Sharpening Dental/Perio Instruments Using the ℞ System II Machine

User Manual

℞ HONING MACHINE

General Safety Rules

*1. **Keep work area clean.*** Cluttered areas invite injuries.

*2. **Consider work area environment.*** Don't use machine in damp or wet area.

*3. **Guard against electric shock.*** Prevent body contact with grounded surfaces. For example: pipes, radiators, ranges, refrigerator enclosures.

*4. **Keep children away.*** Don't let visitors contact machine or power cord.

*5. **Store idle machine.*** When not in use, machine should be stored in dry, high or locked up place.

*6. **Use safety glasses.***

*7. **Maintain machine with care.*** Keep machines clean for better and safer performance. Follow instructions for changing accessories. Inspect machine cords periodically and if damaged, have repaired by authorized service facility.

*8. **Don't abuse cord.*** Never carry machine by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.

*9. **Disconnect machine when not in use.***

*10. **Avoid gaseous areas.*** Do not operate in gaseous or explosive atmospheres.

*11. **Do Not alter or misuse machine.*** These machines are precision built. Any alteration or modification not specified is misuse and may result in a dangerous condition.

*12. **Stay alert.*** Watch what you are doing. Use common sense. Do not operate machine when you are tired.

*13. **Check damaged parts.*** Before further use of machine, damaged parts should be carefully checked to determine that machine operates properly to perform intended function. Damaged parts should be properly repaired and replaced before further use of machine. Have defective switches replaced. Do not use machine if switch does not turn machine on or off.

*14. **Warning.*** Before connecting the tool to a power source (receptacle, outlet, etc.) be sure the voltage supplied is the same as that specified on the bottom plate of the machine. A power source with voltage greater than that specified for the machine can result in serious injury to the user as well as damage to the machine. If in doubt, do not plug in the machine.

Contents

We thank you for choosing the
℞ System II Periodontal Set

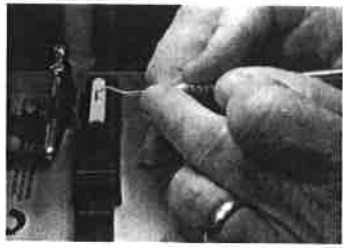
IMPORTANT CONCEPTS OF SHARPENING

● **ANGLE:** The DPS Guide is for all curettes/scaler plus any scissor to maintain consistantly proper angles. The CHT guide is for the correct angles on operative instruments.

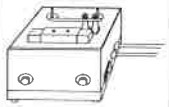
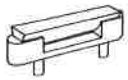
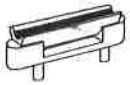

● **PRESSURE:** With the machine moving disks or stones, less pressure is needed to obtain the desired results. This is especially true when using the Diamond Disk. Check for sharpeness after 3 to 4 light strokes using your test stick. Frequent checking helps eliminate over sharpening of the instrument.

● **STABILIZATION:** Rest your hands against the machine's table top or side. Use both hands to support the instrument close to the point of contact with the abrasive. If the instrument tends to move when the machine is activated, try the following:

1. Use lighter pressure
2. Grasp the instrument more firmly
3. Increase the speed of the hone or disk

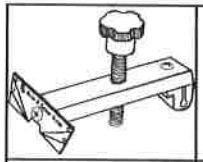
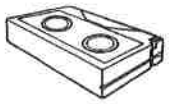



Periodontal Set

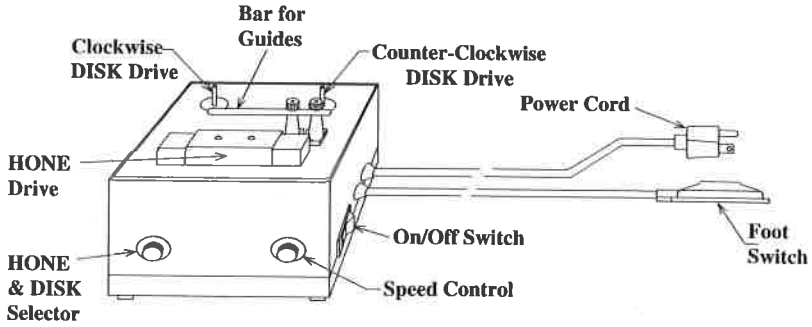
	**RX SYSTEM II MACHINE** MAC-10700/10800 (110/220 volt sharpening machine with selectable HONE and DISK motions)
	**HONE** # 1 *Flat* VIT-04300 (red vitrified)
	**HONE** # 2 *Round* VIT-04401 (red vitrified)
	**HONE** # 3 *Diamond* CER-08100 (white ceramic)
	**HONE** # 4 *Grooved* CER-08200 (white ceramic)
	**DISK** # 13 ACC-10301 (2 leather) RSC-10311 (1 black rubberized silicon carbide) DIA-03001 (400g diamond plated)
	**DISK REMOVAL TOOL** ACC-02500 (Removes parts from spindles. Fit fork under Disk and pry up.)

Set part descriptions are continued on next page.

Periodontal Set

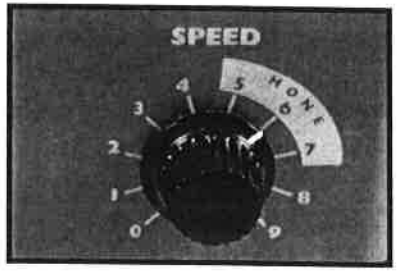
	**DISK PERIO & SCISSOR (DPS) GUIDE** ACC-16090 (Guide provides the correct angle for sharpening curettes, scalers and SCISSORS on disks.)
	**TEST STICK** ACC-11800 (Instrument edges dig into plastic providing a quick test for sharpness.)
	**HONE CLEANER** ACC-05600 .5 oz.(Cleans and conditions Hones and Disks)
	**HI- FINISH COMPOUND** ACC-06600 .5 oz. (Buffing compound applied to leather disks for polishing instruments and producing razor edges on gingivectomy knives.)
	**HONE BOX** ACC-02800 3" x 7" x 8.5" High impact box protects and organizes honing components.
	PERIO INSTRUCTION BOOKLET INS-11101 Reference manual with step by step procedures for sharpening periodontal instruments.
	**PERIO INSTRUCTION MEDIA** INS-14102 A DVD, CD-ROM or Video of "how to" hints for sharpening periodontal instruments.

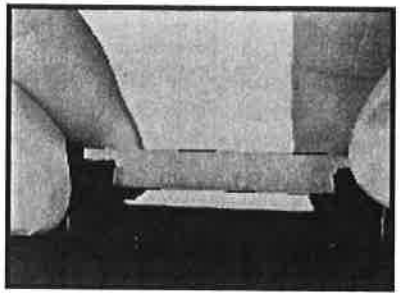
System II
Machine Operation



Set Selector Switch to recommended machine drive for instrument:
Two honing operations are selectable, HONE which reciprocates a contoured abrasive, and DISK which rotates 2 abrasive disks.

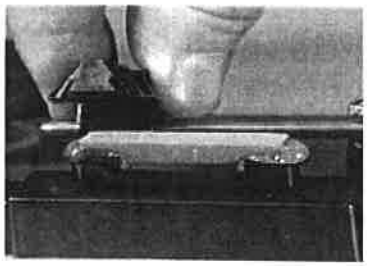
Set Speed Control to rate of operation for the HONE or DISK drive:
The normal reciprocating rate for the HONE drive is from 5 to 7. Any rate from 1 to 10 may be used for the DISK drive. Start with 5 and increase or decrease for more or less honing (note: top speed is 7000 RPM).

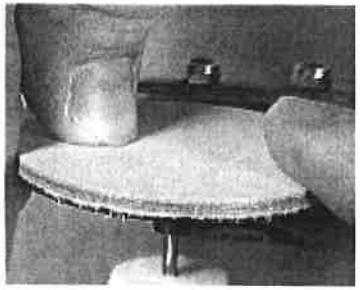




Insert hone into the Reciprocating Carriage:
Grasp the hone on each end of its holder, align the pins with the two holes in the Reciprocating Carriage, and press straight down. Pull straight up to remove hone.

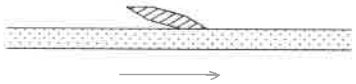
Slide either guide, DPS or CHT onto the bar to set up a specific angle for sharpening an instrument: Guide rotates down onto hone or disk.





Press disks onto the two spindles:
(Match flat of holder to spindle)
The diamond disk is used for fast honing or reshaping, the RSC Disk for fine honing, and the Leather disks for stropping or buffing.

Rub a small amount of Hi-Finish Compound on the Leather disks prior to stropping.

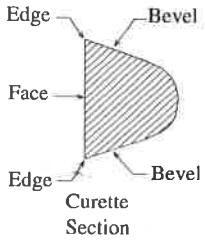


We recommend that leather disks be pressed onto both DISK drives so that there is both clockwise and counter-clockwise rotation, since the edge must be pointed with the rotation. (note: Rotation directions are indicated by arrows on the machines top plate.) This makes it easy to strop both sides of instruments such as the gingivectomy knife. Simply switch to the other disk when the edge points against rotation. The leather disks can be used for several instruments and only need to be cleaned when the metal begins to load up on the disk.

Remove metal deposits on a hone or disk when they begin to build up:
Metal deposits reduce an abrasive's cutting ability. Apply a small amount of Rx Cleaner using a Q-tip, then wipe the metal away.

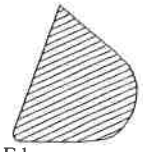
Keep the top plate of the machine clean to prevent debris from entering into the enclosure around the carriage. (Note: Machines do not require lubrication. You should not use lubricant/cleaner other then Rx Cleaner on hone as the solution could contaminate the motor.)

General Sharpening Procedures

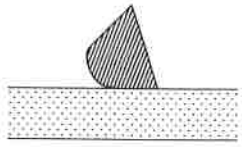


What is an edge?
A sharp edge is formed when two surfaces intersect at an acute angle. In the curette diagram, 2 edges are formed by the intersection of the face surface and the two bevel surfaces.

An edge becomes dull when its intersection is worn away or rounded. A dull edge reflects light.

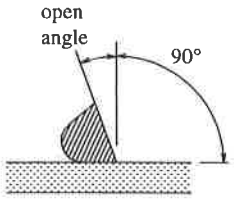

Dull Edge

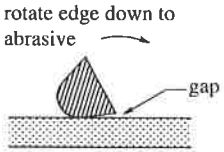
Sharpen the edge by honing the bevel:
Stay as close as possible to the existing bevel angle, but don't be overly concerned about being exact. Instrument guides will establish the correct honing angle for many instruments.



When a guide is not available, use these procedures to duplicate the bevel of an instrument:

The instrument's face must be open: To create a sharp edge, the face is tilted back (opened) to an angle greater than 90°.





Open the face until there is a gap between the edge and the abrasive. Then close face until gap disappears. A good light is helpful in using this procedure (refer to Rx Workstation in Rx Honing Catalog).

Use the felt tip marker when first learning the machine. Paint the bevel of an instrument, hone for a few seconds, and inspect the bevel for accuracy. The bevel surface will clearly show the abrasive contact.

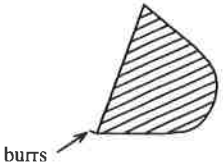
The instrument must be stabilized while sharpening:

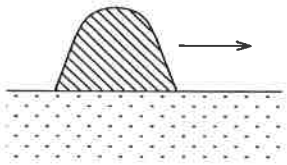
Rest your hands against machine's table top or side. Use both hands to support the instrument close to its point of contact. If the instrument vibrates, then do the following:

A. Use a lighter pressure
B. Grasp the instrument more firmly.
C. Increase the speed of the hone or disk. <u>You can alter the abrasive's cutting rate by changing the hone's speed or by changing the pressure of the instrument against the hone.</u> In general, it is recommended that one use light pressure. A good guide for pressure is to use an amount equivalent to writing on paper with 3 carbons. Increase pressure for larger instruments.

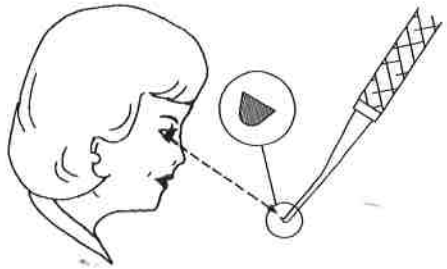
The Honing operation may roll up burrs, metal fragment, onto the face of the instrument:

The HONE drive reciprocating process rolls up small burrs. If the edge is pointed against disk rotation, then metal is pushed back eliminating the creation of burrs.





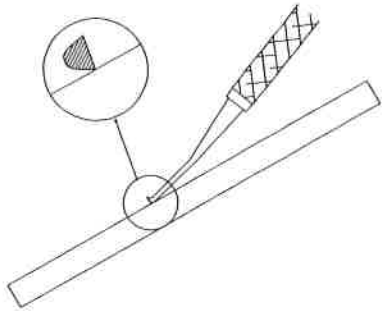
If a burrs are present, then remove them from the face. Push or pull the face across a stationary ceramic hone. Use stropping with leather disks to remove burrs on some instruments.



Test the instrument for sharpness:

Use a good light and magnifier (the Rx Workstation is designed for this purpose) to inspect the instrument. Dull edges will reflect light.

Another test for sharpness can be made by scraping the edge across your fingernail or the Rx Test Stick. A sharp edge digs into the nail or the test stick.



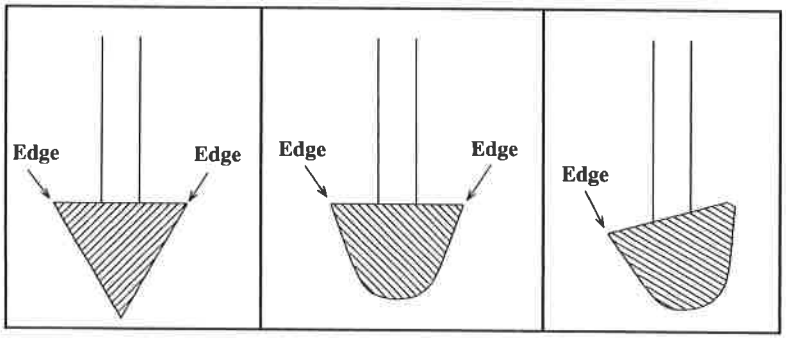
Instrument Sharpening Procedures

Curettes and Scalers

Instruments procedures presented are suggestions and are not the only methods.

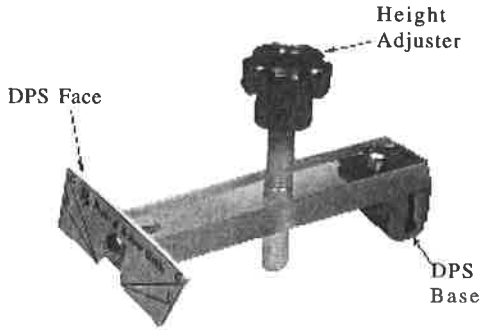
Look for the cutting edges:

The Scaler and Universal Curette are designed with two cutting edges. The Gracey Curette is designed with a single cutting edge for use on a specific tooth surface. To determine the Gracey cutting edge, hold the terminal shank vertical and look for the lowest side.



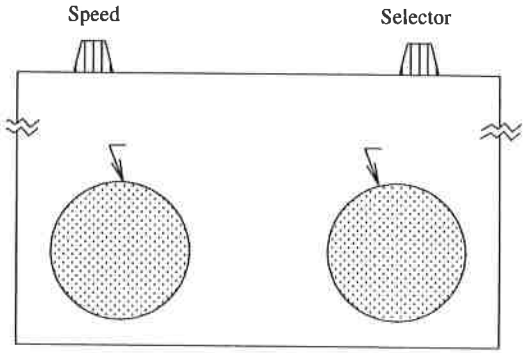
SCALER **UNIVERSAL CURETTE** **GRACEY CURETTE**

DPS Guide is designed for use in sharpening periodontal curettes and scalers.



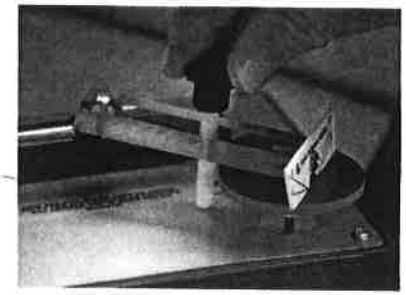
Position machine for sharpening:

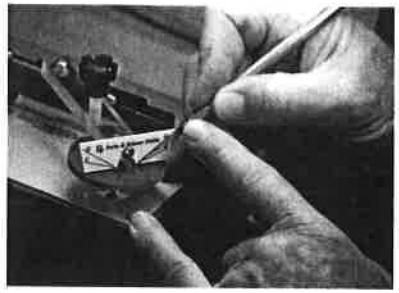
Turn machine so that disks face you. Install black RSC (rubberized silicon carbide) disk on right spindle, and diamond disk on left spindle (install disks vice versa for left handed sharpeners).



Install DPS by sliding base onto steel bar:

Slide DPS Base further onto bar to increase Face distance from edge of disk to approximately 3/4 inches from the disk edge. Rotate DPS Guide down onto top of RSC disk for normal sharpening or onto diamond disk for reshaping. Bottom of DPS Face should be flush to disk surface. Then use Height Adjuster to position DPS just off of disk (turning knob clockwise raises guide).

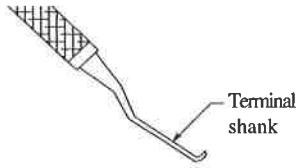




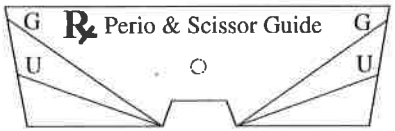
Stabilize curette or

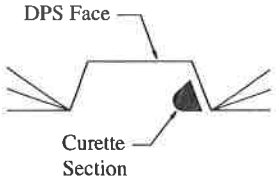
Grasp instrument handle in a pencil grip and use finger from the opposite hand to help stabilize. Brace hands against side of or top of machine.

Use the terminal shank (last part of shank) for alignment:
Because of the constant relationship of the terminal shank to the face of the instrument, only two angles are necessary.



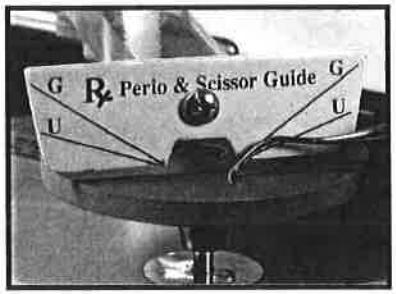
Use "G" Line for Gracey Curettes and the "U" Line for universal curettes and scalers.

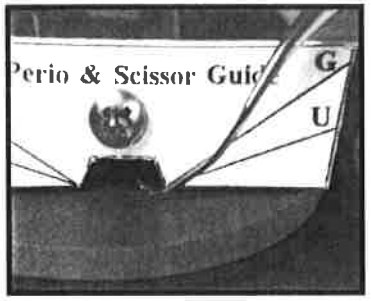




Check the face of the instrument:
The instrument's face should be parallel to the cut out angle in the middle of DPS Face.

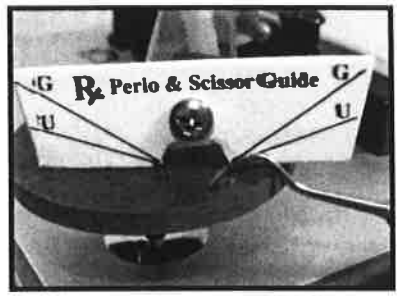
Align the Gracey Curette:
Position instrument on the disk with the terminal shank parallel to the "G" line (look over the top of the shank for the alignment line). DO NOT TRY to maintain this alignment during sharpening. Maintain "face to disk" relationship during sharpening.

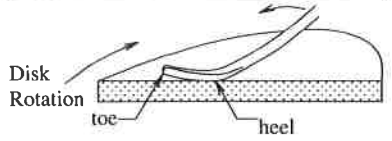




When sharpening the side where toe is pointing away from you, position instrument through cut out area in DPS Face in order to establish the proper angle.

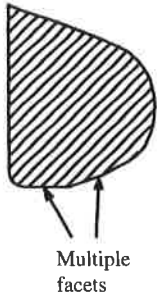
Align a scaler or universal curette:
Position the instrument on the disk with the shank parallel to the "U" line. Position DPS Face toward the side of disk for sharpening instruments with steep shank angles such as 204S and Columbia 13-14 (permits the handle of the instrument to extend below the disk without hitting the disk).



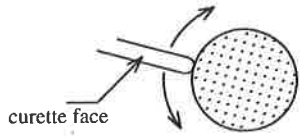


Sharpen a curette or scaler heel to toe:
Activate disks at the recommended speed, (4 to 5). Position heel of instrument on disk with toe slightly off of disk. Rock instrument up to toe, maintaining a consistent angle between instrument face and abrasive. Repeat heel to toe honing for 2-4 seconds before testing for sharpness . Press instrument lightly (very lightly for DIA) against disk and increase pressure for faster cutting if necessary. Do not try to keep instrument parallel to line during sharpening.

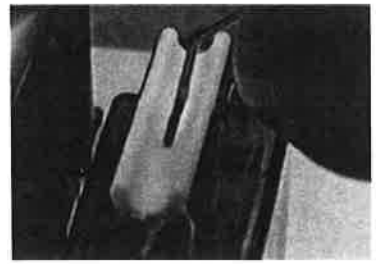
Reshape your curette or scaler if the desired sharp edge is not obtained within 30 seconds:
By inspecting the instrument's bevel, you will see multiple facets indicating the instrument was previously sharpened at the wrong angle. Use the diamond disk to create a bevel with a single facet. Slow the disk down to 3 or 4, and use very light pressure. <u>Keep the instrument on the diamond disk for only 2 to 3 seconds before checking. It is usually a short procedure.</u>



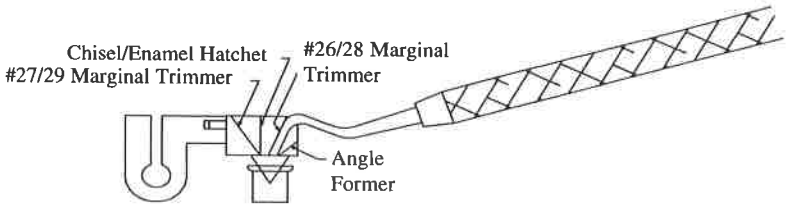
Sharpen the round toe of curettes:
Move the toe up and down around the #2 Hone surface. The face of the curette should make an angle with the hone of approximately 45°.



If using the #4 hone, as at the right, move the toe from side to side.

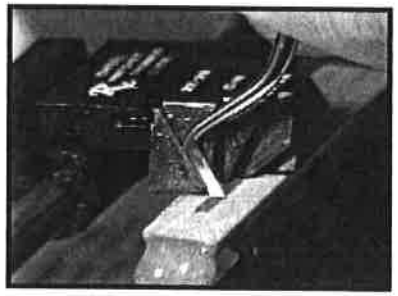


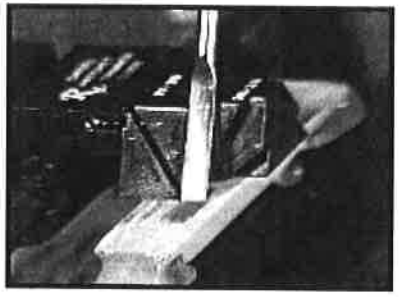
Chisels, Hatchets, and Marginal Trimmers



Use the Chisel-Hatchet-Trimmer Guide to sharpen cutting instruments:
Install the red vitrified #1 hone, slide the CHT Guide on the bar, and rotate guide down onto the middle of the hone. Position the side of the instrument against the appropriate shoulder. Uses are designated on the top of the guide.

Sharpen the marginal trimmer:
Press the instrument firmly against the #26/28 shoulder or the #27/29 shoulder, and hold on the reciprocating hone until the track (metal deposit) is equal in width to the cutting edge. Use the other side of the guide for the opposite end of the instrument.

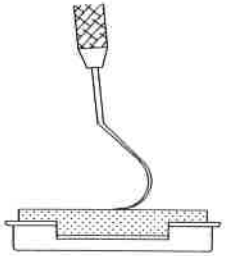




Sharpen the Weidelstaedt Chisel or the enamel hatchet:
Position the instrument firmly against the middle shoulder.

Explorers

Use either the #2 or #4 Hone to sharpen the explorer:
Position the tip, at only a slight angle to the hone. Use the ceramic #4 Hone for maintaining a sharp point, and for irregular shaped explorers.


Point explorer with reciprocation

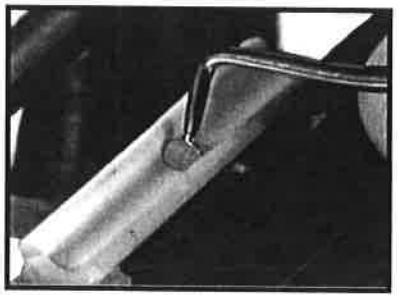
Sharpen the very dull explorer on the red #2 hone:
Move the point around the convex hone surface for a few seconds. To hone uniformly, point explorer in opposite direction and repeat procedure.

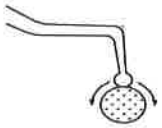
Sharpen slightly dull explorers on the white #4:
Sharpen slightly dull explorers by pushing and pulling the point in the concave groove, pointing the explorer in the both directions of reciprocation. Use the round corner of the #4 Hone for the inside of the point on a pigtail or cow horn explorer.

Excavators and Surgical Curettes

Sharpen the spoon excavator the #4 HONE:

Tilt the shank back approximately 15° and move the spoon around in the groove using the bottom and sides to hone circular bevel.
Move in an arc to provide 15° angle on sides.





Sharpen the surgical curette using the #2 HONE:
Tilt the shank back approximately 15° and move the instrument around the convex hone surface.

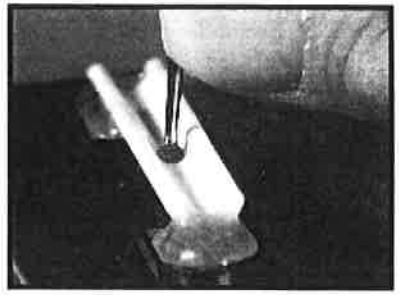
Amalgam Carvers

Sharpen the cleoid using the RSC DISK:

Use the DPS Guide and align shank to "U" Line. Then activate disk and roll cleoid up to its point. Repeat on other side of cleoid and test for sharpness.

Sharpen the discoid using the #4 HONE:

Position the discoid in the concave groove with face open approximately 20° (handle is approximately vertical). Similar to excavator, use sides and bottom of groove to duplicate circular bevel.

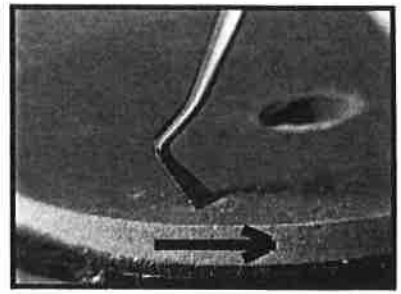


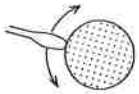
Sharpen the sides of the Wall Carver:

Use DPS Guide and align shank of Walls carver with "U" Line to sharpen one side. Turn instrument over for other side. Use this procedure for sides of both round end and chisel end.

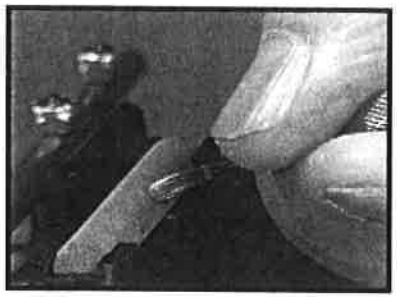
Sharpen chisel end of Wall Carver using RSC or DIA DISK:

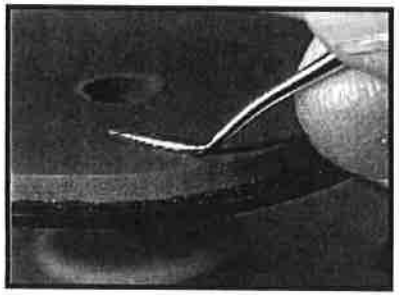
Position bevel of chisel end on RSC or DIA disk. Press the instrument against the disk surface until the metal track equals the width of the cutting edge. Note direction of rotation is away from sharp edge.

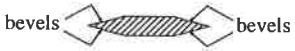




Sharpen round tip of Walls Carver:
Hold tip of instrument against side of round hone and move it up and down around the hone surface.



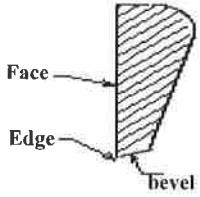




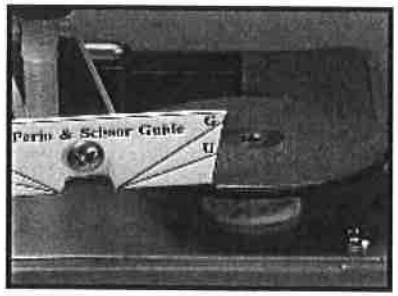
Sharpen the Hollenback Carver using the RSC or DIA DISK:
Instrument has a cutting edge on each side. Position bevel on disk and rock bevel up to point. Repeat on all four bevels. Test for sharpness.

Scissors

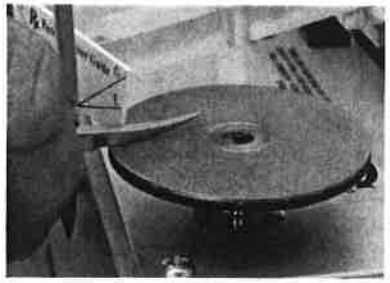
The scissor edge is formed by a small bevel and the face.



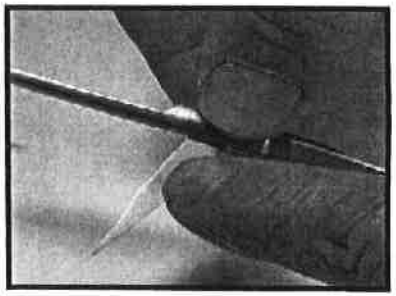
Set up machine for sharpening scissors:
On right clockwise disk (again with disks facing you), install RSC disk for slightly dull scissors or diamond disk for very dull scissors. Position DPS Face on left edge of disk, slightly above and parallel to top surface of disk.



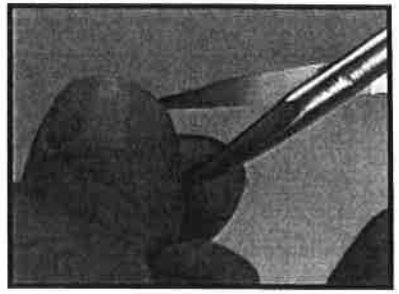
Sharpen the scissor:
Position scissor bevel on disk at point just beyond joint with face of scissor flush against rest (tilts scissor 10°). Tip of scissor should be slightly off of disk surface and honing will be done on outer 1/4 inch of disk. Activate disks and pull scissor lightly across disk surface.

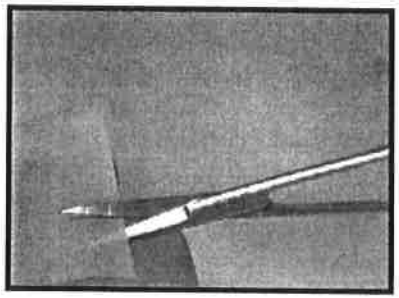


Determine if scissor honing is complete:
Check inside of face at edge for a burr (indicates edge has been reshaped) and for wear. If burr is not present or there are any chips or nicks in face surface then repeat scissor honing.



Deburr the scissors:
Separate the scissors with fingers and thumb (to avoid cutting into burr) and slowly close scissors together . While pressing scissors tightly together, open scissors to remove burr (pulls burr off). Use close and open procedure a couple of times, then lightly close scissors. If scissors do not close smoothly, then repeat above.





Test scissors for sharpness:
Tissue scissors can be tested by trying to cut latex such as a glove or rubber dam material. Close the scissors on the latex and pull away from the latex. If the latex pulls with the scissors, then the sharpening is incomplete.

Loose scissor joints may prevent scissors from cutting:
Always check the scissors for proper joint tightness. If the joint is too loose, then it will not keep the two scissor's edges together. To test this hold the scissors in an open vertical position and let go of the top scissor. The scissor should stop about two thirds of the way closed. *Joint adjustment tools Screw Adjustment Kit and Anvil and Hammer Kit may then be used. *Optional. Order from our catalog: ACC-13600 and ACC-03200.

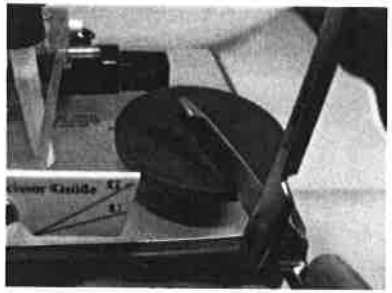
Sharpening the Olsen-Hegar scissor:

Set scissor face against the guide.

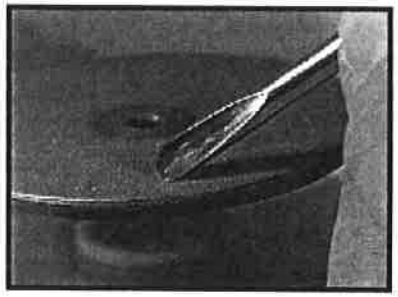
Move scissor slightly away from the guide to avoid the needle holder from hitting it.

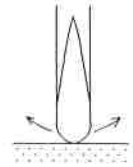
Lift the needle holder tip to avoid contact with the disk.

Begin sharpening like all other scissors.

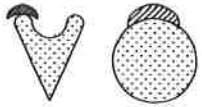


Elevators

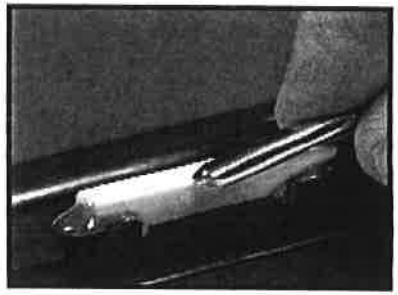


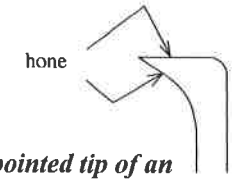


Sharpen the round tip of elevator on the RSC or DIA DISK:
The diamond disk is excellent for reshaping the tips of elevators. Position bevel on disk and rotate instrument.

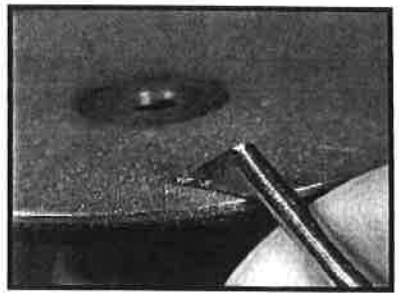


Use the #2 or #4 HONE for the face of a concave elevator:
Often the face surface of the elevator will have burrs or nicks and also must be honed.

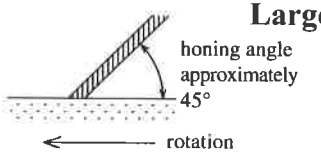


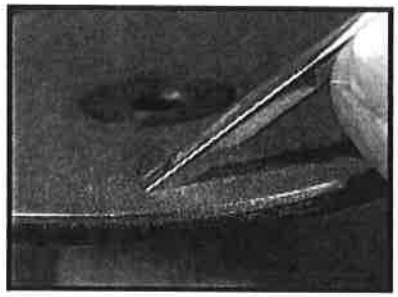


Sharpen a pointed tip of an elevator on the RSC or DIA DISK:
Hone the two bevels that form the point.

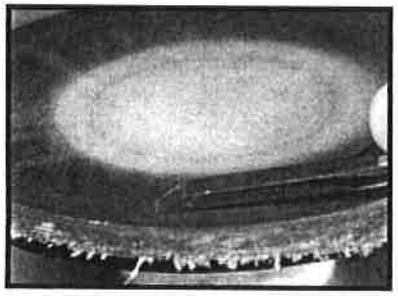


Large Chisels

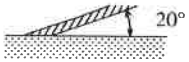




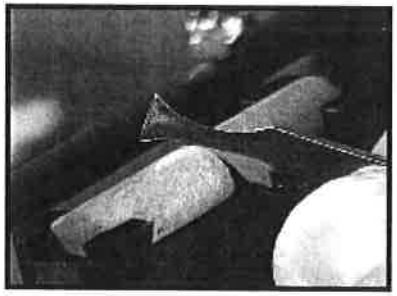
Sharpen the bone chisel using the DIA DISK:
Position the chisel near edge of disk with the cutting edge pointing in the direction of rotation. Duplicate original angle (usually approximately 45°) and adjust pressure as necessary to maintain even metal removal.

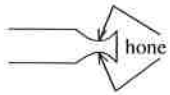


Strop bone chisel:
Strop both face and bevel surfaces of the chisel edge to remove burrs. Remember to keep edge pointed with rotation.



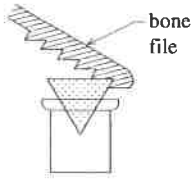
Sharpen the Ochsenbein Chisel at an approximate 20° angle:
Sharpen the chisel end of the Ochsenbein at a much smaller angle than the regular bone chisel. Use the same procedure as above.



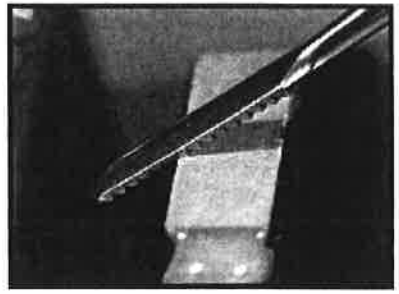


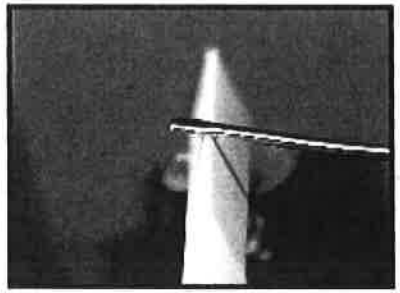
Use the #2 HONE for the sides of the Ochsenbein:
Position the concave cutting edge on the round hone surface.

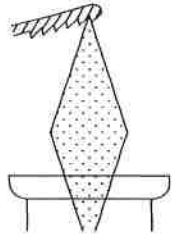
Files



Sharpen the bone file using the #1 hone:
To sharpen the bone file position each tooth over the corner of the red vitrified #1 hone and pull lightly back into the hone surface. Reciprocate hone for a few seconds on each tooth.

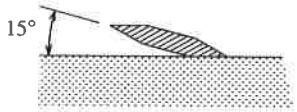


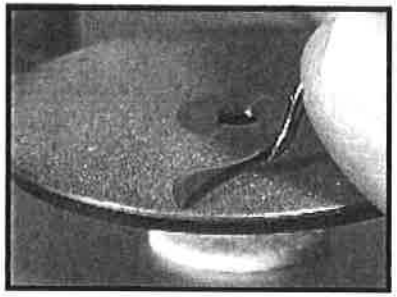




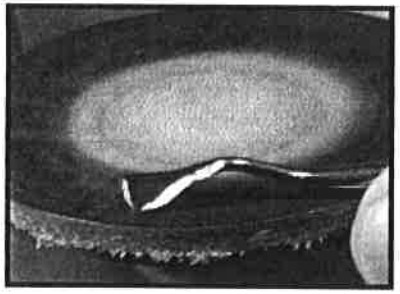
Sharpen the periodontal file using the #3 HONE:
Position each tooth over the knife edge of the hone and pull lightly back. The shank of the file should be angled slightly down. The underneath side of the hone (opening in holder) can be used when the shank angle prohibits proper placement on the top edge. Reciprocate hone for a few seconds on each tooth. (Note: Sharpen the knife edge of the hone on the DIA DISK to keep it sharp.)

Gingivectomy Knife





The Gingivectomy Knife has two cutting edges:
Position each bevel on the disk and duplicate existing angle (honing angle should be approximately 15°). Use the diamond disk with only light pressure for the initial sharpening of very dull knives. Use the RSC disk for maintaining sharpness and for only slightly dull knives.



Strop the gingivectomy knife to obtain an ultra sharp edge:
Mount two leather disks and apply Hi-Finish compound. Disks will rotate in opposite directions indicated by arrows on machine's top plate.

To strop, position the bevel on disk, edge pointing with rotation. Strop all four bevels for a few seconds at the 15° bevel angle. Move to other disk for opposite edge using the reverse rotation.

Declaration of Conformity

Manufacturer's Name: Rx Honing Machine Corp.
Manufacturer's Address: 1301 East Fifth Street
Mishawaka, Indiana 46544-2899 USA

declares that the product

Product Name: Rx System II Honing Machine
Model numbers: 2.0, 2.3

conforms to the following Product Specifications:

Safety: EN 60335-1: 1994 + ALL: 1995
EMC: EN 50082-1 (January 1992)
EN 50082-2 (March 1995)
IEC 801-1 (March 1992)
Part 2: "Electrostatic Discharge Requirements" (1984 & 1992, 2nd)
Part 3: "Radiated Electromagnetic Field Requirements" (1984, & 1992 DR6)
Part 4: Electrical Fast Transient/Burst Requirements" (1988, 1st)

The product is in conformity with the requirements of the Low Voltage Directive (73/23/EEC) and the EMC Directive (89/336/EEC).

Technical Construction File for EMC:
EMC Test Services Report No. 3853 issued by:
D.L.S. Electronic Systems, INC
1250 Peterson Drive
Wheeling, IL 60090 USA
Authorized to carry out EMC test by order and under the supervision of TUV-Rheinland

R. J. Watson, President, Mishawaka, Indiana USA, June 1, 1998