ISR-RF/WS/ps

8th November 1973

ISR PERFORMANCE REPORT

Run no. 375P, 29th October 1973, Ring 2

Shaking up dust in I5

Summary

Subjecting a piece of vacuum chamber in I5 to mechanical vibration produced spikes of dI/dt and clearly correlated spikes of clearing current in octant 5. A correlated increase of e-p instability could also be seen and gauge 463.6 in the centre of I5 showed pressure spikes up to 4×10^{-9}torr. It is, however, questionable whether these were real pressure spikes.

Experiment

The same shaker and same general mechanical arrangement as in Run 94 (3.8.71) were used. The vibration was applied to the short piece of elliptic chamber downstream of I5. The vibration was monitored via a microphone and loudspeaker and several of the mechanical resonances of the chamber (in the 100 Hz region) were excited. Full, or nearly full, power had to be applied to the shaker to produce an effect. In general the effect was delayed, a few seconds after turning on the shaker.

Fig. 1 shows dI/dt and clearing current with the shaker on and around the moment it was turned off. Fig. 2 shows the same quantities when the shaker is off.

Vacuum gauges were monitored in A5. Gauge 504 (1×10^{-10}torr FSD) did not show any effect during shaking. Gauge 469.6, in the centre of I5, did however switch itself off regularly when the shaker was turned on. On a less sensitive range the gauge showed pressure spikes up to 4×10^{-9}torr. There are no pumps between the site of the shaker and this gauge so that one can assume it reacts most strongly to pressure variations. However, if the observed spikes were due to a real pressure rise, one would have expected to see at least some effect on other neighbouring gauges, in particular on 504. This discrepancy would suggest that the centre gauge responded to the mechanical vibrations.

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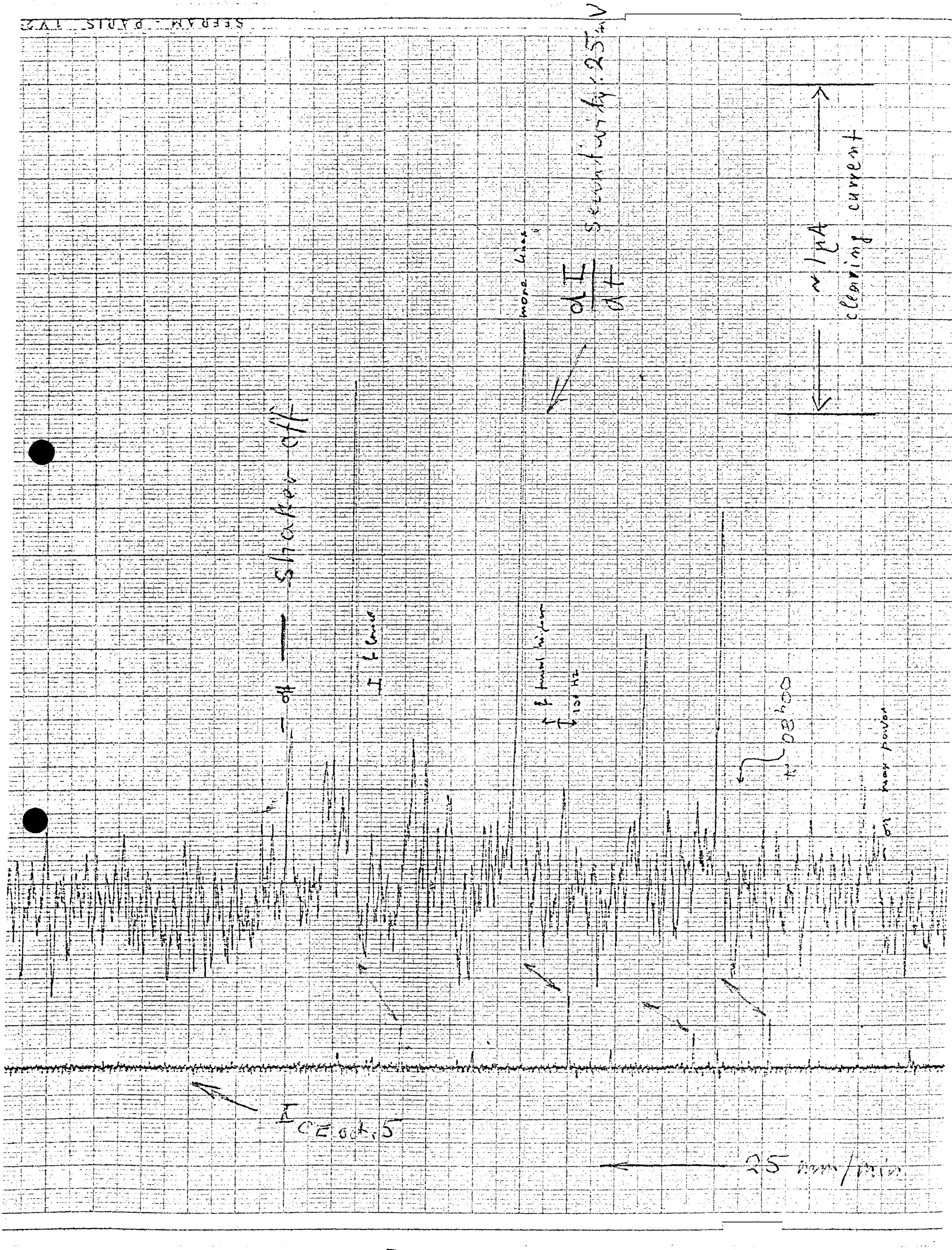

Fig 1

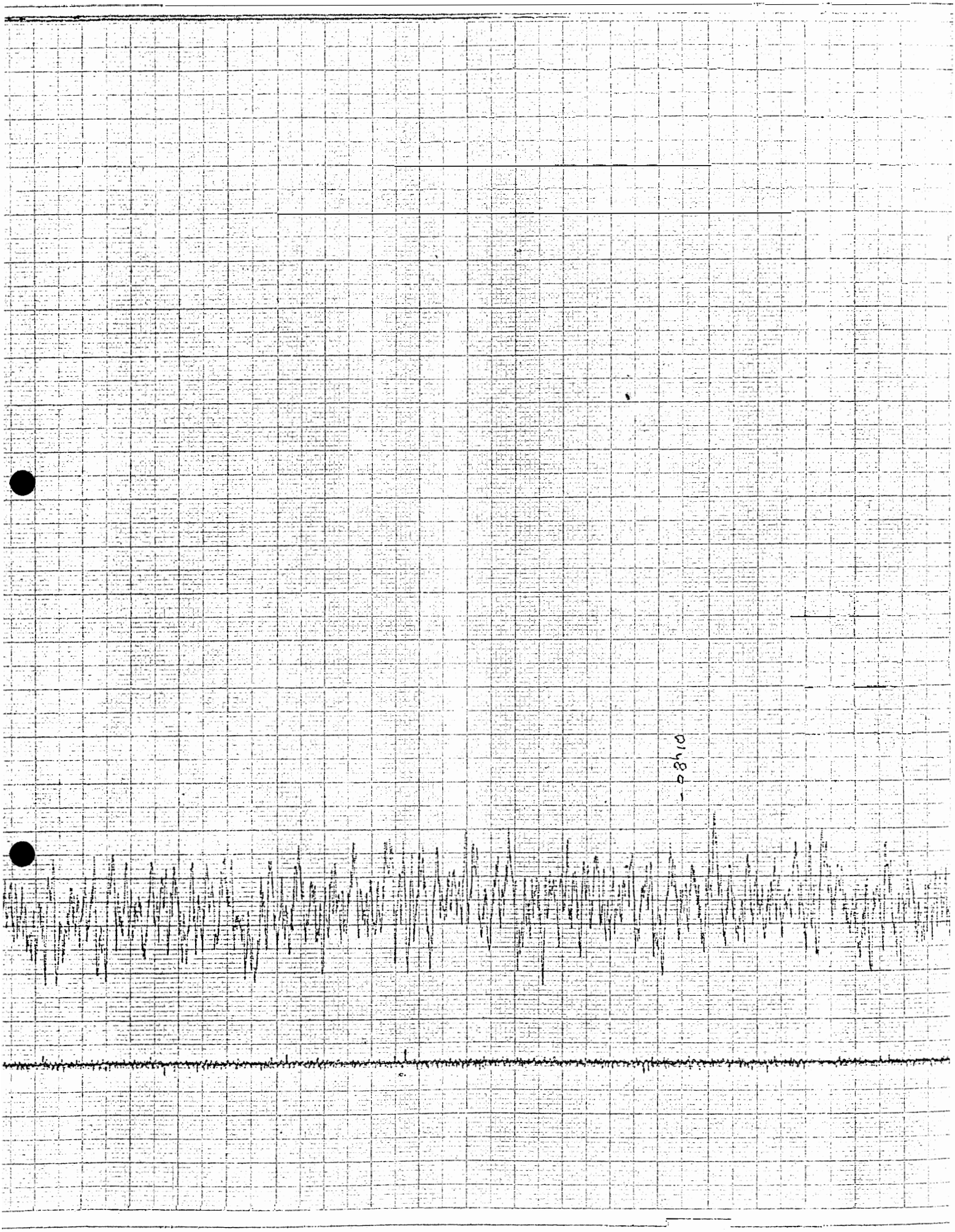

Fig 2