Introduction

These indexable-insert spiral cutterheads are designed to replace both straight-knife and spiral cutterheads from most Shop Fox and many other brands of 15” and 20” planers. The Model D4502 15” cutterhead fits Shop Fox planer Models W1692, W1723, W1724, and W1742. The Model D4503 20” cutterhead fits Shop Fox planer Models W1683, W1718, W1747, and W1754.

The total procedure for changing the cutterhead and setting up the planer takes approximately three hours. When performing this procedure, we strongly recommend that you do not re-use your original cutterhead bearings. These bearings are critical to cutterhead performance and can be easily damaged when removing the original cutterhead. Installing new bearings will help ensure precision cutting results and long-lasting performance. The part number for the bearings can be found in your owner’s manual under the Parts Breakdown.

These instructions make reference to many procedures detailed in your owner’s manual. If you need additional help, call Technical Support at (360) 734-3482.

Inventory (Figure 1)

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spiral Cutterhead</td>
<td>1</td>
</tr>
<tr>
<td>T-Handle Socket Driver</td>
<td>1</td>
</tr>
<tr>
<td>Torx Drivers T20 1/4”</td>
<td>5</td>
</tr>
<tr>
<td>Flat Head Torx Screws T20 M6-1 x 15</td>
<td>20</td>
</tr>
<tr>
<td>Cutterhead Inserts 14 x 14 x 2 (30˚ Bevel)</td>
<td>5</td>
</tr>
</tbody>
</table>

CAUTION

Cutterhead knives and inserts are razor sharp! Always wear heavy gloves when handling cutterheads, and avoid contact with cutters whenever possible. Failure to comply can result in serious personal injury!

Figure 1. Model D4502/D4503 inventory.
To remove cutterhead, do these steps:

1. **DISCONNECT PLANER FROM POWER SOURCE!**

2. Remove top cover and dust port to expose cutterhead.

3. Remove knives from existing cutterhead.

4. Remove belt cover, then remove V-belts from pulleys.

   **Note:** This may require loosening belt tension. This procedure is outlined in *Service* section of your planer manual.

5. Remove hex bolt that holds cutterhead pulley in place.

6. Rotate cutterhead until pulley/shaft key is at upright position.

7. Remove pulley and key. If pulley is difficult to remove, use a pulley puller, as shown in Figure 2.

8. Remove table elevation handwheel and key.

9. Remove both rear guards from sprocket cover, as shown in Figure 3.

10. Remove sprocket cover cap screw and sprocket cover.

11. Remove hex bolts and washers from three sprockets (see Figure 4) to expose sprocket keys.

12. Unhook idler spring and move out of way.

13. Rotate cutterhead so that sprocket keys are in an upright position.

14. Mark outside of sprockets with white correction fluid to indicate which side of each sprocket faces outward.

15. Remove sprockets, keys, and chains at one time, being careful to keep chains unbroken.
16. Place fluid pan under gearbox. Remove gearbox drain plug (see Figure 5), and allow oil to drain into pan.

17. Insert six 4” long 2x4 blocks directly beneath cutterhead (see Figure 6).

18. Re-install handwheel and key, then carefully raise table so cutterhead just touches wood blocks.

19. Remove four cap screws at top of gearbox (see Figure 7).
20. Have an assistant hold gearbox steady while you use a rubber or wood mallet to unseat cutterhead from headstock (see Figure 8).

21. Rest gearbox/cutterhead assembly on a flat, stable surface for the following steps.

22. Remove five cap screws from front of gearbox cover.

23. Separate gearbox cover by gently tapping near gasket using a mallet and flat head screwdriver.

   **Note:** Take care not to damage sealing surface.

24. Remove cap screw from inside of helical gear shown in Figure 9 and remove sprocket.

25. Thread M6-1 screw or bolt into hole at gearbox end of cutterhead (see Figure 10). This will allow you to knock the cutterhead loose in the next step without striking parts that could become damaged.
26. While supporting gearbox, remove cutterhead by tapping on screw or bolt with a hammer (see Figure 11).

27. Visually inspect all bearing bores—on headstock and in gearbox—and remove any burrs or rough spots.

To install spiral cutterhead, do these steps:

1. Wrap new cutterhead in cardboard and securely fasten it with heavy tape.

2. Install new bearing on cutterhead. Ideally, this should be installed with a press. However, if a press is not available, you can also install bearing with a mallet and a 4” length of 1” diameter pipe (see Figure 12). Extreme caution must be taken not to damage the bearing using this method.

   Tip: Place wrapped cutterhead in freezer overnight before installing new bearing. This will cause cutterhead to contract, making bearing easier to install.

   Important: Pipe should only contact inside of bearing race, as shown in Figure 12. Force on any other portion WILL ruin the bearing.

3. Install cutterhead in gearbox by fitting it into place, then seat it by tapping on pulley end with wood or rubber mallet. Ensure cutterhead end is flush with inside face of gearbox bearing (see Figure 10).

4. Re-install helical gear and cap screw, ensuring helical gear and cutterhead are engaged.

5. Ensure that gasket surfaces are clean and free of oil, grit, or contaminants.

6. Re-assemble gearbox, taking care to seat rubber gasket in alignment with gearbox covers.

Figure 11. Tapping on inserted screw to knock cutterhead loose.

Figure 12. Close-up of cutterhead bearing installation.

NOTICE

Before removing any seals, note their orientation and how far they are driven into the bore (typically the lip of a seal will face inward toward the oil reservoir or body of liquid). This will aid in the replacement process. Failure to heed this notice can lead to fluid leakage and gearbox failure.
7. Refill gearbox with clean 80-90W gear oil using fill plug shown in Figure 5.

8. Install cutterhead/gearbox assembly into planer. Seat cutterhead shaft bearing by tapping on gearbox with a rubber or wood mallet (see Figure 13). Ensure face of new cutterhead bearing is flat and flush with headstock casting.


10. Rotate all sprocket shafts so keyways are pointing upward.


12. Re-install sprocket cover, including both rear guards on sprocket cover.

13. With cutterhead shaft keyway in an upright position, install cutterhead pulley key into keyway.

14. Slide cutterhead pulley onto shaft, and secure with hex bolt removed in Step 5 of Remove Cutterhead instructions.

15. Remove protective cardboard and tape from around cutterhead.

16. Re-install all belts and belt cover. Re-adjust belt tension if it was loosened in Step 4 of Remove Cutterhead instructions.

17. Re-install all remaining covers and guards.

18. Follow procedures outlined in your planer manual for adjustment and calibration of planer.
Rotating/Changing Carbide Cutters
The 15” cutterhead is equipped with 72 indexable carbide cutters; the 20” cutterhead has 96. Each cutter can be rotated to reveal any one of its four cutting edges. Therefore, if one cutting edge becomes dull or damaged, simply rotate it 90˚ to reveal a fresh cutting edge (see Figure 14).

In addition, each cutter has a reference dot on one corner. As the cutter is rotated, the reference dot location can be used as an indicator of which edges are used and which are new. When the reference dot revolves back around to its starting position, the cutter should be replaced.

Tools Needed

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To rotate/change carbide cutters, do these steps:

1. DISCONNECT PLANER FROM POWER SOURCE!

2. Remove any sawdust from head of carbide cutter Torx screw.

3. Remove Torx screw and carbide cutter.

4. Clean all dust and dirt off cutter and cutterhead pocket and replace cutter so a fresh, sharp edge is facing outward.

5. Lubricate Torx screw threads with light machine oil, wipe excess oil off of threads, and torque Torx screw to 48-50 inch/pounds.

Note: Excess oil may squeeze between cutter and cutterhead, thereby lifting the cutter slightly and affecting workpiece finishes.
### Parts Breakdown & List

**D4502 Parts**

<table>
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<tr>
<th>REF PART #</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1 XD4502001</td>
<td>SPIRAL CUTTERHEAD 15”</td>
</tr>
<tr>
<td>2 XD4502002</td>
<td>INDEXABLE CUTTER 14 X 14 X 2 SET OF 10</td>
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<tr>
<td>3 XD4502003</td>
<td>FLAT HD TORX SCR T20 M6-1 X 15</td>
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<tr>
<th>REF PART #</th>
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<tr>
<td>4 XD4502004</td>
<td>TORX BIT T20 X 1/4”</td>
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<tr>
<td>5 XD4502005</td>
<td>T-HANDLE DRIVER 1/4”</td>
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**D4503 Parts**

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<tbody>
<tr>
<td>1 XD4503001</td>
<td>SPIRAL CUTTERHEAD 20”</td>
</tr>
<tr>
<td>2 XD4503002</td>
<td>INDEXABLE CUTTER 14 X 14 X 2 SET OF 10</td>
</tr>
<tr>
<td>3 XD4503003</td>
<td>FLAT HD TORX SCR T20 M6-1 X 15</td>
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