

MI/RR Commissioning

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Experiment Readiness Review
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Introduction

- Restarting MI/RR after a year long shutdown.
- Many modifications in both machines.
 - Two new beamlines
 - New RR RF system
 - New RR instrumentation
 - 5 new kicker systems...
- We need to turn Recycler into a high intensity proton accumulator.

Commissioning Strategy

- Use the injection from Booster to MI in order to commission the MI and provide beam to the NuMI target as soon as possible.
- Try to keep the MI tunnel cool while we are commissioning the Recycler (anticipating tunnel accesses).
 - Use non-slipped stacked beam in MI with a faster ramp (1.7 sec).
- Start slow spill studies in MI and understand the limitations.

Week 1

- Establish MI Circulating beam and establish orbits.
- Accelerate MI beam to 120 GeV and measure orbits. Determine quad moves and move quads.
- Extract beam to NuMI target and start target scans.
- Start RR Injection line commissioning.

Week 2

- Establish flat top orbits and extraction positions for slow spill.
- Start circulating beam studies in RR. Establish working point.
- Start beam delivery to NuMI target with increasing intensities.
 - Non slipped stacked beam 1.7 sec MI cycle.
 - Can achieve up to 300 KW with nominal beam intensity form Booster.
 - Close to 100% efficiency
 - Only 3.6 Hz form Booster are required

Week 3

- Start RR 53 MHz commissioning.
- Start RR Instrumentation timing and commissioning.
- Start slow spill studies in MI
 - Need P1,P2,P3 lines and Switchyard damp.
- Continue the beam delivery to NuMI target.

Week 4

- Start RR measurements
 - Measure momentum aperture.
 - Measure chromaticities
 - Tune and obits compensation
- Start RR extraction line commissioning.
- Start sending low intensity beam to Sea Quest
 - Start commissioning new hardware and instrumentation
 - Look at extraction efficiencies.
- Beam to NuMI target.

Weeks 5-9

- Start RR high intensity studies.
 - Beam scrubbing?
- Start RR Slip Stacking commissioning.
- Sea Quest beam commissioning and spill studies.
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