

Application is on Page 45

We Invite You to Apply Now for Instant Mail Order Credit

We are pleased to announce a new program designed to make it easy and convenient for our customers to finance tool purchases from Highland Hardware. In cooperation with PNC National Bank of Wilmington, DE, we are now accepting applications for Servistar Visa cards and Servistar MasterCard. The program is excellent for fast financing of stationary tool purchases, or large purchases of hand tools.

If you are ready to finance a purchase from us totaling \$100 or more, it will be handled as follows. Upon receipt of your order and credit application, the application will be transmitted electronically to PNC, where it will be processed immediately. They will notify us within an hour if it has been approved, upon which an account will be opened, and your order can be shipped immediately. (If the application is declined, we will notify you to see whether you wish to arrange an alternate form of payment). The new credit program also applies to in-store tool purchases.

You need not be making an immediate purchase to apply for one of the cards. Applications received by us without an order for \$100 or more will be mailed to PNC, where they will be processed within a week. You will then hear directly from PNC regarding your account.

A money-saving feature of the new Servistar Visa and MasterCard is that all purchases made on the cards (whether at Highland Hardware or any of the 5 million stores world-wide where they are honored) earn a 1/2% rebate in the form of StarBucks. StarBucks are redeemable for purchases from Highland Hardware, or any of the 3000 other Servistar hardware stores nationwide.

Annual percentage rate on the cards is 17.9%. There is no finance charge on purchases if you pay your entire monthly balance in full. No annual fee is charged for the first year. After your first year, the annual fee is \$18. Minimum monthly payment is 2.7% of your outstanding balance. If you use the card exclusively to finance a large item purchased from us, and make a monthly payment of 5% of the purchase amount, about 24 months are required to complete payment.

This program replaces the in-house Servistar Card which we offered last year. That card is no longer available, and will not be honored after Dec. 31, 1988.

Additional details of the new credit program appear on the credit application found on page 45 of this issue.

A new equipment-leasing program for businesses is also now in effect. Please ask us for more information.

Attend the Atlanta Woodworking Show April 14-16

Lakewood Fairgrounds at 2000 Lakewood Avenue (off Interstate 85) will be the site of the 1989 Atlanta Woodworking Show April 14-16. Don't miss this opportunity to see the exhibits of a large number of woodworking suppliers from around the country, watch demonstrations of countless new tools, and attend free educational workshops. Seminars by leading woodworking educators will also be available for an extra fee. Highland Hardware will have a large exhibit featuring many of our most popular tools at outstanding savings.

Call the show sponsor at 800-826-8257 for details and to receive a free brochure.



Michael Dunbar will lead two classes in Windsor Chairmaking in April. Pictured above are students from a previous class proudly displaying their completed chairs.

1989 Seminars at Highland Hardware

January 7	Sharpening
January 14	Using Hand Planes
January 21	Hand Tool Joinery
January 28	Stationary Tool Joinery
February 5	Finishing with Hydrocote
February 11-12	Wood Turning with Liam O'Neill
February 18	Makita Day
February 25	Getting the Most Out of your Bandsaw
March 4	Routers and Jigs
March 11	Making Tables
March 18-19	Chip Carving Workshop
March 31	Design with Tige Frid
April 1-2	Tage Frid Workshop on Building Solid Wood Cabinets
April 7-8	Making the Traditional Shaker Oval Box
April 8-9	Making a Wooden Plane
April 21-25	Build a Sack Back Windsor Chair with Michael Dunbar
April 26-30	Build a Continuous Arm Windsor Chair
May 6	Fundamental Wood Finishing

ELU Lowers Price on Large Plunge Router

The Swiss tool manufacturer ELU announced in September a major price reduction on one of the world's finest plunge routers, their model 3338 2-1/4 HP electronic variable-speed model.

The 30% reduction is reflected in our new catalog price of \$299. (Our selling price was previously \$449). See page 32 of *Wood News* for a full description).

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1989 Seminars at Highland Hardware

Sharpening

- Saturday, January 7 9 am to 4 pm
- Admission: \$25.00
- Instructor: Zach Etheridge

Sign up early; this one always sells out fast. Sharpening skills are absolutely essential, and are easier to acquire than you think. Emphasis is on sharpening plane irons and chisels using Japanese waterstones; any other kinds of tools will also be addressed. Bring along a few tools to work on, and bring your own stones if you have them - if you don't, use ours and find out how they work.

Using Hand Planes

- Saturday, January 14 9 am to 4 pm
- Admission: \$25.00

Making shavings with the noblest of hand tools is the topic in this popular hands-on class led by Zach Etheridge. Jointer planes, smoothing planes, block, rabbet, and combination planes will be discussed, demonstrated, and used by participants; emphasis is on joinery, finishing, and shaping by hand. Zach will also discuss tinkering with your planes to make them better than money can buy. Bring any planes you have, especially old and unusual ones. Some are available for those not yet equipped. *Sharpening skill is prerequisite.* Class size is limited, so sign up early.

Hand Tool Joinery

- Saturday, January 21 9 am to 4 pm
- Admission: \$25.00

Stock preparation, layout, and cutting the fundamental joints for woodworking are Zach Etheridge's subject of the day. Planing (basic skill is prerequisite, please), sawing and chiseling are the basic skills to be practiced; mortise & tenon and dovetails will be accomplished by all. Registrants will be provided with a list of tools to bring; some are available here for communal use. Class size is limited, so sign up early.

Stationary Tool Joinery

- Saturday, January 28 9 am to 4 pm
- Admission: \$25.00

Most joinery done today is accomplished with machines, which are often supplemented with shop-built jigs and fixtures. In this class, Brad Packard will demonstrate how a variety of joints (including half lap, spline mitre, mortise and tenon, and box joint) can be made using common shop machines including the table saw, drill press, and bandsaw. Proper stock preparation will be demonstrated using the jointer and thickness planer.

The use of jigs and fixtures for safety, accuracy and efficiency will also be covered.

Finishing with Hydrocote

- Sunday, February 5
- 1 pm to 4 pm
- Admission: \$10.00
- Instructor: Zach Etheridge

Fast-drying, environmentally safe Hydrocote water-based lacquer and polyurethane finishes are revolutionizing the furniture finishing process at all levels, from the home shop to large production factories. The class will feature step-by-step demonstrations of the use of Hydrocote, including application by brushing or spraying. Time will be allowed to answer questions you have about Hydrocote.

Those attending will receive a complimentary sample of one of the Hydrocote products.



Register for seminars by visiting the store, or by mailing the order form found on page 46 of *Wood News* along with a check for the seminar fee. Visa, MasterCard, and Discover users may register by phone at (404) 872-4466.

(Fees are refundable if you cancel at least two weeks prior to the seminar). Location for all classes (except Woodworking Show) is our seminar room located in the warehouse behind our store.

Wood Turning with Liam O'Neill

- February 11-12
- Saturday 9 am - 4 pm Sunday 9 am - 3 pm
- Admission: \$60.00

Liam O'Neill will be with us for a weekend of woodturning, Irish style. Any aspiring or already-addicted turners who missed Liam on his last visit will have another chance to see a highly talented and thoroughly amiable craftsman demonstrate technique with a vast array of tools, and create his unique brand of beauty on the lathe. Liam will cover everything from basic turning (including his innovative method of grinding gouges) to making bowls full of holes - an experience not to be missed.

Makita Day at Highland Hardware

- Saturday, February 18
- Admission is FREE
- Drop in between 10 am and 4 pm
- Free Door Prizes and Refreshments

We invite you to see what's new and special from Makita, USA, one of the world's leading power tool manufacturers. Makita personnel will be on hand to demonstrate tools and answer questions.

A One-Day Sale will be in effect on many of our Makita tools. It's a great opportunity to learn and save at the same time.

Getting the Most Out of your Bandsaw

- Saturday, February 25 9 am to 4 pm
- Admission: \$25.00

"Mr. Bandsaw" himself, Brad Packard, offers a class which will appeal to the beginner as well as the experienced bandsaw user. Included will be an organized approach to bandsaw setup covering blade tensioning, guide adjustment, tracking, and wheel alignment. Resawing, scrollwork and joinery will be discussed and demonstrated. The use of patterns in making cabriole legs on the bandsaw will also be demonstrated. Making jigs for your bandsaw will be discussed, along with safety considerations.

Routers and Jigs

- Saturday, March 4 9 am to 4 pm
- Admission: \$25.00

This is a full day on the most versatile machine in the shop. Zach Etheridge will start with router basics, and continue through shop-built jigs for shaping and joinery, commercial dovetail jigs, and raised-panel construction. He'll take a look at what's new and exciting in the rapidly changing router marketplace. You'll also get the step-by-step on the unique table-mounting system developed here at Highland Hardware.

Making Tables

- Saturday, March 11 9 am to 4 pm
- Admission: \$25.00
- Instructor: Brad Packard

Attending this one-day class will provide the participant with a good understanding of how tables are constructed, and why certain methods are important to use. Brad Packard will cover how legs and stretchers are properly joined, with emphasis on mortise and tenon construction. A variety of leg styles will be shown, including tapered legs, splayed legs and cabriole legs. Achieving a flat top for the table, incorporating drawers, and finishing will also be covered.

Chip Carving Workshop with Wayne Barton

- Sat. - Sun., March 18-19 9 am to 5 pm
- Admission: \$95.00

The Swiss style of chip carving is the most decorative, functional, and enjoyable method of carving, and can be quickly learned by everyone. This hands-on class will cover all phases of the Swiss style. Students will practice the specific techniques for producing border designs, grid work, rosettes and lettering. What tools to use and how to sharpen will also be covered. (Tools are available to purchase for those who don't already have them). Carving blanks to practice on will be available for \$1 each. Wayne Barton, the instructor, is Director of the Alpine School of Woodcarving, Ltd. of Park Ridge, Illinois. Please register early, as the class size is limited.

Design with Tage Frid An Entertaining Slide Lecture

- Friday, March 31 7:30 pm
- Admission: \$5.00
- (free for those enrolled in weekend seminar)

The most widely known and highly regarded woodworking teacher and author in the U.S. will share an evening of slides on woodworking and design, punctuated with his insightful commentary and penetrating wit.

Mr. Frid will show a large number of slides illustrating examples of both good and bad design, explaining what makes each so. Participants are welcome to bring slides of their own work for an opportunity to hear Tage give a constructive critique.

If you are interested in broadening your design perspective, or merely understanding woodworking in its broader context, you will find this event enlightening, satisfying and fun. Please reserve a space in advance.

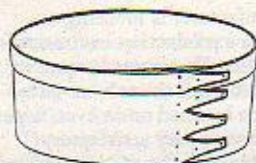
Tage Frid Workshop on Building Solid Wood Cabinets

- April 1-2
- Sat. 9 am - 4 pm Sunday, 9 am - 3 pm
- Admission: \$90.00 (includes Friday lecture)

Tage Frid, dean of America's woodworking teachers and source of some of our most popular and enjoyable seminars in the past, returns to Atlanta for a seminar in which he will use machines and hand tools to demonstrate building a cabinet, utilizing his unique modern spline-miter joint instead of mortise and tenon joints.

Though it appears complicated, the spline-miter joint is easy to make, as Tage will reveal in this seminar, and is a joint that can be used in many kinds of furniture. Drawer construction, and building necessary jigs for the project will be included. If time permits, he will also cover other woodworking subjects of interest to the group.

Seating is limited, so register early to avoid missing a chance to see and hear a truly remarkable teacher performing woodworking demonstrations in an action-packed seminar.



Making the Traditional Shaker Oval Box

- Friday, April 7 6 pm to 10 pm
- Saturday, April 8 9 am to 4 pm
- Admission: \$70.00

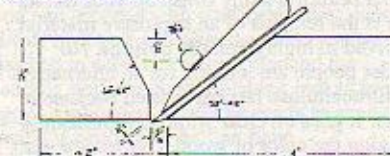
John Wilson, an expert boxmaker in the Shaker tradition, will teach this two-day hands-on class in which each participant will make several Shaker oval boxes. Five sizes can be made in the class, and most students can expect to complete a nest of five plus a carrier. Working from patterns, they learn to cut hardwood veneers, bend box bands, fit tops and bottoms, and form handles for carriers. The fee includes use of tools and cost of all necessary materials for making the boxes, including patterns. Class size limited.

Making a Wooden Plane with John Wilson

- Saturday, April 8 6 pm to 10 pm
- Sunday, April 9 9 am to 4 pm
- Admission: \$70.00

Wooden planes remain a part of the craftsman's tool kit. They also remain within the range of the home shop's facility to make. In this two-day session, each participant makes a wooden block plane. The workshop fee includes use of all necessary tools, plus the cost of materials for the plane, along with several handouts which will provide useful background for toolmaking.

An important part of the process in this seminar is the shaping, hardening, tempering, and sharpening of the tool steel blade. What you learn here can be applied to the whole range of blades for woodworking hand tools. Class size is limited.



The Woodworking Show

- Friday thru Sunday, April 14-16
- Lakewood Fairgrounds
- 2000 Lakewood Ave, SE (off I-85)
- (Call the Show Office at 800-826-8257 for details and to receive a free brochure).

Don't miss this opportunity to see the exhibits of a large number of woodworking suppliers from around the country. There will be demonstrations of countless new tools, and free educational workshops to attend. Seminars by leading woodworking educators will also be available for an extra fee.

Highland Hardware will have a large exhibit featuring many of our most popular tools at outstanding savings.

Build a Windsor Chair with Michael Dunbar

Sack Back Introductory Class

- April 21-25, Friday thru Tuesday
- Daily hours: 8:30 am - 5 pm
- Admission: \$450.00

Each participant in this 5-day class will have the opportunity to build a complete sack-back Windsor chair under the guidance of Michael Dunbar, America's best-known Windsor chairmaker. The admission fee includes all necessary materials. **Prior woodworking experience is required.** Participants should provide their own hand tools, although a shared pool of tools will be available to borrow for those without certain tools. (A list of tools will be provided after registration). Each participant should read a copy of *Make a Windsor Chair with Michael Dunbar* (available from Highland Hardware for \$13.95 plus \$3.00 shipping) before the class begins.



Continuous Arm Advanced Class

- April 26-30, Wednesday thru Sunday
- Daily hours: 8:30 am - 5 pm
- Admission: \$450.00

For those who have participated in one of Dunbar's Sack Back Introductory Classes (either the one April 21-25 or a previous one), an advanced class is being offered this year in which each participant will build a Continuous Arm style Windsor Chair. This is a more challenging project, and requires the experience gained during the five days of the previous class. Materials are supplied. Participants must furnish their own hand tools.

For those who enroll and attend both classes April 21-30, the total admission is \$850.00. Space in each class is strictly limited, so you must register early.

Fundamental Wood Finishing

- Saturday, May 6 9 am to 4 pm
- Admission: \$25.00

Zach Etheridge will provide a day-long demonstration of finishing techniques covering many of the most popular and practical finishes, including tung oil and Watco, oil-varnish mix, polyurethane, Deft, and Hydrocote, the exciting new water-based lacquer and polyurethane. Attention will also be given to wood preparation, staining and dyeing. Focus will be on using simple methods to achieve consistently outstanding results.

HYDROCOTE® Water-Based Finishes

*Shops large and small
around the country
are replacing traditional
solvent-based nitrocellulose
lacquers with this safer
alternative*

By Zach Etheridge

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Imagine a lacquer finish both non-toxic and non-flammable, easier to apply, harder and more flexible than conventional nitrocellulose lacquer, and less expensive to boot. Imagine a polyurethane varnish that can be wiped on with cheesecloth as easily as an oil finish, with little odor and water clean-up. Pleasant thoughts, but too good to be true, right? It may well be that the single most difficult feature of Hydrocote finishes is exactly that: they simply sound too good to be real.

But Hydrocote is for real, folks. It's the vanguard of what will before long become a mass migration away from finishes that poison you while you work, that put your property and livelihood at risk of suddenly going up in smoke. And using Hydrocote finishes means anything but compromising on quality. Their performance characteristics equal or exceed those of nitrocellulose lacquer in practically every category imaginable. Though Hydrocote is certainly new, it is already being used by shops all over the country with excellent results. And our tests here at the store are proving that these finishes work at least as well as the manufacturer says they do — maybe better, if first-time users can expect such easy success.

As indicated, there are two kinds of Hydrocote finishes currently available, lacquer and polyurethane. Polyurethane is most commonly used by the general public as a quick, tough, and relatively easy-to-use finish. Lacquer has for many years been the finish used by manufacturers, custom furniture makers and finishers, offering as it does fast, reliable and affordable protection for wood. Conventional lacquer does not lend itself well to easy brush application, and the need for expensive spray and safety equipment has kept many hobbyists and small operators away from it. Hydrocote may change that, however.

Zach Etheridge is Product Engineer at Highland Hardware.

Although the manufacturer is focusing on spray application in a production environment, we're discovering that Hydrocote lacquer is far easier to deal with than the solvent-based material, and can be brushed on or even wiped on with a rag to provide very satisfactory results. So don't skip over the section on lacquer below just because you've never used the stuff; with most of lacquer's problems solved by the Hydrocote formulation, you just might find it becoming your favorite finish.

LACQUER

The first thing to know about lacquer is what the word means. It doesn't actually specify a particular product: originally, "any of various durable natural varnishes; esp.: a varnish obtained from an Asiatic sumac — called also *Chinese lacquer*..." And in modern terms, "any of various clear or colored synthetic organic coatings that typically dry to form a film by evaporation of a volatile constituent." That's how a finish used by Oriental craftsmen hundreds of years ago, a finish based on dissolved guncotton, and a finish based on acrylic resin can all correctly be called lacquer.

During the past fifty years, the lacquer used almost universally by industry has been cellulose nitrate dissolved in a combination of potent solvents such as toluol, naphtha, acetone, methanol and others. The source of

That beautiful shiny finish on your dining table is the remains of an explosive dissolved in poison. No wonder people are looking for an alternative.

cellulose resin is chopped cotton fiber treated with nitrates: "Cellulose nitrate; an explosive product used chiefly in smokeless powder." So that beautiful shiny finish on your dining table is the remains of an explosive material dissolved in highly volatile poisons. No wonder people are looking for an alternative.

Nitrocellulose lacquer is used because it works. It goes on clear without significantly changing the color of wood. (Hydrocote also stays clear; it resists yellowing far better than nitrocellulose.) It forms a film which dries quickly and hard, can be worked to any degree of gloss from nearly flat to mirror shiny, and is highly resistant to damage from common household disasters such as water, alcohol and food spills and assorted knocks and scrapes. Since the dry film remains soluble, each new coat of finish partially dissolves and fuses with prior coats, eliminating any problems that might arise from lack of adhesion between successive layers. This feature also makes for effective repairability, as a dab of fresh lacquer on a damaged area melts in rather than lying on the surface in a blob. Nitrocellulose can be used over practically any kind of stain, and can itself be tinted to produce anything from a semi-transparent even-color topcoat to an opaque high-gloss paint.

Using Hydrocote acrylic lacquer, all of these desirable characteristics and more can be had without the down side. Where nitrocellulose typically emits into the atmosphere nearly 7 pounds of toxic volatile organic compounds (VOC) per gallon of finish, Hydrocote lacquer emits less than 1.5 pounds of VOC per gallon, exceeding tough new EPA pollution control standards by nearly 43%. Where the toxicity of nitrocellulose and its thinner is a grimly documented source of potentially severe and chronic health problems, Hydrocote is non-toxic in its liquid, aerosol, and dry film states. It is suitable for use on eating utensils and children's toys, and the only protection required in the spray booth is a dust mask to keep overspray particles out of your lungs. Where nitrocellulose is explosively flammable with a flash point of 90°F, Hydrocote flatly will not support combustion. In fact, recent testing shows that a Hydrocote lacquer finish will not support flame spread, and may well qualify as a topical flame retardant. Where leftover nitrocellulose and thinner used in cleanup present a toxic waste disposal problem right in your own shop, Hydrocote application tools require simply rinsing in tap water. Material Safety Data Sheets on Hydrocote lacquer and sanding sealer are available on request.

Spray Application

For the wood finisher equipped for and accustomed to spraying nitrocellulose, it will take a little practice to adapt to Hydrocote lacquer. Nitrocellulose lacquer typically comes in the can at 25% solids content or less, and for spray application is diluted up to 33% with lacquer thinner. This yields less than 17% solids in the spray gun. Hydrocote comes ready to spray at 35% solids content, and shouldn't be diluted except as needed to maintain suitable viscosity. When thinning is called for, use Hydrocote Reducer, which doesn't retard drying time, or water, which does. More than twice as much material is applied per pass with Hydrocote than with nitrocellulose, and most users will invariably start off spraying too heavily. Adjust your fluid-to-air ratio way downward to keep from overdoing it. The gun might need an orifice one or two sizes finer to adequately atomize material with such a high solids content. You'll be building film thickness better than twice as quickly as you're accustomed to, and will likely find that a couple of coats is more than adequate for most of your finishing chores. Anything heavier than a mist coat shows a distinct lavender tint, providing an unmistakable visual gauge of film thickness and consistency: if you don't see purple, you're not putting down enough material; if your coat turns milky, you're laying it on too thick. The color disappears during the first few minutes after application.

Applying by Hand

For those finishers who aren't set up for spraying, Hydrocote offers such excellent flow-out and self-leveling characteristics that it can be brushed or wiped on with easy success. It doesn't take a \$30 badger brush to

do the job, either. A decent bristle brush will work well, and many users find they get good results with inexpensive disposable poly brushes. The trick in brushing is to avoid too much pressure and speed in the stroke, which will raise bubbles that might have a hard time settling out. It might be helpful to thin the finish just a bit, up to 10% or so, with tap water to slow drying and allow more time for flow-out. To improve flow-out without thinning the finish as much, or if low shop temperature interferes with the process, it will be useful to add a bit of Flow-Out Additive to improve performance. Like nitrocellulose,

With a sanding sealer that fills in one or two coats, a finish that builds 2-1/2 times faster than nitrocellulose lacquer, and a finishing environment with no special safety requirements, Hydrocote is a clear winner.

Hydrocote doesn't cooperate well with cool temperatures, and should always be used above 60°F if at all possible. Water or Flow-Out will also be options if very low humidity has the finish drying too fast. At about 70°F with moderate humidity, a brushed-on coat of gloss or satin Hydrocote lacquer will be tack-free (dry to touch and immune to airborne dust) in five to ten minutes, and can be recoated in an hour.

Nitrocellulose is very sensitive to high humidity, being prone to blush (turn cloudy or white) and fail to cure properly. During the Southern summer, or in Minnesota for that matter, that can be a real problem in a typically un-airconditioned shop. Hydrocote, on the other hand, doesn't blush easily and doesn't seem to be much affected by high heat or humidity, except for possibly showing smoother flow-out than usual. One important note about temperature: Hydrocote must not be allowed to freeze, and cannot be stored for long in an unheated space during winter.

Experimenting with Hydrocote here at the store, we've had astonishingly good success simply wiping the finish on with a pad of cheesecloth. Our samples were mahogany, planed, scraped and sanded to 220 grit. We wiped on a coat of Hydrocote Sanding Sealer, let it dry for about half an hour, and lightly re-sanded with 220 grit. (A note from the manufacturer: avoid using steel wool between coats, as oil from the wool could cause problems for succeeding coats).

A small wad of plain cheesecloth was dipped in lacquer, squeezed out to just less than dripping wet, and then wiped over the surface. The entire surface was fairly thoroughly wet down in a few quick strokes, and then evened out with a few more light and careful strokes straight along the grain. The very thin film left on the wood was tack-free in less than two minutes, but its appearance, at first a little streaky and uneven, continued to

improve for an hour afterward, eventually flowing out to a smooth, uniform coating needing only a very light buffing to bring it to a faultless finish.

The wiped-on film is so thin that we should probably recommend at least three coats by this method to achieve a really durable finish, but let your own eye be the judge. Two coats looks remarkably like a six- or eight-coat tung oil finish rubbed out to a lovely sheen. Who ever heard of a lacquer so forgiving and easy to use?

Sanding Sealer

Being water-based, Hydrocote finishes do tend to raise the grain of un-sealed wood, so it's a good idea to use a sanding sealer and re-sand before applying finish coats. Sanding sealer is also used as a pore filler on moderately open-pored woods like mahogany or walnut, to provide a flat base for a really smooth finish. Finishers using nitrocellulose usually just spray on coats of extra-thinned lacquer to seal the surface and fill pores, sometimes applying several coats to achieve an adequate fill.

Hydrocote Sanding Sealer, on the other hand, has such a high solids content that it can be successfully used even on ring-porous woods like ash, filling beautifully in just a few coats. Small-pored wood like birch will be filled to perfection in one application of sanding sealer. The sealer raises the grain noticeably, but it sands very easily to a silky smooth surface. We used 220-grit no fill paper to sand and a damp cloth to remove dust. (A standard tack cloth might leave solvents or residues that could cause problems later). Once the surface has been sealed and sanded, lacquer can be applied with no further grain-raising effect.

Another good feature of the sanding sealer is that it dries very quickly with minimal wetting of the wood, doing as little as possible to change the color from its natural state. This is a particularly desirable trait when you're working with pieces you've stained or dyed; you can proceed with confidence that your finish isn't going to alter the color you've worked to achieve. We recommend the sanding sealer in hand finishing just as in spray application. It will be ready to sand (and re-coat if needed) in half an hour.

Staining

Hydrocote sanding sealer and lacquer can, incidentally, be used over just about any kind of stain or dye you might now be using. We've sprayed the finish over pieces dyed with our Arti water-soluble dyes with good success - little color change and absolutely no bleeding or running of the dye. If you've used an oil stain, just be extra careful about drying time. A good rule of thumb would be to double the manufacturer's recommended wait; any solvents left in the wood will surely interfere mightily with a water-based finish going on top. When in doubt, or if a test reveals any compatibility problems, seal the stained surface with a thin coat of shellac before applying Hydrocote. The lacquer itself can be tinted with water-based dyes such as

Arti or with the universal colorants found at your hardware store's paint mixing bench.

There are two other Hydrocote lacquers available, Gloss Black and Gloss White. Black lacquer - well, need we say more? And the white finish can be used as is or as a tinting base for making your own custom colored lacquers, marbleizing bases or pickled finishes.

Curing Process

Hydrocote lacquer begins curing a little more slowly than nitrocellulose. After one hour, nitrocellulose may be as much as 30% harder than Hydrocote, though both will be print-free and ready to sand lightly for re-coating. Sanding Hydrocote is pretty close to foolproof, because it doesn't seem to be affected by the heat generated by vigorous work. Sand too hard on nitrocellulose, and it balls up in a gummy mess. After two hours, the two lacquers will be at about the same hardness, but from that point on Hydrocote begins to pull away. After eight hours nitrocellulose has gotten about as hard as it ever will be. Hydrocote continues to harden for as much as a week, ultimately testing 50% harder than nitrocellulose. You don't have to wait a week to handle the piece, of course; after 12 to 24 hours, it's ready for rubbing out. The finish is so hard that it may not be particularly easy to rub it out well with steel wool alone, but we've gotten excellent results using Hydrocote Rubbing Compound on a steel wool pad. This leaves a smooth satin finish, and is all we found necessary with Satin lacquer. For a glossier finish, follow up with Hydrocote Pro Polish polishing compound. A thorough job with the two compounds in sequence on Gloss lacquer yields a hard, high "wet-look" shine.

Comparative Cost

Finally there's one more feature of Hydrocote lacquer to which we all sooner or later must come: the cost. A glance at the price list shows that Hydrocote costs more per gallon than nitrocellulose, significantly more. But, says you, we don't have to buy thinner to make Hydrocote ready to use, and you just finished saying it builds more than twice as fast as nitrocellulose, and the clean-up chemical, water, is surely one of the last great American bargains. Well, that's true. And for industry that's where the main interest should be, in the cost of finish per item sold. Even for a fair-sized shop, however, it will probably be of equal interest that there's no need for an explosion-proof spray booth, which can save some very serious money in a hurry.

If you presently insure your shop against damage and liability, converting to Hydrocote should reduce your insurance expense dramatically - one factory owner reported a 67% drop in his rates after making the switch. And if you can't afford insurance, or are one of the many shops that have simply been cancelled by increasingly reluctant insurers, here's a chance to really reduce your exposure to risk.

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Hydrocote Finishes

(continued from previous page)

With a sanding sealer that fills in one or two coats, a finish that builds 2-1/2 times faster than nitrocellulose, and a finishing environment with no special safety requirements, Hydrocote lacquer is a clear winner.

POLYURETHANE

Polyurethane varnish is one of the toughest non-industrial finishes on the market today. A cured film of polyurethane is practically inert, and will shrug off exposure to water, alcohol, foods and household chemicals, or virtually anything else you might care to expose it to. The film is very hard, nearly twice as hard as nitrocellulose lacquer, for instance, so it's an excellent choice for use in challenging situations such as floors and kitchen counters. It's a popular choice for any "no-maintenance" furniture. Solvent-based polyurethane dries much more slowly than lacquer, which makes it much easier to use without professional spray application equipment, as it will be more forgiving of brush marks and uneven initial film thickness. Very high solids content, typically 45% or more, makes for thick layers and very fast build-up. Since the film becomes insoluble as it dries, there is no fusion between successive coats, and care must be taken to insure a good mechanical bond between coats by scuffing the dry layer with steel wool or sandpaper.

These features are part of the reason why polyurethane hasn't become the universal finish of choice in place of lacquer. Poly isn't as clear as lacquer, adding a discernible amber cast to your finish, particularly as its thickness increases. The absence of melt-in between layers make repair much more of a challenge, and it will always be a chore to insure adequate adhesion of a new coat to an old one. The typical heavy build is usually considered too plastic-looking for fine furniture. And the bottom line is significant as well; poly costs easily twice as much as nitrocellulose lacquer.

HYDROCOTE® Polyurethane

Hydrocote polyurethanes are in their way as radically innovative as Hydrocote lacquers, and if you're a regular user of polyurethane you are certainly in for a treat. Hydrocote poly dries faster, harder, and clearer than solvent poly, offers greater than usual coverage, and is non-toxic and non-flammable.

Hydrocote poly has a solids content of about 35%, which makes it extremely easy to lay down thin, transparent coats. The film itself is less amber than solvent poly, so the net result is the clearest polyurethane finish you've ever seen. The finish dries tack-free in just minutes and can be recoated in an hour—one quarter the recoat time of some new "fast-drying" solvent polys. Standard recoat time for solvent poly can run as long as 24 hours. Hydrocote poly has very little odor, a bit more

As this article goes to press, a good friend and long-time customer is finishing his white oak living and dining room floors with Hydrocote Satin Poly. He and his contractor, a third-generation floor finisher and restoration specialist, are both amazed by the poly's performance. They're getting better than 500 ft.² coverage per gallon, no odor in the house, and no color on the floor. Says finisher Chris Leonard, "This stuff is unbelievable. It's dry to touch in ten or fifteen minutes [at 85% relative humidity], and it's the clearest poly I've ever seen. It would be perfect over the currently fashionable white stain I've used on commercial jobs."

They started with a sealer coat thinned about 20% with water, and are putting down three full-strength top coats, wiped on with a wool bonnet and lightly sanded with 120-grit screen between coats.

than the lacquer but still no comparison to the solvent-based stuff. Imagine being able to put three coats of polyurethane on a floor one day and move in on it a day or two later with no smell left in the building! Hydrocote is currently in use on high school gym floors and on a major boat manufacturer's hatch covers, among other places—certainly fair tests of its durability under tough conditions.

Application

As with Hydrocote lacquer, we have found this water-based polyurethane far easier to apply than the solvent poly we're used to. Its relatively thin composition lets it flow out smoother and lay down flatter, and allows building a tough, consistent film without excessive thickness. It can be sprayed as is or thinned with water if needed, and can be brushed or wiped straight from the container. In fact, wiping may be the easiest way of all to apply Hydrocote poly (and who ever heard of an honest-to-gosh wiping polyurethane?). We wiped it on much as we did the lacquer: soak a wad of cheesecloth, squeeze until just shy of dripping wet, fairly quickly wet down the surface to be finished and then carefully and briefly stroke it out smooth and even. Three coats wiped on were thinner than two brushed coats, so wiping appears to be the way to go in most situations. If you feel the need to achieve a heavy build-up, use a brush or wipe on another coat or two. Clean up hands and brushes with tap water, and don't wait long to do it, either—this stuff is water-proof and skintight within a few minutes.

Some users recommend thinning the first coat of poly 25% with water for use as a sanding sealer. We've also had good success wiping and spraying the poly over Hydrocote sanding sealer.

Hydrocote polyurethane is non-toxic and non-flammable in its liquid and aerosol states. The cured film doesn't share Hydrocote lacquer's flame-retardant property; like conventional polys, the dry film can be caused to burn when exposed to persistent flame. Once dry, the film remains non-toxic, however, and is perfectly suitable for use in the kitchen or

on the dining table. The finish cures completely within 4 or 5 days, reaching a hardness considerably greater than that of solvent-based poly. If you're contemplating using the polyurethane commercially, we have Material Safety Data Sheets available on request.

Conclusion

We're pretty enthused about Hydrocote finishes. The working characteristics of their new water-based lacquer are so good that many woodworkers who've never even considered using lacquer finishes will now be able to include them in their repertoire. Even shops without spray facilities can realistically look forward to producing beautiful, high-quality lacquer finishes by simple hand application. For those shops where success is on the verge of compelling you to outfit for spray finishing, Hydrocote offers the opportunity to do so at a bare fraction of what it might otherwise cost. And for those of you already doing production finishing, a non-flammable, non-toxic finishing material may be all you need to make finishing the least of your cares.

When you need more durability than lacquer affords, Hydrocote polyurethane is an easy choice for a fast-drying, nearly odorless finish that's easier to apply than any polyurethane you ever imagined.

HYDROCOTE PRODUCTS

	Quart	Gallon	5 Gal.
Clear Gloss Lacquer	8.95	19.95	89.95
Clear Satin Lacquer	8.95	19.95	89.95
Sanding Sealer	8.95	19.95	89.95
Gloss Black Lacquer	9.95	22.95	99.95
Gloss White Lacquer	9.95	22.95	99.95
Gloss Polyurethane	12.95	34.95	139.95
Satin Polyurethane	12.95	34.95	139.95

	Quart	Gallon	5 Gal.
Flow-Out Additive	5.95	14.95	64.95
Reducer	5.95	14.95	64.95

	Quart	Gallon
Rubbing Compound	6.95	17.95
Pro Polish	6.95	17.95
Fast Dry Pore Filler	11.95	29.95

Fish-Eye Eliminator, 8 oz.	14.95
Video on Spray Application	19.95

SPRAY STARTER KIT

For professional shops, the Spray Kit includes a gallon each of Sanding Sealer and Gloss and Satin Lacquer; a quart each of Reducer and Flow-Out Additive; a half pint each of Rubbing Compound and Pro Polish; 2 oz. of Fish Eye Eliminator; a viscosity cup; 4 filters; & the instructional VHS video on spray application. The video is especially useful in making the switch from spraying nitrocellulose lacquer.

Hydrocote Spray Starter Kit 99.95

HAND STARTER KIT

For users who wish to apply Hydrocote Lacquer by brushing or wiping it on, the Hand Starter Kit includes one quart each of Gloss, Satin, and Sanding Sealer; a pint of Flow-Out additive; and a half pint each of Rubbing Compound and Pro Polish.

Hydrocote Hand Starter Kit 29.95

Order form is on page 46.

Hardness and Durability Characteristics

A Sward Hardness test was used to measure hardness development. Glass is 100; fully cured Polyester is 80. The hardness values given below are based on 1.5 mil dry film allowed to dry at 76° F and 45% relative humidity.

	Hydrocote Lacquer	Nitrocellulose Lacquer	Hydrocote Polyurethane	Conventional Polyurethane
1 Hour	15	20	3	2
2 Hours	27	27	8	4
8 Hours	38	30	22	18
24 Hours	40	30	42	40
48 Hours	43	30	56	55
1 Week	45	30	63	58



EagleSpray Turbine Spray Systems

As companions to our newly introduced Hydrocote finishes, Highland Hardware is also introducing three new low-pressure spray systems suited to anything from the one-person shop to a commercial finishing business. EagleSpray systems offer several advantages over conventional compressor-driven sprayers, not least of which is cost. The professional-quality EagleSpray 1000, for instance, comes fully equipped and ready to spray for \$695. That includes 20 feet of hose with quick-connect fitting and a DeVilbiss spray gun configured specifically for use in this system. Spraying is remarkably easy even for the complete novice, in part because the high-volume, low-pressure turbine system is so simple and effective.

Compressor-type spray systems rely on a limited supply of air at high pressure to atomize finishing material as it is forced through the spray gun's orifice. Their most visible working characteristic is ferocious overspray, where more than half of the material coming out of the gun winds up in the air rather than on the object being sprayed. Moisture accumulating in the pressure tank and oil from the compressor cylinder must be filtered from the system to avoid contaminating the supply line and finishing material.

Turbine-type sprayers, on the other hand, deliver a lot of air at very low pressure, and rely on high-volume air jets focused just outside the orifice to atomize the emerging

material. Overspray is very greatly reduced, making life in the spray booth much easier to bear, and contributing to highly efficient material transfer that puts about 80% of the finish you've paid for on the object you're trying to finish. Since the air supply isn't compressed as it enters the turbine, there's no moisture problem to deal with, and no inline filtration is required because there's no oil loose in the system. Air passing through the turbines is heated by mechanical action, so what is delivered to the gun is dry and warm, limiting blushing due to humidity and promoting faster drying with better adhesion.

With no pressure tank, the turbine runs non-stop and is always delivering air to the gun. The DeVilbiss gun supplied with EagleSpray units has an air feed regulator that lets you nearly shut off air flow at the horns when you're not spraying, limiting dust disturbance while you're otherwise occupied. The turbine's noise level isn't bad, but it isn't particularly attractive, either. It sounds about like a moderately powerful shop vac, and on the whole is likely a lot easier to muffle than the thump of a compressor.

EagleSpray machines are particularly well suited for use with high-solids finishing materials such as Hydrocote lacquer or polyurethane. The aluminum gun has no components which might corrode in contact with water, and the gentle delivery of atomized finish to the surface being sprayed



ANILINE DYES FOR WOOD

The Warmest, Richest
Colors Imaginable Are
Yours for the Making
with our ARTI Aniline Dyes

Deep clear colors, simple application, and remarkable economy explain the fast-growing popularity of our ARTI Aniline Dyes. Sold in dry powder form, the dyes are easily mixed with water to offer an extraordinary range of colors, including hard-to-find primary colors essential for creating custom hues. The dyes are suitable for use on any kind of wood under virtually any finish.

And now our new ARTI Toymaker's Dyes offer the same advantages plus they're rated to be completely safe for use on small children's toys. (Since they are water soluble, we recommend that a safe protective finish such as Behlen's Salad Bowl Finish be applied over the Dyes).

To acquaint you with the dyes, our ARTI Aniline Dye Assortment Kit includes sufficient dye to mix a half pint each of 10 colors, plus our ARTI color chart of 24 colors. The kit includes Red, Blue, Green, Gray, Black, Rosewood, Light Mahogany, Light Oak, Medium Walnut & Dark Pear.

Our ARTI Toymakers Dye Assortment Kit includes the color chart and dye to mix a half pint of 7 colors: Bright Red, Blue, Yellow, Green, Orange, Brown, and Dark Red.

To order, specify either the Aniline Dye Kit or Toymakers Dye Kit, and send a check for \$19.95 to our address below. Or if charging to Visa or MasterCard, call our toll free orderline. For an ARTI color chart and pricelist without ordering the sample kit, mail us \$1.00.

MC/Visa users outside GA
ORDER TOLL FREE
(800) 241-6748
(Orders Only)

highland hardware

1045 N. Highland Ave., Dept. WN
Atlanta, GA 30306 (404) 872-4466

lets you take full advantage of the fast build achieved with Hydrocote. The spray system and finish together will require only the simplest spray booth design; the very limited amount of non-toxic overspray can easily be collected using a powerful window fan drawing air through a few inexpensive furnace filters.

The EagleSpray 1000 is on display in the store and available for immediate delivery. Two other models, the ES-2000 and ES-3000, are available by special order.

EAGLESpray TURBINE SPRAYERS

ES-1000 2-stage, 850 watt. 20' hose, aluminum gun. 29 lbs. **\$695 Shipped UPS.**

ES-2000 3-stage, 1000 watt. 20' hose, aluminum gun. Suitable for single or two-gun spraying. 29 lbs. **\$845 Shipped UPS.**

ES-3000 ES-2000 on cart with oilless compressor, 2-gallon pressure pot, 20' air hose, 25' fluid hose, production gun. Suitable for single or two-gun spraying. Weighs 82 lbs. **\$1495 Freight Collect.**

Instant Gratification

By Jack Warner
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There is a suspicion in the minds of some woodworkers that people who spend most of their time at the lathe have forsaken real work in favor of instant gratification, dallying in a world of flash and filigree.

Let me tell you about this instant gratification business.

Sunday, 11:30 am. Opened up a plastic trash bag resident in the garage since two kind friends brought it to me from North Carolina at least two months ago. The large object in it is supposed to be a burl from a birch tree. The percussive effects in my lower back confirm the size; it weighs at least 50 pounds. Can't tell yet how much of it is burl; the cut face is fully oxidized and covered with mold.

11:45 am. Deposit wood on workbench, cut face up; prop it to stability with scrap chunks, run the portable planer over it a few times. The wood revealed is lovely.

Noon. After staring at the lump of wood for 10 minutes, I cannot decide whether to go for broke and turn the whole thing or be cautious and slice it up into several pieces. No obvious lines for slicing reveal themselves; it could mean considerable waste. When in doubt, get advice.

12:15 pm. Call my wife down to the basement, ask her what to do. "Go for it," she says. OK. But it needs to be done right; I am not interested in having a 50-pound lump of wood pounce upon me. We have got to get the thing mounted as close to balance as possible.

12:45 pm. Risking hernia, I hold the bolt of wood while my wife racks the vestigial tailstock of my bowl lathe in and out. We test various positions; don't find the probable center until about the fifth try. The idea is to turn off the waste and true up the cut face, after which I'll glue it to a scrap disk on a face plate.

1 pm. Switch on the lathe. Not too scary. It's close to being balanced, and the lathe is wobbling only moderately.

1:20 pm. Roughing out completed. The bolt is about 16 inches in diameter and about a foot long. We remove it from the lathe and glue-mount it on a faceplate with Hot Stuff.

1:30 pm. Back on the lathe, very close to being on center, too. With the tailstock brought in tightly, refining the shape proceeds apace; I have no idea at this point what the shape will be. It'll come.

1:45 pm. It comes. The only shape this hog will take, without sinful waste, is that of a

fat, closed jar. I am not partial to closed-vessel turning, but we won't get fancy. The opening will be ample.

2 pm. The outside is complete; the wood is beautiful. There are several bark inclusions that may open up as turning proceeds. On to the interior; there is a huge amount of wood to be wasted out of this piece.

2:30 pm. I've gone as far as I can with the Superflute; the piece is opened up about 9 inches wide and down to about 2 inches from the base, around an inch-wide column still held by the tailstock. I want to keep the tailstock in place as long as possible; this thing is still very heavy. Out comes the Thompson tool, made especially for closed turning. It weighs almost 10 pounds.

3 pm. Friends come over; I'm grateful to stop for a few minutes and chat.

3:30 pm. Back to it; the tailstock finally has to come out. Very gingerly, now; a catch with this much weight at the perimeter could tear it off the lathe.

4 pm. It occurs to me that, with the increased interest in woodturning these days, there might be some profit in training a couple of beavers to do this work. I mean, the important stuff, the art part, was done in the first half an hour; the rest of it is just trying to remove wood without ruining the thing. Thinking about trained beavers reminds me of the greatest of the untold stories of Sherlock Holmes, the one about the politician, the lighthouse and the trained cormorant. The tool catches lightly; no damage, but a warning to stop woolgathering.

5 pm. Shovel shavings into a bag. Wife, unable to lure me to lunch earlier, provides cookies and encouragement. Upper half is about the right thickness. Bark inclusions are opening up at the apogee of the curve, but the bottom half is still much too thick.

5:30 pm. Hog that wood. Legs beginning to quiver a little; back whining and sniveling. Getting close; don't lose it now.

6 pm. Final scraping and smoothing. I don't think I can do any better than this, so I stop.

6:30 pm. Outside, and lower half of inside, sanded to 150 grit. There are all kinds of surfaces here; silky smooth to rough bark. Upper portion of interior sanded by hand, not too well, but I'm giving out.

7 pm. Take it off the lathe, remove the faceplate, bandsaw off most of the scrap, sand away what's left. Not the way I usually do it, but this piece is bigger than usual.

7:30 pm. Sign the piece and it's done. So am I. Knees knocking, I stagger upstairs. My wife, who will oil the fat jar over a period of a week or two, brushes me off, cleans the chips out of my ears and fixes me two of her extra-special hamburgers.

That's instant gratification for you.

Jack Warner is a woodturner who writes for The Atlanta Journal and Constitution. Reprinted with their permission.

Special Package Deal on Hot Stuff Adhesives



Hot Stuff is a "super-glue"-like adhesive which is very useful when turning bowls with punky areas that want to fall apart, or at the intersection of bark and sapwood, where delamination wants to occur. This cyanoacrylate liquid sets up hard in less than a minute (almost instantly if a special

accelerator is sprayed on) and effectively reinforces the bowl material. For filling small holes or pits, there is a thicker gap-filling version of Hot Stuff which will remain on a surface long enough for sawdust to be added to make a wood filler.

There are 3 kinds: Original Hot Stuff, the regular adhesive which is about as runny as water; Super T Hot Stuff, which is a little thicker but will still penetrate readily into small crevices, and Special T Hot Stuff, which is fairly viscous and makes a good medium for filling modest pits or cracks. The Hot Shot Accelerator comes in a pump spray bottle for easy application. We highly recommend getting Hot Stuff Solvent; the adhesive, like all the "super glues", can bond flesh almost instantly.

Our package deal includes one each of the Original Hot Stuff, Super T gap filling Hot Stuff, Special T ultra-gap filling Hot Stuff, Hot Shot Accelerator, and Hot Stuff Solvent. Purchased separately, they would cost \$40.30.

Available from Highland Hardware for just \$29.95 plus \$3.00 shipping, a savings of 25%.

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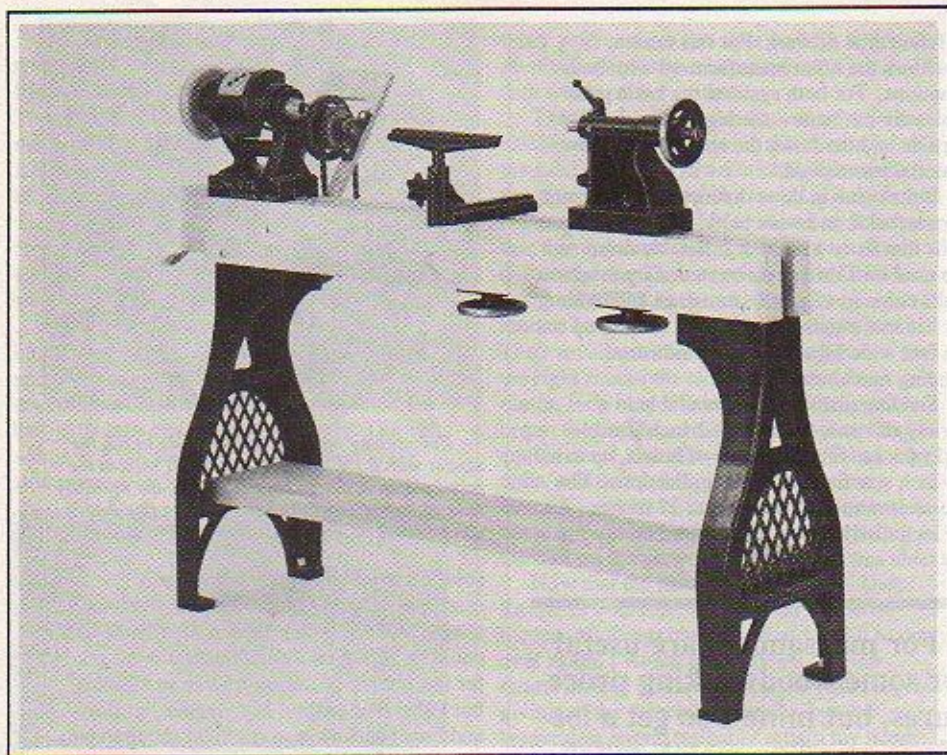
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Conover 16" Heavy-Duty Lathe

We are proud to add to our line of turning tools and machines the Conover heavy-duty 16" lathe. Its robust cast iron construction, meticulous machining, large 16" swing, unlimited bed length, and its variable speed option make it one of the most versatile and appealing lathes on the market. It is also an outstanding value.

With its massive 1-1/2" diameter spindle, the Conover lathe is ideal for the serious turner for both large faceplate work as well as spindle turning. While other new "heavy-duty" lathes have settled for a 1" spindle diameter (such as one finds on smaller lathes), the Conover's spindle is one of the largest in the marketplace. Its cross-sectional area is more than twice that of a 1" spindle, thus control of large workpieces is far more stable.

The spindle is held in heavy Timken™ tapered roller bearings. Unlike ordinary ball bearings, roller bearings can handle both radial and axial loads well and can be preloaded. A ball bearing must have some "play" to work. At certain harmonics this play prints out into your work. Because roller bearings are opposing cones, they can be preloaded, or brought to a condition of zero play. By turning the nut at the rear of the spindle, the preload may be adjusted at any time to accommodate wear and the needs of the turner.

The Conover lathe's headstock, tailstock, and toolrest, as well as the optional legs, are heavy iron castings poured for Conover by a small foundry located in Ohio. The timber bed for the lathe is supplied by the user (two 2" x 6" planks are required), permitting you to choose whatever length is appropriate for your work up to 12 feet. Weight of the lathe including cast iron legs, timber bed, and typical motor is about 400 lbs.

Weighing nearly 150 lbs, the optional pair of Conover cast iron legs greatly simplifies bed building and yields a rock-solid lathe of classic beauty. There are provisions for including two

shelves or a box section for sand. We highly recommend the leg set. Alternatively, plans are included with the lathe for building a leg-stand from wood.

The 1-1/2"-8 tpi spindle is bored for a #3 Morse Taper. The tailstock spindle is a #2 MT, and is hollow, allowing up to 3/8" "gun drilling" of workpieces mounted between centers.

The drive pulley offers four principle speeds (600, 1100, 1725, & 2600 rpm) and is indexed to 24 positions. An optional counter shaft kit provides an additional range of lower speeds for large diameter work. With it, the four principle speeds are reduced to 1/3 normal, yielding a low speed of 200 rpm.

Many purchasers choose to outfit the lathe with the Variable Speed DC Motor option, permitting continuous speed control down to a remarkable 50 rpm, a distinct advantage for serious bowl turners.

Outboard turning is possible by moving it to the end of the bed, eliminating the need for extra left-hand faceplates. (An optional extra set of motor mount brackets is recommended for ease in relocating the motor assembly when setting up for outboard work).

An optional walnut outboard hand wheel fitted on a precision machined hub greatly aids screwing and unscrewing heavily laden faceplates onto the spindle, and is useful in turning working for inspection and as a brake.

An optional full length tool rest kit includes a stepped cast iron pin which fits into the toolrest base and a threaded right angle pin which screws into the tailstock, allowing mounting of a user fabricated wood rest of any length to facilitate production spindle turning situations.

The optional Conover 3-Jaw Scroll Chuck provides a quick way to perfectly center objects up to 4" diameter. Supplied with two sets of jaws for both inside and outside holds. Allows feeding of up to 3/4" dowel through the head stock spindle. Work can be chucked and unchucked frequently to within .003" accuracy.

CONOVER LATHE PACKAGES

The lathe is offered either in component fashion, or as a standard or deluxe package. When purchasing as components, the headstock, tailstock, 12" tool rest and base, motor mount, belt and motor pulley are offered as the Basic Lathe.

When ordering the Basic Lathe, the following items must be ordered or provided separately: drive center and tailstock center for spindle turning, face-plate for bowl turning, motor, switch, and legstand.

Our Standard Package includes the items included with the Basic Lathe, plus these items: #3MT 2-spur center, Conover live center, 1-1/2 HP 1725 rpm AC motor, enclosed toggle switch, and Conover cast iron legs.

Our Deluxe Variable Speed Package includes the Basic Lathe plus the #3MT 2-spur center, Conover live center, 3" faceplate, outboard handwheel, 1-1/2 HP Variable Speed 220V DC motor and controller, and Conover cast iron legs.

The Basic Lathe and Lathe Packages are shipped by truck Freight Collect.

011	Conover Basic Lathe	999.00
021	Conover Standard Package	1750.00
031	Conover Deluxe Package	2199.00
535	Cast Iron Leg Set	399.00
498	1-1/2 HP 110/220V AC Motor	219.00
499	Switch for AC Motor	29.95
540	Counter Shaft Kit	149.95
428	1 HP 110V DC Motor & Var. Speed Controller	499.00
429	1-1/2 HP 220V DC Motor & Var. Speed Controller	599.00
430	Shop Wiring of DC Motor	47.95
411	Spare Motor Mount Brackets	15.95
509	#3MT 2-Spur Drive Center	29.95
510	#3MT 4-Spur Drive Center	29.95
511	#3MT Mini Drive Center	34.95
520-2	#2MT Conover Live Center	74.95
513	#2MT Cup Center	29.95
501	3" Face Plate	29.95
502	4" Face Plate	33.95
503	6" Face Plate	35.95
514	Screw Center	47.95
521	#2MT Drill Chuck	39.95
505-4	4" 3-Jaw Scroll Chuck	199.00
560-1	Outboard Hand Wheel	88.50
306-6	6" Tool Rest	27.95
306-12	Spare 12" Tool Rest	29.95
209	Full-Length Tool Rest Kit	24.95



CONOVER LIVE CENTER WILL IMPROVE ANY LATHE

Necessary for the serious turner, a live center eliminates burning and chatter while allowing much higher tailstock pressure. The Conover model fits any lathe with #2MT tailstock, and is equipped with four interchangeable points. The extended cup point is used for turning tool handles and for getting into such things as goblets and weed pots. The normal cup point is used for most turning. The core point is inserted into a 3/8" hole, providing secure holding of large items. The 60 degree point is used for small, delicate turnings.

520-2 #2MT Conover Live Center 74.95

Sanding Machines

Trying Out Some of Delta's Inexpensive New Models

By Mark Duginske

There are many things in woodworking that are enjoyable. Hand planing with a sharp plane is perhaps the most fun. When one thinks about the *least* enjoyable woodworking activity, what usually comes to mind is sanding.

Sanding is perhaps the least creative act in woodworking. There's no sense of magic involved as you'll find using a lathe or bandsaw. Sanding is hard work – tiring, slow, dusty, dirty, and the list goes on. If you want to get rid of the obnoxious neighbor who likes to come over and waste your time and drink your beer, invite him to sand for a while. It's amazing how the act of hand sanding a nice big flat surface can refresh his memory that he has something better to do back at his own house.

Sanding with machines is a little more interesting because it takes some skill. In some situations it requires a lot of skill. All tools have subtlety, but sanders have more than their share.

Of course, it is important to realize the limits of each tool. The best sander made can't make up for a poorly adjusted tablesaw. If you can't get your tablesaw to cut a decent miter, don't expect a sander to correct it.

Sanding should not be considered a precise activity. It is used to finish something; it is not used to fit something. Because of the nature of sanding, it's not good for making a perfectly straight line. Straight lines are best cut rather than abraded. Sanding is good for smoothing things, rounding corners and the like.

Early woodworkers used stones to smooth their work. Eventually sand was glued to a solid or flexible back creating "sandpaper". Modern abrasives are more sophisticated in their manufacture, but the basic Neanderthal idea is unchanged.

Modern machines apply the principle of the wheel to the act of sanding. The revolving sandpaper takes two forms, either a belt or a disk. Each has distinct advantages and disadvantages. As a rule the belt and the disk complement each other with each doing a

different type of work. For this reason, machines are often manufactured with both functions. For both systems the basic principles are the same – the bigger the abrasive particle and the faster the speed, the more material is removed.

Belts come in three distinct forms: drums, narrow belts, and wide belts. Drums are short belts that fit on a solid or inflatable drum and are used on a drill press or stationary machine. Belts come in all sizes, from ones 1/2" wide for use as a bandsaw accessory, to ones up to six feet wide for use on huge industrial sanding machines.

Sanding disks also are available in a variety of sizes, from small 2-inch flexible disks for sanding the inside of bowls, up to a 48-inch size for industrial applications. The most common disk size is 6 to 12 inches. A 10 inch disk is available as an accessory for the table saw.

For me, sanders are useful for some woodworking procedures, but mine also get a lot of use grinding metal, rough sharpening tools, and making jigs and fixtures.

Disks have an interesting subtlety. The outside of the disk rotates faster than the inside of the disk. This has both an advantage and a disadvantage. The advantage is that it provides a variable speed mechanism simply by moving the workpiece in relationship to the outside of the disk. The closer the workpiece is to the outside, the faster the sanding speed, and the more material removed. Used correctly, this mechanism can be very handy. It is wonderful for things like rounding corners. The disadvantage is that the inside of the disk and the outside will remove material at two different rates of speed, making a long straight piece more difficult to control.

The question when choosing sanding equipment boils down to what kind of work you are doing. You can justify any machine if it will pay for itself. For years I used a large industrial disk/belt sander combination that belonged to a friend of mine. I stored it for him in exchange for getting to use it. When he finished building his new shop, it was time to give up use of this machine, which would've cost about a grand to replace. To be perfectly honest, I was not sad to see the machine go. It was big, heavy and hard to move. I spent more time moving it than using it. For the type of work that I do, I did not need an industrial machine. For me, a sander is useful for some woodworking procedures, but mine also gets a lot of use grinding metal, rough sharpening of tools, and making jigs and fixtures.

In choosing a sanding machine, I was looking for versatility and compact size, preferring a tabletop model to one that would take up ever-precious floor space. The ideal



For sanding intricate details, I like to run the sander with a 1/4" - or 1/2" - wide belt without the metal platen in place. Thus equipped, the normally tedious task of carefully hand sanding fine details can be handled in practically no time at all.

solution would be to have three basic machines. These would include a narrow belt, a wide belt and a disk sander. Ideally they could be stored on a shelf under a table, ready for use but not in the way. I like small tools, but I also like quality. My Hegner scrollsaw and Inca bandsaw also fill these requirements.

To satisfy my three requirements, I chose two machines, the Delta 1" Belt Sander, and the Delta 4" Belt/6" Disk Combination Sander. Both are manufactured for Delta in Taiwan. Though the quality may not be quite on par with the best that Europe has to offer, the machines are quite well made, and their prices make them affordable for just about everybody. All in all, I feel I got a fair deal, especially considering that sanding is not a terribly precise activity anyway.

The 1" Belt Sander, Model 31-050 (shown above) is a surprise and a real treat. It's small, lightweight (intended here as a compliment) and very portable. It runs very quietly and seems to have enough power.

For sanding intricate details, I like to run the sander with a 1/4" - or 1/2" - wide belt, usually without the metal platen in place. This gives the belt more flexibility. While such narrow belts are not generally easy to find, if necessary, ordinary 1"-wide belts can be cut in half or in quarters.

Having the little Delta belt sander thus equipped with 1/4" and 1/2" belts, the normally tedious task of carefully hand sanding fine details on workpieces can be handled in practically no time at all. (My old method for sanding fine details required putting a 1/2"-wide sanding belt on my bandsaw. Now it's handy and far more efficient to be able to move back and forth from the bandsaw to the sander with no loss of time.)

Editor's Note: Highland Hardware offers 30" and 42" belts in the 1/2" width. These can in turn be split into two 1/4" -wide belts if desired. To do so, we recommend using a sharp utility knife, a straight edge and a little patience to slice the back of the belt in a straight line down the middle along its length.

Mark Duginske is a woodworker from Wausau, Wisconsin.

For sanding heavier material, the Delta 6" Disk/4" Belt Sander Combination, Model 31-460 (shown below), is a good tool. Though I don't have major complaints about the tool, I would have found it more useful if it had come with an 8" disc instead of a 6". A 6" inch disk can only handle relatively small work. It offers only 3" of usable working surface. I find myself using this sander almost exclusively in the vertical belt sander mode, which can handle a wide variety of work.

I like the weight of this machine and the built-in motor which seems to run smoothly and without vibration. You should however use caution when switching it on because the belt jerks into motion very suddenly. The belt seems to track well and does not pull to the side even under heavy pressure.



After acquiring the two machines already described, I had the opportunity to try out a new offering from Delta. It is a 1" x 42" Belt/8" Disk Combination, Model 31-340 (pictured at right and above right). This has become a popular generic configuration also offered by a few Taiwanese importers. The Delta model, however, is distinctly different from the others. First of all, the wheel frame on the Delta is cast iron, versus sheet metal fabrication for the others. Both tables are cast iron and they fit acceptably well. Each table locks conveniently using a single handle. The

miter guide, which has slots on both tables, is all metal and seems adequate for the job. I hate wimpy miter guides.

The biggest difference between the Delta machine and the generics is the orientation of the sanding disk. On traditional disk sanders, the rotation is counter clockwise and the work is placed on the left side of the table. It seems that this approach makes it easier to control the workpiece. This is how the new Delta is designed (thank heavens). The generic models have what I consider a design flaw. Their rotation is clockwise, forcing you to use the right side of the table, which for some reason feels very clumsy. When I originally began to consider getting some new sanding equipment, I looked at the generic Taiwanese units, and decided to get my two Deltas instead, partially because of the workmanship, but also because I didn't like the rotation of the disk on the generics.

Now that the new Delta 1" Belt/8" Disk Sander is available, the decision would be harder. All things considered, if I had it to do over again, I would probably get the new model instead of the other two. I would regret giving up the 4-inch belt sander, but the bigger disk would probably satisfy my needs. The new model's added space between the belt and back post also proved valuable for some workpieces. And at about sixty pounds, the new model is still small enough to store under a bench to save space.

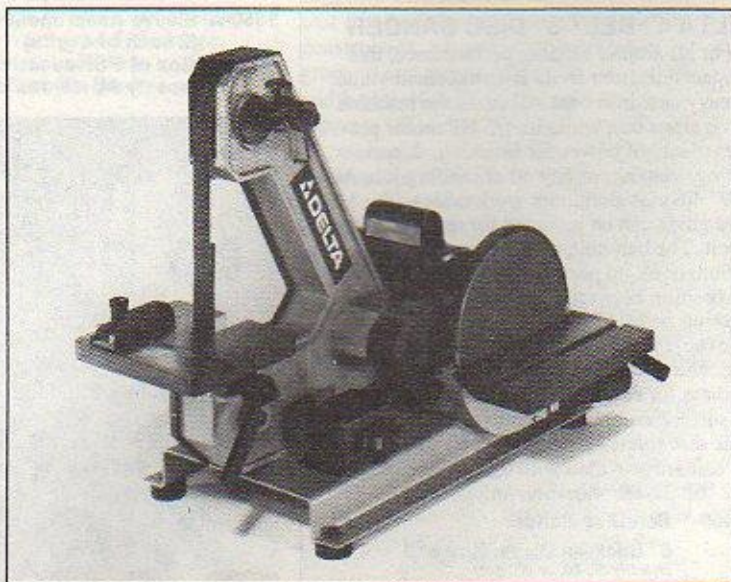
However, if my needs only justified a small expenditure for a power sander, the handy 1" x 30" model would still make a good investment.

A friend of mine who is an architect and an extremely good designer frequently talks about the problems with design and cost. Often for an extra 5 or 10% in cost, you can get an extra 25 to 50% in value. I'm glad the bean counters at Delta did not cut off that 5 or 10% in cost on these machines because the extra value is worth many dollars more.



One more piece of sanding equipment that I'll mention is the inflatable drum sander, which has become an important part of my sanding artillery. It's a drum that's inflatable using a tire pump. By changing the pressure, you can change the characteristics of the sanding procedure. Inflated to a low pressure, the drum conforms to odd shapes, allowing you for example to sand cabriole legs. Fully inflated, it's great for sanding straight pieces where you want to produce a slight radius.

In an article in the next issue of *Wood News*, I plan to discuss some of the practical applications of these sanding machines.



New Delta Model 31-340 (available from Highland Hardware, see next page)

Sanding Tools



DELTA

DELTA 1" BELT SANDER

This multi-purpose machine brings inexpensive efficiency to a variety of common shop chores. It's an excellent light belt sander for contouring and finishing edges; a steel platen which supports the belt for straight work can be removed for sanding curved surfaces. The work table can be tilted up to 45 degrees forward for chamfering and mitering. Optional felt belt can be used for polishing wood or metal, while regular sanding belts can do double duty for tool sharpening. An optional flex shaft tool can be attached to the motor for use in carving, drum sanding, etc.

The 1" belt sander is powered by a 1/5 HP motor which delivers a belt speed of 3150 sfm for fast, clean sanding. Belt length is 30"; 100-grit belt is included. Net weight is 12-3/4 lbs. Backed by Delta's 2-year warranty.

31-050	1" Sander/Grinder	69.95
31-055	Flexible Shaft	18.50
31-054	Felt Buffing Belt	11.75

Sanding Belts, Box of 5 (specify 80, 120, or 150 grit)		
0530	1/2" Width	2.80
1030	1" Width	4.80



DELTA 4" BELT/6" DISC SANDER

For all-around sanding performance, this compact unit from Delta is an excellent value. A heavy cast-iron base stabilizes the machine for vigorous use, while its 1/3 HP motor provides plenty of power for finishing, dimensioning, shaping, or any other sanding job. A 6"x9" die-cast aluminum work table with mitre guide can be mounted for use with disc or belt. The belt unit, which incorporates a vacuum hook-up port, can be set and locked at any position between horizontal and vertical. Working surface is 12" long, or 9-1/2" with removable back stop in place. Belts are 36" long. The 6" disc unit uses self-adhesive sanding discs for easily changed, hardware-free flat surface sanding. Belt runs at 2000 sfm, while disc rotates at 3100 rpm. 60-grit disc and belt are provided with the sander. Weight is 42 lbs. 2-year warranty. *Shipped UPS.*

31-460	Belt/Disc Sander	149.95
006	6" Stick-on Discs, Box of 3 (specify 50, 80, or 120 grit)	4.50
4036	4" x 36" Belts, Box of 3 (specify 40, 80, or 120 grit)	6.80

NEW MODEL 31-340

DELTA 1" X 42" BELT/8" DISC SANDER COMBINATION

This surprisingly affordable new machine (illustrated on page 11) is destined to make life easier in countless woodworking shops both large and small.

The 1" x 42" belt sander's 6-1/8" x 7-1/8" cast iron work table tilts 45° forward for chamfering and mitering. The 8" disc sander's 4" x 10" table also tilts 45°. Both are slotted for a miter guide, which is included.

A powerful 1/2 HP induction motor gives plenty of power for heavy sanding jobs. The disc sander runs 1725 rpm. Belt sander speed is 3000 SFM. Sawdust can be vented through a 1-1/2" dust collector port. The unit stands 19-1/2" high x 15" wide x 25-1/4" deep. The machine weighs a hefty 62 lbs. *Shipped UPS.*

31-340	1" x 42" Belt/8" Disc Sander	189.95
008	8" Stick-on Discs, Box of 3 (specify 50, 80, or 120 grit)	6.50

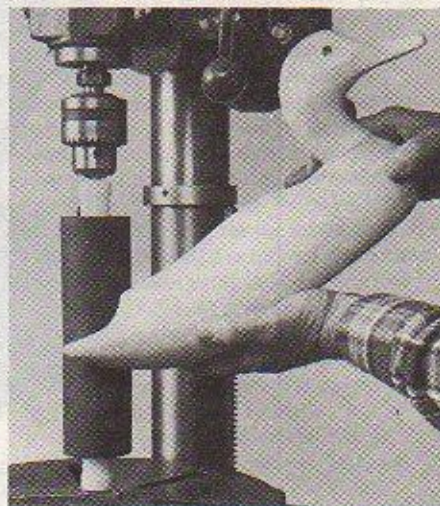
Sanding Belts, Box of 5 (specify 80, 120, or 150 grit)		
0542	1/2" width	3.80
1042	1" width	5.80

AIR-FILLED CUSHION CONTOUR SANDERS FOR LATHE OR DRILL PRESS

This 3"-diameter x 8"-long can be quickly inflated using a bicycle pump or compressor. Inflate to a low pressure to allow contour sanding of odd shapes, or a higher pressure for sanding a slight radius. It comes ready to mount instantly between centers on your lathe.

An optional adapter also allows the drum to be mounted vertically on your drill press. With the adapter, one end of the drum fits in the drill chuck; the other end is held securely by a bracket which can be C-clamped to your drill press table. A minimum 10" clearance between drill chuck and table is required for mounting. Includes 80-grit sanding sleeve.

1610	Lathe Mounted 3" x 8" Inflatable Sander	59.95
1301	Drill Press Adapter for 1610	10.00
1650-A	Sleeve Assortment (2 each of 4 grits)	11.50
1650-3	Box of 5 Sleeves (specify 80, 100, 120, or 150 grit)	7.50



NEW FLEXIBLE BOWL SANDING KITS

Extremely flexible thick foam pads on these sanding disk holders enable you to easily sand bowl interiors while the bowl spins on the lathe. The kit includes one each of the 2" and 3" diameter sanders with 1/4" shafts that mount in your electric drill, plus three flexible stick-on disks for each sander. Additional disks can be ordered in boxes of 25 of a single grit.

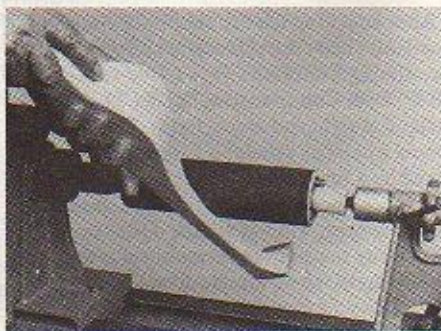
70370	Bowl Sanding Kit	9.95
70380	Box of 25 2" Flexible Disks	7.50
70390	Box of 25 3" Flexible Disks (specify 80, 100, 120, or 150 grit)	10.50



INFLATABLE DRUM SANDER FOR BENCH TOP DRILL PRESS

This smaller inflatable sanding drum (1-1/2" diameter x 4-1/2" long) can be mounted on any drill press including small bench top models. The drum's quarter-inch steel shaft fits securely in the drill chuck. An 80-grit flexible sanding sleeve is included.

1606	1-1/2" x 4-1/2" Inflatable Sander for Drill Press	26.95
1673-A	Sleeve Assortment (2 ea. of 4 grits)	7.50
1673-15	Box of 5 sleeves (specify 80, 100, 120, or 150 grit)	4.50



PORTER-CABLE MODEL 330 SPEED-BLOC® FINISHING SANDER

This classic quarter-sheet sander is now factory-fitted with 3M's new Stikit® pad for use with quick-change self-adhesive sandpaper, making the Speed-Bloc not only the smoothest finishing sander you've ever used but one of the most efficient as well. The Speed-Bloc has long been known for its extremely smooth operation; 15,000 orbits per minute together with its heavy-duty design let you work longer without suffering the pangs of "sander's arm" while producing superbly finished surfaces. For production sanding, it's hard to beat the convenience of Stikit paper, with its long-lasting no-fill abrasive that won't slip or go on loose. Standard paper clamps are still built in, of course, so you can use regular sandpaper as well as 3M's Stikit system. (See page 42 of *Wood News* for a complete listing of Stikit papers.) The Speed-Bloc is powered by a 1.2-amp motor. Weighs 4 lbs.

330 Speed-Bloc Sander 59.95



PORTER-CABLE 505 HALF-SHEET SANDER

When conditions call for finer sanding than you get from your belt sander, but faster work than you get from your 1/4-sheet sander, the 505 half-sheet orbital sander is the tool of choice. Full 4-1/2 X 11" paper size together with an aggressive 1/8" orbit diameter powered by a 2.3-amp, 10,000 rpm motor provides very fast stock removal and smooth, swirl-free surfaces. The 505, like the Speed-Bloc®, is factory-equipped with 3M's new Stikit® base, ready to use with self-adhesive sandpaper; standard clamps also allow use of regular paper. The 505 weighs 7-1/4 lbs.

505 Half-Sheet Sander 125.00

PORTER-CABLE
PROFESSIONAL POWER TOOLS



PORTER-CABLE MODEL 361 3X24" BELT SANDER, THE PROFESSIONAL'S CHOICE

This is a no-frills basic belt sander that has what it takes to be the best-selling belt sander in the South. It's plenty powerful (10.5 amps), very fast (1550 no-load SFPM), and nicely balanced to avoid digging in on either edge. Tracking is simple and positive, and the belt-release mechanism is an easily reached lever on the right side of the machine. 13-3/4 lbs.

361 3" x 24" Belt Sander 188.00

DELTA



SALE \$599

DELTA 10" CONTRACTORS' SAW

Once again Delta's popular 10" contractors' saw is available at a very attractive price, while limited sale quantities remain.

Furnished with a 1-1/2HP Delta motor (wired for 115 volts), Jet-Lock fence with 25" rip capacity, two table extension wings and a sturdy open stand, the Contractors' Saw sets the standard for full-capacity table saws designed for portability and utility. This saw is traditionally a favorite for the basement woodworker who places a high value on economy and who's looking for more capacity, more precision, and more reliability than is commonly found in inexpensive saws.

Table size with extensions is 40" wide by 27" deep. The table offers over 12" of support in front of a fully raised blade; the mitre guide can handle 20" crosscut width. Max depth of cut at 90° is 3-1/8", 2-1/8" at 45°. The 5/8" arbor accepts dado sets up to 13/16" max width. A steel blade is provided with the saw; count on picking up a good carbide blade to get the best performance the machine can offer. Our best seller is Freud's excellent LU84 50-tooth combination blade. Weight with motor and stand is 265 lbs. *Sale quantity limited. Shipped via truck for a \$40 charge.*

34-444 10" Contractor's Saw 599.00
LU84M010 10" 50t Carbide Blade 49.95



RC-33 Planer
SALE \$999

DELTA 10" MOTORIZED MITER BOX

Solid construction, thoughtful design, and unusually large cutting capacity make the Delta miter saw a good one at any price, and a bargain at only \$199.95. The saw's 13-amp, 2 HP motor delivers plenty of power for aggressive cutting in any kind of wood. It's 12" diameter rotating table features a replaceable insert liner to eliminate tear-out. The specially designed base fits on a 2 x 6 or two 2 x 4s for quick jobsite set-up.

The Delta miter box will cut through a 2 x 6 in one pass at 90°, or a 2 x 4 at 45°. Maximum capacities are as follows: at 90°, 2-1/2" x 5-3/4", or 3-1/2" x 4-1/8". At 45°, 2-3/8" x 4", or 3-1/2" x 3-3/4". There are positive stops at 90°, and at 45° and 22-1/2° right and left. The saw weighs in at 55 lbs.

34-080 Delta 10" Miter Box 199.95



DELTA RC-33 13" 2 HP HEAVY-DUTY THICKNESS PLANER - Only \$999

This 2-horsepower workhorse offers a lot of performance from a compact, powerful and ruggedly built machine. Its features include cast-iron bed and head assemblies, four-post construction, adjustable bed rollers, spiral-grooved and serrated infeed roller, 13" planing width with 19-3/4" bed length for good support, 1/8" full-width depth of cut capability, and stable 295-lb. weight. Max stock thickness is 5-7/8". Since the cutterhead is raised and lowered over the stationary bed, outrigger stock support can easily be put in place in the shop or at the job site. Motor is wired for 220 volts, ready to mount and run. The three-knife cutterhead rotates at 4500 rpm, providing over 72 strokes per minute for clean, smooth planing. A knife-setting gauge is included as standard equipment.

Available optionally is an open steel stand for stationary mounting of the planer. Another popular accessory is a shaving hood for dust collector hook-up; it's a cast aluminum unit with a 5" outlet port. *Shipped via truck for \$50 charge. Quantity limited at sale price.*

22-651 Delta 13" 2 HP Planer 999.00
50-315 Steel Stand 88.40
22-658 Shaving Hood 54.50

Makita



NEW MAKITA 4390DW CORDLESS RECIPROCATING SAW

This is Makita's newest entry in their 9.6-volt cordless line, and anybody doing carpentry or remodeling is going to wish they'd come out with it a long time ago. The tool weighs only 3.1 lbs., so it's perfectly suited to one-hand work overhead or in weird spaces. It runs very smoothly, so control is not impaired by vibration in the motor or the blade. The 4390 cranks out 2700 strokes per minute, with a 9/16" stroke length. It is rated to cut up to 39 feet of 1/2" softwood on a full charge, and in our first tests here at the store chopped through 3/4" birch and ripped 3/4" fir plywood effortlessly. A dual-element safety switch is easy to use but prevents hazardous unintentional starts. The hex wrench used for

blade installation snaps into the tool body for storage. One metal-cutting and one wood-cutting blade come with the saw. A 9.6-volt NiCad battery and 1-hour charger are standard equipment with the 4390DW.

If you already own another Makita 9.6-volt cordless tool with battery and charger, you might choose model 4390D, which provides the reciprocating saw alone at considerable savings.

4390DW	Cordless Recipro Saw with Battery & Charger	List \$218 139.95
4390D	Cordless Recipro Saw, No Battery & Charger	79.95
Blades, Pack of 5		
792541-7	9 tpi Wood-Cutting	7.60
792540-9	24 tpi Metal-Cutting	8.40



AFFORDABLE MAKITA 6040DW 4.8-VOLT 3/8" CORDLESS MINI DRIVER/DRILL

For general around-the-house screwdriving and drilling convenience, this tiny new Makita drill is just the ticket. Weighing a scant 1-3/4 lbs. and measuring just 6-3/4" long, this is the smallest cordless driver/drill we've ever seen, and yet it works nearly as powerfully as its much larger cousins. The 6040 has plenty of power to drive drywall screws into unpiloted softwood, or to punch 1/2" holes in hardwood. The main noticeable difference between its performance and that of a much more expensive 7.2-volt drill is in the length of time it can crank out the power under load; if you don't intend to subject it to continuous heavy duty this mighty midget will do the job just fine. The 6040 operates at 450 rpm in forward or reverse. Its 110-volt plug-in charger will fully recharge the battery in three hours.

For anyone who'd like to be a little handier around the house, but who doesn't need an expensive professional's tool for the purpose, the 6040DW is the perfect token of your esteem.

6040DW 4.8V Cordless Drill List Price \$93 49.95

BOSCH



BOSCH 1581VS JIGSAW

Use this saw one time, and you'll know why it is universally acknowledged as the finest there is. Steady, precise control is virtually effortless - in fact, it's hard to believe that reciprocating action can be engineered to be so smooth. Includes 4 orbital-action settings and a speed range from 500 to 3100 strokes per minute. 4.8 amp industrial-duty motor. Blower keeps cut line free of sawdust. Weighs 5.5 lbs. List Price \$235

1581VS Orbital Jigsaw 139.00

Bosch Jigsaw Blades, Pack of 5

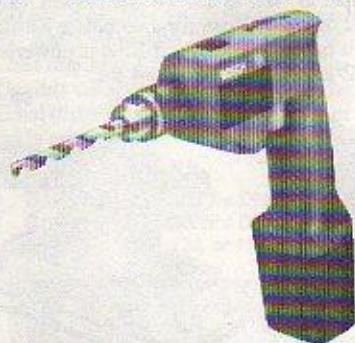
	Length	tpi	Application	
T144D	4"	6	Fast rough cut	5.00
T244D	4"	6	Fast rough scroll cut	6.45
T101B	4"	10	Very clean cutting	5.50
T119BO	3"	12	Tight scroll cutting	5.50
T101BR	4"	10	Laminates	5.50
T127DF	4"	8	Metals up to 1/4" thick	8.70
T144DF	4"	6	Nail-resistant rough-in	9.55

EXTRAORDINARY BUY on Bosch's Powerful 9.6V Cordless Drill Model 920VSR

Dual-Range Variable Speed Reversible Drill Includes Free Carrying Case

A limited-time special from Bosch lets us pass along a great buy on this heavy-duty cordless driver/drill. Two variable speed ranges, 0-400 and 0-900 rpm, let you choose the best combination of torque and efficiency for the job at hand, be it driving screws in softwood or drilling holes in steel. The 920VSR comes with a removable quick-charge 9.6-volt battery and Bosch's new multi-voltage charger, which will handle any of Bosch's NTC battery packs. List Price \$207

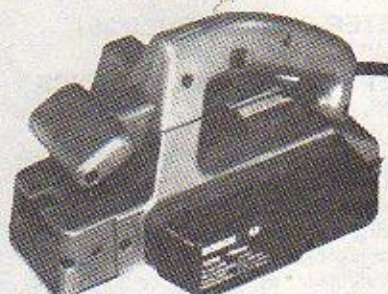
920VSR Bosch Cordless Drill 109.95



BOSCH MODEL 3258 ELECTRIC PLANER Features Inexpensive Throw-Away Carbide Knives

For a limited time, Bosch is running a promotion that enables us to offer this powerful hand-held planer at a superb price. The most outstanding feature of the 3258 is its double-edged, self-setting, inexpensive carbide blade system - when edges finally get dull, just slip the blades out of the cutterhead, turn them over and slip 'em back in. When both edges are shot, replacement blades cost only \$9.95 a pair, which strikes us as a remarkable bargain. The 3258's 5.7-amp motor is the most powerful in its class, and can handle a 1/16" depth of cut across the full 3-1/4" blade width. The tool's design allows rabbetting to 3/4" max depth, and the fence provided as standard equipment facilitates chamfering or beveling up to 45°. The 3258 is compact (11" long) and light enough at 6.6 pounds for easy hand-held use wherever the job needs to get done.

List Price \$205
3258 Bosch 3-1/4" Planer 139.00
2607000096 Pair of Replacement Carbide Knives 9.95





CUSTOM VISE LINERS WITH DROP-IN PIVOTING JAWS

These new jaw liners are the most functional vise accessories we've seen. They work with all four Record quick-action vises, as well as practically any other make of wood-working vise. A steel bushing in each liner lets you instantly mount a pair of pivoting accessory jaws which grip tapered or oddly-shaped work, as well as holding small pieces up where you can get at them.

The liners are hard maple, faced with a layer of thick, long-wearing full-grain leather for a positive non-marring grip. The main faces are rabbetted all around, leaving a square-sided shelf for supporting stock to be planed, or for holding two pieces at an accurate right angle for marking, drilling, etc.

The pivoting jaws, like a carver's vise, provide clamping capability your bench vise never had before. They're mounted on heavy steel angle fitted with 1/2" case-hardened shafts which fit into the main jaws' steel sockets. They're strong enough to hold a chair by one leg, and their leather-lined faces will grip the smallest workpieces without slipping.

The jaw liners are 11" wide, 3-3/4" high, and 1-3/8" thick. The pivoting jaws are 3-1/2" wide by 2-1/4" high. Mounting instructions and hardware are included.

01.60.01 Custom Vise Liners 39.95



PELONIS DISC FURNACE PROVIDES LOW-COST HEAT FOR YOUR SHOP

This high-tech 1500 watt, 5200 BTU space heater is one of the safest ever built, and is ideally suited to providing winter comfort for the small woodworking shop. Minutely honey-combed ceramic discs are at the heart of the system, efficiently transferring heat to fan-forced air without generating temperatures high enough to ignite common shop materials such as shavings, sawdust, paper, etc. A single Pelonis furnace will handle the heating requirements of a moderately well insulated 400 square foot shop.

Superlative features include: thermostat control for constant temperature maintenance without hot/cold cycling; tilt sensor that shuts the unit off if it's accidentally tipped over; powerful fan for effective air distribution; washable intake filter; low cost operation; and vanishingly small space requirement. The entire unit is housed in a 6" cube, and weighs only six pounds. Each Pelonis Disc Furnace is provided with a five-year limited warranty.

08.60.21 Pelonis Shop Furnace 149.95

Highland Hardware Catalog Corrections

The denim tool rolls for carving tools listed on page 55 of our 1989 catalog are incorrectly priced. The 6-piece set, catalog #12.64.11, is available for \$7.95. The 12-piece set, catalog #12.64.12 is \$10.95.

Modern Woodturning, listed on page 87, is out of print and no longer available.

Portalign has discontinued making the drill guide model offered on page 69 (our catalog #07.50.02), and replaced it with a new model. The price is unchanged. The new model features a tough 8-sided plastic base (which slides on steel guide rods) rather than the old round aluminum base; 14% longer vertical travel; 3-3/4" clearance (for larger body drills); larger base opening; and tighter tolerances on the spindle. We will substitute the new model when item 07.50.02 is ordered.

Duplicate Catalogs

Many customers have been kind enough to call or write informing us that the mailman brings them two copies of each new Highland Hardware catalog or Wood News.

Usually the reason for this is that we rent address lists of subscribers to major woodworking magazines in order to increase our circulation. If your name is on our house mailing list from having made a purchase, and you also subscribe to one of these publications, you will receive a catalog from both mailings.

In the future, we hope to solve this problem by electronically merging the lists prior to mailing. Until then, we appreciate your understanding, and when it happens, hope that you will pass the spare catalog on to a friend.

Need a 1989 Catalog?

If you don't have our 1989 comprehensive woodworking catalog and would like to receive one, just mail \$1.00 along with your address to:

Highland Hardware
1045 North Highland Avenue
Atlanta, GA 30306.

FAMOWOOD QUICK-DRYING WOOD FILLER

For many years Famowood has been the only patch & repair filler our customers ask for by name. Its wide range of colors, easy application and very brief drying time make it well suited to use in factories and high-volume shops. Its excellent adhesion, high strength, minimal shrinkage and clean sanding make it a favorite with anyone who needs a reliable wood filler. Like other plastic wood fillers, Famowood can be custom tinted with a small quantity of oil stain or oil-soluble aniline dye (NGR Stain) prior to application,

but it doesn't take stain after it's dry. Properly applied, Famowood is tough enough for use indoors or out.

Highland Hardware stocks nine colors of Famowood Filler in pint cans. Also available is Famosolvent in pint quantities, used in clean-up and to rejuvenate filler if it's thickened in the can. Filler colors available from us are listed in chart at right.

Famowood Wood Filler, Pint 4.19
(specify color)

Famowood Solvent, Pint 3.29

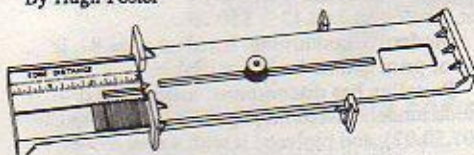
FAMOWOOD COLORS

Ash
Birch
Cedar
Mahogany
Maple
Oak
Red Oak
Walnut
White Pine

Incra Gauge

A Universal Precision Measuring Gauge

By Hugh Foster



In some observations about a tool called the Incra Jig published in the last issue of *Wood News*, I suggested that "precision is a state of mind, an attitude of working, rather than a saleable product, but here's a tool that can help to teach us what precision is all about." Your response to the Incra Jig was so favorable that its inventor is now offering another, even simpler Incra tool that is sure to revolutionize the wood shop.

The Incra Gauge is a simple multi-purpose measuring tool designed to help us achieve great accuracy when laying out joints; when setting the depth of cut on our table saws, routers, and the like; when aligning fences on these tools; and when finding stock's center, to name but a few of the applications.

The gauge's double rack system, a simplified version borrowed from the Incra Jig, provides easy to read, precise, lockable, permanent 1/32" scales cast into the acrylic resin body. These superbly accurate "Incra" sawtooth positioning racks enable you to positively lock both a reference surface and a measuring surface rigidly and accurately into place. The reference surface butts up against the point you want to measure from, while the measuring surface positively locates the point to measure to. Completely eliminated are all the tension and uncertainty commonly experienced when trying to make a visual alignment on a hard-to-read scale on ordinary layout tools.

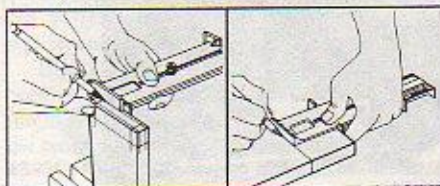
Since the two pieces of the body are precision cast, accuracy is within 1/250", which is about the thickness of a single sheet of paper. What's more, you can return to any former measurement with a repeatability error that is for all practical purposes unmeasurable (less than 1/1000th of an inch).

The tool extends up to 7" for measuring or marking from an edge, and up to 3-1/2" for use as depth-of-cut gauge. On small pieces, the gauge can serve quite reliably as a straight edge and square.

So much for physical description, let's get on to using it! One of the best uses for the Incra Gauge is as a marking gauge — marking reference lines on workpieces prior to machining. Once the reference lines are set on the gauge, you can use either end for marking — great if your work is frequently interrupted by phone calls or the like. You can use this gauge for any application for which you have previously used a ruler, an adjustable square, or a wooden mortising gauge — and you are likely to get more accurate results.

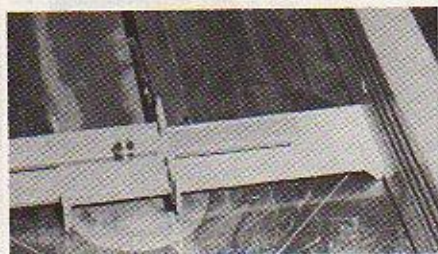
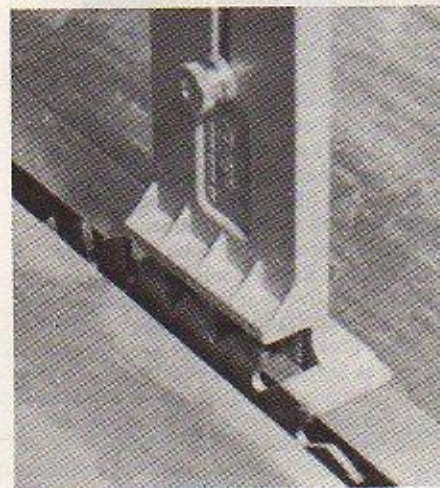
The manufacturer suggests that often you won't even need to use the clamping nut to mark off lines in this manner. By not having to retighten the nut for each new setting, you can save lots of time, he says. I say tighten it unless you're marking just a single line. This will help to preserve your repeatability. With or without tightening, this is better by far than the results you've gotten from your former layout methods.

The line drawings below show the Incra Gauge being used as a marking gauge to lay out a tenon. In my years as a woodworker, I've laid out lots of tenons. Never, though, have I marked them out this quickly, this easily, or this accurately. Elapsed time was literally just a few seconds.



Since the Incra Gauge is freestanding, both your hands are free for adjusting the height of your blade or bit when you are using it as a depth of cut gauge for either table saw or router (illustrated below).

Its precision is equal to gauges costing twice as much. That it is easier to use than most of the others is, of course, a matter of opinion, but I believe it. Never again will I set up either my table saw or my router with just a square or scale again; the Incra Gauge is even superior to the set of precise (I thought) thickness blocks that I had used to set the most frequently used depths of cut.



The Incra Gauge can be used as a guide for setting the fence on your router table, table-saw, bandsaw, or drill press a precise distance from the cutter. In order to set the distance to the *inside* edge of the blade, the Incra Gauge uses an indexing lip that is *exactly* 1/8" thick. This means that you always set the gauge to a reading which is 1/8" *less* than the desired blade to fence distance. An easy way to do this is to first set the Incra Gauge to the actual distance you want, and then back it off 1/8".



In material up to two inches thick, the Incra Gauge can be used as an accurate center finder. The groove which holds the marking tool is exactly centered between the two indexing tabs. Be sure to use a *sharp* pencil or scribe awl to get all the accuracy the gauge permits.

These are but a few of the most obvious uses for the Incra Gauge. As you use the tool in your own shop, you'll probably find a multitude of other uses for it as well. Perhaps its most important advantage is that it allows repeatability, the chance to go back and cut the one piece that had been forgotten in a production run or spoiled before completion, without having to agonize over whether you'll be lucky enough to get it to match (or fit) the others.

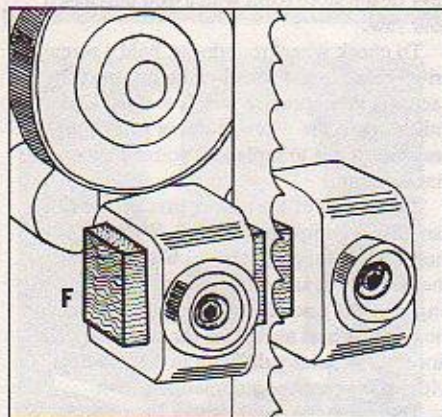
To my way of thinking, \$15.99 doesn't seem like too much to spend on a tool that was designed to help us manufacture our own luck.

Hugh Foster is a woodworker, English teacher, and writer from Manitowoc, Wisconsin.

The Incra Gauge is available from Highland Hardware for \$15.99 plus \$3.00 shipping.

MasterCard/Visa/Discover card users order toll free (800) 241-6748.

TOOL ACCESSORIES



NEW BANDSAW "COOL BLOCKS" PROLONG BLADE LIFE & INCREASE ACCURACY

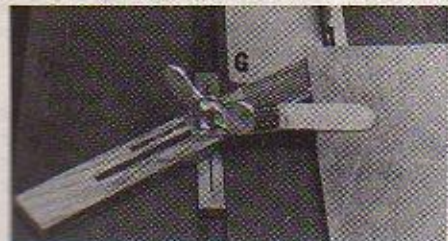
Cool Blocks are made to replace the original metal guide blocks which came with your bandsaw. They are made of special composite phenolic resins impregnated with graphite, and can be set closer to your blade than metal blocks, thus offering a more stable, guided cut.

Conventional metal guide blocks create friction and heat by their metal-to-metal contact with the blade, leading to blade fatigue and premature breakage. Cool Blocks eliminate this problem so blades run cooler with less friction and last longer.

The dry lubricant in Cool Blocks is formulated to give sufficient blade lubrication but will not stain the wood. The blade will run smoother and quieter. Cool Blocks pay for themselves quickly by extending the life of your bandsaw blades.

F COOL BLOCKS, Set of 4

Bandsaw	Cool Block Size	Price
08.60.01 Delta 14"	1/2"x1/2"x3/4" (1 beveled)	9.95
08.60.05 Taiwan 14"	1/2"x1/2"x3/4"	9.95
08.60.02 Sears 12"	3/8"x3/8"x3/4"	9.95
08.60.06 Old Sears	1/4" round x 3/4"	9.95
08.60.07 Old Sears	5/16" round x 3/4"	9.95
08.60.03 Inca 10-1/2"		9.95
08.60.04 Shopsmith 11"		9.95

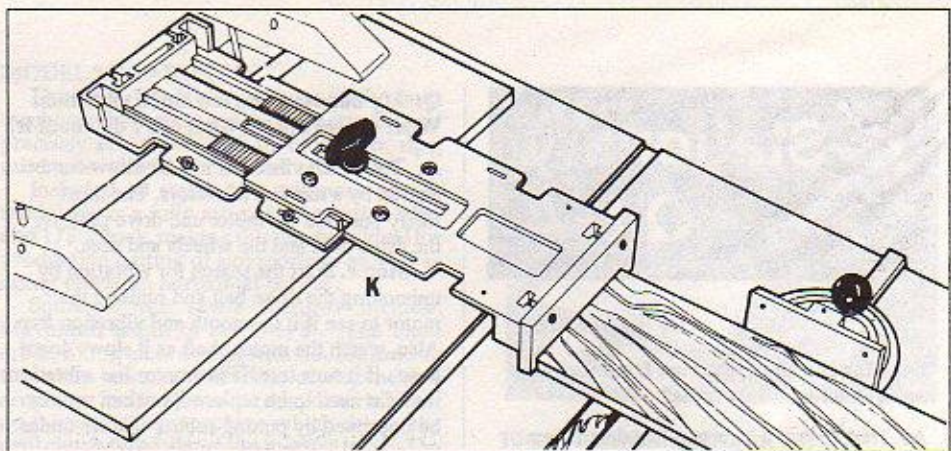


G DELUXE FEATHER STICK

Feather sticks have been used for years as shopmade jigs for holding difficult stock and more importantly for preventing kickback. Until now, it was difficult to clamp a feather stick to the saw table. With a quick turn of the knob, this new feather stick locks securely in the miter slot of your table saw, bandsaw, or shaper. (Fits slots 3/4" x 3/8" wide).

The clamping device can easily be refitted with other wooden feather sticks you make yourself to fit special needs.

MSRP Deluxe Feather Stick 24.95



INCA POSITIONING JIG

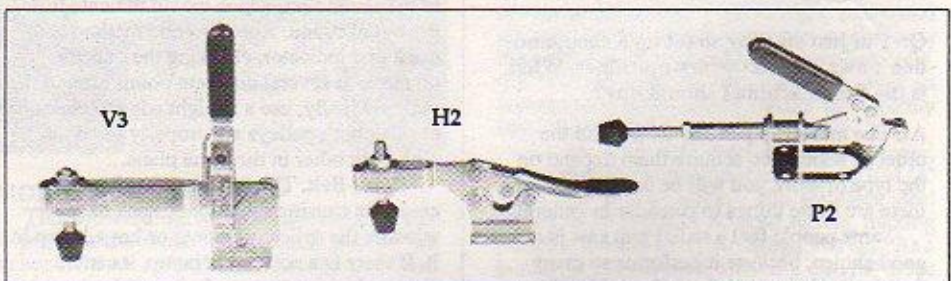
Do your sliding dovetails always work the first time? If you forget to cut one of forty-two box joint corners, can you set up again in a few seconds and cut the joint perfectly? With the Inca positioning jig, challenges like those are dealt with so easily it almost seems like cheating. This simple, inexpensive jig enables you to set a fence or stop block in 1/32" increments over eight inches of total travel, to set and lock in any position with better than 1/250" accuracy, and to return to any previously set position with less than 1/1000" error. When precise stock positioning is mandatory, Inca makes it virtually effortless.

Clear, straightforward instructions show you how to set up the jig for use on the table saw or bandsaw, with your router table, or (especially with two jigs) for X-Y axis positioning on the drill press table. For positioning

stock, use the jig alone or install a hardwood fence up to 24" long. Even at full extension the jig is rigid enough to provide complete stability so long as the fence itself resists flexing. Once you've set up the Inca on your router or saw table, you'll find you no longer have to reach for a ruler every time you move the fence; a ruler is built in to the jig to provide accurate measurement at a glance.

Incredibly durable precision-cast acrylic racks provide the Inca jig's repeatable accuracy; fiberglass-reinforced polystyrene makes the body light, stable and tough. For those who work in decimal inches or the metric system, there are optionally available racks in 1/20" and 1mm steps, along with a self-adhesive ruler in the appropriate scales. The jig's only moving part is the knob that tightens the racks on each other - not a lot to go wrong. This jig is destined to be a popular and enduring tool.

K 08.53.11	Inca Jig	39.95
08.53.12	1/20" Racks & Rule	8.95
08.53.13	1mm Racks & Rule	8.95



TOGGLE CLAMPS

Whenever you need to hold a piece still to work on it, these toggle clamps will do the job quickly and securely. Practically every jig you own can be perfected with a toggle clamp or two, and many of your stationary tool operations can benefit as well. Each clamp is provided with a threaded, neoprene-tipped spindle and four mounting holes in the base flange (except model P1, which has a nylon spindle and three mounting holes). Models P1 and P2 will lock in pull as well as push mode; the standard spindle for push mode can be replaced with eye bolts, screw hooks, threaded rod or any other hardware that suits your needs and imagination.

TOGGLE CLAMPS

16.60.01	V1	9.95
16.60.02	V2	12.95
16.60.03	V3	12.95
16.60.04	H1	9.95
16.60.05	H2	10.95
16.60.06	P1	8.95
16.60.07	P2	14.95

TOGGLE CLAMP SPECIFICATIONS

Vertical-Handle Hold-Down Clamps				
Model	Reach	Grip Range (Base to U-bar)	Holding Capacity (lbs.)	
V1	0 to 1-1/2"	3/4"	200	
V2	0 to 2"	1-1/4"	375	
V3	0 to 3-5/8"	1-1/4"	375	

Horizontal-Handle Hold-Down Clamps				
Model	Reach	Grip Range (Base to U-bar)	Holding Capacity (lbs.)	
H1	3/8" to 2"	3/4"	200	
H2	3/4" to 2-1/2"	1-1/4"	500	

Push-Pull Clamps				
Model	Travel	Spindle Height	Holding Capacity (lbs.)	
P1	5/8"	1/2"	100	
P2	1-1/4"	7/8"	300	

Deduct 10% discount from prices listed when buying 6 or more toggle clamps.

Stationary Q & A

By Brad Packard

Q: How can I prevent rust from forming on my cast-iron saw table?

A: The climate where you live determines how much of a problem this is. The best solution (though none is absolute) is to use a good wax that does not contain silicone. My choice is Renaissance Wax, which is a very hard micro-crystalline wax.

Before applying the wax, any existing rust should be removed from the surface. This can be done using fine steel wool and mineral spirits. For serious cases, a hand-held grinder fitted with wire brush will remove the rust.

After all rust is removed, clean your table with mineral spirits and allow it to dry. Then apply the wax in a fairly thin coat, making sure to work it into the pores of the cast iron. Buff well, and repeat for at least three coats. Not only will this impede rust, but it will also provide a good friction-free surface for your workpiece to ride on. You should repeat the waxing process from time to time.

Editor's Note: Renaissance Wax is available from Highland Hardware for \$11.95 plus \$3.00 shipping.

Q: I'm just starting to set up a shop, and don't own any stationary machines. What is the first machine I should buy?

A: The machines you should get and the order in which you acquire them depend on the type of work you will be doing. However, there are some things to consider in general.

Some people feel a radial arm saw is a good choice, because it performs so many functions. Unfortunately, it doesn't perform any of its functions all that well, in part because most radial arm saws are hard to keep adjusted. Also, ripping on a radial arm saw is a highly dangerous operation.

My choice would be a table saw, because not only is it excellent for ripping stock, it does highly accurate joinery work as well. A weak point of the table saw is that it's not as good for crosscutting long boards (six feet and up) unless it has a built-in sliding table built or you make a cut-off jig. Of course, you could use a portable circular saw for cutting long boards into shorter ones, and then do your precise crosscutting on the table saw.

I would add that your next machine should probably be a jointer or jointer-planer, which you will want to go ahead and add as soon as possible. It's tough to accurately rip a straight edge on the table saw unless the opposite edge (the one which moves along the rip fence) has first been straightened using a jointer.

Q: My bandsaw has too much vibration. What causes this, & what can I do about it?

A: Too much vibration in a bandsaw can be caused by a number of factors. The most likely ones are the motor and drive pulleys, the drive belt, and the wheels and tires.

Motor. Start the search for vibration by unhooking the drive belt and running the motor to see if it is smooth and vibration free. Also, watch the motor shaft as it slows down to see if it runs true. If the motor has vibration, it might need to be replaced, but can usually be improved by putting rubber spacers under the motor mount, and making sure it's tightened down properly.

Pulleys. Both the motor pulley and the saw's drive pulley must be round, and the V-slot should be consistent around each pulley's circumference. If you think you've narrowed the problem down to the pulley, a simple way

Mail your questions regarding stationary tools to Stationary Q & A, c/o Highland Hardware, 1045 N. Highland Avenue, Atlanta, GA 30306.

Selected questions will be answered in future issues as space permits. If your question is selected for publication, we'll send you a free Highland Hardware T-Shirt.

to check it is to replace it with a new one. Another way to check is to hold a screwdriver or pencil close to the pulley while you rotate it by hand, noticing to see if it drags during part of the revolution, which would indicate that it's out of round. Another good method is to use a dial indicator, checking the outside diameter at several different points around the pulley. Finally, use a straight edge to check to see that both pulleys are properly lined up with each other in the same plane.

Drive Belt. The drive belt is often the culprit in causing vibration. Check to see whether the splice is smooth or has a bump in it. If there is a noticeable bump, it can be removed by sanding the bump with coarse sandpaper, or by filing it away with a file. Do not attempt this while the belt is on the machine and moving. Another way to solve the problem of a bad splice is to buy another belt, making certain to choose one whose splice is smooth and consistent.

Wheels. Much of the vibration in bandsaws is caused by wheels being out of balance or out of round. This is rather commonly found among cheap copies of respected brands. One way to check wheels for proper balance is to spin the wheel by hand, putting a mark at the bottom when the wheel stops. Repeat the process several times. If all the marks are close together, then the wheel is heavier in that area. Weight can be removed by drilling shallow 1/4" or 3/8" holes in the rim of the wheel. (Adding weight to the lighter part of the wheel can be dangerous and is not recommended). The best way to balance the wheel is by speed balancing, though this can only be done with special equipment. If an

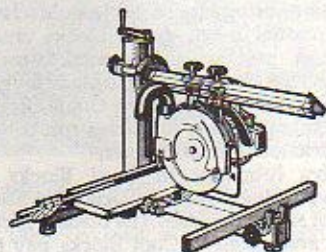
unbalanced wheel is your problem and your saw is still under warranty, or if you just want it done right, you should contact the manufacturer or the store from which you purchased your saw.

To check wheel roundness, hold a screwdriver close to the wheel while turning it by hand. (A more precise way is to use a dial indicator). If the wheel is out of round, the best solution is to replace it with a new one that is round.

Tires. One of the rubber tires on the saw can have a bump on it as well. With the machine unplugged, turn the wheel by hand, checking it for smoothness with your fingertips. If a noticeable bump is apparent on the tire, it's best to replace the entire wheel, since it's generally difficult to replace tires without the proper equipment.

There may be other causes for your saw's vibration, but the ones I've described are the most common. Your best ally in solving this problem should be the manufacturer or the store where you purchased your saw.

Brad Packard has been a professional furniture maker, stationary tool sales rep, and is now Tool Sales Manager at Highland Hardware.



Limited Supply of INCA Model 810 9" Radial Arm Saw

We were saddened to learn recently that this popular and unique saw (made for Inca by an Austrian company) will no longer be available for distribution outside of Austria.

We have a very limited supply of the saw remaining. We have been assured that repair parts will continue to be available for the thousands of saws already in use in the U.S. Because it features a standard 5/8"-arbor, finding blades to fit will not be a problem.

No other radial arm saw in its price range comes close to matching the capacity and features of the 810. The optional long extension arm allows crosscutting panels an amazing 28" in width at 90° (18" at 45°). Without it, max cross-cut is 16" at 90°, 11-1/2" at 45°.

For miter work, the table is rotated, not the arm. As a result, crosscuts are exceptionally accurate. The saw motor, supported by a cast iron roller carrier with ball-bearing rollers, rides on the arm. Max depth of cut is 2" at 90° and 1" at 45°. Motor is 110v 3/4 HP.

An optional router carriage with a plate to support a router is a low-cost accessory which gives you unparalleled control of your router for cuts at any angle. *Shipped UPS (\$20 charge).*

810	9" Radial Arm Saw	\$599.00
810.1	Extension Arm	119.85
810.2	Metal Stand	129.50
810.4	Router Carriage	119.50

INCA TOOL SALE

Quantities limited
at these prices.



SPECIAL SALE ON INCA MODEL 340 10-1/2" BANDSAW

This saw has perennially been one of our best-selling woodworking machines. We have seen no other small bandsaw which compares to it in performance, particularly when it comes to difficult operations such as accurate resawing of 6" wide material. Its excellent guide and tracking system enable it to handle such tasks with ease using a 1/2" blade, typically removing slices 1/16" thick by 6" wide the full length of a board. (This is one of our favorite operations which we demonstrate at our stationary tool seminars).

Available optionally is a special guide kit which allows use of 1/16" and 1/8" blades for precise control in cutting very tight curves and performing intricate fretwork. The built-in .6 HP 110 volt motor is direct-drive for maximum efficiency, and is amply powerful for 6"-thick resawing and heavy ripping operations in dense hardwood. An adjustable rip fence is included as standard equipment; a miter guide is available optionally.

We recommend Cool Blocks (see page 17), replacement blade guides that allow blades to run cooler with less friction and last longer.

Shipped via UPS for a \$20 shipping charge.

		SALE	Regular
340	10-1/2" Bandsaw	599.00	795.00
3003	Stand for 340		129.90
310.159	1/8" 14 tpi Blade		12.95
310.145	1/4" 6 tpi Blade		11.95
310.147	1/2" 3 tpi Blade (resawing)		11.95
08.60.03	Cool Blocks for Inca 340		9.95

NEW INCA VIDEO

For those interested in learning more about Inca Tools, we offer a video which takes the viewer on an action-packed guided tour of the special features which have made Inca Tools so highly regarded by woodworkers around the world.

To receive the video for up to 30 days, send a check for \$20 (or charge by phone toll free, 800-241-6748) to cover our \$5 handling fee plus a \$15 deposit which is refunded upon return of the tape.

MODEL 259 TABLESAW

The Inca 10" table saw is a finely built machine which gives consistently smooth and precisely accurate results on cross-cuts, rips, miters, bevel cuts, dados, and rabbetting.

Included as standard equipment on the model 259 is a fully articulated mortise table and 1/2" chuck, making this machine ideal for production cutting of slot mortises as well as doing precision horizontal boring.

Some of the saw's features include: Maximum depth of cut, 3-1/8". The fixed arbor, tilting table design with double locking trunnions assures a lifetime of dependable accuracy. It also allows for the power take-off on the side of the machine which drives the drill chuck fitted above the mortise table. The precision miter guide features a laterally-movable fence for additional support on miter cuts, and a drop stop for multiple cross-cuts of short lengths.

The table and arbor housing are of heavily ribbed alloy die castings, and the work surfaces are hard anodized for increased wear-resistance. Standard rails are 25-1/2" long. Available optionally are 39" and 59" length rails. Other accessories include a rip fence micro adjuster, tenon jig, and finger joint jig. Shipped UPS for a \$20 charge.

259	10" Table Saw	1249.50
10041	1-1/2 HP Motor, Switch, Belt	236.20
3002	Stand for 259	129.90



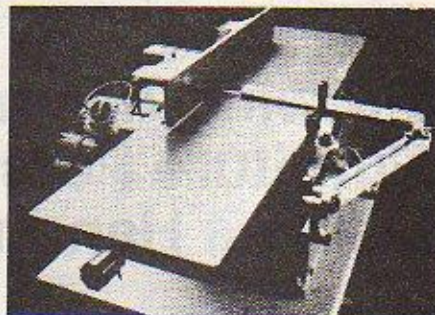
MODEL 710 20" BANDSAW

This professional cabinetmaker's bandsaw is perhaps the most versatile and well-made bandsaw ever manufactured, with excellent performance in scrollcutting, ripping, and resawing. Its 3-wheel construction provides a throat capacity of 20". Standard maximum depth of cut is 8", although this can be increased to 10" using an optional riser kit.

The outstanding triple ball bearing guide system permits control of blades as narrow as 1/16", or as wide as 1". The upper guide assembly is raised and lowered by rack and pinion gearing to adjust for stock thickness.

3-step pulleys facilitate blade speeds of 900, 1800, or 2700 feet per minute. Belt tension is set using a removable crank. A large cast table with hard anodized surfaces is supplied with a heavy duty rip fence as standard equipment, and is fitted for a miter guide which is available optionally. Also optional are long rails with extra legs permitting good support for large workpieces. This saw is an outstanding engineering production, ideal for the serious woodworker. Shipped Freight Collect.

710	20" Bandsaw	1399.00
3006	Stand for 710	129.90
710.101	1/16" 24 tpi Blade	13.95
710.102	1/8" 14 tpi Blade	13.95
710.103	1/4" 6 tpi Blade	12.95
710.105	1/2" 3 tpi Blade (resawing)	12.95



10-1/4" PLANER-JOINTER SALE

Have you ever tried to get an accurate, safe cut on a warped board? The wide jointer section on this machine can solve this problem by allowing you to joint a flat surface on one face of the board (up to 10-1/4" wide) before thickness planing, letting you create straight, flat stock ready for further processing with your table saw, bandsaw, or router.

Two models of this superb machine are available. Each is an extremely smooth-running machine capable of excellent results on even the densest hardwoods.

The newest model 570 features the revolutionary Swiss 3-knife Torsa cutterhead. It produces an incredible 18,000 cuts per minute, and uses disposable self-aligning double-edged planer knives which require just 30 seconds for accurate installation. Utilizing the thicknesser's 11 fpm feed rate (high speed is 16 fpm), the 570's cuts-per-inch ratio is a staggering 136, producing the smoothest machined finish on hardwoods this side of a super surfacer.

The model 550 is identical to the 570, except that it uses a 2-knife cutterhead with conventional knives whose height is adjusted up or down by turning set screws located near the end of each knife. At the lower feed rate, the 550 produces 91 cuts per inch, still an outstanding ratio which results in superbly smooth finishes.

As an automatic-feed thickness planer, either model handles material up to 10-1/4" wide and 6-1/4" thick. The stainless steel planer table requires no feed rollers, making possible a completely straight, even cut. As a jointer, it provides an amazing 10-1/4" wide cut, with a table length of 42". Height of both infeed and outfeed tables is adjustable. Changeover from planer to jointer requires only a few seconds. Machines are equipped with 115v or 230v 2HP motor. Freight Collect.

		SALE	Regular
570	10-1/4" Planer-Jointer	1995.00	2195.95
550	10-1/4" Planer-Jointer	1695.00	1895.95
3005	Stand for 550 or 570		129.90



Drawing Accurate Furniture Perspectives Using a Handheld Computer

By John Gould

As an architect designing wood furniture, I've often been frustrated by not being able to visualize exactly how a finished piece will look in three dimensions. Once I had drawn the plan view and the front and side elevations of a furniture project, I needed a simple, easy-to-use means of correctly creating a perspective sketch. I wanted to be able to see how the curves of the piece would actually look as well as the general massing of planes. But most of all, I needed a method that was simple and accurate, reflecting the furniture's appearance at any angle and viewing distance.

By accident I stumbled onto a program entitled *Perspective Made Simple* which can be used on a Hewlett Packard 41CV Calculator/Computer. The program (stock number 02288-41-9) is available in code form ready to be keyed into the 41CV for \$10 postpaid from Solve & Integrate Corporation, 460 SW Madison Ave, Suite 5, PO Box 1928, Corvallis, Oregon 97339. The hardware required costs about \$149.00, and is available from Hewlett Packard dealers nationwide.

The directions provided with the software are straightforward, and include exercises of increasing sophistication. After experimenting with the exercises, you are ready to begin working by feeding the dimensions of your piece of furniture into the calculator. You'll want to first draw a general massing of the piece to check for correct view angle and size on the sheet. After receiving the dimensions, the program responds by generating the X and Y coordinates of points representing each dimension. Using a sheet of 1/4" or 1/8" underlay grid paper, you then proceed to plot the points. Connecting them creates an image of the general rectangular mass of the piece.

Then, getting more specific, you'll work on particular areas to generate coordinates enabling you to see how rounded corners or detailed points will look. The program has a very easy-to-use circle section, making circles, rounded corners, and S-shapes possible.

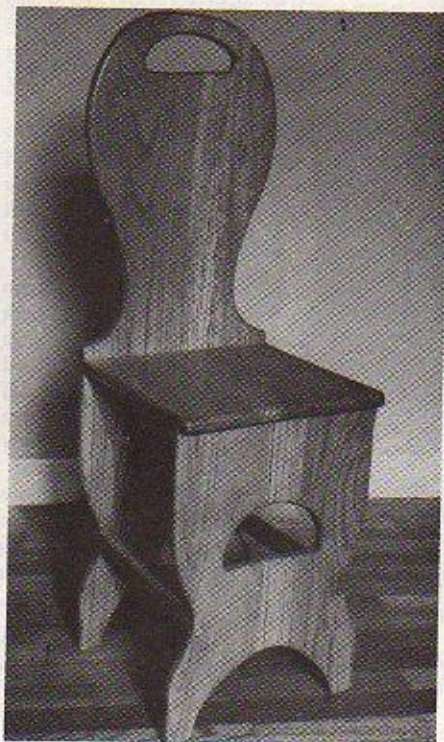
John Gould is an Atlanta architect and woodworker.

To assist in plotting the points which represent the shape of the chair shown at right, I used a 1/4" grid underlay sheet. I wanted to see the chair from a distance of about four feet, using a 30° angle to the front plane, looking down at it 15° from horizontal eye level, with a back wall behind it about eight feet away from me. The photo of the chair was shot at these angles and distances.

I've found that the finished perspective sketch closely resembles a photograph of the completed piece of furniture. For pieces larger than 3 feet, I use a 1/8" grid, with 1/8" = 1". For smaller pieces, using a 1/4" grid works fine, with 1/4" = 1".

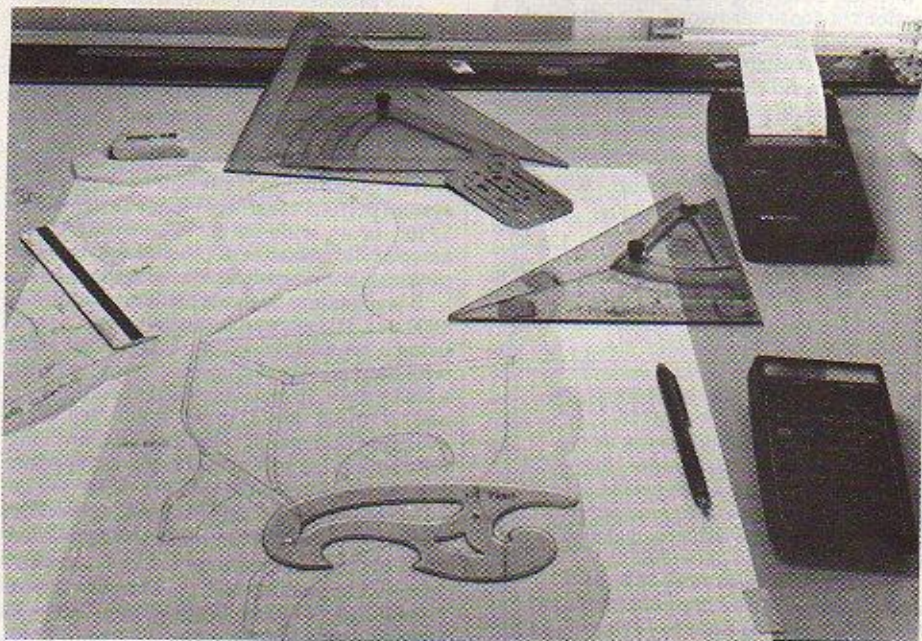
As I mentioned before, what makes this calculator and program so very attractive is their ease of use. Spending a couple hours doing the exercises provided will prepare you for virtually all possibilities. With no previous computer training, it was possible for me to successfully use the program with no more than an hour and a half of study.

As an added note, this program can be used doing two- and three-point perspectives of buildings or rooms as well. You can see how a cabinet or any other three-dimensional object will look in a space.

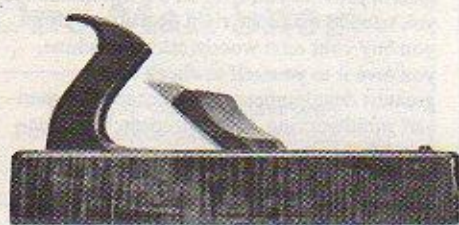


The photo below shows my using an accessory printer to record the X and Y coordinates. The calculator is battery-powered, so it can be used anywhere.

The possibilities of use for these perspective tools are limited only by your imagination. The low cost of the calculator compared to the potential savings of material and time made possible by avoiding design mistakes make this system a very attractive and valuable addition to the woodworking designer's arsenal of tools.



NEW WORLD CRAFTSMANSHIP OLD WORLD APPEAL



C



B

The combination of tradition and innovation in these wooden planes makes them both attractive and eminently usable tools. Made by a small New England firm, they feature highly figured maple bodies, stained a pleasant brown which captures perfectly the patina of well-used planes from the 19th century. The irons are air-hardened tool steel which takes and holds a superb edge (approx. Rc62 hardness). Irons are hammer-set, held in place with scroll-top maple wedges. The larger planes are equipped with comfortable rear handles that allow good control for hard or delicate work alike.



A TRUE LOW-ANGLE BLOCK PLANE

The geometry of most block planes' small bodies and fairly low bed angles has a curious effect: even so-called "low-angle" planes wind up with a cutting angle scarcely any lower than that of any large bench plane - hardly what you'd call specialized for end grain, as is usually asserted about block planes.

This low-angle plane, however, manages to provide a 30 degree cutting angle, giving a beautifully clean, smooth cut on end grain of any species. This is accomplished without hardware, without too open a throat, and without making the plane difficult to handle. The iron, set in the plane with the bevel down, is ground at the traditional 25 degrees; there's not much room for error in sharpening, lest you lose critical relief behind the cutting edge. Blade is 1-5/16" wide.

03.60.31	Low Angle Block Plane	64.95
03.60.32	Low Angle Repl. Blade	16.50



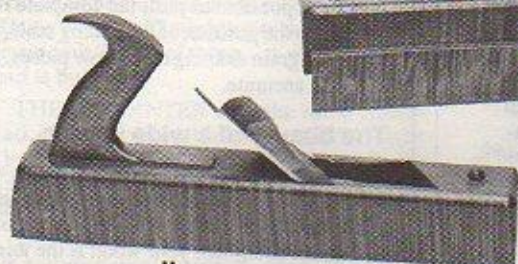
PANEL-RAISING PLANES

These handsome and functional tools provide a welcome revival of the nearly extinct skill of making raised panels by hand. They cut a classic Provincial pattern 1-5/8" wide, with a 7/16" lip, 1-3/16" bevel, and a pleasantly angled shoulder raising the field.

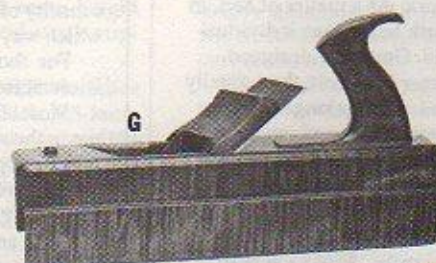
Panels can be cut in a wide range of stock thicknesses (roughly 3/8"-1"), leaving a lip of whatever thickness is desired, as control of the planes' angle (hence the amount of stock removed) is up to the user.

The panel-raising planes are available in right- and left-hand configurations to handle any requirements your panel's grain direction might impose. Bodies are 13-1/2" long.

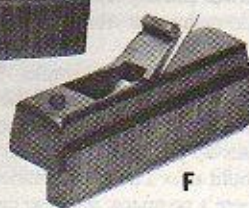
B 03.60.23	RH Panel-Raising Plane	136.95
03.60.24	RH Repl. Blade	29.50
C 03.60.25	LH Panel-Raising Plane	139.95
03.60.26	LH Repl. Blade	29.50



H



G



F

GENERAL-PURPOSE BLOCK PLANE

This plane beds the iron at a utilitarian 45 degrees, making it ideally suited to all kinds of trimming, smoothing, edging, and other general planing work where a small, light, one-handed tool is called for. Blade width is 1-5/16". This and the low-angle plane above can be pushed or pulled with equal ease and comfort.

D 03.60.33	Block Plane	64.95
03.60.34	Repl. Blade	16.50

E SCRAPING PLANE

For finishing curly, ribbon-striped, or otherwise cantankerous wood, this small scraping plane will do a fine job. The 1-5/16" iron is sharpened at about 50 degrees, and can be used as is or very lightly burnished for a cutting burr. The maple body is fitted with a thin steel sole to eliminate wear.

This is the plane of choice for truing the soles of other wooden planes, scraping very lightly with or straight across the grain as needed to flatten or, Japanese-style, to slightly relieve soles that have become worn or warped.

03.60.35	Scraping Plane	69.95
03.60.36	Repl. Blade	16.50



E

EDGING PLANES

These two planes are built with a 1"-high right-angle fence at the left edge of the sole, offering good control for shooting edges straight and square. The trim plane is 8-1/2" long; cutting width is 1". The jointer, featuring a skewed iron for cutting ease and minimal tearout, is 13-3/8" long with a 1-1/2" maximum cutting width.

F 03.60.27	Fenced Trim Plane	74.95
03.60.28	Repl. Trim Blade	16.50
G 03.60.29	Fenced Jointer Plane	109.95
03.60.30	Repl. Jointer Blade	26.50

SKewed JACK PLANE

This is a superb all-around plane for joinery and surfacing work. The body is 13-1/2" long, with excellent heft and balance. The skewed iron provides a 1-3/4" cutting width, with a 30 degree shear angle for easy cutting in hard wood and difficult grain. The skewed jack will be the best plane you own for softwoods in particular; the 40 degree bedding angle, together with the 30 degree skew, presents an effective cutting angle considerably lower than is common in most bench planes.

H 03.60.21	Skewed Jack Plane	99.95
03.60.22	Repl. Blade	26.50

The European Combination Machine

Is It Time to Consider One for Your Shop?

By Hanns Derke

Until recently, if you asked a serious woodworker what he thought about combination woodworking machinery, you could bet safe money that he'd pretty much laugh and walk away. Cheap, inaccurate, cumbersome – those were just some of the words used to describe them.

And, until recently, that fellow was right. But in the last few years, a new trend has developed. One by one, even the most demanding and meticulous craftsmen are giving a new type of combination machine another look. And in only a few short years, thousands of these new, European-designed machines have been purchased by serious hobbyists, professional woodworkers, and even large established wood manufacturers. Why?

Because they work. As a matter of fact, in many cases they work better than individual machines ever could. Generally designed around a jointer/planer base unit, they usually offer a table saw and shaper alongside, and often more. While many low-end models exist, the better brands offer tremendous power and capacities, extreme convenience, and many special features to help you work better.

Let's take an example: You have been getting along with small though good machines, but are more and more often forced to pass up jobs your machines can't handle. You could afford a new machine or two, but there's no space, and you certainly can't afford to move. Instead, you decide on a combination machine. It takes up less space than smaller individual machines it is replacing, and costs less than one of the new machines would have, since you can sell the other machines to help pay for it.

Still, will you be compromised? Surely you'll be slowed down just a little because of constant setup. But as you start to use the machine, you will find that setup takes no more time than it took on individual tools. In fact, time is saved because you don't have to move materials around so much, and with additional power and capacity, you get more

work done in less time than ever before. Finally, extra features such as the sliding table for both table saw and shaper or the heavy-duty horizontal boring/mortising table used to be only a distant dream – now they're included with the basic machine and available every day.

During the last thirty years, European manufacturers have quietly revolutionized combination machine design. With intense competition and a ready market, numerous firms have consistently outbid one another for design supremacy. For years, woodworkers all over the world have been reaping the benefit of their efforts. Now American woodworkers are finding this new and better way.

If you're serious about woodworking, and are concerned about value in your machinery, a combination machine may be for you. If you need large capacities, but have a limited budget or little space, then a combination is for you.

You won't find these machines at most traditional machinery distributors. But several reputable firms distribute combination machines directly to the consumer, and will be glad to provide you with all the information you need to make the right decision. Before you buy your next woodworking machine, you owe it to yourself to check out the greatest development of the decade in American woodworking – the European Combination Machines.

Hanns Derke is Vice-President of Advanced Machinery Imports, Ltd., and a specialist in European innovative woodworking techniques.

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What Can A European Combination Machine Do for Me?

By Torben Helshøj

In the U.S., we have for many years looked at the table saw as a circular saw with a rip fence. In Europe, however, it has been standard practice for many years to attach a sliding table to the same saw.

Have you ever worked with a sliding table?

If you have, you will agree that in most situations, it is a better way of cutting, and you will never again accept a saw without it.

The Robland X31 machine has a ripping capacity of 24". The sliding table has a cutting capacity of 50". The combination of these two fences gives you full panel capacity. No matter which way you want to cut a sheet of plywood, it can be done on the X31.

For those people who want more ripping capacity than 24", we suggest attaching a Biesemeier T-square fence to the left of the saw blade.

Most sliding table saws have one major drawback. The rails on which the sliding table rides are in the way when you want to rip. This problem is resolved on the Robland X31 by simply making it possible to push the complete rail system forward when you rip.

Due to the position of the sliding table, you can also use it as a helper tool for the shaper. Use it for end grain shaping on narrow pieces, and for cope cutting and tenoning. You will find this safe and accurate.

The beauty of a wide jointer.

The jointer is the key tool to accurate woodworking. We have all seen how wood can warp when you rip or thickness-plane it. Without the jointer, you are stuck with the warped piece. Your thickness planer cannot make it straight or flat; it can only make it evenly thick. The only tool which can straighten your wood is the jointer. If you, for instance, are making a shelf and your wood is warped along the face, you must have a wide jointer to flatten it. Sometimes when you have a tough piece of wood with a lot of tension inside, it is necessary to go back to the jointer several times before achieving the desired thickness and straightness.

The best joinery.

If you are dealing with any kind of frame, be it a door, a window or a face frame, the strongest joint you can make is a mortise and tenon joint. Besides being extremely heavy duty, the mortiser on the Robland is very fast and accurate, with positive stops on all three axes.

Torben Helshøj did his woodworking apprenticeship in Denmark. After moving to the U.S., he continued working as a professional woodworker, and later joined Laguna Tools, the American importer for Robland woodworking machinery.

ROBLAND Woodworking Machine

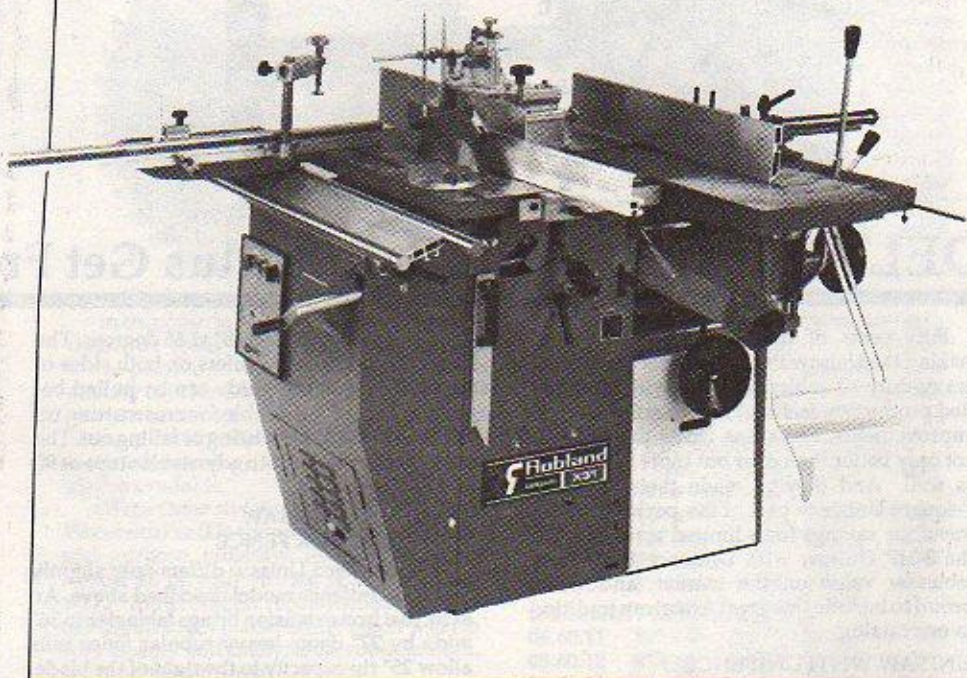
The Intelligent One-Man Shop

For many years we have seen European combination machines exhibited at trade shows and offered in magazine ads. Each one we looked at seemed to have several basic weaknesses, either in practicality, safety, or value for money.

At the recent International Woodworking Fair in Atlanta, we got our first look at the new Robland X31 Woodworking Machine, designed and built with the American market in mind.

We were impressed by its overall quality of design and construction, its practicality, and particularly its use of standard U.S. sizes, such as the 5/8" table saw arbor. And its price is 30% less than that of five individual tools of the same capacity and quality.

The Robland machine offers a practical solution for the person with substantial stationary tool requirements who is limited by a small workspace.



MANUFACTURED IN BELGIUM by the world's largest maker of multi-function woodworking machines, the Robland machine combines 10" table saw, 12" auto-feed thickness planer, 12" jointer, shaper, and mortise table. The machine is imported by Laguna Tools in California, an organization whose staff includes more than one savvy tool expert with practical experience in woodworking applications and machine troubleshooting — the kind of people we like to deal with.

The tool's power plant consists of three separate 220-volt 3 HP industrial-duty induction motors. Conversion from one operation to another is quite simply and quickly accomplished. There are no belts to change or gears to adjust. No operation change requires more than 30 seconds (for a user, not just the salesman). A switch selector allows you to start the appropriate motor. (Two motors cannot be accidentally started simultaneously). Stop buttons are located conveniently near each operating position.

All work tables are made of carefully ground heavy iron castings. All spindles run in sealed-for-life bearings. The unit weighs approximately 1000 lbs. Despite its bulk, an optional mobility kit makes it quite portable on smooth floors, enabling you to move your shop out of the way in a couple of minutes when necessary.

THE 10" TABLE SAW features an excellent sliding table assembly which comes as standard equipment. The sliding table provides a remarkable crosscut capacity of 50", making it possible (assuming external work support is provided) to accurately halve 4x8 plywood without even having to worry about

maintaining contact with the rip fence. The 10" saw blade can be instantly retracted below table level or raised to its maximum 3-3/16" depth of cut position. The blade tilts up to 45 degrees, with micro-adjustment of cutting angle. Speed is 3200 rpm. The jointer tables can be positioned at the same height as the saw table providing good work support to the right of the blade.

THE THICKNESS PLANER handles work up to 12-1/4" wide by 9" thick. A 3-knife cutterhead rotates at 5500 rpm, providing 16,500 cuts per minute. Feed rate is 19 feet per minute, yielding 72 strokes per inch, sufficient for smooth finish planing. A dust collector head is built in.

THE 12" JOINTER uses the same cutterhead, and features a table length of 55". Height of both infeed and outfeed tables can be finely adjusted, and the fence tilts up to 45 degrees, with stops at 45 and 90 degrees.

THE SHAPER features a heavy-duty 6000 rpm spindle which features up to 5" of vertical travel. The lower portion of the spindle is 1-1/4" diameter, while the upper portion is 3/4" diameter, permitting use of either standard size cutter without the need to change spindles. A spring-loaded spindle locking device enables quick setup of cutters. Fully adjustable fence assembly includes vertical and horizontal work hold-downs. The sliding table provides a safe and efficient method of feeding difficult workpieces.

THE MORTISER is a heavy-duty unit featuring a 5/8" diameter chuck. Table size is 8" x 17", with travel up to 6-1/2" wide by 5-1/2" deep x 3-1/2" high. Spindle speed is 5500 rpm. (The mortiser is easily removed

from the main unit to provide better access when doing a large volume of jointing, though it is quite possible to use the jointer on moderate sized workpieces without removing the mortiser).

In addition to the instruction manual, a clearly illustrated 118 page book is included which covers in detail the operation of each part of the machine.

Robland has sold more than 50,000 combination machines around the world. Each machine is backed by a one year factory warranty covering parts and labor.

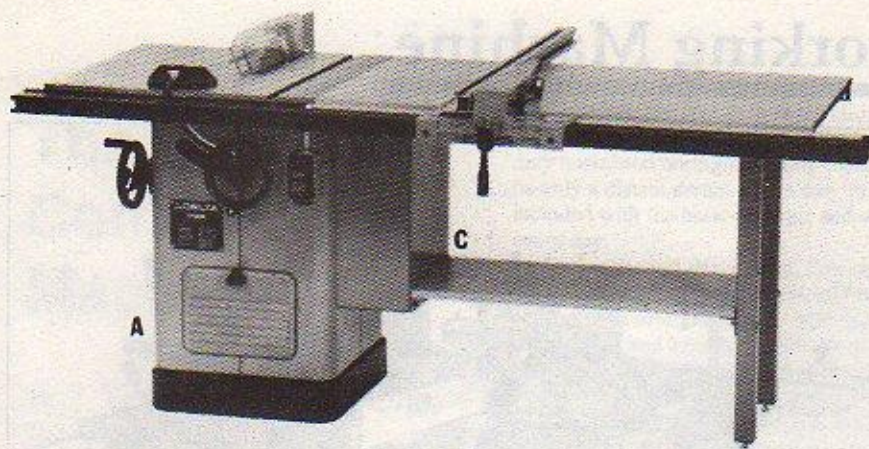
If your shop space is limited but your need for quality equipment is not, ask us for a demonstration of the Robland machine on your next visit to Highland Hardware.

The Robland machine is shipped FOB Laguna Beach, California.

X31	Robland Machine	\$4950.00
XMK	Mobility Kit	100.00

VIDEO

If you are interested in seeing the Robland machine and cannot visit our store, we have available in VHS format a European-produced video which shows the machine in action. To receive it for up to 30 days, send a check for \$20 (to cover a \$15 refundable deposit plus \$5 handling charge), or call us at (800) 241-6748 and charge the payment on Visa, MasterCard or Discover.



DELTA

DELTA Unisaws on Sale – Plus Get Free Freight*

Fifty years of tradition have gone into making the Unisaw the nation's most popular heavy-duty 10" table saw. Now, with modernized production facilities and ongoing design improvements, Delta has made the Unisaw not only better than ever but more affordable as well. And they've made their excellent T-square Unifence part of the package at tremendous savings for a limited time. We feel the 3-HP Unisaw with Unifence is the best table saw value on the market, and we're proud to include this great American tradition in our catalog.

UNISAW WITH UNIFENCE

The Unisaw features a heavily ribbed cast-iron work surface measuring 28" wide by 27" deep, with 18" of table surface to the left of the blade. Equipped with a shop-built table surface on the Unifence frame, it offers a working surface 27" deep by 76" wide, providing 51" rip capacity right of the blade and plenty of support for full-size sheet material. The Unifence can be used in either vertical (3-1/2" high) or horizontal (1/2" high) position; changing from one position to the other takes just a few seconds. The fence can be locked onto the T-square clamp head anywhere along its length, allowing the user to choose the best arrangement for the job at hand. The clamp head incorporates an adjustable cursor, calibration screws and leveling glides; once set up precisely, the fence can be set smoothly and locked with totally reliable accuracy at any desired distance from the blade.

Equipped with Delta's 3 horsepower, 220-volt single phase motor, the Unisaw has all the power you need for ripping, crosscutting, or dadoing in any stock thickness. 3-belt drive system guarantees full power transmission to the blade regardless of load. Max thickness at

90 degrees is 3-1/8", 2-1/8" at 45 degrees. The table saw surface has T-slots on both sides of the blade; the mitre guide can be pulled beyond the front of the table for crosscutting up to 25" wide without twisting or falling out. The mitre guide has built-in adjustable stops at 90 and 45 degrees.

STANDARD UNISAW WITH JET-LOCK FENCE

The standard Unisaw differs only slightly from the Unifence model described above. An extra cast iron extension brings table size to 36" wide by 27" deep; heavy tubular fence rails allow 25" rip capacity to the right of the blade. Overall width of the saw including fence rails is just over 45". Though the Jet-Lock fence may not feature all the precision and sophistication of the Unifence, it is nonetheless a reliably functional fence, with the advantage of a built-in micro-adjuster for exact setting. A low-voltage safety switch is standard on all 3-HP models; Unisaws with 1-1/2 HP motors are equipped with a pushbutton switch with built-in overload protection. Incorporated into the rear of the saw cabinet is a removable panel for optional dust collection hook-up.

WHILE CURRENT SUPPLIES LAST, we are offering outstanding savings on these two models: 3 HP model with Unifence for \$1499, and 1-1/2 HP standard model with Jet-Lock Fence for \$1199. (Call for price and availability of other models).

A 34-782	3 HP Unisaw with Unifence	1499.00
HRS-10G	Mobile Base for Unifence Model	198.50
B 34-761	1-1/2 HP Standard Unisaw	1199.00
HRS-10	Mobile Base for Standard Model	109.00
34-254	Dado Insert for Unisaw	21.85
C 34-829	Motor Cover for Unisaw (fits only Unisaws manufactured after Sept. 1988.)	55.00

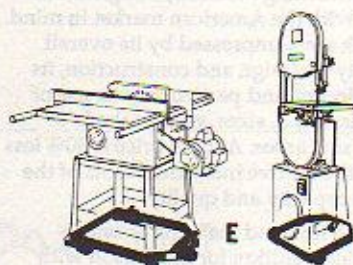
**Delta Unisaws are shipped freight prepaid within the 48 states while current supplies last.*

UNIFENCE SAW GUIDE

Owners of virtually any 10" table saw can improve accuracy and work support by replacing their existing fence with the Delta Unifence. A template and instructions are enclosed to ensure precise mounting. Unit includes fence, carriage assembly, front guide bar, table frame, legs and mounting hardware. (User provides table board and shelf board).

Unifence is shipped by UPS.

D 34-897	Unifence Saw Guide	349.00
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HTC MOBILE MACHINE BASES

For any shop with more machinery than floor space, our collection of wheeled machine bases can give you the luxury of adequate working room without building a new shop. Each welded steel base is equipped with two fixed wheels and one steerable wheel; both fixed wheels have built-in braking knobs to securely lock the machine in position. Wheel housings are arranged so as to raise a machine only 3/4" off the floor.

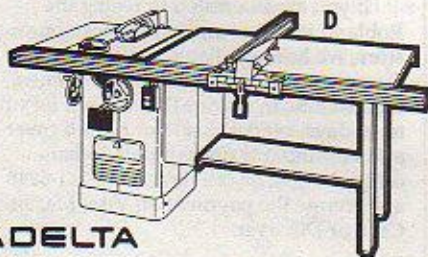
Of particular note is our new Mobile Base for the Delta Unisaw with Unifence. Unlike an earlier model base still commonly available, our new base is designed to work with the Unifence table leg and shelf system, providing firm support for the right end of the extension table and allowing continued use of the utility shelf beneath.

We also carry in stock Mobile Bases for the standard Unisaw, 8" and 6" Delta precision jointers, Delta 18" scrollsaw, Delta Heavy Duty Shaper, Delta Heavy Duty Belt/Disc Sander, and three models of Delta 14" bandsaw (open stand, old-style closed stand, and new black-band closed stand). Other styles are available by special order to fit most stationary tools – check with us for price and delivery.

All mobile bases listed below are shipped by UPS.

E MOBILE BASES

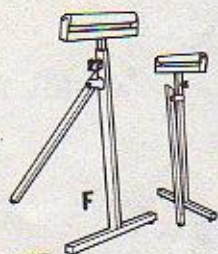
For Use With Delta Machine:		
HRS-10G	Unisaw with Unifence	198.50
HRS-10	Standard Unisaw	109.00
HRJ-8	DJ-20 8" Precision Jointer	148.50
HRJ-15	DJ-15 6" Precision Jointer	109.00
HRSS-18	18" Electronic Scrollsaw	109.00
HRS-10	Heavy Duty Shaper	109.00
HRBS-14	14" Bandsaw with Open Stand	109.00
HRD-14	14" Bandsaw or Belt/Disc Sander with Black-Band Enclosed Stand	109.00
HRLB-6	14" Bandsaw or Belt/Disc Sander with Old Model Enclosed Stand	109.00
HRC-10	10" Contractor's Saw	109.00



DELTA

HTC WORK SUPPORT SYSTEMS

This collection of heavy-duty roller stands offers economical alternatives to having another pair of hands in the shop. For all those situations where handling your stock is too big a job for one person, there's an HTC roller system that can help you get the work done safely and easily. All the HTC rollers we stock are shipped via UPS.



F PEDESTAL ROLLER

This is the most mobile and most affordable work support we sell. The ball-bearing steel roller, 12-1/2" wide, can be set at any height from 26" to 45". The pedestal's compact footprint (17" wide by 20" to rear leg) lets it be placed wherever it's needed in the shop, providing outrigger support for radial arm saw, drill press, router table, etc. Folds flat to store.

HPR-13 Pedestal Roller 39.95

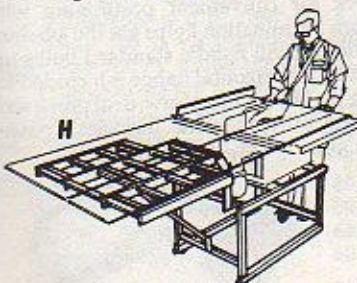


G ROLLER TABLE

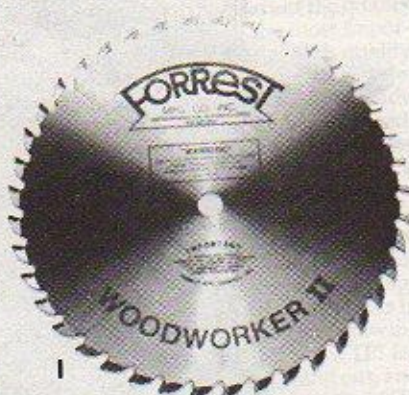
The Roller Table is the most versatile of HTC's free-standing supports, lending itself beautifully to work with thickness planer, jointer, radial arm, and as infeed or side support for the tablesaw. (We do not particularly recommend the Roller Table for use as table-saw outfeed support; please see description of outfeed roller system below.) The Roller Table provides 5-1/2 feet of support 13" wide; positive height adjustment lets you set any height between 26-1/2" and 43-1/2" even while bearing a load. Easily adjusted leveling feet accommodate uneven shop floors. When not in use, the unit folds flat for out-of-the-way storage.

The Roller Table is available with either 9 rollers spaced 8" apart, or with 17 rollers spaced 4" apart. An optional 8-roller kit lets you convert a 9-roller stand to 17 rollers, or create your own custom rolling support devices. Single rollers are also available.

HRT-68 Roller Stand (9 Rollers) 175.00
HRT-70 Roller Stand (17 Rollers) 214.00
HRT-8 8 Roller Kit 39.95
2031 Single 13"-Long Roller 6.95



Save on our FORREST Premium Carbide-Tipped Saw Blades



In response to rave reviews and insistent demands from many of our customers, we're pleased to add these superb Forrest circular saw blades to our line. On the table-saw or radial-arm, these blades will cut cleaner, more efficiently, and longer between sharpenings than almost any other blades available.

Of the three styles we carry, the 40-tooth Woodworker II is the most popular for general-purpose tablesaw use. However, if almost all of your cutting is in stock over 1-1/2" thick, Forrest recommends that you use the 30-tooth blade. Either blade will rip very cleanly and easily; crosscut is smooth, fast, and tearout-free.

For the radial-arm saw, mitre saw, or for mostly crosscut work on the tablesaw, the 60-tooth Woodworker I will provide mirror-smooth, astonishingly efficient cut-off. The

3/32" kerf width lets any saw do its work more easily, with less load on you and the motor, and less stock wastage as well.

For the smoothest possible cutting, Forrest's precision blade stiffeners eliminate vibration at the rim of the blade. A single stiffener mounted on the outside of the blade makes even these superb blades run quieter and more efficiently. Forrest recommends using a stiffener 4" smaller than your blade; on 10" tablesaws this would be a 6" stiffener, allowing 2" max. cutting depth. If, however, you regularly use your saw's full capacity, a 4" stiffener will provide significantly improved cuts without limiting their depth.

Forrest backs up their blades with a straightforward promise: "All of our tools are guaranteed to work for you properly, on your machine, or your money will be refunded." If you're looking for the finest blade you can buy, try a Forrest - you'll like it, or you'll get your money back.

FORREST PREMIUM SAW BLADES

	Size	Kerf	List	SALE
Woodworker II For Table Saws				
05.60.01	10" x 40	1/8"	156.00	89.00
05.60.02	10" x 30	1/8"	135.00	79.00
05.60.03	9" x 40	1/8"	146.00	84.00
05.60.04	8" x 40	3/32"	136.00	79.00
Woodworker I For Radial Arm Saws				
05.60.11	10" x 60	3/32"	162.00	95.00
05.60.12	9" x 60	3/32"	156.00	89.00
05.60.13	8" x 60	3/32"	150.00	85.00
05.60.21	6" Blade Stiffener			29.00
05.60.22	5" Blade Stiffener			27.00
05.60.23	4" Blade Stiffener			25.00

H TABLESAW OUTFEED ROLLER

This system provides exceptional safety and convenience for most 10" cabinet-type saws (Unisaw, Powermatic 66, General 330, Jet, Vega, etc.). The unit bolts directly to the saw cabinet, insuring accurate fixed alignment of the rollers, which must of course be set precisely perpendicular to the plane of the blade. (Any mobile roller could possibly be set somewhat askew, at risk of moving your stock into a kickback situation.) Precise mounting templates are provided.

The 12-roller support surface is 37" wide, and extends 39" from the rear of a Unisaw table, providing plenty of surface area to maintain complete and balanced control of full-size sheet material. An ingenious bi-level mounting system allows you to drop the entire support surface exactly 3/8" below table level, to accommodate your mitre guide bar or any sliding-table type mitre or cut-off jigs you may have in regular use. Where shop space is limited, the Outfeed Roller unit can be quickly folded flat behind the saw; one roller will always remain in position about 8" behind the saw table to support short stock.

Note: When mounting this unit on a Delta Unisaw with magnetic controls, the control unit on the back of the saw must be lowered 3" to accommodate the outfeed roller unit.

HOR-1038 Outfeed Roller 288.00



\$50 Delta Rebate
34-985 Cost after Rebate:
\$475.00*

*Quantity limited at this price. Rebate expires 6-30-89.

DELTA

DELTA STOCK FEEDER

This heavy-duty production accessory can bring increased safety as well as productivity to any busy shop. For repetitive ripping of boards or sheet material on the tablesaw, or for production runs on the shaper or jointer, the stock feeder provides motive power, direction control, and appropriate feed rate while keeping the operator well out of harm's way. Rated for use on machines up to 5 HP, this sophisticated unit comes with adjustable vertical and horizontal support arms, a tiltable, 4-speed, 3-wheel drive assembly, and a continuous-duty 1/6 HP, 115v motor. Feed rates can be set at 14, 27, 32, or 63 feet per minute in forward or reverse. Drive wheels can be set up to 6-3/8" above work surface, & up to 11-1/4" from the cast mounting flange. Non-marring rubber rollers are spring-mounted to handle uneven stock thickness. 57 lbs. Shipped UPS.

34-985 Delta Stock Feeder SALE 525.00*

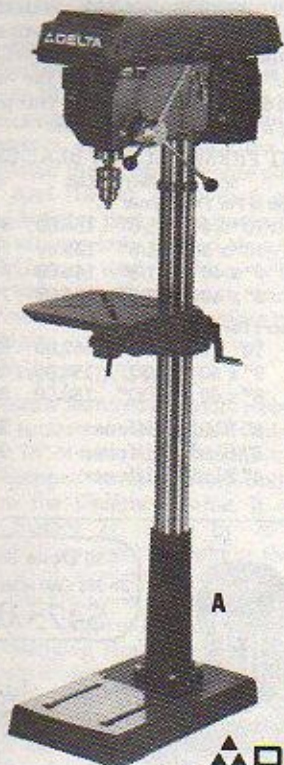
24-Hour Toll Free Charge Card Orders (800) 241-6748

DELTA TOOLS

A 16-1/2" FLOOR MODEL DRILL PRESS

This heavy-duty model is our most popular. 5/8" chuck, 3.3" stroke, adjustable locking depth stop, 3/4 HP 115/230V motor, 12 spindle speeds from 250 to 3000 rpm, and 190-lb. mass make this a best buy. The flanged and slotted 12 x 12" table tilts 90 degrees in either direction, and can swivel completely out of the way for drilling in large objects. Shipped within 48 states for \$40.00 shipping charge.

17-900	Delta 16-1/2" Drill Press	299.95
17-905	Mortising Attachment	26.50
Mortise Chisels and Bits		
08.34.05	1/4"	36.50
08.34.06	3/8"	39.50
08.34.07	1/2"	44.50



DELTA

B 14" BENCH DRILL PRESS

If floor space and budget demand your attention, this model is an easy choice. Heavy construction (145 lbs.), 1/2" chuck, 1/2 HP motor, adjustable depth lock with 3.3" stroke, 5 spindle speeds (460 to 2500 rpm) and compact dimensions make this an ideal compromise. Handles above mortise accessories. Shipped within 48 states for \$30.00 shipping charge.

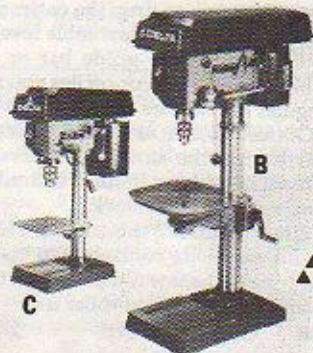
14-040	Delta 14" Drill Press	229.95
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C 8" BENCH DRILL PRESS

If your work and workspace are small, but your need for accuracy and versatility is not, this economical entry deserves a look. 1/4" motor and 1/2" chuck let you do full-size work; five spindle speeds (620 - 3100 rpm), 2" stroke, tilting table, and 7 x 17 x 24" high dimensions combine function and unobtrusive convenience. Weighs 48 lbs. Shipped UPS.

11-950	Delta 8" Drill Press	119.95
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(A note about drill press nomenclature: the size listed indicates max. diameter that can be center drilled; distance from chuck to column is one half of listed size.)

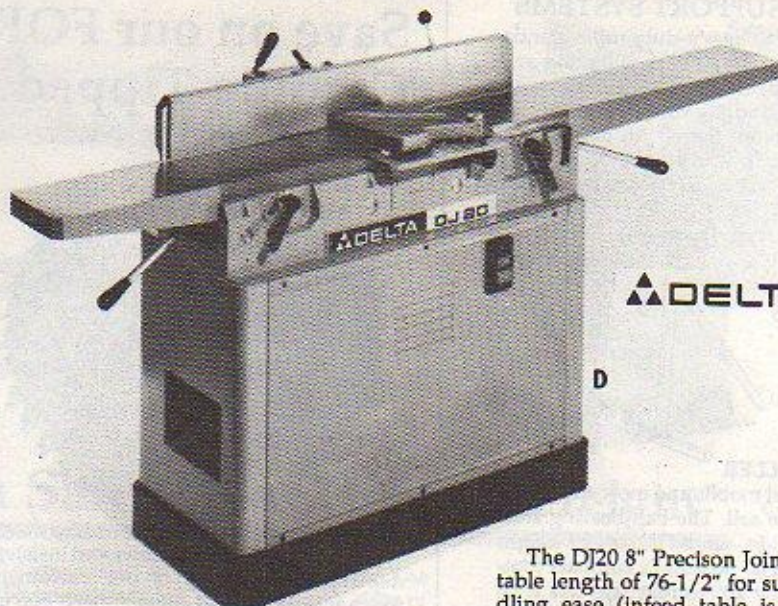


DELTA

DELTA PRECISION JOINTERS

A good jointer is one of the most fundamental stationary tools, for it is the tool that prepares stock for planing, joining, cutting, and shaping. It's a machine that's used every day, on every job, and frequently it is the quality of work done on the jointer that determines the quality of the finished workpiece. A tool this important ought to be as reliable as the sunrise, capable of doing its job accurately and easily time after time for years to come.

Delta's 8" and 6" precision jointers fit the bill perfectly. Despite the difference in their widths and power ratings, the two models share a number of design features that make each an outstanding value. Infeed and outfeed tables are mounted on a new parallelogram support system which eliminates wear and binding problems, and which moves each bed in the same arc as the cutterhead, maintaining the smallest possible gap between bed and blade at any depth setting. Torsion springs counterbalance the table supports to provide extremely smooth, easy adjustment. Infeed tables are extra-long for maximum efficiency and ease of handling large stock. The 5" high, 36" long fence is center-mounted for rigidity and setting convenience; it can be moved all the way out for rabbeting, and can tilt outward or inward (a real strong point) with positive stops at 90 and 45 degrees. A rabbeting ledge is built in to facilitate that operation. The three-knife cutterhead is equipped with jack screws to simplify installation and adjustment of each knife; it rotates at 5500 rpm (16500 cuts per minute) for smooth, tearout-free jointing.



DELTA

D

The DJ20 8" Precision Jointer offers a total table length of 76-1/2" for superb stock-handling ease (infeed table is 42" long). The jointer can be used for rabbeting to 5/8" deep. Tables stand 32" above the floor. The DJ-20 is supplied with enclosed stand and a 1-1/2 HP, 230-volt motor capable of handling full-width surface jointing as well as any depth of edge jointing with ease. The DJ-20 weighs 466 lbs.

The DJ-15 6" Precision Jointer has a total table length of 55-1/2", with a 30" infeed table. Max depth of cut is 1/2". Includes stand and 3/4 hp motor, wired for your choice of 115 or 230 volts. The DJ-15 weighs 328 lbs.

Shipping charge on either item within 48 states is \$60.00. Quantity limited at sale price.

D 37-350	DJ-20 8" Jointer	SALE 1299.00
C460	Spare Set 8" Knives	43.50
HRJ-8	Mobile Base for 8" Jointer	148.50
E 37-154	DJ-15 6" Jointer	SALE 999.00*
C390	Spare Set 6" Knives	38.50
HRJ-15	Mobile Base for 6" Jointer	109.00

\$100 Delta Rebate
DJ-15 Cost after Rebate:
\$899.00*



E

*Quantity limited at this price. Rebate expires 6-30-89. Shipped within 48 states for \$60 freight charge.

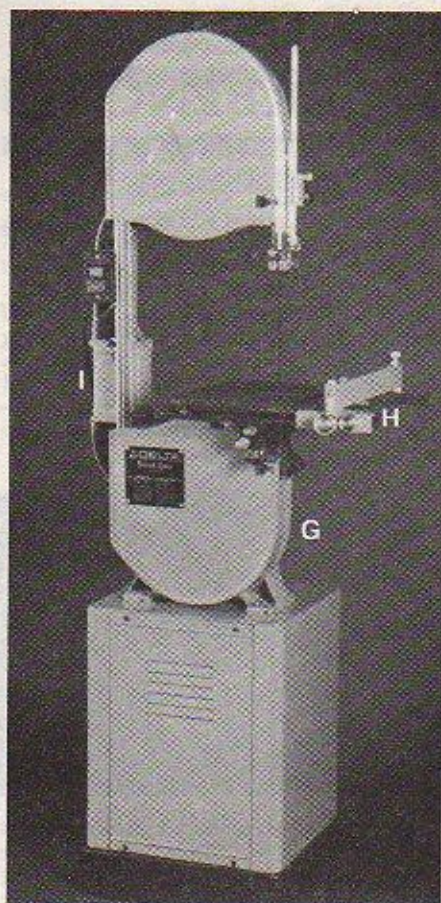
F FLEXIBLE WORK LIGHT

This handy lamp has a 9" flexible goose-neck for convenient positioning wherever extra illumination helps get the job done. The reflector will handle standard bulbs up to 40 watts. A horizontal flange is included for bolting the lamp to bandsaw, drill press, scrollsaw, or any other machine. Includes 8' power cord.

25-858	Flexible Work Light	29.95
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F



\$100 Delta Rebate
28-283 Cost after Rebate:
\$549.00*

DELTA 3/4 HP 14" BANDSAW WITH ENCLOSED STAND

You will love this saw's exceptionally quiet, smooth, and powerful operation. Its wheels are balanced and true, and the special resilient motor mount transmits almost no noise or vibration to the stand.

The enclosed stand occupies a compact 25" x 17-1/2" of floor space. Standard height is 65-1/2", with the table 43" above the floor. Table size is 14" square and tilts right to 45°, left to 10°. Throat opening is 13-5/8"; or 13" with the optional riser block installed. Upper and lower blade guides and thrust bearings are fitted with smooth-acting, easily reached micrometer-type setting knobs. Maximum thickness capacity under the guides is 6-1/4". Standard blade length is 93-1/2".

Optional accessories for the Delta bandsaw include a miter guide with stops at 45 and 90°, and a rip fence assembly with your choice of 18" or 32" fence rails. The fence is 17" long, and has built-in micro-adjust and rear locking knob. Also available is a 6" riser block kit which increases the saw's maximum thickness capacity to 12-1/4" under the guides.

G28-283	Delta 14" 3/4 HP Bandsaw with Enclosed Stand	649.00*
HRD-14	Mobile Base for 28-283	109.00
08-60-01	Cool Blocks for Delta	9.95
34-895	Miter Guide	49.95
28-843	18" Rip Fence Assembly	59.95
28-845	32" Rip Fence Assembly	69.95
28-984	12" Riser Kit	69.95

*Quantity limited at this price. Rebate expires 6-30-89. Shipped within 48 states for \$40 freight charge.

LENOX Premium Bandsaw Blades

Although many factors affect the quality of a bandsaw's cut, one of the most important remains the choice of a high-quality blade of the appropriate size and tooth style.

We have tested many of the new blade designs which have recently been offered. None perform better than the Lenox blades which we have offered for more than a decade. Certainly, none are more reliable.

The weakest point of any bandsaw blade is its weld. Lenox blades have the strongest, most uniform welds in the industry, yielding longer blade life and smoother cutting.

We offer blades for popular bandsaws in the following sizes: 1/2" x 3 TPI for resawing and ripping thick material; 1/4" x 6 TPI for larger radius scrollwork, roughing out, and ripping up to 3 or 4" thick; and 1/8" x 14 TPI for tight scrollwork and fine joinery.

We also offer a 1/16" x 24 TPI blade for very fine and delicate scrollwork. This size blade will obviously not last as long as wider blades. For 1/16" blades, we strongly recommend the use of Cool Blocks (see page 11) in place of ordinary bandsaw guides.

Our 1/16" & 1/8" blades have standard raker teeth. The 1/4" & 1/2" blades have hook teeth for more aggressive cutting.

Specify one of these bandsaw brands when ordering:

	Length
Delta 14" (and Taiwan copies)	93-1/2"
Delta 14" with riser kit*	104-1/2"
Sears 12"	80"
Shopsmith 11"	72"
Inca 10-1/2"	73"

LENOX Premium Bandsaw Blades

	Width	Teeth per Inch	
08.34.21	1/16"	24	12.95
08.34.22	1/8"	14	12.95
08.34.23	1/4"	6	11.95
08.34.25	1/2"	3	11.95

* Price per blade is \$1.00 higher for 104-1/2" blades.



J DELTA HEAVY-Duty Shaper

This 3 HP, two-speed workhorse from Delta provides powerful efficiency and a broad range of applications for the production-oriented shop. Interchangeable 3/4" and 1/2" spindles are standard equipment; options include a 1" spindle, a 1/2" stub spindle for cope cutters, an extra-long 3/4" spindle with 4-3/8" under the nut, and a router spindle which handles 1/4" and 1/2" shank router bits. With this many spindle configurations available, practically any cutter on the market can be run on this machine. Spindle speeds are set by step pulley, and can be

quickly switched between 7,000 and 10,000 rpm. The spindle, pulleys, motor and raising & lowering mechanism (with 3" travel) are all in a single self-contained unit, guaranteeing rigid, vibration-free and accurate operation.

The cast-iron table surface, with one extension included as std. equipment, measures 28" deep by 27" wide; another extension table can be added to increase depth to 36" if desired. Insert rings are provided to custom-fit the opening around different cutter diameters. A 3/4" x 3/8" groove is milled across the table 5" forward of the spindle, for use with mitre guide, sliding table, tenon jig, etc. The fully adjustable fence mechanism offers independently micro-adjustable right & left sides, 3-3/4" by 12-3/8" wood faces which can be positioned to allow various bit openings, and a cast cutter guard with dust collector port.

The Delta Heavy-Duty Shaper comes with an enclosed steel cabinet, 3 HP, 220-volt Delta motor, low-voltage safety switch and magnetic starter. Table height is 34". Net weight is 424 lbs. Shipping charge on this item within 48 states is \$50.00. Quantity limited at sale price.

43-375	Heavy-Duty Shaper	SALE 1499.00
HRS-10	Mobile Base for 43-375	109.00
43-345	1/2" Stub Spindle	56.65
43-821	Extra Long 3/4" Spindle	265.00
43-822	1" Spindle	265.00
43-824	Router Spindle	105.60

K DELTA 18" VARIABLE-SPEED SCROLLSAW

Big 18" throat capacity, variable motor speed, and fine cutting performance make this Delta scrollsaw worth a good look from anyone who needs a saw to meet serious scrolling demands. Its smooth operation, fast and effective blade mounting and tensioning system, high power and high maximum speed make this an excellent choice for scrolling in any kind of wood, and lower stroke speeds also lets the user cut metals and plastics with ease.

Delta's electronic speed control includes a digital read-out that lets the user choose any strokes-per-minute rate between 40 and 2000; provides constant torque to maintain selected speed. Max thickness of cut is 2". Round cast-iron table is a generous 16" in diameter for easy handling of any size work. Wt. incl. stand is 132 lbs. Includes 96 assorted blades. Shipped within 48 states for \$30.00. Quantity limited at sale price.

40-601	18" Electronic Scrollsaw	SALE 699.00
HRSS-18	Mobile Base for 40-601	109.00



24-Hour Toll Free Charge Card Orders (800) 241-6748



DELTA

SAVE WITH OUR PACKAGE DEAL ON THE DELTA 15" SCROLLSAW

This little saw represents one of the best deals to come along in a long time. It's affordable, easy to use, compact enough not to burden your limited shop space, and best of all it works nearly as well as saws costing hundreds of dollars more. If you've been wishing for something capable of finer work than you get from your bandsaw, or if you're one of the thousands of folks who love making toys for kids and grandkids, the Delta 15" scrollsaw is the tool you've been waiting for. It might sound nearly too good to be true, but in fact the saw works as well as advertised – or a good bit better yet with a few tips from our User's Guide, which we provide with every purchase.

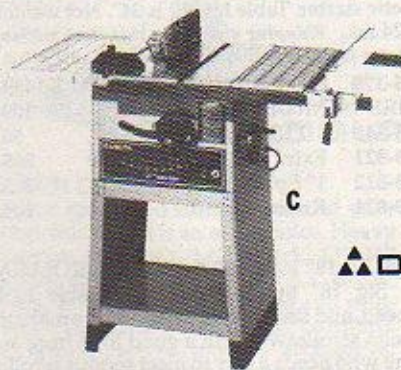
The saw's design is the secret of its success. Rocking parallelogram arm structure, rear tension rod, and floating blade clamps together form a system which allows constant high tension, high speed sawing with clean kerf, absolutely minimal blade breakage and no tendency to deviate from a true vertical cut. The saw can accommodate stock up to 2" thick, though like any other scrollsaw this one works best in stock of 1" thickness or less. The cast-iron table measures 17" long by 7-3/4" wide at the front;

throat depth is 15", which is more than enough for 360-degree access to most projects. The table can tilt left to 45 degrees; an adjustable stop screw lets you be sure you reset it precisely perpendicular to the blade.

With each Delta 15" scrollsaw we include a kit of accessories which will help you get the most out of the tool as soon as you get it home. We include two books of puzzle and toy patterns to give you something to practice with. We also provide five dozen extra blades covering the full range of sizes for work in every stock thickness. And we'll give you a copy of our Scroll Saw User's Guide, which we've prepared as a supplement to the Delta owner's manual that comes with the saw. The User's Guide includes tips on simple modifications for greater safety and convenience, tensioning blades for cleanest sawing and lowest breakage, a blade selection chart, and a few basic instructions on how to successfully put your saw to work. We also describe in detail (with a full-size plan) how to build a work hold-down system that really lets the saw work at its best, and we describe a blower we've added to our saw here at the store that keeps the work area clear of sawdust.

Scrollsaws are steadily gaining recognition for the versatility and precision they bring to powered woodcutting. Craftspeople are using these tools more and more for work that looks like carving, marquetry or inlay, along with the traditional toys, puzzles and lettering that have always been the scrollsaw's forte. The design revolution pioneered by Hegner made scrolling a practical way to get the job done. The price revolution pioneered by Delta is making it a popular choice as well. *Shipped UPS within 48 states for \$6.00 shipping charge. See page 44 for open stock on scrollsaw blades.*

40-150 Scroll Saw Package Deal 149.95
40-155 Extra pair Blade Clamps 12.95



DELTA

C DELTA 10" MOTORIZED TABLESAW

This economical new saw from Delta offers the features of a full-size saw at a remarkably reasonable price, without sacrificing the quality you need for home or job-site use. A 15-amp universal motor cranks out plenty of power for ripping 8/4 hardwood, dadoing up to 13/16" wide, or any other woodworking operation. Max depth of cut is 3-1/8" at 90°, 2-1/8" at 45°. The lever-lock fence can be set up to 24" to the right of the blade. Smooth cast-iron table measures 22" by 20"; two extension wings are provided to bring total working surface to 22" deep by 38" wide. Net weight is 130 lbs.

Shipping charge on this item within 48 states is \$40.00. Quantity limited.

34-670 Delta 10" Tablesaw SALE 329.00



D DELTA MOTORIZED JOINTER

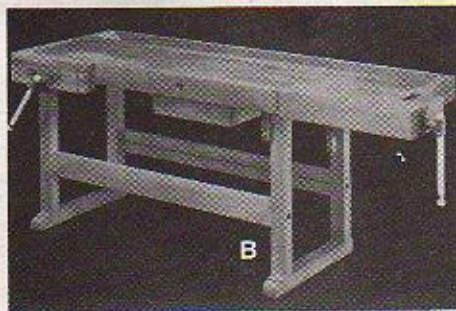
This is a compact, economical jointer with full-size features. Delta's 3/4 HP motor drives the three-knife cutterhead at 4300 rpm, delivering 12,900 cuts per minute for clean, smooth jointing on edges or surfaces. Center-mounted fence tilts in or out, with positive stops at 90 and 45 degrees. Maximum depth of cut is 3/8"; a built-in ledge assists in rabbeting to that depth. Cast iron bed totals 35-1/2" long. A pair of offset-handle push blocks is included for your safety. Net weight is 143 lbs.

Shipping charge on this item within 48 states is \$40.00. Quantity limited at sale price.

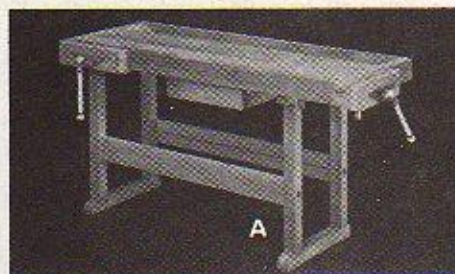
37-280 6" Motorized Jointer SALE 329.00

EUROPEAN WORKBENCHES

These beautiful West German benches should make a proud addition to any shop. Solid, steady, versatile and attractive, they will appeal to any woodworker who appreciates traditional design and sound workmanship. Benchtops and base frames are constructed of kiln-dried red beech for stability and long wear. All working surfaces are protected with an oil finish. Base frames come disassembled for shipping. Reassembly is easy, and all necessary hardware is provided. Vises come mounted and ready to use.



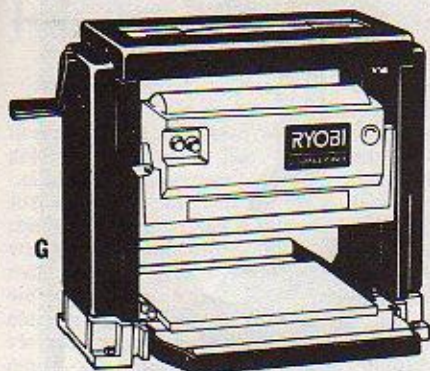
The large bench offers a work surface 18 x 78-1/2". Its weight (220 lbs.) and stability are commensurately high for ease in handling even quite massive workpieces. Both vises are likewise designed to accommodate large-scale work: the shoulder vises' 18" wide by 5-1/4" deep jaw opens to 9-3/8"; the tail vise's 5-1/2" x 4-1/2" jaw opens to 9-3/8". Two steel dogs can efficiently secure a workpiece up to 83" long for shaping, chiseling or finishing. The tool well, 3" deep by 68" long, keeps tools in use within arm's reach but out of harm's way.



The small workbench provides a 14" x 57" work surface; it is a fine bench for carvers, modelers, and others who are mostly engaged in relatively compact work, and also would make an excellent side bench in any shop. Front & side vises feature 16" & 13" jaw width respectively, each with 4-3/8" opening. A sturdy wooden drawer mounts underneath the table. Top is 1-3/4" thick. Weighing 121 lbs. this bench is light enough to be moved as needed, but solid enough to stay put in the meantime. Given the quality of its construction and the versatility of its design, the small bench is surprisingly affordable. Both workbenches are shipped by truck, freight collect.

A 01.42.03 Small Workbench 395.00
B 01.42.04 Large Workbench 899.00

RYOBI TOOLS



AP-10 10\"/>

Every woodworker *should* have a thickness planer. And since the introduction of the Ryobi AP-10, every woodworker *can* have one. Giving new meaning to the phrase "value for money", the AP-10 provides every shop the opportunity to quickly and effortlessly make rough material perfectly smooth and thick material as thin as you like. The machine is long on performance at a very low price.

The AP-10 will take a 1/16" depth of cut across a 10" width of hardwood. It will automatically feed work through itself at about 26 feet per minute, and will provide a clean, smooth surface on the finished piece. If space is tight in your shop, after finishing a job you can fold up the support rollers, grab the carrying strap, and store it out of sight.

A 13 amp (2 HP) motor drives the two-knife cutter-head at 8000 rpm, delivering about 51 strokes per inch on the work. (Strokes per inch can give you a good idea of the surface quality a planer can provide; the higher the figure the better. 51 strokes per inch is pretty good.) Maximum stock thickness is 5-1/8". The AP-10 measures 16-3/4" wide by 14-1/4" high. With the outrigger stock support rollers folded down for use, front to back length is 19-1/4".

After all the exclamations about price, size and performance have faded into the routine of daily use, you'll begin exclaiming all over again when it's time to sharpen the knives. Removing them from the cutterhead is routine; loosening some bolts is all that's required. Re-installation is where the headache comes in on most machines, as limited access, fidgety adjustments, and primitive mounting systems combine to try the resolve of the most stalwart worker. The AP-10 is different. Most cutterhead designs include some sort of steel cap or bar which secures the knife to the cutterhead and stiffens it against shock. Ryobi has taken this blade binder, as they call it, and hung a little lip off the back edge. This little lip nests down into a slot in the cutterhead, thus locating the blade binder and the blade along with it. So when it's time to re-set the knives, you're not faced with setting the knife in the cutterhead; you set the knife in the blade binder, using an extremely simple jig provided for the purpose and doing the work out in the daylight where you can get at it. When you pop the blade and binder assembly back into the cutterhead, the cutting edge of the knife is

automatically set precisely where it should be, and only gross negligence could leave one knife set differently from the other. Knife installation is a five-minute job for the first-time user, and that all by itself is a revolution.

Is a thickness planer really needed in a small shop? Well, some of a planer's uses are obvious: you have a piece of wood 3/4" thick and you need a piece of wood 1/2" thick; your planer turns one into the other. That's thickness planing. You aren't always planing for particular thickness, though. If your planer is good enough (like the AP-10), you'll probably find yourself using it more often as a substitute for your belt sander, taking just a very light skim pass just to clean up a surface and prepare it for finishing. Think about that for two seconds: while your neighbor is putting a belt on his sander, you're watching 26 feet of wood go by. While he's generating clouds of dust you're generating piles of shavings. While he's switching to a finer grit you're giving the work two licks with a scraper or a finish sander. While he's behind schedule and over budget, you're lolling at the beach with your planer by your side.

The AP-10 planer embodies an idea whose time has been around for a while now, waiting to be noticed. The folks at Ryobi are to be congratulated for recognizing and seizing this opportunity to bring an automatic planer within reach of thousands of hobbyists, carpenters, and small-budget shops for whom a large \$1000+ machine was not the answer to their needs. We're pleased to offer the AP-10, and we believe you'll be equally pleased to add one to your shop. *Shipped by UPS.*

G 03.33.01	AP-10 Thickness Planer	399.00
03.33.02	Spare set of Knives	28.00
03.33.03	Legstand for AP-10	39.95
03.33.05	Dusthood for AP-10	22.95

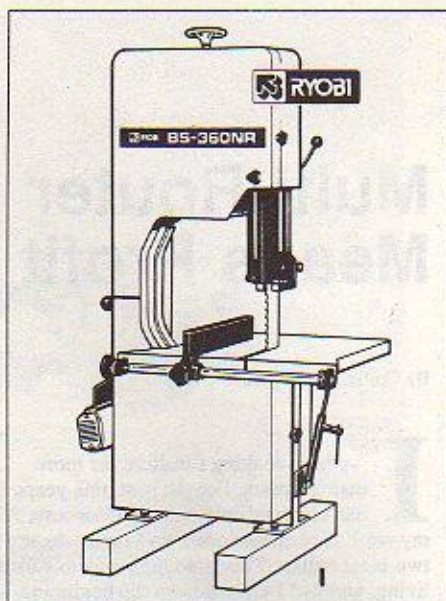


RA-200 Radial Arm Saw SALE

We have now sold a good number of this saw (which was recently improved), and the response has been quite good regarding quality and performance. While the blade size is only 8-1/4" in diameter, careful design of the arbor has permitted a full 3" maximum depth of cut at 90°, or 1-3/4" at 45°. Its 11 amp (2 HP) 110 volt motor provides plenty of power, and is switched on and off by conveniently located controls. The no-load blade speed is 5000 rpm. An accessory spindle features a speed of 18,500 rpm for routing.

Perhaps most convenient of all is the tool's overall weight: just 53 lbs., making it light enough to carry to the job, or store under the workbench when not in use. An optional stand is available. Both can be shipped by UPS.

(Sale Quantity Limited)		SALE \$249.95
H 08.33.01	RA200 Radial Arm Saw	269.00
08.33.12	Stand for RA200	49.00



BS-360NR Resawing Bandsaw

Tremendous blade size and high speed sawing are the secrets behind this Ryobi machine's extreme accuracy and power in resawing and ripping. We are pleased to offer it while current supplies last for a very low price.

A 3"-wide stellite-tipped blade comes as standard equipment. The stellite tips (just under carbide in hardness, but less brittle) clear a kerf just wider than the body of the blade, which proceeds in effect to fence itself in the kerf for the straightest possible cut. The blade travels at 3660 feet per minute (42 mph) leaving a very smooth surface at a fast feed rate.

Maximum depth of cut is 12-1/4", and the throat is 13" deep, making the Ryobi saw the ideal machine for milling your own lumber from logs or cranking out 1/16" veneers from those pieces of extraordinary lumber too valuable to be used only once. For most users, this Ryobi saw can eliminate reliance on the table saw for ripping lumber, thanks to its advantages of a 1/16" kerf, very fast feed capability, and much safer operating characteristics.

The bandsaw wheels are lined with rubber, permitting the use of much narrower blades suitable for scroll work. A 1/8" blade works superbly, greatly increasing the machine's utility as a heavy-duty scroll saw.

The saw comes equipped with a sturdy rip fence which extends past the blade, and is bored and tapped to allow attachment of a taller auxiliary fence if desired. The rail to which the fence attaches has a unique micro-adjust feature, allowing precise positioning of the fence for accurate ripping and resawing.

The sturdy cast-iron table measures 17-5/8" x 18-1/2". It tilts up to 45° for bevel cutting, and is braced by a heavy telescoping support leg. The saw's frame is also of heavy cast-iron construction. Height is 52-3/8". Net wt. is 242 lbs. Blade length is 101-3/4". Shipped by truck freight collect.

I 08.33.01	Ryobi BS-360NR Resaw	1299.00
08.33.02	1/8" Blade	19.95
08.33.03	1/4" Blade	19.95
08.33.04	1/2" Blade	22.00
08.33.07	2" Blade	48.95
08.33.08	3" Blade	97.50

Multi-Router Means Profit

By Curtis Whittington

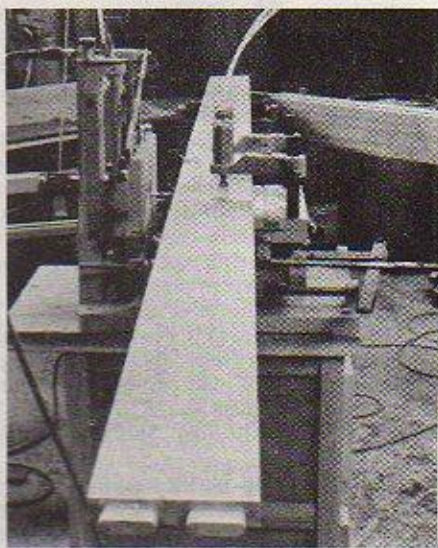
I've been making furniture for more than 25 years. For the past nine years, it has been my only source of income. All my work is commissioned, so I rarely do any two pieces alike. This is a tough way to earn a living, and had I known from the beginning how tough it would be, I probably would not have begun doing it professionally.

Gloom

Two years ago, I got tired of barely getting by, and decided to "hang it up", put on a coat and tie, and re-enter the rat race. Fortunately, my closest friends convinced me that a last effort should be made. I was persuaded that larger, more efficient machines should be purchased and "let's see what happens".

I attended the woodworking show in Charlotte, N.C. with buying a new sliding table saw in mind. I had no idea what else could be purchased, as there wasn't much I didn't already have.

In the first booth I stopped at, my good friend Ben Covington was demonstrating a machine that produced tenons with rounded edges. I watched this marvelous machine for a few minutes, then handed over my Visa card and said "I want one". The Multi-Router was being introduced for the first time, and I became the proud new owner of machine #4, along with every size tenon template.



I've bought a lot of things in my years as a woodworker, and too many times, I've been disappointed. It is not uncommon to go home and have to totally assemble a new machine because it has arrived in "KD" form, and find that I even have to re-machine parts to make them fit together and work properly. That's not the case with the Multi-Router. Screw in three bolts that hold on the operating handles, install your router base and the stylus assembly, and you are ready for action within about 15 minutes. It is a ready-to-go machine right out of the box. No hassle. There are no adjustments to be made, and nothing to get out of alignment. After two years, I can still say this is the finest machine I have ever encountered in woodworking.

Profit

Now we get to the meat of this article. Several weeks after I got the Multi-Router, I walked into the shop at 8 AM. First thing to do that day was to mortise and tenon and glue a simple 48" x 22" cocktail table. Four legs, four rails and a top. I had dimensioned the wood the day before, so I went straight to the Multi-Router to begin. Forty-five minutes later, I was finished mortising, tenoning and gluing, and was drinking a leisurely cup of coffee.*

It was only then that it hit me what I had bought for myself. It had generally required 3-1/2 hours to do this operation in my shop using table saw, bandsaw and/or hand saw for the tenons, and then rasping over the edges. (I especially hated rasping over the edges). Mortises had been done using a jig and plunge router. (I also had a square chisel tenoner on a drill press, but never really used it much).

80% Savings

By installing a Multi-Router, I had just eliminated 2-3/4 production hours from this job. I was almost in shock. This 80% time savings applies to all mortise and tenon work, as well as the many other Multi-Router uses. It will perform just about any kind of joinery used in furniture and cabinetmaking except half-blind dovetails.

All this has proven out over the past two years. I've always known that one-man shops had a problem turning out enough work fast enough to be profitable. And profitable to me means sufficient income for more than just getting by. Well, this past year I finally took a real vacation (to Key West), I worked fewer Saturdays, and best of all, I have a much brighter attitude about my future in furniture making.

Whether you are a professional or a hobbyist, I can promise you that a Multi-Router will make a great asset for your shop. A hobbyist can actually get weekend projects accomplished in a weekend, and the small professional shop owner will certainly make more profit while experiencing less stress. I even know of a large manufacturing plant that

*The same operation now takes me thirty minutes.



uses a Multi-Router to produce small-run parts, such as for prototypes, or to fill in when larger production machines are being repaired.

The range of work which the Multi-Router will handle is part of the reason for its versatility. In my shop, we've used the Multi-Router to produce joints on work ranging from 1"-cube ring boxes for a local jewelry store (using 1/4" box joints) up to a mortise and tenon frame 15' x 5' x 6' for our furniture-hauling trailer.

Design

I now have an employee who enjoys using the Multi-Router. We will soon buy our second machine in order to produce a box I have designed to sell in local stores. My furniture designs have also benefited from having the Multi-Router. I can now design and make furniture that would have been too expensive before because so many joints would have had to be cut by hand. This is true because the Multi-Router can do multiple-angle joinery as easily as it does straight joinery. Because of this, I am competitive in chairs again, also.

Charge

One last note. When you get your Multi-Router, don't charge it out at the same hourly rate as say your table saw. Because it saves so much time, charge for this and take advantage of it. For instance, my table job used to require 3-1/2 hours at say, \$35/hour for joinery, or \$122.50. Charge \$110 for the first hour, and charge a full hour. You are making the profit and saving the customer money too. And that's the bottom line - profit and saving.

Curtis Whittington makes furniture full-time at his shop in Pawleys Island, S.C.

MULTI-ROUTER

Production Joinery Machine

This new American-made jointmaker is a dream machine for commercial-duty production of almost any solid-wood joint imaginable. Extraordinarily heavy aluminum alloy castings, low-tolerance computer-controlled surface machining, and complete X-Y-Z axis control with linear ball bearings on solid steel ways make the Multi-Router the smoothest, most precise and most versatile joinery device we've ever seen. An excellent video-tape presentation is available to provide an in-depth view of the machine at work in a shop environment - details below. Equipped with the optionally available pneumatic clamp system, the Multi-Router will be equally at home on the factory floor or in a one-man custom shop.

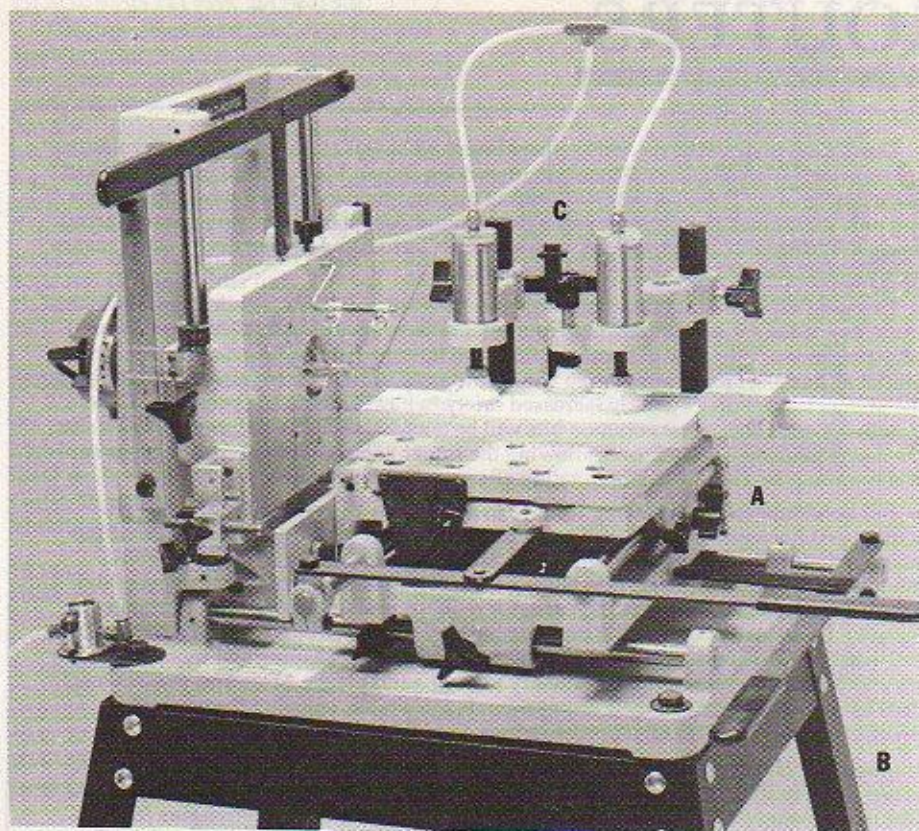
While its specialty is mortise and tenon joints (up to 1/2" x 3"), the Multi-Router also produces dovetails, box joints, splined miters, sliding dovetails, round stub tenons, and numerous decorative joints. The tilting work surface (0 to 45 degrees) makes both simple and compound-angle joints almost unbelievably easy. Mortises are set up and milled using built-in stops for control in every dimension. All other joint components are produced under template control; once set up, the machine will mill anything from one to a thousand parts with no further adjustment.

The work mounting table rides on four 3/4" diameter hardened steel ways which offer 8" of side-to-side and in-and-out travel. Thompson linear bearings assure tight, precise movement with almost dreamlike ease and smoothness. 20" lever handles move the table along both axes with positive control and excellent mechanical advantage. The vertical platen serves as router mount and positioning jig for stock set-up and some milling operations. It is bored for mounting either a Bosch 1604 router or a Makita 3612BR, and most other makes and models can be mounted with additional boring. The platen offers 6" of vertical travel, and is equipped with a gas-cylinder return which completely offsets the weight of any router, a great safety feature as well as an indispensable convenience.

A variety of optional templates is available for production of standard tenons, box (or finger) joints, 14 degree dovetails, mitered dovetails, and round tenons. *An optional ball-bearing-tipped guide stylus is required for use with any of the templates.* Standard tenon templates are very easy to use, as the stylus is completely controlled within a closed track.

Variable-size tenon templates are available to provide complete assurance that your tenons can be made to fit even if your mortises come out slightly over or under absolute dimension (such as will occur after your bits have been sharpened, or if they weren't perfectly sized to begin with). All the variable-size templates are used in a master insert holder; each tenon size set comes with three inserts to change tenon size in very small increments.

The comprehensive template set we offer includes all the templates *except* the standard tenon templates. It includes the master insert holder and all sizes of variable-size tenon templates.



The pneumatic Power Clamps are available either as original equipment or as an accessory system for those who already own the Multi-Router. If you're not already outfitted with an air compressor, low-cost units are readily available; the clamps require only minimal S.C.F.M. at 70 PSI. The machine can of course be used without the Power Clamp system, as it comes provided with two manual hold-down clamps which mount in any of the work table's 14 sockets.

Whether you want a machine for commercial mass production of chair parts, or if you're just looking for the ultimate router jig, you will find the Multi-Router to be an outstanding combination of ingenious design and meticulous execution. The Multi-Router is shipped by truck freight collect. Shipping wt. is 99 lbs.

MULTI-ROUTER

A	08.52.01	Model 101-L Multi-Router	1495.00
B	08.52.03	Machine Stand	88.00
C	08.52.04	PC-1 Air Clamps	255.00
	08.52.05	Ball-bearing Follower Stylus	49.50

Comprehensive Template Set

08.52.63	Master Insert Holder, Set of 3 each Var. Size Tenon Inserts in All 14 Sizes, 3 Dovetail, 2 Finger Joint, & All 4 Round Tenon Templates	356.00
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MULTI-ROUTER Video

Seeing is believing, and we encourage you to borrow the instructional video and get a first-hand look at the Multi-Router in operation. To receive the video for up to 30 days, send us a check for \$20 (or charge by phone toll free 800-241-6748) to cover a \$15 refundable deposit and \$5 handling fee. If you buy a Multi-Router during those 30 days, we'll credit your \$20 toward the purchase and let you keep the video manual.

Tenon Sizes Available (inches):

1/4 x 1	3/8 x 1	1/2 x 1-1/2
1/4 x 1-1/2	3/8 x 1-1/2	1/2 x 2
1/4 x 2	3/8 x 2	1/2 x 2-1/2
1/4 x 2-1/2	3/8 x 2-1/2	1/2 x 3
1/4 x 3	3/8 x 3	

Variable-Size Tenon Templates

08.52.61	Master Insert Holder for Variable-size Tenon Inserts	25.00
08.52.62	Set of 3 Var.-Size Tenon Inserts 13.50 (Specify one of fourteen nominal set sizes from tenon size chart above).	

Standard Tenon Templates

08.52.11	Std. Tenon Templates, Each	15.25
	(Specify size from chart above)	

Other Standard Templates

08.52.31	Dovetails (Pins and Tails)	36.50
08.52.35	Mitered Dovetail	18.50
08.52.32	1/4" Finger Joints	18.50
08.52.33	3/8" Finger Joints	18.50
08.52.34	Round Tenons, Each	15.25
	(Specify size: 1/2 & 5/8; 3/4; 1; or 1-1/4")	

Precision Spiral End Mill Bits High Speed Steel

	Diameter	Cutting Length	Shank	Overall Length	Price
0225H	1/4"	5/8"	3/8"	2-7/16"	14.70
0237H	3/8"	3/4"	3/8"	2-1/2"	14.70
1225H	1/4"	1-1/4"	3/8"	3-1/16"	16.85
1237H	3/8"	1-1/2"	3/8"	3-1/4"	16.85
1250H	1/2"	2"	1/2"	4"	24.15

	Diameter	Cutting Length	Shank	Overall Length	Price
0225T	1/4"	5/8"	3/8"	2-7/16"	20.70
0237T	3/8"	3/4"	3/8"	2-1/2"	20.70
1225T	1/4"	1-1/4"	3/8"	3-1/16"	22.85
1237T	3/8"	1-1/2"	3/8"	3-1/4"	22.85
1250T	1/2"	2"	1/2"	4"	30.15

Titanium Nitride Coated (stays sharp 6x longer)

ROUTERS

During the first part of the 1980's, there began what was to become a major evolutionary transformation of the traditional woodworking router. Motors were made more and more powerful, 1/2" collets began appearing on hand-held machines, new applications and new techniques proliferated, and plunge-router design began to gain popular acceptance. In the late 80s, new router models are being introduced by practically every manufacturer – and most of them are plunge routers.

Plunging capability is an outstandingly useful feature. It allows vertical entry into the work, as needed for surface forming, routing mortises, or cutting stopped grooves or edge treatments. It lets the user pre-set final and intermediate cutting depths with great precision, and then reach any setting almost instantly. And, perhaps almost accidentally, the plunge feature offers greatly increased safety in most hand-held operations. Once installed in the collet, most common bits will be withdrawn above the router base when the motor housing is fully raised, allowing the router to be set down securely on its base while waiting for the bits to stop rotating after a cut is completed.

Powerful new motors drawing from 12 to as much as 15 amps (all commonly described as 3 horsepower) have also had a profound effect on routing. Conventional bits, such as those for rounding over, grooving, rabbeting and so on, can be used almost effortlessly for full-depth one-pass cutting that is cleaner and smoother than ever; high power keeps the bit rotating at high rpm for reduced chatter, tearout, and overload burning. Dependable 1/2" collets on these big new motors have prompted a rush to large 1/2"-shank bits increasingly capable of performing joinery, shaping and moulding functions formerly reserved for stationary tools or hand planes. More and more owners do most of their work with their router mounted in a table, enjoying the versatility, precision, and greatly boosted productivity a good table system can provide.

Highland Hardware now carries heavy plunge routers from four different manufacturers. Each model has its own particular strong points, but all have several important features in common. Each comes equipped with a 1/2" collet, with provisions for handling other shank sizes. Each comes with an adjustable depth stop rod attached to the motor housing, and each has a three-stage rotating turret on the base which lets adjustable stop screws be selectively located under the stop rod. Each has parallel holes passing horizontally through the base casting, which accept twin steel rods used to mount edge-guide hardware – and which enable the user to construct a table-mounting system unmatched for ease and efficiency of use. *We provide the plans for this mounting system with each plunge router we sell.*



RYOBI RE-600 ELECTRONIC VARIABLE SPEED PLUNGE ROUTER

This new entry from Ryobi is already causing quite a stir out there in routerland. Somehow Ryobi has managed to create a big, powerful, soft-start variable-speed machine, load it with features, specs, and accessories, and bring it to market for an astonishingly low price. The RE-600 is very nearly the ideal router for table-mounted use. Of all the routers we sell, this is the only one that comes

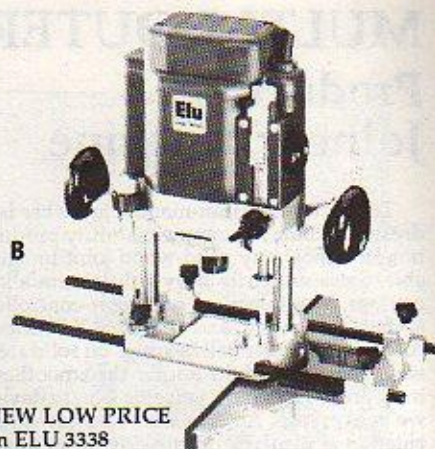
factory equipped for easy and positive under-table depth of cut adjustment, for accepting bits up to 3-3/8" diameter without special add-on sub-bases, and for operating at low rpm with enough power for any kind of cutting in any kind of material you might have in mind.

The RE-600 is powered by a 15 amp motor which operates at any speed from 10,000 to 22,000 rpm. It is equipped with large, stout handles which offer solid control for hand-held use; toggle switch and plunge lock lever are reached on the right side without releasing the handle. Max plunge depth is 2-3/8". A large height adjustment knob can be used for micro-adjusting depth of cut, and it works exceptionally well for effortless depth setting with the router mounted in a table. The base is round, 6-5/8" in diameter, with a 3-1/2" opening in the sub-base. A chip deflector shield can be placed at front or rear as needed for operator safety.

Standard equipment includes a 3-piece guide set with micro-adjustable holder, straight fence and roller guide. Also included are 1/4" and 3/8" adapter sleeves for use in the standard 1/2" collet. Optional guide bushing adapter allows use of Black & Decker guide bushings (available on next page).

The RE-600 weighs 14 lbs.

A RE600	Ryobi Var. Spd. Plunge Router	229.00
6072503	Guide Bushing Adapter for Black & Decker Bushings	9.00



NEW LOW PRICE on ELU 3338

Electronic Variable Speed Plunge Router

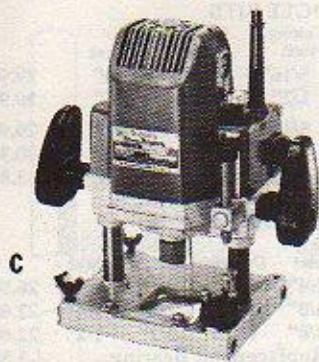
This superb machine is a strong contender for the title of finest plunge router on the market today. Its variable speed control is a wonderfully useful feature for all manner of routing situations: running big bits, 2-1/2" and more in diameter; routing Corian and other plastics; following intricate patterns and using complex templates – all these operations are safer, smoother, cleaner and more efficient when you can run the router at a slower speed. The electronic control monitors rpm, and feeds more voltage to the motor as needed to maintain the selected rpm as load increases. A soft-start feature is incorporated in the control which brings the motor up to speed over the space of about one second, almost totally eliminating start-up torque even with very large bits in use. The 3338 runs quieter than most other large routers, and at low rpm is the quietest router we've ever heard.

Other excellent features set Elu apart. One exclusive design element is a rack-and-pinion actuated depth stop rod with micro-adjustable tip and adjustable magnified cursor for very easy and precise pre-setting depth of cut. This system is without a doubt the best we've seen yet, and it works equally well when using end-cutting or piloted bits. An optional height adjuster makes table-mounted depth of cut setting just as easy and accurate. The motor housing is fitted with bronze bushings 2-3/4" long, giving the 3338 the tightest, smoothest and most reliable plunging action of any router on the market. Elu's plunge lock lever is self-locking; the motor is firmly locked on the posts until the operator chooses to free it for plunging, and releasing the lever once again fixes the motor in place. The 1/2" collet supplied with the machine is an unusual 1-3/8" in length, enough to securely hold any shank. And the motor spindle is bored 2-1/4" deep, so that even the longest shanks can be inserted far enough to bring the bit's cutting edge up close to the collet for safest and steadiest cutting.

The Elu 3338 operates at any speed from 8,000 to 20,000 rpm, drawing from 10 to 12 amps depending on the speed selected. It offers up to 2-5/8" of plunge travel. 1/4" & 3/8" replacement collets are available optionally, as is the fine height adjuster for table-mounted operation. A straight edge guide and mounting rods (10-1/2" max reach) are standard equipment. The router has a modified circular base, 6-5/8" in diameter with the front edge chopped off straight 2-1/4" from center. A bushing adapter is provided to enable use of any standard Black & Decker guide bushings. The 3338 weighs 11-1/4 lbs.

See accessories at right on next page.

B 3338	ELU Var. Speed Plunge Router	299.00
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MAKITA 3612 PLUNGE ROUTERS

The 3612 routers are among the most durable, most versatile, and most powerful routers ever made. Their great success has inspired users and manufacturers alike; many of the features that are now standard on every plunge router first appeared on Makita machines a decade ago. Even in the face of good, innovative competition, the Makita 3612 routers remain a sound and secure choice for any woodworker who demands precision, power, and an unbeatable track record from his or her tools. Having sold thousands of Makita plunge routers during the past ten years, we're happy to report that these are among the most reliable power tools you can buy.

There are two models in the 3612 series: our old favorite 3612B with its rectangular base, and the 3612BR which is the round-base edition of the same machine. Other than for base configuration, the two models are identical in powerplant and fittings. The rectangular base measures 6-5/8" by 5-1/2", while the round base is 6-1/4" in diameter; this gives the rectangular base about 13% more surface area than the round base and makes it a bit easier to control during hand-held routing. In fact, the 3612B has a larger footprint (36.44 sq. in.) than any other router we carry, giving it unexcelled stability in edge-forming work and unequaled ease of use in joinery and surface-forming jigs.

The 3612 routers offer 2-1/2" of plunge depth with a micro-adjustable stop rod. The rod is threaded through a spring-loaded half-nut; press the release button to instantly move the stop rod close to the desired setting, then rotate it up or down to precisely set final depth of cut. The micro-adjust system doesn't interfere with the motor's upward travel, so bits can still be retracted after depth of cut is set.

Specifications common to both models are: universal 14-amp, 23,000 rpm motor rated for commercial use; externally accessible brushes; 1/2" collet with 1/4" adapter sleeve included; internal spindle lock for one-wrench bit change; chip deflector shield on base; right-hand toggle switch and plunge lock lever. Weight is approximately 13 lbs.

C10.10.09	3612B (Rectangular-Base)	219.95
10.10.10	3612BR (Round-Base)	219.95
10.10.55	Guideset for 3612B & BR	39.95

ACCESSORIES FOR ELU 3338 ROUTER

40902	1/4" Collet	29.95
40904	3/8" Collet	29.95
40966	Fine Height Adjuster	9.95
Black & Decker (ELU) Guide Bushings		
C62943	5/16" o.d.	6.95
C62944	3/8" o.d.	6.95
C62945	7/16" o.d.	6.95
C62947	39/64" o.d. (approx. 5/8" o.d.)	6.95
C62942	Template Guide Nut	2.95
	(reqd. for guide bushings above)	

GUIDE SYSTEM FOR 3612B & BR

This 3-piece set consists of a guide holder, a straight guide, and a roller guide for following contoured edges. A notched flange in each guide fits over an indentation in the guide holder's adjust screw, allowing positive micro-adjustment of the guide after the holder has been locked down within 1/2" or so of the desired position. Bits can be positioned up to 6" from the edge of a workpiece or template.

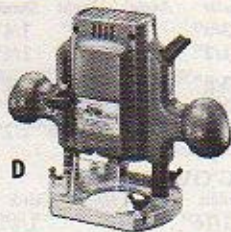
10.10.55	Guideset for 3612B & BR	39.95
10.10.02	Guide Holder only	24.95
10.10.03	Straight Guide only	9.95
10.10.04	Roller Guide only	7.95

MAKITA ROUTER GUIDE BUSHINGS

Makita guide bushings screw directly to the router. The Makita guide bushing adapter allows use of 2-piece guide bushings from Black & Decker or Porter Cable.

Guide Bushings for Makita 3612B, 3612BR and 3620 Routers

	Outside Diameter	Bushing Height	
10.10.32	3/8"	29/64"	15.00
10.10.56	7/16"	33/64"	18.00
10.10.57	1/2"	33/64"	18.00
10.10.58	5/8"	33/64"	9.00
10.10.34	25/32"	33/64"	15.00
10.10.35	1-1/16"	33/64"	7.00
10.10.36	1-9/64"	19/64"	15.00
10.10.37	1-3/16"	33/64"	11.00
10.10.38	1-37/64"	29/64"	8.00
10.10.44	Guide Bushing Adapter		13.00



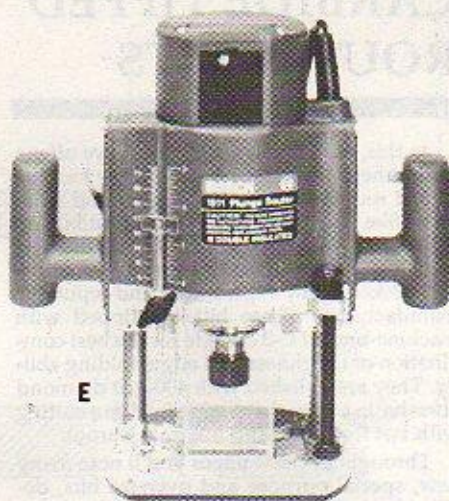
MAKITA MODEL 3620 1-1/4 HP LIGHT PLUNGE ROUTER

This lightweight utility plunge router combines for the first time Makita quality, the great versatility and convenience of plunging capability, and a compact 5.7-lb. design. At 7.8 amps, the 3620's powerplant supplies a constant 1-1/4 hp output, plenty of muscle for all kinds of general routing. Its 24,000 rpm speed assures clean, no-tear cutting on end grain, soft woods, laminates and other challenging materials.

The 3620 features a new base configuration for Makita, incorporating the best of both round and rectangular designs. With straight edges fore and aft, it's easy to guide the router against a fence or within numerous jigs; with left and right edges rounded to a 2-7/8" radius, the base can be used inside circular or curved templates without modification. Overall base dimensions are 4-1/4" front-to-back by 5-3/4" wide. Twin 8mm ports in the base accept the optional Makita straight guide, and can also accept 5/16" round steel rod for a variety of guided functions, and for the unique drop-in table mounting module developed by Highland Hardware.

Other features include a three-stop rotating turret for pre-setting depths of cut (designed not to overhang the base), a snap-in chip deflector shield, and a trigger switch built in to the right handle. Total plunge travel is 1-3/8". Collet is 1/4". Uses the same template guide bushings as the 3612. Includes carrying case.

D10.10.11	3620 Plunge Router	119.95
10.10.12	Straight Guide for 3620	13.00



E BOSCH 1611 220-VOLT PLUNGE ROUTER

This is without a doubt the most powerful router we've ever used. It's a big, beefy machine with oversize handles for good control, 3" of total plunge travel, and a 7 amp, 220-volt, 22,000 rpm motor that runs even the biggest bits without blinking. If you need a machine for heavy production routing, this is the one to look at.

The 1611 has a self-locking plunge lock lever, a plunge stop rod with built-in cursor, an external spindle lock, and a lockable trigger switch in the right handle. A 1/2" collet is standard; 1/4" and 3/8" replacements are available. The spindle is bored 2-1/2" deep to accept even the longest shanks without difficulty. The collet can actually be plunged as much as 3/8" below the base, so when the router is mounted under a table it can compensate for what would otherwise be lost depth of cut. Optional edge guide includes steel rods for up to 10-1/2" reach, with adjustable-face straight fence. The 1611 has a modified round base 6-3/4" in diameter, chopped straight along the front edge 2-1/4" from center. A bushing adapter is included which allows use of guide bushings for the Bosch 1604 router (see page 38). Net wt. of the 1611 is 12-1/2 lbs.

1611-220	Bosch 220V Plunge Router	269.95
82993	Edge Guide for 1611	23.50
499503	1/4" Collet for 1611	12.40
499502	3/8" Collet for 1611	10.75



ROUTER HANDBOOK ROUTER JIGS AND TECHNIQUES

By Patrick Spielman. We heartily recommend these two books (reviewed on page 48 of *Wood News*) for anyone interested in getting maximum benefit from his router.

20.03.51	Router Handbook	10.95
20.03.84	Router Jigs & Techniques	14.95

CARBIDE TIPPED ROUTER BITS

In this, our largest selection yet, we offer a comprehensive line of high-quality carbide tipped router bits for professional and amateur alike. These are not the cheapest bits on the market; instead they are among the best available, offered at very competitive prices and backed up by experienced and reputable manufacturers. These bits are tipped with machine-brazed C-2 carbide for the best combination of toughness and edge-holding ability. They are polished with 400-grit diamond abrasive to a very sharp edge for clean cutting with fast feed rates and minimal tearout.

Throughout these pages you'll note many new, special-purpose and oversize bits, designed primarily for use with the new generation of heavy 1/2"-collet routers now dominating a large share of the market. We're not forgetting about those of you with 1/4" collets, however, and you'll see several excellent new bits now available with 1/4" shanks. For the first time ever we have 1/4"-shank bits for rail & stile cutting, and likewise a panel-raising bit with 1/4" shank (for use with table-mounted router). Our new full bead and flute cutting bits are also available with 1/4" shanks.

Whenever possible, we offer both 1/4" and 1/2" shanks, usually at very little difference in price. If you own a large router, the larger shank size will give you greatly increased stability and safety in use; a 1/2" shank is about four times stronger than a 1/4" shank. Many of the largest bits we sell are intended for use in table-mounted routers, where the fence and other safety & control devices help minimize the risk in running huge cutters.

Router bits can easily represent a greater investment than you have in your router. We're persuaded that it makes sense to invest in bits you can rely on for precision and durability, and we offer these high-quality bits with confidence that they will meet your most exacting standards.

Throughout these listings, "Carbide Height" is a vertical measurement regardless of edge profile.

A STRAIGHT BITS

Cutter Diameter	Carbide Height	Shank Diameter	
10.14.01	1/16"	1/4"	9.90
10.14.02	1/8"	1/4"	9.90
10.14.03	3/16"	1/4"	9.90
10.14.04	1/4"	1"	9.90
10.14.05	5/16"	1"	10.80
10.14.06	3/8"	1"	10.80
10.14.07	7/16"	1"	11.90
10.14.08	1/2"	1"	11.90
10.14.09	5/8"	3/4"	11.90
10.14.10	3/4"	3/4"	13.30
10.12.65	1/4"	3/4"	11.40
10.12.66	5/16"	1"	11.40
10.12.01	3/8"	1"	11.40
10.12.02	7/16"	1-1/4"	11.90
10.12.03	1/2"	1-1/4"	11.90
10.12.04	1/2"	2"	15.90
10.12.05	5/8"	1-1/4"	13.80
10.12.06	11/16"	1-1/4"	15.30
10.12.07	3/4"	1-1/4"	14.90
10.12.08	7/8"	1-1/4"	17.70
10.12.09	1"	1-1/4"	18.90
10.12.10	1-1/2"	1-1/4"	25.90
10.12.11	1-3/4"	1-1/4"	41.90

B V GROOVE BITS - 90° Angle

Diameter	Carbide Height	Shank	
10.14.11	1/4"	3/8"	9.80
10.14.12	1/2"	1/2"	23.30
10.12.12	5/8"	1/2"	29.80
10.12.13	3/4"	5/8"	35.90

C ROUND NOSE BITS

Radius	Carbide Height	Shank	
10.14.13	1/16"	1/4"	16.80
10.14.14	1/8"	1/4"	17.60
10.14.15	3/16"	1/4"	19.90
10.14.16	1/4"	5/16"	19.90
10.14.17	5/16"	3/8"	20.50
10.14.18	3/8"	1/2"	20.90
10.14.19	1/2"	5/8"	33.90
10.12.14	1/4"	1-1/4"	24.95
10.12.15	3/8"	1-1/4"	31.50
10.12.16	1/2"	1-1/4"	42.60
10.12.17	5/8"	3/4"	49.30

D COVE BITS

Radius	Carbide Height	Shank	
10.14.20	3/16"	9/16"	24.90
10.14.21	1/4"	9/16"	24.90
10.14.22	3/8"	9/16"	24.90
10.14.23	1/2"	3/4"	27.90
10.12.18	3/8"	9/16"	26.80
10.12.19	1/2"	3/4"	29.80
10.14.84	Replacement Bearing		3.80

E DOVETAIL BITS

Bottom Diameter	Angle	Carbide Height	Shank	
10.14.24	3/8"	9°	3/8"	13.90
10.14.25	1/2"	14°	1/2"	13.90
10.12.20	3/8"	9°	3/8"	14.90
10.12.21	1/2"	14°	1/2"	15.90
10.12.22	3/4"	14°	13/16"	49.50

F ROUNDING OVER BITS

Radius	Carbide Height	Shank	
10.14.26	1/16"	1/2"	21.90
10.14.27	1/8"	1/2"	21.90
10.14.28	3/16"	1/2"	21.90
10.14.29	1/4"	1/2"	21.90
10.14.30	5/16"	1/2"	23.30
10.14.31	3/8"	5/8"	23.30
10.14.32	1/2"	3/4"	26.50
10.12.23	1/4"	1/2"	22.50
10.12.24	5/16"	1/2"	24.50
10.12.25	3/8"	5/8"	24.50
10.12.26	1/2"	3/4"	28.50
10.12.27	3/4"	1"	42.50
10.12.28	1"	1-1/4"	90.00
10.12.29	1-1/4"	1-1/2"	120.00
10.12.30	1-1/2"	1-7/8"	128.00
10.14.86	Replacement Bearing		3.80

G POINT CUTTING ROUND OVER BITS

Radius	Point Width	Shank	
10.14.33	1/8"	1/8"	17.60
10.12.31	1/4"	1/4"	35.90

H FRENCH PROVINCIAL CLASSIC BITS

Cutting Width	Carbide Height	Shank	
10.14.34	9/16"	5/8"	54.95
10.12.32	9/16"	5/8"	54.95

I OGEE BITS

Cutting Width	Carbide Height	Shank	
10.14.35	5/16"	1/2"	36.90
10.14.36	7/16"	11/16"	39.90
10.12.33	5/16"	1/2"	36.90
10.12.34	7/16"	11/16"	39.90
10.14.86	Replacement Bearing		3.80

J ROMAN OGEE BITS

Cutting Width	Carbide Height	Shank	
10.14.37	5/16"	5/8"	29.90
10.14.38	1/2"	7/8"	30.90
10.12.35	5/16"	5/8"	29.90
10.12.36	1/2"	7/8"	30.90
10.14.84	Replacement Bearing		3.80

K RABBETTING BITS

Width of Rabbet	Diameter	Carbide Height	Shank	
10.14.39	1/4"	1"	9/16"	26.50
10.14.40	3/8"	1-1/4"	1/2"	22.60
10.12.37	3/8"	1-1/4"	1/2"	22.60
10.14.86	Replacement Bearing			3.80

L MORTISING BITS

Diameter	Overall Length	Shank	
10.14.41	1/2"	1-3/4"	10.80
10.14.42	5/8"	1-3/4"	12.30
10.14.43	3/4"	2"	13.80
10.12.38	1-1/4"	2-1/8"	18.95

M FLUSH TRIM BITS

Diameter	Carbide Height	Shank Diameter	
10.14.44	1/2"	1"	12.50
10.12.39	1/2"	1"	14.50
10.14.86	Replacement Bearing		3.80

N BEVEL TRIM BITS

Angle	Carbide Height	Shank Diameter	
10.14.45	7°	1/4"	17.90
10.14.46	15°	1/4"	14.20
10.12.40	15°	1/4"	19.90

TWO-WING SLOT CUTTERS

	Thickness	Slot Depth	
10.14.47	1/16"	1/2"	9.90
10.14.48	1/8"	1/2"	10.90
10.14.49	5/32"	1/2"	10.90

P 10.14.51	1/4" Arbor & Bearing	5.50
10.12.41	1/2" Arbor & Bearing	5.50
10.14.88	Replacement Bearing	3.80

Q CHAMFER BITS - 45° ANGLE

CHAMBERLAIN 45 ANGLE			
	Carbide Height	Shank Diameter	
10.14.52	1/2"	1/4"	22.50
10.12.42	1/2"	1/2"	22.50
10.14.84	Replacement Bearing		3.80
10.14.53	11/16"	1/4"	29.95
10.12.43	11/16"	1/2"	29.95
10.14.86	Replacement Bearing		3.80

R BEADING BITS

Radius	Carbide Height	Shank	
10.14.54	1/16"	1/2"	21.80
10.14.55	1/8"	1/2"	21.80
10.14.56	3/16"	1/2"	21.80
10.14.57	1/4"	1/2"	21.80
10.14.58	5/16"	1/2"	23.30
10.14.59	3/8"	5/8"	23.30
10.12.44	1/4"	1/2"	22.50
10.12.45	3/8"	5/8"	24.60
10.12.46	1/2"	3/4"	28.50
10.14.82	Replacement Bearing		3.80

S LOCK MITER BIT

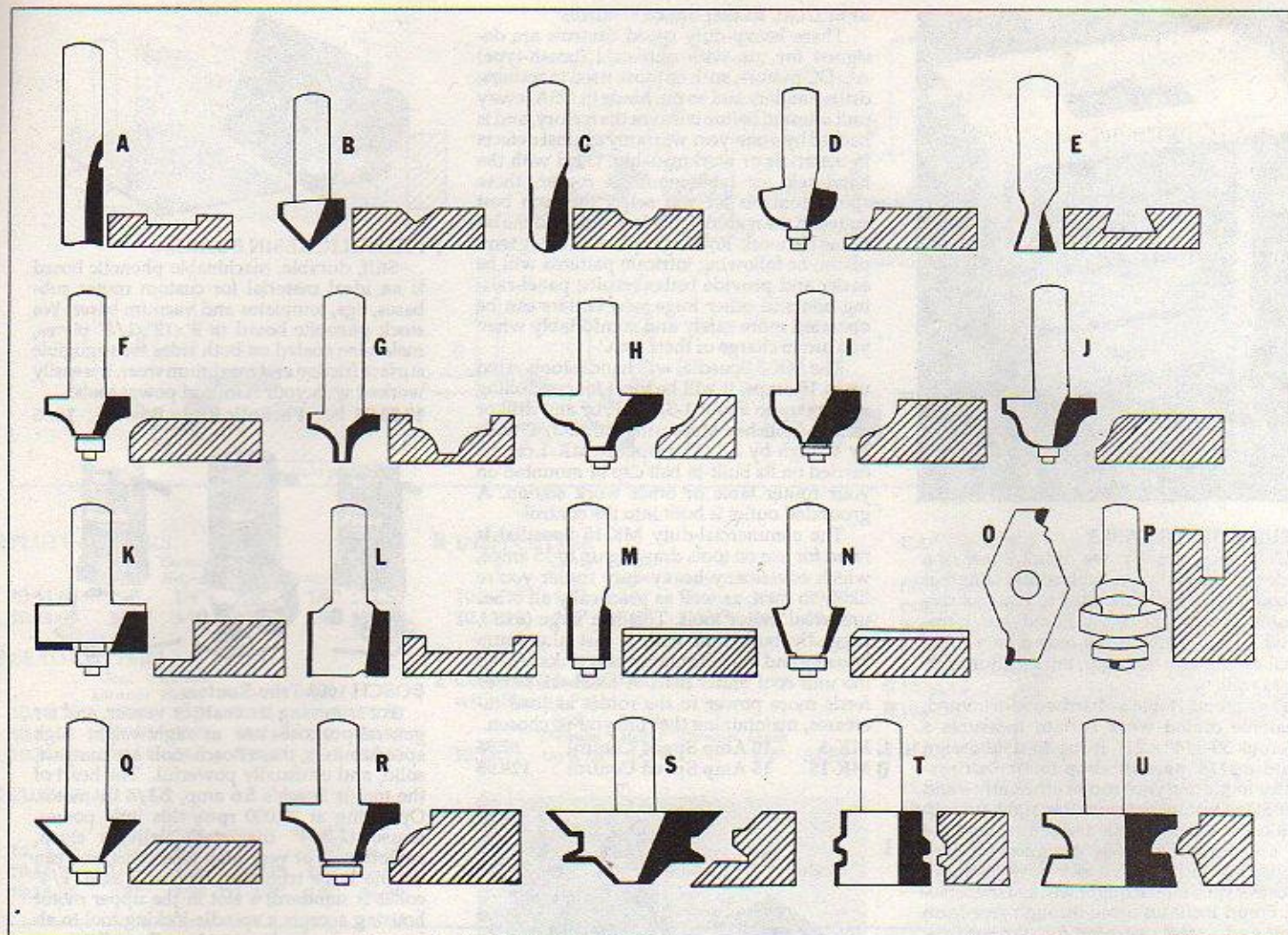
Diameter	Stock Thickness	Shank	
10.12.47	2-3/4"	1/2" to 1-1/8"	89.95

T REVERSIBLE GLUE JOINT BIT

Diameter	Stock Thickness	Shank	
10.12.48	1-1/2"	1/2" to 1-1/4"	49.95

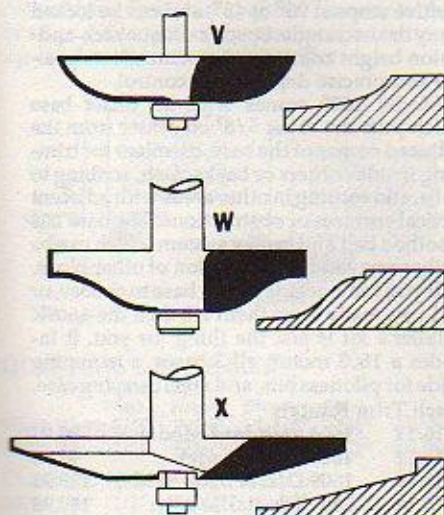
U CABINET DOOR LIP BIT

Diameter	Stock Thickness	Shank	
10.12.49	2"	1/2" to 1-1/4"	54.95



RAISED PANEL ROUTER BITS

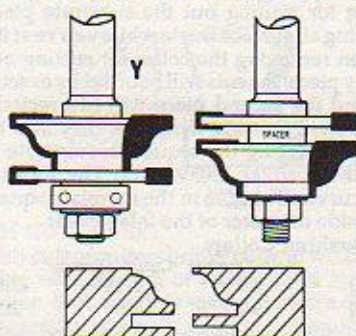
	Diameter	Cutting Width	Carbide Height	Shank
Cove	2"	3/4"	3/8"	1/4"
Cove	2-1/2"	1"	5/8"	1/2"
Ogee Fillet	2-5/8"	1-1/16"	11/16"	1/2"
Provincial	3-3/8"	1-7/16"	1/2"	1/2"
V 10.14.67	Cove Raised Panel, 1/4" shank			64.95
10.12.68	Cove Raised Panel, 1/2" shank			74.95
W 10.12.51	Ogee Fillet Raised Panel			69.90
X 10.12.52	Provincial Raised Panel			92.40



6-PIECE 1/2" SHANK CARBIDE ROUTER BIT SET

This assortment (not pictured) of six popular, premium-quality bits was selected to meet the needs of someone who has recently purchased a large plunge router or other router with 1/2" collet capacity. It includes 3/8" and 1/2" straight bits, 3/8" radius round-over bit, 1-1/4" diameter rabbeting bit, 5/32" radius Roman ogee bit, and 1/2" dia. flush trim bit. Sold individually, the bits would cost \$115.30.

10.12.97 6-Pc. Set of 1/2"-shank Bits 99.95



Y RAIL AND STILE BIT

This remarkable carbide bit reconfigures to cut both a rail and matching stile in 3/4" to 7/8" thick stock. 1-3/4" diameter. 3/8" cutting width. 1/2" shank.

10.12.53	Rail and Stile Bit	78.40
10.14.89	Replacement Bearing	9.00

Z OVERHEAD-PILOT FLUSH TRIM BITS

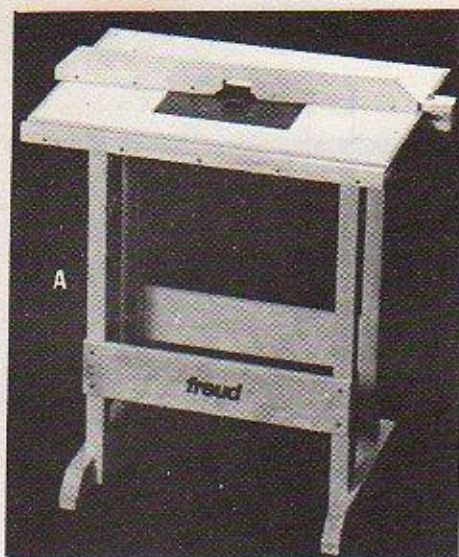
Like conventional flush trimmers, these overhead bits are ideal for final template-guided shaping of roughed-out stock, pattern duplication, edge truing, and so on. In many situations, however, the bearing on the bottom of the conventional bit gets in the way, and that's where these overhead-pilot bits really shine. Note that the maximum depth of cut will be considerably greater than the bits' cutting length, for as soon as part of the workpiece has been trimmed the template can be removed and the work itself used as a guide.

The 1/2" and 3/4" bits have 1/4" shanks for use in any router. The 1" bit has a 3/8" shank, and the huge 1-1/8" bit has a 1/2" shank. Please note that the maximum cutting depth listed below may vary slightly depending on the design of your router.

Overhead-Pilot Flush Trim Bits

	Diameter	Carbide Height	Maximum Depth	
10.14.61	1/2"	11/16"	1-1/4"	19.95
10.14.62	3/4"	3/4"	1-1/2"	21.95
10.14.63	1"	1"	2"	23.95
10.12.60	1-1/8"	2-9/16"	4"	119.95





A FREUD ROUTER TABLE

Until very recently, we didn't know of a single commercially available router table that we could have recommended to you as a reasonable investment. Now Freud has introduced a table which is not only a very functional addition to the shop, but an affordable one as well.

The Freud table's hardwood-trimmed, melamine coated work surface measures a generous 30-3/4" x 21". Its up-to-date design includes a 1/4" phenolic drop-in sub-base system for mounting your router efficiently - and giving you instant access to it in right-side-up position for changing bits and setting depth of cut. The fence is cleverly designed for easy positioning and positive lock-down without the use of slots which might weaken the table-top. Freud includes a see-through free-form guard and a steel pivot pin for starting free-hand work safely. Also included is a unique mitre-guide slot assembly, designed to be custom-fitted to any guide bar, again without cutting into the table surface. The router table's hardwood leg stand sets the top at a 36-3/4" working height, and is easily customized to suit the stature of any owner. Assembly of the leg stand, assisted by clear instructions in the owner's manual, is quick and easy; all necessary hardware is included. *Shipped UPS.*

10.20.01 Freud Router Table 149.95



B Woodsmith ROUTER TABLE PLANS

If you're planning to build your own router table, this clear and concise set of plans from Woodsmith magazine will help you get the job done right. There are actually two table plans included: the first a low-profile bench-top model especially for shops with limited floor space, the second using the same surface on a stout legstand with built-in cabinet. Drawings are crisp and easy to follow; working methods are covered in detail.

10.20.02 Router Table Plans 3.95

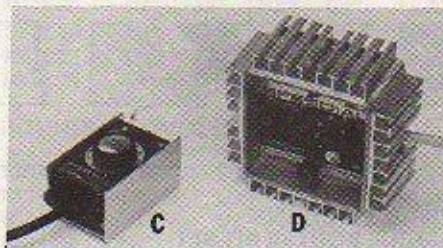
SPEEDIAL Router Speed Controls

These heavy-duty speed controls are designed for use with universal (brush-type) AC-DC motors, such as those used in routers, drills, sanders and so on. Made in USA, every unit is tested before it leaves the factory, and is backed by a one-year warranty against defects in materials or workmanship. Used with the hand-held or table-mounted router, these speed controls let you select the rpm best suited to the material, the feed rate, and the bit doing the work. Routing in plastics, using templates, or following intricate patterns will be easier and provide better results; panel-raising bits and other huge new cutters can be operated more safely and comfortably when you are in charge of their rpm.

The MK-3 Speedial will handle tools rated up to 10 amps; it will be ideal for controlling routers up to about 1-3/4 HP, or any drill or sander/polisher. Measuring only 2-3/4" wide by 4" high by 2-1/4" deep, the MK-3 can be carried on its built-in belt clip or mounted on your router table or other work station. A grounded outlet is built into the control.

The commercial-duty MK-15 Speedial is rated for use on tools drawing up to 15 amps, which covers any heavy-duty router you're likely to own, as well as practically all other universal motor tools. This is a large (6x6"), ruggedly built unit with a cast aluminum housing and four aluminum heat sinks to keep the unit cool under load. A feedback sensor feeds more power to the router as load increases, maintaining the rpm you've chosen.

C MK-3 10 Amp Speed Control 59.95
D MK-15 15 Amp Speed Control 129.95



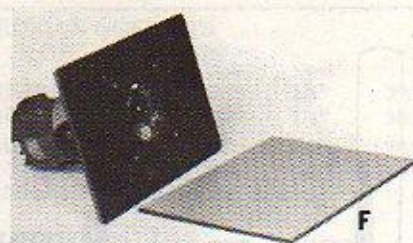
E INLAY BUSHING COLLAR

For decorative inlay or surface patching and repair, this precisely machined steel bushing collar lets you cut perfectly fitted inlays with your router. You'll need to equip your router with a 1/8"-dia., 1/4"-shank straight bit and a guide bushing of 5/16" or 3/8" o.d.

Using inside templates, you can make inlays by slipping the collar onto your guide bushing for routing out the substrate piece (removing all surface waste while you're at it), and then removing the collar for cutting out the inlay piece; the cuts will be offset by exactly 1/8", and the second piece will fit precisely into the first. Outside templates may also be used by reversing the sequence: substrate is cut without collar, inlay with. The tightest inside curve allowable in the template equals the outside diameter of the inlay collar.

Inlay Bushing Collars

	Inside Diameter	Outside Diameter	
10.20.03	5/16"	9/16"	2.50
10.20.04	3/8"	5/8"	2.50



F PHENOLIC RESIN BOARD

Stiff, durable, machinable phenolic board is an ideal material for custom router sub-bases, jigs, templates and vacuum bases. We stock phenolic board in 9"x12"x1/4" pieces, melamine coated on both sides for negligible surface friction and maximum wear. It is easily worked with your standard power tools.

10.20.05 Phenolic Resin Board 10.95



BOSCH 1608 Trim Routers

For trimming laminate or veneer, and for general-purpose use as lightweight high speed routers, these Bosch tools are compact, solid, and unusually powerful. The heart of the tool is Bosch's 5.6 amp, 2-3/4 lb. motor. Operating at 30,000 rpm, this little powerhouse (2-3/4" diameter) delivers clean, smooth cuts at very high feed rates, and can handle large trimming bits with ease. 1/4" collet is standard; a slot in the upper motor housing accepts a spindle-locking tool to allow use of a single wrench on the collet.

We carry the 1608 trim router with three different base configurations; the same motor is used in all models. The Standard 1608 comes with a plain rectangular base, 2.8" x 3.7", suitable for general light routing and trimming with piloted bits. Available as an option is Bosch's Trim Guide for use with pilotless bits.

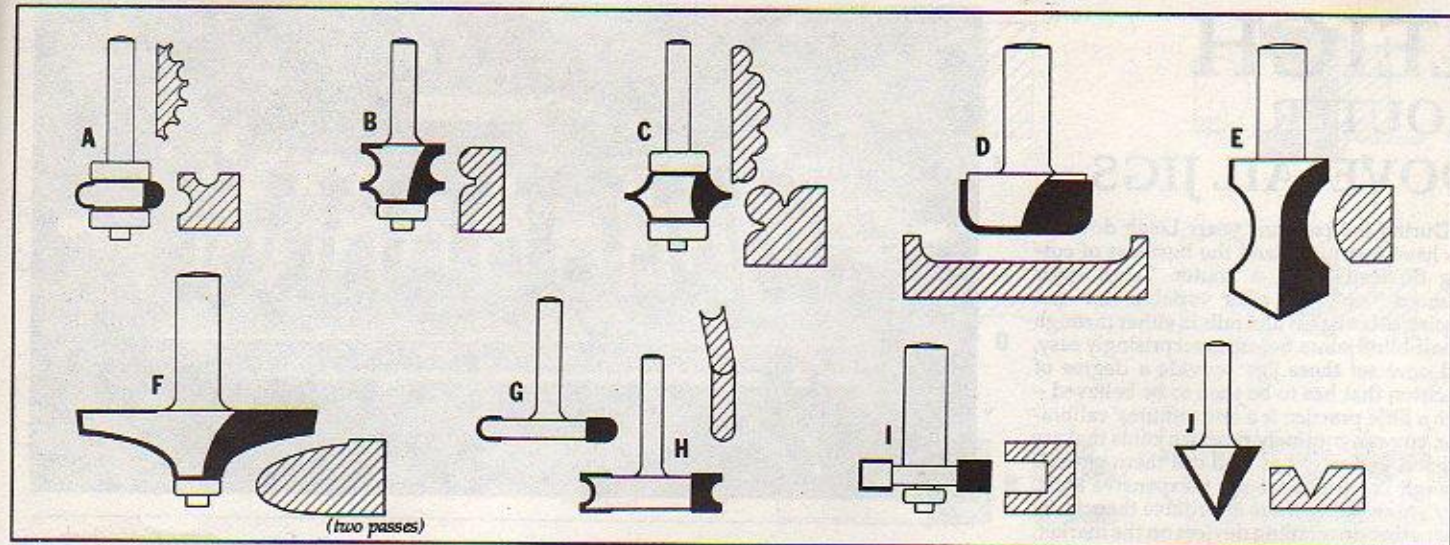
The 1608T is equipped with a special base which can let the motor tilt 30° in one direction, and 45° in the opposite direction. This feature allows trimming into corners, and will make odd-angle cuts, lettering and other decorative work unusually easy. The tilting base has positive stops at 90° or 45°, and can be locked at any desired angle. Bosch's unique rack-and-pinion height adjustment system allows positive and precise depth of cut control.

Model 1609 comes with an offset base which puts the collet 5/8" on center from the radius corner of the base, excellent for trimming inside corners or backsplash, scribing to walls, and routing in other areas with adjacent vertical surfaces or obstructions. The base has a toothed belt and pulley system which can be easily removed for installation of other bases.

If you can't decide which base to choose, or find you really need them all, then the 1609K installer's kit is just the thing for you. It includes a 1608 motor, all 3 bases, a trimming guide for pilotless bits, and steel carrying case.

Bosch Trim Routers

G 10.16.11	1608 Standard Model	89.95
H 10.16.12	1608T Tilt Model	99.95
I 10.16.13	1609 Offset Base Model	129.95
10.16.14	1609K Installer's Kit	189.95
10.16.15	Trim Guide	8.50



A FLUTE CUTTERS

	Radius	Carbide Height	Diameter	Shank	
10.14.68	1/8"	1/4"	7/8"	1/4"	32.50
10.14.69	3/16"	3/8"	1"	1/4"	34.95

B BEAD CUTTERS

	Head Diameter	Carbide Height	Diameter	Shank	
10.14.70	3/16"	1/2"	7/8"	1/4"	52.50
10.14.71	5/16"	5/8"	15/16"	1/4"	56.95
10.12.69	5/16"	5/8"	15/16"	1/2"	58.50

C FULL BEAD BITS

	Radius	Carbide Height	Diameter	Shank	
10.14.72	3/16"	1/2"	1"	1/4"	46.95
10.14.73	1/4"	5/8"	1-1/8"	1/4"	46.95
10.14.74	3/8"	7/8"	1-3/8"	1/4"	54.95

D DISH CUTTER

	Corner Radius	Carbide Height	Diameter	Shank	
10.14.75	1/4"	3/8"	1"	1/4"	38.50
10.12.70	1/4"	3/8"	1-1/4"	1/2"	49.95

E CUT-OUT & EDGING BIT with Plunge Point

	Stock Thickness	Carbide Height	Diameter	Shank	
10.12.71	Up to 7/8"	1-5/8"	1"	1/2"	54.95

F THUMBNAIL BIT

	Cutting Width	Carbide Height	Diameter	Shank	
10.12.72	1"	11/16"	2-1/2"	1/2"	69.95

CANOE STRIP FLUTE & BEAD CUTTERS

These 2 bits prepare 1/4" planking for tight fitting edge butt joints. Originally designed as canoe strip cutters, they are also used for making (& insuring correct alignment of) tambour paneling on flat or contoured surfaces.

	Carbide Height	Diameter	Shank	
G 10.14.76	1/4"	1-1/2"	1/4"	32.50
H 10.14.77	3/8"	1-1/2"	1/4"	32.50

I SLOT CUTTERS

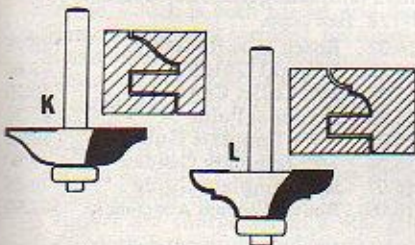
	Slot Depth	Carbide Ht.	Diameter	Shank	
10.12.73	1/2"	3/8"	1-1/2"	1/2"	36.50
10.12.74	1/2"	1/2"	1-1/2"	1/2"	39.95

J LETTERING V-GROOVE BIT

	Angle	Carbide Ht.	Diameter	Shank	
10.14.78	60°	3/4"	5/8"	1/4"	27.50

Ogee & Classic Rail & Stile Bits

The self-matching profiles of these two bits makes them ideal components of a versatile rail and stile system - available for the first time in 1/4" as well as 1/2" shank size. A separate slot cutter (with standard 1/2" cutting width) is used for cutting tongues and grooves, making this component system more flexible than conventional fixed-dimension rail & stile bits; different slot cutter sizes can be used for rail & stiles in stock thickness from as little as 1/2" (with the Ogee cutter) to 1" or more. Using these bits requires a router table or edge guide system. Instructions for setting up rail & stile cuts are provided.

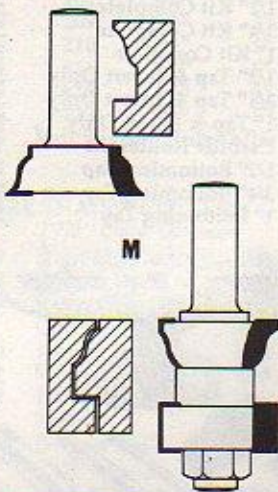


Ogee Rail & Stile Bits

	Cutting Width	Carbide Height	Diameter	Shank	
10.14.79	1/2"	5/16"	1-1/2"	1/4"	69.95
10.12.75	1/2"	5/16"	1-1/2"	1/2"	69.95

Classic Rail & Stile Bits

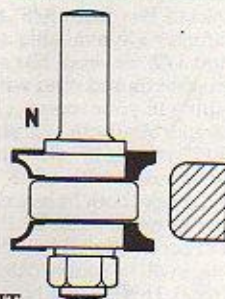
	Cutting Width	Carbide Height	Diameter	Shank	
10.14.90	1/2"	7/16"	1-1/2"	1/4"	64.95
10.12.76	1/2"	7/16"	1-1/2"	1/2"	64.95



M SASH CUTTER SET

This pair of cutters brings custom window-making within reach of router users for the first time. Both window sash and french doors can be produced neatly, quickly and economically with any powerful table-mounted router. For 1-3/8 to 1-1/2" stock thickness. 1/2" shanks.

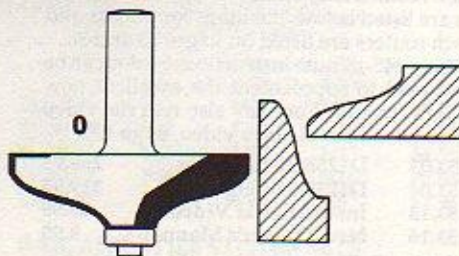
10.12.79	Sash Cutter Set	129.95
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N EASING BIT

A production cutter for fast feed rates, allowing simultaneous rounding over of top & bottom edges on material 3/8" to 1-1/4" thick.

	Corner Radius	Diameter	Shank	
10.12.77	3/16"	1-5/8"	1/2"	69.95



O SELF-MATCHING DROP LEAF BIT

Produces neatly mating edges on drop leaf tables, and it serves as a beautiful edge profiling bit for tables and other formal furniture.

	Cutting Width	Carbide Ht.	Diameter	Shank	
10.12.78	1"	3/4"	2-1/2"	1/2"	79.95

LEIGH ROUTER DOVETAIL JIGS

During the past few years Leigh dovetail jigs have revolutionized the business of cutting dovetails with a router. Leigh (pronounced "lee") jigs offer variable size and spacing of both pins and tails in either through or half-blind joints. Set-up is surprisingly easy, and once set these jigs provide a degree of precision that has to be seen to be believed - with a little practice & a few minutes' calibration, you can routinely produce joints that are so good you might as well call them perfect. Though Leigh jigs are not inexpensive tools, they are certainly more affordable than many other dovetailing devices on the market, and they represent a sound investment for any shop where dovetails are commonly used in one-of-a-kind or production pieces.

Leigh has discontinued their original models, which produced through dovetails only, in favor of their new-generation D1258 models, which will allow production of custom through or half-blind joints in stock from 1/4" to 1-1/4" thick (tail piece must be rabbeted to 1" max. thickness for through dovetails). There are two sizes available: Model D1258-12 with a 12" maximum width capacity, & Model D1258-24 with 24" capacity.

In through-dovetail mode, the D1258s are designed to cut dovetails at 8° (about a 1:7 pitch), providing a sleek, custom look which is especially attractive in thick stock, where a more conventional 14° bit tends to give a rather clunky-looking joint. Note that another advantage of this slim angle is extraordinary depth of cut, allowing router-fast production in stock far thicker than ordinary bits can handle. 8° dovetail bits from 3/8" to 13/16" maximum diameter are available and listed below. 3/8" and 1/2" dovetail bits are paired with 5/16" straight bits and used with a 7/16" o.d. guide bushing in your router. The 11/16" and 13/16" dovetail bits (with 1/2" shanks) are paired with 1/2" and 7/16" straight bits respectively, and are used with a 5/8" bushing.

In half-blind mode, both halves of the joint are cut with the same dovetail bit (much like the operation of conventional half-blind jigs); thus any bit angle will be usable (7, 8, 9, 14, 15 or any other degrees). This is a distinct advantage when you're working in thin stock, where operation will be just a bit simpler if you choose a 14° bit.

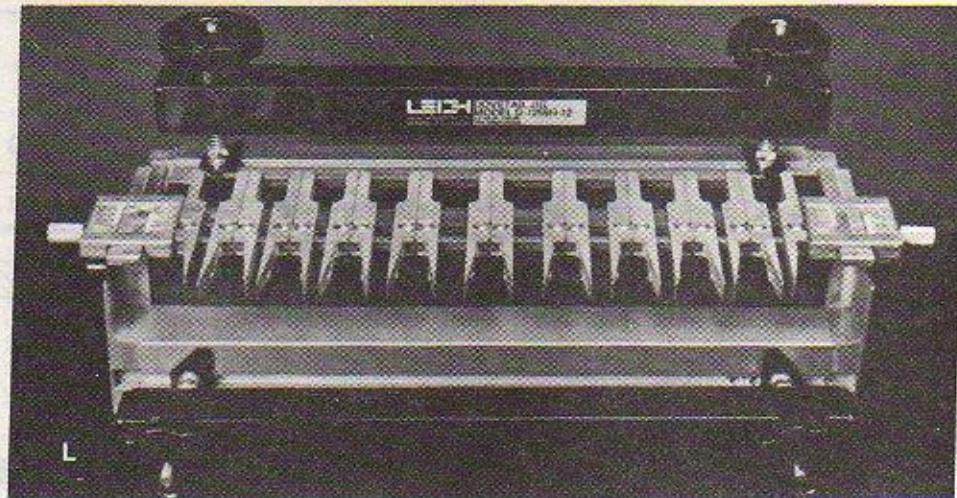
Both models come provided with a 1/2", 8° dovetail bit and a 5/16" straight bit (both carbide). Additional sizes of 8° carbide dovetail bits are listed below. Bushings for Makita and Bosch routers are listed on pages 33 and 38.

A new 45-minute instructional video can be purchased to supplement the excellent new owner's manual. You may also rent the video (as described for the Inca video, page 19).

10.53.01	D1258-12 Leigh Jig	269.95
10.53.04	D1258-24 Leigh Jig	319.95
10.53.05	Instructional Video	29.95
10.53.06	New Owner's Manual	9.95

1/2" Dovetail Bits	Max. Diameter	Depth	Shank	
10.53.01	3/8"	7/16"	1/4"	29.50
10.53.02	1/2"	13/16"	1/4"	29.50
10.53.03	11/16"	1"	1/2"	39.50
10.53.04	13/16"	1-1/4"	1/2"	49.50

Buy 10.53.05 for straight bits and other dovetail bits.



BEALL WOOD THREADING KITS

Wood threads can be produced on dowels on a production basis with a router using the Beall wood threading kit. Any router attaches to the housing, and as a dowel is fed through the appropriate sized insert, a HSS 60° spiral veiner bit cuts perfect, uniform threads. The only router adjustment required is setting the appropriate depth of cut. Manual taps are provided for cutting matching internal wood threads.

Sold as a complete outfit for three sizes of dowels (1/2", 3/4", and 1"), or choose one size to begin and add other sizes of inserts and taps later as needed. Taps and dies are available in either right- or left-hand threads. *Right-hand will be provided unless left-hand is specified.*

Included in a kit are molded plastic housing, threaded insert for appropriate size, matching tap, router bit, and instructions.

Optional bottoming taps are available for threading to the bottoms of stopped holes.

Beall Wood Threading Kits

10.53.51	3 Size Kit Complete	125.00
10.53.52	1/2" Kit Complete	59.95
10.53.53	3/4" Kit Complete	59.95
10.53.54	1" Kit Complete	59.95
10.53.55	1/2" Tap & Insert Only	33.50
10.53.56	3/4" Tap & Insert Only	33.50
10.53.57	1" Tap & Insert Only	33.50
10.53.62	Carbide Router Bit	17.95
10.53.59	1/2" Bottoming Tap	27.95
10.53.60	3/4" Bottoming Tap	27.95
10.53.61	1" Bottoming Tap	27.95



J ROUTER DOVETAIL JIG

This simple fixture is useful in producing 1/4" and 1/2" dovetail joints quickly and accurately on boards up to 8" wide. By following the contour on the template of the fixture with 5/16" or 7/16" guide bushings, flush, offset, and rabbeted dovetail joints are possible in the 1/2" size and flush dovetails can be made in the 1/4" size.

10.67.01	Router Dovetail Jig	29.95
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K BOSCH 1604 1-3/4 HP ROUTER

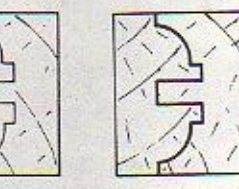
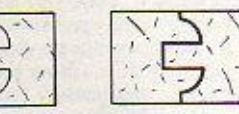
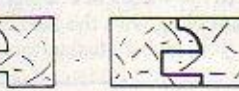
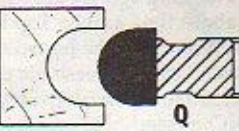
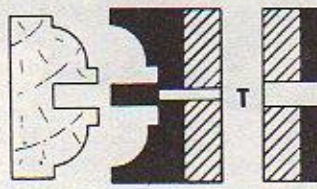
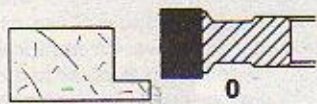
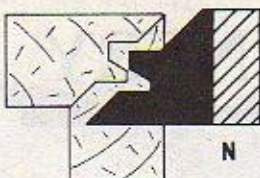
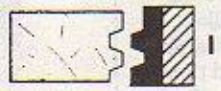
The Bosch 1604 is well known as a superb utility router for all manner of general-purpose shop work. Its 10-amp motor provides plenty of power for shaping and joinery work, and its interchangeable 1/4" and 1/2" collets will let you use all the bits you now own and most of the new ones on the market as well. 25,000 rpm operating speed assures the cleanest, smoothest cutting possible. 6-inch diameter base, 7-3/4 lb. weight, low center of gravity handles and good visibility through the base make hand-held operation unusually easy.

The 1604 incorporates Bosch's remarkably good depth of cut adjustment system, in which the entire motor housing rotates within and registers on the spiral-rim base assembly, allowing smooth and precise setting. Cast index marks show 1/32nd-inch depth increments.

Optional equipment includes a straight guide, tramline point for circle cutting, and Bosch's unique and exceptional Air-Sweep™ vacuum attachment, which comes with a custom sub-base for the 1604, an edging attachment, a template-guide sub-base, and 10 feet of 1-1/2" flex hose.

10.16.01	Bosch 1604 Router	129.95
10.16.02	Straight Guide	23.50
10.16.08	3/8" Collet Cone	10.75
10.16.03	Trammel Point	10.30
10.16.05	7/16" Template Guide	10.55
10.16.06	1/2" Template Guide	7.30
10.16.07	5/8" Template Guide	10.25
10.16.09	Router Vacuum Attachment	102.50





FREUD Shaper Cutters

INTRODUCING FREUD'S NEW Four-Wing Raised Panel Cutters

Freud has long set the standards for industrial-duty carbide tipped shaper cutters. The EC line of economically priced cutters has made high quality available to the most budget-minded shops. And now Freud's new UC line of four-wing panel-raising cutters offers not only affordability but longer life, increased production rates, and safer performance as well. UC cutters are tipped with new H-30 carbide, which is both harder and less brittle than conventional carbides, for longer edge life and enhanced shock resistance.

All cutters on this page have a 3/4" bore, and they come equipped with 1/2" bushings at no extra charge (except for the 034 Lock Mitre set, which is to be used on 3/4" spindles only). All the EC cutters have a three-wing, anti-kickback design; they and the UC panel-raising cutters are sharpened to a 400 grit finish for smooth, fast cutting. Ball bearing rub collars are available for the panel-raising, straight edge, and rail & stile cutters.

Every Freud cutter is manufactured to instrument-gauged accuracy, precisely balanced and submitted to rigorous quality control checks. Freud backs up their products not only with strong reputation and long experience, but with prompt and professional service on demand.

4-WING RAISED PANEL CUTTERS

	Pattern No.	Stock Thickness	Cutter Dia.	
A	11.20.51	202 5/8"	5"	99.95
B	11.20.52	209 3/4"	5"	99.95
C	11.20.53	210 3/4"	5"	99.95
D	11.20.54	211 3/4"	5"	99.95
E	11.20.55	212 3/4"	5"	99.95
F	11.20.56	213 3/4"	5"	99.95
	11.20.86	Ball Bearing Rub Collar		39.95

3/4" BORE SHAPER CUTTERS

	Pattern No.	2-7/8" Cutter Diameter	
G	11.20.57	Door Lip Cutter 001	54.95
H	11.20.58	Roman Ogee 005	54.95
I	11.20.59	Reversible Glue Joint Cutter 031	52.95
J	11.20.60	Wedge Tongue 032	59.95
K	11.20.61	Wedge Groove 033	52.95
L	11.20.62	1/4" & 1/2" Quarter Round 044	54.95
M	11.20.63	Drawer Lock 240	54.95
N	11.20.64	4-1/8" Diameter Lock Mitre Set 034	99.95

O STRAIGHT EDGE CUTTERS

	Pattern No.	Cutter Width	Cutter Dia.	
	11.20.65	140 1/4"	2-7/8"	38.95
	11.20.66	141 3/8"	2-7/8"	42.95
	11.20.67	142 1/2"	2-7/8"	44.95
	11.20.68	143 5/8"	2-7/8"	49.95
	11.20.69	144 3/4"	2-7/8"	52.95
	11.20.70	146 1"	2-7/8"	54.95
	11.20.87	Ball Bearing Rub Collar		39.95

CABINET DOOR SET

Includes EC-260 rail and stile cutters, UC-210 raised panel cutter, EC-001 door lip cutter, and EC-031 reversible glue joint cutter, all packed in a fitted wood case, along with an instruction booklet.

11.20.90 UC-900 Cabinet Door Set 349.00

P CONCAVE RADIUS CUTTERS

2-7/8" Cutter Diameter

	Pattern No.	Width Opening	Radius	
	11.20.71	120 1/4"	1/8"	47.95
	11.20.72	121 3/8"	3/16"	51.95
	11.20.73	122 1/2"	1/4"	54.95
	11.20.74	123 5/8"	5/16"	57.95
	11.20.75	124 3/4"	3/8"	62.95

Q CONVEX RADIUS CUTTERS

2-7/8" Cutter Diameter

	Pattern No.	Cutter Width	Radius	
	11.20.76	101 1/4"	1/8"	44.95
	11.20.77	102 3/8"	3/16"	49.95
	11.20.78	103 1/2"	1/4"	54.95
	11.20.79	104 5/8"	5/16"	59.95
	11.20.80	105 3/4"	3/8"	64.95

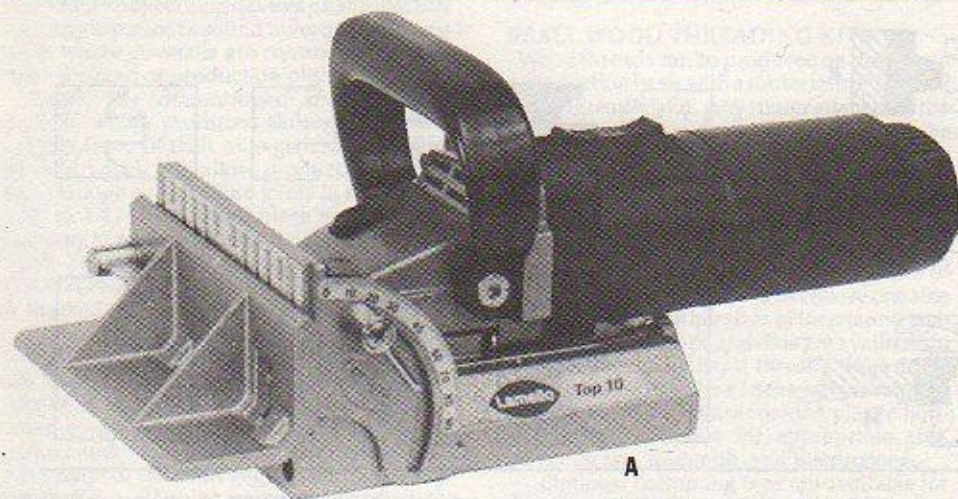
RAIL AND STILE CUTTER SETS

	Pattern No.	Stock Thickness	Cutter Dia.	
R	11.20.81	260 3/4"	2-7/8"	199.95
S	11.20.82	266 1"	2-7/8"	229.95
T	11.20.83	270 1-3/8"	2-7/8"	229.95
T	11.20.84	274 1-3/4"	2-7/8"	229.95
	11.20.85	Ball Bearing Rub Collar		39.95

BISCUIT JOINERY

Not long ago we answered a long-distance call from a customer who wanted to tell us about the Lamello Top he had purchased from us the week before. Of course we'd told him about the Lamello's incredible efficiency and ease of use, and how it would dramatically increase his productivity. But since he was an empirical kind of fellow, he decided to run a fairly objective test on a custom cabinet job he had ready for assembly. First he assembled one cabinet unit with dowels, just as he always had. Elapsed time from start to glue-up was 56 minutes - not too bad. Then he turned on the Lamello and assembled another unit identical to the first. Elapsed time: two minutes!

In the words of another customer who's had his Lamello Top for years now, assembling with the Lamello is the next best thing to having someone else do the work for you, and it's faster, too.



New LAMELLO Top 10 SALE \$499

The world-famous Lamello Top biscuit joiner has been given a new look and a new name for 1989. It remains fundamentally the same superb, industrial-quality tool that earned its reputation in the first place, but now the Top 10 incorporates a more powerful 700-watt, 10,000 rpm motor, along with several new design elements that make it easier to use than ever before. When you need the best, there's no doubt that the Lamello Top 10 is the tool to choose.

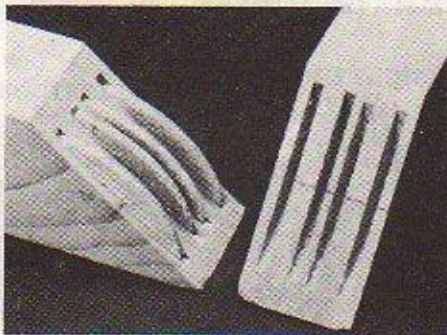
The Top 10 retains Lamello's unique hinged nosepiece, an outstanding feature which insures virtually foolproof accuracy and makes this joiner easier to use hand-held than any of its competition (except the Lamello Standard, of course). The fence can be flipped forward and locked in horizontal position, guaranteeing perfect surface alignment across flat butt joints, or it can be set at any angle between horizontal and vertical for aligning mitres, coopered staves, or other angled joints. Locked in its vertical position, the fence forms a nosepiece machined to precisely 90° from the base for vertical plunge cutting. A scale built into the fence's pivot lock lets you set the fence to any angle with 1° accuracy. A new accessory fence clamps to the vertical nosepiece to allow blade alignment up to 2° from the surface of a workpiece; the accessory fence is self-squaring and locks positively with a single lever.

Other new features include a compact quick-setting depth stop dial conveniently located up front near the fence, with no jam nuts that might loosen and change your depth

of cut. The base of the tool has been redesigned to allow nearly instant removal for access to the blade, and an exhaust port has been added that directs chips out the right rear of the machine. A spindle lock atop the motor housing allows use of a single wrench for blade change. As always, the machine comes with a stout wooden case with separate compartments for accessories and tools. The Top 10 weighs 7 lbs. *Sale Quantity Limited*

SALE 499.00

A 17.90.01	Lamello Top 10	569.00
17.90.05	Repl. Carbide Cutter	62.00
17.90.06	Dust Collector Adapter	72.00
Lamello Joining Plates, Box of 1000		
17.90.02	0 9/16" wide	29.95
17.90.03	10 3/4" wide	29.95
17.90.04	20 15/16" wide	29.95
17.90.98	Assortment of 3 sizes	34.95



LAMELLO Standard SALE \$399

The new Lamello Standard incorporates most of the excellent features that have made its big brother the finest joiner on the market. Foremost among them is the hinged front fence that has always set Lamello apart; for hand-held joinery, there's never been a better design. Not just the fence but the entire base casting is inherited from the original Lamello Top. Tough aluminum alloy die castings are ground perfectly flat, and the nose is likewise ground at precisely 90° to the base. Tolerances are very tight; there's no loose play in the fence, or between motor and base as the blade is plunged forward into the work. The base is cast with two holes through the rear which will help mount the tool for jigged production work.

The Standard differs from the Top 10 in powerplant and transmission systems. The motor operates at 500 watts, but even in aggressive use it's difficult to notice much limitation on cutting efficiency. And there's no spindle lock built in, so on the rare occasion when it's time to remove the blade you'll use two wrenches instead of one. The switch is a toggle recessed into the rear of the motor housing, where the Top 10's is a thumb slide up front and center. The Standard comes with a right-angle accessory fence that can be bolted to vertical nosepiece for deeper than normal reach. The machine comes with a plastic carrying case, including wrenches, spring removal tool, oiler, and a sample handful of splines. Net weight is 6 lbs.

In all, the Lamello Standard is probably the Top 10's most serious competitor on the market; it is certainly built to higher standards than any of the lower-priced machines we've seen. If your shop environment is a little less intense than a factory floor, but your need for quality and productivity no less acute, then the Standard may well be the best investment you can make. *Sale Quantity Limited*

SALE 399.00

B 17.90.09 Lamello Standard 499.00



LAMELLO Video

For those unfamiliar with (and perhaps mystified by) biscuit joinery, we are happy to provide a useful tool for understanding it. This professional 30-minute video in VHS format clearly illustrates and describes the step-by-step process of joint assembly made possible by Lamello (and similar) machines. It also explains the various Lamello accessories, providing concise lessons in the installation of Paumelle hinges and KD fittings, and clamping with the Lamello Spanner.

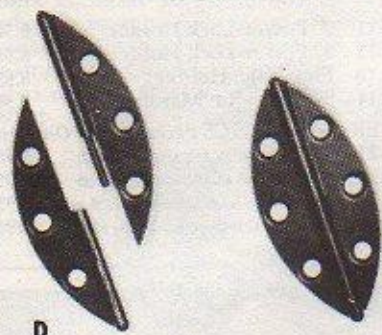
17.90.24 Lamello VHS Video 19.95



C SIMPLEX KD FITTINGS

Simplex connectors are miniature knock-down fasteners which interlock in the form of a #20 spline. When each half of the pair is epoxied into place in grooves cut by a biscuit joiner in mating workpieces, a strong, self-tightening joint is created which allows for easy disassembly at need. The insertion tool is designed to allow rapid installation of the barbed Simplex fittings without damaging the interlocking tongues.

17.90.41	20 Pair Simplex KD	18.00
17.90.42	100 Pair Simplex KD	79.95
17.90.42	Simplex Insertion Tool	16.95

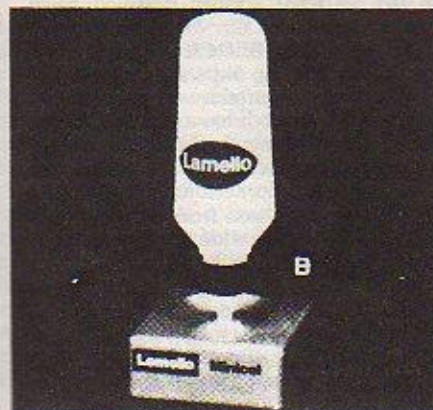


D PAUMELLE HINGES

Paumelle hinges are another great convenience made possible by Lamello. The slip-pin hinges are the size and shape of a #20 spline; installation is as simple and foolproof as making one plunge cut with a biscuit joiner. The hinges are available in left- and right-hand configurations to allow removable or permanent panel attachments. Available in bright steel and black finishes (both heavy aluminum construction) & also in polished solid brass. Screws are included.

PAUMELLE HINGES, Pack of 10

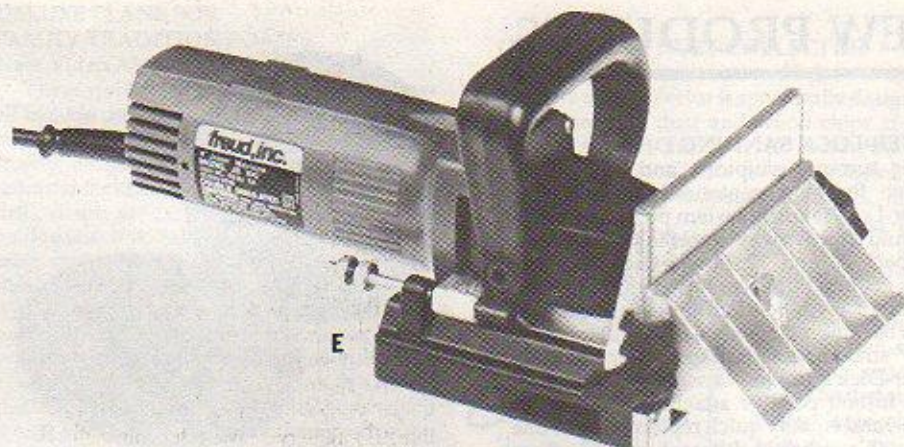
17.90.31	Bright Finish, Left	20.00
17.90.32	Bright Finish, Right	20.00
17.90.33	Black Finish, Left	20.00
17.90.34	Black Finish, Right	20.00
17.90.35	Solid Brass, Left	25.00
17.90.36	Solid Brass, Right	25.00



B LAMELLO GLUE DISPENSER

This cleverly-designed glue bottle has a double-orifice tip that gets glue where it's needed on the side walls of a Lamello mortise. A heavy, stable base allows the bottle to be stored nose-down, so glue is always at the tip and ready to go. The Lamello glue dispenser can also be used with fingertip control as a general-purpose glue dispenser for edges and surfaces in general glue-up work.

17.90.07	Lamello Glue Dispenser	21.95
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FREUD JS100 BISCUIT JOINER

When Freud introduced the JS100 in 1986, the tremendous productivity of biscuit joinery became so affordable that just about everyone could experience it for themselves. Small shops, custom woodworkers and hobbyists snapped up tens of thousands of JS100s, and demand continues to grow as word spreads about how the tool makes dead accurate joinery the easiest and fastest part of your work.

Though the Freud joiner is clearly not intended to compete with the likes of the Lamello for use in heavy-duty commercial situations, it certainly offers the best combination of function and affordability that we've seen yet. With more than a thousand JS100s currently at work in our customers' shops, we have a very encouraging track record: we've seen few problems occur, and have been pleased with prompt service from Freud on the rare occasions when we've needed help. With only moderate care and attention the JS100 provides precisely the speed and accuracy we've come to expect of biscuit joinery at its best.

All Lamello accessories listed here are compatible with the JS100; the glue bottle, KD, K-20, and C-20 splines, and the Paumelle hinges will add convenience and versatility to your Freud system.

The JS100 uses a fence design somewhat different from the Lamello's, trading some of the Lamello's convenience for a bit more versatility, particularly on mitered work. A fixed vertical nosepiece works with a sliding horizontal fence for vertical-axis positioning. Angled vanes on the back of the horizontal fence allow it to be flipped over and used for 45-degree joints, while shop-built accessory fences will be required for other angles. The fence can be set at any distance up to 2" from the blade.

Pre-set cutting depths, 550-watt motor with conveniently located switch, and six-lb. net weight make the JS100 easy to use and get used to. The tool comes packed in a protective carrying case, with tools, manual, and a handful of sample splines.

E 17.20.01	Freud JS100 Biscuit Joiner	169.95
17.20.02	Repl. Carbide Cutter	39.95
	Joining Plates, Box of 1000	
17.90.02	#0	29.95
17.90.03	#10	29.95
17.90.04	#20	29.95
17.90.98	Assortment of 3 sizes	34.95

K-20 CLAMPING SPLINES

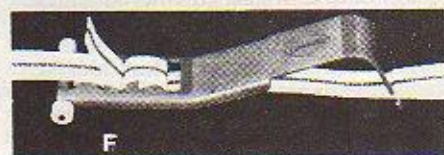
The barbs on this high-strength plastic #20 spline grip the walls of its grooves to hold joined pieces together when conventional clamping isn't feasible. To assemble hard-to-clamp objects, substitute a K-20 in place of every third or fourth regular #20 spline. Joints are glued up as usual, but there's no need to use glue on the K-20s themselves.

17.90.11	Pack of 50 K-20's	12.95
17.90.12	Box of 250 K-20's	49.95

C-20 PLASTIC SPLINES

These new Lamello splines are designed for joining Corian, Avonite, Fountainhead and other solid surfacing materials. They have a milky-white semi-translucent color that transmits light like Avonite or Fountainhead, and are compatible with the appropriate adhesives. Available only in size #20.

17.90.14	Box of 250 C-20's	29.95
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F LAMELLO SPANNER CLAMPS

These are quick-acting high strength web clamps for use on any polygonal objects from carcasses to chair frames to cat boxes. The steel cam-action handle features nylon rollers to avoid damaging the work, a reliable double-pass buckle, and a keeper notch that locks the handle in tightened position. The set comes with two handles and two 16-foot nylon belts.

17.90.08	Lamello Spanner	52.00
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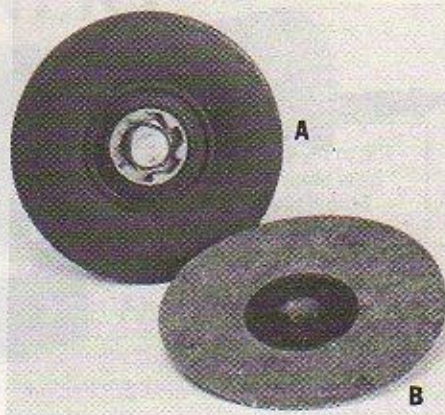
NEW PRODUCTS

POWER-LOCK SANDING DISCS

For turners, sculptors, and any woodworker finishing contoured surfaces, the Power-Lock sanding system provides an efficient and effective way to get the job done well. Compact 2" and 3" Power-Lock Sanding Discs get into tightly radiused shapes, while the tough resin-bonded abrasive, semi-stiff nylon backing, and flexible rubber disc holder allow smooth, longlasting power sanding. Power-Lock's unique fastening system provides instant positive attachment of disc to holder, and equally quick replacement of one disc with another of different grit. The discs mount flat, without adhesives and without a center screw, eliminating hardware that might mar your work. The discs are water and solvent resistant, and can be cleaned or washed repeatedly without harm.

In addition to regular sanding discs, the Power-Lock system includes Flex-Edge Discs for very gentle sanding on delicate surfaces or thin walls and rims. These are 3" discs on which the outer 3/8" of the discs has not been laminated to the nylon backing, leaving it quite soft and flexible even at high rpm. These discs are used with a special holder made for the purpose.

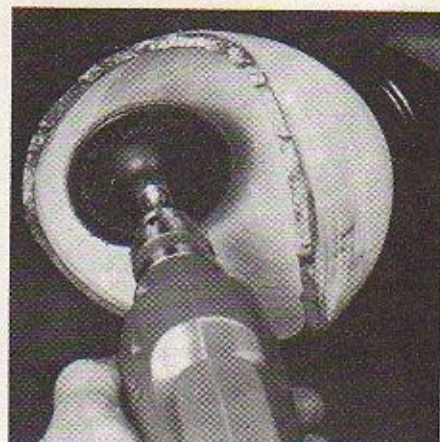
Also available are Power-Lock Buffing Discs, which are made of non-woven nylon material impregnated with very fine grit for fine finishing and polishing, wet or dry. These



3" pads are used with the regular 3" disc holder.

Power-Lock holders and discs are suitable for use with any drill or other power source, including pneumatic tools; they are rated for industrial use at up to 20,000 rpm. Note that the discs (other than Flex-Edge) may be used only with a holder of the same diameter. Each holder is equipped with a fiber-reinforced rubber pad and a 1/4" mandrel. An optional 8" extension mandrel (fits 3" holders and Flex-Edge holders) gets into deep bowls or other hard-to-reach areas.

Discs are available in packs of 10 of a single grit, or you can purchase Starter Kits. The 2" starter kit contains a 2" holder and 10 each of 80, 100, 150, and 240 grit discs. The 3" starter kit



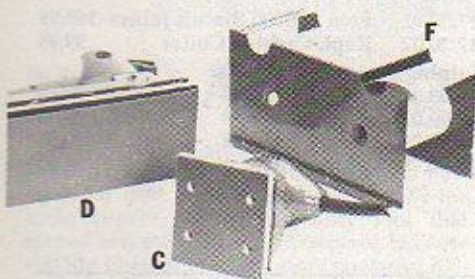
contains a 3" holder and 10 each of the same grits. The Flex-Edge starter kit contains a Flex-Edge holder and 10 each of 60, 80, 100, 120, and 180 grits.

15.60.01	2" Power-Lock Starter Kit	20.50
15.60.02	3" Power-Lock Starter Kit	25.00
15.60.03	Flex-Edge Starter Kit	35.00

15.60.11	2" Power-Lock Holder	6.50
15.60.12	3" Power-Lock Holder	6.95
15.60.13	Flex-Edge Holder	6.95
15.60.14	8" Extension Mandrel	5.50

POWER-LOCK DISCS Packs of 10 of One Grit

15.60.21	2" (specify 60, 80, 100, 150, 240, or 320)	3.95
15.60.22	3" (specify 60, 80, 100, 150, 240, or 320)	4.95
15.60.23	Flex-Edge (specify 60, 80, 100, 120, or 180)	5.95
15.60.24	Buffing Discs (specify 400 or 600)	9.95



3M STIKIT SANDING SYSTEM

One of America's most creative companies has come up with yet another boon for the woodworker: the Stikit family of self-adhesive sandpapers and sanding tools. For hand or machine sanding, Stikit paper is tough, sharp silicon carbide grit bonded to a weight paper with a reliable pressure-sensitive backing, available in a range of grits to cover all your finishing needs. Changing grits on your finish sander or disc sander takes only seconds, and you'll never have to hassle with paper slip-page again—but perhaps the best feature of the Stikit system is its economy. Remarkably, Stikit paper for a Makita palm sander costs less than 14-1/2 cents a sheet, less than the cost of full-size silicon-carbide sheets you cut yourself.

For finish sanders, 3M offers two options. For Makita and Porter Cable palm sanders, we carry Stikit backing pads which are designed to replace the sanders' standard felt pads. These are metal-backed closed-cell foam pads with a special fabric facing for positive hold and durability.

For other sanders, the adhesive-backed Conversion Facing measures 4-1/2" x 11", large enough for 1/3- or 1/2-sheet sanders. Stikit finishing-sander paper is sold in rolls

4-1/2" wide by 10 yards long, enough for 90 4" sheets. It is available in a range of seven grits from 80 to 320, as listed below.

When you're doing a lot of sanding, the double-roll dispenser for 4-1/2"-wide Stikit paper will come in handy. Stores two rolls, with a crisp cutting edge for each. Just pull out the length you need and tear.

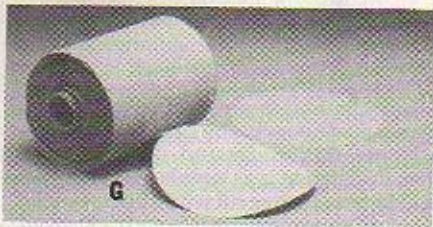
For sanding round, highly contoured or very delicate pieces, the Stikit hand pad is a great help. It's a 4-1/2" x 4-1/4" soft neoprene pad with a finger strap on the back and facing fabric on the front; it moulds easily to any shape, providing support to keep paper from tearing or crimping, and insulating against heat build-up as well. The hand pad uses the same 4-1/2" wide paper as described above for finishing sanders.

STIKIT SANDING ACCESSORIES

C 15.61.01	Backing Pad for Makita Palm Sanders	4.95
15.61.02	Backing Pad for Porter Cable Palm Sander	4.95
D 15.61.04	Conversion Facing for all Finishing Sanders	2.95
E 15.61.05	Stikit Hand Sanding Pad	3.75
F 15.61.06	Two-Roll Dispenser	14.95

4-1/2" WIDE STIKIT ROLLS (10 yds.)

15.61.11	80 grit	12.95
15.61.12	100 grit	11.95
15.61.13	120 grit	11.95
15.61.14	150 grit	11.95
15.61.15	180 grit	11.95
15.61.16	220 grit	11.95
15.61.17	320 grit	11.95



G STIKIT SANDING DISCS

For disc sanders, we carry both 5" and 6" Stikit discs in rolls at less than 24 cents a disc. They may be applied directly to any 5" or 6" rubber sanding disc, with no special interface required. Available in 80, 120, and 220 grits.

Rolls of Stikit Sanding Discs

Diameter	Grit	Discs per Roll	
15.61.31	5" 80	125	23.00
15.61.32	5" 120	125	21.00
15.61.33	5" 220	250	45.00
15.61.34	6" 80	125	30.00
15.61.35	6" 120	125	28.00
15.61.36	6" 220	250	55.00

H STIKIT SANDING BLOCK

For hand sanding, 3M's sanding block is one of the most comfortable we've tried and is also very convenient. It has a firm felt surface 3-1/4" wide by 5" long; the curved end can be used in contoured areas, while the square end will sand right into corners. Rolls of paper are stored in and dispensed from a holder built into the block. 3-1/4" wide Stikit paper rolls are available in five grits listed below.

15.61.21	Stikit Sanding Block	8.95
15.61.22	55" roll of 100 grit paper	2.20
15.61.23	70" roll of 120 grit paper	2.20
15.61.24	80" roll of 150 grit paper	2.20
15.61.25	95" roll of 220 grit paper	2.20



EVERSAND HAND SANDING PADS Work Faster and Last 10 Times Longer

These pads have earned high praise from many users here at the store. Not only will their resin-bonded abrasive last 10 times longer than ordinary sandpaper - it also cuts much faster and resists clogging more successfully. The pads are waterproof, which lets them be used for wet-sanding fine finishes, and they can be scrubbed clean should they load with dust or other residues.

Each pad consists of a 1/8" closed-cell foam core with sheets of different grit laminated on opposite sides: 100 and 220 grits on the medium pad, and 200 and 400 grits on the polishing pads. The 2-3/4" x 5" pads fit the hand well and are firm enough for easy, non-slip hand sanding on flat or contoured surfaces. They can be cut to any other useful shape with household scissors, and can be folded without breaking or leaving sharp edges.

Pack of 6 includes 3 of each pair of grits.

J 15.60.31 Pack of 6 Eversand Pads 9.50



K SPLIT-FINGER FLAP SANDER

The scored abrasive flaps in this sanding head are backed by firm cushioning bristles which gently force each 1/8"-wide strip into contact with flat or contoured surfaces alike. The flap sander comes with a 1/4" mandrel for use in any electric drill, 2500 rpm maximum. Weighs 11 oz. Includes 1 pack of coarse abrasive; flaps are fed from within the 4" diameter body as the abrasive wears. Refill packs (eight 7-1/4" flaps) are available in coarse, medium, and fine grits.

15.60.41 3M Flap Sander 16.50
15.60.42 Coarse Refill 4.80
15.60.43 Medium Refill 4.80
15.60.44 Fine Refill 4.80

L MAKITA 6093DW Cordless 2-Speed VSR Driver/Drill

This may well be (for the time being) Makita's ultimate 9.6-volt cordless drill. The 6093DW features variable speed within two distinct ranges, 0-400 rpm or 0-1000, allowing the user to maximize torque for heavy screw-driving or large diameter boring, or to opt for maximum installation or drilling speed. The tool also offers a six-stage variable-torque clutch for total control over screwdriving force. The 6093DW comes with removable one-hour fast-charge battery, 110-volt charger, a double-ended #2 Phillips bit and a steel tool case. Net weight is 3.8 lbs.

07.10.41 6093DW Cordless Drill 139.95
07.10.12 Spare 9.6V Battery 48.00
07.10.13 Replacement Charger 58.00
07.10.22 Spare Chuck Key 4.00

DELUXE PLANS FOR FAMILY TRADITION PONIES New Video Also Available

These well-illustrated plans by Lewis Jewell include detailed instructions, full size patterns and material list for building 2 sizes of sturdy, attractive rocking horses. The tools required include ordinary hand tools, chisels, drill, drum sander, and jigsaw. (The job is made easier if you also have a router, bandsaw, table saw, and belt sander). Building one of these rockers makes an excellent project for developing woodworking skills, and also produces a beautiful family heirloom which any kid will love. A delightful new video is available to supplement the plans. It demonstrates many of the special techniques which Jewell has developed for efficient production and assembly of the rocker.

21.53.10 Plans for 40" Rocker 12.00
21.53.11 Plans for 45" Rocker 12.00
21.53.12 Rocking Horse Video 24.95



N Makita 6010DWK Cordless Driver/Drill

This is the cast-iron skillet of Makita's cordless drills. Though not really a new tool, it's now available for a new low price.

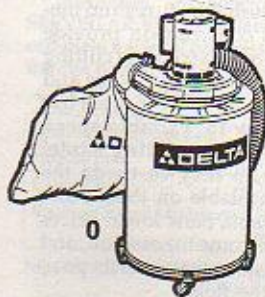
Single-speed, reversible, lightweight and comfortable in the hand, virtually indestructible, the 6010DWK is one of the best-loved power tools we've ever sold. It is well suited to drilling in wood or metal, and is a powerful and easily controlled screwdriver in the shop and around the house. Fingertip reversing toggle, clip-mounted chuck key, manual-reset overload button, quick-charge 7.2-volt battery, charger, plastic tool case and double-ended Phillips screwdriver bit are all standard equipment. Weighs 2 lbs. 10 ounces.

07.10.02 6010DWK Cordless Drill 89.95
07.10.03 Spare 7.2V Battery 40.00
07.10.04 Replacement Charger 48.00
07.10.22 Spare Chuck Key 4.00



QUIET DELTA DUST COLLECTOR

This extremely quiet new 35-gallon capacity Delta dust collector is specifically designed to capture saw dust and wood chips at the source. A powerful 3/4 HP motor/blower moves over 580 CFM - over four times the CFM provided by industrial vacuums.



The Delta unit also goes a step further than other workshop dust collectors with its unique two-step cyclonic separation. The first stage filters large chips and dust into the fire resistant drum. Only fine dust and particles then pass

through the blower wheel into the second stage filter bag, eliminating the wear and tear to the wheel and housing from contact with wood and chips common to single-stage units.

Other features include a set of 4 stabilizing casters for mobility, self-cleaning cast aluminum 10-5/8" diameter radial blade blower wheel, and lubricated-for-life ball bearing motor. A 5-ft. length of 4" dust hose is included. Barrel size is 20" diameter by 43" high.

Optional accessories include additional 10 foot lengths of hose, and a quick disconnect which adapts the 4" hose to 5"-dia. outlets.

Dust collector is shipped UPS. Two year warranty.

O 50-179 Delta Dust Collector 348.00
50-194 10 Foot Hose Extension 28.95
50-196 Quick Disconnect 17.95



P QUICK-RELEASE COUNTERSINK/PILOT DRILLS

These ingenious bits are designed to fit in your drill chuck over a screwdriver bit, allowing piloting, countersinking, and screw installation without having to reach for your chuck key. Chuck-Mate™ bits may be used over any screwdriver bit from 3/4" to 2" long. To install the tool, simply slip its prongs into the three openings between the drill chuck's jaws, and pull down a locking ring to secure the bit in place. Piloting depth is adjustable from 3/4" to 1-3/4"; bits are easily replaced when broken or dull. Countersink diameter is 3/8" for #6-10, 1/2" for #12, with 5/8" max depth. Optional stop collars let you control countersink depth. Chuck-Mates are sold individually or as a set of all four sizes. Also available are #5 and #9 self-center VIX bits (for installing hinges) fitted with the quick-release mounting system.

CHUCK-MATE Countersink/Pilot Drills

07.53.31 For #6 Screws 12.50
07.53.32 For #8 Screws 12.50
07.53.33 For #10 Screws 12.50
07.53.34 For #12 Screws 12.50
07.53.35 Set of All 4 Above 48.95
07.53.36 3/8" Stop Collar (fits #6, 8, 10) 2.50
07.53.37 1/2" Stop Collar (fits #12) 2.50
07.53.38 For #5 VIX Bit 12.50
07.53.39 For #9 VIX Bit 12.50

NEW HEGNER SCROLL SAWS

Hegner scroll saws have set new standards for productivity and precision in scroll and detail sawing. Superb design features and meticulous West German construction provide fast, smooth, and extremely accurate cutting while insuring minimum blade breakage and maximum user satisfaction. Now Hegner has introduced a terrific new 18" variable-speed saw which is the smoothest-running model they've ever made, and they've made the same speed control available on their other sizes of scroll saws as well. New lower prices for 1989 are another welcome innovation, and will doubtless help Hegner maintain its position of leadership in the field.

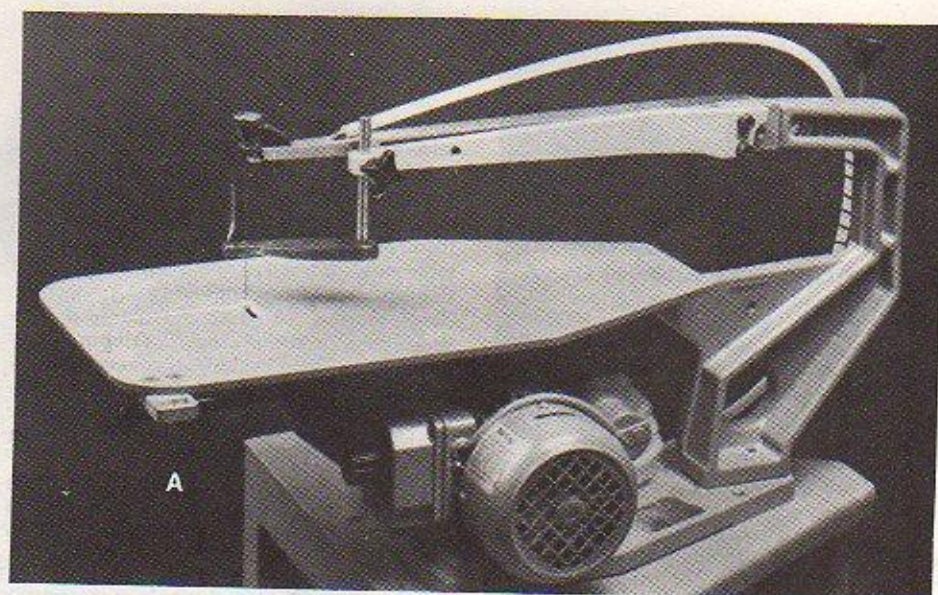
Our selection of Hegner scroll saws now includes 5 models to meet every serious scrolling need and budget. Though each saw has its own distinctive characteristics, all share many of the Hegner-pioneered features that make these saws unique. A tensioned parallelogram rocker arm assembly, like a bowsaw, keeps the blade under unvarying tension, allowing the use of very high tension and high stroke speed, for a smooth, clean and reliably straight cut. Parallelogram geometry also delivers vertical motion with negligible front-to-back movement of the blade through the stroke, making it easy to scroll tightly, quickly and accurately without distracting blade blurring.

The pivoting blade clamp system pioneered by Hegner makes another prime contribution to the saws' excellence. When cutting pressure is applied to the tiny blades used in scroll saws, they inevitably bow backward, regardless of tension level or sawing technique. In the Hegner system, each end of the blade is clamped in a hardened steel prism-shaped holder which is seated in a groove at the end of the rocker arm. The holder pivots as the blade bows, distributing bending loads along the entire length of the blade without creating hot spots that lead to early failure.

Other shared features include a built-in sawdust blower that pumps out a gentle breeze over the work near the blade, keeping cut lines clear without blowing dust in your face. A fully adjustable hold-down foot eliminates chatter and leave your hands free to guide the work without undue pressure. Worktables tilt left to 45° (and 15° right on the MX-18), and come equipped with a blade holder socket to facilitate standard blade change. A large knob on the upper holder makes set-up for internal cuts quick and easy. Each saw comes with a 72 assorted wood- and metal-cutting blades, along with several heavy Gottfried blades for cutting thick stock.

Every Hegner saw is provided with a welded steel stand with bolt-down tabs. Hegner motors and switches are warranted against defects for one year. The four Multimax saws are backed by a 2-year warranty, while the Polymax 3 is covered for 5 years.

The Multimax 2 is the most compact model in our line. It has a 14-1/2" throat, 9" x 17" table, and 2" maximum depth of cut. Its 1.9 amp, 1660 rpm motor provides more than enough power for fast cutting in any material. Weighs 28 lbs; steel stand weighs 22 lbs. *Shipped via UPS.*



The Multimax 14 is the variable-speed edition of the MX-2. Its dimensions and capacities are the same as for the MX-2, but it comes equipped with Hegner's new electronic variable-speed control built into the motor, providing stroke rates from 400 to 1480 strokes per minute. The high end is plenty fast enough for scrolling in hard or soft woods, and leaves the usual superbly smooth Hegner kerf which requires little or no sanding before finishing. Lower speeds will be ideal for extremely intricate work where slow feed rates might otherwise burn the stock, and for cutting plastics, non-ferrous metals, and mild steel. *Shipped UPS*

The new Multimax 18 has an 18" throat, 9" x 17" dual-tilt table (45° left and 15° right), and an extraordinary 2-3/4" maximum thickness capacity. Its 2.8 amp motor is made for handling heavy loads, and is equipped with the electronic speed control described above. Speeds are from 400 to 1480 strokes per minute. The MX-18 runs remarkably smoothly at any rpm, and is also astonishingly quiet for a saw of this size and power. *Shipped via UPS.*

The enormous Multimax 25 is a great all-purpose scroll saw, featuring exceptional 25" throat depth, 2-3/8" max depth of cut, a large 10" x 20-1/2" work table, and the same new constant-torque speed control found on the MX-14 and MX-18. The throat capacity of the MX-25 is so extraordinary that it's hard to grasp until you see it. The MX-25 weighs 66 lbs, its stand 26 lbs. *Shipped freight collect.*

The Polymax 3 is Hegner's industrial-duty scroll saw, designed for maximum durability and versatility in a full-time production environment. 19" throat, 2" max depth of cut, and 10" x 19" table are capacious enough for practically any scrolling needs, while its 3.8 amp motor provides unstoppable power at any of 4 built-in speeds (700, 1100, 1270, or 1600 strokes per minute), with your choice of two stroke lengths: 11/16" for smooth operation at any speed, or 15/16" length to facilitate sawing in unusually thick stock. Cast iron table, replaceable blade holder mounts, and magnetic safety switch are other Polymax advantages. Weighs 85 lbs; stand weighs 26 lbs. *Shipped freight collect.*

HEGNER SCROLL SAWS

05.29.01	Multimax 2	644.00
05.29.31	Multimax 14	744.00
A 05.29.32	Multimax 18	844.00
05.29.33	Multimax 25	1699.00
05.29.02	Polymax 3	1899.00

SCROLL SAW LETTERING GUIDES

We offer lettering guides for laying out names and signs which can be cut out using your scroll saw. Sets are available for each of the styles illustrated below in 2" heights, except for Cooper Black (bottom right), which is available only in uppercase 1-1/2" letters. Guides are tough .030" polycarbonate.

05.29.61	Uppercase Cooper Black	19.95
05.29.62	Any Other Style, 2" High	49.95

(Specify name of style)

(HOMO 081102-1)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

(HOMO 081102-1)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

(COOPER BLACK ITALIC 18000-1)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

(COOPER BLACK 18000-1)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

Pebeco Blades, for cutting wood and soft metal, Pack of 12

	Size	Width	Teeth/Inch	
05.29.07	2/0	.015	30	4.00
05.29.08	1	.026"	25	4.00
05.29.10	3	.032"	20	4.00
05.29.12	5	.039"	16-1/2	4.00
05.29.14	7	.045"	14	4.00
05.29.16	9	.053"	14	4.00
05.29.19	11	.063"	12-1/2	4.00

AMI Premium Double Tooth Blades, for thicker wood & soft metal, Pack of 12

	Size	Width	Teeth/Inch	
05.29.45	5	.038"	16	4.00
05.29.47	7	.045"	13	4.00
05.29.49	9	.053"	11	4.00
05.29.51	11	.057"	10	4.00

Gottfried Blades, for very thick wood, Each

	Size	Teeth/Inch	
05.29.20	2.0mm	10	1.00
05.29.21	2.5mm	9	1.00

Hegner Blade Clamps (with TuffScrew), Pair

05.29.05	Pebeco (0.7mm)	12.75
05.29.06	Gottfried (1.0mm)	13.75
05.29.71	Spare TuffScrew, Each	.90
05.29.72	TuffWrench, Each	8.95

20.03.83	Scroll Saw Handbook	12.95
20.03.84	Scroll Saw Pattern Book	12.95

We Invite You to Apply Now for Highland Hardware's new SERVISTAR MasterCard or Visa Card

We want to make it easy and convenient for you to finance your purchases. The new SERVISTAR® MasterCard® or Visa® Card (offered in cooperation with PNC National Bank of Wilmington, DE) can give you immediate credit up to \$2000 or more (subject to credit approval). Use it with us to finance a new stationary tool or as a convenient way to charge hand tool purchases, and as a general-purpose charge card good wherever MasterCard and Visa are honored.

Our card comes with an Annual Percentage Rate of 17.9%, lower than most other credit cards. This applies to purchases or cash advances. Also, you can avoid any Finance Charges on your purchases if you pay your entire monthly balance in full.

The minimum monthly payment is 2.7% of your outstanding balance. If you use the card exclusively to finance a large item purchased from us and make a monthly payment of 5% of the purchase amount, about 24 months are required to complete payment.

HERE'S A WAY TO SAVE. Every purchase you make with your SERVISTAR Visa or MasterCard (regardless of where the purchase is made) earns you a 1/2% rebate in StarBucks™. Here's how it works. Twice a year, your purchases on the card will be totaled, and if they are \$500 or more, we'll send you StarBucks. If your purchases are less than \$500, we'll carry them over until your total reaches \$500. StarBucks are redeemable in merchandise at Highland Hardware, or any of the other 3000 SERVISTAR Hardware Stores around the country.

No annual fee for the SERVISTAR MasterCard or Visa is charged for the first year. You have your choice of either a MasterCard or Visa account and a second card of the same type at no additional charge. Whichever card you choose, after your first year, the Annual Fee is \$18.

To apply, complete the application below and return it to Highland Hardware.

If you are in a rush and you are placing an order worth \$100 or more, specify "INSTANT CREDIT", and we will expedite processing of your application, and notify you within a few days. (Otherwise, it normally takes 2 to 3 weeks to receive your card).

Businesses are eligible for a non-revolving SERVISTAR Visa or MasterCard account, but must complete a special business application, rather than the one below. Call or write us for a copy.

Disclosure Summary

Annual Percentage Rate	17.9%
Annual Fee	\$18.00
Grace Period	25 days on purchases
Finance Charge Minimum	50¢ when a Finance Charge is due on purchases.

Mail application to: Highland Hardware
1045 N. Highland Ave.
Atlanta, GA 30306

Please tell us about yourself

Type of account		Check one:			
<input type="checkbox"/> Individual		<input type="checkbox"/> New Visa Account			
<input type="checkbox"/> Joint		<input type="checkbox"/> New MasterCard Account			
Cash Advance Checks					
<input type="checkbox"/> I want to pay off my other credit card balances which total about \$_____ Please send me cash advance checks so I can pay off these balances.					
First name		M.I.	Last name (indicate Jr., Sr., etc.)		Date of birth
					Number of dependents
					Social Security Number
Home street address		City		State	Zip Code
					Home telephone
How long?		Previous home address (including City, State, and Zip Code)		How Long?	
Yrs. Mos.				Yrs. Mos.	
<input type="checkbox"/> own <input type="checkbox"/> with parents					
<input type="checkbox"/> rent <input type="checkbox"/> other					
Highest level of education completed		Name and address of nearest relative not living with you		Relationship	
<input type="checkbox"/> High School <input type="checkbox"/> College					
<input type="checkbox"/> Some college <input type="checkbox"/> Graduate school					
Name of business or employer		Type of business	Position	How long?	Gross monthly salary
				Yrs. Mos.	\$
Business street address		City	State	Zip code	Business telephone
Previous employer		Address	Position	How long?	Gross monthly amount
				Yrs. Mos.	\$
OTHER INCOME COMPLETE FOR APPLICANT AND CO-APPLICANT. Income from alimony, child support, or maintenance payments need not be revealed if you do not wish to rely upon it in connection with this application.		Name and address of source of other income		Gross monthly amount	
				\$	

Please tell us about your co-applicant

First name		M.I.	Last name (indicate Jr., Sr., etc.)		Date of birth
					Relationship to applicant
					Social Security Number
Home street address (if different than applicant's)		City		State	Zip Code
					Home telephone
Name of business or employer		Type of business	Position	How long?	Gross monthly salary
				Yrs. Mos.	\$
Business street address		City	State	Zip code	Business telephone
Previous employer		Address	Position	How long?	Gross monthly amount
				Yrs. Mos.	\$

Please give us some financial information

Type of account	Name of institution	Account number	Type of account	Name of institution	Account number
<input type="checkbox"/> Checking			<input type="checkbox"/> Savings <input type="checkbox"/> Other		
			<input type="checkbox"/> Money Market		
Name of current <input type="checkbox"/> Mortgage holder <input type="checkbox"/> Landlord	Purchase price	Current market value	Balance owed	Monthly payment or rent	
	\$	\$	\$	\$	
List ALL Applicant's AND Co-Applicant's credit references (including installment loans, charge accounts, and credit cards). If none, so state. Attach separate sheet if necessary.	Type of credit	Original amount or credit line	Unpaid balance	Monthly payment	
Name of creditor and city	(e.g., auto loan)	\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	

AUTHORIZED USER. There is no extra charge for the first two cards issued on each account. Additional cards are provided at a one-time cost of \$10 each. Please issue a card on my/our account to _____ Relationship _____

AGREEMENT. I certify that the information contained in this application is complete and accurate and authorize PNC National Bank ("Bank") to: (1) check my credit and employment history and answer questions about its credit experience with me; (2) retain this application; and (3) exchange financial information with any of Bank's affiliates or correspondents. If the application is approved, I agree to pay the Annual Membership Fee and to be bound by the terms of Bank's Credit Card Agreement as is in effect from time to time, and also authorize Bank to provide my name and address to SERVISTAR Corporation and/or its dealer owners.

Applicant's Signature

Date

Co-Applicant's Signature

Date

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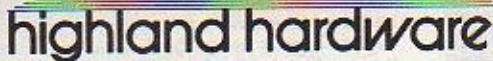
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- ☐ Back order and ship as soon as possible
- ☒ Cancel order for that item

HIGHLAND HARDWARE
1045 N. Highland Ave., NE
Atlanta, Georgia 30306

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ORDERED BY: _____ (Please use self-stick address label from back cover)

(NIGHT): ()

DATE OF ORDER _____

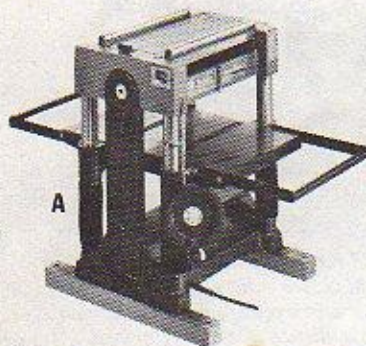
____ Money Order ____ MasterCard.

Bank No.

[illegible]

NOTE: If ordering HYDROCOTE products, please give a shipping address where *someone will be present* to receive your delivery. This will help to eliminate the possibility of the product freezing due to being left at your doorstep by UPS in cold weather.

MAKITA TOOLS



A MAKITA 2040 THICKNESS PLANER

The 15-5/8"-width capacity of this thickness planer makes it a great buy for any shop already equipped with a good jointer. The factory feed rate of 22 feet per minute under load lets you dress a lot of wood in a hurry, while the speed reducer kit available optionally can give you the same incredibly smooth finish as described on the 2030N. Makita's fine 2 hp, 115 volt motor drives the cutterhead at 6500 rpm, delivering plenty of power to remove 1/16" per pass on even wide stock. Max depth of cut on narrower stock is 1/8". As on the 2030N, the 2040's cast-iron bed is equipped with rollers for rough stock, which are easily lowered for finish passes on dressed material. The hard rubber feed rollers cannot mar the surface of even the softest lumber, and are tough enough to last for years of rough work.

The 2040's large width capacity and exceptional 7-3/4" maximum thickness make this an ideal machine for dressing glued-up panels, valuable wide stock, and even heavy timbers. Four-post construction and 254 lb. net weight add sturdiness for lasting durability.

Shipped by truck freight collect. List Price 2470.00

08.10.14	2040 Planer	1399.00
08.10.15	15" HSS Knives, Pair	49.95
08.10.16	15" Carbide Knives, Pair	388.00
08.10.22	Repl. 2040 Brushes	6.00
08.10.25	Repl. 2040 Switch	19.00
08.10.27	Stand for 2040	98.00
08.10.32	Feed Rate Reduction Kit	46.00



B MAKITA 410 DUST COLLECTOR

We are very pleased to offer a high-quality Makita machine which will economically meet the needs of countless small shops where power tools (particularly thickness planers) are in use.

The model 410 dust collector is a compact, portable, and relatively quiet unit capable of handling the requirements of machines as large as a 16" planer. Its 9 amp, 10,000 rpm motor drives a high-efficiency centrifugal fan for a peak air flow of over 300 cfm through a 3" hose, providing high velocity (6253 fpm) and a very large static pressure (20") for minimal clogging under heavy load. The collector comes with large, 8 cu.ft. dust bag with built-in window for monitoring load. It can also be ducted into other collection containers as desired. The unit weighs only 20 lbs., and can easily be moved from one machine to another.

Eight feet of heavy-duty flexible 3" hose is provided. Ready-made dust hoods for current models of Makita planers are available. Dust hoods for other makes of planers and stationary tools in general can easily be fashioned using sheet metal or plywood.

Sale quantity limited. SALE \$249.95

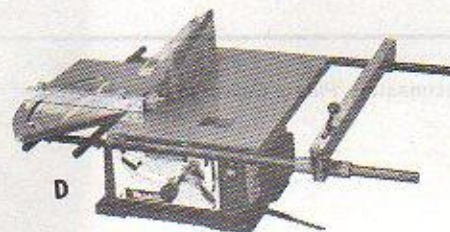
08.10.40	Makita Dust Collector	279.95
08.10.41	Extra 8' Length of Hose	69.00
08.10.42	16' Length of Hose	99.00
08.10.44	Planer Dusthood/2030N	53.00
08.10.45	Jointer Dusthood/2030N	49.00
08.10.46	Planer Dusthood/2030	99.00
08.10.47	Planer Dusthood/2040	130.00



C MAKITA BO4550 DUSTLESS PALM SANDER

This new version of Makita's palm sander includes a dustbag and is quite efficient at collecting sanding dust through holes in the sander's base. After a quarter sheet of sandpaper is mounted, a device is used which instantly pierces 6 holes in the paper allowing dust to enter the collection system. 1.6 amps, 14,000 opm. 2.1 lbs. Ball-bearing constr.

15.10.30 BO4550 Dustless Sander 59.95



D MAKITA 2711 10" TABLE SAW

This new tablesaw from Makita comes very close to defining what a contractor's saw should be. The saw with motor weighs only 71-1/2 lbs., an easy load to take to and around the jobsite. The 12 amp, 3800 rpm, 115V direct-drive motor puts out 2HP with enough torque for any cutting job. The 10" blade cuts 3-5/8" deep at 90°, or 2-1/2" deep at 45°. Quick-lock fence allows 24" rip right of the blade. A unique built-in sliding table with detachable miter fence allows accurate mitering and cut-off up to 13-1/2" wide at 90° or 12" wide at 45°. Table is 27-1/2" x 23-1/2" including sliding assembly. Shipped by UPS.

05.10.81	2711 10" Tablesaw	499.00
05.10.72	Legstand for 2711	75.80

MAKITA 9820-2 BLADE SHARPENER

The 9820-2 comes equipped for sharpening jointer and planer knives up to 16" long with great speed and accuracy. Handles any make of knife from 1/2" to 2" wide, up to 3/8" thick.

The great advantage of the Makita sharpener over conventional grinders lies in its use of waterstones; sharp, fast-cutting abrasives found only in Japanese waterstones and the cooling action of gravity-fed water lubrication allows efficient, non-stop sharpening while eliminating the danger of overheating a knife's cutting edge and spoiling its temper.



The 1000-grit stone supplied with the machine will put a fine edge on even the dullest knife in a hurry, or will hone in less than a minute after first grinding on the optional 120-grit coarse Green wheel. The Green wheel does an incredibly fast job of grinding out nicks and reshaping bevels, and is also suitable for sharpening carbide tools. An optional 6000-grit stone is usually used for final polishing on hand tools, but can be used for putting a superior edge on machine knives when they're being used on really challenging lumber. Doing your own sharpening with a 9820-2 also provides several important advantages over using commercial sharpening service.

ECONOMY - you don't need two sets of knives; spend twenty minutes with the set that needs sharpening and put them right back on the machine. Your knives will also last many times longer when they're not subjected to an arbitrarily heavy and wasteful grind.

QUALITY - the standard 1000-grit stone provides an edge much sharper than the usual commercial grind, sharp enough to shave if you're good at it. This lets your machines do their job better and easier than ever, so you reduce wear on the machines, improve your millwork and reduce finishing time. And your knives will need sharpening less often to boot.

The 9820-2 will also put an edge on many hand tools. The optional accessory jig lets you grind and hone chisels and plane irons (up to 2-1/2" wide) to a straight, sharp bevel without worrying about heating the edge.

Technical data is as follows: motor is rated for continuous duty at 175 watts, 1.6 amps at 110 volts, with no-load speed of 560 rpm. Weight (with stone) 19 lbs. Stones are 8" diameter, 1" thick, easily interchanged. Water supplied by removable, variable-flow tank. 16" machine knife holder (holds two or three short knives in tandem) is std. equipment.

The 9820-2 has long been one of our best-selling power tools; we've always recommended it as an excellent buy in a sharpening machine. For all your grinding & sharpening needs, there's no better value anywhere.

02.10.01	9820-2 Sharpener	199.95
P02.26.01	Highland Accessory Jig	12.95
02.64.30	120 Grit Green Wheel	44.95
02.10.03	1000 Grit Medium Wheel	39.95
02.10.04	6000 Grit Fine Wheel	49.95

Highland Hardware Gift Certificates

Can't decide what to select as a gift for the woodworker in your life? One of our Highland Hardware gift certificates is a choice that's certain to please, since the recipient can select from thousands of useful items in our tool catalog.

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Woodturning, Southern Style, Feb. 3-4

The Woodworkers Guild of Georgia, in cooperation with the Madison-Morgan Cultural Center, will sponsor **Woodturning, Southern Style, A Symposium**. The event will coincide with a Smithsonian Institute Traveling Exhibition entitled "Polished Perfection: The Art of Turned Wood Bowls." The two-day symposium will feature professional turners from throughout the Southeast. Slide presentations, lectures and demonstrations will highlight the weekend providing a unique learning experience for beginning turners, as well as the experienced craftsman.

Location is the Madison-Morgan Cultural Center in Madison, Georgia. For details, write Nick Cook, 1775 Mountain Trace, Canton, GA 30114, or call (404) 345-2590.



World-renowned woodworking teacher Torge Frid is shown here demonstrating mortising with a plunge router before an attentive audience at a past Highland Hardware seminar. Mr. Frid returns to Atlanta for a workshop on Building Solid Wood Cabinets March 31-April 2. See page 3 for details.

Router Jigs & Techniques

By Patrick Spielman. It might be impossible to recommend this book too highly. Spielman has outdone himself in producing a volume so informative, creative and up-to-date that anyone using a router at any level of skill and experience stands to pick up dozens of new ideas and techniques. There's a clear and much-needed chapter on bit quality which will help you avoid expensive shopping mistakes, and



there's a long chapter on the current crop of new and special-purpose bits, many of which didn't exist much more than a year ago. There's a thorough review of commercially available aids and devices, including mortise & tenon, dowel-making and dovetail jigs, and router tables.

But best of all are the more than 100 pages of shop-built jigs, fixtures, and useful gizmos. There are special-purpose bases, edge guides, circle- and oval-cutting jigs, joinery jigs, and jigs for carving letters and signs. There's a section on vacuum pumps and chucks and templates used with them. And then there's "the ultimate router table", with complete plans for building a stout and functional router table with several fences for different

purposes. There are attachments for a horizontal jointmaker and a couple of vacuum-chucking devices, an overarm router that tilts and swings and a pin-routing attachment.

In all, there's never before been this much information on routers and their uses gathered in one place. For the novice, it's practically unfair to be able to learn so much so easily. And for any router user, this book will pay for itself many times over in ideas, time saving, and satisfaction. 377 pages. Paperback.

Router Jigs & Techniques, \$14.95 + shipping.

Router Handbook

By Patrick Spielman. The author has put together a thoughtful, thorough and very useful study which will aid those thousands of router owners who grow tired of re-inventing the wheel for every new job. Besides thoroughly covering router basics, Spielman studies a number of specific operations and techniques, covering template and freehand work, joinery and surface routing, laminate trimming and



several ways of making dovetails. One of our most popular woodworking books. Highly recommended. 224 pages. Paperback.

Router Handbook, \$10.95 + shipping.

Scroll Saw Puzzle Patterns

By Patrick and Patricia Spielman. The latest in the Spielmans' astonishing production of useful literature is 248 pages of tips, techniques, illustrations, ideas, patterns and puzzles for the scroll saw enthusiast. In fact, there are so many clever ideas and thoughtful observations that we should caution you



against exposing this book to impressionable youths or obsessive spouses, lest they disappear into the workshop forever. There are nearly 100 full-size patterns for jigsaw puzzles, stand-up puzzles, inlay puzzles, and geometric brain-teasers. There's an 8-page section of color photos with great ideas for painting, framing and decorating your work. If you enjoy making entertaining games and puzzles for kids, grandkids, or your very own self, we commend this new sourcebook to your attention and delight. Paperback.

Scroll Saw Puzzle Patterns, \$12.95 + shipping.



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