

STEP 40: Assembling the Masts

Refer to **Plan 5** for the detailed part drawings of the masts and spars (P3, etc.).

Bowsprit. Assemble parts n.92 (caps), n.93 (bow bitts, to be shaped as described in step 34), n.94 (mast support) and n.95 (small deck or 'marine walk') with photo-etched plate 95L. Cut the bowsprit opening on the bow deck. Assemble all the parts using instant glue in accordance with the details on **Plan 5**. Fit parts n.96 and add the side stiffeners made from 2x6 Walnut plank. Fit the dolphin striker, the sprit flagpole and the bow outriggers as shown on **Plan 5**. Varnish all parts. Fit flanges (**Part 3**) and rigging eyes (**item A**) as shown. Following the side view on **Plan 6**, drill through the ram and lash (gammon) the bowsprit to the ram and herpe deck with medium rope. Secure knots with instant glue.

Assembling the Masts

- Fix the side reinforcement made from 2x6 Walnut plank and the front reinforcement made from 2x2 Walnut plank to all three lower masts. Assemble the flanges made from 0.3x2 copper strip on the lower masts as shown in **Part 3**.
- Fit reinforcement planks on the upper foremast and upper mainmast using 0.5x3 Walnut planks as shown in **Part 4**.
- Shape the ends of the lower foremast, mainmast, and mizzenmast into tenons and fit them into the holes in the mast caps (parts 107, 100 and 111 respectively) as shown in sketch **Part 4**.
- Taking the dimensions and positions from **Plan 5**, 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.
- Fit the support cheeks plywood parts n.98 and n.97 and n.98 respectively to the sides of the three lower masts. Fit the trestle-trees (n.108A, n.101A and n.112A on top of the cheeks. Fit the cross-trees – the cross-structure that supports the platforms (tops) using parts n.108B, 101B and 112B.
- The tops (platforms) are made from plywood parts n.106, n.104 and n.105 respectively, covered on both sides with 0.5x3 Walnut strips. Using sketch **Part 5** as a guide, drill $\varnothing 1$ holes in the tops for the deadeye rigging. Drill $\varnothing 1$ holes in the rear (straight) side of the tops and fit stanchions and rope handrails. On the mainmast top, fit a small lantern (item 89) on a bracket (item 89L). 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 7**, fit support cheeks (n.99 and n.98), trestle-trees (n.109, 102 and 114) and cross-trees (made from 1x2 Walnut plank) around the joints between the topgallant and upper masts, ensuring that all mast items are aligned.
- Drill and fit rigging pintles and brass rings into the rear of the lower mast caps.
- 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 – parts n.116, 117 and 118 respectively. 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.

STEP 41

Yards. Add yard fenders made from 0.5x3 Walnut plank to all the yards as shown in **Part 6**. Take the dimensions from **Plan 5**. Sand the joints smooth and varnish over. Drill the ends of the yards and fit brass eyelets to act as yardarm irons as shown in **Part 9**. Fit footrope irons made from thin brass wire as shown in **Part 10** in the positions shown on the yard drawings on **Plan 5**. Make the footropes from $\varnothing 0.75$ rope and secure the ropes in a 'drooped' state with drops of instant glue.

Mizzen Gaff and Boom. Fit the jaws to the ends of these spars as shown in Part 8 and secure them around the mizzenmast as shown.

Fit the flagpole in the stern holder.

Fit all the remaining rigging points (pintles and rings) shown on **Plan 5** and **Plan 6**.

STEP 42

Plan 6 shows the side view of the model with standing and running rigging. Before fixing the yards to the masts, fit the various blocks to the masts and spars as shown on **Plan 6**.

The rigging plan is shown at the top of **Plan 6** with the numbered belaying points identified and uses the same numbering as the main drawing on **Plan 6**. The ends of the ropes should be stiffened with instant glue for easier insertion through the small holes in the blocks. Each knot must be secured with a drop of glue to prevent the knots coming loose.

The key on the lower left of **Plan 6** identifies the following items:

A: Single 3 mm block	D: Single 7 mm block	G: Ø0.25 mm rope
B: Single 5 mm block	E: Double 7 mm block	H: Ø0.75 mm rope
C: Double 5 mm block	F: Triple 7 mm block	I: Ø1.75 mm rope

STEP 43

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 **P.11**. The deadeyes for the shrouds use two chain links and larger deadeyes, whilst those for the stays use single chain links and smaller deadeyes. The sizes are indicated in the side view on **Plan 6**. 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.

RIGGING

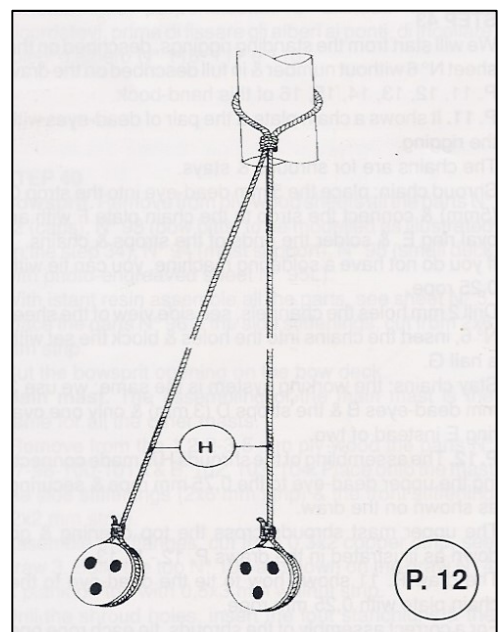
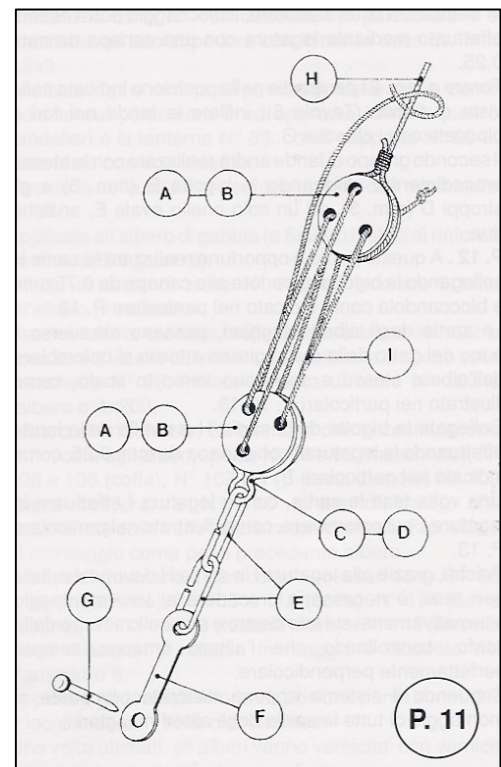
The rigging is divided into two main parts. The standing rigging (the lines that hold the masts permanently to the deck) is represented by the darker lines on **Plan 6** and is added first. The running rigging (those lines that were used to manoeuvre the spars) is represented by the thinner lines on the plan and is added next. Make the rigging tight, but not so tight as to deform the masts or spars.

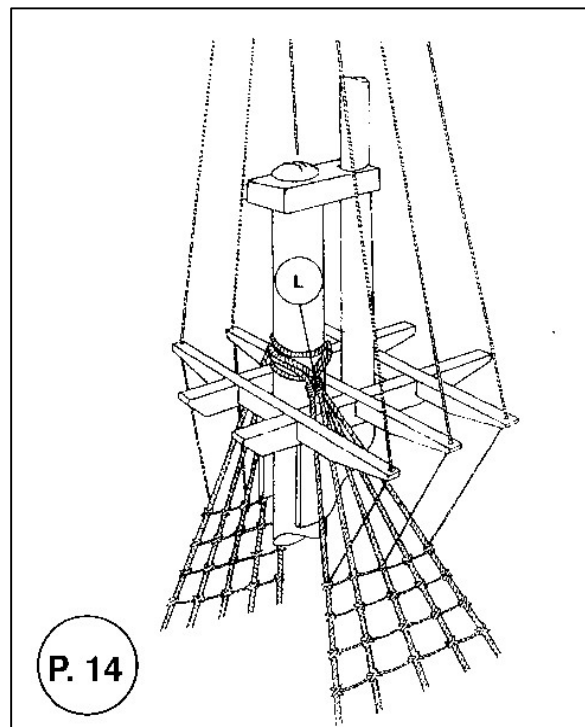
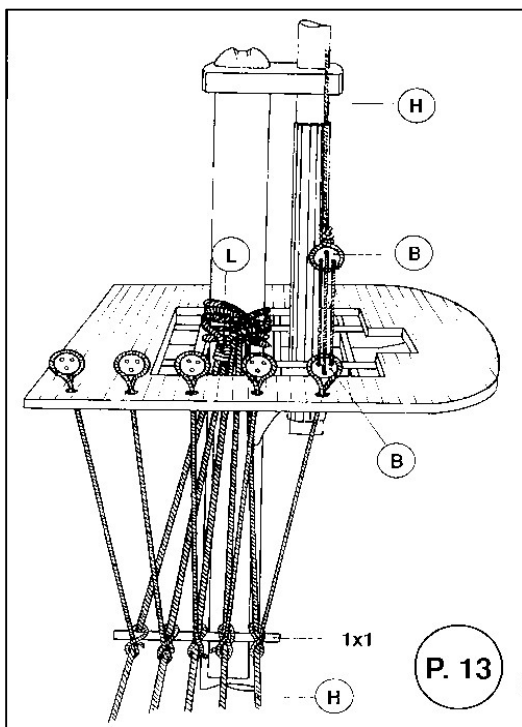
Step 44: Standing Rigging.

Part 12: Lower Shroud Lines. These are the ropes securing the masts via the deadeyes. Make these from Ø0.75 thread and secure them to the masts using 'seized' loops as shown in the diagram opposite. Pass the ends down through the side gaps between the platform and mast and fit deadeyes to the free ends as shown, taking the measurements from **Plan 6**. The deadeyes are tensioned against the deadeyes on the channels using thin thread as shown in **Part 11** above. Make the shrouds tight, but not so tight as to deform the masts.

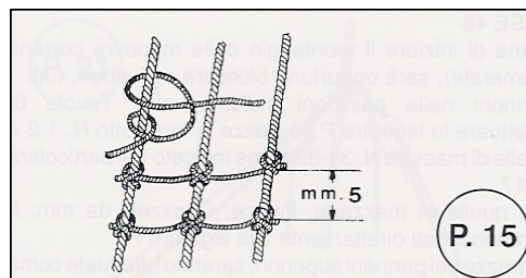
Part 13: Top Shroud Deadeyes. Fit deadeyes for the top shrouds with medium thread as shown in **Part 13**. Tie the threads off to the lower shroud lines as shown.

Part 14: Top Shrouds and Topgallant Shrouds. Rig the top-shrouds as shown, using medium thread. Drill Ø1 holes on the cross trees and fit the topgallant stays as shown using 'seized loops sitting on the taper of the masts, and tying off the stays to the top shroud lines as shown in **Part 14**.





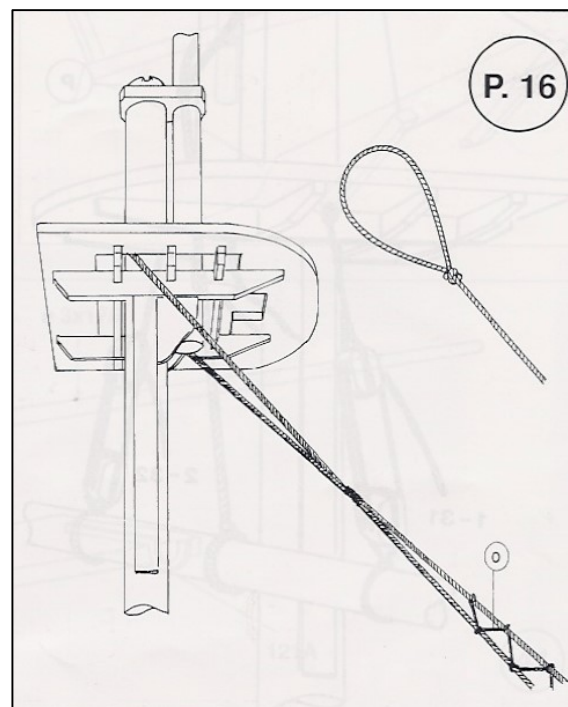
Part 15: Ratlines. Starting from the bottom of the shrouds, make and bind the ratlines to the shrouds at 5mm intervals using thin thread – once the shrouds are tensioned correctly. Secure the end knots with a drop of instant glue.



Step 45: Mainstays

The method of securing the great ropes used to support the mainmast is shown here in **Part 16**. The mainstays are made from $\varnothing 1.75$ rope. The ropes are passed up through the holes in the tops, are passed around the mast and down to the bowsprit and are tensioned using 7mm blocks. Secure the knots with drops of instant glue.

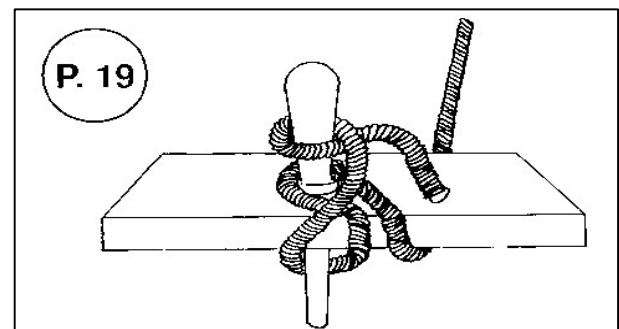
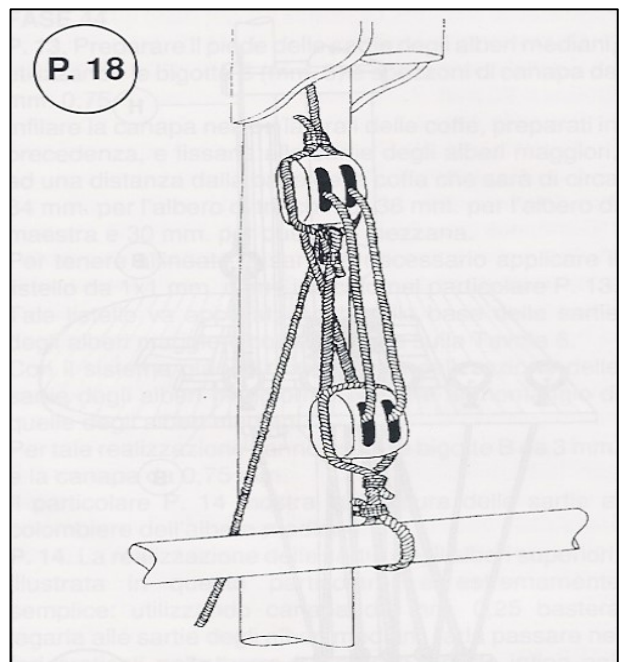
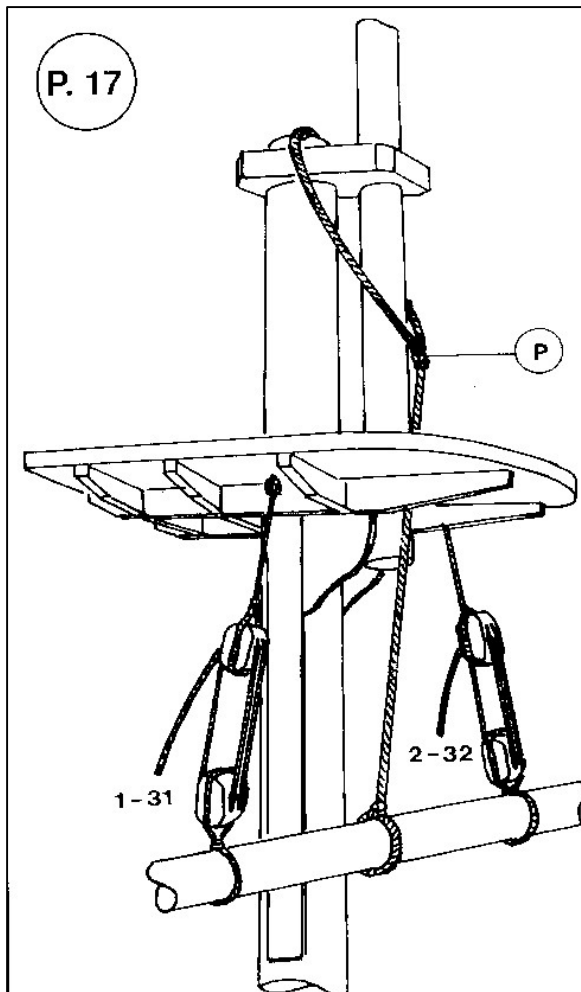
Working from bow to stern and following the plan, fit all the remaining standing rigging - the other ropes (or stays) used to tension and hold the masts and bowsprit in position.



Step 46: Fixing the Yard Parrels

Before starting on the numbered running rigging, fasten the yards to the masts using the methods shown in **Part 17** - lower yards and **Part 18** - upper yards. The mizzen parrels are made with 5 mm blocks secured to the rigging P. The hauling lines are made fast to the rigging points on deck.

Note that **Plan 6** 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.



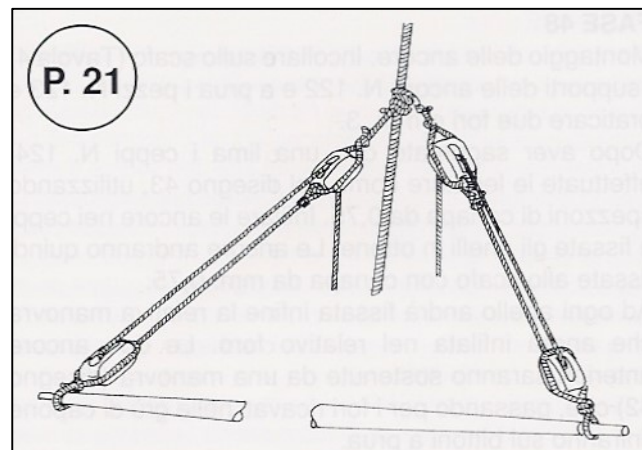
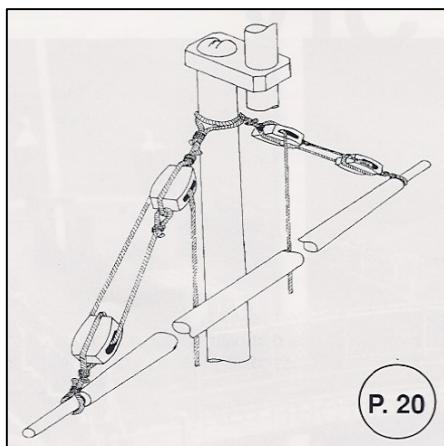
Step 47: Running Rigging

Part 19 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.

Part 20 shows the lifts riggings number 5,6,7 and 8 on **Plan 6**.

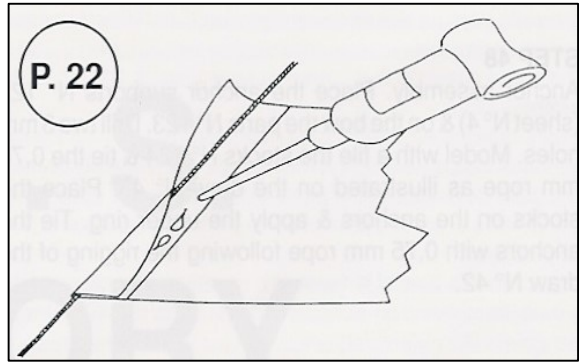
Part 21 shows the brace riggings number 25, 26, 27 and 28 on **Plan 6**.

Part 22 shows the flag assembly. The flags are secured with drops of instant glue. 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.



Part 23 shows the lifeboat davit riggings, made fast to the mizzenmast number 25, 26, 27 and 28 on **Plan 6**.

Figure 41 shows the construction of the outer yard extensions (or studdingsail booms) for the foremast and mainmast. The supports are included on the photo-etched brass sheet. Remove these parts (121A-B) with a pair of scissors and fix the supports on the fore and main channels with instant glue. Place the hook A made from $\varnothing 1$ mm brass wire into a hole drilled in the dowel ends. The two 3x175 mm booms are for the foreyard; the two 4x200 mm booms are for the mainyard.



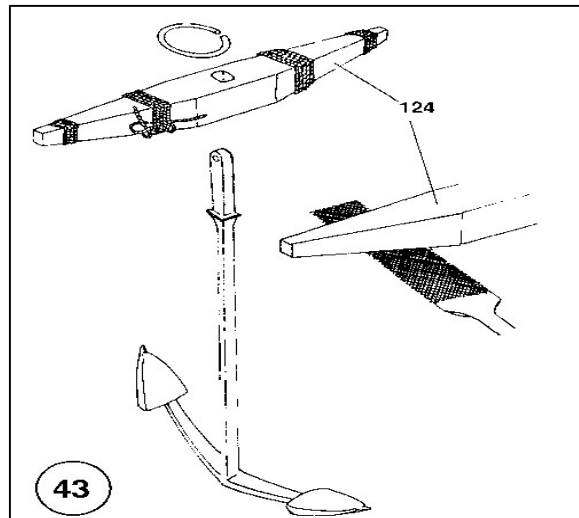
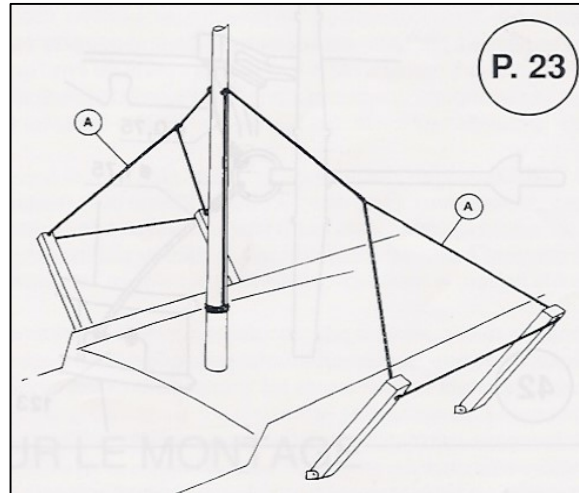
STEP 48: Finishing Off

Figure 43: Anchors. Place the anchor supports n.122 on the railings behind the forecastle and fix the hawse-holes parts n.123 on the bow (see **Plan 4**). Drill two $\varnothing 3$ holes through parts 123 into the hull.

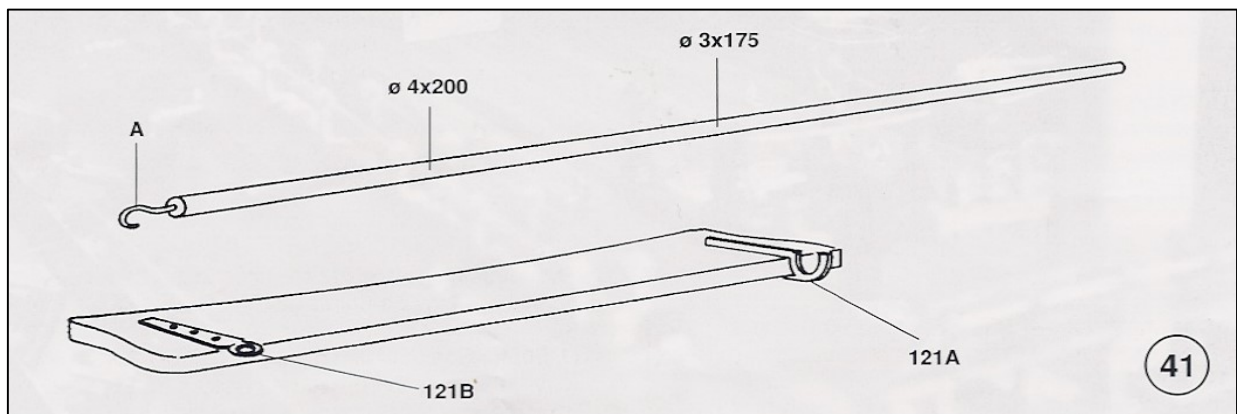
File the four plywood anchor stocks n.124 supplied to achieve the desired tapers on three faces at each end. File square the opening into which the upper shank of the anchor will fit to match the size of the anchor shaft. **Caution: the anchor castings are brittle and will snap if bent.** Secure the stocks on the anchors, then wind 5 or 6 turns of $\varnothing 0.75$ rope in four places on each stock as shown, fixing the thread with a little glue. Insert a brass ring through the tail of each anchor. Tie a length of $\varnothing 0.75$ thread to each anchor ring and bind it with thin thread as shown. Rig the anchors to the catheads and feed the anchor ropes through the hawse-holes as shown in **figure 42**.

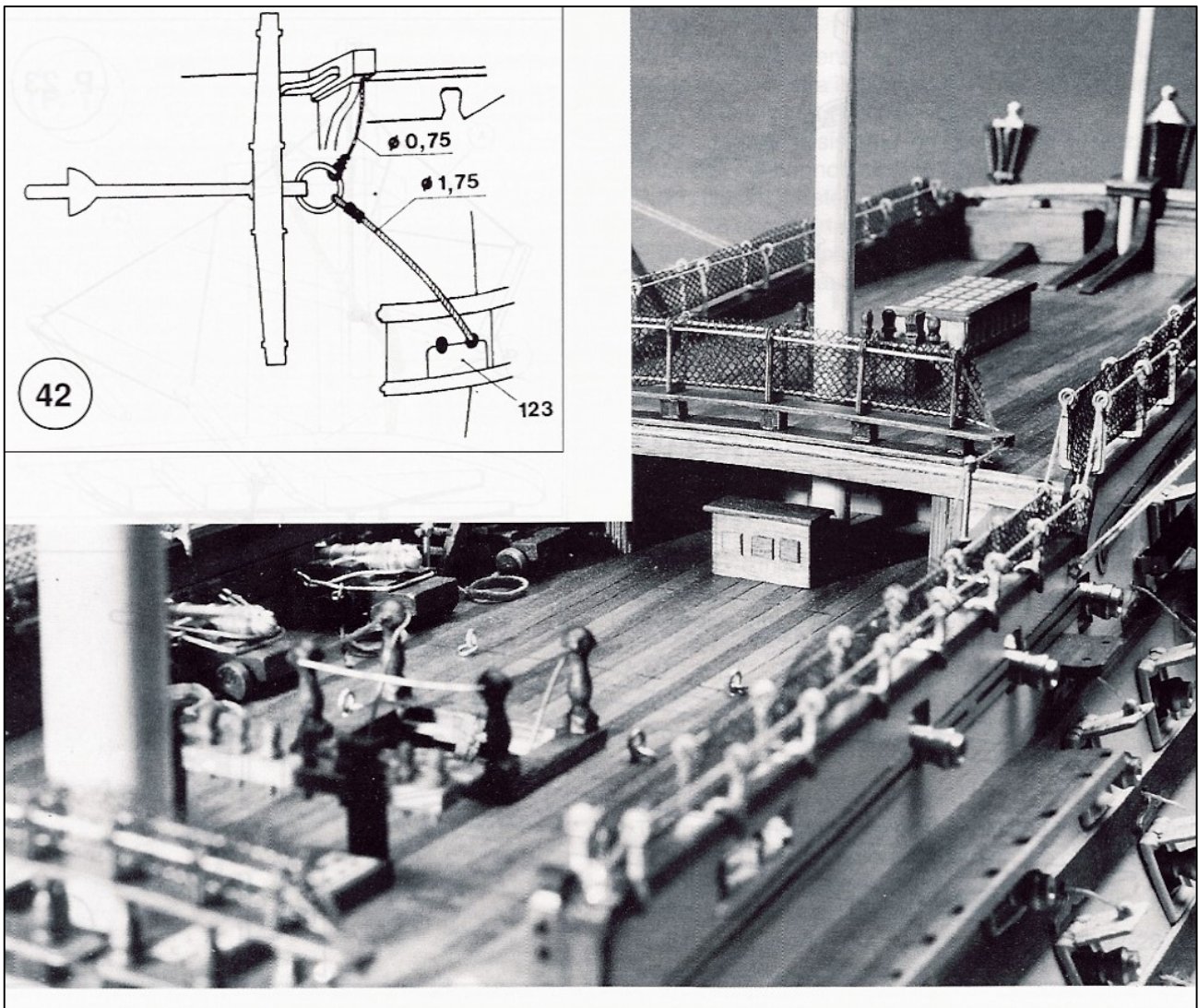
Sails are not supplied with this kit and are optional. A set of ready-made sails for the *Victory* together with rigging instructions part number **Art 34207** may be purchased from Mantua Models.

Display Cradle. Assemble the cradle from parts n.119 and n.120 and two pieces of $\varnothing 14$ dowel 300 mm long. Square up and stand the cradle on a flat surface until set. Varnish 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.



Place the ship on the cradle and admire a job well done.





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 it's 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.

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