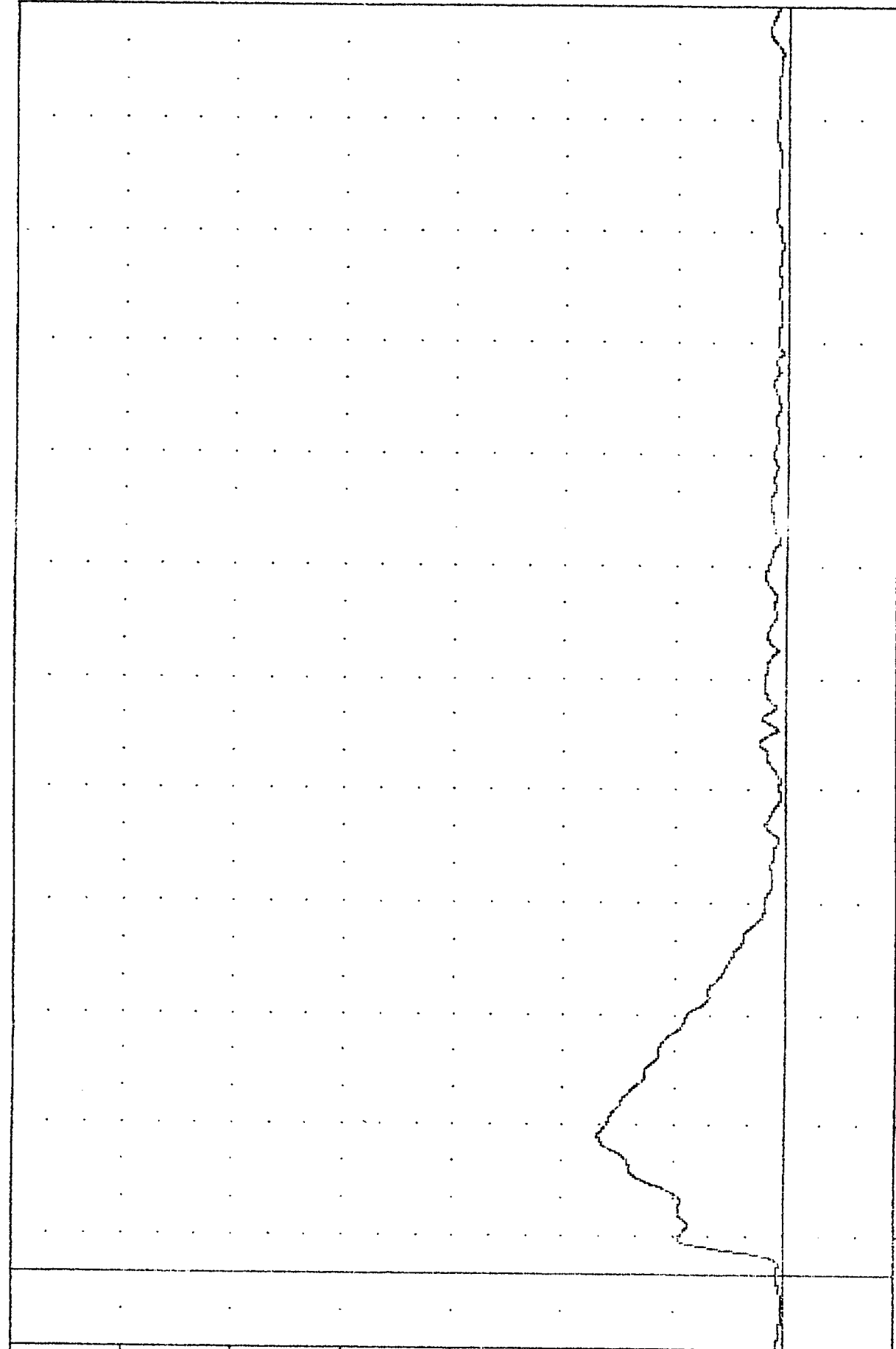
10.00

0.00

-10.00

-20.00

ACCELERATION (G)



Time (msec)

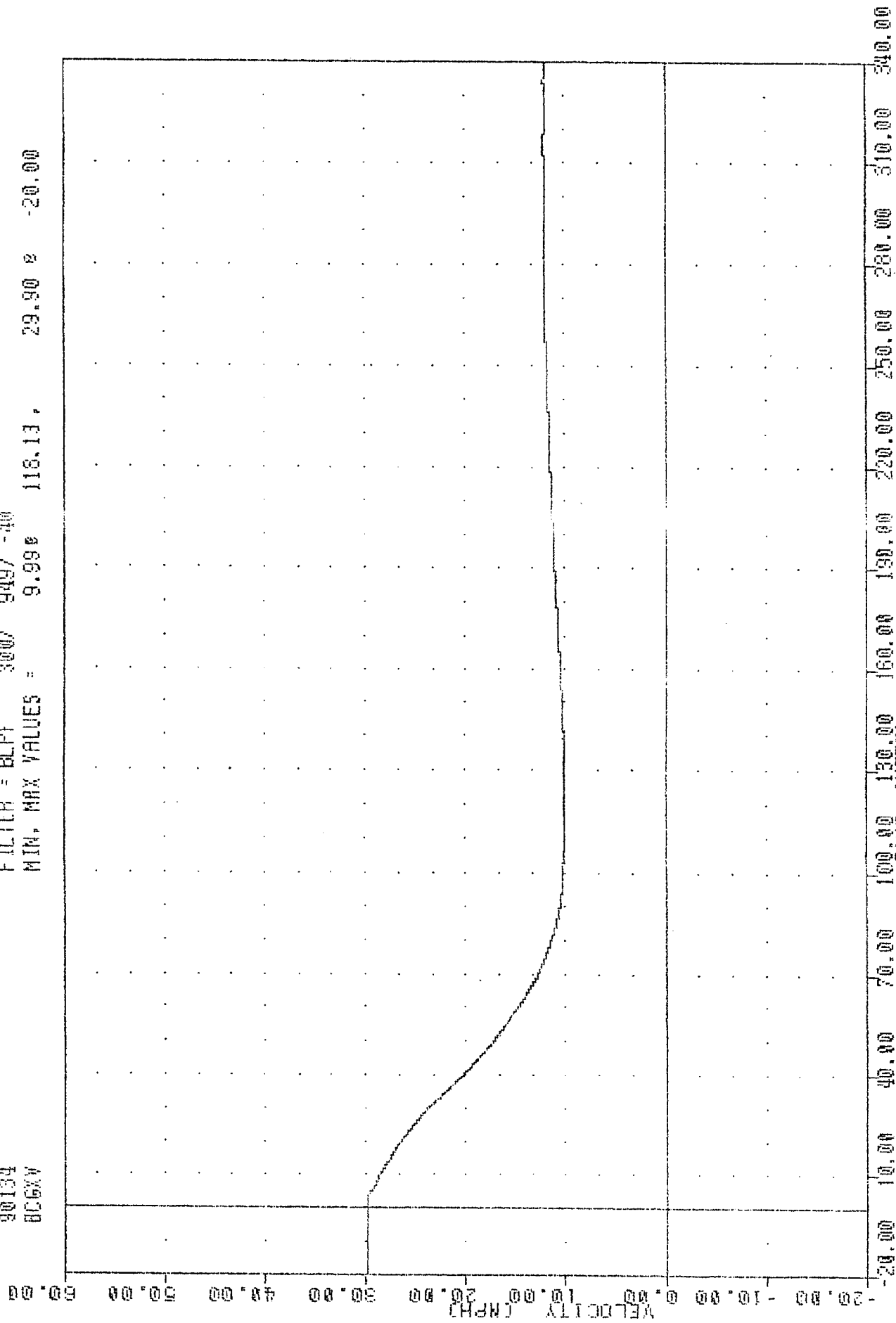
MOVING DEFORMABLE BARRIER INTO FORD TAURUS

BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

90134
 BC6XW
 SI PROTECTION PROD VEHICLE
 90134

90134
 BC6XW

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 9.99 118.13, 29.90 2 -20.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 BARRIER CENTER OF GRAVITY X AXIS VELOCITY

VELOCITY FROM VEHICLE

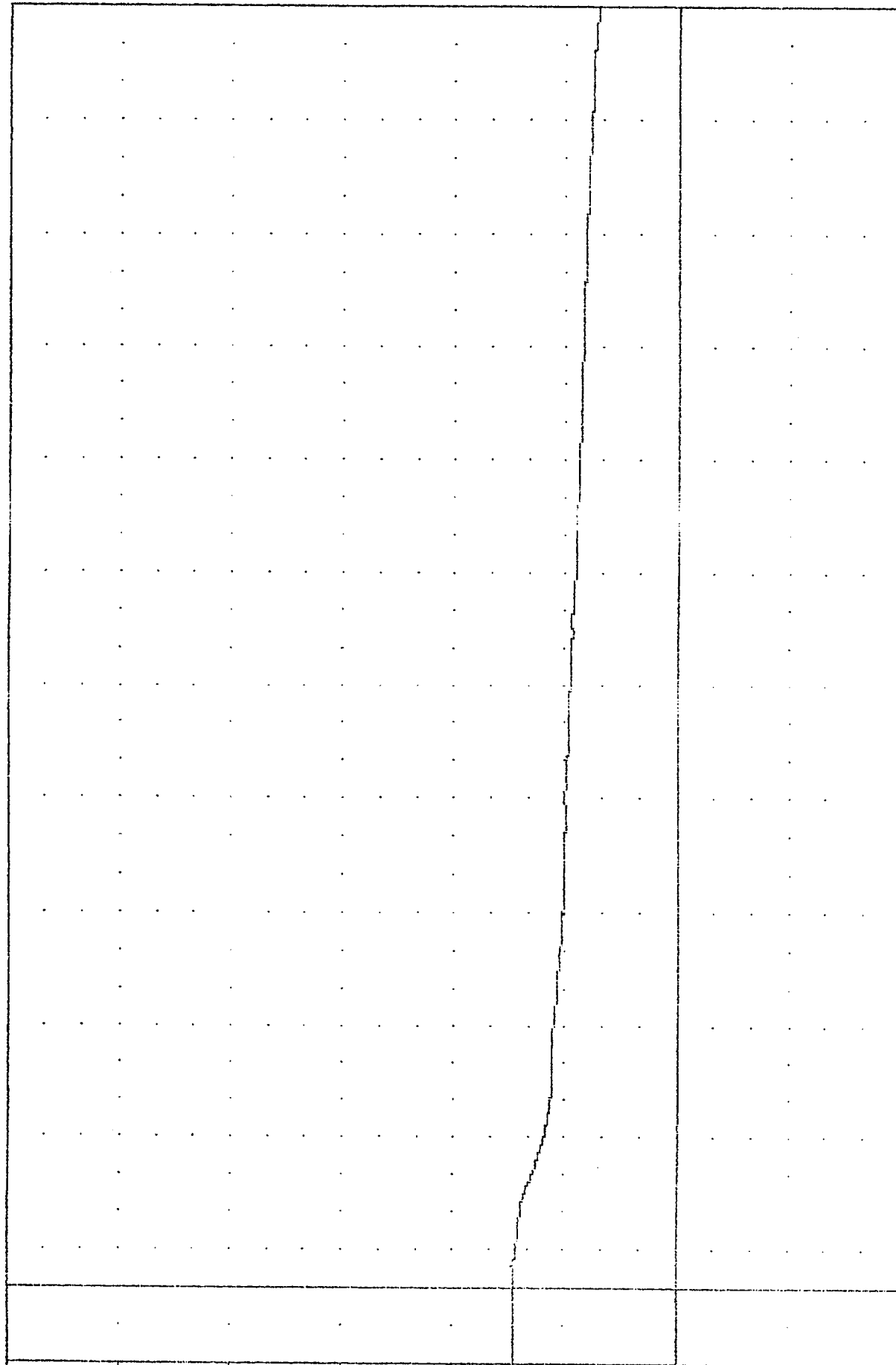
90134

BCGVY

FILTER = BLPF 300/ 949/ -00

MIN. MAX VALUES = 7.16e 340.00, 14.65 e 6.00

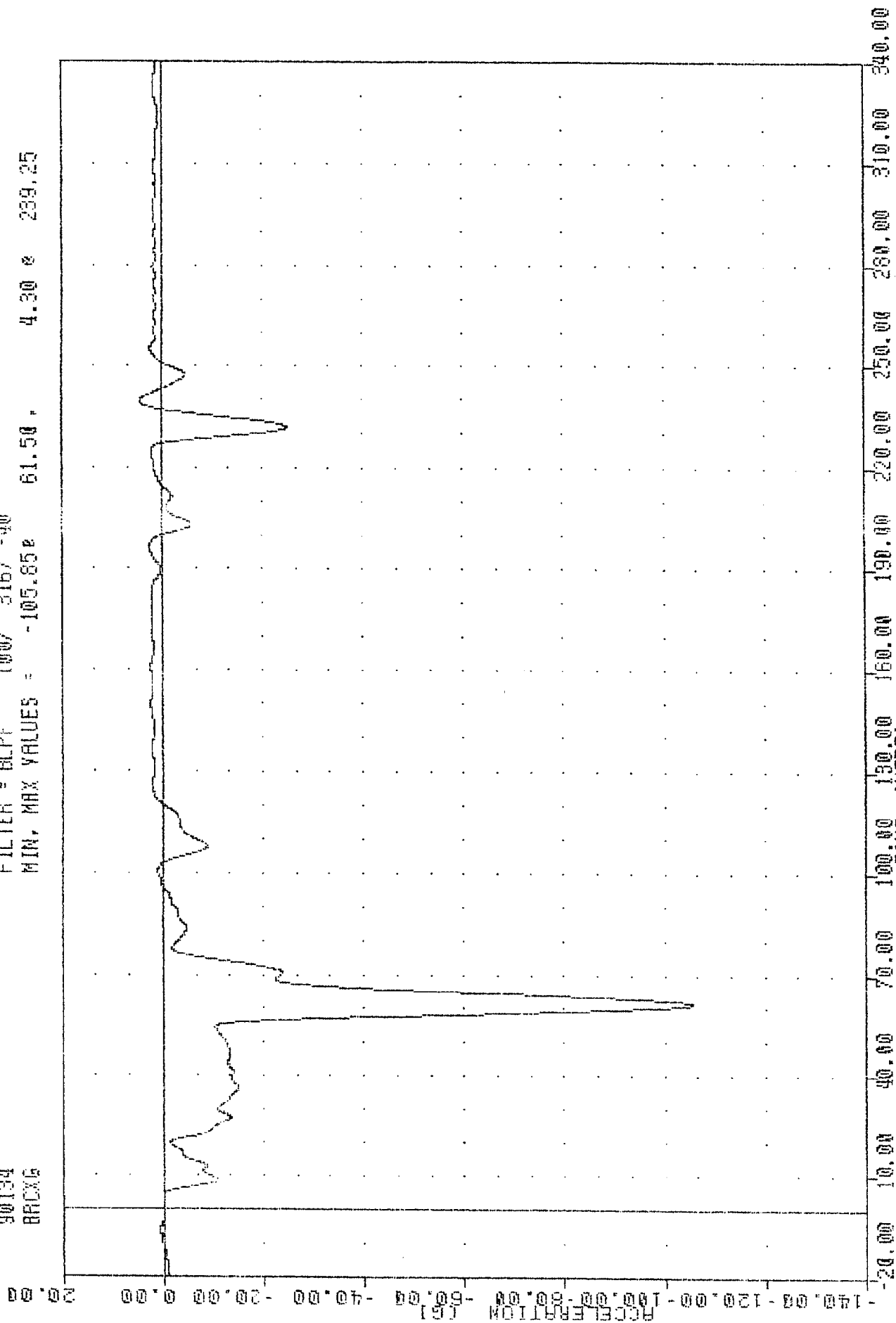
VELOCITY (MPH)



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
BARRIER CENTER OF GRAVITY Y AXIS VELOCITY

90134
 BRXG
 SI PROTECTION PROO VEHICLE
 90134

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -105.85e 61.50 4.30 e 239.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 BARRIER REAR CROSSMEMBER X AXIS ACCELERATION

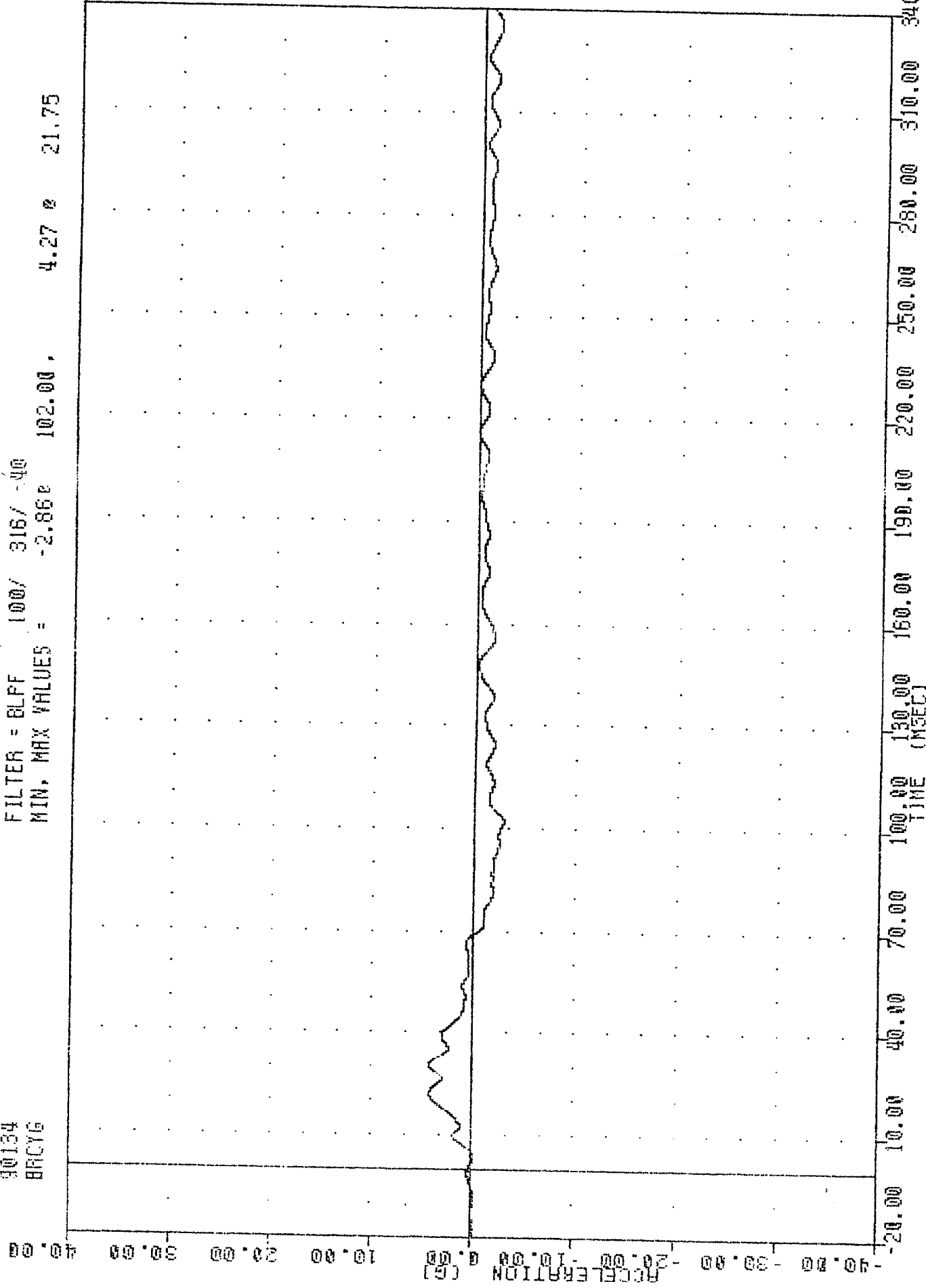
31 PROTECTION FROM VEHICLE

90134

BRCTG

FILTER = BLPF 100/ 316/ -40

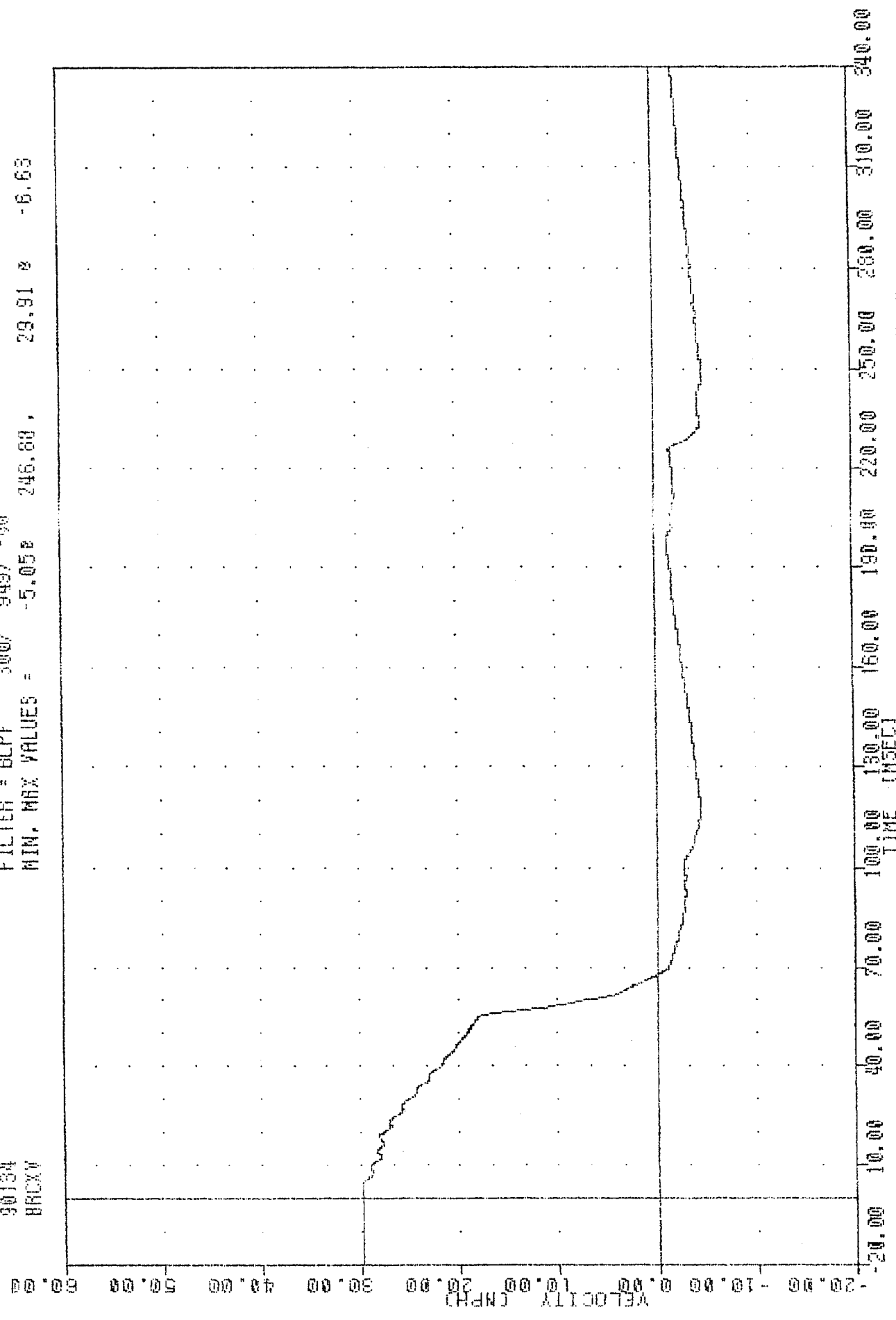
MIN. MAX VALUES = -2.86e 102.00, 4.27 e 21.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
BARRIER REAR CROSSMEMBER Y AXIS ACCELERATION

900514
 31 PROTECTION PROB VEHICLE
 90134
 BR0XV

FILTER = BLPF 300/ 949/ -00
 MIN. MAX VALUES = -5.052 246.88, 29.91 2 -6.65



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 BARRIER REAR CROSSMEMBER X AXIS VELOCITY

S1 PROTECTION FROM VEHICLE

90134

BRCTV

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = 11.350 340.00, 17.33 0 65.75

50.00

40.00

30.00

20.00

10.00

0.00

-10.00

-20.00

VELOCITY (MPH)

10.00

20.00

30.00

40.00

50.00

60.00

70.00

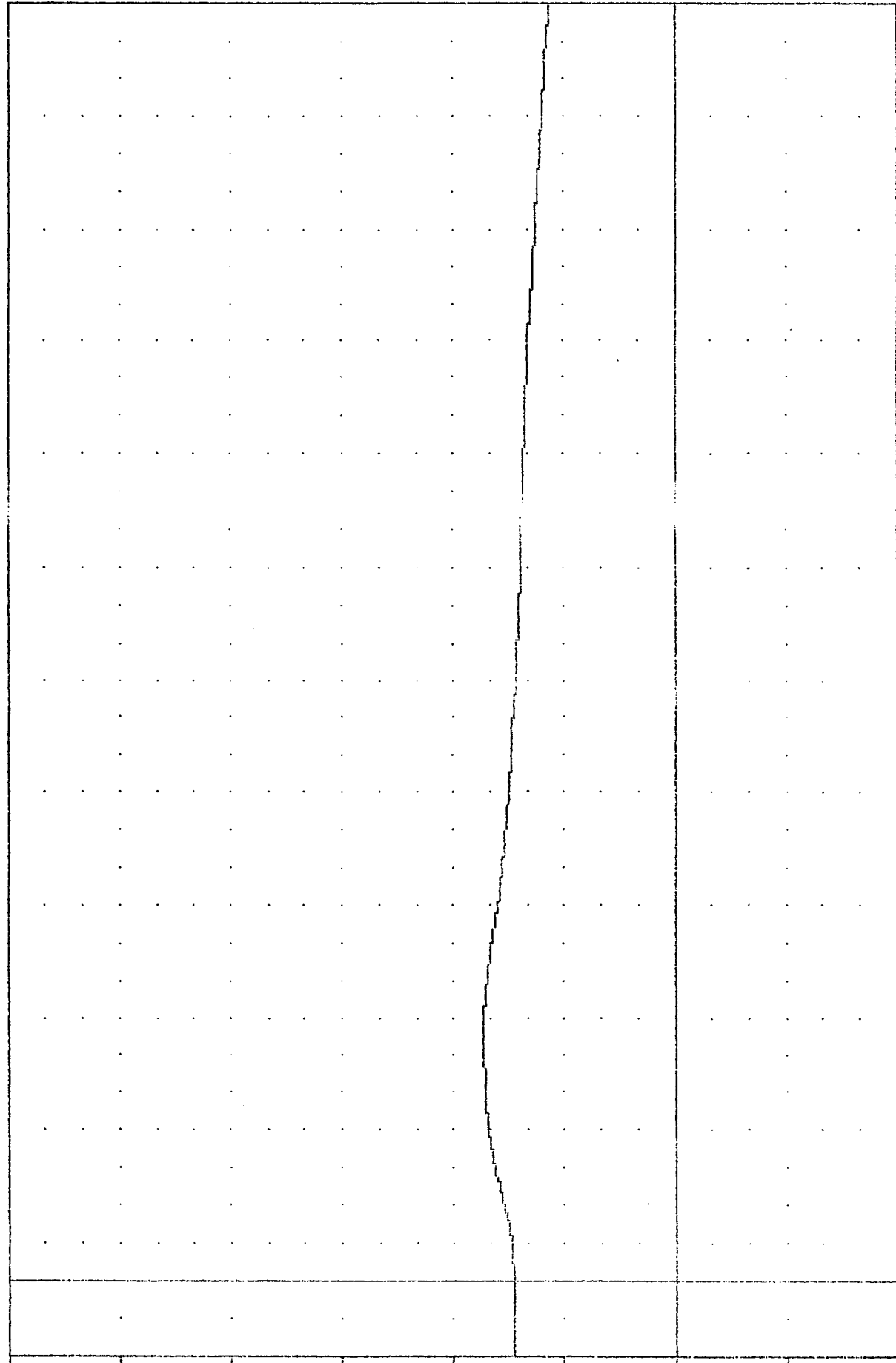
80.00

90.00

100.00

110.00

120.00



-20.00 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

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO FORD TAURUS

BARRIER REAR CROSSMEMBER Y AXIS VELOCITY

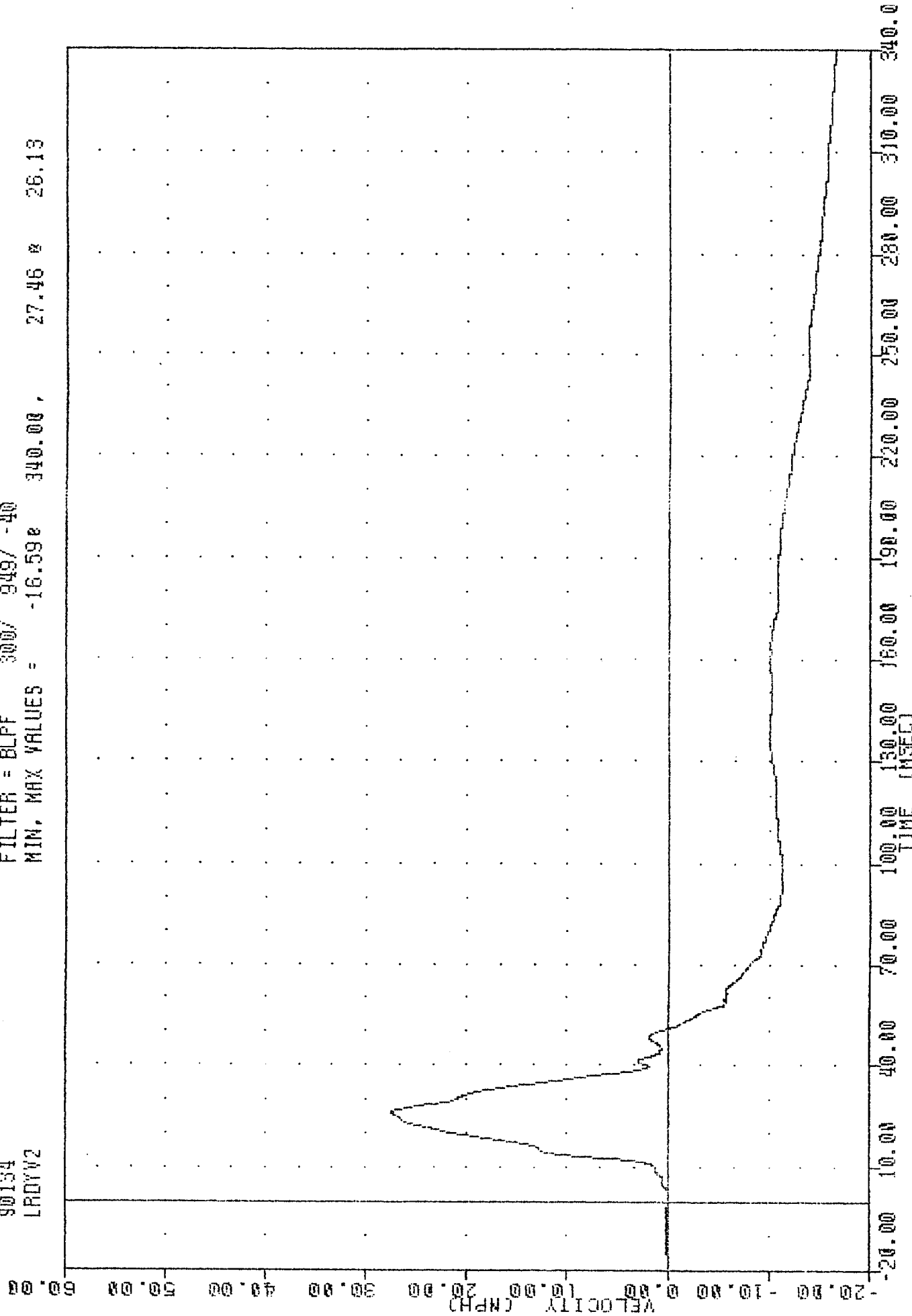
31 PMUVELOCITY FROM VEHICLE

90134

LROYV2

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -16.59e 340.00, 27.46 e 26.13

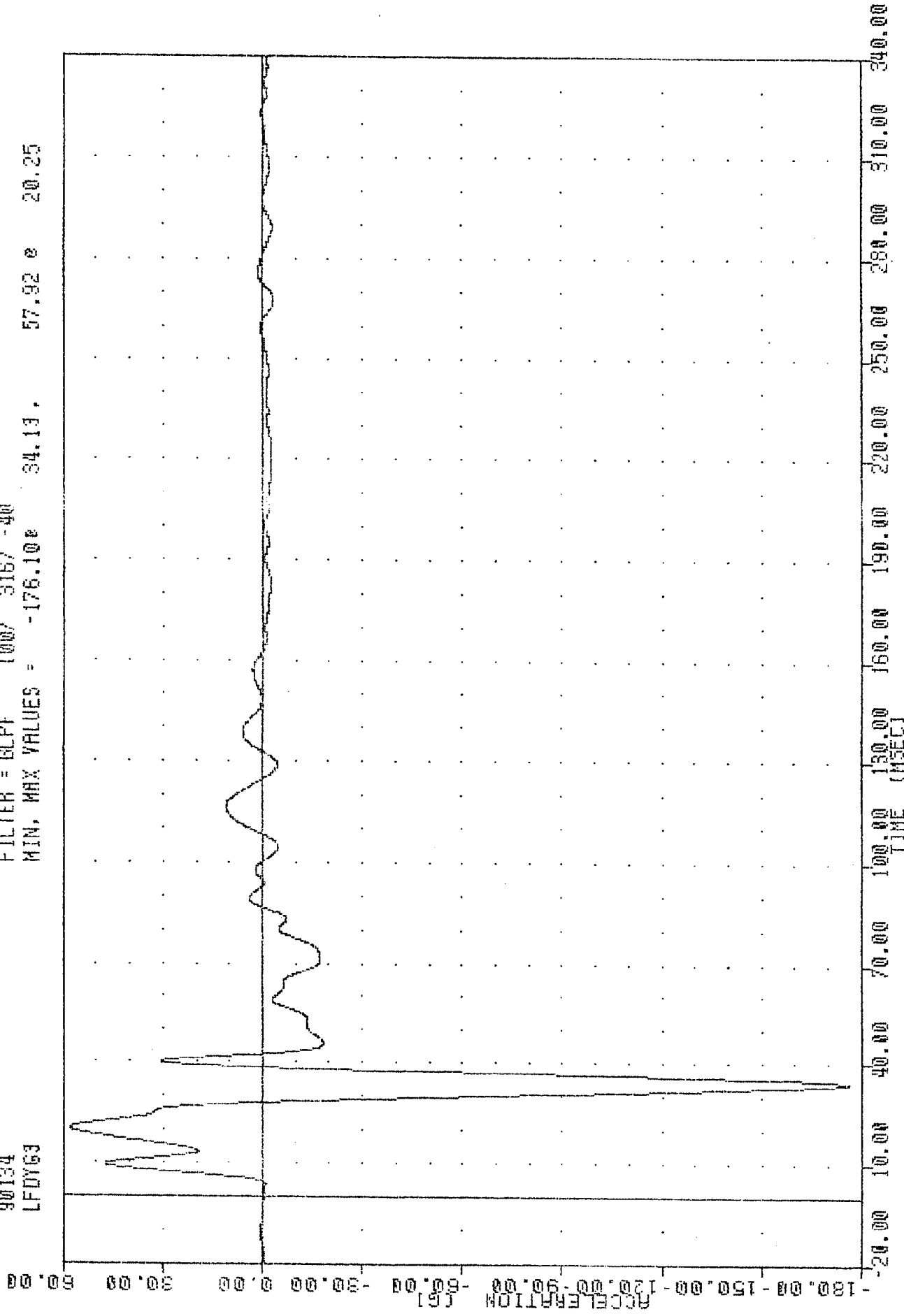


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

VEHICLE LEFT REAR DOOR MID REAR (POSITION 8) Y AXIS VELOCITY

TIME 300012
SI PROTECTION PROD VEHICLE
90134
LFDY63

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -176.10e 34.13, 57.92 e 20.25



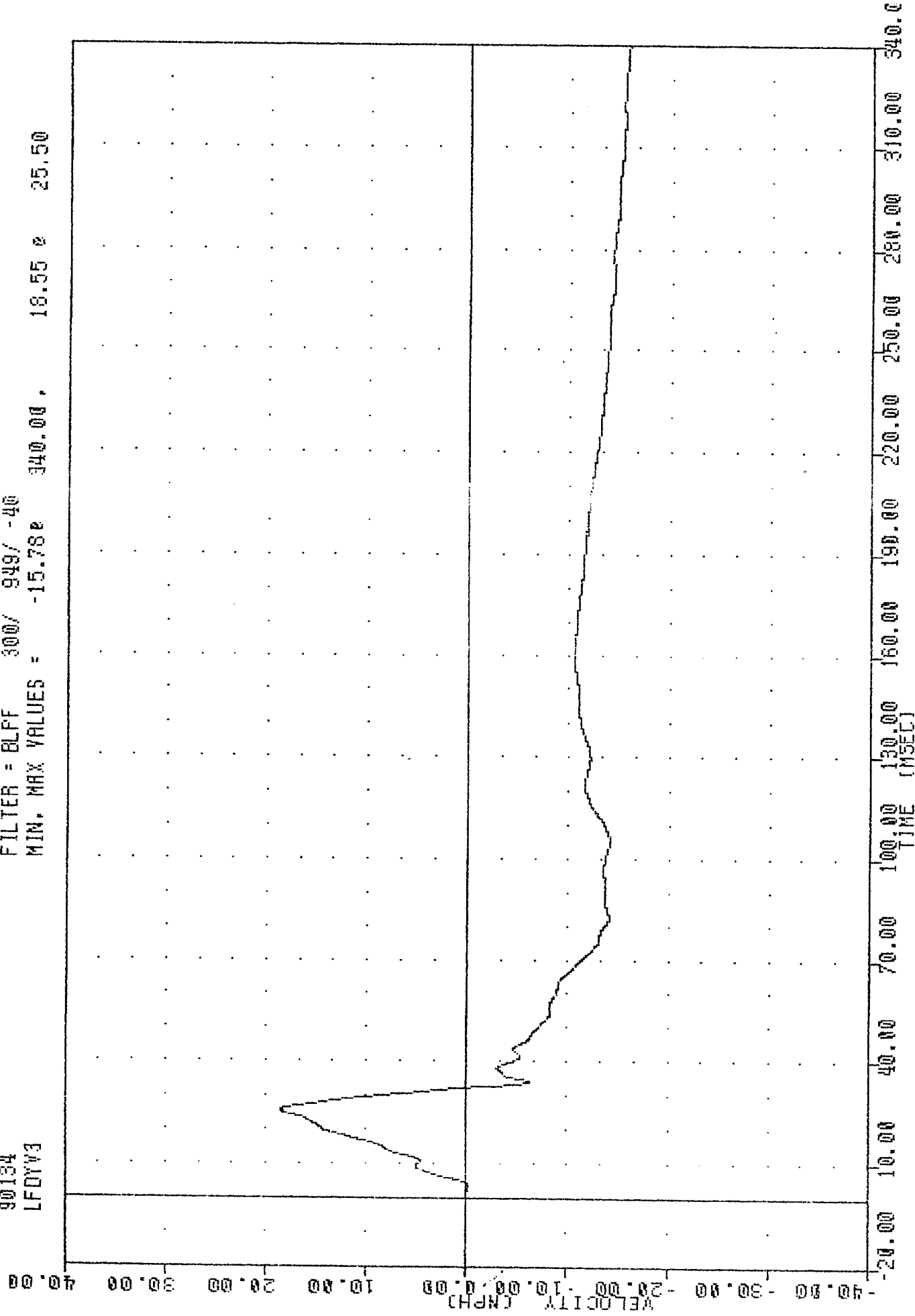
31 PROJECTION FROM VEHICLE

90134

LFDYV3

FILTER = BLFF 300/ 949/ -40

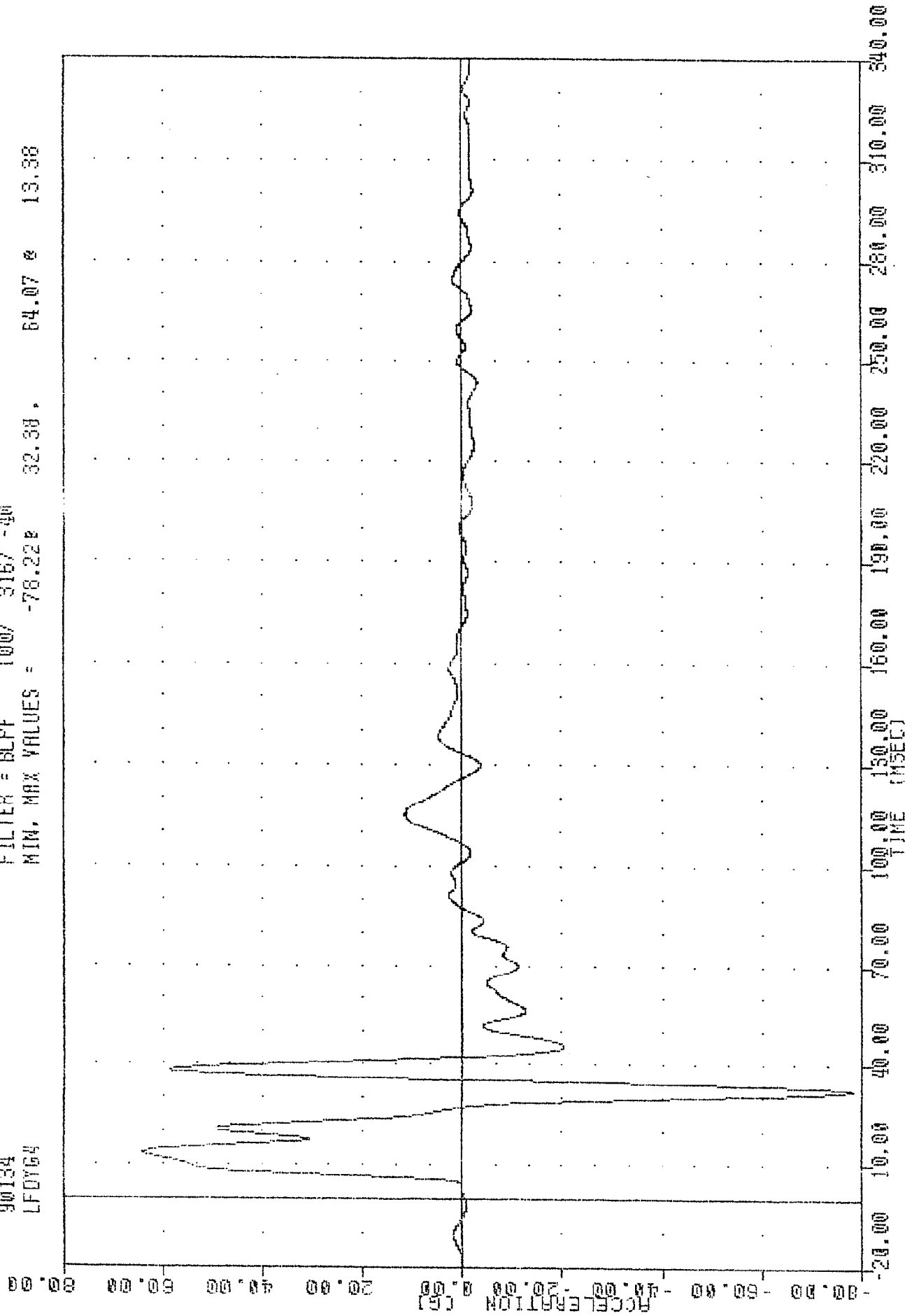
MIN. MAX VALUES = -15.78e 340.00. 18.55 e 25.50



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT FRONT DOOR (POSITION 9) Y AXIS VELOCITY

SI PROTECTION PROD VEHICLE
90134
LF0Y64

FILTER = BLFF 100/ 316/ -40
MIN. MAX VALUES = -76.22 64.07 32.38 13.38



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT FRONT DOOR (POSITION 10) Y AXIS ACCELERATION

33 PROJECTION FROM VEHICLE

90134

LFDYV4

FILTER = BLFF

300/ 949/ -40

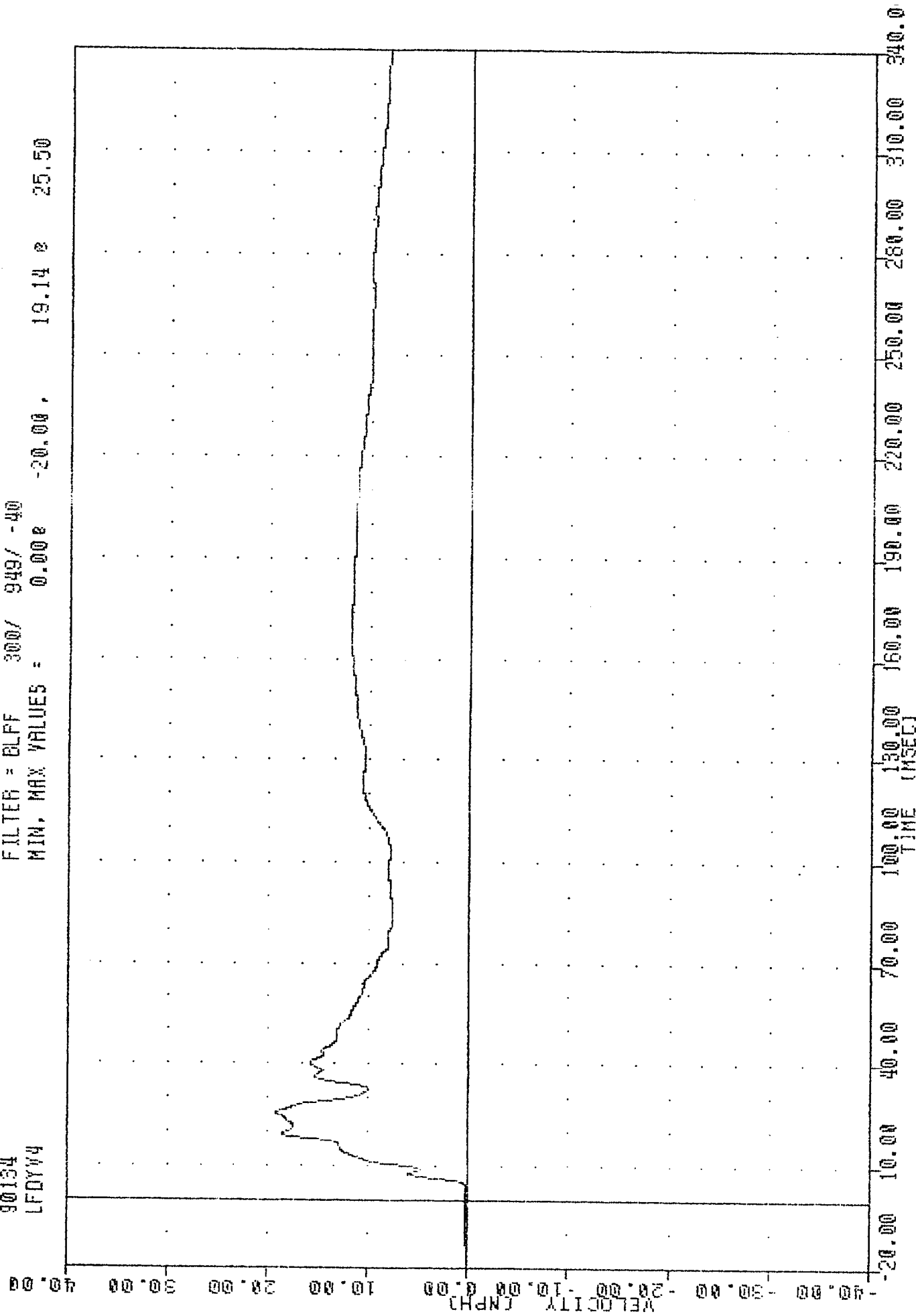
MIN, MAX VALUES =

0.00e

-20.00,

19.14 e

25.50

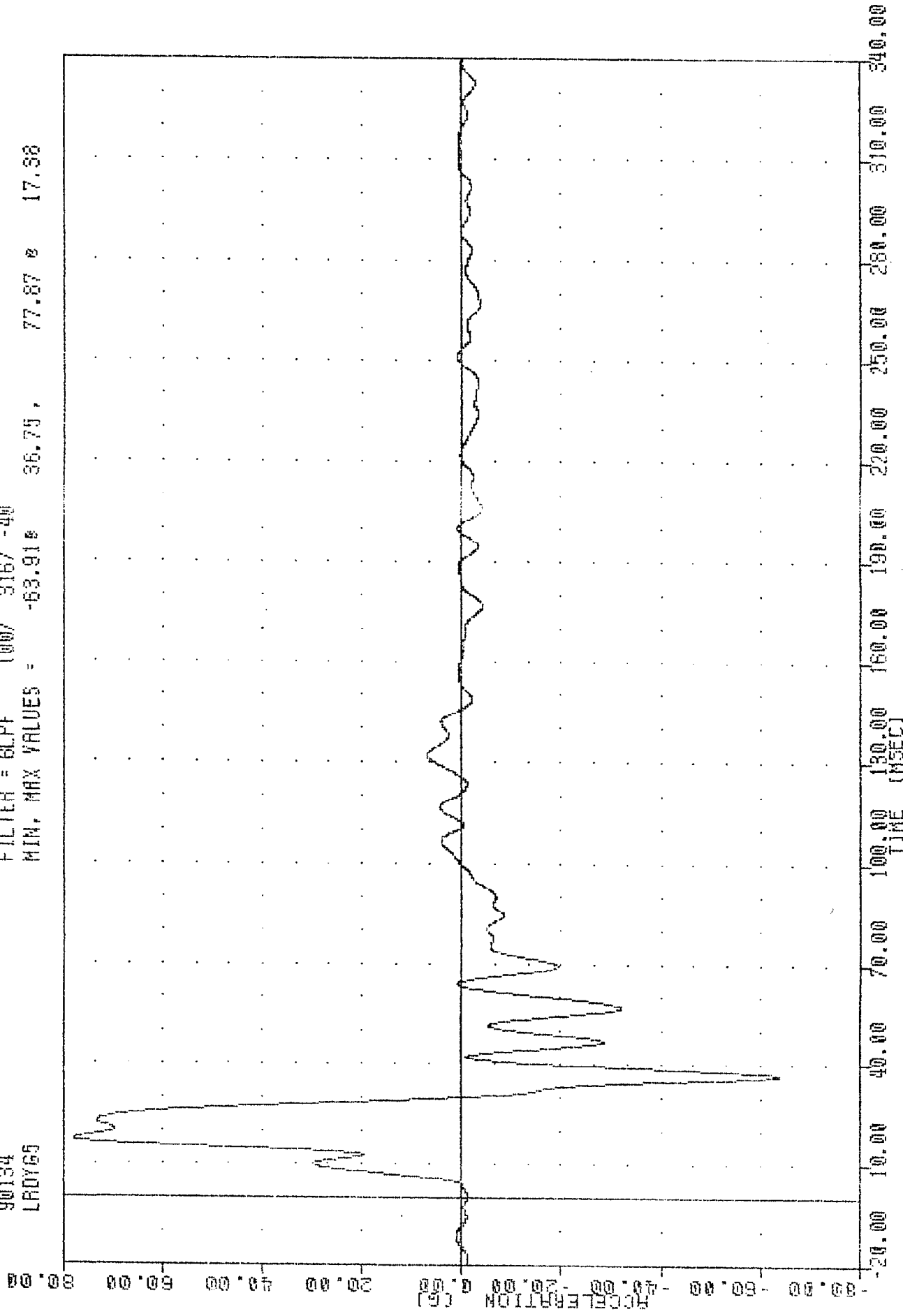


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

VEHICLE LEFT FRONT DOOR (POSITION 10) Y AXIS VELOCITY

SI PROTECTION PROD VEHICLE
90134
LADY65

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -63.91% 36.75, 77.87 % 17.38



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
VEHICLE LEFT REAR DOOR CENTERLINE (POSITION 11) Y AXIS ACCELERATION

31 PROJECTION FROM VEHICLE

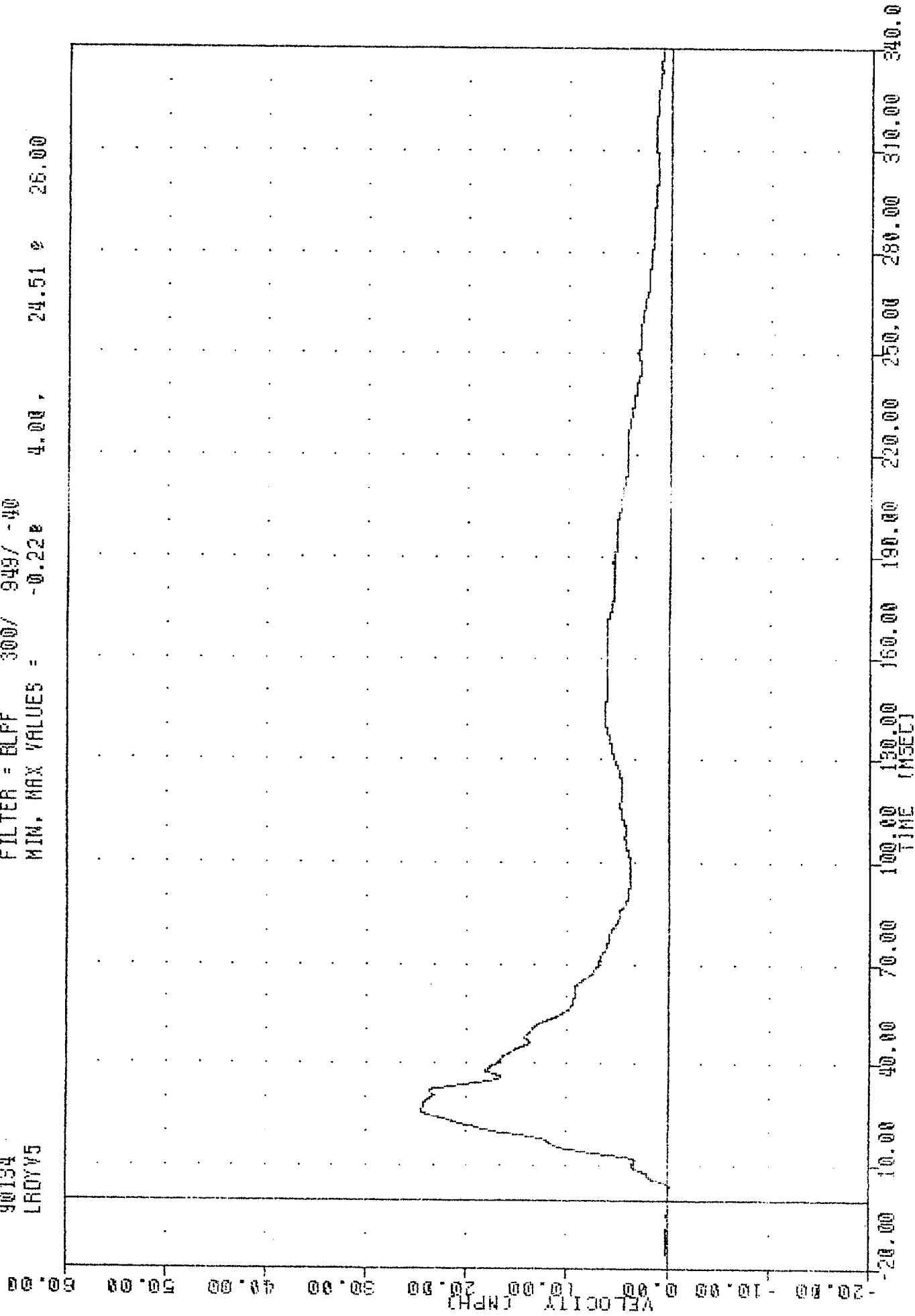
90134

LRDYV5

FILTER = BLFF 300/ 949/ -40

MIN. MAX VALUES = -0.22e

4.00, 24.51 e 26.00

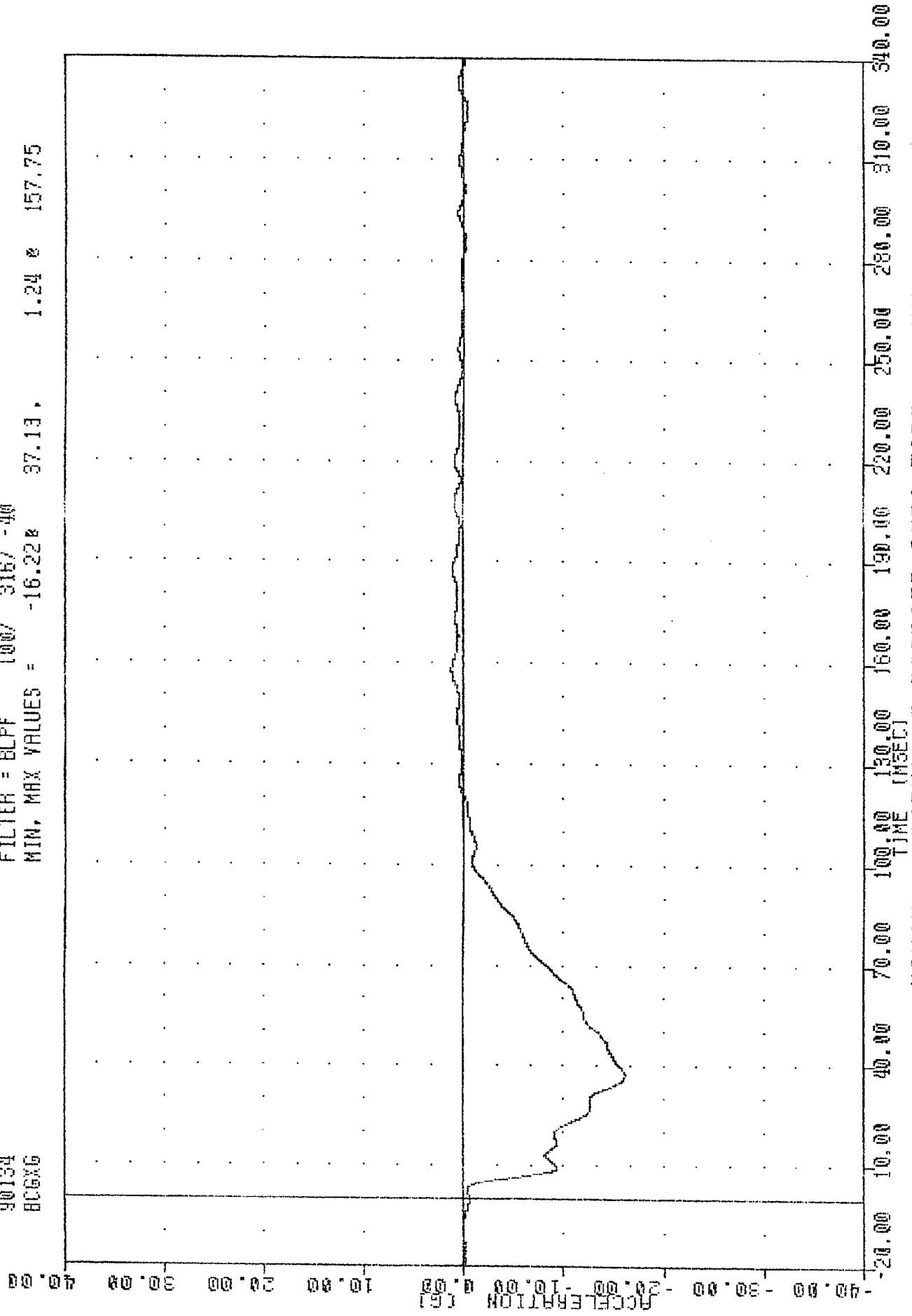


MOVING DEFORMABLE BARRIER INTO FORD TAURUS

VEHICLE LEFT REAR DOOR CENTERLINE (POSITION 11) Y AXIS VELOCITY

VRTC , 900514
SI PROTECTION PROD VEHICLE
90134
BC6XG

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -16.22 37.13, 1.24 157.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
BARRIER CENTER OF GRAVITY X AXIS ACCELERATION

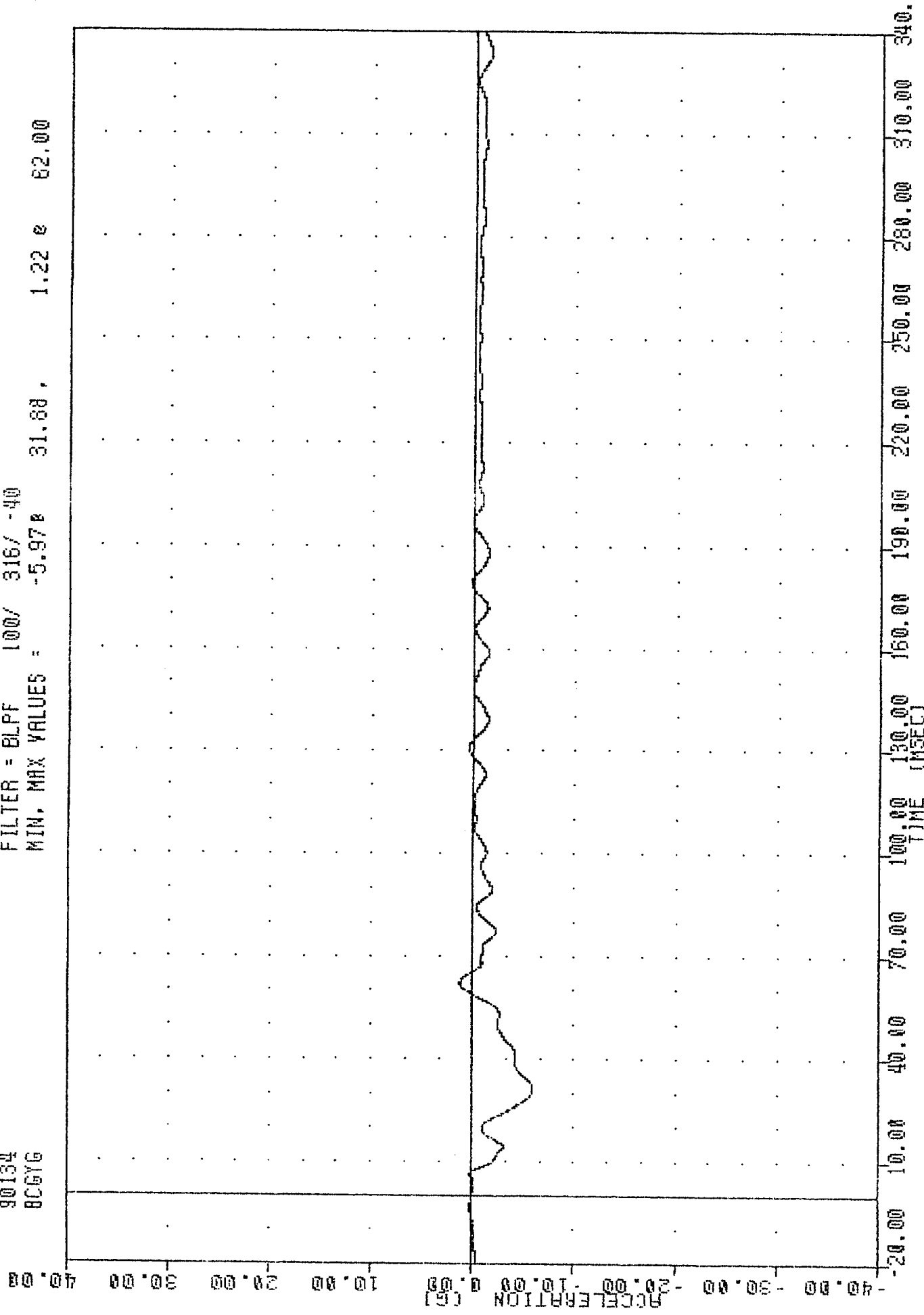
SI PROJECTION FROM VEHICLE

90134

BCGYG

FILTER = BLPF 100/ 316/ -40

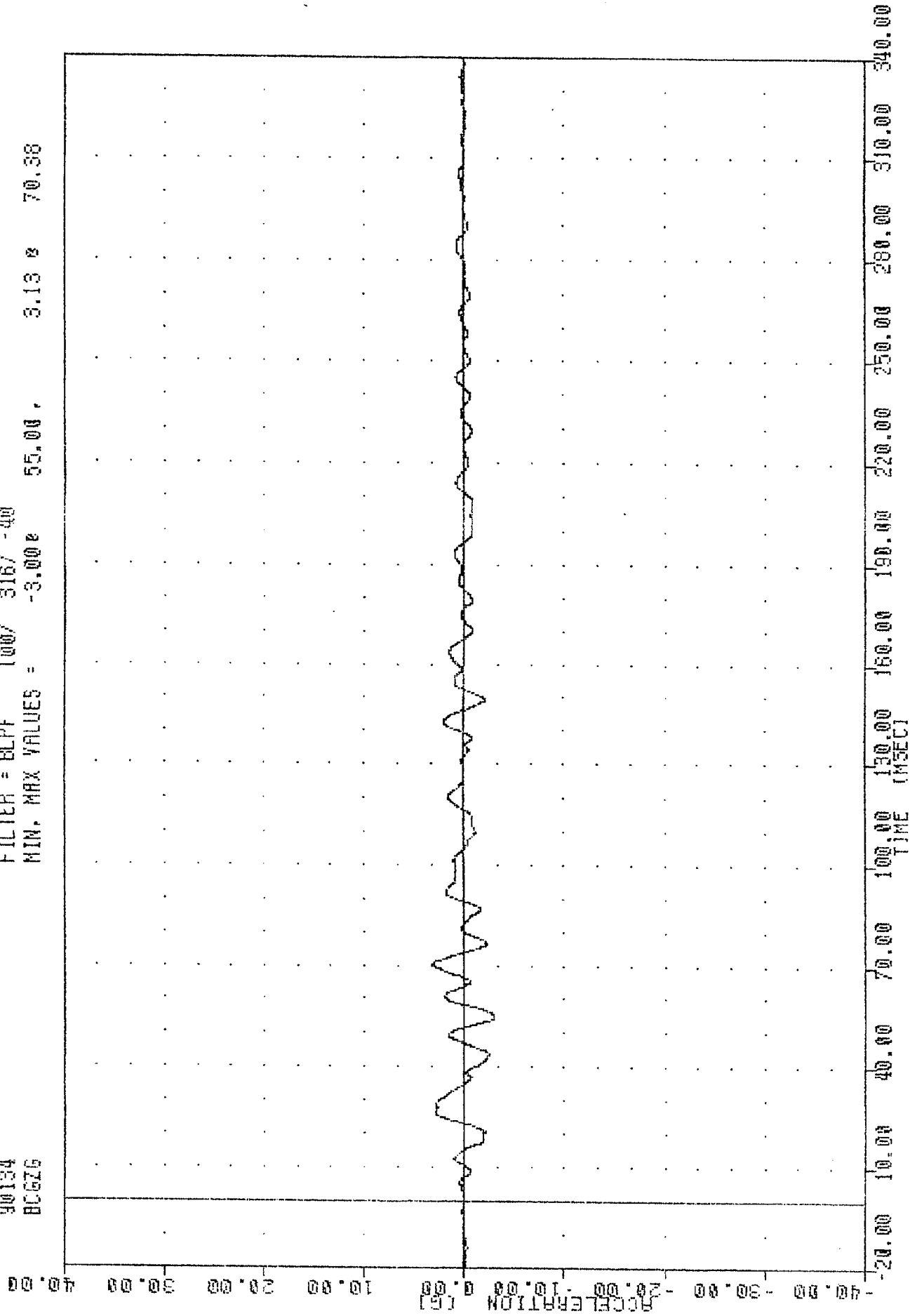
MIN. MAX VALUES = -5.97 31.88, 1.22 e 82.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
BARRIER CENTER OF GRAVITY Y AXIS ACCELERATION

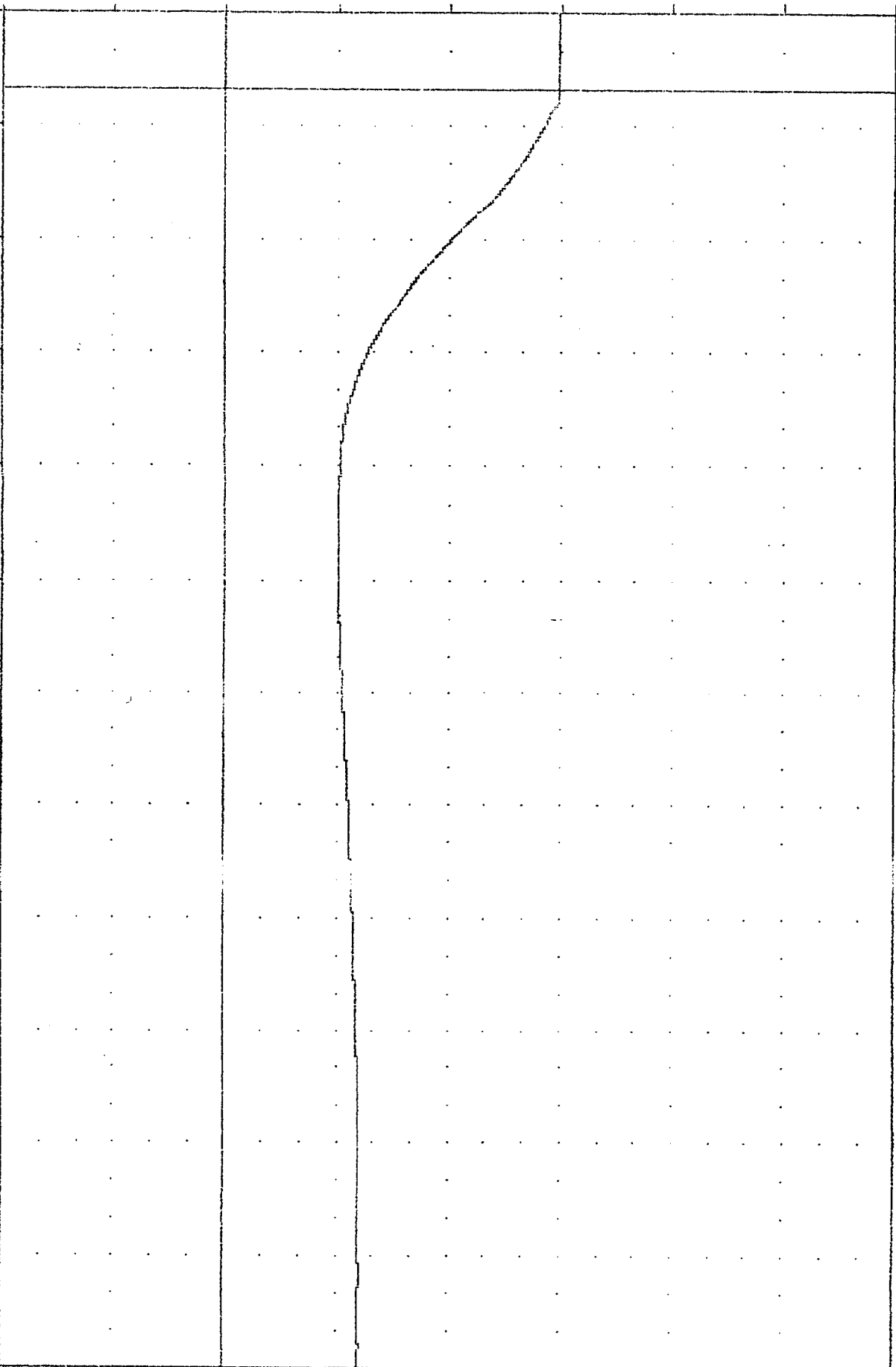
VRIC , 900514
SI PROTECTION PROD VEHICLE
90134
BCGZ6

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -3.00e 55.00 , 3.13 e 70.38



300019
 31 PROTECTION PROD VEHICLE
 90134
 BCGXY

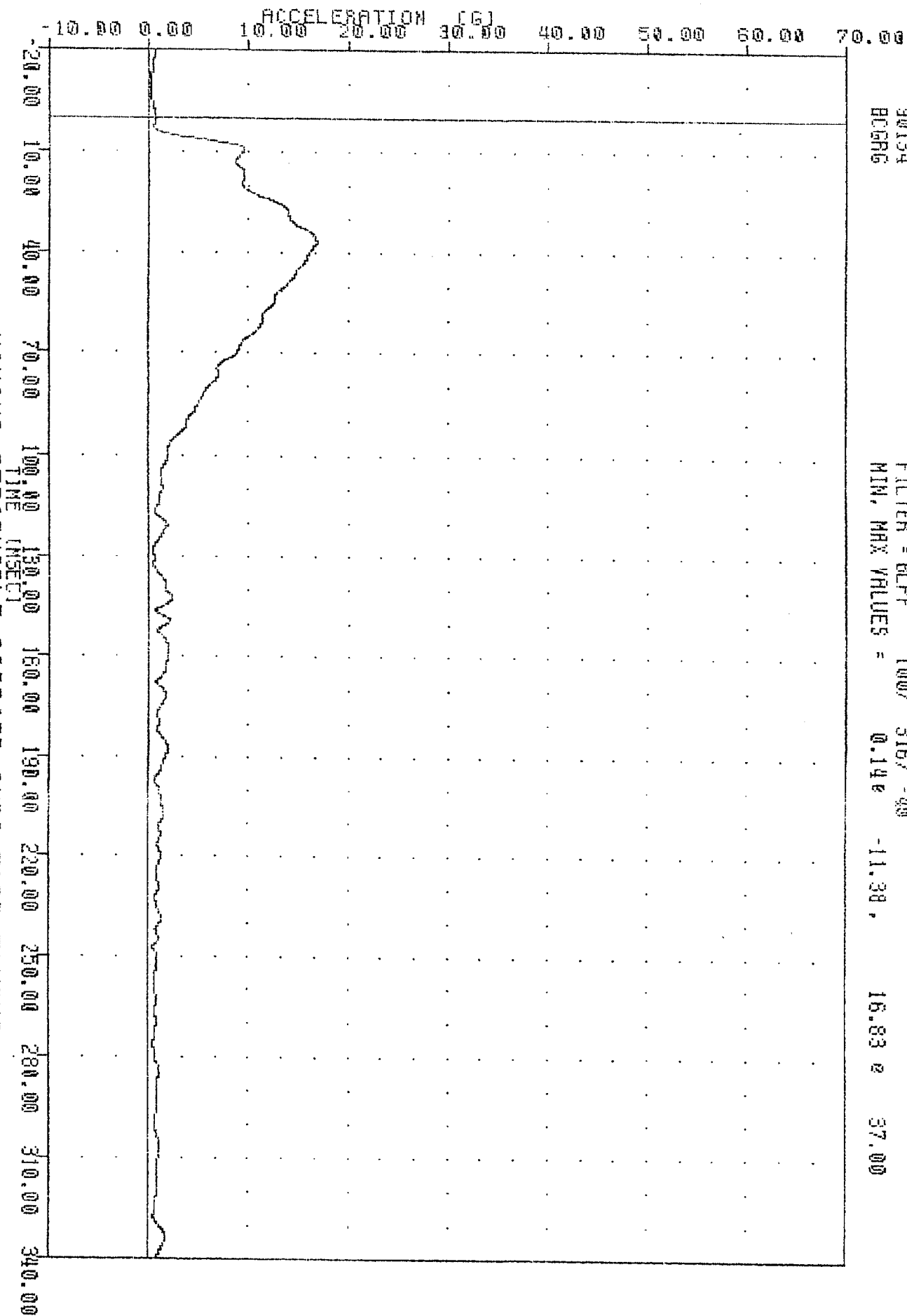
FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 9.99 118.13 , 29.90 -20.00



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 BARRIER CENTER OF GRAVITY X AXIS VELOCITY

NRIC , 900514
SI PROTECTION FORD VEHICLE
90134
BCGR6

FILTER = BLPF 100/ 316/ -90
MIN, MAX VALUES = 0.14e -11.38 , 16.83 e 37.00



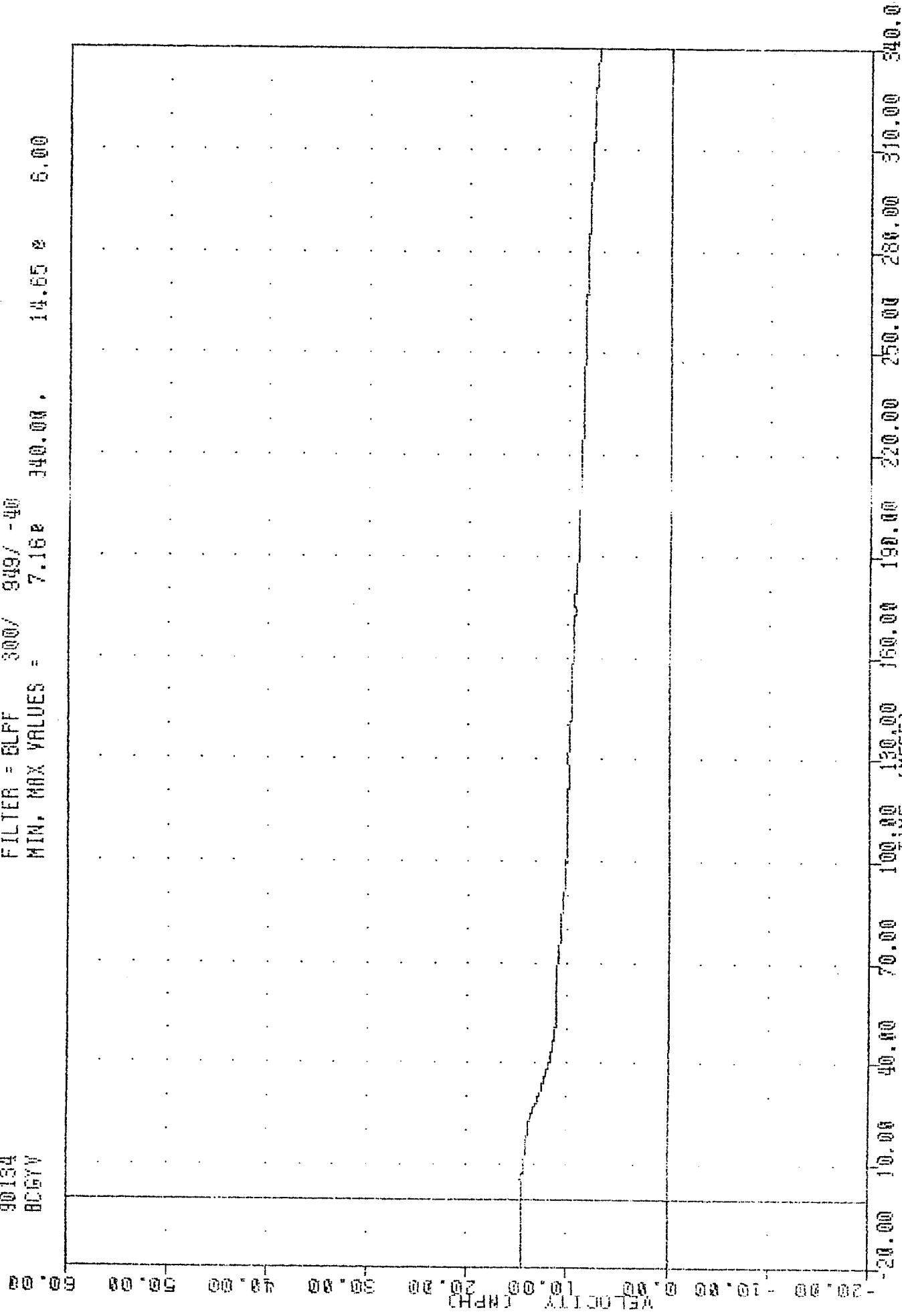
MOVING DEFORMABLE BARRIER INTO FORD TAURUS
BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

SA FORD TAUROS 1980 VEHICLE

90134
BCGYV

FILTER = BLFF 300/ 849/ -40

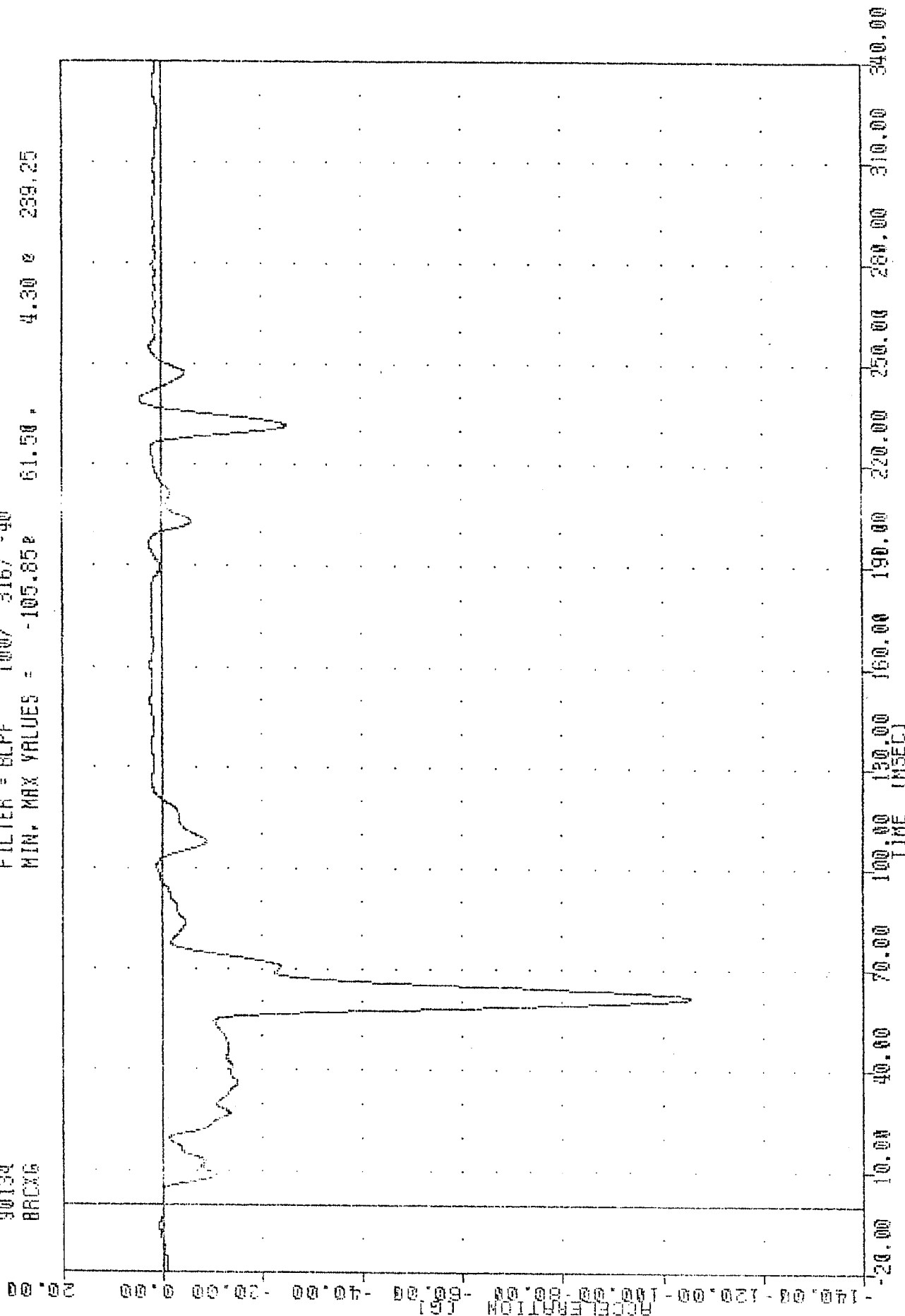
MIN. MAX VALUES = 7.16 340.00 14.65 6.00



MOVING DEFORMABLE BARRIER INTO FORD TAUROS
BARRIER CENTER OF GRAVITY Y AXIS VELOCITY

SI PROTECTION PROD VEHICLE
90134
BRXG

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -105.85 61.50 4.30 239.25



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
BARRIER REAR CROSSMEMBER X AXIS ACCELERATION

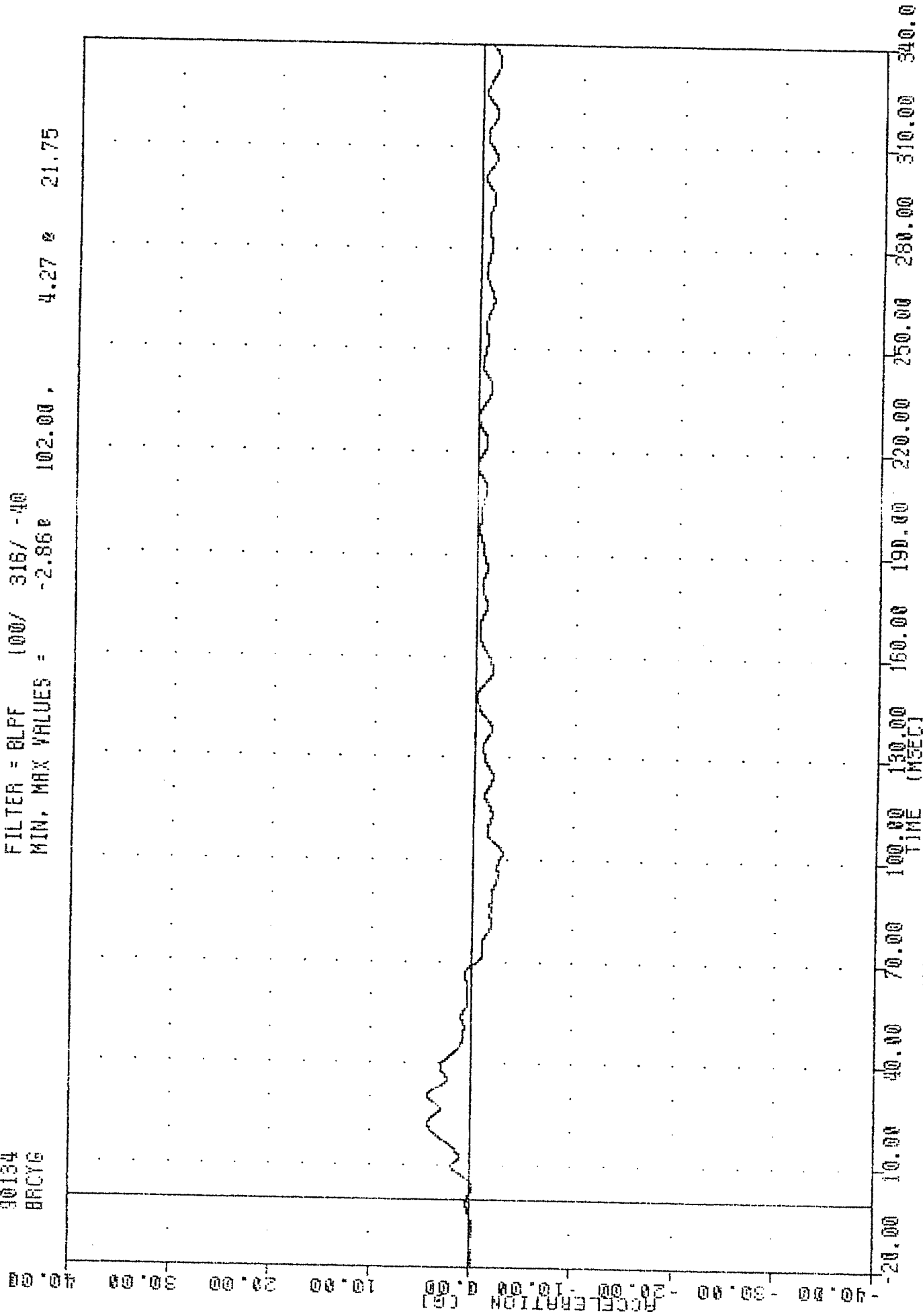
31 PROTECTION FROM VEHICLE

30134

BRCTG

FILTER = BLPF 100/ 316/ -40

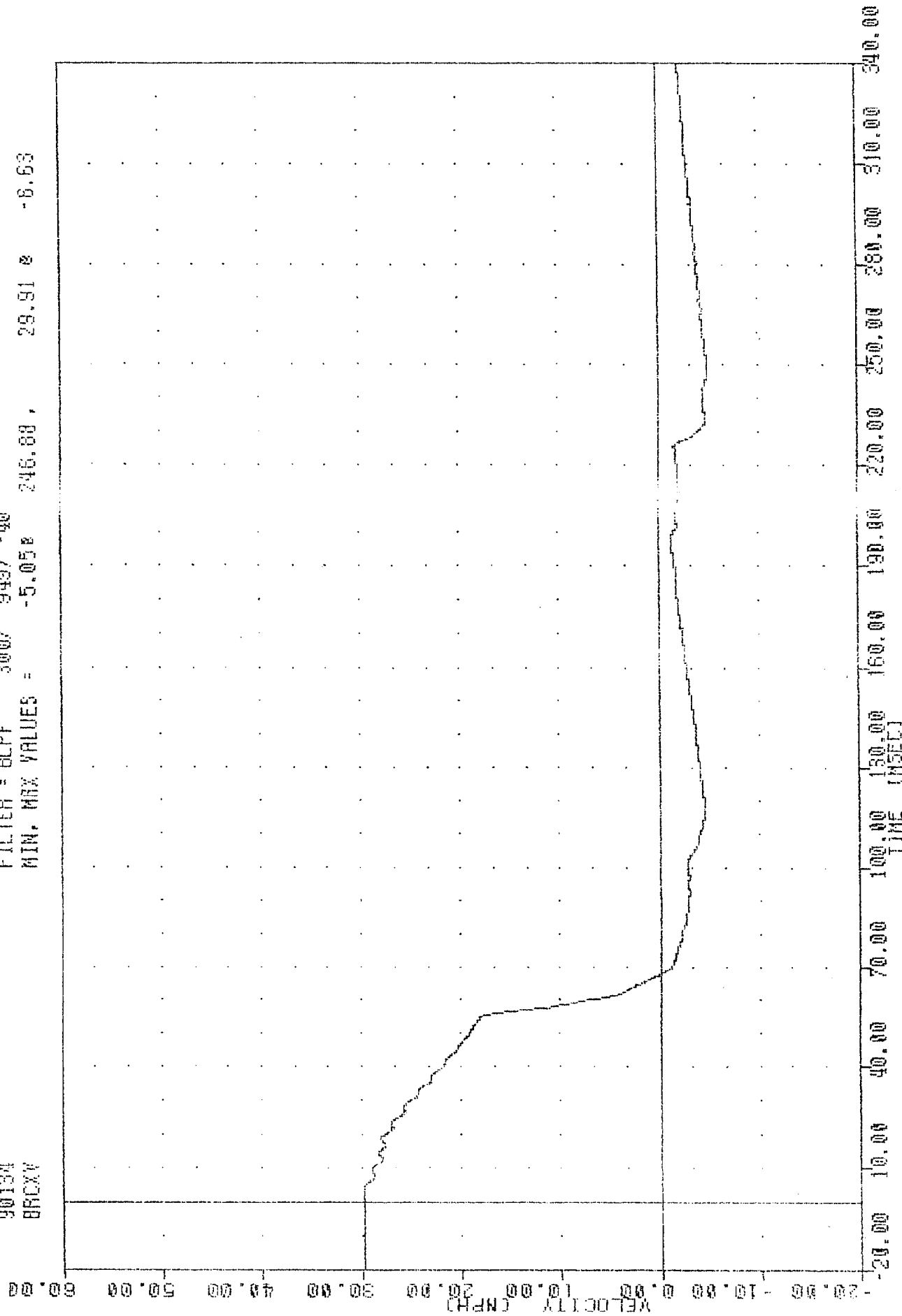
MIN. MAX VALUES = -2.86e 102.00, 4.27 e 21.75



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
BARRIER REAR CROSSMEMBER Y AXIS ACCELERATION

VAIL - 900014
 SI PROTECTION PROB VEHICLE
 90134
 BRDXY

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -5.050 246.80 , 29.91 0 -8.63



MOVING DEFORMABLE BARRIER INTO FORD TAURUS
 BARRIER REAR CROSSMEMBER X AXIS VELOCITY

51 PROTECTION FROM VEHICLE

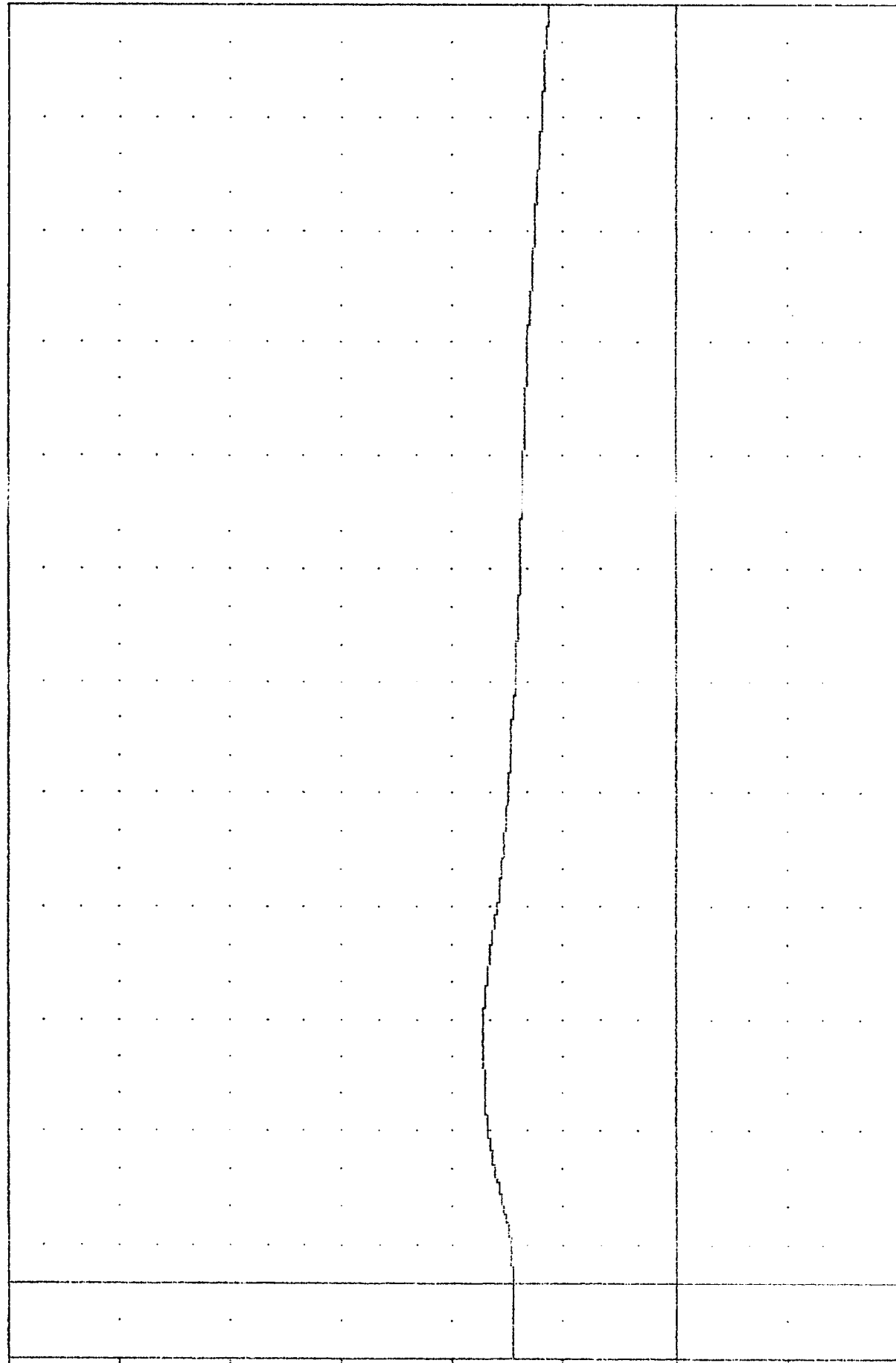
90134

BRDY

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = 11.350 340.00, 17.33 65.75

VELOCITY (MPH)



TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO FORD TAURUS
BARRIER REAR CROSSMEMBER Y AXIS VELOCITY

APPENDIX C

DUMMY CERTIFICATION

APPENDIX D

DUMMY CALIBRATION

DRIVER DUMMY

DUMMY NO.: 01

BIOSID CALIBRATION RESULTS

PRE-TEST CALIBRATION FOR TEST #900514

DUMMY NO. 01 SERIES NO. TRC-CAL 8 DATE 05/10/90

CALIBRATION TEST	SAE* CORRIDOR	RESULTS
SHOULDER		
IMPACT FORCE (kN)	3.7 - 4.6	3.88
SHOULDER ACCEL. (g)	NA	84.1
SHOULDER DISPL. (mm)	21 - 31	25.5
THORAX - NO ARM		
IMPACT FORCE (kN)	5.4 - 6.7	6.1
UPPER RIB ACCEL. (g)	120 - 180	161.1
CENTER RIB ACCEL. (g)	120 - 180	159.3
LOWER RIB ACCEL. (g)	120 - 180	163.6
UPPER RIB DISPL. (mm)	50 - 70	60.7
CENTER RIB DISPL. (mm)	50 - 70	63.8
LOWER RIB DISPL. (mm)	50 - 70	64.5
UPPER SPINE ACCEL. (g)	16 - 24	22.1
LOWER SPINE ACCEL. (g)	11 - 17	14.7
THORAX - ARM DOWN		
IMPACT FORCE (kN)	6.2 - 7.9	6.30
SHOULDER ACCEL. (g)	NA	46.1
UPPER RIB ACCEL. (g)	52 - 78	68.8
CENTER RIB ACCEL. (g)	66 - 99	90.1
LOWER RIB ACCEL. (g)	85 - 128	110.4
SHOULDER DISPL. (mm)	17 - 27	20.4
UPPER RIB DISPL. (mm)	20 - 30	26.3
CENTER RIB DISPL. (mm)	30 - 44	36.3
LOWER RIB DISPL. (mm)	40 - 55	47.2
UPPER SPINE ACCEL. (g)	34 - 46	34.9
LOWER SPINE ACCEL. (g)	14 - 21	14.9
ABDOMEN		
IMPACT FORCE (kN)	2.9 - 3.6	3.35
UPPER ABDOMEN ACCEL. (g)	52 - 80	67.3
LOWER ABDOMEN ACCEL. (g)	55 - 87	66.5
UPPER ABDOMEN DISPL. (mm)	40 - 55	48.8
LOWER ABDOMEN DISPL. (mm)	38 - 52	42.1
UPPER SPINE ACCEL. (g)	5.4 - 8.1	7.9
LOWER SPINE ACCEL. (g)	8 - 12	9.8
PELVIS		
IMPACT FORCE (kN)	7.5 - 9.5	8.85
PELVIS ACCEL. (g)	45 - 63	55.2

*PROPOSED SAE CORRIDORS; DRAFT BIOSID USER'S MANUAL, MAY 1990.

LEFT REAR PASSENGER DUMMY

DUMMY NO.: 02

BIOSID CALIBRATION RESULTS

PRE-TEST CALIBRATION FOR TEST #900514

DUMMY NO. 02 SERIES NO. TRC-CAL 3 DATE 05/11/90

CALIBRATION TEST	SAE* CORRIDOR	RESULTS
SHOULDER		
IMPACT FORCE (kN)	3.7 - 4.6	3.94
SHOULDER ACCEL. (g)	NA	80.6
SHOULDER DISPL. (mm)	21 - 31	25.1
THORAX - NO ARM		
IMPACT FORCE (kN)	5.4 - 6.7	5.73
UPPER RIB ACCEL. (g)	120 - 180	152.4
CENTER RIB ACCEL. (g)	120 - 180	151.9
LOWER RIB ACCEL. (g)	120 - 180	155.8
UPPER RIB DISPL. (mm)	50 - 70	57.6
CENTER RIB DISPL. (mm)	50 - 70	64.4
LOWER RIB DISPL. (mm)	50 - 70	64.1
UPPER SPINE ACCEL. (g)	16 - 24	20.2
LOWER SPINE ACCEL. (g)	11 - 17	14.9
THORAX - ARM DOWN		
IMPACT FORCE (kN)	6.2 - 7.9	6.92
SHOULDER ACCEL. (g)	NA	64.4
UPPER RIB ACCEL. (g)	52 - 78	71.6
CENTER RIB ACCEL. (g)	66 - 99	88.9
LOWER RIB ACCEL. (g)	85 - 128	108.8
SHOULDER DISPL. (mm)	17 - 27	21.6
UPPER RIB DISPL. (mm)	20 - 30	24.8
CENTER RIB DISPL. (mm)	30 - 44	38.5
LOWER RIB DISPL. (mm)	40 - 55	48.3
UPPER SPINE ACCEL. (g)	34 - 46	38.0
LOWER SPINE ACCEL. (g)	14 - 21	14.8
ABDOMEN		
IMPACT FORCE (kN)	2.9 - 3.6	3.26
UPPER ABDOMEN ACCEL. (g)	52 - 80	66.3
LOWER ABDOMEN ACCEL. (g)	55 - 87	66.9
UPPER ABDOMEN DISPL. (mm)	40 - 55	43.5
LOWER ABDOMEN DISPL. (mm)	38 - 52	40.3
UPPER SPINE ACCEL. (g)	5.4 - 8.1	7.1
LOWER SPINE ACCEL. (g)	8 - 12	9.6
PELVIS		
IMPACT FORCE (kN)	7.5 - 9.5	8.58
PELVIS ACCEL. (g)	45 - 63	58.7

*PROPOSED SAE CORRIDORS; DRAFT BIOSID USER'S MANUAL, MAY 1990.