Contractor's Tablesaws

Our editors survey six saws and find differences in detailing and cost

Meet your new saw. *Associate editor William Duckworth assembles one of six new contractor's saws in the* Fine Woodworking *shop, the first step in comparing tablesaws by Bridgewood, Delta, Grizzly, Jet, Powermatic and Ryobi.*

Delta International Machinery Corporation would rather not tell you how many tablesaws it sells every year, but the company will say this much: Its contractor's saws outsell its flagship Unisaw line by roughly three to one. That shouldn't be a surprise. A 10-in. tablesaw with a 3-hp motor and an enclosed base, like the Unisaw, easily costs more than $1,500. Contractor's saws, though lighter and less powerful, are designed to do essentially the same job for half the cost or less, and companies like Delta sell them by the truckload.

Fine Woodworking editors recently compared contractor's tablesaws from Bridgewood, Delta, Grizzly, Jet and Powermatic. We also looked at the Ryobi BT3000 saw, something of a hybrid design. The Delta and Ryobi models are made in the United States, the others in Taiwan. When we approached manufacturers to participate in this review, the criteria were simple: We wanted a saw with at least a 1½-hp motor that would take a 10-in. blade and that cost less than $1,000. When manufacturers offered more than one model in this category, we left it to them to choose which one to send. Once the saws arrived, they were unpacked and assembled in our shop, checked thoroughly, and then put to work. Details about each saw appear in the summary boxes on the following pages.

It's fair to say that the tablesaws look very much alike; some of them are nearly identical. All of the saws rest on stands made of sheet steel of about the same gauge. Tables are of about the same size. With the exception of the Ryobi, motors are mounted on a pivoting frame at the back of the saw cabinet and deliver power to the saw arbor by a single belt. Motors (except for the Ryobi) were listed at 1½ hp.

So where are the differences between these saws? Mostly in the details, not in the overall design or construction. Features like blade and belt guards, miter gauges, and rip fences varied slightly from saw to saw. Coming up with an overall assessment of these tablesaws really amounted to adding up a long list of small things.

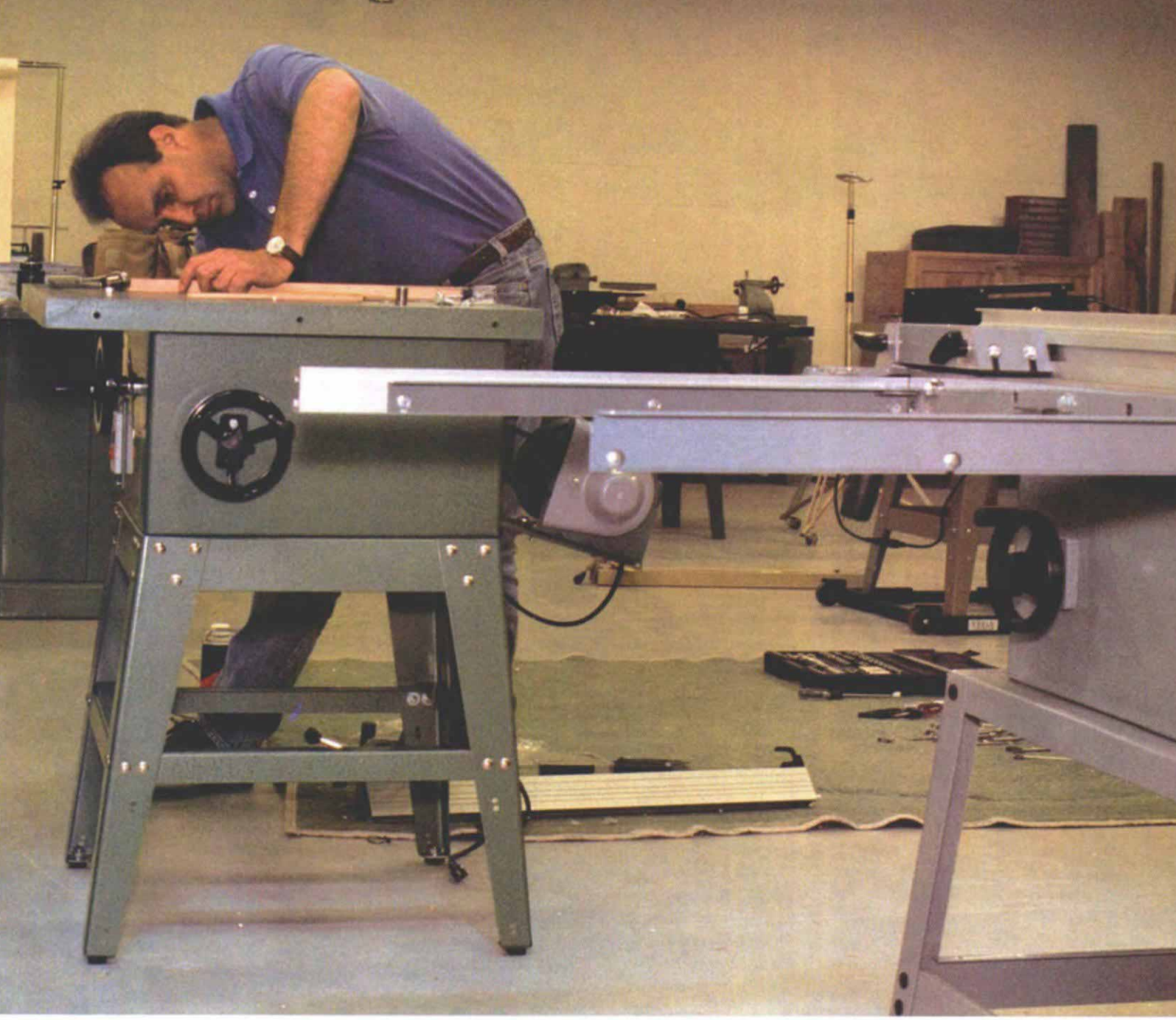
Assembly instructions: Read them carefully

The saws may look a lot alike, but as associate editor William Duckworth discovered when he assembled the saws, differences became apparent as soon as the shipping cartons were opened (see the photo at right). Assembly instructions ranged from very good to annoyingly obtuse. Some manuals were well-illustrated; others used photos and drawings that did not match the text, making it difficult to understand exactly what the manufacturers had in mind. In one instance, printed wiring instructions didn't correspond to the diagram stamped right on the motor.

Most manufacturers appeared careful to pack all the parts and hardware needed for assembly. A few did not. Judging from the saw we received from Powermatic, for instance, you might have to make a trip to the hardware store for bolts and screws the company neglected to include.

These issues may not bear directly on how well a tablesaw runs once it's been set up, but they are the buyer's first introduction to a new tablesaw. When we encountered saws that had been poorly packed or were accompanied by foggy instruction manuals, we wondered how far this inattention to detail extended. When a new tool was carefully packed and accompanied by all the required nuts and bolts, we felt the manufacturer had made an effort to get the buyer off on the right foot.

Once you've purchased a saw, we would suggest going through the packing and assembly lists carefully and writing down everything that may be missing. That may seem like a pain in the neck, but our experience suggests it's worthwhile. You won't need anything special to assemble the saws: a set of wrenches (metric sizes may be required for some of them), screwdrivers and a combination square. A ratchet will speed things considerably. The Jet manual advises getting assistance for some



steps in the assembly, which is good advice that would apply to all these saws.

Table extension wings: stamped or cast

Table sizes are about the same (the Ryobi excepted), but extension wings come in two varieties: stamped sheet steel or a sort of cast-iron grid. Stamped steel extensions are sturdy enough, but they aren't nearly as stiff as the cast versions. One editor wondered whether small offcuts could get jammed in the cast grid. That didn't happen with the limited use we gave these saws.

When measured with a straightedge and a set of feeler gauges, the tables of these saws showed varying degrees of flatness. The most variation we found over 24 in. was .040 in. on the Ryobi and the least was .010 on the Grizzly. But all of the tables seemed flat enough for general woodworking. Although the finish on some cast tables was better than on others, this appears to be more of a cosmetic consideration than a functional one.

At least one of the manufacturers, Jet, offers cast extension wings as an option. If you have a definite preference for either a stamped or cast extension, the differences may help you choose from one of the many models available. But in practice, it isn't much of a factor in performance.

Blade guards and miter gauges

Company lawyers may feel better if tablesaws come equipped with combination blade guards and splitters, but we didn't. Though the intent is admirable, guards can be a weak point in an otherwise good design. Most are flimsy affairs, and some (like those on the Delta and Powermatic) get in the way during a blade change; they don't swing up and out of the way. The guards generally obscure a good view of the work.

The splitter/guards (except for Ryobi's)

Photos: Scott Gibson

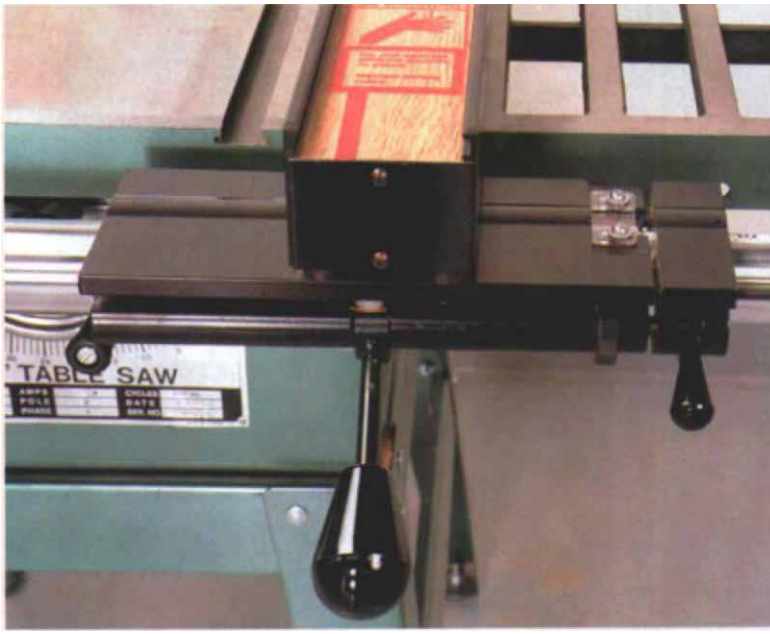
Bridgewood #TSC-10C.

Average price	$490 (without fence)
Warranty	1 year
Fence tested	Vega U26
Other compatible fences	Biesemeyer (home shop, commercial), Delta Unifence, Excalibur, Vega (utility, professional, commercial)
Motor hp / amps	1½ hp / 14.2 amps
Maximum depth of cut	3 in. @ 0° 2 3/16 in. @45°
Maximum rip with fence provided	26¼ in.
Table height	34¾ in.
Runout at arbor flange	.0005 in.
Runout at miter gauge to sawblade	.017 in.
Dust-collection panel	Yes
Decibel level at ear height	84 dB
Switch	Magnetic

· The owner's manual included drawings and photos of a saw that did not match the one we received. There were some problems getting the saw up and running. This saw comes with a 14.2-amp Marathon, fan-cooled, thermally protected motor that we had to wire to the magnetic switch. The motor is packaged well in a box, along with a printed wiring diagram different from the one on the motor's label. We followed the label on the motor first, and the blade ran backward. The printed diagram makes no mention of what to do with the white wire on the cord, but we took a guess and rewired it; the motor ran correctly. It also ran quietly, 84 dB, and smoothly.

The rough casting on the table insert had to be ground down before the insert would fit into the throat opening. The runout of the arbor flange was very good (.0005 in.), but the runout from the miter-gauge slot to the blade was .017 in. Raising and lowering the blade and changing angle settings were smooth, easy operations.

The Vega fence comes with installation instructions that are confusing and hard to follow. We had to buy new hardware to install it. Setting the fence square to the blade took some time. The fence has one annoying tendency: It lifts up at the far end as the lever is tightened at the front rail. Otherwise, this is a really nice fence. It sits dead square to the table.



***Precision adjustments—By** using the unique micro-adjust feature on the Vega fence that comes with the Bridgewood saw, it was easy to move the fence precisely in very small increments.*

are attached at two points, behind and inside the saw cabinet. They can be adjusted (with difficulty in some cases) so they are in line with the blade, but plan to do some tinkering. All but one of the saws, the Powermatic, had a see-through plastic guard with attached anti-kickback pawls. The Powermatic design uses slotted metal guards that retract out of the way as work is pushed through the saw (the wings on each side of the blade move independently). Although safety equipment like tablesaw guards are important in preventing potentially crippling injuries, awkward or cumbersome guards are quickly ushered into a corner of the shop where they gather dust. Blade guards that are better designed would encourage wider use.

Miter gauges all came with a small washer on one end of the bar that locks the gauge into a T-shaped groove in the table. This helps to keep the gauge in place when crosscutting wide stock. The gauges were similar. There were differences, however, in how well they were machined and how they fit in the slots, giving clues to overall attention to detail and quality of construction. Delta and Jet miter gauges, for instance, were carefully machined and fit snugly. Miter gauges for the Powermatic and Grizzly saws showed more side-to-side slop, although this could easily be corrected with a center punch and hammer.

Delta #36-440.

Average price	$835
Warranty	2 years
Fence tested	Delta Precision Saw Guide
Other compatible fences	Biesemeyer (home shop, commercial), Jet-Lock, Unifence
Motor hp / amps	1½ hp / 12.8 amps
Maximum depth of cut	3¼ in. @ 0° 2¼ in. @45°
Maximum rip with fence provided	29 in.
Table height	34½ in.
Runout at arbor flange	.001 in.
Runout at miter gauge to sawblade	.003 in.
Dust-collection panel	No
Decibel level at ear height	80 dB
Switch	Toggle

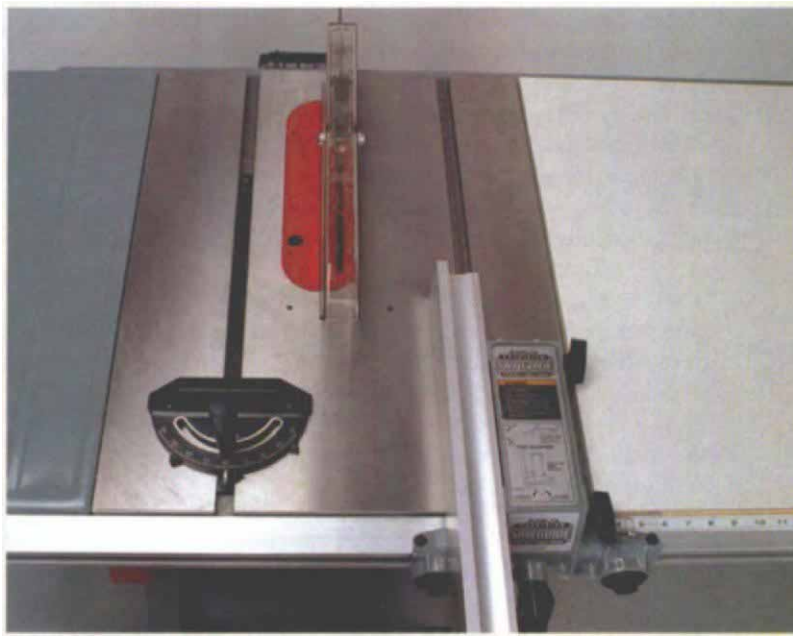
· With the exception of the splitter and blade guard, assembling the Delta machine was easier than it was for many of the others. Parts list for the saw and fence is complete, and the instruction manual is full of good quality photos that illustrate the text. (One exception here are the photos showing the standard Jet-Lock rip fence, not the Precision Saw Guide that came with the machine.)

The mechanisms to raise and lower the blade and to change the angle setting worked smoothly. Adjusting the 45° and 0° blade stops are a cinch with the Allen screws on the top of the table.

You get two wrenches to install a blade on the arbor, which minimize the risk of cut fingers. But changing a blade was very difficult because the blade guard does not fold out of the way. Threads on the arbor nut were enough out of whack that the nut did not sit flat to the flange that clenches the blade.

The large switch mounted at the front of the saw is a big plus—easily accessible and safer because of its size and location. At 80 dB, this was the quietest saw of the lot. The **1½**-hp motor rated at 12.8 amps cut 2-in. oak more easily than some of us expected.

The Precision Saw Guide fence was easy to install. It can be used on either side of the blade by moving the extruded aluminum fence from one side of the fence body to another. Also, by moving the aluminum fence back on the body, it works well as a stop block for crosscut pieces.



***Versatile fence** design—The fence can be shifted toward the front of the table and used to index repetitive crosscuts of small pieces, a welcome feature.*

Check factory settings carefully

Just how well a tablesaw performs depends in part on how accurately the machine has been set up—either at the factory or by the owner.

We checked a number of settings after the saws had been assembled, including whether there was wobble (or runout) in the arbor flange where the blade is tightened; whether the miter-gauge slots and fence were parallel to the blade; whether the face of the fence was square to the table; and whether the bevel angle stops of 0° and 45° (sawblade to table) had been set accurately at the factory. With one important exception, adjustments for these settings should be easy to make.

We measured runout on the arbor flanges with a dial caliper fixed to the table. There was little runout on any of them, meaning that blades should run true. This is important because even small problems at the arbor flange get translated into much bigger problems at the rim of the blade. More important, runout is built into the machine. It can't be fixed in your own shop.

Adjusting the 0° and 45° stops for the blade is basically the same among the machines. A bolt with a locknut threaded into the saw's trunnion stops travel at the right spot. The arrangement works. However, access to make adjustments isn't easy. The only notable difference is the Delta table-

Grizzly #G1022Z.

Average price	$425
Warranty	1 year
Fence tested	Grizzly
Other compatible fences	Shop Fox
Motor hp / amps	1½ hp / 16 amps
Maximum depth of cut	3⅝ in. @ 0° 2⅝ in. @45°
Maximum rip with fence provided	25 in.
Table height	36¾ in.
Runout at arbor flange	.0005 in.
Runout at miter gauge to sawblade	.003 in.
Dust-collection panel	No
Decibel level at ear height	90 dB
Switch	Push button

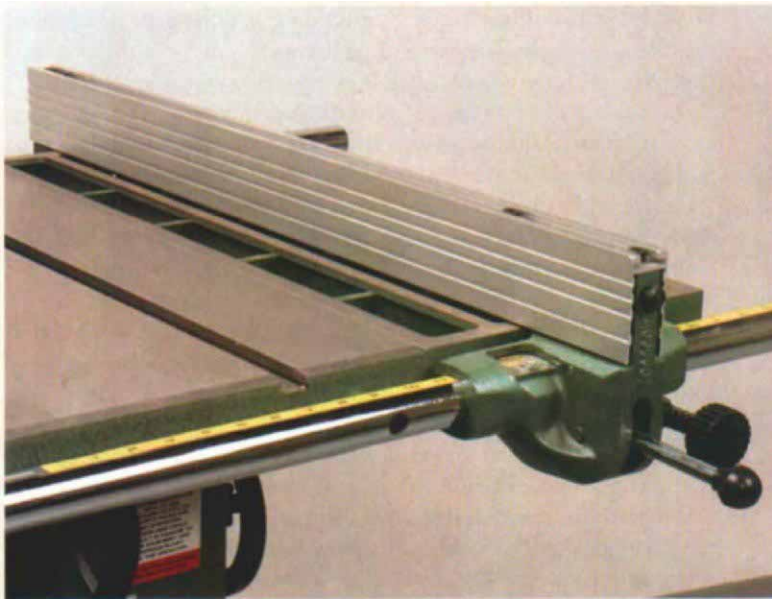
· The people at Grizzly get high marks for putting together an instruction manual that is clearly written, easy to follow and illustrated with good photos that show you what you need to see. The motor had to be wired to the switch with simple connections that are clearly spelled out.

The machine ran loudly, 90 dB, and vibrated heavily, which may have been caused in part by a faulty belt. When one of the editors switched belts from another machine, it seemed to run with less vibration.

Some of the edges on the cast tabletop were very sharp. The blade setting from the factory was dead square. The runout at the arbor flange was very good. The 3¾-in. opening for the table insert, like the Delta's, is a bit wider than those on the other saws, making it a little easier to change the blade. The mechanism to raise and lower the blade was stiff, but changing the angle setting was fairly easy.

None of us like the fence design, based on Delta's old Jet-Lock fence. It will cut on both sides of the blade, but it doesn't sit square to the table. And it easily goes out of square to the blade. The table on the Grizzly was the flattest of all the saws.

This saw had no trouble cutting 1-in. poplar, but we blew a circuit breaker twice while cutting the 2-in. red oak.



Specify a more up-to-date fence. *The Grizzly saw comes with an old-style fence apparently modeled on Delta's Jet-Lock design. It's not nearly as versatile as other options.*

saw. Allen-head screws set in the tabletop provide fast, painless adjustments.

Rip fences are vital to tablesaw performance

Using a tablesaw with a poorly designed fence is something like driving a car with a flat tire: It can be done, but you'll sure wish you didn't have to. A good fence is easy to move from side to side, comes up parallel to the blade each time it's reset, and deflects very little when a piece of lumber is pushed against it. The fences that came with these saws were generally able to do all of these things. Most of these rip fences represent big improvements over what used to be available, and most of the manufacturers offer quite a choice in fences and rail lengths. For this survey, we evaluated the fences that were provided with the saws, but more than likely, you'll have a choice when you buy one.

Some of the fences were not square to the table when we finished assembling them, but they could be brought into adjustment with some tinkering. That should be a one-time fix. All of them moved easily along the table, snugged down nicely and didn't deflect too much under a load.

The most innovative fence in the lot seemed to be on the Delta saw, and the most dated design on the Grizzly. Fences on the other saws were somewhere in between. The Vega Utility fence that came on the Bridgewood saw had an annoying tendency to rear up when the lock handle

Jet #JWTS-10JF.

Average price	$529 (without fence)
Warranty	2 years
Fence tested	Xacta Homeshop
Other compatible fences	Jetfence
Motor hp / amps	1½ hp / 18 amps
Maximum depth of cut	3¼ in. @ 0° 2⅜ in. @45°
Maximum rip with fence provided	52 in.
Table height	34⅛ in.
Runout at arbor flange	.001 in.
Runout at miter gauge to sawblade	.001 in.
Dust-collection panel	Yes
Decibel level at ear height	84 dB
Switch	Push button

· Like Delta and Ryobi, Jet offers a two-year warranty on this equipment. The machine comes packed with a runout inspection record from the factory. Our own measurements confirmed a well-tuned machine-only .001 in. runout for both the arbor flange and the miter gauge to the blade. The blade setting from the factory was also dead square to the table.

Raising and lowering the blade and changing the angle setting on this saw was perhaps the smoothest of the bunch. Changing the blade is a pain because the cast tabs that support the throat plate are close to the arbor and protrude into the space where your hand needs to be to get at the arbor nut. The arbor nut was thicker than any of the others and well-machined.

The motor, rated at 18 amps, cut 2-in. oak as well as or better than all of these saws. This saw ran smoothly and relatively quietly, 84 dB, compared to the others in this review. A large switch, mounted up near the front rail, is easy to get at and safer in an emergency (see the photo above). Some of us would prefer the cast-iron table wings to the stamped sheet steel ones that come with this model. Jet offers them in one of five variations of this saw. The Xacta Homeshop fence—what looks like a knockoff of a Biesemeyer—is easy to install and can be used on either side of the blade.

Slippery fence reduces friction. *The polyethylene faces on the Xacta fence may be replaced when worn.*

was pushed down, but the fence also has a clever micro-adjust feature. Powermatic and Jet fences are virtually identical (Biesemeyer and Biesemeyer clone respectively). They are solid fences that lock on only one rail and pop right off the saw when you don't need them. They are, however, more difficult to adjust in very small increments than some of the others. The Jet fence has slippery plastic faces on each side, which reduce friction. See the summary boxes for more details.

Performance: Well, it can be slow

To get an idea of how these saws performed, we jointed and planed 2-in.-thick red oak and 1-in. poplar and then ran both through each saw. We used the same blade on each saw, a brand new Ridge combination blade. None of the saws had any trouble with the poplar, as you'd expect. And all of them cut the oak—as long as the feed rate was slow. Our conclusion was that any of these saws will handle 8/4 material, but none would be the right choice if you plan to cut thicker stock regularly. There just isn't enough power in any of them for this kind of service.

All the motors except the Ryobi are rated at 1½ hp. We ran all the saws at 115v, although some of them could be rewired to 230v. According to the manufacturers, motors draw varying amounts of current, from a low of 12.8 amps for the Delta to a high of 18 amps for both the Powermatic and the Jet. Without introducing some subjectivity, it's impossible to say which cut the best,

Powermatic #64 Artisan

Average price	$749
Warranty	1 year
Fence tested	Biesemeyer Home Shop
Other compatible fences	Accu-fence, Vega
Motor hp / amps	1½ hp / 18 amps
Maximum depth of cut	3¼ in. @ 0° 2¼ in. @45°
Maximum rip with fence provided	29 in.
Table height	34¾ in.
Runout at arbor flange	.0005 in.
Runout at miter gauge to sawblade	.005 in.
Dust-collection panel	Yes
Decibel level at ear height	88 dB
Switch	Toggle

· This is not a left-tilting sawblade like the well-known Powermatic #66 machine, and it is a far cry from the level of quality we've come to expect in Powermatic's more industrial-level equipment. Problems became evident during assembly. Drawings in the instruction manual showed insufficient detail or simply didn't match the actual parts of the machine we received. Allen screws that secure the motor mount to the trunnion assembly were missing. The Biesemeyer fence did not come with any instructions, the hardware for mounting the front rail was the wrong size, and the holes drilled in the back rail did not line up with those drilled in the tabletop.

The mechanism to change the angle was fairly smooth, but the action to raise and lower the blade was very stiff. Also, roll pins that are designed to keep a lowered blade from going too far were missing from the trunnion assembly—a condition that would allow a moving blade on this saw to strike the cast-iron trunnion if it were retracted all the way. The heavy-duty, all-metal blade guard does not fold out of the way, making it very difficult to change the blade. This saw vibrated heavily when we turned it on. The noise level rating, 88 dB, was in the mid-range of all the machines we tested. Powermatic offers a choice of three fences—all for the same price.

Blade guard is in the way. *The Powermatic blade guard design, like those on some of the other saws, makes blade changes frustrating: The guard simply won't move out of the way.*

but motors with the higher amp ratings didn't necessarily make cutting easier.

Ryobi is the only saw in the lot with a universal motor, the same type of motor you'll find on your router. The other tablesaws come with induction motors, a much more typical choice for a tool like a tablesaw. Although Ryobi's motor is rated at 15 amps, higher than some of the induction motors, we thought that it struggled more than the other saws. Ryobi does not list a horsepower rating on the motor.

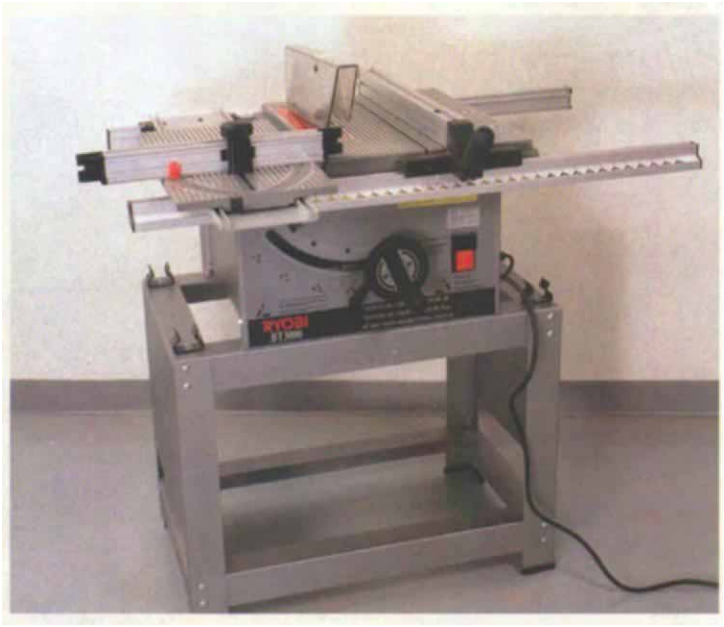
Some saws were quieter than others, and some seemed to vibrate less while they were running. Delta's saw was the quietest of the bunch; the Ryobi made more noise than any of them. Although there's no precise way of measuring vibration, the Delta, Bridgewood and Jet tablesaws seemed to be the smoothest.

Price is a factor

As you might expect, opinion among the *Fine Woodworking* editors who used these saws wasn't unanimous. Some of the differences between the saws were very small, and personal preference would certainly play a part in choosing one brand over another. It's also worth mentioning that we looked at a single saw from each manufacturer, and we had the saws in the shop for a matter of weeks, not months, so our impressions are based on limited exposure. Still, we agreed on a few points.

First, the Ryobi. We found the design innovative and flexible. The sliding table is a

Ryobi #BT3000.



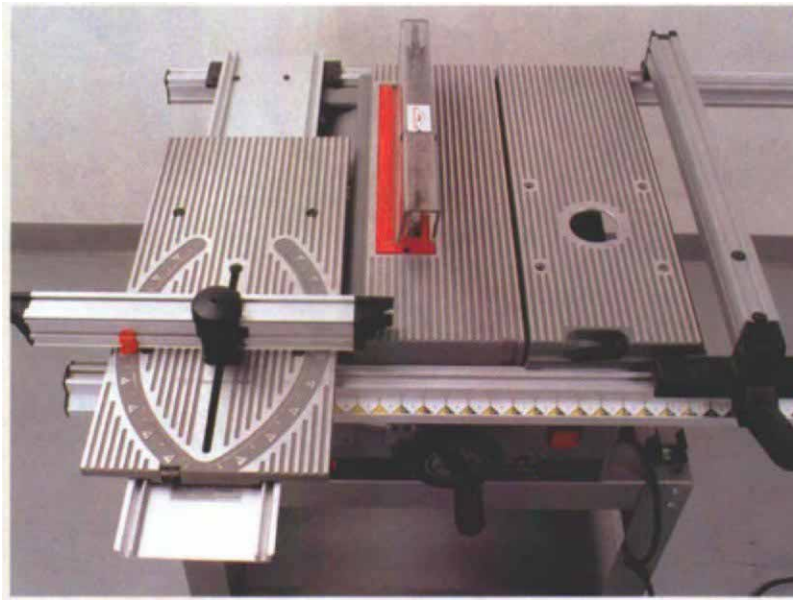
Average price	$498
Warranty	2 years
Fence tested	Ryobi
Other compatible fences	None
Motor hp / amps	Not rated / 15 amps
Maximum depth of cut	3⅝ in. @ 0° 2⅝ in. @45°
Maximum rip with fence provided	29½ in.
Table height	37¼ in.
Runout at arbor flange	.001 in.
Runout at miter gauge to sawblade	.020 in.
Dust-collection panel	Yes
Decibel level at ear height	93 dB
Switch	Push button

· This sturdy little saw has everything but power. The universal motor, rated at 15 amps, drives the blade at 4,800 rpm—not the usual 3,450—which could account for the loud whine. Our sound meter read this one at 93 dB.

This saw is like a better mouse trap: A great deal of thought went into its design. Standard features include a sliding miter table with an adjustable fence and a built-in angle scale, an accessory table for mounting a router, a small but rugged rip fence, a built-in electrical plug for a router and the best splitter and blade guard of all the saws we looked at. You can also get all kinds of accessories: a dust bag, a quick-fold table for outfeed support, a table extension to increase the usable work surface, a miter clamp and an air flotation/vacuum clamp system for working with large panels.

A full 3⅝ in. of the blade is available for the depth of cut at 0°. You can move the sliding table or the accessory table from one side of the blade to the other, but you'll have to tweak the alignment to the blade every time you do. Rubber pads and levelers hold this saw firmly on the floor.

The throat plate opening is only 2⅞in. wide, and the plate is screwed into the table with three screws, so changing the sawblade is difficult.



Ryobi's design is different. *A sliding table and router-table insert make this saw versatile, although its many adjustments will need frequent checking for accuracy.*

strong point, and the saw looks like it would be an excellent job-site or light-duty hobbyist tool. But there are lots of adjustments to get out of whack, and the relatively small motor is a concern.

The Powermatic and Delta tablesaws are the most expensive of the group. For that money, we think Powermatic needs to pay more attention to details. The Delta seems like a well-made machine; it ran quietly and smoothly. Its fence was the most versatile one that we surveyed.

The Grizzly has the lowest price. Its standard fence is not a strong point, though. The saw was both noisy and somewhat prone to vibration, something that probably would be improved with a better belt. Both the Jet and Bridgewood saws ran quietly and smoothly. The Jet is somewhat more expensive than the Bridgewood, but we liked its fence better. Jet also offers a two-year guarantee. We thought it was the best value in the group.

Of course, there's no substitute for trying the saws yourself. And more than one editor pointed out that the same money you'd spend on one of the more expensive saws in this group might pay for a used saw with a bigger motor and heavier cabinet. That may not be an attractive option for everyone (no factory warranty, for instance), but it may be an idea worth considering.

This article was researched by the editors of Fine Woodworking *and written by William Duckworth and Scott Gibson.*