

GLASS CUTTING TECHNIQUES



OH, NO - GLASSCUTTING!

by HORST GERBER

Introductory Note: Glass is, obviously, a singularly important component of the aquarium hobby. In this how-to article, veteran GCAS member and master craftsman Horst Gerber instructs us on glass cutting. Not only can cutting your own glass allow you to make customized tanks, or repairs, but you can then make other useful items such as tank covers and dividers. You can also save money because you can then take scrap glass (you'd be surprised at how much glass people place with their garbage) and turn it into these useful items.

J. Ferdenzi

General Information

Glass is considered a liquid.

Old glass is more difficult to cut than new glass.

Glass should be cut at room temperature — cold glass has a tendency not to break at the score lines.

Your local hardware store steel-wheel glass cutter does an excellent job cutting glass.

When not in use, keep your cutter in a small jar with the tip of your cutter submerged in kerosene or thin oil.

Important Suggestions

Try not to be afraid of the glass.

Do not slide your hands along edges of glass.

Always grab glass firmly to avoid cuts.

Place glass on a flat, carpeted work surface.

Glass Cutting Process

- Cutting glass probably causes you some anxiety. Keep in mind that you are not going to actually cut the glass. What you are going to do is score it.
- Lubricating of a glass cutter before each cut is a must (dip the tip of your glass cutter into lubricant).

- Lubricants: glass cutting oil, kerosene, or any thin oil will do.
- Lubricants serve a triple purpose: lubricating your cutter, keeping the cutter cool, and keeping the glass molecules separated for approximately 20 minutes.
- You **never** go over the same cut twice. This will ruin your cutter. However, if you are not satisfied with your cut, you can turn the glass over and score on the other side of the glass in the same area.

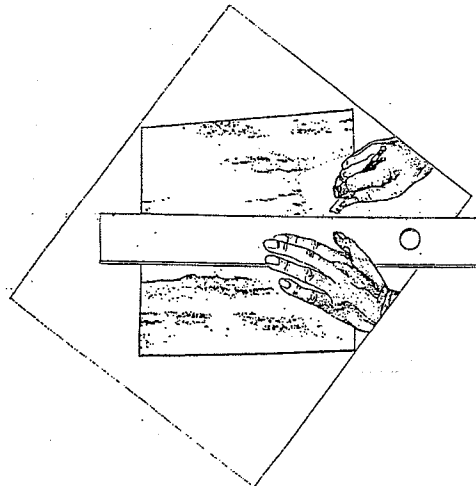
The area to be cut should be clean and void of foreign objects. Sand, dust, and lint will interfere with your cutting. Slivers and chips of glass will also ruin your cutter.

In your beginning attempts you may become a little frustrated, the cutter feels awkward, it skitters across the glass and your score might be erratic. A little practice is all it takes to get the knack of it.

For cutting straight cuts in glass you can hold your cutter in any position that you feel most comfortable with. The standard practice is to have the small teeth of the cutter facing upwards so that the metal part of the cutter does not drag along the glass as the angle of your cutter changes during the cutting process. You can cut in either direction (toward or away from you). However, if you want to follow a line or design on the glass, it is advisable to push the cutter away from you so that you can see and follow the line with less difficulty.

Cutting Straight Lines

Scoring straight cuts can be done free hand or, for more accurate results, use a straight edge to guide the cutter. To prevent your glass cutter from slipping on top of the straight edge, use one quarter inch thick material for your straight edge. To prevent moving of straight edge during scoring, hold or secure straight edge firmly on top of glass while scoring along side of straight edge.



Scoring straight

- It is easier to break wider pieces than narrow strips of glass.
- To separate small pieces of glass, like cutting a corner out of a piece of glass, after scoring and tapping you use pliers in a bending and pulling apart motion.
- The small teeth on your glass cutter are also for breaking small pieces of glass out. It is called grousing and usually leaves uneven ragged edges.

Drilling holes into glass is best done with glass cutting diamond drill bits which are available in various sizes.

Dulling of glass edges can be done effectively with medium grit emery cloth, or hundred grit sandpaper with a sanding block.

Cutting glass entails "**scoring**" (scratching the top layer of glass hard enough to cause the molecules to heat up and begin to move). This is known as a "**hotline**." Once you have properly scored the glass, it should be separated immediately so that the "**hotline**" does not dissipate.

The scoring line is best broken from the end of cut. The better cut is usually at the end because you have accurately adjusted the pressure of the cut in relation to the hardness of the glass.

TIP: To ensure a proper score line you should be able to hear a smooth scratching sound as you score the glass. This lets you know that you have applied enough pressure to separate the glass molecules.

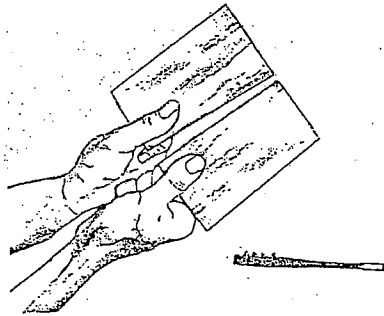
Glass is manufactured with different degrees of hardness. You have to adjust the pressure on your cutter accordingly. If the pressure on your cutter is not adjusted properly, you will have no score line. If you experience little shards, or glass splinters, you pressed too hard. When scoring you should hear an even zinging sound.

Breaking Out The Glass

There are several methods to break glass. All of these methods involve bending the glass at the score line. You may want to experiment with the following techniques and determine which one you are most comfortable with.

Method 1

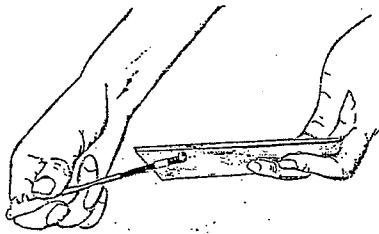
Curl your index fingers under the glass parallel to the score line on either side and put your thumbs on top of the glass. Now bend the glass up in the middle. Hold the glass so that it is facing away from you and not too close to your face. Hold the glass securely enough so that your fingers do not slide or move when you bend the glass.



Snapping straight scores

Method 2

Once you have scored the glass on one side turn the glass over and lay it down on your work surface (do not hold it in your hands). Take the "ball" end of your cutter and gently tap along the score line. You will be able to see the glass break evenly through the score line. In the event that the glass fails to separate completely after you have applied this technique, you should gently turn the glass over and bend it as in Step I.



Tapping

Method 3

The third step involves placing small, thin objects, such as #10 finishing nails or pencils, directly under the glass where the score line is, in the same direction as the score line. The next step is to press down on the left and right side of the score line. This will bend the glass down on either side of the score line, thereby letting the glass snap at the score line.

THE BEST WAY TO CUT GLASS CORRECTLY IS PRACTICE!

All illustrations by the author