Replacement of the He Steel Cylinder

IMPORTANT: This procedure applies *ONLY* to He regulators that are equipped with the purging device shown in *Figure 1*.

PAGE 1

Step	Action
1	Make sure the CryoProbe System is ***WARM*** and ***UNPLUG*** is lit.
⚠	⚠ **WARNING:** Wear protective glasses when working with pressurized systems! Do not stand in the direction of any high pressure tube or valve.
2	Close the main valve of the He cylinder.
3	Close valve A completely to shut off the He hose.
4	Open valve B to release the remaining pressure from the He regulator. Verify that both the primary and secondary pressures have dropped to **zero**.
5	Detach the He regulator assembly from the He steel cylinder: Only the **regulator valve body** should be held to stabilise the assembly when unmounting (or mounting); **Do not** hold the pressure gauges or any part of the purging device (see ***Figure 2***).
6	Put the **protective cap** onto the used He steel cylinder.
⚠	⚠ **WARNING:** When moving the He steel cylinders, keep them as far away as possible from the magnet, and always outside the 0.5mT range.
⚠	⚠ **CAUTION:** Use He gas of grade 6.0 only, i.e. with a total purity of 99.9999%. Do no use BIP helium!
7	Replace the He steel cylinder.
8	Fix the new He steel cylinder securely to a wall. Attach the safety cable of the He hose to the He steel cylinder and mount the He regulator.

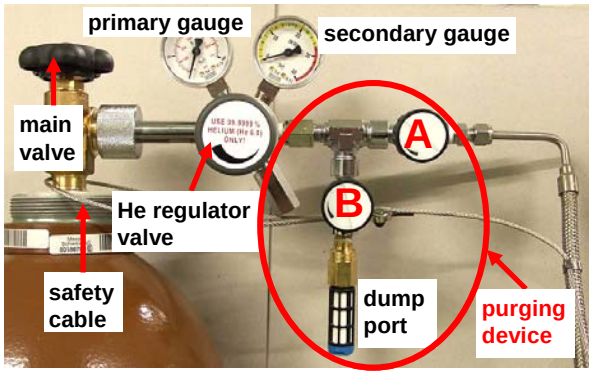

Figure 1. He regulator equipped with purging device.

Figure 2. Only the regulator valve body should be held to stabilise the assembly when (un)mounting.

PAGE 2

Step	Action
⚠	⚠ **CAUTION:** Always close the regulator valve completely before opening the main valve. ⚠ **CAUTION:** When opening the main valve in ***Step 11***, do so only very briefly to avoid contamination of the He inside the cylinder with air.
9	Close the regulator valve completely; the regulator valve is closed when you feel no resistance from turning it.
10	Close valve B.
11	Open the main valve of the He cylinder by 1/8 – 1/4 turn and **immediately close it again** as soon as the primary gauge shows the pressure inside the bottle.
12	Open the regulator valve until the secondary pressure is about 6-10 bar.
13	Open valve B to release the pressure.
14	Repeat ***Steps 9-13*** twice.
15	Close the regulator valve completely.
16	Close valve B.
17	Open the main valve of the He cylinder.
18	Open the regulator valve until the pressure on the secondary gauge reads between 23 and 25bar.
19	Open valve A.
20	**He Leak Test:** Close the main valve of the He steel cylinder and wait for ~1/2 hour. Read the secondary pressure. Wait for ~2 hours, and read this pressure again. If the value has decreased, search for the leak(s) with a He detector or **Snoop Liquid** (found inside the toolbox for the CRP Spare Parts Set). If the secondary pressure has not decreased, open the main valve of the He steel cylinder.

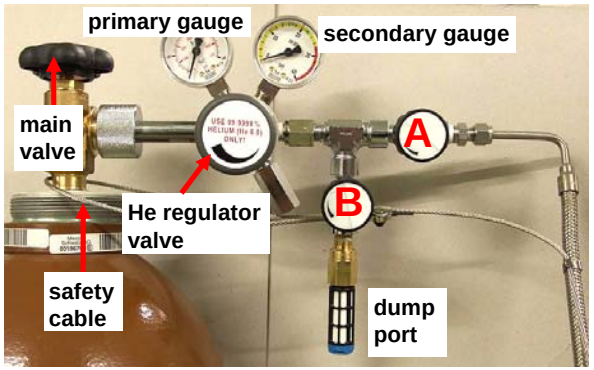

Figure 3. The He regulator and purging device assembly.