Double-Bearing Flush Trimming/Template Bits

1/4″ Shank **16J09.90**
1/2″ Shank **16J04.90**
8 mm Shank **18J09.90**

The 1/4″- and 8 mm-diameter shank bits are suitable for stock up to 5/8″ thick. The 1/2″-diameter shank bit is suitable for stock up to 1 1/4″ thick.

These bits may be used free hand or in a router table. However, a router table or an offset router base will prevent accidental tilting of an insufficiently supported router.

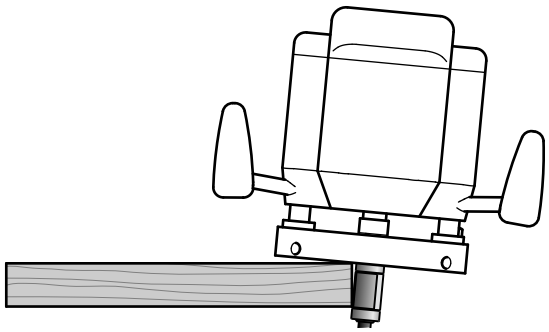

Figure 1: Tilting of an insufficiently supported router.

The double-bearing bit is a combination piloted trimming bit and a template bit. It is used for flush cutting or to create multiple copies from a single original template. Either bearing may be used to follow the template, which can be above or below the workpiece. The principal advantage of two bearings is that it prevents tear-out by permitting the routing to be done with the grain, regardless of the shape, as shown in **Figure 2**.

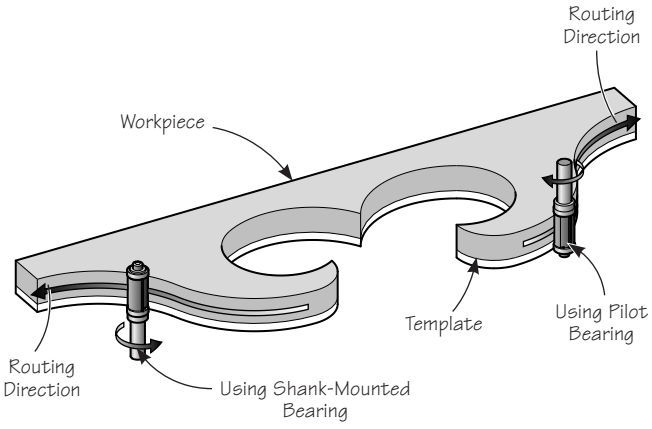

Figure 2: Following the grain.

As with conventional flush trimming bits, the double-bearing trimming bit can also be used for the flush trimming of laminates. Either bearing may be used, as shown in **Figure 3**.

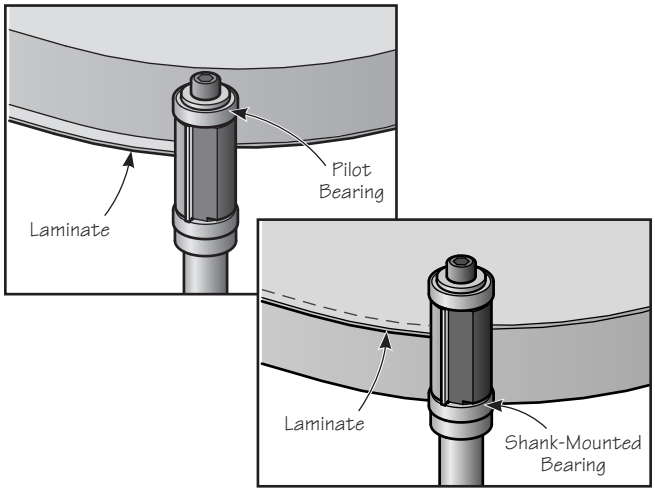

Figure 3: Flush trimming.

Template Work

To use the double-bearing bit for template work, both the template and workpiece must be of uniform thickness. If you are going to make several copies of an original, you may want to create a template from some durable material in order to protect the original and obtain consistent results.

Temporarily attach the template to the stock (e.g., using double-sided tape). Using the template as a guide, rough out the workpiece, leaving approximately 1/8″ of material for the router to clean up, as shown in **Figure 4**.

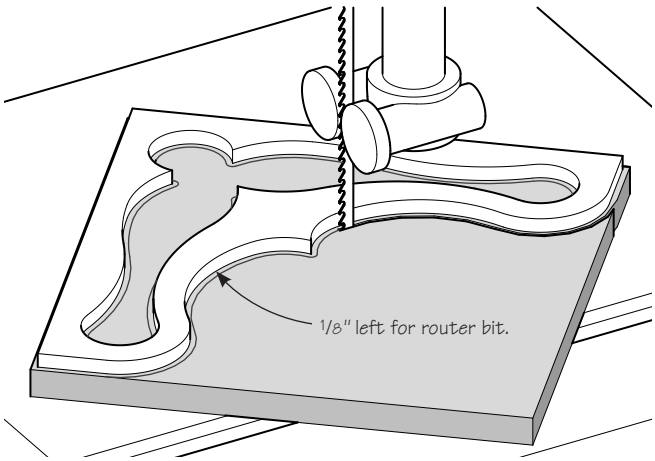

Figure 4: Rough cutting the workpiece.

To avoid tear-out due to changing grain direction, routing is done in two operations. One series of cuts is guided by the shank-mounted bearing; the other, by the pilot bearing.

Before routing, determine the cutting direction* for each section of the profile. It is helpful if the cutting directions are simply marked on the workpiece, as shown in **Figure 5**.

***Note:** See the "Cutting Directions" section at the end of this instruction sheet for determining the cutting direction on your workpiece.*

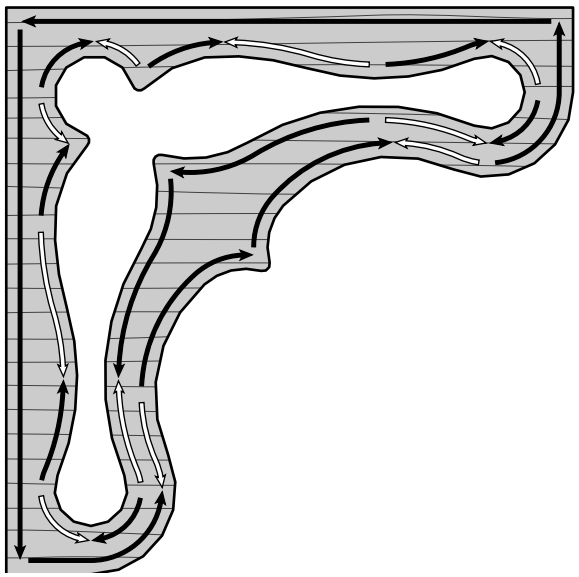

Figure 5: Determining cutting direction.

The method of using the bit is different for routing free hand versus using a router table. Follow the appropriate set of directions below.

Router Table Technique

As noted above, two set-ups are required to rout an entire profile. If you are using the template for a single copy or for multiple copies each with different grain directions, the first series of cuts is guided by the shank-mounted bearing with the workpiece face up. The cutting direction arrows will need to be marked directly onto the surface of the workpiece.

If you are using the template for multiple copies with the same grain orientation, the arrows can be transferred to the template to save time. In this case, use the pilot bearing to guide the first set of cuts (with the template atop the workpiece, **Figure 9**), and use the shank-mounted bearing to guide the second set of cuts (with the template below the workpiece, **Figure 6**).

The instructions that follow are based on the former case; however, the method is the same for both.

Install the bit in your router. Set the projection so that the cutting portion spans the thickness of the workpiece and the shank-mounted bearing registers against the template when the template rests against the router table, as shown in **Figure 6**.

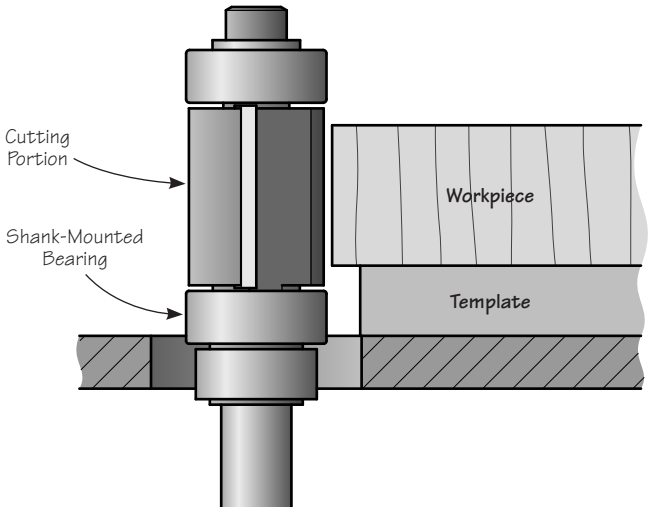

Figure 6: Setting the bit height.

***Note:** If you have a starting pin for your router table, install it.*

The first series of cuts should be made with the template under the workpiece, but for only those sections where the cutting directions match the bit rotation, as shown in **Figure 7**.

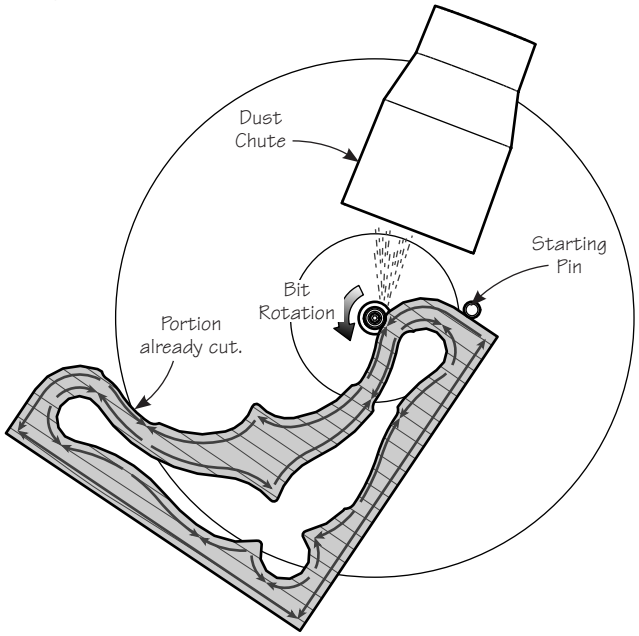

Figure 7: Routing the first series of cuts.

When the first series of cuts is complete, half of the outline will have been routed and the other half will remain rough, as shown in **Figure 8**.

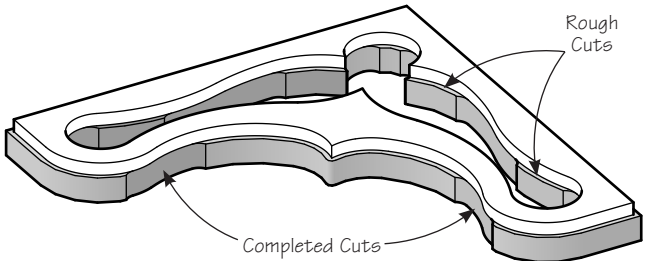

Figure 8: Completion of first series of cuts.

Flip the workpiece and template over (template up) and lower the bit so that once again the cutting portion spans the workpiece thickness and the pilot bearing registers against the template.

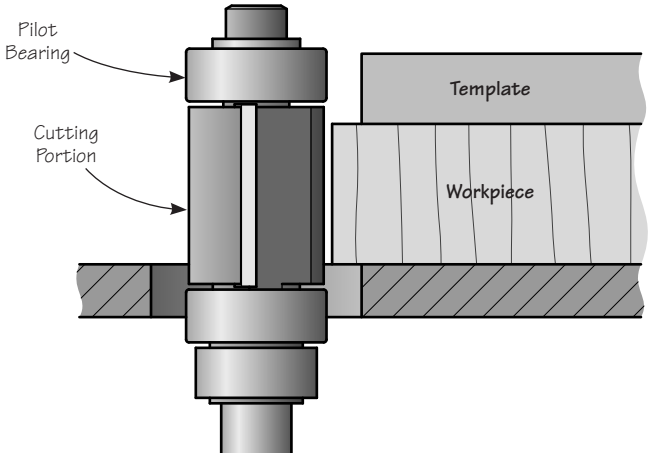

Figure 9: Setting the bit height.

Rout the remaining portions of the profile.

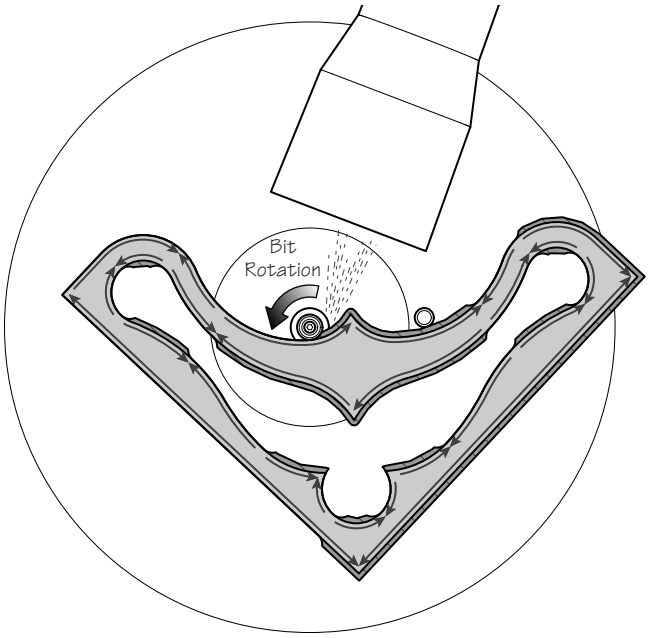

Figure 10: Routing the second series of cuts.

Freehand Technique

As with the router table technique, two set-ups are required to rout an entire profile. The sequence is also dependent upon whether the cutting directions are marked on the workpiece (for single copies) or on the template (for multiple copies).

The instructions that follow are based on making a single copy.

Firmly clamp your workpiece and template to your workbench such that the template is below the workpiece. Install the bit in your router. Set the projection so that the cutting portion spans the workpiece when the router sits on the workpiece, as shown in **Figure 11**.

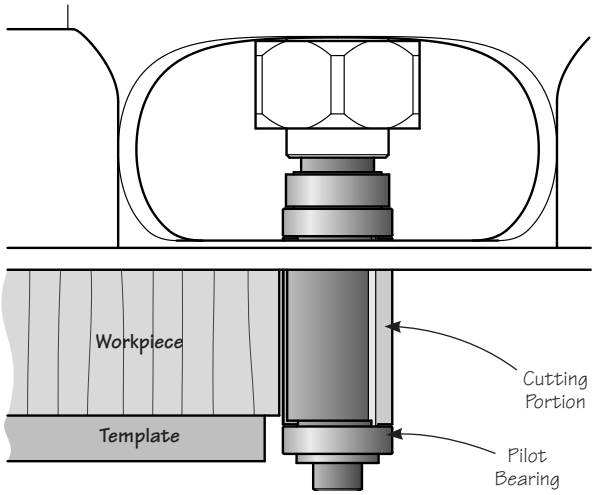

Figure 11: Setting the bit height.

The first series of cuts should be made by moving the router along the marked directions, as shown in **Figure 12**.

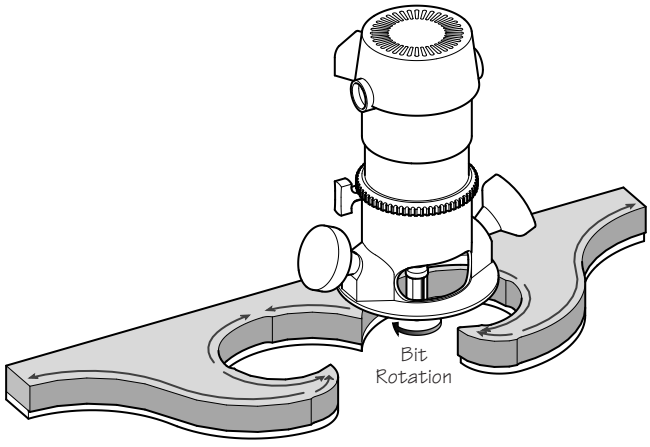

Figure 12: Routing the first series of cuts.

Flip the workpiece and template over and clamp to the workbench (template up). Lower the bit so that once again the cutting portion completely spans the workpiece and the shank-mounted bearing registers against the template.

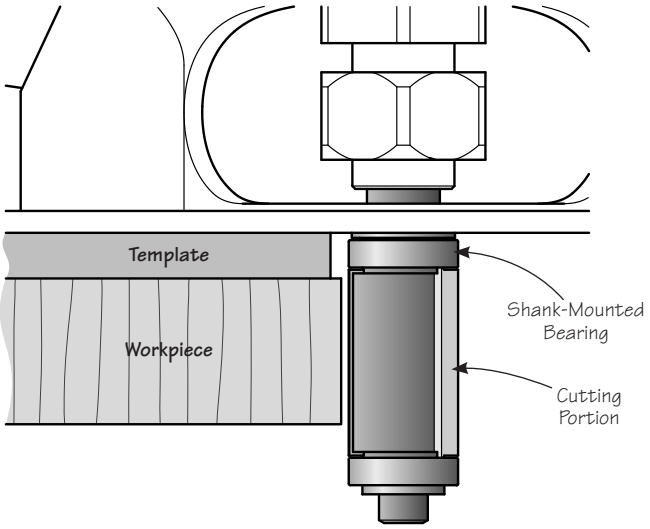

Figure 13: Setting the bit height.

Rout the remaining portions of the profile.

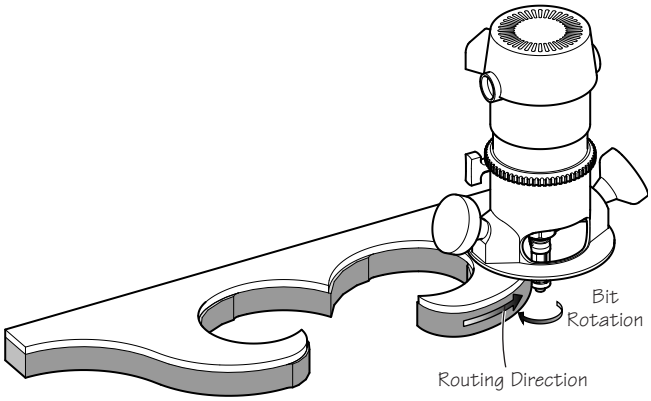

Figure 14: Routing the second series of cuts.

Cutting Directions

The following diagrams illustrate with-the-grain cutting direction for various template shapes. A double-ended arrow means the routing pass can be made in either direction.

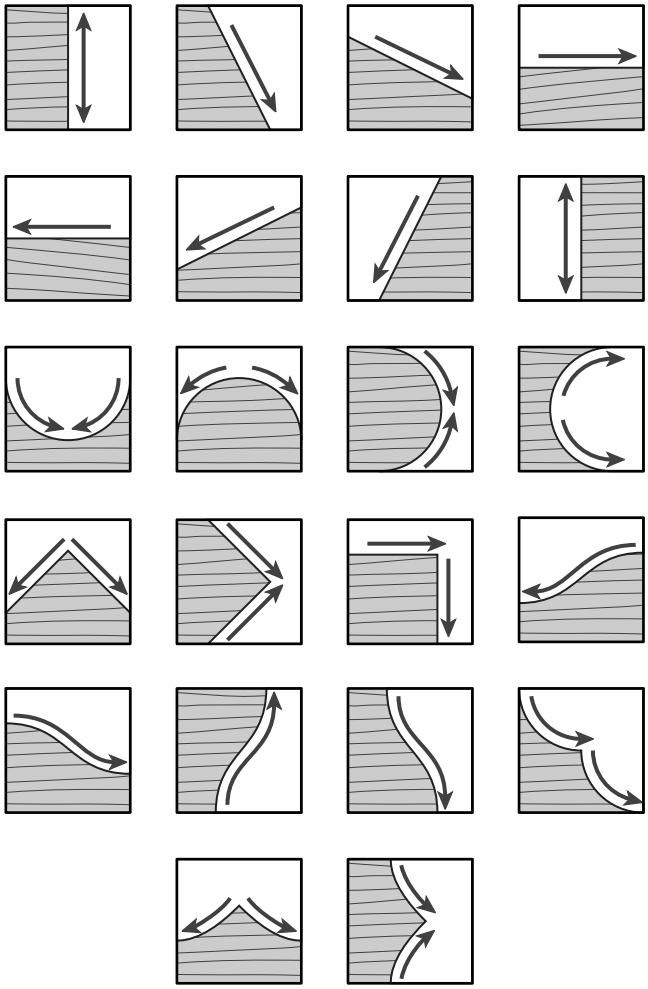

Figure 15: Cutting directions.