

OPERATORS MANUAL



TWICE AS SHARP® Scissors Sharpening System

Customer service 1-800-888-3832

Professionally Sharpen Scissors and Shears

manufactured by WOLFF INDUSTRIES, Inc.

BACKGROUND INFORMATION ON LEE WOLFF

Inventor of Twice as Sharp®

1930 - 1996

In 1957 Lee Wolff started a sewing machine sales and service business. Fabrics and a complete line of sewing needs were added in 1963, and the number of employees grew to 25 to handle the volume. During those years, Lee did a great deal of scissors sharpening and repair and made important modifications on the available scissors sharpening equipment.

In 1971 Lee and Mary Wolff became the first major importer and distributor of plastic handled scissors in the United States. They started to manufacture sewing scissors in 1973 under the trade name of KNIP. A U.S. patent was granted on the KNIP.

The scissors factory was sold to American Scissors Corp. in 1980 and moved to the south. Lee set up the factory and innovated many new manufacturing processes. The July 1983 Consumers Reports rates the American Scissors designed and produced by Lee Wolff as a best buy. He also designed a full line of unique plastic handled scissors with interchangeable parts.

Lee worked on perfecting the process of scissors sharpening for many years. It is necessary to accurately control the cutting angles, reduce burr formation during sharpening, and do deburring and micro-sharpening as a final process. This method produces scissors that are normally twice as sharp, hence the name Twice as Sharp® scissors sharpener. A United States patent has been granted as well as several foreign patents.

Wolff Industries has grown rapidly with many new products for scissors sharpeners. Additional equipment has been designed including the Rotary Blade Sharpener, Corru-Gator, HIRA-TO®, and RPT Kinetics hand held knife sharpener so that we will always be able to bring to you the most advanced sharpening equipment. In early 2016 a new dust collector for the Twice As Sharp® was developed using cyclonic technology and Merv 8 filtration.

Technical support service is available Monday through Friday 8:00 AM to 5:00 PM eastern standard time. Call with your sharpening questions. If it is regarding a specific shear, please have the shear in hand. If your question is regarding a problem with the sharpener please have the sharpener nearby.

WOLFF®, **TWICE AS SHARP®**, **OOKAMI GOLD®**, **HIRA-TO®**, and **RPT KINETICS®** are registered trade marks of **WOLFF INDUSTRIES, INC.** and may only be used to describe items sharpened by using the equipment and methods described in this manual. Any other uses are forbidden without written permission from Wolff Industries.

Please send us any comments, suggestions, or newsworthy ideas, that we may include in our newsletter.

Thank you,

WOLFF INDUSTRIES, INC.
107 Interstate Park
Spartanburg, SC 29303

(800) 888-3832 (864) 587-6008 (864) 587-0660 fax
customerservice@wolffind.com

See us on the web,

<http://www.wolffind.com>

GUARANTEE

If you are not satisfied during the first thirty (30) days, return the merchandise for a complete refund.

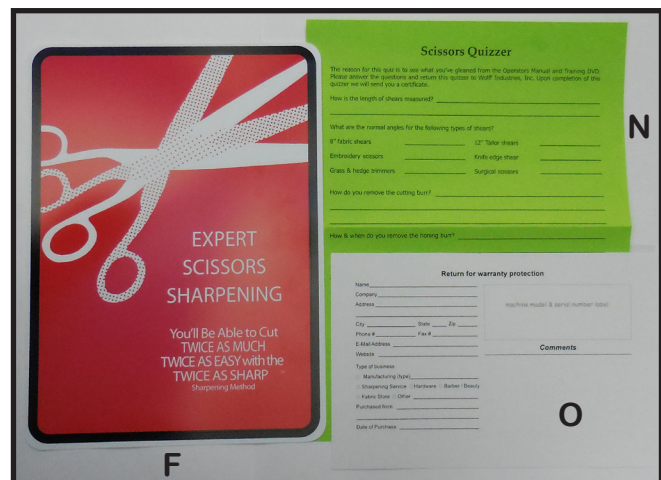
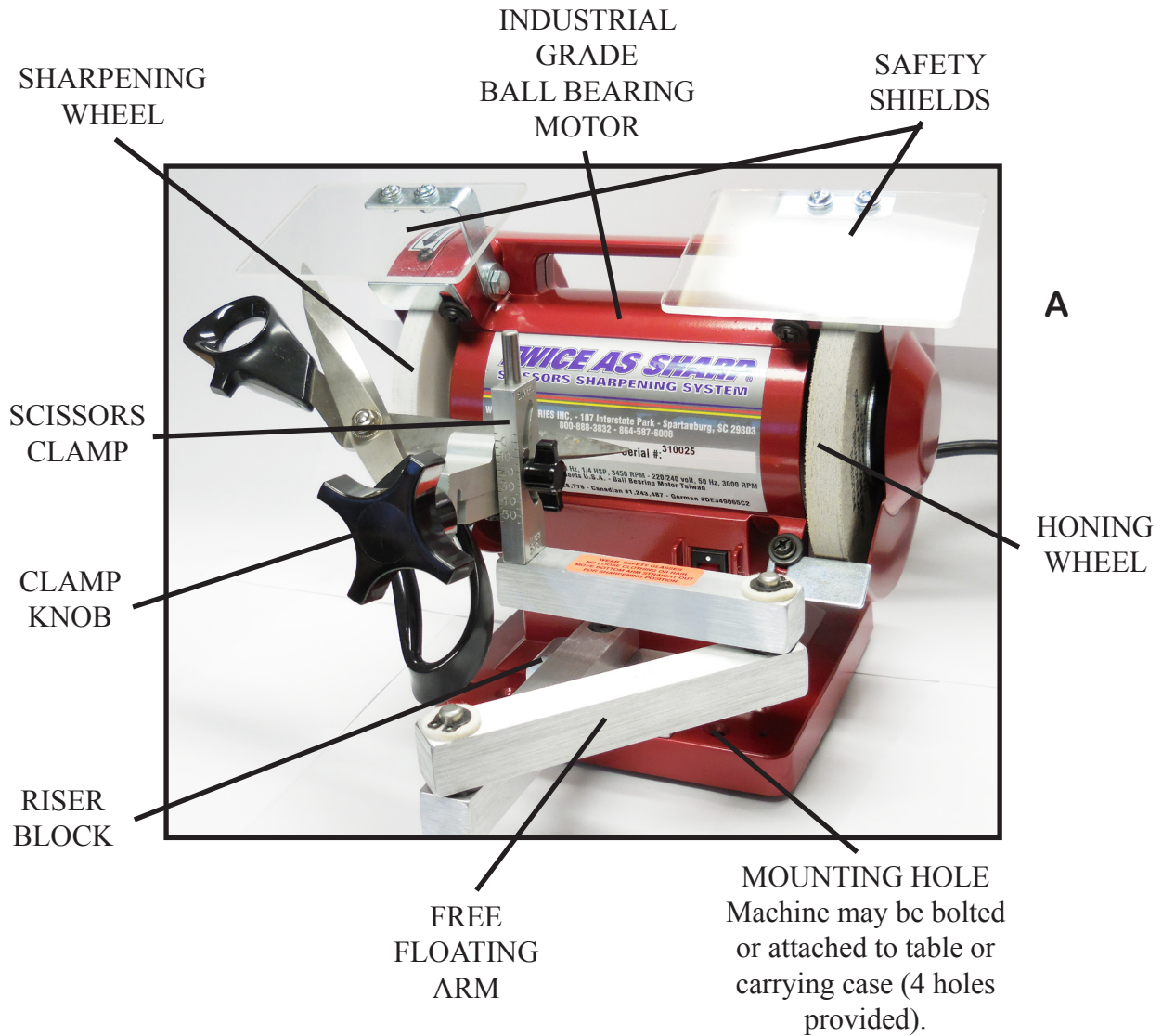
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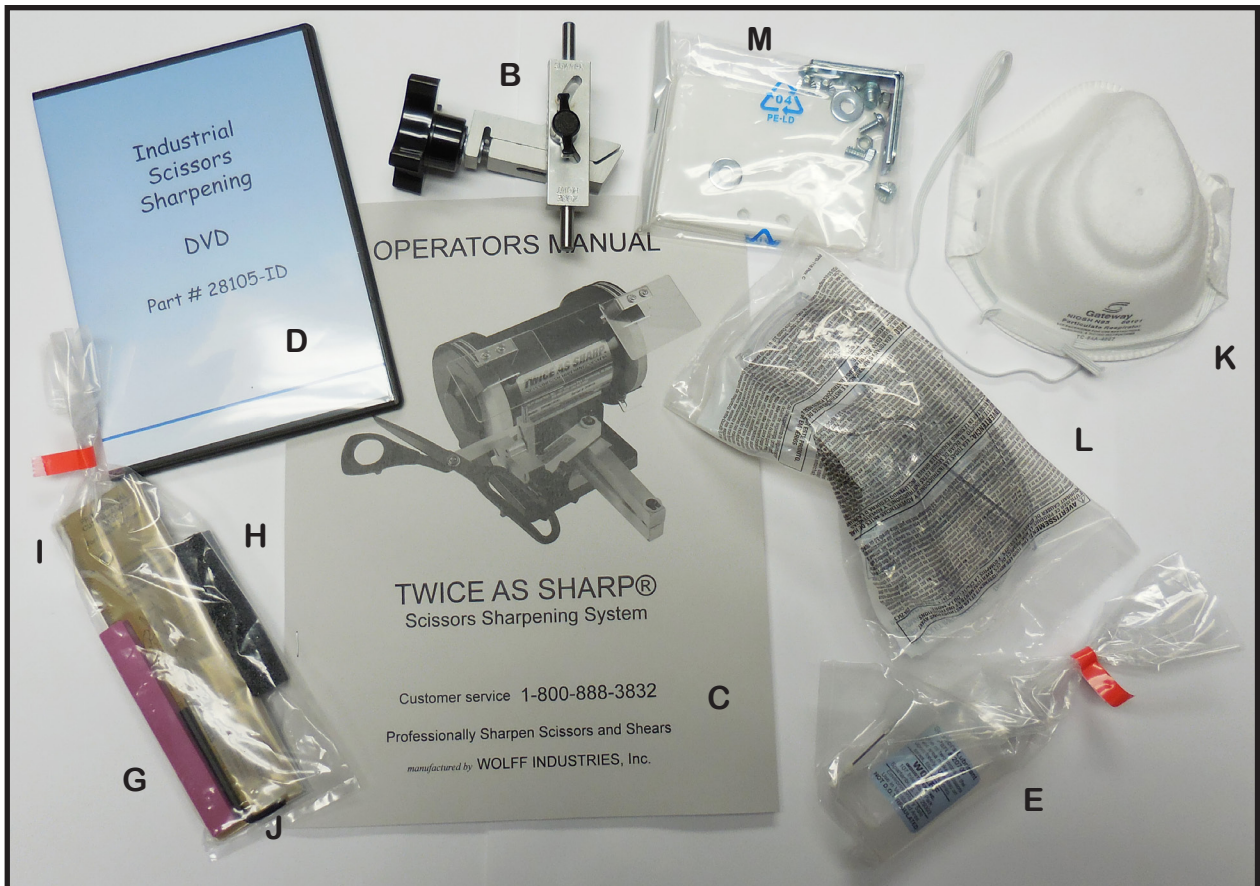
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**PART NAMES FOR
SCISSORS AND SHEARS SHARPENER**



PARTS INCLUDED WITH THE TWICE AS SHARP®

<u>DESCRIPTION</u>	<u>QUANTITY</u>
A Twice As Sharp® scissors sharpener	1
B Scissors Clamp #30004	1
C Operators Manual	1
D Instructional Video	1
E Scissors Lubricant # 20700	1
F Scissors Sharpening Sign # 20400	1
G Pink Hone # 20600	1
H Dressing Brick # 20620	1
I Angle Gage # 23000	1
J Hex Wrench # 20500	1
K Dust Mask # 20200	1
L Safety Glasses # 20300	1
M Safety Shield # 20100	2
M Screws for Safety Shield	2
M Washers for Safety Shield	2
N Scissors Quizer	1
O Warrany Card	1

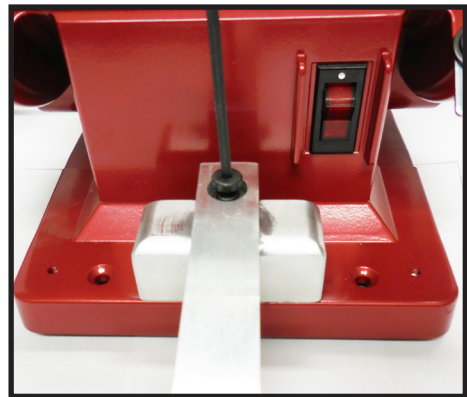


SET UP AND SAFETY

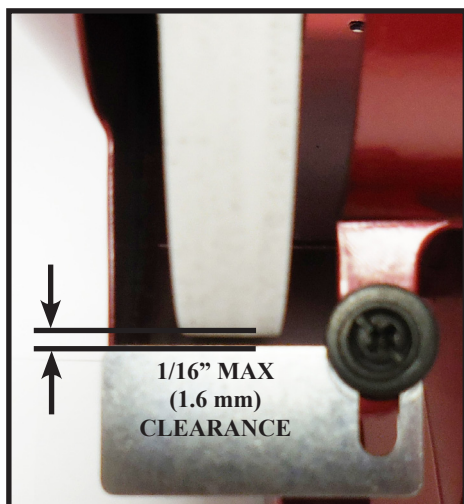
Inspect machine for shipping damage. Look for broken or bent parts. Notify freight carrier if damaged. Assemble plastic eye shields as pictured. Attach to the machine with screws provided. **NEVER OPERATE MACHINE WITHOUT EYE SHIELDS IN PLACE.**



Bottom arm set is fastened to the machine with an allen head screw. Loosen screw and move arm set straight forward to sharpening position and tighten the screw. If bottom arm loosens, tighten with hex wrench provided.



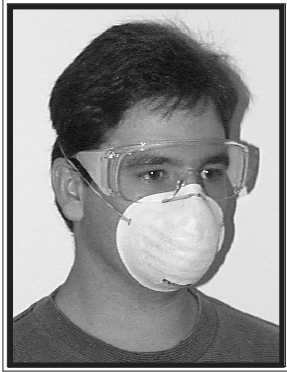
Sharpening Position



Be sure both wheels are tight and there are no chips in the left wheel. Damaged wheels can fly apart **and** cause serious injury. Adjust the two finger and two tongue guards to a maximum of 1/16 inch clearance between the wheel and the guards.

SAFETY CONTINUED

Plug machine into a 3 wire grounded receptacle only. Stand aside and let it run for one minute before using it the first time. Follow this step also after replacing a grinding wheel.



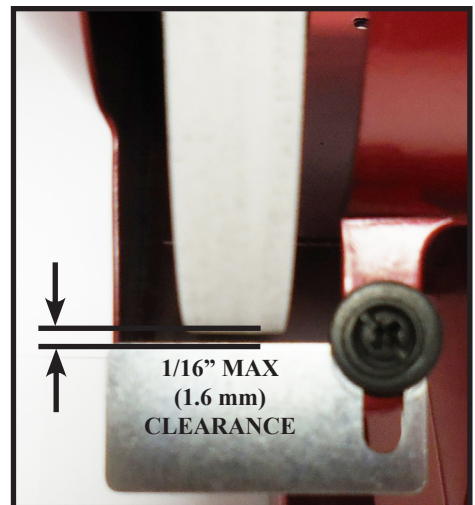
Use safety glasses and face mask to catch dust and grit. (Glasses provided are only for protection from flying grit and not intended for production work with danger from flying parts.)

MACHINE MAINTENANCE

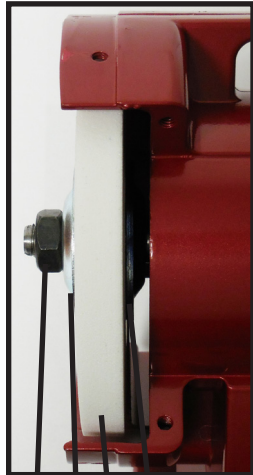
NEVER OIL any part of your scissors sharpening machine. Motor bearings are sealed ball bearings. Arm bearings are self lubricating and need no lubrication. Brush off grit as necessary. Replacement of worn wheels on page 10. If clamp movement becomes stiff or difficult, loosen angle knob and clean the grit out.

As the wheels wear adjust the two finger and two tongue guards to maintain the maximum 1/16 inch between the wheels and the guards.

After changing wheels, dressing wheels or adjusting the two finger and two tongue guards, make sure eye shields are in place and securely fastened.

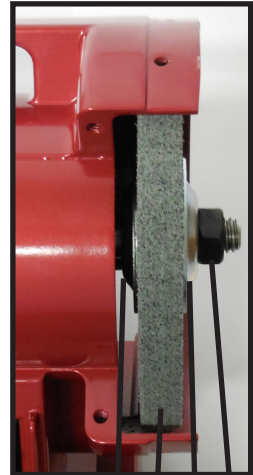


HOW TO CHANGE THE WHEELS



Left Hand Nut
Flange
Sharpening Wheel
Flange

Remove the three screws holding the end cover with a #2 Phillips screwdriver. Take cover off. Loosen the nut holding the wheel with a 3/4" wrench. Hold the wheel between your fingers when loosening or tightening, never put side pressure against the wheel. (The left wheel has a left hand nut and loosens clockwise.) Remove wheel and replace with factory wheel. **Paper blotters** must be on each side of wheel. **Never use** without blotters. Tighten nut firmly and turn by hand. If wheel has too much side movement, loosen, rotate, and retighten until you get the least amount of side movement. Replace cover and screws. (**Never run sharpener without covers on**). A new wheel must be allowed to run for at least one minute before using. **Do not** stand in front of sharpener during the first minute. **Never use cracked or chipped wheels.**



Flange
Honing Wheel
Flange
Right Hand Nut

DRESSING AN OUT OF ROUND WHEEL



This may be necessary during the life of the wheel if scissors bounce or chatter. Small grooves in the wheel will have no effect on sharpening. Use the same steps when replacing the honing wheel. If machine vibrates, loosen and rotate wheel(s) until it runs smoothly.

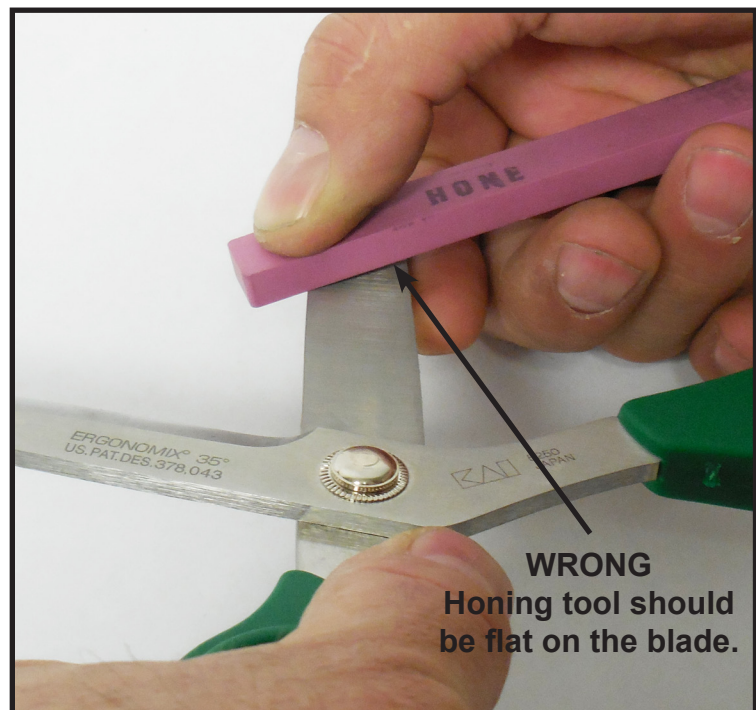
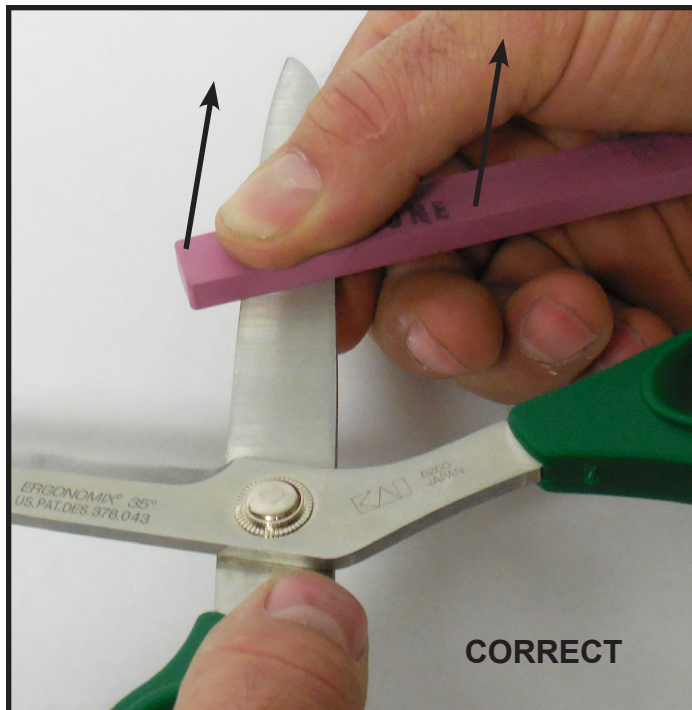
**Using Optional
#T-BAR to dress
the wheel.**



STEPS TO SHARPEN SCISSORS & SHEARS

STEP 1: HONING DAMAGED SCISSORS

Test scissors by opening and slowly closing to feel for nicks. Nicks and rough spots should be removed before sharpening. Slide the rectangular pink hone down the inside of the damaged blade as shown. Hold hone almost flat. Hone as little as possible as it dulls the edge and must be done before sharpening.



STEP 2: SELECTING ANGLES

The following angles are used on most scissors today and produce the greatest customer satisfaction. Sharpening old scissors with the new angles produces the desired cutting ability. Scissors that have been previously resharpened were often done at the wrong angle.

✂ ***SHEARS ARE NEVER TO BE SHARPENED AT NEGATIVE ANGLES.***

USES-TYPES OF SCISSORS AND SHEARS

- 0° Children's safety scissors.
- 5° Pinking shears (0° if they have been ground flat or negative),
- 10° Cast iron paper shears, and many surgical.
(On surgical it is best to measure angle and match).
- 20° Bandage shears. (Low priced imports are often soft steel and must be sharpened at flat angles to hold an edge).
- 25° Embroidery, cuticle, nail, grass, and hedge trimmers, most blades with cutting lengths of 1 ½" or less.
(Professional beauty and barber, page 25).
- 30° For sharper edges on short scissors such as embroidery.
- 35° Most fabric shears 7" or longer, tailor, and industrial shears.
- 40° Sharper edge for heavier cutting.
- 50° Knife edge, normally one blade 50° and the other blade 20°
(see page 24). For thick, hard to cut material 50° to 55°.

NOTE:

Steeper angles actually stay sharp longer on good quality shears. When in doubt on angles, use the plastic angle gage available from factory. (Plastic gage prevents damage to cutting edges)

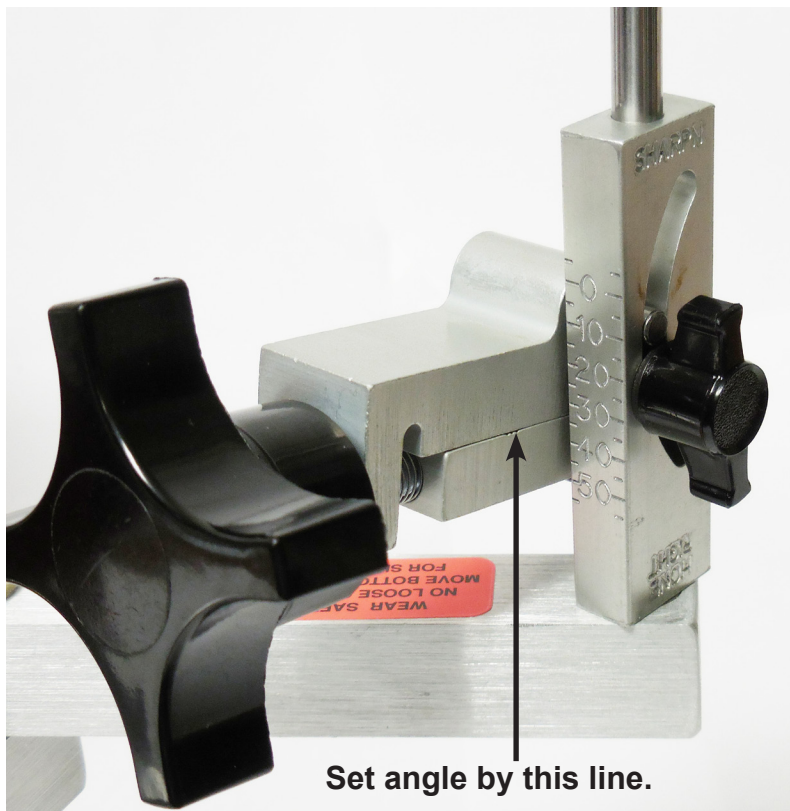


SPECIAL ANGLES FOR INDUSTRIAL SHEARS

- CUTTING USAGE/TYPE SHEAR**
- 45° Canvas & heavy leather, usually 10" to 14"; 50° & 20° for knife edge shears.
 - 15°-25° Fiberglass, quartz, any type shear
Note: glass is harder than steel and quickly breaks edges
 - 35° Kevlar™ (aramid), any type, polish 1 blade
Note: shears require heavier set and often corrugation on blade to stop slide. This is difficult material to cut. Kevlar™ is a registered trademark of Dupont. Contact factory for more details.
 - Match Surgical, any type, measure angle.
 - 10°-15° Tin snips, long length, heavy metal.
 - 15°-20° Tin snips, short length, thin metal.
 - 35° Poultry, regular cutting, evisceration, polish both blades.
 - Match Synergist coated, any type match manufacturer's angles

Special problems, contact factory at 800-888-3832

STEP 3: SETTING CUTTING ANGLE

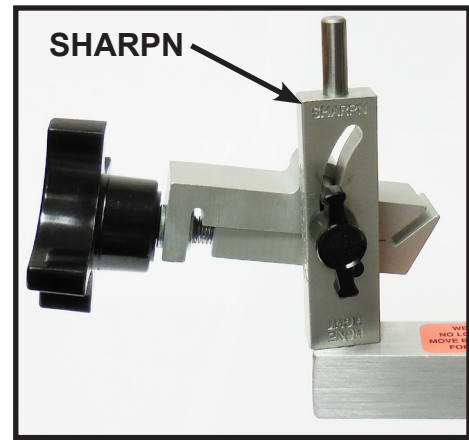


Loosen small black knob and move the clamp to the desired angle. The angle is determined by the break line (space) between the upper and lower sections of the clamp.

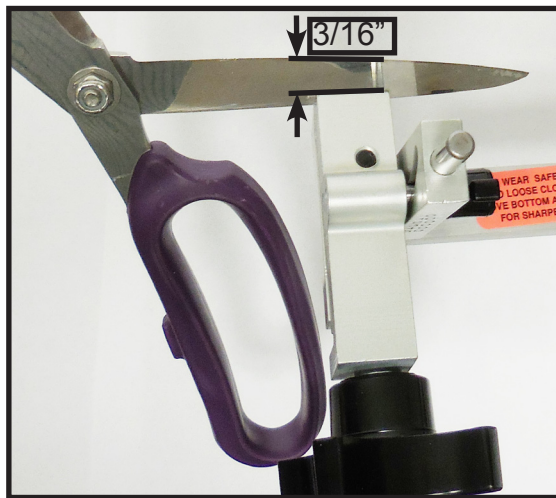
NOTE: Sharpen all scissors with the same angle setting before resetting the angle to save time. Small variations in angles won't noticeably affect cutting.

STEP 4: INSTALLING CLAMP

Place scissors clamp in the hole in the top arm. The word SHARPEN must be on top as pictured.



STEP 5: CLAMPING SCISSORS



Place scissors in clamp. Be sure that the inside of the blade is facing you (up) as pictured on the right. Tighten large black knob until scissors are held firmly. Small scissors may be clamped on handle or pivot. True left handed shears, see page 20. You won't be able to clamp left handed shears with inside facing up.

For the most accurate sharpening, the blade should protrude about 3/16 inch above the clamp. Teeth on pinking shears must face upward. For true left handed shears, see page 20. Very large shears need to be clamped closer to the tip to allow for full sharpening.

STEP 6: SHARPENING SCISSORS

To sharpen, slide blade across the LEFT wheel slowly with a light pressure against the wheel. Keep arms in the position shown and move fixture from right to left. If machine slows down, use less pressure. Slide blade from pivot to tip.



STEP 6: SHARPENING SCISSORS - continued

Release pressure from wheel when tip reaches center of wheel. Repeat until a burr can be felt along the entire length of the blade. This burr, on the inside of the blade, shows that this step has been completed. You feel the burr by sliding your finger towards the cutting edge. A curved cutting edge is sharpened by keeping the edge parallel to the grinding wheel.

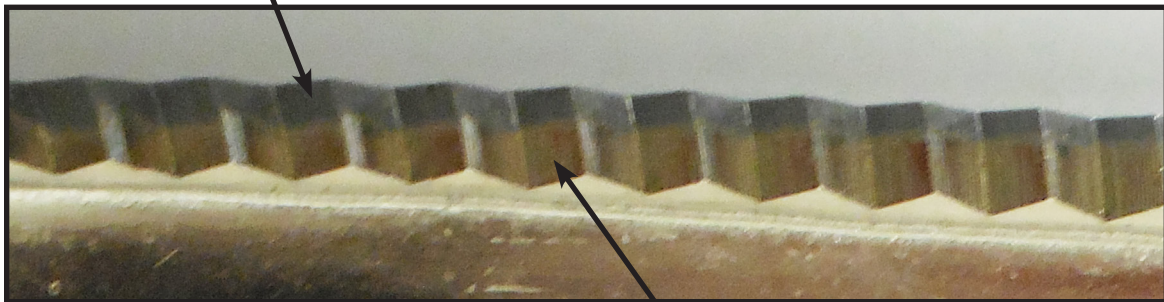


PINKING SHEARS

BE SURE THAT THE TEETH FACE UP!
(True left handed shears; follow instructions on page 20. Teeth will then be down.) NEVER sharpen between the teeth. Note 0° to 10° angle. Pinkers are sharp when new grind is across the full V grooves and tips of V's come to a sharp point.

Dark area at top of blade is where the pinking shears will cut.

Pinking Shears Lap Line



Pinking shears do not cut in the light area at the bottom of blade. If the lap line is not visible do not attempt to sharpen. Sharpen pinking shears through step #8 and test cut on 1 - 2 layers of cloth. If they cut, stop, if not do step #9 for both blades.

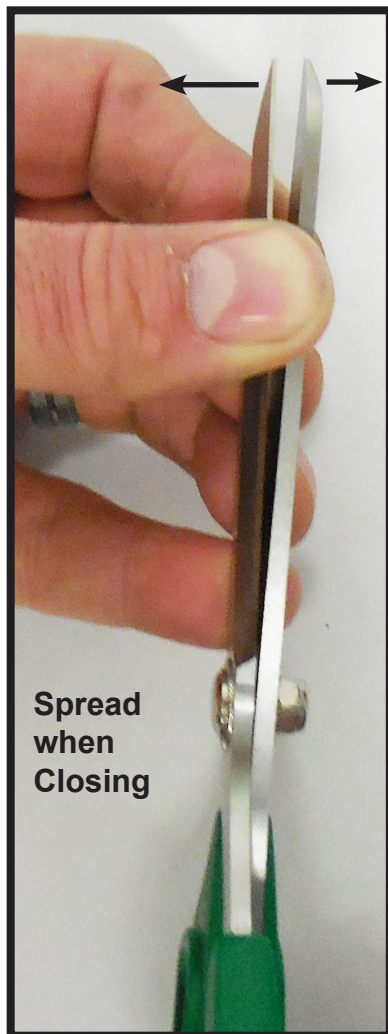
STEP 7: REPEATING STEPS 5 & 6

Release scissors by loosening large black knob. Turn scissors over and repeat steps 5 & 6 unless the other blade has serrations you don't wish to grind off. Serrations are useful on kitchen, poultry, thinning shears, and a few barber shears. Shears can be serrated with the diamond corrugating file after sharpening.

IMPORTANT

***DO NOT LET BLADES TOUCH EACH OTHER WHILE CLOSING
SPREAD THE BLADES APART WHILE DURING THE FIRST TWO CLOSINGS.***

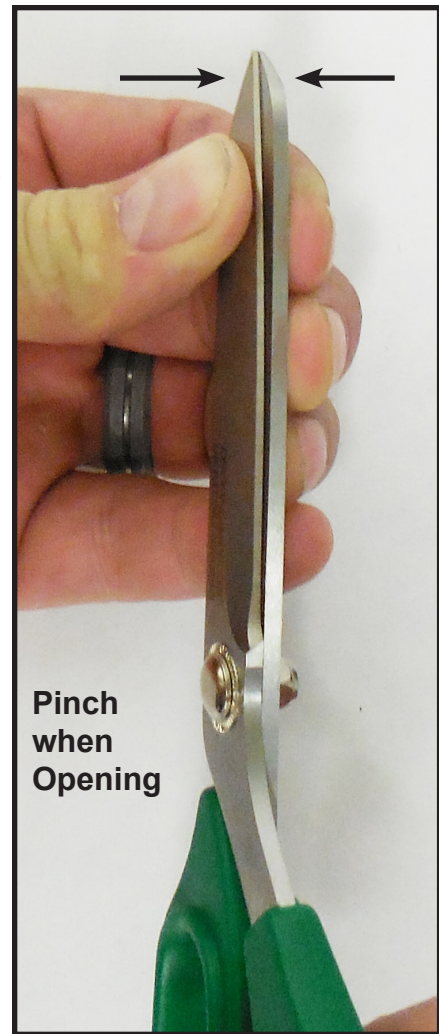
***PRESS THE BLADES TOGETHER (TOUCHING)
WHEN OPENING THE SCISSORS BACK UP.***



STEP 8: DEBURRING

***NEVER CLOSE SCISSORS
THAT HAVE BEEN NEWLY
SHARPENED UNTIL YOU
DO THE FOLLOWING:***

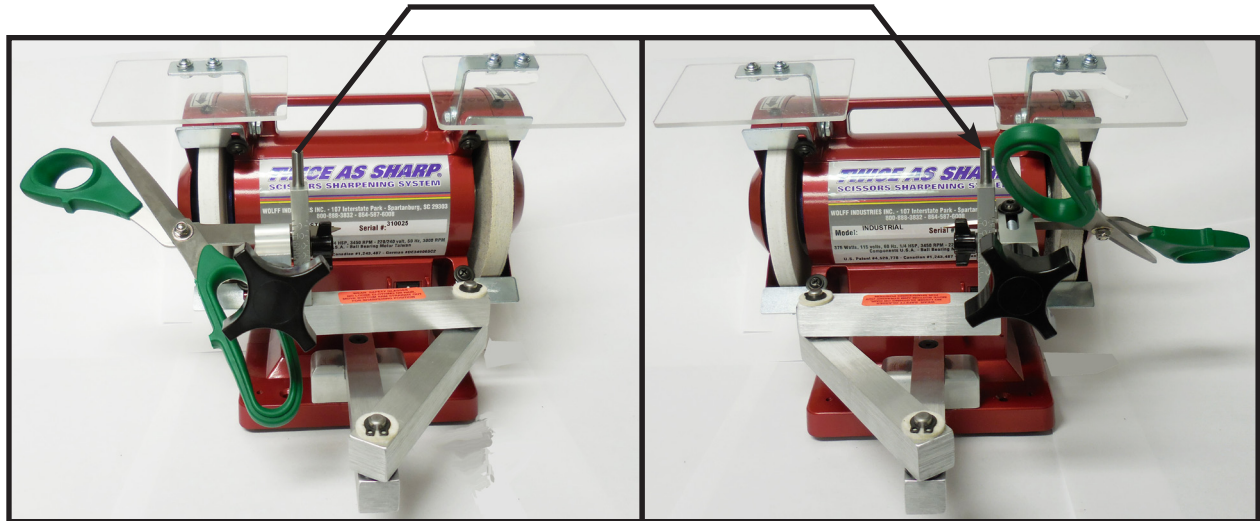
Both sides have now been sharpened and have burrs on them which require careful removal to prevent damage to the cutting edges. On the first two closings, the blades ***MUST*** be pushed apart while closing. If the burrs cut into each other, the cutting edge will be damaged. Press the blades together firmly while opening the scissors to pull the burrs back from the cutting edge.



EXCEPTION: To deburr cast iron shears, ***cut through paper***, (do not spread blades apart). All sharpening creates burrs, but with proper handling, scissors can be made twice as sharp as most brand new scissors.

STEP 9: HONING

Clamp scissors again as you did to sharpen, then lift clamp out of the bearing hole and turn clamp upside down. Swing top arm to the right to hone on the right hand wheel. Slide the blade against the right wheel with firm pressure several times. Slide from pivot to tip, stopping when the tip is in the center of the wheel. Repeat several times until a light honing burr is created. Remove scissors and close the blades cutting off the tiny honing burr.



Lift Clamp

Invert Clamp

Insert Clamp

..... ***CRITICAL STEP***

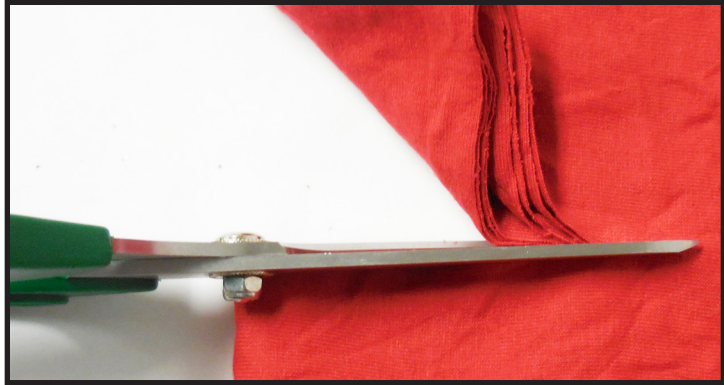
DO NOT SPREAD THE BLADES

CLOSE THE SHEAR TO CUT OFF THE BURR, THEN HONE THE SECOND BLADE IF NEEDED, CLOSE THE SHEAR AND CUT OFF THE HONING BURR.

It is normal to hone one blade to prevent slide. However on pinkers, grooming shears and shears used to slide cut, both blades are honed. If scissors do not cut properly, repeat the honing step # 9 - Remember if you are honing both blades ***you must close*** the shear ***after each*** blade.

STEP 10: TESTING

Your scissors are now sharp. Close several times normally, then wipe clean with cloth and test as follows;



- Pinkers, embroidery: 1 to 2 layers, 8 to 11 oz. double knit
- Kitchen: 3 to 4 layers, 8 to 11 oz. double knit
- Fabric scissors: 6 or more layers, 8 to 11 oz. double knit
- Knife edge: 2 to 24 layers, 8 to 11 oz. double knit
- Paper scissors: test on 2 layers of newspaper
- Barber: 1 layer paper towel, hair if available
- Hair thinning shears: 1 layer of 20 lb copy paper
- Surgical shears: 1 layer of latex rubber

(Some latex has talcum powder on it and must be wiped off both shears & latex.) Cutting 1 layer of heavy nylon tricot will test for burrs. If scissors do not perform properly, hone or resharpen if needed. With a little practice, you should be able to sharpen 20 to 30 pairs an hour.



STEP 11: LUBRICATING AND CLEANING

Put one drop of scissors lubricant, Part # 20700 on the pivot and along the blades. Wipe off excess fluid and lint. This lubricant dries quickly and will not stain or attract lint as oils do. It also improves pivot life and feel. The film it leaves on the blades helps stop rust. (Lubricant furnished with this machine is available as a replacement part.)

SHARPENING FOR PROFIT

With this sharpener, you can do professional work and should charge accordingly. These are approximate retail price, check your local area for current sharpening prices:

Small scissors, embroidery etc.....	\$4.00 to \$6.00
Fabric shears 7" to 9"	\$5.00 to \$8.00
Industrial Shears, tailor 10" to 12"	\$8.00 to \$10.00
Kitchen, paper shears	\$4.00 to \$5.00
Pinking shears	\$8.00 to \$10.00
Knife edge or special shears	\$8.00 to \$12.00
Professional barber and grooming shears . . .	\$10.00 to \$20.00

Above prices on barber and grooming shears are based on using the professional honing wheel on the Twice As Sharp® scissors sharpening system.

Occasionally you will find scissors that have defects that will not sharpen out. We suggest you do not waste time. Simply return them to the customer without charge. The shears should be better than they were and the customer will not be unhappy. (If you sell scissors and shears, you may be able to make a sale.)

Sharpening High Quality Beauty & Grooming Shears

Convex Edge Beauty shears	\$20.00 to \$35.00 *
Convex Edge Grooming shears.....	\$20.00 to \$35.00 *

* We recommend using the OOKAMI GOLD® sharpening system or the HIRA-TO® to sharpen salon shears. These shears are hollow ground with a convex cutting edge.

Sharpening Corrugated Scissors for hard to cut materials like Kevlar®.

Modified Thread Snips	\$10.00 to \$20.00 **
Modified Scissors < 8"	\$15.00 to \$25.00 **
Modified Shears > 8"	\$20.00 to \$30.00 **

** Sharpen modified scissors and snips using the Twice As Sharp scissors sharpening system and the Corru-Gator.

It is better to have small sharpening price increases every two to three years to lessen the impact of sharpening increases on your business.

***Contact Wolff Industries, Inc.
for more information on the OOKAMI GOLD®, HIRA-TO®,
Rotary Blade Sharpener and CORRU-GATOR.***

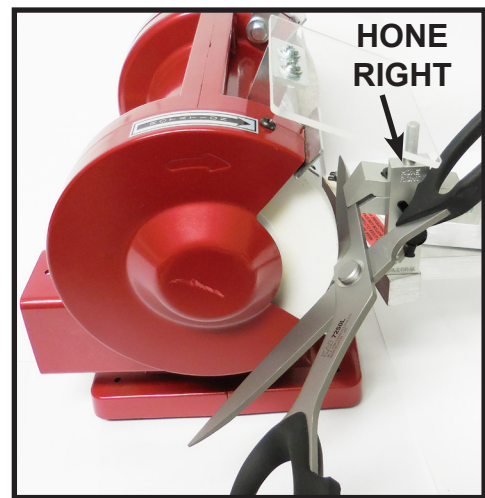
SPECIAL INSTRUCTIONS FOR “TRUE” LEFT HANDED SHEARS

Right Hand Shears



True Left Hand Shears

1. Set the angle at which the scissors are to be sharpened and put the clamp in the “hone” position (hone is up and readable).
2. Clamp the scissors with the outside of the blade facing upward (handles to the left).
3. Sharpen the blades and remove the burrs as you would with right hand scissors.



4. Leave the clamp in the “Hone” position when you move to the polishing wheel.
5. Hone the blades on the right hand corner of the honing wheel, with your left hand.
6. Test the scissors and perform finishing steps.

Note:

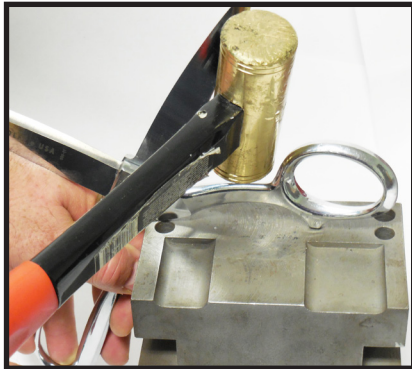
If you are sharpening several true left hand scissors you can reverse the wheels. The clamp will be in the normal position, sharpen on the white sharpening stone on the right hand side of the sharpener, and hone on the honing wheel on the left hand side.

RECONDITIONING OF SCISSORS AND SHEARS

After resharpener, it adds value to your work and satisfaction to your customer if you check the following items.

Making Tips Match

Soft or Plastic Handled Shears: Grind material from handle so that tips meet and cross slightly.



Metal Handled Shears: Bend the handle as shown by placing the thumb handle on a vise or steel block and hitting with a hammer until the tips cross each other slightly. If you over bend, turn the scissors over and bend back.

WARNING

Cast iron shears are brittle and will break. Cast iron has a coarse grain structure and can be seen by looking between blades behind the screw. You can also test by filing on the handle, if hard the file will not cut the steel. If metal is hard, don't attempt to bend. Metal should file away easily to signify being able to be bent.



Finishing the Tips:

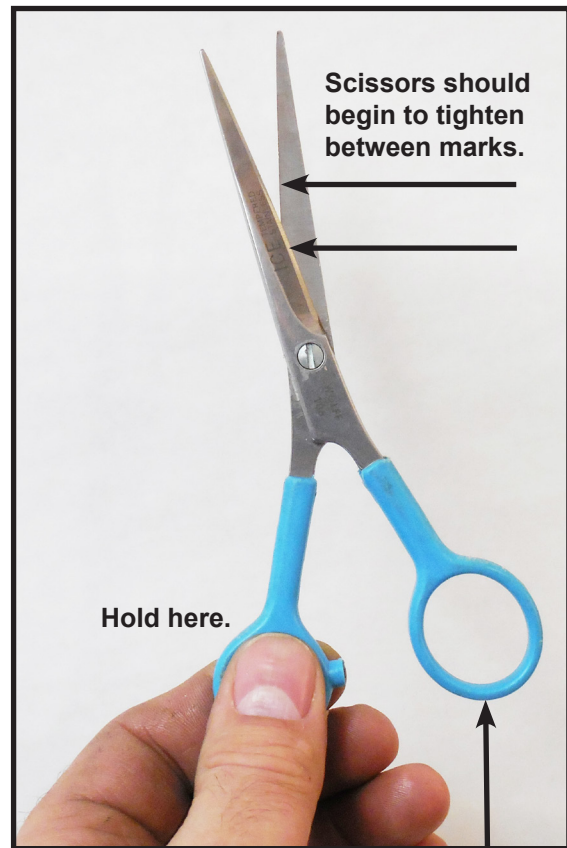
With scissors closed, press the tip of scissors straight into grinding wheel. This insures that both blades match. Be careful not to over do this.



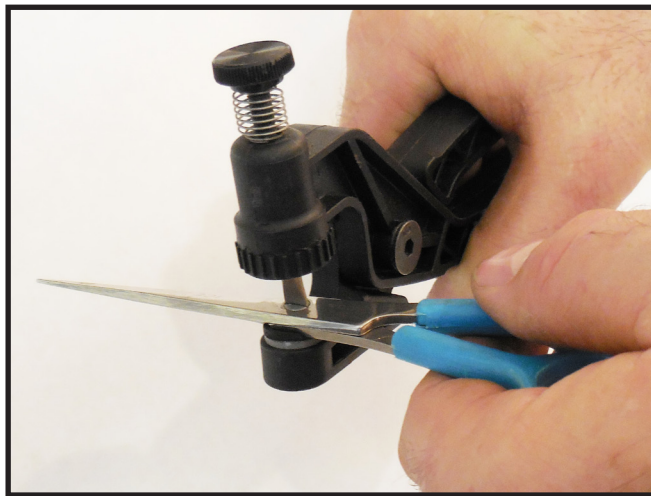
Polish the back of tips to prevent scratches and snags. Open scissors and hold the outside of the tips against the honing wheel.hone as pictured.

Balancing Shears or Setting Free Fall

Set free fall by holding one handle vertically and allowing the other blade to fall freely from a fully open position. The blades should begin to touch slightly at position shown. Adjust screw or tap on head of rivet to tighten or loosen blades as needed.



Let this blade fall free. It should begin to tighten in the position shown.



NOTE: Scissors pliers are available from your supplier or factory. Pliers help prevent damage to screw heads.

Screws

The use of the scissors set screw pliers is important to keep from damaging the head of the screw. Squeeze the pliers firmly before turning. If the screw is smaller than the blade, remove the bit and install the correct size bit. A drop of scissors lubricant should be applied to the back of the screw so it will turn easier. A drop of lubricant under the head will clean out foreign matter from the pivot so free fall adjustment won't change. If you need screws, assortments are available from the factory.

Rivets

Loosen Blades: To loosen blades, place head of rivet over a hole in a block of steel or open vise (3/8" opening) and tap back of rivet with hammer.

Tighten Blades: To tighten the blades, place head of rivet on steel block or vise and tap back of rivet with hammer.

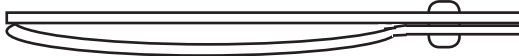


ALWAYS USE LUBRICANT under the screw head before you adjust. Barbers may like their shears looser to reduce fatigue, but loose shears may not cut correctly as they tend to spread apart.

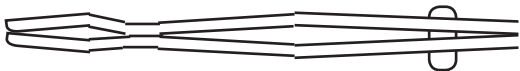
IF THE SHEARS STILL DO NOT CUT, CHECK THE SET OF THE BLADES.

With the shears closed there should be daylight between the blades where only the tips and the ride area are touching. The blades should also flow in a positive curve; no dips or kinks.

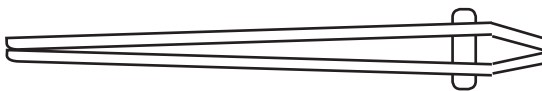
Any problems with the set of the blades should be adjusted and the shears re-tested.



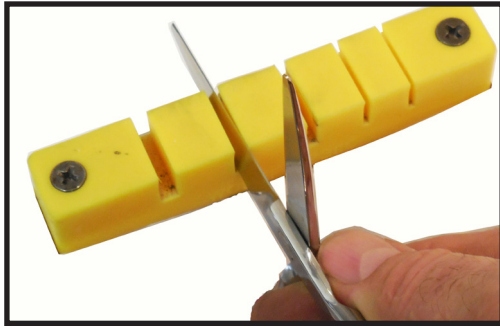
NO GOOD - No gap under the pivot, one blade is straight, the other has too much set.



NO GOOD - Blades come together in the middle and leave a gap near the tips that will not cut.

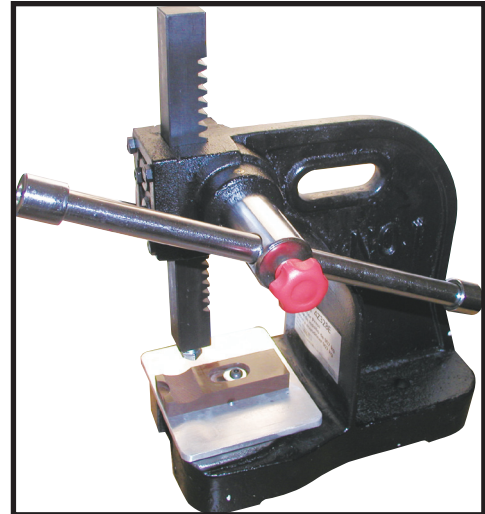


GOOD - Gap under the pivot and proper set to the tips. Gap = .006" - .012" (2 - 4 sheets of paper)



Adjust set using Set Adjusting Tool, part # 23110 for small scissors and shears.

To adjust set on large shears use Scissors Press Accessory, part # SPA110.



SPECIAL INSTRUCTIONS FOR KNIFE EDGE SHEARS

These shears will have two angles, one about 20° and one about 50°. (Maximum angle possible with machine is 57°). Sharpen the flat angle first with an angle of approx. 20°. Next reset the clamp to about 50° and sharpen the knife edge. Close and deburr as in step #8. Reclamp the knife edge in the fixture (the edge you just sharpened) and hone, step #9. Hone only one edge, the knife edge. Handle with care as knife edges are very sharp and will cut 20 to 36 layers of cloth. Sharpen flat blade first and knife edge second. After honing, cut off the honing burr.

SHARPENING PROFESSIONAL BARBER SHEARS

Many of the better barber shears used by professionals are now sharpened at 35° or more. We recommend at least 35°. Follow the regular instructions for normal sharpening or instructions below for super sharp edges.

HAIR THINNING SHEARS

Sharpen the straight blade first, deburr, hone and test. If they do not cut properly check to see that blades are crossing each other, rehone. If the comb blades are damaged you may hone them, you may remove the slots.

HIGH PERFORMANCE BEAUTY SHEARS

Many Japanese and German beauty shears require special sharpening methods. High quality convex edge beauty and grooming shears should be sharpened on the OOKAMI GOLD® or HIRA-TO® sharpening systems.

If your machine is not equipped with the professional honing wheel, you SHOULD install one in place of the regular buffing wheel. This wheel makes shears up to 50% sharper and most of the time honing (buffing) is enough to re-edge without grinding. This is the best way to sharpen professional shears. BE CAREFUL as these edges are as sharp as razors. Practice first on several pair of inexpensive stainless shears trying a 35° to 40° angle. If hairdressers like the way you sharpen these, then you will have no problem with high quality shears. (This is the safe way to start).

A. Match the original angles as closely as possible by placing the clamped shear against the sharpening or honing wheel (MOTOR OFF) and adjust angle to match the cutting edge. You also can measure the angle with the angle gage that comes with your scissors sharpener. Older shears with flatter angles may be improved by increasing angle to at least 35°.

B. Grind shears only if they are very dull or if you are making a steeper angle. If you do grind, do it VERY LIGHTY until you feel a slight burr.
(***Do not over sharpen***, this reduces the overall life of the shears).

C. Deburr normally by spreading blades apart when closing. Squeeze when opening to be sure burrs won't damage edges. As in sharpening step # 8, page 16.

D. Hone one blade until a burr is formed, then close the shear on two layers of paper towels cutting off burr and repeat with other blade. If the customer insists on corrugations, the blade as sharpened on the sharpening stone is usually rough enough. If you need to use a corrugating file, don't hone the blade to be corrugated. We recommend using the diamond file part # 22200 to corrugate.

E. Repeat honing steps until each blade has been honed and a light burr has been created. Close shears after each honing. Test on one or two layers of Viva® paper towels or hair. If they do not cut easily or cleanly, then re-hone and cut the burr off each blade again. Round and polish tips. Adjust free fall, as they may be quite loose and still cut. When testing do not push handles sideways forcing blades together as you might get false results, instead test by closing the blades with no side pressure.

***Contact Wolff Industries, Inc.
for more information on the OOKAMI GOLD®, HIRA-TO® and CORRU-GATOR.***

***SHARPENING OF:
WOOD CHISELS
BONE CHISELS
SEWING MACHINE KNIVES
CUTTING TOOLS***

A wider clamp with a slot in the side is available so that long tools can extend below the clamp as pictured to the right. This allows the sharpening of tools not possible with a standard clamp. The wide clamp may be too wide for some applications so it is sold as an extra item.



WOOD, BONE, AND OTHER CHISELS

Most chisels have angles of 45° to 50°. If the angle is more than 55°, which is the maximum that the clamp can be set at, set the clamp to the maximum angle and move chisel higher in the clamp until it matches the sharpening wheel (with motor off). Turn the machine on and sharpen until you feel a small burr at the cutting edge, then deburr as described above with pink hone without removing chisel from clamp. Then turn over and readjust the chisel in the clamp so the edge is centered on right wheel (with motor off). Turn the motor on and hone the chisel until a light burr is created. Hone burrs away from cutting edge with pink hone for best edge.

Note: Some sewing machine cutting knives can be sharpened on the Twice As Sharp®

SEWING MACHINE CUTTING KNIVES

You should match the original angle. Place the cutting edge parallel to the face of the clamp, then slide as straight as possible across the face, or if necessary, the side of the wheel. Don't wear the wheel too thin if side sharpening. Without removing from the clamp, hone the burr away from the edge with pink hone. Next turn clamp over to the hone position and polish the blade on the right wheel. Hone burr away again from edge, using the pink hone.

CARBIDES

Today many special tools and cutting devices are being made of carbide due to its hardness and long life. Some surgical scissors have carbide inserts. Two things tell you that it is carbide: first, its gray color; second, if you try to sharpen it, the sharpening wheel will wear rapidly and the carbide won't grind away. You must use silicon carbide or diamond wheels. Diamond is the best, but for limited use, silicon is suitable. Call the factory for recommendations on the type of wheel and grit to use. The factory diamond wheels are the more expensive type made to sharpen both steel and carbide.

SHARPENING CARBIDES

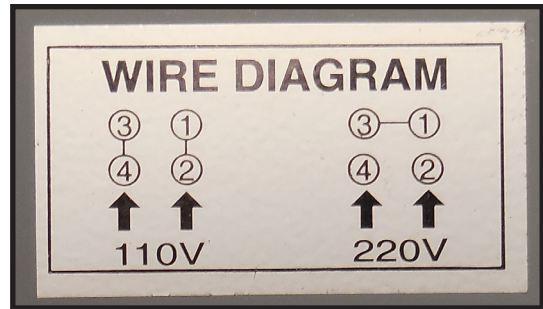
Match the angle and sharpen. Carbides are so brittle that they do not create burrs so it is not necessary to deburr on the right wheel. The cutting angle is usually quite flat, 10° to 30°. A 240 grit diamond is suitable for roughing but good edges require 400 to 600 grit. Diamonds cut quickly so do not over sharpen.

CONVERTING FROM 110 VOLT TO 220 VOLT

*** WARNING ***

UNPLUG THE SHARPENER FROM POWER SOURCE
BEFORE ATTEMPTING TO CHANGE THE SETTINGS.

To convert the Twice as Sharp® scissors sharpening system from 110 volts to 220 volts.

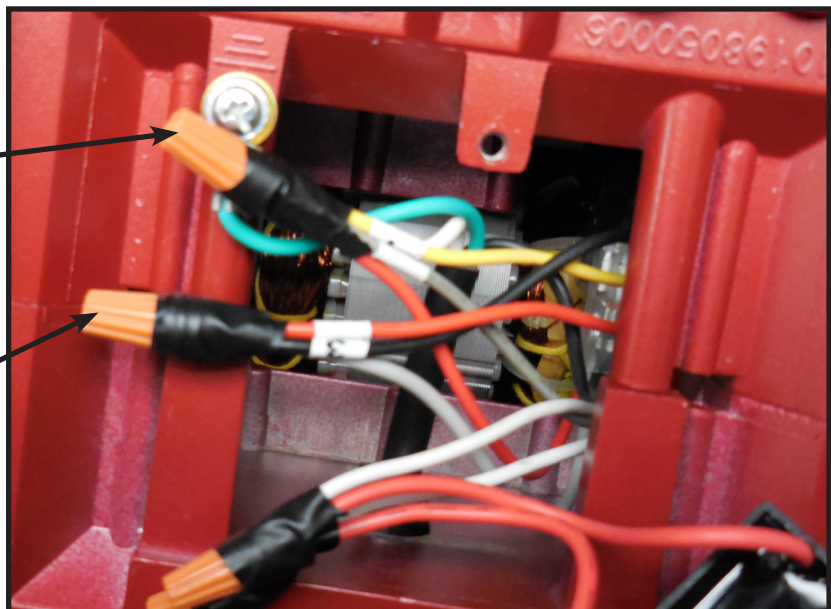


1. Turn the sharpener on its back. Remove the four feet from the bottom of the sharpener. Remove the base plate to expose the current connections.
2. Find the wire marked with # 1, loosen the wire nut and remove wire # 1, reconnect the other wires.
3. Find the wire marked with # 3, loosen the wire nut and remove wire # 3, reconnect the other wires.
4. Connect the # 1 wire from step 2 and the # 3 wire from step 3 together with a new wire nut.
5. Install the base plate and four feet. Plug machine into a 3 wire grounded receptacle only and check out the sharpener for proper operation.

Wired for 110 Volts

Yellow 1
Gray 2
Red from switch
White from power cord.

Black 3
Red 4
Gray from switch



SCISSORS TYPES

Scissors are usually short and only have room for one finger in each handle. Shears are longer and have room for at least two fingers in one handle.



SAFETY SCISSORS
blunt tip

THREAD CLIP
also call a nipper

APPLIQUE SCISSORS
handles bent to allow blades to sit flat

CARPET SHEARS
handles bent to allow blades to sit flat

UTILITY SHEARS
for thick materials

BANDAGE SCISSORS

EVISERATION SHEARS
poultry

HIGH LEVERAGE
short cutting blades with large handles

PLASTIC HANDLE STAMPED SHEARS
straight trimmer

PLASTIC HANDLE STAMPED SHEARS
bent trimmer

FORGED HEAVY DUTY SHEARS
bent trimmer

EMBROIDERY

2 sharp points often with plastic handle

CUTICLE SCISSORS

curved blade

FLASH TRIMMING SHEARS

straight and curved blades for trimming flash

EMBROIDERY SHEARS

used to trim threads in embroidery loops
bent handles and curved blades

GROOMING SHEARS

straight and curved blades, may have safety tip

CONVEX EDGE BEAUTY SHEARS

should be sharpened on OOKAMI GOLD® or
Hira-To® sharpening systems

THINNING SHEARS

thins hair or fur

SPRING LOADED SHEARS

spring opens blades up

FORGED DRESSMAKER SHEARS

with Japaned handle (black laquer finish)

PINKING SHEARS

see page 15 to check lap line



**SCISSORS AND SHEARS
TERMS DICTIONARY**

- Balance:* The final adjustment steps of scissors and shears sharpening are referred to as balancing or finishing.
- Bearing:* Any material between the screw and the blade it pivots on is a bearing. This may be a nylon washer or a tiny ball bearing.
- Bow:* (see Set)
- Bumper:* Between the handles (at the point they touch) of fine barber and beauty shears, there is often a small rubber or plastic shock absorber, called a silencer or bumper. This serves as a stop for the shears and keeps them quiet as the handles come together.
- Carbide:* Carbide is fine particles of metal combined with carbon. It is harder and more brittle than hardened steel. Because of its hardness, it is used for masonry drill bits and metal cutting saws.
- Carbon Steel:* Carbon steel is iron (Fe) with about .5 % - .8 % carbon added for hardening. A carbon content that is too high causes extreme brittleness.
- Cast:* Casting is metal poured into molds while heated to a liquid state. This is not commonly used, except for cast iron shears.
- Ceramic:* Ceramic is a porcelain like material, (usually with a high alumina content), pressed from a powder and fused at a high temperature. Ceramics are very hard and have a long wear life, but are also brittle and subject to breakage and chipping. Ceramic shears are best returned to the importer for sharpening.
- Convex Blade:* The outside of a convex blade flows (rounded) into the cutting edge without an obvious bevel. This adds strength to the blade and cutting edge.
- Corrugation:* Corrugations are small teeth on the scissors cutting edge (one or both blades) that provide holding power to keep the material (hair, fabric..etc) from sliding. These are found mostly on pet grooming or low priced barber and beauty scissors.
- Cut Length:* The length of cut is measured from the pivot to the tip on scissors and shears.
- Forged:* Forged shears are stamped to shape while the metal is red hot (soft). This produces high carbon shears that are good to high quality. Most large tailor and industrial shears are made this way.
- Free Fall:* Free fall is the measurement of how far the scissors close while holding one blade tip pointed up and letting the other handle drop. This may be considered the point where the blades contact each other.

Hardening: Martensitic (hardenable) steels are heated to 1550⁰ F for carbon steel and 1950⁰-1975⁰ F for stainless. They are then quenched rapidly. Carbon steel is usually cooled in salt pots, by immersing blades to just past the ride. This leaves the handles soft, so that they can be bent to size the tips. Stainless steel is often done the same way. When stainless is hardened in a vacuum oven, the entire blade and handle are hardened. It is hard to bend these handles without breaking them. After quenching, blades are cooled to about -100⁰ F. This converts retained austenite (soft) particles to hard martensite. The steel is now very hard, but extremely brittle and must be drawn in an oven at 375⁰ - 400⁰ F for about 1 hour to make it flexible (ductile).

Hardness: Metal hardness is measured using the Rockwell C scale.

Shears	54 - 60	(occasionally 61 - 62)
Files	60 - 62	
Drill Bits	52 - 55	

Hollow Grind: The inside of a hollow ground scissors blade, from the cutting edge to the back of the blade, is concave or hollowed-out. This hollowed-out area produces a lined inside edge which gives a smoother feeling cut. (Less metal to rub.) Most finer, high quality, barber and beauty shears are ground this way.

Ice: This is a metal hardening process. Stainless steel is heated to almost 2000⁰F and then cooled to about -100⁰ F. All quality shears are ice tempered, even if not marked.

Length: Scissors and shears are measured overall from tip to the end of the handle (including any tang).

Overlap: The blades must cross one another (overlap) all the way to the tip to perform the cutting action. (see SIZING)

Pivot: A pivot can be any fastening device that holds the scissors blades together.

Ride: The ride is the area just behind the pivot and where the two blades come together. (see SET)

Scissors: Scissors are usually smaller than shears and only have room for one finger and the thumb.

Set: The set of the scissors is the amount of gap between the blades. With the blades closed, only the tips and the ride actually touch. The set provides the spring pressure that causes the blades to stay touching during the cutting action. Too much set and the blades cut into one another or are very tight. Too little, and the material being cut folds between the blades.

Shears: Shears are usually larger than scissors and have room for more than one finger and the thumb.

Silencer: (see Bumper)

**SCISSORS AND SHEARS
TERMS DICTIONARY - CONTINUED**

Sintered Metal: Made in a powdered form, scissors are pressed to shape, then hot isostatic pressed to form a solid piece of metal.

Sizing: Sizing is setting the overlap of the blades, especially the tips.

Stainless Steel: Stainless steel is made from steel with 11% to 18% chromium added for high quality and hardness. (Stainless steel shears have about 16% to 18% chromium.) Also, the addition of manganese and molybdenum add hardness and toughness. Cobalt may also be added for improved feel and toughness.

Stamped: The shears blades are stamped from rolled steel using a formed die. These are the lowest cost shears to produce and are often very durable, but may not be as smooth feeling. Most plastic handle fabric shears are made this way.

**SCISSORS AND SHEARS
TERMS DICTIONARY - CONTINUED**

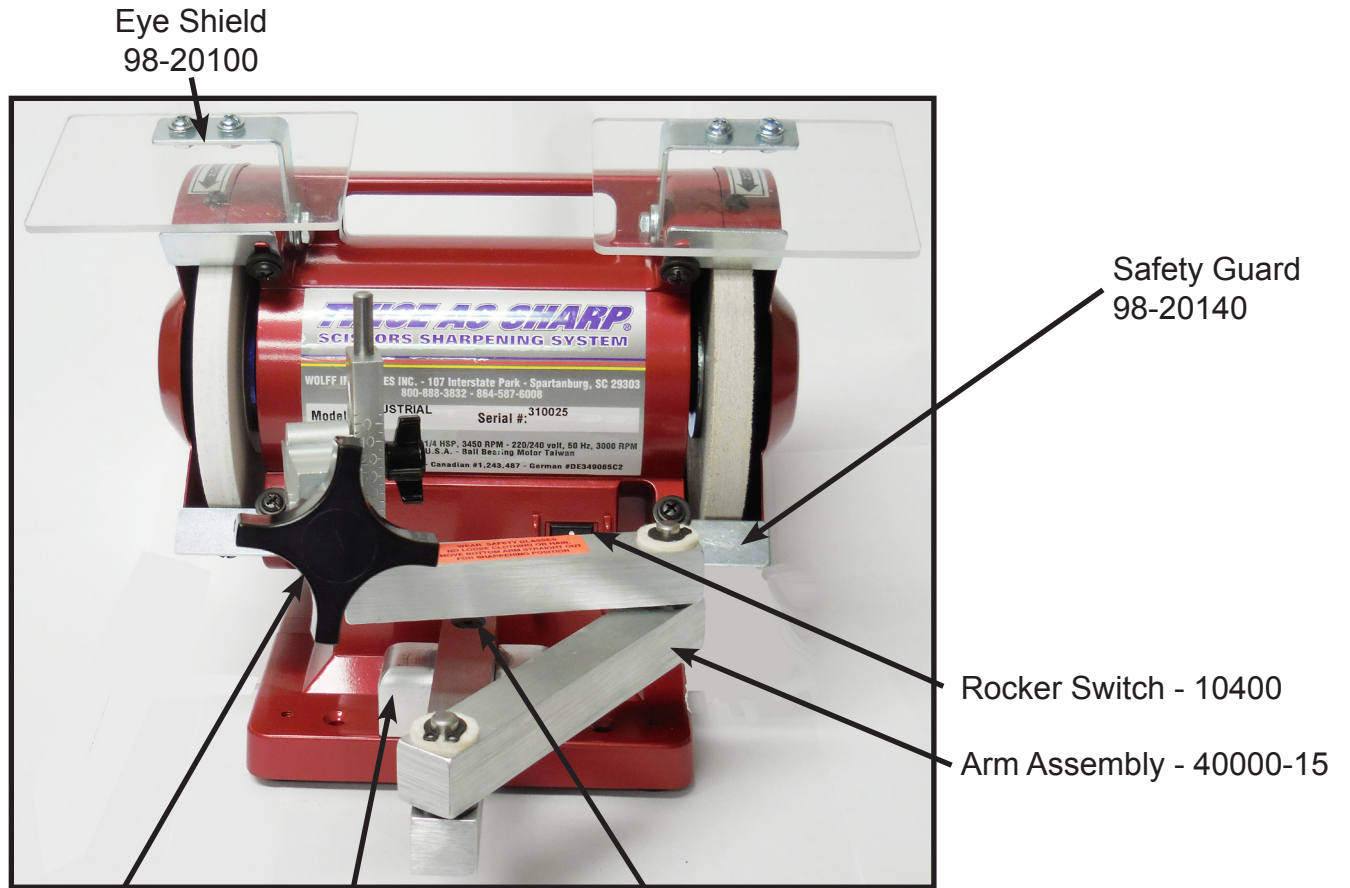
Steel: Iron with carbon and other elements added.

Tang: An extension beyond the end of a scissors handle that provides a finger rest would be considered a tang. Some tangs are removable. (see SCISSORS, SHEARS)

Titanium: Titanium is a gold colored microscopic coating added to shears to improve wear life.

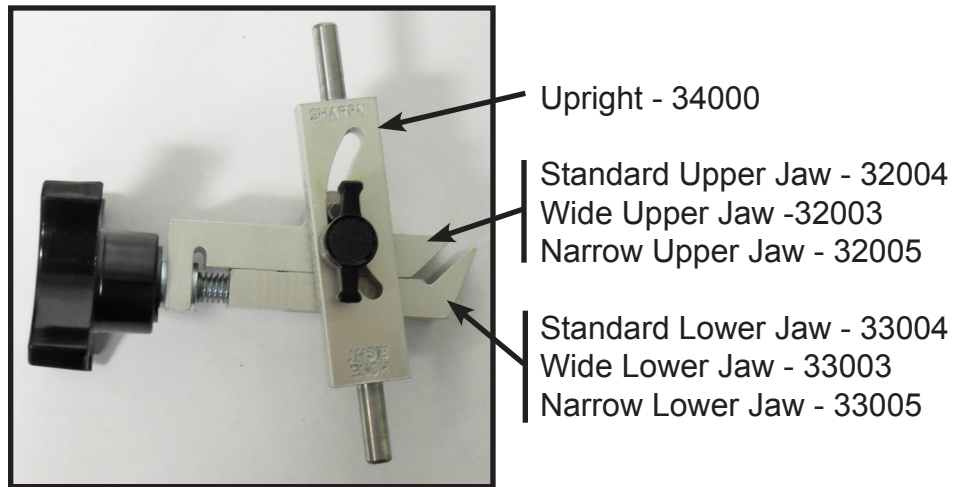
Twist: In some scissors the set of the blades is provided by twisting the blades toward one another. This is common in many European scissors. (see SET)

PARTS LIST FOR SCISSORS SHARPENER

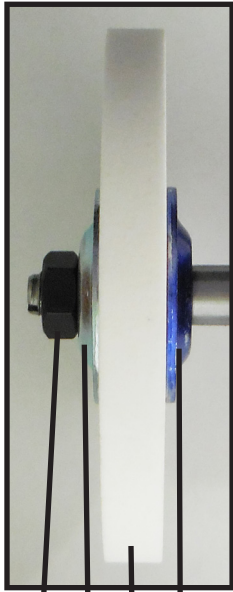


- Standard Clamp - 30004
- Wide Clamp - 30003
- Narrow Clamp - 30005
- Ergonomic Standard Clamp - 30007
- Ergonomic Wide Clamp - 30006
- Ergonomic Narrow Clamp - 30008

- Riser Block
43200
- Mounting Screw Set
44901-15



PARTS LIST FOR SCISSORS SHARPENER



- Wheel Nut Left - 10700
- Wheel Flange - 10200
- Sharpening Wheel - 27000
- Blue Flange - 10201



Diamond Sharpening Wheels

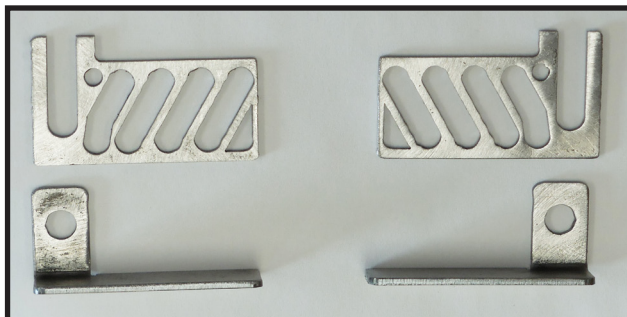
- 240 Grit Diamond Wheel - 27324
- 400 Grit Diamond Wheel - 27340
- 600 Grit Diamond Wheel - 27360
- 800 Grit Diamond Wheel - 27380

Lawn Mower Sharpening Wheel

- Grit Wheel - 27146

Scissors Lube

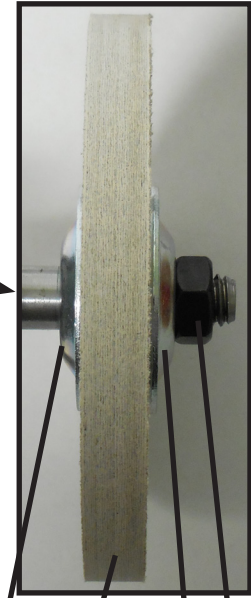
- 1 oz Lube - 20700
- 16 oz Lube - 20800



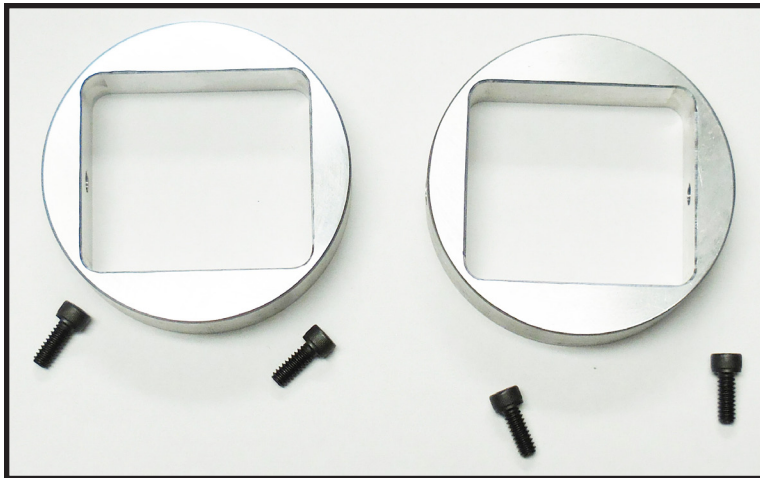
For Dust Collector:

- Finger Guard Set
- #98-20150

PARTS LIST FOR SCISSORS SHARPENER



- Wheel Flange - 10200
- Standard Buffing Wheel - 25000
- Professional Honing Wheel - 25200
- Industrial Honing Wheel - 25280
- Wheel Flange - 10200
- Wheel Nut Right - 10600



For Dust Collector:
 Adaptor 3" Rings - DC-RING
 Screws - DC-SCREW

LIMITED WARRANTY

Two year warranty from date of purchase against defective parts or workmanship with the exception of the sharpening and buffing wheels. Warranty limited to replacement of parts. Buyer must return warranty card to manufacturer for coverage of warranty. This warranty covers only the original purchaser. Use of non-factory parts voids any warranty. This warranty gives you specific rights. You may also have other rights which may vary from state to state. Some states do not allow limitation or implied warranties or consequential damages, so these may not apply to you.

DISCLAIMER

There is no expressed warranty other than the limited warranty stated above. There is no implied warranty for the merchantability or for fitness for a particular purpose. Wolff Industries, Inc., will not be responsible for any consequential damages. Damages are limited to the replacement of defective parts.



Wolff Industries, Inc.
107 Interstate Park
Spartanburg, SC 29303

800-888-3832
864-587-6008
(fax) 864-587-0660

www.wolffindustries.com
customerservice@wolffind.com