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## Low Field Tuning. Effect of Shorting 8 RF Cavities

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At the beginning of the period the machine was operating at  $> 7 \times 10^{12}$  per pulse. Considerable time was spent on photographing various signals at this intensity level. Very minor readjustments of the  $\delta$  parameters were made and only the 90 harmonic low field corrections were trimmed. The latter produced a few pulses  $> 8 \times 10^{12}$  accelerated. Considerable transition loss ( $\approx 1.5 \times 10^{12}$ ) was present at these levels when attempts were made to carry the beam to higher energies. At 1000 the AGS was turned off to install shorts across 8 of the ten  $\delta$  stations. By 1200 beam was again injected. Acceleration for  $\approx 50$  msec was possible but the steady capture using the low voltage capture mode was still  $\approx 7.5 \times 10^{12}$ . A further rise from level 1 to level 2 than what had been used previously gave  $\approx 6.7 \times 10^{12}$  while a down side with a lower level 1 and programmed frequency gave  $\approx 7.3 \times 10^{12}$ . Since it appeared that level 2 was not high enough with two stations on the shorts were removed from 2 of the 8 locking coefficients. The results with four were no better than two or the stations and increasing instability of the injection conditions made further tests useless. The remaining stations were put back on the air and after some time ~~and~~ beam was again accelerated with <sup>peak</sup> intensities of  $> 7 \times 10^{12}$ . However, instabilities at injection became worse and tuning was not possible ~~with each~~.