

BOUNTY

***The Notorious 18th Century English Brig
of Captain Bligh and Fletcher Christian***

Art. 785

ASSEMBLY INSTRUCTIONS *English Version*

*Newly translated and improved by
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For the

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HISTORICAL BACKGROUND

England of the 18th century was the richest and most powerful country in the world, but the distinction between the various social classes was very great. On the one hand was the very great mass of the poor exploited by industry, of children who never reached adolescence; on the other hand, the clergy and the nobility who derived enormous advantages from this situation and the slaveholders to whom the government gave financial assistance. It is within this historical context that the incident of H.M.S. *Bounty* takes place.

The slave-traders of the American colonies had requested the Crown to transplant the breadfruit tree to America in order to reduce the cost of maintaining the slaves. The Admiralty outfitted the *Bounty* and placed it under the command of the 33-year-old lieutenant William Bligh. In 1789 the *Bounty* arrived in Tahiti where it remained for five months. Upon the completion of its task, the ship was sailing for England when the crew, under the leadership of the second in command Fletcher Christian, mutinied. Bligh, together with a few subalterns who were loyal to him, was forced to embark in an open lifeboat with only a little food and no firearms. In this lifeboat Bligh travelled 3,600 miles to Java and safety - the only exploit of its kind in the history of navigation. Within the next three years the surviving mutineers were captured and condemned to death. Christian, together with eight others, escaped capture by fleeing to the uninhabited Pitcairn Island where he, like all the other mutineers except one, eventually met a violent death because of the many disputes that arose within the group.

The *Bounty*, originally a merchant ship named *Bethia*, was requisitioned and refitted in 1787 by the British Navy Board. Displacing 280 tons, the *Bounty* measured a little over 30 metres in length with a beam of about 8 metres. Christian set fire to the ship on his arrival at Pitcairn in 1790, but the *Bounty* only burnt out above the waterline. The remains of the sunken hull have been discovered recently.

ASSEMBLY INSTRUCTIONS

General notes:

- All dimensions given are in millimetres. The symbol \varnothing means diameter
- English translations of the Italian notes on the plans are given in these instructions.
- Component numbers (n.11, etc) refer to the numbered plywood parts on Plan 5.
- Figure numbers given below (Fig.1, etc) refer to the numbered figures on Plans 1 and 3.
- Part numbers (Part 23 etc.) refer to the detailed or exploded drawings on Plans 2 and 4.
- The sequence given here is the recommended order for completing the model.
- It is useful to hold the keel in a vice or working cradle while the ship is being assembled. Keel-clamp **Mantua Model Art.8155** (not supplied) is ideal for this purpose. If you do not have a suitable clamp, make up a working cradle by nailing two wooden runners 5mm thick and set 5mm apart onto a wooden base, so that the keel sits between the runners.

PLAN NUMBER 5

On the six plywood sheets supplied, and using the full-sized drawings on Plan Number 5 as a guide, mark the identity numbers on the parts with a soft pencil - so that the marks may be erased later. Provide yourself with some storage boxes. Remove all of the plywood parts from the plywood sheets with a craft knife, smoothing all edges with fine sandpaper and taking care not to destroy the laser-cut outline of each piece. Put the pieces in the storage boxes for safekeeping.

PLAN NUMBER 1

This plan shows how to construct the framing of the ship, how to plank the hull, the stern and the deck, how to add the handrails and how to make the lifeboat.

Figure 1: Trial fit frames n.1-n.9 into the keel n.13 and the deck plate n.15 onto the frames without glue, filing the slots in the parts as necessary so that they slide together without being forced. **Warning: the parts are fragile and will fracture if forced.** Glue frames n.1-n.9 into the keel n.13 and before the glue sets, glue the deck plate n.15 securely in place. Make sure the frames are aligned with each other and that they are square to the keel. Clamp the assembly and put aside until the glue has set.

Figure 2: Fit and glue frame n.10 into the stern keel plate n.14. When dry, fit and glue the assembly through the deck plate n.15 and into the socket in the keel n.13, fixing the side plates n.17 in place as shown below, clamping them together to support the joint in the keel until set.

Figure 3: Fit and glue the transom supports n.12 and n.11 into the rear of frame n.10 and clamp until set.

Figure 4: Glue the side cheeks n.16 onto the keel at the bow lining up the bottom of the side cheeks with the bottom of frame n.1. Clamp or pin until set. Figure 4 shows the complete built-up skeleton of the ship. Ignore the thick black line above frame n.4 for the moment as this relates to the planking operation that comes later.

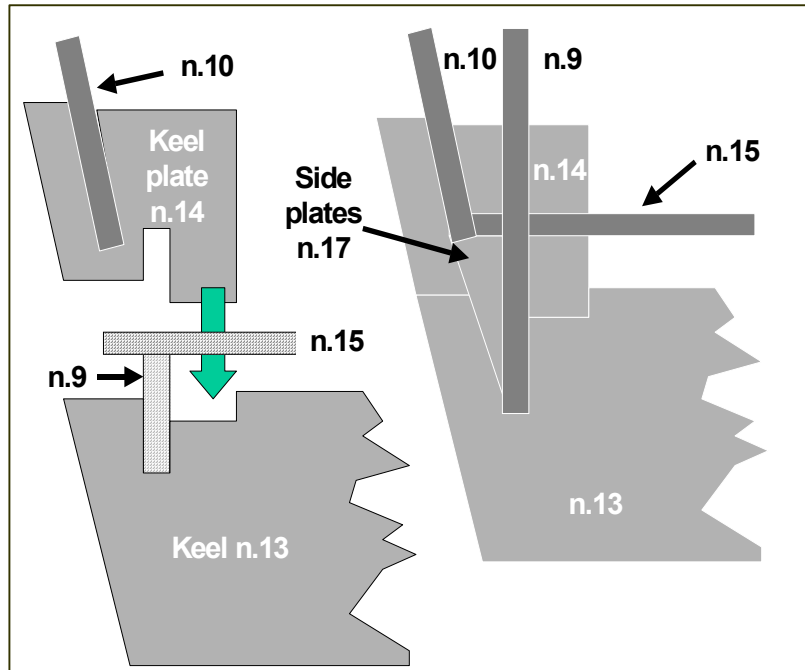


Figure 5: This shows a front, perspective view of the complete built-up skeleton of the ship.

Figure 6: This shows a front, perspective view of the complete built-up skeleton of the ship.

Figure 6: Deck. With a flat file and using a wood strip as a straight edge, chamfer and file down the top surfaces of n.10 and n.12 so that the deck will sit flat over frames n.8, n.9, n.10, n.11 and n.12 respectively, noting that the deck curves from side to side. Trial-fit deck n.21 onto the frames. The deck has to be curved from side to side to fit between the frames's ribs. The tops of the frames are also curved to achieve the deck 'sheer' required. With a finger inserted into a deck hole, gently push the sides of the deck down with the other hand to curve the deck until it can slide between the ribs. Repeat this along the deck wherever it needs to be curved, gently easing the deck down onto the frames. Make adjustments as necessary to the slots in the deck so that the deck will fit tightly against the tops of the frames. Remove the deck, apply glue to the tops of the frames and fit the deck in place, holding the deck firmly down on the frames with clamps or pins until set.

Figure 6: Display Cradle. Assemble the cradle from parts n.18 and n.19 and two pieces of Ø10 dowel 220 mm long, ensuring that the cradle is squared up and is placed on a flat surface to set. Varnish the cradle with two coats of matt varnish, sanding lightly between coats. Line the upper faces of the cradle with thin rubber strips such as draught excluder (not supplied) to protect the hull from abrasion. **Warning: this cradle is intended for display purposes and may fracture if put under pressure such as when hammering. Do not use this as a working cradle.**

Figure 8: Glue the transom n.22 onto the stern and line it up with n.11 and n.12, noting that it curves around the stern. Pin or clamp in place until set. Fit the inner transom n.23 to the inside of n.22, on top of the deck. Pin or clamp in place until set.

Figure 10: The deck determines the shape of the hull. The front edges of frames n.1, n.2 and n.16 and the rear underside edges of frames n.9, n.10 and n.17 need to be filed. This is so that the hull planks make a smooth curve around the frames to the bow and to the stern respectively and so that the area for adhesion is increased on these frames. Looking from above the deck, and using a strip of wood as a hull plank, check how much material needs to be removed from the edges of these frames. File or sand the edges of the frames as necessary. With a file, shape the bottom part of transom supports n.12 so that a smooth profile with parts n.10 and n.11 is achieved.

Figure 7: Planking the Hull. The first (inner) layer of planks will be 1.5x5 Limewood; the second (outer) layer of planks will be 1x5 Walnut. The thick black line on figure 4 shows the position of the first planking strip, which should be positioned horizontally in line with the bottom edge of the keel. Proceed with the planking in the sequence recommended in the specific instructions on planking provided in the last section of this booklet.

Plank from the top of the hull to the bottom and then add more planks above the first plank to cover the ribs and bring the sides up to the levels shown in the cross sections in figure 11 on Plan 1. The diagram in Fig.9 provides a guide to the appearance and profile of the finished planking. **Note: do not cut off the ribs n.6 to n.10 after planking as these support the parapet wall.**

Cover the rear of the transom and the underside of the stern with two layers of planking as follows. When the first layer of hull planking has been applied, cover the underside of the stern with 1.5x5 Lime planks carefully fitting the stern planks between the protruding hull planks. In planking the stern section leave a hole for the rudder to pass through. Carefully trim off the excess of the hull planks to make a neat edge with the first layer of stern planks. Cover the whole stern area (including the outside face of transom n.12 with 0.5x3 Walnut planks and trim them neatly. When the second layer of hull planks has been applied, careful trim them around the stern to make a neat joint with the stern planks. When the planking is completed, trim down and taper the inside faces of frames n.6 to n.10 to narrow the supports for the parapet wall. The desired shape is shown in the right-hand cross-section in figure 11. Cover with 1x5 Walnut planks and sand smooth.

Figure 9: Deck Planking. For the deck planks, cut 0.5x3 Walnut strips into accurate 100mm lengths, ensuring a neat, square cut at both ends. Note that it may be useful to make up a cutting template, as over 100 of these planks will be needed to cover the entire deck area. Position the planks alternately using the scale plan-view on Plan 2 as a guide. Leave tiny gaps between the planks to simulate caulked joints. Trim the planking around the holes in the deck, and fit shaped pieces of planking in corners so as to cover the entire deck surface. When the deck covering is finished and dry, scrape the surface of the deck to remove excess glues and then smooth carefully with fine grade sandpaper. Varnish the deck with sanding sealer (such as Mantua Model Art.4401714, not supplied in the kit). When the deck planking is completed, plank the insides of the parapet walls (bulwarks) with horizontal 1x5 walnut strips. Cover the inside face of the stern transom n.12 with vertical 1x5 Walnut planks.

Figure 11 shows cross sections through the hull at frame n.5 (left) and frame 6 (right) for reference. Use these views later to check the positions of the timbers on the outside of the hull.

Lifeboat. Cover the plastic hull with 0.5x3 Walnut planks using instant glue. Make the bilgeboards (item 87) from 1.5x2x70 Walnut planks. Paint the inside of the boat with matt brown acrylic paint. Add a bow seat, stern seat and four cross-seats for the rowers made from 1x5 Walnut planks, and rowlocks made from 2x2 Walnut plank. These are not shown on the plan but can be seen in the colour photograph on the box. Sand the cradles n.88. Varnish all parts with two coats of matt varnish, sanding lightly between coats. Put aside to assemble on deck at a later stage.

PLAN NUMBER 2

This plan provides a full-sized side view, a full-sized overhead view and a perspective view providing details of the items fitted to the hull and on deck. The circled numbers (P.1 etc.) on these views refer out to the detailed part drawings around the plan. **Caution: the detailed part drawings are not all to the same scale.**

Preparing the Photo-etched Brass Parts. Lay the photo-etched plate on a flat work surface, and paint it all over using a dark blue matt acrylic paint. When the paint is dry, lightly sand the surface with fine (600-grain) paper until the raised details of the plate become paint-free and polished, the paint remaining in the incised portions. Cut out the pieces with tin shears or strong scissors (noting that the windows are not cut out individually) and finish the edges carefully with a file. Varnish the brass to keep it shiny. Put the parts in a storage box for safekeeping.

Part 1: The transom assembly is constructed from the two plywood parts n.35, spaced and supported by wooden beams made from 2x2 Walnut plank. Plank the space between the two transom plates with 2x6 Walnut plank. When dry, sand the outer profile to make smooth curves.

Stern Brasswork. The stern windows and decoration are made from the photo-etched brass plate supplied. Fix the stern decoration, the block of four stern windows and the nameplate strip onto the transom with instant glue and brass nails, using the colour illustration on the box as a guide.

Gunwale planks. Referring to the side view on Plan 2 and item 28 in Figure 11 on Plan 1, apply the gunwale planks made from 2x3 Walnut plank. See also Part 25 on Plan 2 for details. Before gluing the gunwale planks to the sides of the hull, mark their positions using tape. Check that they are at the same height either side. These planks run the entire length of the hull, from bow to stern. To form them around the bow, they will need to be steeped in very hot water for a minute or two before being bent, glued and held in place with pins until the glue has dried.

Part 29 - Gunports (two each side). Taking the positions from the side view on plan 2, use a gunport frame as a template (these are supplied in bronze with the kit), and mark the openings for the gunports on the hull. Using a small drill and a fine-point craft knife, carefully cut out the ports. Trial fit the gunport frames and file out the apertures so that there is 0.5 to 1mm clearance around the frame lip. Remove the frames and line the inside faces of the gunports with 0.5x3 Walnut plank, sanding flush with the hull. Drill a $\varnothing 1$ hole through the nib on each port lid and fit a small brass ring through each nib. Drill a $\varnothing 1$ hole in the bulkhead above each port as shown in the Part 29 sketch and thread a short length of $\varnothing 0.5$ rope through each hole, leaving a stopper knot on the inside of the bulkhead. Fit the ports into the frames and fix the gunports in place with epoxy glue. Tie off the ropes to the rings in the port lids so that the lids are held open just above the horizontal.

Hull Ladder. The nine external footholds on each side of the ship's hull leading up to the deck are made from 2x3 Walnut plank and are 12mm long. See the side and perspective views for positions.

Kick-rails: These timbers (item 27 in figure 11 on Plan 1) fit on the deck from frame n.6 to the bowsprit support and are each made from three pieces of 2x2 Walnut plank formed to shape and glued side-by-side. The innermost two planks sit on the deck and the outermost plank sits on top of and is glued to the upper gunwale plank fitted earlier. Figure 12 on Plan 1 provides a template for making these planks away from the ship using pins inserted into a wooden base to hold the planks to shape. Steep the plank ends in very hot water for a minute or two before bending. Glue them together and hold them in place pins until the glue has dried.

Handrails.

- **The aft-handrails** (item 27A in figure 11 on Plan 1) run from the stern transom to frame n.6 and are made from 2x6 Walnut plank. Sand the top of the parapet walls and the supporting ribs level before gluing the handrails in place.
- **Stern bulwarks.** Cover the top and sides of the transom with pieces of 2x6 Walnut plank (see Part 1 for details). Continue the planking down between the gunwale planks to trim the end of the stern. Use the perspective view and the colour photograph on the box as guides.
- **The fore-handrails** are now placed on the deck – see the perspective view for details. The support beams to hold the railings are made from 3x3 Walnut plank. The height of the railings is the same as that of the aft railings, and the two railings are separated by a piece of hinged rail above the external ladder. Take the positions and dimensions from the side view on Plan 2. To strengthen the beams, drill a $\varnothing 0.7$ hole in the base of each beam and glue in a headless brass nail to make a tenon. Carefully drill $\varnothing 0.7$ holes in the deck and fix the beams in place with instant glue. Use 2x6 Walnut plank for the railings. Slight tapering of the railings with a small plane or knife at each end will give the contour needed to match the external curve of the deck.
- **Part 16 - Rail Opening.** Two are required. Make the rail opening from 2x6 Walnut plank and the metal parts supplied with the kit. The pin (item 58) is cut from $\varnothing 0.8$ brass wire. Fit in place between the two sections of handrail.

Painting. Paint the hull area between the 1st and 2nd gunwale planks with matt dark blue acrylic paint. Set aside to allow the paint to dry thoroughly. Suggestion: we recommend the use of an airbrush and 3 coats of matt paint diluted to 3:1 with appropriate thinners. Alternatively, paint by hand using matt paint, a good quality sable brush and employing light longitudinal brush strokes.

Part 23 – External Support Beams items 63-64-65. Make these from 3x3 Walnut. The sizes and grooves are shown in the detailed drawing, but modify these dimensions as necessary to fit over the rails and gunwale strips already fitted to the ship. Use a small flat file to shape the beams. There are six beams to be made for each side of the hull. Follow the side and overhead views carefully for their placement.

Channels. The plywood parts for the channels (items 46 and 47) hold the deadeyes for the masts. Cover the top and bottom surfaces of the channels with 0.5x3 Walnut planks. With the positions taken accurately from the overhead view, use a $\varnothing 1$ drill to cut 2mm-long slots in the channels to take the deadeye fixings. Glue the channels accurately in place on top of the 2nd gunwale strips as shown on all three views on Sheet 2.

Parts 11, 12 and 14 - Bitts. Make these from 4x4 Walnut plank and shape $\varnothing 2$ tenons on the bases. Use the overhead view as a guide to the positioning on the kickrail. Drill the kickrail to take the tenons and glue the bitts in place.

Part 2 – Rudder and Tiller. The rudder is plywood part n.36 and the tiller is plywood part n.38. Shape the top 15mm of the rudder into a tapered $\varnothing 5$ stem so that it will slide into the tiller without forcing. Fit three of the black 'u'-shaped rudder shackles supplied to the keel as shown in the side view on Plan 3. Carefully cut a hole in the underside of the stem to take the top part of the rudder and slide the rudder into position. Mark the position of the tops of the rudder shackles on the rudder and fit three 'u'-shaped brackets to the rudder with the bottom edges lined up on these marks. Place the rudder in position and glue the three rudder pins into the shackles to hold the rudder onto the stern. With the rudder lined up down the centre-line of the ship, fix the tiller in position on the rudder stem, ensuring that the tiller is lined up with the centre-line of the ship and is positioned as shown in the side view on Plan 2. Make sure that the tiller and rudder head do not protrude more than 10mm from the deck so as not to interfere with the flagpole base.

Part 22 – Flagpole Base and Holder. Assemble plywood parts n.67 and n.68 and cover with 0.5x3 Walnut planks. Glue two strips 3x3 Walnut plank (item 70) inside the corners to strengthen the base joints. Fit the base onto the deck over the tiller and against the transom. Assemble the flagpole holder sides (plywood parts n.69) to the blocks (item 7) made from two pieces of 4x4 mm strip, drilled with a $\varnothing 3$ mm hole to take the flagpole. Glue the parts together using a piece of 3mm dowel as a temporary flagpole, and noting that the pole tilts backwards as shown in the side view. Glue the assembly onto the base and against the transom.

Part 24 – Side windows. Fit the window plates n.72 to the stern sides, with glue and brass nails, noting that they are 'handed'. Use the side view as a guide to identify which plate goes on which side. Mark and cut away the railings and gunwale planks to allow the plates to sit flush against the hull. Following the Part 24 drawing closely, construct the windows from the photo-etched brass parts prepared earlier and fix them in place with instant glue. The windows item 33 are folded and placed between the raised top and bottom flaps cut into item 32.

Varnishing. Coat all unpainted areas (but not the deck) with two coats of matt varnish, sanding lightly between coats. All parts added later should be varnished before being fitted to the ship.

Part 6 – Ladder. Assemble this from the two sidepieces supplied and treads cut from 1x3 Walnut plank. When completed, glue the ladder in place in the opening to the hold as shown in the overhead view. Frame the deck aperture on three sides with 2x2 Walnut plank

Part 28 – Gratings. These are constructed from pre-notched parts supplied and framed with 2x3 Walnut plank. Seven gratings are required with different numbers of notches. From the stern these are: 5x3; 8x4; 3x4, 9x5, 3x9, 2x2 and 2x2 respectively. The five larger gratings are also boxed with sides made from 2x6 Walnut planks supplied with the kit. Assemble the gratings on a flat surface and fix the parts together with drops of instant glue. Carefully drill $\varnothing 2$ holes in the port and starboard sides of the gratings under the lifeboat and behind the mainmast as shown on the plan. Glue the gratings over the deck apertures as shown on the overhead view.

Parts 19 and 20 - Belaying Pin Racks. Taking the dimensions and positions from the overhead view, make up the four rails from 2x6 mm Walnut planks drilled with $\varnothing 1.3$ holes for the belaying pins. Glue a belaying pin in each hole and glue the racks under the handrails as shown.

Part 3 – Ship's Wheel. Assemble the axle and wheelbase (the metal parts provided) to the stand (plywood parts n.26) as illustrated. Glue the assembly on deck. Rig the wheel to the tiller as shown, using 4 small blocks and six eyelets supplied with the kit.

Parts 4, 8 and 9 – Fife Rails. Four rails are needed, two of Part 8 and one each of Part 4 and Part 9. Shape the tenons to $\varnothing 2$. Drill $\varnothing 1.3$ holes for belaying pins and glue a belaying pin in each hole. Drill $\varnothing 2$ holes in the deck to take the tenons and glue the rails to the decks as follows: Part 4 in front of the mizzenmast, Part 8 on either side of the mainmast and Part 9 at the bow.

Part 5 – Capstan. All the parts needed for the capstan are precut and supplied with the kit. Follow the sketch for assembly. Glue the capstan on the deck as shown in the overhead view.

Part 7 – Waterpump. This is constructed from the precut parts supplied. Follow the illustration for the assembly. Glue in place as shown on the overhead view.

Part 15 - Anchor Winch. Assemble this from the supplied parts. Make the bell support from 6x6 Walnut plank shaped to the dimensions given and with the base reduced to a $\varnothing 2$ tenon. Make the bell support and the handle from $\varnothing 0.8$ brass wire. Glue the winch on the deck as shown in the overhead view. Drill a $\varnothing 2$ hole in the deck and fit the bell support in place.

Part 13 – Galley Chimney. Construct this from 10x10 Walnut plank to the dimensions shown. Glue on the deck behind the starboard (left) bow grating.

Part 28 – Catheads. Make these from 6x6 Walnut plank, tapered and drilled with two $\varnothing 1$ holes as illustrated. Glue the catheads to the deck over the kickrails, taking the positions from the overhead view.

Part 18 – Guns. Assemble the parts supplied as illustrated. Glue the guns in place protruding through the open gunports as shown in the overhead view. *Optionally and for added realism, rig the guns as illustrated noting that the blocks and eyelets for this are not supplied in the kit.*

Part 10 – Deadeyes and Chain Plates. The deadeye links are inserted through the holes in the channels and the chain plates are nailed to the hull as shown in the sketch. Note that there are two sizes of deadeye used: 5mm and 7 mm as indicated on the overhead view. Note also that the chain plate assemblies each slant slightly differently toward the masts to line up the rigging (shrouds) correctly. Secure each chain plate foot to the hull with both glue and a brass nail.

Lifeboat. Fix the two supports to the deck and glue the lifeboat in place on the supports as shown in the overhead view.

Part 27 – Hawse-holes. Make two hawse-hole plates from 2x6 Walnut plank and glue them to the bow. Drill $\varnothing 4$ holes through the bow for the anchor ropes. Carefully drill two $\varnothing 2$ holes in the deck in front of the anchor winch to take the anchor cable.

Part 30 – Hawse Guides. Fit a $\varnothing 3$ brass ring to each of two brass eyelets. Drill $\varnothing 1$ holes in the deck and fit the eyelets in front of the anchor winch as shown.

Part 26 - Anchors. File the two plywood anchor stocks supplied to achieve the desired 20mm long tapers on three faces at each end. File square the opening into which the upper shank of the anchor will fit to match the size of the anchor shaft. **Caution: the anchor castings are brittle and will snap if bent.** Secure the stocks on the anchors, then wind 5 or 6 turns of $\varnothing 0.5$ rope in four places on each stock as shown, fixing the thread with a little glue. Insert a $\varnothing 6$ brass ring through the tail of each anchor. Tie a 500mm length of large thread to each anchor ring and bind it with thin thread as shown. Rig the anchors to the catheads and feed the anchor ropes up through the hawse-holes, up through the deck and around the winch. Coil the excess rope on deck as shown in the overhead view and secure with a drop of instant glue. Lash the anchor flukes to the bitts on the bow kickrails.

Part 21 – Falconets. Assemble the six falconets from the parts supplied, bending the falconet handles down with round pliers. Drill a $\varnothing 0.8$ hole in each falconet support posts. Glue the falconets in place only when the rigging has been completed.

PLANS NUMBER 3 AND 4: MASTING AND RIGGING

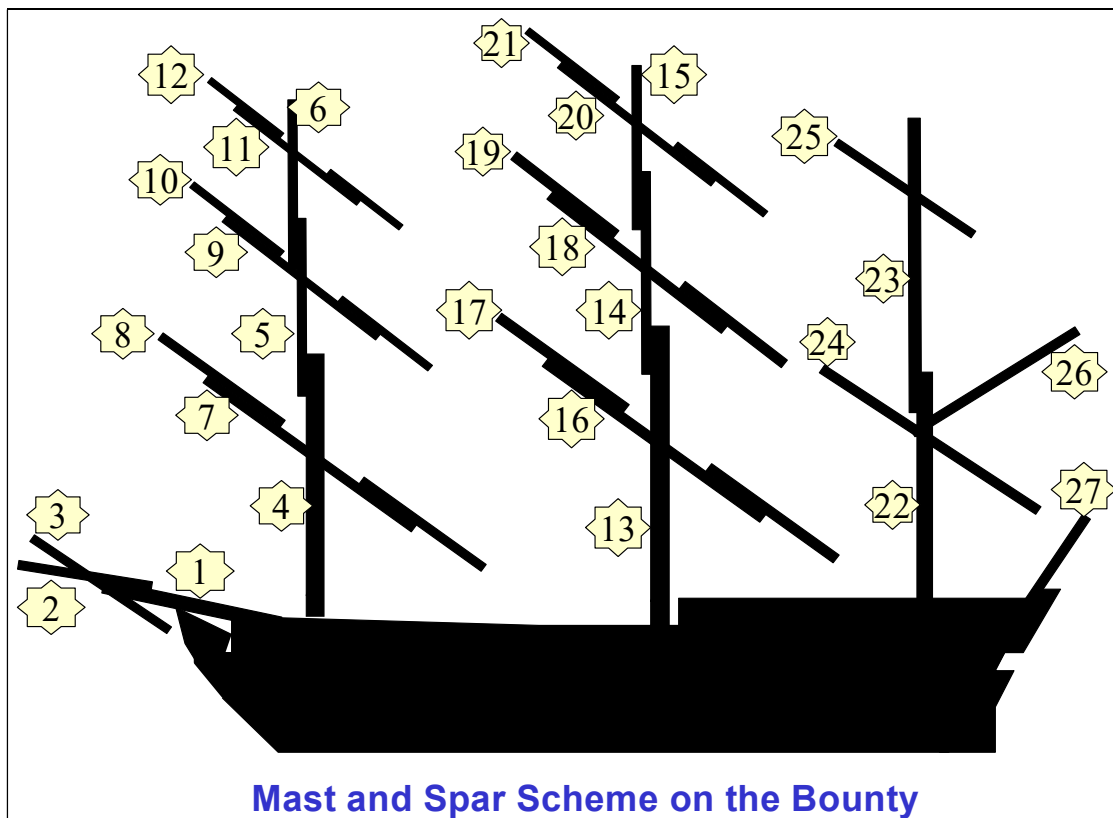
A word here about the masts, spars and the rigging. Although Plans 3 and 4 may look complex at first sight, the work is much simpler than it looks. The steps detailed below will take you through the plans in a structured way. Sheet 3 deals with the standing and running rigging. Sheet 4 deals with the dimensions of the masts and spars, the assembly of the masts and the making of the sails.

Cutting the Masts and Yards.

The following diagram identifies the various masts and spars used on the *Bounty*. Using the dowel provided in the kit, cut and taper all the masts and yards to the cutting and shaping dimensions noted on the side-view on Plan 4 and listed in the table below: **L** = length; **\varnothing Max** = the largest diameter; **\varnothing Min** = the smallest diameter.

Unless stated otherwise, taper the dowels towards one end only. Where indicated, taper the dowels using either i) a hand plane and sandpaper, or ii) an electric drill and sandpaper, or preferably, iii) an electric lathe (such as Mantua Model Art. 8160). For the yards, start the tapering 75mm from the ends, leaving the centre section unaltered. Finish the masts and spars with fine grit sandpaper and varnish with two coats of matt varnish, sanding lightly between coats.

Temporarily label the masts and spars with masking tape until assembled.



Ref	L	ØMax	ØMin	Name and notes
1	225	8	6	Lower bowsprit
2	150	5	3	Upper bowsprit
3	175	5	3	Spritsail yard – tapered both ends
4	245	8	6	Lower foremast
5	198	5	4	Upper foremast
6	140	4	3	Fore topgallant mast
7	230	5	3	Lower foresail yard – tapered both ways
8	107	3	2	Lower foresail yardarm – two required
9	175	5	3	Upper foresail yard – tapered both ways
10	85	3	2	Upper foresail yardarm – two required
11	140	4	2	Fore topgallant yard – tapered both ends
12	70	3	2	Fore topgallant yardarm – two required
13	273	8	6	Lower mainmast
14	205	6	4	Upper mainmast
15	155	4	3	Main topgallant mast
16	270	6	4	Lower mainsail yard – tapered both ends
17	130	3	2	Lower mainsail yardarm – two required
18	200	5	3	Upper mainsail yard – tapered both ends
19	100	3	2	Upper mainsail yardarm – two required
20	140	4	2	Main topgallant yard – tapered both ways
21	72	3	2	Main topgallant yardarm – two required
22	210	8	5	Lower Mizzenmast
23	130	4	3	Upper mizzenmast
24	175	5	3	Lower mizzensail yard – tapered both ends
25	135	4	2	Upper mizzensail yard – tapered both ends
26	120	4	2	Mizzen gaff – Taper the collar (mast) end to Ø3
27	120	3	2	Flagpole.

Plan 4 / Part 1 – Bowsprit. Following the sketch, assemble the two bowsprit spars into the plywood sprit cap (n.109). Make the spacer from 6x6 Walnut plank. Lash the two spars together using medium rope. Trial fit the bowsprit into the deck, elongating the deck hole as required so that the bowsprit will sit against the mainmast below decks, sit between the two bits (Part 11 on Plan 1) and rest on the bowsprit support on the ram. Glue the three bow supports n.73, n.74 and n.75 onto the ram. Glue the bowsprit in place. Prepare the bowsprit railings (item 34) cut from the photo-etched plate. Trial-fit the exact positions and then nail the railings onto the bow and keel, bending the railings to line up on the bow supports fitted earlier. Fix with six brass nails each side. Cut a slot through the railing plates and the ram to take the bowsprit lashing. Following the side view on Plan 3, lash (gammon) the bowsprit to the ram and railings with medium rope.

Figurehead. Fettle and polish the brass figurehead (item 76) and apply a protective coat of varnish. Fix the figurehead in position with epoxy glue.

Assembling the Masts

Square off the lower foremast, mainmast, and mizzenmast at the top ends with a flat file as shown in the sketch **Part D / Plan 4**. Shape the ends into tenons to fit the holes in the mast caps (parts 91, 117 and 134 respectively).

Glue 0.5x3 Walnut planks as reinforcement on the front faces and sides of the three lower masts and lash them with medium rope in four places as shown in **Part N / Plan 4**. The thread is secured with a little glue.

Taking the dimensions and positions from the side view on Plan 4, fit the masts into the mast caps, joining the lower mast, topmast and topgallant mast sections and checking that the masts are aligned vertically and that the lower masts are aligned to face the bow.

With reference to the side view and the sketch **Part D / Plan 4**:

- Fit the support cheeks plywood parts n.92, n.113 and n.130 respectively to the sides of the three lower masts.
- Make and fit the trestle-trees - which sit on top of the cheeks - from 2x6 Walnut plank using the dimensions taken from the side-view.
- Make the cross-trees – the cross-structure that supports the platforms (tops) – from 2x3 Walnut plank cut to the same length as the platform that sits upon them. Note that the three tops are each different in size.
- The tops (platforms) are made from plywood parts n.92, n.116 and n.133 respectively, covered on both sides with 0.5x3 Walnut strips, and with 1x5 Walnut planks fitted as kick-boards to the stern-facing straight sides. Glue the tops accurately in place on the cross-trees taking care to align the tops with the centre-line of the hull, and ensuring that equal space is left on each side between the top and the masts through which the shrouds will pass.

With reference to the sketch **Part E / Plan 4** for the foremast and mainmast, make and fit the trestle-trees (made from 2x6 Walnut plank) and the cross-trees (made from 2x3 Walnut plank) around the joints between the topgallant and upper masts, ensuring that all mast items are aligned.

Trial-fit the masts into the deck and make adjustments to the deck holes as necessary to get a perfect vertical alignment of all three masts as viewed from the stern. Use the scale side view to align the masts with the positions on the drawing, noting the slight backward rake of the masts. Remove the masts and slide the base of each mast into a mast foot – a ring made from $\varnothing 0.8$ brass wire. Glue the masts in place ensuring that the masts align with the centre-line of the ship and using slivers of wood as wedges if necessary. Trim off any excess slivers and glue the mast feet in place with a drop of instant glue. Set aside to dry.

With reference to sketch **Part G / Plan 4**, add yard fenders made from 0.5x3 Walnut plank to all the yards. Take the dimensions from the side view on Plan 4. Sand the joints smooth and varnish over.

Taking the sketch **Part C / Plan 4** as a guide, make twelve yardarm irons from $\varnothing 0.8$ brass wire and lash them to the ends of the foremast and mainmast yards with thin rope as shown. Insert the yardarms in position and lash them to the yards with thin rope. Secure the lashings with glue.

Using sketch **Part F / Plan4**, fit and rig the gaff collar (plywood part n.139) to the mizzen gaff spar as shown. Make the collar from 6x6 Walnut plank and glue it on the rear of the mizzenmast 15mm below the support cheeks.

Rigging Points. Working from prow to stern, drill a $\varnothing 0.8$ hole and fit a brass pintle (eyelet) with a brass ring to each eyelet anchor point for the rigging indicated on the overhead view on Plan 4 and around the bow as shown in the side view on Plan 3.

RIGGING

The rigging is divided into three main parts. The standing rigging (the lines that hold the masts permanently to the deck) is represented by the darker lines on Sheet 3 and is added first. The running rigging (those lines that were used to manoeuvre the spars) is represented by the thinner lines on the plan and is added next. The running rigging of the sails is added last. Make the rigging tight, but not so tight as to deform the masts or spars.

PLAN NUMBER 3

This plan shows a full-sized side view of the standing rigging and the running rigging for the yards, plus a number of sketches giving details of the rigging techniques used. For added realism dye the $\varnothing 1$ rope black using any good commercial dye.

Standing Rigging.

Figure 1: Lower Shroud Lines. These are the ropes securing the masts via the deadeyes. Make these from medium thread and secure them to the masts using 'seized' loops as shown in the diagram. Pass the ends down through the side gaps between the platform and mast.

Figure 7: Terminating the Lower Shrouds. The lower ends of the shrouds are terminated around deadeyes and the deadeyes are tensioned against the deadeyes on the channels using thin thread as shown in figure 7. Make the shrouds tight, but not so tight as to deform the masts.

Figure 2: Top Shroud Deadeyes. Drill the tops with $\varnothing 1$ holes and fit deadeyes for the top shrouds with medium thread. Tie the threads off to the lower shroud lines as shown here.

Figure 3: Top Ladders. Using the technique shown, lash pieces of 0.8 brass wire to the shrouds to make ladders under the edges of the tops.

Top Shrouds. Rig the top-shrouds as shown, using medium thread. Secure the top-shrouds to the top deadeyes as shown in the side view. The recommended method for fixing the top-shrouds to the mast is to make a 'seized' loop using thin thread as shown below. The loops should sit snugly on the taper of the mast. ***This method should also be used elsewhere on the model to secure ropes around masts and spars.***

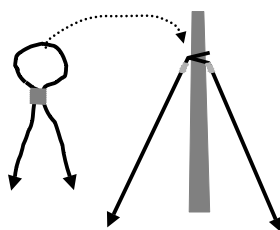


Figure 5: Ratlines. Make and bind the ratlines to the shrouds using thin thread – once the shrouds are tensioned correctly. Secure the end knots with a drop of instant glue.

Figure 10: Mainstay Blocks. The method of tensioning the great ropes used to support the mainmast is shown here. Secure the knots with drops of instant glue. Working from bow to stern and following the plan, fit all the remaining standing rigging - the other ropes (or stays) used to tension and hold the masts and bowsprit in position.

Running Rigging: Yards

To permit work to proceed simply and rapidly, it is recommended that all of the mast components should be prepared apart. Note: the plan shows the yards angled fore and aft for clarity. Of course, these are set square across the ship (square-rigged) on the completed model, so that the rigging is equal each side of the ship.

Figure 9: Footropes. Add footropes made from thin thread as shown to all yards - except the spritsail yard and the lower mizzensail yard. Secure the knots with glue, and dress the rope into curves to give the impression of weight.

Figure 4: halyards. This shows how to make the halyards to support the yards, using medium thread and blocks. Proceed to fit all of the rigging blocks, both on masts and on yards. All blocks are two-holed, double pulley. When complete, lash the centres of the yards to the masts using medium rope as shown in **Part G / Plan 4**.

Figure 6: Halyard Details. Working from bow to stern and from the bottom of the mast upwards, now proceed to rig the halyard blocks on the yards to the halyard blocks on the masts. Terminate (belay) the rigging to the numbered rigging points identified on the plan. Dual numbers indicate that the rigging is doubled and therefore needs two terminal points – one on each side of the ship. Use thin rope. Apply glue to stiffen the tips of the lines to help insertion through block holes. Ensure that rigging is tight, but does not deform masts or spars.

Figure 8 shows how to secure a rigging line to a belaying pin. **Note: Tying up the excess lines.** Wind a length of the excess line around a 10mm former and glue it to hold it into a hank. Loop the hank over the belaying pin, and pull down on the hank to simulate the natural droop of the rope. Glue in position with instant glue.

Making the Sails

The canvas for the sails is supplied in the kit. Making the sails is not difficult but does require skill and patience, and about 60 hours of work if sewn by hand. If preferred, a set of ready-made sails for the **Bounty Art 34004** may be purchased from Mantua Models.

The sails are made using the cloth provided. Follow the diagrams on **Plan 4** for the sails.

- Cut out thick paper templates for the sails using the dimensions and shapes on Plan 4.
- Plan and cut the sails from the cloth provided using the templates and allowing a margin of 8mm all round the templates for the sail hems.
- Sew up the hems, folding the edge of the cloth into a 4mm wide hem. Real sails are made from a number of strips. Sew lines across the sails to simulate the joins between pieces as shown on the plan.
- Sew a boltrope around each sail as shown in Part B. Form the corners into clewing rings as shown in **Part B** and the side view.
- Fit reefing ropes (for shortening the sails) using thin rope as shown in **Part L** and in the side view.
- To add realism, soak the sails in tea (no milk) overnight and dry on kitchen towel. This gives the sails a golden tan typical of used canvas.
- On the spanker and triangular sails, fit brass rings into the clewing rings as shown in **Part A**.
- Bend (tie on) the triangular sails to the foremast stays using brass rings as shown in **Part H**.
- Bend the square sails to the yards using the looping method shown in **Part M**.

Running Rigging: Sails

Start the running rigging from the top of the foremast downward. Follow the diagram of the bottom left of Plan 4 to identify the belaying points for the sails. **Figure 1 on Plan 4** shows the general layout of the sail rigging components.

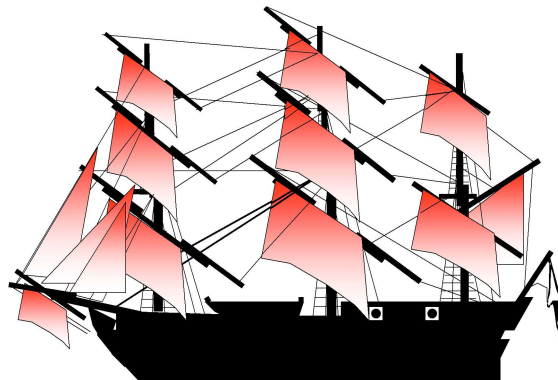
All blocks are single-hole. Use thin rope.

Terminate (belay) the rigging to the numbered rigging points identified on the plan. Dual numbers indicate that the rigging is doubled and therefore needs two terminal points – one on each side of the ship. Apply glue to stiffen the tips of the lines to help insertion through block holes.

To put 'life' in the sails in the absence of wind, partly furl some of them as shown on the colour illustration on the box.

Finishing Off

- Glue the six falconets (Part 21 prepared earlier) in place on the support beams when the rigging has been completed.
- Insert the flagpole and rig the silk flag on the hauling line of the flagpole (by hemming the edge of the flag with the line held inside the hem. To give the flag an appearance of weight and droop in the absence of wind, fold and secure the flag in a draped position using some thin pins, and then spray the flag with fixer or transparent hair lacquer.
- Touch in any varnish or paint as necessary.
- Assemble the ship on the cradle and admire a job well done.



LIST OF THE MATERIALS CONTAINED IN THE KIT

Item Identity Numbers	Quantity	Description
1-3-4-5-9-10	1	Plywood sheet 5x210x410
2-6-7-8-15	1	Plywood sheet 5x210x500
11-12-13-14-16-17-18-19-36-38- 73-74-75-88-89-91-97-109-117-121-134-139	1	Plywood sheet 5x210x550
20	1	Walnut dowel Ø10x450
21-22-23-35-46-47-67 -68-69-92-93-113-116-130-133	1	Plywood sheet 1x195x608
24	65	Lime planks 1.5x5x650
25	70	Walnut planks 1x5x650
26-48	80	Walnut planks 0.5x3x650
27	6	Walnut planks 2x2x400
27 A-40B-44B-45B-61 62- 78-81-94-98-114-119-131	6	Walnut planks 2x6x650
28-80-82-95-99-115-120-132	16	Walnut planks 2x3x650
29-30-31-32-33-34	1	Photo-etched brass 125x170
37	6	Rudder hinges 0.3x2x10
37A	3	Hinge pins Ø2.5x5
39A-72	1	Round house plywood1x75x85
39B	1	Steering wheel
39C	1	Spacer 6x8
39D	1	Pin, Ø2x21
39E-84-140	10	Eyelets
39F-60E-838-85	70	Rings Ø3
40A-44A-45A-50A/B-51-53-71	1	Walnut plank 4x4x500
41A	1	Pin 4x28.5 mm -capstan
41B	1	Dowel 17x3 mm -capstan
41C	1	Dowel 21x1 mm-capstan
41D	1	Body 12x13mm-capstan
41E	8	Winch side frames 5x 12x2 - capstan
41F	1	Dowel 18x1 - capstan
41G	1	Dowel 15x3 - capstan
41H	1	Cap 18x3 - capstan
41I	1	Nut 4x4,5 - capstan
41L	4	Pins 3x3x30 - capstan
42A	1	Ladder right side
42B	1	Ladder left side
42C	1	Walnut plank 1x3x70
43A	1	Body 10x17 - pump
438	1	Support 3x6x23 - pump
42C	1	Pin Ø0.8x3,5x32 - pump
43D	1	Pin Ø0.8x5 - pump
43E	1	Eyelet - pump
43F	1	Dowel Ø4x5 - pump
43G	1	Copper strip 0,3x2x90 - pump
43H	1	Pin 2x8 - pump
49A	64	Deadeyes, Ø5 mm
49B	40	Deadeyes Ø7 mm
49C	10	10 Straps Ø5 mm
49D	20	20 Straps Ø7 mm
49E	60	Oval rings Ø8 mm
49F	30	Chain plates 12 mm
52	1	Walnut plank 10x10x50
54A	2	Side frames - windlass

Assembly Instructions: Bounty Art. 785

Item Identity Numbers	Quantity	Description
54B	2	Dowels Ø12x4 - windlass
54C	2	Side bodies 10x25 -windlass
54D	1	Dowel Ø12x9 - windlass
54E	1	Dowel Ø5x90 -windlass
55A-77E-110-141	1	Walnut plank 6x6x200
55B-58	1	Brass wire Ø0.8x 120
55C	1	Bell 8x10mm
56	2	Hinges 12 mm
57-66B	102	Nails 8 mm
59	4	Pintles 7 mm
60A	4	Walnut bodies 8x21x10
60B	4	Pins 1.5x10
60C	4	Barrels 30 mm
60D	8	Cotter pins
60F	8	Wheels 5x14 mm
63-64-65-70	2	Walnut plank 3x3x500
66A	6	Falconet supports
66C	6	Falconet, 22 mm
66D	1	Brass wire Ø0.8x30
76	1	Cast figure head
77A	2	Anchors, 50 mm
77B	2	Anchor stocks, 55 mm
77C	2	Rings Ø6 mm
77D	1	Brass wire Ø0.8x500
79A	60	Gratings 1.9x2.5 x42
83A/C	4	Gunport sets
86	1	Life boat
87	10	Walnut planks 1,5x2x90
90-107-112-129	2	Walnut dowels Ø8x500 mm
96-101-103-108-111-125-136	3	Walnut dowel Ø5x500
100-105-122-127-135-138	2	Walnut dowels Ø4x500 mm
102-104-106-124-126-128-142	3	Walnut dowels Ø3x500 mm
118-123	1	Walnut dowel Ø6x500 mm
137	1	Walnut dowel Ø4x150 mm
143	1	Flag
	40	Wooden belaying pins 12 mm
	90	Single blocks, 5 mm
	80	Double blocks 5 mm
	4	3-eye blocks 5 mm
	35m	Rope Ø0.50
	28m	Rope Ø 1
	2m	Rope Ø 1.75
	1	Sail canvas 500x700
	1	1 Instruction book
	1	Set of five construction plans

Note: Depending on the availability of supplies the Mantua Model Group may from time-to-time, substitute alternative materials to those specified above.

PLANKING INSTRUCTIONS

Newcomers to this fascinating hobby, or those new to the construction of a Mantua Group period ship model, sometimes have questions when they start to work such as: "How big an obstacle is the planking? Is it possible to have something additional in the way of equipment or instructions to help in this most important part? Are there any photographs or diagrams that may help?" To assist you, we have produced this short instruction sheet in an attempt to lessen any problems you may encounter.

PLANKING OR THE APPLICATION OF STRIPS

First, a short note on the background. Each vessel was originally clad with large wooden boards positioned longitudinally or diagonally to the line of the hull, either with one plank overlapping the next (clinker-built), or planked one adjacent to the next (carvel-built), and nailed onto the ship's frames. This covering, in addition to being necessary for buoyancy (after caulking and sealing the joints) also gave considerable strength to the whole vessel.

In the case of our own models, because of the nature of the materials used, the planking will be accomplished using not short planks, but with full strips wherever possible, and doubled up in most cases, as they were in the original vessels. This technique is made possible through the flexibility and quality of the materials provided. To achieve a high quality finish to the planking, we suggest the following proven system, which is demonstrated in the diagrams on the last page.

The planking operation begins on plan number 1 of each of our model's instructions. The position of the first plank is shown on a profile of the skeleton structure after assembly. This reference point normally corresponds to the highest point of the two or three central frames and coincides with the lowest point of the curve formed by the extreme tops of the frames themselves. Where required, use a strip bender to curve the plank so that it fits the shape of the hull.

The first strip applied must be perfectly parallel to the line of the keel and should be fitted at the bow, the other end projecting beyond the length of the hull as in Fig.1 below. If the ship is to be double-planked, the initial planks may be glued and lightly pinned to the frames. The pins are to be removed once the assembly has properly set. Please note that where the upper sections of the frames are to be removed later, the planks should be pinned only at these places, i.e. no glue applied.

Proceed in the same manner from the top to bottom, fitting each plank snugly against the other, checking that they can be positioned easily without having to unduly force or twist the plank longitudinally. **Be sure to cover each side of the hull alternately, working three to four planks at a time. This avoids twisting the hull.**

After a number of these 'easy' planks have been fitted, a certain amount of difficulty will be encountered in placing subsequent strips, as the planks will now want to overlap in some places. You will now have arrived at the curve or sheer, of the vessel. Planking now requires a different procedure. All the planks must adhere to, and lie flat against, the frames for their entire width without curling, twisting or forming strange and unwanted 'ears'. We need to overlap the new plank on the previously positioned plank, allowing the strips to guide us in determining at what point the overlapping is to begin at each end. Position this overlapping plank without gluing onto the central two or three frames of the hull (see Fig.2), holding the ends down with your fingertips, mark both ends where they overlap, with a pencil. Cut along the lines drawn, using a sharp craft knife (see Fig.3).

Reposition the cut strip on the hull, fitting it snugly against the preceding plank, making slight adjustments to the angled cut as necessary, to ensure an exact fit. Now glue and pin the trimmed plank into position. Proceed with this method working towards the bottom of the hull i.e. towards the keel. Note that if this operation is carried out with due care, the planking will create the beauty of a wood inlay as the pieces fit together smoothly.

After proceeding in this manner for a while, we arrive at a point where the strips begin to leave a space (rather than overlapping). Irregular shaped spaces appear at the bow and stern ends of the strips as we position them alongside the preceding strips. Even in this case, let the strip itself guide you. Fix the strip into position, letting it follow its own natural curve. The spaces that are left, normally acute triangles, will be filled later with segments of strip carefully cut to shape (see Fig.4).

After the lower portion of the hull has been completely covered, proceed to cover the upper areas along the upper deck parapets (if this is relevant to your model), leaving the ends of the strips extending beyond the parapet line. This will be trimmed away later to achieve the correct outline when measured against your drawings (see Fig. 5).

After the application of the first layer of planking over the entire hull, it will be necessary to smooth down the surface, removing the inevitable remains of excess glue, and leveling off any small imperfections in the planked surface.

Having finished the surface to your satisfaction, if you are working on a kit that is double planked, proceed to apply the second and final layer of planking. This will be the layer that is visible. Having gained the skills carrying out the first level, you should now be well able to ensure that the quality of the second layer is of a high standard. The second planking will follow the same process, and, assuming a good level of preparation, should be somewhat easier.

In some instances, strakes or rubbing boards that stand proud of the planking should be fitted to the first level of planking, where indicated on the drawings. However the instructions may well direct you to fit them after the second-level planking has been completed.

FINISHING

When the final planking has been completed and the glue is fully set, the next task is to smooth the entire hull. We suggest the use of a scraper, a small wood plane (set fine) and various grades of sandpaper. At this point, after having trimmed off the excess planking, according to the general profile at the parapet line, proceed to install the handrails and the gunwales, fixed on the outside of the hull.

For the handrails, since they will be placed flat it will be necessary, especially at the bow and stern sections, to cut the strips into small angled (trapezoidal) sections in order to follow the curve of the hull (see Fig 6). The joints between these sections should be carefully sanded to make them as invisible as possible and to achieve a smooth, continuous curve.

For the gunwales, the strips will be fixed "edge on". The thickness of the strips (usually 2mm.) means that it will be necessary to pre-form them to fit the curves. We suggest the following methods to achieve the desired curve. i) If only a slight curve is required, use a standard plier-type plank bender. If a deeper curve is needed, ii) soak the strip in very hot water for a minute or two, then carefully bend and hold the strip in position against the hull or over an object of the right shape until set. Alternatively, iii) wet the strip and use a wheel-type bender. When the strip dries out it will be stabilized and can be placed into position. If a number of these are needed, build a jig to save time and increase accuracy.

At this stage, after ensuring the main decks are properly positioned, cut out the sections of the frames that are visible above the decks (extending up to the parapet tops), and smooth them off level with the deck surface. Proceed to plank the inside faces of the bulwarks, covering the inside of the first layer of white planks. Carefully smooth this planking using progressively finer grades of sandpaper.

The foregoing briefly describes the subject of planking in an effort to assist the beginner with what appears to be a rather daunting task but which can become a very satisfying achievement. The rest "as they say" is up to you. Take your time; use your own skill and ingenuity to develop your own methods having considered our suggestions.

TOOLS FOR THE JOB

Each individual may have their own idea about how many, or what type of tool to use and what to use them for. We set out below some general advice of modeling tools and their uses for your consideration. These are just some of the tools available. Please ask your supplier for details.

Craft Knives. There are a number of sizes available, the larger handle being the most useful. There are many blades available from straight edge to curved and chisel ends, together with saw blades, etc.

Plank Benders. There are two main types: i) plier-type strip bender for forming dry planks (used in most applications); ii) wheel-type bender suitable for bending wet planks.

Strip Clamp. This is a quick release clamp for holding strips whilst you trim them. This also doubles as a hull clamp allowing you to work with both hands on intricate work.

Pin Pusher. This tool is spring loaded. A pin is inserted headfirst into the barrel then the tool is used to punch the pin into the wood, removing the need to hammer pins in delicate places.

Balsa Plane. A small plane with a razor-type blade, which can be set for a fine cut.

Scraper. A razor-type blade used for finishing flat surfaces.

Pin Vise. A tool that looks like a jeweller's screwdriver but with collets of varying size, and which can take the smallest drill bit and act as a twist drill.

Sanding Stick. A small plastic spring-loaded stick with a tapered end that takes a thin sanding belt, for sanding in tight places.

Razor Saw. Various grades of miniature saw blades with a fine cut are available. They are usually tenon-backed and can be obtained in sets to include handle, mitre box, or blade only.

