

Chapter 9—Reshaping or Replacing an Ax Handle

Finding an ax that is right for you may be as simple as replacing a bad or broken handle and reusing the head.

Keep in mind that many axes have good handles that are simply hung incorrectly—typically, too high above the shoulder (where the handle flares to fill the ax head eye). You may be able to use a rasp to remove wood from above the shoulder. You can then strike the knob of the handle with a wooden mallet to drive the top of the handle higher up through the top of the eye, enabling you to remove the wedge and, consequently, the handle. You can then reshape the handle and hang it correctly instead of replacing it.

Removing an Old Ax Handle

When you replace an ax handle, you may have to remove an old or broken handle. You can easily accomplish this task with the right tools. Begin by securing the ax handle in a vise and sawing off the handle just

below the ax head (figure 9–1). After you saw off the handle, secure the ax head in a bench-top jig (figure 9–2) and use a drift pin (figure 9–3) to hammer the remaining portion of the handle free.

Refer to “[Appendix B—Technical Drawings](#)” for technical drawings of drift pin assemblies for different types of axes.

The bottom eye on most ax heads is slightly smaller than the top eye. This provides a tighter fit between the bottom eye and handle and enables you to drive a wedge into the top eye to secure the head to the handle. Conversely, it also enables you to use a hammer (a 3-pound steel hammer works well for this) and drift pin to more easily drive the remaining portion of a sawed-off handle from the bottom eye out through the top eye (figure 9–4). If the handle fits tightly into the ax head eye, you can create space and reduce friction by first drilling several holes into the ax handle (be careful to avoid any metal wedges in the handle).



Figure 9–1—Sawing off a broken handle below the ax head.

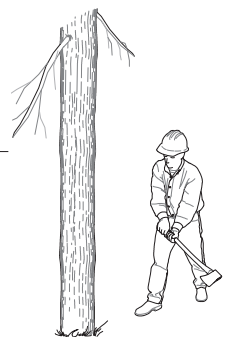




Figure 9-2—A simple bench-top jig secured by a vise.



Figure 9-3—Three drift pins used for removing a handle from the eye of an ax head.





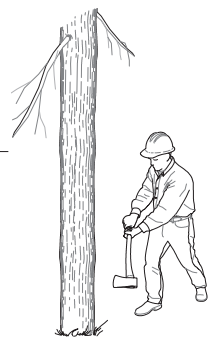
Figure 9-4—Using a mallet and drift pin to remove the remaining portion of a handle from an ax head eye.

Making a Simple Jig

Using a jig to secure an ax head is better than securing the head in a vise. Securing an ax head too tightly in a vise can crush and alter the shape of the eye.

You can easily make a simple jig to suit your needs. “[Appendix B—Technical Drawings](#)” provides technical drawings for a couple of different jig designs.

A vise secures the bench-top jig shown in [figure 9-2](#). You can easily remove the jig when you are not using it. The freestanding jig does not require you to saw off the handle. This may be useful if you want to salvage the handle, but you must remove the wedge and force the handle out through the bottom of the eye.



Shaping an Ax Handle

After carefully selecting an ax handle that is free of defects, it is time to customize it to fit your needs and body size. Do not assume that a stout handle is a strong handle. A handle that is too big and bulky is more prone to break than a thinner, properly shaped handle. Figure 9–5 shows a thick vintage stock handle and a thin vintage stock handle. Most handles you buy today are too thick; you must thin them down to properly fit your hands.

A properly shaped handle focuses the energy of the ax head when you chop. A thinner handle is more flexible, providing whip to the chop. Whip enables the ax head to hit harder while minimizing the impact vibration that transfers back through the handle to you.

A thicker handle is less flexible, transfers more vibration, and is also subject to greater stress where the handle enters the ax head eye.

The area directly below the eye is the most likely place for the handle to break because:

- Wood fibers at this junction receive the brunt of the energy transferred from the ax head.
- Repeated chops crush and flex the wood fibers.
- The wood outside the eye moves more than the wood inside the eye, causing wood fibers at the junction to weaken and eventually break.

To begin safely shaping the handle, secure it in a vise on a workbench or shave horse. You can use a number of tools to remove wood from a handle:

- Belt or orbital sander
- Block plane
- Drawknife
- Horseshoe rasp
- Old planer blade or other similar type of blade
- Spoke shave
- Wood rasp

Figure 9–5—A thick vintage handle (top) and a thin vintage handle (bottom).



The author prefers three tools for removing wood and shaping a handle: a rasp, a planer blade, and a spoke shave (figure 9–6).

The rasp gouges the wood, but removes it quickly and develops the rough shape. The planer blade or

spoke shave provides a smoother finish. If you use a planer blade, pull the back side of the blade across the handle to provide better depth control and to help prevent gouging. If you use a spoke shave, you can preset its cutting depth.

Figure 9–6—Using a rasp (left), a planer blade (below), and a spoke shave (following page, top) to shave wood from a handle secured in a vise on a workbench.





Rotate the handle regularly to keep its shape symmetrical. Some handles may be so bulky that your best option is to remove excess wood using a band saw (figure 9-7) before thinning the handle using handtools. Be careful to maintain an elliptical or flat-faced shape to the handle; a handle that is too round will pivot freely in your hands, decreasing your chopping accuracy and creating a potential safety issue.

The author prefers an octagon-shaped handle; the flat sides and ridges make the handle easier to hold and less likely to pivot while chopping, and also provide a firmer grip in wet weather.

As the handle begins to feel more comfortable in your hands, use a felt pen to mark specific areas where

Figure 9-7—Using a band saw to thin down a thick handle.



you want to remove more wood and to avoid areas you have already finished shaping (figure 9–8).

You should remove wood primarily from the sides and back of the handle on a single-bit ax and primarily from the sides on a double-bit ax. Try not to remove wood from the belly of any ax handle; maintaining the belly helps to keep the head and handle better aligned.

Thin down the handle until it is comfortable to grip and your hands slide easily along the entire length of the

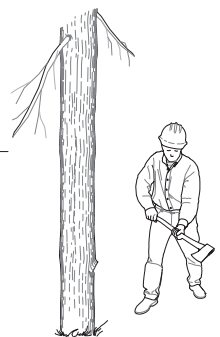
shaft. Pay particular attention to the shoulder of the handle. Shape the shoulder to fit your hand as well as the ax head. Removing too much of the shoulder will leave gaps between the handle and the head.

The throat and knob of the handle (figure 9–9) also require special attention. This lower section of the handle is where you position your stationary hand; it must fit that hand comfortably. The knob is at the base of the throat and helps prevent the ax from slipping out of your hands as you chop. Do not remove too much wood from the throat or knob.

Figure 9–8—Using a felt pen to mark an ax handle.



Figure 9–9—The throat and knob of an ax handle.



When you thin down an ax handle, you not only need to make it fit your hands (figure 9–10), you also need to match the handle with the ax head. The [“Steps for Hanging an Ax”](#) section in chapter 10 provides further information about matching an ax head and handle. The goal is to find the proper balance between the two. The balancing point of an ax should be as close to the head as possible (figure 9–11). With a thinner handle, the center of mass (balancing point) is closer to the ax head and your chopping is more efficient.

The profile of an ax head also plays a part in the strength and durability of a handle. If the profile of the ax head does not enable you to easily remove the head from the wood you cut, the additional force required to remove it can further crush wood fibers at the junction between the ax head and handle, making a broken handle more likely. This commonly occurs when using an ax to split rounds of firewood.



Figure 9–10—A properly shaped, thinned down handle. Note how the fingers overlap the handle.

Figure 9–11—A properly balanced single-bit ax resting on one finger, indicating that the balancing point is close to the ax head.



Finishing an Ax Handle

Once you slim down the handle to fit your preferences, proceed to the final step, which is finishing. Finishing removes all burs and rough areas that could cause blisters or splinters on your hands. The goal is to make the handle as smooth as possible, though many people prefer to leave the throat a little rough to improve the grip. Tools used for finishing a handle include:

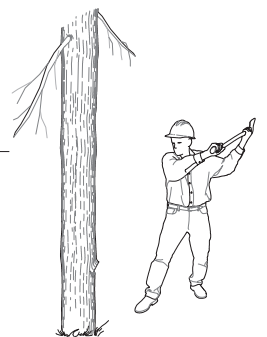
- Cabinet scraper (or similar tool)
- 100-grit sandpaper (figure 9-12)
- Steel wool

Rub raw or boiled linseed oil into the handle after you achieve a smooth finish (figure 9-13). Wood is porous, so the grain of the handle absorbs the linseed oil, which helps to keep the handle from drying out. Allow the oil to soak in, then repeat the process until the handle is saturated. The linseed oil helps maintain and preserve the handle. Oil also helps maintain the handle's strength and flexibility. As needed, reapply a coat of raw or boiled linseed oil to maintain the handle. Boiled linseed oil dries faster than raw linseed oil.

Figure 9-12—Sanding down an ax handle to make it smooth.



Figure 9-13—Rubbing boiled linseed oil into a handle to achieve a smooth finish.



Raw or Boiled Linseed Oil

Manufacturers make linseed oil from flax seed. Raw linseed oil dries very slowly, whereas boiled linseed oil dries much more quickly.

Though referred to as “boiled,” manufacturers do not actually boil the linseed oil; they add metal solvents to it that cause it to dry more quickly.

Be careful when using old-stock or vintage boiled linseed oils you may have on hand; manufacturers often used lead as a metallic dryer in these oils. Because you can absorb lead through your skin, you should always use latex or nitrile gloves when handling old-stock or vintage linseed oils.

A good recipe for a handle finish is equal parts of boiled linseed oil, turpentine, and beeswax. Warm the ingredients in a microwave to about 100 °F and stir to blend them thoroughly before applying.

Leave the top of the handle (where it fits inside the ax head) free of oil or ensure that it is completely dry before inserting it into the ax head. Oil is a lubricant and can cause the ax head to slip on the handle.

If you shape handles on a regular basis, you can use a 3-inch-diameter piece of polyvinyl chloride (PVC) pipe about 36-inches long to soak the handles. Cap one end permanently and put a removable cap on the other end so you can periodically clean out the pipe. Fill the PVC pipe with linseed oil (it holds about 1 gallon) and soak the handle until it is saturated (figure 9–14). Wipe off any excess oil and the handle is ready to hang.



Figure 9–14—Removing an ax handle from polyvinyl chloride (PVC) pipe filled with linseed oil.



Be careful not to soak the handle for too long (about 20 minutes should be enough) or it will become too saturated and sticky or gummy. A sticky handle indicates that you have applied too much oil and allowed it to dry before it could penetrate the surface. If the handle is sticky, use a clean rag to apply turpentine, paint thinner, or mineral spirits to remove the excess oil. Allow the oil to loosen and then wipe the handle. Note: if the coat of excess oil is heavy, you may have to use steel wool to remove it. After the handle dries, you may have to recoat it with a lighter application of linseed oil.

Remember to dispose of linseed oil-soaked rags properly. Heat is part of the drying and curing process. If you throw an oil-soaked rag in the trash, it may spontaneously combust and start a fire. Place the rag outside or in a safe location and allow it to dry thoroughly before disposing of it.

Once you hang the ax, apply a few drops of oil to the top of the handle and the top of the wooden wedge that fixes the handle to the head to keep them from drying out. Remember this adage about putting linseed oil on after you hang your ax handle:

Linseed your handle

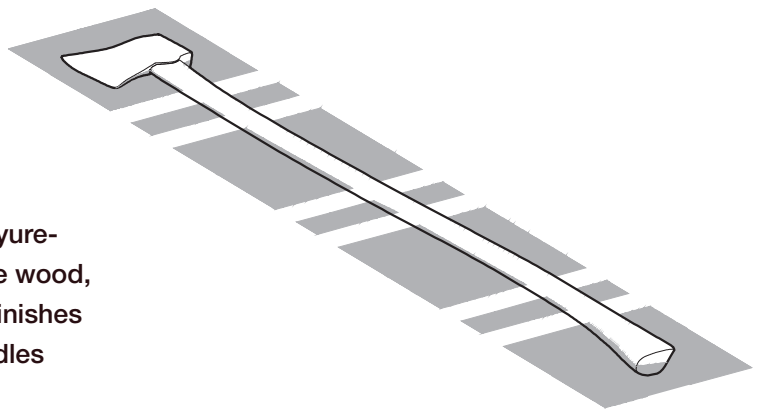
Once a day for a week

Once a week for a month

Once a month for a year

Once a year after that

Harder finishes, such as paint, varnish, or polyurethane, provide better surface protection to the wood, but do not permeate the wood fibers. These finishes also could cause blisters on your hands. Handles should have an oil finish, not a hard finish.





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