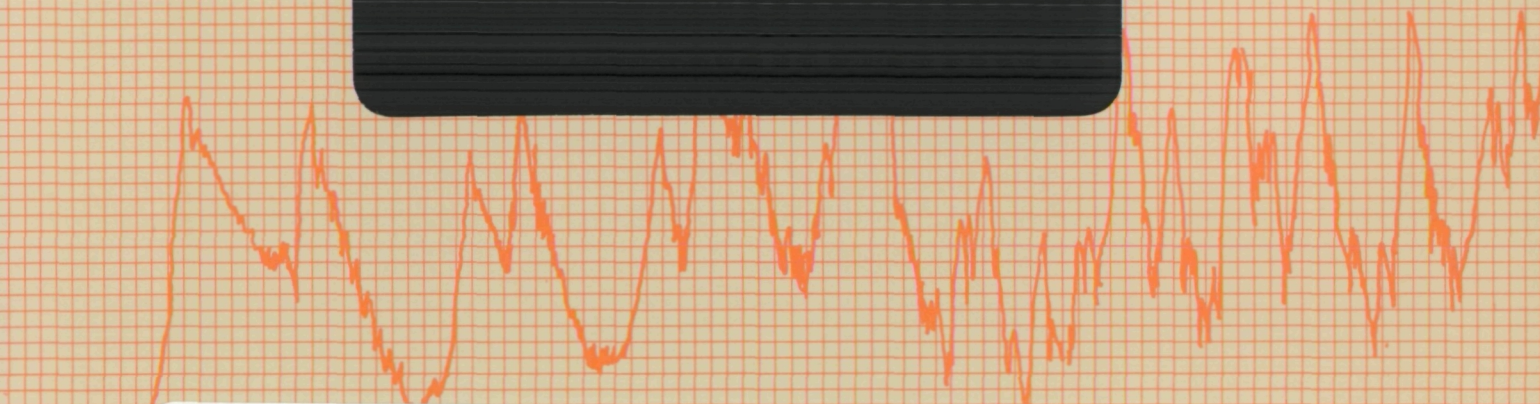


WYLE LABORATORIES
SCIENTIFIC SERVICES AND SYSTEMS GROUP



(NASA-CR-178810) A DATA BASE AND ANALYSIS PROGRAM FOR SHUTTLE MAIN ENGINE DYNAMIC PRESSURE MEASUREMENTS. APPENDIX C: DATA BASE PLOTS FOR SSME TESTS 902-214 THROUGH 902-314 Final Report (Wyle Labs., Inc.)

N86-23636

Unclas 06054

G3/20



research **REPORT**

WYLE LABORATORIES - RESEARCH STAFF
TECHNICAL REPORT 66338-01

A DATA BASE AND ANALYSIS PROGRAM
FOR SHUTTLE MAIN ENGINE
DYNAMIC PRESSURE MEASUREMENTS
APPENDIX C

DATA BASE PLOTS FOR SSME TESTS
902-214 through 902-314

by

Thomas Coffin

A final report of
work performed under contract NAS8-34343

for

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER
MARSHALL SPACE FLIGHT CENTER, ALABAMA 35812

January 1986

FOREWORD

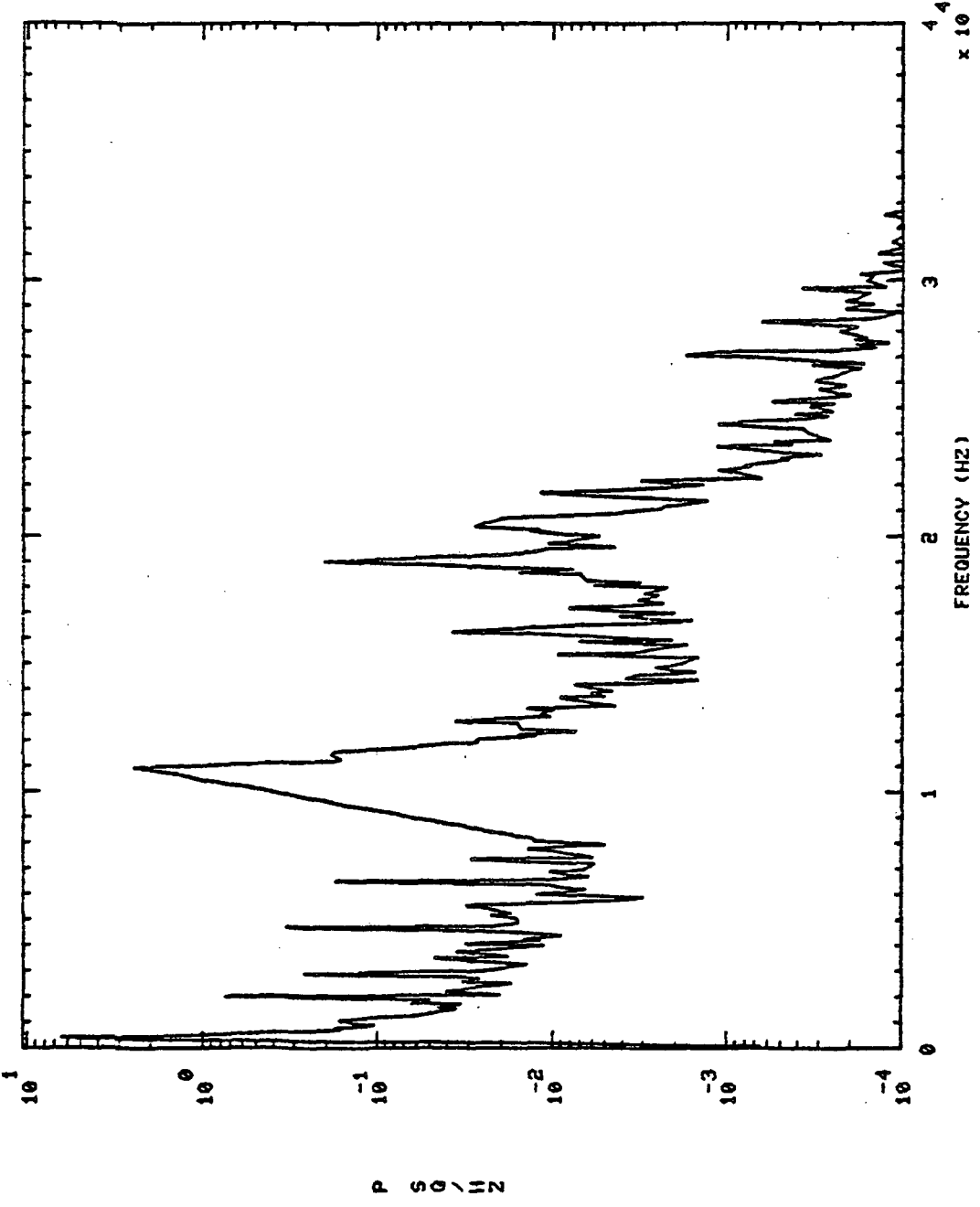
This report describes a dynamic pressure data base and data base management system developed to characterize the Space Shuttle Main Engine (SSME) dynamic pressure environment. The data base represents dynamic pressure measurements obtained during single engine hot firing tests of the SSME. Software is provided to permit statistical evaluation of selected measurements under specified operating conditions. An interpolation scheme is also included to estimate spectral trends with SSME power level. This report was prepared by Wyle Laboratories Scientific Services and Systems Group for the National Aeronautics and Space Administration, George C. Marshall Space Flight Center. The work was performed under NASA contract NAS 8-34343, entitled "Flow Dynamic Environments in High Performance Rocket Engines."

The author wishes to acknowledge the contribution to this study by Dr. G. Meares, Chief Architect of the data base management software described herein. Messrs. B. Dobbs and D. Duck contributed long hours over a digitizer pad to accomplish data base input. The singular value decomposition software for spectrum interpolation was developed by Dr. J. Jong. Mr. T. Nesman, MSFC technical contract monitor, provided continuing support through informal project reviews and served as a focal point for definition of SSME data requirements.

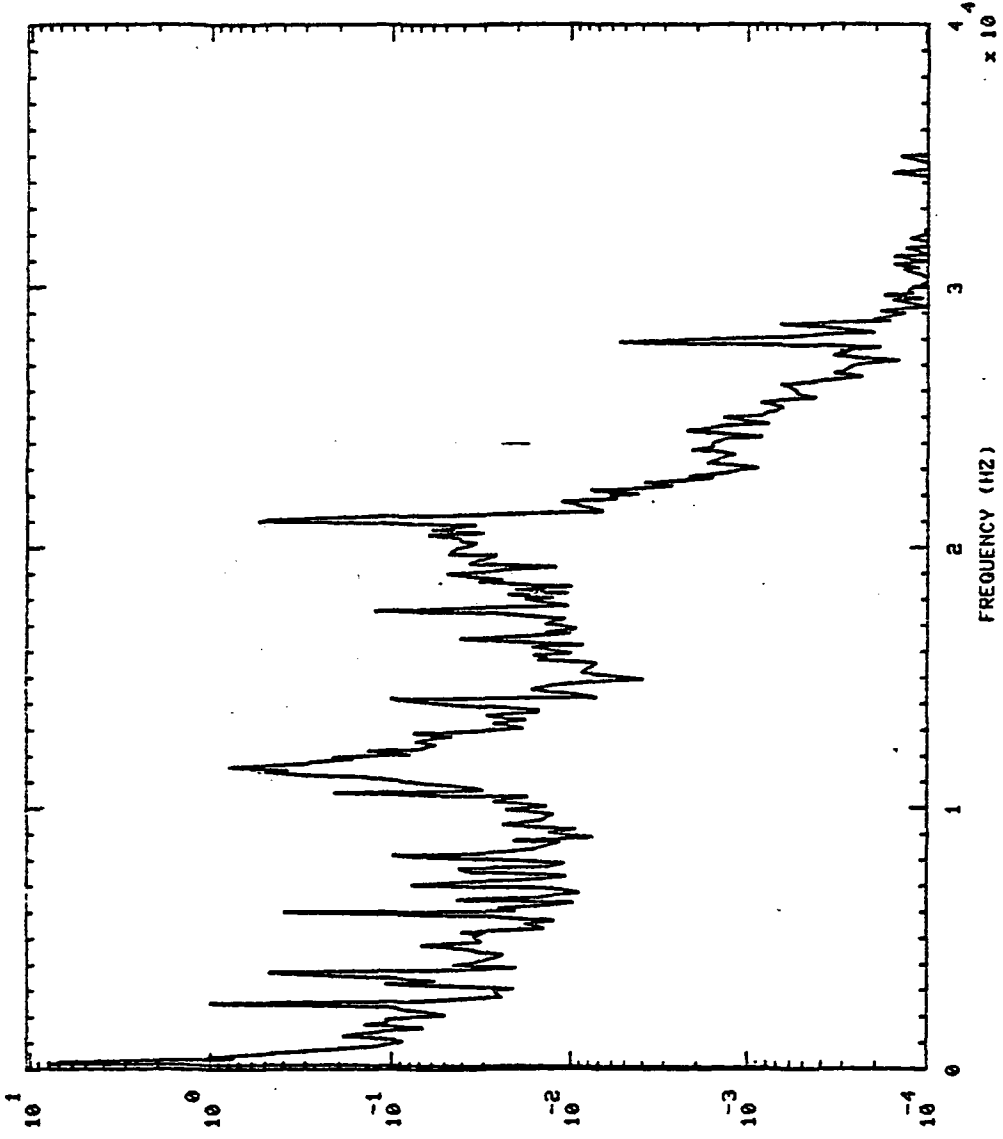
DATA PLOT LISTING FOR TEST STAND A2

<u>Test</u>	<u>Channel Descriptor (Time History or PSD)</u>	<u>Maximum Frequency (Hz)</u>	<u>Time Slice (Sec)</u>
214	MMC FUEL INJ PR	40,000	25
215			50
			70
			150
			300
			450
			500
			30
			50
			70
251	THRUST		
252			
253			
254			
255			
256			
257			
258			
259			
260			
261			
262			
263			
264			
265			
266			
267			
268			
269			
270			
271			
276			
277			
279			
283			
284			
303			
306			
307			
310			
311			
313			
314			

902214 MCC FUEL INJ PR S+ 50.0110,'S



902214 MCC FUEL INJ PR S+ 25.0110, 'S

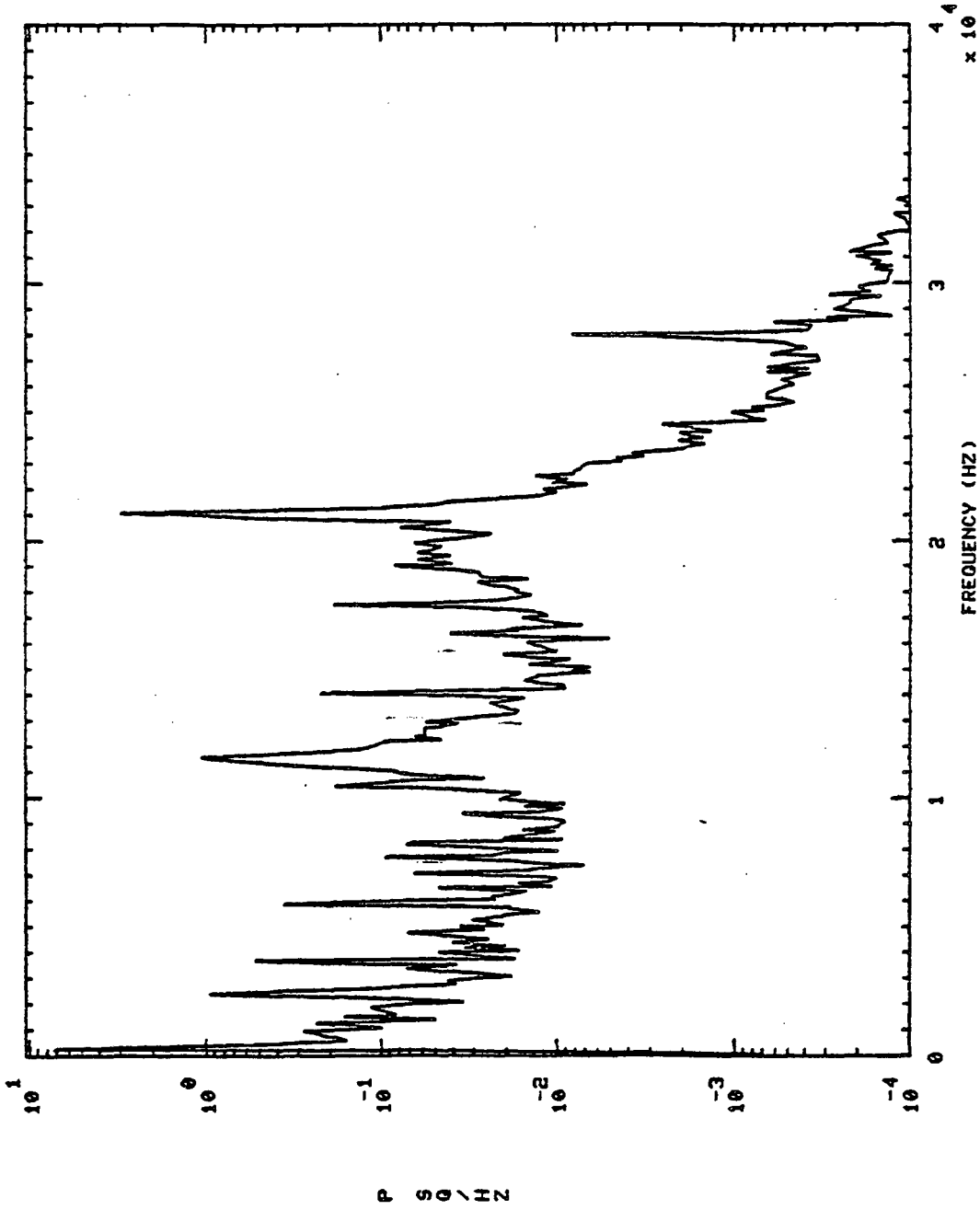


P S D \ H Z

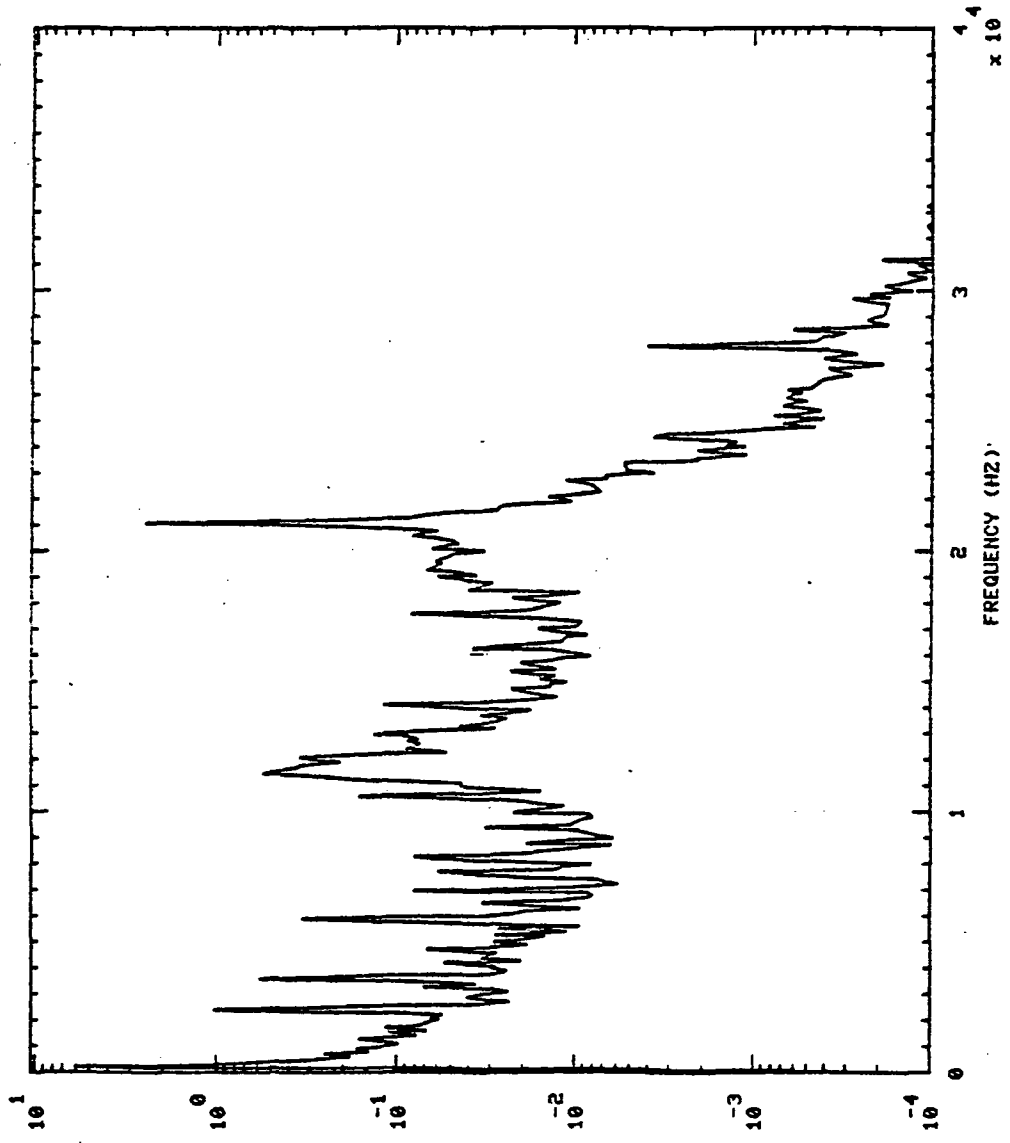
ORIGINAL PAGE IS
OF POOR QUALITY

S+ 70.01H0,'5

902214 MCC FUEL INJ PR



902214 MCC FUEL INJ PR S+ 150.01H0,'S



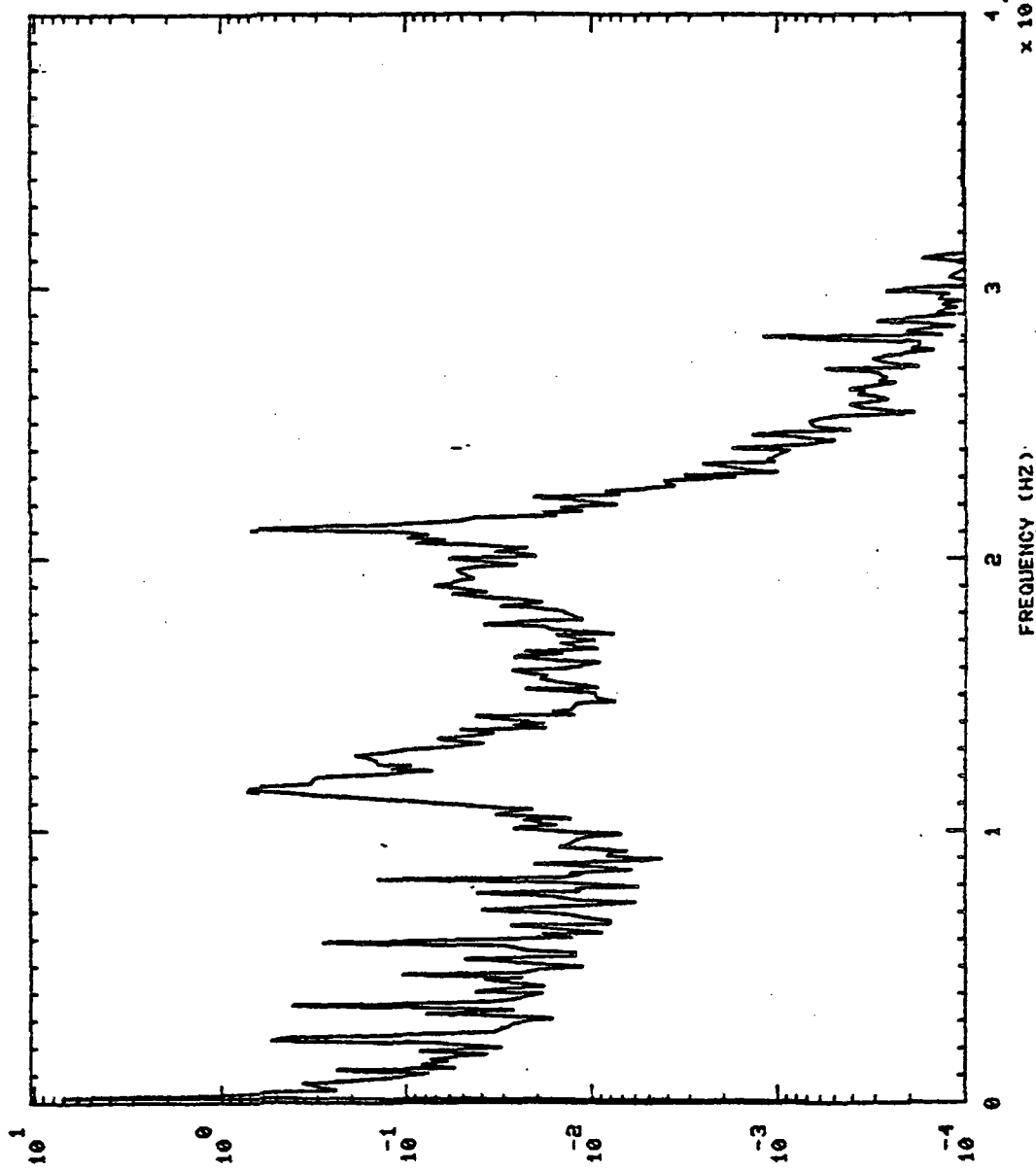
P S Q \ H Z

ORIGINAL PAGE IS
OF POOR QUALITY

S+ 300.01H0,'S

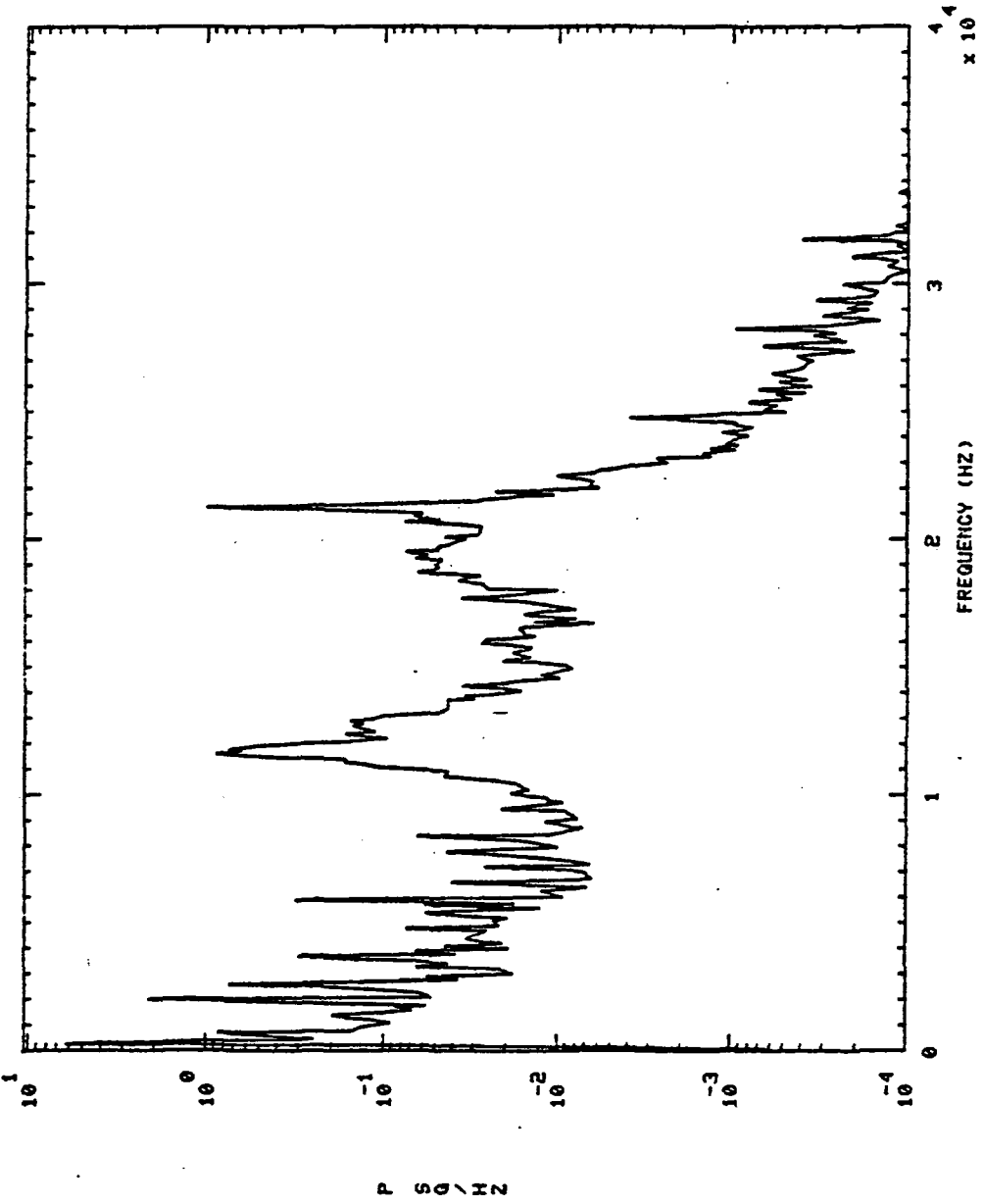
MCC FUEL INJ PR

902214

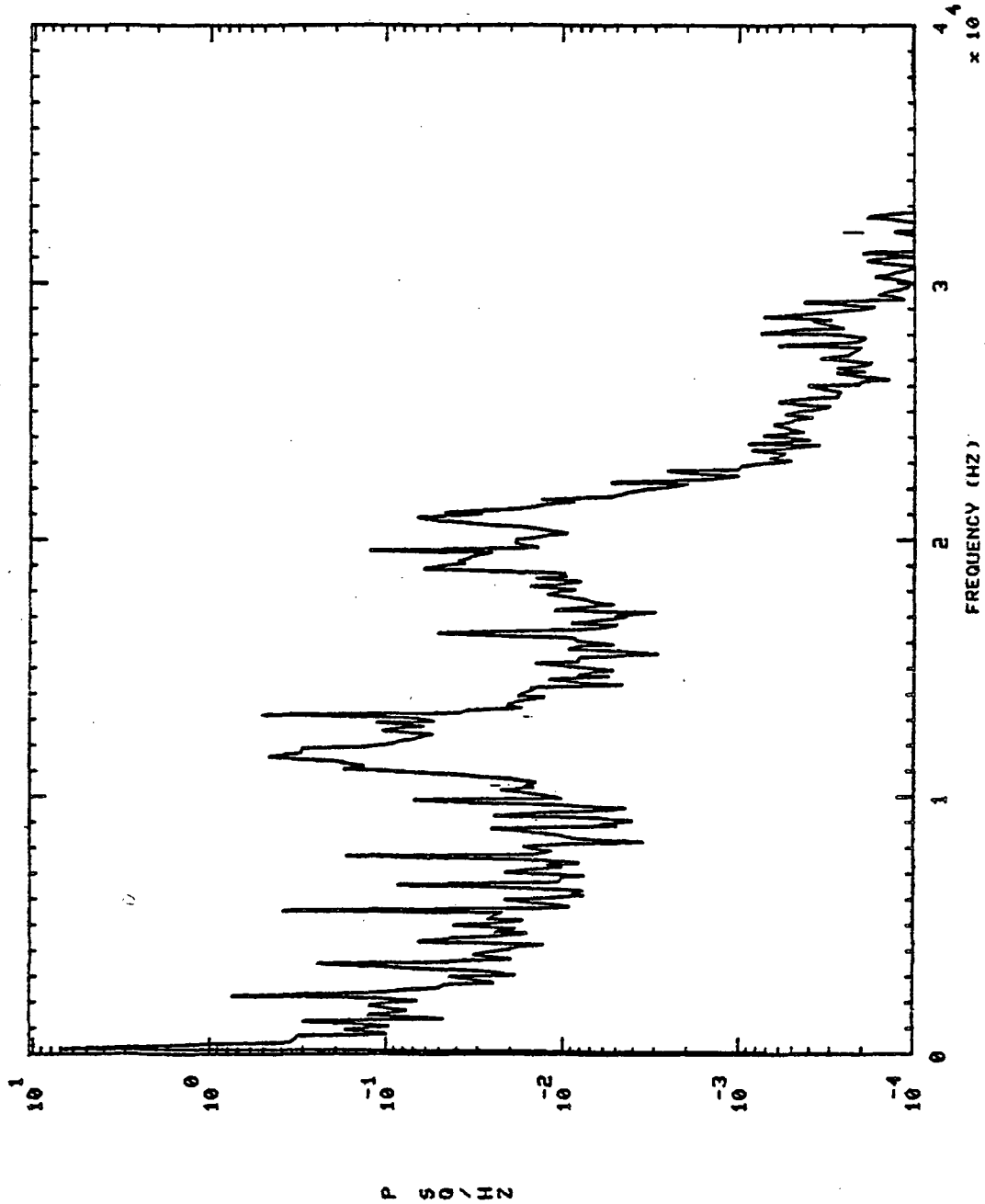


P S O \ H N

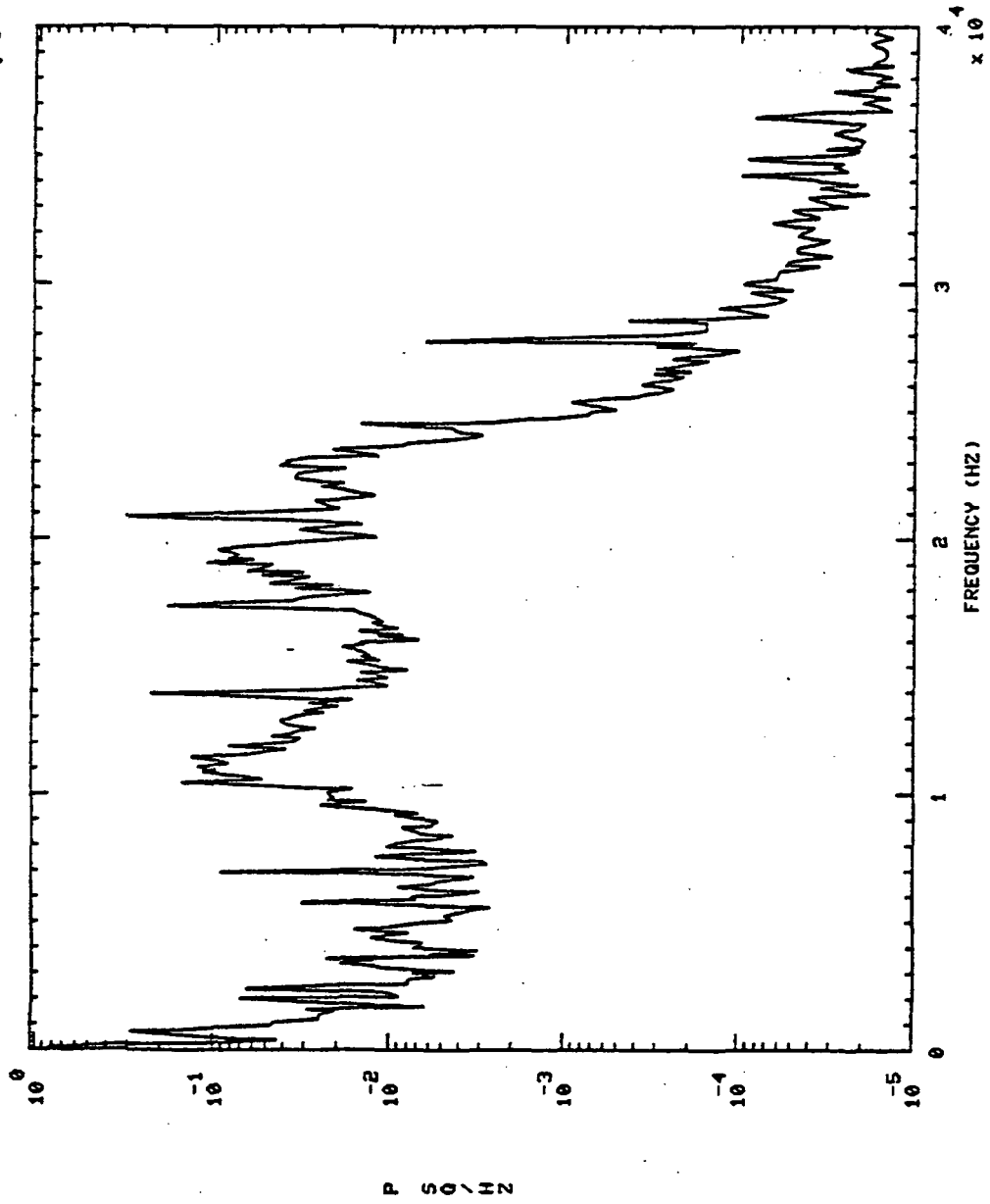
902214 MCC FUEL INJ PR S+ 450.01H0,'S



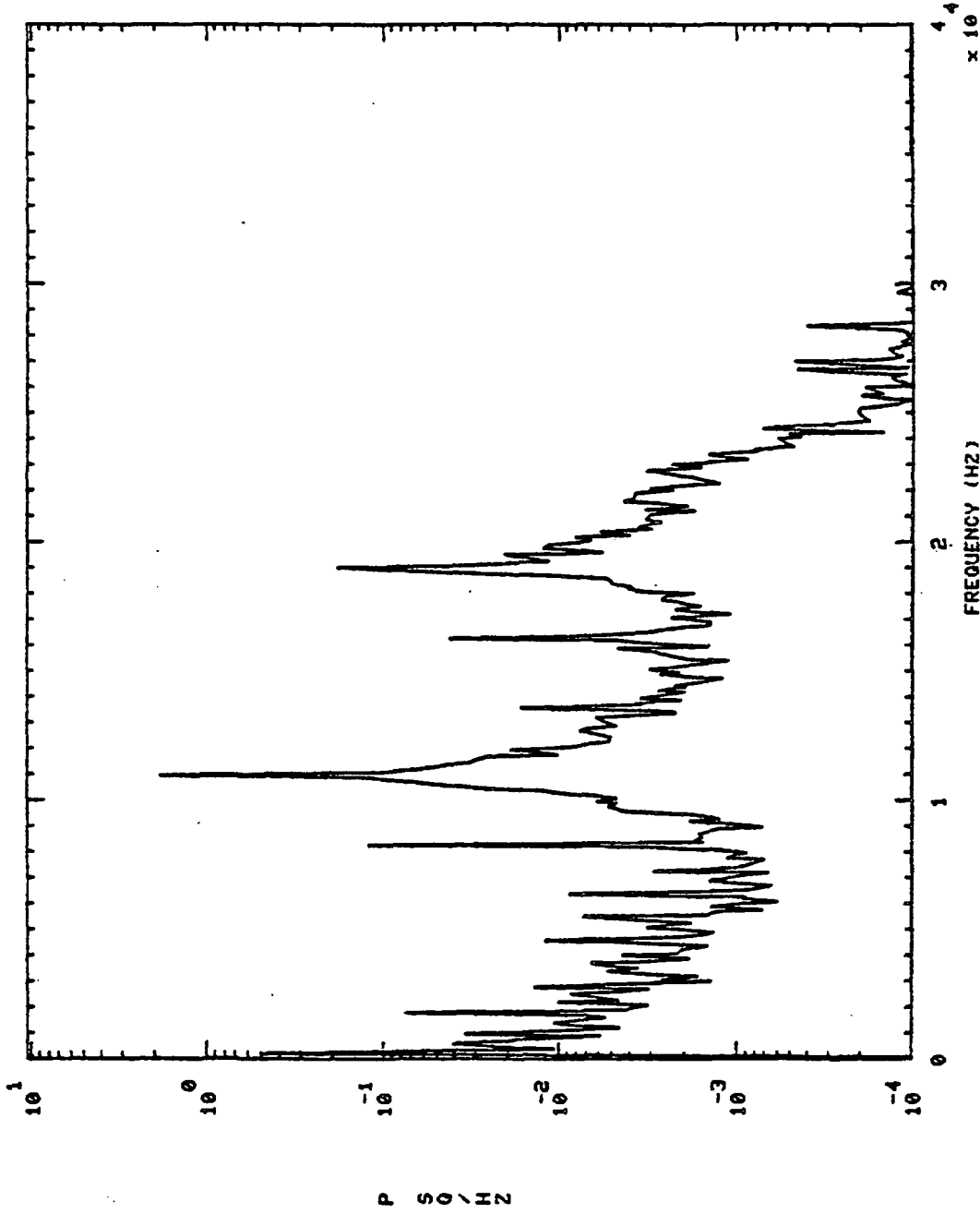
902214 MCC FUEL INJ PR S+ 500.01H0,'S



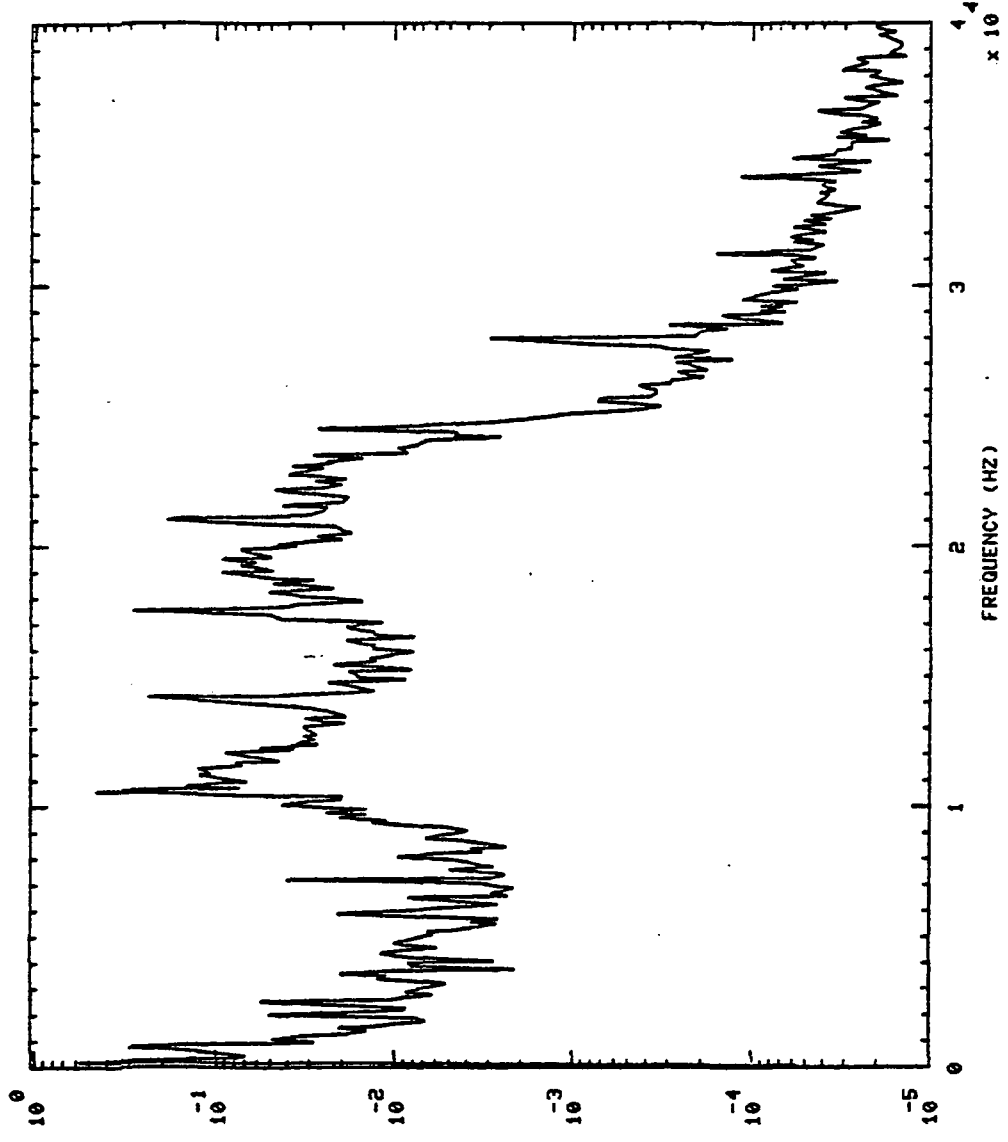
902215 MCC FUEL INJ PR S+ 30.01H0'S



902215 MCC FUEL INJ PR S+ 50.01H0,'S



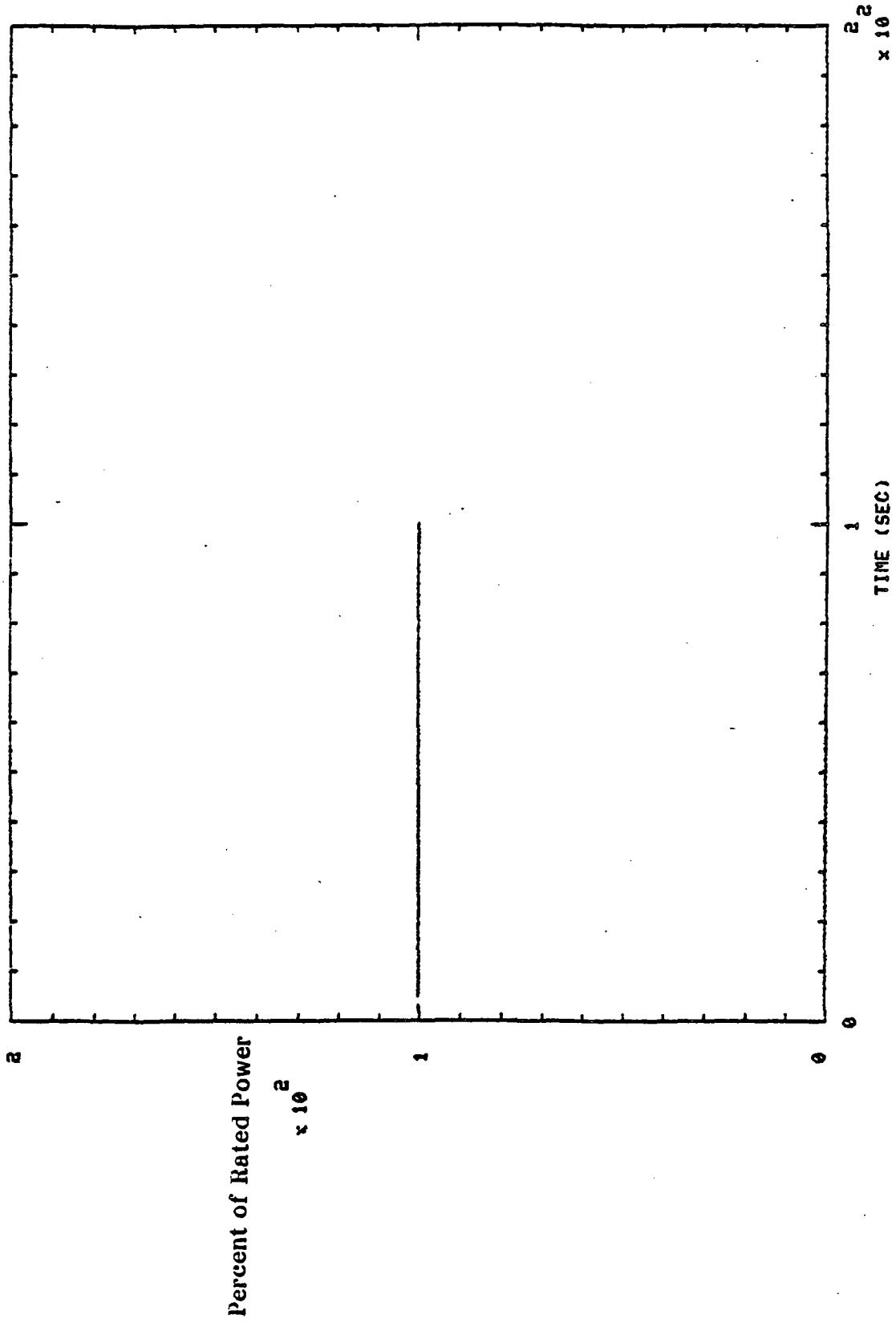
902215 MCC FUEL INJ PR S+ 70.01H0,'S



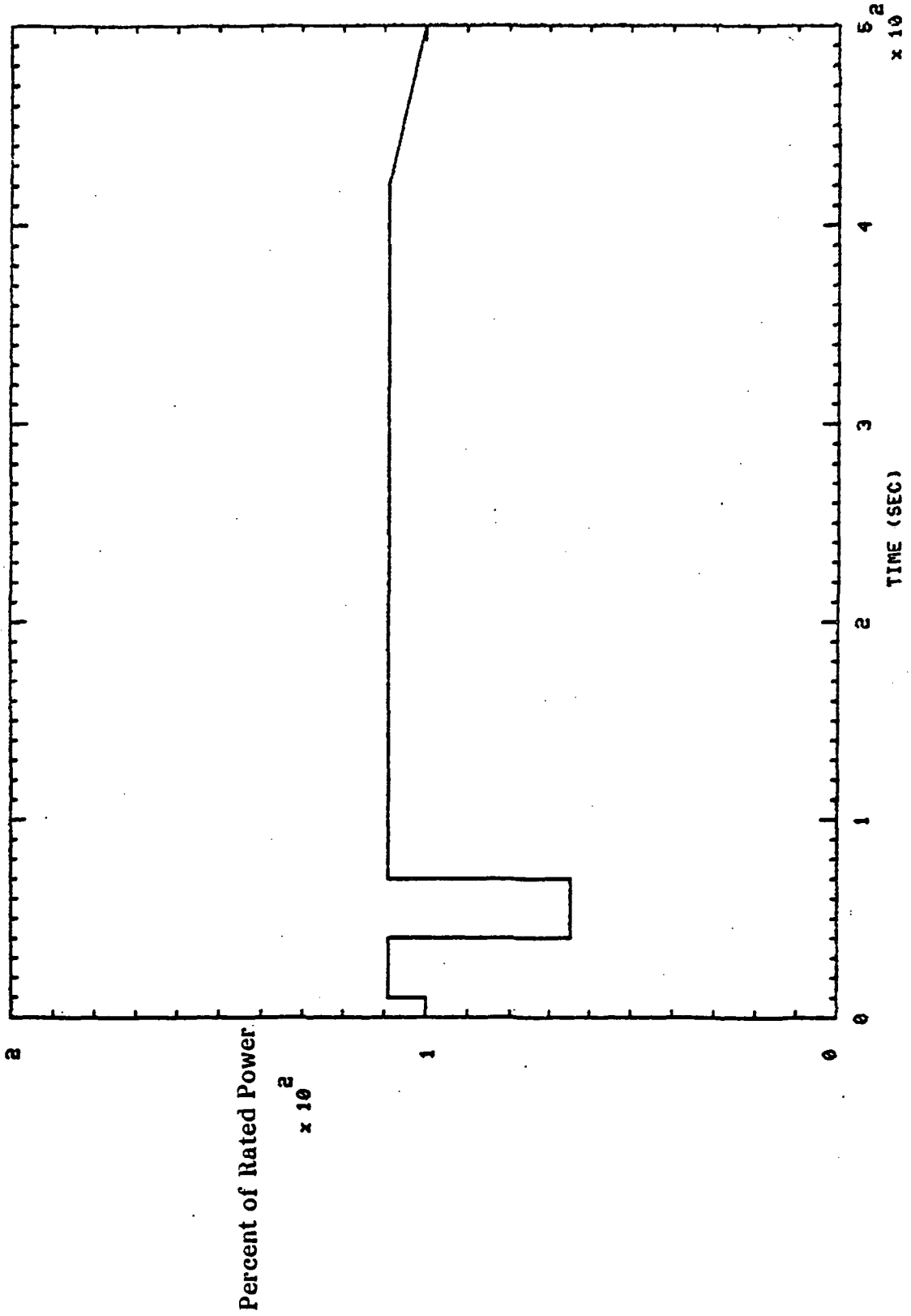
P S G / H N

902251 THRUST

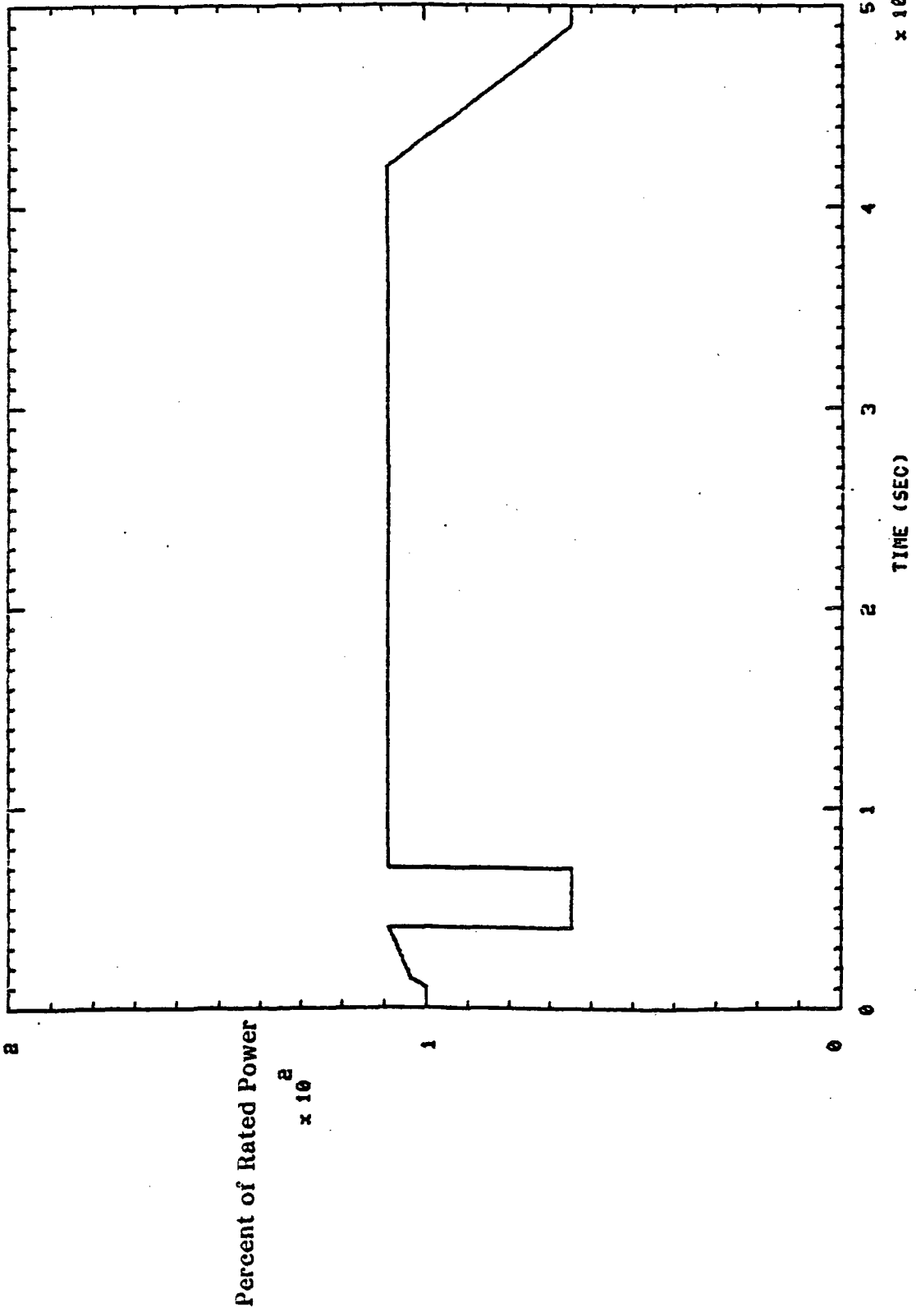
(UNFILTERED)



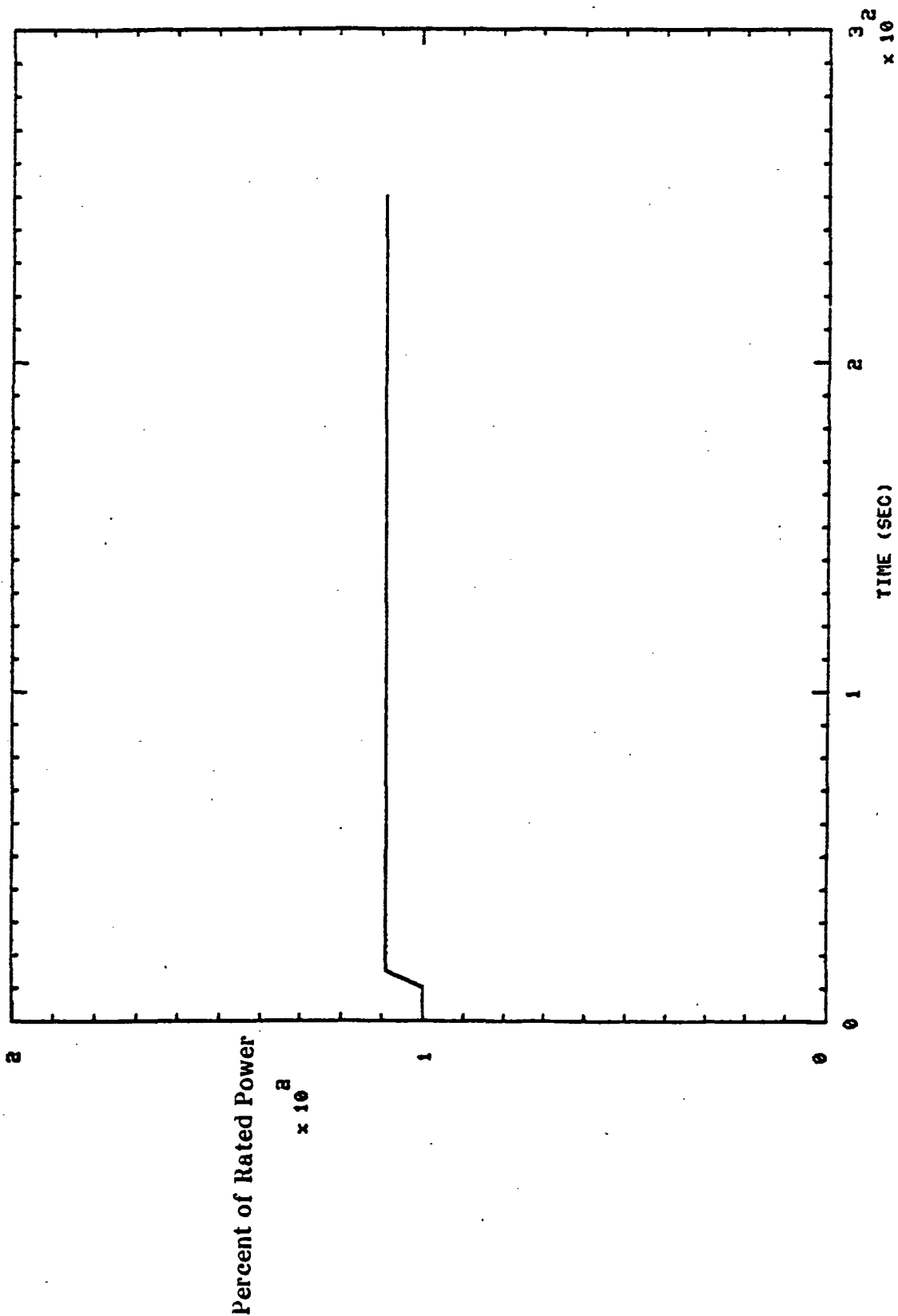
902252 THRUST (UNFILTERED)



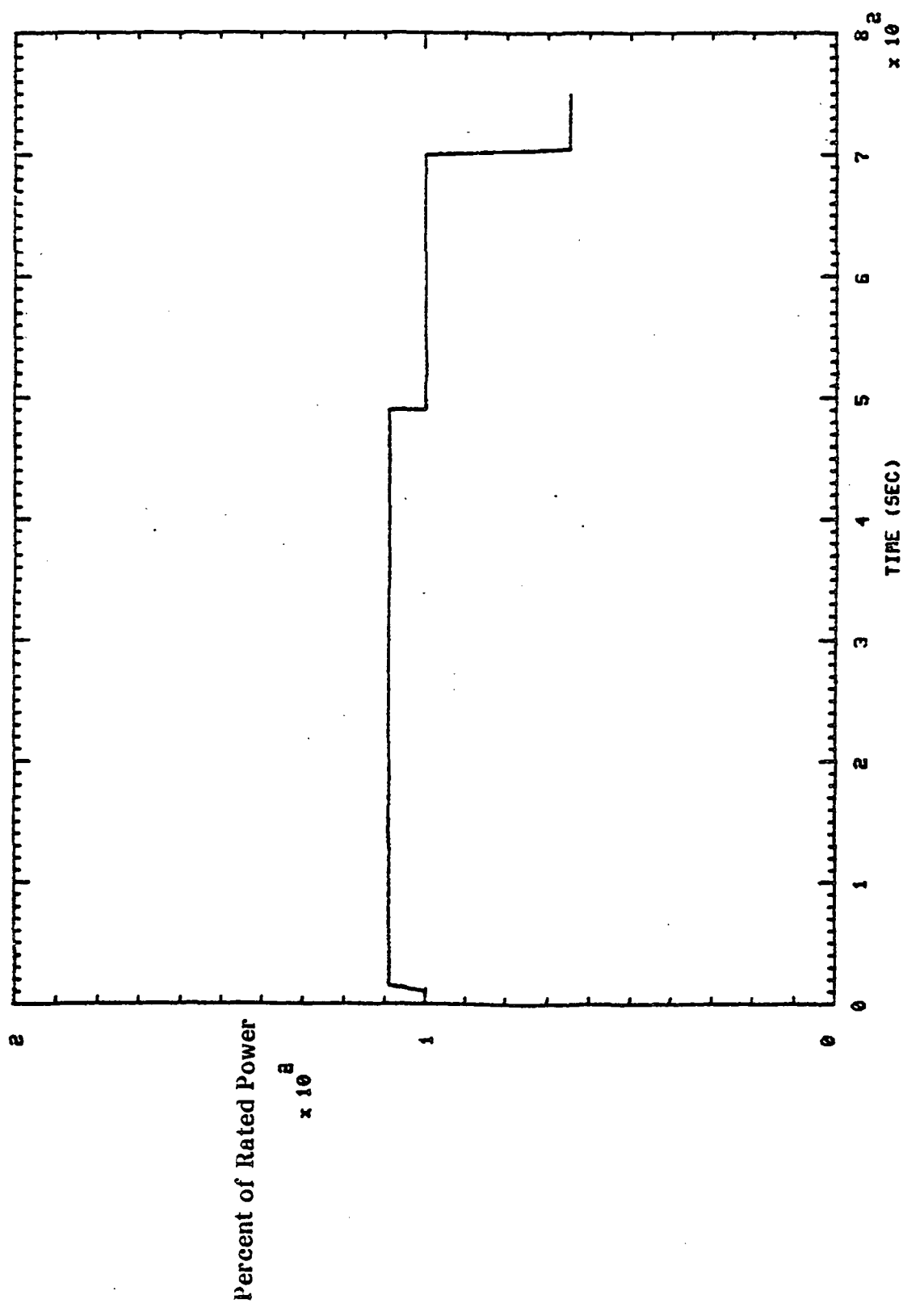
902253 THRUST (UNFILTERED)



902254 THRUST (UNFILTERED)

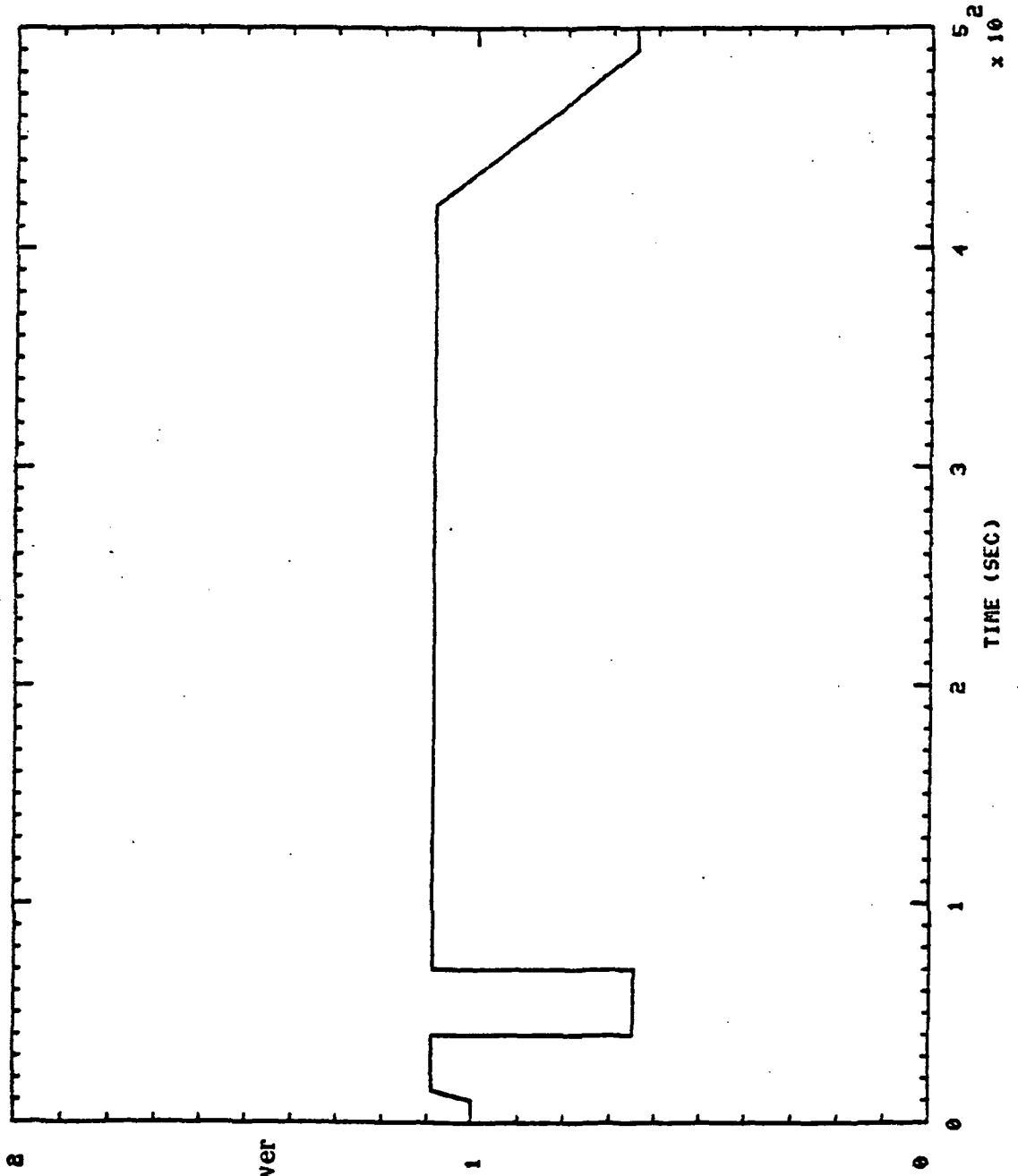


90255 THRUST (UNFILTERED)

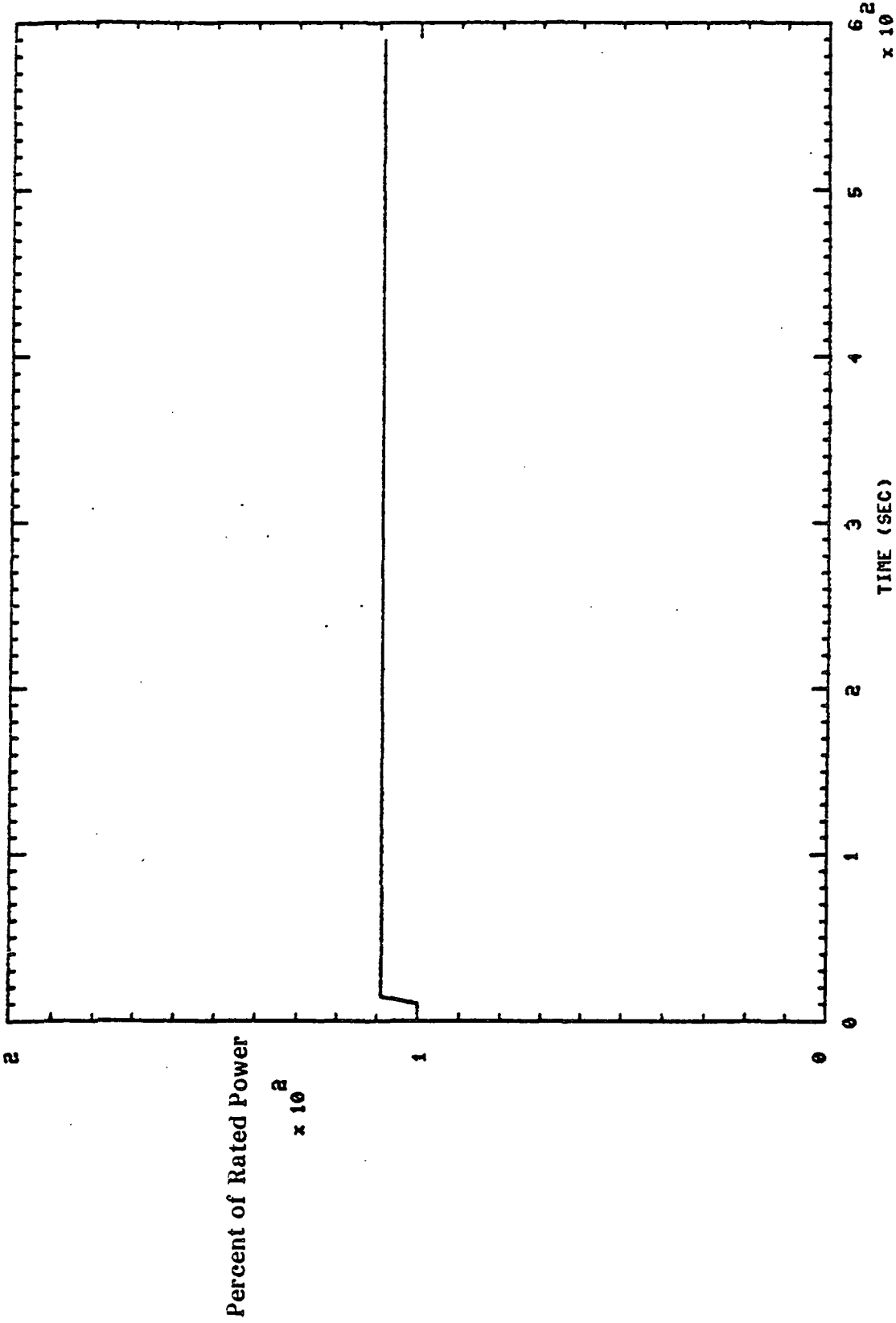


902256 THRUST (UNFILTERED)

Percent of Rated Power



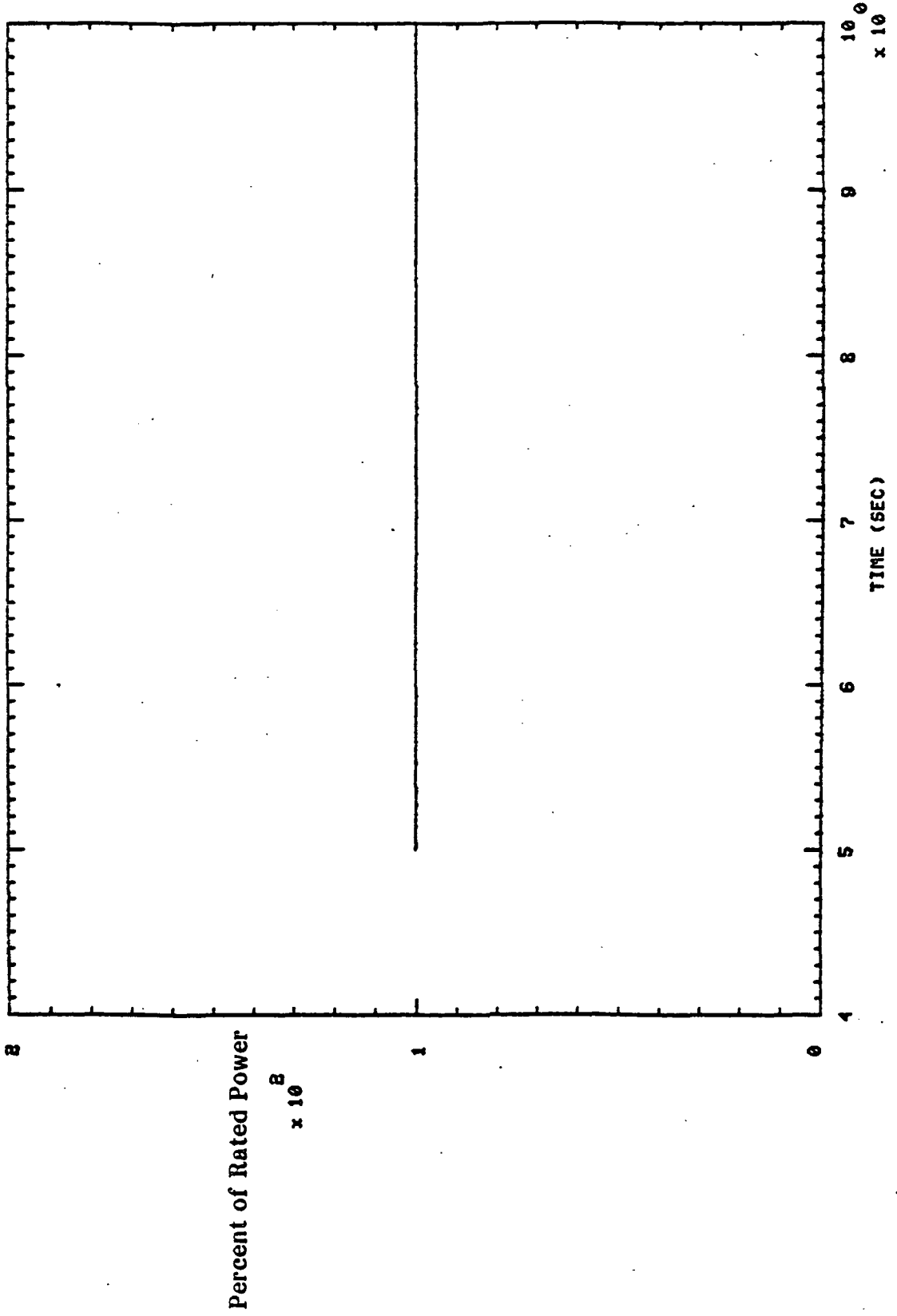
902257 THRUST (UNFILTERED)



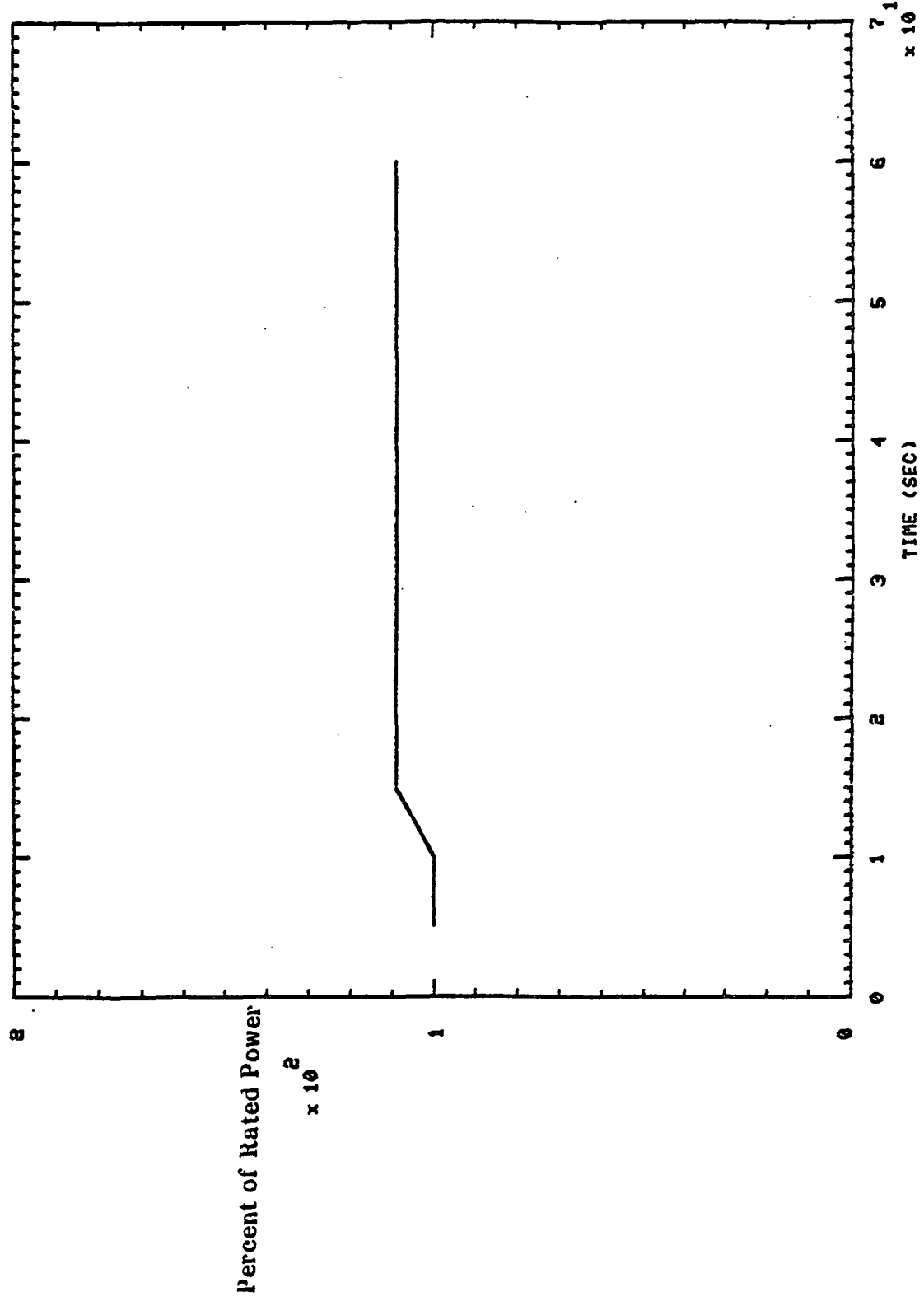
902258 THRUST (UNFILTERED)

902258 THRUST

902258

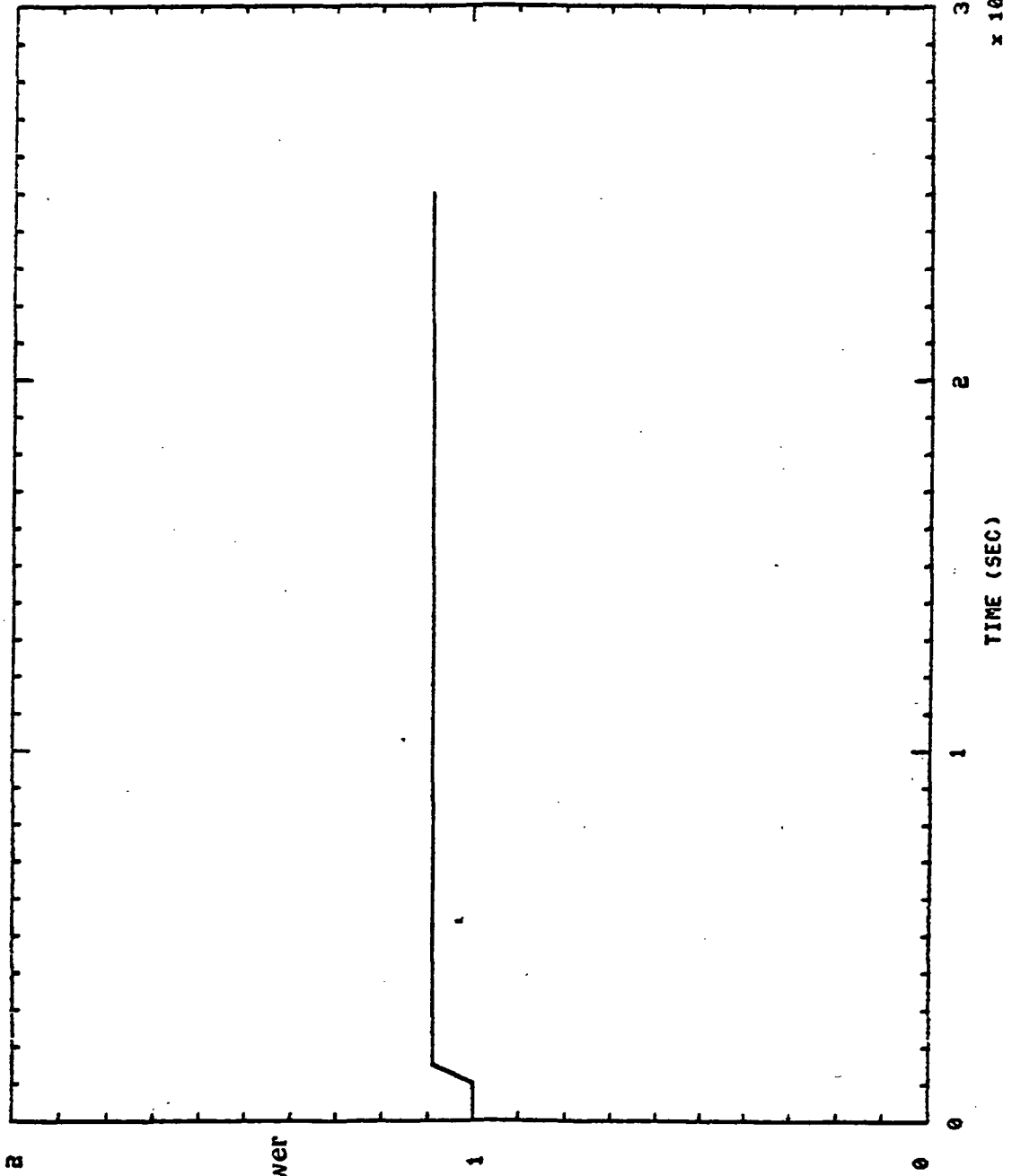


902259 THRUST (UNFILTERED)



902260 THRUST (UNFILTERED)

902260 THRUST

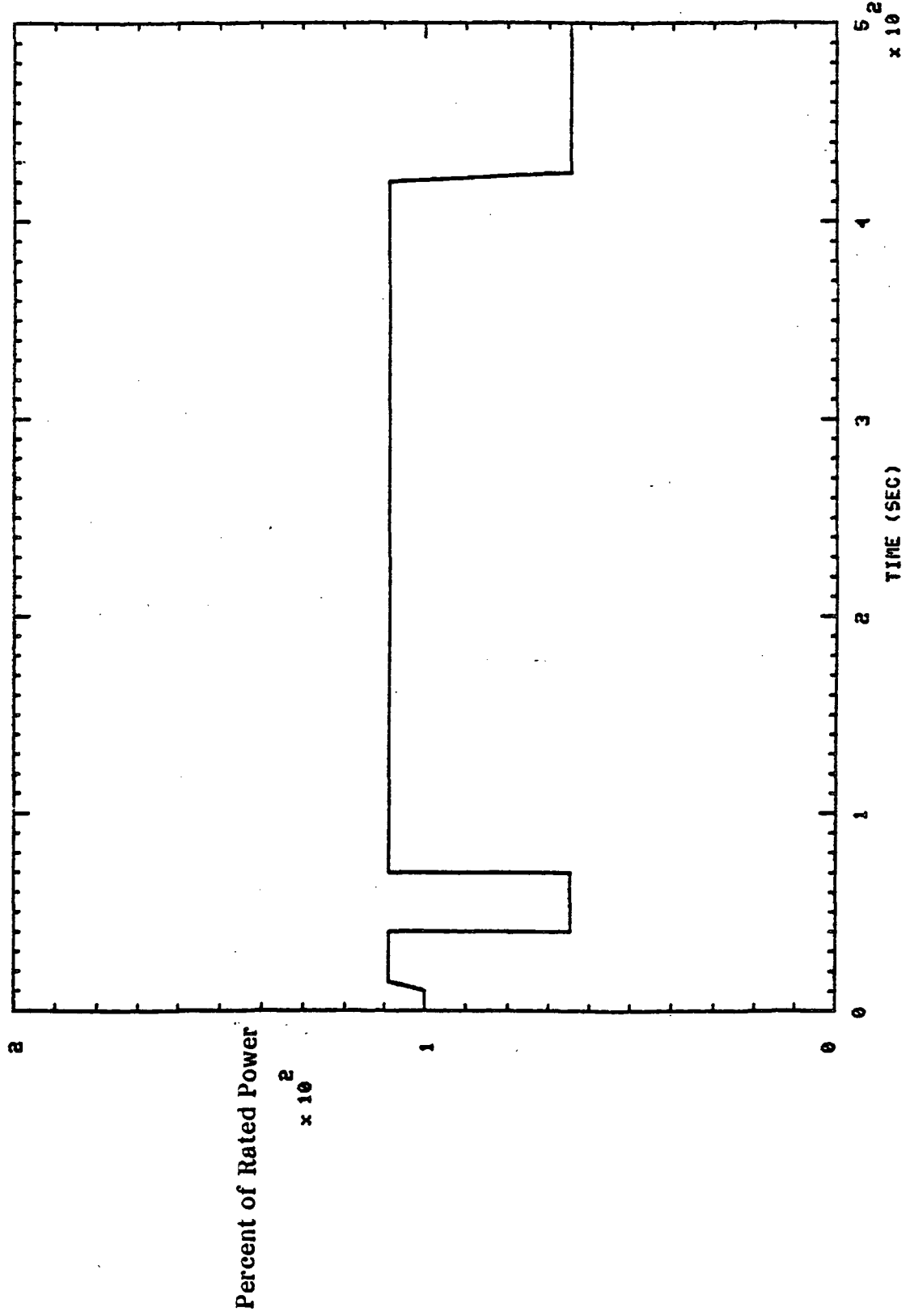


Percent of Rated Power
 $\times 10^2$

3.2
 $\times 10^2$

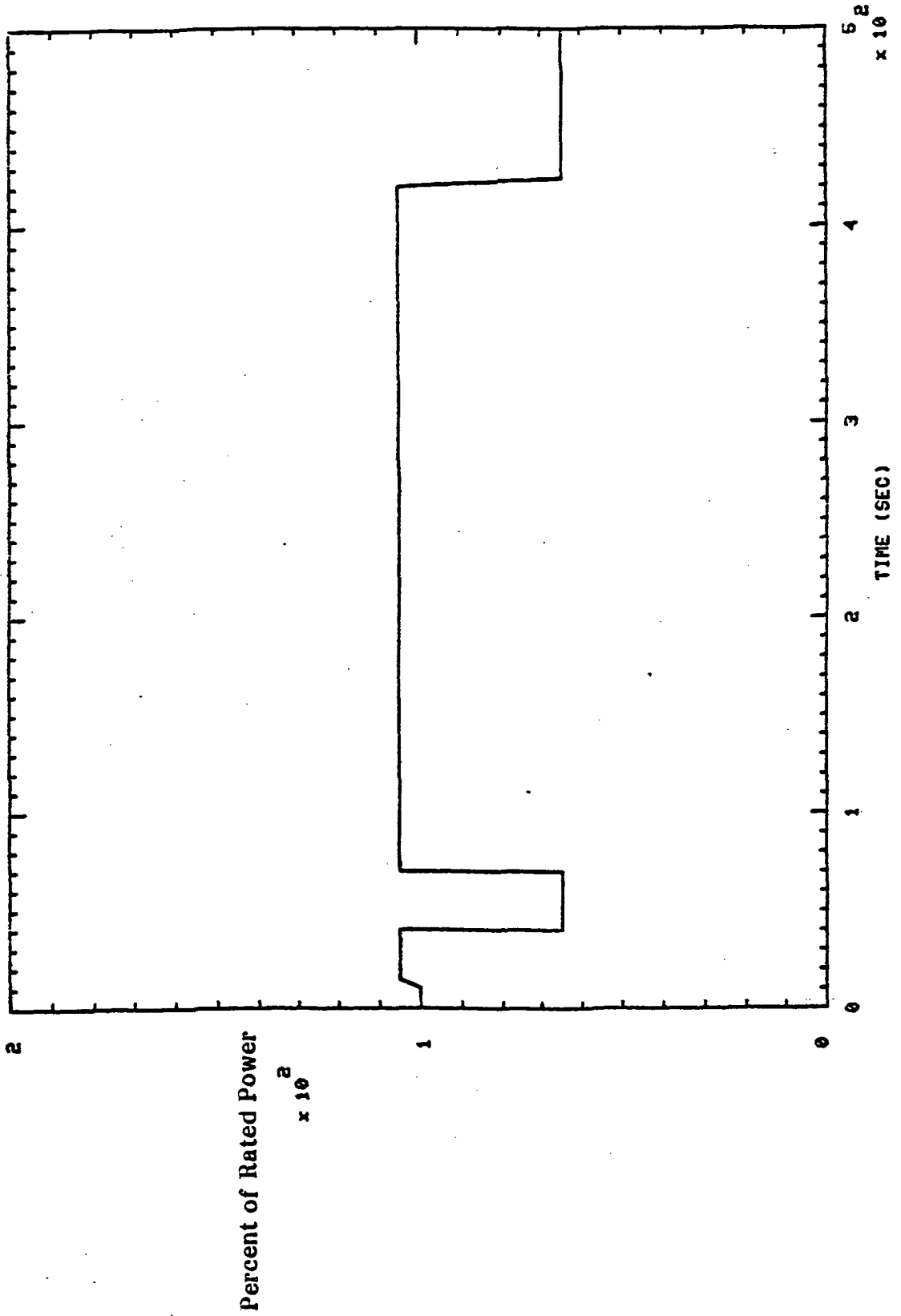
TIME (SEC)

902261 THRUST (UNFILTERED)



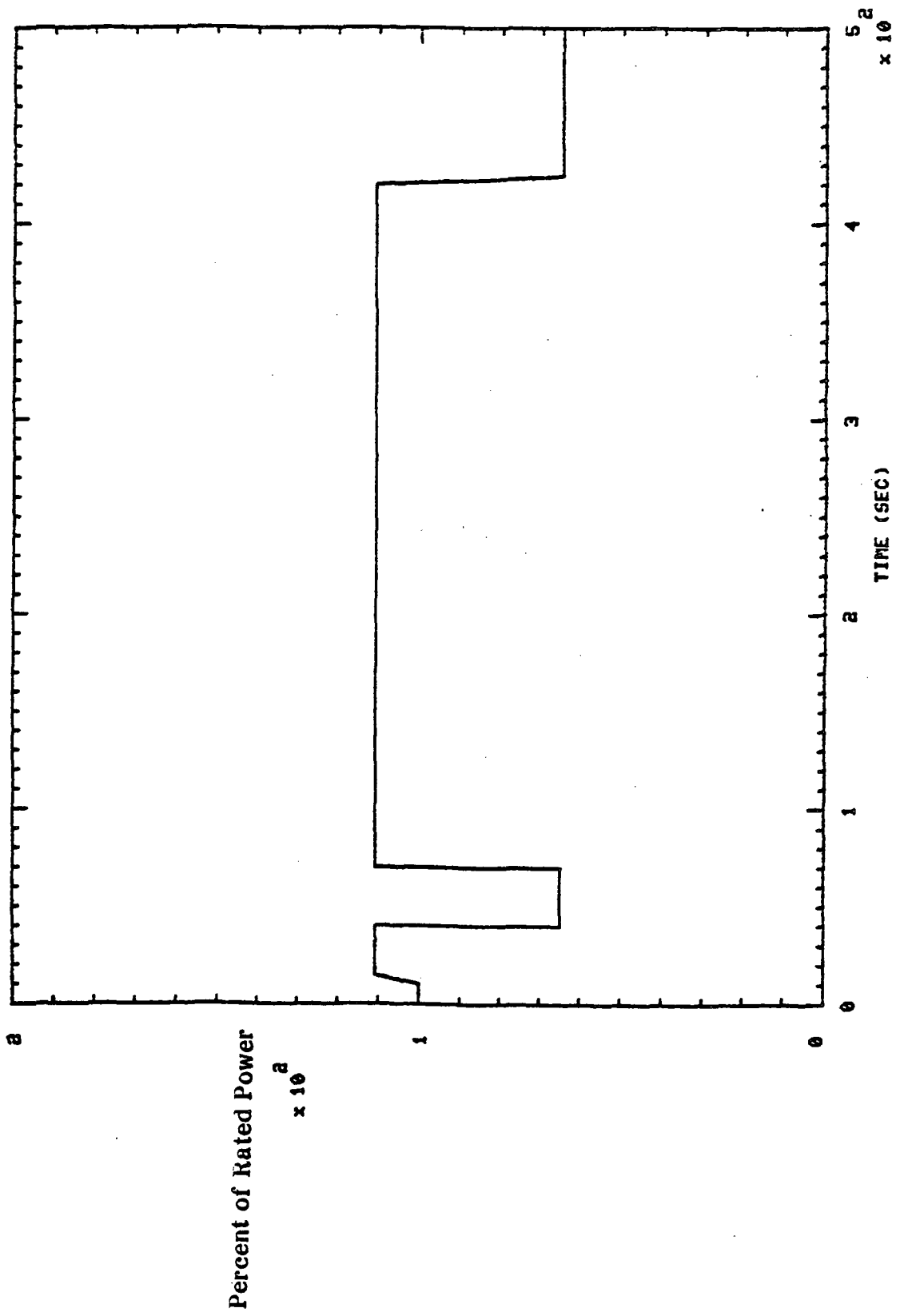
902262 THRUST (UNFILTERED)

902262 THRUST



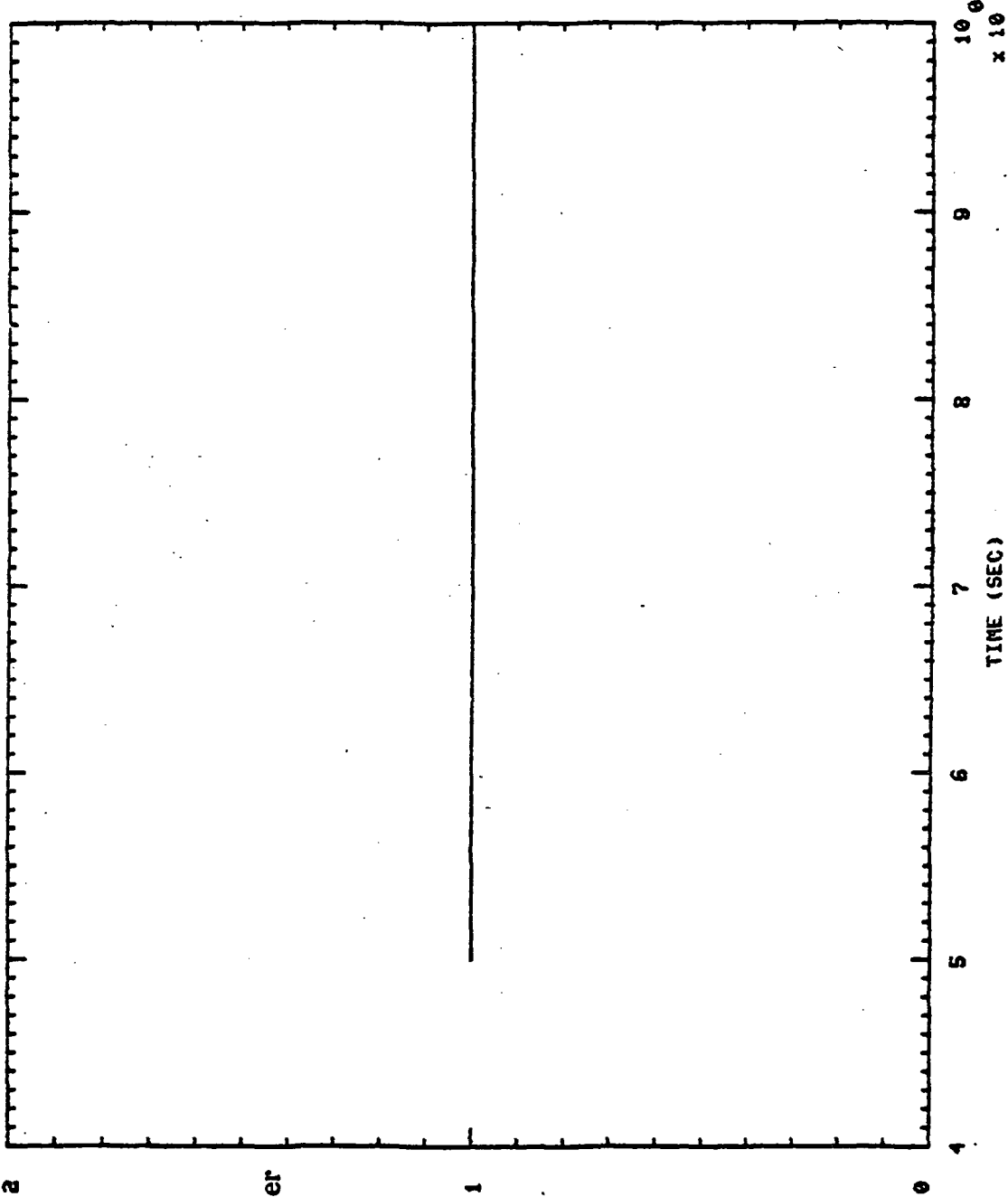
902263 THRUST

(UNFILTERED)



902264 THRUST (UNFILTERED)

902264 THRUST

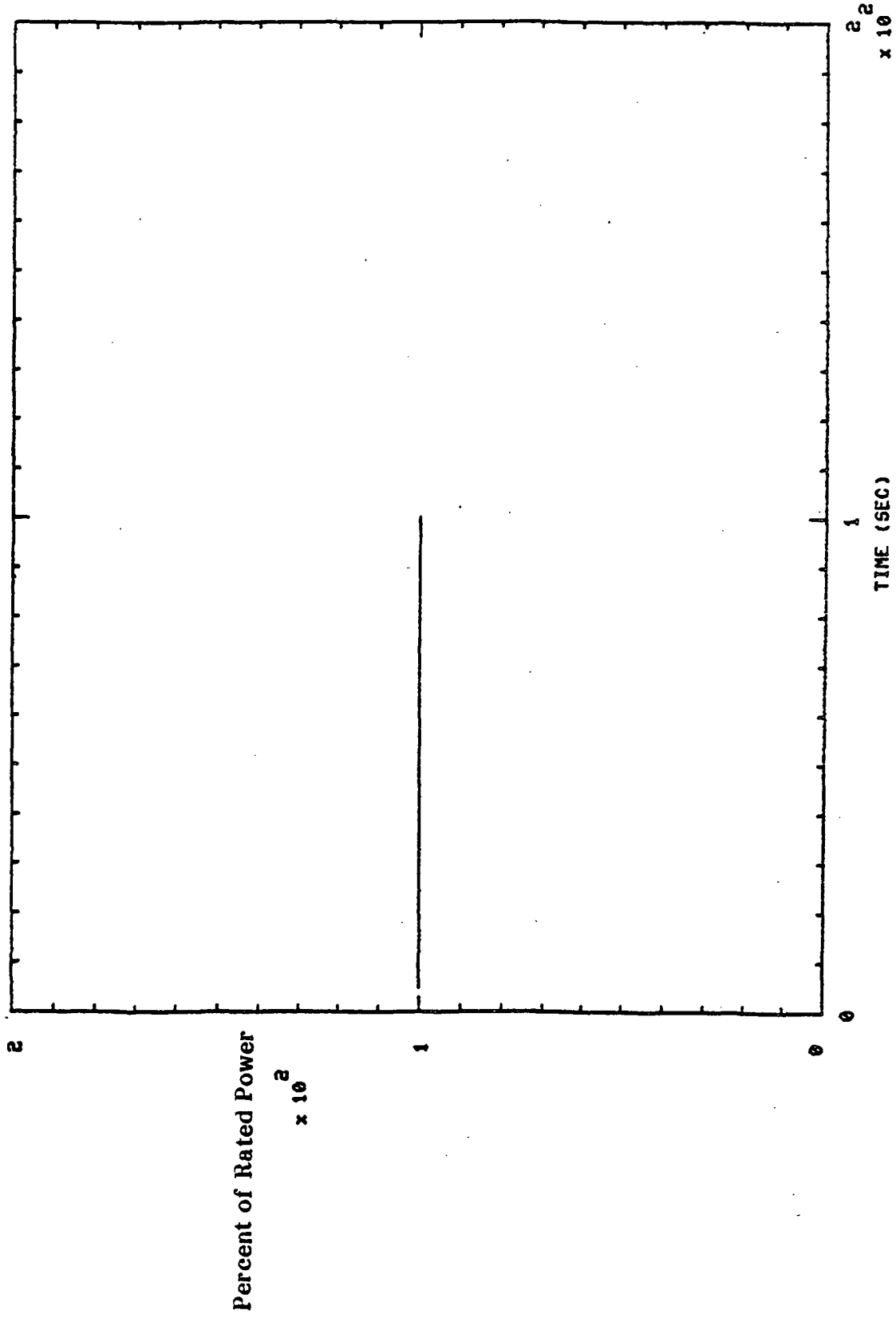


Percent of Rated Power
 $\times 10^2$

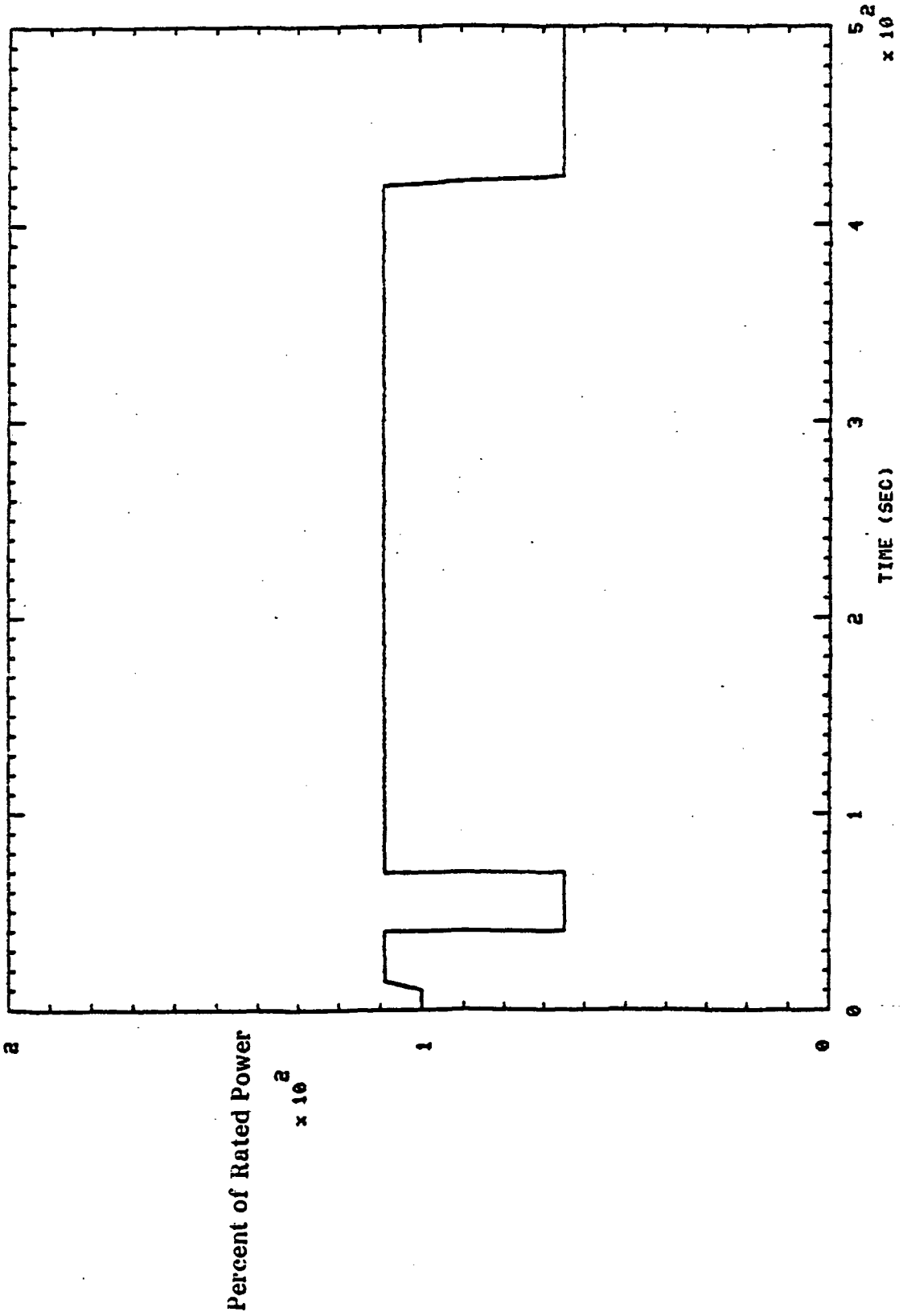
TIME (SEC)

$\times 10^0$

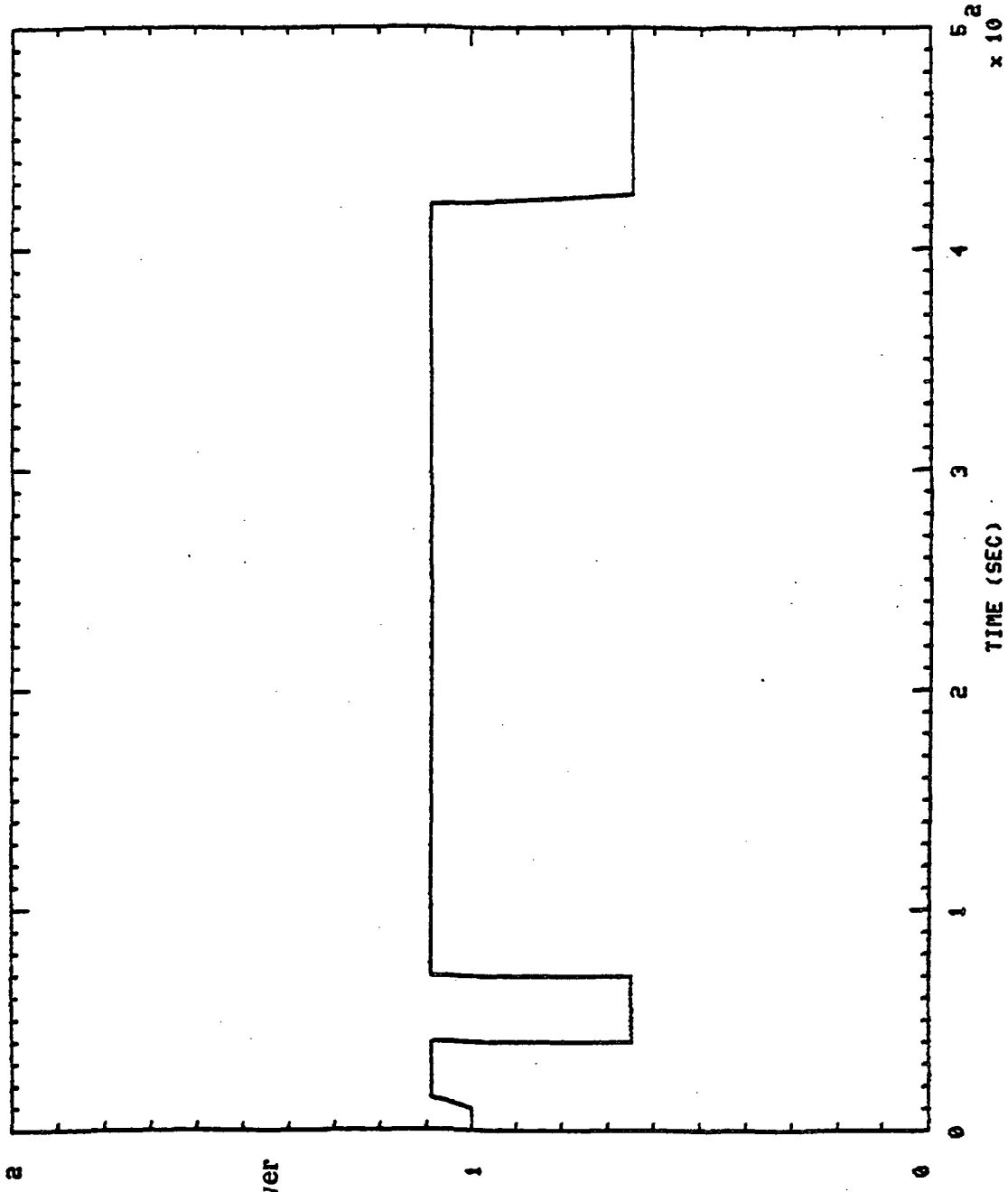
902265 THRUST (UNFILTERED)



902266 THRUST (UNFILTERED)

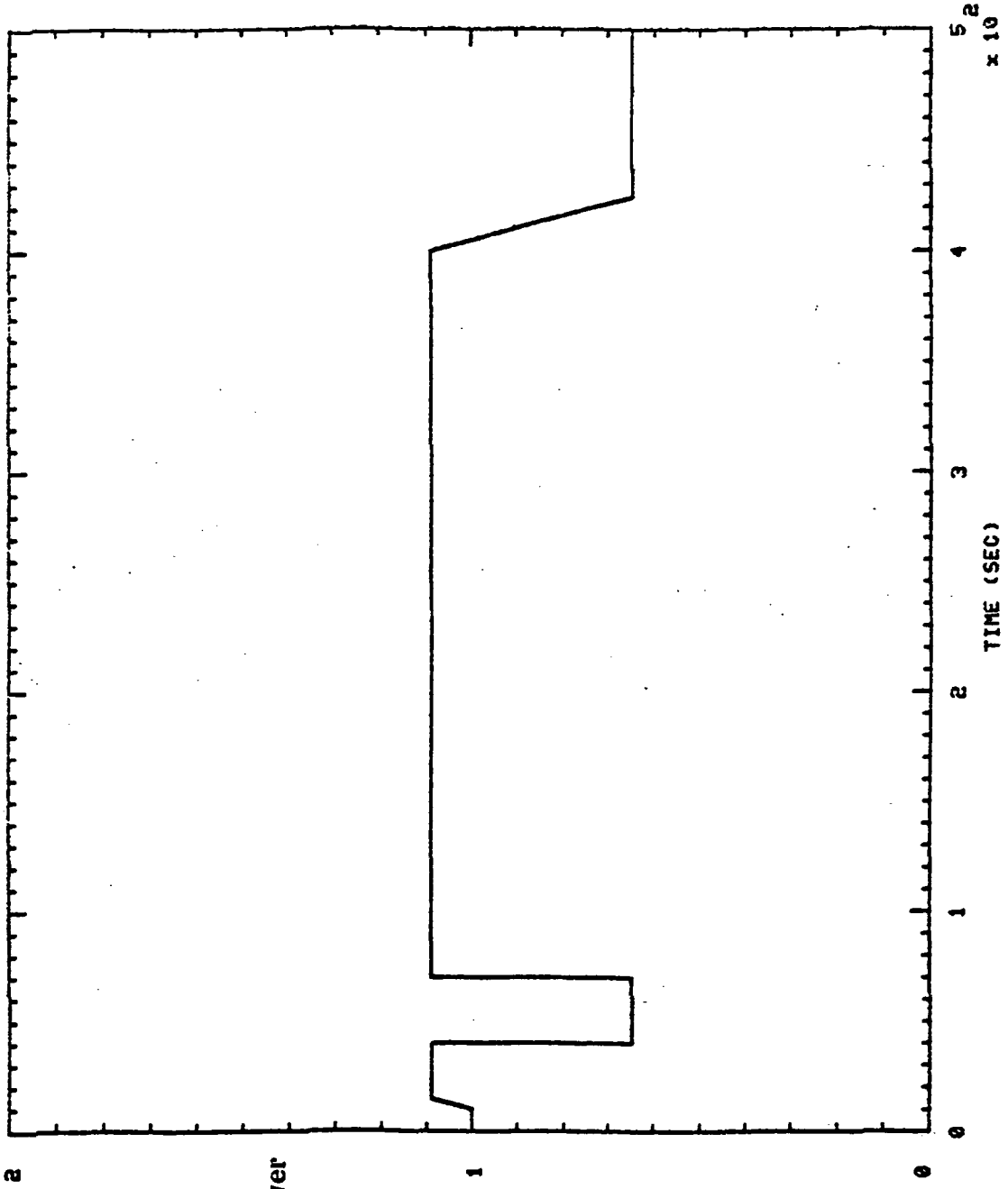


902267 THRUST (UNFILTERED)

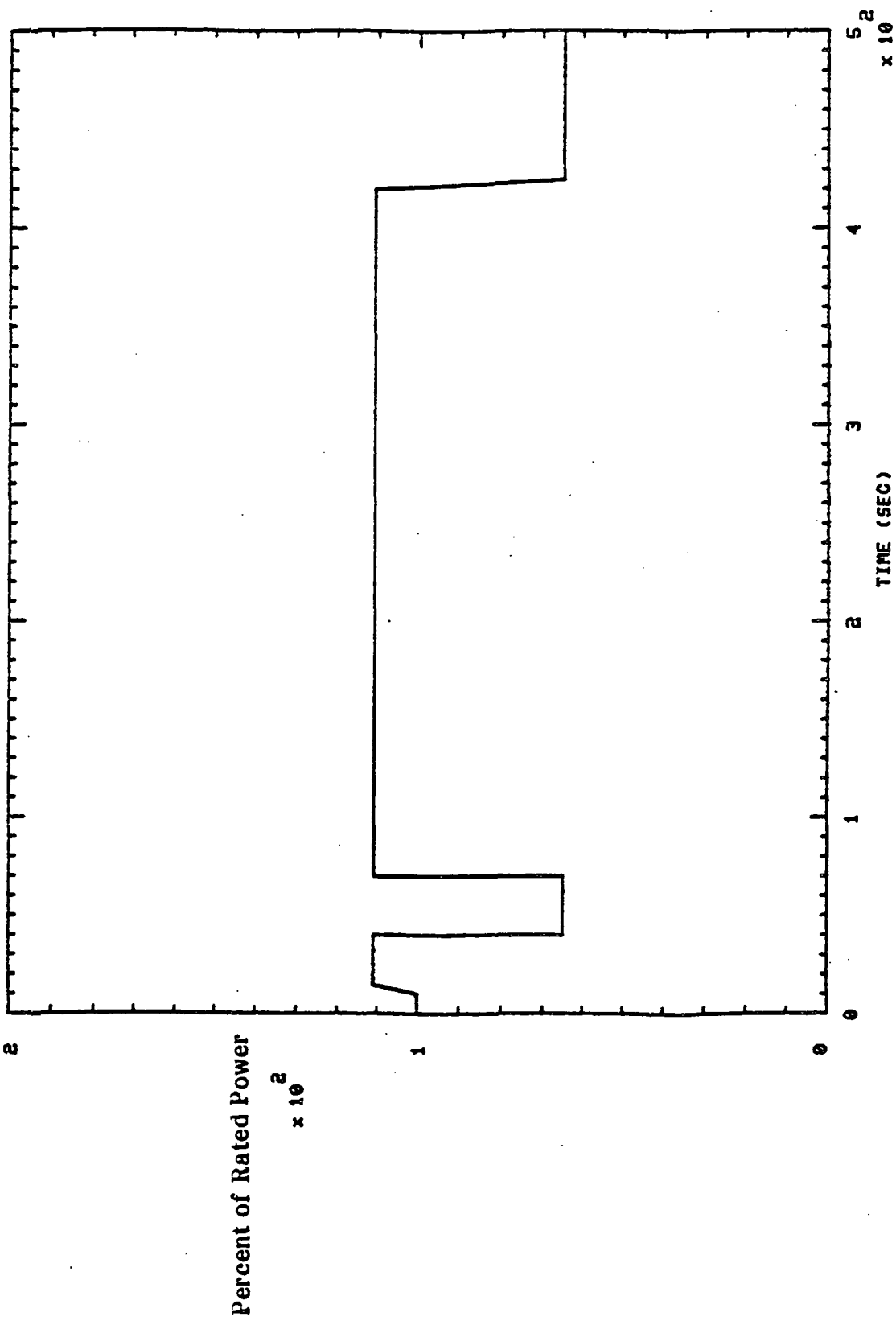


902268 THRUST (UNFILTERED)

902268 THRUST

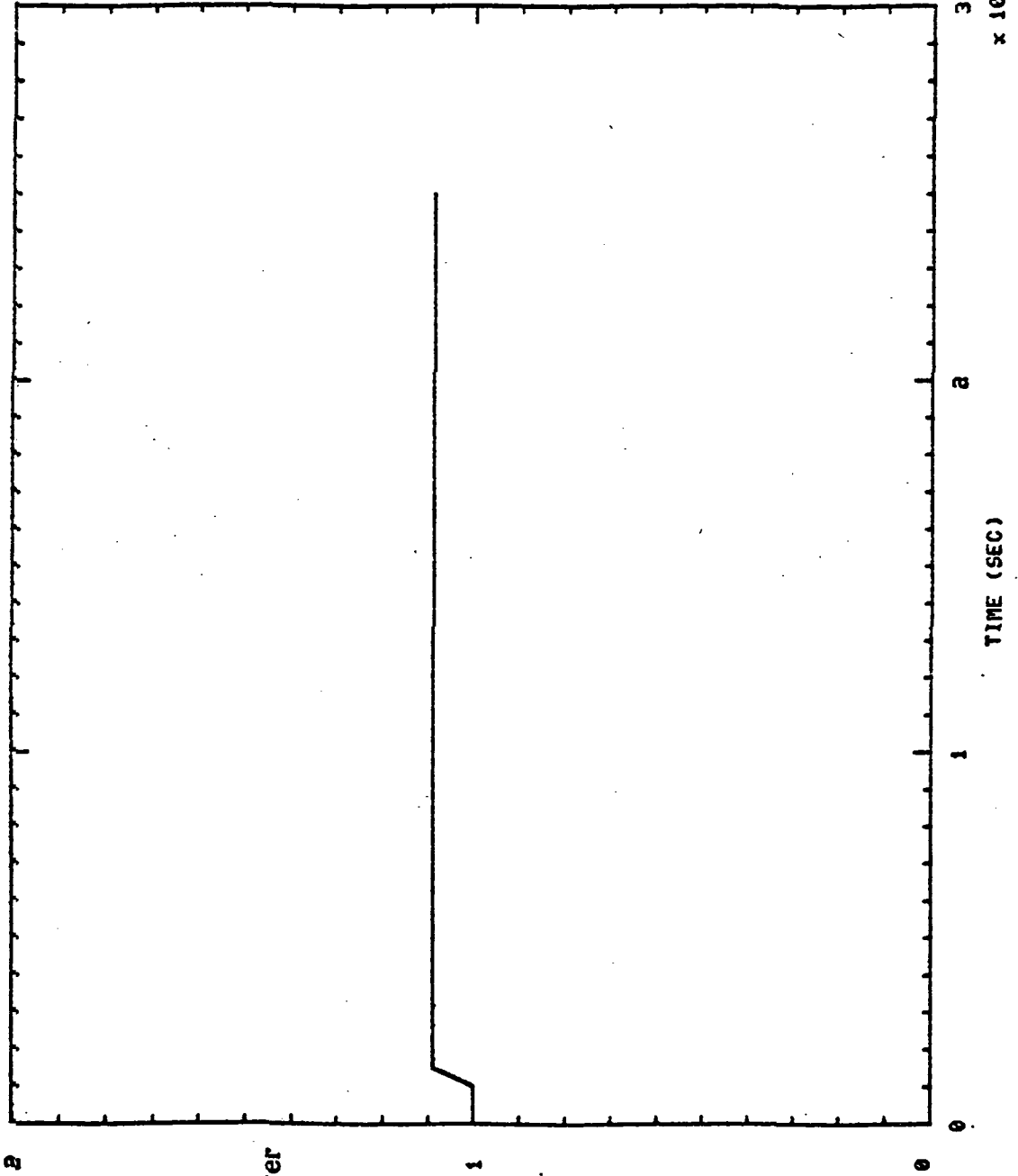


902269 THRUST (UNFILTERED)

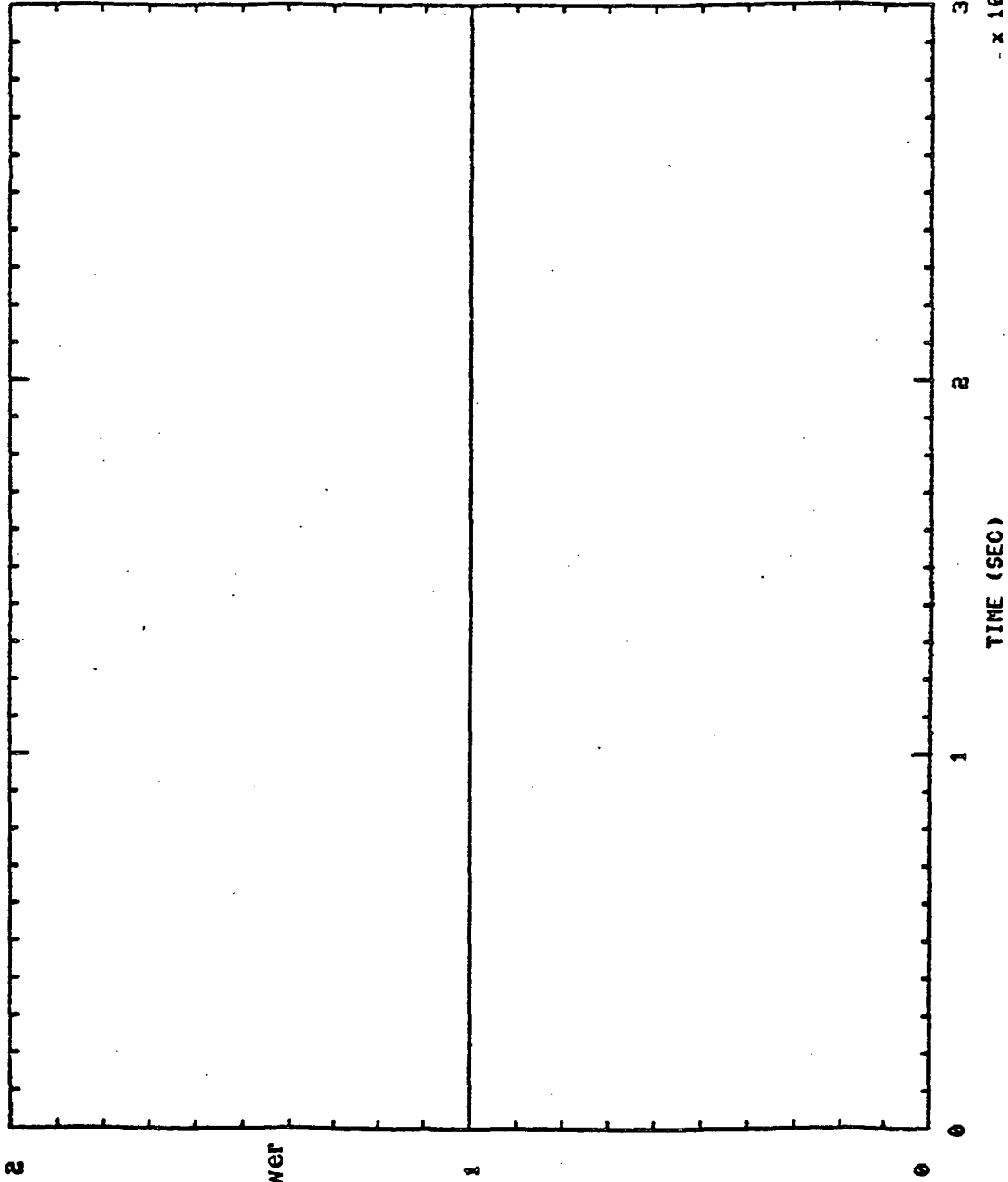


902270 THRUST

(UNFILTERED)

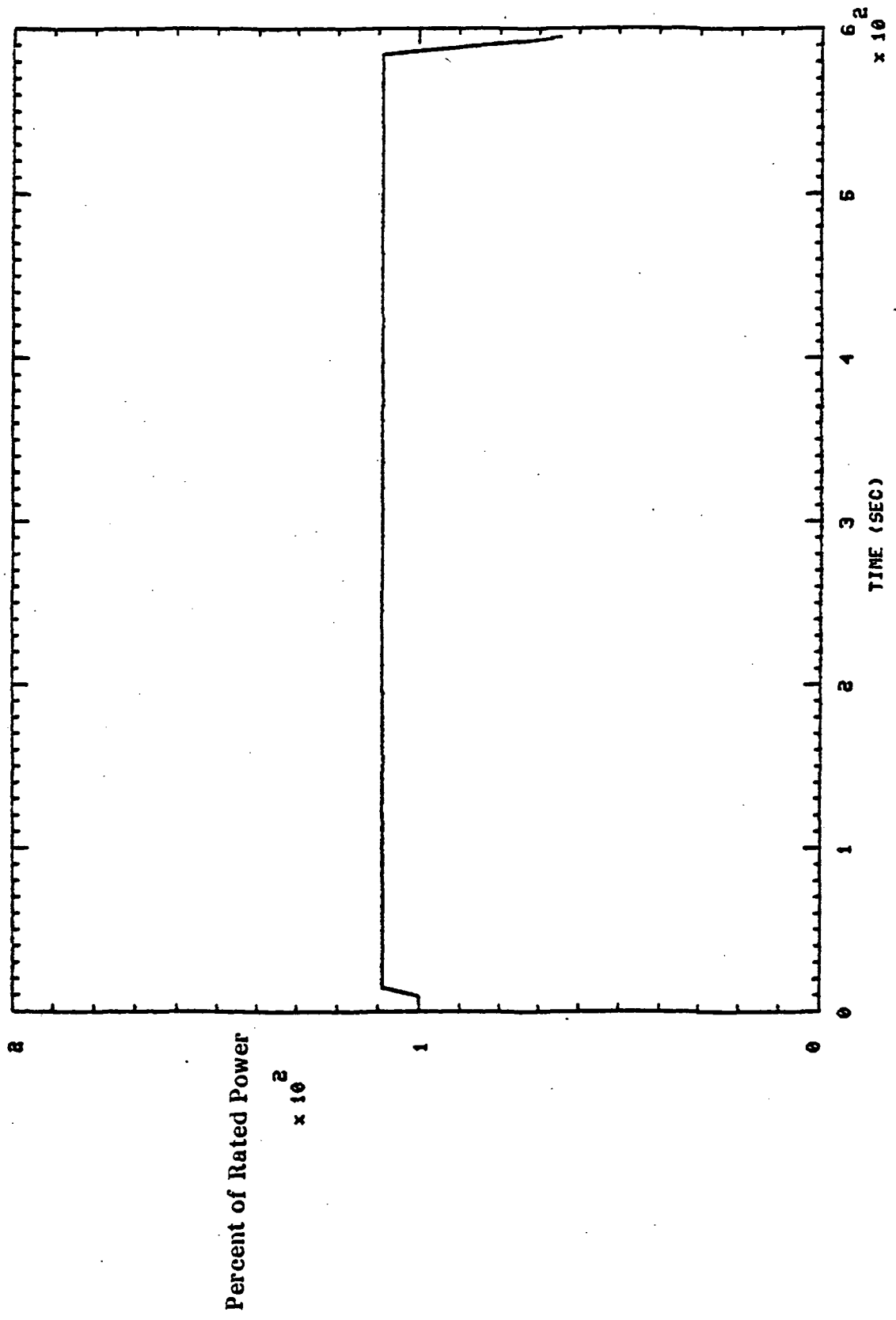


902271 THRUST (UNFILTERED)

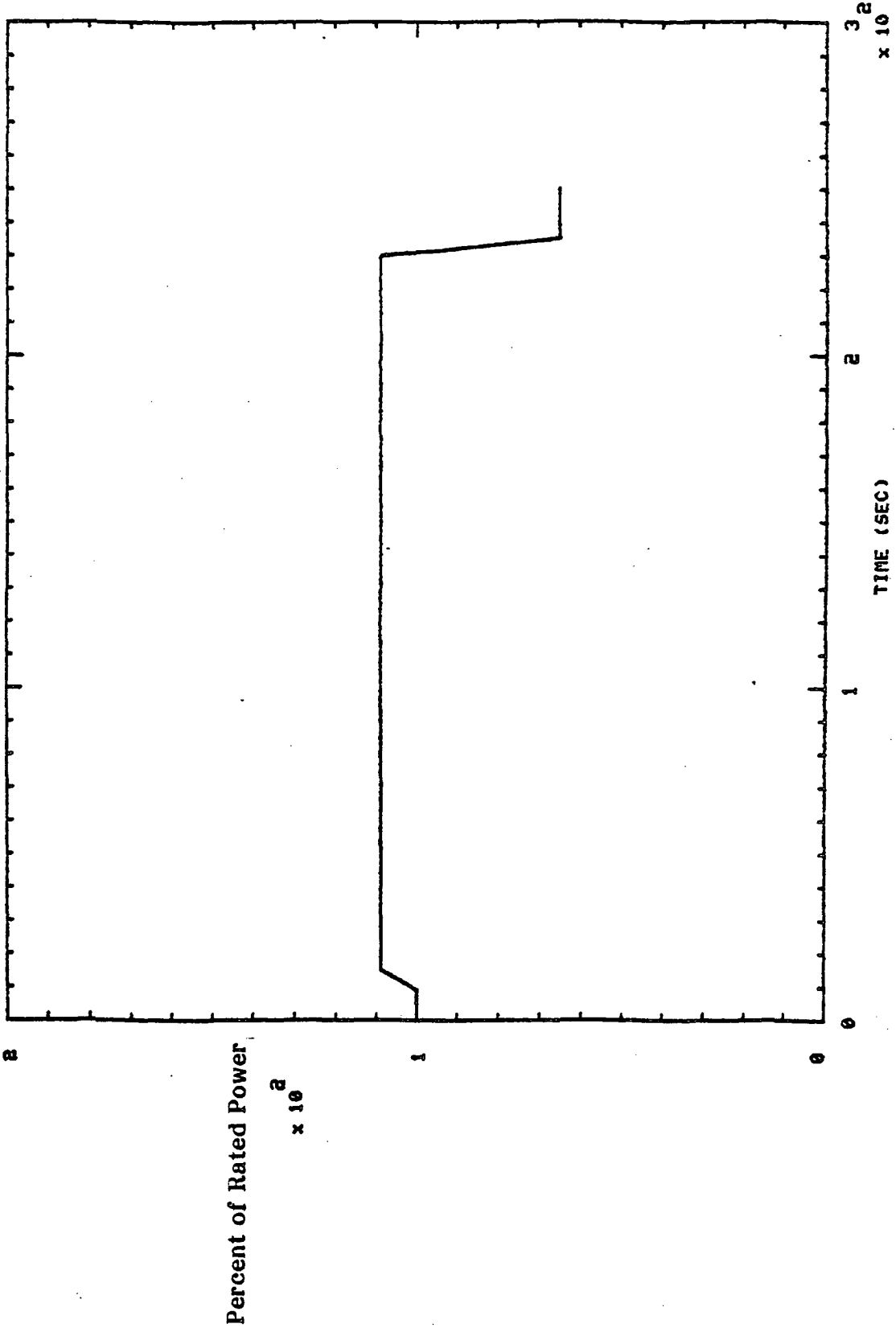


902276 THRUST

(UNFILTERED)



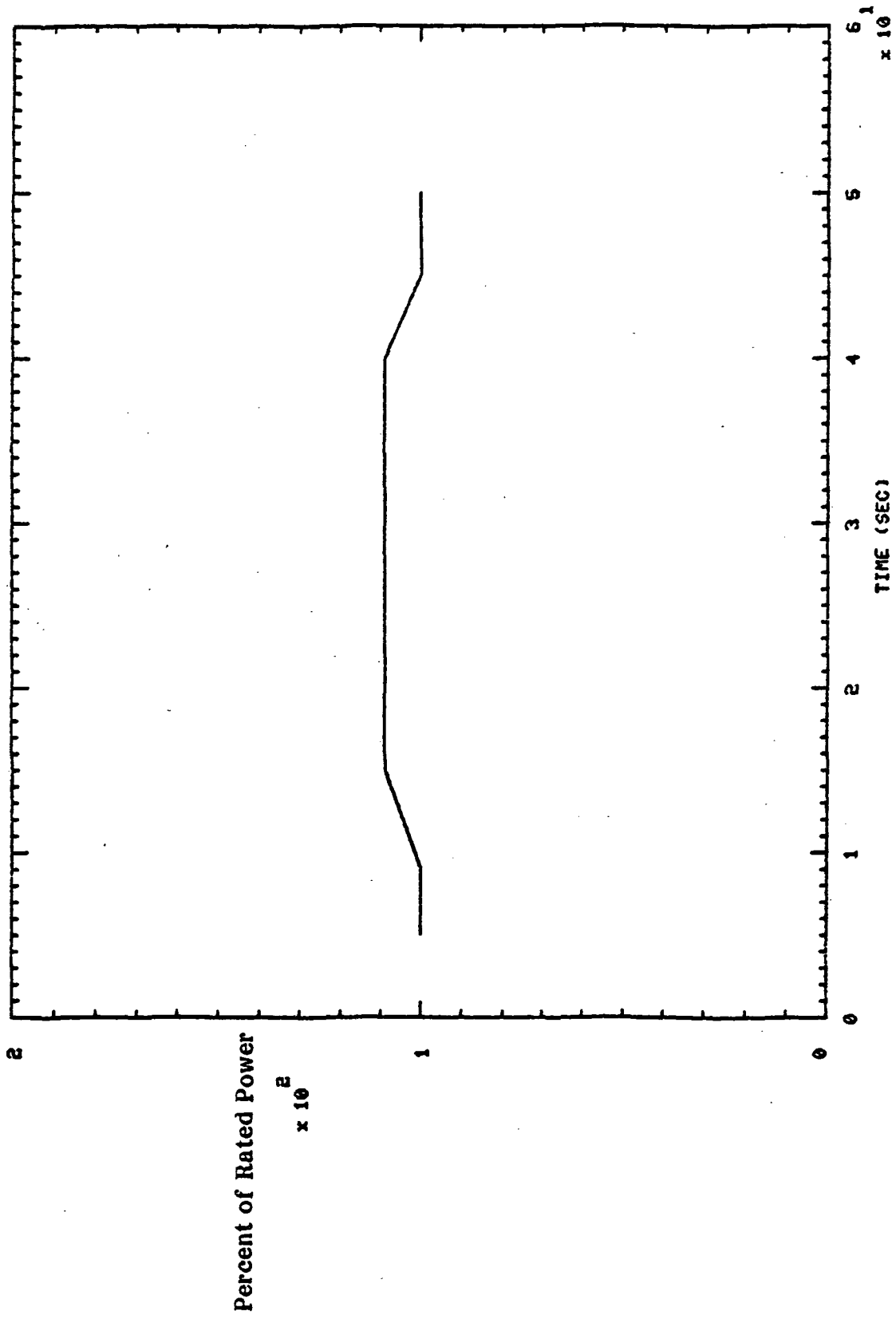
902277 THRUST (UNFILTERED)



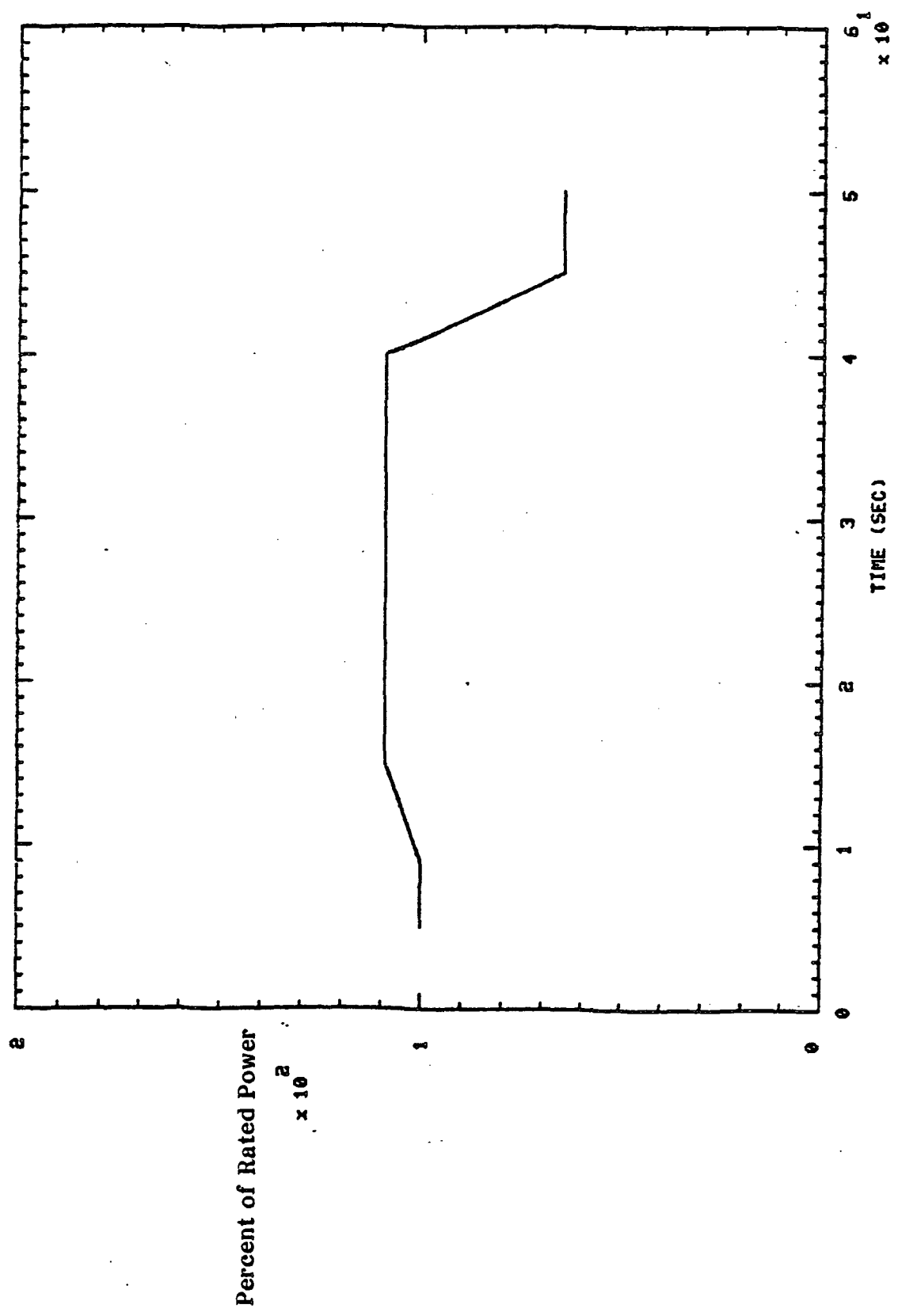
902279 THRUST (UNFILTERED)

902279 THRUST

902279

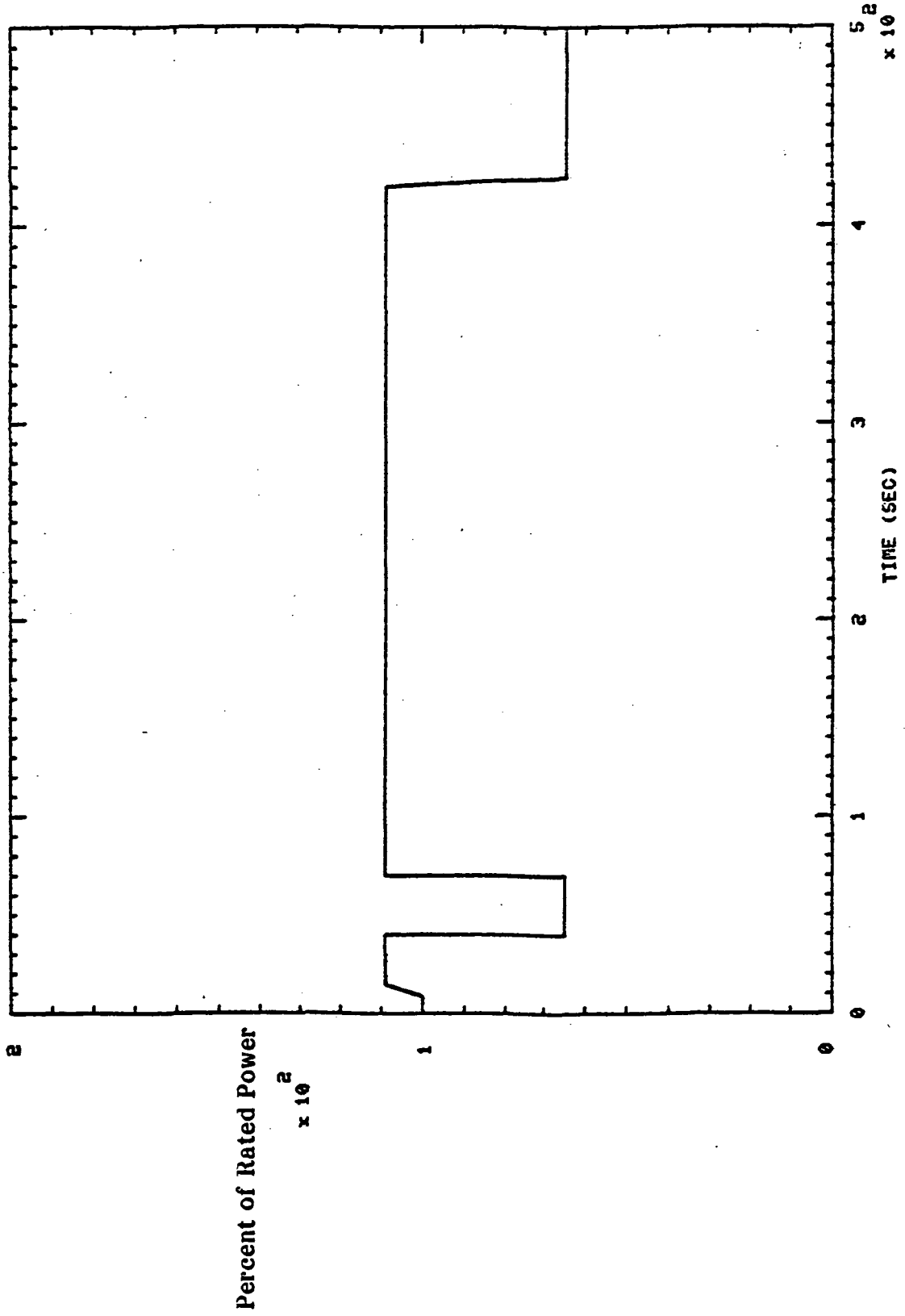


902283 THRUST (UNFILTERED)



902284 THRUST

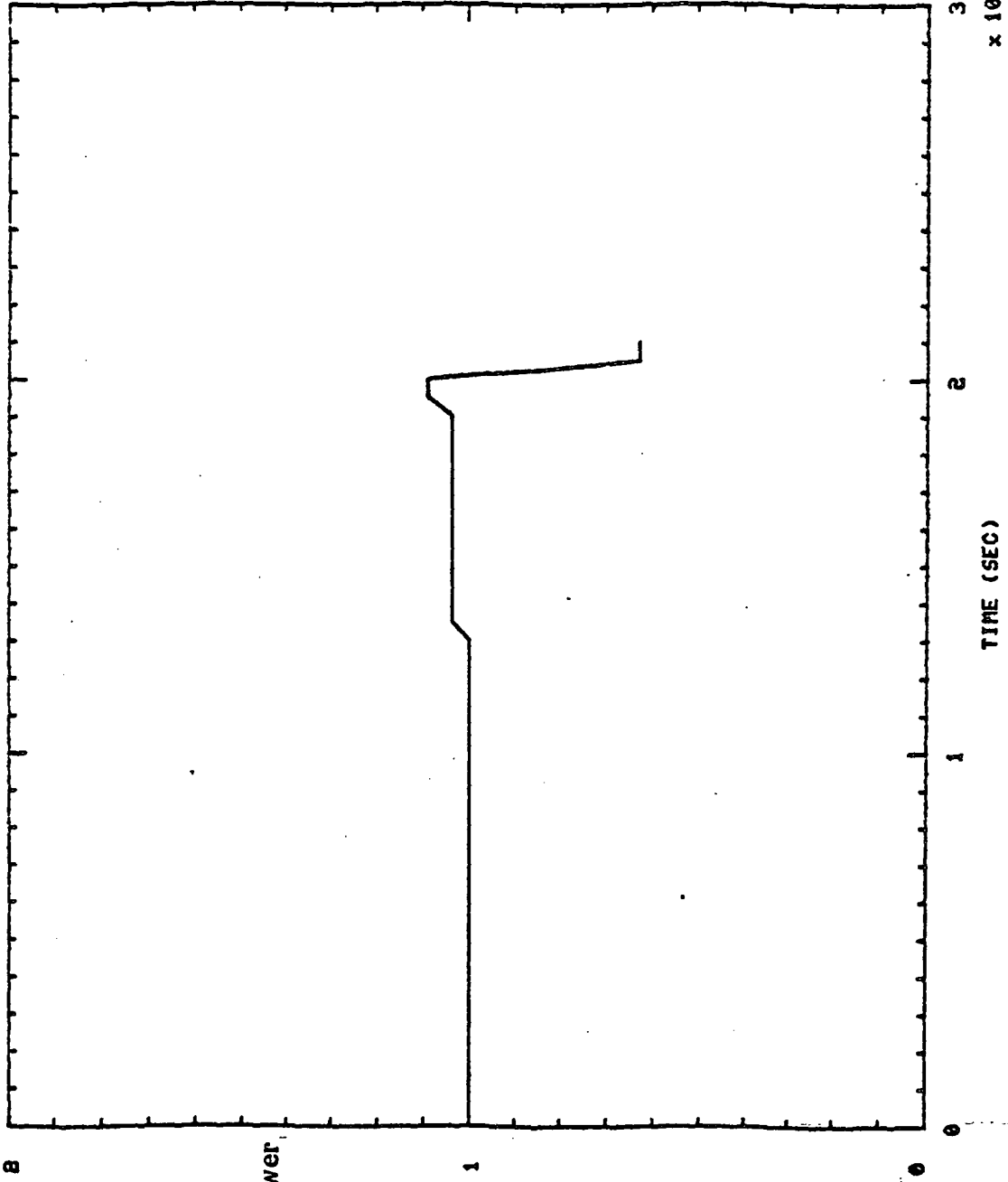
(UNFILTERED)



902303 THRUST (UNFILTERED)

Percent of Rated Power

$\times 10^2$



$\times 10^2$

2

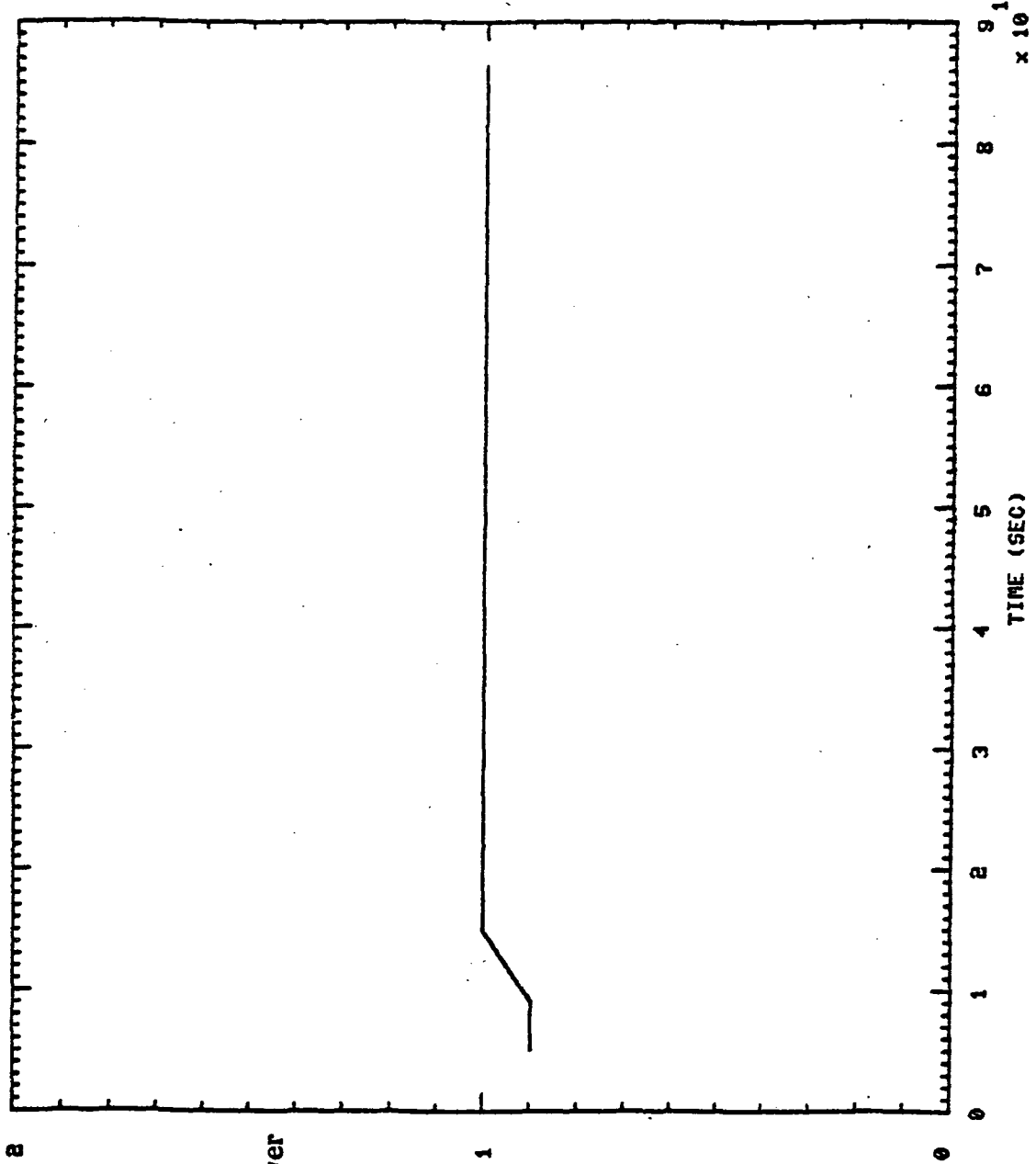
TIME (SEC)

1

0

902306 THRUST

(UNFILTERED)



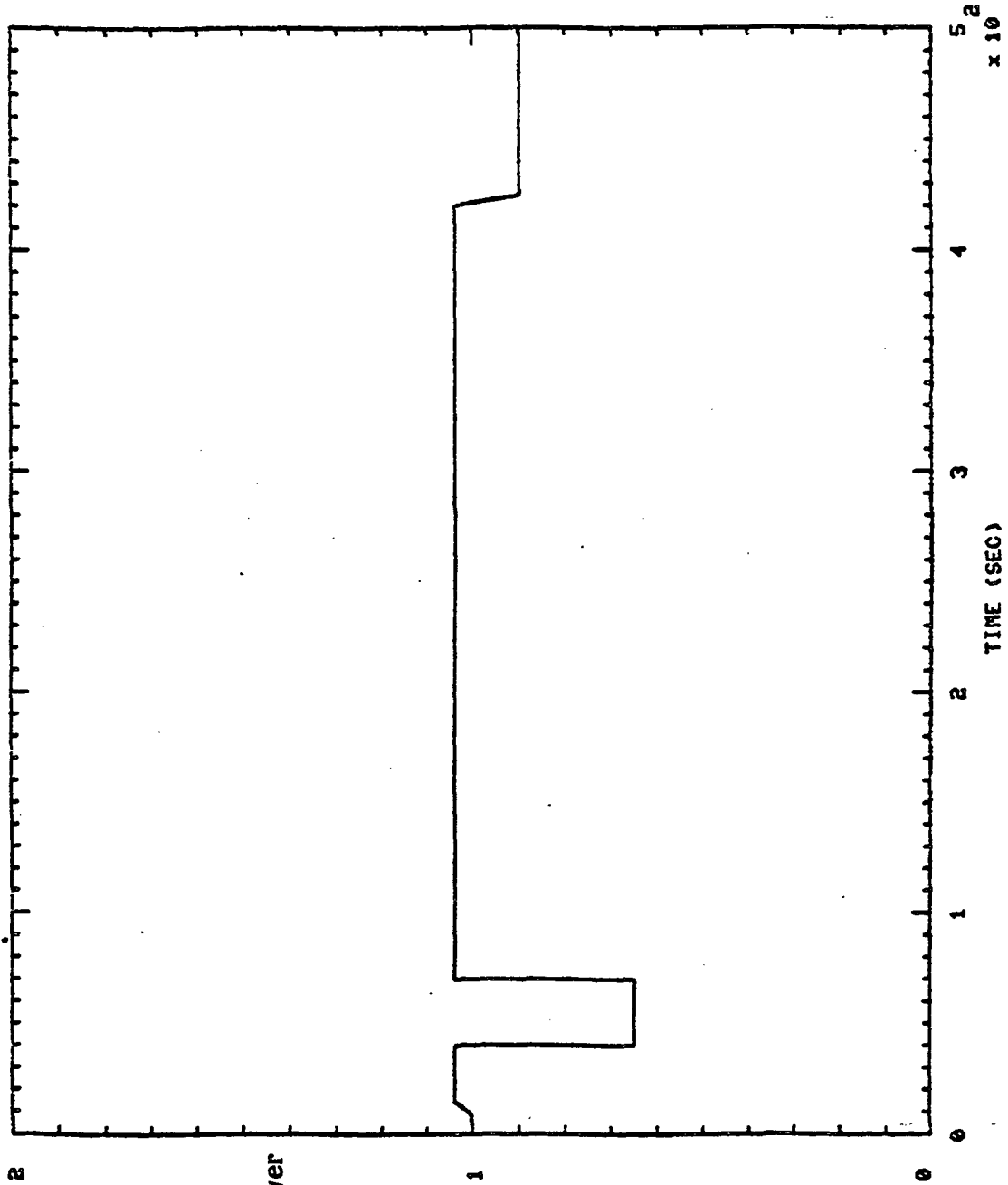
Percent of Rated Power
 $\times 10^2$

TIME (SEC)

$\times 10^1$

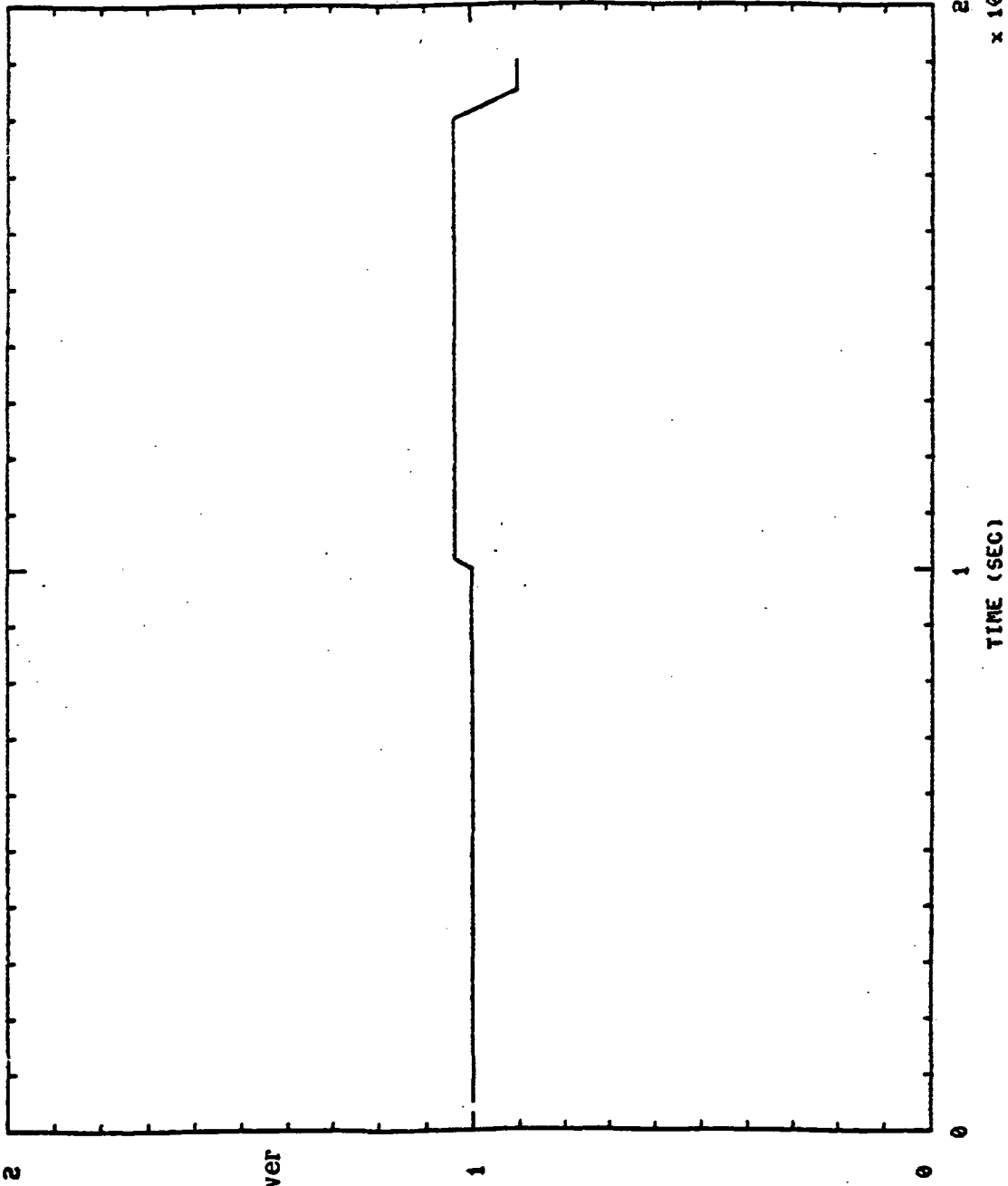
902307 THRUST

(UNFILTERED)

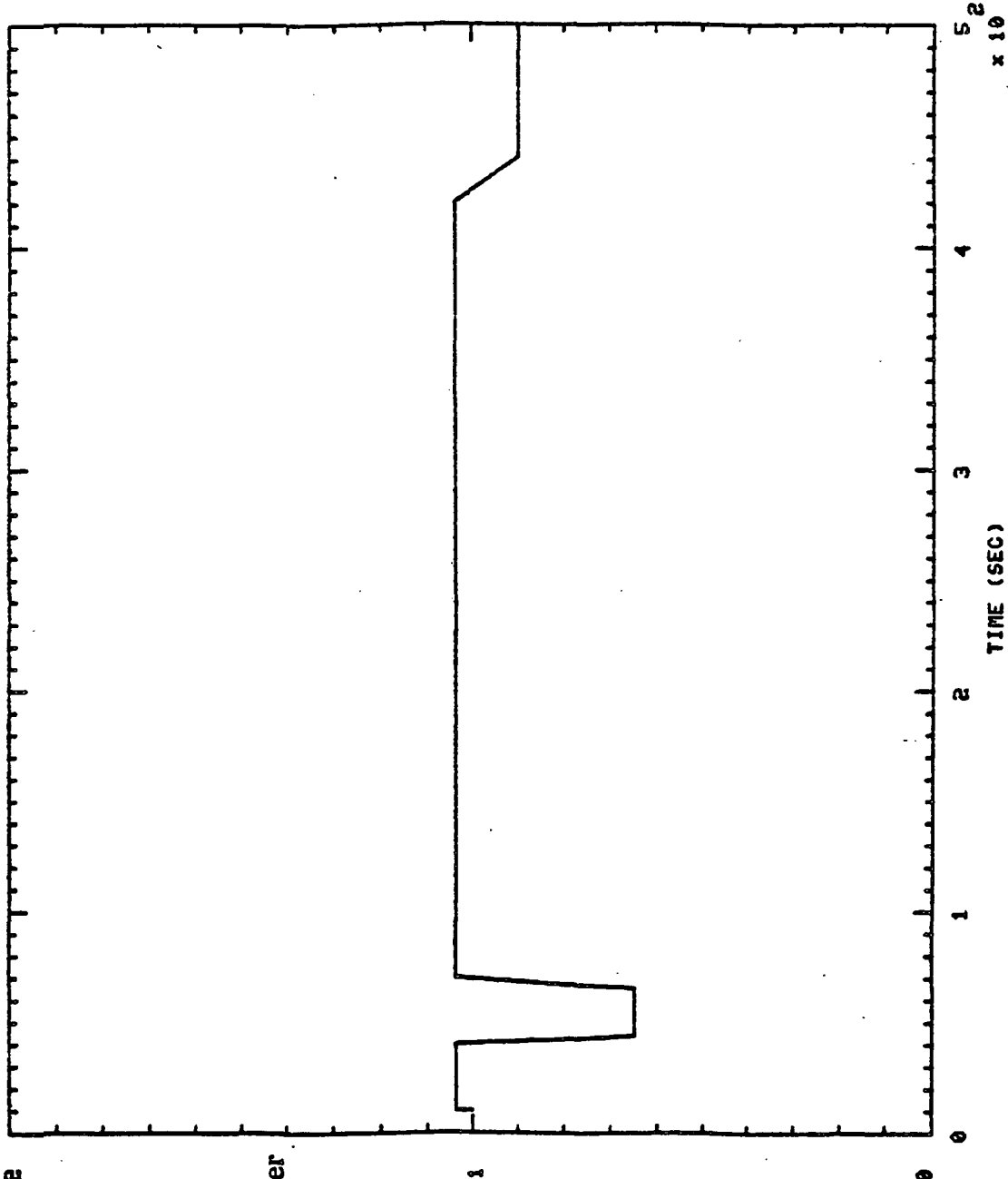


902310 THRUST (UNFILTERED)

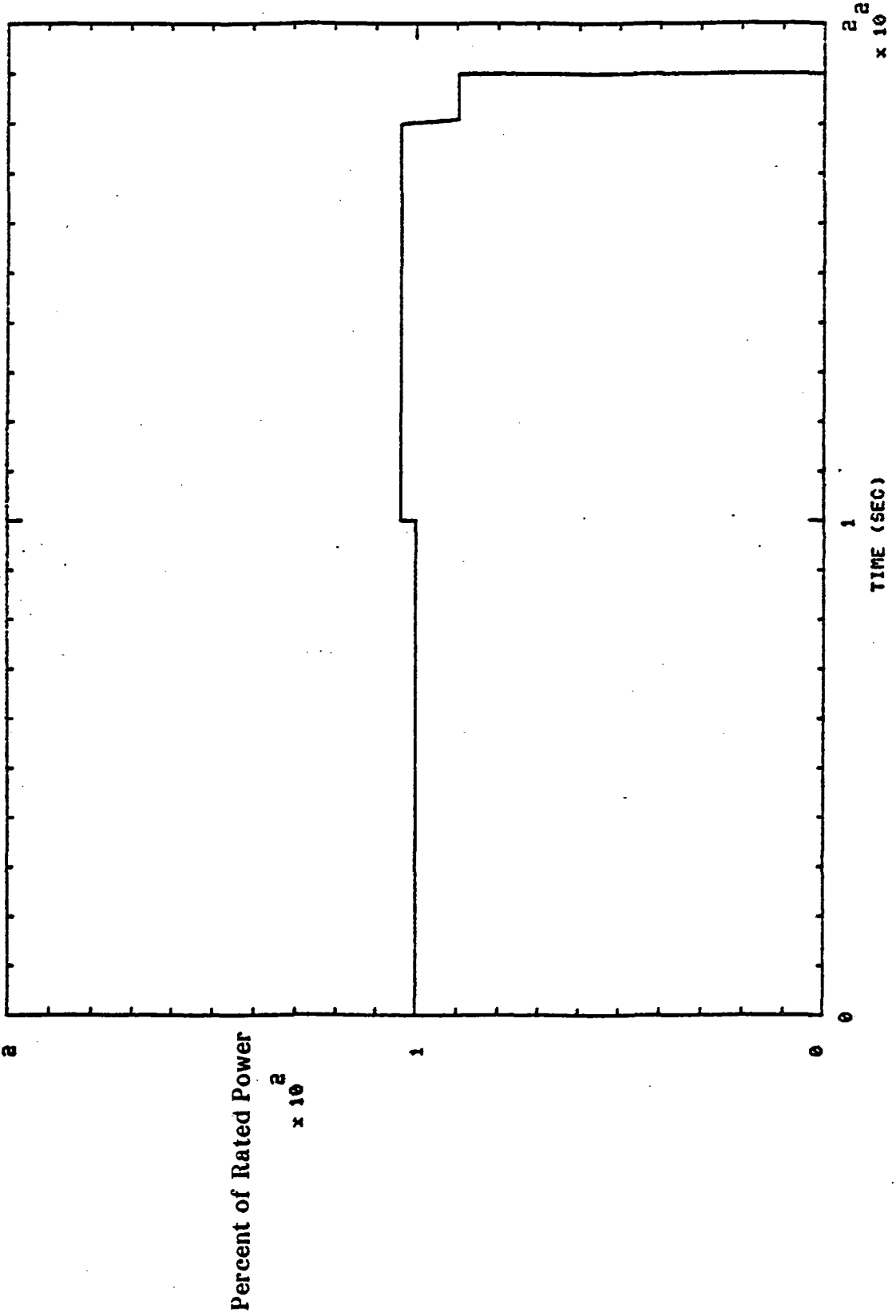
902310 THRUST



902311 THRUST (UNFILTERED)



908313 THRUST (UNFILTERED)



902314 THRUST (UNFILTERED)

902314 THRUST

