



Shopsmith, Inc. 11" Bandsaw



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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.**

Introduction

The Shopsmith Bandsaw gives you the ability to crosscut, rip, resaw, pad saw, plus cut bevels and round stock. The Bandsaw is also useful for compound cutting, creating shapes that appear to be carved. You can cut both natural and man-made woods, most plastics and some metals with the Bandsaw. Also, when the Shopsmith Speed Reducer (optional) is attached to the Shopsmith Mark V, you can properly cut an even wider range of materials (the Speed Reducer cannot be used with the Power Station or Power Stand).

The Shopsmith 11" Bandsaw will accomplish many woodworking operations that are difficult or impossible with other tools. Basically, the Bandsaw blade 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 operations your Bandsaw will do. As you work with this machine, you'll find it has many other features that add ease and versatility to your woodworking.

Safety

The Shopsmith Bandsaw has many built-in safety features. But the effectiveness of these features depends on you. Power tool safety is no more than good common sense. To protect yourself from injury: READ, UNDERSTAND AND FOLLOW ALL the information in this manual. The meanings of WARNINGS, CAUTIONS and NOTES are:

WARNING

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



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

NOTE

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

General Safety Rules for All Power Tools

WARNING

- Read, understand and follow this instruction manual and the manual for whichever power source(s) you will be using (Mark V, Power Station or Power Stand).
- Ground all tools (unless double-insulated).
- Keep guards in place and in working order. Most injuries occur on unguarded power tools.
- Remove adjusting keys and wrenches before attempting to operate any tool.
- Do not wear loose clothing, ties, gloves or jewelry. Roll sleeves up above your elbows, wear nonslip footwear, and tuck long hair under a hat.
- Do not operate power tools if you are fatigued or taking medication or are under the influence of alcohol or drugs.
- Do not use power tools in damp, wet or explosive atmospheres.
- Keep work areas well-lit, clean and free from clutter.

- Do not force the tool. It will do the job better and safer at the rate for which it was designed.
- Do not use a tool or accessory to do a job for which it was not designed.
- Repair or replace damaged parts before further use. If a strange noise or vibrations develops, turn off and unplug the machine. Correct the problem.
- Use clamps, fixtures and other devices to hold workpieces when practical.
- Do not overreach. Keep proper footing and balance at all times.
- Do not try to stop the tool by grabbing the workpiece or any part of the tool. Turn off the tool and let it come to a complete stop by itself.
- Do not leave the tool running unattended.
- To discontinue operations, turn the power off. Don't leave the tool until it comes to a complete stop.
- Avoid unintentional starting. Make sure the switch is in the "Off" position before plugging in or unplugging the tool.
- Keep tools sharp, clean and maintained according to the instruction manual.
- Make your workshop childproof. Unplug tools, use padlocks and master switches, and remove starter keys.
- Keep children away. All visitors should stay a safe distance from power tools and wear eye and ear protection.
- Always wear eye protection when you use power tools. Use goggles, safety glasses or a face shield to protect your eyes.
- Goggles completely surround and protect your eyes. Many goggles will also fit over regular glasses. Be sure your goggles fit closely, but comfortably.
- Safety glasses don't fog as easily as goggles and can be worn all the time. Regular glasses normally have only impact-resistant lenses. They are not safety glasses.
- A face shield protects your entire face, not just your eyes.

Safety Rules for the Bandsaw

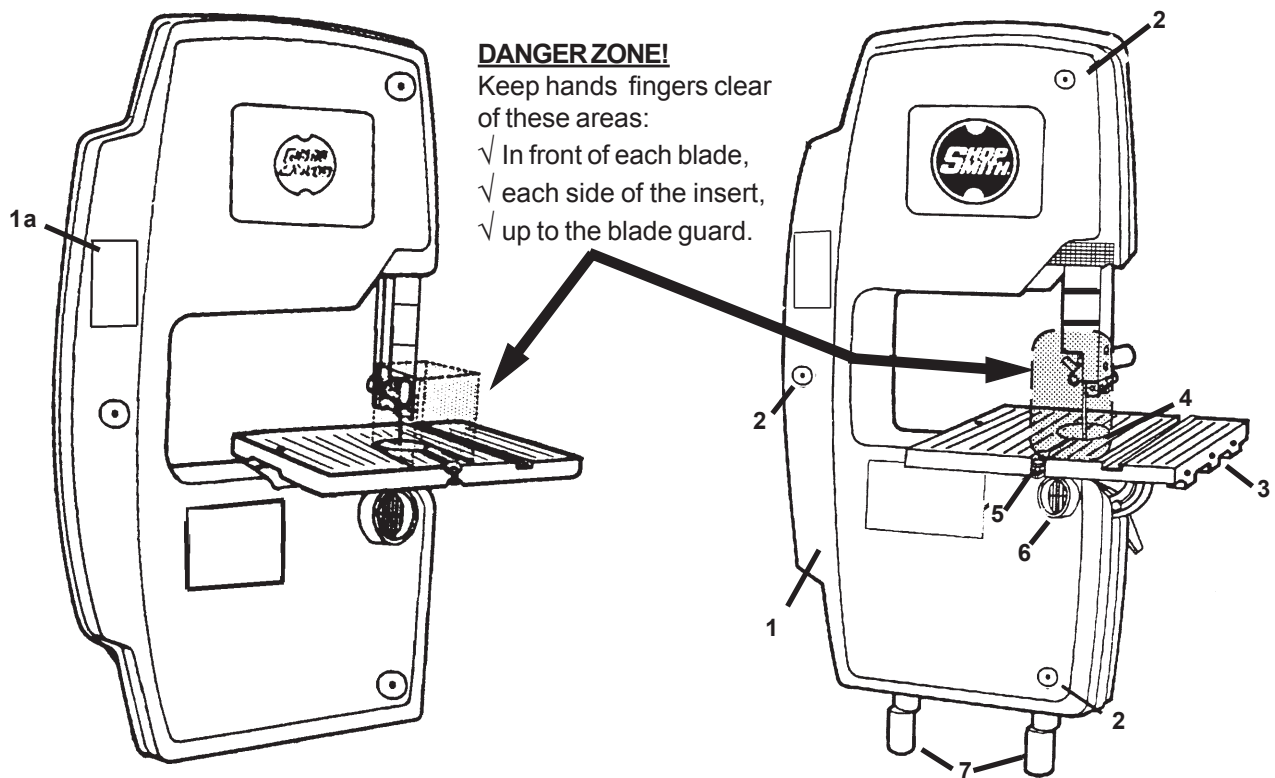
WARNING

- Mount the Bandsaw only on the Shopsmith Mark V, Power Station or Power Stand. Mounting the Bandsaw on non-Shopsmith machinery or using non-Shopsmith machinery or using non-Shopsmith parts could create a hazardous condition and will void your warranty.
- Use only Shopsmith parts and accessories on your Bandsaw.
- Do not remove stock or scraps until the blade has stopped.
- Maintain proper adjustment of blade tension, blade guides and bearings.
- Keep the upper guide adjusted to a maximum of 1/4" above the stock.
- Never reach close to the blade or under the table while the tool is running.
- Hold stock firmly against the table.

Eye Protection

- **Never reach close to the blade or under the table while the tool is running.**
- **Hold stock firmly against the table.**
- **Never attempt a turn tighter than the blade will allow; otherwise, the blade might break.**
- **Use a push stick to finish a resawing or ripping cut.**
- **Keep your hands, fingers and other parts of your body out of the danger zone.**
- **Support long stock with a roller stand.**
- **Hold round stock in a V-block.**
- **Never cut extremely small stock. Cut small components from larger stock.**
- **If the blade breaks, turn off the machine and stand away until it stops.**
- **Whenever you mount and operate the Bandsaw on the Mark V, secure the accessory mount lock, headstock lock and the Bandsaw mounting tubes. Do not exceed the speed setting "D".**
- **Never turn on the tool with stock pressed against the blade.**
- **If you hear a ticking sound or other unusual noise, stop the Bandsaw immediately. A ticking sound often indicates a damaged blade.**
- **Never reach close to the blade or under the table to make adjustments, clear away chips or for any reason whatsoever while the machine is running. Turn off the machine and let the blade come to a complete stop.**
- **Keep your hands outside the DANGER ZONE-which is in front of the blade for the**

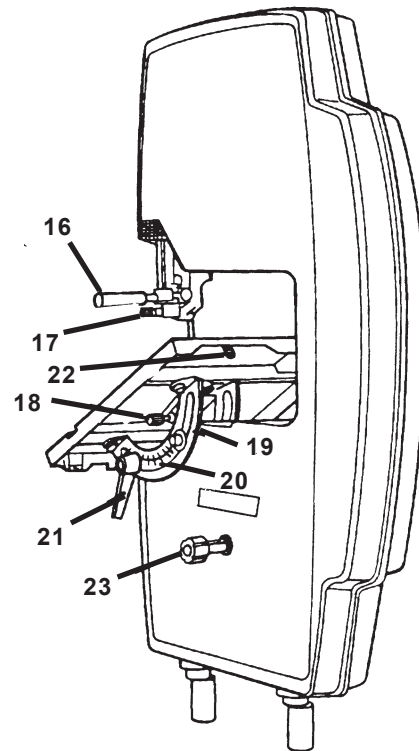
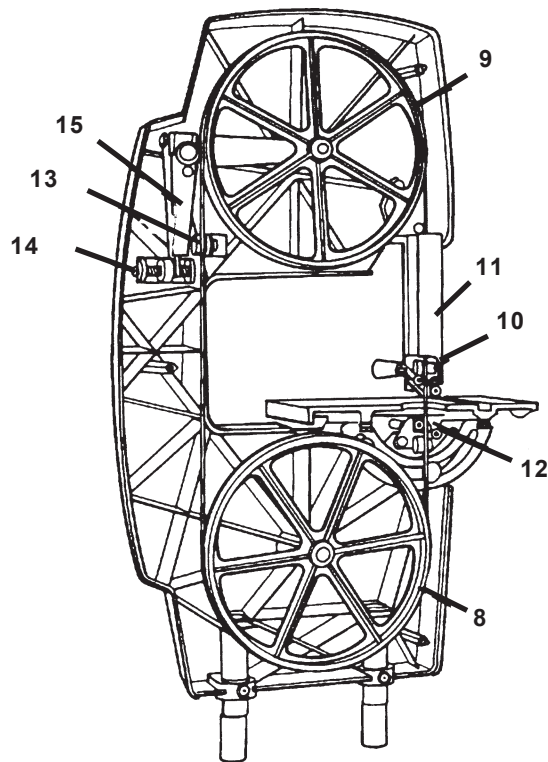
width of the table insert, and as high as the blade guard. See page 4. Never push the workpiece with your hand in line with the blade. If your hand slips, you can cut yourself severely.



Terms to Know

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 while the machine is running.
- 1a. Window and slot - allows for modifying blade tension with cover installed.
2. Cover Screws/Washers-These screws/washers 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 an adjustable T-slot extrusion, for smooth and precise cross-cutting with the optional Shopsmith Miter Gauge (505700).
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.
5. Table Leveling Screw-This screw and its knurled nut keeps the two sides of the table level across the front and helps keep the table flat and true.
6. Dust Chute-The dust chute allows connection of a standard 2-1/2" hose for dust collection.
7. Mounting Tubes-These eccentric tubes quickly mount the Bandsaw to the Shopsmith Mark V, Power Station or Power Stand. They are offset so that the drive shaft of the Bandsaw can be easily aligned with the power source (upper auxiliary spindle on the Mark V).
8. Lower (Drive) Wheel-The lower wheel drives the Bandsaw blade in an endless loop.
9. Upper (Idler) Wheel-The upper wheel is free-running. Its position can be adjusted to tension the blade.
10. Upper Blade Guide-The upper blade guide consists of a roller bearing 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 degrees to the right for special operations.
11. 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.
 12. Lower Blade Guide-The lower blade guide consists of a roller bearing 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 degrees.
 13. Auto-Track Roller Bearing-This roller bearing keeps the blade properly positioned on the wheels.
 14. Blade Tensioning Screw-By turning this screw with the 5/32" Allen wrench, you can adjust the blade tension.
 15. Blade Tension Scale-This scale indicates the proper blade tension for any blade 1/8"-1/2" wide.
 16. 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 degrees to the right to release the upper blade guide assembly.
 17. Upper Blade Guide Adjusting Knob-This knob adjusts the front-to-back position of the upper guide blocks.
 18. Lower Blade Guide Adjusting Knob-This knob adjusts the front-to-back position of the lower guide blocks.
 19. Trunnions-The trunnions attach the table to the Bandsaw and allow it to be tilted from being perpendicular to 45 degrees right and 5 degrees left (with the auto-stop removed). A tilt scale has been stamped on the trunnions.
 20. Tilt Indicator-When correctly set, this vernier scale indicates the table angle to the nearest 1 degree.
 21. Tilt Lock-This handle secures the table in position at any angle in the tilt range.
 22. Table Auto-Stop-This bolt beneath the table automatically sets the table tilt perpendicular to the blade.
 23. Drive Shaft & Hub-The drive shaft transfers power from a motor to the Bandsaw. (The hub is not used with the Power Stand.)

Specifications

These specifications of the Shopsmith Bandsaw 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", which is the distance across the machine's throat. However, with the blade offset 30 degrees 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 1/16"-5/8" wide. Shopsmith offers a variety of blades from 1/16" wide to 5/8" wide for cutting wood, plastics and nonferrous metals.

NOTE

To use a 1/16" blade with the Bandsaw, you must install and use Cool Blocks (Part No. 555374).

Blade Mounting System

Bandsaw blades are mounted on two cast aluminum 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 first set and controlled by a preset roller bearing.

Table

The table surface is 13-1/2" x 15-1/2". The table can be tilted from 0 degree to 45 degrees right (away from the frame). If the table auto-stop at "0", which helps to quickly set the table perpendicular to the blade.

Speed

The Bandsaw operates best at speeds between 700 rpm and 1,050 rpm. In "Feet Per Minute" (fpm), the speed range is 2,000 fpm to 3,000 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 22" wide (right to left), 30-3/8" high (top to bottom), and 15" deep (front to back). It weighs 45 pounds.

Electrical Requirements

Circuit

With the Shopsmith Mark V as the power source, the 1-1/8 hp motor develops 2 hp and pulls 13-14amps and 115 volts on 60Hz electricity. The circuit should be rated at least 15 amps. If you use fuses, make sure they are of the time-delay type.

With the Shopsmith Power Station as the power source, the 3/4 continuous hp motor pulls 10 amps and 115 volts on 60Hz electricity. It will develop a maximum of 1hp. The circuit should be rated at least 15amps. If you use fuses, make sure they are of the time-delay type.

With the Shopsmith Power Stand as the power source, the 1/2hp motor pulls 7.8 amps. The circuit should be rated at least 15 amps. The motors run on 115 volts, 60Hz. If you use fuses, make sure they are of the time-delay type.

Grounding

The circuit you use should be properly grounded to protect you from electrical shock. The plugs on the Mark V, Power Station and Power Stand have three prongs. The recep-

tacle should have three corresponding holes. Do not modify the plug. If it will not fit the outlet, have the proper outlet installed. If you have a two-hole receptacle, use a temporary adapter to plug in the Mark V. The grounding lug or wire on the adapter **MUST** be connected to a permanent ground, such as a grounded outlet box. The temporary adapter should be used only until a properly grounded outlet can be installed. (Adapters are not allowed in Canada.) If you are unsure as to whether your outlet box is grounded, ask a licensed electrician.

Extension Cord

If you use an extension cord, be sure it's a three-conductor cord with a grounding plug and receptacle. The wire gauge must be large enough to prevent loss of power and overheating.

Cord Length	Minimum Wire Size
25 ft.	14 AWG
50 ft.	12 AWG
100 ft.	10 AWG

Do not use an extension cord with loose wires or damaged insulation. Also, do not let the connection between the power cord and extension cord lie on damp or wet surface.

Assembly

The Shopsmith Bandsaw is sent to you partially unassembled, though a 1/4" blade is already installed. Leave in the blade for all Assembly and Alignment instructions. Relax and take your time. Clear a space on your workbench and get your tools ready. The numbers in parentheses refer to the Parts List and Exploded View (printed separately.)

Tools and Supplies Needed:

- Power coupling kit (555124)-not needed if you mount the Bandsaw on the Power Stand or Power Station (The power coupling kit is standard equipment with all Mark V's manufactured after April, 1985. It is not included with the Bandsaw.)
- 5/32" Allen wrench (provided)
- Adjustable wrench or 1/2" wrench
- Clean shop rag
- Mineral spirits
- Powered graphite
- 10-wt. machine oil (optional)
- Paste floor wax or paste furniture wax

PREPARE THE POWER SOURCE AND BANDSAW

NOTE

Steps 1-7 assume the power source is the Mark V. If you are going to use the Power Station or Power Stand as the power source for your Bandsaw, follow its respective instruction manual for preparing the power source.

1. Choose the power source you will be using with your Bandsaw (Shopsmith Mark V, Power Station or Power Stand). Loosen the accessory mount lock and insert the eccentric tubes (51) into the holes. The long end goes up. Orient the top portion of the eccentric tubes away from the power source, as shown in Fig. 1. Leave the accessory mount lock untightened for now.

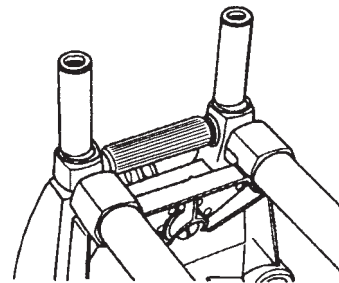


Fig. 1

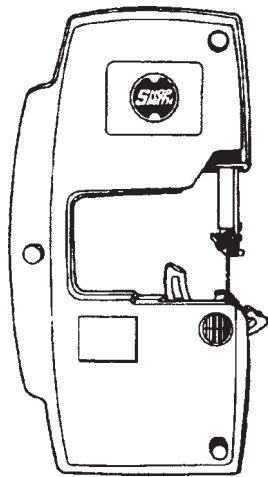


Fig. 2

2. Your Bandsaw should look like Fig. 2 (with the table not yet installed). Remove the three screws and washers then the cover (6), as shown in Fig. 3.

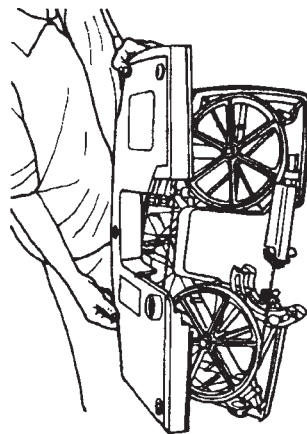


Fig. 3

3. Back out the setscrews (5) in the base of the Bandsaw, as seen in Fig. 4. Place the Bandsaw on the tubes, as seen in Fig. 5. Don't tighten the setscrews yet.

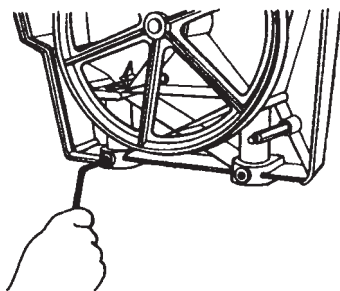


Fig. 4

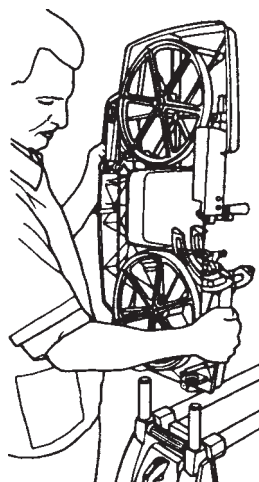


Fig. 5

MOUNT AND ALIGN THE DRIVE HUBS

4. If you have not already done so, mount a drive hub on the Mark V headstock's upper auxiliary spindle. Use the long hub with a 5/8" center hole and four grooves in the circumference.

5. Slide the Mark V headstock toward the Bandsaw until the two drive hubs are 1/4" apart, as illustrated in Fig. 6.

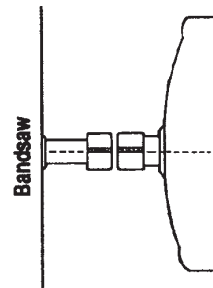


Fig. 6

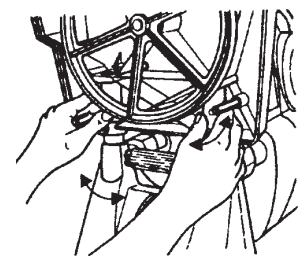


Fig. 7

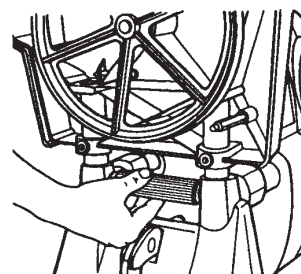


Fig. 8

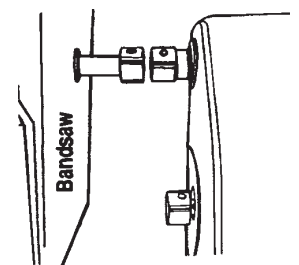


Fig. 9

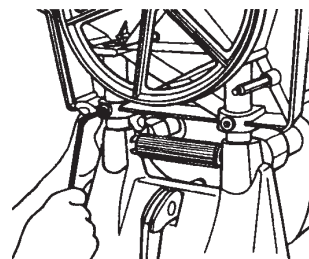


Fig. 10

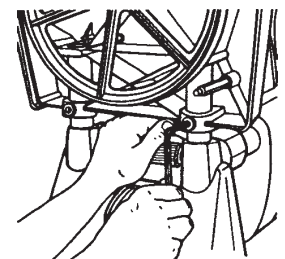


Fig. 11

6. Horizontally align the Bandsaw hub (52) to the Mark V hub by hand-rotating the eccentric tubes, as seen in Fig. 7. You have up to 1/4" movement to the right or left. When the two hubs are horizontally aligned, tighten the accessory mount lock, as illustrated in Fig. 8.

7. Vertically align the Bandsaw hub to the Mark V hub (shown in Fig. 9) by lifting the Bandsaw until the tops of the hubs are at the same height. When holding the Bandsaw in vertical alignment, use a 5/32" Allen wrench to tighten both setscrews, as shown in Figs. 10 and 11. You may want a helper to lift and hold the Bandsaw while you are tightening the setscrews.

PREPARE THE BANDSAW AND TABLE ASSEMBLY

8. Inspect the inside of the Bandsaw and wipe away any dirt or foreign material. Use a clean shop rag and mineral spirits or turpentine, but be careful around the blade. It's sharp!
9. When the table is clean, wax the top surface and the miter gauge slots with paste floor wax or paste furniture wax. Apply wax sparingly, then buff it thoroughly. A good coat of wax improves the machine's operation by helping the wood slide smoothly over the table and the miter gauge slide easily in the table slot.

NOTE

Don't use car wax or spray furniture polish on the Bandsaw. 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.

10. Loosen the tilt lock (44) and lubricate the trunnions (37) with powdered graphite, rocking them back and forth as you apply the graphite, as seen in Fig. 12. (You will do this periodically, as discussed in the Maintenance Schedule, on page 34.)

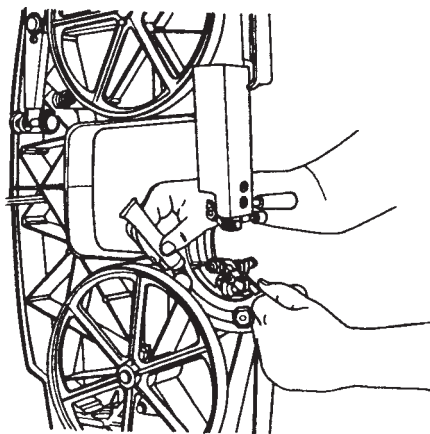


Fig. 12

11. Apply graphite to lubricate the blade tensioning screw (23), upper blade guide post (71), and the threads of the upper and lower blade guide adjusting knobs (82,104).

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. 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.

INSTALL THE TABLE

12. Position the trunnions (37) at approximately 25 degrees and lock them. Fig. 13 shows the exposed trunnions. Hold the table (87) perpendicular to the blade, and mount the table on the Bandsaw, as demonstrated in Fig. 14. Make sure the table leveling bolt (89) and the table insert (95) are removed.

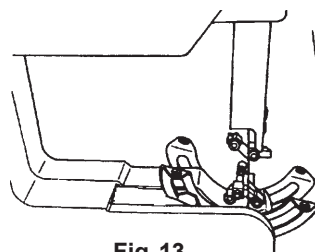


Fig. 13

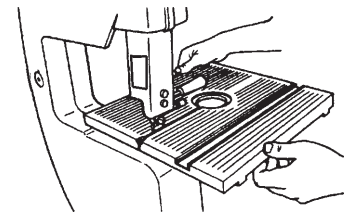


Fig. 14

13. Insert a thin shim washer (48) between the table (87) and each trunnion bracket.
14. Attach the table to the Bandsaw with bolts (35) and thick washers (34), as shown in Fig. 15. Finger tighten only.

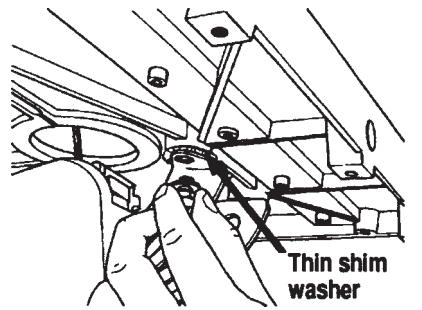


Fig. 15

15. Screw the socket head screw (91) in the hole located at the back of the table, as seen in Fig. 16.

16. Attach a hex nut (92) to the socket head screw, as shown in Fig. 17.

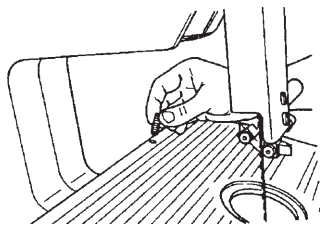


Fig. 16

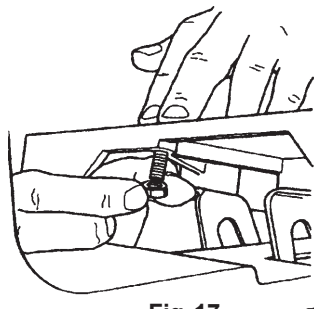


Fig. 17

17. Loosen and return the Bandsaw's trunnion to "0", where the table is supposed to be perpendicular to the blade. Lock the trunnion. See Fig. 18.

18. Install the leveling bolt (89) and knurled nut (88) on the table, as in Fig. 19.

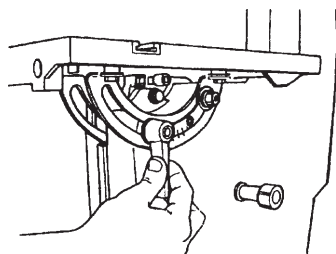


Fig. 18

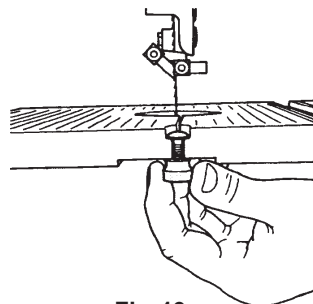


Fig. 19

Alignment

Your Shopsmith 11" Bandsaw comes to you pre-aligned from the factory. It is important to check all of the following alignment and adjustment procedures, if you have problems with your cut accuracy. Also, it is important to recheck them at regular intervals. These steps are to be preformed using the already mounted 1/4" wide blade and in the sequence presented.

Tools Needed:

- 7/16" or adjustable wrench
- 5/32" Allen wrench
- 1/2" wrench
- Precision square
- Medium screwdriver
- Medium Phillips screwdriver
- Small (#0) Phillips screwdriver

WARNING

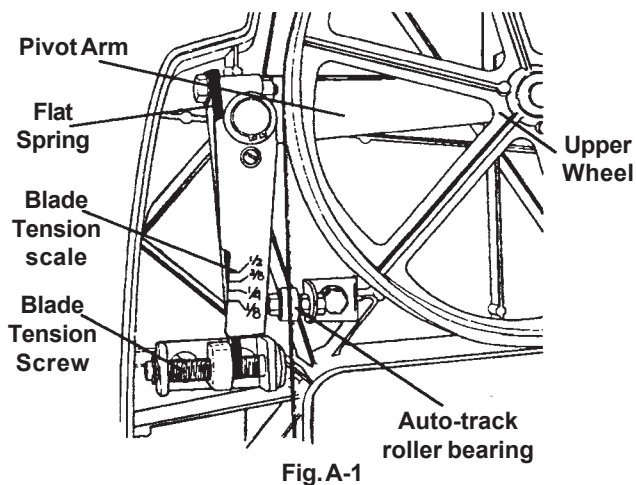
- **The Bandsaw MUST be disconnected (or unplugged) from its power source before performing any alignment, adjustment, maintenance or repair procedure. Do NOT rely solely on the power switch.**
- **DO NOT install the power coupler at this time or attempt to run the Bandsaw until you have completed the remainder of the procedures in this section. It is dangerous to run the Bandsaw until it is COMPLETELY aligned, adjusted and inspected.**

Blade Tracking System

Bandsaw blades revolve in an endless loop on two wheels, the drive wheel (28) and the idler wheel (24). 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 (19), and this arm is drawn upward by a flat spring (15).

This mechanism compensates for slight inconsistencies in blade length and tensions the blade.

The tension is adjusted by turning the blade tension screw (23) 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 Fig. A-1.



Unlike many other bandsaws, blade tracking for the Shopsmith Bandsaw is done automatically with no need for adjustment. A roller bearing to the right of the blade tension indicator keeps the blade properly positioned on the wheels.

A Bandsaw blade is supported and guided from both above and below. See Fig. A-2. The lower blade guide consists of a roller bearing (98) to back up the blade and two guide blocks (101,106) to keep it from twisting. Each guide block is adjusted side-to-side by loosening an Allen screw (100), and front-to-back by turning the lower blade guide adjusting knob (103). You need only to adjust the lower blade guide roller bearing side-to-side. This is done by loosening the mounting bolt (110).

The upper blade guide is similar, but it has two additional adjustments. The upper blade

guide's roller bearing (63) is adjusted front-to-back by turning two screws (68). The blade guide post (71) and roller bearing can be adjusted side-to-side with the mounting bolts (64). The entire assembly can be raised and lowered after loosening the upper blade guide's height lock handle.

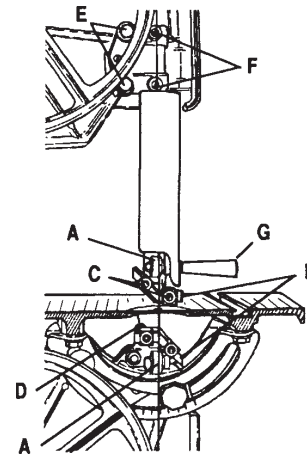


Fig. A-2

Aligning the Blade Tension Scale

The blade tension scale (12) is aligned at the factory, and under normal conditions it shouldn't need adjustment. To check the blade tension scale's alignment, perform the following steps:

NOTE

View the tensioning screw through the window.

1. Release the blade tension so the blade is completely slack on the wheels.
2. Loosen the screw (10) near the top of the scale, as seen in Fig. A-3.

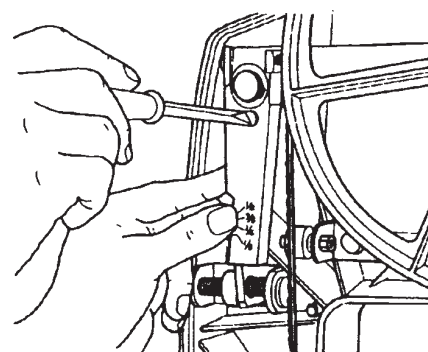


Fig. A-3

3. Rotate the scale so it's left edge (above the notch) is parallel to and even with the red indicator bar.
 4. Hold the scale in position and tighten the screw.
 5. Re-tension the blade to the 1/4" setting on the scale.
 6. Spin the upper wheel (24) several times to make sure the blade is turning freely.
1. If the blade appears off center, loosen the 1/2" mounting bolt (59) that holds the bracket (57) to the Bandsaw frame, as shown in Fig. A-4.

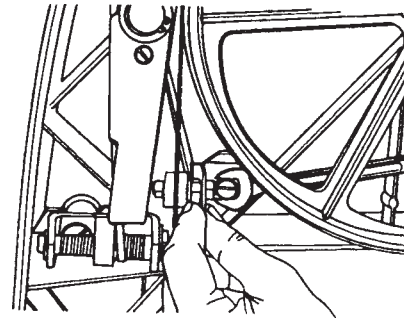


Fig. A-4

Adjusting the Roller Bearings

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

You must mount and tension a blade in the Bandsaw before you can properly adjust the bearings. The blade should be centered on the three roller bearings. The back of the blade should rest against the auto-track roller bearing. The lower blade guide's roller bearing. Also, the blade should be no more than 1/64" away from the upper blade guide's roller bearing. Be careful when you make adjustments, since the blade is sharp.

Auto-Track Roller Bearing

The auto-track roller bearing (56) is near the blade tension scale, at the upper left side of the machine. The bearing guides the blade onto the upper wheel. The front-to-back position of this bearing is fixed and shouldn't be altered. However, the mounting bracket can be moved side-to-side so that you can center the bearing behind the blade.

2. Slide the bracket sideways until the slot in the bearing is centered behind the blade and tighten the mounting bolt.
3. Be careful to keep the sides of the bearing parallel to the blade when tightening this bolt.

Lower Blade Guide's Roller Bearing

The roller bearing (98) 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 bearing, its front-to-back position is fixed and shouldn't be changed. However, the entire lower blade guide assembly, including the bearing, may be adjusted side-to-side.

1. If adjustment is needed, loosen the guide blocks (101,106)-if you haven't done so already-and pull them out about 1/16" from the blade.
2. Loosen the 1/2" mounting bolt (110) which holds the lower blade guide assembly to the Bandsaw frame, as seen in Fig. A-5. The head of this mounting bolt can be reached from the back of the Bandsaw, just above the trunnion.

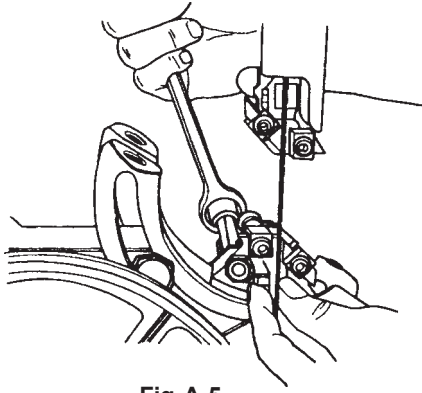


Fig. A-5

3. Slide the lower blade guide sideways until the bearing is centered behind the blade, tighten the mounting bolt, and reset the guide blocks.
4. Again, be sure to keep the bearing parallel to the blade as you're tightening the bolt.

Adjusting the Upper Blade Guide's Roller Bearing

The upper blade guide's roller bearing (63) backs up the blade above the table. Unlike the other two bearings, it can be adjusted side-to-side and front-to-back.

1. Use a 7/16" wrench to remove the blade guard, as shown in Fig. A-6.

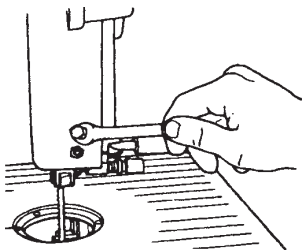


Fig. A-6

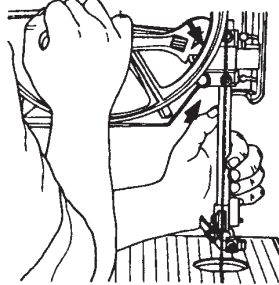


Fig. A-7

2. Set the height of the upper blade guide to about 1" above the table.
3. Use a 5/32" Allen wrench to loosen the guide blocks. Pull them away from the blade about 1/16".

4. Use a 1/2" wrench to loosen the two mounting bolts (64) which hold the guide post bracket (70) to the Bandsaw frame, as seen in Fig. A-7.
5. Swing the upper blade guide sideways until the bearing is centered behind the blade, then tighten the mounting bolts. The upper blade guide's roller bearing 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.
6. Before you adjust the upper blade guide's roller bearing front-to-back, check the distance from the bearing to the blade close to the table and 5"-6" above the table.
7. If the upper roller bearing 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 bearing forward or backward. If this distance is inconsistent or if the bearing 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.
8. Loosen the 1/2" jam nuts on the two guide post adjusting screws (68), as seen in Fig. A-8, then proceed in this manner:

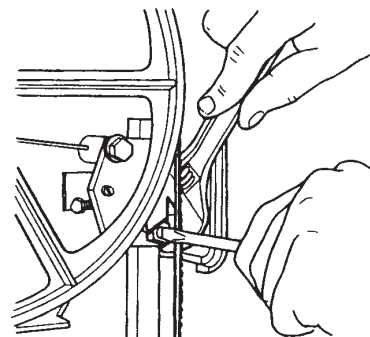


Fig. A-8

To move the guide post and bearing 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 bearing away from the blade (without changing the tilt of the guide post), turn both of the screws an equal number of revolutions clockwise.

9. If the bearing 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 bearing 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 bearing away from the blade at this position, reverse the procedure. Figs. A-9 and A-10 show making adjustments.

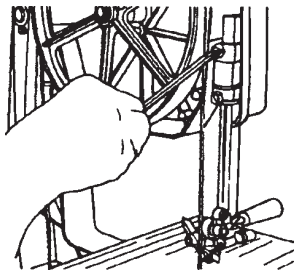


Fig. A-9

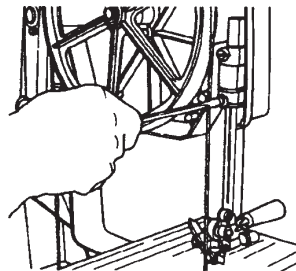


Fig. A-10

Getting these adjustments just right may take some time, 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 revo-

lution at a time until you see how much the bearing moves with each minor adjustment.

- Be sure that when you lock the upper blade guide height lock handle, the upper blade guide's roller bearing does not push the blade away from the lower blade guide roller bearing.
- Each adjustment of the post will change the tension on the upper blade guide's height lock. To adjust the lock tension, follow the procedure described in "Adjusting the Upper Blade Guide's Height Lock" in this section. Once you've completed these adjustments to your satisfaction, hold the screw from turning with a screwdriver and tighten the jam nuts. See Fig. A-11.

Check each roller bearing one more time. With the bearings 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 bearing and the lower blade guide's roller bearing, and it should be no more than 1/64" away from the upper blade guide's roller bearing no matter what the position of that bearing is above the table.

10. Reattach the blade guide.

WARNING

Never attempt to operate the Bandsaw without the blade guard in place.

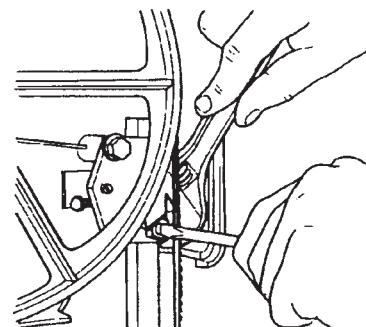


Fig. A-11

Adjusting the Upper Blade Guide's Height Lock

The upper blade guide can be locked at any height 0"-6" above the table. To change the height of the blade guide:

1. Swing the upper blade guide's height lock handle 90 degrees to the right to loosen the locking mechanism.
2. Adjust the upper blade guide so that it's no more than 1/4" above the surface of the stock to be cut.
3. Lock the guide in place by swinging the handle so that it points straight back (toward the outfeed side of the table).
4. If the movement of the upper blade guide's height lock seems stiff (or loose), you need to adjust the tension on the locking spring (72). This tension is set by a small headless screw (73) in the left side of the guide post retainer between the mounting bolts. 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. See Fig A-12.

- To increase the lock tension, turn the adjusting screw counterclockwise.
- To reduce the tension, turn it clockwise.

NOTE

The tension on the blade guide's height lock 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.

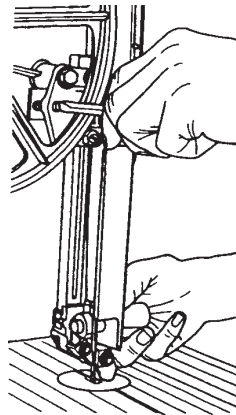


Figure A-12

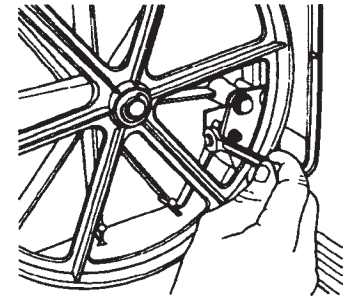


Figure A-13

Adjusting the Upper Blade Guide's Column Post Screw

The nylon screw (65) is adjusted at the factory and should need only periodic checking. It helps control side-to-side movement of the column post within the column bracket. Tighten the nylon screw with a 3/8" wrench to put more pressure on the column post (thus eliminating more side to side movement". Loosen the nylon screw to put less pressure on the column post. See Fig. A-13.

ADJUST THE T-SLOT EXTRUSION

1. Use a precision square to double check your miter gauge for squareness. See Fig. A-14. Adjust the miter gauge to be square, if needed.

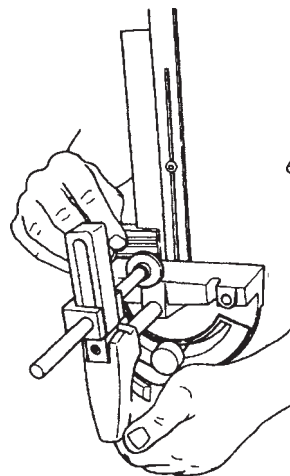


Figure A-14

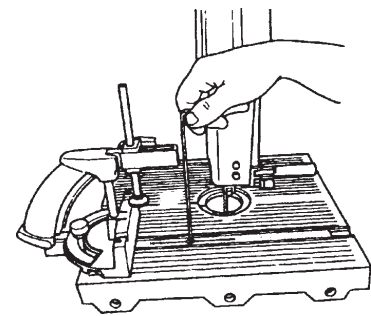


Figure A-15

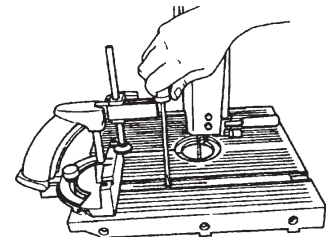


Figure A-16

2. Place the miter gauge in the table's T-slot.
3. Use a 5/32" Allen wrench to remove the expansion screw found in the center of the miter gauge's guide bar. See Fig. A-15.
4. Use a medium Phillips screwdriver to adjust the tension of each of the five screw (94) which attach the T-slot extrusion to the table, as shown in Fig. A-16. The tension should be such that the miter gauge will both travel freely in the T-slot and have a snug fit. After adjusting the screws, replace the expansion screw in the miter gauge guide bar.

ALIGN THE TABLE TO THE BLADE

1. With the miter gauge still in the T-slot, place the precision square against both the face of the miter gauge and the blade. See Fig. A-17.

NOTE

The precision square's "blade" must contact the Bandsaw blade on either the blade's gullet or a tooth set away from the square. If it is positioned on a tooth which is set toward the square, alignment will not be accurate.

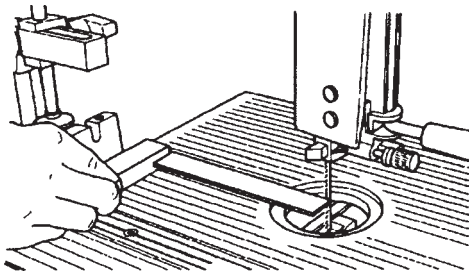


Figure A-17

2. Keep the square on the miter gauge, and slide the miter gauge and square forward until the base of the square reaches the Bandsaw blade, as in Fig. A-18. If there is a gap between the square and the Bandsaw blade or if the blade gets in the path of the square, adjust the table (as the left hand is doing in Fig. A-19) until the gap is elimi-

nated-or the blade is no longer in the path of the square.

When the table is square to the blade, the square's blade should slide along the Bandsaw blade without any gaps or interference. After you have adjusted the table, recheck the table's alignment by repeating this step.

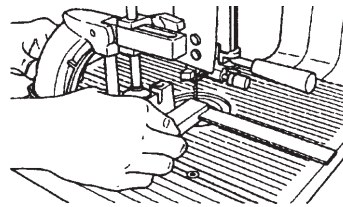


Figure A-18

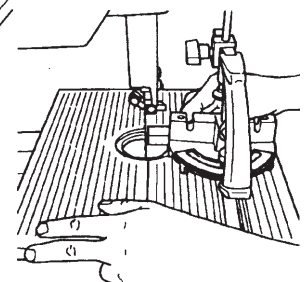


Figure A-19

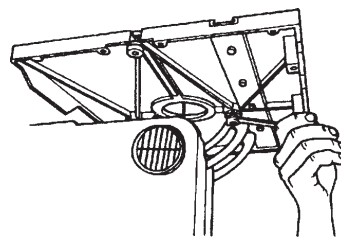


Figure A-20

3. Use a 1/2" wrench to securely tighten the four bolts (35) attaching the table to the Bandsaw. See Fig. A-20. It is easier to tighten the front two bolts, then tilt the table 15 degrees-25 degrees to tighten the remaining two bolts. After tightening, reset the table at 0 degree and lock the trunnion.

NOTE

To assure the accuracy of the table's alignment, test cut a piece of scrap wood and check for squareness. If it is not square, repeat Steps 2 and 3.

4. Remove the miter gauge from the table. Then raise the Bandsaw's saw guard all the way and lock it.

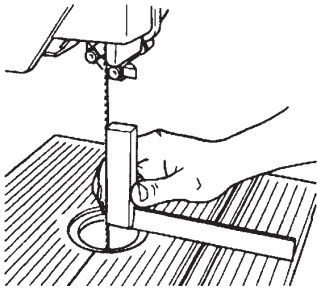


Figure A-21

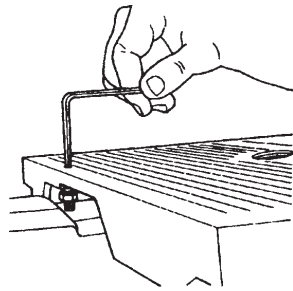


Figure A-22

5. Place a precision square along the side of the blade and on the table, as in Fig. A-21.
6. If the blade is square to the table, use a 5/32" Allen wrench to adjust the table height screw (91) to touch the Bandsaw casting. If the blade is not square to the table, loosen the trunnion, make the necessary adjustment and lock the trunnion. Now adjust the table height screw. See Fig. A-22

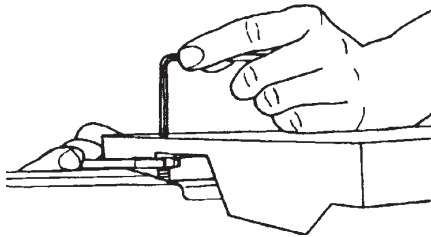


Figure A-23

7. Hold the table height screw in place, while you use a 1/2" wrench to tighten the hex nut against the table, see Fig. A-23.

ALIGN THE TABLE SCALE TO THE TRUNNION SCALE

1. If the "0" marks on the table scale and the Bandsaw's trunnion scale so not align, use a medium Phillips screwdriver to slightly loosen the table scale's screws (32), as shown in Fig. A-24. Align the "0" marks and retighten the screws.

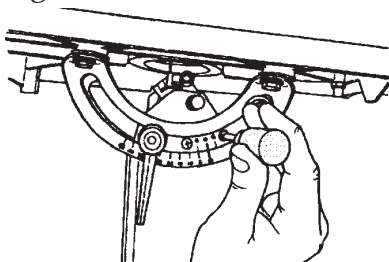


Figure A-24

ADJUST THE BLADE GUIDES

1. Turn the blade guide adjusting knobs, shown in Figs. A-25 and A-26, until the front edges of the guide blocks are just short of the bottom of the gullets between the teeth, as illustrated in Fig. A-27. 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.

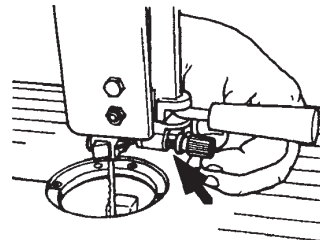


Figure A-25

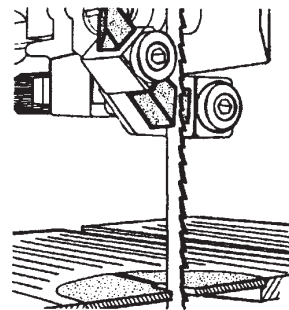


Figure A-27

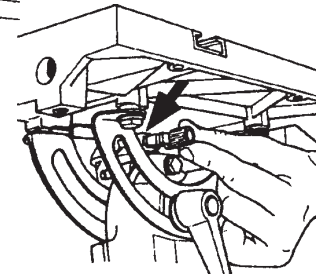


Figure A-26

2. With the locking screws (76,100) 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". Figs. A-28-A-31 show adjusting the four guide blocks.

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. Again, refer to Figs. A-28-A-31. Many woodworkers use notebook paper or a crisp dollar bill to

gauge the guide clearance. Use whichever works best for you.

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, as shown in Fig. A-32.

NOTE

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 the Troubleshooting section on page 34.

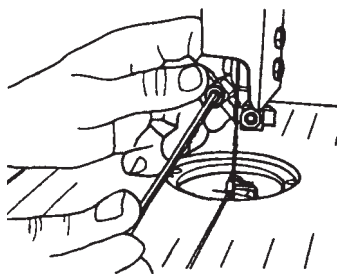


Figure A-28

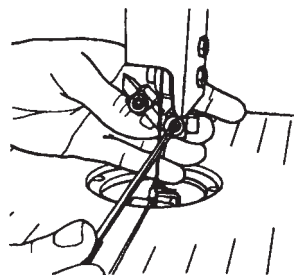


Figure A-29

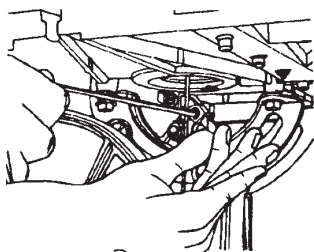


Figure A-30

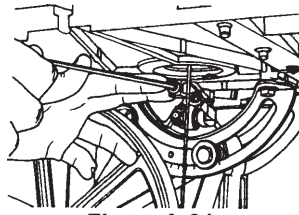


Figure A-31

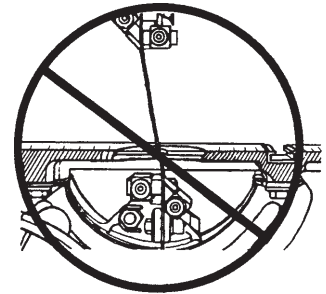


Figure A-32

3. Spin the upper (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.

WARNING

Use only 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 1/16" and 5/8" wide. **ANY OTHER BLADES ARE UNSAFE.** Also, when using 1/16" blades, you must install Cool Blocks (Part No. 555374) in place of the standard metal blade guides.

INSTALL THE TABLE INSERT

1. The table insert (95) has two clips on its underside, as shown in Fig. A-33. Put the blade into the insert's slot so the solid part of the insert is on the blade's tooth side.

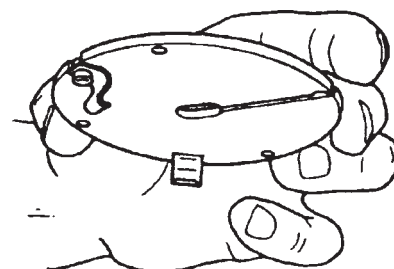


Figure A-33

- Clip the insert in its hole, as in Fig. A-34, with the clips going into the table first.

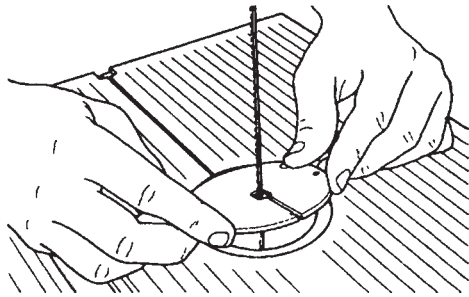


Figure A-34

- Snap down the front of the insert, as shown in Fig. A-35.

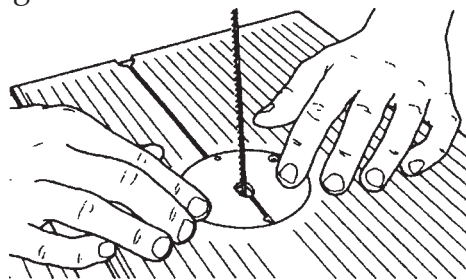


Figure A-35

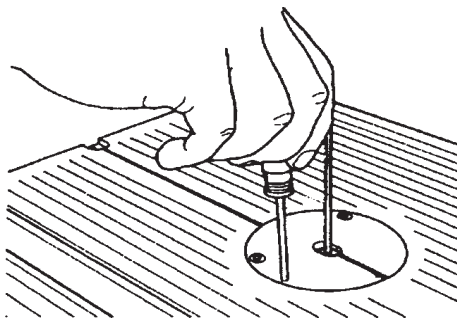


Figure A-36

- Use a very small Phillips screwdriver (96) to adjust the leveling screws (90) through holes in the insert so it is uniformly flush with the edge of the Table. See Fig. A-36.
- Reattach the Bandsaw cover with the three screws and washers.

Alignment and Adjustment Safety Checklist

When you've finished aligning and adjusting the various parts of your Bandsaw, review your work according to this checklist. Make copies of it and perform each item before operating your Bandsaw, especially when it has set idle for more than a few days.

- Is the Bandsaw blade properly mounted and tensioned.
- Is the blade centered on the roller bearings? Does it rest against the auto-track roller bearing and lower blade guide's roller bearing, while remaining no more than 1/64" away from the upper blade guide's roller bearing?
- Are the blade guides properly adjusted?
- Is the height of the upper blade guide's height lock properly adjusted?
- Is the upper blade guide positioned no higher than 1/4" above the stock, and is locked securely in place?
- Does the blade operate freely?
- Is the table insert in place and flush with the table top?
- Is the table properly aligned to the blade?
- 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 or Power Station to power the Bandsaw, is the power coupler installed correctly? Are both the accessory mount lock and the headrest lock tightened on the Mark V? Is the carriage locked on the Power Station?
- If you've mounted the Bandsaw on a Power Stand, is the V-belt properly tensioned and the pulley guard in place?

Operations

The bandsaw 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.

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, nonferrous metals such as copper, brass and aluminum. If the Mark V is the Bandsaw power source, you can use the optional Shopsmith Speed Reducer with the Bandsaw to cut an even wider range of materials.

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. 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.



Study each Bandsaw operation carefully. If you're in doubt about how to complete it safely, do not try it. Contact Shopsmith Customer Services.

Selecting the Right Blade for the Job

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






The Shopsmith Bandsaw can mount any blade 1/16" to 5/8" wide and 72" long (within 1/2"). When using 1/16" blades, you must install optional Cool Blocks (Part No. 555374) in place of the standard metal blade guides. Choosing the right blade for the job depends on:

- The kind of material you're cutting
- The thickness of the stock
- The Bandsaw operation you're performing
- The intricacy of the cut

The wider the blade, the larger the teeth and the deeper the gullets. The added width makes the blade stiffer, so the cut is straight. 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.

Bandsaw Blade Selection Chart

Description	Recommended Speed Ranges (in rpm)
 1/16" Blades-For extra fine detail work only. Use with wood and other softer materials up to 2" thick. Turning radius is 1/8". Feed stock gently and slowly. Must use optional Cool Blocks (Part No. 555374) in place of standard metal guide blocks. Not for medium-duty cuts or resawing. Note: Set the tension scale at the 1/8" setting.	850 rpm for hardwood 850 rpm for softwood
 1/8" Blades-For very fine detail work only. Use for wood and plywood up to 3" thick. Not for heavy-duty cuts or resawing.	950 rpm for hardwood 1,050 rpm for softwood
 1/4" Blades-A good general purpose blade for wood, plywood, plastics, particle board, and soft, nonferrous metals. Limit resawing to stock 4" thick, metalwork to stock 1/4" thick. A 1/4" blade comes with your Bandsaw and is already installed.	850 rpm for hardwood 950 rpm for softwood 700 (or slower) rpm for other materials
 1/2" Blades-For heavy-duty cutting of wood, plywood, plastics, particle board, and soft, nonferrous metals. Suitable for resawing stock up to 6" thick, and metalwork in stock up to 1/2" thick.	700 rpm for hardwood and softwood 700 rpm (or slower) for other materials
 5/8" Blades-For heavy-duty resawing. Efficiently handles wood up to 6" thick. Straight cuts only. Note: set the tension scale at the 1/2" setting.	700 rpm for hardwood and softwood

Bandsaw Speeds

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 **Bandsaw Blade Selection Chart** on page 21.

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 2,000 to 3,000 fpm. This translates to "drive speeds" of 700 to 1,050 revolutions per minute (rpm), or speed settings "Slow" to "D" on the Mark V and "1" to "2" on the Power Station.

WARNING

NEVER run the Shopsmith Bandsaw too fast. If the Bandsaw runs too fast-ever 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 (or Power Station) as the power source, be sure the speed is set at "Slow" (or "1"). Connect the power coupler. Turn on the power source, set the speed dial, make the cut, turn the speed to "Slow", (or "1") and turn off the power source.

If you're using a Shopsmith Power Stand, remove the pulley guard and position the V-belt on the 2" (smallest) groove of the 2-step motor pulley to a 4-1/2" pulley on the drive shaft of the Bandsaw. Remember to replace the pulley guard.

You may also find instructions in other wood-working texts directing you to operate your

Bandsaw at a certain fpm setting 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:

$$2.88 \times \text{rpm} = \text{fpm}$$

$$\text{fpm}/2.88 = \text{rpm}$$

WARNING

Never run the Shopsmith Bandsaw at a speed higher than 3,000 fpm, 1,050 rpm, or speed setting "D" on the Mark V (or "2" on the Power Station).

Making a Cut

Follow these procedures every time you make a cut:

1. Adjust the height of the upper blade guide so that it's no more than 1/4" above the work, as shown in Fig. B-1.

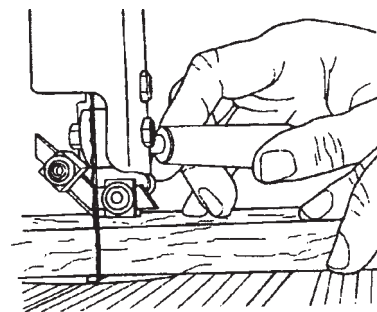


Figure B-1

2. 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, as demonstrated in Fig. B-2. Fig. B-3 shows the correct cutting procedure.
3. Turn on the power and wait until the machine comes up to running speed.
4. Take a comfortable stance in front and slightly to the left of the blade, and start your cut. As you work, you may shift

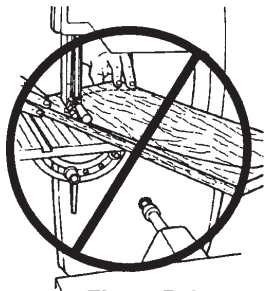


Figure B-2

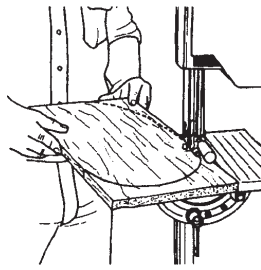


Figure B-3

more toward the center, but be careful not to stand on the right side of the blade.

5. Slowly feed the stock into the blade. Use both hands to guide the work and keep it pressed firmly down against the table.

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 and unplug the Bandsaw first and let the blade come to a complete stop.

Always turn on the Bandsaw first and let it come up to speed, then feed the workpiece into the blade. NEVER turn on the machine with stock pressed 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 all right 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.

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.

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.

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, turn off the machine, and disconnect the power. Wait until the wheels come to a complete stop before removing the cover to remove the broken blade.

If you mount a 1/16" or 1/8" blade after a 1/2" or 5/8" blade has been mounted for an extended period of time, the 1/16" or 1/8" blade may have a tendency to drift off the wheels. This situation is caused by long term excessive force (high blade tension) on the upper wheel to an incorrect angle. If this does occur:

1. Turn off and unplug the machine, disconnect the power coupler, and remove the Bandsaw cover.

2. Grab the top and bottom of the upper wheel. Gently push in on the top of the wheel and pull out on the bottom.
3. Mount and tension the blade. Turn the upper wheel by hand.
4. Repeat the procedure until the blade remains on the wheels.
5. Install the Bandsaw cover, plug in and turn on the machine, turn the speed dial to "Slow", turn off the machine, and reconnect the power coupler.
6. Turn the machine on and off quickly. If the blade stays on the wheels, turn the machine on, set the speed dial for the proper speed and make the cut.

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:

Relieving Blade Tension

It is always a good practice to relieve blade tension once you have completed operations and the Bandsaw will remain unused for at least several days. The relieved tension helps the blade to last longer, and it decreases the chance for the upper wheel to "set", as described above.

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, seen in Fig. B-4. Not only does this technique make it easier to be accurate, the finished edge is smoother. The mill marks left by the Bandsaw are removed when you sand up to the line.

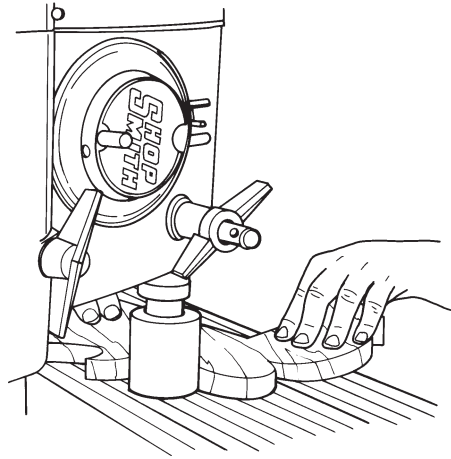


Fig. B-4

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, as shown in Fig. B-5.

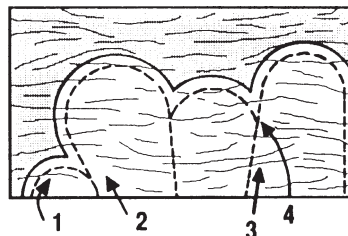


Fig. B-5

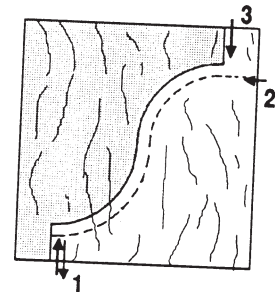


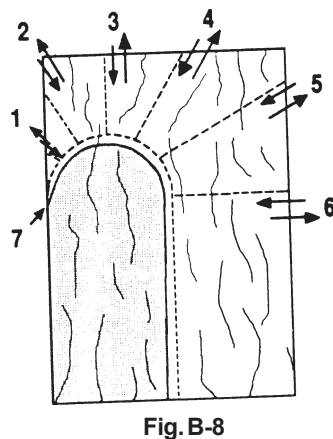
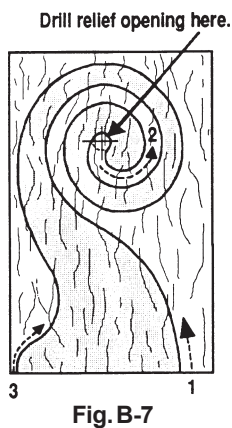
Fig. B-6

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, as illustrated in Fig. B-6. 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 from 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-places holes will give you a lot of turning room to cut tight, internal curves, as seen in Fig. B-7. 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.



Making Relief Cuts

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

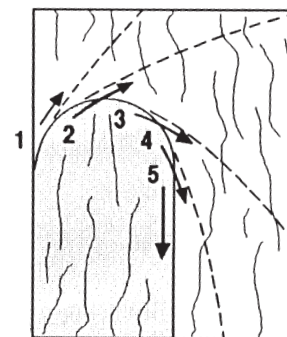
Make radial cuts toward the pattern line and backtrack out, as shown in Fig. B-8. Then cut the desired curve. As the blade meets each radial cut, a little piece of waste stock will fall

away. This provides more room for the blade to turn.

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, as seen in Fig. B-9.

NOTE

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. This is handy when you need to cut tiny corners and curves.

Ripping and Crosscutting

As mentioned earlier, the miter gauge slot allows you to use your Shopsmith miter gauge for many Bandsaw operations. You can make crosscuts and miter cuts similar to cuts on a table saw, as seen in Fig. B-10. Your cutoff capacity is limited to 10-1/2". Longer stock will strike the Bandsaw frame.

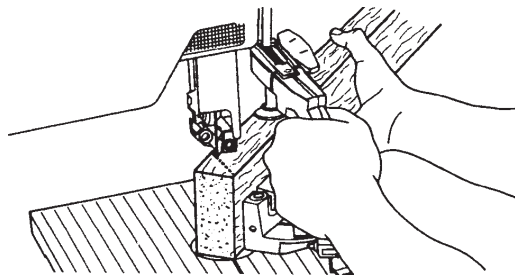


Fig. B-10

To increase the cutoff capacity when crosscutting, you can offset the blade, as described on page 26. 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, demonstrated in Fig. B-11. However, when the blade is offset, you must crosscut freehand, without the miter gauge.

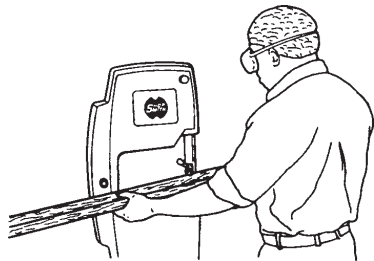


Fig. B-11

Resawing

Resawing thick stock into thin boards is one of the Bandsaw's most useful functions. This operation cannot be performed as efficiently on any other home workshop power tool. We recommend buying and using the optional Bandsaw Fence (Part No. 555645).

To get a good resaw, first joint or sand the bottom edge of the stock. Also make sure the stock 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 degree or 2 degrees out of square will make the resawn board noticeably uneven.

Since resawing usually involves stock several inches thick and many feet long, you should use the Bandsaw fence. You should

also 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).

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. For a 5/8" blade, set the tension at the 1/2" scale setting.

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. 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 fence. If this doesn't work, follow the procedure described in the Troubleshooting 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 fence to guide and support the work, as demonstrated in Fig. B-12.

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 fence. 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.

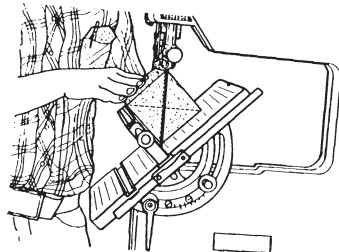


Fig. B-12

Cutting Round Stock

Cutting round stock requires extra caution because its shape makes the workpiece difficult to hold. If you're 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.

WARNING

Round stock should always be supported and guided with the fence, as shown in Fig. B-13. The teeth of the blade can easily catch the stock, spinning it out of your hands, or worse, dragging your hands into the blade.

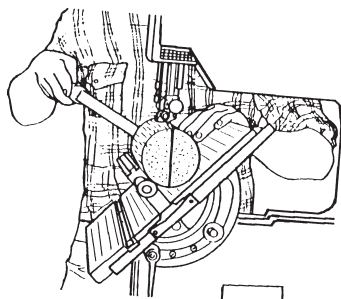


Fig. B-13

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 into a "pad" and saw them all at once, as illustrated in Fig. B-14. By placing nails in the waste stock, you'll never see the holes in the finished project.

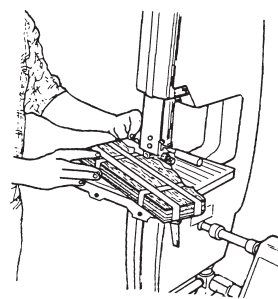


Fig. B-14

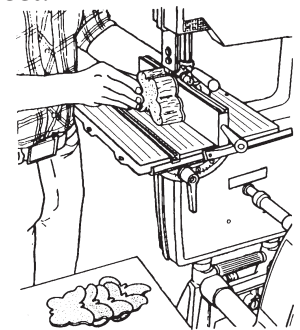


Fig. B-15

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, as shown in Fig. B-15. 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.

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-seen in Fig. B-16, but save the waste. 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 degrees 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, shown in Fig. B-16, but save the waste. 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 degrees 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, shown in Fig. B-17. 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. Fig. B-18 shows the finished cabriole leg.



Fig. B-16

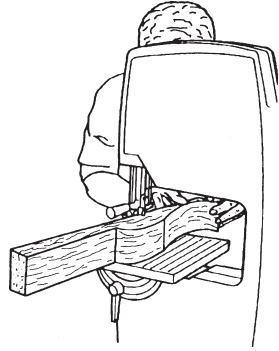


Fig. B-17



Fig. B-18

Cutting Particle Board, Plastics and Metals

As mentioned earlier, your Bandsaw will also cut materials other than solid wood and plywood. These include particle board, plastic, plastic laminates and soft, nonferrous metals such as brass, copper and aluminum.

WARNING

Before cutting metals, clean out the Bandsaw thoroughly to 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 nonferrous metal, put 1-2 drops of oil on the pattern line every inch or so to help keep the blade from overheating, as demonstrated in Fig. B-19.

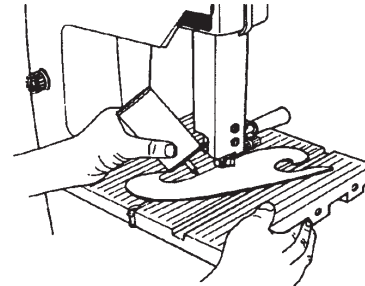


Fig. B-19

WARNING

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.

As a "rule of thumb," there should usually be 3 blade teeth in the stock at all times during the cut. This ensures proper cutting action of the blade, giving the best combinations of aggressiveness and smoothness of the cut-while still providing a safe cutting action. Here's a chart listing material thickness and the minimum teeth per inch a blade should have to cut it:

<i>Material Thickness</i>	<i>Min. Teeth Per Inch (TPI)</i>
1/8"	24
1/4"	12
3/8"	8
1/2"	6
5/8"	4 to 6
3/4"	4
1-1/2"	3

The optional Shopsmith Speed Reducer (Part No. 555428) is an excellent accessory to use with the Bandsaw when the Mark V is the power source. The Speed Reducer allows the Mark V to power the Bandsaw at speed as low as 100 rpm. Slower speeds are best for cutting many plastics and metals.

WARNING

Particle board releases toxic formaldehyde gas when cut. When cutting particle board, always work in a well-ventilated room and use respiratory protection.

NOTE

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.

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 (as illustrated in Fig. B-20), 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.

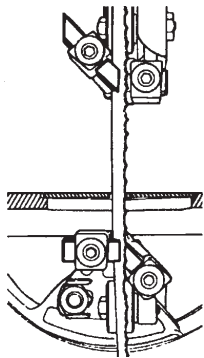


Fig. B-20



Top View

Fig. B-21

To offset the blade, you must reverse the guide blocks. Then the gap between the guide blocks will be angled 30 degrees to the right (as viewed from the top in Fig. B-21). As the blade runs through this gap, the guides twist it to the right. 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.



You may want to replace the metal guide blocks with optional Cool Blocks (Part No. 555374) to help prolong the life of your bandsaw blade.

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.

If your Bandsaw is mounted on a Power Stand with a 1/2-hp motor, you can only offset the 3/8" blade. To offset a 1/2" blade, the Bandsaw must be powered by the Mark V or the Power Station.

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 remove the table leveling bolt (89).
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 Mounting 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 angles 30 degrees to the right when viewed from the

top, as shown in Fig. B-22. Do not secure the guide blocks in place yet, but back the left guide blocks out 1/4" away from the blade.

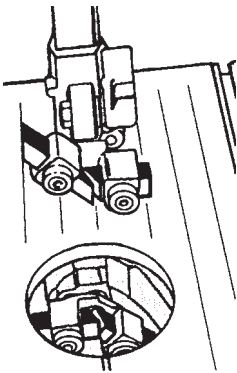


Fig. B-22

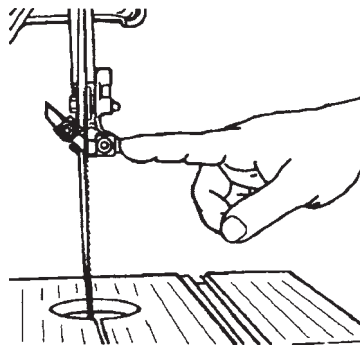


Fig. B-23

5. Push the right guide blocks in until they contact the blade, twist the blade slightly, and push the back of the blade guide housing, as shown in Fig. B-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 degrees. 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 Fig. B-21.
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 bolt.
9. 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. An excellent alternative is to install optional Cool Blocks.

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.

Removing and Mounting Blades

When you mount a blade on the Bandsaw, you must carefully adjust the blade guides and the blade tension. This is critical.

WARNING

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.

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. Unscrew the cover knobs and set the cover aside. Then reach up under the table and pop the table insert out.
3. Remove the table leveling bolt. (89).

4. 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, as seen in Fig. B-24.

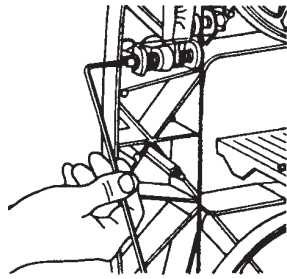


Fig. B-24

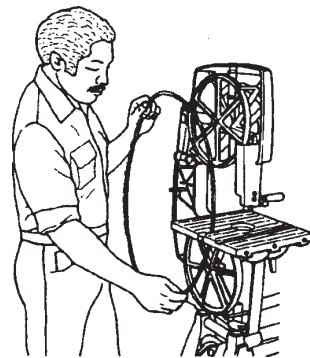


Fig. B-25

6. Loosen the guide blocks by turning the guide blocks' locking screws counterclockwise with the 5/32" Allen wrench. Then pull the blocks away from the blade about 1/16".
7. Slide the slack blade off the wheels and out through the slot in the table, as shown in Fig. B-25. 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, as seen in Fig. B-26. The teeth must be pointing down and toward the front of the Bandsaw (and toward you). Position the blade approximately in the center of the rubber tires and in between the guide blocks.

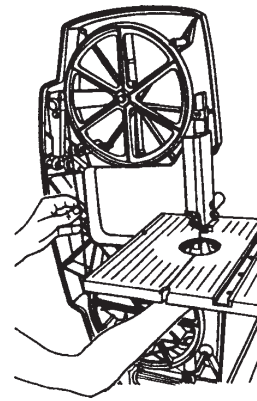


Fig. B-26

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 Alignment section.

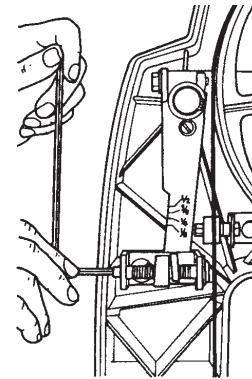


Fig. B-27

10. Tension the blade, turning the blade tensioning screw clockwise, as demonstrated in Fig. B-27. Notice that as you turn this screw, the red indicator bar moves, because it 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 at the marking for the blade width you're using.

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.

CAUTION

Always release the blade tension when you finish operating the Bandsaw. This prolongs blade life and prevents the upper wheel from taking on an abnormal "set".

Never tension a 1/16" blade beyond the 1/8" setting, a 3/16" blade beyond 5/16" (half-way 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. For 5/8" blades, use the 1/2" settings.

When the tension is set, spin the idler wheel by hand (as seen in Fig. B-28), letting the blade make several complete loops. Make sure that the blade moves freely.

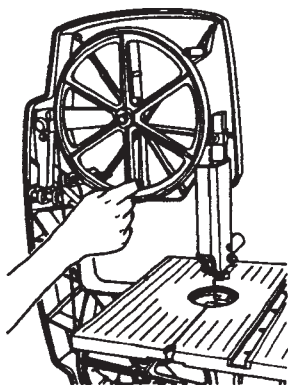


Fig. B-28

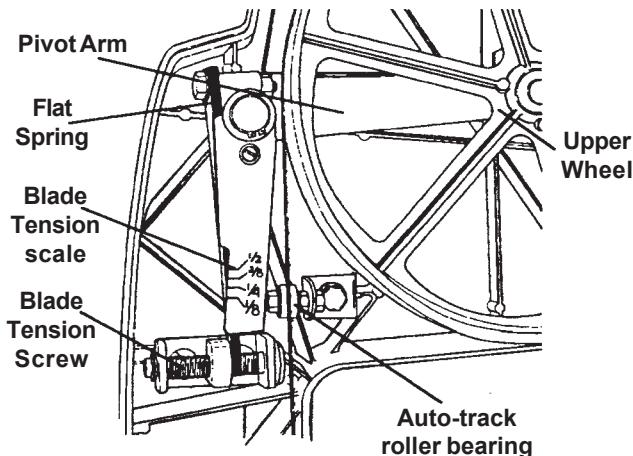


Fig. B-29

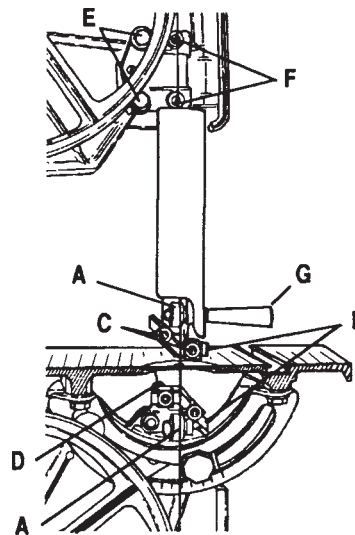


Fig. B-30

- A - Roller bearings
- B - Guide blocks
- C - Guide block locking screws
- D - Guide adjusting knobs
- E - Mounting bolts
- F - Guide post's adjusting screws
- G - Upper blade guide's height lock handle

11. After you've spun the blade several times by hand, it should be centered on the three roller bearings, indicated in Figs. B-29 and B-30. The back of the blade should rest against the auto-track roller bearing and the lower blade guide roller bearing, and it should be no more than 1/64" away from the upper blade guide roller bearing. If the blade is not properly positioned on the bearings, follow the procedure described in "Adjusting Roller Bearings" in the Alignment section.

Maintenance

Caring for Your 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 more safely if you regularly take a few minutes to properly maintain it.

WARNING

Remember to turn off and unplug the power source and to uncouple the Mark V headstock (or Power Station) from the Bandsaw BEFORE you begin any maintenance or service procedure. DO NOT rely solely on the power switch.

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.

WARNING

A dull blade interferes with the performance of your Bandsaw, and there is also a danger it may heat up and break while you're using the machine.

On the other hand, bandsaw blades are expendable items-much like sanding belts. Depending on the type and amount of use, bandsaw blades will perform well for various lengths of time. When a blade becomes worn, many woodworkers simply replace it with a new one. However, below is information on how to sharpen bandsaw blades.

Professional Sharpening

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. 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 more smoothly and tracks straight.

NOTE

Combination-style blades have hardened teeth. Some saw shops may not be able to sharpen them.

Sharpening It Yourself

Sharpening a bandsaw blade 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:

1. 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.

- Clamp the clean blade between two blocks of wood (or a wooden-jawed vise) so that the teeth protrude slightly, as shown in Fig. C-1.

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

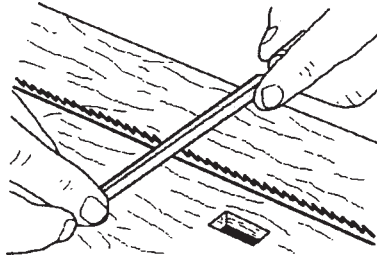


Fig. C-1

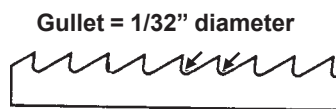


Fig. C-2

- 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 Fig C-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.

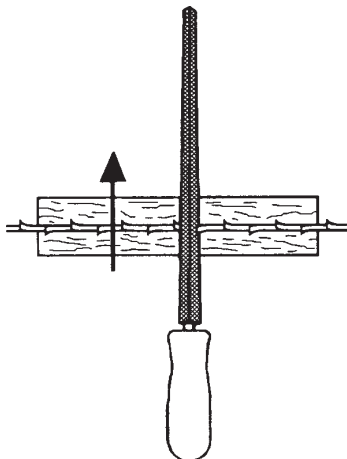


Fig. C-3



Do not file the bottom of the gullets. Filing will score the gullets and shorten blade life.

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.

NOTE

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.

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:

- Turn off the Bandsaw and unplug its power source.
- Remove a guide block. To resurface it, you can use a whetstone (see Fig. C-4), a sanding disc (see Fig C-5), a belt sander (see Fig. C-6), or strip sander. The key to successfully resurfacing the guide block is to keep the work surface consistently flat against the abrasive surface. You may want to make a special jig to hold your guide blocks while you sharpen them.

Be careful not to grind away any more of the guide blocks than you absolutely need to. If the long guide blocks should be

come shorter than 1-3/8", or the short guide blocks shorter than 3/4", replace the guide blocks with a new set.

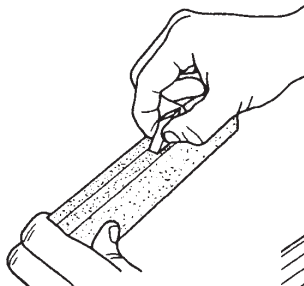


Fig. C-4

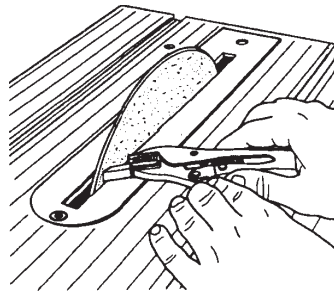


Fig. C-5

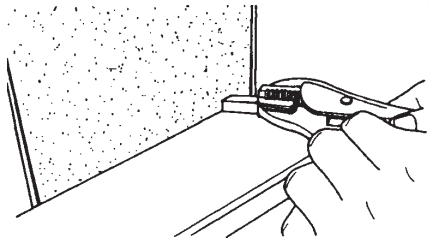


Fig. C-6

- Repeat Step 2 for any other guide block which needs resurfacing.

WARNING

When using a belt sander, strip sander, disc sander or other powered abrasive surface to resurface guide blocks, never hold the guide block with your fingers. Use locking pliers and keep your fingers away from abrasive surface.

Cleaning the Bandsaw

As you work, sawdust and wood pitch accumulate on the blade, blade guides, tires and in the Bandsaw. This residue can affect 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.

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 also work well.

WARNING

Wear a dust mask and eye protection when using compressed air to blow dust from your Bandsaw.

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.

Remove the built-up wood pitch from the blade, blade guides and tires. Apply mineral spirits to dissolve the pitch, then wipe it off with a rag.

Lubricating the Bandsaw

Several parts of the Bandsaw require lubrication:

- blade tensioning screw-Fig. C-7
- upper blade guide post-Fig. C-8
- threads of the upper blade guide's adjusting screws-Fig. C-9
- lower blade guide's adjusting screws-Fig. C-9
- trunnions-Fig. C-9

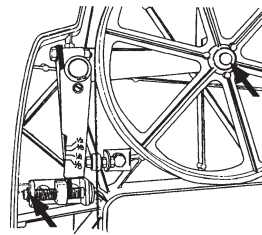


Fig. C-7

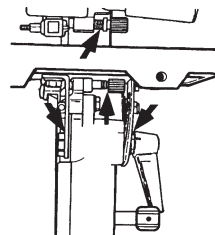


Fig. C-9

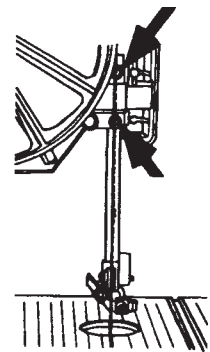


Fig. C-8

Rock the trunnions back and forth as you apply the graphite. We recommend powdered graphite for lubricating the Bandsaw because it's dry and doesn't attract sawdust. But if graphite is unavailable, you can apply 10-wt. Machine oil to all the parts that need lubrication, with the exception of the trunnions. The trunnions should either be dusted with graphite or waxed. Use oil sparingly (1-2 drops only) because excess oil will mix with sawdust and impede moving parts.

Grease the Upper Wheel Bearings

Grease the needle bearings in the upper wheel. The upper wheel is held on the shaft by a retaining ring. Remove this ring with a small blade screwdriver, gently lifting it out of its groove. (See Fig. C-7.) Remove the fiber washer and pull the wheel from the shaft. Wipe the shaft with a clean rag to remove any dirt or dust, then grease the bearings inside the hub. Use cup grease or furnace bearing grease.

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. Push the retaining ring into the groove on the shaft. When you've finished, pull out on the wheel to be sure the ring is securely seated.

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

WARNING

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

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 all metal surfaces with a rust-inhibiting light oil. Remove this oil with mineral spirits and re-wax the Bandsaw before using it again.

Bandsaw Tires

If a tire is torn or damaged or if its surface is rough and uneven, replace the wheel assembly according to the following procedures:

1. Unplug the Bandsaw and remove the blade.
2. Remove the wheel. To remove the upper wheel, follow the procedure described in Lubricating the Bandsaw. To remove the lower wheel, first remove the drive hub or pulley 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 wooden or rawhide mallet to loosen the bearing in the frame, then pull the wheel free, as shown in Fig. C-10.



Don't hit the drive shaft with a metal hammer. This will damage the shaft.

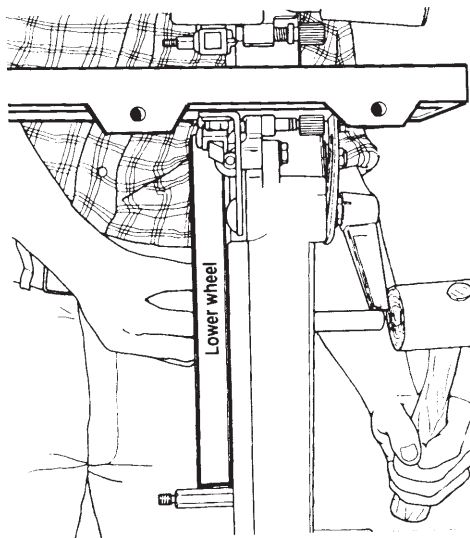


Fig. C-10

3. Install the new wheel. To install the upper wheel, put it 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 retaining ring in the groove and work your way around the shaft, pushing the ring into place. Then pull out on the wheel to be sure the ring is securely seated.

To install the lower wheel, place the drive shaft into the cavity and tap with a wooden or rawhide mallet until securely in place. Replace the bearing retainer inside the machine and then replace the drive hub or pulley onto the drive shaft.

Waxing the Bandsaw

Wax and buff the working surfaces for 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 floor or furniture paste wax. DO NOT use car wax or furniture polish. Car wax forms a protective coat, but it doesn't lubricate. Furniture polish isn't tough enough. Paste floor or furniture wax protects and lu-

bricates. Apply wax sparingly and rub it out thoroughly. If you apply too much wax or don't buff it, the wax will leave residue on the wood and it will also mix with sawdust and impede moving parts.

NOTE

Cast aluminum 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.

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, roller bearings, tension, needle 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 roller bearing position.
Every 5 hours of running time*	Brush off and blow out the Bandsaw completely.
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 needle bearings. Check all guide blocks, roller bearings, tires and needle bearings for wear.

*To estimate running time, use this rule: you will run your power tools only 10% of the total time you spend in your shop. And the time you spend running power tools will be split between your bandsaw and other machines. So, if you work

in your shop for 25 hours, you have probably logged 1 hour 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.

Troubleshooting

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 the following Troubleshooting Guide.

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. If the blade lead is excessive and interferes with your work, check the blade guides, and then:

- 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 13-15 of the Adjust the Roller Bearings section.
- If the guide blocks are worn, grind a new face on the guide blocks as in Resurfacing the Guide Blocks.
- 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 correct it by having the blade reset and resharpened at a saw shop or replace the blade.

WARNING

Use extreme caution when correcting for blade lead, since more of the running blade is exposed than on any other Bandsaw operation. Also, remember to wear eye protection.

Troubleshooting Guide

<u>Problem Area</u>	<u>Find on Page:</u>
General Operation	35
Blade Guides & Roller Bearings	36
Blade	36
Table	37
Workpiece	38
Accuracy of Cut	38
Quality of Cut	39

<u>Problem</u>	<u>Possible Cause</u>	<u>Solution</u>
General Operation Drive shaft heats up or does not turn smoothly	Lower bearings worn.	Replace lower bearings. Have done by our Customer Service.
	If Bandsaw is driven by V-belt, belt may be too tight.	Loosen tension on V-belt.
	Pulleys or hubs improperly aligned.	Re-align 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 & grease bearings.
	Needle bearings worn.	Replace needle bearings. Have done by our Customer Service.
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 instruction 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 degrees or above. Make sure the machine speed setting is at "Slow".
	Capacitor on motor defective.	Replace capacitor.
	Motor defective.	Replace or rebuild motor. Have done by our Customer Service.
	No power to the motor.	Check that motor is plugged in.
Power coupler difficult to install	Drive hubs out of alignment.	Re-align drive hubs.
Mounting tubes difficult to insert in power mount	Tubes out of alignment.	Re-align tubes.
	Accessory mount lock interfering.	Loosen accessory mount lock.

<u>Problem</u>	<u>Possible Cause</u>	<u>Solution</u>
<i>Blade Guides and Roller Bearings</i> Upper blade guide difficult to adjust up and down.	Too much spring tension on guide post.	Re-adjust 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 guide's roller bearing is more than 1/64" away from the blade.	Guide post set too far back.	Adjust position and/or tilt of guide post by adjusting brass screw.
Upper blade guide's roller bearing lifts the blade off the lower bearing.	Guide post set too far forward.	Adjust position and/or tilt of guide post by adjusting brass screw.
Guide blocks are scored or damaged.	Blade guides not properly aligned.	Resurface guide blocks and re-align blade guides.
	Blade twisting in guides.	Resurface guide blocks.
Blade does not run in the center of the roller bearings.	Roller bearings not centered behind blade.	Loosen roller bearing mounts and center bearings.
<i>Blade</i> Blade "ticks" or knocks while running.	Blade or weld is damaged.	Stop machine immediately. Examine blade and replace if damaged.
	Blade twisted or bent in one spot.	Remove blade and straighten. Replace blade if damaged.
Ripped or resawn boards have taper or bevel.	Workpiece fed improperly.	Feed workpiece carefully. Avoid side pressure.
	Table not square.	Square table.
Blade makes a scraping sound.	Blade rubbing against guides.	Re-align 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 narrower blade.
	Blade dull or worn.	Sharpen or replace blade.
Blade binds in the cut.	Cutting corner too tight for blade.	Make relief cuts or use narrower blade.
	Stock improperly cured.	Use properly cured stock.
	Blade dull or worn.	Sharpen or replace blade.

<u>Problem</u>	<u>Possible Cause</u>	<u>Solution</u>
Kerf jams with sawdust-un-able to backtrack.	Backtracking too fast or out of a long cut. Never backtrack more than 1".	Turn off machine, let blade stop, then backtrack.
	Stock improperly cured.	Use properly cured stock.
Blade teeth scrape the guide blocks.	Blade guides too far forward.	Re-align blade guides.
Blade hits the table insert.	Blade twisting during cut.	Make relief cuts or use narrower blade.
	Backtracking too fast or out of a long cut. Never backtrack more than 1".	Turn off machine, let blade stop, then backtrack.
Table Table is 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 re-align table.
Table is not square to the flat of the blade, or not tilted as indicated.	Auto-stop or tilt indicator out of alignment.	Square table to blade. Re-align auto-stop and tilt indicator.
Miter gauge slots are not aligned with the flat of the blade.	Table mounted improperly.	Loosen trunnion bolts and re-align table.
Table "pitched" (Not square to the back of the 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 a full 45 degrees.	Table mounted improperly.	Loosen trunnion bolts and re-align table.
	Impacted sawdust or foreign material on trunnions.	Clean trunnions.
Table insert is not flush with the table top.	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.
	Trunnions not secure.	Tighten trunnion bolts.

<u>Problem</u>	<u>Possible Cause</u>	<u>Solution</u>
<i>Workpiece</i> Workpiece is 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.
<i>Accuracy of Cut</i> Cut is not square or not at the indicated angle.	Auto-stop or tilt indicator out of alignment.	Square table to blade. Re-align auto-stop and tilt indicator.
Miter cut is not at the indicated angle.	Miter gauge improperly aligned.	Re-align miter gauge.
	Miter gauge slots not aligned with flat of blade.	Loosen trunnion bolts and re-align table.
	Workpiece slipped while cutting.	Hold workpiece securely.
	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. Re-align auto-stop and tilt indicator.
Blade wanders away from the pattern line.	Blade guides not properly aligned.	Re-align blade guides.
	Knots or wood grain deflect blade.	Feed stock more slowly.
	Blade "leads".	Feed stock at slight angle.
	Cutting corner too tight for blade.	Make relief cuts or use narrower blade.
	Failure to guide work accurately.	Take your time.

<u>Problem</u>	<u>Possible Cause</u>	<u>Solution</u>
<i>Quality of Cut</i> 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.	Re-align 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.	Re-align blade guides.

Customer Services:

Where to write:

- Send inquiries to:
Shopsmith, Inc.
Customer Services Department
6530 Poe Avenue
Dayton, Ohio 45414-2527

Where to Call:

Shopsmith maintains toll-free telephone numbers during normal business hours.

- For technical service, call:
1-800-762-7555 (Continental US, Hawaii, Alaska, Puerto Rico, and US Virgin Islands)
1-937-898-6070 x-376 (Dayton OH area and Canada)
- To place an order:
1-800-543-7586 (Continental US, Hawaii, Alaska, Puerto Rico, and US Virgin Islands)
1-937-898-6070 x-375 (Dayton OH area and Canada)
1-800-722-3965 to Fax your order.
Or visit our full service website and order on line, log onto www.shopsmith.com.

Where to E-mail:

- Send questions and inquires to:
techsupport@shopsmith.com

When you contact us, please tell us your Customer Number and Date Code of your equipment. (Your customer number appears on the invoice and mailing labels of the literature we send to you. The date code is located on the serial label sticker on your machine). To keep them handy, please write in the allotted spaces below.

Customer No. _____

Date Code: _____

