



## USING SIG GLASS CLOTH AND GLASS RESIN IN MODEL BUILDING

Both Fiberglass Cloth and Polyester Resin have found numerous, valuable uses in the model aircraft field. Fiberglass cloth is very fine filaments of pure glass spun into yarn. This yarn is then woven into varying weights of cloth and is also available as bulk fiber for converting resin to a casting material.

As we are chiefly interested in its application to model aircraft, Sig Glass Cloth is of very light weight, but several layers may be used to obtain any desired strength. Sig Glass Resin was selected for us by an outstanding authority in the fiberglass industry to meet model builder's needs and has many special features.

### GENERAL INSTRUCTIONS

Glass Resin alone will not harden. An accurate amount of hardener must be added and thoroughly mixed into the resin before the resin will harden.

Mix only the amount you are going to use on your immediate job. Once the hardener has been added, working time at room temperature will be about ten minutes. Working time is decreased at higher temperature and increased at lower temperature. If you have a difficult job which will require additional time, place your mixing cup in a flat pan and place ice around it.

Pour the amount of resin into one of the mixing cups supplied in your Glass Kit, or any clean container, preferably ceramic or glass. When using Sig Resin, do not put a pin hole in the top of the hardener bottle to count out the drops. The small drops from a pin hole will not contain enough hardener to make the resin set up. Always cut the end off of the bottle tip to dispense the drops. Add hardener at a rate of at least 15 large drops per ounce of resin. More hardener may be required under some conditions for a quick, tack free set up. Use at room temperature (70° F.) or above. Larger quantities of mixed resin will set up faster than small quantities. More or less hardener will shorten or lengthen the curing time as required. Be sure to experiment with a changed mixture before applying to a model. Mix thoroughly, being sure to get all the resin from the bottom of the container well stirred. It is now ready for immediate use.

### FUEL PROOFING

For fuel proofing engine compartments and nose sections, the resin can be used without the cloth. Clean the engine compartment thoroughly and get rid of any sanding dust. Add the hardener and brush the mixture over the entire interior of the compartment, being sure you get into the corners. Brush out a nice, even coat and allow to cure for three or four hours. You have now doubled the strength of your engine compartment and made it completely fuel proof. Clean your brush in acetone immediately. If the resin is allowed to set up in the brush it cannot be reclaimed. Any part of your aircraft that needs extra strength can be treated in the same manner. If extra soft balsa was used, a second coat can be applied in the same manner. If a second coat is used it should be applied before the first coat has completely set up. Otherwise the first coat must be well sanded so the second coat will bond to it.

### FIBERGLASSING FOR STRENGTH

Fiberglass cloth and resin can be used where very high strength is desired such as engine mounts on profile models, landing gear mounts, etc. If a plywood radial engine mount is used on a profile model, cut a piece of fiberglass cloth that will extend about one-half inch back of the fuselage and about the same distance out on the engine mount when it is placed over the joint where the mount joins the fuselage. Cut a piece for both sides of the fuselage. Brush a coat of resin on the joint and out past

where the cloth will come. Place the cloth on the joint and work it into the resin until it is saturated. Brush a coat of resin over the cloth and feather it out into the wood. Allow to cure three or four hours and sand until smooth, finishing model in normal manner.

When a wire landing gear is used on a profile model, use a strip of cloth over the wire at all points where it contacts the fuselage and attach with resin in the manner described above.

### MOLDING WITH FIBERGLASS

Fuselages, cowlings, wheel pants, etc., can be molded with glass cloth and resin. For example, let's mold an engine cowling, always a problem on a scale model. Carve an exact pattern from balsa and sand. Apply two or three coats of Glass Resin to the mold, sanding between each coat. Be sure that all the grain of the wood is filled as any flaws in your pattern will show up in the surface of your finished molding.

Wax the pattern well with release agent. Cut the pattern in half and attach each half to a piece of 3/4" plywood which has also been well waxed. Next, obtain sufficient casting plaster to cover both halves well. If available, Hydrocal will do the best job. Mix a small amount quite thin and paint it on the patterns, being careful not to create air bubbles and working it down into all recessed area. Mix more plaster in the normal manner and pour over the patterns to create a mold about an inch thick. If added strength is desired, burlap can be worked into the plaster.

When the plaster is thoroughly dried, gently remove the patterns. The interior should have a very smooth finish. Allow more time for the interior to dry, then apply several coats of mold release, rubbed in well. You just can't overdo it when waxing the plaster as any surface that is short on wax will allow the resin to bond to it, ruining your mold and the plaster also.

You are now ready to actually mold your cowling. Mix the hardener into the resin and apply a coat to the interior of the mold. Have your Glass Cloth cut at least two inches too large for each half for easy handling. Press the cloth into the resin and work it into shape. You will find that the cloth can be stretched and pulled to easily fit contour shapes. Immediately apply a coat of resin to the cloth and brush it well into the cloth. Use enough resin to saturate the cloth but not enough to puddle or float the cloth away from the mold. Second and third layers of cloth may be added to bring the molded article up to the desired strength. Air bubbles between layers of cloth must be worked out as you go as it is almost impossible to get rid of them once another layer of cloth and resin have been added. When the resin has completely cured, trim off all excess cloth and resin and sand the edges so that the two pieces of your cowling fit together. The two halves can then be joined by the use of a strip of cloth and resin layed over the joint. Be sure the two halves are well supported as the resin has no tack or adhesive qualities such as cement, until it has cured. This completes your project.

### CAUTION!

Use common sense when working with glass resin. Use only in a well-ventilated room, and we strongly recommend a chemical respirator. Keep away from any flame. If curing is to be accelerated use a heat lamp no closer than eighteen inches from your work. If available, use rubber gloves as they will save you carrying excess resin around on your fingers for the next few days. A sheet of cardboard will save your bench top from resin stains and an apron will save your clothes. Take a few precautions and enjoy your hobby. Fiberglassing can be very fascinating.

The above is another Sig Information Manual. If you have further information or comments, we are always glad to hear from you.