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Pressman's Toolbox

Getting a handle on dampening controls

By Frank Bourlon

The Goss Community dampening system is a very simple but extremely effective way to control water delivery to the plates.

The main components of this system are a gear reduction motor, a variable transformer, two full wave bridge rectifiers and two fuses.

The electrical drawing (see Figure 1) is the wiring diagram for a dampener control on a Community press.

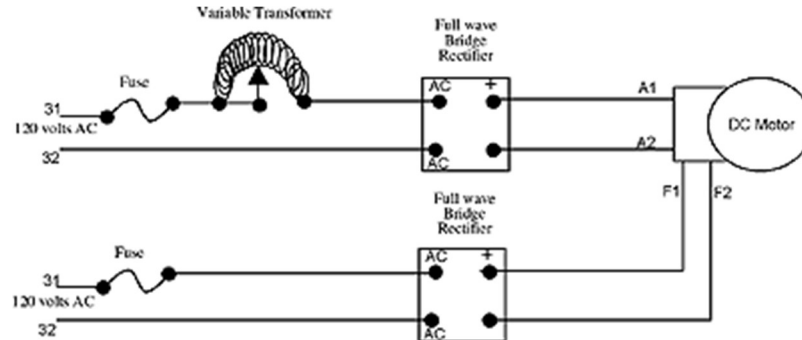


Fig. 1 shows the wiring for the dampener control.

It is very similar to the wiring of a Goss Urbanite, Goss Suburban, Goss C150/Magnum, Harris, King, Web Leader or Atlas press.

This type of circuit also controls the ink fountain rollers and print register equipment found on the Goss C150/Magnum. Harris presses use this circuit to control the speed of their ink fountain roller.

The fuse protects the system against short circuits and motors that may be overloaded by either seized-up or improperly set rollers.

Use only the correct fuse; if you use a larger one, the press could be subject to motor failure, rectifier failure or a burned-up variable transformer.

The variable transformer allows the incoming 120-volt source to be varied from zero volts to 120 volts, which is how the voltage is varied to the DC motor.

The variable transformer is also used on some Urbanites and Community presses as a master water control. The master voltage is varied to the terminals that I have marked 31 and 32 (see Figure 2). All of the water motors can be controlled at a central location since the amount of water need to the plate will vary as the press runs at different speeds.



Fig. 2 shows the variable transformer from the inside of the control panel.

Photo: Frank Bourlon

The full wave bridge rectifier is the component that changes the AC voltage into a DC voltage. It does this by steering the positive part of the AC cycle to the positive post of the bridge rectifier while steering the negative part of the AC cycle to the negative post of the bridge rectifier.

The bridge rectifier is actually four diodes in one package. Don't know what a diode is? A diode will pass electrical current in one direction but not in the other, just like a check valve will pass water in one direction but not in the other.

A bridge rectifier is four diodes, wired in the correct configuration. If the input voltage is 120 volts AC, the output voltage of the rectifier will be approximately 120 volts DC. The DC voltage to the motor will follow the variable transformer voltage output, causing the motor to vary in speed as the voltage changes.

Different leads

The input from the variable transformer through the bridge rectifier to the motor is normally called the "A" leads since this part of the circuit controls the armature of the motor.

There are two armature leads, A1 & A2. The other two leads to the motor are the field leads, which are labeled F1 & F2. The field leads set up an opposing magnetic field that will cause the armature to turn whenever voltage is applied to the armature.

Newer motors have permanent magnets installed, which means simpler motor replacement.

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