

## Larger Laminating Projects

For large projects, such as building a complete hull, the laminating method is essentially the same, although the scale of the job will demand a few slight variations:



If the laminate is to be self-coloured, pigment all the resin at the same time to ensure consistent colour throughout. On a very large project, you may prefer to economise by pigmenting the gelcoat only, but for best results it is wiser to pigment both gelcoat and lay-up resin.

### GELCOAT

Decant a working quantity of the pigmented gelcoat into a mixing bucket and add 20ml of catalyst per kilo of resin. Stir thoroughly, then use a brush or roller to paint gelcoat over the mould surface.



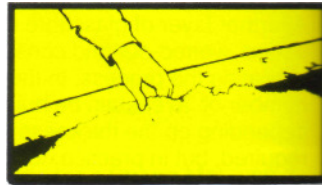
Wait until the gelcoat becomes tacky, which will probably take about an hour. Check any areas where the gelcoat may have drained down and collected (the keel line of a boat hull is a typical example). These concentrations of resin may still be wet. Once you are sure the gelcoat surface is no longer wet, and is consistently tacky, you can proceed to the lay-up.

### LAY-UP

For laminating a hull, you may prefer to use Resin H high-performance laminating resin, rather than the general-purpose Resin A (both are Lloyd's-approved for marine use) - in either case, the method used is the same. Add catalyst to a working quantity of the pigmented lay-up



resin (Resin A). Paint the Resin A over 1 gelcoat then lay down a



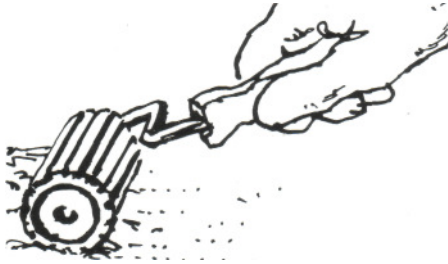
glassfibre. Stipple it into the wet resin with a brush. Remember-do NOT "paint" to



and fro (a resin applicator roller can be used instead of a brush). Make sure the glassfibre is thoroughly impregnated with resin ("wetted-out"), then use a metal laminating roller to consolidate the layer. If



the mould is too big to be covered by one piece of glassfibre, lay another piece -this should overlap the first by about 25mm. Wet out, consolidate and repeat if necessary until the mould surface is



covered. The glassfibre should overlap the edges of the mould, but not by more than 50mm or so (otherwise, the weight of the excess may cause the laminate to pull away slightly from the mould surface).



Further layers of glassfibre can then be added, wetted-out and consolidated, depending on the thickness and strength required. A boat hull has to be stronger, and therefore thicker, than most laminates. However, you must remember that whilst a thicker laminate will be stronger, it will also be heavier, which can be a critical factor in some applications - choose the right reinforcement to give the necessary strength-to-weight ratio. Also, exotherm generated by the curing resin will produce considerable heat in a thick laminate - avoid this by building the laminate in stages, giving the heat time to dissipate.

A thin laminate can be made stronger or more rigid by adding ribs or box sections, laminated over formers of paper rope, foam or cardboard (see "Formers"). You can also use glassfibre fabrics or woven rovings in conjunction with mat to give the required combination of strength and weight. If you are using a combination of materials, lay the mat first. Do not use two consecutive layers of fabric - always have an intervening layer of mat. The exposed, rough surface of the laminate, if desired, can be covered with a layer of surface tissue, applied whilst the laminate is still wet.

As you are laminating, you will probably have noticed the resin on the brushes and tools already beginning to solidify. Obviously, you cannot stop to clean them (or the laminate may "go off" whilst you do so) so leave them to soak in Brush Cleaner whilst you continue working with fresh brushes.

When the required layers have been built up, leave the laminate to cure. It will soon reach "green stage", when you can trim off rough edges with a Stanley knife (once



the laminate has fully cured, it can only be trimmed with a power tool or a hacksaw with a metal-cutting blade). Whilst the laminate is curing, ensure that all brushes and tools are thoroughly cleaned with Brush Cleaner - and ensure they are completely dry before you use them again.



When fully cured, the laminate can be released from the mould. If this proves difficult, due to a complex mould or inadequate use of release agents, the moulding can sometimes be sprung out by striking the mould with the flat of the hand - do not use a hammer, as it will probably craze mould and moulding! A rubber mallet can be used, but requires some skill. Wooden or plastic (but not metal) wedges can be used to prise out the moulding, but take care not to scratch the surfaces. If PVA Release Agent was used on the mould, pouring luke-warm water between mould and moulding will often facilitate release.