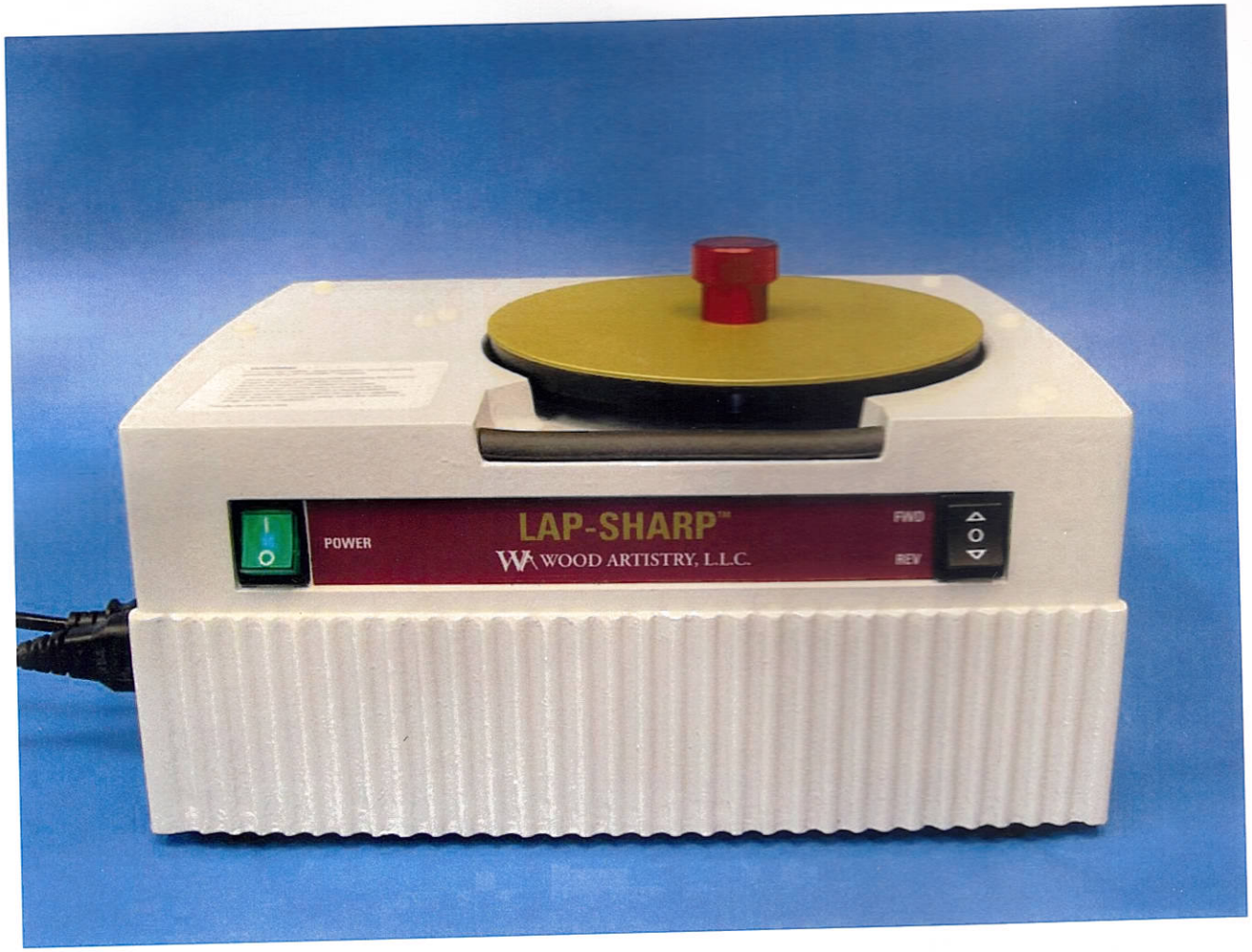
LAP-SHARP™ - Model LS-200

Instruction Manual



Wood Artistry, L.L.C.

7724 Bell Road, Windsor, CA 95492 Tel. (707) 838-1976 Website: www.woodartistry.com

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Revision		
Rev. 3.0	February, 2005	Release 1.0

Manual Updates
Please check our website for the latest changes and additions to the manual.
www.woodartistry.com/manual/updates

A Word to the New User

Introduction

Congratulations on your purchase of the Lap-Sharp™ LS-200 sharpening system by Wood Artistry L.L.C. With proper care and use, this product will provide you with years of excellent performance.

The Lap-Sharp™ is designed to sharpen or hone beveled edge tools, turning tools, carving tools, and scrapers with a flat surface (rather than hollow grind), using slow rotational speed to improve operator control and reduce heat generated from friction.

It may also be used for other purposes, including finish sanding, polishing, sanding glass, or surfacing small objects made from a wide variety of materials.

Benefits of the Lap-Sharp™

This machine will sharpen a tool to an extremely fine edge, superior to that achieved on an 8000 grit waterstone. It generates little friction heat, as compared to higher speed grinders. Heat can damage a tool's temper.

You save time, as the sharpening is performed quickly, reducing the manual labor necessary with traditional sharpening stones. The Lap-Sharp™ sharpening process will reveal and correct errors generated from previous sharpening, such as a rounded bevel edge.

Construction

Quality materials have been used in the construction of the Lap-Sharp™ to give the user the highest quality level of performance over the life of the machine.

Abuse of the machine or inappropriate use in applications for which the machine has not been designed will void the warranty.

Safety

For your safety, please take time to read the entire manual to learn the proper, efficient, and safe use of this machine.

The user should be experienced with the use of machine tools and must observe all common safety practices, including the use of eye protection, when operating the Lap-Sharp™.

Always wear eye protection while operating this machine.
Always feed tool WITH rotation of machine, not pointed against rotation.
Never place fingers under turntable or top plate.
Keep hands and clothing away from rotating disc.
Always maintain control of tools to avoid kickback.
Always disconnect power before servicing or adjusting.

90 Day Limited Warranty

The Wood Artistry L.L.C. Lap-Sharp™ LS-200 is warranted to be free from defects in material and workmanship under normal use for a period of ninety (90) days from the date of purchase.

To extend the warranty, return the warranty registration card along with a copy of the original receipt of purchase to:

Wood Artistry L.L.C.
7724 Bell Road
Windsor, CA 95492

Two Year Limited Warranty

The extended warranty for the Wood Artistry L.L.C. LS-200 product is two (2) years from the date of purchase. During the warranty period, any Lap-Sharp™ component exhibiting a defect in material and/or workmanship will be repaired or replaced, at our option, without charge for either parts or labor, at our factory. The warranty does not apply to any component that has been misused, abused, or altered in any way.

Any defective component may be returned to the factory for evaluation and determination of warranty repair status. The factory will pay for return shipping charges if the component is found to be defective.

To obtain a Return Authorization form call, write, or email your request to the factory:

Wood Artistry, L.L.C.
7724 Bell Road
Windsor, CA 95492

Phone: (707) 838-1976
Fax: (707) 837-8075
email: support@woodartistry.com

There is no other express warranty on this product. Neither this warranty nor any other warranty, expressed or implied, including any implied warranties of merchantability or fitness, shall extend beyond the warranty period. No responsibility is assumed for any incidental or consequential damages.

This warranty is applicable in the United States and Canada only.

Outside of the U.S. and Canada, please contact your local authorized Wood Artistry, L.L.C. distributor, for warranty and service information.

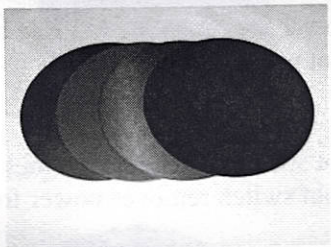
Table of Contents

Machine Overview and Setup

LS-200

The Lap-Sharp™ LS-200 is designed to sharpen or hone beveled edge tools with a flat surface (rather than hollow grind), using slow rotational speed, foot switch activation for improved operator control, and reduced heat generated from friction.

It may also be used for other purposes, including finish sanding, polishing, sanding glass, or surfacing small objects made from a wide variety of materials.



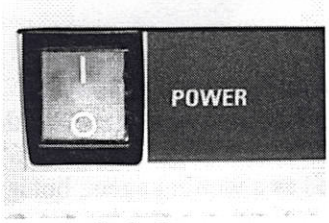
Interchangeable Color-Coded Discs (Std. Set)

The Lap-Sharp™ uses a motor driven turntable and interchangeable discs with Pressure Sensitive Adhesive (PSA) backing of an abrasive material that is used to hone a sharp edge on a bevel edge tool.

The disc plates are color anodized, so abrasive material should not be rubbed against the disc. Take care to ensure the disc plates are not damaged, dented, or bent. The evenness or uniformity of the interchangeable disc plate surface is key to proper operation of the Lap-Sharp™ sharpening process.

Disc Securing Knob

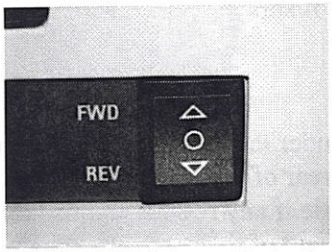
A disc securing knob holds the interchangeable discs to the turntable. Unscrew the knob to remove a disc and tighten the knob clockwise to secure after installing another interchangeable disc.



Power Switch

A lighted two-position power switch enables electrical power to the motor through the included foot switch. The switch will illuminate when the power is turned ON.

This master power switch supplies power to the foot switch connection, so the machine will operate only when the foot pedal is depressed.

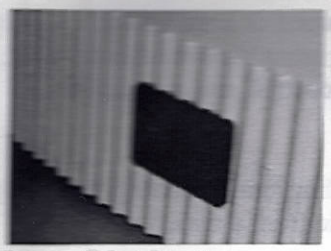


Forward-Reverse Switch

A three-position switch (forward, off, and reverse) is used to change rotation of the turntable. Use the forward direction for all single bevel edge tools. Use the reverse direction for sharpening tools that have double bevel edges, such as knives. The reverse rotation feature is NOT used in normal operation when sharpening standard chisels or plane blades.

Warning: Always set the machine rotation to turn away from a blade edge, or serious injury to the operator or damage to the machine may occur.

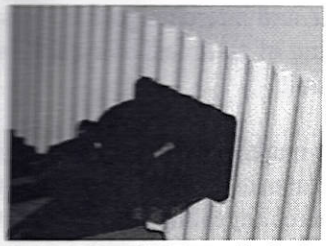
Caution: The Turntable must be stopped prior to switching rotation. Failure to do so may damage the motor.



Power Distribution

The power connector and foot switch wiring are connected to the distribution connector on the left side of the machine (viewed from the front).

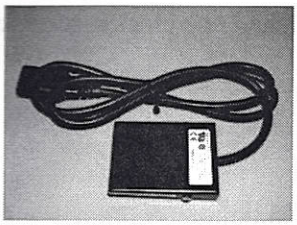
Verify the machine is set for the correct line voltage. The voltage label on the machine will identify the proper voltage that the machine is wired to operate (120VAC 60 Hz, or 230VAC 50Hz or 60 Hz).



Right Plug is Foot Switch Connection

Firmly insert the power cord into the male power socket on the left side of the power distribution connector. Plug the foot pedal into the female connector, next to the male power connector.

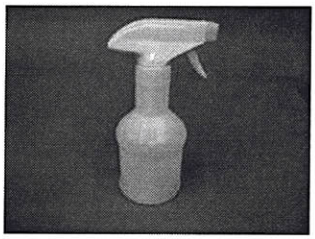
With the power switch "ON", depress the foot switch to activate the motor, causing the turnable to turn. Releasing the foot switch removes power from the motor, stopping the turntable.



Footswitch

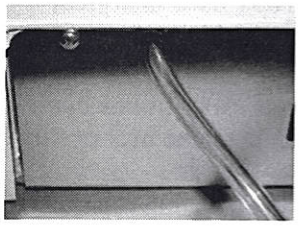
The footswitch enables the user to start and stop the machine, while permitting the use of both hands to control the positioning of the tool to be sharpened or object to be sanded.

Warning – Never place a weight on the foot pedal to keep the machine on. This is hazardous to the operator and may cause damage to the motor.



Lubricant Spray Bottle

Spraying lubricant onto the abrasive surface reduces abrasive wear and supports cooling of the tool during the sharpening process. A spray bottle for lubricant is included with your machine. A satisfactory lubricant of water and a few drops of detergent can be used as a wetting agent, but a solution of water soluble oil (about a 50:1 mix) is preferred. This not only lubricates, but also leaves a very small amount of oil on the tool surface, thereby reducing oxidation. Just a few quirts of spray are needed per disc. Flooding of the abrasive is not necessary.

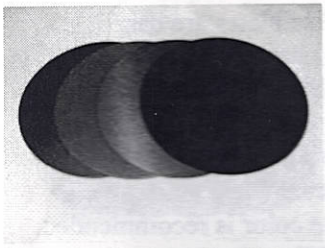


Lubricant Drain Hose

There is a drain for liquid lubricant located under the turntable. Liquid from the drain flows through a hose located at the rear of the machine. With normal spraying of lubricant, there will be little if any residue in this hose. For a continuous flow of lubricant, insert the end of the hose into a drain receptacle.

An optional splash guard may be used to retain the lubricant within the disc and drain area.

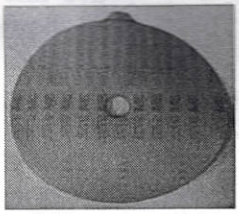
Abrasives Used with the Lap-Sharp™



Standard Abrasive Discs

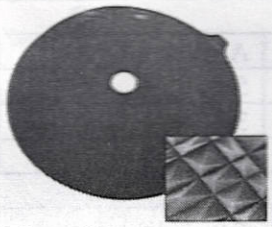
Lap-Sharp™ uses interchangeable discs of various abrasive grits, color-coded for your convenience. The abrasives used on the Lap-Sharp™ have been tested and selected to provide superior performance in sharpening steel tools.

The following paragraphs indicate the types of abrasives selected for use with the Lap-Sharp™ machine for sharpening steel tools.



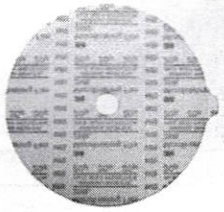
Regal™

Regal™ is a micron graded Cubitron™ mineral electrostatically oriented and resin bonded onto high strength polyester film. It is used for the initial coarse abrading of tools, as it is fast cutting. Regal™ is durable, has excellent grit consistency, and can be used wet or dry.



Trizact™

Trizact™ is a film consisting of microscopic pyramids containing micron graded Aluminum Oxide (available with film backing in 35µ, 20µ, 10µ, and 5µ). As the abrasive is used, the tops of the pyramids wear away, continually exposing fresh abrasive. This ensures a consistent cut rate and a long life of the Trizact™ film. Trizact™ will last longer than the standard Aluminum Oxide film. It should only be used with a lubricant such as water and a few drops of dish detergent or water soluble oil.

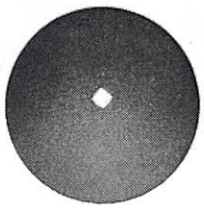


Aluminum Oxide Microfinishing Film

Aluminum Oxide Microfinishing film is an optional abrasive that can be used with the Lap-Sharp™. It has the excellent ability to cut hard steel. It has a fine consistency of grit size across its working surface, a film backing for providing a flat surface, and can be used wet or dry. It is available in finer grits than Regal™ abrasives, though is not as durable as Regal or Trizact. It is fast cutting and is useful in hand held sharpening of knives.

Diamond

For sharpening carbide edged blades, diamond discs are available in 120 and 220 ANSI mesh grades. These diamond discs are recommended for sharpening carbide edge tools only, and are not recommended for carbon steel blades. Diamond abrasives should be used with a continuous flow of lubricant.



CBN

Cubic Boron Nitrite (CBN) discs are available by special order. It is the preferred abrasive for cutting hard steel, when durability of the abrasive is a primary concern.

Interchangeable Abrasive Disc Colors

3M™ Color-code System

Abrasives grit sheets applied to colored interchangeable disc plates are based primarily upon the 3M™ color-code system. A reference chart (see below) suggests which grit abrasive is associated with which interchangeable disc color.

Some abrasive discs have a color printing on the adhesive side that will closely match the different colors of the interchangeable disc plates. Where color differences do exist, an alternate interchangeable disc plate color is recommended. This color coding system helps you quickly identify the different grits.

Abrasive Color Table

Standard Abrasives	Disc Plate Color	Abrasive Color	Abrasive Grade
Regal™ (972L)	Black	Jade	120µ
Regal™ (972L)	Brown	Jade	80µ
Trizact™	Light Green	Light Green	A35
Trizact™	Light Blue	Light Blue	10µ

Polishing Abrasives	Disc Plate Color	Abrasive Color	Abrasive Grade
Trizact™	Orange	Orange	5µ
A/O Polishing Paper	Pink	Pink	3µ
A/O Polishing Paper	Gold	White	1µ

Optional Additional Abrasives	Disc Plate Color	Abrasive Color	Abrasive Grade
Diamond	Black	Dark Maroon	120 mesh
Diamond	Brown	Dark Maroon	220 mesh
Regal (972L)	Dark Green	Jade	60µ
Trizact™	Red	Red	20µ
A/O Microfinishing Film	Brown	Brown	80µ
A/O Microfinishing Film	Dark Blue	Dark Blue	40µ
A/O Microfinishing Film	Red	Red	20µ
A/O Microfinishing FRE-CUT Film	Black	Tan	180µ
A/O Microfinishing FRE-CUT Film	Black	Tan	150µ
A/O Microfinishing FRE-CUT Film	Black	Tan	120µ

Best Abrasives

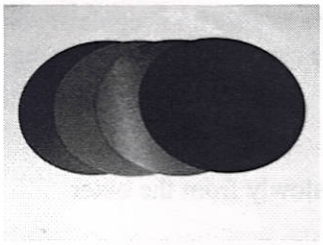
We recommend you use only the discs provided by Wood Artistry L.L.C. for achieving the superior performance level attainable with the Lap-Sharp™.

We tested a wide variety of steel tools with many different abrasives to verify that this selection of abrasives would perform to achieve high quality results. They have proven to have the highest grit consistency. Most have a thin film backing to ensure flatness, and will provide maximize abrasive life.

Abrasive Grit Size

See Abrasives Chart in Appendix A for more information on comparisons of various standards of grit size numbering systems.

Preparation of Abrasive Discs



Color-coded Abrasive Discs

The Lap-Sharp™ LS-200 uses interchangeable discs, color-coded for your convenience, on which you mount various abrasive grits. The abrasive discs have a Pressure Sensitive Adhesive (PSA) backing for easy attachment and removal/replacement on the interchangeable disc plates.

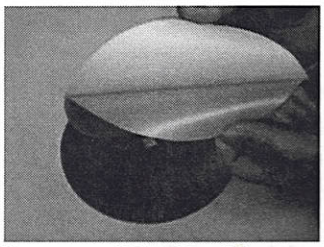
Use the Abrasive Color Chart on the previous page to select the appropriate disc plate for the abrasive grit disc.

Check that Disc Plate is Clean

Before you attach the PSA-backed abrasive grit, check to be sure the interchangeable disc plate is clean. Rub off any residue adhesive, or use Acetone (or a glue removing solvent) to clean any remaining adhesive from the surface of the disc plate.

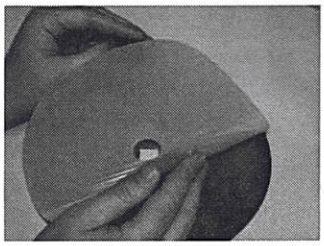
Note

Any contaminant or residue left on the surface of the interchangeable disc plate may cause an irregular bump in the surface of the mounted abrasive disc. Any such irregularity can cause a flaw in the surface of the object being abraded.



Remove PSA Backing

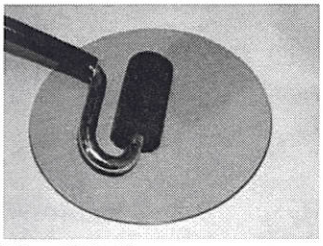
Remove the PSA backing paper. Hold the abrasive disc so that it has a convex curve as you apply it, with the adhesive side facing the disc plate.



Applying Abrasive Disc

Center the hole of the abrasive disc to align with the hole in the interchangeable disc plate.

Slowly apply the abrasive backing to the interchangeable disc, while rolling the curve out across the interchangeable disc plate, preventing air bubbles from being trapped between the abrasive film backing and the interchangeable disc plate. Roll out evenly across the entire surface.



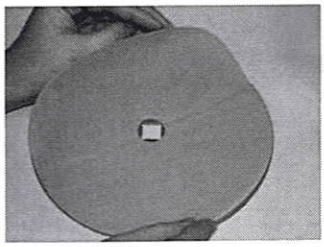
Use J-Roller

Recommended: Use a J-Roller to smooth out the surface of the abrasive disc over the interchangeable disc plate and remove any air bubbles.

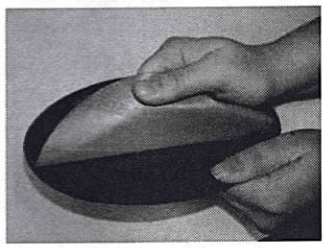
Preparation of Abrasive Discs (continued)

Note 

Air bubbles trapped between the two surfaces can cause an irregularity or bump on the abrasive surface and can affect the surface of the item being abraded.



To remove a worn abrasive disc, peel the disc slowly from the outer edge.



Removing an Abrasive Disc

A slow peeling will minimize the amount of adhesive left on the surface of the aluminum interchangeable disc.

Note 

After the abrasive grit material has been removed, rub off any residue adhesive with a finger (as is done with contact cement) or rag, or use Acetone (or other glue removing solvent) to clean any remaining adhesive from the surface of the disc plate.

Any contaminant or residue left on the surface of the interchangeable disc plate may cause an irregular bump in the surface of the mounted abrasive disc. Any such irregularity can cause a flaw in the surface of the object being abraded.

Basic Sharpening Process

Bevel Edged Angle Basics

To create a sharp edge as on a chisel or plane blade, a flat back edge must meet with a bevel edge at an angle, usually at 25 or 30 degrees. The finer the finish these two surfaces have where they meet, the sharper the edge will be. The exact choice of the angle is made by the user, based upon the application.

The Lap-Sharp ™ provides a flat grind, and due to the efficiency of its operation, the tool may not need a micro bevel.

Check the Machine

Be sure that the foot switch is plugged into the power distribution socket and that the master power switch is ON. The machine will operate only when the foot pedal is used to start and stop the rotating disc. This allows the user to easily position the tool prior to starting the rotation of the abrasive disc.

Lubricant Drain Hose

Position the drain hose in a loop if only a light spray of lubricant is used. A light spray will not cause liquid to drain into the hose during operation. Use the optional pump for a continuous flow of lubrication (recommended for diamond abrasives). The drain entry hole is beneath the turntable. Make sure the drain hose is clean and is positioned to drain into a container or sink when flushing the base for cleaning. Failure to do so may cause damage to the motor.

Check the Rotation

Verify the rotation of the disc before starting the sharpening process, to ensure rotation is away from the edge of the blade. Having the rotation toward the blade can be done with the tool held in a jig, but may allow a tip of the blade to catch or dig into the rotating abrasive or disc, creating a hazardous situation.

Safety Reminder

Note 

Observe all common safety practices, including the use of eye protection when operating the Lap-Sharp™.
Always feed tool with rotation of machine, never pointed against the rotation of the disc.
Do not operate the motor with excessive resistance applied to the abrasive disc or turntable.
Never place fingers under turntable or top plate.
Keep hands and clothing away from rotating disc.
Always maintain control of tools to avoid kickback.
Always disconnect power before servicing or adjusting.

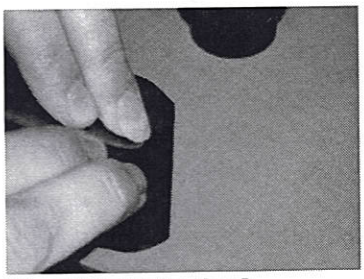
Warning!

Do not operate this machine while under the influence of drugs, alcohol, or medication.

Sharpening Operation

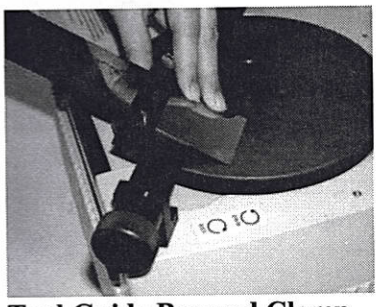
Starting the Sharpening Process

The Lap-Sharp™ may be used either freehand, with an optional tool guide bar, compound honing jig, or with other optional tool holding jigs. The surfacing of the flat side of a tool is performed freehand. Only the bevel edge may need the use of a guide to maintain the correct bevel angle while sharpening. Each of the operations is explained in the following pages.



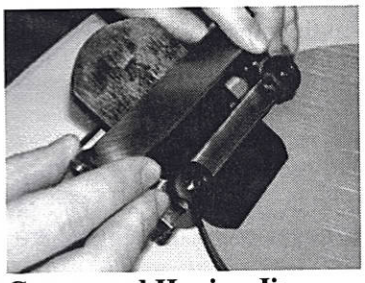
Hand Held Method

Tools with a large bevel surface area may be sharpened freehand.



Tool Guide Bar and Clamp

It is more difficult to maintain a consistent bevel angle during sharpening if the bevel surface area is small. The optional tool guide bar and tool clamp or the honing jig can be used for those applications.



Compound Honing Jig

An optional honing jig (PN 500-1000-01) may be used in lieu of the tool guide bar option, for precise angle sharpening of cutting tool bevels. This optional jig is designed for sharpening both Western and Japanese tools. It can be used with either the Lap-Sharp™ or with waterstones.

This jig is capable of holding tools at a wide range of angles, and is used for holding short chisels and Japanese chisels with either flat or ridged backs.

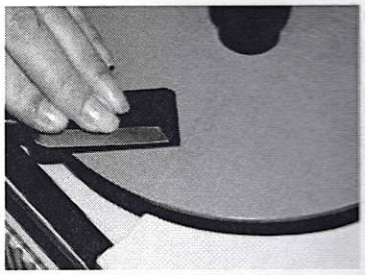
Sharpening Operation (continued)

Japanese Plane Iron Shown

Step 1. Select the abrasive disc to be used for the start of the abrading or sharpening process. You may need an 80µ or coarser abrasive for a tool that has not been previously sharpened or that has damage to the surface. If the tool has been previously flattened or there is a high polish finish, start with a finer abrasive. A few revolutions of abrasion will quickly show how much work is needed to establish a flat surface.

Note

Remember to lubricate the disc before use. A few sprays of water with either a few drops of dish detergent or water soluble oil is highly recommended and is required when using Trizact™ abrasives.

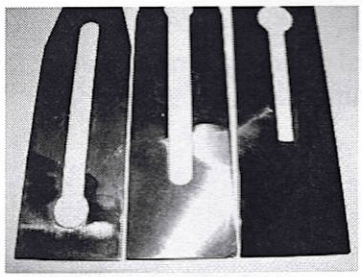


Keep Blade Flat on Abrasive

Step 2. Keep blade flat against the abrasive surface when flattening the back of the blade. Keep your fingers on the back of the blade and off the abrasive disc.

Once you have positioned the blade properly, depress the foot pedal to start the rotation of the disc. (Remember to lubricate the disc before use.) Apply pressure evenly, so as to abrade the back evenly. Uneven pressure can cause the leading edge to lose square. Be sure to apply sufficient pressure to narrow tools to prevent rocking of the tool.

Note: Move tools evenly across the surface of the abrasive, to make sure tracks are not created in the abrasive surface.



A B C

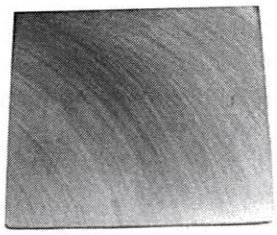
Western Style Plane Irons

Step 3. Check the blade after a few revolutions, to determine how much abrading is needed to establish a flat surface **(A)**. The scratches from the selected abrasive should be evenly distributed across the surface and to the leading edge **(B)**, before moving to the next finer grit size. Proceed to finer grits until the desired finish is achieved **(C)**.

The back of the blade is as important as the beveled edge. Without a smooth and flat back, the blade cannot have a sharp edge. The flatter and smoother the back of a plane iron or chisel is made, the better the edge that can be achieved.

If the flat side has a rounded edge or has surface grind marks (as many new tools have), you cannot attain a truly sharp edge. The Lap-Sharp™ allows you to achieve a flat and near mirror smooth finish, if desired.

Sharpening Operation (continued)

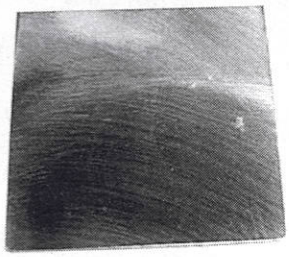


Plane Back at 80µ

Step 4. Check for scoring, pitting, burring, and rollover.

If there is even scoring on the back of the blade, remove the 80µ disc and move to the next step.

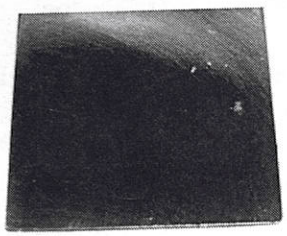
If there is pitting or rollover, continue with the current grit until the surface is flat and the scoring is even across the surface of the blade.



Plane Back at 35µ

Step 5. Install the A35 Trizact™ disc and repeat the process as previously described. (Remember to lubricate the disc before use.)

Check to see if the scratches on the flat of the blade are even. Scoring from the previous abrasive should be eliminated and uniform.



Plane Back at 10µ

Step 6. Install the 10µ disc and continue the sharpening process.

Check to see if the scratches on the flat of the blade are even. Scoring from the previous abrasive should be eliminated and uniform. You should now have a fairly polished finish. The bevel edge should be sharpened next.

Note: For an even finer finish, the optional polishing abrasives of 5µ, 3µ, and 1µ can be used to obtain a near mirror finish.

Bevel Edge Sharpening – Hand Held Method

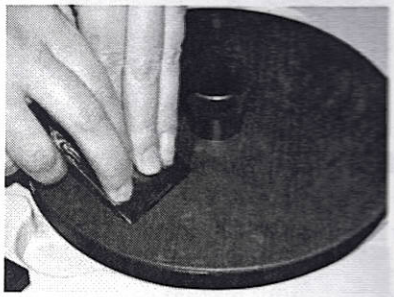
Methods

The bevel sharpening process is the same for either the hand-held, compound honing jig, or the tool guide bar methods. Only the way of retaining the bevel angle differs.

Start Bevel Sharpening

Once the back of the tool is flat, if the bevel edge is square and in good condition, then an A35 (light green disc) may be the first grit size used for the start of the sharpening process. (Remember to lubricate the disc before use.)

If the edge is not square or has damage to the edge, a coarser abrasive should be used to reduce the time needed to correct the edge and minimize the wear of the finer abrasive discs.

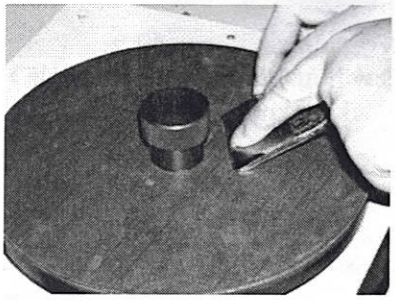


Positioning the Bevel Edge

Step 1. Position the bevel edge flat on the abrasive surface for lapping if the surface area is large enough to maintain the proper angle during machine operation. If not, use the optional guide bar to securely hold the edge at the desired angle.

Hold the tool firmly so it is not jerked from your hand at the start of the disc rotation. Always maintain space between your fingers and the abrasive material or any rotating portion of the machine.

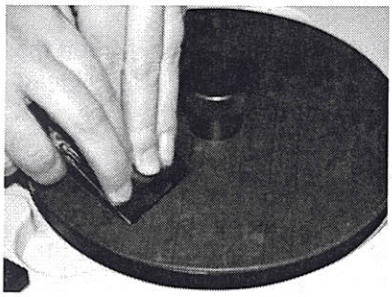
The slow rotating speed of the abrasive disc on the turntable and the foot pedal activation of the Lap-Sharp™ machine provide better user control on the objects being abraded.



Start Sharpening

Step 2. Start the sharpening process holding the plane blade close to the center of the disc, where the rotation is slower. Starting with one edge of a plane blade pointed toward the rotation of the disc (blade edge toward the center) will reduce the area initially exposed to the starting torque of the motor.

Once the turntable begins to turn, move the blade closer to a radial axis position. Using a lubricant also reduces friction that can cause a handheld blade to jerk at the start of the disc rotation. Apply pressure to tools evenly across the surface of the abrasive to make sure tracks are not created in the abrasive surface.

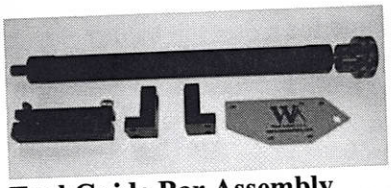


Rotate Blade After Start

Note: During the sharpening process, when hand holding the blade on the radial axis, abrading will be slightly faster at the outer edge, so add a slight additional pressure to the inner edge to compensate, or align the blade across the radial axis as is shown in the "Start Sharpening" position picture.

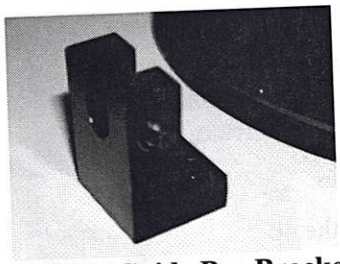
Safety Tip – Always feed the tool edge with the rotation of the disc, not pointed against the rotation.

Sharpening the Bevel Edge – Install Optional Tool Guide Bar



Tool Guide Bar Assembly

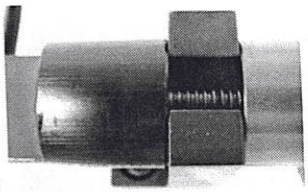
An optional tool guide bar assembly (P/N 500-0400-002) helps maintain the desired bevel angle during the honing process. The guide bar has a flat, recessed area to place the bevel side of the tool or the scraper blade being honed. Mounting brackets, an angle guide, and a self-squaring tool clamp are included in the assembly. This option works well with scrapers, plane irons and chisels with bodies of three or more inches in length.



Left Tool Guide Bar Bracket

Install the optional tool guide bar by mounting the two support brackets with the four provided 5/8" 10-24 socket head (5/32) screws. The brackets are mounted with the holes closest to the turntable.

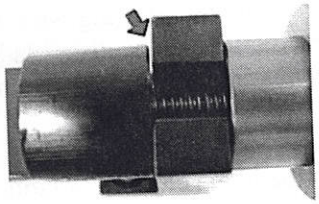
Mount the bracket with the ball plunger on the left side of the machine. Adjust the screw with a small screwdriver to increase or decrease the snap locking tension.



Right Tool Guide Bar Bracket Properly Installed

Check alignment of the brackets with the bar before tightening the screws. When aligned correctly, the tool guide bar will easily snap into the left bracket, and easily drop into the right bracket slot.

Verify the end of the tool guide bar seats evenly on the inside surface of the right bracket. The guide bar may then be tightened with the right side knob, to lock in the angle of the bar ramp.



Right Tool Guide Bar Bracket Improperly Aligned

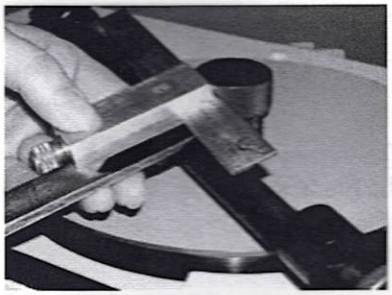
When the tool guide bar is not properly aligned, there will be a space at one side of the end of the bar. This will make adjusting the angle difficult, as the bar will rotate as the locking knob is tightened.

Install Tool Guide Bar

The power switch should remain OFF during adjustment. Mount the bar across the disc in a bracket with a ball plunger on the left side of the machine.

Adjust the angle and secure it with the locking knob that clamps against the right side bracket mounted on the machine.

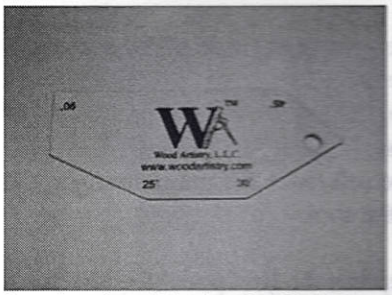
Bevel Edge Sharpening – With Tool Guide Bar



Inspect the Blade

Step 1. Check the tool edge for square.

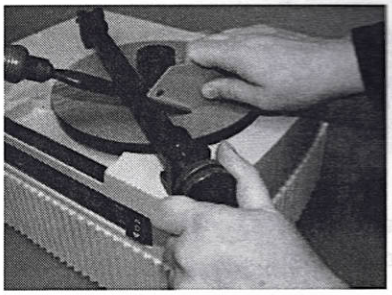
Use a square to check that the blade is square. (Brass squares like the one shown are available from Wood Artistry L.L.C.)



Set Angle with Angle Guide

Step 2. Set the tool guide bar angle with the angle gauge (included with the tool guide bar option), or use a bevel gauge.

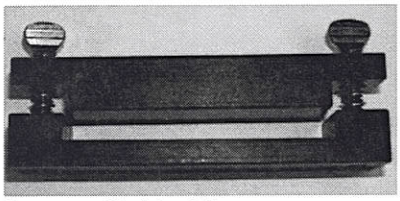
Note: Cabinet scrapers use a 45-degree angle, while hand scrapers a 90 degree angle. Most plane and chisel blade bevels are 25 to 30 degrees. Many that use 25 degrees have a micro bevel, making a final angle of 30 degrees. Using the Lap-Sharp™ flat honing process, micro bevels, can be established if desired.



Checking the Bevel Angle

Align the blade edge with the surface of the abrasive disc. It is preferable to measure the angle between the flat side of the blade and the abrasive disc surface, not the flat of the tool guide bar, as many blades are tapered in their length.

Lock the selected tool guide bar angle with the locking knob on the right side of the tool guide bar.

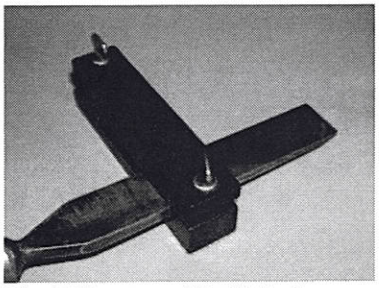


Square Guide Clamp

A square guide tool clamp is included with the Tool Guide Bar option. This is used with the Tool Guide Bar to hold the tool while it is being sharpened on the bevel edge. Slide a tool to be sharpened with parallel sides against a notched edge of the clamp to establish a square setting of the tool cutting edge in relation to the clamp front surface. Additional clamps may be ordered for use when sharpening multiple tools.

If the tool being sharpened has angled side edges, use a small square held against the front surface of the clamp to verify each side of the blade has equal spacing from the square blade. When held against the tool guide bar, the tool's cutting end should then be abraded square in relation to the sides of the tool.

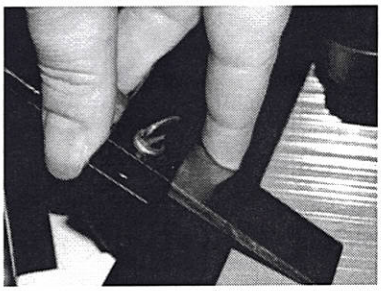
Bevel Edge Sharpening – With Tool Guide Bar (continued)



Tool Clamp with Chisel

Step 3. If the tool clamp is used, lightly clamp the blade to be sharpened in the tool holding clamp, with the flat side of the blade facing the T side of the clamp.

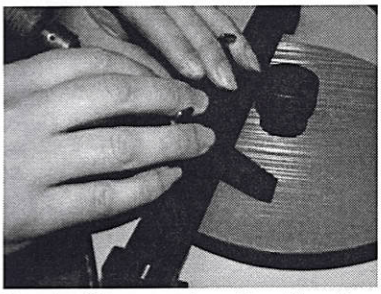
While the machine is not operating (power switch OFF during adjustment), hold the bevel side of the blade against the flat portion of the tool guide bar. The thick side of the clamp will ride against the top edge of the flat in the tool guide bar.



Adjust the Clamp for Bevel

Step 4. While keeping the tool edge against the side of the square notch in the tool clamp (assumes parallel sides of the tool), the bevel side of the tool against the tool guide bar flat surface and the tool bevel edge flat against the abrasive surface, tighten the two clamp thumb screws. This will establish the reference for maintaining a square edge along the bevel side of the tool.

Now turn the power switch ON. Depress the foot pedal to start the rotating abrasive disc. Sharpen the bevel of the tool by sliding the tool holding clamp (tool in place) back and forth along the edge of the guide bar while the tool surface rides on the guide bar flat.

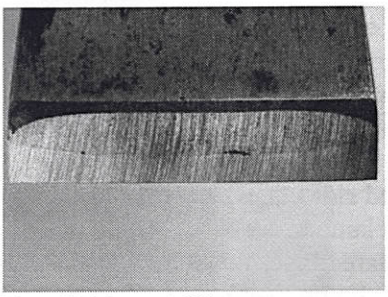


Begin Sharpening the Bevel

Both plane and chisel blades are sharpened using the same technique. Using the clamp simplifies the task of making a square edge blade with a flat bevel.

Rotating the tool guide bar two or more degrees enables the user to add a micro bevel to the blade if so desired.

Note: You can change **a**brasive discs with the tool guide bar in position.



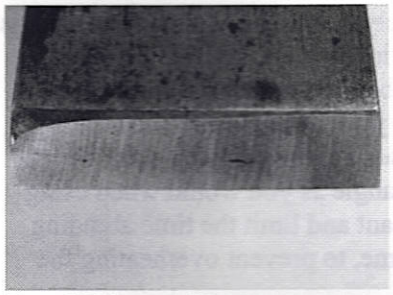
Bevel Edge at 80µ

Step 5. Once the edge is straight, replace the coarse abrasive disc with next finer grit disc.

Use coarse grit to straighten edge of blade.

A laminated cast steel plane blade is shown. The lamination seam can easily be seen as different shades of metal. This is caused by the different structure of the soft and hard metals.

Bevel Edge Sharpening – With Tool Guide Bar (continued)



Bevel Edge at 35µ

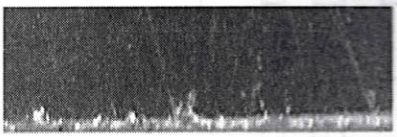
Step 6. Install the A35 abrasive disc. (Remember to lubricate the disc before use.)

Sharpen the bevel edge until the scratches on the bevel of the blade are even. Scoring from the previous abrasive should be eliminated and uniform in appearance.

Bevel Edge at 10µ (close up)

Step 7. Install the A10 abrasive disc.

Sharpen the bevel edge until the scratches on the bevel of the blade are even. Scoring from the previous abrasive should be eliminated and uniform in appearance. You should now have a shiny surface on the bevel.



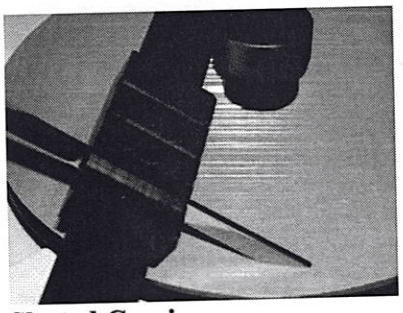
Burr on Blade Edge (enlarged for clarification)

Step 8. Check for a burr on the flat side of the blade.

If there is a burr, do not break it off, as this will cause a jagged edge that will not be sharp. If the optional polish pack is not used, place the flat side of the blade on the 10µ disc, and sharpen this side till the burr is removed. With the polish pack option, use the 5µ abrasive to remove the burr.

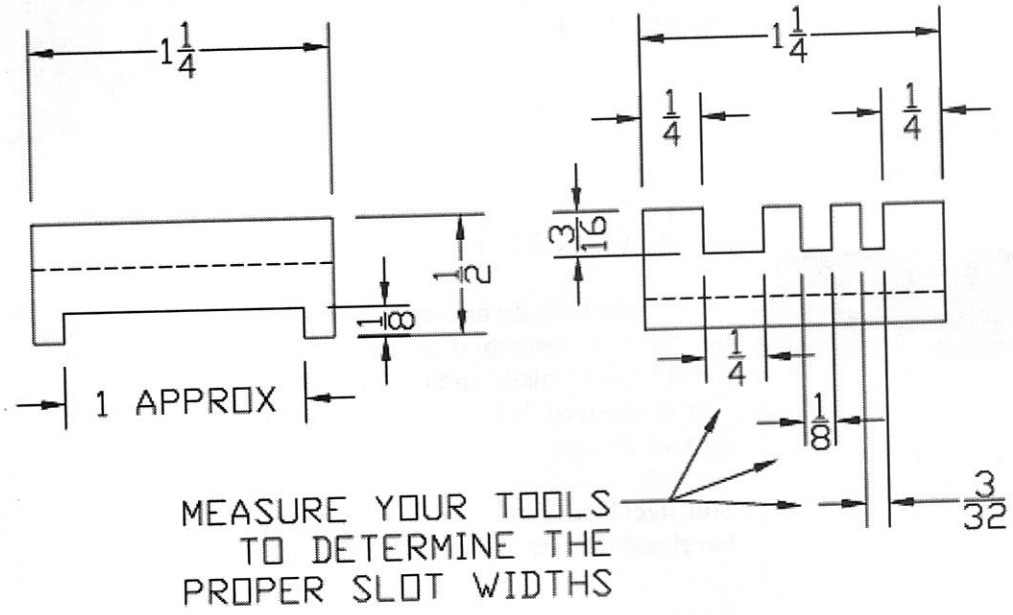
Soft steel blades may require alternating between sharpening the bevel and the flat side to remove all of the burr.

Tool Bar Guide for Narrow Chisels



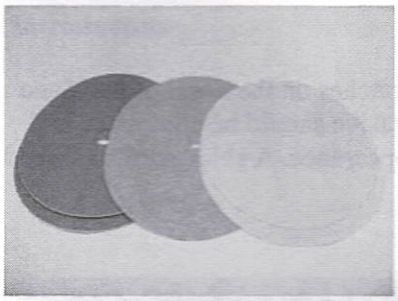
Slotted Carriage

Narrow chisels may be held accurately on the Tool Guide Bar using a user made slotted carriage (see drawing below) similar to the one shown. Wood, plastic or metal may be used to make a custom jig used to hold these narrow tools. The jig when made as shown straddles the tool guide bar and is used as a guide to hold the chisel perpendicular to the bar. Adjust the angle as you would when using the Square Guide Clamp. Use lubricant and limit the time abrading narrow tools to a few seconds at a time, to prevent overheating the tool.



A user-made chisel guide can assist in maintaining proper orientation of the chisel to the abrasive, so a square cutting edge can be made. Adjust the dimensions for your chisels, as some chisels are tapered, and there are many different widths of chisels. The one pictured below is made from Cocobolo and was made for four chisel widths. The U shaped cutout in the bottom, straddles the tool guide bar, so as to prevent accidental shifting of the tool while sharpening. Check the tip of the tool after a few rotations of the abrasive disc, to ensure proper alignment of the tool. A slight torque of the tool either clockwise or counter clockwise while held in the guide can make subtle changes in the trueness of the cutting tip.

Using the Polishing Abrasives

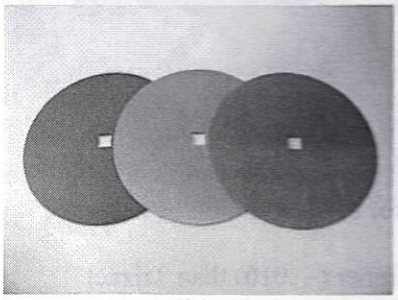


Polishing Abrasive Discs

Polishing abrasives are used to achieve an even finer edge than that achieved with a 10µ disc. These abrasives include the A5 Trizact abrasive, the 3µ and 1µ polishing paper abrasives.

Hard steel, cast steel, A2 cryogenically treated steel, and Japanese tools are some of the tools hard enough to benefit from the additional steps needed to polish the tool edges.

Softer steel tools (in the range of Rc-58) will not hold the fine edge achieved with these discs, and is therefore not needed.



Interchangeable Discs

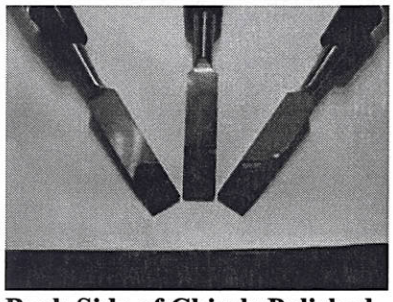
The interchangeable polish pack discs are color coded for easy identification.

See the Abrasive Color Table on page 4 for colors of discs and abrasives.

Cast Steel Chisel Back Showing Reflective Surface

Polish the back of the blade to the desired finish, using the 5µ, 3µ and 1µ abrasives.

Use light pressure when using polishing paper, so the abrasive does not compress, which will cause a slight rounding of the edge.

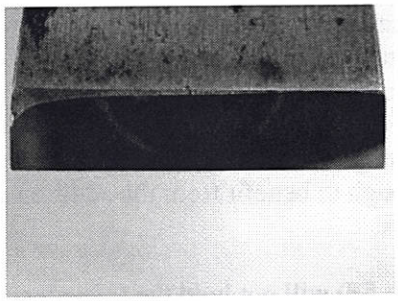


Back Side of Chisels Polished with 5µ, 3µ, and 1µ Abrasives, Showing Camera Reflection

Trizact™ should be used wet, but the polishing papers may be used either wet or dry. For coolest operation, use lubricant with polishing paper abrasives.

Remove a burr with the 5µ Trizact™ abrasive. (Remember to lubricate the disc before use.)

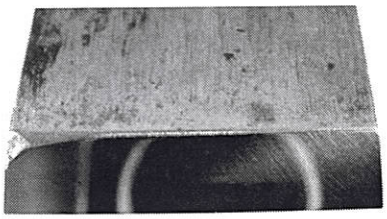
Using the Polishing Abrasives (continued)



Bevel Edge at 5µ

Install the 5µ abrasive disc.

Sharpen the bevel edge until the scratches on the bevel of the blade are even. Scoring from the 10µ abrasive should be eliminated and the surface should be uniform in appearance. A shiny surface should be achieved.

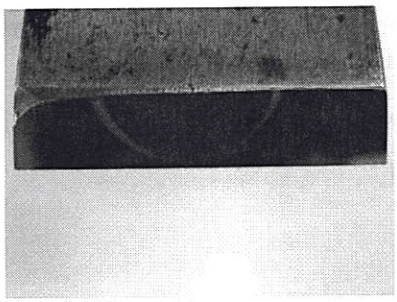


Bevel Edge at 3µ

For a finer finish, install the 3µ abrasive disc.

Sharpen the bevel edge until the scratches on the bevel of the blade are even. Use light pressure when using polishing paper, so the abrasive does not compress, causing rounding of the edge. Scoring from the 5µ abrasive should be eliminated and the surface should be uniform in appearance. A near mirror surface should be achieved.

Note: Polishing paper is slightly thinner (~ .010) than Trizact abrasive. This difference, when used with a tool holding clamp, will create a very slight micro bevel, frequently desired to reduce sharpening time. If no micro bevel is desired, reset the clamp so the tool bevel rests flatly on the abrasive surface.



Bevel Edge at 1µ

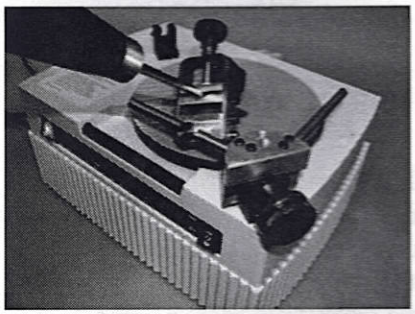
For a still finer finish, install the 1µ abrasive disc.

Sharpen the bevel edge until the scratches on the bevel of the blade are even. Again, use light pressure when using polishing paper, so the abrasive does not compress, causing rounding of the edge. Scoring from the 3µ abrasive should be eliminated and the surface should be uniform in appearance. A near mirror surface should be achieved.

Sharpening Turning & Carving Tools

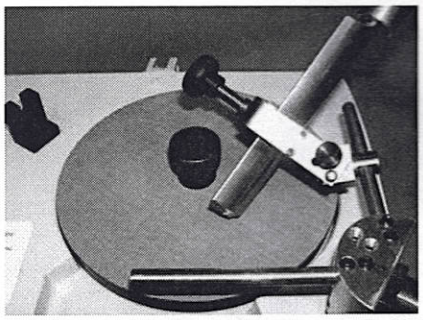
Introduction

The Lap-Sharp™ can be used to sharpen turning tools and carving tools. With the wide choice of abrasive grits, you can achieve a simple grind or a fine finish edge with less loss of the tool metal and a more finely finished edge than occurs with high speed grinders. Either the optional tool guide bar or optional gouge jig may be used to assist in achieving the desired edge.



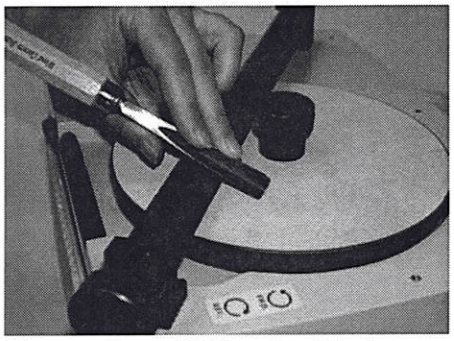
Small Gouge Shown on Left Side Support

The gouge jig has two support bars that may be used as a free hand support arm or with the rotating tool holder to achieve a rounded bevel at the desired shape.



Large Gouge Shown on Right Side Support

Both large and small gouges may be sharpened with the gouge jig and tool holder.

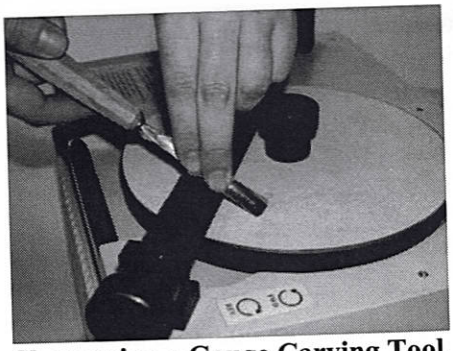


Sharpening a V Carving Tool

V carving tools can be sharpened quickly, with a fine edge. Set the tool guide bar to the desired angle for the bevel or micro bevel. With the slow rotation of the abrasive disc, little metal is removed while a sharp edge is quickly achieved.

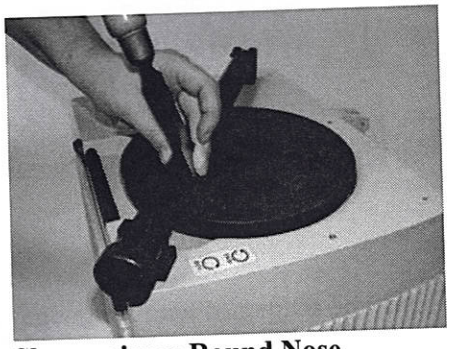
Removing an equal amount of metal to keep the V shape proper is easily controlled with the slow rotation and the footswitch start and stop of the motor.

Sharpening Turning & Carving Tools (continued)



Sharpening a Gouge Carving Tool

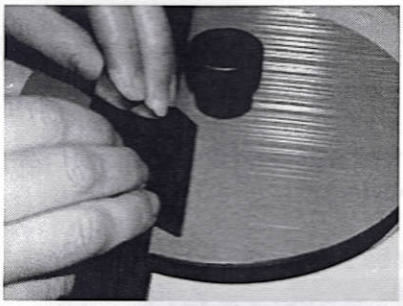
Gouges, whether for carving or turning, may be sharpened hand held, or for small tools, is more easily achieved by rotating the tool as the tool guide bar aids in maintaining the selected bevel angle. Rotate the tool, while maintaining the selected angle. An optional gouge sharpening jig may be used to maintain the desired bevel angle.



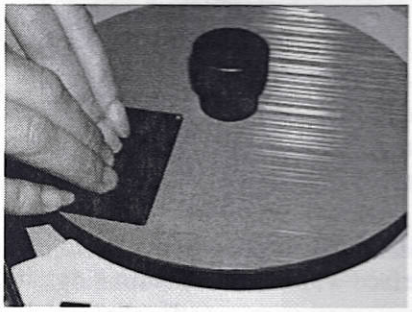
Sharpening a Round Nose Turning Scraper

Scrapers for turning can easily be given a near mirror finish on the top flat side, and then honed on the bevel edge. Use the tool guide bar to help in maintaining the angle of the cutting edge. Hold round scrapers against the tool guide bar with one finger and pivot the handle to achieve a perfectly shaped and honed cutting edge.

Sharpening Cabinet and Hand Scrapers

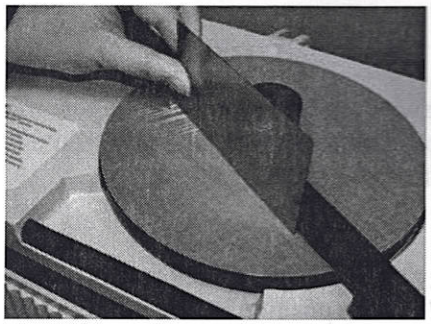


Sharpen the cabinet scraper bevel with the tool guide bar, using the process explained for planes and chisels. The major difference is that cabinet scrapers usually have a 45 degree angle, rather than the 25 to 30 degree angles found on planes and chisels.



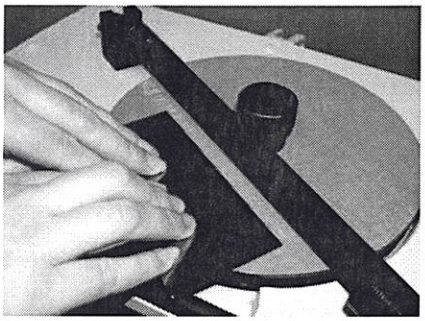
The flat back may be polished by holding it flat on the abrasive surface.

Sharpening a Cabinet Scraper



Sharpen the edge of hand scrapers with the tool guide bar set to a 90 degree angle. Rotate the tool guide bar so the scraper may be positioned in front of and rest against the flat portion of the bar.

The flat of the tool guide bar will support the scraper vertically as the abrasive disc rotates.



A burr may be created along the trailing edge of the blade. Remove this burr by holding the flat sides of the scraper on the abrasive surface and polishing both sides along the cutting edge.

Then roll the edge may with a burnishing tool to shape a burr for shaving wood surfaces.

Sharpening a Hand Scraper

Sharpening Knives

Fwd/Rev Switch

The Forward and Reverse switch enables reversing the rotation of the abrasive disc, so a reverse bevel may be sharpened without having the blade edge pointed toward the rotating abrasive.

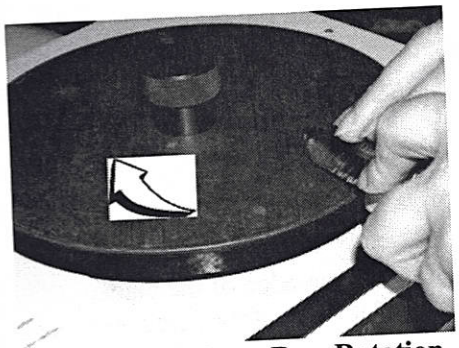
Safety Tip – Always feed the tool edge with the rotation of the disc, not pointed against the rotation.

Caution – The Turntable must be stopped prior to switching rotation. Failure to do so may damage the motor.

Knife Sharpening – Fwd. Rotation

Hold the knife to be sharpened at the desired angle, and sharpen while abrasive is rotated in forward direction. Keep the edge of the blade pointed AWAY from the direction of disc rotation.

Curved knives will require an even positioning of the curve of the blade onto the abrasive surface while the disc is rotating.



Knife Sharpening – Rev. Rotation

Move the Forward/Reverse switch to the reverse (Rev.) position. Repeat the sharpening of the opposite edge of the knife, while the abrasive rotation is AWAY from the cutting edge.

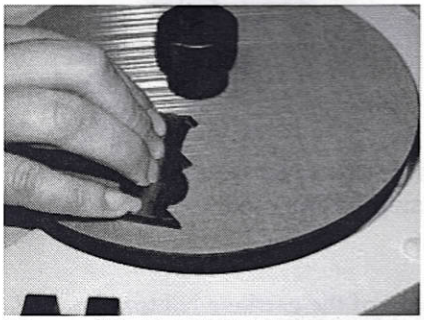
Warning: After completing this operation, switch the rotation of the disc back to the Forward (Fwd.) position before returning to the normal mode of sharpening.

Sharpening Molding Knives

Please Note

You can sharpen molding and shaper profile knives by flattening the backs of these knives. Do not attempt to sharpen the bevel edge, as this will change the profile of the knife blades.

It is possible to bring molding knives back to a sharp condition by sharpening the back face of the knife.



Shaper Knife Flat Side Down On Abrasive Disc

Inspect the knife edges, to verify they are not damaged or have severely rolled edges. Knives in this condition should be replaced.

Place the flat back side of the knife on the 120µ abrasive surface. A Gib or chip breaker from the molding machine or a user made knife holding jig can be used to hold the cutter onto the abrasive surface while sharpening. Start the rotation of the abrasive and continue until the flat side again sharply meets the bevel edge.

Replace the 120µ disc with the 80µ abrasive disc and remove the scratches left from the 120µ abrasive.

Repeat the above process with the 35µ abrasive disc if an extra fine edge is desired. The edge should now be finer and sharper than that of the original manufacturer's process, which typically has visible grind marks on the surface.

Sharpening Planer & Jointer Knives

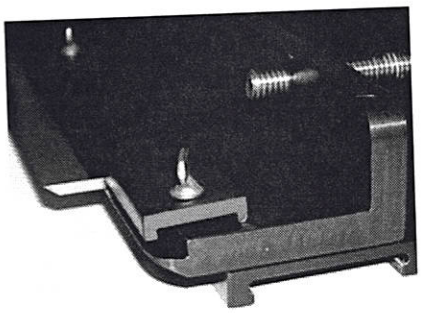
Planer & Jointer Knife Jig

Sharpen planer and jointer knives with the optional jig used to hold these knives at the desired bevel angle. A very high level of sharpness can be achieved by using finer grits of abrasive than is commonly provided by commercial sharpening services.

Planer & Jointer Jig Carriage

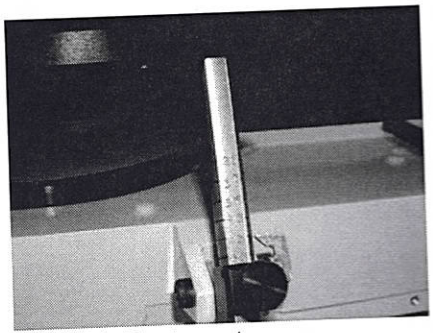
The 24 inch Jig Carriage holds the knife to be sharpened in a red colored clamp. There are five clamp screws used to firmly secure the knife in the carriage.

The two adjusting knobs on the top of the carriage control the feed of the knife toward the abrasive surface when the carriage is mounted on the jig frame. Numbers etched in the knobs enable the user to evenly feed the knife and to repeat the setting on additional knives it the set, so an even amount of steel is removed from each knife.



Carriage with knife in clamp

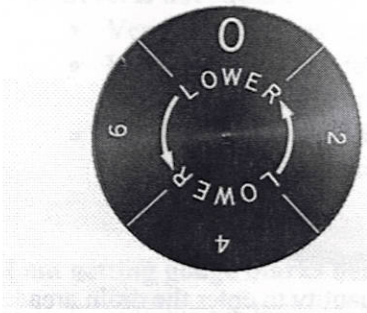
Insert the knife with the bevel side down until the rear of the knife fully rests against the rear of the carriage clamp opening. The knife clamp screws should then be tightened to secure the knife in the carriage.



Angle Adjustment

Set the angle of the bevel by adjusting the angle rod at the rear of the machine. Angles of 25 to 90 degrees may be established with this adjustment, allowing the user to achieve a flat bevel at the same angle as previously established, to modify the angle, and even to establish a back bevel if so desired.

Sharpening Planer & Jointer Knives (continued)

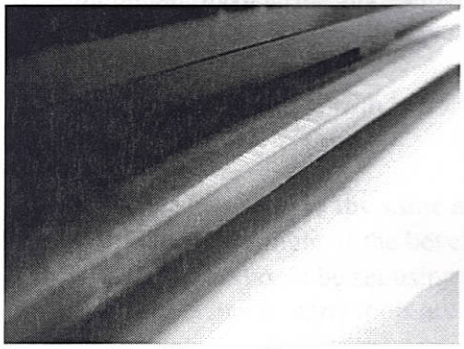


Feed Knob

Sharpening is achieved by sliding the carriage with the knife held in the clamp back and forth along the jig track, with periodic adjustment of the feed knobs, to provide additional pressure of the knife upon the surface of the rotating abrasive disc.

Caution: Do not over tighten the feed adjustment knobs, as this will increase the slider resistance and may also alter the angle of the bevel. The slider should move freely back and forth on the jig track, while the abrasive surface is touching the knife edge being sharpened.

Adjusting the knobs in a **counter clockwise** direction provides **more pressure**.



Removal and Inspection

When removing the carriage for inspection of the knife edge, rotate both feed knobs at least one full revolution in a clockwise direction. This will unload the pressure of the knife against the abrasive, provide clearance of the blade off the abrasive surface, and enable easy reloading of the carriage without having the knife cut the edge of the abrasive disc. When reloading the carriage, turning the feed knobs one full revolution, or whatever setting was used when unloading the knife, counter clockwise returns the blade to the previously set position.

Note Final Setting for Knife Sets

Note the final setting of the feed knobs when the sharpening of the first knife in a set is completed. The additional knives of the set should be sharpened to the exact same setting to ensure an even amount of material is removed from each blade in the knife set. This will enable the user to retain the balance of the knives.

Troubleshooting – Machine Issues

The disc won't rotate

- Verify the power switch light is on indicating power is available.
- Verify the foot switch is plugged in properly.
- Verify the Fwd/Rev switch is not in the middle (off) position.
- If the motor overload protection circuit has tripped, turn off the machine, wait for 15 to 20 minutes for the motor to cool, and turn the machine on.

There is no lubricant exiting from the drain hose

- When using spray amounts of lubricant, fluid is not of sufficient quantity to enter the drain area beneath the turntable, so no liquid is seen in the hose.
- If flushing the area beneath the turntable disconnect power first, and verify the hose is not clogged.
- If the drain is clogged, blow through the hose to clear the clog

- An optional fluid pump and splash guard may be used with the Lap-Sharp LS-200™. With this option, the splash guard prevents liquid from flowing off the machine surface and the liquid will flow into the cavity beneath the turntable and return to the pump or into a drain receptacle by exiting the machine through the drain hose.

Troubleshooting – Sharpening Issues

The bevel is not square

- Verify the tool has square and not tapered sides
- If using the tool guide bar clamp, verify the tool edge was squarely resting against the right angle side edge of the clamp.
- Uneven pressure applied on the tool while sharpening either the back or the bevel can cause the side with more pressure to be abraded more quickly.

I am getting gouge marks near the back of the tool

- Holding the tool in one place with the tool pointed toward the center of the disc will cause abrasion of the portion of the tool resting on the abrasive. A grind mark will appear on the tool where the edge of the disc is positioned.
- Moving the tool back and forth as it is being abraded and/or more in line with the rotation of the disc will prevent these marks.

The side edge of my chisel is rounded

- Hold the chisel more in line with the disc rotation, so the edge is not jerked when starting the disc rotation.
- Holding the chisel with sufficient pressure will keep the tool from wobbling.

I can't get the bevel set to the same angle as the last time it was sharpened

- Measure the angle of the bevel and set this angle with the angle guide or a bevel gauge.
- The angle should be set using the angle gauge or bevel gauge, using only the back of the blade as a reference, as many tools are beveled in shape.

The tool guide bar rotates while I am tightening the locking knob

- The right support bracket is not properly aligned.
- Verify the inside surface of the right hand support bracket is parallel with the threaded end surface of the tool guide bar.
- Their surfaces touching evenly create the clamping action when the locking knob is tightened.

The tool guide bar does not lock into the left support bracket

Adjust the spring ball plunger screw to provide a snap and locking action when the tool guide bar is inserted into the bracket.

Setting a tool holder to an angle will not provide an accurate angle setting on any tool with a beveled side profile.

- When using the tool guide bar and clamp, rest the bottom edge of the angle gauge against the surface of the abrasive and the selected angle edge of the gauge against the back of the tool to be sharpened.
- Tighten the locking knob of the tool guide bar and the angle will be properly set.

Additional Abrasive Notes

Regal™ 972L

Regal™ is a micron graded Cubitron™ mineral electrostatically oriented and resin bonded onto high strength polyester film. It is used for initial coarse abrading of tools, as it is fast cutting, durable, has excellent grit consistency, and may be used wet or dry. Regal™, (both 120µ and 80µ) are two of the standard abrasives included with the Lap-Sharp™. It is also available in 60µ grit.

Trizact™

Trizact™ is a product developed by 3M corporation. It is a micron-graded abrasive, available in A35, A20, A10, and A5, and is produced by micro-replication of microscopic three dimensional structures applied to a thin film backing in a precise pattern. Trizact™ consists of precisely shaped pyramids of fine grade mineral. The "A" in the grit size designation stands for "Apex," as that is the structure of this material.

As the tops of the pyramids wear, new abrasive material is exposed. Trizact™ is used for abrading glass, Corian®, and for providing a fine and consistent finish when sharpening steel tools. It is used wet, and can be washed off to clear build up of amalgam from the pyramid valleys.

Trizact™ in both A35 and A10 grades are provided as standard abrasives with the Lap-Sharp™. The A5 Trizact is included in the optional polish pack abrasives. A20 Trizact is available as an option.

Polishing Paper

Polishing papers of both 3µ and 1µ are included with the polish pack option. These abrasives provide a polished finish without easily becoming loaded with abraded material and worn abrasive. This loading can cause tracks in the finish of the surface being abraded.

Microfinishing Film

Microfinishing film has a very high grit consistency to provide an evenly abraded surface. It is less expensive than Regal™ or Trizact™ and can be used in the middle grades of abrasives of 20µ, 40µ and 80µ, used on the Lap-Sharp™, without causing flaws in the sharpening process from lumping of amalgam. Microfinishing films have a thin film backing providing a flat abrasive surface that may be used wet or dry. The surface can be periodically washed off to clear build up of amalgam and extend the life of the abrasive. These abrasives are available as options. They are fast cutting but less durable than Regal™ and Trizact™ abrasives.

Additional Abrasive Notes (continued)

FRE-CUT Microfinishing Film

Designed for dry abrading, though it can be used wet, it is a coarse abrasive of 120µ to 180µ with a high grit consistency. Its thin polyester film backing allows flattening of tools without rounding of edges the way thicker backings (such as cloth) do.

Fre-Cut Microfinishing Film abrasives are available as options. They are less durable than Regal™ and Trizact™ abrasives.

(CBN) Cubic Boron Nitride

This abrasive is expensive but is excellent for abrading steel. It is available only as a special order item. It is used for abrading the following materials:

- High-speed tool steels
- Die steel
- Hardened carbon steel
- Alloy steels
- Aerospace alloys
- Abrasion-resistant ferrous metals

Silicon Carbide

Silicon Carbide abrasives are a poor choice for sharpening steel tools, as the abrasive breaks down quickly in use. It then begins to burnish steel rather than cut. This burnishing process generates excessive heat, which can damage the tool's temper. Silicon Carbide may be used successfully for abrading aluminum and other soft materials.

Diamond

Diamond discs are available as options and are recommended for use when sharpening carbide edged tools. These discs have a cloth backing and require a continuous flow of lubricant to achieve maximum life from these abrasive discs.

Diamond is an expensive abrasive. It is only used in coarse (when applied to sharpening) grit sizes. Diamond does not provide a really fine finish for the final stages of sharpening as it will leave scratches in the surface of steel that may be removed with fine Aluminum Oxide abrasives. In addition to carbide, it is used for abrading the following materials:

- Glass
- Fiberglass
- Plastics
- Ceramics
- Composites

Grit Consistency

Some abrasives are inconsistent in grit size, having a mix of small and large particles. The large particles leave deep scratches in a tool surface which is hard to remove with the next finer grit. You can avoid this by using the abrasives recommended for the Lap-Sharp™. They were selected for their high grit consistency and ability cut.

Additional Abrasive Notes (continued)

Differences in the Numbers and Words used to Identify Abrasive Grit Sizes

The numbering systems used to identify abrasive grits are designed to meet standards of different countries or are measured with different methods. The most common methods used in the USA are mesh grades, which are screens of mesh that abrasives can fall through. The finer the mesh, the smaller the grit size, so a 120 mesh is coarser than a 180 mesh.

Micron sizing is another way of classifying grit sizes. With this system, the grit is measured in microns (one millionth of a meter), and a 120µ (micron) grit is finer than an 180µ grit. The USA measurements are defined by "CAMI" (Coated Abrasives Manufacturers' Institute).

European abrasives are defined by "FEPA" (Federation of European Producers of Abrasives). With this system, a P with the grit size indicates a coated abrasive while an F indicates a bonded abrasive.

The Japanese system for measuring abrasives is defined by a "JIS" (Japanese Industrial Standard) document.

Cross references are made by several sources, but do not always agree, as there is not an exact equivalent of all abrasive grades. One listing of an 8000 grit waterstone equates it to 3µ while another says it is 1.2µ.

CAMI 360 mesh grit is listed as being 28.80µ, while a FEPA P360 and JIS 360 are listed at 40.50µ.

The numbers do not always equate to other measurement systems.

Additional Sharpening Notes

Radius the Edge of the Tool

When sharpening chisels and plane irons, the abraded side edges also get sharp. Some chisels are designed to have sharp side edges. A slight radius on these side edges will help to prevent cutting yourself with these sharp edges.

Remove Corners of Smoothing Plane Iron

Plane irons used for soothing operations can benefit from working the outer corner edges of the blade edge a bit more than the center, giving a slight high in the mid part of the iron and a slight low at the outer edges. This will reduce the likelihood of scoring iron edge marks into the surface of the wood being smoothed.

Index

Appendix A: Abrasive Grit Numbers

Abrasive grits are measured in many different standards worldwide. It can be confusing to know how coarse or smooth an abrasive is when stated in numbers from several different standards.

The following chart provides a relative comparison of the different standards to help the user select a grit size within the range relative to the Lap-Sharp™. Since abrasives used on the Lap-Sharp™ LS-200 use either ANSI or micron (μ) numbers, depending on the selected grit size, this chart will help you understand the relationship of these two standards and how they compare to other standards.

Note that as there are not always exact corresponding sizes listed and depending upon the supplier, some size comparisons may differ slightly.

CAMI (US) Ind'l Mesh	FEPA (Europe) "P"	Japanese JIS	Trizact™ A	Micron (μ)
80		70		180
100		90		150
120		100		120
	P150		A130	
150		120	A110	100
180	P180	150	A100	80
220		180	A90	60
	P220	220		
	P240	240	A75	
240		280	A65	50
	P280			
	P320	320	A60	
280				40
	P360	360		
320				
	P400		A45	
	P500	400		
360				
	P600	500	A30	
400				30
	P800		A25	
500				
	P1000	600	A20	20
600		1000		15
		1200		
	P1200	1500	A16	12
800	P2000	2000	A6	9
	P2500	2500		5
		3000		4
1000		4000		3
		6000		2
		8000		1.2

Appendix B: Part Numbers for Lap-Sharp™ LS-200

Part	Part Number
Ball Plunger	300-0900-001
Base Casting	200-0100-002
Black Disc	300-0201-003
Blue Disc - Dark	300-0203-003
Blue Disc - Light	300-0205-003
Bottom/Rear plate Assy.	300-0100-003
Brown Disc	300-0202-003
Capacitor – 10uf	400-6000-002
Capacitor – 5uf	400-
Compound Honing Guide	500-1000-001
Diamond cloth 120 mesh	400-0300-001
Diamond cloth 220 mesh	400-0300-002
Feet (4)	300-0800-001
Foot switch and cord	400-5001-001
Forward/Reverse Label	400-1003-001
Forward/Reverse Switch	400-4002-001
Gold Disc	300-0208-003
Gouge Jig	500-2000-001
Green Disc - Dark	300-0209-003
Green Disk - Light	300-0220-003
IMFF 20µ,	400-0400-003
IMFF 40µ,	400-0400-002
IMFF 80µ,	400-0400-001
Inlet/outlet power dist.	400-4000-001
Lap Sharp Label	400-1001-001
Lap-Sharp LS-200 -	500-0100-003
Microfinishing 120µ Film	400-0700-001
Microfinishing 150µ Film	400-0800-001
Microfinishing 180µ Film	400-0900-001
Motor	400-9000-001
Nylon screws	400-8005-001
On/Off switch	400-4001-001

Part	Part Number
Orange Disc	300-0206-003
Pink Disc	300-0207-003
Planer/Jointer Jig Assy.	500-3000-001
Polish Pack Abrasives	400-0100-002
Polish Pack Discs	500-0200-003
Polish pack with discs	500-0500-003
Polishing paper, 1µ	400-0600-002
Polishing paper, 3µ	400-0600-001
Power Assembly	500-0300-001
Power Cord	400-5000-001
Red Disc	300-0204-003
Regal 972L – 60µ	400-0204-001
Regal 972L - 80µ	400-0203-001
Regal 972L - 120µ	400-0100-003
Rubber mat	400-2001-001
Spray Bottle	300-0503-001
Starter Pack Abrasives	400-0100-001
Starter Pack Discs	500-0200-002
Starter pack with discs	500-0500-003
Tool guide bar clamp	300-0700-002
Tool Guide Bar Assy.	500-0400-002
Tool Bar Left Bracket	300-0306-002
Tool Bar Right Bracket	300-0306-001
Tool Rest Bar	300-0301-002
Tool Bar Knob	300-0302-001
Trizact A5	400-0500-002
Trizact A10	400-0500-001
Trizact A20	400-0500-003
Trizact A35	400-0500-004
Turntable Assy.	500-0800-001
Turntable Knob	300-0401-001
Warning Label	400-1000-001

Appendix C: Product Specifications for Lap-Sharp™ LS-200

Overall Dimensions	
Height	8.375" (221.8 mm) (top of tool guide bar knob)
Width	15" (381 mm)
Depth	12.25" (311.2 mm)
Weight	
In Place	25lbs. (11.4 kg.) (with tool guide bar & disc)
Shipping	35lbs. (15.9 kg.)
Construction	
Base	Cast Aluminum
Surface	Machined Flat
Surface Mounting Holes	10-24 Thread size
Rear Mounting Bracket	¼-20 Thread Size
Turntable	Anodized Aluminum
Discs	Anodized Aluminum
Motor	
Horsepower	1/15
Operating Voltage	115V/230V
Frequency	50 to 60 Hz
Amperage	1.2\0.55/1.0\0.47
Phase	Single
Time	Continuous
Torque	16 lb-in
Bearings	Needle
Power Transfer	Right angle gear
Ratio	10:1
Capacitor	10\5 µf
Power Switching	
On/Off	20A\125VAC/15A\250VAC
Fwd/Rev	15A\125VAC/10A\250VAC
Dist. Socket	
Male Connector	10A\250VAC
Female Connector	15A\250VAC
Footswitch	15A 1/2HP 125-250VAC 50/60 Hz

Wood Artistry, L.L.C. reserves the right to change specifications without notice.

One Last Note:

Following the instructions in this manual will allow you to create very sharp tools in a minimum of time and effort.

Please periodically check our website, www.woodartistry.com, as we will continue to add unique products and useful information for woodworkers covering a broad range of topics.

We at Wood Artistry, L.L.C. hope you enjoy the benefits this machine will provide.

Don Naples
Woodworker
Managing Member of Wood Artistry, L.L.C.