SHOPSMITH SHOP DEPUTY 556436

INTRODUCTION

After adding the PowerPro Headstock and the Double-Tilt Base upgrades to your Shopsmith Mark-V, you can use the parts removed from you machine, along with the parts in this package, to build your new Shopsmith Shop Deputy.

By assembling your old Base components and old Headstock, with the included short Way Tubes and Hardware onto two 2 x 8 boards, clamped to a stand of your choosing, you now have a very capable, even portable Shopsmith Shop Deputy.

The Shop Deputy will run all your Major Accessories (otherwise known as SPT's): Bandsaw, Jointer, Belt Sander, Strip Sander or Scroll Saw. You can also mount the Disc Sander or Conical Sanding Disc on the Quill with your fixed Extension Table. You can even mount the Lathe Tool Rest in the Base Arm for bowl turning. Combinations of accessories, such as the Bandsaw with Disc Sander, also run well on the Shop Deputy.

You will find this new Shopsmith Shop Deputy to be a very capable, high power, variable speed go-to addition to your workshop.

Bandsaw / Disc Sander w/ Ext. Table on rough table

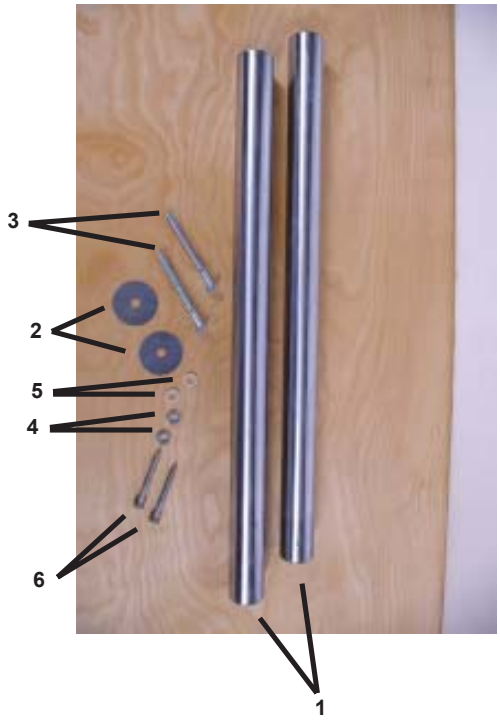
Belt Sander w/ Drum Sander & Disc Sander w/ Ext. Table on saw horses

Bowl turning on three Storage Cabinets.

Belt Sander & Strip Sander on three Storage Cabinets

NOTE

The Shop Deputy is a horizontal work center only. The Way Tubes are only long enough for the Headstock and coupling distance to drive your Major Accessories. Adding a Carriage for the Worktable for vertical operations is not recommended. There is insufficient tube length for a bit or cutter on the Quill to clear the Worktable surface.



PARTS LIST

Ref No.	Part No.	Description	Qty
1	523044	26″ long Way Tube	2
2	523005	3/8″ x 2″ Fender Washer	2
3	523003	3/8″ x 4″ Hex Lag Bolt	2
4	120393	5/16″ Washer	2
5	515434	Nylon Washer	2
6	523004	5/16″ x 2-1/2″ Hex Lag Bolt	2
7	854670	Owners Manual	1
8	854671	Drawing - Wooden Base	1

TOOLS REQUIRED

- Clean Rag
- Denatured Alcohol
- Paste Wax
- Bench Brush
- 5/32″ Shopsmith Allen Wrench
- 3/8″ Drive Ratchet
  (with 1/2″ and 9/16″ Sockets)
- 9/16″ Box End Wrench
- Combination Square
- Electric Hand Drill
  (with ¼″ and 5/16″ Drill bits)
- Compressed air
  (Either in a can or air compressor)
- Helper to assist with lifting
- Stiff-bristle brush *(Optional)*
- Shopsmith Touch-up Paint *(Optional)*

LUMBER REQUIRED

A 2 x 8 is required. The example shown uses a 2 x 8 x 8′ long. Length may vary according to your particular needs.

SAFETY

WARNING

- **Read and understand information in this instruction sheet and also the Owner's manual for your unit.**
- **Wear proper eye and ear protection. Also, wear a dust mask.**
- **Wear proper apparel. Do not wear loose clothing, ties, gloves, rings or other jewelry. Roll sleeves up above your elbows, wear nonslip footwear, and tuck long hair under a hat.**
- **Do not operate power tools if you are tired, taking medication, or under the influence of alcohol or drugs.**

- **Keep work areas well-lit, clean, and free from clutter.**

- **Read, understand and follow the Owners Manuals of all accessories used on the Shop Deputy.**

- **When attaching the Shop Deputy to any base, fasten it securely on all four corners with clamps, screws, bolts or other appropriate hardware. The Shop Deputy must not tip or move on its base while it is being used.**

- **When setting up combination machines, never exceed the maximum recommended speed of the SLOWEST machine in the multi-machine combination.**

CLEANING THE BASE, BASE ARM, HEADREST AND HEADSTOCK

Now that you have all these parts removed from you machine give them a good cleaning.

- Work in a well-ventilated area. The alcohol solvent used for cleaning can cause health problems if vapors are inhaled. Read, understand and follow all warnings and cautions on the packaging of the alcohol solvent.

- Work under plenty of light. A well lit area makes seeing the details of cleaning these parts much easier.

- Wear a dust mask when cleaning dust from components.

- For best results cleaning these components, use a bench brush to remove any loose dust then a stiff-bristle, nylon brush to remove stubborn dirt.

- To clean the dust from the inside of the Headstock, remove the belt cover and open the access cover on the back. Using compressed Air, blow the dust out of the inside of the Headstock. Replace all covers.

- Dampen a corner of the clean rag with alcohol. Wipe the inside of the way tube holes in the Headstock to remove built-up dirt and grime.

- Dampen a second corner of a clean rag with alcohol. Wipe the painted surfaces of all of the castings with this to remove dirt and grime. A stiff-bristle brush can be helpful with this.

- Use the Paste Wax to lubricate the inside surface of the way tube holes in the Headstock after cleaning. Apply paste wax with the rag to these surfaces. Let set for several minutes, then buff to remove excess wax. Also wax & buff the 26" way tubes.

- After cleaning the painted parts, you may want to touch-up the paint on these components to make them look new again.

NOTE

If your original machine was made after October 1st, 2001 and is gray, order a can of 522142 Touch-Up Paint.

If your original machine was made before October 1st, 2001 and is gray, order 505706 Touch-Up Paint.

If your original machine is painted two-tone green, order a can of each, Light Green 522842 and Dark Green 522843 Touch-Up Paint.

If your original machine is painted two-tone gold, order a can of each, Gold 522844 and Copper 522845 Touch-Up Paint.

MAKING THE WOODEN BOTTOM

The Wooden Bottom of the Shop Deputy is made from two pieces of 2 x 8 lumber positioned side-by-side.

- These boards must be a minimum of 39" long and a minimum combined width of 12-1/2". Cutting an eight-foot length of 2 x 8 in half worked well for the bench this machine will set on. This length also works well for setting it on three steel storage cabinets.

- Plan ahead. When cutting the Wooden Bottom boards to proper length, allow for clamps, screws, bolts or other secure ways to fasten the Shop Deputy to a bench or base of your choosing.

- For the Shop Deputy to be the same height as your Mark-V, the stand (without the 2 x 8 Top) must be 19-1/2" tall. If you want it to be higher or lower for your specific application, plan the stand accordingly.

- When making the Wooden Bottom for the Shop Deputy, you may saw, joint and glue the two 2 x 8 pieces of the bottom together. You could also use dowels or biscuits as reinforcement in this joint if you want. The two boards of this Wooden Bottom shown here are just set side-by-side without any glue, dowels or biscuits. The lag-bolts hold the castings to the boards. The flat bottoms of the castings keep the boards flat and in place.

- The included drawing, shows two pieces of a 2 x 8's for the Wooden Bottom of Shop Deputy with mounting hole positions and sizes. The locations of these holes are dimensioned from the mid-point of the board's length, and the center-seam between them. This is done so varying lengths and widths can be used for this bottom assembly.

- Drill the proper holes for the mounting hardware, located as shown in the drawing. As drawn, the Shop Deputy will be centered on the two 2 x 8 boards.

ASSEMBLING THE BASE & WAY TUBES TO WOODEN BOTTOM

Mount the Base Assembly to the right end of the Wooden Bottom

1. Slip the 3/8 I.D. Fender Washers over each 3/8" Lag Bolt.

2. Align the two 1-3/4" diameter holes in the Base over the two 5/16" diameter holes you drilled in the Wooden Bottom.

3. Slip the Lag Bolts with Washers through these holes. Start them into the 5/16" holes, drilled in the wooden base, as shown in Figure 1.

Figure 1

4. Fasten the Base with Base Arm to the Wooden Bottom with the two 3/8" Lag Bolts. Use a 9/16 socket with ratchet to drive these two Lag Bolts into the Wooden Bottom. As you tighten the Lag Bolts, center the Base on the width of the board.

Figure 2

When almost tight, make any final adjustments to center the Fender Washers over the holes. Gently tighten these bolts. Do not over tighten, see Figure 2.

CAUTION

Do not over-tighten the Lag Bolts. Watch the washers as you tighten the Lag Bolts. Keep the large Fender Washers centered over their holes in the Base for maximum support. When the Washers start to deflect, stop tightening, they are tight enough. Tightening the Lag Bolts further will break the casting.

Mount the Headrest to the left end of the Wooden Bottom

5. First, slip the 5/16" Flat Washer, then the Plastic Spacer on each 5/16" lag bolt.

NOTE

The Spacer will seem sloppy-loose on the 5/16" Lag Bolt. This is OK because the Spacer must conform itself to the shape of the recess around the hole the bolt goes through in the Headrest Casting.

6. Align the two 5/16" diameter holes in Headrest with the two ¼" diameter holes that you drilled in the Wooden Bottom.

7. Fasten the Headrest to the Wooden Bottom by driving the two 5/16" Lag Bolts through the two holes in the Headrest and into the Wooden Bottom. Use the ½" socket with the ratchet to gently tighten the Lag Bolts. As you tighten the Lag Bolts, the Headrest will be centered on the width of the board. The Plastic Spacer will nest itself in the recess of the Headrest casting, surrounding these holes. When almost tight, make any final adjustments to center the Bolts, Spacers and Washers in the holes. Tighten these Bolts securely. Do not over tighten these bolts (See Figs-3a & 3b)

Figure 3a

Figure 3b

Assembling the Way Tubes, the Headstock and Way Tube Tie Bar:

8. With the Pivot Arm on your right, tilt it to the "drill press" position. Lock the Pivot Arm in place with the Base Lock. Ask your helper to assist you placing the partially assembled Shop Deputy, on the floor.

9. Slip one end of a 26" long Way Tube in one way tube hole the Base Arm. Repeat for the second Way Tube.

10. Find the raised weld on the inside of each Way Tube. Align these welds so both are on the inside-left surface of the Way Tube as you face the Base with the Headrest on your left. (See Figs-4a & 4b) This will put the weld on the bottom when the ways are horizontal.

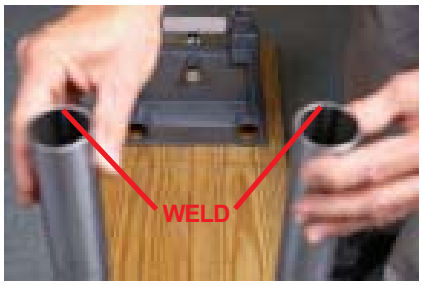


Figure 4a

Figure 4b

11. Prepare your Headstock to slide on the Way Tubes. Align each wedge of your Wedge Lock with the way tube holes in the Headstock. Sight in the way tube holes on the Quill end of the Headstock. Look for the flat on each Wedge Lock inside the Headstock. Use your finger or a dowel to rotate the Wedge lock until the flat aligns with the way tube hole, see Figure 5.

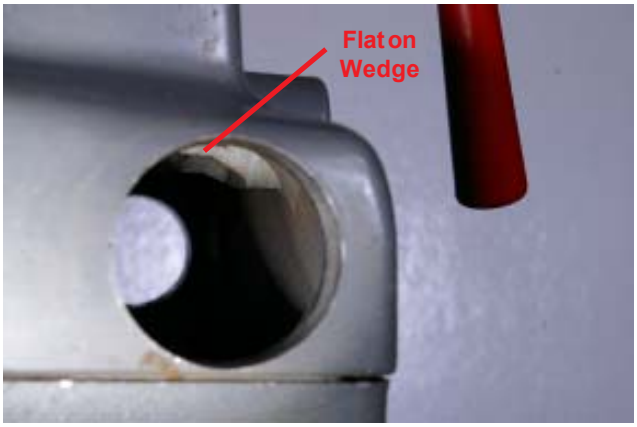


Figure 5

12. Ask your helper to assist you lifting the Headstock. Slip the Headstock on the end of the Way Tubes Quill end first. Slide it fully on the Way Tubes until it rests against the Base Arm casting. Do not lock the Wedge Lock at this time.

13. Place the Way Tube Tie Bar over both Way Tubes. Slip it on the Way Tubes until it bottoms-out on the end of the tubes. Tighten the setscrews that hold the Way Tube Tie Bar securely on the Way Tubes.

14. Ask your helper to assist you lifting the Shopsmith Shop Deputy, still locked in the vertical position, back on a bench or its intended stand. Clamp it securely to the stand or bench.

15. Securely tighten the setscrews that hold the Way Tubes in the Base Arm.

NOTE

If your original machine was made before December 1993 the setscrew is inside the casting behind the Pivot Rod inside the Base Arm, as shown in Figure 6. Tighten this setscrew by inserting the long end of the 5/32" Allen wrench in each setscrew. Tighten by using pliers on the short end of the Allen Wrench and tighten 1/4-turn past full contact with the tube.

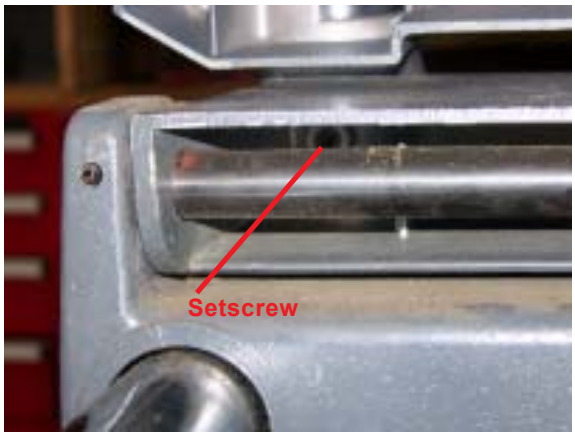


Figure 6

If your machine was made after December 1993, this setscrew is located on the top of the Base Arm, as shown in Figure 7. To tighten this setscrew, simply place the short end of the Allen wrench in the setscrew and secure the setscrew 1/4-turn past full contact with the tube.

If you choose to use a torque wrench, tighten these setscrews to 80 in/lb.

Figure 7

CAUTION

Do not over-tighten these setscrews. Over-tightening these setscrews will strip the threads out of the aluminum castings. You will then have to replace the casting or have the threads repaired at your own expense.

16. Release the Base Lock. Be sure the Headrest Lock is in the full-out, unlocked position. Lower the Way Tubes with the Headstock to the horizontal position. There should be a 1/8" space between the Way Tube Tie Bar and the inside face of the Headrest at both sides of the Way Tube Tie Bar. See Figure 8.

17. If this space is not correct or the Headrest Lock does not slip in the notch in the Way Tube Tie Bar, you will need to adjust the location of the Base Assembly and the Headrest. Do this by loosening the mounting bolts, making the adjustment and tightening the bolts. Start with the base end of the machine. It has the most adjustment available. Make sure all four mounting bolts are securely tightened, but not over-tightened.

CAUTION

Watch the washers as you tighten the Lag Bolts. Try to keep the large fender washers centered over their holes. When the Washers start to deflect, stop tightening, they are tight enough. Over tightening the Lag Bolts further will break the casting.

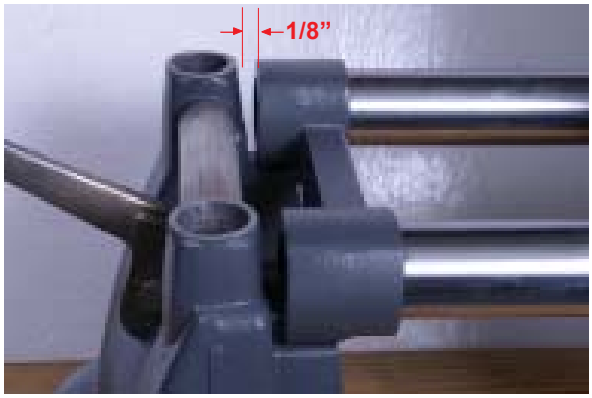


Figure 8

USING THE SHOPSMITH SHOP DEPUTY

Check Alignment

18. Follow the Hub Alignment instruction in each Owner's Manual for all of the major accessories you plan to use on your new Shopsmith Shop Deputy, see Figure 9.

Figure 9

19. Mount the Sanding disc on the Quill and the Extension Table in the Base Arm. Use a combination square to check that the table is square to the Sanding Disc, see Figure 10. If the Extension Table is no longer square to the Sanding Disc, an adjustment must be made.

Figure 10

NOTE

If the Extension Table will be dedicated to the Shop Deputy, then use a 9/16" wrench to adjust or shim the table as described in your Owners Manual, to make it square to the Sanding Disk.

If the Extension Table is shared between your upgraded Mark-V and the Shop Deputy, you must add shims between the Wooden Top and the Base casting. Loosen the Lag Bolts holding the Base to the Wooden Top and shim between the base and Wooden Top. Use wooden wedges or other appropriate material as shims to position the Base so the Extension Table is square to the Disc.

20. Because the Shop Deputy is so compact, every fraction-of-an-inch of the length of the workstation is critical for making-up combination machines. For example, consider the set-up with the Bandsaw and Disc Sander. If you are using a model 510 or 520 Sanding Disc, that has the long hub for dust collection, it requires more room than the old Sanding Discs with the shorter Hubs. A quarter-of-an-inch either way will stop you from installing the Extension Table for workpiece support. Check the following to optimize the possibilities:

- When aligning the SPT's set the eccentric posts so they position the SPT away from the Headstock, see Figure 11.

Figure 11

- If you have straight posts on your S.P.T., Eccentric post will add to the distance from end-to-end as well help with hub alignment.

- Additional length can be obtained by purchasing the "OFFSET MOUNTING POSTS" for the Bandsaw part number 555626. They also work on The Belt Sander, as shown in Figure 12.

Figure 12

- Position hubs on S.P.T shafts 3/4" from shaft end and secure them in place. See Figure 13. The coupler will slide over the shaft protruding past the Coupling hub.

Figure 13

Operations

The Shop Deputy will run all your Major Accessories: Bandsaw, Jointer, Belt Sander, Strip Sander or Scroll Saw. You can also mount the Disc Sander or Conical Sanding Disc on the Quill with your fixed Extension Table. You can even mount the Lathe Tool Rest in the Base Arm for bowl turning. Combinations of accessories, such as the Bandsaw with Disc Sander, also run well on the Shop Deputy.

The Shop Deputy can be configured as a combination work center made-up of major accessories and minor accessories used togethe, as shown in Figure 14.

Figure 14

When deciding which accessories to mount on the Shop Deputy consider the following:

- Any of the single S.P.T's can be operated one-at-a-time on the Shop deputy. Simply, mount the accessory and lock it in place, couple it to the Headstock, turn it on, dial up the speed, make the desired cut(s), return the speed to "SLOW" on the speed dial and turn it off.

- Review the speeds required to run all accessories. When two or more are run together, they should all operate at similar speeds. No more difference than 500 rpm between the machines that are running together.

- Always set the speed to the speed of the accessory with the LOWEST speed of the combined accessories.

- Keep in mind a logical progression from tool to tool. For example, set up the Bandsaw, Disc Sander combination so you can saw then sand curved surfaces.

- Group together similar tools. Set-up a sanding station or a sharpening/grinding station.

- The Jig Saw (not the Scroll Saw) can run on the upper shaft turning in either direction. This means you could power the Jig Saw from the Quill of the Headstock and another SPT could be powered off the auxiliary shaft. Remember the Idler Shaft must drive the Scroll Saw so it must always be mounted on the left end of the machine.

- The Belt Sander has two Drive Shafts. The Belt Sander can be driven off it's normal Drive Shaft, from the Auxiliary End of the Headstock. The Quill coupled to the Auxiliary Shaft of the Belt Sander can also drive

the Belt Sander. Be sure the belt moves in the proper direction, toward the drive drum on the top of the Belt Sander.

- Lathe Tool Rest Post can be mounted in either hole of the Base or the Headrest. This means you could be bowl turning with the Faceplate mounted on the auxiliary spindle of the Headstock and the Strip Sander with the Chisel Sharpening Attachment could be driven by the quill so the belt runs up the platen as it should for sharpening, as shown in Figure 15.

Figure 15

- The inside position of the two-position arm of the Model 510 and later models lets you get up-close to your bowl turning for maximum support.

- A Stop collar should be used to help support the Lathe Tool Rest for large bowl turning, as shown in Figure 16.

Figure 16

- When aligning a dedicated Extension Table to the Sanding Disc, take all clearance out, by pushing the table to the right. This will increase the distance from the sanding Disc to the table slightly. This added distance will make room for the longer model 510/520 Sanding Disc Hub and the Disc Sander Dust Chute.

If you have questions regarding this product or need replacement parts please call Shopsmith Customer Service at 1-800-543-7586.

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