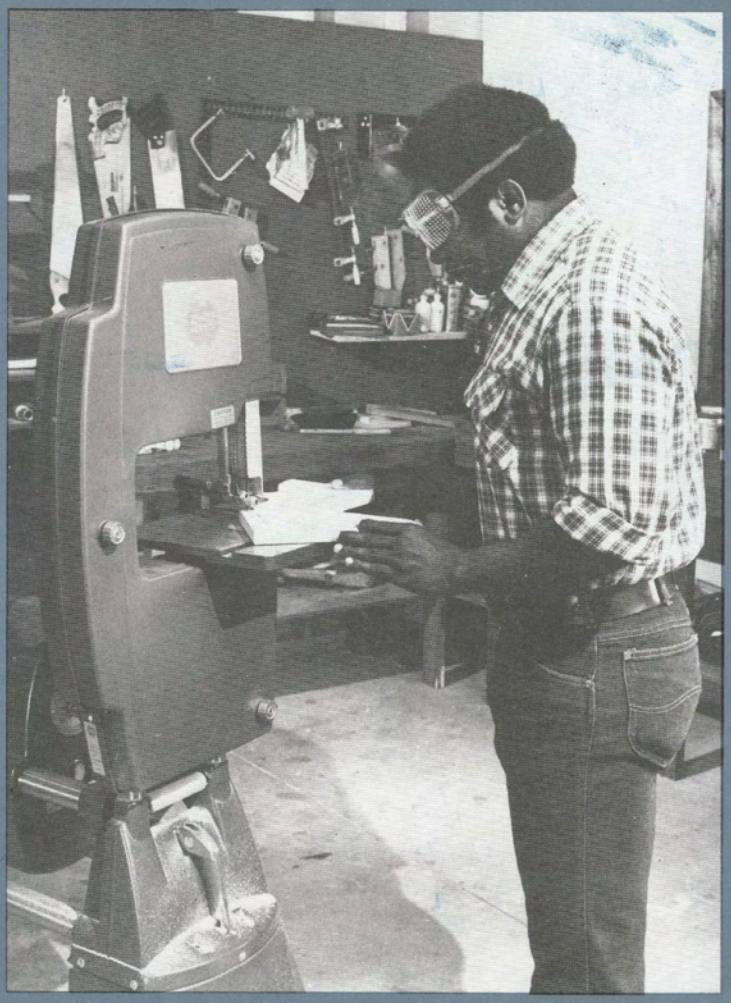
11″ Bandsaw

505641



Introduction

A Brief Introduction

Congratulations. Your new Shopsmith 11" Bandsaw is an exciting addition to your workshop. You'll soon find that it's built to deliver years of reliable service as well as help you to expand your workshop capabilities.

We know you're eager to get started using your new bandsaw, but please take time to read and understand this entire manual **before** you begin. This is extremely important — even if you have operated other bandsaws in the past — because the Shopsmith Bandsaw incorporates a number of special design features which are simply not available on other machines.

Always remember that the bandsaw — like any other power tool — does not think. As the operator, **you** must be responsible for knowing your own limitations as well as those of the machine. The only possible way to avoid workshop accidents is to constantly remind yourself to use tools correctly and with the proper safety equipment. **If you are in doubt, don't proceed with the operation.** No project is worth even the slightest risk of injury.

When you have carefully completed all of the setup and alignment procedures in this manual, you'll want to practice using the bandsaw before actually building a project. We suggest using a clean, straight piece of softwood, approximately 3/4" thick, 4"-6" wide, and 12"-18" long. This will help you get the feel of using the bandsaw safely.

We wish you the best in all your woodworking endeavors. We know your Shopsmith Bandsaw will rapidly become an indispensable tool in your workshop. Please read this manual completely, then keep it handy for future reference. And don't forget to mail us your Warranty Registration Card!

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Safety

Safety First — It's Part of Being a Good Craftsman

Like any well-engineered tool, the Shopsmith Bandsaw has several built-in safety features. But as we mentioned in the introduction, the effectiveness of these features depends on you. Any machine that cuts wood can take a bite out of you unless you play it safe. The bandsaw is no exception. It's one of the fastest cutting tools available.

Use the machine as it was designed to be used — as an 11" bandsaw for cutting wood, plastics and non-ferrous metals. Always use Shopsmith Bandsaw Blades, accessories, and replacement parts. Never 'stretch' the capacity of the tool or install off-brand parts. The results will disappoint you. You can easily ruin your project, damage the bandsaw, or worse, injure yourself. Remember that workshop safety is nothing more than good common sense.

Electrical Requirements

Pay particular attention to the connection you make between your power tools and your power source.

Circuit — Before you plug in the bandsaw, check the output and the amperage of the circuit you'll be using. The output of the circuit **must** match the electrical requirements of the motor that runs the bandsaw. The amperage must be rated high enough to handle the load (in amps) of that motor, plus any other tools or appliances you may have plugged into the same circuit and running at the same time.

- If you use the Shopsmith Mark V to power the bandsaw, the 1-1/8 hp motor 'pulls' 13-14 amps when running under a heavy load. If you use the bandsaw on a Shopsmith Power Stand with a 1/2 hp motor (505832), that motor pulls 7.8 amps. The optional 3/4 hp motor (505838) pulls 10.8 amps.
- All of these motors run on ordinary U.S. house current — 115 volts, 60 cycles (hz). The circuit you use should be rated for **at least** 15 amps. A 20 or 30 amp circuit will give you an even bigger safety margin.
- We also recommend you install 'slow-blow' or time delay fuses, especially if you use the Mark V.

Safety

Grounding — The circuit you use should be properly grounded to protect you from electrical shock.

- The plug on the Shopsmith Mark V and the plugs supplied with the power stand motors all have three prongs, as shown in Figure 1. The receptacle should have three corresponding holes.

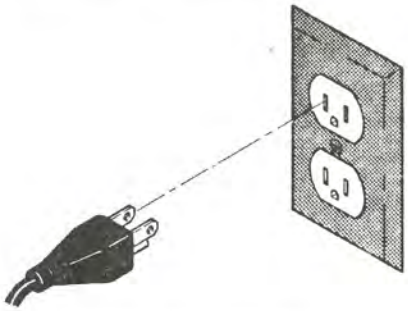


Figure 1. Use a three-prong plug with a grounding blade in a three-hole grounded receptacle.

- If you have a two-hole receptacle, you can use an adapter to plug in the bandsaw. However, the green-colored grounding lug or wire on the adapter **must** be connected to a permanent ground such as a grounded outlet box. (See Figure 2.)

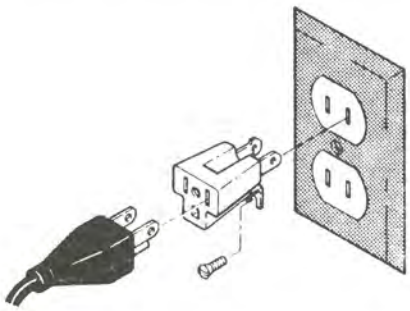


Figure 2. You can also use an adapter to connect a three-prong plug to a two-hole receptacle.

- If you are unsure as to whether your outlet box is grounded, ask a licensed electrician.

Extension Cords — If you use an extension cord to plug in your bandsaw, be sure it's a three-conductor cord with a grounding plug and receptacle.

- The wire gauge must be thick enough to prevent loss of power and overheating — the longer the cord, the thicker the wire should be. Use the chart provided to determine the American Wire Gauge (AWG) wire size required:

Cord Length	Minimum Wire Size
25 ft.	16 AWG
50 ft.	14 AWG
100 ft.	10 AWG

- Before using an extension cord, inspect it for loose wires or damaged insulation. Repair or replace damaged cords immediately.
- Don't let the connection between the power cord and an extension cord lie on a damp or wet surface — it could cause a short circuit.

Shop Lighting

Most home workshops are in basements or garages, and these rooms tend to be poorly lit. Poor lighting may affect the way you think about your work. If your workshop is dark and gloomy, chances are your woodworking will seem tedious. Even worse, poor lighting increases the risk of shop accidents.

- Add enough light so that you can work safely. Proper lighting not only decreases your risk; it improves the shop atmosphere, making it more cheery and pleasant.

Glare — If you add more lights, don't add glare. 'Hot spots' (where there's too much light) can be distracting. Your eyes have to work harder to continually adjust from bright pools of light to the darker areas in between.

- Fluorescent lights don't create hot spots, and are excellent for home workshop use.
- Fluorescent bulbs, however, cast light in pulsating waves. In some instances it's possible for these light pulses to harmonize with the movement of the bandsaw blade, giving your eye an optical illusion that the teeth are moving slower than they really are. A moving blade may even look like it's stopped, even though it's really cutting at hundreds of feet per minute (FPM). This is **possible** — but unusual.
- If you use incandescent bulbs, put flat white reflectors behind them to direct and break up the light.
- Paint the walls and ceiling white to spread the light around.

Safety

Figure 3. To provide a concentrated beam of light when doing fine work, mount an inexpensive drafting lamp to the Mark V way tubes.

Lighting for Fine Work — If you need an intense, concentrated beam of light to help you when you do fine work, purchase an inexpensive 'articulated' or drafting lamp.

- If you're using the Shopsmith Mark V to power the bandsaw, make a simple mounting bracket for the lamp that clamps to the Mark V way tubes. (See Figures 3 and 4.)
- If you're using the bandsaw on a power stand, make a separate movable stand for the drafting lamp, or clamp it to the power stand or a nearby workbench. Don't clamp the lamp to the bandsaw table.

Proper Clothing

Dressing to work in your shop doesn't simply mean putting on old clothes. What you wear should be comfortable, but it should also be close-fitting so that there are no loose flaps or strings to get caught in the power tools. Your clothing must also protect the vulnerable areas of your body.

- Remove all watches and jewelry.
- If you have long hair, pin it securely on top of your head, or restrain it with a hairnet or hat.
- Wear short sleeve work shirts or roll up your long sleeves above the elbows.
- Do not wear gloves. Gloves may catch on the blade and pull your hands and fingers into the machine.
- Consider your footwear. Leather shoes protect your feet better than canvas shoes. Rubber soles grip the floor better than other materials.

Eye Protection — Always wear eye protection when you run the Shopsmith Bandsaw or other power tools. Don't skimp — get a good pair of goggles, glasses, or a face shield and use them **all the time.**

- Goggles completely surround and protect your eyes. Many goggles will also fit over prescription glasses. Select a set that fits closely, but comfortably.
- Safety glasses don't fog as easily as goggles and can be worn all the time. But don't presume just because your glasses are made with 'safety glass' that they're safety glasses. True safety glasses have shields to protect your eyes from the side, as well as from the front.
- A face shield protects your entire face, not just your eyes. And you can flip it up out of the way when you don't need it. A face shield is also a good choice if you wear ordinary glasses.

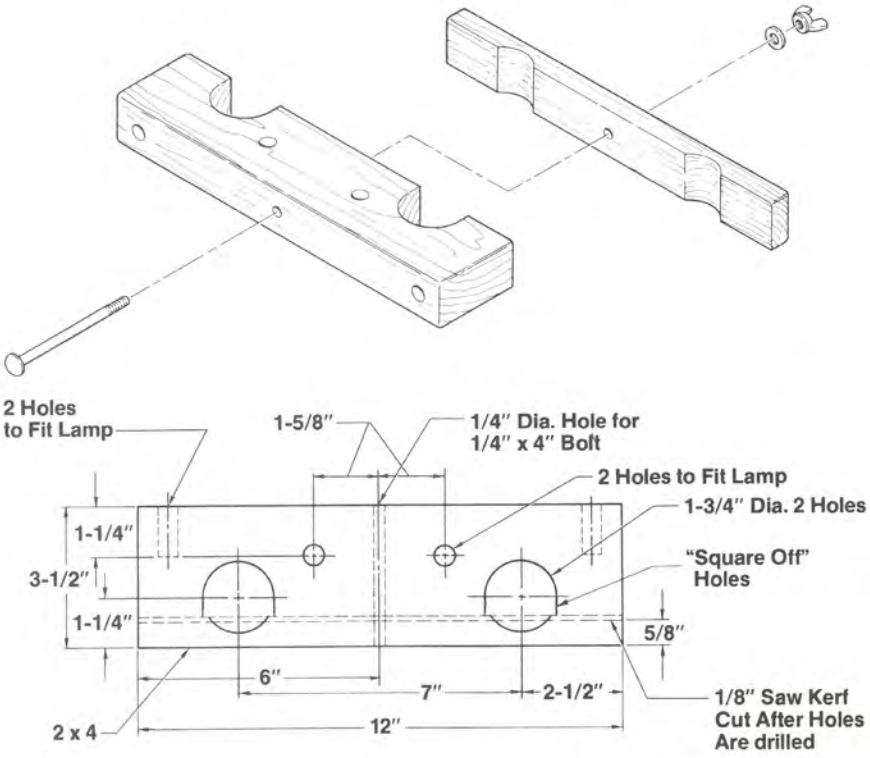


Figure 4. You can make a bracket to mount a drafting lamp to the Mark V, following this drawing.

Safety

Danger Zones and Safety Zones

The Shopsmith Bandsaw, like every other potentially dangerous power tool, is surrounded by a 'danger zone' and a 'safety zone'. These zones are separated by an imaginary boundary 1-1/4" out from the blade in all directions, and 6' to the right of the bandsaw. (Although it's uncommon, it's possible for the blade to break and come spiraling out of the machine on the right side.)

If you let your hands and fingers get closer than 1-1/4" to the moving blade, or if you stand to the right of the machine while working, you're in the danger zone. (See Figure 5.) You're in the safety zone when your fingers and other parts of your body are **at least** 1-1/4" away from the blade and you're standing in front of the machine.

- Keep your hands, fingers, and other parts of your body in the safety zone when working with the bandsaw. Once inside the danger zone, the slightest miscalculation could earn you a nasty cut.
- Think of the table insert as an indicator for the danger zone. If you let your hands stray over the insert, you're in the danger zone. It's a good idea to mark this insert with red paint to serve as a reminder.
- The bandsaw cover and blade guard provide a physical barrier between you and the moving blade. Keep these parts in place and properly adjusted. **Never** operate the bandsaw without the protective cover or blade guard.
- When cutting, keep your fingers well to the side of the blade, never directly in your line of cut. And never try to cut a workpiece that is so small it does not allow you to keep your fingers well out of the danger zone. If you need a small component, cut it from a larger piece of stock. You can also use pliers or a special jig to hold the work.
- When finishing a cut — especially a rip or resaw cut — use a push stick to feed the work for the final few inches. These devices extend your reach and keep your fingers in the safety zone. (See Figure 6.)

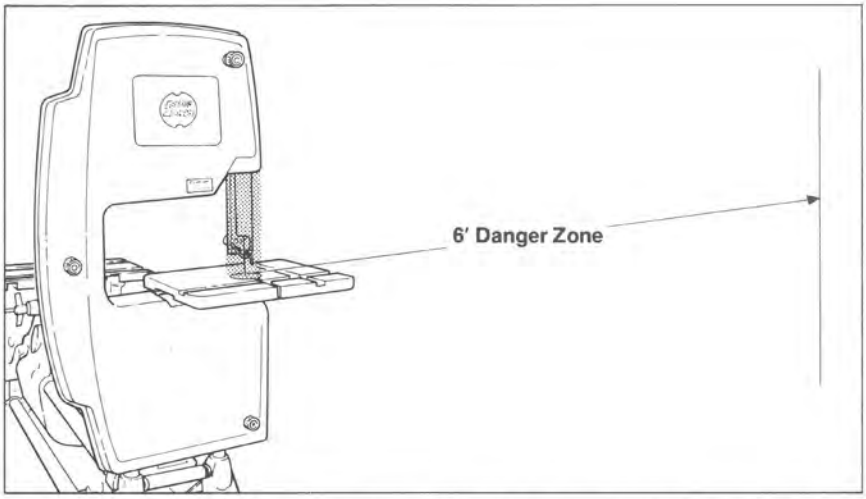


Figure 5. The danger zone on the bandsaw extends 1-1/4" in all directions out from the blade and 6' to the right of the machine. Keep all parts of your body out of the danger zone.

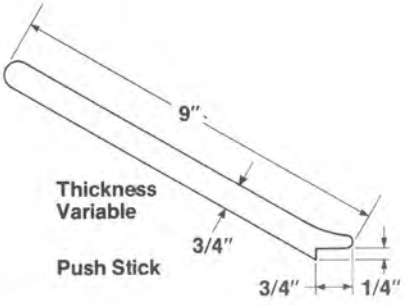


Figure 6. Shopsmith provides a push stick with your bandsaw. If you need more, you can make them by following this drawing — or design something to fit your hand comfortably.

- Never allow helpers or visitors to stand to the right of the bandsaw while it's in operation. This will protect them in case the blade breaks.

WARNING: NEVER reach close to the blade or under the bandsaw table to make adjustments, clear away chips, or for any reason whatsoever while the machine is running. TURN OFF THE BANDSAW FIRST and wait until the machine stops completely.

Good Work Habits

As you use your Shopsmith Bandsaw, develop good, safe work habits. You may have to think a little at the beginning, but before long these will become second nature.

Before You Begin

- Reduce the risk of accidental starting. Be sure the power switch is in the "Off" position before plugging in the tool.
- Always keep the upper blade guide adjusted to a **maximum** of 1/4" above the top of the stock. Not only is this safer, but the closer the upper guides are to the work — without touching it — the more accurate your cut will be.

Safety

• Make sure you're using the right blade for the job and that the blade tension, blade guides, and blade rollers are correctly adjusted. Blade teeth should be pointing **down.**

• Adjust the speed so the bandsaw runs **no faster** than 1050 RPM (or 3000 FPM) — speed setting "D" on the Mark V.

• Secure the table tilt lock and the front table latch, and be sure the table insert is in place and positioned so that it doesn't interfere with the movement of the blade or the stock.

• Always check the machine before you turn it on and remove any adjusting wrenches.

• Be sure the machine rests firmly on the floor and has no tendency to tilt or "walk" as you work. If your bandsaw is mounted on the Mark V, be sure the accessory mount lock and headstock lock are secure and that the machine is not up on its retractable casters.

Check Your Stock

• Be sure your stock is free of dirt, old screws, and nails. These will ruin the blade and could cause it to break.

• Don't cut workpieces that are too small or too big to safely control.

Check Your Shop

• Keep your work area free of clutter. You don't want to lose your footing and fall into the bandsaw.

• Keep your shop safe. Don't turn on the bandsaw in the presence of flammable or toxic fumes. And don't turn on the bandsaw if the floor is wet or damp. Air out your shop, clean up spills, and be sure that all hazards are removed **before** you start to work.

• Keep children and shop helpers at a safe distance. They should also wear eye protection — and dust masks, if needed.

As You Work

• Never operate the bandsaw above 1050 RPM (speed setting "D" on the Mark V).

• Take a comfortable stance that gives you maximum control over the workpiece. Normally, the best operating position for the bandsaw is to stand in front of the machine.

• Don't overreach. Keep your balance at all times.

• Don't force the stock; let the machine do the work.

• Never try to make a turn tighter than the blade you're using will allow. This will bog down the machine, increasing the chances of breaking the blade and blowing fuses.

• When cutting round stock, hold it firmly against the miter gauge or in a V-block. If you don't, the blade will grab the work and spin it, possibly dragging your fingers into the blade.

• If you hear a ticking sound while the machine is running, turn off the bandsaw immediately and check the blade. This sound usually indicates a damaged blade or a weld that is about to break.

• If the blade does break, turn off the machine and disconnect the power. Stand away from the machine until it comes to a complete stop. Never attempt to touch the blade or remove the cover until the wheels have come to a complete stop.

• When working with long boards, support the work with a saw stand placed 1'-4' out from the machine. (See Figure 7.) In many cases you can use the rip fence mounted on the table of the Mark V as a support on the outfeed side of the bandsaw. (See Figure 8.)

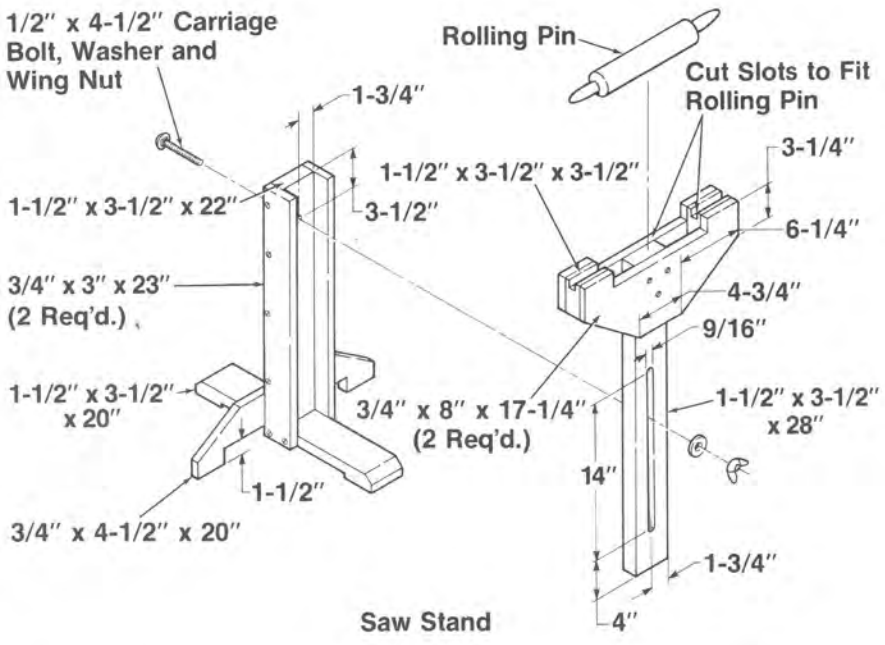


Figure 7. Following this drawing, you can build a saw stand for use with the bandsaw and other Shopsmith tools.

Safety

Figure 8. With your bandsaw mounted on the Mark V, you can use the Mark V table and rip fence for additional support.

When You Finish

- **NEVER** leave the bandsaw running unattended. Turn it off when you finish.
- Don't lean on the bandsaw, whether it's running or not. And **never** stand on the bandsaw or use it as a step stool. You could harm yourself and your bandsaw.
- Clean up and lock your shop when you leave — make it kidproof, burglarproof and fireproof.

Sawdust

As you work with your bandsaw, you'll find there's another hazard that literally springs up under your feet and saturates the air if you don't do something about it — sawdust!

Sawdust, like other woodworking clutter, can cause you to lose your footing and fall into the machinery. It can be a fire hazard. Also, tracking sawdust from your shop into your home can be a nuisance to those you live with. And breathing sawdust can be a health hazard. A study by the Vermont Lung Association showed that prolonged exposure to sawdust may cause impaired breathing. Sawdust may also cause you physical discomfort, especially if you have emphysema, asthma, or an allergic reaction.

- If you work in a small shop where the dust in the air can become highly concentrated, or if your woodworking generates a lot of fine dust, wear a close-fitting dust mask and clean or replace the filters in this mask regularly.
- Open a window or use a fan to ventilate your shop.
- Regularly clean up sawdust from around the bandsaw to prevent a fire hazard.
- For better dust control, you can build simple fittings that allow you to connect a shop vacuum to the bandsaw. This makes it possible to collect most of the sawdust and wood chips while you're cutting. (See Figure 9.) The plans and patterns for these attachments are included in our "Shopsmith Sawdust Collection System" woodworking plans (FA-1867), along with working drawings for vacuum hookups to other common woodworking tools.

Maintenance

Like all power tools, your Shopsmith Bandsaw must be properly maintained to be safe. Check for damaged or worn parts and always perform the necessary maintenance or repairs **before** you use it.

WARNING: Disconnect the bandsaw from its power source BEFORE you attempt maintenance or repairs.

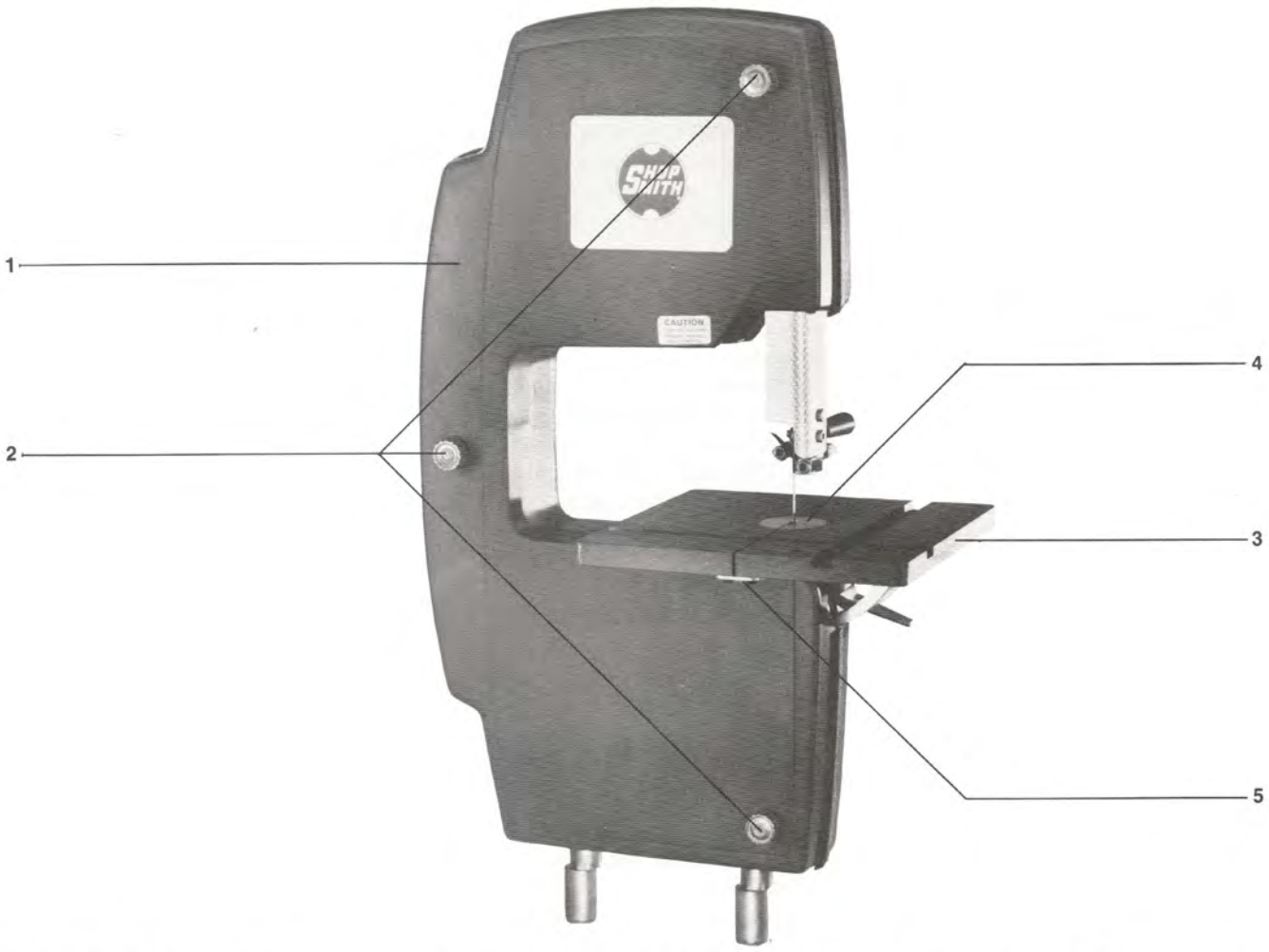
- Keep blades sharp and properly tensioned.
- Replace or resurface the blade guides and table insert immediately if they become worn.
- If a part of your bandsaw is damaged, don't attempt to 'jerry-rig' the machine so that you can use it. Jerry-rigs never work out as well as you'd like, and they may further damage the bandsaw. What's worse, they may endanger you.

Figure 9. You can make a dust collection system for your Shopsmith Bandsaw and other woodworking tools with Shopsmith Woodworking Plan FA-1867.

- Use only recommended Shopsmith parts and accessories with your Shopsmith Bandsaw. (See the "Parts List" in the **Service** section of this manual.)
- Check to see that the power switch is in the "Off" position before plugging in your bandsaw after maintenance or repairs.

Remember that all power tools must be treated with caution and respect in order to avoid injury. But also remember that shop safety needn't be a depressing list of do's and don'ts. Safety rules shouldn't restrict your woodworking; they will, in fact, help make you a better craftsman. Your projects will progress quicker, your techniques and your accuracy will improve, and — best of all — the time you spend woodworking will be more satisfying.

General Information



Getting to Know Your Shopsmith Bandsaw

The Shopsmith 11" Bandsaw will accomplish many woodworking operations that are difficult or impossible with other tools. Basically, the bandsaw is an endless loop (or 'band') of saw teeth revolving on two large wheels. The thin, flexible blades allow you to cut curves and other irregular shapes. The fast cutting action makes it easy to resaw thicker boards into thinner ones. But these are just two of the things your bandsaw will do. As you work with this machine, you'll find it has many other capabilities that add ease and versatility to your woodworking.

Nomenclature

Before we go much farther, familiarize yourself with the various parts of the Shopsmith Bandsaw:

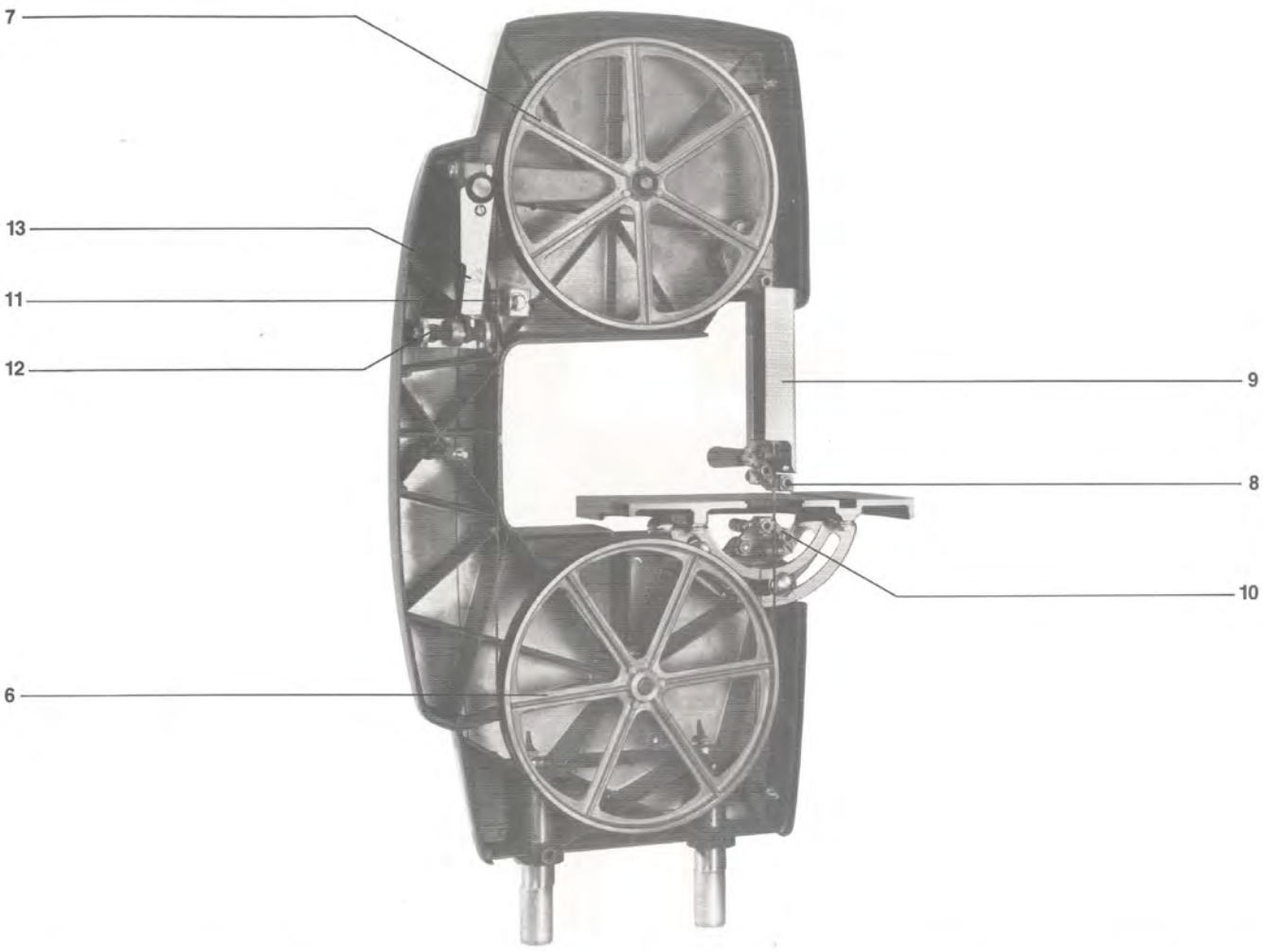
1. Cover — This lightweight cover completely encloses the working parts of the bandsaw, protecting you from harm while the machine is running.

2. Cover Knobs — These knobs secure the cover in place.

3. Table — The table supports the work. It's split at the front so that you can mount and remove blades. It also has two slots at right angles, which allow you to use your Shopsmith Miter Gauge (505700) for both ripping and crosscutting.

4. Table Insert — This insert supports the work around the blade. It's keyed to prevent it from turning in the table and being damaged by the blade.

General Information



5. Table Leveling Latch — This latch joins the two sides of the table together across the front and helps keep the table flat and true.

6. Drive Wheel — The lower wheel drives the bandsaw blade in an endless loop.

7. Idler Wheel — The upper wheel is free-running. Its position can be adjusted to tension the blade.

8. Upper Blade Guide — The upper blade guide consists of a blade roller to back up the blade, and guide blocks to keep the blade running straight above the work. The guide blocks may be reversed to twist the blade 30° to the right for special operations.

9. Blade Guard — The guard attaches to the upper blade guide assembly. When properly adjusted, it protects you from cutting yourself on the unused portion of the blade.

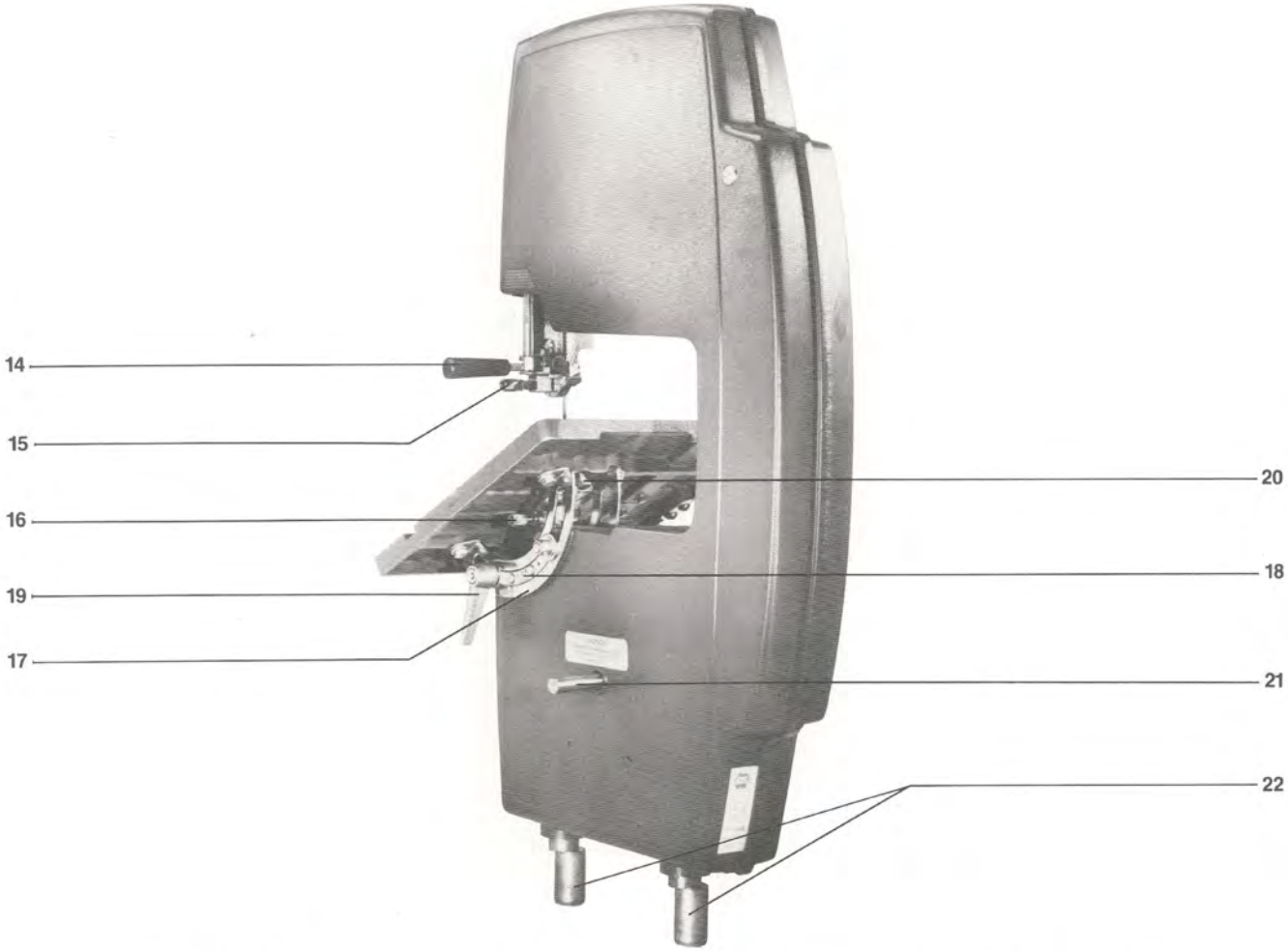
10. Lower Blade Guide — The lower blade guide consists of a blade roller to back up the blade, and guide blocks to keep the blade running straight below the work. Like the upper blade guide, the guide blocks can be reversed to twist the blade 30°.

11. Auto-Track Roller — This roller keeps the blade properly positioned on the wheels.

12. Blade Tensioning Screw — By turning this screw with the 5/32" Allen wrench, you can adjust the blade tension.

13. Blade Tension Scale — This scale indicates the proper blade tension for any blade 1/8"-1/2" wide.

General Information



14. Upper Blade Guide Height Lock Handle — With this handle, you can raise and lower the upper blade guide, then secure it in position. The handle is in the "locked" position when pointing straight back. Turn the handle 90° to the right to release the upper blade guide assembly.

15. Upper Blade Guide Adjusting Knob — This knob adjusts the front-to-back position of the upper guide blocks.

16. Lower Blade Guide Adjusting Knob — This knob adjusts the front-to-back position of the lower guide blocks.

17. Trunnions — The trunnions mount the table to the bandsaw and allow it to be tilted from "0" to 45° right and 5° left (with the auto-stop removed). A tilt scale has been stamped onto the trunnions.

18. Tilt Indicator — When correctly set, this vernier scale indicates the table angle to the nearest 1°.

19. Tilt Lock — This handle secures the table in position at any angle in the tilt range.

20. Table Auto-Stop — This bolt beneath the table automatically sets the table tilt at "0".

21. Drive Shaft — The drive shaft transfers power from a motor to the bandsaw.

22. Mounting Tubes — These eccentric tubes quickly mount the bandsaw to the Shopsmith Mark V or a Shopsmith Power Stand. They are offset so that the drive shaft of the bandsaw can be easily aligned with the upper auxiliary spindle on the Mark V.

General Information

Specifications

The specifications of the Shopsmith Bandsaw will give you an idea of its capabilities:

- **Capacities —** The bandsaw will cut stock up to 6" thick. With the blade in the normal position, the cutoff capacity is 10-1/2" — the distance across the machine's throat. However, with the blade offset 30° right, you can cut off (freehand) **any** length of stock up to 3-7/8" wide.
- **Available Blades —** The Shopsmith Bandsaw accepts continuous-loop blades 72" long and 1/8"-1/2" wide. Shopsmith offers several different blades from 3/16" wide to 1/2" wide for cutting wood, plastics, and non-ferrous metals.
- **Blade Mounting System —** Bandsaw blades are mounted on two wheels, 11" in diameter. Both wheels are covered with rubber tires to protect the teeth of the blades and provide traction. The idler (upper) wheel revolves on needle bearings, while the drive (lower) wheel revolves on sealed ball bearings. The blades are tensioned by adjusting the position of the idler wheel. Blade tracking is done automatically by a preset roller.
- **Table —** The table surface is 11-3/4" (front to back) x 12" (right to left). The table can be tilted from "0" to 45° right (away from the frame). It has an adjustable positive stop at "0". If this stop is removed, it can be tilted an additional 5° left.
- **Speed —** The bandsaw operates best at speeds between 700 RPM and 1050 RPM. In "Feet Per Minute" (FPM), the speed range is 2000 FPM to 3000 FPM. If you use the Shopsmith Mark V to power the bandsaw, the speed range is "Slow" to "D".
- **Overall Dimensions and Weight —** Overall, the Shopsmith Bandsaw is 20-1/2" wide (right to left), 30-3/8" high (top to bottom), and 11-3/4" deep (front to back). It weighs 45 pounds.

Setup

Initial Setup and Mounting

To minimize shipping damage, the Shopsmith Bandsaw is sent to you partially unassembled. For your own safety, it's important to carefully complete the assembly procedures in this section.

A complete bandsaw setup will take about two hours, so relax and take your time. You'll learn about some of your bandsaw's unique features, and the extra time spent now will pay off when you begin using the tool.

Here's how to set up:

1. Check the Packing List — The Packing List attached to the outside of the carton shows all the components needed to complete the setup. Compare the parts in the package to the Packing List before getting started.

2. Getting Ready — Clear a space on your workbench and get your tools ready. Here's what you'll need:

- Power Coupling Kit (505631) — not needed if you mount the bandsaw on a power stand
- 5/32" and 3/16" Allen wrenches (Both Allen wrenches come with the bandsaw.)
- Medium blade screwdriver
- Combination square
- Adjustable wrench or 1/2" wrench
- Clean shop rag
- Mineral spirits or turpentine
- Powdered graphite
- 10 wt. machine oil (optional)
- Paste floor wax or paste furniture wax

Tip: Don't use car wax or spray furniture polish on the bandsaw. It needs wax for **both** protection and lubrication. Car wax offers good protection for metal, but it's extremely hard and has little value as a lubricant. Furniture polish isn't hard enough. Paste floor wax or furniture wax protects **and** lubricates.

Important: Steps 3, 4, 5, 6, 7, and 15 describe how to mount the bandsaw on the Shopsmith Mark V. If you wish to mount the bandsaw on a power stand, the procedure is similar **but not exactly the same.** Refer to the instructions provided with your Shopsmith Power Stand Kit (505832 or 505838).

Setup

3. Install Mounting Tubes — With the Shopsmith Mark V **unplugged,** loosen the accessory mount lock at the left end of the Mark V (the same end as the auxiliary spindle) and insert the eccentric mounting tubes. The **long end** goes up. The offset shoulder of each tube should rest on the Mark V power mount and the shoulders should point away from the headstock. (See Figure 1.)

4. Mount Bandsaw on Mark V — Back out the setscrews in the base of the bandsaw and place the bandsaw onto the tubes. (It's much easier to describe this step than it is to do it. Don't be frustrated if you have to try several times before the bandsaw slips onto the tubes. The offset shoulders have to be positioned precisely in the same direction.) Don't tighten the setscrews yet.

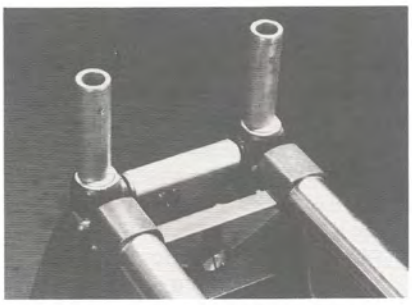


Figure 1. Position the mounting tubes in the Mark V power mount, long end up, with the shoulders of each tube pointing away from the headstock.

5. Mount Drive Hubs — Attach a drive hub from the Power Coupling Kit (505631) to the bandsaw drive shaft. Use the hub with a 5/8" center hole and five grooves in the circumference. Slide the hub onto the drive shaft until the shaft end is flush with the face of the hub, then tighten the setscrew so it seats on the flat of the shaft.

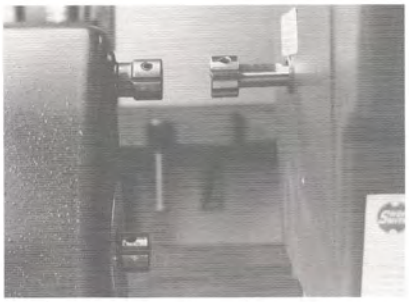


Figure 2. Mount the appropriate drive hubs on the drive shaft of the bandsaw and the upper auxiliary spindle of the Mark V.

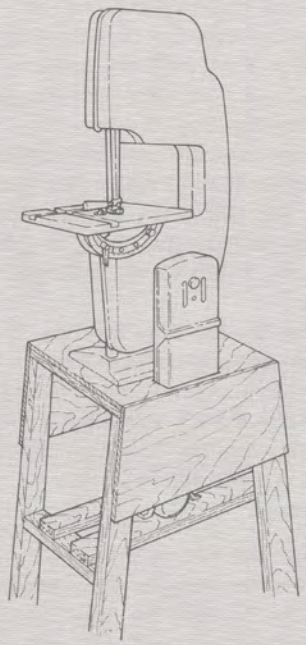
If you have not already done so, mount another hub on the upper auxiliary spindle on the Mark V headstock. Use the long hub with a 5/8" center hole and four grooves in the circumference. (See Figure 2.)

A Note to Owners who Build Their Own Power Stands:

If you elect to make your own power stand, give some careful thought to the design. Remember that you'll need a **pulley guard.** Exposed pulleys and V-belts are dangerous. Because we're interested in your safety, **Shopsmith offers a pulley guard for your bandsaw FREE OF CHARGE.** Simply fill out and return the card that's included with this manual.

Here are some other important considerations:

- The stand you build should be very sturdy and rest firmly on the floor.
- The table of the bandsaw should be 40" to 45" above the floor.
- Don't mount the bandsaw by drilling two holes in a thick piece of wood and forcing the mounting tubes into the holes. Even if you use hardwood, the vibrations of the machine will eventually loosen the tubes in the holes, and the bandsaw will begin to wobble dangerously. We recommend you use a metal Shopsmith Mounting Base (505655) on top of your homemade stand. The mounting base provides a durable mount for your bandsaw **and** a simple method for properly tensioning the V-belt that drives the bandsaw.
- Use a 1725 RPM motor rated for **at least** 1/2 hp. A 3/4 hp motor is preferred for continuous heavy work.
- Install a 2" diameter pulley on the motor and a 4" diameter pulley on the drive shaft of the bandsaw. The motor will then drive the bandsaw at approximately 850 RPM.
- The motor must turn the drive shaft **counterclockwise**, as you look at the bandsaw from the back side (the same side as the drive shaft).
- Be sure to leave room for the pulley guard in your design.



Setup

6. Align Drive Hubs Horizontally — Slide the headstock of the Mark V toward the bandsaw until the two drive hubs are about 1/2" apart. Look down over the end of the Mark V to see if the hubs are aligned horizontally, as shown in Figure 3.

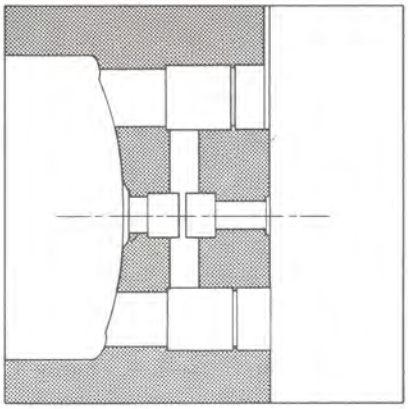


Figure 3. With the Mark V accessory mount lock and the setscrews in the base of the bandsaw loose, align the drive hubs horizontally.

If adjustment is needed, be sure the accessory mount lock and the setscrews that hold the mounting tubes are loose. Then move the bandsaw forward or backward until the hubs align. (With the accessory mount lock and the bandsaw base setscrews unlocked, you can actually move the bandsaw so that the eccentric mounting tubes rotate 360°. This allows you to adjust the position of the bandsaw up to 1/4" right or 1/4" left, to center the drive hubs.)

When the bandsaw is properly aligned, the shoulders of the eccentric tubes will both point in the same direction. Tighten the accessory mount lock to hold these tubes in place during vertical alignment.

7. Align Drive Hubs Vertically — With the mounting tubes locked in the Mark V, check the vertical (top-to-bottom) alignment of the drive hubs. (See Figure 4.) First, remove the cover by unscrewing the three cover knobs. Then raise the bandsaw slightly on the tubes until these hubs align and tighten the set-screws inside the bandsaw which hold the tubes in the base. It's easier to have a helper lift the bandsaw while you check the alignment and tighten the screws. Whoever does the lifting should get a good grip on the bandsaw and lift from a comfortable position. (See Figure 5.)

Once the mounting tubes are locked in the bandsaw base, you can install the bandsaw on the Mark V using only the accessory mount lock. The drive hubs will always be correctly aligned.

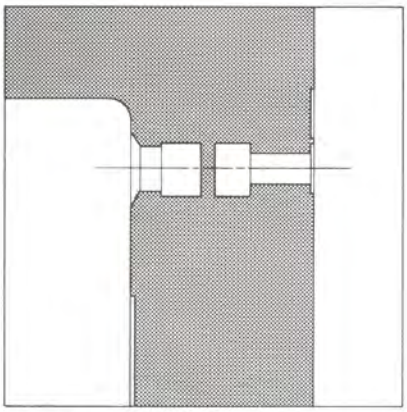


Figure 4. With the mounting tubes locked in the Mark V, raise the bandsaw slightly until the drive hubs align vertically.

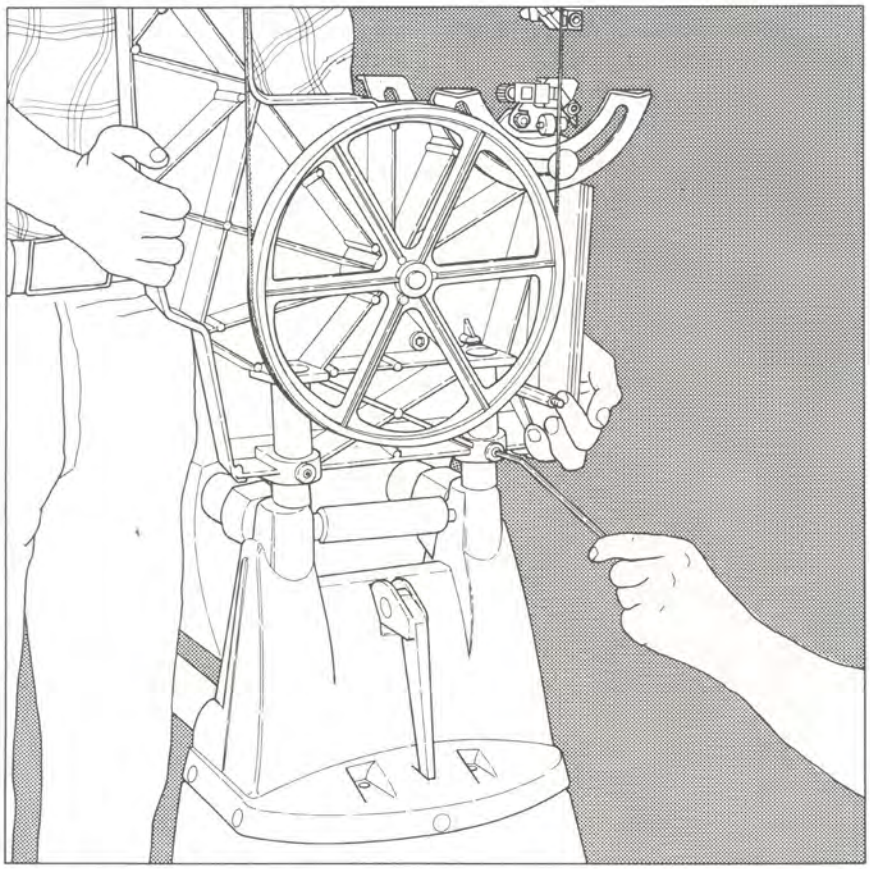


Figure 5. Have a helper lift the bandsaw while you check the alignment and tighten the setscrews in the base.

Setup

To check the drive hub alignment, slide the Mark V headstock toward the bandsaw until the hubs touch. If they are correctly aligned, both hubs will be at exactly the same height and in exactly the same side-to-side position.

WARNING: DO NOT install the power coupler at this time, or attempt to run the bandsaw until you have completed the remainder of the procedures in this section. It is dangerous to run the bandsaw until it is COMPLETELY aligned, adjusted, and inspected.

8. Prepare the Bandsaw and Table Assemblies — Inspect the inside of the bandsaw and wipe it down to remove dirt or foreign material that may have gotten in during manufacturing or shipping. Use a clean shop rag and mineral spirits or turpentine, but **be careful around the blade. It's sharp!**

Wipe down the bandsaw table completely with your rag and solvent. When the table is clean, wax the top surface and the miter gauge slots with paste floor wax or paste furniture wax. A good coat of wax helps prevent rust and improves the machine's operation by helping the wood slide smoothly over the table and the miter gauge slide easily in the table slots.

Tip: Wax and buff the table surface several times during the first few months to build up a good coat, then every 10 hours of running time after that. Apply wax sparingly, then buff it thoroughly. If you apply too much wax or don't buff it, the wax will mix with sawdust, gum up the machine, and leave a residue on the stock.

Loosen the tilt lock and lubricate the trunnions with powdered graphite, rocking them back and forth as you apply the graphite. (See Figure 6.) Also, apply graphite to lubricate the blade tensioning screw, upper blade guide post, blade rollers (both the auto-track roller and the rollers in the upper and lower blade guides), and the treads of the upper and lower blade guide adjusting knobs.

We recommend powdered graphite for lubricating the bandsaw because it's dry and doesn't attract sawdust — and the bandsaw makes a lot of sawdust. On some parts, oil will mix with sawdust and form the gummy substance that prevents these parts from operating smoothly. However, if you can't get graphite, you can apply a light 10 wt. machine oil (such as sewing machine oil) **sparingly.** Use **only** 1-2 drops. Apply oil to all the parts that need lubrication with the exception of the trunnions. If you don't dust the trunnions with graphite, you should wax them.

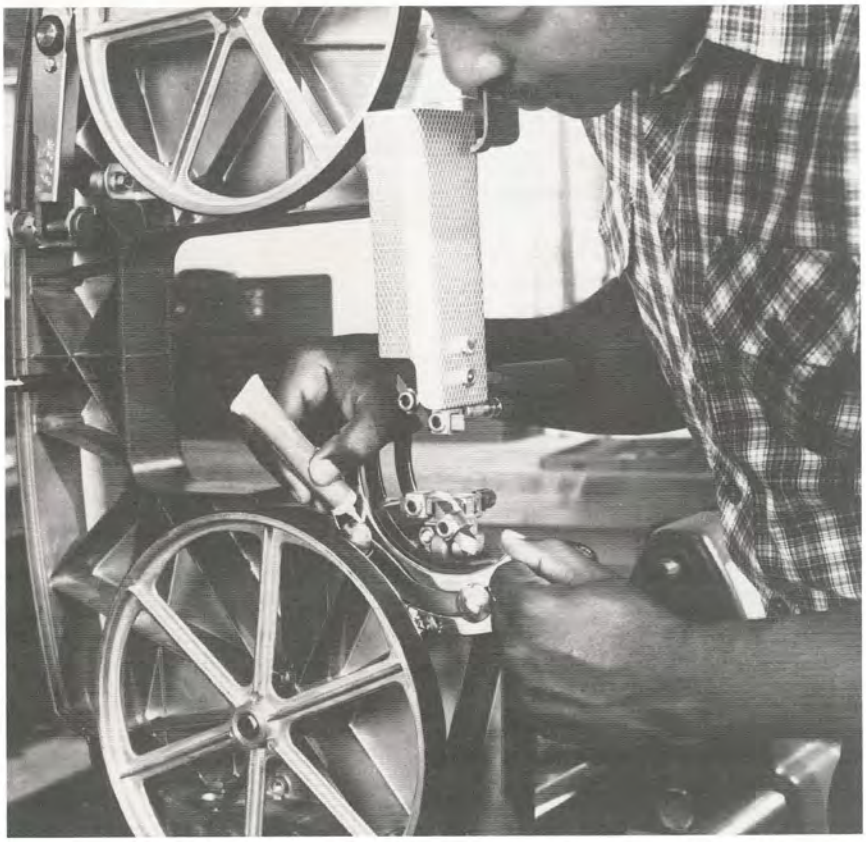


Figure 6. Apply powdered graphite to the trunnions while rocking them back and forth. Graphite is available at most hardware and automotive stores.

Setup

9. Adjust the Blade Tension, Rollers, and Guides — To assure safe operation and maximum blade life, it is critical that the blade tension, blade rollers, and blade guides be accurately adjusted. For your convenience, all alignment and adjustment procedures are grouped together in the **Alignment and Adjustment** section, immediately following this section. Turn now to the **Alignment and Adjustment** section, and follow the procedures for "Removing and Installing Blades". The instructions in this portion of the manual will direct you to other parts of the **Alignment and Adjustment** section: "Aligning the Blade Tension Scale", "Adjusting the Blade Rollers", and "Adjusting the Upper Blade Guide Height Lock".

At this time, be sure that you:

- Properly mount and tension the bandsaw blade.
- Adjust the blade rollers.
- Adjust the blade guides.
- Adjust the blade guide height lock.

After you have performed these adjustments, return to this section to complete your bandsaw setup.

Figure 7. Loosely attach the bandsaw table to the trunnions. Only finger-tighten the bolts until you have squared the table to the blade.

Figure 8. Install the table insert so that the key fits into the split in the table.

10. Install Table — Loosen the tilt lock, and move the table trunnions to about 25°. Loosen the table leveling latch and swing it out of the way so that it doesn't straddle the split in the table.

Position the table on the trunnions, slipping the table past the blade. The split in the table should point toward the **front** of the bandsaw (away from the drive shaft). Loosely attach the table to the trunnions using the four 1/4" x 1" hex bolts and washers supplied. (See Figure 7.) **Only finger-tighten the bolts at this time.** The table must first be aligned and adjusted.

11. Install Table Insert — Once the table is in position, install the table insert, turning it so that the key fits in the split in the table. (See Figure 8.) Be sure the insert is flush with the table surface.

12. Square Table To Blade and Set Auto-Stop — Turn to the **Alignment and Adjustment** section and follow the procedures under "Squaring the Table to the Blade" and "Setting the Table Auto-Stop". After you have performed these adjustments, return to this section to complete your bandsaw setup.

Setup

13. Reinstall Cover — When you have correctly aligned the table, reinstall the bandsaw cover. Also, check the blade guard to see that it's secure and doesn't rub against the cover or interfere with the blade or the upper blade guide.

14. Wipe and Inspect — Remove dust and fingerprints, then inspect the work surfaces. Make sure the table and table insert are smooth so that work passes over them freely. Any small burrs should be removed with a fine file.

15. Install Power Coupler — Slide the Mark V headstock 10"-12" away from the bandsaw, along the way tubes. Plug the Mark V in, turn it on, and set the speed dial to "Slow" (700 RPM). Turn the Mark V off and wait for the upper auxiliary spindle to stop completely.

Install the "Accessory" end of the power coupler from the Power Coupling Kit onto the bandsaw drive hub. Slide the Mark V headstock back along the way tubes until the upper auxiliary spindle drive hub slides into the other end of the power coupler. The hub should slip in easily, with no need to bend the power coupler.

Tighten the Mark V headstock lock to secure the headstock, then check to see that the accessory mount lock is tight.

WARNING: Whenever you mount the bandsaw on the Shopsmith Mark V, remember to tighten the Mark V accessory mount lock and the headstock lock. The bandsaw mounting tubes MUST be locked in place and the Mark V headstock MUST be secure in order to operate the bandsaw safely.

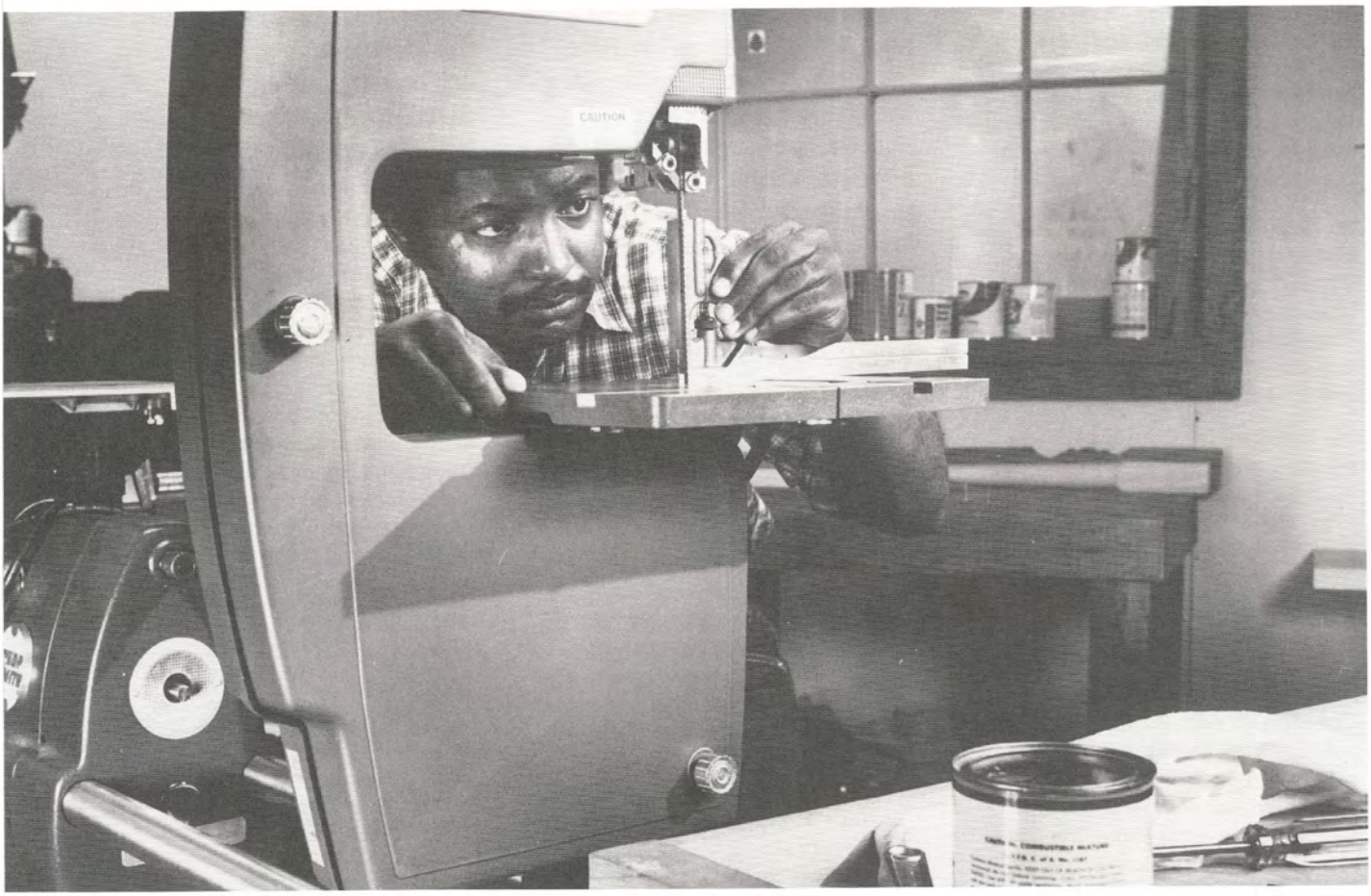
16. Final Setup Safety Check — Before you operate your bandsaw, take a minute to review your setup carefully. Here's a checklist:

- Are the mounting tubes secured in the bandsaw base?
- Are the drive hubs properly secured and aligned on the bandsaw drive shaft and Mark V upper auxiliary spindle?
- Is the blade properly mounted and tensioned?
- Are the blade tension guides and rollers properly adjusted?
- Is the upper blade guide height lock correctly adjusted and secured?
- Is the table installed and locked in position?
- Has the insert been installed flush with the table?
- Is the table square to the blade and has the auto-stop been correctly adjusted?
- Is the Mark V set at the proper speed?
- Is the power coupler properly installed?
- Are both the Mark V accessory mount lock and the headstock lock tightened?

WARNING: Before you plug in the Mark V or the motor that will power your bandsaw, BE SURE the power switch is in the "Off" position.

For your own safety, be sure you read and understand the remainder of this manual **before** attempting to operate this machine. Many of the alignment procedures covered in the following section are considered to be part of this initial setup and all of them are important for good results. The sections on **Operations** and **Maintenance** show how to use the Shopsmith Bandsaw effectively and accurately, and how to keep it running properly for many years to come.

Alignment and Adjustment



Aligning and Adjusting Your Shopsmith Bandsaw

Your Shopsmith Bandsaw is a precisely engineered tool that will perform easily and efficiently. However, the quality of the work that you do on the bandsaw will only be as good as your final adjustments. It's important to complete **all** of the designated alignment and adjustment procedures during the initial setup — and then recheck the alignment of your bandsaw at regular intervals.

WARNING: The bandsaw MUST be unplugged from its power source before performing any adjustment, maintenance, or repair procedure. DO NOT rely solely on the power switch.

Blade Mounting System

Bandsaw blades revolve in an endless loop on two wheels, the drive wheel and the idler wheel. Each of these wheels is covered with a thin rubber tire to protect the teeth of the blade and provide traction.

The idler (upper) wheel pivots on an arm, and this arm is drawn upward by a flat spring. This mechanism compensates for slight inconsistencies in blade length and tensions the blade. You adjust the tension by turning the blade tension screw to the left of the idler wheel. This screw moves the flat spring, increasing or decreasing tension. The proper tension for various blades is indicated on a scale above the blade tensioning screw. (See Figure 1.)

Unlike many other bandsaws, the blade tracking is done automatically, with no need for adjustment. A small roller to the right of the blade tension

Alignment and Adjustment

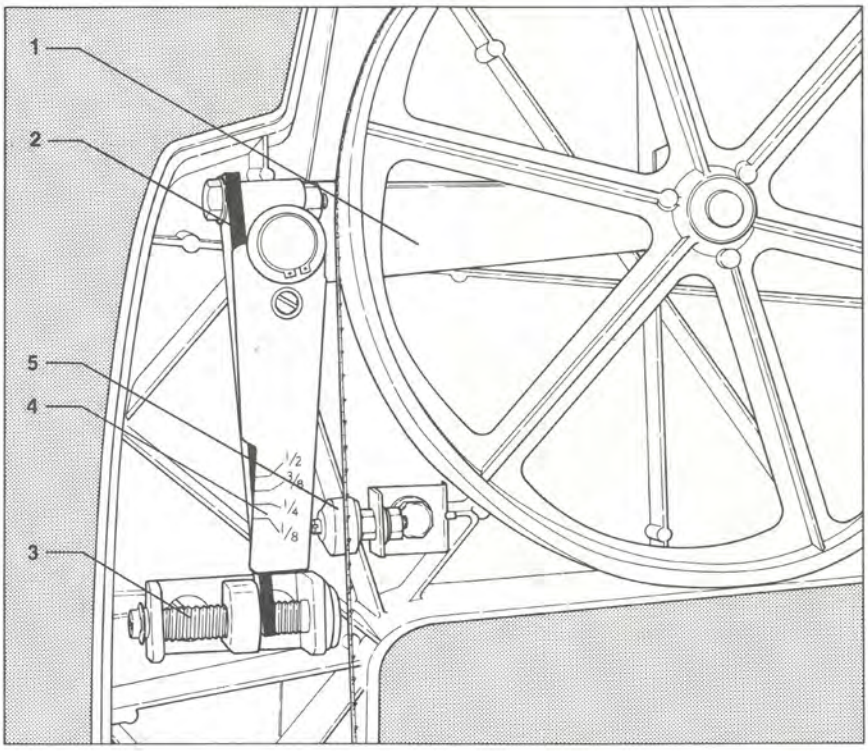


Figure 1. The idler wheel pivots on an arm (1) and is drawn upwards by a flat spring (2). The tension on this flat spring can be increased or decreased by turning the blade tension screw (3), which in turn tensions the blade. The blade tension scale (4) indicates the proper tension for various blades. The auto-track roller (5) keeps the blade properly positioned on the wheels.

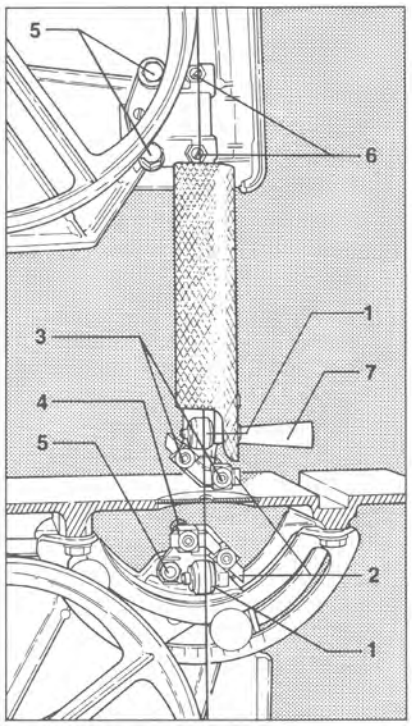


Figure 2. The upper and lower blade guides consist of blade rollers (1) which back up the blade, and guide blocks (2) which keep it from twisting. The guide blocks can be adjusted side-to-side after loosening the guide block locking screws (3) and front-to-back by turning the blade guide adjusting knobs (4). The blade rollers can be adjusted side-to-side after loosening the mounting bolts (5). Only the upper blade roller can be adjusted front-to-back, and this is done by turning the two guide post adjusting screws (6). The upper blade guide can also be raised and lowered after loosening the upper blade guide height lock handle (7), shown in the unlocked position.

indicator keeps the blade properly positioned on the wheels.

A bandsaw blade is supported and guided from both above and below. (See Figure 2.) The lower blade guide consists of a roller to back up the blade and two guide blocks to keep it from twisting. Each guide block is adjusted side-to-side by loosening an Allen screw, and front-to-back by turning the lower blade guide adjusting knob. You only need to adjust the lower blade roller side-to-side. This is done by loosening the mounting bolt.

The upper blade guide is similar, but it has two additional adjustments. The upper blade roller is adjusted front-to-back by turning two screws to change the tilt of the blade guide post, and the entire assembly can be raised and lowered after loosening the upper blade guide height lock handle.

Removing and Installing Blades

When you mount a blade on the bandsaw, you must carefully adjust the blade guides and the blade tension. This is **critical**. If the blade guides aren't correctly aligned, the blade will wander off the line every time you make a cut. If the blade tension is too tight, the blade will soon wear out and break. If it's too loose, the blade will not track properly and may slip off the wheels.

Important: If you're performing the **initial setup**, it's not necessary to remove an old blade or mount a new one — your bandsaw comes to you with a 1/4" woodcutting blade already installed. Also, you've not yet mounted the table, so ignore any instructions concerning the table or table insert. However, it is necessary that you understand **all** the steps listed here. Please read this section all the way through, then begin following directions at Step 9.

Alignment and Adjustment

Follow these steps carefully each time you change blades:

Removing Blades

1. Disconnect the power, and slide the Mark V headstock away from the bandsaw.

2. Remove the cover and the table insert. Unscrew the cover knobs and set the cover aside. Then reach up under the table and pop the table insert out.

3. Loosen the table leveling latch with your 3/16" Allen wrench and swing it out of the way so that it doesn't block the slot in the table.

4. Adjust the height of the upper blade guide. Release the blade guide height lock handle by swinging it to the right, and adjust the height of the blade guide so that it's not more than 1" above the table. Lock the blade guide in place by swinging the handle to the back.

5. Release the blade tension by turning the blade tension screw counterclockwise with your 5/32" Allen wrench until the blade goes slack.

6. Loosen the guide blocks by turning the guide block locking screw counterclockwise with the 5/32" Allen wrench, then pulling the blocks outwards from the blade about 1/16".

7. Slide the old blade off the wheels and out through the slot in the table. (See Figure 3.) You'll have to flex the blade slightly to get it around the blade guard.

Mounting and Tensioning Blades

8. Slide the new blade into position, working it up through the table slot, around the guard, and onto the wheels. The teeth must be pointing **down** and toward the **front** of the bandsaw (away from the drive shaft). Position the blade approximately in the center of the rubber tires and in between the guide blocks.

Figure 3. Slide the old blade off the wheels and out through the slot in the table.

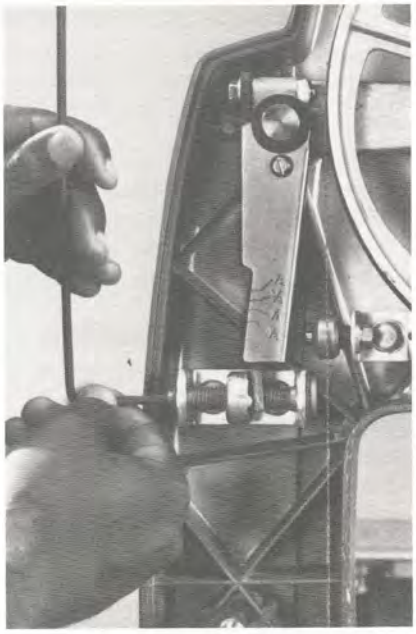


Figure 4. With the blade in position, turn the tension screw clockwise until the scale indicates the correct tension for the width of the blade being used. As shown, the tension is properly set for a 1/4" blade.

9. Check the tension scale alignment. With the blade slack on the wheels, the red indicator bar should be parallel to the left edge of the tension scale. If this is not the case, follow the alignment procedure described in "Aligning the Blade Tension Scale" in this section.

10. Tension the blade, turning the blade tensioning screw clockwise. Notice that as you turn this screw, the red indicator bar moves behind the tension scale. This red bar is actually the flat spring that tensions the blade. The blade tension is properly set when the edge of the bar disappears behind the scale, even with the marking for the blade width you're using. (See Figure 4.)

Tip: The settings on the tension scale have been tested for maximum efficiency and blade life during normal bandsaw operations. On a few operations, such as sawing thick stock with a thin blade, it may be necessary to increase the blade tension slightly beyond the normal setting. However, this increased tension will shorten the life of your blade. Always remember to reset the tension screw when you no longer need the extra tension.

WARNING: Never tension a 1/8" blade beyond the 1/4" setting, a 3/16" blade beyond 5/16" (halfway between 1/4" and 3/8" on the scale), or a 1/4" blade beyond 3/8". For 3/8" and 1/2" blades, do not go beyond their proper settings on the tension scale.

Alignment and Adjustment

When the tension is set, spin the idler wheel by hand, letting the blade make several complete loops. Make sure that the blade moves freely.

11. Check the blade rollers. After you've spun the blade several times by hand, it should be centered on the three rollers. The back of the blade should rest against the auto-track roller and the lower blade guide roller, and it should be no more than 1/64" away from the upper blade guide roller. If the blade is not properly positioned on the rollers, follow the alignment procedure described in "Adjusting the Blade Rollers" in this section.

Adjusting the Blade Guides

12. Set the front-to-back position of the guide blocks. Turn the blade guide adjusting knobs until the front edges of the guide blocks are just short of the bottom of the gullets between the teeth. (See Figure 5.) If the guide blocks extend beyond the gullets, the teeth will nick the sides of the blocks, wearing away the blade guides and dulling the blade.

13. Set the side-to-side position of the guide blocks. With the locking screw loose, push each of the four guide blocks — two in the upper blade guide and two in the lower blade guide — toward the blade until they just barely clear it on each side. This clearance should be about .003"-.005".

An easy way to gauge the distance of the blades from the blocks is with tape. Put a piece of cellophane tape on each side of the blade, then push the blocks in until they touch the tape. Tighten the locking screws and remove the tape. (See Figure 6.) Many woodworkers use tissue paper or a crisp dollar bill to gauge the guide clearance, but you'll find tape is easier.

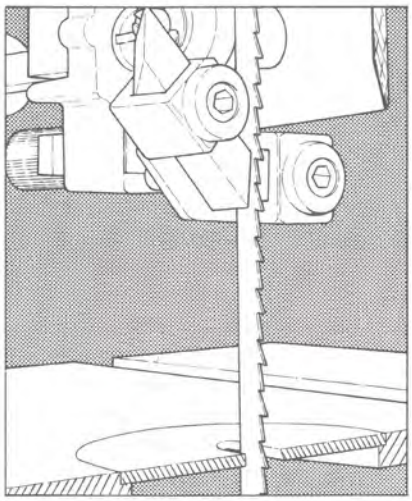


Figure 5. Turn the adjusting knob until the front edges of the guide blocks are just short of the bottom of the gullets between the teeth, as shown.

Figure 6. Adjust the guide blocks so that they clear the blade by .003"-.005". Use cellophane tape stuck to the blade to help gauge the clearance.

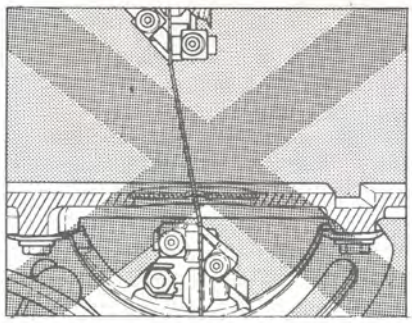


Figure 7. Be certain that the guides do not deflect the blade to either side, as shown. This will soon break the blade.

Be careful that the guide blocks do not press the blade to one side or the other. The blade should **not** be deflected when the blocks are properly set. (See Figure 7.)

Tip: Adjust the blade guides very carefully. If the guide blocks are too close to the blade or too far forward, the blade guides may interfere with the running blade. If the guide blocks are too far apart or too far back, the blade may 'lead' — wander off the pattern line to one side or the other. If you're sure the blade guides are properly adjusted and the blade does not operate freely, check if the blade is bent or has a 'high spot' at the weld. If the blade continues to lead no matter how you adjust the guides, follow the procedure described in "Correcting Blade Lead" in this section.

14. Check that the blade runs freely. Spin the idler wheel by hand to be certain the blade guides don't interfere with the action of the blade. Also, watch the blade as it slips between the guide blocks. Check that the teeth remain in front of the blocks throughout the revolution of the blade. If the blade does not spin freely or the teeth stray behind the blocks, readjust the blade guides.

15. Replace the table insert, cover, and cover knobs. Press the table insert back into place, aligning the key with the slot in the table. Replace the cover on the bandsaw and tighten the cover knobs. Also, check to see that the blade guard is secure.

WARNING: We recommend that you only use Shopsmith Bandsaw Blades for your bandsaw. If you use other blades, be certain that they are of premium quality, are 72" long (plus or minus 1/2"), and are between 1/8" and 1/2" wide. ANY OTHER BLADES ARE UNSAFE.

Alignment and Adjustment

Aligning the Blade Tension Scale

The blade tension scale is aligned at the factory, and under normal conditions it shouldn't need adjustment. However, if it vibrates loose or is knocked out of whack, it can be simply realigned.

Release the blade tension so that the blade is **completely** slack on the wheels. Then loosen the screw near the top of the scale. Rotate the scale so that the left edge above the notch is parallel to and even with the red indicator bar. (See Figure 8.) Hold the scale in position and tighten the screw.

Figure 8. Realign the tension scale so that it's parallel with the indicator bar, as shown.

Adjusting the Blade Rollers

The Shopsmith Bandsaw uses three rollers to keep the blade tracking properly on the wheels and to provide support for the blade during cutting operations. These rollers are adjusted during the initial setup and should seldom need attention after that. However, it's a good idea to check the alignment of these rollers each time you change blades.

You must mount and tension a blade in the bandsaw to properly adjust the rollers. Be careful when you make these adjustments, since the blade is sharp.

Auto-Track Roller — The auto-track roller is near the blade tension scale, at the upper left side of the machine. This roller guides the blade onto the upper wheel. The front-to-back position of this roller is fixed and shouldn't be altered. However, the mounting bracket can be moved side-to-side so that you can center the roller behind the blade.

If the blade appears off center, loosen the 1/2" mounting bolt that holds the bracket to the bandsaw frame. Slide the bracket sideways until the roller is centered behind the blade and tighten the mounting bolt. Be careful to keep the sides of the roller parallel to the blade when tightening this bolt. (See Figure 9.)

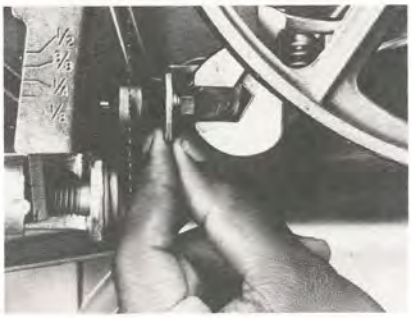


Figure 9. To adjust the auto-track roller, loosen the mounting bracket bolt and slide the bracket sideways until the roller is centered behind the blade. Keep the roller parallel to the blade when you tighten the bolt.

Lower Blade Guide Roller — The roller directly below the bandsaw table serves two functions: It guides the blade onto the drive wheel and it backs up the blade beneath the table while you're cutting. Like the auto-track roller, its front-to-back position is fixed and shouldn't be changed. However, the entire lower blade guide assembly, including the roller, may be adjusted side-to-side.

If adjustment is needed, loosen the guide blocks (if you haven't done so already) and pull them out about 1/16" from the blade. Then loosen the 1/2" mounting bolt which holds the lower blade guide assembly to the bandsaw frame. (The head of this mounting bolt can be reached from the back of the bandsaw, just above the trunnion.) Slide the lower blade guide sideways until the roller is centered behind the blade, tighten the mounting bolt, and reset the guide blocks. Again, be sure to keep the roller parallel to the blade as you're tightening the bolt. (See Figure 10.)

Figure 10. To adjust the lower blade guide roller, loosen the mounting bolt at the back of the bandsaw. Slide the assembly sideways until the roller is centered behind the blade and then tighten the bolt.

Upper Blade Guide Roller — The upper blade guide roller backs up the blade above the table. Unlike the other two rollers, it can be adjusted side-to-side **and** front-to-back.

To adjust the upper blade guide roller side-to-side, set the height of the upper blade guide about 1" above the table (or 1-1/2" above the lower blade guide if the table has been removed). Loosen the guide blocks and pull them away from the

Alignment and Adjustment

blade about 1/16". Loosen the two 1/2" mounting bolts that hold the guide post retainer inside the bandsaw frame. Swing the upper blade guide sideways until the roller is centered behind the blade, then tighten the mounting bolts. (See Figure 11.)

Figure 11. To adjust the upper blade guide roller side-to-side, loosen the two guide post retainer mounting bolts, pivot the upper blade guide sideways until the blade is centered on the roller, and tighten the bolts.

The upper blade guide roller must also be adjusted so that it's no more than 1/64" away from the back of the blade. **This distance should remain the same no matter what the position of the upper blade guide is above the table.** Before you adjust the upper blade guide roller front-to-back, check the distance from the roller to the blade close to the table and 5"-6" above the table.

If the upper roller presses against the back of the blade or if it's farther away than 1/64" at both the high and low position, you'll need to adjust the upper blade guide roller forward or back. If this distance is inconsistent or if the roller seems to press against the blade more at one position than at the other, you also need to change the tilt of the guide post. Both adjustments are similar and are performed at the same time.

Remove the blade guard and loosen the 1/2" jam nuts on the two guide post adjusting screws, then proceed in this manner:

- To move the guide post and roller **closer** to the blade (without changing the tilt of the guide post), turn both of the adjusting screws an equal number of revolutions **counterclockwise.**
- To move the guide post and roller **away** from the blade (without changing the tilt of the guide post), turn both of the screws an equal number of revolutions **clockwise.**
- If the roller is not the same distance away from the blade close to the table and 5"-6" above it, turn each screw equally in opposite directions. This will change the tilt of the guide post. For example, to move the roller closer to the blade when the blade guide is at its lower position, turn the top adjusting screw clockwise **and** the bottom adjusting screw counterclockwise. To move the roller away from the blade at this position, reverse the procedure.

Getting these adjustments just right may take a little 'fussing around', but once you've got them right they will seldom need attention. Here are a few tips to help make this procedure a little easier:

- Mark your starting position with a grease pencil and turn the screws only 1/4 revolution at a time until you see how much the roller moves with each minor adjustment.
- Be sure that when you lock the upper blade guide height lock handle, the upper blade guide roller does **not** push the blade away from the lower blade roller.
- Each adjustment of the post will change the tension on the upper blade guide height lock. To adjust the lock tension, follow the procedure described in "Adjusting the Upper Blade Guide Height Lock" in this section.

Once you've completed these adjustments to your satisfaction, hold the screws from turning with a screwdriver and tighten the jam nuts. (See Figure 12.)

Figure 12. To adjust the upper blade guide roller front-to-back, loosen the jam nuts on the two guide post adjusting screws. Turn the screws until the roller is properly positioned, then tighten the jam nuts while keeping the screws from turning, as shown.

Check each blade roller one more time. With the rollers correctly adjusted, the blade should ride in the center of all three of them. The back of the blade should lightly contact the auto-track roller and the lower blade guide roller, and it should be no more than 1/64" away from the upper blade guide roller no matter what the position of that roller is above the table.

WARNING: Be sure to reinstall the blade guard before operating the bandsaw.

Alignment and Adjustment

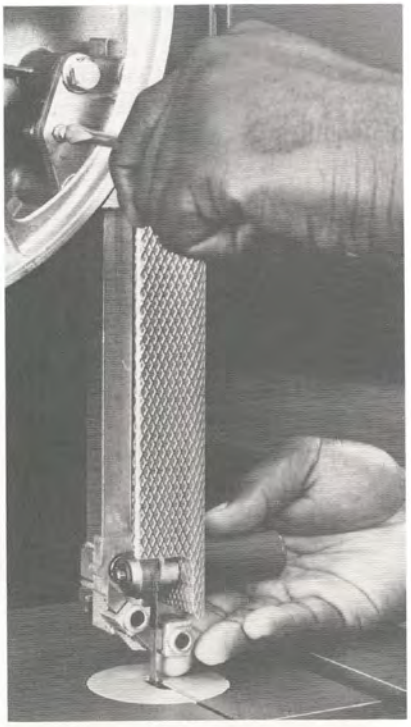


Figure 13. To adjust the tension on the upper blade guide height lock, turn the adjusting screw on the left side of the guide post retainer.

Adjusting the Upper Blade Guide Height Lock

The upper blade guide can be locked at any height 0"-6" above the table. To change the height of this blade guide, swing the upper blade guide height lock handle 90° to the right to loosen the locking mechanism. Adjust the upper blade guide so that it's 1/4" above the surface of the stock to be cut, then lock the guide in place by swinging the handle so that it points straight back (toward the drive shaft).

If the movement of the upper blade guide height lock seems stiff (or loose), you need to adjust the tension on the locking spring. This tension is set by a small headless screw in the left side of the guide post retainer between the mounting bolts.

To increase the lock tension, turn the adjusting screw **counterclockwise.** To reduce the tension, turn it **clockwise**. (See Figure 13.) There should be enough tension to hold the guide post securely when locked in place, but not so much that the lock handle is difficult to operate or that the guide post will not slide easily when the lock is released.

Tip: The blade guide height lock tension is correctly set when you unlock the handle and the upper blade guide drops smoothly to 1/4"-1/2" above the tabletop, with no need to pull it down.

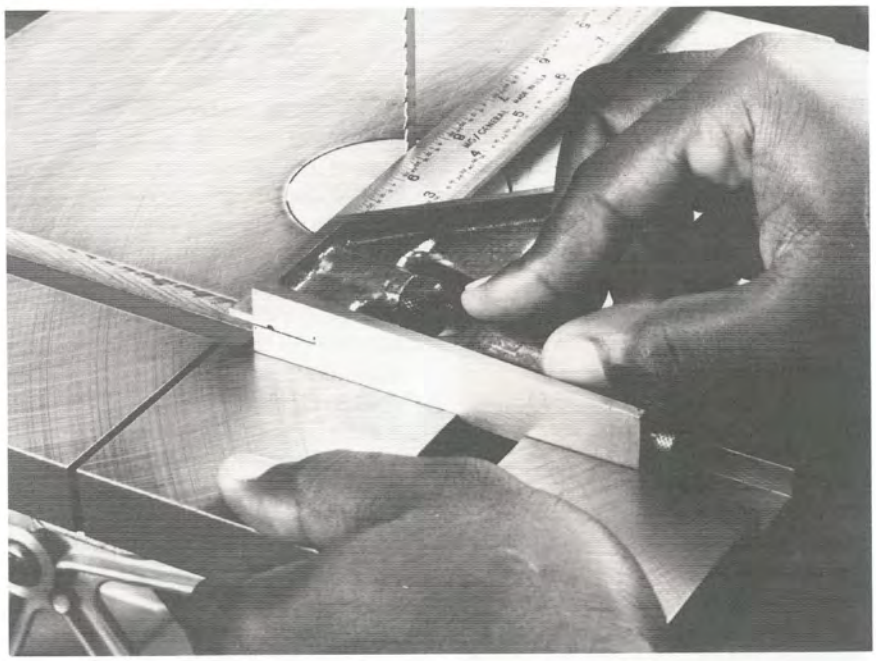


Figure 14. Use a square to check the alignment of the miter gauge slots with the flat of the blade.

Squaring the Table to the Blade

For most bandsaw operations, the table must be set square to the blade. The surface of the table should be 90° from the blade, the miter gauge slot that runs front-to-back should be parallel to the flat of the blade, and the slot that runs left-to-right should be perpendicular to the flat of the blade.

Table Slots — To align the miter gauge slots with the flat of the blade, loosen the four mounting bolts that hold the table to the trunnions. Place one arm of a square against the front edge of the left-to-right slot and the other against the flat of the blade. (See Figure 14.) Turn the table until

Alignment and Adjustment

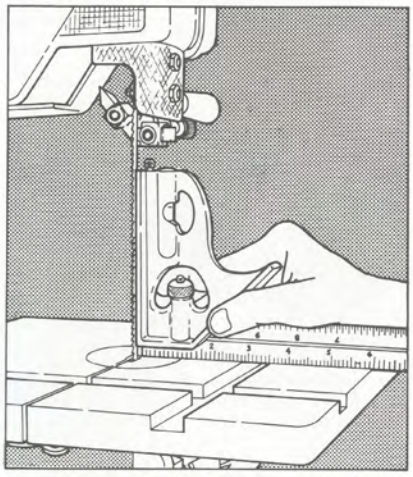


Figure 15. Use a square to check the angle between the flat of the blade and the table surface.

the square rests flush against the blade, then carefully tighten the mounting bolts.

Table Surface — To align the table surface with the blade, secure the table tilt at "0" and check that the table insert is perfectly flush with the table surface. Place your square on the table and check the angle between the **flat** of the blade and the table. It should be exactly 90° — one arm of the square should rest flush against the table and the other flush against the flat of the blade. (See Figure 15.)

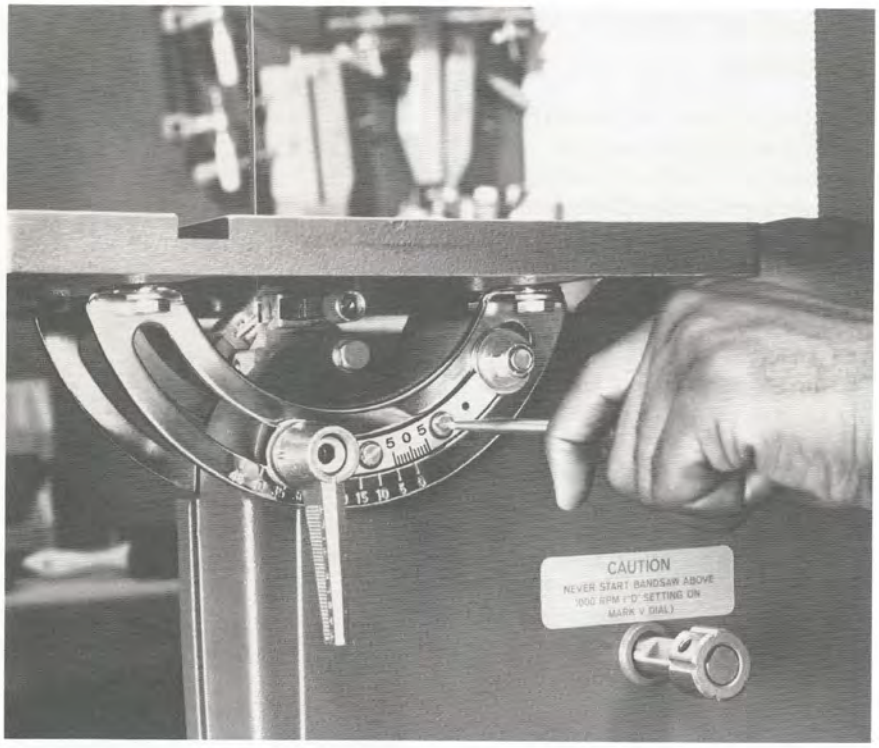


Figure 16. With the table square to the blade, reset the vernier scale underneath the table to "0".

If adjustment is needed, loosen the tilt lock and reposition the table. (You may have to adjust the auto-stop on the underside of the table if it prevents you from tilting the table in the direction it needs to go. See "Setting the Table Auto-Stop" in this section.) When the table is square to the blade, tighten the tilt lock. With a blade screwdriver, loosen the small vernier scale underneath the table, reset it to "0", then secure it in place. (See Figure 16.)

The angle of the table surface to the **back** of the blade should never need adjustment. The bandsaw is manufactured so that this angle is slightly off from 90°. This helps prevent the machine from bogging down when you first start to cut, especially in thick stock. However, if you find that this angle interferes with your work, loosen the mounting bolts that hold the table to the trunnions. Remove the two bolts on the **low** side of the table, but leave the other two bolts in place. Where you have removed the bolts, insert thin flat washers or brass shims between the table and the trunnion until the table surface is square to the back of the blade. Replace and tighten all mounting bolts.

Tip: Brass shims are available at most automotive stores.

Check these adjustments periodically for accuracy. Critical setups should always be checked to help insure a perfectly square cut.

Alignment and Adjustment

Setting the Table Auto-Stop

When correctly set, a hexhead bolt under the left side of the table between the trunnions serves as an auto-stop and automatically returns the table tilt to "0". To do this, the bolt must be adjusted so that it rests against the top of the bandsaw frame when the table is exactly square to the blade.

With the flat of the blade square to the table and the vernier scale correctly set, look under the table to see if the bolt is touching the bandsaw frame. If it's not, loosen the tilt lock, tilt the table to 45°, and back the bolt out slightly with a 1/2" wrench. (Use a 1/2" socket, open-end, or box-end wrench to make this adjustment. You won't be able to get an adjustable wrench between the trunnions. (See Figure 17.)

Tilt the table back until the bolt strikes the frame. Look at the indicator to see if the bolt has stopped the table tilt at "0", and check the angle of the table surface to the flat of the blade. Repeat this procedure as needed until the bolt stops the table when the surface is square to the flat of the blade.

Tip: By removing the auto-stop altogether, you can tilt the table 5° to the **left** for special operations. Reinstall and reset the auto-stop when you're finished with the operation.

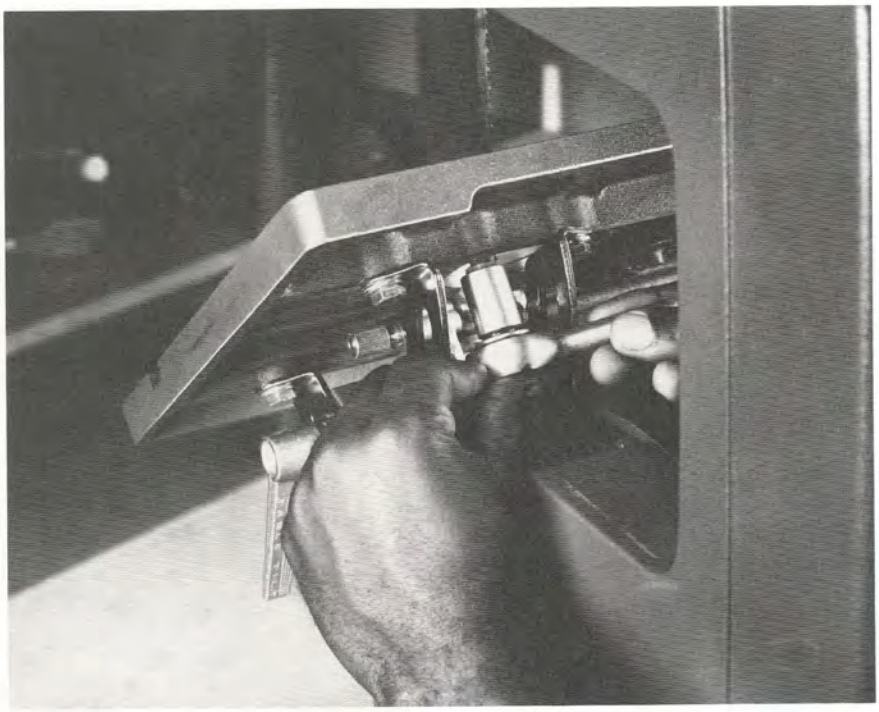


Figure 17. Adjust the auto-stop until it stops the table when the surface is square to the flat of the blade.

Changing the Table Tilt

In order to change the cutting angle, loosen the tilt lock and adjust the table to the desired angle.

If the desired angle is divisible by 5, simply align that angle stamped in the trunnion with "0" on the small vernier indicator scale. To set the table at an angle that's not divisible by 5, first find the nearest angle that **is** divisible by 5 and is smaller than the angle you want. For example, if you want to tilt the table to 17°, the nearest angle that's smaller than 17° but divisible by 5 is 15°.

Next, subtract the smaller angle from the desired angle. 15° from 17° is 2°. Tilt the table so that the 15° mark on the trunnion is 2° to the right or 'up' from the "0" mark on the small vernier scale. 15 + 2 = 17. Notice that the "0" mark is between 15° and 20° on the trunnion. (See Figure 18.) If you had wanted to set the table at 19°, you would have tilted the table so that the 15° mark on the trunnion was 4° up from the "0" mark on the vernier scale. 15 + 4 = 19.

When you have adjusted the table to the desired angle, tighten the tilt lock.

Tip: The scale stamped in the trunnion and the vernier indicator scale allow you to accurately adjust the table angle to the nearest 1°, when the tilt indicator is properly set.

Alignment and Adjustment

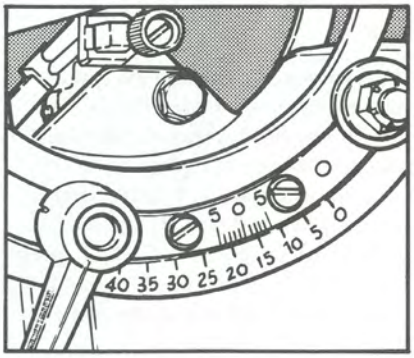


Figure 18. To tilt the table at an odd angle, use the small vernier indicator scale. As shown, the table is tilted at 17°.

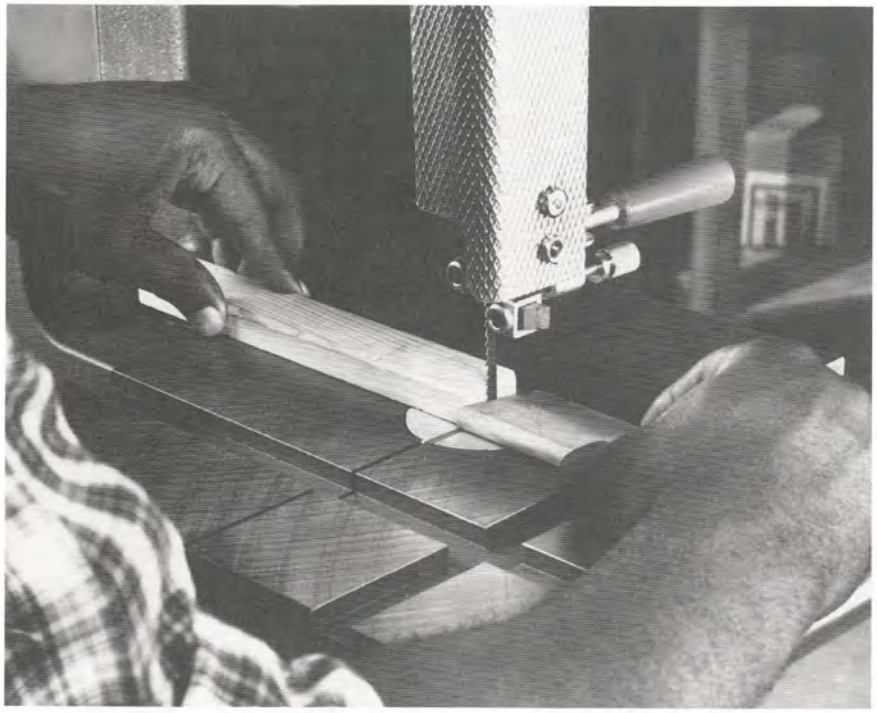


Figure 19. If the blade is 'leading' — wandering off the cut line — because the teeth are improperly set, you may be able to correct this by lightly honing the lead side of the blade.

However, critical setups should always be checked with a square, protractor, or drafting triangle.

Correcting Blade Lead

If the blade guides are worn or improperly adjusted, or if the blade teeth are improperly set, the blade may 'lead' while you're working — wander off the pattern line to one side or the other. This can ruin your cut, particularly when you're ripping or resawing. You may be able to compensate for this lead by simply changing the angle you feed the work into the blade. But if the blade lead is excessive and interferes with your work, follow this procedure:

First, check the **blade guides.** If the gaps between the guide blocks are too wide or the guide blocks are set too far back behind the gullets, readjust the blade guides as described in Steps 12 and 13 of "Removing and Installing Blades" in this section. If the blade guides are worn, grind a new face on the guide blocks as described in "Resurfacing the Guide Blocks" in the **Maintenance** section.

If the blade guides are correctly adjusted and not worn, the blade lead is probably caused by the uneven **set of the teeth.** One clue that the teeth may be improperly set is when the blade always leads to one side or the other. If the blade lead is strong, you can only remedy it by having the blade reset and resharpened at a saw shop. If the blade lead is minor, you may be able to correct it yourself by **lightly honing** the lead side of the blade while the bandsaw is running. Back up the blade with a scrap of wood and apply the honing stone **very lightly** to the side of the blade that it leads toward. (See Figure 19.)

WARNING: Use extreme caution when correcting for blade lead, since more of the running blade is exposed than on other bandsaw operations. And remember to wear eye protection.

Alignment and Adjustment

Offsetting the Blade

During some woodworking operations, you may find it useful to twist or offset the bandsaw blade. By offsetting the blade on your Shopsmith Bandsaw, you can cut off any length of stock that you can safely handle — as long as that stock is not more than 3-7/8" wide.

In order to offset the blade, the guide blocks are reversed. In this position, the gap between the guide blocks is angled 30° to the right (as viewed from the top). As the blade runs through this gap, the guides twist it to the right. (See Figure 20.) Because the guide blocks contact the blade in the offset position, they will wear more rapidly than in their normal setting. For this reason, we recommend that you offset the blade **only** when you have a special operation to perform.

We also recommend that you offset **only 3/8" and 1/2"** wide bandsaw blades. The teeth of narrower blades will contact the guide blocks and wear them away rapidly. If you use a 1/2" blade, you will have to slightly modify your table insert, as shown in Figure 21.

WARNING: If your bandsaw is mounted on a power stand, you must have AT LEAST a 3/4 hp motor to operate an offset blade. Less powerful motors will burn out.

To offset the blade on your Shopsmith Bandsaw, follow this procedure carefully:

1. Unplug the machine from its power source. Remove the cover and the table insert, and loosen the table leveling latch.

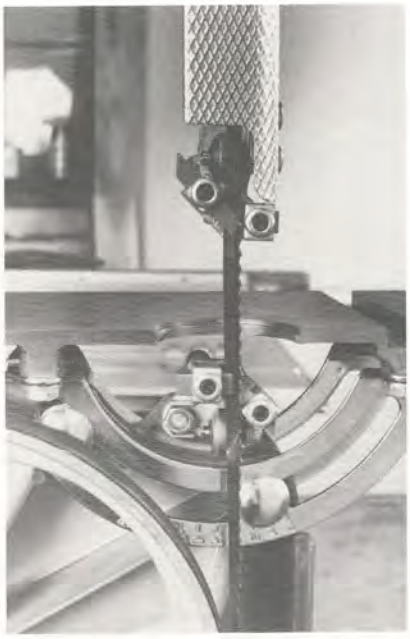


Figure 20. By reversing the guide blocks, you can offset the blade 30° to the right. This allows you to cut off any length of stock without interference from the bandsaw frame, as long as the stock is not more than 3-7/8" wide.

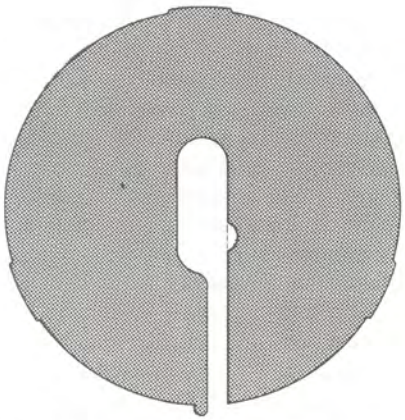


Figure 21. If you offset a 1/2" blade, file away a small portion of the table insert, as shown. Otherwise, the table insert may interfere with the running blade.

2. Mount a 3/8" or 1/2" blade on the bandsaw if you haven't done so already, following the procedure described in "Removing and Installing Bandsaw Blades" in this section. However, **reduce the blade tension** to the 1/4" setting for 3/8" blades or the 3/8" setting for 1/2" blades.

3. Adjust the blade guides so that the front edges of the guide blocks are approximately 1/4" in back of the gullets between the teeth of the blade.

4. Remove and reverse the guide blocks, turning them end over end. When you have reversed the guide blocks, the gap between them should be angled 30° to the right when viewed from the top, as shown in Figure 22. Do not secure the guide blocks in place yet, but back the **left** guide blocks out 1/4" away from the blade.

5. Push the right guide blocks in until they contact the blade, twist the blade slightly, and push the back of the blade so that it almost touches the left side of the blade guide housing, as shown in Figure 23. Adjust the position of these guide blocks to allow 1/16" clearance between the back of the blade and the blade guide housing, then secure them in place.

6. Push the left guide blocks in until they contact the blade and twist it the full 30°. Then back the blocks off slightly and lock them in place. When all four guide blocks are locked in place, the right guide blocks should contact the blade towards the back, and the left guide blocks should contact the blade towards the front, as shown in Figure 24.

Alignment and Adjustment

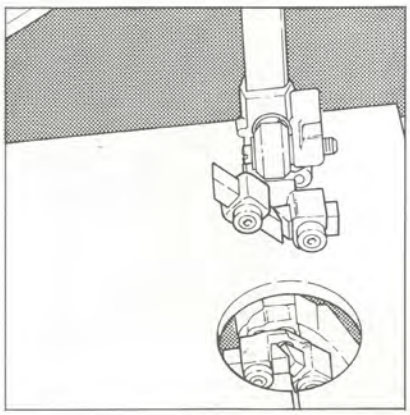


Figure 22. The ends of the guide blocks are beveled so that when you reverse them in the blade guide housing, the gap between the blocks will be angled 30° to the right, as viewed from the top.

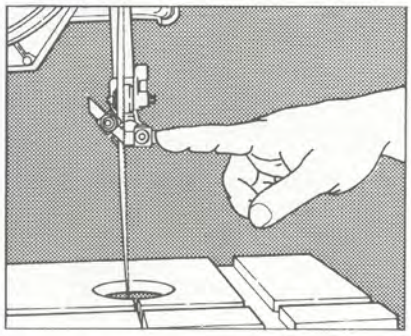


Figure 23. Push the right guide blocks in so they contact the blade and twist it. Allow 1/16" clearance between the back of the blade and the left side of the blade guide housing.

7. Spin the idler wheel by hand to check that the blade runs without interference. Don't worry if the wheels seem difficult to turn; this is normal for an offset blade. However, if the blade is tight or binds in spots, the guide blocks should be readjusted. Also check that the back of the blade does not rub against the blade guide housings and that the teeth of the blade do not cut into the guide blocks.

8. Replace the cover and table insert. Also, secure the table leveling latch.

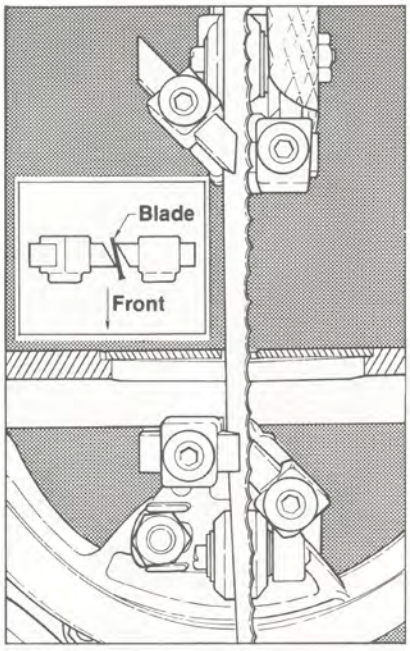


Figure 24. Push the left guide blocks in and adjust them so that they contact the blade toward the front, while the right guide blocks contact the blade toward the back.

WARNING: Do not run the bandsaw for more than a few minutes at a time when the blade is offset. Otherwise, the blade will heat up and break.

Tip: To help an offset blade run more smoothly, press a block of paraffin or soap against the flat of the blade while it's running. This will lubricate the blade where it rubs against the guide blocks.

Drive Hub Alignment

If you use the Shopsmith Mark V to power your bandsaw, the drive shaft of the bandsaw and the upper auxiliary spindle of the Mark V must be aligned horizontally and vertically. This alignment procedure is described in Steps 6 and 7 of the **Setup** section.

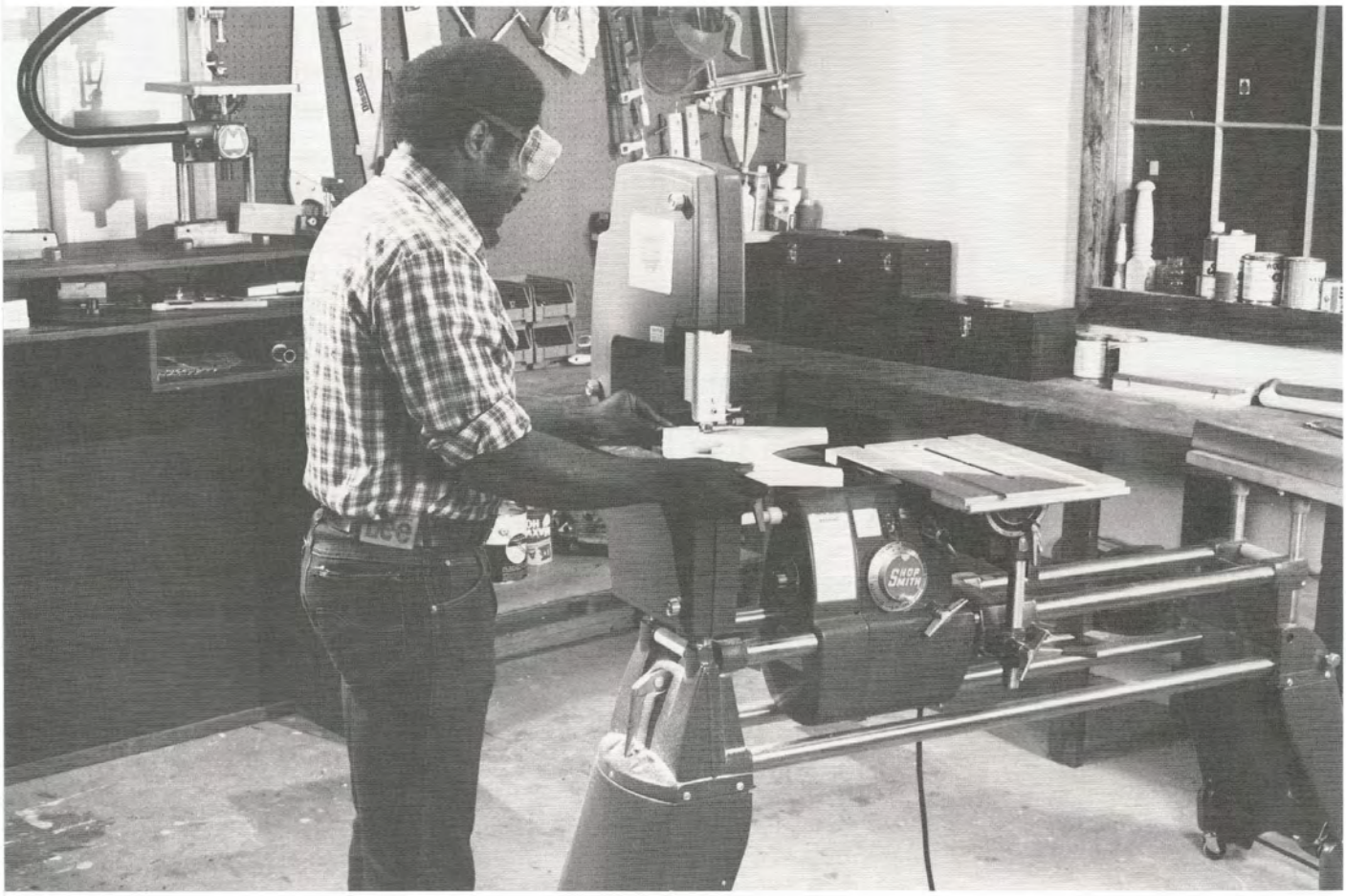
Alignment and Adjustment Safety Checklist

When you've finished aligning and adjusting the various parts of your bandsaw, take a minute to review your work, just as you did after the initial setup. Here's a checklist:

- Is the bandsaw blade properly mounted and tensioned?
- Is the blade centered on the rollers? Does it rest against the auto-track roller and lower blade guide roller, while remaining no more than 1/64" away from the upper blade guide roller?
- Are the blade guides properly adjusted?
- Is the height of the upper blade guide properly adjusted?
- Is it locked securely in place?
- Does the blade operate freely?
- Is the table insert in place and flush with the table?
- Is the table adjusted to the correct work angle and is the tilt lock secured?
- Are the drive hubs properly aligned?
- If you're using the Mark V to power the bandsaw, is the power coupler installed correctly? Are both the accessory mount lock and the headrest lock tightened?
- If you've mounted the bandsaw on a power stand, is the V-belt properly tensioned and the pulley guard in place?

WARNING: Before you plug in the Mark V or the motor that powers your bandsaw, BE SURE the power switch is in the "Off" position.

Operations



Using Your Shopsmith Bandsaw

The information in this section will give you the basic understanding you'll need to safely perform typical bandsaw operations. Once you've mastered these techniques, you'll find additional ideas for using the bandsaw in many woodworking books and magazines.

To get the 'feel' of your bandsaw, practice doing simple work before you tackle more difficult operations. We suggest you practice first with a clean, straight piece of softwood, approximately 3/4" thick, 4"-6" wide, and 12"-18" long.

Tip: Be sure you read and understand the **Safety** section of this manual **before** attempting any operation. **This is very important.**

Purpose of the Bandsaw

The bandsaw gets its name from the continuous loop or "band" formed by the flexible steel blade. This blade cuts with a downward motion, toward the table. Because it cuts continuously, you'll find the bandsaw is one of the fastest cutting tools in your shop.

The bandsaw will perform a wide variety of workshop operations. The two most common uses are cutting curves or irregular shapes in wood, and resawing (slicing thin boards from thick ones). But you can also make crosscuts, rips, bevels, miters, compound curves, duplicate parts, and many other special cuts.

You can also cut materials other than wood. With the proper blade installed, the bandsaw will cut plastic, plastic laminates, particle board, and even soft, non-ferrous metals such as copper, brass, and aluminum.

Operations

Danger Zones and Safety Zones

As you get ready to use your Shopsmith Bandsaw, take a minute to review where the danger zone stops and the safety zone begins, as defined in "Danger Zones and Safety Zones" in the **Safety** section. **This is extremely important!**

On the bandsaw, the danger zone and safety zone are separated by an imaginary boundary 1-1/4" out from the blade in all directions and 6' to the right of the bandsaw. (Although it's uncommon, it's possible for the blade to break and come spiraling out of the machine on the right side.)

If you let your hands and fingers get closer than 1-1/4" to the moving blade, or if you stand to the right of the machine while working, you're in the danger zone. (See Figure 1.) You're in the safety zone when your fingers and other parts of your body are **at least** 1-1/4" away from the blade and you're standing in front of the machine.

Use a push stick whenever you need to maneuver a workpiece inside the danger zone. This safety device helps protect your hands and fingers, keeping them in the safety zone. A push stick also gives you better control when you're working near the blade, and this helps produce a better cut.

Tip: Many woodworkers keep a push stick in their hip pocket or shop apron so that it's always handy.

Always replace the cover on your bandsaw before you turn it on — **never** operate the machine without the protective cover. And remember there is a blade guard attached to the upper blade guide. This guard automatically covers the unused portion of the blade when the guides are adjusted properly. Always adjust the upper blade guides to a **maximum** of 1/4" above the stock. Not only is this safer, it gives the blade better support.

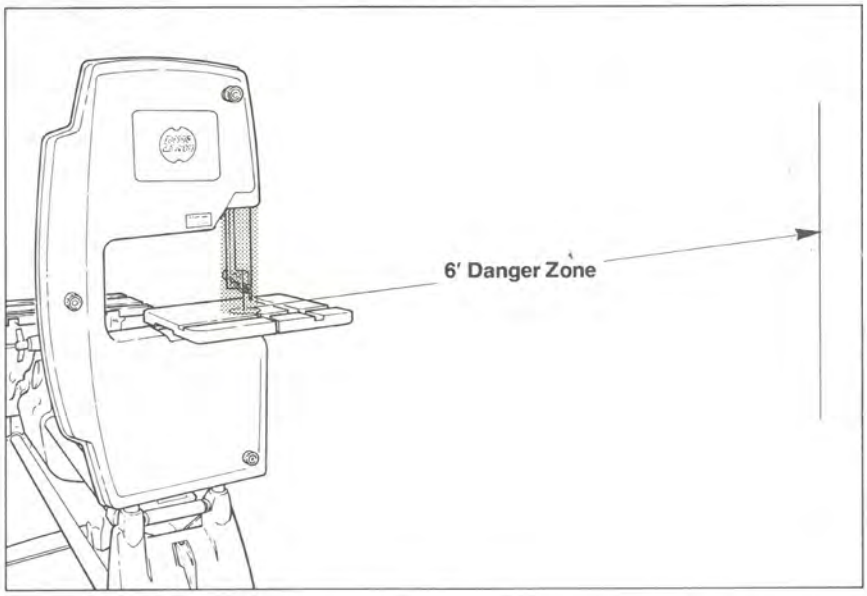


Figure 1. The danger zone on the bandsaw extends 1-1/4" in all directions out from the blade and 6' to the right of the machine. Keep all parts of your body out of the danger zone.

WARNING: NEVER reach close to the blade or under the bandsaw table to make adjustments, clear away chips, or for any reason whatsoever while the machine is running. Turn off the bandsaw first and let the blade come to a complete stop.

Selecting Blades

The Shopsmith Bandsaw comes with a 1/4" wide woodcutting blade, suitable for many different woodworking operations. However, this is only one of several blades available for your machine.

The Shopsmith Bandsaw will mount any blade 1/8"-1/2" wide and 72" long (within 1/2"). Choosing the right blade for the job will depend on:

- The kind of material you're about to cut
- The thickness of the stock
- The bandsaw operation you're about to perform
- The intricacy of the design (if any)

The wider the blade, the larger the teeth and the deeper the gullets. The added width makes the blade stiffer, so the cut is straighter. The larger teeth and deeper gullets help clear the sawdust in a thick cut. Wider blades are the best choice for heavy resawing or sawing thick stock.

Narrower blades are suited for intricate work. And the narrower the blade is, the tighter the radius it will cut. Choose narrow blades when you need to cut complex designs. To help select the blade that will work best for any given operation, refer to "How to Use Shopsmith Bandsaw Blades" in this section.

Operations

Bandsaw Speeds

Before you begin any bandsaw operation, set the machine to run at the correct speed. The speed of a bandsaw is measured by how fast the blade travels, or "Feet Per Minute" (FPM). The Shopsmith Bandsaw operates at blade speeds from 2000 to 3000 FPM. This translates to 'drive speeds' of 700 to 1050 revolutions per minute (RPM), or speed settings "Slow" to "D" on the Mark V.

WARNING: Be extremely careful not to run the Shopsmith Bandsaw too fast. If the bandsaw runs too fast — even for a minute — the blade may break, the rubber tires may spin off the wheels, and you may be injured.

If you're using the Mark V as a power source, be sure the speed is set **before** you connect the power coupling to the bandsaw. Turn on the Mark V, set the speed dial, and turn it off again. **Then** connect the power coupler.

If you're using a Shopsmith Power Stand, remove the pulley guard and position the V-belt on the 2" (smallest) groove of the 4-step motor pulley to a 4" pulley on the drive shaft of the bandsaw. **Remember to replace the pulley guard.**

The speed of the bandsaw is determined by the blade you use and the material you cut. Generally, slow speeds are used with wide blades to cut hard, thick woods and other dense materials. High speeds are used with narrow blades in soft materials to produce smooth cuts. To determine the correct speed for a particular blade, refer to "How to Use Shopsmith Bandsaw Blades" in this section.

You may also find instructions in other woodworking texts directing you to operate your bandsaw at a certain FPM for a specific operation. Should you need to convert RPM to FPM, or FPM to RPM to set the speed of your Shopsmith Bandsaw, use these two equations:

$$2.88 \times \text{RPM} = \text{FPM}$$

$$\frac{\text{FPM}}{2.88} = \text{RPM}$$

However, remember the warning: **Never** run the Shopsmith Bandsaw at a speed higher than 3000 FPM, 1050 RPM, or speed setting "D" on the Mark V.

How to Use Shopsmith Bandsaw Blades

	Shopsmith Part No.	Characteristics	Recommended Use	Recommended Speed (RPM, FPM)
	505582	**3/16" Woodcutting Blade** — .020 thick, .045 saw kerf, 6 teeth per inch, 1/2" minimum turning radius.	For fine scrollwork in wood and and plywood up to 3" thick. Not for heavy cuts or resawing.	C (950 RPM, 2750 FPM) for hardwood. D (1050 RPM, 3000 FPM) for softwood.
	505583	**1/4" Woodcutting Blade** — .020 thick, .045 saw kerf, 6 teeth per inch, 3/4" minimum turning radius.	For medium scrollwork and other operations in stock up to 4" thick. **This is the blade that comes with your bandsaw.**	B (850 RPM, 2450 FPM) for hardwood. C (950 RPM, 2750 FPM) for softwood.
	505580	**1/4" Combination Blade** — .025 thick, .045 saw kerf, 6 teeth per inch, 3/4" minimum turning radius.	A good general purpose blade for wood, plywood, plastics, particle board, and soft, non-ferrous metals. Limit resawing to stock 4" thick, metalwork to stock 1/4" thick.	B (850 RPM, 2450 FPM) for hardwood. C (950 RPM, 2750 FPM) for softwood. Slow (700 RPM, 2000 FPM) for other materials.
	505584	**3/8" Woodcutting Blade** — .020 thick, .050 saw kerf, 5 teeth per inch, 1" minimum turning radius.	For general operations in wood and plywood up to 6" thick. Limit resawing to stock 5" thick.	A (750 RPM, 2150 FPM) for hardwood. B (850 RPM, 2450 FPM) for softwood.
	505581	**1/2" Combination Blade** — .025 thick, .050 saw kerf, 4 teeth per inch, 1-1/4" minimum turning radius.	For heavy cutting of wood, plywood, plastics, particle board, and soft, non-ferrous metals. Suitable for resawing stock up to 6" thick, and metalwork in stock up to 1/2" thick.	Slow (700 RPM, 2000 FPM) for hardwood, softwood, and other materials.

Several other blade manufacturers make bandsaw blade stock for a variety of special purposes — intricate scrollwork, cutting iron pipe, etc. If you need a special blade, you can have it made up at a well-equipped commercial saw shop. **Use only high-quality blade stock 1/8"-1/2" wide.** Be sure that the finished blade is 72" long, plus or minus 1/2", and that the weld is ground perfectly smooth.

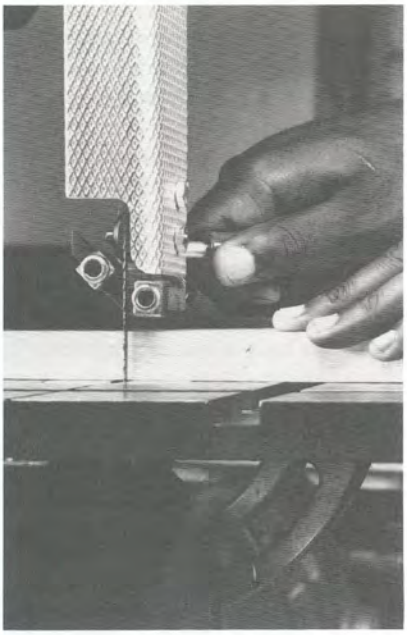


Figure 2. Adjust the upper blade guide so that it's a maximum of 1/4" above the work.

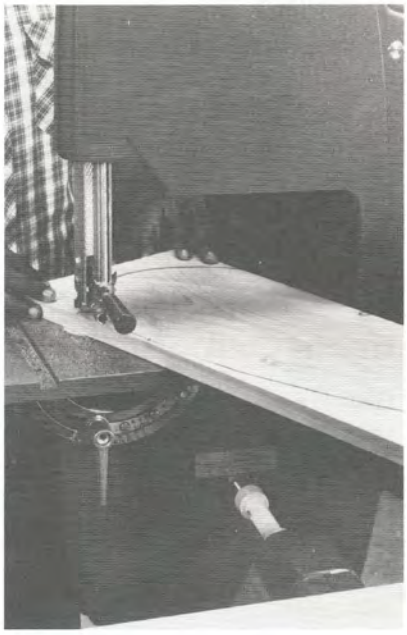


Figure 3. Think through the cut before you begin to be sure you can make the cut safely and without interference. Otherwise, you may find yourself unable to complete a cut, as shown.

Figure 4. The same cut that was shown in Figure 3 **should** have been started as shown here in order to complete it successfully.

Making a Cut

As you get ready to cut, make a quick safety check. Be sure you're wearing eye protection, your sleeves are rolled up above the elbows, and that the Mark V rests solidly on the floor — **not** up on its retractable casters. If you're working in a small shop where the dust in the air can become highly concentrated, wear a dust mask.

Adjust the height of the upper blade guide so that it's no more than 1/4" above the work. (See Figure 2.) Then think through the cut mentally before you turn on the machine. Know where you'll put your hands as you feed the wood into the blade; make sure the work won't be blocked by the bandsaw frame. (See Figures 3 and 4.) When you're satisfied that you can make the cut safely and without interference, turn on the power and wait until the machine comes up to running speed.

Take a comfortable stance in front and slightly to the left of the blade, and start your cut. As you work, you may shift more toward the center, but be careful not to stand on the right side of the blade. Slowly feed the stock into the blade. Use **both** hands to guide the work and keep it pressed firmly down against the table.

WARNING: Always turn the bandsaw on first and let it come up to speed, THEN feed the workpiece into the blade. NEVER turn on the machine with stock pressed up against the blade, or feed the work before the machine is running at full speed.

As you work, watch out for several problems that may cause the bandsaw to bog down or produce an inaccurate cut:

- Feeding the work too fast
- Side pressure (against the flat of the blade)
- Trying to turn a radius too small for the blade
- Excessive blade 'lead'
- Worn or dull blades

Don't force the work, but you can feed fairly rapidly since the machine cuts quickly. It's alright to pause in the cut for a moment, but try not to remain stationary for too long. The blade will heat up in the kerf, burning both the wood and the blade. Feed the workpiece directly against the teeth, even when cutting curves. To determine if a curve is too small for the blade, refer to "How to Use Shopsmith Bandsaw Blades" in this section.

Operations

If the blade continually wanders off the pattern, there are several possible causes: The blade guides may be improperly adjusted. Or you could be pressing against the side of the blade. You may also be trying to cut a curve that's too tight for the blade. If the blade wanders or 'leads' **just to one side or the other,** the teeth are improperly set. To correct the set of the teeth, follow the procedure described in "Correcting Blade Lead" in the **Alignment and Adjustment** section.

If the machine bogs down, stop a moment to let the bandsaw catch up. Check to see if the blade is twisting in the guides. If it is, you may be pressing against the side of the blade or trying to turn a corner too tight for the blade. If the blade is properly positioned in the guides, you're probably feeding the work too fast. Once the bandsaw is back up to running speed, feed the work a little slower. If the problem persists, check the blade to see if it's worn. Replace dull or worn blades immediately, following the procedure described in "Removing and Installing Blades", in the **Alignment and Adjustment** section.

If the blade jams on a scrap, turn off the machine and unplug the power **before** you attempt to clear the scrap. If the blade breaks, move around to the **left** side of the machine and disconnect the power. Wait until the wheels come to a complete stop before removing the cover to remove the broken blade.

WARNING: If you hear a ticking sound or any other unusual noise, stop the bandsaw IMMEDIATELY and correct the problem before proceeding. A ticking sound often means the blade or blade weld is damaged and close to breaking.

Helpful Cutting Hints

Getting a smooth, accurate cut begins by guiding the stock carefully with both hands, feeding the stock forward against the teeth at the proper rate, and not turning corners too tight for the blade. Here are a few additional tips to help you get the best results:

Cutting Outside the Pattern Line — For precision work, cut slightly outside the line — in the waste stock — then **sand** to the final dimension with a disc sander, belt sander, or drum sander. (See Figure 5.) Not only does this technique make it easier to be accurate, the finished edge is smoother. The millmarks left by the bandsaw are removed when you sand up to the line.

Figure 5. For smoothness and accuracy, cut outside the pattern line in the waste stock, then sand the workpiece to the final dimensions.

Breaking Up a Cut — Break complicated cuts up into simple curves and lines. Study your pattern to see how you might cut it in several easy passes. Don't be afraid to cut into the waste stock and loop around in order to reposition the blade at a better angle to the pattern line. (See Figure 6.)

Backtracking — In order to break up intricate patterns into simple cuts, you may have to cut in to a point, then back the blade out and cut from another angle. (See Figure 7.) This is a safe technique if done carefully, but there is always a danger that you may bind the blade, pull it out of the guides and off the wheels. Sawdust can also pile up behind the blade, preventing you from backing it out. To backtrack out of a cut longer than 1", turn off the machine and let it come to a complete stop **before** backtracking. If you can, avoid backtracking in long cuts altogether.

Drilling Relief Openings — A few well-placed holes will give you a lot of turning room to cut tight, **internal** curves. (See Figure 8.) Making relief holes is one of the handiest techniques for cutting intricate scrollwork. Drill these holes slightly inside the pattern line in the waste stock.

Operations

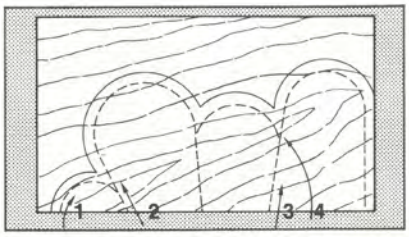


Figure 6. Break complicated cuts up into simple curves and lines.

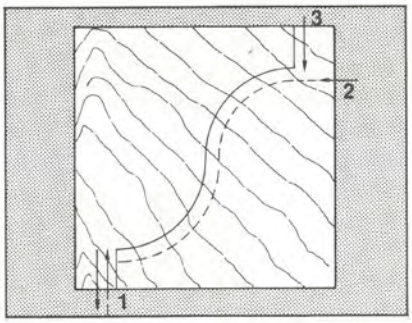


Figure 7. You may have to backtrack with the blade in order to cut some patterns. Plan ahead and avoid backing out of long cuts.

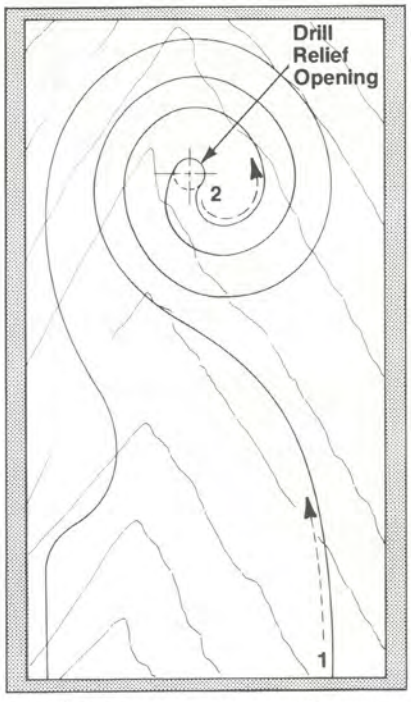


Figure 8. Relief openings give you turning room to cut tight, internal corners.

Making Relief Cuts — Radial or tangential relief cuts make it possible for you to cut a curve smaller than the blade can normally turn.

Make radial cuts toward the pattern line and backtrack out. Then cut the desired curve. As the blade meets up with each radial cut, a little piece of waste stock will fall away. This, in turn, provides more room for the blade to turn. (See Figure 9.)

Or: Make tangential cuts by cutting on the pattern line until the blade starts to bind slightly, then run off at a tangent to the curve. Cut completely through to the waste stock to the edge of the workpiece, removing a small amount of stock. Start cutting the pattern line again where you ran off at a tangent. Repeat this process until you've cut the desired curve. (See Figure 10.)

Tip: Radial cuts are useful when cutting both internal and external curves. Tangential cuts can only be used on external curves.

'Nibbling' — There are times when you'll need to cut a detail in a pattern that's too small to use any of the techniques described previously. For these extra-fine jobs, feed the stock **very lightly** against the blade and let the teeth 'nibble' it away. (See Figure 11.) This is handy when you need to cut tiny corners and curves.

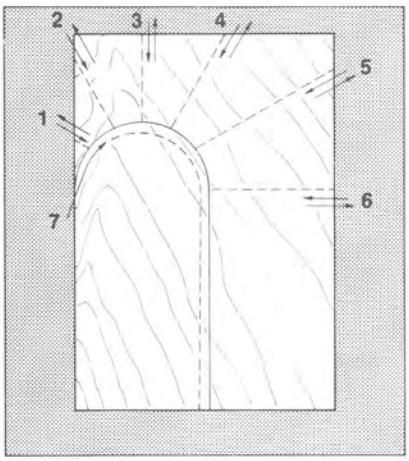


Figure 9. To cut tight external curves, make several radial cuts before you cut the pattern line.

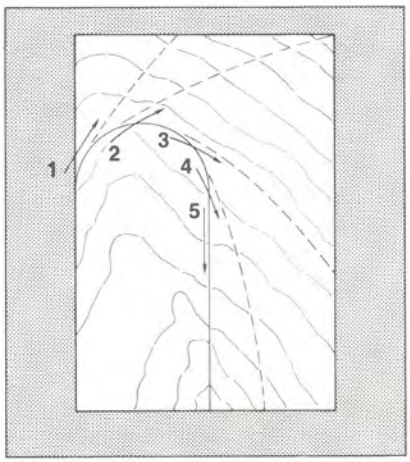


Figure 10. You can also cut tight external curves by making a series of tangential cuts, as shown.

Figure 11. To cut corners and curves in tight spots, feed the wood very lightly against the blade and let the teeth nibble away the stock.

Operations

Ripping and Crosscutting

As mentioned earlier, the table slots allow you to use your Shopsmith Miter Gauge (505700) for many bandsaw operations. By mounting the miter gauge in the slot that's **parallel** to the flat of the blade, you can make crosscuts and miter cuts similar to cuts on a table saw. (See Figure 12.) Your cutoff capacity, however, is limited to 10-1/2". Any longer than that and the stock will strike the bandsaw frame.

To increase the cutoff capacity when crosscutting, you can offset the blade, following the procedure described in "Offsetting the Blade" in the **Alignment and Adjustment** section. When the blade is offset, you can cut off any length of stock that you can safely handle, as long as the stock is not more than 3-7/8" wide. This is particularly handy for crosscutting 2 x 4's. (See Figure 13.) However, when the blade is offset, you must crosscut **freehand,** without the miter gauge.

By locking the miter gauge in the table slot that runs **perpendicular** to the flat of the blade, you can use the miter gauge as a rip fence. (See Figure 14.) Secure the miter gauge in the slot by turning the Allen screw in the center of the miter gauge bar clockwise. This presses the sides of the bar out against the sides of the slot. We also suggest you put a single thickness of paper in the table slot near the miter bar locking screw, as an extra precaution to keep the miter gauge from shifting during ripping operations.

WARNING: Be sure to keep a push stick handy during ripping operations and use it to feed the wood during the last few inches.

Figure 12. By mounting the miter gauge in the table slot that runs parallel to the flat of the blade, you can crosscut and miter.

Figure 13. With the blade offset, you can crosscut long boards, up to 3-7/8" wide.

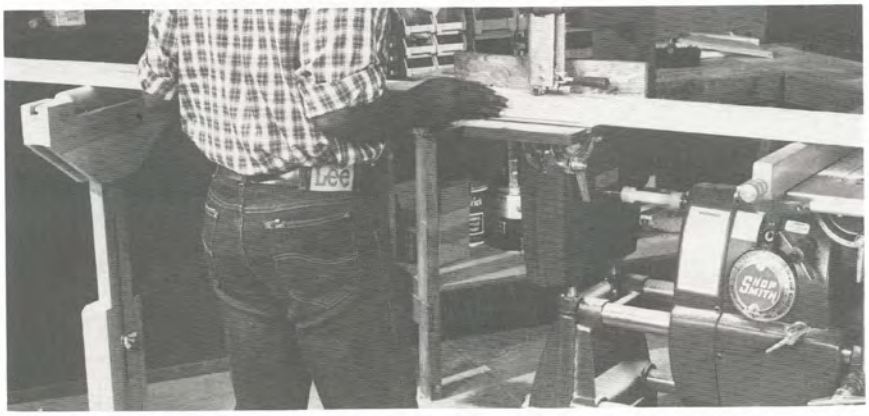


Figure 14. Lock the miter gauge in the table slot that runs perpendicular to the flat of the blade, and use it as a rip fence for ripping operations. If you need more support for long boards, attach a miter gauge extension to the miter gauge. You may also want to use a saw stand or the Mark V table and rip fence to support the workpiece on either the infeed or outfeed side of the bandsaw.

Operations

In many cases, the miter gauge itself provides enough support for ripping the workpiece. However, if you're ripping a particularly long or thick workpiece, use the Shopsmith Miter Gauge Extension (505630), or make one yourself as shown in Figure 15. You may also want to use a saw stand or the Mark V table and rip fence to help support the workpiece on either the infeed or outfeed side of the bandsaw.

When you're using the miter gauge as a rip fence, pay particular attention to blade lead — the tendency of the blade to wander off the cutting line. To correct blade lead, first try readjusting the blade guides or angling the miter gauge slightly. If this doesn't work, follow the procedure described in "Correcting Blade Lead" in the **Alignment and Adjustment"** section. If after trying both of these remedies, blade lead remains a problem, slow down the feed and give the blade more time to make the cut and stay straight.

If accuracy is not critical or the blade is showing excessive lead, you can also make rip cuts freehand. Just remember not to work with pieces so small that they bring your fingers inside the danger zone.

Resawing

Resawing thick stock into thin boards is one of the bandsaw's most useful functions. This operation cannot be performed efficiently on any other home workshop power tool.

To get a good resaw, first joint the bottom edge of the stock. Also make sure the face that will rest against the fence is as smooth and flat as possible. If the board is cupped, the cup should face the fence. Check the squareness of the table to the blade and adjust it, if necessary — just 1°-2° out of square will make the resawn board noticeably uneven.

Since resawing usually involves stock several inches thick and many feet long, it's a good idea to use a long, high miter gauge extension as the fence. (See Figure 15.) It's also a good idea to use a feather board to help hold the stock up on edge and flat against the fence. Shopsmith offers a feather board as part of our **Safety Kit** (505973), or you can make your own, following the plan in Figure 16.

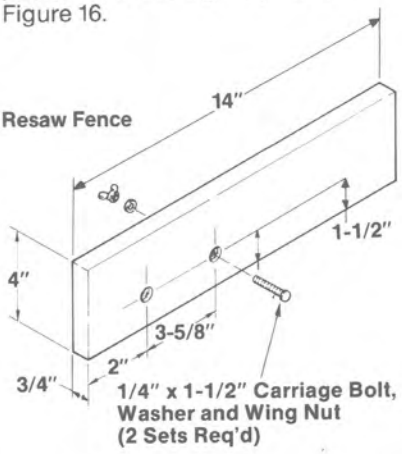


Figure 15. Following this drawing, you can make a miter gauge extension that can be used as a fence for both ripping and resawing on the Shopsmith Bandsaw.

Place the miter gauge in the table slot that runs perpendicular to the flat of the blade, and lock it in place so that the fence is 1/32"-1/16" farther away from the blade than the desired thickness of the resawn board. (This extra distance will give you room to surface the wood after it's been resawn.) Also clamp the feather board to the bandsaw table so that it will press against the stock **just in front** of the blade. (See Figure 17.)

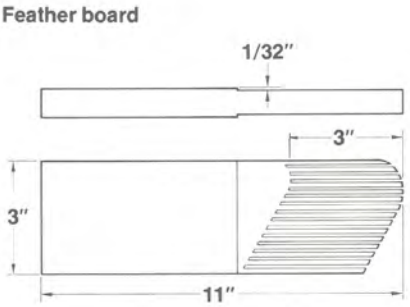


Figure 16. Following this drawing, you can make a feather board that can be clamped to the bandsaw table. This device helps keep the stock flat against the fence during resawing operations.

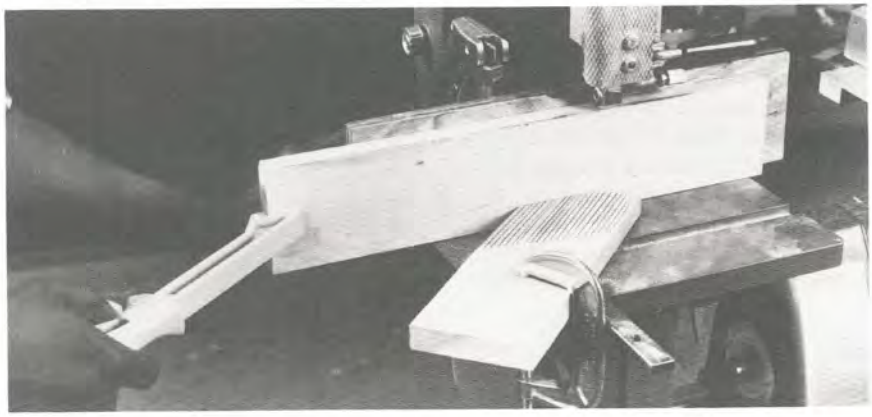


Figure 17. For safe, accurate resawing, use a miter gauge extension and a feather board to guide the stock. Be sure the feather board contacts the stock in front of the blade.

Operations

If you're using a 1/4" blade for this operation, increase the tension to the 3/8" mark on the blade tension scale. **Do not** increase the tension if you're using a 3/8" or 1/2" blade.

As you make the cut, hold the workpiece firmly against the fence. Take your time and don't rush the cut. If you rush, the blade may follow the annual rings in the wood, giving you an uneven cut. As with ripping, blade lead can also ruin your cut. If the blade tends to wander, even when you feed the wood slowly, readjust the blade guides or the angle of the miter gauge. If this doesn't work, follow the procedure described in "Correcting Blade Lead" in the **Alignment and Adjustment** section. If none of these remedies correct the problem, use another blade for resawing.

WARNING: Always finish up a resawing cut with a push stick. The last few inches will bring your fingers too close to the danger zone for safety.

Making Bevel Cuts

To make beveled cuts, simply tilt the table to the desired tilt and secure the tilt lock. If the accuracy of the cutting angle is critical, check the tilt with a protractor or drafting triangle.

You can make beveled cuts freehand, or you can use the miter gauge to guide and support the work. After the table is adjusted to the proper tilt, lock the miter gauge in the table slot that runs perpendicular to the flat of the blade, so that the miter gauge is on the **right** or downhill side of the blade facing up. This will keep the work from sliding down the table while making the cut. (See Figure 18.)

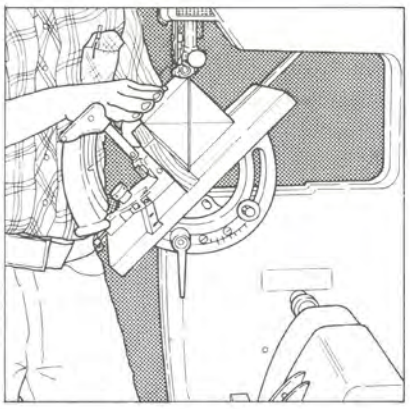


Figure 18. The miter gauge can be used to guide and support the work when making bevel cuts.

Adjust the upper blade guide so that it's as close to the work as possible. The left or uphill side of the work should barely clear the left guide block.

As you cut, hold the work firmly on the table and against the miter gauge. If you're making this cut freehand, be careful not to let the work slip downhill. This will put side pressure on the blade, making it hard for you to follow the pattern line and possibly bogging down the bandsaw.

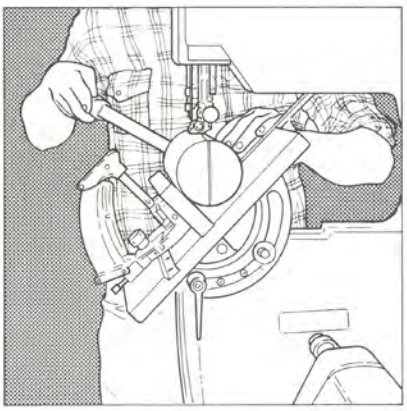


Figure 19. To rip round stock, lock the miter gauge with a miter gauge extension in a tilted table to form a "V", as shown.

Cutting Round Stock

Cutting round stock requires extra caution because its shape makes the workpiece difficult to hold. The teeth of the blade can easily catch the stock, spinning it out of your hands, or worse, dragging your hands into the blade. For this reason, round stock should always be supported and guided with the miter gauge or a V-block.

If you're ripping a round piece, such as a lathe turning, use the miter gauge with a miter gauge extension locked in a tilted table to form a "V". (See Figure 19.) If you're

Figure 20. Use the miter gauge or V-block to crosscut round stock. By attaching a stop block to the left side of the table, you can accurately cut duplicate lengths.

crosscutting round stock, use the miter gauge or a V-block to push the stock into the blade. **Hold the stock firmly** while you're working. By clamping a stop block to the left side of the table, you can cut duplicate lengths of dowel. **Make sure the back edge of the stop block does not extend beyond the front edge of the blade.** (See Figure 20.)

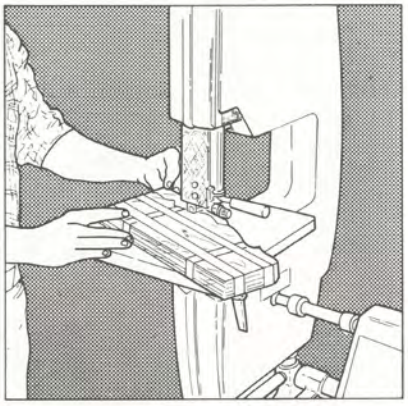


Figure 21. To duplicate patterns, fasten two or more boards together and 'pad saw' them all at once.

Making Duplicate Parts

Often you'll need two or more identical parts for a project. Although it's possible to cut them out individually and sand them to the same size and shape, there are two simple tricks that can make your work a lot easier.

Pad Sawing — To duplicate intricate patterns, stack two or more boards on top of each other. Tape or nail them together and saw them all at once as a 'pad'. (See Figure 21.) By placing nails in the waste stock, you'll never see the holes in the finished project.

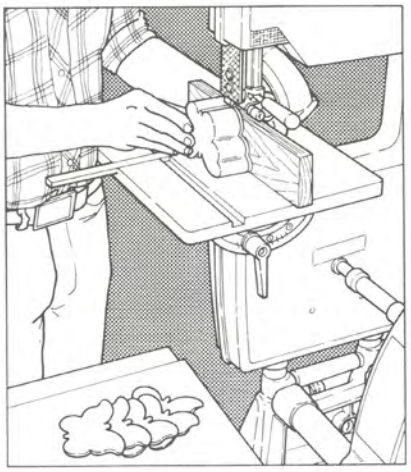


Figure 22. Another way to duplicate parts is to cut the pattern in a thick block of wood, then resaw thinner pieces off as needed.

Sawing and Resawing — Sawing and resawing can also be used to duplicate intricate patterns. First cut the pattern in a thick block of wood, then resaw thinner pieces off as needed. (See Figure 22.) Leave enough extra stock so that you can sand the resawn pieces smooth. This technique is especially useful when you need several thin, identical components.

Operations

Compound Cutting

By cutting a pattern in more than one side of a workpiece — compound cutting — you can make the stock appear to curve through three dimensions, as if you had carved it. This is an intriguing bandsaw technique that's useful on a wide variety of projects. You can use it to remove stock and simplify your lathe work, make cabriole legs for tables and chairs, or do 'bandsaw sculpture' — animal shapes, patterned posts and rails, fascinating lamp bases.

Begin by tracing a pattern on one side of the stock. Cut the pattern, **but save the waste.** (See Figure 23.) Tape the waste back to the workpiece in its original position. This will provide a solid base as you make other cuts. Turn the stock 90° so that another side faces up, and trace a pattern on it — it can either be the same pattern or a different one. Make a second cut with the bandsaw. (See Figure 24.) If you want, repeat this process to make a third cut. When you remove all the waste, you'll have a piece that looks as if you had spent hours handcarving it. (See Figure 25.)

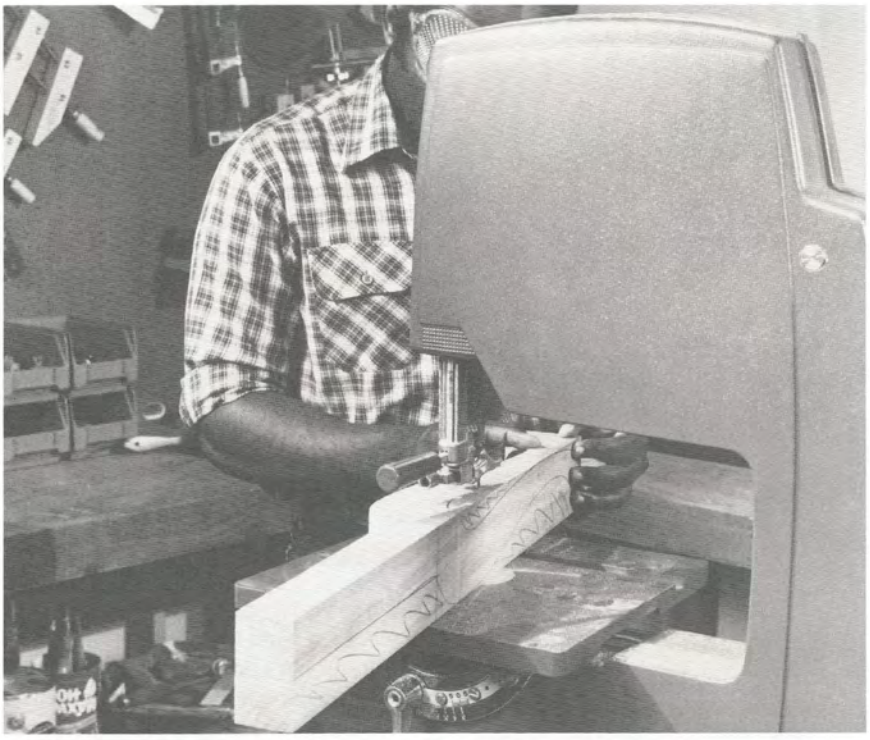


Figure 23. To make a compound cut, begin by cutting a pattern in a workpiece as you would normally, but save the waste.

Figure 24. Tape the waste stock back to the workpiece and make another cut.

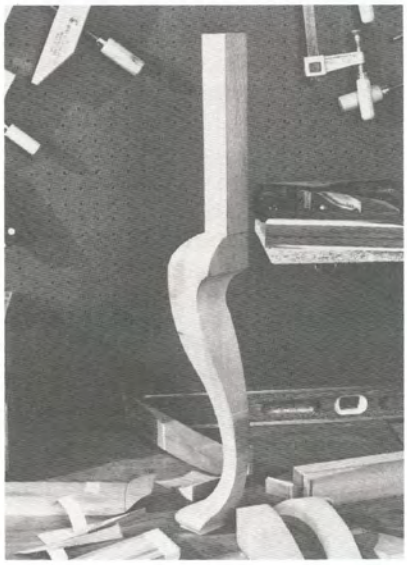


Figure 25. When you remove the waste, you'll have a piece that looks handcarved, like this cabriole leg.

Cutting Particle Board, Plastics, and Metals

As mentioned earler, your bandsaw will also cut materials other than solid wood and plywood. These include particle board, plastic, plastic laminates, and soft, non-ferrous metals such as brass, copper, and aluminum.

WARNING: Before cutting metals, clean out the bandsaw thoroughly to help prevent fires.

When cutting materials other than wood, always use a 'combination' or all-purpose blade. You can ruin a woodcutting blade immediately if you attempt to use it on tough stocks like these. Even a combination blade will dull rapidly if you use it constantly for cutting these materials. Also, **slow the speed down** as far as it will go.

Feed the stock very slowly — give the blade plenty of time to cut. When cutting non-ferrous metal, put 1-2 drops of oil on the pattern line every inch or so to help keep the blade from overheating. (See Figure 26.) If you're cutting round stock, such as pipe, hold it securely with a miter gauge or V-block to help prevent the teeth from catching it and spinning it out of your hands.

WARNING: Particle board releases toxic formaldehyde gas when cut. When cutting particle board, always work in a well-ventilated room.

Figure 26. When cutting hard materials, slow the speed of the bandsaw and the feed rate down. Apply oil to metals to help keep the blade from overheating.

Tip: When you're finished cutting particle board, plastics, or metals, remove the bandsaw cover and clean the tires thoroughly with a stiff bristle brush. If you don't, the filings and chips will become imbedded in the tires and damage them.

Advanced Bandsaw Techniques

As you can see from the operations described in this section, the Shopsmith Bandsaw is a capable tool with many possible uses. Once you have used the tool for some time and have become thoroughly familiar with it, you may want to learn about advanced techniques such as pattern sawing, cutting dovetails, bandsaw sculpture and more.

If you'd like to learn more, there are many good woodworking books available at your local library. Talk to experienced woodworkers or enroll in woodworking seminars and classes to pick up the pointers you need. But as with any power tool, never attempt any operation that is beyond your proven skill and ability. Practice the techniques described here before trying more advanced operations.

Tip: Study each bandsaw operation carefully. If you're in doubt about how to complete it safely, **don't try it.** Knowing how to use power tools safely and with proper respect is the first and most important mark of a true craftsman.

Maintenance

Caring for Your Shopsmith Bandsaw

Your Shopsmith Bandsaw is designed to deliver years of reliable service with a minimum of maintenance. Like any other power tool, however, it will perform better (and safer!) if you occasionally give it a few minutes of 'tender loving care'.

WARNING: Remember to unplug the machine and to uncouple the Mark V headstock from the bandsaw BEFORE you begin any maintenance or service procedure. DO NOT rely solely on the power switch.

Filing and Sharpening Bandsaw Blades

As you use your bandsaw, the blades will naturally become dull and worn. A dull blade cuts slowly, burns the wood, and if it's worn more on one side than another, will not track properly. File, sharpen, or replace dull blades **immediately**. Not only do they interfere with the performance of your bandsaw, there is also a danger they may heat up and break while you're using the machine.

Filing Blades — Many woodworkers will tell you it's not worth your while to file or 'touch up' your woodcutting bandsaw blades. This is not a difficult operation, but it's tedious. And since most saw shops will sharpen bandsaw blades for such a small fee, it may not be worth your time.

However, there are times when knowing how to file a blade may come in handy — times when the blade you need is dull and the saw shop is closed. And if economy is a major concern, occasionally filing your bandsaw blades will extend their useful life. For those of you who have the need and the patience, here's the procedure:

First, clean the built-up wood pitch from the blade. Apply mineral spirits or oven cleaner to dissolve the pitch, then wipe it off with a rag. Then clamp the clean blade between two blocks of wood (or a wooden-jawed vise) so that the teeth protrude slightly, as shown in Figure 1.

Notice that the teeth of the blade are slightly bent or 'set' from side to side. Their profile is slightly 'hooked'. (See Figure 2.) Pay careful attention to the set and the hook as you file the blade.

Using a slim-taper triangular file, file straight across the teeth perpendicular to the blade. Tilt the file slightly to match the hook of the teeth. (See Figure 3.) First, file the teeth that are set toward you, then reverse the blade and file the others. This will put the burr from the filing on the inside of the tooth, where it won't interfere with the cutting action. A blade filed from just one side may lead to the opposite side.

Maintenance

Figure 1. To file or 'touch up' a woodcutting bandsaw blade, clamp it in between two blocks of wood with the teeth protruding.

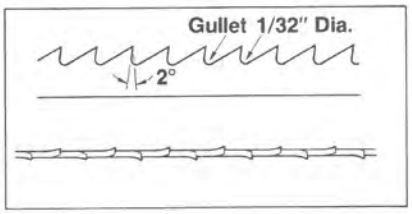


Figure 2. The teeth of a bandsaw blade are hooked slightly to draw them into the wood as they cut. The teeth are also bent or 'set' alternately right and left, parallel to the back of the blade. Some blades may leave every third tooth **unset**. This is called a 'raker' or 'skip' set.

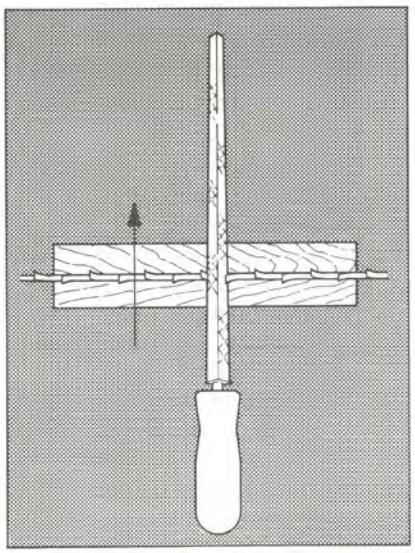


Figure 3. File straight across the teeth perpendicular to the blade, tilting the file to match the hook of the teeth. File the teeth that are set toward you first, then reverse the blade and file the others.

Don't file the teeth too much; you could destroy the set. If it takes more than 3-4 strokes of the file to restore the chisel edge on the teeth, the blade needs to be professionally sharpened. Count your strokes and use the same number of strokes on each tooth.

Tip: Mark the blade with a grease pencil when you begin to file it. This makes it easier to know when you're finished. **And don't attempt to file combination blades —** these have hardened teeth. When a combination blade becomes dull, either have it professionally sharpened or replace it.

Sharpening Blades — Even if you file your own blades regularly, you'll eventually need to have them professionally sharpened — after you touch up a blade 2-3 times, or when it becomes badly worn. Sharpening a bandsaw blade is an exacting operation that involves setting the teeth and grinding the hook to precise angles. (See Figure 2.) Unless you have the proper equipment, we recommend you take your dull blades to a saw shop to have this done.

When you have your blades sharpened, you may want to change the set of the teeth depending on the type of woodworking you're doing. A slightly larger set will enable you to cut a tighter radius. But it will also make the cut rougher and the blade harder to track. A smaller set is useful if you do a lot of resawing — the blade cuts smoother and tracks straighter.

Tip: As we mentioned before, combination blades have hardened teeth. Some saw shops may not be able to sharpen them.

Resurfacing the Guide Blocks

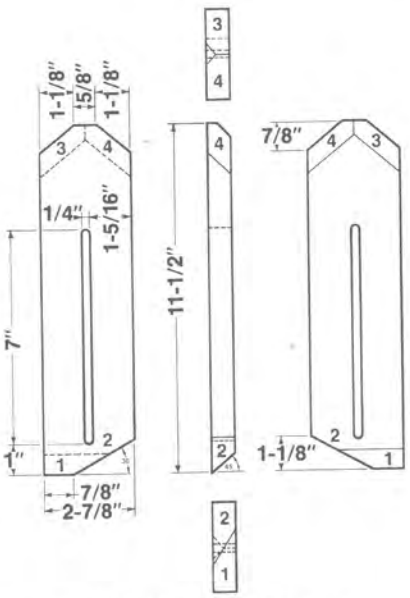
From time to time, the ends of the guide blocks may become worn or scored. If you set the blade guides properly, this shouldn't happen very often. But if it does, resurface the guide blocks following this procedure:

1. Turn off the bandsaw and unplug it from its power source.

2. Remove the guide blocks. If they're badly worn you may have to file the burrs off the edges before you can slide the blocks out of their brackets. Mark them with a felt-tip marker or grease pencil as you remove them — top right, top left, bottom right, and bottom left. Notice that these blocks are two different sizes. The top left and bottom right are **long,** while the top right and bottom left are **short.** Also notice that each of the long guide blocks has a **wide** side and a **narrow** side.

3. Set up your Shopsmith Mark V in the disc sanding mode. Use Fine (100#) sandpaper and run the speed down to "Slow". Put a scrap of wood on the way tubes under the sanding disc to catch grit and metal filings.

Maintenance



Guide Block Griding Fixture

Figure 4. To resurface the guide blocks on the Mark V, you need a miter gauge extension, as shown. You can make your own, following this drawing. Number the corners to help prevent confusion while you work.

Make a miter gauge extension, as shown in Figure 4, by routing a slot in a workpiece, then attaching that workpiece to the miter gauge. **Sand** all the necessary angles and bevels; you'll find this faster than cutting them. (If you wish, you can sand the miter gauge extension as you go through the next four steps, sanding a particular angle or bevel on the extension, then resurfacing the corresponding face on the guide blocks. This will save some time.) Lock the miter gauge with the miter gauge extension attached in the table slot nearest the sanding disc.

Tip: When you make the miter gauge extension, number the corners as shown. This will help prevent confusion while you work.

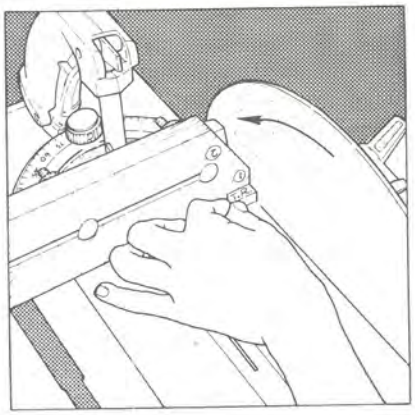


Figure 5. Resurface the square ends of the short blocks with the miter gauge set at 90° and the table set at "0". Always work on the 'down' side of the sanding disc.

4. Resurface the square ends of the short blocks first. With the table set at "0" and the miter gauge set at 90°, adjust the table and the miter gauge extension so that they are as close to the sanding disc as possible without contacting the disc. (The miter gauge extension should be positioned so that the one square corner — corner #1 —is closest to the sanding disc, providing maximum support when you grind the guide blocks.)

Stand at the **back** of the Mark V. Hold a short guide block firmly on the table and against the extension, almost touching the sanding disc — slightly behind the edge of the miter gauge extension. Turn on the Mark V and **lightly touch** the square end of the block to the sanding disc, grinding away metal until any scores or rough spots have been removed. (See Figure 5.) **Remember to grind on the 'down' side of the disc.** When you've finished, repeat this procedure for the other short block and turn off the machine.

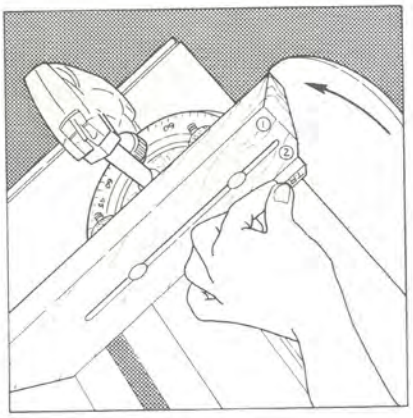


Figure 6. Resurface the beveled ends of the short blocks with the miter gauge set at 90° and the table set a 30° right.

5. Resurface the beveled ends of the short blocks. Tilt the table at 30° right and flip the miter gauge extension over so that corner #2 butts flush against the sanding disc. Readjust the table and the miter gauge extension so that they are as close as possible to the sanding disc without touching it. Turn the Mark V on and resurface the beveled ends of the short blocks, using the same technique you used in the previous step. (See Figure 6.) Turn the Mark V off when you've finished.

6. Resurface the offset (compound beveled) ends of the long blocks. Leave the table tilt at 30° right and set the miter gauge at 45° left. Turn the miter gauge around in the table slot and turn the miter gauge extension end for end so that corner #3 butts flush against the disc. Readjust the table and the extension so that they're as close as possible to the disc. Turn on the Mark V and resurface the offset end of the **bottom right** guide block with the **narrow** side down, held firmly on the table. (See Figure 7.) Turn off the Mark V.

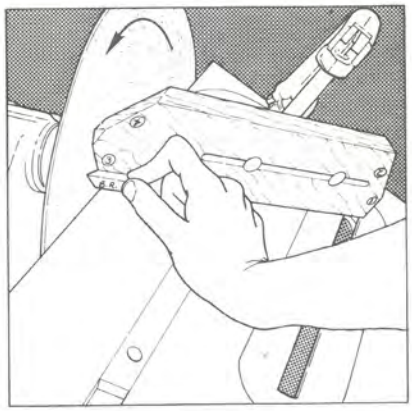


Figure 7. Resurface the offset (compound beveled) end of the bottom right guide block with the miter gauge set at 45° left and the table set at 30° right. The miter gauge should be reversed in the table slot.

Return the miter gauge to its normal position in the table slot. Reset the miter gauge to 45° right and flip the miter gauge extension over so that corner #4 butts up against the disc. Readjust the table and the extension, then resurface the offset end of the **top left** guide block with the **narrow** side down. (See Figure 8.) Turn off the machine.

7. Resurface the beveled ends of the long blocks. Return the table tilt to "0", but leave the miter gauge set at 45° right. Turn the miter gauge extension end for end, so that corner #1 again butts up against the disc. Readjust the table and the extension. Turn on the Mark V and resurface the beveled ends of the long guide blocks with the **narrow** side down. (See Figure 9.) Turn off the machine.

8. Replace and readjust the guide blocks in their proper positions. Lightly file the edges of guide blocks to remove any burrs. Replace the blocks in their proper brackets and readjust the blade guides as

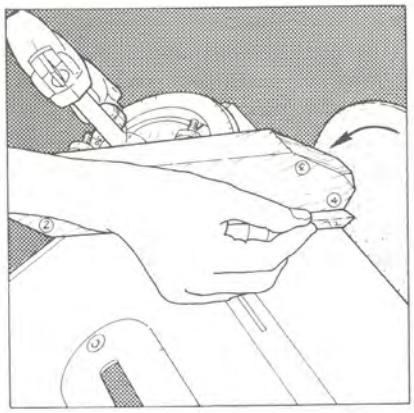


Figure 8. Resurface the offset (compound beveled) end of the top left guide block with the miter gauge set at 45° right and the table set at 30° right.

described in "Removing and Installing Blades" in the **Alignment and Adjustment** section.

WARNING: Be careful not to grind away any more of the guide blocks than you absolutely need to. If the long guide blocks should become shorter than 1-3/8", or the short guide blocks shorter than 3/4", replace the guide blocks with a new set.

Cleaning the Bandsaw

As you work, sawdust and wood pitch accumulates on the blade, blade guides, tires, and in the bandsaw. This residue can hurt the machine's performance.

Fine sawdust can dry out the bearings and cause them to wear prematurely. Pitch can build up on the blade, blade guides, and tires, interfering with the cutting action and causing the blade to track improperly.

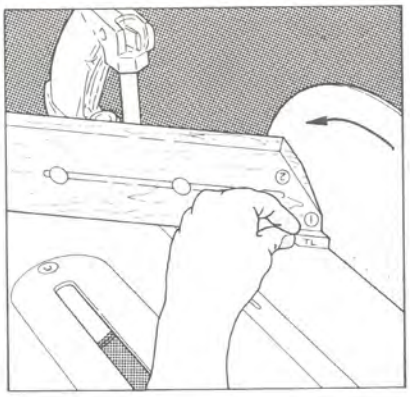


Figure 9. Resurface the beveled ends of the long guide blocks with the miter gauge set at 45° right and the table set at "0".

Once every 5 hours of running time — or sooner, if needed — brush off the bandsaw and blow out or vacuum the inside of the machine. If you elect to blow it out, use an air compressor or reverse the airflow on your home or shop vacuum cleaner. Bottles of compressed air (sold in most camera stores) also works well. **Remember to wear a dust mask!**

Brush the tires with a stiff bristle brush to remove impacted sawdust. And remove any sawdust from the blade guides, adjustment assemblies, under the table insert, and around the trunnions.

Every 10 hours of running time — or sooner, if you're working with wood that contains a lot of oils or resin — remove the built-up wood pitch from the blade, blade guides, and tires. Apply mineral spirits or household oven cleaner to dissolve the pitch, then wipe it off with a rag.

Tip: If you're using oven cleaner, be sure not to overspray and **do not** let it dry on the machine.

Maintenance

Lubricating the Bandsaw

Several parts of the bandsaw require lubrication at different periods:

Once every 5 hours of running time, lubricate all the blade rollers — the auto-track roller and blade guide rollers — with powdered graphite.

Once every 10 hours of running time, loosen the tilt lock and lubricate the trunnions, rocking them back and forth as you apply the graphite. Also, lubricate the blade tensioning screw, upper blade guide post, and the threads of the upper and lower blade guide adjusting screws with graphite.

As mentioned in the **Setup** section, we recommend powdered graphite for lubricating the bandsaw because it's dry and doesn't attract sawdust. On some parts, oil will mix with sawdust and form a gummy substance that prevents these parts from operating smoothly. Graphite is sold in most hardware and automotive stores. But if it's unavailable in your area, you can apply 10 wt. machine oil **sparingly** (1-2 drops only) to all the parts that need lubrication, with the exception of the trunnions. The trunnions should either be dusted with graphite or waxed.

If you do a lot of heavy work with your bandsaw, you may find that the blade rollers need lubrication more often than every 5 hours. Listen for a 'squealing' or 'barking' sound — this probably means the rollers need attention. (Remember that some roller noise is normal.) It's fine to lubricate them more frequently; just be careful not to get a lot of graphite or oil inside the machine.

Tip: If you find you need to lubricate the blade rollers often, and neither graphite nor oil seems to stop the squealing for long, try this: There is a fiber washer on either side of each blade roller. Remove these washers, soak them in oil overnight, and reinstall them. As you work, the oil will slowly drain out of the washers, lubricating the roller. If this doesn't work, the rollers are probably worn and need to be replaced.

Every 100 hours of running time, or once a year, grease the needle bearings in the idler (upper) wheel. The idler wheel is held on the shaft by a spiral-shaped spring clip. Remove this clip with a small blade screwdriver, gently lifting it out of its groove. (See Figure 10.) Remove the fiber washer and pull the wheel from the shaft. Wipe the shaft with a clean

Maintenance Schedule:

The maintenance intervals shown here are based on normal operation and assume that you will be careful not to abuse your bandsaw. If you work the machine unusually hard, or use it to cut metals and other hard materials, you'll need to maintain it more often.

If an unusual noise or vibration develops, stop the machine **immediately** and check the blade, blade guides, rollers, tension, bearings, and other parts or adjustments. Do not operate the bandsaw until you have located and corrected the cause of the noise or vibration.

- **As needed —** File or sharpen dull blades, replace worn-out blades. Resurface scored blade guide blocks.
- **When you change blades —** Adjust the blade tension and blade guides. Check blade roller positions.
- **Every 5 hours of running time —** Brush off and blow out the bandsaw completely. Lubricate blade rollers.
- **Every 10 hours of running time —** Repeat the previous step, plus clean the pitch from the blades, blade guides, and tires. Lubricate the trunnions, blade tension screw, blade guide post, and blade guide adjusting screws. Wax the table, miter gauge slots, and table insert. Check all alignments and adjustments.
- **Every 100 hours of running time —**Repeat the previous steps, plus lubricate the idler wheel bearing. Check all guide blocks, rollers, tires, and bearings for wear.

To estimate 'running time', use this rule of thumb: The average woodworker will use the power tools only 10% of the total time spent in the shop — at the most. And the time you spend running power tools will be split between your bandsaw and other machines. If you work in your

Maintenance

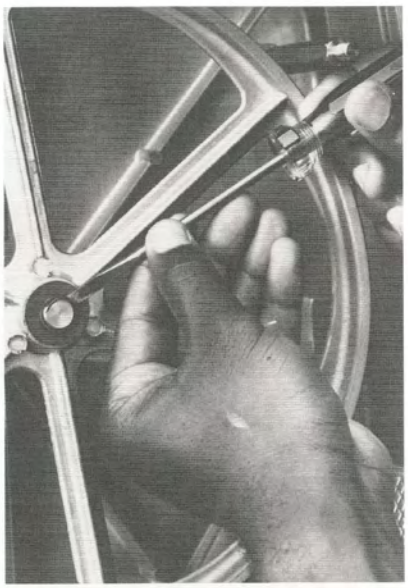


Figure 10. To remove the idler wheel, first remove the spring clip from the shaft with a small blade screwdriver.

rag to remove any dirt or dust, then grease the bearings inside the hub. Use cup grease or furnace bearing grease. Both are available at most hardware, heating supply, and automotive stores.

To replace the wheel, put it back on the shaft with the **long** side of the hub toward the **back** of the bandsaw. Wipe off any excess grease and replace the fiber washer. Start one end of the spring clip in the groove and work your way around the shaft, pushing the clip into place. When you've finished, pull out on the wheel to be sure the clip is securely seated.

Waxing the Bandsaw

Every 10 hours of running time — or sooner, if needed — wax **and** buff the working surfaces of the table, miter gauge slots, and table insert. Paste wax prevents rust, lubricates the work as it slides along the table, and helps metal parts slide together smoothly.

Use a good paste floor wax or paste furniture wax. DO NOT use car wax or furniture polish. Car wax forms a tough protective coat, but it doesn't lubricate. Furniture polish isn't tough enough. Paste floor wax or furniture wax protects **and** lubricates.

Apply the wax sparingly and rub it out thoroughly. If you apply too much wax or don't buff it, the wax will mix with sawdust, gum up the works, and leave residue on the wood.

Tip: Cast metal is porous and 'soaks up' the wax when the machine is new. Wax your bandsaw often during the first month to build up a good coat.

shop every weeknight for 3 hours and 10 hours on the weekend (25 hours total for the week), you've probably logged no more than an hour of running time on your bandsaw. If you use the bandsaw less often, maintenance cycles may be less frequent, but the 100-hour procedure should be performed once a year as a matter of practice.

Where to Get Maintenance Materials:

- **Compressed air** — Useful for cleaning your bandsaw. Available at most camera stores. You can also use an air compressor or reverse the air flow of your vacuum cleaner.
- **Powdered graphite** — Available at most hardware and automotive stores.
- **10 wt. machine oil** — Also called 'sewing machine oil'. Available at most hardware stores and sewing centers.
- **Cup grease** — Available at most hardware, heating supply, and automotive stores.
- **Paste furniture wax** — Available at most hardware, grocery, and paint stores. Don't use car wax or furniture polish.

Maintenance

Realigning the Bandsaw

Because the proper blade tension and the position of the blade guides are so important to the performance of the bandsaw, you should keep an eye on these adjustments whenever you're using the machine. If you suspect a problem, stop immediately and make corrections.

Whenever you change blades, check these bandsaw alignments and adjustments:

- Blade tension
- Blade roller adjustments
- Blade guide positions

Every 10 hours of running time, check the previous alignments and adjustments, plus:

- Table alignment and auto-stop
- Drive hub alignment

If any part of the bandsaw needs readjustment or realignment, follow the procedures described in the **Alignment and Adjustment** section.

Storing the Blades and Bandsaw

When storing a bandsaw, you have **two** separate considerations: How do you store the machine? And how do you store the blades, which are almost as big as the machine when uncoiled?

Storing Blades — If you can, we recommend you store bandsaw blades **uncoiled.** This will greatly reduce the chances of damaging the blades or cutting yourself.

However, few woodworkers have enough storage space in their shops to leave bandsaw blades uncoiled. If you wish to coil your blades when they're not in use, here's how:

Hold the blade out in front of you, with the teeth pointing away from your body. Grasp one side of the blade with the palm of your hand facing in, and the other side with the palm facing out. (See Figure 11.) Still grasping the blade, rotate your hands in **opposite directions.** The blade will begin to coil back on itself a second, and then a third time. These three coils will fall together naturally as you continue turning your hands. . . (See Figure 12.) When you have rotated each hand 180°, the blade will be completely coiled. (See Figure 13.) Wrap a piece of tape or wire around all three coils to keep the blade from uncoiling.

WARNING: Be careful when you uncoil bandsaw blades. They tend to spring apart, and the sharp teeth may injure you or a bystander.

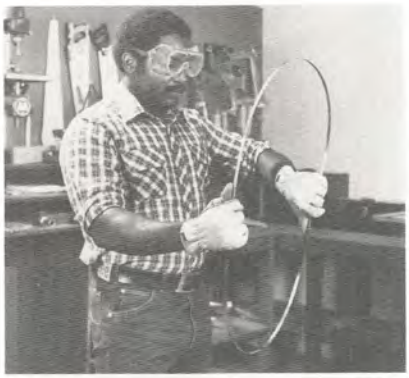


Figure 11. To coil a bandsaw blade, hold it out in front of you with both hands. The palm of one hand should face in; the other should face out.

Figure 12. Rotate your hands in opposite directions. The blade will begin to coil back on itself a second, and then a third time.

Figure 13. Let the coils fall into place naturally as you turn your hands. When you have rotated each hand 180°, the blade will be completely coiled.

Maintenance

Tip: Coiling and uncoiling a bandsaw blade is one of the few workshop operations where it's safer to wear gloves.

Normal use will prevent blades from rusting. However, if these blades are to be stored for an extended period of time or under unusually humid conditions, spray them with a rust-inhibiting light oil. Or: put them in a drawer with a camphor ice tablet. The camphor evaporates slowly, coating your blades with a protective film. These tablets are available at most drug stores.

Storing the Bandsaw — To prevent damage to the bandsaw when it's not in use, build a simple storage shelf as shown in Figures 14 and 15. The Shopsmith Mounting Base (505655) is optional, but since it's made to fit the mounting tubes and has setscrews for locking the bandsaw in place, you'll find it useful.

Normal use and regular waxing of the table and other exposed metal surfaces will prevent the machine from rusting. However, if the bandsaw is to be stored for an extended period of time or under unusually humid conditions, spray these parts with a rust-inhibiting light oil. Remove this oil with mineral spirits and rewax the bandsaw before using it again.

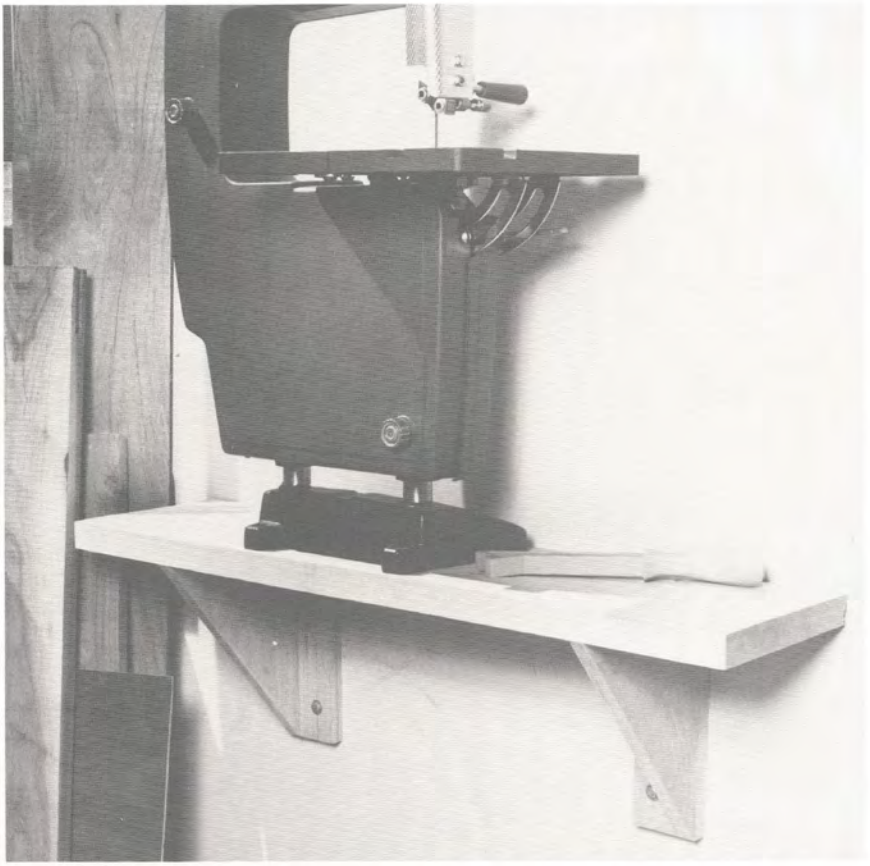


Figure 14. To prevent damage to the bandsaw while it's not in use, store it on a shelf in your shop.

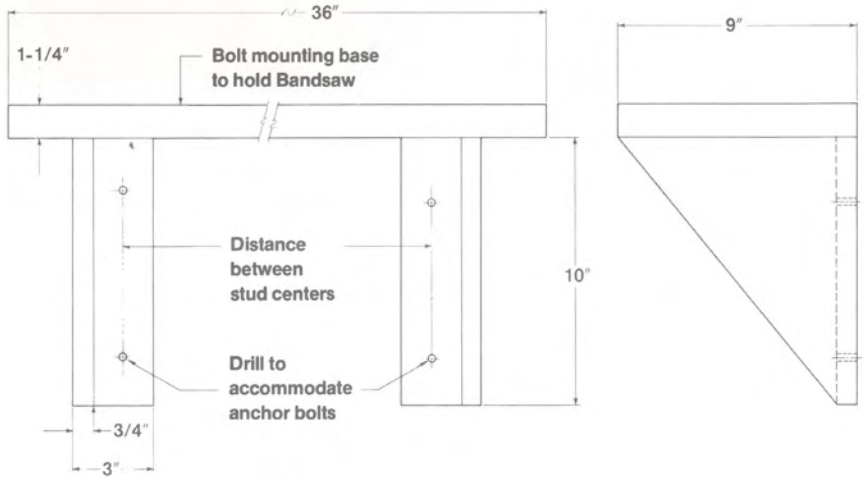
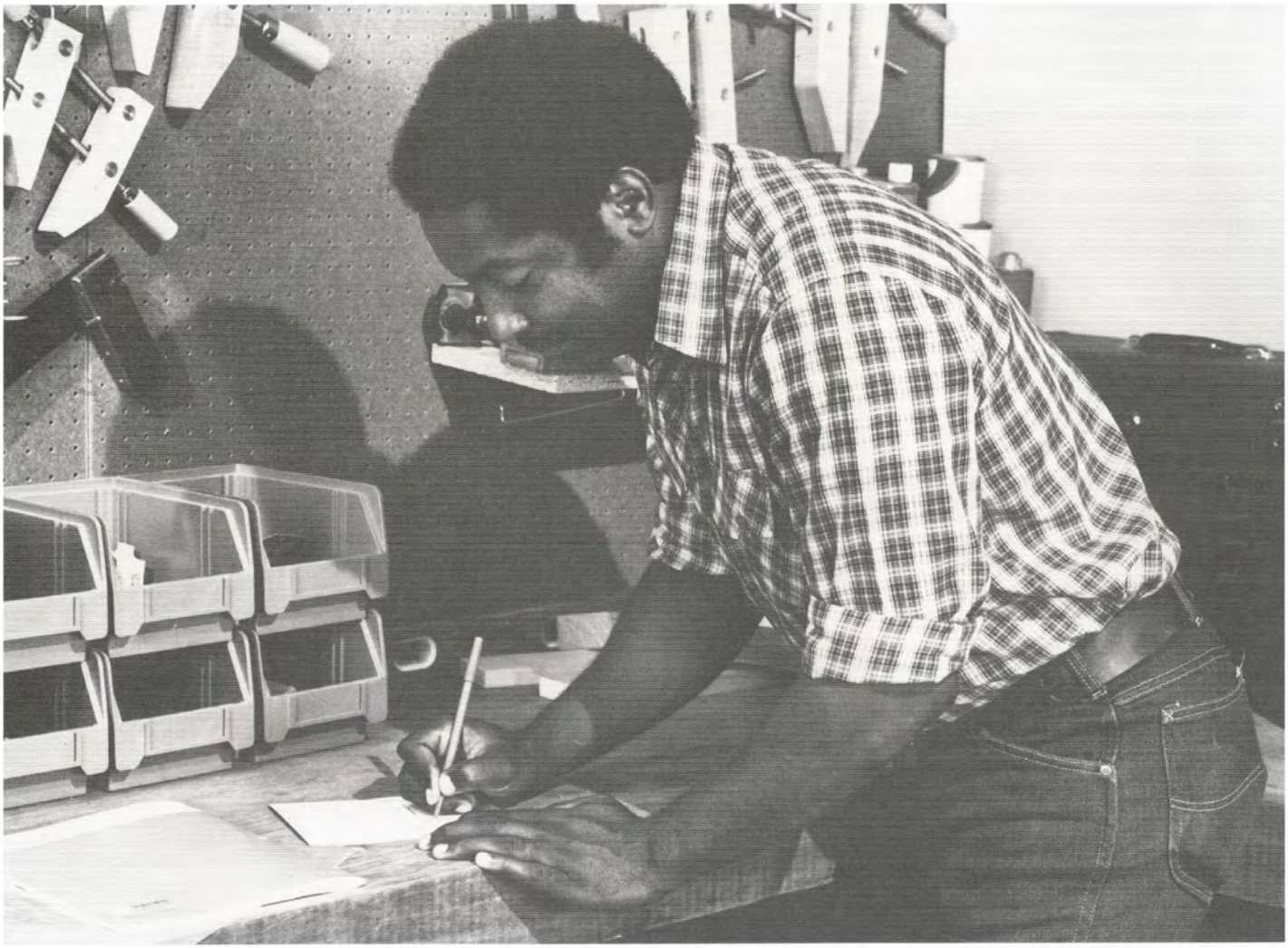


Figure 15. Following this drawing, you can build the storage shelf pictured in Figure 14.

Service



Servicing Your Shopsmith Bandsaw

Your Shopsmith Bandsaw carries a one-year warranty against defective materials or workmanship. (See the **Customer Information** section for the complete "Full One-Year Warranty".)

To repair or replace a part in the bandsaw while it's still under warranty, send the bandsaw or the defective part freight prepaid to our factory. We'll need proof of the date of purchase. If you've filled out, signed, and sent in the Warranty Registration Card that came with the machine, you needn't worry about this — we already have the date and the serial number of your bandsaw on file. If you've somehow forgotten to fill out your card, send us a copy of your sales receipt.

Tip: Fill out, sign, and send in your Warranty Registration Card as soon as you can. It protects **you**.

Along with the bandsaw or defective part, include a letter describing the nature of the difficulty and the serial number of your machine. If the warranty is applicable, the part will be repaired or replaced at no charge.

Send the bandsaw or the defective part to:

Product Reconditioning
Shopsmith, Inc.
750 Center Drive
Vandalia, Ohio 45377

Service

Out-of-Warranty Service

If the bandsaw is out of warranty, you can have it repaired at the factory for a fee. If you know the specific nature of the problem and the replacement parts needed, call our **Product Reconditioning Department** for a quote. (See the **Customer Information** section for "A Direct Line to Shopsmith".)

If you are unsure as to what is wrong, send the bandsaw or the defective part to Product Reconditioning at the address provided. They will notify you of how much the repairs will cost **before** they begin work.

Also, many **Shopsmith Home Workshop Centers** carry a limited number of replacement parts and can perform simple repairs. Call ahead to the Home Workshop Center nearest you to see if they can provide the part or the service you need.

Servicing the Bandsaw Yourself

Should you want to perform your own service, remember the advice we offered at the end of the **Operations** section: "...Never attempt an operation that is beyond your proven skill and ability." This applies to service, too. The Shopsmith Bandsaw is a precision machine. You could destroy some of that precision and endanger yourself if you aren't careful.

WARNING: Before attempting any maintenance or service procedure, BE SURE that the machine is unplugged from its power source. DO NOT rely solely on the power switch.

When you perform your own service:

- **Remove the blade** from the bandsaw so that you won't scrape yourself.
- Refer to the exploded view in the "Parts List" to see how the bandsaw comes apart — and goes back together.
- Disassemble the bandsaw in an organized manner. Make notes so that you can easily remember the sequence of bolts, washers, and nuts. It also helps to lay things out in neat rows on your workbench.
- As you put the bandsaw back together, be sure to tighten all parts properly.
- When you've reassembled the bandsaw, realign and readjust it, following the procedures described in the **Alignment and Adjustment** section.
- Once you have finished with your repairs, check that the power switch is in the "Off" position **before** you plug in the motor that runs the bandsaw.

WARNING: Use ONLY Shopsmith replacement parts. Refer to the "Parts List" to order the parts you need.

Most bandsaw repair procedures will be self-evident. Simply remove the worn part and replace it with a new one. There is, however, one repair that requires some explanation — regluing or replacing the rubber tires. This is described fully in "Repairing Bandsaw Tires".

There are also some repairs that shouldn't be attempted in an ordinary home workshop, no matter how good a mechanic you may be. For instance, if the bearings on the bandsaw drive wheel are worn, they must be pressed off the drive shaft and new bearings pressed on. This requires industrial tools not usually found in homeshops. We've marked those service jobs that we **do not** recommend that you attempt in the "Troubleshooting Guide".

Repairing Bandsaw Tires

Like the tires on your car, the rubber tires on the wheels of the bandsaw may someday wear out. They may be torn, damaged, or come completely loose from the wheels.

If the tire is torn, damaged, or the surface is rough and uneven, purchase a replacement tire (502694). If the tire is loose on the wheel, you may be able to reglue it. Be careful to make a good, smooth repair. Any lump or irregularity in the tire will impair the performance of your bandsaw.

To repair a bandsaw tire, follow this procedure:

1. **Unplug the bandsaw** from its power source, and remove the blade.

2. **Remove the wheel** so that you can work on it easily. If you are removing the idler (upper) wheel, follow the procedure described in "Lubricating the Bandsaw" in the **Maintenance** section.

To remove the drive (lower) wheel, first remove the drive hub from the drive shaft, then the bearing retainer from inside the machine. (The retainer is directly behind the wheel.) Tap the end of the drive shaft with a

Service

wooden or rawhide mallet to loosen the bearing in the frame, then pull the drive wheel free. (See Figure 1.)

WARNING: Don't hit the drive shaft with a metal hammer. This will damage the end of the shaft and may ruin it.

3. Clean the wheel. Remove the old tire from the wheel. Dissolve the old glue off the wheel with lacquer thinner, then clean the surface of the wheel with a wire brush. If you're regluing the old tire, also dissolve the glue off the tire. Be careful not to damage the rubber.

4. Glue the tire to the wheel. To adhere the rubber tire to the metal wheel, use **vulcanizing cement.** This is not a common glue, but it's carried by many well-equipped hardware stores, auto supply stores, and rubber products suppliers. You can also use tire cement — the glue that's used to patch inner tubes — with good results.

WARNING: Vulcanizing cement usually contains toluene, a poisonous, volatile chemical. Work in a well-ventilated room and avoid breathing the vapors.

If you're replacing the tire, soak the new tire in boiling water for 10 minutes to soften the rubber. While the tire's soaking, clamp the wheel in a vise and apply the cement. Take the tire out of the water, **dry it thoroughly,** and while it's still warm, stretch the tire over the wheel. Center the tire on the wheel, then run a screwdriver under the tire all the way around the wheel to spread the glue and even out any lumps. (See Figure 2.)

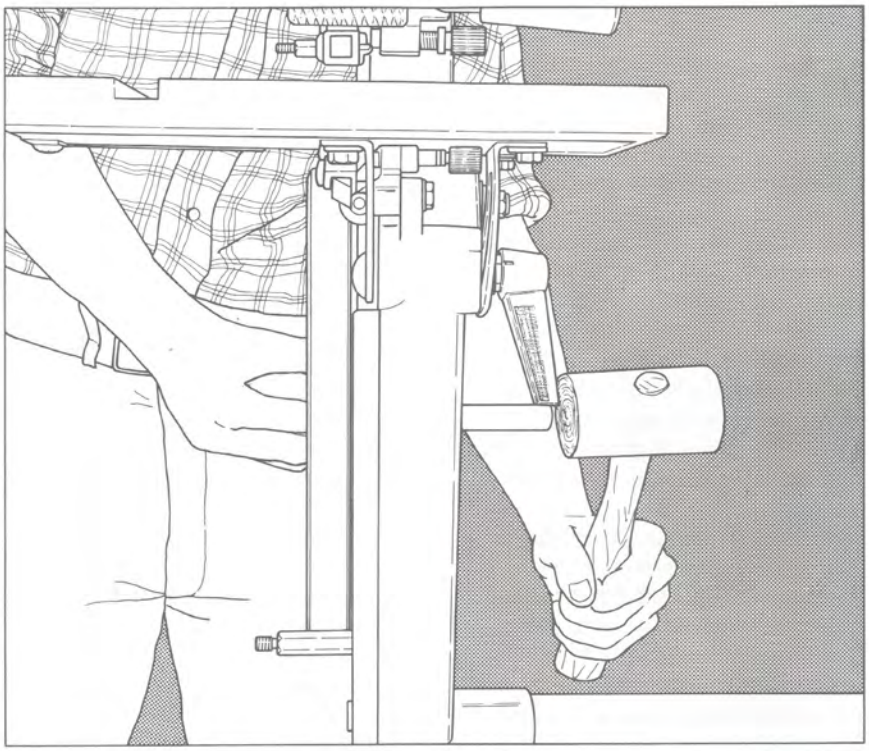


Figure 1. To remove the drive wheel, remove the drive hub and bearing retainer. Then tap the drive shaft with a mallet and pull the wheel free of the bandsaw frame.

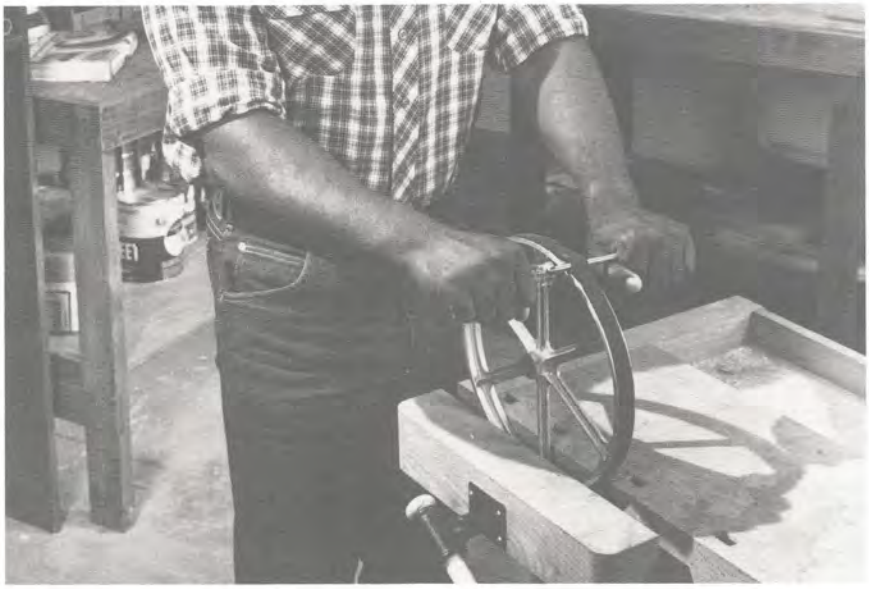


Figure 2. To even out any lumps after you've glued the tire to the wheel, run a screwdriver under the tire around the entire circumference of the wheel.

While the cement is still wet, roll the wheel on a hard surface (such as your workbench), exerting as much pressure as you can on the tire. Make at least **two** complete revolutions of the wheel; this will help guarantee that the tire is flat and smooth. Wait until the cement is **completely** dry (at least 24 hours) and remove any excess glue before reinstalling the wheel.

How to Order Replacement Parts

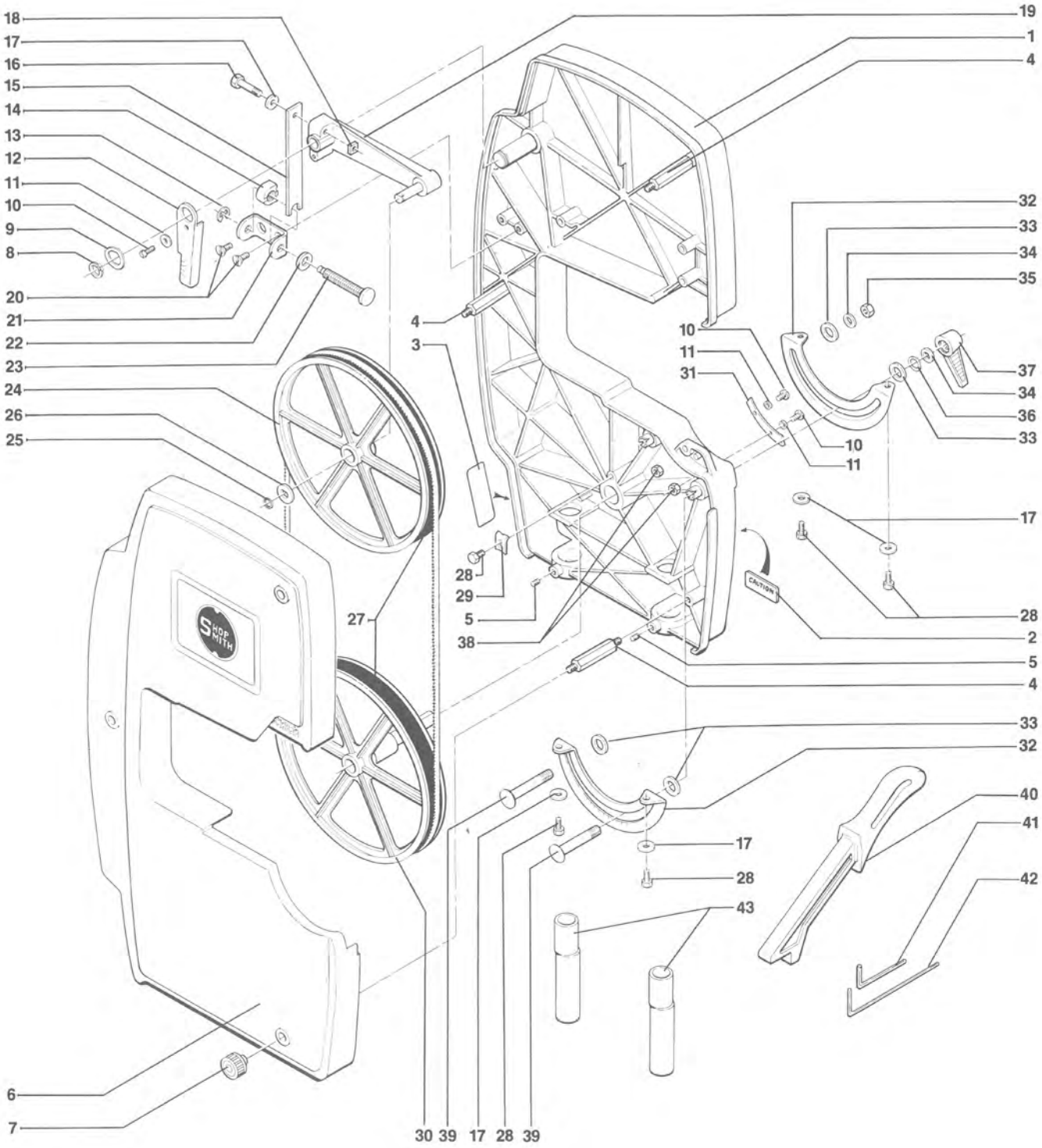
If the trouble with your bandsaw can only be corrected by replacing parts, consult the "Parts List" in this section for the description and order numbers of the defective parts. To order these parts, write or call our **Customer Services Department.** (The address is the same as our Product Reconditioning Department. For our phone number, see "A Direct Line to Shopsmith" in the **Customer Information** section.)

Tell us the description of the parts you need, the part numbers, and the quantity. We also need to know your customer number (if you have one) and the serial number of your bandsaw. Our Customer Services Representatives will give you the current price information when you contact us.

Special Notes

- As mentioned before, replacing the bearings on the drive wheel or in the idler wheel is a factory job. Return the bandsaw or the wheels to our Product Reconditioning Department.
- Some replacement parts require assembly at the factory and therefore are only available as an assembled unit, even though the individual components may be called out in the Parts List.

Service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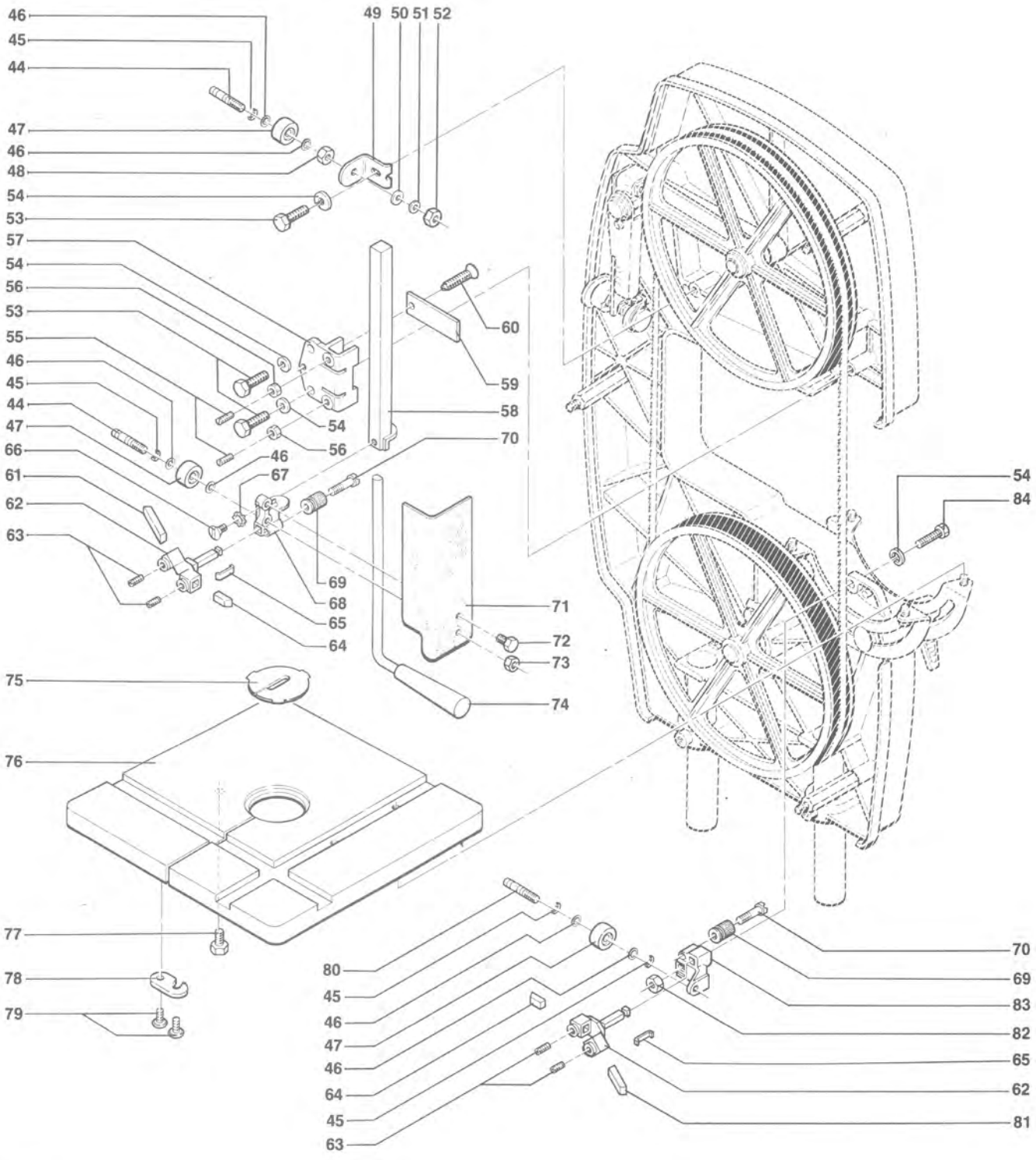
Bandsaw Parts List

Ref. No.	Part No.	Description
Bandsaw Main Casting and Cover		
1	502542	Main frame assembly
2	513810	Caution decal
3	502741	Serialized nameplate
4	502546	Cover stud
5	102582	5/16"-18 x 1/2" Allen Setscrew (2)
6	502737	Cover and decal
7	502740	Cover knob (3)
Blade Tensioning Assembly		
8	501626	Retaining ring
9	502700	Thrust washer
10	436732	10-24 x 1/2" Panhead screw
11	501470	7/32" Washer
12	502690	Tension indicator scale
13	502686	Retaining ring
14	502702	Blade tension nut
15	502701	Tension spring
16	122040	5/16"-18 x 1/2" Hex bolt
17	120393	5/16" Washer
18	120373	5/16" Square nut
19	502687	Upper wheel arm and axle
20	114663	5/16"-18 x 3/4" Flathead screw (2)
21	502685	Bracket
22	502704	Fiber washer
23	502703	Left-hand special screw
Upper Wheel		
	502691	Upper wheel assembly (parts 24 and 27)
24	502691*	Upper wheel and bearings
25	502722	Retaining ring
26	502720	Fiber washer
27	502694	Rubber tire
Lower Wheel		
	509032	Lower wheel assembly (parts 27 and 30)
27	502694	Rubber tire
28	120834	5/16"-18 x 1/2" Hex bolt
29	502726	Bearing retainer
30	509032*	Lower wheel, bearing and axle

*Sold only as part of an assembly

Table Trunnions		
10	436732	#10-24 x 1/2" Panhead screw
11	501470	7/32" washer (2)
17	120393	5/16" washer (4)
28	120834	5/16"-18 x 1/2" Hex bolt (4)
31	502667	Tilt indicator scale
32	502675	Trunnion (2)
33	502676	19/32" Washer (4)
34	120384	3/8" Washer
35	120394	3/8"-24 Stop nut
36	502699	Thrust washer
37	513061	Tilt lock assembly
38	274737	10-24 Hex nut (2)
39	502696	3/8"-24 x 3" Table clamp bolt (2)
Accessories and Miscellaneous		
40	513701	Push stick
41	513868-04	3/16" Allen wrench
42	513868-01	5/32" Allen wrench
43	513777	Eccentric mounting tubes (2)

Service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Bandsaw Parts List, cont.

Backup Roller

44	502559	Upper roller shaft
45	502560	Retaining ring
46	502561	1/4" Fiber washer (2)
47	502578	Roller
48	502684	1/4"-20 Special nut
49	502682	Backup roller bracket
50	120392	1/4" Washer
51	115546	1/4" Lock washer
52	120375	1/4"-20 Hex nut
53	122017	5/16"-18 x 3/4" Hex bolt
54	120214	5/16" Lock washer

Upper Blade Guide and Guard

44	502559	Upper roller shaft
45	502560	Retaining ring
46	502561	1/4" Fiber washer (2)
47	502578	Roller
53	122017	5/16"-18 x 3/4" Hex bolt (2)
54	120214	5/16" Lock washer (2)
55	501552	5/16" Headless slot setscrew (2)
56	124824	5/16" Jam nut (2)
57	502549	Guide column bracket
58	502554	Blade guide column
59	502550	Guide lock spring
60	502551	5/16"-18 x 1-3/8" Special screw
61	502657	Upper long guide block
62	502577	Guide block bracket
63	222458	5/16"-18 x 1/4" Allen setscrew (2)
64	502656	Short guide block
65	502575	Guide block spring
66	113988	1/4"-20 x 1/2" Flathead screw
67	114640	1/4" Star washer
68	502558	Upper guide bracket
69	502574	Guide adjusting knob
70	502659	10-24 x 1-1/4" Fillister head screw
71	502730	Blade guard
72	120706	1/4"-20 x 1/2" Hex bolt
73	124818	1/4"-20 Jam nut
74	502555	Height lock handle assembly

Table

75	502736	Table insert
76	502732	Bandsaw table
77	502735	5/16"-18 x 1/2" Nylok bolt
78	502733	Table leveling latch
79	502734	5/16"-18 x 1/2" Button head screw (2)

Lower Blade Guide

45	502560	Retaining ring (2)
46	502561	1/4" Fiber washer (2)
47	502578	Roller
54	120214	5/16" Lock washer
62	502577	Guide block bracket
63	222458	5/16"-18 x 1/4" Allen setscrew (2)
64	502657	Short guide block
65	502575	Guide block spring
69	502574	Guide adjusting knob
70	502659	10-24 x 1-1/4" Fillister head screw
80	502579	Lower roller shaft
81	502666	Lower long guide block
82	102634	5/16"-18 Hex nut
83	502580	Lower guide bracket
84	426367	5/16"-18 x 1" Hex bolt

Troubleshooting Guide

Bandsaw problems usually have simple solutions — under normal use, you should rarely have to service the machine. Most problems can be corrected by maintenance, realignment, readjustment, or a change in work habits.

To help diagnose and remedy any problem that may arise with your Shopsmith Bandsaw, use this guide:

Problem	Possible Cause	Solution
General Operation		
Drive shaft heats up or does not turn smoothly.	Lower bearings worn.	Replace lower bearings. This is a **factory job.**
	If bandsaw is driven by V-belt, belt may be too tight.	Loosen tension on V-belt.
	Pulleys or hubs improperly aligned.	Realign pulleys or hubs.
	Pulley or hub slips drive shaft.	Secure pulley or hub.
Upper wheel noisy or does not turn smoothly.	Needle bearings are dry.	Remove upper wheel and grease bearings.
	Needle bearings worn.	Replace needle bearings. This is a **factory job.**
Bandsaw slows down or stops in heavy cuts.	Feed rate too fast.	Feed stock more slowly.
	Poly V-belt in Mark V headstock is slipping.	Increase tension on poly V-belt. See Mark V Owner's Manual.
	If bandsaw is driven by V-belt, belt may be slipping.	Increase tension on V-belt.
	Pulleys or hubs slipping on shafts.	Secure pulleys or drive hubs.
Bandsaw won't start or starts very slowly.	Machine stiff from the cold.	Warm shop to 55° F or above. Try starting machine on speed setting "Slow".
	Capacitor on motor defective.	Replace capacitor.
	Motor defective.	Replace or rebuild motor. Re-building is a **factory job.**
	No power to the motor.	Check that motor is plugged in. Also check switch and fuse.
Power coupler difficult to install.	Drive hubs out of alignment.	Realign drive hubs.

Troubleshooting Guide

Problem	Possible Cause	Solution
Mounting tubes difficult to insert in power mount.	Tubes out of alignment.	Realign tubes.
	Accessory mount lock interfering.	Loosen accessory mount lock.
Blade Guides and Rollers		
Upper blade guide difficult to adjust up and down.	Too much spring tension on guide post.	Readjust tension on guide post.
	Guide post needs lubrication.	Lubricate guide post with graphite.
Upper blade guide will not lock in position.	Not enough spring tension on guide post.	Readjust tension on guide post.
Upper blade roller more than 1/64" away from blade.	Guide post set too far back.	Adjust position and/or tilt of guide post.
Upper blade roller lifts blade off lower roller.	Guide post set too far forward.	Adjust position and/or tilt of guide post.
Guide blocks are scored or damaged.	Blade guides not properly aligned.	Resurface guide blocks and realign blade guides.
	Blade twisting in guides.	Resurface guide blocks. Use light forward pressure when working, do not turn corners too tight for blade.
Blade does not run in center of rollers.	Rollers are not centered behind blade.	Loosen roller mounts and center rollers.
Rollers 'squeal' or 'bark' continuously. (Note: Some roller noise is normal.)	Roller shafts need lubrication.	Lubricate roller shafts with graphite. Or: Remove fiber washers, soak in 10 wt. oil, then reinstall.
	Rollers worn.	Replace rollers.
Blade		
Blade 'ticks' or knocks while running.	Blade or weld is cracked or damaged.	Stop machine **immediately**. Examine blade and replace if damage is found.
	Blade twisted or bent in one spot.	Remove blade and straighten. Replace blade if damaged.
Rip cut or resawn boards have taper or bevel.	Workpiece not fed properly.	Feed workpiece carefully. Avoid side pressure.

Troubleshooting Guide

Problem	Possible Cause	Solution
Blade makes a scraping sound.	Blade rubbing against guides.	Realign blade guides.
Blade breaks.	Blade tension set too high.	Reduce tension to proper setting.
	Feed rate too fast.	Feed stock more slowly. Do not force cut.
	Cutting corner too tight for blade.	Make relief cuts or use narrower blade.
	Blade dull or worn.	Don't use dull blade. Resharpen or replace blade when dull.
Blade binds in cut.	Cutting corner too tight for blade.	Make relief cuts or use narrower blade.
	Stock improperly cured.	Discard stock or wedge kerf open with screwdriver.
Kerf jams with sawdust so you can't back out of a cut.	Backtracking too fast or out of a long cut.	Turn off machine, let blade stop, **then** backtrack.
	Set of teeth on blade worn.	Resharpen or replace blade. Check blade guides for wear.
Blade teeth scrape guide blocks.	Blade guides too far forward.	Realign blade guides. Check blade guides for wear.
Blade hits table insert.	Blade twisting during cut.	Make relief cuts or use narrower blade.
	Backtracking too fast or out of a long cut.	Turn off machine, let blade stop, **then** backtrack.
Table		
Table difficult to tilt.	Trunnions need lubrication.	Lubricate trunnions with graphite.
	Foreign material on trunnions.	Remove table and clean trunnions.
	Table mounted improperly.	Loosen trunnion bolts and realign table.
Table not square to flat of blade or not tilted as indicated.	Auto-stop or tilt indicator out of alignment.	Square table to blade. Realign auto-stop and tilt indicator.
Miter gauge slots not aligned with flat of blade.	Table mounted improperly.	Loosen trunnion bolts and realign table.

Troubleshooting Guide

Problem	Possible Cause	Solution
Table 'pitched' (not square to back of blade).	One side of table too low. (Note: A slight pitch is normal.)	If pitch interferes with work, use flat washers or shims under table to raise low side.
Table will not tilt full 45°.	Table mounted improperly.	Loosen trunnion bolts and realign table.
	Impacted sawdust or foreign material on trunnions.	Clean trunnions.
Table insert is not flush with tabletop.	Sawdust under insert.	Clean out sawdust from under insert.
	Insert bent or warped.	Place insert on flat, hard surface and tap with mallet to flatten. Or: Replace insert.
Table wobbles or moves.	Tilt lock not secure.	Tighten tilt lock.
	Trunnion bolts not secure.	Tighten trunnion bolts.
Workpiece		
Workpiece difficult to cut.	Blade clogged with pitch, dull, or worn.	Clean, resharpen, or replace blade.
	Workpiece too thick for blade being used.	Use wider blade.
	Stock dense and hard.	This is normal.
Workpiece 'burns' during cut.	Blade worn or dull.	Resharpen or replace blade.
	Letting blade dwell in one spot.	Keep workpiece moving.
	Cutting corner too small for blade.	Make relief cuts or use narrower blade.
Accuracy of Cut		
Cut not square or not at indicated angle.	Auto-stop or tilt indicator out of alignment.	Square table to blade. Realign auto-stop and tilt indicator.
Miter cut not at indicated angle.	Miter gauge improperly aligned.	Realign miter gauge.
	Miter gauge slots not aligned with flat of blade.	Loosen trunnion bolts and realign table.
	Workpiece slipped while cutting.	Hold workpiece securely.

Troubleshooting Guide

Problem	Possible Cause	Solution
	Fence slipped during cut.	Be sure fence is locked in place. Use paper in miter slot to help hold fence.
	Blade 'leads'.	Adjust fence and feed stock at slight angle, hone blade to correct lead, or replace blade.
	Table not square to flat of blade.	Square table to blade. Realign auto-stop and tilt indicator.
Blade wanders away from pattern line.	Blade guides not properly aligned.	Realign blade guides.
	Knots or wood grain deflect blade.	Feed stock more slowly.
	Blade 'leads'.	Feed stock at slight angle, hone blade to correct blade lead, or re-place blade.
	Cutting corner too tight for blade.	Make relief cuts or use narrower blade.
	Failure to guide work accurately.	Take your time.
Quality of Cut		
Cut is rough.	Characteristics of blade being used.	Use blade with more teeth per inch.
	Cut is forced.	Feed stock more slowly.
	Blade guides not properly aligned.	Realign blade guides.
Inconsistent quality of cut.	Blade bent or damaged in one spot.	Straighten or replace blade.
	Grain pattern is not consistent in workpiece.	Take your time, especially in hard, dense parts of workpiece.
Cut is curved or 'bowed' when resawing or cutting thick stock.	Blade too narrow.	Use wider blade.
	Improper blade tension.	Increase tension to proper setting.
	Blade following internal grain pattern.	Feed stock more slowly.
	Blade guides not properly aligned.	Realign blade guides.

Customer Information

Serving Your Woodworking Needs

Your Shopsmith 11" Bandsaw and other Shopsmith tools are covered by the **Shopsmith Gold Medal Buyer Protection Plan.** This plan includes a 30-day money-back guarantee, a full one-year warranty, **and** a lifetime reconditioning program.

30-Day Money-Back Guarantee

We guarantee your complete satisfaction! You can try the Shopsmith Bandsaw for 30 days at no risk before you decide whether to keep it or not. Use it to make as many projects as you like. Compare the Shopsmith Bandsaw, feature for feature, with other comparable tools. Then, if the bandsaw isn't everything we say or you aren't enthusiastic about it, give us a call at our Customer Services number and we'll advise you how to return it for a prompt and complete refund. We'll even pay for shipping!

Full One-Year Warranty

Your Shopsmith Bandsaw is guaranteed against all defects in parts and workmanship for ONE FULL YEAR from the date of your purchase. Here are the details:

Shopsmith warrants to the owner of Shopsmith woodworking equipment that the equipment will be free of manufacturing defects in materials and workmanship for a period of one year from the date of original purchase. All claims must be submitted in writing within one month after expiration of the one-year warranty period. Shopsmith

Customer Information

shall, by repair of, or at its option replacement, remedy any defect or malfunction covered by this warranty. This warranty excludes and does not cover defects, malfunctions, or failures of your Shopsmith equipment which are caused by damage while in your possession or that of a previous owner or by unreasonable use, including your failure or the failure of any previous owner to provide reasonable and necessary maintenance.

THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IN NO EVENT SHALL SHOPSMITH BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES. Some states do not allow the exclusion or limitation of consequential or incidental damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Lifetime Reconditioning Program

Our tools are designed for years and years of constant, rugged, uninterrupted operation. However, to insure the continued usefulness of your bandsaw, we offer a unique Lifetime Reconditioning Program.

At any time, regardless of the age of your Shopsmith Bandsaw, you can send it to us (round trip shipping at owner's expense), and we'll rebuild and repaint it. We'll replace worn parts such as bearings, seals, and springs. Your reconditioned bandsaw will come back to you with a new 90-day full warranty. Reconditioning or repair will be done for a cost that will never exceed one-third of the current list price of the Shopsmith Bandsaw at the time of repair. If parts other than normal wearing parts need replacement, an estimate will be submitted to the owner for approval.

A Direct Line to Shopsmith

For your convenience, Shopsmith maintains several phone numbers during normal business hours. If you live in the continental United States, you can call us **toll free**. In Alaska, Hawaii, or outside the United States, please dial us direct. Wherever you call from, trained Customer Services Representatives will help you with your inquiries about sales and service.

In the continental United States (except Ohio), please call:
1-800-543-7586
If you live in Ohio, call:
1-800-762-7555
If you live in Alaska, Hawaii, or outside the United States, call direct: 1-513-898-6070

When you call, tell us your **customer number** (if you have one) and the **serial number** of your bandsaw. (Your customer number appears on the bandsaw invoice and the mailing labels of the literature we send you. The serial number is on the lower left side of the bandsaw frame.) Please write them down in the space provided so that you have them ready whenever you call:

Customer No._____

Bandsaw Serial No._____

Quick Reference Index

Shopsmith Inc.
The Home Workshop Company
750 Center Drive
Vandalia, Ohio 45377

PL-1547 12/82
Printed in U.S.A.

Supplement
11" Bandsaw

Introduction

Your Bandsaw comes with several unique features:

- There is a guard cover the drive hub that covers a pinch-point.
- There is also a window with tool access slot in the cover, this allows you to reduce blade tension for storage and to re-tension the blade without removing the cover.

WARNING

- **Read the Safety section and complete the Setup procedures before operating the Shopsmith 11” Bandsaw.**
- **Mount the Bandsaw on Shopsmith equipment only.**
- **Use only Shopsmith parts and accessories on your Bandsaw. Mounting the Bandsaw on non-Shopsmith machinery or using non-Shopsmith parts could create a hazardous condition and will void your warranty.**

Cover Window

This window and access slot allows you to change the blade tension without removing the cover. For maximum blade life, it is recommended that you reduce the tension if your bandsaw will not be used for more than 24-hours. To do this, view the tension indicator through the window, insert the 5/32" Allen wrench through the access slot in the edge of the cover. Turn the wrench counterclockwise to reduce blade tension.

Then to re-tension the blade, simply insert the allen wrench in the same manner and turn it clockwise until the tension scale is set properly.

Shaft & Hub Cover

This cover is intended to cover the machine's rotating shaft with hub. Your coupler will slip into this cover and over the hub to drive the bandsaw. If the hub would loosen and slip toward the bandsaw frame the hub will not engage in the coupler to drive the bandsaw. To remedy this problem simply remove the two phillips head screws that hold the shaft and hub cover in place, slide the shaft and hub cover over the shaft. Position the hub flush with the shaft end and tighten the setscrew in the hub . Replace the hub cover, install the screw, center the cover on the hub and tighten both mounting screws.

WARNING

Never operate your Bandsaw without the shaft hub cover properly installed over the Bandsaw Shaft & Hub.

Shopsmith Inc.
6530 Poe Avenue
Dayton, Ohio 45414