Traditional Japanese handsaws *come in many styles to suit different cutting situations, but all cut on the pull stroke. The saws, or* noko, *displayed in front of Odate are (from left to right) Anahiki-noko (log saw); ryoba-noko (combined rip and crosscut saw); azebiki-noko (for cuts in the center of a panel); kataba-noko (rip saw); dozuki-noko (fine crosscut saw) and kugihiki-noko (flush trimming saw).*

Choosing and Using Japanese Handsaws

Thin blades and sharp teeth to pull through the wood

by Toshio Odate

I remember the first time I went to Atlanta, Ga., to lecture on Japanese woodworking tools. I packed most of my tools in my luggage except my saws. I kept them with me because they were fragile. But when I tried to carry them through the gate to the airplane, I was surrounded by security guards. They did not believe me right away when I explained that the peculiar-looking saws I carried were actually woodworking tools.

Perhaps it was the exotic appearance of Japanese saws that first caught the eyes of many Western woodworkers when these tools became popular in America around the early 1970s. But even though the Japanese planes and chisels that appeared around that time gained rapid acceptance, many Westerners who first bought the saws were disappointed with the results. That isn't surprising because these saws are very different from their Western counterparts. Also, there wasn't a lot of information available at that time about how Japanese saws should be used.

I will describe several Japanese saws that are most useful to cabinetmakers, including more general-purpose saws, like the ryoba-, kataba-, dozuki-nokogiri *(**nokogiri*** or just ***noko*** means ***saw*** in Japanese), as well as more specialized saws, such as the azebiki- and kugihiki-nokogiri (see the photo above). I'll also describe how to properly take a cut with each one.

Japanese saw design

Unlike Western saws, which cut on the push stroke, Japanese saws all cut on the pull stroke. Sawing with a pulling action allows you to cut using both arms and the muscles of the entire body, without having to put your body weight into the stroke. This suited the traditional Japanese ***shokunin*** (craftsman) who typically worked in a squatting or sitting position. Because a Japanese saw is put into tension during cutting, the blade can be made very thin and from harder steel, so teeth stay sharp longer. Furthermore, a thin blade removes less material, so it requires less power to use.

The teeth on Japanese saws work on the same principle as their

Photos: Sandor Nagyszalanczy

Western counterparts but have some important differences. Rip teeth are graduated, so they're smaller at the blade's heel (near the handle) and larger at the toe (see the drawing at right). Crosscut teeth remain the same size along the length of the blade but have an extra bevel on top. The angle of the teeth and top bevel of crosscut teeth also vary, depending on whether the saw is made for cutting hardwoods or softwoods.

Ryoba-nokogiri

This is the Japanese saw most commonly known in the West. It has rip teeth on one edge and crosscut teeth on the other. The blade is narrower at the heel than at the toe and slightly thinner in the center than at the edges to decrease binding in the kerf. Ryoba-noko are available in many sizes, with blades ranging from 8 in. to 14 in. long. The number of teeth per inch depends on blade length; the smaller saws have finer teeth than the larger ones. A small ryoba-noko would be used by a craftsman for fine cutting jobs, such as mitering trim for installing cabinets or framing doors. The larger saws are often used by carpenters and are especially good for cutting large tenons for a timber-frame house.

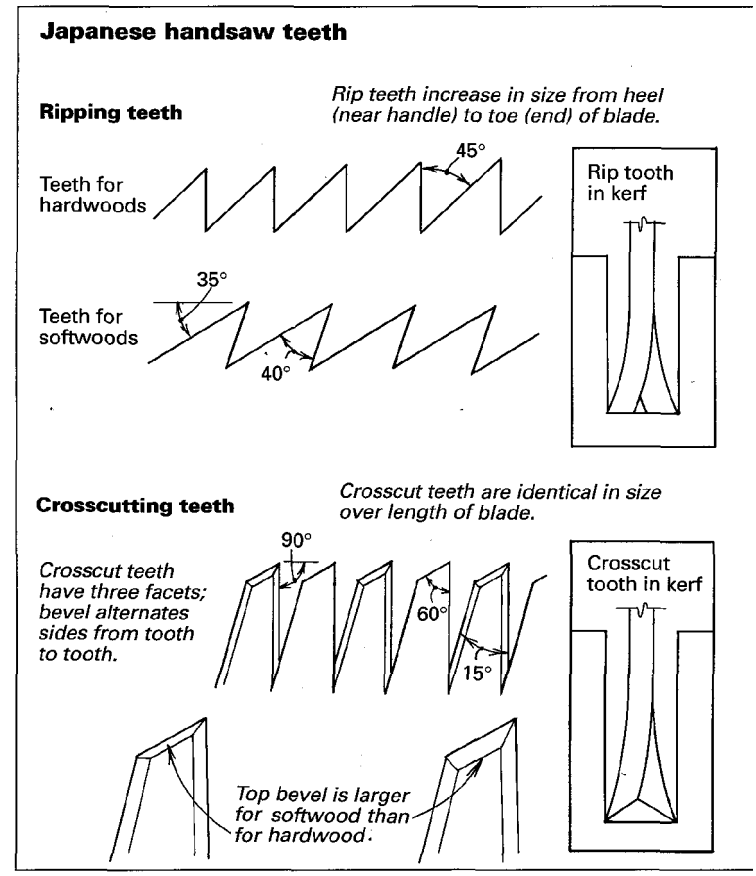
Ryoba-noko are typically used with both hands, although small saws can be used one handed. When using two hands, space them well apart for maximum power and control, as shown in the photo below. To start a cut, use the fingernail of your left index finger or thumb as a guide (if you are a lefty, use the other hand). Start your cut near the heel of the blade where the rip teeth are smaller and hold the blade at a 30° to 40° angle up from the surface of the workpiece. Once the cut is started, you can raise the angle of the blade. Keep in mind that the greater the angle of the saw to the work, the easier the cut—the smaller the angle, the better your control. When cutting wood between ¼in. and ½in. thick, use a shallower saw angle to decrease the tendency of the wood to vibrate as you cut. You don't have to apply very much down pressure (especially on the push return stroke when the teeth aren't cutting) for the saw to cut properly. If you're ripping a long board or panel, you may spread the kerf slightly with small wooden wedges to decrease binding and to prevent the saw teeth from scratching the cut surfaces.

The kataba-noko is a variation of the ryoba-noko. It has either ripping or crosscutting teeth on only one edge. By not passing an extra set of teeth through the kerf of a thick workpiece, as the ryoba-noko does, the kataba-noko allows smoother cut surfaces. Kataba-noko are available in a size range similar to ryoba-noko.

Dozui-nokogiri

The dozuki-noko is a kataba-style crosscut saw with an extremely thin blade supported with a rigid strip of steel or brass folded over its back edge. It is commonly used to cut tenon shoulders on small members, as shown in the top photo on p. 50 (tenon shoulders are called *dozuki,* giving the saw its name). Dozuki-nokos have blades that range from 8 in. to 11 in. long. The smallest saw has 28 teeth per inch (t.p.i), the largest has 17 t.p.i. Like any other crosscut saw, the dozuki-noko's teeth are the same size from heel to toe and have very little set, which results in a cut so smooth that neither a chisel nor a plane is required for finishing. The bevel ground on the top of the teeth varies depending upon whether the saw is to be used with hardwood or softwood (see the drawing).

Dozuki-nokos are usually used one handed, but every craftsman has a different grip. Most of the time, I hold the last third of the handle, but sometimes I hold the front third. It depends on the work. I stretch the index finger of my right hand along the top of the handle and press down gently while sawing. Start your cut just as with a ryoba-noko, using the nail of your left index finger or



Using two hands on the ryoba-noko *yields maximum power and control. Here the author cuts a tenon's shoulder, using the saw's crosscutting teeth. He'll flip the saw over and use the rip teeth on the other edge for cutting the tenon's cheeks.*

Drawing: Kathleen Rushton

The rigid-backed dozuki-noko makes fine crosscuts *with small teeth that leave a very smooth cut surface. It's a good choice for cutting tenon cheeks, as shown here, or for other joinery.*

The azebiki-noko can start a cut in the middle of any surface, *allowing it to do cutouts or stopped grooves. The author uses a straight stick to guide the saw while cutting the sides of a slot, which will be chiseled out later.*

A kugihiki-noko can flush trim a dowel *and leave behind a smoothly cut surface that needs no further sanding. Its teeth have no set, so they won't scratch the surrounding panel.*

thumb as a guide. Cut at first with the teeth near the toe of the saw holding the blade at a 10° to 15° angle to the work. Use only the front third of the blade and cut with short strokes until you have cut about 3/16 in. into the workpiece. Gradually lengthen your strokes until you are using the full length of the blade, keeping the blade parallel to the surface of the wood. Try to keep your strokes as straight as possible, as even small deviations can result in a kinked blade or broken teeth. A crooked stroke can also cause the saw to bind in the kerf. To make the cutting action smoother and discourage rust from developing, wipe the sawblade with a little Camellia oil (available from The Japan Woodworker, listed in the sources of supply box below) or vegetable oil.

Azebiki-nokogiri

The azebiki-noko is a ryoba-style saw, with crosscut and rip teeth on its short, curved blade and a long neck that fits into the handle. The curved cutting edge allows you to begin a cut in the center of a board, perfect for making stopped cuts or dadoes in a carcase panel (see the photo at left). The azebiki-noko is also useful for sawing sliding-dovetail joints (a dozuki-noko could also be used, but long cuts that build up sawdust in the kerf can clog a dozuki's fine teeth). Azebiki-nokos are also available in the kataba style (teeth only on one edge) with an offset neck that allows your hands to clear the wood more easily than with the ryoba-style saw.

Kugihiki-nokogiri

This kataba-style crosscut saw looks like a dozuki without the back support. It has a blade about 7 in. long and is mainly used to flush trim through-tenons or dowels (traditionally, the kugihiki-noko was used to cut wooden nails used to join softwood parts, hence *kugihiki* means to *cut nails).* The number of teeth-per-inch varies from 20 to 26 depending on the fineness of the work the saw is intended for. The body of a kugihiki-noko is quite thick near the handle and thin at the end. This allows the saw to bend easily. During cutting, the front two-thirds of the blade is held flat against the work, as shown in the photo at left. Because the kugihiki-noko's teeth have no set, the cut part's surface is very smooth and no scratches are left on the wood surrounding it.

Saws with changeable blades

Traditional Japanese saws are difficult to sharpen. A convenient alternative is a saw with a changeable, disposable blade, available in most traditional types, including ryoba- and dozuki-noko-giri. A changeable blade's fine cutting edge stays sharp for a long time. These saws are especially, good if you are learning to use a Japanese saw for the first time. If you put a kink into the blade or break some teeth, you can simply replace the blade, which costs only half as much as a new saw. □

Toshio Odate is a woodworker in Woodbury, Conn., and teaches sculpture and woodworking at New York's Pratt Institute. His book, Japanese Woodworking Tools: Their Tradition, Spirit and Use *is available from The Taunton Press.*

Sources of supply

Japanese saws can be mail ordered from the following companies.

Hida Inc., 1333 San Pablo Ave., Berkeley, CA 94702; (800) 443-5512

The Japan Woodworker, 1731 Clement Ave., Alameda, CA 94501; (800) 537-7820

Nippon-4-Less, 5477 Sharon Lane, San Jose, CA 95124; (408) 356-4184

RMI Design, 411 AABC, Aspen, CO 81611; (303) 920-9615

Tashiro's, 2939 Fourth Ave. S., #101, Seattle, WA 98134; (206) 621-0199