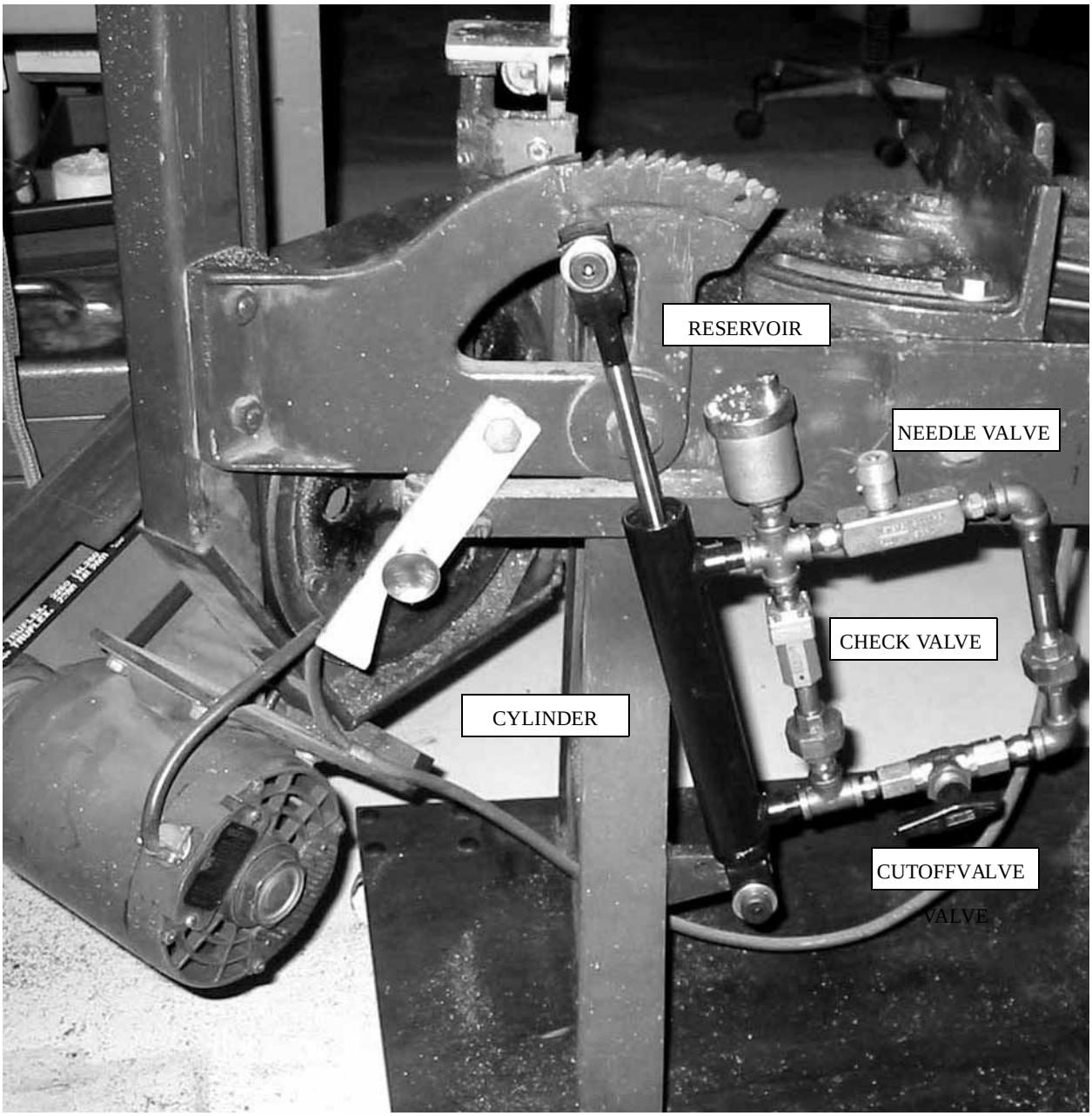

Here is my downfeed control mechanism I scrounged/cobbled up. All threads are 1/4” NPT and all fittings and pipe are 1/4” brass. The reservoir top unscrews so you can pour fluid in. I use 90 weight gear oil for maximum viscosity. The check valve allows fluid to flow with little resistance down towards the floor (as the saw is raised and the piston extends out of the cylinder, the fluid finds a low resistance path through the check valve. The check valve keeps fluid from flowing the other way, though - so when the saw comes back down, the fluid has to flow through both the needle valve and the cutoff valve. You can see that if the cutoff valve is off, the saw just sits where it is. When the cutoff valve is open, then the rate of descent is controlled by the needle valve. The pressure to the right of the needle valve is high but the pressure to the left of the needle valve is

just room air pressure - the pressure is all dropped across the needle valve. Once I get the down-feed set as I like it, I just shut off the cutoff, lift the saw (it stays), put in more stock, and open the cutoff valve so the saw goes down again. Simple!

A word on construction. I had trouble figuring the precise length of pipe including thread, which you must do to make this piping system leak-free. I wound up threading an end and putting it into a fitting tightly and measuring, all in scrap. I also had trouble threading the end until I figured out to chuck up the pipe in the lathe and turn a slight taper on the end. Then it's easy to run the die on far enough. Finally, use really good pipe dope. This system is great as long as it doesn't leak. I'm still fighting leaks and intend to tear it all down, clean everything and redo it using hi-tech pipe dope.

I bought the hydraulic cylinder new from Surplus Center. I no longer know precisely which model, but it has 1/4" NPT ports, has a 1/2" rod, and is less than 12" retracted, so it is probably the smallest 1" bore Columbus cylinder (item 9-1649-04 on p. 56 in their 2003 catalog). I scrounged the other parts, mostly from Triangle Machinery in San Jose, California. They are hard to find! The reservoir is actually a device used in a hot water home heating system to remove air from circulating hot water. I had an extra one for some reason, and it works great.

Written 8/2003 - GWE