# Waterjet Standard Operating Procedure

LIMITATIONS

- ❑ The checklist doesn't cover usage of DXF, FlowPATH, manual cuts and USB. It is intended for use using F360 CAM and Network based upload to the Waterjet.

- ❑ This checklist doesn't cover waterjet cutting tubes, ceramics, laminated material and glass.

- ❑ This checklist doesn't cover filling garnet, diagnosis waterjet problems, applying grease, cleaning way-covers, changing water, machine power up, machine power down and machine homing.

- ❑ This checklist also doesn't cover side clamping or free cutting styles of fixturing. The only methods covered are clamp down fixturing. To ensure adequate clamping area, please ensure you stock, and part meet the following requirement:
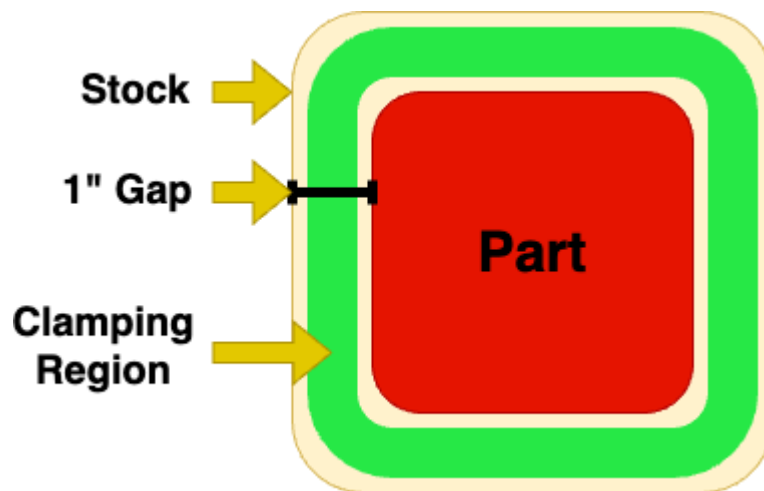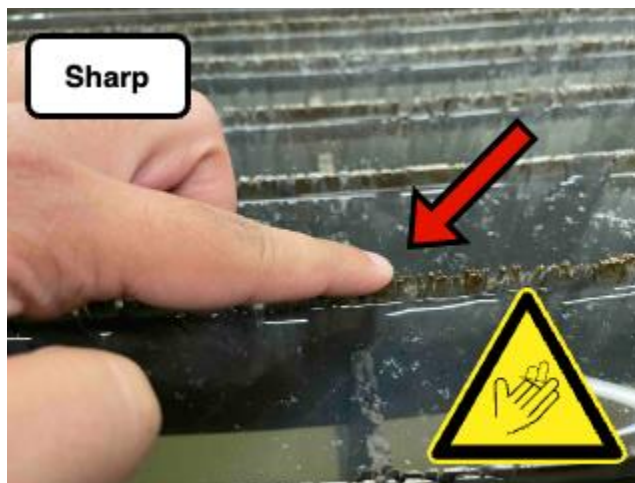

- ❑ If you are working outside the limitations of this checklist, you need to get a supervisor, graduate peer mentor or a member of full-time staff.

MACHINE SPECIFIC HAZARDS

❑ Hands can get pinched on nozzle and stock.
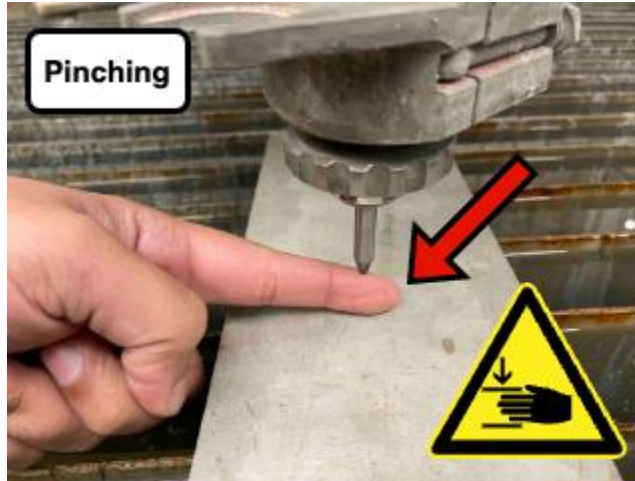
❑ The slats can cut your hands. Wearing cut gloves is recommended.

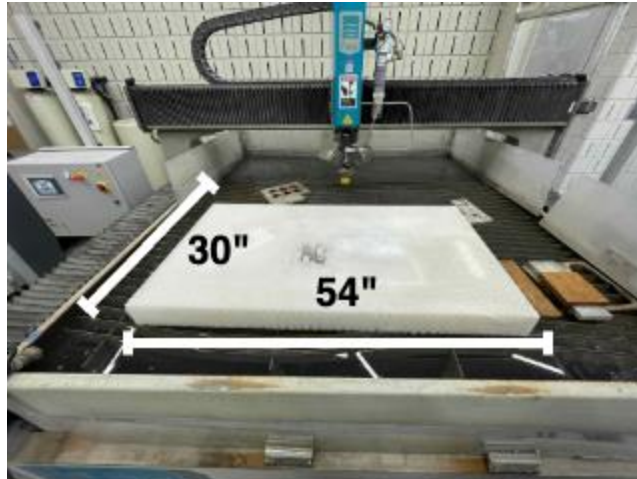❑ The water in the tank can be dirty. Wearing nitrile gloves under the cut gloves is
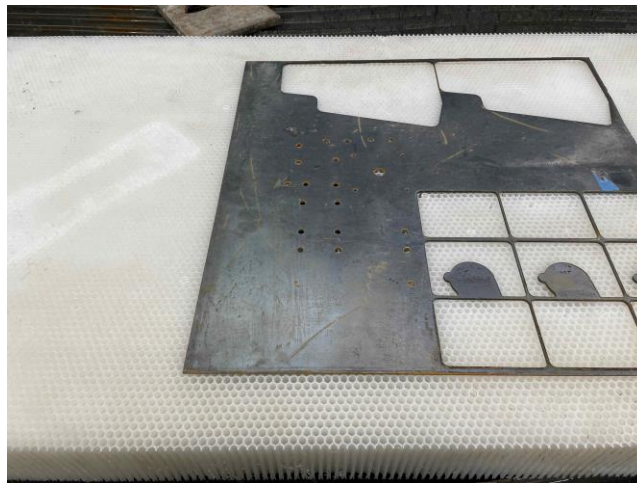
recommended.

❑ Stock can be heavy.
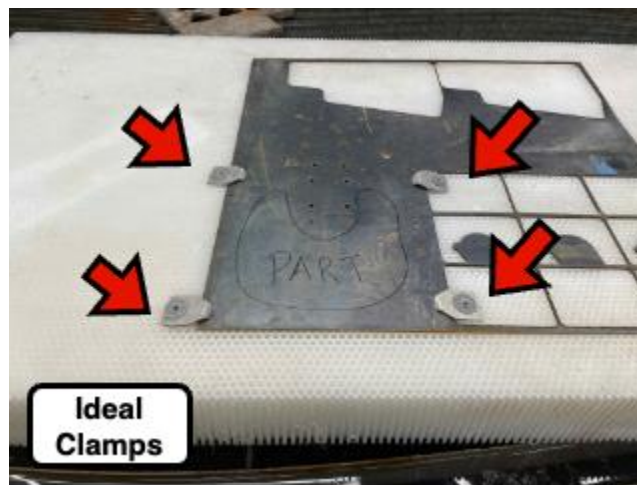

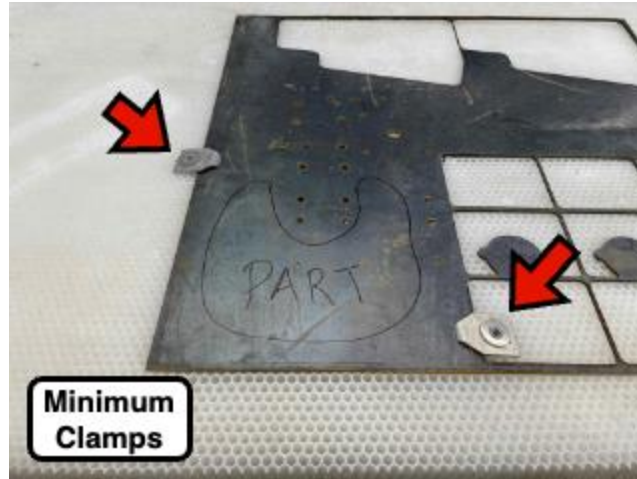**PRE-FLIGHT**

Using Rhino Board
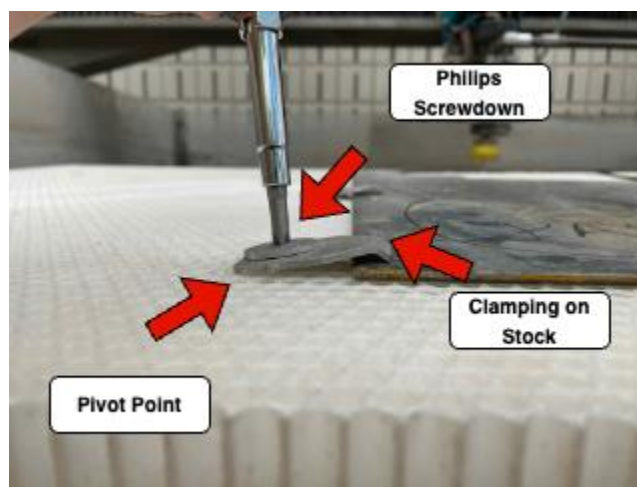
❑ The stock needs to be smaller than the rhino board.

- ❑ The stock needs to be <= 1/8" thick.

- ❑ The stock needs to be <= hardness of aluminum.

- ❑ Place rhino board on waterjet slats.

- ❑ Place stock on rhino board.

- ❑ Pick at least 2 opposite points to clamp. Ideally clamp on 4 corners.

Minimum Clamps

Ideal Clamps

❑ Clamp as shown in image below. Be careful about accidentally dropping items in the tank.

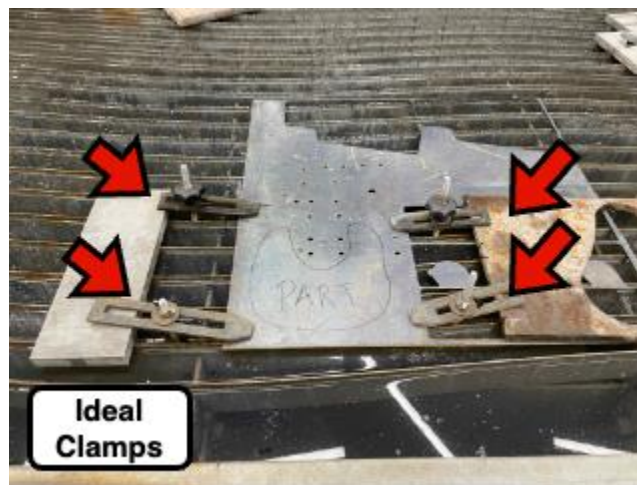Philips Screwdown

Clamping on Stock

Pivot Point

Using Slats

❑ The part needs to be smaller than the travel limits.

❑ The stock needs to be > 1/8" thick or > hardness of aluminum.

❑ Place stock on slats.

❑ Pick at least 2 opposite points to clamp. Ideally clamp on 4 corners.

Minimum Clamps

Ideal Clamps

❑ Clamp as shown in image below. Be careful about accidentally dropping items in the tank.

Pivot Point Thicker Than Stock

Hand Turn Knob

Clamping on Stock

Clamps to the Bottom of Slats

Load Program

❑ Open FILESHARE folder from DESKTOP.

❑ Cut-Paste your file/s to the DESKTOP.

❑ Open FLOWCUT.

❑ Click on FILE in the MENU BAR.

❑ Click on OPEN.

❑ OPEN your file from the DESKTOP.

❑ Select your MATERIAL.

❑ Select your THICKNESS.

❑ Ensure PIERCE TIME is >= 1 sec.

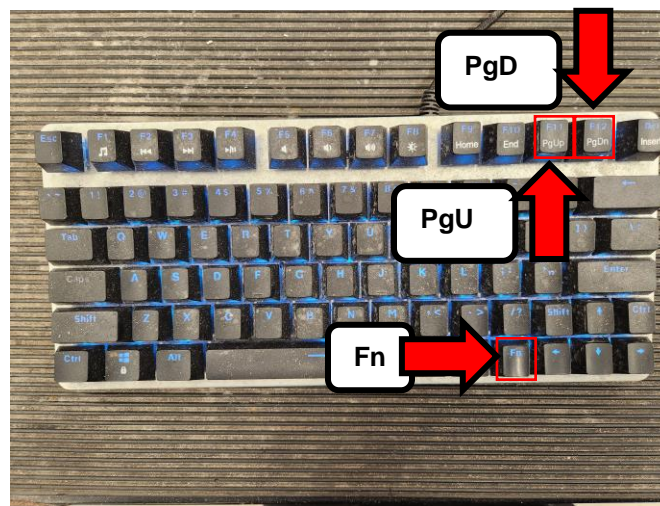❑ Toggle DYNAMIC on for stock > ½" thickness. Otherwise, ensure DYNAMIC is off.
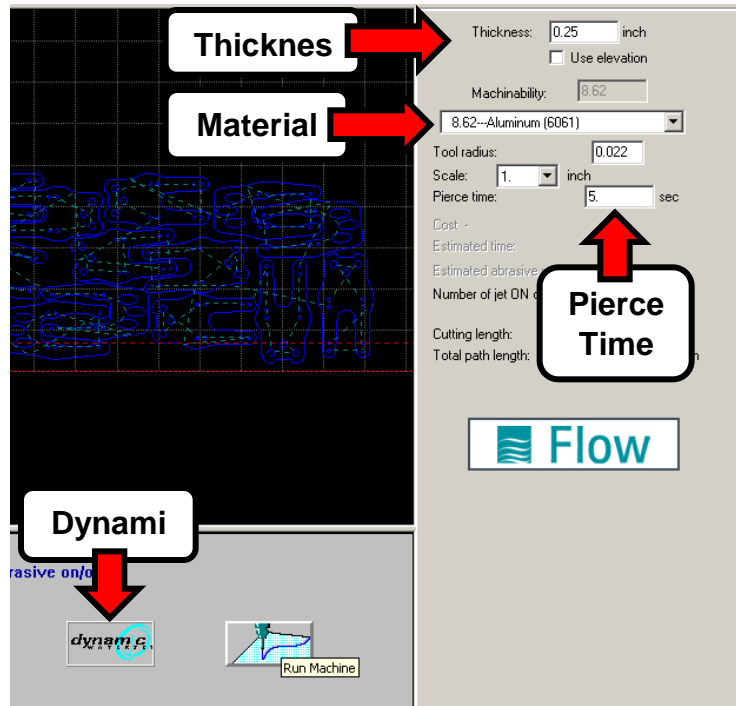
❑ Run SIM and ensure that the waterjet is making cuts you expect.
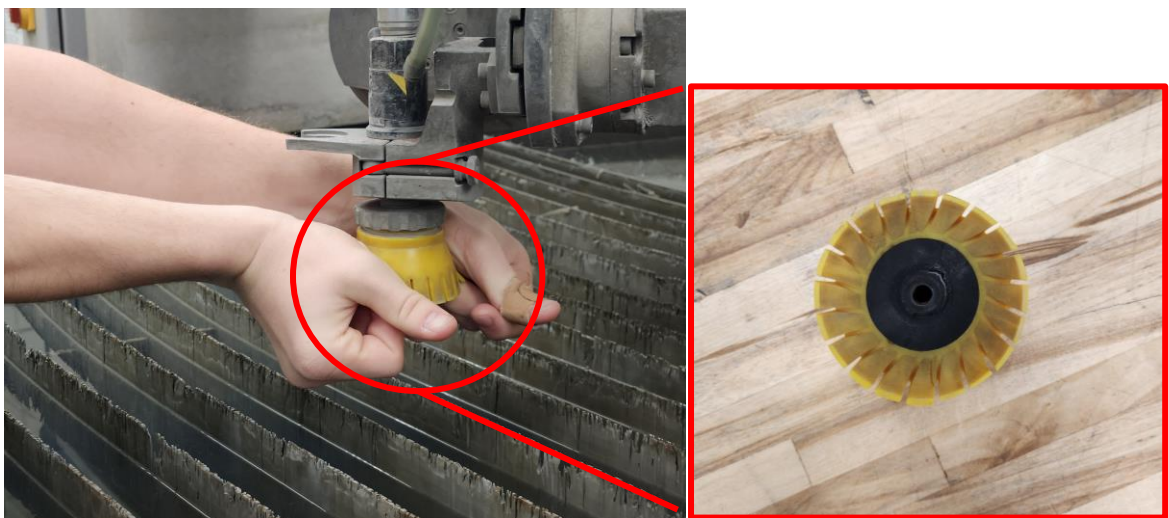
Setting User Defined Home
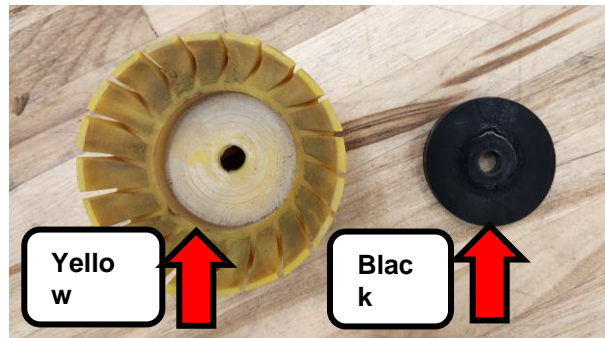
❑ Enter the Run environment by selecting **RUN MACHINE**
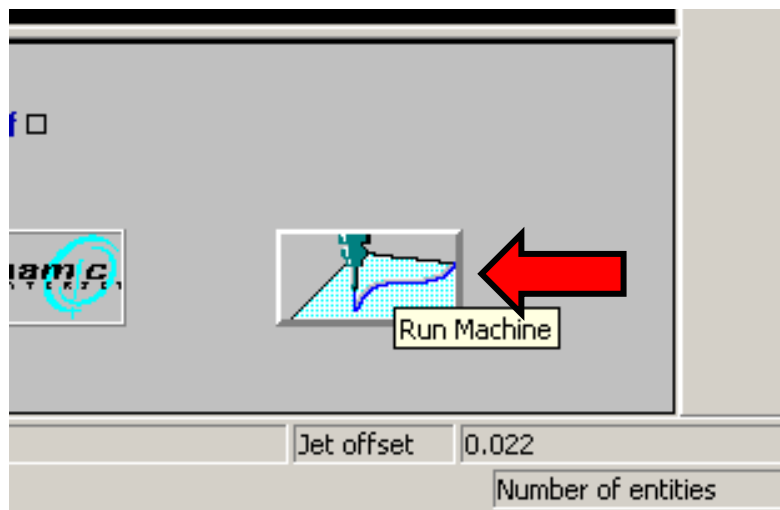
❑ Move the waterjet's head close to you, avoiding collisions. Using arrow keys for XY and
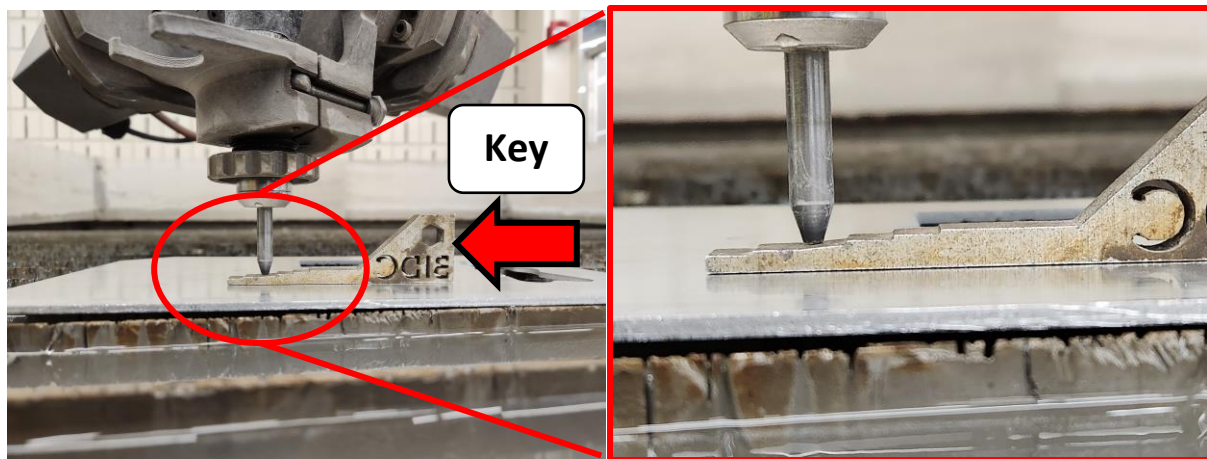
Fn + Page Up/Page Down for Z.

❑ Remove the yellow rubber guard and black puck without dropping them in the tank.
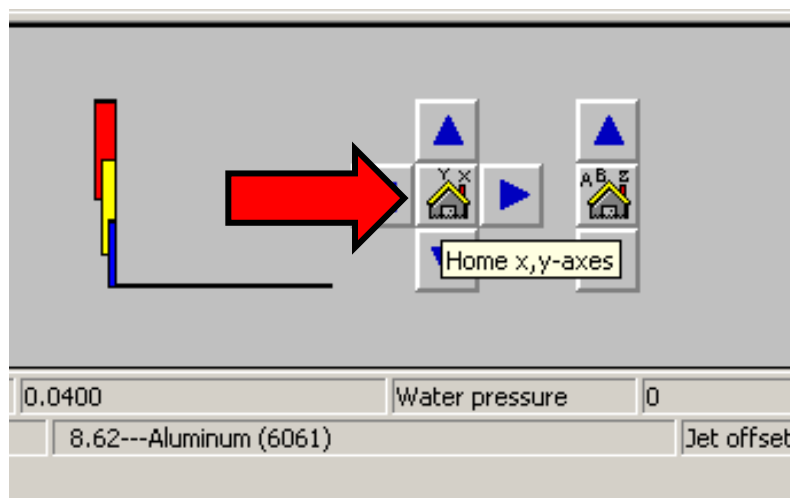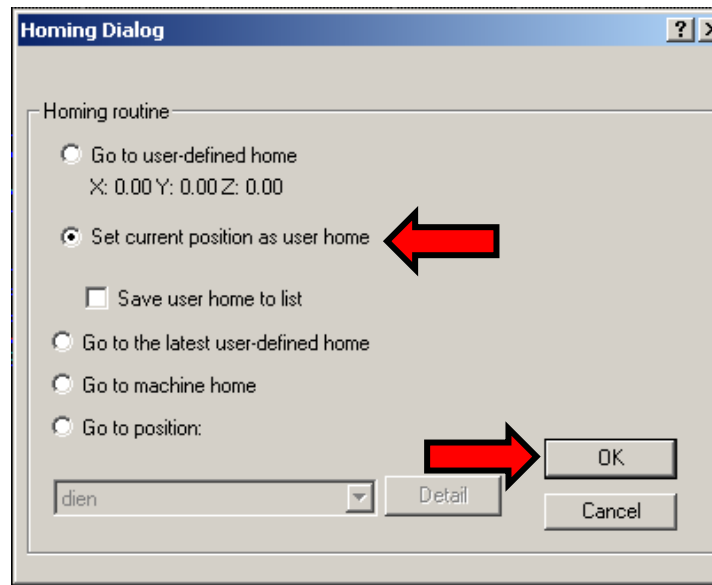
Yellow

Black

❑ Move waterjet to the location on the stock where you have set WCS in the CAM. Using the

  KEY, keep it 2 steps above the stock as shown below.

Key

❑ Select **HOME X, Y-AXES** icon found in the middle of the jog arrows

Home x,y-axes

0.0400

Water pressure

0

8.62---Aluminum (6061)

Jet offset

❑ Click **SET CURRENT POSITION AS USER HOME**

❑ Hit **OK**

❑ Move the waterjet's head close to you, avoiding collisions.

❑ Add the yellow rubber guard and black puck without dropping them in the tank.

❑ Move the waterjet's head in a position that it won't collide with anything if you were to send it home.

❑ Send waterjet's head to home.

❑ Trace around your part ensuring the head will not collide with the fixturing. Use F12 if you need to refresh the points on Flow CUT.

❑ Move the waterjet's head in a position that it won't collide with anything if you were to send it home.
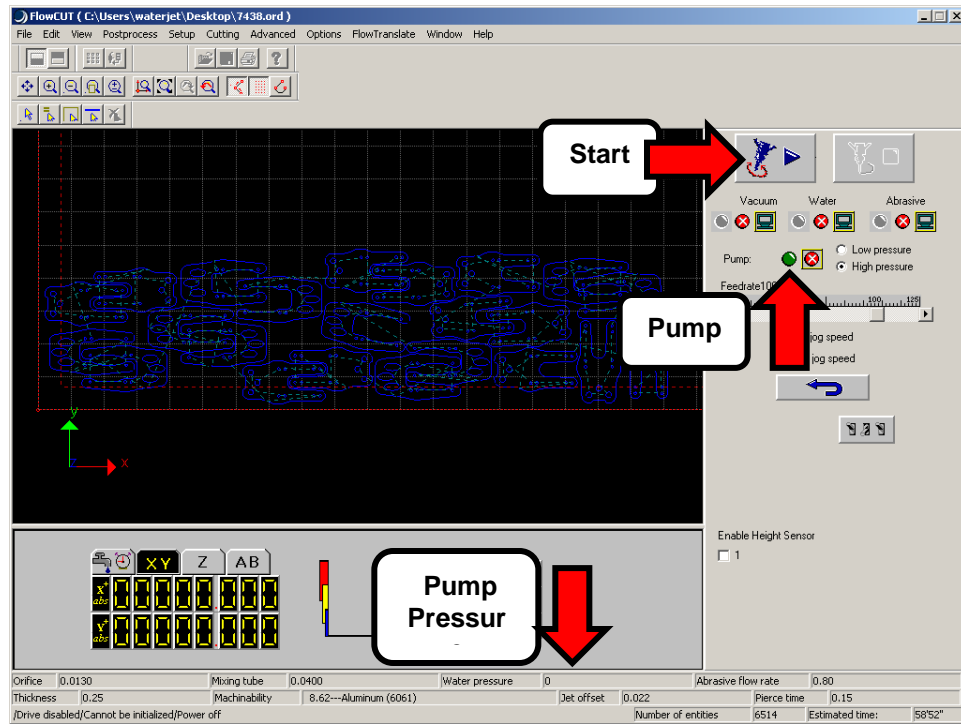
❑ Send waterjet's head to home.

OPERATE

❑ Turn on the WATER. Valves are on when in line with piping

❑ Turn on the AIR.
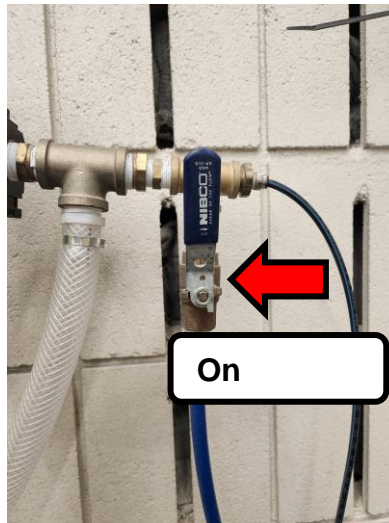
❑ Turn on the PUMP.

❑ Wait for PUMP PRESSURE to reach 50,000 PSI.

❑ Start the program using START.

❑ Be close to the STOP and EMERGENCY STOP in case something happens that is

   unexpected.

POST-FLIGHT

❑ When the cut is done, turn off the PUMP.

❑ Turn off the WATER.

❑ Turn off the AIR.

❑ Clean up the part with the water hose.

❑ Remove stock and all support hardware like clamps.

❑ Mop up the floor if there was any spill over.

❑ Complete 5-min shop job.