

ISR/VA/NH/sm

CM-P00072495

1st August 1980

## ISR PERFORMANCE REPORT

Vacuum test in ring 1 (54 A, 50 A)

Run 1128 MD, 29th May 1980

Summary and conclusions

A record current of 54 A has been stacked in Ring 1 without entailing any pressure runaway. Immediately after this stack, 50 A were kept circulating for 15 minutes with only minor pressure increases (largest pressure increase 1 pT in 205). A long term vacuum limit of about 50 A can now be achieved. This improvement is a consequence of the bakeout without exposure to air of sector 81 (May 1980).

The experiment

Two high intensity stacks were achieved. The first one (54 A, record current in ring 1) was lost during stacking. The stacking of a second beam was stopped at 52 A as 2 A were suddenly lost, 50 A circulated during 15 minutes and were dumped. No pressure runaway was manifest at that time.

Observations

Ring 1 was quite stable at 50 A, limited pressure increases were visible in 205 : + 1 pT (fig. 1) and 865 : + 0.5 pT (fig. 2). Sector 81, the former weak sector is safe now thanks to the bakeout without exposure to air of this sector during the May shutdown. Pressure increases of doubtful origin have been recorded in 633 (+ 1.2 pT - fig. 3), 657 (+ 1 pT - fig. 4), 841 (+ 0.1 pT - fig. 5).

Other observations are listed below.

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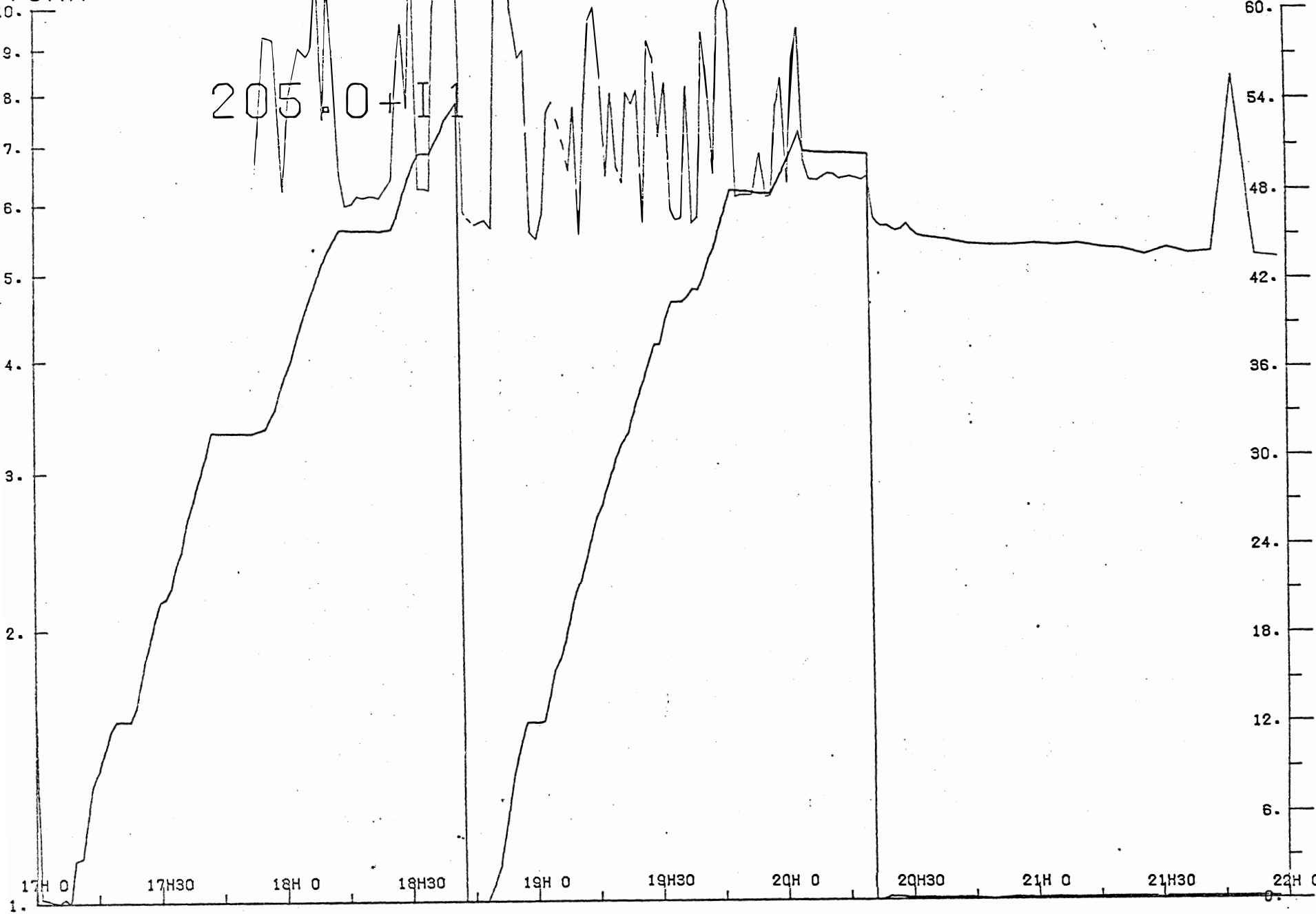
Sector	Gauge	picotorr	Observations
10	865	+ 0.5	pressure bump (fig. 2)
	869.1	+ 6	pressure increase due to losses at the end of the second stacking period
11	117.1	100	large pressure increase during the set-up due to losses in the RF cavities
	to		(PS intensity (250 mA) was too high for the phase lock system).
	133.7	1000	
	149.7	- 3	beam pumping
20	205	+ 1	likely pressure bump (fig. 1)
30	309	+ 10	beam losses at the end of the second stacking period
40	353	+ 15	beam losses (fig. 6)
41	437	+ 5	due to a beam loss during the second stacking period, the pressure was recovering during the last part of the experiment
61	633	+ 1.2	doubtful pressure bump (fig. 3)
	657	+ 1	ditto 633 (fig. 4)
81	821	+ 3	pressure rise due to a loss at the end of the first stacking period. No pressure variations during the second stack
	841	+ 0.1	slight pressure drop when dumping the second stack. Pressure bump? (fig. 5).

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Figure 1

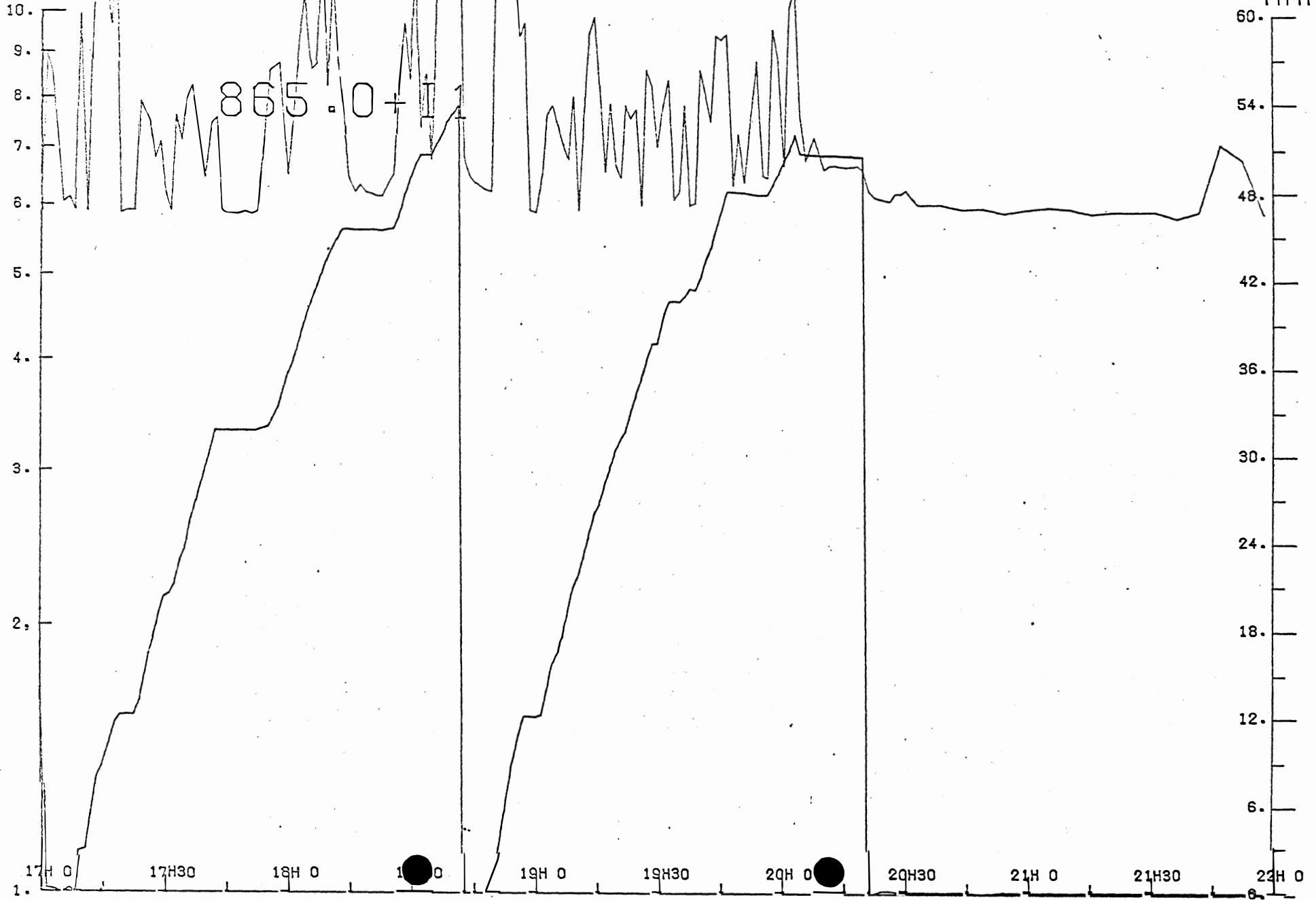
205 P 0 + I 1



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Figure 2

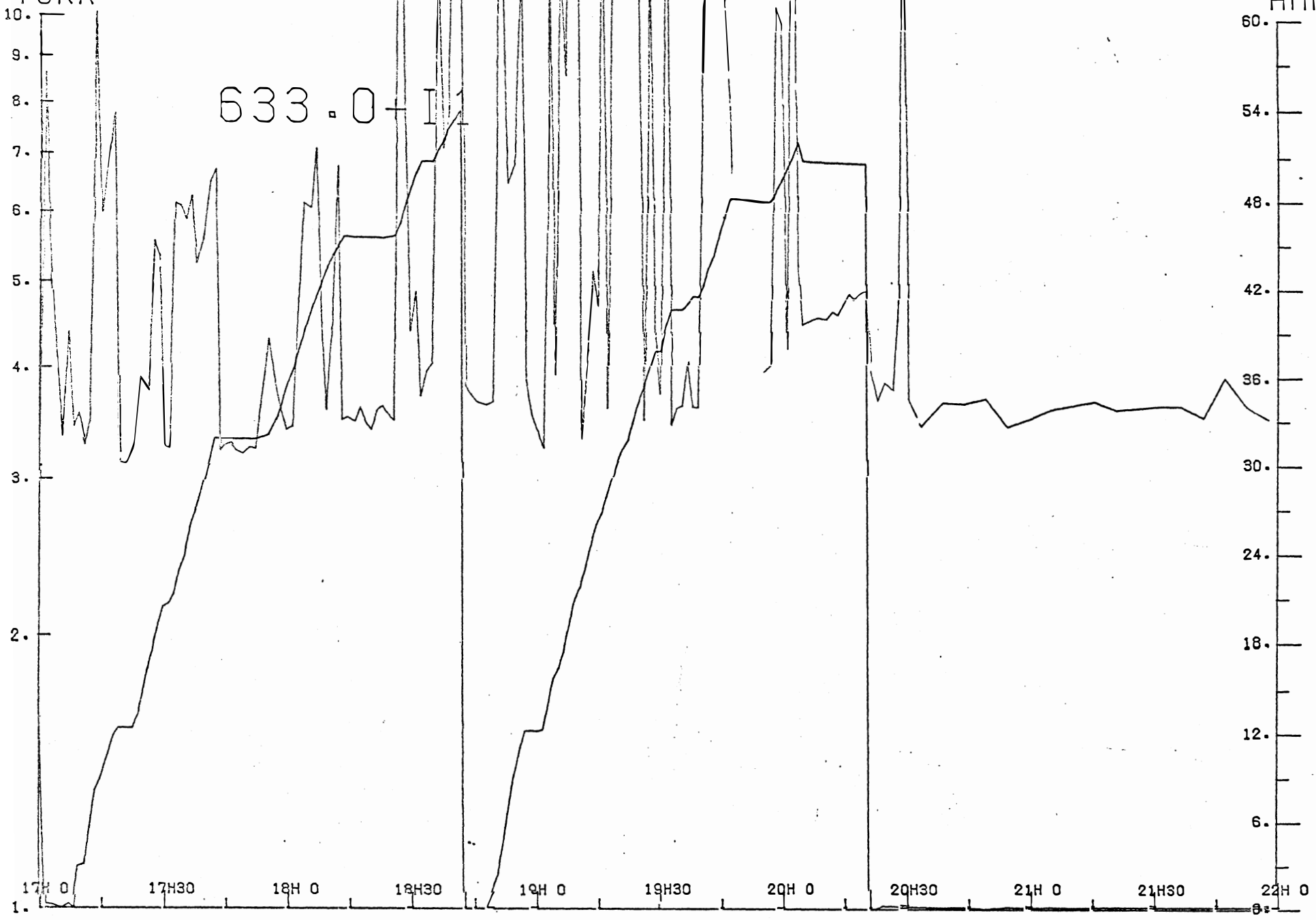


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Figure 3

633.0 - I<sub>1</sub>



17H 0 17H30 18H 0 18H30 19H 0 19H30 20H 0 20H30 21H 0 21H30 22H 0

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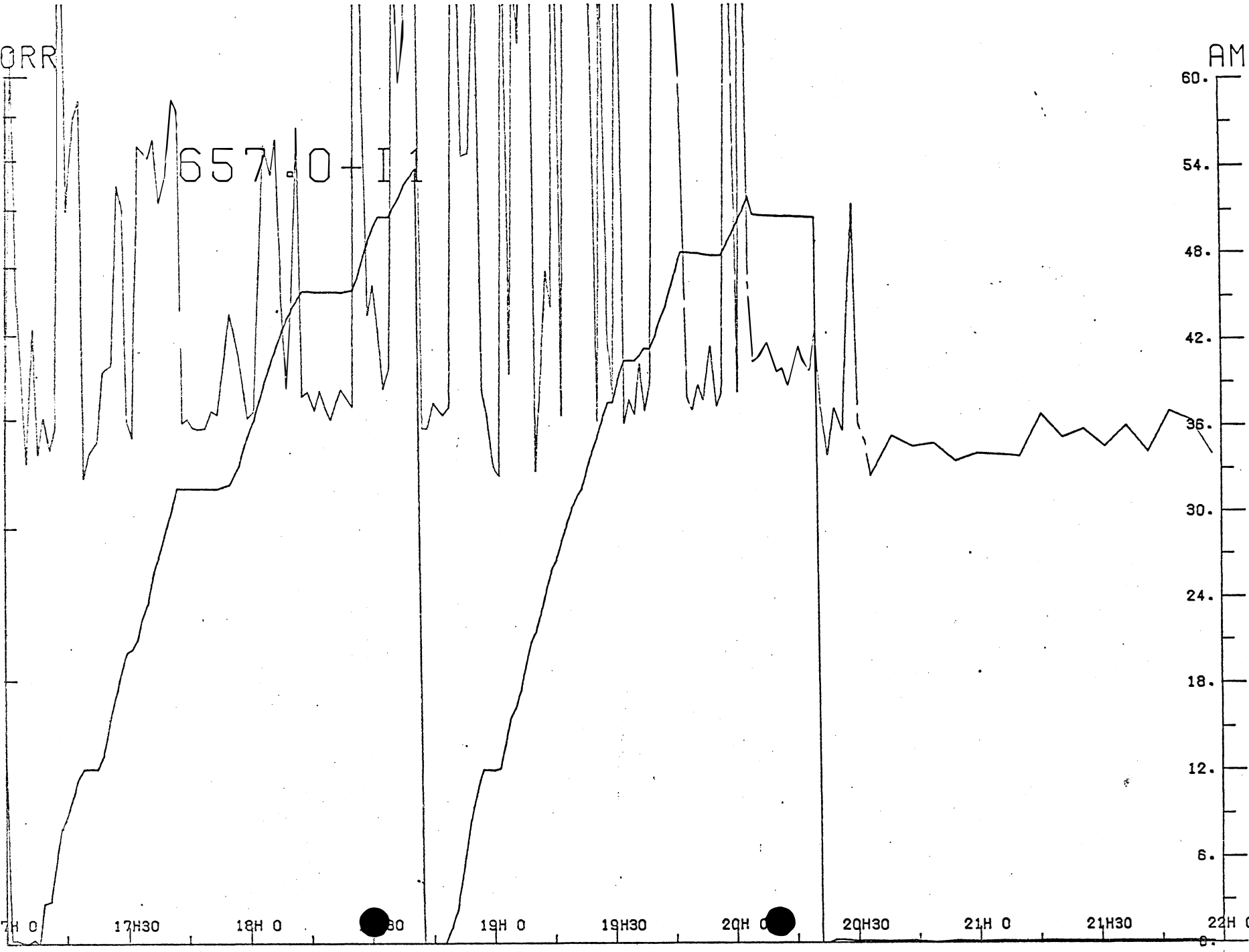
Figure 4

65710-11

10.  
9.  
8.  
7.  
6.  
5.  
4.  
3.  
2.  
1.

60.  
54.  
48.  
42.  
36.  
30.  
24.  
18.  
12.  
6.  
0.

17H 0 17H30 18H 0 18H30 19H 0 19H30 20H 0 20H30 21H 0 21H30 22H 0

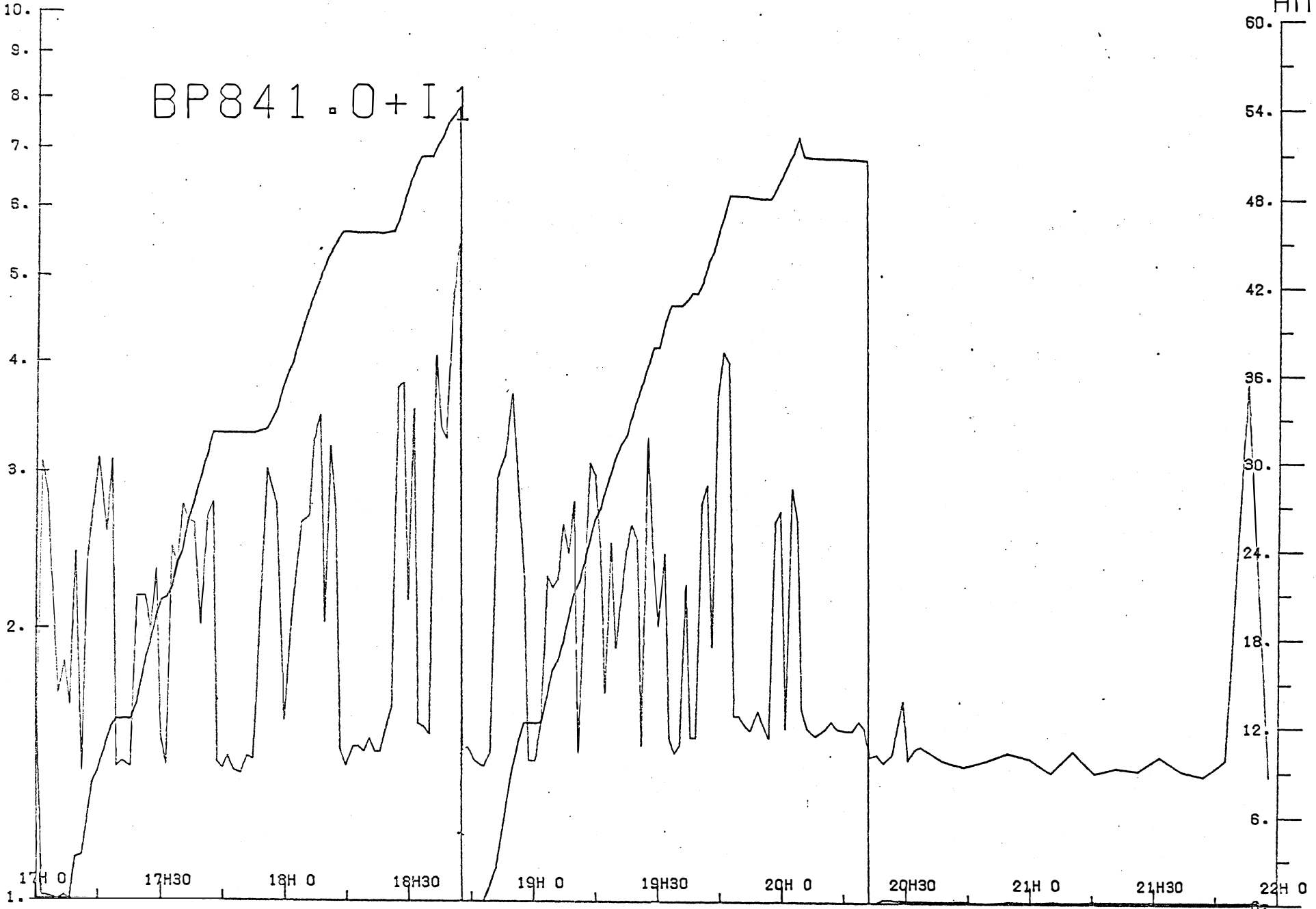


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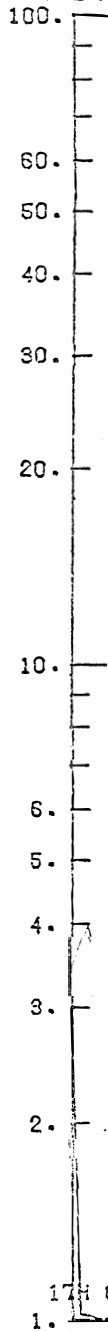
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BP841.0+I1

Figure 5



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353.0 + I 1

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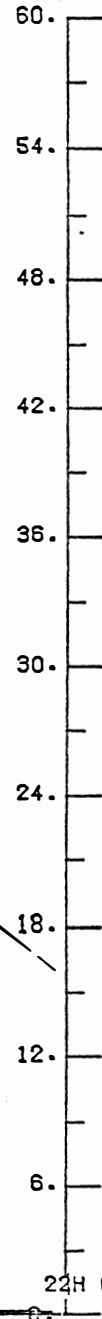


Figure 6

17H 0 17H30 18H 0 18H30 19H 0 19H30 20H 0 20H30 21H 0 21H30 22H 0

