Stain Glass – Level 3

Stained Glass Lampshade

The following material is from

http://www.freepatternsforstainedglass.com/lampshade.html



There is nothing more beautiful than a stained glass lampshade, and nothing more frustrating than trying to make one when things go wrong. You have problems with the pattern, the panels are not all the same size, the tape you use to pull it into shape falls off as fast as you put it on, the lamp falls apart as you are trying to pull it up, etc. No wonder so many people give up, thinking that making a lampshade is not their "thing".





Once you learn these techniques, there will be no stopping you. Here's to many beautiful, problem free lampshades.

Getting Started

To get started you will need:
A pattern
Glass
Vase cap (the pattern book will recommend the correct size)
Card stock or poster board
Carbon paper
Pencil
Ruler
Eraser
Light box or a bright sunny window
Jig materials
Glass cutting tools
Copper foil
Soldering iron
Flux
Solder
Masking Tape that stretches 1/2" or 3/4" (I prefer Scotch Brand) It has small ridges in it that give it some stretch.
18 gauge copper wire (tinned)

Preparing the Pattern

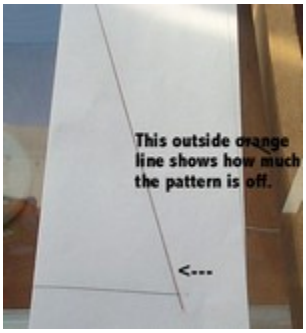
The key to a successful lampshade is accuracy. It is either accurate, or it isn't. If it isn't, it won't go together easily, if at all. Every step involves accuracy. "That's good enough" or "that'll do" are not phrases we use when making a lamp.

First of all, let's look at the pattern. If it's not accurate nothing else will be, and your lampshade will give you trouble from the very start.

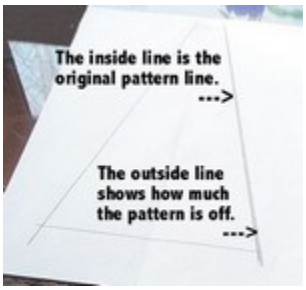
If you are using a pattern from a book, it could very well be wrong. The reason for this is that many (not all, but many) publishers use patterns that have been photocopied before they were ever put in the book. Maybe the artist gave the publisher a photocopy, but, for whatever reason, the pattern is a photocopy.

Photocopiers distort straight lines and angles. If you have photocopied the lampshade pattern from your own or a friends book, it will be most likely be distorted. Take my word for it. The distortion is usually not obvious by looking at it, but it is enough to throw everything off.

Step 1a. To see if the pattern is distorted, very carefully and accurately trace the pattern onto a piece of paper. Then find a source of light, i.e. a window, light box, whatever you can find to put the paper over so you can see through it. Fold the paper in half, matching up the outside lines of the pattern (if you can). Do they match up perfectly? Do all the angles match? Probably not.

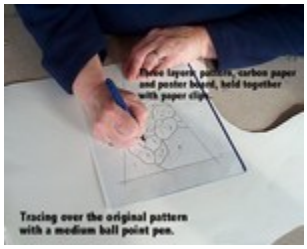


Step 1b. Using your eraser, a pencil and a ruler, erase the lines on one side and re-draw them to match the other side. This is easy to do if you are using a light box, or even have the paper up to a brightly lit window. What we are trying to accomplish here, is to have the pattern symmetrical, the same on both sides. Your lamp will not go together properly if the outside edges are not the same.



Make Your Pattern Pieces

Step 2. When the pattern is correct you will make pattern pieces. Use light weight cardboard, something like poster board, since the pattern pieces will need to hold up through 4 to 10 or more panels.



Use carbon paper to trace the pattern onto the cardboard. Use a medium ball point pen to trace with. Number the pattern pieces and the pattern, and draw directional lines if you are using glass with a definite direction. Leaves look funny with some of the lines going across and others going up and down.

Step 3. Here is where you can chose how to cut out the pattern pieces. If you use pattern shears and they cut out a line exactly the same width as the medium ball point pen line, go ahead and use them. Make sure the lines are centered on the shears.

If you don't use pattern shears, cut the pattern pieces out with sharp scissors (my preference), or an exacto knife if you have straight lines. Cut along both sides of the line. Make sure you cut right along the edges of the line, not inside the edges and not beyond the outside of the edges.



Step 4. Lay the pattern pieces on the pattern/cartoon and make sure they fit perfectly inside the lines. You should be able to see the lines all around each piece. Don't forget the **"A word"**...Accuracy!

Make a Jig

Step 5. It's time to make a jig. Find a board that is at least 2 inches larger than your pattern. I use ceiling tiles. They make excellent work boards for copper foil projects. If your pattern is 6x8, then you would need a board 8x10 or larger. Lay the pattern on it and tape it down with masking tape.

Nail narrow, straight strips of wood along all 4 sides of the pattern, making sure they line up exactly with the outside of each line. Measure along each side, from top board to bottom board to make sure the sides are exactly the same length, and check to make sure the top and bottom are parallel. Once again, accuracy comes into play. If the jig is off, the lampshade panels will be off.



I use the Morton Layout Blocks to make my jigs. They are easy to use and I know they are straight.

Cutting The Glass and Assembling the Panels

You are now ready to start cutting glass for your lampshade. Check your pattern pieces one more time, to make sure they fit properly in the jig.

Step 6. Start cutting the glass, doing one lamp panel at a time. I have seen too many mistakes happen when all of the glass is cut before it is fitted and foiled.

You can either cut, foil and solder one panel at a time, or cut and fit each panel, put the pieces away and do the next, saving the foiling and soldering until the last panel is cut. I prefer to do each panel completely. It gives me a feeling of accomplishment to see finished lamp panels stacking up.



*****It is EXTREMELY IMPORTANT that all of the outside pieces of glass touch the jig.** This is the only way you can be sure that all of the panels turn out to be the same size. If the glass isn't touching the jig, grind, re-cut or do whatever you have to do to make it fit properly. If the panels are not all the same size, you will have problems in the next step. This is another reason to cut one panel at a time.***



Step 7. When each panel is all foiled and tack soldered, finish soldering it front and back, but do not get any solder on the edges. If you do, melt it off and make sure the edges are absolutely smooth. As you finish each panel, wash it in warm, soapy water, and dry thoroughly.

Tape Together and Pull Up Into Shape



Step 8. Arrange the panels in the correct sequence. Lay them out side by side, front side up, with the tops and bottoms even. The panels should be just touching (don't jam them together, but you don't need to see daylight between them either).

Step 9. Using the stretchy type masking tape (Scotch brand), tape the panels together precisely at the top and precisely at the bottom. The foil on the top and bottom edges should be showing, but the tape should be just under it.

Please **don't use black electrical tape** instead of the stretchy type masking tape. I have witnessed too many disasters when it was used. Among other things, it falls off as fast as you put it on, it falls off as you're pulling the shade up into shape with panels getting broken before the shade is ever assembled, and it gets very sticky and falls off once flux is used around it. On the other hand, masking tape makes the lamp so strong that you can move it around without any fear of it falling apart before it is soldered. I have had panels taped up like this for days before I could get to the soldering stage, and they remain standing and strong.





The tape must go all the way around from panel to panel, and overlap as shown on the picture. On one end start at the edge of the glass and on the other end leave a tail of tape hanging over the edge. This tape will be used to hold the two ends together once the panels are pulled up into shape.

Once the tape is on, go around and trim any tape that is sticking out over the top and bottom. This may seem fussy, but I'm a fussy kind of person, and I find the excess tape often rolls under the lampshade and is difficult to get off. It also gets stuck on other things and is just a pain in the neck to deal with, so I trim it off.

Step 10. When the panels are taped you will pull the lampshade up into shape like this:





Slide the middle and index fingers of your left hand under the two middle panels where they join at the top. Start lifting. Keep pulling the panels up until they are upright.





Using both hands, pull the two ends together and press down the three pieces of masking tape that you left sticking out over one end.



Step 11. Now turn the lampshade upside down. Don't worry, it won't fall apart. Turning it upside down makes it fall into shape naturally. You can measure the distance between opposite panels, from center of panel to center of panel, to make sure the distance is the same between each.

On this lampshade, I measured between panels 1 and 5, 2 and 6, 3 and 7, 4 and 8. If you find one or two measurements off, you can push the panels around a bit to square them up. Don't be afraid, it won't fall apart.

It shouldn't be off much, if at all, as long as all of the panels are exactly the same size, and the pattern is correct. This is where the problems really start to loom up if accuracy has not been adhered to.



Step 12. Tack solder each panel together where they meet at the bottom. Make sure the solder is flat. Don't leave big globs that will affect the levelness of the lampshade when it is turned over for the next step.



Step 13. Turn the lampshade over and tack solder on the top where each panel meets. If the lampshade sits flat on the table, without the wobbles, it is still "square".



After you tack solder the top, and are sure the lamp is still "square", tack solder several spots along the middle of each seam. You should do this with the lamp sitting upright. It is not strong enough yet to lay it on its side.



Now you can pull the masking tape off. Gently pull the tape off at a 45 degree angle to the foil. Pulling it at an angle prevents the foil from pulling loose and/or ripping.



Step 14. Solder a wire around the top of the lampshade. Use 18 gauge wire. Tin it first, if it isn't already pre-tinned. Center it on the edge of the top and slowly solder it in place. When soldering wire on a lampshade it is a slow methodical process. Bend the wire with needle nose pliers where it has to go around a bend. Keep it centered. It helps to have another person helping, or you can hold the wire in place with wooden spring type clothes pins.

Put On The Vase Cap

Step 15. Tin the vase cap. Go to Vase Cap Tutorial for a detailed description of how to tin a vase cap.



Step 16. Use a level to make sure the lampshade is level before soldering the vase cap in place. Actually, make sure the surface your lampshade is sitting on is level, before checking the lampshade.



Step 17. Place the vase cap on top of the lampshade. It should sit just at the outside edges of the top. Use the level again, placing it right on the center of the vase cap. Move the cap around until it is level in all directions.

Step 18. Tack solder the vase cap in several places. This is tricky if you are doing it alone, but it can be done. Tack it where a solder seam joins the vase cap. The solder will probably drip and it may take a couple of tries to get it to stick, but persevere. It will eventually stick, and remember, you only have to do it in 2 spots right now. Opposite sides are ideal, but any two places that are not next to each other will do.



Once it is tacked in several places, you can now go around and tack it at each seam. If you have another person to hold the shade at an angle it is much easier to do, but the shade is now strong enough that you can tip it to make the area, you are soldering, parallel to the table.

Soldering the Lampshade



Step 19. Lay the lampshade on it's side and solder the inside seams. Build up a nice bead on each seam, including all around the edges of the vase cap. While the lampshade is in this position, tin the inside bottom edge.



Step 20. Find something to prop up the lampshade so you can solder the outside seams. I have just started using the Emerald Rainbow Lamp Wedgie and I love it.

For years I used a cardboard box filled with crumpled newspaper or a brick covered with a towel, along with assorted cans and bottles of varying heights to hold my lampshades while I soldered them. They all worked, but took a certain amount of maneuvering and a lot of prayer every time I had to turn the lamp to work on the next seam. If this is your first lamp, use something you have around the house. If you are going to make a lot of lamps, I would highly recommend the Lamp Wedgie.

Solder all of the outside seams and work each seam into the area where the vase cap is attached. Tin the outside bottom edge.

Step 21. When the outside is finished, check the inside of the lampshade and fix up any solder blobs that might have run through. Sometimes this can become a bit of a "chase the solder" game. If it keeps running through from one side to the other, hold a wet (but wrung out) towel, right up tight, under the area you are soldering. The wet towel will keep the solder from running through and help it to set faster. When you go to touch it up on the side the towel was on, do quick touches with the soldering iron, just enough to make the solder look nice, but not long enough to let it run through again.

Step 22. Turn the lampshade upside down and solder a tinned 18 gauge copper wire around the bottom, just like you did around the top in Step 14. When the wire is completely soldered in place, build up a bead of solder over it.

It takes some patience to do this. Go slowly and don't use too much solder at one time. It will just drip off if you use is too much. It is better to go over it two or three times, adding a little bit of solder each time.

Finishing Up

Step 23. Wash the lampshade using how to clean, patina and polish as your guide, using a tooth brush to clean every seam. Rinse and dry well. Apply patina (if that is how you want to finish it), and polish.



Step 24. Put the shade on a lamp stand and enjoy your new creation.

How to Avoid Common Lampshade Problems

7/32 or 1/4" foil work best for a lampshade. You need enough foil to give a solid connecting seam between each panel. Use 7/32 for thinner glass and 1/4 for thicker glass.

The main complaint I hear is that the foil pulls away between the panels during the assembly process or shortly after it has been soldered. This happens for any of 4 reasons.

1. The glass was not cleaned before applying the foil. After cutting and grinding, the glass must be free of cutting oil and grinder dust. You can wash it in warm, soapy water, or spray it with a window cleaner and wipe dry, or do as I do and wipe the glass, especially the edges with alcohol before foiling.

2. The foil is too narrow. Don't forget that the foil lines are part of the lampshade design. Don't try to hide them.

3. The foil was started on an outside edge. Always start applying the foil on an inside edge, so that the join (where you begin and end the foil) is sandwiched between two pieces of glass. If the area where the foil starts and ends is on an outside edge, it has a tendency to pop apart from the heat of the soldering iron.

4.Trying to squeeze the panels together, in spots where they don't naturally touch, will put way too much strain on the foil. This causes the foil to pull away from the glass once it has been soldered. It is better to fill in the gaps with solder than to try squeezing the panels together.