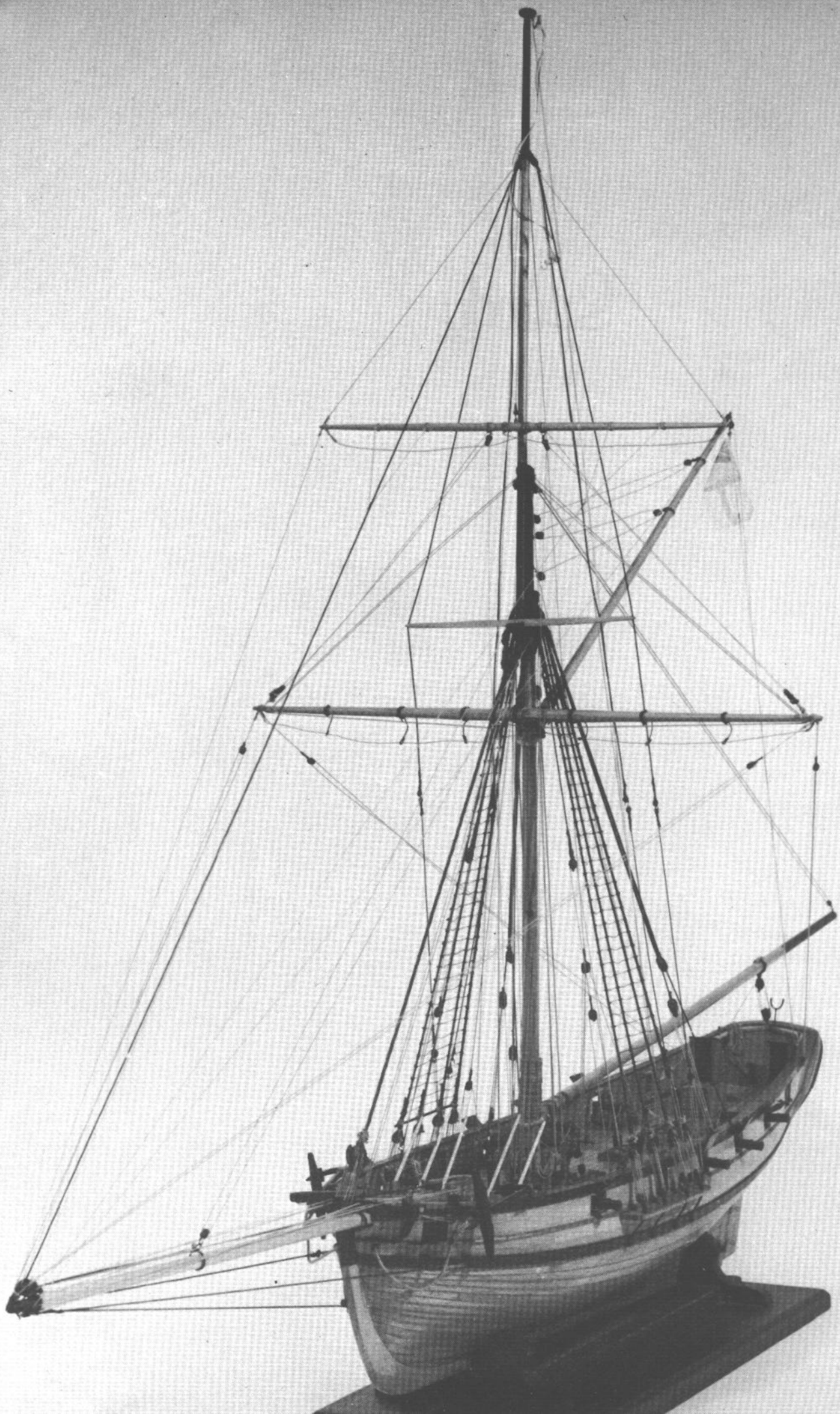


# Speedy

the construction of a model  
NAVAL CUTTER 1828

by Bill Shoulder

MODEL SHIPWRIGHT  
GREENWICH



# Foreword

On 26 June 1817, a draught was approved by the Navy Office for the building of two revenue cutters, to be 63'9" on the deck, beam 22'0" and of 122 tons burden. This was an era of great activity in the smuggling 'trade', which lasted until the 1860s, and numbers of small, fast vessels like this were being built all round the coast in an effort to control the business.

Fine sea boats, and capable of carrying a considerable press of sail, their fast qualities made them particularly useful to the Navy for despatch and general purposes, and so we find on the draught of 1817, in a later hand, the name — appropriately enough — of 'Speedy'. Reference to the Navy Lists of the period finds 'Speedy' having been built at Pembroke Dock and launched on 25 June 1828, a sister ship, the 'Dove' having already been built for the Revenue Service, and launched at Chatham in 1827.

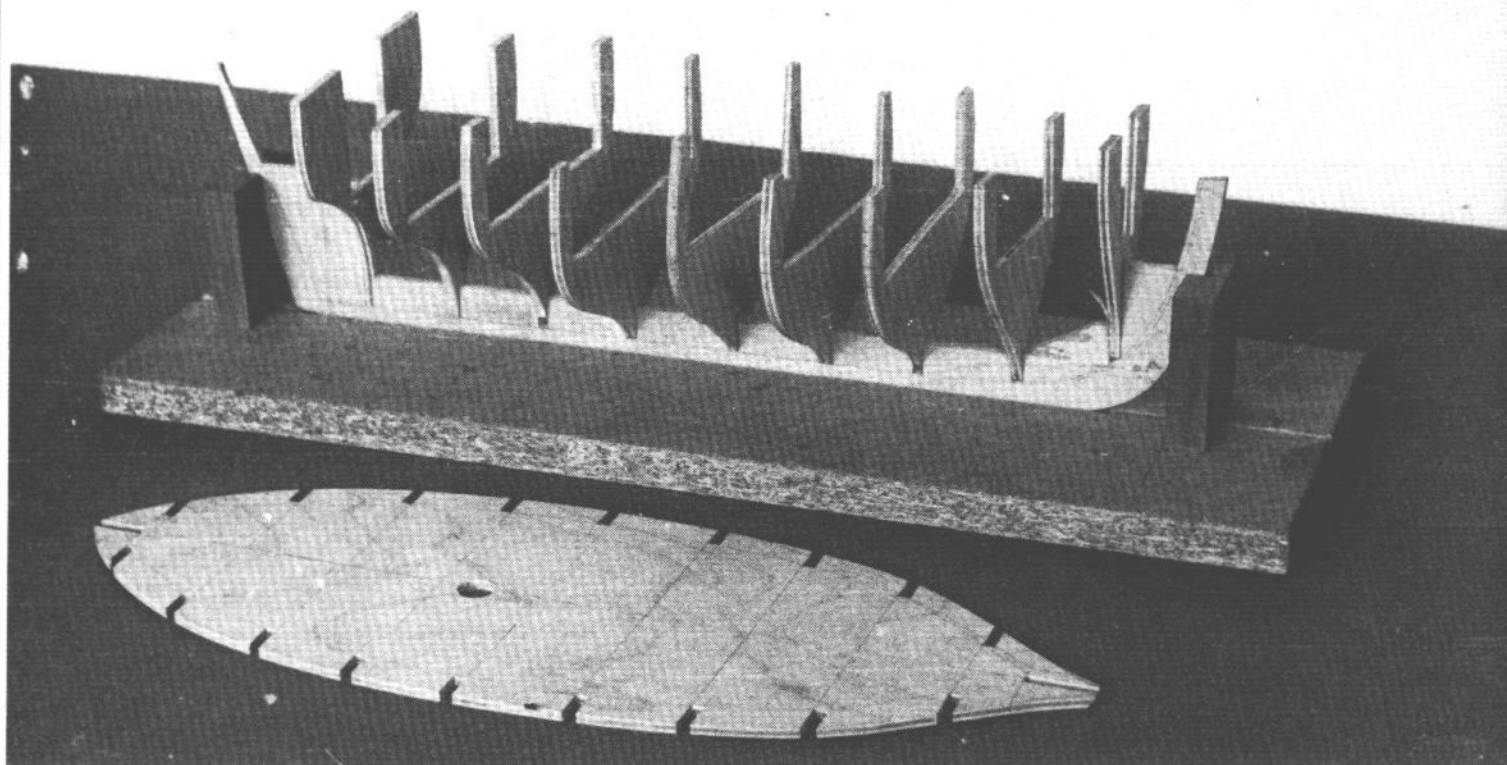
'Speedy's' first commission was as a tender to the 'Victory' at Portsmouth — that is, a fetcher and carrier of stores and supplies, and despatch work. During some forty years of service, she served as tender to various ships of the line, and had a short spell on the Lisbon Station in 1837, but her career was relatively uneventful, being reduced to 2 guns (from 8) at Sheerness in 1840, ending her days there as a stores lighter in 1866.

This book describes the building of a model of the 'Speedy', and is intended for the 'scratch' builder, working from the basic drawings, as much as for the builder using the kit of parts obtainable to accompany the book. The model is to a scale of 1/4" = 1'0" (1/48) and results in a model with a hull length of 18", an overall length rigged of 30" and some 30" high. She is carvel built, and carries eight 6 pounder guns. Some readers may be aware that some of these small cutters were clench built, although by the late 1820s, carvel building was more usual. The model described is carvel built, although I have no evidence to show which method was used for 'Speedy', but should the intending builder prefer to use clench planking, then he is referred to 'Plank-on-Frame Models' by Harold A Underhill, Volume II, for a detailed description of the method.

As to the rig, this was introduced into the Navy about 1763, and consisted of a large gaff headed mainsail and boom, a square topsail with the foot spread by a crojack yard, which also on occasions set a large 'running squaresail'. The long bowsprit was a 'running' spar, and could be

housed, and the fore stay led to the stem, as opposed to the single masted sloops then in service, in which the fore stay led to a standing bowsprit. This was a transitional period, and already the square topsail was giving way to the triangular gaff topsail, although the crojack yard, no longer required to spread the foot of the topsail, was retained to set a running squaresail as required, and stowed vertically alongside the mast. With the long bowsprit, coupled with the overhang of the boom, the overall length of the vessel was nearly double the hull length.

**H W Shoulder**  
December 1974



## Hull construction

It is assumed that the builder, whether from kit or 'scratch' has had some experience of building simple models already. This model is fairly advanced, and although there is nothing in it that sound common sense cannot deal with, some skill in handling small tools is a prerequisite. The following list of small hand tools is considered to be the minimum requirements, but others will no doubt occur to the builder as he progresses:

### Tools

Modelmaker's fine hacksaw — Eclipse No 45, or Exacto.  
 Craft knife with spare blades.  
 Needle files — round, half round, three square and warding.  
 Needle drills — made by honing sewing needles of different sizes to three square section.  
 Pin chuck — to hold above.  
 Modelmaker's plane, or small spokeshave.  
 Small round and flat nosed pliers — jeweller's type is best.  
 A portable table vice is an asset if no bench is available.  
 Wooden spring clothes pegs and 'Bulldog' stationery clips for use as clamps.  
 Steel rule.  
 Jeweller's piercing saw, or fretsaw, with spare blades.

**Above** The building board with the keel profile, stem- and sternposts in position, the frames set up and the plan shape (foreground) about to be fitted

### Materials

Adhesives — White resin wood glue; tube of water soluble glue (for rigging); epoxy resin ('Araldite' or similar) for metal work.

Pins — 9/16" brass 'Lill' pins (from a dressmakers or handicraft suppliers); common steel dressmaker's pins for temporary fixings.

Paints and finishing — Small tins each of clear varnish, light oak varnish, semi-matt finish (polyurethane varnishes are fine); small tin Signal Red paint (Humbrol No 121) for inside bulwarks, fittings and so on (eggshell, or semi-matt finish); bottle of black leather dye.

Brass — Brass wire 22 SWG for strops, hooks and other 'ironwork'; brass tube 1/16" o.d.

Those who have purchased the kit will find most of these items provided, except the paint and finishing.

**The Part numbers in brackets refer to pieces provided in the kit but scratch builders could well adopt this numbering system to facilitate construction.**

### The building board

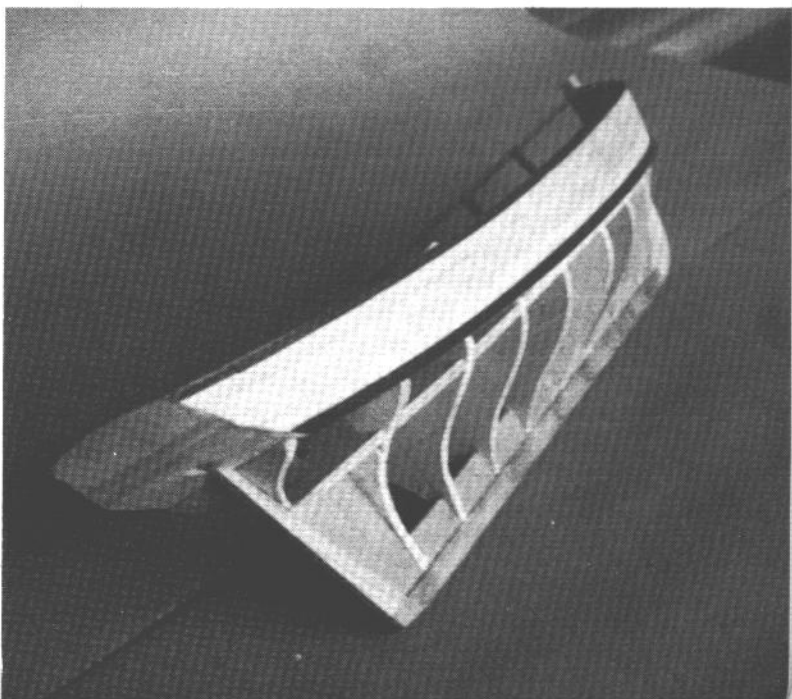
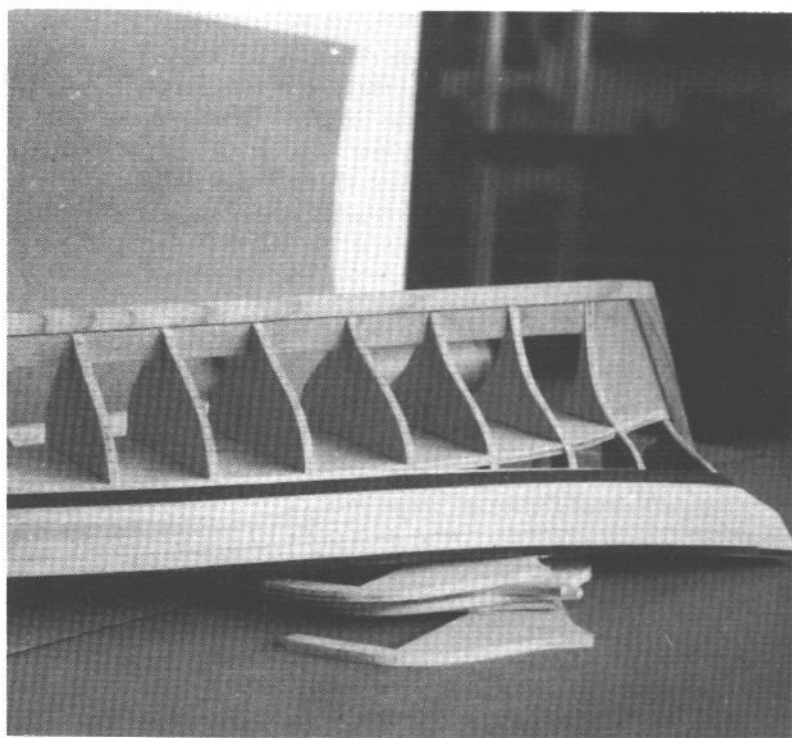
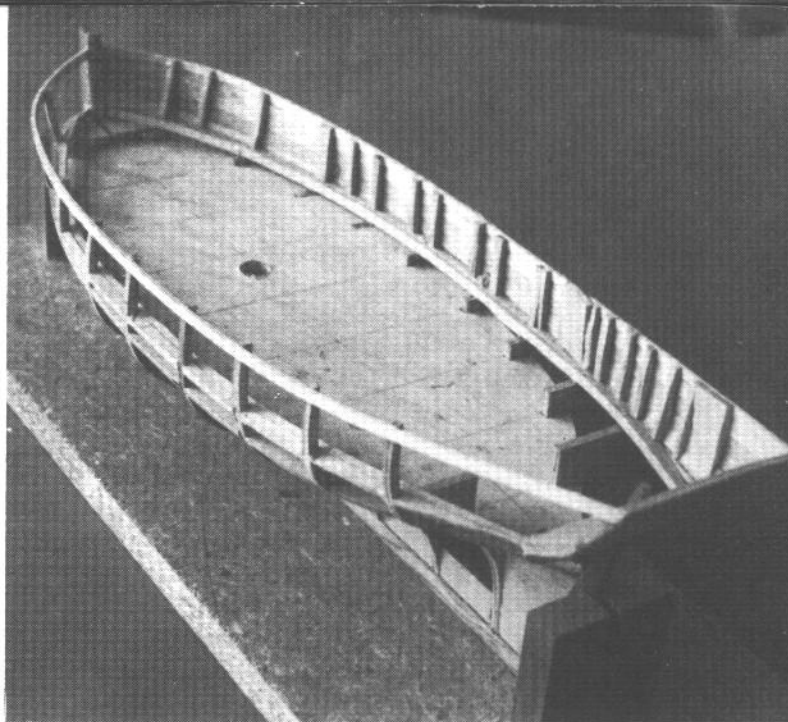
The model is designed to be constructed on a building board, with the stem- and sternposts held in two jig ends. Prepare a piece of 16mm ply or chipboard, perfectly flat, 455 by 152mm by marking a centre line the length of one face. Equidistant from the ends, square two lines 374mm (14 3/4") apart across the face. Cut two blocks from softwood (Part No 2) and glue them to the board with the inside faces on the afore-

mentioned lines, the slots centrally over the centre line. Two strips of 4mm ply with straight edges are then glued each side of the centre line, 5mm apart, to hold the keel straight.

### The hull core

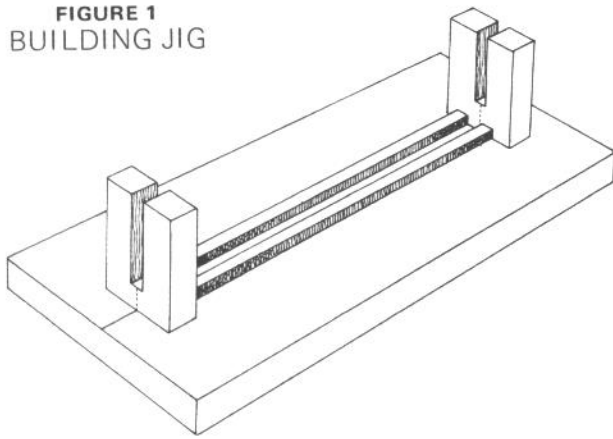
This consists of a keel profile (Part No 3), a plan shape (Part No 4), nine frames (Parts A–J), and the stern assembly (Parts 5–7). Cut these parts to the dimensions given, using good quality birch ply without any twist. Trace from the drawing the line of the rabbet, and transfer this accurately to each side of the keel profile. The rabbet is formed by glueing 1mm material (not ply) to each side of the profile, using the same tracing as a guide. Note from the drawing the shape of the joint at the stem and sternpost and the keel, which simulates the scarf joints used in full sized practice, Figure 2. Glue these parts in place, ensuring that both sides are exactly alike, and allow to dry on a flat board, under a weight. Trim the outer edges to the profile, and sand the outer edges of the stem and stern to the thickness of the plywood profile (3mm), leaving the keel at full thickness. Both ends should be an easy fit into the slots in the jig, the keel dropping into the space between the ply strips on the baseboard. Adjust with a fine file if necessary, or packing the slots with thin card if required.

Fit the frames A–J into their respective slots in the profile, and fit the plan shape over them. They should be an easy (not slack) fit, without any binding – if they seem too tight, ease off the slots with a fine file. Assemble dry and check for squareness, then glue all adjacent surfaces, re-assemble, and allow to dry in the jig. Bevel the lower edge of Part No 7, and the upper edge of Part No 5 so that when assembled with the counter, Part No 6, they will fit into the angles formed by a piece of ply cut to the shape of Part No 9. It should be mentioned that all parts should have centre lines marked on them on both sides, and a constant check made to see that they are in line. Mount two pieces (Part No 9) each side of the stern end of the jig so that they will support the stern assembly in the early stages. The lower transom is located **in front** of the sternpost, being glued and pinned into position with small brass pins. These pins, which will be used throughout the construction of the model, should be pushed into pre-drilled holes,



**Top** The hull with the deck clamps and sheer strakes fitted.  
**Middle** The planking commences with the wale and top timbers; remember that the wale is put on in two layers.  
**Bottom** The planking of the topsides when completed. Notice the complex shape of the transom.

**FIGURE 1**  
**BUILDING JIG**



cut off short with side cutters, and pushed home with a fine file, finishing with a rub with the file to smooth the ends.

**Important:** Check that the assembly is square to the centre line of the model, and that the corners of the components are an equal height from the building board on each side. Failure to observe this precaution will result in the upper part of the vessel being out of true. It can be temporarily held in position with short battens pinned between the top corners of the upper transom and the upper part of the aftermost frame. The stern assembly is shown in Figure 4.

Using short lengths of 1/4" square softwood, fill in the gaps between the frames where they meet the keel, leaving a 1/16" gap to form the rabbet. Build up a number of these pieces at the stem, below the plan shape, to form a good land for the planks at this point. Using a sharp craft knife, trim all these blocks to the curve of the frames, and note that none of these blocks will be required at the stern. The part of the stem rising above the plan shape, has a short length of 3/4" by 1/16" timber glued to its after edge to complete the rabbet at this point, Figure 3.

#### **Deck clamps**

These are long stringers fitted along the inside of the frames on each side to give support to the deck beams. Take two lengths of 1/8" by 3/32" (3 by 5mm) and taper one end of each to about half their thickness. This should enable them to be bent round the curve at the bow, but a little steaming using a boiling kettle may be needed. A landing is provided for the clamps on the frames, and they should be glued and pinned at the points of contact, notching the stern ends into the slots cut into the sides of the counter, and fitting a little shaped block under them at the bow. Fill in the spaces between the frames, outside the clamps with short lengths of the same material, glued only, and when all is dry, use a medium grade glasspaper on a flexible piece of wood or card to go over the whole of the hull, bevelling the edges of the frames, filling blocks

and stern assembly, testing frequently with a flexible batten to see that the planking will lie on the frames fairly, without bumps or hollows. Be specially careful with the **top timbers** (the upper extremities of the frames) which are as yet unsupported.

#### **Wales and sheer strakes**

Mark off the positions of these on the frames, taking their height from the lower edge of the keel to their upper edge, from the drawings. Pin and glue wale and sheer strakes in place on both sides, ensuring that the curves on each side are identical. Note that the wale is put on in two layers, to facilitate bending, the second layer being put on after the hull has been completely planked on the outside. Steam, or soak the forward ends in hot water if necessary to bend the timbers safely, and cut a little notch in the stem to locate them at this point. Both of these stringers are of regular planking material — 3/16" by 1/16" — and the space between them can now be filled in with the same size planking, pinning and glueing to the top timbers, **except** at frames D, E and J, which have to be removed later, as they foul the gunports. At the stem, the gap narrows a little, so taper the planks accordingly. At the stern it widens a bit, and a little wedge shaped 'stealer' will be necessary to fill the gap caused by the twisting of the plank at the counter. At this stage, the model may be removed from the jig without any fear of its twisting.

The lower part of the hull can now be planked up, using the same sized material. The narrow planking used obviates a lot of awkward shaping, as they may be bent into place fairly easily. It will be necessary however to taper all the planks at the bow for an inch or two, and to add an occasional stealer at the stern to make up the gaps left by the rising of the planks here. Fit the garboard, or lowest plank first, seating it snugly into the rabbet from stem to stern. Try and get two or three stealer planks in at the stern early on, when the remainder of the planking will be fairly straightforward. The final plank below the wale will probably need a bit of shaping to get it in. Glue and pin all planks to the frames as you go, pushing the small pins provided into the frames with small pliers, snipping the ends off with cutters, and pushing them home with the flat side of a small file. When the hull is completely planked, go over it with progressively finer grades of glasspaper until everything is smooth. The judicious use of plastic wood may be needed by the inexperienced (and even the experienced at times) but do not overdo it. The wale plank, pre-stained with black leather dye, should now be glued and pinned into place on the previously positioned plank, joggling it into a little notch in the stem.

Mark off the position of the gunports from the drawing, outside and inside the planking. Glue short lengths of 1/8" square material inside the bulwarks to form the side cheeks of the gunports, using a piece of thin card to act as a template. At frames D, E and J, the gunport spans the top timbers, which should be removed before fitting the cheeks. Using 1/8" by 3/4" softwood, fill in the spaces between the top timbers, excluding the gunports, with short lengths, the grain running vertically, from deck clamp to just above the sheer strake, Figure 3. Glue only here, and when dry, trim the top timbers and filler pieces level with the sheer strake. Use a craft knife and chisel to shape the inside of the bulwarks from 1/8" thick at the deck clamp to 1/16" at the sheer, finishing off with medium glasspaper. This final thickness is important, as if the combined thickness of planking and framing at the sheer is too great, the rail becomes clumsy in appearance.

#### Deck beams

Ten of these are required, one to each frame position, and one (divided at the stern post) to provide a land for the deck. Stack them together, camber uppermost, and square a centre line across the bundle. Glasspaper them all to the same curvature if necessary, and mark one side of the centre line common to each. Measure the beam at each frame on the inside of the bulwarks at the clamp, and cut the beams to length, keeping the centre mark central. The ends of the beams should be 1/8" deep — file a flat on the underside to make them so. Glue them into place, using 1/8" square spacers glued to the clamp, and check them for alignment using a flexible batten. Final adjustment may be made with glasspaper on a thin strip of wood when the glue has dried. Glue 3/4" by 1/8" wood close up to the centre line on each side between the deck beams, to form a support for the deck at the top of the camber, and a fixing for the deck fittings. Drill a 5/16" hole in this support between frames E and F for the mast, and a small shaped block

of wood will be needed at the bows to support the deck at this point. At the stern two short lengths of deck beam are glued to the inside of the counter, level with the after edge of the sternpost, after chamfering them to coincide with the angle of the deck and the counter.

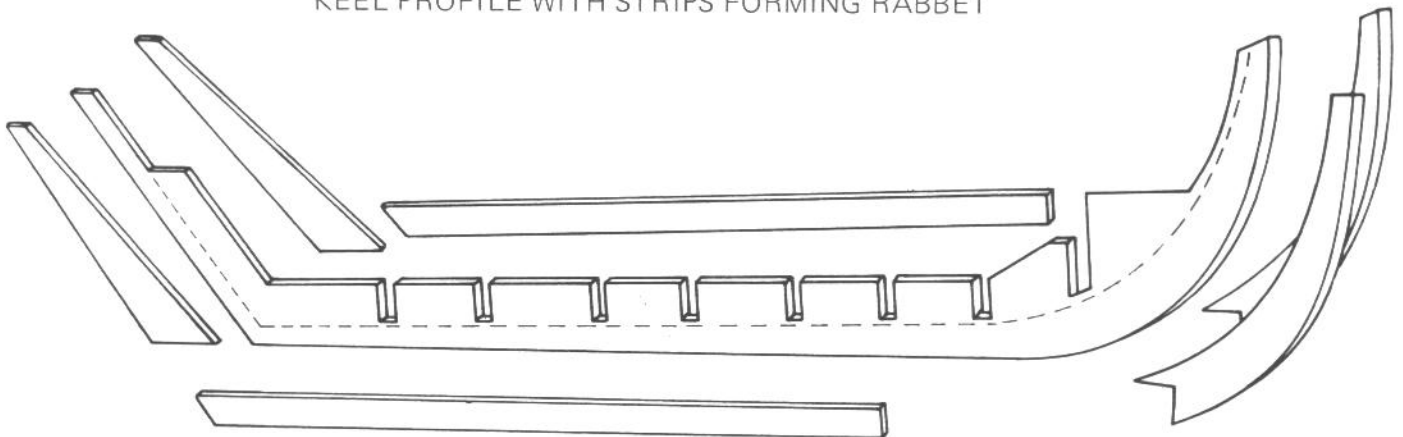
#### The deck

This consists of 3/16" by 1/16" planking laid on a 1mm plywood false deck. Make a template in thin card the shape of the deck, fitting it closely into the bulwarks, and from it cut the shape in 1mm ply, marking the centre line. Make two lines parallel with the centre line and 15/16" from it on either side, and cut the false deck into three parts down these lines. This enables the deck to negotiate the longitudinal and thwartships curvatures. Glue it into position on the deck beams, using long pins to hold it temporarily in place. Remove the pins when the glue is dry, and make a 5/16" hole at the mast position. Planks consist of 3/16" by 1/16" timber, the same as the outer planking on the hull. Commence in the centre of the deck, the middle plank over the centre line, and work outward to the sides, using pins to hold them in place while the glue sets. Caulking may be simulated if desired, by mixing a little black powder colour with the glue, scraping off the surplus when dry. Clear the hole for the mast.

#### Lining the bulwarks

Commence with the waterways — the narrow moulding where the deck and bulwark meet. Narrow two strips of regular planking to 1/8" wide, and work a little moulding on one edge, Figure 5, using a shaped scraper made from an old hacksaw blade, or even a stout piece of tin plate. Clean up with fine files and glasspaper, and stain them black, using leather dye as used for shoes, polishing with a soft cloth when dry. Glue and pin them to the edge of the deck on each side. The inside of the bulwarks is painted red, and it is practically impossible to make a neat job of this after assembly, so some pre-painting

FIGURE 2  
KEEL PROFILE WITH STRIPS FORMING RABBET



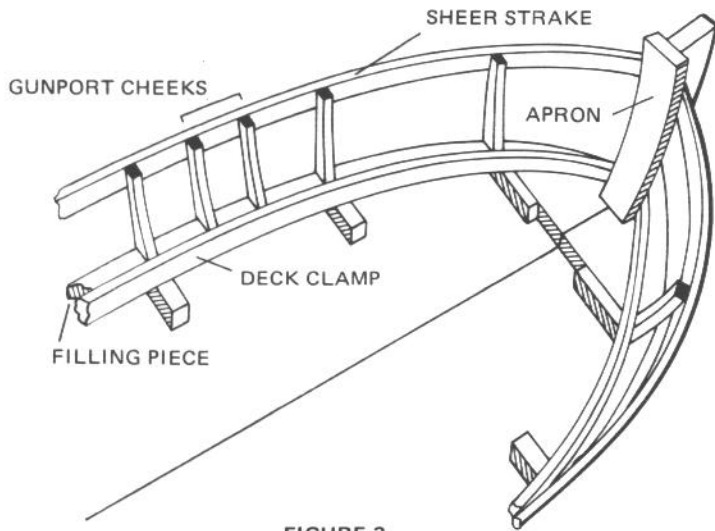


FIGURE 3  
PERSPECTIVE VIEW OF BOW

FIGURE 4  
STERN ASSEMBLY

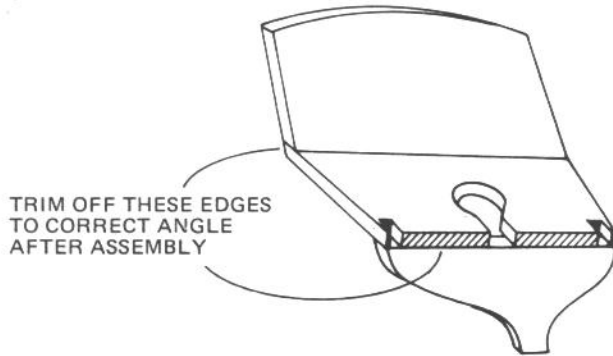


FIGURE 5  
LINING THE BULWARKS

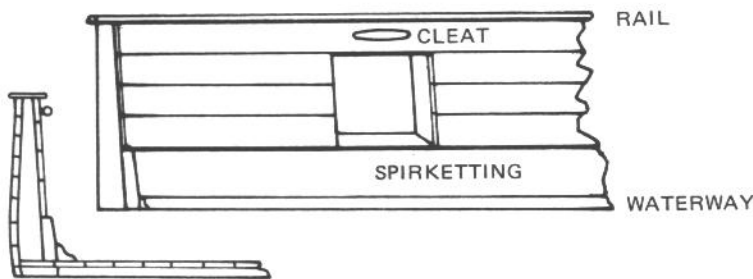


FIGURE 6  
BOW - PORT SIDE

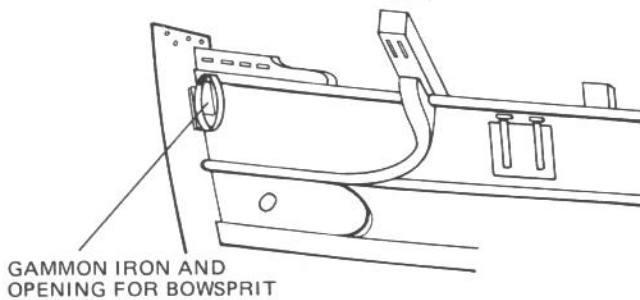
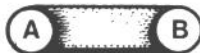


FIGURE 7  
FORMING SHEAVE IN THE BULWARKS



AREA BETWEEN A AND B IS RECESSED, THE ENDS ROUNDED INTO THE HOLES WITH A RAT TAILED FILE TO SIMULATE THE SHEAVE

is necessary. Take two strips of regular planking, and eight strips of 3/16" by 1/32" timber, and give one side of each three coats of red paint (see list of recommended paints) rubbing down well in between coats. Take the two thicker strips, and bend them into the bulwarks on top of the waterways, glueing and pinning into place. Use wooden clothes pegs or spring clips as clamps for this operation. This thick lower plank is called the spirketting — it corresponds to a wainscot in house construction, and it may be improved in appearance by scratching a line along the upper face, and deepening it with the end of a round needle file to form a little moulding (before painting, of course). Cut short lengths of softwood, and fill in the gaps between the outer planking and the spirketting in the gunport spaces, pushing the fillers down level with the spirketting, and filing smooth. Using a card template as a spacer (of the same width as the gunport) glue similar fillers to mark the upper border of the gunports, extending them as high as the top of the sheer strake. Using a needle drill in a pin chuck, drill a hole in the outside planking in each corner of the gunport, drilling from the inside, thus locating their positions on the outside.

The openings can now be cut from the outside with a sharp craft knife, within the area marked by the holes, after which, trim the gunport to size with knife and files, using a template to ensure they are square. Complete the lining of the bulwarks with pre-painted planking, allowing at least the thickness of a plank overlap all round within the gunport opening. Line the gunports with narrow strips of painted planking, cutting it so that the back butts up against the bulwark lining, and a shallow rebate is left on the out-board side — make sure the edge of this part is painted before fitting.

#### The channels

Long timbers outside the hull on each side abreast the mast, channels support the lower deadeyes. Cut them to shape as drawn, fitting the inner edge to closely fit the side. Notch them for the chainplates, and glue and pin them in place. Fit them at the level shown in the drawing, unless you are using ready made chainplates and deadeyes, or those provided in the kit. In this case, check that the lower fixing of the chainplate comes on to the wale, adjusting the height of the channel accordingly. Obviously, this will only be permissible within certain limits, and if the channels have to be varied widely from their drawn position then the chainplates had better be replaced. Those provided in the kit will be suitable.

#### The catheads

The catheads (one on each side) provide a davit

for bringing the anchor to the ship's side. Cut them from 1/4" hardwood as drawn, fitting the vertical component closely to the inside planking before finishing the outside shape. They should lie at about 45° to the centre line of the vessel with the upper part pointing slightly upwards. Drill the holes representing the sheaves (0.5mm drill) and stain the whole assembly black before fixing into place.

### Sheerplank moulding

This is a narrow moulding shown in the drawing lying just under the gunports, and on the channels. Depending on the position of the channel, it is permissible to divide this at the channel if necessary. Make it from 1/16" square boxwood, using a scraper to form the moulding, and glue and pin it into position.

### Covering boards at the stern

These are shaped pieces of ply that cover the plank ends at the stern. Cut them to the shape as drawn and glue them to the upper transom and counter, fairing the edges to a smooth shape when dry. The lower transom cover board is fixed in two pieces either side of the sternpost, the outer edge being sanded flush with the planking. Sand smooth, and paint the upper transom very dark blue or black and the counter red, as for the inboard planks. As an extra refinement, the outer edge of the upper transom can have a 1/16" moulding surrounding it — this involves some pretty tricky bending, wetting the moulding and bending it over a hot soldering iron, without scorching the wood. In any case, cover the joints between the three stern components with a narrow moulding, arching the one between the upper transom and counter for a better appearance.

### The rail

Take a straight stick about 1" square and about 1'0" long. Wrap a piece of medium glasspaper round it for about 6" of its length, and laying this across both bulwarks, lightly smooth both level along their length. Take a piece of stout drawing paper the length of the hull and lay it on the top of one bulwark, pressing the finger along so as to mark the curve of the rail. Transfer this shape to 1mm ply, and cut out a strip 3/16" wide, which should lie evenly on the top of the bulwark. Treat the other bulwark in the same manner, then glue both strips in place. Smooth off the edges with fine glasspaper, then make two similar strips, this time 1/4" wide, and after sanding the edges to a finish, stain them both black. Glue and pin these on top of the first layer, touching up the edge of the lower strip with black stain when the glue is dry. Shape and fix in a similar manner the taffrail, mitring the top layer into the side rails. The inside of the

upper transom and counter, down to deck level, should be lined with red pre-painted planking before the rails are finally fitted, a narrow moulding sealing off the deck end at this point. The small section of rail ahead of the catheads should be joggled into little notches cut into the stem where they meet.

### Cathead bracket and doubling

The cathead is supported outside the hull by a small bracket, Figure 6, which curves forward and downwards until it meets the planksheer moulding, which is cut away at this point. A short, straight timber continues the bracket forward to the stem. All are painted black, being glued and pinned into place. The space between this timber and the wale is occupied by a doubling of 1mm thick timber, shaped to fit closely at the stem, curving round the planking at the bow, its after edge being rounded. The hawse hole is drilled through this doubling, 1/8" in diameter, drilling a fine pilot hole first, so that the hole arrives inboard just above deck level. Its direction should be parallel with the centre line, and should incline slightly upward as it goes inboard. Run a piece of thick coarse twine through it, rubbing it up and down a few times, at the same time bearing down on the outboard section, thus rounding off the hole in the doubling in the way that the cable would in use.

Two other openings in the hull are required. At the bow, port side, cut a 1/4" square opening immediately under the rail and close up to the stem, the sides running parallel to the centre line, Figure 6. This is to admit the bowsprit. At the stern, on both sides, drill two 1/32" holes about 1/8" apart in the sheer strake under the rail, and join them with a narrow channel, when it will give the appearance of a sheave in the side — these are for the braces, and they are placed about 1" behind the after gunport.

The angle made between the covering boards and ship's side at the stern is filled in with two shaped cheeks of hardwood, faired into the general curvature of the ship. Again at the stem, two shaped baulks of timber, pierced with four sheave holes, are pinned close to the stem on top of the rail on each side, forming fairleads for the headsail gear, as it comes inboard. Two short timber heads, 3/16" square and 3/16" high are fixed vertically on the rail behind the forward gunport. It has a small hole drilled in the top to accommodate the pivot pin of a swivel gun. It is painted black, as is the stem down as far as the lower border of the wale, and this completes the hull except for fittings. It can be given a sealing coat of clear varnish, followed by another of clear and a final of light oak, rubbing down with flour paper in between coats. The final coat is better if a semi-matt or eggshell finish is used. The deck should be clear varnished.

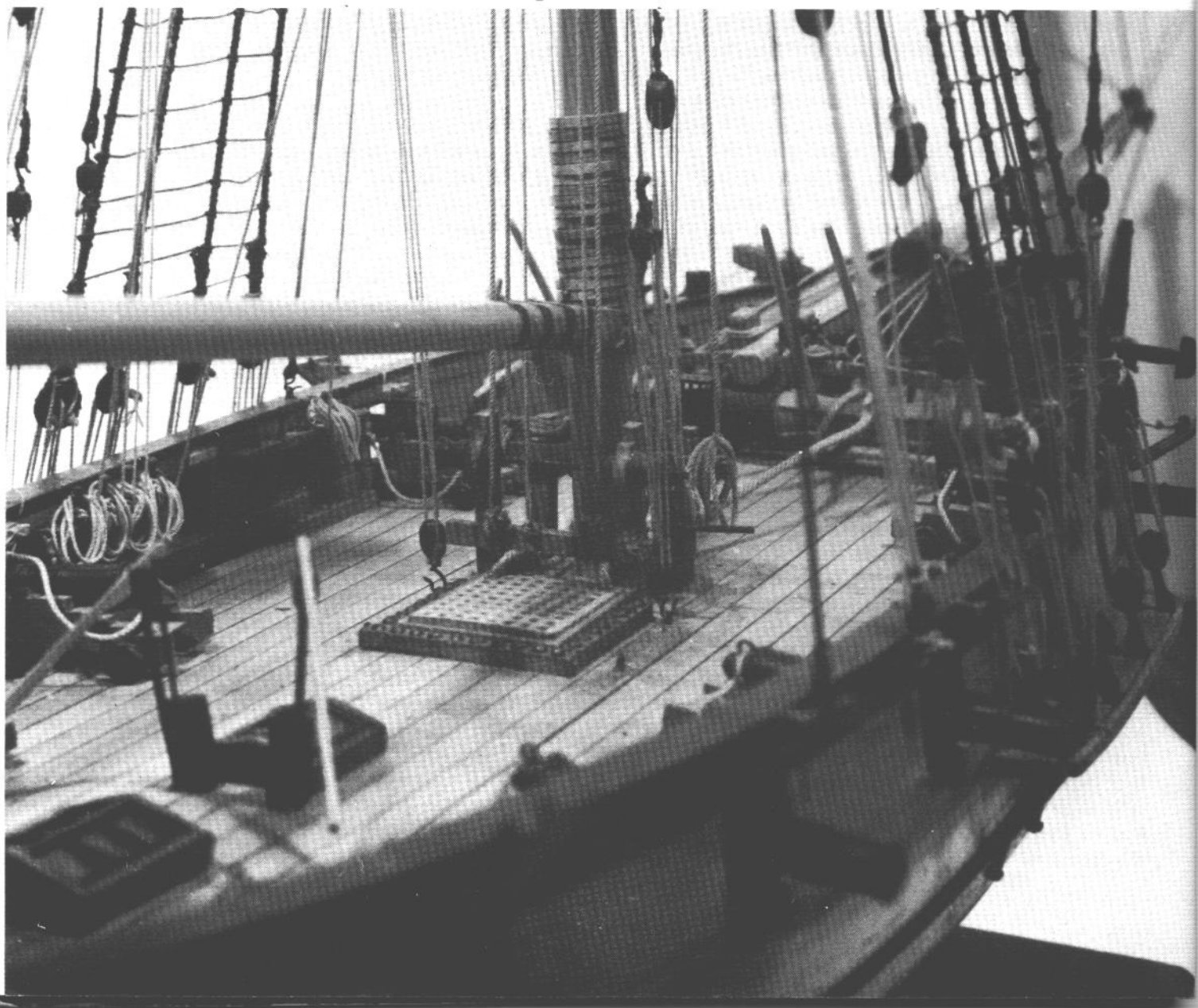
A number of eyebolts are required at various points, outboard and inboard, and they are made by cutting off the heads of small brass pins, turning the remainder into as small an eye as possible with jewellers round nosed pliers, leaving about a quarter of an inch of point. Position as follows: bow, starboard side 1" below the wale, on the stem, for block for running bobstay; starboard side of stem, near rail, for block of topmast stay; on the wale 2" from stem for bowsprit shrouds (p & s); top of rail, 4" from stem, for lashing securing the anchor (p & s); top of rail, behind foremost deadeye, for runners of tackles (p & s); on channels, near outer edge, two eyebolts, one each side of after deadeye for tackles of topmast shrouds (p & s); on channel, starboard side, behind after deadeye, for gaff peak halliard tackle; on sheer strake, behind fourth gunport from bow, for backstay tackle (p & s); on sheer strake, before fifth gunport, for

runner of backstay (p & s); on sheer strake, aft, just forward of the sheave hole for the brace (p & s). Inboard, the position of the eyebolts are as shown (Plan Sheet 2). These are shown as ringbolts, but simple eyes will suffice. There is an eyebolt in the stem, near rail level for the staysail halliard block. At the stern under the taffrail are two knees which almost meet in the mid line. Shape these from hardwood, fitting an eyebolt between them for the sheet block, Figure 8.

**Below** At first sight the deck detail may appear a little forbidding, but this fine overall effect is achieved by a small number of fittings, each of which is simple to construct.

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## Fitting out the hull



### Cleats

Make these as shown in Figure 9, and fit a small one over each gunport for the lanyards, and larger ones as in the inboard profile, plus one on the starboard lodging knee at the taffrail for the sheets.

**NB:** Many of these fittings are required to take some strain from the rigging, so make sure that fixing is adequate, using glue and pins where possible, and scraping away varnish where necessary to obtain a good glued joint. There are two more small cleats on the inboard end of the catheads for the cat tackle.

### Pin rails

There are four pin rails, fitted inside the bulwarks, abreast the mast, between the gunports 2 and 3, and 3 and 4, level with their upper edges. Make them of 1/16" hardwood, with 0.5mm holes for the belaying pins (see plan). Varnish first, then glue and pin in place. Each of the fore and aft legs of the knees in the stern has a hole in the forward end for a belaying pin.

Build up the deck houses at the stern to the dimensions in the plan, shaping them from solid blocks, with roof and door of thin veneer, Figure 10. They are painted red, roof and door being black. The companion way can be similarly treated, being painted all red. Hinges in all cases can be applied as strips of brass shim, painted black. Skylights, Figure 11, are made from shaped blocks, the upper surfaces painted black, and the 'lights' applied in the form of acetate sheet, with framing of strips of veneer, or even card, after which the surrounding framework of thin wood painted red is applied. The cabin stove pipe (the Charlie Noble) can be made from short lengths of 3/16" brass tube, the angled joint being cemented with an epoxy resin ('Araldite'), or soldered. Cement a little ring of brass wire round the base at the deck, and round the opening at the top.

The pumps are made of 3/16" dowel, drilled out 3/32", and the outside trimmed to an octagon. The wooden supports for the handles can be made integrally with the body, which is bound with narrow hoops of brass shim or paper, painted black, the handles themselves being made of wood with thin wire to represent the rods supporting the plungers. The galley funnel stands forward of the mast, and unless you are a metal worker, it is best made on a short square wooden core, using thin card for the sides the cover being supported on short lengths of brass wire. Behind it is a small box with a barred front, a poultry coop, which can be fabricated from card and brass wire, all painted black.

There are three gratings, and details of their construction are shown in Figure 12. How the halving joints are cut must be left to the ingen-

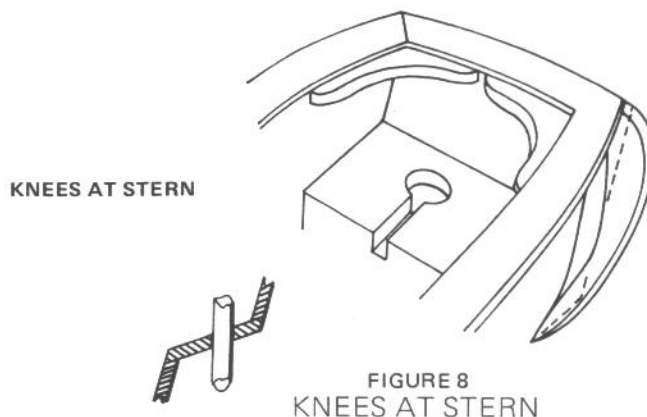


FIGURE 8  
KNEES AT STERN

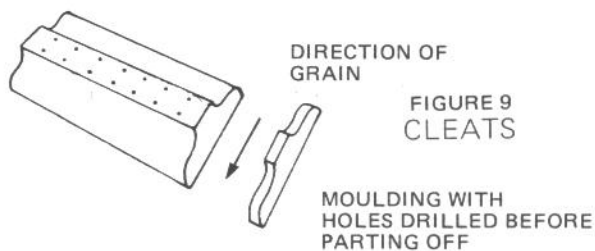


FIGURE 9  
CLEATS

FIGURE 10  
DECKHOUSES AT STERN

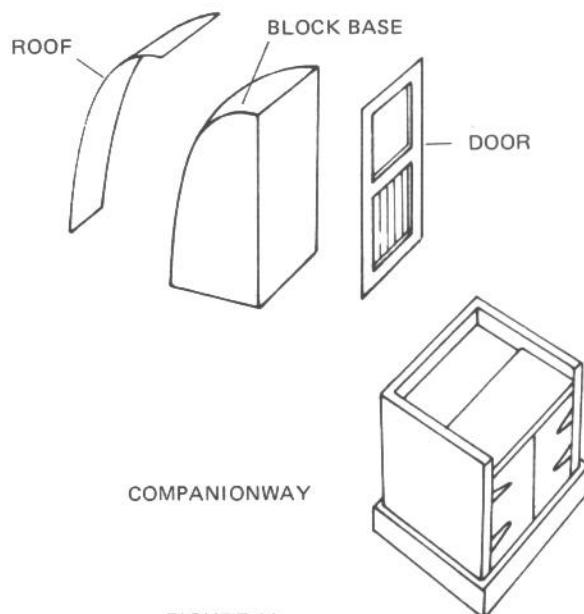


FIGURE 11  
COMPANIONWAY AND SKYLIGHT

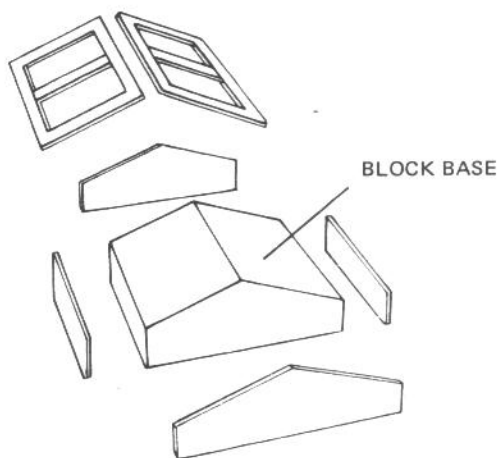


FIGURE 12  
MAKING GRATINGS

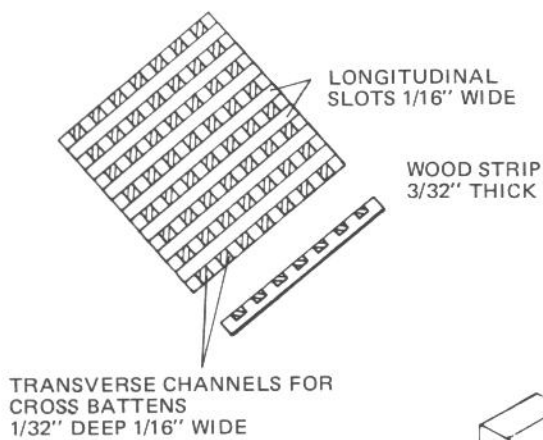
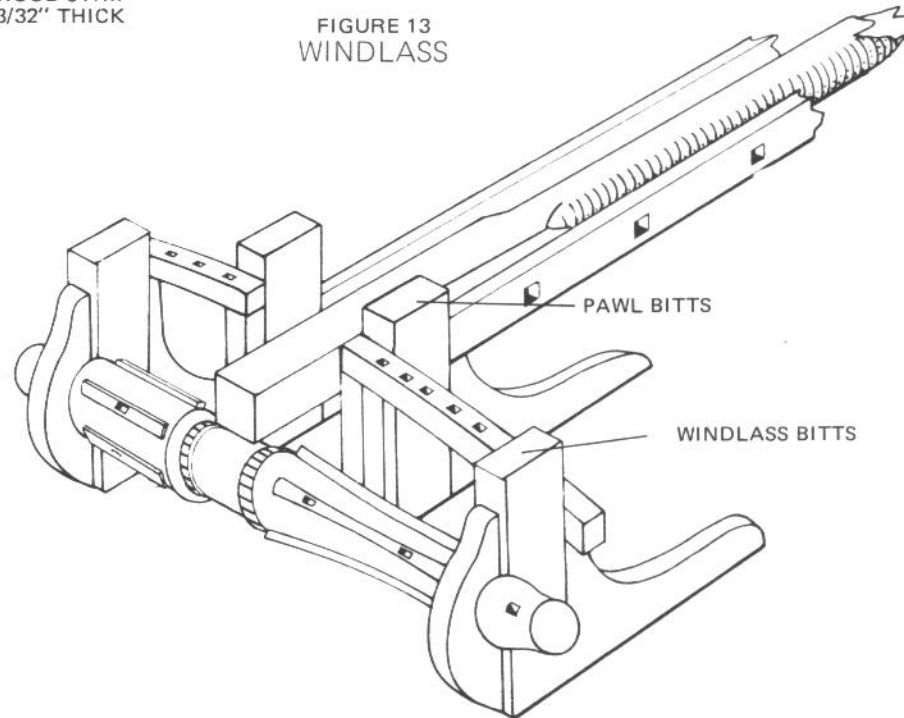


FIGURE 13  
WINDLASS



uity of the builder — without machinery, a simple jig will be needed to cut the grooves at equal distances apart. The resultant openings in the grating should not exceed 1/16" square (3" at full size, quite large enough). Note that gratings are surrounded by a frame, the whole being supported within low coamings.

Finally, with the exception of winch and windlass, which will be treated separately, there are the shot racks, of which there are eight, one to each gun, sited against the waterways, aft of the gun. The guns occupy gunports numbers 2, 4, 5 and 6 from the bow, on both sides, all remaining gunport lids when fitted, being closed. Make the racks from 1/8" by 3/32" timber, drilling a row of 1/16" holes in the broader face, as close together as can be managed without breaking them into each other. Paint them red, and cut off lengths of 1", pushing 1/16" diameter lead shot halfway into the holes, securing them with a touch of glue.

#### The windlass

This is a little unusual, and calls for rather more description, Figure 13. It consists of a pair of **pawl bitts**, heavy vertical timbers, supported on their forward sides by **knees**. The starboard bitt is placed on the centre line of the ship, and a thick beam connects its forward edge with the

stem. The port bitt is separated from its starboard counterpart by just over the width of the bowsprit heel (9/32"), and again, is connected by a beam, this time fixed to the bulwark, port side, both beams being at the same level, and parallel. The bowsprit runs in between these timbers and bitts, so the hole in the bow, port side should be in line with them. The beams have fid holes through them for securing the bowsprit. The windlass itself consists of two drums of unequal length, between which are sandwiched two rachets on either side of a roller. The outer ends of the windlass are carried by the **windlass bitts**, half the bearing of the drums being set into the bitts from behind, shaped timbers forming the remainder of the bearing. The complete windlass assembly is fixed behind the pawl bitts in such a way that the roller lies between the pawl bitts so that it can receive the heel of the bowsprit, and at the same time, two curved timbers forming the pin rail can be held between the after edge of the pawl bitts, and the forward edge of the windlass bitts, and be held in line athwartships. The vertical leg of the knees of the windlass bitts should be of such a length that the outer end of these timbers rests on them, and short square timbers are glued to the after edge of the pawl bitts, the inner ends of the pin rails resting on them, at a higher level than the other

ends. The **pawls** can be simulated with brass strip filed to a taper, and the ratchets at each end of the roller can be similarly made, filing the teeth in a strip of brass before wrapping it round. The windlass itself, which will be supplied partly finished in the kit, can be made from short lengths of dowel of suitable diameters mounted together, or 'turned' with the dowel held in a hand or power drill, and filing to shape. The shorter component is cylindrical, the longer has its diameter reduced towards the centre. Both have 1/16" square holes in them at 90 degrees to each other round the drum, for hand spikes. Two small warping drums at the extreme ends are best applied separately, each having handspike holes as before. The appearance of this fitting is improved by fitting **whelps**, or strips of timber about 3/32" wide, four to each drum and quartered round its circumference, through which the handspike holes are drilled. All the woodwork is painted red, the 'ironwork' painted matt black.

The fife rail, or small pin rail in front of the mast is curved, and supported in front by a turned stanchion — make it in hardwood, with 0.5mm holes for the pins. The stanchion can be 'turned' using a hand drill for a lathe. Aft of the mast, two vertical timbers, supported by knees on their forward sides, form the bearings for the winch, easily fabricated from brass wire and dowel for the drum — woodwork painted red, metalwork black.

Ringbolts are placed in the deck round the mast in the positions shown, into which hook the blocks of tackles coming down from aloft.

### The guns

Eight of these are required, which are supplied with the kit. For those making them from scratch, the drawing (Sheet 2) shows their construction. The diameter of the wheels (trucks) should be such that the gun barrel lies centrally in the port. Gun tackle is shown in the drawings, but the blocks will be pretty small (3/32"). They look a bit unrealistic if made larger, so for the sake of appearance, only the breeching rope need be shown. If this is done, it will be necessary to put eyebolts in the spirketting on each side of the gunports, to which the ends of the breeching rope pass through to form an eye-splice. The centre of the rope can have the strands separated and passed over the cascabel of the gun. The

**Top** The fittings on the after part of the deck comprise the galley chimney, companionway, grating, tiller and deck houses.

**Middle** The centre area of the deck showing the guns and their carriages, skylight, pumps and grating.

**Bottom** The most complicated fitting is undoubtedly the windlass, but close scrutiny of the photographs and attention to the description should make it straightforward.

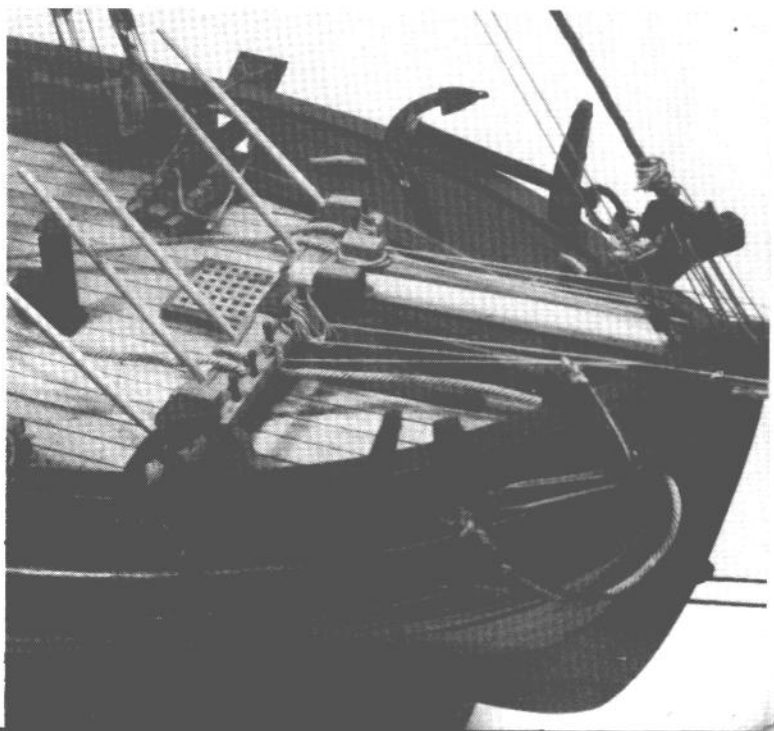
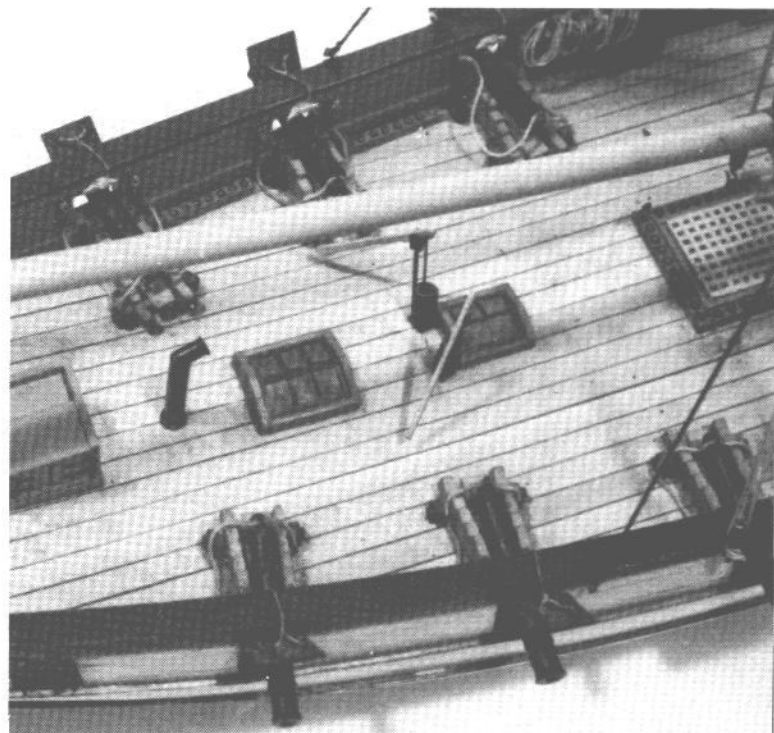
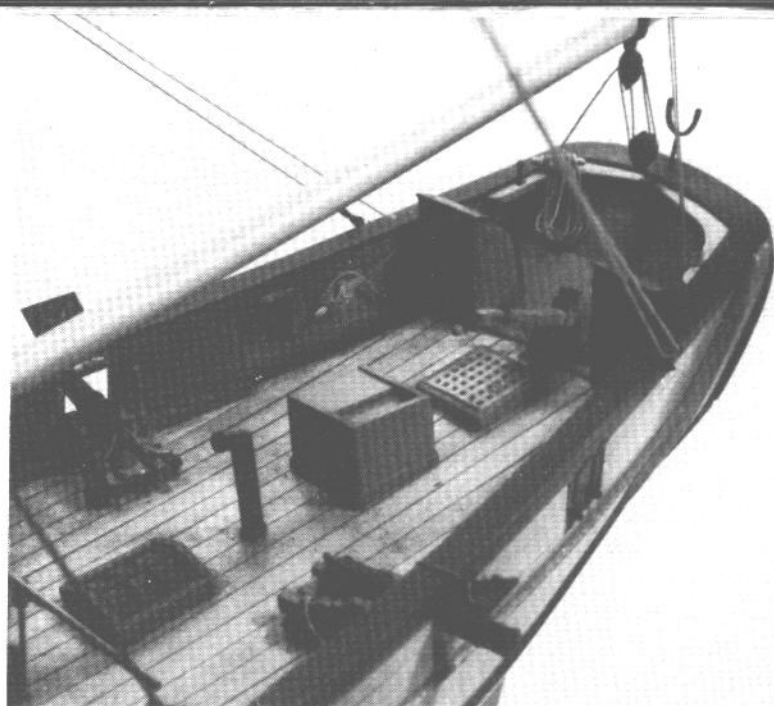
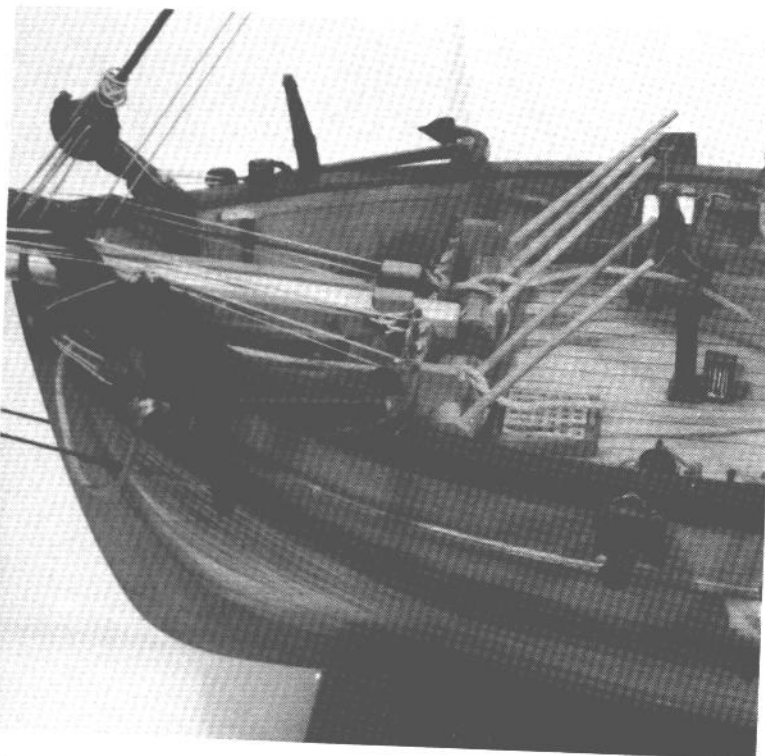
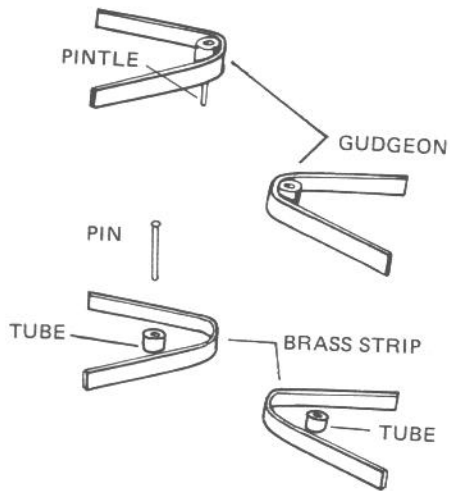


FIGURE 14  
RUDDER FITTINGS



breaching rope should be of such a length that it is taut when the muzzle of the gun barrel is just clear of the inner lining of the bulwarks. Guns, mounted on their carriages, can be shown in their run out position, a touch of glue to the trucks, and a pin through the after axle tree ensuring that they remain in place. The breaching rope should be of No 2 size (see list of recommended rope sizes, under **Rigging**). This completes the inboard fittings of the hull, but before we can commence the masts and spars, there is still some outboard work to do.

### The rudder

Cut this from hardwood to the outline in the sheer elevation, making sure that the rudder post projects well above deck level. Gudgeons and pintles are made of brass tube and strip as shown in the drawing, Figure 14, fitting the gudgeons first to the sternpost, ensuring that the holes for the pintles are in line by passing a stiff straight wire through them. The forward edge of the rudder is rounded to a semi-circle to allow it to be turned properly, the pintles being fitted as in the drawing, Figure 5, cutting away a small area of the edge under the pins to allow them to engage the gudgeon holes. Aim to get the rudder and sternpost as close as possible. When finally hung, the rudder should be able to move through about 90 degrees. If not already done, cut off any part of the sternpost that may be protruding above deck level, and with the rudder hung in position, mark off the mortice for the tiller. Remove the rudder, and glue tiny cheeks of hardwood each side of the rudder post and cut the mortice between them. When the rudder is finally hung, drill a hole through the sternpost into the rudder post, and push a pin into it, to prevent the rudder swinging and riding off its pintles (people always seem to want to see if the rudder works, so unless your model is destined for a glass case, this precaution is well worthwhile).

### Gunport lids

Cut these from 1mm ply in two layers, the outer fitting into the rebate made for it in the hull, the inner fitting inside the gunport lining. Paint the inside red, the outside black. Hinges are made of brass shim, with the hinge pin made of brass wire, Figure 16. Small eyebolts are fitted to the lower corners of the lids to take the bridle of the lanyard. Added security for the open lids may be achieved by using 'Araldite' on the hinge to fix it in place.

### Deadeyes on the channels

The deadeyes (supplied complete with chainplates in the kit) are 3/16" diameter, and as purchased will require stropping. Rings of brass or copper wire may be made, about 5/16" inside diameter, which are punched round the deadeye,

leaving a little loop below, into which the chainplate is hooked, Figure 17. These are made of brass strip, the upper ends thinned with a file and formed into a hook, the lower ends drilled to take a small pin. Their length is such that the hook comes just above the channel, and the fixing hole sets on the wale. The notches in the channels are made to fit the chainplates, into which these latter can now be fitted, and held in place with a narrow strip of wood pinned over them. The lower ends of the plates should be left loose for the time being, as they are splayed to the angle made by the shrouds, and this cannot be ascertained until the mast is up. Finally as far as deck fittings are concerned, there are the two anchors. These are made to the dimensions given, the shanks and arms made from 1/8" metal (brass, or aluminium, or even perspex) painted black, with the flukes cemented into place with 'Araldite'. The stock is of wood, with bands of metal shim or paper, the ring of wire, served over with black thread in half hitches.

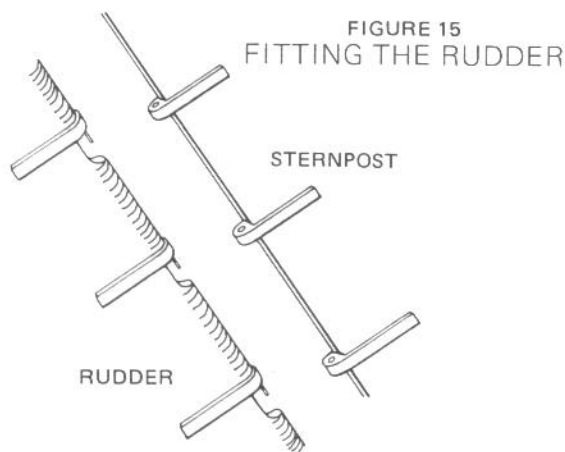
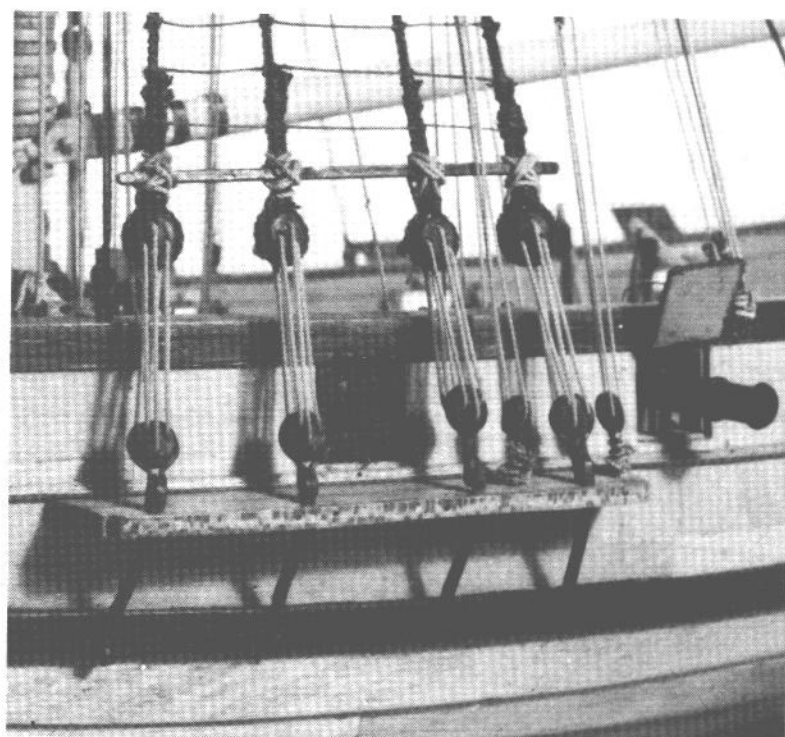
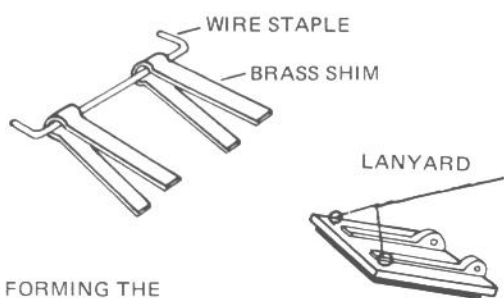


FIGURE 15  
FITTING THE RUDDER

FIGURE 16  
GUNPORT LIDS



FORMING THE  
HINGES

FIGURE 17  
DEADEYES

DEADEYE WITH  
STROP



CHAINPLATE

**Opposite, middle** The anchors and catting arrangements.

**Opposite, bottom** The guns are shown run out with the breeching ropes in place.

**Top** The rudder assembly. Notice that the bottom of the rudder is higher than the keel and parallel to the waterline; this prevented the rudder being damaged in the case of accidental grounding.

**Middle** The channels, chainplates and deadeyes; the setting up of the deadeyes with lanyards is quite clear.

# Fittings

Some readers building 'Speedy' from scratch may feel daunted by some of the fittings, particularly those involving metal-working. As most people are aware, a large range of commercial fittings are available either completely finished or 'knocked down' into simple kits. The following remarks on commercial fittings are offered as a rough guide to what is most suitable for 'Speedy'. In almost all cases ready made fittings are a compromise in either scale or material, and even the rank beginner is strongly urged to try his hand at a scratch built fitting before turning to the 'store-bought' article.

## Windlass

This is the most complicated fitting and the one in which the manufacturers are least helpful. However the Spanish firm Art Amb Fusta produces a complete windlass 19mm high (Catalogue number 6/C) which is too small, but might provide the basic parts to allow an ingenious rebuild.

## Anchors

There are many of these in everything from brass to plastic. Luckily Corel produce one which is almost exactly the right size (No A40). This is in blackened metal with a wooden stock and is supplied knocked down.

## Guns

It is impossible to find an accurate gun carriage on a small scale—all have parallel sides instead of following the taper of the barrel—so the model-maker will have to make his own. The barrels themselves are not much better, most being in far too shiny brass and all are too prominent in the reinforce rings. Art Amb Fusta produce blackened metal guns but all are far too small, so although they are brass, probably the best are Corel's C34, supplied with a knocked down carriage. These are the right length but a little too heavy and the carriage is useless for the above reason. For those who require working gunport hinges, Aeropiccola supply copper hinges (15AP) that are about the right size.

## Gratings

These always seem difficult to beginners and, of course there are many commercial examples, from Amati's plastic ones (No 4328) to the fine Art Amb Fusta boxwood assemblies. These come in 45 by 25, and 45 by 45 sizes (5/B, 5/C) and although the apertures are somewhat large, they are near enough to be passable.

## Pumps

This awkward little fitting can also be bought ready made, but unfortunately one size is too small (19mm, 9/B) and one too large (28mm, 9/C)—this is a matter for the modelmaker's conscience.

## Miscellaneous deck fittings

Of the absolutely essential fittings, belaying pins probably offer the greatest choice. These are supplied in a wide range of sizes (and, unfortunately, shapes), in both brass and wood. Many are too wide for the scale length and the use of brass gives the wrong impression to a wooden model—it looks more like an ornament than a scale model. Therefore wooden ones are recommended. Art Amb Fusta have three sizes of boxwood pins (8, 10 and 12mm—No 16), Corel do 9mm boxwood pins (C62) and Amati produce dark wood belaying pins in 10 and 14mm sizes.

To add life and atmosphere to the model, the builder may feel like adding other bits of equipment such as buckets or butts (barrels). Again Art Amb Fusta have two sizes of barrel (12 and 16mm, 10/B and 10/C) as have Corel (10mm and 15mm, B220 and B222). The former company also supplies boxwood buckets with rope handles (6.5 and 10mm, 7/B and 7/C).

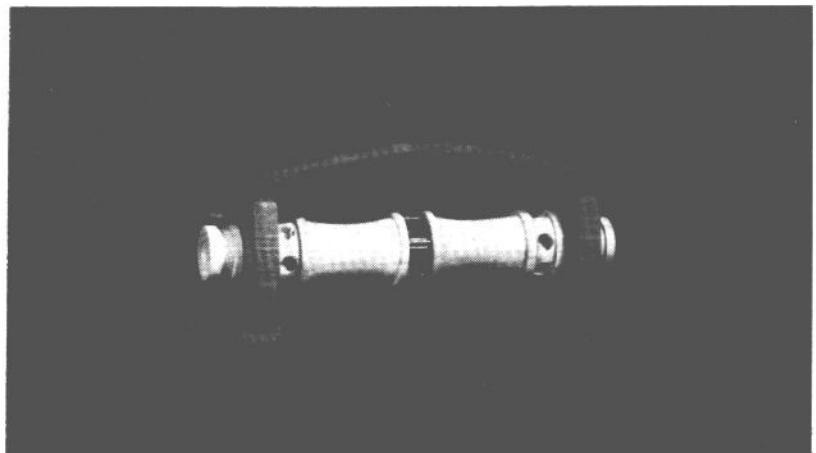
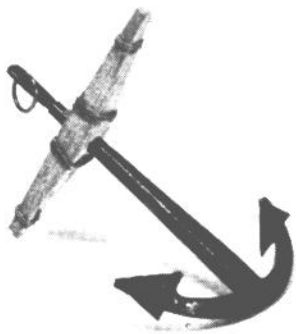
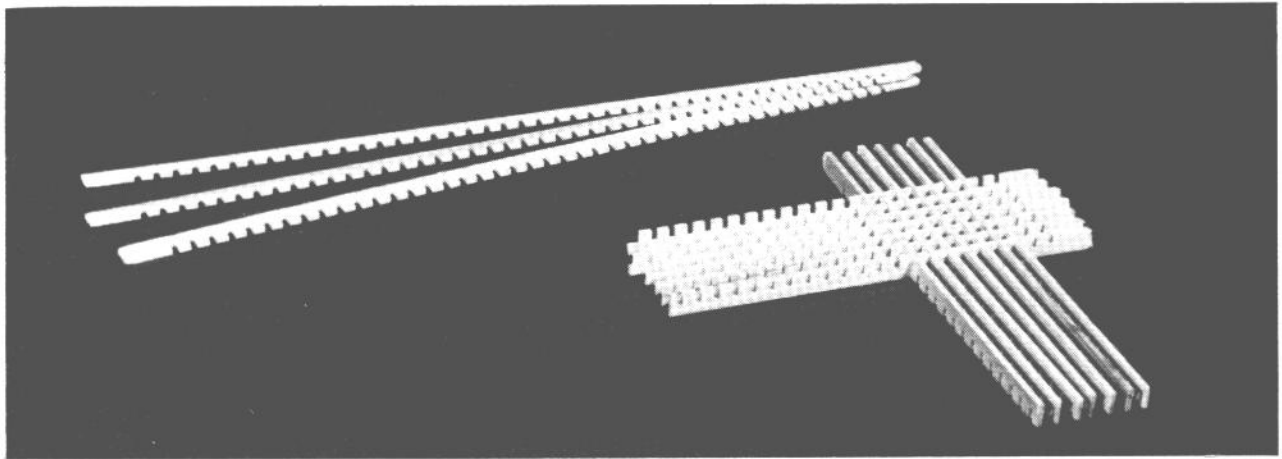
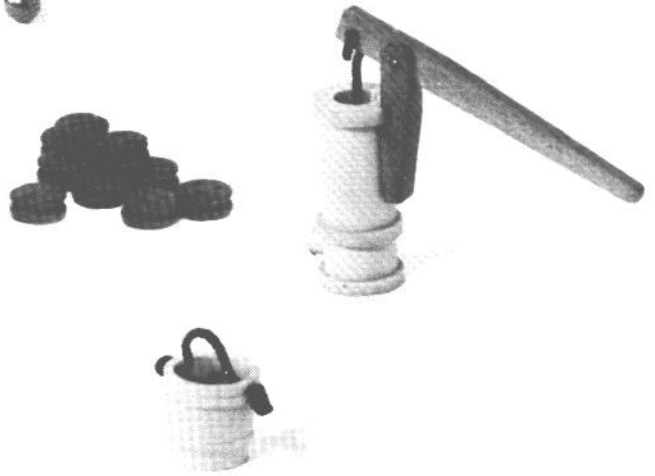
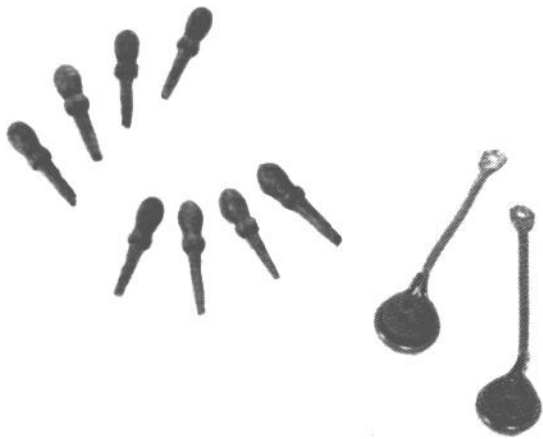
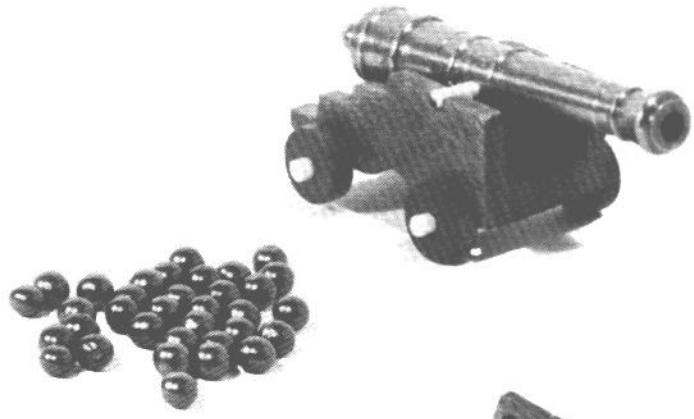
## Rudder fittings

'Speedy' is tiller steered which obviates the need for a wheel, but the hinges for the rudder may cause a problem. Here again commercial fittings can help, both Aeropiccola and Corel producing working braces, gudgeons and pintles, the latter being nicely blackened (Aeropiccola, 3 by 15mm and 7 by 15mm, 69AP and 70AP; Corel, 9mm, C62). C62)

## Blocks and deadeyes

Nobody need worry about having to produce a large number of blocks and deadeyes by the usual tedious repetitive processes because here again the manufacturers have provided a vast selection—too large to detail here. One problem which may arise is in the stropping of the deadeyes, but Aeropiccola's 7mm, pre-stropped deadeyes are almost tailor-made for the job (6AP). However, nobody seems to make a five-hole deadeye, which is hardly surprising.

This is only the briefest of surveys of what may be useful. Probably the best course of action for a novice modelmaker is to go to the local model shop and ask to see the fitting range. However, if any modeller has difficulty obtaining any of the articles mentioned above, they may be bought by mail order from Maritime Models (Greenwich) Ltd, 2 Nelson Road, London SE10.





## Masts and spars

The principal dimensions of these are given in the spar table (Sheet 1). The timber chosen for these items must be well seasoned, with a straight but inconspicuous grain. The classical wood of the old modelmakers was lancewood, or a substitute, degame, both of which are not easy to find. The writer used parana pine on the prototype model, which worked easily, looked well, and, in spite of warnings by the pundits, has not twisted or warped in some four years. A suitable wood is provided in the kit. In order to ensure the grain running clear through the spar, the stick should be split off from the plank with a knife, after which the spar is trimmed square, a little over the diameter given in the table, then

cut to length, plus a little for handling. The resulting square stick should now have a centre line drawn down the length on all four sides, and in the case of the yards, a centre line marked square across on all faces.

**Above** Although a relatively small vessel, the cutter was famous for carrying a huge spread of canvas. Because of their large size in relation to the hull, special care must be given to the masts and spars—no matter how good the hull, poorly finished spars will ruin the final appearance.

### The mast

Cut a stick 18" long by 13/32" square, and mark out as above. Square a line across all four faces, 3 1/4" from one end — this is the mast head, and after the remainder of the mast has been tapered, has to be reduced to 9/32" diameter. The first 5" of the other end of the mast can be left parallel, from this point it tapers to the mast head. This taper is not a straight line, but a very subtle curve, which should be reproduced if possible, as it adds to the appearance of the mast. There exists an elaborate set of rules for determining the diameter of the mast at different points along its length, but these are not really practical unless you are working with a micrometer — it is the final appearance that counts.

Mark the taper on two opposite sides, and with a small plane or spokeshave trim down to the lines. Re-mark the centre lines down the sides just worked, then the taper, and trim down these sides as before. You should now have a stick, square in section, tapering from 13/32" at the lower end to 9/32" at the other. Using the small plane again, plane off all the corners, rendering the cross section octagonal. Final rounding is carried out by wrapping glasspaper round the spar, rubbing along its length while rotating the stick in one hand. If a power drill is available, it may be held in the chuck and turned at speed, but care is needed for this, using medium or fine paper for the initial shaping, finishing by hand with fine glasspaper rubbed along the length of the stick. Should the drill be used, allow an extra inch or so of length at the lower end for the chuck to engage, and in any case, when doing the final sanding, avoid hollowing the middle of the spar.

Mark off again the length of the mast head, and reduce this to a uniform 9/32" diameter.

Immediately below this, make two little flats with a fine file on each side of the mast, for the cheeks, which support the trestletrees. These cheeks are 1/16" thick, and are glued and pinned in position. The space between them on the after side is filled in with a similar strip of wood,

and when dry, the edges are rounded off, to give the appearance of growing out of the mast. All this part constitutes the **hounds**.

Trestletrees are two timbers 1/8" deep by 1/16" wide lying on top of the cheeks in a fore and aft direction. They have notches cut into half their depth for the crosstrees and spreader of the topmast shrouds, the first two items projecting about 1/16" either side of the trestletrees, butting hard up against the fore and after faces of the mast head. 7/16" from the upper end of the masthead, drill a sheave hole for the **top rope** (qv) athwartships. Make five mast bands, either of metal or paper strip, positioning them on the masthead as in the drawing. Eyebolts from pins are pushed into the after side to take the blocks for the gaff peak halliards, and a small outrigger, made from strip metal with a hole at the outer end and a spike on the other, is inserted into the lower band.

### The mast cap

This is made of metal, just over 1/16" thick. A 1/4" diameter hole is drilled in it, and a 5/32" adjacent to it, 3/8" between centres, after which the outside is filed to shape, Figure 18. The top of the mast head can now be reduced in diameter for a short length to afford a firm fit for the smaller hole in the mast cap, which should be carefully orientated fore and aft, in line with the trestletrees. It may be Araldited into place, after which the hounds, mast head and fittings, trestletrees, crosstrees and cap can be painted matt black. The lower end of the mast now demands attention. A notch, some 1/4" deep and 3mm wide has to be cut into the foot so that it drops over the keel inside the hull. This notch must of course line up with the trestletrees above, and the length of the mast adjusted, so that when stepped, at **right angles** to the keel, the distance from deck to lower edge of the trestletrees is 11 1/2". Rake to the mast is given by the fact that the cutter sits lower at the stern than at the bows.

1 3/4" above the deck is the saddle which supports the boom. This is about 1/16" thick,

FIGURE 18  
MAST CAP

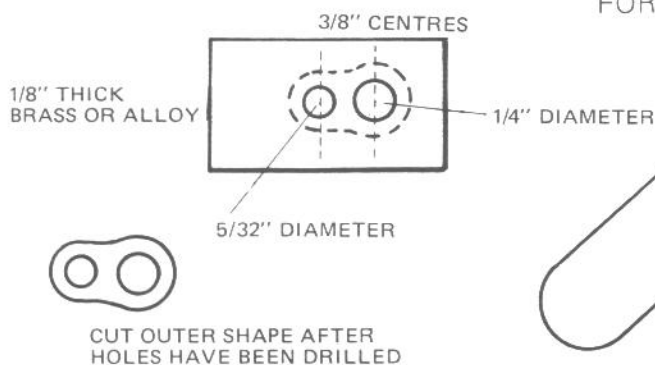


FIGURE 19  
SADDLE AND BRACKETS  
FOR BOOM

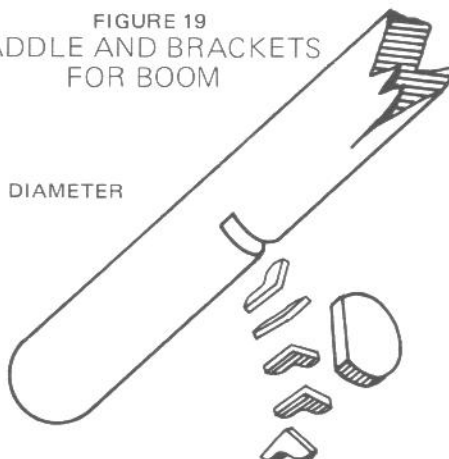


FIGURE 20  
THE JIB TRAVELLER





**Top** The fore side of the mast at the doubling; the spreader and crossjack yard are prominent.



**Middle** The after side of the mast showing the gaff and its fittings.

and fits into a notch cut half way into the mast at the required level, Figure 19 — it is supported by five shaped brackets. These may be glued into place, but before so doing, the mast must be varnished with two or three coats of clear varnish, rubbed down between coats, and the final coat being semi-matt. When dry, eighteen wooden hoops are threaded on to the mast from the lower end, after which the saddle and brackets are glued into place. The hoops are made as follows: From any convenient piece of clean softwood about 1 1/2" wide, with a sharp plane take off a thick shaving about 4" to 6" long. Find a suitable former in the shape of dowel rod or metal or plastic tube 1/2" in diameter and wrap a strip of thin paper round it, securing it at the ends with a touch of glue: that is it should be a loose fit on the tube. Coat **both sides** of the shaving with an impact glue ('Evostik') and allow to dry. Carefully wrap the shaving round the former, over the paper, making sure each turn is in firm contact with each other, producing a cylinder of three or four layers, depending on the thickness of the shaving. Clean up the outside with fine glasspaper, then, with a sharp craft knife, part off rings 1/16" thick. Give the edges a final rub on glasspaper laid flat on the table, remove any pieces of paper sticking to the inside with a roll of glasspaper, and finally, add a couple of coats of varnish.

#### The topmast

Make this from a square stick as before, the length being 13', 1/4" square at the heel for 2" after which it rounds off, tapering to 3/16" diameter 3" below the top. This upper 3" constitutes the mast head, and reduces to 1/8" diameter at the truck; it is painted black. On the after side of the mast, at the lower end of the mast head, a small chock of wood is made to form a stop for the collar of the topmast stay. Immediately below this a sheave hole is made in a fore and aft direction for the topsail yard tye to reeve through. At the heel of the mast, a sheave hole is made diagonally from starboard fore corner to port after corner for the top rope, and above this a transverse fid hole. The topmast should slide from below upwards, between the cheeks at the hounds, and through the hole in the cap at the mast head. This lower part up to the cap is painted black.

#### The bowsprit

This is 12 3/4" long, the first 3" left 9/32" square to form the heel, the remainder rounded to 1/4" diameter at the outer end. Half an inch of the end is reduced to 3/16" diameter to form a shoulder for the shrouds and so forth. It should be possible to insert the bowsprit heel first through the gammon iron and the opening in the bow, port side, when it should lie easily between

the two supporting timbers connected to the pawl bits. With the underside of the heel just clear of the roller on the windlass, mark the positions of the fid holes through the supporting timbers, remove the bowsprit and drill holes in the heel to correspond. It may be necessary to take a tiny chamfer off the corners of the heel to ease it through the gammon iron.

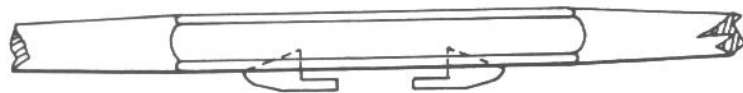
Fittings on the bowsprit consist of the traveller for the jib outhaul and the crane iron. The former is a loosely running ring on the spar, to which is attached a loop of wire forming a shackle for the outhaul, and a hook for the tack of the jib, Figure 20. It is painted black, and slipped over the bowsprit after it has been varnished. The crane iron is an iron band on the extreme end of the spar, with three eyes attached. It may be simulated as before, with metal or paper bands, the eyes inserted through it. The crane iron, together with the reduced end of the bowsprit is painted black.

### The yards

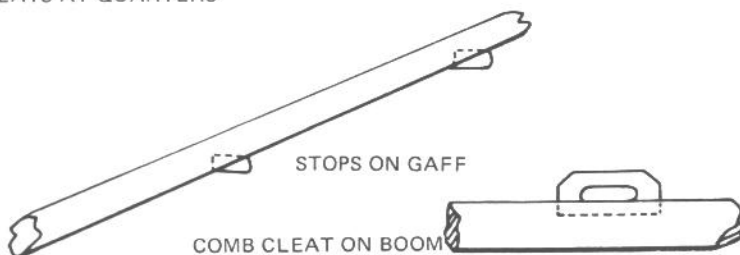
There are two yards, a squaresail, or **crossjack** (pronounced 'crojack') yard, and a topsail yard. Both are made from square sticks as before, and are tapered towards both ends. Prepare the sticks slightly over the finished dimensions, 1/4" by 13 3/4" the squaresail and 3/16" by 10" the topsail yard. Find the centre of the yard and divide each half into four equal parts. The taper starts from the second quarter in each half, these outer three quarters being round in cross section, the inner quarters being left octagonal on both yards. The squaresail yard reduces to 1/6" at the yardarms, and the topsail yard to 1/12", and the extreme ends are further reduced to form a shoulder for the eyes of pendants and so on, 1/4" long in the first instance, and 3/16" in the second.

A number of cleats and stops are required on the masts and yards, and these are best made of hardwood just under 1/16" thick, and set into narrow channels cut in the spar, Figure 21. Any outer shaping may be done with a fine file after the glue has hardened.

FIGURE 21  
CLEATS



CLEATS AT QUARTERS



STOPS ON GAFF

COMB CLEAT ON BOOM

The **squaresail yard** has two horn cleats fitted on its fore side — spaced as in the Masts and Spars Plan. At the outer ends, two sheaves lie vertically in each, this means that four 0.5mm holes need to be drilled in line, vertically through each end. Each pair is joined by a narrow channel to form the 'sheave', the outer one for the topsail sheet, the inner for the lift.

The **topsail yard** has an eyebolt on its topside at the centre for the hook of the tye. Other fittings on these yards will be described under **Rigging**.

### The main boom and gaff

The boom is 14 1/2" long, 5/16" in diameter, reducing to 1/4" at the outer end, where it is enclosed in a metal or paper band, with an eyebolt set in the upper side for the topping lift block. A comb cleat is also attached to the upper side of the boom, positioned so that it lies over the taffrail when the spar is in place on the saddle. This confines the strop of the sheet block. The jaws are made as in the sketch, Figure 22, the blocks being glued into place and shaped up afterwards, the jaws being rounded and the legs fairing into the diameter of the main spar. Four black bands encircle the scarf, with an eye set in the upper side for the tack of the sail. Drill a hole in each of the jaws for the parrel rope, and paint the outer 3" black. The gaff is 10" long, 1/4" diameter, reducing to 1/6" at the end. Jaws are made as before, but the part embracing the mast is angled so that the spar lies 40 to 45 degrees to the mast. Bands and an eyebolt are fitted as for the boom, the latter for the throat halliard block. Two stops are made for the peak halliard blocks and fitted on the under side of the gaff, the outer 1" of which is painted black, and an eyebolt inserted in the end to take the block of the ensign or signal halliards.

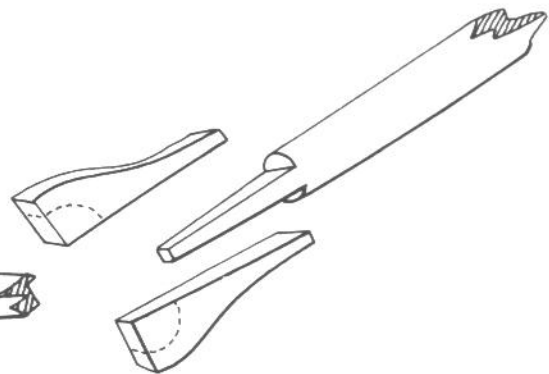


FIGURE 22  
JAWS FOR BOOM AND GAFF

# Rigging

With the spars completed, we can turn our attention to the rigging. Rope and blocks in different sizes will be required, but for the model, these variants have been reduced to a minimum.

## Rope

This should be obtained in five sizes, within the limits shown in the table. The first three are used for the running rigging, and may be either very light in colour—natural linen or hemp—or a darker greyish brown. This rope is laid up **right handed** (hawser laid), which means that if you lay a piece of rope in the palm of the hand, stretching away from you, the turns should twist away and to the right. This is the most usual twist supplied. The last two sizes, used for the standing rigging, are black, and, to be correct, **left handed** (cable laid), in which form it will be supplied with the kit. It is not difficult to make up rope to one's own requirements, from Terylene sewing thread—the reader is referred to the references for methods. Should cable laid rope not be obtainable in the sizes required, it is not entirely unforgivable to use right handed rope—some of our finest museum models are so rigged.

The rope sizes are as follows, and will be referred to by number in the text.

**No 1:** diameter 0.012"—0.016" for 1"—2" rope."

**No 2:** diameter 0.018"—0.023" for 2½"—3½" rope."

**No 3:** diameter 0.027"—0.035" for 4"—5" rope."

The above for the **running rigging** (all right handed)

**No 4:** diameter 0.041"—0.050" for 6—7" rope.

**No 5:** diameter 0.070"—0.075" for 10"—11" rope.

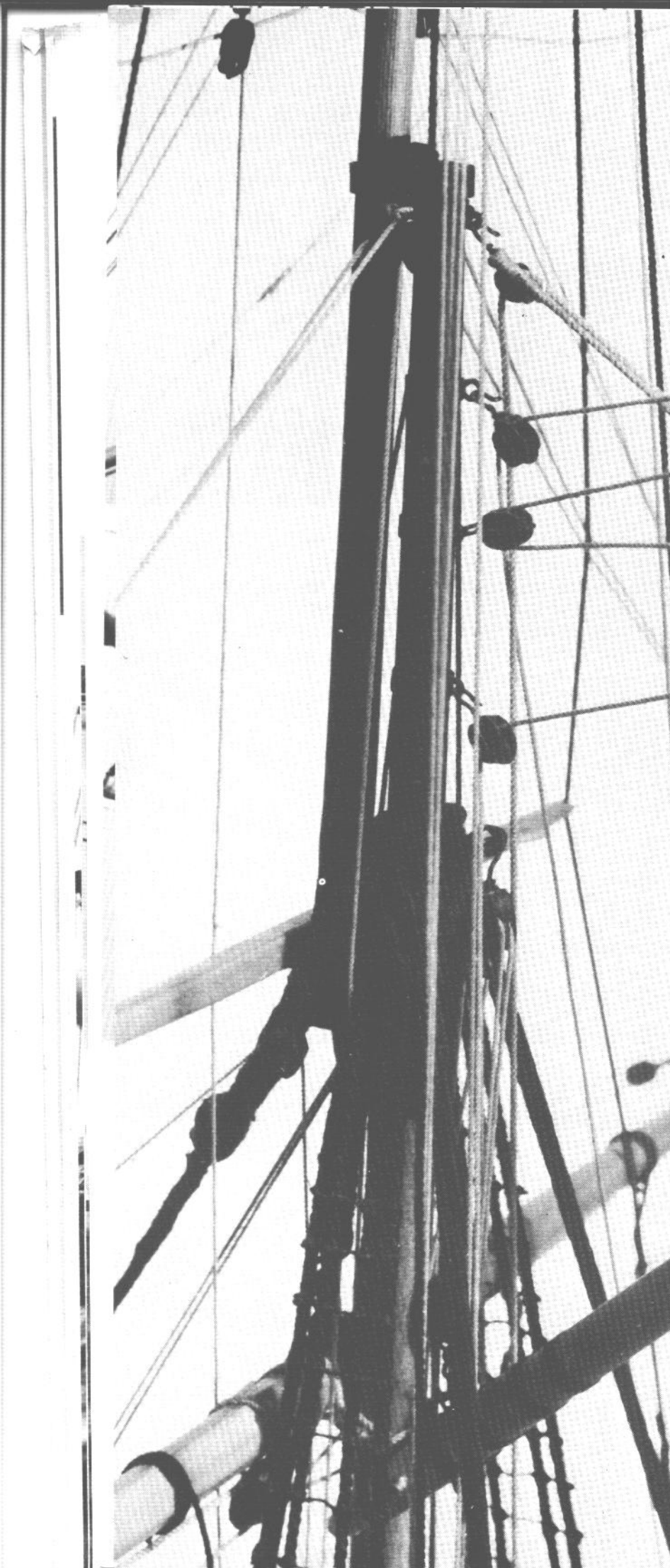
The above for the **standing rigging** (all left handed).

Rope falling anywhere within the limits shown in each group will be satisfactory. Note that in Britain the rope sizes given on the right of the table represent the **circumference** of the rope.

## Blocks

Blocks come as single (S), double (D) and treble (T) sheaved, and various lengths, together with a few specially shaped ones. For the model, this resolves itself into, for the most part, three different lengths, which will be supplied in the kit, or may be purchased ready made by those working from scratch. For those who wish to

**Left** As with the fittings, the complexities of the rigging may seem daunting to the beginner, but the whole 'setting up' process is quite logical and if the full size practice is followed there should be no problems.



make their own, the proportions are given in the drawing, Figure 23.

The following numbers and sizes will be required.

The size refers to the length of the block.

**Single sheaves:** 36 of 1/8"; 15 of 3/16"; 2 of 1/4".

**Double sheaves:** 4 of 3/16"; 4 of 1/4".

**Treble sheaves:** 1 of 5/16".

**Long-tackle blocks:** 2 of 7/16".

**Deadeyes:** 16 of 3/16" diameter. 1 of 3/8" diameter with five holes, for the fore stay.

### Thimbles

A number of these are required, and they may be made from small glass beads obtainable from craft shops, black or very dark brown and about 0.09" in diameter. In use, they are turned into an eye formed in the end of a rope and secured there with a touch of glue. They sometimes have a rope running through them, or receive the hook of a block. These beads are also used for the parrels (qv). A number of eye splices will be needed. These are best simulated by separating the strands at the end of the rope, forming the eye, and wrapping the separated strands round the standing end of the rope with a touch of glue, putting a short whipping of black thread on afterwards, again using a touch of glue between turns. All knots, splices, hitches, servings and so on, must be finished off with a spot of glue before cutting off to length. Use a water soluble glue ('Seccotine' or similar) as it is sometimes necessary to untie something, either to correct an error, or further adjust a rope length, and a little water applied with a brush will make it easy, and unnecessary to cut away any rigging — not always possible without wholesale replacement.

### Bowsprit

Commence the rigging by shipping the bowsprit, setting the heel on the roller at the windlass, and fidding it through the support timbers with a wooden or metal spike. Make sure the jib traveller is on before stepping. The bobstay, of No 3 rope

stained black, starts as an eye resting on shoulder at end of bowsprit, passes through 1/8" S block hooked to an eyebolt starboard side of the stem near the waterline, up through a fairlead and belayed to the pawl bitt.

**Shrouds** are of No 3 rope stained black. Outer end has thimble hooked to eyes in crane iron. Inner end has thimble, and is connected to eyebolt on wale each side by short lanyard (No 1 rope). Before setting up shrouds seize two thimbles close together in a bight (No 1 rope) with throat seizings, and slip the eye over the end of the bowsprit to rest on the eye of the bobstay, Figure 24.

### Lower mast

Step the lower mast, using temporary lines to hold it vertical until the stays are in place. It is rigged in the following order:

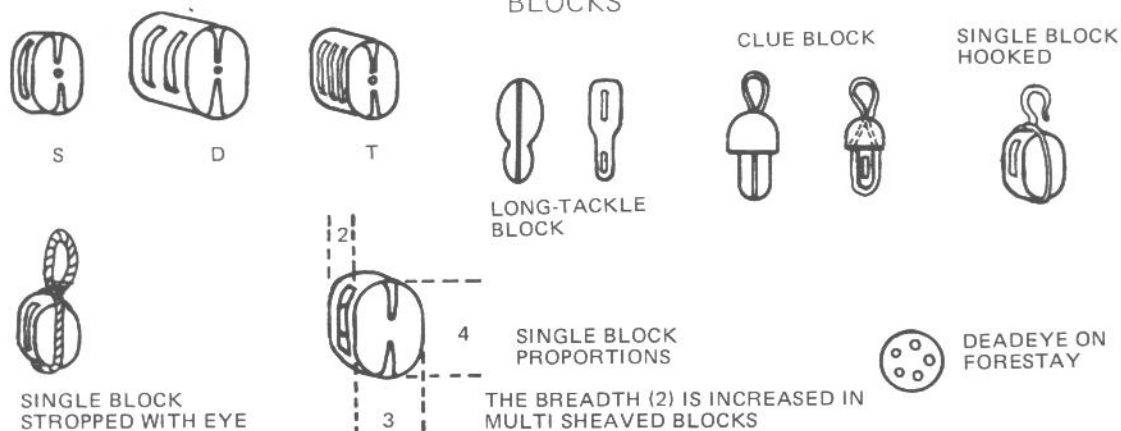
1. Pendants of tackles; two required; No 3 rope, stained black. Eye formed in each to go over masthead, with thimble seized in other end, to come about 1 1/4" below hounds. Served all over with black thread.

2. Shrouds; four pairs No 4 rope. Take a length of rope twice the length from hounds to below channel, double it to form an eye which will be a close fit over the masthead, and serve the eye all over. The two foremost shrouds are served for the upper 3" of their length. The shrouds go on in pairs (Plan Sheet 2).

### Backstay pendants

Make these as follows. Take 17" of No 3 rope, stained black, and splice the ends together to form a loop. Serve **all over** with black thread, and then, with a throat seizing, form an eye to go over the mast head. Seize a 1/4" S block in the bight at the lower end. The runner is No 3 rope hooked via a thimble to the eyebolt in the side ahead of the fifth gunport, passing up through the block on the pendant, ending by strapping round a **long-tackle** block 7/16" long overall, Figure 23. The falls (No 2 rope) commence by

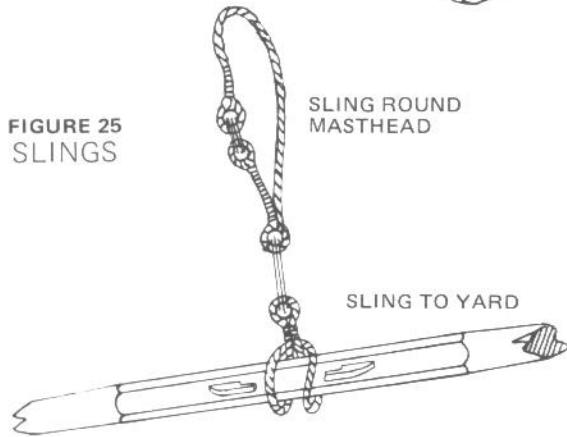
FIGURE 23  
BLOCKS



**FIGURE 24**  
THIMBLES FOR BOWLINES ON BOWSPRIT

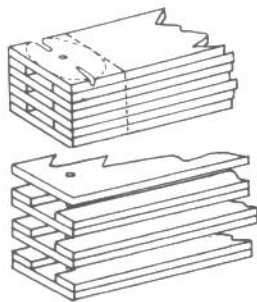


**FIGURE 25**  
SLINGS



SLING ROUND  
MASTHEAD

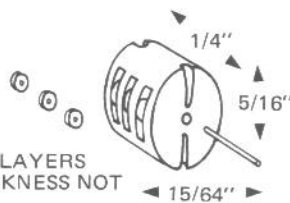
SLING TO YARD



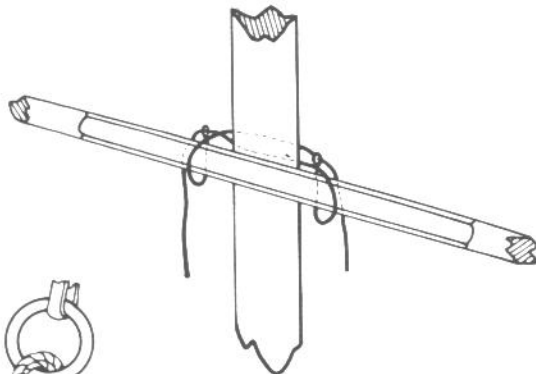
**FIGURE 26**  
TRIPLE BLOCK

PIN SHEAVES  
MAY OR MAY NOT  
BE USED

TRIPLE BLOCK - BUILT UP IN LAYERS  
WITH VENEERS - TOTAL THICKNESS NOT  
TO EXCEED 1/4"



**FIGURE 27**  
TRUSS TO YARD - CLEATS NOT SHOWN  
(DIAGRAMMATIC)



**FIGURE 28**  
FISHERMAN'S BEND



securing to a 3/16" S block hooked to the eye-bolt behind the fourth gunport, up through lower sheave of the long-tackle block, through the single block, then the upper long-tackle sheave, securing round the lower block. Do not finalise setting up the backstays until the shrouds and fore stay have been set up.

### The sling to the yard

The squaresail yard is slung more or less permanently, so no tackles (jeers) are required. Instead, a sling goes round the mast head (No 3 rope, black, served all over), the lower eye some 3/4" below the hounds, Figure 25.

### The fore stay

The heaviest rope (No 5) with the cable. Set up as follows. Make an eye-splice at one end to the diameter of the rope. Serve the eye, and down the stay for 3 1/2", where a **mouse** is worked. This is a swelling formed on the stay to prevent the collar from closing up on the mast, and is made by cutting narrow strips of gummed paper (1/16") and binding it round the stay to form an enlargement. This is loosely served over, then weaving thread in and out of the turns, rather like darning. Done neatly, a basketwork effect is obtained. The remainder of the stay should be **wormed**, that is, a thinner rope should be laid in the spirals formed by the strands of the stay. This is a bit tricky, and may be left out, but when done, gives the stay a very authentic look.

### Setting up

Pass the end of the stay through the eye at the other end, and pull it through until stopped by the mouse. Place the collar so formed over the mast head on top of the sling for the yard, and at this stage, see that all the rigging round the mast head is seated well down. A deadeye, 3/8" diameter with five holes in it is turned into the lower end, the length of the stay adjusted so that the deadeye comes some 1" from the stem. This deadeye, not supplied in the kit, can be made from a short length of 3/8" dowel, or plastic rod if available. Square one end, and drill five equally spaced holes, 0.5mm diameter about 1/16" in from the edge. With a small round file, make a groove round the periphery for the stay and part off about 1/8" thick, rounding off both faces, and staining black or dark brown. This can be 'turned' in the chuck of a power or hand drill if available.

The stay is set up 'cutter stay fashion', which means that the end of the stay is taken round the deadeye from the front, crosses over the standing end, and doubles back round it, and once more round the deadeye, on top of the turn already in the groove (Plan Sheet 1), to which it is secured by four seizings. Four 0.5mm

holes are drilled in the top of the stem, and a lanyard of No 2 rope rove through them and those in the deadeye, commencing with a stopper knot in the aftermost hole in the deadeye. Adjust the stay and backstays by the tackle falls and lanyard so that the mast is held vertical to the keel.

### The shrouds

Deadeyes are set in the lower end of the shrouds so that they come just above the rail. Where left handed rope is used for the shrouds, they are set up as follows:

Seen from inboard, the end of each shroud passes round the **left** side of the deadeye, crosses the standing end on the inboard side and passes up the left hand side of the shroud for about one inch. A throat seizing and two round seizings secure the deadeye in place, with the single hole at the top. If right handed rope is used for the shrouds, then the deadeye is turned in right handed. Make sure that all the deadeyes are parallel to those on the channels — a simple jig of bent wire helps to keep them the correct distance apart while the lanyards are adjusted. Final adjustments to the length of the lanyards on the stay, backstays and shrouds can now be made, and the ends secured with a touch of glue, and snipped off close.

### Ratlines

Best made of black button thread, they are secured across the shrouds with clove-hitches, securing those on the outer shrouds with glue before cutting off. They should be spaced  $5/16''$  apart, and as a guide, cut a piece of white card about  $2\ 1/2''$  wide, and long enough to wedge behind the shrouds from the channels to the hounds. Draw parallel lines across this card,  $5/16''$  apart. Immediately above the upper deadeyes are lashed short spars of wood, about  $1/16''$  square, painted black — they could be of brass strip. This complete the standing rigging of the lower mast.

### Rigging the topmast

Step the topmast from below, between the spreader for the topmast shrouds and the cross-tree, up through the upper cap. Use a short metal pin for the fid to prevent it slipping down. The **top rope** (No 2 rope, black) is seized to the cap, passes down the starboard side to the diagonal sheave hole in the heel, up the port side and through the sheave hole upper end of head of lower mast, down to a  $1/4''$  D block  $2\ 1/2''$  above the deck. This block forms a purchase with a  $3/16''$  S block hooked to an eyebolt in the deck, starboard side of the mast, the fall belayed to the fife rail. **NB:** Unless otherwise stated, all falls of tackles are No 1 rope.

### Topmast shrouds

No 3 rope, black. Fitted as main shrouds, bedding down to the stop on the topmast. Between each pair, immediately under the eye at the top, a thimble is seized for the topsail yard lifts. The shrouds are  $14''$  long, ending in thimbles turned into the ends. Make four long pendants of same rope as shrouds,  $5\ 1/2''$  long, with a hook at the upper end, and a  $1/8''$  S block at the other. The hooks engage the thimbles at the lower end of the shrouds, the blocks form a purchase with  $1/8''$  S blocks hooked to eyebolts in the channels, thus — port side — outer shroud passes over notch in end of spreader, and block hooks to eye on after end of channel. Inner shroud passes over thumb cleat on after side of spreader, block hooks to eyebolt between after deadeyes on channel. Starboard side — as port side, except that the blocks are hooked to eyes between the after two deadeyes.

### Topmast stay

No 3 rope, black. Starts as an eye fitted over the mast head and passes through the middle sheave of a  $5/16''$  **treble** block hooked to the upper eyebolt on the crane iron. This block, not supplied in the kit, can be built up as shown in Figure 26. The stay terminates  $1''$  short of the stem in a thimble, which lashes to the eyebolt in the stem near the rail with a lanyard. Make two pendants of No 3 rope, black,  $4''$  long, with a  $3/16''$  block (S) seized in one end, a thimble in the other, Hook these to the tackle pendants at the main mast head. Take about  $18''$  of No 2 rope, double it, and seize a thimble in the bight. Hook the thimble to the eyebolt on the rail by the forward deadeye. One end of this rope reeves through the block in the pendant, and halfway between that block and the deck has a  $1/8''$  S block seized to it. The other end of the rope passes through this block and belays to the second pin on the pin rail.

### The squaresail yard

Rig this as shown in the spar drawing, with footropes and stirrups of No 2 rope. The detail drawing on Sheet 2 shows thimbles — these can look clumsy if beads are used, so it is better to make a tiny 'eye-splice' for the foot ropes. Brace pendants of No 3 rope.

### Sling for the yard

Splice the ends of a  $2\ 1/2''$  length of No 2 rope together to form a circle, and serve it all over. Close up one end to form an eye with a throat seizing, then pass the bight at the other end round the front of the yard in the middle, then over the eye. This eye is then lashed to the eye of the sling round the mast head with a lanyard, Figure 25.

The yard is held to the mast with a **truss** instead

of a parrel. Use two lengths of No 3 rope, 12" long, and make a small eye in the end of each to the diameter of the rope. Pass the starboard one over the top of the yard, inside the cleats, and bring the other end up behind the yard and secure it with a throat-seizing close to the eye. The port side is similarly fitted, but the other way round, then the ends of the pendants are passed behind the mast and through the eye of the truss pendant on the opposite side. They then go down to the deck each side of the mast, through a 1/8" block hooked to an eyebolt, and belay on the fife rail, Figure 27. Alternatively, the pendants can have a 3/16" D block seized in the lower end about 2 1/2" from the deck, which connect by the falls to the single block on the deck as before.

#### Lifts

No 2 rope. Seize two 1/8" S blocks at each end of a short rope span – about 3/4" apart. Lay the span on top of the upper cap, and secure it with a seizing under the cap, above the blocks. The lifts start with a belay on the span, lead down, round and up through the inner sheave hole at the end of the yard, through the block on the span and down to the fife rail.

#### Fore braces

No 2 rope. Standing end secures to crane iron, leads up through the pendant block, down through outer sheave hole in treble block, inboard through fairlead at stem and belays to the inner pin on the windlass pin rail.

#### After braces

No 2 rope. Standing end secures to eyebolt in side abaft the after gunport, leads up through pendant block, down through sheave hole in side behind the standing end and belays to cleat inboard.

#### The topsail yard

Rig as in the spar drawing with footropes only and no stirrups. Secure to the yard with a parrel – a single row of small beads, black or dark brown, encircling the mast behind and allowing the yard to slide freely up and down.

#### Topsail yard lifts

No 2 rope, start as eyes over the yardarm, lead up through the thimbles set between the topmast shrouds and down to pin rail, second from aft.

#### Topsail yard tye

No 2 rope. Starts as an eye hooked to the eyebolt in top of the yard, leads up the fore side of the mast, through the sheave hole at the top and down to a 3/16" D block 4 1/2" above the deck. This block connects by its falls to a 3/16"

S block hooked to an eyebolt in the deck abaft the winch, port side, the standing end of the falls on the lower block, then belays to the pin rail, fourth pin from aft, port side.

#### Cluelines

No 1 rope. Secure to yard just outside the clue-line block, go down to the clue block, up through the clue-line block and down to the fife rail. The clue block (1/8" S) is stropped with an eye (becket) at one end. As there are no sails on the model, there is no place for this block, so the topsail sheet (No 2 rope) is rove through the becket, and prevented from slipping through with a figure-of-eight knot. The sheet is taken from above downwards through the sheave hole in the squaresail yard, pulling the clue block close to the yardarm, then leads along the yard, through the quarter (sheet) block (1/4" S) and down to the fife rail, outside the uprights.

#### Bowlines

No 1 rope. Bridles are fitted each side of the yard as in the mast and spars drawing. The bowlines start as a running eye on the bridle and lead down through the thimbles at the outer end of the bowsprit, then inboard through the fairleads to the windlass pin rail.

#### Braces

Single: start as an eye slipped over the yardarm, lead down to 3/16" S block hooked each side of the crane iron, thence inboard over the rail to the windlass pin rail. Braces are No 2 rope. The topsail yard should be hoisted to 3/4" above the upper cap.

#### Foresail halliards

No 2 rope. Secure to collar of the stay, reeve through 1/8" S block hooked to eyebolt on after side of the stem above the bowsprit support timber, up through 1/8" S block lashed under the collar of the stay, and leads down to the fife rail.

#### Jib halliards

No 2 rope. Standing end hooks to eyebolt in deck, starboard side of the mast, passes up through 3/16" S block lashed under collar of the stay, starboard, down to 1/8" S block hooked to the traveller on the bowsprit, up through another 3/16" S block on the collar of the stay, port side, down to 3/16" D block 6" above the deck. This connects by its falls to a 1/8" S block hooked to an eyebolt in the deck, in front of the fife rail, port side. The length of the halliard is adjusted so that the traveller lies about half way along the bowsprit.

#### Jib tack

No 2 rope. Clinches to the loop on the traveller, Figure 20, then through the sheave hole in the

end of the bowsprit, passes inboard through the inner sheave hole in the fairlead, port side and belays to the pawl bitt.

### The gaff

Make two small collars of rope (No 1) served all over, of such a size that they can be put over the gaff to rest on the stops, where they are seized close round the spar, leaving an eye uppermost. Hook a 1/8" S block into each of these. Parrel the gaff to the mast with a single row of beads as the topsail yard, below the truss on the square-sail yard, taking care not to catch up the running rigging in front of the mast.

### Throat halliards

No 3 rope. Strop a 1/4" D block with a hook at the upper end and a small eye at the lower. The halliard secures to this eye, and the block is hooked to the outrigger abaft the mast head. The rope then passes down to another 1/4" D block hooked to the eyebolt at the throat of the gaff. All the sheaves are taken up and the leading end secures to the cross timber low down on the winch. The **throat downhauler** (No 2 rope) secures to the eye on the underside of the gaff, at the throat, and secures as the throat halliard.

### Peak halliards

No 3 rope. Hook three 1/8" S blocks to the eyebolts abaft the mast head, above the outrigger. The standing end secures round the after dead-eye on the channel, port side, passes up through the lower of the blocks on the mast, out to the inner block on the gaff, back to the next higher block on the mast, to the outer one on the gaff, finally through the topmost of the three blocks and down the starboard side, ending in a 1/16" D block about 1 1/2" above the rail. This block connects by its falls to a 1/8" S block hooked to the eyebolt on the channel, behind the after deadeye, the end leading inboard over the rail and belaying to the aftermost pin on the pin rail. The peak halliard should be adjusted so that the gaff lies between 40° and 45° to the mast.

### The boom

Make a strop through the comb cleat at the outer end of the boom, served all over, and large enough to contain both the diameter of the boom at that point, and a 1/4" D block, with a seizing. Parrel the jaws to the mast as the gaff, the jaws resting on the saddle, and under the mast hoops.

### Topping lift

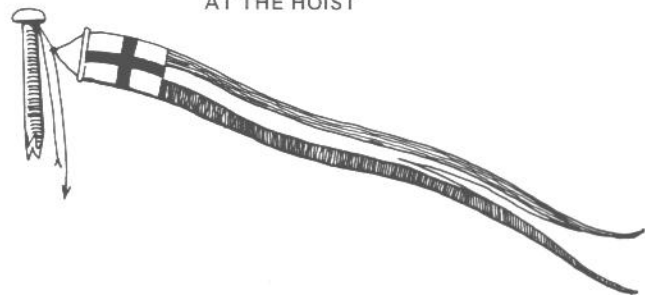
No 3 rope. Secures to a 1/8" S block hooked to the uppermost eyebolt on the mast head, passes down to a similar block hooked to the eyebolt on the end of the boom, up through the upper block, down the starboard side of the mast, ending in a 3/16" D block some 2" above the deck.

FIGURE 29  
FLAGS



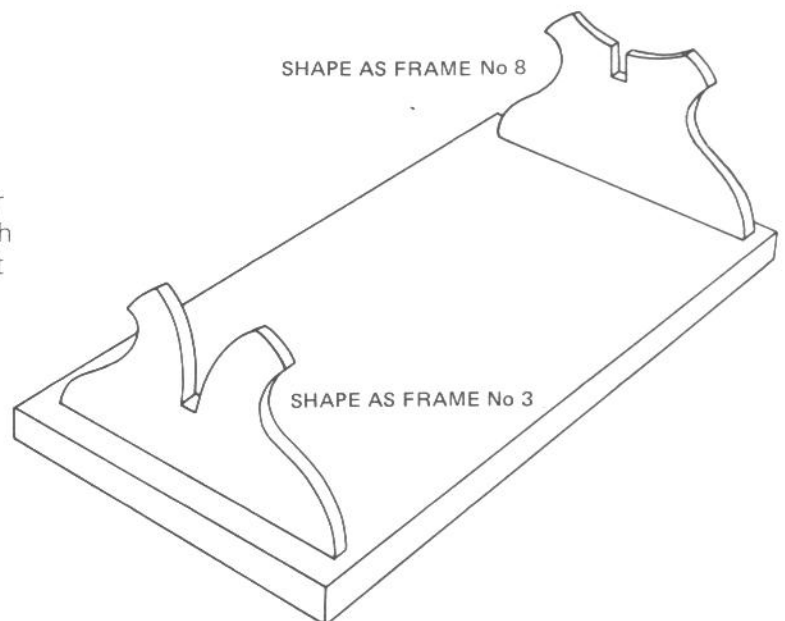
EYE ON HALLIARD THROUGH WHICH TOGGLE IS ROVE. DOWN HAUL SECURES TO TACK ROPE WITH A SHEET BEND

WHITE ENSIGN 2" x 1"  
(MODERN PROPORTIONS)



COMMON PENNANT: 1/2" IN THE HOIST 5" LONG. RED, WHITE AND BLUE FLY, SWALLOW TAILED. ST GEORGE'S CROSS AT THE HOIST

FIGURE 30  
SUGGESTED DESIGN FOR STAND  
SUPPORTS 7 3/4" APART,  
5/16" THICK



SHAPE AS FRAME No 8

SHAPE AS FRAME No 3

The falls connect with a similar block hooked to an eyebolt in the deck, behind the winch, starboard side.

### Sheets

No 3 rope. Secures to the strop at the lower end of the block on the boom, leads through a similar double block hooked to the eye between the lodging knees at the stern. All the sheaves are taken up, and the end belays to the cleat on the starboard knee. Adjust the sheets so that when taut, the boom lies at an upward angle to the horizontal, and adjust the topping lift to hold it there.

The rigging is now completed. With spare rope ends, form small coils of rope round a couple of panel pins driven into a board, 1/2" apart. Place these over the belaying pins to which ropes are attached, using a little glue to hold them in a naturally hanging position. There remains only the anchors and flags.

### Anchors

Supplied with the kit, or made as described earlier. They are shown lashed to an eyebolt on the rail, both sides, level with the windlass. The cable (No 5 rope) — as the stay but left natural colour — secures to the ring of the anchor with a fisherman's bend, Figure 28. It should be wormed before attaching to the anchor ring, the end then passes under the bowsprit shrouds and through the hawse hole. It leads over the windlass with a single turn and thence to the forward corner of the grating behind the mast, pushing the end through one of the openings as if being led down to the 'cable locker'. The anchor arms should lie across the rail, where they are lashed, and the stock lies vertically outside the rail. A 3/16" D block connects with the sheaves in the catheads, the standing end of the falls securing round the cathead arm, the leading end belaying on the cleat on the cathead. The block hooks to the anchor ring.

### Flags

There are many ways of making these, all unsatisfactory, as there is no material that will hang naturally and not stiffen up with the application of paint. Thin Japanese silk, as used for model aircraft can be used, stretching the material over a drawing of the flag made on white card, and painting with thinned out oil paints or fabric printing dyes. Very successful ones, from the point of view of appearances can be made from aluminium kitchen foil, gently rubbed with 'flour' paper to provide a tooth, and painted with Acrylic paint, which combines great adhesive qualities with flexibility. Flags made in this way can be gently shaped between the thumb and fingers to give natural flowing curves. The two shown on the model are the modern

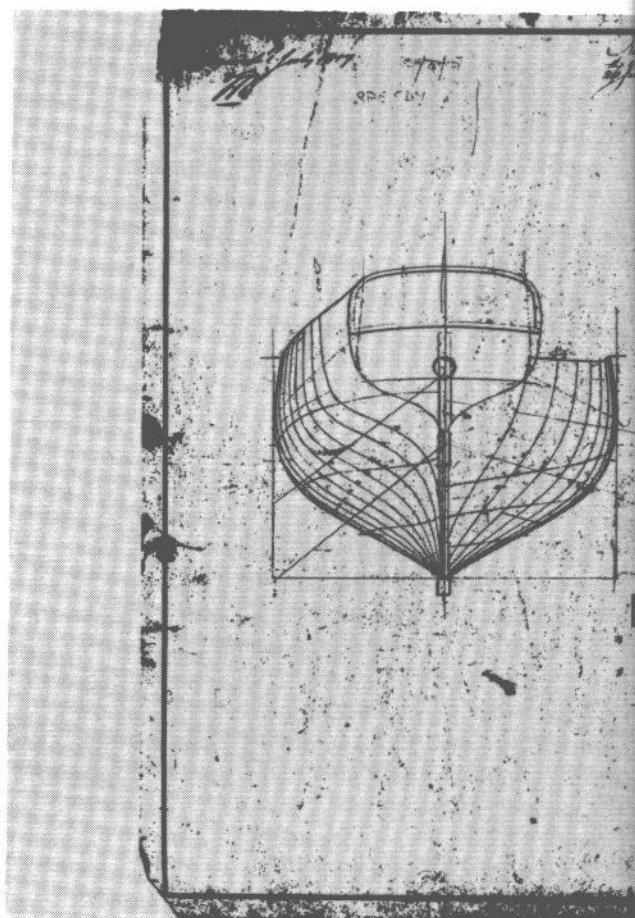
White Ensign, flown from the gaff peak, and the Common Pennant, flown from the mast head. They should be attached to their halliards as shown, Figure 29.

The ensign halliard reeves through a 1/8" block hooked to the eye at the end of the gaff, an eye worked at the upper end of the halliard slips over the toggle (a tiny slip of wood or wire) at the hoist of the flag, the other end makes a sheet bend through the eye at the tack, the bight of the halliard securing to either of the pins on the lodging knees at the stern.

### The stand

There remains only the stand. This may be to a design of the builder's choice — a suggestion is made in Figure 30. The stand should be so made, that the keel rises from stern to stem at a slope of 1 in 11, thus giving the mast its rake and the bowsprit a slight steeve above the horizontal. As a finishing touch, a neat label may be attached to the stand giving details of the model, thus

HM CUTTER 'SPEEDY' 1828  
Built Pembroke Dock 1828 from Admiralty  
Drafts of 1817. Launched 25 June 1828  
Length on the deck — 63'9"  
Beam — 22'0"  
Burthen in tons — 122  
Scale — 1/48



# References

In the construction of the prototype model, the following authorities have been referred to. Most of the books are in print, or obtainable through libraries, and the builder desirous of delving deeper into the intricacies of model shipbuilding of this period is referred to them.

**Below** The original Admiralty draught of the naval cutter that the 'Speedy' model was based on.

## Model construction

H A Underhill, *Plank on Frame Models* (2 volumes)  
Chas G Davis, *The Built Up Ship Model*

## Masting and Rigging

C N Longridge, *The Anatomy of Nelson's Ships*  
D Steel, *Elements of Mastmaking, Sailmaking and Rigging*, 1794, (reprint)  
Rees, *Naval Architecture*, 1819-20, (reprint)  
Fincham, *Masting and Rigging*, 1829, (out of print)  
Kipping, *Treatise on Masting and Rigging*, 1860, (out of print)

E W Petrejus, *Modelling the Brig 'Irene'*

## Draughts

Admiralty Collection, National Maritime Museum, London.

## Models

The National Maritime Museum, London.  
The Science Museum, London

