The following are recommendations that I would use for this project. I use Western Red Cedar for the majority of my work, however on the cardinal I used Red Heart for the “M” and Walnut for the “D”. Feel free to try different mixes of wood tones, wood types and grain directions. This pattern is designed with 3/4” wood in mind, any thickness will work. You will need 3/16” dowel cut approx. 3/4” long for the eye.

LEGEND

Grain Direction
D............. Dark Shade of Wood.
MD............. Medium Dark Shade of Wood.
M............. Medium Shade or Red Wood like Red Heart.
W............. Light Shade of Wood.
White Pine, Aspen or any white wood.

You can relax a little when cutting the outside edges. It's great place to start sawing.

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(800) 316-9010
Seymour, TN
www.intarsia.com
Intarsia Cardinal

“Cold Feet”

Judy Gale Roberts  • www.intarsia.com
judy@intarsia.com  • 800.313.9010
2620 Heather Rd • Seymour, TN 37865
Tools
Scroll Saw
Drill
Some type of Sander, soft drum best
(optional) Wood Burner
(optional) Carving, Wonder Wheel, File or X-Acto knife

Wood
• Dark wood; Western Red Cedar, Walnut, Ebony, Wenge 4” wide by 6” long and 3/4” thick.
• Medium Dark wood; Western Red Cedar, Cherry, 4” wide by 11” long and 3/4” thick.
• Red or Medium wood; Red Heart, Western Red Cedar, Aromatic Cedar, Red Mahogany 3” wide by 8” long and 3/4” thick.
• White wood; aspen, basswood, white pine, holly, poplar or any very light colored wood 3 1/2” wide by 8” long and 3/4” thick.
• 3/16” dowel cut approximately 3/4” long. Walnut or birch dowel will work.

Materials
• Repositionable spray adhesive or re-stickable glue stick
• 5 copies of the Cardinal pattern
• Yellow wood glue
• Double sided light duty carpet tape
• Polyurethane wiping gel or finish of choice
• Paper towels
• 1” disposable foam brush
• Mirror hanger or hanger of choice.

Wood Selection: The “Cardinal” will need four different shades of wood to achieve the desired effect. I used 3/4” red heart for the cardinal. The piece of red heart I found had a darker shade on the same board. Pieces of wood that have various shades within the same board work excellent for intarsia. I used the darker portion for the “MD” section of the cardinal. I used a medium dark shade of western red cedar for the pine boughs. I had some walnut for the pine cones, legs, and face of the cardinal. Aspen works great for the white snow parts. A 1/8” dowel cut approximately 3/4” long for the eye. If you have walnut dowel use that, if not the birch dowel can be made darker.

Layout: You need to make at least five copies of the pattern to make one project. You will be cutting up the pattern parts and gluing them to the face of the wood.
Keep one pattern as your “Master”. All the parts are “pre-numbered” on this pattern, otherwise it would be a good idea to number the different segments on the pattern before you have copies made. Cut up each piece of the pattern that has a different color or grain direction. If the color and grain direction are the same you can leave these sections together, most of the cardinal can be laid out this way. The two pine cones and the “MD” parts of the cardinal have the same grain direction and color. When cutting your pattern leave about a 1/4” around the good part of the pattern. I cut all the white color sections, then the dark, and so on. Use either repositional spray adhesive or a re-stickable adhesive glue stick to apply the pattern to the wood.
SAWING:

BLADE SELECTION: I use a #5 reverse skip tooth for cutting most projects. The reverse teeth on the blade cut on the “up stroke” and in most cases will help to decrease the “tear out” on the bottom side of the part. A smaller blade, from a 2/0 to a #1 works great for splitting parts like the cardinal’s wing and body. I’ll cut all the outside lines, then change the blade to a smaller size for parting these type of sections. When cutting the parts put the scroll saw blade in the center of the line. With more practice, you can cut just half of the line.

SPEED: The speed (strokes per minute) I use varies depending on the material that I am cutting. The main thing to remember is “control”. Intarsia requires accurate cutting, so you might want to experiment with your speed so you can get the best control. I usually run about 65 to 85 % of the speed range on my variable speed saw. When cutting a part it is best to put the center of the blade in the center of the layout line, thus removing all of the line. A magnifier with light is very helpful when sawing for accuracy. A foot switch is also very valuable for safety and control. The yellow outline on the pattern indicates areas that do not have a part that has to fit next to it, you can relax a little cutting these. It’s a good idea to start with the outside areas first to get in the swing of sawing.

If you have used the same board (color) to layout many parts, start by rough cutting them into smaller more manageable sections. I cut my pieces about the size of my hand, with several parts laid out on them, this will make it much easier to handle than one large board. After cutting the hand size pieces, be sure to turn them over and “de-burr” the backside, that is, remove any tear out with sandpaper. The object is for the piece to sit as flat on the table surface as you can. I start by sawing the easiest parts first. To get me into the swing of things.

While sawing, I will stop often after making a cut and remove the tear-out on the backside, again, trying to lay the pieces as flat as possible at all times. I check from time to time to make sure I am cutting square. A small square is very handy to have close by. Always try to have a plan in mind when starting to cut a part to avoid ending up with a very small part that is difficult to hold onto. Try to make the cuts so the last cut will “drop” the part off the larger block. You will need to drill a 1/8” hole for the cardinal’s eye. It is best to do any drilling before you cut the part out.

Check for Fit When all the parts have been cut, de-burr the backside of each part (to remove any tear out) and print the number from the pattern on the backside. If you decide not to number the back-side at least put an “X” to let you know that is the back-side. It is very easy to get carried away sanding and sand the wrong side. Do not remove the paper from the top-side at this point. After you have numbered the back of your project, assemble the parts and check how all the parts fit. It is best to leave the paper on in case of a fitting problem. It could be from cutting outside of the pattern line, if the line work is heavy in any areas they will need to be trimmed. Use a new sharp blade to carefully shave off areas that are too heavy. We do not sand the sides, by sanding the sides it is very easy to get things out of square.
A Soft Drum Works Best for Shaping

I use a soft “Flex Drum Sander”, which makes it easier to get soft contours. I have one drum with a 80 grit and one with a 120 grit sand paper. I remove most of the material with the eighty then smooth it out with the 120 grit.

After all the parts are cut out and paper removed I like to take some time to study the project to get a plan of action. Many times I will cut what I call a “sanding shim” to sand areas in sections rather than individually. This makes a more consistent contour of all the parts. On the cardinal a sanding shim for the birds body would help contouring the entire bird. Sometimes I will raise sections to give the project more dimension, however because of the small size of this project the 3/4” thick wood will make the cardinal have plenty of dimension. You can use the pattern or the actual parts to make a sanding shim.

Start by lowering the background parts. It is best to rough-in the entire project first, then come back and fine tune the parts. I start with the parts that would be the farthest from the viewer. By lowering some parts, and raising others the project will start to look more dimensional.

Ready to Start Sanding;

1. Sand the pine branches first. The pine branches are what would be the farthest from the viewer. The pine cones and snow are on top of the branches. The branches will need to be thinner than the snow and the pine cones. Sand them down to about 1/2” thick, then taper the branches down toward the pine cones. Taper down to around 1/4” where they join the pine cones. It is helpful to mark with pencil a line to sand down to.

2. Sand the snow staying above the pencil lines. After the branches are roughed in mark with pencil the thickness of the branches onto the snow and pine cones. Sand the snow, while sanding it is a good practice to keep an eye on the pencil lines. They are there to help guide you while sanding. Most of the time you will stay above any pencil lines. The snow is a little thicker than the branches, sand the snow down to around 1/16” thicker than the branches. Keep marking with pencil the sides of adjoining parts as you sand them.

3. Sand the Cardinal. Sand the back leg (part 13) first. The cardinals feet are behind the snow on the pine cones, therefore they will be the next parts to sand. The back leg will be the thinnest, sand it down to around 1/4”. You can leave it flat for the time being. Mark where it joins the cardinals body. When you sand the cardinal you will want to stay above this line.
Now we can sand the cardinal. Use double sided carpet tape to attach the cardinal parts to the sanding shim. Birds are very streamline and have a smooth contour. I use double sided carpet tape to hold the parts onto the sanding shim.

First rough in the bird, round the body, taper the tail feathers down toward the branch. Be sure to stay above the pencil line indicating the thickness of the branch and the height of the background leg. After the bird is roughed in you can start taking some parts off the sanding shim to give it some more detail.

Take the beak and the wing parts off the sanding shim. Round the face portion toward the outside edge, lower the body section that joins the wing about 1/16”. This will help make the wing appear to be on top of the body.

After sanding put the beak, wing and leg in the foreground put those parts back in place, mark the height difference with pencil. Sand the leg in the foreground down, around the same thickness of the body. Stay above the pencil lines.

To help define the feathering on the wing, put a slight taper down toward the next section. Taper it down around 1/16”. Note the beak has been sanded the same thickness where it joins the face. Also the leg in the foreground has been roughed in.

Leave the rest of the bird taped up until all the parts are roughed in. I like to leave it taped up in case I sand a part too much I can lower the body section easier. When the parts are close to their final thickness I take them off the sanding shim. The cardinal isn’t complete at this time however, we will move onto the pine cones to rough in the entire project. Then we will start refining each part.
Repeat the same process for the feathers under the tail section. Taper each feather in toward the feather above it. (see Note the stair step effect on the wing.

At this point the bird is roughed in enough to take all the parts off the sanding shim. Put the cardinal parts back in place. Mark with pencil the height difference between the legs and the snow on top of the pine cones. (see photo

13. **Mark Pine Cone:** Sand the pine cone in the background first. It needs to be thinner than the larger pine cone. Sand the pine cone first, then mark where it joins the snow. Repeat the same steps, sand the pine cone first, then mark the height of the cone onto the snow. Sand the snow down to around 1/16” above the pencil line. Every part of the cardinal has been sanded at this point. It will look more dimensional if you have a variety of thickness. After the parts are roughed in I always relax a little. Smoothing out the snow would be a good place to start the final touches.

Round the top sides and give the under side a little bevel, stay above the pencil lines.

4. **Add Texture, finish hand sanding.** You can start to add some of the texture. I have a wheel (Wonder Wheel) that I use on my bench grinder. It carves and burnishes the texture at the same time.
Use the pattern as a guide, mark with pencil on each part the lines to follow. If you do not have a wheel you can use a wood file, rotary power tool, wood-burner, or even the edge of a disc sander.

For the eye I used an 1/8” birch dowel. I cut a section slightly longer than needed to give myself more wood to grip while sanding. Sand the tip a dome shape, I used the Wonder Wheel to burn the light dowel darker. You could use a wood burner to darken the dowel. If you are using walnut you will not need to darken it. At this point I sand each part, sanding with the grain. I use my sander as much as possible, I have a 220 grit on one of my drums. Then I check each part, soften some of the sharp edges in preparation to apply the finish.

5. Apply the finish
Described below are the finish techniques that I use. There are many finishes and techniques that can be used, so feel free to use your favorite method. After all the parts have been sanded I use a air compressor to blow the dust off each part. I put the finish on before gluing the project down. The polyurethane wiping gel is thick, it would be hard to get the finish out of the seams between the parts. Also there are times I need to sand between coats, it is best to sand with the grain. If the parts were glued down it would be very hard to sand one part without sanding cross-grain on another part. A benefit to applying the finish before gluing is - if you drip glue on the finished parts it wipes off easily.

Apply the finish using a 1” disposable foam brush. Scoop some gel from the can and put it on the upside down lid. Then place the lid on top of the can, this prevents the gel from drying out while working. We scoop out more as needed. The first coat is applied to the surface and the sides of each part. Do not put the gel on the bottom side, the glue will not hold as well. I’ll coat about three parts, then pick up the first part I coated and wipe it off. Leave the finish on at least 1 minute to give it time to soak in. When you first apply it the wood will get darker. It will lighten up some when it dries.

Next buff it completely dry using a clean paper towel. After all parts have a first coat let them dry for at least 6 to 8 hours. Then apply the second lighter coat in the same manner and let
it dry another 6 to 8 hours. Before the third and final coat if there is any “white” wood, feel it to see if it has raised the grain. The gel raises the grain a little on the aspen, just rub it lightly with some fine (0000) steel wool. Then apply and wipe the third and final coat of gel, letting this coat dry for at least 4 hours before going to the next step. We use a terry cloth towel to wipe the finish off the parts that have texture. The terry cloth will wipe the gel out of the heavily textured areas.

6. Make a Backing, Glue Down, and Hang it Up
I trace around the finished project to make the backing, rather than using the pattern. I trace around it on a piece of white paper with a light dusting of spray adhesive to keep the parts from moving while I trace around them. Then apply the tracing onto a piece of 1/4” or 1/8” plywood or “masonite/hardboard” with the repositionable spray adhesive. Cut a little to the inside of the line. Stain the edges dark if using plywood for the backing. Next spray the backside with a clear acrylic to help seal the entire project.

Titebond Molding & Trim Wood Glue provides strong initial tack and fast speed of set, yet allows realignment of working pieces to ensure proper positioning before bonding. It develops a bond stronger than the wood itself, offers excellent sandability, and is unaffected by finishes.

Glue Down
To glue the parts to the backing I use Titebond Molding and Trim glue or Tacky glue. Sometimes I will use a little hot melt glue to act as a clamp until the wood glue dries.

I put the project onto the backing, making sure the placement is as good as possible. Sometimes you may need to space a few parts to make everything fit better. If it’s tight fitting on one side and you have more of a gap on the other side it’s better to even out the space. It will make it less noticeable.

Then I glue a few outer pieces to ”lock in” the entire project.
On the cardinal I locked in the project by gluing the larger pine cone, the tail feathers, and a couple of the snow pieces. These were easier to take out without disturbing the placement of the rest of the parts.

Let the glue set on these parts before gluing the rest of the parts.
Keep in mind that a little glue goes along way. There is no need to flood the glue on the back of the parts. Use just a few dots across the back of each part.

Last but not least find a center point on the back and place your hanger, I use a mirror hanger. To find the center point I hold the project with my middle finger on one side and my thumb on the other, moving it until the project balances. Then I mark the spot on the back. Pre-drill the hole using a bit smaller than the screw. You can mark the drill bit the depth you want to go. It’s best to put the hanger in a thicker section of the project. A #6 x 1/2” sheet metal screw works great.
The following are recommendations that I would use for this project. I use Western Red Cedar for the majority of my work, however on the cardinal I used Red Heart for the “M” and Walnut for the “D”. Feel free to try different mixes of wood tones, wood types and grain directions. This pattern is designed with 3/4” wood in mind, any thickness will work. You will need 3/16” dowel cut approx. 3/4” long for the eye.

**LEGEND**

- **Grain Direction**
  - D............ Dark Shade of Wood.
  - MD........... Medium Dark Shade of Wood.
  - M............ Medium Shade or Red Wood like Red Heart.
  - W............ Light Shade of Wood.
  - White Pine, Aspen or any white wood.

- **Outside edges**
  - You can relax a little when cutting the outside edges. It’s great place to start sawing.

You can use the numbers to mark out as you cut each section from the pattern.

1 2 3 4 5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24
25 26 27 28 29

The dashed lines indicate areas you can add some texture to make the project more interesting. I used a “Wonder Wheel”. A Wonder Wheel is an abrasive wheel that attaches to a bench grinder. It is not hard like a sharpening stone, it has some give to it. It carves and burnishes texture in one stroke.

If you do not have a wheel you can use a wood-burner, a rotary hand tool, a file, or the edge of a disc sander to create a similar effect.

The pattern printed with red ink makes it much easier when you are cutting out the parts.

Patterns with black lines are a little harder because the blade gets lost in the black line. If you can find a color copier to make your copies it will make the sawing easier.