# Mode Change to XPP (Checklist)

Lead tech (**red color**)
Support tech (**blue color**)

**STEP 01:** Confirm the duty tech has completed the Mode change checklist in the BLA, and has removed LOCKS: K3-6, K3-7, the blue CC lock, and inserted the keys into the drift pipe locks.

**STEP 02:** Confirm that there is sufficient Nitrogen in LN Dewar for venting and purging. Replace with fresh LN dewar otherwise. Safety tip: wear safety shoes for this task.

**STEP 03:** Gather materials needed before proceeding: clean nitrile gloves (for use only on open pipe sections), UHV aluminum foil (laid out in 10" squares to cover tube ends), plastic mallets for settling EVAC chain clamps, standard set of hex (Allen) keys for opening pipe clamshells.

**STEP 04:** Click the "XPP Home'' icon (or type XPPHOME in any terminal window) on the hutch Linux computer to launch the main control panel. Click on the Vacuum/Techscreen button, then select Tech Control (Fig 1) to open the vacuum system control panel (Fig 2).

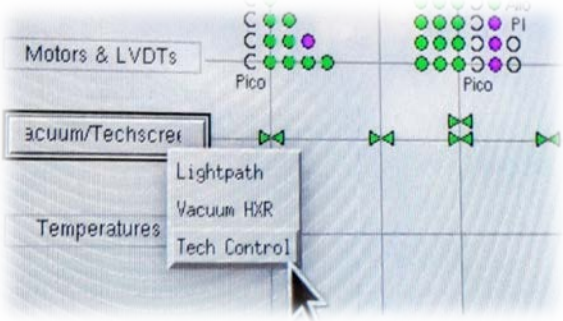


Fig 1

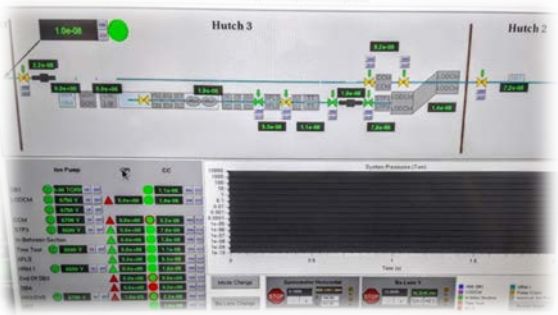


Fig 2

**STEP 05:** Using the XPP Beamline Schematic (printout or pdf) for reference, configure the XPP vacuum system in the following order:

**STEP 06:** Close VGV 1, VGV 5, VGV 2, VGV 3.

**STEP 07:** Turn off PIP 1 and ion gauges in the DVD and in-between sections.

**STEP 08:** Pumpdown (with the roughing pump only) PTP 1 and PTP 3.

**STEP 09:** Open RAV 1 and VGV 5.

**STEP 10:** Vent beamline sections 1, 2, and the in-between section.

**NOTE:** Green signal lights indicate when vented sections are at atmospheric pressure.

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**STEP 11:** Retract and latch all bellows covers out of the way.
**STEP 12:** Remove all chain clamps from EVAC flanges.

**STEP 13:** Use clean gloves to separate the EVAC flanges and cover ends with UHV aluminum foil.

**STEP 14:** Using at minimum 4 persons, remove section 1 beampipe and transport to beam lifter.

**STEP 15:** Rotate the section 1 beampipe 180deg pointing the attached support stands upward.

**STEP 16:** Release section 2 beampipe from its clamshell support.

**STEP 17:** Raise both beampipe section with pipe lifter about 12 inches.

**STEP 18:** Replace aluminum foil with blank flanges.

**STEP 19:** Raise both beampipe section with pipe lifter to maximum height.

**STEP 20:** Move the sliding beamstop to its south-most position.

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**STEP 21:** Remove protective covers from SB2/3 tracks, set aside.

**STEP 22:** Loosen and raise SB2/3 north linear-slide locking screws.

**STEP 23:** Using the hand crank, translate SB2/3 to its south-most position.

**STEP 24:** Spot the translation. Verify cables and other components are not in the way.

**STEP 25:** Lock the SB2/3 south linear-slide locking screws securely.

**STEP 26:** Lower the locking screws and replace liner-slide covers on the north side of SB2/3.

**STEP 27:** (optional) remove the GON step plate. Use the Tech Screen to translate the GON to X = 0.

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**STEP 28:** Close both vent valves. Start rough pumping the in-between and DVD sections.

**STEP 29:** Start PTP 1 and PTP 3. After ~10 minutes, turn on the CCGs at in-between and DVD sections.

**STEP 30:** When the pressure of the DVD section is <5E-6, turn on PIP 1.

**STEP 31:** When pressure of the in-between section is <5E-7, open VGV2 and VGV 3.

**STEP 32:** Close RAV 1 then power down PTP 1. Vent PTP 1 with N2 at this time.

**STEP 33:** When pressure of the DVD section is <5E-7, close VGV 5.

**STEP 34:** Power down and PTP 3 and vent with N2 at this time.

**STEP 35:** Shut off N2 at the in-between and DVD sections and at the LN dewar.

**Lead tech:** Inform the duty tech that “Mode change to XPP” is complete. Update ServiceNow ticket.

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