

Running a Job

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Running a Job

Follow this checklist every time you run a job. Complete [Preparing a Cut File](#) and have your G-code on the shop PC before starting.

Before Power-On (Safety-Critical)

- **Install and tighten the bit first** - before any spindle power; see [Hardware and Machine Anatomy](#) for collet and installation details
- Select the correct **ER20 collet** for your bit's shank diameter
- Use **two wrenches** on the spindle nut; never run with a loose collet
- Clear the spoilboard area and confirm your workholding plan
- Wear safety glasses; hearing protection as needed
- Know the **e-stop** location

Power-Up Sequence

1. Verify **e-stop** is released
2. Turn on main machine power
3. Turn on **VFD**; confirm it is in **automatic/remote mode** (NOT manual/local)
4. Boot / wake the dedicated CNC shop PC; launch **RTS-X**
5. Connect to the controller; **home the machine**

Dust collection not yet installed - use shop vac for cleanup after cuts. Dust collection is coming soon.

TBD: Preferred power-down order (VFD → main power). Shop-specific e-stop / power switch labeling.

Job Setup

1. Secure the workpiece (T-tracks)

- Use **T-tracks** with appropriate clamps, hold-downs, or toe clamps

- Screwing into the 3/4" spoilboard is acceptable when clamps won't work - avoid excessive holes
- Keep clamps and track hardware **clear of the toolpath** - check rapids in simulation
- Mind "no-go" zones near table edges where tracks may not reach

2. Set work zero (WCS)

Standard practice for most jobs:

- **XY zero:** front-left corner of your workpiece - match the origin you set in VCarve
- **Z zero:** top surface of the material (most common), or spoilboard surface for through-cuts - match your VCarve setting
- In RTS-X: jog the bit to your XY zero point and zero the X and Y axes; lower the bit to just touch the material surface and zero the Z axis
- Use a paper slip or touch-off block for Z precision; avoid crashing the bit into the spoilboard

TBD: Document our specific step-by-step touch-off procedure in RTS-X, with screenshots. Spoilboard is **3/4"** thick.

3. Import G-code into RTS-X (USB or cloud)

4. Run simulation/preview in RTS-X

- Open the file in **RTS-X** and run the built-in preview/simulation before starting
- Confirm the bit does **not plunge through material or into clamps/fixtures** on the first rapid approach
- Verify the toolpath boundaries stay within your workholding setup
- Check that the first plunge point and rapid moves look correct relative to your zeroed position
- Consider watching the first few seconds of the cut at **reduced feed override (e.g. 50%)** until you are confident the job is running correctly

5. Position spindle over safe start point; confirm feed/speed in file

During the Cut

- **Remain at the machine and supervise the entire job.** Zero tolerance for leaving unattended or leaving the room.
- Keep hands clear; never adjust clamps while the spindle is running
- Be ready to hit **e-stop** or feed-hold

Shutdown

1. Stop spindle; return to safe park position if applicable
2. Remove workpiece and clean up

3. Vacuum chips; check spoilboard for damage
4. Power down VFD, then main power
5. Log any issues on Slack

← [Preparing a Cut File](#) | Next: [Maintenance and Troubleshooting](#) →

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