



Soup Up Your 14-in. Bandsaw

For resawing, these upgrades will greatly improve performance

BY JOHN WHITE

The classic 14-in. cast-iron bandsaw, developed by Delta Machinery back in the 1930s, was designed mostly for making curved pattern cuts in relatively thin boards. Delta still makes that saw here in the United States. Over the years, it has changed little. Along the way, it even served as a model for several of the Asian-made clones currently sold in the United States, including a couple now marketed by Delta.

Nowadays, though, it seems more wood-

workers are looking to push the limits of 14-in. cast-iron bandsaws by using them to resaw wide boards. And many are finding out that it's not always easy to do. The feed rate is annoyingly slow, the motor often bogs down, the blade can drift off line, and the cuts sometimes end up far from square.

But don't trade in the saw yet. I've found that by making some relatively minor modifications, a typical ¾-hp to 1-hp, 14-in. cast-iron bandsaw can be transformed into an effective resawing machine. Indeed, my

upgraded machine resaws 12-in.-wide maple boards with little effort.

The basic upgrade

The basic upgrade adds a riser block to increase the resaw capacity, a resaw blade, a heavier tension spring and a tall fence. This upgrade will enable you to start resawing stock as wide as 12 in.

Riser block doubles the capacity—Most manufacturers of 14-in. cast-iron bandsaws

A RISER BLOCK INCREASES CUTTING CAPACITY



The riser block mounts between the upper and lower frames of the saw. Two pins help position the block on the frame. All three parts are held together with a heavy-duty bolt, washer and nut.

Most 14-in. cast-iron bandsaws can be outfitted with a riser-block kit that's available as an option. Adding a riser block increases the resaw capacity of the machine from about 6 in. to 12 in. With this increased capacity, though, you'll also need longer blades.

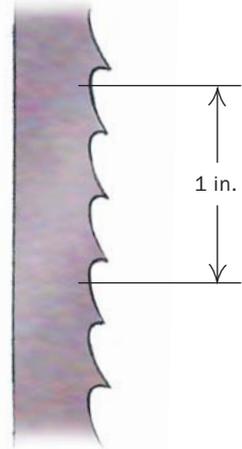


Attach the replacement blade guards and the guidepost. The riser-block kit includes longer blade guards for both the back and front of the saw, and a longer guidepost.

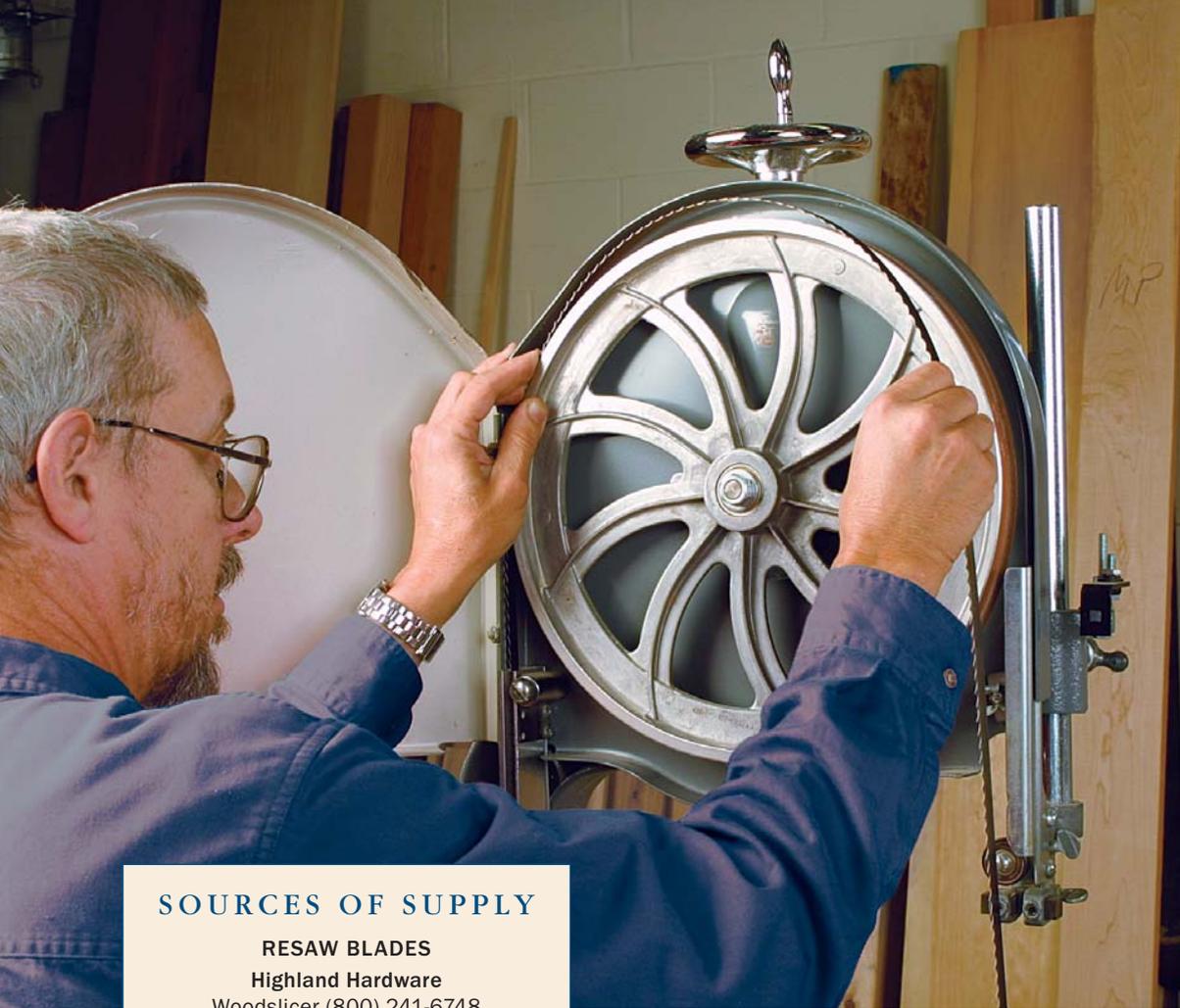


THE RIGHT BLADE FOR RESAWING

Resawing can be next to impossible with the wrong blade. To haul away all of the sawdust created while resawing, you need a blade with big gullets, which means fewer teeth per inch. Also, hook teeth are generally better for resawing.



For resawing, White uses a ½-in.-wide, 3 tpi, hook-tooth, carbon-steel blade.



SOURCES OF SUPPLY

RESAW BLADES

Highland Hardware
Woodslicer (800) 241-6748

Suffolk Machinery
Timberwolf (800) 234-7297

Woodworker's Supply
Carbon steel, hook-tooth, 3 tpi
(800) 645-9292

HEAVY-DUTY TENSION SPRING

Iturra Designs
(888) 722-7078

offer a riser-block kit as an optional accessory that increases the resaw capacity from roughly 6 in. to about 12 in. The kit also includes a longer guidepost and a pair of longer blade guards. The block is bolted between the upper and lower frames. All of the kits include extralong bolts to account for the added length.

A good resaw blade is a must—Perhaps more than anything else, a good-quality resaw blade can go a long way toward improving the resawing capabilities of a bandsaw. Resaw blades have large gullets that carry away the considerable sawdust that's generated when cutting through wide boards. Avoid blades with small gullets and lots of teeth because they aren't designed to cut wide stock.



Replace a worn-out spring. If your cut wanders, chances are that the spring is not providing enough tension to the blade.

In general, a ½-in.-wide hook-tooth blade (2 tpi or 3 tpi) will work fine. I've also had good experience with both the Timberwolf and Woodslicer blades.

Beefier spring adds more tension—To provide the best possible cut, a bandsaw blade must be tensioned properly (see *FWW* #147, pp. 80-83). A blade lacking ad-

equated tension is more likely to wander from the cut or produce a bowed cut when resawing.

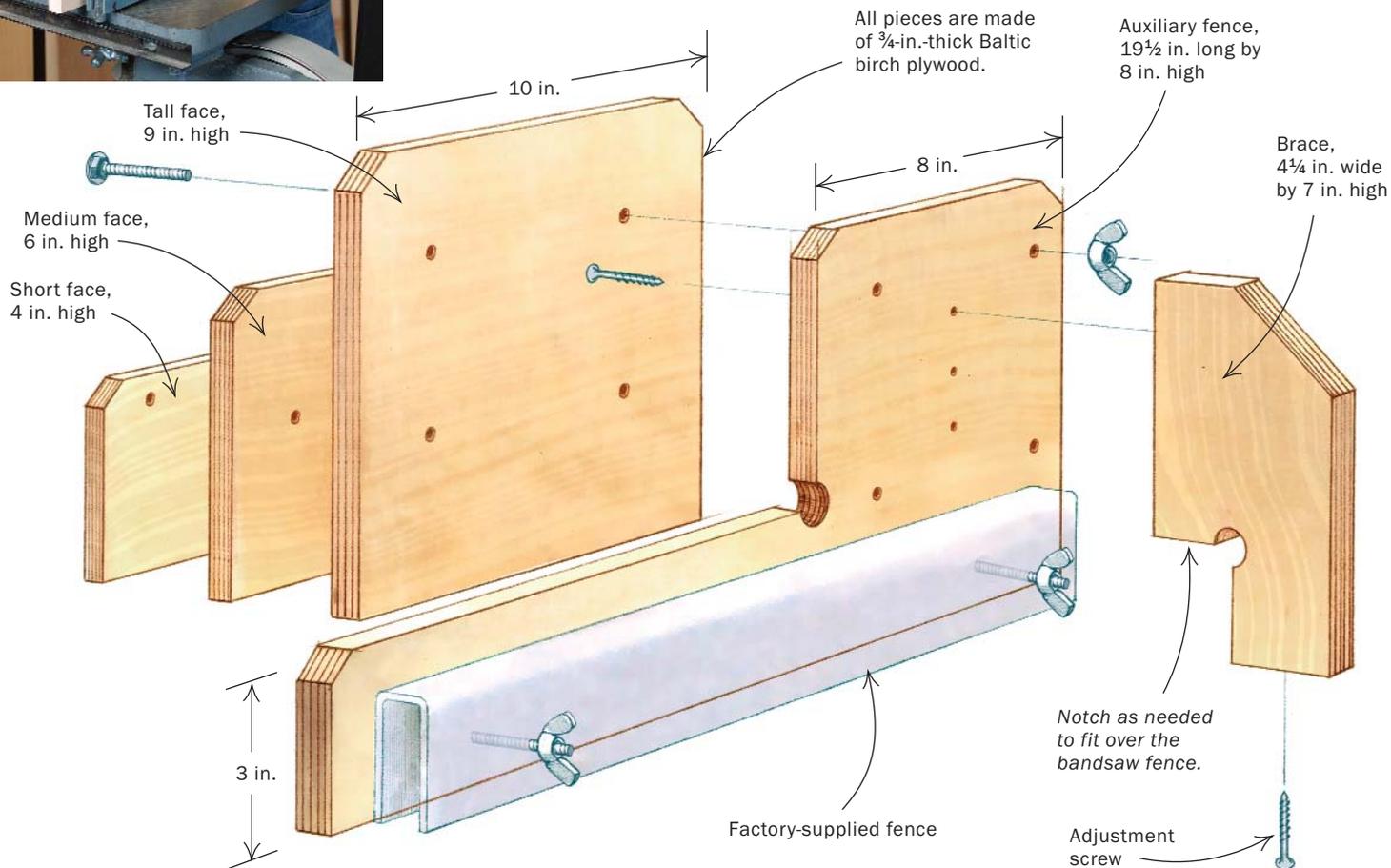
The source of the blade tension is a compressed spring behind the upper wheel. It's not uncommon for this spring to lack some vitality. When that's the case, the spring can't apply enough tension.

The solution is to replace the original spring with one that has more muscle (see the photo at left). But first check with the supplier to make sure your saw can handle the additional load; otherwise, you might end up with a burned tension mechanism or prematurely worn bearings.

Add an auxiliary fence—I also made a tall auxiliary fence to support a board during resawing (see the drawing and photos on the facing page). The fence is short in length but sturdy enough that it remains square to the table when pressure is applied. In addition, it is easy to adjust the fence angle to eliminate blade drift—the propensity for a bandsaw blade to wander from a straight line during a cut. One thing to note: If the factory-supplied fence on your bandsaw is of little value, you'll need

A VERSATILE AUXILIARY FENCE

While being resawn, wide stock has a tendency to tip unless it's supported by a tall fence. Also, the fence has to be square to the table of the bandsaw. White's fence, with three interchangeable faces, offers plenty of support. And it can be tweaked to end up perfectly square to the table. Plus, as shown at left, it's easily adjustable to correct for blade drift simply by adding a spacer between the original and auxiliary fences.



to get a better fence before you can add this resaw fence.

My auxiliary fence extends to just past the trailing edge of the blade. There's a reason for this short length. Thick stock often has a fair amount of tension in the wood, even when carefully dried. When you're resawing, the tension in the wood is released, sometimes causing the offcut to bend or twist into the fence, which means you'll have to push pretty hard to keep the board against the fence. By using a fence that is short in length—much like that on a European-style tablesaw—you can keep the uncut portion of the board firmly against the fence while the offcut is free to bend or twist into the open air.

The fence I installed has two main components: a back piece with a brace that bolts to the original fence and a set of interchangeable faces, each one of a differ-

ent height. The idea here is to use a face that is narrower than the board to be resawn but wide enough to support the board adequately during the cut. That way, both for safety and maximum blade support, the blade guard along with the upper blade guide can be lowered close to the top edge of the board.

With this fence, it's easy to adjust for blade drift by adding spacers between the original fence and the auxiliary fence, changing the angle of the fence relative to the blade. (For more on testing and adjusting for blade drift, see *FWW* #157, p. 52.) Dowels or small hardwood blocks work fine as spacers. On some blades, the drift can be considerable. One blade I use needs a 3/4-in.-thick spacer before it cuts straight.

For accurate cuts, the auxiliary fence should be square to the table. Sometimes, however, a factory-supplied fence won't



The face of the fence extends just past the sawblade teeth. That way, should the cutoff piece curl outward, it can't push the board away from the fence during the cut.

be quite as square as you'd like. To correct for this out of squareness, mount thin shims (I use strips of aluminum flashing attached with double-faced tape) to the back of the fence. The shims should be long enough to bear on any spacer that is added to correct for blade drift. Once the auxiliary fence has been squared to the table, adjust the screw on the bottom of the brace to give the fence added support.

Advanced upgrade

I recommend the advanced upgrade for a bandsaw being used exclusively for resawing. It adds infeed and outfeed supports to make it easier to support wide and long boards. Except for the ones on the Delta models, the trunnion support is going to need some beefing up (see the story at right). Also, the factory-supplied base is replaced with a shorter, shopmade base that lowers the saw table to a more comfortable resawing height.

Add the infeed and outfeed supports—

The infeed and outfeed supports are simply ¾-in.-thick plywood panels that tip out from the top of the base. The panels are held in place by support rods made out of large turnbuckles. The rods attach to the saw by slipping around the shank of the knobs that lock the table trunnions. The turnbuckles make it easy to fine-tune the supports to the bandsaw's table height. The panels rest against stop blocks on the saw's base. Eyebolts screwed into the stop blocks help position the piece on the base. And the support rods just hook over the knobs. Removing the panels takes only a few seconds.

To enlarge the stock steel base enough to accept the infeed and outfeed supports, add a piece of plywood between the steel base and the cast-iron frame (or make a larger base like the one shown on p. 50).

To make a support rod, replace the right-hand threaded eyebolt on each turnbuckle with a longer bolt that has an eye large enough to slip around the shank of the trunnion lock-knob. Once the eyebolts have been adjusted, add nuts to lock them in place. Because one of the threads in each turnbuckle is left-handed, you'll need a left-handed nut to lock that side. I had no problem finding all of the hardware I needed at the local hardware store.

The infeed support should tilt at about a 45° angle. That way, the top end of the support can't be easily pushed and lifted by



Weak trunnion supports equal tilting table. Pushing down on the saw tables with the heel of his hand, White discovered that cast-aluminum trunnion supports were easily deflected out of square.

On the downside, adding the plate sacrifices ¾ in. of resaw capacity, but I feel the trade-off is worth it. The plate is a rectangular piece of ¾-in.-thick birch plywood, with a notch to clear the blade path. It also has a slot to catch an eyebolt that attaches to the back edge of the table. Tightened with a wing nut, the eyebolt locks the table against the 90° stop bolt, virtually guaranteeing that the table stays square to the blade.

The plate dimensions at right should work on most 14-in. cast-iron saws. If you need to revise the dimensions, design the plate so that it ends up 2 in. wider than the trunnion support and projects ½ in. past the back edge of the table.

To locate the holes for the two pins that stick up from the cast-iron saw frame, slide the plate down over the bolts that hold the plate in place and strike the top of the plate with a mallet. Remove the plate and use the dents left by the pins to center and drill the pin holes.

To fully support the trunnion casting, you may have to slip a washer between the plywood and the casting at the two outboard ends of the casting where the bolts that lock the trunnions come through.

To account for the thickness of the plywood, use longer bolts to hold the casting and the blade-guide assembly.

The eyebolt that holds the saw table tightly against the stop bolt slips through a hole drilled in the lip that reinforces the edge of the table. A sharp drill will easily go through the thin cast iron. I cut away a quarter of the loop in the eyebolt to make it easy to fit through the hole. A spacer on the bolt allows the wing nut to clear a flange cast into the top edge of the saw's lower frame.

Shopmade trunnion-support plate eliminates table flex

Delta's 14-in. cast-iron bandsaw has a trunnion support made from cast iron. But most 14-in. cast-iron saws have a cast-aluminum trunnion support. Aluminum castings are usually thinner than the Delta version and tend to flex easily, so anything other than a lightweight board can make the saw table tip a bit. That's not helpful when you want a square cut.

Adding a simple plywood plate to a saw with a cast-aluminum trunnion support will eliminate almost all of the table move-

ment. On the downside, adding the plate sacrifices ¾ in. of resaw capacity, but I feel the trade-off is worth it. The plate is a rectangular piece of ¾-in.-thick birch plywood, with a notch to clear the blade path. It also has a slot to catch an eyebolt that attaches to the back edge of the table. Tightened with a wing nut, the eyebolt locks the table against the 90° stop bolt, virtually guaranteeing that the table stays square to the blade.

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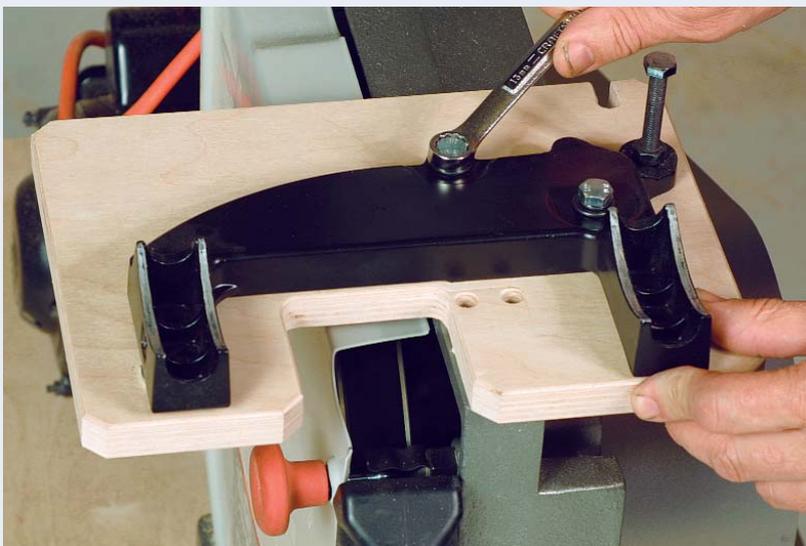
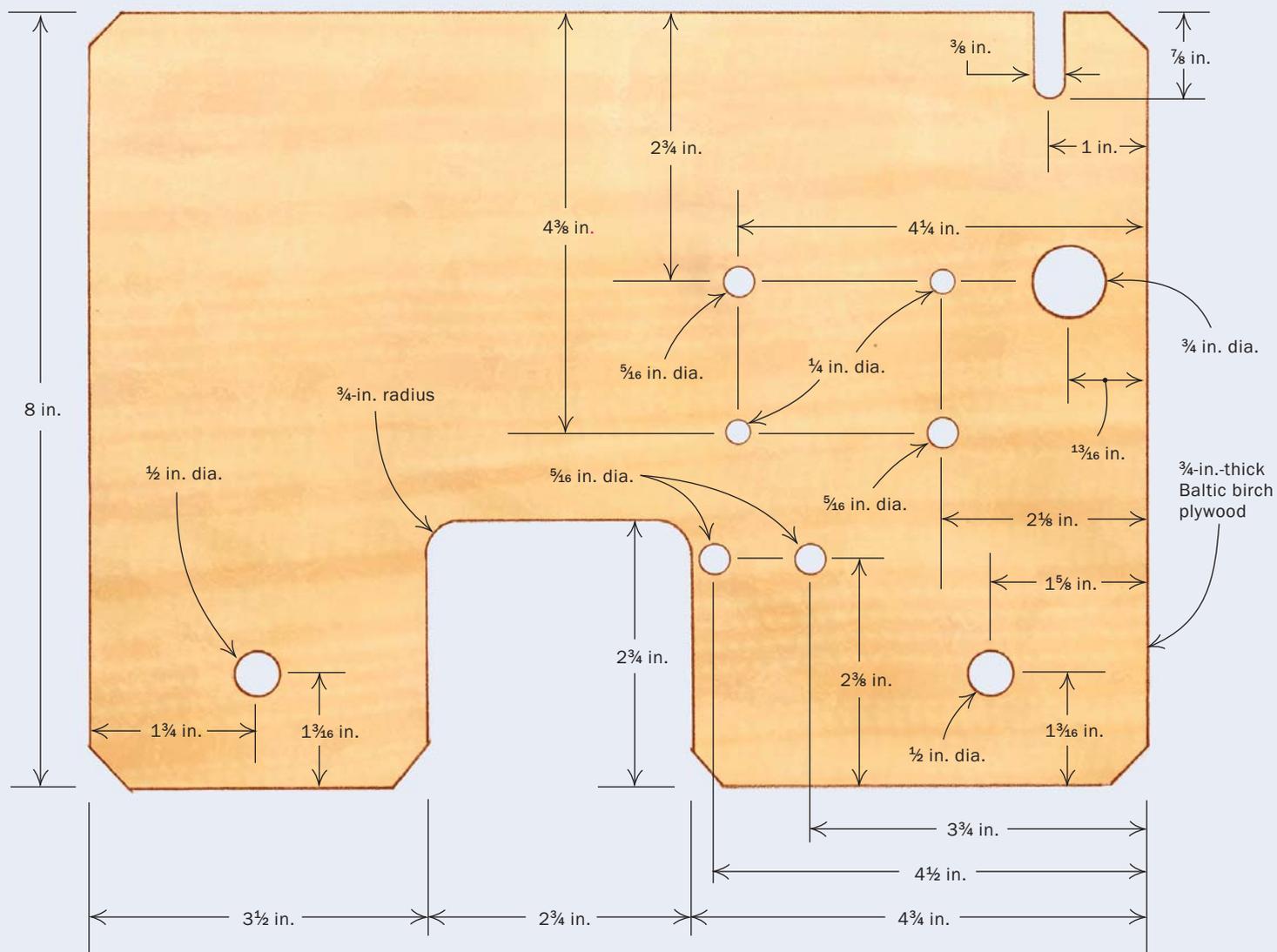
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INSTALLING THE SUPPORT



A look under the hood. Before the trunnion support can be removed, the table of the bandsaw must be removed.



Trunnion support adds strength. A single piece of plywood is all it takes to beef up the aluminum trunnion support. One drawback is that the resaw capacity of the saw is reduced by 3/4 in.

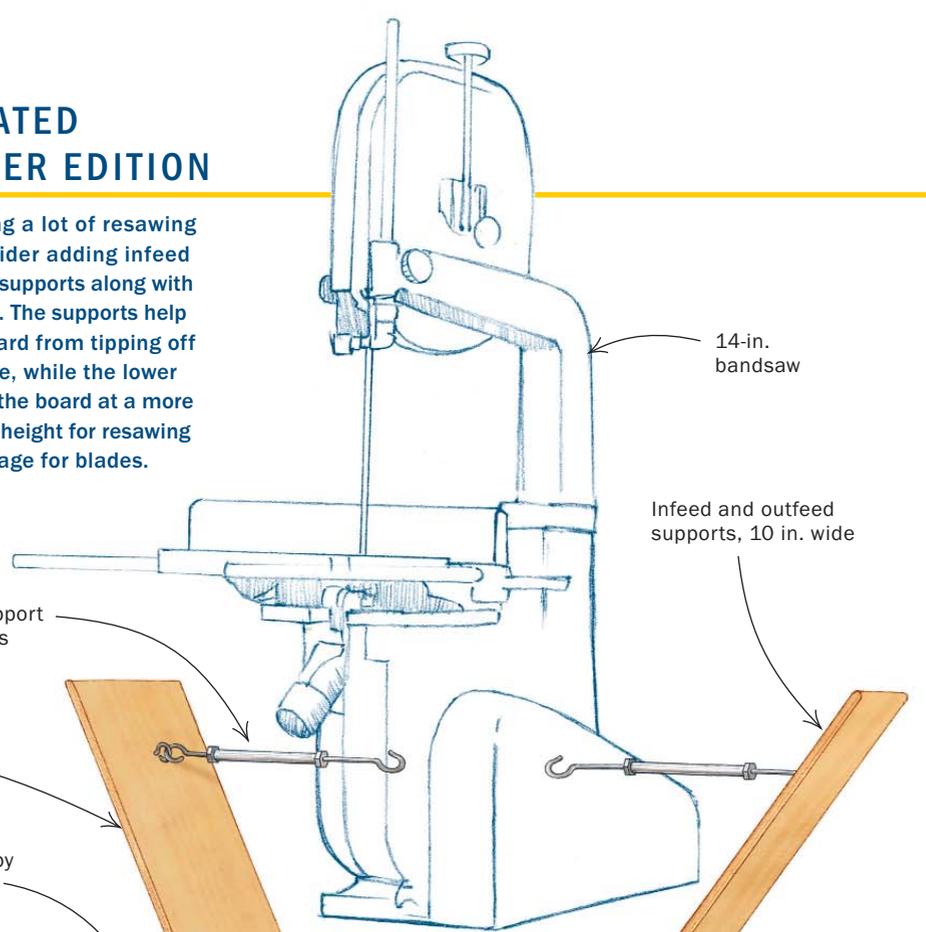


Eyebolt keeps the table parts snug. A hole bored in the edge of the saw table accepts an eyebolt that slips into a slot in the plywood. Tightening the wing nut keeps the underside of the table firmly against a single adjustable stop bolt.



DEDICATED RESAWER EDITION

Anyone doing a lot of resawing should consider adding infeed and outfeed supports along with a lower base. The supports help keep the board from tipping off the saw table, while the lower base places the board at a more comfortable height for resawing and has storage for blades.



14-in. bandsaw

Infeed and outfeed supports, 10 in. wide

Support rods

All Baltic birch pieces are $\frac{3}{4}$ in. thick.

Top of base, 24 in. wide by 36 in. long

Dividers, $\frac{1}{4}$ in. thick by $12\frac{1}{8}$ in. wide by 11 in. high

Shelf, $2\frac{1}{2}$ in. wide by $12\frac{1}{2}$ in. long

Drawer back, $12\frac{1}{2}$ in. wide by 11 in. high

Stops, $1\frac{1}{2}$ in. wide by $11\frac{1}{2}$ in. long

Slots, $\frac{1}{4}$ in. wide by $\frac{1}{4}$ in. deep

Support block, 1 in. wide by $3\frac{1}{2}$ in. long

Back, 19 in. long by 10 in. high

Divider, 22 in. long by 13 in. high

Sides of base, 34 in. long by 13 in. high

Hardwood tracks

Storage area for supports

Bottom of base, 24 in. wide by 36 in. long

Casters, 4 in. dia.

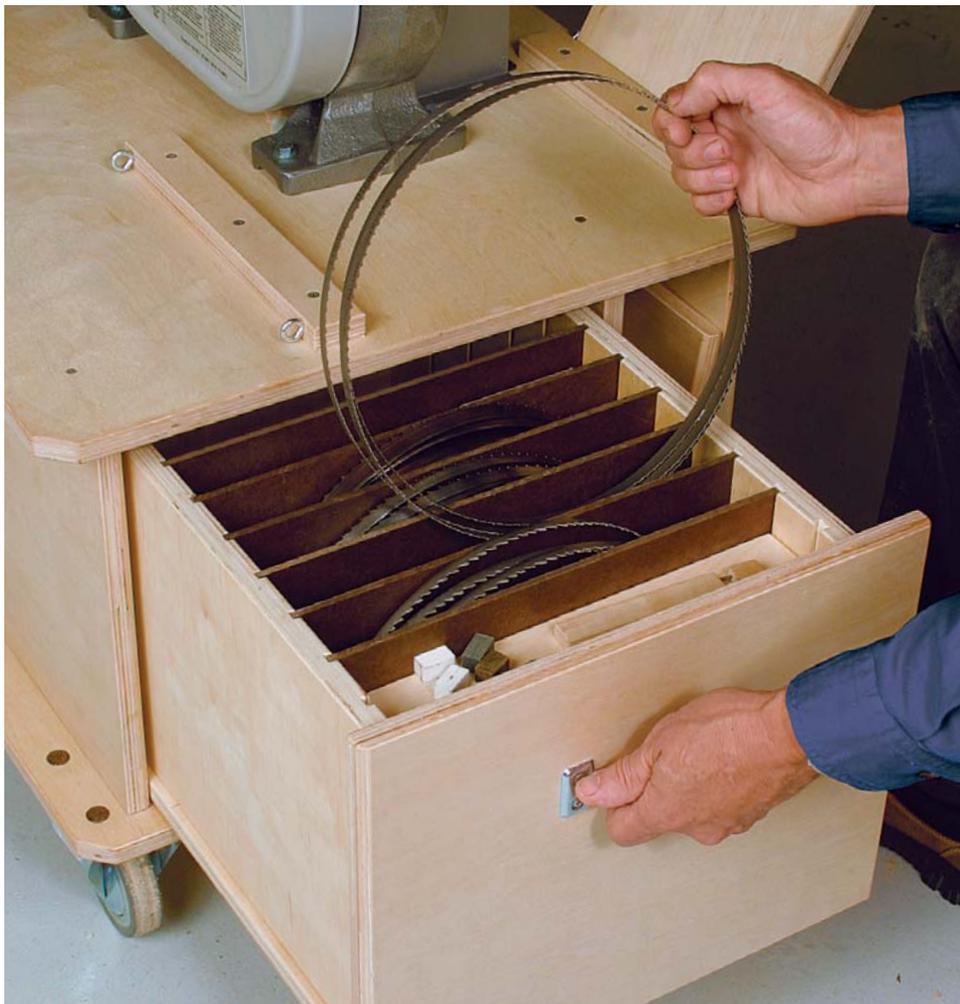
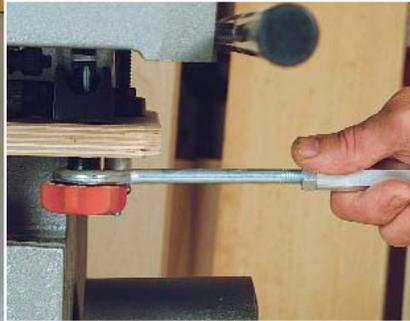
Drawer front, 16 in. wide by $12\frac{1}{2}$ in. high

Drawer bottom, $14\frac{1}{2}$ in. wide by $23\frac{1}{2}$ in. long

Drawer sides, $23\frac{1}{2}$ in. long by 11 in. high



Supports assemble in seconds. Mounting the infeed and outfeed supports is simple. One end butts against a stop, and the other hooks to the underside of the saw table.



Drawer offers storage. The single drawer can hold several coiled bandsaw blades, while the shelf in front is a handy place for small parts. The supports slide into the compartment on the right.

the board it's holding up. The outfeed support, however, should be installed at a more upright angle so that you can move the outfeed table's stop block away from the saw and clear the cover for the drive belt. The top end of the support cannot lift because, on the outfeed end, the drag of the board pulls against the support rod.

There's a simple way to determine the length of the supports. Make them longer than necessary. Hold them in position against a straightedge placed across the saw table, mark and cut. The top and bottom edges of the supports are rounded over with a $\frac{3}{8}$ -in.-radius router bit.

Make the base—For ripping and resawing, the table of a bandsaw should be close to the height of a tablesaw, not the 42-in. to 45-in. height typical of bandsaws on factory-supplied bases. A high table is fine for cutting small stock, but it's awkward for working with large boards being run against a fence. I made my new base as low as possible. The saw's table ended up just shy of 39 in. high, and now it's much easier to handle stock.

The base is a simple box made of Baltic birch plywood and assembled using butt joints and screws. A large drawer provides room for bandsaw blades and miscellaneous small parts. In addition to the drawer, a compartment on one side serves as a place to store the infeed and outfeed supports. The bolts mounting the casters thread into capped insert nuts. The 3-in.-wide gap above the back panel of the box allows access to the motor-mounting bolts.

The motor is simply bolted in place with its pulley in line with the pulley on the saw. The belt tension is adjusted by adding or removing sections from a link belt. Using a link belt eliminates the need for a sliding motor mount. On my saw I was able to reuse the original belt guard. If that's not possible on your saw, make a simple plywood box to cover the belt and pulleys.

The drawer slides on hardwood tracks attached to the bottom of the base. A single hardwood block attached to the top back edge of the drawer prevents the drawer from tipping when extended. The block is slightly oversize and mounted with two recessed screws. Then, for a smooth sliding fit, trim it to size with a block plane. □

John White is the author of Care and Repair of Shop Machines (The Taunton Press, 2002).