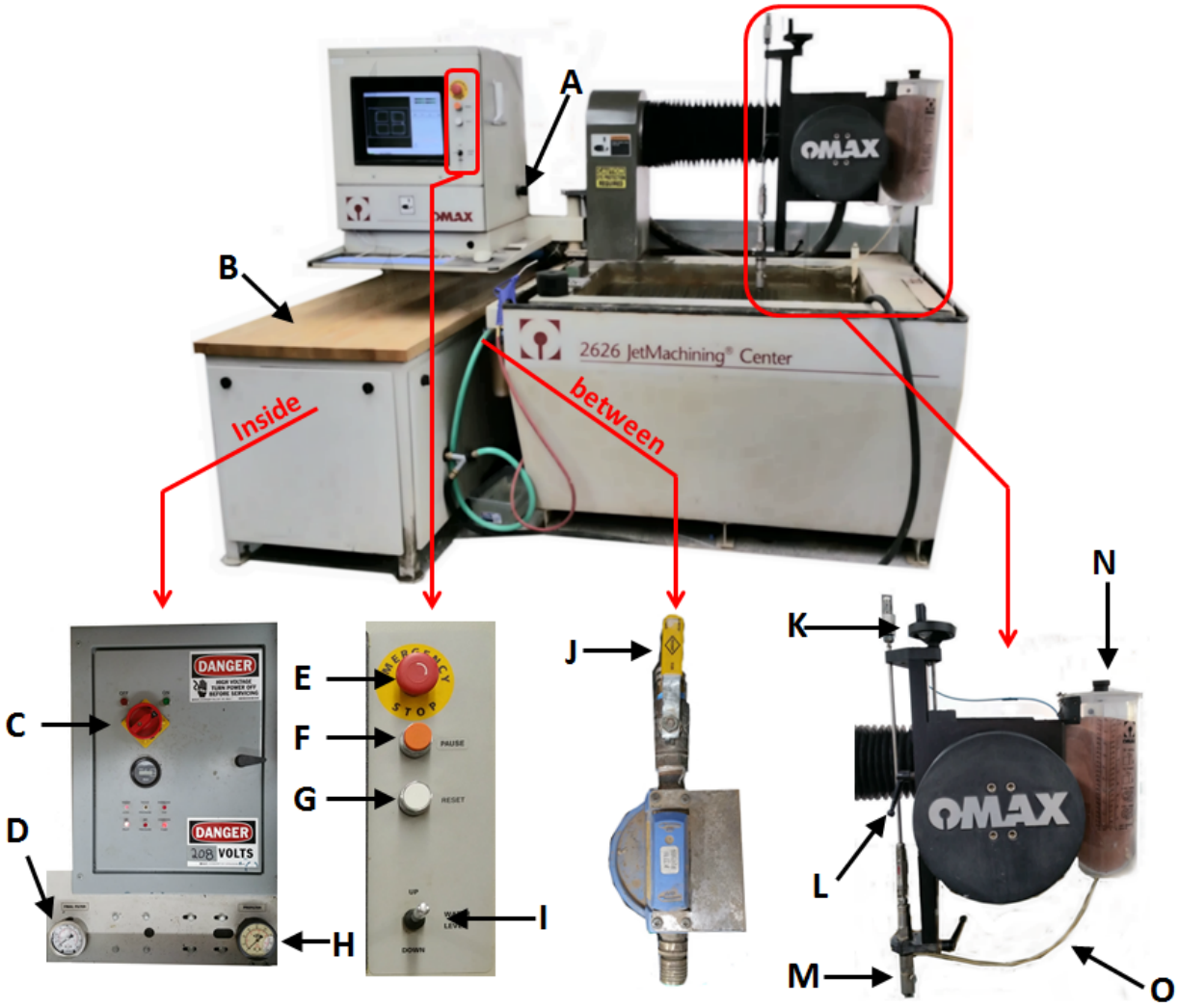
Waterjet Refresher Guide

If you suspect the machine is not operating properly, contact mw-waterjet@mit.edu immediately! Cell: (773) 318-6844



A – Computer ON/OFF
B – Pump Chest
C – Pump ON/OFF
D – Final Filter Pressure
E – Emergency STOP
F – Pause
G – Reset
H – Prefilter Pressure
I – Water Level Control
J – Water Supply ON/OFF
K – Z Height Wheel
L – Z Lock Lever
M – Nozzle & Guard
N – Garnet Tube
O – Garnet Reservoir

Start Up

Turn On Computer Power

Turn Computer ON/OFF Dial to the ON position.

Turn On Water Supply

Turn the Water Supply ON/OFF Value to the ON position (**in-line** with the hose).

Air Supply - The air supply stays on and thus should be on already!

Turn On Pump Power

Turn the computer to the right away from the Pump Chest **(DO NOT HIT THE NOZZLE!).**

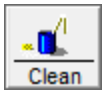
Pull up on the wood top to open Pump Chest and turn the Pump ON/OFF to ON position.

OMAX Layout

Import .DXF File

Click File >> Select Import from other CAD… >> Click Okay >> Decide if to scale to mm

Note: OMAX Layout assumes parts were drawn in inches & thus asks to scale to mm



Clean Up Drawing

Click Clean Button >> Check *Remove unnecessary "dots".* >> Click Start

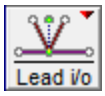
Set Cutting Quality

Click Quality Button >> Click quality >> Select segments to be cut at that quality

OR

Select segments to be cut at same quality >> Right Click Quality Button >> Click quality

Note: The segments will be changed to the color of the quality selected.



Create Lead In / Lead Out Paths

Right Click Lead i/o Button >> Select AutoPath (Advanced & Configure)...

>> Select *Starting Corner* and *Method* number or Auto-Pick >> Click Go!

Create Tabs

Right Click Lead i/o Button >> Select Create Tab >> Enter desired *Gap Length* and *Leg*

Length >> Click near a line in the drawing to create a tab extending to that side of the line

Create Cutting Path

Right Click Path Button >> Select Automatically Generate (Default)

A cursor will appear with *PICK START* >> Click start of your transverse (green) line

Check Cutting Path

(1) Check *Tool Offset to show* and enter desired tool offset if incorrect

(2) Make sure the kerf (thick red line) is on the outside of parts & the inside of holes

Send Cutting Path to OMAX Make

Right Click Path Button >> Select Open Path in Windows Make…

OMAX Make / Cutting

Enter Material Setup

Select material type & thickness on the 1st screen that appears when OMAX Make opens

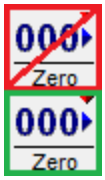
Check Tool Offset

Check the *Tool Offset* and enter desired tool offset if incorrect

Make Multiple Copies of Part (Optional)

Click Nest >> Specify number of *columns*, *rows*, and *x* & *y* spacing >> Click Save

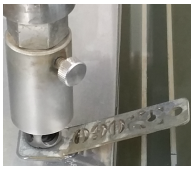
Click OK



Set Path Start (X/Y start)

Move the nozzle to the X/Y position to start cutting from >> Click **BOTTOM** Zero Button

Note: **DO NOT CLICK** the top Zero Button as that is the position of the bed's corner!



Set Z Zero Position

Unlock the Z stage (turn upward Z Lock Lever) >> Move nozzle (turn Z Height Wheel) to ~ 60 thousandths above the stock (thickness of metal spacer) >> Lock the Z stage (turn downward Z Lock Lever)

Check Toolpath Boundaries

Go To Spot On Path (Optional)

Right Click Begin Machining >> Click Go To Spot On Path… >>> Click on toolpath

Use to check toolpath boundaries as the nozzle will move to that spot on the toolpath

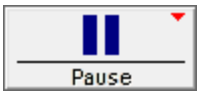
Dry Run (Optional)

Move the nozzle up 6" >> Click Go Home Button to home nozzle >> Click Begin Machining >> Right Click Start >> Select a dry run option >> Watch dry run >> Move nozzle down to zero height.

Actual Run

Cutting

Click Go Home Button to home the nozzle >> Raise water level to 1" below top of water basin >>Click Begin Machining >> Click Start >> **WATCH THE WATERJET CUT THE PART!!!!!**



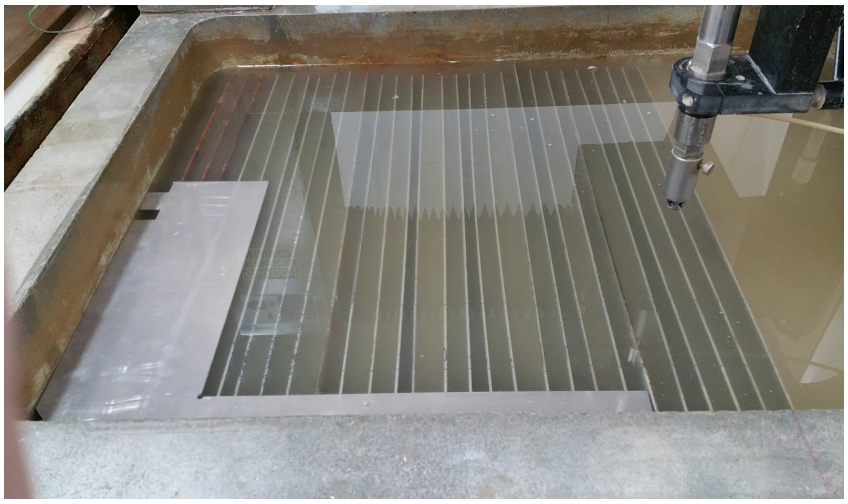
Pausing

Click Pause Button to stop the nozzle moving and / or cutting immediately

OR

Right Click Pause Button >> Select a stop option to pause while traversing

Shut Down



CLEAN UP!!!

- Move nozzle out of the way
- Hose garnet off corner plate
- Squeegee surfaces dry
- Put back clamps and weights
- When done, the waterjet bed should look like above.

Shut Down Computer

Note: We cannot turn off power to the computer until it is completely shut down!

Turn Off Pump Power

Turn the computer to the left away from the Pump Chest **(DO NOT HIT THE NOZZLE!).**
Pull up on the wood top to open Pump Chest and turn the Pump ON/OFF to OFF position.

Turn Off Water Supply
Turn the Water Supply ON/OFF Value to the OFF position (**perpendicular** with the hose).

Air Supply - The air supply stays on and thus can be left alone.

Turn Off Computer Power
Turn Computer ON/OFF Dial to the OFF position.