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Fast Repetition Rate of AGS

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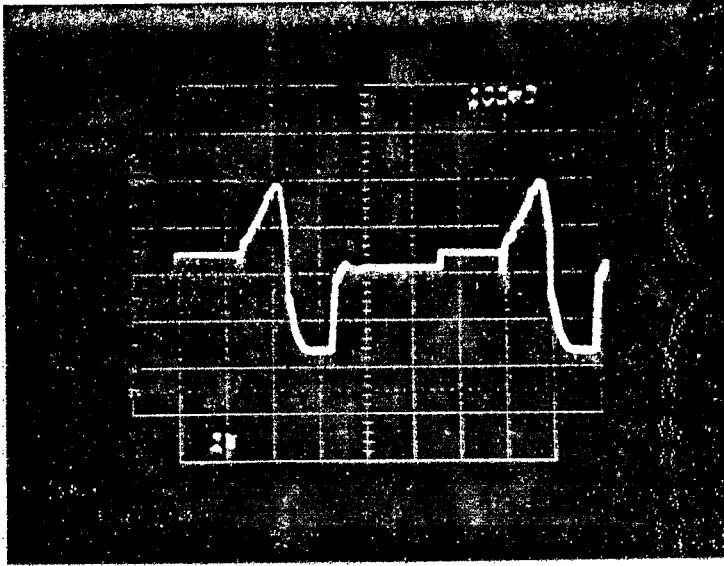
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Date 10/19/77 Time 0045-0345 Experimenters W. Weng, E. GillSubject Fast Repetition Rate of AGSOBSERVATIONS AND CONCLUSION

Objectives: Run the AGS at different repetition rates (from 2 to 0.5 pulse/sec) to test the injection and acceleration performance.

Procedure: We started with spiral beam for 1 msec and with AGS cycle varied from 2 sec to 0.6 sec. The voltage variation for the complete cycle of 0.57 sec is shown in the picture. In the front porch the voltage is 1.8 kV and the peak voltage before going to invert is 10 kV. The AGS was left at 1.8 pulse/sec with spiral beam intensity $\sim 14 \times 10^{12}$ ppp for about two hours. Then the rf was turned on for five minutes to accelerate 5×10^{12} ppp up to 140 msec. At 3:40 the study was terminated because of the vacuum problem in ABS section.



- Conclusions:
- (1) The inflector is capable of handling fast rep rate up to 1.8 pulse/sec without causing any problem.
 - (2) With spiral beam the extreme condition we have tested was 2 pulse/sec with 120 msec dwell time.
 - (3) The acceleration test of 0.6 sec cycle (with 220 msec dwell time) is not decisive. Although we anticipate no further problems, the test has to be repeated as soon as possible.

Problem: During the test we found a fluctuation of Gauss clock of 30 counts out of 2970. This should be fixed before the next study.