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U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

DOT HS 807 334
Final Report

September 1987

**25.0 MPH 26° Crabbed Moving Barrier Impact
Tests Into A 26° Load Cell Barrier Face
Test -1: NHTSA Deformable Barrier Face
Test -2: EEVC Deformable Barrier Face**

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4. Title and Subtitle 25.0 MPH 26° CRABBED MOVING BARRIER IMPACT TESTS INTO A 26° LOAD CELL BARRIER FACE TEST #1: NHTSA DEFORMABLE BARRIER FACE TEST #2: EEVC DEFORMABLE BARRIER FACE		5. Report Date	
7. Author(s) N.A. El-Habash, Project Engineer, TRC		6. Performing Organization Code SEPTEMBER, 1987	
9. Performing Organization Name and Address Vehicle Research and Test Center U.S. Rt. 33, Logan County East Liberty, Ohio 43319		8. Performing Organization Report No. TRC	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration 400 Seventh St., S.W. Washington, DC 20590		10. Work Unit No. (TRAIS) 870901	
15. Supplementary Notes This test was conducted to assess the differences in the NHTSA and EEVC barrier front in the 26° crabbled configuration.		11. Contract or Grant No. DTNH22-82-A-08401	
16. Abstract This test report documents two (2) crash tests using the 26° crabbled moving barrier impacting into the load cell barrier mounted at a 26° angle. These tests were conducted as part of a program to assess the differences between the NHTSA and EEVC Deformable Barrier Faces. The test date was September 1, 1987. Test #1: NHTSA Deformable Barrier Face. The ambient temperature was 75°F. The impact speed was 25.0 mph. Test #2: EEVC Deformable Barrier Face. The ambient temperature was 76°F. The impact speed was 25.0 mph.		13. Type of Report and Period Covered TEST REPORT SEPTEMBER, 1987	
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SECTION 1.0
PURPOSE AND INTRODUCTION

PURPOSE

There is a desire in the U.S. and European Communities to harmonize the Moving Deformable Barrier (MDB) used for side impact crash testing. These crash tests were conducted as part of a program to assess differences between the NHTSA and EEVC deformable barrier faces.

INTRODUCTION

A fixed load cell barrier was impacted by a Moving Deformable Barrier (MDB) on September 1, 1987.

Test #1: The MDB with the NHTSA Barrier Face was to be towed into a 26° fixed load cell barrier at 25.0 mph. The angles of the MDB and load cell barrier face were 26° counterclockwise with respect to a line perpendicular to the direction of travel of the MDB. The actual test speed was 25.0 mph.

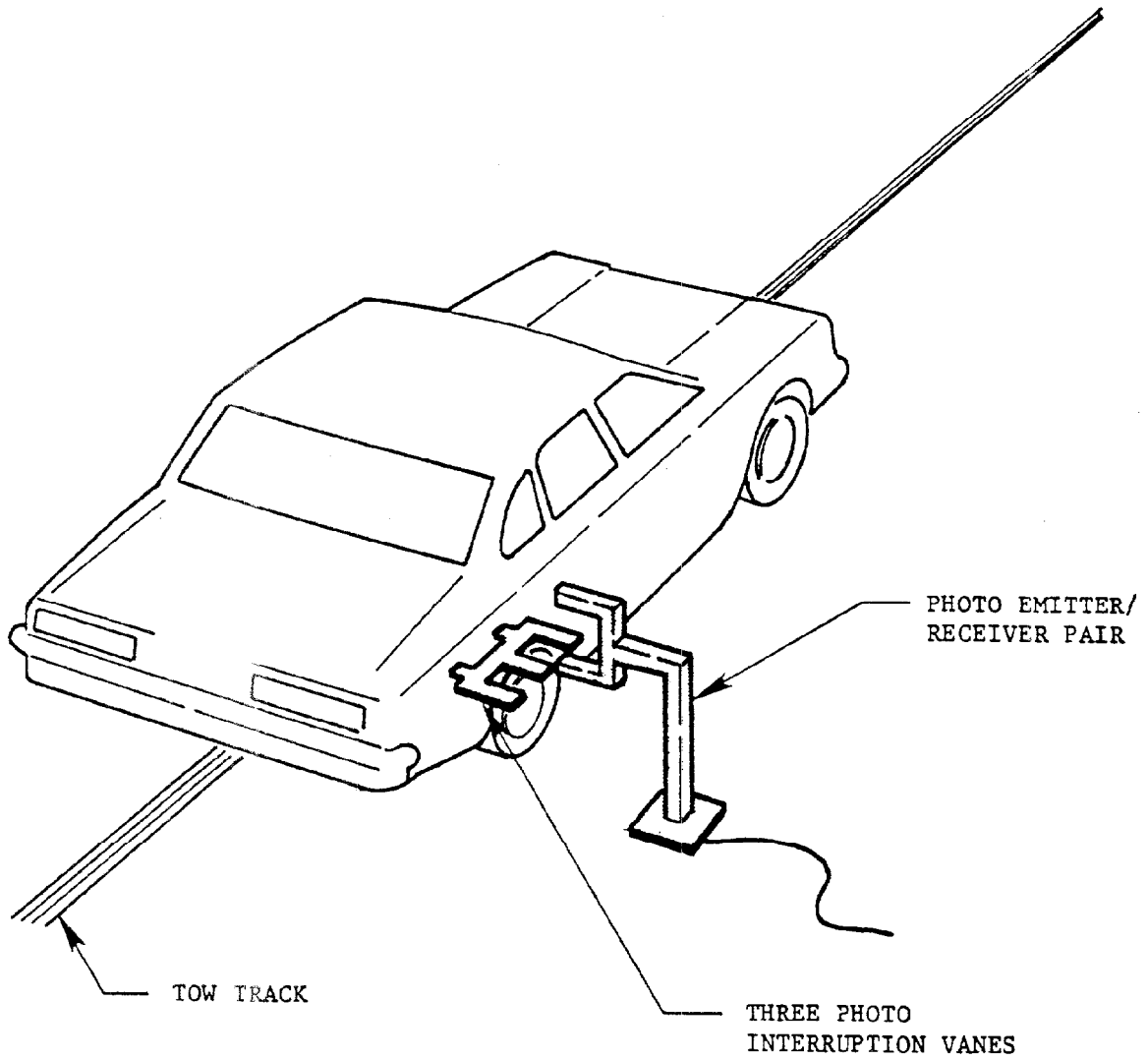
Test #2: The MDB with the EEVC Barrier Face was to be towed into a 26° fixed load cell barrier at 25.0 mph. The angles of the MDB and load cell barrier face were 26° counterclockwise with respect to a line perpendicular to the direction of travel of the MDB. The actual test speed was 25.0 mph.

Section 2.0 contains the data required by R and D for Test #1. Section 3.0 contains the data required by R and D for test #2. Appendices A and B contains pre-test and post-test vehicle photographs of each test. Appendices C and D contains data plots of each test.

SECTION 2.0

DATA REQUIRED BY R & D TEST #1

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane clears emitter/receiver two inches before impact.
The vanes have one foot spacing.

LOAD CELL BARRIER SUMMARY
TEST #1 NHTSA BARRIER FACE

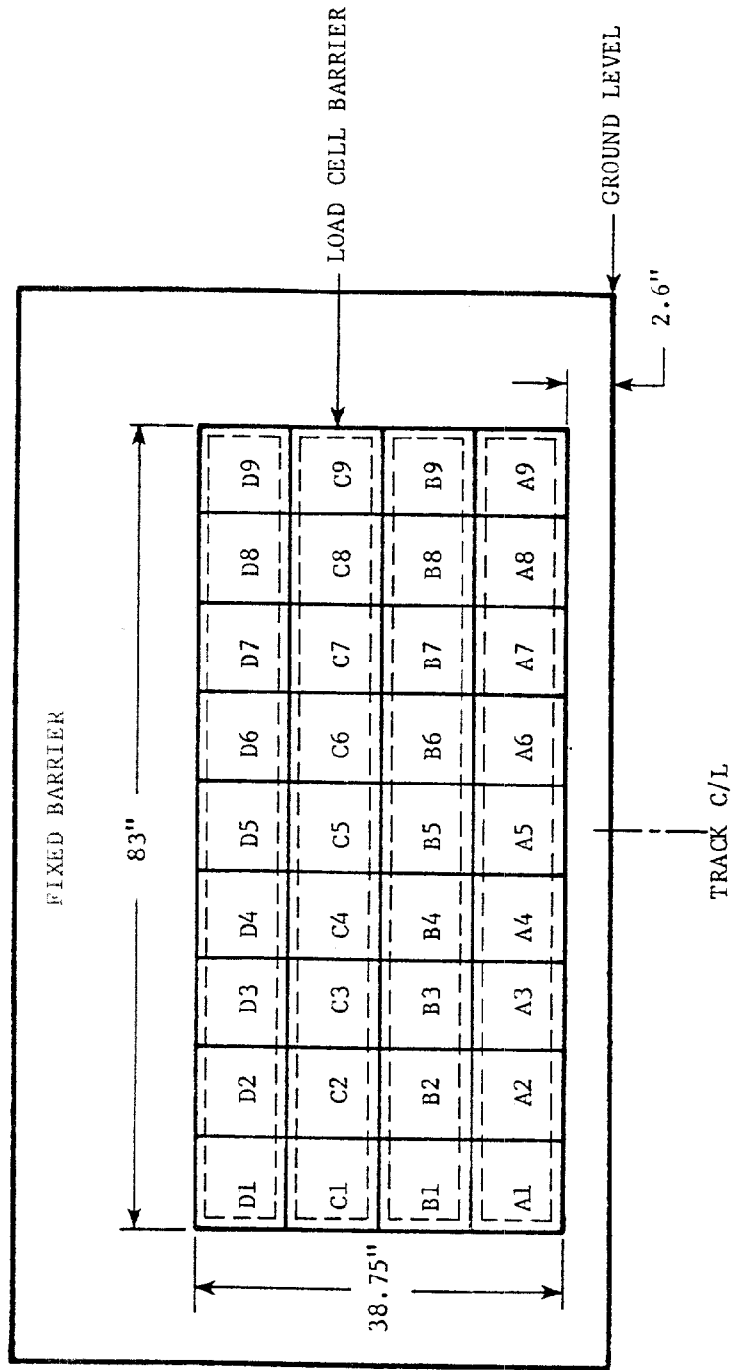
POSITION	POSITIVE DIRECTION*		NEGATIVE DIRECTION*	
	MAX (lb)	TIME (msec)	MIN (lb)	TIME (msec)
TOTAL GROUP 1	---	--- ^ε	6366.28	27.88
TOTAL GROUP 2	---	--- ^ε	51875.13	35.75
TOTAL GROUP 3	1212.54	3.50	27267.79	41.75
TOTAL GROUP 4	1417.94	4.75	1825.97	10.88
TOTAL LOAD CELL FORCE	---	--- ^ε	84679.29	35.13

^ε No positive value in range of interest

* REFERENCE: TENSION IS POSITIVE
 COMPRESSION IS NEGATIVE

36 LOAD CELLS
 4 ROWS
 9 COLUMNS

FRONT VIEW



BARRIER LOAD CELL CONFIGURATION

- GROUP 1: A1 thru A9
- GROUP 2: B1 thru B9
- GROUP 3: C1 thru C1
- GROUP 4: D1 thru D9

TEST #1 NHTSA MOVING DEFORMABLE BARRIER FACE

Test Condition

Test Number: 870901

Date of Test = September 1, 1987

Ambient Temperature at Impact Area: 75° F

<u>Subject Vehicle Data</u>	<u>Actual</u>	<u>Intended</u>
MDB Test Weight (Lbs.)	3007	3000 ± 25
MDB Velocity (mph)*	25.0	25.0
Impact Point (Inches)**	3.0	4.0

PRE-TEST (All dimensions in inches)

<u>LOCATION</u>	<u>HEIGHT</u>	<u>C-1</u>	<u>C-2</u>	<u>C-3</u>	<u>C-4</u>	<u>C-5</u>	<u>C-6</u>
Top	31.2	15.0	15.0	15.0	15.0	15.0	15.0
Middle	26.2	15.0	15.0	15.0	15.0	15.0	15.0
Bottom	16.5	19.4	19.4	19.4	19.4	19.4	19.4

POST-TEST (All dimensions in inches)

Top	31.2	9.0	9.7	10.9	11.8	11.9	11.6
Middle	26.2	8.8	9.6	10.6	11.9	13.0	13.2
Bottom	16.5	8.1	9.5	10.7	11.8	12.8	12.6

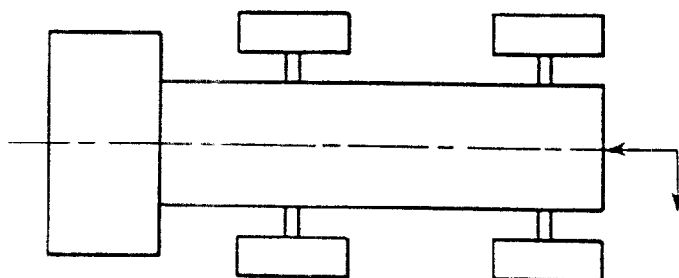
STATIC CRUSH (All dimensions in inches)

Top	31.2	6.0	5.3	4.1	3.2	3.1	3.4
Middle	26.2	6.2	5.4	4.4	3.1	2.0	1.8
Bottom	16.5	11.3	9.9	8.7	7.6	6.6	6.8

*As measured over final one foot of travel.

**As measured from left corner of load cell barrier face to left edge of MDB face

MOVING DEFORMABLE BARRIER FACE (NHTSA)



NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION		
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	
1	CENTER OF GRAVITY	61.2	0.0	11.8	1.79	89.50	27.91	38.50	
	(LONGITUDINAL)								$\Delta V = 25.05 \text{ mph @ } 71.25 \text{ msec}$
	(LATERAL)								
	(VERTICAL)								
2	REAR FRAME MEMBER	22.0	+18.4	11.9	1.91	94.25	29.44	37.63	
	(LONGITUDINAL)								$\Delta V = 26.88 \text{ mph @ } 71.25 \text{ msec}$
	(LATERAL)								
					6.54	5.38	4.08	98.13	

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

All measurements of accelerometer locations in inches.

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Left panning	Bolex	16	24	Real time panning
2	Left wide	Photsonics 1B	13	997	Overall
3	Left tight	Photsonics 1B	25	1002	Closeup of impact point
4	Overhead wide	Photsonics 1B	13	997	Overall
5	Overhead tight	Photsonics 1B	25	1002	Closeup of impact point
6	Onboard MDB	Photsonics 1B	13	1000	Closeup of impact point

NON-GOVERNMENT FURNISHED TRANSDUCER INFORMATION

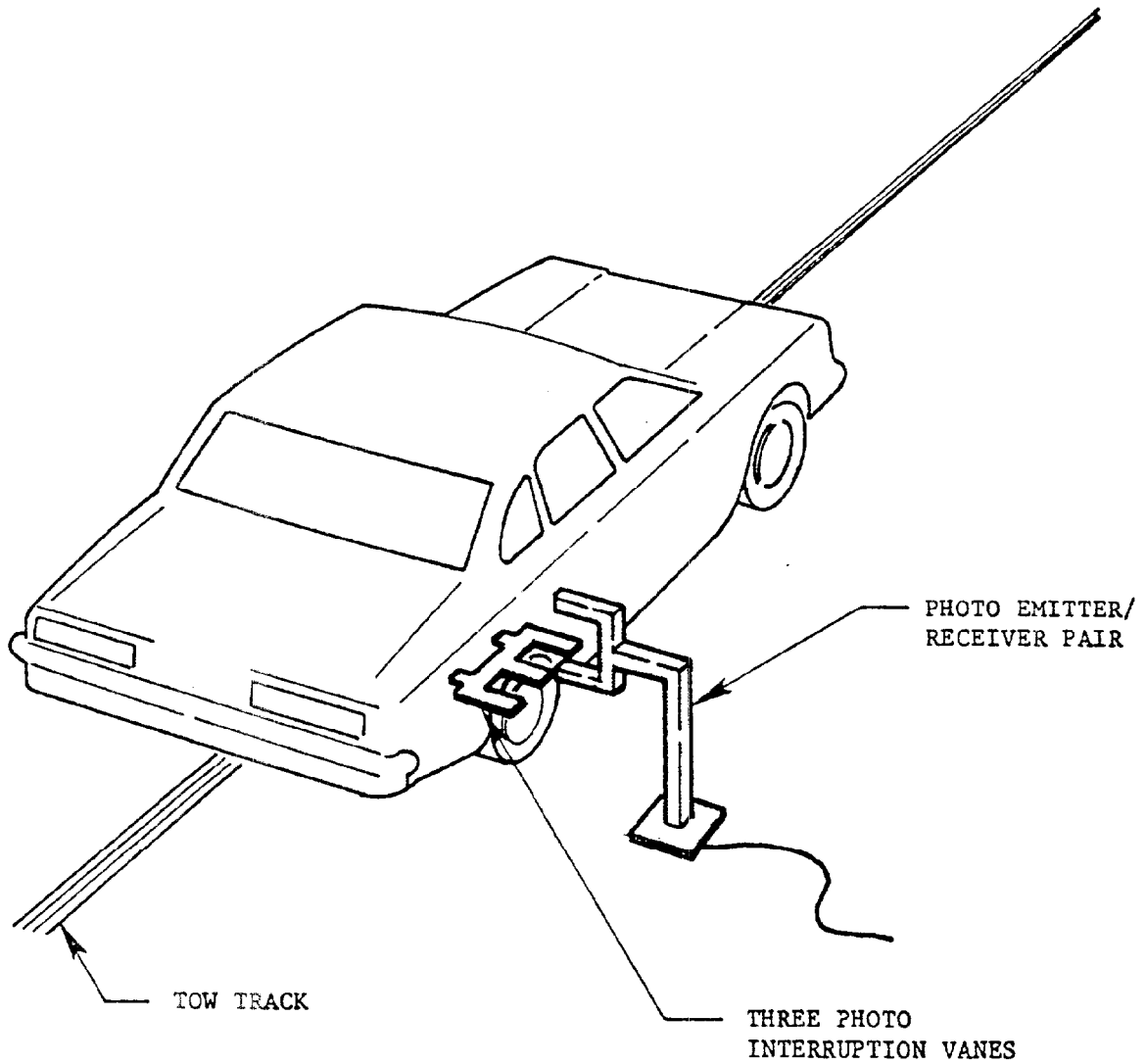
PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NUMBER	SERIAL NUMBER	MFR.	DATE OF LAST CALIBRATION	SENSITIVITY	DESIRED FULL SCALE (ENGR. UNITS)
BCGXG	Accel	7264	BP79J	Endevco	6-23-87	.1614	100 G
BCYGG	Accel	7264	BY22J	Endevco	6-26-87	.1101	100 G
BCGZG	Accel	7264	BY52J	Endevco	6-26-87	.1211	100 G
BRCYG	Accel	7264	BK02J	Endevco	4-27-87	.1101	100 G
BRCXG	Accel	7264	BY59J	Endevco	6-26-87	.1614	100 G

All struck vehicle accelerometers were Government Furnished Equipment and were Endevco 2264 and 7264 Accelerometers.

SECTION 3.0

DATA REQUIRED BY R & D TEST #2

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane clears emitter/receiver two inches before impact.
The vanes have one foot spacing.

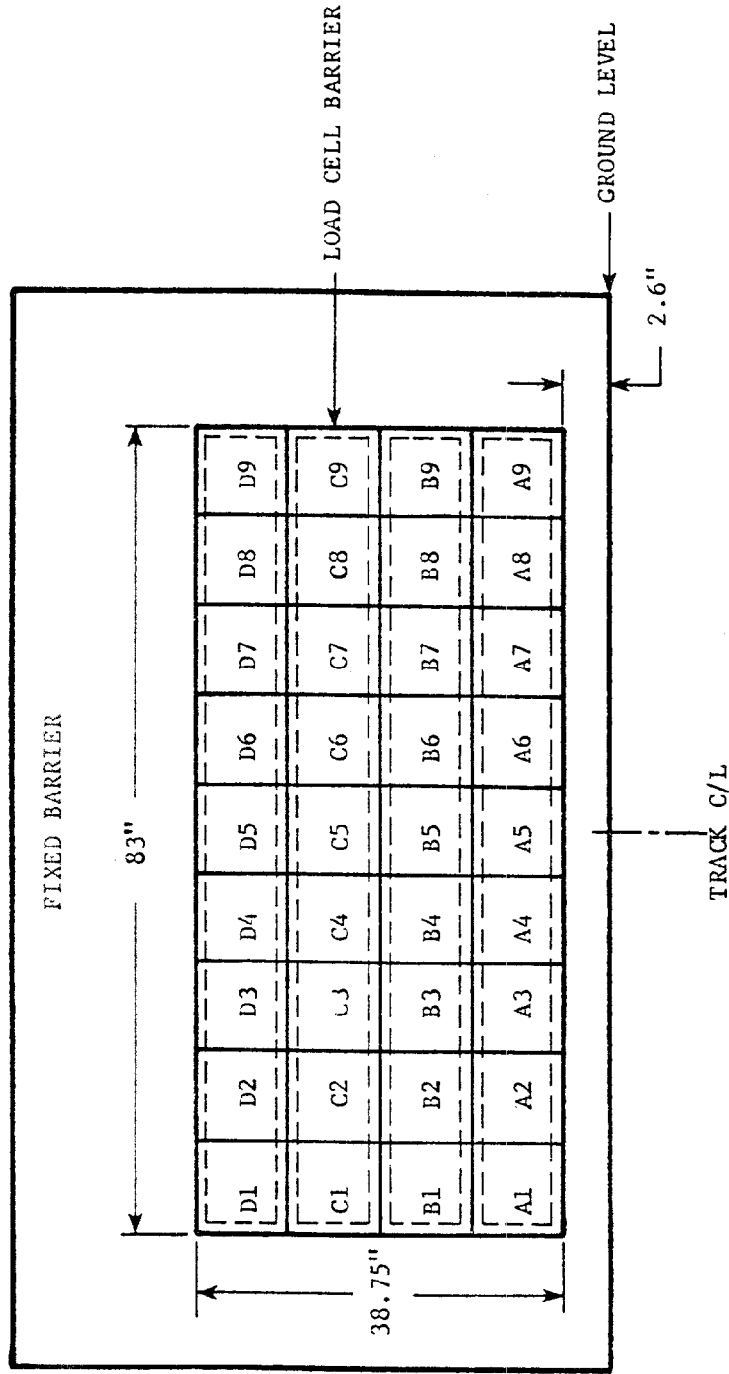
LOAD CELL BARRIER SUMMARY
TEST #2 EEVC BARRIER FACE

POSITION	POSITIVE DIRECTION*		NEGATIVE DIRECTION*	
	MAX (lb)	TIME (msec)	MIN (lb)	TIME (msec)
TOTAL GROUP 1	325.01	313.88	25004.25	62.00
TOTAL GROUP 2	305.58	310.63	34521.32	64.00
TOTAL GROUP 3	256.59	190.63	10021.67	64.13
TOTAL GROUP 4	672.99	6.50	912.08	38.25
TOTAL LOAD CELL FORCE	715.47	310.88	69828.17	63.75

*REFERENCE: TENSION IS POSITIVE
 COMPRESSION IS NEGATIVE

36 LOAD CELLS
 4 ROWS
 9 COLUMNS

FRONT VIEW



BARRIER LOAD CELL CONFIGURATION

- GROUP 1: A1 thru A9
- GROUP 2: B1 thru B9
- GROUP 3: C1 thru C9
- GROUP 4: D1 thru D9

TEST #2 EEVC MOVING DEFORMABLE BARRIER FACE

Test Condition

Test Number: 870901

Date of Test = September 1, 1937

Ambient Temperature at Impact Area: 76° F

Subject Vehicle Data

	<u>Actual</u>	<u>Intended</u>
MDB Test Weight (Lbs.)	2903	NA*
MDB Velocity (mph)**	25.0	25.0
Impact Point (Inches)***	3.0	4.0

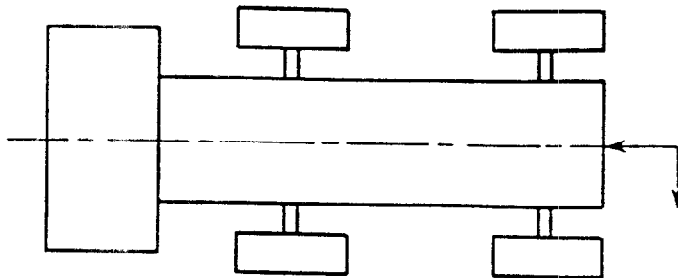
*No target weight was specified for the MDB with the EEVC face.

**As measured over final one foot of travel.

***As measured from left corner of load cell barrier face to left edge of MDB face.

NOTE: Deformable barrier face crush could not be measured due to disintegration of portions of the EEVC barrier face upon impact.

MOVING DEFORMABLE BARRIER FACE (EEVC)



NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION		
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	
1	CENTER OF GRAVITY	61.2	0.0	11.8					
	(LONGITUDINAL)				$\Delta V = 27.56 \text{ mph @ } 106.12 \text{ msec}$	0.91	173.75	23.88	62.25
	(LATERAL)					0.00	0.00	6.30	69.25
	(VERTICAL)				2.31	79.13	2.32	35.88	
2	REAR FRAME MEMBER	22.0	+18.4	11.9					
	(LONGITUDINAL)				$\Delta V = 29.01 \text{ mph @ } 106.12 \text{ msec}$	1.49	176.25	24.21	65.00
	(LATERAL)					2.01	28.88	1.56	224.50

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

All measurements of accelerometer locations in inches.

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Left panning	Bolex	16	24	Rear time panning
2	Left wide	Photosonic 1B	13	997	Overall
3	Left tight	Photosonic 1B	25	1002	Closeup of impact point
4	Overhead wide	Photosonic 1B	13	997	Overall
5	Overhead tight	Photosonic 1B	25	1002	Closeup of impact point
6	Onboard MDB	Photosonic 1B	13	1002	Closeup of impact point

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	7264	BP79J	Endevco	6-23-87	.1614	100 G
BOGYG	Accel	7264	BY22J	Endevco	6-26-87	.1101	100 G
BOZG	Accel	7264	BY52J	Endevco	6-26-87	.1211	100 G
BRCYG	Accel	7264	BK02J	Endevco	4-27-87	.1101	100 G
BRCXG	Accel	7264	BY59J	Endevco	6-26-87	.1614	100 G

All struck vehicle accelerometers were Government furnished Equipment and were Endevco 2264 and 7264 Accelerometers.

APPENDIX A

PHOTOGRAPHS TEST #1

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A-5.	PRE-TEST REAR - VIEW 1	A-4
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A-7.	PRE-TEST LEFT SIDE OVERALL VIEW	A-5
A-8.	PRE-TEST LEFT SIDE CLOSEUP VIEW	A-5
A-9.	PRE-TEST OVERHEAD - VIEW 1	A-6
A-10.	PRE-TEST OVERHEAD - VIEW 2	A-6
A-11.	PRE-TEST OVERHEAD - VIEW 3	A-7
A-12.	POST-TEST FRONT - VIEW 1	A-7
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A-15.	POST-TEST LEFT SIDE OVERALL - VIEW 1	A-9
A-16.	POST-TEST LEFT SIDE OVERALL - VIEW 2	A-9
A-17.	POST-TEST LEFT CLOSEUP VIEW	A-10
A-18.	POST-TEST OVERHEAD - VIEW 1	A-10
A-19.	POST-TEST OVERHEAD - VIEW 2	A-11

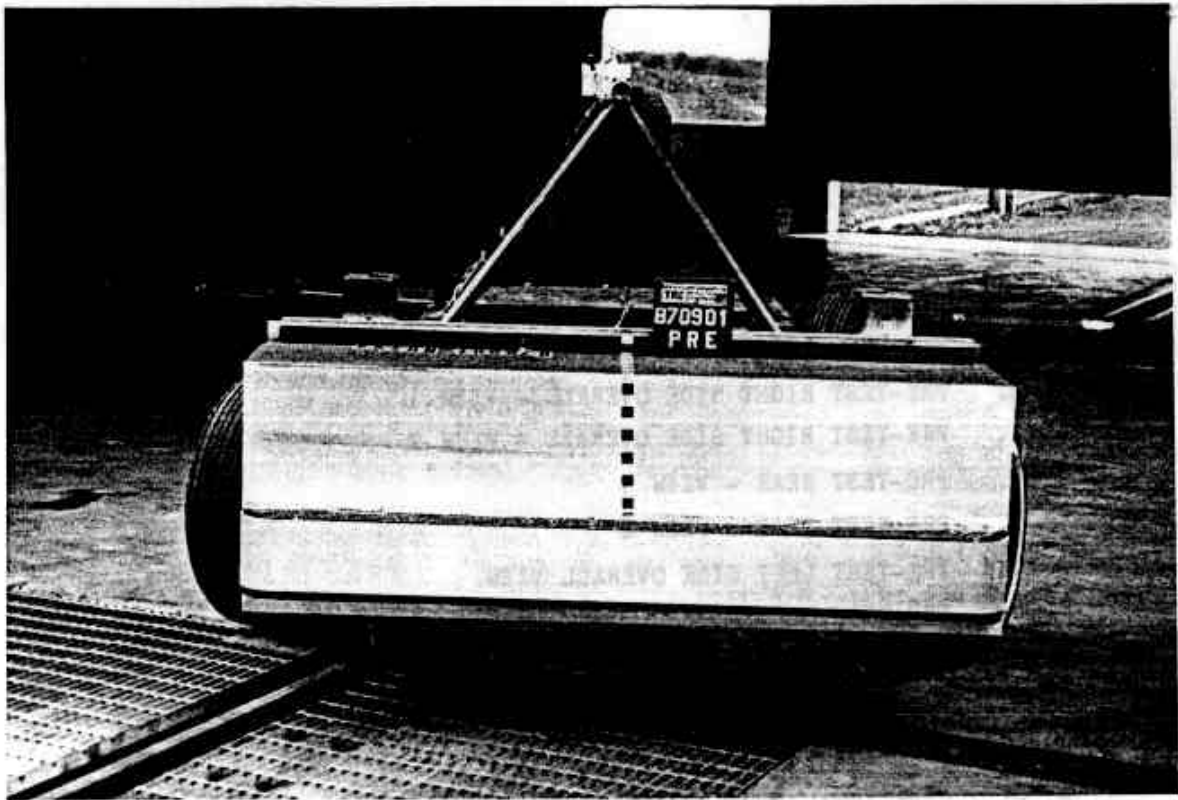


Figure A-1. PRE-TEST FRONT - VIEW 1

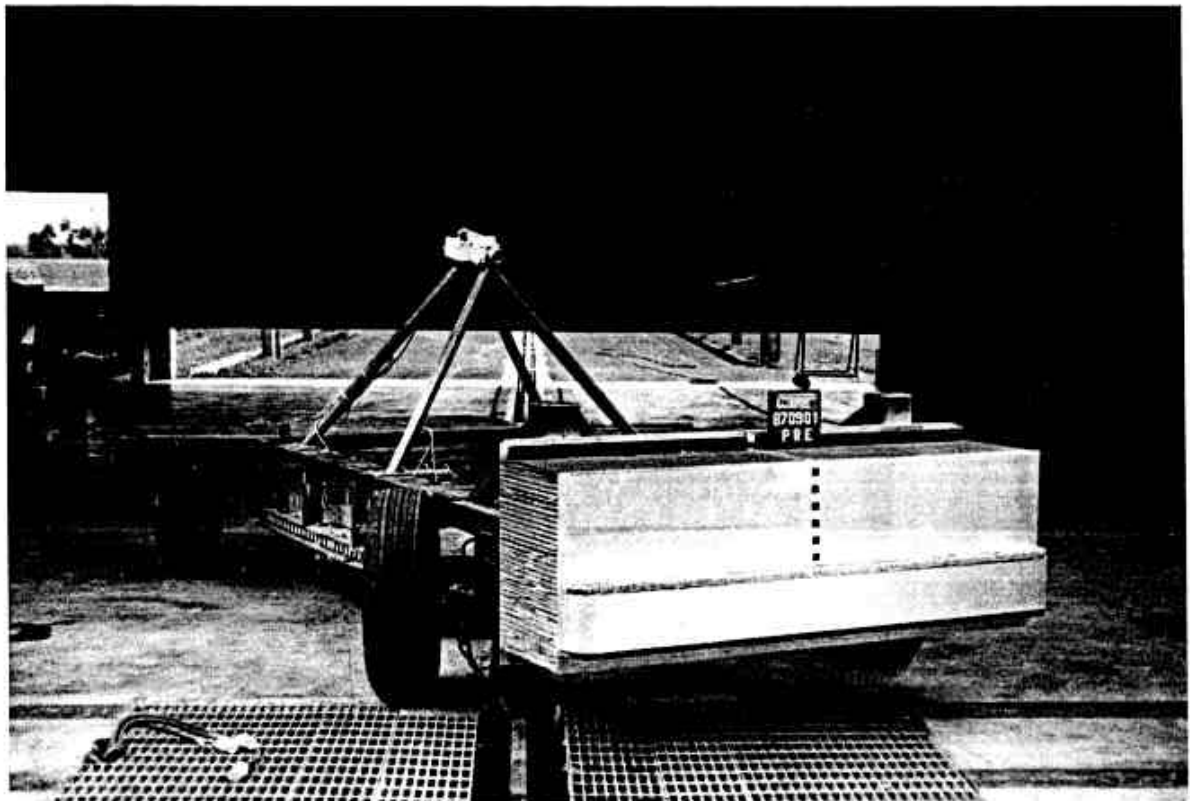


Figure A-2. PRE-TEST FRONT - VIEW 2

A-2

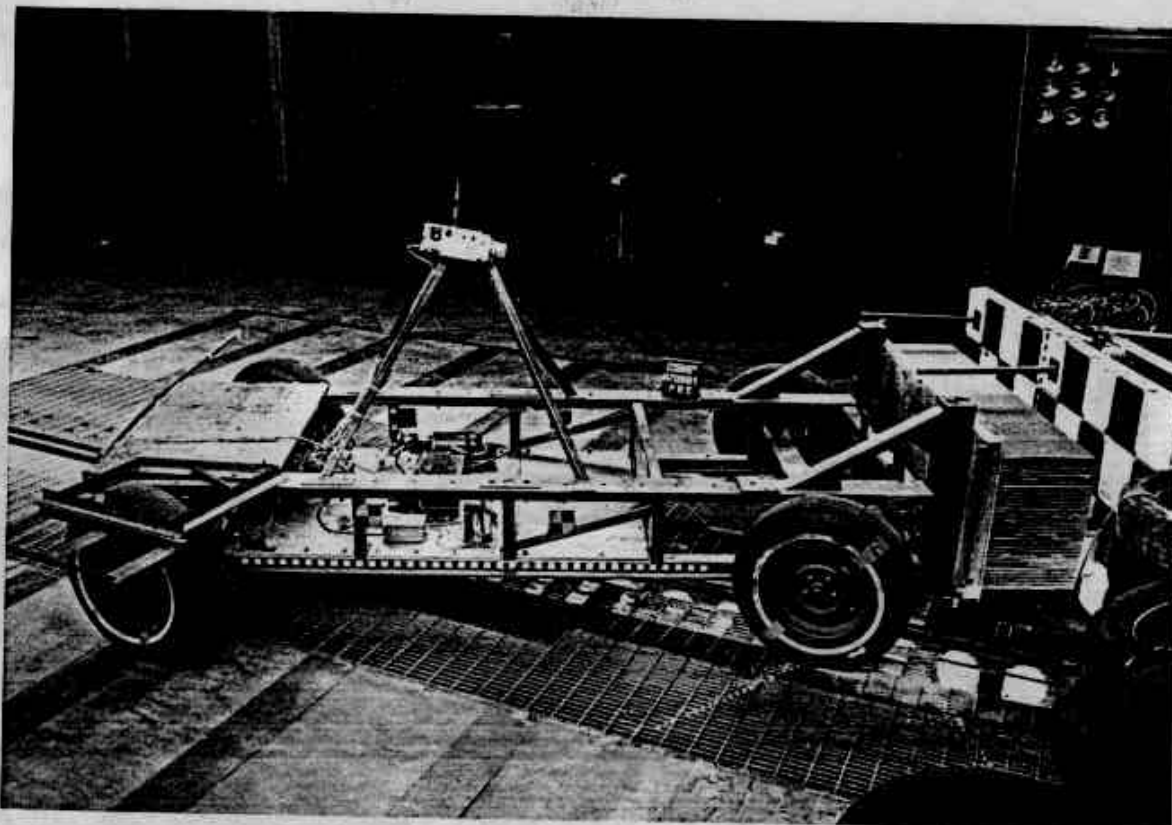


Figure A-3. PRE-TEST RIGHT SIDE OVERALL - VIEW 1

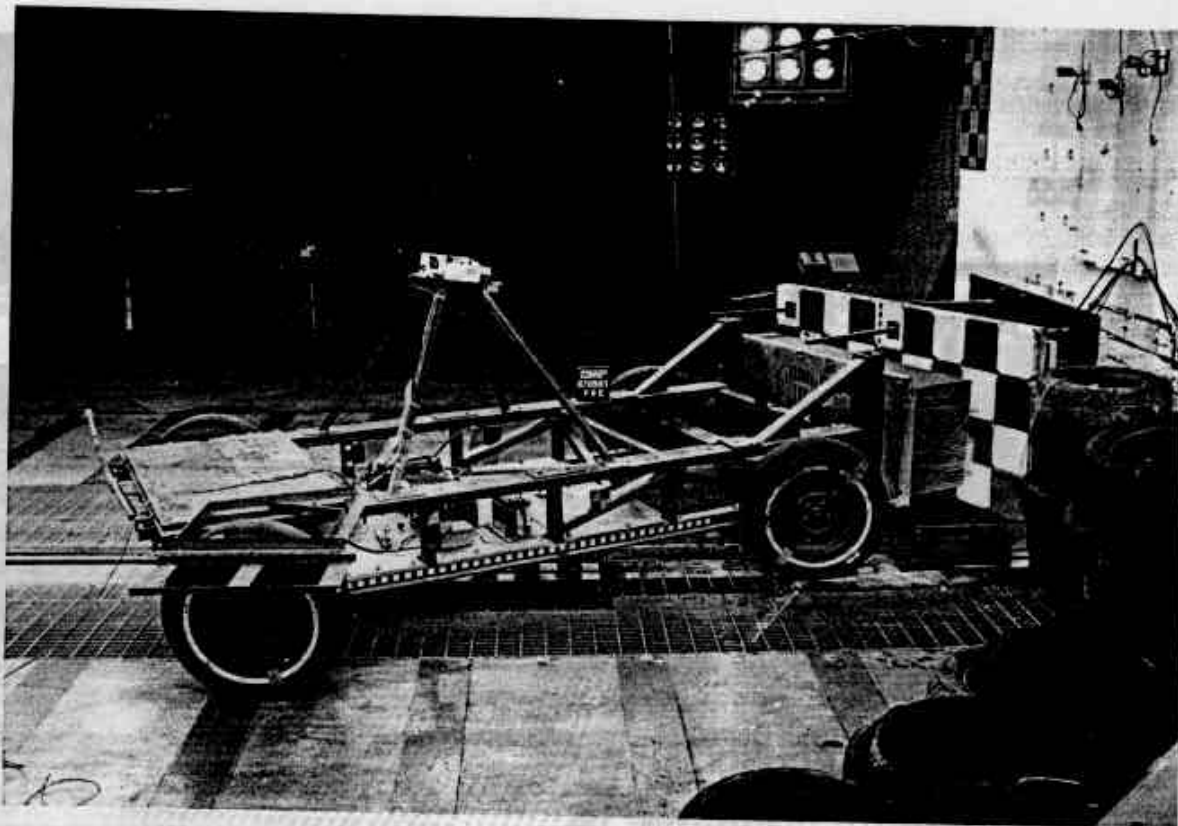
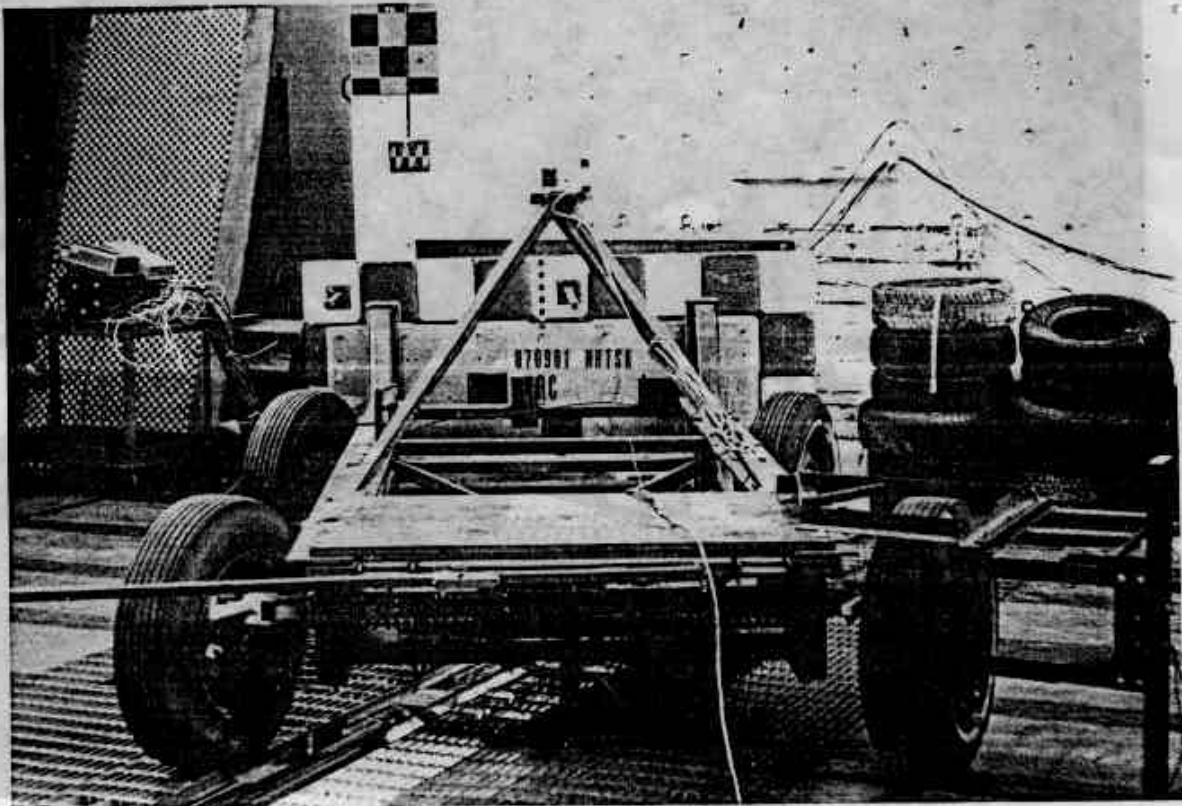
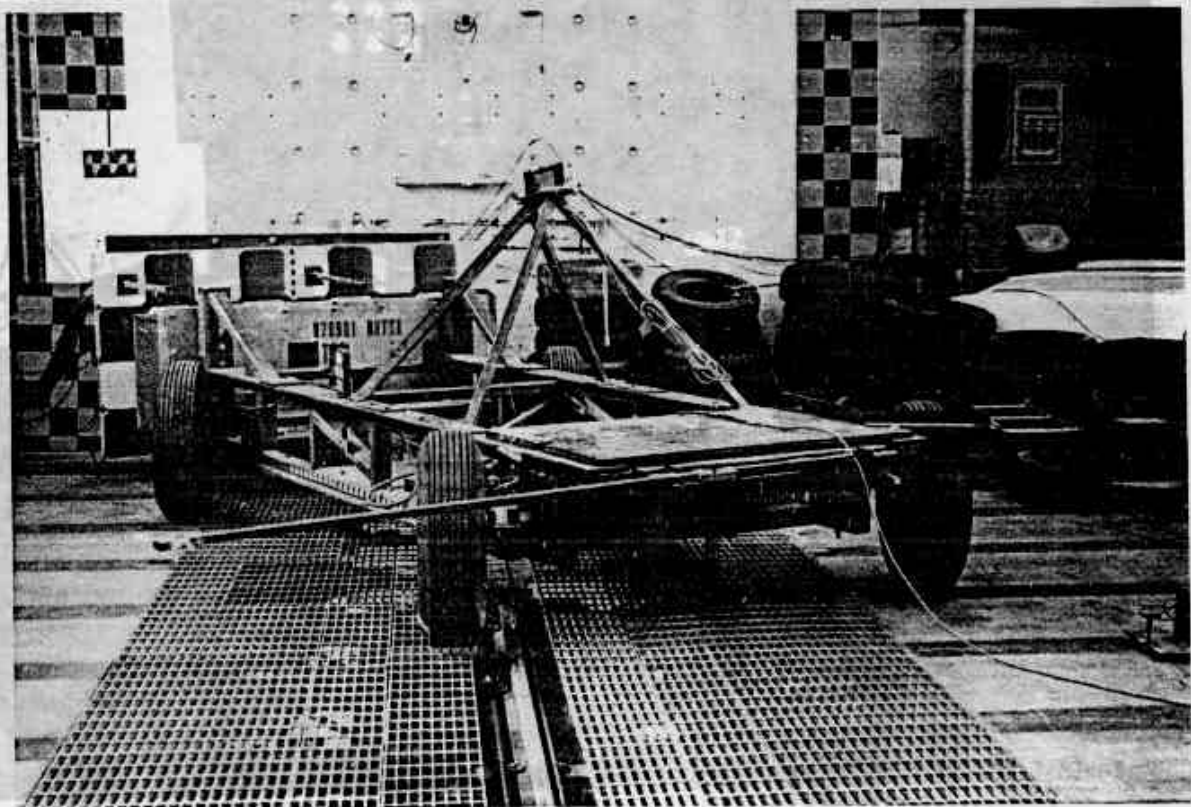


Figure A-4. PRE-TEST RIGHT SIDE OVERALL - VIEW 2



870001 WPTSA
OC
Figure A-5. PRE-TEST REAR - VIEW 1



870001 WPTSA
OC
Figure A-6. PRE-TEST REAR - VIEW 2
A-4

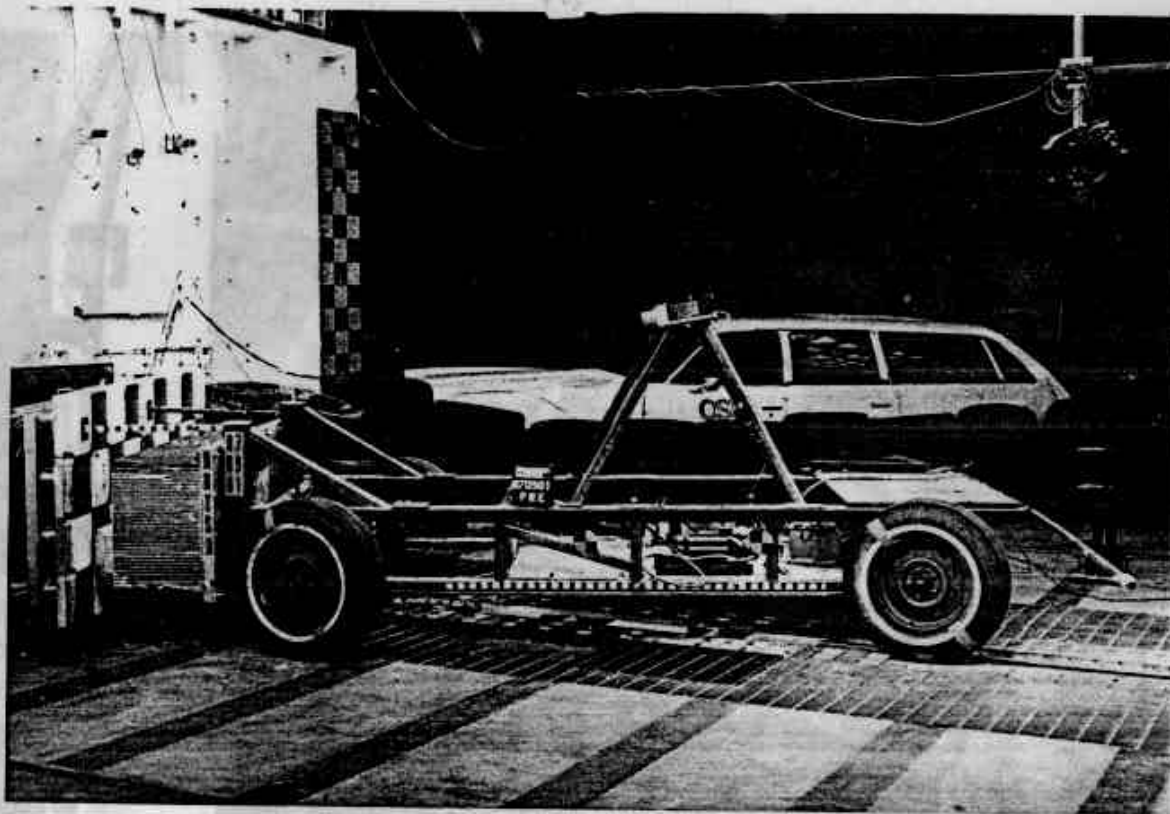


Figure A-7. PRE-TEST LEFT SIDE OVERALL VIEW

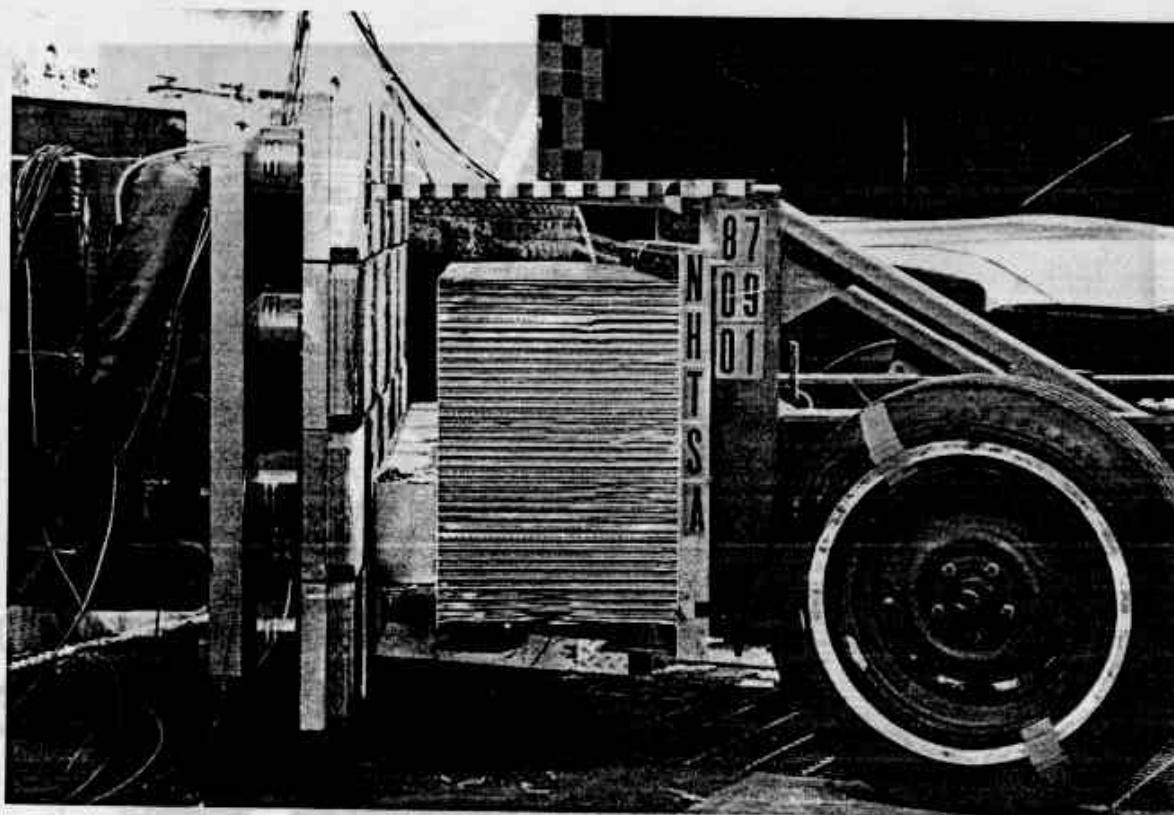


Figure A-8. PRE-TEST LEFT SIDE CLOSEUP VIEW

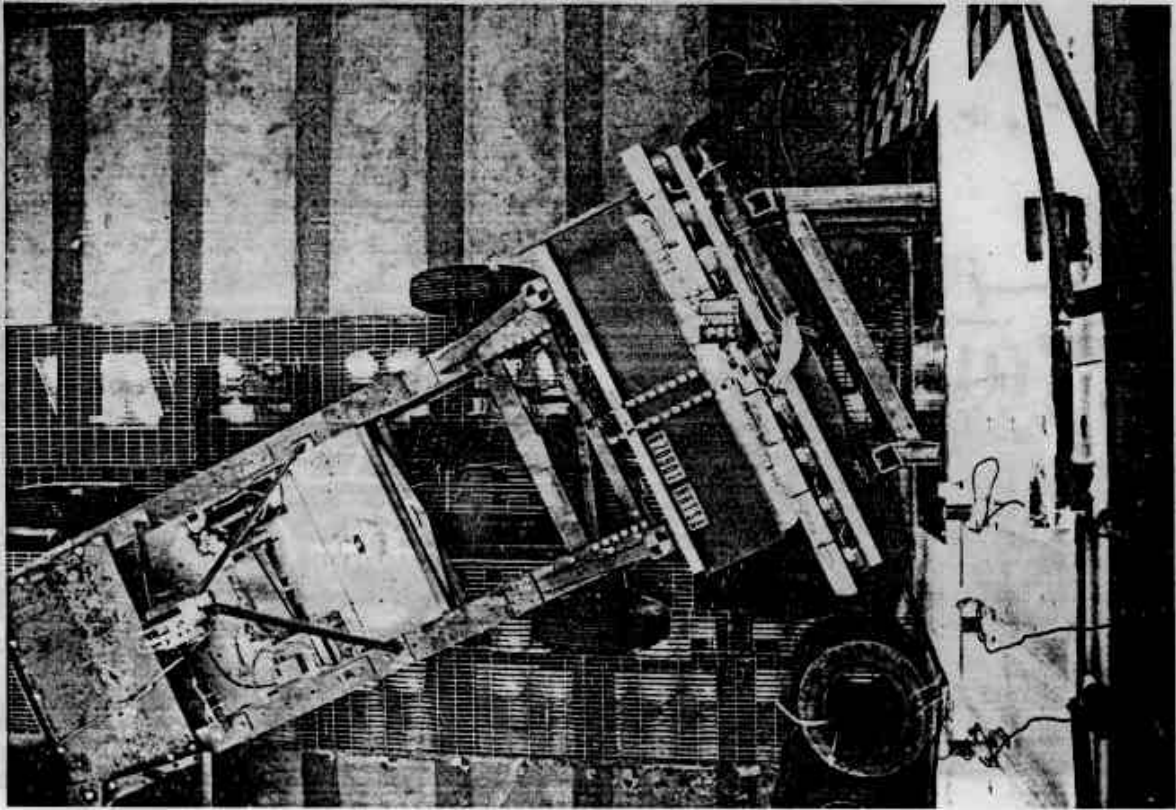


Figure A-9. PRE-TEST OVERHEAD - VIEW 1

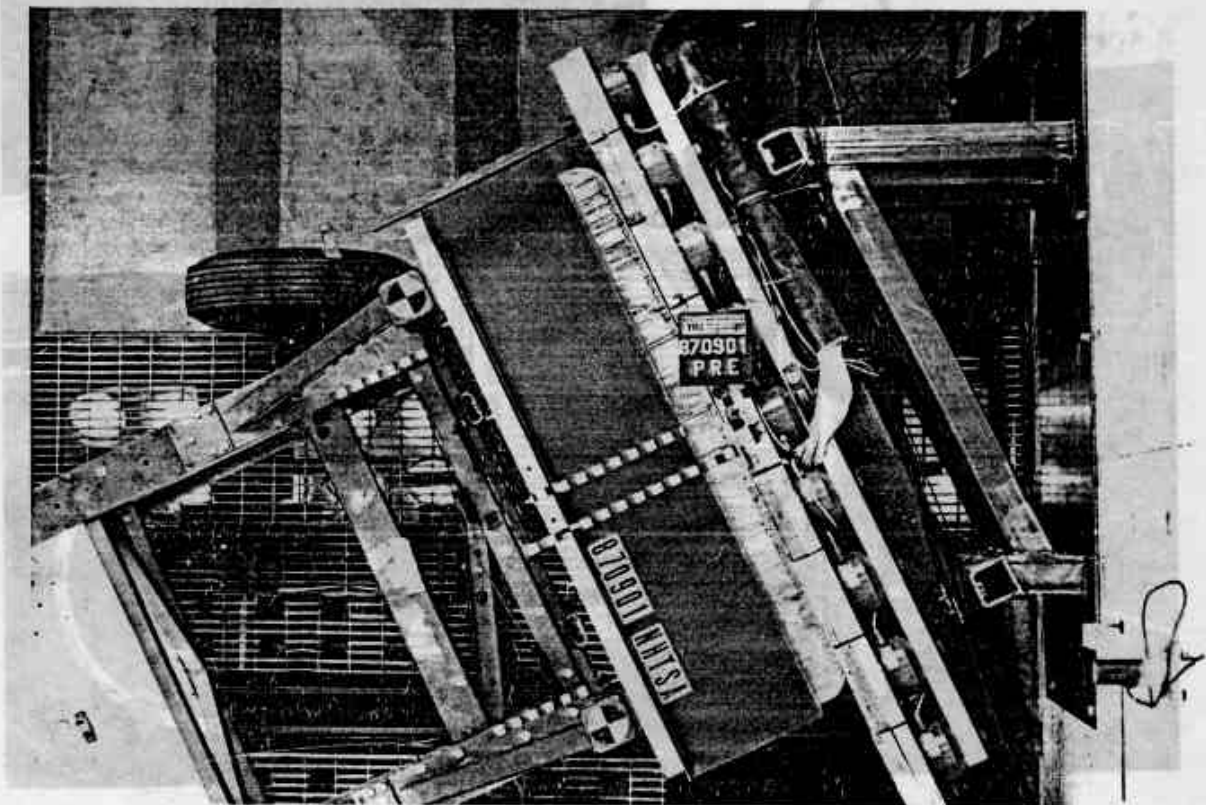


Figure A-10. PRE-TEST OVERHEAD - VIEW 2

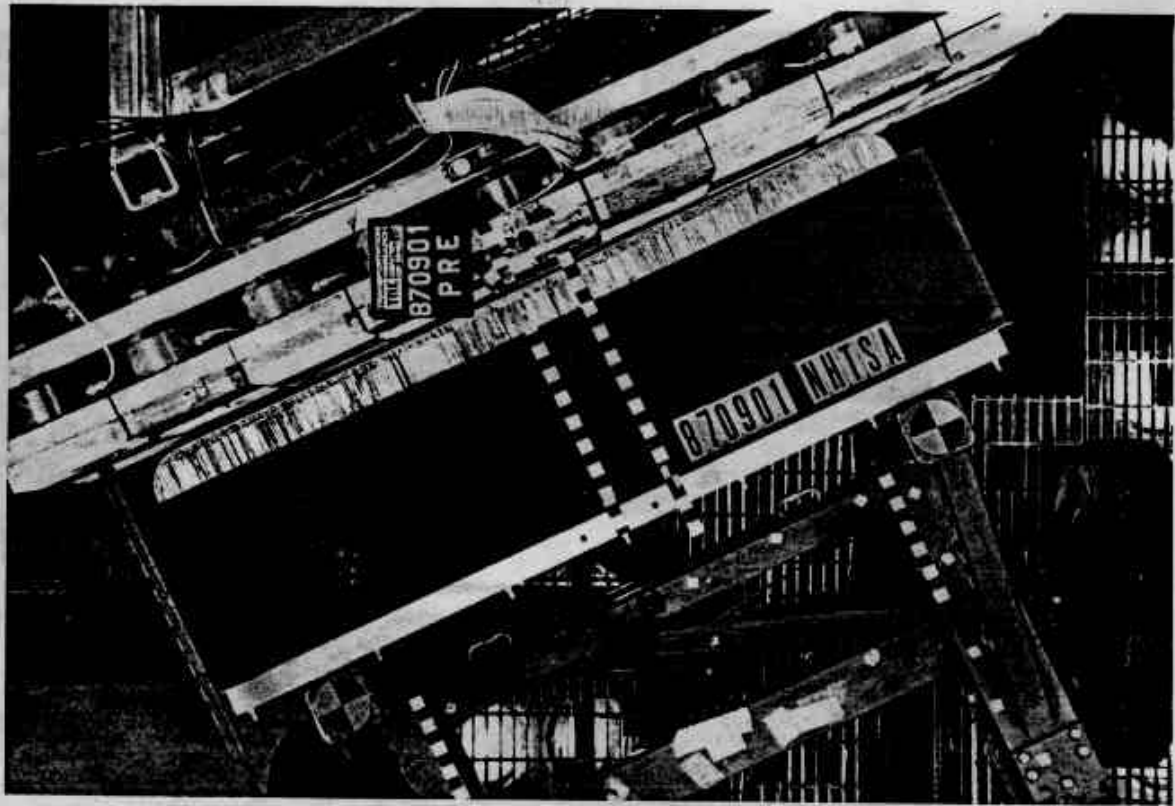


Figure A-11. PRE-TEST OVERHEAD - VIEW 3

8-4

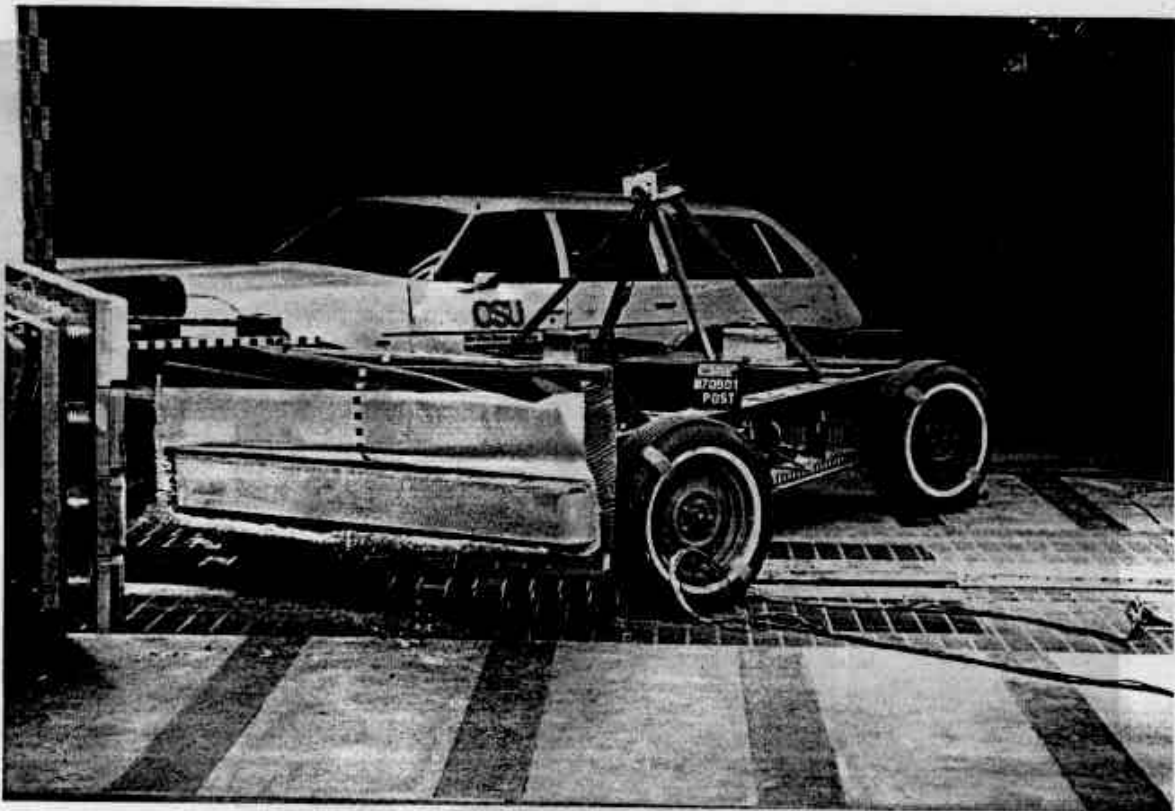


Figure A-12. POST-TEST FRONT - VIEW 1

8-4

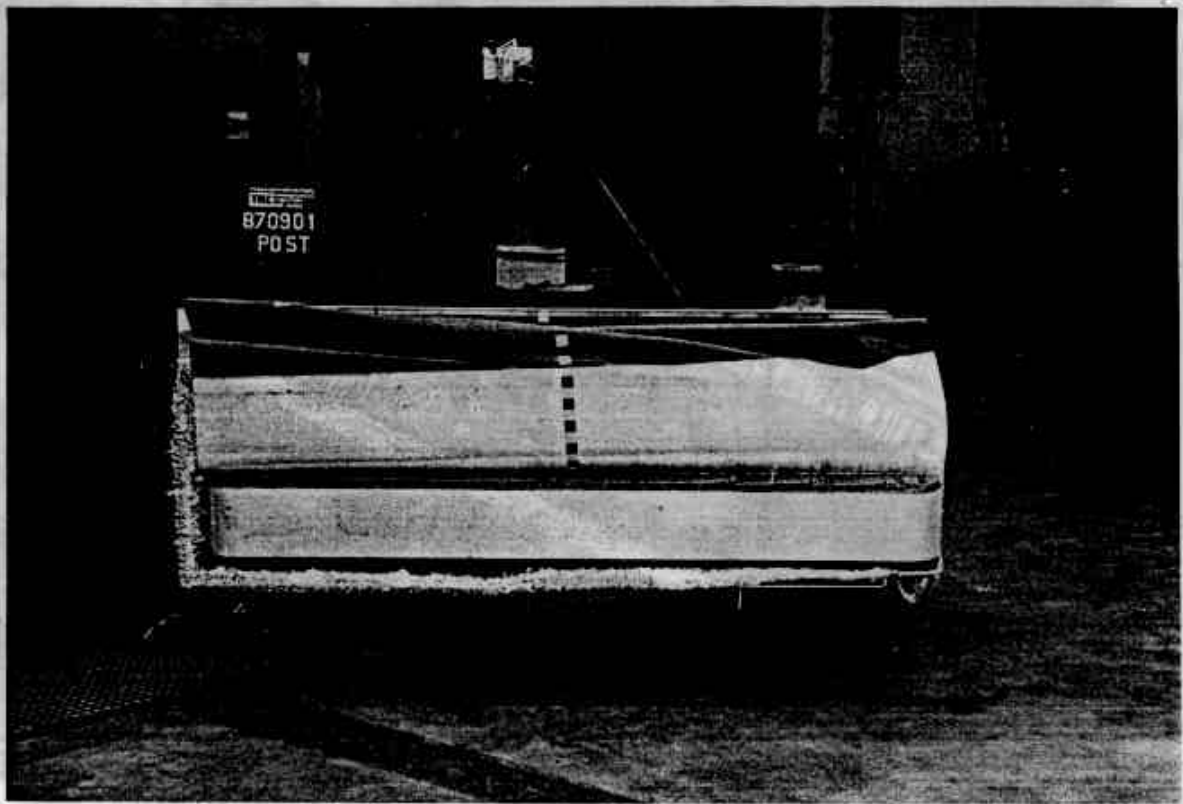


Figure A-13. POST-TEST FRONT - VIEW 2

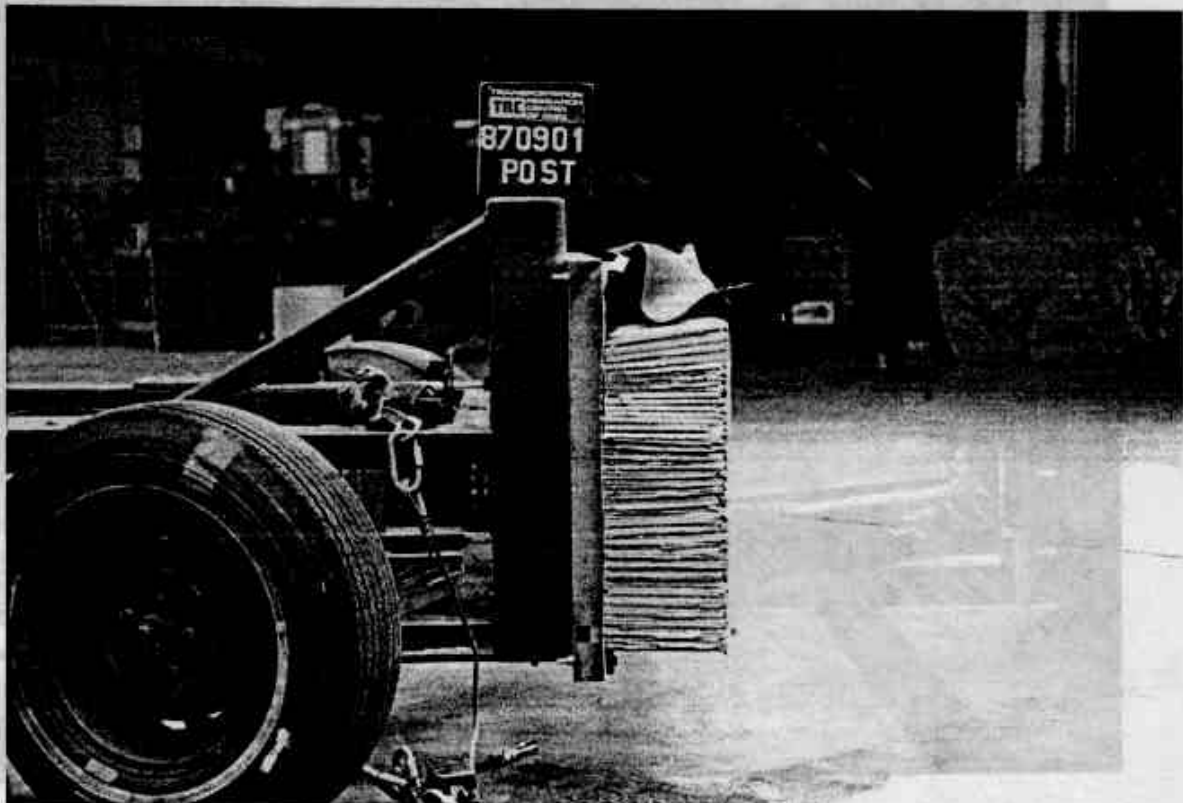


Figure A-14. POST-TEST RIGHT SIDE CLOSEUP VIEW

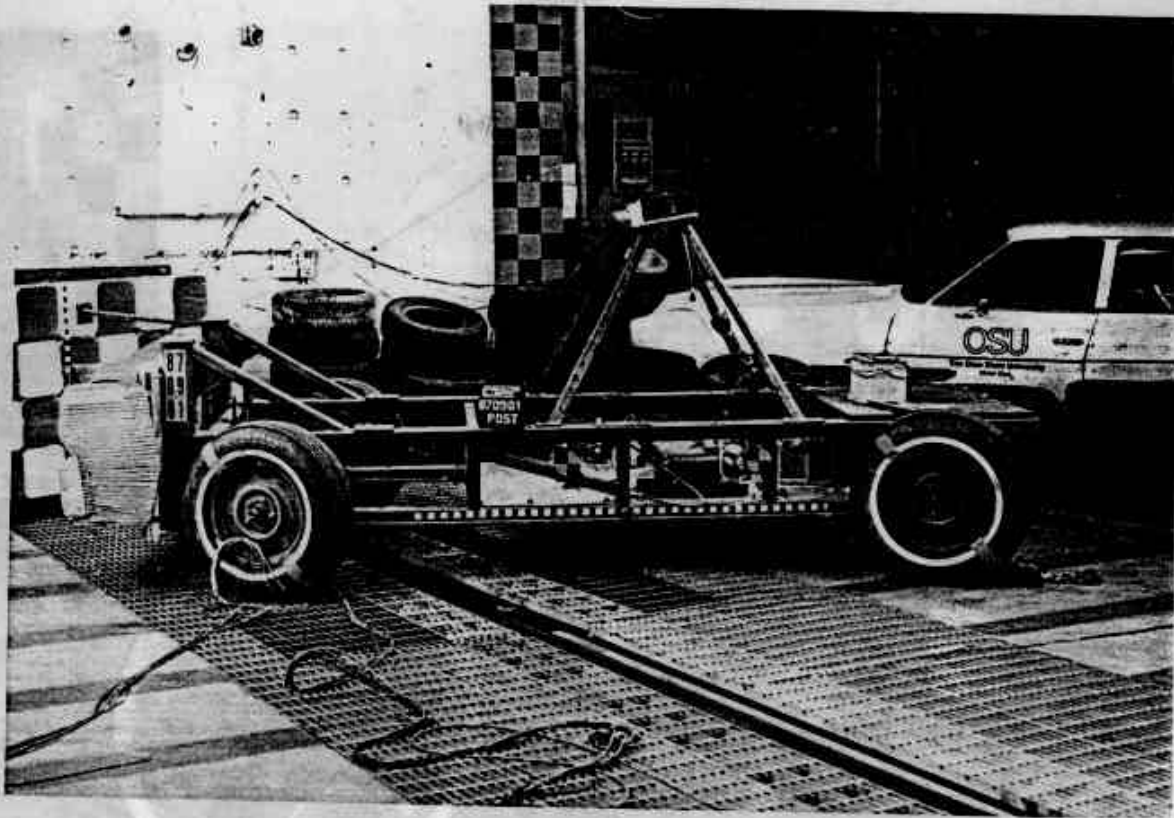


Figure A-15. POST-TEST LEFT SIDE OVERALL VIEW 1

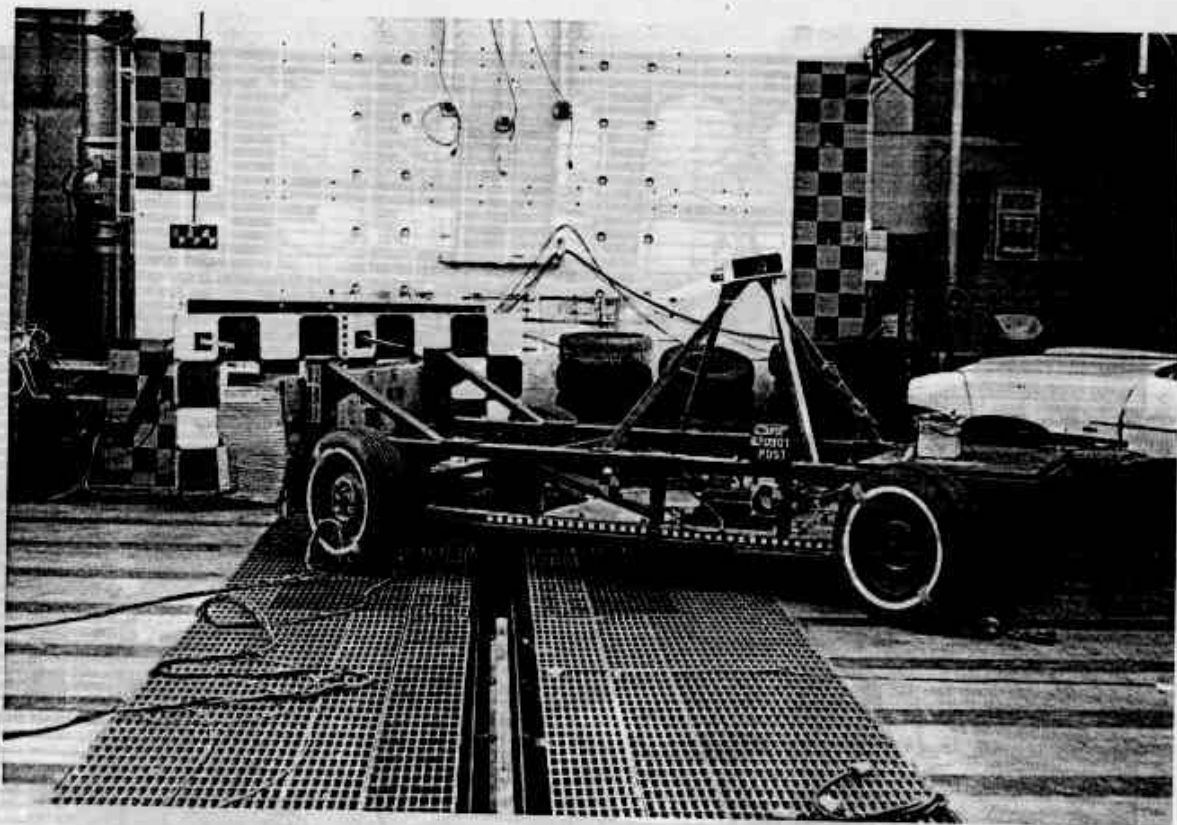


Figure A-16. POST-TEST LEFT SIDE OVERALL VIEW 2

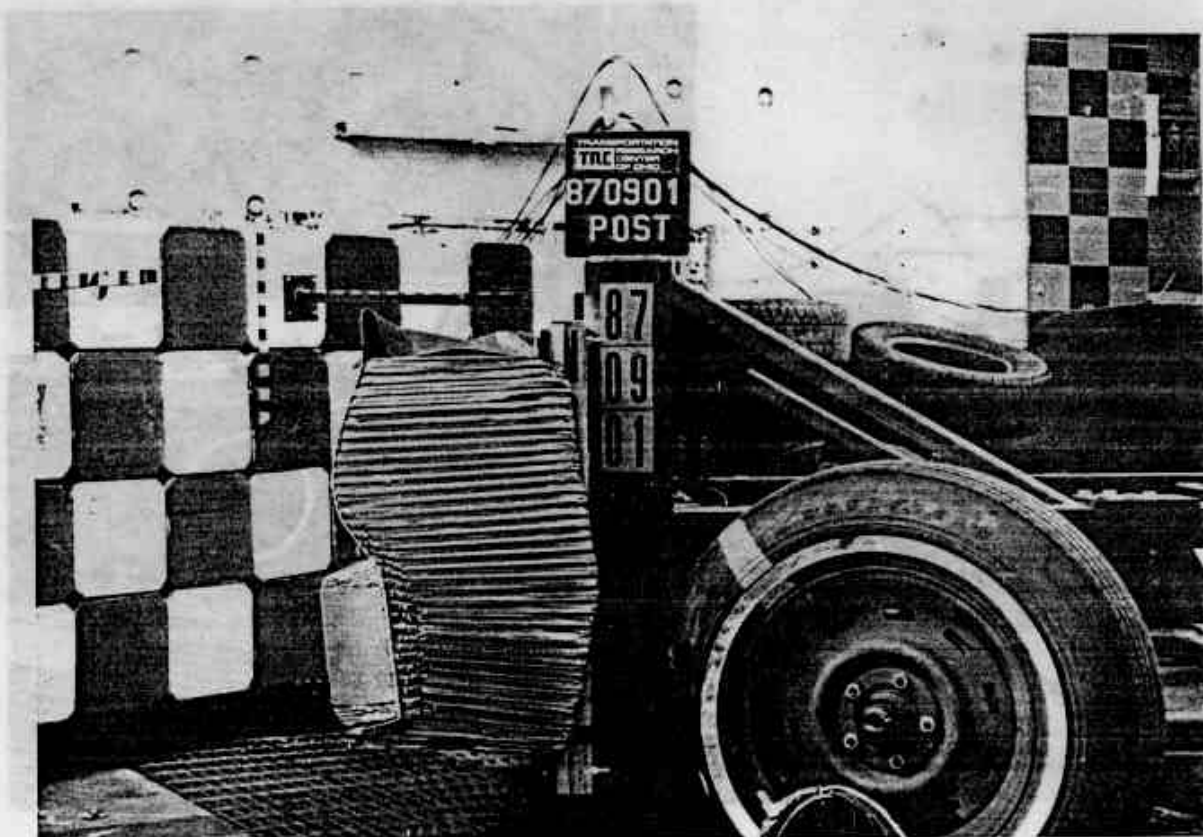


Figure A-17. POST-TEST LEFT CLOSEUP VIEW

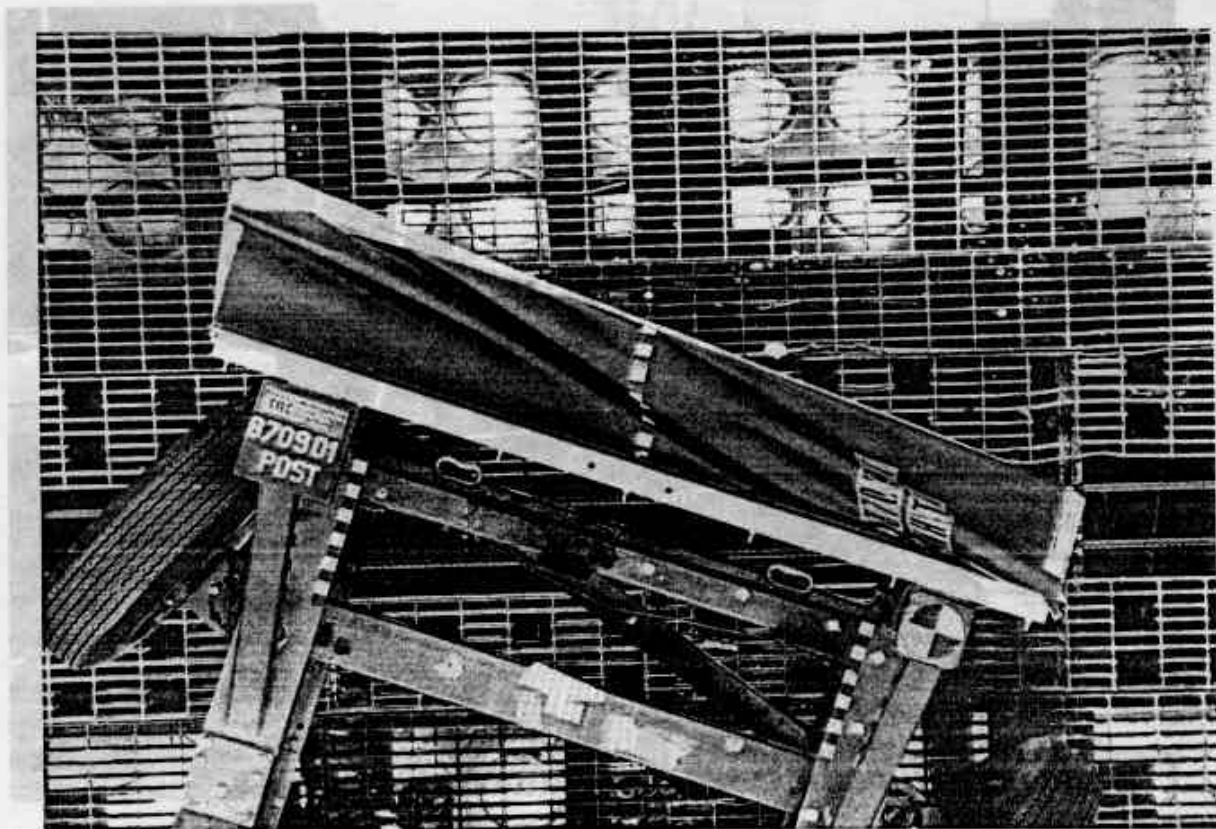


Figure A-18. POST-TEST OVERHEAD - VIEW 1
A-10

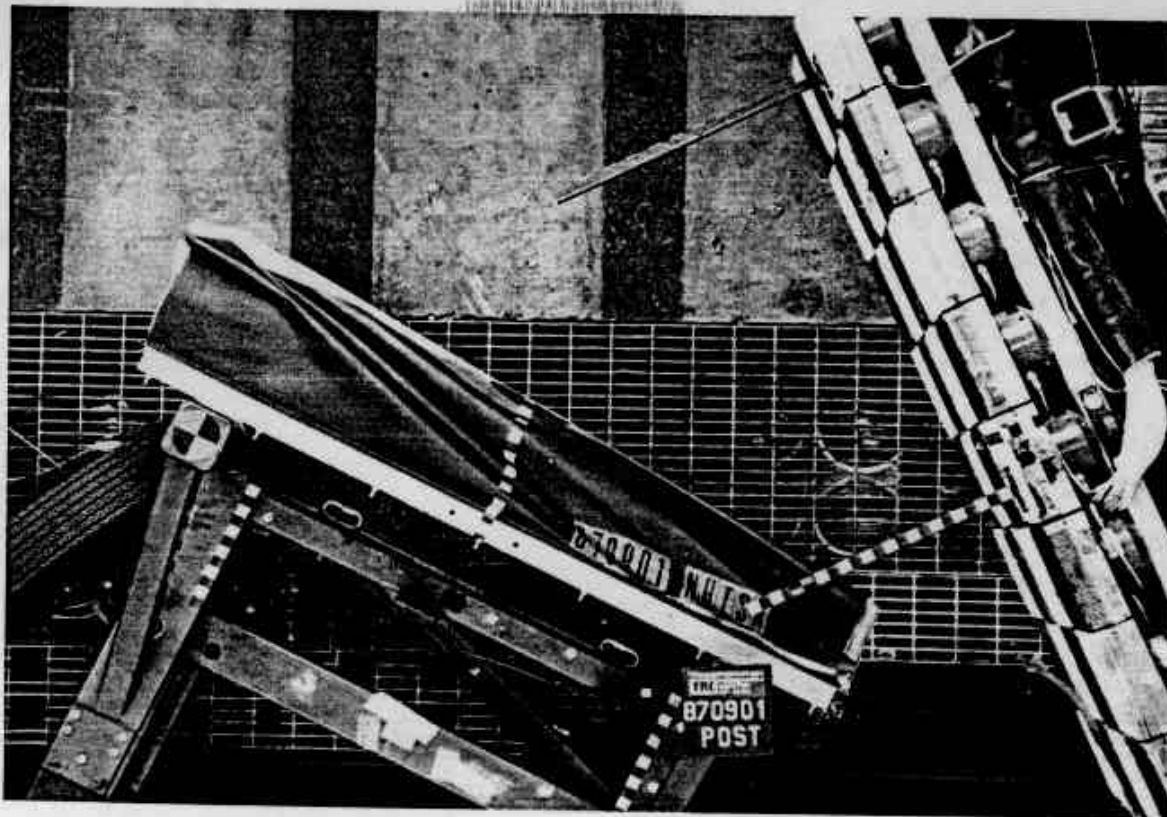


Figure A-19. POST-TEST OVERHEAD - VIEW 2

APPENDIX B

PHOTOGRAPHS TEST #2

<u>Figure</u>		<u>Page</u>
A-1.	PRE-TEST FRONT - VIEW 1	B-2
A-2.	PRE-TEST FRONT - VIEW 2	B-2
A-3.	PRE-TEST RIGHT SIDE OVERALL VIEW	B-3
A-4.	PRE-TEST REAR - VIEW 1	B-3
A-5.	PRE-TEST REAR - VIEW 2	B-4
A-6.	PRE-TEST LEFT SIDE OVERALL VIEW	B-4
A-7.	PRE-TEST LEFT CLOSEUP VIEW	B-5
A-8.	PRE-TEST OVERHEAD - VIEW 1	B-5
A-9.	PRE-TEST OVERHEAD - VIEW 2	B-6
A-10.	POST-TEST FRONT VIEW	B-6
A-11.	POST-TEST RIGHT FRONT CLOSEUP VIEW	B-7
A-12.	POST-TEST LEFT SIDE OVERALL VIEW	B-7
A-13.	POST-TEST LEFT FRONT CLOSEUP VIEW	B-8
A-14.	POST-TEST OVERHEAD - VIEW 1	B-8
A-15.	POST-TEST OVERHEAD - VIEW 2	B-9

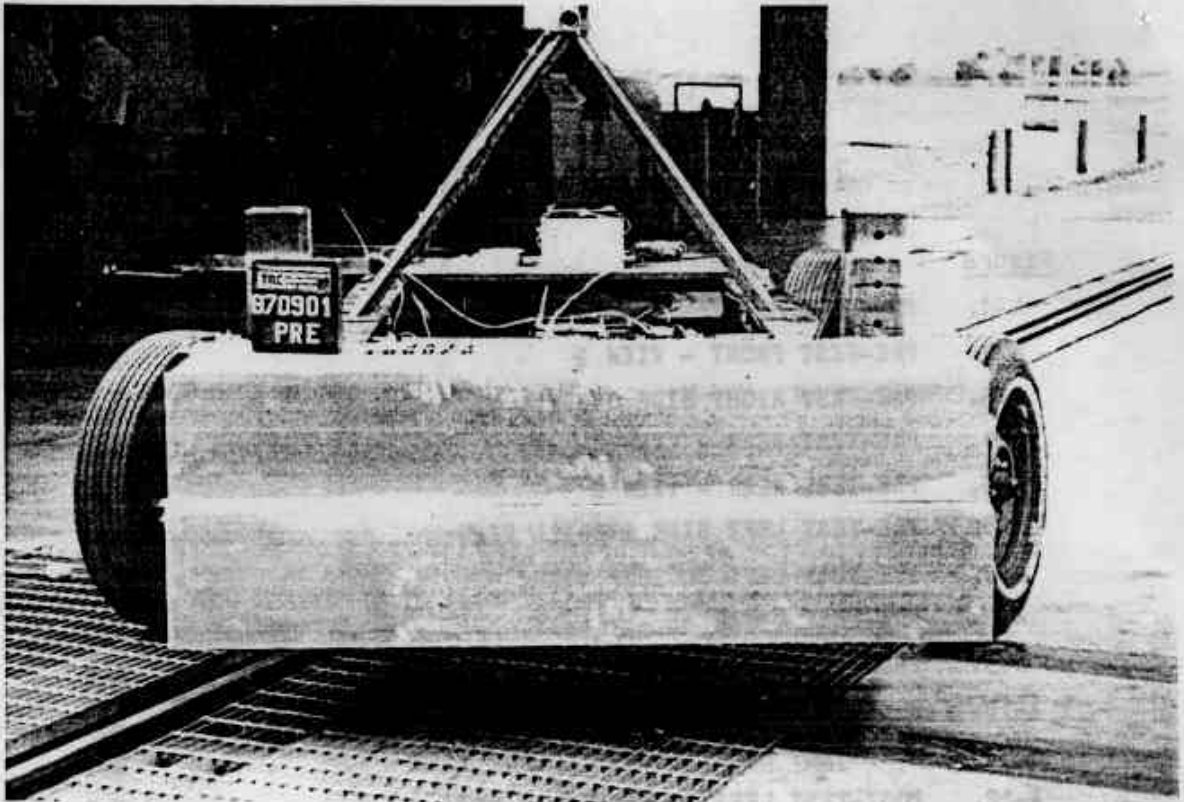


Figure A-1. PRE-TEST FRONT - VIEW 1

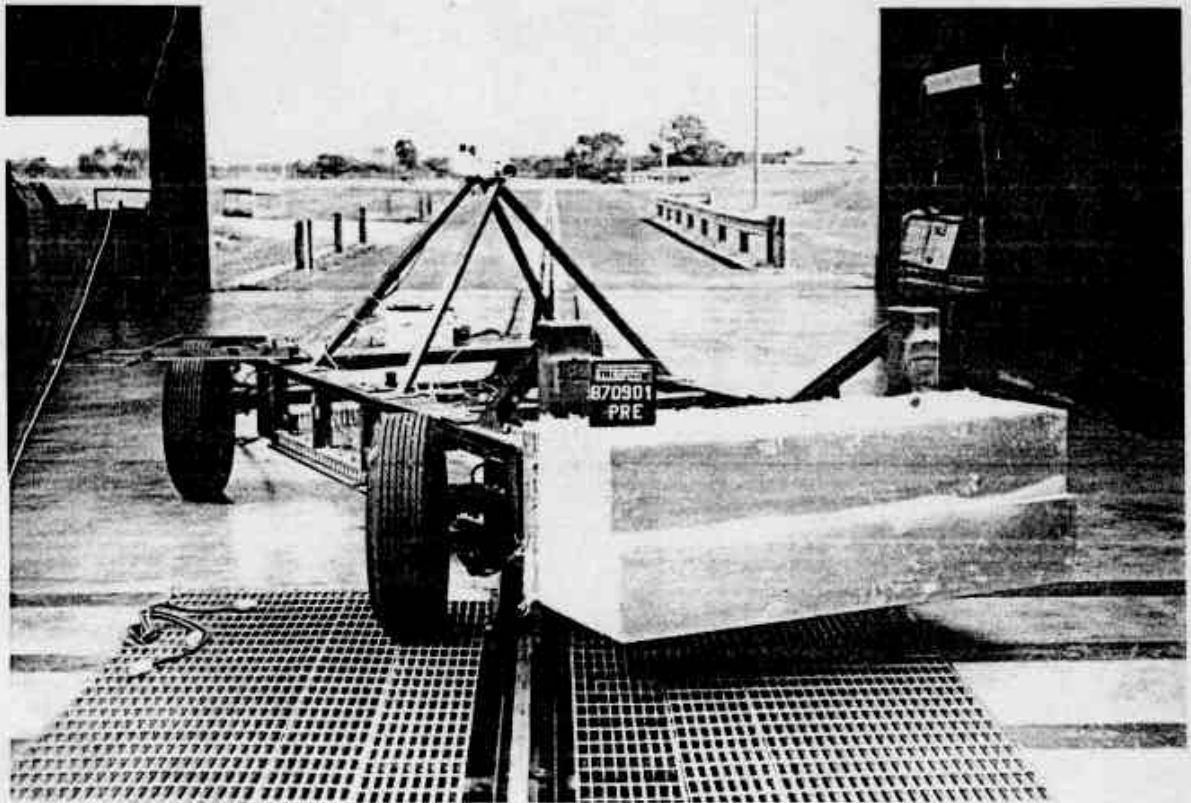


Figure A-2. PRE-TEST FRONT - VIEW 2

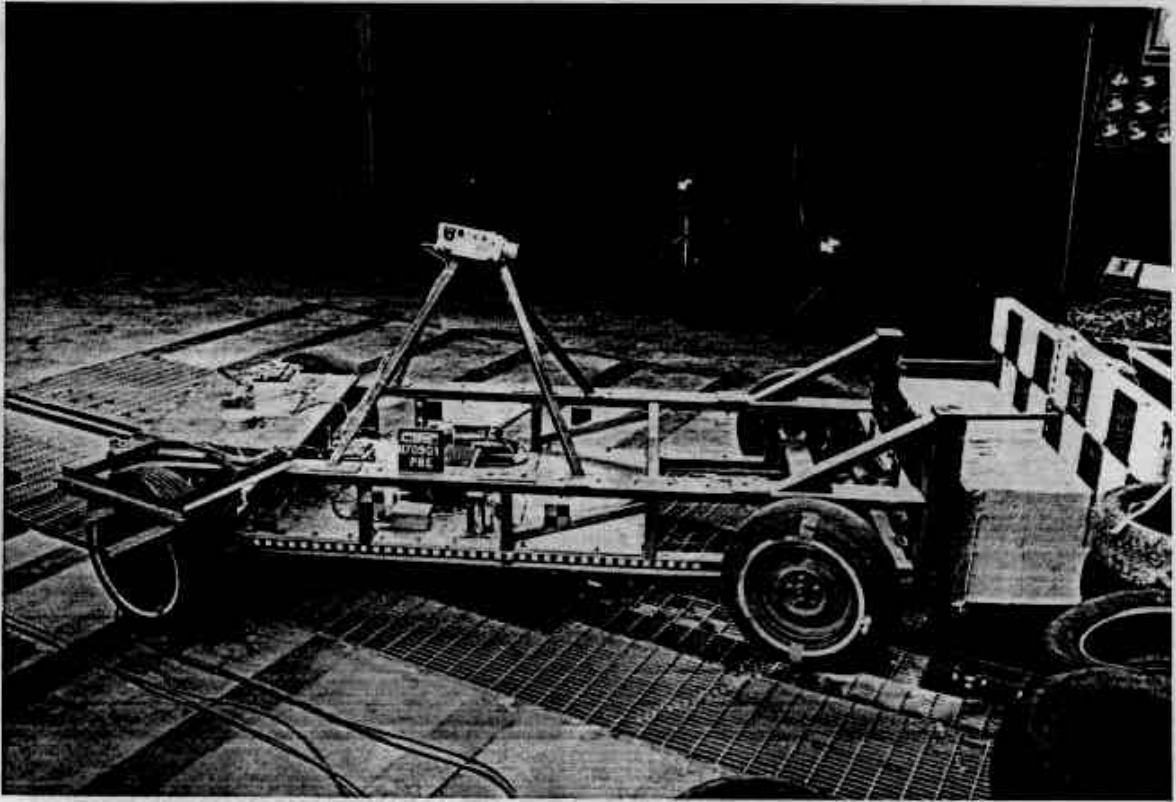


Figure A-3. PRE-TEST RIGHT SIDE OVERALL VIEW
S. M. IV - R. A. H. TEST - 2001 - 2-3-57

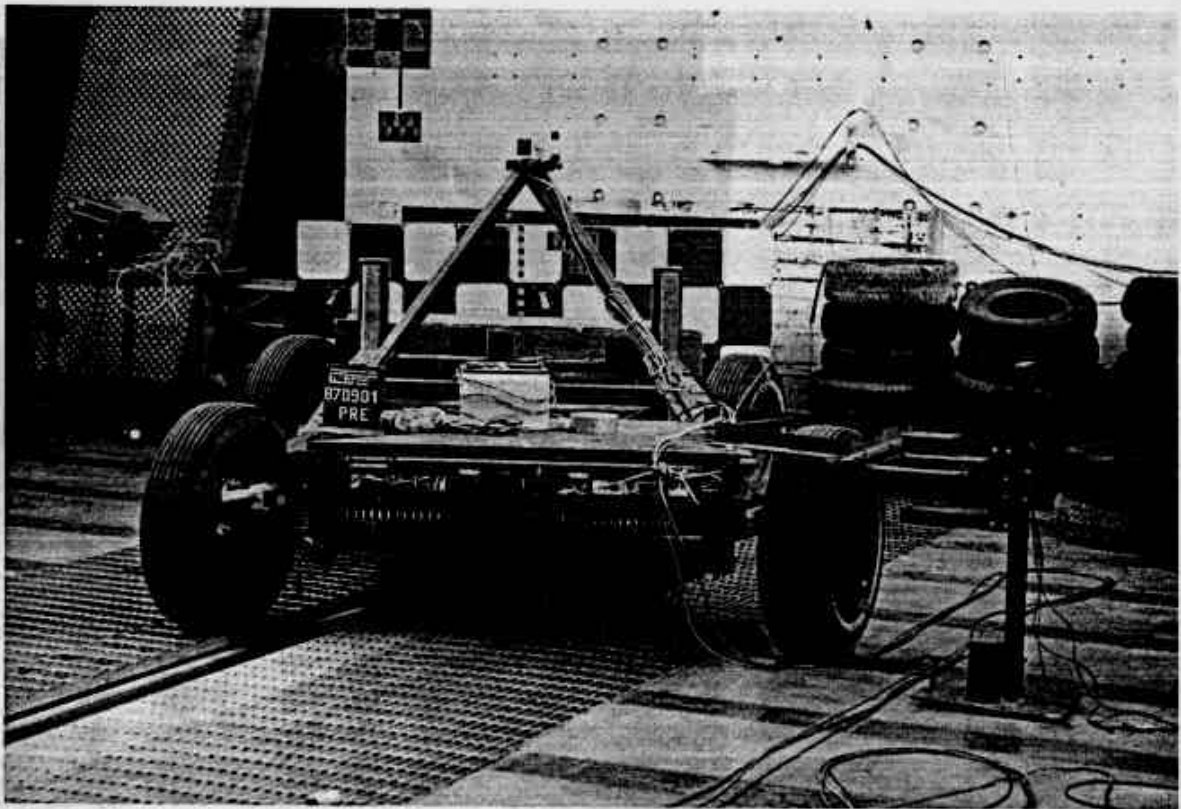


Figure A-4. PRE-TEST REAR - VIEW 1
S. M. IV - R. A. H. TEST - 2001 - 2-3-57

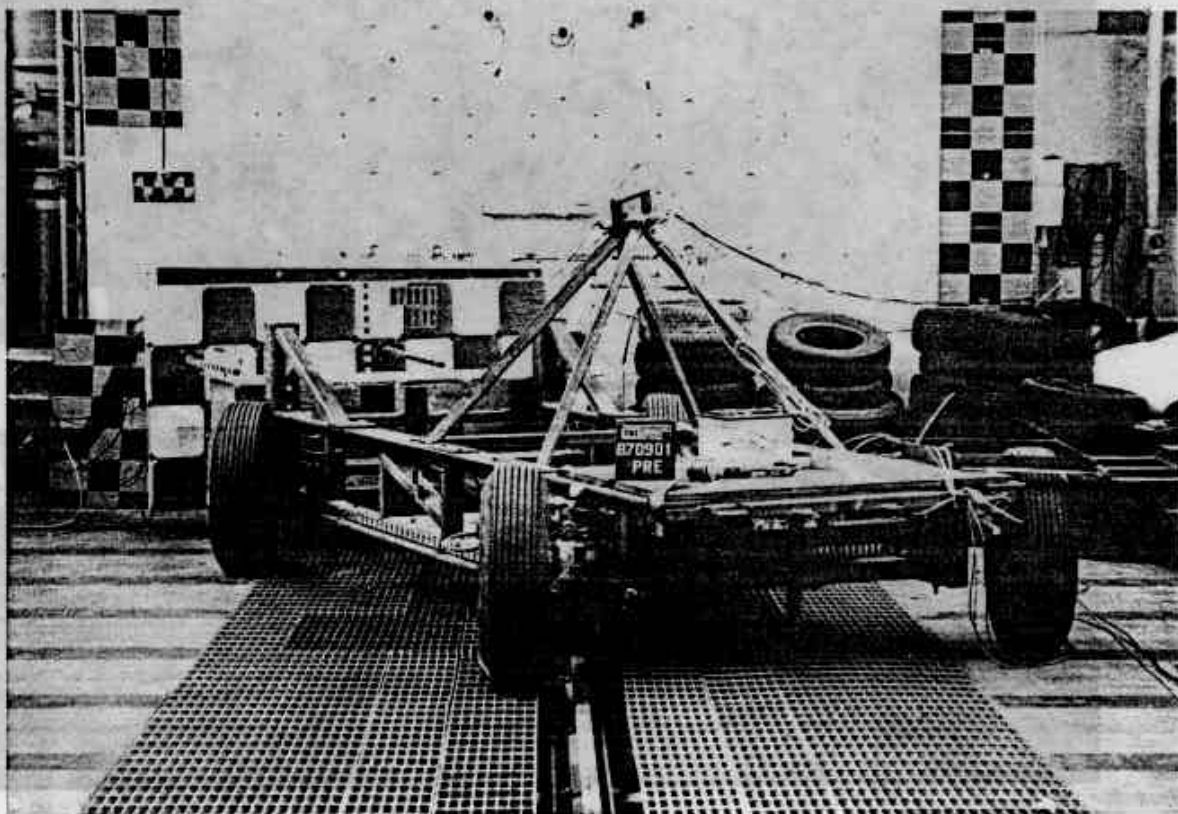


Figure A-5. PRE-TEST REAR - VIEW 2

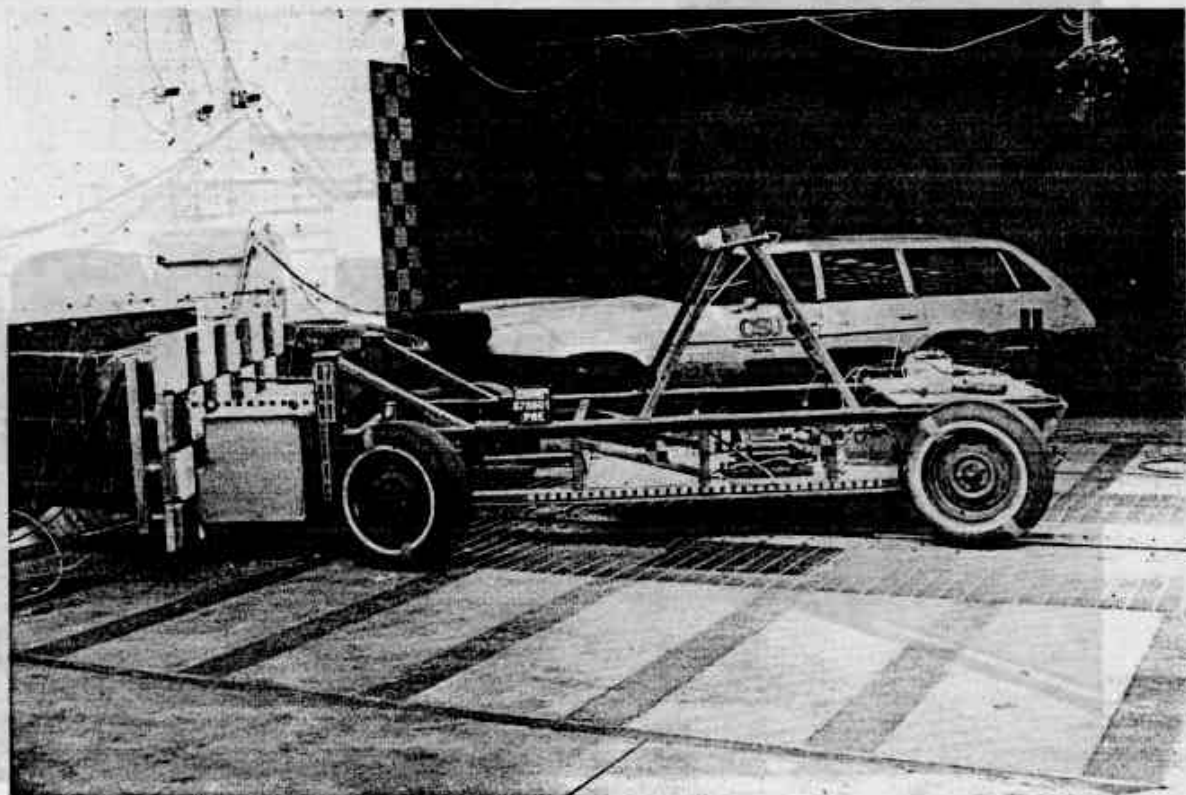


Figure A-6. PRE-TEST LEFT SIDE OVERALL VIEW

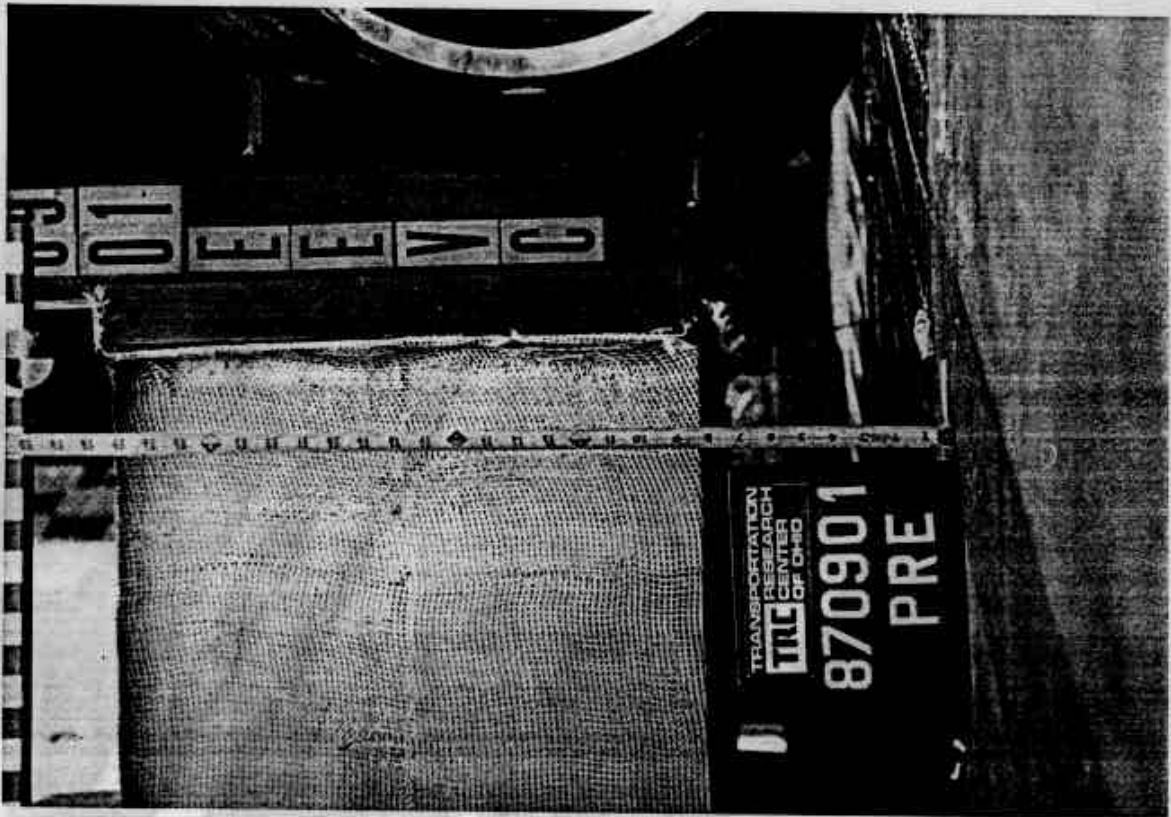


Figure A-7. PRE-TEST LEFT CLOSEUP VIEW

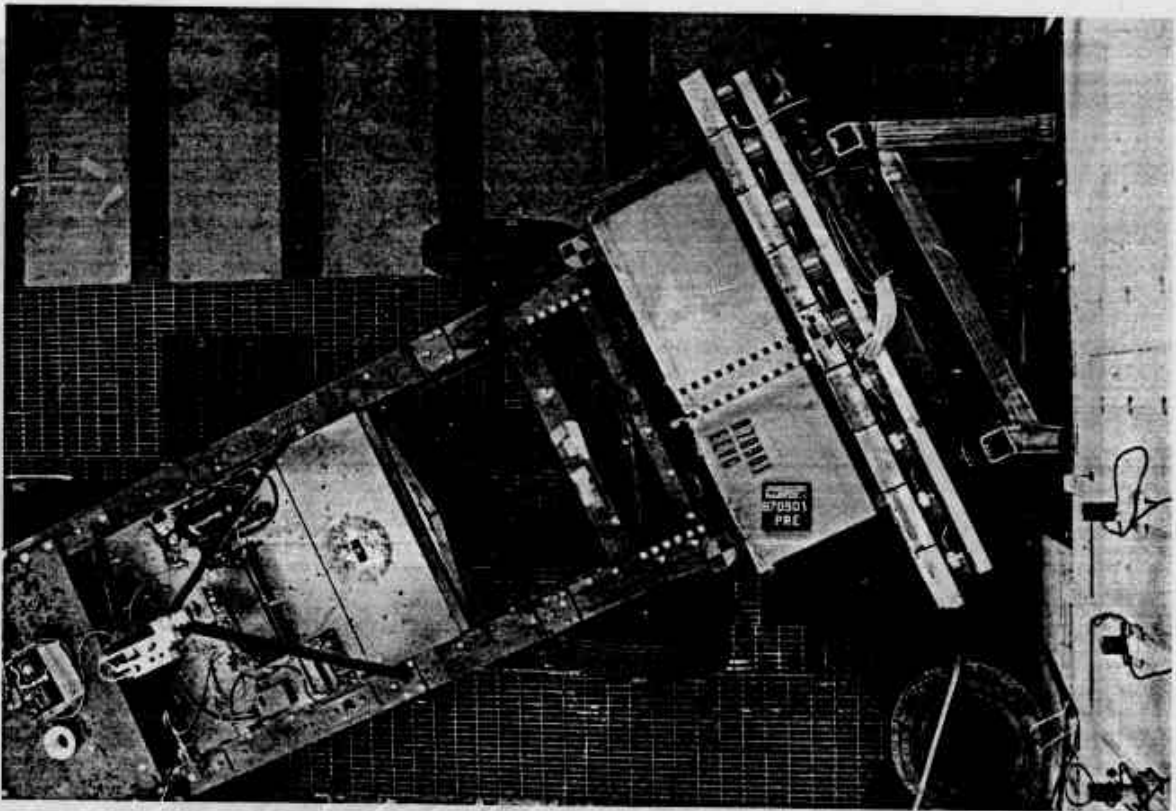
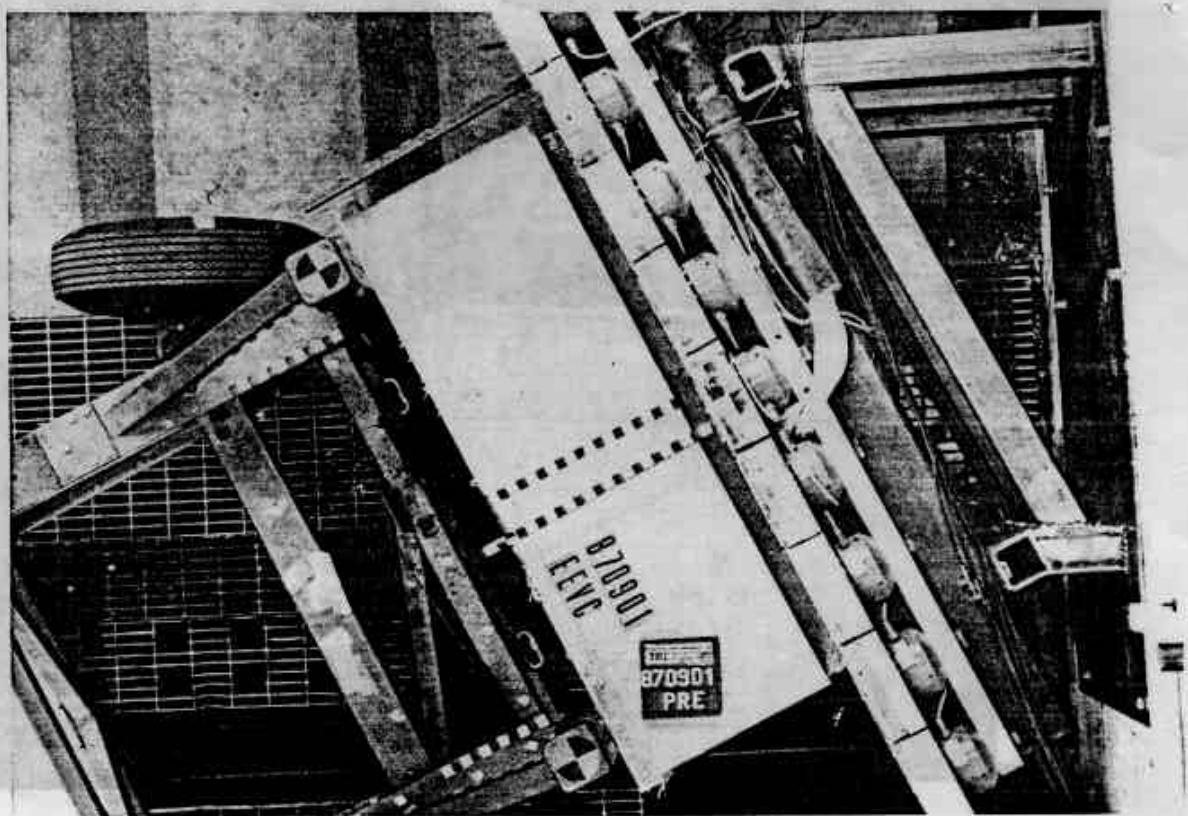


Figure A-8. PRE-TEST OVERHEAD - VIEW 1



View A-9 - PRE-TEST OVERHEAD VIEW
Figure A-9. PRE-TEST OVERHEAD - VIEW 2



View A-10 - POST-TEST FRONT VIEW
Figure A-10. POST-TEST FRONT VIEW
B-6

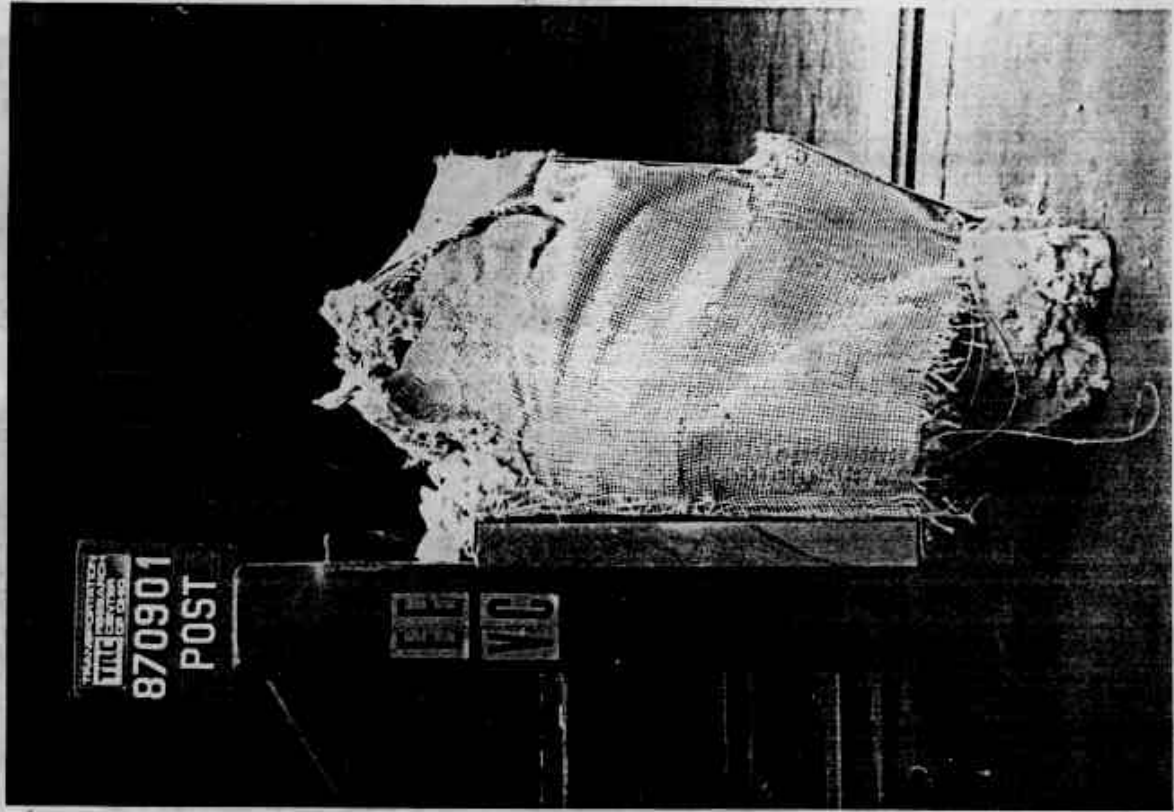


Figure A-11. POST-TEST RIGHT FRONT CLOSEUP VIEW
FIGURE A-11. POST-TEST LEFT FRONT CLOSEUP VIEW

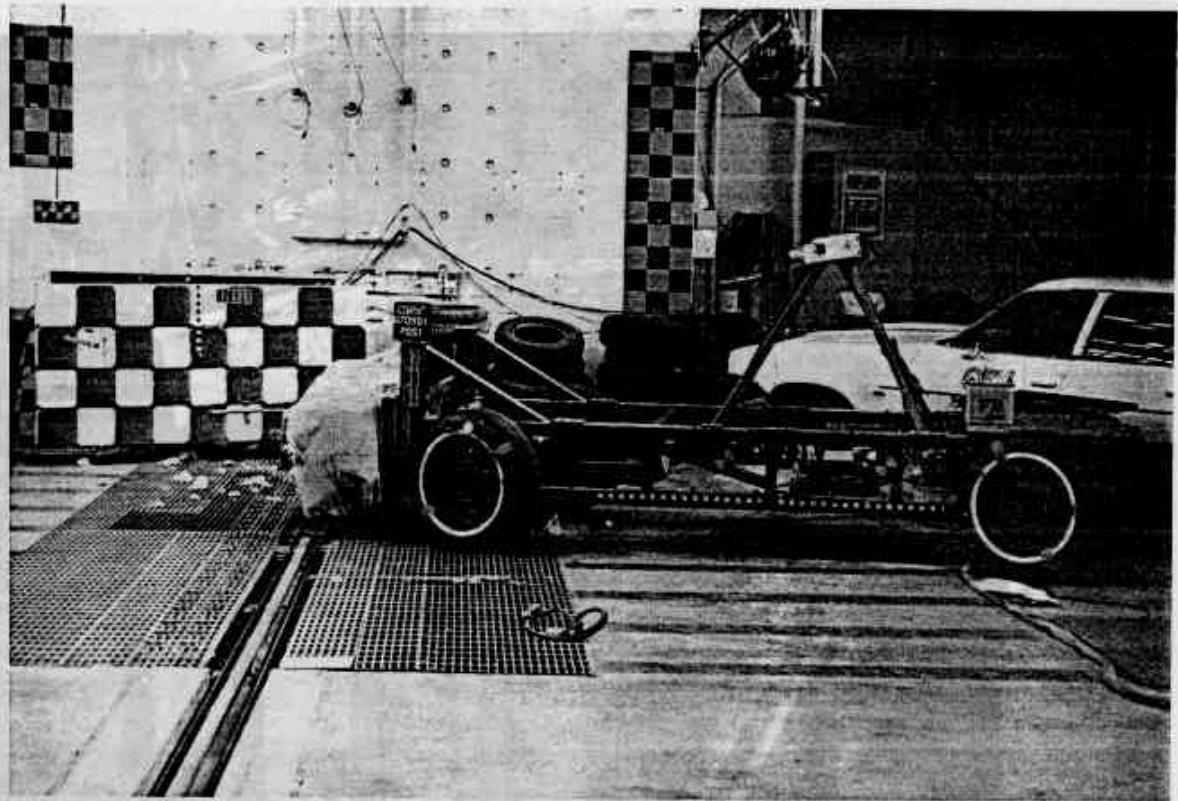


Figure A-12. POST-TEST LEFT SIDE OVERALL VIEW
FIGURE A-12. POST-TEST OVERHEAD VIEW
B-6

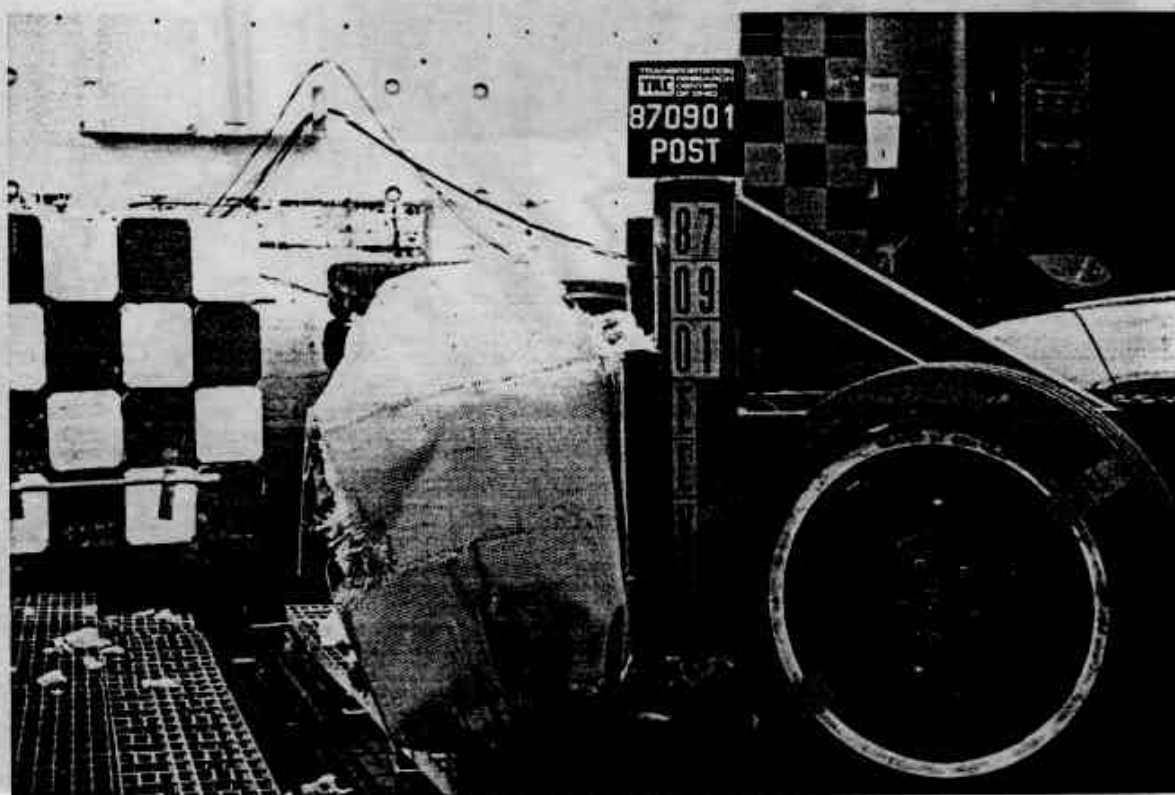


Figure A-13. POST-TEST LEFT FRONT CLOSEUP VIEW



Figure A-14. POST-TEST OVERHEAD FRONT - VIEW 1
B-7

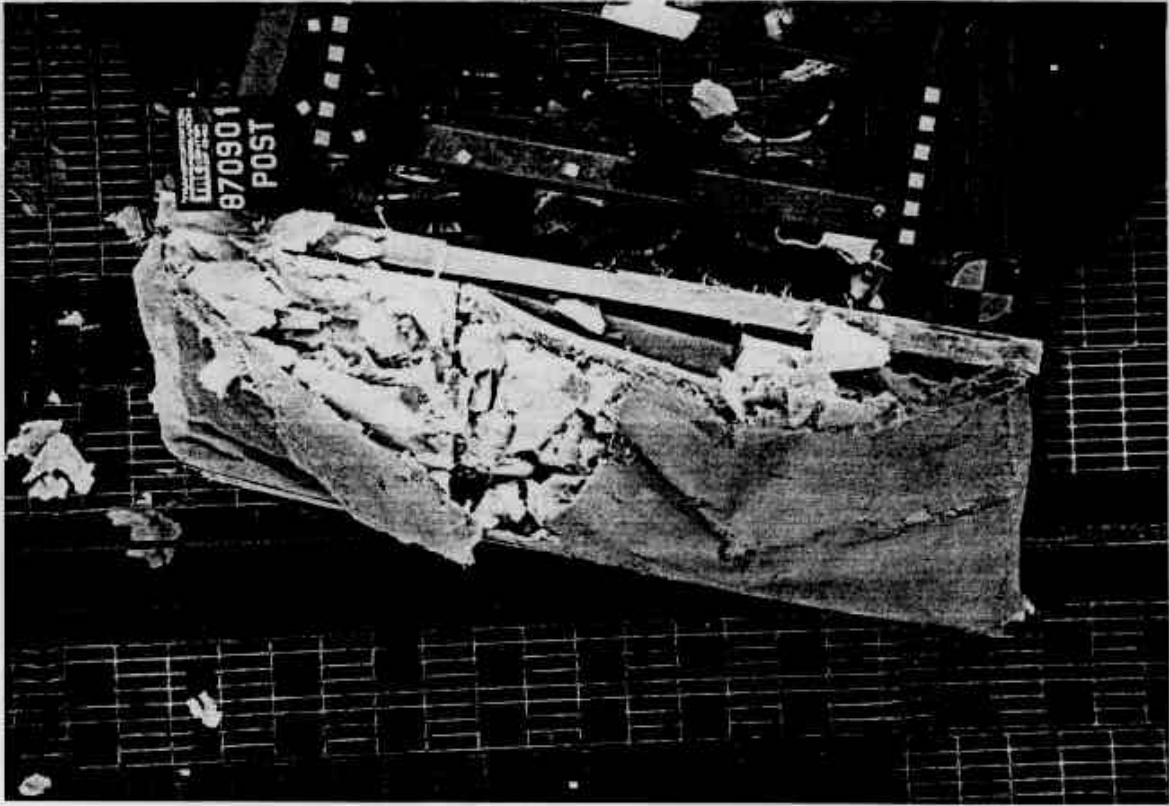


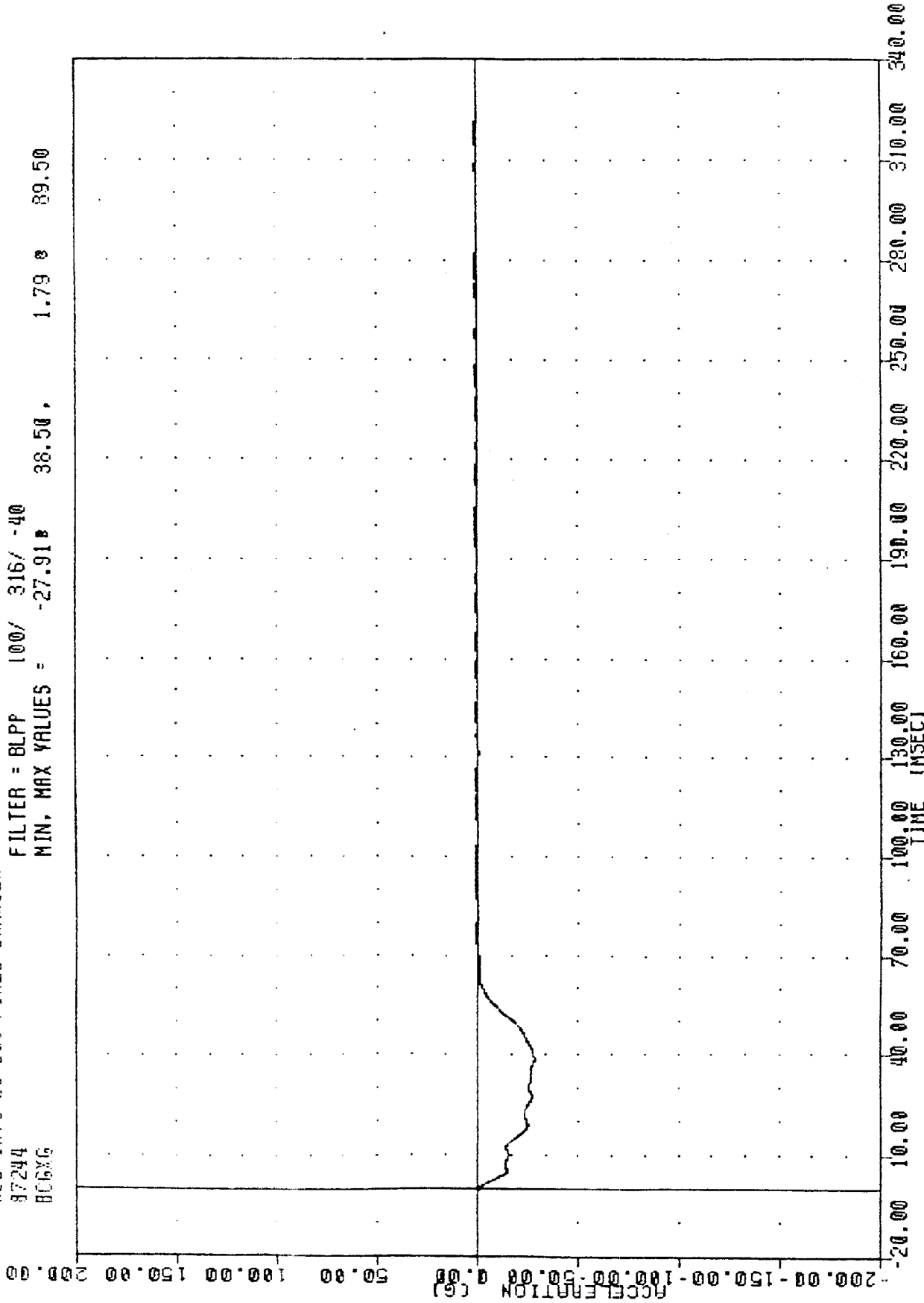
Figure A-15. POST-TEST OVERHEAD FRONT - VIEW 2

APPENDIX C

DATA PLOTS TEST #1

VRTC
 NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 97244
 BC6XG

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -27.91 38.50 1.79 89.50

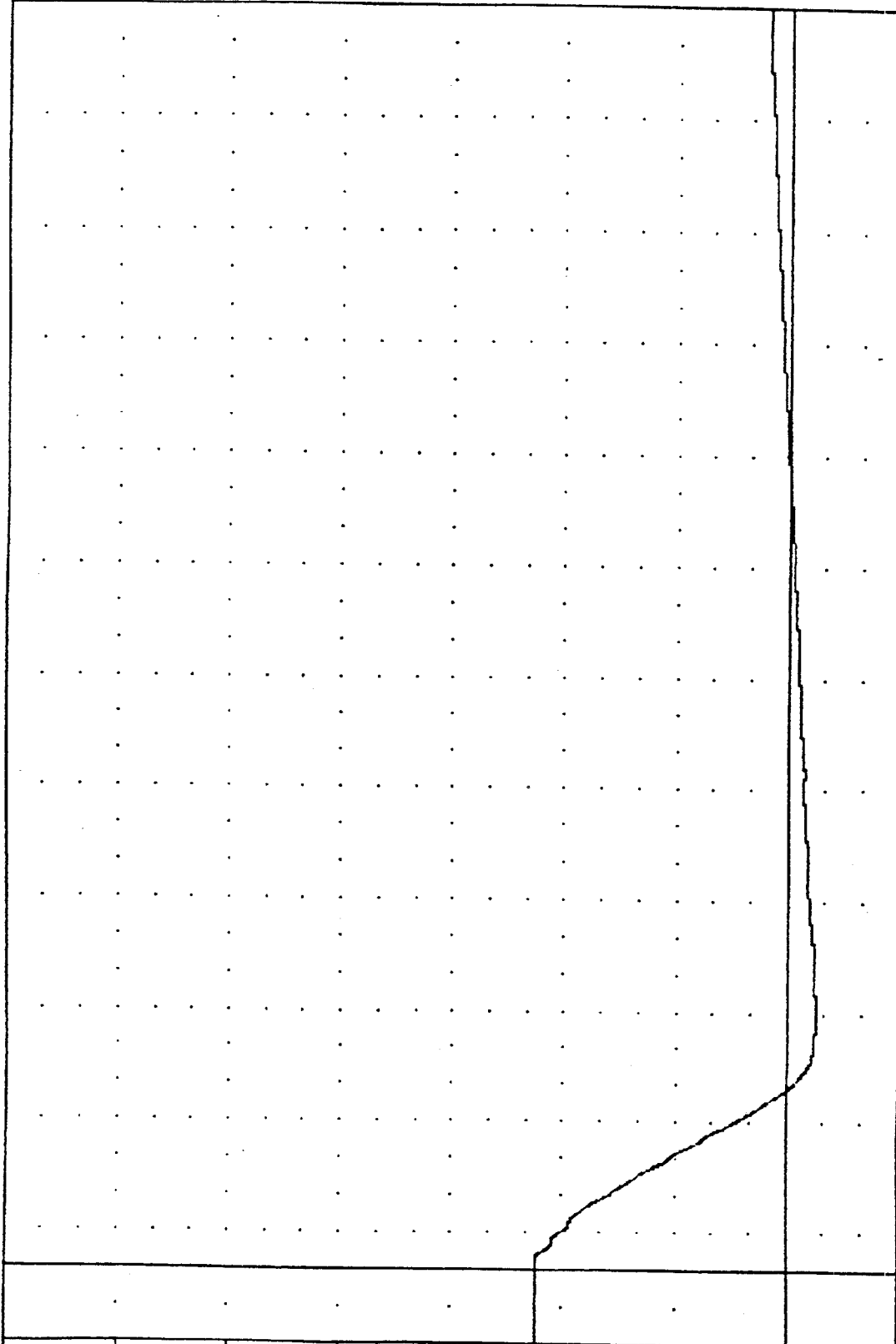


MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 BARRIER CENTER OF GRAVITY X AXIS ACCELERATION

VRTC , NHTSA FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 BC6XV

FILTER = BLPP 300/ 949/ -40
 MIN, MAX VALUES = -2.58e 73.50, 22.49 e -3.50

70.00
 60.00
 50.00
 40.00
 30.00
 20.00
 10.00
 0.00
 -10.00
 -20.00

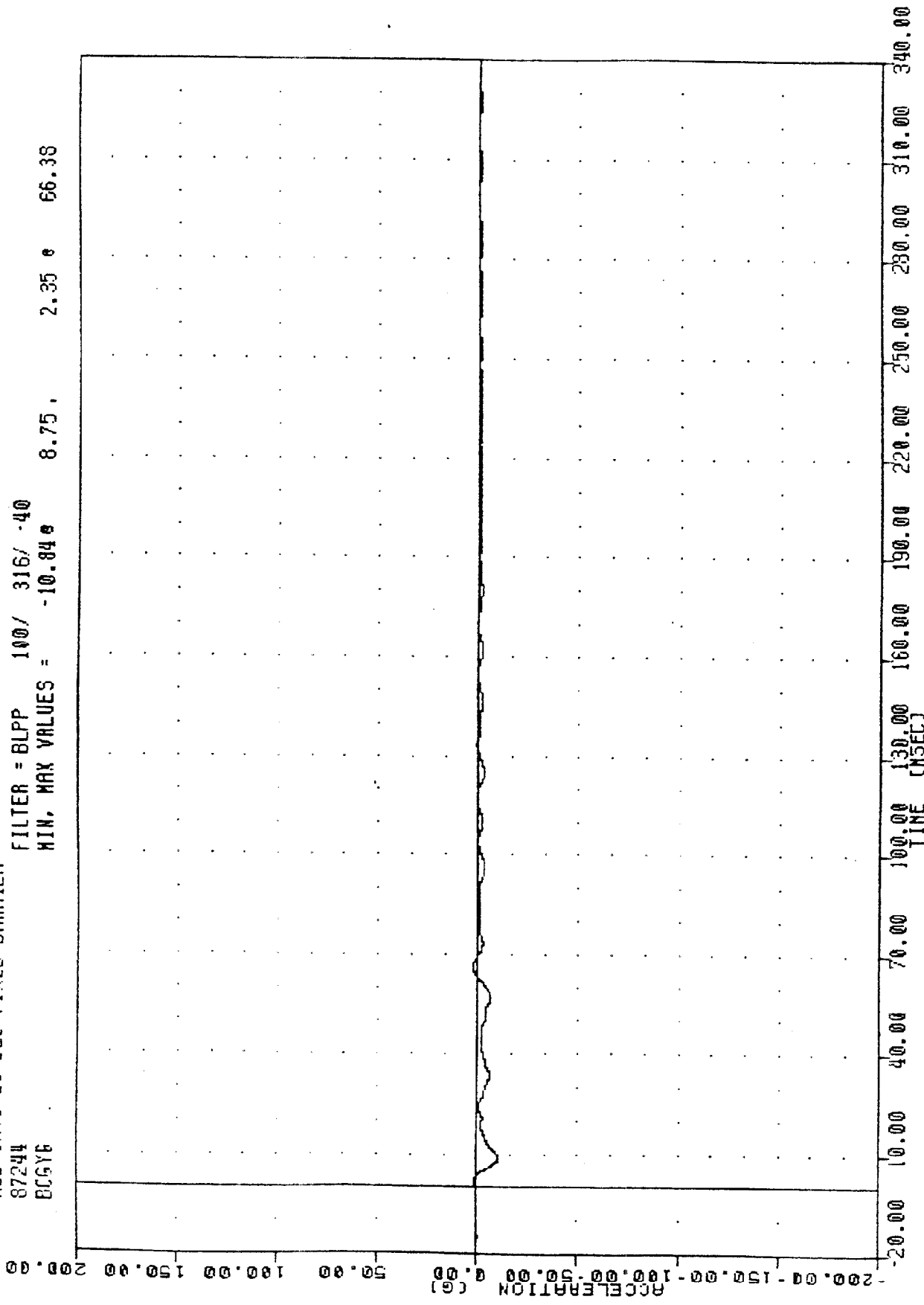


340.00
 310.00
 280.00
 250.00
 220.00
 190.00
 160.00
 130.00
 100.00
 70.00
 40.00
 10.00

MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 BARRIER CENTER OF GRAVITY X AXIS VELOCITY

VATIC , NHTSR FACE
MOB INTO 26 DEG FIXED BARRIER
87244
BCGY6

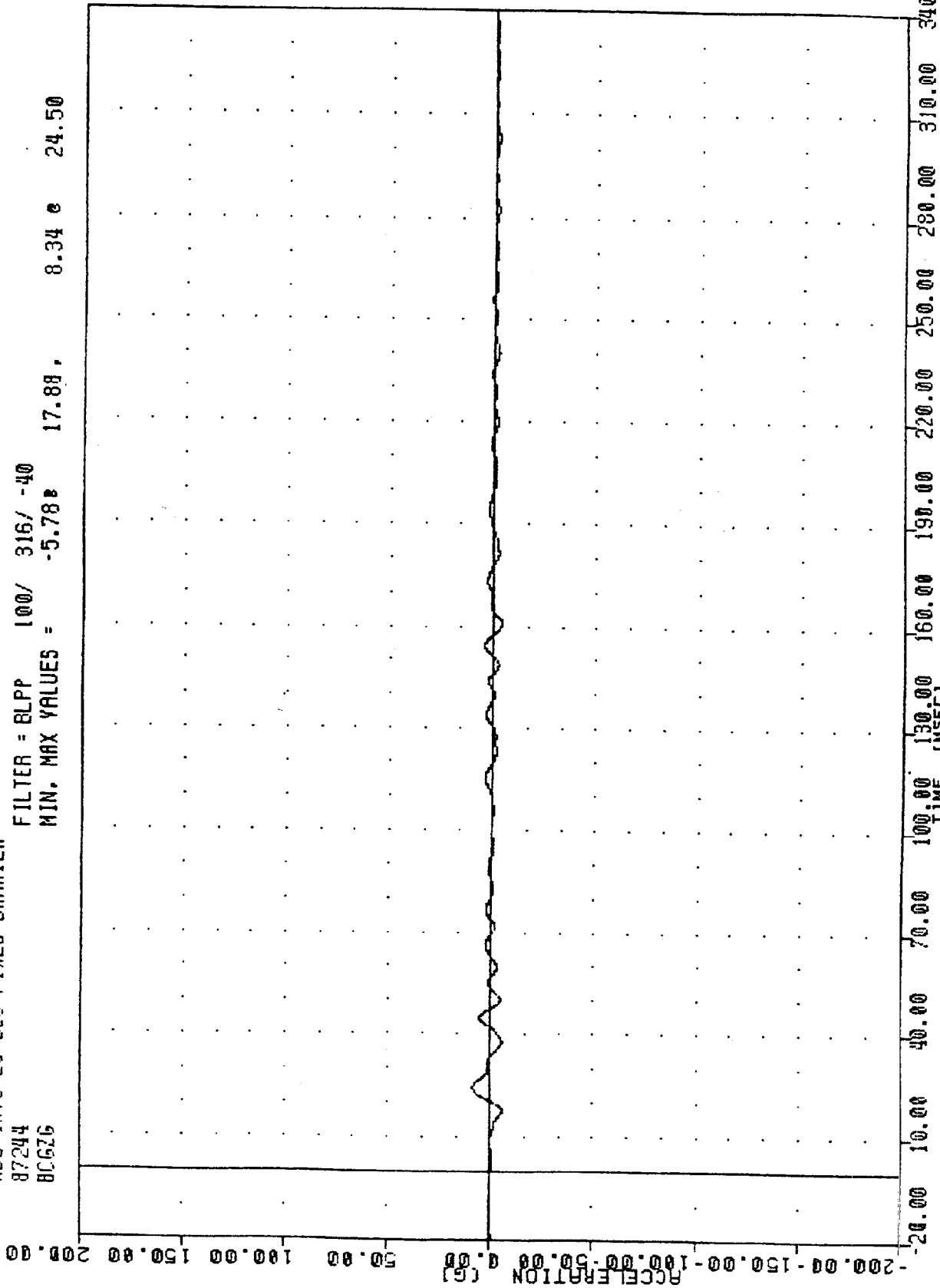
FILTER = BLPP 100/ 316/ -40
MIN, MAX VALUES = -10.84 e 8.75 , 2.35 e 66.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
BARRIER CENTER OF GRAVITY Y AXIS ACCELERATION

VRTC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC626

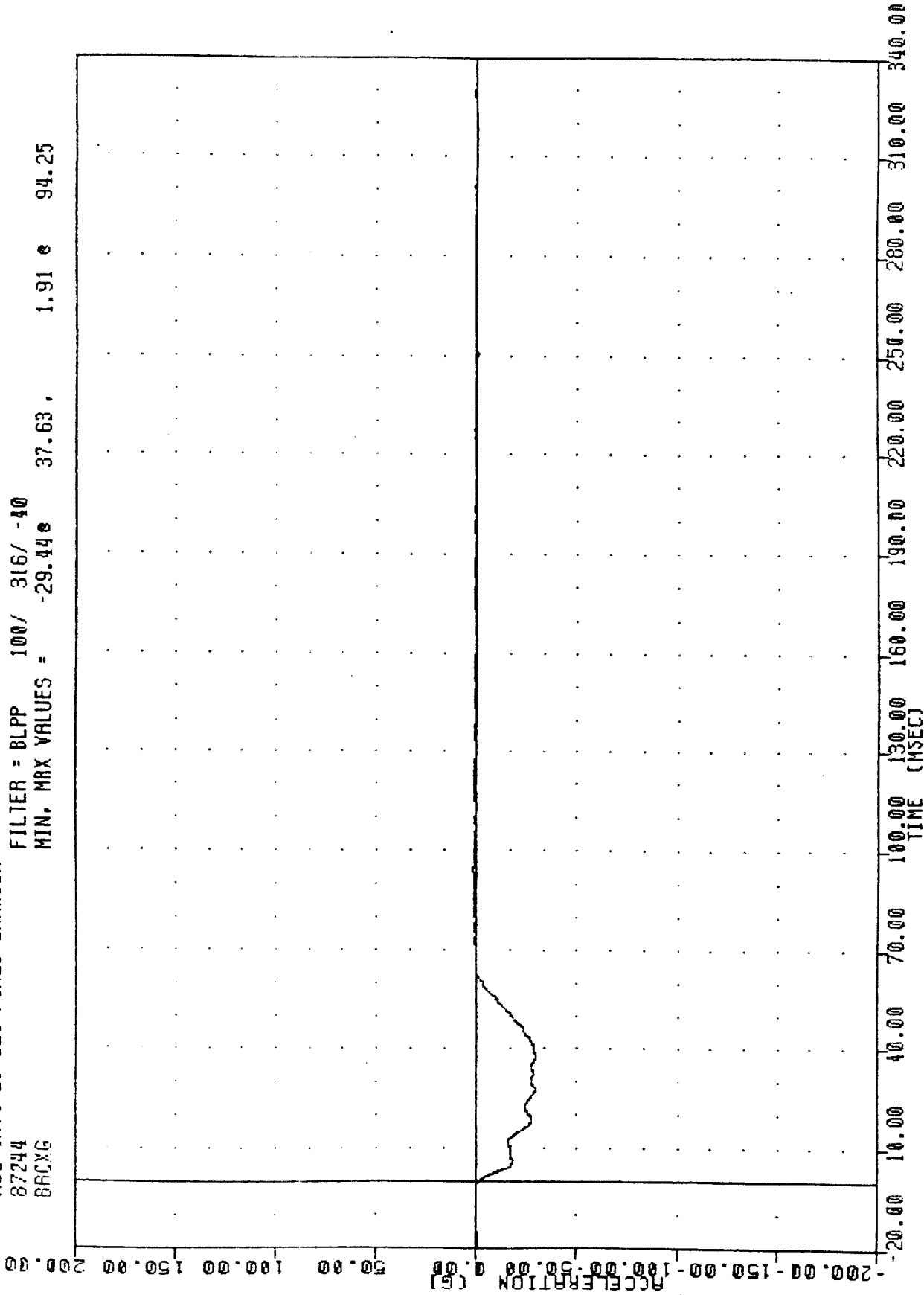
FILTER = 8LPP 100/ 316/ -40
 MIN. MAX VALUES = -5.78 17.88 8.34 e 24.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 BARRIER CENTER OF GRAVITY Z AXIS ACCELERATION

VRTC , NHTSA FACE
MDB INTO 26 DEG FIXED BARRIER
87244
6FCXG

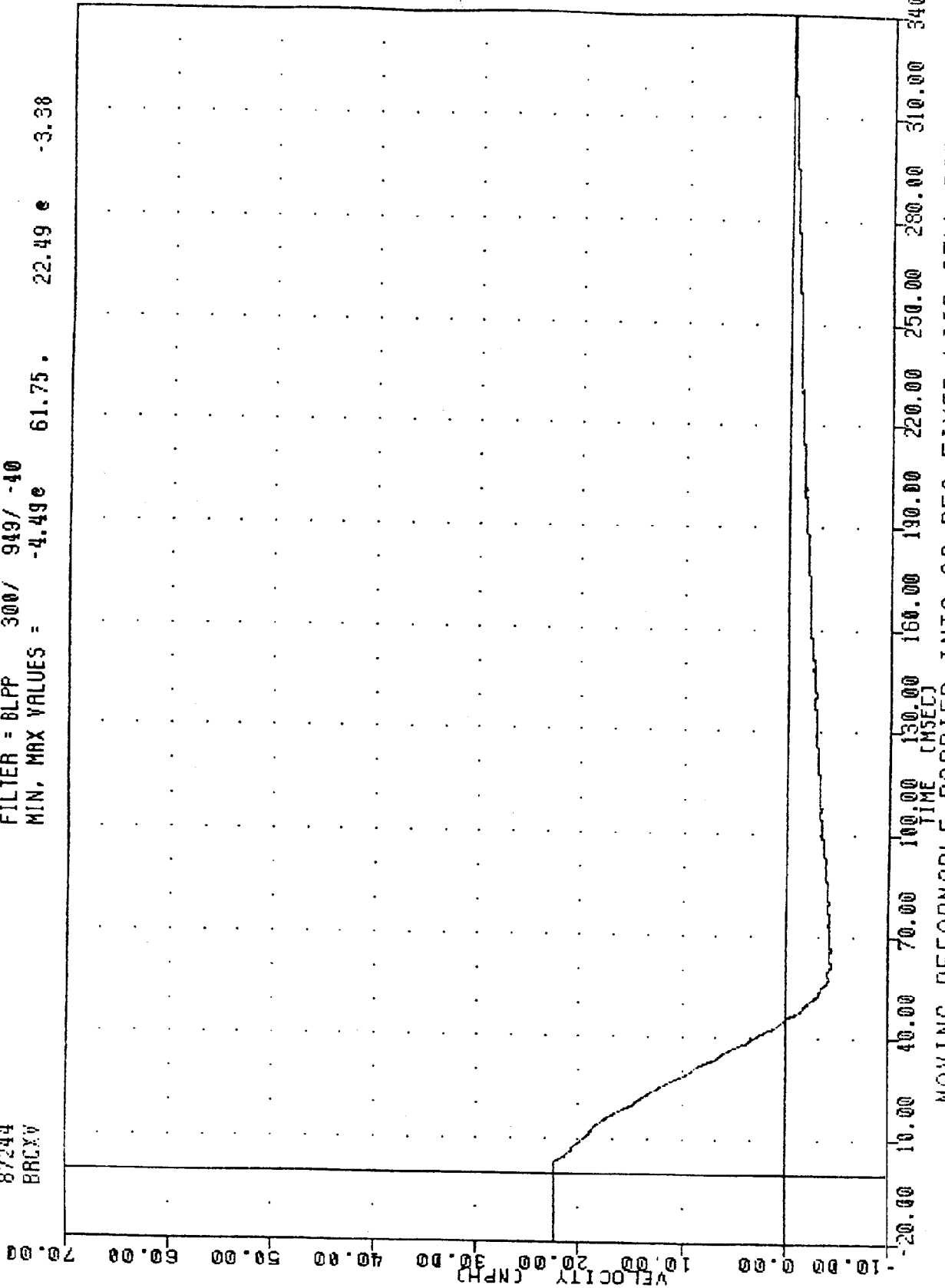
FILTER = BLPP 100/ 316/ -40
MIN. MAX VALUES = -29.44e 1.91e 94.25



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
BARRIER REAR CROSSMEMBER X AXIS ACCELERATION

WRIC , NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 BRXYV

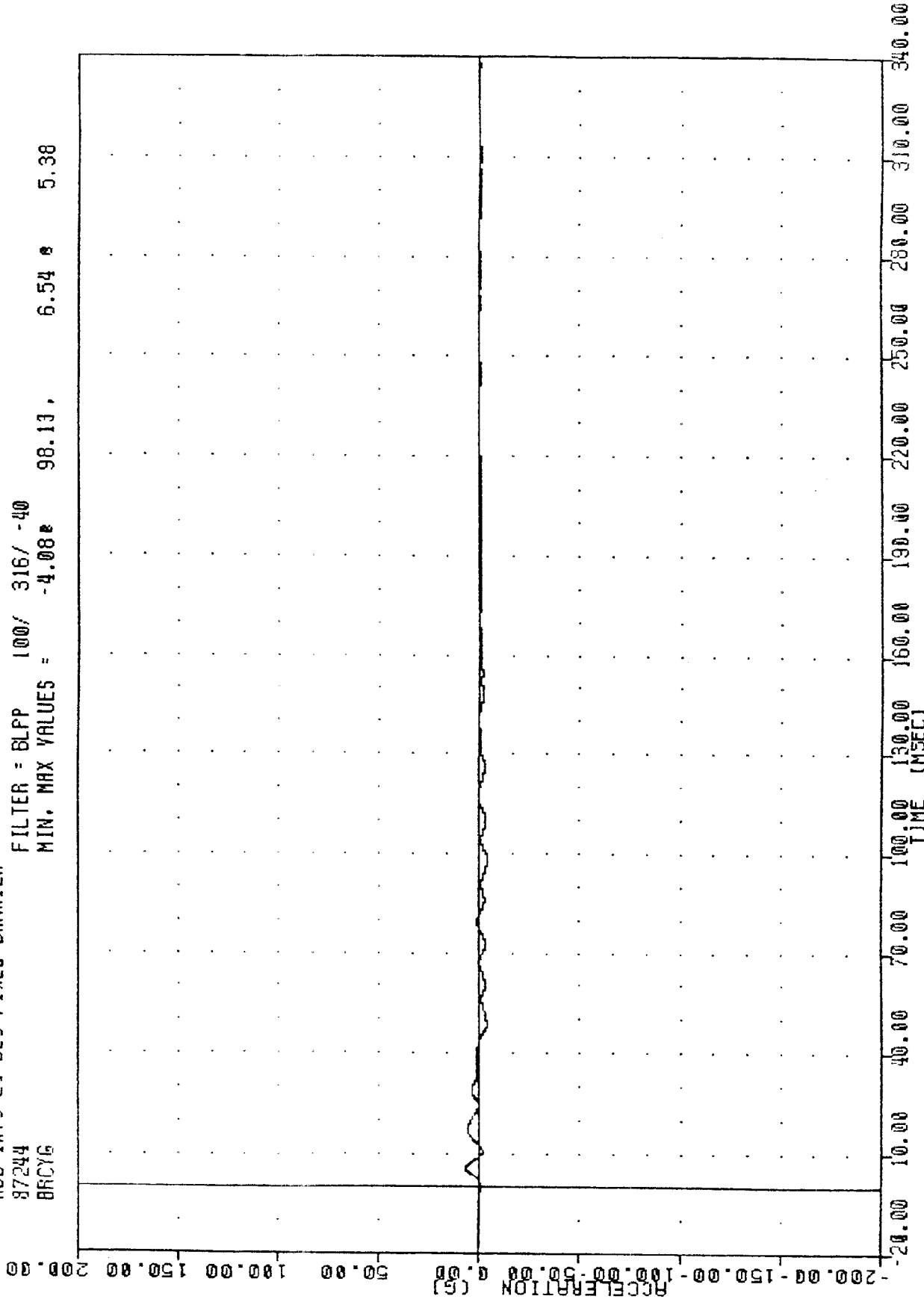
FILTER = 8LPP 300/ 949/ -40
 MIN, MAX VALUES = -4.49e 61.75 . 22.49 e -3.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 BARRIER REAR CROSSMEMBER X AXIS VELOCITY

VRTC , NHTSA FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 BRCY6

FILTER = 6LPP 100/ 316/ -40
 MIN. MAX VALUES = -4.08 98.13 , 6.54 5.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 BARRIER REAR CROSSMEMBER Y AXIS ACCELERATION

VRIC , NHTSA FACE

NDB INTO 26 DEG FIXED BARRIER

87244

BRIF

FILTER = BLPP 100/ 316/ -40

MIN, MAX VALUES = -307.81 352.72 8.63

20.00

10.00

0.00
(X10³)

-10.00

-20.00

-30.00

-40.00

-50.00

-60.00

-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

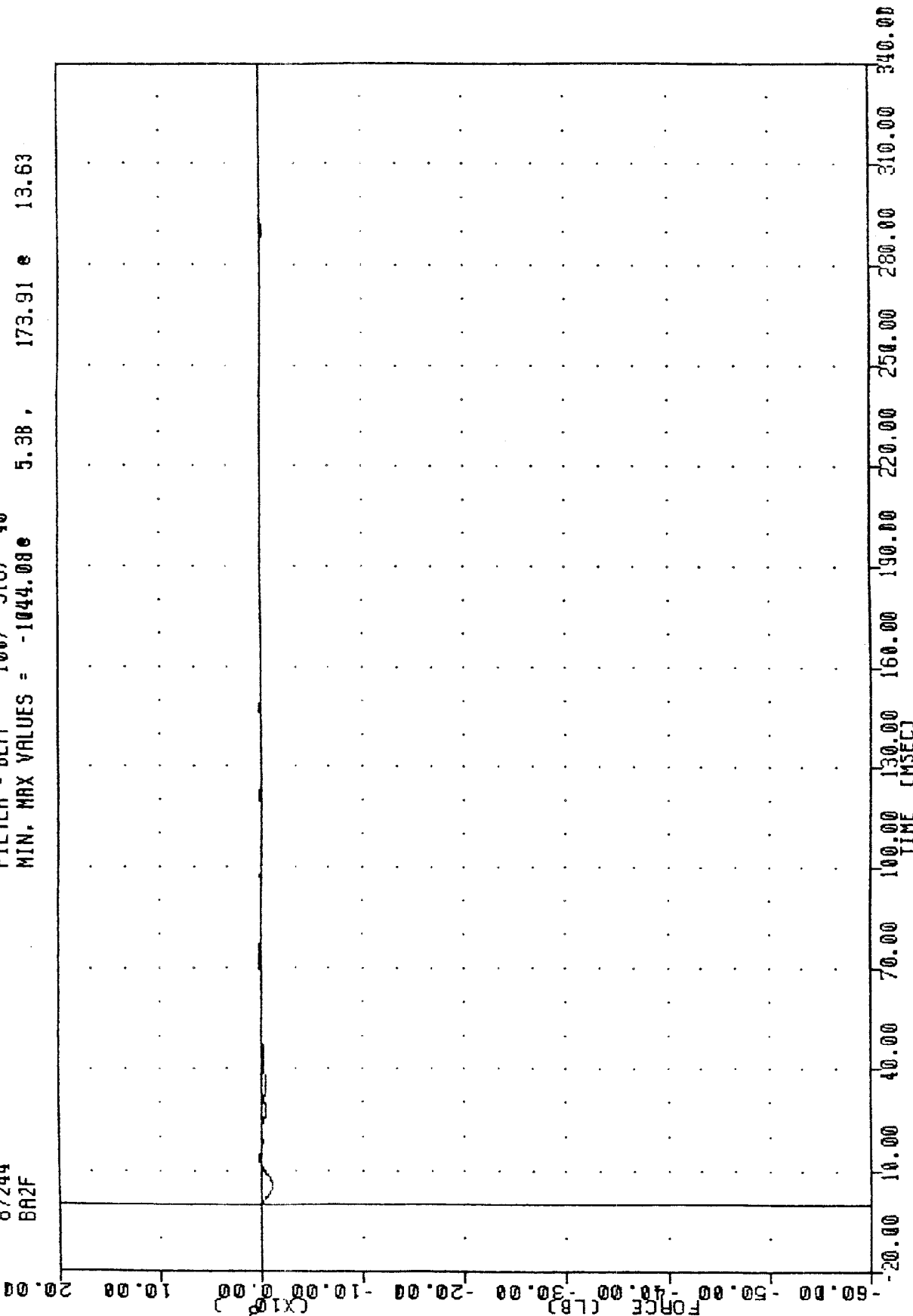
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER

LOAD CELL BARRIER POSITION A1 LBS

VRTC , NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 BAZF

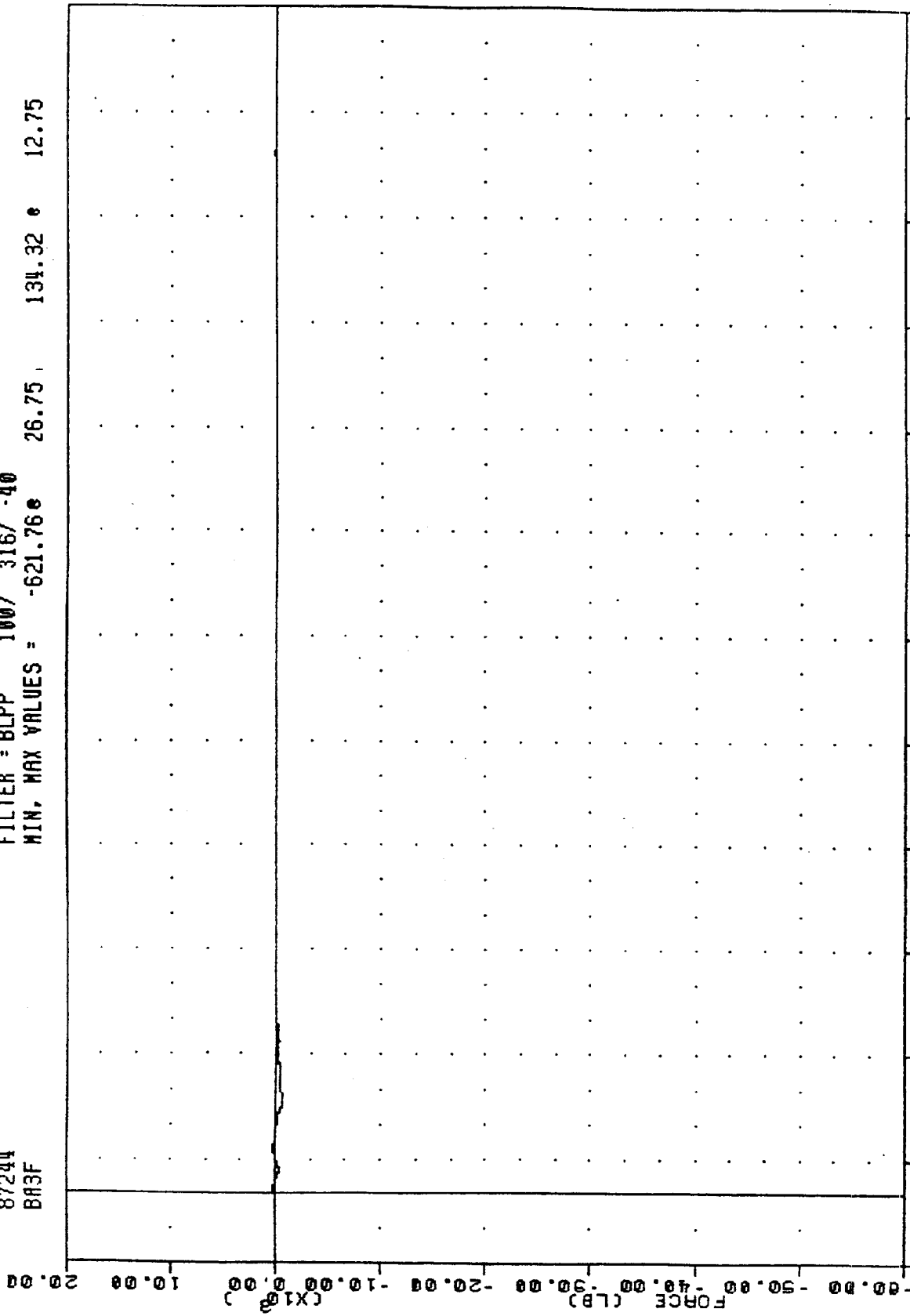
FILTER = 8LPP 100/ 316/ -10
 MIN. MAX VALUES = -1044.08e 5.38 , 173.91 e 13.63



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A2 LBS

VATIC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BA3F

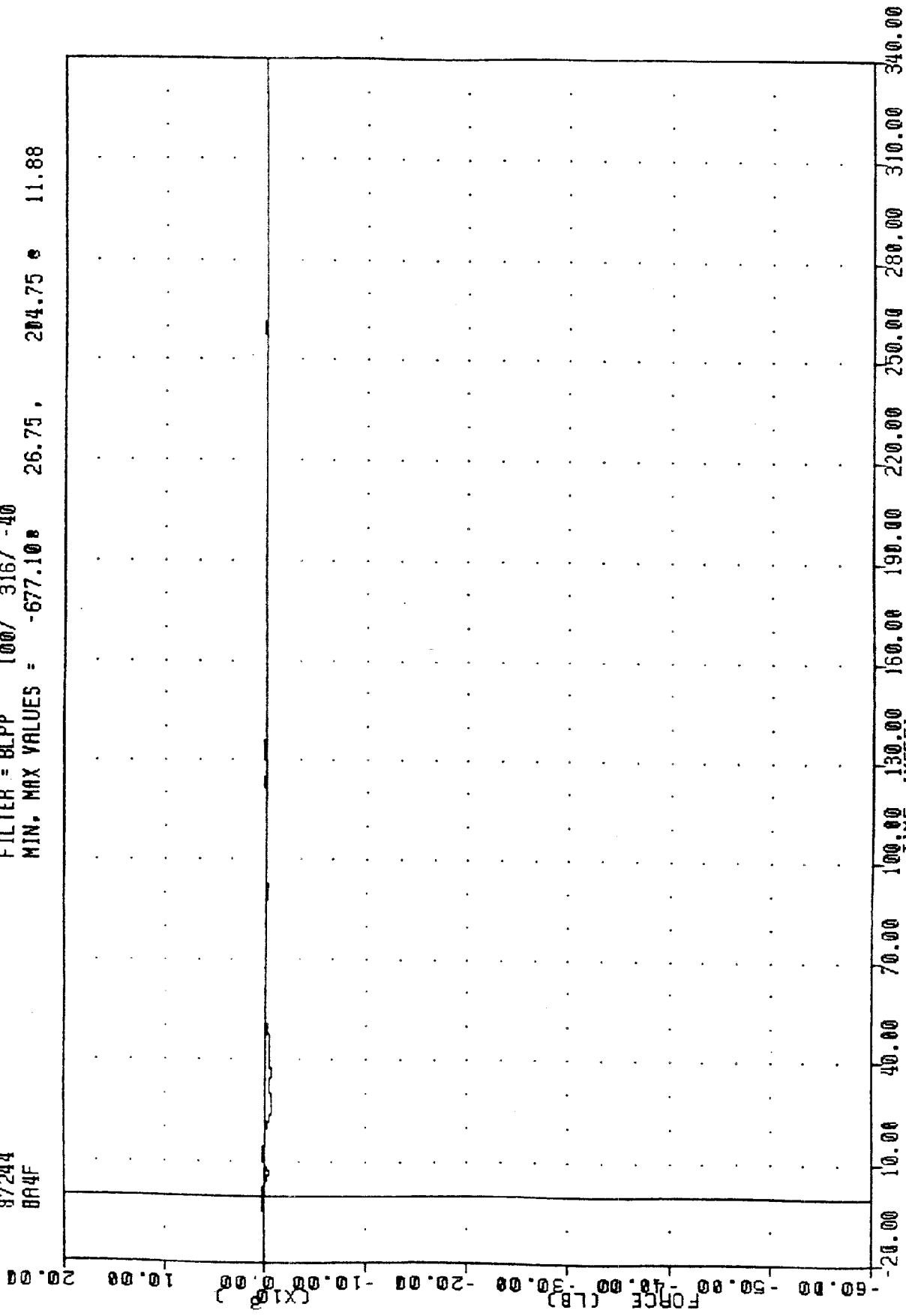
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -621.76 e 134.32 e 12.75



-20.00 10.00 0.00 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 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A3 LBS

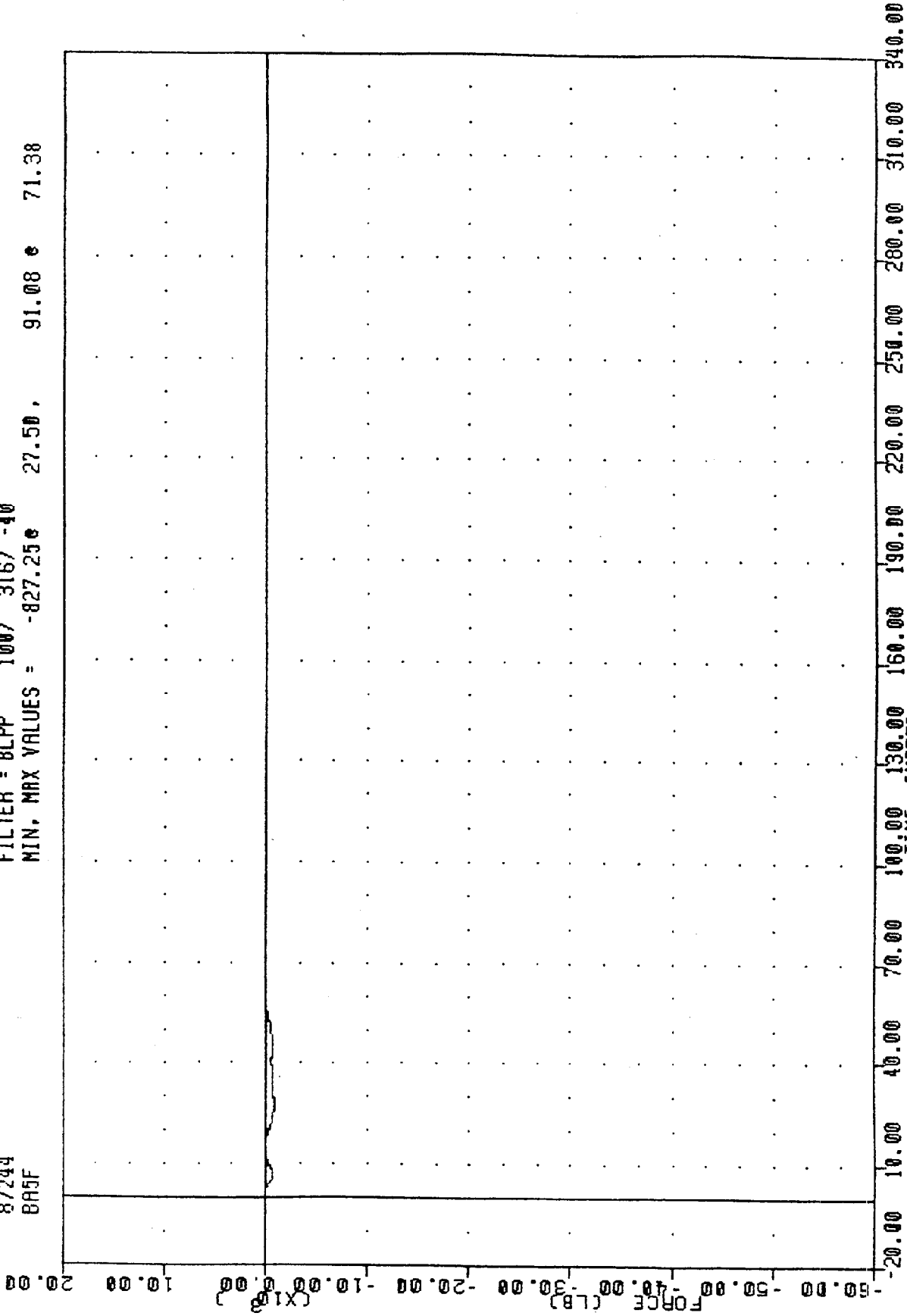
VRTC , NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 8A4F

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -677.10 26.75 , 204.75 11.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION R4 LBS

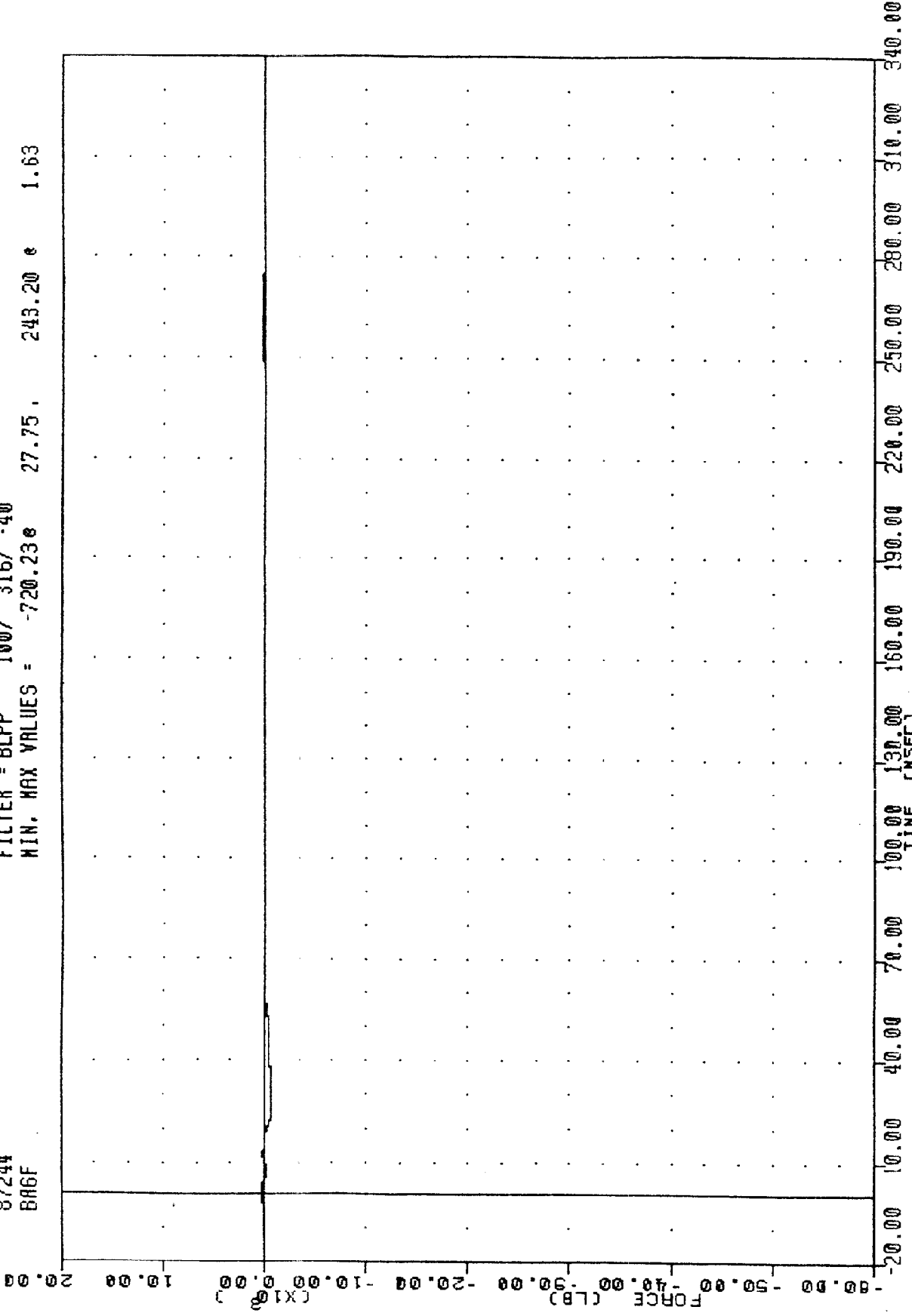
VRIC . NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244 FILTER = 8LPP 100/ 316/ -40
 8A5F MIN, MAX VALUES = -827.25 27.50, 91.08 71.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A5 LBS

WRTC , WHISA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BR6F

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -720.23e 27.75, 243.20 e 1.63

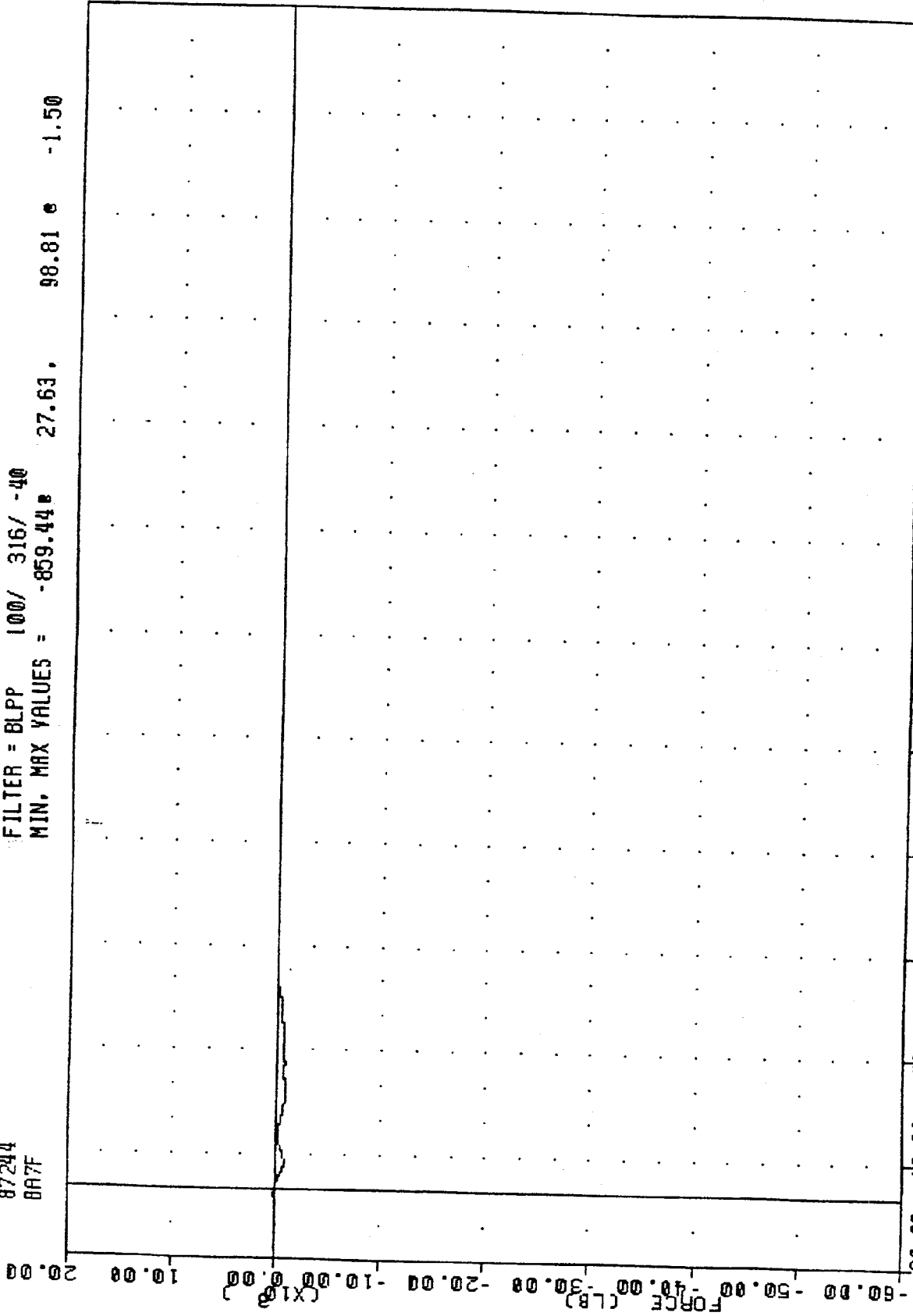


MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION #6 LBS

VRTC , NHTSA FACE
 N08 INTO 26 DEG FIXED BARRIER

87244
 8A7F

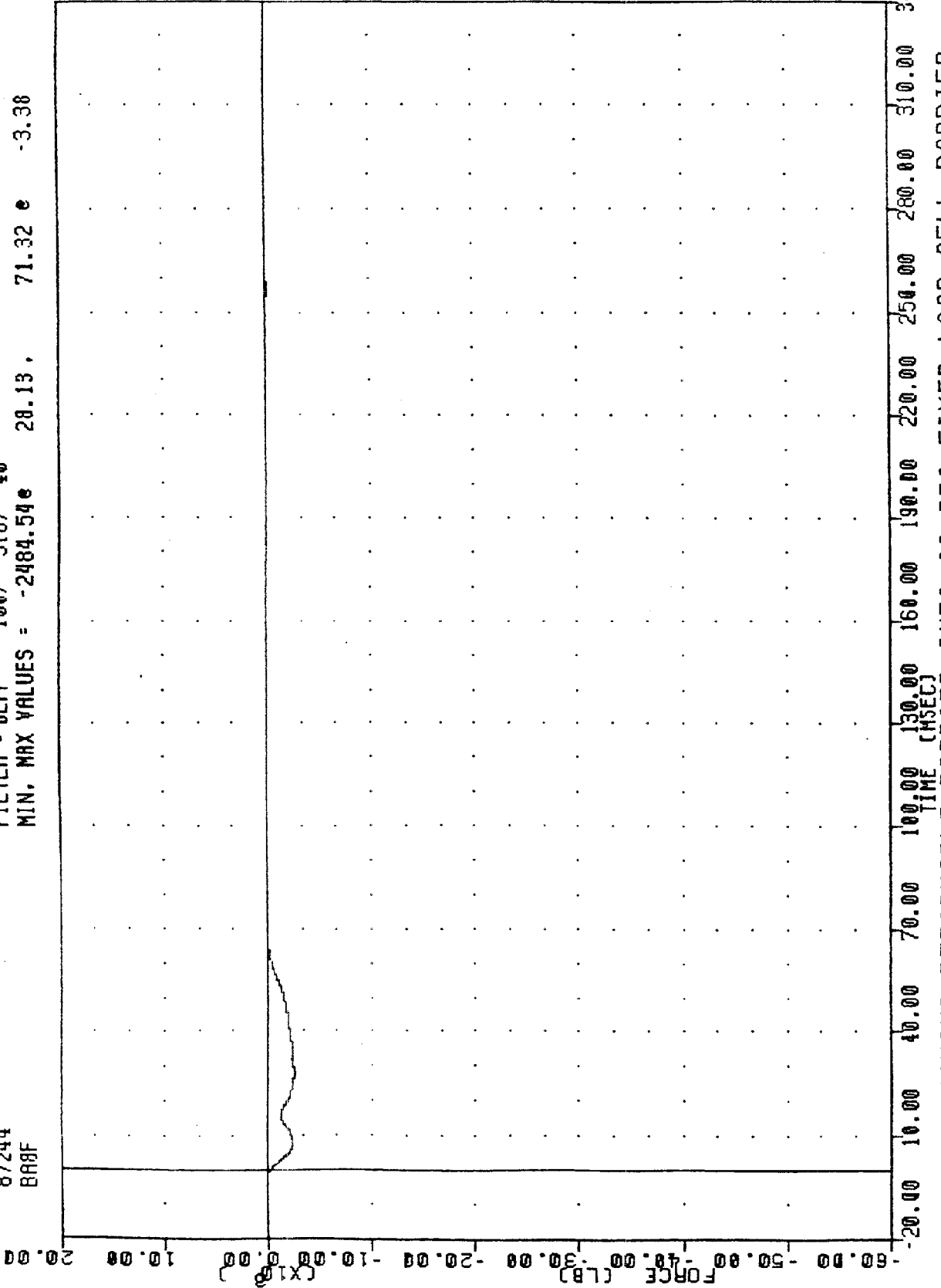
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -859.44 27.63, 98.81 e -1.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A7 LBS

VRIC , NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 BARF

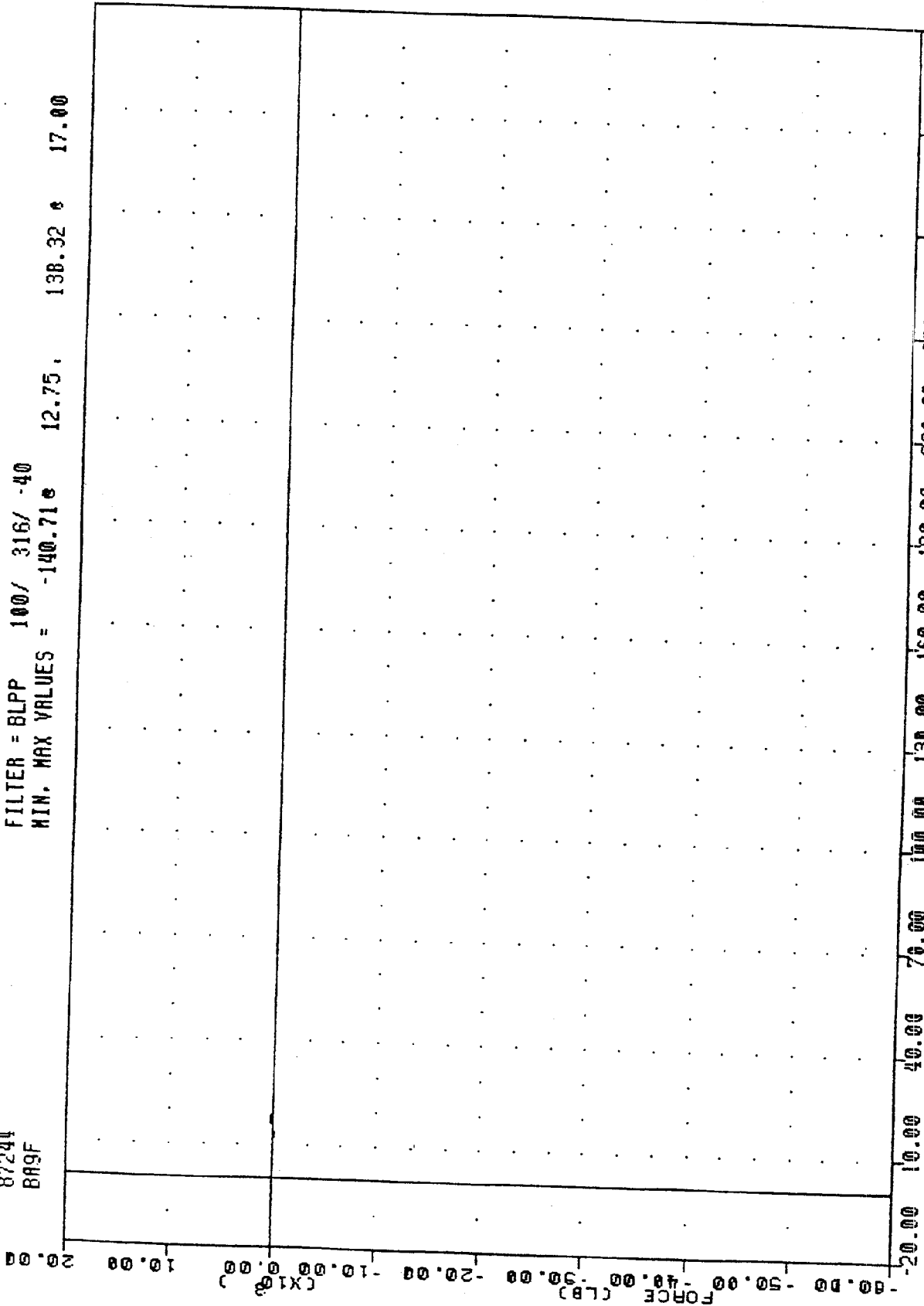
FILTER = 8LPP 100/ 316/ -40
 MIN, MAX VALUES = -2484.54e 28.13, 71.32 e -3.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A8 LBS

VRTC
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BA9F

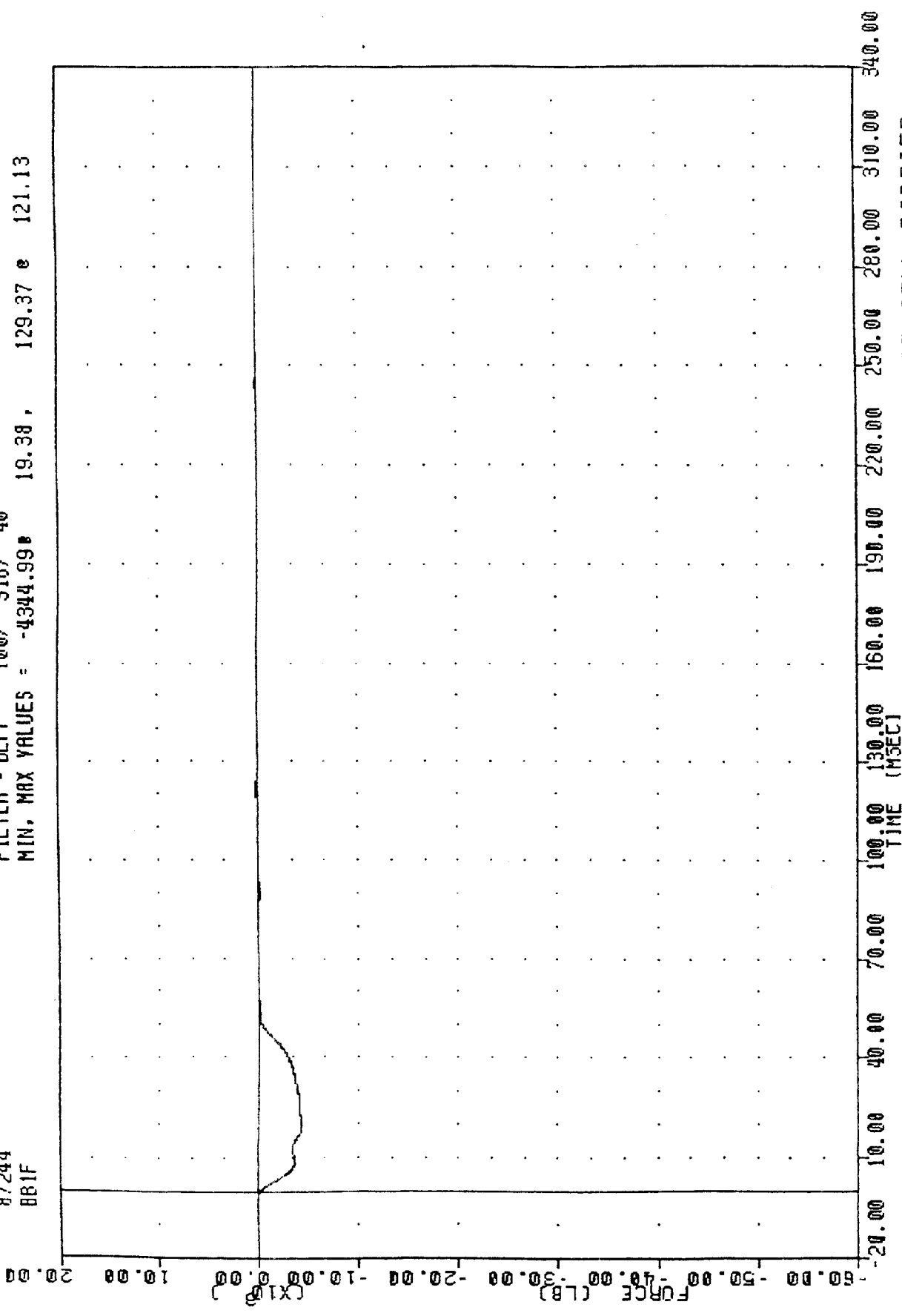
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -140.71 e 12.75, 138.32 e 17.00



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A9 LBS

VRIC , NHTSA FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 BBIF

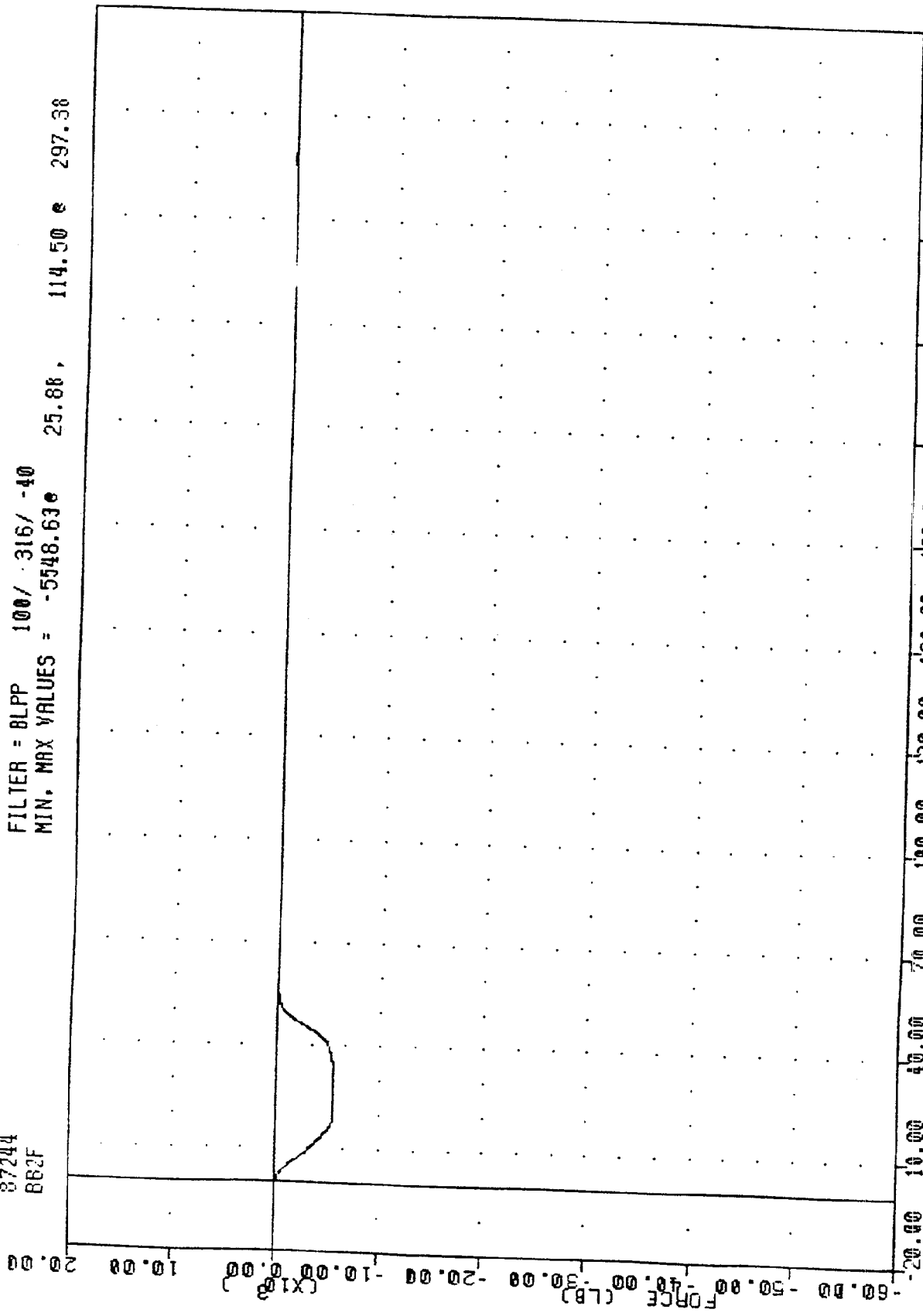
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -4344.99 19.38 , 129.37 e 121.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 81 LBS

VRTC , NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 B82F

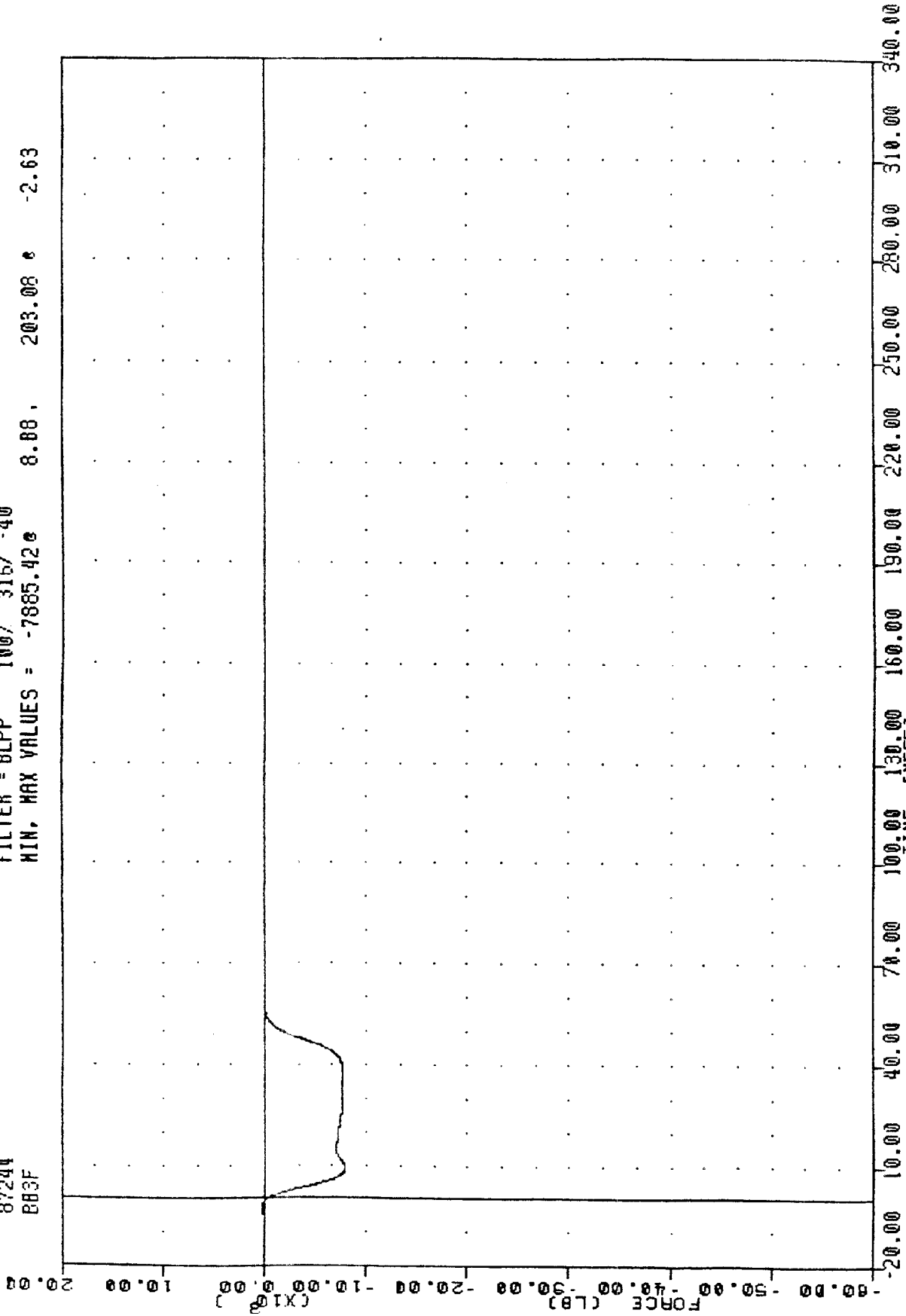
FILTER = 8LPP 100/ 316/ -40
 MIN. MAX VALUES = -5548.63 25.88 114.50 297.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 82 LBS

WATC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 B83F

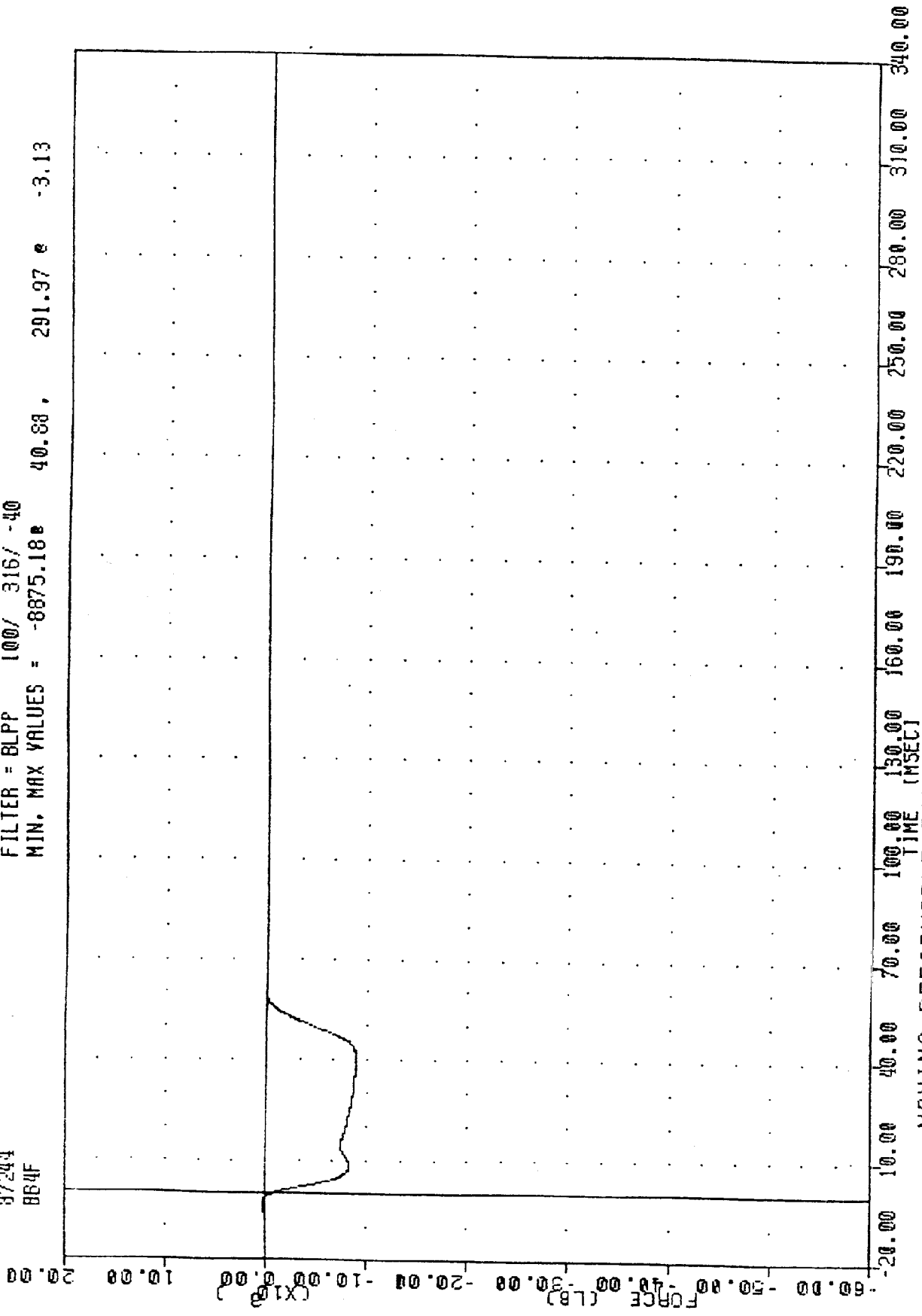
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -7885.42 8.88 , 203.08 6 -2.63



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B3 LBS

VRIC , NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 884F

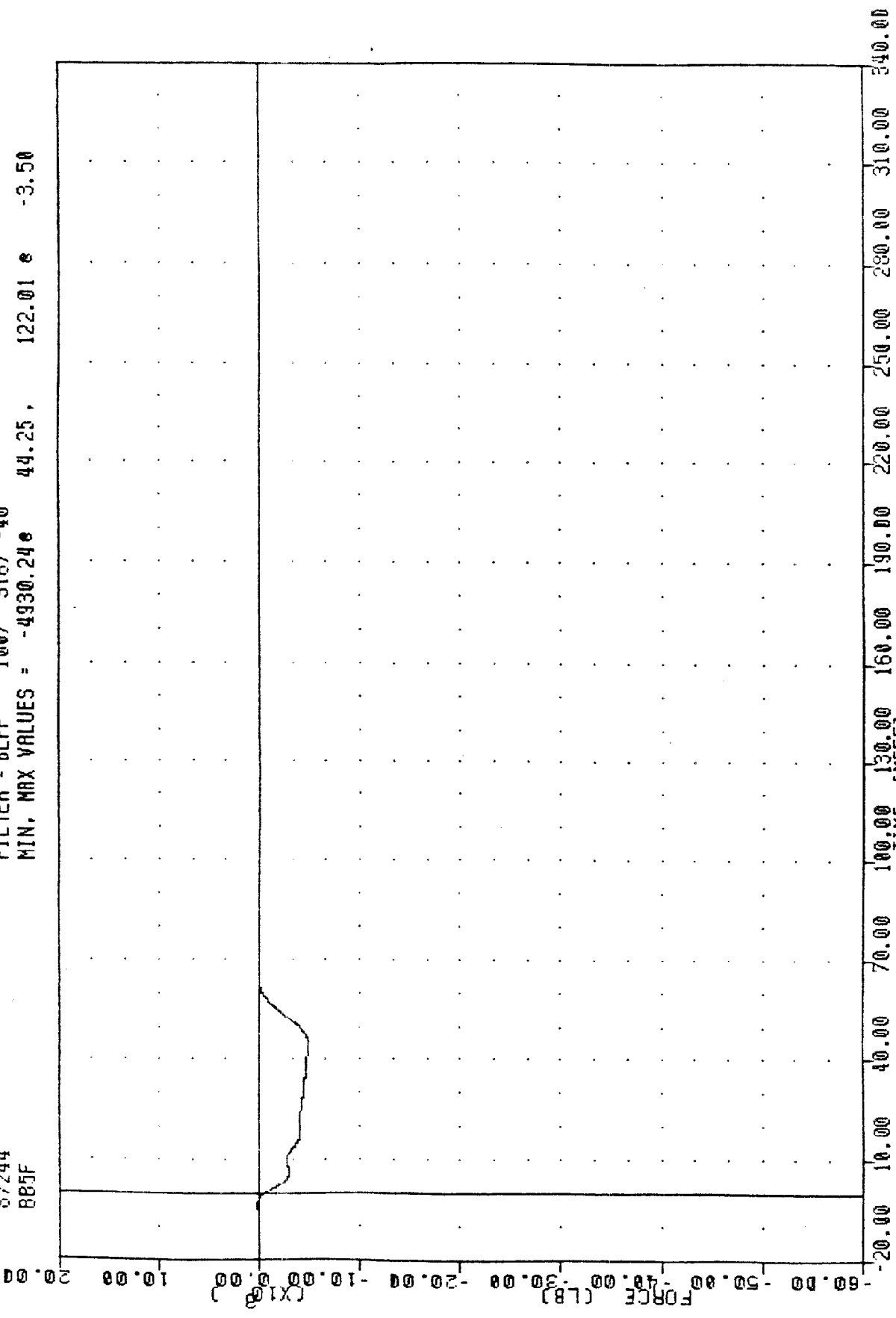
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -8875.18e 40.88 , 291.97 e -3.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B4 LBS

YRTC , NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 885F

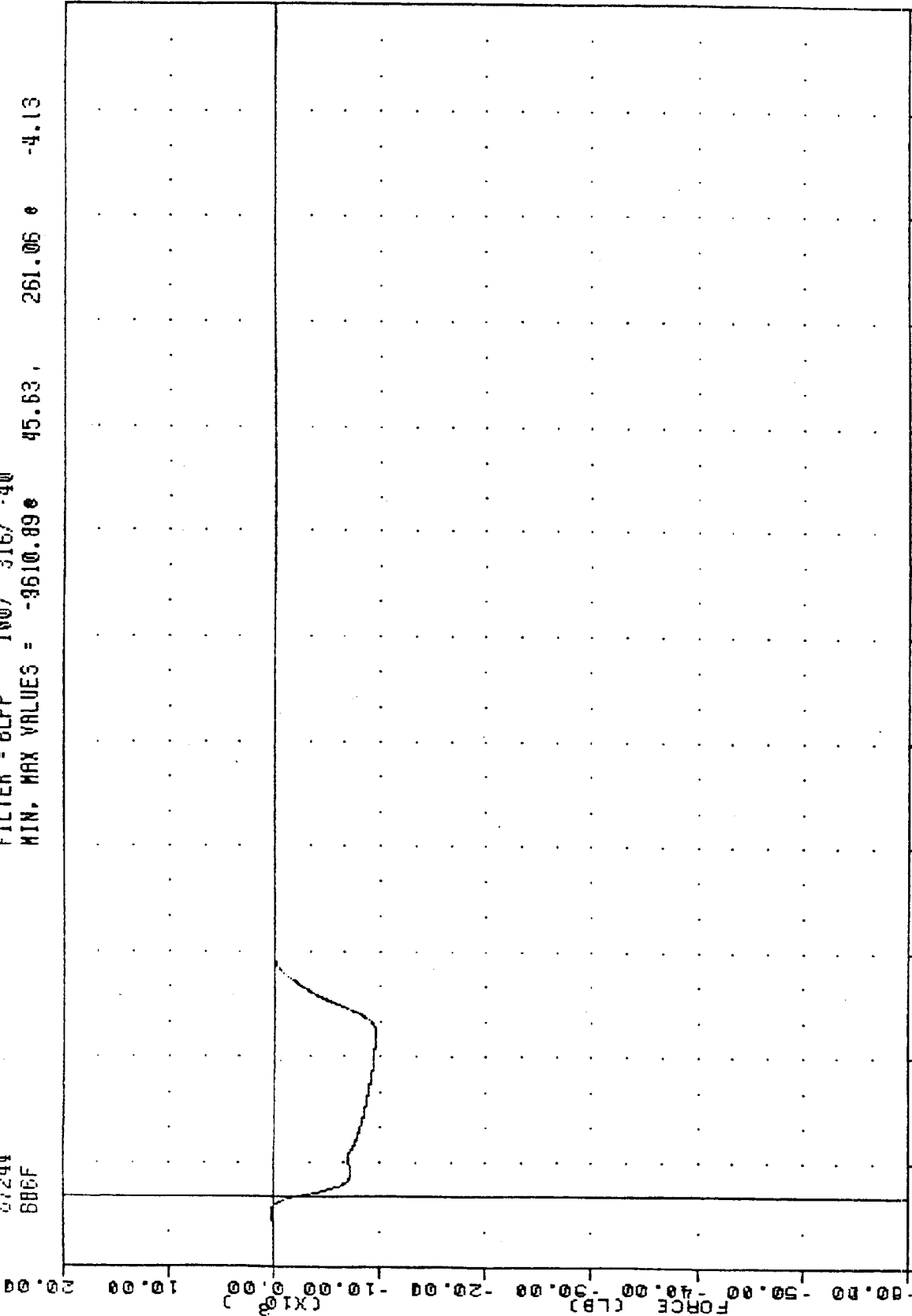
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -4930.24e 44.25 , 122.01 e -3.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 85 LBS

VATIC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 07244
 B86F

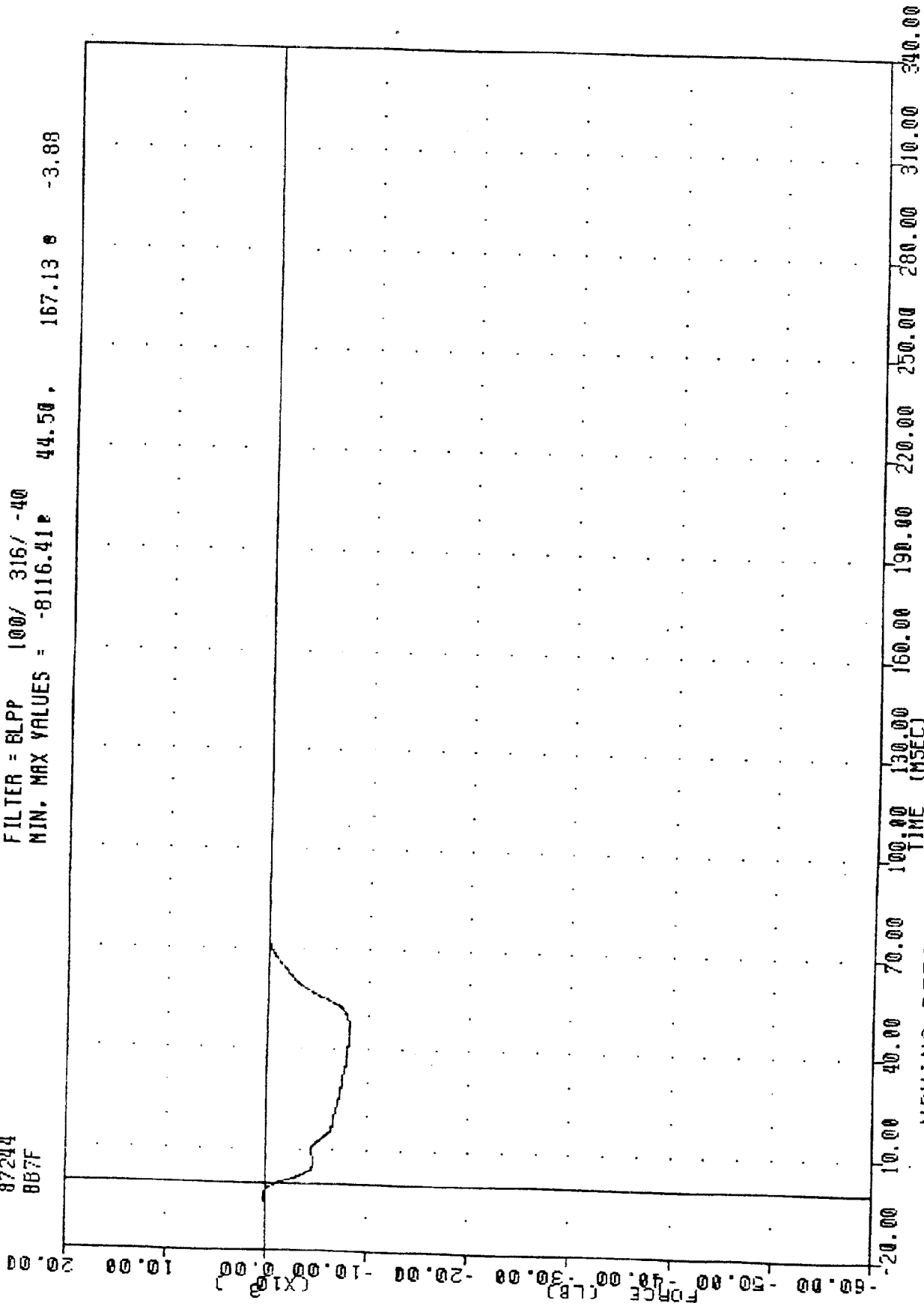
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -3610.89 45.63 , 261.05 e -4.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B6 LBS

VRTC
 , NATISA FADE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 887F

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -8116.41 167.13 e -3.88



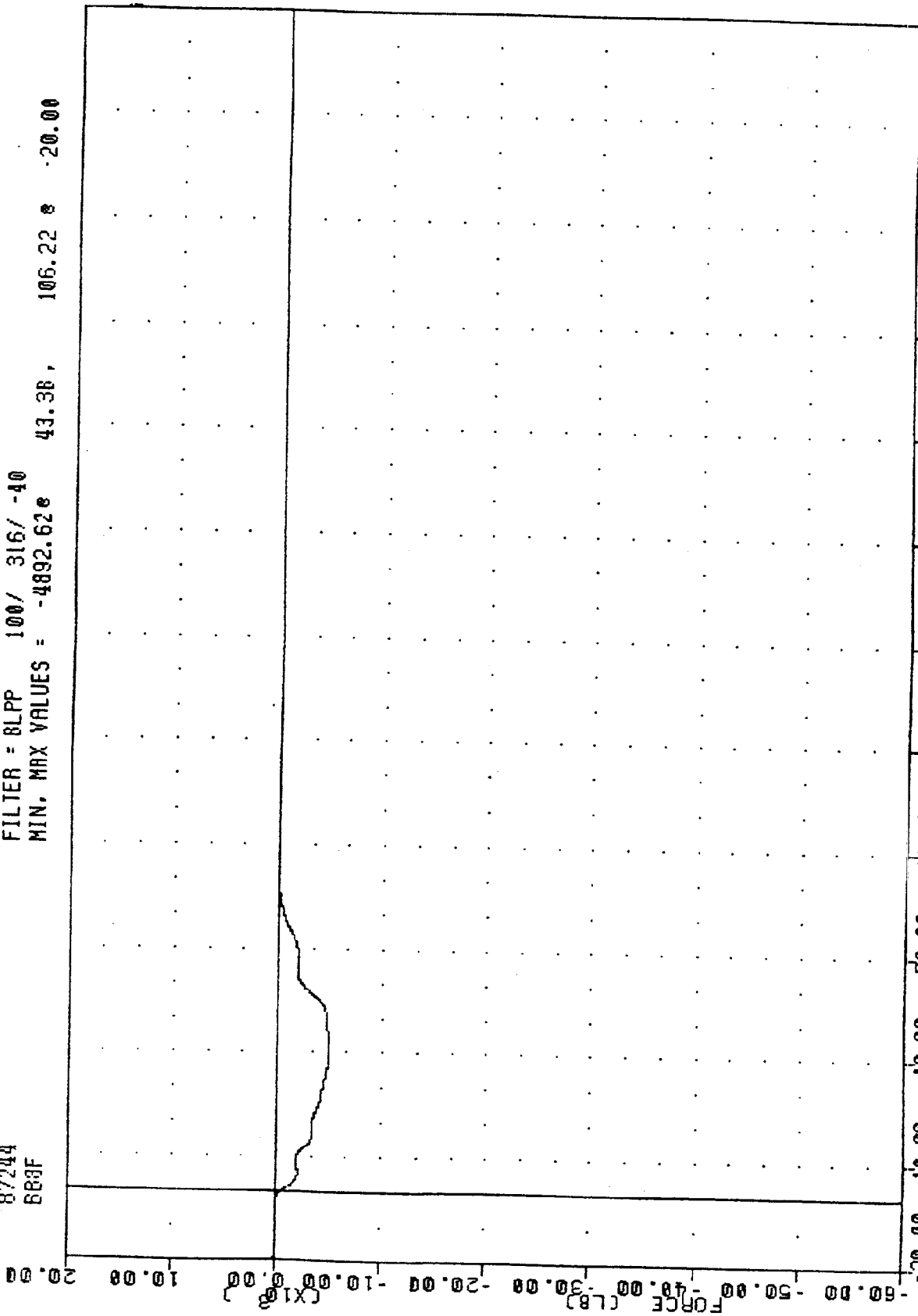
MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 87 LBS

VRIC . MHTSA FACE
MDB INTO 26 DEG FIXED BARRIER

87244
663F

FILTER = 8LPP 100/ 316/ -40

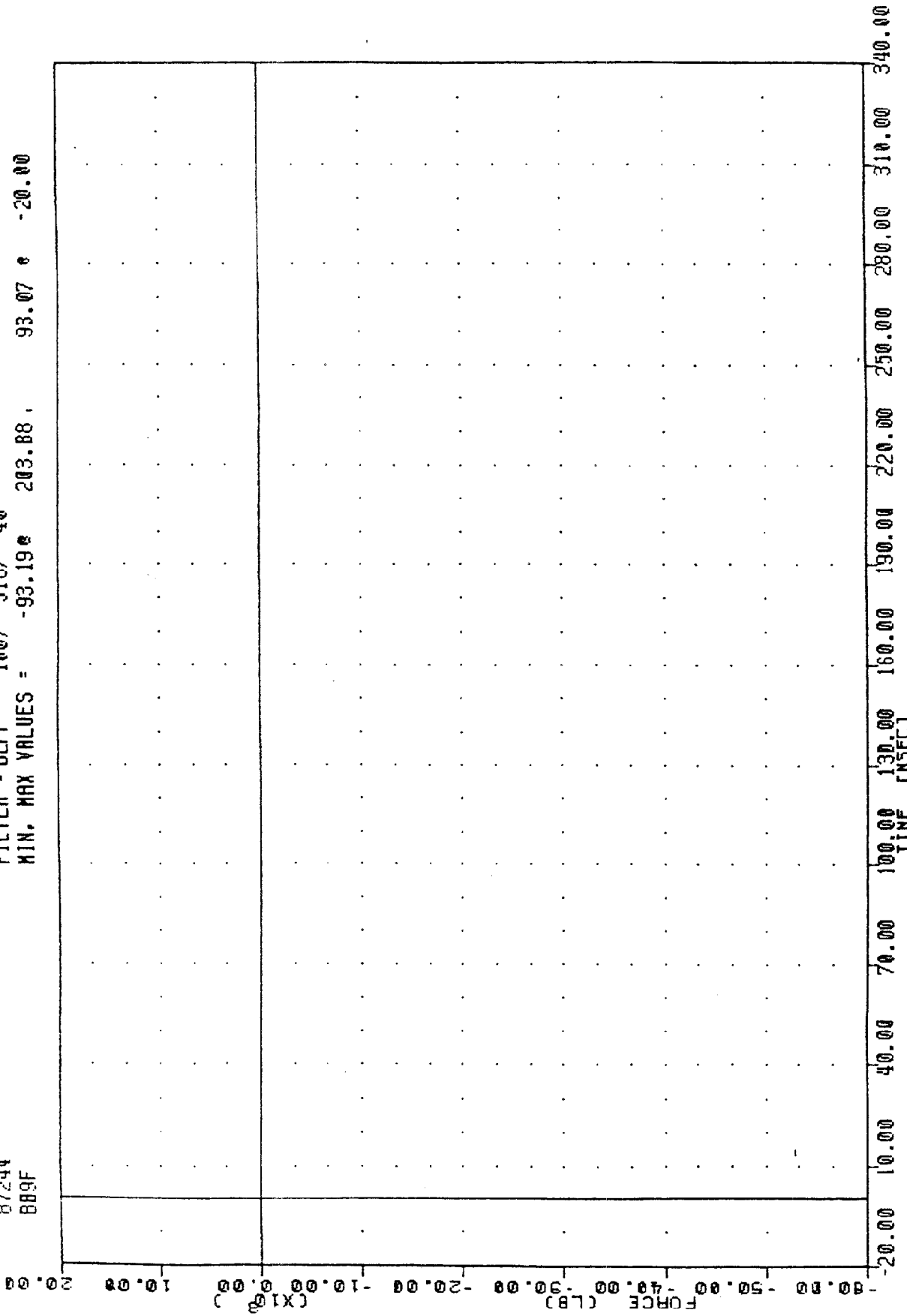
MIN, MAX VALUES = -4892.62e 43.38, 106.22 e -20.00



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
LOAD CELL BARRIER POSITION 88 LBS

VRIC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 889F

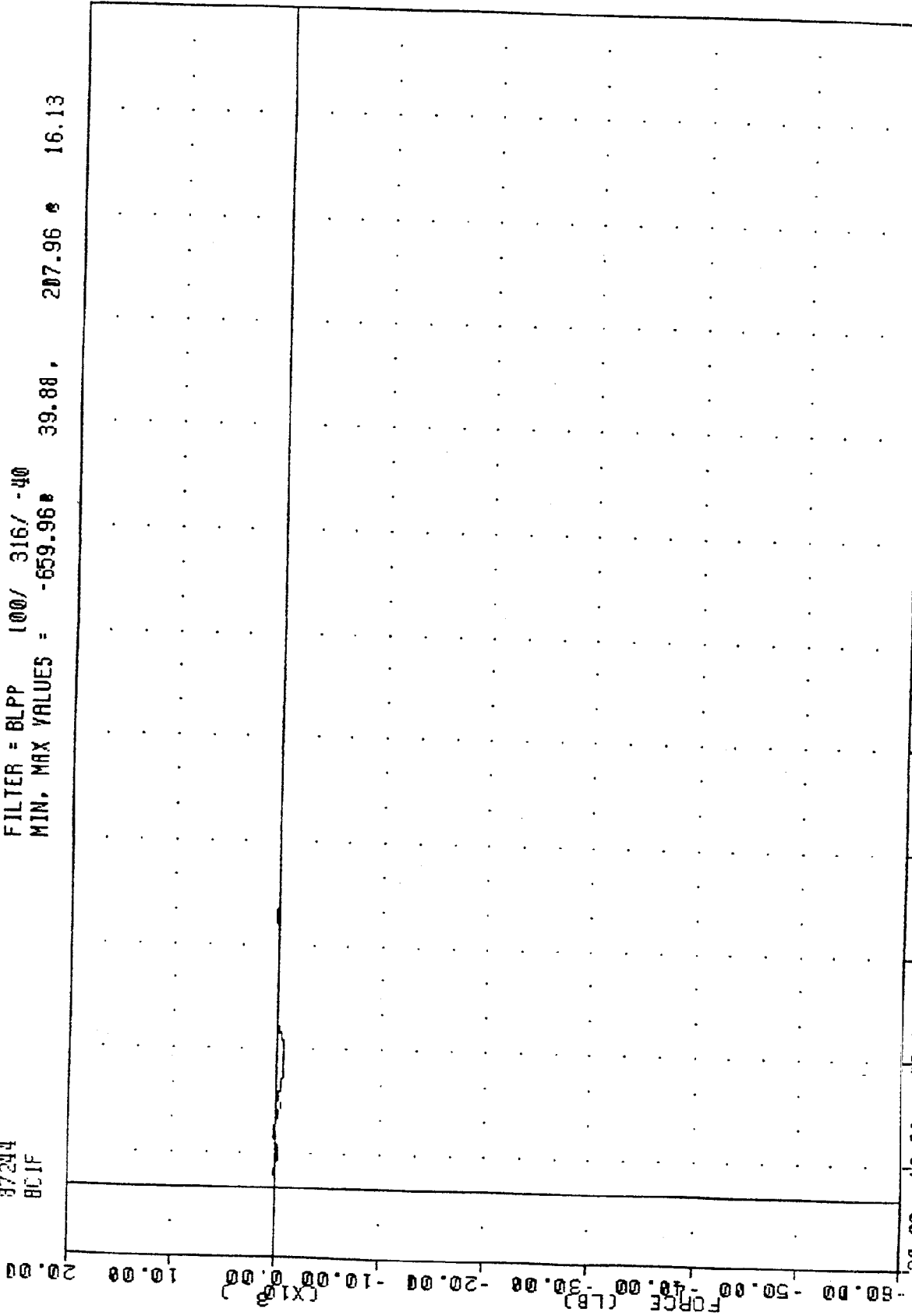
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -93.19 203.88 , 93.07 -20.00



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B9 LBS

VRTC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 37244
 BC IF

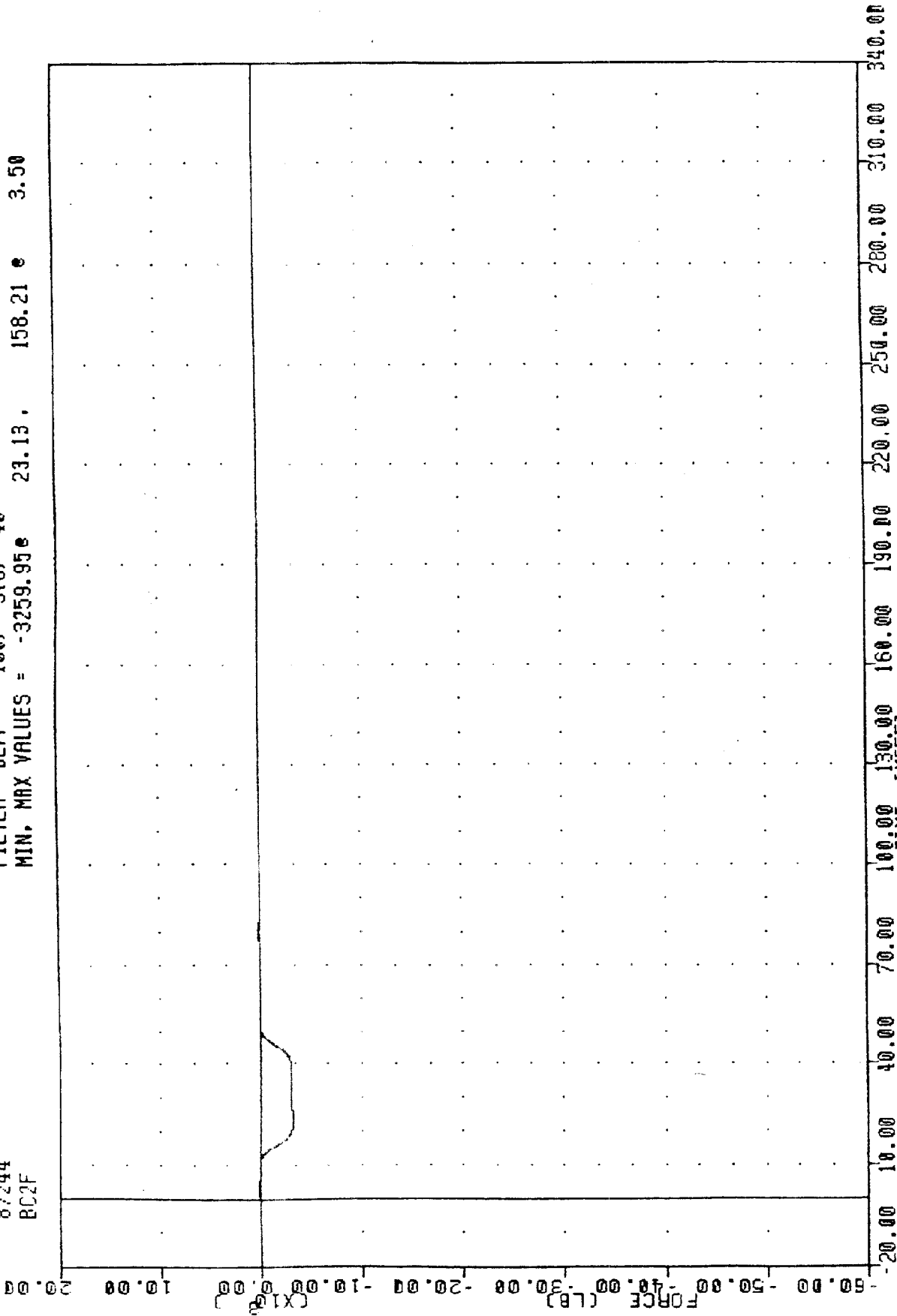
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -659.96# 39.88, 207.96# 16.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C1 LBS

YRTC , MHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 RC2F

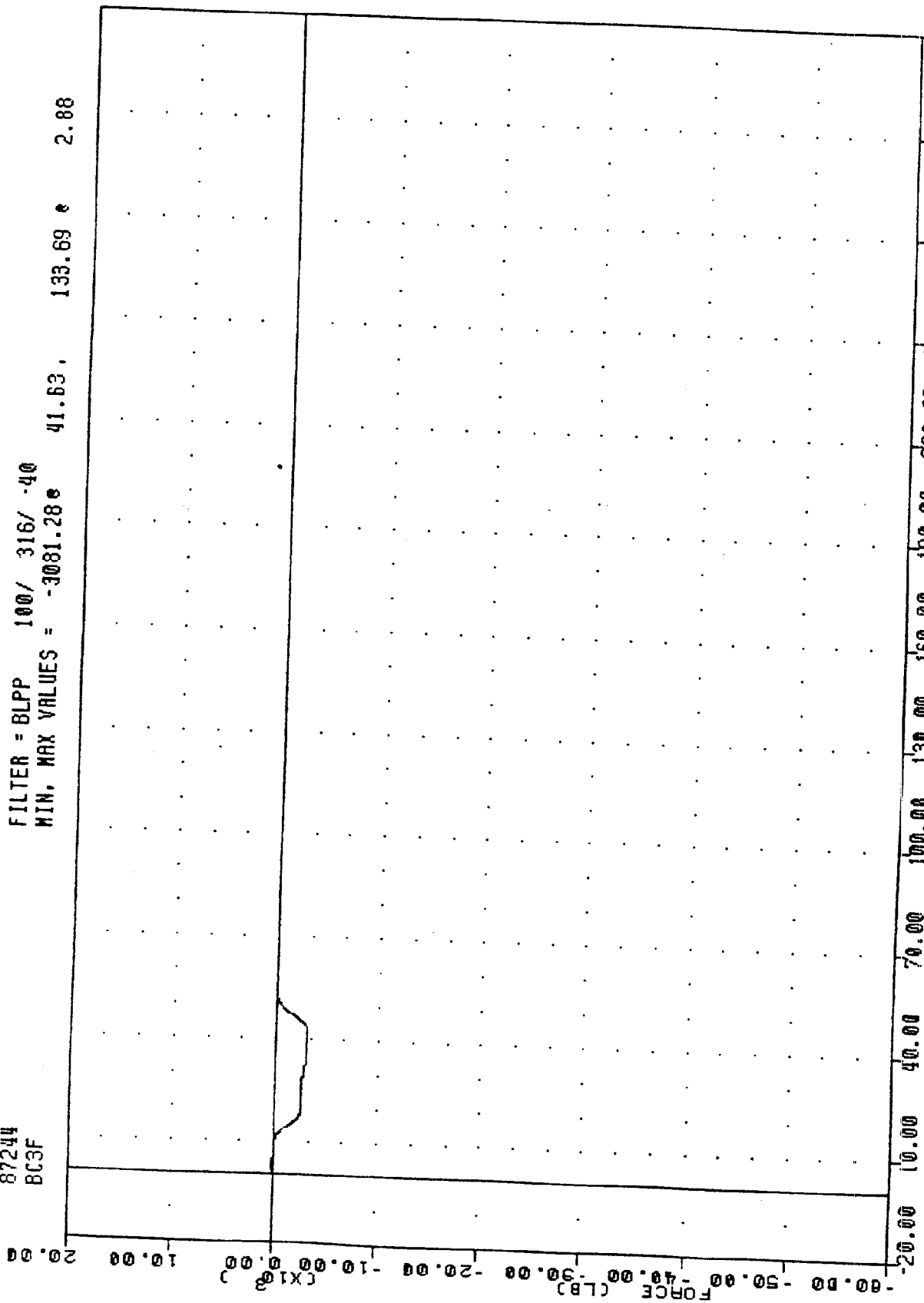
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -3259.95e 23.13 . 158.21 e 3.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C2 LBS

VATIC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC3F

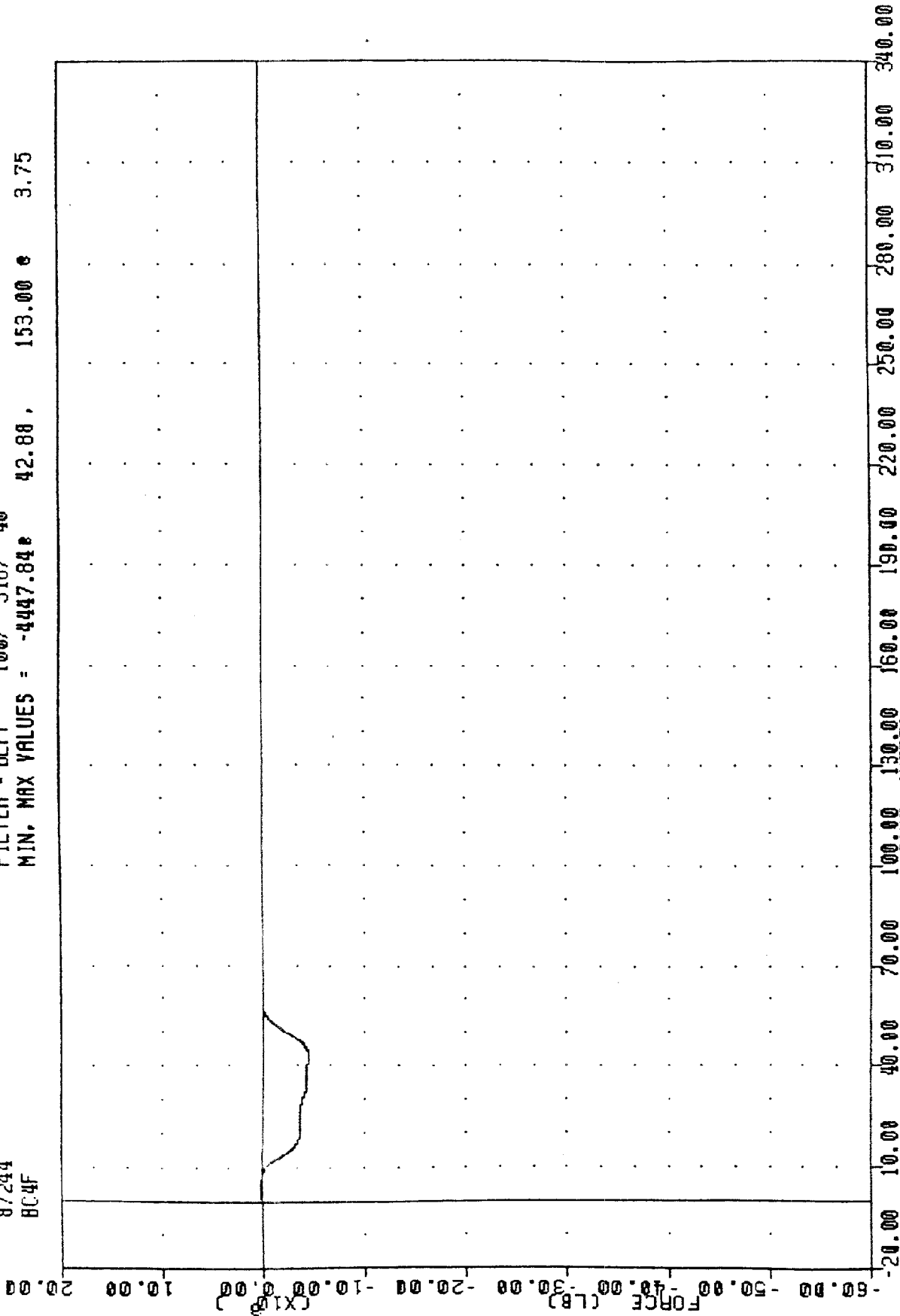
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -3081.28 e 41.63, 133.69 e 2.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C3 LBS

VRTC , NHTSA FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 BC4F

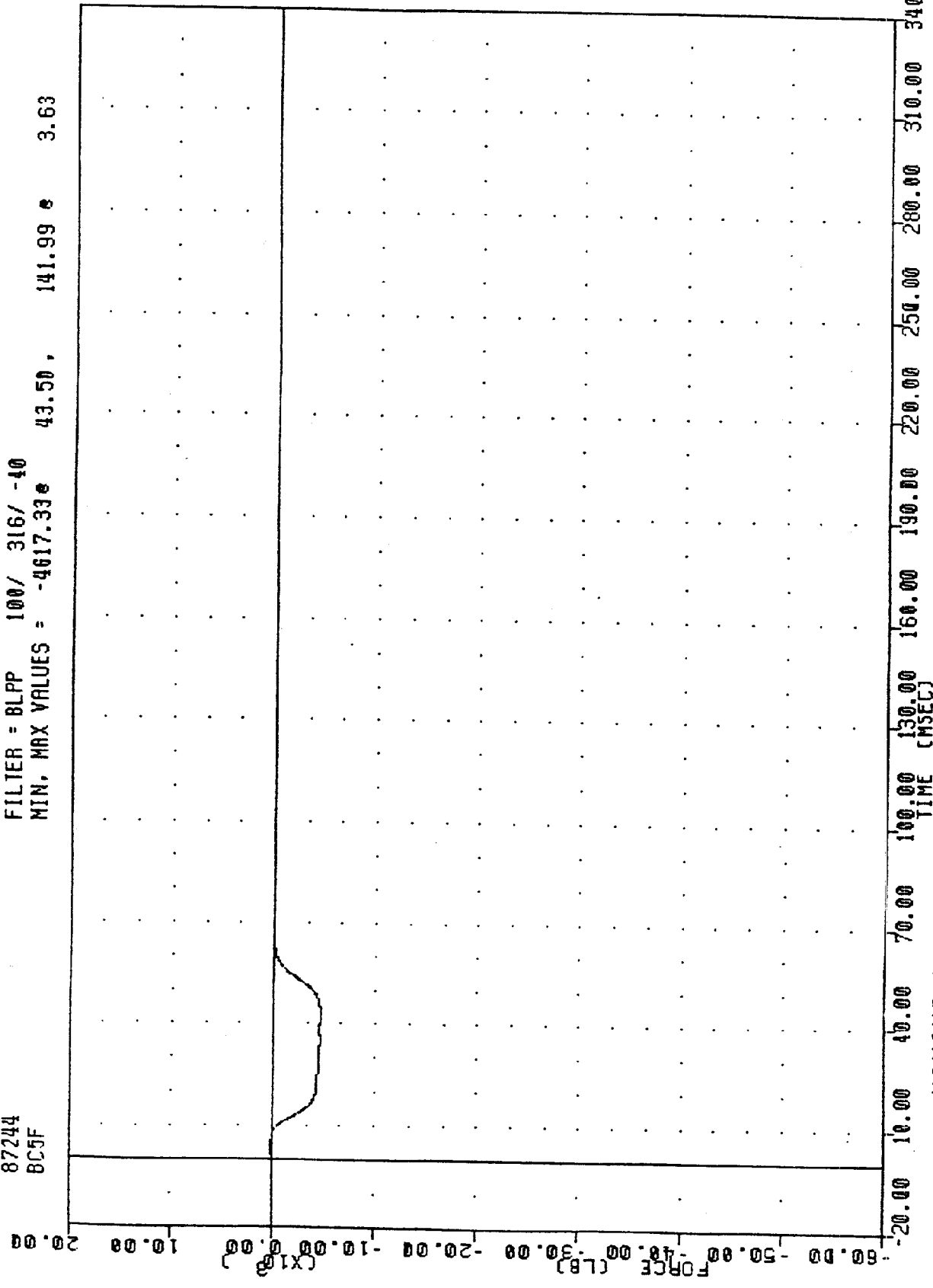
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -4447.84e 42.88 , 153.00 e 3.75



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C4 LBS

VRTC , NHTSA FACE
 M08 INTO 26 DEG FIXED BARRIER
 87244
 BC5F

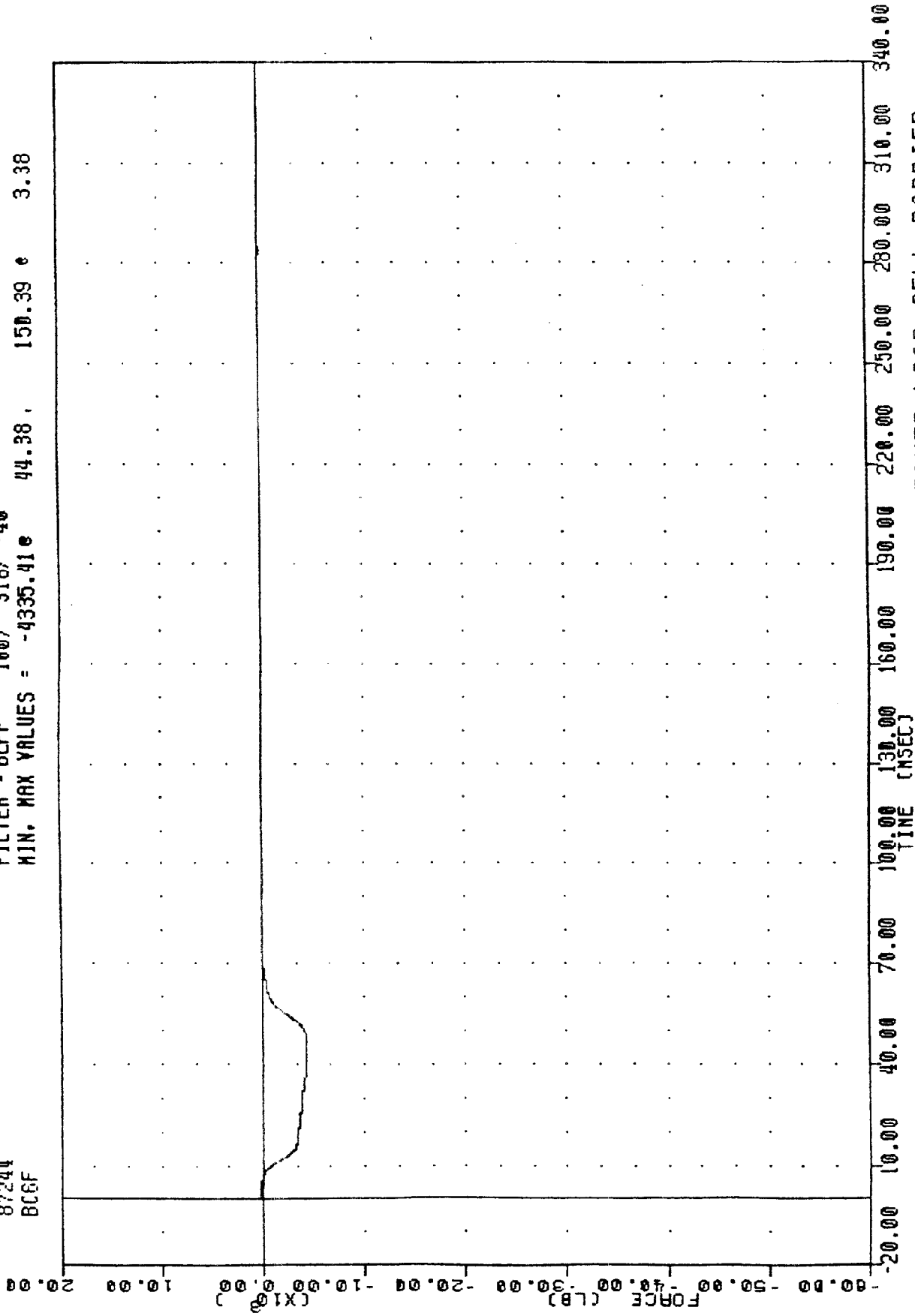
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -4617.33e 43.50 , 141.99 e 3.63



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C5 LBS

VATC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 B06F

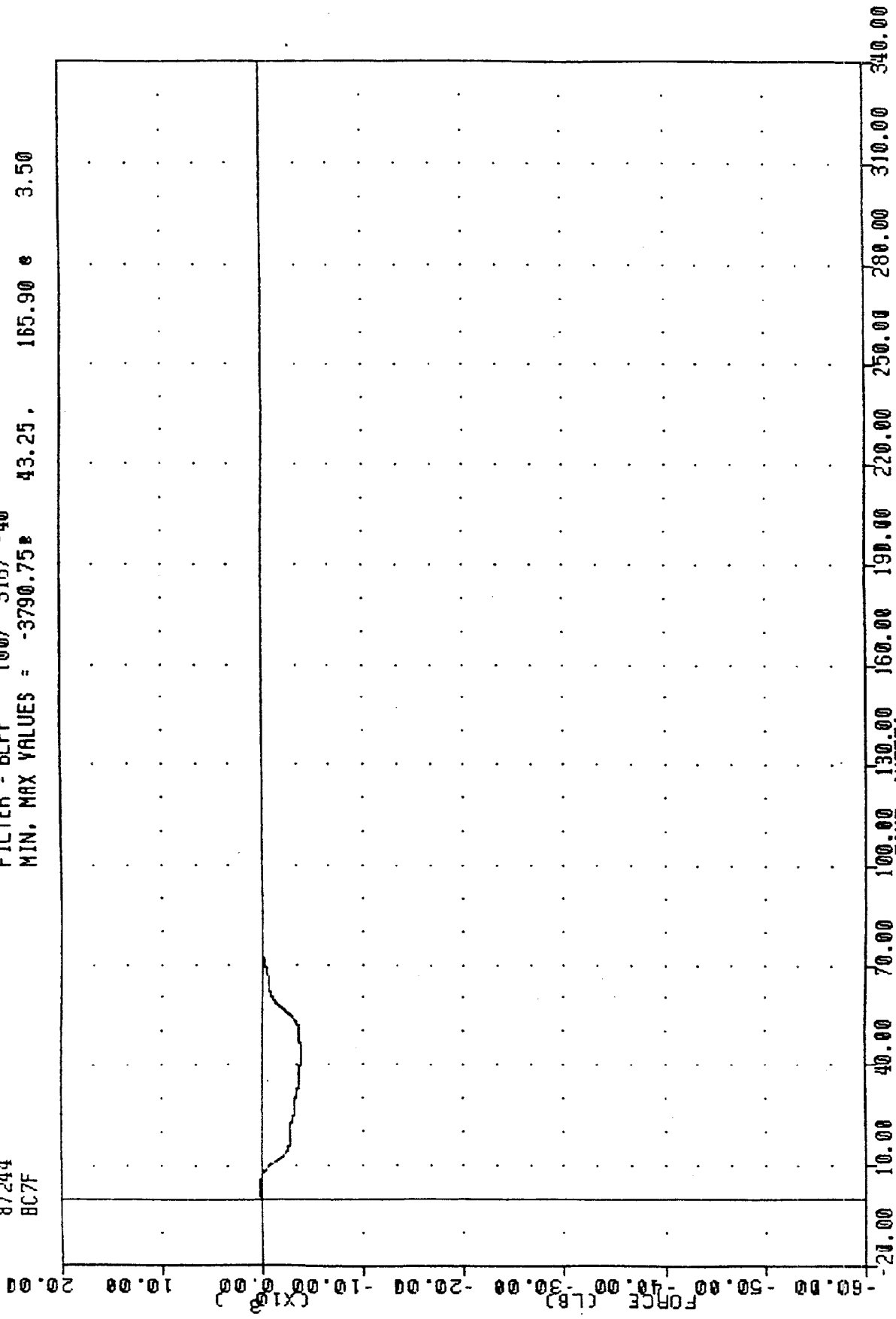
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -4335.41e 44.38 , 150.39 e 3.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C6 LBS

VRTC
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC7F

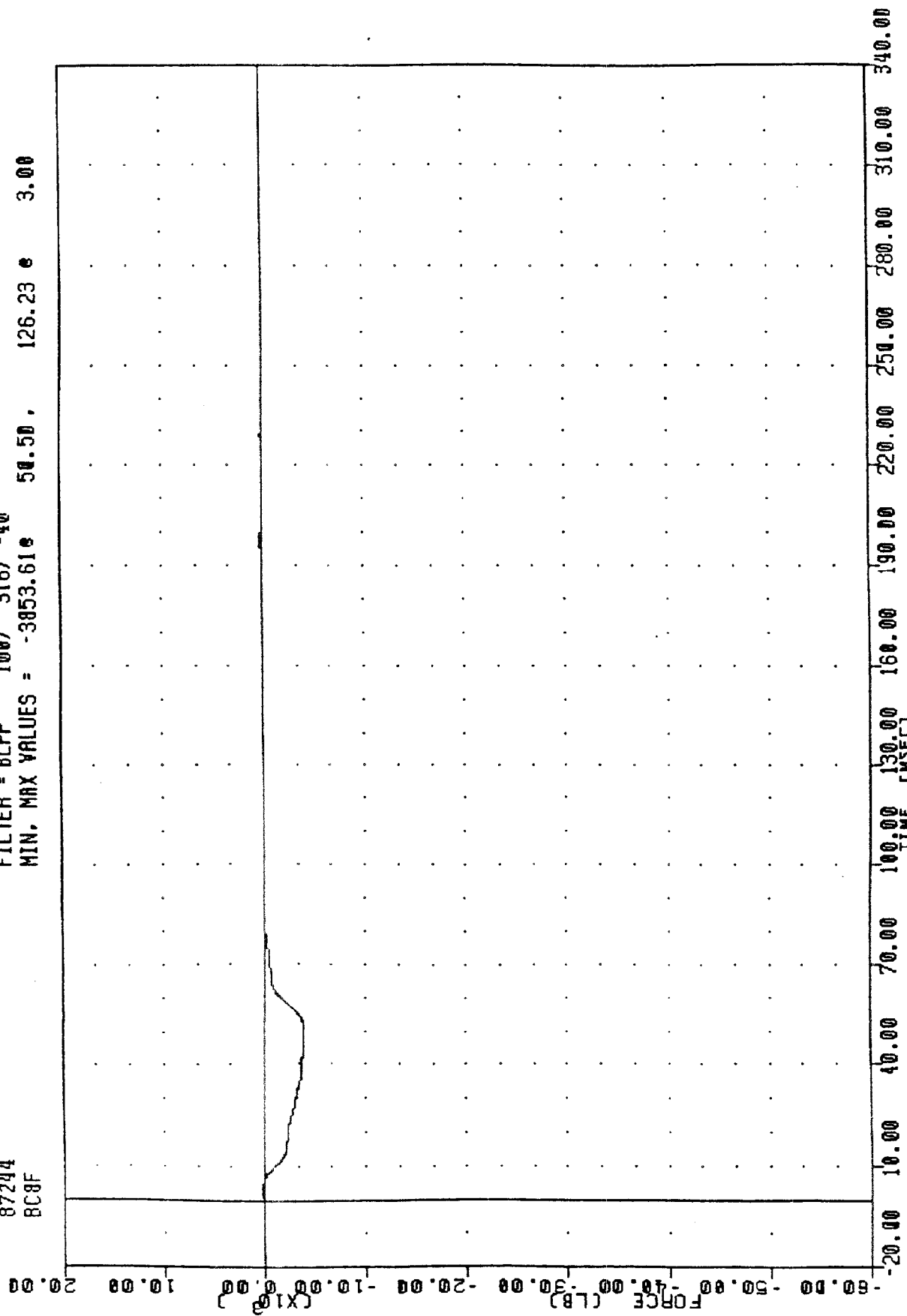
• NHTSA FACE
 FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -3790.75 165.90 3.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 7185

VRTC , NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 BC8F

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -3853.61 50.50 . 126.23 e 3.00

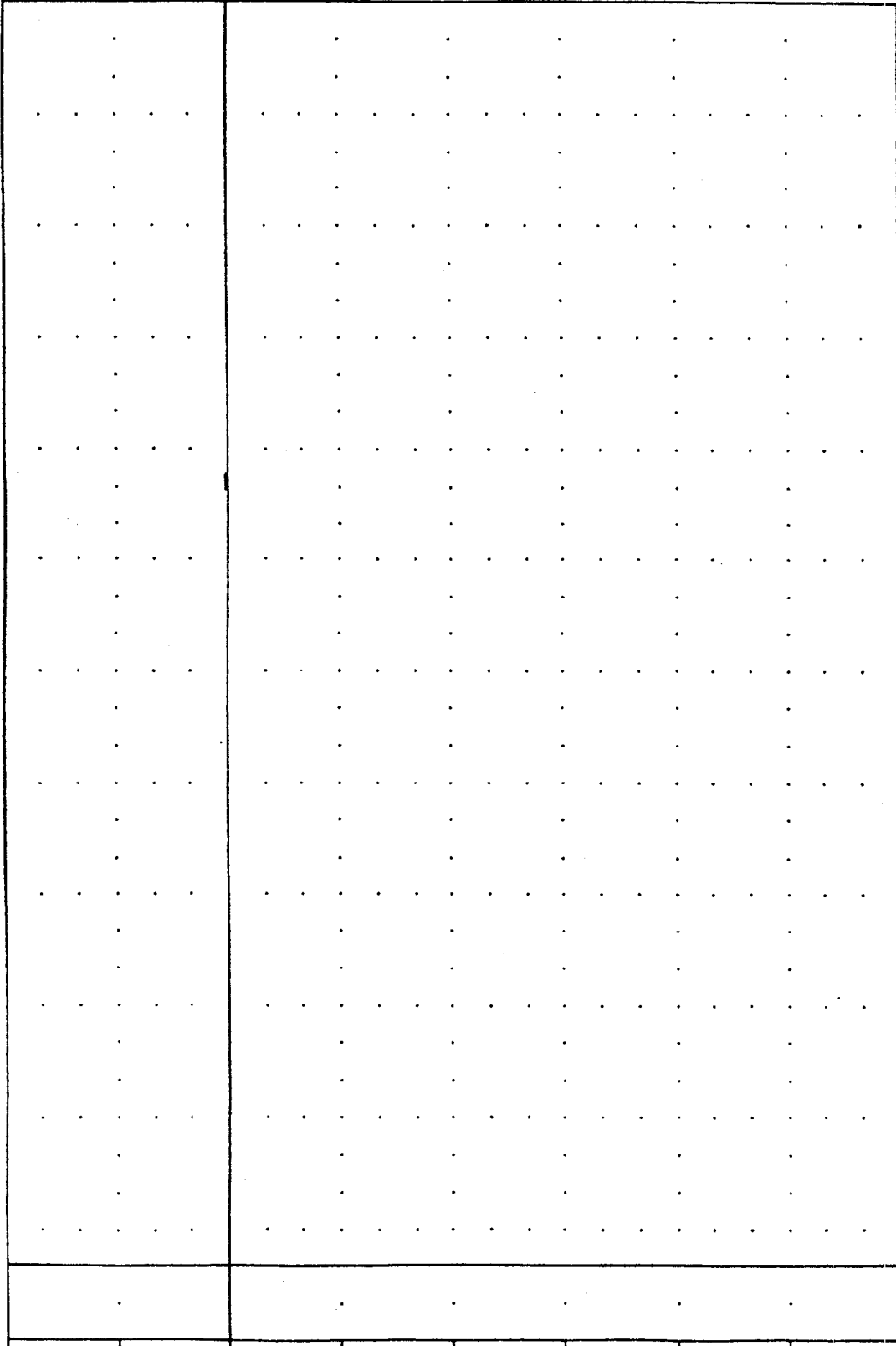


MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C8 LBS

VRTC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC9F

FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -79.15e 202.63, 110.69 e 211.38

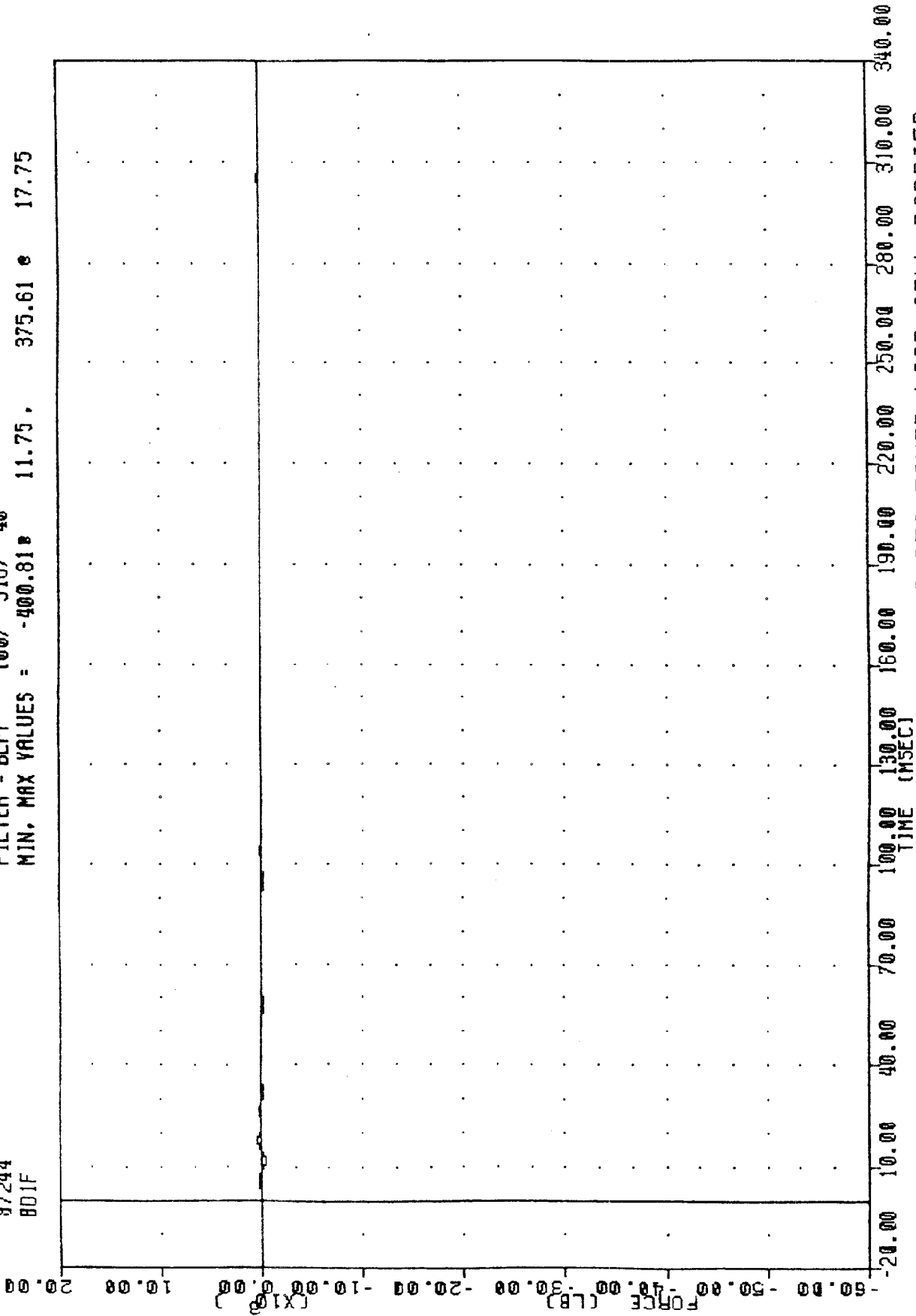
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C9 LBS

VRIC , NHTSA FACE
 NDB INTO 26 DEG FIXED BARRIER
 97244
 801F

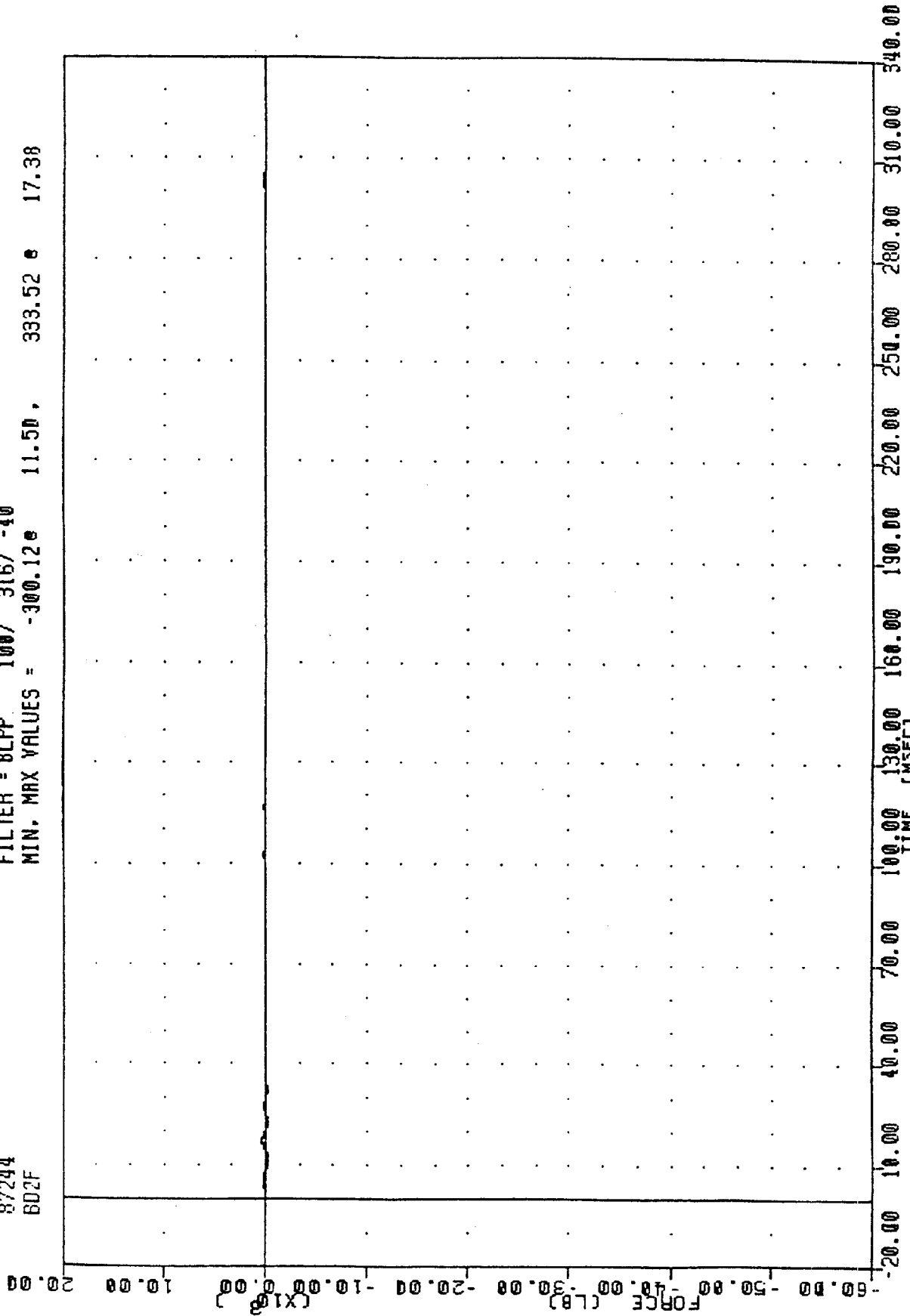
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -400.81 11.75 , 375.61 e 17.75



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D1 LBS

VRIC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 6D2F

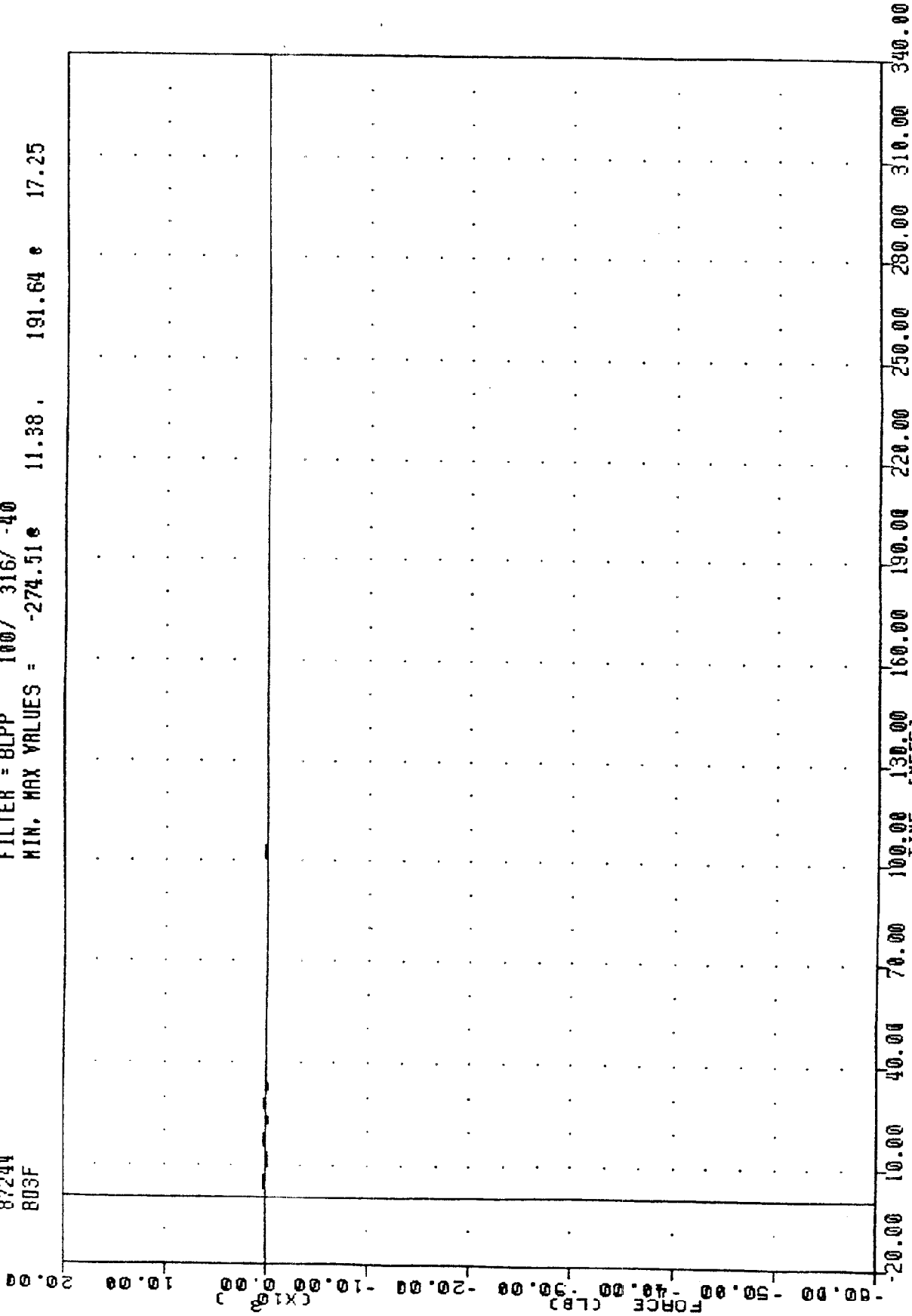
FILTER = 8LPP 100/ 316/ -40
 MIN. MAX VALUES = -300.12e 11.50, 333.52 e 17.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 02 LBS

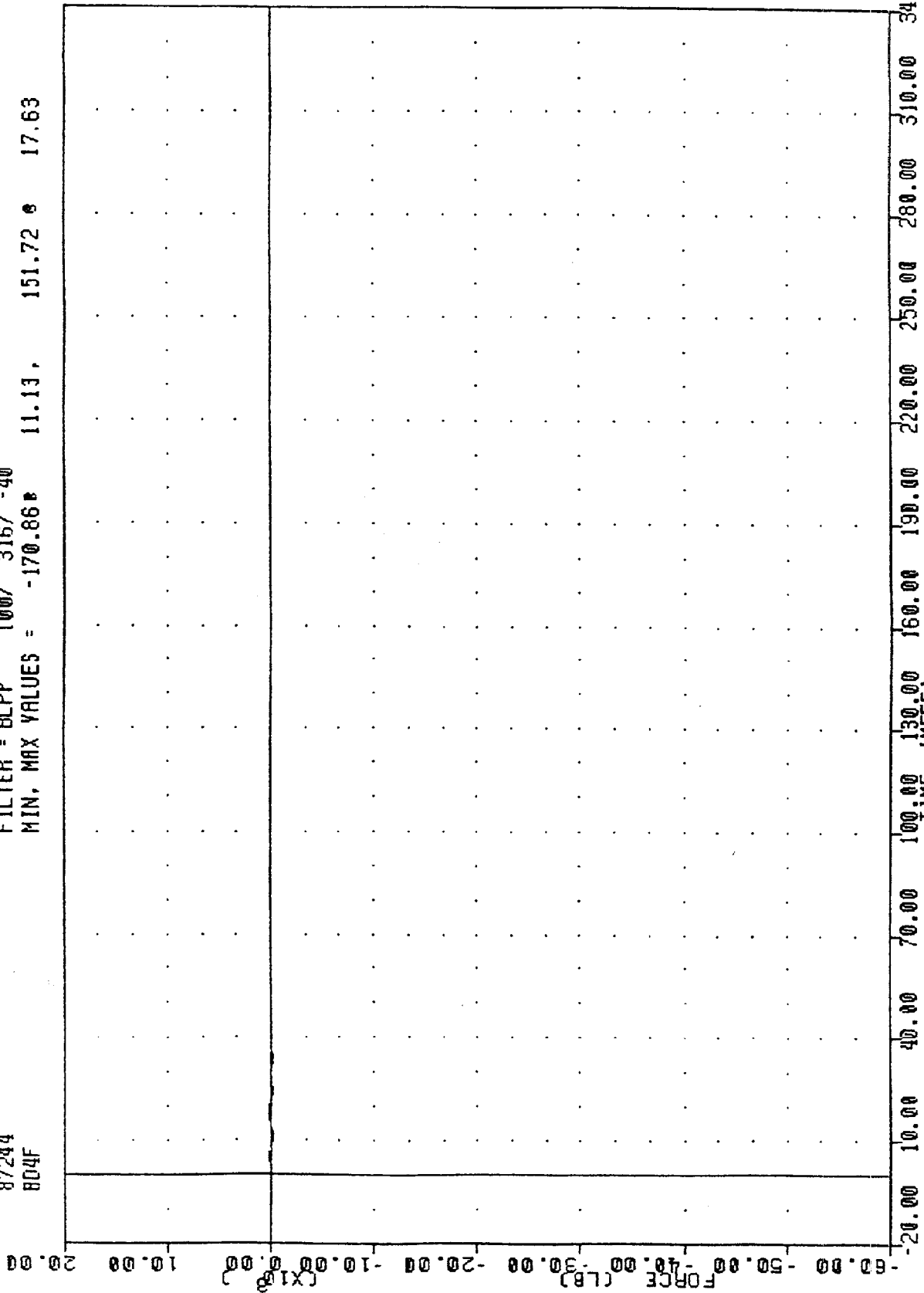
VATC
 * NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 803F

FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -274.51 e 11.38, 191.64 e 17.25



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D3 LBS

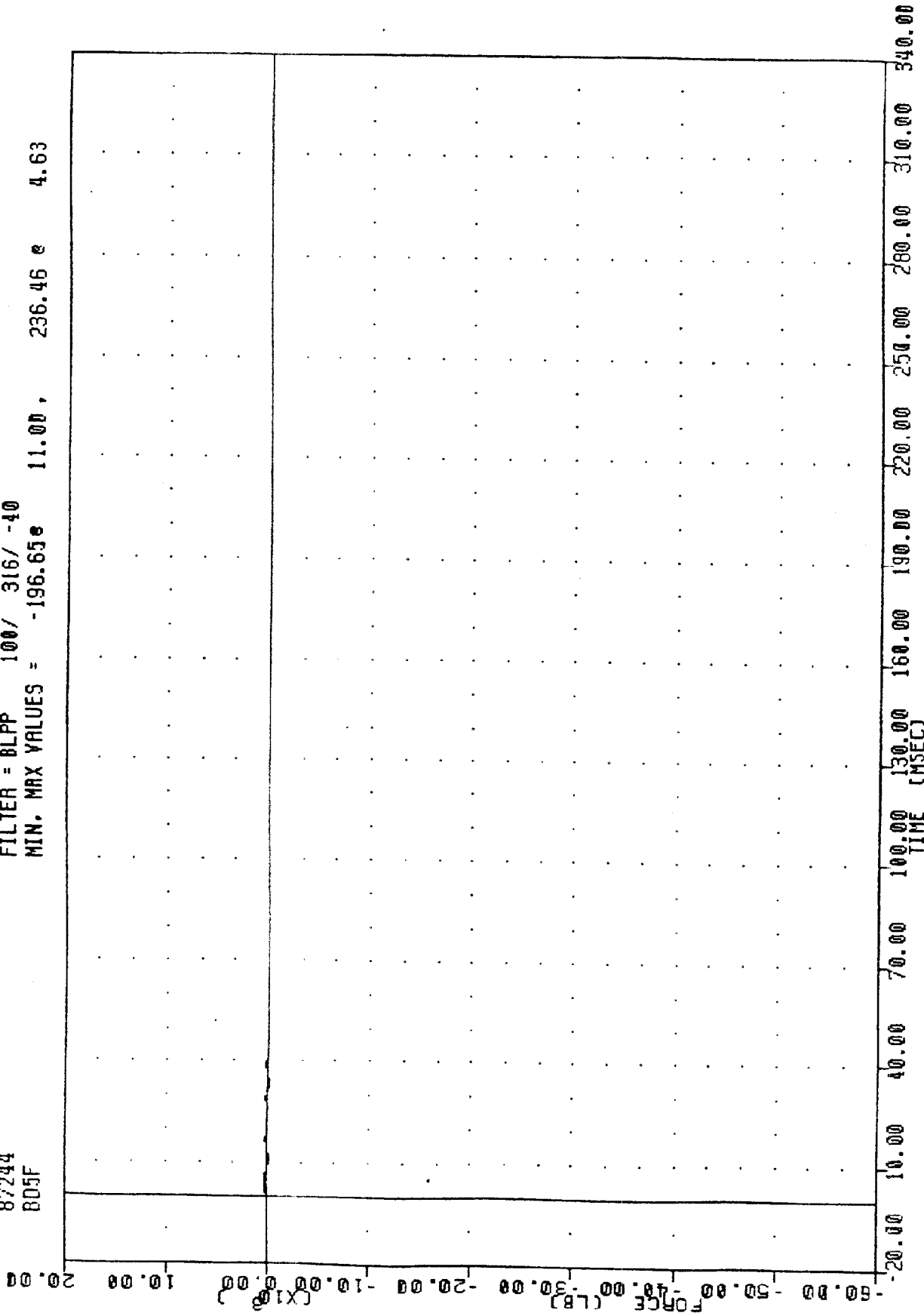
VRTC , NHTSA FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 804F
 FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -170.86 11.13, 151.72 17.63



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 I NDB CFII BARRIER POSITION 04 IRS

VRTC , MHTSR FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 805F

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -196.65e 11.00, 236.46 e 4.63

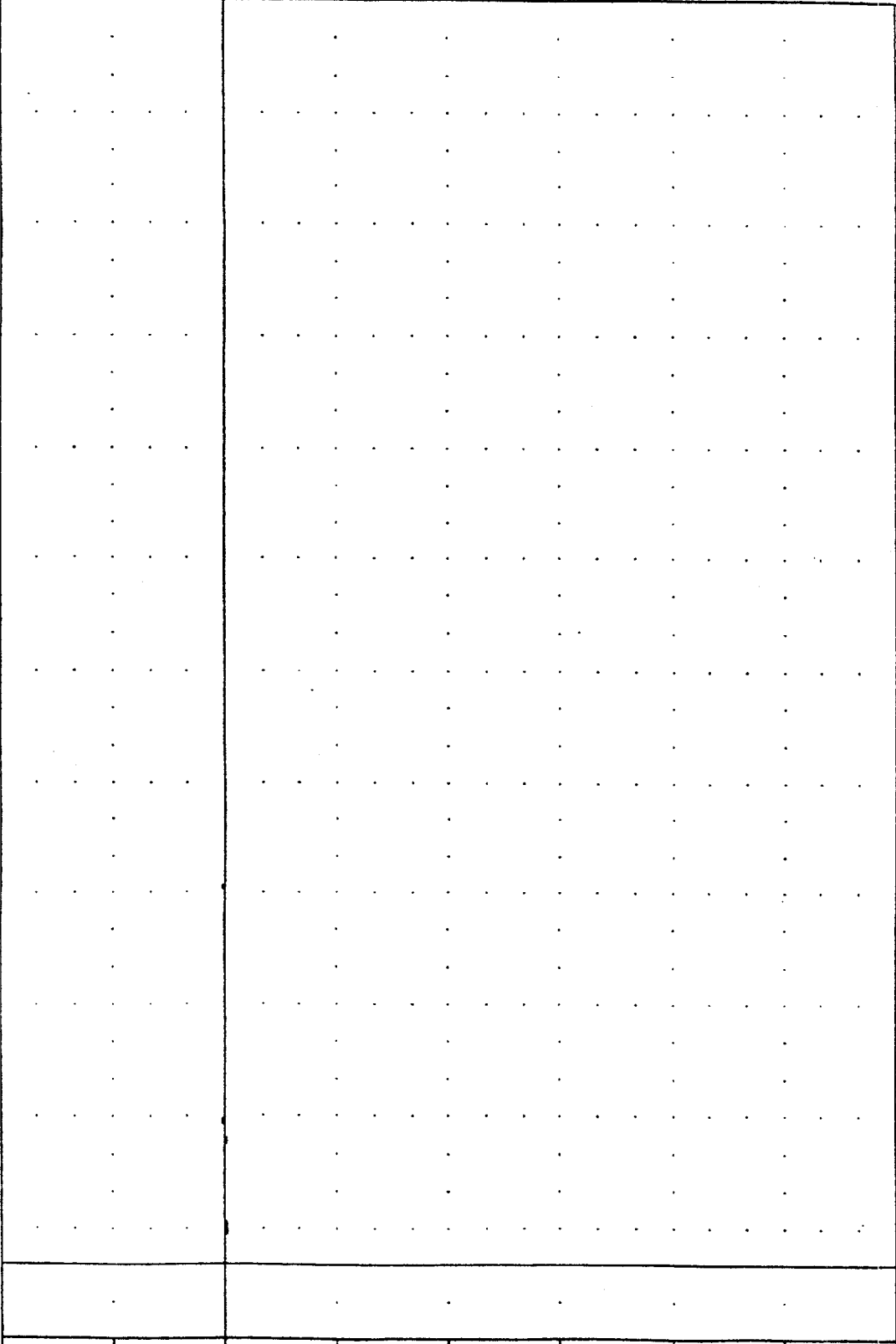


MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 05 LBS

VATIC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 806F

FILTER = BLPP 100/ 316/ .40
 MIN. MAX VALUES = -184.48 e 9.88 , 106.91 e 38.38

20.00
 10.00
 0.00
 -10.00
 -20.00
 -30.00
 -40.00
 -50.00
 -60.00

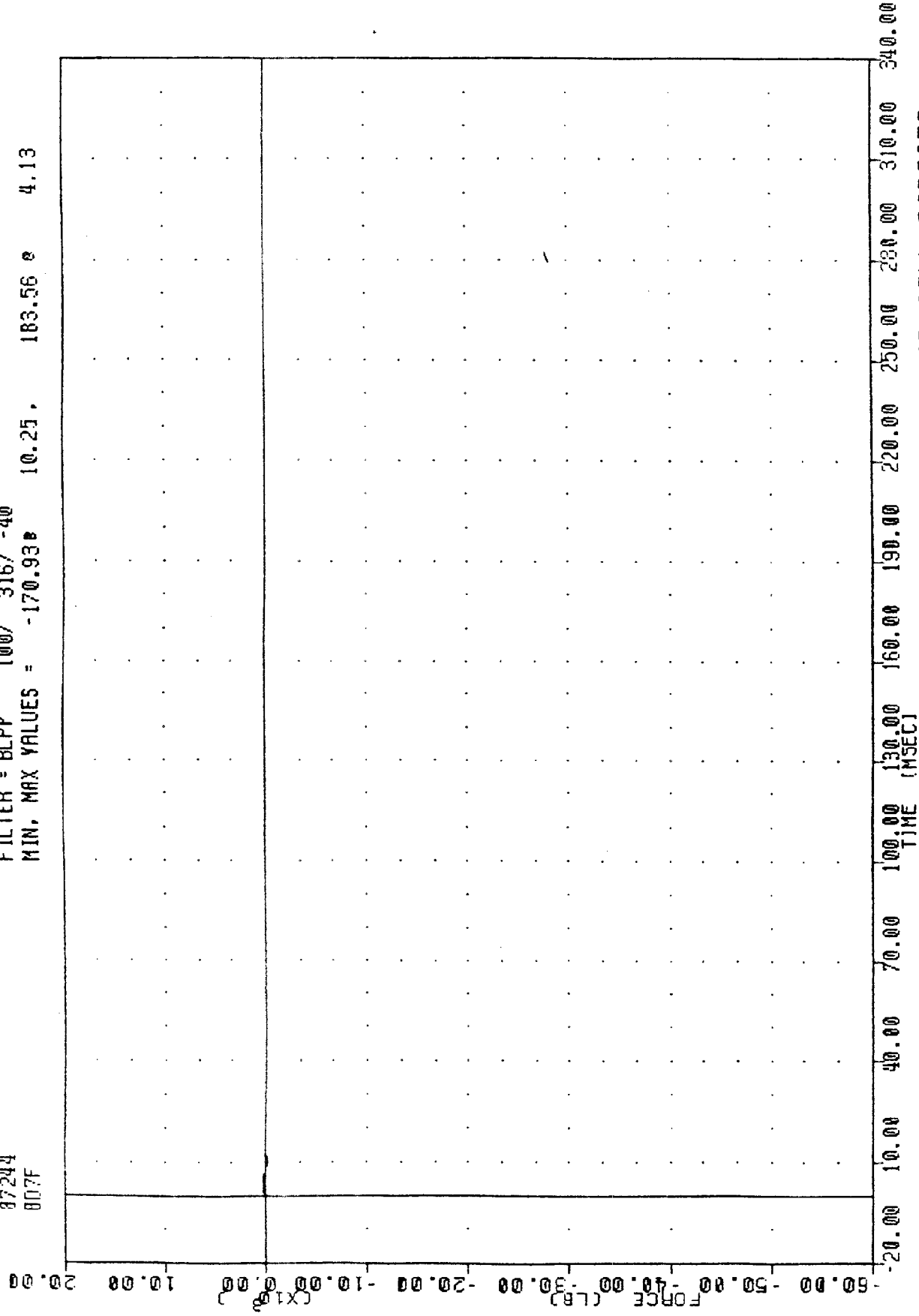


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (NSEC)

MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D6 LBS

VRTC
 NDB INTO 26 DEG FIXED BARRIER
 87244
 807F

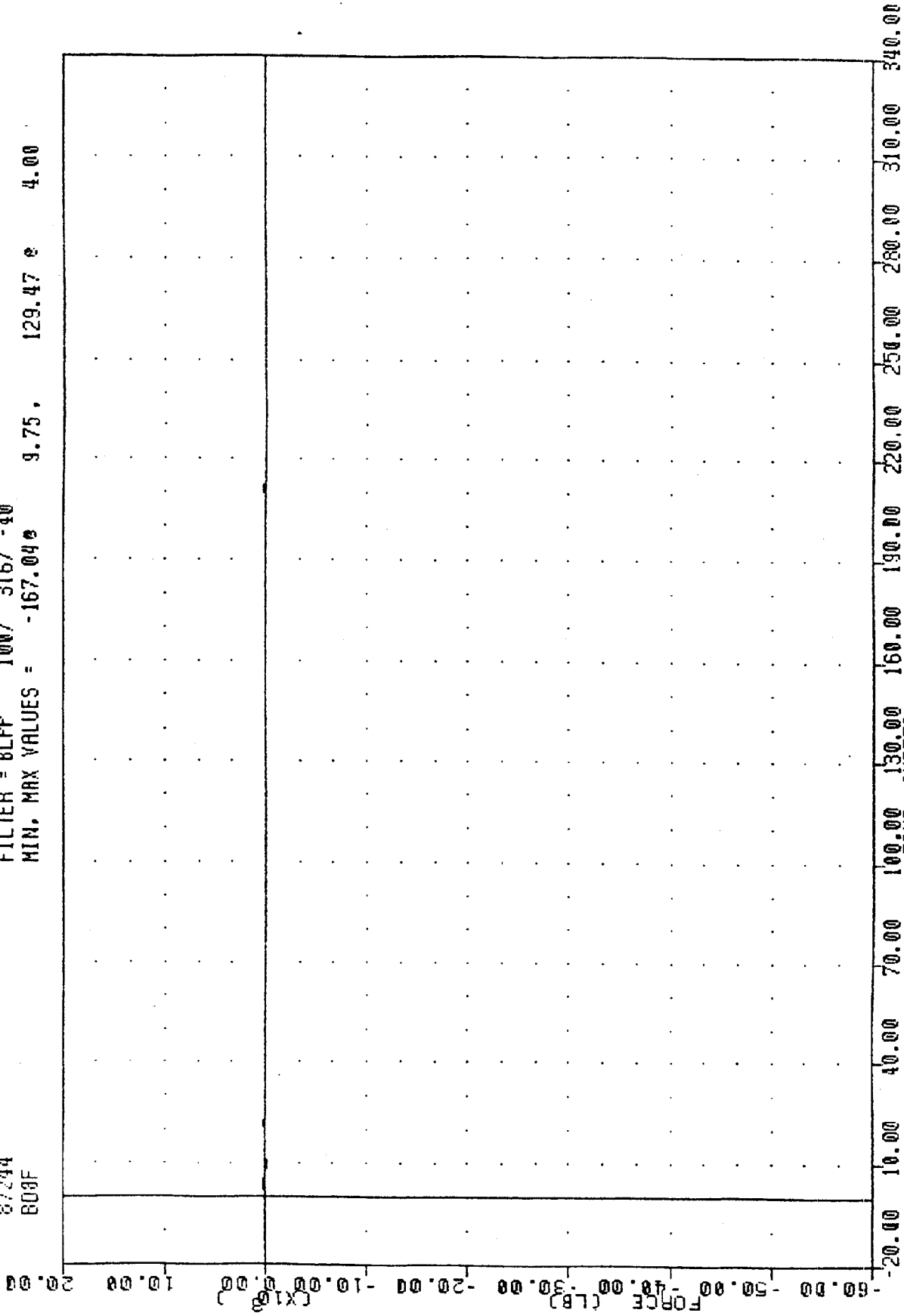
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -170.93 183.56 4.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 07 LBS

VRTC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 808F

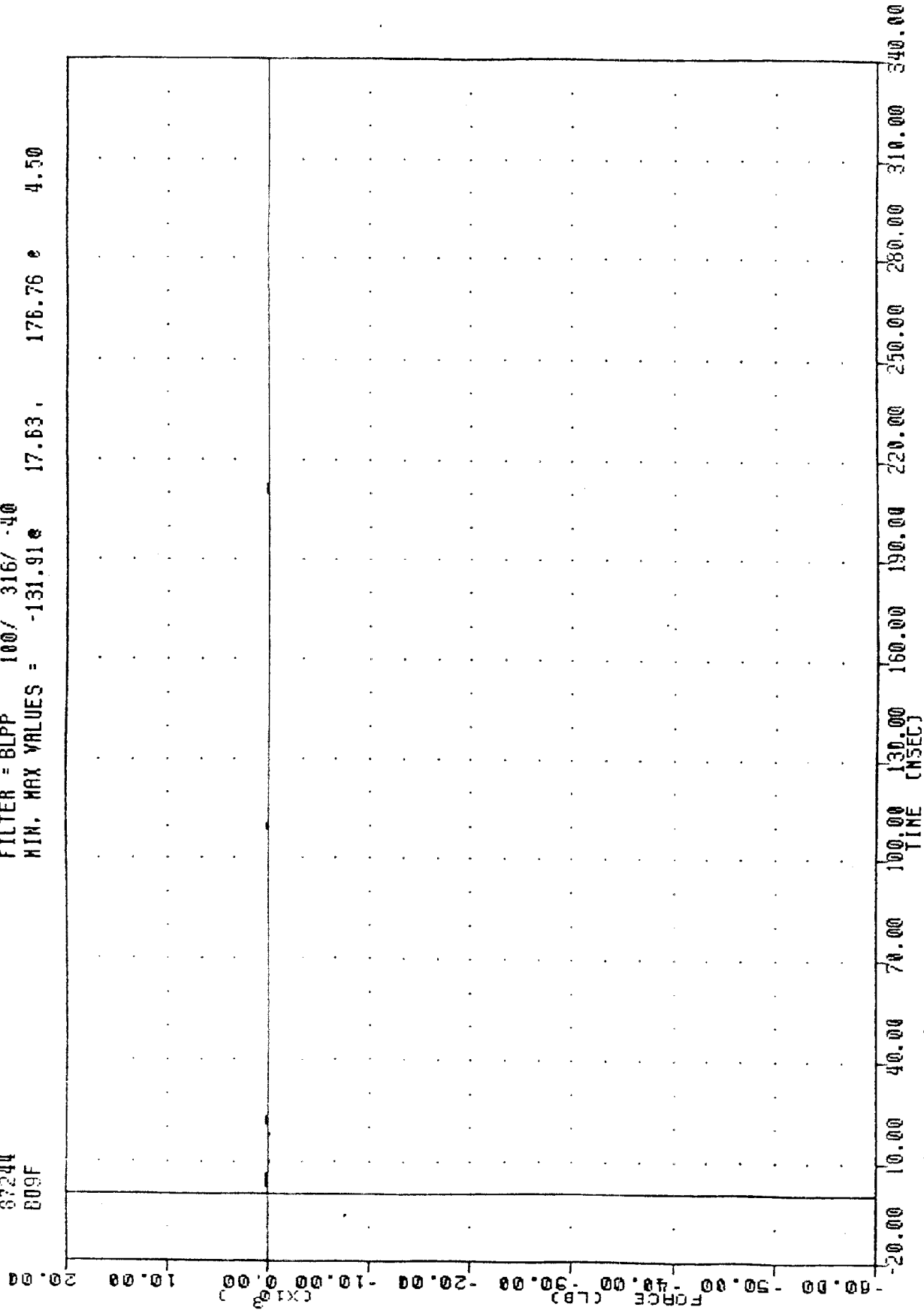
FILTER = 8LPP 100/ 316/ -40
 MIN. MAX VALUES = -167.04 9.75, 129.47 4.00



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 08 LBS

VATC . NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 809F

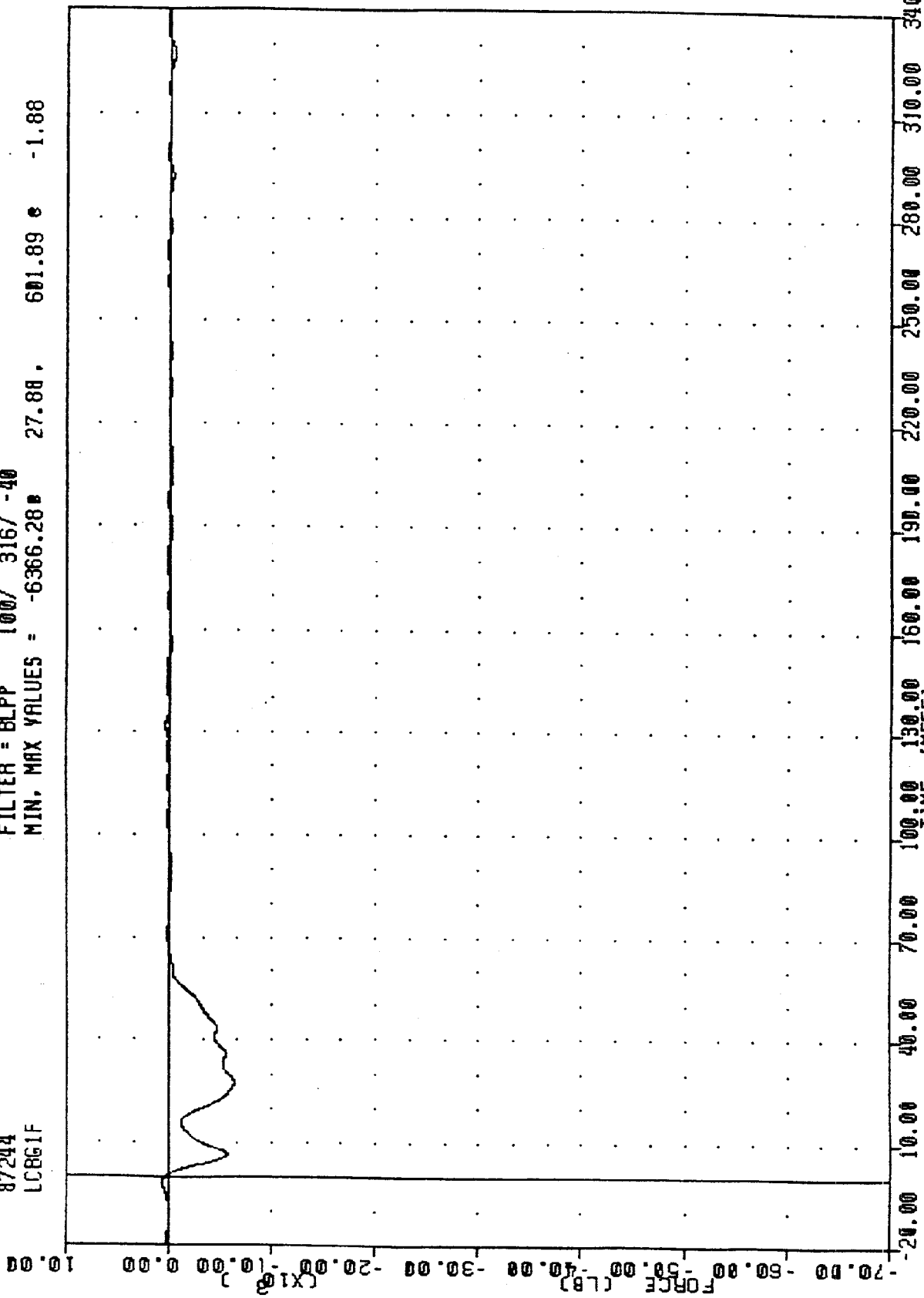
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -131.91e 17.63, 176.76 e 4.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 09 LBS

VRTC , NHTSA FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 LCBG1F

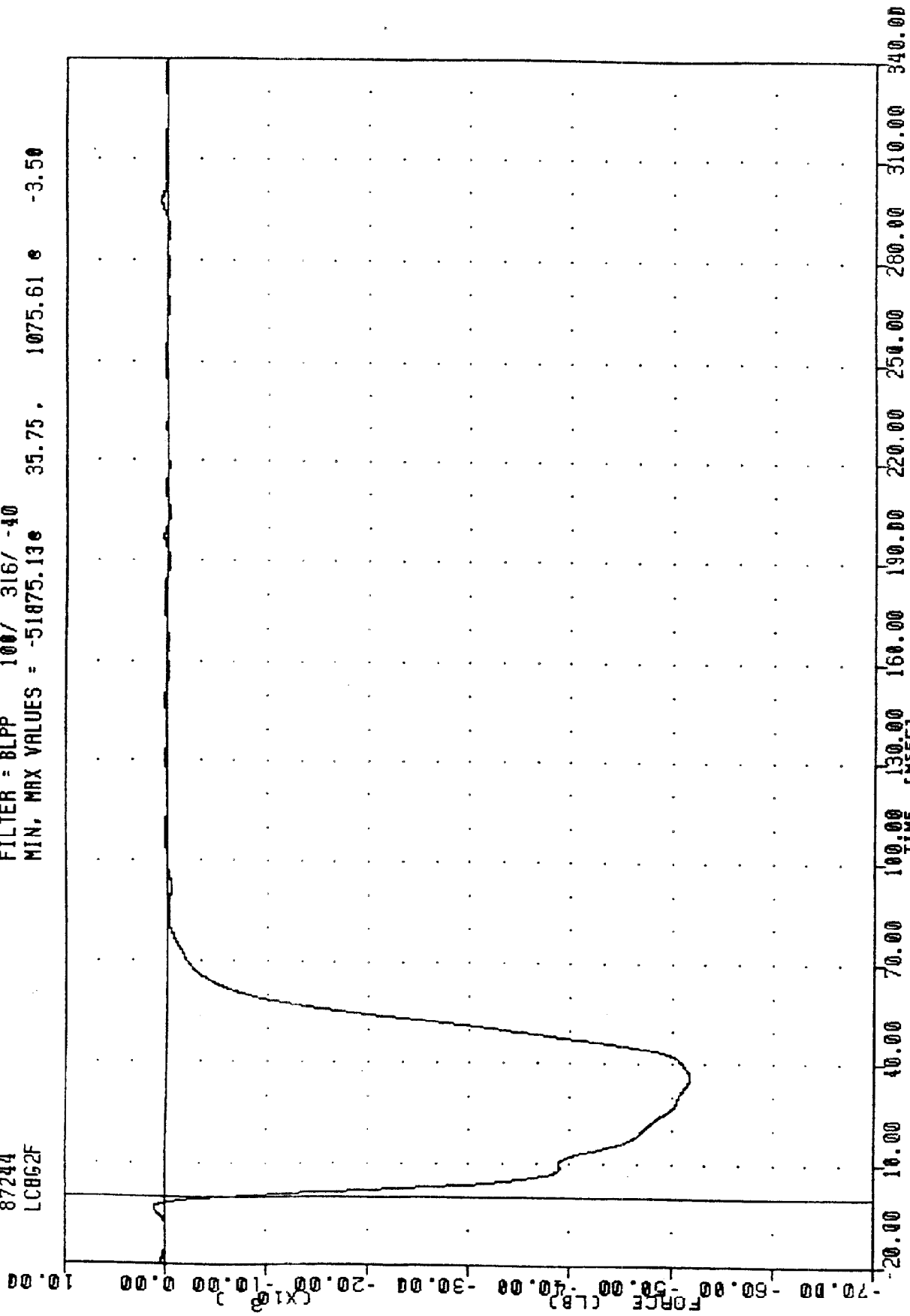
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -6366.28 27.88 601.89 -1.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 1 FORCE TOTAL

VRTC , NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 LCB52F

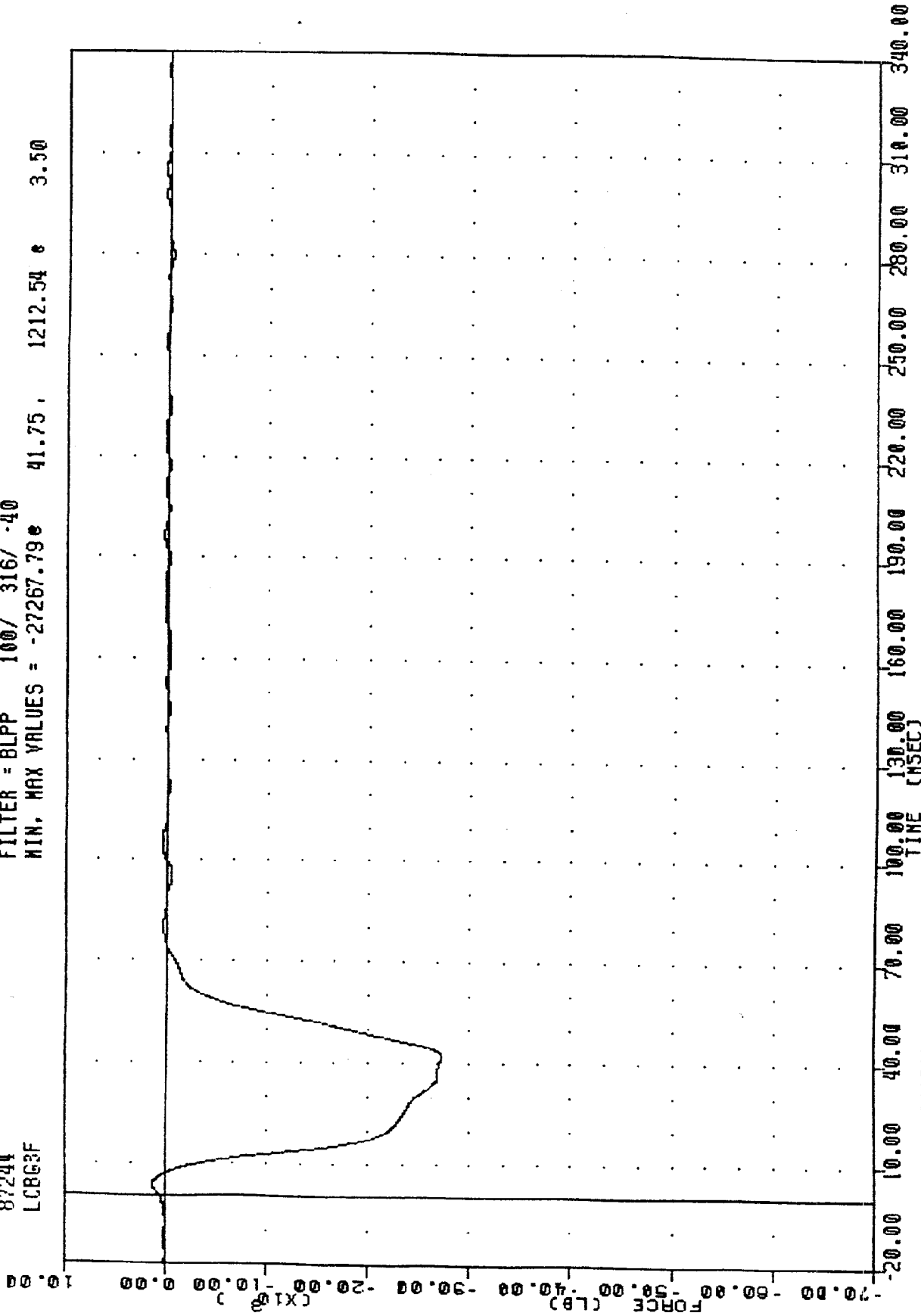
FILTER = 8LPP 100/ 316/ -40
 MIN. MAX VALUES = -51875.13 35.75 , 1075.61 -3.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP * 2 FORCE TOTAL

YATC , NHTSA FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 LCBG3F

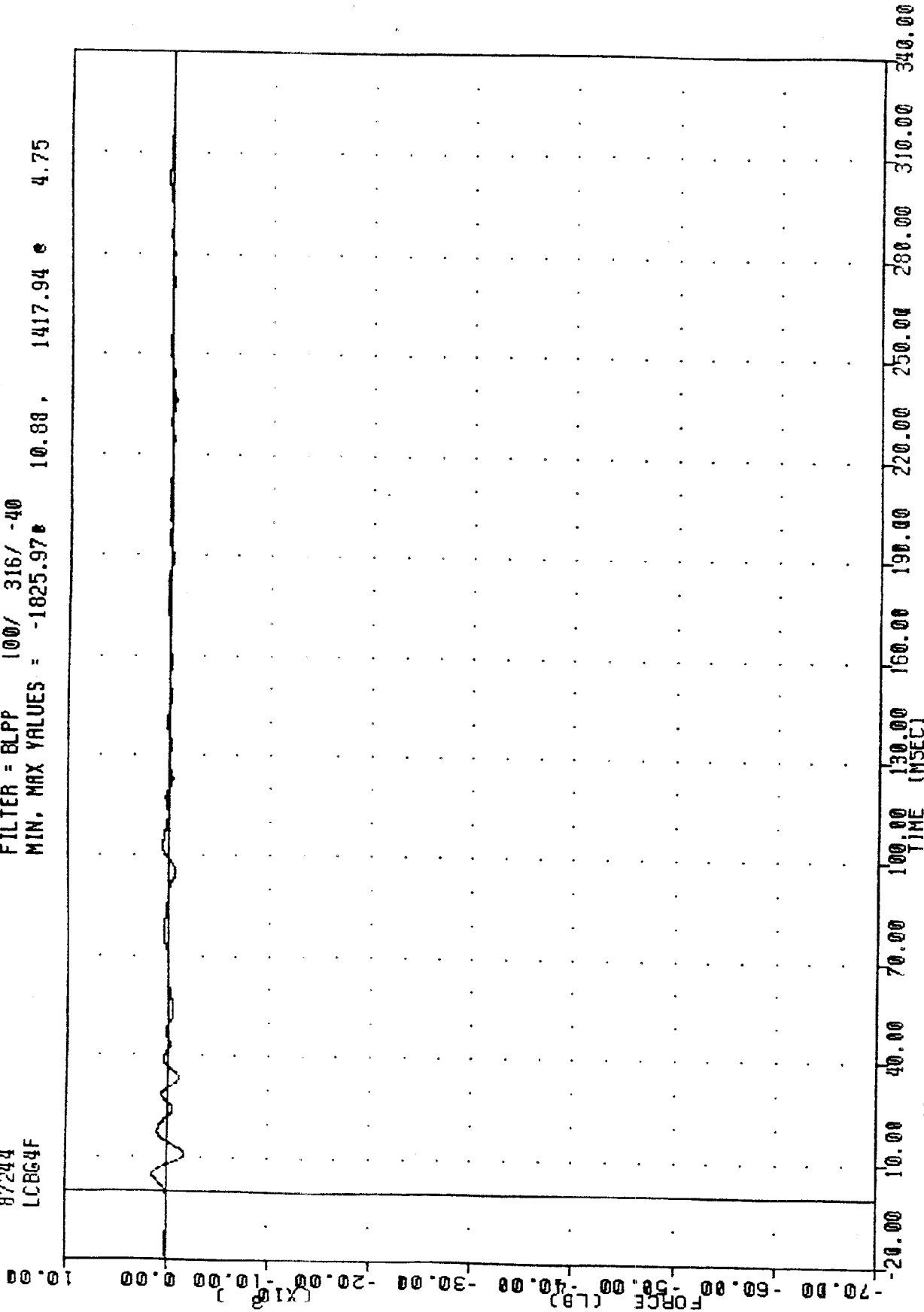
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -27267.79e 41.75, 1212.54 e 3.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 3 FORCE TOTAL

YRIC
 . NHTSR FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 LCBG4F

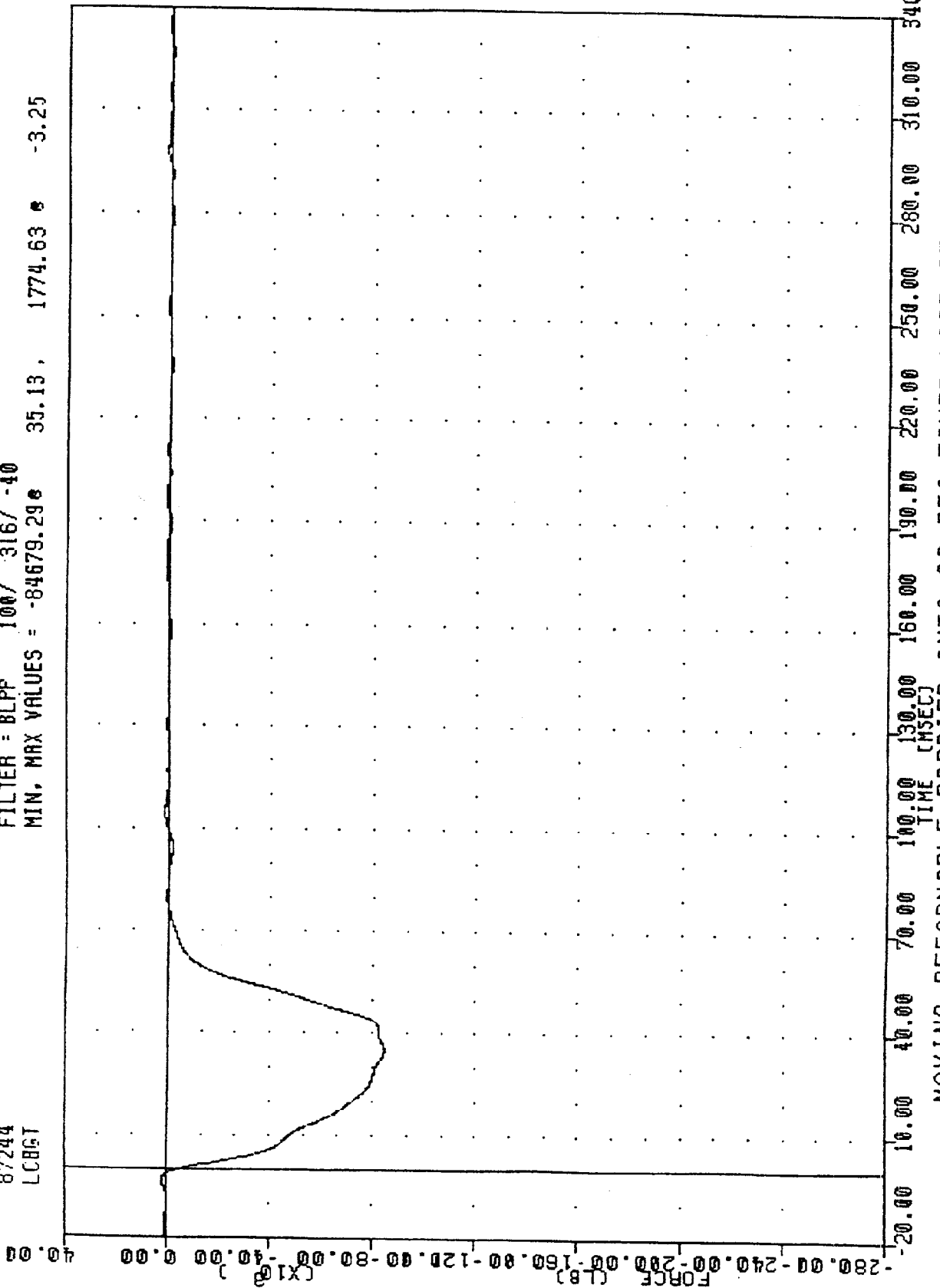
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -1825.97 10.88, 1417.94 e 4.75



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 4 FORCE TOTAL

VRIC , NHTSA FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 LCBGT

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -84679.29 35.13, 1774.63 -3.25



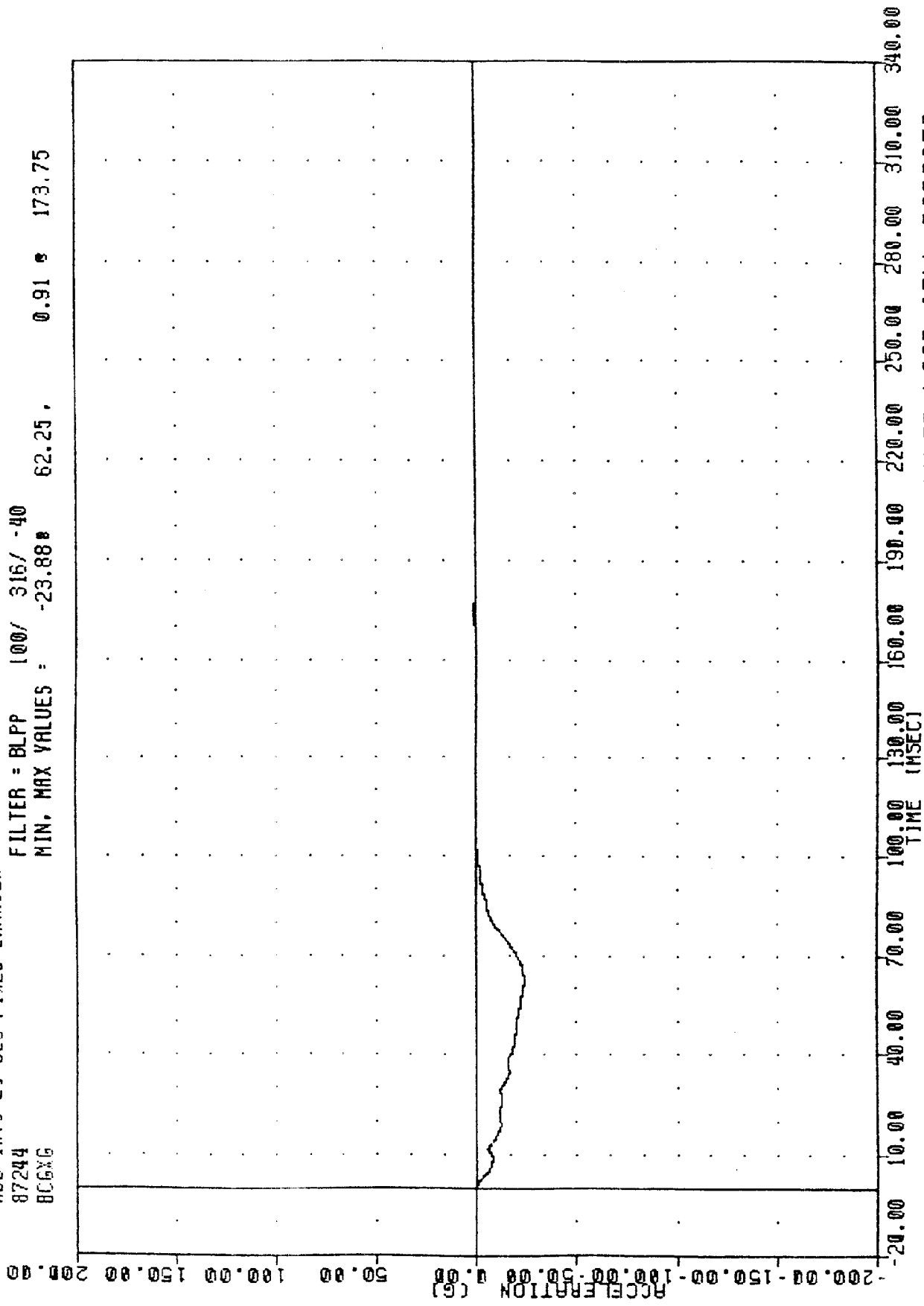
MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 SUM OF LOAD CELL BARRIER FORCES

APPENDIX D

DATA PLOTS TEST #2

VRTC
 NDB INTO 26 DEG FIXED BARRIER
 87244
 BCGXG

EEVC FACE
 FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -23.88 62.25 0.91 173.75



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 BARRIER CENTER OF GRAVITY X AXIS ACCELERATION

VRIC
NOB INTO 26 DEG FIXED BARRIER

87244
BCGXV

EEVC FACE

FILTER = BLPP 300/ 949/ -40

MIN. MAX VALUES = -5.02 105.75,

22.54 1.25

70.00

50.00

30.00

10.00

0.00

-10.00

-20.00

-30.00

-40.00

-50.00

20.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

30.00

50.00

70.00

90.00

110.00

130.00

150.00

170.00

190.00

210.00

40.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

50.00

70.00

90.00

110.00

130.00

150.00

170.00

190.00

210.00

230.00

60.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

70.00

90.00

110.00

130.00

150.00

170.00

190.00

210.00

230.00

250.00

80.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

260.00

90.00

110.00

130.00

150.00

170.00

190.00

210.00

230.00

250.00

270.00

100.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

260.00

280.00

110.00

130.00

150.00

170.00

190.00

210.00

230.00

250.00

270.00

290.00

120.00

140.00

160.00

180.00

200.00

220.00

240.00

260.00

280.00

300.00

130.00

150.00

170.00

190.00

210.00

230.00

250.00

270.00

290.00

310.00

140.00

160.00

180.00

200.00

220.00

240.00

260.00

280.00

300.00

320.00

150.00

170.00

190.00

210.00

230.00

250.00

270.00

290.00

310.00

330.00

160.00

180.00

200.00

220.00

240.00

260.00

280.00

300.00

320.00

340.00

170.00

190.00

210.00

230.00

250.00

270.00

290.00

310.00

330.00

350.00

180.00

200.00

220.00

240.00

260.00

280.00

300.00

320.00

340.00

360.00

190.00

210.00

230.00

250.00

270.00

290.00

310.00

330.00

350.00

370.00

200.00

220.00

240.00

260.00

280.00

300.00

320.00

340.00

360.00

380.00

210.00

230.00

250.00

270.00

290.00

310.00

330.00

350.00

370.00

390.00

220.00

240.00

260.00

280.00

300.00

320.00

340.00

360.00

380.00

400.00

230.00

250.00

270.00

290.00

310.00

330.00

350.00

370.00

390.00

410.00

240.00

260.00

280.00

300.00

320.00

340.00

360.00

380.00

400.00

420.00

250.00

270.00

290.00

310.00

330.00

350.00

370.00

390.00

410.00

430.00

260.00

280.00

300.00

320.00

340.00

360.00

380.00

400.00

420.00

440.00

270.00

290.00

310.00

330.00

350.00

370.00

390.00

410.00

430.00

450.00

280.00

300.00

320.00

340.00

360.00

380.00

400.00

420.00

440.00

460.00

290.00

310.00

330.00

350.00

370.00

390.00

410.00

430.00

450.00

470.00

300.00

320.00

340.00

360.00

380.00

400.00

420.00

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480.00

310.00

330.00

350.00

370.00

390.00

410.00

430.00

450.00

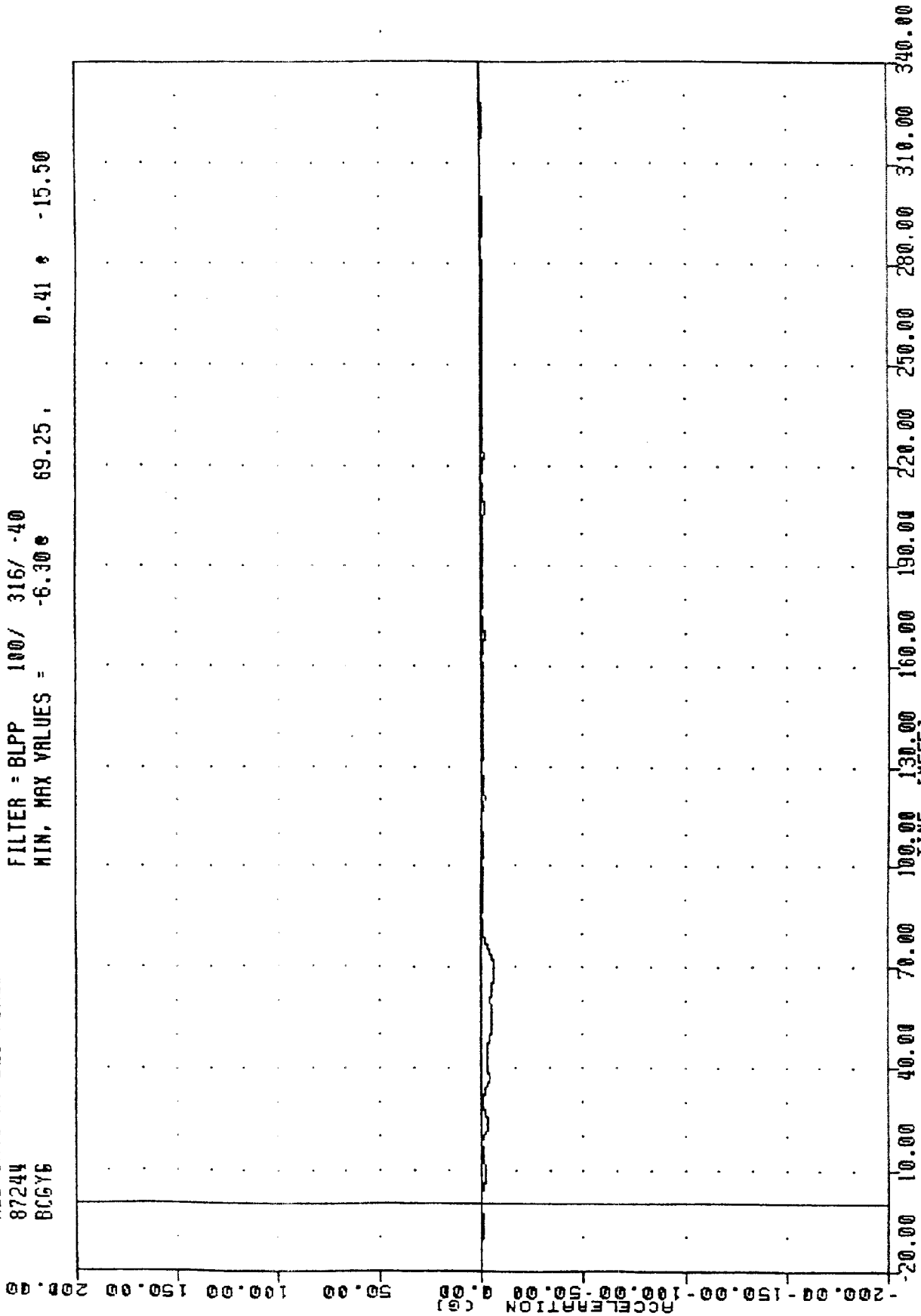
470.00

490.00

320.00

VATC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BCCY6

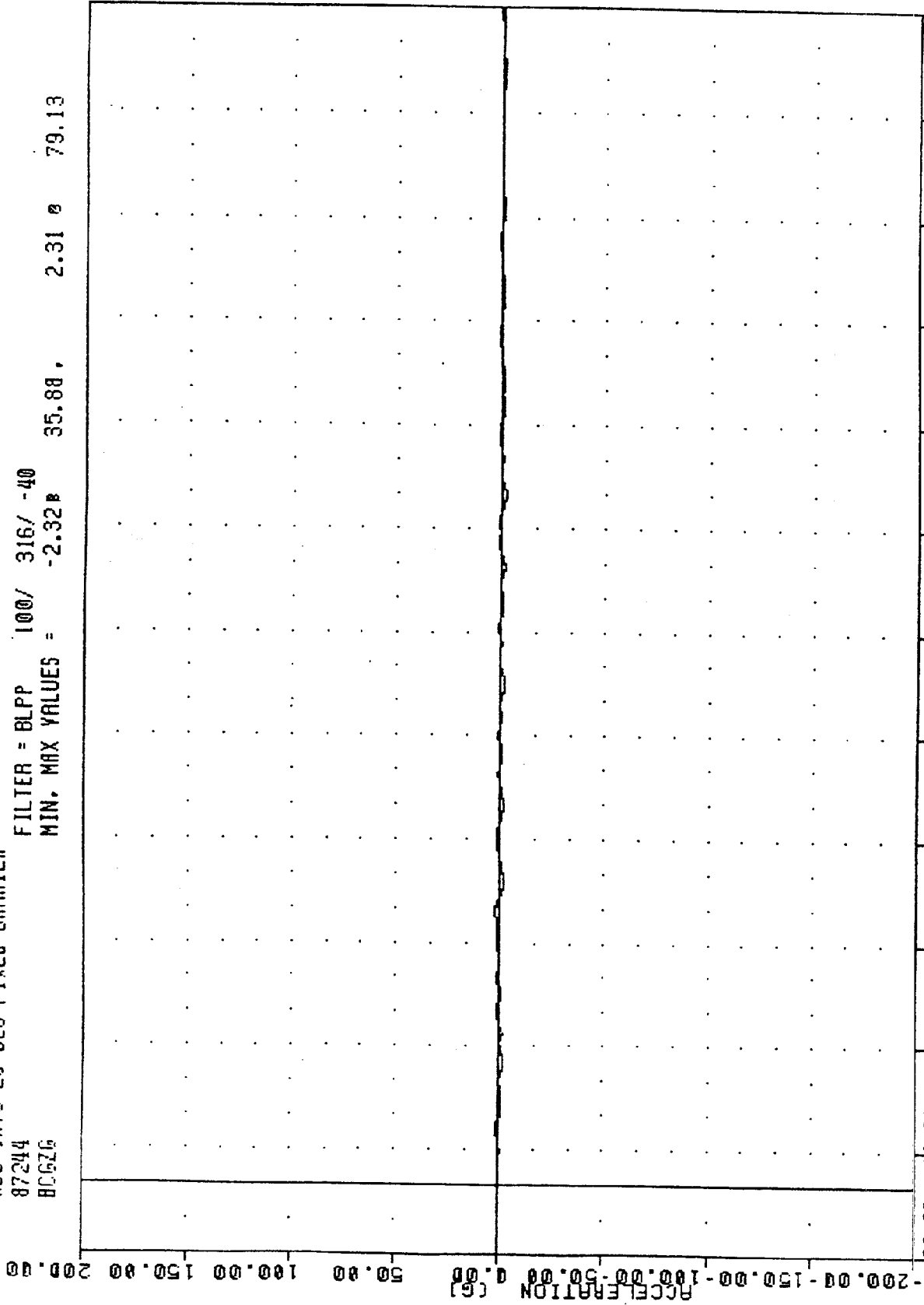
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -6.30e 89.25, 0.41 e -15.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 BARRIER CENTER OF GRAVITY Y AXIS ACCELERATION

VRTC , EEMC FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 HCGZG

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -2.32B 35.8B 2.31 0 79.13

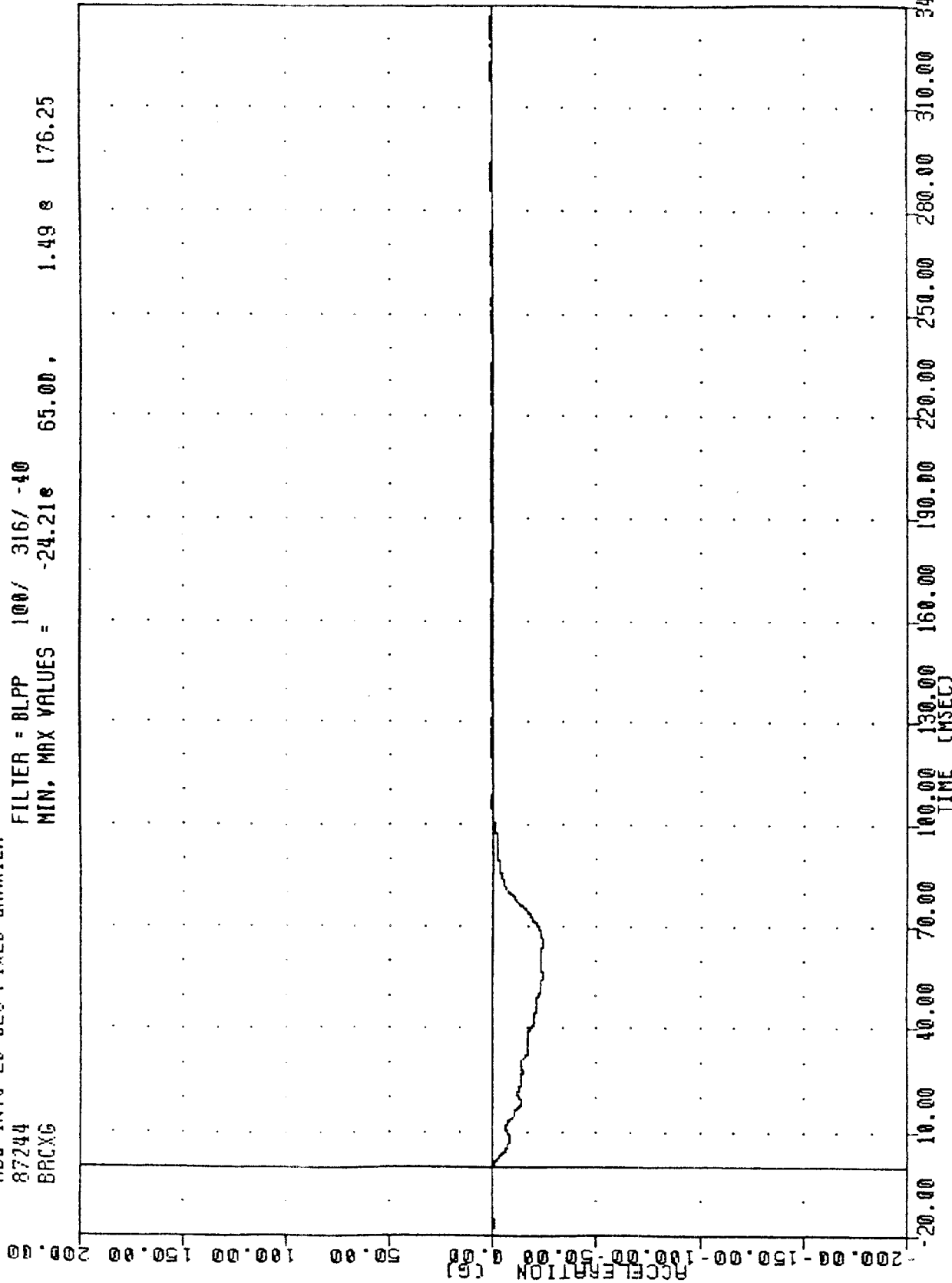


D-5

MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 BARRIER CENTER OF GRAVITY Z AXIS ACCELERATION

VRTC , EEVC FACE
MDB INTO 26 DEG FIXED BARRIER
87244
BRXG

FILTER = BLPP 100/ 316/ -40
MIN. MAX VALUES = -24.21e 65.00, 1.49 s 176.25

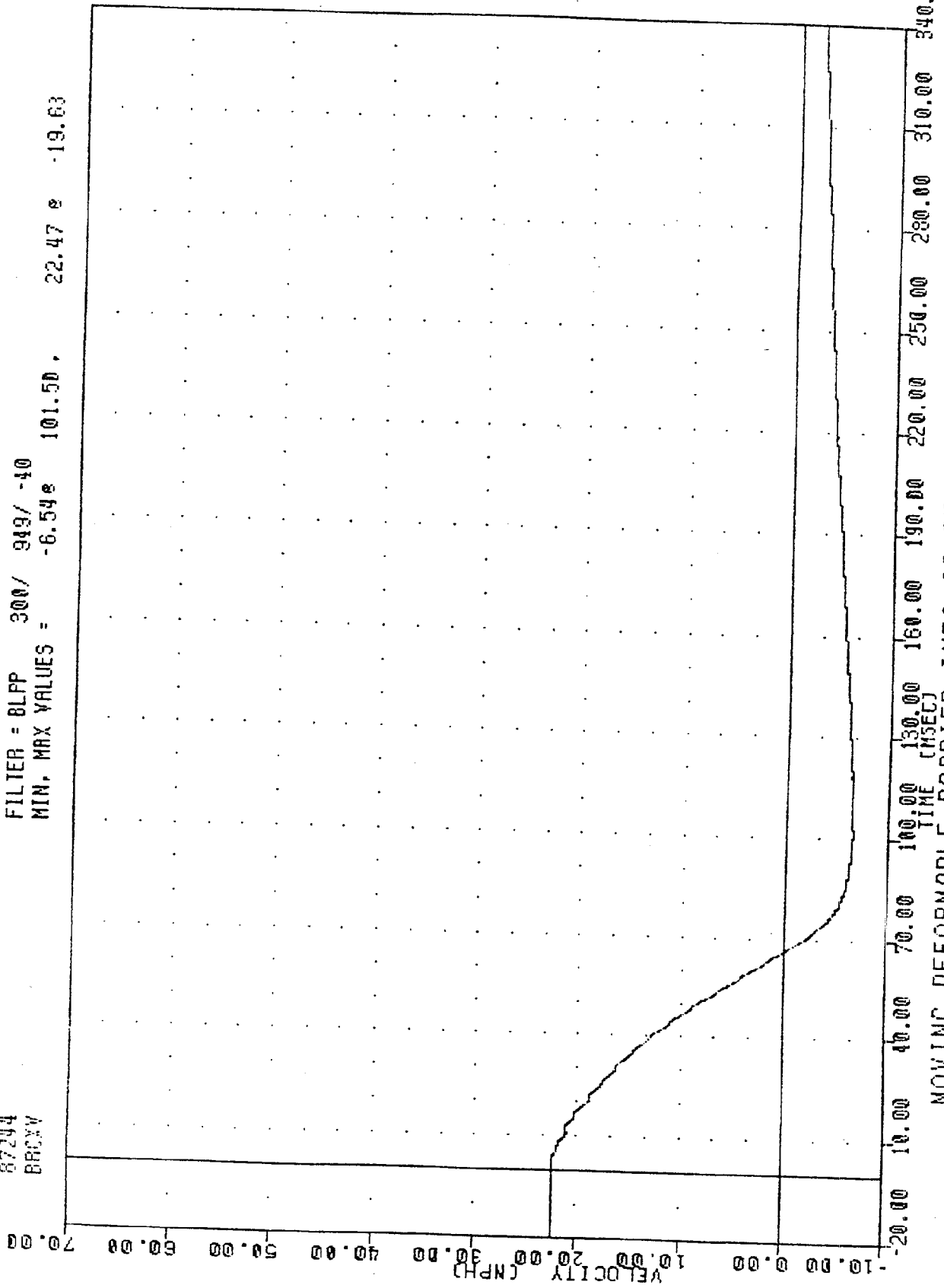


MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
BARRIER REAR CROSSMEMBER X AXIS ACCELERATION

VRIC , EEW FACE
MOB INTO 26 DEG FIXED BARRIER

87244
BRXXV

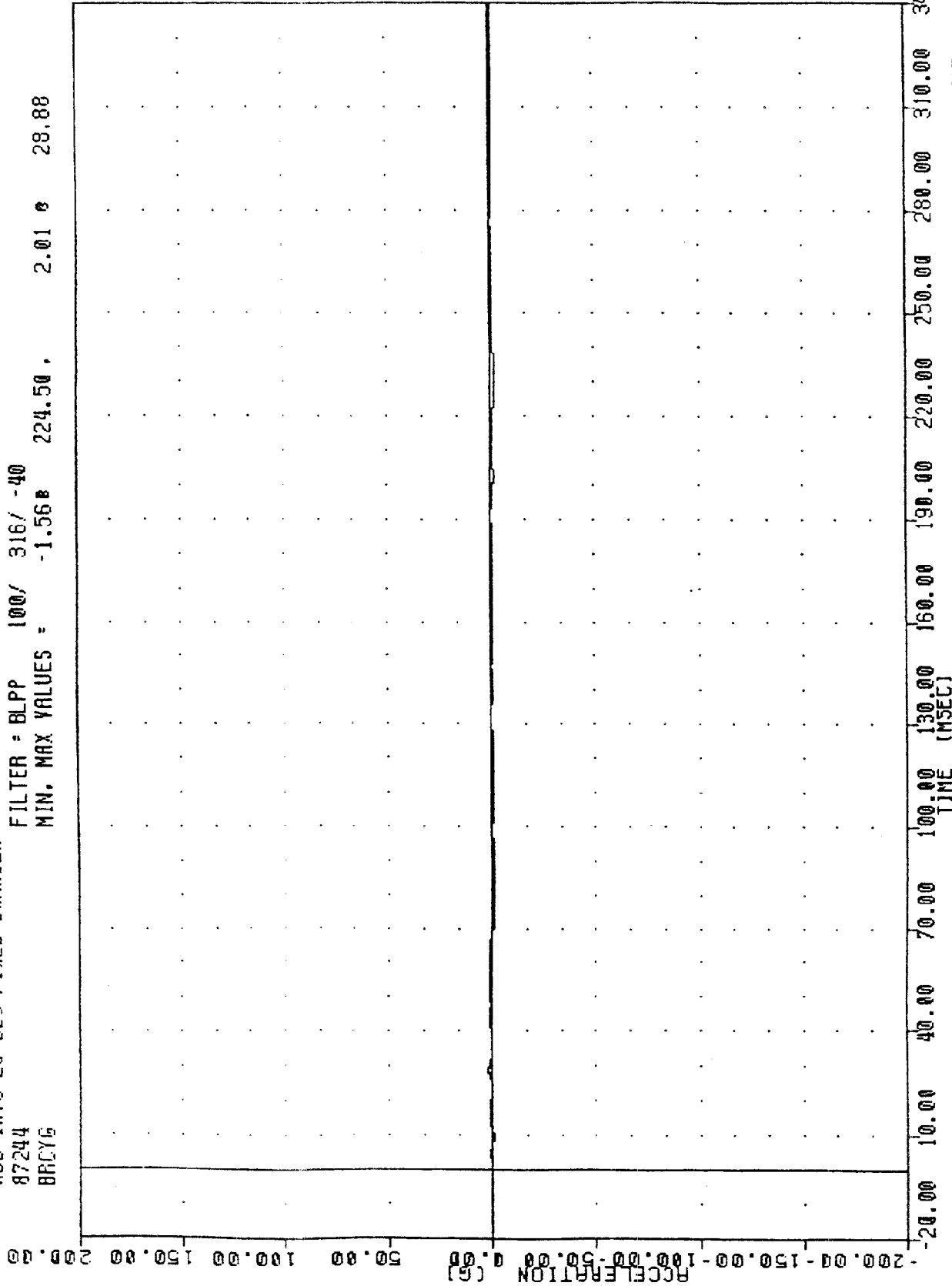
FILTER = 8LPP 300/ 949/ -40
MIN, MAX VALUES = -6.54s 101.50, 22.47 e -19.63



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
BARRIER REAR CROSSMEMBER X AXIS VELOCITY

VRTC . EEVC FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 BRCY6

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -1.56 224.50 . 2.01 28.88

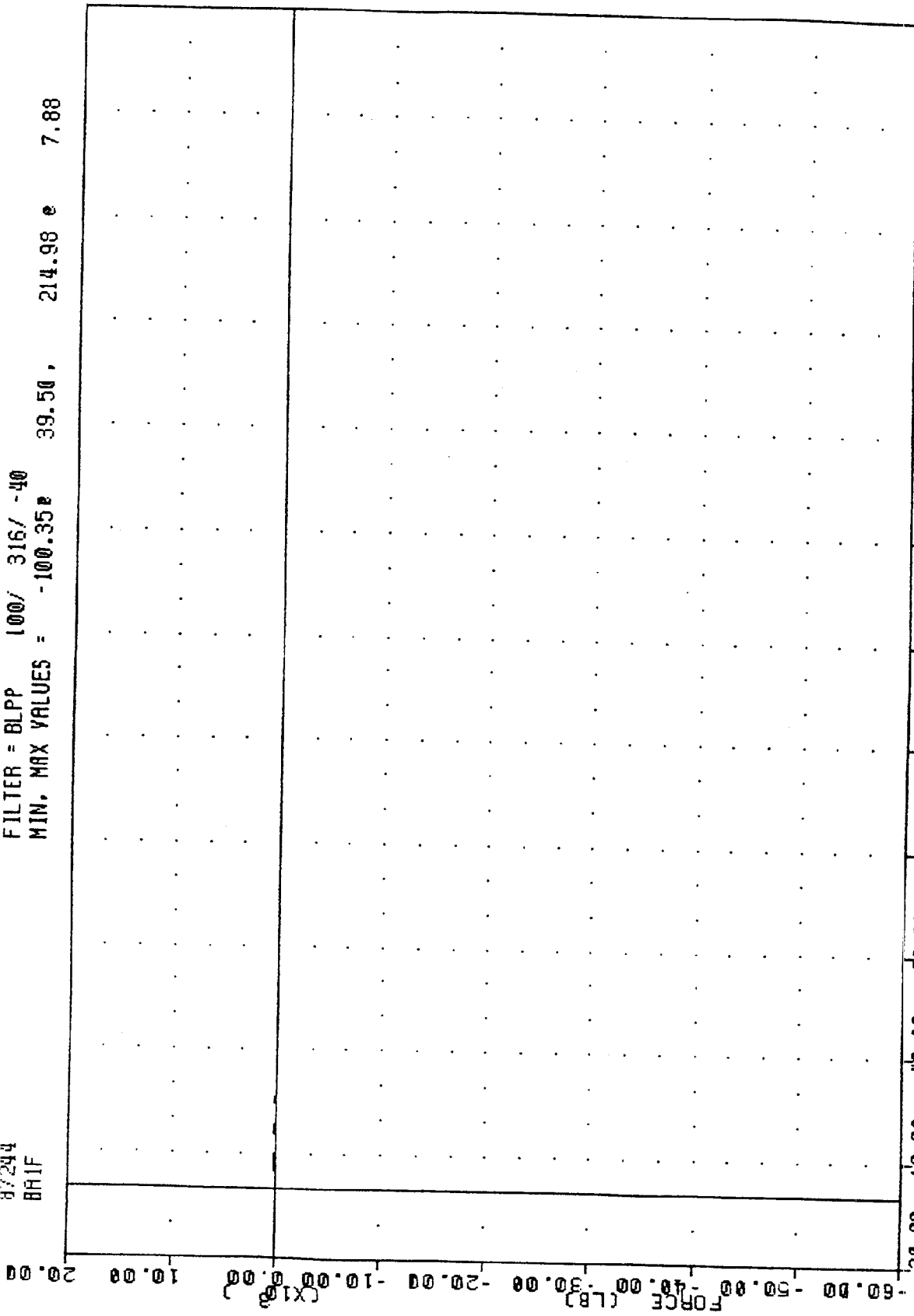


MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 BARRIER REAR CROSSMEMBER Y AXIS ACCELERATION

VRTC , EEVC FACE
 NDB INTO 26 DEG FIXED BARRIER

87244
 BRIF

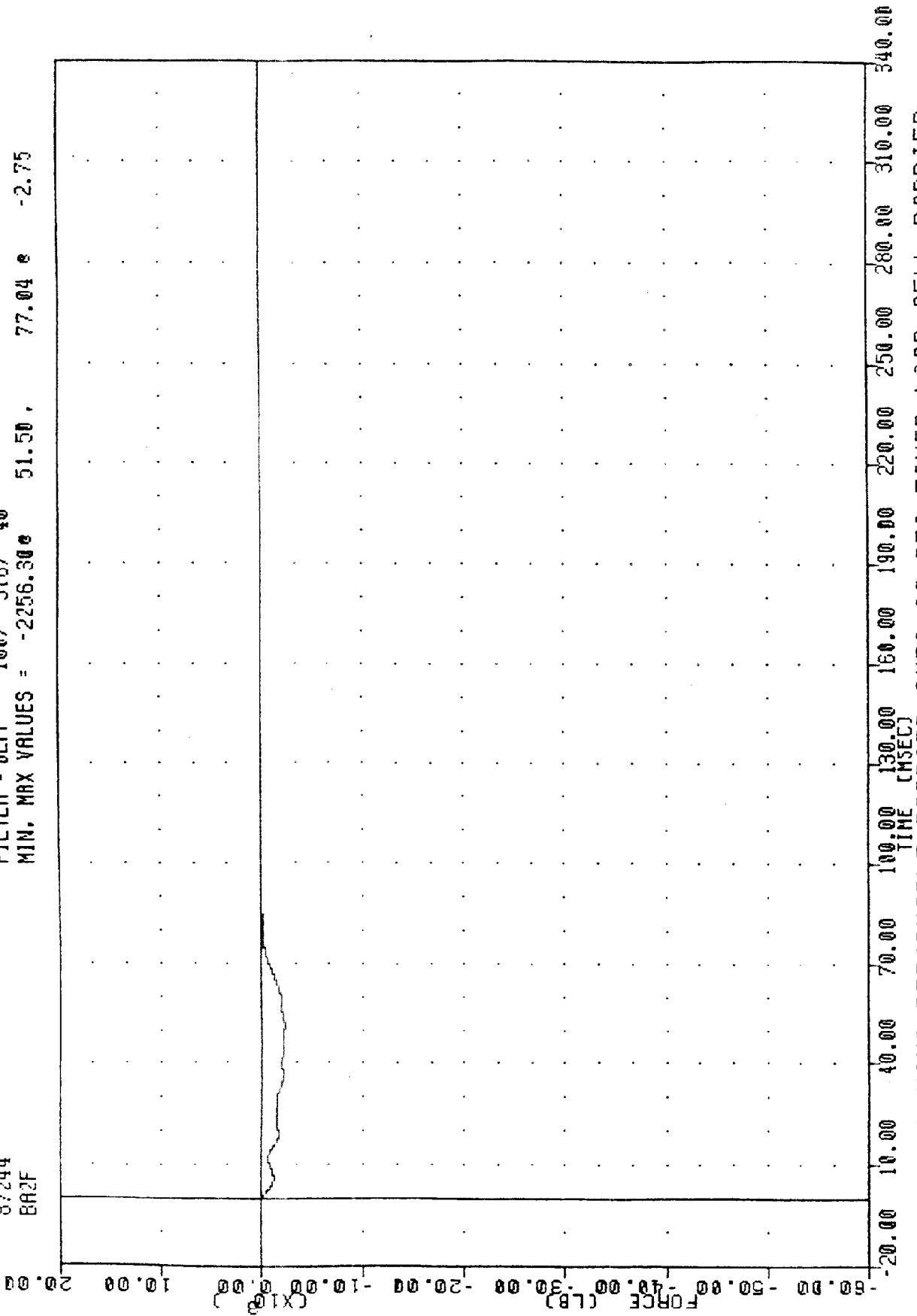
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -100.35e 39.50, 214.98 e 7.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A1 LBS

YR1C , EEVC FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 BAR2F

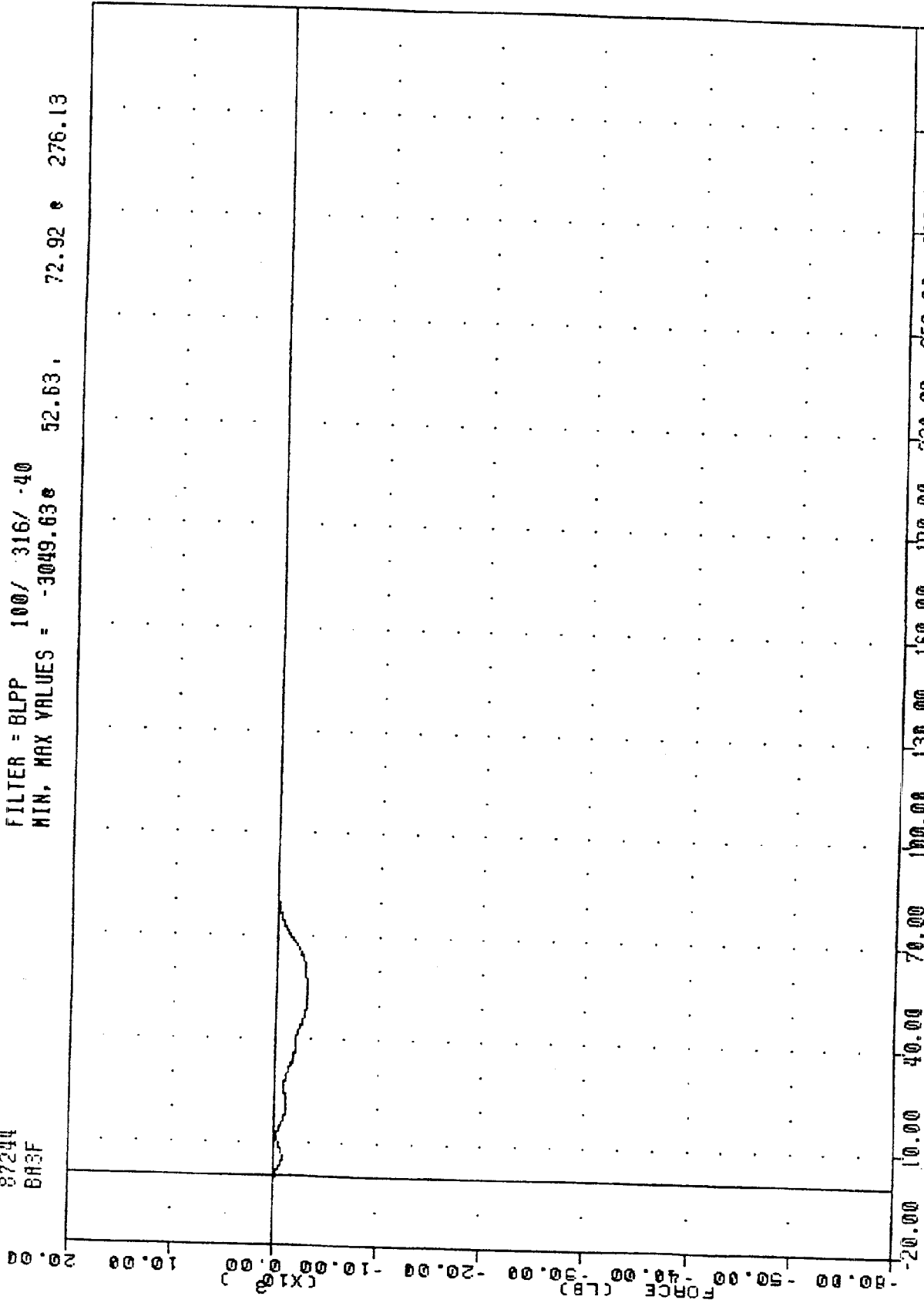
FILTER = 8LPP 100/ 316/ -40
 MIN. MAX VALUES = -2256.30e 51.50 , 77.04 e -2.75



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION R2 LBS

VATC . EEVC FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 8A3F

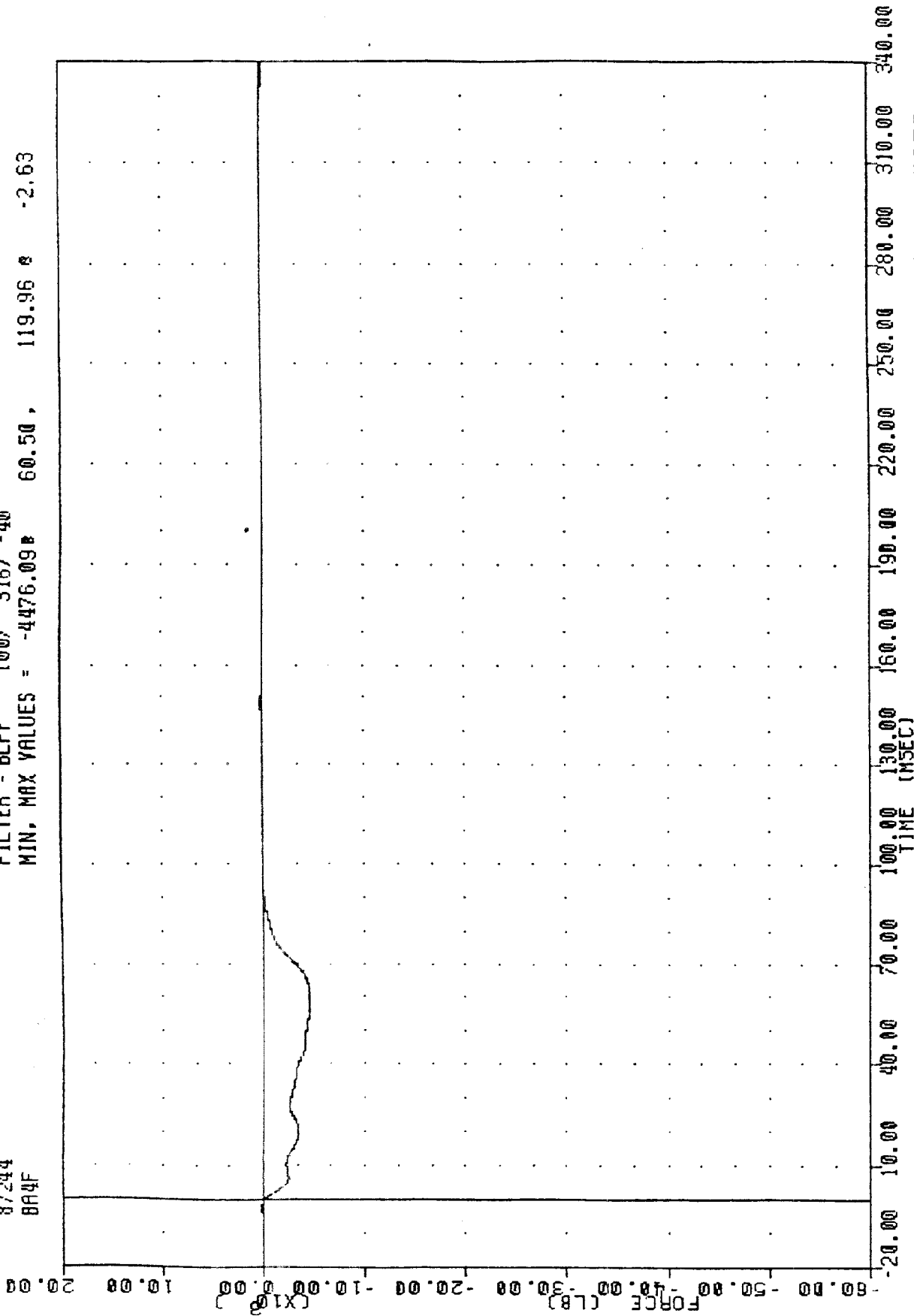
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -3049.63e 52.63, 72.92 e 276.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A3 LBS

VRIC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 8A4F

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -4476.09# 60.50 , 119.96 # -2.63

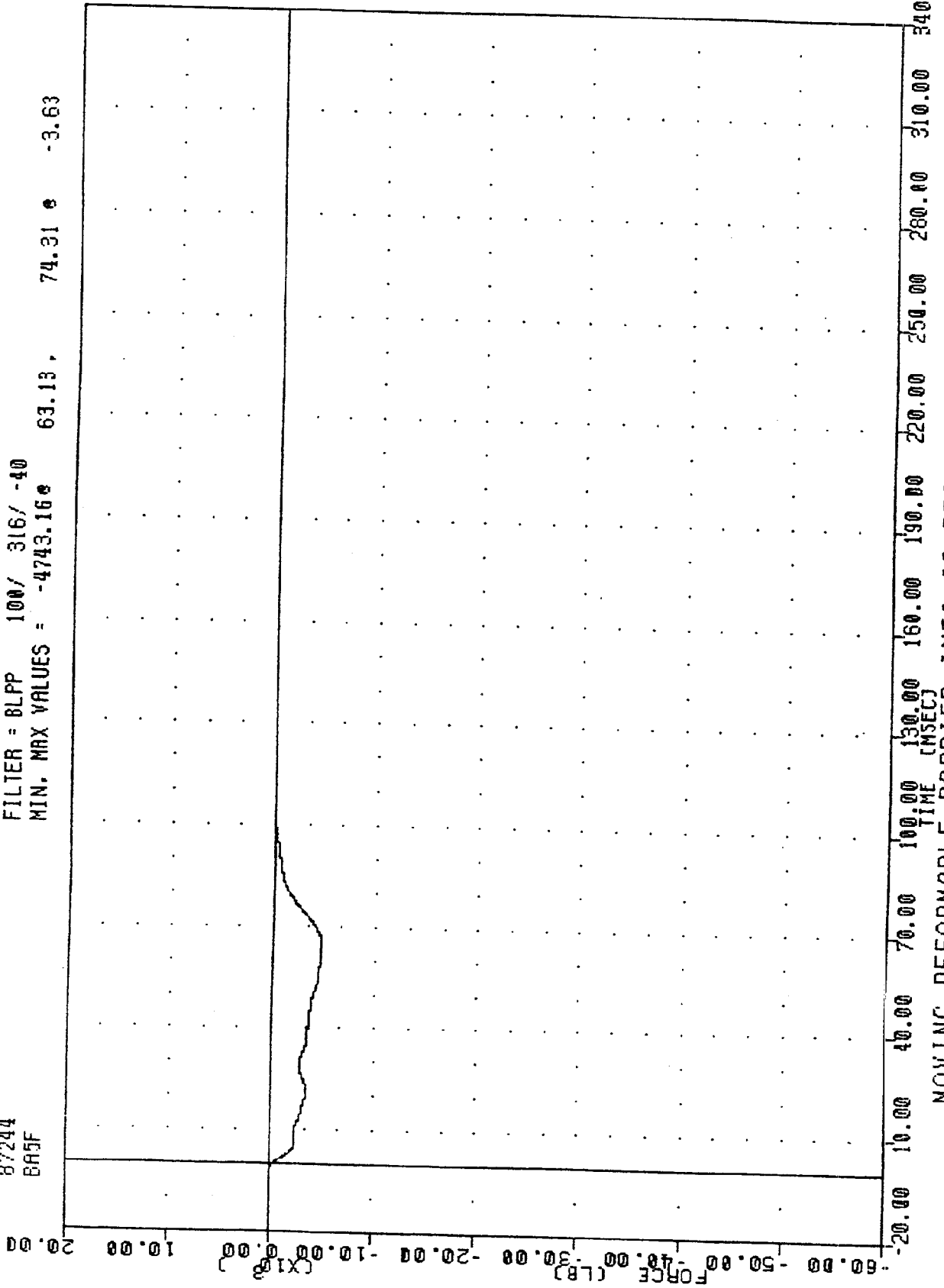


MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION #4 LBS

VRTC , EEVC FACE
MOB INTO 26 DEG FIXED BARRIER

87244
BA5F

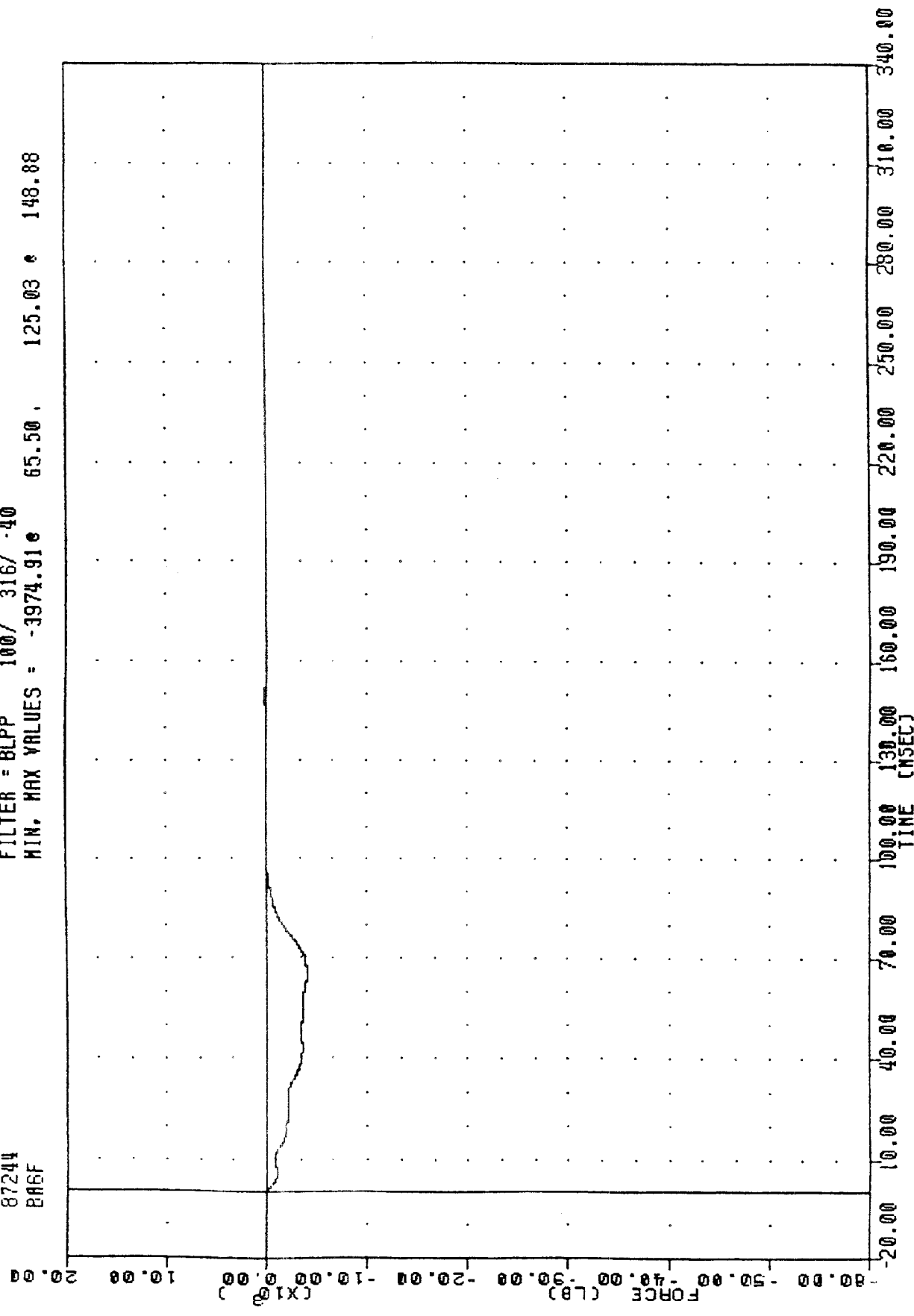
FILTER = BLPP 100/ 316/ -40
MIN. MAX VALUES = -4743.16e 63.13 , 74.31 e -3.63



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 LBS

VATIC , EEVC FACE
 MDR INTO 26 DEG FIXED BARRIER
 87244
 RASF

FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -3974.91 65.50 , 125.03 148.88



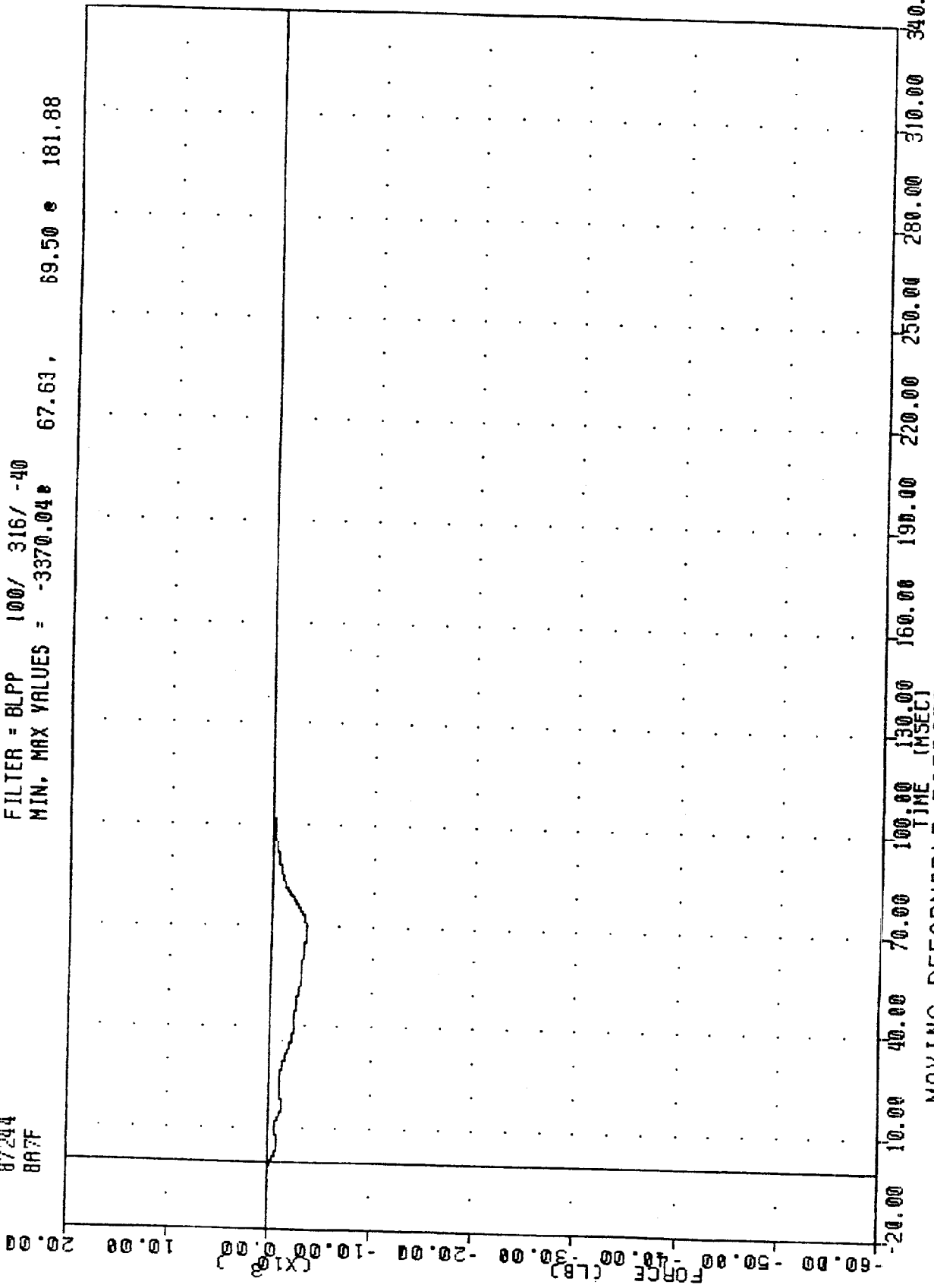
MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A6 LBS

VRTC
NDB INTO 26 DEG FIXED BARRIER

. EEVC FACE

87244
8A7F

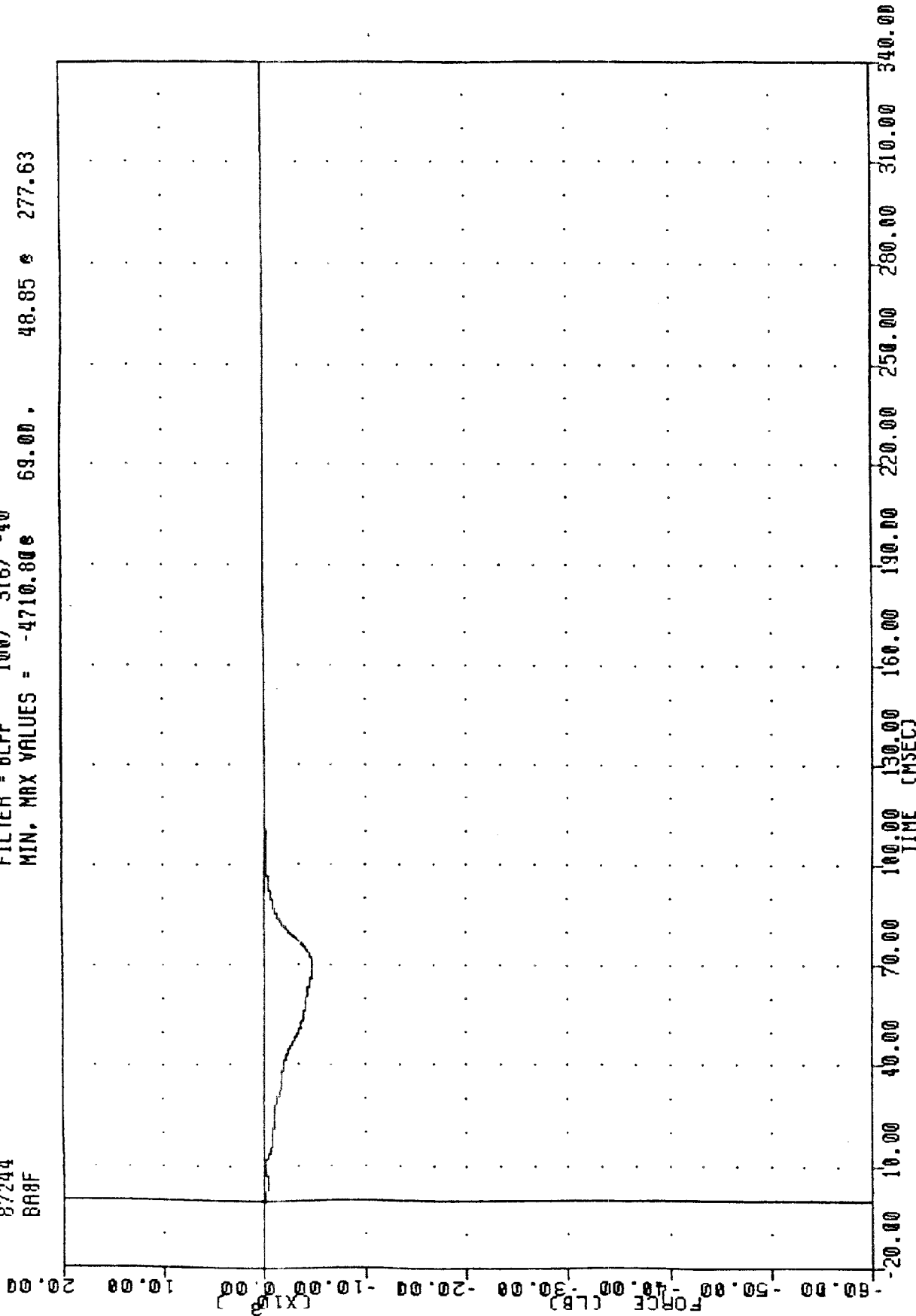
FILTER = BLPP 100/ 316/ -40
MIN. MAX VALUES = -3370.04 67.63, 69.50 e 181.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A7 LBS

VRTC
 MO8 INTO 26 DEG FIXED BARRIER
 87244
 8A8F

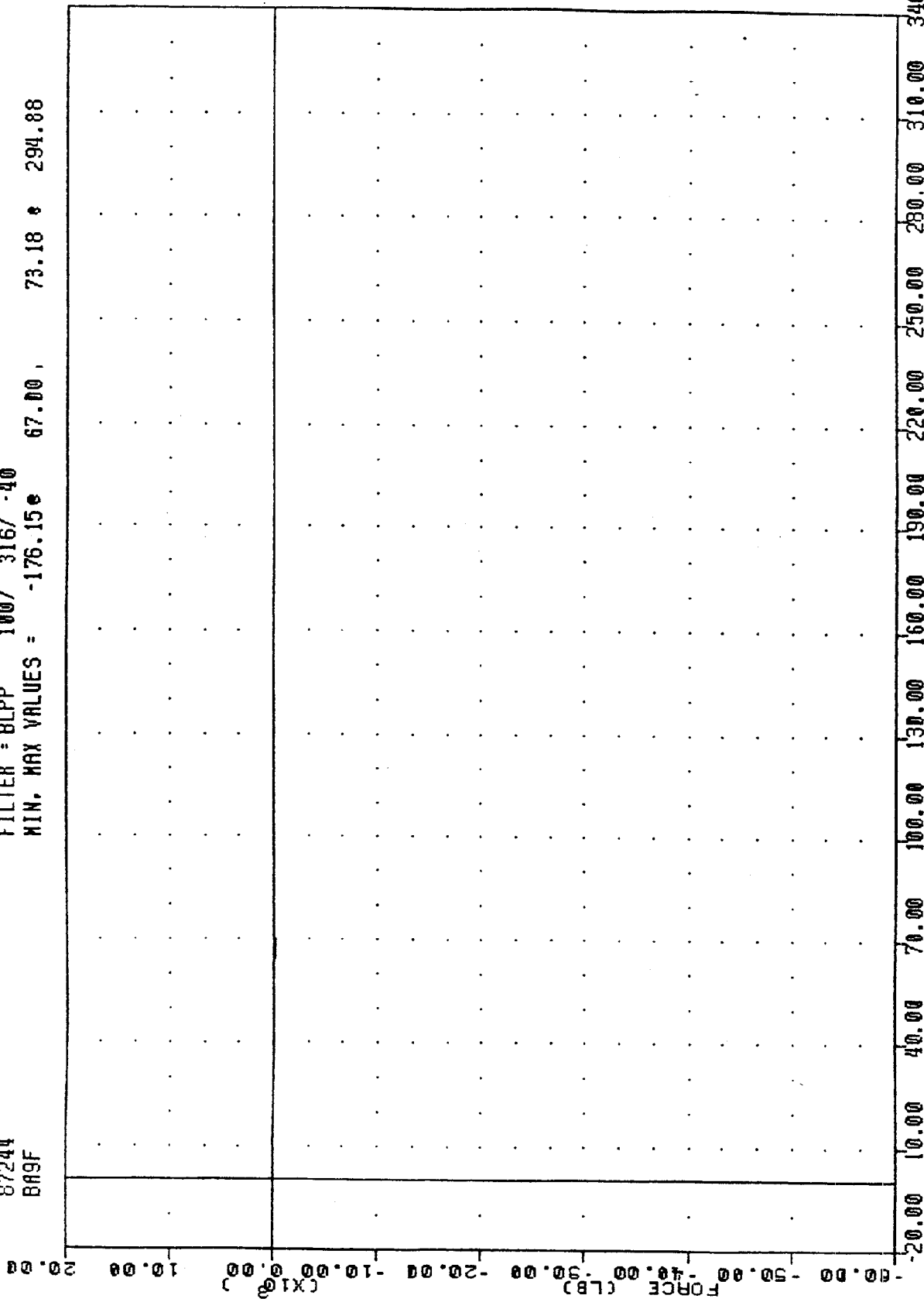
. EEVC FACE
 FILTER = 8LPP 100/ 316/ -10
 MIN, MAX VALUES = -4710.80e 69.00. 48.85 e 277.63



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A8 LBS

VRTC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BASF

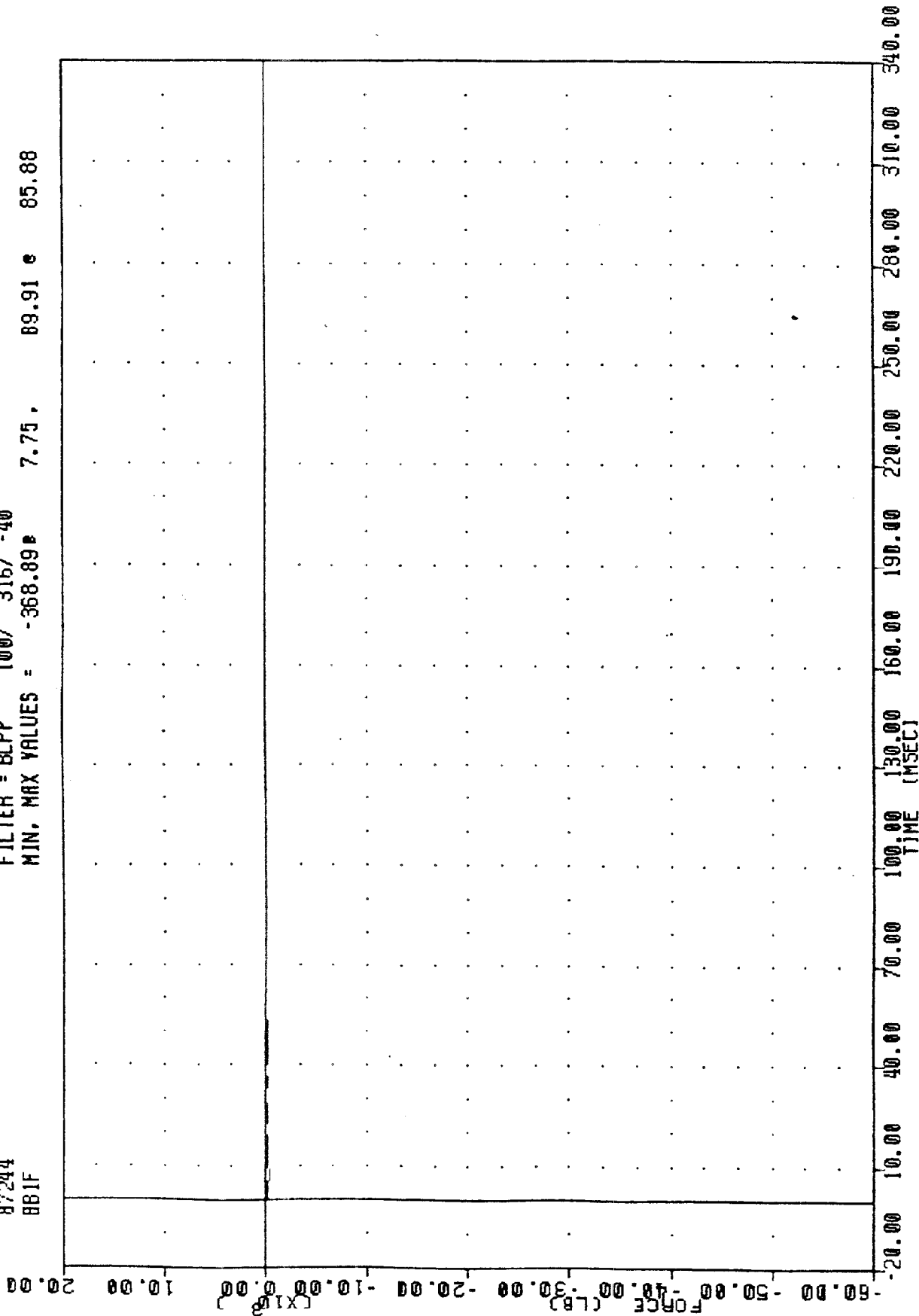
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -176.15e 67.00 , 73.18 e 294.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A9 LBS

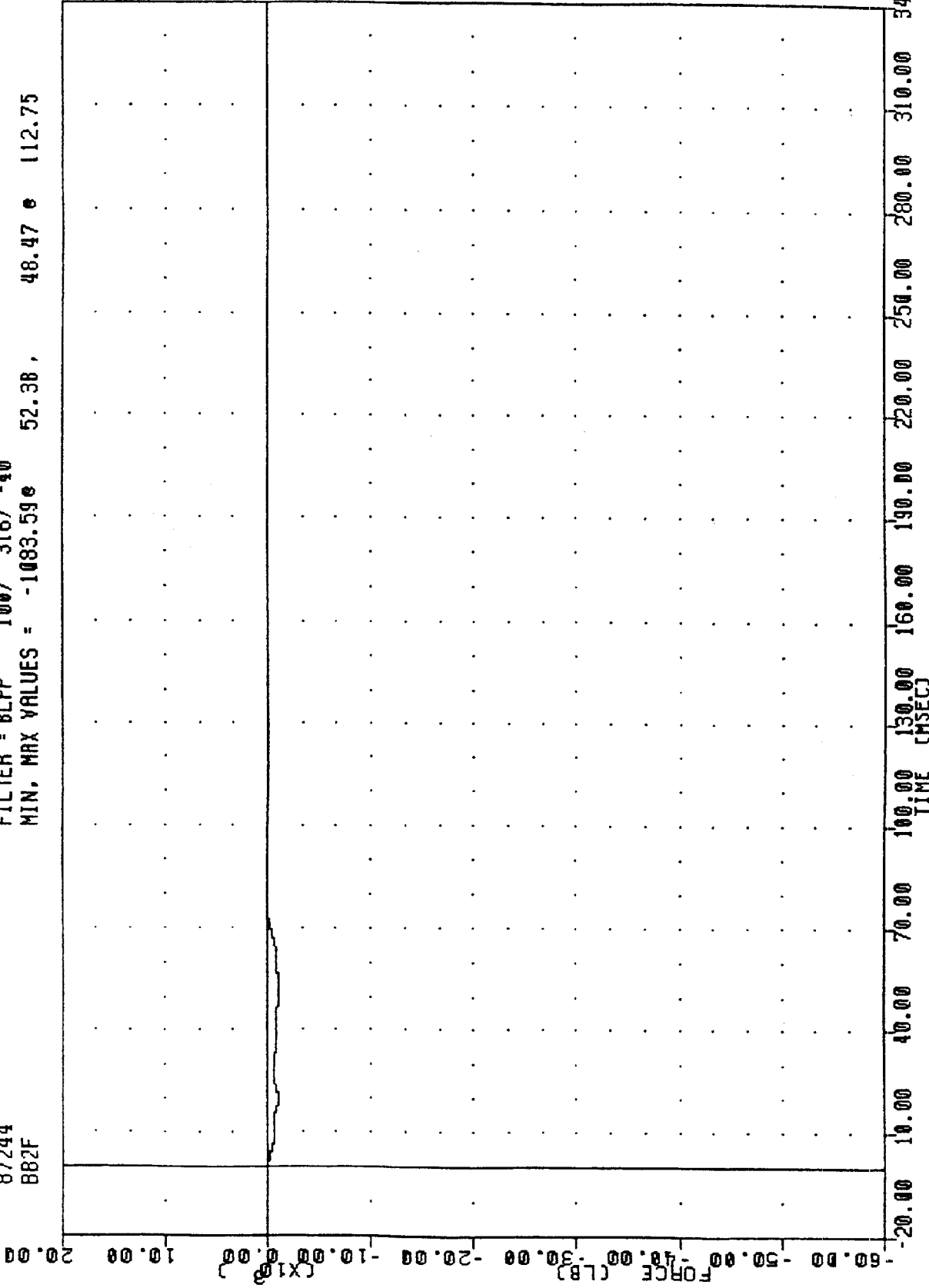
VRTC , EEVC FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 BBIF

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -368.89 89.91 e 85.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 81 LBS

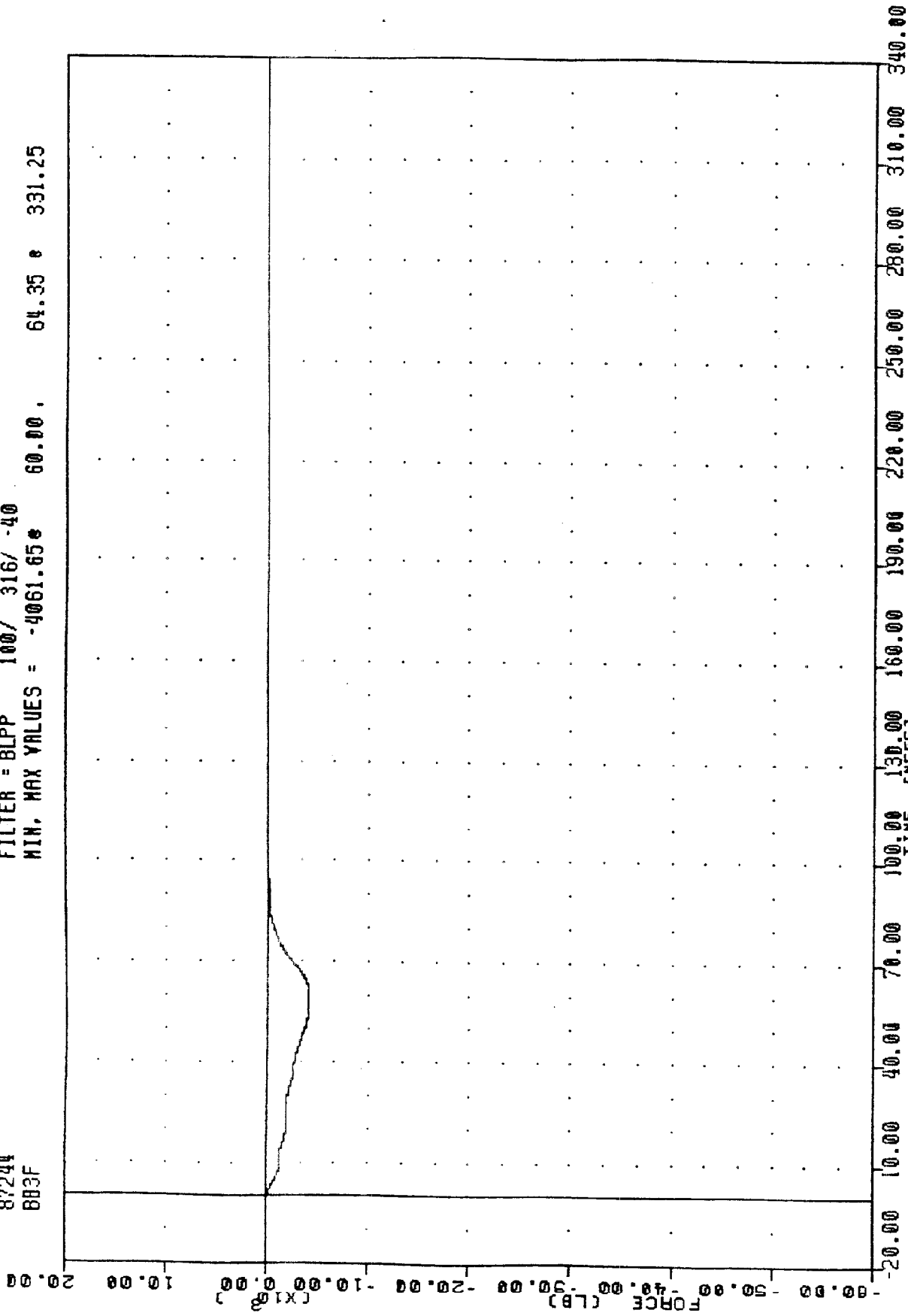
VRIC , EEVC FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244 FILTER = 8LPP 100/ 316/ -40
 882F MIN, MAX VALUES = -1083.59e 52.38 , 48.47 e 112.75



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B2 LBS

VRTC
 MOB INTO 26 DEG FIXED BARRIER
 87244
 883F

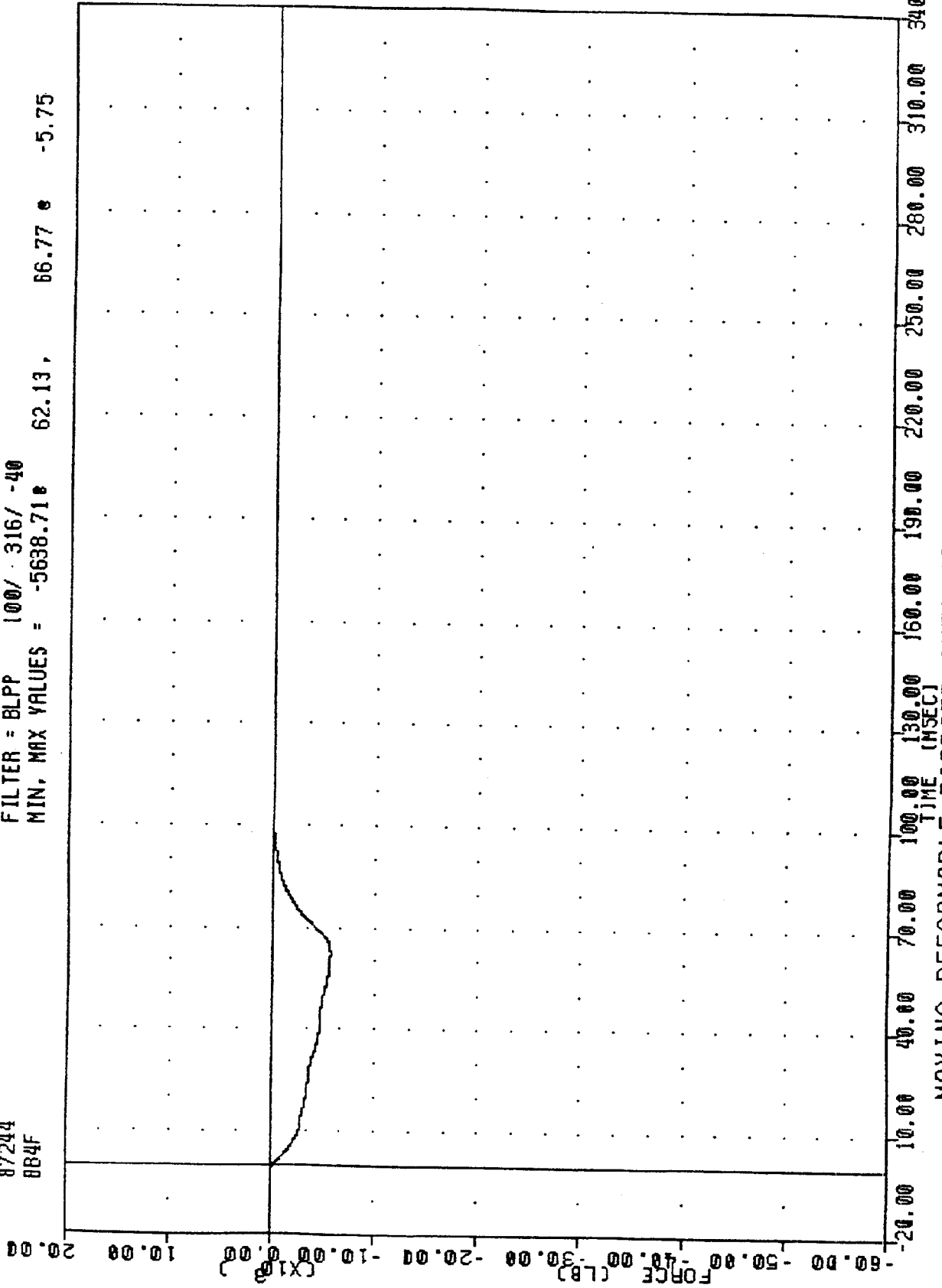
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -4061.65 e 60.00, 64.35 e 331.25



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B3 LBS

VRTC , EEVC FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 884F

FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -5638.71 62.13, 66.77 5 -5.75

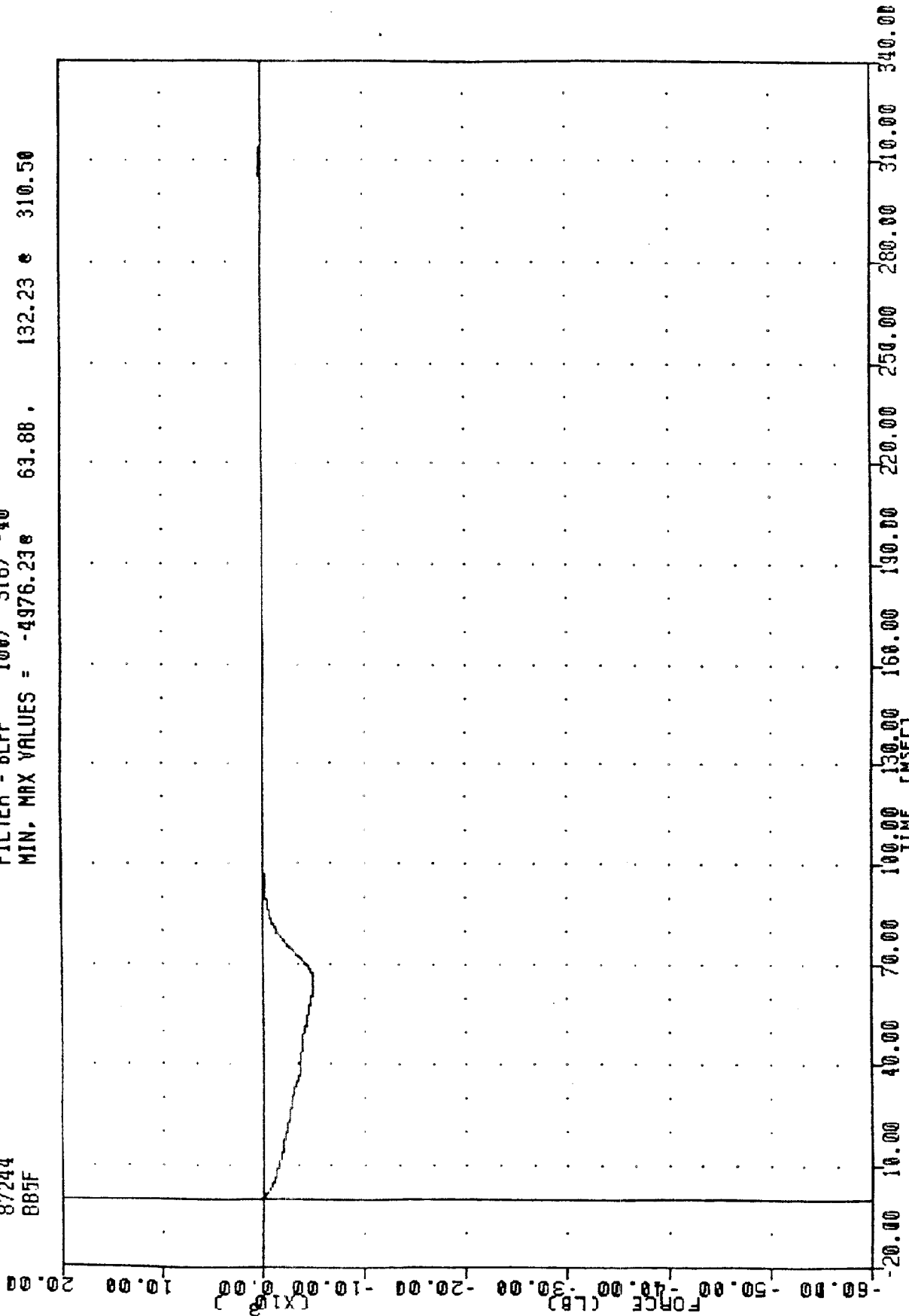


MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B4 LBS

VRTC
 MDB INTO 26 DEG FIXED BARRIER
 87244
 885F

• EEVC FACE

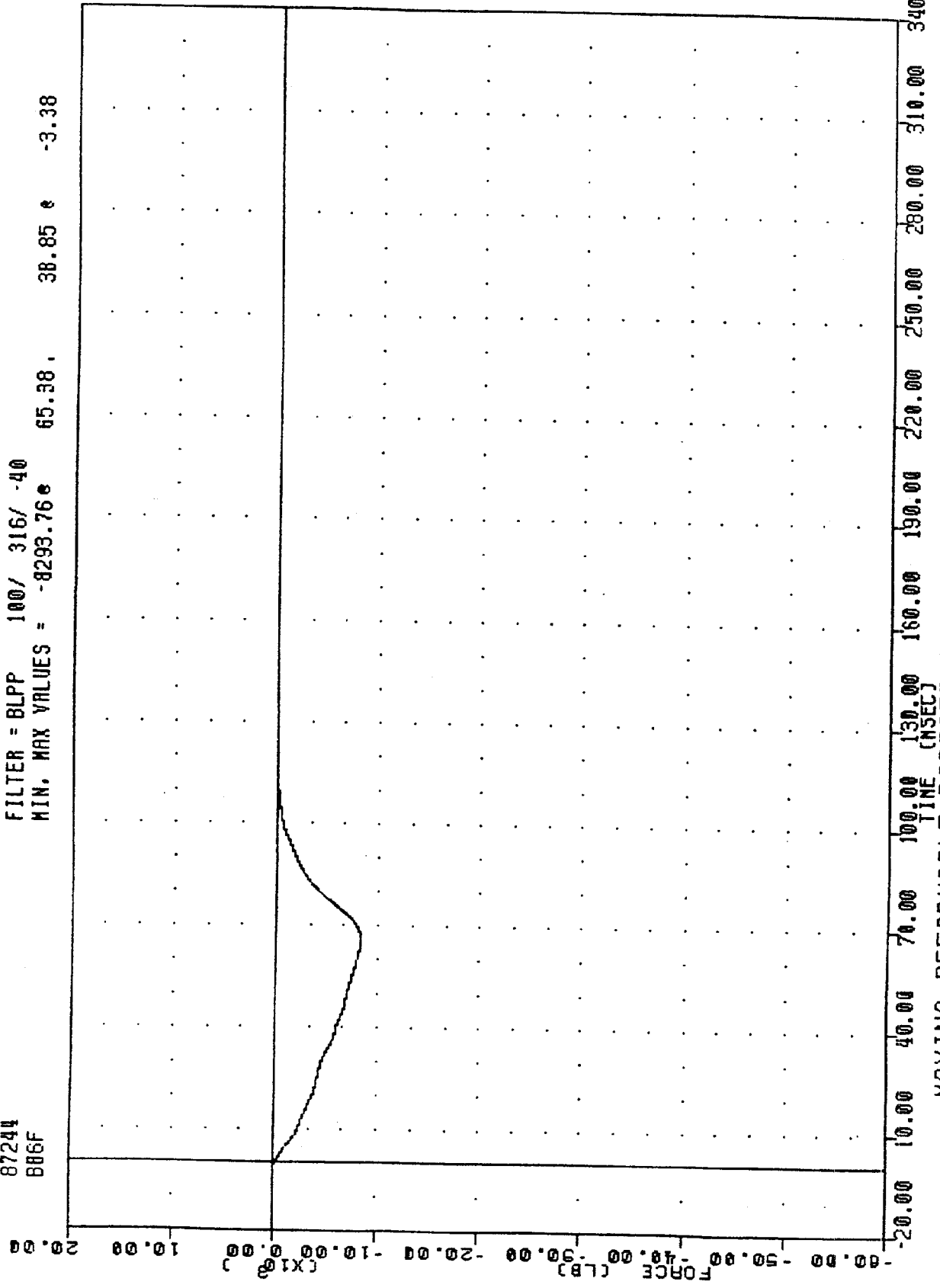
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -4976.23 e 132.23 e 310.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B5 LBS

VRTC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 B86F

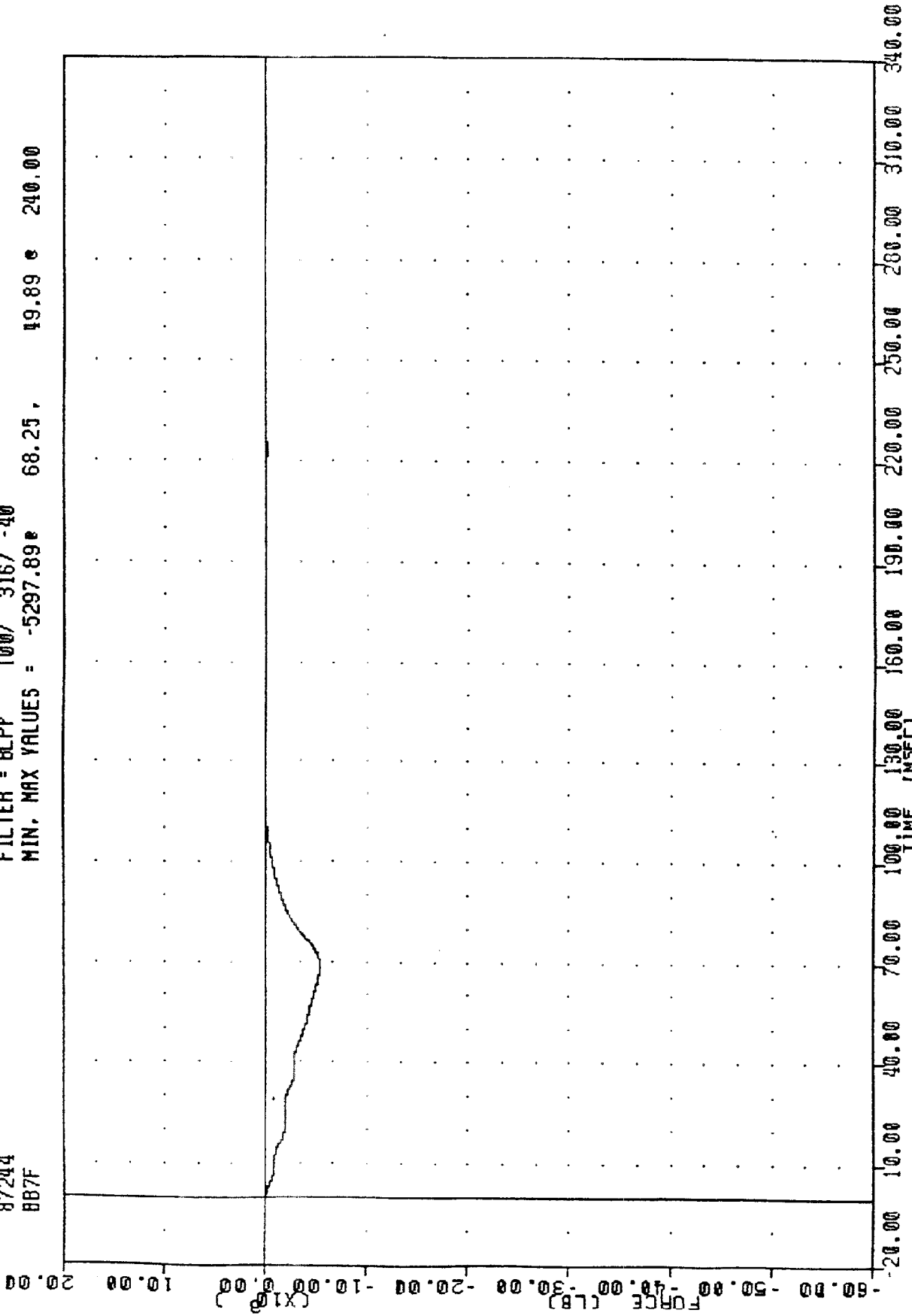
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -8293.76 e 65.38 , 38.85 e -3.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B6 LBS

VRTC , EEVC FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 887F

FILTER = 8LPP 100/ 316/ -40
 MIN. MAX VALUES = -5297.89e 68.25 , 49.89 e 240.00

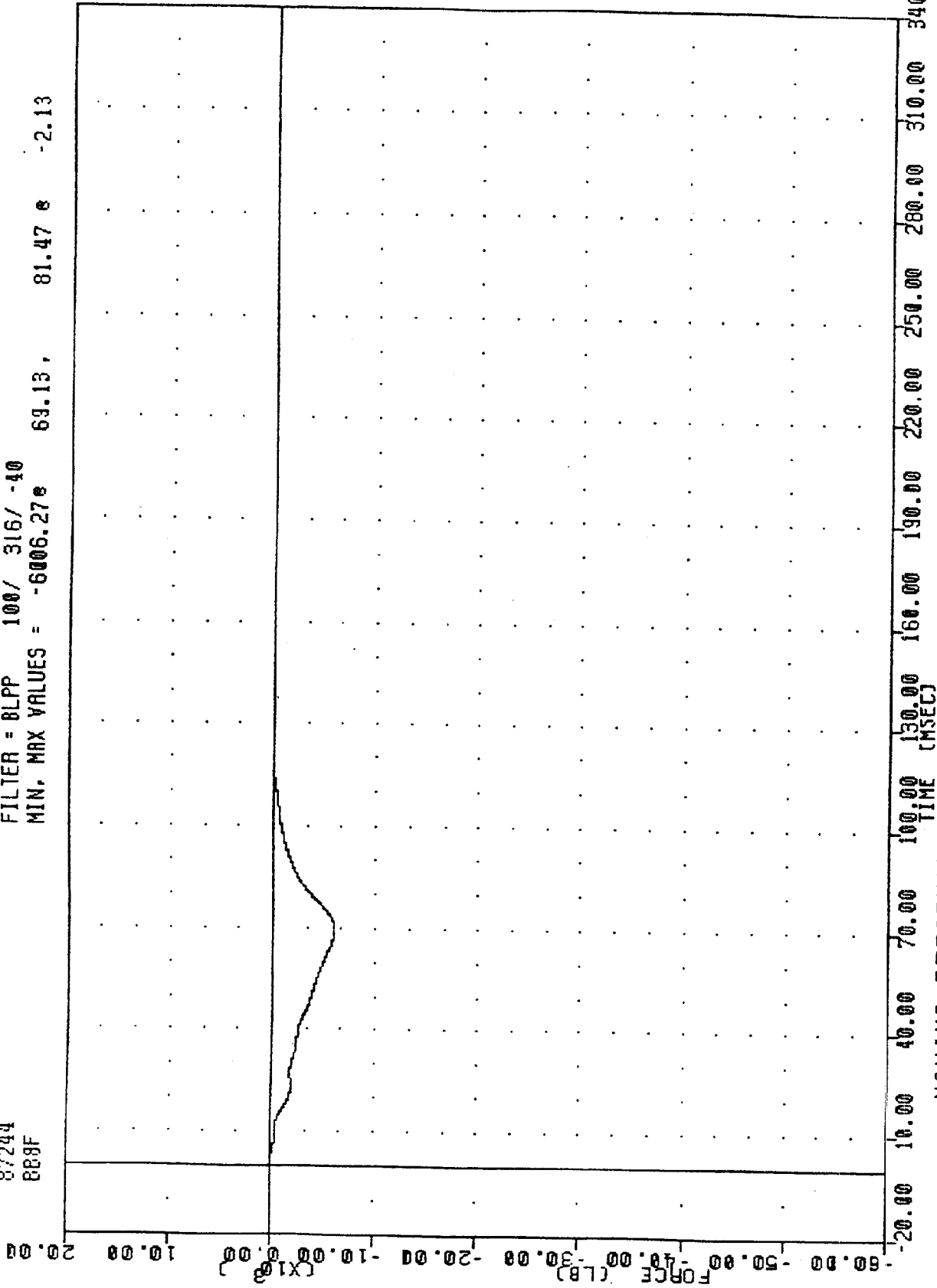


MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B7 LBS

VRTC
 MDB INTO 26 DEG FIXED BARRIER
 87244
 888F

EEVC FACE

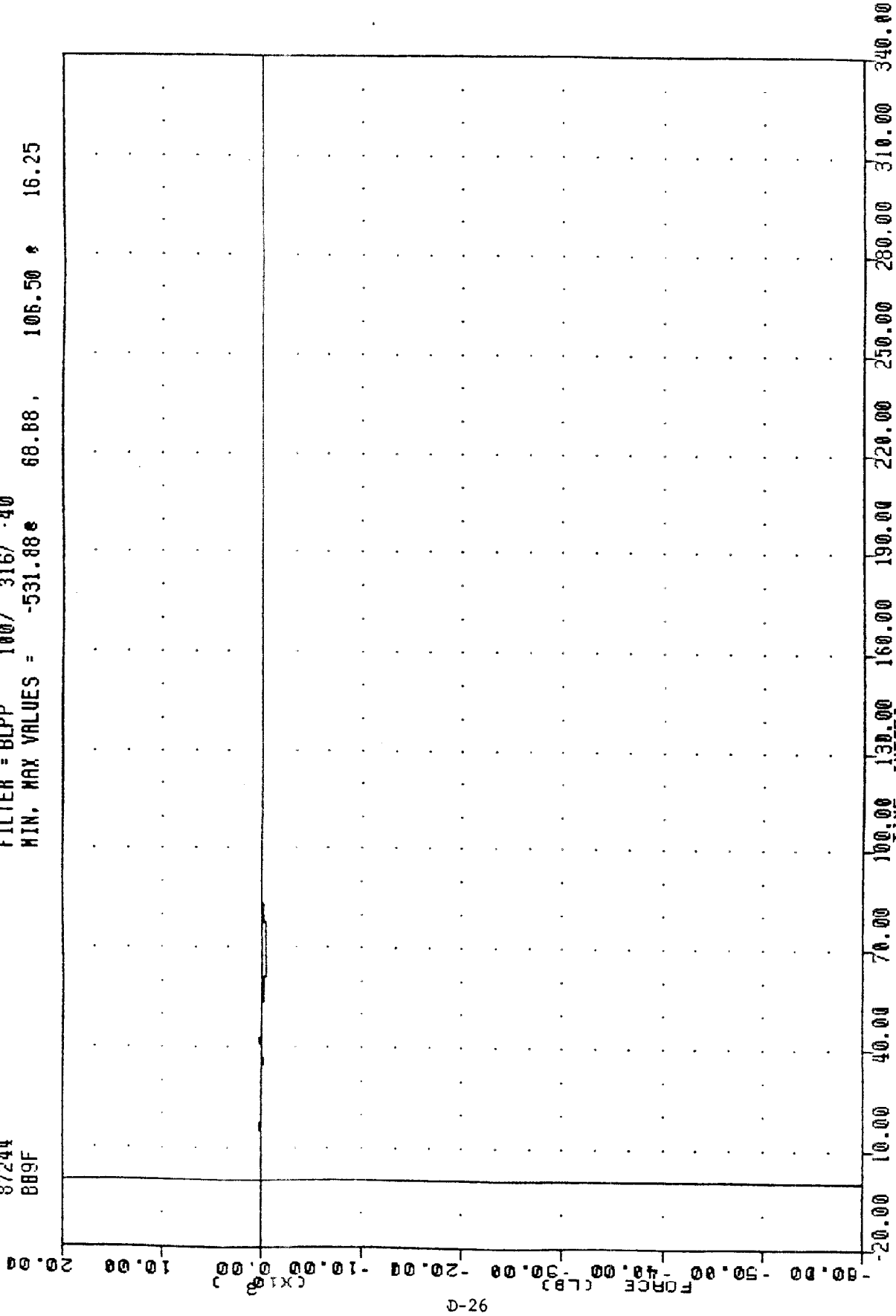
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -6006.27e 69.13, 81.47 e -2.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 88 LBS

YATC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 889F

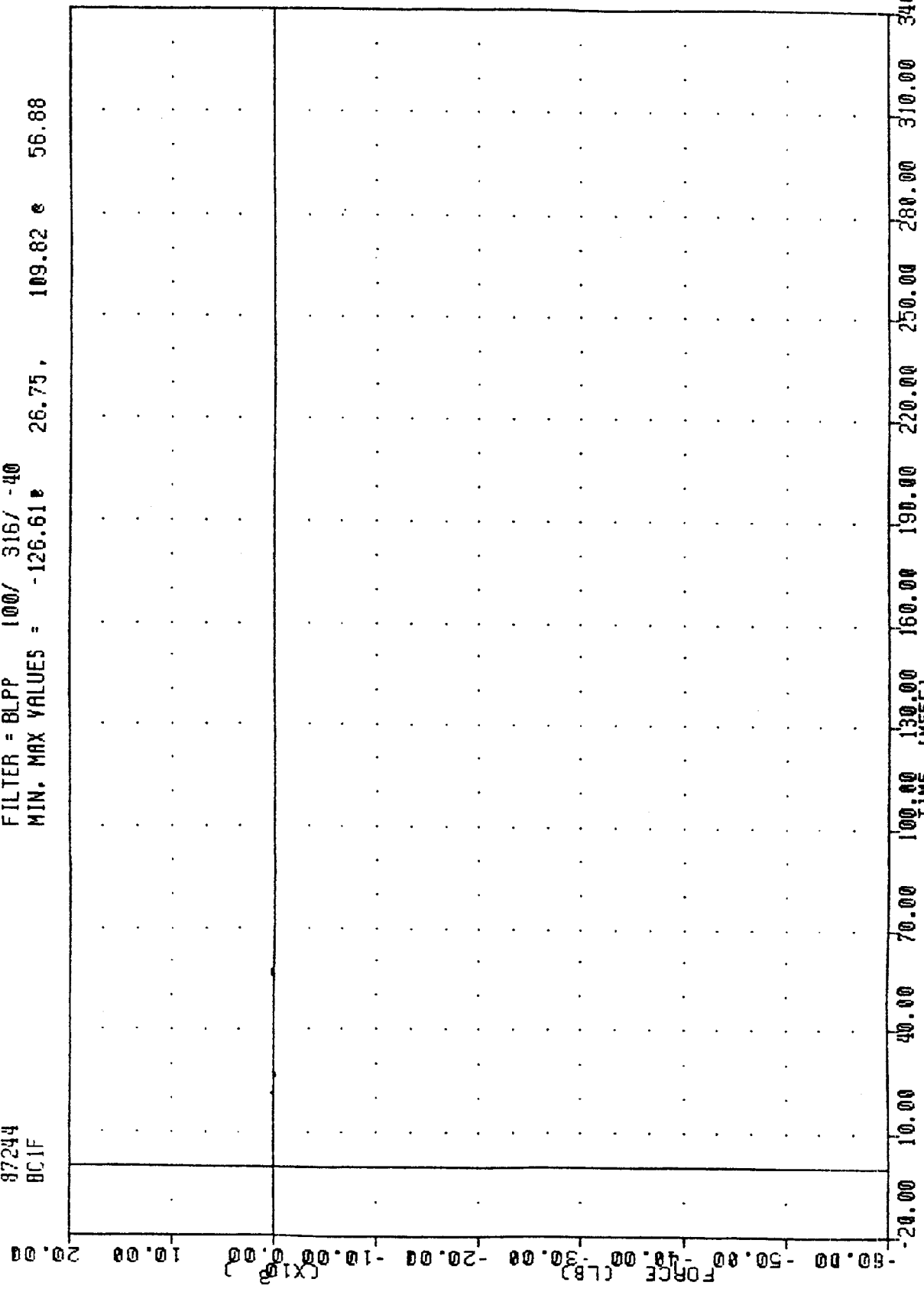
FILTER = BLPP 100/ 316/ .40
 MIN, MAX VALUES = -531.88e 68.88 , 106.50 e 16.25



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B9 LBS

VRTC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC1F

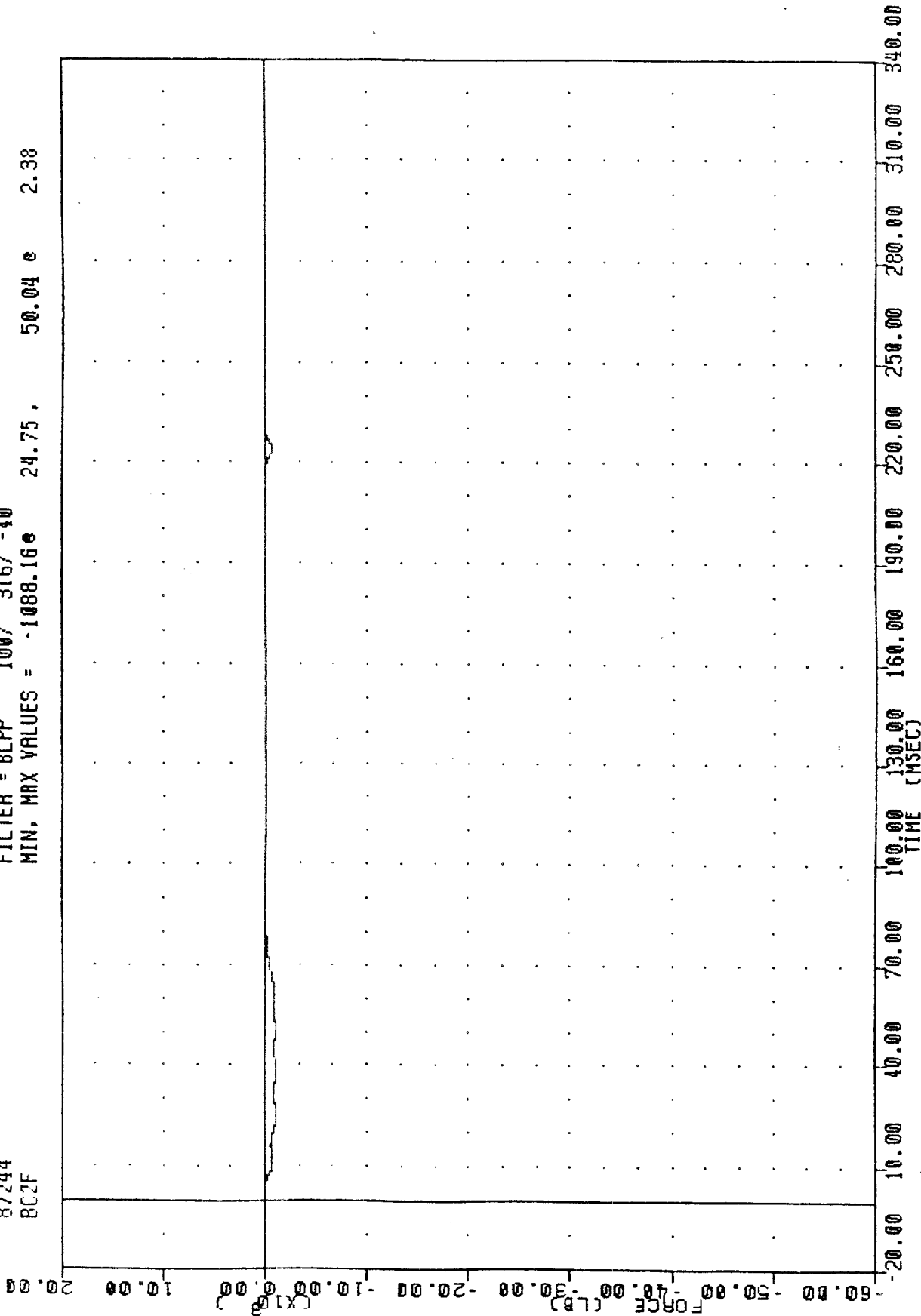
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -126.61 26.75, 109.82 56.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C1 LBS

VRTC
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC2F

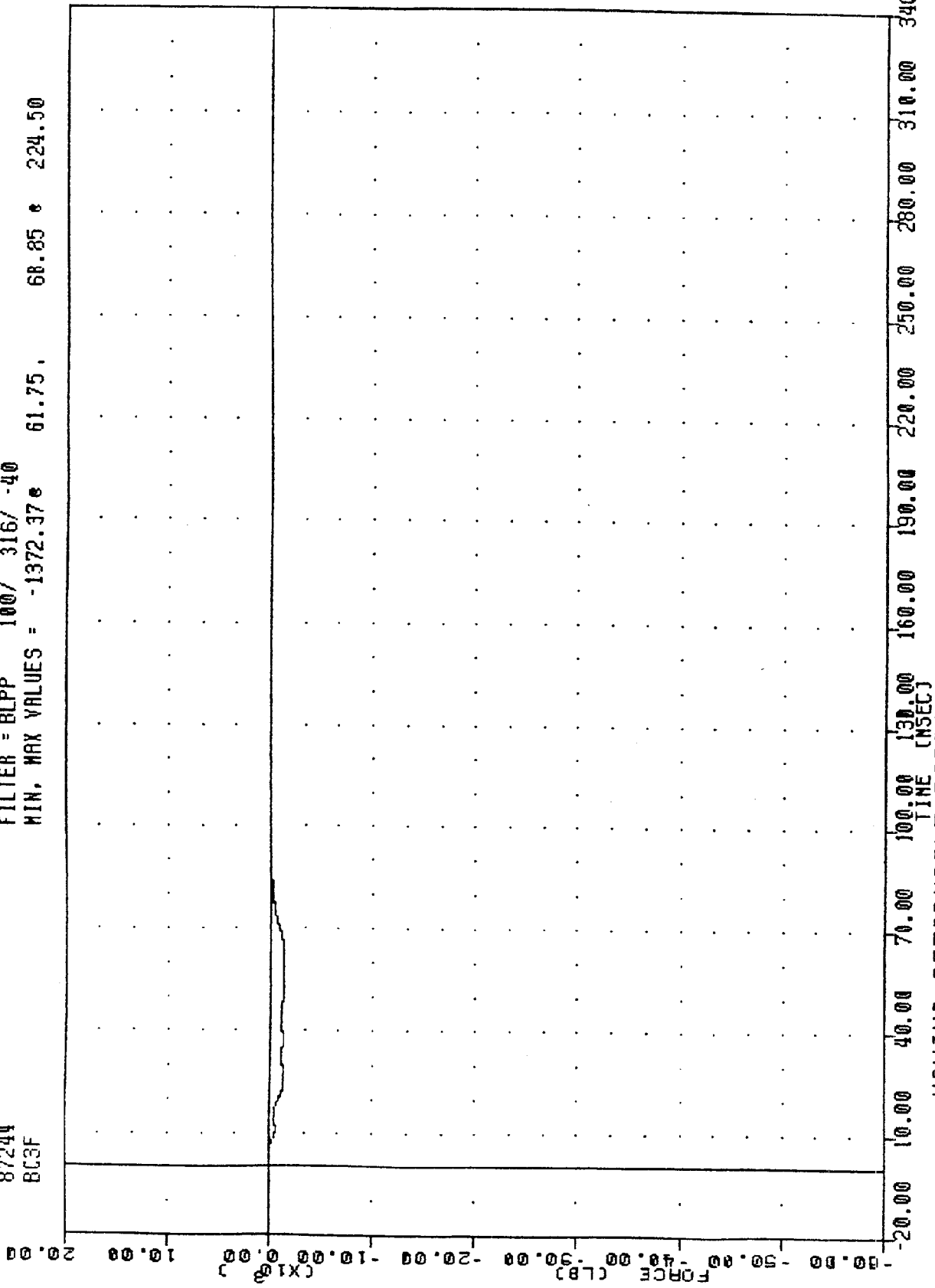
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -1088.16e 50.04 e 2.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C2 LBS

VATC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC3F

FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -1372.37 e 61.75, 68.85 e 224.50

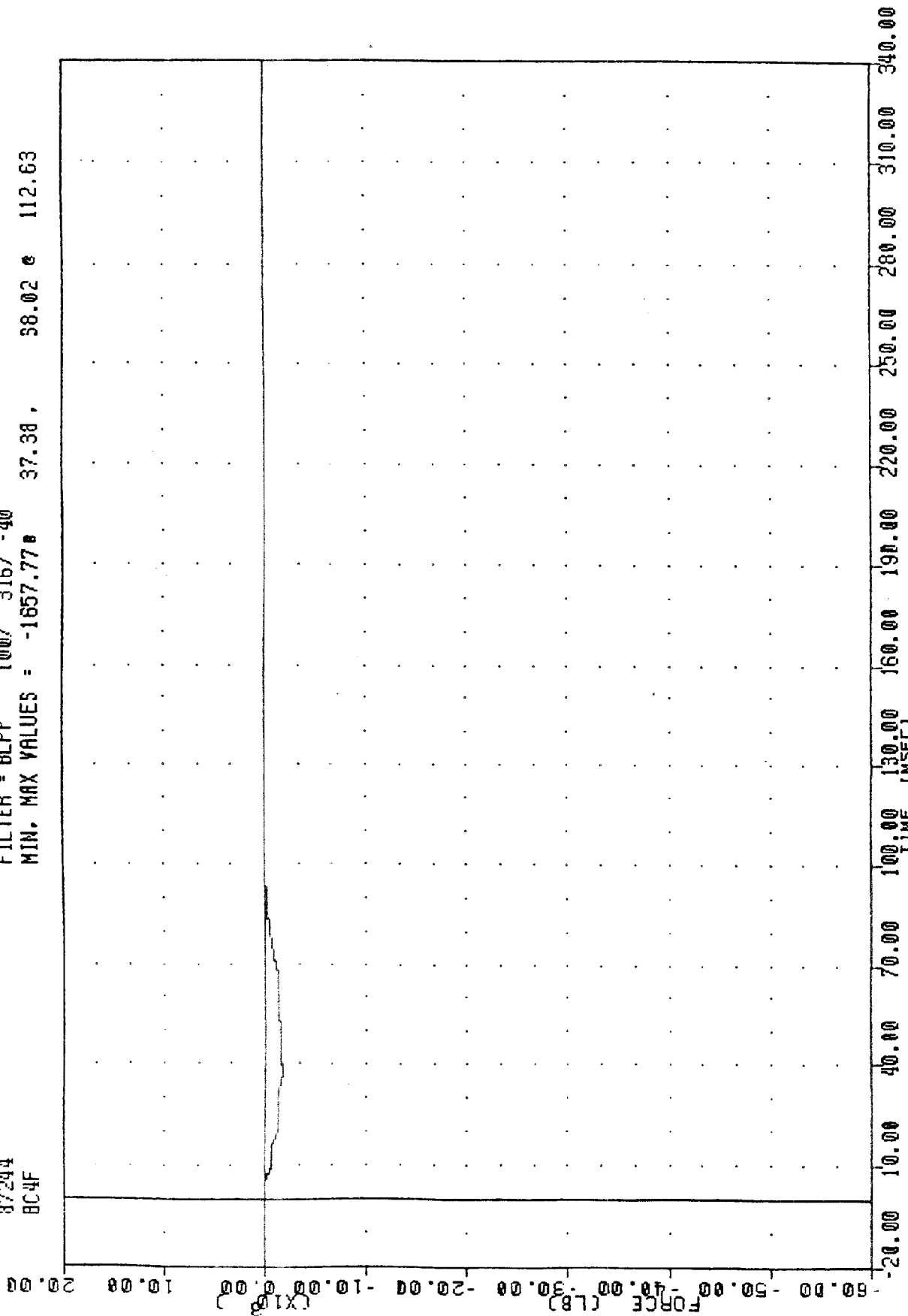


MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C3 LBS

VRTC
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC4F

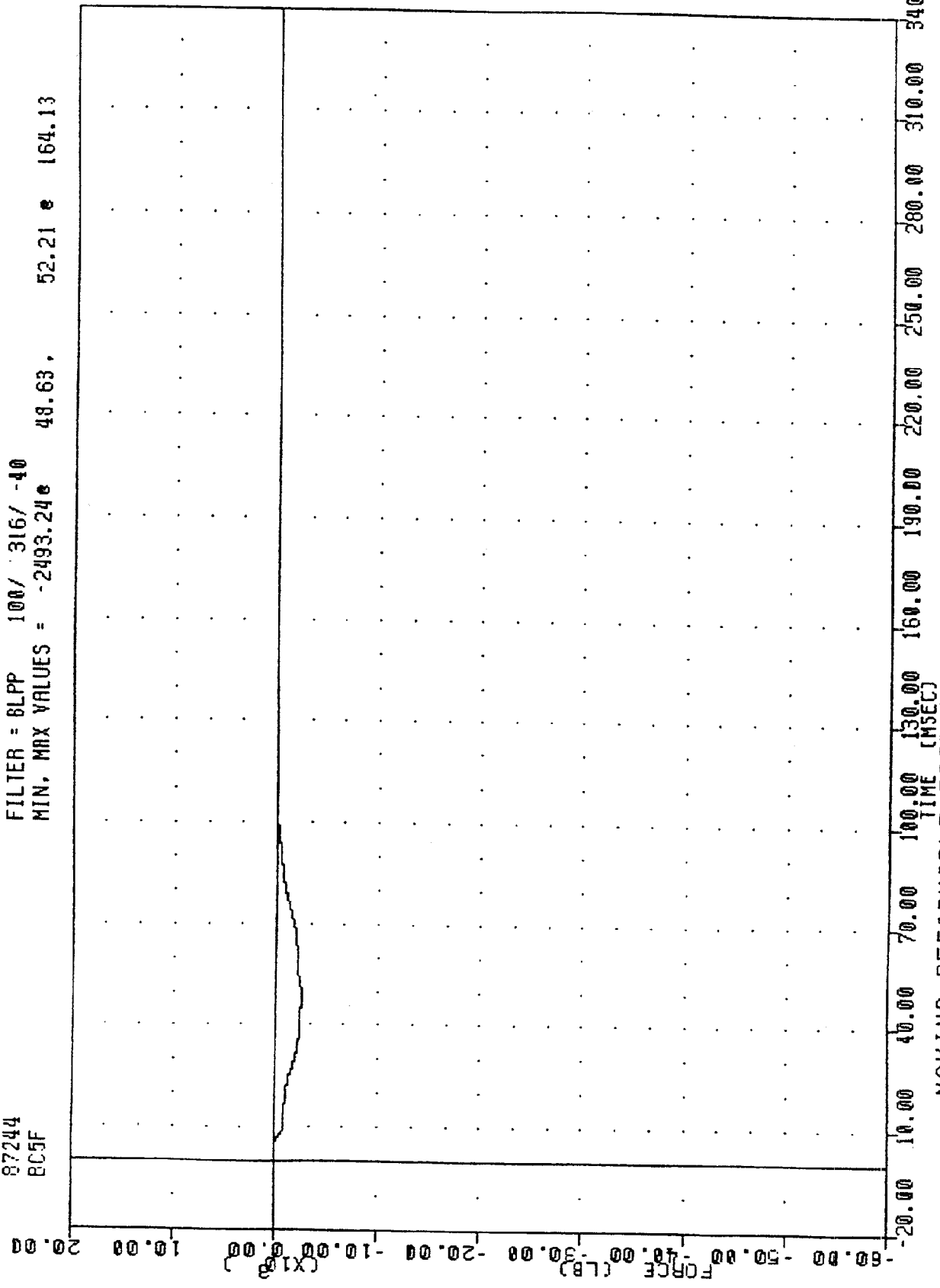
. EEVC FACE

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -1857.77# 37.38 , 58.02 e 112.63



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C4 LBS

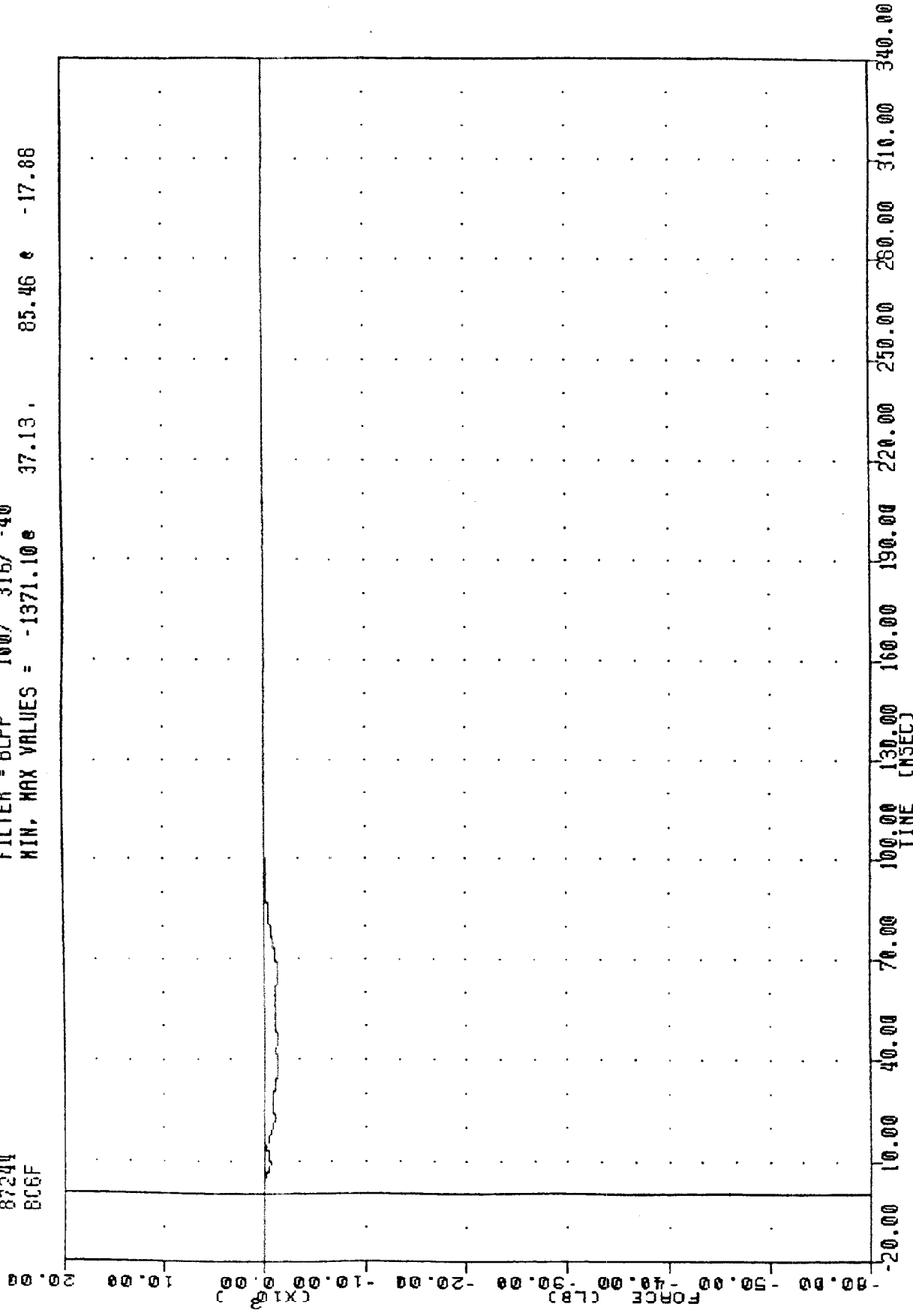
VRTC
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC5F
 EEVC FACE
 FILTER = 8LPP 100/ 316/ -40
 MIN. MAX VALUES = -2493.24e 48.63, 52.21 e 164.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C5 LBS

WRTC
 MOB INTO 26 DEG FIXED BARRIER
 87244
 806F

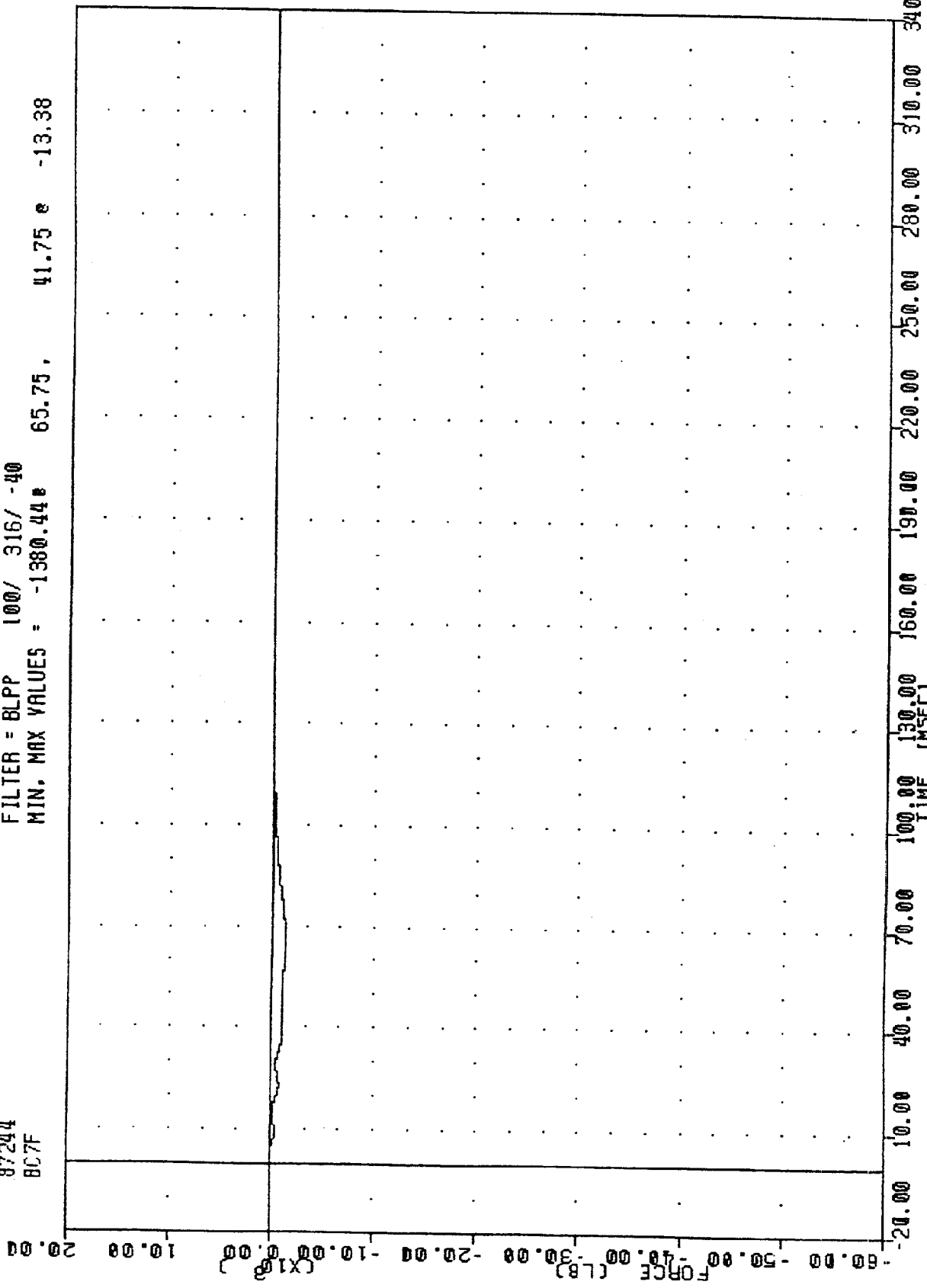
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -1371.10e 37.13. 85.46 e -17.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 06 LBS

VRTC , EEVC FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 BC7F

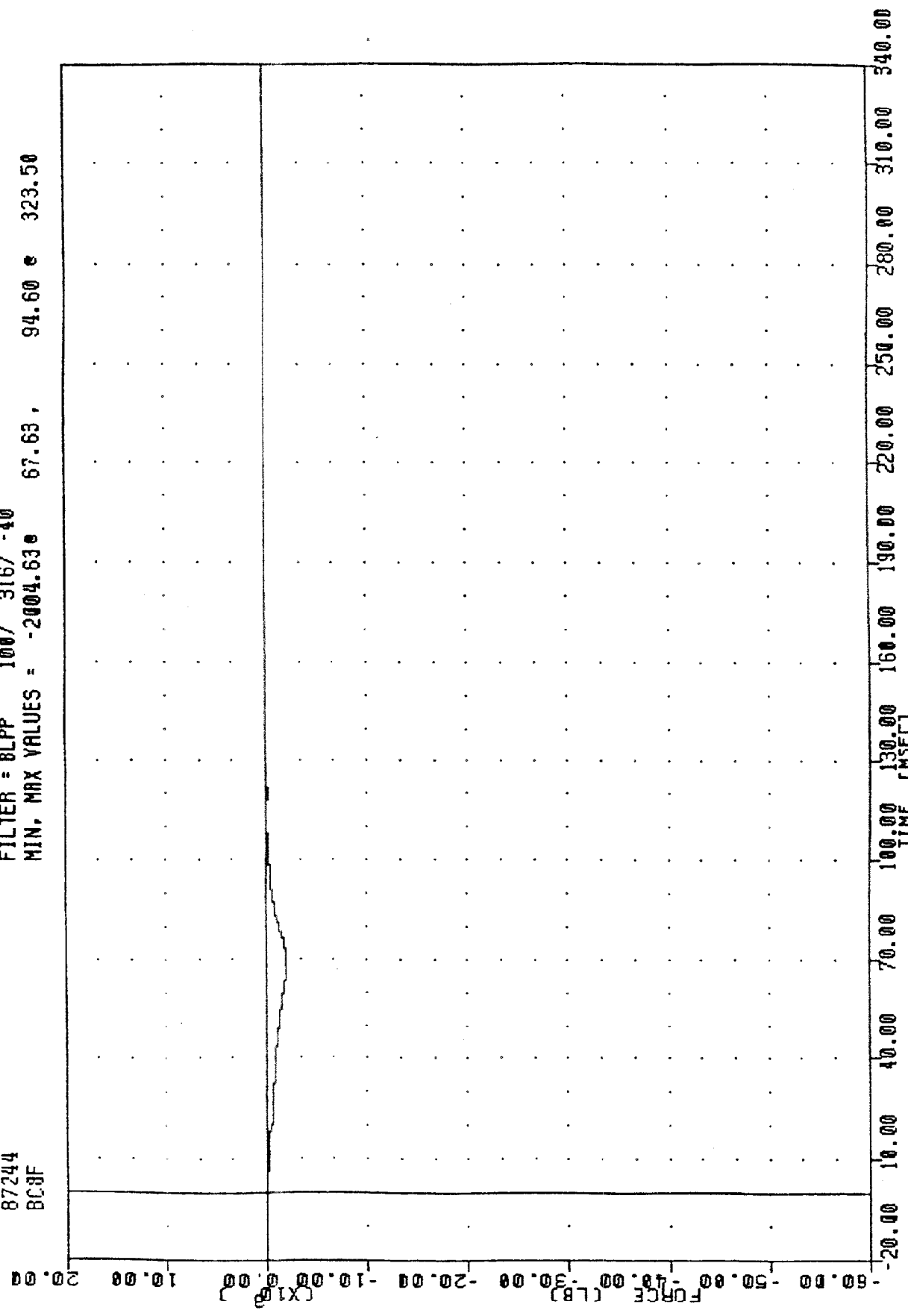
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -1380.44 65.75, 41.75 e -13.38



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C7 IRS

VRTC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC3F

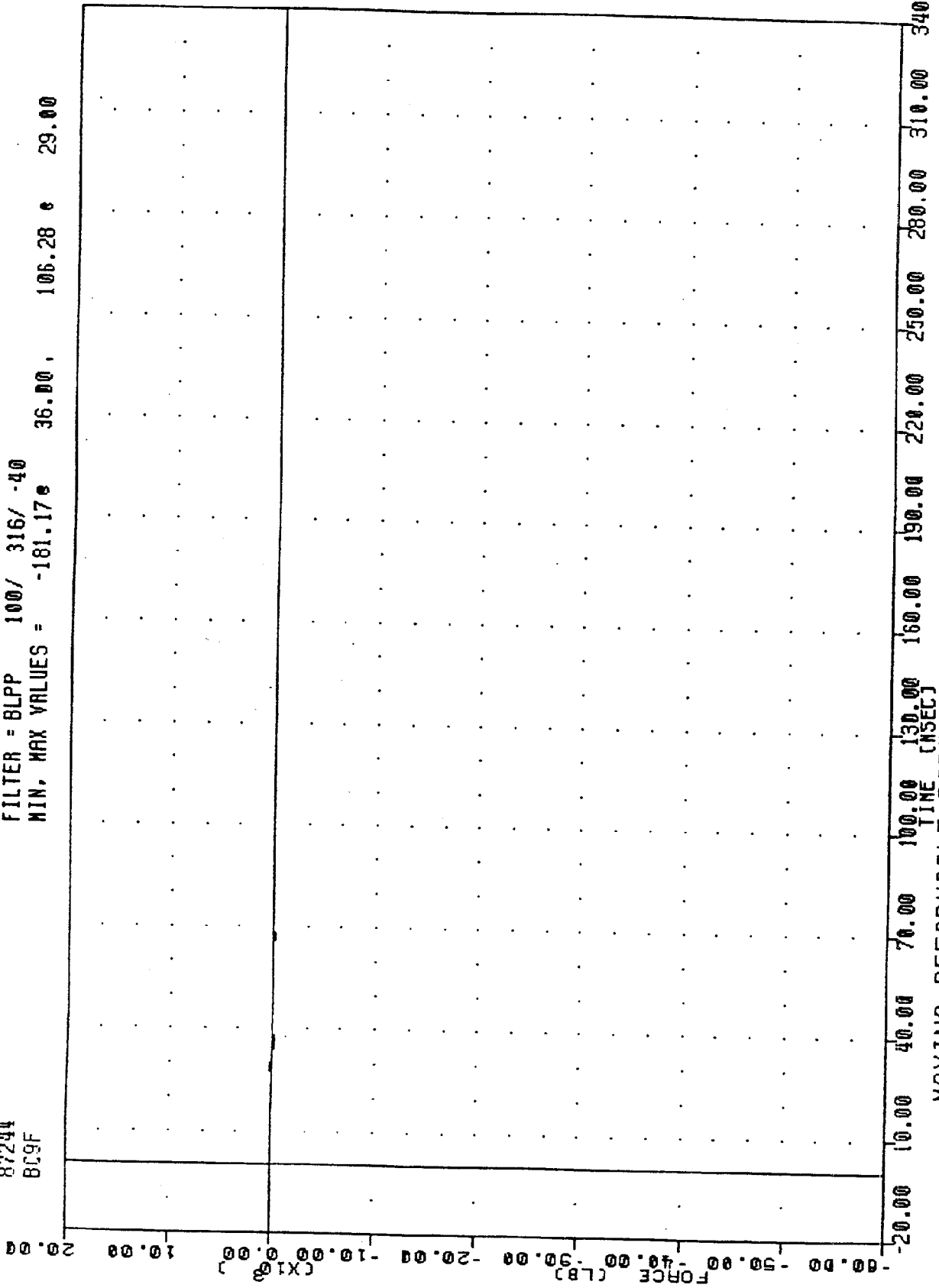
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -2004.63 94.60 323.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C8 LBS

VRTC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 BC9F

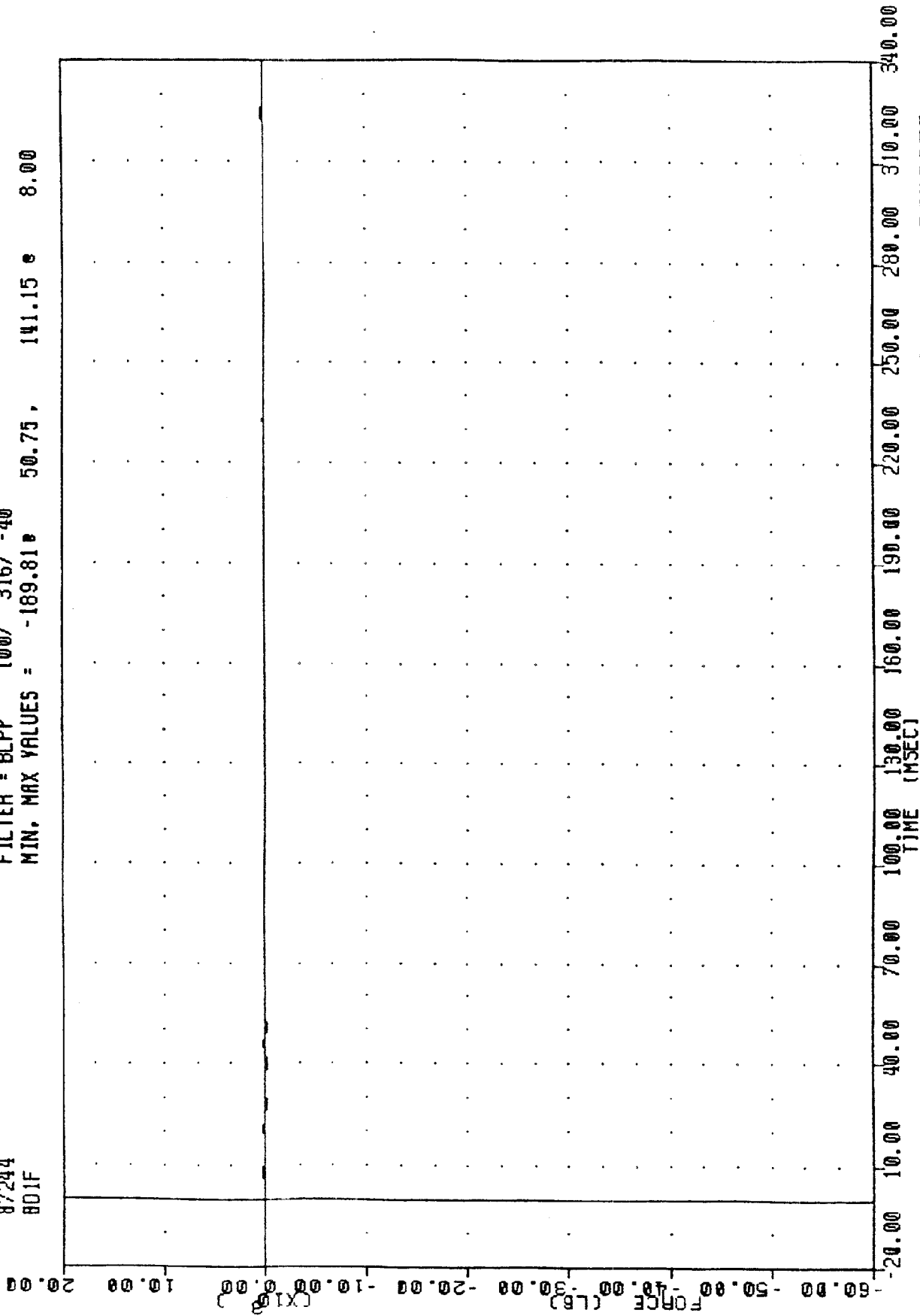
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -181.17 e 36.00 , 106.28 e 29.00



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C9 LBS

YRATC , EEVC FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 801F

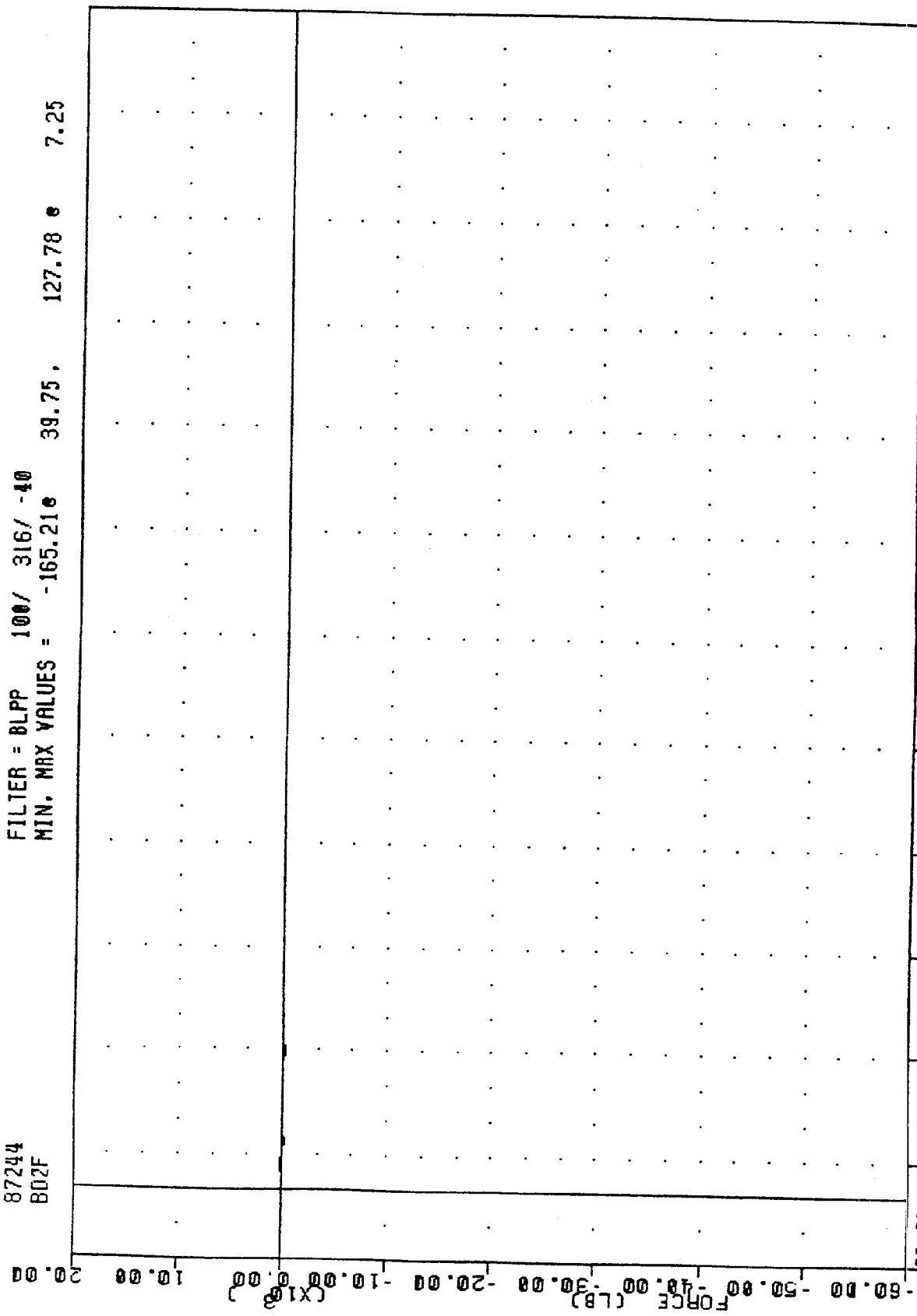
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -189.81 e 50.75 , 141.15 e 8.00



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 01 LBS

VRIC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 B02F

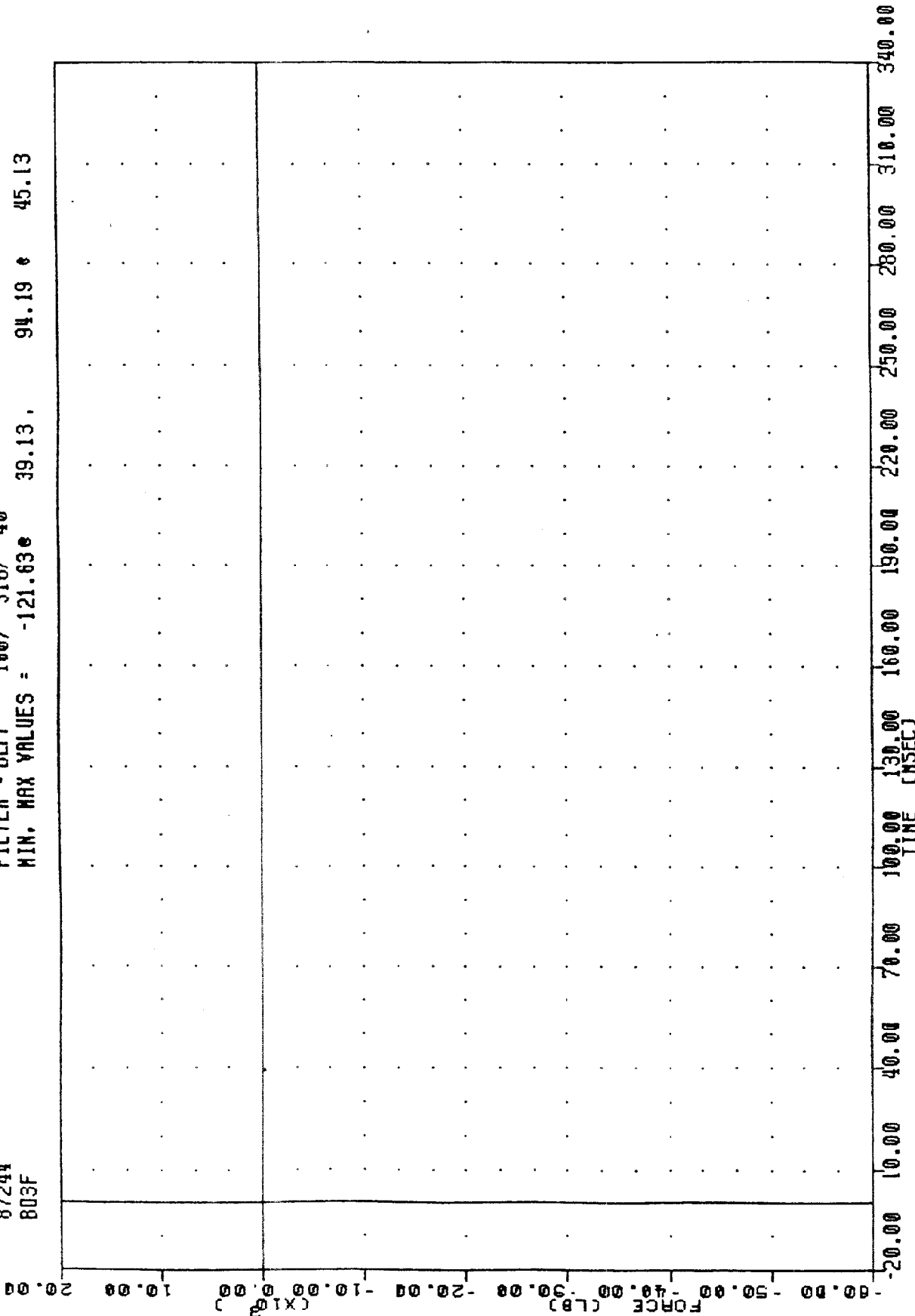
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -165.21e 39.75, 127.78 e 7.25



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D2 LBS

VRTC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 803F

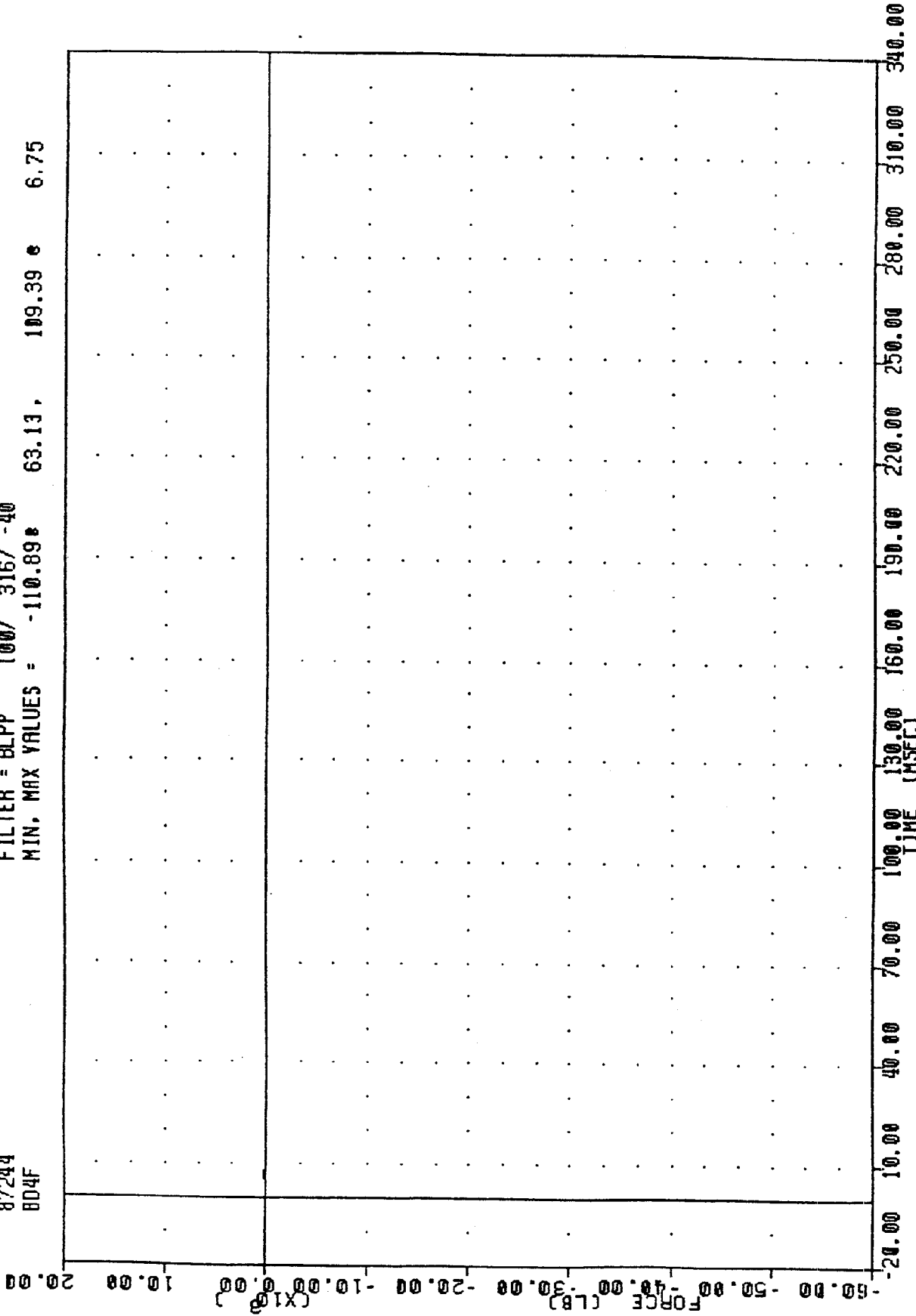
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -121.63 39.13 94.19 45.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D3 LBS

VRTC EEVC FACE
 NDB INTO 26 DEG FIXED BARRIER
 87244
 804F

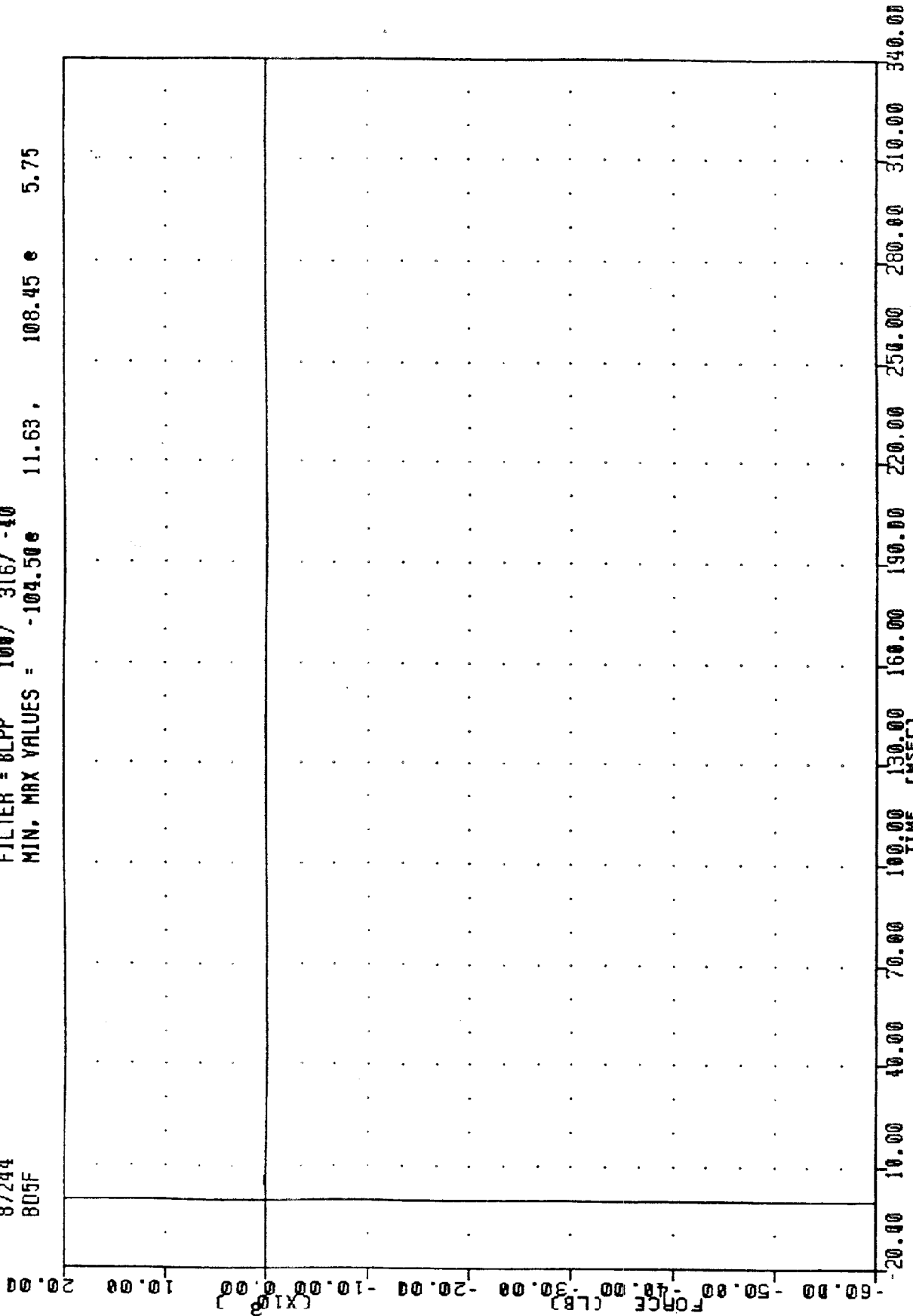
FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -110.89 63.13, 109.39 6.75



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 04 LBS

VRIC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 805F

FILTER = BLPP 100/ 316/ -40
 MIN. MAX VALUES = -104.50 108.45 5.75



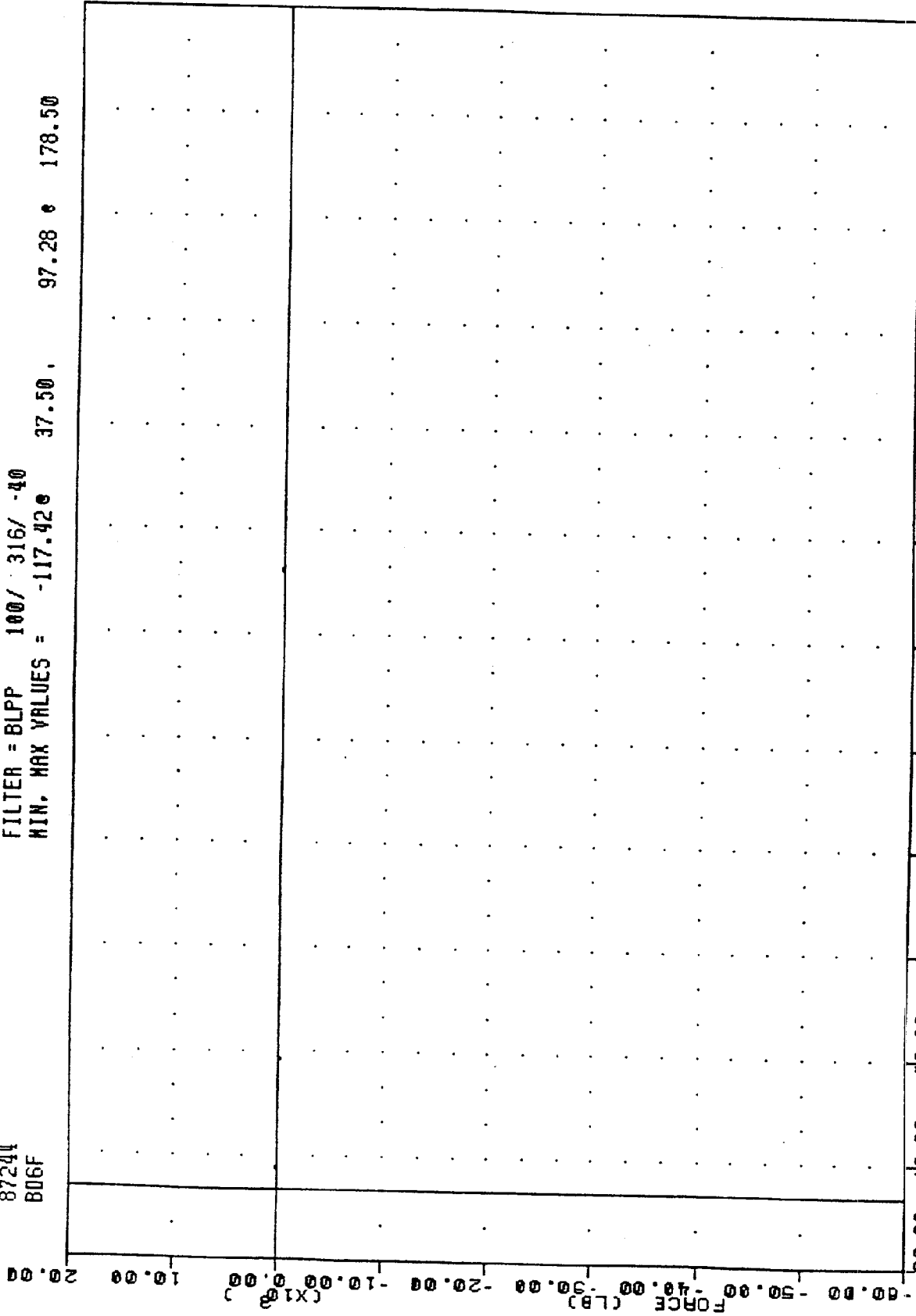
MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 05 LBS

VATC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER

87244
 B06F

FILTER = BLPP 100/ 316/ -40

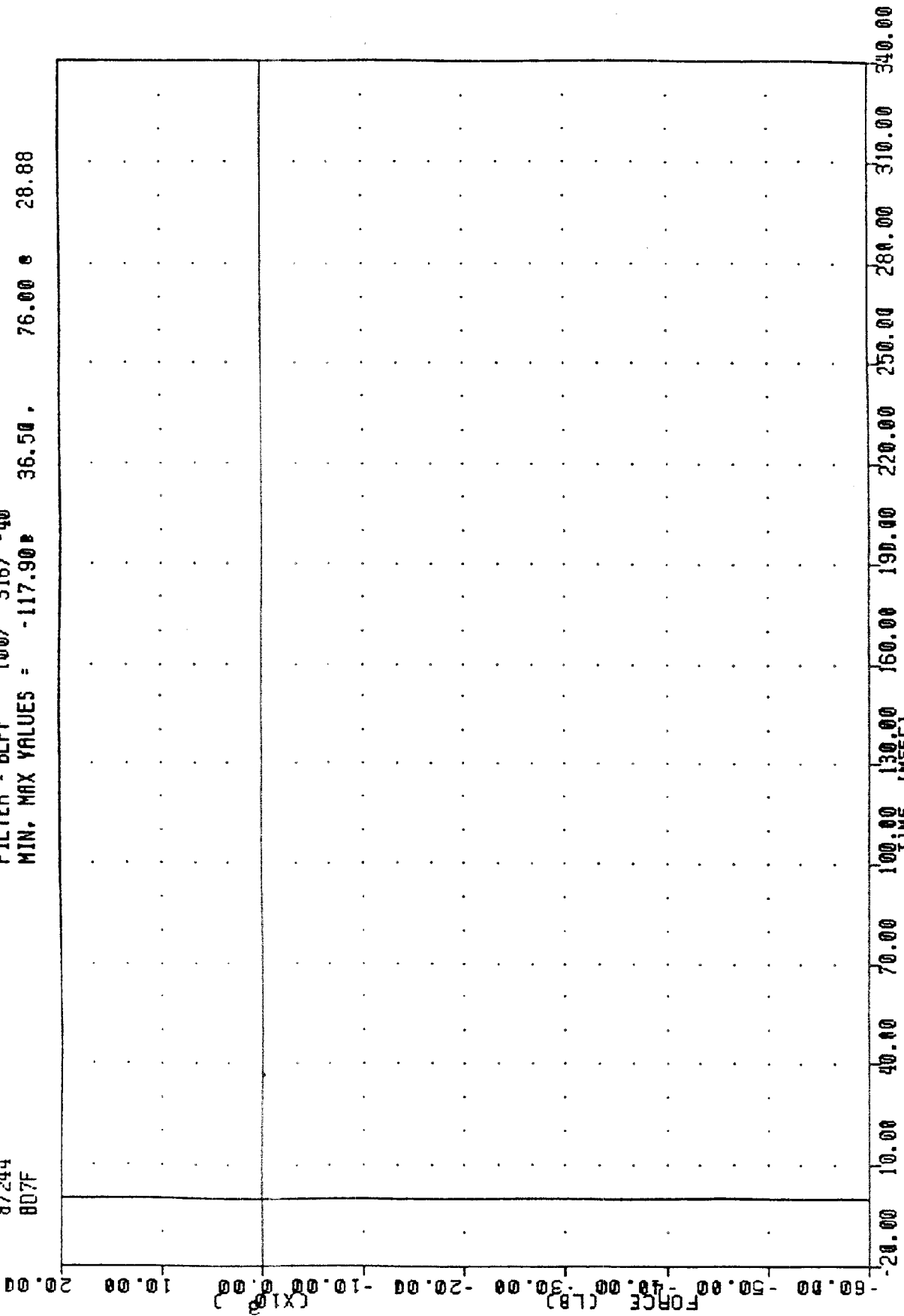
MIN. MAX VALUES = -117.42e 37.50, 97.28 e 178.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D6 LBS

VRTC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 807F

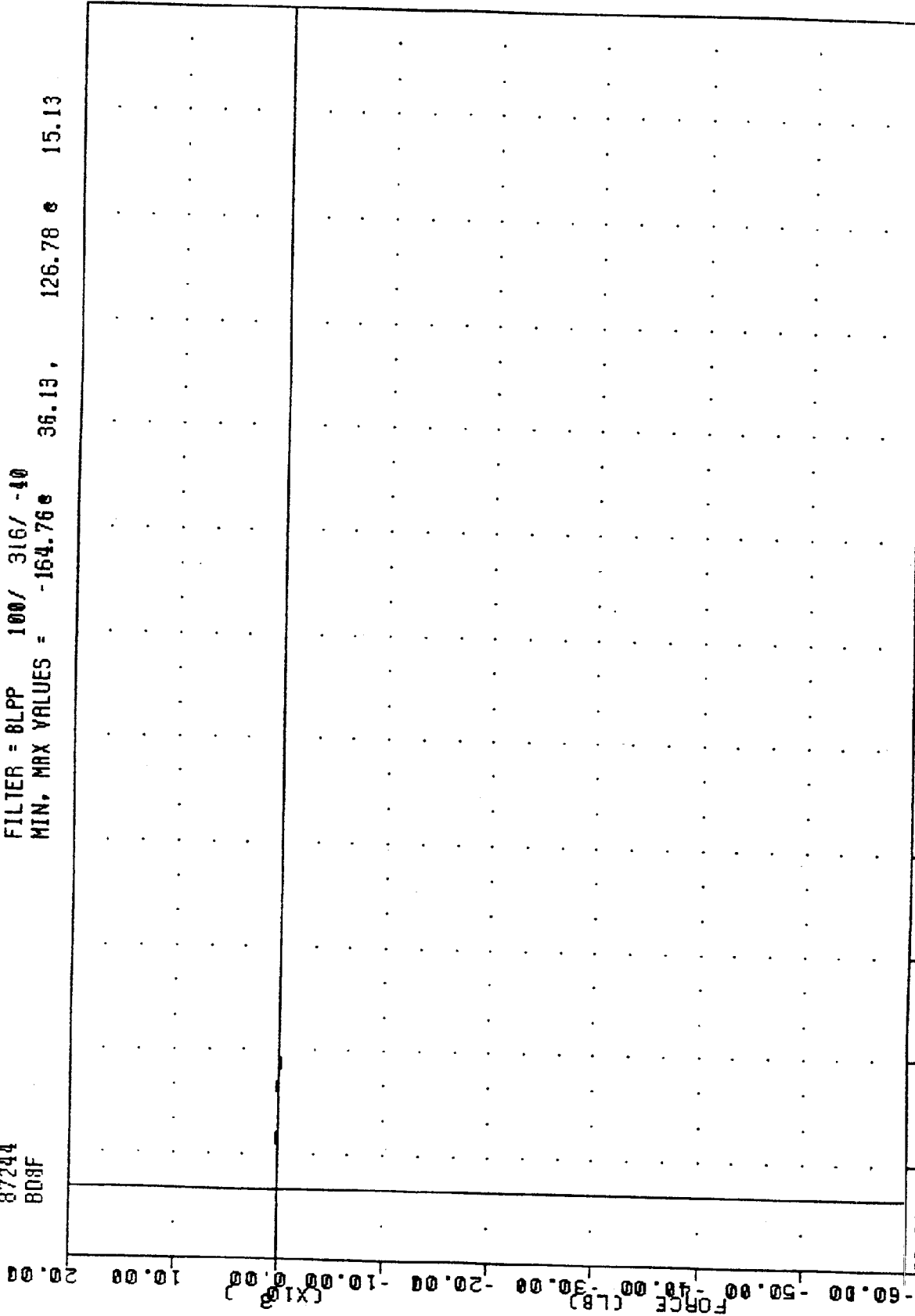
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -117.90 36.50 76.00 28.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D7 LBS

VRTC , EEVC FACE
 MDB INTO 26 DEG FIXED BARRIER
 87244
 808F

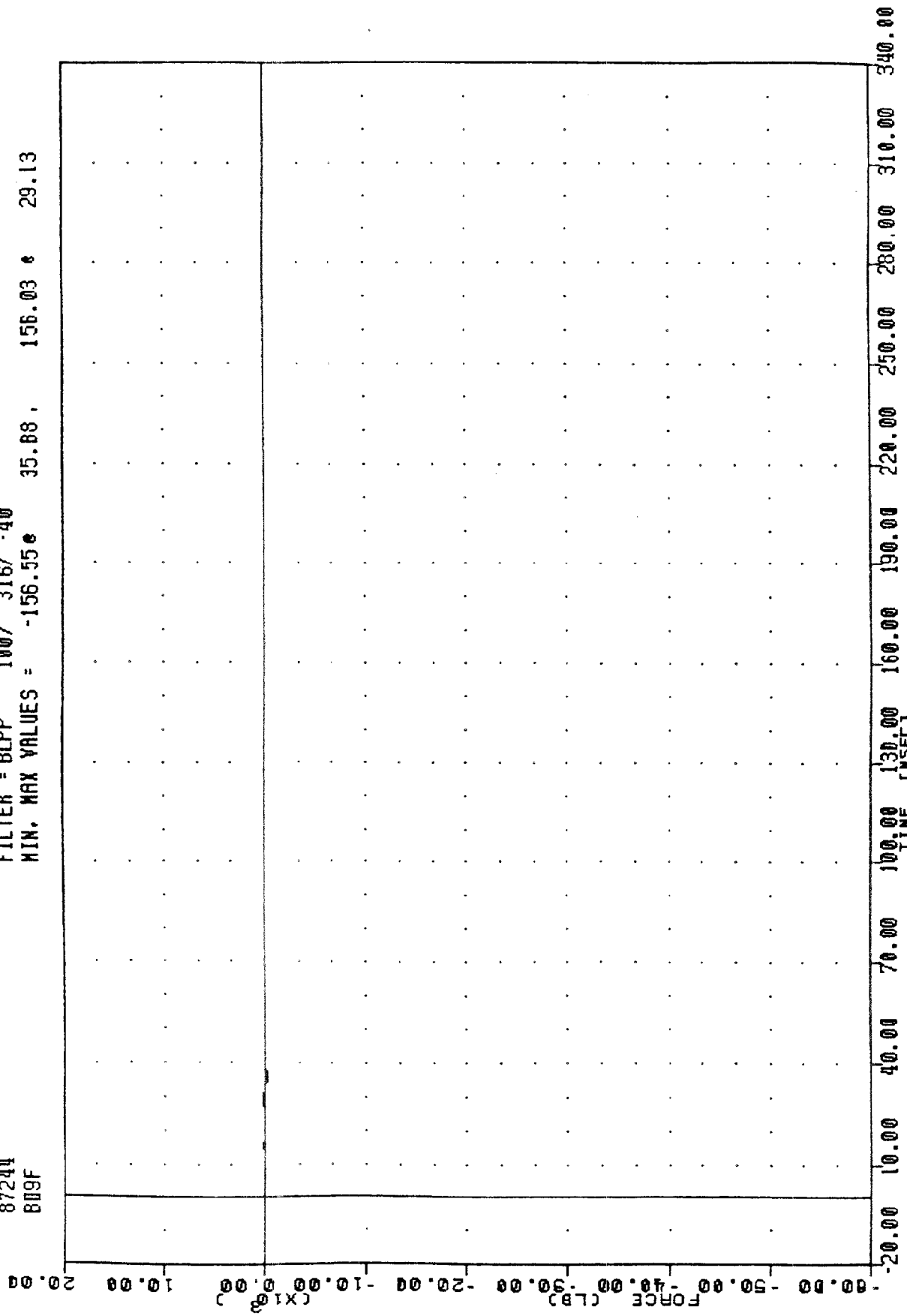
FILTER = 8LPP 100/ 316/ -40
 MIN, MAX VALUES = -164.76 e 36.13, 126.78 e 15.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 08 LBS

VATC . EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 809F

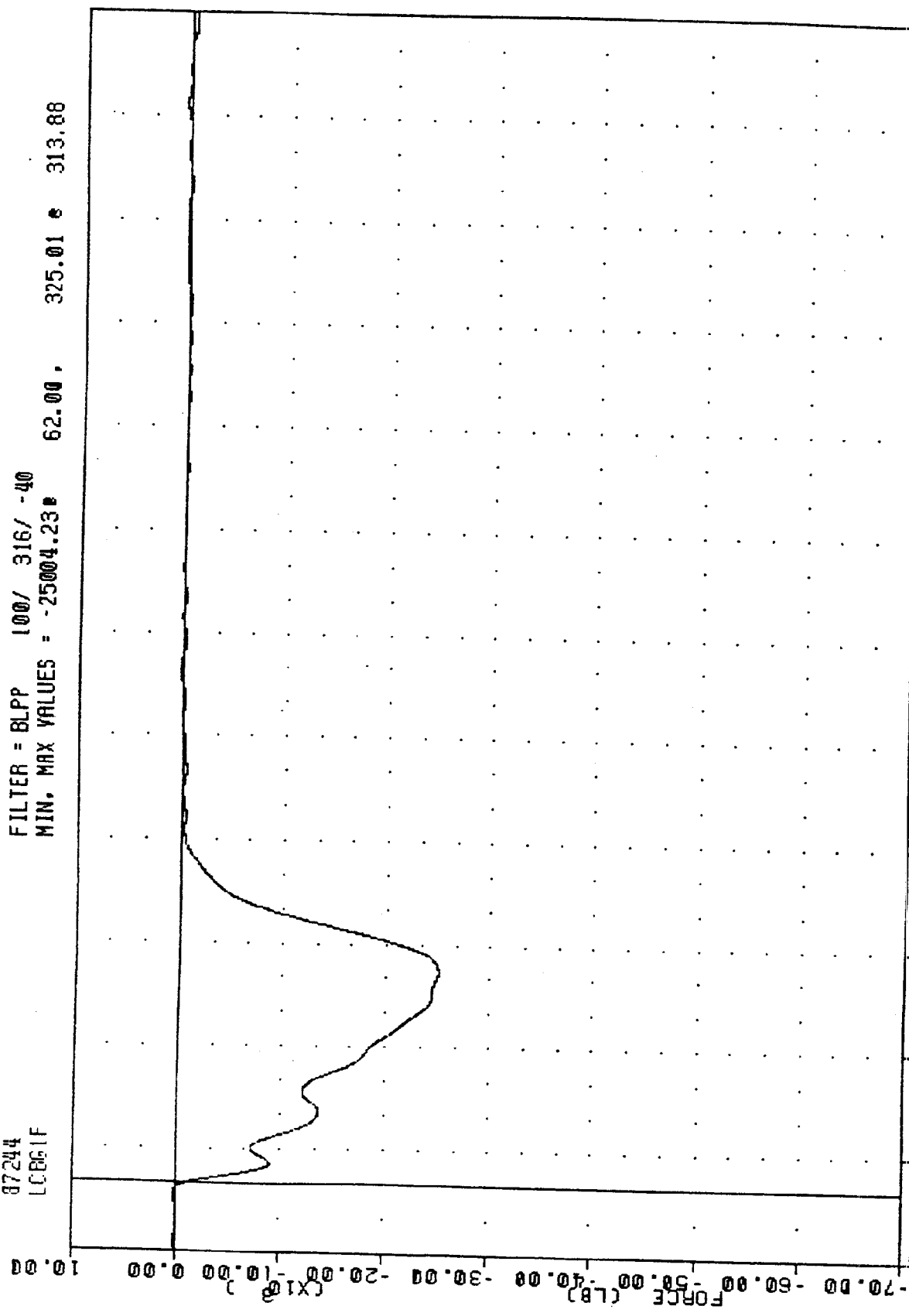
FILTER = BLPP 100/ 316/ .40
 MIN. MAX VALUES = -156.55 35.88 156.03 29.13



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 09 LBS

VRTC
 NDB INTO 26 DEG FIXED BARRIER
 87244
 LCRGIF

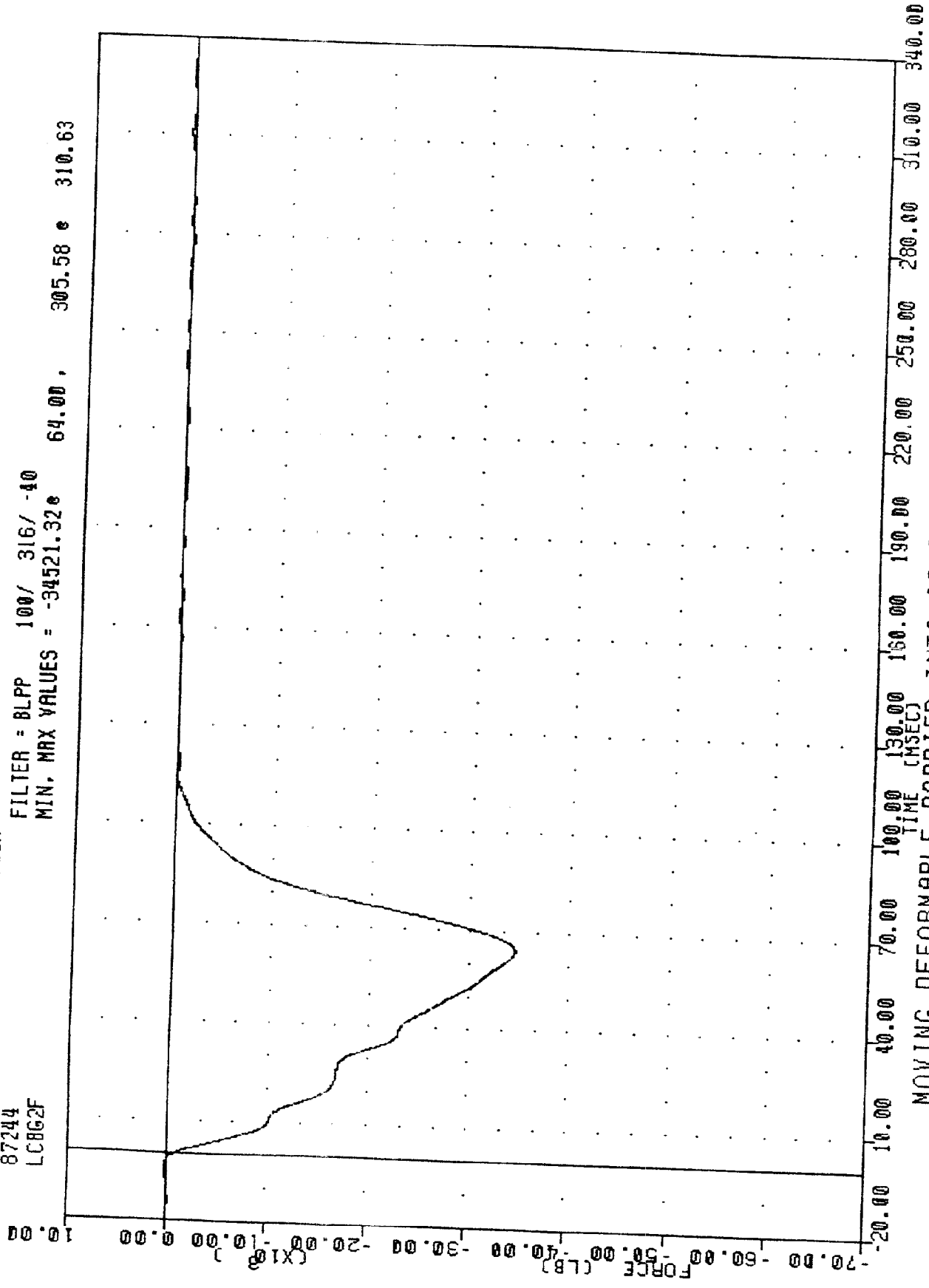
FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -25004.23# 62.00, 325.01 e 313.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 1 FORCE TOTAL

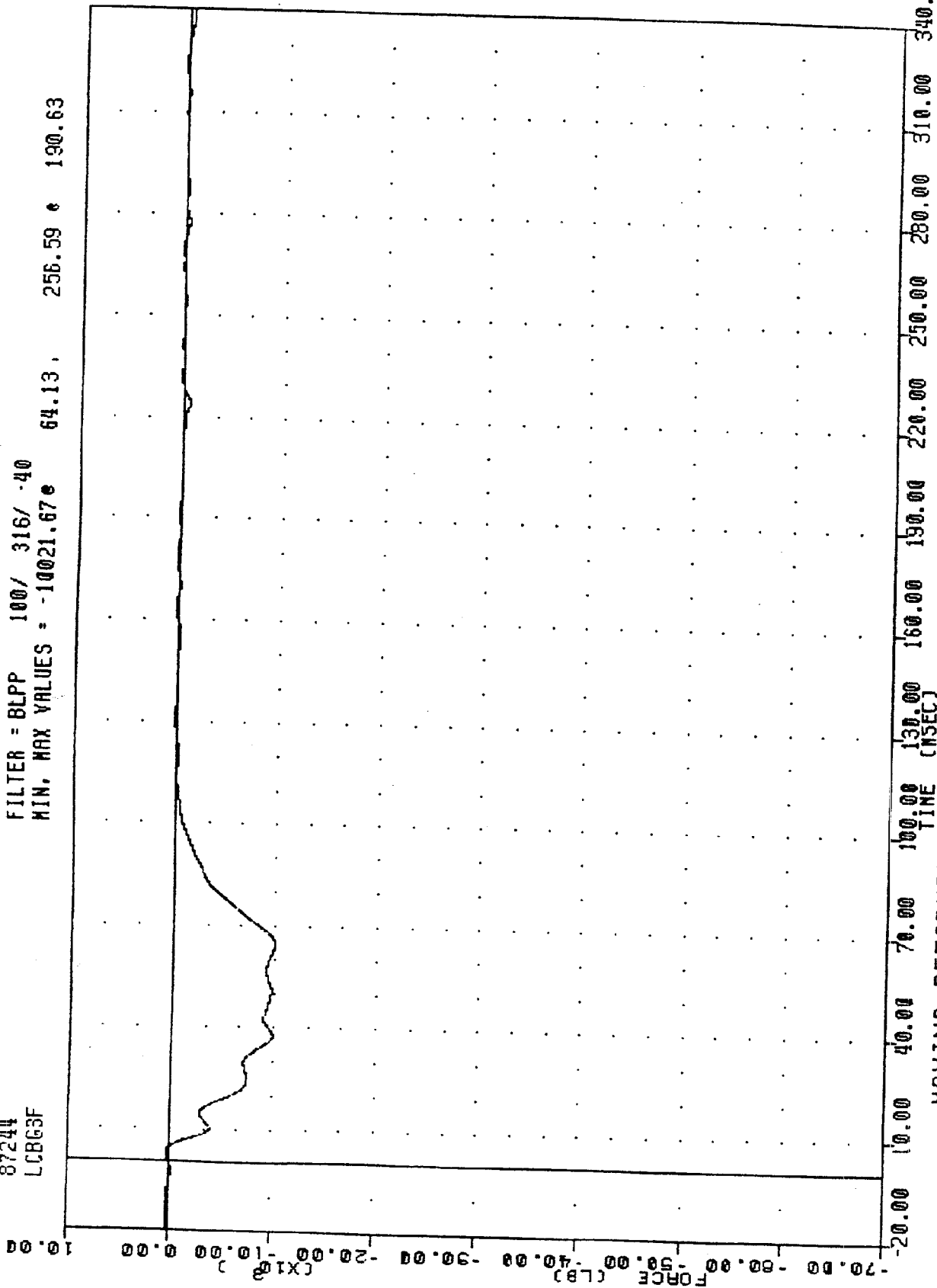
NDB INTU 26 DEG FIXED BARRIER
 87244
 LC8G2F

FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -34521.32 e 64.00 , 305.58 e 310.63



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 2 FORCE TOTAL

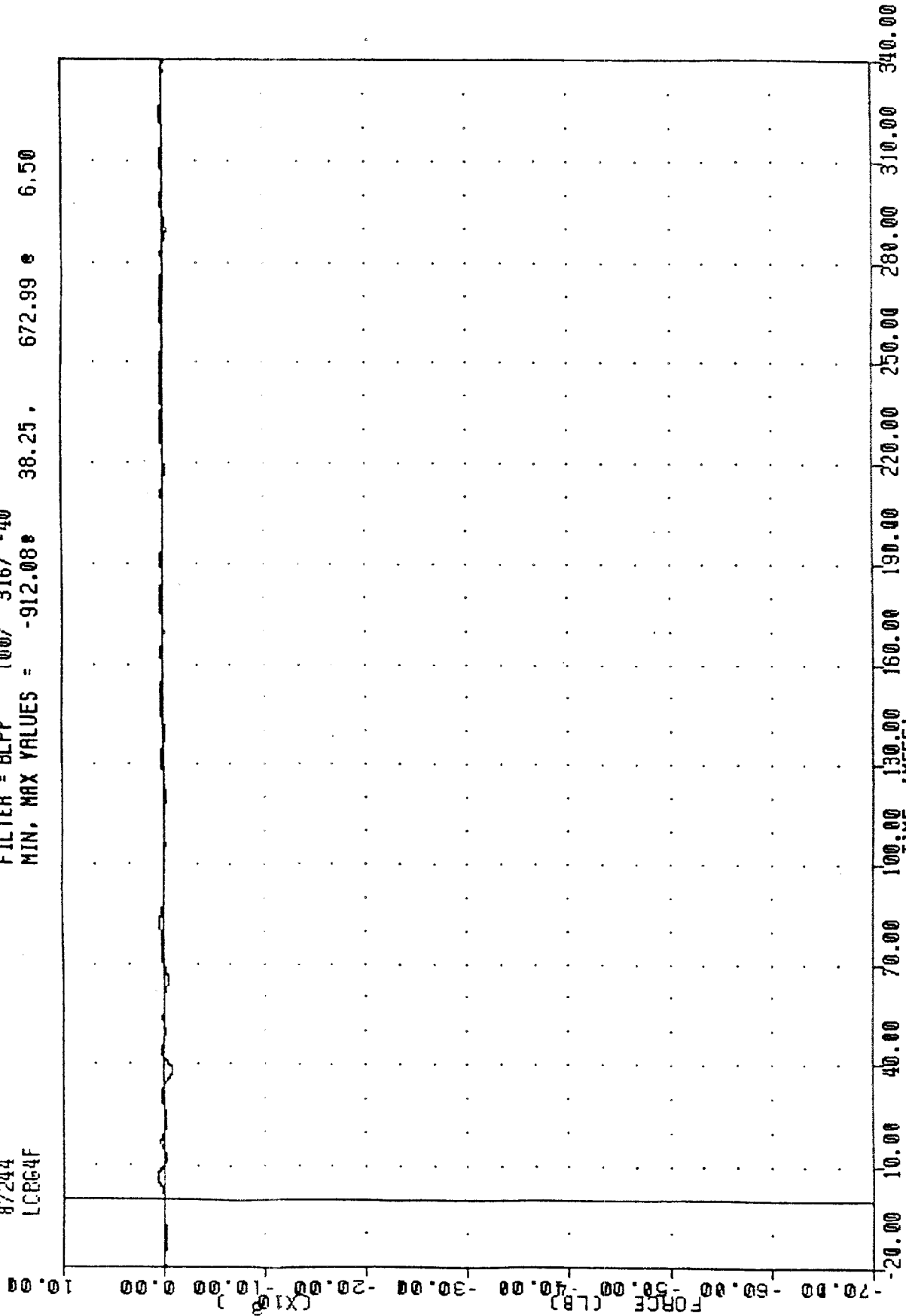
VRTC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 LCBG3F
 FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -10021.67 64.13, 256.59 190.63



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 3 FORCE TOTAL

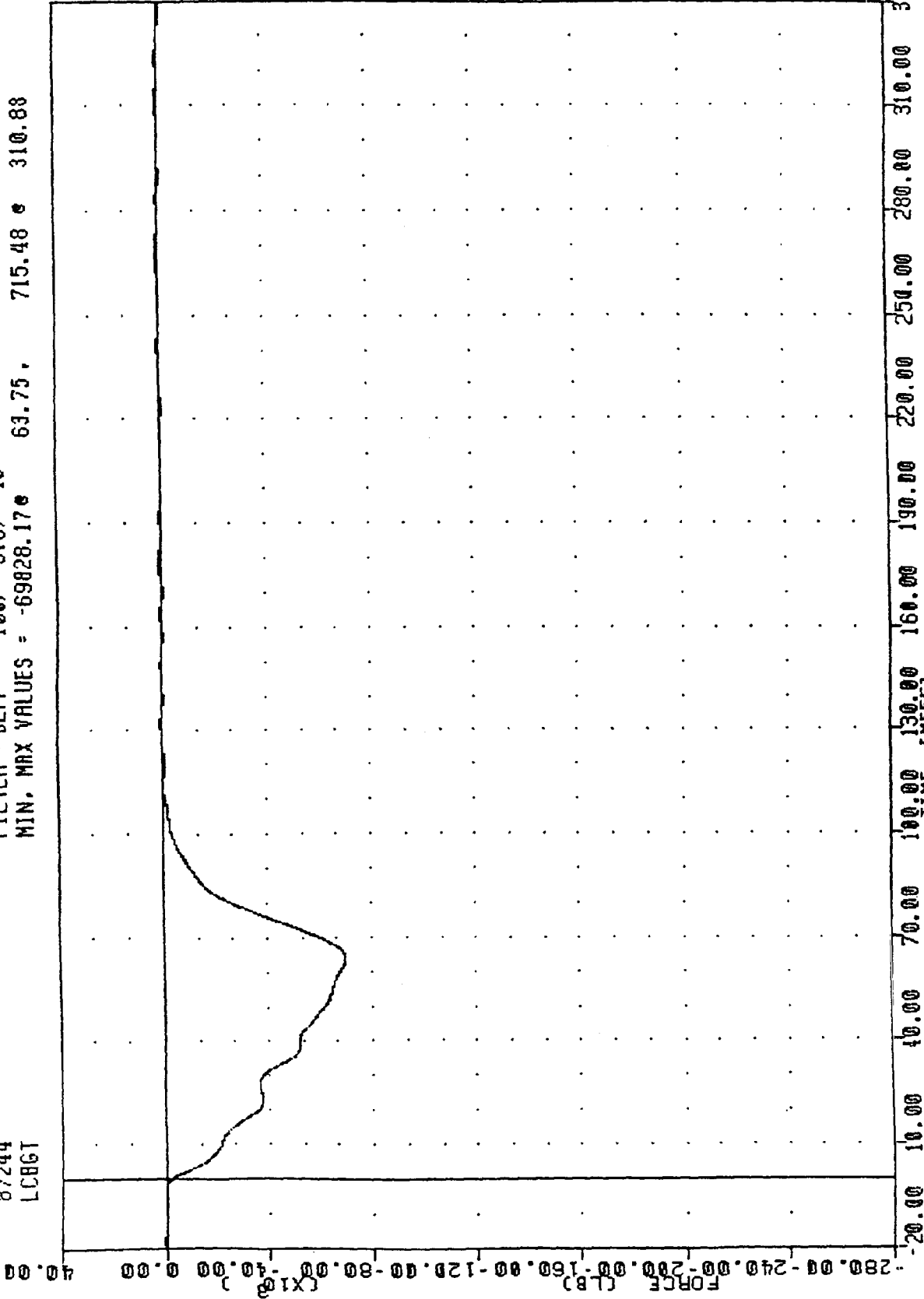
VRIC , EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244
 LCR64F

FILTER = BLPP 100/ 316/ -40
 MIN, MAX VALUES = -912.08 38.25 , 672.99 6.50



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 4 FORCE TOTAL

VRTC . EEVC FACE
 MOB INTO 26 DEG FIXED BARRIER
 87244 FILTER = BLPP 100/ 316/ -40
 LCBGT MIN. MAX VALUES = -69828.17 63.75 715.48 310.88



MOVING DEFORMABLE BARRIER INTO 26 DEG FIXED LOAD CELL BARRIER
 SUM OF LOAD CELL BARRIER FORCES