

PLUNGE MOLDING CANOPIES

By Mike Nassise

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Because of a number of subscriber requests following the publication of the P-47D "bubbletop" plan in the last issue of Tailspin, I've written this article describing the methods that I employ for plunge forming canopies for my models. The process is simple and, with practice, you'll soon be able to produce a very acceptable product and greatly expand your list of modeling subjects.

Plunge molding a canopy requires the use of heat, a wooden frame (die plate) for holding the "plastic" material used in the process, and a carved and sanded mold of the canopy. I prefer to use acetate to make my canopies, but clear butyrate plastic is also available for the job in most good hobby shops. The die plate is a flat piece of wood about 1/4" thick (balsa works well) that has an opening cut in it that is in the plan view shape of the canopy. This opening is cut slightly larger (approx. 1/8") than the canopy mold so that the die plate can be pulled down and over the form neatly. Don't make the opening any larger because the acetate/butyrate needs to be pulled down "tightly" around the form in order to make a good canopy. I like to cut out my die plates in the form of a ping pong paddle so that I have a convenient handle for holding the plate while heating the acetate.

I make my canopy molds from balsa wood because it's readily available and easy to work with. Some prefer basswood, but balsa does the job more than adequately. I generally build up the balsa block that I will carve into a canopy mold from thinner pieces of balsa wood, then I layout the canopy side and top views on the block with a pencil. I then proceed to carve and sand the mold to final shape, frequently pausing to check my progress against the drawings on the model plan. I generally use the sanding block a lot more than the hobby knife when shaping the mold. This is not a difficult task, and you don't have to be a sculptor to achieve success. When the mold is complete I sand it well with fine paper to smooth it out any surface imperfections, then wipe it clean lightly with a tack cloth. Many modelers like to apply a finish to the canopy mold using a sanded coat of cyano glue, but I have not found this to be necessary when I am simply plunge molding. This is not the case if you intend to vac-u-form your canopy. Finally, I mount the finished mold on a dowel which I affix to a balsa base so that it doesn't move when the heated acetate is being pulled down over it.

I attach the acetate to the die plate with staples (another reason for using balsa wood rather than something harder in its construction) and heat it over an electric hotplate. You can also use a toaster oven or a common kitchen baking oven.

Using work gloves to protect your hands while you are doing this is a good idea. When the acetate begins to soften and visibly sag, remove it from the heat source and immediately pull it down over the mold. Once the plastic has cooled off, the newly formed canopy, along with the excess acetate, can be removed from the die plate. I then place it back over the mold and go around the its bottom edges piercing small holes with a common pin that will serve as guide lines when I cut off the excess acetate with a pair of scissors. To be honest, you will probably have to go through this procedure several times before you get a canopy that you like. Don't worry, acetate is cheap.

Plunge molding is a perfectly adequate way of making canopies for your models. However, it does have some drawbacks. For example, pulling the acetate down over the mold is impossible to do in a consistently smooth fashion. One side of the acetate will frequently stretch more than the other producing a thinner wall on one side of the canopy than the other. Even so, the resulting canopy is usually still serviceable and the difference in thickness is unnoticeable when attached to your model and the canopy framing completed.

I know some of this sounds intimidating. Don't be scared away from trying the procedure. I too had many qualms about it until I just dove in and tried it out. Now I wonder why I didn't try it sooner, especially when I think of all the models I really wanted to build over the years but never did because I couldn't force myself to try making their canopies. Good luck, clubsters!

