How to Rig Biplanes

By Phil Hale

Well here goes:

There are several methods to rig biplanes none of which are easy and quick. Most of these methods require planning ahead and pre-drilling of holes to accept the rigging. All biplanes are different in their rigging plans, so you must have access to plans for the particular plane that you are doing. Fortunately, most instructions for each biplane furnish rigging diagrams. You need to locate where the rigging enters the wing to the strut and drill holes.

I usually use .079 or .080 bits to drill the holes. Some people will drill all the way through the wing. This allows you to pull the rigging tight and keep it tight. You'll be able to use any type of rigging material you wish with this method. You will have to touch up the area where the rigging comes through. You'll have to ask yourself what's more important, tight rigging or a little more touch up work. I have used this method and it works well but I have also used a couple of other methods that work just as well.

I bought some stainless steel medical wire at the Nationals in Orlando. It is called Surgical Steel 5-0. It is easy to cut and holds its shape. It does not sag but you can bend it very easily. Care must be taken when attaching the steel strands to prevent the bending of the other strands already in place. You can pass the strand through a flame and anneal it. This will darken it and make it look more realistic. You'll have measure carefully with this method but you'll not have to touch up any areas.

I have used a rigging medium called "wonder wire". It is a ceramic composite fiber .006 in diameter. It will not sag and is a dark color. It cuts easily but will not bend. It breaks instead of bending. To use this, you'll need to drill your pilot holes at an angle. It doesn't have to be the perfect correct angle but it will help get in the ball park. You can use dividers to measure the proper length of the "wonder wire" and the surgical steel. Leave a little extra to go in the holes and you may not have to anchor it with glue but you can. It is strong but flexible. You can cut by rolling an Xacto blade across it. Good stuff especially for WWI planes.

My friend Jerry Creager has come up with another method that is more involved but it really looks good and realistic when you are done. He makes turnbuckles from the surgical steel wire mentioned above.

He loops the wire around a thin piece of piano wire and then like a twist tie on a bread wrapper turns it about twenty rounds. This makes an eyelet and gives you an end to anchor in your predrilled holes. Anchor your eyelet/eyebolt into the hole and when dry, you simply run the rigging material through the eyelet and secure it with glue. Superglue works best with this method but I would recommend using white glue to secure the eyelet to the plastic. This will keep you from marring the surface.

You'll need to carefully pull the rigging tight but you don't want to pull out your eyelets. Anneal these eyelets before you attach them and they'll look great. The last method is using either stretched sprue, fishing line or nylon sewing thread. Stretching sprue requires a level of expertise that must be acquired by practice. You'll need to stretch several strands to get some consistency. Consistency is the key here. It can be done but only with practice. The nylon threat and the fish line provide consistency but some types do not react well to heat.

You'll have to measure and cut carefully with a minimum of excess and then attach both ends and when dry apply a heat source to tighten the rigging. I use matches. I strike them and let them burn for a few seconds, blow them out and then hold it close to the rigging material. Be very careful when doing this. Too close and you'll burn through the line. You may have to experiment with different brand of fishing line or nylon thread to find one that works well.

Well, as you can see, there are many methods and I'm sure that everyone that builds biplanes will have a different method but the bottom line is that they all take time and care to achieve a satisfactory result. Two modeling areas that strike fear into the hearts of most modelers are rigging and natural metal finishes. Both are a little more difficult but not impossible to do. You can get the "wonder wire" from Precision Enterprises Limited. They run an ad in Fine Scale Modeler. I would assume that you can get the surgical steel from a good medical supply house. I hope that this helps all of you .