

For more information:
www.shopsmith.com

For Questions or Support:
(937) 890-5197



SHOPSMITH 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 work-shop anti-fatigue mats. They will help you move your machine over a rough floor or cracks in the floor.


Note: Installing this upgrade on the Mark V 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
120388-Washers	4
845639-Instruction Manual	1

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

Identifying WARNINGS, CAUTIONS, AND NOTES:

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

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

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

TOOLS REQUIRED

All Machines:

- 7/16" Open End Wrench
- Large Slot Screwdriver
- #3 Phillips Screwdriver

Mark V Only:

- 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

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. 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.



Use only hearing protection made in conformity to EN-847-1. When the average noise level is 86 db., hearing protection is recommended.

STANDARD SAFETY PRECAUTIONS

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

BEFORE ASSEMBLY

TURN OFF AND UNPLUG THE MACHINE, DURING THIS CHANGEOVER. 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 tops are setting on the floor, place a piece of corrugated cardboard on the floor, under the tables to prevent them from being scratched.
- If you own casters bought before 1972 the foot pedal will hit the new cater wheels once assembled. There are two ways of correcting this. The first is to modify the foot pedal as described in "Caster Disassembly & Removal" section. The second option is to replace both drive rods with part #503803.



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 (FIG 1).
3. Gently 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 (FIG 2).
4. Continue to turn over the machine until the tables are resting on the cardboard. See (FIG 3).

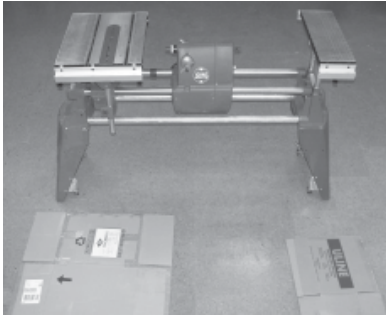


FIG 1

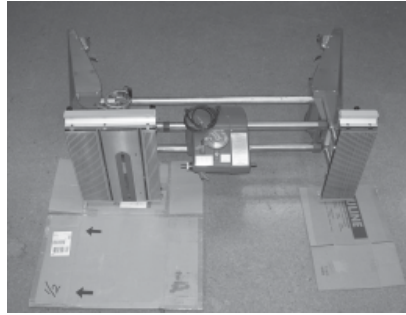


FIG 2

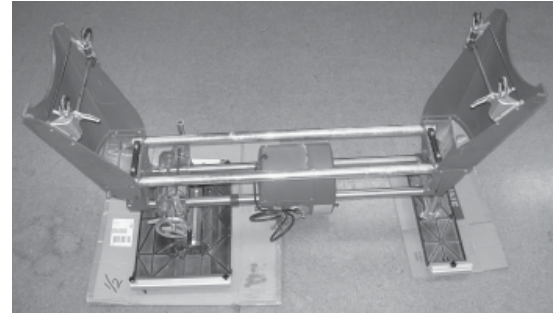


FIG 3



The section below is applicable only to the replacing of existing casters made prior to 1972. If this does not apply to your machine, please proceed to "CASTER DISASSEMBLY AND REMOVAL OF LEGS" on the next page.

CUTTING CLEARANCE ON FOOT PEDAL

If you have castors made before 1972, the foot pedal will hit the new caster wheels. To prevent this, a corner of one leg of the foot pedal needs to be removed for clearance.

1. Before removing the caster brackets from your machine, rotate the foot pedal to the first position that raises your machine off the floor.
2. Mark the leg of the footpedal that points to the caster wheel.
3. The inside corner closest to the old caster wheel will need to be removed.
4. Use a coarse file to remove the inside corner of the pedal leg. File at a 45° angle from the centerline of the leg toward the rod. This will remove the interference with the new caster wheel.



CASTER DISASSEMBLY AND REMOVAL OF 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 (FIG 4).
2. Remove the Caster Bracket from the Leg of the machine. Use, either a large slot screwdriver or a #3 Phillips screwdriver with a 7/16" open-end wrench to loosen and remove the eight screws and nuts used to hold the Caster Brackets to the legs of your machine.



If Installing Premium Casters on a **MARK 7**, skip steps 3 - 7.

3. Cut out template. Use scissors to cut out the outside perimeter of the templates.



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.

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. (FIG 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 (FIG 6).

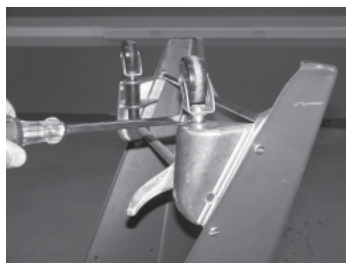


FIG 4



FIG 5

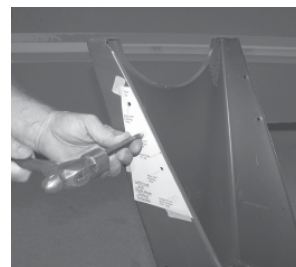


FIG 6



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

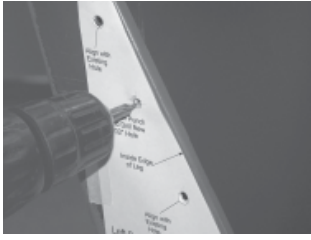


FIG 7



FIG 8

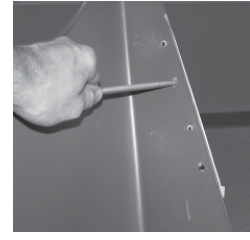


FIG 9

6. Drill the new 9/32" diameter holes in the legs. Be sure your 9/32" drills bit 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 (FIG 7).
 - 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 drill hole 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. (FIG 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 dust pan and dispose of them properly ONLY after they have cooled.

7. Deburr the newly drilled holes. Use a rat-tail file to remove any burrs left by the drilling process, as shown in (FIG 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.

CASTER REASSEMBLY 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.



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 Caster Bracket.



- Use a pair of needle-nose pliers to tighten the brass ring at the top of the caster shank to make it easier to slip into the hole on the plunger. (FIG10)
- Slip new casters in place. Wipe grease or 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 (FIG 11). This will be tight to start, but as soon as the brass ring passes into the hole, it will be easy to push into the hole by hand. Repeat for the other three casters.
- While your machine is up-side-down, and the caster parts are easily accessible, lubricate the Cam and Drive Rod pivot. Use a couple of drops of oil where the Plunger meets the Cam, as shown in (FIG 12). Also apply a drop of oil on both ends of the Drive Rod where it is inserted in the Caster Brackets.



FIG 10

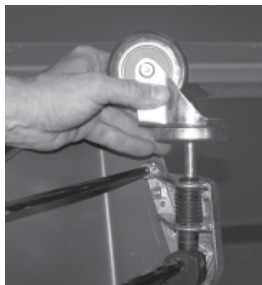


FIG 11

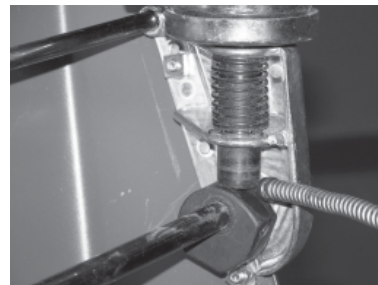


FIG 12

FINAL CHECK BEFORE TURNING RIGHT SIDE UP

- Locate a straight, 6-foot long, piece of wood. This board will simulate the floor for testing purposes.
- Position the wood from foot-to-foot, across the front of the machine. The casters should not touch the board.
- Stand at the left end of the machine.
- Hold the board over the caster. Turn the foot treadle to extend the casters to their first position.
- Check that the caster lifts the board about 1/8" off the foot.
- Move to the right end of the machine and repeat steps 4 & 5.
- Move the board foot-to-foot, across to the back of the machine.
- Repeat steps 4, 5, 6, & 7 on the back of the machine.



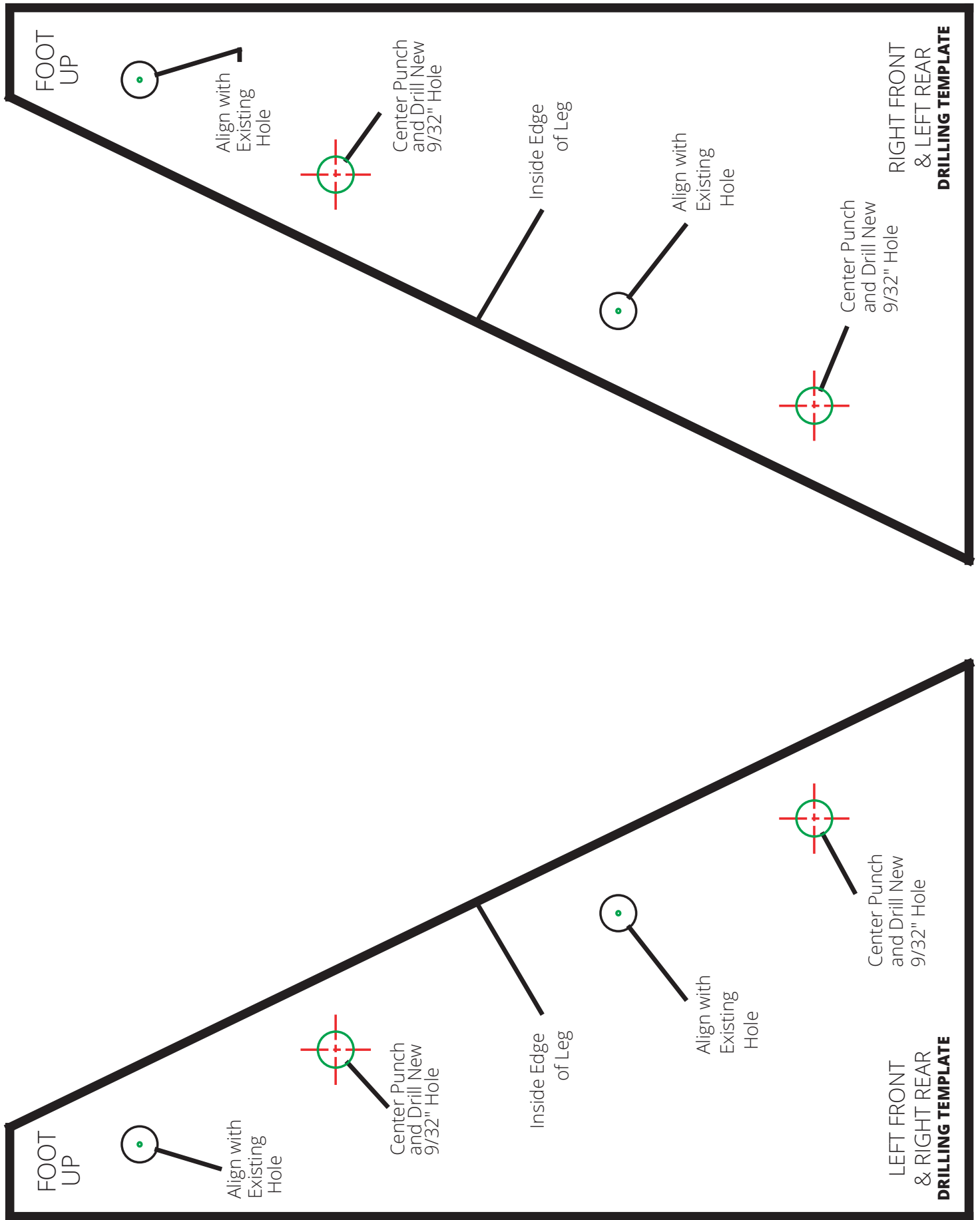
If any of the caster wheels fail to lift the board off the foot, follow the steps below. Using the washers provided on only the caster wheels that did not raise enough to lift the board off the foot:

- Remove the caster wheel from that corner of the machine that failed to raise the board.
- Examine the washer. Notice that on one side, the edges are smooth and rounded. The other side of the washer, the edges are sharper and square.
- Slide the washer on the caster shaft with the rounded edges first until the washer slips over the brass ring.
- Place the caster shaft with washer, in the hole it was removed from. Push the caster shaft into the hole in the plunger in the caster assembly.
- Repeat the test outlined above.

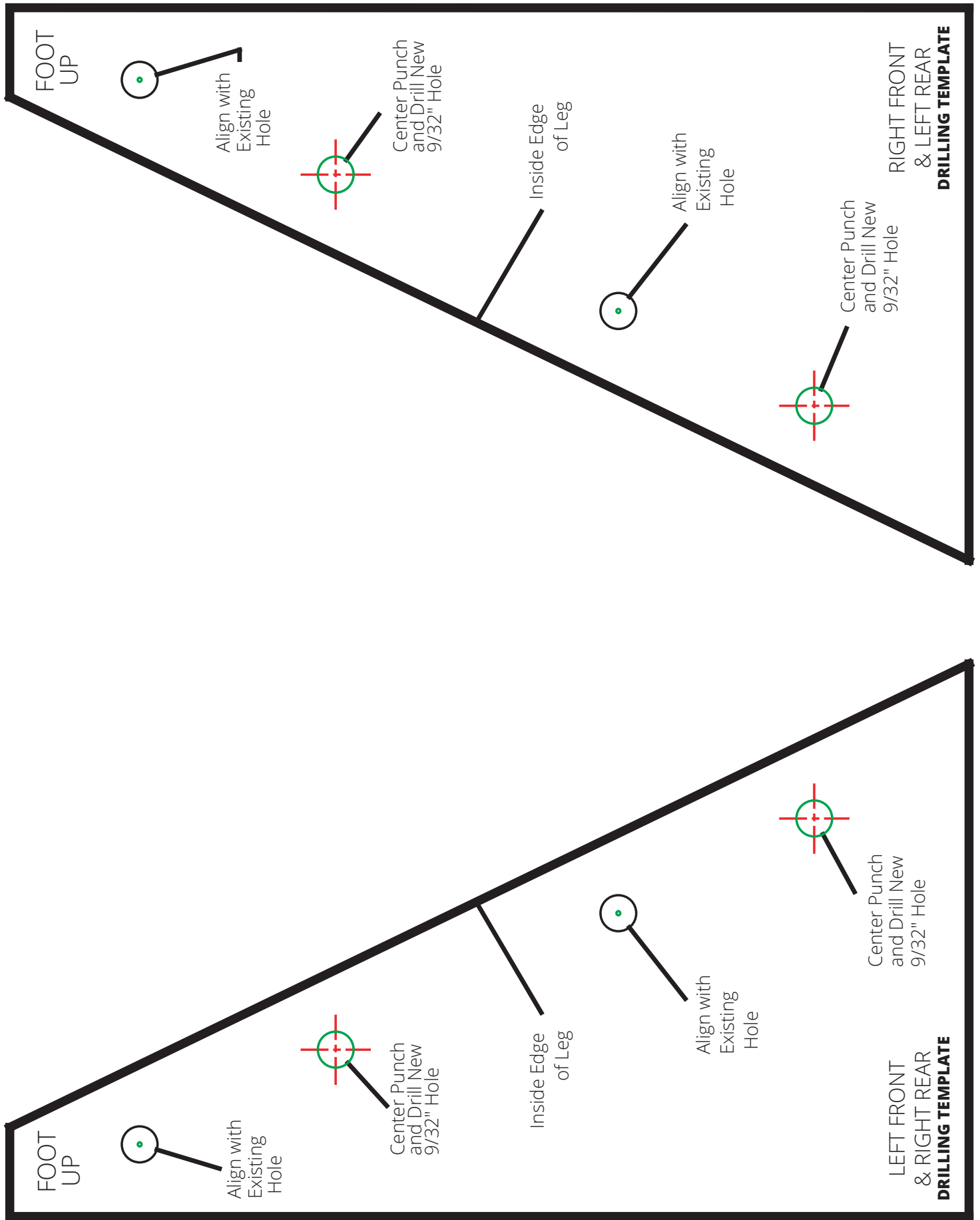
TURN THE MACHINE RIGHT SIDE UP

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

CASTER DRILLING TEMPLATES



CASTER DRILLING TEMPLATES





DRILL GUIDE FOR PREMIUM CASTER WHEELS 556425

INTRODUCTION

This drill guide is used to position mounting holes for the 3" Caster upgrade. It is used with one of the caster mounting screws and the supplied drill bit. It replaces the paper template supplied with the 3" Caster Upgrade.



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.

CAUTION

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.

PARTS LIST

523008	Drill Guide	1
523009	9/32" Drill Bit	1
854669	Owners Manual	1

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

TOOLS REQUIRED

- Variable-speed electric hand drill
- 9/32" twist drill bit
- Light machine Oil
- Small rat-tail file

MACHINE SET-UP, DISSASSEMBLY & REASSEMBLY

Follow the instructions included in your Premium Caster Package. They will take you through SAFETY and MACHINE SET-UP & DISSASSEMBLY. No additional tools will be needed to use the Drill Guide.

USING THE DRILL GUIDE

The Drill Guide has three holes and a captured pin. One hole is 1/4" diameter and the other two are 9/32" diameter. The pin slips in an existing hole in the leg of your machine. This aligns the 1/4" hole with the other existing hole in the leg. With this alignment, a caster mounting screw and nut are used to secure the Drill Guide in place while you drill through the two 9/32" holes to create the location for the new 3" Caster Upgrade mounting position.

In the 3" Caster upgrade instructions, step 3 of the section titled, Caster Disassembly and Removal from Machine Legs, the instructions begin to describe the use of the paper templates. Skip Steps 4, 5 and 6. Follow the steps outlined below to use the Drill Guide to drill the new caster mounting holes in the legs of your machine.

Mounting the Drill Guide to the Leg

1. Place the pin of the drill guide in the hole in the leg of your machine, closest to the foot of the machine, as shown in Figure 1.



Figure 1

NOTE

You may need to run the 9/32" drill bit through this hole to remove paint from the inside of the hole. Otherwise this hole may seem too

small to allow the pin of the drill guide to slip into the hole.

2. Slip a caster mounting screw through the $\frac{1}{4}$ " hole in the Drill Guide. This hole will align with the other old caster-mounting hole in the leg. Thread a nut fully on this screw and tighten this screw, securing the drill guide tightly to the leg of the machine, see Figure 2.



Figure 2

3. Drill the new $\frac{9}{32}$ " diameter holes in the legs.
 - a. Place a drop of oil on each cutting flute of the drill bit, see Figure 3.



Figure 3

- b. Place the drill bit in the $\frac{9}{32}$ " diameter hole of the Drill Guide, as shown in Figure 4.
 - c. Start the drill at a slow speed.

Figure 4



- d. 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, see Figure 5. You are running the drill too fast if the shavings turn blue.



Figure 5



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 to make sure that 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.**

4. De-burr the newly drilled holes. Use a rat-tail file to remove any burrs left by the drilling process, as shown in Figure 6. 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 6

Repeat steps 1-4 on the other four caster bracket locations. Then return to the Caster Re-assembly to Legs step on page-4 of the 3" Caster Upgrade Instructions. Continue to follow these instructions until the upgrade is completed.

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

