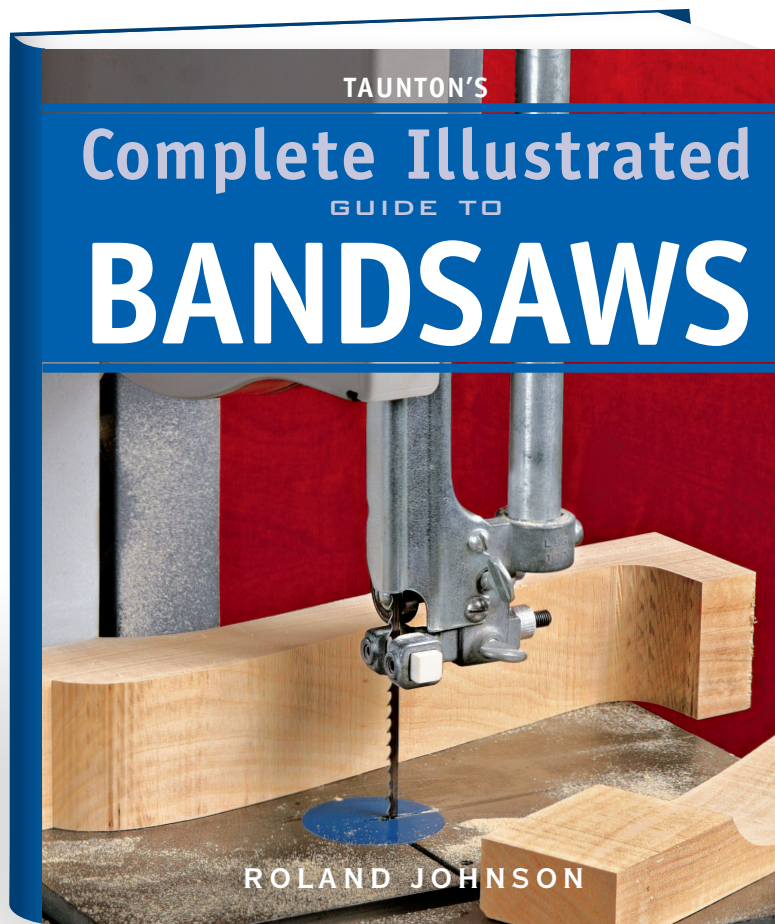


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The Versatile Bandsaw

THE BANDSAW has been a mainstay woodcutting tool of lumber sawyers, furniture makers, and wooden boat builders for well over a century. A bandsaw's versatility stems from its narrow, continuous loop of a blade, which allows the saw to make both straight and curved cuts. The thin blade cuts a narrow kerf, requiring less horsepower and conserving wood. Outfitted with the proper blade, a bandsaw can do everything from cutting tight curves to ripping thick planks and resawing wide boards.

Bandsaws are inherently safer than table-saws because the danger of *kickback* is eliminated. Kickback is a table-saw's tendency to

errantly grab a piece of wood and hurl it toward the operator. A bandsaw's downward cutting action prevents this. That said, the machine still deserves respectful caution. Keep in mind that the bandsaw is a butcher's tool of choice for cutting meat and bone.

Small shops benefit from the bandsaw's compact footprint. My biggest saw, with its 3-hp motor, 18-in. throat, and 12-in. resaw capacity, takes up only 6 sq. ft. of floor



Ripping lumber on a bandsaw can be done more safely and with less horsepower than with a table-saw, and it's just as fast.



With its small footprint, a bandsaw occupies little space but performs big cutting duties.



A bandsaw can easily rip thick timbers, even on a 120-volt circuit.

space. And it has proved adequate for any job I have encountered making furniture, crafting architectural millwork, or doing general woodworking. Outfitting a saw with a mobile base also adds great convenience. I can literally park my several bandsaws against a shop wall until needed.

Another big benefit of a bandsaw is its minimal power demands. A typical 14-in. bandsaw operates efficiently on 120-volt power even while resawing wide hardwood. A 20-amp shop circuit is best for this, but most typical small-shop cutting operations won't even tax a 15-amp circuit. Because of this, a bandsaw can be the perfect all-purpose saw in a garage or basement shop that's not wired for 240-volt power.

Cutting Abilities

It's a bandsaw's ability to perform a wide variety of cuts that makes it such a valu-

able tool. It can do everything from cutting complex shapes and joints to slicing boards across their width to create veneers, panels, and slabs. Turners also find it a great tool for roughing out bowl blanks.

Sawing Shapes

The ability to accurately saw long, gentle curves is one of the bandsaw's greatest virtues. Used with the proper technique, it can safely cut the compound curves of a cabriole leg with little effort. Other furniture parts with multiple curves and arcs can also be quickly and accurately produced or roughed to shape in preparation for final cutting with a router or shaper. Outfitted with a narrow blade, a bandsaw can perform precise, square-edged scroll sawing in stock much thicker than a scroll saw can accommodate.



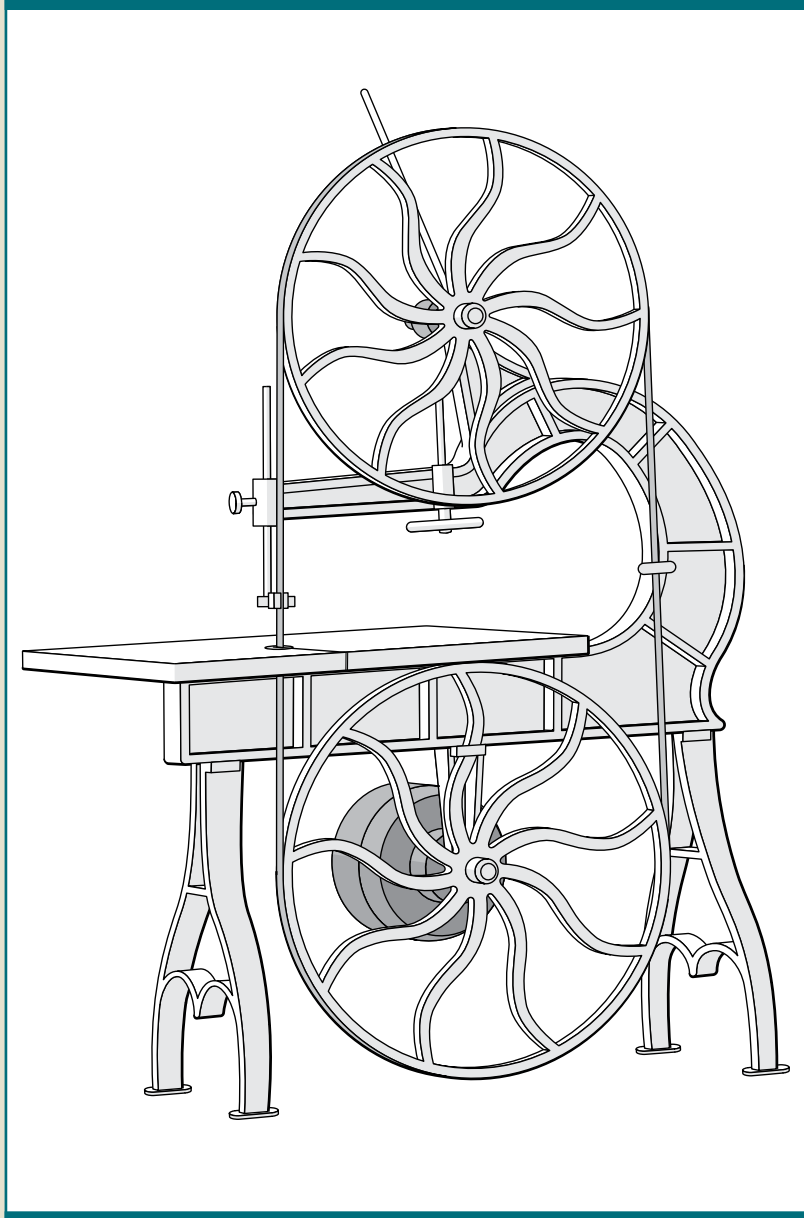
Sawing complex shapes and compound curves in thick wood is one of the bandsaw's unique abilities.



Equipped with a narrow blade, a bandsaw can cut accurate circles and tight scroll patterns with precisely square edges.

A BRIEF HISTORY OF THE BANDSAW

The earliest recorded patent for a bandsaw was granted to Englishman William Newberry in 1809. Unfortunately, blade technology was still in its infancy, and the lack of an effective method to join the ends of the blade led to frequent failures, relegating the invention to curious-contraption status. Nearly 40 years passed before Frenchwoman Anne Paulin Crepin devised a technique for welding a bandsaw blade so that it could withstand the rigors of sawing and bending around bandsaw wheels. She applied for a patent in 1846, and soon afterward, manufacturer A. Perin & Company of Paris, France, purchased the rights to her innovation. Combining Crepin's welding method with new steel alloys and advanced tempering techniques, Perin created the first "modern" bandsaw blade. In a short time, the bandsaw became a centerpiece tool in many well-equipped woodworking shops, and by the 1860s the first American-made bandsaws entered the arena.



Joinery

Most joinery that can be accomplished with a handsaw can be cut on a bandsaw faster and with less physical effort. Half laps, bridle joints, and tenon cheeks are as quickly, precisely, and safely sawn on a bandsaw as on a tablesaw. When necessary, the tilting table allows bevel cutting and dovetail joinery.



Tenon cheeks are cut quickly, accurately, and easily on the bandsaw, as are half laps and bridle joints.

Resawing

Resawing is the process of ripping wide lumber through its width. The bandsaw is the only woodworking machine that can resaw wide stock, allowing you to make sheets of veneer from valuable wood or cut matched panels for doors or drawer fronts.



The bandsaw excels at resawing—the process of slicing a board widthwise into thinner pieces.

Sawing Slabs & Bowl Blanks

Most woodworkers have a fascination with sawing logs into planks. There are few processes in woodworking more delightful than opening a log to reveal the hidden beauty under the bark. With the help of a simple shopmade jig, small logs can be quickly and efficiently sawn into planks, making the saw a great resource when your neighbor's pear tree blows down in a storm. A bandsaw can also quickly turn big chunks of green wood into bowl blanks for the lathe. Even a relatively low-horsepower bandsaw can beaver its way through thick wood to produce the rough shape of the bowl.



Equipped with a log sled, a bandsaw can serve as a mini sawmill, converting small logs into useable slabs of lumber for small projects.

Types of Saws

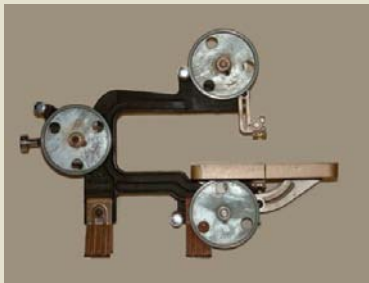
Bandsaws can be roughly categorized into three classes: benchtop models, 14-in. stand-mounted saws, and large floor-model saws.



A bandsaw can quickly and efficiently reduce chunks of freshly cut green wood into bowl-turning blanks.

▶ THREE-WHEELED SAWS

Three-wheeled band-saws are a rarity and a bit of an anomaly. These saws offer large throat capacity in a relatively small package but typically lack much height (resaw) capacity. Compared to two-wheel saws, three-wheelers are much more difficult to track accurately. They



This vintage Craftsman three-wheeled bandsaw (with sheet metal covers removed) has a deep throat, but the small wheels are tough on blades, which can also be difficult to align.

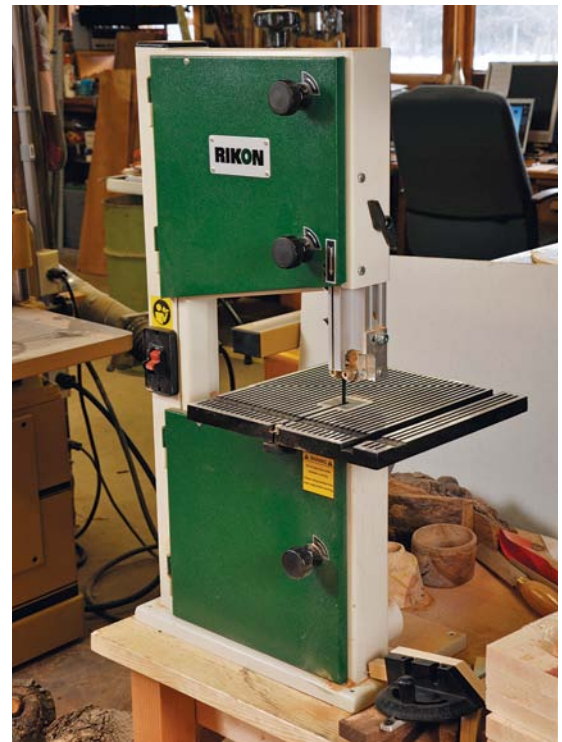
can also be harder on a blade because it is bending three times for each revolution instead of twice. This small-radius bending can invite blade breakage, although using blades thinner than 0.02 in. can help minimize the risk.

You might have a hard time finding a three-wheeled bandsaw these days. No U.S. manufacturer offers them and, although Swiss manufacturer Inca used to sell a high-quality aluminum-frame bandsaw, its production was discontinued some years ago. There are still old models around, though. For more information about Inca bandsaws, see Resources on p. 198

These “types” correspond primarily to a saw’s size, which correlates to the diameter of its wheels. In this book I’ll focus on bandsaws about 24 in. and smaller—the typical equipment suitable for most amateur and small professional shops. Regardless of size, the setups and operations are essentially the same for any woodworking bandsaw.

Benchtop Saws

The kids of the bandsaw family, benchtop models typically sport wheels less than 12 in. in diameter. The body of a benchtop saw is constructed as a single unit with the motor integrated into the framework, making it reasonably lightweight and portable. Although limited by a narrow blade-



This Rikon benchtop bandsaw has all the features of a big bandsaw but in a very compact package.

width capacity, small resaw height, and low horsepower, these mites are fine for small projects, especially when sawing thin wood is the norm.

A benchtop saw's small size and low power is less intimidating for beginners and children. It can be an inviting "first saw" for those just dipping their toes into the waters of woodworking. It can also provide great service as a second shop saw. Outfitted with a ¼-in. blade, a benchtop saw is good for those odd jobs that always seem to pop up right after you've set up your larger saw with a wide blade for another project.

Some welded-steel benchtop bandsaws offer big-saw features like roller-blade guides and substantial table supports. Essentially scaled down from their bigger siblings, these youngsters are solid little units that can perform accurate cutting on a small scale. Many budget-price benchtop saws are available through online sources and at big-box stores, but keep in mind that you definitely get what you pay for.

14-in. Stand-Mounted Saws

The cast-iron-framed 14-in. bandsaw is probably the most popular model ever produced. The saw is a competent machine for ripping and resawing, although the basic machine is limited to a resaw capacity just shy of 6 in. Most manufacturers offer an accessory "riser block" to increase resaw capacity to about 12 in. The riser is simply a cast-iron spacer that fits between the two frame halves, raising the upper half of the saw. It certainly works, although an upgrade from the standard 1-hp motor is needed to really exploit the increased resaw capacity.



The standard-height 14-in. cast-iron-framed bandsaw is incredibly popular because it can perform nearly any bandsawing task a typical small shop demands.



Adding a 6-in. riser block between the two frame halves increases resaw capacity to about 12 in. and generally improves the versatility of a 14-in. bandsaw.

Welded steel-frame 14-in. saws (left) that offer increased integral resaw capacity are becoming more popular and more available.

With its 18-in. resaw capacity, 18-in. throat, 5-hp motor, big table, and heavy-duty frame, this Powermatic (right) is a serious bandsaw.



The two-piece cast-iron frame offers good rigidity and substantial support for the guidepost to minimize flexing. These saws are available with open or closed stands, a variety of blade guide systems, and motors ranging from $\frac{3}{4}$ hp to $1\frac{3}{4}$ hp. Saw manufacturers offer lots of accessories, as do makers of aftermarket gizmos, providing a saw owner with many opportunities to customize the “little engine that could.”

Recently, several welded-steel 14-in. bandsaws have become available that offer resaw capacity ranging from $10\frac{1}{8}$ in. to $13\frac{1}{8}$ in. Standard features include motors up to 2 hp, as well as roller or ceramic guides.

16-in. & Larger Saws

Bandsaws with 16-in.-dia. and larger wheels offer increased width- and height-cutting capacity. They have strong frames capable of handling the high-tension demands of wide blades and strong motors for sawing big workpieces. The wheels are wide enough to accept large blades and heavy enough to ensure good momentum for moving through stock at a consistent speed. In addition, the weight of these big saws helps dampen vibration during use.

Everything is larger on these saws. Their tables and supports are bigger and beefier, providing a large working surface that can

withstand heavy-duty use. Blade guides are also typically larger, offering more surface area to better support wide blades.

Although available with as little as 1¾ hp, most of these saws come equipped with 2-hp or larger motors. Some have 5-hp American-made motors with continuous-duty ratings sufficient for extended sessions ripping heavy stock or resawing.

Anatomy

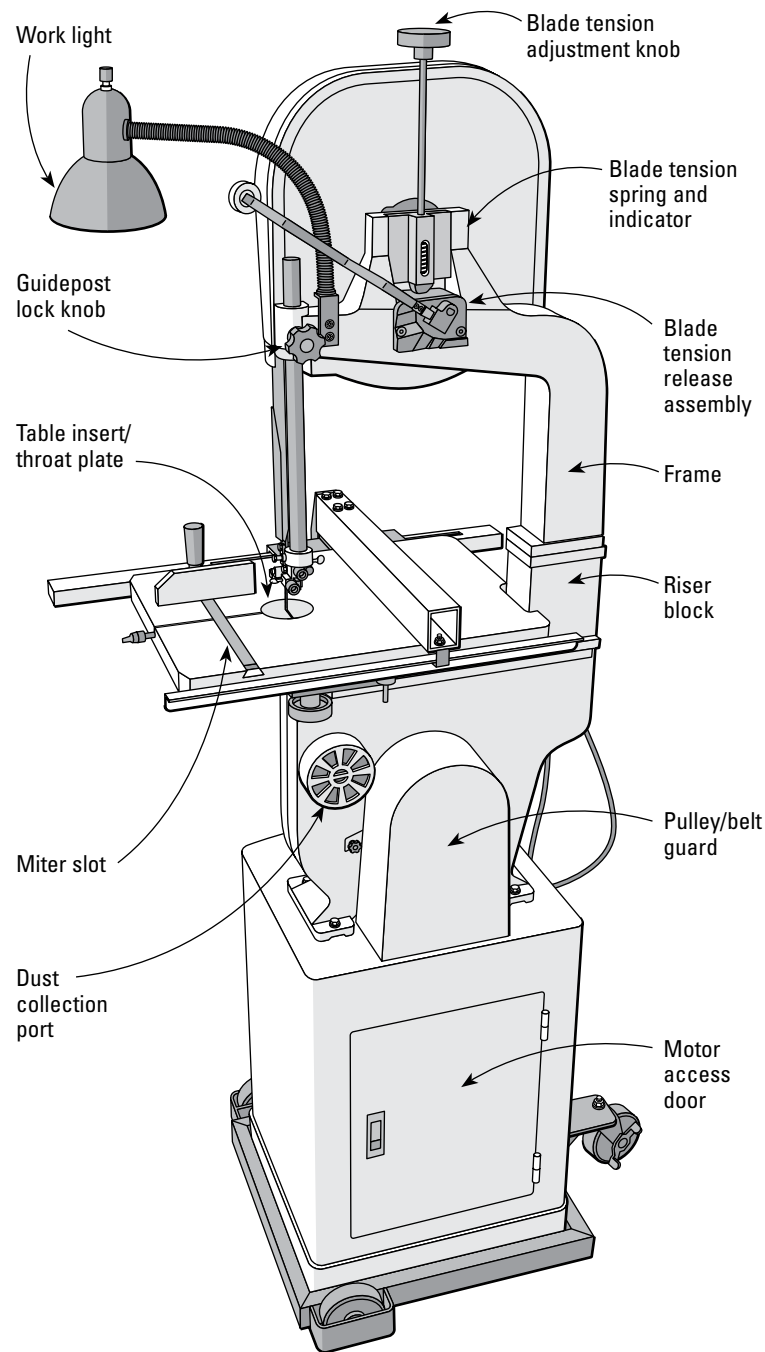
All bandsaws are essentially the same, regardless of size. They are relatively simple machines with easily accessed parts that serve obvious functions. Take some time to familiarize yourself with the location and names of the various parts.

The Frame

The frame is the most important part of a bandsaw. It supports the wheels, guides, table, and sometimes the motor. A strong, rigid frame is essential to adequately support the tension of the blade and provide a sturdy mount for the blade guides. The frame material also has to remain stable throughout temperature and humidity changes to ensure accurate alignment of the wheels and guides. There are three basic types of frame material: die-cast, cast iron, and welded steel. Each type has its own particular benefits and drawbacks.

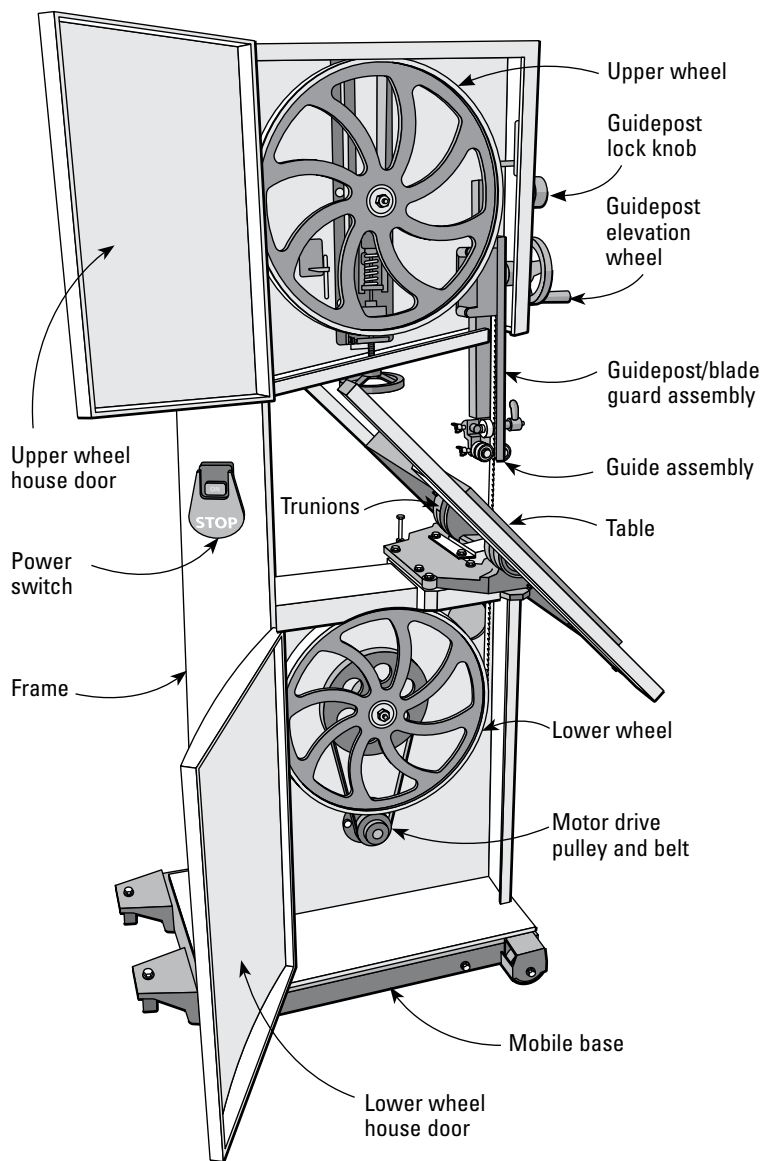
Die-cast frames are typically made of aluminum and can be produced relatively cheaply in large volumes. Die-casting is a popular manufacturing process for mass-producing machines like the benchtop bandsaws sold through big-box stores. Several decades ago, most manufacturers offered at least one die-cast small bandsaw, but few

TYPICAL 14-IN. BANDSAW ANATOMY (REAR VIEW)



Complex, lightweight castings are common in mass-produced benchtop bandsaws. These die-cast frames are typically aluminum.

TYPICAL WELDED-STEEL BANDSAW (FRONT VIEW)



remain in production today. Although die-cast saws were often considered to be inferior, these lightweights can perform admirably with a sharp blade, properly adjusted guides, and good work habits. Just don't expect to use blades wider than $\frac{1}{2}$ in., because the frame can't take the tension.

Cast iron is a very good material for a bandsaw frame because of its great strength, rigidity, and dimensional stability. Its weight provides physical stability, its mass helps dampen machine vibration, and the metal machines easily and accurately. Two-piece cast-iron frames are typical of modern generic 14-in. bandsaws.

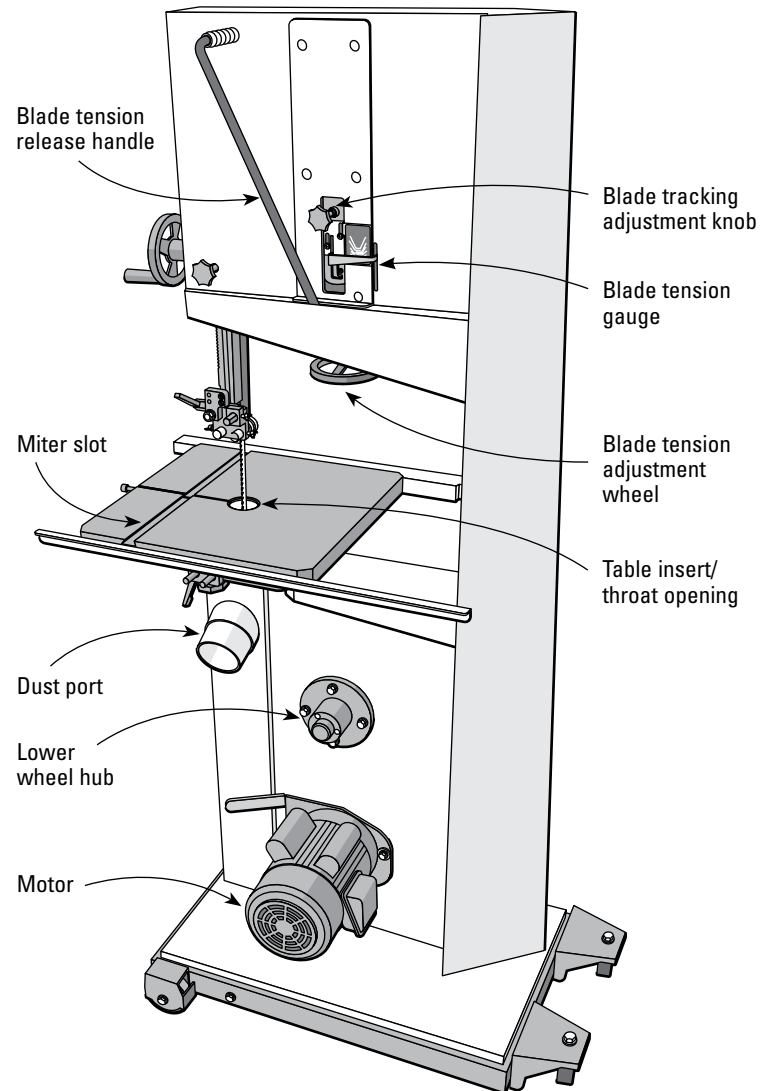


With its cast-iron frame and wheel houses, this old Walker-Turner bandsaw is heavy and strong.



Stamped-steel wheel houses on this modern saw attach to a very rigid two-piece cast-iron frame, the halves of which bolt together near the table.

TYPICAL WELDED-STEEL BANDSAW (REAR VIEW)



With the wheels and doors removed, the amount of welded steel in this frame is obvious.



Massive cast-iron wheels provide flywheel inertia to help keep a blade moving at a consistent speed through stock of inconsistent density.



Welded-steel frames are composed of sheet steel that is folded and welded to produce a rigid frame. Once exclusive to large industrial bandsaws, welded-steel frames are becoming the norm for many midsize saws and benchtop models. Welded steel is ecologically friendlier than cast iron and eliminates the need to “season” castings to ensure dimensional stability. Although rigidity (especially of the upper guidepost mount) has been a problem on some models, these saws generally represent good value, often costing much less than comparably sized cast-iron machines. Welded steel is lighter than cast iron, which offers a tradeoff of lower freight rates for less vibration-dampening weight.

Wheel Houses

Enclosures for the wheels are referred to as wheel houses. On welded-steel or cast-aluminum bandsaws, they are integrated into the frame. On cast-iron-framed bandsaws, wheel houses are attached as separate parts made of sheet metal, cast iron, or cast aluminum. Wheel house doors on the front of the saw cover the top and bottom wheels for safety.

Wheels & Tires

A bandsaw’s wheels and tires provide power, support, and guidance for the blade. The upper wheel can be raised and lowered to tension the blade and tilted to track it. The lower wheel, which drives the blade, is either mounted directly to the motor arbor or connected via pulleys and a belt. The wheels, which are typically cast from iron or aluminum, are machined to accept a pliable tire around their perimeter. Cast-iron wheels,



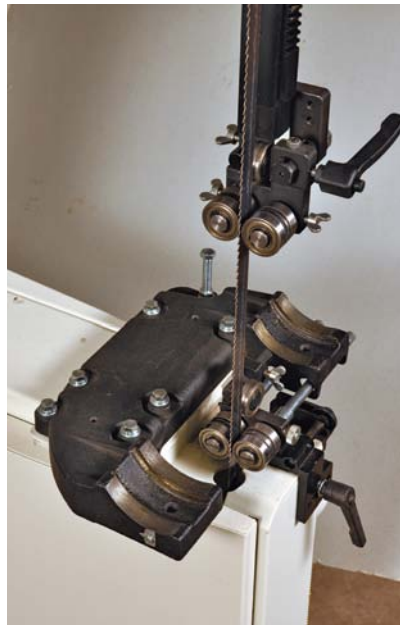
Lightweight cast-aluminum wheels lack the flywheel inertia of heavier wheels but reach maximum speed more quickly, a benefit with small saws.

which are much heavier than aluminum wheels, create a flywheel effect to help maintain consistent blade speeds when cutting through material of varying density.

On smaller saws, the wheels usually include a machined channel to accept the tire. It is crown-shaped to aid in tracking the blade. On larger saws, the crown is shaped into the tire itself, which is typically bonded to a flat-edged wheel. Although tires are traditionally made from rubber, they are also available in urethane and neoprene.

Guides & Guards

Blade guide assemblies above and below the table confine the blade to maintain an accurate cutting path. Each assembly consists of a side guide on either side of the blade and a thrust guide directly behind the blade. The side guide prevents lateral blade twist, while the thrust guide supports the back edge of the blade to resist feed force. Thrust guides are essential for maintaining the strength of the blade. They keep it in a straight line



With the table removed on this saw, both the upper and lower roller-guide assemblies are clearly visible.



The blade guard on this band-saw has a hinged door that allows access to the blade.

to prevent deflection, which causes inaccurate cuts. The upper guide is mounted to a height-adjustable guidepost that allows positioning the guides $\frac{1}{4}$ in. above the workpiece for maximum blade control and safety.

A guard covers the section of the blade between the guides and the upper wheel house. Some guards must be removed when changing blades, while others have hinged panels that swing open to allow access to the blade.

Table

The bandsaw table supports the work being sawn. It has a removable throat plate and a slit that runs from center to edge to allow blade changes. To keep the table sections aligned at the slit, a small, tapered pin is typically inserted into a hole bored in the edge of the table. Bandsaw tables are usu-

On a typical band-saw table, a tapered pin inserts in the table edge to align the sections adjacent to the table slit.



The trunnion assembly allows for tilting the table. Lock knobs secure the table at any angle up to 45° to the right and about 10° to the left.



A miter gauge is a great asset for crosscutting boards, and the movable fence accurately guides rip cuts.



ally made of cast iron, although at least one manufacturer is now using granite. Benchtop saws normally have cast-aluminum tables.

The semicircular mechanism that supports the table is called the trunnion. The trunnion assembly rides on the trunnion support and is typically secured by a pair of bolts and knobs, although on some bandsaws a single large bolt does the job. The trunnions typically allow the table to tilt just past 45° to the right and about 10° to the left for sawing bevels. Hefty cast-iron trunnions are best. Die-cast units are not as reliable and sheet-steel trunnions are even less so.

Most tables also include a slot that runs front to back to accommodate a miter gauge, crosscut sled, or other jig. A standard miter slot is $\frac{3}{4}$ in. wide by $\frac{3}{8}$ in. deep. Some are milled in the shape of an inverted T, like the table slots commonly found on tablesaws. This T-track accommodates a washer on the end of some miter gauge bars. The washer allows cantilevering the miter gauge off the table for crosscutting wide stock.

Rip Fence & Miter Gauge

The rip fence extends from front to back on the table. Most rip fences slide side-to-side on a rail that's attached to the front of the table. A good rip fence will allow you to angle the fence diagonally across the table-top to accommodate a sawing phenomenon known as blade drift. (See "Dealing with Drift" on p. 99.) The miter gauge has a protractor-style head that can be angled to make crosscuts or miters. The head mounts to a steel bar that is guided by the miter gauge slot in the table.

Wheel Adjusters

The upper wheel is mounted on an axle on the tracking and tensioning mechanism. The axle tilts horizontally to allow tracking a blade. The axle also travels vertically and is equipped with a tensioning screw and spring to provide blade tension. The spring also acts as a shock absorber for the blade, providing some resilience when the blade encounters a knot or other sudden change in wood density. Some bandsaws include an axial adjustment for the lower wheel. This allows for tilting it both horizontally and vertically to achieve proper alignment with the upper wheel.

Drive Mechanism

Most bandsaws are belt driven, with the motor driving the lower wheel via pulleys and a belt. On welded-steel saws, the motor is often bolted directly to the lower wheel housing. On most cast-iron saws, the motor is located above or inside the saw stand. Motor speeds typically range from 1450 rpm to 1720 rpm, depending on the vintage. Manufacturers reduce the rpm to achieve the proper blade speed by using differential pulleys, with a large pulley on the wheel and a small one on the motor. The big advantage of a separate motor is its ease of replacement if necessary. Replacement motors are usually easy to find and reasonably priced.



Removing the upper wheel on this Powermatic saw exposes its pivoting wheel axle assembly, which allows tilting and raising the wheel for blade tracking and tensioning.



The tensioning screw and spring on this Jet saw are clearly visible inside the upper wheel house and are an integral part of the upper-wheel axle assembly.



The four bolts on this lower wheel hub, located directly below the motor, allow horizontal and vertical adjustment of the wheel's axle on this large welded-steel bandsaw.

Power for the wheels is transferred from the motor by pulleys and a belt—in this case, a multi-V belt.



Double pulleys allow two-speed adjustment. The higher speed is for woodcutting, while the lower speed allows sawing soft metals.



On direct-drive bandsaws, the drive wheel mounts on the motor's armature shaft, typically using a low-rpm three-phase motor.

Some belt-driven saws sport a double pulley on the motor and on the lower wheel, allowing two-speed adjustment. At its lower speed, a saw like this will do a great job of cutting soft metals like brass or aluminum, although it's still too fast to saw ferrous metals.

Some bandsaws are direct drive. On these, the lower bandsaw wheel mounts directly onto the motor shaft. The motors are typically low-speed, three-phase units that don't require use of differential pulleys to achieve the proper blade speed. Three-phase motors are more efficient than single-phase motors, reaching maximum power at very low rpm. However, they require a special power source and wiring. Also, direct-drive motors are

typically model specific and can be very expensive to rebuild or replace.

Dust Collection Port

Bandsaws create clouds of fine sawdust that will find their way into every nook and cranny of your saw, your shop, and your lungs. Dust collection is important not only for your shop cleanliness and your health, but also to prevent sawdust from accumulating on the tires and guides. Dust collection ports should be located as close to the source of the dust as possible, which is directly below the lower blade guides. Better saws include a ramped chamber in the lower housing that directs the dust toward the dust port. Some ramps even have a blade-surround

to concentrate the dust near the collection point and prevent it from dropping into the lower wheel housing. A 4-in. dust port is best for evacuating the fine, lightweight dust a bandsaw produces. It also allows the easiest hookup to a dust collector. A 2¼-in.-dia. port isn't as effective, but it accepts standard shop vacuum hoses.

Quick-Release Tension Lever

Many modern bandsaws come equipped with a quick-release tension lever. This feature spares you lots of wrist action on a tensioning knob when changing blades or when relieving the tension on a saw that won't be used for a while.



Good dust collection includes a large dust port, a ramped chamber to concentrate the sawdust near the port, and a brush to keep the wheel clean.



A 4-in.-dia. dust port located right below the lower guides allows the large-volume airflow needed to evacuate the fine dust that a bandsaw creates.



This Powermatic saw includes a quick-release tension lever for faster blade changes or for de-tensioning a saw that will sit idle for a while.

[TIP] Tires on seldom-used saws can become distorted from constant blade tension. If you operate your saw less than once a week, it's wise to release the blade tension between uses.

Foot Brake

The significant mass of large bandsaw wheels creates considerable inertia. When the power is shut off, the combined momentum of the two wheels can keep them spinning for quite some time, especially when outfitted with a narrow blade. A foot brake is a great safety device as well as a time-saver. Waiting for a brakeless saw to spin down can create frustrating delays when setting guides or when frequent stopping is needed to reorient a workpiece or jig. Some foot brakes include an integral micro-switch that cuts the saw's power when the brake is applied, providing a good emergency stop.



Removing the lower wheel on this Bridgewood saw reveals the foot brake, brake pad, and integral micro-switch for quick blade braking and power shutoff.

Accessories

Bandsaws invite accessorizing. The basic machine can be enhanced by enlarging the table area, outfitting the fence for versatility, increasing cutting-height capacity (on some saws), and adding machine mobility. Some saws can also benefit from a blade guide system upgrade. And almost any bandsaw workspace can use a good floor mat.

Tables

Bandsaw tables are relatively small, which can be inconvenient when working with long boards or large panels. A big auxiliary table can make bandsawing easier and safer because it offers better support for big workpieces. Commercially available aftermarket tables often include a fence as well as a T-track to accommodate a miter gauge, a feather board, or jigs for positioning work and sawing circles.



Auxiliary tables, such as this Rockler model, provide more work surface and include such amenities as T-tracks, circle-cutting jigs, adjustable fences, and replaceable throat inserts.



The single-point bar attached to this rip fence allows resawing of crooked or curved pieces.

Fences

Most new bandsaws come equipped with a basic proprietary rip fence. The angle on many of these fences can be adjusted to accommodate blade drift when ripping or resawing (see “Dealing with Drift” on p. 99). It’s typically done by loosening the bolts that hold the fence rail to its clamping bar, setting the desired angle, and then locking down the bolts. Some fences include an attachable single-point bar to allow resawing crooked or curved lumber.

Aftermarket fences, which can be fit to various saws, are also available. Some feature easy-to-operate knobs for quick, accurate blade-drift adjustment. Some allow indexing for precise, repeatable fence positioning when resawing or ripping. Magnetically



This aftermarket fence from Laguna® Tools can be quickly adjusted to accommodate blade drift. It also includes a feed screw for accurate incremental fence positioning.



Rare earth magnets allow easy positioning of Carter’s Magfence™ without the need for clamps or a fence rail.

attachable fences allow positioning at any angle on an iron table without the need for a fence rail.

Of course, you can make your own bandsaw fence instead. A straight piece of wood clamped to the tabletop will serve as a no-frills version. Alternatively, you can make a more versatile fence by incorporating a bit of hardware, as shown on p. 119.

▶ QUICK TENSION-RELEASE RETROFIT

Although **quick-release** tension levers are becoming more prevalent on new bandsaws, you may have an older saw with only a tensioning knob. This requires lots of wrist aerobics every time you want to change a blade or release its tension on a saw that will sit idle for a while. To address this problem, Carter offers a conversion kit that will work with the majority of modern and older 14-in. cast-iron bandsaws. Simply called the Quick Release®, the accessory is easy to install and features two levels of release: The first simply relaxes the maximum tension for periods of disuse, while the second completely releases the tension for faster blade removal.



The saddle-shaped Quick Release lever easily installs on the upper frame of a cast-iron saw after the wheel house has been temporarily removed.



A 6-in.-high riser block kit will expand the resaw capacity of a two-piece cast-iron framed bandsaw.

Riser Block

Owing to the two-piece cast-iron frame of the typical 14-in. bandsaw, a hollow block of cast iron called a riser block can be placed between the two castings to effectively double the resaw capacity of the saw. The riser block kit includes a longer guidepost and a blade guard extension. The 6-in.-high riser block simply bolts between the two halves using the long replacement bolt supplied. Properly set up with an appropriate blade and a 1½-hp motor, a 14-in. machine like this can do a good job of resawing wide planks, although at a much slower feed speed than a big saw.

Mobile Base

Mobile bases typically have two non-swiveling casters and one or two swiveling casters. Lockable casters stabilize the machine in use. On some mobile bases, pedal-operated casters lift to allow that end of the base to drop to the floor on feet for stability.

MOBILE BASE OPTIONS



Custom-fit mobile bases, like the one at left, are available for specific saw models, while the universal version at center can be sized to fit a variety of saws. The universal kit at right involves attaching casters to a suitably sized plywood panel.

Manufacturers and aftermarket suppliers offer custom bases designed for specific saws or universal bases that will fit virtually any bandsaw. Mobile bases are relatively easy to build from scratch or from readily available kit parts. Make sure to use high-quality casters because bandsaws are heavy and will quickly destroy inexpensive versions.

[TIP] When positioning a bandsaw in a mobile base, locate the blade near the non-swiveling wheels to prevent machine movement due to feed forces.

Guides

The bandsaw accessories market is rife with replacement guides. Block guides made from ceramic or phenolic material are popular replacements for stock plastic or steel blocks. And if replacing the blocks doesn't seem adequate, the entire assemblies can be replaced with roller guides or purpose-designed ceramic guide assemblies. Aftermarket guides are often easier to adjust



A wide variety of aftermarket blade guides is available for virtually any make or model of bandsaw.

than the original stock guides and may lock more securely.

Anti-Fatigue Mat

An anti-fatigue mat improves comfort, safety, and performance at the bandsaw, where standing for long periods of time can

An anti-fatigue mat will reduce muscle strain during long sessions at the bandsaw. It also insulates feet against cold concrete floors.



be hard on your body. It will reduce muscle strain, helping you stay focused, and insulate your feet from a cold floor.

Buying New

Although good deals can be had buying used equipment, getting a new bandsaw has many advantages. But your success depends upon how well you identify your needs and how carefully you search out a saw that meets them. When buying new, you can choose the size of saw, its motor rating, and the types of accessories you need to suit the kind of work you do. As a bonus, you'll get a saw that is covered by a warranty and backed by a service department.

As you consider the purchase of a new saw, be realistic. A 20-in. bandsaw with a 5-hp motor might look regal sitting in your shop, but if you rarely rip lumber thicker than 6/4, cut heavy joinery, or resaw wide boards, you can forego that big of an investment. Instead, take the money you'll save by buying an appropriately sized saw and purchase an assortment of high-quality blades. You'll be better off.

Investigate the reputation of your chosen dealer, especially if you are buying online from a distant company. If you can't find information about it, contact one of the saw manufacturers to confirm that the dealer is authorized and in good standing. Ask the dealer about delivery costs and policies. If you lack means for unloading a heavy saw from a delivery truck, a lift-gate service can be specified but may cost extra. An additional freight charge may also apply to deliveries to a residential address.

Check warranty and return policies before buying. Most dealers will honor a

▶ RHYMING , CHEAP AND HEAP

I have yet to find a really good new bandsaw at a bargain price—especially the typical 14-in. variety. Lots of brands look similar, but cheap saws typically have poorly machined castings, crooked guides, warped tables that flex, and a whole litany of problems that will be expensive to correct if they're even possible. Such flaws can reduce a bargain saw to an expensive boat anchor. Caveat emptor indeed.

manufacturer's warranty if a saw is defective. However, if you have to cover shipping costs to return the saw for repair or replacement, those costs may negate any advantage of buying out of town.

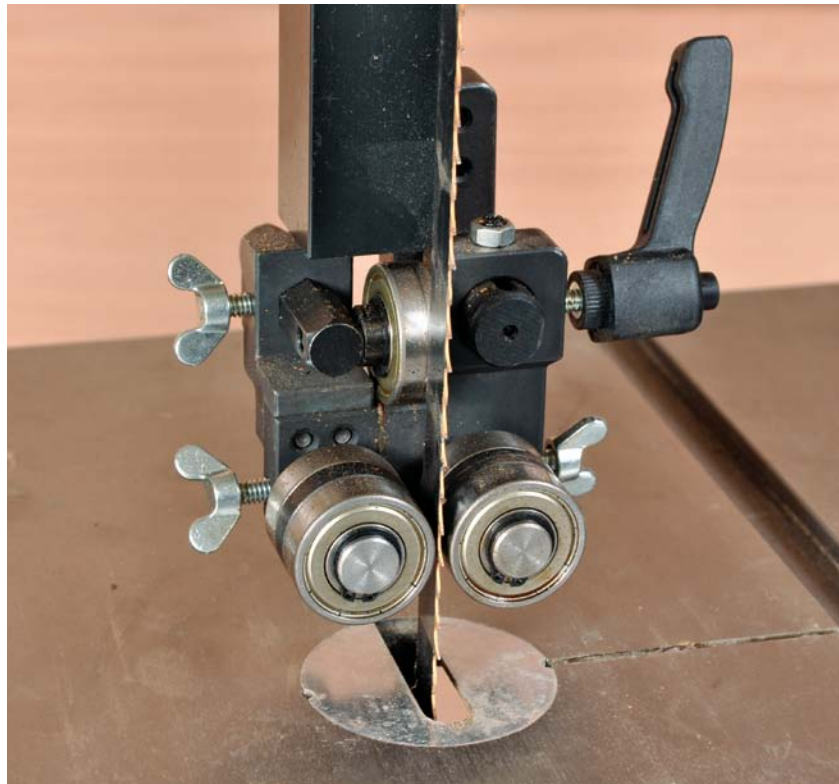
Target your needs using the checklist on p. 26. It will help prevent you from wasting hard-earned cash on a saw that is either overkill, too small, lacking in horsepower, or just too cheaply made to do the work you require. As you consider the list, here are some important points to consider.

Cutting Capacity

Two of your most important decisions involve a saw's *throat capacity* and its *resaw capacity*. The throat capacity is defined by the distance between the blade and the frame column, while the resaw capacity is the distance between the tabletop and the upper blade guides at their highest position. Sawing curves, especially tight scrolling, requires a wide throat but not much height, while resawing wide boards requires tall cutting capacity. If you only occasionally resaw lumber and typically use your saw for ripping or curve cutting, you really don't need 17 in. of resaw capacity and a 5-hp motor. You can efficiently resaw boards up to 5½ in. wide on a typical 14-in. bandsaw, which may be all you'll ever need.

Horsepower

If you plan on resawing stock wider than 6 in., you'll need at least a 1½-hp motor. And if you intend to rip a lot of heavy stock and resaw wide hardwood boards, buy as much horsepower as you can afford. Just make sure that your shop's electrical system can handle the load.



Guides

Guides that securely hold their settings are crucial for accurate control of the blade. Make sure they have substantial mounts, are free of flex, and lock into place securely and easily, preferably without tools. Aftermarket guides can be purchased to replace inferior stock guides, but be sure to consider their expense in the overall cost of the saw. Sometimes upgrading to a saw with better stock guides saves money in the long term.

Table & Trunnions

In general, the larger the table, the better. A large table offers more work surface for better workpiece control, especially when scroll cutting. Look for table trunnions heavy enough to prevent the table from flexing

Large wing-head thumbscrews lock side and thrust guides in place while an indexing lock handle allows fore-and-aft adjustment of the entire guide assembly, providing tool-less guide adjustment.



SECTION 1

Use this form to compare new saw models and nail down the best saw for you.
Refer to the text for advice on the various features.

Dealer: _____

Brand: _____ model #: _____ serial #: _____

Price: _____ freight charges: _____

Wheel diameter: _____

Cutting capacity: _____ throat: _____ height: _____ max. blade width: _____

Horsepower: _____ voltage: _____

Guides: _____ block: _____ roller: _____

Frame material: _____ die-cast _____ cast iron _____ welded steel _____

Weight: _____

Table: _____ size: _____ miter slot? _____ T-slot? _____

_____ max. degree tilt to right: _____ max. degree tilt to left: _____

Trunnion material: _____ die-cast _____ cast iron _____ sheet steel _____

Dust collection: _____ number of ports: _____ diameter: _____

_____ located near the lower guide assembly? _____

_____ dust chamber in lower wheel house? _____

Warranty/Service: _____ warranty? _____ # of yrs. _____

_____ service department/technician available? _____

_____ spare parts available? _____

while secured at any angle. The trunnion lock should not slip, nor should it require excessive tightening.

Dust Collection

A large-diameter dust collection port close to the lower guide assembly is best. A partition surrounding the blade beneath the lower guides also helps concentrate the dust near the port. Dust ports at the bottom of the lower wheel housing are not particularly adept at collecting fine dust.

Buying Used

Great deals can be had on used bandsaws, although used machinery may require some work. Fortunately, bandsaw technology hasn't changed much in the past century, and it doesn't take an engineering degree to bring a good old horse back into harness. A used saw can be a gem or a stinker, though. It depends on its original quality, how well it was maintained, and whether it was modified in any way.

Keep in mind that many manufacturers no longer exist and that it can be difficult to locate replacement parts for an orphaned saw. If a used candidate is missing parts such as guides, tires, or bearings, check on their availability before buying. You may be able to substitute aftermarket parts or have parts fabricated, but maybe not.

Assessing an Old Saw

When assessing an old saw, bring along a few testing tools. Your kit should include a flashlight, a 2-ft. straightedge, a 6-ft. straightedge, various screwdrivers, some open-end wrenches, and a set of Allen



Heavy-duty trunnions and trunnion locks like these are stout enough to resist table deflection and maintain angle settings under moderate surface loads.

► SOURCES FOR OLD SAWS

I've found the best deals on used bandsaws through friends who know someone who knows someone with an old bandsaw in a shed. These "lost" saws are often in serviceable condition and very fairly priced. Keep your eyes open at garage sales and flea markets or when visiting other woodshops. Sometimes placing a want ad in a local paper can net a good deal. These days, the Internet offers sources such as CraigslistSM, eBaySM, and various woodworking sites that might include a classified-ad section. Even so, I look for saws that are relatively close to home, as I would never buy a used saw that I couldn't personally inspect, and shipping charges for a bandsaw can be prohibitively expensive.



When inspecting used saw candidates, here's a helpful checklist for reference and comparison purposes.

Seller: _____

Brand: _____ model #: _____ serial #: _____

Wheel diameter: _____

Cutting capacity: _____ throat: _____ height: _____ max. blade width: _____

Horsepower: _____ voltage: _____

Guides: _____ block: _____ roller: _____

Upper guidepost flex? _____

Table: _____ flat? _____ locks securely in place? _____

Cracked or welded frame? _____

Cracked or broken parts? _____

_____ wheels: _____

_____ wheel mount/tension mechanism: _____

_____ tension spring: _____

_____ trunnions: _____

Missing parts? _____

Tires: _____ excessive wear? _____

Wheel bearings: _____ quiet? _____ noisy? _____

_____ If Babbitt bearings, are they worn? _____

Wheel alignment: _____ relatively coplaner? _____

Motor and drive: _____ direct drive _____ belt driven _____ single phase _____ 3 phase

Switch: _____ operates properly? _____

Pulleys and belts: _____ excessive wear? _____

Make test cuts. Comments: _____

wrenches. Make sure to perform the following tests on any saw before buying it (see chart at left).

Check for Guidepost Flex

The most important test of a used bandsaw is checking the upper guidepost for flex, especially in welded-steel bandsaws. Some early 1980s and 1990s consumer-grade welded-steel bandsaws lacked sufficient support for the upper guidepost, resulting in poor performance when resawing or cutting thick wood. To check, raise the upper guides about 6 in. off the tabletop. Apply moderate pressure from the front of the saw to mimic feed force, and look and feel for any flex. For heavy-duty cutting performance, the guides should be nearly immovable. Sometimes flex can be traced to an improper fit of the guidepost assembly to its support, which can often be cured by some judicious fine tuning. However, if the frame flexes, avoid the saw unless you plan to use it only for light work.

Inspect for Damage and Missing Parts

Look for cracks or welds in the frame, wheel support assemblies, and table support. A properly welded saw can still perform fine as long as accurate alignment of the parts has been maintained. If you aren't able to assess a good weld or can't measure the resulting alignment of parts, don't buy the saw.

Check for missing or damaged parts, especially in the upper wheel support/blade tension assembly. A broken tension spring can be easily replaced but indicates that the saw was misused. Any deformation of the axle/wheel support requires replacement of the parts. Defective guides can often be



replaced easily with aftermarket guides, but the replacement cost should be factored into the purchase price.

Check the table for flatness with a good straightedge. Slightly warped tables can either be tolerated or machined true as long as the top is thick enough to allow it. Also inspect for cracks or repairs on the trunnions and their supports, and make sure the table doesn't flex when applying moderate downward pressure.

Check Tires & Wheels

If tires are worn or cracked, they can easily be replaced, but cracked or wobbly wheels are a serious problem. Sometimes replacement wheels can be located, but make sure they won't be too expensive. With the saw in tension, place your 6-ft. straightedge across the wheels to make sure they're not seriously misaligned. See p. 32 for further advice on the matter.

Use a good-quality straightedge and backlighting to quickly check for table flatness. An automotive feeler gauge can be used to measure any discrepancy.

INTERNET HELP

The Internet can be a great source of information on bandsaw models, history, technique, and general information. For starters, owner's manuals for new and old saws can often be downloaded from the saw manufacturer's website. And there's no shortage of websites that offer news and opinions on various models. Here are a few sites to get you started:

- www.finewoodworking.com
(*Fine Woodworking* magazine) articles, videos, tool reviews, "Knots" forum message boards
- www.owwm.com
(Old Wood-Working Machines) history, restoration, and use of vintage woodworking machinery
- www.woodweb.com
sources for used tools and current values
- www.ebay.com
machines and owner's manuals



The phase of a motor is identified on its tag, preceded by the PH designation. The number 1 indicates single phase, compliant with standard 120/240-volt household current. A 3 indicates a three-phase motor, suited to 208–230/460 volts.

Remove the blade and drive belt if possible, and turn the wheels slowly by hand. They should be quiet. Noise indicates worn bearings that need replacement. Antique saws may have Babbitt bearings. Check them for wear, as they can be expensive to replace. Finally, note the condition of the pulleys and belts. Inexpensive die-cast pulleys can cause vibration, but they're easily replaced, as are stiff old V-belts.

Gauging Motor Power

A large, old single-phase motor, especially a repulsion-type motor, is sometimes hard to distinguish from a large, old three-phase motor. Three-phase motors are great when three-phase power is available because they're more efficient. However, if you don't have three-phase power in your shop, you'll have to invest in an expensive phase converter or change over to a single-phase motor (along with the necessary additional gearing). Some three-phase motors aren't easily replaced, especially if they directly drive the bottom wheel. To determine the phase, locate the identification tag on the motor and look for the letters "PH." They should be followed by either a "1" for single phase or a "3" for three phase.

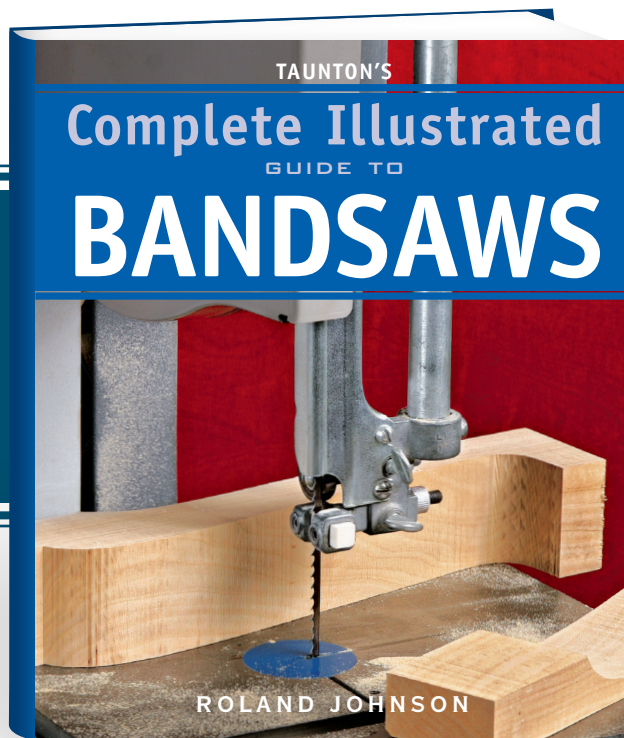
Make Test Cuts

If the saw seems sound, make a few test cuts to really get a feel for the machine. Make sure that it doesn't bog down in thick material and that it tracks properly (keeping in mind that a dull, old blade may compromise the saw's operation). Make sure the machine doesn't vibrate excessively or squeal. If it does, try to locate the problem and see if it's correctable. If not, don't buy the saw.

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this free download.

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the complete book.

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