# Tyro Tool of the Month - Templates & The Contour Gauge/Profile Guide

When carving, it is handy to have a way to verify how close one is to reaching the desired surface beyond which no wood is to be removed. Various measuring devices such as calipers, rulers, dividers are helpful to compare a work in progress with its pattern or model, but often a more visual aide is desired. To this end one may make a template, typically of cardboard. Another way is to use an adjustable template tool. Primarily used to copy wood moldings, these adjustable template tools go by a variety of interchangeable names: usually coupling the adjective contour or profile with the noun gauge, guide, or comb. Let's look at both a custom template and a contour gauge.

## What is a Template?

A template is a pattern used as a guide to the desired form of a workpiece. A useful template defines a perimeter edge of the work in its desired finished state. If this template edge perfectly mates with an outer line along the work's edge, then the proper amount of wood has been removed; no more and no less. By positioning a template along an edge of the work in progress (at its corresponding sectional plane), a visual indication of the points where wood should be removed is made clear.

So how does one make a custom contour template?
There are several ways to do this, especially if the carving is being made from a drawn pattern. If you have the good fortune to have a sectional view showing the profile of the design (as seen in Figure 1), then here are four methods that may be used.

1. Trace the design. Use graphite paper interposed between the design and a sheet of cardboard (cereal box or a paper pad backing work nicely). Trace the design edge onto cardboard and then cut out the cardboard along that tracing to make a template.
2. Photocopy a view on paper, paste it to cardboard, and then cut it out.
3. Lay a sheet of cardboard adjacent to a sectional view figure; then fix a drawing compass with a pencil end on the cardboard with the opposing compass point on the sectional view edge. Move the entire compass, tracing its point along the view edge while causing the compass pencil to trace a duplicate edge on the cardboard. In this manner, a copy of the profile contour is transferred to the cardboard. The cardboard may then be cut out.
4. Place a stiff transparent plastic sheet (e.g. of polyvinyl acetate) over the sectional view and trace the design edge. Then cut it out.

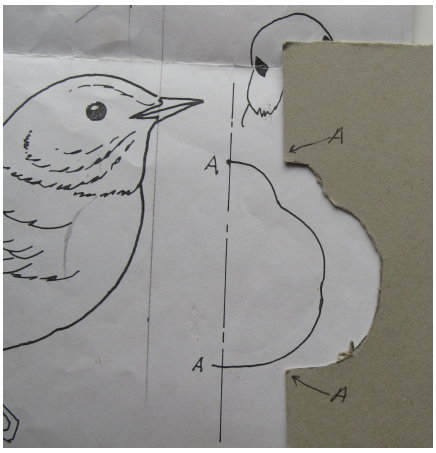



Figure 1 - The result of Method 1

Voila!  - Four ways to make a custom template.  However, what if you don't have a pattern with the view that you need?  Well, if you are working from a rigid model, then you may use a contour gauge as a guide to draw the desired profile edge.

**<u>What is a Contour Gauge?</u>**

A contour gauge is a device to copy curved surfaces.  It indicates relative depth along a two dimensional (2D) perimeter edge. A contour gauge has a series of pins or slats held in a row by a transverse clip so that each pin may slide back and forth across the clip. Some gauges use metal pins, and others use plastic slats. A row of these pins or slats form an adjustable edge of the gauge. The pins/slats only slide when pushed by a manual force, i.e. they do not freely slide by gravity alone. Okay it is bad analogy time - The pins are frictionally held, sort of like pressing a straw (pin) through ice cream versus a freely moving straw (pin) in a glass of water.)  The row of pins forms a contour that is a copy of any surface against which the gauge edge is pressed.

Three Contour Gauges - Red Plastic Slats, Metal Pins, Yellow Plastic Slats

When a contour gauge edge is pressed against a rigid model each pin is stopped at the unique point where each pin meets the surface, and each pin's relative position is translated to the opposite pin end where the row of pins on their opposing ends reproduce a two dimensional profile of the model.

This profile may then be used in several ways.

1. It may be traced on cardboard to make a custom template cut out.
2. It can be compared with the pattern.  For example, press the guide against the carving work in progress and then lay it against the pattern view to compare profiles.
3. It may be used check symmetry.  For example, in bird carving, one side of the head or body is often a mirror image of the other.

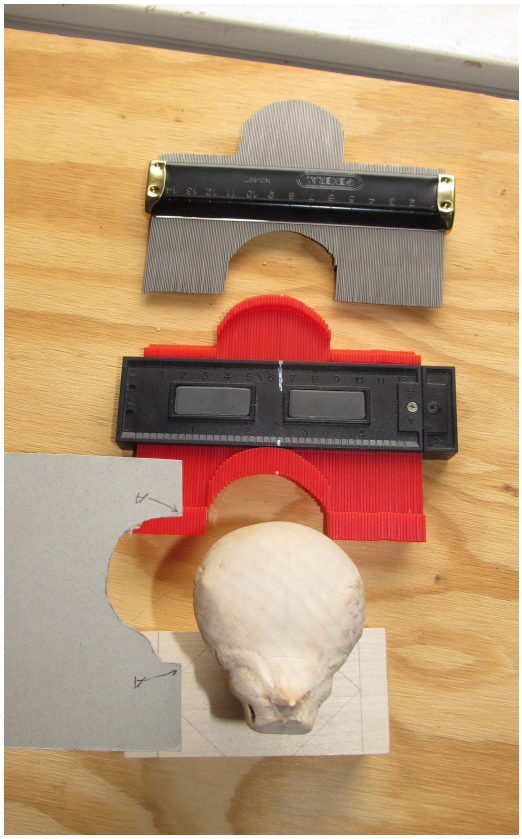
As an aid in using a profile guide, it is recommended to locate the center "pin" of the profile guide and paint it a different color e.g. black or white for a guide with red pins.

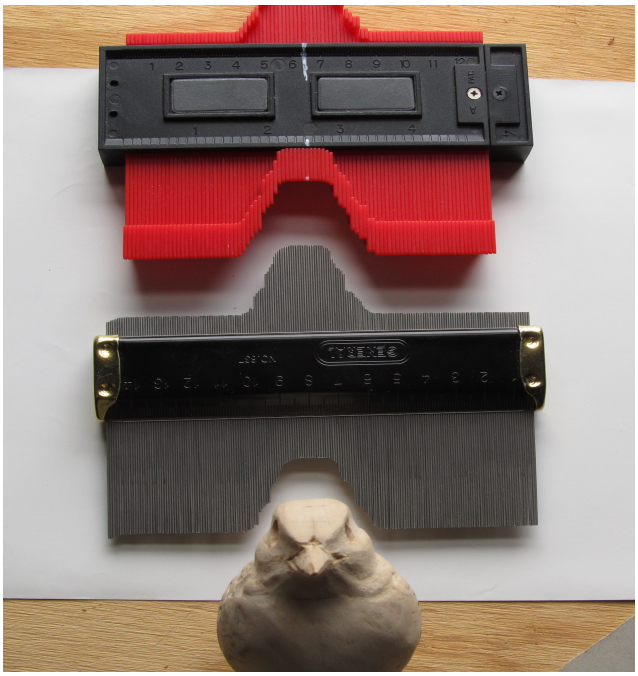
Here is how the painted pin helps.  First, align the painted center pin of the gauge with the center line of a carving.  Then, press to move the row of pins to match the carving surface. Finally, lay the guide on the pattern view with the painted center pin aligned with the pattern view centerline.  This is an easy way to check how well the carving matches the pattern.

The contour gauge has helped this beginner to better visualize what areas need more wood removed and how much wood.  The metal pins theoretically provide better detail, however these thin metal pins are susceptible to being bent or pushed awry.

My experience has been that profile gauges work best when roughing out shapes to provide symmetry checks.  The force required to move these pins or slats may vary.  This force is too high for use with fragile structures.  Also, this force may be impossible or difficult to adjust.  As seen in the figures, the depth of a contour is limited by the gauge pin depth. Some gauges may be extended in length by coupling two or more together.

As a beginner, I find custom cardboard templates to be invaluable aides to symmetrical carvings. While the contour gauge is useful, when possible, a custom template for checking the shape songbirds is my preference.





The left & right photos show two gauges with a wooden bird.

These gauges work well for checking symmetry.

For more information, there is a nice two page article by William Hitchens on "Using a Contour Gauge" in the Summer 2011 issue of Woodcarving Illustrated (Issue #55, pages 72-73).