

MDF

INDUSTRIES

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Manual For Fleming Gray Model B2/B3

1-800-452-2154



Model B2

Important Instructions on the Set Up and Operation of the **FLEMING GRAY SKATE SHARPENER**

Before running your machine, ensure it is sitting solidly on floor. If floor is uneven, tilt machine back slightly and slide packing of some kind under base below motor or motors. This will give three-point location making the machine solid. Plug in grounded plug to grounded receptacle. Take notice that swinging arm does not swing into path of grinding wheels. Machine is now ready to run. When machine is first removed from the crate or you have just replaced a wheel, great care should be taken. Either stoop below level of wheel or protect yourself when starting machine up.

CAUTION: Grinding wheels are very brittle and will break or may have unseen cracks in them. Putting a wheel on too tightly may also cause it to crack. We cannot over stress that the utmost care should be taken when first starting machine up. Please remember to 'ring' wheel before putting on machine. Refer to "How to 'ring test' a grinding wheel" below.

WARNING: Do not install grinding wheels that do not ring when tested

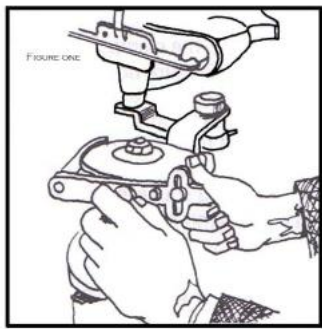
Lubrication:

All moving parts that slide, or have friction points, require liquid lubrication; we suggest using no less than **SAE #20** oil. This applies to clamp jaws, lever pins, links, forklifting bracket, arm adjusting screw and nut, diamond dresser holder screw, radius pin and screw bearing point, etc. Remove excess oil so as not to attract unnecessary build-up of grit and dirt.

Warning: Do not lubricate ball bearing points with oil as this will tend to thin grease packing, and wash dirt into bearings. Keep machine clean. Do not let dirt accumulate on these areas.

Operating Your Skate Sharpener:

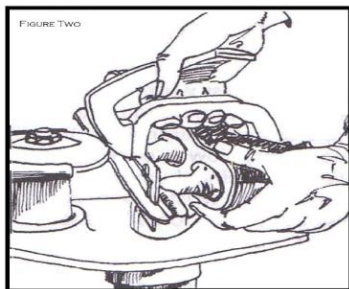
1. When machine is running and everything is clear, the next step is to dress wheel or wheels to run true. This is a simple operation and very necessary for a smooth sharpening job. Turn the diamond in very slowly, once it has come up to the wheel, placing thumb on wheel guard and rolling the wrist to actuate the diamond dresser arm. (Fig. 1): This takes some practice at first. For instance, if you slide



the arm up and down too slowly the result will be a very short spark when sharpening skates, which in turn means the sharpening stone will load up with the grinding dust and may not finish grind one blade without burning. A spark length of 5" to 8" on a finishing grind is about right. Ten-inch spark or more will leave grooves down the skate blade which is not satisfactory. This applies to single wheel machines (B2) and finishing right hand wheel on the twin spindle machine (B3). The (B3) left hand coarse wheel can be dressed somewhat coarser, or a faster dressing movement, as this wheel is

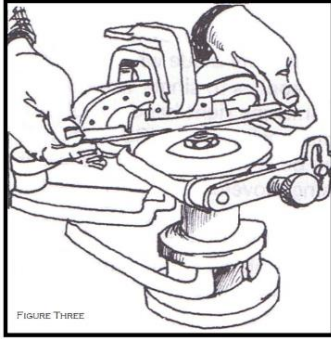
only for the purpose of removing nicks, edge wear, and sharpening skate to desired rock. Any reasonable spark length is permissible, and this wheel only needs dressing when out of round, grooved or loaded with soft material from lower-priced skates.

2. Next, we insert skate into clamp anywhere along its blade surface, clear of the clamp blades. Even though this clamp will take any width of skate blade, there is no point in straining the clamp uselessly. Check the bottom blade of the clamp for grinding grit and slide skate in. Be sure no part of the boot is interfering with the frame of the clamp, re-locate if necessary, and squeeze down clamp lever handle. CAUTION: Do not push down lever and strain arm. Loop fingers through frame of clamp



and squeeze with palm of hand (Fig. 2). Clamp handle will snap into locked position. If boot of skate is clear of clamp frame, you can press top of skate down and it will spring back up to the proper square and parallel location for sharpening blade.

3. The skate may be inserted from either side of clamp, keeping in mind the knuckle joint must be located toward the toe of skate when sharpening. The arm knuckle in this position will stop interference from top of boot pushing up to knuckle and



making hesitation mark on skate blade caused by unexpected stopping while making pass along wheel while sharpening. Be sure blade of skate is somewhere raised or lowered to approximately centre of grinding wheel.

CAUTION: Make certain the blade is not travelling just under or over edge of wheel. This could grab skate and pull it into wheel, jamming it tight enough to break the wheel. We are now ready to commence operating on the Fleming Gray Speed-I-Precision Skate Sharpener (B2 or B3)

B2 SKATE SHARPENER

You sight down the blade of the skate and centre blade to the centre of the crown on the wheel (not the centre of the wheel itself). This radius varies. The actual working point of any diamond tip is not or will not stay on the diamond dresser holder screw. For this reason, the radius on your wheel will be slightly low, on centre, or slightly high on the wheel. It is up to the operator to adjust accordingly. It will stay there until the wheel is dressed again, or the next width of blade is to be ground which must be adjusted again for the centre of the crown on the wheel. Generally, this is unnecessary unless going from hockey skate to figure skate or any other sizeable variation. All this adjustment is done conveniently by the three-spoked adjusting screw that is closest to you. This raises or lowers the arm at your discretion. You then pass the skate in either direction to rough grind. We recommend that on the final pass you travel to the right in the direction of the wheel. Equal results are obtained by either direction, but why push when you can ride? This final pass requires a continual, steady, forward motion, but very light pressure. Above all, the slower you can travel without burning the blade the better the results.

B3 SKATE SHARPENER

To operate this machine the left coarse wheel is dressed flat and the fine right finish wheel is radiused. Follow the information given for (B2) up to centering blade approximately to centre of wheel, not under or over. Pass skate back and forth along the left coarse wheel to remove rounded edges, nicks, and shape skate. This being completed, pivot arm over to the finish wheel. Keep arm knuckle joint always to toe of skate. You now just kiss blade of skate to wheel. The radius of the finish wheel "coming into contact with" the straight flat surface created by coarse wheel will produce a small oval mark on the blade. If this oval mark is high or low on blade of skate, you adjust by the three spoked adjusting screw at the end of the arm in front of you to the centre of blade. The fine wheel may require three or four passes across wheel in either direction. We recommend that on the final pass you travel to the right in the direction of the wheel. Equal results are obtained by either direction but why push when you can ride? This final pass requires a continual, steady, forward motion but very light pressure. Above all, the slower you can travel without burning the blade, the better the result. This machine was made for fool-proof simplicity, ease of operation, and the very best of ice skate sharpening. So practice and use these basic suggestions with your own ingenuity of

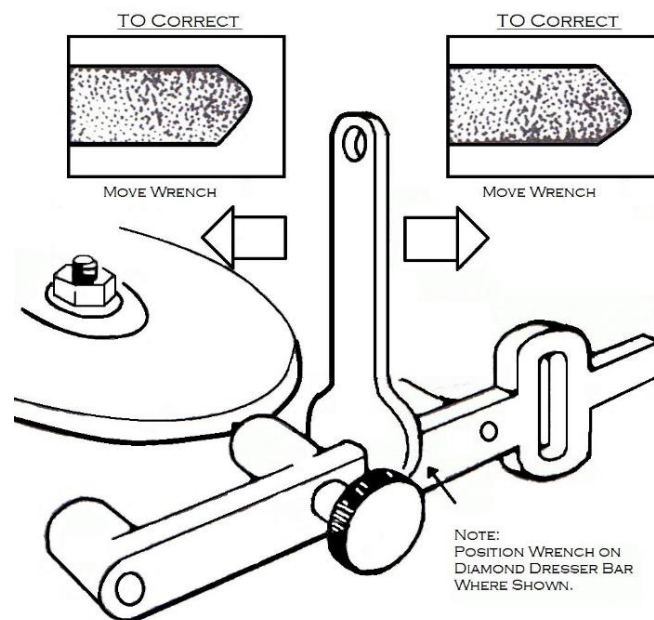
finding out slightly different manners of operation yourself. We know you can turn out the very best of skate sharpening.

TO ADJUST RADIUS: ONLY IF IT'S NOT DRESSING STONE PROPERLY

Should the dressing device get out of adjustment accidentally and cause a high point of radii to be off centre of the grinding surface, it may be corrected in the following way:

1. Turn the diamond dresser screw back two full turns.
2. Place adjustable wrench on the arm between the dresser screw and radius pin (or cam follower screw depending on your age of machine). Holding the radius pin from falling out; twist the arm as shown below, in the appropriate direction to correct the error.

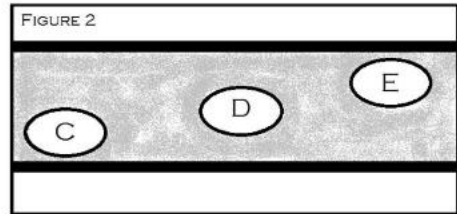
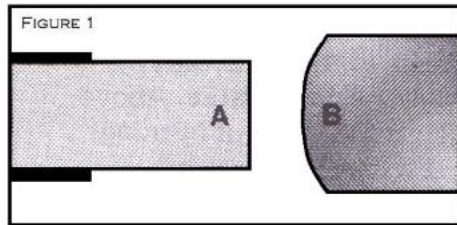
Note: The arm will accept a reasonable amount of twisting, certainly enough to correct any off centering. Excessive pressure could result in breakage. Be sure radius pin or Cam Follower are in place before starting sharpener after adjustment.



FURTHER INFORMATION ON CENTERING SKATE BLADE (MODEL B3 ONLY)

1. Move flat ground skate blade **A**, figure 1, slowly contact with moving finish wheel **B**. the finish wheel is radiused as shown and the very lightest contact will result in a small oval mark on the blade surface, figure 2.
2. Figure 2 shows the possible positions of the oval mark on the surface of **A**.
 - a. **C**—indicates skate is too high
 - b. **E**—indicates skate is too low.

- c. **D** –Indicates skate is in correct position to begin finish sharpening.



Above is the simplest and most accurate method of centering skate blades on radiused finish wheel which is on the market today. Backed by the warranty (please refer to your warranty) the entire Fleming Gray Skate Sharpener has been manufactured to the highest standard of parts and engineering to ensure fast, smooth, profitable operation for you.

IMPORTANT (control Arm)

If control arm needs adjusting, or repairs required to be performed by factory, remove (3) socket head screws #2005 and send complete Control Arm Unit.

Cam Information:

If you have a cam on your dresser assembly instead of radius pins we have put the letter equivalents to radius below depending on your cam. When the letter is face up that is what radius will be dressed into the stone.

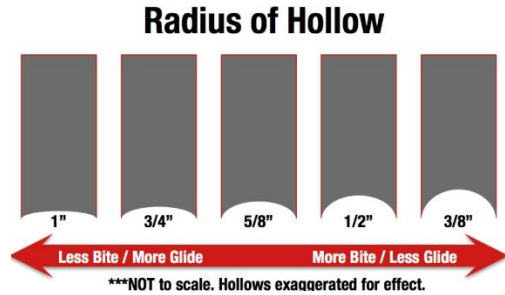
Cam Equivalents:

Cam #1	IN	MM
1	½	13
2	5/8	16
3	¾	19
4	15/16	24
5	1 – 1/8	27
6	1 – ¼	31
7	1 – ½	37

Cam #2	IN	Mm
A	17/64	7
B	25/64	10
C	½	13
D	5/8	16
E	¾	19

Flat Bottom Cam: ½” and 5/8”

Radius of Hollow / Cam:



A smaller radius will give you more bite into the ice for tighter turns and quicker acceleration, but at the same time because your edges are digging deeper into the ice which causes greater friction, your glide and speed will suffer (Also a more pronounced radius will be more fragile and less durable).

A larger radius therefore gives you greater glide and speed (speed skater's blades are completely flat!) causing less fatigue, but less bite for maneuverability, so choose which advantages are more important for you and your skating style.

VARIABLES TO CONSIDER

The main variable to consider when first picking a radius to try is weight. As a rule, the heavier the skater, the larger the radius needed. An extremely light skater can tolerate a very small radius (producing a deep hollow with lots of edge) because they do not have much weight to bear on the ice.

A heavy skater trying to skate on a small radius (too much edge) will bite into the ice so hard that they will have trouble stopping without chatter or going over the top of their skates. Another disadvantage is they will also lose glide to excess friction and be working harder to skate full speed. On the other hand, they will be able to hold a very tight turn! Please note that beginner level skaters can learn most skills (particularly the hockey stop) easier by grinding their skates with a very large radius. As they progress the radii is decreased back to a normal level.

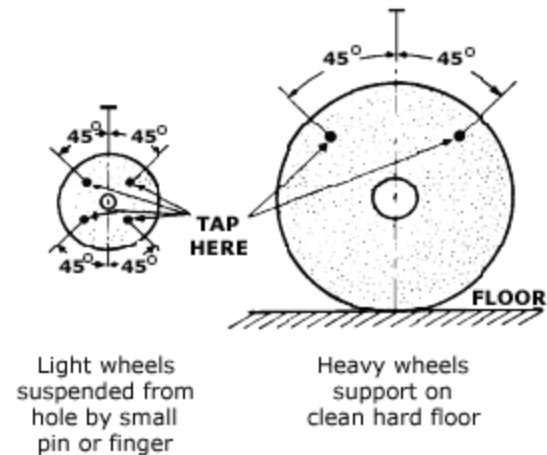
A "general purpose" chart for radius by weight is as follows:

Very Light	3/8"
Light	1/2"
Average	5/8"
Heavy	3/4"
Goalie	1 - 1 1/4"

Another variable to consider is ice temperature. Most rink managers shoot for an ice temperature of approximately 25 degrees Fahrenheit. A temperature of 17 to 23 degrees is considered "hard hockey ice," 25 to 26 degrees is considered good figure skate ice. Slightly smaller radius may be used on colder/harder ice and vice versa.

How to "ring test" a grinding wheel

Grinding wheels must be inspected and "ring-tested" before they are mounted to ensure that they are free from cracks or other defects. Wheels should be tapped gently with a light, non-metallic instrument. A stable and undamaged wheel will give a clear metallic tone or "ring."



That distinctive ring comes from the hardness of the material in the wheel and its ability to transmit sound vibrations. If the wheel is cracked, the vibrations stop at the crack and there is no ring. However, a ring test may not detect all defects in a wheel, so a careful visual inspection is also necessary.

Before mounting the wheel, check the machine's spindle speed to ensure that it does not exceed the maximum operating speed marked on the wheel.

After mounting the wheel, stand to the side of the machine when powering it on in case a crack or defect was not detected.

Performing the ring test

Make sure the wheel is dry and free of sawdust or other material that could deaden the sound of the ring.

You will need a hard plastic or hard wood object, such as the handle of a screwdriver or other tool, to conduct the test. Use a wood mallet for heavier tools. Do not use metal objects.

1. Suspend the wheel on a pin or a shaft that fits through the hole so that it will be easy to turn, but do not mount the wheel on the grinder. If the wheel is too large to suspend, stand it on a clean, hard surface.
2. Imagine a vertical plumb line up the center of the wheel.
3. Tap the wheel about 45 degrees on each side of the vertical line, about one or two inches from the wheel's edge. (Large wheels may be tapped on the edge rather than the side of the wheel.)
4. Turn the wheel 180 degrees so that the bottom of the wheel is now on top.
5. Tap the wheel about 45 degrees on each side of the vertical line again.

FLEMING GRAY SKATE SHARPENER
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The wheel passes the test if it gives a clear metallic tone when tapped at all four points. If the wheel sounds dead at any of the four points, it is cracked. **Do not use it.**

Manufacturer (i.e. MDF) contact info:

- By Phone: 1-800-452-2154
- By Email: Info@mdfindustries.com
- On the Internet: www.mdfindustries.com

SHARPENER HEAD AND DIAMOND DRESSER UNIT ASSEMBLY

- 3001—Key
- 3002—Coupling
- 3003—Set Screw
- 3004—Timken Nut
- 3005—Bearing 6204-ZZ
- 3006—Retaining Ring
- 3007—Spindle Housing
- 3008—Motor Mounting Screws(4)
- 3009—Mounting Bolts(2)
- 3010—Wheel Spindle
- 3011—Felt Washer
- 3012—Back Up Washer
- 3013—Grinding Wheel (60F, 60M, 46C)
- 3014—Clamp Washer
- 3015—Wheel Nut
- 3016—Wheel Guard
- 3017—Mounting Screws(3)
- 3018—Lock Nut
- 3019—Shoulder Screw 1-1/2"
- 3020—Diamond Point Tool
- 3021—Set Screw
- 3022—Nylon Plug
- 3023—Diamond Dresser Arm
- 3024—Short Shoulder Screw
- 3025—Long Shoulder Screw
- 3026—Diamond Dresser Screw
- 3027—Finger Washer
- 3028—Wing Washer
- 3029—Spring Clip
- 3030—Wheel Cover
- 3031—Cam
- 3032—Cam Follower Screw
- 3033—Locking Screw Plunger

INSTALLATION INSTRUCTIONS Tighten 3018 lock nut completely and turn back 1/2 turn so that 3031 will turn freely. 3033 locking screw plunger will secure 3031 in position required. 3032 cam follower screw may be adjusted to maintain constant tension on 3031.

OPERATING INSTRUCTIONS Loosen 3033. Rotate 3031 to desired radius, aligning digit on 3031 with mark on 3016 wheel guard. Tighten 3033 so that 3031 does not move.

MAINTENANCE In order to keep a true radius at all times, the cam must be lubricated with #20 oil approximately five (5) times a day. This also prevents sticking and wear.

LIST OF RADII

Cam #1	IN.
1	1/2
2	5/8
3	3/4
4	15/16
5	1-1/8
6	1-1/4
7	1-1/2

Cam #2	
A	17/64
B	25/64
C	1/2
D	5/8
E	3/4

Cam #3	
1	1/8
2	3/16
3	5/32
4	7/32

*When ordering grinding wheels, please specify:
F—fine, M—medium, C—coarse.

Fine, as used on B-3 model finish wheel ONLY.
Medium, as used on B-2 model single spindle.
Coarse, as used on B-3 model roughing wheel.

NOTE: ALWAYS SPECIFY PART NUMBER AND SERIAL NUMBER OF MACHINE WHEN PLACING YOUR ORDER.

