

## *Carbon Coating* **BOC Edwards Auto 306**

The system should be running and at high vacuum. The display/touch control panel will most likely have fallen asleep. Touch it to activate the display.

- 1.) Press the 'seal' icon on the touch pad to close the plate valve between the specimen chamber and the turbomolecular pump (TMP).
- 2.) Press the 'vent' icon to release the vacuum in the specimen chamber (bell jar).
- 3.) Release the latch on the specimen chamber lift rod assembly.
- 4.) The specimen chamber should lift slightly when atmospheric pressure is reached. CAREFULLY lift the bell jar and rotate it out of the way. Be sure not to allow it to hit any of the threaded rods which might chip the glass.
- 5.) Wearing gloves remove the carbon rod holder and resharpen/retension the carbon rods. Return the carbon source to the chamber. Position the samples below the carbon source. A slightly folded piece of filter paper can be placed next to the samples to judge deposition
- 6.) Carefully return the specimen chamber (bell jar) back over the sample stage. Close the latch on the specimen chamber lift rod assembly.
- 7.) Press the 'cycle' icon on the touch pad. Wait for the desired vacuum to be obtained.
- 8.) When the desired vacuum has been reached, make sure the potentiometer is set to zero. The LT selector should be in position 'D' (30V, 30 amps). Then turn the LT/HT switch to LT. Increase the current to the rods by clockwise rotation of the potentiometer. Turn the potentiometer counter clockwise to zero when the desired coating has been achieved.
- 9.) Refer to step 1.) for specimen removal. Make sure you leave the chamber at vacuum (proceed through step 7.). Record your name and account number on the usage sheet.

## *Glow Discharge* **BOC Edwards Auto 306**

The system should be running and at high vacuum. The display/touch control panel will most likely have fallen asleep. Touch it to activate the display. Make sure the Argon cylinder main valve is open but DO NOT ADJUST THE REGULATOR PRESSURE.

- 1.) Press the 'seal' icon on the touch pad to close the plate valve between the specimen chamber and the turbomolecular pump (TMP).
- 2.) Press the 'vent' icon to release the vacuum in the specimen chamber (bell jar).
- 3.) Release the latch on the specimen chamber lift rod assembly.
- 4.) The specimen chamber should lift slightly when atmospheric pressure is reached. CAREFULLY lift the bell jar and rotate it out of the way. Be sure not to allow it to hit any of the threaded rods which might chip the glass.
- 5.) Position the samples on the rotational stage.
- 6.) Carefully return the specimen chamber (bell jar) back over the sample stage. Close the latch on the specimen chamber lift rod assembly.
- 7.) Press the 'process' icon on the touch pad. Wait for the touch pad to read: "Process Sequence Throttle Pumping". 30 seconds after these words appear the system should open the argon bleed valve and the chamber vacuum should drop somewhere between 1.00 to 1.9E -1 mBar. The vacuum must be in this range to create a plasma.
- 8.) The LT selector should be in position 'C'. Then turn the LT/HT switch to HT. Increase the current to the plasma glo assembly by clockwise rotation of the potentiometer until the desired plasma is obtained. At the end of the desired plasma time, turn the potentiometer counter clockwise to zero. Return the LT/HT selector switch to the 0 position.
- 9.) Refer to step 1.) for specimen removal. Make sure you leave the chamber at vacuum (proceed to step 7 but select "cycle" instead of "process" on the keypad). Record your name and account number on the usage sheet.

## *Thermal Evaporation* **BOC Edwards Auto 306**

The system should be running and at high vacuum. The display/touch control panel will most likely have fallen asleep. Touch it to activate the display.

- 1.) Press the 'seal' icon on the touch pad to close the plate valve between the specimen chamber and the turbomolecular pump (TMP).
- 2.) Press the 'vent' icon to release the vacuum in the specimen chamber (bell jar).
- 3.) Release the latch on the specimen chamber lift rod assembly.
- 4.) The specimen chamber should lift slightly when atmospheric pressure is reached. CAREFULLY lift the bell jar and rotate it out of the way. Be sure not to allow it to hit any of the threaded rods which might chip the glass.
- 5.) Wearing gloves, place a tungsten wire or tungsten basket in the thermal evaporator assembly. On the tungsten wire, load the material (what type of material and how much?) to be deposited. Position the metal in the desired proximity to the specimen (distance and angle?).
- 6.) Carefully return the specimen chamber (bell jar) back over the sample stage. Close the latch on the specimen chamber lift rod assembly.
- 7.) Press the 'cycle' icon on the touch pad. Wait for the desired vacuum to be obtained.
- 8.) When the desired vacuum has been reached (liquid nitrogen added to the cold trap will provide a cleaner vacuum), make sure the potentiometer is set to zero. The LT selector should be in position 'B' (10V, 100 amps) if using the back threaded terminals. Then turn the LT/HT switch to LT. Increase the current to the tungsten wire/basket by clockwise rotation of the potentiometer. Turn the potentiometer counter clockwise to zero when the desired coating has been achieved.
- 9.) Refer to step 1.) for specimen removal. Make sure you leave the chamber at vacuum (proceed through step 7.). Record your name and account number on the usage sheet.

Contact CMRF staff with any questions.