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Bill Krier
Editor in Chief, WOOD magazine

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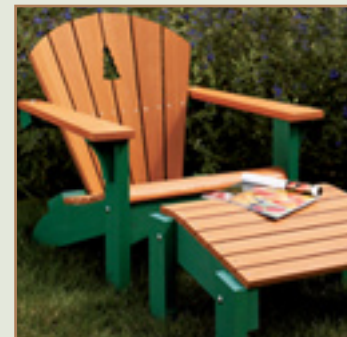
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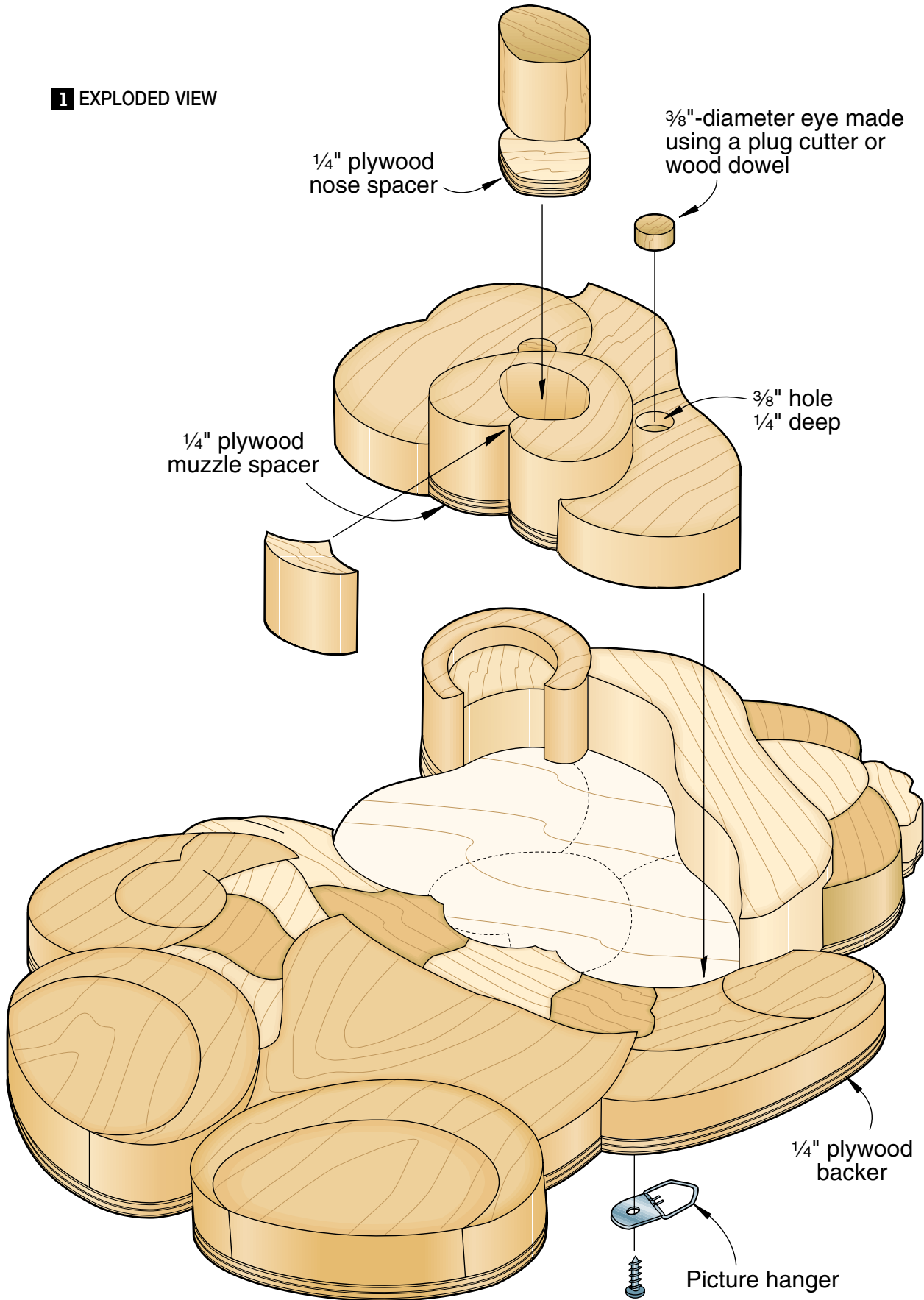
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Intarsia Teddy



No matter if you're a novice at intarsia or a seasoned pro, here's an eye-catching project you'll enjoy building, and one that any child will adore. You'll find full-size patterns for cutting out all of Teddy's parts (including spacers for raised parts). Each pattern piece has labels that identify the wood color, grain orientation, and grouping for easier contouring of parts. Now, get ready to put your paws to work.

1 EXPLODED VIEW



Note: You'll need a selection of 3/4"-thick wood scraps of dark, medium-dark, medium, and light tones. We used pine for the light-toned wood and western red cedar (which Judy prefers due to its color variety) for all of the other tones.

First, cut out the parts

1 Start by making at least five copies of the full-size bear pattern on *pages 6 and 7*. The bear's parts are identified on the pattern with uncircled letters indicating the wood tones. Look over a pattern to find areas where you can cut out groups of adjacent parts that have the same wood tones. Cut apart the grouped and individual pattern pieces.

2 For each pattern piece, align the arrow on the pattern with the grain on your stock, and move the pattern around until you find the area with the best color and grain figure for the piece. Adhere the patterns to the stock with spray adhesive. See the **Shop Tip**, *above right*.

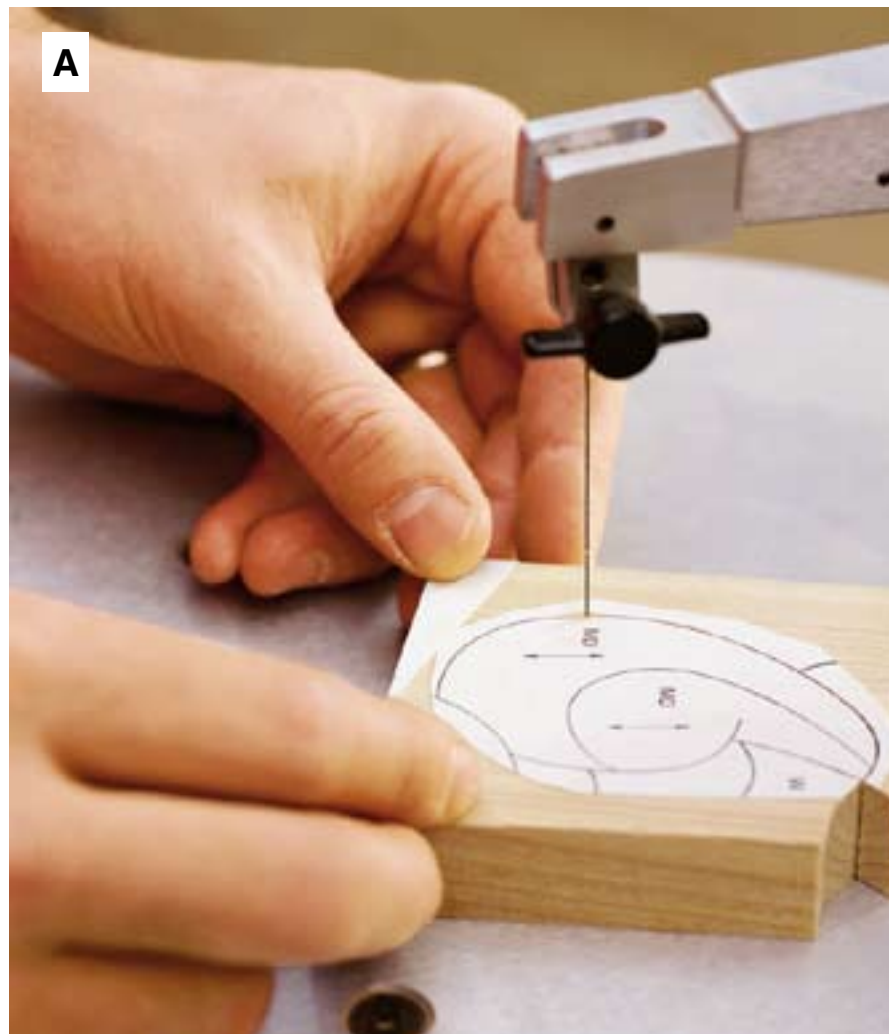
3 Scrollsaw the parts, as shown in **Photo A**. (For tips to help you scrollsaw more accurately, see *page 7*.) To form the opening in the muzzle for the nose, make a cut through the bottom of the muzzle into the nose area, then remove the waste for the nose.

4 Drill a 3/8" hole 1/4" deep in each of the face pieces to receive Teddy's eyes, where shown on the patterns. Then, using a 3/8" plug cutter, cut two 3/8"-long plugs for the eyes. (We cut them from dark cedar.) Or, cut these pieces from a 3/8" walnut dowel. Set the eyes aside for now.

SHOP TIP

Working with light-tack spray adhesives

For applying patterns, use a spray adhesive, such as 3M Spray Mount Artist's Adhesive, that lets you easily remove and reposition the paper. If patterns stay attached for several days, though, or you apply too much adhesive, they can become difficult to remove. Should this happen, apply a little heat to the top of the paper with a hair dryer, as shown at *right*. This will soften the adhesive so you can peel off the paper cleanly. Keep the heat low to avoid burning. Later, remove the adhesive with a solvent.



For tight-fitting parts, scrollsaw right down the middle of the intarsia pattern lines.

Now, for the contouring

1 Group together parts with the same circled letter. The parts in these groups have a continuous contour across them, so you'll save time by sanding them as groups.

2 Using double-faced tape, adhere the groups of parts to a 9×12" piece of 1/4" plywood, with each group's pieces arranged as shown on the complete pattern. Leave a 1/4" clearance between the groups; then cut them out by scrollsawing the plywood to within 1/16" of the groups' perimeters.

3 Referring to the "Contouring guide," *right*, mark contour reference lines along the edges of the grouped and nongrouped parts.

Note: For best results, practice contouring scrap pieces first to get used to the technique. If you don't feel comfortable doing this, it's perfectly fine to just gently round the top edges of parts and leave their faces flat.

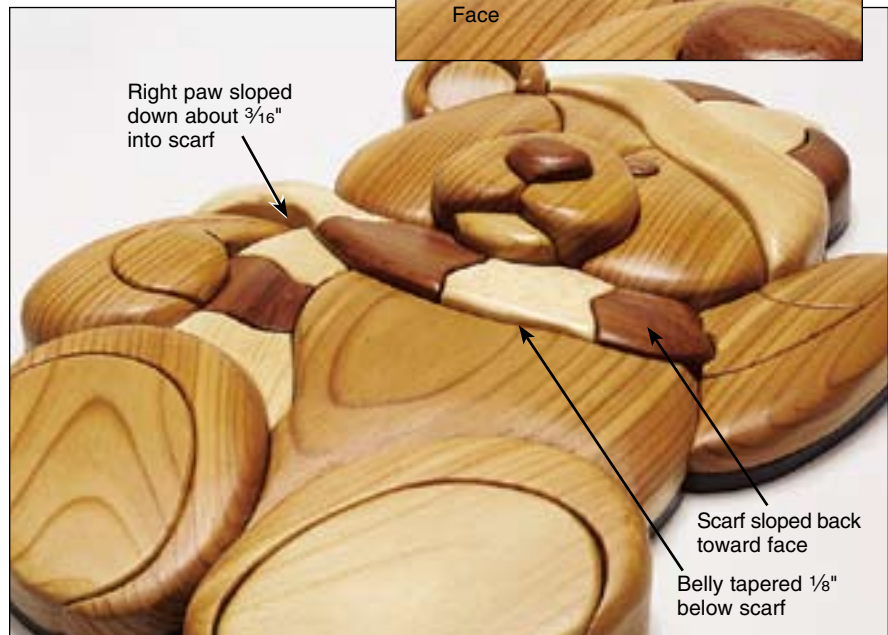
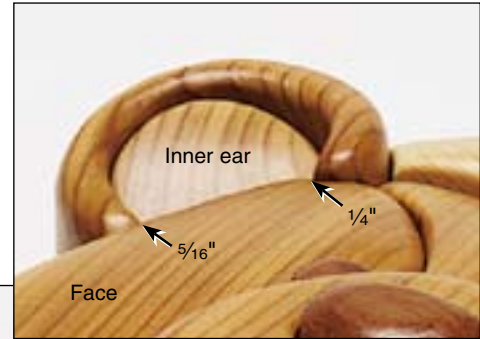
4 Using 100-grit sandpaper, contour the parts as shown in **Photo B**. We used a 3"-diameter pneumatic drum sander mounted in a drill press, which is ideal. (See the Buying Guide on page 5 for our source.) But an oscillating spindle sander, drill-press drum sander, or disc sander also would be suitable. Be careful not to sand completely around the edges to the back surface, which will leave gaps between parts. We found it easiest to start with the bear's feet and work to its head.

5 After contouring the bear's face pieces, glue the 3/8"-long plugs into the 3/8" eyeholes. Then hand-sand the eyes, gently rounding their edges and leaving them approximately 1/16" proud of the face pieces.

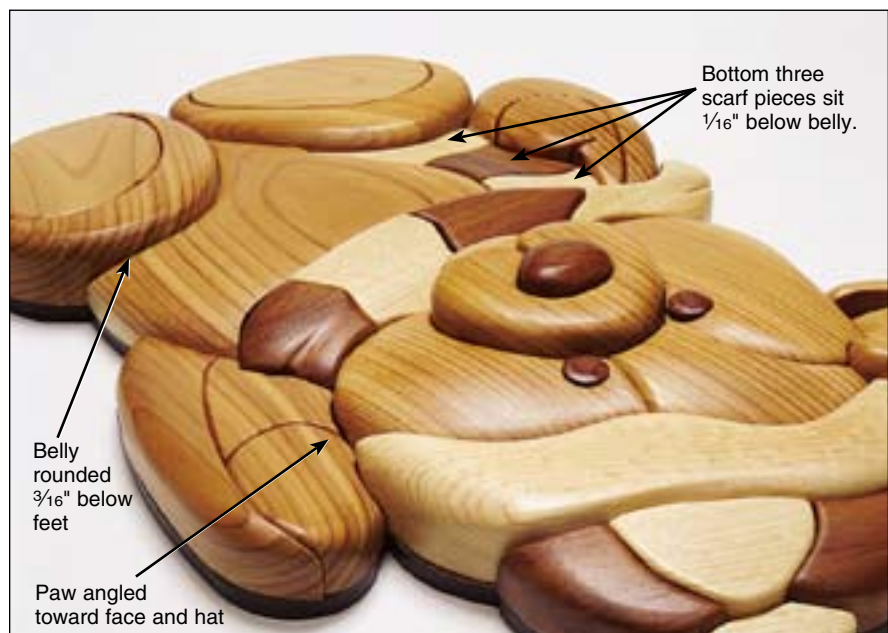
6 As your contouring progresses, frequently place adjacent parts together and check for

Contouring Guide

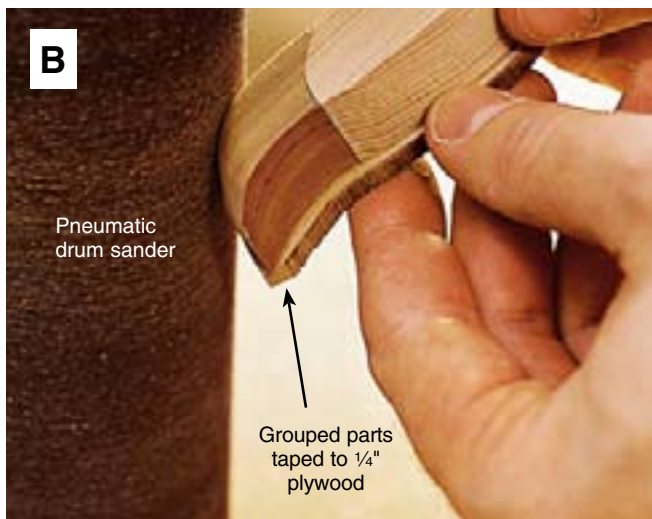
Contour the inner ear piece so it slopes toward the face and angles slightly from top to bottom. Aim for a face-to-ear depth of about 1/4" at the top to 5/16" at the bottom.



Contour the top of Teddy's belly to about 1/8" below the scarf. Slope the scarf toward the face and the right paw down into the scarf.



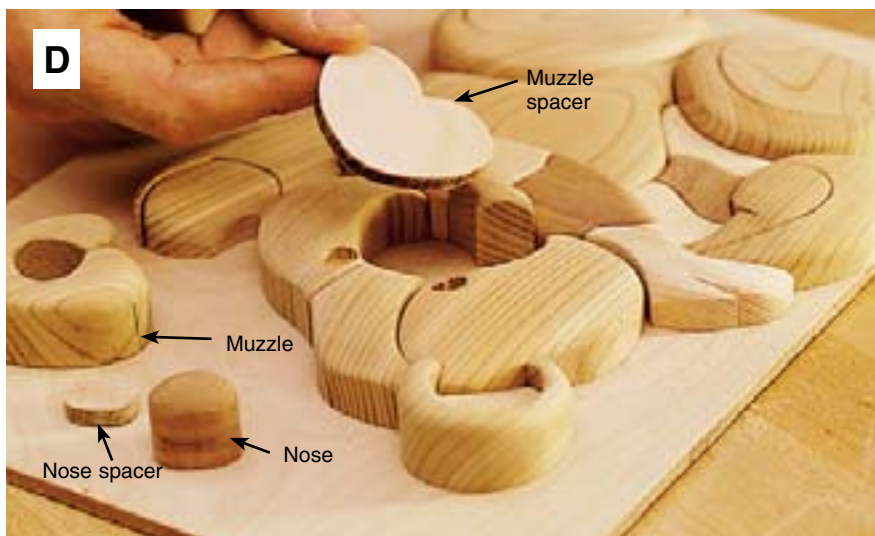
Round the belly's bottom to about 3/16" below the feet. Angle the raised paw toward the face and hat. Sand the bottom scarf pieces to sit about 1/16" below the belly.



When contouring the parts, use light pressure and keep them moving to prevent burning the wood.



Check the transition between adjacent parts as you contour them. Re-mark and continue sanding as necessary.



Install the muzzle spacer followed by the muzzle. Then insert the nose spacer and the nose into the muzzle opening.

the desired transition between them, as shown in **Photo C**.

7 When you have finished rough-sanding the parts, finish-sand their contoured surfaces by hand to 150 grit, then 220 grit.

8 Cut out the full-size muzzle and nose spacer patterns from one of your photocopied patterns. Adhere the spacer patterns to a 2×3" piece of 1/4"-thick plywood; then scrollsaw the pieces to shape.

9 Remove the double-faced tape from all of the grouped parts. Now assemble the bear on a 9×12" piece of 1/4" plywood, raising the muzzle and nose parts with the spacers, where shown on **Drawing 1**, and as shown in **Photo D**. Check the fit and transition between all of the parts, and make final adjustments where necessary by sanding or trimming.

10 When you're satisfied with the fit and look, trace around the perimeter of the bear with a pencil. Carefully slide the bear off the plywood backer, keeping the pieces together. Cut the backer to shape, scrollsawing just inside the marked line. Sand the edges smooth.

Glue the bear to the backer, and add the finish

1 Spray-paint the back face and edge of the backer with glossy black enamel paint.

2 With the paint dry, carefully slide the bear onto the unpainted side of the backer. Center the bear so there's an even overlap all around the backer. Now, glue each piece onto the backer using a couple of drops of yellow woodworking glue.

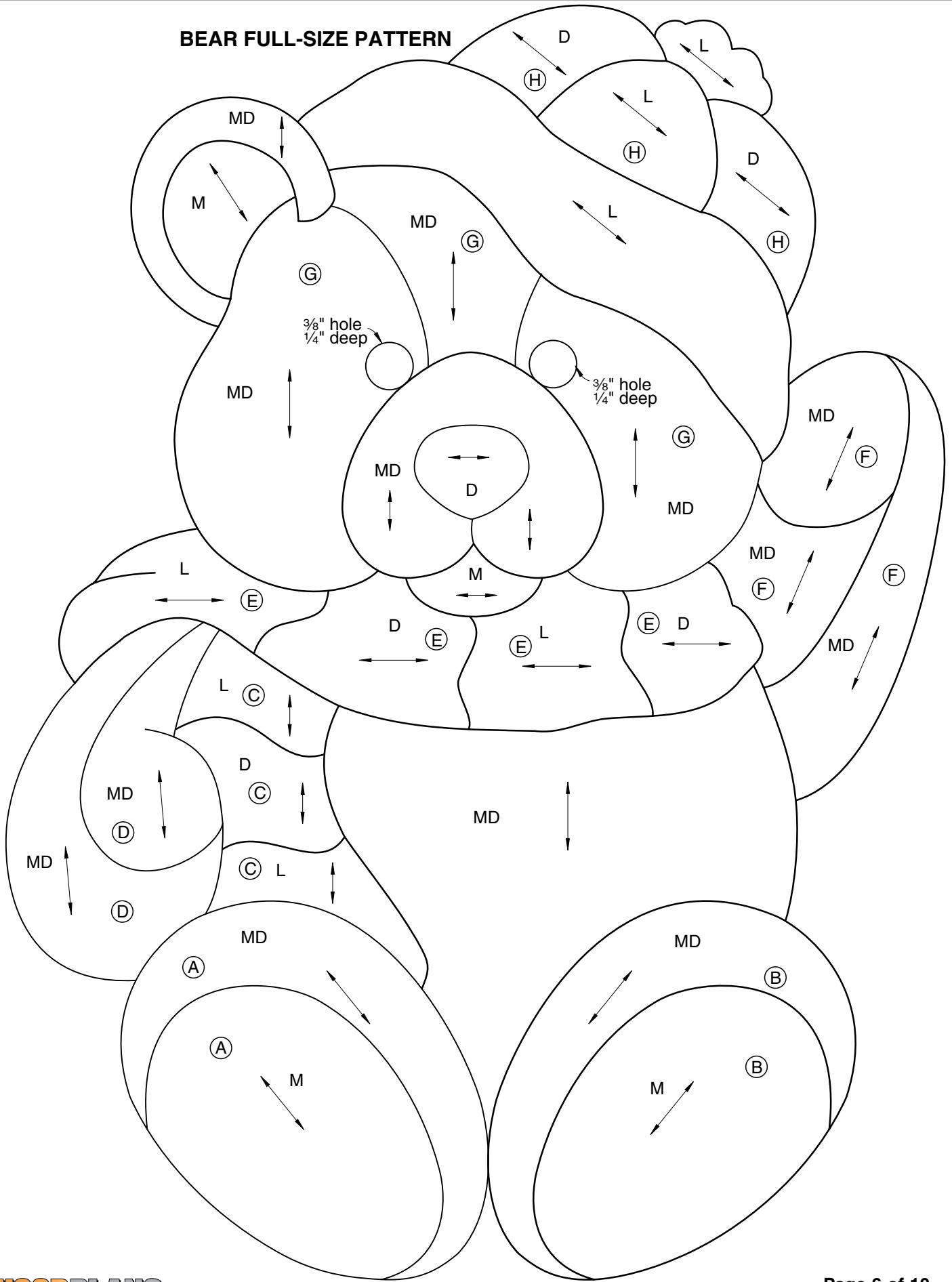
3 Remove all of the dust. Then, apply three coats of a clear finish, sanding to 400 grit and removing the dust between coats. (We used Watco aerosol satin lacquer.) Finally, attach a hanger to the backer. ♣

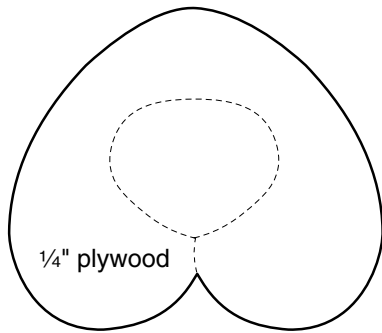
Buying Guide

Drum sander and adapter.

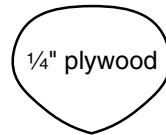
3"-diameter pneumatic drum sander no. 09M32, drill-press adapter no. 14072. Woodcraft, call 800/225-1153, or go to www.woodcraft.com.

BEAR FULL-SIZE PATTERN





**MUZZLE SPACER
FULL-SIZE PATTERN**



**NOSE SPACER
FULL-SIZE PATTERN**

KEY

←→ Grain Direction
 D.....Dark wood tone
 MD...Medium-dark wood tone
 M.....Medium wood tone
 L..... Light wood tone

Ⓐ.....Parts with the same letters are contoured as a group.

For intarsia projects to look their best, the parts need to fit together tightly. Besides sawing right down the middle of the pattern lines, what else can you do to prevent gaps? These surefire pointers from Judy Gale Roberts and Jerry Booher could improve your results dramatically.

1 Use the right blade

For scrollsawing softwoods and hardwoods up to 1" thick, Judy and Jerry recommend you use a no. 5 reverse skip-tooth blade (12 teeth-per-inch minimum), such as the one shown on **Drawing 2**. With its set of reverse teeth at the bottom, the blade cuts on both the up and down strokes, leaving a smooth finish and minimizing bottom splintering. The blade's quick cutting action also allows you to scrollsaw slower for better control. For cutting woods up to 1 3/4" thick, use a more aggressive no. 7 blade (10 teeth-per-inch minimum).

2 Square your table

After tensioning the blade in your scrollsaw, check that the table is square to it, as shown in **Photo D**. Adjust the table's tilt as necessary to square it.

3 Set the right speed for control

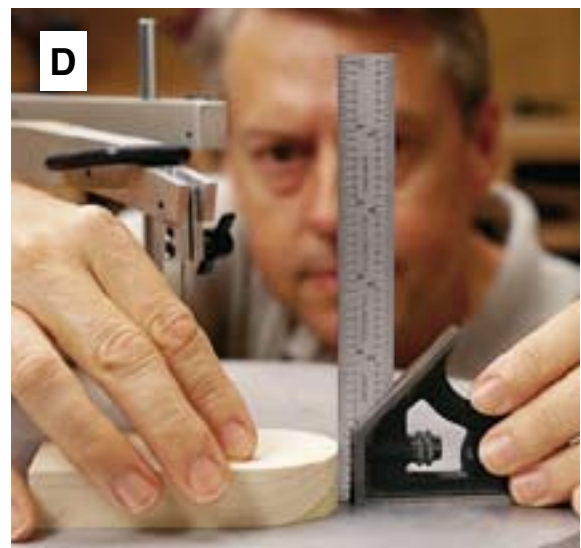
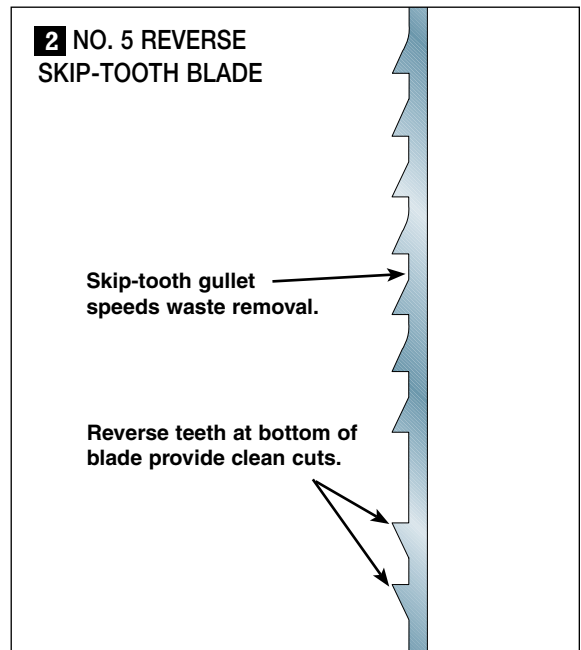
To cut accurately, you need to set a speed that gives you good control. As a general guideline, Jerry suggests setting the speed at 60–70 percent of your saw's maximum speed. The optimum speed, though, will vary depending on the density of the material. So, make test cuts in scrap first to find the right setting.

4 Plan before cutting

Before you rush into cutting parts, plan how you can cut them from larger pieces for safe handling. Aim for rough-cutting parts or groups of parts into hand-size pieces, and shape and separate the small parts from the group first.

5 Check the bottom of parts for splintering

Even when using the right blade, you can still get splintering. Those splinters can lead to out-of-square workpiece edges by preventing your stock from lying flat on the table. So, frequently check the bottom for splinters, and sand them off. ♣



Cut a curve in 1"-thick scrap, and check the edge for square. The curve makes it easy to see any light between the square and the edge.

Wood Selection

Any type of wood will work for intarsia projects. The most important aspects of the wood you choose are color and grain patterns. You may choose to use walnut or red cedar for dark wood, maybe pecan for a medium color, and maple or birch for a light shade.

Photo E shows eight pieces of wood. Most of the wood I use, and most of the blocks shown here, is western red cedar. I prefer to use western red cedar because of the wide variety of colors and grain patterns produced by the tree. There are two types of red cedar: Western red cedar, which comes in a wide variety of colors, and red aromatic cedar, which is mostly red white with some purple. Both are easy to work and perfect for wall hanging projects that don't get the abuse that furniture projects do. For the white color in my projects, I use either white pine, basswood or aspen. The white wood pictured here is basswood. Like western red cedar, basswood also has its variances and can range in color from a very tan to an almost pure white.

I use letter codes on the patterns to indicate the color of the wood to use in making these Intarsia projects. Look closely at the samples of wood in **Photo E** they will give you an idea of the different shades of wood used in the projects.

From left to right, the first piece of wood would be referred to with a W for white wood, the second, L for a light shade of wood, the third, M for a medium shade of wood, and the fourth, ML for a medium light shade of wood. The first sample on the lower row would be labeled with a MD for a medium dark shade of wood, the second is another MD, the third is D for a dark shade of wood, and the final sample on the lower



Wood comes in a wide variety of colors and grain patterns. These eight wood samples show the color of unfinished wood and the finished wood.



Though it is hard to find, red cedar sap wood can be used as white-colored wood in place of the more common basswood, pine or aspen.

row is also a D for yet a darker shade or wood.

We applied a clear finish to the lower half of each block to show you what the wood will look like once a clear finish is applied. The wood becomes at least one shade darker when a clear finish is applied. White wood, such as basswood, pine or aspen, is the least affected by the finish. In

addition to making the wood look darker and richer in color, the finish will also bring out the grain.

Wood for intarsia projects can be found at your local lumber yard. I buy my Western red cedar at several different lumber yards so that I can find a variety of colors. Lumber yards sell cedar in a number of widths from 1 x 2" boards to 1 x 12" boards.

I have found that the darker shades of cedar are harder to find. I have better luck looking through the cedar fence picket pile. Even the 1 x 4" section may have more dark cedar than the 1 x 12" section. For these smaller Intarsia projects, the 1 x 6" fence pickets have ample width and provide an inexpensive wood to use.

Photo F

Sometimes with cedar, I am able to find the sapwood, which is often very white. On a living tree, the sap wood is located next to the bark. Sap flows through this wood and delivers nutrients to the tree. At the lumberyard, you can find sapwood on the outside edges of cedar boards. The white color of sapwood is usually limited to about wide.

Photo G

When choosing which boards to buy, I look for color first, and then I take a closer look to see what the grains are doing. One of the most intriguing parts of choosing wood for intarsia is finding not only a color, but a grain pattern that can make a project come to life. I rarely buy the "knot-free" lumber. So many times, you will find really unusual grain patterns around a knot. Because we are working with many small parts, it is easy to work around the knots and other natural occurrences in the wood. Sometimes, I even incorporate the knot into the project; other times I discard it if the knot is too dark and tends to draw too much attention away from the main subject matter.

Photo H

I also look for wood that may have some streaks going through it. These pieces make great wood for sunsets, water and even rose petals.

I also buy straight-grained lumber so that on each project I have



Knots in wood often force the grain of the wood to form interesting and unusual patterns that are beautiful when incorporated in to Intarsia projects.



Streaks of color going through pieces of wood are perfect for creating sunset and water.

a balance of straight grains and unusual grains. Too many exotic grain patterns can get monotonous.

I stash away many prize boards that are waiting for just the "right project." Sometimes the wood will inspire the pattern. I now find myself studying wood everywhere and enjoying its natural beauty.

After making your wood selections, make sure the wood is dry. If you use wet wood for intarsia projects, the parts will shrink as the wood dries, leaving gaps between the pieces. 🌲

I first started doing intarsia with my father, artist Pat Dudley Roberts, in the late 1970s. He always had a shop of sorts where he created everything from sculptures to large paintings for private collectors and commercial establishments. Our intarsia projects at that time were large and roughly sanded with a low relief. I had fun mixing different shades of wood, and then working with sanders to get a variety of effects. It was a very creative environment; there were no woodworking rules to limit us. In fact, when Jerry first came to our shop, he looked at our bandsaws and was amazed we could cut anything that would fit anything.

Jerry Booher and I began working together in the mid-1980s. We scaled down the size of the finished pieces and began exhibiting them at arts and craft shows. I showed Jerry how my father and I had made our wood murals. After studying the process, Jerry came up with some ideas and different approaches to get, as he said, "better results." I was a little reluctant to go along with him, after all, he was a newcomer to this and how could he come up with something better than my father and I. Finally I gave in and was glad I did. The total appearance of the projects changed. Everything was nicely sanded, more attention was paid to the small details.

After the first few arts and crafts shows, Jerry was inspired to find out if there was a name for this technique. He sent a letter along with photos to the National Woodcarvers Association and asked them if they could shine any light on the subject. We got a letter back and to my surprise there was a name for this method of woodworking. We looked in the Webster's Dictionary and there it was: Intarsia. I had mixed feelings: I was a little disappointed because I thought we had come up with this style of woodworking, but glad there was an official name. Indeed, our business changed quite a bit because of the name.

Before you get started

We want to urge you to develop good safety practices any time you are using any type of woodworking machinery or hand tools, as well as using good common sense when using finishes of any kind. Please make safety glasses and hearing protection standard procedure when using any type of machinery. Be sure to read and follow the manufacturers recommendations for power tool safety, as well as read and follow the safety recommendations for the use of finishes (good ventilation and lots of it!).

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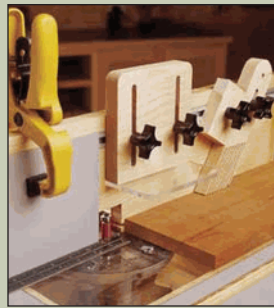
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