

Tip #23 Routing

The drill press mode of the Mark V can be used as a stationary router in both its vertical and horizontal positions. But to accomplish this, a special chuck is required to secure the high-speed bits because of the side thrust that is characteristic of routing operations. The chuck is locked firmly in place by securing its setscrew against the main spindle's tapered flat. Two setscrews lock the bits in the chuck. Router bits can be straight or, like the dovetail cutter, may have shaped cutting edges. The routing accessories are shown in Figure 10-1.

Routing cuts are made at high speed and with reasonable feed pressure so the bit can do its job without choking or burning.

Always perform routing operations at "Fast" speed. Do not form excessively deep cuts in a single pass. Deep cuts are easier to make and the results will be smoother if you get to full depth of cut by making repeat passes no deeper than 1/4" or less, depending on the size of the bit.

ROUTING SAFETY

Warning: Before using the routing accessory, read and understand these Important safety instructions:

Danger Zone—The danger zone on the Mark V when routing extends 3" all around the bit and chuck and 5" in front of the bit. Always keep your fingers and hands out of the danger zone.

When you work at the router, pay attention to where you put your hands. Be certain they aren't in front of the bit when you advance the quill. Never reach in toward or in front of the bit to clear away scraps. Turn off the machine and let it come to a complete stop first.

Guard for the Router—The circular shield and brush assembly must always be used for router operations. It mounts to the quill and is adjustable to accommodate various thicknesses of stock.

- Wear proper eye and ear protection.
- Tuck long hair under a hat or tie it up. Do not wear ties, gloves, jewelry or loose clothing. Roll sleeves up above your elbows. Wear non-slip footwear.
- Always mount the circular shield and brush assembly on the Mark V quill before performing routing operations.
- Always run the router at 'FAST' speed.
- Avoid taking deep cuts. With the exception of single-pass dovetail cuts, limit depth of cut to 1/4" for each pass when using bits up to 1/2" diameter. When using bits over 1/2" diameter, limit depth of cut to 1/8".

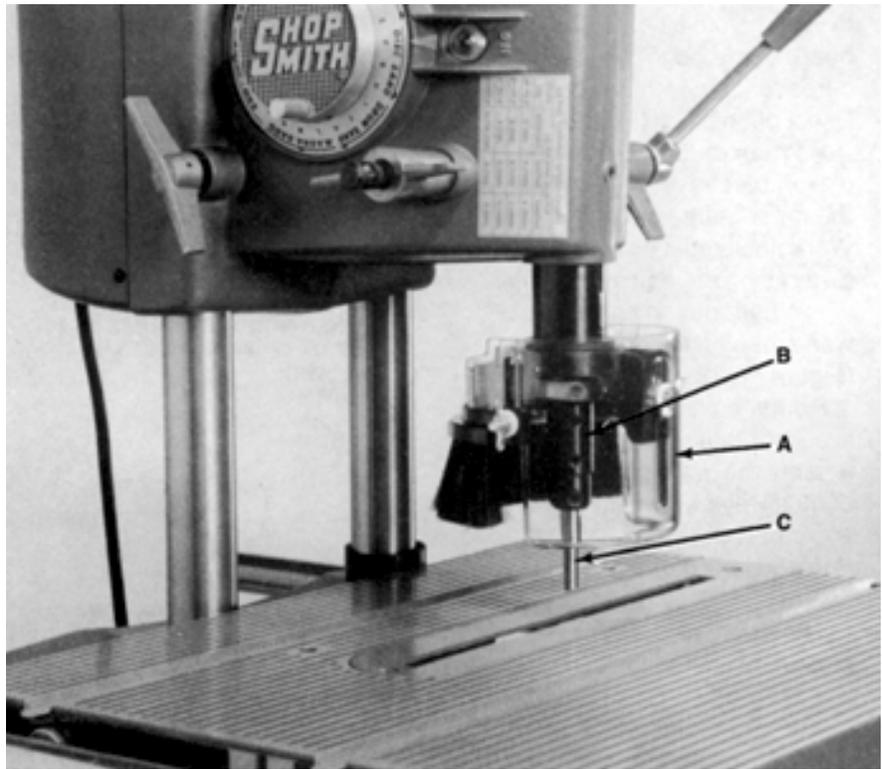


Figure 10-1. The accessories that are used for routing are: (A) the circular shield and brush assembly, (B) router chuck, and (C) router bits. Also the rip fence and miter gauge are used to support and guide the stock.

- Never freehand rout. Always use the rip fence or miter gauge when using bits without pilots, and a starter pin when using bits with pilots.
- Always feed the workpiece against the rotation of the bit. Otherwise a kickback will occur.
- Feed the workpiece slowly. Use extra care when routing stock that contains figured grain or knots, as these may cause kickbacks.
- Use a push stick to feed a narrow workpiece. When it is necessary to push a workpiece underneath the shield, use a long piece of scrap wood.
- Cut with the grain when straight-line routing.
- Do not stand directly in line with the workpiece. In the event of a kickback you could be hit.
- When routing across the grain of workpieces up to 10" wide, always use your miter gauge with safety grip to control the workpiece.
- When stop routing, always use stop block(s) to control the length of cut. Failure to use stop block(s) will cause a kickback.
- When routing an oversize workpiece, always use at least one push block to help control the workpiece. Hold the workpiece firmly against the rip fence.
- When edge routing with a piloted bit, always use either a starter pin or a fence to start the cut and/or guide the workpiece.
- Set speed to 'SLOW,' turn off and unplug the Mark V before mounting router bits.
- Make sure the setscrew in the chuck is tightened against the flat of the main spindle and the bit is secured tightly in the chuck. Then remove the Allen wrench immediately.
- Listen for chatter or signs of looseness at startup. If you hear, see or suspect problems, turn off and unplug the machine. Correct any problem before proceeding.
- Keep the bits clean, maintained and sharp.

ROUTER BITS

Router bits come in a variety of shapes and sizes, each designed to perform a specific operation. You'll also find how to use decorative edging bits and how to perform additional routing operations.

GENERAL ROUTING

When routing, the distance from the outer edge of the workpiece to the bit determines the setup:

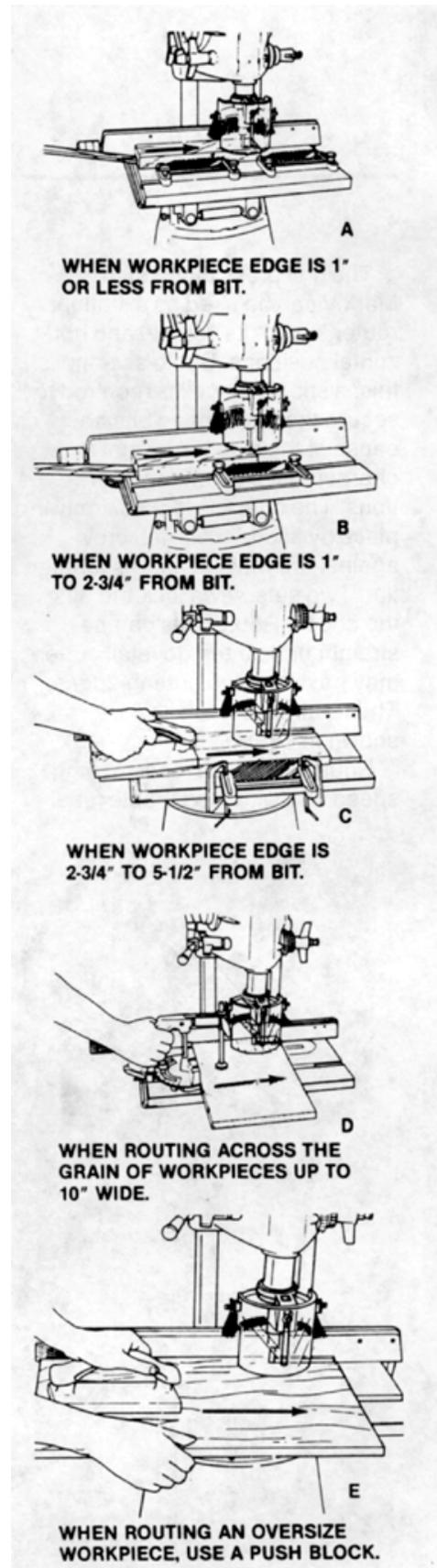


Figure 10-2. The distance from the outer edge of the workpiece to the bit determines the setup.

- When workpiece edge is 1" or less from bit, use one feather board on the infeed side and an additional feather board on the outfeed side, both secured in the table slot. Use a push stick, or when it's necessary to push work-piece underneath the shield, use a piece of wood (Figure 10-2A).
- When workpiece edge is 1" to 2-3/4" from bit, use two feather boards as above or use one feather board centered to the bit, secured in table slot. Use a push stick or piece of wood to push the workpiece under the shield (Figure 10-2B).
- When workpiece edge is 2-3/4" to 5-1/2" from bit, use one feather board centered to the bit and se-cured to table with two C-clamps. Use a push block (Figure 10-2C).
- When routing across the grain of workpieces upto 10" wide, use the miter gauge and safety grip. Workpiece must extend 5-1/2" away from bit (Figure 10-2D).

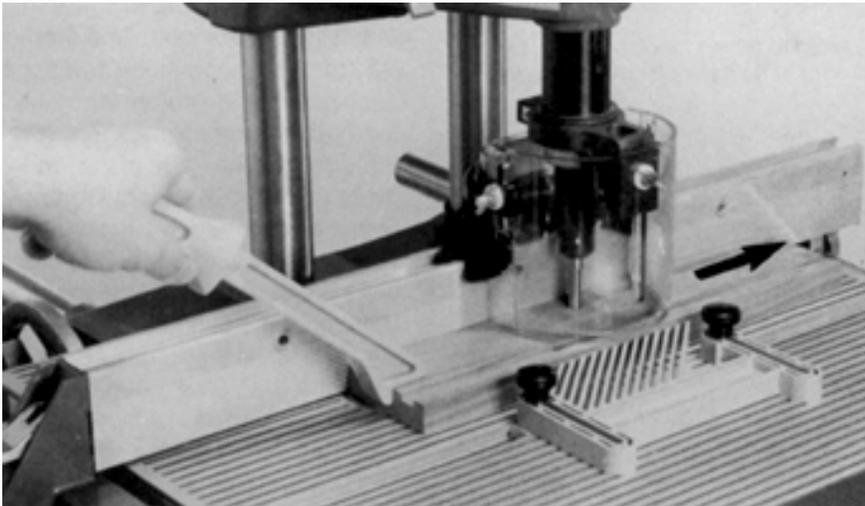


Figure 10-3. Feed teh workpiece from left to right against the bit's direction of rotation. A slow feed with a shallow depth of cut will produce the best results.

- When routing an oversize workpiece, use a push block (Figure 10-2E).

Router cuts made with the grain are smoother than cross grain or against the grain cuts, but you can't always work that way. When you can't, work with a slower feed rate and less depth of cut forop-timum results.

The depth of single pass cuts should be limited as follows:

- 1/4" maximum depth of cut for bits upto 1/2" diameter.
- 1/8" maximum depth of cut for bits over 1/2" diameter.
- Less than the above limits when routing extremely hard wood.

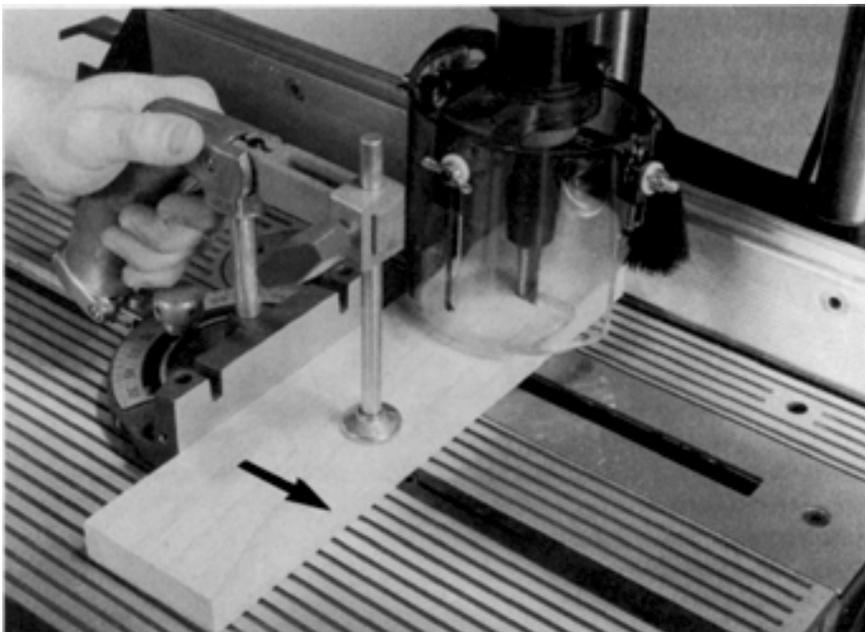


Figure 10-4. Make cross grain cuts by working with the miter gauge and safety grip.

Feed the workpiece from left to right against the bit's direction of rotation (Figure 10-3). The action of the properly installed bit will help keep the workpiece against the fence.

When using auxiliary facings, it is a good idea to remember that when the fence is behind the bit, the pass is also made from left to right.

Make cross grain cuts by working with the miter gauge and safety grip (Figure 10-4). Some chipping will occur where the bit breaks through, so allow for it by making