

ISR-VA/NH/sm

29th March 1982

ISR PERFORMANCE REPORT

R 1248 MD, 6th March 1982

Vacuum test in Ring 2 (54.2 A)

Summary and conclusions

The behaviour of R2 vacuum has been tested at 54.2 A during half an hour. At this current level, no short term limitation was discovered. The long term vacuum limit for R2 is probably greater than 50 A. The situation is essentially unchanged since June 1981 (MD 1202).

The experiment

A first 40 A stack was lost at 5h 20. A new stack was initiated at 5h 50, two hours later the stacking was stopped at 54.2 A as the aperture was full. This beam was kept circulating for half an hour for vacuum observations.

Observations

During the 54.2 A plateau the pressure was high (10^{-11} torr) in the dump region, this being due likely to continuous proton losses on the dump. Minor pressure rises, some genuinely ion induced, were visible around the ring but never exceeded 0.4 pT (e.g. 512) and were stable at that current level. Further observations are listed below.

R. Calder

N. Hilleret

J-M. Laurent

K. Petersen

V. Remondino

CERN LIBRARIES, GENEVA

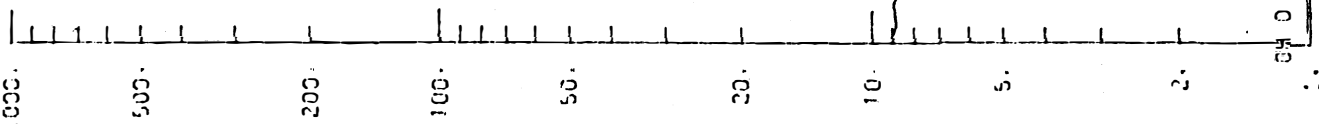


CM-P00072807

Sector	Gauge	ΔP picotorr	
22	248.4	+ 300	(FKI) sharp pressure rise at the end of the injection period recovering during the last part of the run.
		+ 1	Pressure drop as the beam was dumped (Fig. 1).
30	300.3	+ 90	High gauge indication during the 54 A plateau due to continuous losses falling immediately on dumping beam - i.e. not pressure. Small pressure increases visible after the beam dump likely due to delayed heating of the vacuum chamber by the dump block (already noticed during preceding high intensity runs) (Fig. 2).
	300.4	+ 400	ditto 300.3
32	324	+ 10	The pressure remained high during the stable beam period and dropped immediately as the beam was dumped indicating beam losses.
	364	+ 0.2	Slight pressure decrease when dumping the beam. Doubtful origin.
42	432.7	+ 60	Pressure spikes during the stacking period. No pressure drop as the beam was dumped.
50	512	+ 0.4	This minor pressure increase is likely caused by ion induced desorption. Pick-up not glow discharged (Fig. 3).
52	528	+ 0.4	ditto 512 (Fig. 4).
	548	+ 0.2	ditto 512.
70	704	+ 0.1	Pressure increase of doubtful origin (Fig. 5)
72	728	+ 0.2	ditto 704

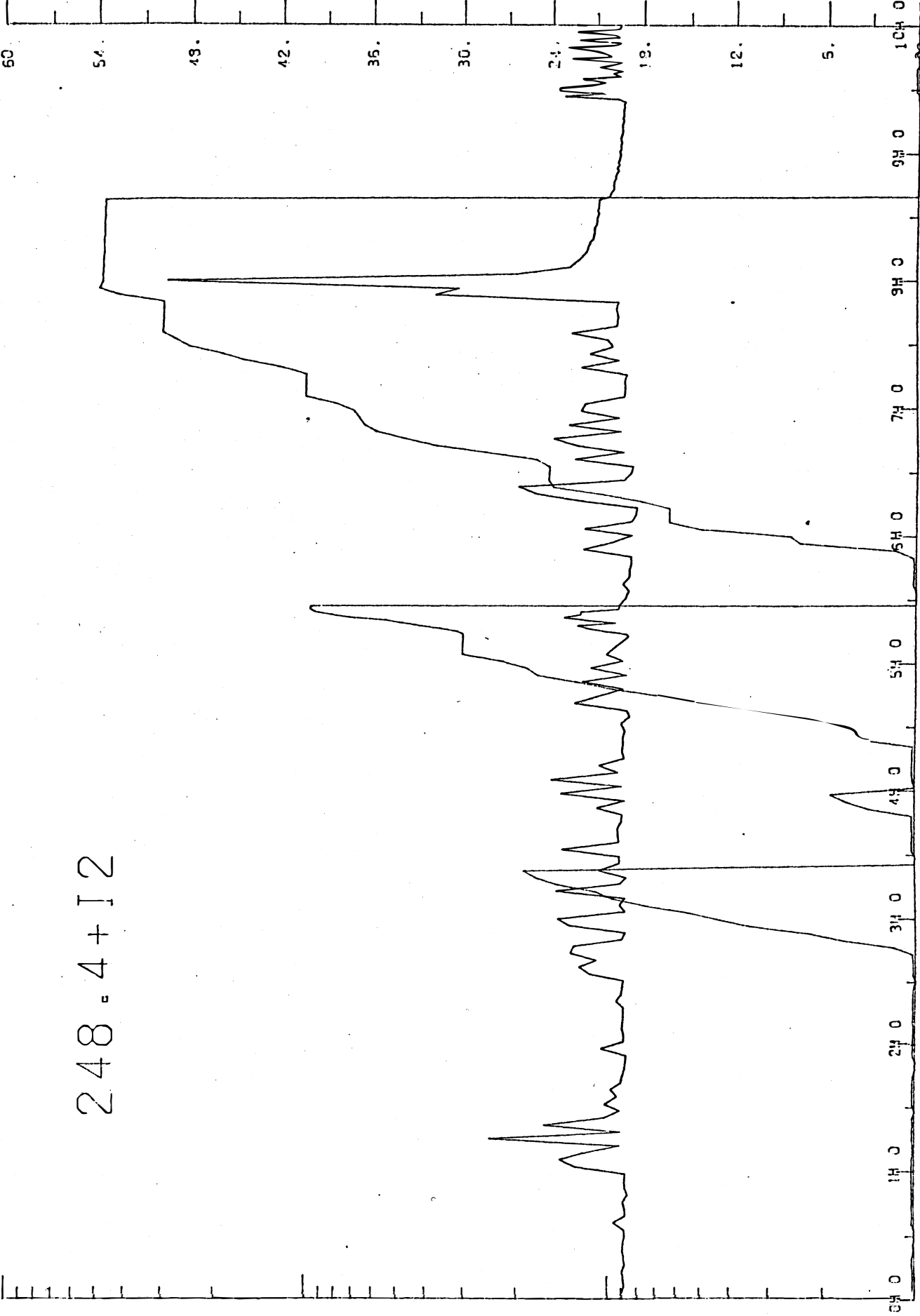
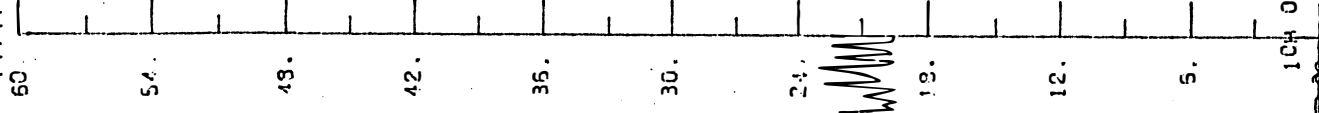
Figure 1

PICO-TORR



248.4+I2

AMPERE



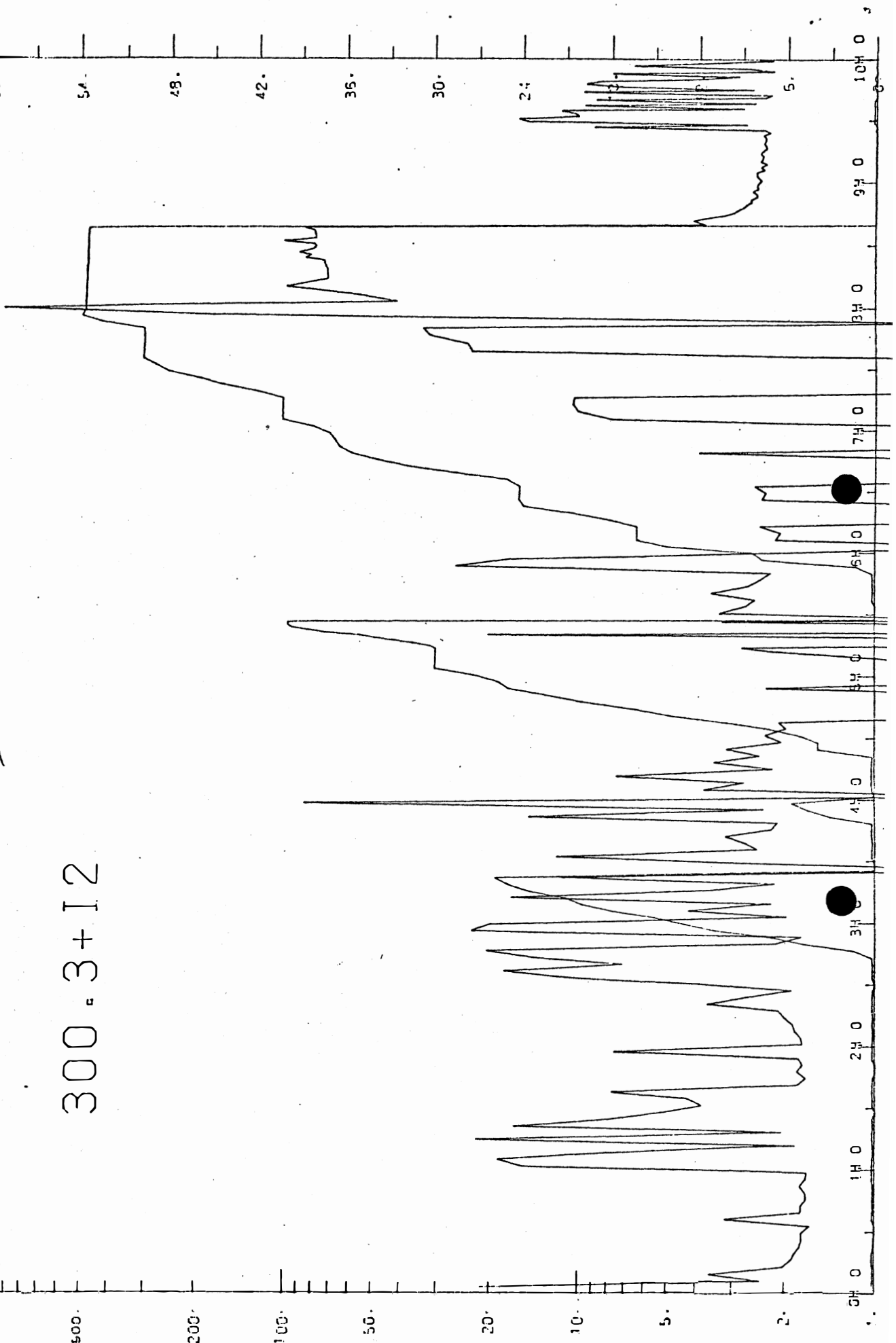
0 10 20 30 40 50 60 70 80 90 104

Figure 2

PICO-TORR
1000.

300 = 3+I2

AMPERE
50.



PICO-TORR

AMPERE

10.
9.
8.
7.
6.
5.
4.
3.
2.
1.
0.

60.
42.
35.
30.
24.
18.
12.
6.

512.0 + 12

Figure 3

0H 0 1H 0 2H 0 3H 0 4H 0 5H 0 6H 0 7H 0 8H 0 9H 0 10H 0

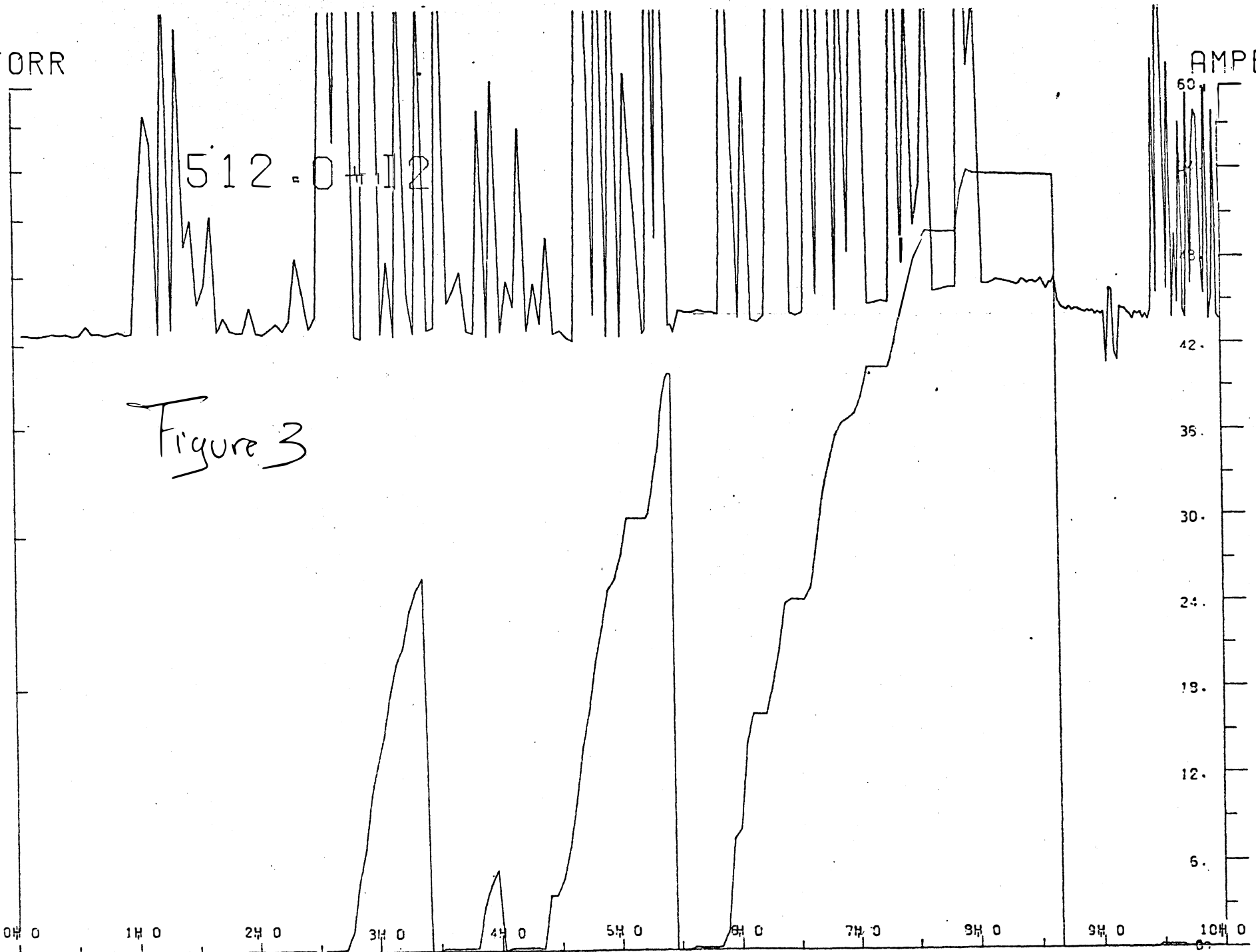
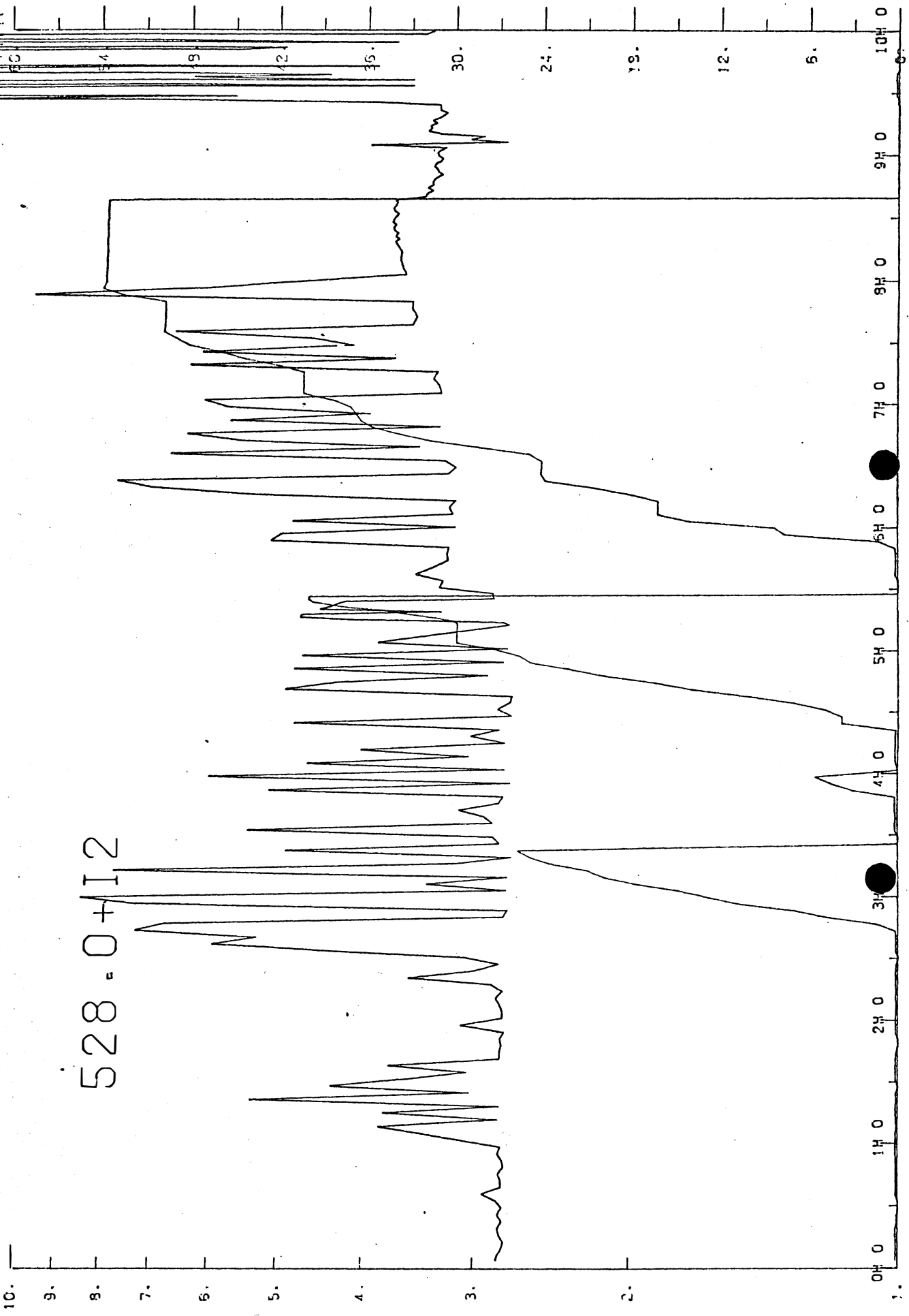


Figure 4

PICO-TORR



AMPERE

10.

9.

8.

7.

6.

5.

4.

3.

2.

1.

0.0

1.0

2.0

3.0

4.0

5.0

6.0

7.0

8.0

9.0

10.0

Figure 5

