
Beam Goes-around Meta-Procedure

Document Number: Document Number—TBD

Revision Number: Rev. 2; (18 December 1997)

Technical Custodian: D. Douglas

Estimated Time to Perform: 6 shifts

Procedure Overview

This is a high-level (meta-) procedure outlining the process by which the beam is threaded, matched, and tuned for energy-recovery transport. The procedure takes the operator sequentially through each module of the machine, starting with beam in delivery to first light dump and concluding with beam in energy recovery dump.

Prerequisites

1. Beam in delivery to first light dump, with first-pass beam centered in OTRs at each end of module, using local corrections insofar as is possible.
2. Tune-up dumps inserted.
3. All called procedures available and read.

Procedure Steps

1.0 Change-over to recirculation transport

1. Shut off beam
2. Set recirculator dipole strings to nominal excitation for desired beam energy and standardize.
3. Download downstream matching telescope excitations matching beam energy and phase space (as transported to first light dump) to recirculation transport.
4. Beam on.

2.0 Arc 1 Setup

1. Read and execute Arc 1 Setup Procedure.



3.0 Back-leg transport

1. Read and execute Backleg setup procedure.
2. Perform Backleg Emittance Measurement to verify match; adjust downstream matching telescope and reinjection telescope as necessary due to CSR driven effects.
3. Beam off
4. Pull first tuneup dump
5. Beam on

4.0 Arc 2 setup

1. Repeat Arc 1 Setup Procedure for Arc 2
2. Beam Off

5.0 Reinjection Setup

1. Verify reinjection telescope is at appropriate excitations as determined in Step 3.2
2. Pull tuneup Dump
3. Beam on
4. Steer to center beam in both doublets of reinjection telescope so as to align beam trajectory for reinjection.
5. Measure and adjust and RF phase and M_{56} of recirculation transport using diagnostic downstream of x-chamber.

6.0 Energy Recovery

1. Steer in reinjection telescope to acquire beam on energy recovery dump viewer.
 - a. With first pass beam locally steered through the centers of the OTRs at each end of module, steer reinjected beam through the centers by adjusting position and angle using correctors MD(B,H)5F0(5,7)(H,V) in the reinjection telescope.
 - b. Monitor various RF system parameters to determine power levels in each cavity while steering, so as to determine extent of beam propagation before loss.

CAUTION: Note well: if the beam quality is bad or the beam poorly steered, beam loss in or around the cavities can lead to repeated trip-offs of the RF. Should this occur, proceed as follows:

- A.** Verify that the beam quality is good on the viewers upstream of the module. If not, revisit Step 3
- B.** Verify that orbit correction of the beam first pass through the module is done locally insofar as is possible. This will help avoid significant missteering of the second pass beam by irregular correction of the first pass beam orbit.



