OOKAMI GOLD®

SCISSORS SHARPENING SYSTEM

OPERATORS MANUAL

CUSTOMER SERVICE 1-800-888-3832
Part # 13000

Developed and manufactured in the USA
by Wolff Industries for sharpening
the world's finest scissors and shears.

Revision 1/11/16

BACKGROUND INFORMATION ON LEE WOLFF & WOLFF INDUSTRIES
1930 - 1996

In 1957 Lee Wolff, (Inventor of Twice as Sharp®) 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 the perfecting of scissors sharpening equipment 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®. 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. In 1990 a new technical department and additional equipment were added so that we will always be able to bring to you the most advanced scissors sharpening equipment.

Technical support 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.

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

US Patent # 4,528,778 **German Patent # DE3490065C2** **Canadian Patent # 1 243 487**

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SUBJECT **PAGE**

OOKAMI GOLD®
Scissors Sharpening System

A-1-OGU Upgrade Kit Installation Instructions

NOTE: These steps are to install the A-1-OGU kit only. Go to safety instructions on page 8 for all other systems. This conversion kit will fit all the Twice as Sharp® Models or the Foley Belsaw #327. See how to change the wheels on page 10.

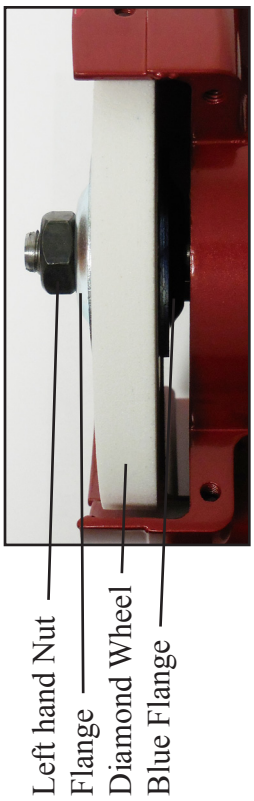
Diamond Sharpening Wheel Installation:
The diamond wheel has been pretested at the factory. Follow the installation instructions to insure smooth sharpening.

1. Remove the left hand wheel cover and three screws with a #2 phillips screwdriver.

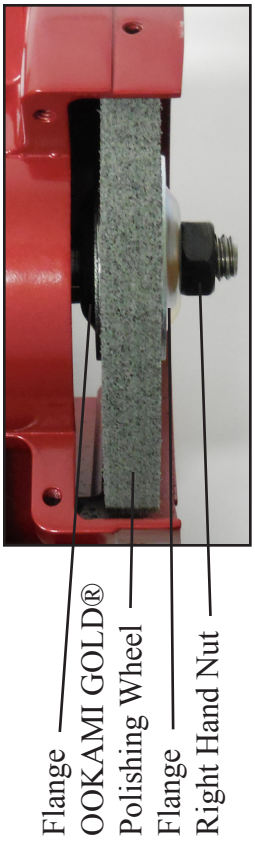
2. Using a 3/4" wrench, hold onto the wheel with one hand and turn the wrench clockwise (left handed thread) with the other hand.

3. Remove the nut, two flanges and sharpening wheel and wipe the shaft clean.

4. Put the blue flange (supplied with the kit) on the shaft first. Slide the diamond wheel (supplied with the kit) on the shaft next to the blue flange. Put one of the flanges removed in step 3 on the shaft. Install and tighten the nut firmly (counter clockwise).



5. Spin the wheel by hand. If side to side movement is more than about 1/8", loosen the nut and rotate the wheel about 90^0 on the shaft. Tighten the nut firmly and recheck the wheel for side to side movement. Repeat this step until side to side movement is acceptable.



6. Replace the wheel cover and three screws.

OOKAMI GOLD® Polishing Wheel Installation:

The OOKAMI GOLD® polishing wheel has been broken-in at the factory to save you time and ensure smooth running (notice the edge is black or gray in color).

1. Remove the right hand wheel cover and three screws with a phillips screwdriver.

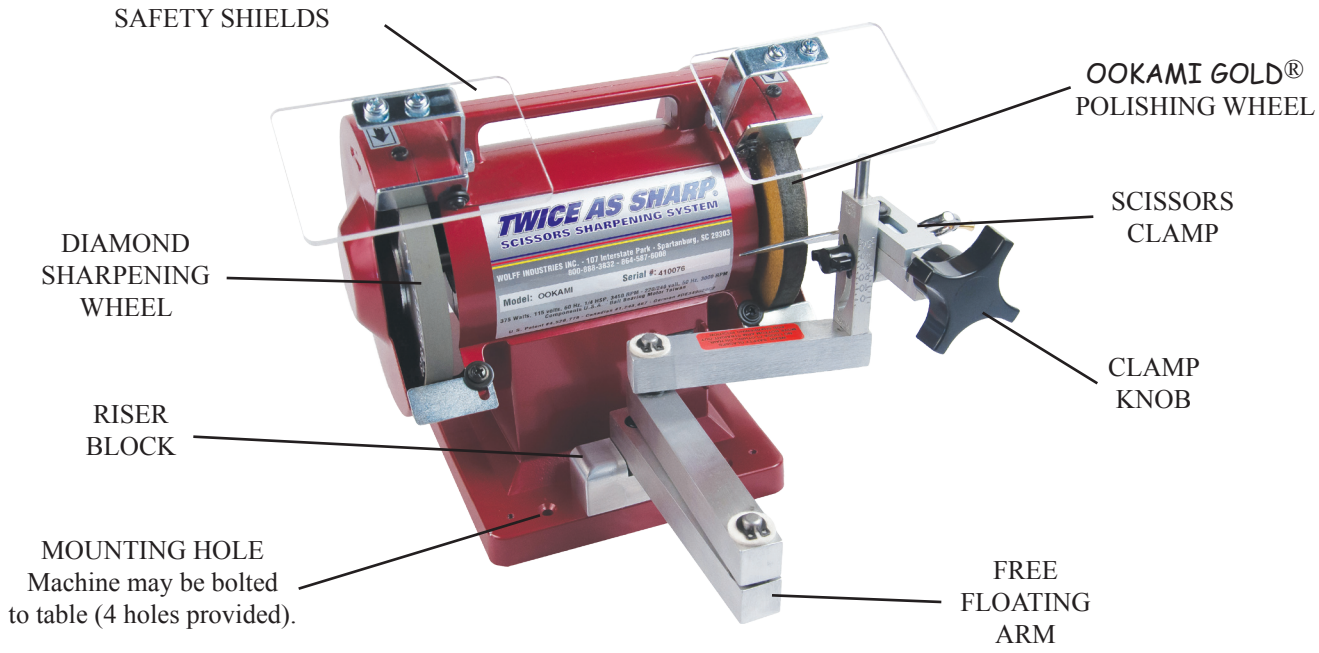
2. Using a 3/4" wrench, hold onto the wheel with one hand and turn the wrench counter clockwise (right handed thread) with the other hand.

3. Remove the nut, two flanges and buffing or honing wheel and wipe the shaft clean.

4. Put one of the flanges from step 3 on the shaft first. Slide the OOKAMI GOLD® Polishing Wheel (supplied with the kit) on the shaft next to the flange. Put the other flange removed in step 3 on the shaft. Install and tighten the nut firmly (clockwise).

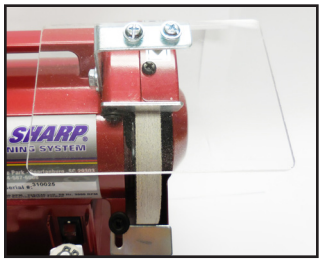
5. Replace the wheel cover and three screws.

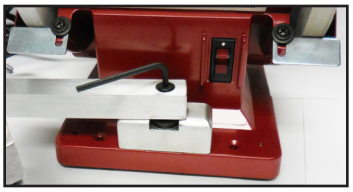
PART NAMES FOR SCISSORS AND SHEARS SHARPENER:



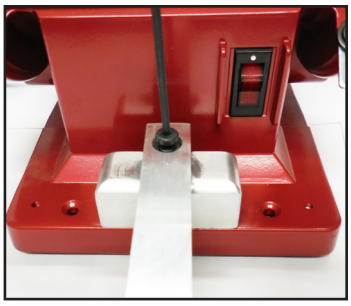
SET UP AND SAFETY

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 a socket head hex screw. Loosen screw and move the arm set straight forward into the sharpening position. Tighten the hex screw until the arm is tight and does not move.



Be sure both wheels are tight and there are no chips in the left wheel (your original sharpening wheel on the Twice As Sharp® or included with the OGC-TAS OOKAMI GOLD® scissors sharpening system). 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.

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. Provided safety glasses meet or exceed all requirements of ANSI Z87.1 CSA certified.

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. To replace worn wheels, see page 7. If clamp movement becomes stiff or difficult, loosen angle knob and clean the grit out.

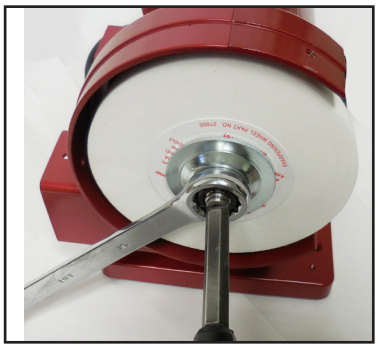
CONVERTING FROM 110 VOLT TO 220 VOLT:

See Page 22 of this Operators Manual to convert the OGC-TAS, OGA-TAS or OGS-TAS OOKAMI GOLD® sharpening systems to run on 220 - 240 volts.

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.

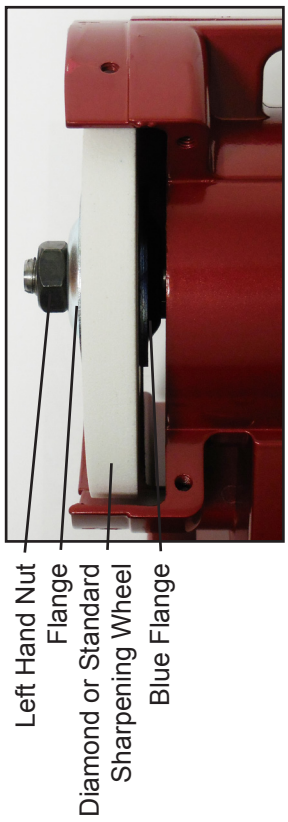
After changing wheels, dressing wheels or adjusting the two finger and two tongue guards, make sure eye shields are in place and securely fastened.

HOW TO CHANGE THE WHEELS



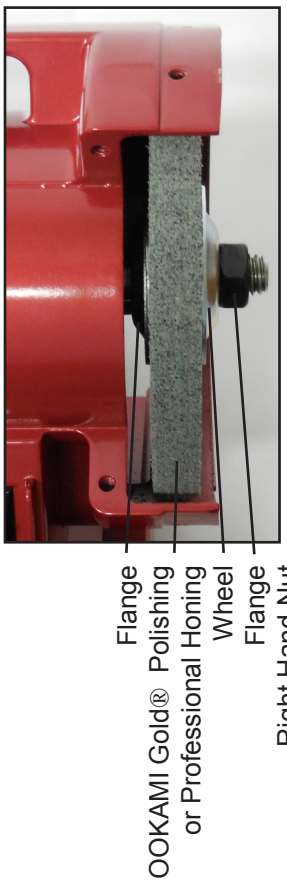
Using a screwdriver in the slot on the left end of the motor shaft to tighten/loosen the wheels.

Remove the three screws holding the end cover with a #2 Phillips screwdriver. Take cover off. Loosen the nut holding the wheel with a ¾" 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 standard sharpening wheel, part number #27000. ***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.

Standard sharpening wheel #27000 and Professional honing wheel #25200 are included in the OOKAMI GOLD® OGC package or installed on your original TWICE AS SHARP® professional scissors sharpening system.



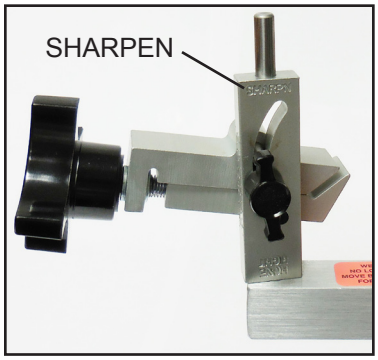
STEPS TO SHARPEN AN OOKAMI GOLD® STYLE CONVEX SHEAR

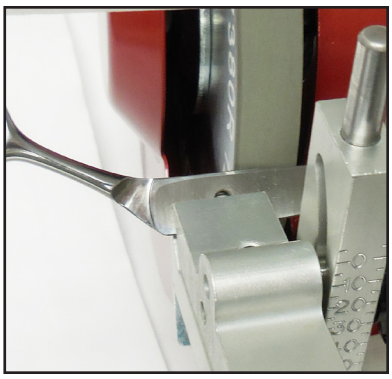
STEP 1: TAKING SHEARS APART

Using the scissors screw pliers, Wolff part number #20940 or a screw driver take the shears completely apart. Set the screw and washer (also nut if shear is a self adjuster) in a safe place.

STEP 2: INSTALLING CLAMP

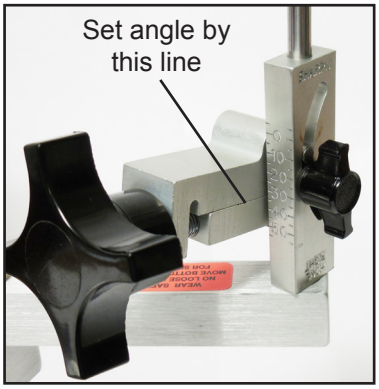
Place scissors clamp in the hole in the top arm. The word sharpen must be on top as pictured.





STEP 3: CLAMPING SCISSORS

Place one of the blades in the clamp, move the blade until 1/2 of the screw hole is covered by the jaw of the clamp. Tighten large black knob until the blade is held firmly.



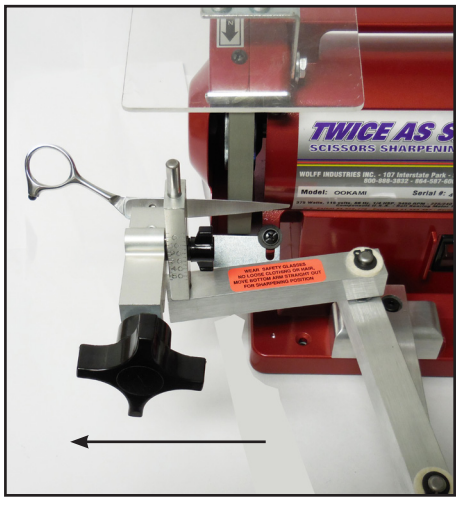
STEP 4: SETTING CUTTING ANGLE

Determine the angle by the following method:

1. Set the clamp angle at 40^{o}, hold the scissors blade against the diamond wheel (motor off) and turn the wheel by hand. Look at the line created by the wheel, increase or decrease the angle to match existing cutting edge. A few degrees off either way will make little change in cutting performance.

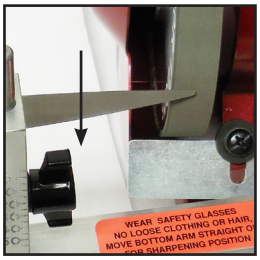
NOTE: It is critical to match the angle as closely as possible to avoid removing excess metal.

STEP 5: SHARPENING EACH BLADE ON THE DIAMOND WHEEL



WARNING: Use **VERY LIGHT PRESSURE** because diamond wheels cut rapidly.

Slide blade across the LEFT wheel slowly with very light pressure. Keep arms in the position shown and move fixture from right to left. Release pressure from the wheel when the blade tip reaches the center of the wheel. Feel for the burr by sliding your finger towards the cutting edge. If you feel a burr ***STOP SHARPENING***. Test for a burr after each pass on the LEFT hand wheel. It will only take 1 - 2 passes if you have matched the angle correctly. If you do not have a burr recheck the angle setting on the clamp.



Remove the blade from the diamond wheel when the tip of the blade is in the middle of the wheel.

STEP 5: SHARPENING EACH BLADE ON THE DIAMOND WHEEL - CONTINUED

Remove the blade and sharpen the other blade following the exact same procedure.

STEP 6: DEBURRING

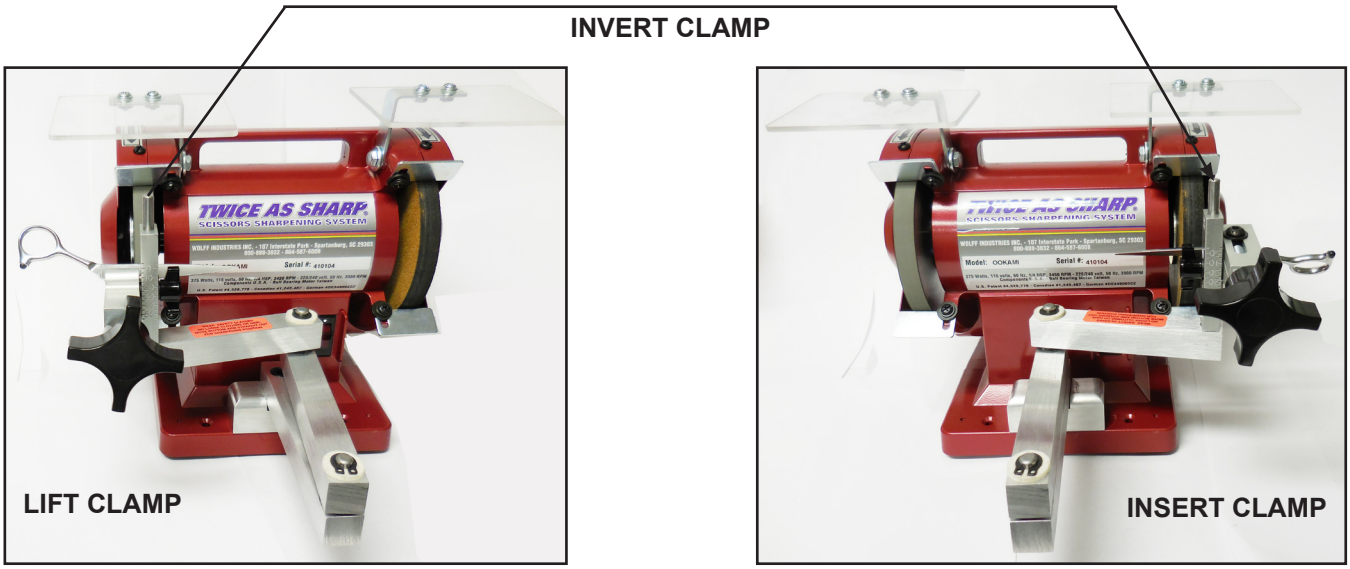
Remove the burrs from the inside of the blades. These steps are also important if the ride area is rough or damaged.

Using the OOKAMI GOLD® Honing Block :

a. Using the OOKAMI® deburr paper, angle the shears blade to match the set or twist. ***DO NOT*** hone on a plastic ride.
b. Hone until you see a line on the inside of the blade all along the cutting edge.
c. Now repeat steps a & b on OOKAMI® finish paper.

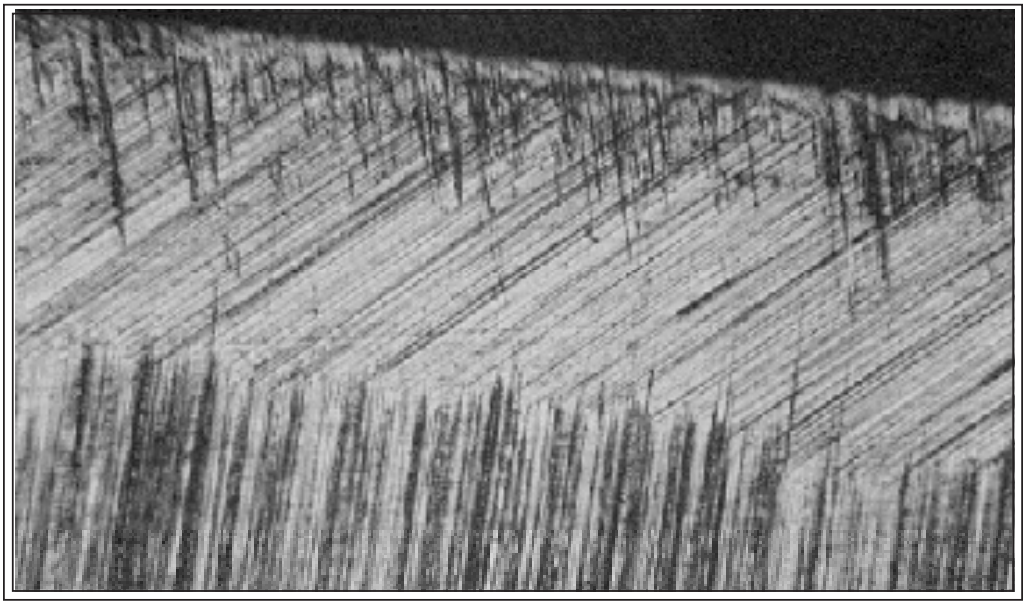
STEP 7: POLISHING THE BLADES (UNASSEMBLED)

a. See *Step 3* to install the blade in the clamp. Lift the clamp out of the bearing hole, invert it and insert it back into the arm. Swing top arm to polish on the right hand wheel.

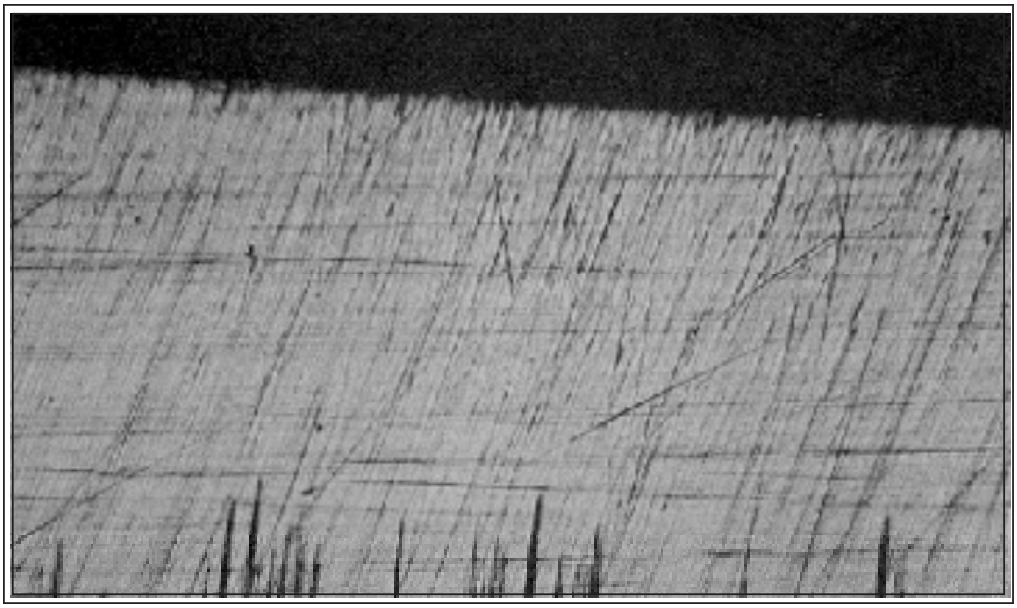


These are enlargements (approximately 120x) of the inside of the cutting edge on a pair of medium priced beauty shears made in Japan.

Before honing (factory finish)

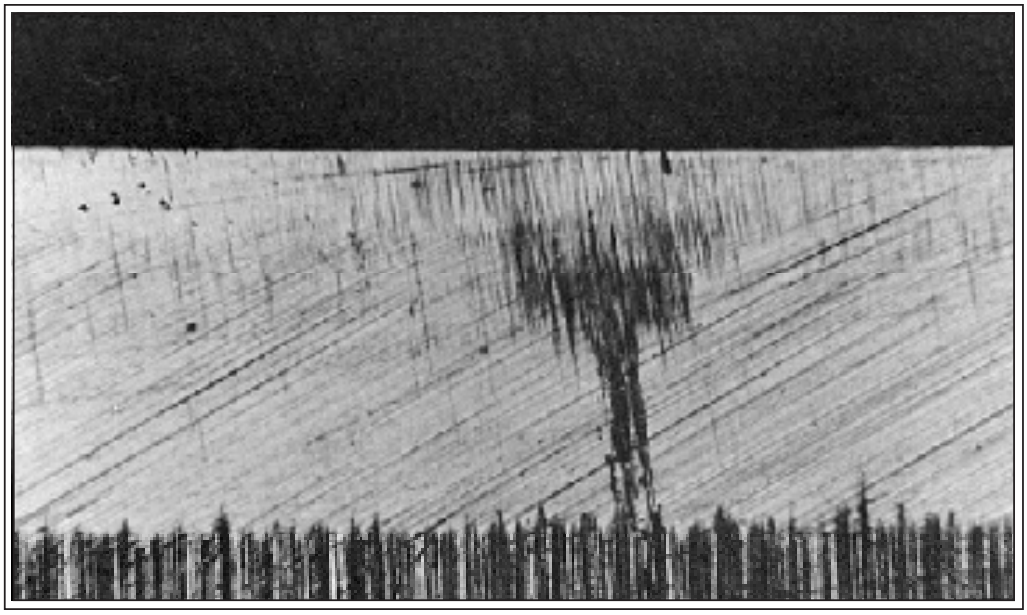


The same blade after honing on the OOKAMI® Deburr paper
and then 8 - 10 strokes on the OOKAMI® Finish paper.
There is a much improved feel and sound.



These are enlargements (approximately 120x) of the inside of the cutting edge on a pair of higher priced beauty shears made in Japan.

Before honing (factory finish)



The same blade after honing on the OOKAMI® Deburr paper
and then 8 - 10 strokes on the OOKAMI® Finish paper.
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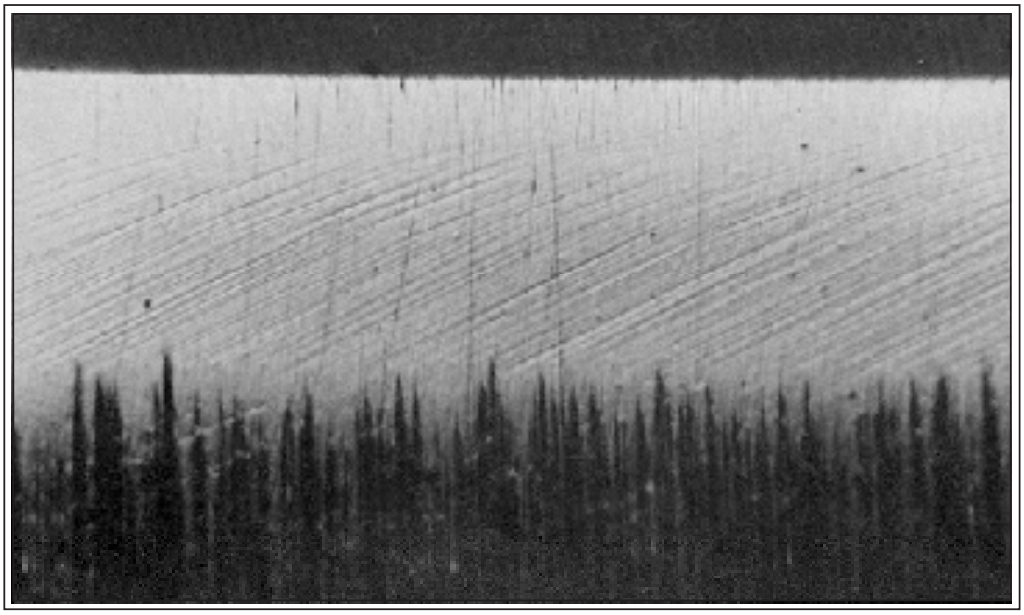


Apply a small amount of compound.

STEP 7: POLISHING THE BLADES - Continued
Note: Put a slight amount of compound on the OOKAMI GOLD® wheel each time you polish a blade.

a. While the sharpener is running, apply the compound to the OOKAMI GOLD® wheel (a light 1 second touch is all that is needed).

b. Slide the blade back and forth against the polishing wheel with firm pressure. Repeat until the blade is polished and the grind lines are gone.

Polish on the right hand wheel.

Warning: The blade is very sharp and will cut through a rag, use extreme caution while wiping the blades off.

c. Remove the blade, wipe off the polishing compound and insert the second blade into the clamp. Polish the second blade as in Step b.

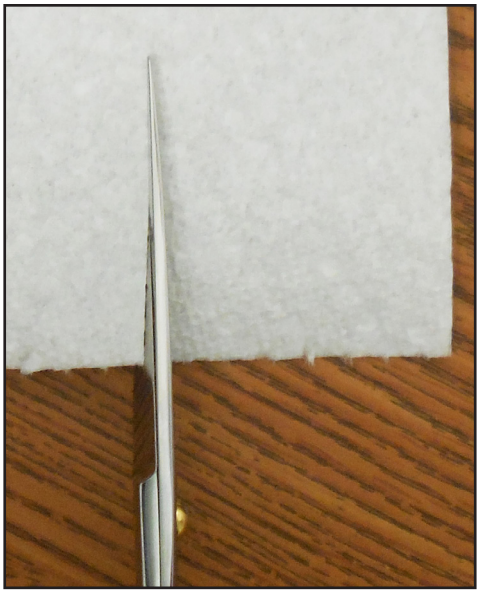
d. Remove the second blade from the clamp and wipe off the polishing compound.

STEP 8: ASSEMBLING THE SHEARS
Warning: Assemble the shears in the open position.

a. Assemble the shears in the open position using the parts removed in *Step 1*.

b. Close the shears on a paper towel and cut the burr off.

Note: ***DO NOT SPREAD*** the blades apart while closing.

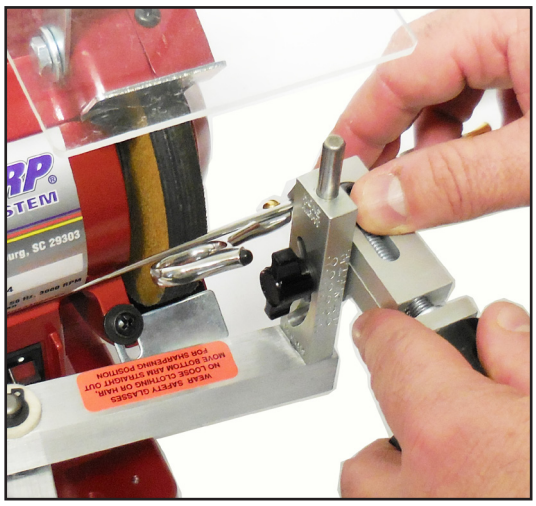


Cut the burr off on paper towel.

Note:
Dirt and grit in the pivot area will make the shears feel tight or stiff. This needs to be cleaned out before assembling the shears.

STEP 9: POLISHING THE SHEARS (ASSEMBLED)

Note: Put a slight amount of compound on the OOKAMI GOLD® wheel each time you polish a blade.



a. Insert one blade of the assembled shear back into the clamp.

b. Slide the blade back and forth against the polishing wheel with firm pressure. Repeat until the blade has a mirror finish.

Warning: Polish one blade, cut the burr off, polish the second blade and cut the burr off.

c. Close the shear on a paper towel and cut the burr off.

d. Repeat steps a - c for the second blade.

e. The cutting edge should be shiny with the grind lines removed. If not check the following.
   1. Did you use enough pressure on the wheel?
   2. Did you use enough compound on the wheel?
   3. Are you using OOKAMI® compound? OOKAMI GOLD® compound has been specially formulated to work with the OOKAMI GOLD® wheel and other compounds cannot be guaranteed to give the same excellent results.
   4. Does the wheel need cleaning?
      The OOKAMI GOLD® wheel can build up compound if it is put on too thickly. Hold the end of the Diamonite hone hard against the wheel while the sharpener is running. This will quickly clean off any build-up. This should be done periodically to keep wheel from loading up.

STEP 10: TESTING THE SHEARS

Use one if not all of the following test methods. Apply <u>NO</u> side pressure to the handles as you test. The shears must cut cleanly and feel smooth.

a. Hair is one of the best test materials, as this is what your customer is really cutting. Washed hair can be saved by one of your customers.

   Pull a small amount of hair out of your bundle and cut. Watch for hair slide or folding. The cut should feel smooth with no pulling or tearing of the hair.

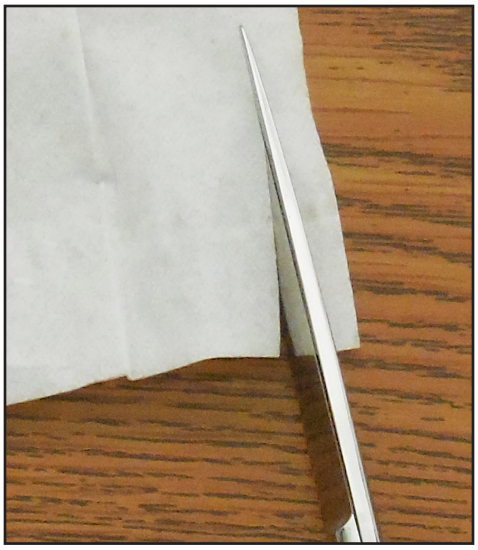
   Also test using the method in Step b. This will ensure that the burrs are completely removed.

Note: We discourage shaving as a test for scissors sharpness. Shears may shave with one or both blades individually and still not cut when used together. Scissors tested the way scissors are used ensures proper sharpness. Cut and bleeding arms do not prove your scissors are sharp!

b. Facial tissue (Kleenex®) separated into single sheets will show any burrs or dull spots with a tear or fold.

Hang the end of the tissue over the table or from your hand. Hold the scissors without any side pressure and cut.

If they do not cut cleanly, repeat step 9.

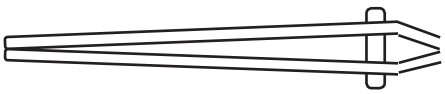


STEP 11: CHECKING THE SET OF THE BLADES
Do this step only if the shears failed step 10 "Testing the Shears".

a. With the shears closed there should be daylight between the blades; only the tips and ride are touching.

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

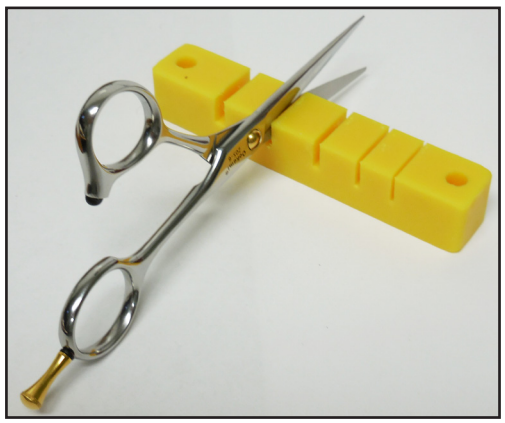
NO GOOD - Blades come together in the middle and leave a gap near the tips that will not cut.



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

b. The blades should also flow in a positive curve; no dips or kinks.

c. Any problems with the set of the blades should be adjusted and the shears re-tested following step 10. If still not cutting properly, repeat step 9.



Adjusting the set takes some practice, but with the OOKAMI GOLD® Set Adjusting Tool you are less likely to damage the scissors blades or the sharpened edges.

STEP 12: BALANCING THE SHEARS

Setting blade free fall. Salon and barber shears are set with more free fall than cloth shears. Normally blades should begin to interfere or touch 1/2 to 3/4 of the way up the blades. It is best to set them about the same as you received them.

a. Using the Wolff set screw pliers adjust the free fall. The set screw pliers hold from both sides of the shears and provide more leverage to prevent damage to the screw head.

b. If the screw loosens up after adjusting free fall:
   1. On split screw, remove screw from shear and open the split.
   2. Turn the shears thread side up and put a drop of thread locker on the screw threads. Allow the thread locker to wick into the threads for a minimum of 15 minutes. Wipe off the excess thread locker.

Note: The thread locker is self-wicking and anaerobic, which means that the locker will penetrate its way into the threads and only the locker inside will harden. Full hardening takes 24 hours.

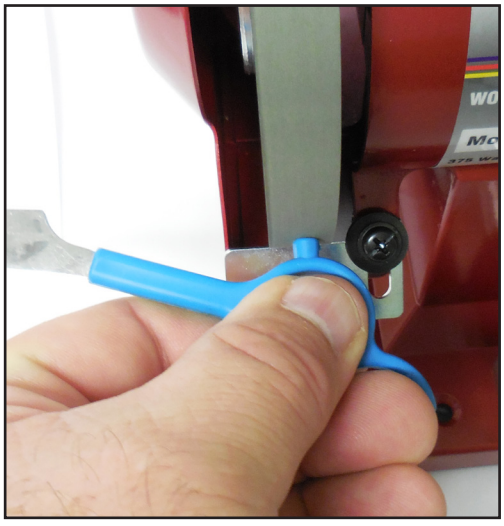
Note: Instant gel adhesive (cyanoacrylate) may be used for quick setting up, but can be messy. Use solvent to clean. You can purchase this instant gel adhesive from your local hardware or home store.

STEP 13: SIZING THE BLADES

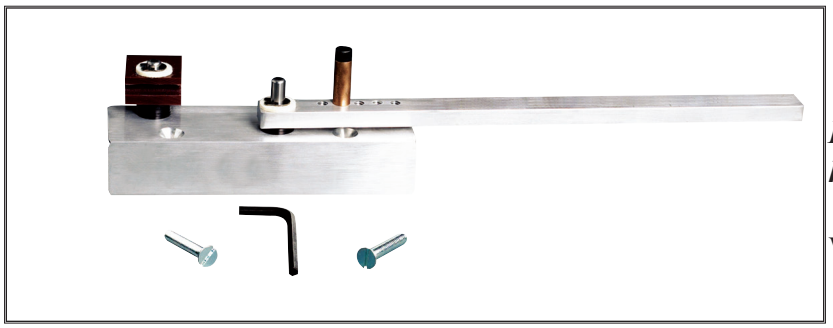
The blades must cross each other all the way to the tips.

Note: Test for metal hardness before bending, by filing behind pivot screw. If the handles are hard or made of cast metal fastened to the blades, grind off tips slightly. See "Match the Tips".

a. One piece metal shears - bend the handles apart slightly with the brass hammer. See page 16 for information on the Wolff Handle Bender.



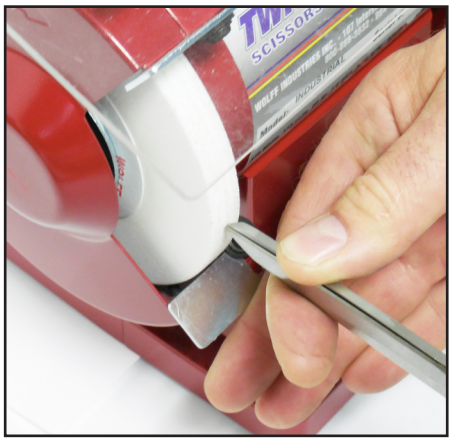
b. Plastic handle shears - grind away the sizing knob between the handles slightly until the blades cross.



Handle Bender - the best way to bend the handles to make the tips cross properly.

Wolff Part # HB-01

STEP 14: MATCHING THE TIPS
The tips of the shears should be the same length.



a. While holding the blades closed, grind away the tips until they are the same length. Use short strokes to prevent burning the tips.

b. Open the blades a little and round off the back of the tips. NEVER put your fingers between the blades.

c. Polish the back of the tips to remove any burrs (the side away from the cutting edge).

STEP 15: CLEANING AND LUBRICATING THE SHEARS
Dirt and grit in the pivot area will make the shears feel tight or stiff. This needs to be cleaned out before setting the shears free-fall.

a. Open the shears and put a drop or two of scissors lubricant in the pivot area and along the blades.

b. Open and close the shears several times to force any grit out from between the blades.

Warning: The shears are very sharp and will cut through a rag, use extreme caution while wiping the blades off.

c. Wipe off grit and excess lubricant. The lubricant dries quickly and will not leave a film. Do not use oil to lubricate the blades, oil leaves a film behind and will attract dirt and grit.

HOW MUCH TO CHARGE

The usual charges for sharpening and reconditioning of barber and beauty scissors and shears should range from $20.00 to $40.00. This, of course, will vary depending on how much work is needed.

Lower priced scissors ($100.00 or less) are better sharpened on the Twice As Sharp® scissors sharpening system using the Standard Sharpening Wheel and the Professional Honing Wheel. This will take you less time and you can charge a little less.

SPECIAL INSTRUCTIONS FOR LEFT HANDED SHEARS

On true left handed shears the blades are reversed. The thumb blade is on the right side of the finger blade.

Note: Be careful of some scissors that claim to be lefts, but are really right hand blades with left hand handles.

1. Set the angle at which the scissors are to be sharpened and put the clamp in the "hone" position (the word *"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.

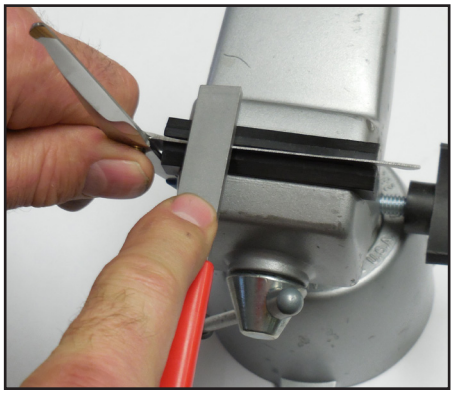
5. Hone the blades on the right hand corner of the honing wheel, with your left hand.

6. Test the scissors and perform finishing steps.

Note - Another way to Sharpen Left Handed Scissors:
You can reverse the wheels to sharpen left handed scissors. Put the diamond wheel on the right hand side and the polishing wheel on the left hand side of the machine. This reverses the sharpening process and puts the blades in the correct alignment to the wheels.

CORRUGATING INSTRUCTIONS

Corrugations or serrations on the blade are put on a scissors or shears to help prevent hair slide. Scissors and shears sharpened on the OOKAMI GOLD® or Twice as Sharp® scissors sharpening systems do not need to be corrugated.



Follow these steps to corrugate scissors when your customer insists on it.

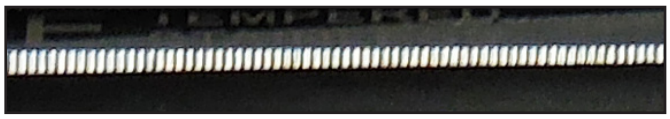
1. Sharpen the blade that is to be corrugated on the left hand sharpening wheel. Make sure the old corrugations are completely removed. The usual angle is 25^0.

2. Clamp the blade in a nylon jaw vise (Wolff part number #23400).

3. Hold the file at approximately the same angle as the newly sharpened edge.

4. Begin close to the pivot, holding your thumb against the side of the file to help guide it straight.

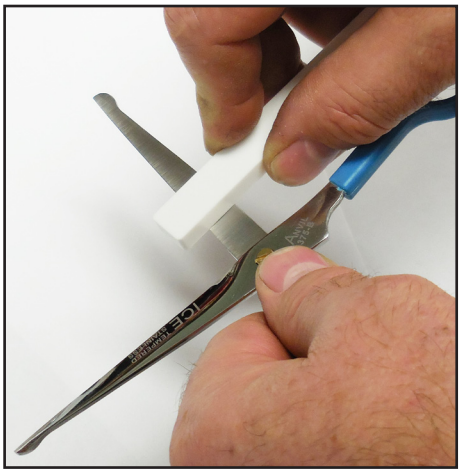
NOTE: When using the Wolff Diamond File, part number #22200 use **<u>VERY LIGHT PRESSURE</u>** to prevent damage to the file! Diamonds cut freely and only a few ounces of hand pressure are needed.



5. Push the file forward and back in a sawing motion 5 to 6 times. Lift the file to see if the teeth are created evenly.

6. Move the file about 1/4" down the blade so that 1/2 of the file is aligned with the teeth just created and file new teeth.

7. Continue this process to the tip of the blade.

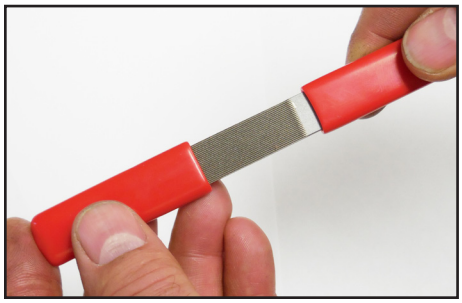


8. With the hone almost flat hone the inside of the blade with a ceramic hone 1 - 2 passes until the large burrs are removed.

9. Close the scissors without spreading the blades apart and cut off any remaining burr.

10. Sharpen the other blade as normal.

11. Test the scissors for hair slide and ease of cut.



NOTE: To keep your file in top condition and prevent damage always keep the cap on when it is not in use. If the file fails to cut, wash it with detergent and water.

FREQUENTLY ASKED QUESTIONS

Is there only one way to sharpen shears?

No. There are many methods to sharpen shears. We at Wolff Industries strive to achieve the following:

- Sharpest edge possible
- Longest life
- Smooth feel
- Reduce slide of hair
- Good appearance
- The easiest way to obtain all of the above

The OOKAMI GOLD® sharpening system gives you all of this ***and*** for a reasonable price.

What is sharp and how is it measured?

Sharp is: When your customer is pleased with the performance of the shears. The shears must cut tissue cleanly and hair easily.

What is sharpening by hand?

Claims of sharpening "by hand" usually mean "free hand", or without fixtures. It does not mean without machinery. The results of free hand sharpening vary considerably. Fixtured sharpening gives precise angles and repeatable results.

Is underwater sharpening necessary?

No, sharpening underwater is done by manufacturers and occasionally during resharpening, when abrasives other than diamond are used. Diamonds grind cooler and do not need water cooling. Honing cannot be done underwater.

What is the best angle for barber and beauty shears?

For your customers that are used to European shears, 35º provides an excellent cut and a nice feel. For customers using more expensive Japanese shears, 40º or higher should be standard

What does COBALT mean on the scissors blade?

Along with iron, carbon, chromium, molybdenum and manganese, cobalt may be added. This can improve wear life and give a smoother feel. This has no effect on sharpening..

Why sharpen with the diamond wheel?

Stainless steel has 16% to 18% chromium, which forms chromium carbides and iron carbides. Stainless steel hardness is usually RC 56 to RC 60 (Rockwell "C: hardness scale). Carbide grains found in the steel can be as hard as RC 88 to RC 92. Diamonds are the sharpest, hardest abrasives known. Diamond sharpening cuts these carbides better than aluminum oxide or silicon carbide. Sharpening away for the cutting edge with diamonds reduces the grain breakout or pullout. This gives a sharper smoother edge before polish.

Why polish with the OOKAMI GOLD® polishing wheel?

All sharpening creates burrs, so polishing is necessary to remove the large sharpening burrs. Polishing also removes grind lines to produce a mirror finish on the cutting edge. The OOKAMI GOLD® polishing wheel was specially designed to hold the polishing compound and produce extremely sharp, smooth, mirror-finish shears. The OOKAMI GOLD® wheel will also sharpen convex edges, while clamped to produce a straight, smooth cutting edge.

What does ICE mean on the scissors blade?

Good quality shears made of carbon steel or stainless steel have small particles of soft austenite steel still in the metal after heat treatment. They must be cooled slowly to about -100^{o}. This converts retained austenite to hard martensite, completing the hardening process. ICE has no effect on the sharpening of shears. All good quality shears are ice tempered, even if not marked.

How does Titanium coating effect scissors life?

Many scissors are being coated with a thin layer of titanium to give them additional hardness. The sharpening process removes this thin coating, in fact the scissors have to be sharpened immediately after coating because the cutting edge is rounded off. Wolff tested many different coatings at a factory with hard to cut materials (Kevlar) and found no difference in edge longevity between coated and non-coated scissors.

Why balance or finish shears?

- Keep the customer happy.
- Shears too loose do not cut.
- Shears too tight wear rapidly and cause fatigue.
- If tips do not cross, they won't cut and will pull hair.
- Burrs at the tips will scratch skin and catch hair.
- The feel of balanced shears will indicate the quality of your sharpening.

CONVEXING A BEVEL EDGE SHEAR USING THE STANDARD CLAMP

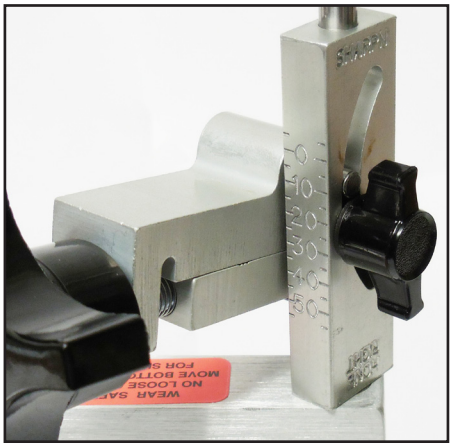
Follow these steps if you receive a shear to sharpen that should be convex but has a bevel edge from another sharpener. This procedure will help you convert a bevel edge into a convex edge. You will need the OOKAMI GOLD® sharpening system and the Twice as Sharp® professional honing wheel.

The steps that are referenced in this procedure are from the "STEPS TO SHARPEN AN OOKAMI GOLD® STYLE CONVEX SHEAR" starting on page 11.

a. Do the following steps:
STEP 1: TAKING SHEARS APART - on page 7
STEP 2: INSTALLING CLAMP - on page 8
STEP 3: CLAMPING SCISSORS - on page 8
STEP 4: SETTING CUTTING ANGLE - on page 8

b. Slide the blade across the LEFT (diamond) wheel slowly with very light pressure. Feel for the burr by sliding your finger towards the cutting edge. If you feel a burr ***STOP SHARPENING***. Test for a burr after each pass on the left hand wheel.

c. Leave the blade in the clamp, remove the clamp from the arm and increase the angle by 5^{o} (if you sharpened on 40^{o} then set to 45^{o}).


Adjust angle by loosening the knob and move in 5^{o} increments

NOTE: We recommend using two machines for this process, the professional wheel cuts slower than the diamond wheel. You can use the diamond wheel in place of the professional wheel, but you need to use VERY VERY VERY light pressure.

d. Install the clamp in the honing position on a sharpener with the professional honing wheel installed.

e. Slide the blade one time across the RIGHT (honing) wheel slowly with light pressure.

f. Leave the blade in the clamp, remove the clamp and increase the angle by 5^{o}. Repeat steps d & e, increasing the angle until you have reached the limit of the clamp.

g. Remove the blade from the clamp (do not change the angle setting) and do the following step:
STEP 7: DEBURRING - on page 9


Using the right hand honing wheel

h. Insert the blade back into the clamp. Install the clamp into the honing position on the OOKAMI GOLD® polishing wheel.

i. Polish the blade, see: *STEP 7: POLISHING THE BLADES* - on page 9

j. Remove the clamp, reduce the angle on the clamp by 5º (if was at 55º, then set to 50º). Install the clamp back onto the sharpener and polish the blade as in step 9.

k. Remove the clamp, reduce the angle on the clamp by 5º. Install the clamp back onto the sharpener and polish the blade as in step 9.

l. Remove the blade, wipe off the polishing compound and set it aside.

m. Repeat steps b - l for the other blade.

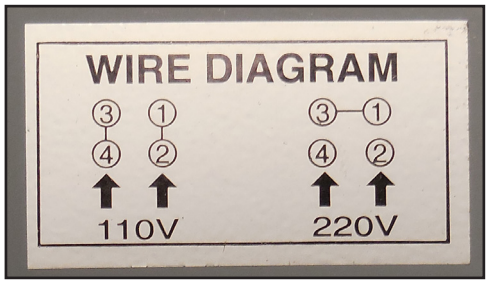
n. Do: *STEP 8: ASSEMBLING THE SHEARS* - on page 12

o. Do: *STEP 10: TESTING THE SHEARS* - on page 13

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.

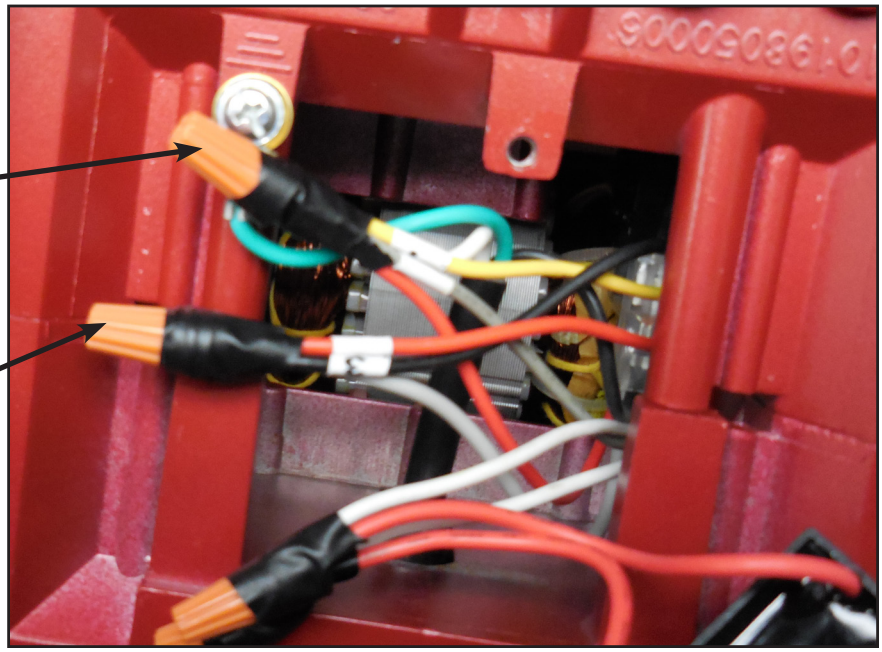
4. Connect the # 1 wire from step 2 and the # 3 wire from step 3 together with a new wire nut.

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

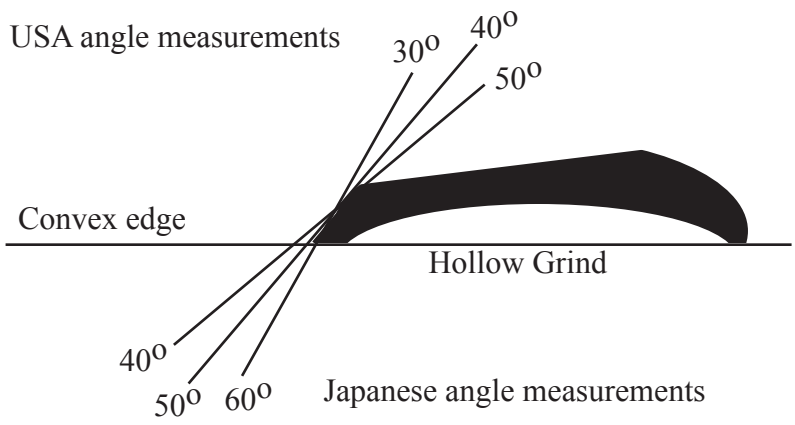
Yellow 1
Gray 2
Red from switch
White from power cord

Black 3
Red 4
Gray from switch



**** * * * New Machines may be ordered and setup for 220 volts. * * * ****

Angle:



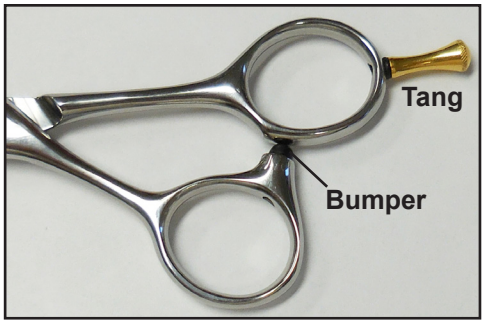
Balance: The final adjustment steps of scissors and shears sharpening are referred to as balancing or finishing.
They include the following:
- Lubricate and clean the shears.
- Free fall: set the tightness of the pivot.
- Sizing: make the tips overlap.
- Match the tips: make both blades the same length.
- Adjust the set (if needed).

Bamboo: (see EDGE STYLES)

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.



Sharpening Note: *These are replaceable parts. Instant gel adhesive (cyanoacrylate) works well for sealing bumpers in place. You may also use a soldering iron to melt and flow the end.*

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.

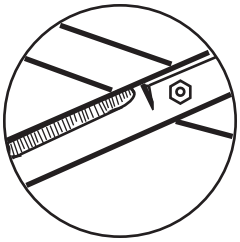
Cast: Casting is metal poured into molds while heated to a liquid state. Many of the beauty shears from Taiwan are cast.

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.

Clamshell: (See CONVEX)

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.

Sharpening Note: *It is not easy to determine the angle of the convex sharpened blade. Start at 40^{o} and adjust as necessary.*



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 and low priced barber and beauty scissors.

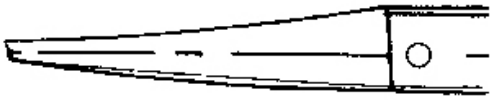
Sharpening Note: *If the corrugations on the blade are not damaged, then sharpen and polish the other blade. The corrugated blade may only need to be honed on the inside edge.*

Crescent: (see RIDE)

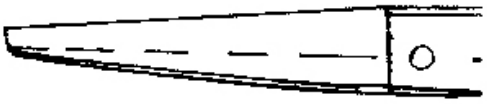
Cut Length: The length of cut is measured form the pivot to the tip on scissors and shears.

Cutting Angle: (see ANGLE)

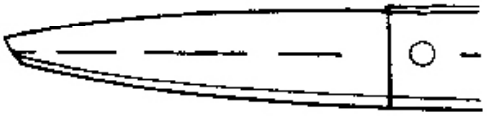
Edge Styles:



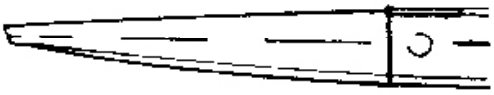
Sickle shaped blade - This shape catches the hair well without slipping, but the hair jumps up at the top portion of the blade where more strength is needed. Suited only for heavy duty shears that cut a volume of hair.



Straight blade - Though not as excessive, similar to the sickle blade.



Bamboo leaf shaped blade - This shape causes hair to slide when cut.



Willow leaf shaped blade - This is the most ideal shaped blade. The cut hair does not slide or jump up.

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.

Sharpening Note: *Setting the free fall is an important step in balancing shears. Too loose, and the shears will fold hair between the blades. Too tight, and the hand will become fatigued.*

Half-Moon: (see RIDE)

Hamaguri-Ba: (see CONVEX)

Hardening:

1. Martensitic steels are heated to 1550^{o}F for carbon steel and 1950^{o}F - 1975^{o}F for stainless.
2. They are then quenched rapidly.
3. 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.
4. Stainless steel is often done the same way.
5. 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 (brands like NICS and Taiwanese made beauty shears are totally hardened).
6. After quenching, blades are cooled to about -100^{o} F. This converts retained austinite (soft) particles to hard martensites.
7. The steel is now very hard, but extremely brittle and must be drawn in an oven at 375^{o} - 400^{o}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	

Haura-Ichban: (see LINED INSIDE EDGE)

Hineri: (see TWIST)

Hinzoko: (see HOLLOW GRIND)

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.

Sharpening Note: *The hollow ground scissors also have a shorter life span. You cannot sharpen too far down in to the hollow before removing the lined inside edge.*

Ice: This is a metal hardening process. Stainless steel is heated to almost 2000^0F and then cooled to about -100^0 F. All quality shears are ice tempered, even if not marked.

Left Hand Shears: True left hand shears have the blade reversed. The thumb blade is on the right hand side of the finger blade.

Sharpening Note: *These scissors require special sharpening. See page 24 of this manual.*

Some scissors claim to be left hand, but are really true right hand shears with handles made to fit the left hand.

Sharpening Note: *These shears are sharpened as right hand shears.*

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

Lined Inside Edge: The lined inside edge is located on the inside of the scissors blade at the cutting edge. This area is usually very smooth and is found on hollow ground shears. (see HOLLOW GRIND)

OOKAMI GOLD®: OOKAMI GOLD® is the perfection of a scissors sharpening method.

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)

Sharpening Note: *The ride area may be soft and subject to wear. Use the hone to smooth damaged area.*

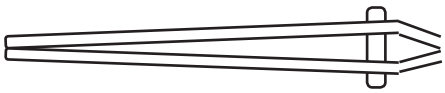
Scissors: Scissors are usually smaller than shears and only have room for one finger and the thumb.

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.

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)

Silencer: (see BUMPER)

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.

Sharpening Note: Bend the handles on all metal shears or grind away the sizing knob (located at the point where the handles come together) on plastic or cast iron shears, so that the blades overlap completely to the tip.
Before bending all metal shears it is a good idea to file behind the pivot screw and determine if the handles are hardened. If they are, **do not bend**. Grind away the sizing knob.

Sori: (see SET)

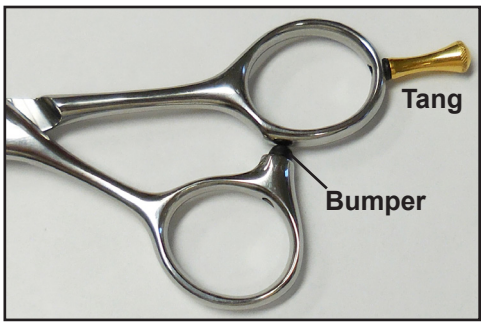
Stainless Steel: Stainless steel is made from steel with 11% to 18% chromium added for high quality and hardness. (Stainless steel shears have about 16% to 18% chromium.) Also, the addition of manganese and molybdenum add hardness and toughness. Cobalt may also be added for improved feel and toughness.

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.

Steel: Iron with carbon and other elements added.

Swivel Thumb: Swivel thumb shears are an ergonomic improvement in some applications because they keep the hand in proper alignment allowing the blades to move in a different cutting plain.

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 or multi colored microscopic coating added to shears to improve wear life.

Sharpening Note: *This coating will be removed at the cutting edge during the sharpening process. There is no way to avoid this.*

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)

Sharpening Note: *Holding the shears to the light will often show defects in the scissors blade. You cannot correct all defects built in by the manufacturer.*

PARTS INCLUDED WITH THE OOKAMI GOLD® SHARPENING SYSTEM

OOKAMI GOLD®
Polishing Wheel
Part #25100
This is the replacement polishing wheel for the OOKAMI GOLD® sharpening system.

OOKAMI GOLD®
Polishing Compound
Part #23201
This one pound container of white polishing compound is used on the OOKAMI GOLD® Polishing wheel.

OOKAMI GOLD®
Diamond Wheel
Part #27380
This 800 grit diamond wheel is for the most expensive, finely finished barber and beauty shears. It must be followed by the OOKAMI GOLD® polishing wheel for best results.

Hone (white)
Part #20601
This fine white hone removes sharpening burrs without damaging the cutting edge. A must for removing large nicks from high quality barber and beauty shears before sharpening.

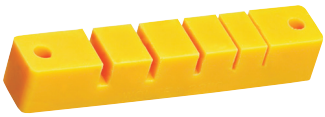
OOKAMI GOLD® *Optional Equipment*

Wolff Carrying Case
Part #24950
Made of reinforced ballistic material with foam insert which can be customized to your requirements. Additional storage pockets are inside the case.

OOKAMI GOLD®
Honing Block Kit
Part #20651
This Honing Block Kit comes with 2 blocks, 3 DEBURR and 3 FINISH cloths for honing the inside of the shears blades of high quality hollow ground barber and beauty shears. Create a Haura-Ichaban (lined inside) edge on hollow ground shears with the OOKAMI GOLD® Honing Block Kit! Removes inside damage, repairs rough ride, provides silky feel.

OOKAMI GOLD®
Deburr Cloth Finish Cloth
Part #20660 Part #20665

Deluxe Pliers Kit
Part #20940
The Deluxe Pliers Kit contains 8 bits and comes in a protective plastic case. It also contains a bottle of Thread & Nut lock, part #23301 which is used to keep the screw from loosening up. Use these pliers to adjust the balance of shears after sharpening.



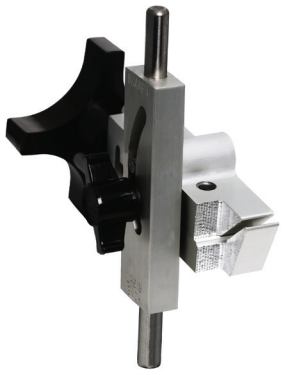
Set Adjusting Tool
Part #23110
This is the perfect tool for adjusting the set (spring, bow or curve) of smaller scissors blades. Made of polyurethane for durability and toughness, this set tool will not damage the finish or newly sharpened edges. Screw it to your work bench or carrying case (not for free-hand use).

OOKAMI GOLD® *Optional Equipment*

Wolff Dust Collector
Part #DC-1000
Made in the USA of powder coated steel. Includes a two stage filtration system (1st stage cyclonic and 2nd stage is a MERV 8 filter) and two blowers which provide unparalleled suction. Allows front or side mounting to fit in any shop and runs on 110Vac.

PARTS LIST FOR CLAMPS

Shears-Lock Clamp
Part #30004
This is the clamp that comes with your OOKAMI GOLD® scissors sharpening system. It will adjust to the various tapers of scissors blades and hold them tightly while sharpening.



Narrow Clamp
Part #30005
This clamp is a great accessory if you sharpen very small surgical and embroidery scissors. The smaller clamping jaw also holds small curved scissors without slipping.

Shears-Lock Clamp
With Ergonomic Knob
Part #30007
This ergonomic knob is covered with a soft rubber, fits comfortably in your hand and requires less pressure to tighten. The clamp width is the same as standard shears-lock.

Narrow Clamp
With Ergonomic Knob
Part #30008
The clamp width is the same as narrow clamp.

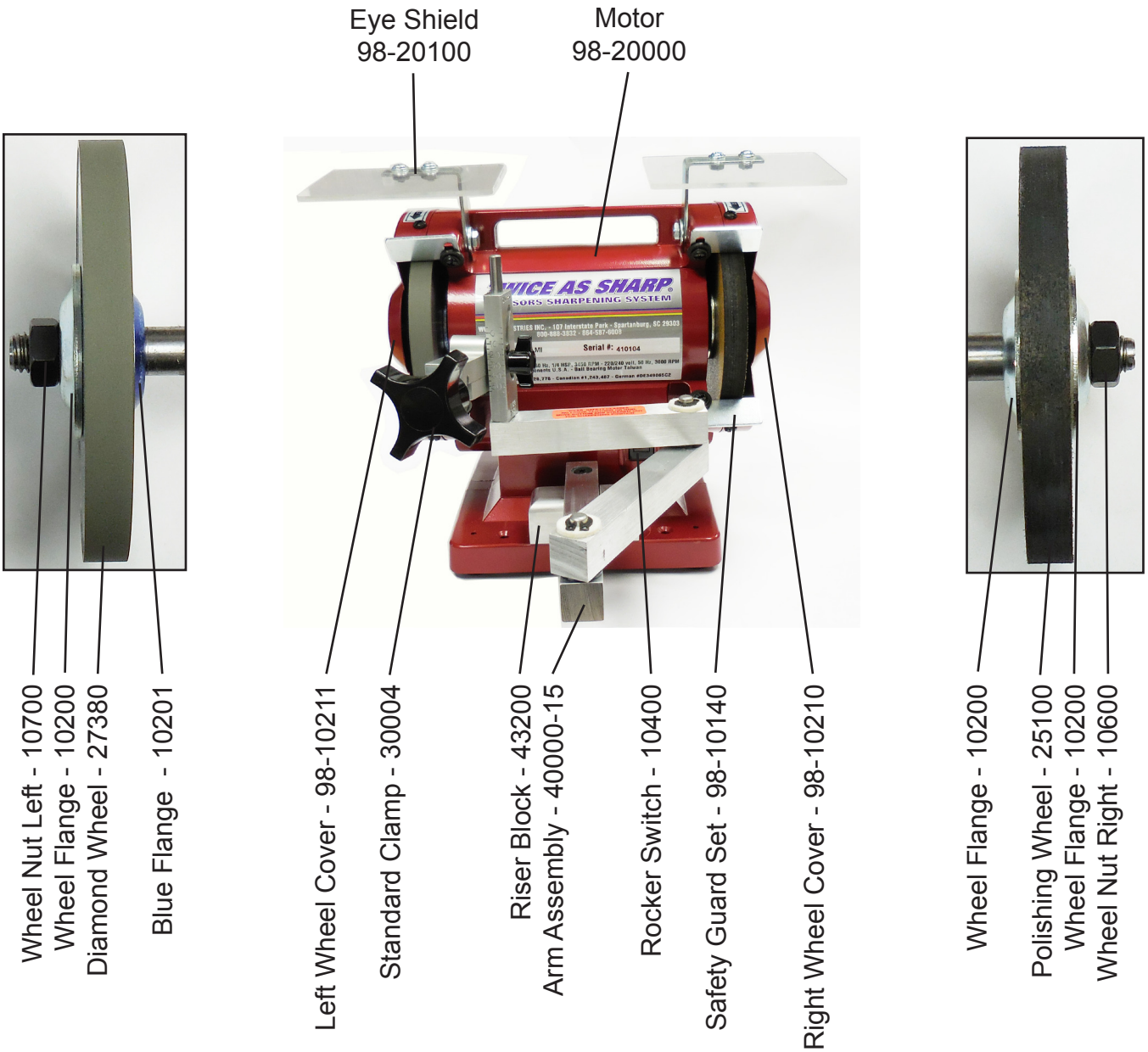
Replacement Lower Jaw for:
Shears-Lock Clamp
Part #33004
The lower jaw often gets ground down too far to hold scissors properly. This part is easily replaced and comes with a new screw and washer.

Lower Jaw for Narrow Clamp
Part #33005

Convexing Clamp With Ergonomic Knob
Part #30009

The convexing clamp helps speed up the polishing process when sharpening OOKAMI GOLD® convex edge beauty and grooming shears. A fixed angle is set with the upright, when the clamp is moved out of the detent postion allows full movement to polish the back edge of the blade.

PARTS LIST FOR OOKAMI GOLD® SCISSORS SHARPENER



LIMITED WARRANTY

Two year warranty from date of purchase against defective parts or workmanship with the exception of the sharpening and polishing 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 vary from state to state. Some states do not allow limitations or implied warranties or consequential damages, so these may not apply to you.

DISCLAIMER

There is no expressed warranty other than 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.

GUARANTEE

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

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