CORAL Name:	STS 2
Model Number:	ICP
Location:	TRL

Introduction: The ST Systems Multiplex ICP tool is a Deep Reactive Ion Etch (DRIE) tool. It provides high aspect ratio etching and deep/through wafer anisotropic etching capabilities. The tool uses two independent 13.56MHz Radio Frequency (RF) power supplies - a 1000W supply for a single-turn coil around the etch chamber and a 300W supply connected to the wafer electrode to vary the RF bias potential of the wafer with respect to the plasma. The efficient inductive power coupling of the coil to the plasma allows high density plasmas to be maintained. The tool uses the Bosch process of time multiplexed deep etching (TMDE) to achieve high aspect ratio etches. This process utilises an etch cycle flowing only SF_6 and then switching to a sidewall passivation cycle using only C_4F_8. During the subsequent etch cycle, the passivating film is preferentially removed from the bottom of the trenches using ion bombardment.

Safety: Due to the toxic nature of the process gases, the supply cylinders are turned on and off by qualified technical staff only. All tank changes are performed by qualified technical staff only.

Do not try to defeat any interlock on the system. Keep your hands away from all moving parts and be sure that all covers are in place when you are processing. If you encounter any equipment problems while operating the system, contact the technical staff in charge of the system. Do not try repairs on your own.

Procedure: It is mandatory to reserve the system prior to use and to ENGAGE MACHINE prior to starting your process in CORAL.

Loading a Wafer:

The wafer is loaded into the system using the Transfer window located on the lower right of the screen:
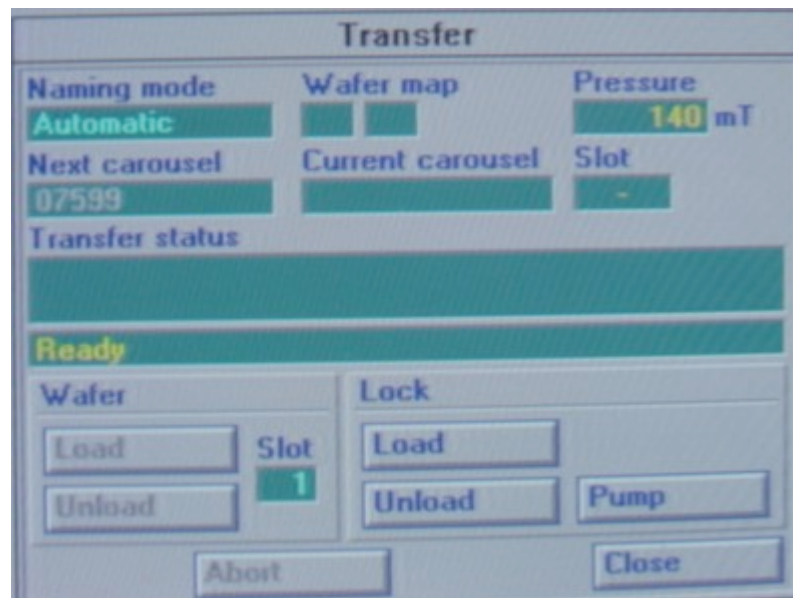

Click on the **Unload** button under the **Lock** heading to vent the loadlock to atmosphere. Manually load the wafer onto the load arm using a pair of tweezers and shut and latch the loadlock lid.

Using a Sequence:

Load the desired sequence using the Sequencer window located on the middle right side of the screen:

Click on the **Open** button to display the list of available sequences. Use the **View** button to check that the selected sequence utilises the correct recipe and the Batch size is correct for your number of wafers.
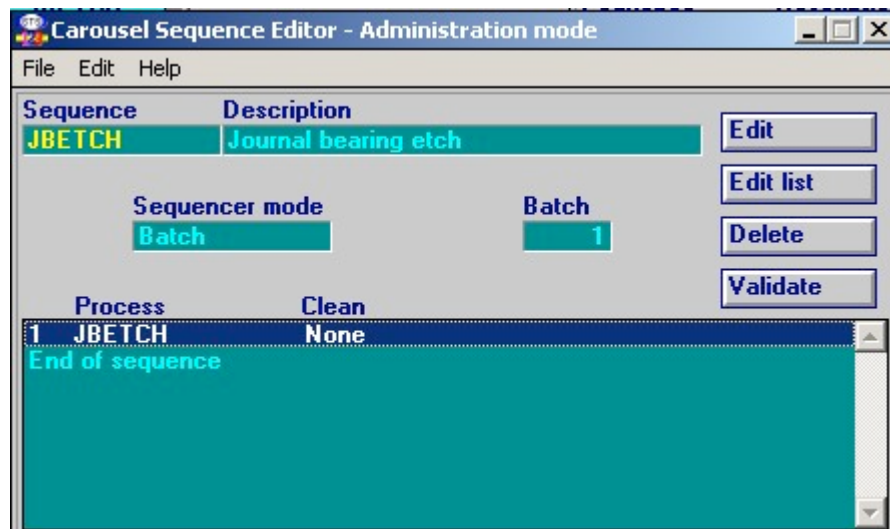

Before beginning the process, open the Recipe Editor and ensure that the correct process time has been entered (see the Editing a Recipe section below). If everything is correct, click on the **Run** button on the Sequencer window. The system will automatically load the wafer, run the recipe and unload the wafer to the loadlock. When the wafers have completed processing, they can be removed from the loadlock by clicking the **Unload** button on the Transfer window.

Using Manual Mode:

Once the wafer has been loaded and the loadlock has been pumped down to base pressure, click on the **Load** button under the **Wafer** heading on the **Transfer** window. Load the correct recipe by clicking on the yellow text on the center left of the Process window:

Editing a Recipe:

Open the Recipe Editor by clicking on the **Recipe** button on the right side of the **Process Parameters** window. On the **General** control screen the process time may be adjusted. The **Pressure**, **Gases**, and **R.F.** tabs may be clicked on to view the recipe parameters but no other set point should be adjusted without consulting the Engineer in charge of the tool.
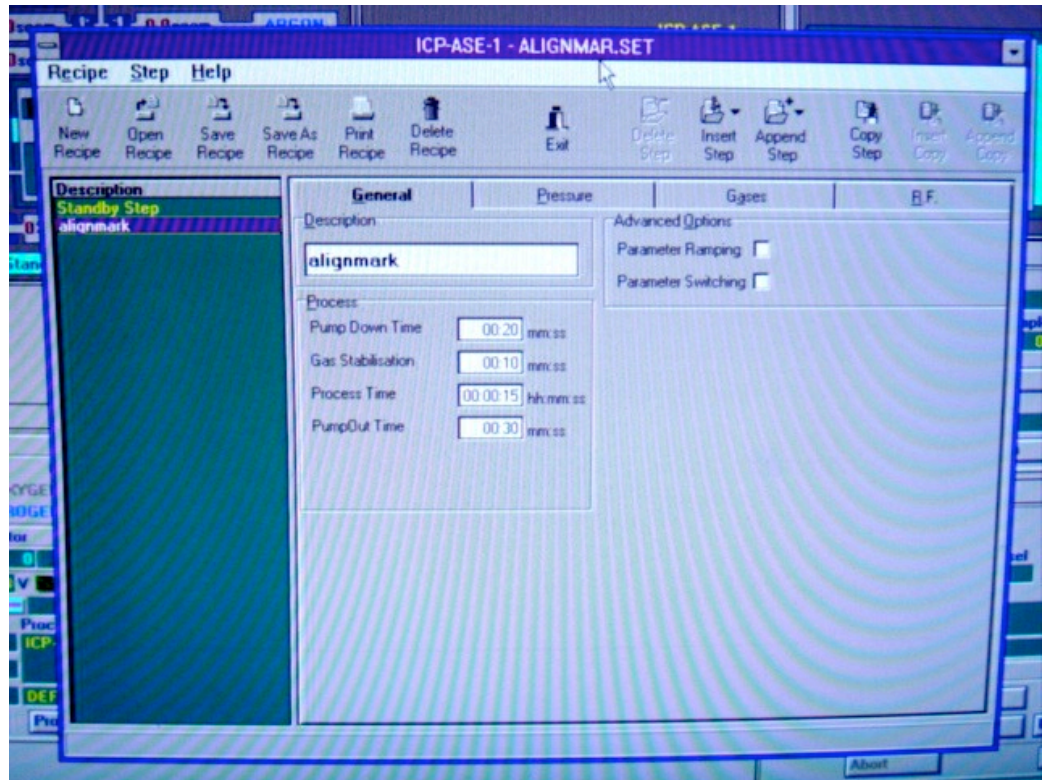
If there are any issues with the tool post a comment in CORAL and contact Donal 2-2983.