

DOT 761

SIDE PROTECTION IN 2-DOOR
AND 4-DOOR PRODUCTION VEHICLES

MDB-TO-CAR SIDE IMPACT TEST OF
A 19⁰ CRABBED MOVING DEFORMABLE BARRIER
TO A 1981 DODGE OMNI
AT 34.3 MPH

PREPARED BY:
VEHICLE RESEARCH AND TEST CENTER
ST. RT. 33 LOGAN COUNTY
EAST LIBERTY, OHIO 43319



FINAL REPORT
MARCH 1984

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
400 SEVENTH STREET, S.W.
WASHINGTON, D.C. 20590

Prepared By: John C. Stultz
J. C. Stultz
Project Engineer
Transportation Research Center of Ohio

Approved By: R. W. Runyon
R. W. Runyon
Project Manager
Transportation Research Center of Ohio

Report Accepted By: M. W. Monk
M. W. Monk
Project Engineer
Vehicle Research & Test Center

Report Accepted By: _____
T. MacLaughlin
Project Manager
Vehicle Research & Test Center

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle SIDE PROTECTION IN 2-DOOR AND 4-DOOR PRODUCTION VEHICLES MDB-TO-CAR SIDE IMPACT TEST OF A 19 ⁰ CRABBED MOVING DEFORMABLE BARRIER TO A 1981 DODGE OMNI AT 34.3 MPH		5. Report Date MARCH 1984	6. Performing Organization Code
7. Author(s) J. Stultz, Project Engineer, TRCO		8. Performing Organization Report No. 840216	
9. Performing Organization Name and Address Vehicle Research and Test Center St. Rt. 33, Logan County East Liberty, Ohio 43319		10. Work Unit No. (TRAIS)	11. Contract or Grant No. DTNH22-82-A-08401
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration 400 Seventh Street, S.W. Washington, DC 20590		13. Type of Report and Period Covered FINAL REPORT February 1984	
14. Sponsoring Agency Code			
15. Supplementary Notes			
16. Abstract This test report documents one of a series of thirteen crash tests to evaluate side impact protection in various vehicle models. Testing was conducted on a 1981 Dodge Omni 2-door Hatchback at the TRCO Crash Test Facility, East Liberty, Ohio. The test vehicle was impacted on the left side by a moving deformable barrier, crabbed to 19 ⁰ , at 34.3 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 February 16, 1984 and the ambient temperature was 46 ⁰ F.			
17. Key Words Occupant Response Moving Barrier Crash Testing		18. Distribution Statement Available from: Technical Reference Division, National Highway Traffic Safety Administration Room 5108, Nassif Building 400 Seventh Street, S.W. Washington, DC 20590	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 171	22. Price

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

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

Approximate Conversions from Metric Measures

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



TABLE OF CONTENTS

	<u>Page</u>
1.0 PURPOSE AND INTRODUCTION	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>Figure</u>	<u>Page</u>
A-1. PRE-TEST OVERALL - VIEW 1	A-2
A-2. PRE-TEST OVERALL - VIEW 2	A-2
A-3. PRE-TEST OVERALL - VIEW 3	A-3
A-4. PRE-TEST OVERALL - VIEW 4	A-3
A-5. PRE-TEST CLOSEUP - VIEW 1	A-4
A-6. PRE-TEST CLOSEUP - VIEW 2	A-4
A-7. PRE-TEST CLOSEUP - VIEW 3	A-5
A-8. PRE-TEST DRIVER DUMMY - VIEW 1	A-5
A-9. PRE-TEST DRIVER DUMMY - VIEW 2	A-6
A-10. PRE-TEST PASSENGER DUMMY - VIEW 1	A-6
A-11. PRE-TEST PASSENGER DUMMY - VIEW 2	A-7
A-12. POST-TEST OVERALL - VIEW 1	A-7
A-13. POST-TEST OVERALL - VIEW 2	A-8
A-14. POST-TEST OVERALL - VIEW 3	A-8
A-15. POST-TEST OVERALL - VIEW 4	A-9
A-16. POST-TEST CLOSEUP	A-9
A-17. POST-TEST DRIVER DUMMY - VIEW 1	A-10
A-18. POST-TEST DRIVER DUMMY - VIEW 2	A-10
A-19. POST-TEST DRIVER DUMMY - VIEW 3	A-11
A-20. POST-TEST PASSENGER DUMMY - VIEW 1	A-11
A-21. POST-TEST PASSENGER DUMMY - VIEW 2	A-12
A-22. POST-TEST VEHICLE DAMAGE	A-12
A-23. PRE-TEST MDB FACE - VIEW 1	A-13
A-24. PRE-TEST MDB FACE - VIEW 2	A-13
A-25. POST-TEST MDB FACE - VIEW 1	A-14
A-26. POST-TEST MDB FACE - VIEW 2	A-14

SECTION 1.0
PURPOSE AND INTRODUCTION

PURPOSE

The main purpose of this test was to evaluate side impact protection in one of a fleet of 2-door and 4-door vehicles. The vehicle was tested using conditions not currently contained in a Federal Motor Vehicle Safety Standard.

INTRODUCTION

A stationary 1981 Dodge Omni 2-door hatchback was impacted on the left side by a Moving Deformable Barrier (MDB) on February 16, 1984. The test was to simulate an intersection collision with the striking vehicle traveling at 26 mph and the struck vehicle traveling at 13 mph. The orientation angle of the striking vehicle was 60° counterclockwise with respect to the longitudinal axis of the struck vehicle. The impact point was to be 37 inches forward of the vehicle center of gravity which is defined by accident investigation to be the midpoint of the wheelbase.

To simulate this collision, the MDB was to be towed into the stationary Dodge Omni at 34.4 mph with the MDB's wheels crabbed clockwise to 19°. The actual test speed was 34.3 mph and the actual impact point was 38. inches forward of the midpoint of the Dodge Omni's wheelbase.

The vehicle was a baseline model with no structural modification. The driver door and left rear occupant wall were unpadded.

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

SECTION 2.0
GENERAL TEST AND VEHICLE PARAMETER DATA

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

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Chrysler Corporation

MAKE/MODEL: Dodge Omni

VIN: 1B3BL14A2BD297715

BODY STYLE: 2-Door Hatchback

MODEL YEAR: 1981

NHTSA NO.: R & D

COLOR: Black

ENGINE DATA: TYPE: Transverse

CYLINDERS: 4

DISPLACEMENT: 105 CID

TRANSMISSION DATA: 4 Speed Manual

DATE VEHICLE RECEIVED: 2/9/84

ODOMETER READING: 19368

DEALER'S NAME AND ADDRESS: Don McKinney Auto Sales
Sidney, Ohio 45365

ACCESSORIES:

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

AUTOMATIC TRANSMISSION No
AUTOMATIC SPEED CONTROL No
TILTING STEERING WHEEL No
TELESCOPING STEERING WHEEL No
AIR CONDITIONING No
ANTI-SKID BRAKE No
REAR WINDOW DEFROSTER 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 CERTIFICATION LABEL ON LEFT DOOR FACE OR "B" POST:

VEHICLE MANUFACTURED BY: Chrysler Corporation

DATE OF MANUFACTURE: 5/81

GVWR: 3360 LBS.,

GAWR: FRONT 1785 LBS., REAR 1625 LBS.

VEHICLE TIRE DATA

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

TIRES ON VEHICLE (MFG. & LINE, SIZE): Goodyear Viva P175/75 R 13

BIAS PLY, BELTED, OR RADIAL: Radial

PLY RATING: 3

IS SPARE TIRE "SPACE SAVER"? Yes

IS SPARE TIRE STANDARD EQUIPMENT? Yes

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

RIGHT FRONT	700	LBS.	RIGHT REAR	380	LBS.
LEFT FRONT	670	LBS.	LEFT REAR	430	LBS.
TOTAL FRONT WEIGHT	1370		LBS. (62.8 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	810		LBS. (37.2 % OF TOTAL VEHICLE WEIGHT)		
TOTAL DELIVERED WEIGHT	2180		LBS.		

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 24 15/16	;LF 25	;RR 24 3/8	;LR 24 1/4
PRE-TEST ATTITUDE:	RF 24 1/8	;LF 23 3/4	;RR 23 7/8	;LR 23 1/2
POST-TEST ATTITUDE:	RF 24 3/16	;LF 24 15/16	;RR 21 7/16	;LR 22 3/4

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 132 LBS. CARGO:

RIGHT FRONT	700	LBS.	RIGHT REAR	590	LBS.
LEFT FRONT	740	LBS.	LEFT REAR	630	LBS.
TOTAL FRONT WEIGHT	1440		LBS. (54.1 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	1220		LBS. (45.9 % OF TOTAL VEHICLE WEIGHT)		
TOTAL TEST WEIGHT	2660		LBS.		

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

TEST FLUID DATA

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

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

"USEABLE" CAPACITY*: NA GALLONS

TEST VOLUME: 4.0 GALLONS

FUEL SYSTEM CAPACITY (DATA FROM OWNERS MANUAL): 13 GALLONS

DETAILS OF FUEL SYSTEM: DNA

ELECTRIC FUEL PUMP: No

FUEL INJECTION: No

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

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

VEHICLE LOAD (UP TO CAPACITY): FRONT 35 psi; REAR 35 psi

RECOMMENDED TIRE SIZE: P175/75 R 13 LOAD RANGE X B, C,

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

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

CARGO LOAD 115 LBS.

TOTAL 865 LBS.

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

TEST CONDITIONS

TEST NUMBER: 840216

DATE OF TEST: February 16, 1984

TIME OF TEST: 12:20

WIND VELOCITY: 4-5 mph 110° ESE

HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 46° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 76° F

SUBJECT VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
VEHICLE TEST WEIGHT (LBS.)	2660	2643
MDB TEST WEIGHT (LBS.)	2990	3000
MDB VELOCITY (MPH)*	34.3	34.4
IMPACT POINT (INCHES)**	38.	37

DUMMIES

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

RESTRAINT SYSTEM: Both dummies were unrestrained

* As measured over final one foot of travel.

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

VISIBLE DUMMY CONTACT POINTS:

	DRIVER 06	PASSENGER U02
Head	<u>Side Window, Barrier Top</u>	<u>C-Pillar</u>
Chest	<u>Driver's Door</u>	<u>Left Rear Panel</u>
Abdomen	<u>Driver's Door</u>	<u>Left Rear Panel</u>
Left Knee	<u>Driver's Door</u>	<u>Left Rear Panel</u>
Right Knee	<u>Left Knee</u>	<u>Left Knee</u>

DOOR OPENING:

	LEFT	RIGHT
Front	<u>Tools Required</u>	<u>Easy</u>
Rear	<u>DNA</u>	<u>DNA</u>

SEAT MOVEMENT:

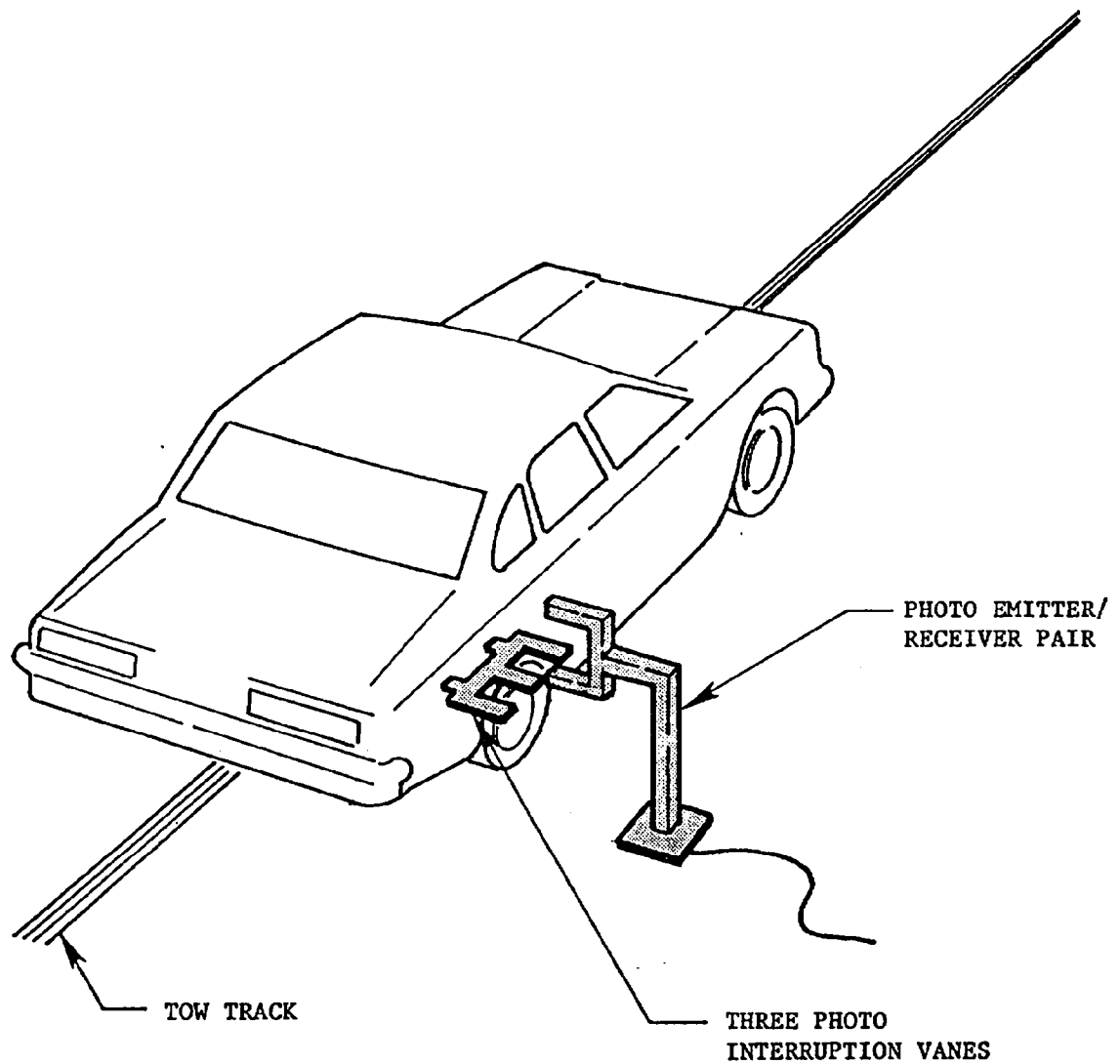
	SEAT BACK FAILURE	SEAT SHIFT
Front	<u>No</u>	<u>Yes</u>
Rear	<u>No</u>	<u>No</u>

GLAZING DAMAGE: Windshield cracked left side. All left side windows
shattered; no backlight damage.

OTHER NOTABLE IMPACT EFFECTS:

Driver's door spearated from top hinge; driver dummy
left knee severed.

IMPACT VELOCITY MEASUREMENT SYSTEM



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

VEHICLE TEST WEIGHT CALCULATION

Test Weight = Unloaded Delivered Weight +
 Number of Dummies X 174 lbs. +
 Cargo Weight
 = 2180 + 2 X 174 + 115 lbs.
 = 2643 lbs.

To achieve test weight, the exhaust system, fan, battery and alternator were removed and 4 gallons of Stoddard Solvent were added in the fuel tank. The weight of the test vehicle was measured by placing each wheel on a Loadmeter Corporation Hiway Loadmeter.

SECTION 3.0
DATA REQUIRED BY R&D

The following pages are included in this section:

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

DUMMY TEMPERATURE CONTROL AND POSITIONING

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

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

DUMMY PLACEMENT AND POSITIONING

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

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

DUMMY IN-VEHICLE POSITION RECORDING SHEET

VEHICLE NHTSA NO. R & D

MFR./MAKE/MODEL: Dodge Omni

FRONT SEAT TYPE: BENCH
X BUCKET
SPLIT BENCH

ADJUSTER TYPE: X MANUAL
POWER

BUCKET SEAT BACK TYPE: X FIXED
ADJUSTABLE

TECHNICIANS:

1. D. LeVally

2. B. Miller

3. B. Fishbaugh

POSITIONING DATE: 2/16/84

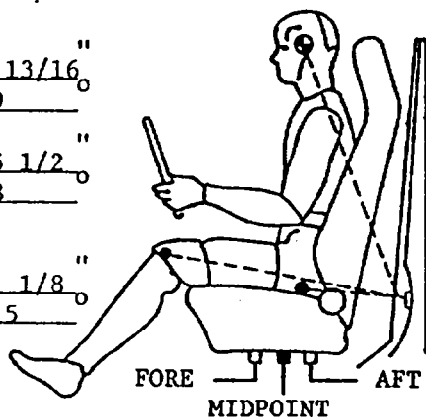
AMBIENT TEMP.: 73° F. TIME: 7:45

DRIVER DUMMY # 06

HEAD 24 13/16"
 TARGET* 39

KNEE 35 1/2"
 JOINT 98

APPROX.
 "H" 21 1/8"
 POINT 115

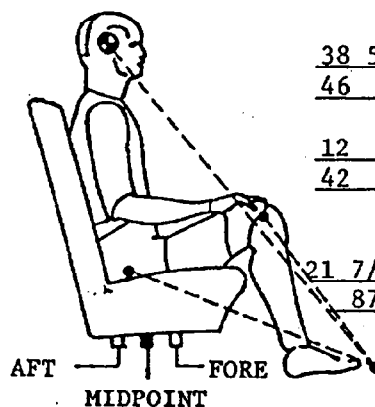


REAR PASSENGER DUMMY # U02

38 5/8" HEAD
46" TARGET**

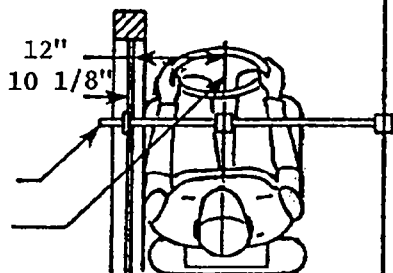
12" KNEE
42" JOINT

APPROX.
21 7/16" "H"
87" POINT



DOOR
 GLASS
 HEIGHT*** 10 1/8"

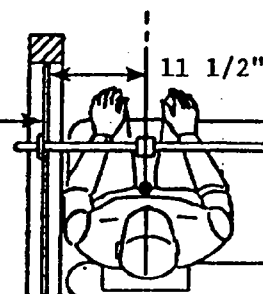
LATERAL BAR
 ADJUSTABLE
 POINTER



DRIVER
 DUMMY #
 06

DOOR
 GLASS
 HEIGHT

DNA

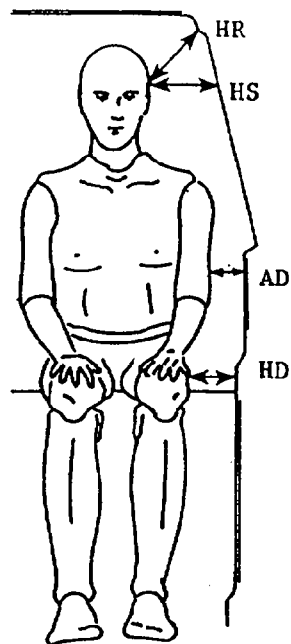


PASSENGER
 DUMMY #
 U02

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

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

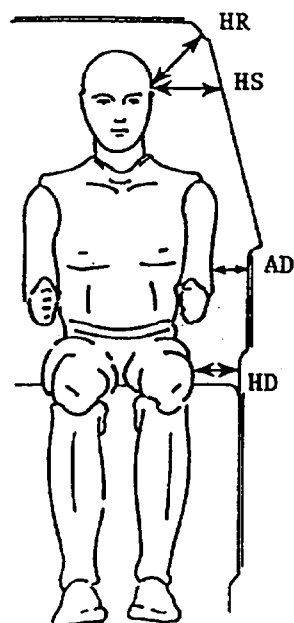
***Door glass height is equal on the right and left side of vehicle at dummy nose level.



DRIVER
06

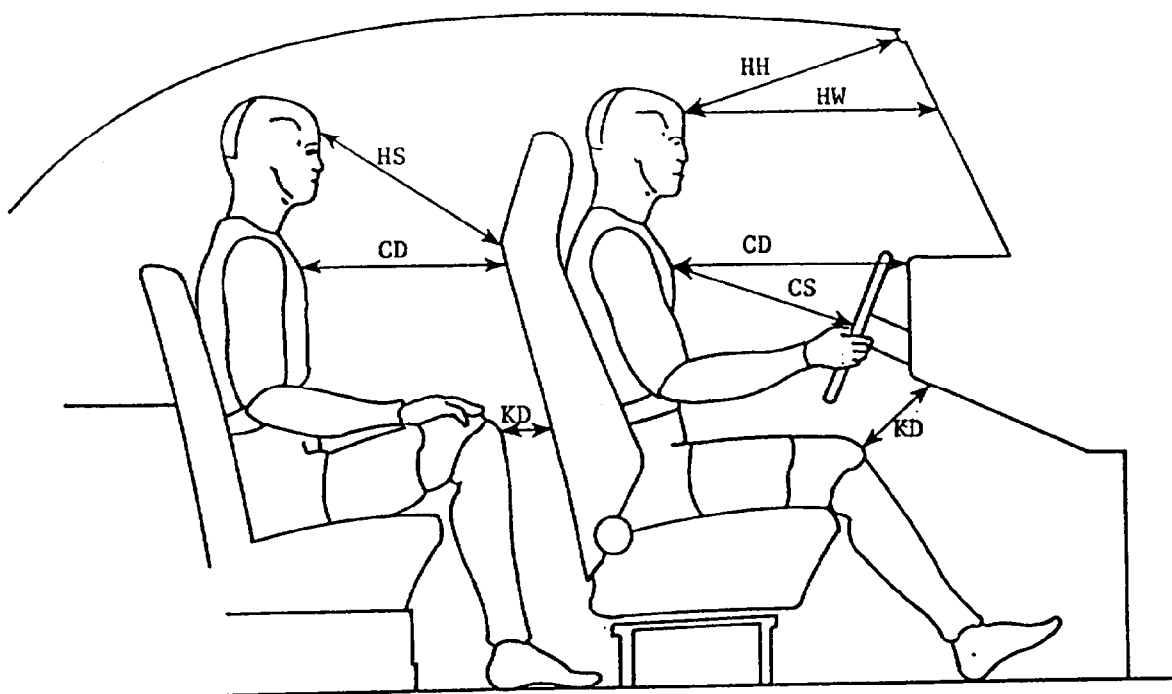
PASSENGER
U02

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



ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



DRIVER
06

PASSENGER
U02

HH	9 13/16	DNA
HW	15	DNA
HS	DNA	16 15/16
CD	18 1/4	14 1/2
CS	16 3/4	DNA
KDL	9	3/16
KDR	9 3/8	1

ALL MEASUREMENTS IN INCHES

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

DUMMY KINEMATIC SUMMARY

DRIVER

During impact, the dummy's torso contacted the driver's door and the head contacted the driver's side window and the top of the moving deformable barrier face. The dummy rebounded rearward across the front occupant compartment. The buttocks struck the front passenger's door and it's head and shoulder's struck the roof. The dummy rebounded from the passenger's side and came to rest sitting upright in the front passenger's seat facing the driver's door.

PASSENGER

During impact, the dummy's torso struck the left rear passenger's side wall and the head contacted the C-pillar. The dummy rebounded laterally partially across the rear occupant compartment in an upright position. The dummy came to rest sitting upright and leaning against the left rear side wall.

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

LOCATION	HEIGHT (in)	6	0	6	12	18	24	30	36	42	48	54	60	66	72	78
		PRE-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)														
Axle Height	9.3	X	X	19.3	19.3	19.3	19.1	19.2	19.1	19.1	19.0	19.0	19.1	19.9	X	X
H-Point	17.6	X	15.3	15.3	15.3	15.3	15.3	15.3	15.4	15.4	15.4	15.5	15.6	15.6	X	X
Mid Door	22.9	X	15.5	15.2	15.1	15.1	15.1	15.1	15.1	15.1	15.2	15.2	15.3	15.3	15.4	14.9
Window Sill	33.4	18.9	18.8	18.6	18.6	18.6	18.9	18.4	18.4	18.5	18.5	18.5	18.5	18.6	18.6	18.6
Window Top	48.0	X	X	X	X	X	X	25.3	25.1	25.1	25.0	25.0	25.0	25.3	X	X

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

Axle Height	9.3	X	X	23.3	26.2	26.9	26.8	26.9	26.9	27.1	27.5	25.9	23.3	21.1	X	X
H-Point	17.6	X	22.3	24.3	28.8	31.8	34.5	34.4	33.2	32.3	30.2	28.1	26.5	24.3	X	X
Mid Door	22.9	X	20.9	21.5	26.4	29.6	31.6	31.5	30.6	29.1	27.8	26.3	25.8	22.6	19.7	17.3
Window Sill	33.4	20.4	20.8	21.5	24.1	27.2	29.9	30.5	29.3	27.8	25.9	24.2	25.3	22.8	22.0	20.4
Window Top	48.0	X	X	X	X	X	X	28.6	28.3	28.2	28.1	28.0	27.7	27.9	X	X

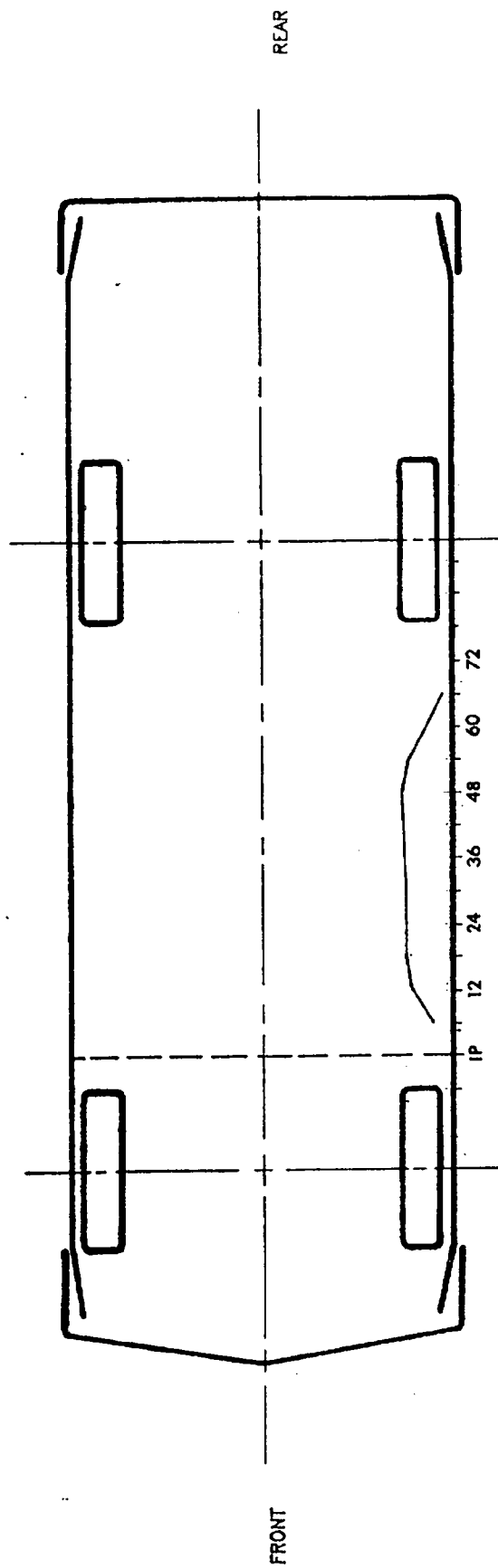
STATIC CRUSH (IN)

Axle Height	9.3	X	X	3.0	6.9	7.6	7.7	7.7	7.8	8.0	8.5	6.9	4.2	1.2	X	X
H-Point	17.6	X	7.0	9.0	13.5	16.5	19.2	19.1	17.8	16.9	14.8	12.6	10.9	8.7	X	X
Mid Door	22.9	X	5.4	6.3	11.3	14.5	16.5	16.4	15.5	14.0	12.6	11.1	10.5	7.3	4.3	2.4
Window Sill	33.4	1.5	2.0	2.9	5.5	8.6	11.0	12.1	10.9	9.3	7.4	5.7	6.8	4.2	3.4	1.8
Window Top	48.0	X	X	X	X	X	X	3.3	3.2	3.1	3.1	3.0	2.7	2.6	X	X

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

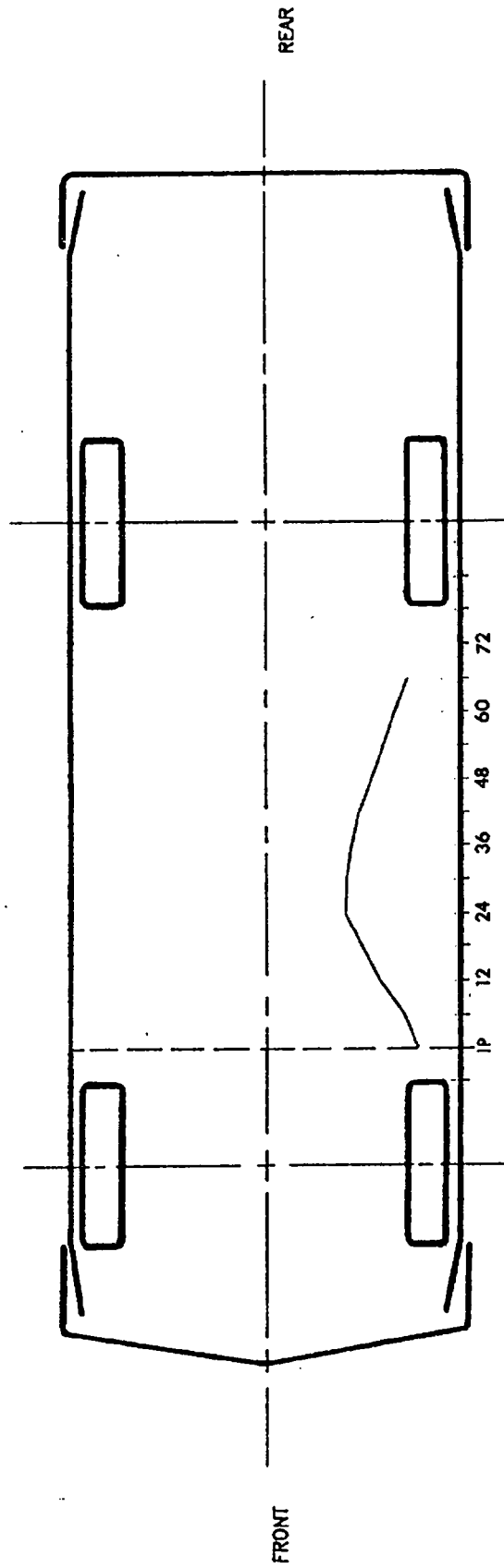
** Reference plane is parallel to and 48 inches from the vehicle longitudinal centerline.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



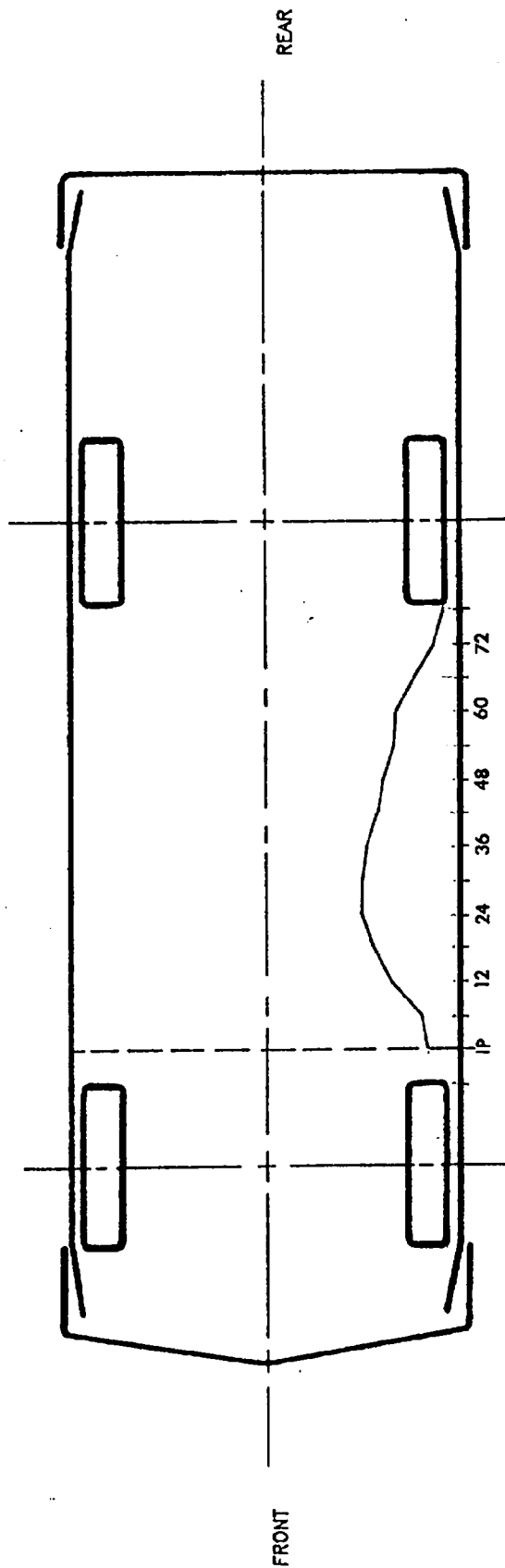
PROFILE LEVEL EQUALS AXLE HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



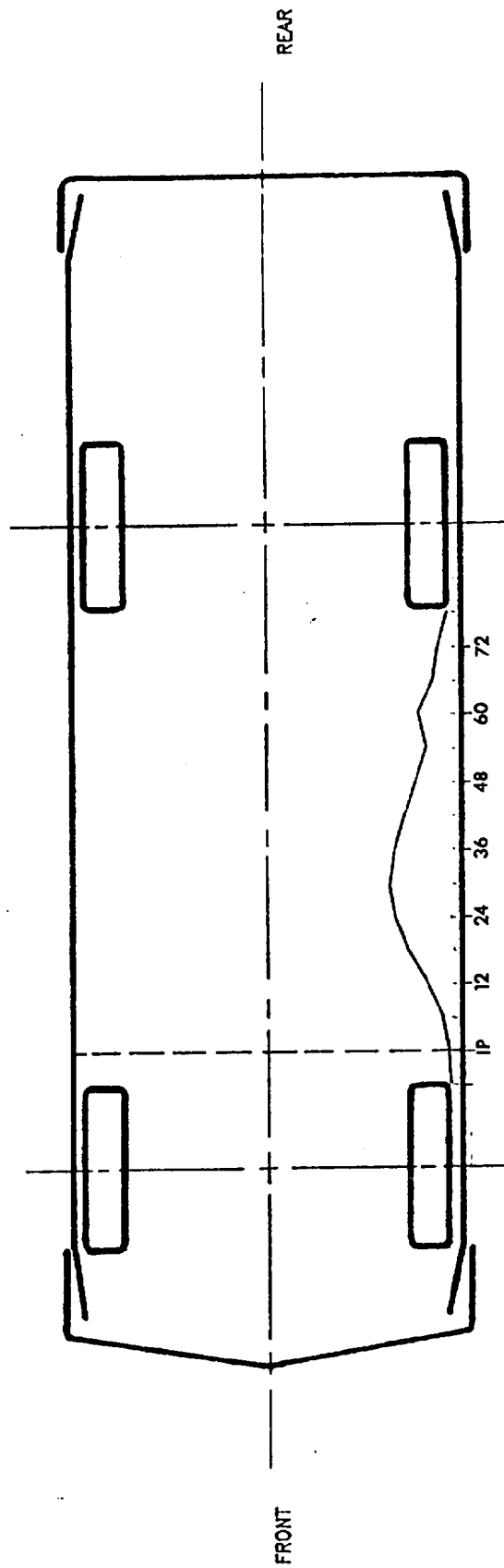
PROFILE LEVEL EQUALS H-POINT HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



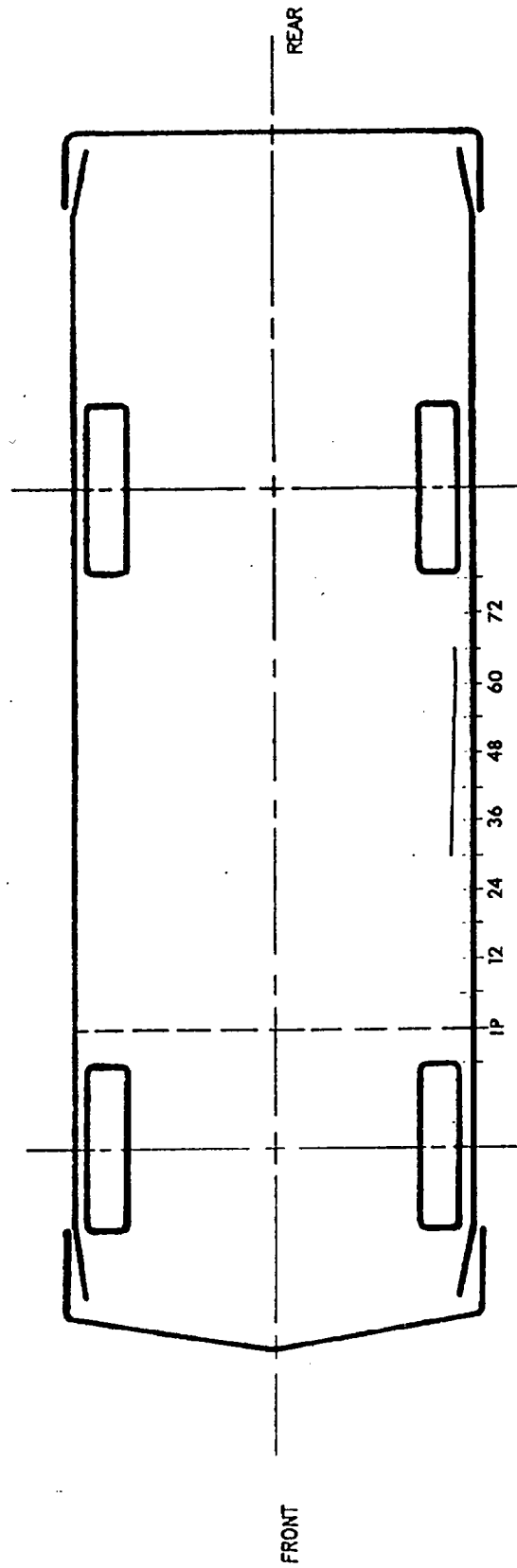
PROFILE LEVEL EQUALS MID-DOOR HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW SILL HEIGHT
 IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT
 IP EQUALS PROJECTED IMPACT POINT

SIDE IMPACT DUMMY DATA SUMMARY

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE		NEGATIVE		POSITIVE		NEGATIVE	
	DIRECTION*		DIRECTION**		DIRECTION*		DIRECTION**	
	MAX	TIME	MAX	TIME	MAX	TIME	MAX	TIME
	(g)	(msec)	(g)	(msec)	(g)	(msec)	(g)	(msec)
HEAD ACCELERATION								
LONGITUDINAL	38.95	229.13	68.90	110.50	20.58	263.63	20.30	115.13
LATERAL	48.05	105.63	27.09	229.13	102.73	73.50	19.75	263.25
VERTICAL	37.01	284.00	64.49	91.00	38.49	110.38	45.54	73.38
RESULTANT		86.40 @ 110.50				112.24 @ 73.38		
HIC	822.70	from 76.50 to 116.88			218.46	from 72.38 to 75.00		
CHEST ACCELERATION								
UPPER SPINE								
LONGITUDINAL	34.76	279.38	22.32	71.25	6.11	140.00	34.52	109.38
LATERAL (P)***	112.08	70.00	25.23	93.75	35.17	102.50	6.39	138.13
LATERAL (R)***	113.17	70.00	24.42	93.75	35.99	102.50	5.88	138.13
VERTICAL	10.96	56.25	19.43	70.63	5.27	94.38	8.98	111.88
RESULTANT (P)		115.61 @ 70.00				39.24 @ 103.13		
RESULTANT (R)		116.67 @ 70.00				40.05 @ 103.13		
DELTA V (MPH)****		25.6 @ 83.75 (P)				21.0 @ 129.38 (P)		
		26.6 @ 83.75 (R)				21.1 @ 129.38 (R)		
LOWER SPINE								
LONGITUDINAL	29.70	91.87	29.02	86.88	3.81	146.88	22.26	93.75
LATERAL (P)	95.43	68.13	45.38	85.63	47.70	92.50	4.81	114.37
LATERAL (R)	96.64	68.13	52.62	86.25	48.40	92.50	3.26	114.38
VERTICAL	15.00	65.00	2.70	210.00	6.65	95.00	4.52	112.50
RESULTANT (P)		97.00 @ 68.13				51.97 @ 92.50		
RESULTANT (R)		98.19 @ 68.13				52.69 @ 93.13		
DELTA V (MPH)		32.3 @ 81.88 (P)				21.6 @ 112.50 (P)		
		32.9 @ 82.50 (R)				22.7 @ 112.50 (R)		
LEFT UPPER RIB								
LATERAL (P)	78.36	65.63	11.17	106.87	42.62	98.12	4.45	340.00
LATERAL (R)	79.68	65.63	10.65	106.87	43.39	98.12	3.50	340.00
DELTA V (MPH)		25.0 @ 96.25 (P)				21.9 @ 192.50 (P)		
		25.0 @ 95.63 (R)				23.4 @ 189.38 (R)		
LEFT LOWER RIB								
LATERAL (P)	97.39	65.00	27.53	91.25	46.04	98.75	5.33	120.63
LATERAL (R)	100.55	65.00	25.88	91.25	51.20	98.75	4.96	112.50
DELTA V (MPH)		28.1 @ 88.50 (P)				18.6 @ 163.75 (P)		
		28.7 @ 88.50 (R)				22.7 @ 166.25 (R)		
PELVIS ACCELERATION								
LONGITUDINAL	7.39	72.13	58.44	58.63	2.84	193.63	39.68	86.00
LATERAL	170.01	56.88	18.58	42.88	64.56	87.50	3.98	224.50
VERTICAL	12.49	64.25	4.03	103.25	5.71	118.13	7.96	91.13
RESULTANT		172.13 @ 56.88				67.55 @ 87.38		
DELTA V (MPH)		28.6 @ 86.88				22.4 @ 113.38		

SIDE IMPACT DUMMY DATA SUMMARY CONTD

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE DIRECTION*		NEGATIVE DIRECTION**		POSITIVE DIRECTION*		NEGATIVE DIRECTION**	
	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)
RIB DEFLECTION †	0.03	281.00	1.88	110.25	0.02	70.75	1.48	107.75

* LONGITUDINAL: FORWARD
 LATERAL: RIGHTWARD
 VERTICAL: UPWARD

**LONGITUDINAL: REARWARD
 LATERAL: LEFTWARD
 VERTICAL: DOWNWARD

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

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

† Compression: Negative

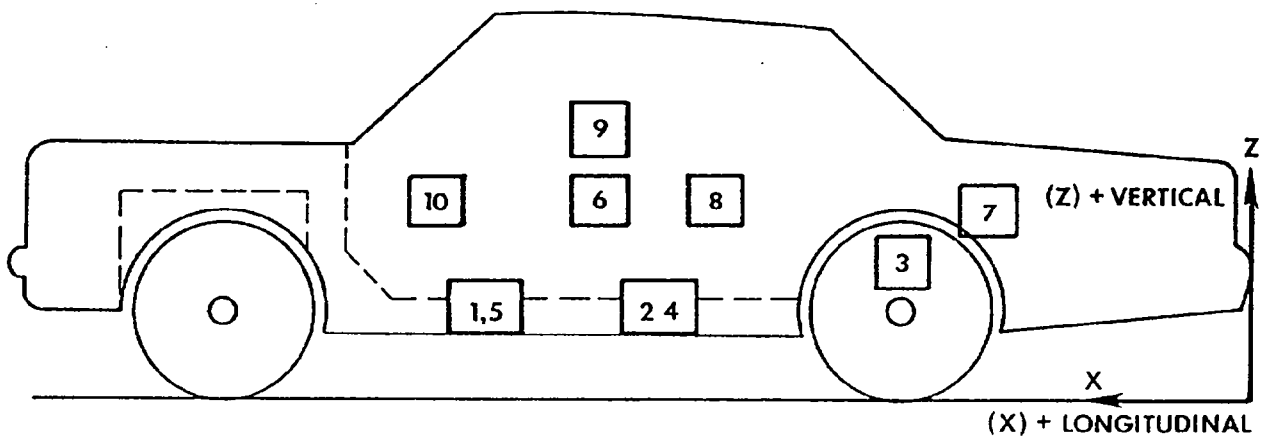
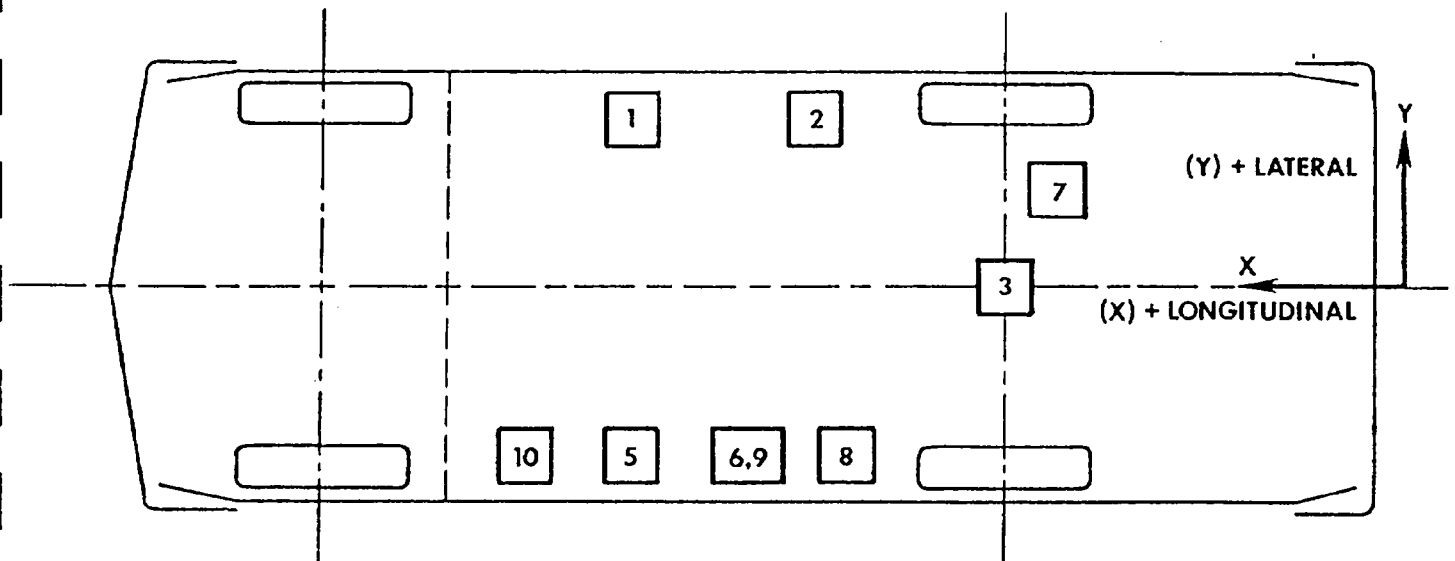
VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	RIGHT SILL AT FRONT SEAT	101.5	23.8	9.1				
	(LONGITUDINAL)	$\Delta V = -4.9 \text{ mph @ } 140.00 \text{ msec}$			4.01	99.13	5.52	105.50
	(LATERAL)	$\Delta V = 9.8 \text{ mph @ } 140.00 \text{ msec}$			9.72	68.88	5.88	98.13
	(VERTICAL)				8.20	89.25	20.35	97.63
	(RESULTANT)					21.29 @	97.88	
2	RIGHT SILL AT REAR SEAT	72.9	23.7	9.3				
	(LONGITUDINAL)	$\Delta V = -5.2 \text{ mph @ } 140.00 \text{ msec}$			4.96	95.75	5.16	74.13
	(LATERAL)	$\Delta V = 15.2 \text{ mph @ } 140.00 \text{ msec}$			15.41	101.75	7.04	96.25
	(VERTICAL)				10.92	88.75	27.10	96.63
	(RESULTANT)					28.28 @	96.50	
3	REAR DECK OVER AXLE	38.8	0.0	9.7				
	(LONGITUDINAL)	$\Delta V = -8.3 \text{ mph @ } 140.00 \text{ msec}$			3.57	200.75	12.29	92.38
	(LATERAL)	$\Delta V = 18.3 \text{ mph @ } 140.00 \text{ msec}$			16.94	100.75	2.83	129.38
	(VERTICAL)				6.56	116.50	6.50	92.63
	(RESULTANT)					19.89 @	100.50	
4	LEFT SILL AT REAR SEAT	72.9	-23.3	9.5				
	(LATERAL)	$\Delta V = 3.5 \text{ mph @ } 14.50 \text{ msec}$			27.47	49.13	39.85	28.75
5	LEFT SILL AT FRONT SEAT	101.4	-23.4	9.0				
	(LATERAL)	$\Delta V = 14.0 \text{ mph @ } 96.63 \text{ msec}$			26.06	80.50	12.53	103.75
6	LEFT FRONT DOOR CENTERLINE	91.7	-26.5	18.5				
	(LATERAL)	$\Delta V = 9.9 \text{ mph @ } 53.25 \text{ msec}$			143.04	53.50	113.03	58.63
7	RIGHT REAR COMPARTMENT	31.8	-15.1	17.3				
	(LONGITUDINAL)				2.46	199.13	7.45	88.13
8	MIDREAR OF LEFT FRONT DOOR	83.3	-26.3	24.5				
	(LATERAL)	$\Delta V = 24.0 \text{ mph @ } 76.75 \text{ msec}$			116.70	36.75	70.11	92.75
9	UPPER LEFT FRONT DOOR CENTERLINE	91.7	-26.3	29.3				
	(LATERAL)	$\Delta V = 20.9 \text{ mph @ } 48.50 \text{ msec}$			72.75	35.88	138.36	63.38
10	MIDFRONT OF LEFT FRONT DOOR	100.6	-26.3	23.9				
	(LATERAL)	$\Delta V = 19.6 \text{ mph @ } 40.00 \text{ msec}$			105.22	40.13	181.95	59.75

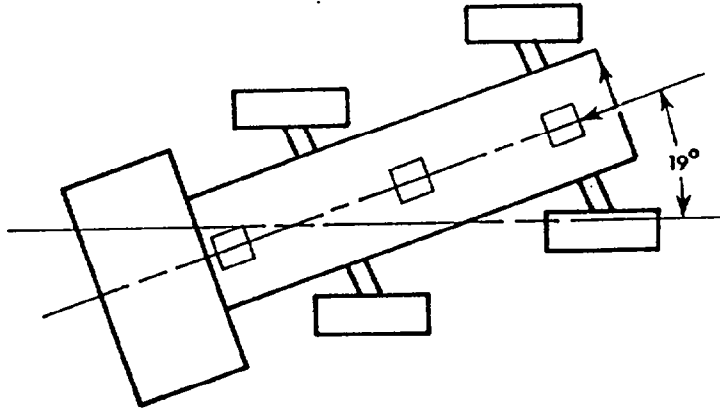
* Reference: X - Rear Bumper (+ Forward), Y - Vehicle Centerline (+ To Right),
Z - Ground Level (+ Up)

All measurements of accelerometer locations in inches.

VEHICLE ACCELEROMETER LOCATIONS



MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY



NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	CENTER OF GRAVITY	74.5	0.0	11.5				
	(LONGITUDINAL)	$\Delta V = -15.4 \text{ mph @ } 140.00 \text{ msec}$			0.70	200.13	9.39	93.00
	(LATERAL)	$\Delta V = -2.6 \text{ mph @ } 140.00 \text{ msec}$			1.63	42.75	3.51	95.38
	(VERTICAL)				14.40	88.50	14.19	81.63
	(RESULTANT)					16.31 @ 88.63		
2	FRONT FRAME MEMBER	130.3	0.0	11.3				
	(LONGITUDINAL)	$\Delta V = -14.4 \text{ mph @ } 140.00 \text{ msec}$			4.24	101.88	9.49	95.38
3	REAR FRAME MEMBER	23.3	0.0	11.5				
	(LONGITUDINAL)	$\Delta V = -16.8 \text{ mph @ } 140.00 \text{ msec}$			1.17	222.63	8.86	96.88

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

All measurements of accelerometer locations in inches.

HIGH SPEED CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead	Photosonics 1B	8	807	Vehicle Dynamics
2	Overhead	Photosonics 1B	25	820	Close-up of impact point
3	Onboard MDB	Photosonics 1B	25	500	Close-up of impact point
4	Onboard MDB	Stalex	13	505	Driver kinematics
5	Ground level - right	Photosonics 1B	25	752	Overall view
6	Ground level - left	Photosonics 1B	17	797	Overall view
7	Onboard vehicle	Photosonics 1B	8	800	Driver kinematics - front view
8	Onboard vehicle	Photosonics 1B	8	802	Driver kinematics
9	Onboard vehicle	Photosonics 1B	8	802	Passenger kinematics

NOTE: CAMERAS ARE NUMBERED ACCORDING TO SPLICING SEQUENCE OF FILM.
 (24 fps) REAL TIME MOVIE FILM COVERAGE OF PRE-CRASH, POST-CRASH
 AND CRASH EVENT SPLICED AT START AND END OF FILM.

LOCATIONS OF OFFBOARD HIGH SPEED CAMERAS

CAMERA NO.	X	Y	Z
1	0	0	25'
2	0	0	25'
5	26'4"	60'	45"
6	-19'7"	-11'3"	45"

Origin of Coordinate System is Point of Impact

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

NON-GOVERNMENT FURNISHED TRANSDUCER INFORMATION

PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NUMBER	SERIAL NUMBER	MFR.	DATE OF LAST CALIBRATION	SENSITIVITY	DESIRED FULL SCALE (ENGR. UNITS)
BOGXG	Accel	4-202-0001	18845	Bell Howell	12/7/83	.237 MV/G	50 G
BOGYG	Accel	4-202-0001	18858	Bell Howell	12/7/83	.240 MV/G	50 G
BOGZG	Accel	4-202-0001	18857	Bell Howell	12/7/83	.240 MV/G	50 G
BFCXG	Accel	4-202-0001	18240	Bell Howell	12/7/83	.240 MV/G	50 G
BRCXG	Accel	4-202-0001	19022	Bell Howell	12/7/83	.222 MV/G	50 G

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

APPENDIX A
PHOTOGRAPHS

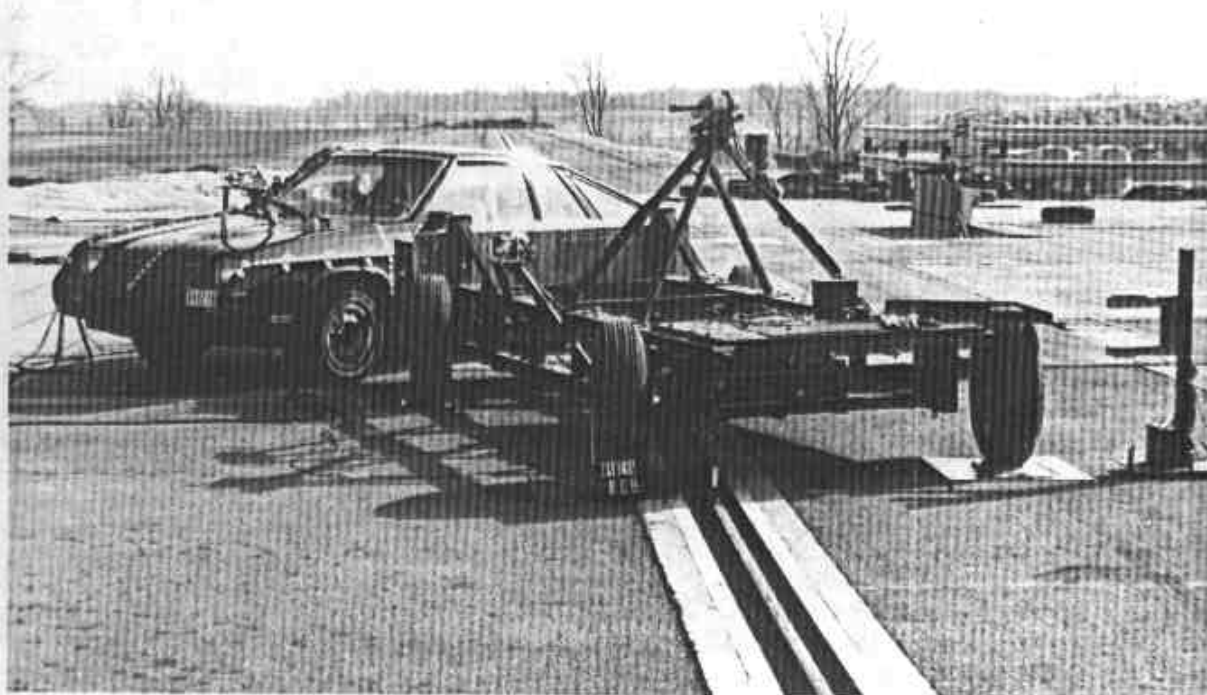


Figure A-1. PRE-TEST OVERALL - VIEW 1

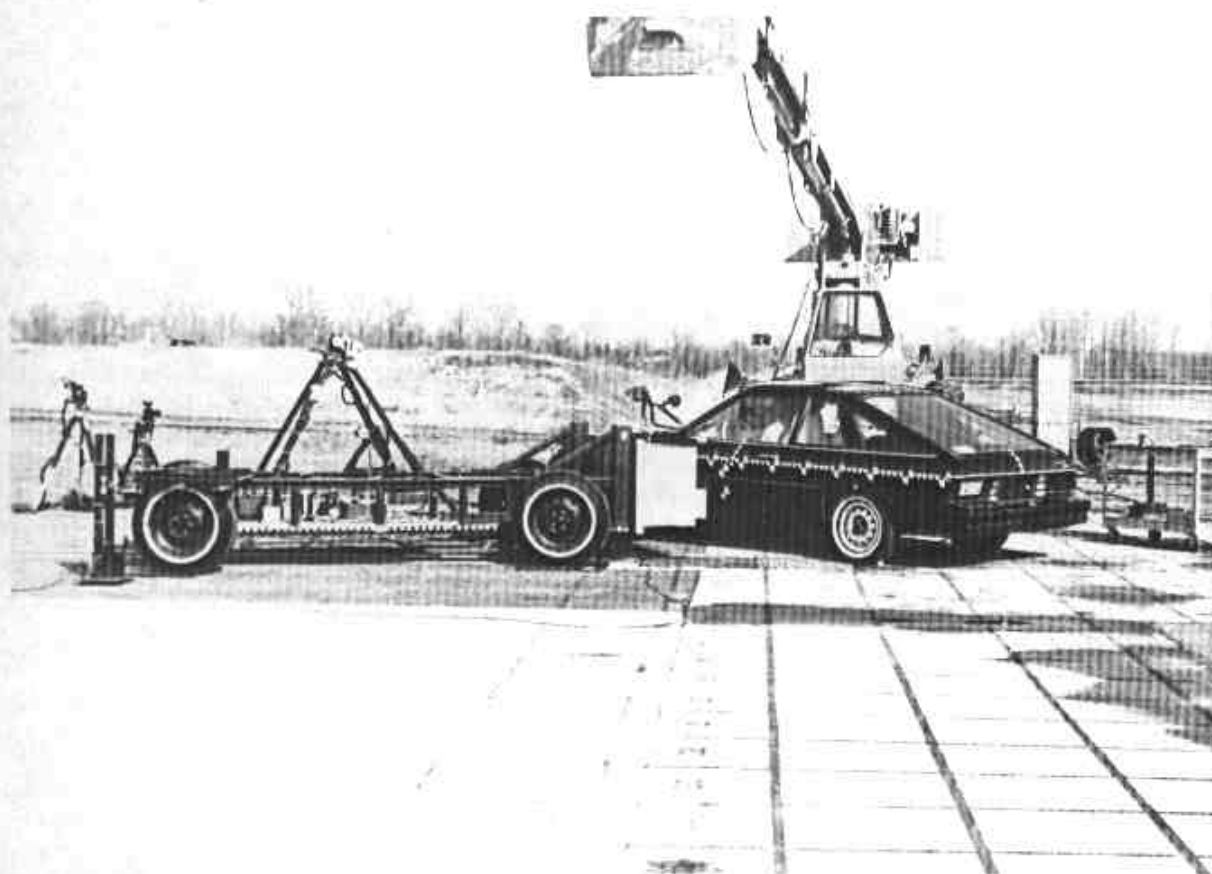


Figure A-2. PRE-TEST OVERALL - VIEW 2
A-2

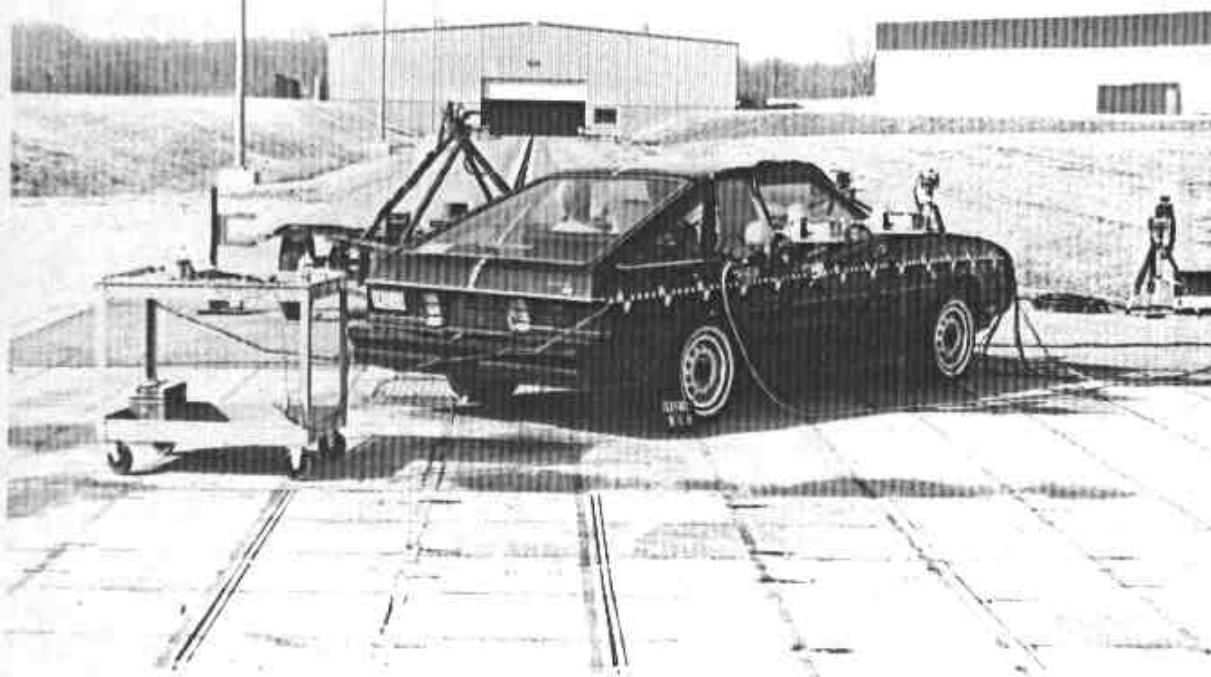


Figure A-3. PRE-TEST OVERALL - VIEW 3



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

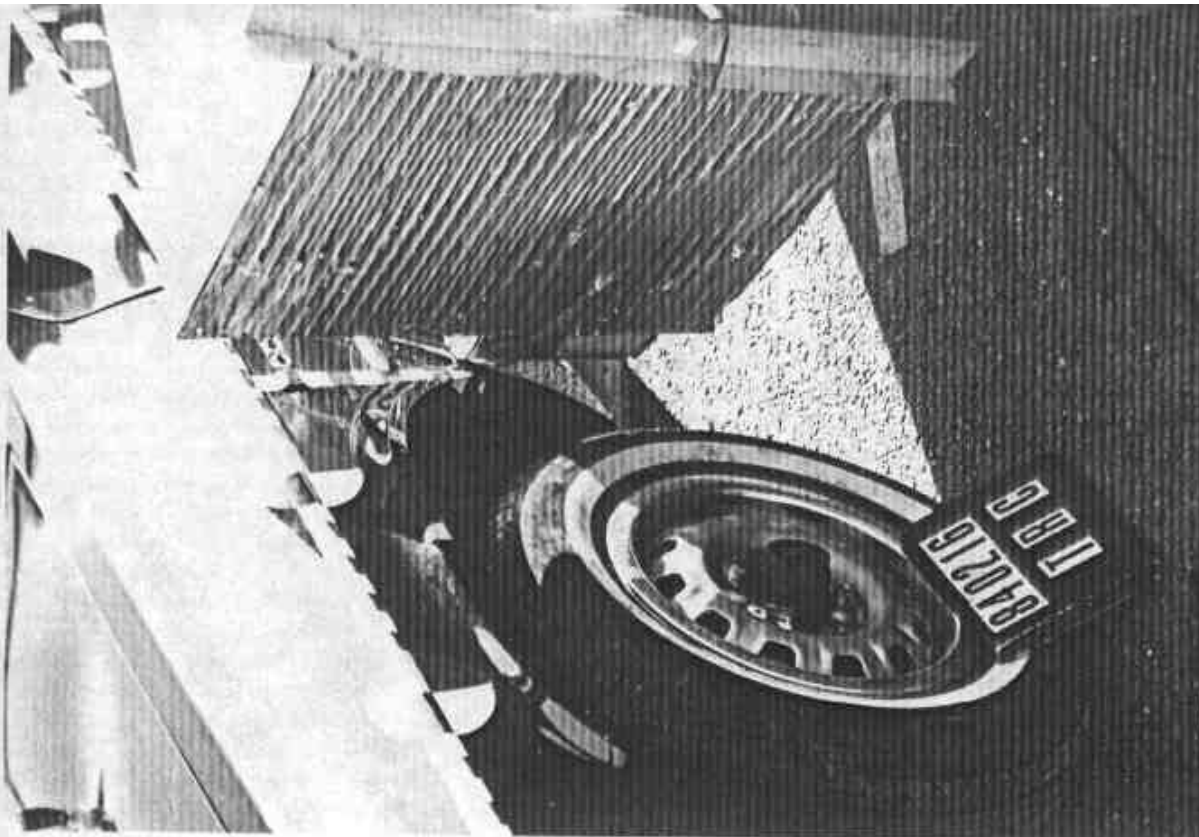


Figure A-5. PRE-TEST CLOSEUP - VIEW 1

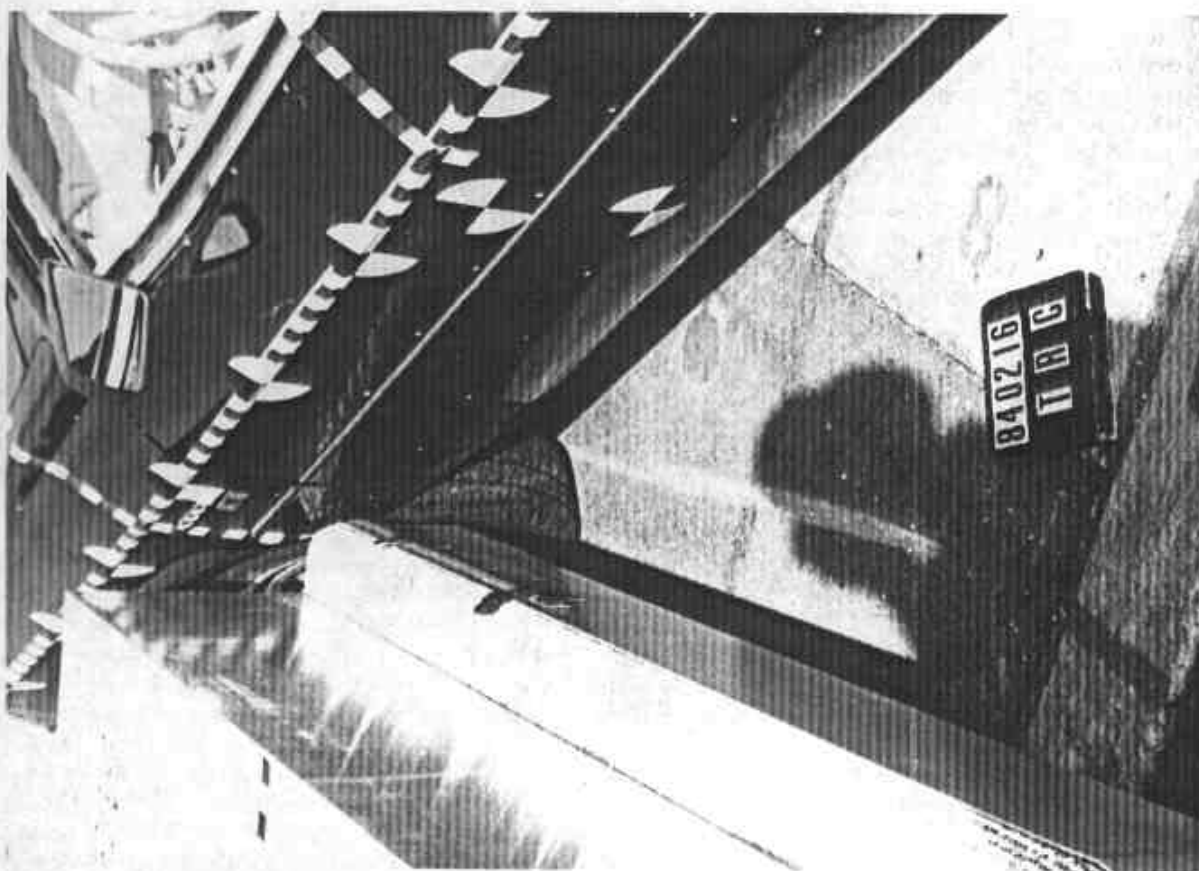


Figure A-6. PRE-TEST CLOSEUP - VIEW 2
A-4

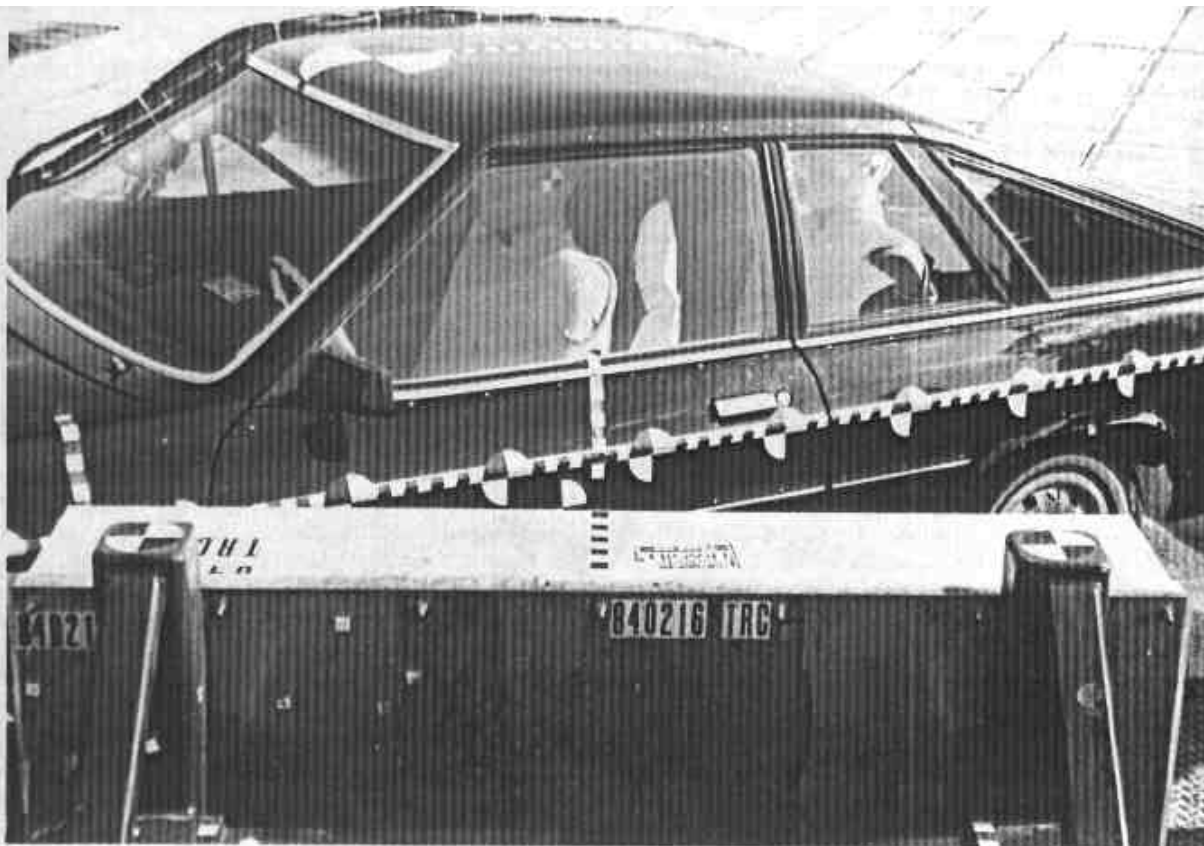


Figure A-7. PRE-TEST CLOSEUP - VIEW 3



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

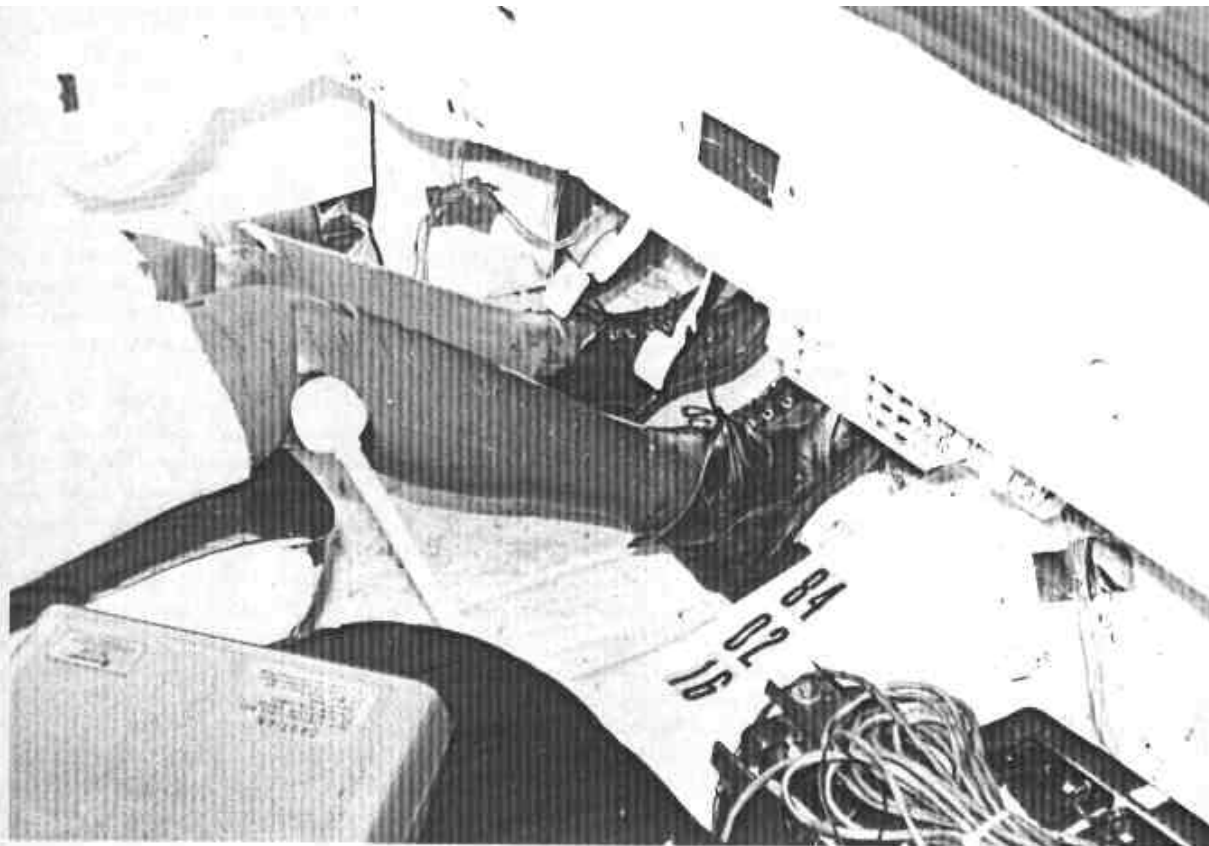


Figure A-9. PRE-TEST DRIVER DUMMY - VIEW 2



Figure A-10. PRE-TEST PASSENGER DUMMY - VIEW 1

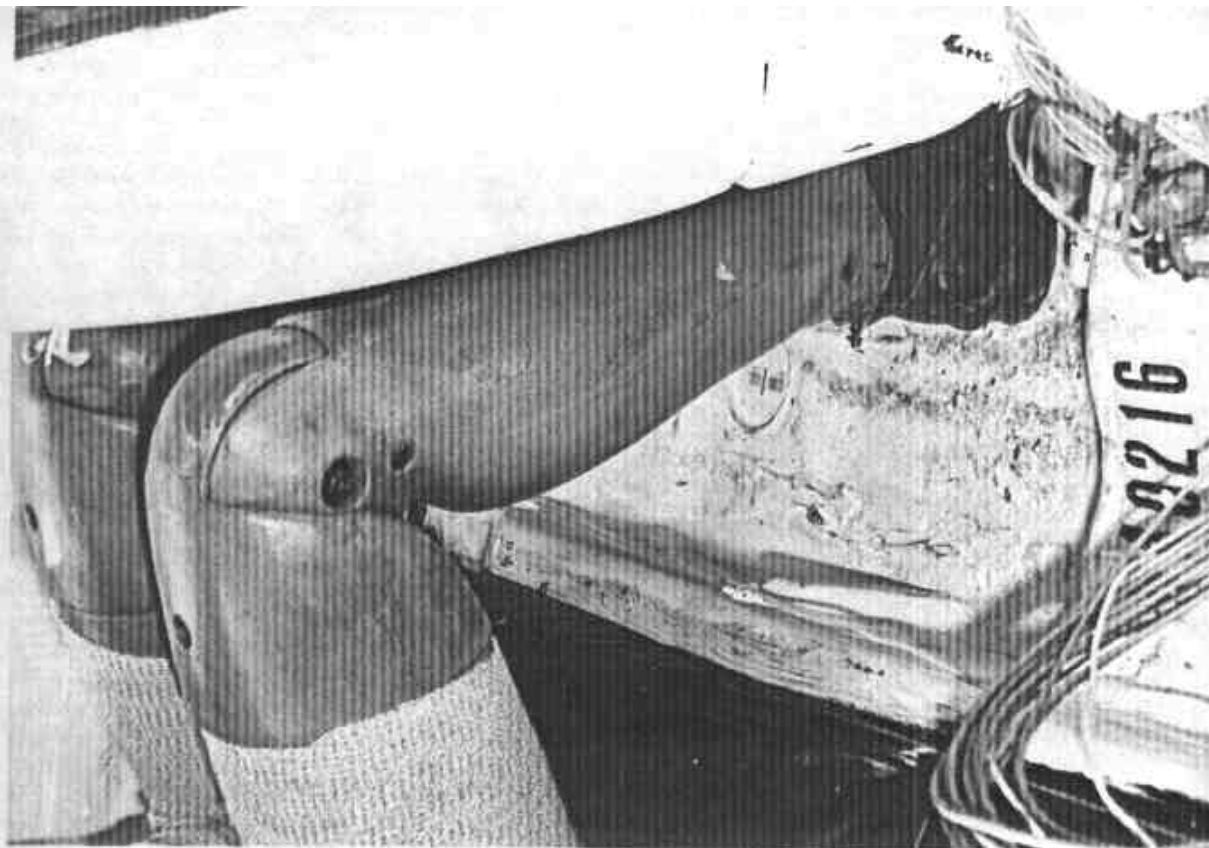


Figure A-11. PRE-TEST PASSENGER DUMMY - VIEW 2

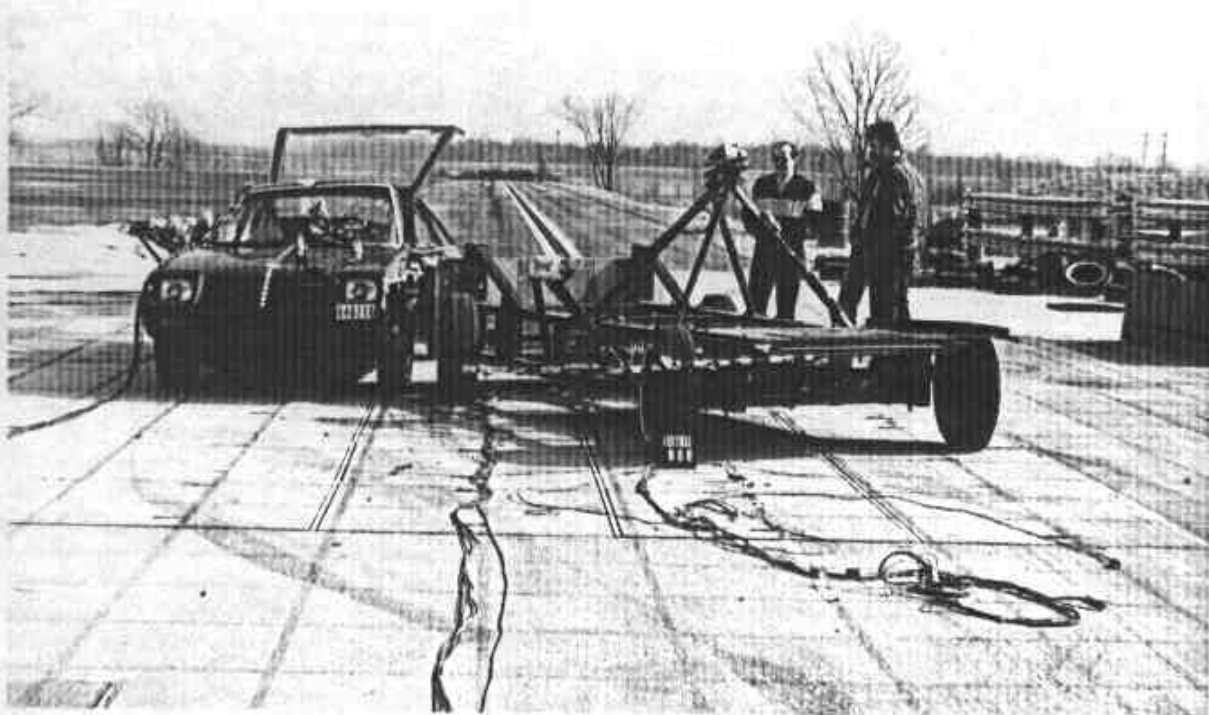


Figure A-12. POST-TEST OVERALL - VIEW 1

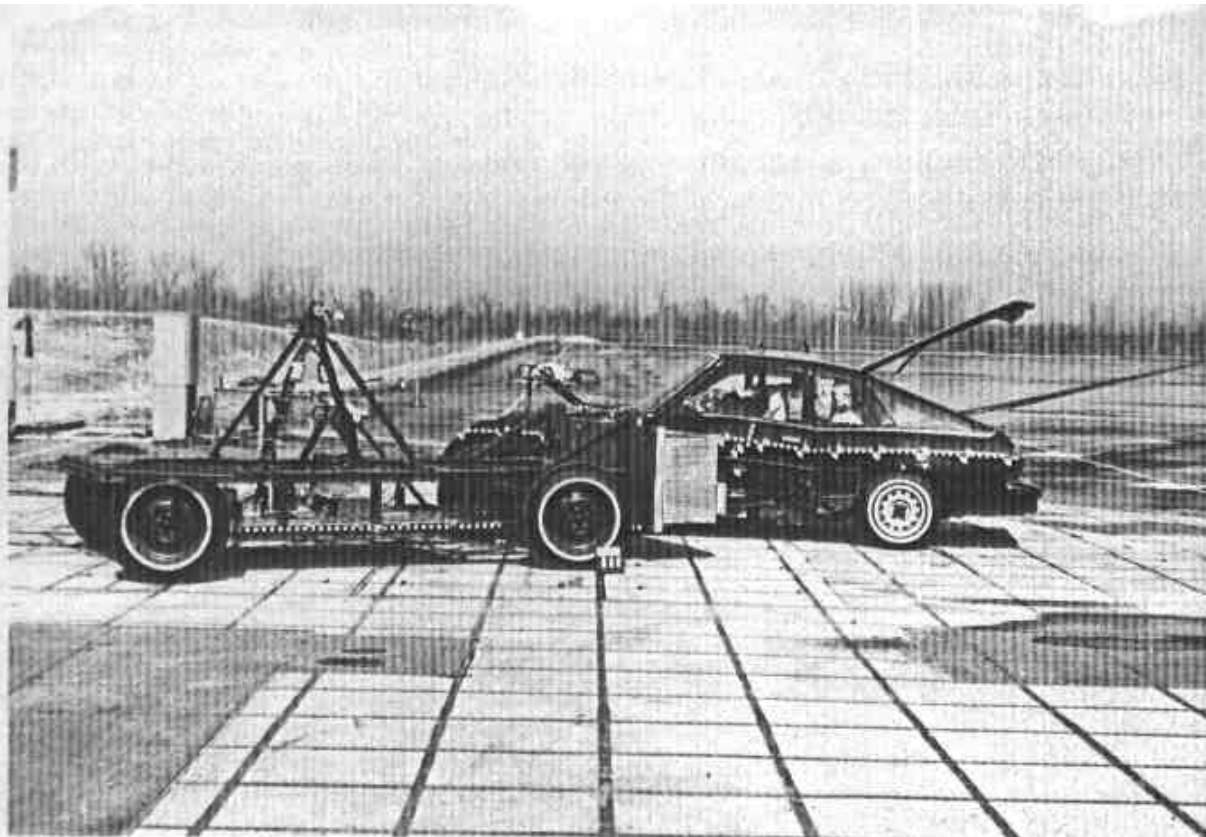


Figure A-13. POST-TEST OVERALL - VIEW 2

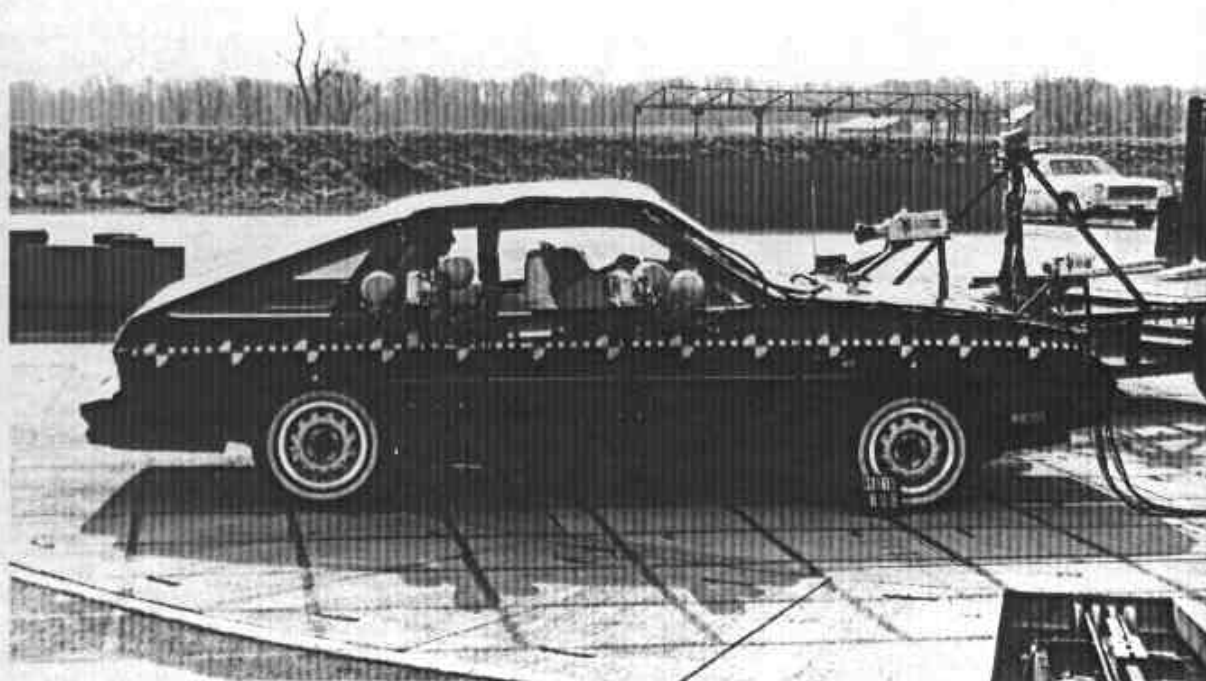


Figure A-14. POST-TEST OVERALL - VIEW 3
A-8



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

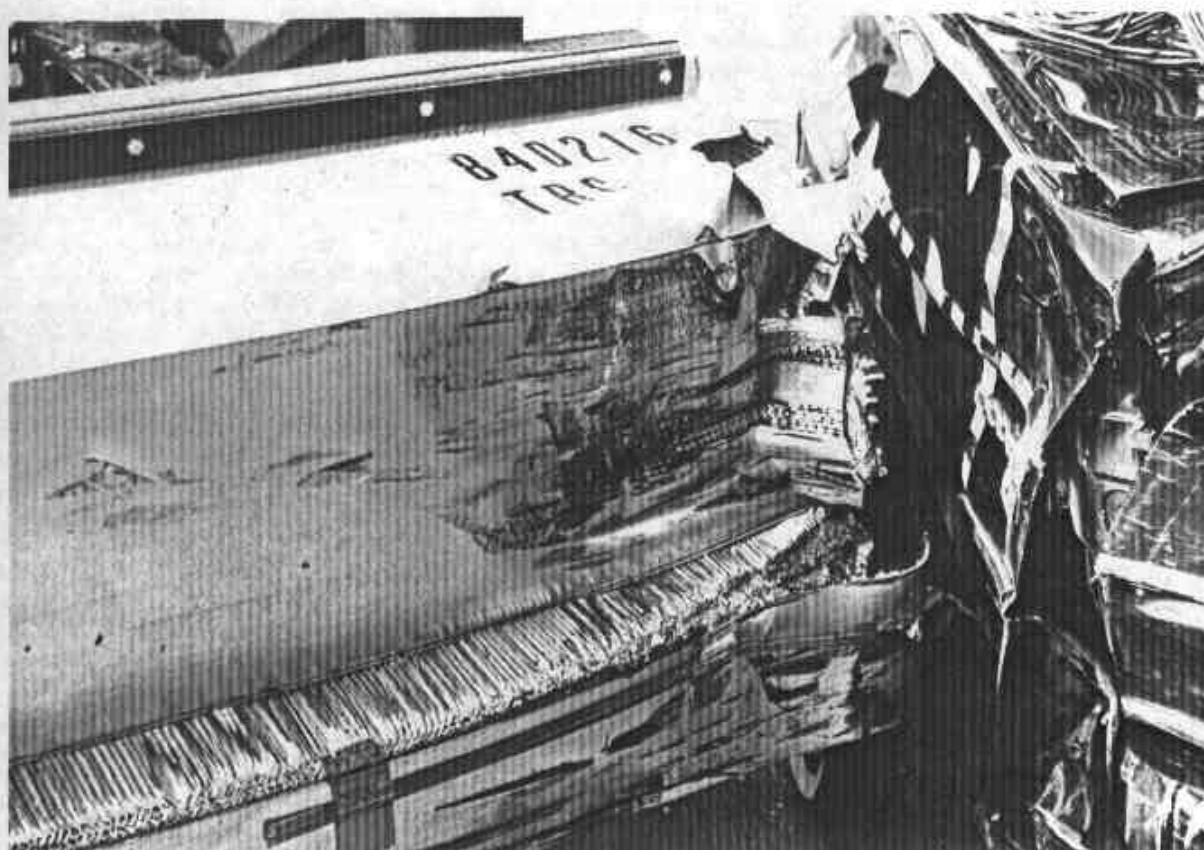


Figure A-16. POST-TEST CLOSEUP
A-9



Figure A-17. POST-TEST DRIVER DUMMY - VIEW 1



Figure A-18. POST-TEST DRIVER DUMMY - VIEW 2
A-10



Figure A-19. POST-TEST DRIVER DUMMY - VIEW 3



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

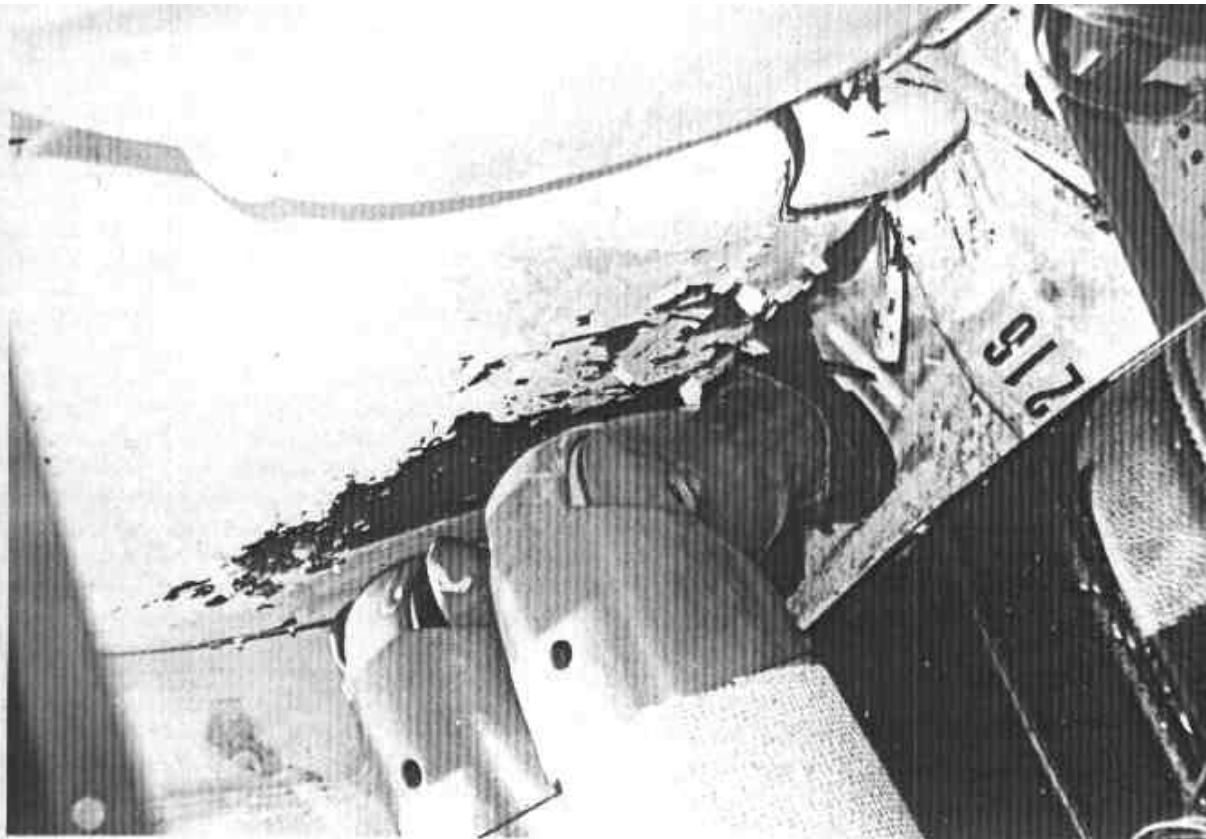


Figure A-21. POST-TEST PASSENGER DUMMY - VIEW 2



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

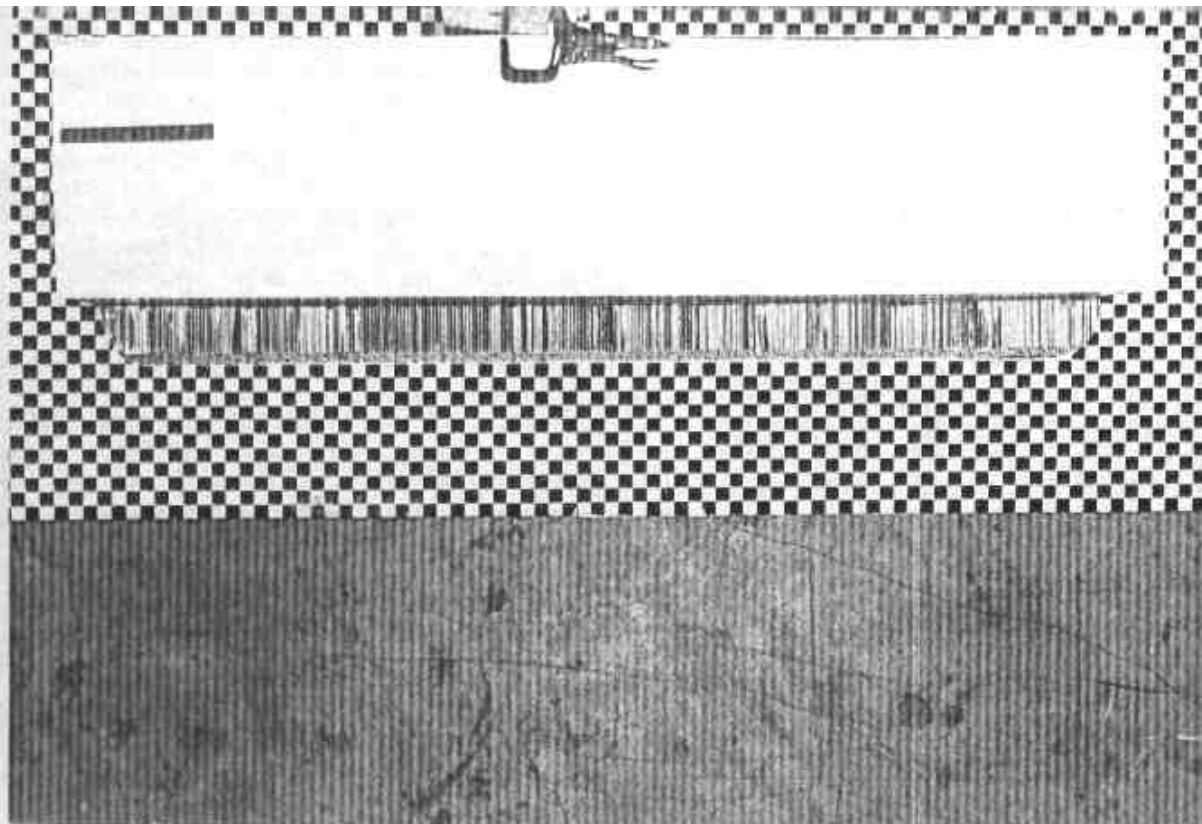


Figure A-23. PRE-TEST MDB FACE - VIEW 1

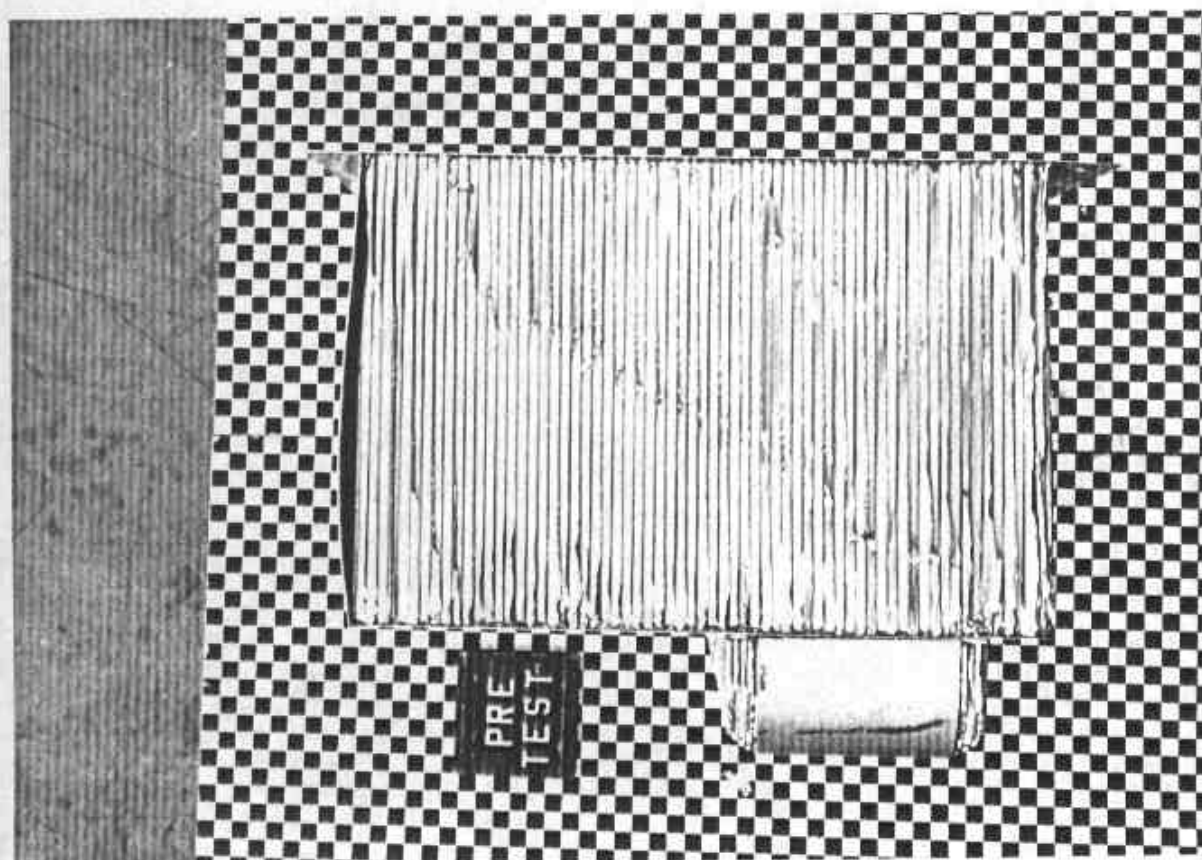


Figure A-24. PRE-TEST MDB FACE - VIEW 2
A-13

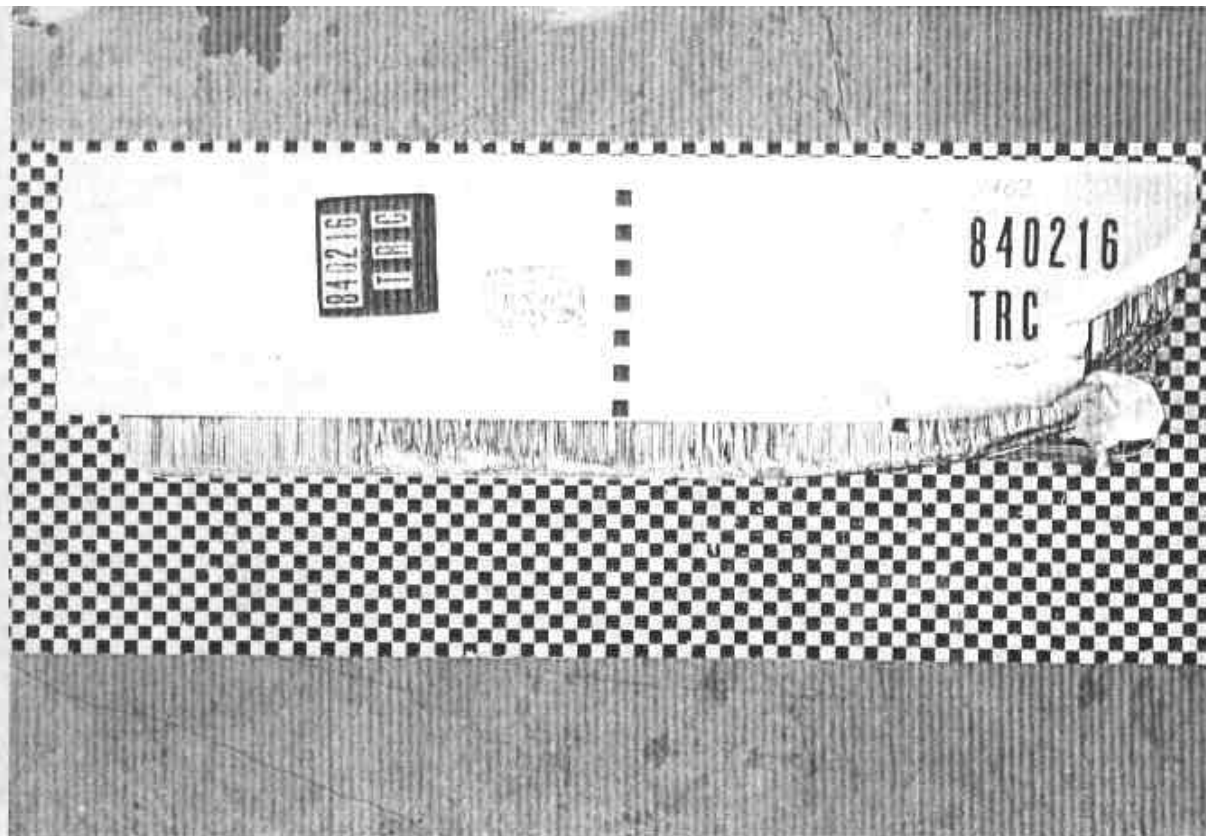


Figure A-25. POST-TEST MDB FACE - VIEW 1

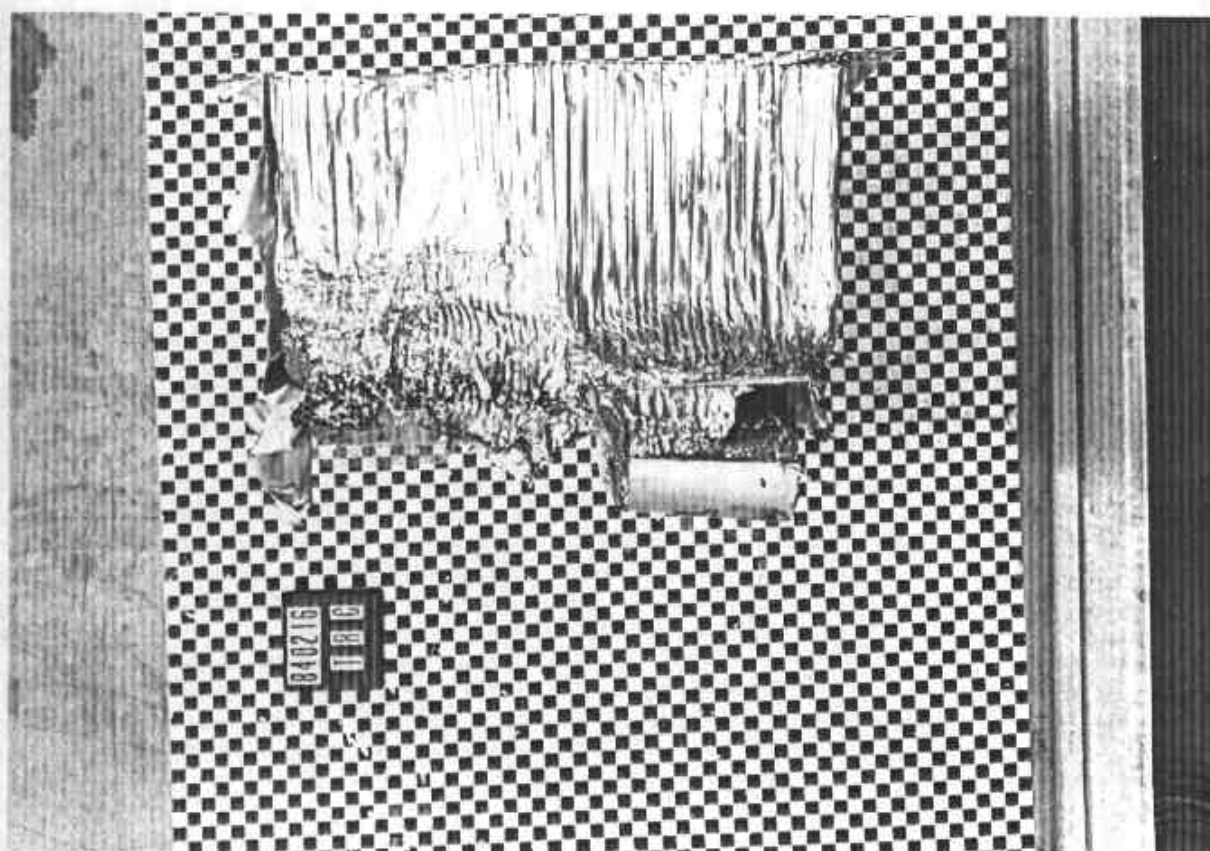
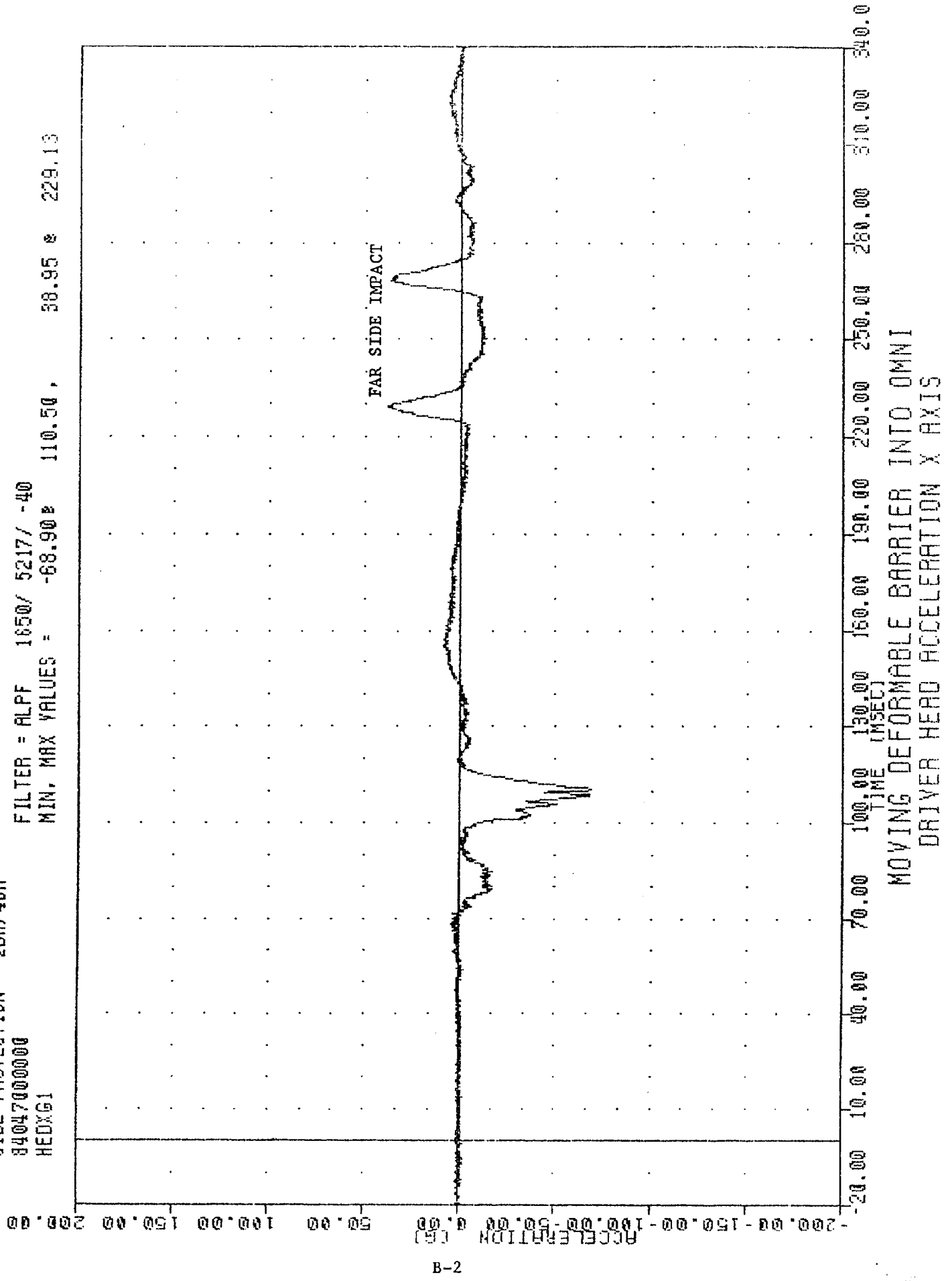


Figure A-26. POST-TEST MDB FACE - VIEW 2
A-14

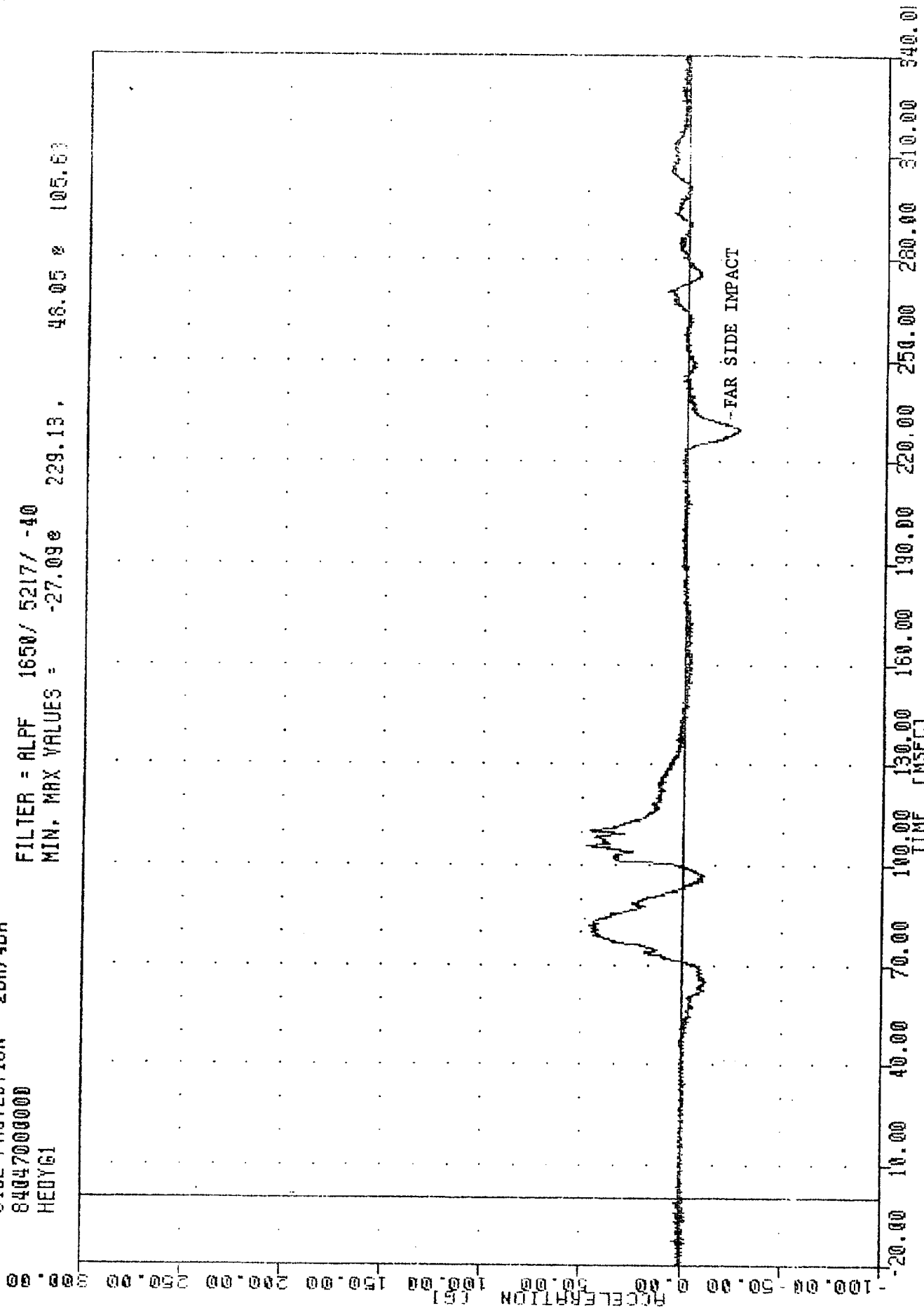
APPENDIX B
DATA PLOT PRESENTATION

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

THE [REDACTED] 840210 [REDACTED] 20 FEB 84 13:47:51
 SIDE PROTECTION - 2DR/4DR
 84047000000
 HEDXG1
 FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -68.90g 110.50, 38.95 g 229.13

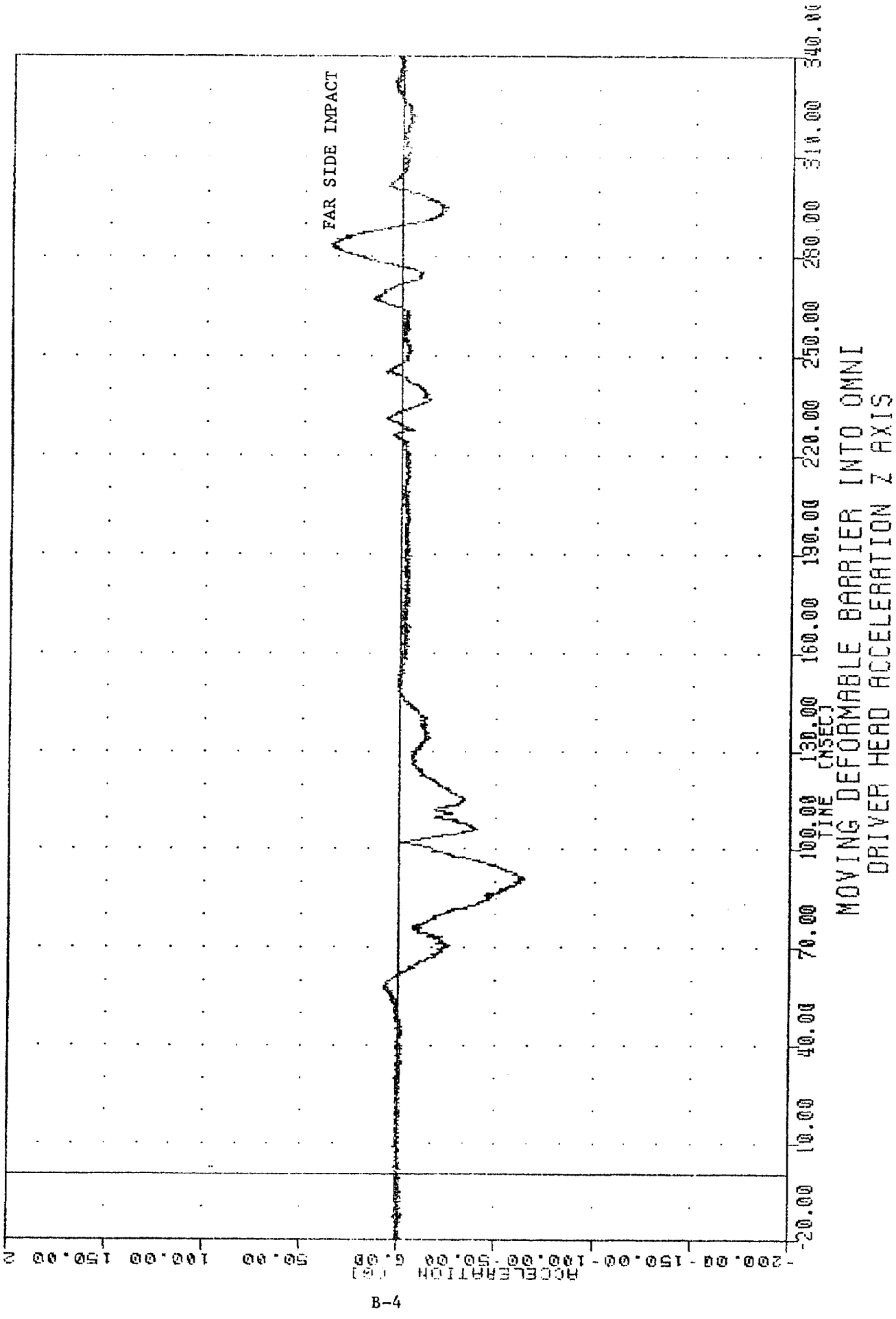


TAC 00210
 SIDE PROTECTION - 2DR/4DR
 84047000000
 HEDY61
 FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -27.09e 229.13, 46.05 e 105.63
 PLOT DATE 20-FEB-84 13:47:51

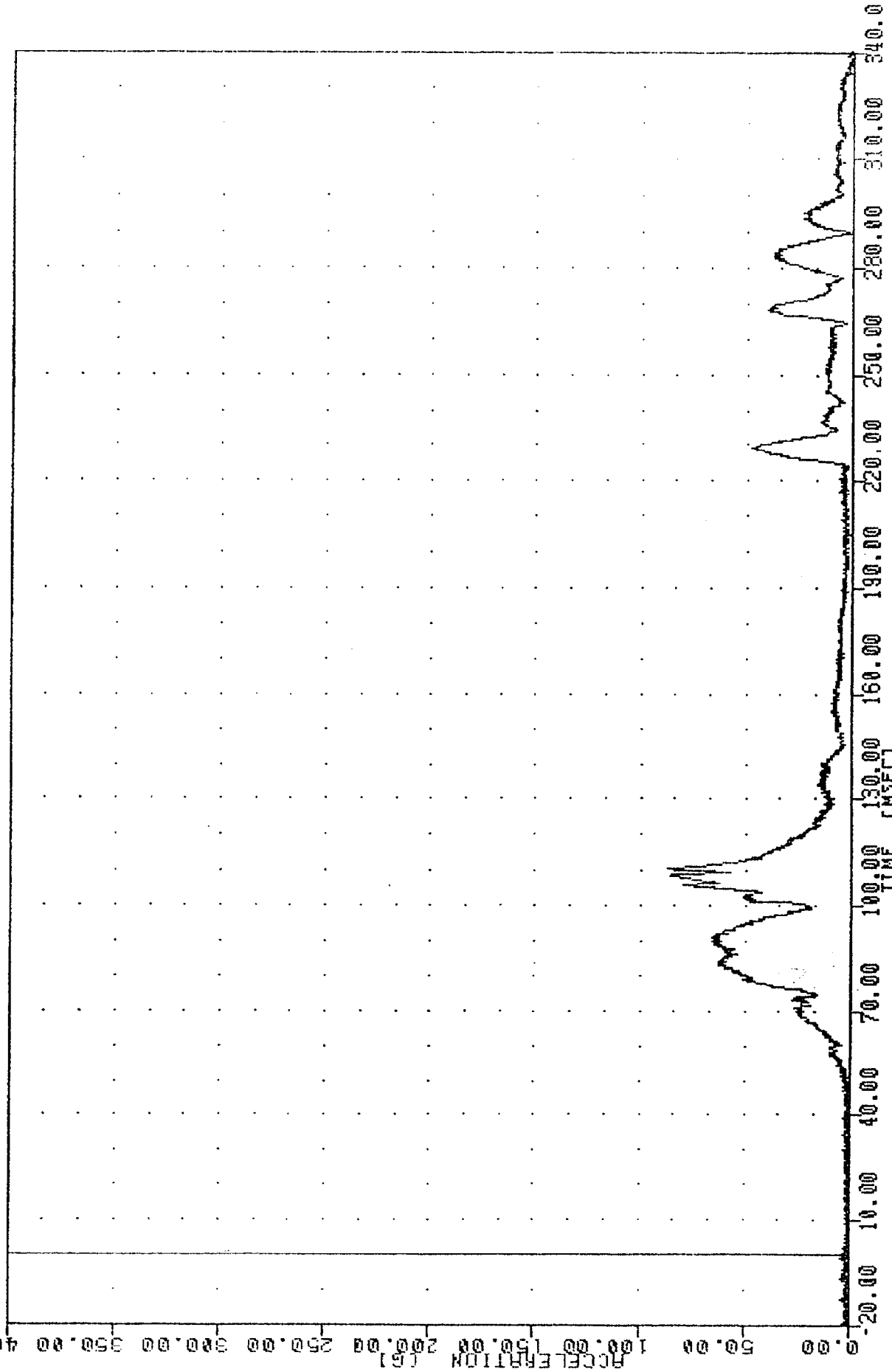


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER HEAD ACCELERATION Y AXIS

TMC 840216, 840216
 SIDE PROTECTION - 20A/40A
 84047000000
 HE0261
 FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -64.498 91.00, 37.01 e 284.00
 PLUT DATE 20-FEB-84 13:47:51

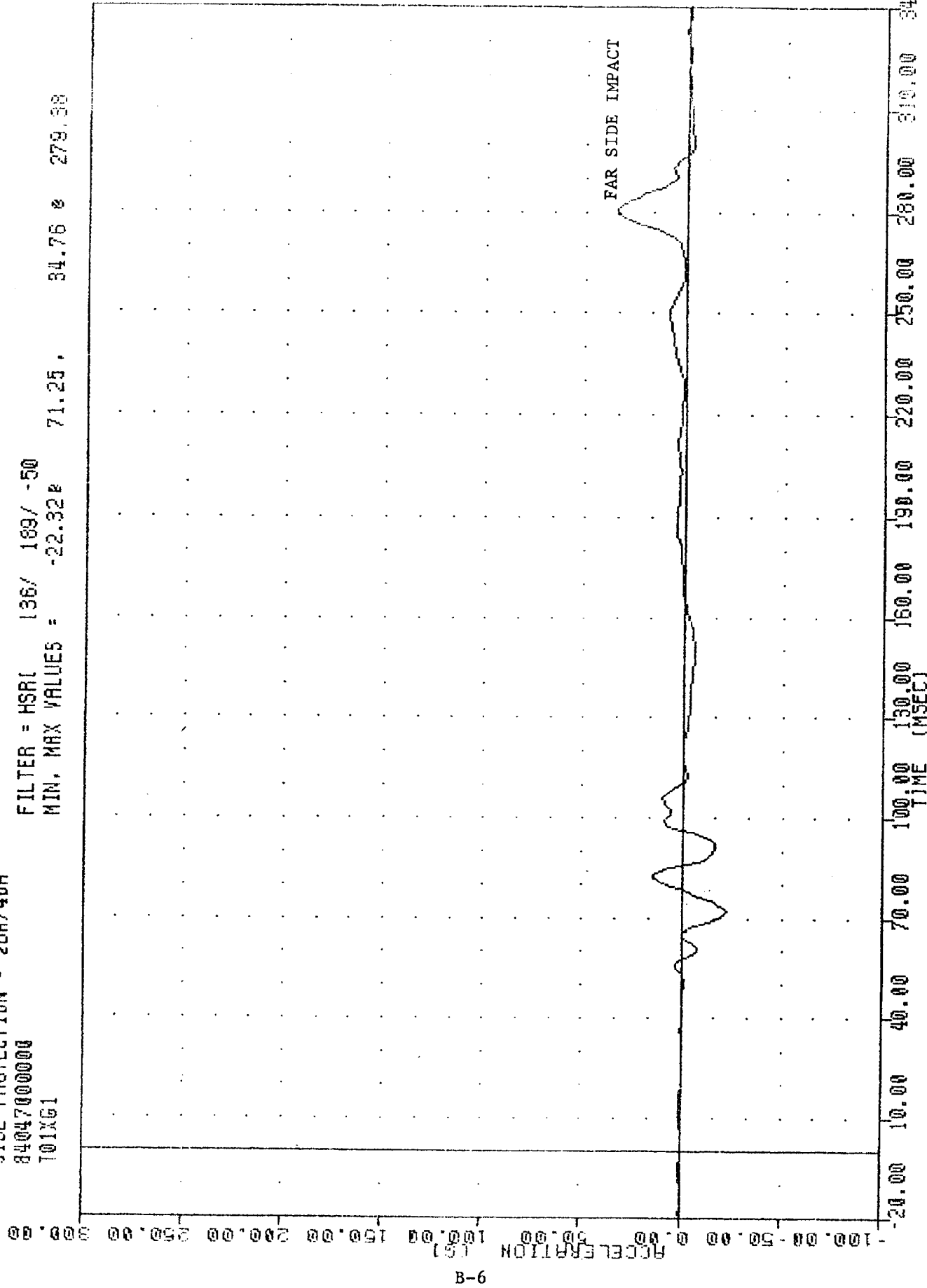


THE [REDACTED] 840216 [REDACTED] PLOT DATE 20-FEB-84 13:47:51
 SIDE PROTECTION - 20R/40R
 84047000000
 HEORG1
 FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = 0.080 -17.00, 86.40 8 110.50



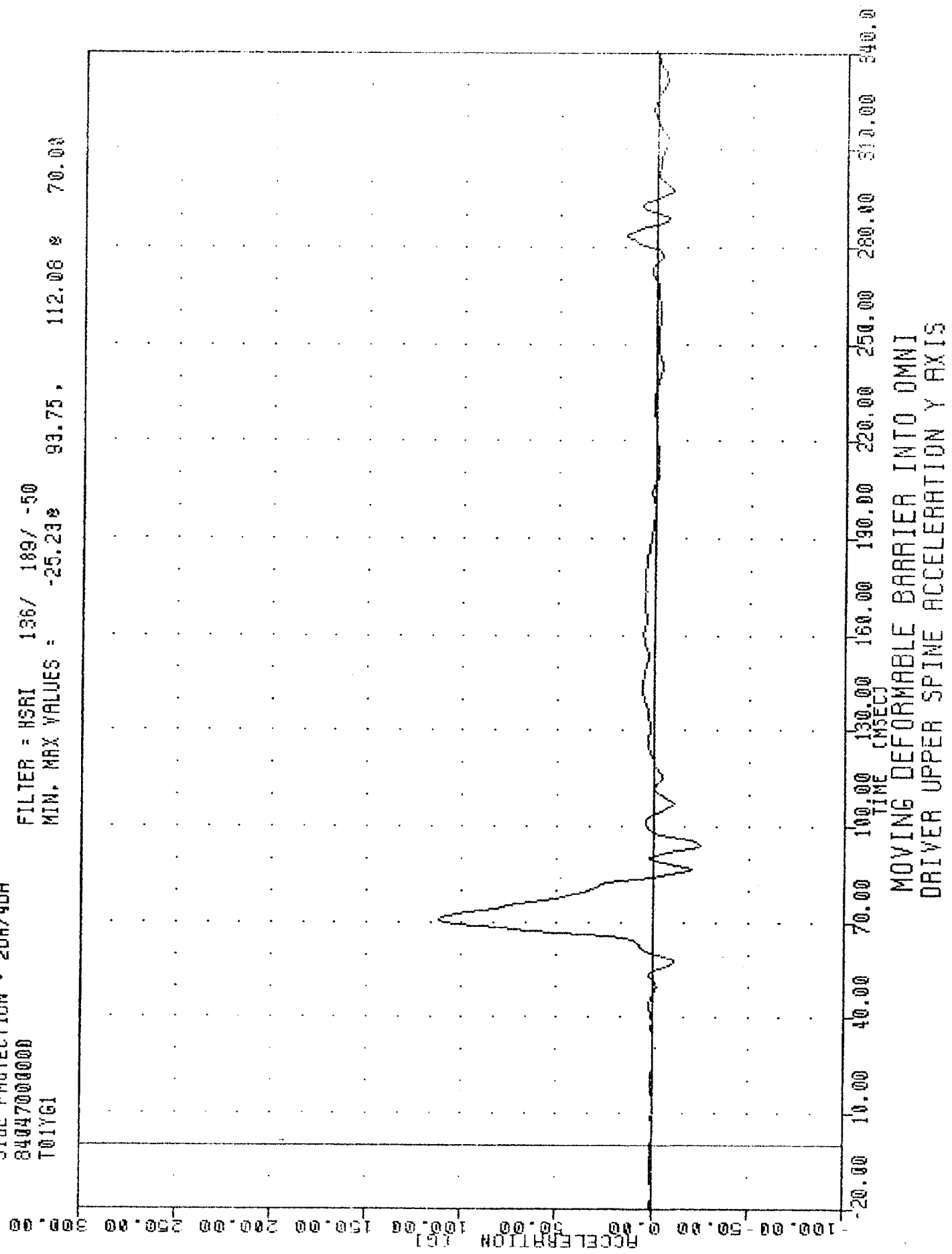
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER HEAD RESULTANT

100 0210 00000000 20 FEB 84 13:49:00
 SIDE PROTECTION - 20R/40R
 84047000000
 701XG1
 FILTER = HSRL 136/ 169/ -50
 MIN, MAX VALUES = -22.32g 71.25, 34.76 g 279.38

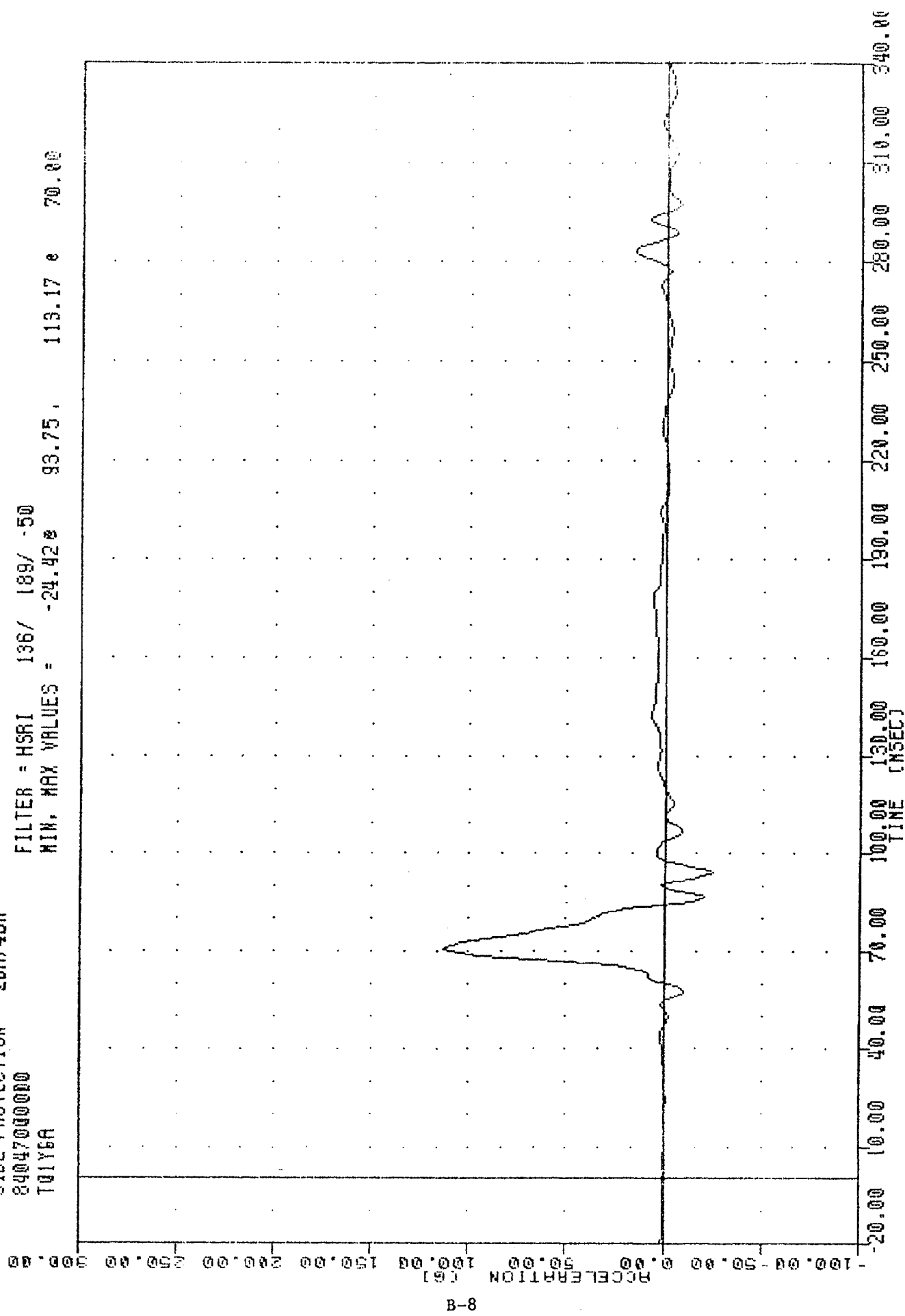


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER UPPER SPINE ACCELERATION X AXIS

T01Y61
 84047000000
 SIDE PROTECTION - 20R/40R
 040210
 28-118-54
 13-48:00
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -25.238 93.75 112.08 70.00

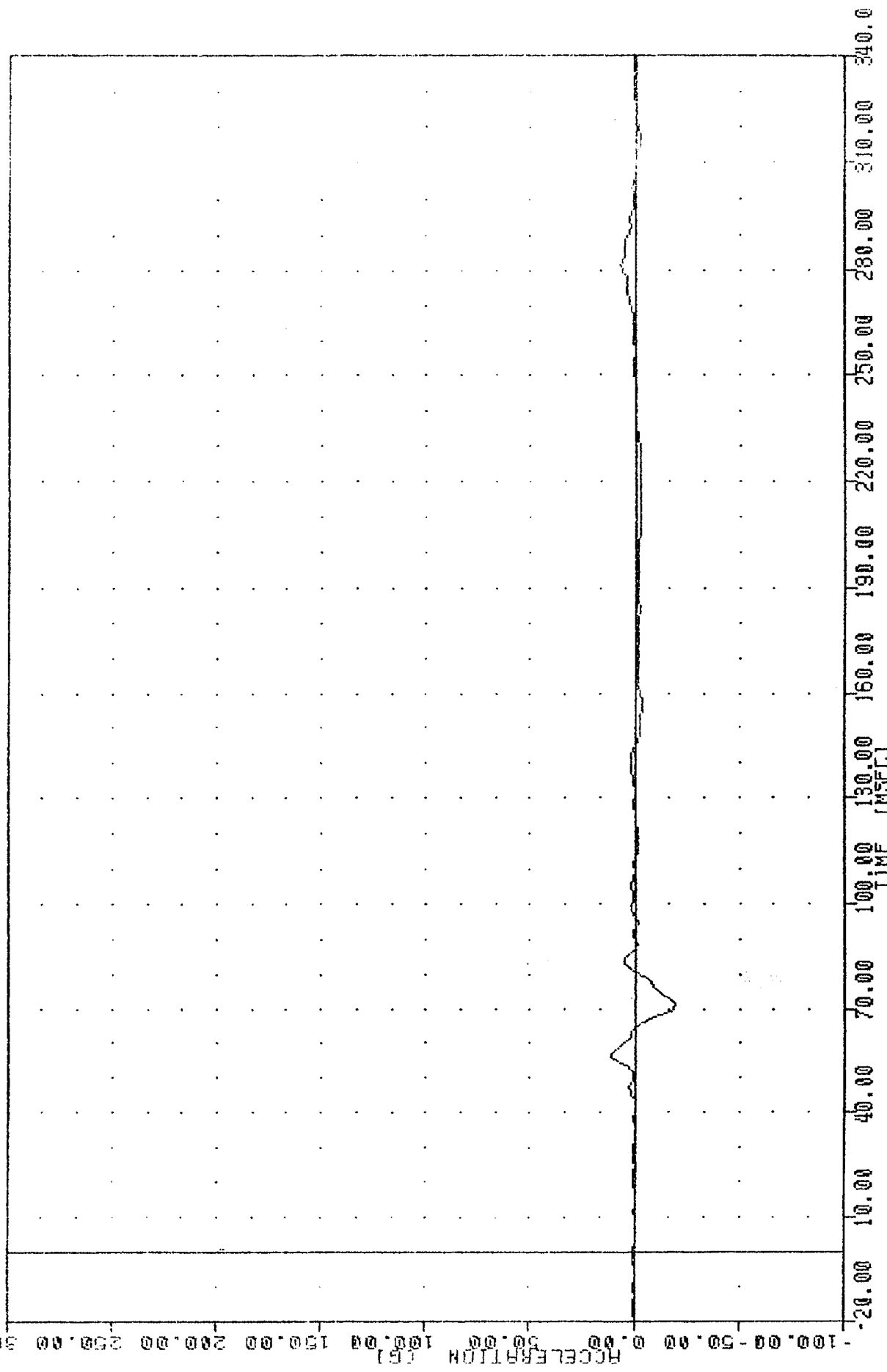


THE [REDACTED] 040216 [REDACTED] PLT DATE 20 FEB 84 13:43:00
 SIDE PROTECTION - 20R/40R
 24047000000
 T01Y6A
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -24.42 93.75 113.17 e 70.80



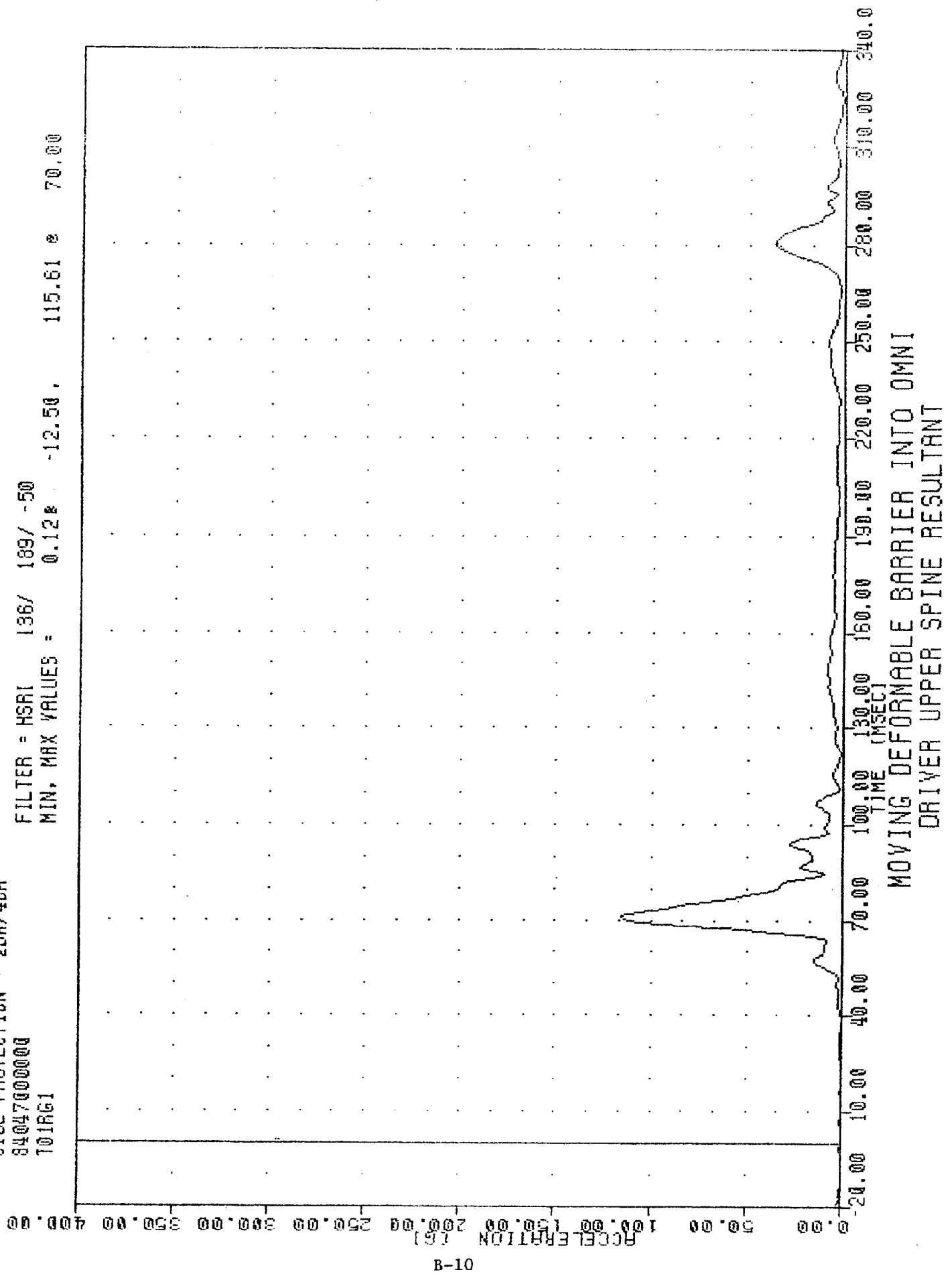
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER UPPER SPINE ACCELERATION -2 Y AXIS

THE 840216 PLOT DATE 20 FEB 64 13:43:00
 SIDE PROTECTION - 2DR/4DR
 84047000000
 701761
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -19.438 70.63, 10.98 56.25

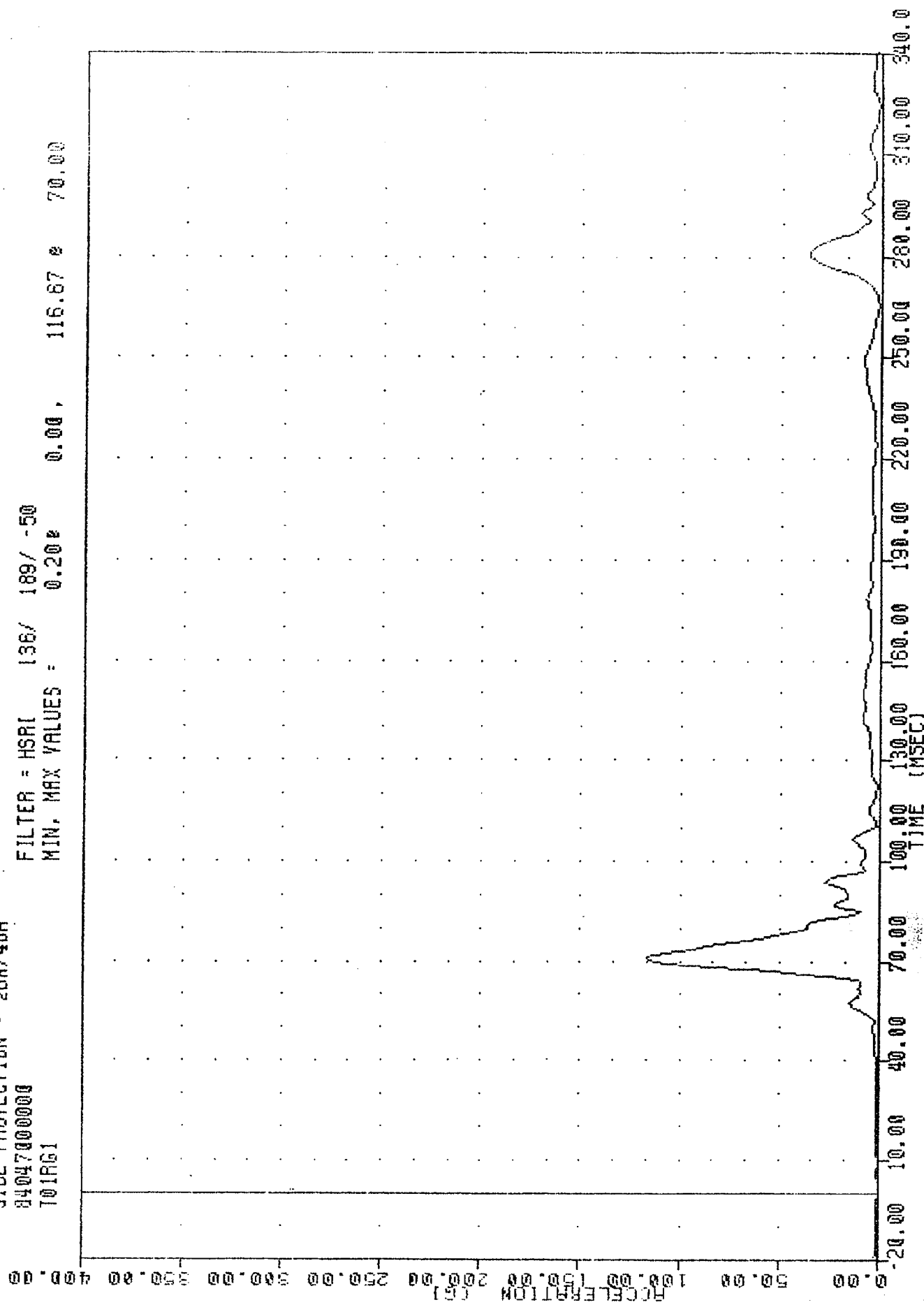


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER UPPER SPINE ACCELERATION Z AXIS

THE [REDACTED] 840216 [REDACTED] PLOT DATE 20-FEB-84 13:49:00
 SIDE PROTECTION - 20R/40R
 84047000000
 101RG1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.12% -12.50. 115.61 2 70.00

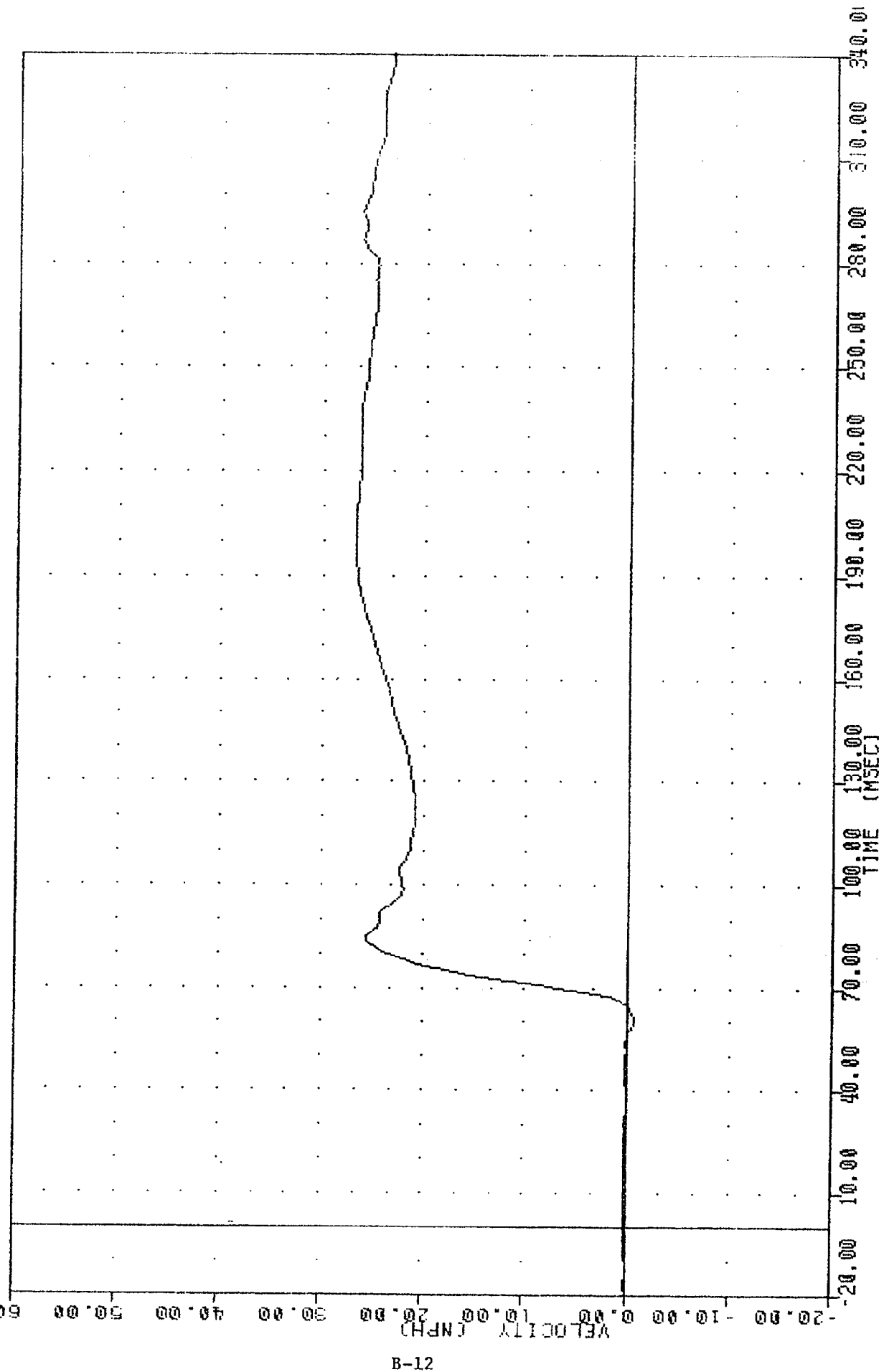


TMC 0000216
 SIDE PROTECTION - 20R/40R
 04047000000
 T01RG1
 FILTER = HSRI 138/ 189/ -50
 MIN. MAX VALUES = 0.00, 116.87 @ 70.00
 13.49:57



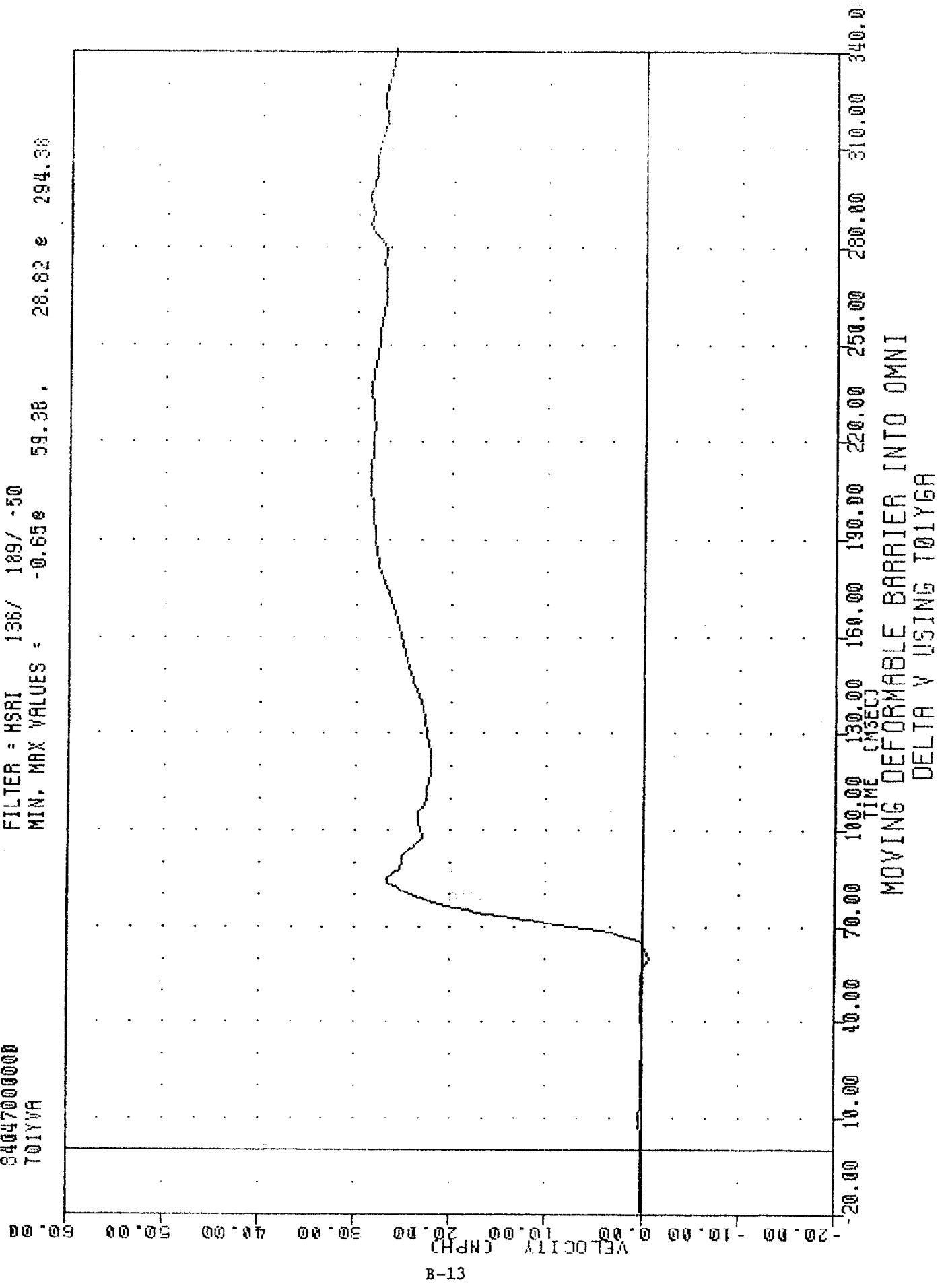
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER UPPER SPINE RESULTANT USING T01YGA

0216
 SIDE PROTECTION - 20R/40R
 84047000000
 T01YV1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.75e 60.00, 26.87 e 205.63
 20 FEB 84 13:30:13



MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING T01YV1

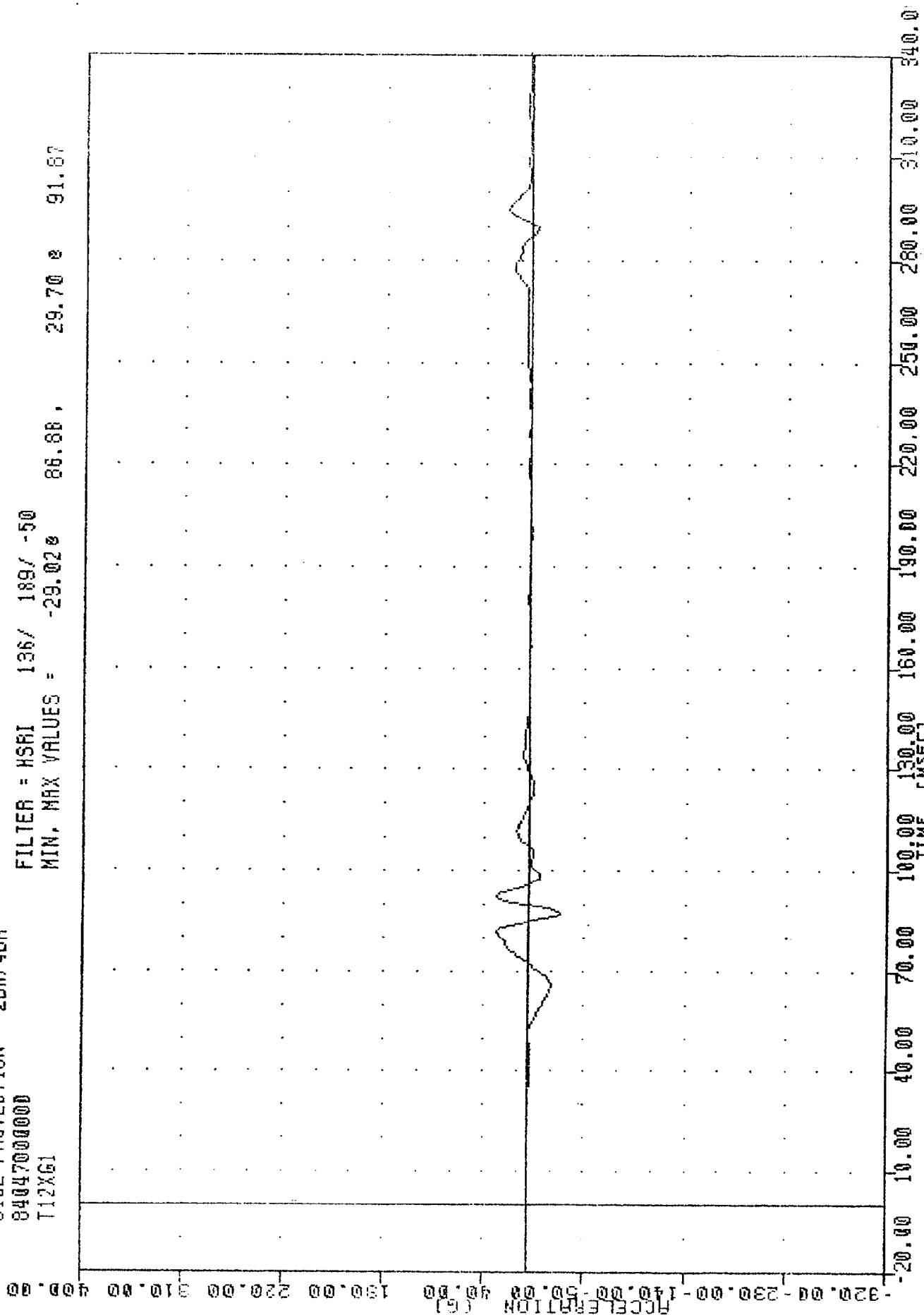
TAC 000210, 000210
 SIDE PROTECTION - 20R/4DR
 84047000000
 T01Y6A
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.65e 59.38, 28.82 e 294.38
 PLOT DATE 20 FEB 84 13:50:15



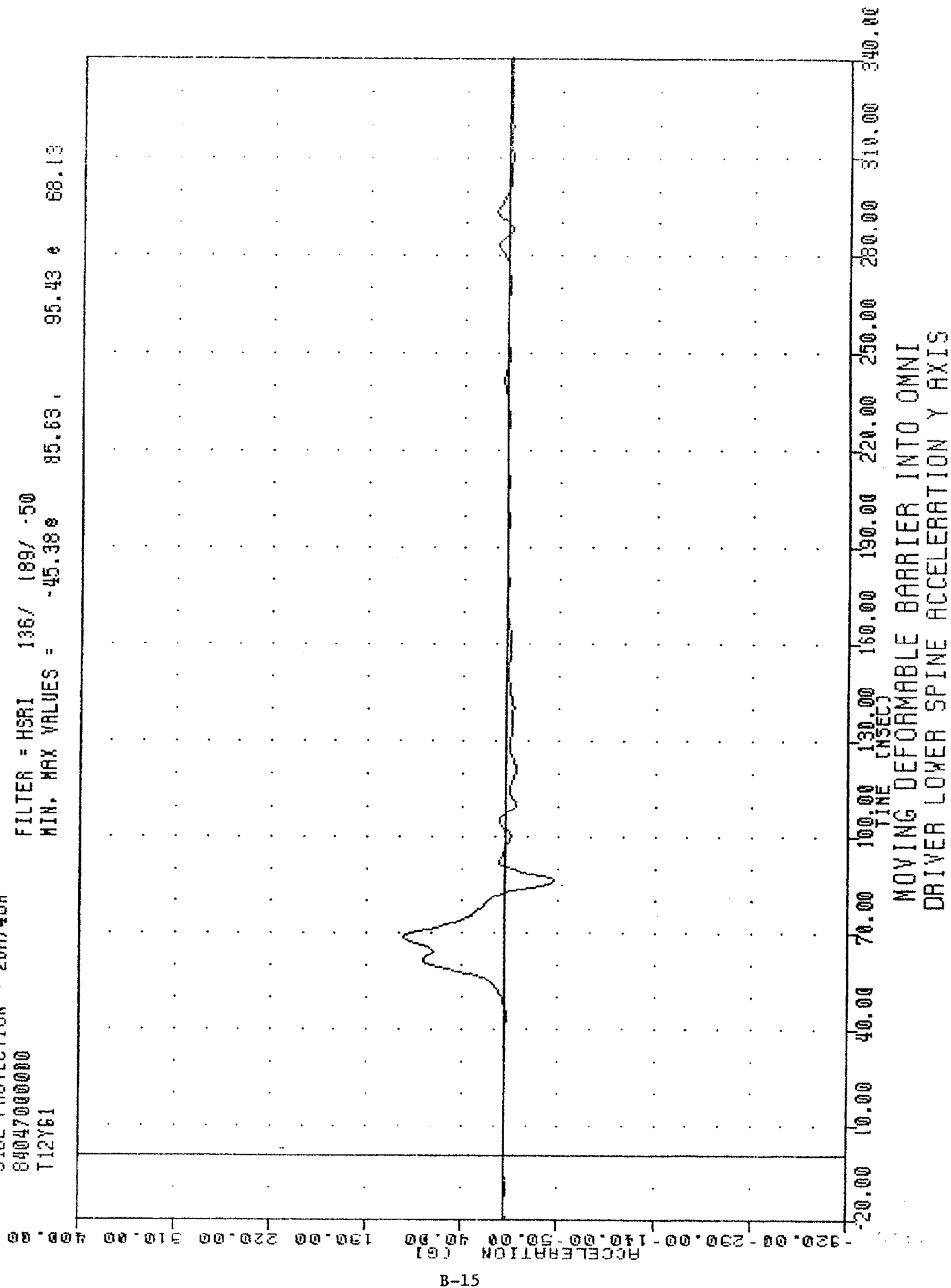
THE 040210
 SIDE PROTECTION - 2DR/4DR
 84047000000
 T12XG1

PLOT DATE 26 FEB 84 13:49:00

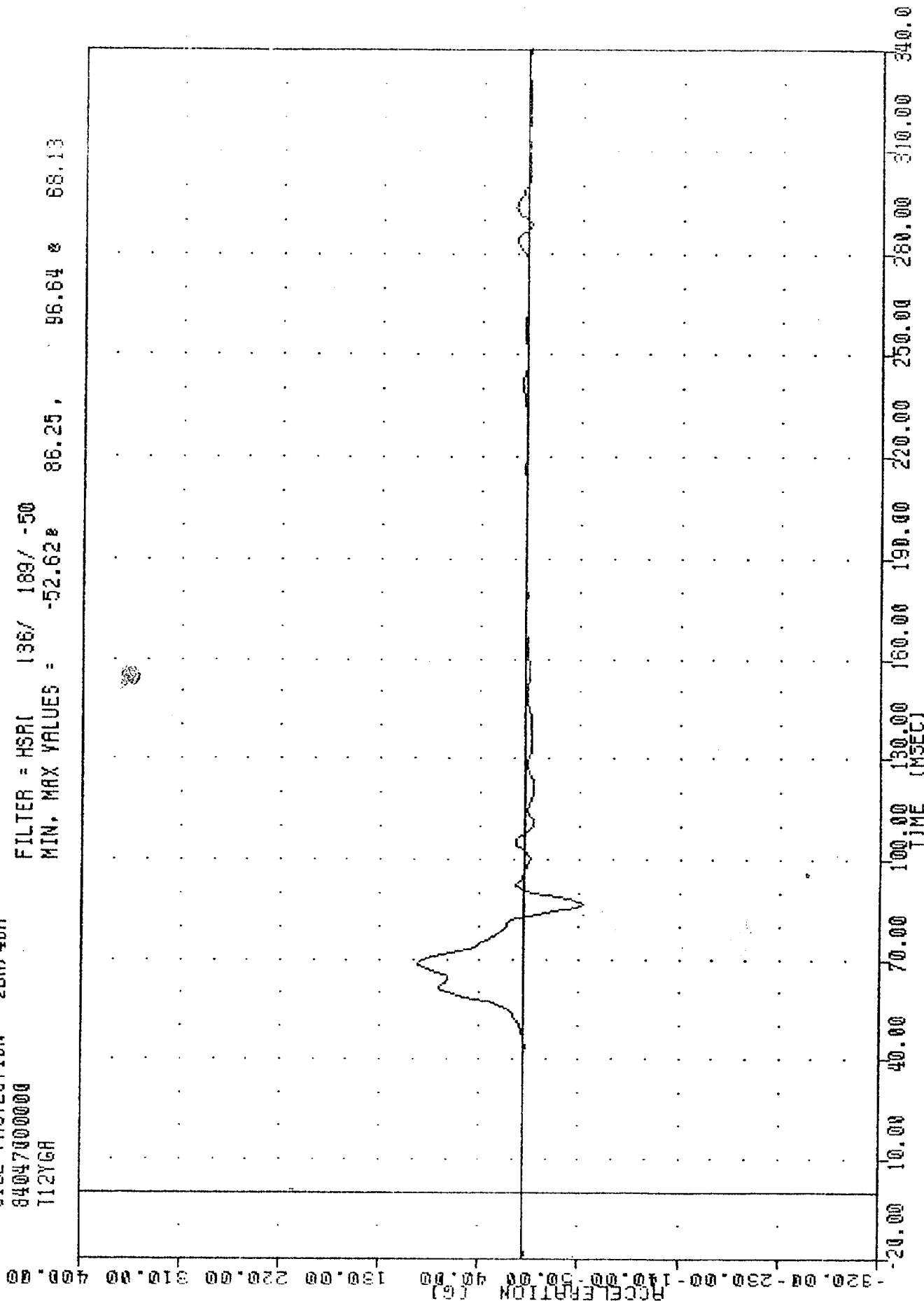
FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -29.020 86.88, 29.70 91.87



THE 040216
 SIDE PROTECTION - 20R/40R
 84047000000
 T12Y61
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -45.38 85.63 95.43 68.13
 13 FEB 84 13:49:00

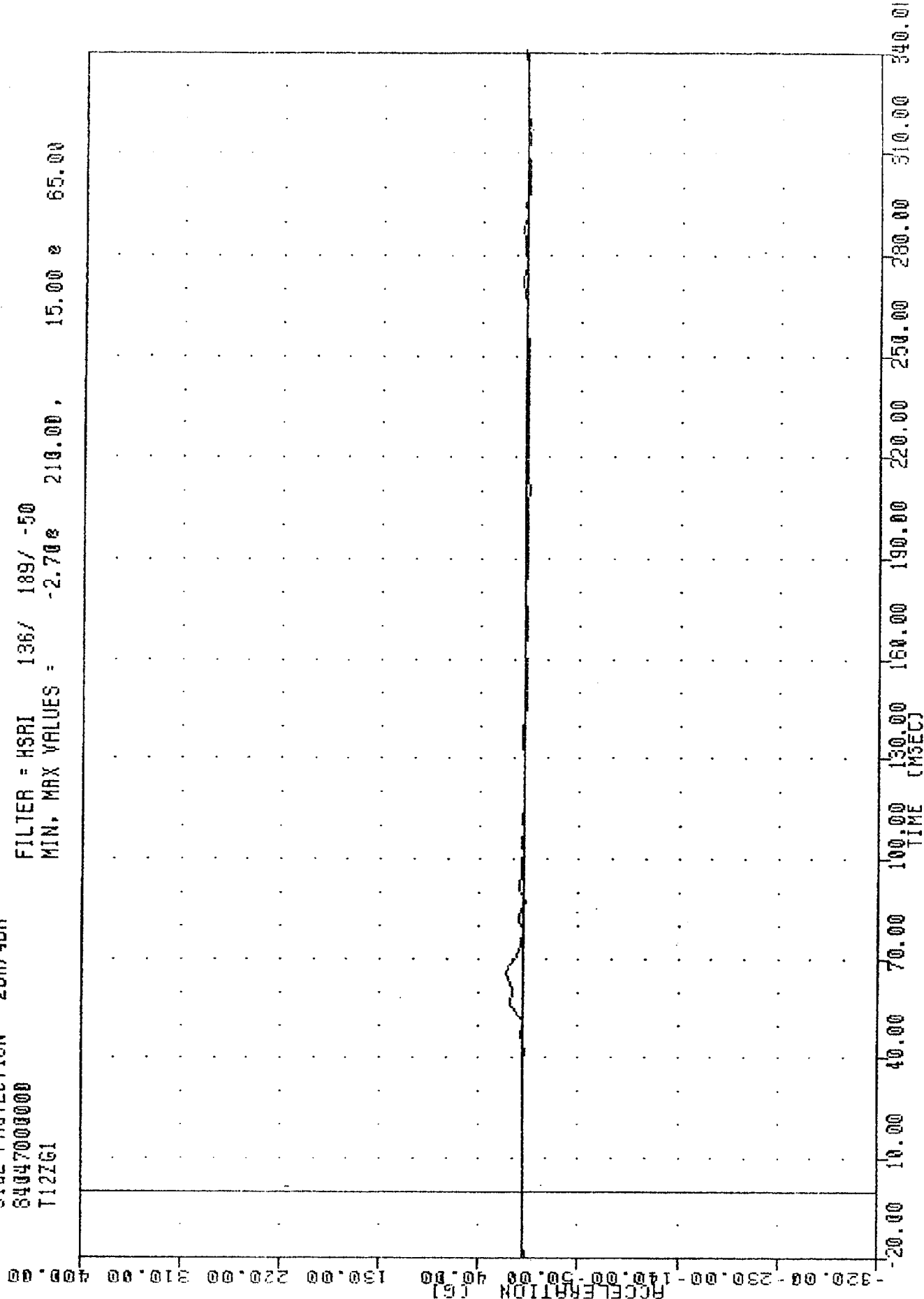


100 0210 10:49:00
 SIDE PROTECTION - 2DR/4DR
 84047000000
 112YGR
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -52.62 86.25, 96.64 88.13



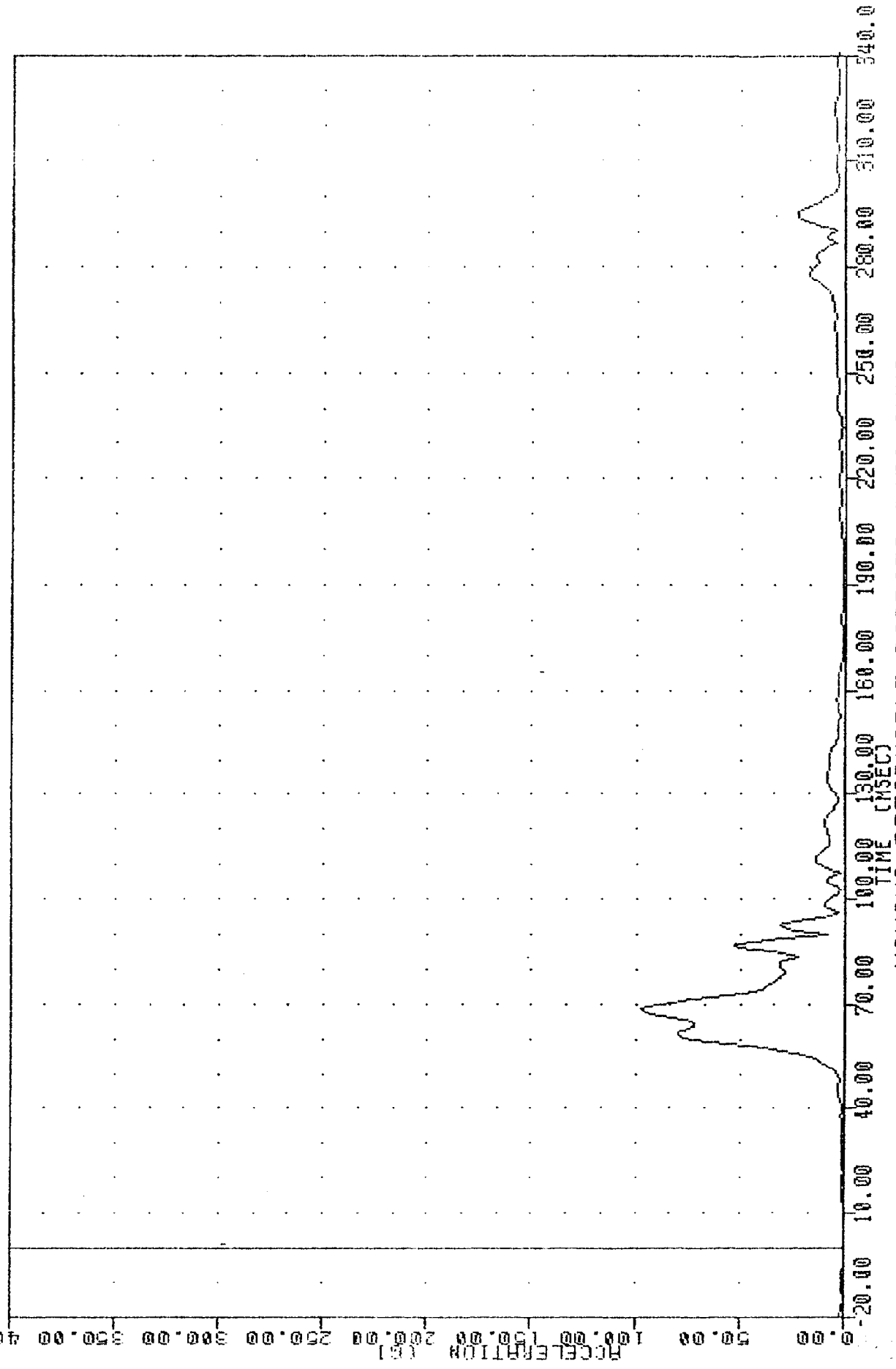
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LOWER SPINE ACCELERATION -2 Y AXIS

TMC 030216
 SIDE PROTECTION - 2DR/4DR
 84047000000
 T127G1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -2.70g 210.00, 15.00g 65.00
 PLOT DATE 20-FEB-84 13:49:00



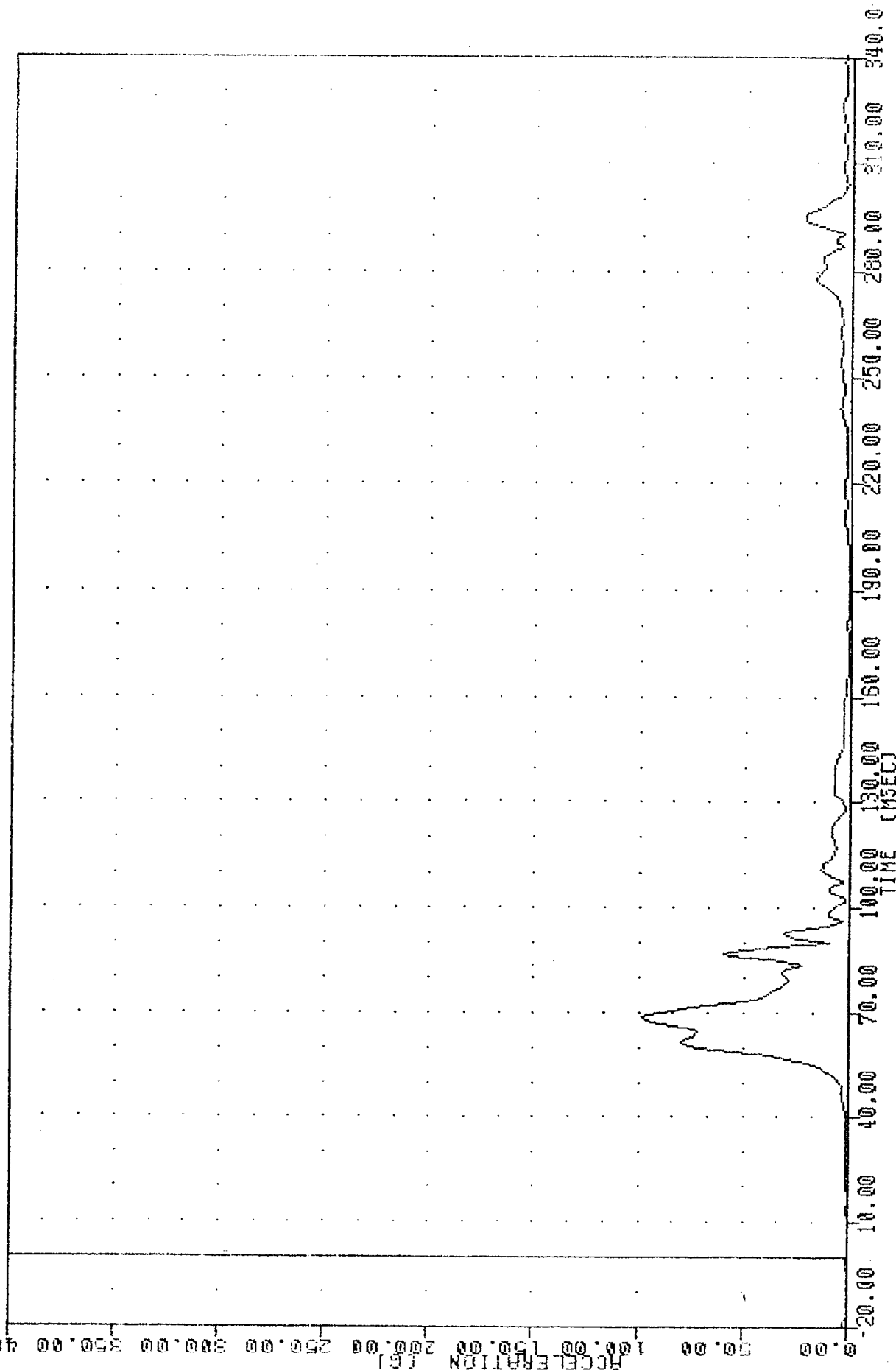
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LOWER SPINE ACCELERATION Z AXIS

T12RG1
 84047000000
 SIDE PROTECTION - 2DA/4DA
 840216
 PLUT DATE 20-FEB-84 13:49:00
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.090 10.00, 97.00 s 68.13



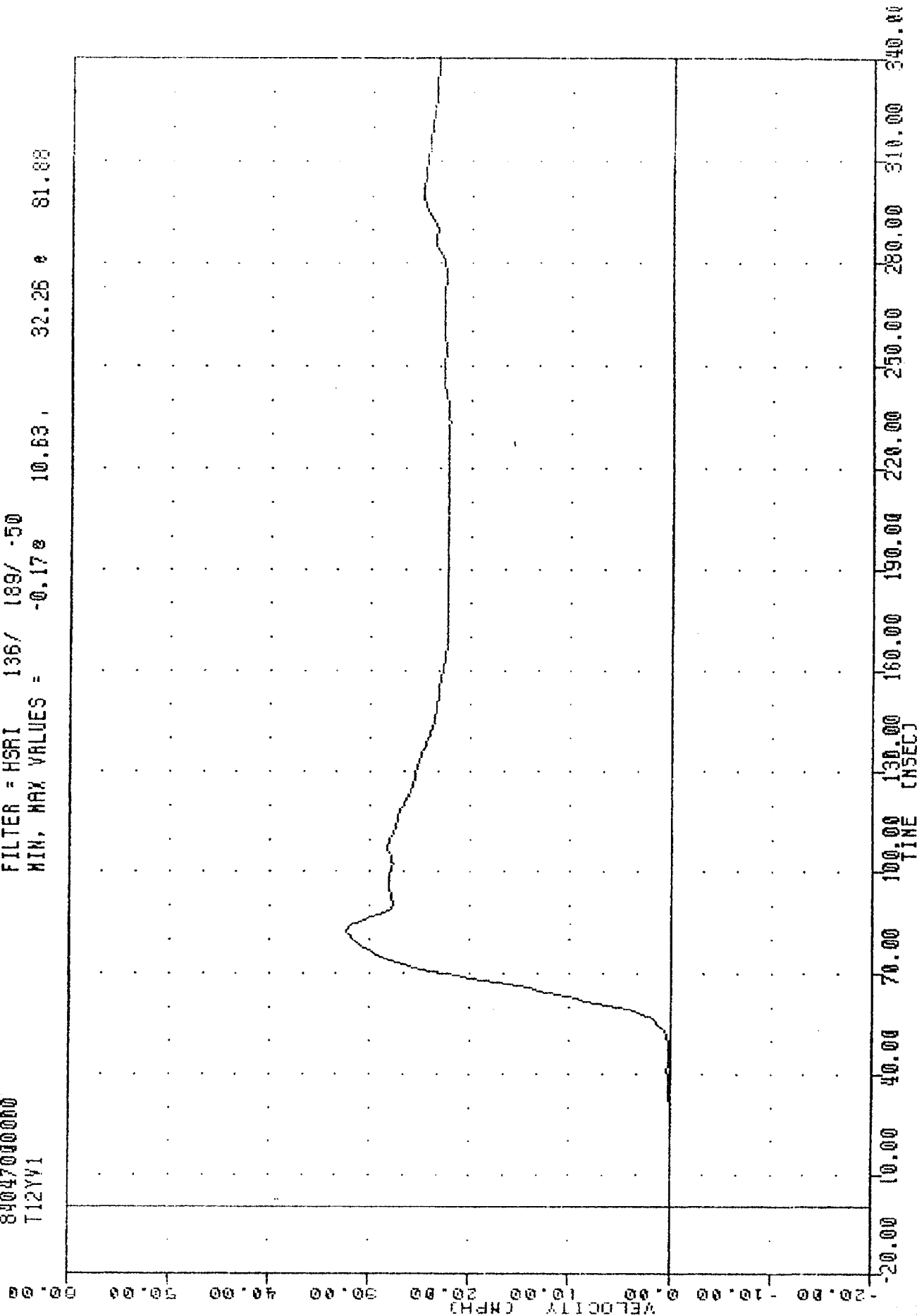
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LOWER SPINE RESULTANT

TAC 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 T12RG1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.03e 8.13, 98.19 e 68.13
 PLUT DATE 20-FEB-84 13:49:57



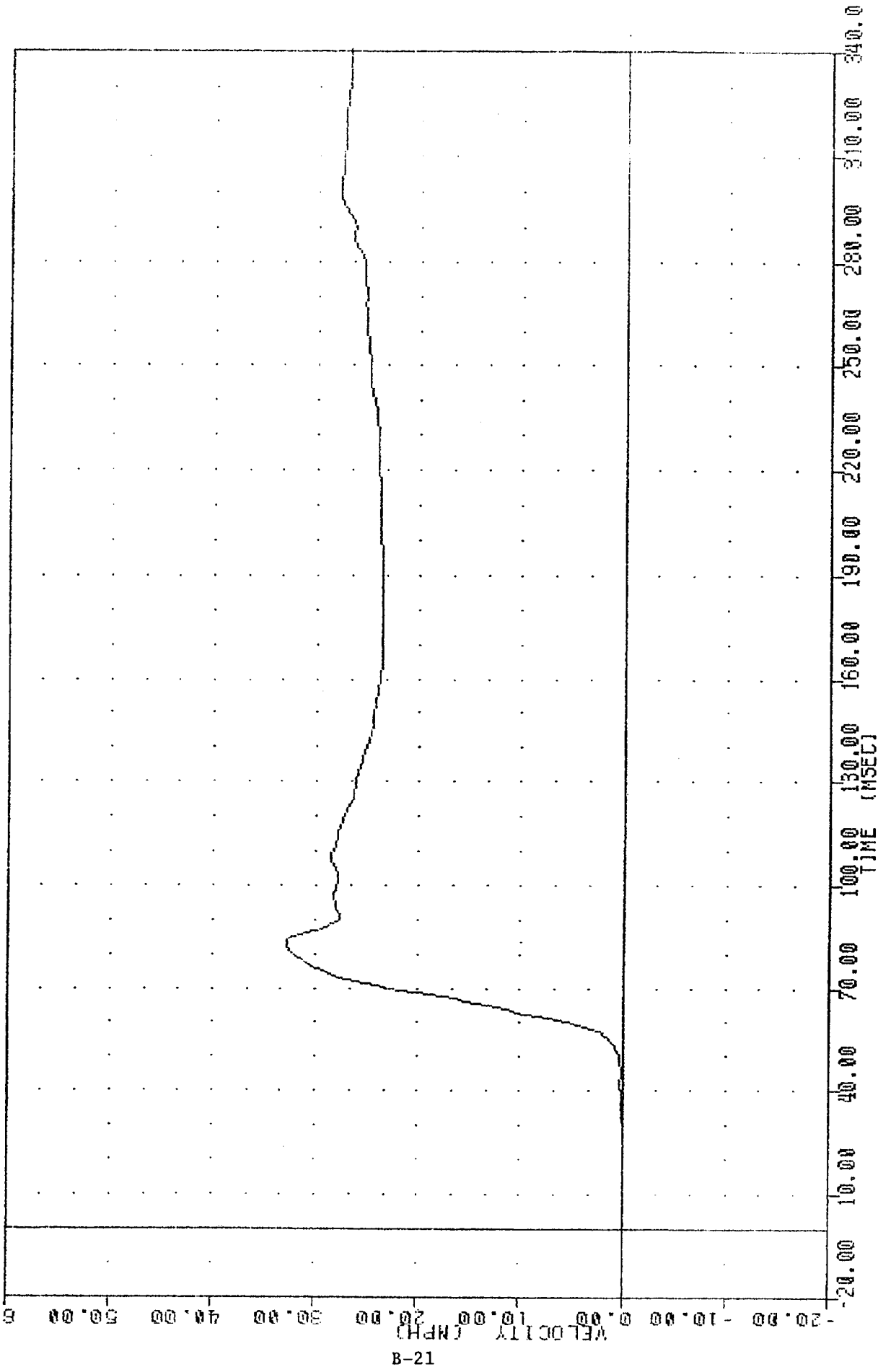
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LOWER SPINE RESULTANT USING T12YGA

TAC 840216, 840216, 20 FEB 84 15:30:15
 SIDE PROTECTION - 20R/4DR
 8404700000
 T12YV1
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.17e 10.63, 32.26 e 81.88



MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING T12YGI

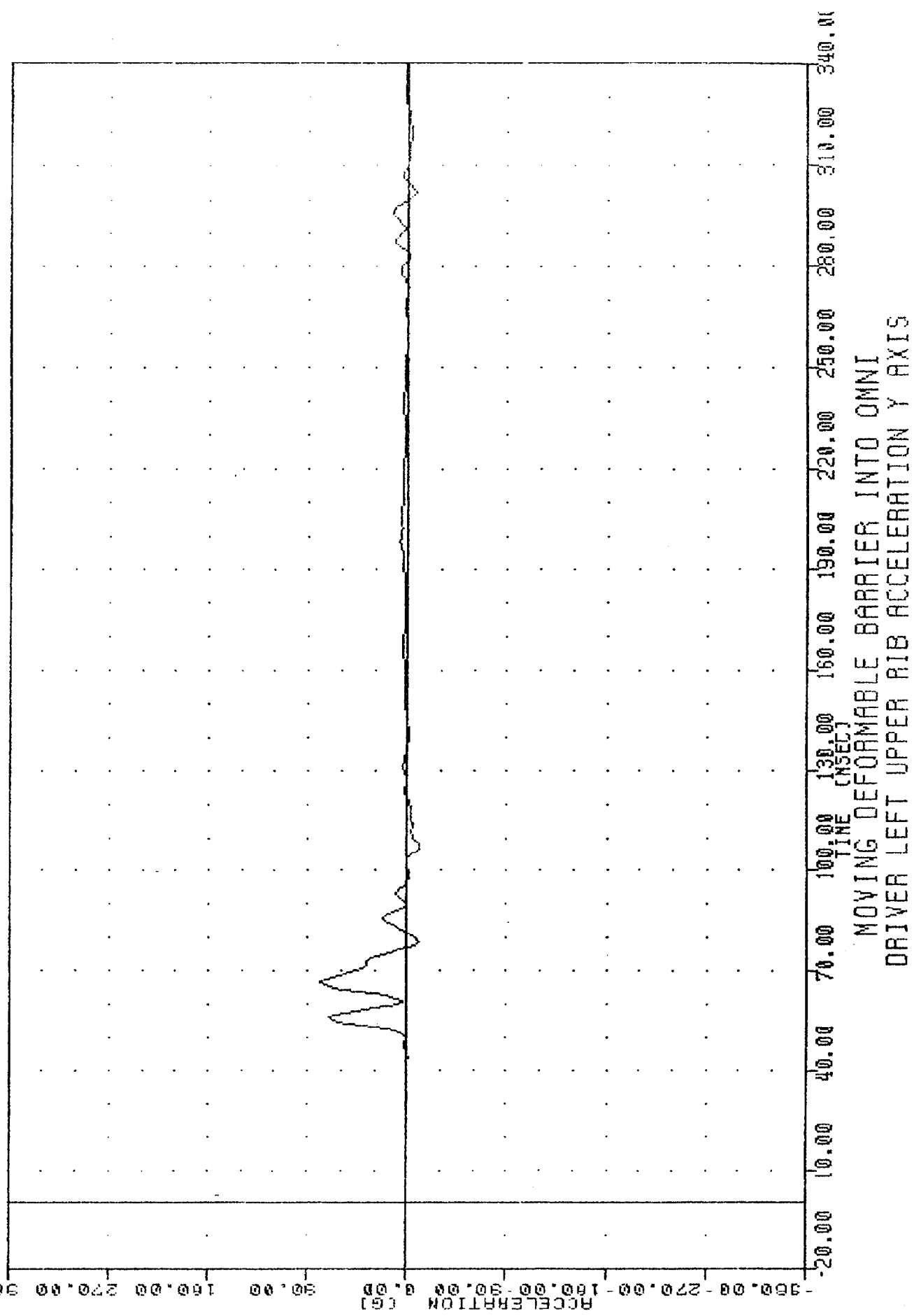
TMC 840470000000
 SIDE PROTECTION - 20R/40R
 840470000000
 T12YVA
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.13 16.87, 32.86 82.50
 20-FEB-84 13:30:13



B-21

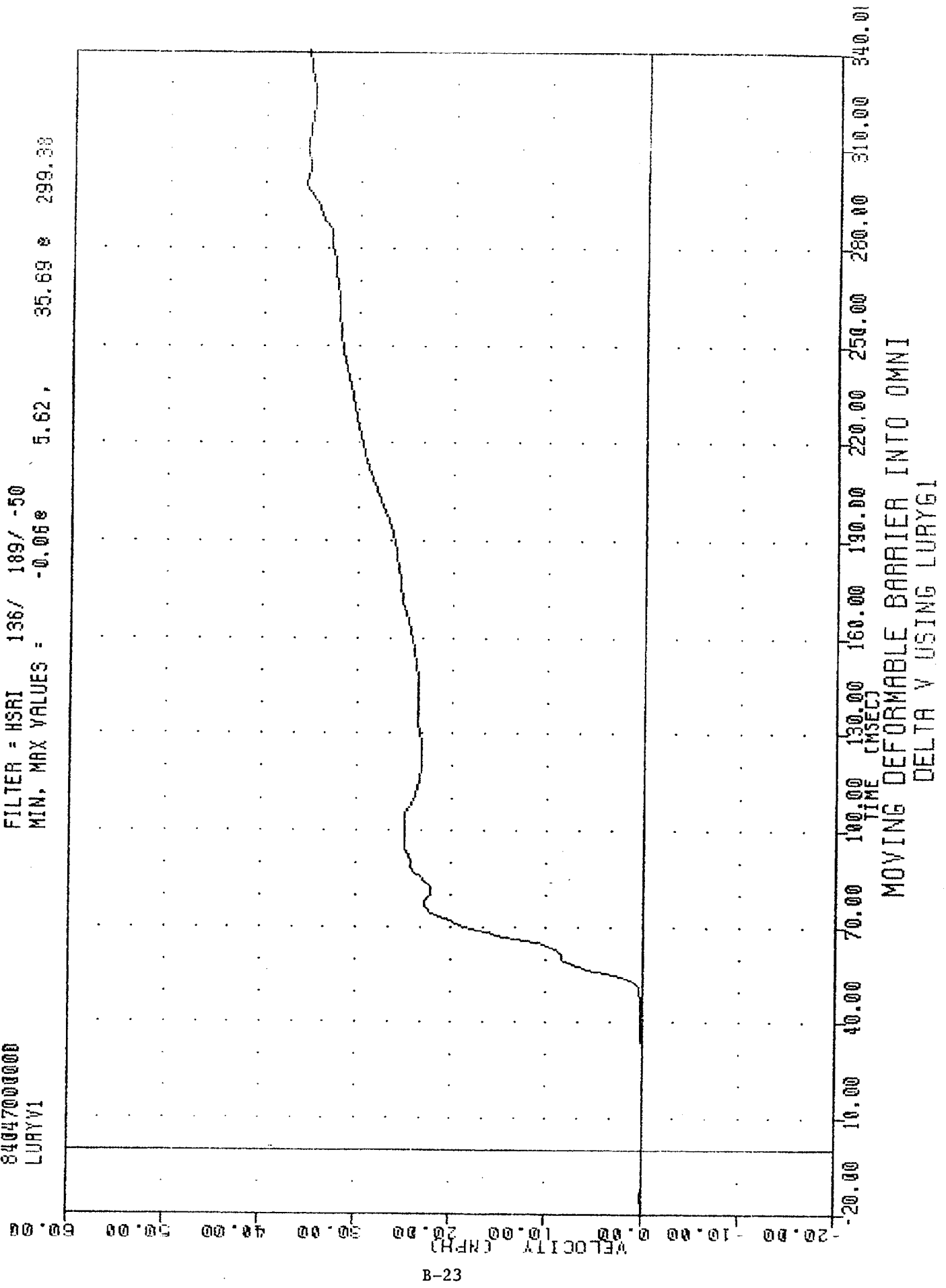
MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING T12YGA

TAC 840216
 SIDE PROTECTION - 2DR/4DR
 84047000000
 LURY61
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -11.170 106.87, 78.36 8 65.63
 PLOT DATE 20-FEB-84 13:49:00

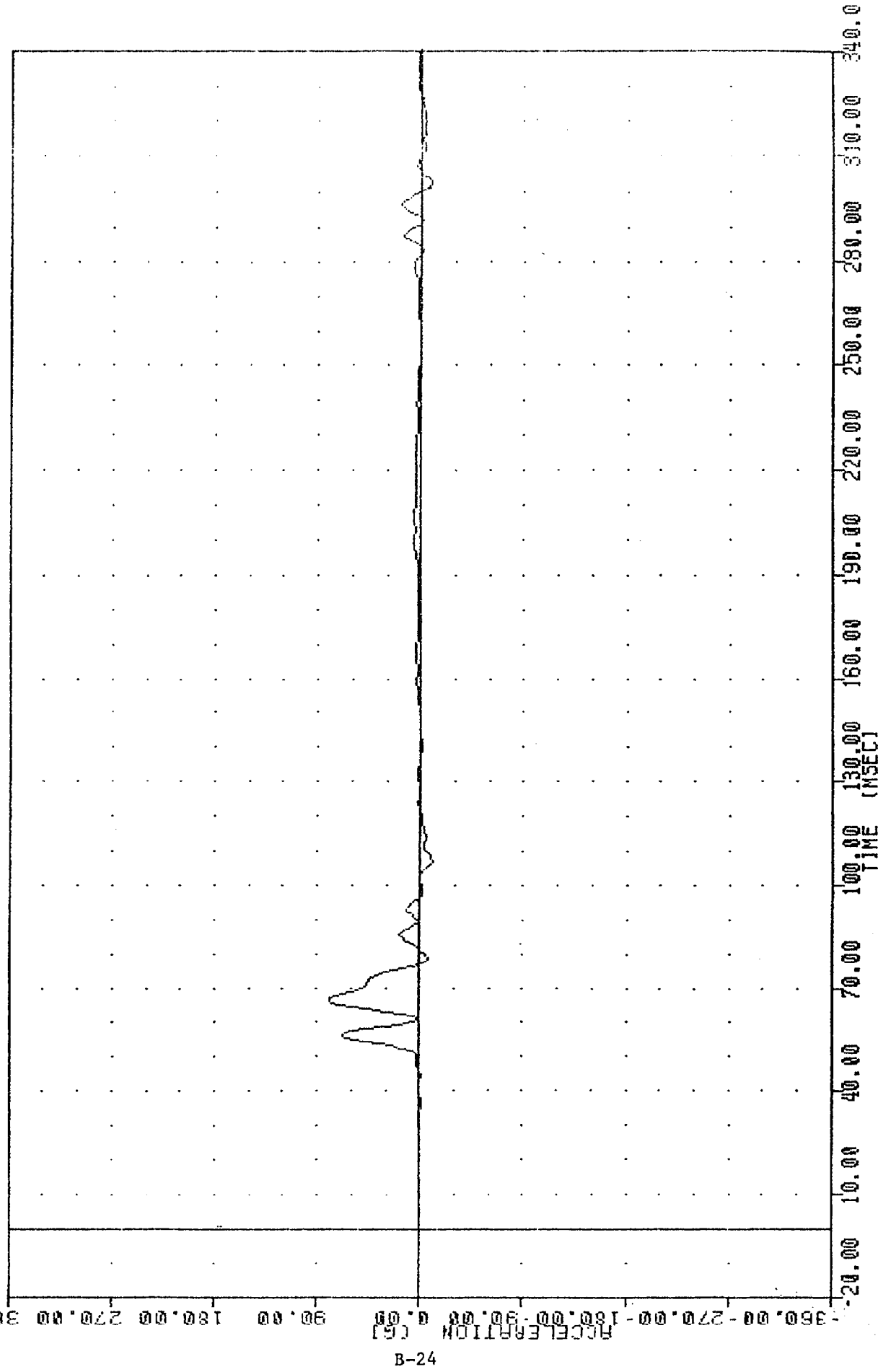


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LEFT UPPER RIB ACCELERATION Y AXIS

TMS 0216
 SIDE PROTECTION - 2DR/4DR
 84047000000
 LURYV1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.06 5.62 35.69 299.38
 20 FEB 84 13:30:13

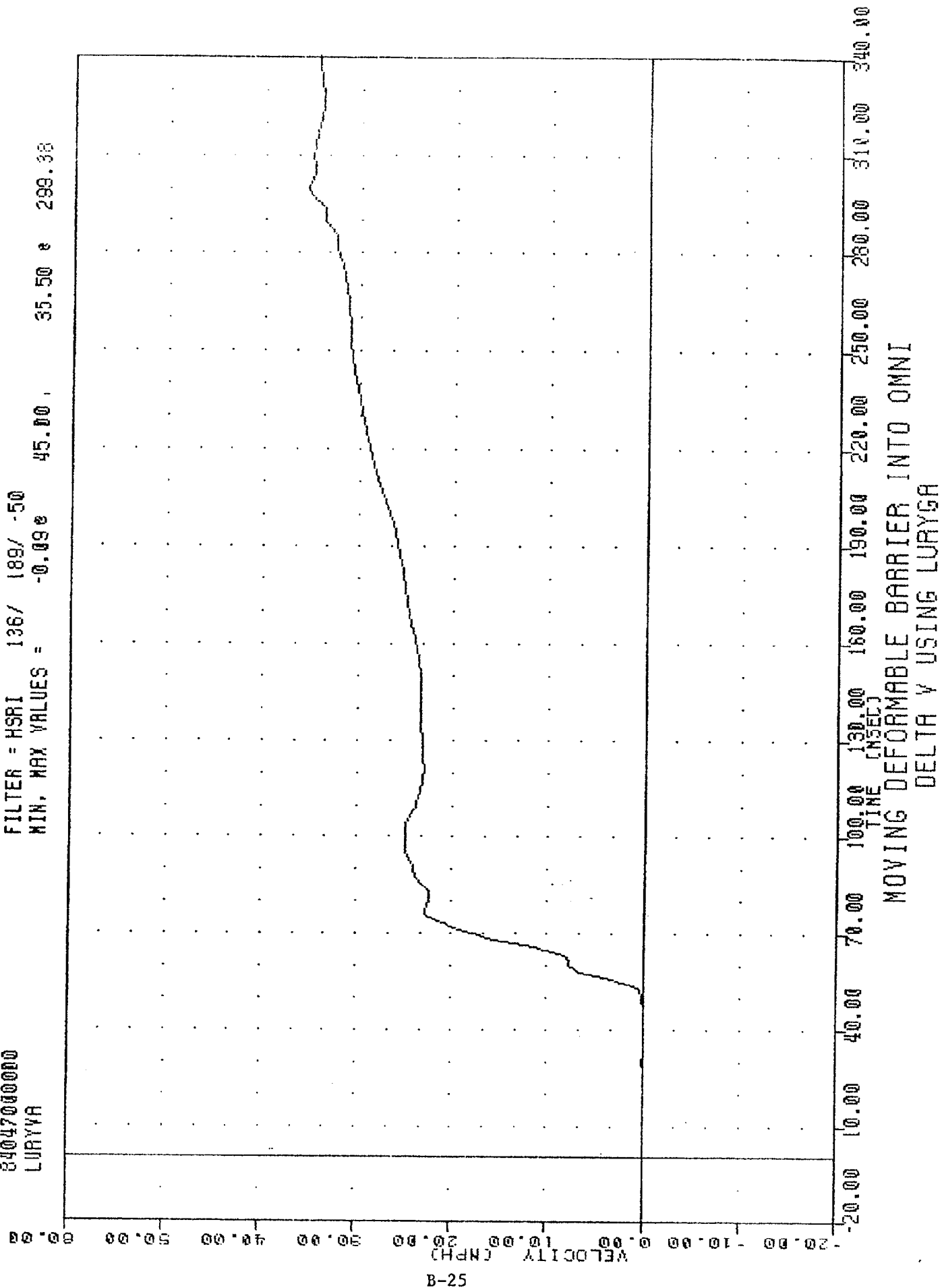


TPL 840216
 SIDE PROTECTION - 2DR/4DR
 84047000000
 LURYGR
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -10.65 106.87, 79.68 65.63
 PLOT DATE 20-FEB-84 13:49:00

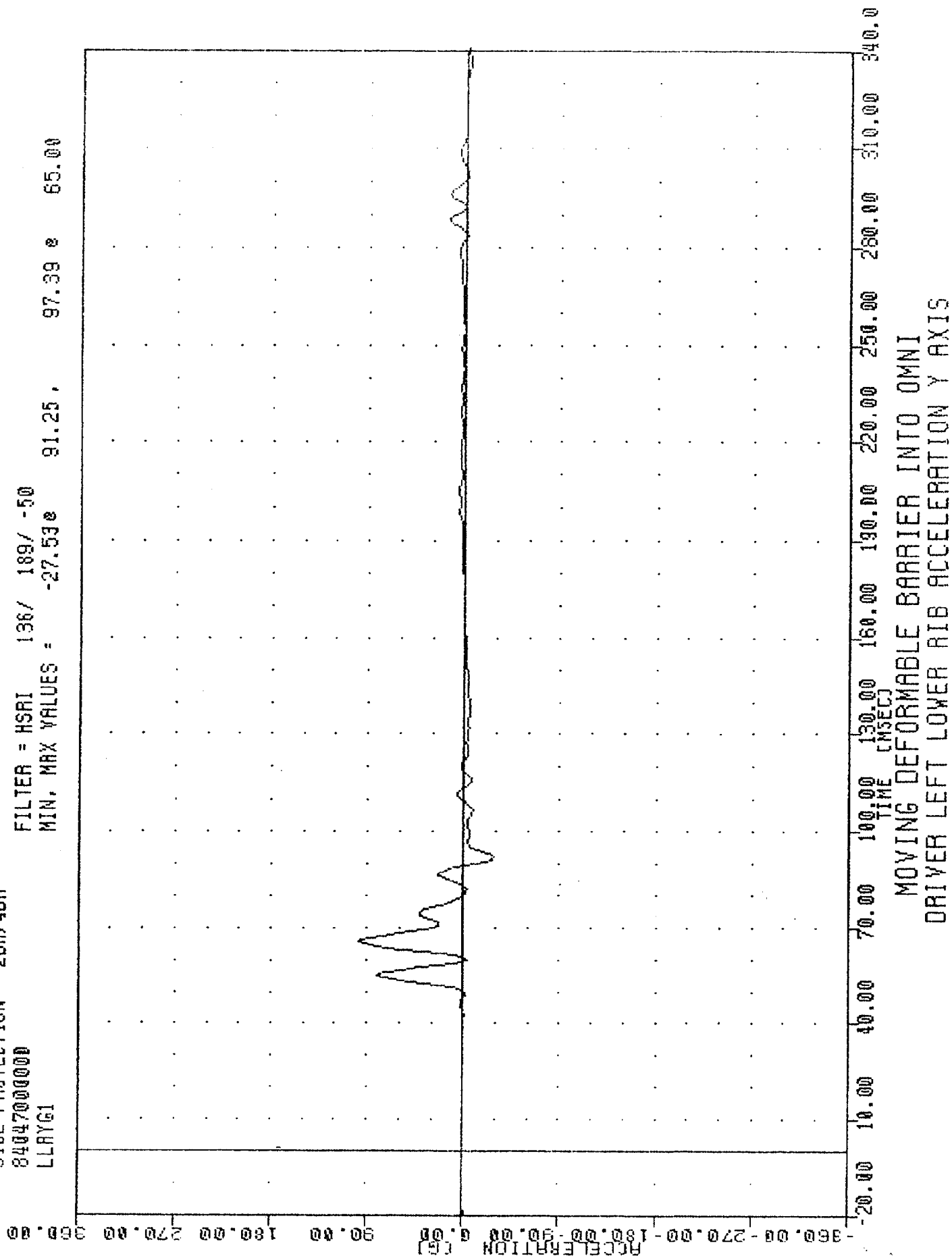


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LEFT UPPER RIB ACCELERATION -2 Y AXIS

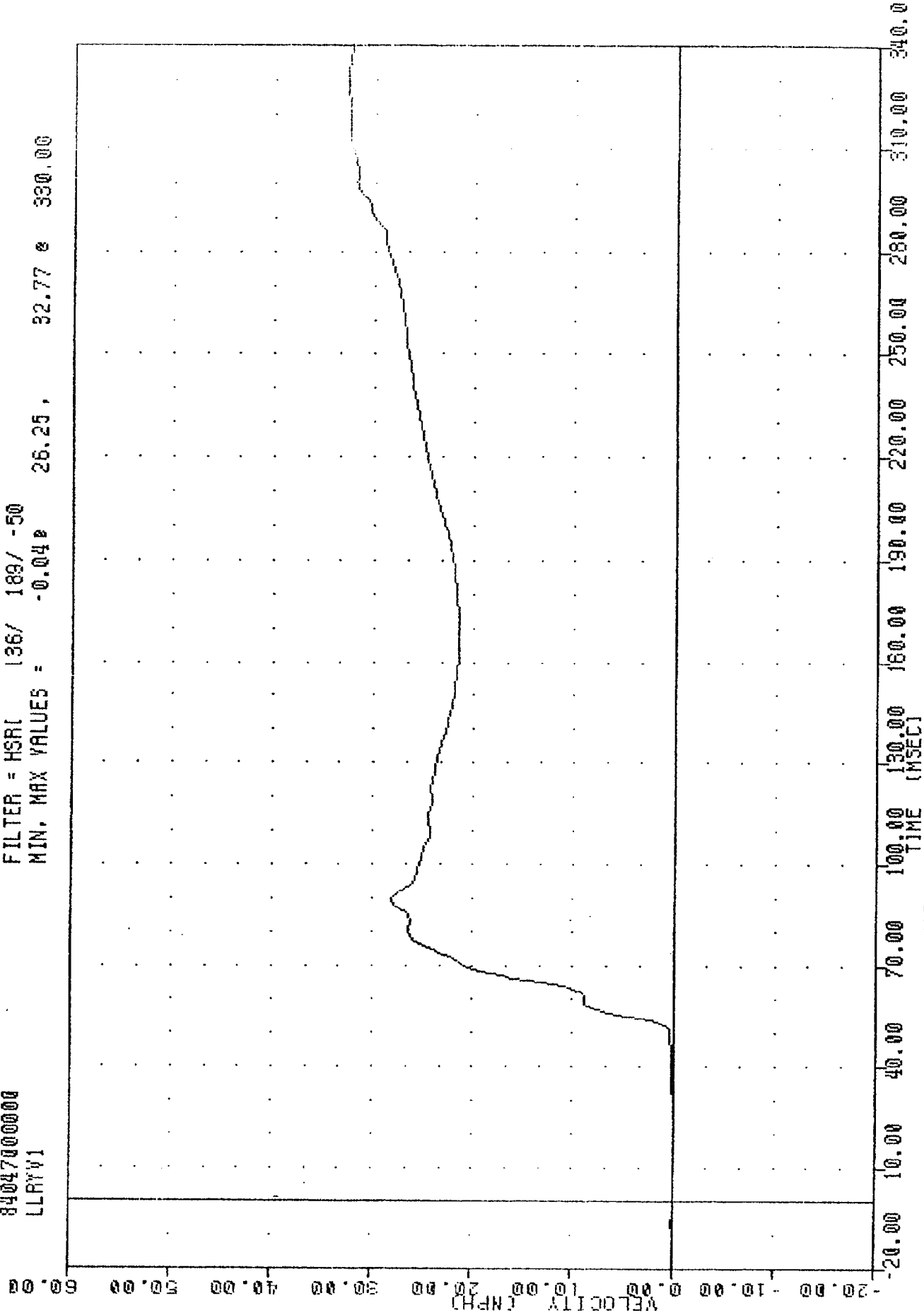
TIME 040210 PLUT DATE 20 FEB 84 13:50:15
 SIDE PROTECTION - 20R/4DR
 84047000000
 LURYVA
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.09e 45.00 35.50 e 288.38



TTRC [REDACTED] , 040210
 SIDE PROTECTION - 2DR/4DR
 8404700000
 LLAYG1
 PLOT DATE [REDACTED] 29 FEB-64 13:49:00
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -27.53e 91.25 , 97.39 e 65.00

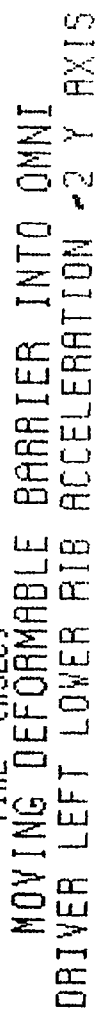


TRC 840216
 SIDE PROTECTION - 2DR/4DR
 84047000000
 LLRYV1
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.04 26.25, 32.77 @ 330.00
 PLOT DATE 20-FEB-84 13:50:15



MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LLRYG1

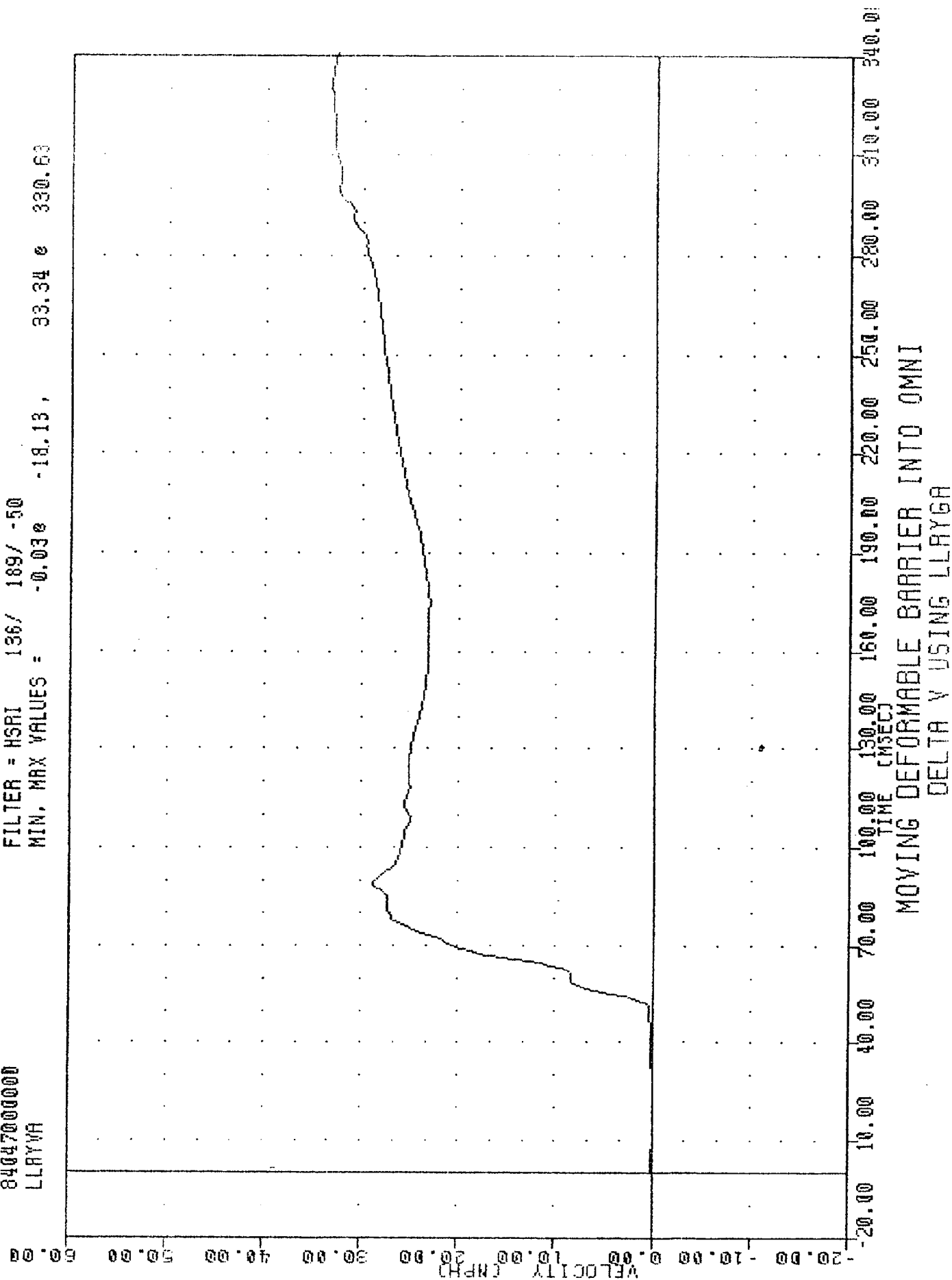
FILTER = HSRI	136/	189/	-50
MIN, MAX VALUES =	-25.88	91.25,	100.55 e 65.00



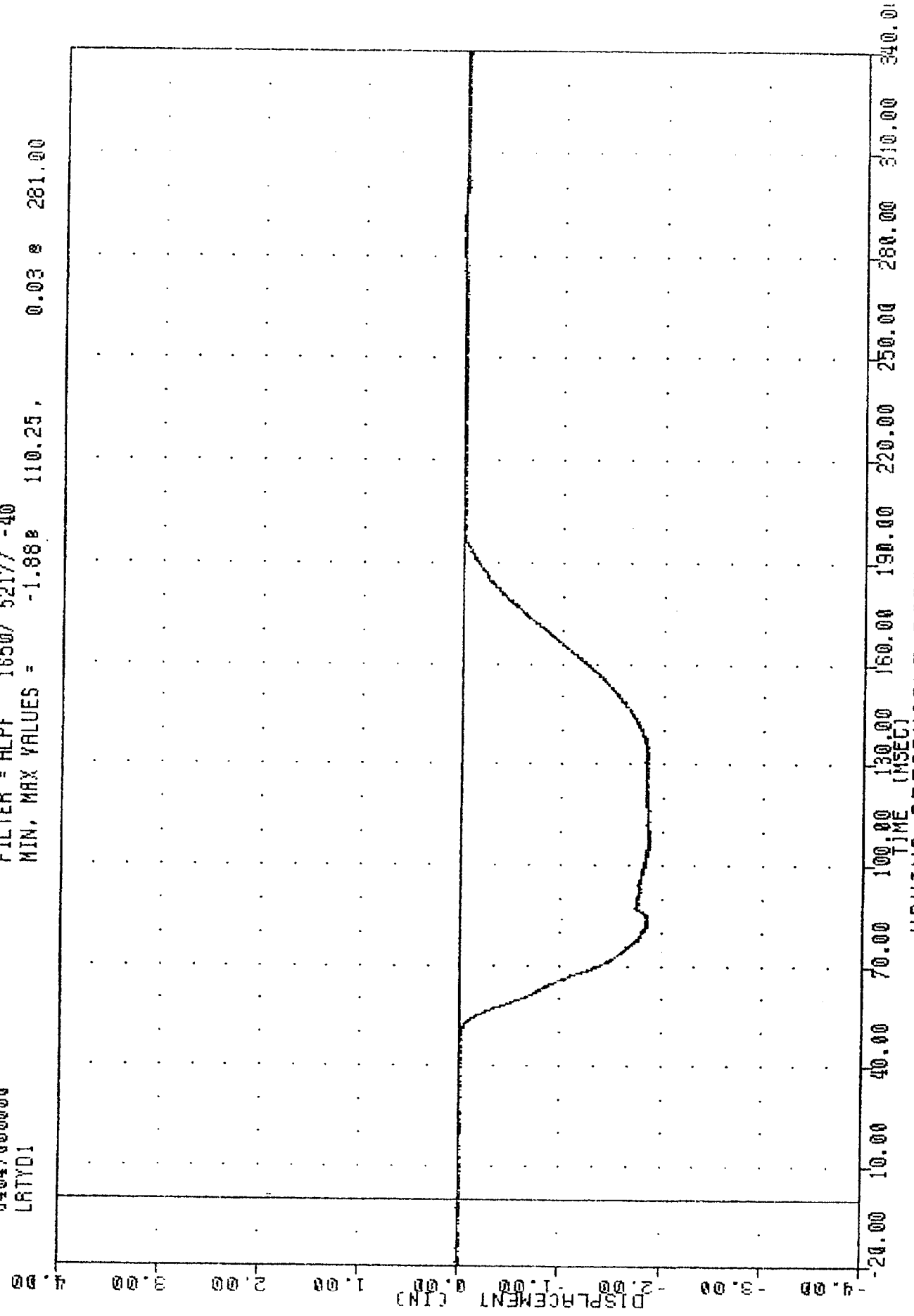
TIME [REDACTED] 00216
SIDE PROTECTION - 2DR/4DR
8404700000
LLAYVA

PLOT DATE [REDACTED] 29 FEB-64 13:30:19

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -0.030 -18.13 , 33.34 e 330.63



INC 1040210 PLOT DATE 20 FEB 84 13:47:51
 SIDE PROTECTION - 2DR/4DR
 84047000000
 LRTYD1
 FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -1.88 110.25, 0.03 281.00

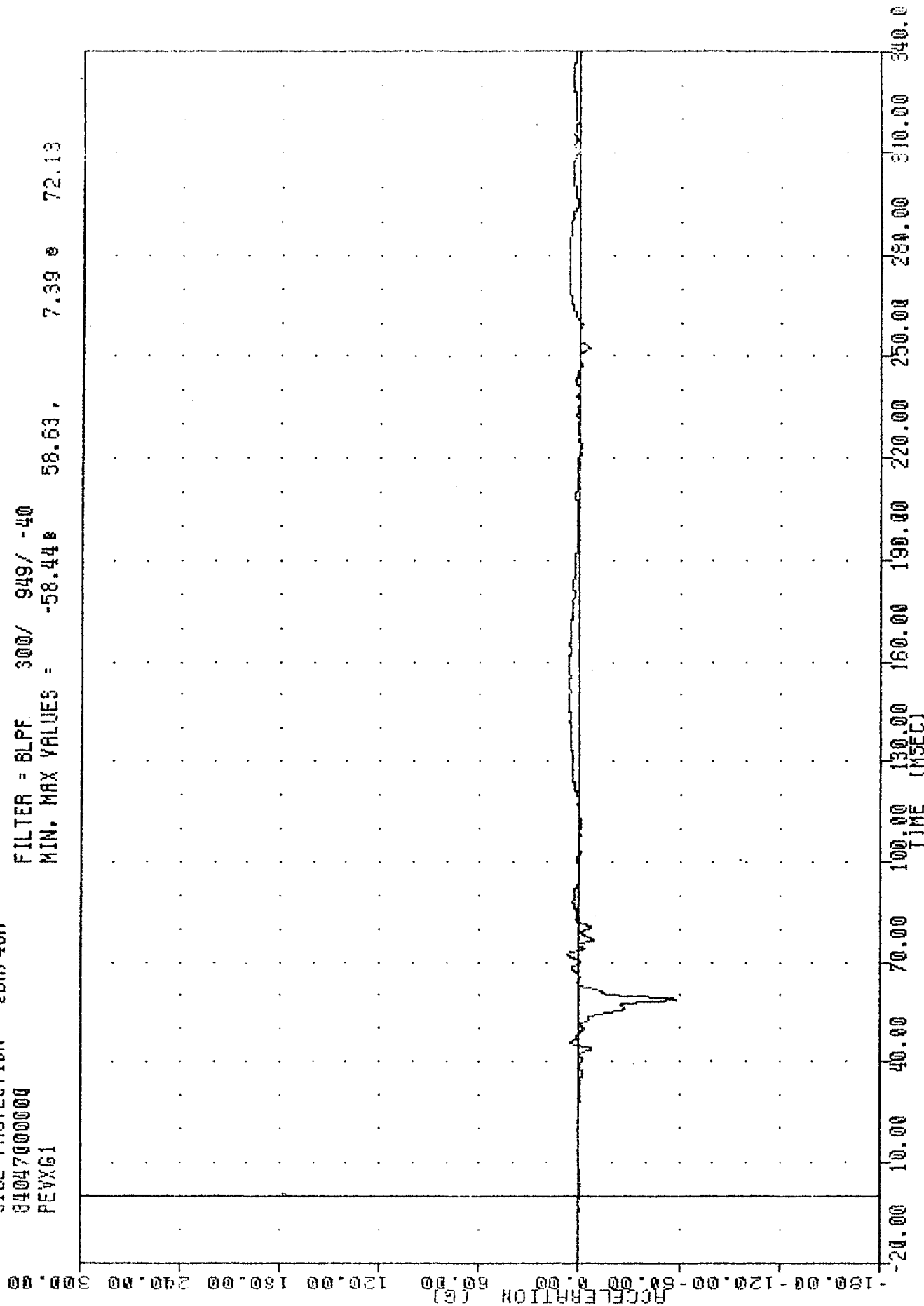


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER LEFT RIB TO SPINE DISPLACEMENT INCHES

TRC 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 PEVXG1

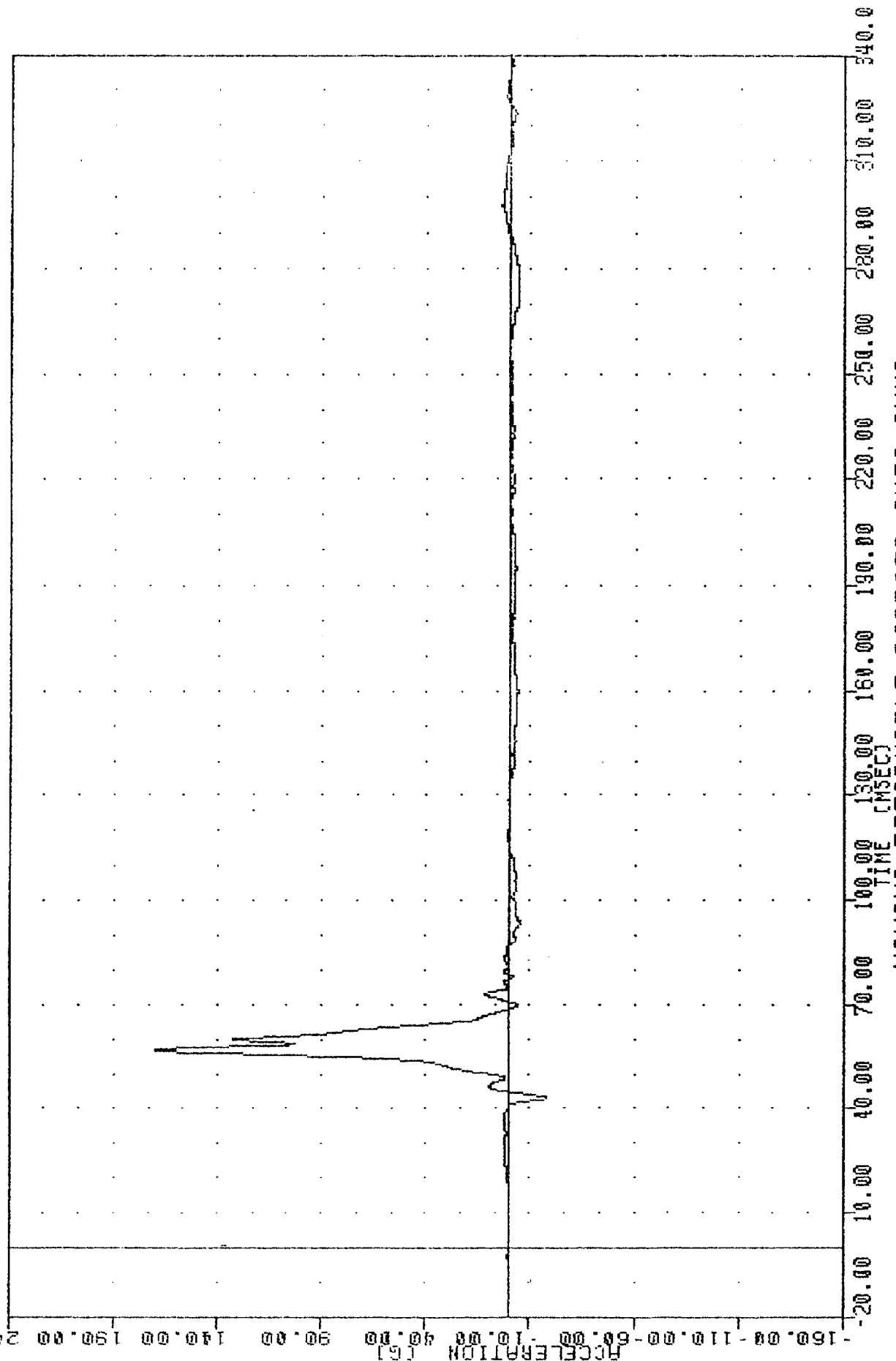
PLUT DATE 20-FEB-84 13:47:51

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -58.44 58.63, 7.39 72.13



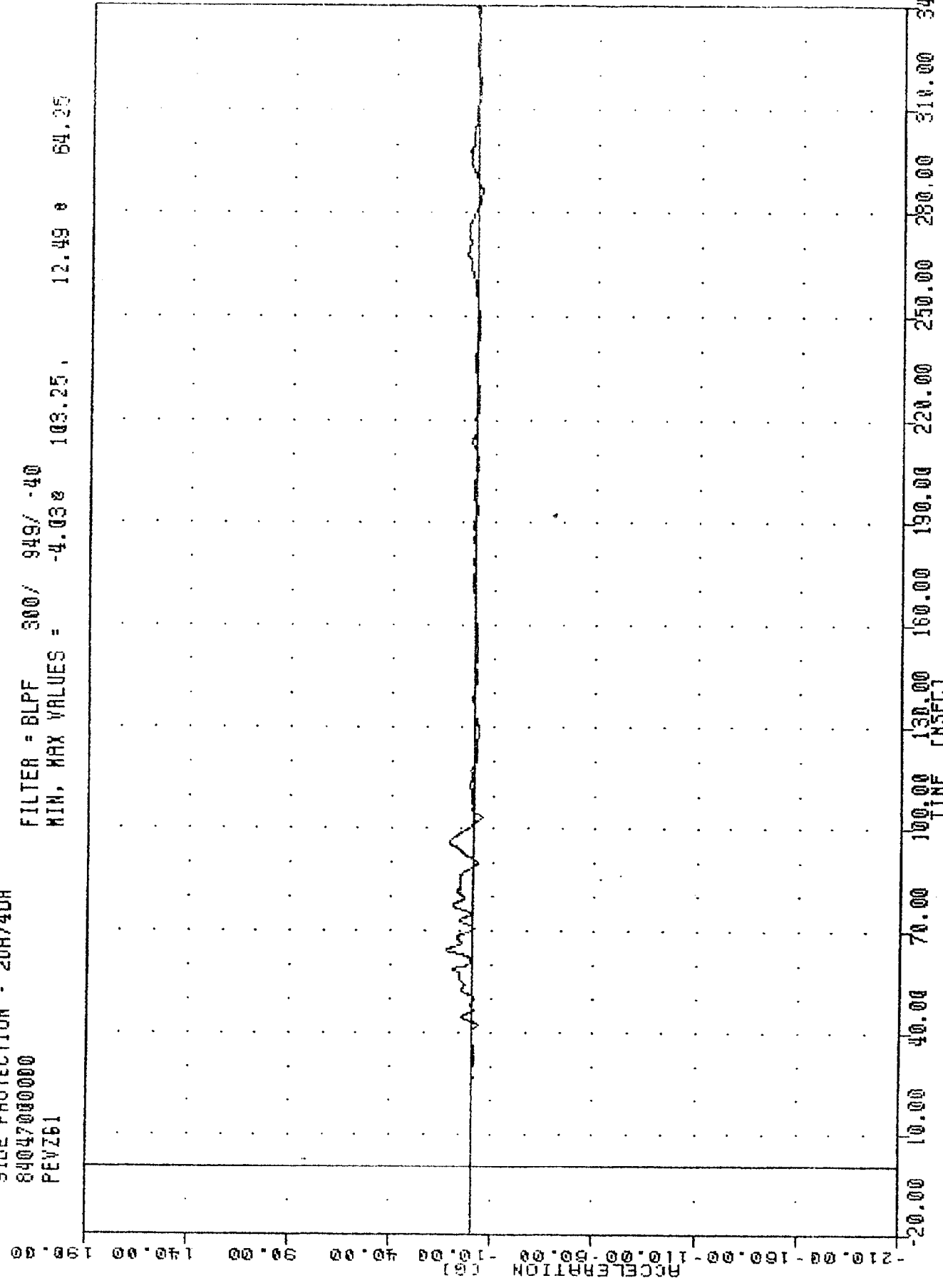
MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER PELVIS ACCELERATION X AXIS

TRC
 840216
 SIDE PROTECTION - 20R/4DR
 84047000000
 PEVYG1
 FILTER = 8LPF 300/ 919/ -40
 MIN. MAX VALUES = -18.58e 42.88. 170.01 e 56.88
 PLOT DATE 20-FEB-84 13:47:51



MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER PELVIS ACCELERATION Y AXIS

T 021
 SIDE PROTECTION - 20R/40R
 8404700000
 PEVZ61
 FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -4.038 103.25, 12.49 64.25
 20-28-8 10:27:51

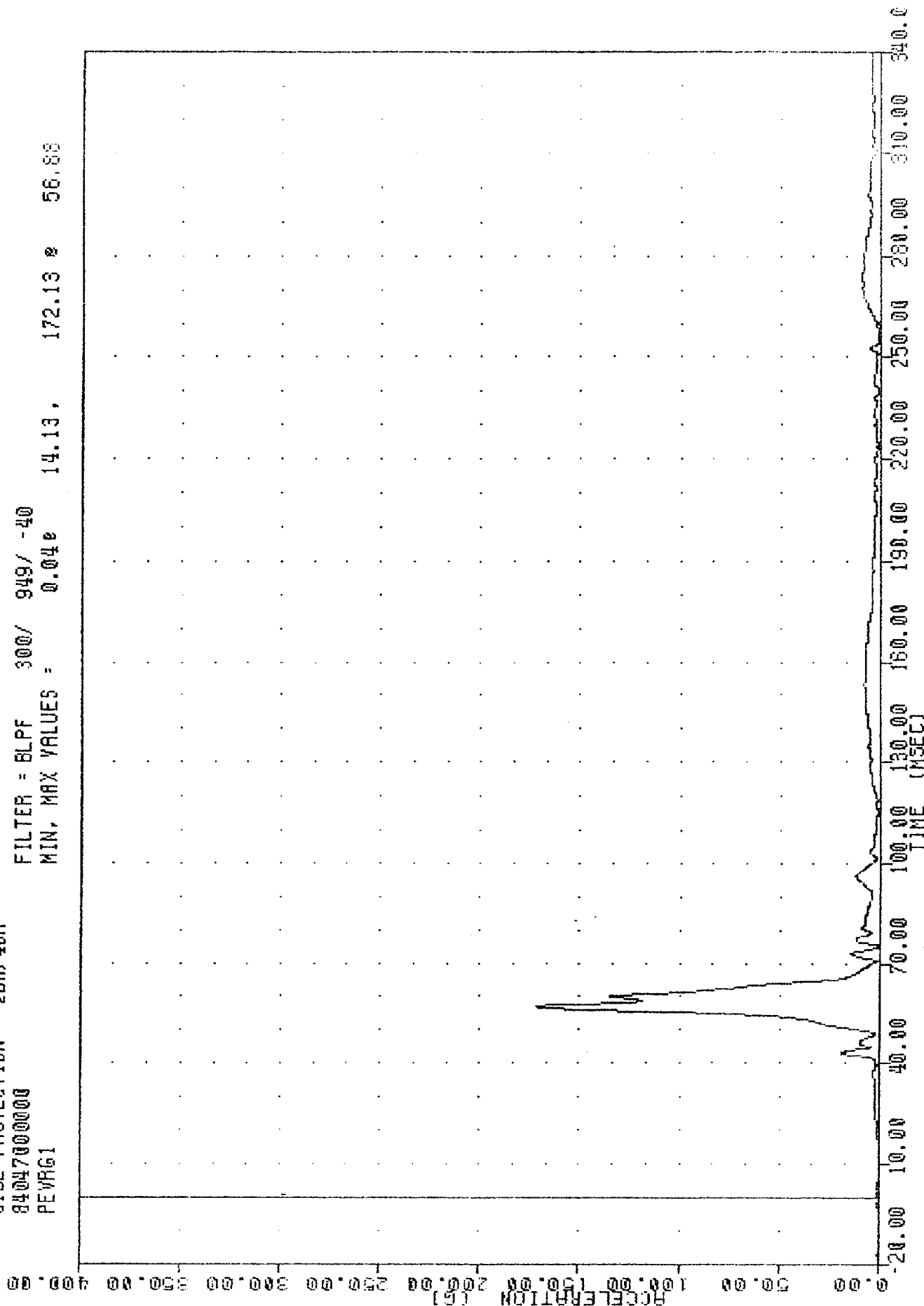


MOVING DEFORMABLE BARRIER INTO OMNI
 DRIVER PELVIS ACCELERATION Z AXIS

TRC 840216
SIDE PROTECTION - 2DR/4DR
84047000000
PEVRG1

PLOT DATE 20-FEB-84 13:47:51

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = 0.04e 14.13, 172.13 e 56.88



B-34

MOVING DEFORMABLE BARRIER INTO OMNI
DRIVER PELVIS RESULTANT

THC 840216 PLOT DATE 20-FEB-84 13:50:55

SIDE PROTECTION - 20R/40R

84047000000

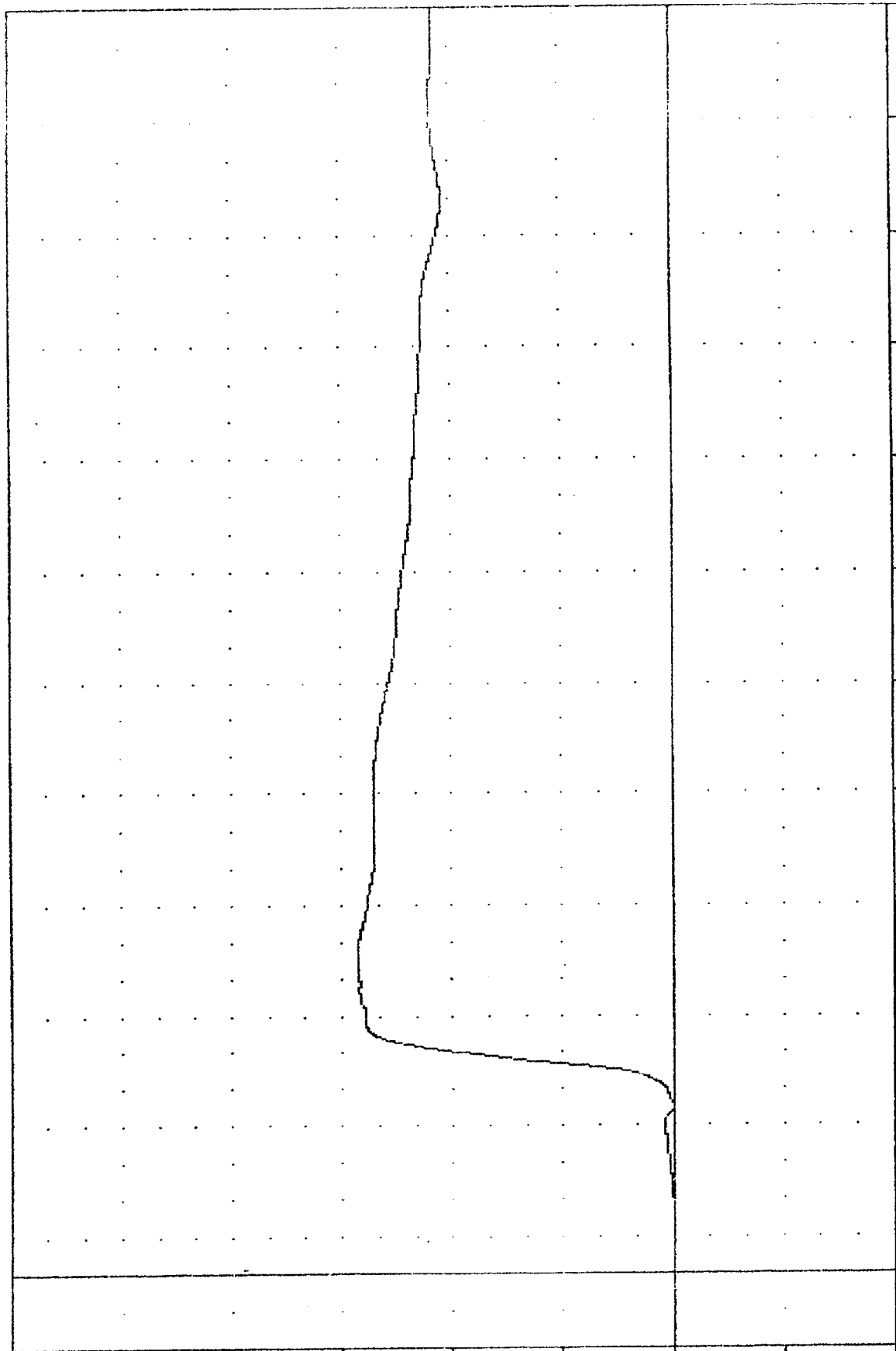
PEVYV1

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.098 44.63 28.63 86.83

50.00
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00

B-35



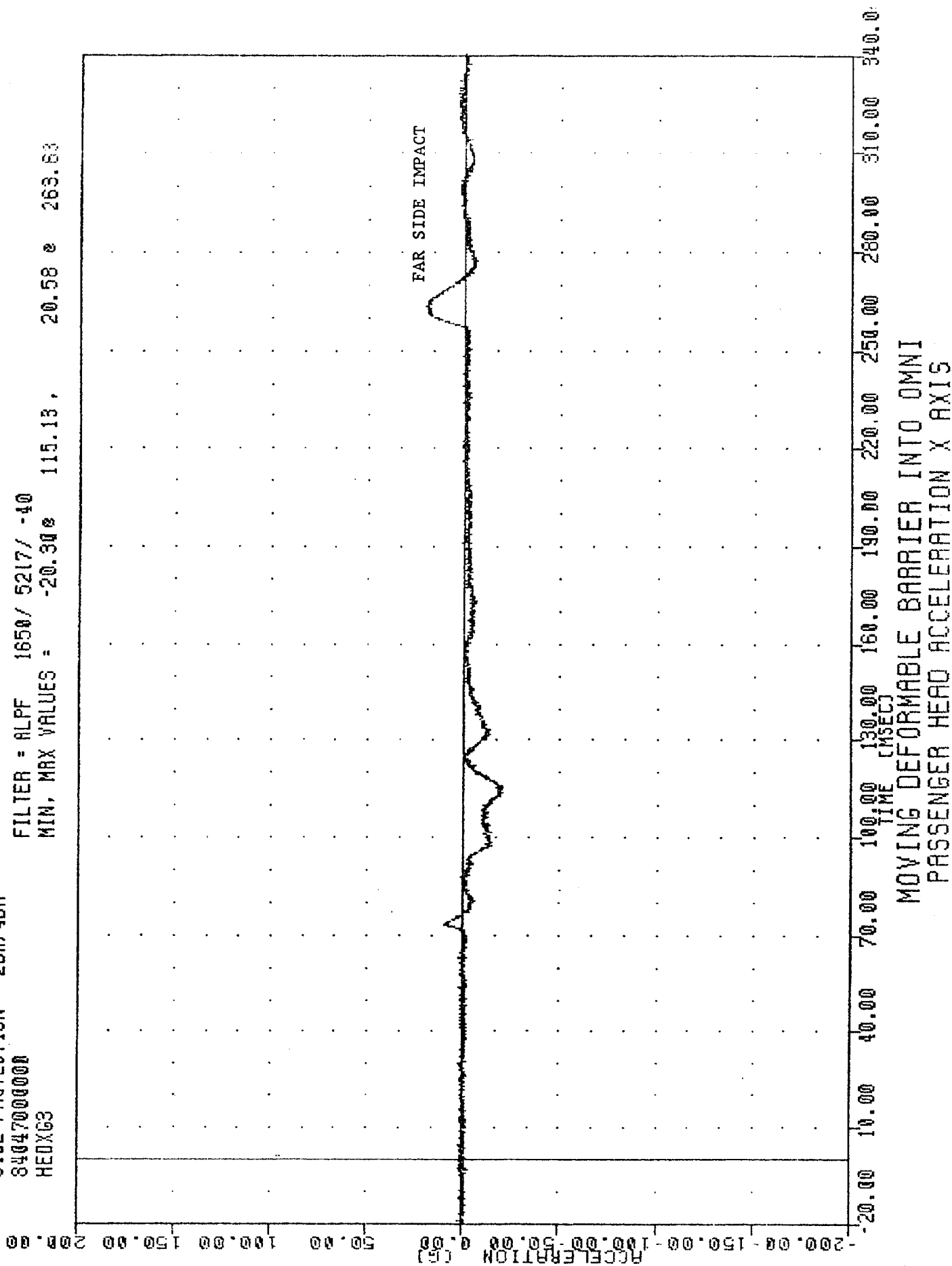
-20.00 10.00 20.00 30.00 40.00 50.00
-20.00 -10.00 0.00 10.00 20.00 30.00 40.00 50.00

TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING PEVYV1

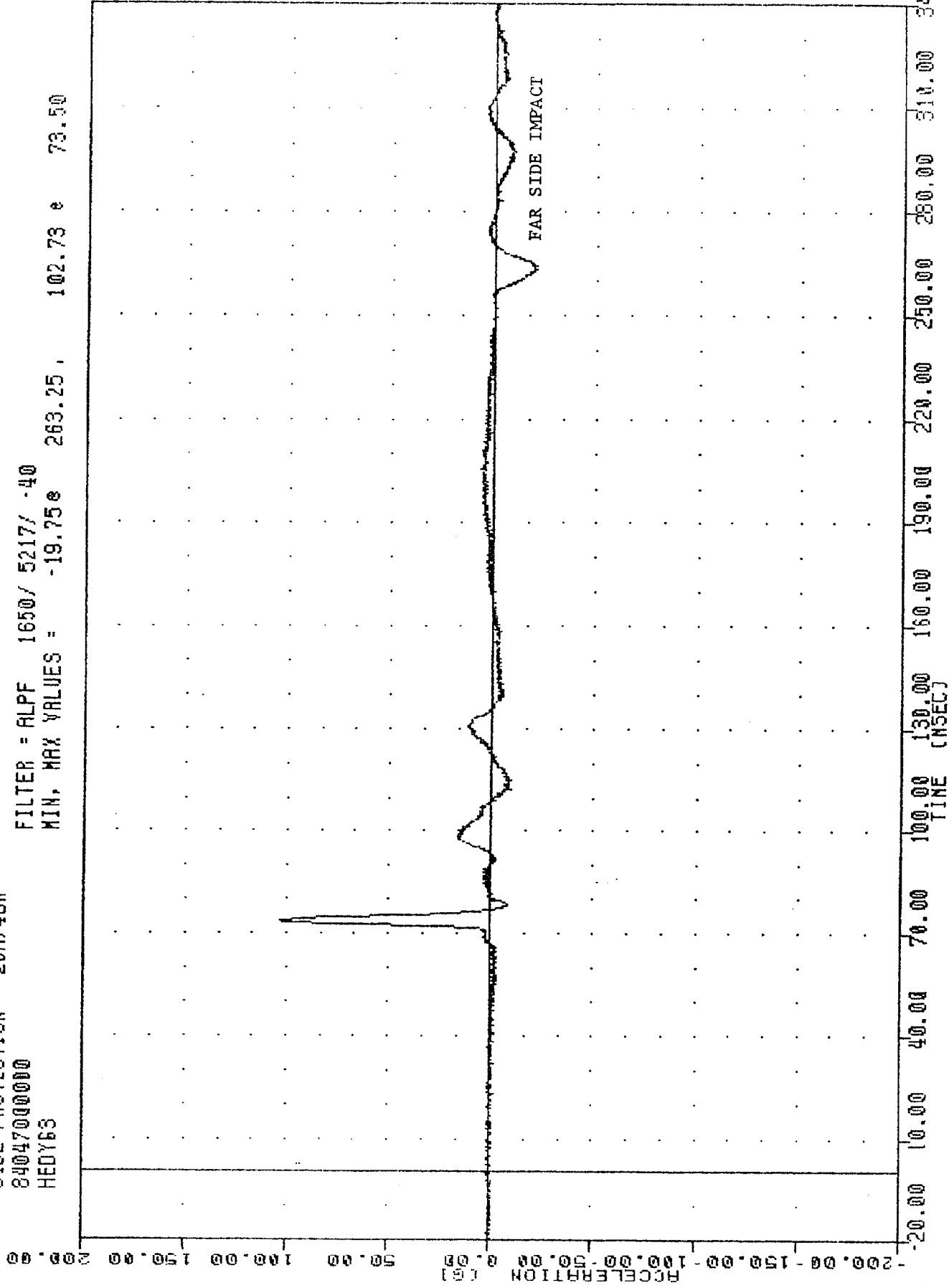
TFL
840216
SIDE PROTECTION - 2DR/4DR
84047000000
HEDXG3

PLUT DATE 20-FEB-84 13:47:51

FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -20.308 115.13, 20.58 & 263.83



INC 040216
 SIDE PROTECTION - 20R/40R
 84047000000
 HEDY63
 FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -19.75e 263.25, 102.73 e 73.50
 PLT DATE 20-FEB-84 13:47:51

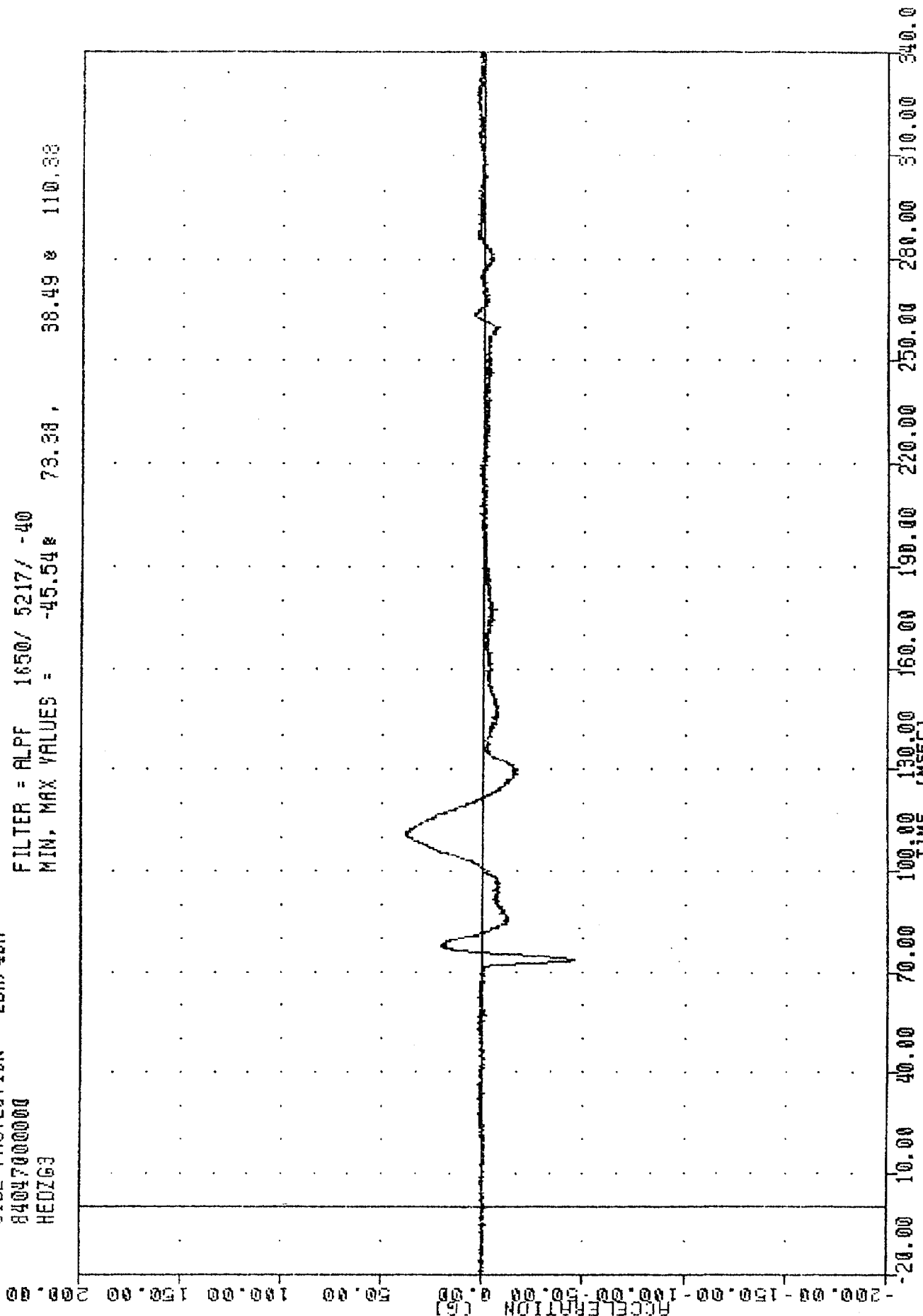


MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER HEAD ACCELERATION Y AXIS

TRC 840216
 SIDE PROTECTION - 2DR/4DR
 84047000000
 HEDZG3

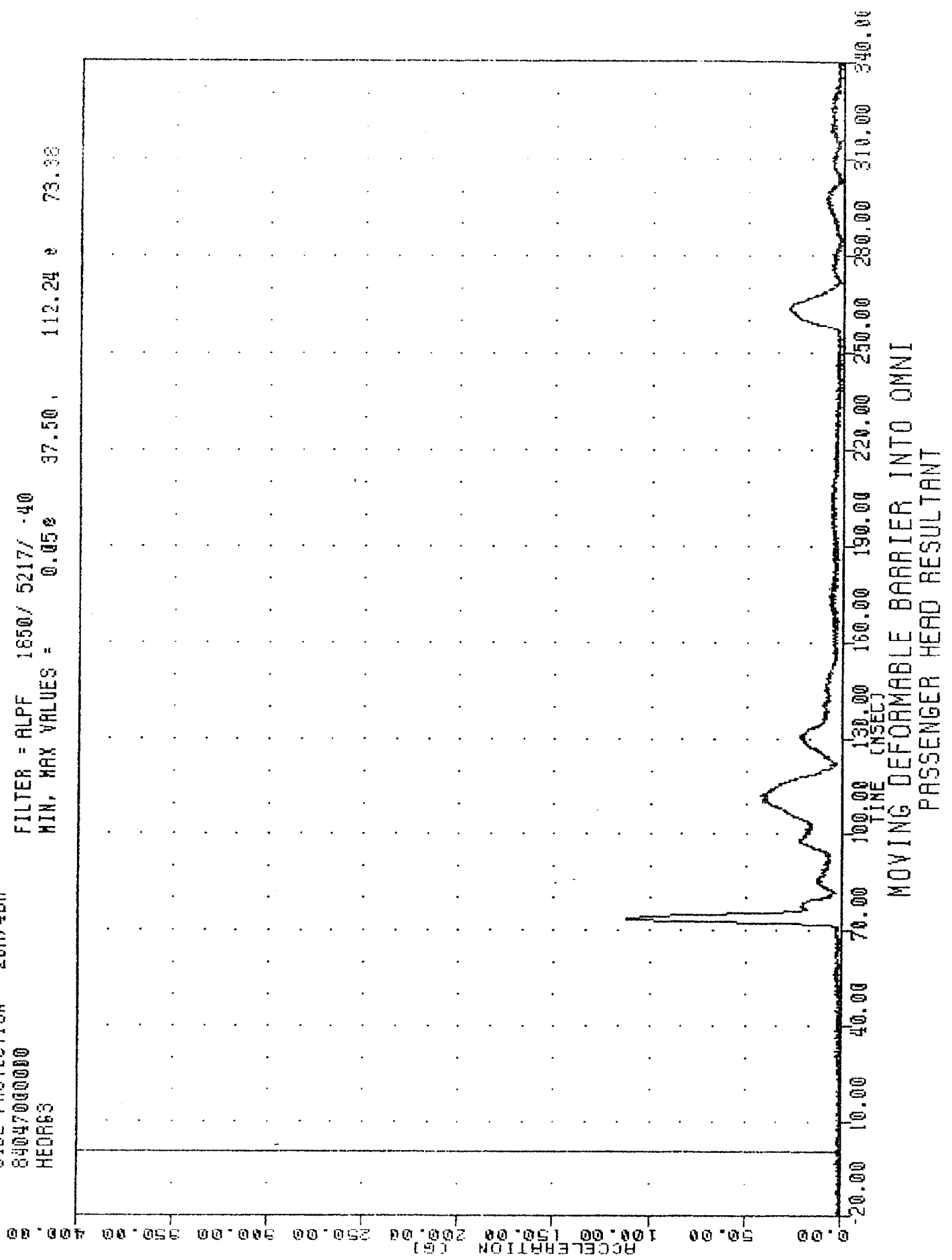
PLOT DATE 20-FEB-64 13:47:51

FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -45.54% 73.38, 38.49 & 110.38

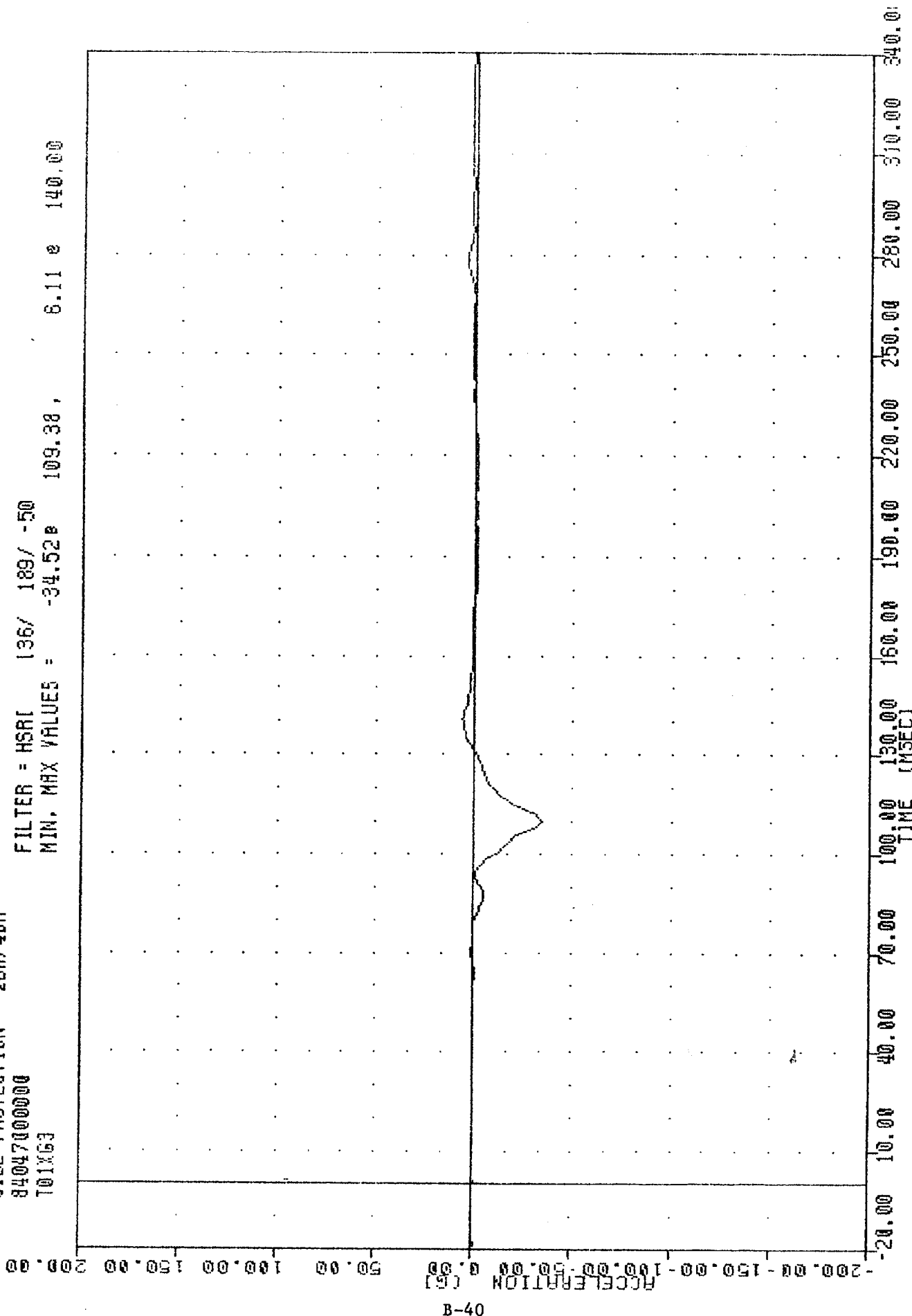


MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER HEAD ACCELERATION Z AXIS

TAG XXXXXX, 040216 XXXXXX PLT DATE XXXXXX 20 FEB 84 XXXXXX 13:47:51
 SIDE PROTECTION - 20R/4DR
 84047000000
 HEADS
 FILTER = ALPF 1850/ 5217/ -40
 MIN. MAX VALUES = 0.05e 37.50. 112.24 e 73.38



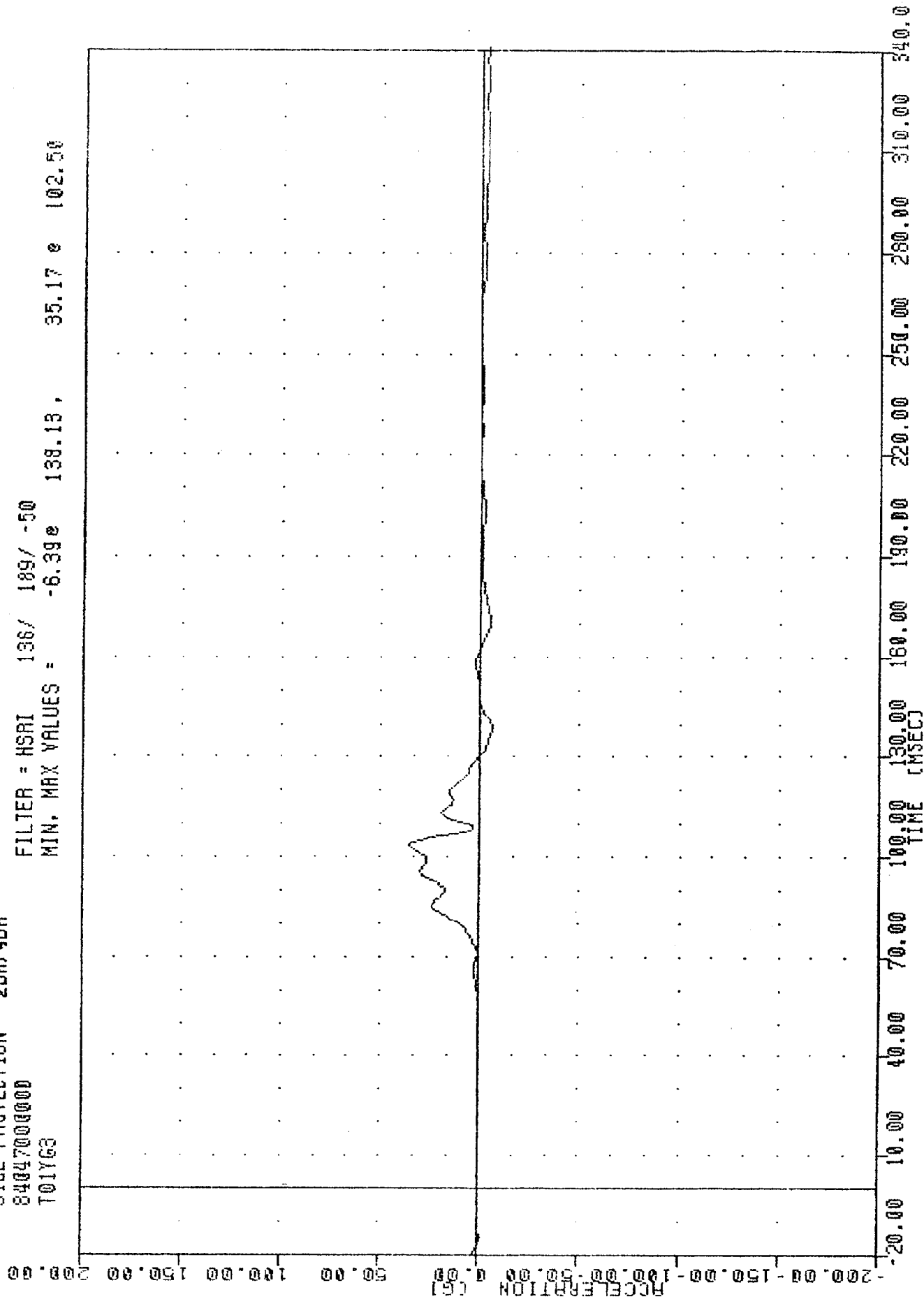
TMS 0210 13:49:00
 SIDE PROTECTION - 20R/4DR
 84047000000
 T01XG3
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -34.52 109.38, 8.11 e 140.00



B-40

MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER UPPER SPINE ACCELERATION X AXIS

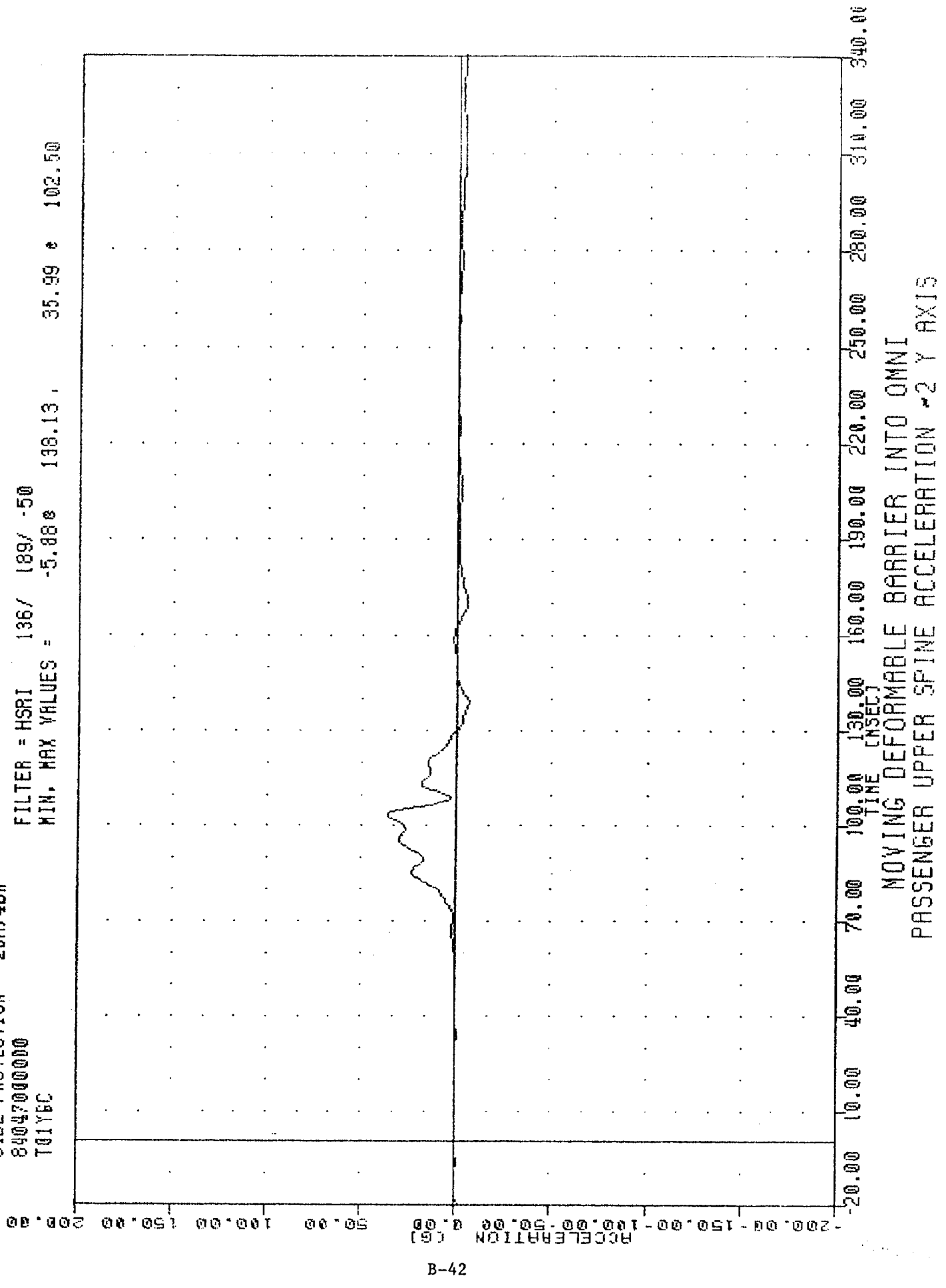
TAC 840215 PLOT DATE 20-FEB-84 13:49:00
 SIDE PROTECTION - 2DR/4DR
 84047000000
 T01Y63
 FILTER = HSRI 136/ 109/ -50
 MIN. MAX VALUES = -6.39e 138.13, 35.17 e 102.50



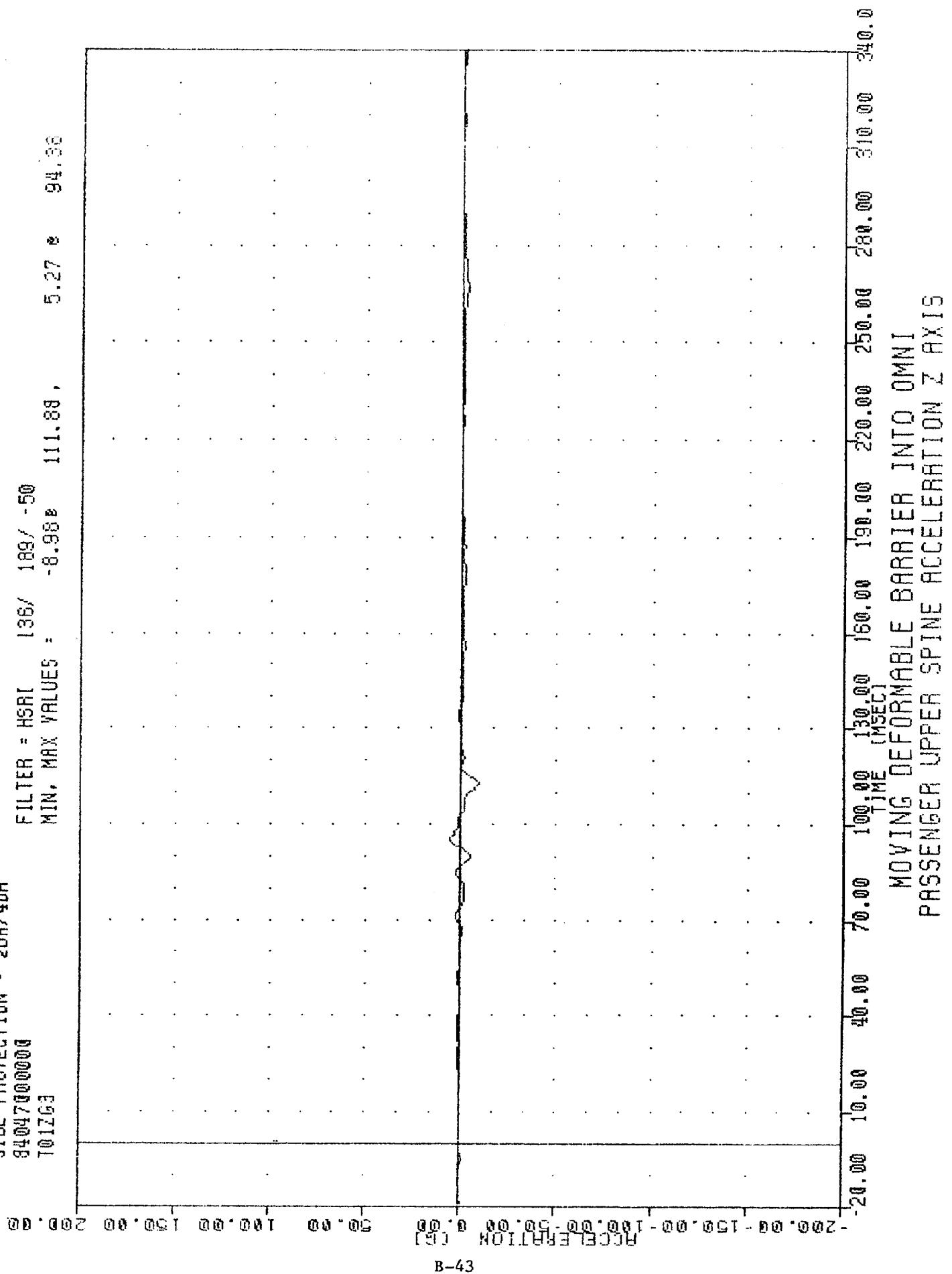
B-41

MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER UPPER SPINE ACCELERATION Y AXIS

TRC 040216, 040216
 SIDE PROTECTION - 20R/40R
 84047000000
 T01YEC
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -5.88 138.13 35.99 e 102.50
 PLOT DATE 20-FEB-84 13:49:00

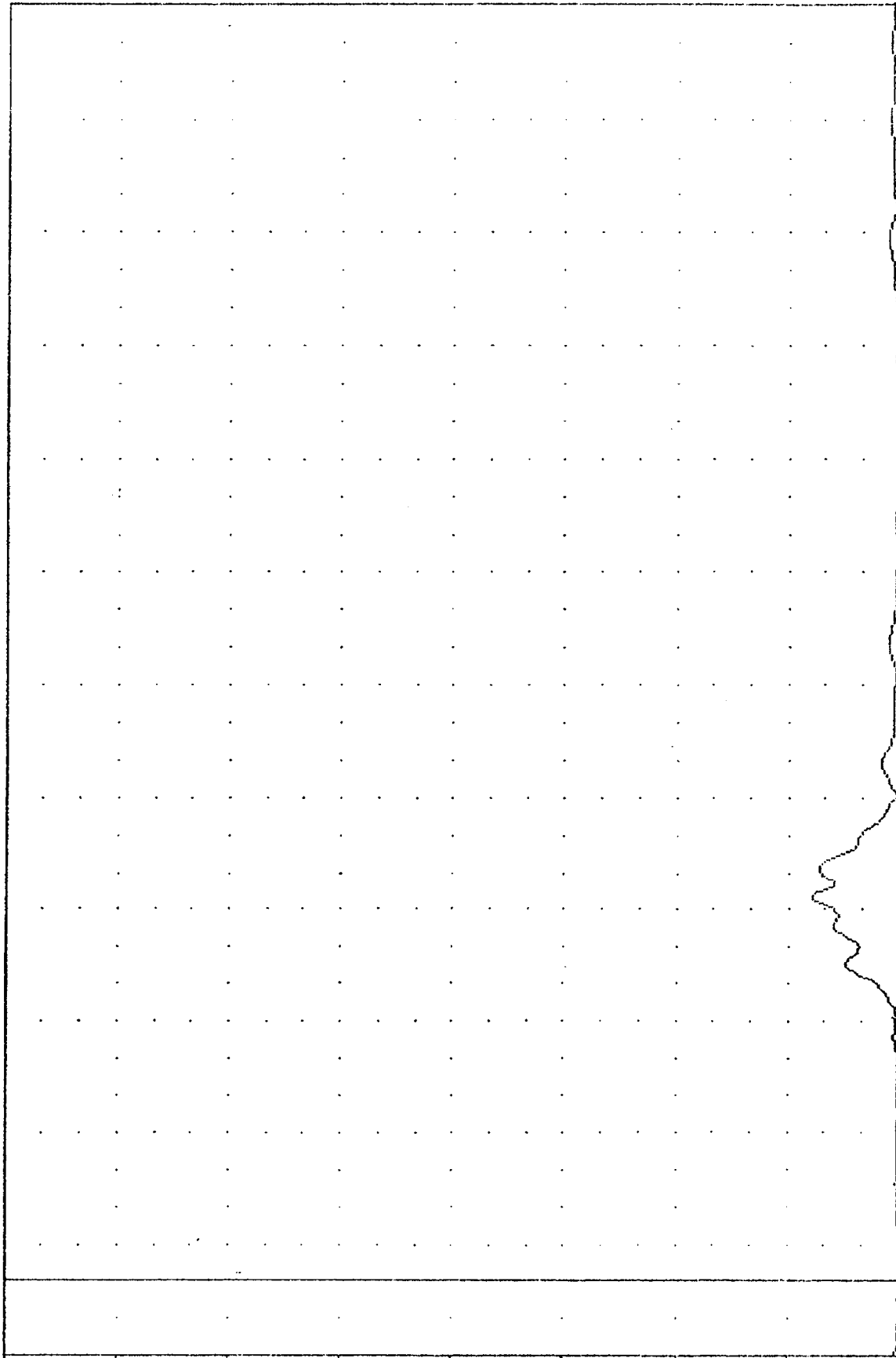


TMC
 SIDE PROTECTION - 20R/40R
 840216
 84047000000
 701763
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -8.988 111.88, 5.27 94.36
 PLOT DATE 20-FEB-84 13:49:00



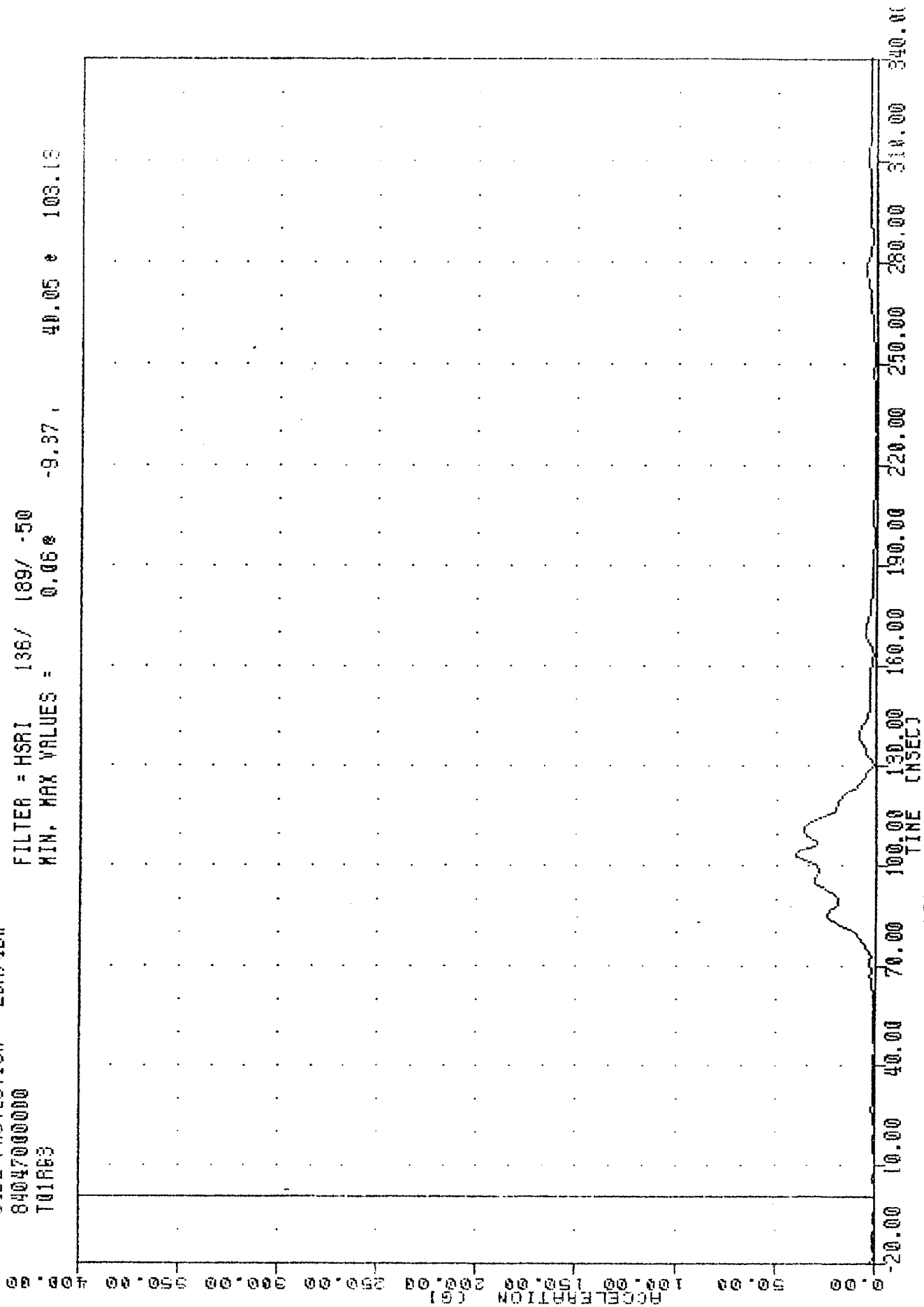
THE [REDACTED] , 040216 [REDACTED] PLT DATE 20 FEB 88 15:49:00
 SIDE PROTECTION - 20R/4DR
 84047000000
 T01R63
 FILTER = HSRI 136/ 189/ .50
 MIN. MAX VALUES = 0.05e -9.37 , 39.24 e 103.13

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

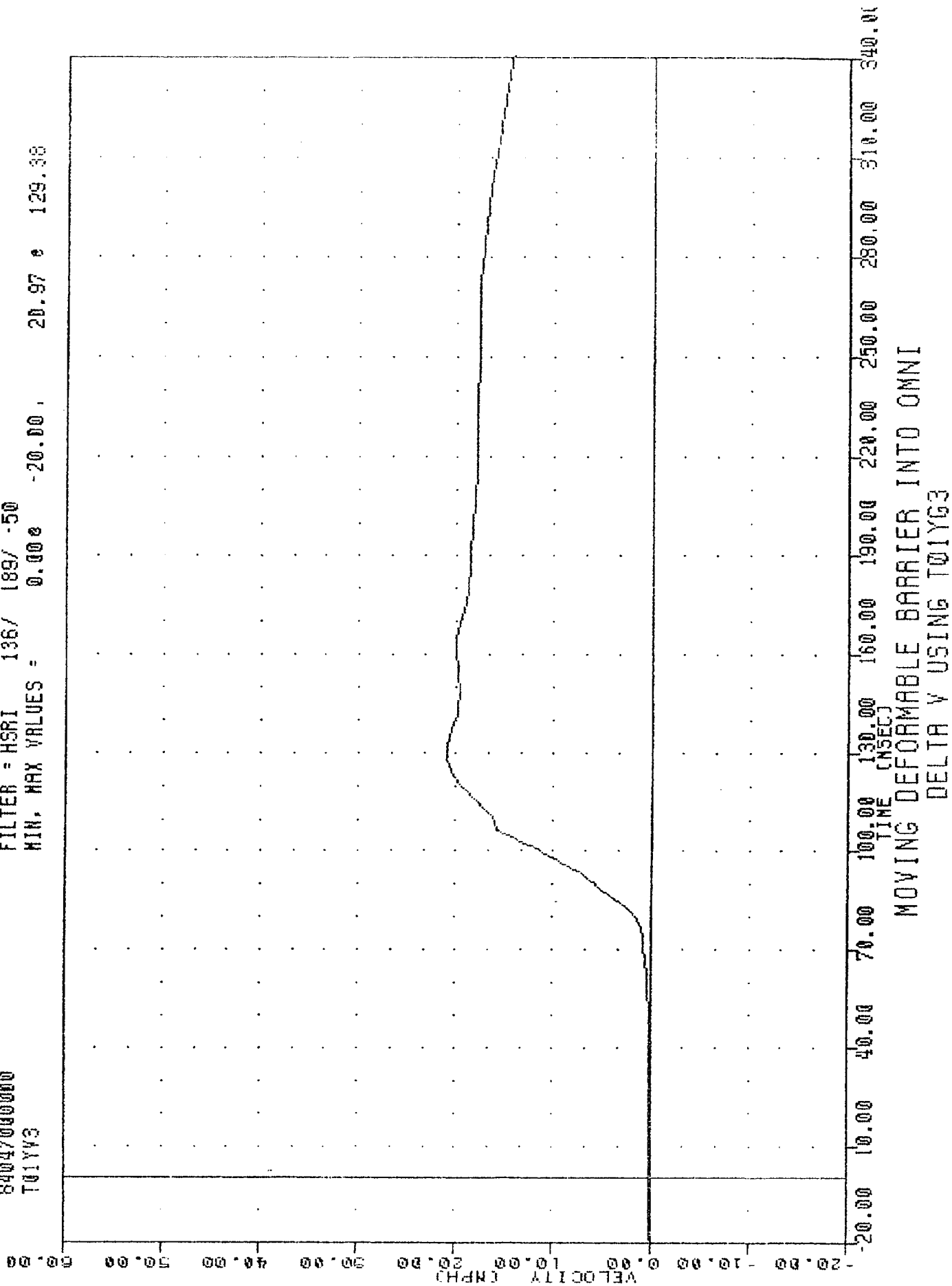


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER UPPER SPINE RESULTANT

TRC 040210
 SIDE PROTECTION - 20R/40R
 84047000000
 T01R63
 FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = 0.06e -9.37, 40.05 e 103.13
 PLOT DATE 20 FEB 84 13:43:57



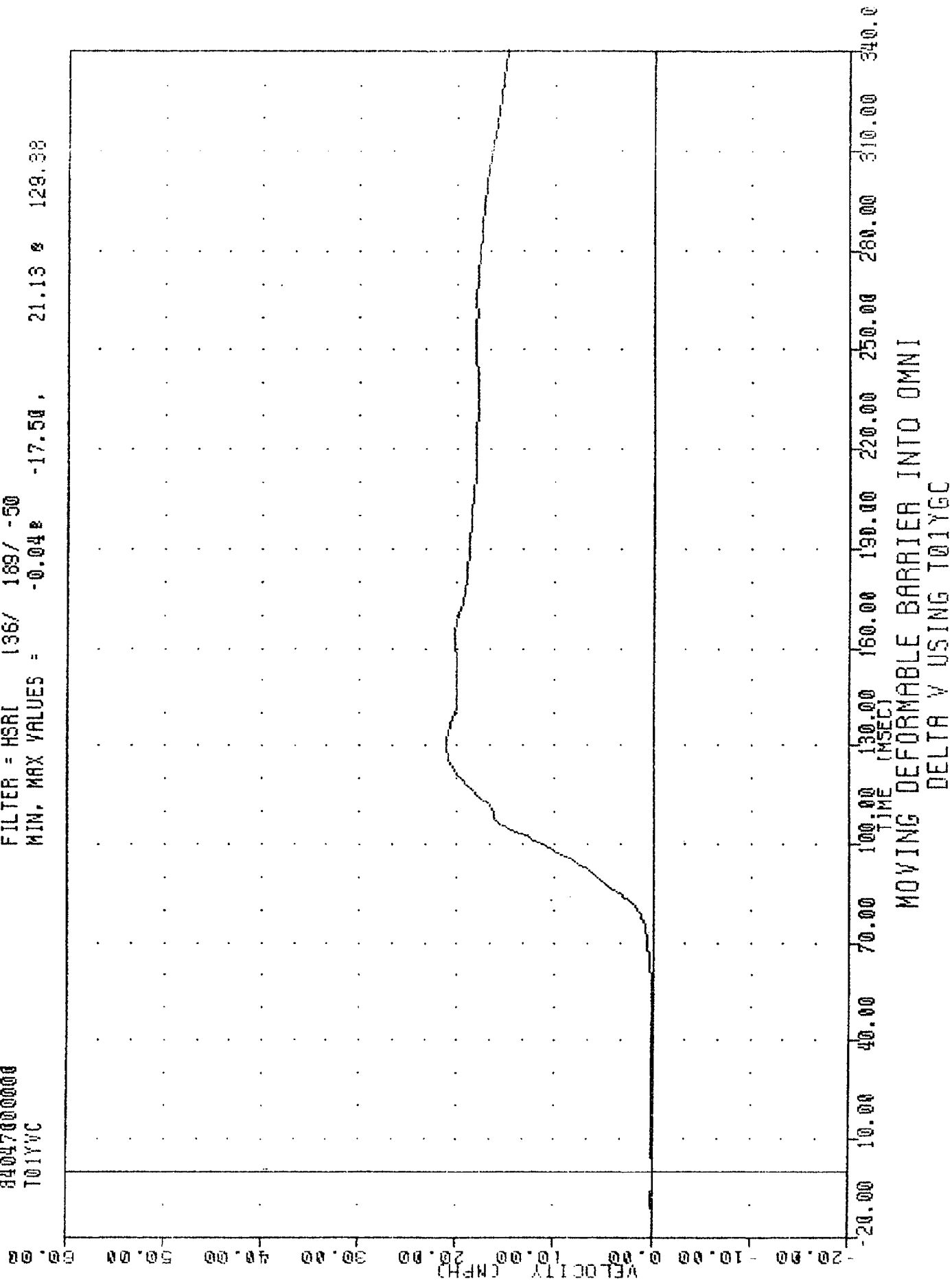
TRC 840216 20 FEB 84 13:30:15
 SIDE PROTECTION - 20R/4DR
 8404700000
 T01YW3
 FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = 0.000 -20.00 20.97 e 129.38



TRC
 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 T01YVC

PLOT DATE 20-FEB-84 13:50:15

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -0.048 -17.50, 21.13 129.38

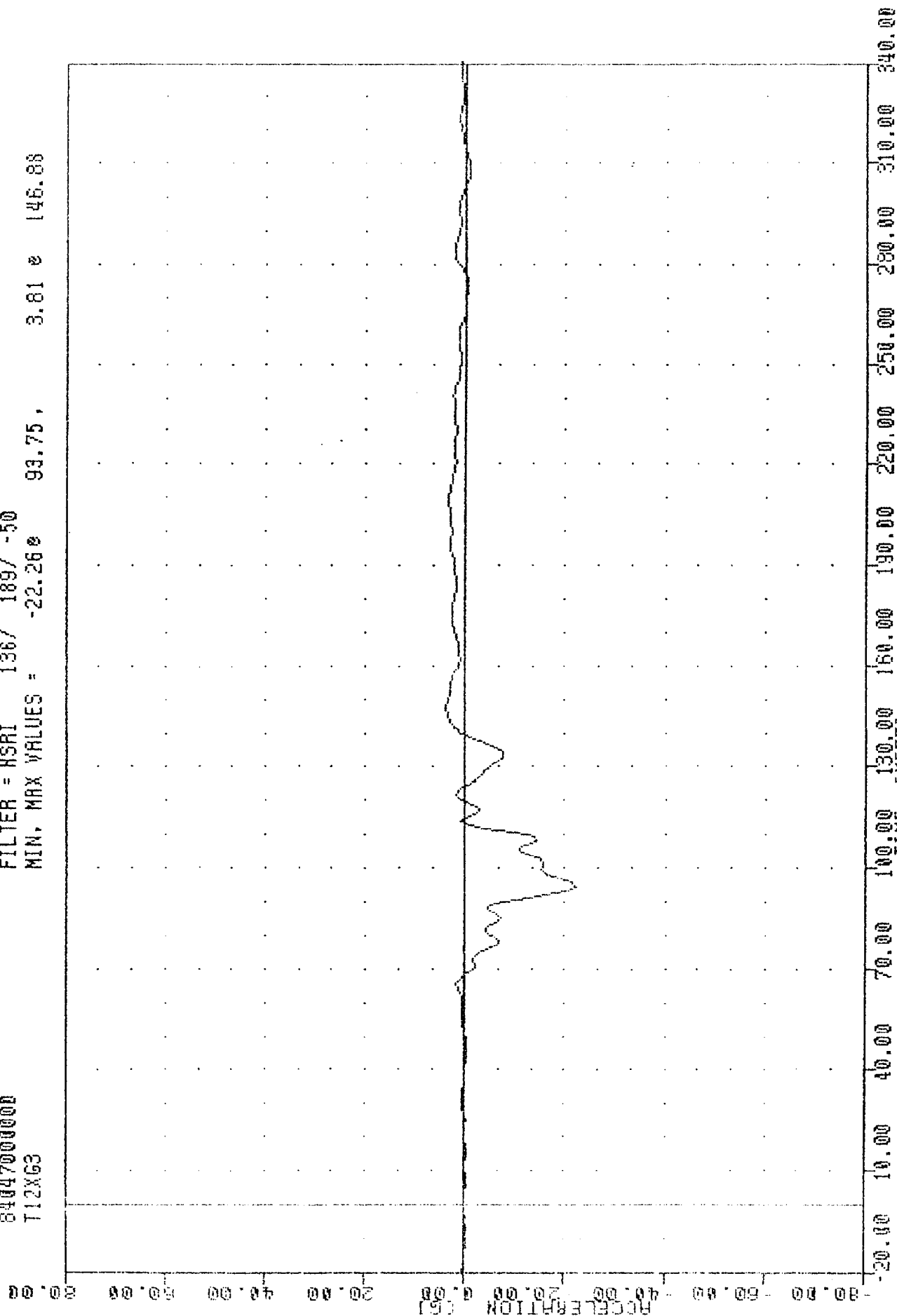


MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING T01YGC

TAC
 SIDE PROTECTION - 20R/40R
 84047000000
 T12XG3

PLOT DATE 20-FEB-84 13:49:00

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -22.260 93.75, 3.81 & 146.88

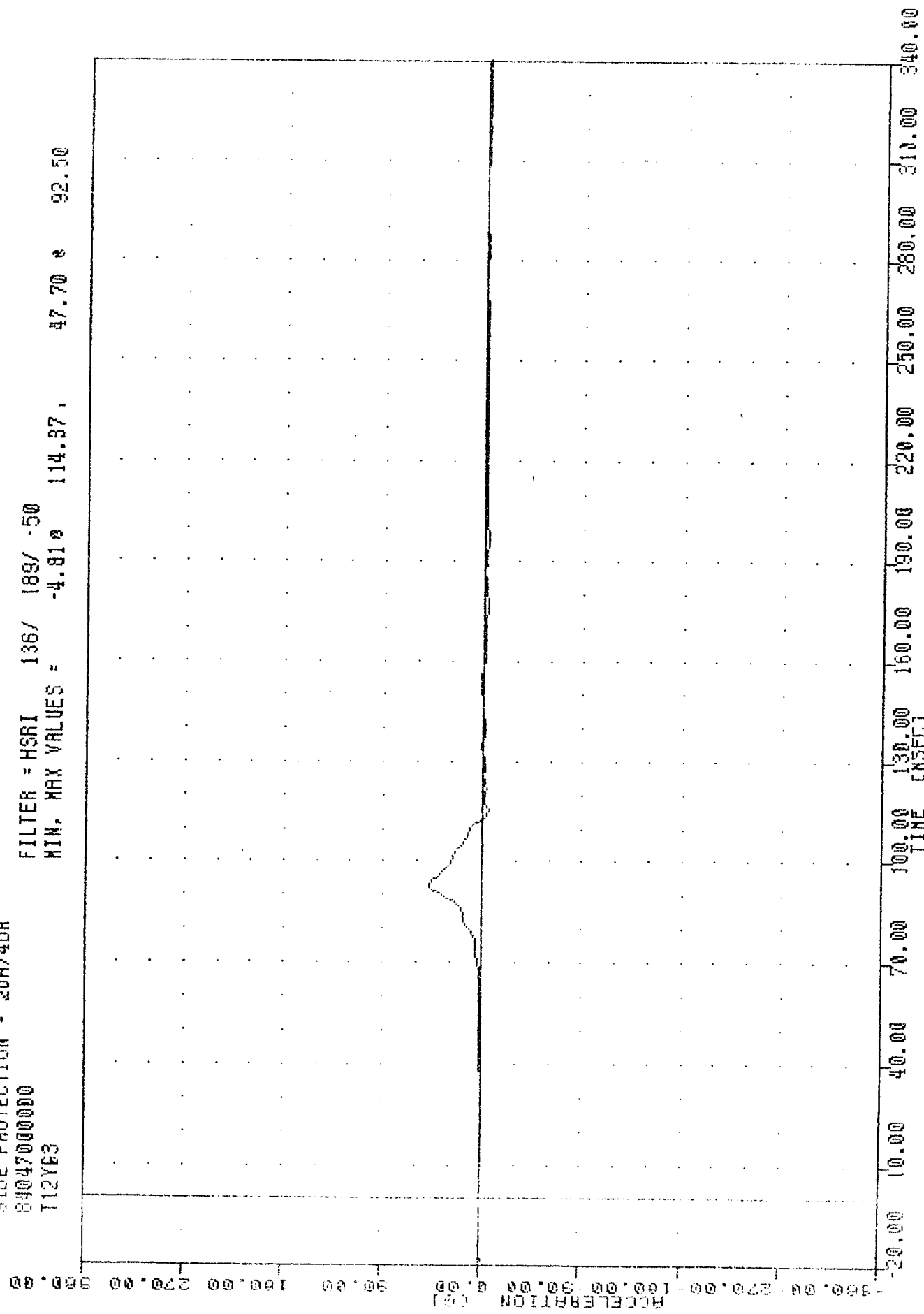


MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER LOWER SPINE ACCELERATION X AXIS

TBC
 SIDE PROTECTION - 20R/4DR
 84047000000
 T12Y63

PLOT DATE 20-FEB-84 13:49:00

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -4.818 114.37, 47.70 & 92.50

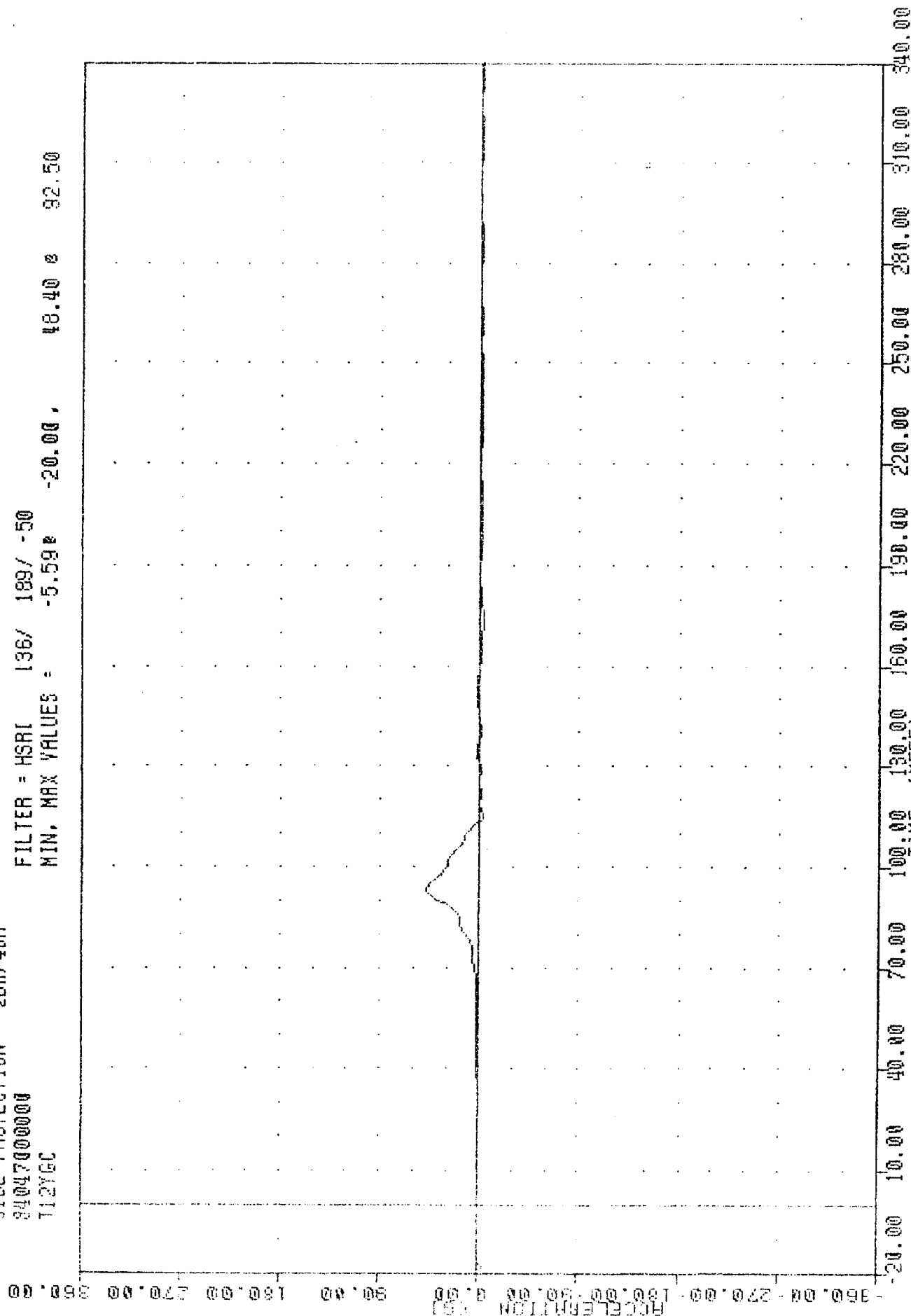


MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER LOWER SPINE ACCELERATION Y AXIS

TRC 840216
 SIDE PROTECTION - 20R/4DR
 84047000000
 112YGC

PLOT DATE 20-FEB-84 13:49:00

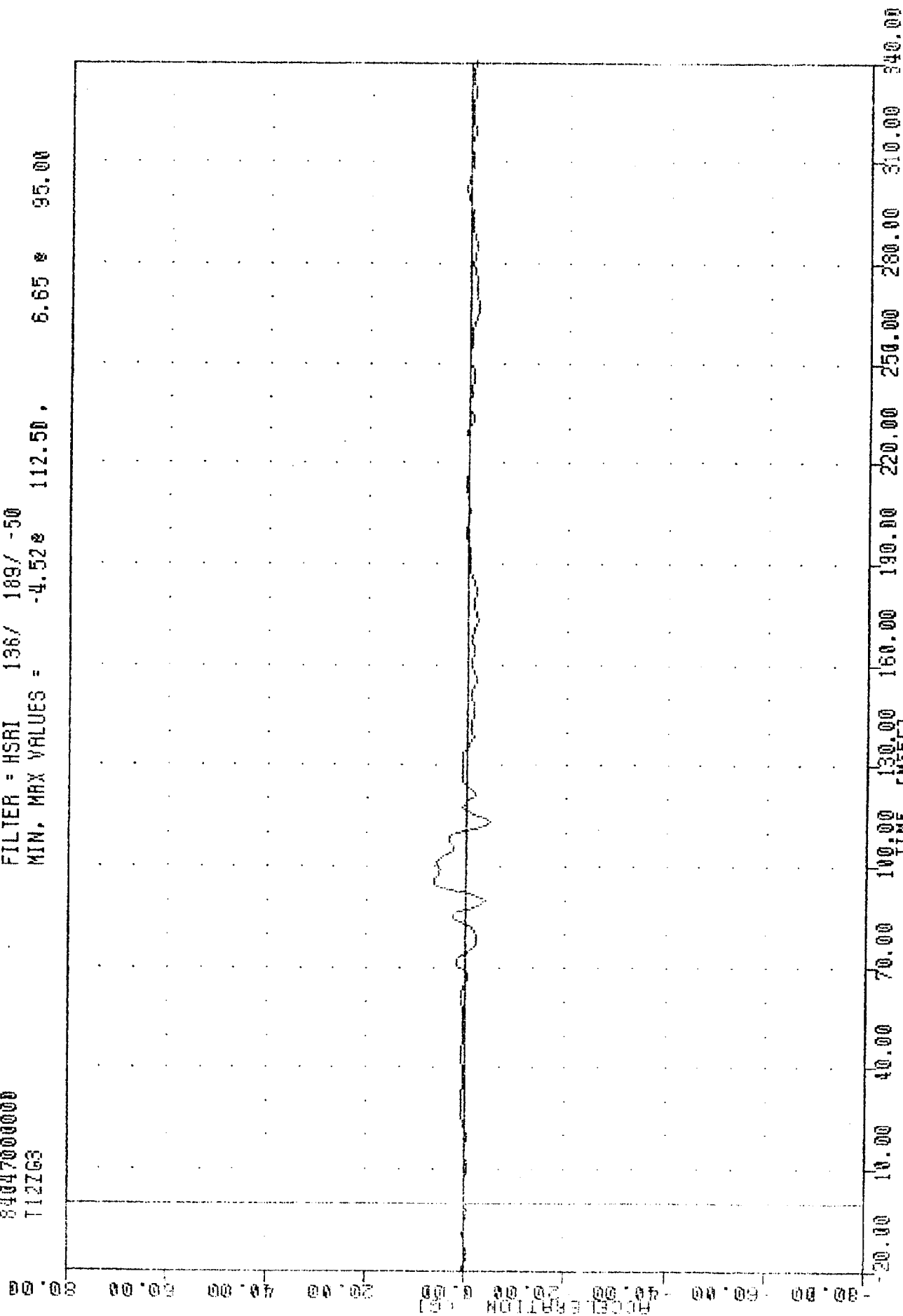
FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -20.00, 48.40 @ 92.50



TRC
 SIDE PROTECTION - 20R/40R
 84047000000
 T12763

PLOT DATE 20-FEB-84 13:49:00

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -4.52e 112.50, 6.65e 95.00



MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER LOWER SPINE ACCELERATION Z AXIS

THC 840216 PLOT DATE 20 FEB 84 13:49:00

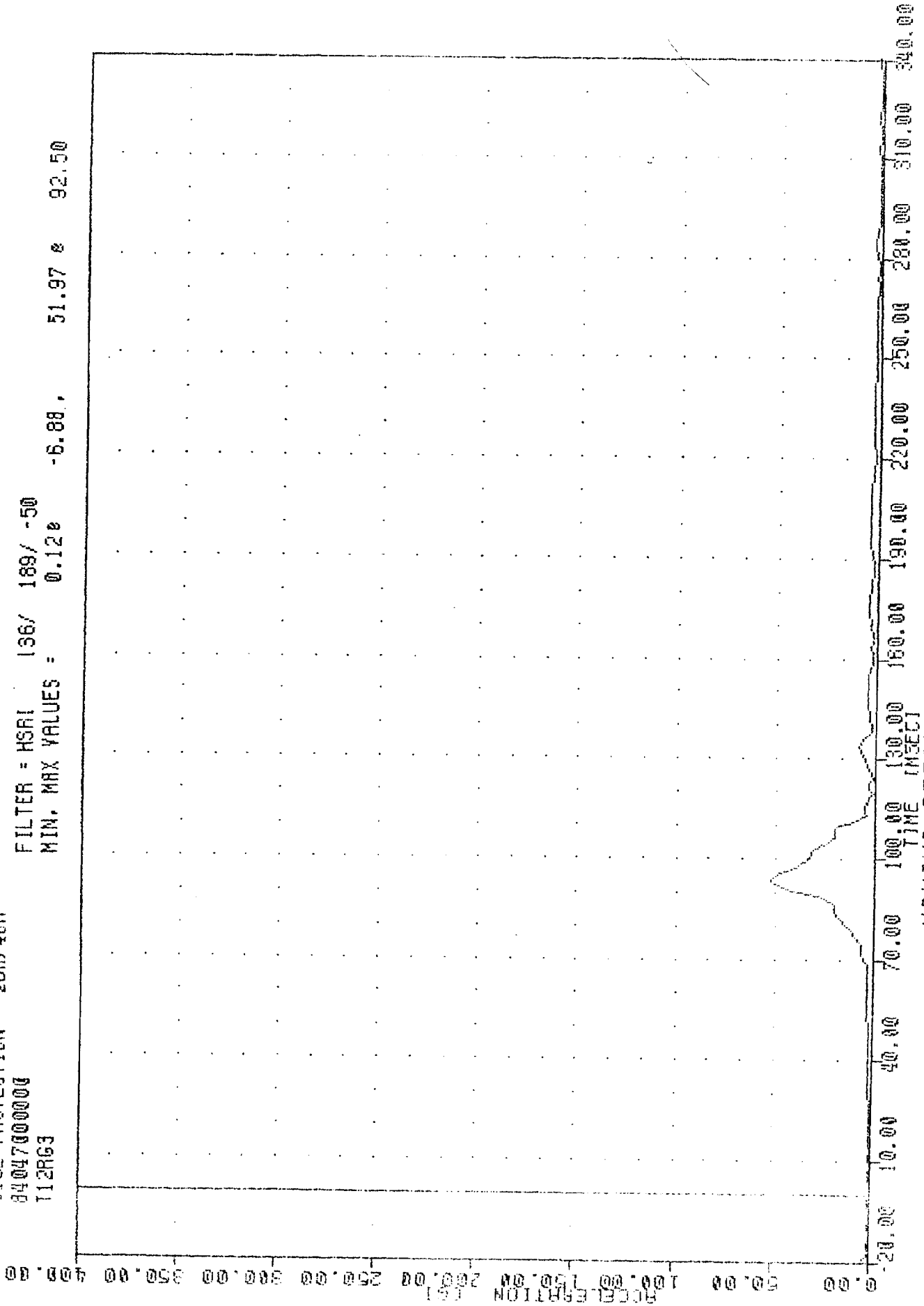
SIDE PROTECTION - 20R/40R

84047000000

T12R63

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.12e -6.88, 51.97 e 92.50



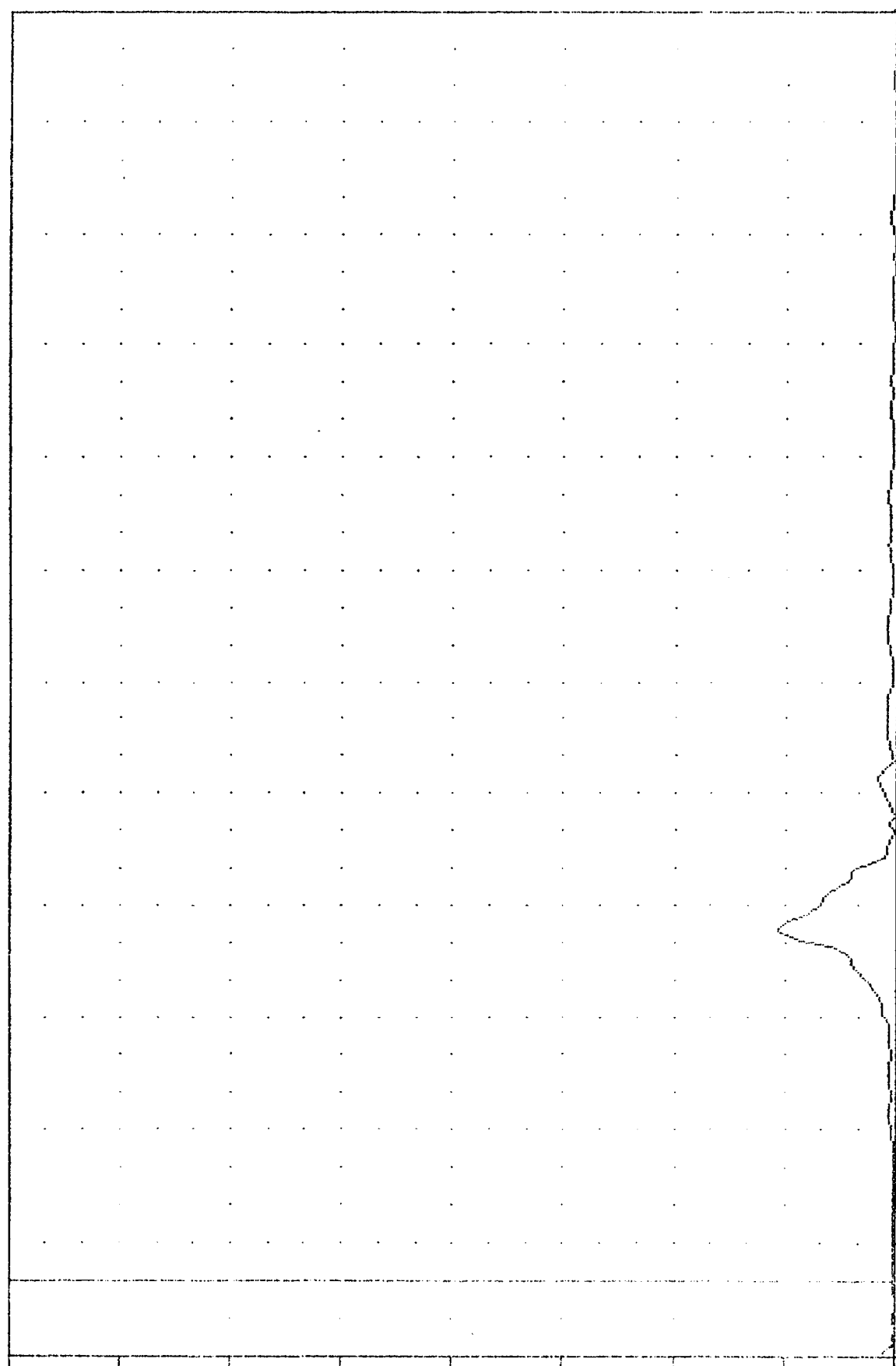
MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER LOWER SPINE RESULTANT

PLOT DATE 20-FEB-84 13:49:57

18C
840216
SIDE PROTECTION - 20A/40A
84047000000
T12RG3

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = 0.130 -6.25, 52.69 e 93.13

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



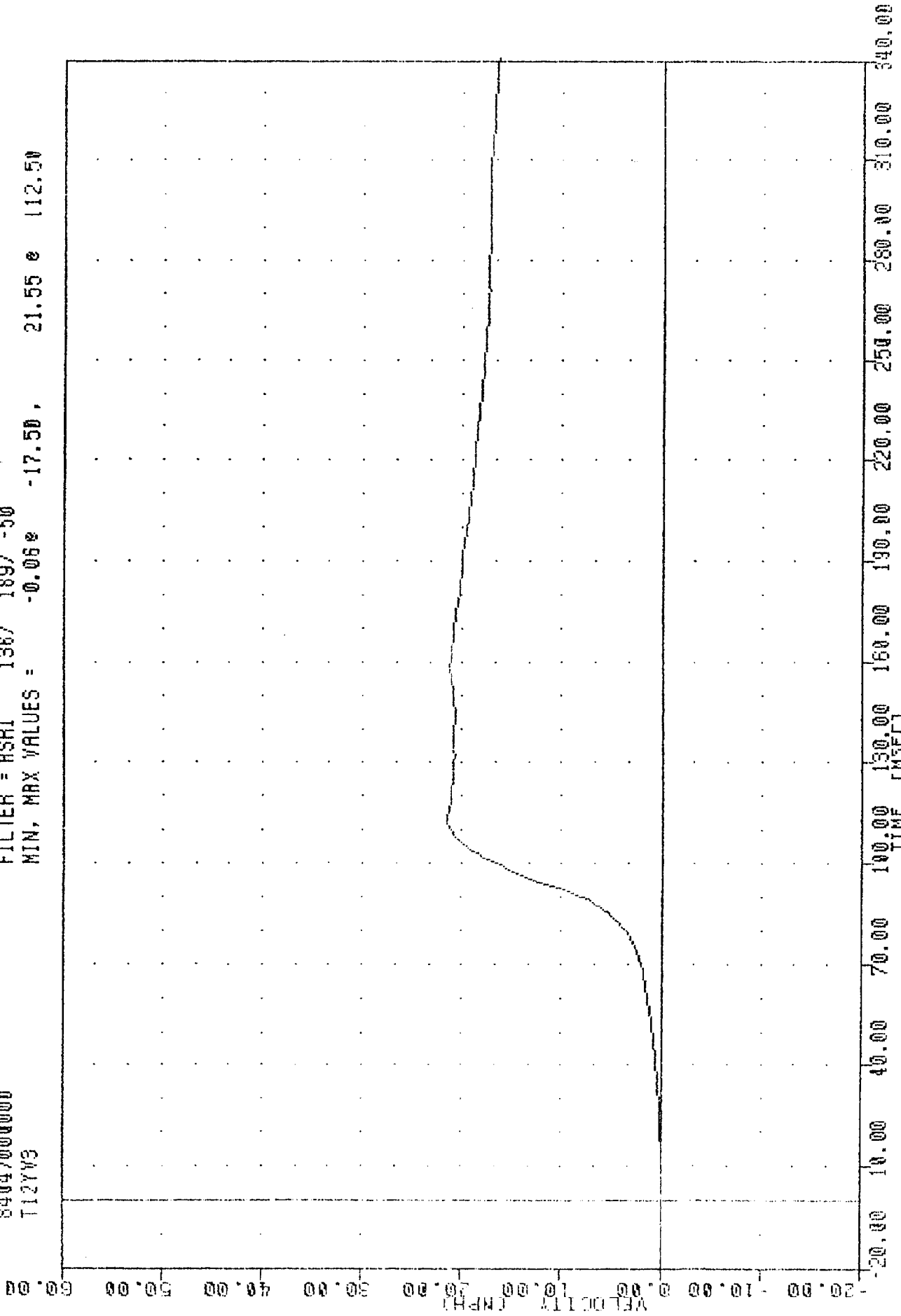
0.00 50.00 100.00 150.00 200.00 250.00 300.00 340.00
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER LOWER SPINE RESULTANT USING T12YGC

TRC 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 T12YW3

PLOT DATE 20-FEB-84 13:50:15

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.06% -17.50, 21.55% 112.50

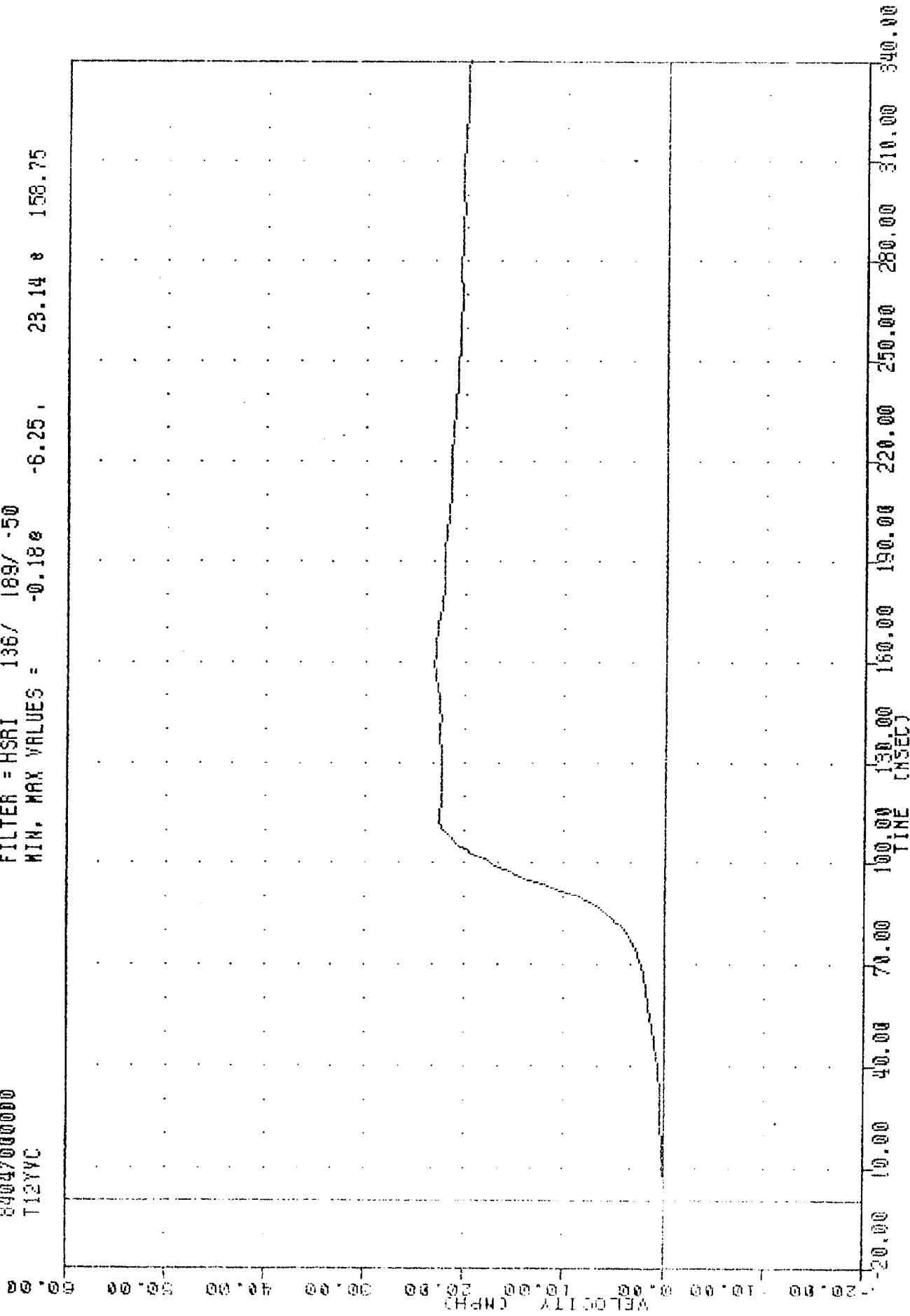


MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING T12Y63

THC
840216
SIDE PROTECTION - 20R/4DR
84047000000
T12YVC

PLOT DATE 20-FEB-84 13:50:15

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.180 -6.25, 23.14 & 158.75



B-55

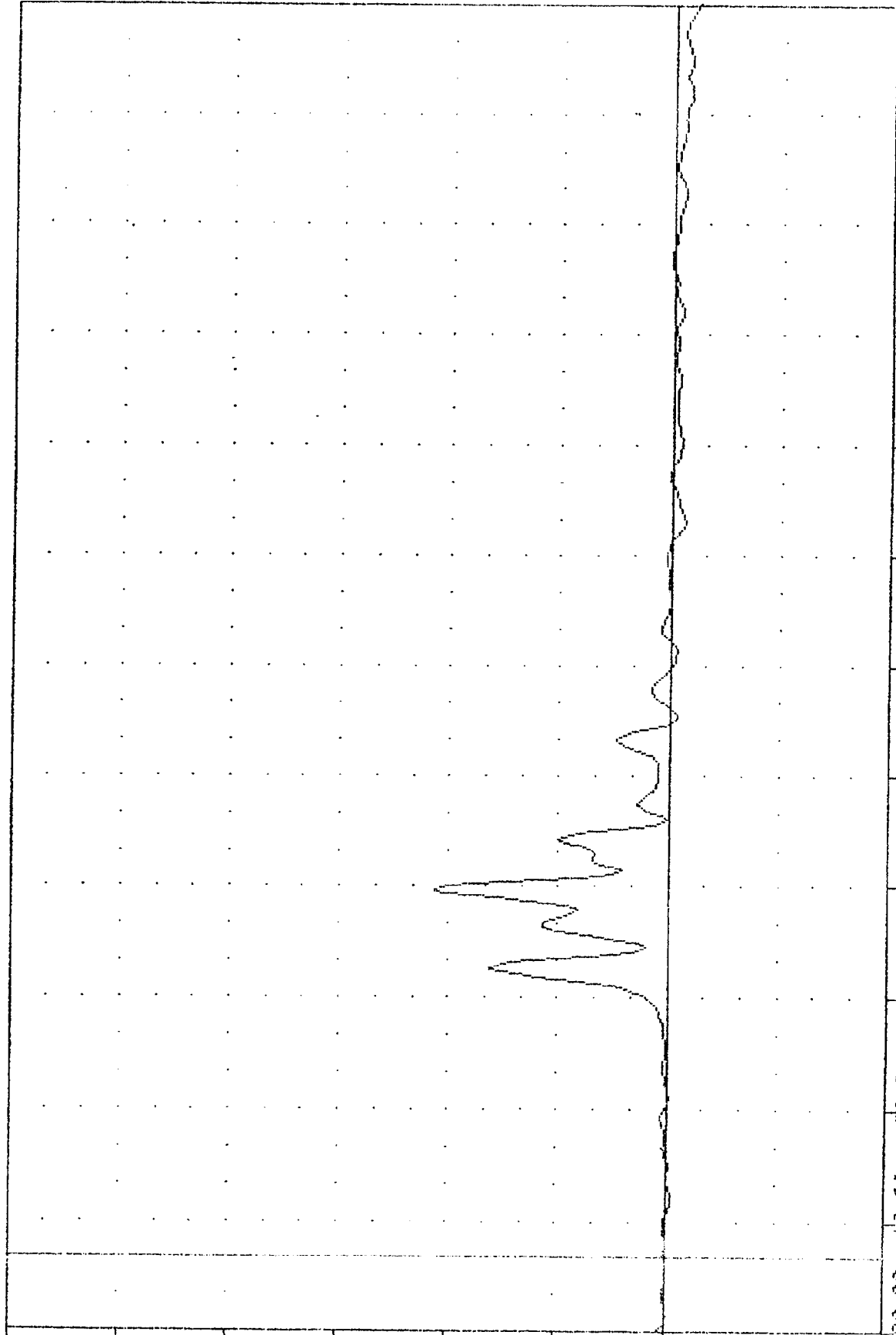
MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING T12YVC

73L
 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 LURY63

PLOT DATE 20-FEB-84 13:49:00

FILTER = HSRI 136/ 189/ -50
 MIN. MAX VALUES = -4.45e 340.00, 42.62 e 98.12

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



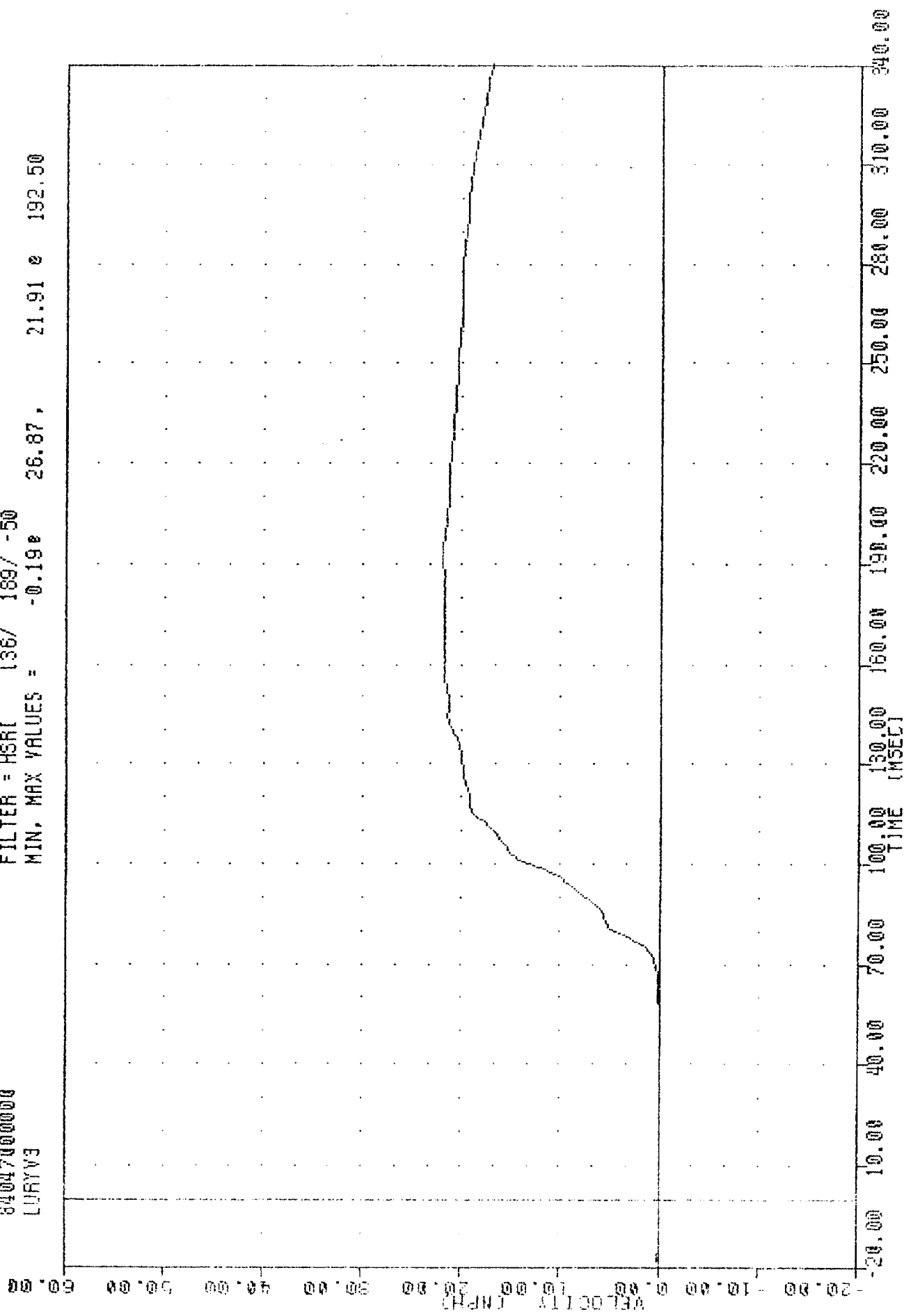
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER LEFT UPPER RIB ACCELERATION Y AXIS

INC
 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 LURYV3

PLOT DATE 20-FEB-84 13:50:15

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.19e 26.87, 21.91 e 192.50



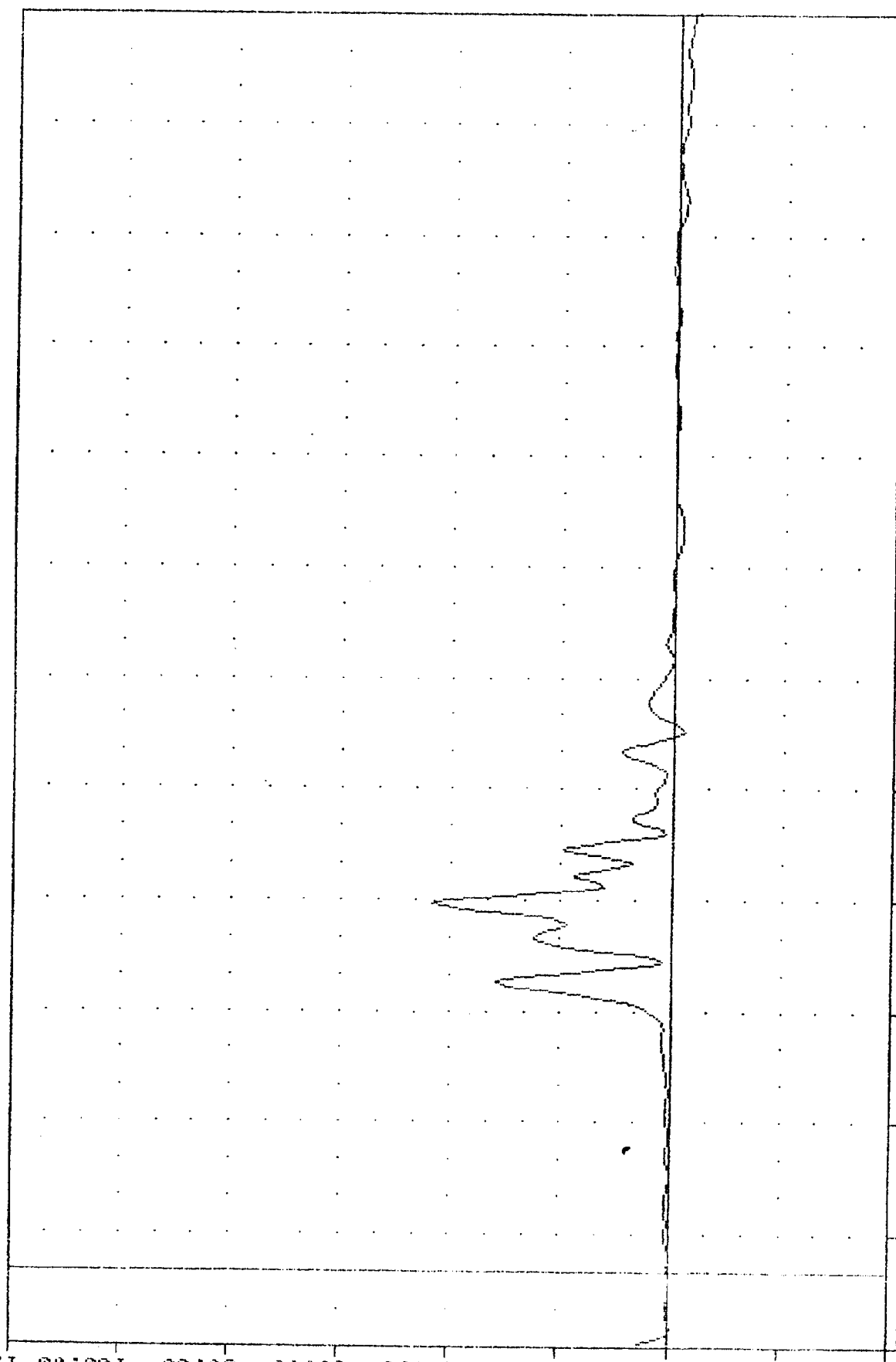
MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LURYG3

IRC
SIDE PROTECTION - 20R/40R
84047000000
LURY6C

PLOT DATE 20-FEB-84 13:49:00

FILTER = HSR1 136/ 189/ -50
MIN, MAX VALUES = -3.50E 340.00, 43.39 E 98.12

ACCELERATION (G)



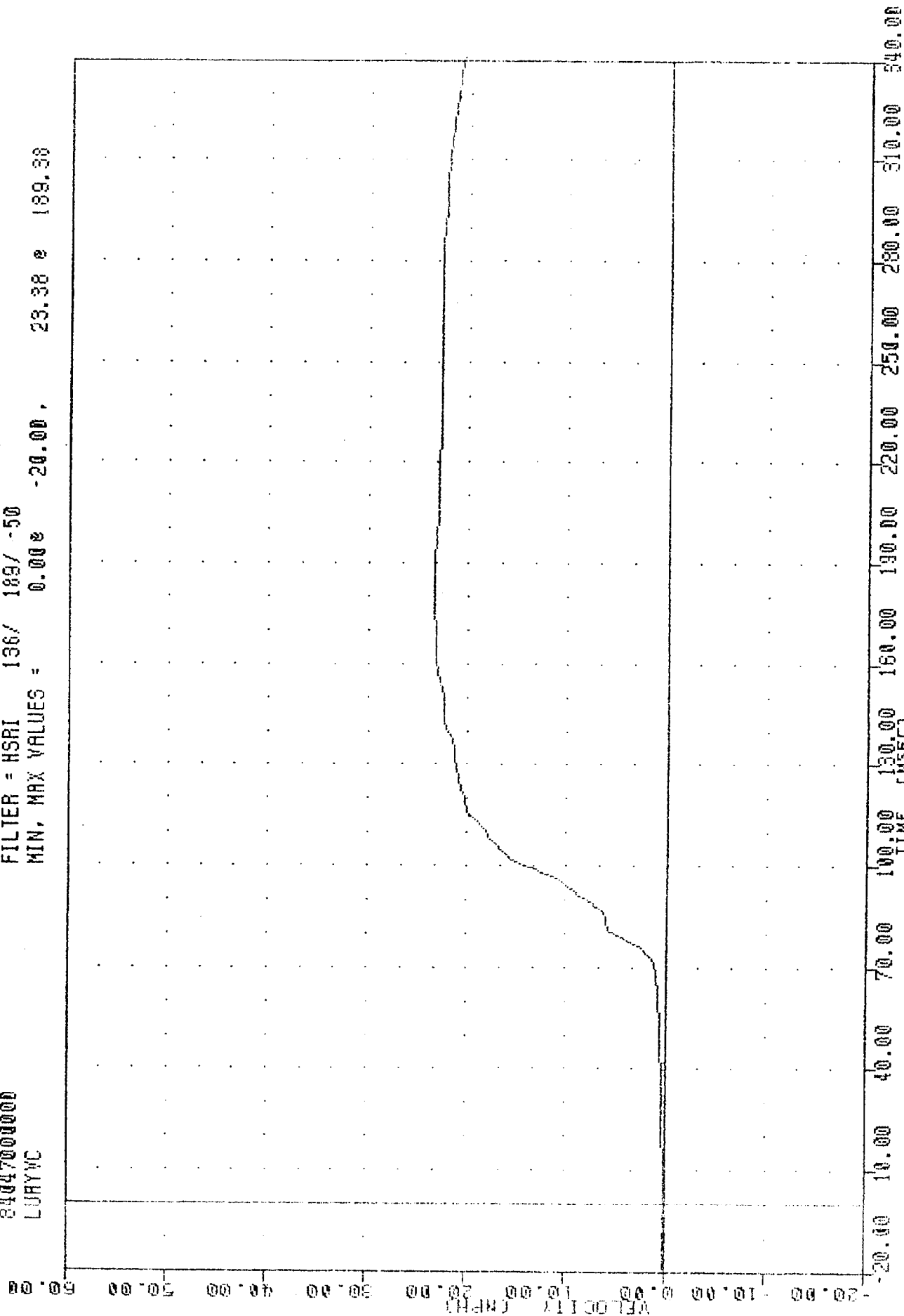
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER LEFT UPPER RIB ACCELERATION -2 Y AXIS

TRC
 SIDE PROTECTION - 20R/40R
 84047000000
 LURYWC

PLOT DATE 20-FEB-84 13:50:15

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = 0.00 23.38 189.38

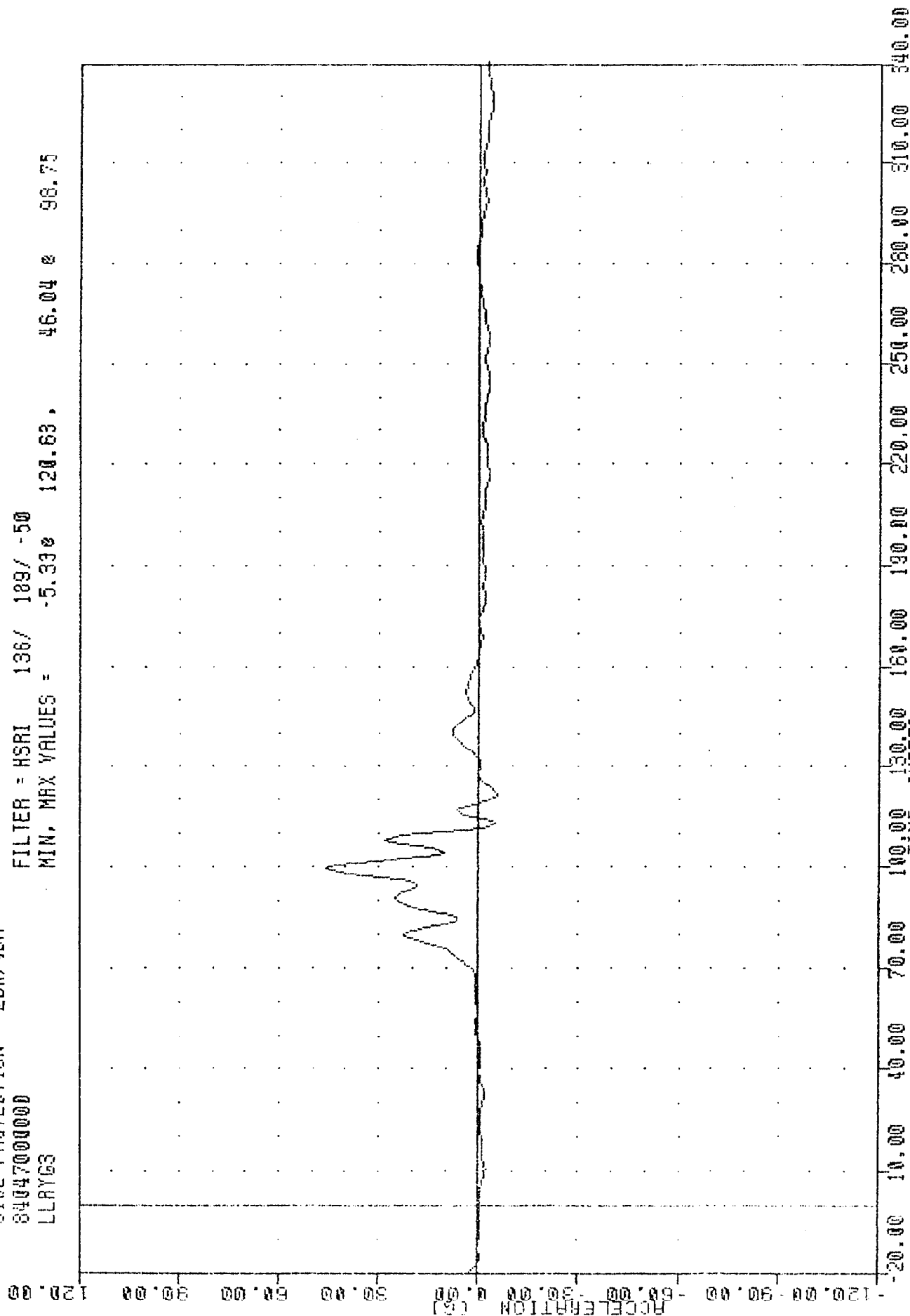


MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LURYGC

TAC
 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 LLRYG3

PLOT DATE 20-FEB-84 13:49:00

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -5.330 120.63, 46.04 @ 98.75

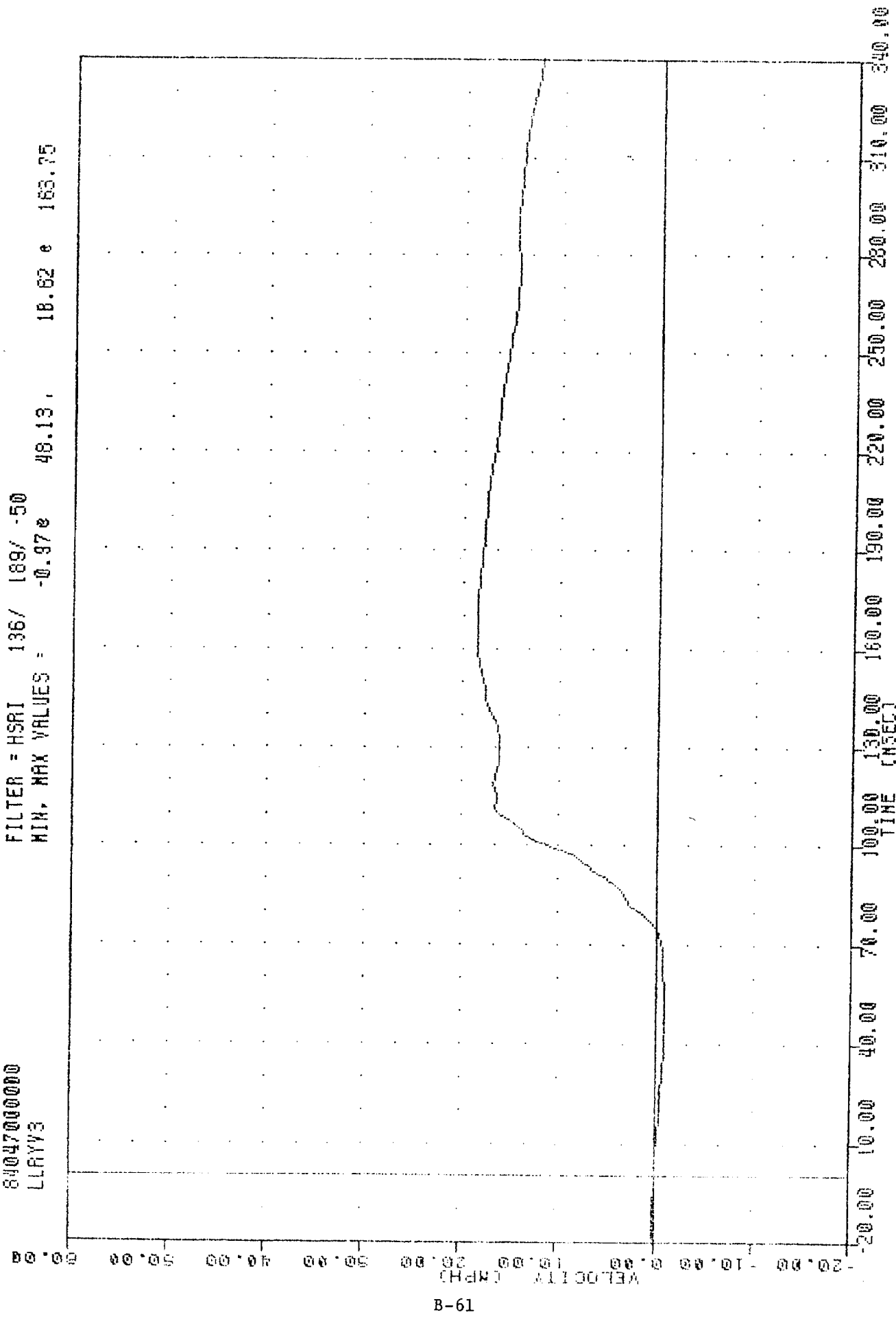


MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER LEFT LOWER RIB ACCELERATION Y AXIS

TAC 840216
SIDE PROTECTION - 20R/40R
84047000000
LLRYV3

PLOT DATE 20-FEB-84 13:50:15

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -0.97 e 48.13, 18.82 e 183.75



MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LLRYG3

TAC 840216
SIDE PROTECTION - 20R/40R
84047000000
LLAY6C

PLOT DATE 20-FEB-84 13:49:00

FILTER = HSRI 136/ 189/ .50

MIN, MAX VALUES = -4.968 112.50, 51.20 e 98.75

120.00

90.00

60.00

30.00

0.00

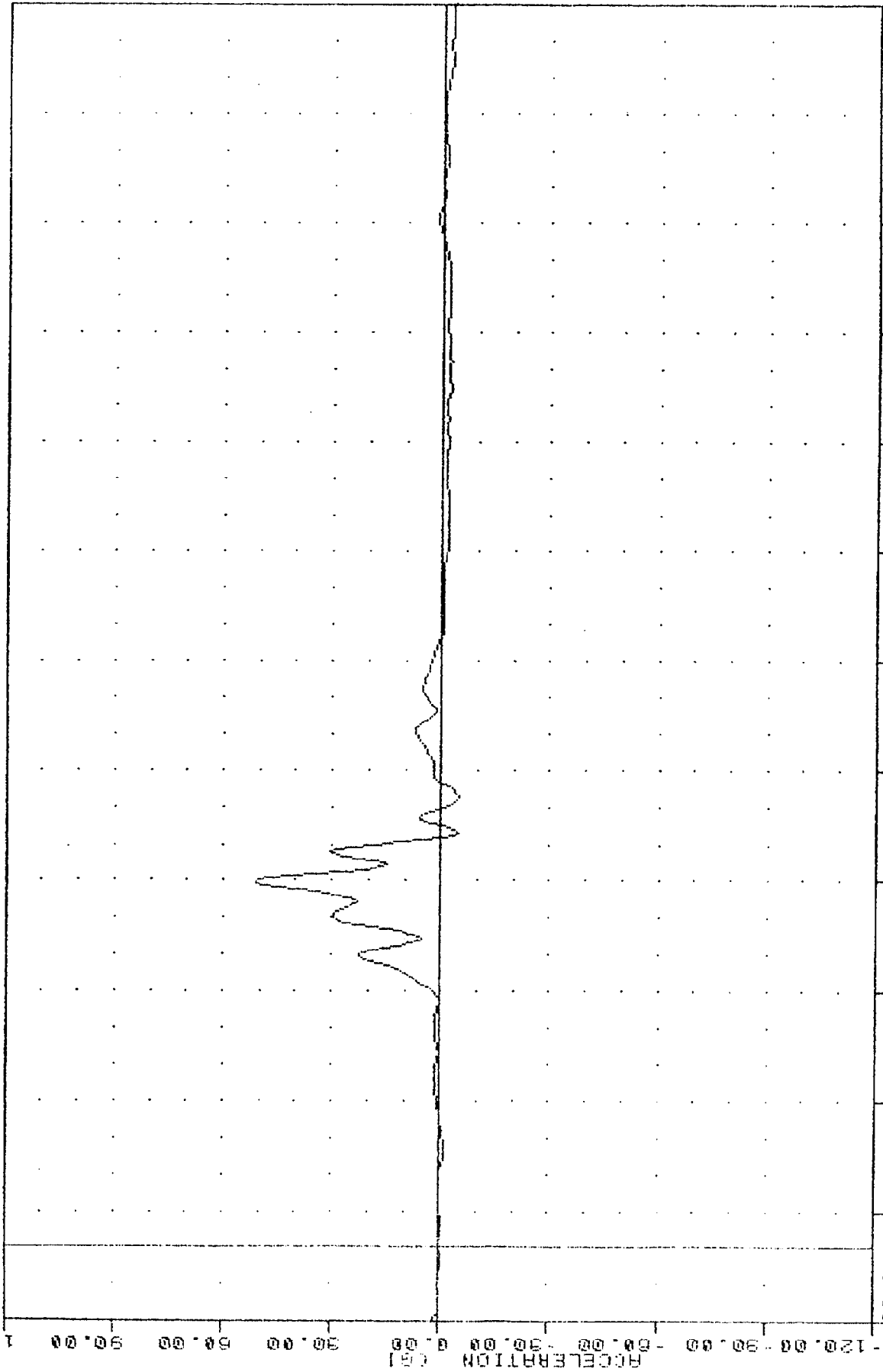
-30.00

-60.00

-90.00

-120.00

B-62



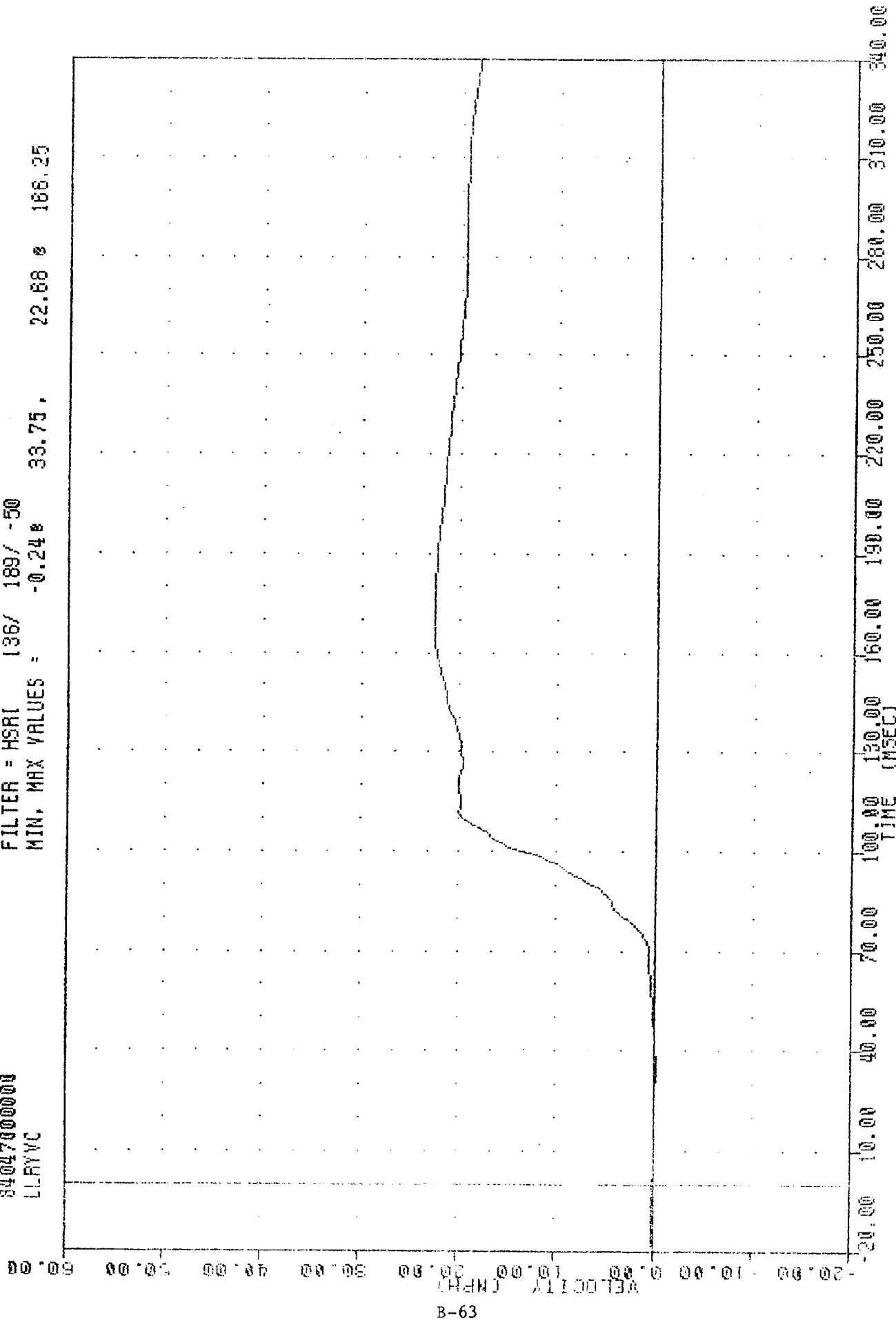
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

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

TBC
 SIDE PROTECTION - 2DR/4DR
 84047000000
 LLRYVC

PLOT DATE 20-FEB-84 13:50:15

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -0.24 33.75, 22.88 188.25

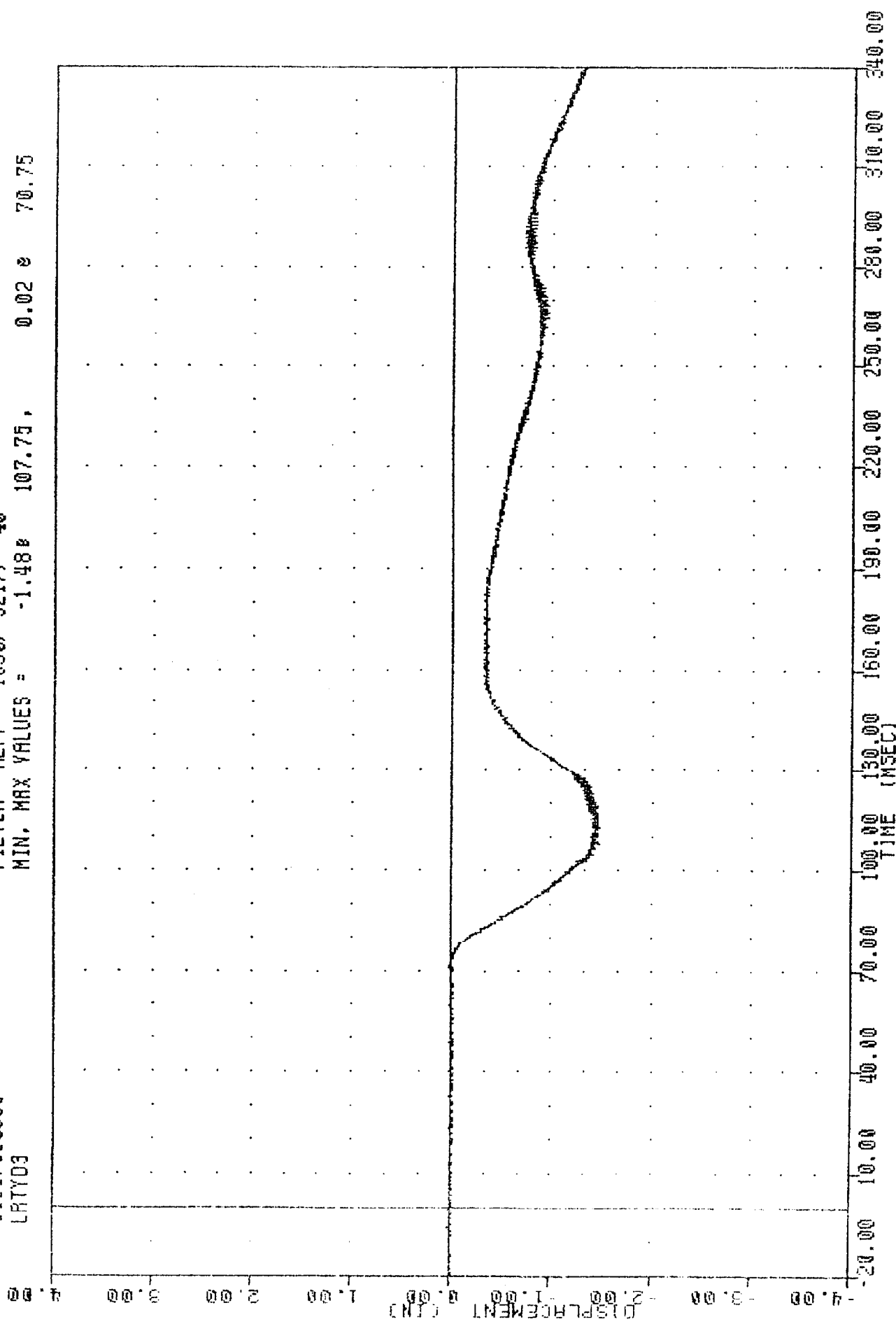


MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LLRYVC

TSC
SIDE PROTECTION - 20R/4DR
84047000000
LRTY03

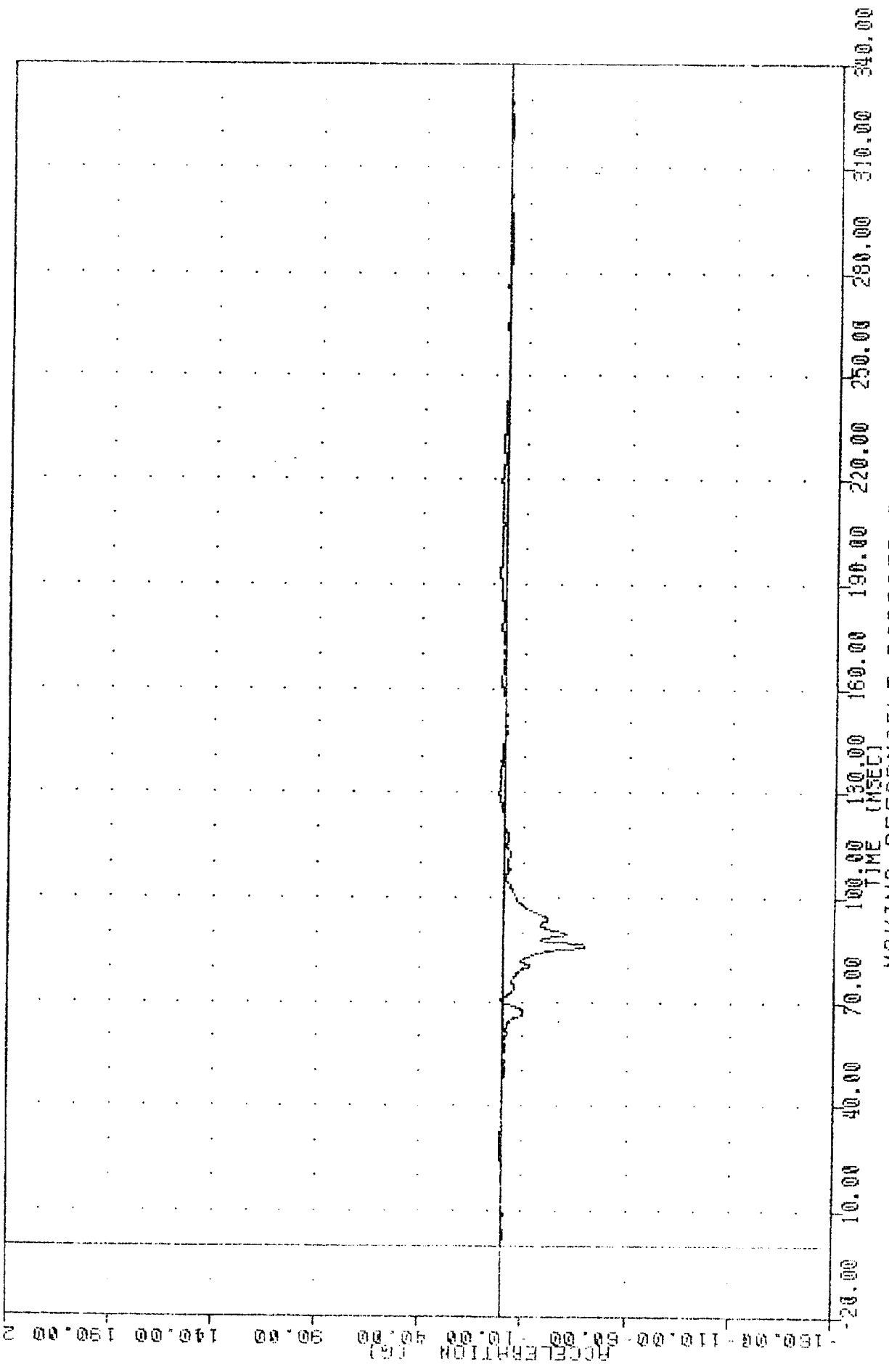
PLOT DATE 20-FEB-84 13:51:09

FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -1.480 107.75, 0.020 70.75



MOVING DEFORMABLE BARRIER INTO OMNI
PASSENGER LEFT RIB TO SPINE DISPLACEMENT INCHES

PLOT DATE 20-FEB-84 13:51:09
 FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -39.68 86.00, 2.84 193.63
 PFC 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 PEVXG3

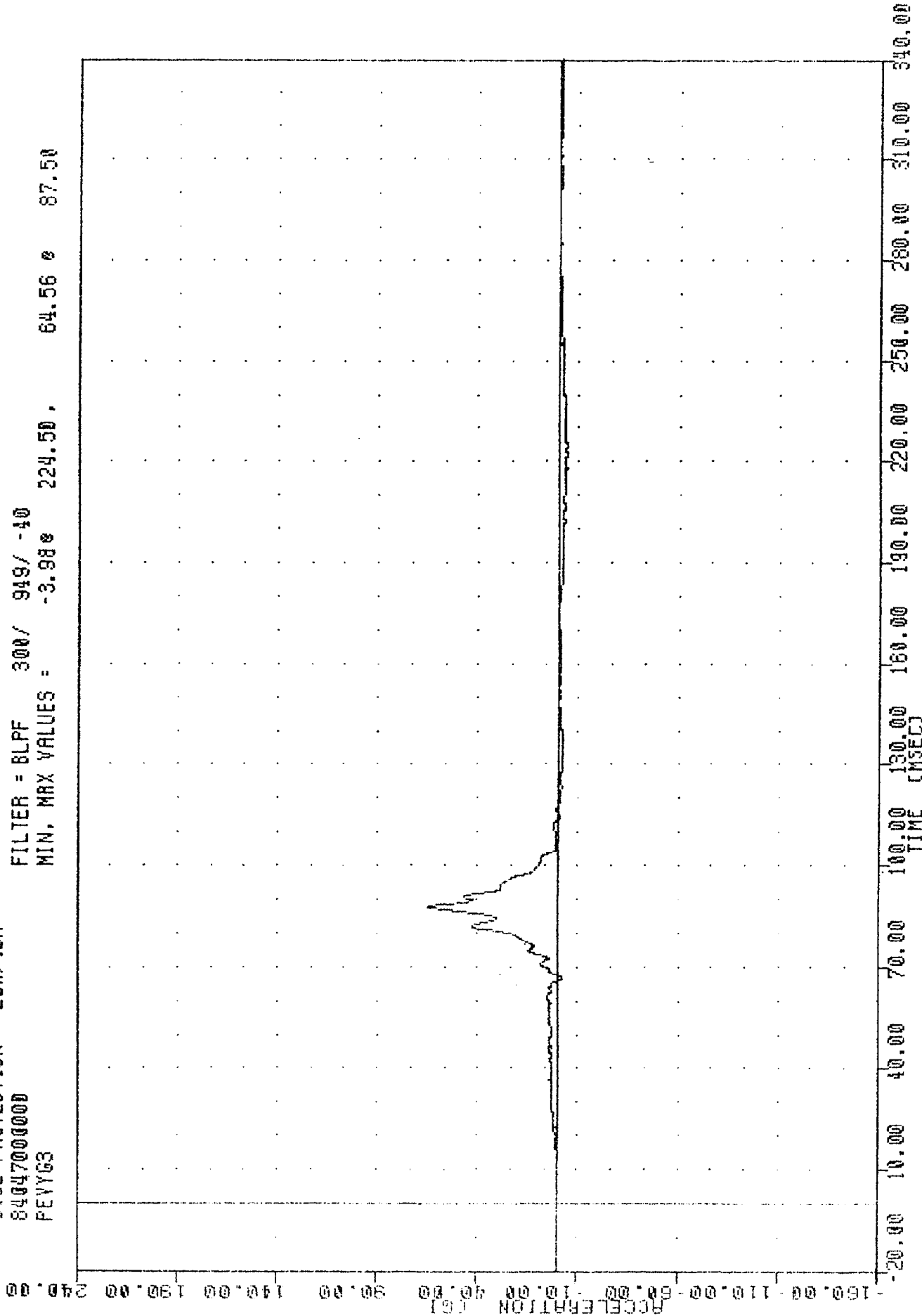


MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER PELVIS ACCELERATION X AXIS

TRC 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 PEVYG3

PLOT DATE 20-FEB-84 13:51:09

FILTER = 8LFF 300/ 949/ -10
 MIN, MAX VALUES = -3.980 224.50, 64.56 87.50



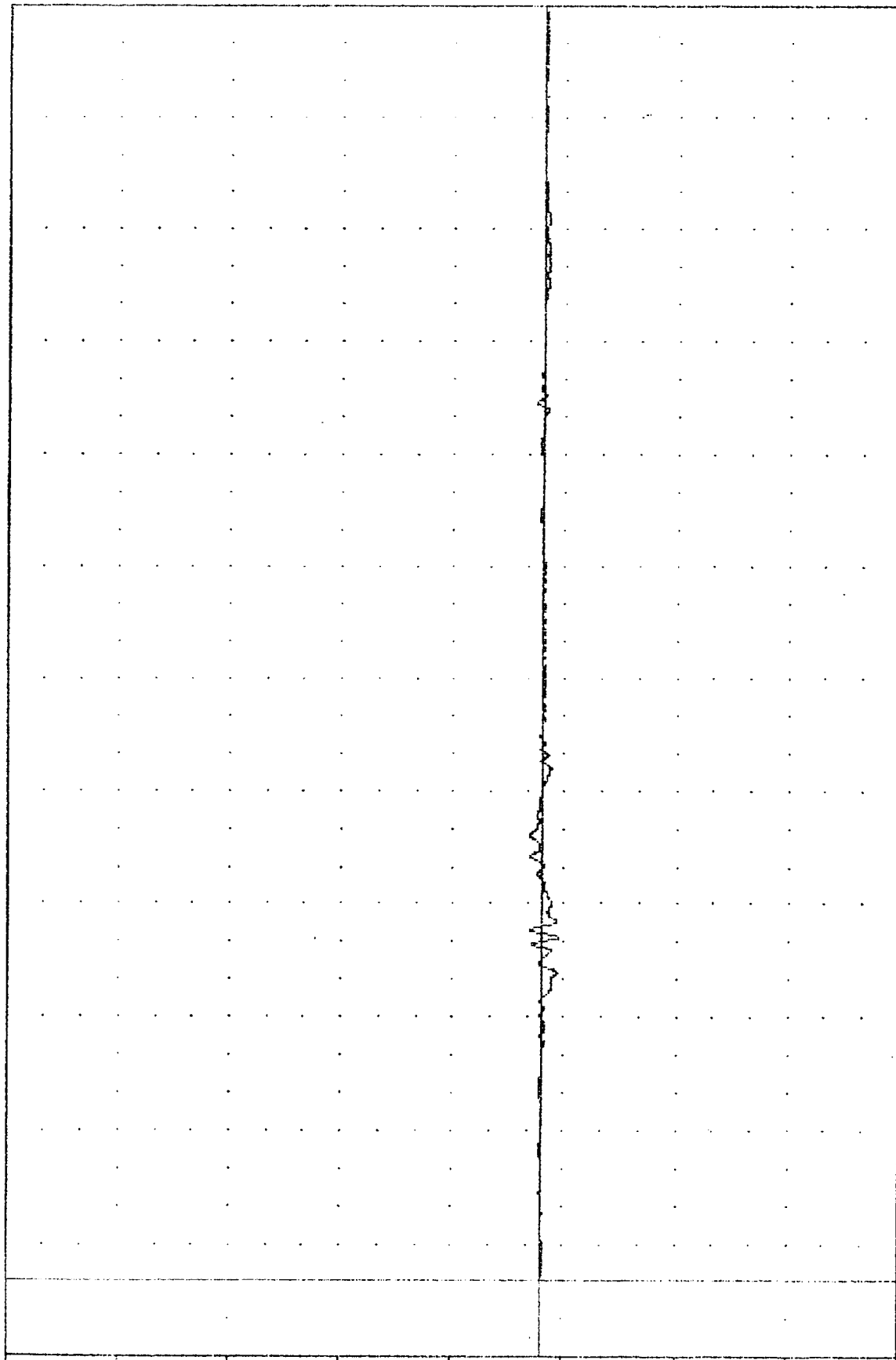
MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER PELVIS ACCELERATION Y AXIS

THE 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 PEVZ63

PLUT DATE 20-FEB-84 13:51:09

FILTER = 8LPP 300/ 949/ -40
 MIN. MAX VALUES = -7.96% 91.13, 5.71 e 118.13

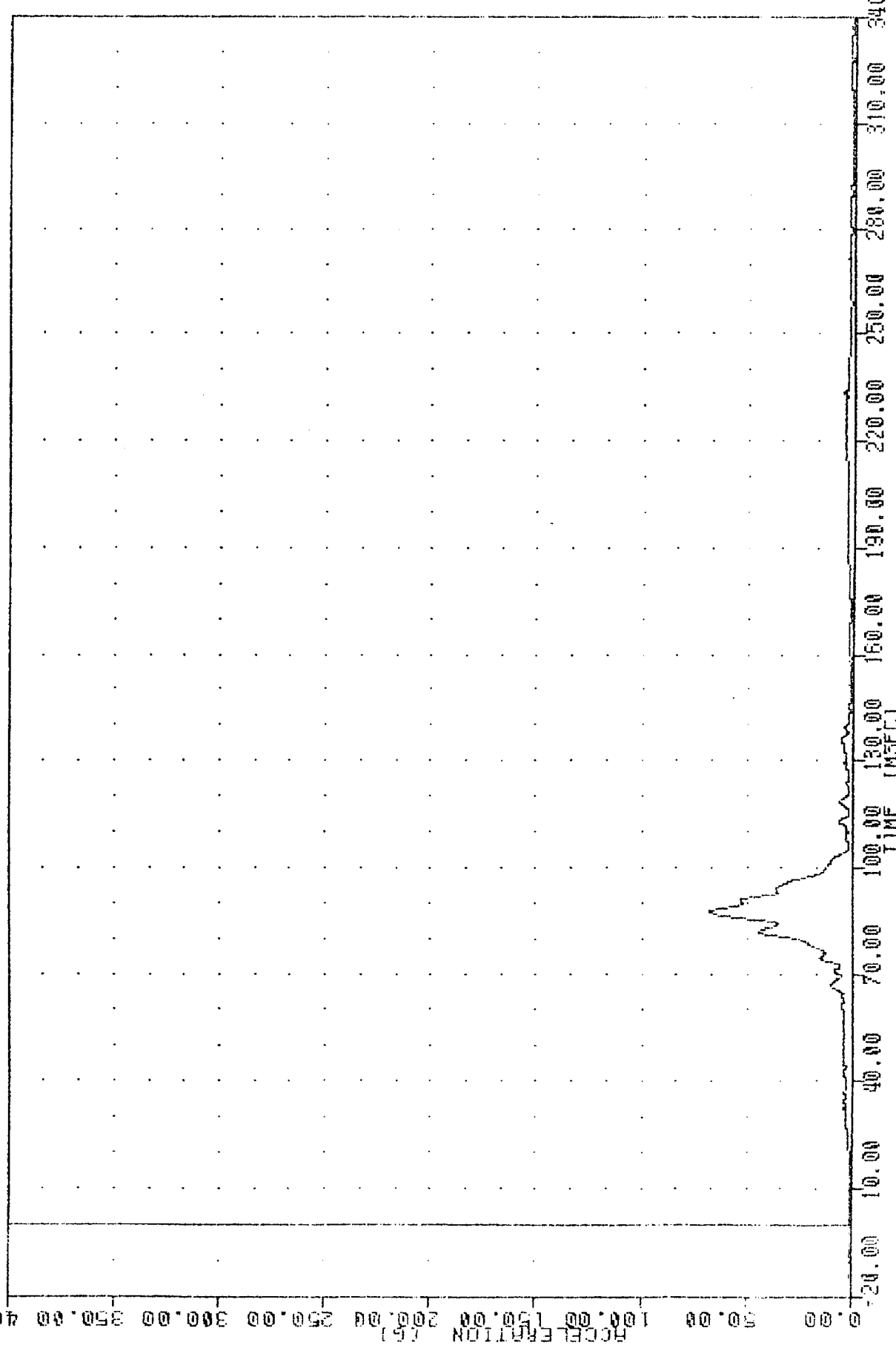
ACCELERATION (G)
 180.00 170.00 160.00 150.00 140.00 130.00 120.00 110.00 100.00 90.00 80.00 70.00 60.00 50.00 40.00 30.00 20.00 10.00 0.00 -10.00 -20.00



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

MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER PELVIS ACCELERATION Z AXIS

FILE: 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 PEVR63
 FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 0.028 -3.25. 67.55 87.38
 PLOT DATE 20 FEB 84 13:53:32

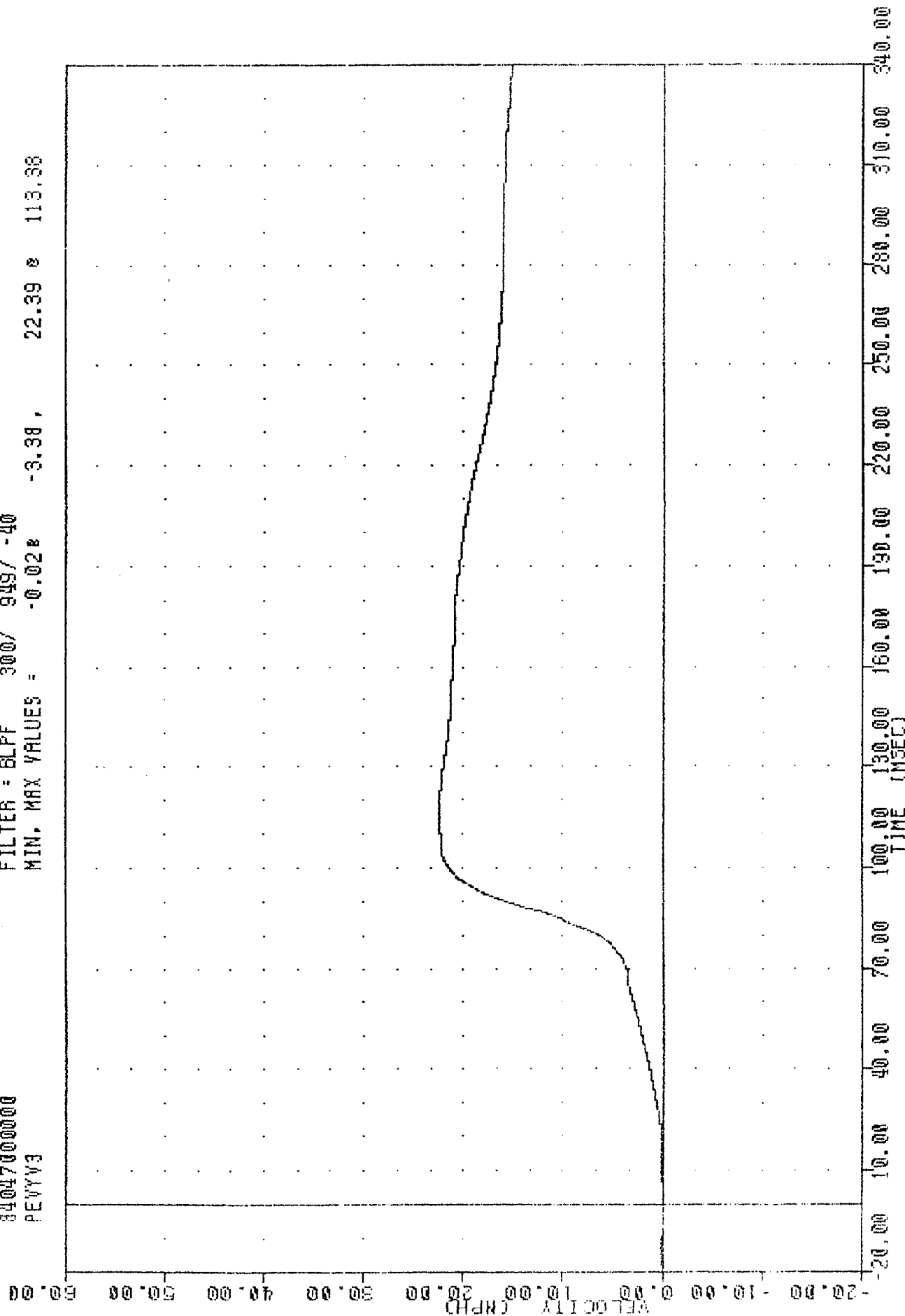


MOVING DEFORMABLE BARRIER INTO OMNI
 PASSENGER PELVIS RESULTANT

PLOT DATE 20-FEB-84 13:52:41

TRC , 840216
SIDE PROTECTION - 2DR/4DR
84047000000
PEVYV3

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.028 -3.38 , 22.39 8 113.38

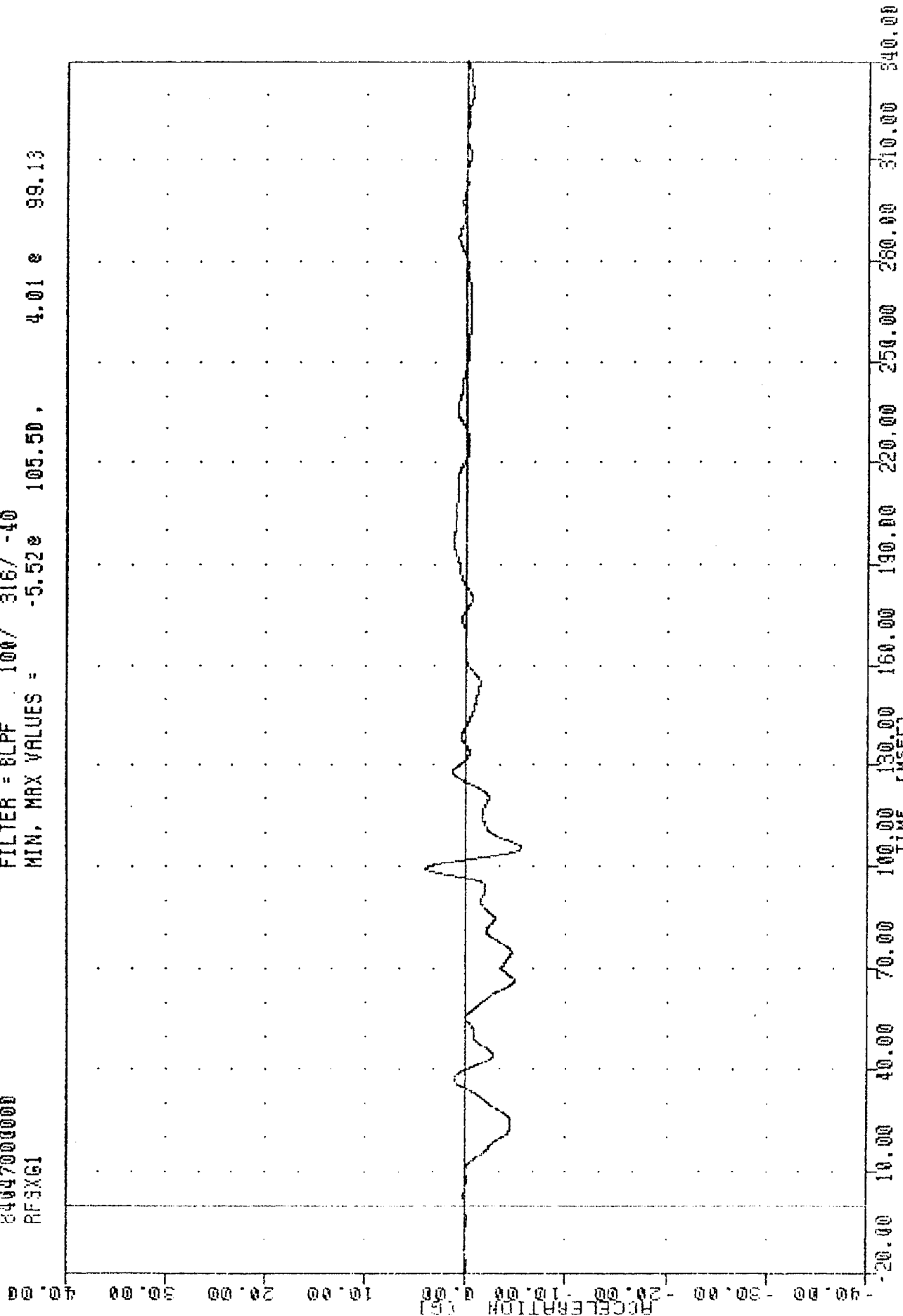


MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING PEVY63

840218
SIDE PROTECTION - 2DR/4DR
84047000000
RF5XG1

PLOT DATE 20-FEB-84 13:51:09

FILTER = 8LPF 100/ 316/ -40
MIN, MAX VALUES = -5.52g 105.50, 4.01 g 99.13



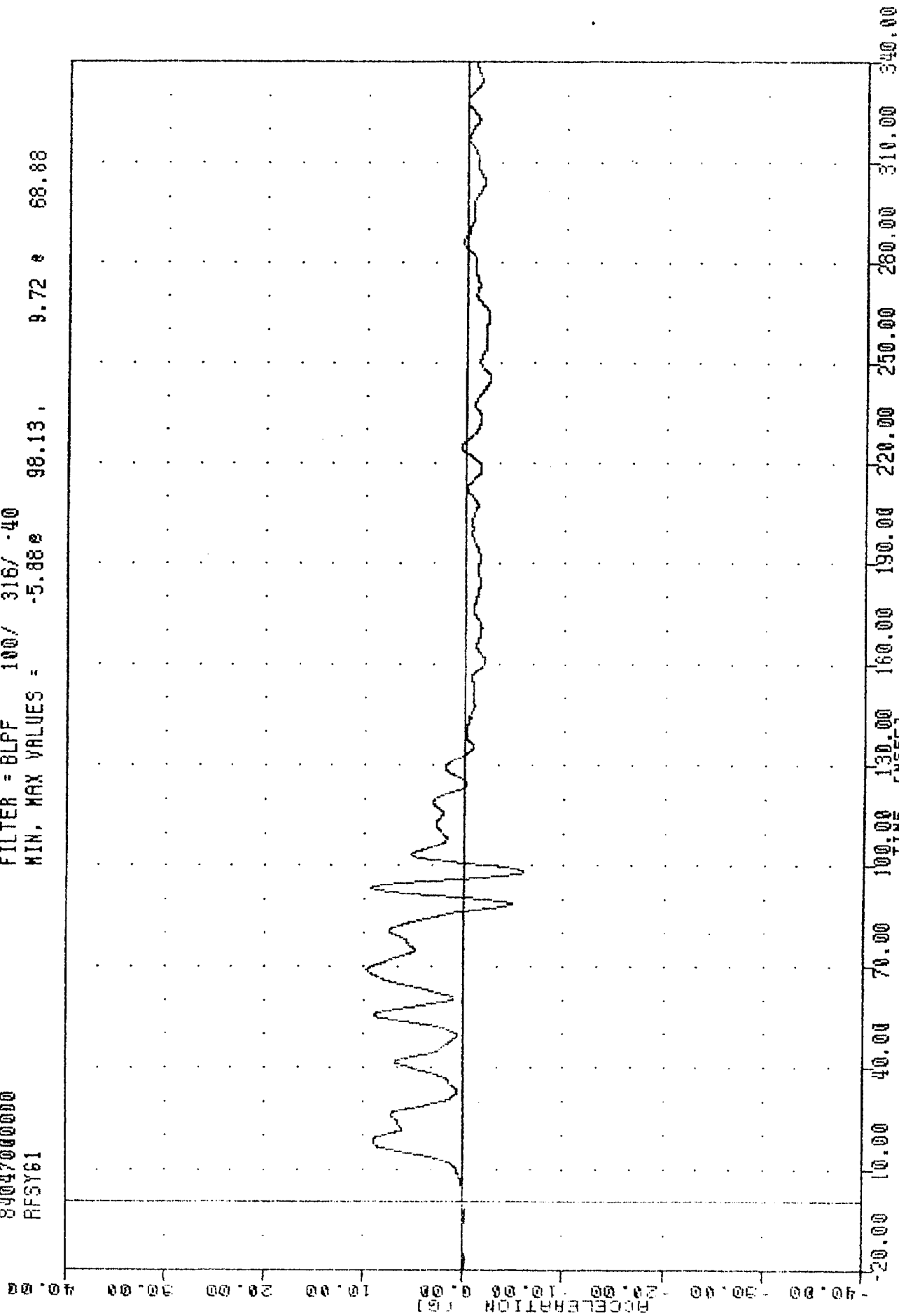
MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT FRONT SILL ACCELERATION X AXIS

TAC
 , 840216
 SIDE PROTECTION - 20R/4DR
 84047000000
 RFSY61

PLOT DATE 20-FEB-84 13:51:09

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -5.88e 98.13, 9.72 e 68.88



MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE RIGHT FRONT SILL ACCELERATION Y AXIS

PLUT DATE 22-FEB-84 09:21:02

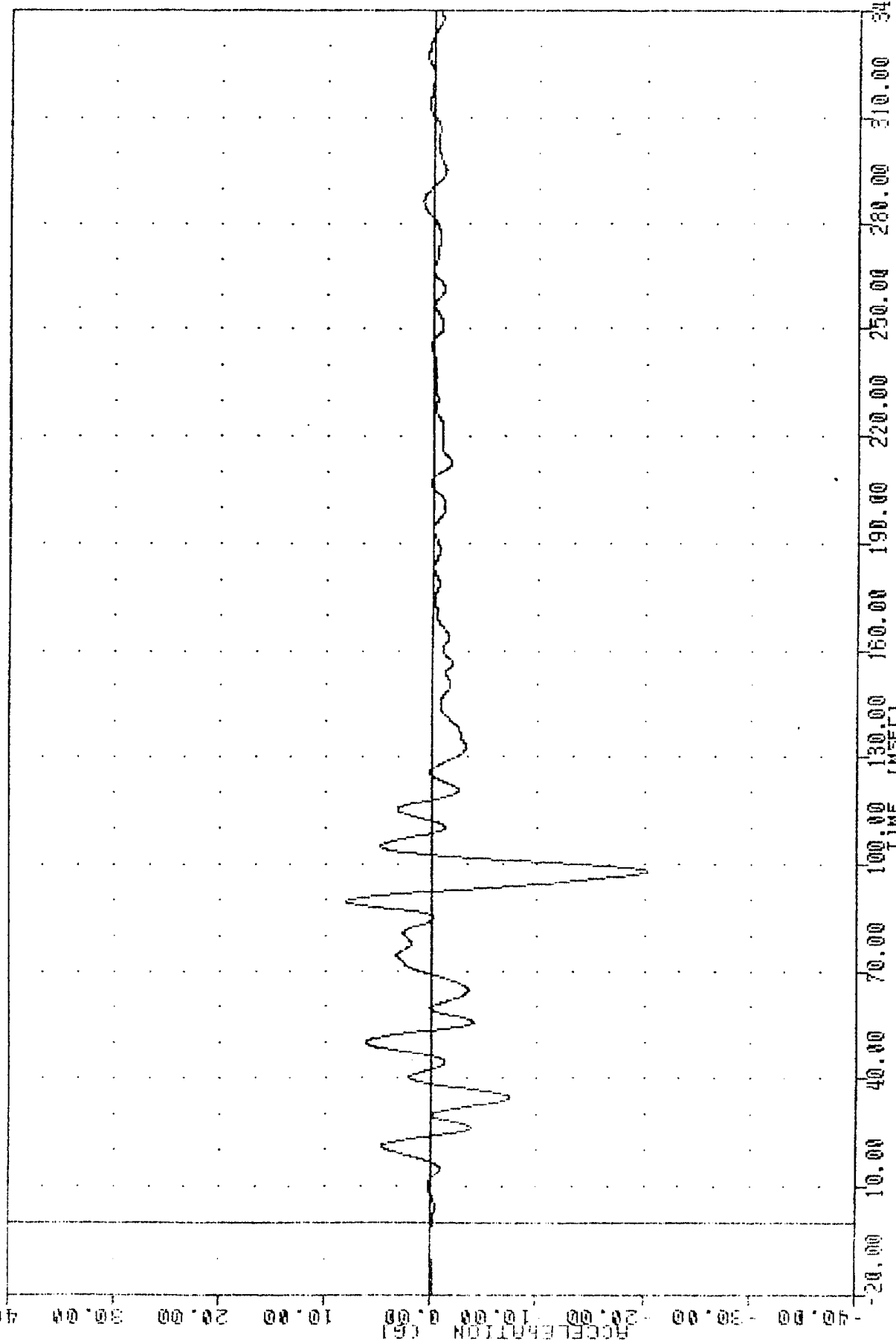
840216

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -20.35% 97.6% 8.20% 89.25

84047000000

8F52G1



MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT FRONT SILL ACCELERATION Z AXIS

PLT DATE 20-FEB-84 13:53:32

TRC 840216
SIDE PROTECTION - 20R/40R

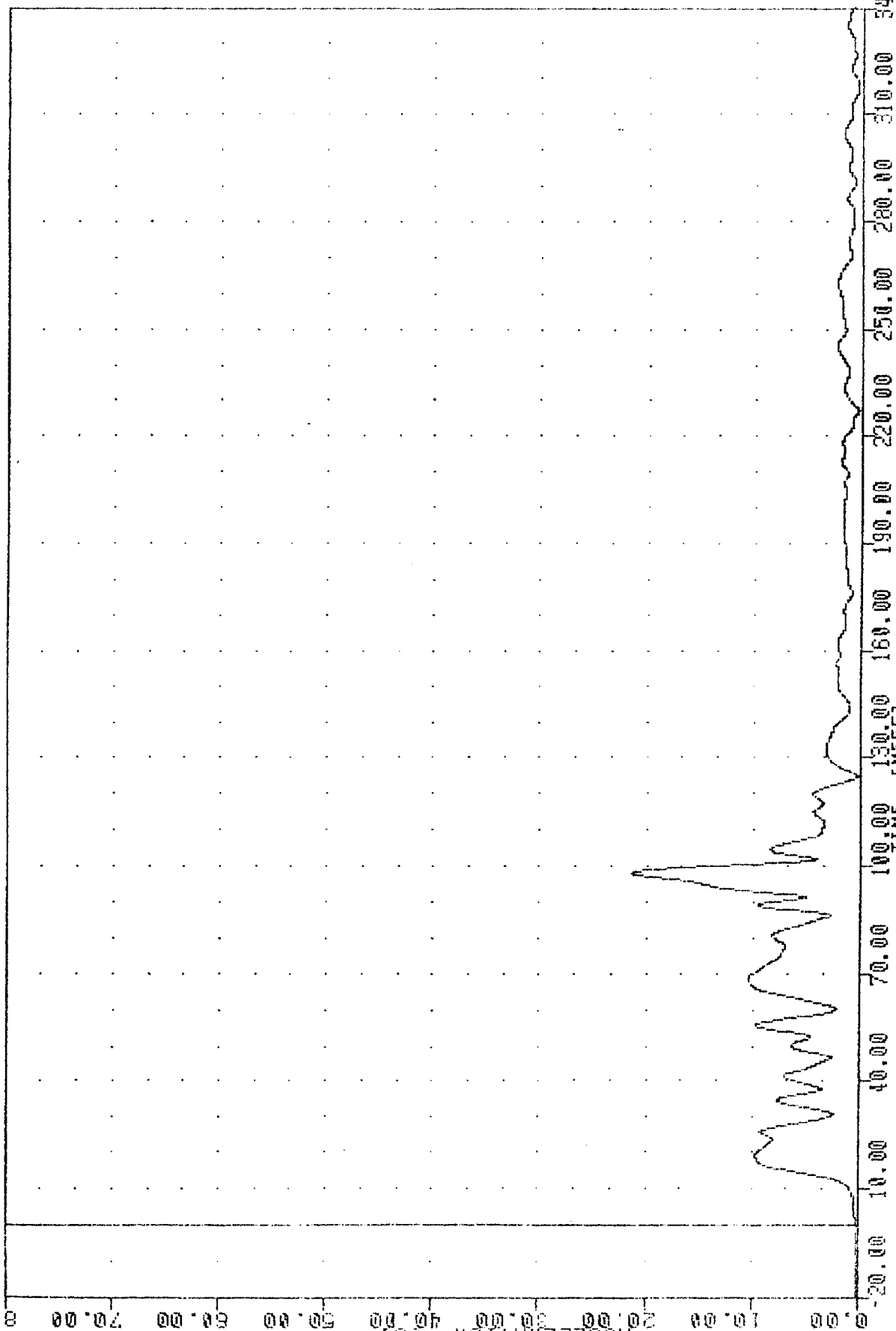
84047000000

RFSRG1

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = 0.04e -9.50, 21.29 e 97.88

ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT FRONT SILL RESULTANT

PLT DATE 20-FEB-84 13:52:41

840216 , 840216

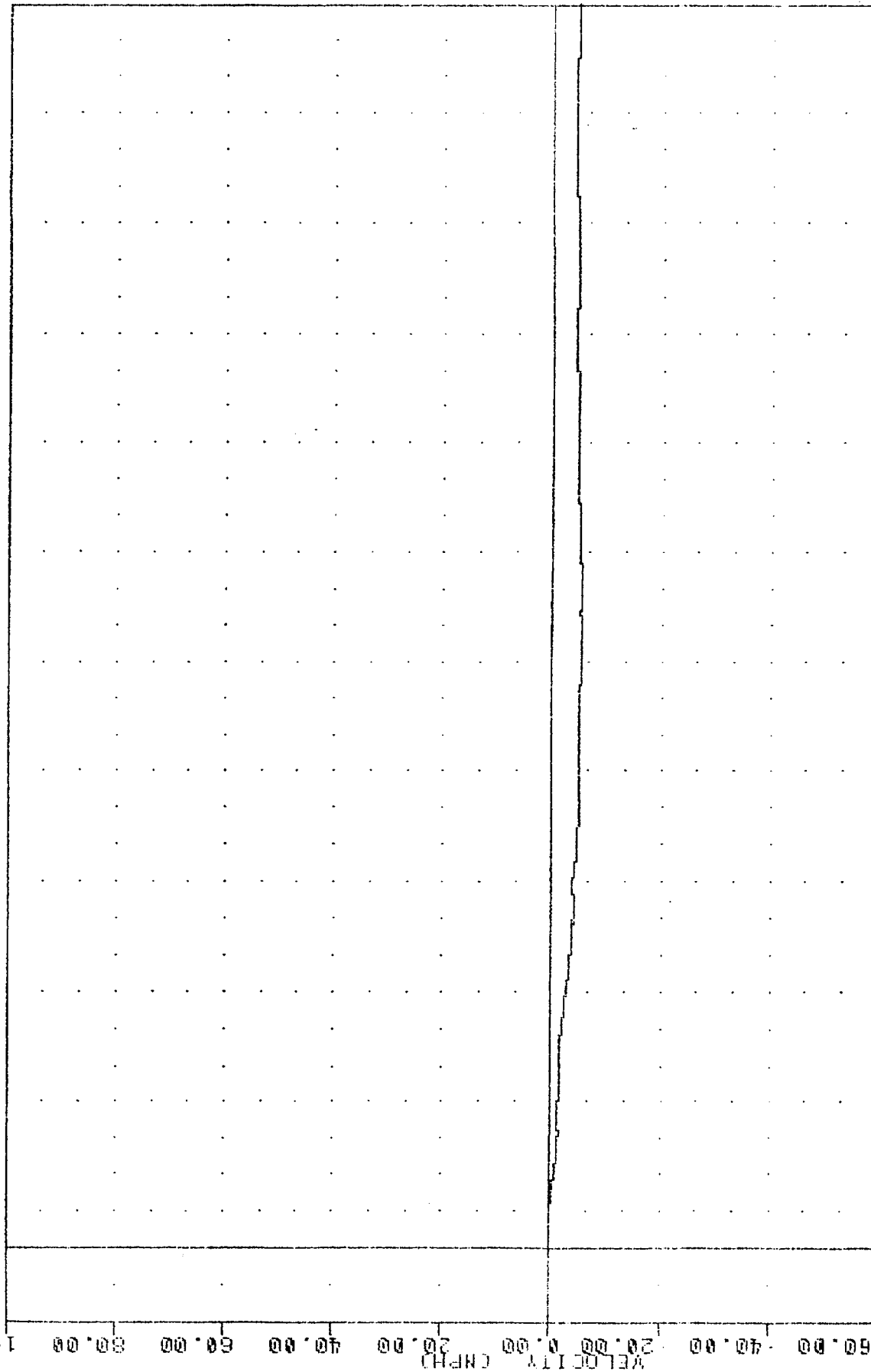
SIDE PROTECTION - 2DR/4DR

840470000000

RFSXVI

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -5.190 179.50, 0.01 2.50



-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

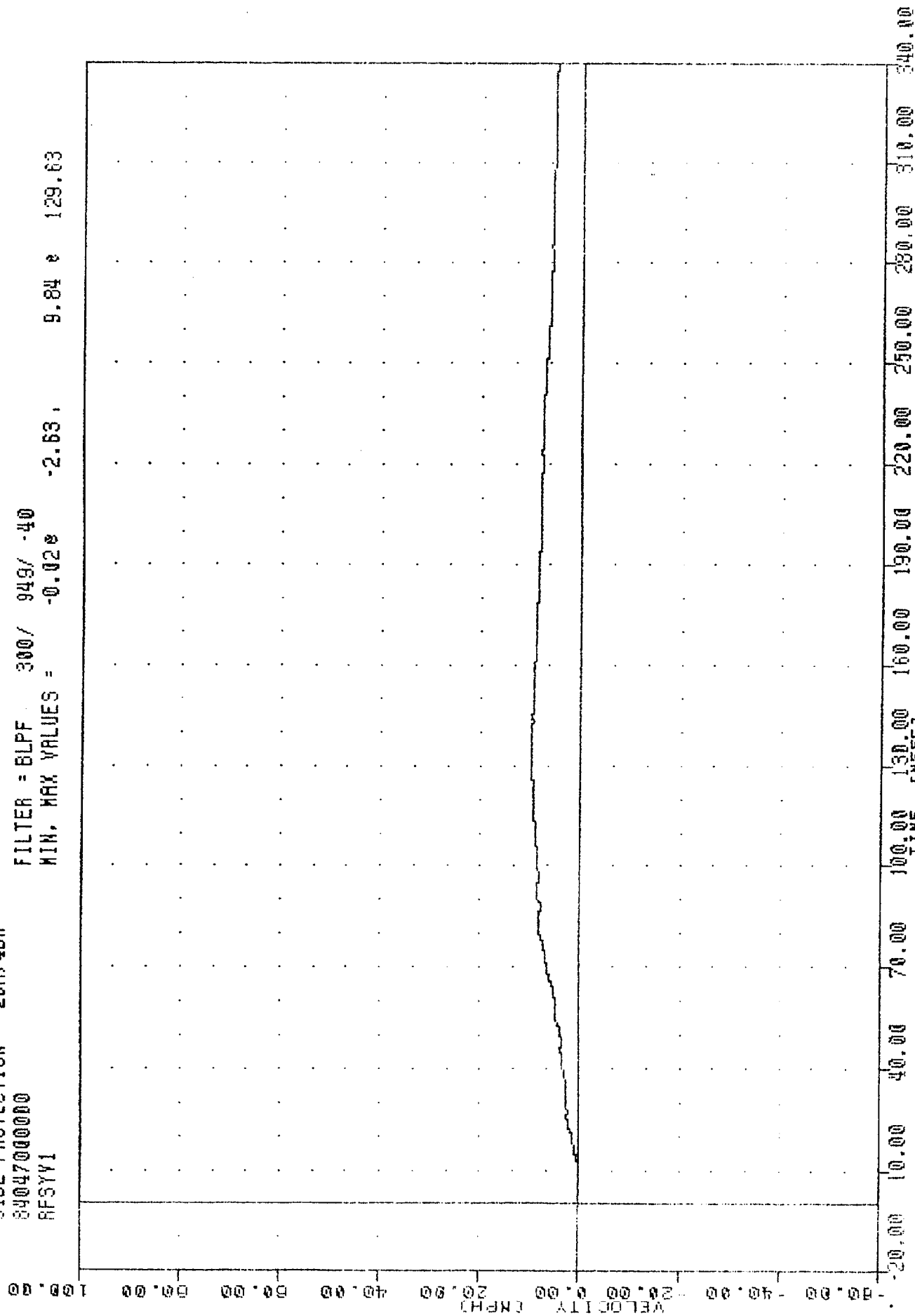
MOVING DEFORMABLE BARRIER INTO OMNI

DELTA V USING RFSX61

IHC
 , 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 RFSYV1

PLOT DATE 20-FEB-84 13:52:41

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.028 -2.63, 9.84 & 129.63



MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING RFSYGI

PLUT DATE 22-FEB-84 08:08:22

IRL 840216
SIDE PROTECTION - 20R/40R

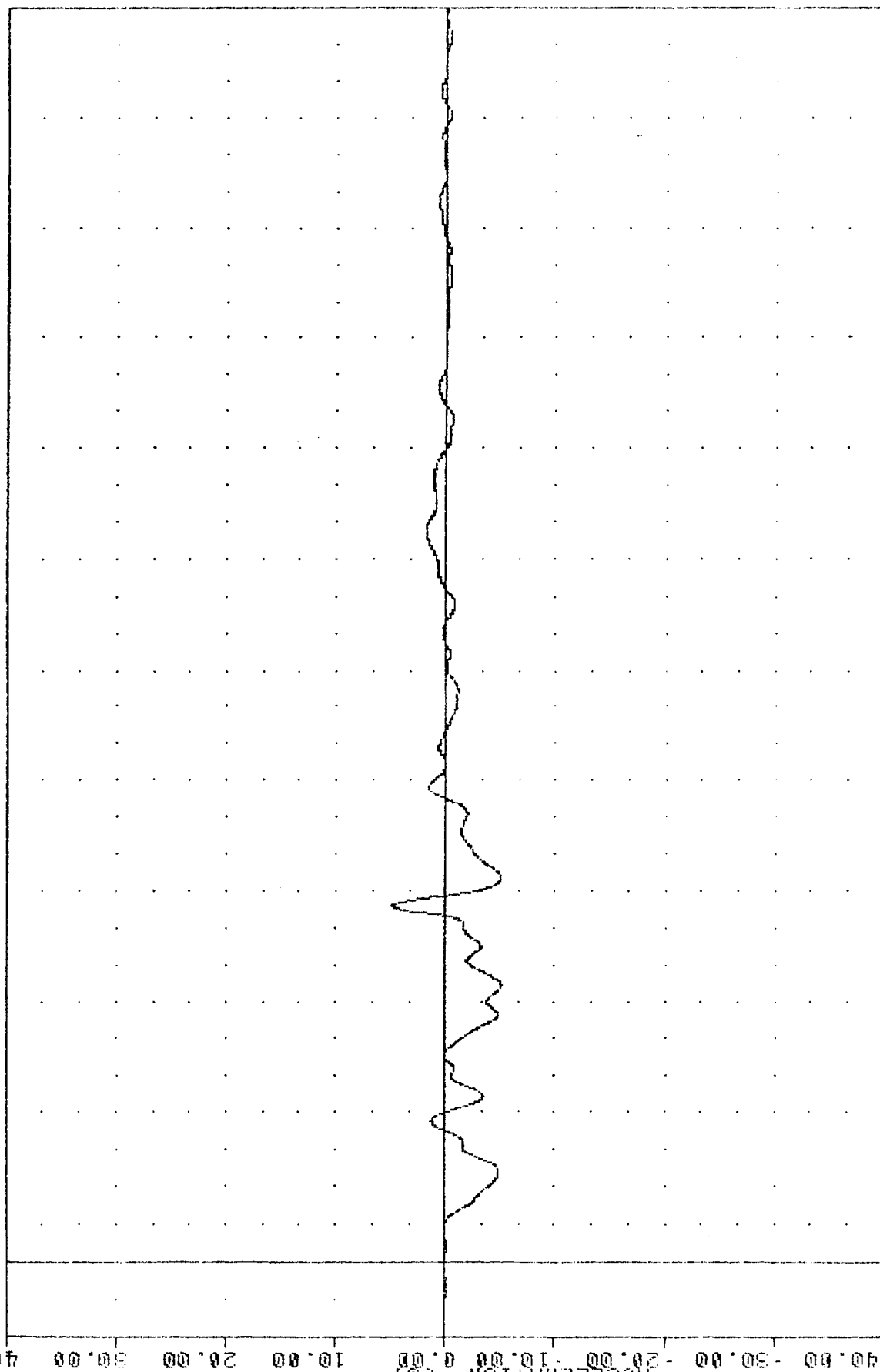
FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -5.16 74.13 4.96 95.75

84047000000

ARSXG2

ACCELERATION (G)



TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT REAR SILL ACCELERATION X AXIS

PLUT DATE 22-FEB-84 08:08:22

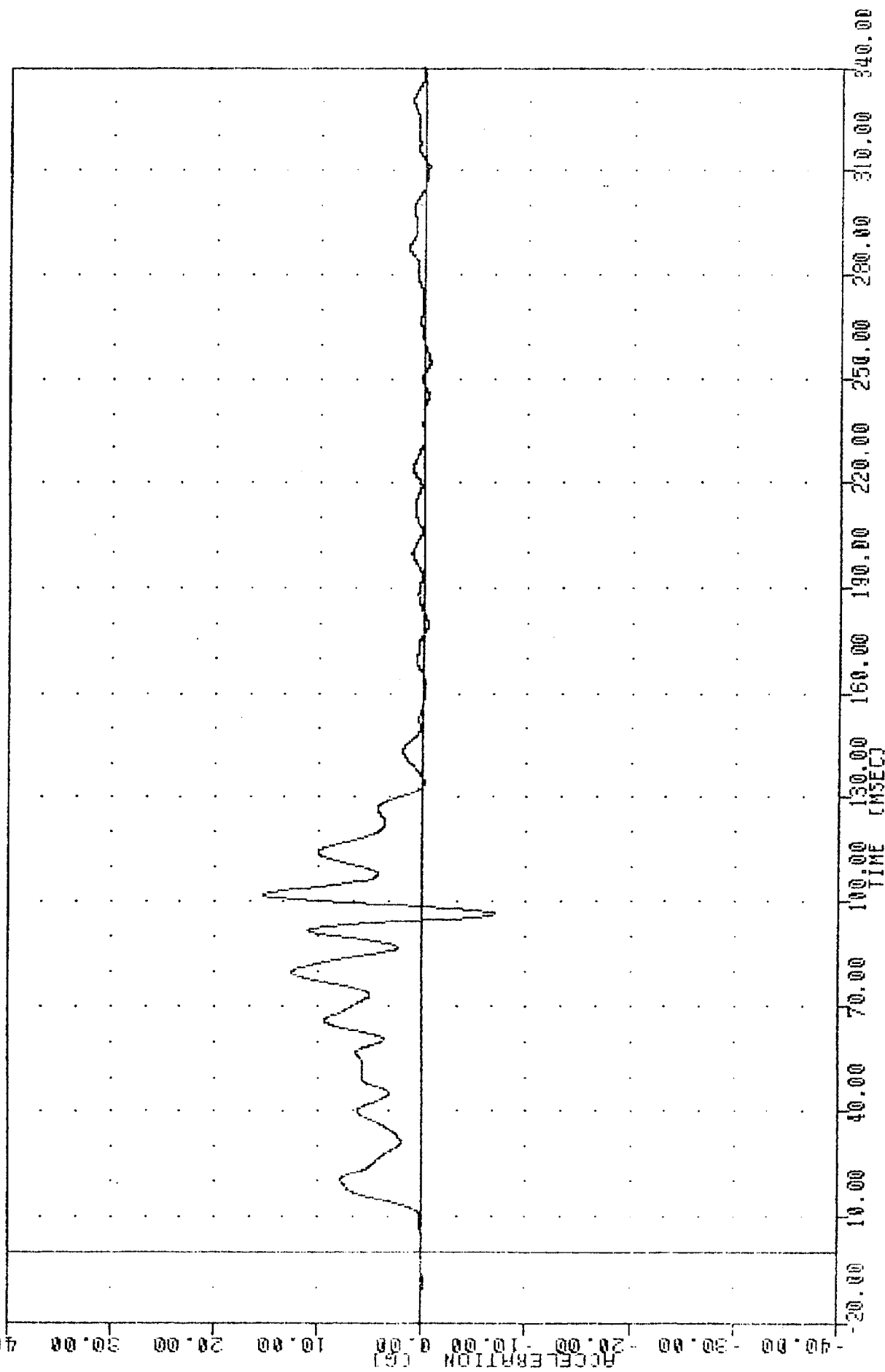
840216
SIDE PROTECTION - 2DR/4DR

FILTER = 8LFF 100/ 316/ -40

MIN, MAX VALUES = -7.04e 96.25, 15.41 e 101.75

84047000000

RRSYG2

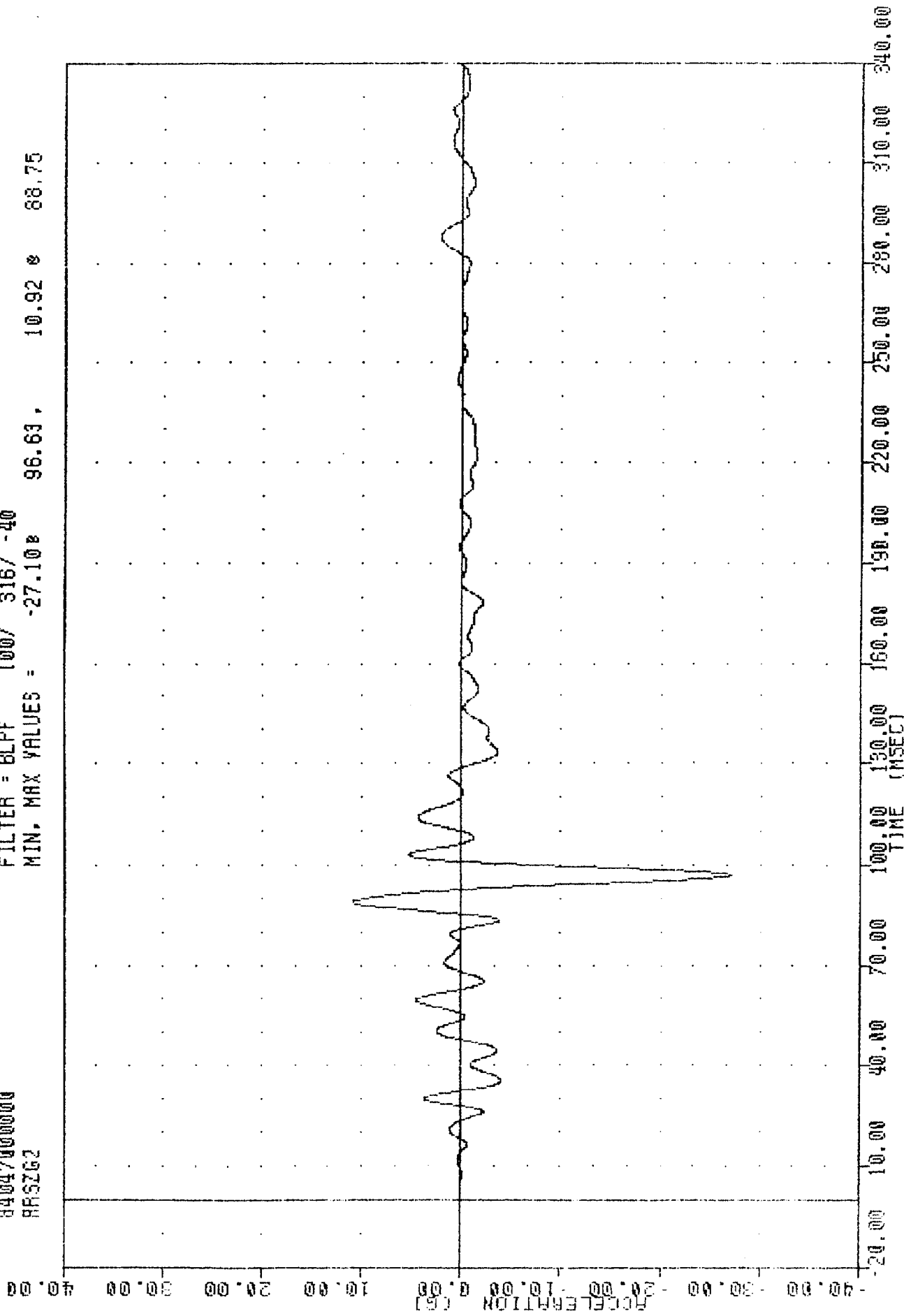


MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE RIGHT REAR SILL ACCELERATION Y AXIS

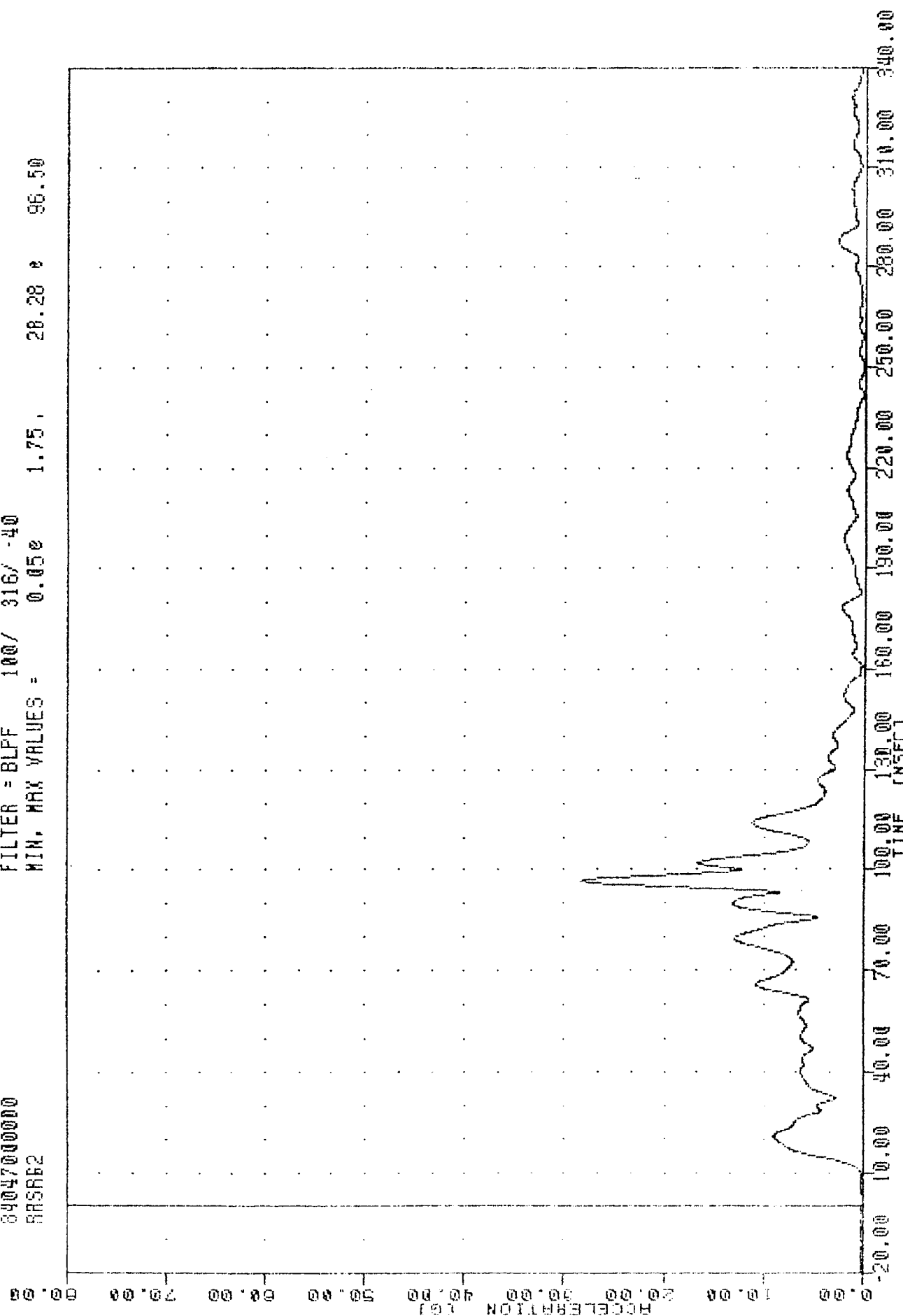
TRC
SIDE PROTECTION - 20R/4DR
84047000000
RRSZG2

PLOT DATE 20-FEB-84 13:51:09

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -27.10B 96.63, 10.92 S 88.75



TAC 840216
 SIDE PROTECTION - 2DR/4DR
 84047000000
 RASRE2
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = 0.05e 1.75, 28.28 e 96.50
 PLUT DATE 20-FEB-84 13:53:32



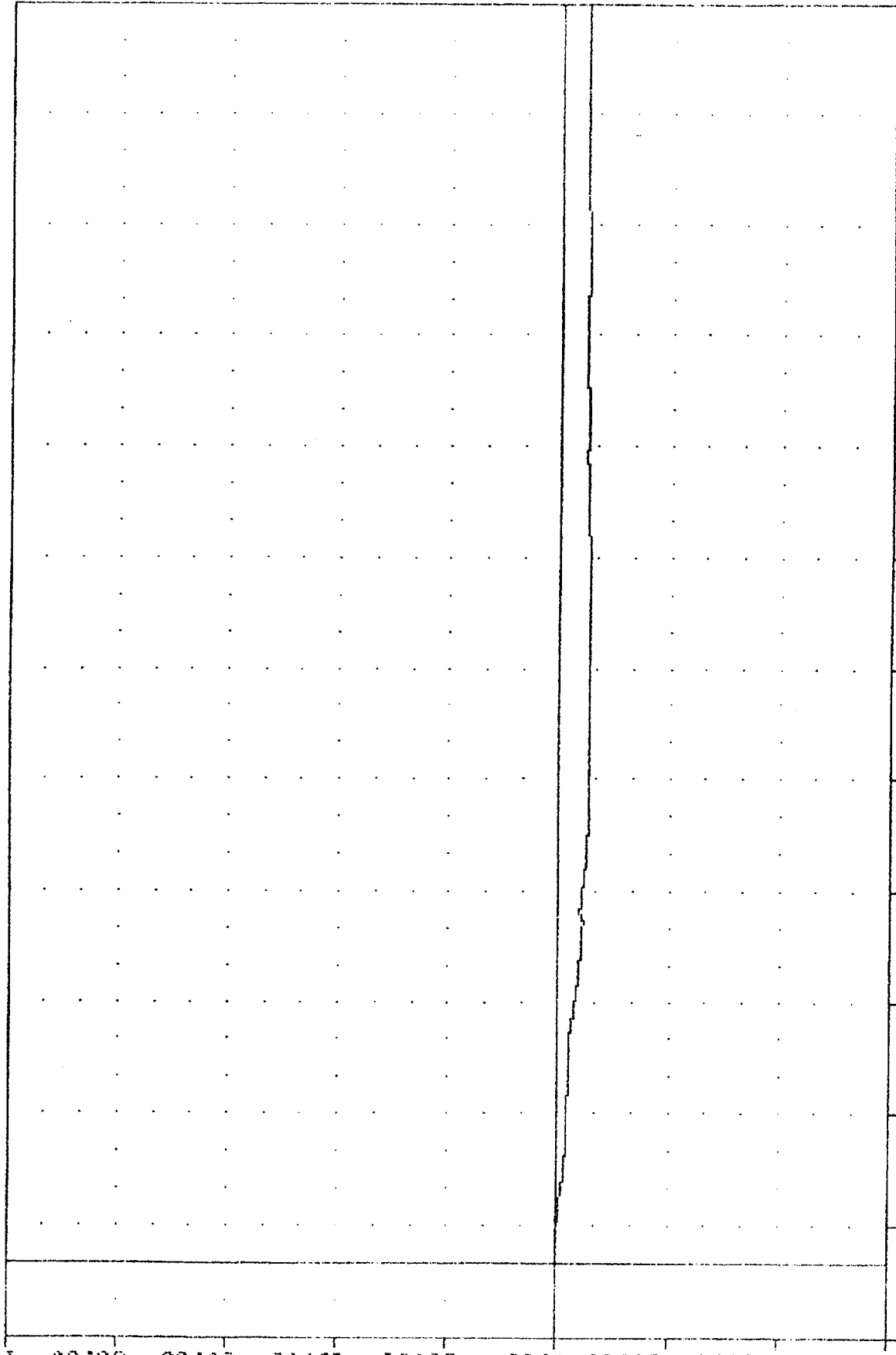
MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE RIGHT REAR SILL RESULTANT

IRC
 SIDE PROTECTION - 20R/40R
 84047000000
 ARSXV2

PLOT DATE 20-FEB-84 13:52:41

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -5.528 178.25, 0.01 e -14.13

100.00
 80.00
 60.00
 40.00
 20.00
 0.00
 -20.00
 -40.00
 -60.00
 VELOCITY (MPH)



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

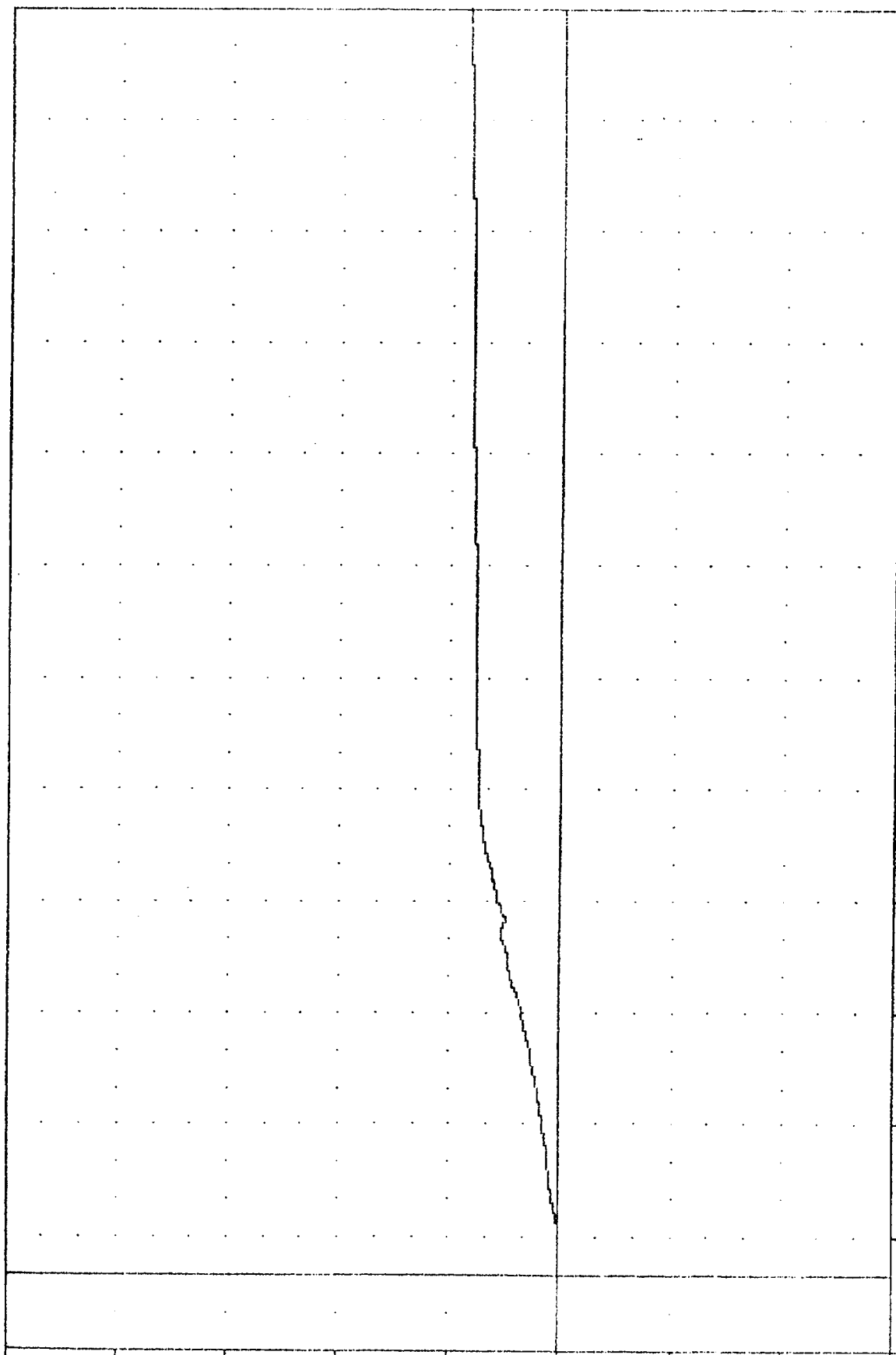
MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING ARSXG2

TRC , 840216
 SIDE PROTECTION - 20A/40A
 24047000000
 RRSYV2

PLOT DATE 20-FEB-84 13:52:41

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 0.000 -20.00, 17.15 340.00

VELOCITY CMPS



TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING ARSY62

THU

840216

20-FEB-84

13:51:08

SIDE PROTECTION - 20R/40R

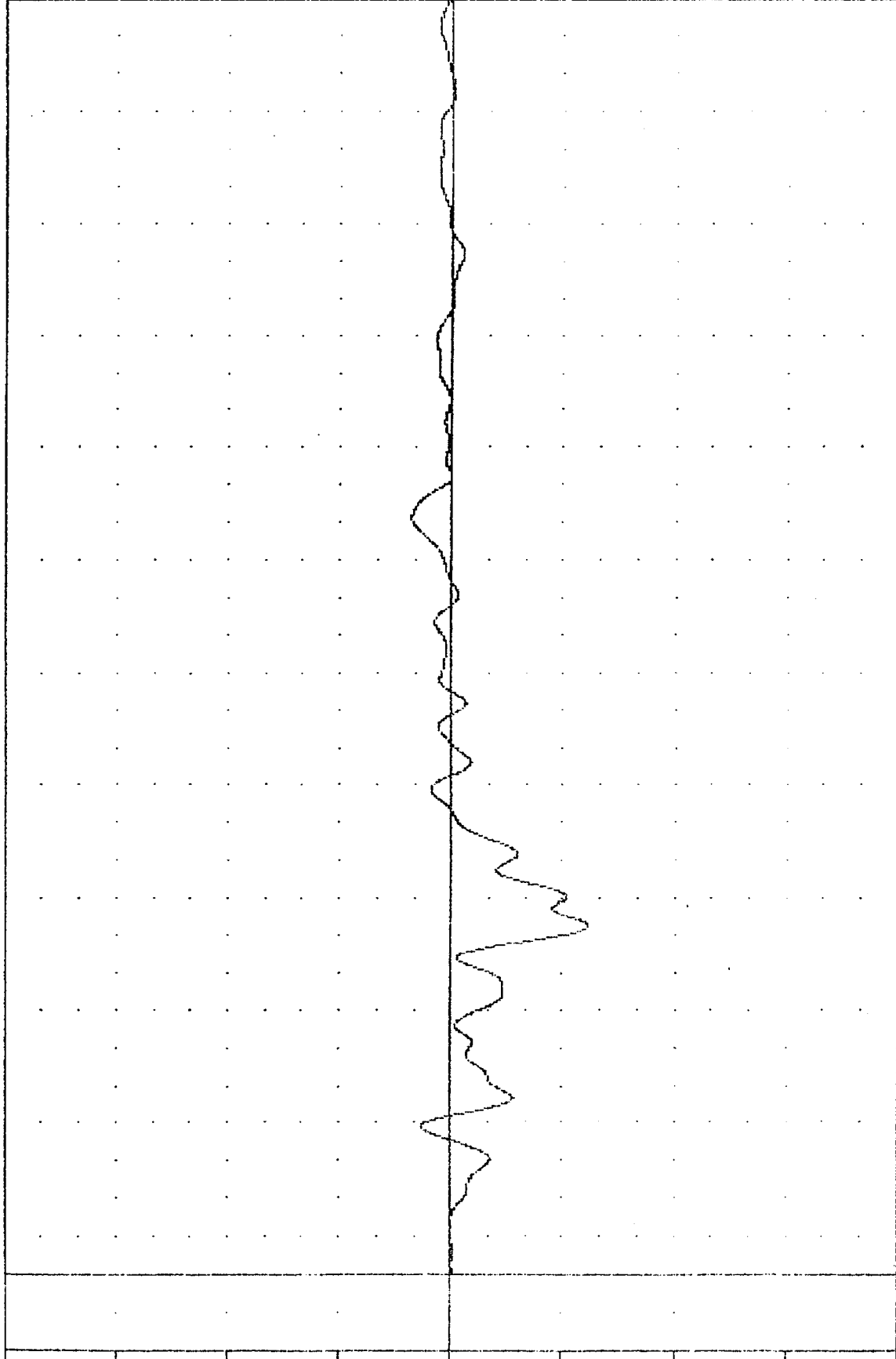
84047000000

RDKX63

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -12.29g 92.38, 3.57 g 200.75

ACCELERATION (g)

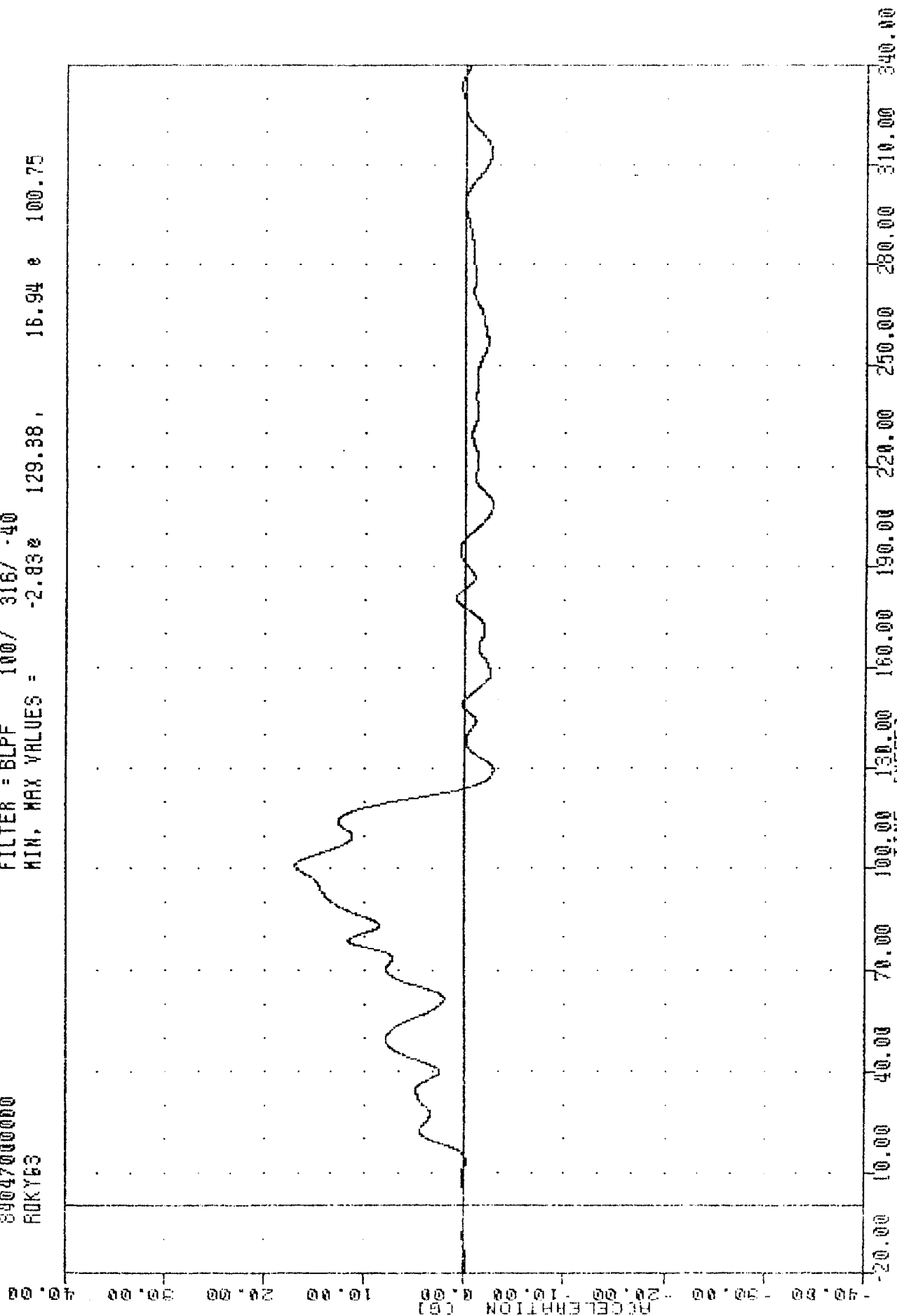


MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE REAR DECK ACCELERATION X AXIS

TAC
 , 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 ROKYEB

PLOT DATE 20-FEB-84 13:51:09

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -2.83e 129.38, 16.94 e 100.75



MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE REAR DECK ACCELERATION Y AXIS

PLT DATE 20-FEB-84 13:51:08

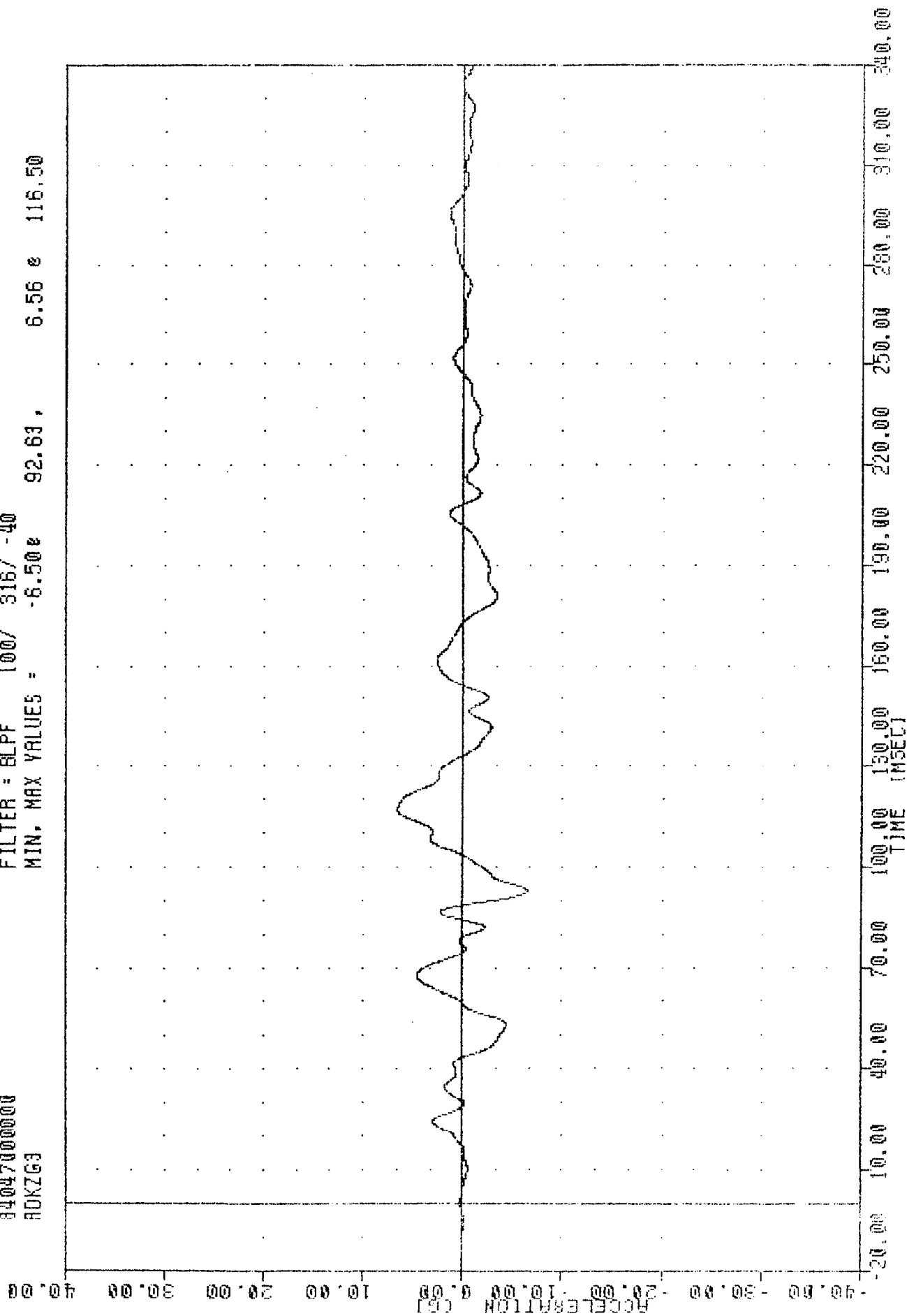
IRL 840215
SIDE PROTECTION --20R/40R

840470000000

ADKZG3

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -6.50e 92.63, 6.56 e 116.50



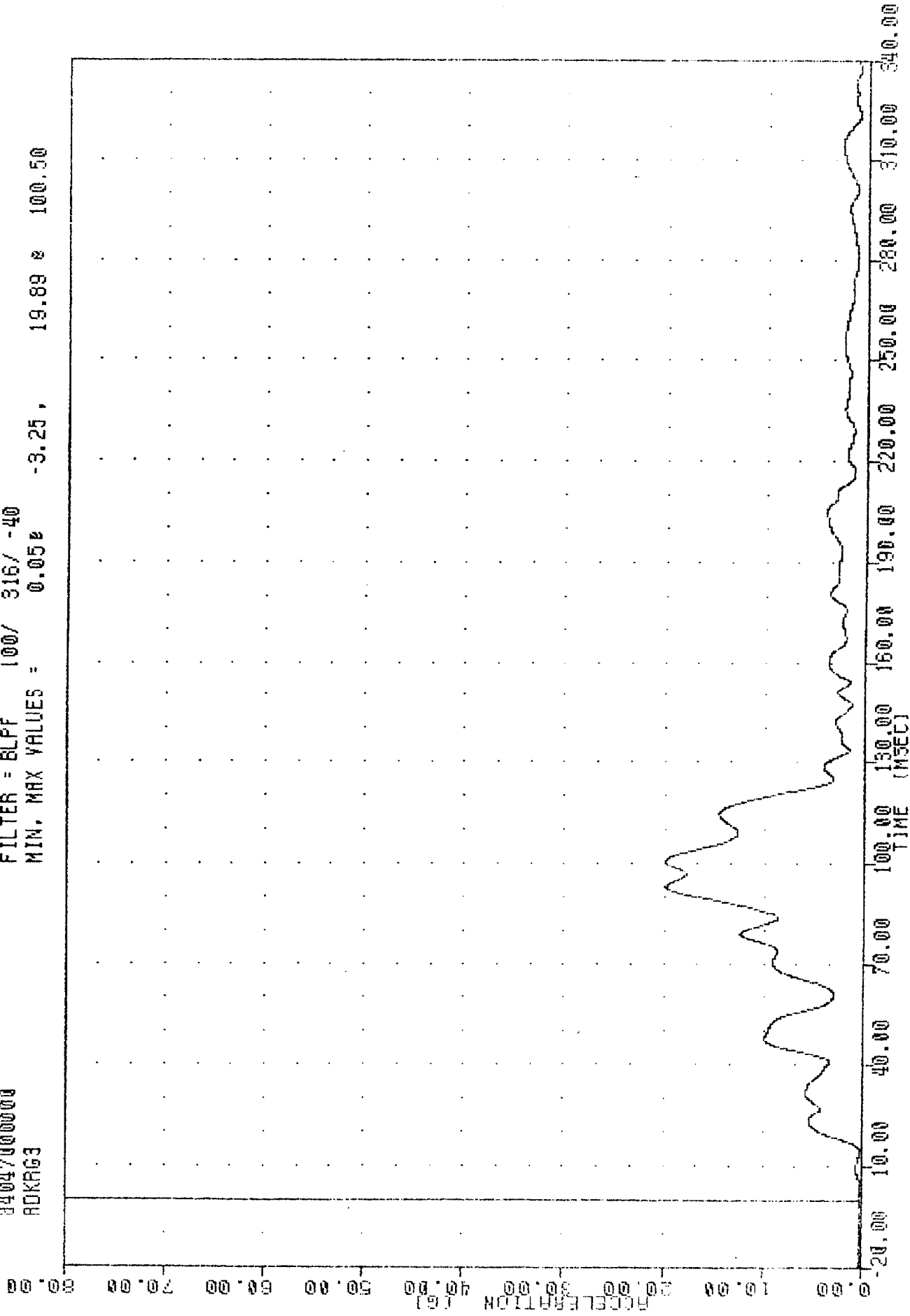
B-84

MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE REAR DECK ACCELERATION Z AXIS

IRC
840216
SIDE PROTECTION - 20R/40R
84047000000
ADKRG3

PLOT DATE 20-FEB-84 13:53:32

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -3.25, 19.89 @ 100.50

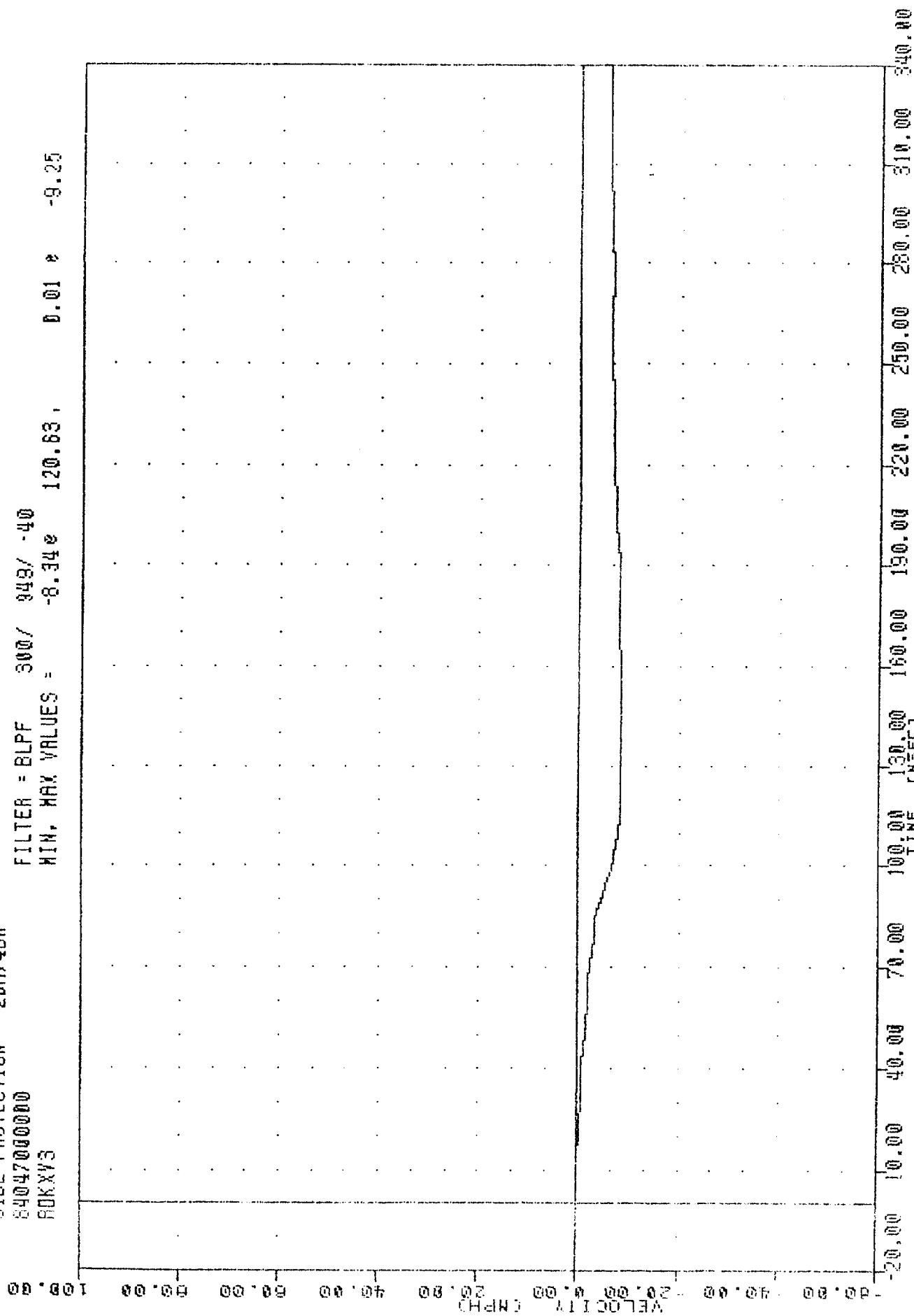


MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE REAR DECK RESULTANT

THC
840216
SIDE PROTECTION - 20R/4DR
84047000000
RDKXV3

PLUT DATE 20-FEB-84 13:52:41

FILTER = BLPF 300/ 848/ -40
MIN. MAX VALUES = -8.34e 120.63, 0.01 e -9.25



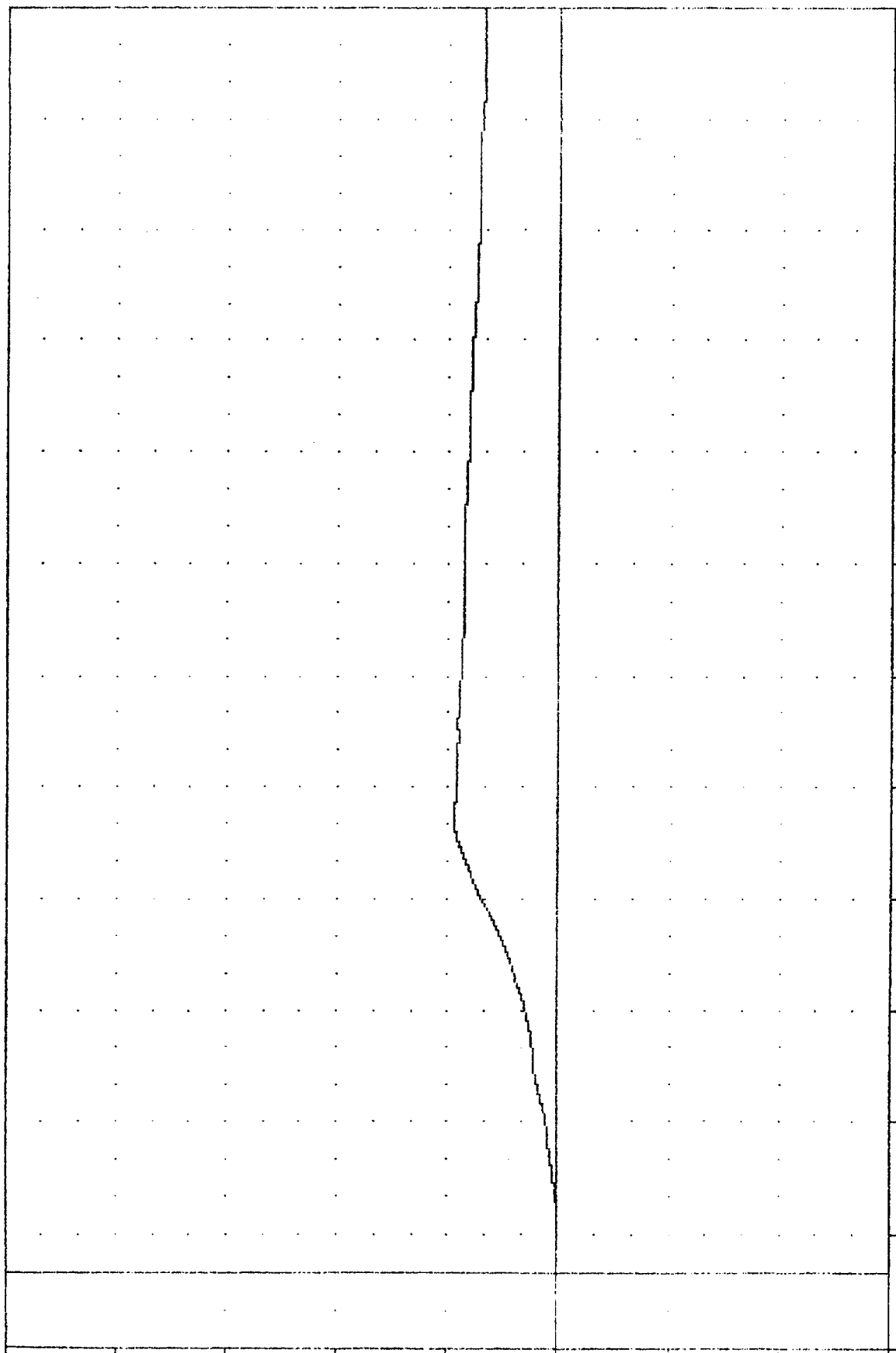
MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING RDKXG3

TRC
 SIDE PROTECTION - 20R/40R
 84047000000
 RDKYV3

PLOT DATE 20-FEB-84 13:52:41

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -0.010 -15.88, 18.79 0 120.25

VELOCITY (MPH)



MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING RDKYV3

TRC
SIDE PROTECTION - 2DR/4DR
84047000000
LR5Y64

PLOT DATE 20-FEB-84 13:51:09

FILTER = 8LPF 100/ 316/ -40
MIN. MAX VALUES = -39.85e 28.75. 27.47 e 49.13

120.00

90.00

60.00

30.00

0.00

-30.00

-60.00

-90.00

-120.00

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

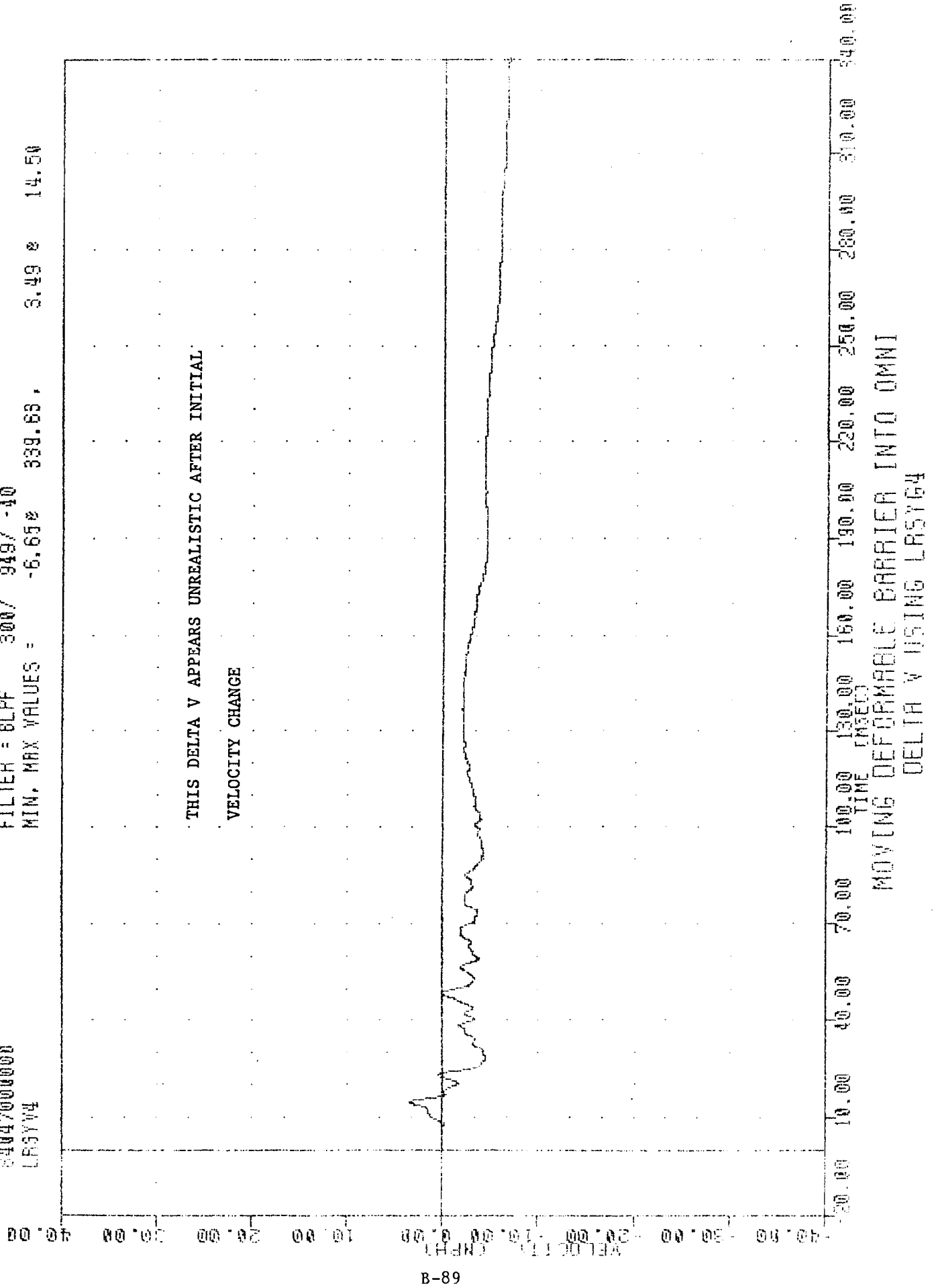
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE LEFT REAR SILL ACCELERATION Y AXIS

PLT DATE 20-FEB-84 13:52:41

PLT 840216
SIDE PROTECTION - 20R/4DR
84047000000
LR5YV4

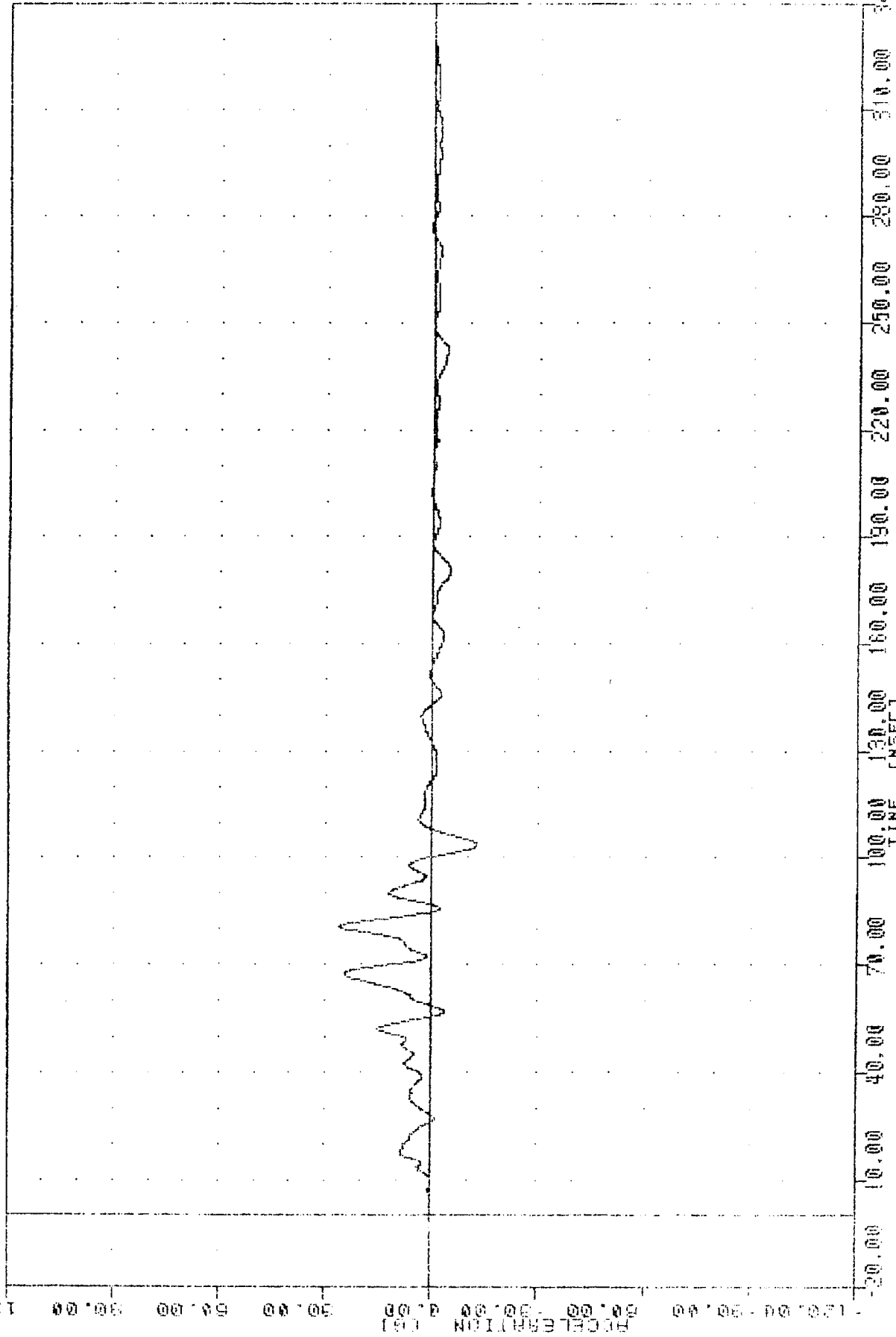
FILTER = 8LPF 300/ 949/ -40
MIN. MAX VALUES = -6.652 339.63, 3.49 14.50



PLUT DATE 20-FEB-84 13:51:09

JHC 840216
SIDE PROTECTION - 20R/4DR
84047000000
LFSY85

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -12.530 103.75, 26.06 e 80.50



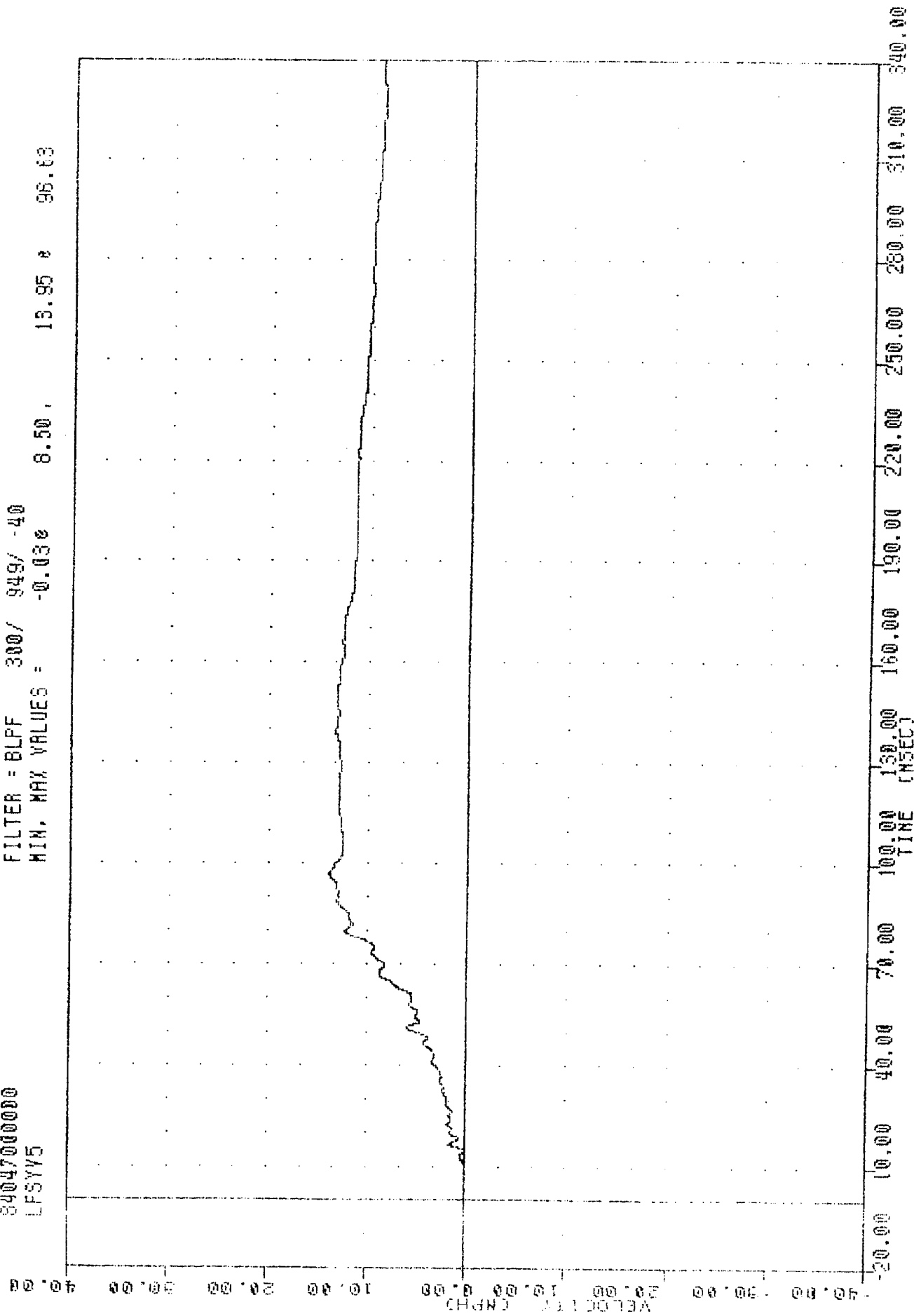
B-90

MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE LEFT FRONT SILL ACCELERATION Y AXIS

THC 840218
SIDE PROTECTION - 20A/4DA
84047000000
LFSY5

PLOT DATE 20-FEB-84 13:52:41

FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.030 8.50 13.95 96.63

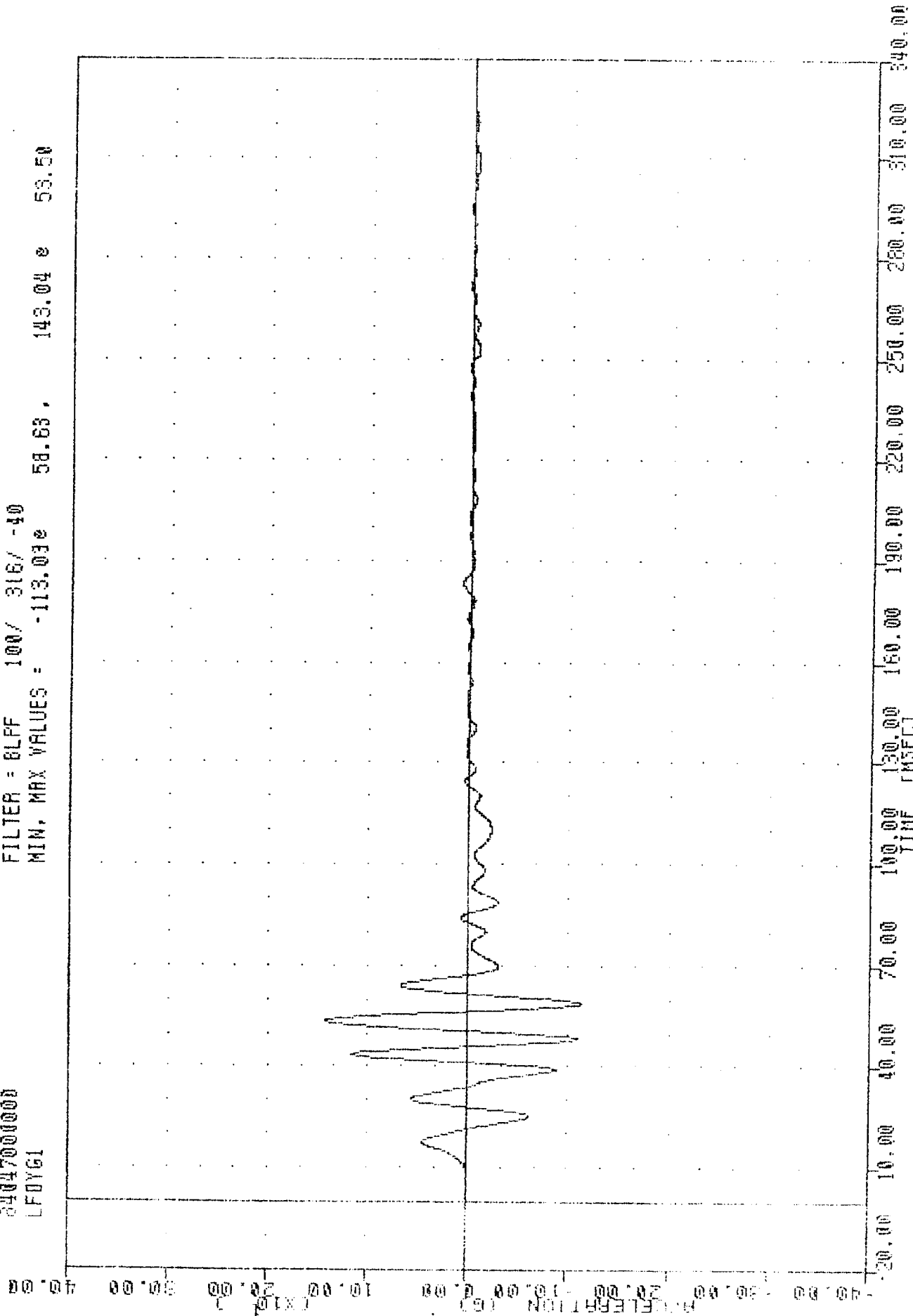


MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LFSYG5

ENC 840218
 SIDE PROTECTION - 20R/40R
 84047000000
 LF0Y61

PLOT DATE 20-FEB-84 13:51:09

FILTER = 8LFF 100/ 316/ -40
 MIN, MAX VALUES = -113.03e 58.63, 143.04 e 53.50



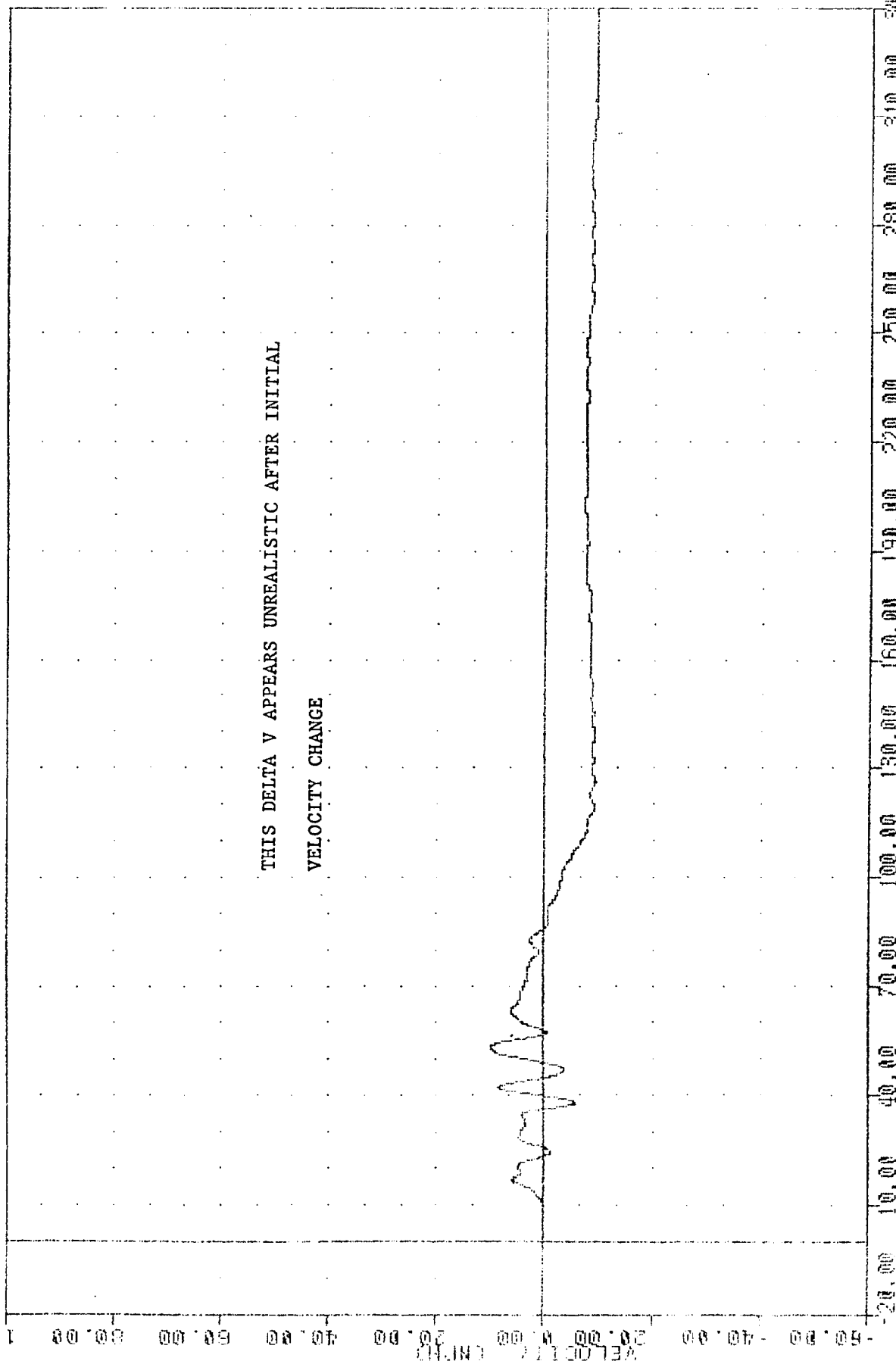
MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE LEFT FRONT DOOR (POSITION 6) ACCELERATION Y AXIS

TRC
 310E PROTECTION - 2DR/4DR
 84047000000
 LFOYV1

PLOT DATE 20-FEB-84 13:52:41

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -9.36 126.25, 9.87 53.25

VELOCITY CHANGE

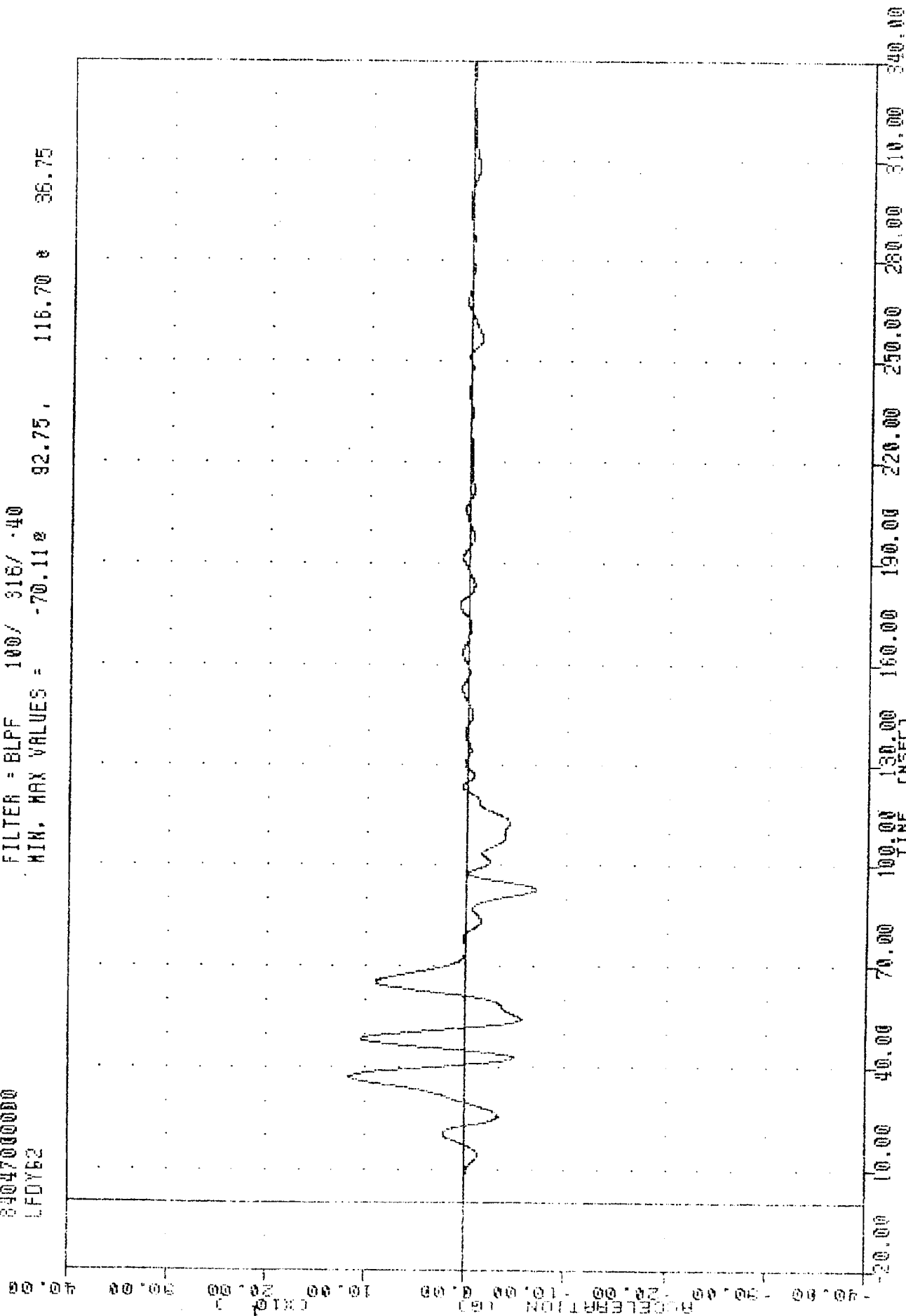


MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LFOYGI

INC 840216
 SIDE PROTECTION - 20A/40A
 84047000000
 LFDY62

PLOT DATE 20-FEB-84 13:51:09

FILTER = BLPF 100/ 316/ .40
 MIN. MAX VALUES = -70.11 92.75, 116.70 36.75



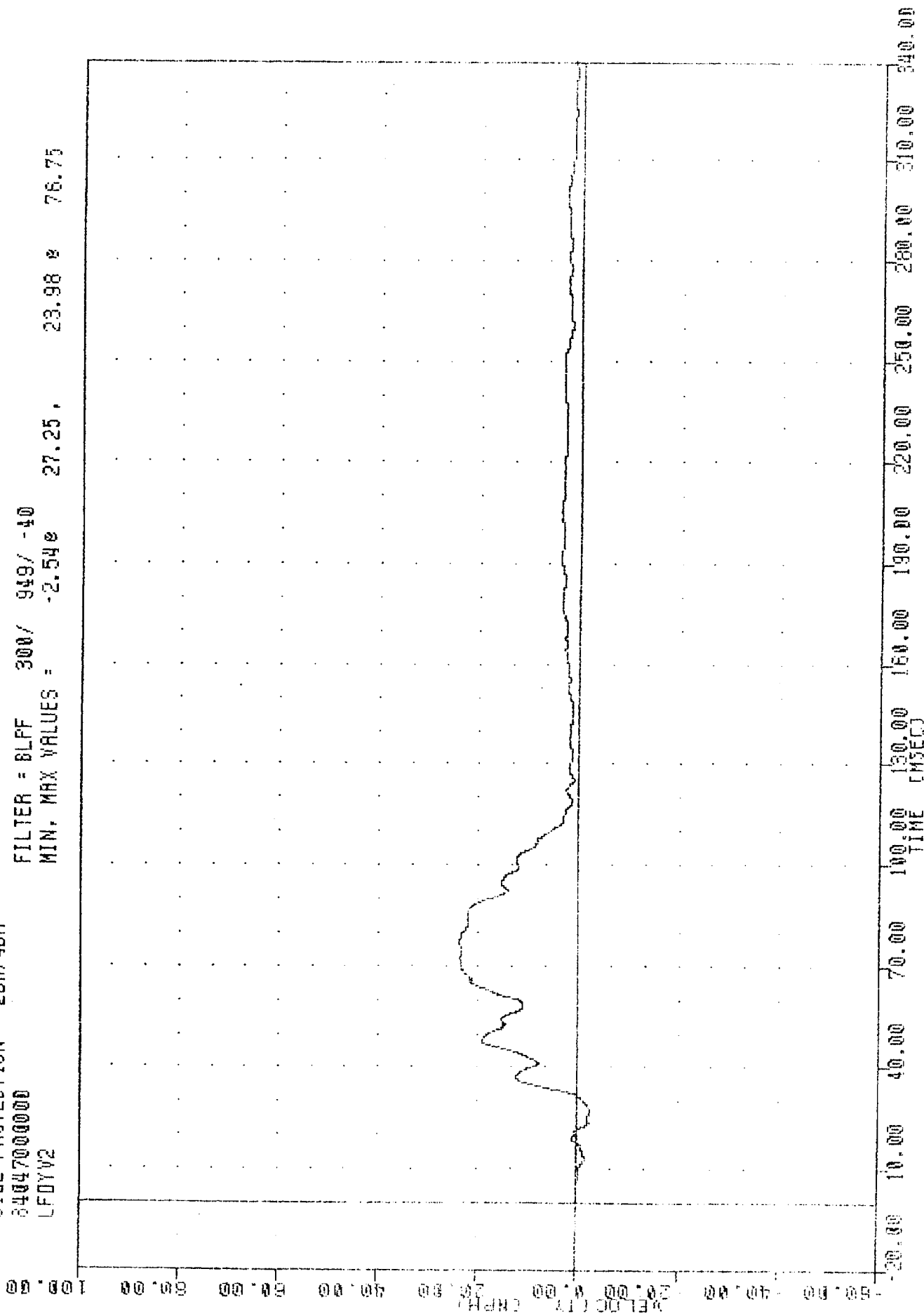
B-94

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

TRC
 SIDE PROTECTION - 2DR/4DR
 84047000000
 LFOYV2

PLOT DATE 20-FEB-84 13:52:41

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -2.54e 27.25, 23.98 e 76.75



MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LFOY62

TRC 840215 PLOT DATE 20-FEB-84 13:51:09

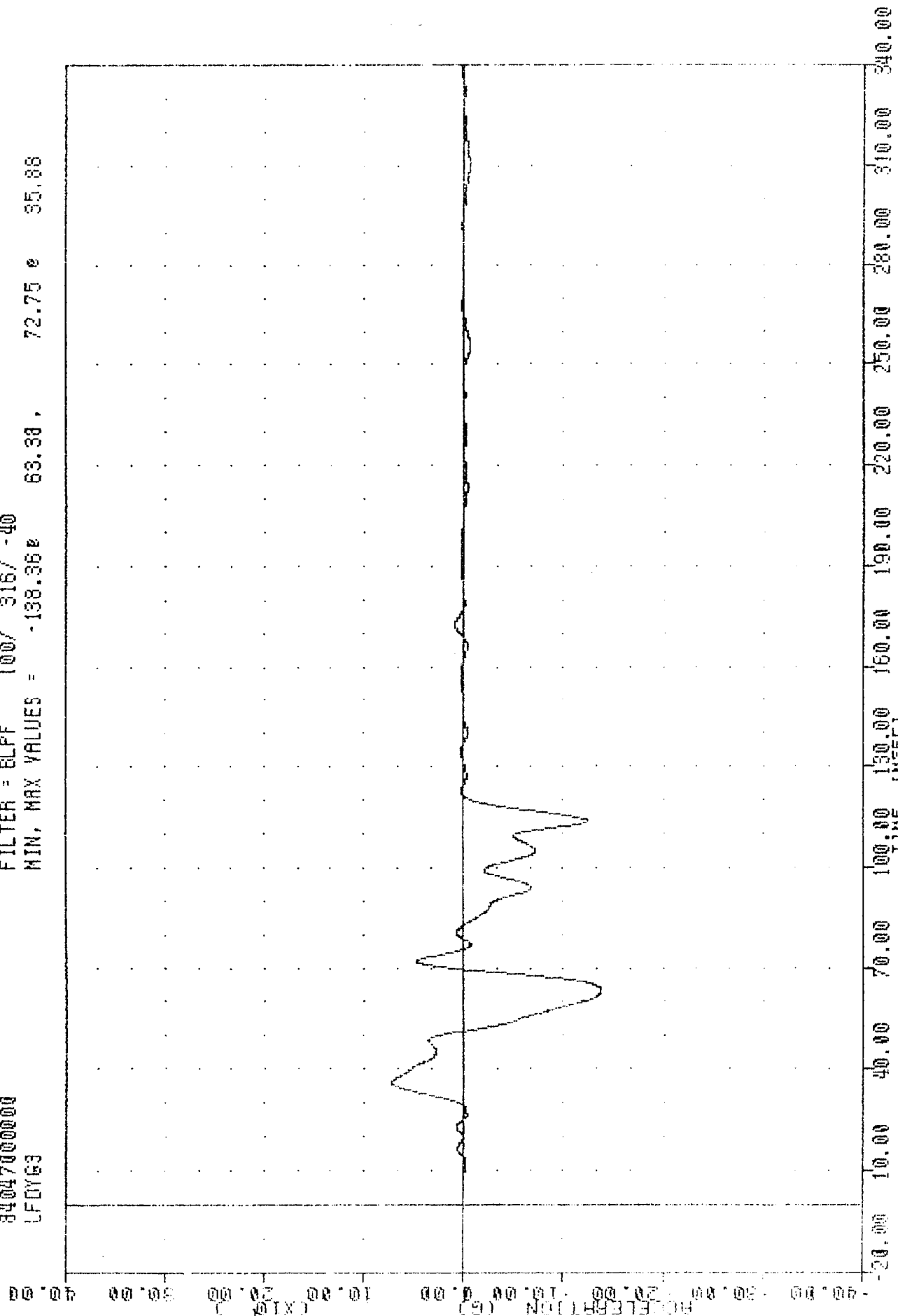
SIDE PROTECTION - 20R/40R

84047000000

LFDY63

FILTER = 8LFF 100/ 316/ -40

MIN, MAX VALUES = -138.36 63.38 72.75 55.88

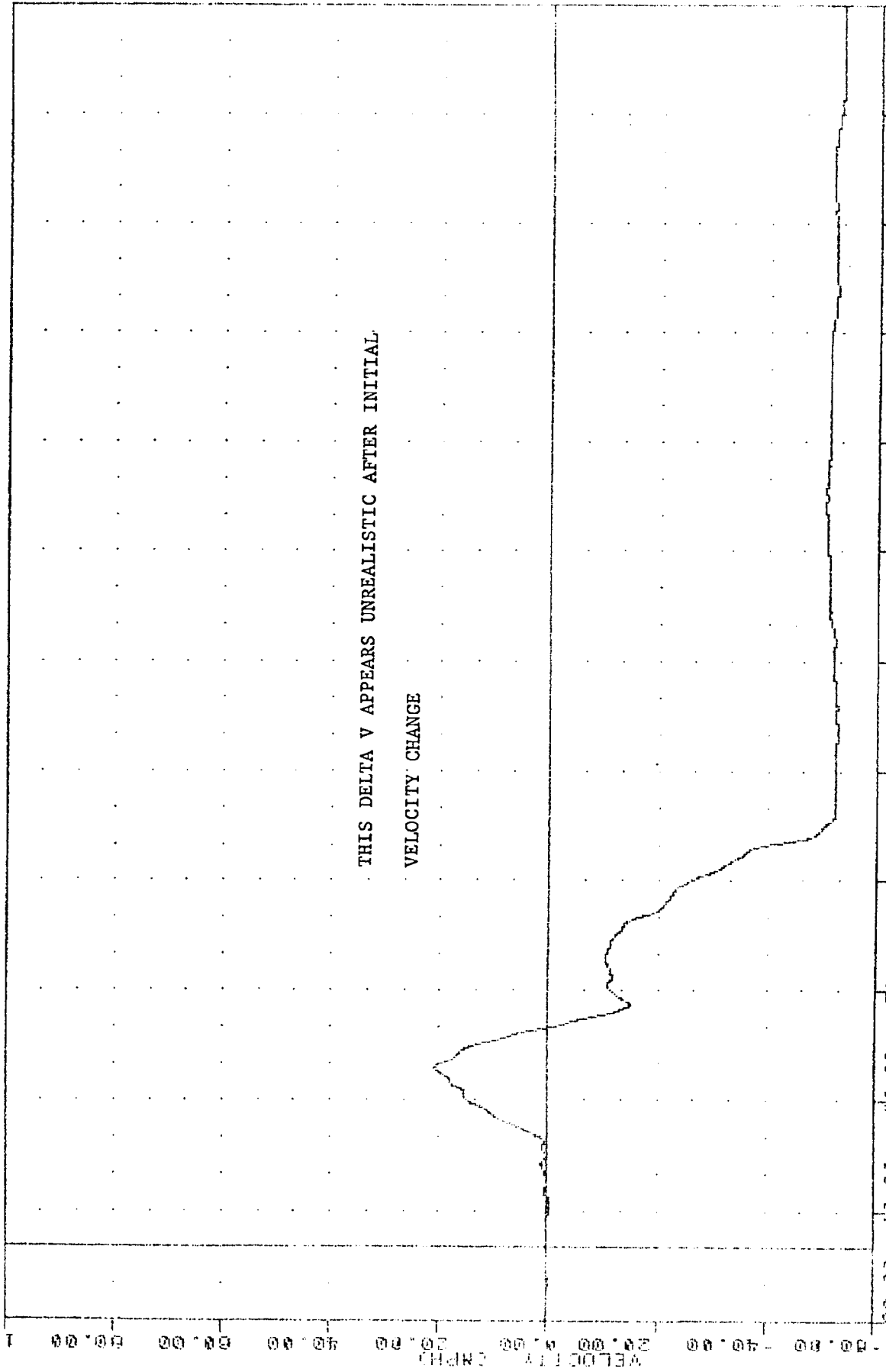


MOVING DEFORMABLE BARRIER INTO OMNI
VEHICLE LEFT FRONT DOOR (POSITION 9) ACCELERATION Y AXIS

PLUT DATE 20-FEB-84 13:52:41

THC 840216
SIDE PROTECTION - 20R/40R
84047000000
LFDYV3

FILTER = BLPF 300/ 949/ .40
MIN. MAX VALUES = -53.44 330.75, 20.90 48.50



MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING LFDY63

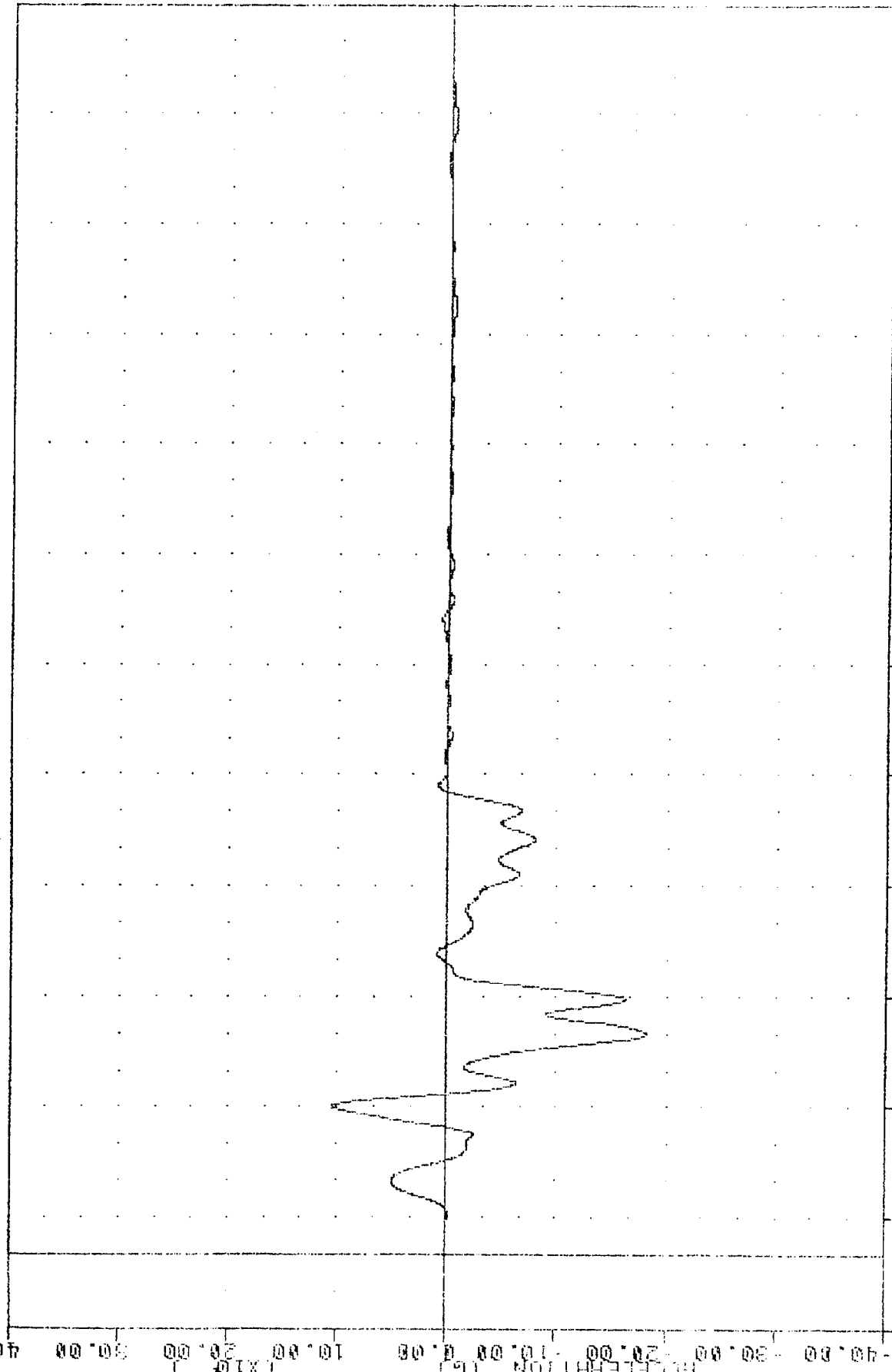
TRC
 840216
 SIDE PROTECTION - 2DR/4DR
 84047000000
 LFOY64

PLOT DATE 20-FEB-84 13:51:09

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -181.95e 59.75, 105.22 e 40.13

ACCELERATION (G) (x10⁴)



TIME (MSEC)

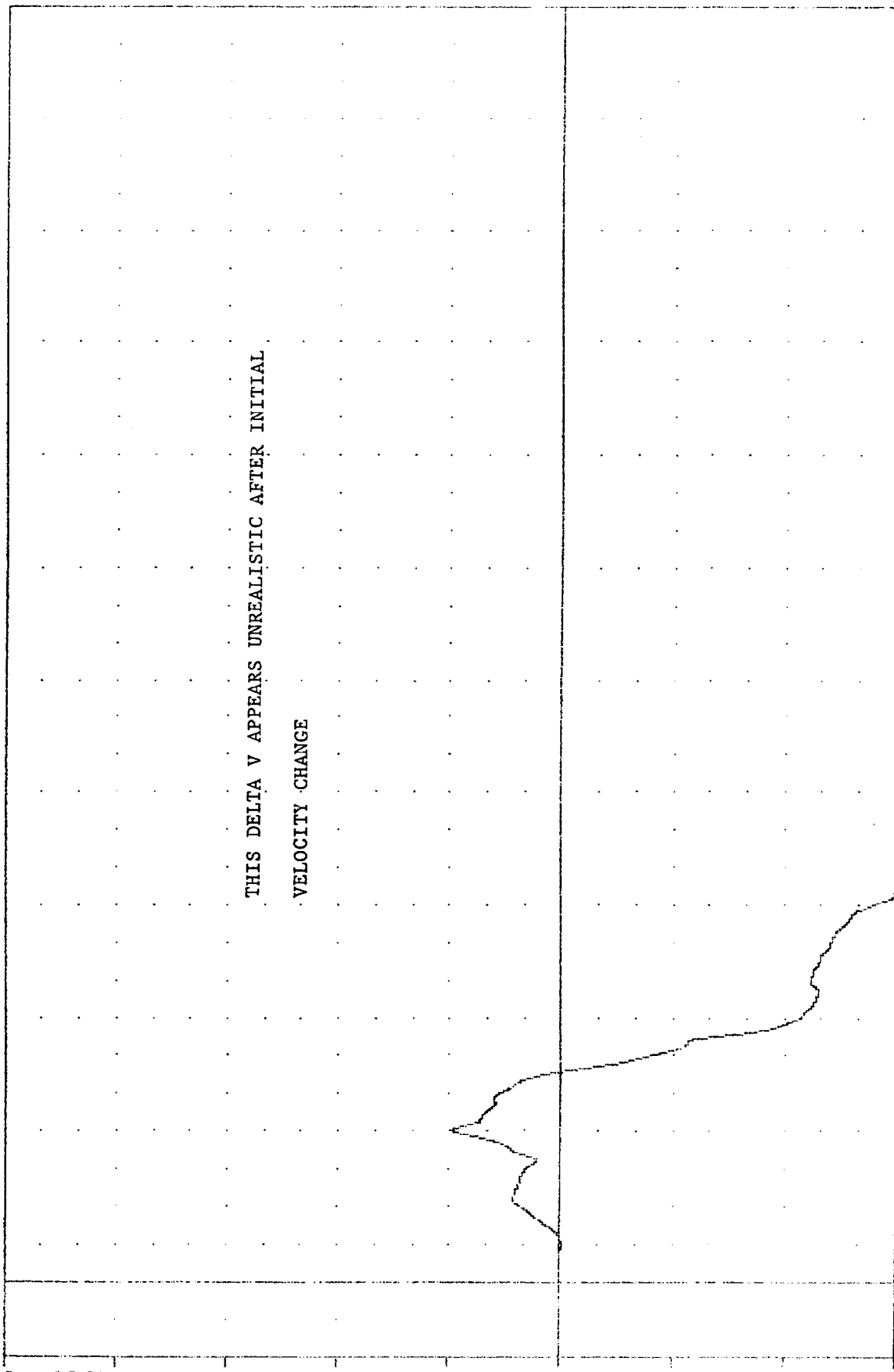
MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE LEFT FRONT DOOR (POSITION 10) ACCELERATION Y AXIS

TRC
 SIDE PROTECTION - 20R/40R
 84047000000
 LFOYV4

PLOT DATE 20-FEB-84 13:52:41

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -83.330 320.13, 19.55 & 40.00

VELOCITY (MPH)



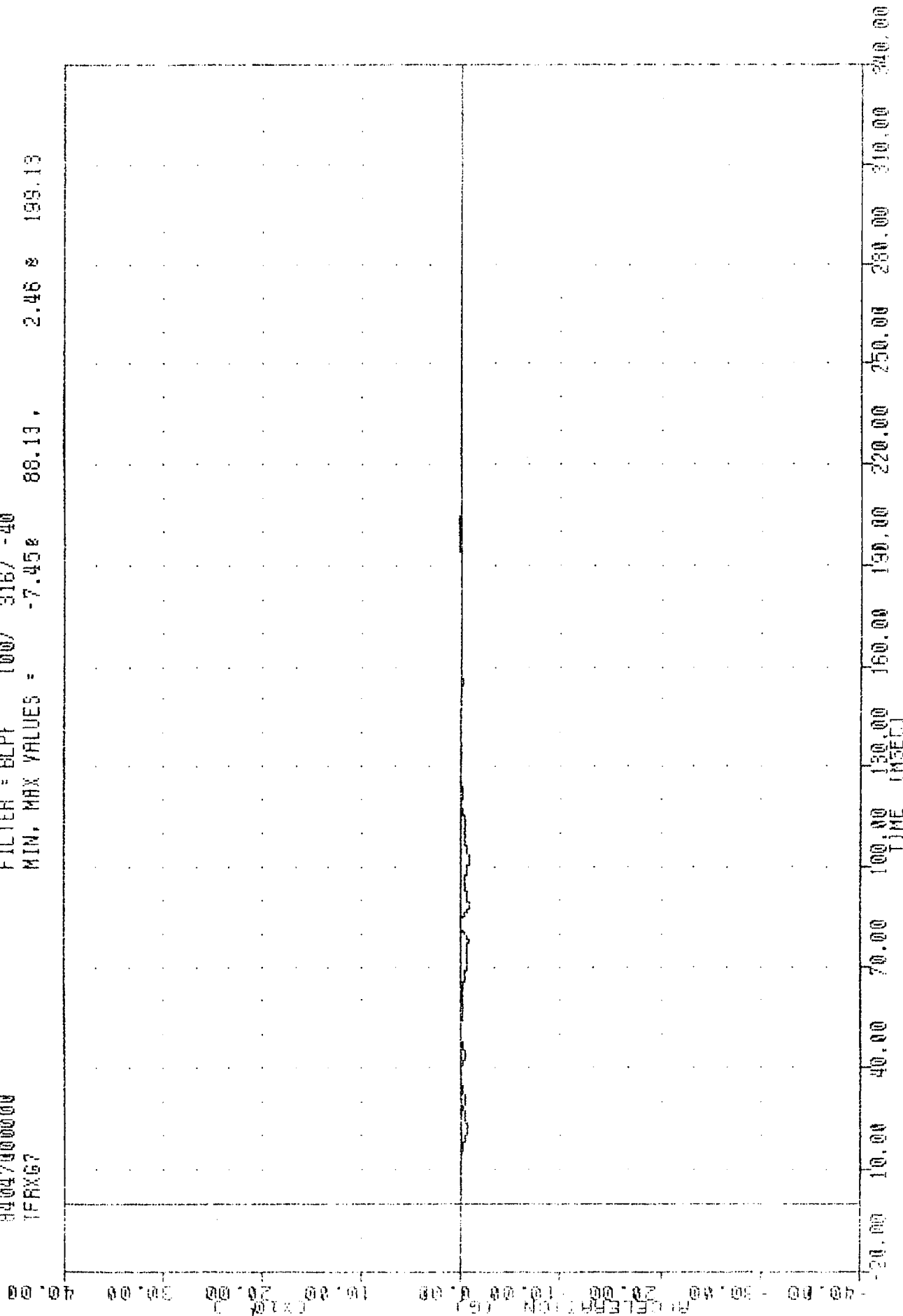
-20.00 0.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00

MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING LFOYV4

INC 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 TFRXG7

PLUT DATE 20-FEB-84 13:51:09

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -7.45% 88.13, 2.46% 199.13

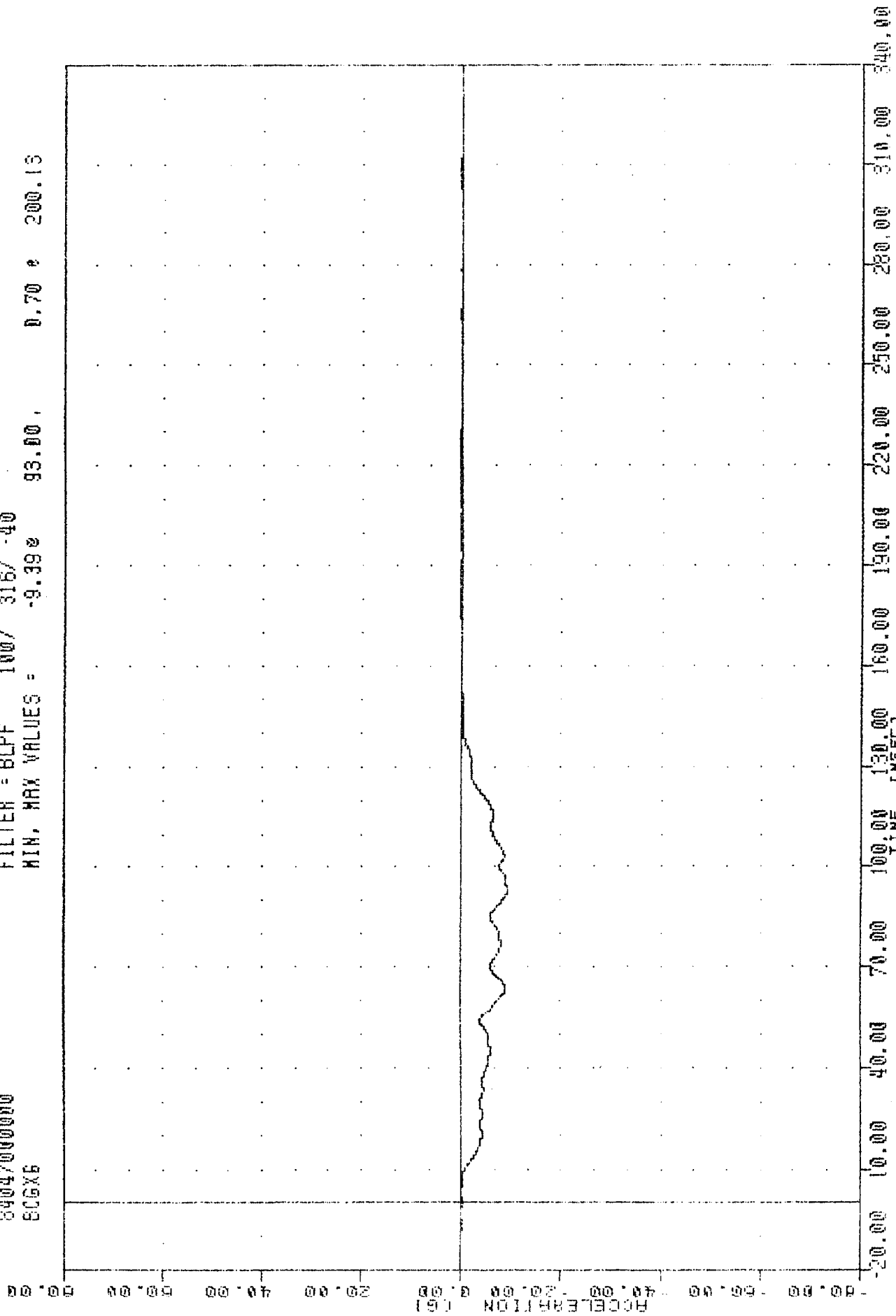


MOVING DEFORMABLE BARRIER INTO OMNI
 VEHICLE TRUNK FLOOR RIGHT ACCELERATION Y AXIS

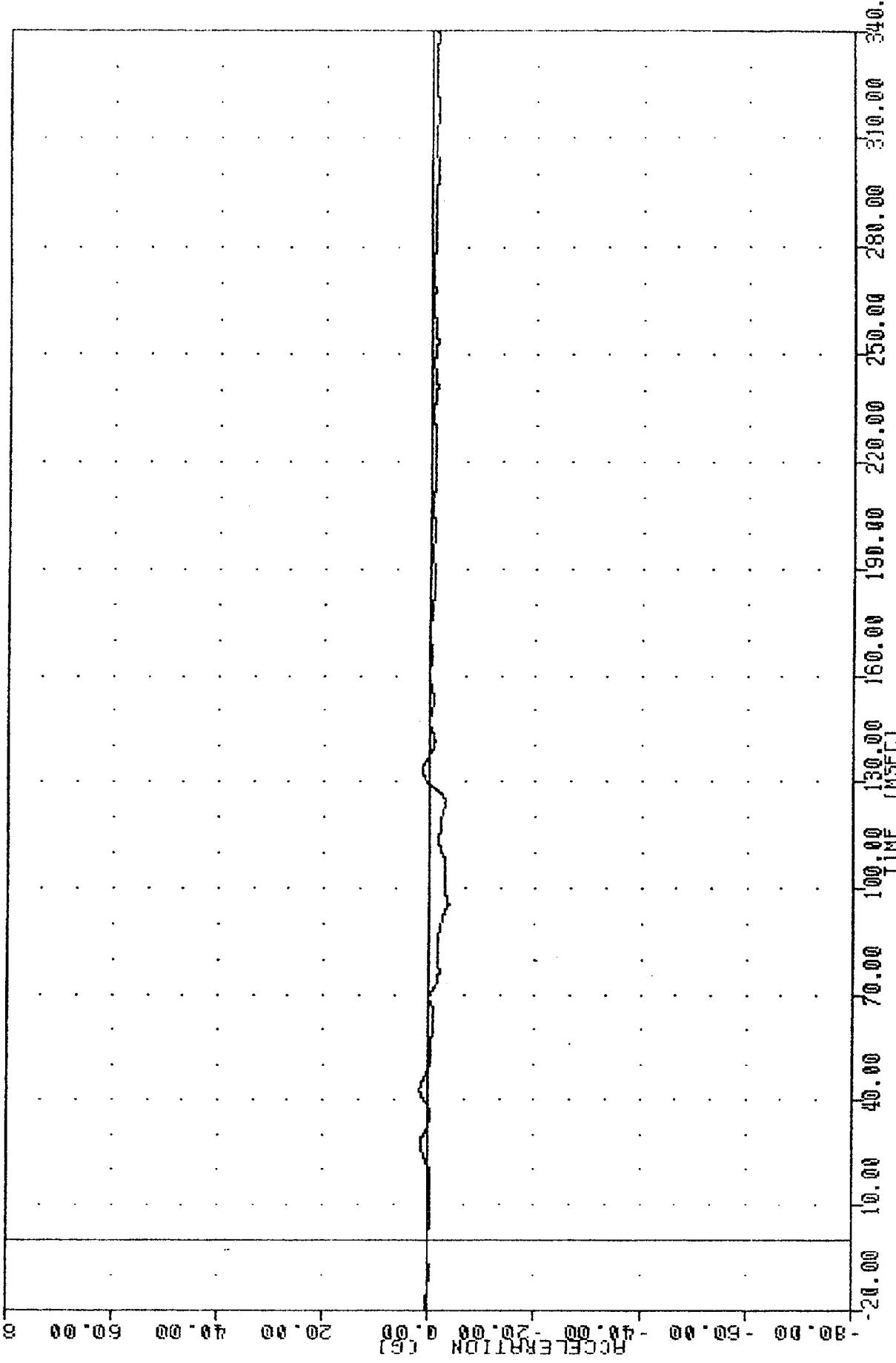
TAC
 , 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 806X6

PLOT DATE 20-FEB-84 13:51:09

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -9.39e 93.00, 0.70 e 200.13

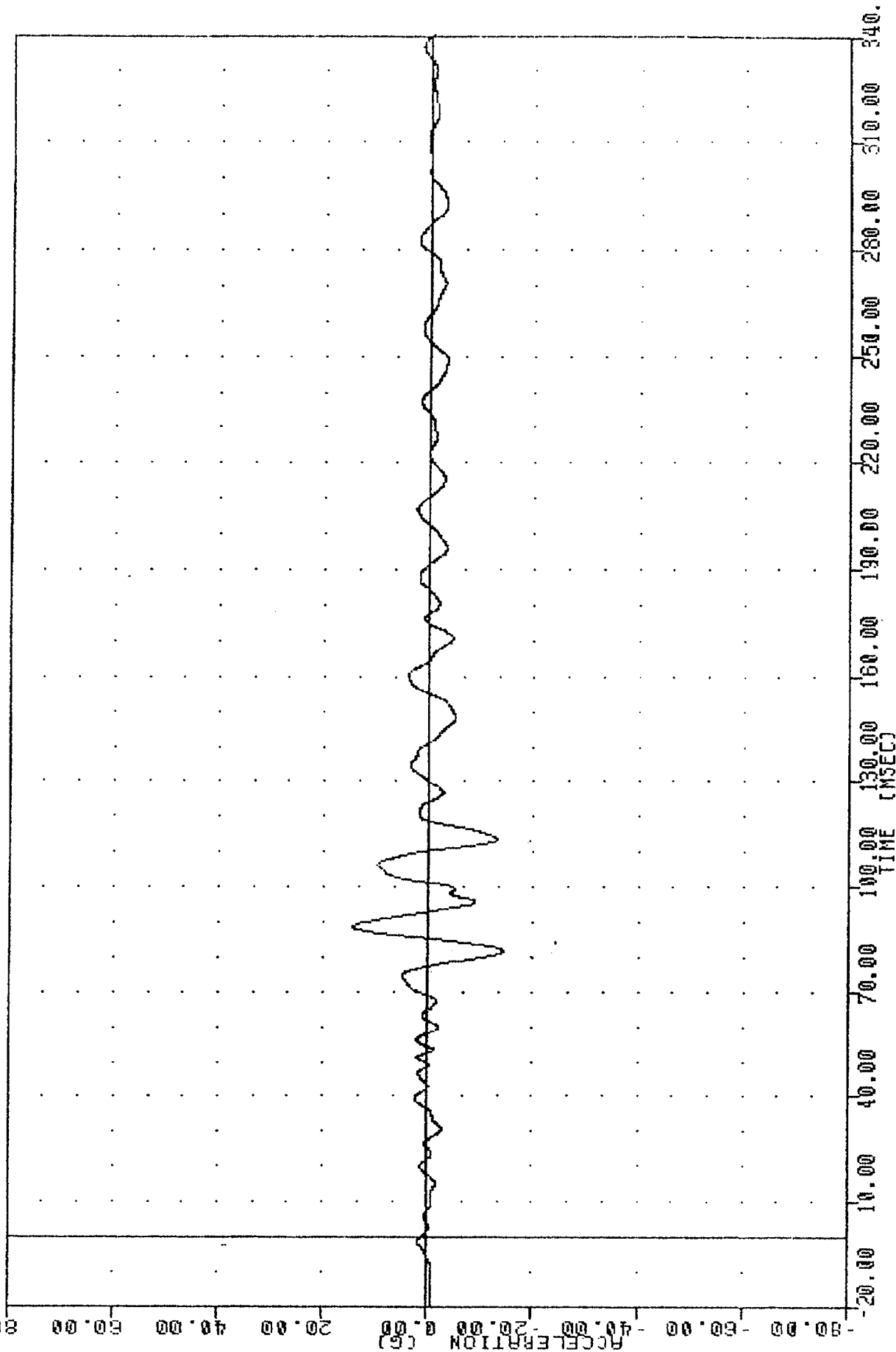


7040210
 SIDE PROTECTION - 20R/40R
 84047000000
 BCGYG
 FILTER = BLPF 100/ 318/ -40
 MIN, MAX VALUES = -3.51e 95.38, 1.63 e 42.75
 20 FEB 64 13:51:09



MOVING DEFORMABLE BARRIER INTO OMNI
 BARRIER CENTER OF GRAVITY Y AXIS

TRC 840216
 SIDE PROTECTION - 20R/40R
 84047000000
 BCGZG
 FILTER = BLPF 100/ 316/ -10
 MIN, MAX VALUES = -14.19e 81.63, 14.40 e 88.50
 PLOT DATE 20-FEB-84 13:51:09



B-103

MOVING DEFORMABLE BARRIER INTO OMNI
 BARRIER CENTER OF GRAVITY Z AXIS

TRC 840216 PLOT DATE 20-FEB-84 13:53:32

SIDE PROTECTION - 20R/40R

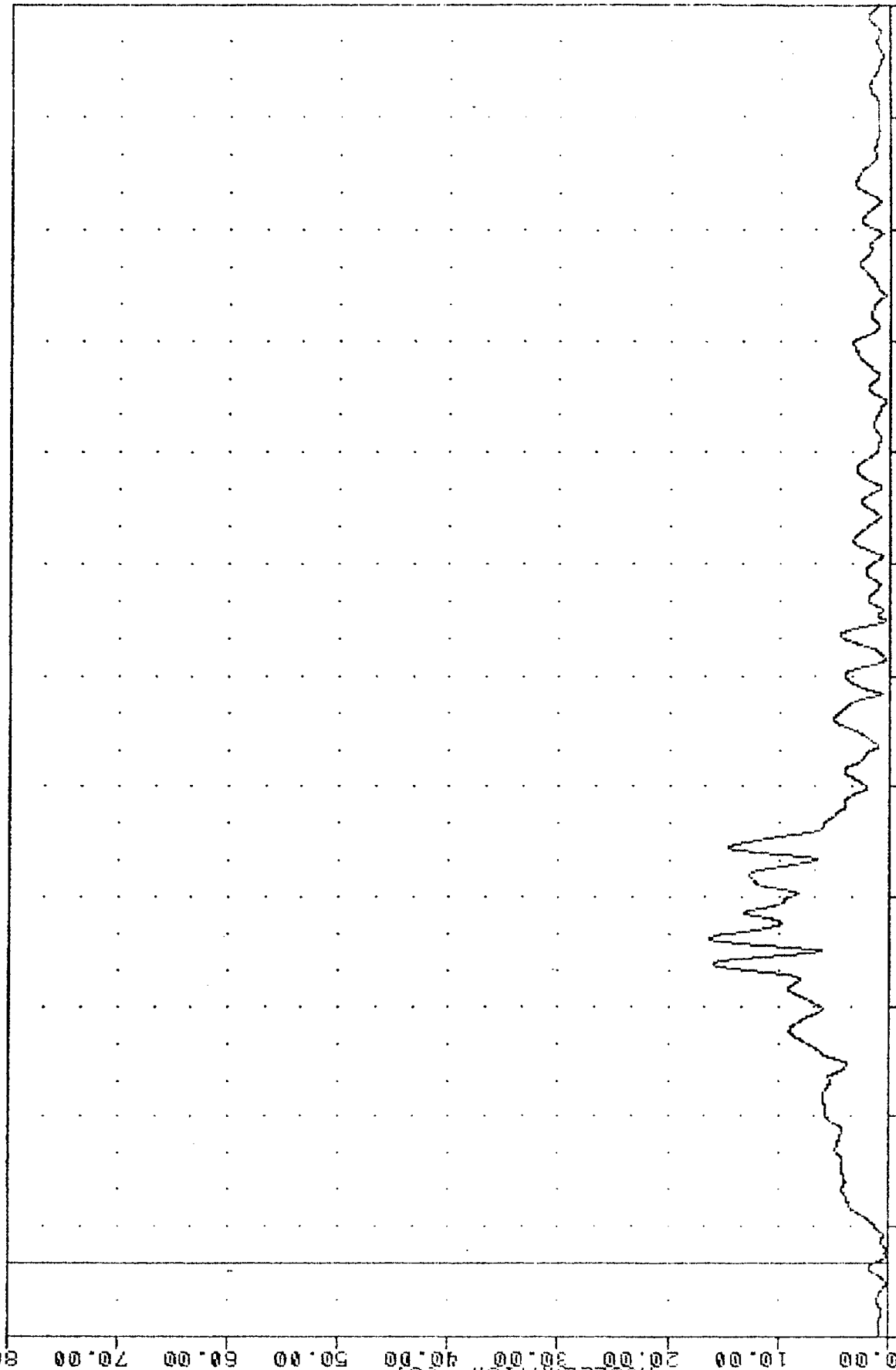
84047000000

BCGRG

FILTER = 8LPF 100/ 316/ -40

MIN. MAX VALUES = 0.16 1.63, 16.31 88.63

ACCELERATION (G)



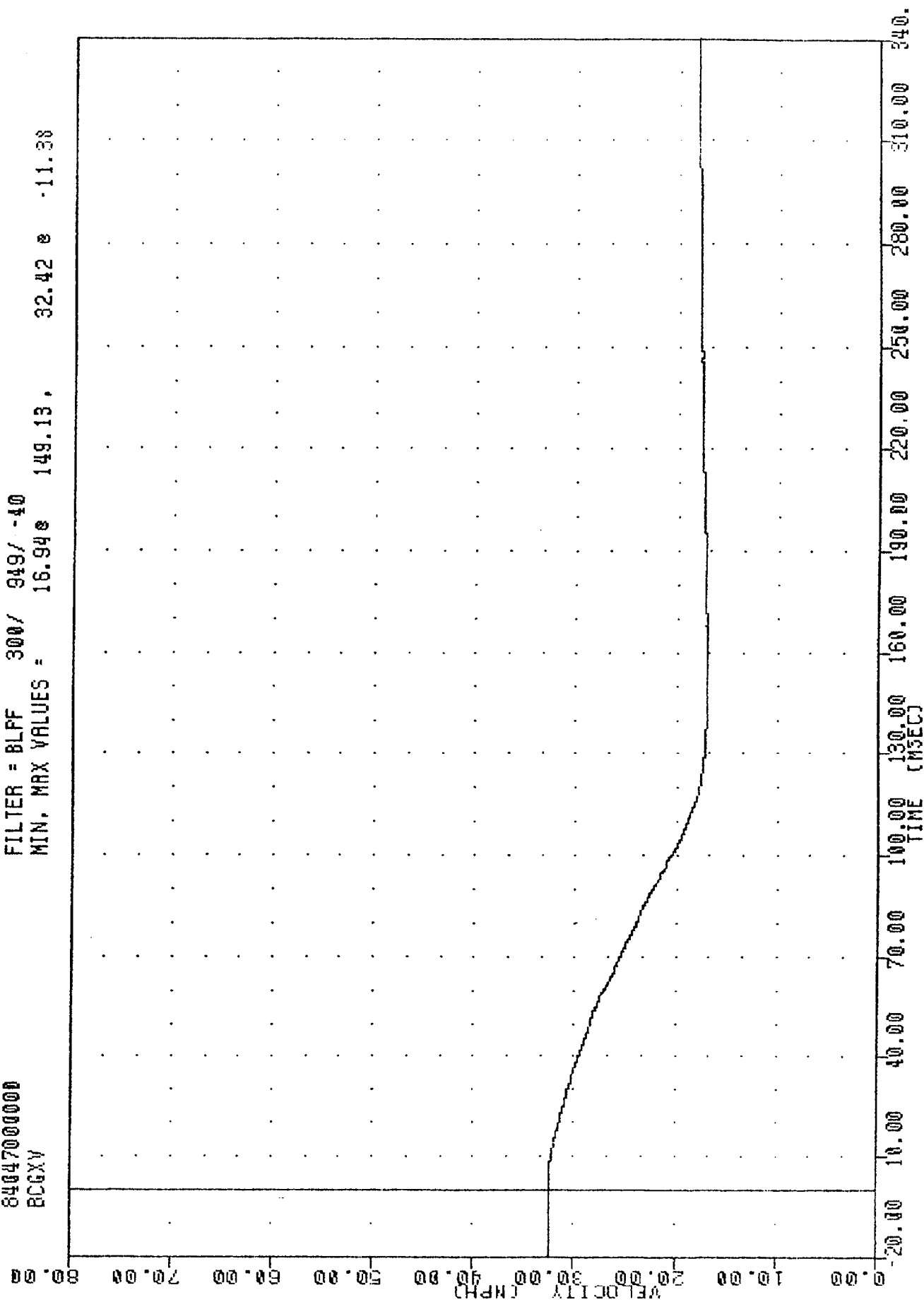
B-104

MOVING DEFORMABLE BARRIER INTO OMNI
BARRIER CG RESULTANT

[REDACTED] [REDACTED] [REDACTED]
 [REDACTED], 040210
 [REDACTED]
 [REDACTED] SIDE PROTECTION - 2DR/4DR
 8404700000
 BCGXV

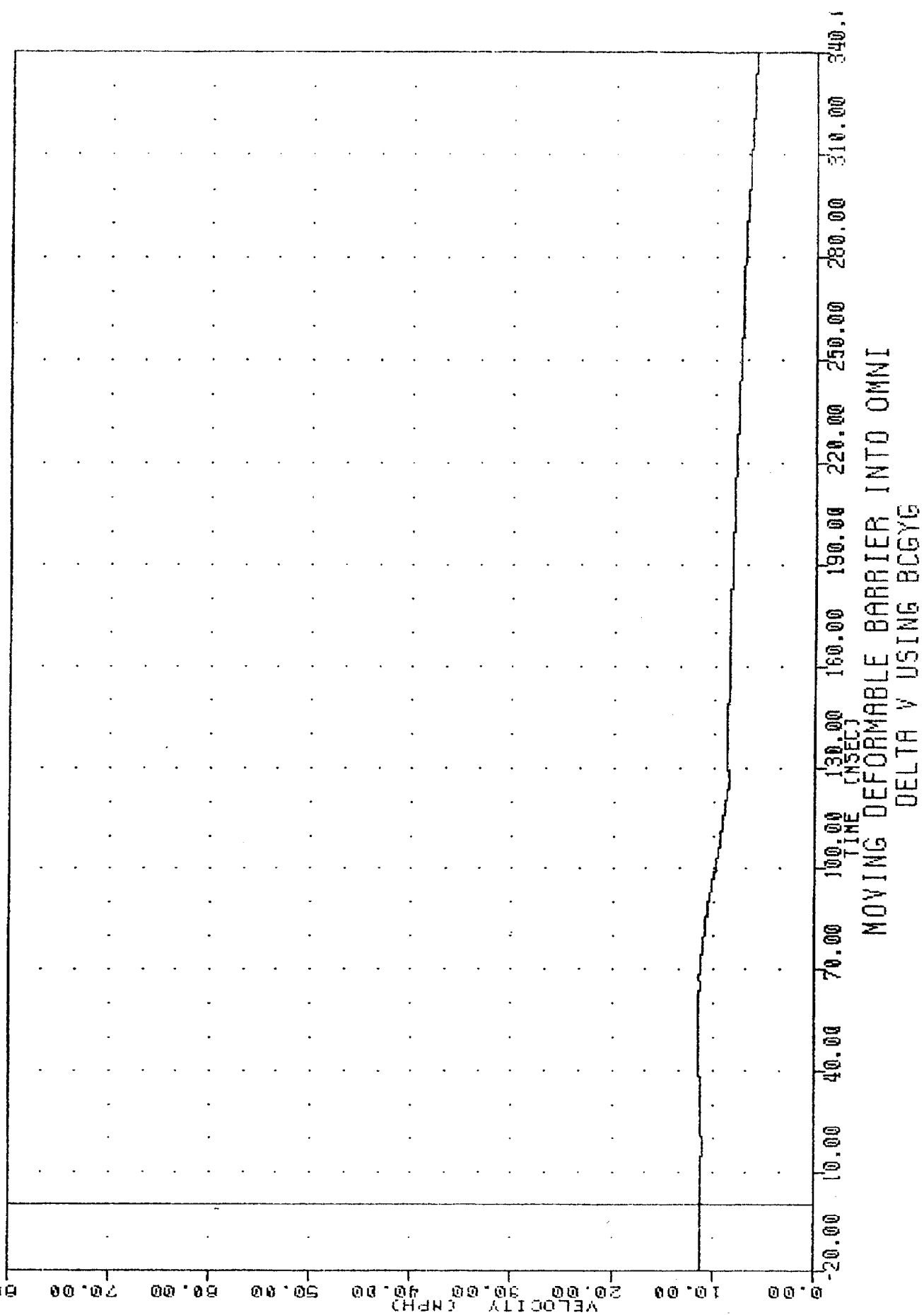
[REDACTED] DATE [REDACTED]
 [REDACTED] 20-FEB-84 [REDACTED]
 [REDACTED] 13:52:41 [REDACTED]

FILTER = BLPF	300/	949/	-40
MIN. MAX VALUES =	16.94	149.13,	32.42
			0 -11.38



MOVING DEFORMABLE BARRIER INTO OMNI DELTA V USING BCGXG

IHC 840216 13:52:41
 SIDE PROTECTION - 2DR/4DR
 84047000000
 BCGYV
 FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 5.88 340.00 11.52 50.13

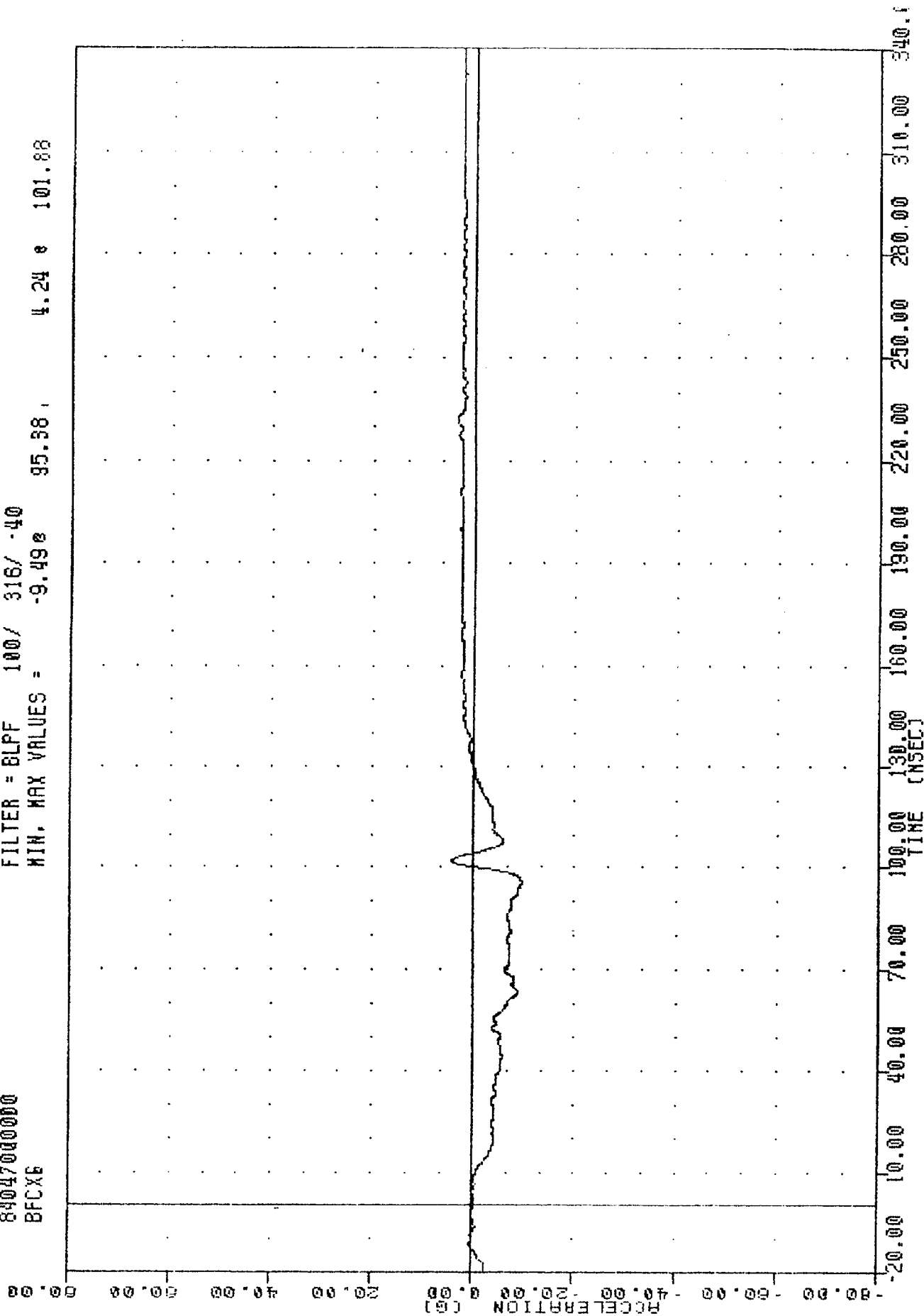


THC
SIDE PROTECTION - 20R/4DR
84047000000
BFCXE

PLUT DATE 20-FEB-84 13:51:09

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -9.498 95.88

4.24 e 101.88



MOVING DEFORMABLE BARRIER INTO OMNI
BARRIER FRONT CROSSMEMBER ACCELERATION X AXIS

THC 840216 PLOT DATE 20-FEB-84 13:52:41

SIDE PROTECTION - 2DR/4DR

84047000000

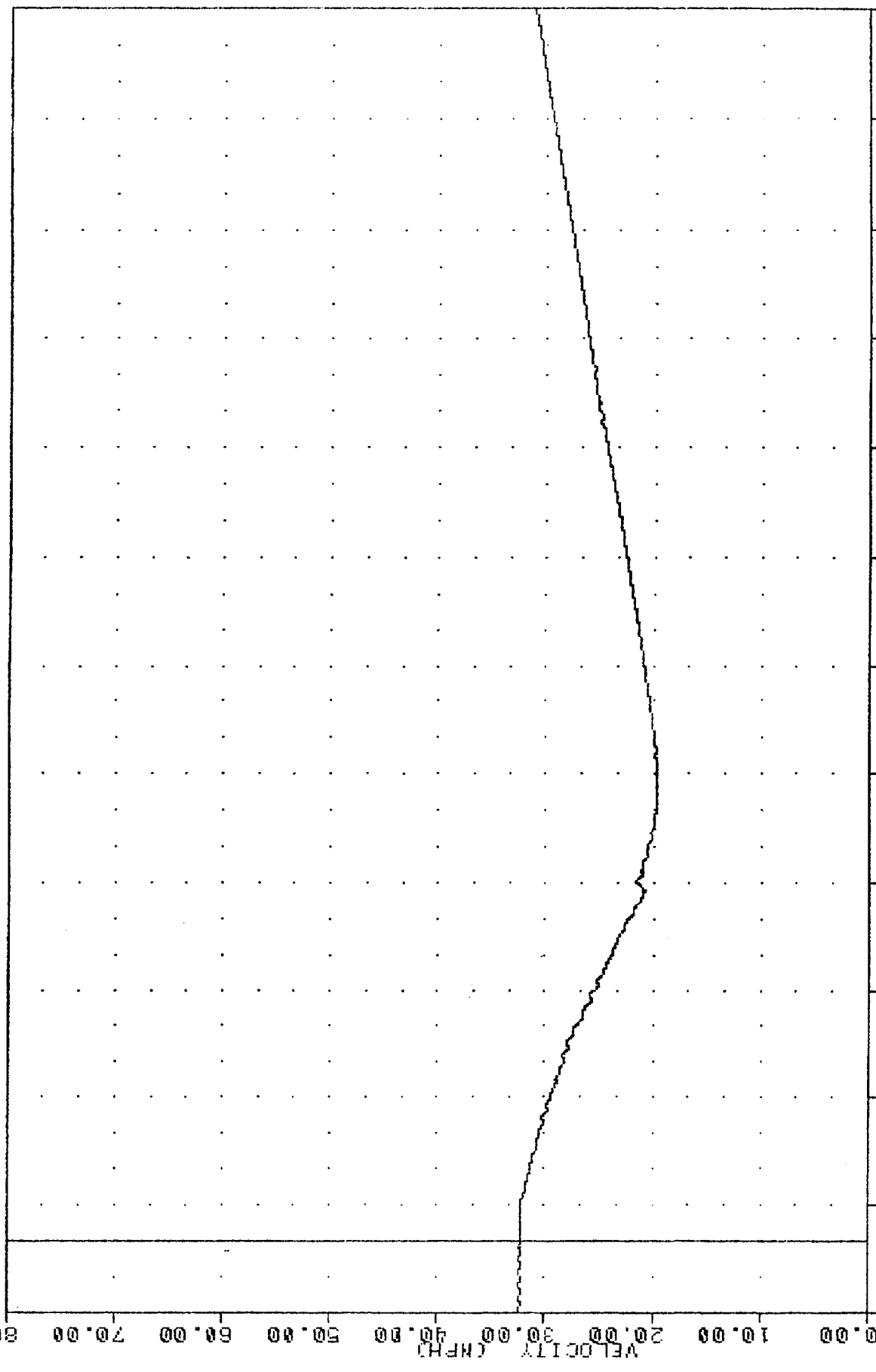
BFCXW

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 19.61 127.88 , 32.45 8 -12.75

80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00

B-108



MOVING DEFORMABLE BARRIER INTO OMNI
DELTA V USING BFCXG

PLUT DATE 20-FEB-84 13:51:09

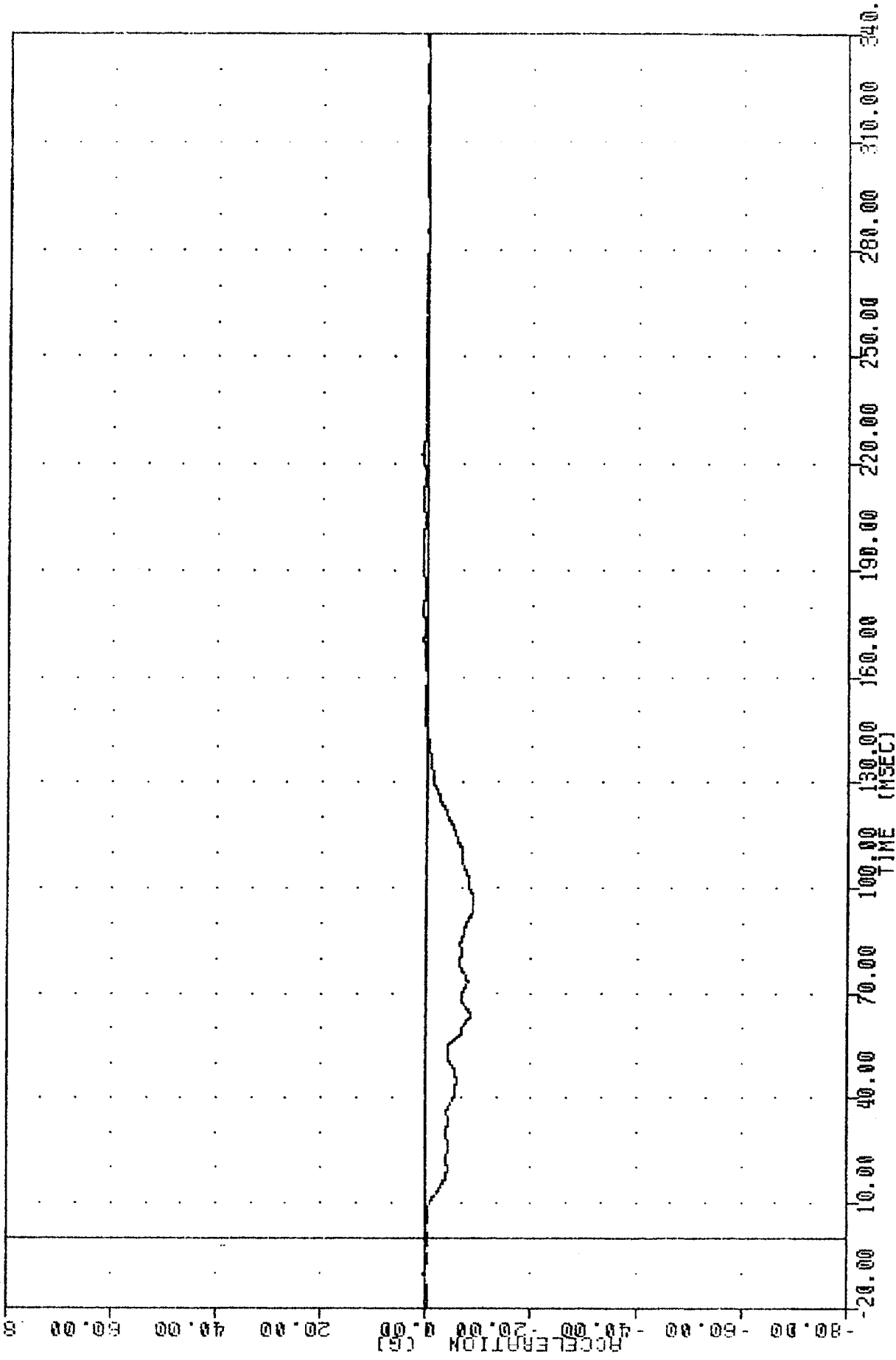
IRU
SIDE PROTECTION - 2DR/40R

84047000000

BRCXG

FILTER = BLPF 100/ 316/ -40

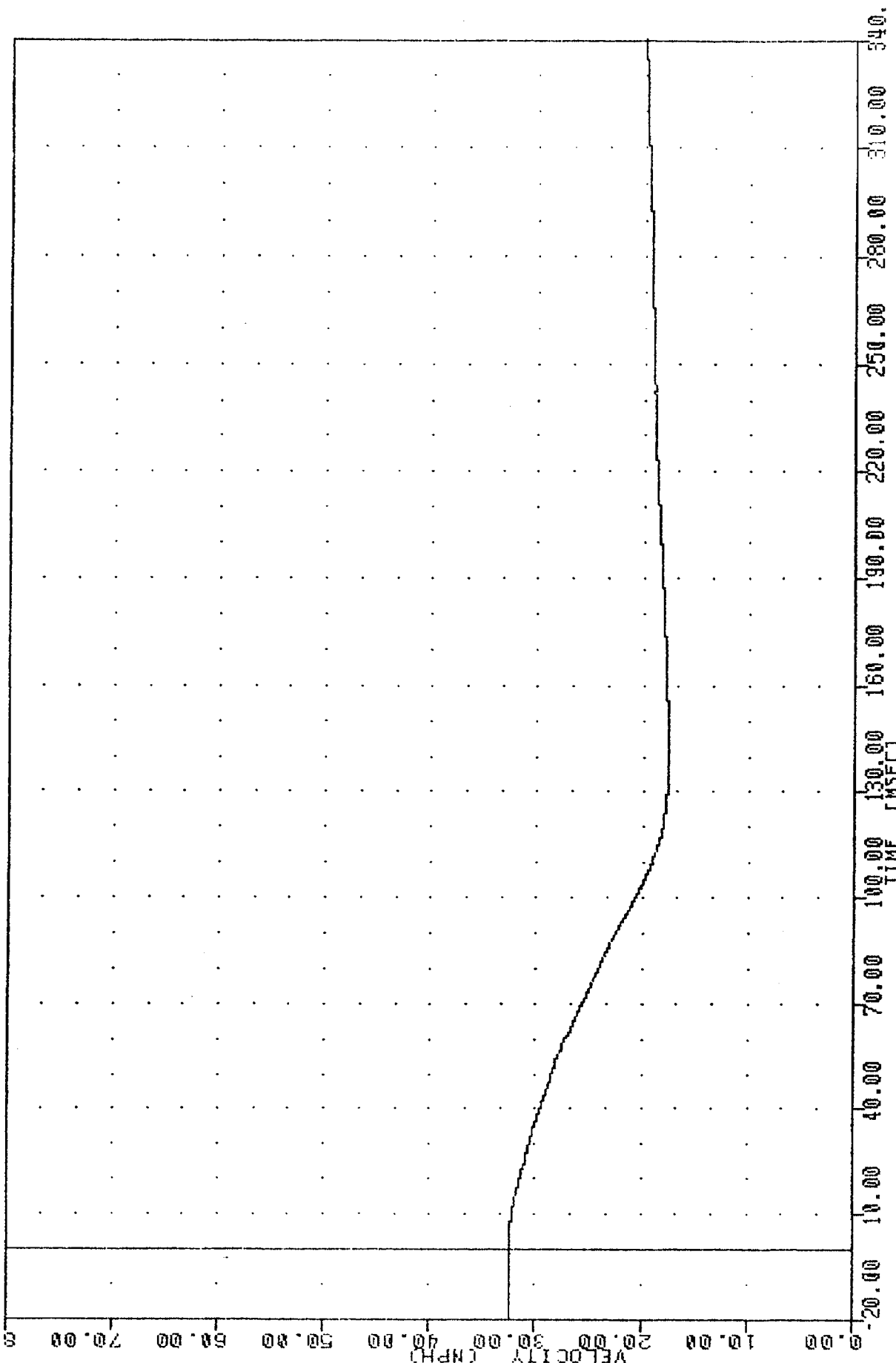
MIN, MAX VALUES = -8.86 96.88, 1.17 222.63



B-109

MOVING DEFORMABLE BARRIER INTO OMNI
BARRIER REAR CROSSMEMBER ACCELERATION X AXIS

INC 7.040216
 SIDE PROTECTION - 20R/40R
 84047000000
 BRCXY
 FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = 17.52 139.75, 32.42 340.00
 20-FEB-84 13:52:41

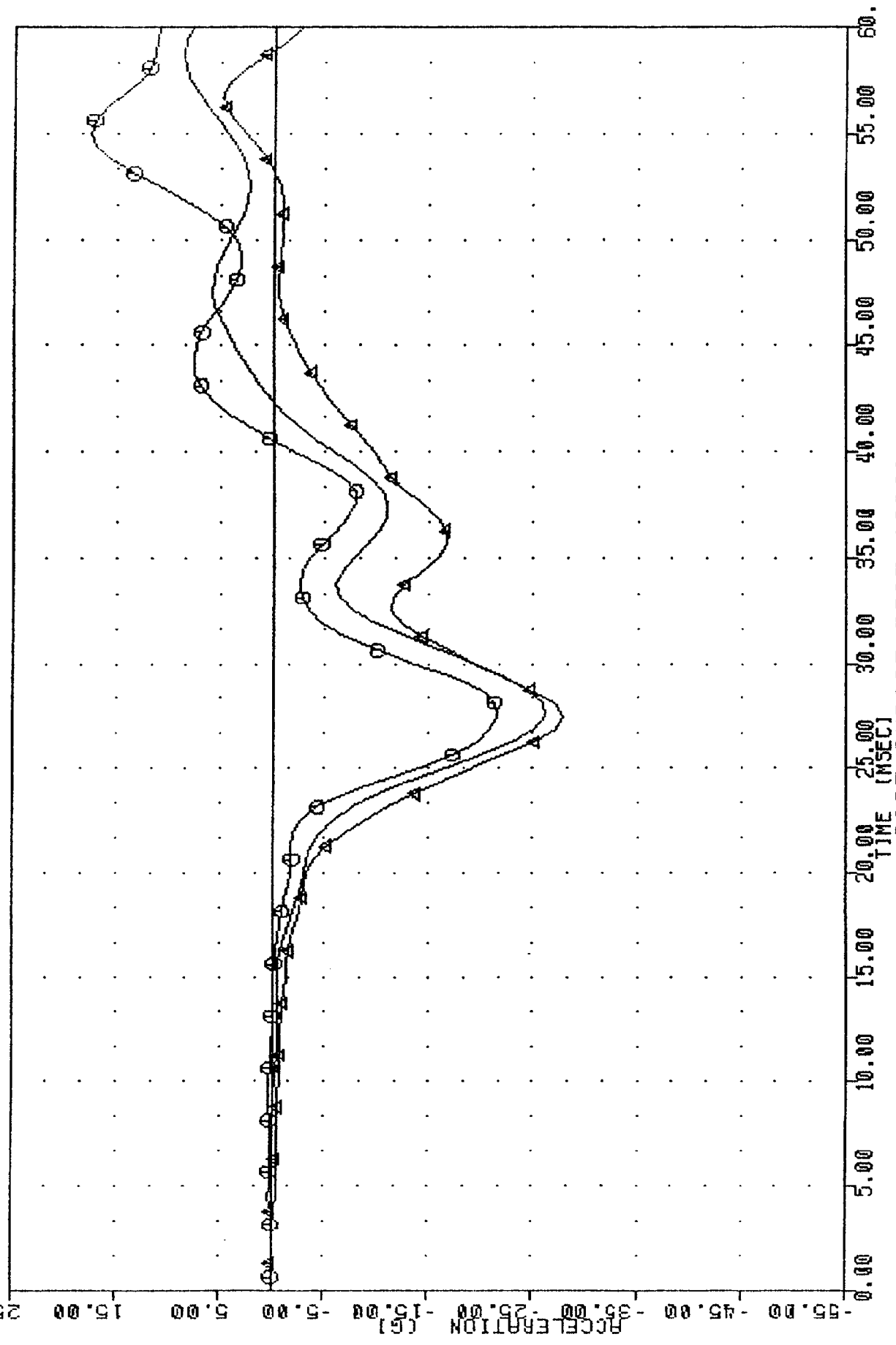


B-110

MOVING DEFORMABLE BARRIER INTO OMNI
 DELTA V USING BRCX6

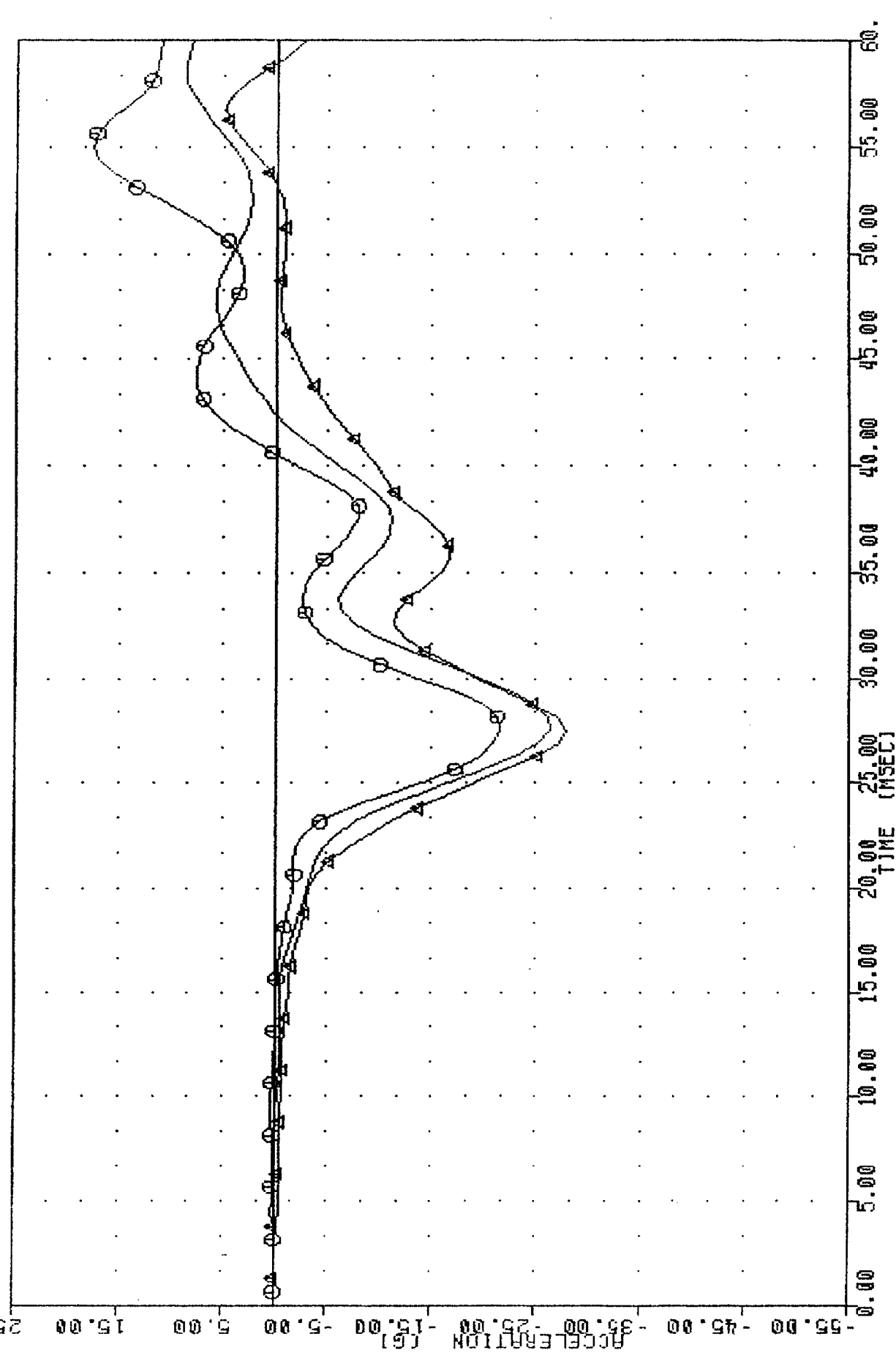
APPENDIX C
DUMMY CERTIFICATION

VRTC 5HL91, 3100693 SIU THORAX 6 BODY 318 CAL 93 84044 PLOT DATE 14-FEB-84 08:39:51
 TO1Y61 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -26.15 8.618
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -21.58 17.548
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -27.91 4.788



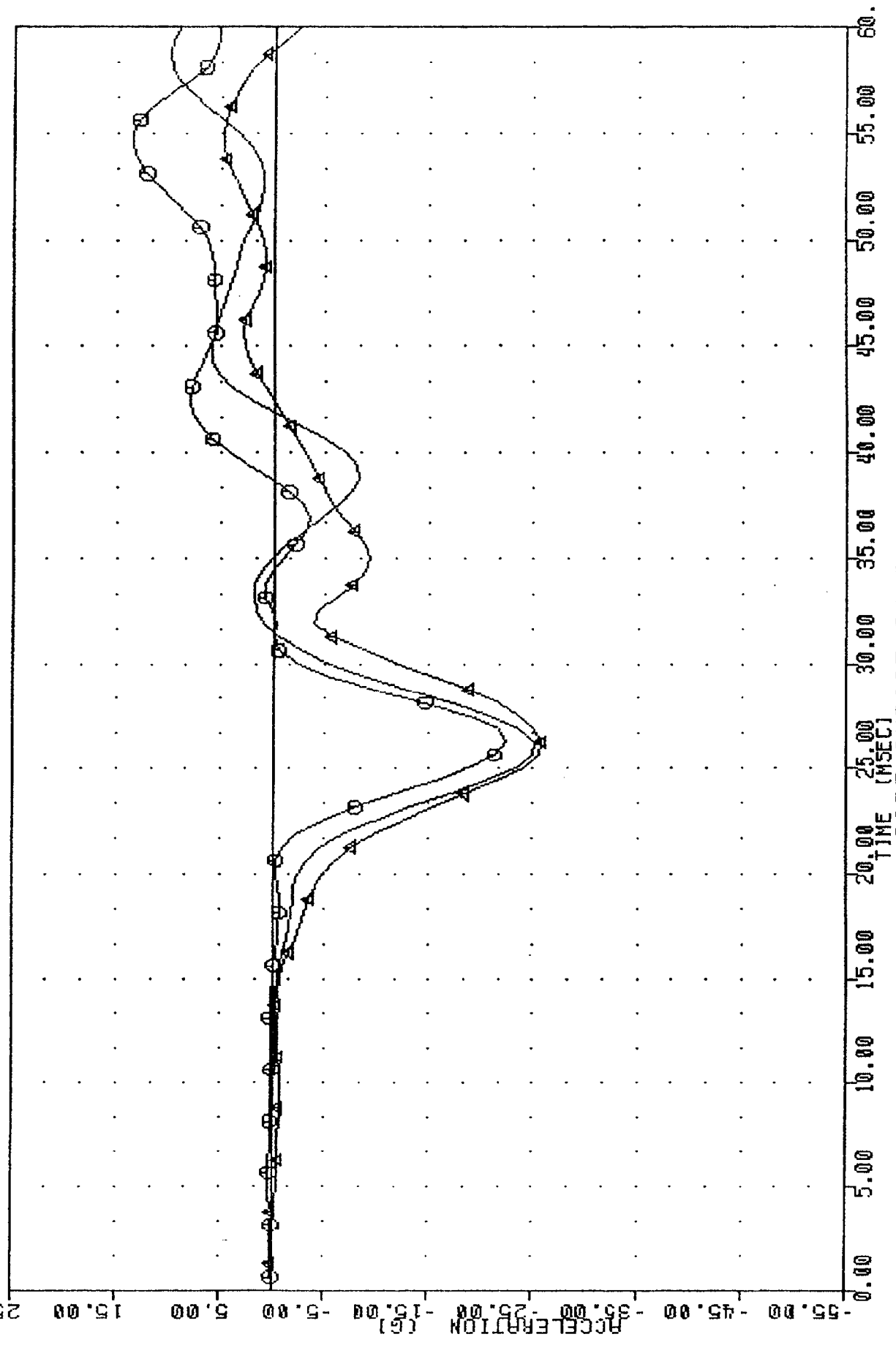
SIDE IMPACT TEST (006)
 UPPER SPINE ACCELERATION Y AXIS -1

VRTC SHL91, S100693 SID THORAX 8 BODY 318 CAL 93
 TO1YGH FILTER = HSRI 136/ 189/ -50 MIN. MAX =
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN. MAX =
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN. MAX =
 84044 14-FEB-84 09:11:29
 -26.34 8 8.67 8 56.13
 -21.58 8 17.54 8 54.38
 -27.91 8 4.78 8 56.25



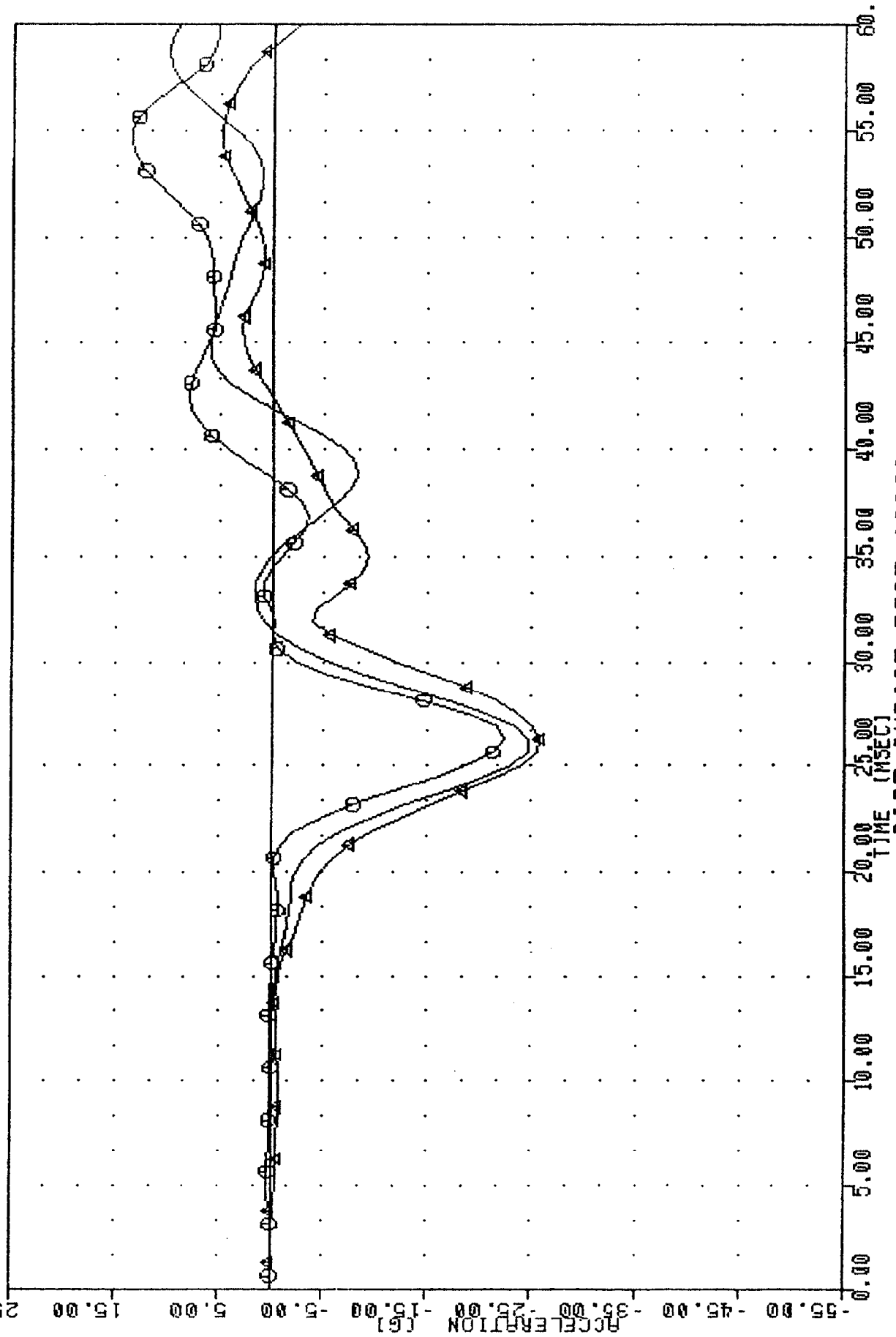
SIDE IMPACT TEST (006)
 UPPER SPINE ACCELERATION Y AXIS -A

VRIC SHL91 • S100B93 SID THORAX B BODY 318 CHL 93 84044 PLOT DATE 14-FEB-84 08:47:59
 T12Y61 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -25.10 9.94 58.13
 MN-2SD 136/ 189/ -50 MIN, MAX = -22.37 13.54 53.25
 MN-2SD 136/ 189/ -50 MIN, MAX = -25.84 4.85 56.75



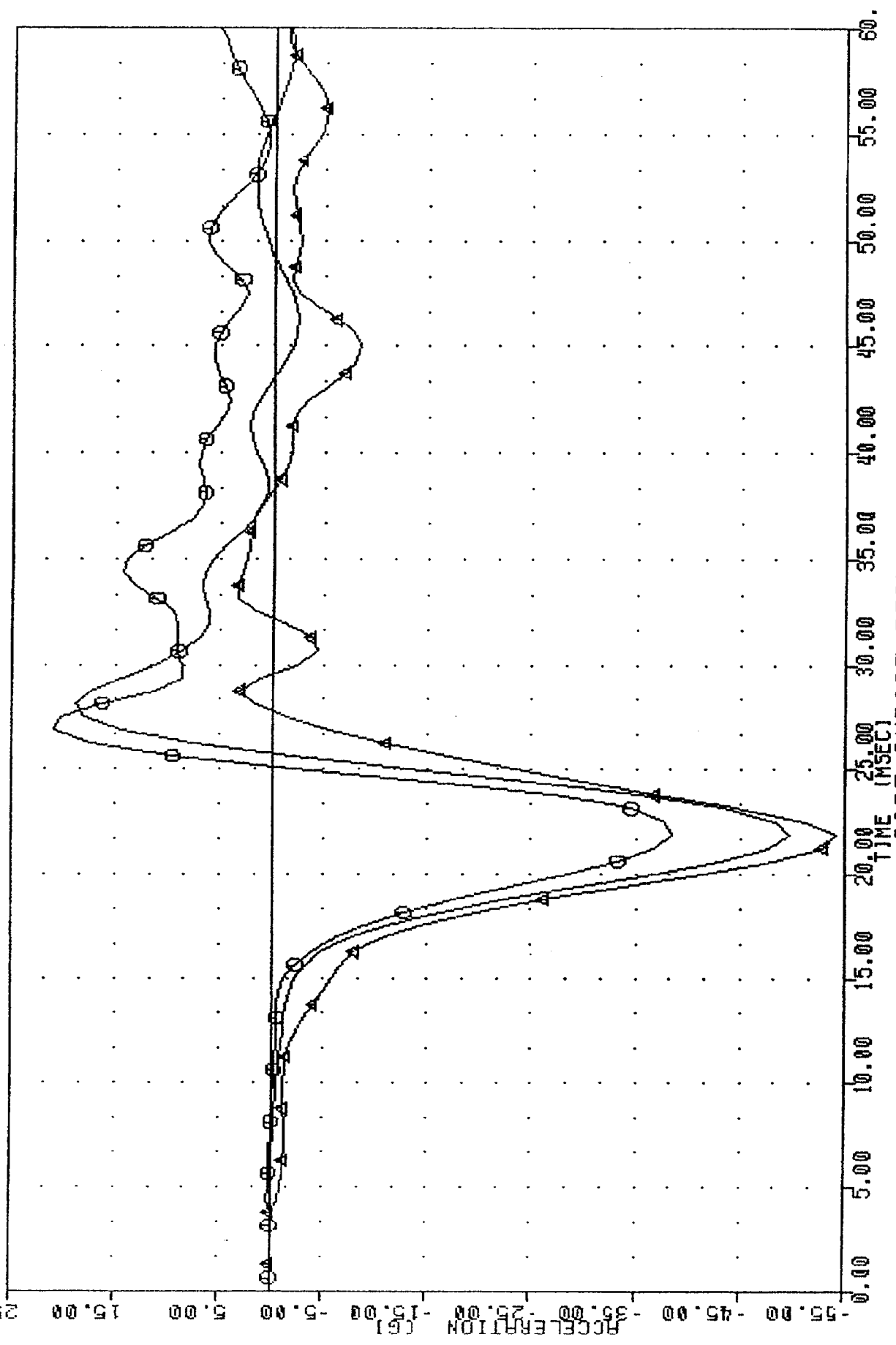
SIDE IMPACT TEST (006)
 LOWER SPINE ACCELERATION Y AXIS -1

VRIC 3ML91, S100B93 SID THORAX B BODY 318 CHL 93 81044 PLOT DATE 14-FEB-84 08:49:41
 T12YGA FILTER = HSRI 136/ 189/ -50 MIN, MAX = -24.79 58.13
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -22.37 53.75
 MN-2SD 4 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -25.84 53.75



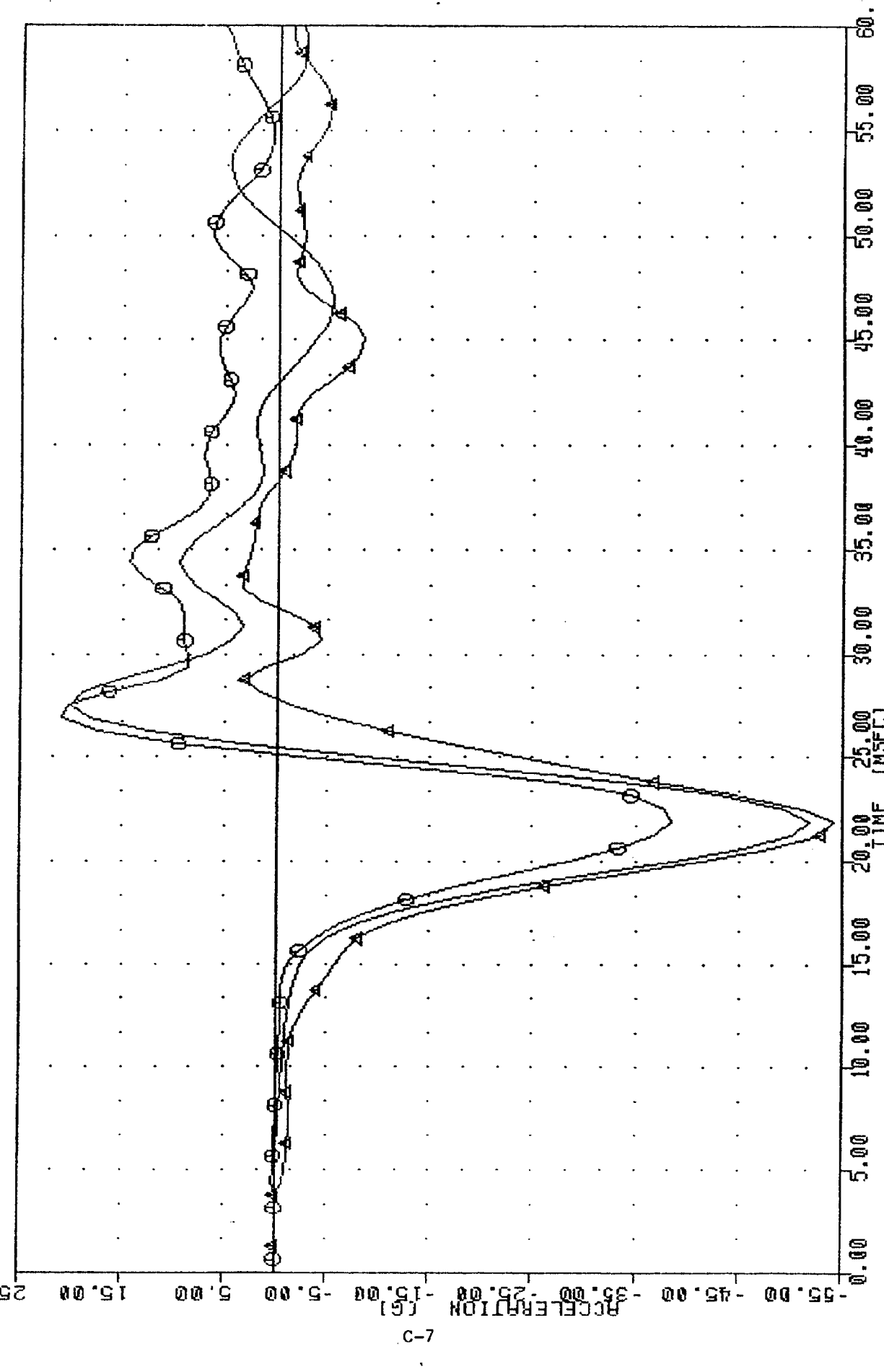
SIDE IMPACT TEST (006)
 LOWER SPINE ACCELERATION Y AXIS -A

VRT C-3HL91, S100B93 S10 THORAX 6 BODY 318 CHL 93 84044 PLOT DATE 14-FEB-84 08:53:40
 LURYGI FILTER: HSRI 136/ 189/ -50 MIN. MAX = -49.81 21.25 18.70 27.50
 MN-250 FILTER: HSRI 136/ 189/ -50 MIN. MAX = -38.44 21.25 20.92 28.25
 MN-250 FILTER: HSRI 136/ 189/ -50 MIN. MAX = -54.08 21.25 3.31 33.13



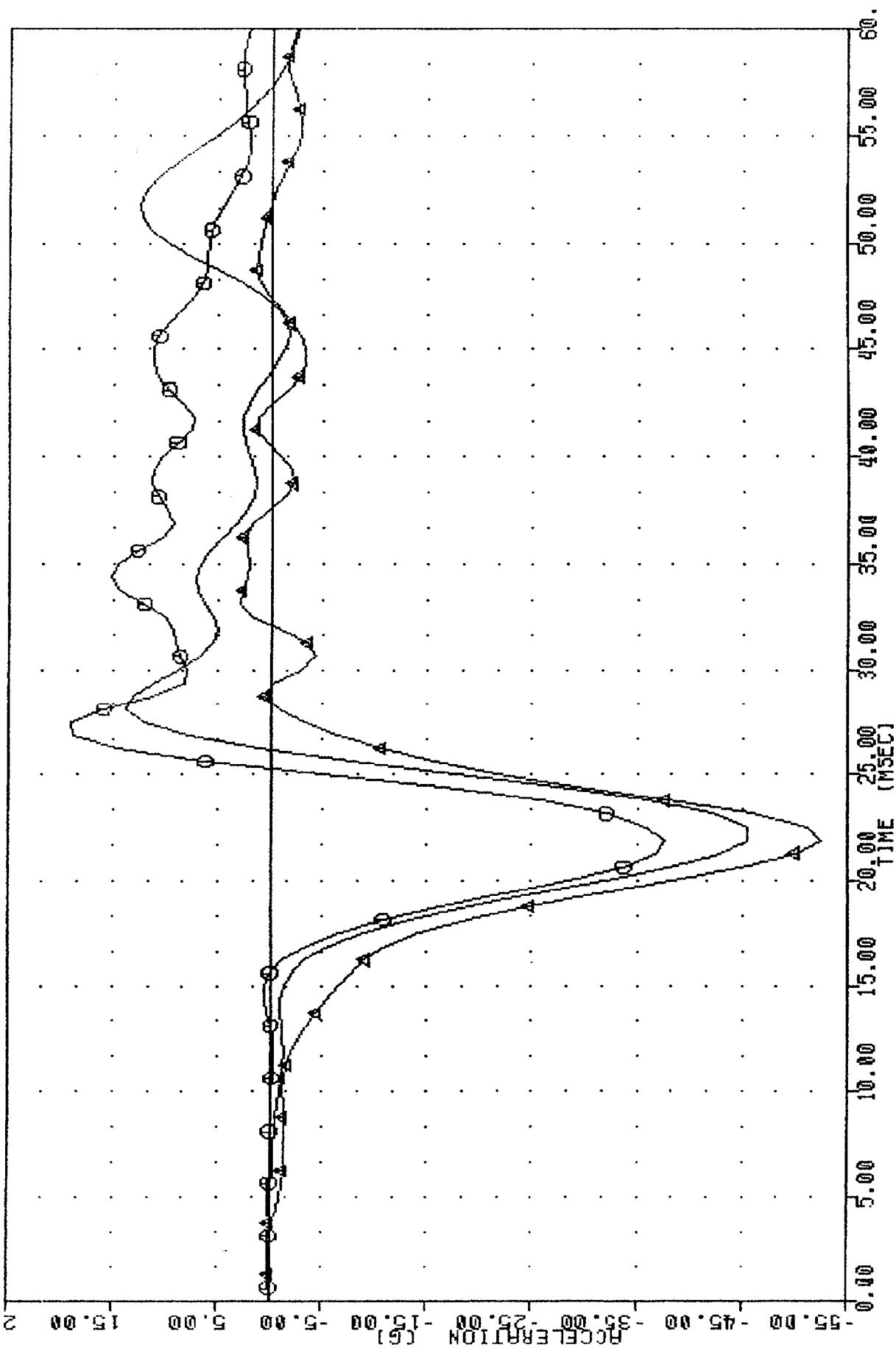
SIDE IMPACT TEST (006)
 LEFT UPPER RIB ACCELERATION Y AXIS -1

VRTC 30191, 310093, SIO MORAX 8 BOUT 318 CAL 93, 81044, PLUT DATE 14-FEB-84, 08:55:31
 LURYGR FILTER = HSRI 136/ 189/ -50 MIN, MAX = -51.76 20.10 26.87
 MN-250 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -38.44 20.92 26.25
 MN-250 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -54.08 21.25 33.13



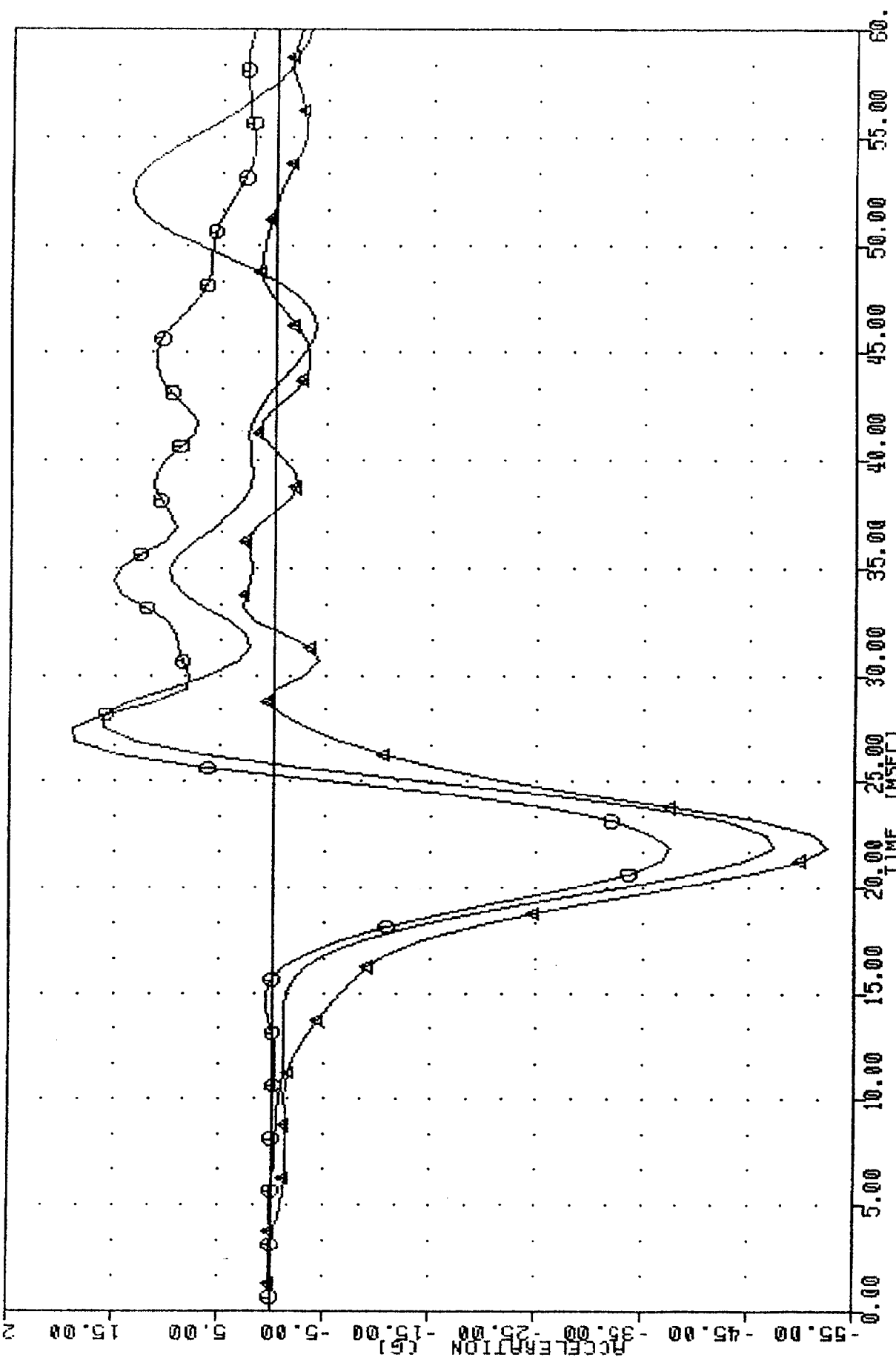
SIDE IMPACT TEST (006)
 LEFT UPPER RIB ACCELERATION Y AXIS - A

VRI 318 91, S10 0033 S10 0033 84044 14-FEB-84 09:17:05
 LLAYG1 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -45.56 21.25 27.50
 MN-250 0 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -37.66 21.25 26.87
 MN-250 A FILTER: HSRI 136/ 189/ -50 MIN, MAX = -52.52 21.25 32.50



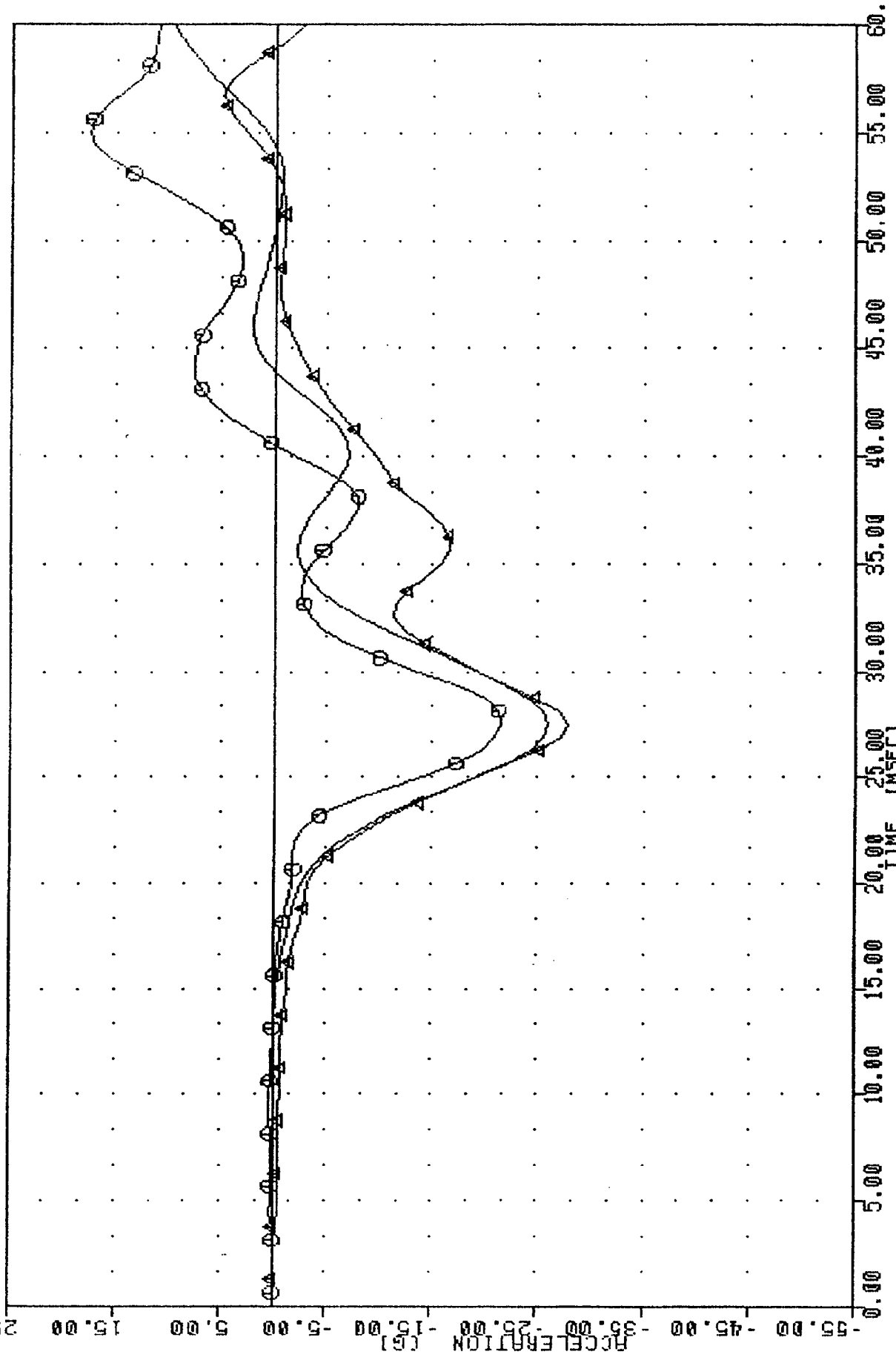
SIDE IMPACT TEST (006)
 LEFT LOWER RIB ACCELERATION Y AXIS -1

VRIC 3ML81, 3100893
 LLRYGA FILTER: HSRI
 MN-2SD 0
 MN-2SD A
 SIO THORAX BODY 318 CHL 93
 136/ 189/ -50 MIN, MAX =
 136/ 189/ -50 MIN, MAX =
 136/ 189/ -50 MIN, MAX =
 PLUT DATE 14-FEB-84 09:20:28
 21.25, 16.10
 21.25, 19.00
 21.25, 2.94
 26.87
 26.87
 32.50



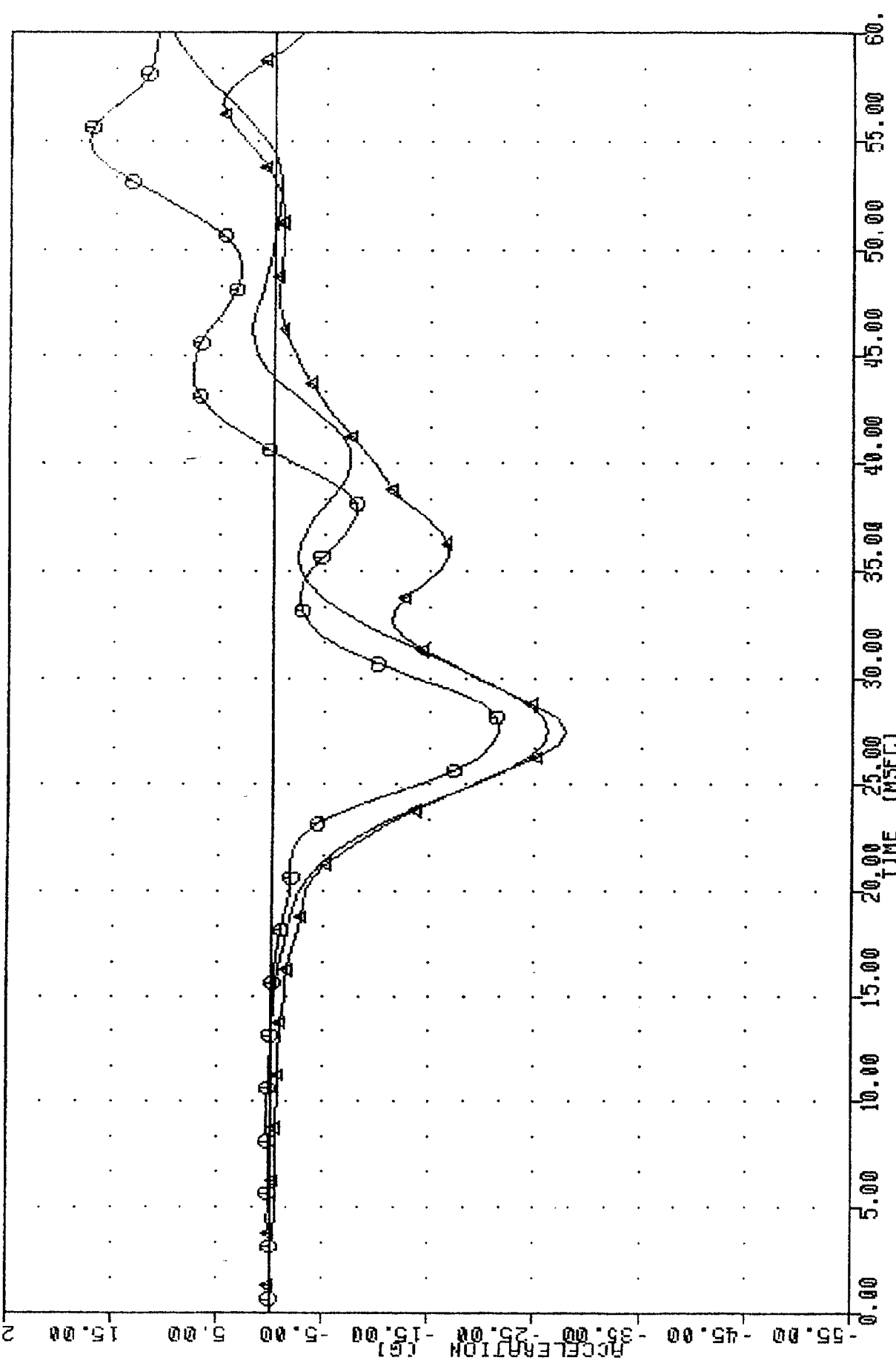
SIDE IMPACT TEST (006)
 LEFT LOWER RIB ACCELERATION Y AXIS -A

VRTC 3HL91, SIUW292, SIO THORAX 002 BODY 83V CAL 32 81044 PLOT DATE 14-FEB-84 08:41:33
 TO1Y61 FILTER = HSRI 136/ 189/ -50 MIN. MAX = -26.03 26.87, 10.35 60.00
 MN-250 Q FILTER = HSRI 136/ 189/ -50 MIN. MAX = -21.58 26.87, 17.54 54.38
 MN-250 A FILTER = HSRI 136/ 189/ -50 MIN. MAX = -27.91 26.87, 4.78 56.25



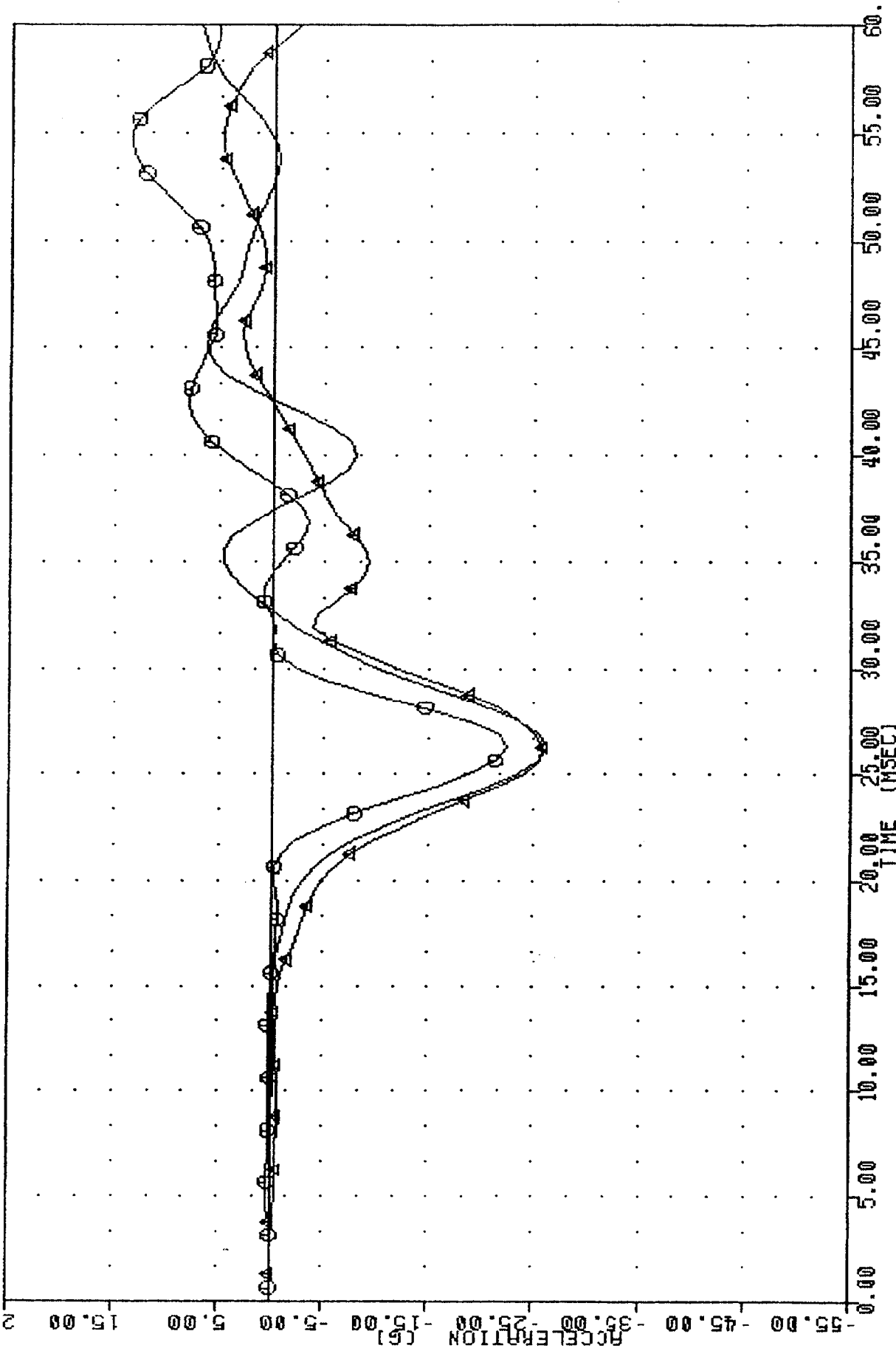
SIDE IMPACT TEST (U02)
 UPPER SPINE ACCELERATION Y AXIS -1

VRIC 31191 3100292 SID 1000002 830 CAL 92 84044 PLUT DATE 14-FEB-84 09:03:43
 TOIYGR FILTER = HSRI 136/ 189/ -50 MIN, MAX = -26.21 26.87 10.37 60.00
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -21.58 26.87 17.54 54.38
 MN-2SD A FILTER = HSRI 136/ 189/ -50 MIN, MAX = -27.91 26.87 4.78 56.25



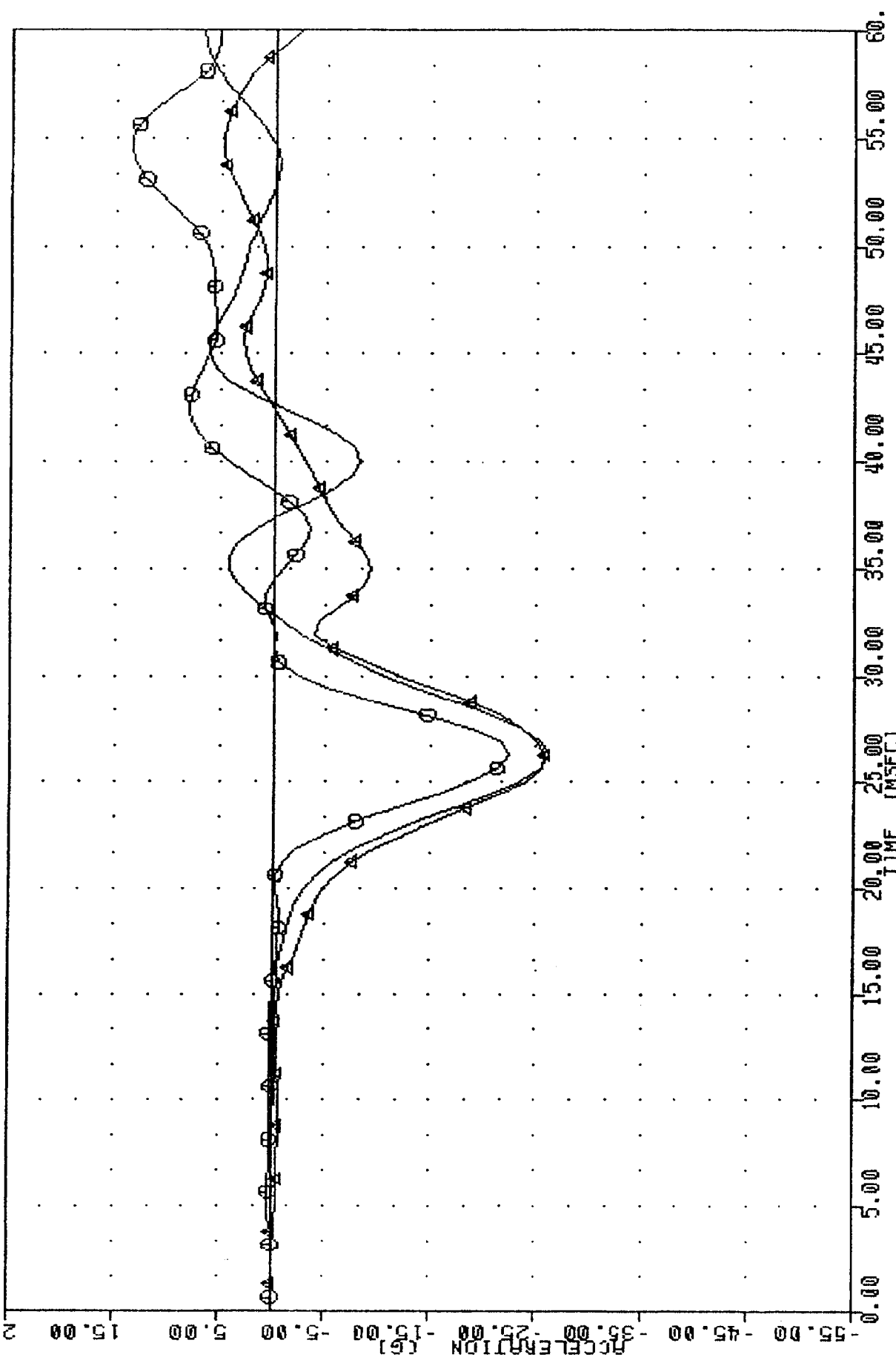
SIDE IMPACT TEST (U02)
 UPPER SPINE ACCELERATION Y AXIS -A

VRIU JNL91, SIUW292, SIU THORAX 002 BODY 83W CAL 92 81044 PLOT DATE 14-FEB-84 08:45:11
 T12YGI FILTER : HSRI 136/ 189/ -50 MIN, MAX = -26.12 25.63 7.07 50.00
 MN-250 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -22.37 25.63 13.54 53.75
 MN-250 A FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.84 25.63 4.85 53.75



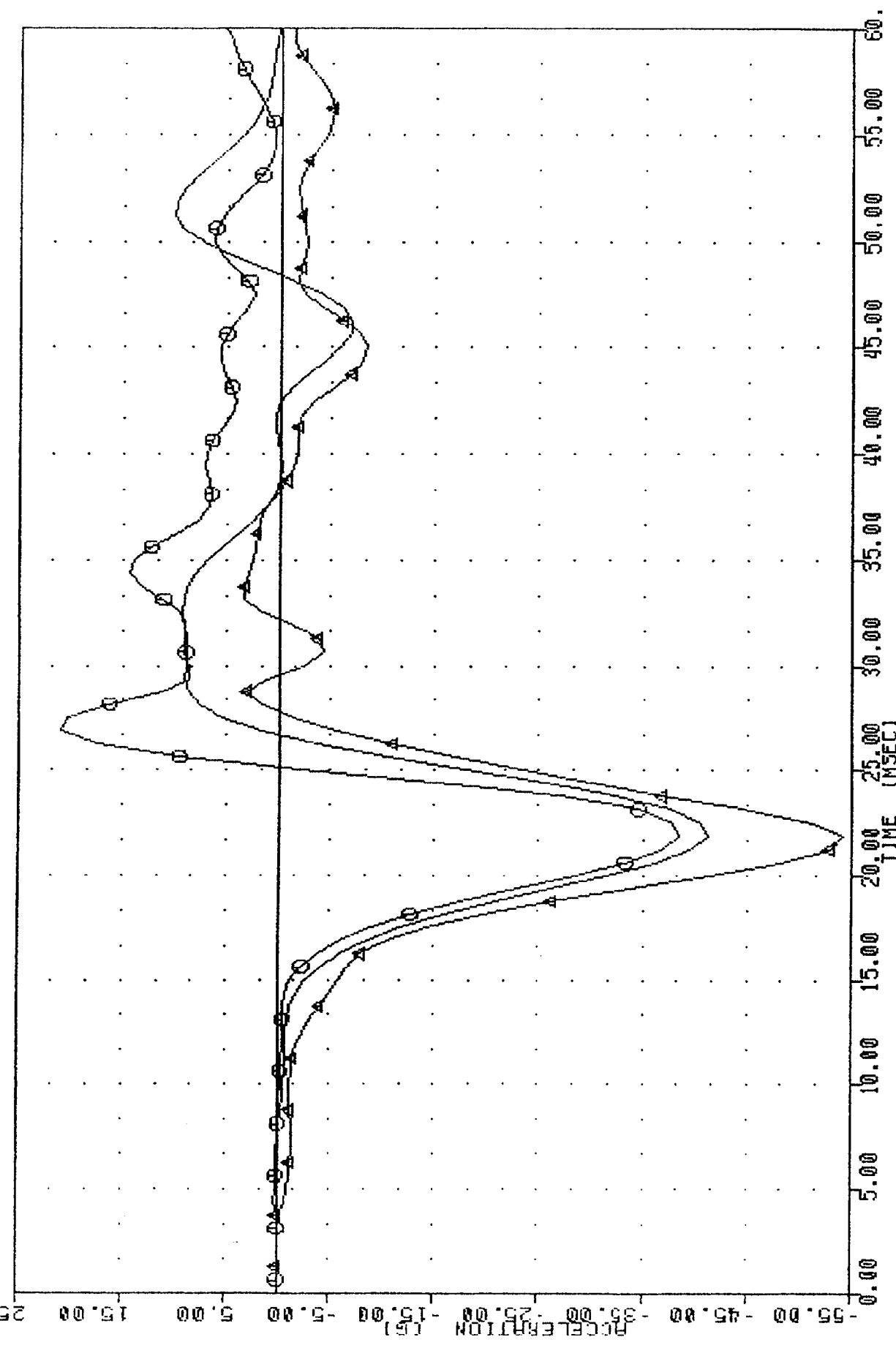
SIDE IMPACT TEST (U02)
 LOWER SPINE ACCELERATION Y AXIS -1

VRTC JNL91, SIUW232, SIU THORAX U02 BODY 850 CAL 92 81044 PLUT DATE 14-FEB-84 08:29:10
 T12YGA FILTER : HSRI 136/ 189/ -50 MIN, MAX = -26.09 6.99 60.00
 MN-2SD 0 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -22.37 13.54 53.75
 MN-2SD 1 FILTER : HSRI 136/ 189/ -50 MIN, MAX = -25.84 4.85 53.75



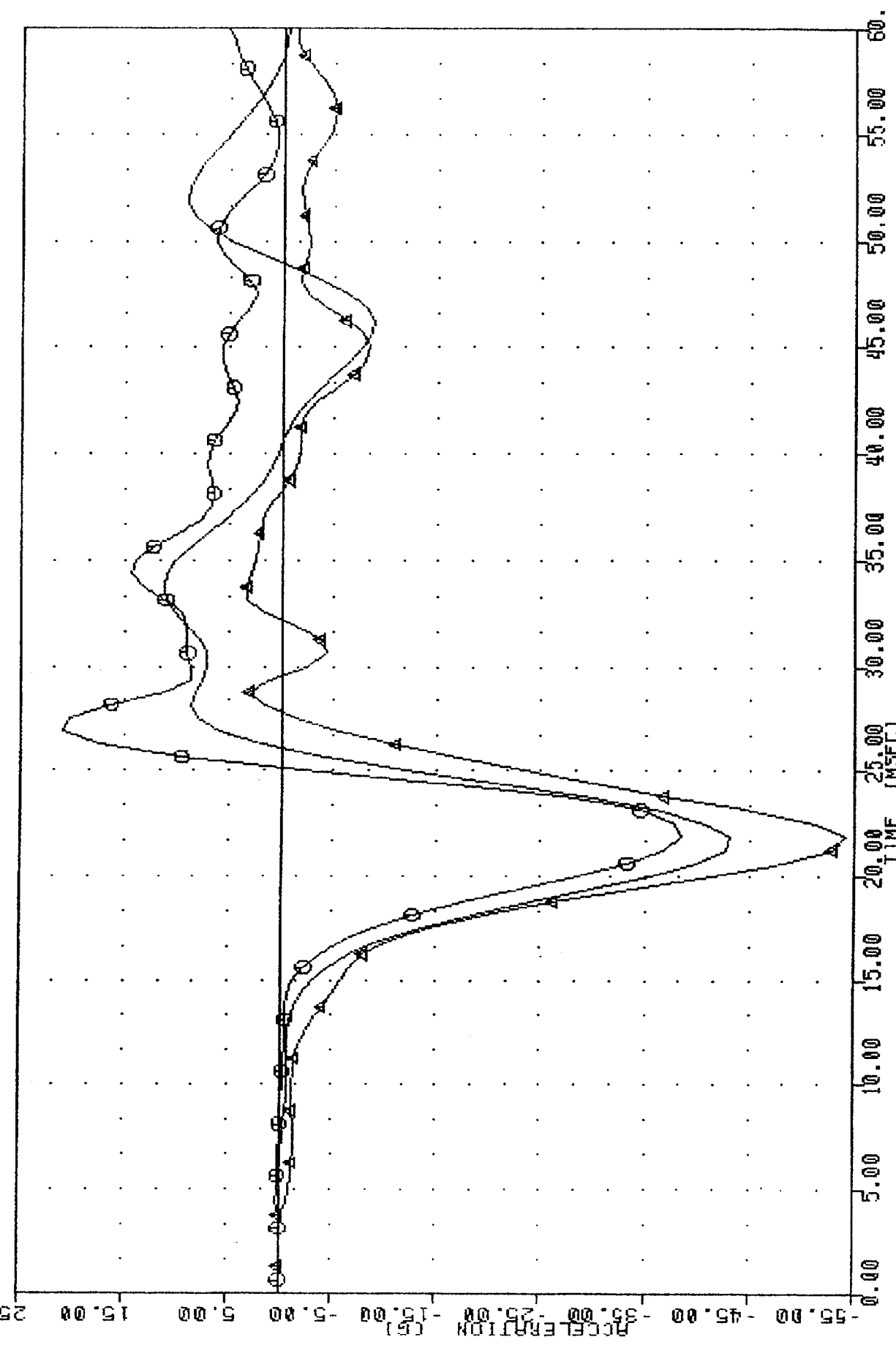
SIDE IMPACT TEST (U02)
 LOWER SPINE ACCELERATION Y AXIS -A

VRTG 00191, S10 MORAX 002 BODY 830 CAL 32 84054 PLOT DATE 14-FEB-84 09:15:29
 LURY61 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -41.24 21.25, 10.02 50.63
 MN-280 W FILTER = HSRI 136/ 189/ -50 MIN, MAX = -38.44 21.25, 20.92 26.25
 MN-280 A FILTER = HSRI 136/ 189/ -50 MIN, MAX = -54.08 21.25, 3.31 33.13



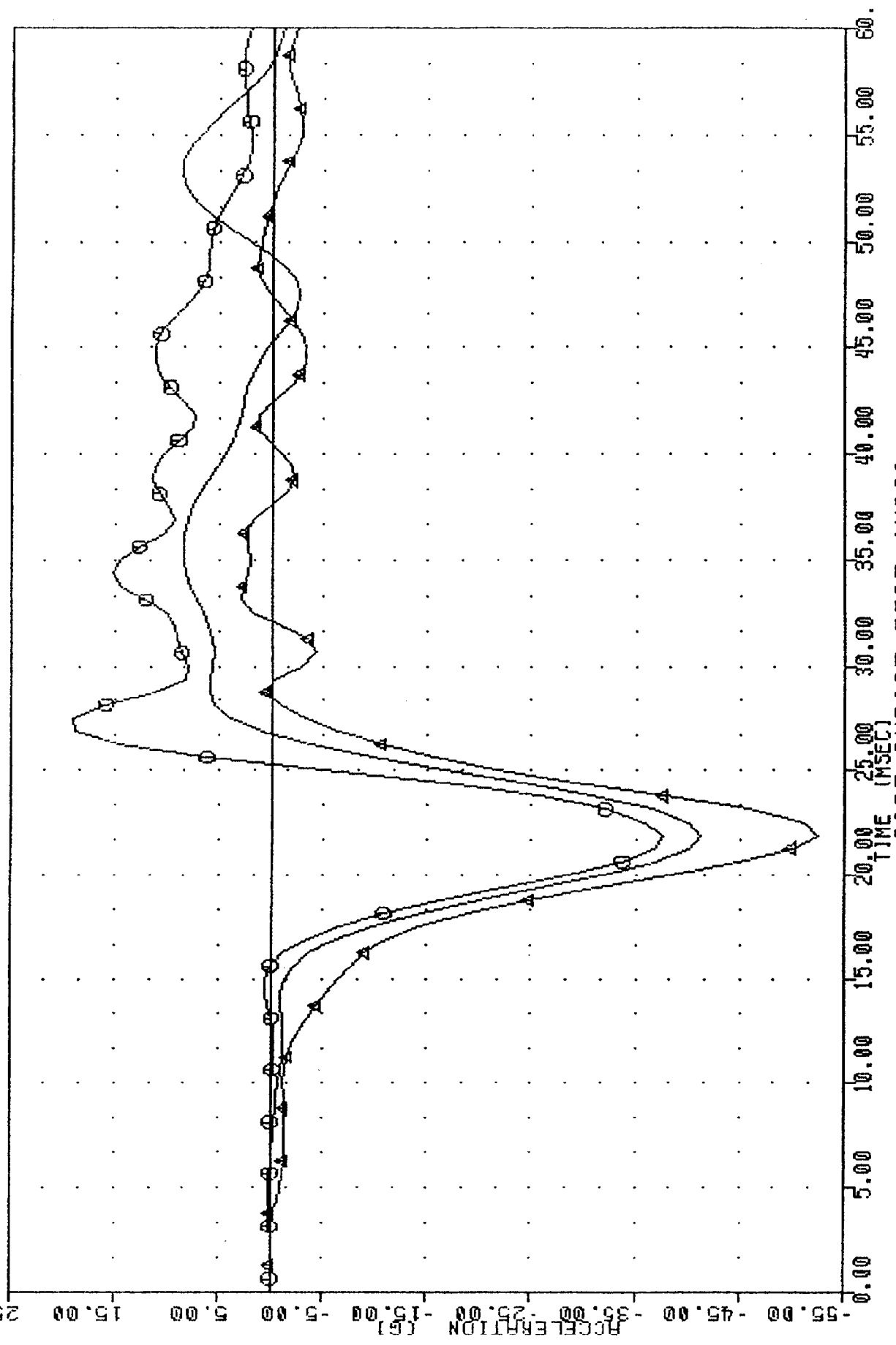
SIDE IMPACT TEST (U02)
 LEFT UPPER RIB ACCELERATION Y AXIS -1

VRTC JHL91, SIU0292, SIU THORAX U02, BUDY 830 CAL 92, 84044, PLUT DATE 14-FEB-84, 09:17:52
 LURYGA FILTER: HSRI 136/ 189/ -50 MIN, MAX = -43.20 8 21.25, 11.24 8 33.13
 MN-2SD 0 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -38.44 8 21.25, 20.92 8 26.25
 MN-2SD A FILTER: HSRI 136/ 189/ -50 MIN, MAX = -54.08 8 21.25, 3.91 8 33.13



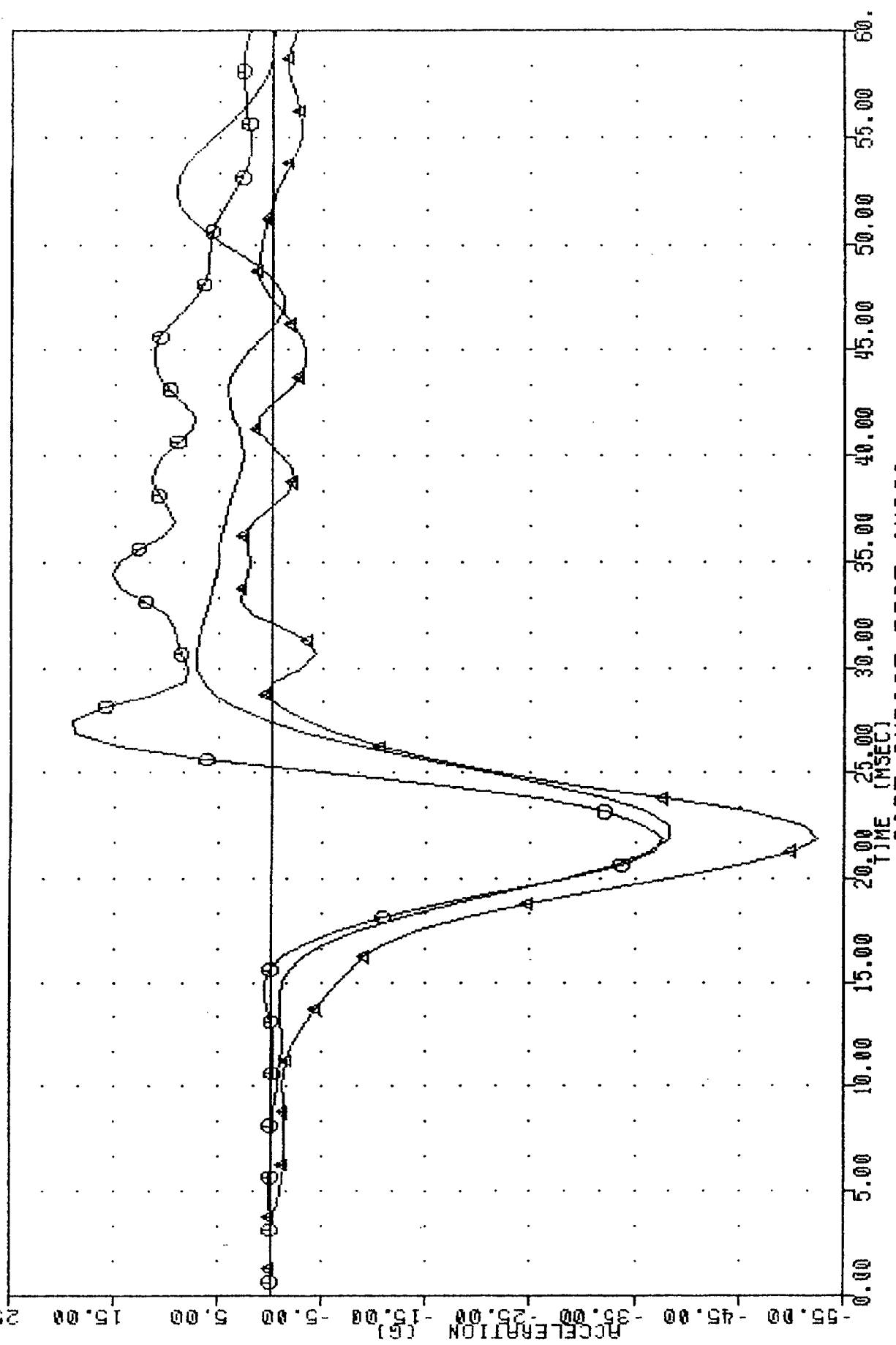
SIDE IMPACT TEST (U02)
 LEFT UPPER RIB ACCELERATION Y AXIS -A

VRLC 3RL91, SIU THORAX U02 BUDDY 830 CAL 92 84044 PLOT DATE 14-FEB-84 08:52:43
 LLRYG1 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -41.33 8.598 52.50
 MN-2SD 0 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -37.68 19.000 26.87
 MN-2SD 4 FILTER: HSRI 136/ 189/ -50 MIN, MAX = -52.52 2.940 32.50



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

VRTIC 3HL91, SIUW292, SIUW002 BODY 83N CAL 92 84044 PLUT DATE 14-FEB-84 08:54:37
 LLA YGA FILTER = HSRI 136/ 189/ -50 MIN, MAX = -38.32 21.25, 9.09 51.88
 MN-2SD 0 FILTER = HSRI 136/ 189/ -50 MIN, MAX = -37.66 21.25, 19.00 26.87
 MN-2SD A FILTER = HSRI 136/ 189/ -50 MIN, MAX = -52.52 21.25, 2.94 32.50



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