EASY INLAY

How to Inlay a Ring Using Paua Strips and CA Glue

by Scott Grove

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Follow these directions and you'll learn a quick and easy way to create a stunning ring using a pre-channeled ring blank, a paua abalone strip, CA glue, and simple tools.

Caution: Wear all required safety gear when using solvents /glues, when sanding/polishing

DIY RING WORKSTATION: download plans to make a workstation from scrap ¾" plywood or MDF. Click HERE.

DIY RING MANDREL: download an easy-to-make mandrel plan to hold your ring securely while you work. Click HERE.

First, gather these tools and materials, below.

TOOLS

Electric hand drill – variable speed
A rotary tool like a Dremel®
Fine tweezers (I prefer an angled 45-degree end)
Popsicle sticks
Magnifying visor (helpful but not required)
Polishing / buffing wheels for rotary tool and polishing compound (red rouge & white diamond)

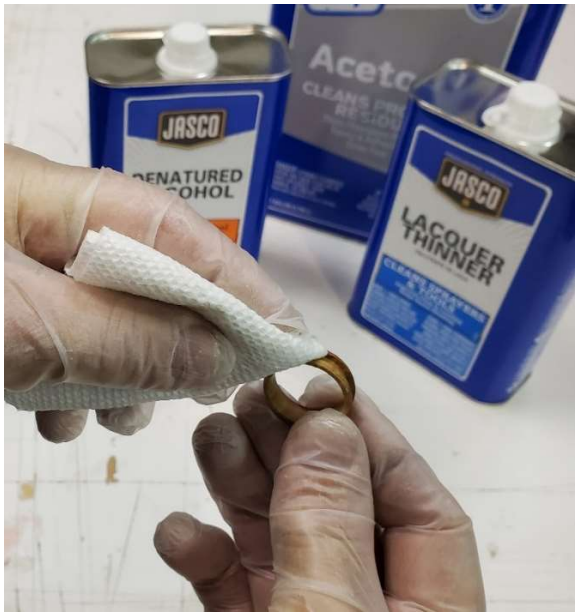
MATERIALS

Ring channel blanks (available at EasyInlay® or other websites; when using wood or ceramic, you may choose to buy two because one may break. Wood can be repaired – see instructions below)
Paua Abalone Strips with PSA (pressure-sensitive adhesive) backing
CA glue - thin and medium
CA Accelerator (handy, but not required)
Sandpaper – 80, 120, 240, 320, 400, 600 for dry sanding
Micro mesh sanding pads 1500 – 12000 microns for wet sanding
Gloves, safety glasses, and dust mask

EASY INLAY

Take your ring and clean it with acetone, nail polish remover, denatured alcohol or other strong solvent to remove any existing wax or oils.

Make sure you clean the groove to prepare it the inlay materials.

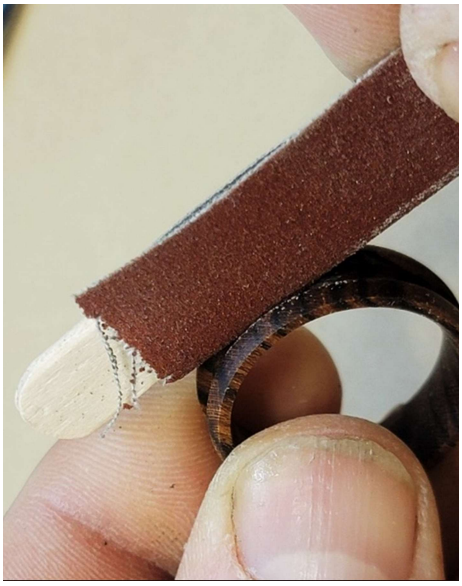


Wooden and ceramic rings are designed to break away (for people who are concerned with catching their rings on equipment), so if you're working with a wood ring blank, start by soaking it with thin CA glue (I like Gluboost Ultra Thin) to help strengthen the wood fibers. This step makes the rings stronger but still allows for a breakaway.

Shake off excess glue and set on wax paper to dry. Do not use any accelerator. This step is not necessary for ceramic or metal ring cores, and/or if you do not wish to strengthen a wooden ring with CA.

EASY INLAY

Install your ring onto the home-made (or store-bought) mandrel and gently tighten the nut to compress and expand the faucet washer. Turn the nut 1/8 turns at a time and test the grab of the ring. Do not over tighten as you risk breaking the ring from too much tension.



After the CA is completely dry, scuff sand the entire ring and sand out any hardened glue drops. (I use a tongue depressor or popsicle stick wrapped with 120 grit sand paper.)

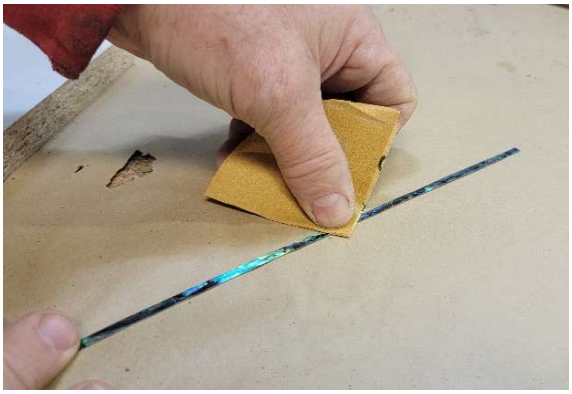
Ceramic ring channels do not require sanding.

Wrap another popsicle stick with polypropylene packing tape for future steps. It's a pressing tool that the CA glue will not stick to. It's also great for holding down stubborn wet areas.

Clean dust off with denatured alcohol. Do not use acetone because it this will dissolve the CA glue.

EASY INLAY

While not critical, a magnifying visor helps you see the inlay process more closely. I like the kind that had interchangeable lenses with different magnifications; this style allows for two lenses to be installed and flipped up and down for a closer look when needed. I can even use it with my readers.



Lightly sand paua / MOP strip with fine paper, ~220-320 grit. Sand flat on table.

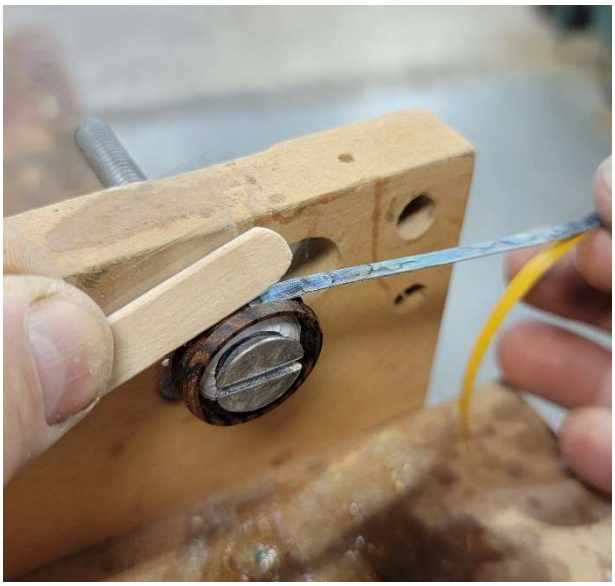
Wrap the rubber washer with Teflon plumbers' tape to help prevent gluing the ring to the mandrel. Install ring over the rubber washer and tighten nut 1/8 turn, just enough to create a snug, but not tight, fit. Sometimes no turn is necessary and a friction fit holds the ring in place. **DO NOT OVERTIGHTEN.**

Cracked wooden rings can be repaired by gluing the pieces together with thin CA glue. For more reinforcement, wrap fine thread around the ring and add a thin layer of CA glue. Let it dry completely.

INLAY THE PAUA ABALONE STRIP

NOTE: Paua and mother of pearl shell will crack inherently as you wrap it around a tight radius. This is to be expected; the cracks will fade after finishing.

TIP: While not necessary, pre-bending the strip around a dowel, especially for small rings, can help with wrapping, as you will crack the paua shell evenly.



INLAY - Wrap the strip around the entire ring, pushing down and lightly breaking any folds that want to raise up out of the channel bottom. Use a rocking motion to work the paua around the ring and press down firmly. Push straight down, do not push laterally or slide the popsicle stick along channel as this can tear and separate the paua strip. If a tear occurs, simply slide the strip to close up the gap.

Look for any natural inclusion in the shell and pierce a dotted line across the strip, following any natural patterns in the paua. Use a fine-tipped X-acto knife or scalpel and cut to match the grain figure.

Butting the strip ends together will inevitably leave a dark line gap, so overlap the ends. It provides a cleaner aesthetic and will not be noticeable when finished.

CA FINISH APPLICATION

CA finish application can be done without a drill, but requires that you keep the ring moving at all time while you apply the CA, similar to how a glassblower keeps their molten glass moving. In this booklet, I demonstrate how to apply CA using a mounted drill.

Note: To thin or reduce the viscosity of any resin, heat the bottle in hot water. Sometimes I use a syringe to accurately dispense it. Note: when applying beads of CA, often the surface cures first while the lower level is still liquid. Make sure you wait the proscribed time between coats.

Clamp a variable speed drill to your workbench using a minimum of two clamps, or fasten it down securely with straps or a mounting jig fixture. Set the drill in reverse, otherwise you might unscrew the mandrel nut. Install the DIY mandrel onto the drill.

Set the drill to a slow speed by using a quick clamp on trigger and leave the drill running. Spray a light coat of CA accelerator and let thoroughly dry / flash off. This helps cure the CA from the bottom up.

Note – some cordless drills have a thermal coupling that turns the drill off after some time, typically this is on low RPM settings. Some corded drills have speed controls on the trigger, which makes setting the RPM easier.

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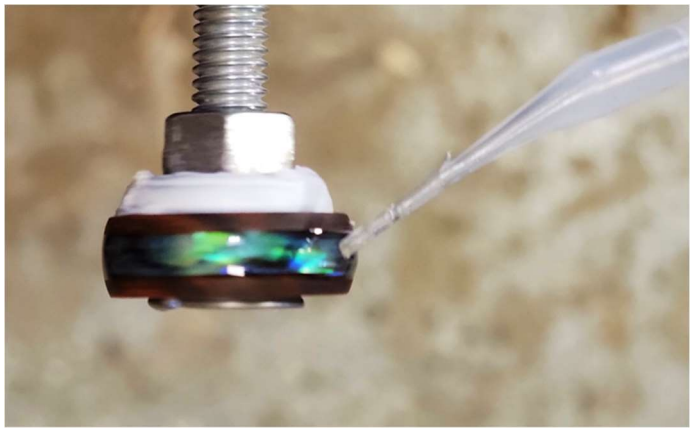
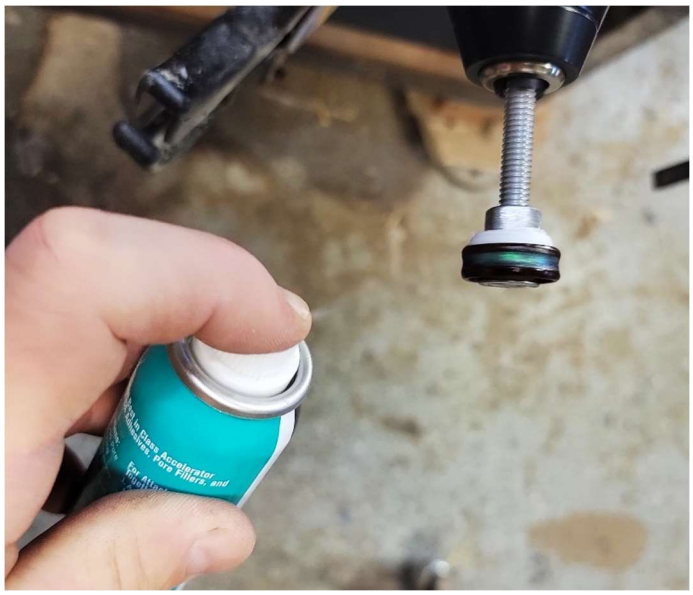
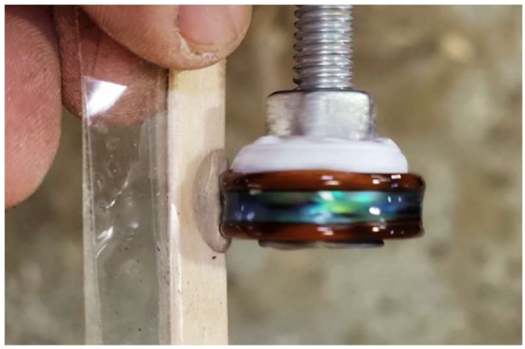






While the ring turns at slow speed, add a thin bead of medium CA glue, let the capillary action work its way down under the strip, and create an even bead glue finish. Fine tip applicators will make the CA application easyier and provides more control.

Spray lightly with accelerator (some brands of accelerator are “hotter” than others: they set the glue fast and too much accelerator can bloom or blush the finish white. Less is better here.)

Note: accelerator can sometimes crinkle the surface, in most cases is not an issue as the CA will be sanded smooth.

Note: If you’re not in a hurry, don’t use accelerator . Instead, wait 15-30 minutes for CA to cure between coats. Keep the drill running on low speed.

Note: RPM speed can affect application in a positive or negative manner. Too, slow the CA drips off and/or creates an uneven coating (which can be fixed). Too, fast, the CA may fling off (where safety glasses at all times.)

Apply second coat of CA with accelerator while the drill is turning.

Add additional coats as necessary, thinner coats will cure faster than thicker coats. Use accelerator between each coat and let it flash

If a bead of CA forms on one side while still wet, use a popsicle stick to screed and level out the CA while turning at slow speed. You canalso sand it off before adding another layer of CA.

Finding the RPM sweet spot allows the CA to form a perfect bead, again, like a glass blower manipulates molten glass.

SAND AND PROFILE CA FINISH

One of the most important tools to have during any sanding operation is a garbage can. It is important to stop sanding and throw away used and clogged sandpaper, or else you risk burnishing the surface, which can create excessive heat and affect the inlay.

If the CA cured with drips or significant lumps, sand these off first by hand or with a rotary tool using course grit sand paper ~120-180 grit.

Smooth out the entire circumference. It is safest to sand from the bottom with the paper pulling away from you. Watch the profile while looking down on the edge.

With the drill on medium speed, sand the CA. It can be either sanded flush to the ring or domed shaped.

Turn off your drill and inspect the final coat of CA visually and with your fingernail. If the CA is high, that's okay; it will be sanded down. If it leaves a ridge between low CA and the channel edge, or if you have shiny spots, these are valleys that require filling with more CA. Apply third coat of CA if necessary.

While sanding, pay special attention to the CA at the ring channel side seams. This is where you will see the finish become flush with the ring surface. The seam should be clean and straight. Often, areas with a little CA on it will look hazy. Sand until the ring surface is clean. Sand lightly on wooden ring cores; they are a little more sensitive and you can sand into the wood too much. Ceramic ring core material is extremely hard and the sandpaper won't scratch it.

Dry sand, 240, 320, 400, 600 grit

Tip: Sandpaper on roll dispensers aren't labeled with the grit size very often on the back. Do yourself a favor: mount a marker on the box and label the underside as you tear small pieces off.

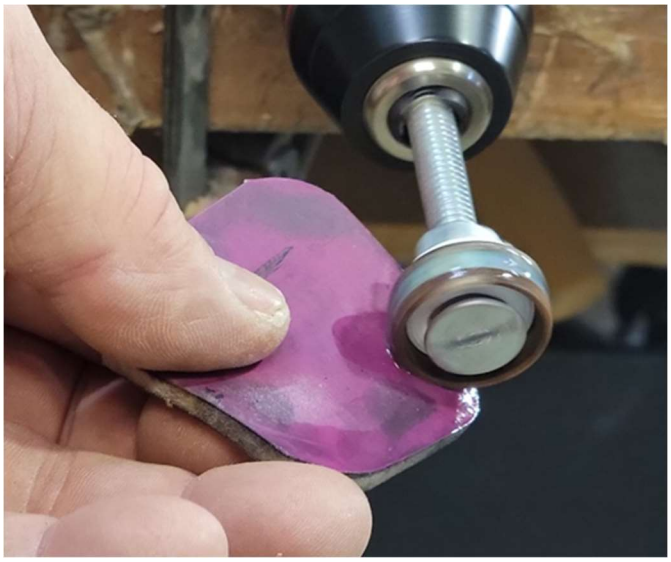
Inspect for any voids, repair with CA if necessary. Apply three more thin coats of CA with drill on medium to high speed. Let CA cure in-between coats, use light spritz of accelerator.

Clean the dust off with alcohol and take your first look at the inlay. I love this step. At this point, the finish may be acceptable, this is a subjective call.

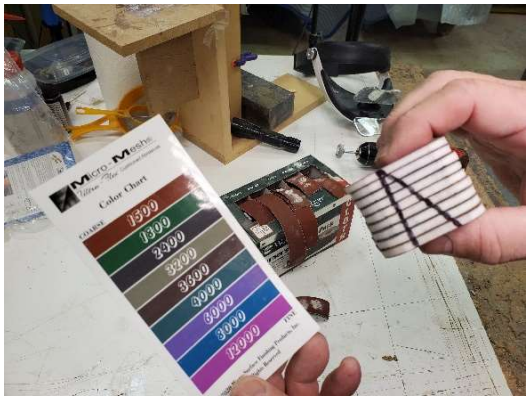
POLISHING

There are a number of polishing techniques you can use:

1) Dry sand CA with 600 grit, polish with Yorkshire microfine abrasive paste. Apply paste and buff on high speed until dry.



2) For a finer finish, sand using micro mesh wet sanding pads: 1500, 1800, 2400, 3200, 3600, 4000, 6000, 8000, 12000 grits and rinse the pads thoroughly a few times during the sanding process to wash away particles and prevent the pads from clogging.



TIP: After stacking the pads in proper sequence, I draw a triangle shape on the side which, lets me graphically see if they are in order.

3) Polish with polishing compound – red Tripoli, then PBC (plastic buffing compound), buff with raw felt pad / disk.

4) Or, after wet sanding, polish with various liquid polishing compounds:

Magic juice – 1-6
Novus 1-3
3M automotive polish
Toothpaste – yup, it works if you're in a jam!

EDGE AND INSIDE FINISHING

Remove the ring from the mandrel. Lightly sand the interior with 400-600 grit and wipe with a coat of thin CA glue. If you have a large glue drip, follow the above sanding sequence.

Polish inside as above with conical rotary tool pad.

You're done! Now you can present this beautiful ring to your family members or friends with pride and the satifaction of creating it yourself.