Block Planes

These light, versatile tools vary in price and design

by Mario Rodriguez

Stanley No. 9½

Lie-Nielsen block plane

ECE Pocket plane

Record No. 60½

RaliSwiss

Lie-Nielsen skew block plane

Bristol Design Norris-style plane

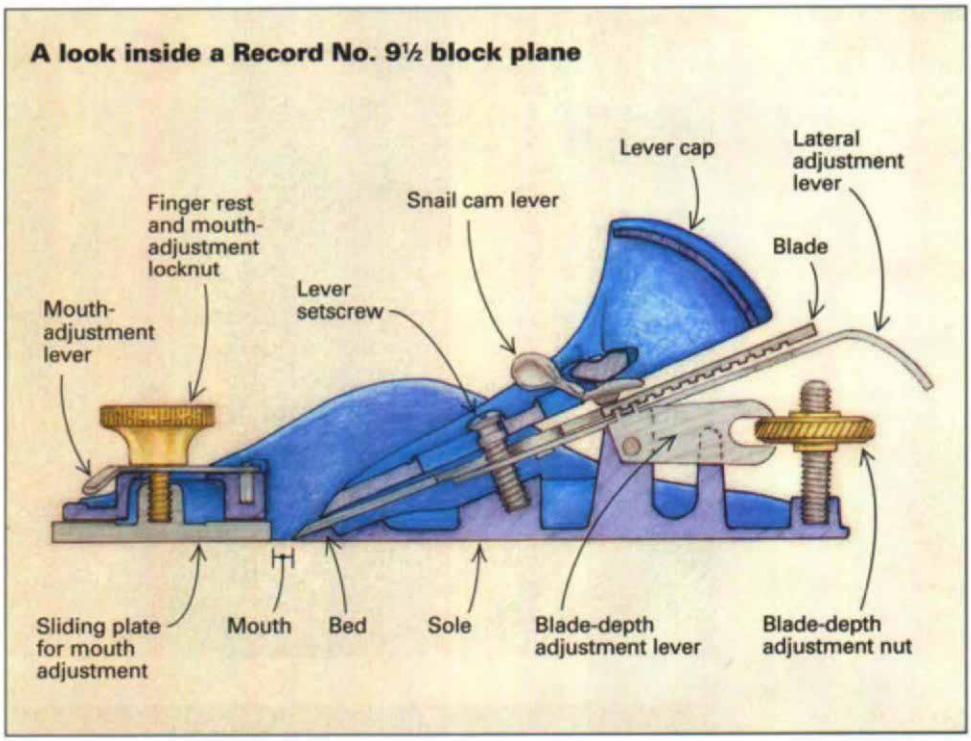
I have dozens of specially planes at my bench, but more often than not, I reach for a block plane. It's small enough for one-handed fitting and finishing tasks like trimming veneer or chamfering an edge. A block plane is compact enough to fit into a drawer opening to trim runners and light and handy enough for repetitive jobs like shaping pegs and small spindles. I choose the block plane whenever I need a delicate and responsive tool that will deliver a clean, tearout-free cut every time (see the photo on the facing page).

Until about 12 years ago, a woodworker buying a new block plane didn't have many choices. Today, there is an expanding selection: the standard No. 9½ plane, high-tech planes with disposable blades, and fancy retro designs made of bronze and ebony. Prices range from $35 to $235. With such an array of choices, it's natural to wonder how they compare.

To find out, I gathered a selection of block planes and kept them around the shop for a few months. I used them daily and encouraged my students to do likewise. Besides using them for the usual day-to-day tasks, we put them to work trimming

Photos: Aimé Fraser

Block planes handle difficult grain. *This bricklaid arch presents end grain and long grain and everything in between. For more control, use a two-handed grip, and skew the blade as it cuts.*



veneered panels, planing down solid edging on plywood shelves, shooting seams on book-matched veneer, tapering slender spindles, chamfering edges and planing the outside curve of a bricklaid pine arch.

Bevel side up and compact design

A block plane is small enough to hold in one hand. The blade is set into the body of the plane with the bevel side up; it has no chipbreaker. The blade is bedded at 20° or less, and the blade and lever cap are incorporated into a comfortable grip. With the bevel up, the cutting angle is 45° (the bedding angle plus the 25° bevel), which is the same as a standard bench plane.

A standard block plane has no cutting-angle advantage over a bench plane in difficult grain situations like end grain or burl. I know plenty of experienced woodworkers who prefer to use a No. 4 or a No. 5 smoothing plane when working end grain. They say that a two-handed grip is essential to control and that the greater weight and momentum of the big plane is important to a clean cut. But there are plenty of times when a full-sized plane and a two-handed grip are impractical.

Classic block plane: the No. 9½

When you think of a block plane, the No. 9½ is probably what comes to mind (see the drawing above). It's the model you fumbled with in high school shop class. Originally manufactured by Stanley, this pattern is now made by several companies and can be purchased from almost any tool dealer, hardware store or mail-order house. Once you follow the simple tuning steps on p. 39, these block planes can take on just about any job.

Stanley No. 9½—This version is made by Stanley in England. It's a solid plane with heavy castings and a good finish. The retail price is about $45. The blade-depth adjustment is direct action by means of a knurled knob. A cast-metal wedge supports the blade, giving the plane some weight. A locknut and lever allow adjustments to the mouth. I had a little trouble making quick blade adjustments and keeping the blade's edge perfectly parallel to the sole (see the top photo on p. 38).

Record No. 9½—This plane is lighter than the Stanley 9½ and has a different blade-depth adjustment but is otherwise similar, including the price. The lever action of the blade-depth adjustment often comes from the factory a little sloppy, but it's easy to fix by following the tune-up instructions. The lateral adjustment is not as smooth as it is on the Stanley. But the control lever isn't in the way, so it's less likely to get bumped.

Footprint No. 9½ and 220B—The No. 9½ is an almost identical copy of the Record No. 9½, and the No. 220B is similar. The biggest difference is in the finish. The Footprint planes we used were rough. I got both planes to work well but not before spending a lot of time cleaning, filing and tuning them.

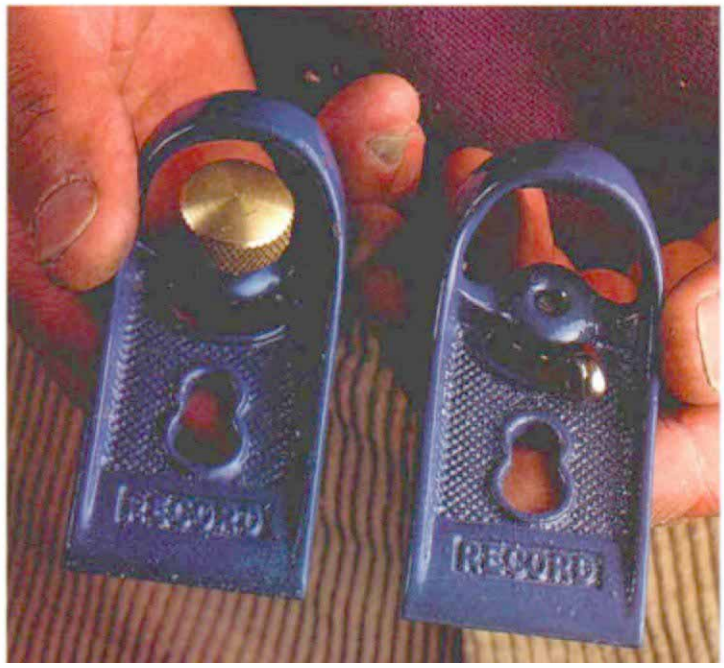
The mouth of the No. 220B is fixed, which limits its versatility, but it does reduce the price. The sole of the 220B is about ¾ in. longer than the others. It has a wooden knob like the ones found on bench planes. The No. 9½ lists for $54.50 and the No. 220B for $4150.

Lie-Nielsen standard—This cast-bronze plane is a copy of the Stanley No. 102. It's similar to the No. 9½, but smaller. There is

Drawing: Christopher Clapp

The Stanley method of lateral blade adjustment—The blade angle is adjusted by pushing a sniveling carriage from side to side. The brass knob at the rear of the plane is the blade-depth adjuster.

On a Lie-Nielsen block plane, the lever cap is locked in place by tightening a large knurled-bronze nut.



Record No. 60½ lever cap is awkward *(left). The cap locks in place by tightening a partially recessed knurled knob. Older Record models (right), and Stanley planes, use the simpler and more common snail cam lever.*

no mechanism for lateral blade adjustment. You can make small corrections in blade position by loosening the lever cap and adjusting the blade by hand. But the blade fits into the plane body snugly, without a lot of extra room. This means you must take some care in keeping the blade square when you sharpen it. Unlike the Record, Stanley and Footprint planes, the Lie-Nielsen does not have an adjustable mouth. Still, it makes a fine cut. The thick blade adjusts precisely by a threaded adjuster tucked beneath the blade (see the center photo). This is my favorite block plane. Its small size makes it a pleasure to use in a variety of situations, and it always delivers a fine, smooth cut. It sells for about $75.

Low-angle planes

Low-angle planes are designed to cut end grain, and they are best used on plywood and man-made materials.

Stanley No. 60½—The low-angle version of the No. 9½ has the blade bedded at 12°. Though it has the same overall length, the sole is a little narrower (1¾ in. as opposed to 2 in.). I generally take this plane on cabinet installations because of its solid feel and versatility. The price is about $44.

Record No. 60½—One of the most obvious differences between this plane and the Stanley version is a tedious screw adjustment for the lever cap (see the bottom photo). It's tucked under the rounded portion of the lever cap and is difficult to use. Older versions of this plane have the snail cam lever.

Lie-Nielsen low-angle—This plane is identical to the Lie-Nielsen described previously, except the blade is bedded at 12°. It costs about $75.

Norris-style planes

Norris-style planes are characterized by massive bronze or cast-iron bodies and dense hardwood infill that supports the blade along its length and dampens vibration. Each of the original Norris planes (made in England between 1860 and World War II) was assembled by a single craftsman. They are some of the finest planes ever made. In the old days, a plane cost a cabinetmaker two weeks' wages.

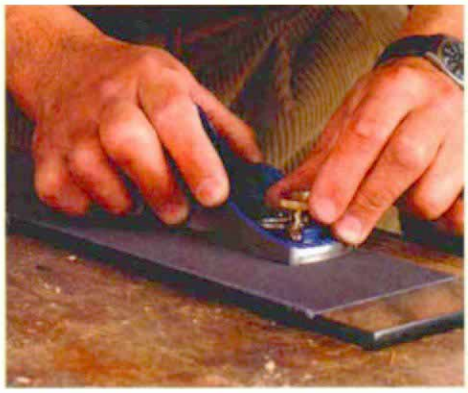
Today, true Norris planes are difficult to find at any price, but there are a number of small companies that produce something very similar. These planes are not your

Block plane tune-up

Follow the steps below to tune a Record No. 9½ or No. 60½ block plane. This process easily can be modified to suit other makes and styles of planes.

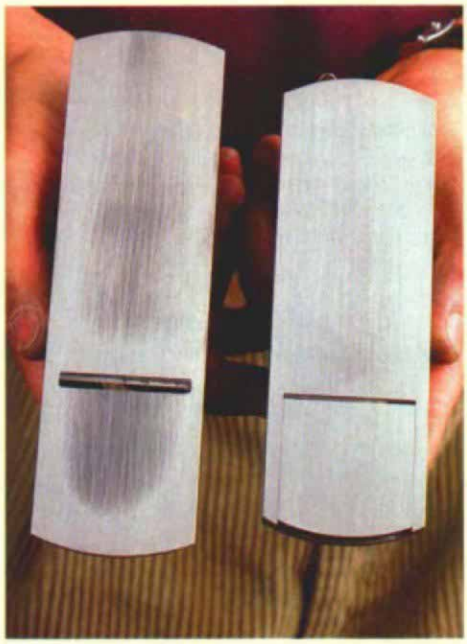
1. Flatten the sole: It's tedious to flatten the sole of a plane, but the payoff is a smoother, more accurate response to blade and mouth adjustments.

I use a piece of ½-in. plate glass with



coarse emery cloth glued to both sides as my lapping surface, as shown in the photo above. Putting emery cloth on the bottom of the glass keeps it from slipping. I flatten the sole with the blade locked in place but retracted so the plane is under the same tension as it will be in use.

As I run the plane back and forth over



the emery cloth, I periodically check the scratch patterns on the sole (see the photo above). When the pattern is uniform, the sole is flat and true.

I replace the coarse cloth with fine emery cloth and continue working the sole. I progress from emery cloth to 320-grit wet-or-dry sandpaper when the scratches are uniform. Then I move to 400-grit and finally 600-grit. Each change of grit leaves a brighter, slicker sole.

2. File the blade bed: On a block plane, the stability of the blade depends on solid contact between blade and bed. Any

burrs or gobs of paint on the contact surface will cause the blade to vibrate and chatter. I smooth the bed by filing as shown in the photo above.

3. File the lever cap: I check the bottom of the lever cap for burrs or for a rough paint job. I file the cap to remove anything that might prevent a tight fit against the blade.

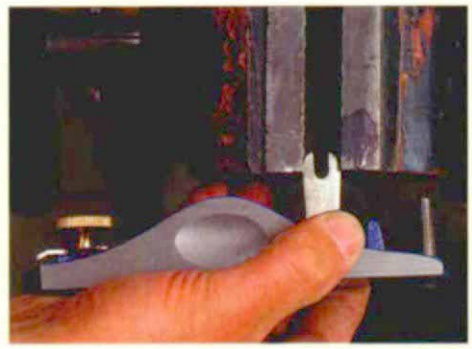
In the next step, I clean up the screw and holes in the lever cap with a round

file as shown in the photo above. I take a moment to check the bottom of the snail cam lever for projections or burrs that will prevent smooth, positive action.

4. Break the sharp edges: I relieve the corners and sharp edges along the sides and ends of the plane, as shown

in the photo above. I make sure that the front edge of the plane is smooth and free of nicks or burrs, which could mar the workpiece.

5. Fine-tune the adjustment lever: A common problem with block planes is sloppy blade adjustment caused by excessive play between the adjustment lever and the blade-adjusting nut. I lightly squeeze the prongs of the adjustment



lever in a vise, as shown in the photo above, until they fit closely on the nut. I go a little at a time, checking the fit. If I overtighten the prongs, I simply open the gap with a file.

6. Square and sharpen the blade: I don't like to rely on the plane's lateral adjustment to set the cutting edge parallel to the sole; I prefer to get the blade perfectly square to begin with. If the blade is out of square, I scribe a true 90° line. Using some machinist's layout dye on the blade before marking makes the scribe line easier to see. Then I grind a 23° to 25° bevel to the line. For the final edge, I hone a 2° to 3° microbevel with my Japanese waterstones.—*M.R.*

Easy blade-depth adjustment on an old-fashioned plane, *the Norris-style block plane from St. James Bay Tool Co. There is very little lateral-blade adjustment on Norris-style planes, so the blades must be ground perfectly square.*

A steel sole wears longer. *Bristol Design's Norris-style block plane has a steel sole for better wear. The ebony infill is pinned in place.*

A convertible block plane. *The Lie-Nielsen low-angle skew block plane converts to a rabbet plane by removing a side plate. Here, the removable fence is being used to start the rabbet square.*

The Rali Swiss plane is almost foolproof. *The disposable blades can't be put in the wrong way. And the blade is held parallel to the sole, so there's no need for a lateral adjuster.*

everyday block planes. They're heavy, expensive and designed for precision work.

St. James Bay Tool Co.—This company offers a variety of Norris-style planes in kit and finished form (off-the-shelf or with customized blade angles). Its standard block plane is modeled after the Norris No. 31 thumb plane (20° bedding angle) and costs $175. It has a cast-bronze body with an ebony or cocobolo infill. For an additional $60, you can get a sensitive blade-depth adjuster (see the top left photo). The plane is completely machined Inside and out, and it's beautifully finished. The standard mouth is a little larger than those on the original Norris planes, but the tool is nicely balanced and measures up to the original.

Bristol Design—This British company specializes in antique and reproduction tools. Its version of the Norris No. 31 is an almost exact copy of the original. The body is polished cast bronze, with a steel sole for better wear. The blade bed is well-machined, but noncritical surfaces are left rough and painted burgundy red. The mouth opening is tiny, but it can be widened with a file.

The Bristol plane lacks the precise blade adjuster found on the St. James Bay version, but with about two minutes of practice, I was able to set the blade by hand. Bristol sells these planes with high-quality cast-steel blades recycled from unusable antiques. The price, including shipping from England, is $221.

Specialty block planes

These planes don't fit into the other categories. Strictly speaking, some aren't block planes, but they look like block planes and are used for some of the same jobs.

Lie-Nielsen skew block plane—This hefty plane is a handful for anyone, so its makers gave it a bench-plane knob in front for two-handed use. Because of its weight and a skewed low-angle blade, cuts are smooth, even on stringy plywood. The mouth is not adjustable, but the plane has a sensitive depth adjustment. A steel plate on one side can be removed to convert it into a rabbet plane (see the bottom left photo). And there's an adjustable fence for squaring edges. This plane will cut almost anything

with ease. I'd be tempted to take it on my installations, except that I'm afraid it might disappear. The price is $185.

Rali Swiss—Anyone who has ever had a bad experience with a plane will like the Rali. With a little practice, this plane is easy to use, adjust and reload with a new blade. The reversible blade is hung on two prongs set in the cap iron, so there's no play or slack (see the bottom right photo on the facing page). The blade edge remains perfectly parallel to the sole, eliminating the need for any lateral adjustment The blade projection is controlled by a small red lever inside the plane body that can be easily adjusted with the right thumb.

The blade is set with the bevel down. The bedding angle is 45°, so technically, it's not a block plane. But its handy size and good performance make it worth considering. The Rali delivered an excellent finish on pine and straight-grained hardwoods but left a slight fuzz on a crotch walnut board. Even though I consider the Rali more of a carpenter's plane, I was pleased and surprised with the results. I could find room for one in my shop.

The Rali is only available in the United States through Woodcraft Supply. There, are three models. The Craftsman sells for $29.95, the Professional for $49.95 and the Professional with nickel sides for $59.95.

ECE Pocketplane—This handy and comfortable tool has a wooden body of hornbeam with a finger-jointed lignum vitae sole. The blade is set at a relatively high 50°. Because of this, the distributor likes to call this a one-handed smoothing plane rather than a block plane. True to its billing, the plane left a fine finish on hard woods like white oak, bubinga and hard maple but wasn't at its best on burl. The plane is easy to adjust and sharpen and has a responsive depth-adjustment mechanism controlled by a giant knob that also serves as a comfortable grip. In tight situations, it's a little awkward, but otherwise, I found it handy and well-made. The price is $68.

Pick the plane for the job

For years, I told my students that a No. 9½ is the best block plane for beginners. These planes are inexpensive, readily available and they'll handle just about any job. But one semester, I expressed my personal preference for the Lie-Nielsen copy of the No. 102 for fine joinery. Half the students bought the No. 9½ and half bought the Lie-Nielsen. After watching them and dozens of other students, I now recommend the No. 102 even though it is more expensive. Beginners find it easy to adjust, so they get better results and find planing more fun.

But the No. 102 is not the right block plane if you're making case goods and doing installations. The small mouth may slow you down. You need a versatile tool that can take a beating. If that's your kind of woodworking, I recommend a No. 9½ or a No. 60½„ especially if you use a lot of plywood and man-made materials. If you are doing superfine work, you'll need the precision of a Norris-style plane.

Mario Rodriguez is a contributing editor to Fine Woodworking *magazine.*

The fine points of using a block plane

Block planes are simple tools, but getting a consistently smooth cut takes practice. Here's how to set up and use a block plane for top performance.

The grip: Block planes are designed for one-handed planing, but the best results come from using a firm two-handed grip, especially on end grain (see the photo at left). I hold the plane by seating the butt end of the lever cap in my palm and placing my fingers and thumb in the depressions along the sides. I use the thumb and forefinger of the other hand to apply firm and steady pressure on the front of the plane, being careful not to tip it.

The blade: I make the first pass on a troublesome board with the blade set for the lightest possible cut, giving me the opportunity to read the grain without risking any serious tearout. Once I get a fix on the wood, I can set the blade for a heavier cut.

The mouth: The width of the mouth influences the quality of the cut. A narrow mouth produces a thin shaving and a smooth finish. I begin planing with a narrow mouth, and after I've read the grain, I open the mouth for aggressive cutting. And last, I narrow the mouth again to produce a fine finish.

The angle: If conditions allow, I skew the block plane as I cut (see the photo at left). This lowers the effective cutting angle and lets the blade slice through the work. I think it leaves a smoother surface, but more important, it reduces the resistance to the plane's movement, giving me more control.

Another advantage is that the plane's effective cutting width is narrowed, making it easier to navigate narrow bands of difficult grain.—*M.R.*

Sources of supply

Stanley, Record and Lie-Nielsen block planes: Most local and mail-order suppliers

Footprint tools: Robert Larson Co. Inc.; (415) 920-7068 (for nearest retail dealer)

St. **James Bay Tools:** (800) 574-2589

Bristol Design (Tools) Ltd: 14 Perry Road, Bristol BS1 5BG, England; 44-117-929-1740

Rali Swiss planes: Woodcraft Supply; (800)225-1153

ECE Pocket plane: David Warren Direct; (312)856-1701