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 <sub>6</sub> 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 remains 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:

	Transfer	
Naming mode Automatic Next carousel 07599	Wafer map Current carousel	Pressure 140 mT Slot
Ready		
Wafer	Lock	
Load	ot Load	
Unload	Unload	Pump
Abort		Close

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:

Sequencer					×
Sequence	Description				
JBETCH	Journal bearing etch Upen				
Mode	Batch		Started	Complete	
Finishing	1 Wafer		1	0	View
Naming mode	Next carouse	el 🛛			
Automatic	#0232			Load	Batch
Wafer	ID Step	Stat	us		
#1695-1	W2 1	Ru	nning JBET	CH	
Run	Abort	Hold	ł	Finish	Close

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.

🎇 Carousel Se	quence Editor - Admini	istration mode	
File Edit Help			
Sequence JBETCH	Description Journal bearing et	ch	Edit
Sequ	iencer mode	Batch	Edit list Delete
Process	Clean		Validate
I JBEICH End of sequer	None		<u> </u>
			<b>X</b>

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.

	ADCON. MININGS STREET	IPD APP 4
Pacine Step Help	ICP-ASE-1 - ALIGN	MAR.SET
New Open Save Recipe Recipe	Save As Print Delete Exit	Lo Defete Inset Append Copy Inset App Step Step Step Step Copy 0
Description Standby Step alignmerk	General     Press       Description     alignmark       Process     Pump Down Time     00.20 mm.ss       Gas Stabilization     00.10 mm.ss     Process Time     00.00.15 hbmms       Process Time     00.00.15 hbmms     PumpOut Time     00.30 mm.ss	#e Ggees E.F.   Advanced Options Parameter Ramping F   Parameter Switching F

If there are any issues with the tool post a comment in CORAL and contact Donal 2-2983.