

Tip #22 Horizontal Boring

When the Mark V is set up in the horizontal boring mode, it becomes a machine that enables you to do a variety of standard and specialty operations easily and with great accuracy. It allows you to make holes in large or long pieces that you ordinarily couldn't drill. It also simplifies a number of other operations normally performed with a hand-held drill, such as drilling end grain or doweling boards edge-to-edge.

HORIZONTAL BORING MODE-SETUP AND FEATURES

Use the accessories shown in Figure 11-1 for boring operations.

To set up your Mark V in the horizontal boring mode, follow the instructions in the Owners Manual that came with your machine.

As you work in the boring mode, you'll find that the Mark V is an extremely capable horizontal boring machine. It has the same features as the drill press mode plus these special features:

- With a 5-1/2" long bit mounted in the chuck and using the rip fence as a backstop, you can bore workpieces up to 30" long or wide (Model 500) or 55" (Model 510 with the extension table system). Without the rip fence, you can bore as large or wide a workpiece as you can safely and easily control (Figure 11-2).
- With the table tilt at "0" and the table height as low as it will go, the table drops 2-3/8" beneath the center of the main spindle. This allows you to bore to the center of stock up to 4-3/4" thick.
- The table tilts from 90° left to "0" in this mode (Figure 11-3).

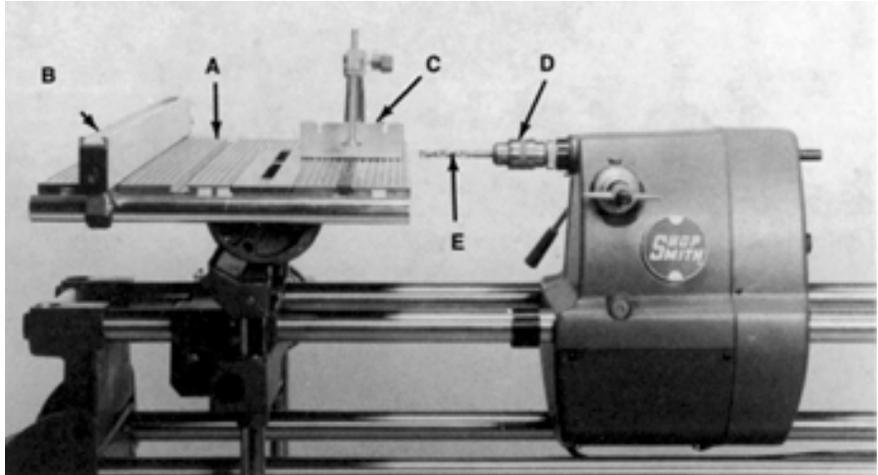


Figure 11-1. The accessories that are used for horizontal boring operations are the (A) worktable, (B) rip fence, (C) miter gauge, (D) drill chuck, and (E) drill bit. The Model 510 is shown.

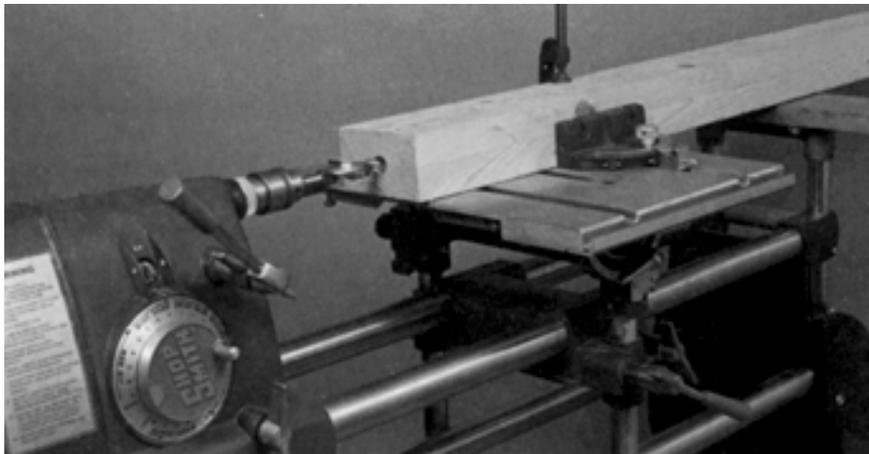


Figure 11-2. Without the rip fence you can bore as large or wide a workpiece as you can safely and easily handle.

HORIZONTAL BORING SAFETY

Warning: Before using the horizontal boring machine, read and understand these important safety instructions: **Danger Zone**-The danger zone on the Mark V in the horizontal boring mode 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.

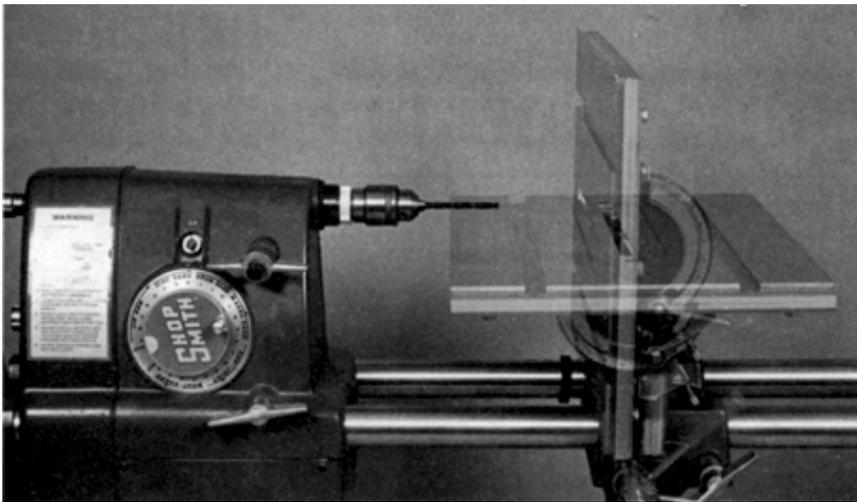


Figure 11-3. In the horizontal boring mode, the table tilts from 90-degrees left to "0".

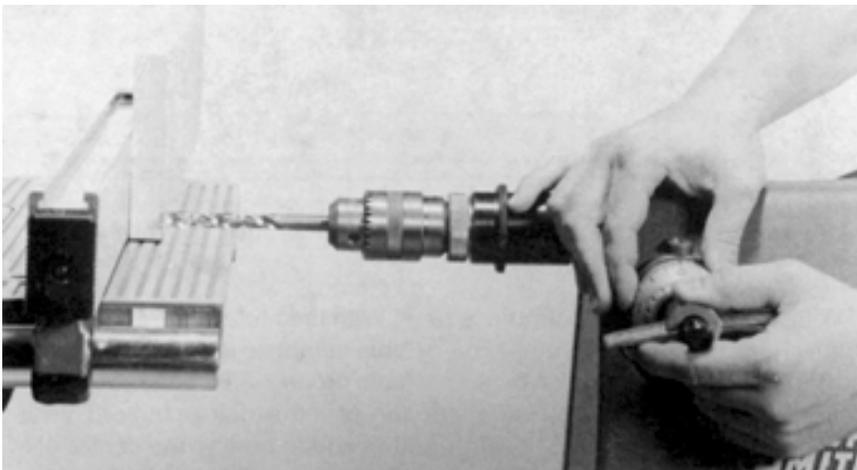


Figure 11-4. When boring through a workpiece, use the depth control to keep the bit from biting through the scrap and into the fence.

freehand. Always clamp the metal to the worktable and backup stock, or the rip fence and back-up stock.

When you work at the horizontal boring machine, be certain your hands and fingers 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.

- **Wear proper eye and ear protection.**
- **NEVER** leave the key in the chuck. Remove the key from the chuck **IMMEDIATELY** after securing or removing the bit.
- **Never wear jewelry, gloves, ties, loose clothing or clothing with long sleeves. Keep long hair tucked under a hat. Jewelry, gloves, ties, clothing and hair could become entangled in the bit.**
- **Use the rip fence as a back-stop and hold the stock firmly against both the worktable and the fence. If you can't use the rip fence, use the miter gauge or clamp the stock to the worktable.**
- **Use only accessories and bits designed to be mounted in power drills.**
- **Never drill or bore metal**

BITS AND SPEEDS

Because boring is so similar to drilling, you can use the same bits and the same speeds. To adjust the Mark V to the correct speed, refer to Table 11-1.

Table 11-1: Horizontal Boring Speed Chart

Size of Hole	Hardwood	Softwood
1/4" and less	H (1600 RPM)	I (1750 RPM)
1/4" to 1/2"	F (1300 RPM)	G (1450 RPM)
1/2" to 3/4"	D (1050 RPM)	E (1150 RPM)
3/4" to 1"	B (850 RPM)	C (950 RPM)
Over 1"	SLOW (700 RPM)	A (750 RPM)

Boring Metals —Slow (700 RPM)

Note: These speeds are for 60 hz operations.

GENERAL BORING

As you might suspect, the procedure for boring is very similar to the procedure for drilling. The basic types of boring operations are also similar—you can either bore all the way through a piece or partway into it.

Boring Through

To bore through stock, first mount a bit in the chuck. Be sure that you remove the chuck key. Mount the rip fence on the table to use as a backstop, and adjust it so that it will hold the workpiece $1/4"$ to $1/2"$ away from the tip of the bit. To accurately position the hole, adjust the table height.

Caution:

Place a long scrap of wood against the rip fence to keep the bit from boring into the fence after it goes through the workpiece. This scrap should be $3/4"$ to $1"$ thick and taller than the workpiece to properly back up the piece when boring.

Extend the quill so that the cutting flutes of the bit touch the scrap wood. Set the depth control to approximately $1/8"$, and tighten the depth control lock (Figure 11-4). Then let the quill retract. When you bore the hole, the depth control will keep the bit from biting through the scrap and into the fence.

Stand at the front of the machine so that you can easily reach the power switch. Place the workpiece on the table and position it in front of the bit. Hold it firmly against the table and rip fence. Extend the quill with the machine off to be sure the bit will bore a hole right where you want it (Figure 11-5).

If the bit lines up correctly, retract the quill. Turn the Mark V on and set the speed dial. Feed the bit into the wood slowly and evenly (Figure 11-6). Don't force the bit; just maintain a light, steady pressure as you do when drilling. When boring deep holes, it may be necessary to retract the bit occasionally to clear chips from the hole.

When you feel the depth control stop the quill, retract the bit. Turn the speed dial to "Slow," turn off the machine and let it come to a complete stop, then remove the workpiece.

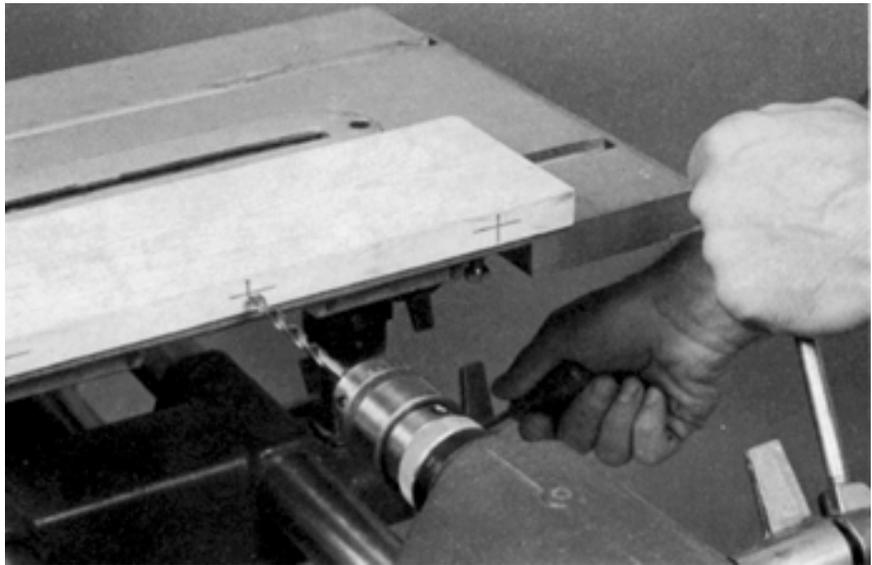


Figure 11-5. Before boring, extend the quill with the machine turned off to be sure the bit will bore a hole where you want it.

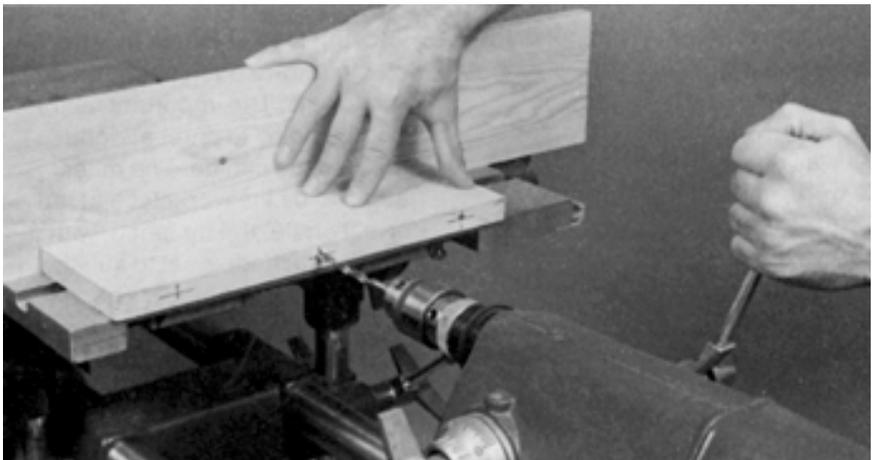


Figure 11-6. Feed the bit into the wood slowly and evenly, maintaining a light, steady pressure. Stop when you feel the depth control halt the quill.