

H.M.S. Fly 1776

Sixth Rate Swan Class Ship Rigged Sloop

Scale 1:64

INSTRUCTIONS

H.M.S. Fly was the fifth vessel built of the Swan Class of ship rigged sloop, of which twenty five of the class were built from 1766 to 1780.

Fly, as with the entire Swan class was designed by Williams and her construction was ordered by the Admiralty on 1st August 1775 to be built at Sheerness Dockyard. The keel was laid in January 1776 and launched on 14th September 1776.

The Swan class of 6th Rate sloops were unusually attractive for the class of vessel, with not only very sleek hull lines but also the unusual amount of decoration for the size of vessel. They were built just before the Admiralty issued orders that all vessels (especially lesser rates) were to have the minimal amount of decoration and carvings to save any unnecessary costs, due to the seemingly ever continuing war with France and other nations.

There is little remaining about H.M.S. Fly's operational career, but from what little evidence there is, Fly was commissioned mainly for convoy escort duty and dispatch duty. She did capture a French privateer, Le Gleneur, off Portland after a long chase.

In 1800 she captured another French privateer, the Cutter trompeur off La Hogue.

Fly continued convoy duties until she foundered and was lost off Newfoundland during 1802.

The Swan Class measured 97' 7" on the gun deck and displaced 300 tons. They carried 125 officers and men and initially carried 14 guns (later 16) and 16 swivel guns.

The original plans of the Fly still exist, and it is with these plans the kit is based upon.

GETTING STARTED

H.M.S. Fly is an exact scale model designed using the original Admiralty plans. All fittings, masts and rig have been researched using contemporary sources and the most up to date reference material available as is all of the Victory Models range of kits.

Although the kit of H.M.S. Fly is as prefabricated as we can make it, basic woodworking skills are required. Estimated build time is between 60- 80 hours, so a work space will have to be put aside for the job. Do not remove parts from the Laser cut sheets until needed for fitting or working on.

Carefully study the plans together with the instructions until you are confident to tackle each stage of construction. Patience is the key word when building any model. Treat each stage as a separate project and the overall effect of the completed subject will be enhanced.

The structural parts of the model are cut from high quality birch plywood; the remaining wood parts are cut from high quality walnut ply and walnut proper. Care should be taken when cutting parts from the Laser and brass etched sheets

Lay the sheet from which you are going to cut the parts on a hard, flat surface. Use a heavy duty craft knife with a good strong blade to cut through the tabs holding the parts in place. Before removing the wooden parts from their sheets, it is advisable to number them using the identification sheets as reference. It is easier to paint most of the photo-etched parts before removing them from their sheets. They can be touched up again once in place on the model.

RECOMMENDED TOOL LIST

- 1: Craft knife (Amati Art 7477 – knife set is recommended)
- 2: A selection of needle files (Amati Art 7348/01 are recommended)
- 3: Razor saw
- 4: Small wood plane (Amati Art 7100/02 is recommended)
- 5: Pin vice or small electric drill (the latter is the more recommended item)
- 6: Selection of drill bits from 0.5mm to 3mm
- 7: Selection of abrasive paper and sanding block
- 8: Selection of good quality paint brushes
- 9: Pliers/wire cutters (Amati 7119/57 & 7119/55 are recommended)
- 10: Good quality tweezers (Amati Art 7272/01 is recommended)
- 11: Dividers or compass
- 12: Steel rule (300mm)
- 13: Clothes pegs or Amati Fast Clamps (Amati Art 7398)
- 14: Tee-Square
- 15: Good quality pencil or drawing pen
- 16: Masking tape
- 17: waterline tool (Amati Art. 7378 is recommended)
- 18: Amati Pin Pusher (Amati Art 7384)
- 19: Amati Plank Nipper (Amati Art 7381)
- 20: Modellers Bench Vice (Amati Art 7126 is recommended)
- 21: Keel Clamp (Amati Art 7382 is recommended)
- 22: Masking tape

PAINTS, STAINS AND ADHESIVES

- 1: White PVA wood glue
- 2: Dark wood dye (for topmasts, topgallant masts and winch drums)
- 3: Cyanoacrylate (superglue) thick and medium viscosity
- 4: dark wood filler
- 5: Indian ink (Black for ratlines)
- 6: White spirit
- 7: Matt polyurethane varnish (Not satin or gloss)
- 8: Black paint (Humbrol 85) 3 tins
- 9: White paint (Humbrol 34) 1 tin
- 10: Blue paint (Humbrol 25) 1 tin
- 11: Yellow paint (Ochre) (Humbrol 74-linin) 3 tins
- 12: Red paint (Humbrol matt 60 mixed with 25% matt 70) 3 tins of 60 and 1 tin of 70 for inside of bulwarks.
- 13: Gold paint

HULL CONSTRUCTION

Cut out the main keel (14) from the 5mm ply sheet, along with the prow (33), keel (34 and 35) and rudder post (36). Glue these parts into position along the ply keel edges using PVA wood glue and taping into position until the glue has dried.

Remove all the bulkheads (1-13) lower deck (19), and plank termination patterns (15,16,17 and 18) from the 5mm ply sheets. (Make sure all parts have been numbered before removing) Dry fit the bulkheads in place to ensure all parts are a snug fit. Dry fit the lower deck (19) into position.

When you are satisfied with the fit, disassemble the deck and bulkheads ready for gluing proper into position. Before gluing the bulkheads into position, it is advisable to roughly bevel the edges of the front and rear bulkheads and plank termination patterns. The bottom edge of bulkhead (13) needs severe bevelling as this is where the planking under the counter terminates. Once you have roughly sanded the bulkheads, glue them into their respective slots in the keel. Glue and temporarily pin the lower gun deck into position at the same time.

Cut out and glue the two sets of stern counter patterns (23) and (24) into the slots at the rear of bulkhead (13). The larger pair (23) are to be glued nearest the keel. The smaller pair (24) are glued into the slots near the edge of the bulkhead.

Cut out the main gun deck (28) from the 1mm ply sheet and mark a centre line down the length of the deck to aid deck planking. Before pinning the main gun deck into position, the fore and aft sections must be planked, as shown on plan sheet 4. Use 0.5x3mm Tanganyika strips for the deck planks. To aid the fitting of the deck into place, it is advisable to cut the deck in half down the centre lengthways as once the 'hidden' planking has been glued in place; the deck will be less flexible.

Pin as well as glue the deck into place.

Before fixing the upper deck beams in place, varnished the planked area of the main gun deck and make up the fittings and hatch coaming that will be inaccessible once the upper decks are finally in place. Make the capstan, rear Main Mast bitts, Main pump cistern assembly, Riding bitt assembly and gratings as shown on Plan Sheet 4.

Glue these assemblies in their respective positions on the main gun deck.

Cut out and glue in place the fore and aft deck support beams as shown on the Hull assembly 3 drawing.

Cut out, and pin only at this stage the fore deck (29) and aft deck (30) in place as shown on the Hull assembly drawing 4. Give the edges of the bulkheads and decks a final sand so that the side gun port strips will have maximum contact with each edge when pinned and glued into position.

Cut out the 2 side gun port strips (32) from the 1mm ply sheet. It is advisable to soak these parts in warm water for an hour or so before fitting into place to make them more pliable. Dry fit the strips with brass pins only initially and take great care to get both sides symmetrical. When you are happy with the fit, take them off and then glue, as well as pin into place along the bulkhead edges as shown.

When dry, remove the pins and trim the stern area to the same shape as the stern counter patterns if necessary.

FIRST PLANKING

The first planking can now be applied using 1.5x5mm lime wood strip. Refer to the Hull assembly 6 drawing for visual reference for the start of the first planking. The first or master plank is laid at the bottom edge of the gun port strip as shown. Because the plywood bulkheads are very strong, it is recommended that 0.5mm holes be drilled into the bulkheads before the insertion of the pins. When pushing the brass pins into the planks and bulkheads, leave at least 3mm protruding so they can be easily pulled out once the planks are secure. Glue the planks using PVA wood glue.

The first plank each side is relatively straight forward to lay as less tapering is required. As you start down to the curved side of the bow, the planks will need to be tapered to follow the natural run of the planks. In order to determine the amount of taper needed for each plank to lie naturally, lay a plank at the 6th bulkhead and lay it around the bow. Mark the excess area of plank that overlaps the one immediately above it. Repeat this for the stern also. Although the planks may not require tapering at the stern, it is better to let the planks run a natural as possible. Before cutting the taper into the planks, soak them in warm water for an hour or so as this minimises the chance of the blade of the knife following the grain of the wood rather than the edge of the steel rule. Lay the first wet plank to be tapered on a clean, flat surface; (a cutting mat is ideal.) Press firmly with a steel rule onto the marked taper line on the plank and score down the line with a heavy duty craft knife several times until the excess is cut off. Pin and glue the tapered planks into position on the hull, leaving a little excess at the stern which can be trimmed to shape once the planking is complete. Glue two or three strips each side alternately. This method should prevent any possible warping or twisting of the frames and keel

Use this planking procedure right down to the keel. When planking is almost complete, you will notice triangular shaped gaps at the stern. This was also the case in full size practise, although not so simplified. The use of triangular shaped planks is needed for the gaps. These are called stealers. Cut these to shape using the excess lime wood from the ends of the planking and glue them into the gaps. Trim off the excess stern planks to shape and leave the hull to fully cure for at least 24 hours.

Sand the hull with a coarse grade abrasive paper, followed by medium grade. This will entail a few hours work. If you can, sand the hull in a well-ventilated area, preferably in an open space as the dust particles could present a fire and health hazard. Also the use of light duty gloves is recommended to minimise the risk of blisters from sanding.

Cut out the stern counter pattern from the 1.5mm walnut sheet. Pin and glue in place as shown. Once set in place, sand the edges of the stern counter pattern so that it is flush with the first planking.

Make up the building cradle (20, 21 and 22) and place the hull into it. If you intend to fix your completed model on brass pillars, now is the time to drill two holes along the bottom edge of the keel. When the hull is complete, three brass pillars can be inserted into the keel for the final fixing of the model to your chosen display base.

SECOND PLANKING

The second planking is laid using 1mm x 4mm walnut strip. Refer to the Hull assembly drawing 7 for the start of the planking.

The first plank is laid at the top edge of the gun port strip. The method of planking and tapering is the same as the first planking apart from the whole under surface of the walnut strip is to be glued to the first planking, as well as edge to edge.

Do not completely cover the gun port and oar port openings as planking progresses, leave a gap to make trimming off the excess once planking is complete easier.

Take your time with the second planking. Try and avoid any unsightly gaps in between the plank edges to minimise filling once complete. The planks can either be pinned and glued into position using PVA wood glue or alternatively, glue the planks into position using cyano. The latter method avoids unsightly pin holes which will need to be filled, but much more care is needed as the cyano will dry very quickly, leaving only a little time to make any adjustments to the planks.

Once the second planking is complete, sand the hull down with medium grit, followed by fine grit abrasive paper. Once sanded, cut the gun port and oar port openings to shape with a sharp craft knife. Take care to avoid splitting any of the planks along their vertical edges.

Once the second planking is fully complete, carefully take off the fore and aft deck so that the cannon carriages that will be hidden under the upper decks can be glued into position. Carefully glue into position using either PVA wood glue, or, to ensure that the carriages will never break off, Epoxy Resin glue. Place each carriage (not cannon barrel, but carriage only) inside each gun port opening, the barrels can be carefully inserted and glued to the carriage slots once the hull is fully complete.

The upper decks can now be finally pinned and glued into position.

DECK AND INNER BULWARK PLANKING & CAPPING

The bulkhead tabs above deck level can now be removed. This can be done by using a pair of pliers and twisting and pulling the tabs off. File and sand the remaining 'stubs' to deck level. Sand off any excess glue on the inside of the gun port strip. This is so it has a smooth surface for the inner bulwark planking.

The remaining deck planking is laid using 0.5x3mm Tanganyika and a medium viscosity cyano glue to fix the planks in place. Start the planking along the marked centre line of the decks and work outwards until the whole deck is planked. The outer planks will require shaping to follow the curved along the edge of the deck. Take care not to completely cover the deck openings as you lay the planks. Trim the deck openings back to position once planking is complete and then sand the deck with a fine grade abrasive paper. Once complete brush on a couple of coats of matt varnish to seal the grain. This minimises the possibility of the deck being marked.

The inner bulwarks can now be planked using 1x4mm walnut strip. (Hull assembly drawing 8). Start at the deck edge and work upwards. As with the outer planking, make sure you leave a gap in between the gun port and oar port openings,

which will be trimmed and filed back to shape once planking is complete. Once the planking is complete, sand the bulwarks smooth and trim any excess off above the bulwark edges. The insides of the bulwarks and the inner edges of the port openings can now be painted red if desired.

Refer to Hull Assembly 9 for the fitting of the bulwark capping rails and timberheads. Fit parts (79 and 80) in place and paint black. Use 1.5x5mm walnut strip cut to the appropriate lengths for the mid-section bulwark capping as shown. Add the timberheads and paint black once in position.

Make up the forward main mast bitts and galleys (42, 43 and 72) and drill and insert the pump handle brackets (195) to (42), as shown on the Pump Assembly drawing on Plan Sheet 5. The pump handle is simply 1mm brass wire bent into shape as shown in the Pump Assembly drawing. Paint the pump handles black, along with the pump stanchions (177) and brackets (195).

Border the forward main gun deck companionway with 2x3mm walnut strip and place the ladder into position, along with the 4 companionway stanchions (178), again, painting the stanchions black before fixing into position.

Cut out and glue the mid deck gangways (31) and support brackets (104) in place as shown, along with the 3mm walnut step (65) and plank the gangway upper facing with 0.5x3mm Tanganyika.

HEADRAIL AND CATHEAD ASSEMBLY

Cut out from the 3mm plywood sheet the head timbers (25, 26 and 27) and paint black.

Cut out the upper prow rail (127) and lower prow cheek (126) and paint top edges black. Carefully fix them in place to the position shown on plan sheet 6.

Cut out the two sets of bow cheeks (54). Before fixing in place, the edges of the cheeks that are glued to the hull need to be bevelled to sit correctly due to their angle.

Once in place, cut out and fix the hawse hole bolsters (120) into position as shown. Drill out the holes through the hull to take the hawse rope for the anchor.

Cut out the two catheads (52) from the 3mm walnut sheet. Mark out the area on the front capping rail where the catheads will intersect with the bulwarks. Very carefully cut out the area of the bulwarks to a depth of about 3mm. constantly check progress by placing the cathead into the newly formed slot until it sits correctly on the deck and glue in place.

Cut out and glue the cathead brackets (53) in place under the catheads as shown.

Carefully glue the bow head rails (113) in place to the outer edges of the head timbers (25, 26 and 27) as shown. Cut out the lower bow rail (125) and very carefully glue it in place into the slots in the bow head rails. The extended rail which runs from the end of the lower bow rail to the bottom edge of the cathead support is decorative brass strip (288), which needs to be bent and manipulated to the shape shown as on plan sheet 4.

Once in place, cap the outer edges of the head timbers with 1x3mm walnut which should also be painted blue. Glue the figurehead in place and paint as suggested on Plan sheet 4. Finally, paint gold (or ochre) the 0.25 etched brass decorative detail and fix in place on the individual bow parts as shown on Plan Sheet 4.

MAIN WALE AND UPPER RAIL

The main wale can now be applied by using 3 strips per side of 1mm x 4mm walnut strip. Cyano can again be used for the fixing of these planks. From the side profile drawing carefully mark the position of the top edge of the main wale onto the hull. The lower edges of the gun port openings can be used to gauge and measure the distance between the bottom edge of the ports and the top edge of the main wale. Take great care to ensure that both sides are symmetrical.

Once the wales are complete, sand them smooth using fine grit abrasive paper. Fill any slight gaps with wood filler and sand back until completely smooth. Paint the main wale black.

Using the main side profile drawing, mark the position for the upper rails, which is 1x2mm walnut strip and runs in between the gun port openings. Glue the strip in place using cyano. Once the lowest 1x2mm strip is in place, it is advisable at this stage to paint the area above the lowest rail (1x2mm walnut strip) black if you intend to add the frieze work (Blue if you intend to omit the frieze work) Add the side fenders (129) and chesstrees (130) at this stage to the side of the hull as shown.

Assuming that frieze work will be applied, the following sequence is suggested;

Paint all of the 0.25mm brass etched decoration gold, or ochre. Very carefully cut out the lower frieze work decoration and glue each strip in place along the bottom edge of the lower 1x2mm walnut strip rail. Once complete, add the upper rail (again 1x2mm walnut strip), so that the bottom edge of the upper rail strip is touching the upper edges of the lower decorative strip. Once complete, add the upper 0.25mm brass etched decoration, so that the lower edge of the decoration is sited on the upper edge of the upper rail.

The 'drift' rail can now be added. This is 1x1mm walnut strip and runs along the top edge of the upper brass etched decoration. The start of the fore and aft rails are pre cut, (85 and 86) and should be added before the 1x1mm walnut strip.

Once complete, add the swivel gun posts (59-64) and the upper quarter deck rail (81) and paint black.

Add the side steps as shown, along with the quarter badges (275 & 276) and lower finishing's (273 & 274).

Once the main wale and all outer hull work has been fixed in place, the stern fascia (114) can be pinned and glued in place at the stern. If you want to 'glaze' the windows (using clear acetate or similar), do this before fixing the fascia in place. The stern window frames (197, 199, 201, 203 and 205) are to be painted ochre before removing from the brass etched sheet and fixed into place.

Employ the method of glazing (if desired) as follows:

- 1 Place the pattern with the window opening onto the sheet of glazing provided and carefully draw the inside edge of the window opening onto the glazing.
- 2 Carefully glue the photo-etched window frame (painted) into place in the recess of the bulkhead window opening.
- 3 Carefully cut out the marked window panel from the glazing using a steel rule and sharp craft knife.
- 4 Check the fit by pressing the window panel into the aft side of the window opening and up against the frame.
- 5 Very sparingly, apply a slither of PVA wood glue or cyano around the inside of the brass window frame and carefully push the glazing into place.

Follow this procedure until all window frames are glazed and fix the fascia in place.

Add the rest of the etched brass and cast decoration as shown on the drawings.

The hull below the waterline can now be painted off- white if desired. Mark onto the hull the waterline position as seen on the side profile on plan sheet 2. Ensure the hull is completely level on its stand and mark out the waterline using an Amati waterline marker or similar. Mask off the area above the waterline and paint the hull bottom. This will take several coats of paint, with sanding in between coats to ensure a smooth surface. Mask off and paint the rudder (37) at the same time.

RUDDER ASSEMBLY

Paint black and cut out the rudder gudgeon and pintle braces (185-194) from the photo etched sheet. Bend and glue each part into position on the rudder and post as shown. Drill a 1mm hole in the back edges of the rudder post and rudder, through the hole in the gudgeons and pintles. Fix a copper eyelet into each hole of the rudder post and a small length of 1mm brass wire, bent to an angle of 90 degrees into the holes in the back edge of the rudder. Drill another 1mm hole near the top edge of the rudder to take the tiller arm and fix the rudder in place as shown on plan sheet 8.

CHANNELS

Cut out the fore, main and mizzen channels (91, 93 and 94), along with the smaller fore back stay channels (92) from the 1.5mm walnut sheet. Using the plans for correct positioning, pin as well as glue the channels into place. A strong join must be attained as the channels take a considerable amount of stress from the shrouds and back stays.

Using the drawing on plan sheet 8, assemble the deadeyes and associated etched brass chain plate parts. Paint all the strops and chain plate links black before removing them from their sheet. Note that the angle of the chain plate should follow the angle of the shrouds. Plank the edges of the channels with 2x1mm walnut strip

Drill the various holes into the hull for rigging, including eyelets as indicated on plan sheet 2

To finish the outer hull off, add the gun port lids and insert the cannon barrels into position through the gun port openings (if you desire to have the gun port lids in the open position)

DECK FITTINGS

Make up and glue in place the remaining deck fittings as shown in plan sheet 5 and 6, along with the various cleats, eyelets and belaying pins for the rigging.

MASTS AND BOWSPRIT (plan sheets 7-8)

Cut to length the masts and bowsprit as follows:

- | | | |
|-----|----------------------|-------------------------|
| 1: | Bowsprit | 8mm dowel x 161 mm long |
| 2: | Jib-boom | 4mm dowel x 153mm long |
| 3: | Fore mast | 8mm dowel x 269mm long |
| 4: | Fore topmast | 6mm dowel x 178mm long |
| 5: | Fore topgallant mast | 4mm dowel x 119mm long |
| 6: | Main mast | 8mm dowel x 304mm long |
| 7: | Main topmast | 6mm dowel x 192mm long |
| 8: | Main topgallant mast | 4mm dowel x 135mm long |
| 9: | Mizzen mast | 6mm dowel x 252mm long |
| 10: | Mizzen topmast | 4mm dowel x 175mm long |

Note each mast top should have an appropriate sized tenon into which the mast cap slots. Taper and shape each mast to the sizes shown on the drawing. Taper the masts by using a David plane or similar to obtain an octagonal taper. Sand the taper with a medium sand paper followed by a fine sand paper to finish as shown on plan sheet 9.

BOWSPRIT

The bowsprit is tapered at both ends, with the top end being filed flat at the top and bottom to take the Bees (66). The top should be filed to a diameter of 4mm to form a tenon to the cap. Gammoning cleats and all other cleats to the masts and yards are made from 5mm lengths of 2x1mm walnut strip glued in position. They are then shaped to a wedge by cutting with a sharp craft knife.

Mark out the position of the Jib boom saddle (87) and glue in position. The bowsprit/jib boom cap (50) is now bevelled to follow the same angle as the bowsprit. Glue the lower hole in the cap into the tenon on the end of the bowsprit (make sure the cap is 90 degrees to the keel), slot the jib boom through the upper holes in the cap until the jib boom is about 10mm past the jib boom saddle. It is then held in place by lashing 0.5 black thread round the jib boom a few times, just forward of the jib boom saddle.

Using the drawing for sizes and placement, tie on all the blocks, eyelets and deadeyes associated with the bowsprit.

MASTS

LOWER MAST

The make up of the fore, main and mizzen mast sets is almost identical therefore only a detailed make up of the fore mast will be given.

Mark on the lower mast the lowest trestle tree (76) position. Cut from the timber sheet the cheeks (89) mark the lengths of the cheeks onto the mast at opposite sides. Plane or file the area of the mast to which the cheeks fit, so the surface of the cheeks lay on flush with the mast sides. Glue the cheeks into position taking great care that both cheeks are at exactly the same height. Cut out the bibs (95) and glue them so that the

flat back end is flush with the back of the cheek, and the top is flush with the cheek. Take care to obtain exact alignment on both sides. Stain the lower masts with a dark wood dye before wooding them. Using the drawings mark up the length of the mast wooding positions (fore and mainmast only). Use 0.5 black thread for the wooding and wrap around the mast several times.

Cut out the lower mast top (100), gunwales (101), crosstrees (75) and trestle trees (76). Glue the gunwale to the top of the mast top so that it is flush with the edges. Cut to size 1x1mm walnut for the battens and glue in place on the top surface. Start at the edge of the centre opening and finish flush against the inside edge of the gunwale.

Paint black and cut out from the photo etched sheet the stanchions (210) and glue in place into each of the four slots located at the rear top surface of the gunwale (101). Cut to the same width as the top (100) a length of 1x2mm walnut strip and glue it into the slots located at the top of the stanchions for the railing.

Carefully mark and drill 1mm holes around the front rim of the tops as shown for the crows feet rigging to thread through. Carefully glue the trestletrees to the top edge of the bibbs and the upper mast sides. When fully cured, slot and glue the crosstrees into position in the trestletrees. Check that both ends are equally spaced. Cut from 3x3mm walnut strip the shroud bolsters. File each bolster to a half round shape, glue in position either side of the mast top with the lower edge glued to the top of the trestletrees.

Glue the mast top assemblies into position on the top of the crosstrees and trestletrees. Drill for and glue in position all eyelets as shown on the drawing.

TOPMAST

Drill a 2mm hole for the fid. Take dimensions from the drawing. The fid is made from 2mm square basswood cut to a length of 5mm longer than the width of the mast. Push the fid into position until about 2.5mm is showing at both sides.

Cut out the lower mast cap (48). Slot the mast cap over the top of the topmast. Place the topmast into position on the lower mast and push the mast cap down onto its tenon on the top of the lower mast. The fid on the lower part of the topmast should sit on the lower mast trestletrees. Before applying a drop of glue, ensure that both masts are aligned correctly by running your eye down the masts. Cut out the top mast crosstrees and trestle trees from the 1.5mm walnut sheet. Glue the two sets of parts together and slot over the top of the topmast down to the hounds and glue in place. Make up a pair of bolsters in the same manner as the lower top bolsters and glue into position.

TOPGALLANT MAST

Slot the topgallant mast into the square hole in the trestletrees and crosstrees forward of the topmast until the bottom of the topgallant mast is about 2mm past the lower edge of the trestletree. Mark the position of the fid hole on the topgallant mast above the top side edge of the trestletree. Drill a 2mm hole in the marked position. Insert 2mm square basswood strip into the hole and cut the ends of the strip so that about 2mm is exposed on both sides of the mast. Drill a 1mm hole in the position shown for the topgallant yard tie.

Cut out the topmast cap from the 5mm walnut sheet and slot into position as with the lower mast cap.

The area in between the bibbs to the mast caps on the lower and upper tops should be painted black.

Finish off the mast assemblies by tying on all blocks/deadeyes which fit directly on the masts.

YARDS (PLAN SHEET 9)

All yards and stun sail booms are to be made up to the dimensions shown on the drawings using appropriate sizes of dowel. Plane or file the yards octagonal and then mark the centre of each yard. The centre of the yards remains octagonal (except for the topgallant and spritsail yards, which remain round throughout their length) and the last third of each end is tapered to the dimensions shown.

Pin and glue the stun sail boom brackets (180 & 280) in place on the lower and upper main and fore yards to the positions shown. Do not insert the stun sail booms through their brackets until the yards have been painted. Make up the yard and sling cleats using 1x1mm walnut strip cut to size.

Mark and drill the holes for the foot rope stirrups on the under side of the mast using a 0.5mm drill bitt. The stirrups can be made up using the .25 brass wire (223). Cut each stirrup to a length of about 20mm and make a small loop in one end for the footrope to thread through. Glue and push the stirrups into their slots in the mast so that each stirrup has an exposed length of 15mm. The stirrup "ties" can be simulated by simply tying 0.5mm black thread around the mast at the position of the stirrups.

Paint all yards black, including the mizzen gaff and boom.

Using 0.5mm black thread, tie the footropes to the ends of the yards. Thread them through the loops at the ends of the stirrups and tie the end to the other side of the sling cleat. Do not tie the thread taut, but slightly loose, to simulate the natural hang.

Tie on all blocks and brace pendants to the yards as shown ready for fixing to the masts. The spritsail yard, main yard and crossjack yard are tied to the mast with "trusses" which is 0.5mm black thread tied as shown.

The remaining yards are tied to the masts with parral beads and ribs held together by 0.5mm black thread pushed through the holes in the beads and ribs and then tie to the mast inside the sling cleats. The parral ribs are photo etched parts and will have to be painted black before making up.

The mizzen gaff and boom are held in place onto the mast with parrel beads, as is the mizzen topgallant yard.

The fixing of the yards to the masts can be made a little less awkward by pinning and gluing the yards onto the masts. Drill a 1mm hole to the centre back of each yard and a 1mm hole on the yard position on the mast. Insert a small length of 1mm brass wire into the hole in the yard to act as a pin, then glue the yard to the mast.

Once all the yards are tied to the masts, the masts and bowsprit can be stepped into their respective holes in the deck. Apply a small amount of PVA glue to each mast before stepping into position.

RIGGING (PLAN SHEETS 10, 11 AND 12)

Using the three rigging plan sheets for reference, rig the masts and yard to the 6 rigging sequences shown. These are drawn in stages to help simplify the rigging sequence as much as possible. Use the accompanying belaying plan to belay the ends of the lines in the proper place on the hull. Do not over tension any of the rigging as this may pull the masts/yards out of alignment.

Before rigging the masts, the bowsprit needs to be lashed down with 'gammoning, as shown on plan sheet 10.

Rig the lower shrouds first, followed by the futtock shrouds, topmast shrouds and then main topgallant shrouds as shown on the rigging stage 1 drawing. Tie the ratlines using 0.1mm natural thread using clove hitch knots to secure them. When the ratlines have been tied, brush on watered down PVA wood glue to secure the end knots. Trim off the excess ends of the ratlines using a sharp pair of scissors. To finish off the ratlines, stain them using black Indian ink applied very carefully with a brush. All 'standing rigging' was 'tarred' to protect the non moving rigging from the elements, therefore all standing rigging like shrouds, backstays etc should be a very dark colour.

Rig the mast stays and back stays as shown on the rigging stage 2 drawing. Start with the mast stays, working from the lowest position to the top. Take care when rigging the crows feet as it is very easy to over tension the fine thread when reeving through the lower top and euphroe block holes. Rig the back stays next, starting with the inner most stays and working back to the top gallant back stays.

The running rigging starts with rigging the yard ties, as shown on the drawing for rigging stage 3 on plan sheet 5, followed by rigging the yard lifts as shown on rigging stage 4. As most of the blocks have already been rigged to the masts and yards, the rigging sequence should be mostly a case of matching the thread to the blocks, and belaying the ends to their appropriate position on the deck.

Next rig the clue lines, sheets and tacks as shown on rigging stage 5 on plan sheet 6, followed by the yard braces and bowlines on the rigging stage 6 drawings. It is strongly recommended that the main yard braces, sheets and tacks are rigged in place last of all, as their positions would greatly hinder the belaying of the remaining rigging.

When the rigging is complete look over the whole hull carefully to see if there are any scraps of wood or pieces of thread left on the deck.

PARTS LIST

<i>Pt. No</i>	<i>Description</i>	<i>Material</i>	<i>Qty</i>				
1	Bulkhead	5mm Plywood	1	56	Snatch Block (Bow)	3mm Walnut	2
2	Bulkhead	5mm Plywood	1	57	Supports for Riding Bitts	3mm Walnut	2
2a	Deck support frame	5mm Plywood	1	58	Bow Timberheads	3mm Walnut	2
3	Bulkhead	5mm Plywood	1	59	Swivel Gun Posts	3mm Walnut	2
3a	Deck support frame	5mm Plywood	1	60	Swivel Gun Posts	3mm Walnut	2
4	Bulkhead	5mm Plywood	1	61	Swivel Gun Posts	3mm Walnut	2
4a	Deck support frame	5mm Plywood	1	62	Swivel Gun Posts	3mm Walnut	2
5	Bulkhead	5mm Plywood	1	63	Swivel Gun Posts	3mm Walnut	2
6	Bulkhead	5mm Plywood	1	64	Swivel Gun Posts	3mm Walnut	6
7	Bulkhead	5mm Plywood	1	65	Step for Quarter gangway	3mm Walnut	2
8	Bulkhead	5mm Plywood	1	66	Fore mast Bitt (Aft)	3mm Walnut	2
9	Bulkhead	5mm Plywood	1	67	Fore mast Bitt crossbeam	3mm Walnut	1
9a	Deck support frame	5mm Plywood	1	68	Fore mast Bitt (Fore)	3mm Walnut	2
10	Bulkhead	5mm Plywood	1	69	Fore mast Bitt crossbeam	3mm Walnut	1
10a	Deck support frame	5mm plywood	1	70	Main Pump cylinder canopies	3mm Walnut	2
11	Bulkhead	5mm Plywood	1	71	Mast bitt crossbeam (Aft)	3mm Walnut	1
11a	Deck support frame	5mm Plywood	1	72	Mast bitt crossbeam (Fore)	3mm Walnut	1
12	Bulkhead	5mm Plywood	1	73	Main mast Trestle Trees	3mm Walnut	2
13	Rear Bulkhead	5mm Plywood	1	74	main Mast Cross Trees	3mm Walnut	2
14	Main Keel	5mm Plywood	1	75	Fore Mast Cross Trees	3mm Walnut	2
15	Plank termin. patterns	5mm Plywood	2	76	Fore Mast Trestle Trees	3mm Walnut	2
16	Stern termin. patterns	5mm plywood	2	77	Mizzen Mast Cross Trees	3mm Walnut	2
17	Plank termin. patterns	5mm Plywood	2	78	Mizzen Mast Trestle Trees	3mm Walnut	2
18	Plank termin. patterns	5mm Plywood	2	79	Fore Capping rail	1.5mm Walnut Ply	2
19	Lower deck	5mm Plywood	1	80	Aft Capping rail	1.5mm Walnut Ply	2
20	Front hull stand	5mm Plywood	1	81	Aft Capping rail (upper)	1.5mm Walnut Ply	2
21	Rear hull stand	5mm Plywood	1	82	Binnacle Fascia	1.5mm Walnut Ply	2
22	Hull stand support beams	5mm Plywood	2	83	Binnacle end pieces	1.5mm Walnut Ply	2
23	Inner stern counter frames	3mm Plywood	2	84	Binnacle Canopy	1.5mm Walnut Ply	1
24	Outer stern counter frames	3mm Plywood	2	85	Fore Rail Moulding end piece	1.5mm Walnut Ply	2
25	Head Timber (rear)	3mm Plywood	1	86	Quarter Deck Moulding	1.5mm Walnut Ply	2
26	Head Timber (middle)	3mm Plywood	1	87	Jib boom Saddle	1.5mm Walnut Ply	1
27	Head Timber (Front)	3mm Plywood	1	88	Bowsprit Bee blocks	1.5mm Walnut Ply	2
28	Main Gun deck	1mm Plywood	1	89	Fore Mast cheek	1.5mm Walnut Ply	2
29	Poop deck	1mm Plywood	1	90	Main Mast Cheek	1.5mm Walnut Ply	2
30	Fore deck	1mm Plywood	1	91	Fore channel	1.5mm Walnut Ply	2
31	Quarter deck gangways	1mm Plywood	2	92	Fore Backstay Channel	1.5mm Walnut Ply	2
32	Gun port pattern for hull	1mm Plywood	2	93	Main Channel	1.5mm Walnut Ply	2
33	Prow	5mm Walnut	1	94	Mizzen Channel	1.5mm Walnut Ply	2
34	Keel (forward)	5mm Walnut	1	95	Fore mast Bibs	1.5mm Walnut Ply	2
35	Keel (aft)	5mm Walnut	1	96	Main mast Bibs	1.5mm Walnut Ply	2
36	Rudder Post	5mm Walnut	1	97	Mizzen mast Bibs	1.5mm Walnut Ply	2
37	Rudder	5mm Walnut	1	98	Main Top	1.5mm Walnut Ply	1
38	Deck beam for Bulkhead 8	5mm Walnut	1	99	Main Top Gunwale	1.5mm Walnut Ply	1
39	Deck beam	5mm Walnut	1	100	Fore Top	1.5mm Walnut Ply	1
40	Stove chimney	5mm Walnut	1	101	Fore Top Gunwale	1.5mm Walnut Ply	1
41	Main Mast Bitts (rear)	5mm Walnut	2	102	Mizzen Top	1.5mm Walnut Ply	1
42	Main Mast Bitts/Gallows	5mm Walnut	2	103	Mizzen Top Gunwale	1.5mm Walnut Ply	1
43	Gallows cross beam	5mm Walnut	1	104	Quarterdeck Gangway supports	1.5mm Walnut Ply	4
44	Main Pump casing	5mm Walnut	2	105	Capstan Ring	1.5mm Walnut Ply	5
45	Belfry canopy	5mm Walnut	1	106	Capstan Notched ring	1.5mm Walnut Ply	2
46	Riding Bitts	5mm Walnut	2	107	Capstan top	1.5mm Walnut Ply	2
47	Riding Bitts cross beam	5mm Walnut	1	108	Capstan Pawls	1.5mm Walnut Ply	16
48	Fore and Main Mast caps	5mm Walnut	2	109	Ships Wheel standards	1.5mm Walnut Ply	2
49	Fore and Main Top caps	5mm Walnut	2	110	Ships Wheel tackle barrel	1.5mm Walnut Ply	2
50	Bowsprit cap	5mm Walnut	1	111	Ships Wheel tackle barrel	1.5mm Walnut Ply	3
51	Mizzen mast cap	5mm Walnut	1	112	Gaff/Boom Jaws	1.5mm Walnut Ply	2
52	Catheads	3mm Walnut	2	113	Main Bow head rail	1.5mm Walnut Ply	2
53	Cathead Supports	3mm Walnut	2	114	Stern Fascia	1.5mm Walnut Ply	1
54	Upper and Lower cheeks	3mm Walnut	4	115	Stern Tafferal	1.5mm Walnut Ply	1
55	Fish Davit cleat	3mm Walnut	2	116	Mizzen Mast base	1.5mm Walnut ply	1
				117	Fore and Main Mast base	1.5mm Walnut Ply	2
				118	Fore Deck hatch combing	1.5mm Walnut Ply	1
				119	Fore Deck chimney base	1.5mm Walnut Ply	1
				120	Hawse Bolsters	1.5mm Walnut Ply	2

121	Quarterdeck rail	1.5mm Walnut Ply	2	185	Rudder Gudgeon	0.5mm Brass Etch	1
122	Quarterdeck rail (top)	1.5mm Walnut Ply	1	186	Rudder Gudgeon	0.5mm Brass Etch	1
123	Quarterdeck rail	1.5mm Walnut Ply	1	187	Rudder Gudgeon	0.5mm Brass Etch	1
124	Poop deck belaying racks	1.5mm Walnut Ply	2	188	Rudder Gudgeon	0.5mm Brass Etch	1
125	Lower Bow rail	1.5mm Walnut Ply	2	189	Rudder Gudgeon	0.5mm Brass Etch	1
126	Lower Prow cheek	1.5mm Walnut Ply	2	190	Rudder Pintle	0.5mm Brass Etch	1
127	Upper prow rail	1.5mm Walnut Ply	2	191	Rudder Pintle	0.5mm Brass Etch	1
128	Timberheads	1.5mm Walnut Ply	40	192	Rudder Pintle	0.5mm Brass Etch	1
129	Hull Fenders	1.5mm Walnut Ply	4	193	Rudder Pintle	0.5mm Brass Etch	1
130	Chesstree	1.5mm Walnut Ply	2	194	Rudder Pintle	0.5mm Brass Etch	1
131	Quarter deck rail support	1.5mm Walnut Ply	2	195	Main Pump Handle brackets	0.5mm Brass Etch	4
132	Poop deck rail support timber	1.5mm Walnut Ply	2	196	Stern fascia pillar moulding	0.5mm Brass Etch	1
133	Skylight end pattern (outer)	1.5mm Walnut Ply	2	197	Stern fascia window frame	0.5mm Brass Etch	1
134	Skylight end pattern (inner)	1.5mm Walnut Ply	2	198	Stern fascia pillar moulding	0.5mm Brass Etch	1
135	Skylight window frames	1.5mm Walnut Ply	2	199	Stern fascia window frame	0.5mm Brass Etch	1
136	Skylight top piece	1.5mm Walnut Ply	1	200	Stern fascia pillar moulding	0.5mm Brass Etch	1
137	Skylight side patterns	1.5mm Walnut Ply	2	201	Stern fascia window frame	0.5mm Brass Etch	1
138	End opening for tiller housing	1.5mm Walnut Ply	1	202	Stern fascia pillar moulding	0.5mm Brass Etch	1
139	Tiller housing canopy	1.5mm Walnut Ply	1	203	Stern fascia window frame	0.5mm Brass Etch	1
140	Tiller housing side patterns	1.5mm Walnut Ply	2	204	Stern fascia pillar moulding	0.5mm Brass Etch	1
141	Tiller arm	1.5mm Walnut Ply	1	205	Stern fascia window frame	0.5mm Brass Etch	1
142	Fore Main Top Cross Trees	1.5mm Walnut Ply	6	206	Stern fascia pillar moulding	0.5mm Brass Etch	1
143	Fore Main Top Trestle Trees	1.5mm Walnut Ply	4	207	Stern fascia decoration	0.5mm Brass Etch	1
144	Main topgallant mast capping	1.5mm Walnut Ply	1	208	Stern fascia decoration	0.5mm Brass Etch	1
145	Fore Mizzen Topgallant caps	1.5mm Walnut Ply	2	209	Stern fascia decoration	0.5mm Brass Etch	1
146				210	Lower mast top stanchions	0.5mm Brass Etch	12
147	Hull side decoration	0.25mm Brass Etch	2	211	stern counter decoration (left)	0.25mm Brass Etch	1
148	Hull side decoration	0.25mm Brass Etch	2	212	stern counter decoration (right)	0.25mm Brass Etch	1
149	Hull side decoration	0.25mm Brass Etch	2	213	'FLY' letters for stern counter	0.25mm Brass Etch	3
150	Hull side decoration	0.25mm Brass Etch	2	214	15mm Boxwood stanchion	4030/15	2
151	Hull side decoration	0.25mm Brass Etch	2	215	8mm belaying pin	4104/08	12
152	Hull side decoration	0.25mm Brass Etch	2	216	Cannon and Carriage	4162	16
153	Hull side decoration	0.25mm Brass Etch	2	217	Swivel Gun	4150/03	16
154	Hull side decoration	0.25mm Brass Etch	2	218	Ships bell	4140/06	1
155	Hull side decoration	0.25mm Brass Etch	2	219	Ships Wheel	4350/20	1
156	Hull side decoration	0.25mm Brass Etch	2	220	Parral beads	4380/02	60
157	Hull side decoration	0.25mm Brass Etch	2	221	Copper eyelet	4703	120
158	Decoration for upper prow rail	0.25mm Brass Etch	2	222	Ladder	4320/01	2
159	Bow Rail decoration	0.25mm Brass Etch	2	223	0.25mm Brass wire	2820/02	1 m
160	Bow Rail decoration	0.25mm Brass Etch	2	224	Brass pins	4134/07	400
161	Bow Rail decoration	0.25mm Brass Etch	2	225	Anchor	4015/40	4
162	Bow hull decoration	0.25mm Brass Etch	2	226	Wooden Cleat	4270	4
163	Bow hull decoration	0.25mm Brass Etch	2	227	1mm diameter Brass Wire	2820/10	1 m
164	Bow hull decoration	0.25mm Brass Etch	2	228	7mm Sister Block	4086/07	14
165	Bow hull decoration	0.25mm Brass Etch	2	229	3mm Deadeye	4050/03	100
166	Decoration for Bow cheeks	0.25mm Brass Etch	4	230	5mm Deadeye	4050/05	70
167	Decoration for Lower Prow Cheek	0.25mm Brass Etch	2	231	3mm Single block	4070/03	120
168	Lower Chainplate	0.5mm Brass Etch	60	232	5mm Single block	4070/05	40
169	3.5mm Futtock Deadeye Strop	0.5mm Brass Etch	24	233	6mm Double block	4080/06	16
170	Rigging Hook	0.5mm Brass Etch	48	234	4mm Double block	4080/04	30
171	Futtock Shroud Hook	0.5mm Brass Etch	32	235	2mm Single block	4070/02	6
172	Parral Rib	0.5mm Brass Etch	32	236	6mm Closed heart block	4061	8
173	Chainplate securing bracket	0.5mm Brass Etch	34	237	1.3mm Black Hemp	4126/13	2 m
174	Upper Chainplate	0.5mm Brass Etch	60	228	1mm Black Hemp	4126/10	30 m
175	5mm Deadeye Strop	0.5mm Brass Etch	34	239	0.75 Black Hemp	4126/07	30 m
176	3.5mm Deadeye Strop	0.5mm Brass Etch	32	240	0.5mm Natural Hemp	4124/05	40 m
177	Main Pump Handle Stanchions	0.5mm Brass Etch	4	241	0.1mm Natural Hemp	4124/01	50 m
178	Stanchions	0.5mm Brass Etch	12	242	0.25mm Natural Hemp	4124/02	40 m
179	Gun Port Hinges	0.5mm Brass Etch	24	243	0.5mm Natural Hemp	4124/05	10 m
180	Inner Stun sail Boom brackets	0.5mm Brass Etch	8	244	0.75mm Natural Hemp	4124/07	10 m
181	Fore and Main Euphroe blocks	0.5mm Brass Etch	2	245	1mm Natural Hemp	4124/10	5 m
182	Mizzen Euphroe block	0.5mm Brass Etch	1	246	1,3mm Anchor Hawse Thread	4124/13	2 m
183	Fore/Main Yard Stun Sail brackets	0.5mm Brass Etch	4	248	1.5x5mm Lime wood strip	2430/02	46
184	Fore/Main yard Stun brackets	0.5mm Brass Etch	4	249	1x4mm Walnut strip	2460/06	90
				250	1x3mm Walnut strip	2460/05	12

251	1x2mm Walnut strip	2460/04	12
252	1x1mm Walnut strip	2410/01	8
253	0.5x3mm Tanganyika strip (deck)	2458/01	75
254	2x2mm basswood strip	2400/02	3
255	3x3mm basswood strip	2400/03	1
256	2x3mm Walnut strip	4060/17	2
257	10mm Diameter Ramin dowel	2525/10	8 cm
258	8mm Diameter Ramin dowel	2525/08	3
259	6mm Diameter Ramin dowel	2525/06	4
260	4mm Diameter Ramin dowel	2525/04	4
261	3mm Diameter Ramin dowel	2525/03	5
262	Grating	4325/06	4
270	Figurehead (Casting)	Casting	1
271	Quarter figure (left) (Casting)	Casting	1
272	Quarter figure (right) (Casting)	Casting	1
273	Lower finishing (left) (casting)	Casting	1
274	Lower finishing (right) (casting)	Casting	1
275	Quarter Badge (left) (Casting)	Casting	1
276	Quarter badge (right) (Casting)	Casting	1
277	Main stern Tafferal decoration	Casting	1
278	Quarter Badge decoration (left)	Casting	1
279	Quarter Badge decoration (right)	Casting	1
280	Stun Sail boom ring (Copper strap)	2835/03	50 cm
281	8mm Stanchion	4035/08	6
282	Lower Forecastle railing	1.5mm Walnut Ply	2
283	Upper Forecastle railing	1.5mm Walnut Ply	2
284	Belfry Support Pillars	1.5mm Walnut Ply	2
285	Forecastle railing Timber Posts	1.5mm Walnut Ply	4
286	Ships Bell Support	3mm Walnut	1
287	Gun Port Lids	1.5mm Walnut Ply	8
288	Decorative Brass Strip x 600mm	5500/02-B	1
289	Quarter Badge decoration (Left)	Casting	1
290	Quarter Badge decoration (Right)	Casting	1
291	1.5x5mm Walnut strip	2460/07	2
292	2mm diameter dowel	2525/02	10cm
300	Metal hooks for anchors rope	4705/02	3

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