

CNC

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Crow Industries
Scottsdale, Az

Maintained/Programmed by Alexa Tuchtenhagen

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What is *CNCing*?

Project Overview

This project was a major learning curve for me. I was tasked with restoring a CNC machine that arrived with cut wires, missing connections, and various parts scattered around the shop — including equipment that appeared to belong with the machine but ultimately didn't. My responsibility was to diagnose the issues, rebuild the wiring system, reassemble the necessary components, and get the CNC fully operational so it could begin cutting metal again.

Goal

The goal was to get the CNC machine fully operational by November 1st — and I met that deadline. This process required researching CNC operation from scratch and contacting the manufacturer to confirm wiring details and system setup. I also leaned on outside expertise, including help from my brother who works with CNC machines, to ensure everything was configured safely and correctly. By the end, not only was the machine running, but I had successfully learned the fundamentals of CNC operation and maintenance.

Team

Lead: Alexa Tuchtenhagen

Support: Ryan Tuchtenhagen

Support: Professor Murray

Support: Langmuir Crew

Bill of Materials

- Langmuir MR-1 CNC
- Random bits
- Random vise
- Langmuir lowclearance vise
- Metal
- Coolant
- Old computer

What Went Well?

I successfully got the CNC machine up and running — just in time for Halloween — and completed my first CNC-cut part, which was a huge milestone. Repairing and rewiring the machine went smoothly, and I was able to source and install the proper equipment needed for reliable operation. Overall, bringing the system back to life and producing a real cut from scratch (especially as a first-time CNC user) was incredibly rewarding and built my confidence working with fabrication equipment.

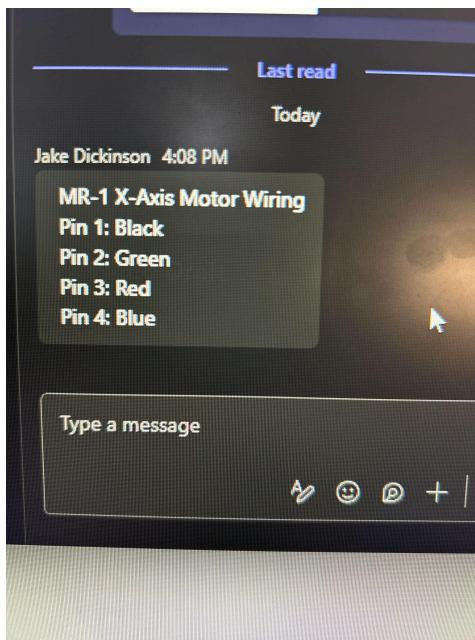
What Could Be Changed?

Managing multiple tasks at once made this project more challenging than expected. I was working on the CNC setup while also supporting several other responsibilities, which stretched my time and slowed progress. On top of that, this was my first time ever using a CNC machine, so there was a natural learning curve as I familiarized myself with the software, wiring, and safety procedures.

We also did not initially have access to the original computer system for the CNC, and the newest version of Langmuir's CutControl software was incompatible, which caused unexpected troubleshooting delays. Handling the old coolant and coordinating with the manufacturer added more time — they were in a different time zone and cautious about sharing wiring details (which I understand for safety reasons), but it made the process slower. We also had a minor wiring setback during repairs, which extended the timeline further.

With fewer competing tasks, proper system access from the start, and less time spent troubleshooting external factors, the CNC setup could have progressed more smoothly. Still, overcoming these obstacles helped build my confidence, adaptability, and technical problem-solving skills with equipment I had never worked with before.

Schematic



Other Documentation

CNC Cutting

