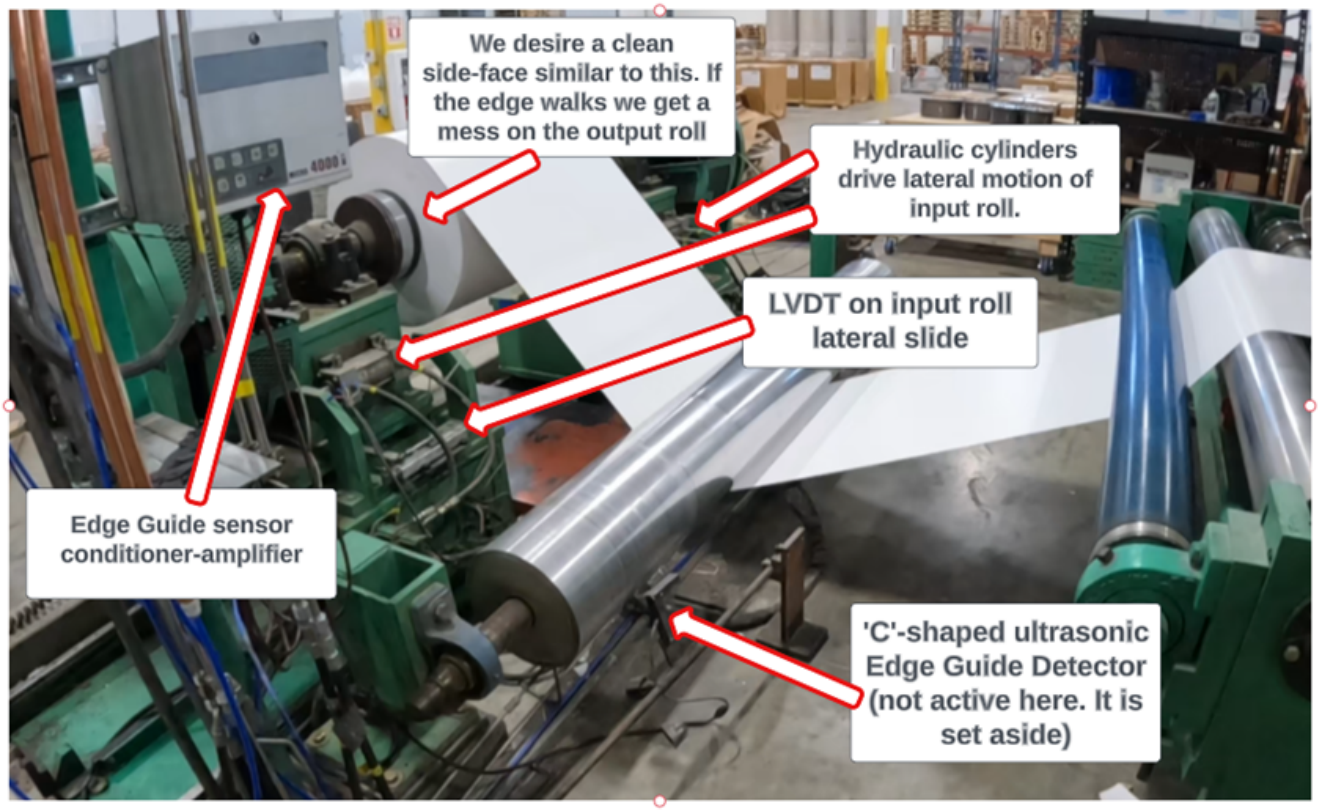
Step 1: System Configuration and Quick Try

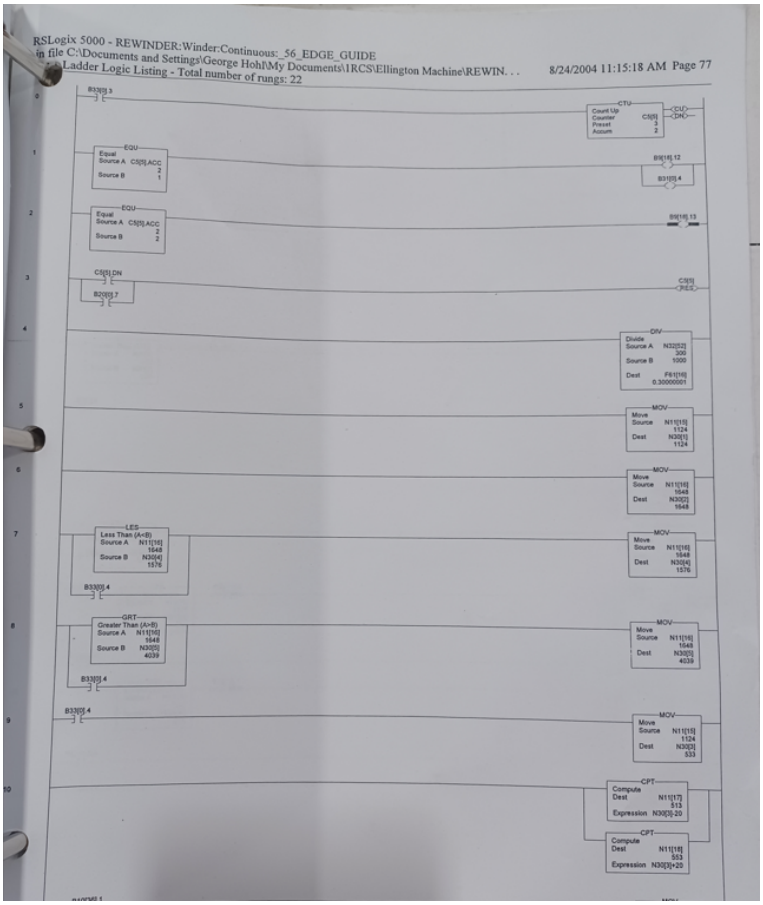
All the drive and sensor systems are installed and in-place. An Allen-Bradley PLC contractor indicates there is resident code to enable, and there’s a ladder logic printout in a document binder that arrived with the machine. First try: tune what’s there.



Paper Slitter-Rewinder Edge Control System Components.

First Try: Enable and Test Resident PLC Logic

An Allen-Bradley PLC technician with tools to access the installed code attempted to activate and then tune the resident edge position feedback code. Attempts to tune a PID loop off the Edge Guide alone did not produce satisfactory results.

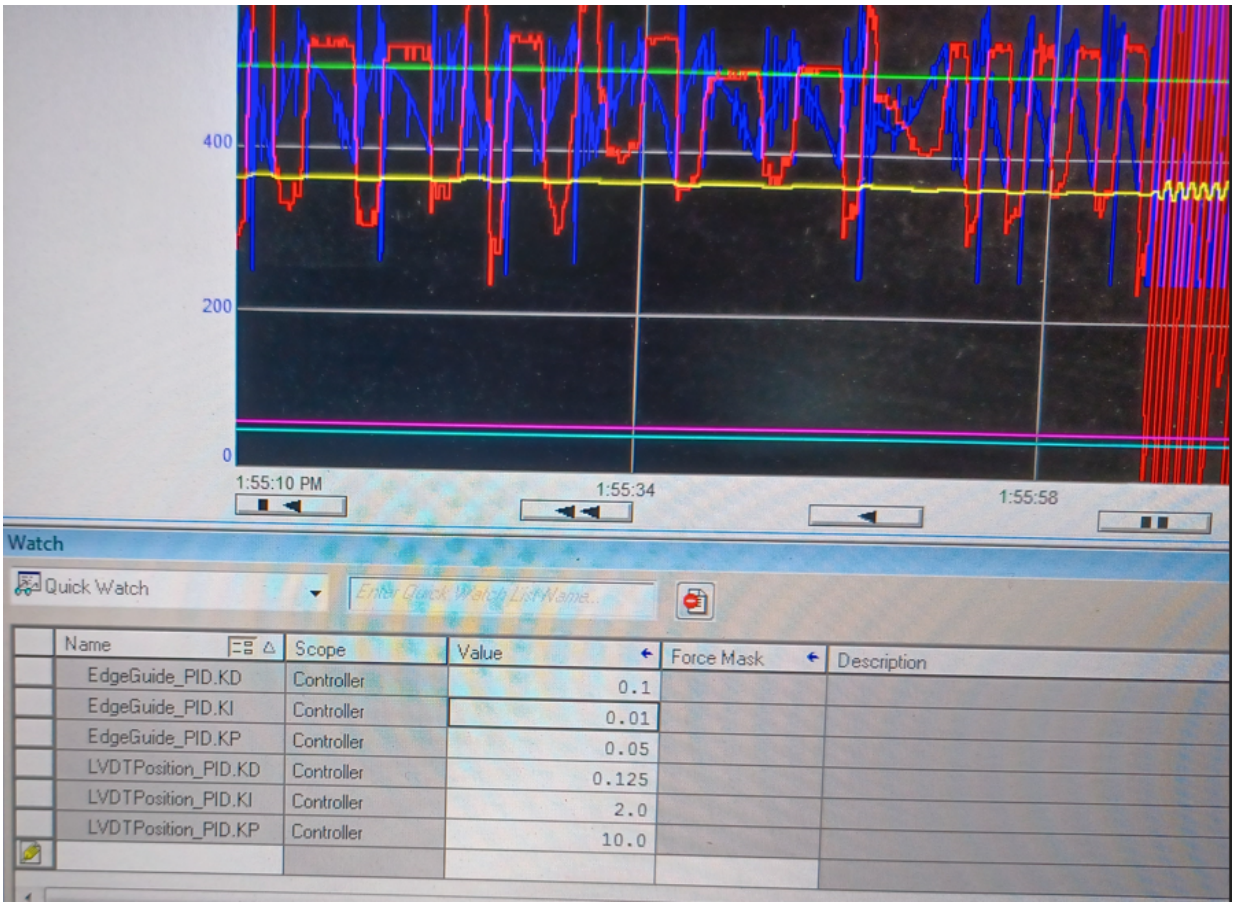


Although an LVDT is evident and wired-in, LVDT sensor processing was not present in the existing code. This together with the mention of the ultrasonic, “Edge-Guide” sensor having been in a box and not installed where the machine was moved from indicates the edge control design may not have been complete. It was not clear if the value of the present sensors and valve control amplifier had ever been realized into an

adequate edge position control scheme.

Re-use Effort Conclusion

Tuning and tweaking the resident PLC code was not converging. We added LVDT feedback to test the channel but absent a systematic design approach gain tuning off two feedback signals was not sensible.



After some effort to investigate the resident PLC code, three things motivate abandoning the existing solution:

- Evidence the edge sensor system was not in use on the site where the machine came from.
    - Components were in a box and not in use at the site of origin.
- Presence of LVDT on roll-rack, but no evidence of its use in the resident PLC code.
    - Indicates existing code may have been a partial effort, never completed.

- Inability to get any reasonable performance out of existing PLC edge position control code.
    - There was an edge-sensor-only scheme in place but testing various gain plans yielded poor results.

Next Up: Retool for New Design