

GENERAL SAFETY RULES – Warning! Failure to follow these rules may result in serious personal injury.

- 1 FOR YOUR OWN SAFETY, READ THE MANUAL BEFORE OPERATING THE TOOL.** Learn the machine's application and limitations plus the specific hazards peculiar to it.
- 2 ALWAYS USE SAFETY GLASSES – FULL FACEMASK strongly recommended.** Safety glasses (must comply with ANSI STANDARD Z87.1 USA) Everyday eye glasses usually are only impact resistant; they are not safety glasses. Also use face or dust mask if cutting operation is dusty.
- 3. WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewellery, which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
- 4. USE EAR PROTECTORS.** Use earmuffs for extended period of operation. Use muffs rated to 103 DBA LEQ (8 hr).
- 5. DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.
- 6. KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents. Build up of sawdust is a fire hazard.
- 7. KEEP CHILDREN AND VISITORS AWAY.** All children, infirm and visitors should be kept a safe distance from work area.
- 8. MAKE WORKSHOP CHILDPROOF** with locks, master switches, or by removing starter keys.
- 9. GROUND ALL TOOLS.** If the tool is equipped with a three-prong plug, it should be plugged into a three hole electrical receptacle. If an adapter is used to accommodate a two-prong receptacle, the adapter lug must be attached to a known ground. Never remove the third prong.
- 10. MAKE SURE TOOL IS DISCONNECTED FROM POWER SUPPLY** while the motor is being mounted, connected or reconnected.
- 11. DISCONNECT TOOLS from wall socket** before servicing and when changing accessories such as blades, bits, cutters and fuses etc.
- 12. AVOID ACCIDENTAL STARTING.** Make sure switch is in the Off position before plugging in power cord.
- 13. NEVER LEAVE MACHINE RUNNING UNATTENDED.** Do not leave tool unless it is turned off and has come to a complete stop.
- 14. KEEP GUARDS IN PLACE** and in working order.
- 15. USE RIGHT TOOL.** Do not use a tool or attachment to do a job for which it was not designed.
- 16. USE RECOMMENDED ACCESSORIES.** The use of improper accessories may cause hazards.
- 17. DON'T FORCE TOOL.** It will do the job better and be safer at the rate for which it was designed.
- 18. MAINTAIN TOOLS IN TOP CONDITION.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 19. NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
- 20. REMOVE ADJUSTING KEYS AND WRENCHES.** Form a habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
- 21. DON'T OVERREACH.** Keep proper footing and balance at all times.
- 22. DIRECTION OF FEED.** Feed work into a blade or cutter against the direction of rotation or the blade or cutter only.
- 23. ATTENTION TO WORK.** Concentrate on your work. If you become tired or frustrated, leave it for awhile and rest.
- 24. SECURE WORK.** Use clamps or a vice to hold work when practical. It's safer than using your hand and frees both hands to operate tool.
- 25. CHECK DAMAGED PARTS.** Before further use of the tool, any part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, mounting, and any other conditions that may affect its operation. Any damaged part should be properly repaired or replaced.
- 26. DRUGS, ALCOHOL, MEDICATION.** Do not operate tool while under the influence of drugs, alcohol or any medication.
- 27. DUST WARNING.** The dust generated by certain woods and wood products can be harmful to your health. Always operate machinery in well ventilated areas and provide for proper dust removal. Use wood dust collection systems whenever possible.

WARRANTY TERMS

We are committed to our products and customers and guarantee our tools against faulty workmanship and faulty materials for twelve months. Fair wear and tear excluded. We will replace or repair any tool returned to the supplier or factory free of charge. Freight too and from the factory will be at the expense of the purchaser.

Woodcut 2000 Ltd. P.O.BOX 342 Matamata New Zealand
Phone + 64 (07) 888 7474 Fax + 64 (07) 888 7174
e-mail woodcut@xtra.co.nz web-site www.woodcut-tools.com



Tru-Grind

Tool Sharpening System NZ Patent Appl. No. 521080



Hi folks, I'm Ken Port, tool designer for Woodcut Tools. I'm here to introduce you to our new TruGrind Patented Sharpening system.

The Woodcut **TruGrind** sharpening system has two unique new features, that will enable you to sharpen all your tools, with only one sharpening jig.

The good news is that our TruGrind system will only cost you about the price of a good woodturning gouge.

Bowl gouges, fingernail gouges, scrapers, skew chisels, parting tools, you name it. The TruGrind system will do a great job for you.

Woodcut Tools is a family business, and if you wish to talk to us personally, we are only as far away as a phone call, e-mail or even a visit to our store down here in New Zealand.

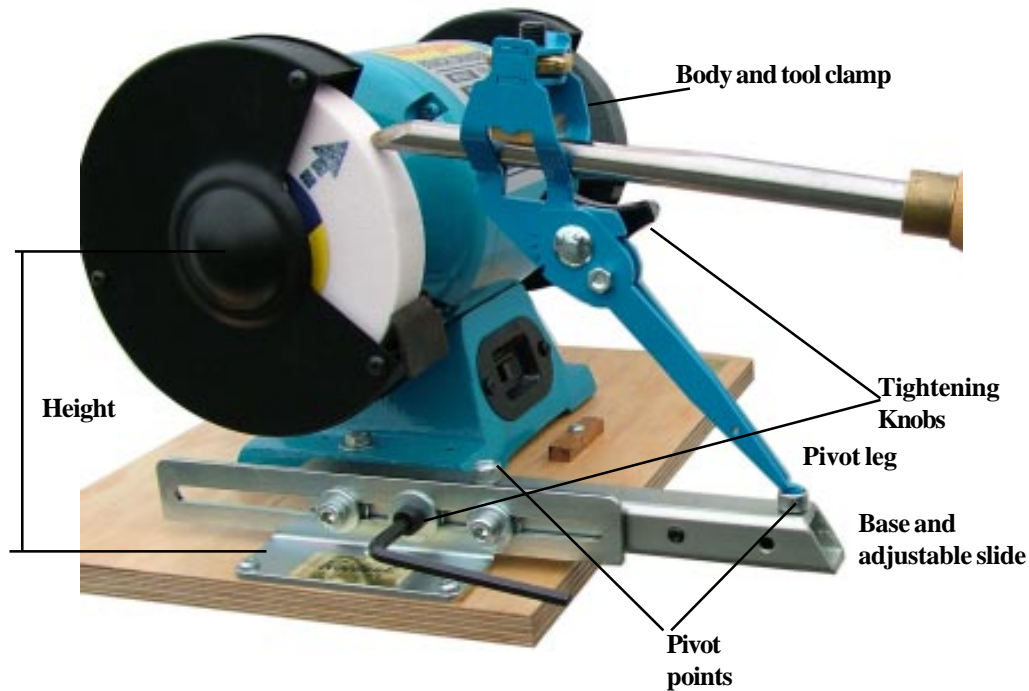
If you wish to buy any of our products, you may contact our Resellers listed or visit our online shop and website, view all our other products that we produce and make a purchase through our secure server.

Woodcut 2000 Ltd. P.O.BOX 342 Matamata New Zealand
Phone + 64 (07) 888 7474 Fax + 64 (07) 888 7174
e-mail woodcut@xtra.co.nz web-site woodcut-tools.com

INSTRUCTIONS ON THE USE OF THE WOODCUT TRUGRIND SYSTEM

Page 2

Your Woodcut grinding system is designed to provide wood turners with a device which enables them to grind perfect bevels on deep and shallow gouges, roughing gouges and skewers and scrapers. Once the grinding fixture is setup as described, grinding a perfect bevel on a tool takes but a couple of minutes. You can then savor the joy of turning with a really sharp tool. The hollow ground bevel will also give you the ability to hone the edge easily and get it really, really sharp. Such a truly sharp tool will enable you to turn wood to a finish so smooth that the end grain requires no sanding, even on Douglas Fir and redwood.



The foregoing sketch shows the principal features of the grinding fixture and its relationship to the grinding wheel. The basic dimensions are for the setup I use for grinding a deep gouge and are intended to be used as a guide to setting up your grinding fixture. More on that a little later.

Principles of the grinding system

Before going on to describe the use of the fixture, I would like to discuss the principle of its operation. By clamping a gouge to the fixture, the tool is kept from rotating about its long axis and it is set at a predetermined fixed angle relative to the centreline of the long bar. The distance from the pivot point to the tip of the gouge is also fixed. Thus when the pivot at the bottom of the fixture enters the conical bearing, the gouge bevel is located precisely with respect to the face of the grinding wheel. As long as the pivot point remains in the same position relative to grinder, the bevel will touch the grinding wheel face exactly the same way each time the tool is applied to the grinding wheel and grinding a single facet bevel becomes easy. The fixture can be removed from the pivot for inspection of the bevel and returned for additional grinding without the fear that another facet will be added to the bevel face.

When the fixture is rotated about the fixed pivot point 70-80 degrees in each direction, the angle between the bevel of the mounted gouge and the grinding wheel face changes. This is an important design feature of the fixture. In this way the nose angle can be made to be different from the angle to which the sides are ground. The ability to change from one angle on the nose to another angle on the side is critical to grinding deep bowl gouges with an Ellsworth, or Liam O'Neill style bevel. See Figure 7

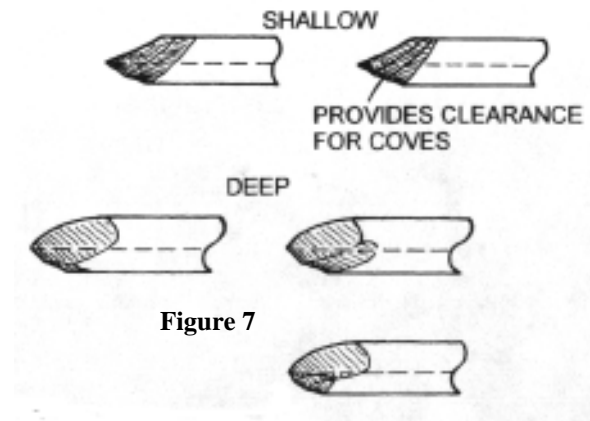


Figure 7

Setting up your TruGrind sharpening system

Open the box and identify all the parts, the **base** and **adjustable slide**, the **body** with the **adjustable clamp** and the **pivot leg**.

Watch the video first then to set up the unit on a wooden base you will need a screwdriver, square, pencil and a ruler to do the job.

Before you set up the TruGrind jig, it is important that your grinder is at a comfortable height. We recommend the centre of the grinding wheel to be approximately the same height as the centre of your lathe. Mount your grinder on a flat bench or table and make sure it is secure and check the height to the center of the wheel. (see drawing)

Next set your TruGrind base unit underneath the grinder and align the pivot points as per the diagram.

It is important to get the pivot points as close as possible to the center of the grinding wheel. Once you have achieved this, mark and drill the holes for the Mounting base and affix the screws firmly.

Check you have a grinding wheel suitable for sharpening tool steel. We recommend a white WA 80 aluminum oxide wheel. (Pic of grinding wheel)

You may have to remove the manufacturers tool rest from the grinder if this gets in the road of the TruGrind system. (Show removal)

Wheel dressing

To keep your grinding wheel in excellent order, cleaning your grinding wheel is very important.

See the detailed instruction on page 12.

Tool type	Pivot leg angle	Comments
Bowl gouge (std)	1-2	pivot leg aprox parallel with tool shaft
Bowl gouge (Ellsworth grind)	3-4	Leg well forward
Spindle Gouge	3-4	Leg well forward

DRILL SHARPENING:

Drills and other cutting tools can be sharpened using the versatile Tru-Grind system. Fit the drill into the toolholder with the cutting flutes vertical as per Fig 1 and protruding out a measured distance as per Fig 2. Adjust the flute angle as shown in Fig 3 (should be 59-60 deg included angle) Start your grinder and grind until sharp using the side of the wheel. Turn the drill around 180 deg as Fig 1 until the unsharpened flute is down. The protruding distance must remain the same each time you grind a flute. Grind the other side until sharp.

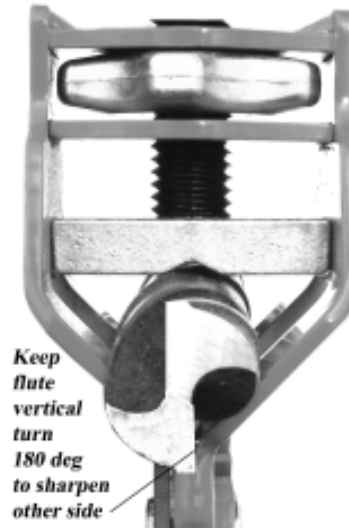


Fig 1



Fig 2

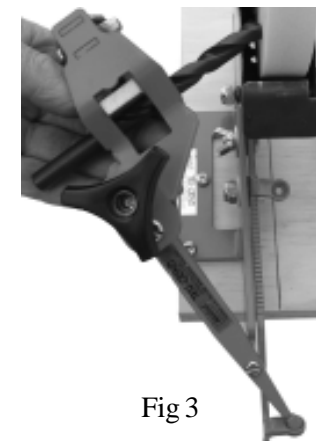
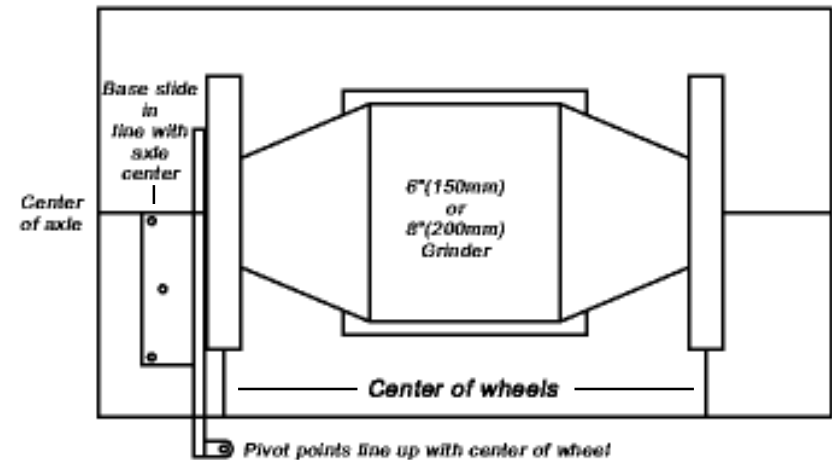


Fig 3

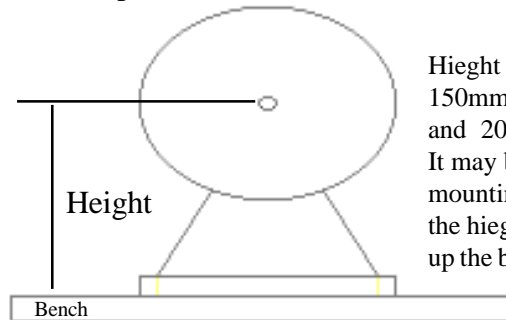
The base slide is made to fit on either side of the grinder for one of two reasons.

- a) You prefer to use the right hand side in preference to the left hand mount as assembled in the factory.
- b) You wish to have a finer finishing wheel on the right hand side to use to get the keener edge required by the professional turner.

To achieve this simply take the assembly apart and re-assemble as the drawing below illustrates. Then mount the RH slide under the wheel in the same manner as the left hand slide making sure that the pivot points are in line with the center of the wheel.



Set up on a board as above with center of pivots in the center of the wheel



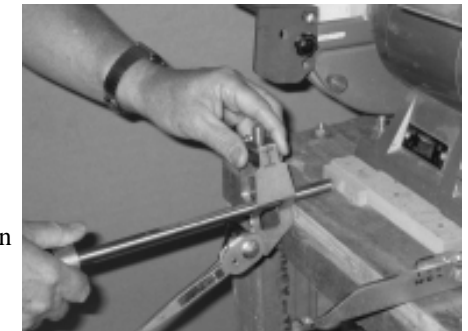
Height from bench to center of wheel should be 150mm - 160mm (6-6-1/2") for both a 150mm (6") and 200mm (8") grinders. It may be necessary to place a packer under the mounting base of the grinder or the base slide to get the height right, or alternatively you may have to pack up the base slide on some 200mm (8") grinders.



WA 80 grit wheel

The **ultimate sharpening center** will incorporate a base under each wheel, one for shaping (using a 60 grit wheel) and one on the other side for finishing (using a 120 grit wheel). *An extra Base slide can be purchased by itself for this purpose.*

A wooden block can be screwed to the bench for adjusting tool protrusion



“Before you start grinding” re- shape tools first if out of shape see page 11 for details (very important)

Grinding grit can damage your eyesight make sure you are wearing **approved safety glasses** before starting your grinder. I will start by explaining **bowl gouge** sharpening, with a standard, Traditional type grind.

Fit the bowl gouge into the clamp unit of the body, adjust it down so it is firm. If the gouge won't align true then insert the small rod (see fig 7a) under the clamp block “V” and into the flute of the gouge and tighten as normal. We suggest approximately 2 inches or 50mm of tool protruding from the front of the body. Next adjust the pivot leg until it is parallel with the handle of the bowl gouge. Fit the pivot leg into the rear pivot position on the base slide. Move the slide in or out until the correct bevel angle is achieved between the grinding wheel and the gouge. This angle can be checked with a Woodcut Trigauge available on our website.

Hold the TruGrind system comfortably in your hands, apply to the grinding wheel and rotate from side to side. Recheck your angle. Now continue to grind until you have a sharp edge. With this system you may grind all of the gouge at one time or you may grind the sides or the nose or whatever area you need to. When reshaping a badly ground gouge, work on the sides only until they are correct and then blend the nose to match.

It is important that the pivot leg angle is the same is the same every time. So once you have decided on a the angle mark it on the handle of the tool for next time. It is important to stick to the same measurement to get a consistent regrind.

Skew Chisel

Place your skew chisel into the Tru-Grind body as per the photo and clamp it down tight. Put the pivot leg into the rear base pivot position and lay the body on its side. Adjust the angle of the skew chisel until it is horizontal with the grinders shaft. Then lay it on the wheel and adjust your bevel angle so it is snug on the wheel. Move the skew from side to side until the first edge is sharp flip over and repeat on the other side.



O,Neil grind



Scraper tools



Couple up the Tru-grind with the Sturdy rest attachment and you can do a number of operations with ease.





"STURDY REST" Attachment to slide base.



The answer to the problem of flimsy and difficult to adjust grinder tool rests. Woodcut's STURDY REST is made from thick plate steel to eliminate flexing and can be easily mounted underneath your standard bench grinder.



Sturdy Rest & Slide (above) Code SRS-LH
SRS-RH

When not in use or when using the Tru-grind toolholder the STURDY REST swings down out of the way to allow easy access to the grinding wheel.



The system incorporates two pivot points for use with our Tru-grind toolholder to shape an sharpen all Woodturning and wood Carving tools.



Pivot arm assembly Code PVS-LH
PVS-RH



The **ultimate sharpening center** will incorporate a base under each wheel, one for shaping (using a 60 grit wheel) and one on the other side for finishing (using a 120 grit wheel). An extra Base slide can be purchased by itself for this purpose.

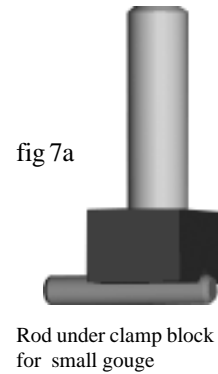
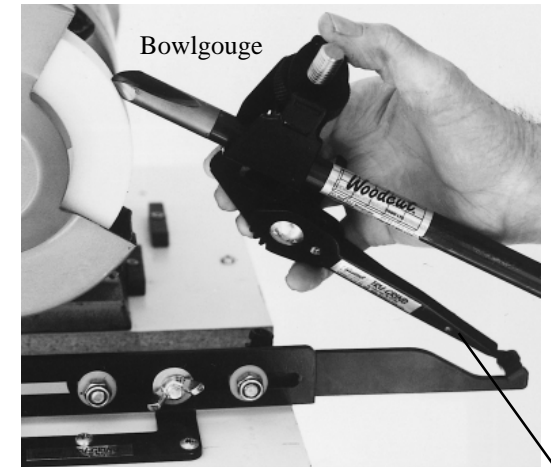


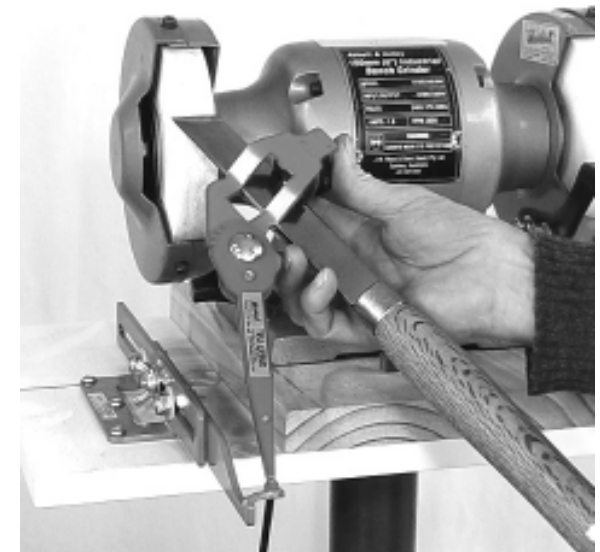
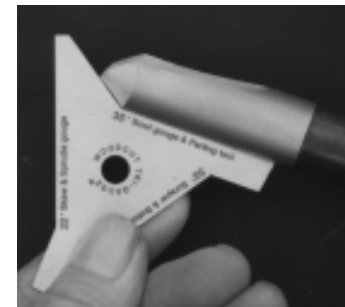
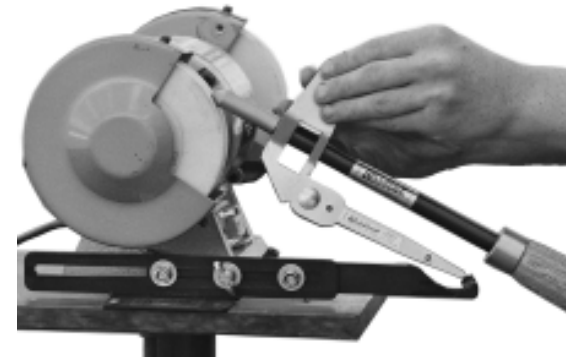
fig 7a

Rod under clamp block for small gouge



Bowlgouge

Pivot leg parallel with tool shaft



Next the fingernail gouge or spindle gouge.

With these types of tools it is necessary to draw back the ears or sides of the gouge quite considerably further than the traditional grind.

To achieve this we need to move the pivot leg forward in a clockwise motion, the further forward you go the more the ears or sides will be drawn back.

You must decide your preference.

Experiment with an older gouge first if you are new to this type of grind.

You will notice that there are graduations on the pivot leg. Take note of the graduation that suits the grind you are comfortable with. This can be noted on the wooden handle of the gouge to help you repeat the same grind next time.

Parting Tool

Place the tool in the TruGrind holder and clamp at the same distance out as before. Next lay the tool on the wheel and adjust the pivot leg until the bevel angle is correct. Move the tool from side to side until a sharp edge is achieved. Flip tool over and repeat the procedure.

Scraper

Place the scraper in the holder protruding as before and clamp tight.

Next move the pivot leg forward until it is level with the nose of the scraper. Place the pivot leg into the forward base pivot position. Move the base slide in or out to adjust. Adjust the bevel angle as required (Generally around 55 deg).

Apply the scraper to the wheel and rotate until your preferred shape is achieved.

Most suppliers of turning tools and accessories carry regular aluminium oxide grinding wheels suitable for casual tool sharpening. The diamond dresser will restore the wheel to a round shape and eliminate the cause of tool bounce and vibration.

The wheel I am using started out at 8" dia. and is now just below 7" dia. after nine months of use, and grinding 500 or so tools. The wheel runs at 3000 rpm. By grinding carefully and feeling the tool, I can usually tell when to back off and dip the tool into a can of water. If the tool turns blue and if it's made of high speed steel (HSS), it's not the end of the world! All the tools I make are made of tool steel which are triple tempered at 1000 degrees F. after hardening at 2000 degrees F. and will not lose their hardness by grinding.

WA 80 grit wheel



All of the bevels ground with the fixture are hollow ground and lend themselves to honing with regular stones or a small diamond hone, such as a fine or very fine EZELAP. The EZELAP works very quickly to produce a sharp edge. It can be used until the hollow grind is reduced in size. A hollow grind 1/4" wide and made by a 6" diameter wheel is 0.0026" deep, and with an 8" diameter wheel is 0.0019" deep.

By contacting the heel and the edge with the hone, it is easy to produce an evenly honed edge. Since the sharpness of an edge depends on the smoothness of two surfaces, the honed bevel and the flute, it's necessary to hone the flute with a slipstone. The slipstone should lay flat against the flute. Don't be tempted to use the slipstone too aggressively near the edge causing a rounding-over and increasing the included angle between the bevel and the flute. A well honed edge will cut cleaner and faster than one just off a grinding wheel. Using a hone can also extend the period between grinds considerably. A hand ground bevel with its many facets and no clearly defined edge/heel geometry is, obviously, much more difficult to hone properly. It should be pointed out that the grinding fixture can be used to grind asymmetrical edges with great control. Thus a bevel can be easily produced where the left side is ground one shape for inside turning, and the right side is ground for outside work.

Care & Maintenance:

Your Tru-grind system and your grinding wheels need regular care and maintenance to get the best from them. If you think of your set-up as a tool sharpening centre and treat it as an important part of your workshop equipment then you will find that the new attitude will flow through to the tool cutting area at the lathe or wood carving area.

Really sharp tools cut the wood cleanly and efficiently and leave you with less time spent on sanding and general cleanup. To achieve this first address the set-up, (as outlined in the video) then the condition of the grinding wheels, followed by the shape and sharpness of the tools themselves.

We have designed a T Bar wheel dresser (pictured below) to help you, this accessory will safely and easily true and dress the grinding wheel for you. When a new wheel is fitted it must first be carefully trued so it runs smoothly then periodically cleaned (dressed) each time it gets dirty or dull using the T Bar dresser. If the wheel gets dull it will cause friction and overheat the tools causing them to go blue and burn. We suggest that you also keep a tin of water handy and dip the tools into it frequently during grinding.

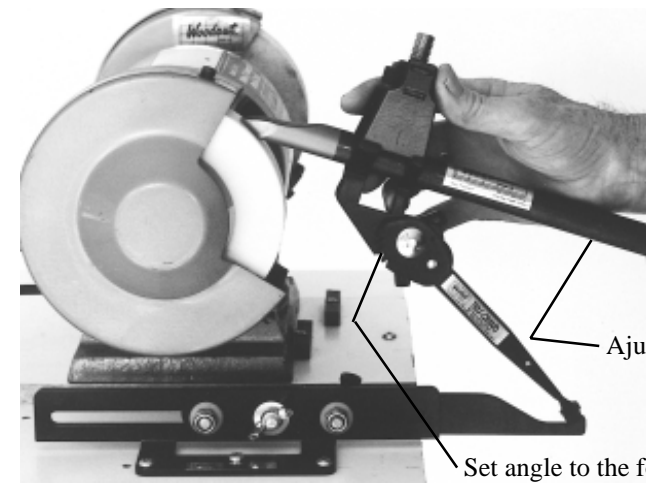
Maintenance of your Tru-Grind is minimal but important. Grinding grit will work its way down into the base slide and cause binding. The simplest way to clean this is with a compressed air gun by blowing the grit away. Alternatively dismantle the slide from time to time and clean with a cloth and re-assemble.

Apart from these simple considerations no further maintenance will be required. Any spare parts can be supplied direct from the factory.

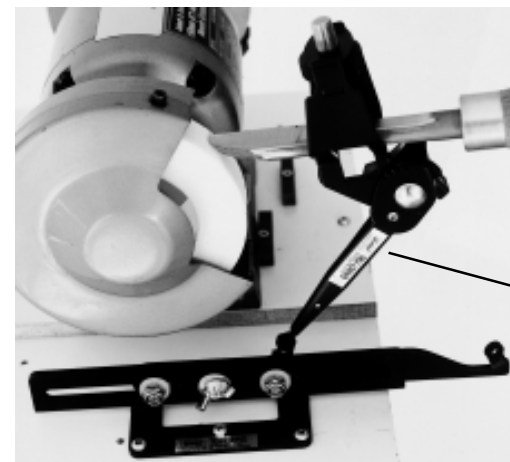


Great Grinding Wheel Dresser.

If grinding wheels are not frequently trued and dressed (cleaned) they will overheat and burn the tools. Woodcut designed this diamond dresser for use in their own tool factory. The T-Bar dresser covers the complete wheel face to give you an even flat surface everytime.



Set angle to the following notch settings:
Bowl gouges: notch 1-3
Spindle gouges: notch 3-4



Move the pivot leg as far forward as it will go

Fig 9a

Excerpts from Jerry Glasser manual (by permission)

To set the fixture to grind a deep gouge, the deep gouge end of the tool is clamped to the body and the pivot leg is rotated to 35 degrees (23 degrees for a shallow gouge) as shown in Figure 1. The base slide adjustment is then adjusted so that the tip of the setup tool contacts the grinding wheel with the bevel matching the contour of the wheel. During this initial setup the grinder is not turned on! . At this point the setup tool bevel should be close to conforming to the contour of the grinding wheel face, indicating that the fixture is properly adjusted. The same procedure is used to prepare the fixture for grinding the shallow gouge. A little experimentation may be necessary to adjust the fixture to grind your gouge to your exact needs.

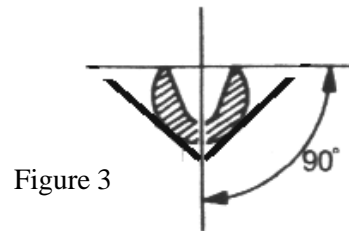


Figure 3

Just remember that the angle of the body, the distance of the pivot point from the face of the wheel and the base slide are interdependent. Changing one may require adjustment of the other two variables. Once you've achieved the right grind for your tool, record that setting in the back of this booklet, or some other convenient location for future reference and faster setup. The grinding of a gouge usually involves two steps: the initial shaping and the subsequent resharping. New gouges come as square cut blanks or with a "factory" ground edge which normally requires reshaping.

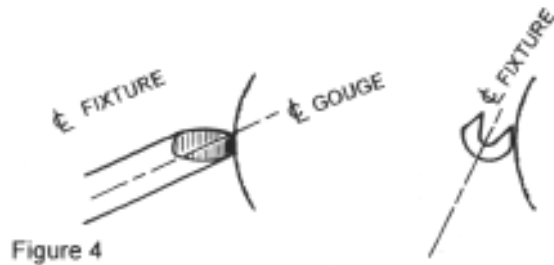


Figure 4

The setup for grinding roughing gouges requires rotating the pivot leg until parallel to the gouge handle, as with the standard bowl gouge.

With the advent of the grinding fixture, I grind all gouges to a sharp edge before shipping Page 11 them. By now I've ground at least 800 gouges and I think I've gotten pretty good at it. I'd like to pass along the procedure I use.

To grind a symmetrical bevel on a deep or shallow gouge, I start by grinding the tip of the gouge to establish the desired profile. As an example, if a long bevel along the style of an Ellsworth or Liam O'Neill is desired, these are the steps:

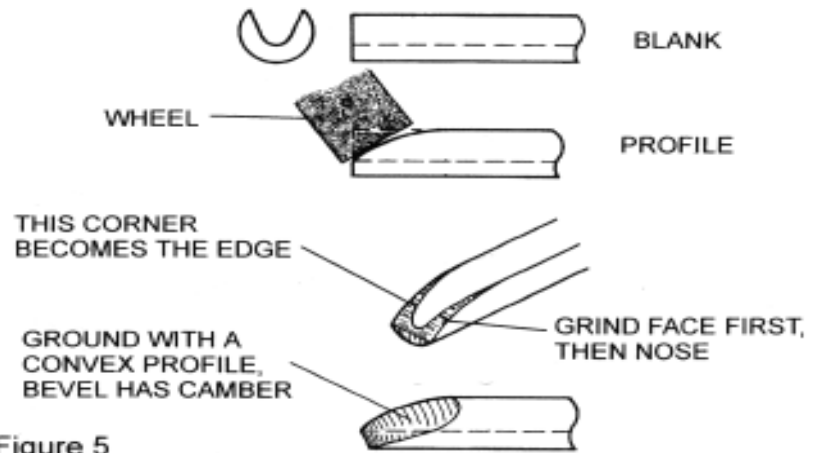


Figure 5

I grind the profile on the face of the wheel with the body of the gouge horizontal. Both lips are ground at the same time and are checked several times for symmetry. I find that I have to bias the force on the gouge and press harder on the upper portion to maintain symmetry. Otherwise, I would make the lower lip longer than intended. The profiled blade is convex in the side view. After the profile is established, I start by grinding the two side bevels and when they are finished, I grind the nose. Grinding the nose has to be done carefully since it is easy to remove too much metal from the nose very quickly. It will take several grinding sessions to become accustomed to using the grinding fixture.

I am able to grind a 5/8" diameter gouge from a blank to a sharp edge in five-six minutes. Regrinding can be done in much less time depending upon the care used in re-establishing the several settings. I should note here that a better finish on the bevel can be obtained by redressing the wheel with a multi-stone diamond dresser. The wheel becomes less aggressive and a 80 grit wheel grinds as though it were a 100 grit one. If the wheel is used just to touch up edges, this is the way to go.