

This section describes four different ways of measuring and establishing the transfer cheat. Why four? Well, as with many aspects of faceting, personal cutting style and temperament can determine the best strategy. The methods below are ordered in increasing complexity and accuracy. If you plan to complete ten stones a day for commercial sale, the toothpaste test or even your dop-keying scheme should suffice. On the other hand, if you are a perfectionist, or plan to enter a competition whose judges are perfectionists, you will want to pursue a more careful and accurate means of establishing the transfer cheat.

Incidentally, before trying any of the methods described below, make sure that you understand which way the quill rotates when you turn the cheater a certain direction, say clockwise. This may sound condescending or even ridiculous, but there is nothing worse than figuring out how to fix a problem, and then making the situation twice as bad by turning the cheater the wrong way. I speak from personal experience on this.

Note also that the gem cutting tutorial in Chapter 5 contains additional information and advice on the transfer cheat process. See in particular Section 5.7.1.

7.6.1 The Toothpaste Test

Not only does regular application of toothpaste ensure a shiny white smile, but also it can help you line up your gemstones. This transfer cheat technique exploits the fact that even a thin film of toothpaste is opaque. Therefore, squeezing a small blob of your favourite dentifrice between a reference facet – on the girdle, for example – and a reference surface on the faceting machine – such as a mirror placed on a master lap – will reveal any tilts between the two.

This one is a lot easier to do than it is to explain. Begin by mounting a master lap securely to the spindle of your faceting machine. Place a small flat mirror on the lap. The mirror must lie perfectly steady with the top surface exactly parallel to the lap. A fragment of broken mirror is therefore superior to a fancy mirror in an irregular frame.

Most household mirrors are the so-called “rear-surface” type, in which the reflecting surface is on the back side of a piece of flat glass. This arrangement protects the delicate reflective coating from mechanical abrasions and damage. It also means that if you angle your eyeball correctly, you can see the underside of objects lying flat on the glass. See page 278 for more.

The trick should be obvious now. Place a small blob of toothpaste on the surface of the mirror. Adjust the cutting angle to 90° and the index to a girdle facet. Gently lower the gem into the toothpaste and watch the reflection of its underside in the mirror (Figure 7-34).

When the gem and glass make contact, the opaque whiteness of the toothpaste disappears. More than likely, this will be along one edge of the girdle facet. Adjust the cheater and cutting angle until the toothpaste film disappears uniformly. Voilà, you have the correct transfer cheat!



Figure 7-34 A small blob of toothpaste between the gem and mirror will reveal any tilts between the girdle facet and the lap surface.

It whitens. It brightens. It solves all your problems...

There are several other circumstances in which you may want to use toothpaste and a mirror to line up a gem with the index wheel. For example, you can check that you have preserved alignment after re-attaching a lost stone (see Section 7.5). Of course, in this instance you can use any convenient facet, not just the girdle.

Hobby cutters frequently want to touch up a few facets and improve meet points after completing the table (see “Shooting Stars” on page 345). Most faceting machines require a 45° table adapter, which means pulling the dop out of the quill and losing rotational alignment. The toothpaste and mirror trick will help you re-install the gem reasonably close to where you should be.

Finally, the toothpaste technique can also help you line up with unknown facets when repairing a damaged gem.

7.6.2 Test Polishing the Girdle

Here’s a simple question: If the goal of the transfer cheat is to achieve proper alignment between the facets cut before and after transfer, why bother with all these keying systems and toothpaste? Why not just use what you’re after – the facets themselves – as the reference?

Test polishing a girdle facet is the classic technique for checking and adjusting transfer cheat. In *Faceting for Amateurs*, Vargas suggests leaving the girdle facets at the pre-polish stage before transfer. Wiping a girdle facet across the polishing lap after transfer will then reveal any slight errors in rotation, just as in conventional polishing (see also page 332). Adjusting the cheater brings the gem into alignment, letting you get on with completing the girdle facets before starting in on the crown.

A slight variant on this technique is to polish the girdle facets, transfer the stone, and then cut into a girdle facet using a fine grit lap and a cutting angle less than 90° (see Figure 5-63). This will produce a clean edge, whose angle to the existing girdle line will guide the direction and magnitude of any corrections. Note that the intersection line between two facets with nearly the same orientation is very sensitive to their exact angles, so using something close to 90° will be very accurate. Yes, this is a variant of cutting a test tier of facets (see Section 7.7).

7.6.3 Mechanical Jigs

A simple mechanical jig can help you preserve rotational alignment after transfer. Figure 7-35 shows a homemade version, and Chapter 20.6 gives detailed plans for building it.

By now, you have probably noticed that I go on and on about preserving orientation and references during the dop transfer. I tend to go on

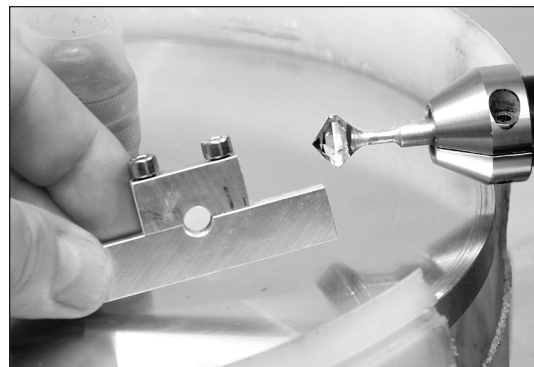


Figure 7-35 A simple mechanical jig for preserving rotational alignment after transfer.