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Pulsed Magnet for the Doubler

The present doubler design call for two intermediate speed pulse magnets.

The first magnet string is a series connection of Lambertson's of total length 26' for the injection system. The primary concern for this system is to keep field time curvature below the momentum spread of the beam. To obtain a field time curvature of less than .01% for 20  $\mu$ sec., a pulse width greater than 2.2 ms is required. The following table lists parameter for a system which meets this requirements.

Table I

## Pulsed Lambertson

Field	11 Kg
Steel Angle	40°
Aperture	6" x 1"
Length	26'
Stored Energy	14770 joules
Number Turns	10
Inductance	6 mH
Capacitance	3280 $\mu$ F
Current Peak	2200 Amps
Charging Voltage	3 kV
Pulse Width	14 ms
RMS Current	41 Amps

The second pulse system is a pulsed septum magnet for the abort system. The primary concern with this system is minimization of pulsed width to insure rapid response of the abort system. Field time curvature may actually be beneficial for beam spreading at the dump.

Table II

Pulse Septum

Field	10 kg
Septum Thickness	.125"
Aperture	1.5" x 1.5"
Module Length	3.3 m
Pulse Width	200 $\mu$ sec
Connection Cables	150' 4 parallel RG220's
Peak Current	30,000 Amps
Capacitance	3100 $\mu$ F
Charging Voltage	1.1 kV
Energy Stored in Cables	17%
Maximum stress	7200 psi
Percent Elastic Limit	80%
RMS Current	67 Amps