

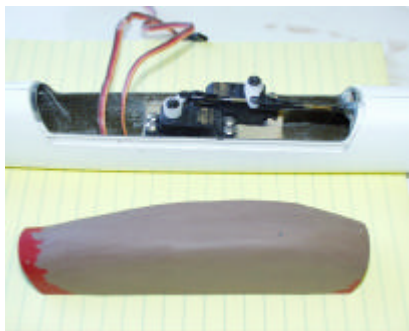
Modifying a Fiberglass Molded Part

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The shape of a part can be easily changed or a new part prototype created using Chevant Clay and Sheet Wax as pattern making materials. As an example of the process I will modify the shape of the hatch on an RC glider model.

On this model the radio compartment space was very small. I wanted to use some servos I had on the shelf so I needed to enlarge the space in the nose of the model by changing the shape of the canopy hatch to incorporate a bubble shape.



Start by adding Chevant Clay to create the new shape.

At room temperature this clay it is hard to shape. Heat the clay to around 100F in a cardboard box with a light bulb for a few minutes, until it is easy to shape

You can rework the shape many times, and you can even add details like panel lines to the clay.



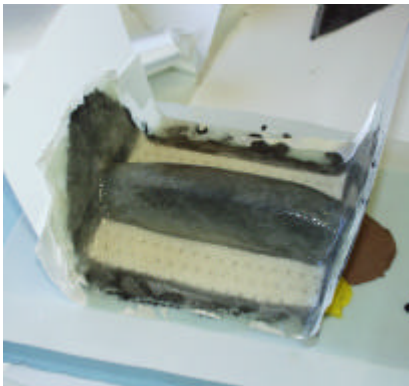
After the part is reshaped the mold making and molding of the part is the same methods used in our other tutorials. The bottom surface and ends of the mold are created with small sheets of .014" Mylar and a scrape foam block. The parts are held together with more clay and a few bits of bag sealant tape. Partal High Temp wax and Safelease 30 mold releases were used to prepare the surfaces before the mold is started.



A black gel coat is made from West System Epoxy (105 resin and 205 hardener). With the addition of a teaspoon of 423 graphite powder and some 406 Colloidal Silica filler. The 406 filler increases the viscosity. It is added until the viscosity is like ketchup. A thin layer is brushed on and will start to set up quickly. As the Epoxy cures and thickens add more epoxy in the corners around the hatch to increase the radius of the corners. This will make it easier to apply glass into the corners without air bubbles.



After about 30 minutes the epoxy will be nearly solid and a little tacky on surface. Now you are ready for more epoxy and the first layer of glass cloth. Mixed up another small batch of West Systems Epoxy (105 resin and 205 hardener with no fillers). Wet out the surface of the mold. I used a 8.7 oz 8 HS glass on this mold. This is a thicker glass that will conform to the shape. The glass should be cut on the bias to make it easier for the fabric to stretch and distort and conform to the compound curves.



After this first layer of glass cures for 30 minutes and is nearly solid wet out the surface with another batch of epoxy and add strips of Coremat along the edges. Coremat is about 2mm thick and when sandwiched between layers of fiberglass strengthens and stiffens the mold quickly. Now add another layer of the same 8.7 oz glass cloth. As the epoxy sets up it generates heat. By building the layers of glass up slowly and allowing each layer to cure to a solid you will keep the temperature from climbing too high. Do not let the layers cure overnight between layers that would reduce the bond strength of the epoxy between layers.



Let the completed mold cure overnight. Remove the Mylar sheets, original part and clay from the mold and trim the edges of the mold off with a Dremel tool and a reinforced cut off wheel.

If needed you can sand the mold surface to take off any high spots caused by imperfections in the clay. You can also add a little filler and sand the final part to remove any surface imperfections later on.

Now repeat the same mold release steps used on the pattern on the finished mold, and lay up a single layer of the 8.7 oz glass cloth to form the part. This time the gel coat layer is just a coat of epoxy that is brushed into the mold with no cloth and allowed to cure for 30 minutes before the cloth is applied to the mold. After the part has cured overnight pull the part from the mold, trim the edges, fill and sand the surface as needed and the part is ready for paint.