

Measurements on a Fast 60 Kv Resonant Charging Power Supply for the LHC Inflectors,
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E.B. VOSSENBERG, CERN - The injection kicker systems for the two LHC beams will each consist of two fast resonant charging systems, four travelling wave type magnets and four pulse forming networks (PFNs), discharged by thyatron switches. Each resonant charging system, located with the switches and PFNs in a gallery parallel to the LHC tunnel, is employed to simultaneously charge two 5 Ohm PFNs within 1 ms to 60 kV. The stability and pulse to pulse reproducibility of the PFN voltage must be maintained to a precision of less than $\pm 0.1\%$. Each resonant charging system consists of a 2.6 mF primary capacitor bank, charged to 2.5 kV, and connected via a Gate Turn-Off (GTO) thyristor and a 1:23 step-up transformer to two PFNs, each with an effective capacitance of 0.96 uF. The resonant charging systems include several new developments. The first of five charging supplies has been constructed and tested at TRIUMF in collaboration with CERN as part of the Canadian contribution to the LHC project. Measurements were performed for both normal and abnormal operating conditions. A charge time of approximately 800 us, and a pulse to pulse reproducibility of the PFN voltage of better than $\pm 0.03\%$ have been attained.