



3” Caster Upgrade for the Mark-V & Mark-7

INTRODUCTION

Replacing your old 2” diameter casters with these new 3” diameter casters will allow you to easily move your Mark-V or Mark-7 around your shop. They let you move your machine easier over sawdust, shop debris and workshop anti-fatigue mats. They will help you move your machine over a rough floor or cracks in the floor. This upgrade requires you to drill four new caster mounting holes in the steel legs of your machine. With the provided templates, a center punch, a sharp twist bit in your electric hand drill, a drop or two of oil this upgrade should be completed in approximately a half an hour.

PARTS LIST

522877	3” Casters	4
515294	Keps Nut	8
522171	Screw	8
845638	Template	2
845639	Instruction Manual	1

TOOLS REQUIRED

- 7/16” open end wrench
- Large slot screwdriver
- #3 Phillips screwdriver
- Scissors
- Masking Tape
- Pencil
- Center punch
- Hammer
- Variable-speed electric hand drill
- Center Drill Bit or 1/8” Drill Bit
- 9/32” twist drill bit
- Light machine Oil
- Small rat-tail file
- Rubber Mallet

SAFETY

WARNING

READ, UNDERSTAND AND FOLLOW ALL THE INFORMATION IN THIS OWNER'S MANUAL.

The meanings of **WARNINGS, CAUTIONS, AND NOTES** are:

WARNING

A WARNING is given when failure to follow the directions could result in injury, loss of limb, or life.



A CAUTION is given when failure to follow the directions could result in temporary or permanent damage to the equipment.

NOTE

A NOTE is used to highlight an important procedure, practice or condition.

NOTE

It is important to provide adequate lighting in your shop area.

Eye Protection

- **Always wear eye protection when you use power equipment. Use goggles, safety glasses or a face shield to protect your eyes.**

- Goggles completely surround and protect your eyes. Many goggles will also fit over regular glasses. Be sure your goggles fit closely, but comfortably.
- Safety glasses don't fog as easily as goggles and can be worn all the time. Regular eyeglasses normally have only impact resistant lenses. They are not safety glasses.
- A face shield protects your entire face. And you can flip it up out of the way when you don't need it. A face shield can be used with regular glasses.

Ear Protection

- Prolonged exposure to high noise levels from high speed power equipment can damage your hearing.
- Hearing protectors screen out noise that can damage your ears. Wear hearing protection when you are exposed to high intensity power equipment noise.

WARNING

- ◆ Read, understand and follow the Mark V/7 Owner's Manual and the manual for every power tool you use.
- ◆ Additional warnings, cautions and instructions and operating techniques are provided in the Shopsmith book, **Power Tool Woodworking for Everyone**. (A copy is included with your new Mark V/7, and is also available from Shopsmith.)
- ◆ Wear proper eye and ear protection. Also, wear a dust mask.
- ◆ Plan every operation before you begin. If you are in doubt about how to perform an operation safely, do not attempt it. Consult your Owners Manuals and Power Tool Wood-

working for Everyone textbook for proper, safe technique. If you are still unsure about performing the operation, contact a Shopsmith Customer Service associate.

MACHINE SET-UP, DISSASSEMBLY AND REASSEMBLY

WARNING

TURN OFF AND UNPLUG THE MARK, DURING THIS CHANGEVER. FAILURE TO DO SO COULD RESULT IN ACCIDENTAL STARTING OF THE MOTOR, WHICH COULD CAUSE SERIOUS BODILY INJURY.

During disassembly and reassembly of the machine base, you will be working on the machine up-side-down and because of this, we want you to keep several items in mind while you make this change over:

- During this process the ends of the machine will be identified as either left or right. This is the same no matter which side of the machine you are working on. The left and right ends of the machine are always on your left or right as you face the Headstock switch.
- You will need a helper to turn the machine up-side-down. It is heavy, do not try to do this yourself. If you do try to turn the machine over by yourself, there is a good chance you will hurt yourself and damage your machine.
- The Main Worktable and the fixed Extension Table will support the weight of the machine while you are working to remove the old parts and install the new parts. Be sure the tables are securely locked in position.

- Because the Main Worktable top and Extension Table top are setting on the floor, place a piece of corrugated cardboard on the floor, under the tables to prevent them from being scratched.
3. Lay the Mark-V on it's back, with the switch up. The back edge of the tables must be on the corrugated cardboard to prevent damage. See Figure 2.

Machine set-up

1. Position the Headstock all the way to the right end of the machine. Slide the Carriage and the Carriage Stop Ring to the right until the Carriage stop Ring hits the Headstock. Secure the Headstock lock and the Carriage lock.
2. Install the Main Worktable in the Carriage. Position the table top 1" above the Headstock and lock it securely in place.
3. Slip the Fixed Extension Table in the Accessory Mount on the left end of your machine. Set the Extension Table top even with the Worktable top. Use a straight board to set the position of the Extension Table.

Turning the machine over

1. Ask your helper to join you. You will need help turning the machine up-side-down.
2. Place the cardboard on the floor to align with the table as the machine is turned up-side-down, as shown in Figure 1.



Figure 1



Figure 2

4. Continue to turn over the machine until the tables are resting on the cardboard. See Figure 3.



Figure 3

Caster disassembly and removal from machine legs

1. **Remove old casters from Caster Brackets.** Grip the caster and pull them up and out of their holes in the Plunger. Some casters that have been in the plunger for many years may be stuck and require you to pry them out of the Plunger with a large slot screwdriver. See figure 4.



Figure 4

2. **Remove the Caster Bracket from the Leg of the machine.** Use, either a large slot screwdriver and a 7/16" open end wrench or a #3 Phillips screwdriver to loosen and remove the eight screws and nuts used to hold the Caster Brackets to the legs of your machine.
3. **Cut out template.** Use scissors to cut out the outside perimeter of the templates.

NOTE:

- ◆ **The holes are marked "existing" and "new" holes.**
- ◆ **The new holes have centerlines to show where to position the center punch for drill bits.**
- ◆ **The "inside edge of the leg" is marked on the template. This template edge must align with the inside edge of the leg.**
- ◆ **The narrow end of the template goes toward the foot of the leg. This will be referred to as the "top" in the next steps.**

4. Position and secure the template.
 - a. Use a sharp pencil to punch the pencil point through the center of the top existing hole.

- b. Place the pencil point in the top existing caster mounting hole in the leg. This will locate the center of the existing hole on the template directly over the center of existing hole in the Leg. Figure 5.



Figure 5

- c. Tape the top end of the template to the leg.
 - d. Repeat this for the second existing hole and tape the bottom and side of the template in place. Follow these same procedures for the other three templates on the other three feet.
5. Center punch to prepare for drilling. Use a hammer and center punch to accurately mark the location of the center of the new 9/32" holes. Center punch all eight locations on the legs. See Figure 6.



Figure 6

NOTE

At this time you can either remove the template or drill through it and remove it later after drilling.

6. Drill the new 9/32" diameter holes in the legs. Be sure your 9/32" drills bit are is sharp.
 - a. Install and securely tighten a center drill bit (or 1/8" drill bit if you do not have a center drill). Use this bit to drill a pilot hole for the 9/32" drill bit. See Figure 7.



Figure 7



Figure 8

- b. Install this drill bit in your variable speed hand drill and tighten the drill chuck securely.
 - c. Place a couple of drops of oil on each of the drill bit's cutting flutes.
 - d. Place the drill bit at the center punch mark and start the drill at a slow speed. As the bit begins to cut, increase the drill speed slightly. You know you are at the right speed when the bit is making shavings. Figure 7. You are running the drill too fast if the shavings turn blue.



Drilling steel creates a lot of heat. The drill bit and the metal you are drilling becomes very hot. Drilling steel also creates shavings that are hot and sharp.

- ◆ **Be careful you allow the drill bit, the metal surrounding the drilled hole and shavings to cool before touching them or sweeping the shavings into a trash can.**
- ◆ **The hot shavings can be a fire hazard if not allowed to cool.**
- ◆ **This hot metal will cause burns to your skin.**
- ◆ **The sharp shavings can cut you, your children or pets if miss-handled or left behind on the floor.**
- ◆ **Use a brush to sweep the shavings into a dustpan and dispose of them properly ONLY after they have cooled.**

7. De-burr the newly drilled holes. Use a rat-tail file to remove any burrs left by the drilling process, as shown in Figure 9. Pay special attention to the inside of the legs. If burrs are left on the inside of the legs, they will interfere with the installation of the caster brackets.



Figure 9

Caster re-assembly to legs

1. Re-install brackets to the legs. Make sure the Foot Pedal is on the same side of the machine as the Power Switch. Slide the caster bracket down into the leg. Make sure the rolled edge of the leg slips into the slot in the outer face of the Caster Bracket. Slide the Caster Bracket Assembly down until the mounting holes in the Caster Bracket aligns with the new holes you drilled in the legs.

NOTE:

The new Caster Bracket location is at a point in the leg that is slightly smaller than the old location of the Caster Bracket, some Caster Brackets may be tight. Depending on the age and condition of the legs, you may need to tap the Caster Bracket in place with a Rubber Mallet.

2. Install the new mounting screws through the newly drilled holes in the legs and through the holes in both ends of one of the Caster Brackets. Install the new keps nuts on these screws. The nuts should be on the inside of the Caster Brackets. Securely tighten the nuts on the screws. Repeat for the other Casters Bracket.
3. Slip new casters in place. Wipe a drop of oil on brass ring near the end of the caster shank. This will help with installation. Slip the caster shank into the hole of plunger in the Caster Bracket. See Figure 10. This will be tight to start, but as soon as the brass ring passes into the hole, it will be easy to slip fully to the bottom of the hole in the Plunger. Repeat for the other three casters.
4. While your machine is up-side-down, and the caster parts are easily accessible, lubri-



Figure 10

cate the Cam and Drive Rod pivot. Use a couple of drops of oil where the Plunger meets the Cam, as shown in Figure 11. Also apply a drop of oil on both ends of the Drive Rod where it is inserted in the Caster Brackets.



Figure 11

Turn the machine right-side-up

1. Ask your helper to join you, you will need help setting the machine right-side-up
2. Test Casters...*careful*, the machine may run away from you now.

NOTE

If you have further questions or need additional assistance, please contact Customer Service Toll Free 800/762-7555. Or visit our website: www.shopsmith.com

