C-1216A DoAll Band Saw Standard Operating Procedures (SOP)

Table of Contents

Machine Specifications

Make Year	1979
Type	Production Horizontal Bandsaw
Supplier	DoALL
Manufacturer	Continental Machines Inc.
Author	Dr. R Stoltz
Machine Serial Number	373-81649
Machine Model	C-1216A
Schematic Number	501780-10
Stock Capacity	12” x 16”
	Round Stock: 15” diam.
Weight	4750 lbs
Machine Electrical Power Data	208V, 3 Phase, 60 Hz

Emergency

In case of emergency, push the All Stop button to turn off the machine immediately. Refer to Figure 17. Also, the band will not turn off immediately because it runs on a separate motor and will still have inertia. If it is in a position where it may snap, consider moving behind a solid obstacle until the machine completely turns off.

Machine Set-Up

1. Turn on the machine using the lever shown below, which is located on the side of the machine outside the control panel:

Figure 1. Power Switch

2. Use the preset cut counter on the user control panel shown in *Figure 17* to specify how many cuts will be made before the machine should turn off. Set the cut counter to the number of cuts needed to be made including the first pass that zeroes the stock relative to the saw.
3. Load stock onto the machine by following the steps in the *Loading Stock* section
4. Set the cut length following steps in *Cut Length Specifications*
5. Follow steps in *Automatic Operation* to perform multiple iterations of the same operation. Follow steps in *Manual Operation* to perform operations that may require more control by the operator

Automatic Operation

*Refer to *Figure 17* for button name and location

1. Place the head toggle up and turn on hydraulics by pulling the hydraulics button. Place head toggle in hold once it is expected to be clear of the stock
2. Switch Operation button to Auto, pull the band button to turn on the band, flip the index to hold, flip the index vise to auto, flip the fixed vise to auto, pull the auto cycle button, and place the head toggle to down/auto mode. The machine will now start the automatic cutting process.
3. **Optional:** If desired, after the second pass is complete (first complete piece cut), allow the blade to come up until it is clear of the stock, then once the head begins its descent, place the head toggle in the hold position. Check the length of the cut piece with a micrometer to ensure it is within specifications. If necessary, adjust the cut length with the handwheel accordingly and note the inaccuracy.

4. **If all stock loaded onto the machine needs to be cut,** the machine will automatically stop once the last piece is loaded.
5. Follow steps in *Maintenance* regarding what to do when you are ready to turn off the machine

Manual Operation

1. Follow *Machine Set-Up* steps
2. Switch Operation button to manual and pull the band button to turn on the band
3. Switch the index vise to clamp and fixed vise to clamp. Place the head toggle down. Once the cut is complete, the machine will turn off.
4. Follow step 1 of the Automatic Operation. Pull the band button to turn on the band.
5. Switch index vise to open. Switch index to reverse until it stops moving (hits the back index limit switch). Switch the index vise to clamp. Switch the fixed vise to open. Switch index to forward until it stops moving (hits the forward index limit switch).
6. Switch the fixed vise to clamp. Place the head toggle down. Once the cut is complete, the machine will turn off. ***Optional:*** *If you can time it properly, try to switch the head toggle to up once the cut is complete but the cut complete limit switch hasn't been triggered to start the manual cutting process again without the machine turning off.*
7. Repeat steps 4-6 for each cut that needs to be made.
8. Follow steps in *Maintenance* regarding what to do when you are ready to turn off the machine

Saw Specifications

Length: 160"-162"

Width: 1"-2"

Use the Imperial Bi-Metal blade unless specified.

For cutting thick pieces, it is recommended to use a claw tooth form blade with a positive rake angle and an extended gullet.

For cutting tubing, structural, or stacked stock, use an Astro-Band HSS alloy blade that reduces vibration during the cutting process. Reduce cutting speed and force by 20% from generally recommended values if using the Astro-Band blade.

For extended information regarding which saw blade to use or various cutting parameters based on the material, thickness, cross-section, etc.. of the stock use the job selector on the left side of the front of the machine, also pictured in Appendix B (Figure 18).

Loading Stock

Load stock by first switching the index and fixed vise to the open position (turn on hydraulics to operate the vises), then manually move the arm on both vises to the closest discrete step that will fit the stock. This will allow the vises to clamp the stock effectively when in operation.

Figure 2. Fixed and Index Vise Adjustment

In the picture above, both vises are set to step 3 because that is the first step that allows the stock to fit when the vises are in the open position.

If multiple parts need to be loaded at once, make sure they are securely fastened together in several places to avoid chatter and so during the whole cutting process they remain securely fastened.

Place stock such that a minimal amount is cut on the first pass to reduce material loss and to ensure the machine indexes the stock correctly

Use *Figure 18. Power Saw Job Selector* to use the appropriate band speed and feed force to cut the stock that needs to be cut.

Maintenance

When the machine is left idle, push the workpiece in and away from the band and put the head in its lowest position.

When ready to turn off, push the auto cycle button to stop (will stop the auto cycle process), switch operations button to manual (no auto operations will continue), turn off the band, switch index vise and fixed vise to auto, switch index to hold, push the workpiece away from the band, and put the head in its lowest position (will automatically turn off hydraulics). Turn off the machine using the lever pictured in *Figure 1. Power Switch*

If hydraulic fluid is low, as shown in this gauge:

Figure 3. Hydraulic Fluid Gauge

Replenish it with fluid with these specifications:

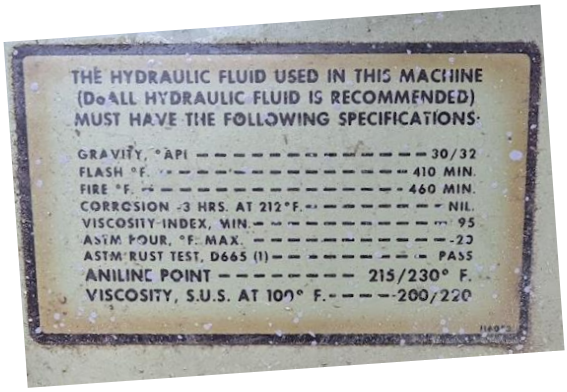

Figure 4. Hydraulic Fluid Specifications

If the coolant is running low, fill up a bucket with a coolant mixture (25% coolant, 75% water) and pour into the chip conveyor opening. Continue until the coolant tank is filled.

If the band isn't sufficiently tensioned, flip the band tension control lever to on until the band is sufficiently tensioned, then flip the band tension lever to hold.

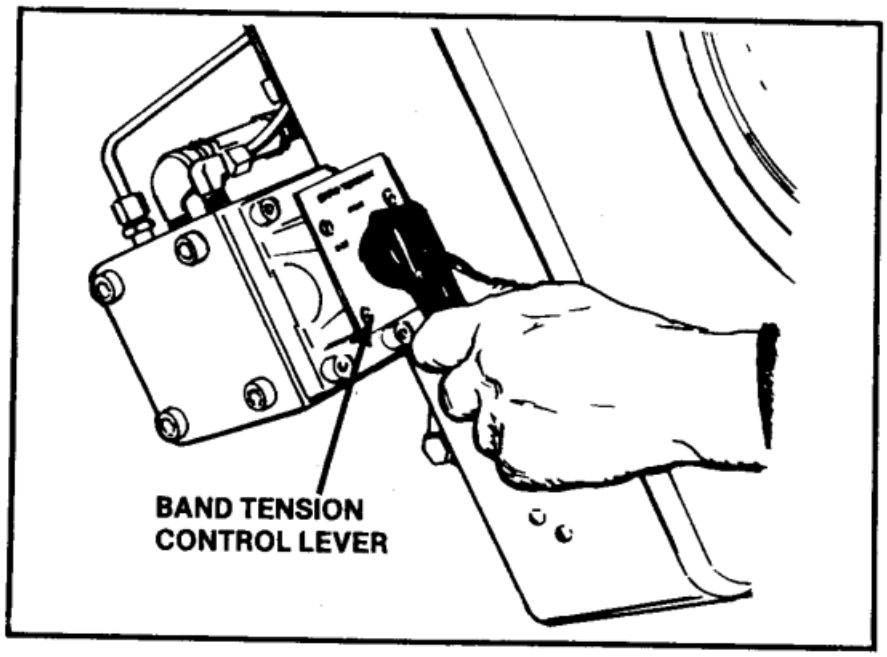

Figure 5. Band Tension Control Lever

If the hydraulic gauge located on the right side of the machine(facing the user controls) shows a pressure >450 psi, refer to the *Additional Questions?* section to contact *the master* regarding modifying the system pressure.

Cut Length Specifications

The stock index control shown below is used to adjust the cut length:

Figure 6. Length Adjustment Device

Turn on the hydraulics and move the index feed forward (to the very front if uncertain) to ensure that the stopper that is moved by the cut length adjustment device does not hit the index vise and malfunction.

Loosen the knob at the top and use the handwheel shown below to adjust the indexing length.

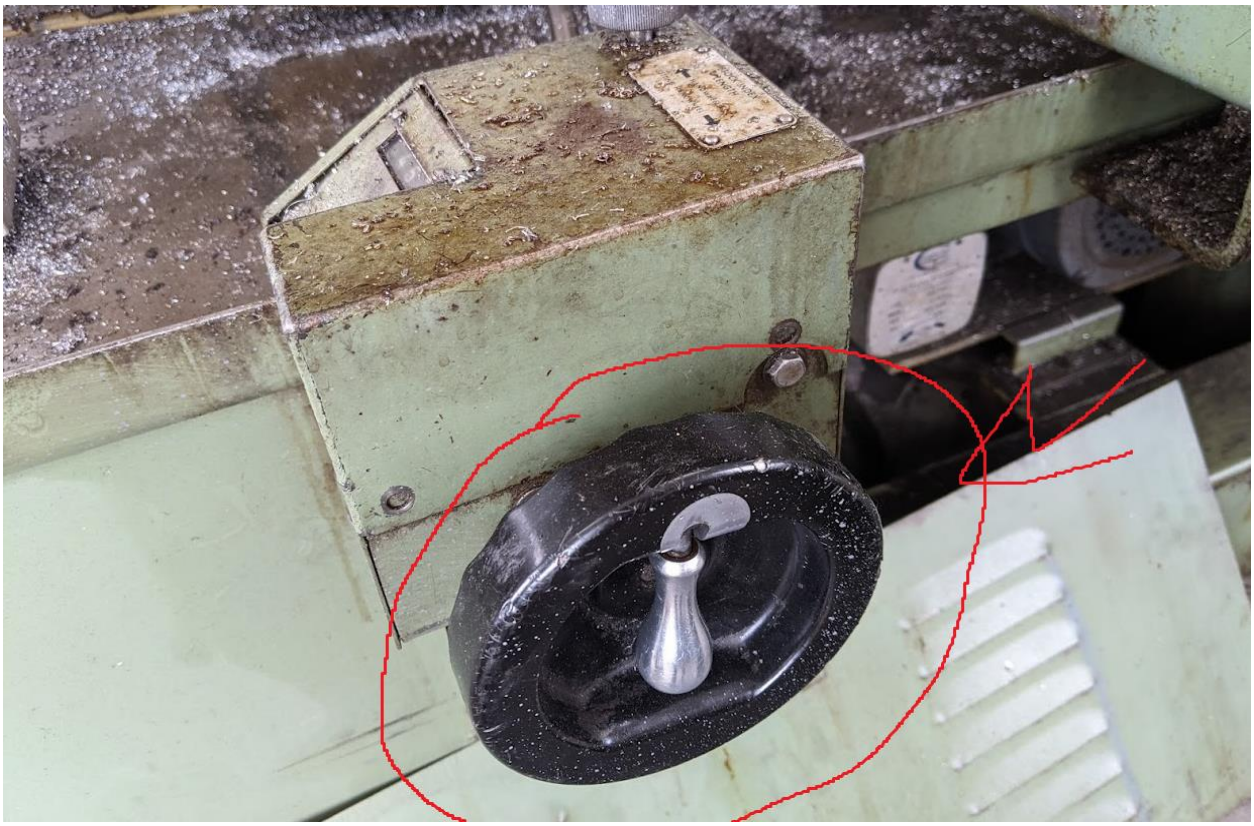

Figure 7. Handwheel to adjust index length

Use the mechanical read-out scale shown below to ensure the cut length is correct.

Figure 8. Mechanical Meter

For example, in the picture above, a cut length of 4.511” is specified. The red dot between the 4 and 5 indicates the decimal point in the number. The red arrow on the right side of the display points to the nearest thousandth for the cut length and the longer horizontal line on the right side of the display indicates a thousandth value of 0.

Once the length is set, tighten the lock knob so the cut length does not shift during the operation of the machine.

Figure 9. Index Lock Knob

Future Modifications

- Add vise after cut to guide cut stock more robustly:

Figure 10. Vise to guide cut stock

- Modernize various gauges, e.g. band speed tachometer

Figure 11. Digital band speed tachometer

- Powder coat machine components
- Replace lights and indicator lights
- Better outfeed table
- Air line to automatically clean components after cut

Additional Questions?

Contact Michael Aksen (email address: Michael.Aksen@gmail.com)

Appendix A. Written Documents

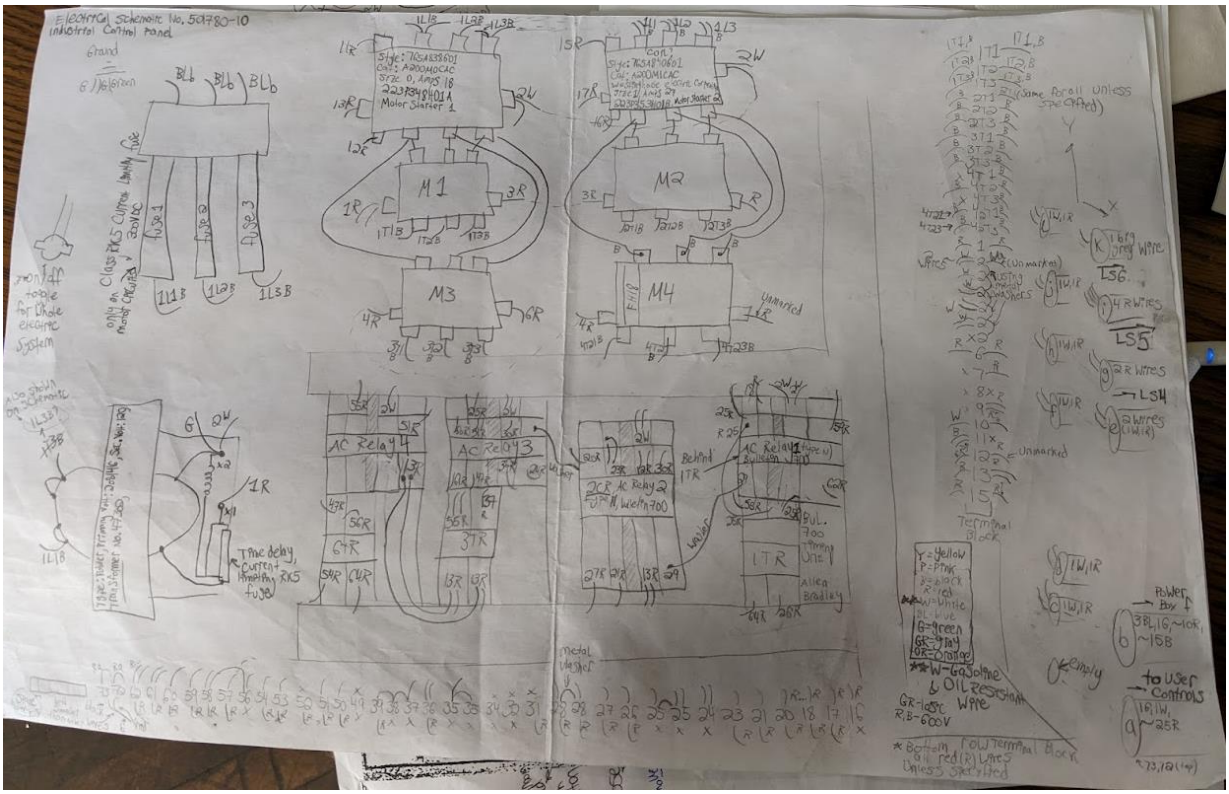

Figure 12. Control Panel Connections

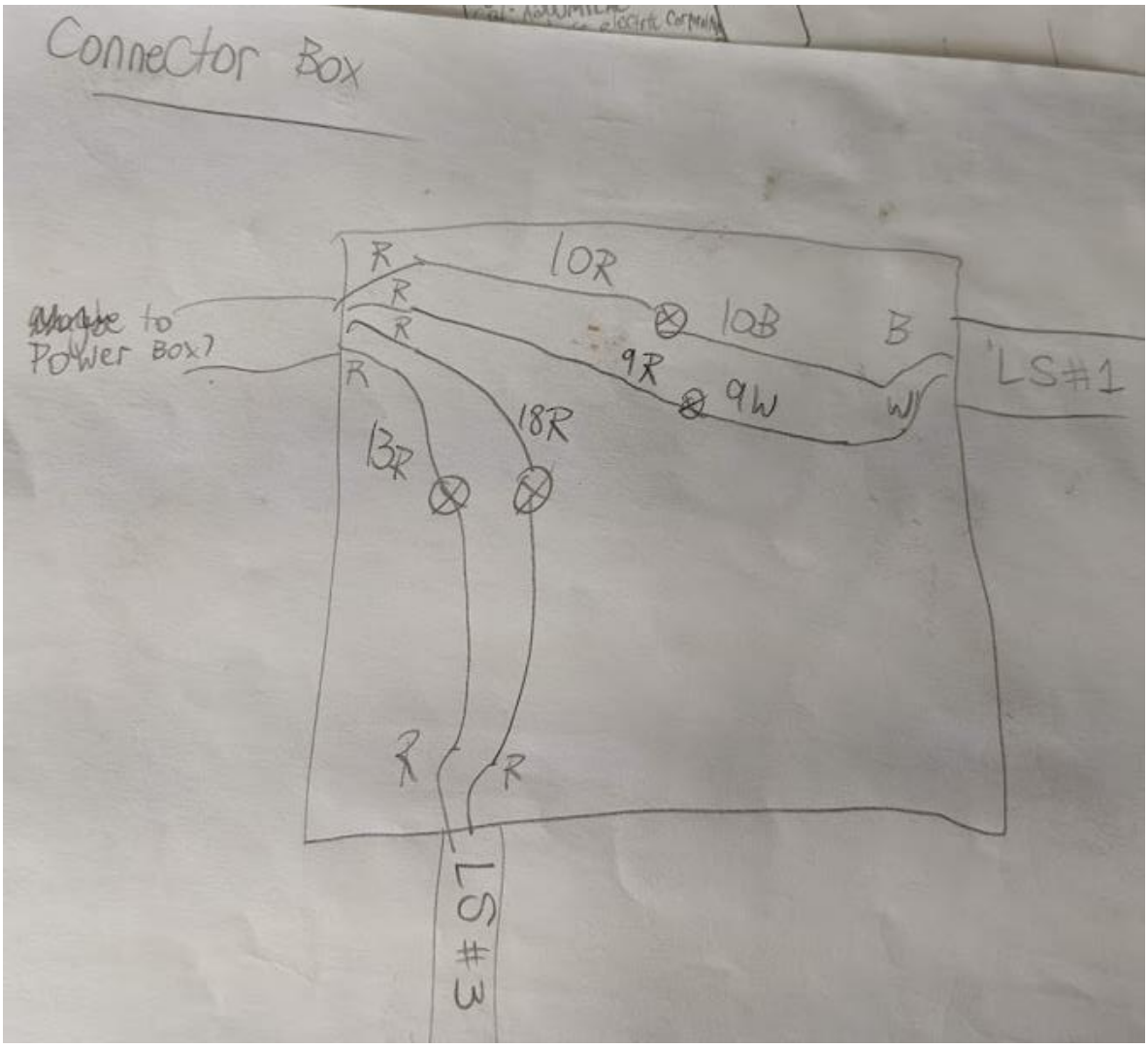

Figure 13. Connector Box Connections

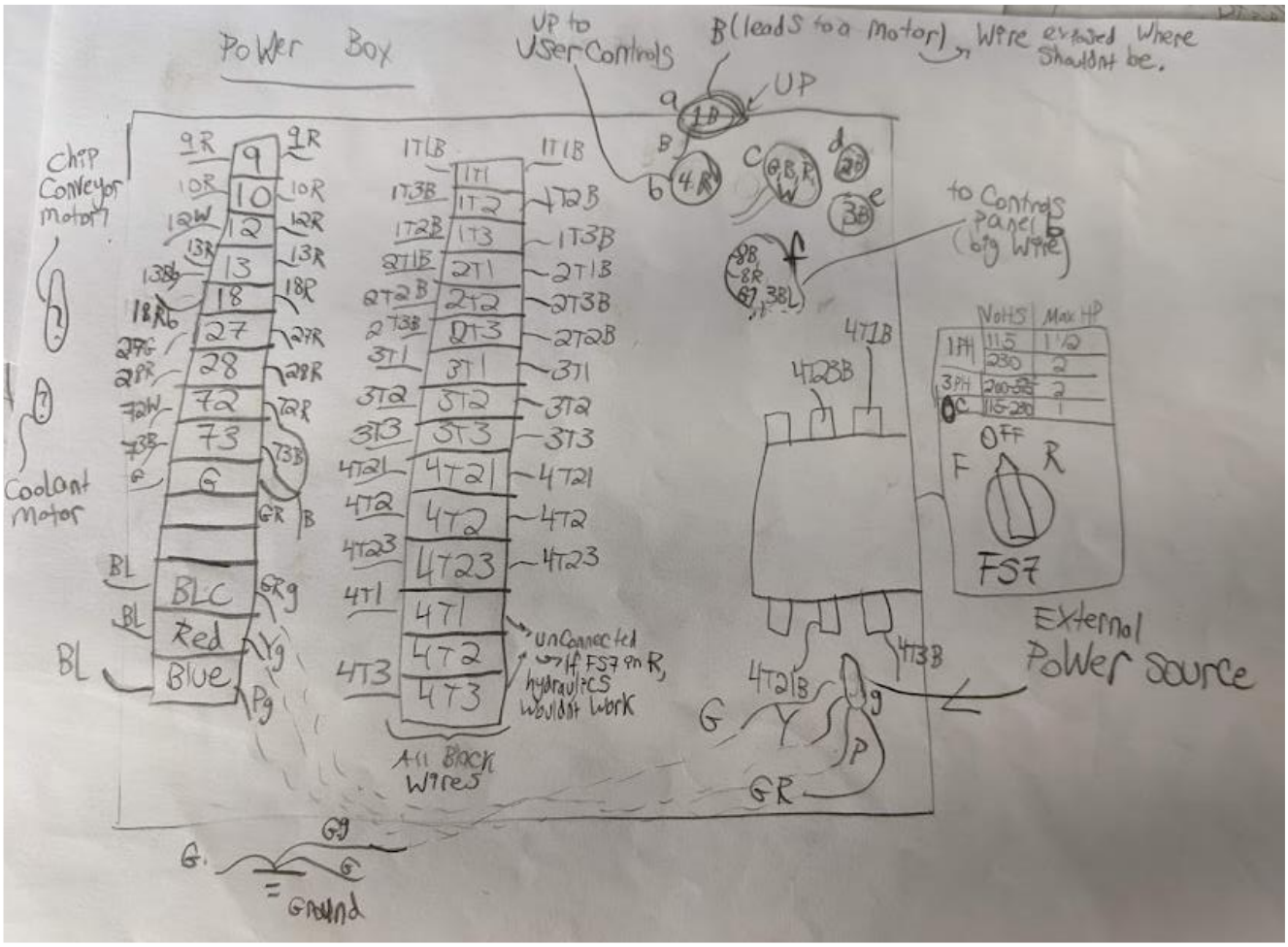

Figure 14. Power Box Connections

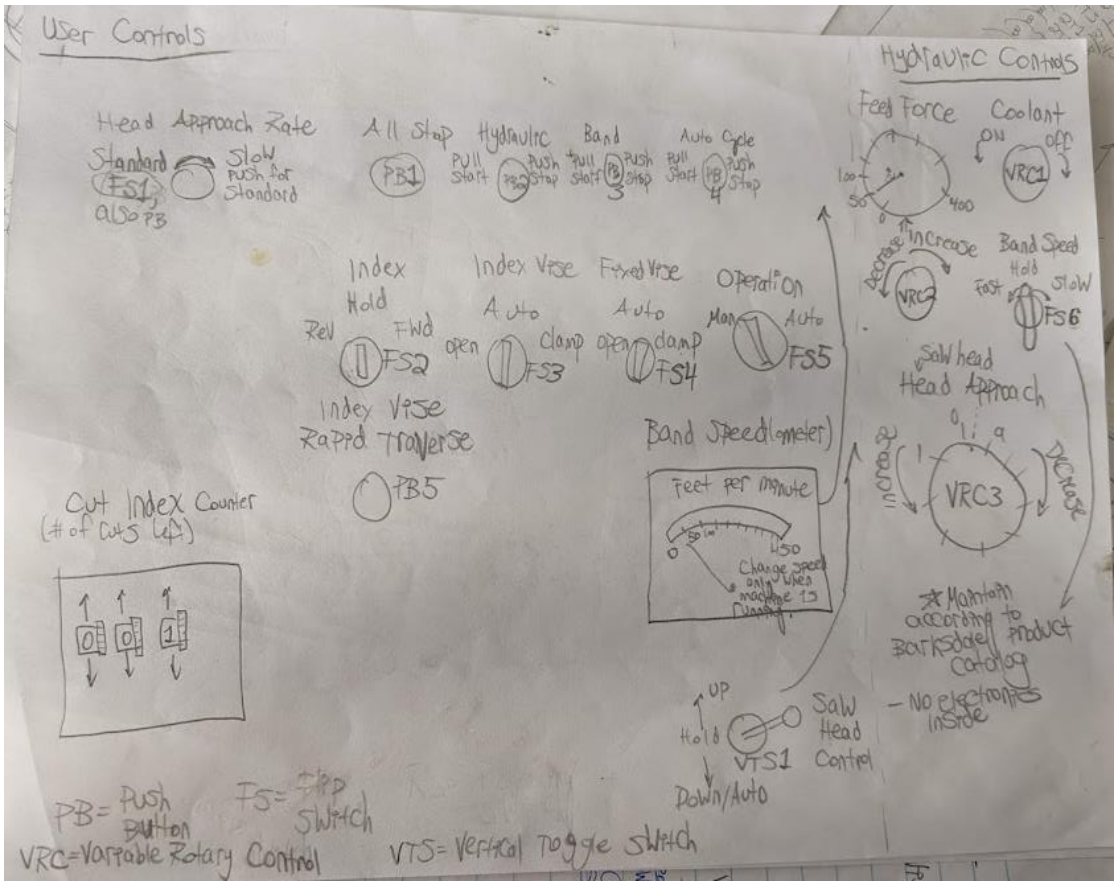

Figure 15. User Controls Layout

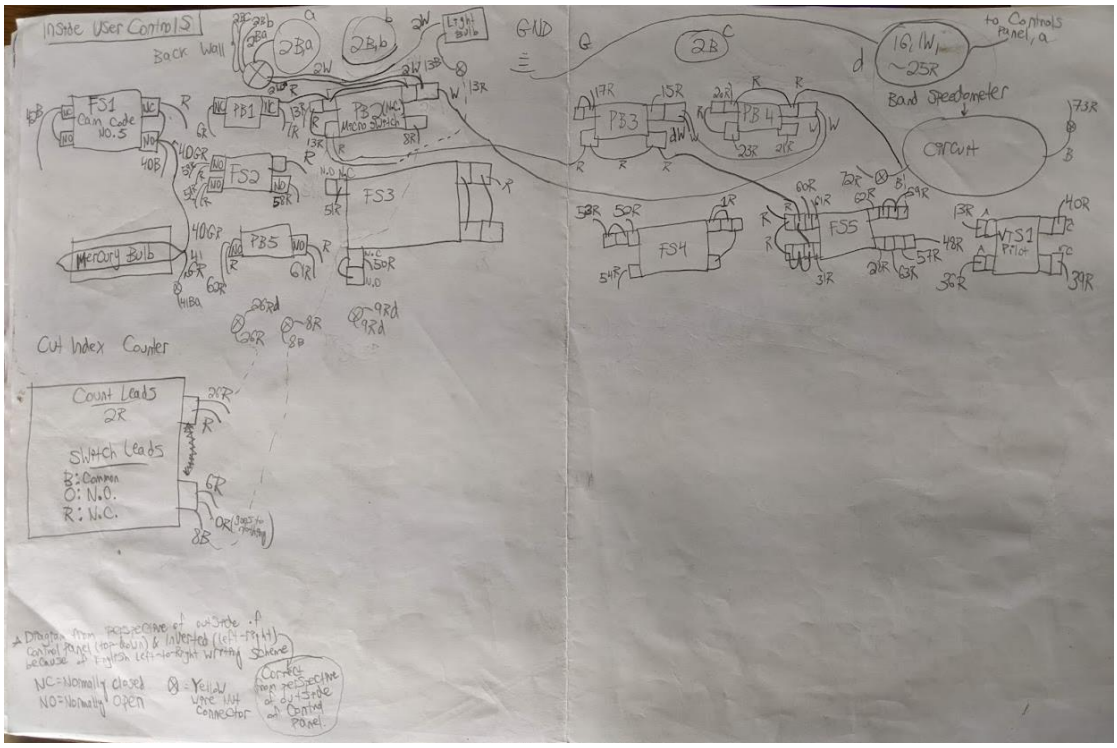

Figure 16. User Controls Connections

Appendix B. Digital Documents

Figure 17. Electronic User Controls

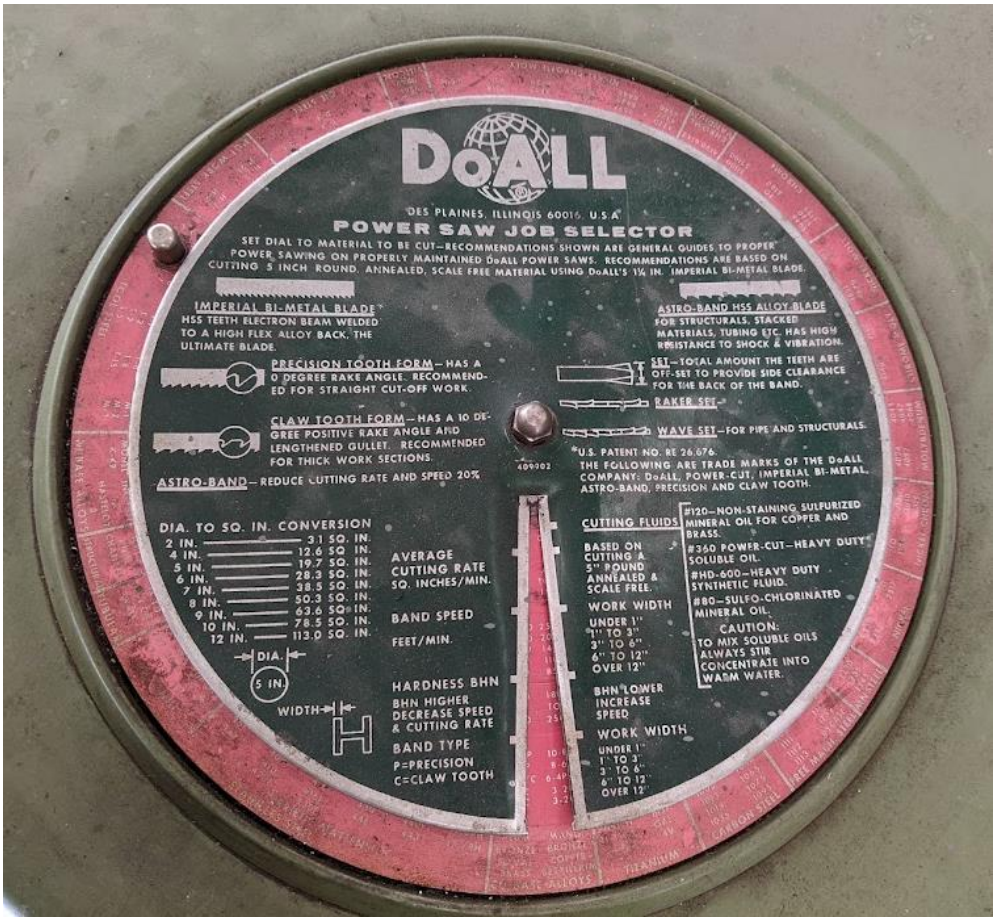

Figure 18. Power Saw Job Selector

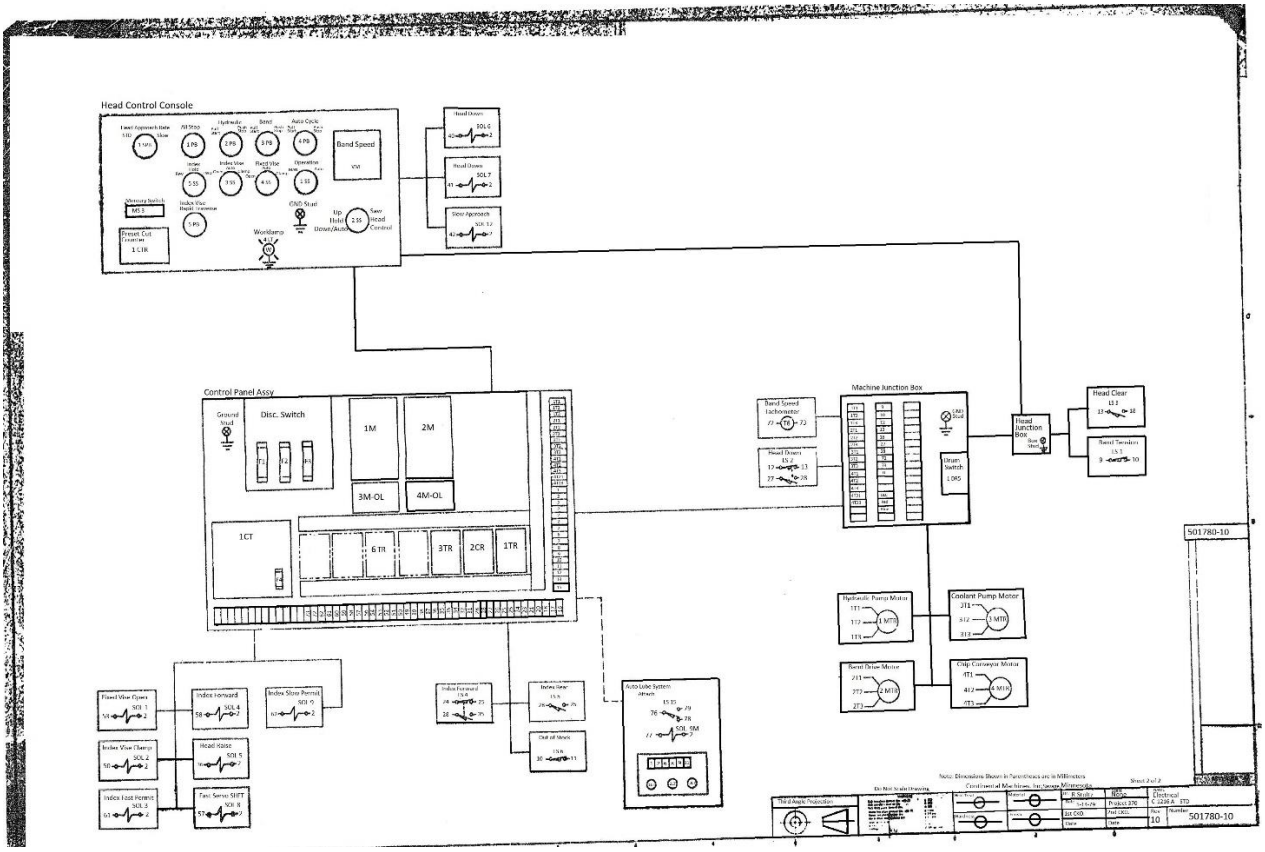

Figure 19. Schematic Layout

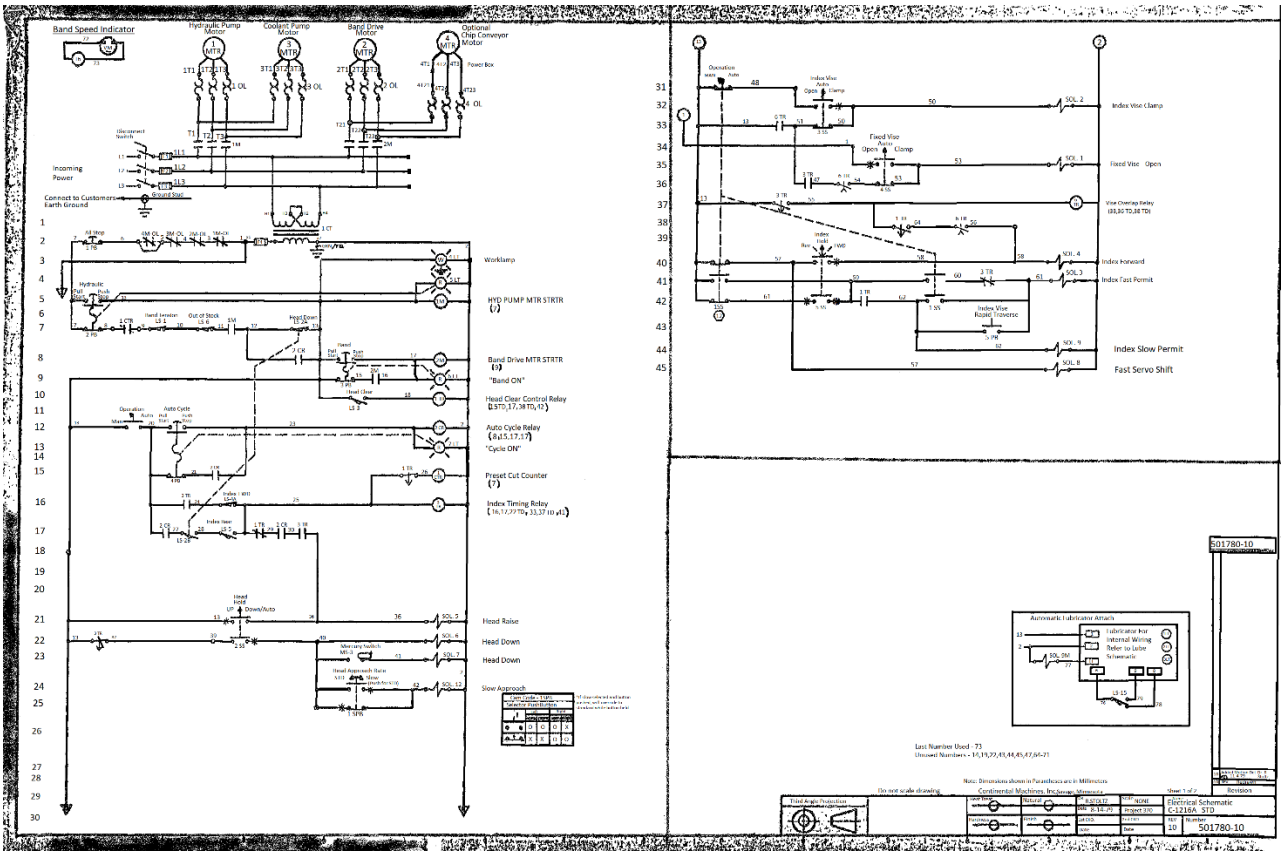

Figure 20. Schematic Logic

Appendix C. Important Links

DoAll Wiring Symbols
Industrial Motor Symbols: NEMA Standard Symbols
Electrical Symbols