If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match.
The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.
Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.

C-A OPERATIONS PROCEDURES MANUAL

12.47 TR-2 65 Degree Line Startup

Text Pages 2 through 5

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

Approved: ***Signature on File*** _____
Collider-Accelerator Department Chairman Date

M. Wiplich

12.47 TR-2 65 Degree Line Startup

1. Purpose

The purpose of this procedure is to define the sequence of activities required to set up the TR-2 65 degree line.

2. Responsibilities

It is the responsibility of the person or persons executing this procedure to observe all safety rules.

3. Prerequisites

The person or persons executing this procedure shall have all formal training required of a TVDG Operator.

4. Precautions

None

5. Procedure

Checklist (when indicated by "___", initial step upon completion)

5.1 Perform the steps outlined in Setup For Target Room Operation

5.2 **Target Room**

5.2.1 _____ Downstream diagnostic chamber valve is closed.

5.2.2 _____ Target room radiation monitor plugged in and located adjacent to the diagnostic chamber.

5.2.3 _____ Target room upstream slits set to 0.250 each.

5.2.3.1 Record values. _____

5.2.4 _____ Diagnostic chamber vertical slits set to 1 3/4" opening.

5.2.5 _____ Cryo pumps are on, cold and open to the beam line.

5.3 **Accelerator Room Setup**

5.3.1 _____ Image Horizontal Slits set to 0.050/0.050.

5.3.1.1 Record values. _____

5.3.2 _____ 65 degree west fast valve sensor connected to the fast valve high voltage. Fast valve controller on and armed.

5.3.3 _____ 65 degree west beam plug removed.

5.4 **Control Room Setup**

5.4.1 _____ -200 VDC bias supply patched.

5.4.2 _____ Check for bias leakage on all (6) cups by observing leakage on the Kiethleys

5.4.3 _____ Beam monitoring signal connected.

5.4.3.1 _____ Right inner cup connected to chart recorder

5.4.3.2 _____ Chart recorder speed set to 0.025mm/sec

5.4.4 _____ Camera outputs patched to control room monitors.

5.4.5 _____ Intercom patched terminal in rack 18.

5.4.6 _____ 65 degree west beam line selected on the panel in rack 16.

5.4.7 _____ Connect upstream cup (rack 17) to keithly signal.

5.4.8 _____ Switch velocity selector to off.

5.4.9 _____ Switcher set to right polarity and predicted value.

5.4.10 _____ 65 degree west wall valve open.

5.4.11 _____ Image quad set to program values. Polarity set to reverse.

5.4.12 _____ Insert the upstream cup.

5.5 **Beam Setup**

5.5.1 _____ Aperture open source output should be 2 - 3 times required for run.

5.5.2 _____ Rotary aperture should reduce the intensity from 1/2 to 1/3 of source output, not to exceed 750na.

5.5.3 _____ Adjust the stripper gas flow for optimum beam, then reduce the beam current by reducing gas flow. This insures a minimum gas load on ion pumps in the machine.

5.5.3.1 _____ Record the ion pump current

5.5.3.2 _____ Record the stripper gas leak meter readings.

5.5.4 _____ Beam centered between the upstream slits with the image steerers at 500 using the switcher magnet.

5.5.5 _____ Beam about 3/8 inch in diameter and slightly elliptical, having its major axis horizontal in the upstream viewer

5.5.6 _____ Upstream viewer and cup removed.

5.5.7 _____ Beam is vertical line approximately 11/2 - 2 inches high in the downstream viewer.

5.5.8 _____ Downstream viewer removed.

5.5.9 _____ Beam centered in center faraday cup using target room steerer. Record center cup current. _____

5.5.10 _____ Dump cup in.

5.5.11 _____ Remove center cup.

5.5.12 _____ Open web valve. Beam in dump cup should equal the image cup current less the upstream slit currents.

5.5.13 _____ At this time center the beam vertically.

5.5.14 _____ Turn on trek amplifiers.

5.5.15 _____ Sweep generator set to a frequency of 1KHz, triangle wave.

5.5.16 _____ Calculate and record the flux in particles/cm2/sec as follows:

Flux(p/cm2/s)=Beam current(na) in center cup no sweep * 6.24E9/Q of delivered beam.

5.5.17 _____ Peak amplitude of the sweep generator set so the current in the left outer and right outer cups equals approximately 1/2 the intensity of the current in the left inner and right inner cups and adjust sweeper offset to center the beam.

5.5.18 _____ Image cup inserted.

5.6 **Running**

5.6.1 _____ If the beam current is stable (the source output has been stable for 30 minutes and machine transmission is good) roll is ready to start.

5.6.2 _____ Center cup removed.

5.6.3 _____ Diagnostic chamber downstream valve open.

5.6.4 _____ Web transport to speed.

5.6.5 _____ Image cup removed, run started. Record the time.

5.6.6 _____ Left and right outer cup readings close to equal. Record values on log sheet.

6. Documentation

The "___" (lines) in this procedure are for place-keeping only. This procedure is not a record.

7. References

None

8. Attachments

None