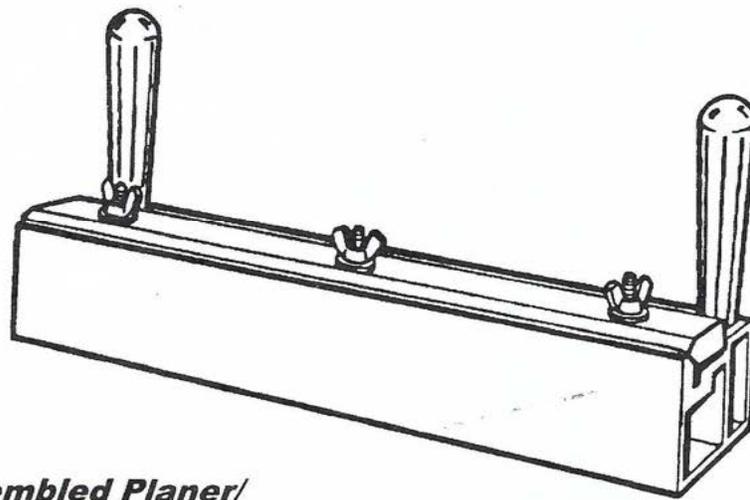




# PLANER/JOINTER KNIFE SHARPENING JIG

555471



*Fully Assembled Planer/  
Jointer Knife Sharpener*

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## INTRODUCTION

The Planer/Joiner Knife Sharpener holds Shopsmith planer and joiner knives at the proper bevel angle (45 degrees) and smoothly guides them across the abrasive surface for the entire length of the blade. This produces a uniform edge, which is so critical to planers and jointers.

The Planer/Joiner Knife Sharpener is only used with the Shopsmith Conical Sanding Disc and one of the following Shopsmith power sources: the Mark V (models 500, 510 and 520), Mark II, Mark VII, 10-ER and Power Station.

### NOTE

The following references and illustrations are for the Mark V Model 510, except where noted.

Operating the Knife Sharpener is the same on all power sources except the Power Station. Owners who use the Knife Sharpener with the Power Station will refer to the section titled "Power Station Operations" for specific operating instructions, turn to page 7.

The Knife Sharpener comes to you fully assembled, except for the two handles. After reading the Safety Rules, follow the instructions for assembly and operations.

## SAFETY

### *Safety Rules*

#### WARNING

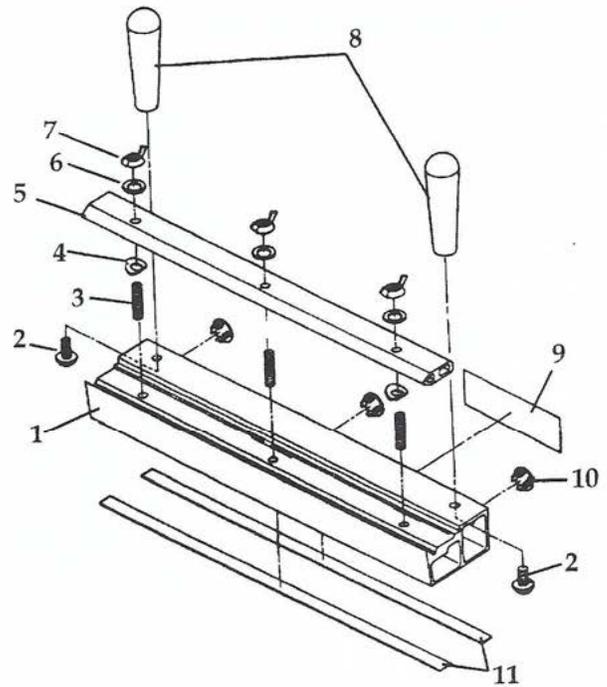
◆ Read, understand and follow the owner's manual for the Conical Sanding Disc and whichever power source you use (Mark V, Mark II, Mark VII, 10-ER, or the Power Station).

- ◆ Make sure that the worktable of the Mark V, or other power source, is properly aligned.
- ◆ ONLY use the Planer/Joiner Knife Sharpener with the Conical Sanding Disc. Over the life of a planer or joiner knife, the total maximum amount of metal you can remove is 1/16". Discard knives after they are less than 11/16" wide.
- ◆ Before setting up the Conical Sanding Disc and the Mark V (or other power source) for operating the Knife Sharpener, make sure the Mark V (or other power source) is set to "Slow", turned off and unplugged.
- ◆ Never attach a dust collection hose to the lower saw guard (for Model 500 owners, it's the disc sander dust chute). Clean the dust from inside the lower saw guard. Never operate the Dust Collector or another dust collection system while grinding or sharpening metal, because sparks could ignite sawdust. Place aluminum foil in the bottom of the dust chute to protect plastic sides.
- ◆ Be very careful when installing a planer or joiner knife in the Knife Sharpener, because you can be seriously cut. Also, do not attempt to grab the Knife Sharpener if it should fall with a knife blade already installed.
- ◆ To prevent grinding residue from collection, always place a board, aluminum foil, or some other non-flammable material on the way tubes of the Mark V, or the base of the Power Station.
- ◆ Frequently clean any grit and metal residue from the worktable. Do this ONLY when the Mark V is turned off and unplugged.

**PARTS LIST**

Ref. No.	Part No.	Item Description	Qty
1	516385	Body (includes 9) .....	1
2	514830	Phillips Head Screw .....	2
3	516357	Headless Screw .....	3
4	516210	Spring Washer .....	2
5	516098	Clamp .....	1
6	120392	Flat Washer .....	3
7	513216	Wing Nut .....	3
8	516135	Handle .....	2
9*	516118	. Warning Label .....	1
10	516099	Glide Button .....	3
11	516306	Glide Strip .....	2

\* Not available as a service part.



**ASSEMBLY**

Below is the only assembly required for the Knife Sharpener. After the handles are assembled continue to the Operations section.

**Attach the Handles**

1. Insert a Philips head screw (2) through a hole in the top of the Knife Sharpener Body (1), with the screw head inside of the body.
2. Hold the head of the screw (2) while you thread on the handle (8), see Figure 1.
3. Repeat Steps 1 and 2 to attach the other handle.

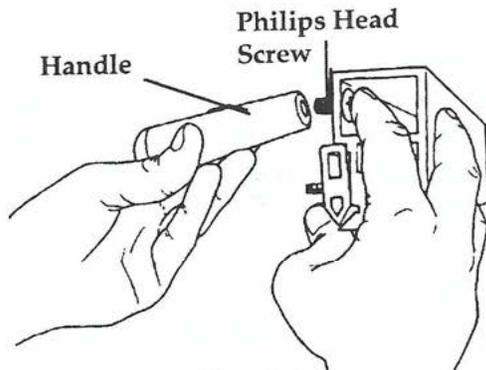


Figure 1

**OPERATIONS**

**Introduction**

The Planer/Joinder Knife Sharpener has the same setup for operations for the Mark V Models 520, 510 and 500, Mark II, VII and 10-ER. This setup has the worktable on the extreme right end of the way tubes and set at 0° parallel to the way tubes. All illustrations and instructions are for the Mark V Model 510.

**NOTE**

The Shopsmith Power Station has a different setup. If you will be using the Knife Sharpener and conical sanding disc with the Power Station, please refer to the "Power Station Operations" section on page 7.

### **Prepare the Conical Sanding Disc and the Mark V**

1. Mount the worktable on your Mark V, then move the worktable to the far right end of the way tubes and lock it in place. The worktable must be set to 0° (parallel to the way tubes).

#### **NOTE**

When using the Knife Sharpener with the Conical Sanding Disc, the worktable **MUST NOT** be tilted 4 degrees toward the disc surface as described in the Conical Sanding Disc owner's manual.

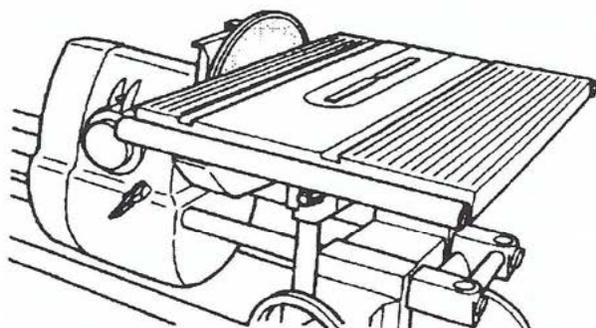


Figure 2

2. Make sure you have attached the proper abrasive to the Conical Sanding Disc. For most sharpening, use 150 grit aluminum oxide.
3. Do one of the following, depending on with Mark V model you own:
  - Mark V Model 510 and 520 owners, attach the lower saw guard to the quill collar, as in Figure 2.
  - Mark V Model 500 (also II, VII, 10ER) owners, attach the disc sander dust chute to the quill collar.

#### **WARNING**

Clean any dust from the lower saw guard (or disc sander dust chute) as a caution against any dust igniting due to sparks created while sharpening. **DO NOT USE** dust collection during Sharpening. Add a layer of aluminum foil to the inside of above products to protect plastic parts.

4. Mount the Conical Sanding Disc to the spindle.
5. Move the headstock toward the worktable. Adjust the worktable's top surface to be about 3" below the top of the Conical Sanding Disc, and the worktable's edge to be 1/8" - 1/4" from the abrasive surface. Lock the headstock, carriage, quill, and the worktable's locks.
6. Set the Knife Sharpener on the worktable next to the Conical Sanding Disc, as shown in Figure 3. Then re-adjust the worktable so the Knife Sharpener's top edge is 1" from the top of the abrasive surface.

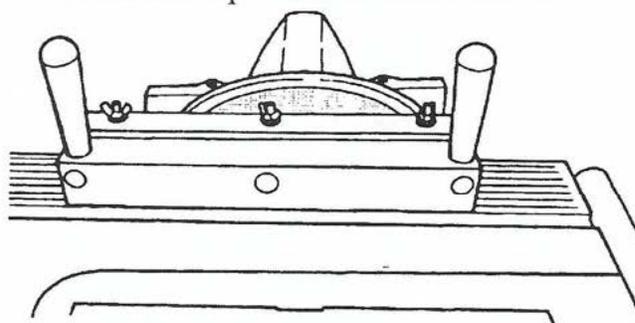


Figure 3

7. Remove the Knife Sharpener and place it on a convenient working surface.

### **Prepare the Knife Sharpener and Knife for Operations**

8. Loosen the three wing nuts (7) located on top of the Knife Sharpener. The clamp (5) should lift from the Knife Sharpener's body (1).

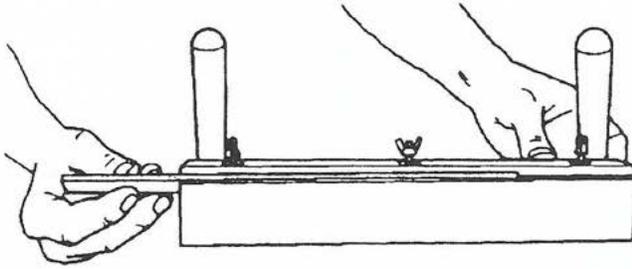


Figure 4

9. Stand behind the Knife Sharpener so the cutting edge of the knife faces away from you, as in Figure 4. Insert a planer or jointer knife between the clamp and the Knife Sharpener body. The sharp edge of the knife should point up, as shown in Figure 5. A 12" Planer Knife (see Figure 4) will take the full length of the Knife Sharpener. All three of the 4" jointer knives (see Figure 6) should fit the full length of the Knife Sharpener.

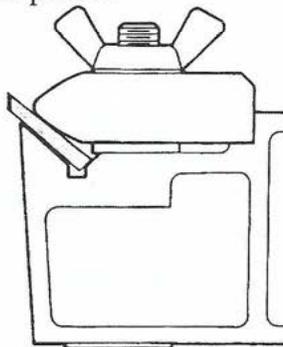


Figure 5



Always make sure there is no dust or other debris between the clamp and the Knife Sharpener body. The knife must sit firmly in the Knife Sharpener.

10. Securely tighten all three wing nuts.

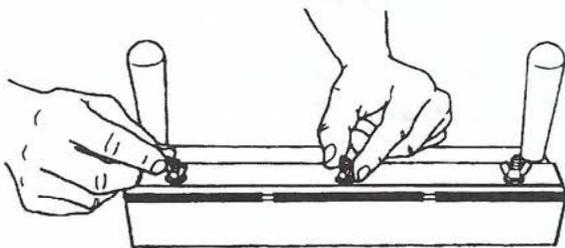


Figure 6

## Operate the Knife Sharpener

### WARNING

Before you operate the Knife Sharpener, YOU MUST:

- ⊗ Make sure the Mark V is turned off and unplugged.
- ⊗ Make sure no dust is in the lower saw guard (disc sander dust chute for Model 500 owners) and no dust hose is connected to it.
- ⊗ Make sure the Mark V headstock, carriage, quill and worktable are in position as described here and locked.
- ⊗ Make sure the Conical Sanding Disc has the proper abrasive attached.
- ⊗ Make sure that the knife is properly mounted and locked in the knife sharpener.
- ⊗ Place aluminum foil inside all plastic to protect from sparks.
- ⊗ Make sure a board, aluminum foil, or some other non-flammable material covers the way tubes to prevent abrasive residue from collecting on the way tubes and marring them.

11. Place the Knife Sharpener on the worktable with the knife touching the center of the conical sanding disc, see Figure 7.

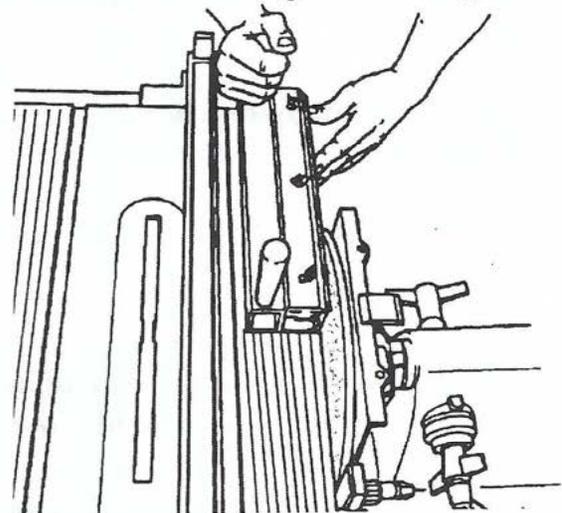


Figure 7

12. With the knife-edge touching the abrasive surface, move the rip fence so that it touches the back of the Knife Sharpener, as shown in Figure 8.

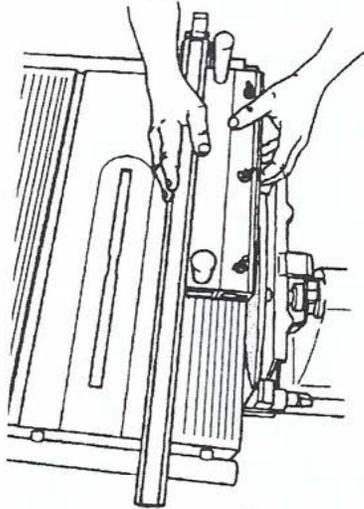


Figure 8

13. When the rip fence touches the back of the Knife Sharpener and it is aligned parallel to the worktable, lock the rip fence. Remove the knife Sharpener from the worktable; place on a workbench.
14. Plug in and turn on the Mark V, set the speed to "Slow".
15. Stand at the end of the Mark V, with the worktable between you and the Conical Sanding Disc, hold both handles of the Knife Sharpener and feed the knife into the abrasive surface, see Figure 9.

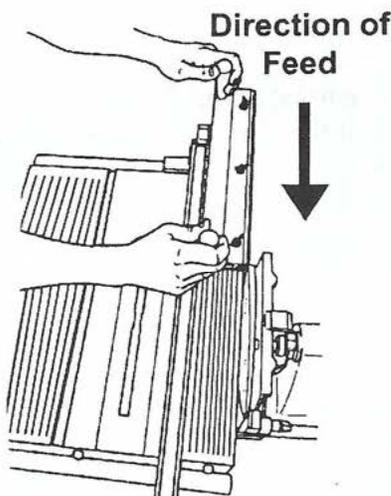


Figure 9

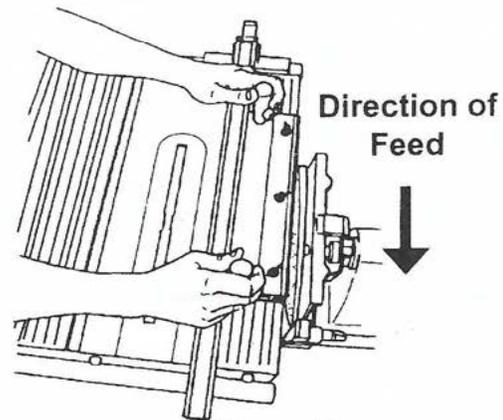


Figure 10

16. Move the Knife Sharpener slowly and steadily to the right, into the rotation of the Conical Sanding Disc, see Figure 10.

NOTE

Always keep the back of the Knife Sharpener pressed against the rip fence.

17. When the pass is completed, remove the Knife Sharpener from the worktable, as shown in Figure 11.

NOTE

Never feed the Knife Sharpener back through the abrasive surface from right to left.

18. Repeat steps 15-17 (using the same setting) until no more sparks occur.

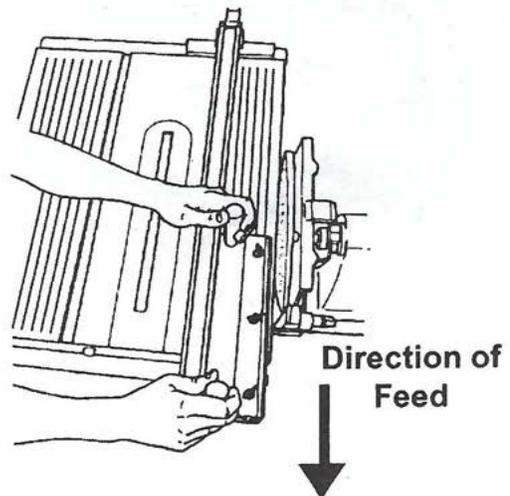


Figure 11



Never try to remove too much metal during a pass. This will overheat and destroy the knife. Trying to remove too much metal at one time will also shorten the life of the abrasive surface and impede the desired smooth, steady rate of feed of the knife into the abrasive surface.

19. For Planer Knives - repeat steps 15-18 on each of the other two blades.
20. Unless your knife is extremely dull or needs grinding, the passes made with one setting are usually enough to achieve sharp planer or jointer knives. However, if it still is not sharp enough, lower the worktable by about  $1/32$ " , but no more than  $1/16$ ". The angle of the Conical Sanding Disc and the lowered worktable moves the Knife Sharpener a little closer to the abrasive surface with the same bevel angle. Lowering the table also exposes an unused portion of abrasive surface to the knife. Make the pass as described in Steps 15-17, above.



### NOTE

If you have any further questions, please call our Customer Service Department at 800/762-7555 or visit our website at [www.shopsmith.com](http://www.shopsmith.com).

## POWER STATION OPERATIONS

### *Prepare the Conical Sanding Disc and the Power Station*

1. Mount the extension table in the carriage of the Power Station. Make sure the wide side of the extension table is toward the Power Station spindle, as in Figure 12. **DO NOT** lock the extension table in place yet.

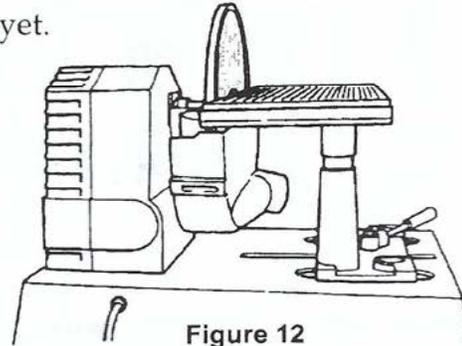


Figure 12

2. Make sure you have attached the proper abrasive to the Conical Sanding Disc. For most sharpening, use 150 grit aluminum oxide.
3. Attach a lower saw guard or disc sander dust chute to the headstock spindle collar.
4. Attach the Conical Sanding Disc to spindle.
5. Move the Power Station's carriage and the extension table toward the Conical Sanding Disc. Adjust the extension table's top surface to be about 3" below the top of the Conical Sanding Disc, and the table's edge  $1/8$ " to  $1/4$ " from the abrasive surface. Lock the carriage and the extension table. See Figure 12.

### NOTE

Clean any dust from the lower saw guard (or disc sander dust chute) as a caution against any dust igniting due to sparks created while sharpening.

6. Set the Knife Sharpener on the extension table next to the Conical Sanding Disc, as shown in Figure 13. Then readjust the height of the table so the Knife Sharpener's top edge is 1" from the top of the abrasive surface. When the proper height is reached, securely tighten the carriage set-screws that secure the extension table.

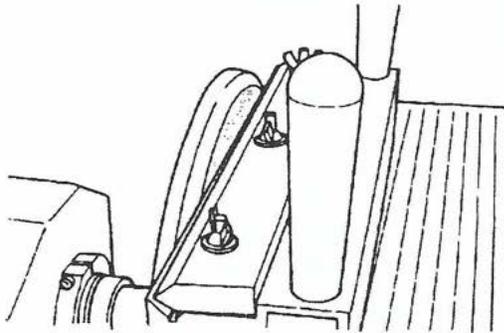


Figure 13

7. Remove the Knife Sharpener and place it on a convenient working surface.

**Prepare the Knife Sharpener and Knife for Operations**

8. Loosen the three wing nuts (7) located on top of the Knife Sharpener. The clamp (5) should lift from the Knife Sharpener's body (1).
9. Stand behind the Knife Sharpener so the cutting edge of the knife faces away from you, as in Figure 4. Insert a planer or jointer knife between the clamp and the Knife Sharpener body. The sharp edge of the knife should point up, as shown in Figure 5. A 12" Planer Knife (see Figure 4) will take the full length of the Knife Sharpener. A three of the 4" jointer knives (see Figure 6) will fit the full length of the Knife Sharpener.



Always make sure there is no dust or other debris between the clamp and the Knife Sharpener body. The knife must sit firmly in the Knife Sharpener.

10. Securely tighten all three wing nuts. The blade should be located so that a wing nut secures each end, as shown in Figure 6.

**Operate the Knife Sharpener**



Before you operate the Knife Sharpener, YOU MUST:

- ▶ Make sure the Power Station is turned off and unplugged.
  - ▶ Make sure no dust is in the lower saw guard (or disc sander dust chute) and no dust hose is connected to it.
  - ▶ Make sure the Power Station's carriage is locked, and the setscrews securing the extension table's mounting tubes are securely tightened.
  - ▶ Make sure the Conical Sanding Disc has the proper sandpaper attached.
  - ▶ Make sure that the knife is properly mounted and locked in knife sharpener.
  - ▶ Make sure a board, aluminum foil, or some other non-flammable material is placed directly beneath the disc to prevent abrasive residue from collecting on the base and marring the Power Station.
11. Place the Knife Sharpener on the worktable with the knife touching the center of the conical sanding disc, as shown in Figure 7.
  12. With the knife-edge touching the abrasive surface, move the rip fence so that it touches the back of the Knife Sharpener, as shown in Figure 8.
  13. When the rip fence touches the back of the Knife Sharpener and it is aligned parallel to the worktable, lock the rip fence. Remove the knife Sharpener from the worktable; place on a workbench.

14. Plug in and turn on the Power Station. Set the speed to "1" (the slowest speed setting).
15. Standing at the end of the Power Station with the extension table between you and the Conical Sanding Disc, hold both handles of the Knife Sharpener and feed the knife into the abrasive surface, as in Figure 14.

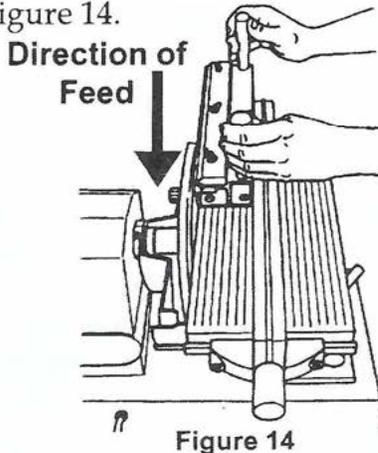


Figure 14

16. Move the Knife Sharpener slowly and steadily to the left, into the rotation of the Conical Sanding Disc. See Figure 15. Always keep the back of the Knife Sharpener pressed against the rip fence.

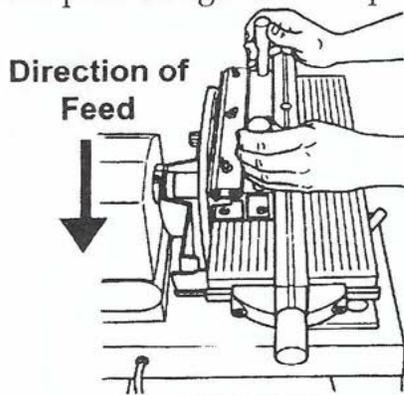


Figure 15

17. When the pass is completed, remove the Knife Sharpener from the extension table, as shown in Figure 16.

### NOTE

**NEVER** feed the knife sharpener back through the abrasive surface from right to left.

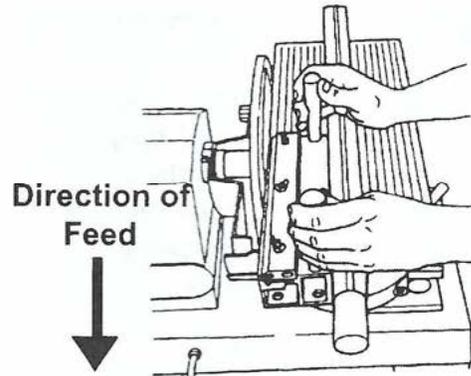


Figure 16



Never try to remove too much metal during a pass. This could overheat and destroy the knife. Trying to remove too much metal at one time can also shorten the life of the abrasive surface and impede the desired smooth, steady rate of feed of the knife into the abrasive surface.

18. Repeat steps 15-17 (using the same setting) until no more sparks occur.
19. For Planer Knives - repeat steps 15-18 for each of the other two blades.
20. Unless your knife is extremely dull or needs grinding, the passes made with one setting are usually enough to achieve sharp planer or jointer knives. However, if it still is not sharp enough, lower the extension table by about  $1/32$ " , but no more than  $1/16$ ". The angle of the Conical Sanding Disc and the lowered extension table moves the Knife Sharpener a little closer to the abrasive surface with the same bevel angle. Lowering the extension table also exposes an unused portion of abrasive surface to the knife. Make the pass as described in Steps 16 and 17, above.