

MODELLING TIPS (Model Slipway Kits)

TOOLS

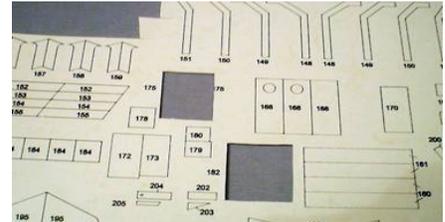
To build one of our models, the following is the minimum required: a sharp modelling knife (Stanley knife), scalpel and spare blades; a large cutting mat or hardboard sheet; a jigsaw or bandsaw; a steel rule or straight edge; a pair of spring callipers; small clamps or clothes pegs; a small vice; hand drill or small drill and bits (0.5mm to 10mm); mini-drill with a 25mm dia. tungsten cutting disk; a selection of files; a couple of small screwdrivers; miniature spanners; pliers and side cutters; tweezers; small artist's paint brushes with wood handles (for gluing); wet and dry sandpaper of various grades (100, 200 and 380) and a sanding block; rubber bands; masking tape; tape measure; a 30W soldering iron, solder and flux (if you wish to solder).

STYRENE PLASTIC

Styrene sheet or more commonly called plasticard is available in different thicknesses. The advantage of plastic over wood is that it has a smooth finish that requires no filling (other than on joints) to give a non-grainy finish. With many vessels in steel, wood with a grain does not look right. Plastic does not splinter and smooth holes can be drilled.

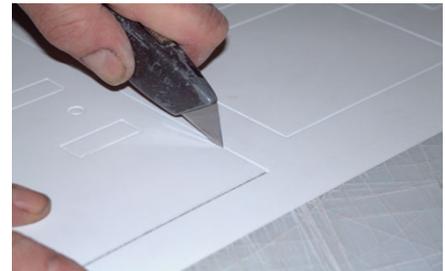
Before applying a primer or paint, it is always best to flat off a shiny surface. 800 - 1200 grit Wet or Dry works very well, especially if you wet it first and work with a gentle, circular motion.

Printed Plastic: Using a steel rule, lightly score the material with several strokes on the outside of the line. Place your thumbnails either side of the score, and with your fingernails on the underside, raise this line up towards you. This will cause the plastic to fracture along the score line and then simply bend away from you and the part will snap out. And then sand or scrape back to fit. Smaller parts can be cut out using scissors.



Complex shapes can easily be 'chased' along all pre-scored lines. Cut well outside the marked outline of a curved component, then file or sand back to the correct profile. If a raised 'burr' is left along the cut edge it can be removed by dragging a Stanley blade along that edge.

CNC-milled Plastic: The pieces are not fully cut through. Using a new blade in either a scalpel or Stanley knife follow against the cut edge of the part and remove it from the sheet. If a raised 'burr' is left along the edge it can be removed by dragging a Stanley blade along that edge. It is helpful to mark the part numbers onto the pieces with a soft pencil.

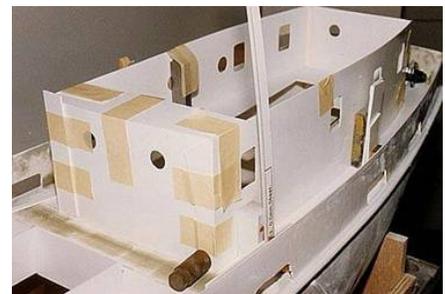


Bending Plastic: Place the area to be bent in hot water and gently bend. Alternatively, place the area over the edge of the bench and run it back and forth. If you have to curve strips of plastic along their length, hold between finger and thumb at the centre, pull your hands apart bending down as you pull - this will curve the strip to a gentle radius.

Drilling Holes in Plastic: Styrene does not like heat and a power tool that runs fast generates heat. It is advisable to use a hand drill or a slow power drill.

Assembling & Gluing Plastic: Assemblies of cnc-milled or printed parts (superstructure etc.) can be made easy if the parts are held together and built up using 4-5mm strips of masking tape. This will ensure close tight joints and most of all, allow you to stand back and check for accuracy before applying the glue.

The best type of glue is liquid polystyrene glue of which there are several brands available. This is applied either with a bottle cap



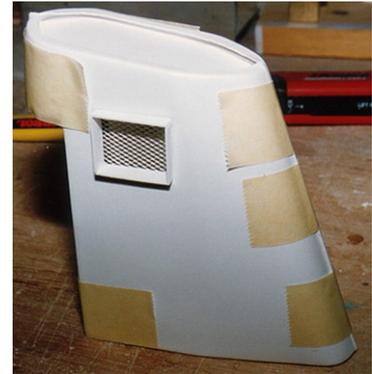
brush supplied or a small paintbrush. Simply brush along the inside of the joint and the liquid glue will 'capillary' along a good fitting joint. Keep the glue away from taped areas. After a few minutes the tape is removed and the joint can be re-glued on the outside. A note of caution: avoid using excess adhesive - it works by dissolving the plastic and too much will create deformation. This glue will evaporate quickly if uncapped.

If a joint looks stepped or untidy, it can be fettled, sanded and scraped clean (with a Stanley blade) after a few hours when the glue has thoroughly dried. If done well the joint is almost invisible! Practice on scrap plastic in order to perfect your own technique. When gluing the deck to plastic deck supports, always rough the surface of the plastic to give it a key.

THERMO-FORMED PARTS (VACUUM FORMINGS)

Mark the trim line in pencil. Using a sharp modelling knife, score the plastic heavily around the trim line, and carefully snap away the waste material. Remove as much waste material with a knife or scissors as possible. Final trimming of edges is done by rubbing the component with a circular motion on, or with, a piece of medium-grade abrasive paper taped to a flat surface.

Before gluing vac-formed parts together, have a "dry run" using thin strips of masking tape to hold them together, this will allow you to make any necessary adjustments. Vac-formings do not require priming before painting if you use plastic enamel paints. Wash with a little detergent before painting.



MODEL STAND

It is important to have a firm base on which to construct the model; this will avoid any tendency to build a twist into the hull. Our kits include a template for a stand made from plywood or MDF. If you intend to use this stand at the lakeside then it should be given two or three coats of clear polyurethane varnish. The top edges where the hull fits should be lined with strips of dense foam rubber, stuck on with contact adhesive. We have found that an old computer "mouse mat" with the fabric removed makes an excellent material for this job.

GLASSFIBRE (GRP) HULL

The hull is produced from split moulds and there will be joint lines to be removed using a file and abrasive paper. The hull needs to be rubbed down with 380 wet or dry paper to matt the surface and provide a key for the paint.

If a hull is slightly distorted due to being laid on its side for a long time or stood up on end, it is possible to bring it back to shape by warming it with a hair dryer.

DRILLING HOLES IN GLASSFIBRE

Drilling portholes: drill a small hole to get the point of a tapered reamer in (usually 3-4mm), then gradually turn the tapered reamer until the required hole size is achieved (it is almost impossible to achieve a perfect round hole with a drill).

To cut out freeing ports or large openings in the glassfibre hull, proceed as follows: mark in pencil, then drill a series of holes along the slot and open up carefully with a flat file. File from the outside inwards only and don't drag the file back out as this can chip the gel-coat.

Alternatively use an electric mini drill with a 25mm dia. Permagrit tungsten cutting disk. Hold the drill with both hands as it can tend to grab and jump. If you need to remove glassfibre from inside corners use a Permagrit cone wheel, available from Permagrit Tools, UK.





Permagrit cone wheel



Permagrit tungsten wheel

Do take appropriate precautions (i.e. gloves, eye protection, face mask) when cutting and sanding fibreglass.

Drilling holes in the wrong places in the glassfibre can be easily fixed. From the outside of the hull cover the hole with a piece of masking tape. Mix up and pour some gel-coat resin from inside, alternatively car body filler paste will do equally well. When set, remove tape and rub down flush with wet and dry abrasive paper. If necessary apply more filler. Reinforce the repair from the inside with a shallow 'mound' of filler.

DECK SUPPORTS

The decks are supported by twin strips of 6x3mm styrene glued to the hull. For the first layer score the adjoining faces of the styrene strip and glassfibre hull with an old hacksaw blade to provide a good key for the epoxy. Use a 30-minute epoxy for the first layer, cutting them part-way through to allow them to fit where the curve of the hull is sharpest e.g. at the stern.

Hold the first layer with clamps or clothes pegs until the glue has set, and then add the second layer of strips using ordinary polystyrene glue. When dry scrape the tops of the strips level with a Stanley knife blade to allow the decks to sit flush.

INNER BULWARKS

The glassfibre of the inner bulwarks of some models require smoothing out to give a good finish. The way to do this is using elastic Plastic Padding and finger to spread the stuff around – but beware! Some people may get an allergic reaction to the resin - in which case take the precaution of wearing surgical gloves.



This filler needs to be thoroughly set, 2-3 days before sanding smooth using 80 grade production paper, then 320 grade wet and dry for the final finish.

WATERLINE

To determine the correct waterline, mark it off at the bow and stern. Sitting the hull on the stand, mount a pencil to a block of appropriate height and draw the waterline lightly by sliding the block round the hull.



GLAZING

Clear plastic material for cutting out the various panels required to glaze the wheelhouse and portlights can be cut exactly like plastic styrene although it is much more resistant to scratches.

Glue the glazing in place with Weldbond, RC Modeller's Craft Glue or clear contact adhesive (UHU, Bostik etc.) The glue used by aircraft modellers to attach the clear canopies to the fuselage will do the job. It comes under several brand names. It is a PVA type glue which goes on white but dries clear.

The glazing sheet has a protective film on each side; remove only from one side for gluing, then remove film from the other side when finished.

WHITE METAL FITTINGS

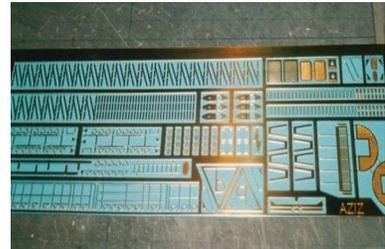
Due to the manufacturing process the fittings will require a little cleaning up. Clean up any flash, or mould lines, using files or sandpaper. Surfaces, which are to be flat should either be filed or rubbed across a sheet of Wet and Dry paper glued to a surface.

Spraying and painting small fittings like railings and vents can be a bit of a trial. Drill a piece of flat wood at intervals to take the parts, then cover in double-sided sticky tape; push the parts into place to be held firm by both tape and hole. You can then spray away to your hearts content and they will stay put.



PHOTO ETCHED BRASS

Use a sharp modelling knife/wire cutter/scalpel to separate the components ensuring this is done on a firm surface. Snip through the tags and clean up the tag scars by holding the part in pliers and using a fine file or sandpaper (P400 or even finer). If a part has to be folded, support up to the line of fold and fold in one go, holding the part in pliers and using the blade of a screwdriver to fold.



For assembly use thick Superglue, UHU, Araldite on a grease free surface. Brass is ideal for soldering. Apply a coat of primer or matt white paint before the final paint.

Brass stanchions: the holes in the stanchions may have to be opened up to take the wire.

PAINTS

Our colour schemes show the Humbrol enamels reference numbers. However, the paints used on our prototype models were acrylic aerosols available from car accessories shops (e.g. Halfords in the UK) for the large assemblies and Humbrol enamels for the smaller areas and details. Any good "red oxide" aerosol primer is ideal for spraying the hull below the waterline. The one golden rule is not to paint cellulose over enamel paints as this will leave the surface crazed.

FILLERS

For fibreglass: holes and gaps can be filled using a 'soft' paste car-body filler available from car accessory shops or DIY stores. When the filler has hardened, sand flat with fine wet or dry paper.

For plastic: again use a 'soft' paste car body filler or, Humbrol plastic filler available in model shops. Alternatively make your own filler by adding styrene shavings to any suitable solvent such as acetone in a small glass jar, screw the lid on tightly to keep the solvent from evaporating and leave overnight. The plastic will dissolve and form a paste. You can then use it to fill any gaps etc. If the paste is too thick, add more solvent – If it's too thin add more plastic.

ADHESIVES

Adhesives may be in tube form (polystyrene cement) or in liquid form such as Humbrol Liquid Poly or MEK (methyl ethyl ketone) which is best applied with a brush. The technique is to apply a few drops of the solvent and the glue will run down the joint by capillary attraction. The following glues are recommended:

Fibreglass to plastic:	two-part epoxy (Devcon, Araldite, Speed Epoxy) - 10 min. or 1 hour.
Plastic to plastic:	ordinary plastic solvent (Revel, Liquid Poly, Slaters, MEK).
Whitemetal to whitemetal:	two-part epoxy (5min.) or thick superglue (Pro-Bond, MFA etc.)
Whitemetal to plastic:	two-part epoxy or thick superglue.
Wood to plastic:	two-part epoxy, thick superglue or contact adhesive.
Brass to plastic:	R/C Modellers craft glue or thick superglue.
Rubber Fendering:	contact adhesive (UHU, Bostik).
Window glazing:	Weldbond, RC Modeller's Craft Glue or clear contact adhesive

PROP-SHAFT

To install the prop shaft and tube drill a small hole and then use 6mm or 8mm tapered round files to open up. Do not push and pull as you would expect but push in and apply pressure turning the file anti-clockwise at the same time. Doing it this way will not chip the gel-coat.

Before fixing the prop tube to the hull, using emery paper lightly abrade around the gluing area in order to provide a good key.

Use masking tape to hold assemblies in place and to allow final adjustment. Apply a small amount of epoxy to hold in place. When set and you are happy with the alignment apply more epoxy over the joint inside and outside the hull. When dry, sand with medium grade sandpaper.

Applying grease into the prop-shaft tube or "stuffing box" is not always the best idea. A tube packed with grease can create a lot of drag on the rotating shaft, which can slow the motor and cause poor performance and overheating. It is recommended to apply light machine oil to the bearing ends.

MOTOR MOUNT

To remove the motor in seconds, a simple motor mounting can be made using 2 triangular blocks of wood and rubber bands. Proceed as follows:

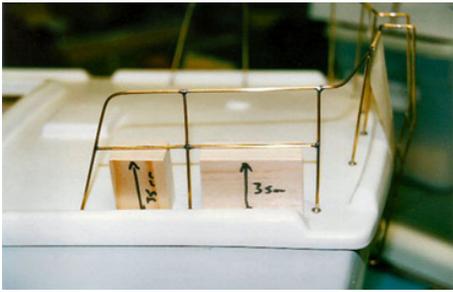
- Fit the motor to the coupling and shaft, hold the motor to roughly the correct position to assess the size of the blocks.
- Cut blocks to suit your application.
- Pre-drill and fix hooks or large head screws to hold the rubber bands.
- Apply epoxy glue to the underside of blocks and place either side of the motor. While the glue is wet the blocks can be pushed inward to raise and align the assembly.

HANDRAIL SHAPING & SOLDERING

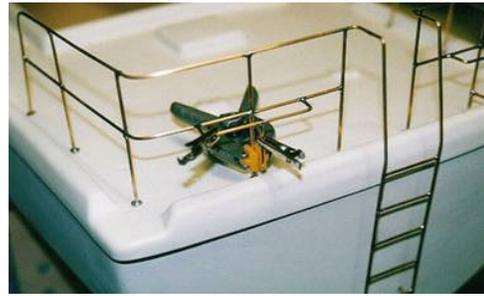
- Abrade/clean the entire length of wire with fine emery.
- Apply flux to the entire length of wire and tin the entire length.
- In general handrails follow exactly the stanchion holes therefore drill the holes in the deck first then lay the wire over the holes and shape it using pliers (allow extra length for corners etc). If you need to duplicate railing, i.e. two, three or four rails, simply tape another wire to the "pilot" rail and use it as a master.
- Cut all (tinned) uprights overlong and place them into the pre-drilled holes in the deck.
- Hold the top rail onto any upright - usually an end one is easier - and solder them together. Use a clip to dissipate the heat away from the plastic.
- Now on to the next upright and solder that one to the top rail, and so on. You do not have to worry about getting them even spaced, upright or even tidy; just make up a one-piece entity, which will stay together. This will probably look a mess but do not worry.
- Go back to the first rail joint, de-solder it and re-align it. This will now be easy as the rest of the assembly is rigid and holds itself together. Use engineer's squares to get the uprights at the same angles.
- Proceed with the remaining uprights, de-soldering and re-aligning them.

If short lengths of wire have to be soldered between the uprights:

- Hold the cross piece with tweezers and solder one end in approximate position.
- The second end can be soldered in the correct place as the first end is already fixed.
- Now go back and re-solder the first end into position.



Always place a clip lower down near the plastic deck to dissipate the heat away from it, as you do not want it melting and making the hole in the deck bigger.



To get all the cross pieces to the same height it is advisable to use a wood block as a spacer.

When the handrail assembly is complete, carefully lift it up from the deck and clean with cellulose thinner before painting.

When the model is nearing completion replace the handrail assembly in the original mounting holes in the deck. A drop of superglue can be applied to the base of the uprights.

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