



# Conical Sanding Disc

555435

Side View of  
Conical Sanding Disc

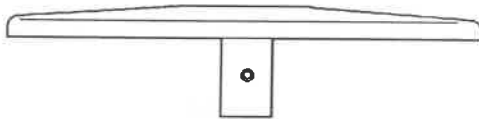


Fig. 1

Three-Quarters View of  
Conical Sanding Disc

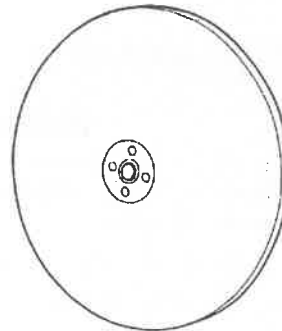


Fig. 2

## Introduction

### NOTE

Before you attach sandpaper to the Conical Sanding Disc, clean the disc surface with alcohol to remove any dirt or oil.

The Conical Sanding Disc can be used with the Mark V (Models 500 and 510), Mark II, Mark VII and the 10-ER. However, all the following references and illustrations are for the Mark V Model 510, except where noted.

Three grits of cloth-backed aluminum oxide sandpaper are available for the Conical Sanding Disc:

**50 grit** allows you to rough plane and to quickly remove paint and other finishes from the wood's surface. You can remove a maximum of 1/8" of wood per pass.

**80 grit** sandpaper smooths the marks left by the 50 grit paper, and it efficiently sands man-made materials like plywood and fiberboard. These man-made materials contain glue which could eventually damage jointer and planer knives. You can remove a maximum of 1/16" of wood per pass with 80 grit sandpaper, but you must consider the material, its bonding agent (glue) and speed setting if the workpiece is not solid wood.

**150 grit** sandpaper is suitable for fine finishing of wood as well as grinding and sharpening metal. You can remove a maximum of 1/32" of wood per pass.

The difference between the Conical Sanding Disc and a flat sanding disc is the 4 degree angle of the Conical Sanding Disc, illustrated in Fig. 1. This angle keeps the outfeed side of the disc away from the workpiece and allows the infeed side to contact 4" of the workpiece's surface at a 90 degree angle for a clean, swirl-free sanding operation. Also, since the outfeed side of the disc does not touch the workpiece, operations are much safer.

The operations best performed by the Conical Sanding Disc are:

- Edge sanding to dimension or to obtain parallel edges.
- Thickness (or surface) sanding to clean up stock (paint, old finish, second hand lumber).
- To smooth glued stock (like a kitchen cutting board).
- To smooth highly figured wood (like curly maple) which cannot be run through a planer.
- Final dimensioning and finish sanding of softwoods and hardwoods.
- Edging man-made materials (plywood, particle board, hardboard).
- Accurately and safely sharpening jointer and planer knives.
- Sanding circles using a circle sanding jig.

The operations best performed with the regular 12" Disc Sander are:

- Using the quill feed to sand stock to exact lengths.
- Sanding inside and outside corners.
- Sanding miters and bevels using the quill feed on the end of the stock.
- Sharpening lathe chisels, bench chisels and shaper cutters with the Shopsmith Sharpening Guide.

Observe these safety rules before operating the Conical Sanding Disc:

**WARNING**

- Read, understand and follow the safety rules and instructions in this manual and the Mark V Owner's Manual before operating the Conical Sanding Disc.
- Do NOT use the Conical Sanding Disc with the Mark V set up in the drill press mode.
- Do not connect dust collection hoses nor operate a dust collection system when sharpening or grinding metal with the Conical Sanding Disc.
- Maintain a 1/16" maximum clearance between the worktable and the Conical Sanding Disc.
- Always use a table to support the stock. Never sand freehand.
- Do not turn on the power with the stock laying on the worktable or already in contact with the Conical Sanding Disc.
- Always feed the workpiece and sand into the downward-motion side of the disc. See Figures 7, 8 and 9.
- The maximum material you should remove in one pass is:
  - for 50 grit, no more than 1/8"
  - for 80 grit, no more than 1/16"
  - for 150 grit, no more than 1/32"
- Do not operate the Conical Sanding Disc with stock less than 1/2" thick, 1/2" wide, or 12" long.
- Always use push stick, push blocks and a fence straddler whenever possible. See Fig. 7.

Determine which grit you wish to use, then please follow these instructions:

**ATTACH THE SANDPAPER TO THE CONICAL SANDING DISC**

1. Place the Conical Sanding Disc on a table.
2. Peel the backing from the sandpaper, as in Fig. 3.

**NOTE**

Save the backing. If you later wish to switch grits, you should be able to re-apply the backing on the used sandpaper and store it for future use. Remember, however, that the sandpaper's adhesive becomes more firmly bonded to the metal disc the longer it stays and the hotter it gets from the friction caused during operations.

3. Align the center hole in the sandpaper over the center of the metal disc. As a check, look at the four arbor screws and see that the sandpaper is an equal distance from each of them.
4. Once aligned, gently press the sandpaper from one end of the split around to the other end of the split. See Fig. 4. Take care that the sandpaper stays aligned and it is flat on the disc surface.

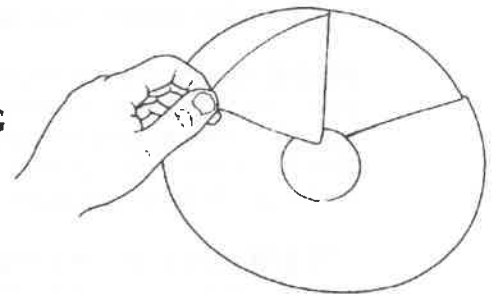


Fig. 3

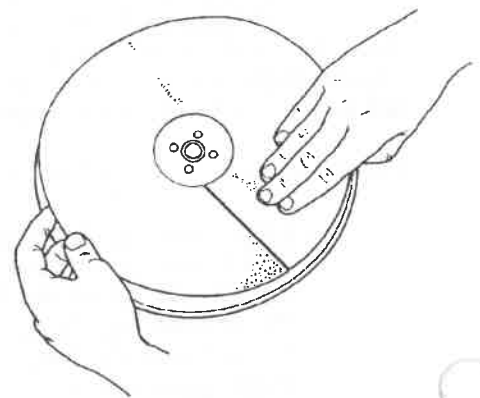


Fig. 4

## PREPARE THE MARK V

5. Make sure your Mark V is turned off, unplugged, and the speed dial set to "Slow."
6. Move the headstock all the way to the left and mount the worktable on the Mark V.
7. —For Model 510 owners: Install the lower saw guard on the Mark V quill. Make sure the dust chute is loosened and moved out, as in Fig. 5.  
  
—For Model 500 owners: Install the disc sander dust chute (optional) on the Mark V quill. Make sure the dust chute is loosened and moved out, as in Fig. 5.

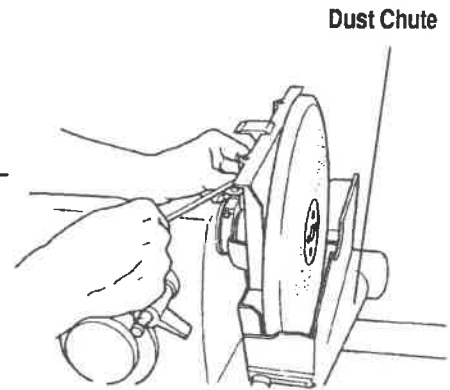


Fig. 5

## INSTALL THE CONICAL SANDING DISC ON THE MARK V

8. Place the Conical Sanding Disc on the Mark V spindle and line up the spindle's flat spot with the disc arbor's setscrew.
9. Use a 5/32" Allen wrench to securely tighten the arbor's setscrew. See Fig. 5.
10. Adjust the dust chute close to the disc and tighten it.

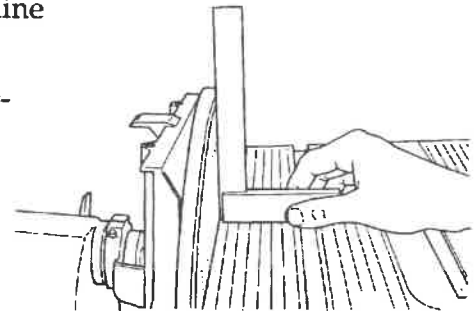
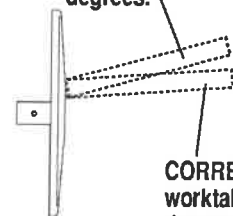


Fig. 6

## ALIGN THE WORKTABLE

11. Tilt the worktable 4 degrees toward the disc.
12. Move the worktable toward the Conical Sanding Disc so the table edge is no more than 1/16" from the sandpaper, and the table top is at the top edge of the sandpaper's hole.
13. Place a precision square against the top surface of the Conical Sanding Disc and the worktable, as shown in Fig. 6. If needed, re-adjust the worktable's alignment, then lock the worktable.
14. For extra support, install telescoping legs on the sides of the worktable closest to the Conical Sanding Disc. Fig. 10 shows this (along with an optional, extra pair of legs).

**WRONG.** Do NOT tilt worktable at an acute angle of more than 4 degrees.



**CORRECT.** This worktable angle is 4 degrees toward the surface.

Fig. 7

## Operations

### WARNING

Before operating the Conical Sanding Disc, perform this checklist:

- ✓ Read, understand and follow the SAFETY section in your Mark V Owner's Manual and the Safety Rules for the Conical Sanding Disc.
- ✓ Complete all the Mark V "Setup" and "Alignment and Adjustment" procedures in your Mark V Owner's Manual.
- ✓ Secure all locks.
- ✓ NEVER tilt the worktable toward the Conical Sanding Disc surface more than 4 degrees, as called for in Step 11 above. See Fig. 7.
- ✓ Set the proper speed according to the Conical Sanding Disc Speed Chart below.
- ✓ When end-grain sanding, set the speed a little slower than you would for other types of sanding, because end grains tend to "burn" more easily.

You will use the rip fence for most operations, especially when you are planing or beveling a workpiece on its entire edge, as in Fig. 8. Fig. 9 shows the setup for sanding the entire surface.

For wide workpieces, shown in Fig. 10, move the aligned worktable away from the Conical Sanding Disc and attach extension tables where needed. Then move the worktable and extension table so that the extension table's top is at the top of the sandpaper's hole and 1/16" from the abrasive surface. Adjust your feed rate to match your workpiece and sandpaper grit. Always feed the workpiece steadily, and never feed it too fast.

For more information, read the "Disc Sanding" chapter in the Shopsmith book, **Power Tool Woodworking for Everyone**. As you read, remember:

- The Conical Sanding Disc does not have the problems associated with the workpiece contacting the outfeed side of the disc like the regular, flat sanding disc does.
- The Conical Sanding Disc has an angle of 4 degrees, and you must account for it if you set the worktable to make bevels.
- Never use the quill feed with the Conical Sanding Disc.
- The Conical Sanding Disc is always used at the infeed side of the worktable— not through the outfeed side of the worktable. Therefore, do not offset the rip fence as discussed in the "Disc Sanding" chapter.

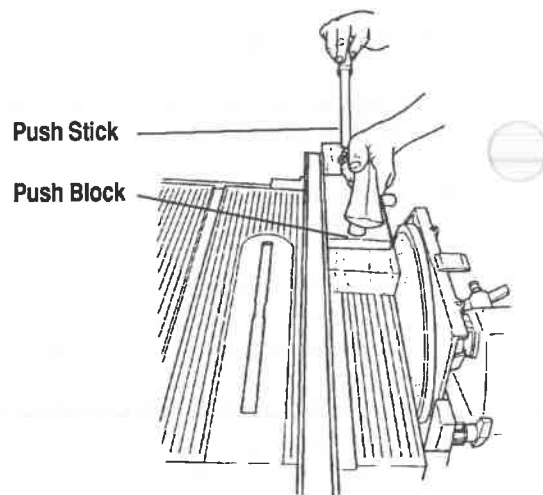


Fig. 8

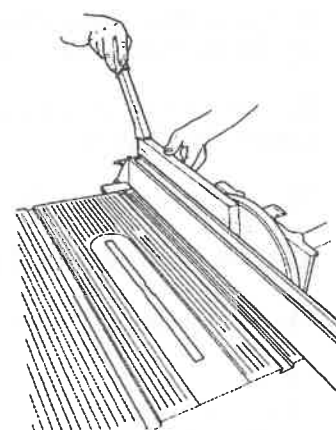


Fig. 9

### Conical Sanding Disc Speed Chart\*

Grit	Hardwood	Softwood
<b>Coarse</b> (50#)	<b>D</b> (1050 rpm)	<b>E</b> (1150 rpm)
<b>Medium</b> (80#)	<b>F</b> (1300 rpm)	<b>G</b> (1450 rpm)
<b>Very Fine</b> (150#)	<b>G</b> (1450 rpm)	<b>H</b> (1600 rpm)
<b>Grinding/Sharpening Metal— Slow</b> (700 rpm)		

\*If you own a Mark II, Mark VII or 10-ER, disregard the letter speed settings and only use the rpm settings. Never exceed the speed settings.

#### NOTE

If the sandpaper becomes clogged, clean it with an abrasive cleaning stick (Part Number DA-3523). It will restore the sandpaper's cutting ability and extend its life.

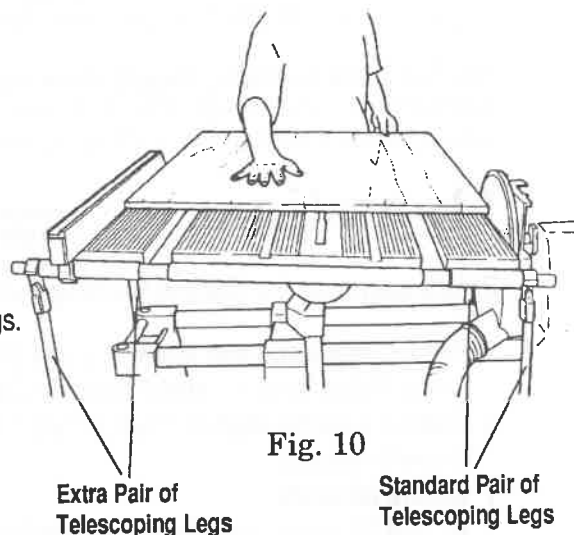


Fig. 10



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Note: If you have further questions or need help, visit the Shopsmith Store in your area. If there is no store in your area, call Customer Service: Toll Free 1-800-762-7555 (in Canada, 1-800-268-3998).

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