

# WHEEL CHANGING INSTRUCTIONS

**CIRCE Laboratory**  
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**WARNING** ⚠

**Before starting this procedure:**

- Switch off "injector 1" on the [Emergency off controller](#) at the console room.
  - Put the cathode position at 0 if it is not already there.

- Open the source cage and put the ground hook on the source
- Connect the **S1 service cont, J1** cable to [Source Service Controller](#)



- Enable the control from **Remote** to **Local**



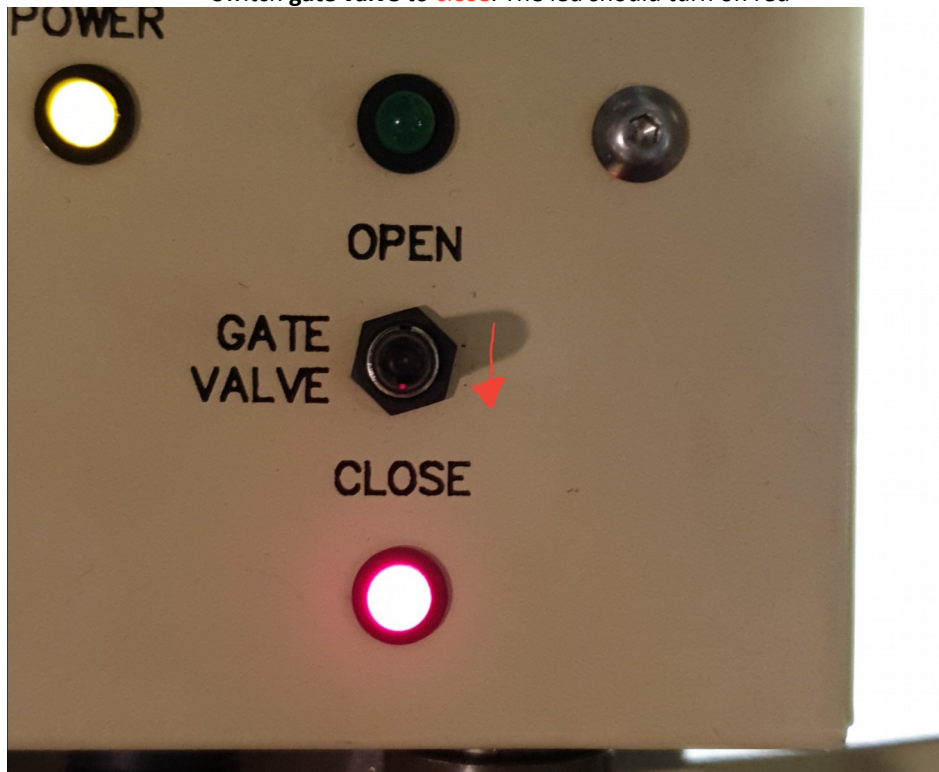
If everything is OK, the source service controller gets powered



- Switch the **cathode wheel** to **retract**. After a few seconds, the led should be green



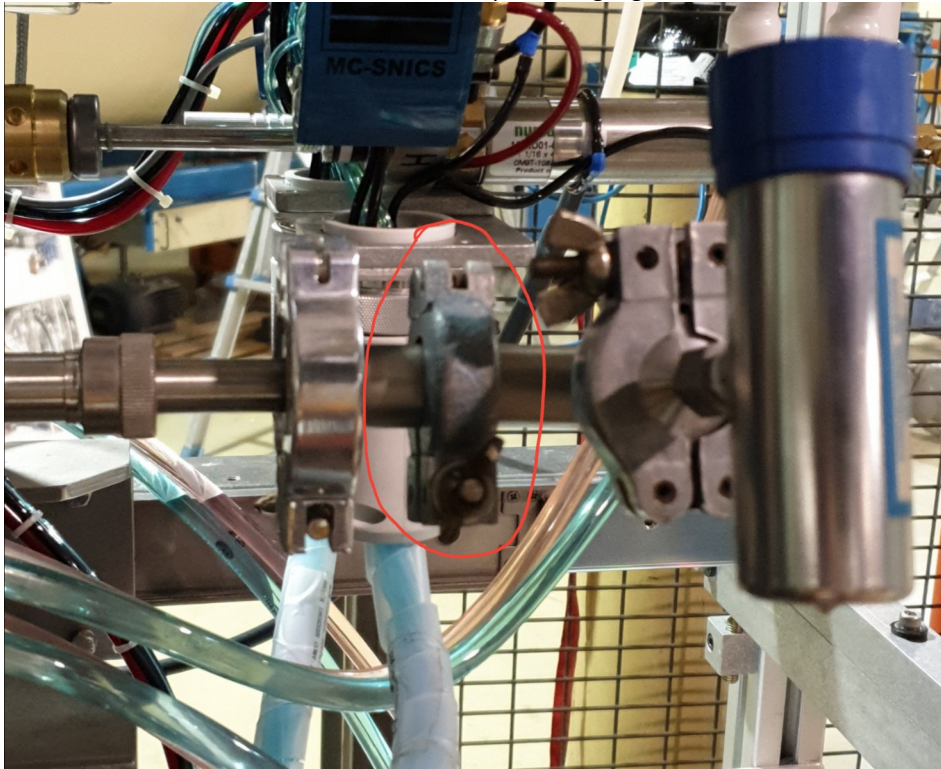
- Switch gate valve to **close**. The led should turn on red



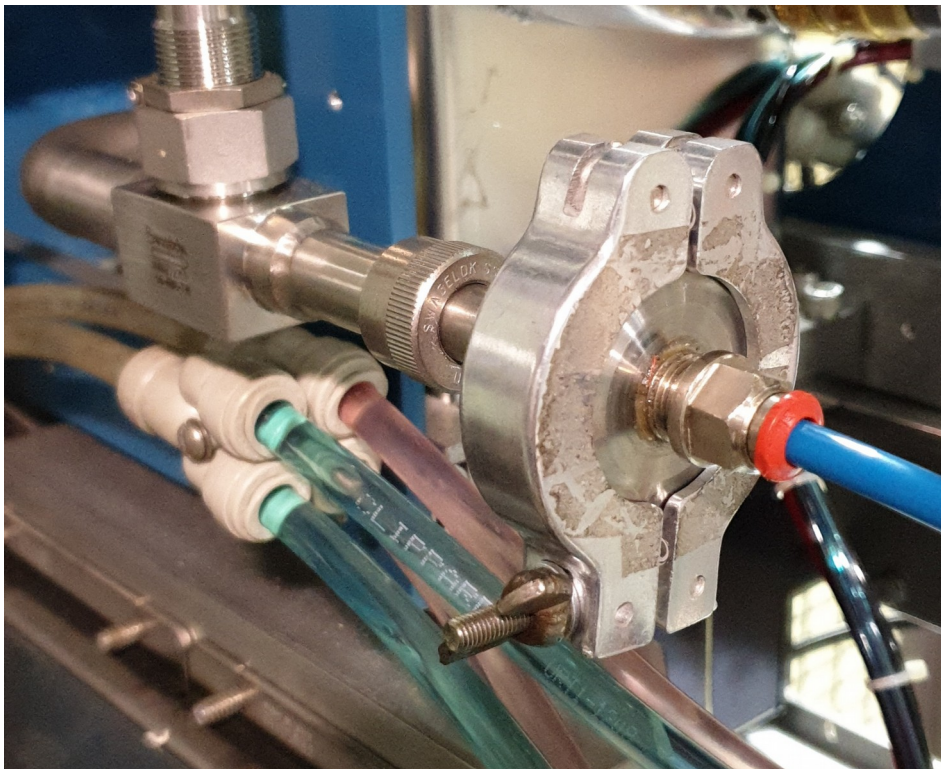
- Set the exit of the N2 dewer to 0.2bar



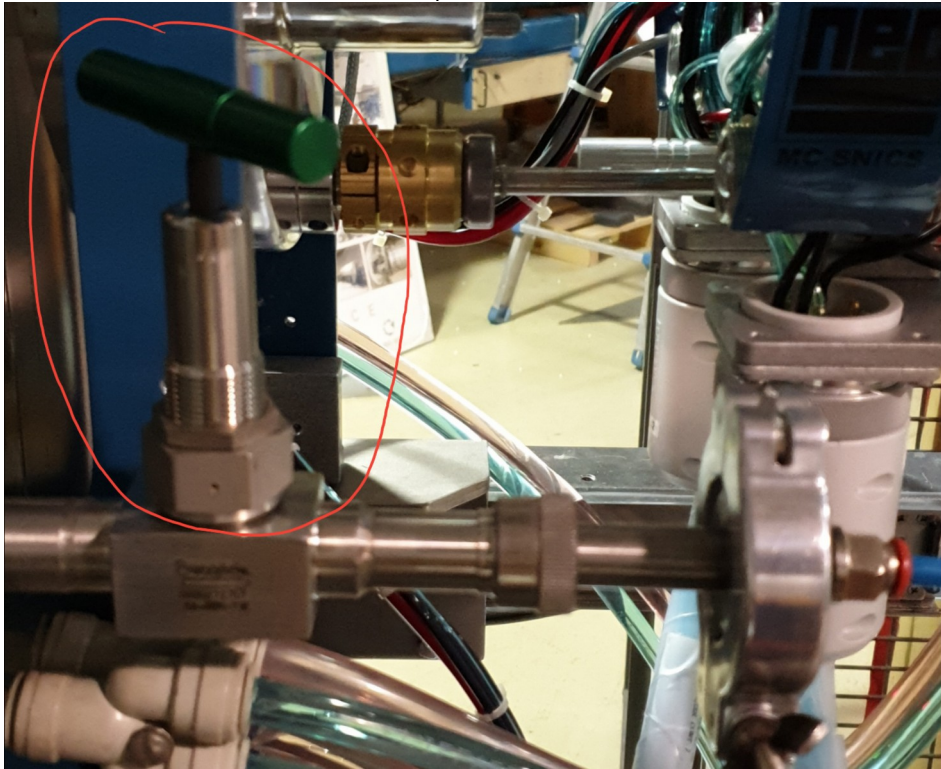
- Dismount the pressure gauge



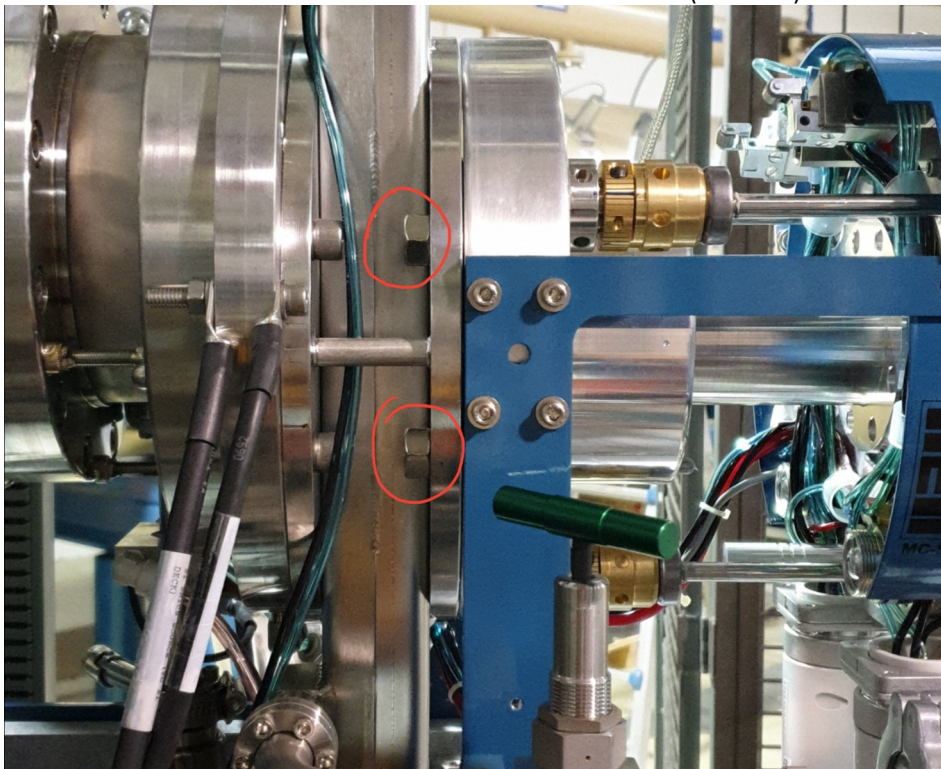
- Connect the N2 tube to source



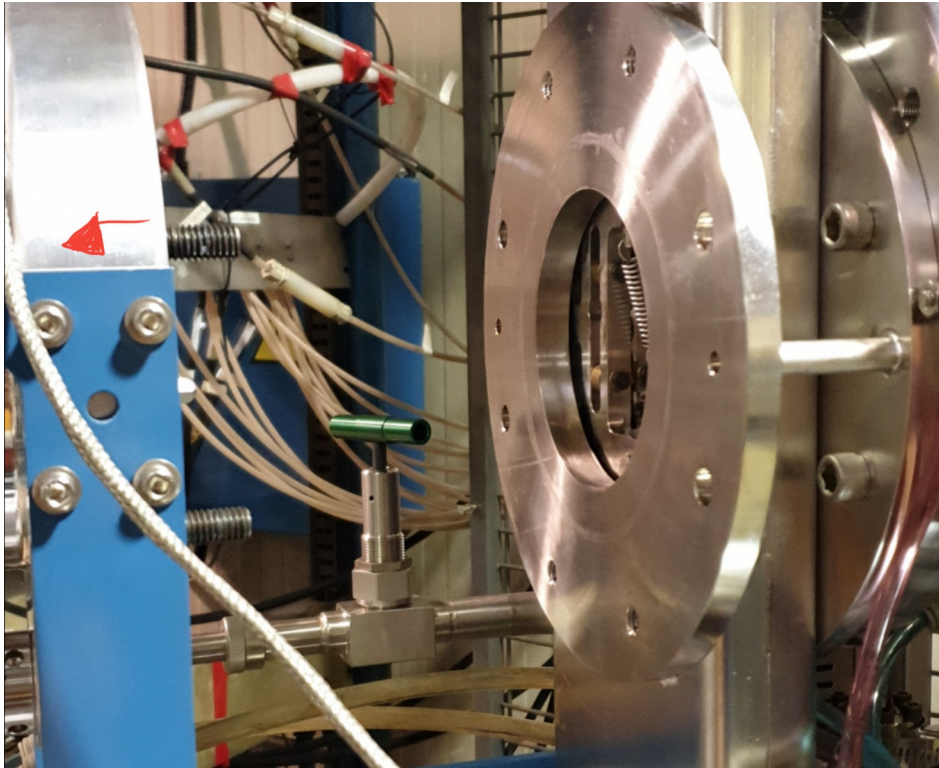
- Open the valve



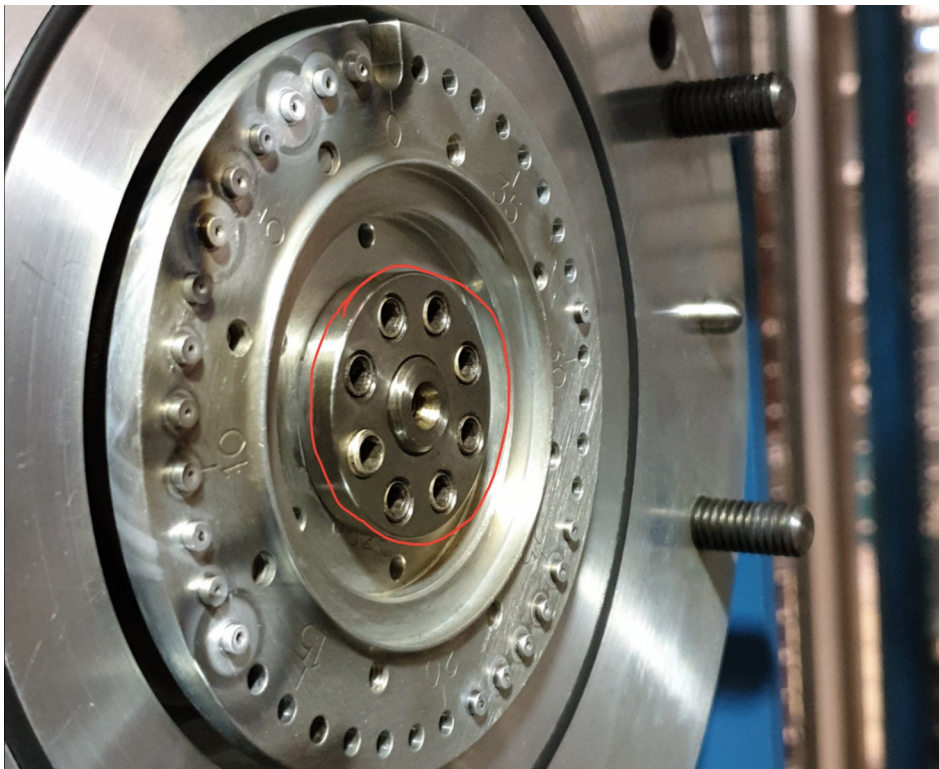
- Loose the bolts from both sides of the source (4 in total)



- Close the N2 dewar and remove the tube from the source
  - Open the source

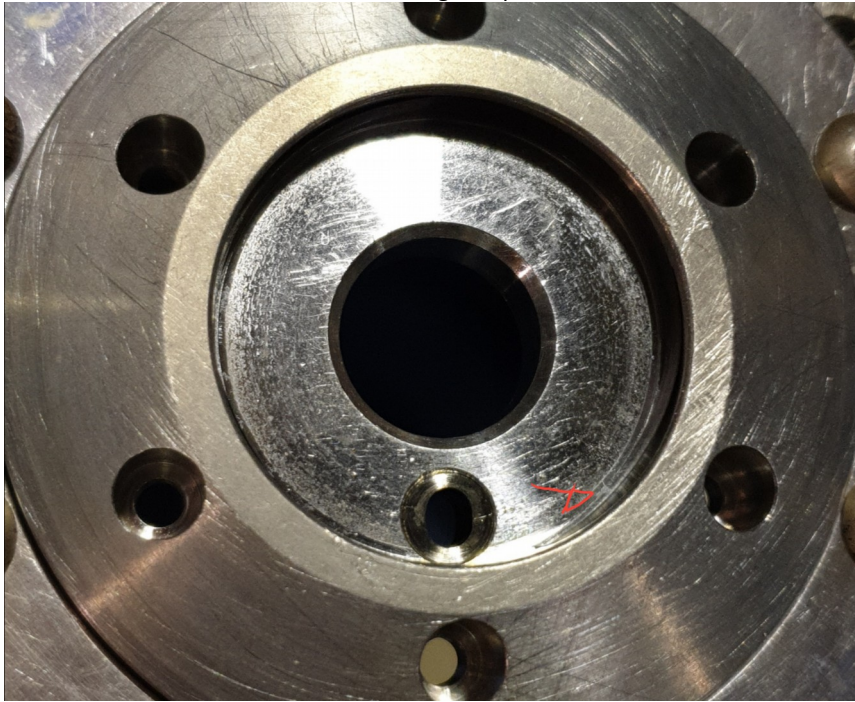


- Loose the wheel screws

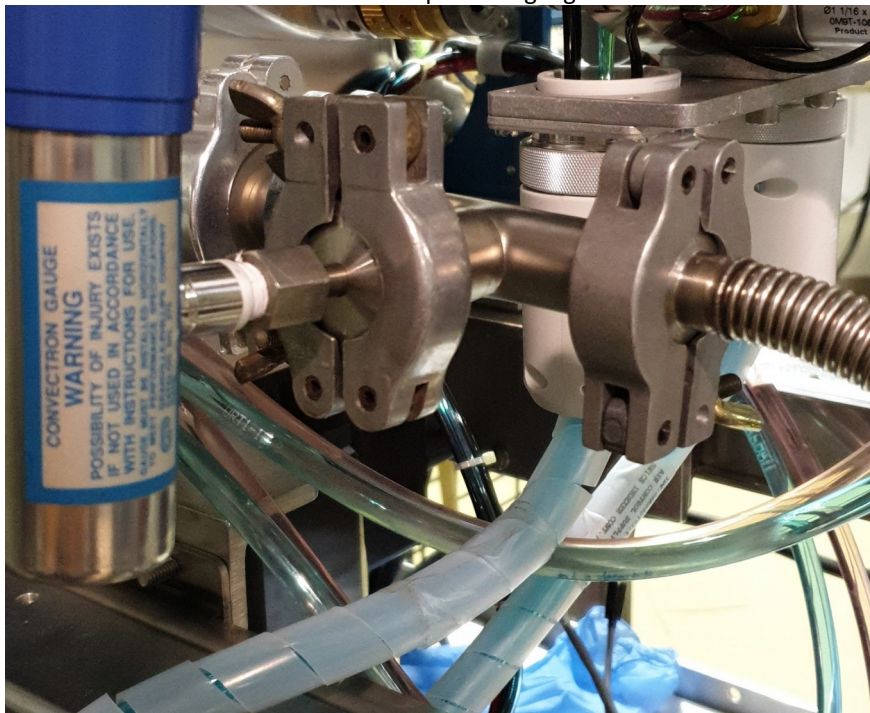




- Remove the internal ring and put in the new wheel



- Put the new wheel in place
- Fix the screws (not too tight)
  - Close the source back
  - Tighten the source bolts
- Connect the pressure gauge back



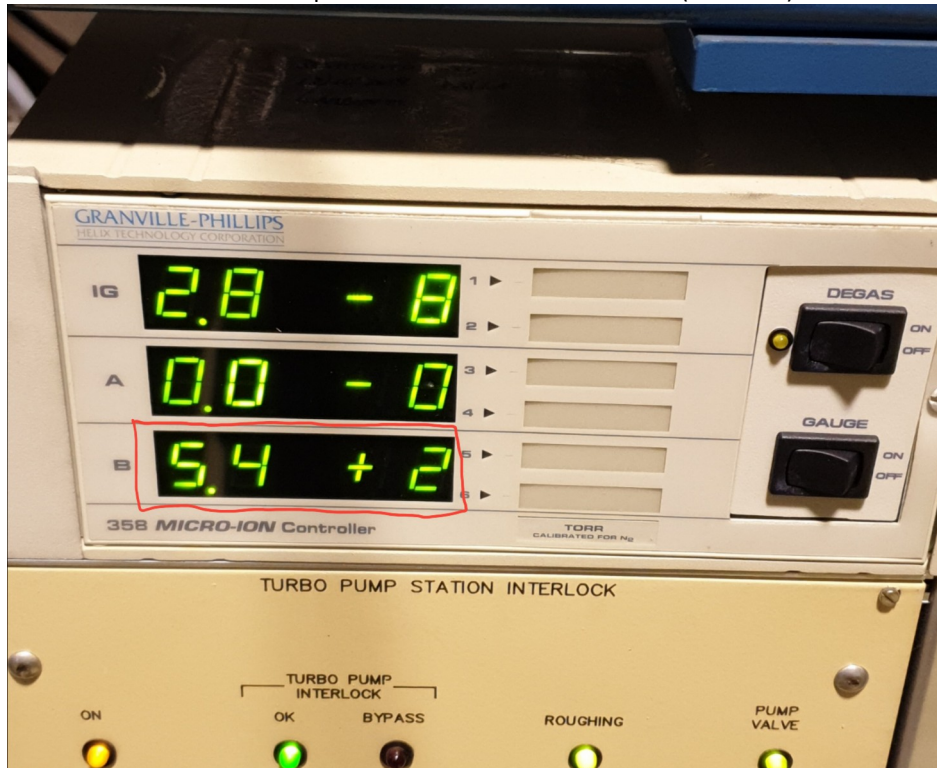
- Connect the pump "ion source"



- Connect the pressure gauge to the reader



- Start the pump "ion source"
- Wait until the pressure reads at least  $8^{-2}$  mbar (~30 mins) in **B**



- Close the green valve (next to the pressure gauge)
- Turn off the pump "ion source" and disconnect it from the source
  - Disconnect the pressure gauge
- Switch to **Open** the **gate valve** (Source Service Controller) and **Insert** cathode wheel
  - Disconnect the **S1 service cont, J1** cable from the **Source Service Controller**
  - Wait for the vacuum source to be better than  $10^{-6}$  in **IG** (previous figure)
    - Change the control from **Local** to **Remote**
    - Disconnect the ground hook and close the cage
- Check that there are no cables connecting the ion source to the ground (hook, service, gauge controller, vacuum pipe)
  - **Ready to use**