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Operating Manual:

DSC-020 & DSC-220 Diamond Short-Cut Tabletop Squeegee Sharpener

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Proper Care of Diamond Wheels

BEFORE SHARPENING A SQUEEGEE, consider the type, age, and cleanliness of the squeegee material.

- 1. Identify the type of material** Different squeegee blades sharpen differently. Most polyurethane, neoprene, and rubber blades sharpen well. A few, however, are made with special formulations that impart very high abrasion resistance. Such blades may take a long time to sharpen and overheat during the process. Others have thermo-plastic fillers added for ease of fabrication and sharpening. These may melt at relatively low temperatures. If you have such problems or questions about your material, please call Encore Engineering.
- 2. Check the age of the material.** Most polyurethane squeegees last 12-14 months before their physical properties change enough to be unusable. Even new blades that are stored for a long time will show signs of aging including: changed durometer, lost resilience, and lowered melting point. When this happens, the squeegee will tend to melt onto the sharpening wheel or show a fractured edge after sharpening. ***To test to see if the material is too old for printing and sharpening:*** Put one corner of the squeegee in a vise and tighten it until the squeegee is only 1/3 of its original thickness. Leave it for 15 seconds and then release the pressure. The material should spring back to its original form within 15 seconds. If the squeegee does not spring back, the material is old and should not be used for printing or sharpening.
- 3. Make sure the squeegee is clean, dry, solvent-, and plasticizer-free.** Squeegees with wet or dry ink on them CANNOT BE SHARPENED! Nor can squeegees that come directly off the press and are still soft or swollen from chemicals. Squeegees must rest a minimum of 6-12 hours (preferably 12 hours) between runs and should be sharpened AFTER the rest NOT BEFORE.

DURING SHARPENING, pay attention to the amount of material that is left on the diamond wheel and the temperature of the wheel.

- 1.** If a heavy residue appears on the wheel, clean the wheel immediately with Encore cleaning sticks (furnished with your unit and may be purchased from Encore). With a good quality squeegee, the diamond wheel should be free of heavy deposits. The slight residue on the surface can be cleaned periodically (between 5-10 cycles).
- 2.** While it is normal for the wheel to heat up during sharpening, it should not run hotter than 140-170° F (which is far below the melting point of quality squeegee material). If you see any signs of melting, check both the wheel temperature and the quality of the squeegee material. There are 3 reasons for the wheel to get hotter than 170° F:
 - a.** If the wheel is not cleaned regularly, the squeegee shavings will "bake" onto the wheel's surface will generate extra frictional heat, which only coats the wheel further. Eventually, the wheel loses its grinding ability because the diamonds are coated with baked plastic. *Note: If your Kut/Kutronic series sharpener does not have an access hole in the wheel housing for cleaning the wheel, upgrade by ordering DWC-KIT from Encore.*
 - b.** If the squeegee is not clean and solvent-free, it will hasten the particle deposit and baking process and will leave an UNREMOVABLE ring on the wheel. Inked or solvent-laden squeegees can ruin a new wheel within the first hour of use, especially if the wheel has a fine grit surface (e.g. 230-360).
 - c.** If the wheel remains clean yet still heats up, chances are you are sharpening an **abrasion-resistant material that is not designed to be sharpened with abrasive wheels**. If you use such material, call Encore Engineering and we will advise you on your options.
 - d.** If the wheel is being used continuously it may not have a chance to cool down, especially if the sharpening unit has no vacuum. During continuous use, allow 2 minutes of cool down time between squeegees. Let the grinding motor run during this time (on automatic equipment, set the transport motor speed to "0" while the grinding motor is running).

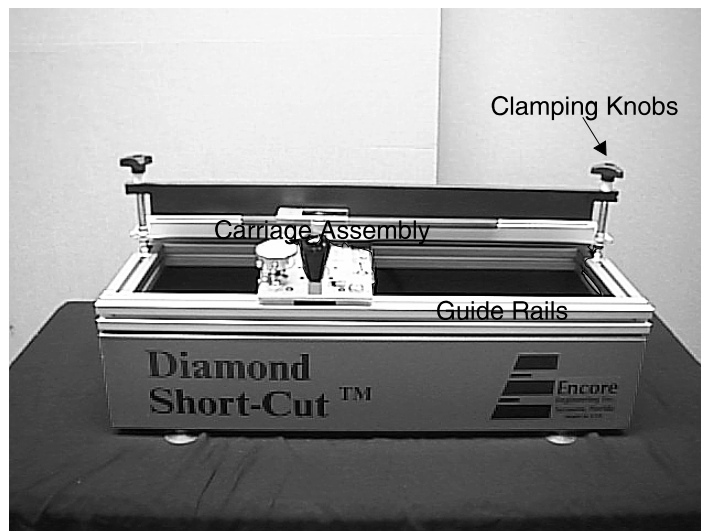
AFTER SHARPENING always clean the wheel thoroughly, using a cleaning stick, and examine it for baked-on deposits. If residue on the wheel resists the cleaning stick try to clean the affected areas with a strong paint remover (polyurethane paint remover if possible). Remove the wheel from the machine, brush on the paint remover allowing the residue to soften. Use a medium-stiff steel brush remove the residue, then rinse off the paint-remover and allow the wheel to dry. Rub the diamond surface clean with the Cleaning Sticks. Note: 6" wheels are coated with high-temp black paint to enhance heat dissipation. If the black paint -- on all-steel wheels -- is removed during cleaning, recoat the wheel with a high-temp black paint, such as Rustoleum 7778 black. Make sure to mask off the diamond surface during painting.)

Installation and Setup Instructions:

When your machine is delivered, inspect it carefully to be certain there was no damage during shipment. If the machine is damaged, notify your carrier and Encore Engineering to file the appropriate insurance claims

Remove the machine from the box. Note: the unit can be lifted by two people and may be held at any point except the aluminum guide rails on which the grinding assembly slides. To prevent damage, tabletop units are shipped with the motor assembly bolted to the frame. Before continuing setup, turn the machine onto its backside and remove the wood block and bolt from the motor.

Place machine on sturdy table or stand so that it will not slide or wobble during operation. The Diamond Short-Cut's base has suction feet so that it will stand firmly on any smooth, even surface. Wipe the guide rails with a clean cloth and apply a thin coat of lightweight oil along the front and rear tracks. The nylon slides that move in the tracks will wear very slowly (and adjustments can be made for this wear). You must, however, keep the tracks and the slide free of debris and dust (use vacuum or compressed air to clean the tracks).



Safety Cover Assembly: Figure 1

The clear plastic safety shield is wrapped separately to prevent breakage during shipping. Mount this cover first, before assembling the dial gauge:

1. Place the nylon spacer between the aluminum push bar and the safety shield.
2. Screw the 10-24x3/4 screw into the threaded hole on the push bar.
3. Tighten the screw just enough to hold the cover firmly yet allow it to rotate up and down.
4. Place the 10-24 nut on the end of the screw extending beyond the push bar and tighten it to prevent the screw from turning.

For maximum safety and performance, the safety shield must be kept in place during operation. Lift the cover only when changing or cleaning the sharpening wheels.

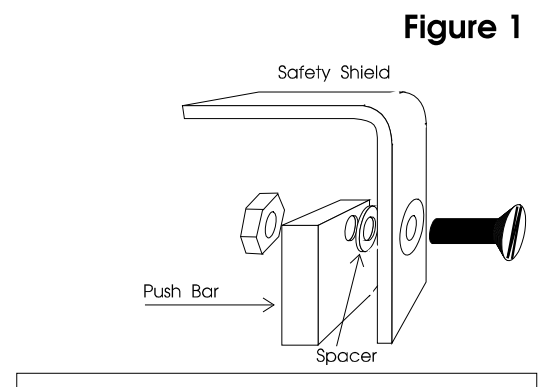
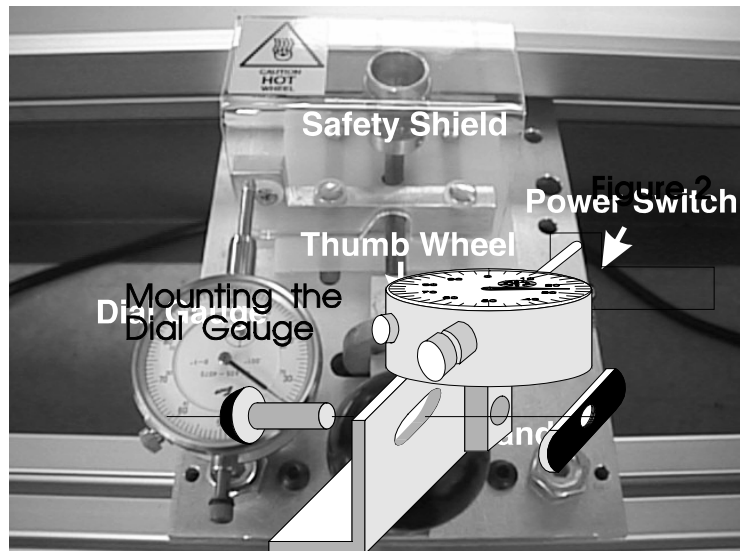


Figure 3

Dial Gauge Assembly: Figure 2

1. Remove dial gauge from styrofoam container.
2. Remove bolt and wing nut from the bracket on the slide assembly on the machine.
3. Attach the dial gauge to the middle of the bracket with the bolt and wing nut. (Note: Use a hex wrench to turn the bolt while holding the wing nut stationary.) The tip of the plunger should rest against the safety shield (see **Figure 3**).
4. The dial gauge can be adjusted to accommodate narrower or wider squeegees by simply moving it forward or back on the bracket.



Machine Operation:

Safety Instructions:

The Diamond Short-Cut is light-industrial equipment, therefore, it must be operated by personnel who are trained in its safe use. Such trained personnel must fulfill the following qualifications:

1. Must read and understand the setup and operating procedures outlined in these instructions.
2. Must understand the functions of all controls on the machine.



3. Must understand the meaning of safety symbols on the machine:



a. Caution: electrical wiring inside. Cover must be in place to operate. (Automated units only.)



b. Caution: hot diamond wheel (45-90°C). Do not touch with bare hands.

c. Caution: moving parts. Be careful not to pinch fingers or hand between moving and stationary parts.

4. Must adhere to the following safe operating procedures:

- a. Wear safety glasses when operating the machine.
- b. Wear gloves when touching, cleaning, or removing HOT diamond wheels.
- c. Place the safety-shield over the diamond wheel during operation.
- d. Keep hands away from moving parts during operation and use caution during job setup.

Machine Controls (electric):

Motor Power Switch: (Figure 3)

Function; provides electricity to the grinding motor. This switch is turned on only during sharpening. Turn this switch off when machine is not in use.

Machine Controls (mechanical):

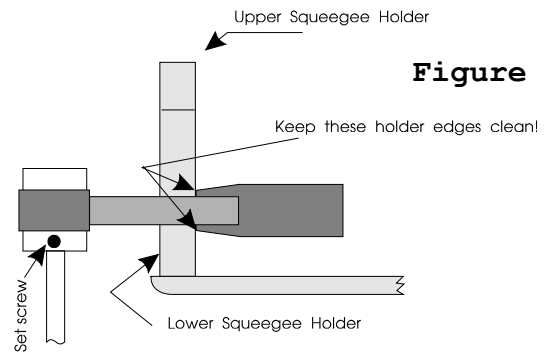
Slide Handle: (Figure 3)

Function; allows operator to move the grinding wheel back and forth during operation.

Thumb Wheel: (Figure 3)

Function; moves the grinding wheel toward or away from the squeegee. To move toward the squeegee turn the wheel counter-clockwise. The amount of movement (distance) toward the squeegee may be observed on the dial gauge (each graduation on the dial equals .001").

Note: The thumb-wheel should be adjusted no more than three to five graduations on the dial gauge per sharpening pass.



Figure

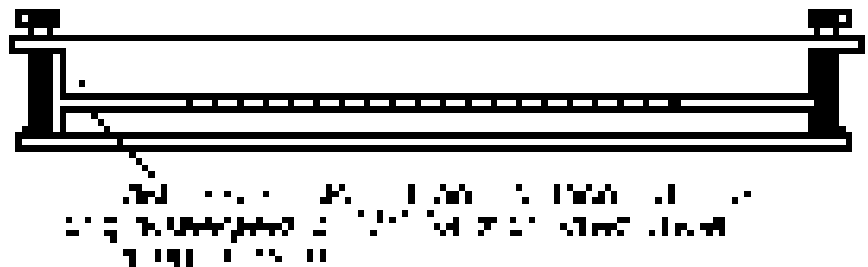
Setup Instructions:

A condensed version of these instructions appears on page 9. Post a copy of this page near the sharpener to help the operator use the machine.

Squeegee Setup:

1. Make sure the grinder motor switch is in the OFF position. Move the slide assembly to the middle of the machine.
2. Mark the center of the squeegee. Place the squeegee in the holder so that the center of the squeegee is aligned with the center of the holder. **DO NOT SHARPEN SQUEEGEES OFF-CENTER!**
3. Make sure the squeegee handle and blade have no ink buildup that would prevent a tight fit in the holder. Rest the bottom edge of the squeegee handle against the REAR aluminum clamping bar. Note: if the wheel shaft prevents insertion of the squeegee, move it out of the way by turning the thumb wheel clockwise.
4. Tighten the clamps by turning the clamping knobs. **DO NOT** over tighten the knobs or the squeegee rubber will distort and will not sharpen evenly (**Figure 4**).

Figure 4



Wheel Setup:

CAUTION: The diamond wheel can become very hot during extended operations. Allow the wheel to cool down or use gloves to handle it when adjusting or changing wheels.

Your machine shipped with a 120 grit wheel. Mount the diamond wheel as follows:

1. Position the wheel on the motor shaft with the set screw at the bottom and facing the flat side of the shaft (**Figure 5**).
2. Center the wheel on the squeegee. If you are using a profiled wheel (rather than a square-edge wheel), this centering is even more important. Tighten the wheel into place using the setscrew (**Figure 5**).
3. Advance the diamond wheel (IN or OUT) by turning the brass thumb-wheel (clock-wise to move away, counter-clock-wise to move toward the blade) until the wheel almost touches the blade.

Operating Instructions:

NOTE: SQUEEGEES MUST BE CLEAN AND DRY BEFORE SHARPENING. Dirty and solvent-laden squeegees will leave an unremovable film-deposit on the diamond wheels. Such deposits will void any applicable warranties on the wheels. Squeegees should be left to dry/rest a minimum of 4-6 hours before sharpening.

1. Make sure the grinding motor is OFF and move the carriage assembly slowly along the squeegee blade . As the wheel travels across the squeegee, look for raised points along the blade(high spots). Use the thumb wheel to adjust the diamond wheel until it just makes contact with the highest point on the blade.
2. When the wheel is just touching the highest point, set the dial gauge to "0" (Loosen the thumb screw on the side of the gauge and turn the bezel until the pointer lines up with "0".)
3. Move the carriage assembly to the **left** of the squeegee. Turn on the grinding motor.
4. Move the slide assembly smoothly from **left to right**. (The sharpening action occurs only in this direction.) Proceed slowly and in small increments. (1-2 inch per second speed.) **DO NOT SLOW OR PAUSE WHILE THE WHEEL IS IN CONTACT WITH THE SQUEEGEE.** Move the blade smoothly back to the left and advance the wheel three to five marks on the dial guage before repeating.

Operating Recommendations:

1. The first pass will remove very little material since you have adjusted the wheel to barely touch the squeegee. (Note: When sharpening a squeegee for the first time, the wheel may not touch all portions of the blade. This is due to uneven insertion of the blade in its handle--often at the point of the tightening screws. You must take off these high spots gradually to straighten the blade.) **DO NOT TRY TO SPEED THIS PROCESS BY TAKING OFF TOO MUCH MATERIAL TOO QUICKLY.** Hint: If the sharpening wheel grabs the blade and slows or stops, you are taking off too much material at once. Back the wheel away from the squeegee before attempting to sharpen again. This process is especially important when sharpening a square profile blade into a shaped profile.
2. Using increments of .003-.005" (three to five graduations on the dial gauge), advance the wheel toward the blade after every 1 or 2 passes.
3. Observe the bottom of the squeegee during sharpening When the wheel is grinding the entire length of the squeegee, sharpening is complete. Note: If you ordered a finer (230 grit) wheel in addition to the 120 grit, use it only during the final 3-4 passes to polish the edge. **Excessive use of the 230 grit wheel will result in squeegee residue buildup on the wheel and possible over heating.**

4. When you are satisfied with the quality of the blade's edge, STOP THE SHARPENING PROCESS ON THE RIGHT SIDE of the machine. (Remember, the blade is "sharpened" only during the left to right motion.)

5. IMPORTANT: Except for emergencies, **DO NOT** stop moving the wheel when it is in contact with the squeegee. If the spinning wheel stops at any point along the squeegee, "dent" will result at the point of prolonged contact.

Figure 6

Troubleshooting:

Quality Problems

1. The squeegee-blade edges have chatter marks. Check and correct the following conditions:
 - a. You are removing too much material at once. Back the wheel away from the squeegee.
 - b. You ended the final cycle at the left side of the machine. Always finish sharpening on the right side.
 - c. The carriage assembly is loose on the track. Tighten as indicated in **Figure 7** under Carriage Assembly Maintenance.
 - d. The track is sticking due to dirt and inadequate lubrication. Clean tracks and spray with a light lubricant.
2. Uneven sharpening of dual and triple durometer squeegees.
 - a. Hard durometer material will sharpen faster than soft durometer. For this reason, multi-durometer materials may become "cupped" or "hollowed" along the hardest layer. In most cases, this difference will not affect the printing edge of the squeegee.
3. Squeegee material "melts" during sharpening. Check and correct the following conditions:
 - a. Diamond wheel has not been cleaned and is covered with a layer of squeegee material and/ or ink. Clean wheels regularly. (See Wheel cleaning, page 7.)
 - b. Squeegee has too much solvent in it for sharpening. Let the squeegee rest for 24 hrs.
 - c. Diamond grit is too fine for the number of passes used. Use coarser wheel or reduce the number of passes (e.g. 230 grit 2-3 passes only).

Maintenance:

Guide-track maintenance:

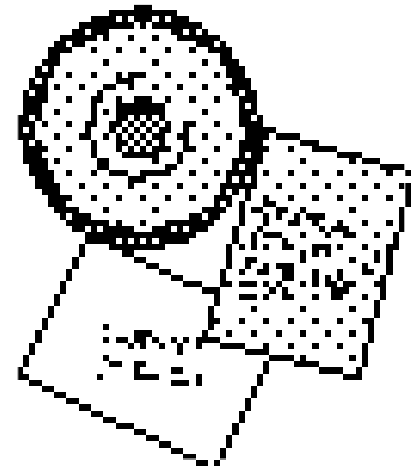
Depending on the number of squeegees sharpened daily, check the track for dirt and squeegee residue. Wipe the rails clean with a clean dry towel when necessary and use compressed air to remove residue. The nylon slide mechanism will move more easily with a VERY THIN coat of light weight oil on the front and rear tracks and it will not wear or bind if the track is cleaned and maintained regularly.

Wheel Cleaning:

The Diamond Wheel must be cleaned daily, or more often as squeegee residue builds up on the wheel. Any accumulation on the surface of the wheel slows sharpening and can overheat the wheel, causing the squeegee material to melt down and become unremovable. There are two ways to clean the wheel:

1. Remove the wheel from the machine and clean it by hand, using the wheel cleaner, a rubber block furnished in your tool kit. The residue should come off easily by simply rubbing the block over the wheel.
2. During extended periods of sharpening, clean the wheel on the machine carefully as follows:
 - a. Lift the safety shield and turn on the grinding motor.
 - b. **Lightly touch** the rubber block against the surface of the wheel while it rotates. Hold the rubber as shown in **Figure 6**.

USE CAUTION: Keep hands away from the rotating wheel and allow only the rubber to touch the wheel. Note: Replacement cleaning blocks are available from Encore - see Spare Parts List.



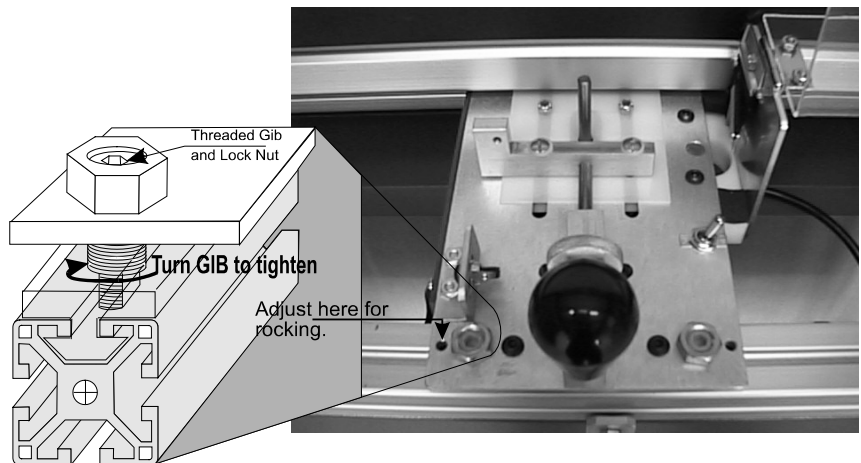
Carriage Assembly Maintenance:

The carriage assembly moves on nylon slides. These slides are preset for proper tension to eliminate up-and-down and side-to-side movement of the base plate. Due to transportation, vibration, or wear, these slides may need adjustment. If you notice any uneven motion, you can re-adjust the slides as follows (**Figure 7**):

1. If the plate wobbles, loosen the 1/2" lock nuts, turn both nylon gibs clockwise, then re-tighten the nuts.
2. If the plate rocks up-and-down, tighten the two capscrews under the plate until it runs smoothly. Do not over tighten. Make sure the plate can be moved easily by hand.

If you have additional questions that are not covered by these instructions, please fax or phone the Technical Services Department at Encore Engineering, Inc. We will be happy to assist you.

Figure 7



Appendix A Machine Specifications:

Dimensions:

Length =	76cm (30")
Width =	28cm (11")
Height =	36cm (14")

Weight: 23kg (50lbs)

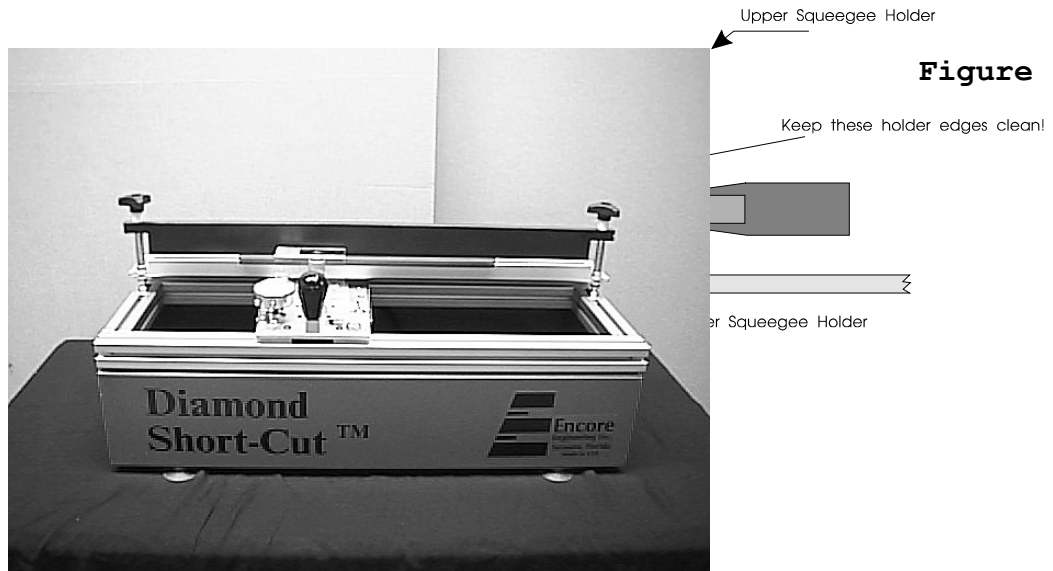
Electrical:

Volt:	115~	Max. amp:	2 A (DSC-020)
Volt:	230~	Max. amp:	1 A (DSC-220)

Phase: 1
Frequency: 50/60hz

Maximum sharpening length: 51cm (20")

Standard Diamond Wheels: 120 grit



Figure

Operations Summary

Squeegee Setup:

1. Make sure the grinder motor switch is in the OFF position. Move the slide assembly to the middle of the machine.
2. Mark the center of the squeegee. Place the squeegee in the holder so that the center of the squeegee is aligned with the center of the holder. **DO NOT SHARPEN SQUEEGEES OFF-CENTER!**
3. Rest the bottom edge of the squeegee handle against the REAR aluminum clamping bar. Note: If the wheel shaft prevents insertion of the squeegee, move it out of the way by turning the thumb wheel clockwise.
4. Tighten the clamps by turning the clamping knobs. **DO NOT** over tighten the knobs or the squeegee rubber will distort and will not sharpen evenly

Wheel Setup:

CAUTION: The diamond wheel can become very hot during extended operations. Allow the wheel to cool down or use gloves to handle it when adjusting or changing wheels.

Mount the diamond wheel with the set screw at the bottom, facing the flat side of the shaft. (See Figure 1). For further instructions on mounting wheels, see page 5 in the instruction guide.

Operation:

1. Make sure the grinding motor is OFF and move the wheel slowly along the squeegee blade . As the wheel travels across the squeegee, look for raised points along the blade (high spots). Use the thumb wheel to adjust the diamond wheel until it just makes contact with the highest point on the blade.
2. When the wheel is just touching the highest point, set the dial gauge to "0" (Loosen the thumb screw on the side of the gauge and turn the bezel until the pointer lines up with "0".)
3. Move the carriage assembly to the left of the squeegee. Turn on the grinding motor.
4. Move the slide assembly smoothly from left to right. (The sharpening action occurs only in this direction.) Proceed slowly and in small increments. (1-2 inch per second speed.) **DO NOT SLOW OR PAUSE WHILE THE WHEEL IS IN CONTACT WITH THE SQUEEGEE.** Move the blade smoothly back to the left.
5. Using increments of .003-.005"(three to five graduations on the dial gauge), advance the wheel toward the blade after every 1 or 2 passes.
6. Observe the bottom of the squeegee during sharpening. When the wheel is grinding the entire length of the squeegee, sharpening is complete. Note: If you ordered a finer (230 grit) wheel in addition to the 120 grit, use it only during the final 3-4 passes to polish the edge. **Excessive use of the 230 grit wheel will result in squeegee residue buildup on the wheel and possible over heating.**
7. When you are satisfied with the quality of the blade's edge, STOP THE SHARPENING PROCESS ON THE RIGHT SIDE of the machine. (Remember, the blade is "sharpened" only during the left to right motion.)
8. IMPORTANT: Except for emergencies, **DO NOT stop moving the wheel when it is in contact with the squeegee.** If the spinning wheel stops at any point along the squeegee, "dent" will result at the point of prolonged contact.

Spare Parts List for DSC-020

The following spare parts are available for the machine you purchased. If you must replace any of these parts during the warranty period (1 year from date of purchase), we will send you a replacement free of charge. You must, however, return the broken or worn part for free replacement.

<u>Part name</u>	<u>Order #</u>	<u>Quantity</u>
SAFETY SHIELD	014071	1
MOTOR HOUSING PANELS	033112	1
CARRIAGE SLIDE (FRONT)	034111	2
CARRIAGE SLIDE (REAR)	086022	1
ENDCAP	VIT-18-813	1
CLAMPING KNOB (PAIR)	VRE-DK-57	2
CARRIAGE HANDLE	VRE-BD-20	1
GUAGE	VEN-605-4070	1
GRINDER MOTOR	VWG-3M292	1
SUCTION FEET	VWR-RVC-45	1
CLEANING STICKS	MXCLEAN	12

Unlimited Warranty

Once an Engineering One-Year Unlimited Warranty:

On the basis of a review of your request, we will ship, at no cost, a new or used engine, transmission, drive shaft, or other engine or transmission component if the engine or transmission component is found to be defective and we are unable to determine the cause of the failure. This warranty is limited to the engine or transmission component only and does not cover labor or other charges. This warranty is void where prohibited.

Extending to a New Five-Year Unlimited Warranty:

On the basis of a review of your request, we will ship, at no cost, a new or used engine, transmission, drive shaft, or other engine or transmission component if the engine or transmission component is found to be defective and we are unable to determine the cause of the failure. This warranty is limited to the engine or transmission component only and does not cover labor or other charges. This warranty is void where prohibited.

Limitation of Liability:

Our liability is limited to the replacement of the engine or transmission component. We are not liable for any consequential damages, including labor or other charges, or for any loss of income or other damages. This warranty is void where prohibited.

Warranty Conditions:

This warranty is limited to the engine or transmission component only and does not cover labor or other charges. This warranty is void where prohibited.

Warranty Dept.
1111 North 11th Street
Tomball, TX 77455
Phone 281-291-4100