

# Picking a Portable Table Saw



Small enough to carry, big enough to rip green 2x12s, accurate enough for finish work

BY GARY M. KATZ

**A**s a finish carpenter, I depend on my table saw as much as any other tool I own, almost more than my truck. Recently, my old turquoise table saw (you know the one) gave up the ghost. I had to replace it, but when I went shopping, I was stunned by the number of portable table saws now on the market. In this article, I'll share what I learned about all these saws.

## Three classes of saws

I found 13 table saws that can be called portable (easily carried by one person), and these saws fall into three basic classes that I call entry-level, midlevel and high-end saws. Entry-level saws are the least expensive and the lightest. They weigh 30 lb. to 40 lb. and range in price from \$130 to \$260. Entry-level saws include the Skil, Delta's Bench Saw, Pro-Tech, Grizzly and Tradesman. (I tested an entry-level Sears Craftsman saw that was discontinued before this article went to press. Sears was planning to release a new midlevel saw about the time this issue went to press.)

Midlevel saws are bulkier and weigh 40 lb. to 60 lb. These saws cost from \$250 to \$350, and include Makita's 8 $\frac{1}{4}$ -in. and 10-in. models, the Hitachi, Delta's Sidekick and the Powermatic.

Finally, there are the high-end saws. Weighing in at 60 lb. or more, these saws barely qualify as portable (photo top left, facing page), at least for this 40-something-year-old carpenter. As you might expect, their prices are also the heaviest, all in the \$500 range. The high-end saws include the DeWalt, the Ridgid and the Bosch.

## Putting table saws to the test

I began my comparisons with a list of objective items such as price, weight, amps, speed, blade size and maximum rip capacity. But other features of the tools were more subjective. Rip fences, tabletops, miter gauges, blade guards, blade depth and tilt adjustments varied greatly even within each level. I also looked at two additional elements of each saw, noise and vibration. Noise was easy to quantify by using a decibel meter and carefully duplicating the setup for each saw. But I judged vibration inductively by observing a cup of coffee placed on the saw table while the saw was running (photo bottom left, facing page). Although vibration is more of a nuisance factor, I found that the amount of vibration translated directly to how smoothly each saw cut: the more vibration, the rougher the cut.

To keep the playing field even, I used a new, thin-kerf, 40-tooth carbide blade to test each saw. I put each saw through exactly the

same rigors: cutting  $\frac{3}{4}$ -in. melamine,  $\frac{3}{4}$ -in. medium-density fiberboard,  $\frac{3}{4}$ -in. oak and 2x framing lumber. I didn't use a power feeder, instead relying on my own experience to push material evenly through the blade. I noted in the chart (pp. 66-67) any saw that bogged down while cutting 2x lumber.

### Testing motors was too much

Right out of the box, most of the saws were dialed in fairly close, but handy mounting and adjustment screws in most tabletops made it easy to get the blade parallel to the miter-gauge slot when necessary. Adjustment screws for blade-tilt stops at  $0^\circ$  and  $45^\circ$  were also easy to access in most saws.

As I scrutinized and tested these saws, I began asking manufacturers about motor design and construction. But I soon realized that there was a mountain of information on the topic. In the chart, information about the motors is limited to amps and rpms. But for most carpenters, the proof is in the cutting. So let's take a look at the other table-saw features.



**Two-man portable.** The high-end saws such as the Ridgid, which weighs 76 lb., are more easily carried by two people.

**Bad vibes.** For the author, bad saw vibration translated to rougher cuts. A cup of coffee on the tabletop shows just how bad those vibrations can be.

## Rip fences

Setting the rip fence on my old table saw required four hands: one to hold the fence still, one to twist the knob, one to pull the tape measure and a fourth to tap the fence into position with a hammer. Every saw in this survey has a rip fence that locks with a cam-type lever, which is a vast improvement. Still, I found that fence quality varies, even among saws in the same quality level.

### BIGGER CAMS ARE BETTER

In the entry level, the Grizzly and ProTech fences are made from the lightest-weight aluminum. But ProTech's  $\frac{1}{4}$ -in. cam is nearly twice the diameter of Grizzly's  $\frac{3}{4}$ -in. cam, making the ProTech easier to operate. The larger the cam, the less force is needed to lock the fence (top photo). But neither of these fences slid smoothly on its table, and other factors such as lightweight linkages make me doubt if they would stand up to full-time job-site abuse.

The fences on Delta's Bench Saw and the Skil saw are a step up from the first two. Made of heavier materials, these two fences are larger and slide much more smoothly. But aside from smoothness of operation, the most important factor is whether a rip fence is self-aligning, i.e., locking the fence in place automatically sets the fence parallel to the blade. The Delta and Skil fences are self-aligning nearly every time.

The surprise fence in the entry-level group is the Tradesman, which could easily go on a midlevel saw. Made of  $\frac{1}{8}$ -in. aluminum, the Tradesman fence is also 1 in. taller and  $\frac{1}{4}$  in. wider than the fences on any of the other entry-level saws. But despite its  $\frac{1}{4}$ -in. cam and its heavy-duty nature, the fence mounted on an angled front rail is not self-aligning (bottom photo).

Most of the entry-level saw fences (with the exception of the ProTech and the Delta) don't slide easily on their



**Bigger cams take less force to lock in place.** Fences with large cams, such as Skil's, are easier to lock into place. The attached square rail also makes the Skil saw's fence better at lining up parallel with the sawblade.



**Heavy duty but still not self-aligning.** The Tradesman fence is made of heavy materials, but with its angled front rail integral with the table, the fence did not lock down parallel to the blade.



## Rip fences (continued)

rails. The fences that ride on angled rails that are part of the table casting are the least smooth.

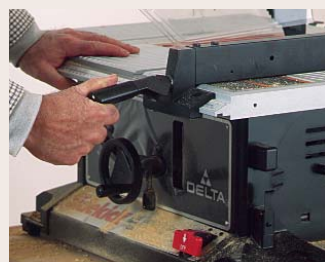
### BETTER FENCES GLIDE MORE SMOOTHLY

The midlevel fences are a step up in construction and operation. But the worst of this bunch is Delta's Sidekick, whose fence is harder to operate on its integral angled rail than its entry-level cousin. The locking lever on the Sidekick swivels, which is confusing when trying to keep the fence lined up parallel to the blade (top photo). Among the midlevel fences, the Sidekick and the Powermatic fences are not self-aligning.

All the midlevel fences have larger cams, making them easy to lock down and stay put. Makita uses a combination of steel and plastic for its unique two-piece rear latch, which locks securely yet slides almost friction-free. But I found that their fence was not always self-aligning.

Hitachi's fence belongs on a high-end saw. Made of thick aluminum stock, this fence is enhanced with a heavy cast front and rear locking bases. The large front cam applies pressure on the latch, but the leverage is nicely dampened by a thick silicone washer. Rigid plastic feet also assist the friction-free glide of the fence

(bottom photo).



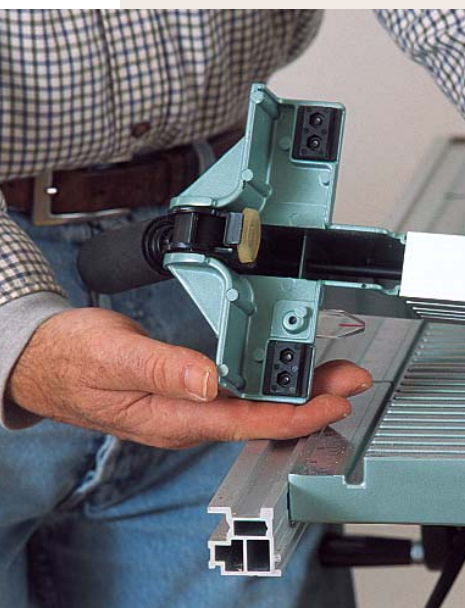
**Tough to pin down.** The lever on Delta's Sidekick fence swivels, making it hard to keep the fence in position while securing it to the table.

### HIGH-END FENCES COME WITH EXTENSION TABLES

The high-end saws don't just have fences, but superb fence systems. Their fences work in combination either with extending tables or extending fence rails (these systems extend to the right of the blade, increasing rip capacity, and should not be confused with the sliding tables that are used for crosscutting on the larger table saws).

All the high-end rip fences compare with my cabinet saw in quality, accuracy and smooth operation. I'll discuss these extension-table systems in more detail in the next section on tables and rip capacity.

**Smooth gliding on plastic feet.** Hitachi's fence has plastic feet that ride in a groove in the rail for silky-smooth operation. A large silicone washer dampens the locking mechanism.



## Saw tables and rip capacity

Tables on portable saws are made of lightweight aluminum either cast or extruded. But with the midlevel and high-end saws, the tables tend to get larger and heavier. Heavier tables are harder to carry, but they mean less vibration and smoother cuts.



**Wider capacity, but flimsy connection.** Grizzly's extension table increases the rip capacity of the saw, but the table deflects under minimal pressure.

### ENTRY-LEVEL SAWS HAVE SMALLER RIP CAPACITY

Of the entry-level saws, the Tradesman table allows rips up to 11 in. The Grizzly table is equipped with a thin steel extension wing that bolts to the side of the table, allowing rips up to 19<sup>3</sup>/<sub>8</sub> in. But I found it difficult to adjust the extension wing flush with the main saw table. Grizzly's extension was also so flimsy that it deflected noticeably under just the force needed to lock the fence in place (top photo).



**Narrow rips only.** ProTech's fence has to be completely engaged to its table to lock down securely, leaving it with a limited rip capacity.

ProTech's table provides for a maximum rip of only 9<sup>1</sup>/<sub>2</sub> in., the narrowest of any saw tested (bottom photo). I could not secure ProTech's fence to the table unless it was completely engaged with the fence rail. The Delta has the same tabletop as the ProTech, but with its die-cast rail and fence system, Delta's rip capacity improves to 11<sup>1</sup>/<sub>8</sub> in.

### EXTRUDED ALUMINUM FLEXES MORE THAN CAST

Although only one entry-level saw has a rip capacity of more than 12 in., the midlevel tables have average rip capacities well over 13 in. The tables on the midlevel saws are also larger in area



**Miter gauges are not created equal.** The Delta Sidekick has a miter gauge (left) with a standard-size bar and adjustable stops for 90° and 45° angles. The Powermatic's miter gauge (center) has adjustable stops but a smaller lighter-duty bar. Skil's miter gauge (right) is light duty with no stops.

and heavier, part of the reason the midlevel saws averaged almost 10 lb. more than the entry-level saws.

The Powermatic in the midlevel group is one of the few saws with a lightweight extruded-aluminum table. Powermatic's table also sports an extension wing that slides out on steel dowels. But I was disappointed in the flexibility of the extension wing, especially when it was asked to support a heavy board during a cut.

The Makita and Hitachi tabletops are made of thick die-cast aluminum. A Makita rep told me that they drop their saws from 12 ft. to test durability. Even with Makita's heavier table, its maximum rip capacity of 12 $\frac{1}{4}$  in. is the smallest of the midlevel saws. Hitachi has the largest rip at 14 $\frac{3}{4}$  in.

### HIGH-END TABLE SYSTEMS ARE IN A CLASS BY THEMSELVES

The extension table/fence systems on high-end saws give them almost the same abilities as industrial shop equipment. Not only are the tabletops, extension wings and extension rails on these saws larger and built with heavier grades of aluminum, but each of the high-end saws has a unique table system that allows rips greater than 24 in.

The DeWalt fence locks onto front and back extension rails. Instead of a fence sliding along a rail, though, a knob operates a rack-and-pinion gear that dials in the exact rip. As the rails are extended out, the gears keep the fence in precise alignment (bottom photo).

With the Bosch and Ridgid saws, a section of the saw table actually unlocks and slides out on rails to increase each tool's rip capacity. Bosch's lock is under the front edge of the table, while the release lever for Ridgid's extension table is built into the tabletop (top photo). These table systems keep the fence lined up perfectly with the blade, and the systems for setting the rip capacity are highly accurate on all the high-end saws.



**A lever releases the extension table.** The fence on the Ridgid saw can slide independently on its rails, or it can lock onto an extension table that is released with a lever built into the tabletop.



**Rack-and-pinion precision.** DeWalt's extension-rail system uses front and rear gears that let the operator dial in the proper rip while keeping the fence in perfect alignment.

## Miter gauges for crosscutting

Table saws are used more for ripping than for crosscutting, so manufacturers don't seem to give attention to miter gauges. But they're an integral part of a tool's use. The two main factors I looked at in miter gauges were the size of the bar that rides in the slot on the table-saw top and whether the miter gauge has stops for setting the fence to 90° and 45°.

The industry standard for a miter-gauge bar is  $\frac{3}{4}$  in. wide by  $\frac{3}{8}$  in. deep. Not only does a bar this size offer confident purchase of the miter gauge in the slot while pushing material through the blade, but the corresponding slot accepts stan-

dard shop accessories such as hold-downs and featherboards. All top-end saws have standard-size miter gauges, but of the other saws, only the Delta Sidekick is equipped with a standard-size miter gauge (photo facing page). The remainder of the entry-level and midlevel saws have small, light-duty miter gauges.

Of the entry-level saws, the Delta is the only miter gauge with stops. The Powermatic and Delta Sidekick have the angle stops in the midlevel, and all the miter gauges with the high-end saws come with stops.

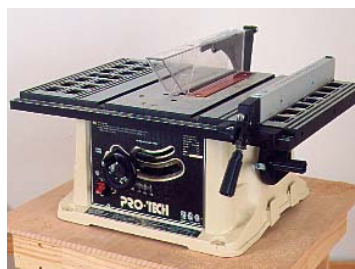




Delta Bench Saw



Grizzly G5045



ProTech 4106



Skil 3400



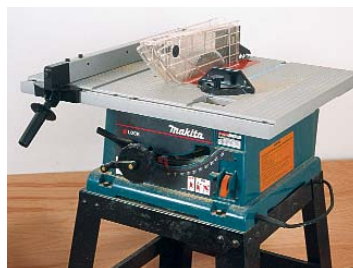
Tradesman 8030B



Delta Sidekick



Hitachi C10RA2



Makita 2703XI



Makita 2702XI

## Portable table saws: Manufacturers' specs

	Street price	Weight	Amps/rpm	Blade size	Max. rip
ENTRY-LEVEL SAWS					
<b>Delta Bench Saw</b> (800) 438-2486 deltawoodworking.com	\$160	35 lb.	13/4700	10 in.	11 <sup>3</sup> / <sub>8</sub> in.
<b>Grizzly G5045</b> (800) 523-4777 grizzly.com	\$189	36 lb.	13/5300	10 in.	19 <sup>3</sup> / <sub>8</sub> in.
<b>ProTech 4106</b> (800) 888-6603 protechpower.com	\$130	32 lb.	13/4800	10 in.	9 <sup>1</sup> / <sub>2</sub> in.
<b>Skil 3400</b> (877) 754-5999 sbpower.com	\$190	35 lb.	13/4800	10 in.	12 in.
<b>Tradesman 8030B</b> (800) 243-5114	\$259	33 lb.	13/5300	10 in.	11 in.
MIDLEVEL SAWS					
<b>Delta Sidekick</b> (800) 438-2486 deltawoodworking.com	\$279	47lb.	13/4500	8 <sup>1</sup> / <sub>4</sub> in.	13 <sup>3</sup> / <sub>4</sub> in.
<b>Hitachi C10RA2</b> (800) 706-7337 hitachi.com	\$329	65 lb.	15/5000	10 in.	14 <sup>3</sup> / <sub>4</sub> in.
<b>Makita 2703XI</b> (800) 462-5482 makitausa.com	\$328	46 lb.	15/4600	10 in.	12 <sup>1</sup> / <sub>4</sub> in.
<b>Makita 2702XI</b>	\$279	46 lb.	15/4600	8 <sup>1</sup> / <sub>4</sub> in.	12 <sup>1</sup> / <sub>4</sub> in.
<b>Powermatic 411</b> (800) 241-0144 powermatic.com	\$250	47 lb.	13/4800	10 in.	13 in.
HIGH-END SAWS					
<b>Bosch 4000</b> (877) 267-2499 boschtools.com	\$500	64 lb.	15/3500	10 in.	24 <sup>3</sup> / <sub>8</sub> in.
<b>DeWalt</b> (800) 433-9258 dewalt.com	\$520	60 lb.	13/3650	10 in.	25 in.
<b>Ridgid TS2400</b> (800) 474-3443 ridgidwoodworking.com	\$497	76 lb.	15/4000	10 in.	25 <sup>1</sup> / <sub>4</sub> in.

\***LEGEND** Fences: not self-aligning (nsa) somewhat self-aligning (ssa) self-aligning (sa) Tilt adjust: crank (cr)

## The author grades the saws

Noise	Fence	Depth adjust	Tilt adjust	Miter gauge	Vibration	Guard	Special notes
97 db.	C (ssa)*	C	B (fs)*	C	C	B	Bogs slightly cutting 2x stock.
102 db.	F (nsa)*	F	F (cr)*	D	F	B	Price includes stand and extension wing.
97 db.	C (nsa)*	C	B (fs)*	D	C	B	Fence doesn't secure at edge of table.
94 db.	C (ssa)*	C	B (fs)*	D	C	B	Good safety switch.
98 db.	D (nsa)*	F	C (rp)*	D	F	B	Lock nut on tilt is hard to access.
99 db.	D (nsa)*	B	C (fs)*	A	B	A	Blade tilts to the right.
96.5 db	B (sa)*	D	C (rp)*	D	B	D	Bogs slightly cutting 2x stock.
97 db.	C (ssa)*	C	A (rp)*	D	C	D	Good safety switch, electric brake.
97 db.	C (ssa)*	C	A (rp)*	D	C	D	Good safety switch, electric brake.
98 db.	C (nsa)*	C	C (fs)*	C	C	F	Extruded table with extension wings.
97 db.	A (sa)*	A	B (fs)*	A	A	C	Soft-start motor, locking arbor for blade change.
97 db.	A (sa)*	A	B (fs)*	A	B	D	Rack-and-pinion fence adjustment.
98 db.	A (sa)*	B	A (rp)*	A	A	A+	Excellent on-board storage for all accessories.

free swinging (fs) rack and pinion (rp)



Powermatic 411



Bosch 4000



DeWalt



Ridgid TS2400

## Blade guards: protection or problem?

I know few carpenters who actually use their table saws with the guards attached. Most carpenters complain that the guards are difficult to remove for transportation, and besides, the guard has to be removed when the blade isn't cutting all the way through the board, such as when cutting rabbets or dados.

But blade guards can provide safety for errant fingers. In addition to the plastic shroud that covers the blade, spreaders or splitters in back of the blade can make ripping easier, especially with

boards that tend to close on the kerf or twist away from the fence. Also, the antikickback pawls greatly reduce the chance of getting punched in the gut by a supersonic slice of lumber.

But if you expect someone to use a guard on a table saw, the guard must be easy to remove and replace for transportation and storage. Storing a saw with the guard attached makes it tough to stack anything on top of the saw table; plus, the guard is likely to become damaged if not removed.



**Not convenient.** Bolts can attach a guard securely, but once the guard is removed for certain operations, a carpenter on a tight schedule isn't likely to take the time to reattach it.



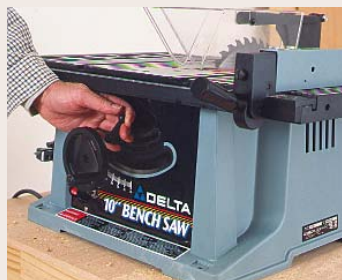
**Quick removal.** ProTech's guard is secured with a single wing nut at the rear of the saw where accessibility is not a problem.

The guards on all the saws I tested worked as they were supposed to. But every manufacturer seemed to have a different idea of the best way to attach the guard.

So the marks I assigned in the chart on pp. 66-67 reflect how easy and convenient it was to remove and replace the guard. Ironically, the guards that were the least convenient to remove can be found on the most expensive saws. For instance, to remove the spreader/guard on the Bosch, DeWalt or Makita saws, you have to remove the insert, tilt the blade and raise it all the way up, and

## Blade-depth and tilt adjustments

I change the depth of my sawblade frequently, so for me, the blade must move up and down quickly and easily. And as a finish carpenter, I'm always ripping bevels, which means I care about tilt adjustment as well. I judged each saw's depth mechanism by how easily it operates and also by how many complete crank revolutions are required to raise the blade to its maximum height. The fewer and easier the number of turns, the higher the grade on the chart. The number of crank turns ranges from the Ridgid and Delta Sidekick, which take 16 turns and 17 turns respectively, to the Hitachi, which requires 45 turns.



**Tortoise and hare.** Changing the blade angle with a crank, such as Grizzly's (photo right), is too slow and wrist-wrenching to be practical. Free-swinging tilt adjustment, such as Delta's (photo left), is the fastest, but Delta's release lever is hard to operate.



Portable table saws come with three different types of tilt-adjustment mechanisms. The worst of the three varieties is the old-fashioned crank on the right side of the saw base (photo right). The Grizzly is the only saw that still uses this type of system, and more than 65 turns are required to tilt the blade from 0° to 45°.

Most saws have a free-swinging tilt adjustment. With this system, a locking lever or knob is released to allow the blade to swing into any angle position. Free-swinging blade tilt is quickest when changing from 0° to 45°, but adjusting to an odd angle can be frustrating. The locking knobs and levers varied, and a few were difficult to access (photo left).

The latest evolution in tilt technology uses rack-and-pinion gears to adjust the blade angle (photos facing page). Like the free-swinging tilt adjustment, a locking knob or lever is released. Then the blade-raise crank is pushed in to engage the rack and pinion, or a dial on the outside of the raise crank is turned to dial in the blade angle. Mercifully, a single revolution changes the blade angle considerably, but sawdust in the gears can prevent the sawblade from returning to 0°. The Makita, Ridgid, Tradesman and Hitachi all sport this superior design, but the levers on the last two can be tough to reach with the blade at 45°.





**No fasteners here.** The guard on the Delta Sidekick slips into a slot in back of the blade (photo left), and a knob releases and secures the guard on the Ridgid saw (photo right).

then loosen one or more nuts or bolts (photo left, facing page). Nuts and bolts attach guards securely, but I doubt that most carpenters would go to such lengths for removal and replacement of a guard.

It's easier to remove and install the guards on most entry-level saws because they attach outside and behind the saw in an easily accessible area. On some models, such as the ProTech, removal is as easy as loosening a wing nut (photo right, facing page).

The two guard designs with the highest grades are the Ridgid and the Delta Sidekick (photos above). The Ridgid guard attaches easily with a single external knob at the rear of the saw. But the Delta Sidekick has the most ingenious guard, with an assembly that slides into a slot behind the blade, where it snaps into place. Slipping the blade wrench into a slot at the rear of the saw releases the spring that locks the guard in place.



**Rack and pinion is quick and easy.** The most evolved tilt adjustment uses a rack-and-pinion gear. Hitachi's blade-depth crank is pushed in to engage the gears, and the crank then becomes the tilt adjustment (photo left). Makita uses a dial on the outside of the depth crank (photo right), but unlike the Hitachi, Makita's locking lever is easily accessible at any angle.

## Saw stands: instant upgrade

Several of the saws I reviewed come with stands, most of which are included in the purchase price. But I wasn't happy with any of them. They are all a pain to assemble, and attaching a stand to a table saw makes the saw a lot less portable. Although most stands are solid and sturdy, they are just raised platforms. The one exception is the Bosch stand because it takes little assembly, folds up flat and pops right open. But it, too, acts just like a fancy set of sawhorses.

Several manufacturers, however, make aftermarket table-style stands that can turn a small portable saw into a powerhouse capable of fine cabinetry. Makita and Delta sell such stands for their saws. But Trojan (800-745-2120; trojantools.com) and Rousseau (800-635-3416; rousseauco.com) make stands that accommodate all entry-level saws, most midlevel saws and even the high-end DeWalt (photo right).

These stands come with large rip fences that are stable and highly accurate, and the extended tables allow rips up to 32 in. These stands fold easily for storage and transportation, and some even have built-in wheels for moving around the job site. These stands aren't cheap.

Rousseau's sells for \$229 (plus \$100 for a wheel kit), and Trojan's costs \$269. But they can give even an entry-level saw an instant upgrade.



**Aftermarket stands take table saws up a notch.** Folding table-saw stands such as the Rousseau accept most saws and fold flat for convenient storage.

## Which saws made the cut?

In the entry-level category, I'd go with the Delta Bench Saw or the Skil—good if you're looking for an inexpensive, lightweight saw for light-duty work around your home or for occasional job-site work. They're the smoothest running of this category, and both have decent fence systems that are easy to operate and fairly close to self-aligning.

Among midlevel saws, Makita's 10 in. was my favorite overall, although I wish the blade-depth adjustment were easier and the fence better. The Delta Sidekick also scored well, but the smaller blade size and the right-hand blade tilt knock it out of the running for me.

With high-end saws, I'm fascinated by their sleek, professional appeal and bewitched by their glass-smooth and accurate cutting. All three have well-engineered slide-out extension tables that make them versatile. My choice is the DeWalt, winning by just a kerf as the best designed of the bunch and the easiest to transport and carry, with the Ridgid and Bosch neck and neck for second place. By the way, I bought a 10-in. Makita and a Rousseau stand (sidebar above). □

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