

How to Make a Wood Slab Handled Bowie Knife

By Mike Zaccardi

a.k.a.

Powderburns

Introduction:

- **Introduction:** This tutorial is intended for use by the Mesa District Varsity Scouts and Leaders who are preparing to attend the **Mogollon Mountain Man Rendezvous** held biannually at Camp Geronimo North of Payson, Arizona. These instructions will help you build a wood slab handled knife. The pattern can be changed to fit your personal knife. The example knife is a large Bowie knife blank model # BL7891 also known as pattern #7.
- **These knives are not intended to, and should not, be used at other Scout functions, other than at the Rendezvous as a part of your regalia.**
- You also need to keep the work area clean and organized and always return the tools to their proper locations.
- The SS blades originate in Pakistan and can be found on the internet by searching for BL7891.

Safety Message:

- The knife blades are extremely sharp!!! Totin'-n-chip safeguards will be observed at all times.
- Blade protectors should be kept on the knives while installing the handles/sheaths.
- The power drills and drill presses present a hazard of scraping or cutting injuries.



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Tools Needed:





- Coping saw (and extra blades) to shape handles or use a band saw with proper precautions.
- Metal hammer to set cutler rivets
- Metal sheet (~ 4"x4"x1/4") to set rivets with 5/16" studs protruding about 1/16". You will need to drill a hole into the steel plate. Then tap threads for the 5/16" diameter x 1/4" long allen head stud. File the top of the stud flat so it will not mar the cutler rivet head.
- 3 C-clamps (1-2 inch)
- High speed metal drill bit (5/32" inch or about 0.155")
- Drill press to drill holes in metal knife tang, wooden handles, and to mount sanding drums.
- Drill press vise and 1x4x4 piece of flat pine board.
- Drill motor or drill press or belt sander to shape wooden handles. Need to mount drill motor securely to a table.
- Stand to hold drill motor stable.
- Sanding drum for drill (1/2", 3/4" & 1-1/2" diameter in 50, 80, & 120 grit) or
- Vertical belt sander with 80 & 120 grit.
- Rotary Scotch-Brite finishing flapper sander (Fine) for drill 3M #9416NA (ACE hardware).
- Round wood rasp for drill to shape handle
- Wood rasp (4-in-1) fine/coarse flat/rounded
- Flat metal file to flatten the handle sides
- 12 penny nail (cut in half) or 5/16 or 21/64 flat bottom drill with 5/32 pilot or #1 step drill. With 12 penny nail, you may need to reduce the diameter of the nail head to more closely match the cutler rivet. Mount a file in the vice with the flat side up. Chuck up the nail in a drill, rotate the head of the nail against the file measuring (be careful to rotate against the grooves of the file) often to get them round and about 0.10 - 0.15" of cutler rivet head size. Alternative method is to chuck the 12 penny nail in the drill press and with the drill press turned on work the nail head with the file to round the head off and get it to the right size.

Materials Needed:


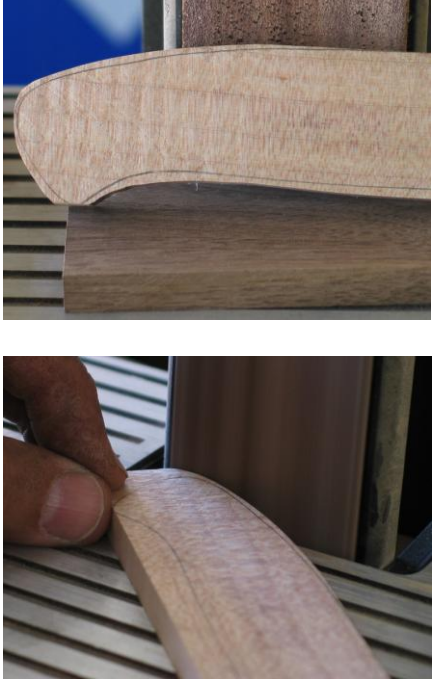
- Bowie knife blank model # BL7891 (SS with brass finger guard installed). There are several other knife styles with full length tangs that can be built with these instructions.
 - Blade length = 8", total length = 13"
 - Note: some knife blanks are coming predrilled with two rivet holes in the handle. Verify the inside diameter still matches the cutler rivet diameter. If not either open up the holes with the 5/32 drill bit or consider redrilling the tang with three holes as described below.
- Wooden handle panels (2 walnut, hard maple, cocobolo, zebrawood, bocote, purple heart, ironwood, mesquite, etc) (3/8" x 1-3/4" x 5")
- Cutler rivets (3) (5/16" head x 0.155 barrel x .60 - .90" long rivets).
- Cutler rivet setter: Use 5/16" x 1" allen headed cap bolt with threaded end filed flat)
- Pencil or fine tip marker to sketch handle pattern
- Fast drying (5 minute) 2-part epoxy to attach handles
- small plastic cup/container and small popsicle stick (match stick, etc) to mix epoxy
- Emory sandpaper roll (About 1" wide in 120 and finer grit. Find at Harbor Freight.)
- 3/8" to 1/2" tubing slit lengthwise to use as Safety Guard to cover blade during assembly
- Tape (blue painter's tape is best) to attach blade guard and cover finger guard
- Dust mask, gloves, and safety glasses.
- See the Rendezvous Materials List on www.measvarsity.org for sources of these materials.

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Step-by-Step Instructions:

Step	Description	Illustration
1	<p>Install blade guard: SAFETY ISSUE. Use poly or plastic tubing sliced the long way and blue painter's tape or masking tape to cover the sharp blade. Retain the hard plastic tip guard. Wrap the entire length of the blade so that the tape will hold the guard on and protect the blade when it is clamped in the vise.</p>	
2	<p>Flatten knife handle: Mount the knife in a vise being careful not to mar the knife blade. Use flat wood inserts in the vise jaws to hold the blade. Use the metal bastard file to flatten the two sides of the handle. Do not round the top/bottom sides. Keep file parallel to the handle at all times. <i>Caution: Only apply pressure while pushing the file away from you. If you apply pressure while pulling the file back, you will dull the file.</i></p>	
3	<p>Mark cutler rivet holes: Sketch a template from heavy cardstock paper of the knife handle and cut it out with scissors. Measure in from both ends 0.5". Mark the center hole between the two end holes. Center the holes within the handle. Center punch the three hole locations. If blades are predrilled, ensure the holes are 5/32". If not redrill the holes to 5/32".</p>	
4	<p>Drill out the cutler rivet holes: Using a drill press (this will ensure that the holes are bored straight through the handle) verify that the table is flat and perpendicular to the drill bit using a square and level. Clamp a flat piece of wood in a drill press vise. Chuck up a 5/32" high speed bit. Using a lubricant (oil), drill the three holes.</p>	
5	<p>Wooden Handle Blanks: Handle blanks are traditionally made of walnut or hard maple. You can either purchase blanks that are at least 3/8" thick by 1-3/4" wide by 5" long. You can also purchase appropriate wood boards and fashion the handles with a table saw and possibly a surface planer.</p>	




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6	<p>Outline handle shape: Using a small C-clamp and holding the end of your handle blank flush with the brass finger guard, clamp the wood snug (do not mar the finish on the handle blank). Using a pencil or fine tip marker, outline the shape of the handle onto the wooden blank. Make sure that the line is dark enough to be easily seen. Remove the clamp and repeat the process for the other side with the other handle blank. Remember that the side that was against the metal handle is the inside. Mark these left and right.</p>	
7	<p>Rough out the shape of the handle: You want to remove the excess wood from the handle blank so that there is about a 1/16 – 1/8” of wood outside your marks. Optional methods:</p> <ul style="list-style-type: none"> • Coping saw: chuck the wood blank in a vise protecting the blank. Gently cut outside the outline of the handle rotating the blank in the vise as needed. Do not put any pressure on the fragile coping saw blades or they WILL break. • Hand wood rasp: Mount the wood blank in a vise with protective sides. Using the coarse wood rasp remove the material down to 1/16” of marks. Be very careful to keep the rasp perpendicular to the blank so you do not round the edges off. This is really Slow!! • Drill press or hand drill powered coarse sanding drum (50-80 grit): Using proper safety gear (goggles & particle mask), mount the wood blank in a vise protecting the blank finish. Carefully and slowly remove excess material down to about 1/16” of the handle mark using a coarse grit on the sanding pad. Use dust mask. • Drill powered wood rasp: Using proper safety gear (goggles, particle mask), mount the wood blank in a vise protecting the blank finish. Carefully and slowly remove excess material down to about 1/16” of the handle mark. Use dust mask. This is can be a dangerous and hard to control operation. • Stationary belt sander: Using proper safety gear (gloves, particle mask, & eye protection) and holding the wood blank flat on the feed table, sand down to 1/16” of the marks. Use dust mask. • Band Saw: Carefully trim away wood to no less than 1/16” of the line. 	

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8	<p>Taper finger guard end of handles: Mount the wooden handle blanks flush against the finger guard. Clamp one side and then sketch a line where the brass guard meets the end of the wooden blank. Repeat for the other side. Using a flat rasp or belt sander at a 45' angle taper the handles down to the line from the brass guard. Do not leave any excess (proud) wood. Keep the angles uniform for the two sides.</p>	
Note	<p>Skip to step # 15 if you are only going to epoxy handles on your knife.</p>	
9	<p>Drill cutler rivet holes in first wooden handle blank: Gently clamp one handle blank to the knife handle matching the outline pattern with a small C-clamp. Using the drill press and the 5/32" bit, drill through the hole in the handle nearest the end of the handle. Make sure that the hole is perpendicular to the knife handle. You will have to use a block of wood under both ends of the handle so the clamp is not touching the drill press table. Insert a female cutler rivet through that first hole, reposition the C-clamp nearest the hole you just drilled in the end of the handle keeping the wooden handle blank positioned correctly to your outline. Drill the remaining two holes. Each time you drill a hole insert a cutler rivet to keep the handle aligned to the pattern.</p>	
10	<p>Drill cutler rivet holes in the second wooden handle blank. Repeat the process as above with the other handle. Be careful not to tighten the clamp so tight as to imprint the clamp into the wooden handle.</p>	
11	<p>Counter sink the handles for the cutler rivets: Using a straight 12 penny nail, cut it in half with a hack saw. Insert the nail into the cutler rivet hole so that the head is on the outside of the handle where the head of the cutler rivet will be. Clamp the wooden handle blank in a vise protecting the blank from the vise jaws with scrap wood. Chuck the nail in a drill motor and keeping the drill/nail parallel to the hole, pull against the wood till the hole is counter sunk about 1-1/2 times as deep as the thickness of the head of the cutler rivet (about 0.060"). Do not be alarmed if the wood starts to smoke from the friction generated by the nail head. SAFETY PRECAUTION: the nail is going to get very hot so you may have to handle it with gloves or allow it to cool between holes.</p>	

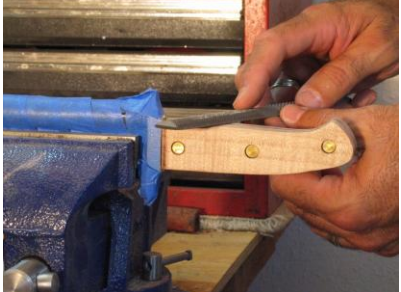
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12	<p>Cutler rivet hole considerations:</p> <p>Once the head of the nail is below the surface of the handle, check the countersink depth to make sure that the head of the rivet will be slightly below the surface of the wood. You may have to clean out the charred wood from the bottom of the hole with a small screwdriver or the end of the 12 penny nail. When all of the holes are countersunk, use the 5/32” bit to re-drill the cutler rivet holes since they will be too small from the 12 penny nail and the heat/friction generated. If you do not perform this function you run the risk of cracking the wooden handle when you set/expand the rivets.</p>	
13	<p>Wooden handle attachment preparation:</p> <ul style="list-style-type: none"> • This operation is very critical and if done incorrectly can be very difficult to recover. • Gather up all the necessary items (2 handles, 3sets of cutler rivets, 2-part epoxy, mixing cup, mixing stick, 2-3 small C-clamps, metal hammer, steel plate with 5/16 studs, 5/16 x 1” cap bolt) before starting this step since the epoxy sets up fast. • Cutler rivets are attached by placing all the female rivets on the bottom side of the handle and counter sunk by placing the bottom (female) cutler rivet head over the protruding stud on the metal plate. Be careful to not to mar the wooden handle by getting off the stud. The male cutler rivet is driven straight down into the female rivet initially with a hammer and then the 5/16x1” cap bolt to counter sink it below the surface of the handle. 	 

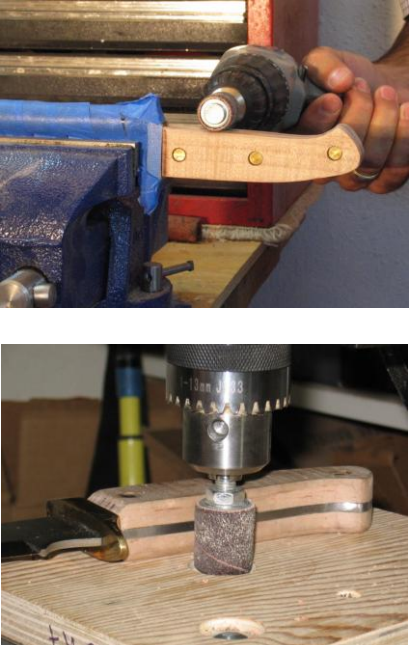


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14	<p>Wooden handle attachment:</p> <ul style="list-style-type: none">• Squeeze enough 2-part epoxy into a plastic cup or paper plate to coat both sides of the knife handle. Mix the epoxy until the 2 parts are thoroughly mixed using the flat end of the popsicle stick or equivalent.• Coat one side of the handle with epoxy. Attach the appropriate handle and female rivets. Coat the other side of the metal handle with epoxy. Carefully attach the remaining handle making sure the holes line up with the protruding female rivets from the bottom.• Align the end rivet directly over the stud in the metal plate. HINT: get someone to hold the blade end of the knife parallel to the steel plate while you set the rivets. Drive the male rivet into the female rivet until it is flush with the handle. Use the 5/16" cap bolt to finish driving the rivets together so that the top one bottoms out in the countersunk hole. CAUTION: Do not exert undue force once the top rivet bottoms out or you will split the wooden handle.• Repeat for the other 2 cutler rivets. Be careful to align the female rivet head over the stud protruding from the plate so you do not mar the wood.• Attach 3 small c-clamps to the handles to gently squeeze them flat against the knife handle and spread the epoxy evenly for about 1.5 hours. It is advisable to use a piece of thin wood between the c-clamp and the wooden handles to be able to apply enough pressure without damaging the handles.	 <p>The top photograph shows a person's hands mixing epoxy in a white paper plate with a purple floral pattern. A wooden handle is being coated with the mixture. Various tools like pliers and a hammer are visible on a workbench. The bottom photograph shows a young man sitting on a folding chair outdoors, using a hammer to drive a rivet into the handle of a knife. He is wearing a blue t-shirt and shorts. The background shows trees and a blue canopy.</p>

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15	<p>Attach Handles with epoxy only</p> <ul style="list-style-type: none"> • Using epoxy only to attach the wooden handles simplifies the process, reduces the time and materials needed, but will not be as durable if the knife is going to get any rough use. • Gather up all the necessary items (2 handles, 2-part epoxy, mixing cup/plate, mixing stick, and 3 small C-clamps) before starting this step since the epoxy sets up very fast. • Ensure that the metal handle is clean and free of any rust, dirt, finger prints, etc. Scrub the handle with fine sandpaper or scotch brite pad to get rid of rust and get down to the bare metal. Finally clean the handle with isopropyl alcohol or IPA and allow to dry. • Squeeze enough 2-part epoxy into a plastic cup or paper plate to coat both sides of the knife handle. Mix the epoxy until the 2 parts are thoroughly mixed using the flat end of the popsicle stick or equivalent. • Coat one side of the metal handle with epoxy. Attach the appropriate wood handle. Coat the other side of the metal handle with epoxy. Carefully attach the remaining handle making sure the edges line up. • Attach a three C-clamps along the wooden handle and apply enough pressure so that the handles will stay in place but not so much as to mar the wood handle. • Allow to dry for at least 	
16	<p>Rough shaping of the wooden handle: Clamp knife blade in vise so as not to mar blade. Holding wood rasp flat, remove excess wood down to the metal handle. DO NOT FILE THE STEEL HANDLE WITH THE WOOD RASP OR IT WILL RUIN THE RASP. Use the rounded side to shape the curved part near the bottom end of the handle.</p>	

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17	<p>Intermediate shaping of the wooden handles:</p> <ul style="list-style-type: none"> • Use the 1-1/2" and/or 3/4" 50 or 80 grit drum sanders and a drill motor to get good metal to wood fit. Keep sides parallel by holding the sander flat as shown. • Alternatively you can mount the sanding drum in a drill press and hold the knife handle flat on the table to remove the handle material. Finish off with the 120 grit drum when the wood is flush with the metal tang. • Alternatively you can use a stationary belt sander. It will not be effective near the brass guard or near the rear inside curl. Use the roll of emery cloth near the brass guard and the drum sander for the curved area of the end of the handle. 	
18	<p>Rounding Edges:</p> <p>Using about 12" of the 1" wide emery cloth to round the edges of the wooden handles. You will have to clean or replace the emery cloth often to remove the wood shavings. Cut the emery cloth to 1/2" wide to do the rounded section near the end of the tang.</p>	
19	<p>Final finish and polish:</p> <p>Use the rotary finish flapper sander to ensure proper metal to wood fit and smooth out all surfaces. CAUTION: Be careful not to damage the brass finger guard. Notice how the finger guard is wrapped in blue tape to protect it. If you damage the brass guard, use a buffing wheel and jeweler's rouge to polish the brass.</p>	
20	<p>Stain or protective finish:</p> <p>You can use any good stain followed with verathane or shellac or several coats of boiled linseed oil or Tung Oil.</p>	