

ISR PERFORMANCE REPORT

Vacuum tests in ring 2 (56.4 A)

Run 1134 MD, 12th June 1980

Summary and conclusions

56.4 A were stacked in ring 2 (record current). A pressure runaway occurred in 452 (S 50.1). The point 220 (S 22) was also unstable. The previous weak point 540 has been eliminated by the bakeout without exposure to air of sector 52. As sector 50.1 has been glow discharge cleaned during the June shutdown, S 20 is probably the weakest point now of ring 2.

The experiment

56.4 A were stacked in ring 2 and observed during 15 minutes. Suddenly the loss rate increased dramatically and we were forced to dump the beam as the beam intensity was about 48 A.

Observations

They mainly concern beam losses as the pressure was only running away in a limited place around 452 (fig. 1) from 448.1 to 464.1. Another beam induced pressure bump was visible in 220 (+ 20 pT) (fig. 2). Large beam losses occurred at the end of the run between 854 and 112, 208 and 212, 364 to 424, 512 to 524. Other losses were noted during the stacking period in 528 to 552.

The bakeout without exposure to air of sector 52 (May 1980) was successful in curing the previous weak point 540. The new weakest point in ring 2 is 452; fortunately this place was scheduled for cleaning during the June shutdown and is now glow discharge cleaned. It is very likely that the weakest place of Ring 2 is now 220 (not yet glow discharged - scheduled for the autumn shutdown).

Other observations are listed below.

N. Hilleret

J-P. Koutchouk

J-M. Laurent

CERN LIBRARIES, GENEVA



CM-P00072498

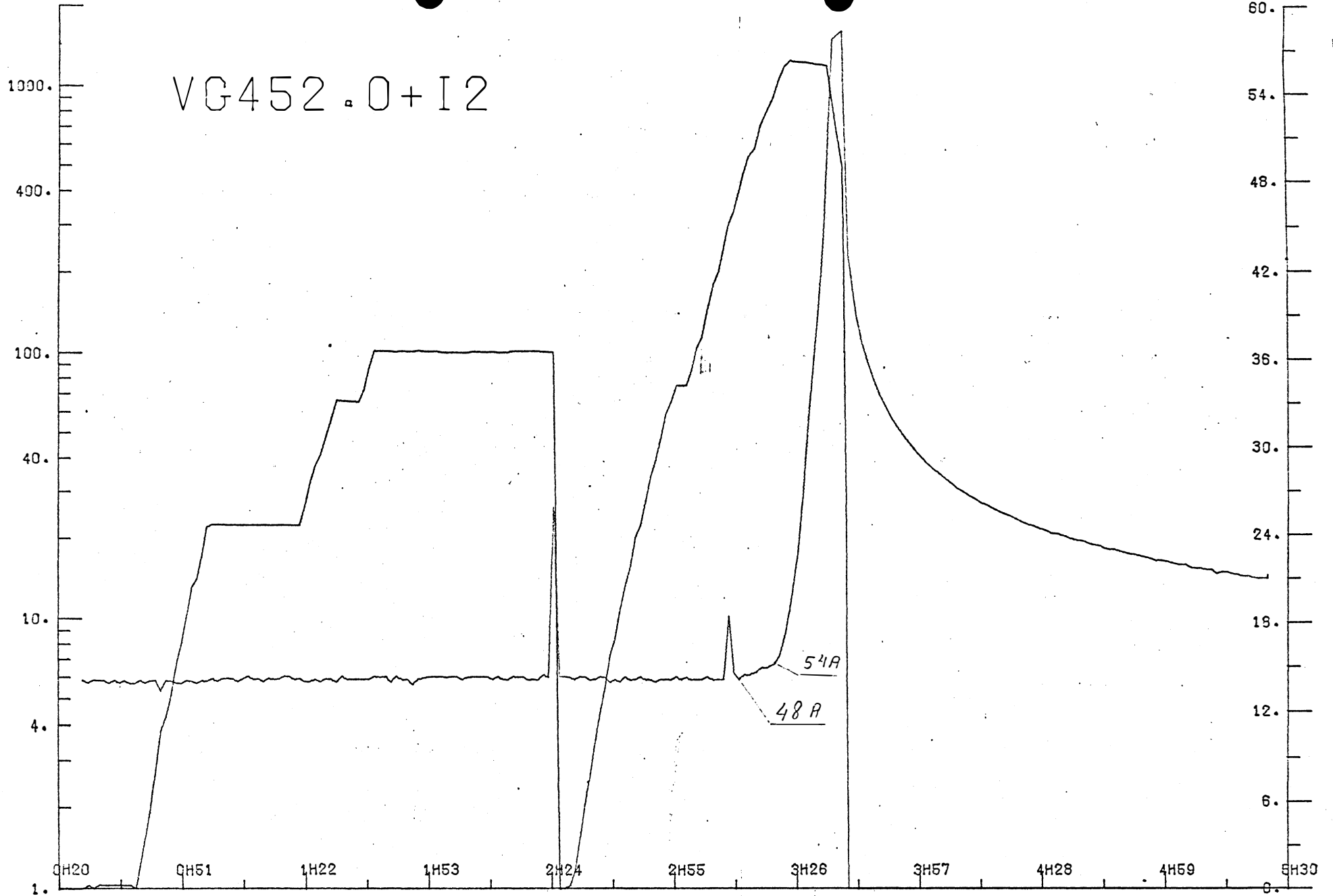
Sector	Gauge	picotorr	Observations
10	852	100	large pressure increase due to beam losses at the end of the run. The pressure recovered immediately after dumping the beam
	856	100	ditto 852
	864.3	100	ditto 852
		+ 9	pressure increase decaying slowly after the dump, likely due to beam losses
	108	100 0.5	ditto 864.3
12	112	100	ditto 852
	116	- 0.2	beam pumping
20	204	100	ditto 852
	208	100	" "
	212	100	" "
22	216.3	+ 60 + 1.5	ditto 864.3
	220	+ 20	pressure bump unstable at 56 A (fig. 2). Beam losses as the beam was dumped.
	224	+ 25	beam losses superimposed on the tail of the pressure increase in 220 due to radiation perturbations
32	316	+ 100	due to heating of the collimator block
		+ 4	
40	364	+ 100	pressure spike as the beam was dumped. The pressure recovered immediately.
	368.4	+ 100	ditto 364
	402	100	ditto 364
	408	+ 80	ditto 364
42	416.1	100	ditto 364
	424	+ 40	ditto 364
	448.1	+ 20	pressure bump, tail of 452?
	448.8	+ 40	ditto 448.1
50	452	$P=10^{-9}$ t	pressure runaway, weakest point during that run (fig. 1).

Sector	Gauge	picotorr	Observations
52	512	100	beam losses as the beam was dumped
	524	20	ditto 512
	528	+100	beam loss at the end of the stacking period
		+ 30	beam loss as the beam was dumped
	540	+ 15	ditto 528
		+ 20	
	544	+ 6	
		+ 7	ditto 528
	548	+ 100	beam loss during the stacking. The pressure remained high during the run and fell immediately as the beam was dumped.
		552	+ 40
70	664.4	+ 0.3	beam pumping
72	756	+ 20	pressure increase due to beam losses
80	804	+ 10	beam losses as the beam was dumped

PICO-TORR

AMPERE

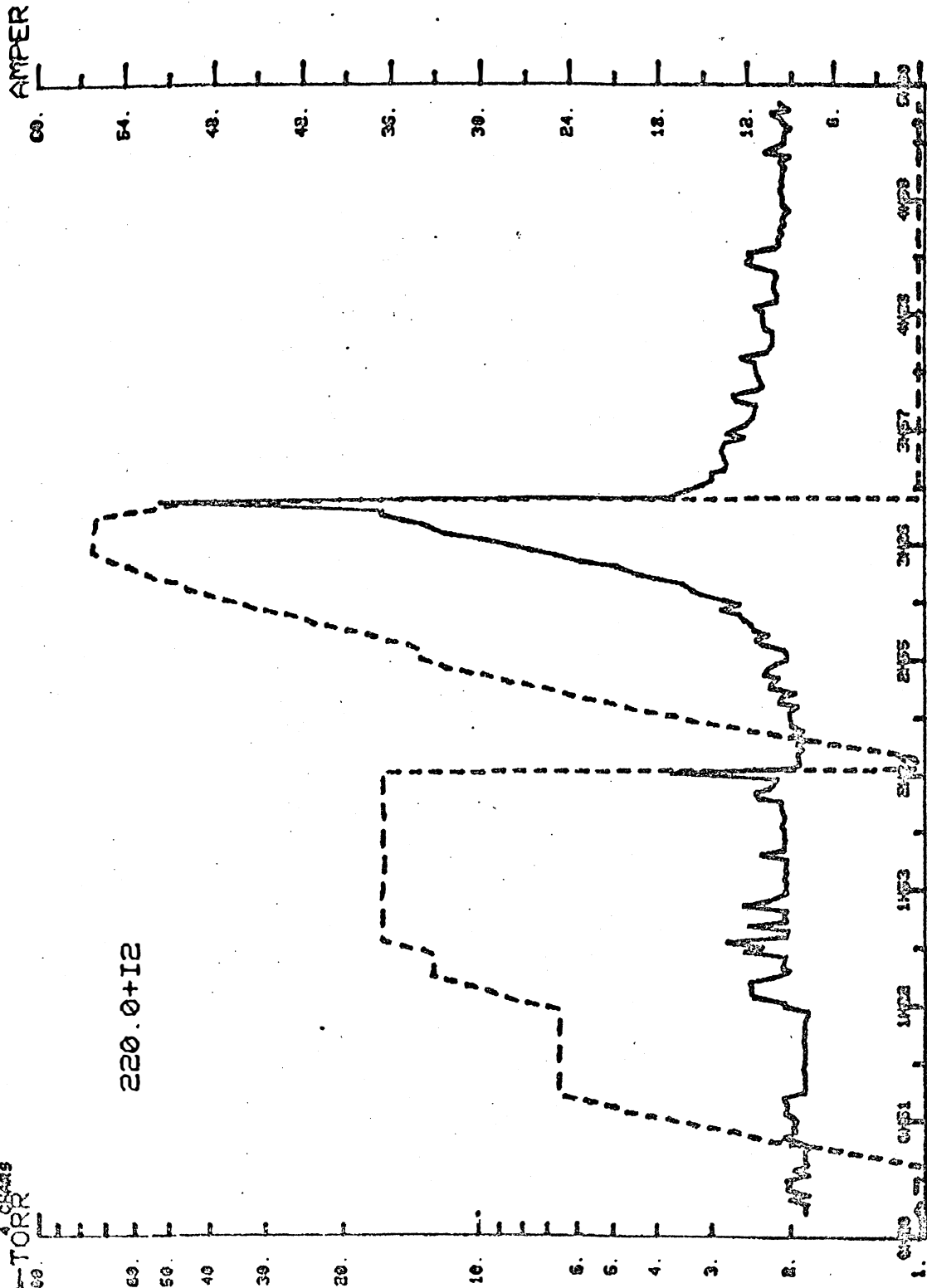
VG452.0+I2



OFF
LIN

Figure 1

PLOT FRAME 23
WIDE
WIDE-TORR
100.



DEF
101

Figure 2