

Choosing a Tablesaw

How to find the one that fits your needs

by Rich Preiss

I have pushed wood over a lot of tablesaws during my years as student, furnituremaker and teacher, and one thing I've learned is that there is no single "best" tablesaw. Nor do you need the finest machine money can buy to accomplish the highest level of workmanship. The goal in choosing a tablesaw should be to first decide what you really need for your work (this is not to be confused with what you merely want) then to select the most appropriate tool and use it to your maximum ability. A machine larger and more expensive than you need will, at best, wind up as inappropriate in your shop and could rob the resources necessary to purchase other needed equipment.

In support of this, I would like to relate a short tale. After graduating from school, I was faced with the furnituremakers' nightmare—I no longer had access to a shop. My landlord was doing some remodeling and had brought in an older-style 10-in. Sears tablesaw to help with the work. I was taken by the simple, rugged design that had enabled it to survive for so many years.

I decided to try making a run of small, decorative boxes completely on what had been, up to now, a rough-use contractors' saw. With the help of a sharp sawblade, I was able to resaw the boxes' 5-in.-wide boards with over/under cuts. I next devised a mini sliding-table jig for crosscutting, and ultimately machined delicate splined miters for the corners. By the end of the project my illusions of dependency on ever-fancier machine tools were shattered. True, if I'd had a better saw I would have used it, but the final solution wasn't in the machine, it was in me.

Types of tablesaws—As I see it, there are four categories of saws: the fully-enclosed stationary saw, the open-based contractors' saw, the specialty saw, and the benchtop saw, which is often "motorized" (direct drive) and frequently has only a ½-in.-dia. arbor. Stationary saws weigh in at upwards of 300 lb., contractors' saws (designed to be moved around a lot) might be 50 lb. to 100 lb. lighter, and benchtop saws can be hauled around easily by one person. Specialty saws, as we shall see, can be anything.

Though all saws are expected to do roughly the same tasks, their performance varies greatly depending on their construction, power, and features. Tablesaws rip, crosscut, resaw, mold, miter, rabbet and dado, and they are often called upon to cut many types of joints. Many saws have add-ons such as extension tables for handling full plywood sheets, extension rails and dust-collection gear. These accessories are standard on some saws and optional on others. This article won't attempt to evaluate accessories, but rather the basic tablesaw.

A series of boxes specifically describes and compares three very different machines—the Unisaw, Inca and Sears—that I've

been testing in my own shop. I'll talk briefly about specialty saws, and on p. 56 there's a chart listing the sorts of saws available from as many manufacturers and importers as I could find. The job of comparing each tablesaw head-to-head with its competition is not something I can attempt, mostly because everyone expects different things from machines. But this article should get you on the way to being able to pick and compare for yourself. To keep the chart reasonable in size, I've set the cut-off point at saws that will accept a 12-in.-dia. blade. It is common to run 10-in. blades on such saws, though some saw models have arbors larger than ¾ in. and won't take the usual blade.

Start by considering just what type of woodworker you are. Do you need a saw for rough work only, or is accuracy most important? Many professionals need a light-industrial tablesaw that will work all day, every day, often under adverse conditions of repetition and dust. Other shops may be able to get by with an open-base contractors' saw, which will saw a lot of 4/4 lumber satisfactorily, while still allowing for heavier jobs from time to time.

If you are a hobbyist, you don't need what the professional needs, and probably don't want to pay for it. By this I don't mean that a hobbyist's woodworking is necessarily inferior, in fact the opposite may well be true. But if you're an amateur, you're not under the same pressures of production as a professional. You can buy a lighter-duty saw entirely adequate for your needs and have money left over to invest in some decent sawblades.

When you begin shopping for a tablesaw, you should be familiar with its basic operation. The heart is a sawblade mounted to a rigid arbor rotating at a precise speed. The arbor might be the motor shaft itself, or power can be transferred from a separate motor by means of belts and pulleys, or even a flexible shaft, as in the Sears saw I tested (see p. 55). In general, better saws have more than one belt, and the shorter the belts are, the better. Once locked to the arbor, the blade should adjust vertically, and its angle to a flat table should be variable through 45°. Most machines today accomplish the adjustment by tilting the motor and arbor, while some older ones (and the Inca) have a tilting table.

A tablesaw requires an adjustable fence that can be locked parallel to the blade for ripping, and a means to direct a guide perpendicular to the blade for crosscutting and mitering. The whole system must be rigid, as free of vibration as possible and sturdy enough to be banged about by materials and mishaps alike.

Blade sizes and arbors—A saw will initially be rated by the diameter of its maximum sawblade, which bears directly on the depth of cut, both at 90° and at 45°. Be sure that the 45° depth of cut is sufficient to cut through the thickest stock you want to

Unisaw

The Delta Unisaw is probably the most popular tablesaw of all time. With its fully-enclosed base and predominance of cast-iron parts, It has been standard in small commercial, vocational and private shops since it was first introduced in 1939. The particular Unisaw I tested was 3-HP, 220-volt, single-phase model #34-756 with the standard "see thru" splitter-mounted blade guard. My saw was bought in 1982, just before the Rockwell name became Delta again, but is the same as the machines currently sold.

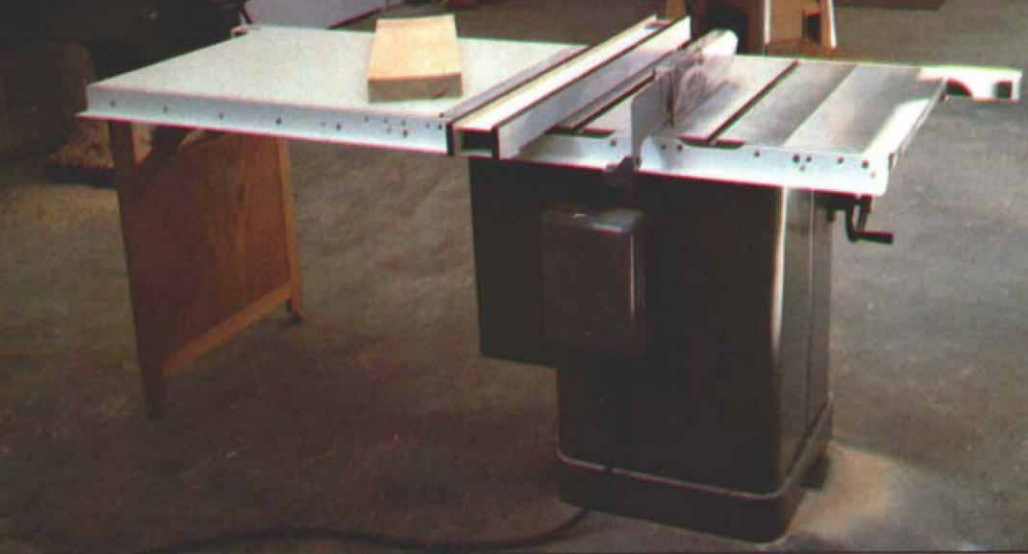
Uncrating and assembly were quick and easy. The two cast-iron table extensions had to be bolted on and aligned, and the one-piece splitter/anti-kickback safety shield had to be mounted and aligned. All that remained was to screw on the fence bars, mount the magnetic on/off switch, clean off the table and plug it in.

The construction of the Unisaw is mostly cast iron, with the base enclosure being folded heavy-gauge sheet steel. The table surfaces still show the swirl marks left by a Blanchard grinder, though they are good and flat, and showed no eroded edges top or bottom. The T-slot table grooves were cut clean and square, though the table did require minor adjustment to bring the grooves parallel with the blade.

The arbor on the Unisaw tilts to the right, and is securely supported by a cast-iron bracket and 2½-in. O.D. sealed ball bearings. Power is transferred to the arbor by three short V-belts, from a motor specially bracketed for this machine. The whole arrangement sits firmly on a four-part series of cast-iron brackets and trunnions. Arbor runout measured 0.0015 in., which is perfectly acceptable and half that of the Sears saw I tested.

I like the straightforward operation of the Unisaw. The control handles for raising and inclining the blade are 7-in.-dia. cast-iron wheels with threaded locking pins in the center. Both the tilt and elevation shafts function by means of a short, fixed worm gear section that must be kept clean for the system to work smoothly. It takes 31 turns of the wheel to reach 45°, and only 13 quick cranks from minimum to maximum elevation. Factory-set limit stops required no adjustment to work perfectly. The system is comfortable and functional, although if you overtighten the locking pins or crank hard past the fixed stops, the controls will lock up and can be difficult to free.

Changing the blade and other common maintenance procedures are very simple. With a little pressure on the far end, the metal throat plate pops right up to expose the arbor nut and also provide enough access for general lubrication of the ways. The throat plate is sturdy enough and ribbed so that it doesn't flex, and its height is adjustable with four Allen set screws. I wish they would provide better wrenches and an arbor lock button for changing



Fully-enclosed stationary saws, such as the Delta Unisaw shown here, are light-industrial machines that won't complain when asked to do hard work at a steady pace. The extension table, an optional accessory that most tablesaw manufacturers allow for, is great for handling plywood sheets. But if you don't work a lot of plywood, such a setup may be a mixed blessing, taking up more room in your shop than you have to spare.

blades, to make a good system even better.

Turning the machine on requires groping under the table for the control or actually stooping to locate the switch. Once running, however, performance is strong and vibration free, and other functions are convenient to control. The 3-HP motor feels like a middle-of-the-road selection for this machine. I think 1.5 HP would not be enough and 5 HP would be even more to my liking. When ripping 2-in.-thick oak and maple, the machine had to work, but it never bogged down or required an unusually slow feed rate. There are no particular provisions for dust collection, other than a covered 3-in. by 5-in. opening in the base ring of the saw. A motor cover, to cut down dramatically on dust, can be purchased from Delta or made up of plywood and fastened through the pre-drilled holes.

The rip fence and miter gauge that come standard with the Unisaw work adequately. It's difficult to say anything too good or too bad about either. The rip fence locks to the bars simultaneously with an eccentric cam on the near side and a J-shaped hook on the other. After a time, drift can become a problem. In the shop at school, we've broken at least two of the flimsy levers that

activate the J-hook. The tubular bars remind you when they need waxing by grabbing the fence when you release the lock or causing it to rack instead of glide smoothly between settings. The miter gauge has a single locking knob (no hold-down), is very sturdy and designed to support a bolt-on wooden fence extension. It has adjustable limit stops (with a screw and lock nut) at 45° and 90°, and a solid 18-in.-long guide bar that fits the T-slots in the table just right.

Basic safety features on this Unisaw are minimal and awkward. Alignment of the metal splitting plate never seems completely right, and it blocks your line of sight almost completely after the cut. The standard blade guard does not encourage even the creative user. The plastic blade cover jiggles around a lot and can't sustain itself perched up and out of the way if you want to measure for a cut. The built-in electrical motor brake, however, is a real plus that takes no time at all to get used to.

I wouldn't rush out to buy a 3-HP Unisaw at its "suggested list price" of \$1,871. But if you are more than a casual user and can deal your way down \$300 and use this savings for optional attachments, the Unisaw is a good buy. It's a durable, consistent, light-industrial machine with quality components that can be replaced readily, if need be. I believe it's worthwhile to upgrade to a "Uniguard." When equipped with one of the optional 50-in. fences, the Unisaw's realm increases greatly and, having come this far, it's worth it to convert a good machine into a great one.

Delta's Contractors' saw is also worth mention. This saw intends to be a light-weight version of the Unisaw, with open stand, 1½-HP motor, plastic control wheels, stamped-steel table extensions and a steel-tube trunnion. It has many of the Unisaw's features at about half the price. This type of saw would be good for somebody who didn't expect to push it too hard. Compare it with other models of about the same power and weight in the chart. A saw in this category might be just what a hobbyist needs. —R.P.



With 3 HP, the Unisaw effortlessly gobbles up 8/4 stock. Preiss replaced the standard fence with a Biesemeyer

Inca Major

The Inca Major is a specialty circular saw manufactured in Switzerland by the INCA Injecta Company. It's sold in this country through numerous regional distributors for about \$1,400 when fitted with the mortising attachment, base and standard 1 ½ HP motor. This design is most notable for its tilting table, pressure die-cast aluminum parts, and unflagging accuracy.

The Inca is an accurate, carefully made tool that is an enjoyable machine to own. It could not possibly function as the only tablesaw in any production woodshop, but that's not what this machine was designed to do. The Inca seems geared especially to the small cabinetmaker, instrument builder, or any hobbyist doing fine furniture woodworking. Its lightweight, compact design (the base is about as heavy as the saw itself) and versatile operation make it possible to take this saw to a jobsite for furniture-quality finishing work, or easily move it out of the way in a small workshop.

It doesn't take very long to assemble. The first thing you discover is that this is a tilting-table, and not a tilting-arbor saw. By fixing the arbor, a lot of the bulk and potential vibrations inherent in tilting-arbor saws are eliminated. By combining this concept with precision components, the Inca is able

to perform smoothly and accurately without great mass. The trade-off for this apparent windfall comes when mitering wide, long pieces, such as cabinet sides and tops. They want to fall off the table and can cause the miter gauge to bind and sometimes bow. It takes longer to set angles, and I have yet to comfortably adapt to working on an inclined surface.

Precision is evident throughout this machine, even including the base. The table, though small, is finished smooth and flat, and the closely-ribbed undersurface is also extremely clean. The pressure die-cast aluminum has a dark gray color throughout and appears very unlike the slightly harder surfaces of cast iron. Deep scratches tend to stand out as silver streaks. The miter gauge grooves are not T-slotted, though the fit of the guide bar is so exact it doesn't seem to matter. So, too, is the fit of the assorted throat plates that screw into perfect position in their opening. Optional extension tables lock securely and level via a sliding dovetail arrangement and can increase the work surface as much as you want. The base is very sturdy, thanks to a snug fit between its metal legs and particleboard sides. There is even a built-in dust chute that really helps channel dust and chips.

Though parts can quickly be mail ordered, I have found, in six years of use, maintenance on the Inca Major has been

The Inca, conservatively rated at 1 ½ HP, passed all the precision tests with ease, but this unusual machine has what many consider to be three main drawbacks: The arbor is non-standard size, a 10-in. blade won't fully retract beneath the table surface, and the table has to be tilted for angled cuts, as shown.

miter in one pass. If you decide that ripping 3-in.-thick boards is integral to your work, then a 10-in. saw will be the minimum size needed. In contrast, an 8-in. saw will average a 2¾-in. depth of cut. This won't preclude ripping thicker lumber—you can cut halfway through from one side, then flip the work over to finish the cut—but the saw will probably be underpowered if it has to do this job often. I have included a number of small-blade saws in the chart. I won't tell you never to buy such a saw—it might be just what you need—but I will tell you that in builders' and contractors' slang, any saw that draws less than 10 amps is considered a "throwaway."

The blade arbor should have at least a ⅝-in. diameter to minimize the chances of wobble and to accept most commonly available blades, and you'll probably want an arbor length that can take a ¾-in. stacked dado. Many foreign machines, such as the Inca, have a metric-scaled arbor and require special sawblades.

The nominal arbor size is only part of the story. Many ⅝-in. arbors are ⅝ in. clear through the bearings. The Inca, however is stepped up to about 30 mm (about 1¼ in.) through the bearings, making it a true heavy-duty saw despite its light weight and small size. If you need beef, this is the sort of thing to look for.

What about the motor?—As the cutting capacity increases, so too should the horsepower. I would always opt for the largest motor possible, with 1.5 HP being the minimum for any saw with an 8-in. blade capacity or larger. For a 10-in. saw, 3 HP is appropriate, and for a 12-in. machine, 5 HP or 7 HP will be required.

These figures may at first seem like overkill, but think about it. With less power you won't be able to make rip cuts in thick stock without severely straining the motor. If your current saw is underpowered, you know already that one way around burning

out the motor is to rip in a series of 1-in.-high increments, but it's nasty and frustrating work to pass a piece of wood over the saw three times when once should do the job.

Be aware of inflated peak horsepower ratings. Many motors can supply spurts of peak horsepower, but it's the continuous-load performance that will endure, especially under heavy daily use. One way to judge whether the rated horsepower of a motor is honest is to check the motor plate for the amperage that the motor draws—an honest, continuous 1.5 HP motor should draw about 14 amps at 115 volts, or half that at 230 volts. By extension, a 3-HP motor run at 230 volts should draw 14 or 15 amps.

A totally enclosed fan-cooled (TEFC) induction motor is the best. All-ball bearings and self-contained overload protections are not luxuries, but necessities for a healthy motor life. Don't assume that all motors are thermally protected or equipped with all-ball bearings. Check the motor plate carefully and ask your distributor to spell out these features.

Despite the recent introduction of small but powerful universal motors on many imported machines, I still favor the proven endurance and quieter operation of the induction motor.

Look carefully at the motor mount setup. Are the mounts accessible with a wrench and ratchet? Universal mounts, though arguably less rigid than integral housing mounts, are much more versatile. If your motor dies, integral mounts require you to replace the motor with a "factory only" replacement, at a "factory only" price. The same holds true for belt drive versus direct drive. Look for a multiple, short belt drive system for maximum performance, safety and maintenance flexibility.

Be sure that your electrical system can supply enough current. Low fluctuations in current can greatly reduce your motor's efficiency and shorten its life. Low voltage conditions can occur for

minimal. The arbor runs on two good-sized sealed ball bearings and is driven by a single V-belt and pulley arrangement. I feel my saw to be slightly underpowered at 1.5 HP, and could bolt on a larger 3,450-RPM motor with little difficulty. (There's an optional 2-HP motor.) Little lubrication is required as long as the tilting-table ways are kept clean. It has been a few years since my saw was new, but even so, when I measured for this review, arbor runout was still an almost non-existent 0.0005 in., one-third that of my Unisaw.

Like any machine, the Inca takes a little bit of getting used to. The table raises and lowers on vertical dovetail ways by means of a pivoting bracket, screw, and 3-in. hand-wheel. This is very slow, but accurate. The table locks function well, though the lever handles on my saw no longer fit as positively, and in some positions will conflict with other controls. Space under the table can get very close for big hands. When fitted with a 10-in. blade, there will always be at least ½ in. of blade projecting above the table, so I use 8-in. blades on the machine almost all of the time. Cutting 2-in.-thick hardwoods in any direction requires a really slow feed rate, but the saw doesn't hesitate and the belt has never slipped.

I like the accessories for this machine very much and rely on their accuracy, especially for small work. The rip fence only

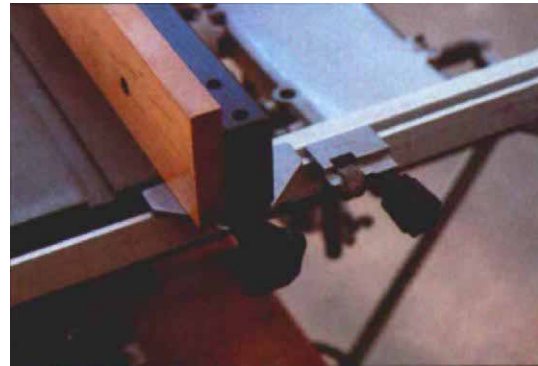
locks on one end, so I have had to add a maple extension to be able to guarantee rigidity. When used in conjunction with the vernier adjustment device, it's possible to make micro-fine adjustments or even find your way back to a previous exact position.

The miter gauge can be purchased with a choice of optional aluminum extensions in various lengths, but comes standard with a 16-in. fence and a locking tailstop. Missing are any pre-set limits, even at 45° and 90°. The long, 22-in. bar really comes in handy and offsets some of the short crosscutting distance in front of the blade. Most other accessories, especially the tenoning jig, are equally well considered and extremely easy to use. I have also tried Inca's optional sliding table, which is well made, though I consider such an addition somewhat contrary to the machine's compact nature.

The arbor size is 20 mm, about ¾ in. larger than the ½-in. arbors most of us are used to. If you buy an Inca, your old sawblades won't be compatible with it unless you have them bored out. Inca does sell a wide range of blades at reasonable prices, though, carbide as well as steel.

The Inca's optional built-in mortising table is at the right side of the saw. If you don't have a horizontal mortiser, it will do the job, but I don't find that I use mine very much—it's too slow.

I have found that the safety devices on



Precisely machined parts and fine adjustments remind the author of Swiss watches.

the Inca get left in place more than on other tablesaws. Because the blade always remains in one position and because the splitter is independent of the saw guard, it seems to stay in line very well. The blade guard is suspended from a mostly unobtrusive and retractable U-shaped bar. Though not transparent (it is made of aluminum) the guard can be positioned to hover over any thickness of cut, thereby leaving the line of sight open at all times.

Like Swiss watches and German cars, the Inca may seem relatively costly for its size, but in the long run I think it returns every bit of what you pay for it. —R.P.

a variety of reasons—one common mistake is to run a saw at the end of a long extension cord, another is to have two heavy machines running on the same circuit. The total amperage of machines in operation at any one time should not exceed 80% of your system's maximum load capacity.

No matter what type of motor you run, and on what type of current, without a good magnetic on/off control, the risk still exists for damaging your motor. A magnetic control (*FWW* #24, p. 59, and *FWW on Machines*) will automatically disconnect if the fluctuation approaches a significant danger level. Like any good insurance, it's worth the additional cost. All the stationary tools in my shop are equipped with magnetic controls.

Rip fence—A woodworker who expects to handle 4x8 panels regularly needs a minimum rip capacity of 24 in. If the lowest edge of the rip fence does not kiss the table surface and you need to cut Formica or thin stock, be sure to allow for the thickness of an auxiliary fence plate and refigure the maximum rip. As mentioned earlier, 50-in. extension bars (and longer) are readily available for many 10-in. saws and can be simply bolted on at any time. But don't let your "wish list" run away with you. Though sliding extension tables and extended rip bars are nice options, they take up a lot of shop room—a smaller capacity tablesaw, in combination with a hand-held circular saw and a good straight-edge, might be your best bet. For professional use or daily cutting, upright panel saws offer another alternative to purchasing oversized attachments solely for sizing 4x8s.

A precise, hassle-free rip fence is a must. If the fence cannot be brought smoothly into position, lock itself automatically square, and hold that setting without flex or drift, then it will drive you crazy every time you use it. A fence should move with-

out jerking or racking and reasonable amounts of chips and dust shouldn't cause it to bind. The lower edge should ride close and parallel to the table surface. A fence that locks on both the in-board and outboard ends, whether simultaneously with a single lever or with a screw lock, will be less apt to deviate under feed pressure. Whatever type of mechanism is used, the fence should be easily adjustable for both locking pressure and parallel alignment. For two years I have been working with a Biesemeyer fence on my Unisaw, and despite the fact that it has no lock on the far end, it is mounted to a bracket that is rigid enough and triangulated over a large enough area that it overcomes the need for a second lock. The same is true for the Delta Unifence.

On the tablesaw, I prefer a full-length fence to the European-style half fence for the support it provides larger work after the cut. If the rip fence happens not to be 100% in alignment, or your work is pulling slightly away, it's an advantage to have the full fence to help keep the cut going straight. My Inca came with a short fence that locks square and feels sturdy, yet even so I have added a full-length maple extension that allows me to clamp the fence outboard for production work.

Miter gauge—The length of table in front of the sawblade will determine the maximum width of stock that can be crosscut with the miter gauge. This capacity is somewhat variable, however, depending on the length of the miter gauge bar, and, more important, whether the table groove is T-slot or rectangular. Though marginally more awkward to insert and remove, a T-slot will enable you to draw the miter gauge ahead and off the table surface, thereby extending the range for crosscuts beyond mere table limits. It is common practice to do this with rectangular-bar gauges as well, but it really isn't safe—better to insert the gauge

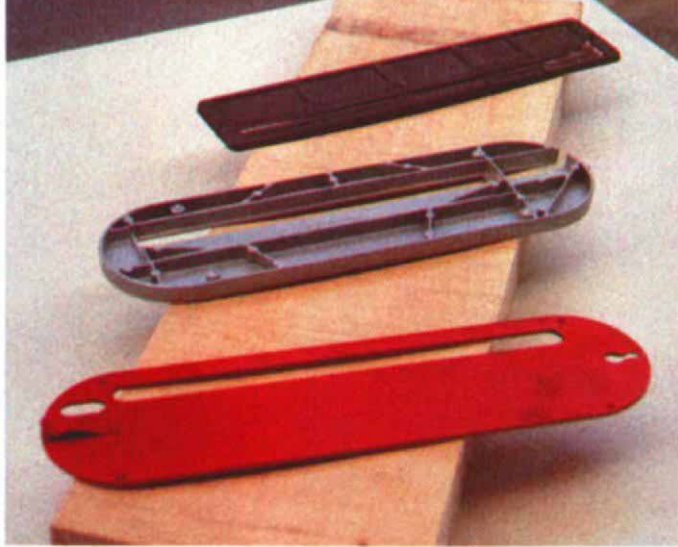


Table inserts give a clue to overall saw quality. The Sears insert (front) is unribbed and flexes under load. The Unisaw's (center), a drop-in type, is well ribbed and has height-adjustment screws. The Inca's (rear) is stiff, and screws rigidly to the table.

facing backwards, so that the leading edge of the work can bear against it to start the cut. If necessary, you can then stop the saw in the middle of the cut and transfer the gauge to its normal position to finish up. Shorter distances in front of the blade can also be overcome by constructing a sliding-table jig.

The miter gauge itself needs to be constructed of sturdy materials to endure typical mishaps such as dropping. This is especially true for the locking mechanism and the pre-set angle stops. Small plastic handles and parts are insufficient, as are stamped metal guide bars, and bodies whose faces are too thin to sustain shopmade extensions. A built-in hold-down is handy if the gauge itself is up to par. My own gauges have shopmade wooden fence extensions with movable tail stops.

Heavy metal—The best stationary machines I've seen are constructed primarily of cast iron. A well-designed casting, with careful ribbing that has been adequately destressed and accurately machined, provides guaranteed trueness and long life. The inherent mass endows the tool with vibration dampening and maximum stability. The more good cast-iron components that are incorporated into a saw, right on down to control wheels, fence parts, etc., the more likely it will interest me. Cast-iron trunnions and arbor-support housing with rack-and-worm-gear elevation and tilting mechanisms score well with me. Look out for lightweight sheet metal at any stress points, especially under the table in the arbor-tilting and height mechanisms.

Check with a straightedge that the table and wings are flat and true. Reputable manufacturers allow a delay between casting and final machining. This "destressing" can take a year before internal stresses neutralize. If a rough casting doesn't get sufficient time in the "bone yard," distortions such as twists in what were intended to be flat surfaces can appear later. As a consumer, it's impossible to know the history of a machine's components until it is too late—you have to trust the manufacturer's reputation.

Die-cast aluminum has become a more common and competitive material, making possible lightweight machines that are also rustproof. Although tables require a denser ribbing system to ensure flatness, they are still a lot lighter than cast iron. The traditional mass value of cast iron has been seemingly offset by sound overall designs that minimize vibration in the first place, and by the sort of advances in processing and casting aluminum that now allow it to be used for such highly stressed (and precise) parts as automobile engine blocks.

Safety—All exposed moving parts should be guarded. The blade guard should be as rigid and unobtrusive as possible, so as to interfere minimally with the work and provide maximum visibility. The blade guard, splitter, and anti-kickback assembly should be easy to remove and install so as to encourage use—a guard is no good at all if you've removed it to get it out of the way. Unfortunately, no saw combines all these criteria into one system.

Most guards are variations of two basic ideas: One mounts behind the blade—either to the splitter or behind the table—then pivots up and down. This type of guard must be removed for certain molding and ripping cuts where the fence must be very close to the blade; then it must be reinstalled before going on to other work. The temptation is not to reinstall it. The other type of guard pivots on a long arm mounted off to the side. It takes only a moment to position it over the blade, but this type of guard sometimes does not have anti-kickback protection.

Controls, especially the "off" button, need to be readily accessible and housed in such a way as to prevent accidental start-up. Switches that have different height on/off buttons, or isolate the "on" switch with a specific enclosure, accomplish this very well. Lockable controls, such as on the Sears saws, or wall-mounted disconnects are the sure way to child-proof your machines. As further operator protection, many new machines come standard with a motor brake—either automatic or activated by foot pressure—to stop a free-spinning blade quickly. You can add a motor brake to an existing 3 phase tablesaw to accomplish the same thing, though the \$200 cost is high for the small shop. Blade height and tilt controls should have enough clearance around them to leave the skin on your knuckles intact and should lock firmly.

Before purchasing a particular tablesaw, take careful account of available shop area—you have to have enough room so you won't be bumping into or tripping over one machine while working on another. Optimum use of the stationary machine would have it fixed in place and surrounded by carefully positioned outfeed and side tables. For extra versatility, an old hospital gurney or rolling bed table with a plywood top makes an excellent, adjustable-height support table.

Specialty saws—There are some unusual tablesaws worth considering. For example, Delta makes a 10-in. Scoring Saw, actually a 12-in.-capacity saw with an extra arbor in front of the main blade. The front arbor carries a small scoring blade that pre-kerfs the surface of the stock to eliminate chipping on hard-to-cut panels such as plastics and brittle veneers.

The Vega tablesaw features a rolling table to the left of the blade. This is not to be confused with the extension tables for handling plywood. In the Vega saw the entire table surface to the left of the blade moves. A crosscut fence attached to the rolling table holds the work, then the table is pushed past the blade. All ripping is done to the right of the blade, on the stationary part of the table. Ulmia makes a true sliding-table saw as well.

I'd compare the Erika and the Henniker to upside-down radial-arm saws. Unwieldy work is simply clamped to the table, then the motor and blade are pulled through to make the cut.

I don't have enough work experience with any of these machines to say much about them, although I can imagine that they would be very attractive for certain jobs. I would be interested to hear from readers about the subject.

The chart—The chart is not the dizzying, spec-heavy compilation I first set up. In the process of listing every dimension and feature of more than 50 tablesaws, it became apparent that saws

Sears

If you have a tight budget, then you'll need to look at the Sears Craftsman 10-in. table-saws, which come in several versions. The one that I tested was the 10-in. Deluxe Flex Drive tilting-arbor saw, priced in the catalog at \$590. It is not as ruggedly constructed as many of the older model Craftsman saws that I have tried, but it does aspire to the same concept of functional simplicity at an affordable price. This saw should not be purchased for any heavy-duty work, as it is in no way a light-industrial machine. With some modification, however, this Craftsman saw could be elevated to an operating level sufficient to satisfy most sawing chores encountered in the home workshop.

The cast-iron tables are good and flat, amply large, and hefty. As on many contractors' saws, the extension wings are cast in an open grid, which helps to save on weight. Slots for the miter gauge are squarely milled, and there is even a special plastic spot set into the table to mark the exact location of the saw cut (but the kerf width is likely to be different with each blade change, so the gauge line won't always be accurate). Two cleverly concealed Alien screws, for easy adjustment of the tilt-angle stops, are also set into the table. Unfortunately, the throat plate is awkward to remove and will deflect under pressure.

The most unusual component of this machine is the flex shaft drive. Because there are no exposed belts or pulleys, the system seems very safe. In practical terms, however, the power transmission is insufficient, especially when the saw comes with only a 1 $\frac{1}{8}$ -HP motor. (Specs say the motor will develop a peak of 2 $\frac{1}{2}$ HP). When the arbor is tilted to 45°, the resulting compound bend in the shaft causes the blade to jerk when started and stopped, and the shaft itself heats up considerably. Whether caused by inadequate power or design problems with the drive, the net result is that feed rates, even through 1-in. hardwoods, are distinctly slow, and I was able to virtually stop the rotation with any 8/4 material.

Time and again I was bugged by a missing sense of positive control while working with this Craftsman saw. The open base is bolted to four legs that seemed to want to



A study in patience: The Sears flexible shaft drive tablesaw will rip 8/4 stock, but at a pace that tends to put the operator to sleep. Preiss prefers the older, belt-drive models.

twist and rack no matter how much I tried to stabilize the saw. The blade-raising and tilting controls feel very mushy, and the arbor-lock handle wants to tighten forever. It's tucked *right* up under the table and the handle has to be constantly repositioned on the screw head to get the job accomplished (and if you don't set the lock, the blade creeps). When resetting the blade angle, it tends to lock in a position slightly different than where you set the crank, which can get frustrating after a very short while. The 5-in. plastic control wheels for the arbor settings both require 45 turns to go from lock to lock, enough to try anyone's patience. The arbor runout on the machine I tested registered at a loose 0.003 in.

I like the miter gauge design very much, though the rip fence seems neither sturdy enough nor rigid enough to guarantee continued reliable performance. The miter gauge has a large, comfortable handle with a quick-action hold-down that makes quick and accurate crosscuts a breeze. However, its pre-set stops are controlled by a spring-loaded pin that is not adjustable. The rip fence is supposed to lock on both ends when you tighten the single control lever, but it requires perfectly aligned support bars if it is to do so along its entire length, and it's difficult to accomplish this. Also, there is enough play in the fence so that if the bars are not perfect and there happens to be some dirt on the table, the fence will rack its way from one setting to another. Despite being able to see the Metric/English scale easily, I could not rely on it for consistent or accurate settings.

The safety features are very similar to those of the Unisaw, with a few small differences. Unlike the Delta, the see-thru blade guard can be pivoted up and out of the way, although it balances very precariously and tends to crash down at inopportune moments. Aligning the splitter takes some doing, and even after you get it right, it flexes out of position when the saw is tilted because it is forced to support the

angled weight of the blade guard.

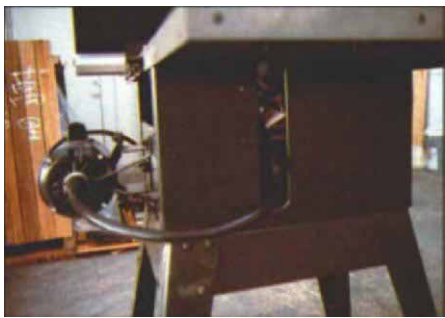
The on/off switch is easy to operate and is located perfectly, right up near the table. It is a simple switch without magnetic protection, but it does have one nice feature that might be a real asset to some woodworkers—there's a built-in key for child-proofing. Dust collection is not accounted for at all, though a bag or sheet metal chute set under the base would probably work.

The Craftsman Flex Drive tablesaw appears to have all the capacities associated with any 10-in. machine, without the necessary power or beef to back it up. By upgrading to a larger motor, or even adding an aftermarket rip fence, it might be possible to substantially increase this machine's performance, though it could add as much as \$350 to the cost. Before I purchased this machine new, I would look around for a used, older style Craftsman—the older the better—with a belt and pulley drive. Many of these saws appear able to last forever. In a friend's home shop, I checked out a Craftsman 10-in. saw that had been purchased by his grandfather and had been used in family workshops for three generations. The basic design is similar to today's models, but part for part everything has more meat, is cast iron instead of aluminum or plastic, and, above all, all the original parts are still functioning. The fence never locks parallel, I was told, but that's not hard to explain after so many years of service.

I also visited an architectural model shop that employs both a Craftsman belt-driven saw and one of the newer 9-in. "motorized" saws. Everyone I spoke with preferred the 9-in. saw for its quieter direct drive and more manageable size. It retails for \$290.

There's a saying that people on a low budget usually have to buy everything twice. Of course, you can get a Craftsman saw on credit, and you don't have to shell out a thousand dollars for one tool. But for twice the money you can get lots more than twice the saw.

—R.P.



Preiss feels that the Sears shaft drive is the saw's Achilles Heel—it gets uncomfortably hot to touch and if the blade is tilted, the saw starts and stops with a jerk.

Manufacturer/ Distributor		Andreou	Black & Decker	Bratton	Delta	Erika	Foley- Belsaw	General	Grizzly	Henniker	Hitachi
Number of models		6	6	2	6	1	1	1	2	1	1
Country of origin		Taiwan	U.S.A.	Taiwan	U.S.A.	Germany	U.S.A.	Canada	Taiwan	U.S.A.	Japan
Blade diameter	8		●								
	9				●						
	10	●	●	●	●	11	●	●	●		
	12	●		●	●					●	●
Weight in pounds	Benchtop		●		●	●					
	100+		●		●	●					
	200+	●			●				●	●	
	300+	●			●		●				●
	400+	●		●	●			●	●		
Continuous horsepower (estimated according to amperage)	1 HP (+ or -)		●		●						
	1.5 HP				●		●	●	●		●
	2 HP	●			●	●				●	●
	3 HP	●		●	●			●	●	●	●
	5 HP +	●		●	●			●			
Tilt table											
Rolling table											
Traveling arbor						●				●	
Price range— rounded off		\$325– \$1400	\$150– \$525	\$900– \$3000	\$150– \$3000	\$975– \$1125	\$700– \$1000	\$1200– \$1400	\$325– \$800	\$2000– \$2500	\$1850– \$2150

with similar power and weight were similar in most other respects as well. As I compared a long string of numbers about one saw with a long string of numbers about another, I realized how little such information really meant. For example, once past a certain weight, almost all trunnions, tables and wings are cast iron, and that's all a chart can tell you, not the quality. Even weight can be deceptive: one casting might outweigh another one but it could warp, have an ugly surface and even be flawed with air bubbles and voids. You have to look for yourself. I check for thin spots and for cracks, and I'm suspicious of any castings with heavy, possibly fault-concealing, coats of paint. Yet my impressions are subjective, and I admit to being slightly spoiled by having had lots of work time on machines of excellent quality. The guy standing next to me might feel happy with a machine I wouldn't let into my shop.

Prices are somewhat deceptive as well, so I deliberately made them approximate. Suggested retail isn't meaningful in the first place, and you can get all the better saws with a variety of options that will swing the price many hundreds of dollars. Consider shipping costs and other factors that may influence price. Some manufacturers give a trade-in allowance, for example. Ask.

The best advice I can give is to make up your mind about what you need, then write for brochures. If possible, visit a showroom—read the motor plate and work the fence and the controls, try all the adjustments, push on the throat plate. Better yet, find somebody in your neighborhood who owns the machine and get

an evaluation of what it's really like. There's nothing like living with a saw for a while to show up its pros and cons. But keep in mind that owner loyalty can have its blind spots.

The tests—I'm not intending the tests to be an endorsement of any particular brand of tablesaw, but rather a sampling of what you can expect from a saw in the various categories. I know people, for example, who prefer Powermatic to the Unisaw, but when you get into this class of tablesaw, I don't think there are really any differences worth arguing about seriously.

For some woodworkers, even the range of saws described here won't be enough. I know of a custom-door and window maker who regularly has to rip 8/4 oak, and a lot of it. He ended up with a used Beech tablesaw—18-in. blade capacity, 5-HP, 3-PH motor (direct drive, no belts), and an arbor the size of your arm. For him, it's just the right saw. If you think you could use a piece of equipment in this category, just be sure your shop floor will be able to support its weight.

Conversely, lots of people build furniture with a Sears saw and swear by it. In the long run, what you need from your tablesaw and what you expect of yourself are the two main parts of the woodworking equation. When these factors are in pleasant balance, all is well. □

Rich Preiss supervises the architectural woodworking shop at the University of North Carolina at Charlotte.

Inca	Jet	Makita	Davis & Wells	Power-matic	Sears	Ulmia	Vega	Wilke	AMT	Skil	Fine Tool Shops
1	5	1	1	4	6	3	1	1	4	1	3
Switzerland	Taiwan	Japan	U.S.A.	U.S.A.	U.S.A.	Germany	U.S.A.	Taiwan	U.S.A.	U.S.A.	Taiwan
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\$1100- \$1600	\$475- \$2500	\$325	\$3000- \$3400	\$1700- \$3500	\$300- \$700	\$3350- \$5950	\$2425- \$2700	\$300- \$450	\$50- \$125	\$184	\$190- \$1100

Sources of supply

American Machine & Tool, Fourth and Spring Sts., Royersford, PA 19468, (215) 948-0400.

Andreou Industries, 22-69 23rd St., Astoria, NY 11105, (718) 278-9528.

Black & Decker U.S. Inc., 626 Hanover Pike, Hampstead, MD 21074, (301) 239-5122.

Grizzly Imports, Box 2069, Bellingham, WA 98227 (206) 647-0801.

Davis & Wells: PAL Industries, 11090 S. Alameda St., Lynwood, CA 90262, (213) 636-0621.

Delta International Machinery, 246 Alpha Drive, Pittsburgh, PA 15238, (412) 963-2400, (800) 438-2486, (800) 438-2487 (PA).

Erika: MaFell North America, Box 363, Lockport, NY 14094, (716) 434-5574.

Fine Tool Shops, Inc., 20 Backus Ave., Box 1262, Danbury, CT 06810, (203) 797-0772, (800) 243-1037.

Foley-Belsaw, 6301 Equitable Rd., Kansas City, MO 64120, (816) 483-4200, (800) 468-4449, (800) 892-8789 (MO).

General: J. Philip Humfrey Ltd., 3241 Kennedy Rd., Unit 7, Scarborough, Ontario, Canada M1V 2J9, (416) 293-8624, (800) 387-9789.

Bratton Machinery, 1015 Commercial St., Box 20408, Tallahassee, FL 32316, (904) 222-4842, (800) 874-8160, (800) 342-2641 (FL).

Henniker: The Versatile Saw Corp., Box 716, Henniker, NH 03242, (603) 428-3258.

Hitachi Power Tools USA Ltd., 7490 Lampson Ave, Garden Grove, CA 92641, (714) 891-5330.

Inca: Garrett Wade Co., 161 Avenue of the Americas, New York, NY 10013, (212) 807-1155.

Jet Equipment and Tools, Box 1477, Tacoma, WA 98401, (206) 572-5000.

Makita USA Inc., 12590 E. Alondra Blvd., Cerritos, CA 90701, (213) 926-8775.

Powermatic Corporation, McMinnville, TN 37110, (800) 821-2750.

Sears Roebuck and Co., Michael Mangan, Dept. 703, 40th Floor, Sears Tower, Chicago, IL 60684.

Skil Corporation, 4801 W. Peterson, Chicago, IL 60646.

Ulmia, Mahogany Masterpieces, Suncook, NH 03275, (603) 736-8227.

Vega Enterprises Inc., Box 300 B, Rt. 3, Decatur, IL 62526, (217) 963-2232.

Wilke Machinery Co./Bridgewood, 120 Derry Ct., York, PA 17402, (717) 846-2800.