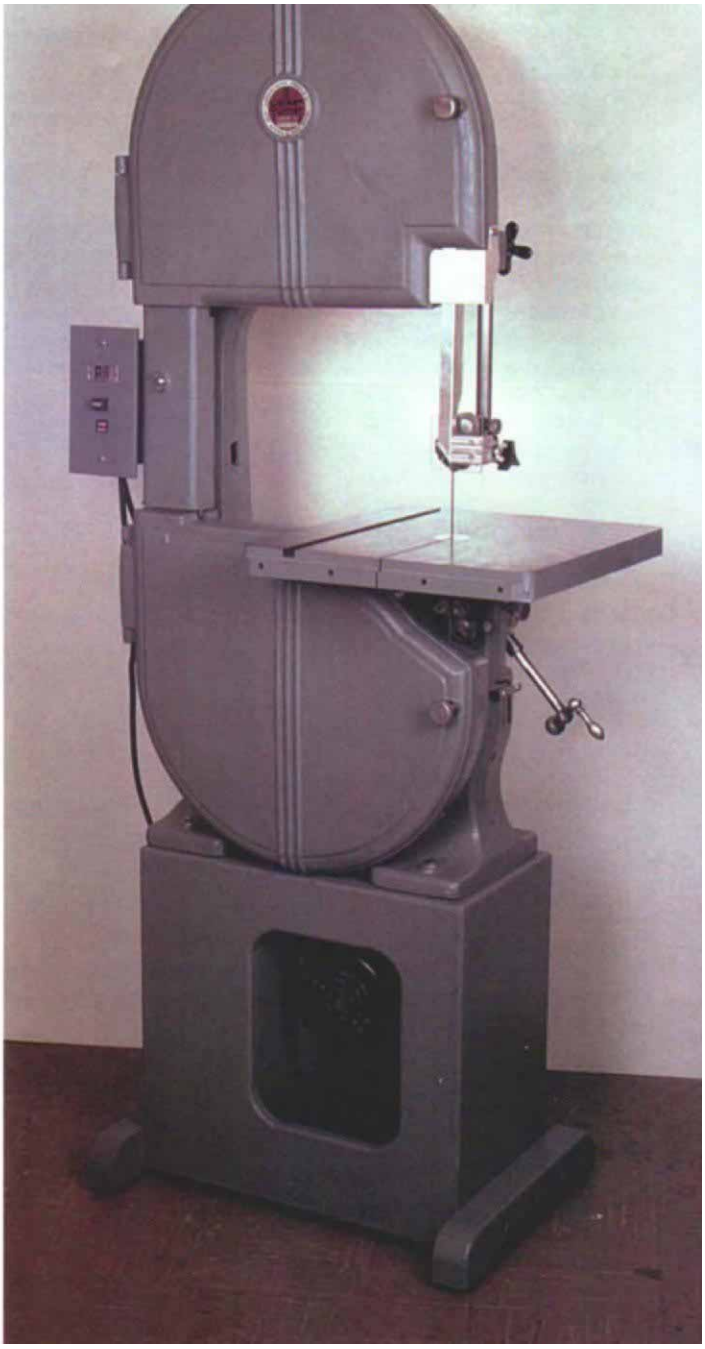



***Before the restoration,*** *this old Walker-Turner wasn't much more than a pile of scrap iron. Sixty-five hours and four hundred dollars later, the author has a new (again), better-than-from-the-factory, vintage bandsaw. The saw's quality casting, 12-in. resaw capacity and 16-in. throat depth were all factors that made it worth restoring.*

# Restoring Vintage Machinery

## *Bandsaw's lessons can be applied throughout the shop*

by Robert M. Vaughan

What a bargain—a 16-in. Walker-Turner bandsaw for $80. All it needed was new tires, guides, motor, electricals, guards, stand, complete disassembly, cleaning and rust removal, one casting weld, repainting, reassembly and, of course, realignment of all the parts during reassembly. The good news was that all of the crucial components were there and in good condition; the other stuff I could fix. This wasn't an $80 bandsaw, but an $80 bandsaw kit. It was up to me to turn it back into a bandsaw.

I had to weigh the value of the restored bandsaw against commercially available machines. A resaw capacity of 12 in., 400 lbs. of quality American cast iron and a 16-in. throat depth are all factors that made this moderate-sized machine worth restoring. If this had been one of Walker-Turner's 14-in. models, I would have passed. The work required to restore it would have been the same, but the result would have been little better than a new Powermatic or Delta 14-in. model.

If you're thinking of restoring an old machine, it's important to realize that it's a very rare old machine that's ready to run. Almost all are like this machine was—a lot of cast iron with potential. Bearings, belts, pulleys, switches, wires and motor almost always need replacement. One reason that bandsaws are so popular to restore is that the parts that wear out can almost always be obtained from sources other than the original manufacturer. The important question to ask before diving into a restoration is whether the restored machine will be worth your trouble.

In this article, I'll discuss the general procedures common to restoring any old woodworking machine, as well as the more specific procedures that were necessary to get this bandsaw back into top form. And while the general procedures are applicable to just about any machine restoration, even the bandsaw-specific procedures illustrate ways of addressing problems common to all woodworking equipment—ways, for example, of dealing with dust, alignment problems and beat-up or missing guards. The principles of machinery restoration are the same regardless of the machine.

## Moving the machine

Moving any heavy machine from one shop to another is always a chore. There are no rules on how to accomplish it other than to be prepared. I have help on hand for lifting. I generally bring resealable plastic bags for nuts and bolts and a note pad to record the disassembly sequence and to label parts bags. I also bring wrenches and WD-40 for disassembly of any heavy or protruding parts that might impede handling. I often remove the table, and any guards or pulleys, and I always try to remove the motor and cord. I make sure there are a couple of floor floats (four casters on a piece of plywood) ready in my shop, so I can move the machine around during the restoration process.

***A fine-wire brush*** *mounted on the author's wood lathe quickly and efficiently cleans away dirt, dried grease and even light rust. The wheel also imparts a slight polish, so Vaughan runs all fastener heads under the wheel for a few seconds.*

***Masking all parts*** *ensures a clean, crisp, professional-looking paint job. A good way of masking holes is to wrap a piece of paper tightly around a dowel and then to release it inside the hole. The paper will expand to fit. To avoid a messy cleanup later, remove all the masking tape as soon as the paint is dry enough to touch.*

## First inspection

Once in the shop, I break out the air hose to blow out the years of accumulated dust and grease. *Always* wear a face mask or safety glasses when using an air nozzle. A 100-lb. blast of air into any of those little nooks and crannies can unleash hostile projectiles at bullet-like speed. If you don't have a compressor, a stiff bristle brush will remove most of the crud.

After I've cleaned off the bulk of the dust, dirt and grease, I begin disassembly, examining each component for further mechanical problems—things I may have missed when I bought the machine. Organization at this stage really pays off. As I take apart the various subassemblies of a machine, I use plastic trays, bins or boxes for the larger parts and resealable plastic-bags to hold the little stuff. I note the sequence of washers, springs and other things that I'd otherwise forget. I bag individually any shims I find, along with a note showing where they came from. This not only makes reassembly infinitely easier but also allows me to move the multitude of parts and store them out of the way, without losing track of what's what and what goes where—no little consideration in a space-starved shop.

Next I buy or collect all of the big items I'll need. This includes the motor, wiring, switch, pulleys and belts—all the big-ticket items crucial to completion of the machine. Even when other unexpected expenses crop up, I know that the project will get finished.

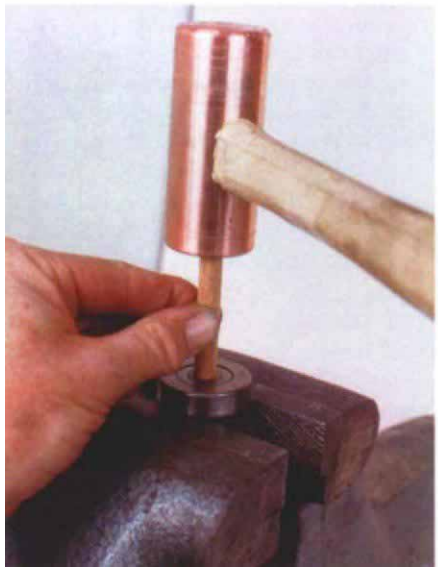
## Cleaning

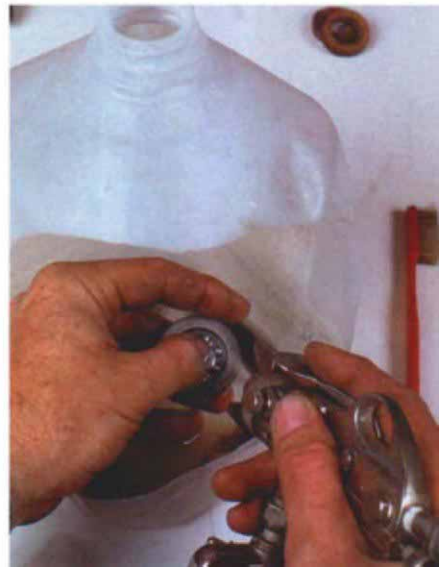
Proper parts cleaning is the most time-consuming aspect of the restoration process, but it's also the most important. The purpose of a thorough cleaning is not only to please the eye but to make things work as they should. I've been hired to repair a lot of equipment that needed nothing more mechanically challenging than a good cleaning. Forty years of dust, dirt and resins have a way of adversely affecting the performance of the finest machine.

After covering my lathe bed (to protect it from flying dirt and debris), I mount a fine wire wheel on my wood lathe and use it to brush away any dirt or grit in threaded parts, to remove minor coatings of rust and to clean up any dried, caked-on grease (see the photo above). The wire wheel also polishes a bit, so I put the heads of all the old screws, nuts and bolts under the wheel.

I clean holes, with or without threads, with a brass brush (the kind used to clean rifle barrels) chucked into my electric drill.

Photos: author





***Forty years of dust, dirt and resin*** *had taken their toll on the back blade guides, but they weren't damaged—just frozen. Vaughan removed the bearing from the shaft with two screwdrivers (above), popped the cap off the bearing with a hammer and dowel (left) and sprayed the bearing clean with lacquer thinner (right). The cleaned guide works like new.*

If the hole isn't very deep, I'll follow this with a blast of air and then wipe with a clean or solvent-dampened rag.

Grease is best removed with a solvent; I prefer lacquer thinner because it's the quickest solvent I normally have around the shop. I spray-clean small parts, using a compressor-powered spray gun and spraying into a cut-out plastic milk jug. The milk jug catches most of the spray, which I use later to dampen rags for wiping down larger areas; I wipe with a dry rag after cleaning with a solvent-dampened rag. I've also found the refillable, rechargeable spray cans—which are available at most auto parts' stores—useful for cleaning larger areas. I just spray lacquer thinner on, then wipe clean with a dry rag. These cans are particularly handy in close quarters or when you don't want to drag the air hose around.

Think safety whenever working with solvents. Work in a well-ventilated area, wear a respirator and *always* set the dirty rags outdoors—away from anything flammable—to dry after use.

Cleaning an old machine is messy work. Chances are that your workbench (and many other areas of your workshop) will become spotted with grease and grime. Make sure you clean up thoroughly after working on the machine before you begin working wood again. It's incredibly annoying to find greasy dirt smeared all over a just-completed project. Rebuilding a woodworking machine may not be as bad as rebuilding your car's transmission in your shop, but it's close.

Dirt or grease from a machine you're restoring can mess up your shop, but shop dust and dirt can mess up a restoration as well. To avoid this, make sure any surfaces you'll be working on are clean before you begin. Also try to finish the restoration without interruption. If you have to put your restoration on hold in midstream to work on a woodworking project, both can suffer unless you're extremely careful about cleanup and protection.

## Renewing the table

To clean up the rust on the tabletop, I started with 220-grit sandpaper wrapped around a block of wood, then moved up to 320-grit. After finishing with the 320-grit, I dampened the table with naphtha and rubbed with a hard Arkansas stone until the high spots shone like little mirrors. This makes any metal very slick and does wonders for planer and jointer beds—even new ones. It only has to be done once, and the results are well worth it.

## General machinery repairs

Some repairs are specific to individual machines; others are general and apply to most machinery. I'll discuss general repairs below and the specifics of bandsaw repair in the story on pp. 78-79.

All four wheel bearings in this saw were contaminated with dust and dried-out grease and needed to be replaced. The lop bearings were standard sized, and available locally (check the Yellow Pages for a bearing distributor near you), but the bottom bearings had an odd-sized inside dimension. My usual local sources of power-transmission products couldn't locate replacement bearings. I knew that Walker-Turner had some of its bearings custom-made for them, so I began to worry. I called Accurate Bearing Co. (1244 Capital Dr., Unit 1, Addison, Ill. 60101; 800-323-6548) and asked the sales manager about my bearings. He replied, "Sure. I have them right here. What else do you need?" I liked that.

To restore the outside threads of beat-up fasteners that can't easily be replaced, I used a thread-restoring file. These square files come in two sizes with eight different threads-per-inch sizes on each file. I set the file's teeth into the matching grooves of the fastener and filed. These files are particularly handy when the end of a threaded piece is smashed and when trying to start a threading die would risk cross-threading. You can find these files in most large industrial-supply catalogs.

The pulleys on the saw were cheap aluminum ones that no longer ran true. I replaced them with cast-iron pulleys from a local power-transmission distributor. The belt was equally worn, so I replaced it with a Browning cogged, high-strength industrial belt (from the same distributor) that's designed to transmit high torque smoothly. Any machine is only as good as its weakest component, so these simple sub-

stitutions of power train components really make a big difference in the overall performance of the restored machine.

Any time something is held in place by a setscrew, there's a good chance that the point of the setscrew will cause a crater. The raised sides of these craters will cause all kinds of difficulties in disassembly, often requiring gear pullers, presses, punches or a big soft-faced hammer. I usually file down the crater edges with a super-fine file or honing stone before removing the part from the machine. This avoids galling the inside of a hole or housing as the part is withdrawn.

The parts on this saw that need to be removed or adjusted to change the blade were fastened with nuts, bolts and slotted-head screws. Every time I wanted to change blades. I'd have to hunt down the proper tools, have the tools and all loose hardware laying around during the blade change, and then put them all back when I finished. To make the machine more user-friendly, I replaced common nuts with wing nuts, bolts with threaded studs and slotted screws with socket-head (Alien) screws. I then mounted a holder for the Alien wrench on the machine. Now I can change the blade and adjust the guides without ever going on a tool hunt.

## Painting

Repainting a restored machine may deter rust, but the real reason is that it looks nice and makes you feel better about your machine. Sawdust may come *off slightly* easier, but who are you kidding?

How far you want to take the paint job is up to you. I've stripped down to bare metal, done body work and built up the paint as though I was restoring an auto; other times, I've only needed to do touch-up work. Stripping may be necessary if the machine came from a school: often the color scheme will look as though it were designed by Stephen King and applied by King Kong. If you strip down old cast iron, you'll sometimes find that auto body filler was used to make a smooth surface.

On this particular machine, the existing paint had faded to olive-gray. I found original paint on an unexposed section of the machine and matched it with Krylon's #1608 Smoke Gray. It took five cans to do this bandsaw, including the stand. I didn't bother to strip because the paint film was in good condition. I simply cleaned the surfaces with soap and water and then wiped them down with lacquer thinner. I had to spend a little more time and use a bit more solvent in some of the greasy corners and crevices, but there were no real trouble spots.

I mask all surfaces that take working parts, like shaft holes and ways. An easy way I have of masking the inside of a hole is to cut a small piece of paper and wrap it around a dowel. I then insert this into the hole and unwrap the dowel until the paper springs out to fill the hole.

I remove all masking tape and paper as soon as the part is dry enough to handle, so I won't have to deal with any sticky residue later. I paint the parts individually while they're disassembled. Bright, unpainted fasteners, new aluminum guards and crisply contrasting parts, such as handwheels, all add up to create a quality impression. A wash-over paint job says something else altogether.

## Electrical

This machine, like many older machines, had a simple toggle switch inconveniently located on the front of the frame. I replaced it with a new heavy-duty, push-button

manual starter on the column (where it's easy to get. to), but I had to cut a sheet-steel mounting plate for the switch first. After cutting and drilling the necessary holes in the mounting plate and mounting the starter, I drilled and tapped two holes in the handsaw's cast-iron frame and attached the mounting plate assembly.

A rigidly mounted motor greatly reduces vibration. To mount the motor securely on this machine and still allow for tensioning of the belt, I cut a couple of short sections of folded steel U-channel (I used Unistrut from Grainger; 800-473-3473), drilled five holes in the bottom of each and screwed them to the base. Then I found a couple of pieces of steel that would slide in the channels and drilled and tapped them to accept the motor.

A good-quality new motor, switch, wire and plug will cost $200 to $300. It's money well spent. I've used a light switch, vinyl-covered cord and a cheap mail-order motor before. Performance was poor from the start. I ended up shelling out more money for the good stuff in no time.

## Bottom line

Total material costs were just under $400, bandsaw included. Costs were so low because I used a reconditioned motor and a manual starter (both good quality but without any bells or whistles) and because I already had just about all the peripheral materials (sheet steel and aluminum, clear plastic, fasteners) on hand.

I also spent about 65 hours on the restoration. At $25 an hour, labor costs would be about four times my materials' cost—not out of line for this kind of project. I've explained how I overhaul a machine and, for the most part, the reasons why. I hope this both inspires and instructs others to restore old machinery because the result, when done well, is most gratifying. The adage "they don't make them like they used to" is true, but there's a reason for it. The sad and brutal truth is that most buyers of new woodworking machinery don't demand quality so much as they do low-priced look-alikes. The downward spiral in the quality of woodworking machinery is the result. "They don't make discriminating buyers and users of-woodworking machinery like they used to" is probably a more apt phrase. But who can criticize the guy who's perfectly satisfied with a five-dollar socket set? □

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