

## ASSEMBLY INSTRUCTIONS

General notes:

- All dimensions given are in millimetres. The symbol  $\varnothing$  means diameter
- Component numbers (n.11, etc) refer to the numbered plywood parts on Plans 1 and 2.
- Figure numbers given below (**Figure 1**, etc) refer to the numbered drawings on Plans 3 and 4 and in this booklet. **Pictures** refer to the photographs reproduced in this booklet.
- Part numbers (**Part 23** etc.) refer to the detailed or exploded drawings on Plan 5.
- The sequence given here is the recommended order for completing the model.

### STEP 1: Preparing the Plywood Parts

On the thirteen plywood panels supplied, and using the full-sized drawings on **Plans Number 1 and 2** as guides, mark the identity numbers on the parts with a soft pencil - so that the marks may be erased later. Note that the 1.2 mm thick deck panel is shown as three panels on the plan. Provide yourself with some storage boxes. Remove all of the plywood parts from the plywood sheets with a sharp 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.

### STEP 2: Making a Working Cradle

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 keel clamp, make up a working cradle as shown on **Figure 2 / Plan 3** by nailing two 6x6x550 wooden runners (supplied) set 5 mm apart onto a wooden base (not supplied), so that the keel sits securely between the runners.

### STEP 3: Assembling the Keel-and-frame Structure

Use the full-sized diagram and the smaller, exploded view of the hull structure on **Plan 3** as guides. Place the keel n.19 in the keel clamp and trial-fit frames n.1-n.18 into the keel without glue, filing the slots in the parts as necessary so that they slide together without being forced. Trial fit the false deck plate n.20 onto the frames without glue. **Warning: the parts are fragile and will fracture if forced.** When the parts have been prepared, glue the frames into the keel and before the glue sets, glue the false deck plate n.20 securely in place ensuring that 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.

### STEP 4: Inserting the Deck Plates

Trial-fit the deck plates n.27, n.28, n.29 and n.30 into the frames each side of the ship, carefully checking that the parts are the right way round and that the ends are aligned correctly with the frames. Use the smaller, exploded view of the hull structure on **Plan 3** as a guide. Mark off the profile of the frames on these parts and shape the outside edges with a hobby plane as shown in **Figure 3**. Glue the finished parts in place and clamp them until set. When dry, smooth with sandpaper.

### STEP 5: Assembling the Stern Transom

**Figure 4:** Fit and glue the transom support brackets n.21 on to frame n.11 ensuring that they are square and vertical, and fit the upper transom support n.22 on top of n.21. Clamp until set. Glue the lower transom support n.23 into the slots of n.21 and clamp until dry. File and sand the back edges of parts n.21, n.22 and n.23 so that the stern transom n.31 fits snugly on the stern. Glue and pin the transom in place until set.

**Figure 5:** File slots in the top surface of transom beams n.24 and fit them under the transom and around brackets n.21 as shown in **Figure 5**. Fit the side cheeks n.25 to the stern keel. Fit the side cheeks n.26 to the bow keel. Pin or clamp in place until set. The front edges of frames n.16, n.17 and n.18, the rear underside edges of frames n.1, n.2 and n.3 the stern side cheeks n.25 and the bow cheeks n.26 all 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 structure, 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 to achieve a smooth profile.

## STEP 6: Fitting the Upper Gun Deck

**Figure 6:** This shows a front, perspective view of the complete built-up skeleton of the ship. Trial-fit deck n.32 onto the frames ensuring the deck is the right way round so that the mast holes are aligned. Note that 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. Wet the underside of the deck and 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.

**Deck Planking.** The deck n.32 is now to be planked. Draw a centre-line down the deck using a pencil and a straightedge. Coat the deck to one side of the centre-line with a 10mm strip of glue using a brush, and place the first 0.5x3 Walnut planks along the centre-line, followed by two more planks alongside. Leave tiny gaps between the planks to simulate caulked joints. Continue across the deck from the centre to the sides laying about three planks at a time. Trim the planking around the holes in the deck, and fit shaped pieces of planking in the corners as necessary so as to cover the entire deck surface flush with the outside edges of the frames. When the deck covering is finished and dry, scrape the surface of the deck to remove excess glue and then smooth carefully with fine grade sandpaper. Score in the joints between sections of plank with a pencil and straightedge using the full-sized drawing of the deck on Plan 2 as a guide. Varnish the deck with sanding sealer (such as Mantua Model Art.4401714, not supplied in the kit).

## STEP 7: Fitting the Quarterdeck and Forecastle Deck

The quarterdeck and the forecastle deck come as one part n.33 as shown in **figure 6**. Trial-fit deck n.33 onto the frames ensuring the deck is the right way round so that the mast holes are aligned. Note that the deck has to be curved from side to side to fit between the ribs of frame n.4. The tops of the frames are also curved to achieve the deck 'sheer' required. Wet the underside of the deck and 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 of frame n.4. After making any necessary modifications, remove the deck, apply glue to the tops of the frames and fit the deck in place aligning the deck with the frame n.18, and holding the deck firmly down on the frames with clamps or pins until set. Plank the deck with 0.5x3 Walnut planks using the method described previously, and varnish over.

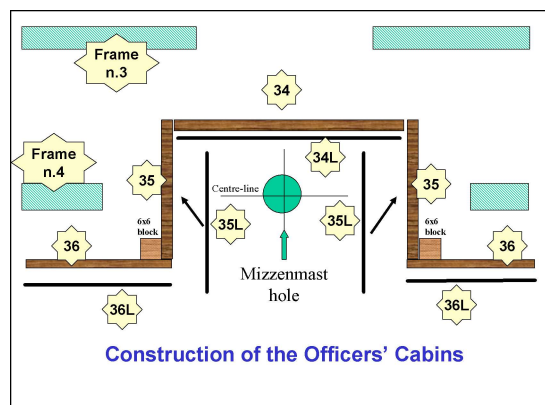
## STEP 8: Preparing the Bright-work

Cut the parts from the two photo-etched brass plates supplied with tin shears or strong scissors and finish the edges carefully with a file. Working on a flat work surface, and paint the incised areas of the pieces with matt acrylic enamel paints in accordance with the Painting Plan on the last page of this booklet. Do not worry about getting paint on the raised areas, as this will be removed later. When the paint is dry, lightly sand the surface of each piece with fine (600-grain) paper until the raised details become paint-free and polished, the paint remaining only in the incised portions. Varnish the brass to keep it bright. Put the parts in a storage box for safekeeping.

## STEP 9: Building the Officers' Cabins

**Figure 7:** Build and glue the cabin structure on the rear of deck n.33 as shown in **figure 7** on **Plan 4**, lining the centre-lines of sides n.35 and n.34 with the mizzenmast hole, and noting that the deck slopes towards the bow. Fix 6x6 walnut bracing blocks in the inside of the joints between n.35 and n.36. Trim plate n.34L to length so that it fits snugly between the sides n.35 and fix with instant glue. Fit n.35L onto the sides after trimming the front edges flush with the front faces of n.36. Fit n.36L onto n.36 lining up the metal edges and trimming any excess overhanging the outside edge of the deck.

**Figure 8:** Fit the poop deck n.37 in place as shown, and plank with 0.5x3 Walnut planks. Varnish over.



## STEP 10: Building the Bowsprit Deck

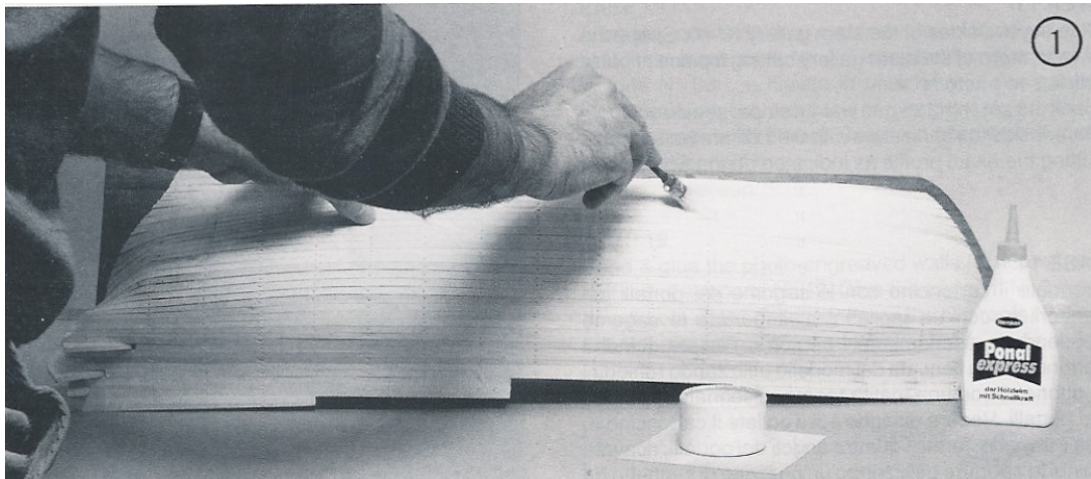
**Figure 9:** Fit the bowsprit deck n.38 and the bow transom n.39 in place as shown, and plank the deck with 0.5x3 Walnut planks.

Using the full-sized side view on **Plan 3**, and using 1x5 Walnut planks laid across the ship, build the two small sections of the middle deck where the ladders are to be placed.

## STEP 11: Planking the Hull – Inner layer

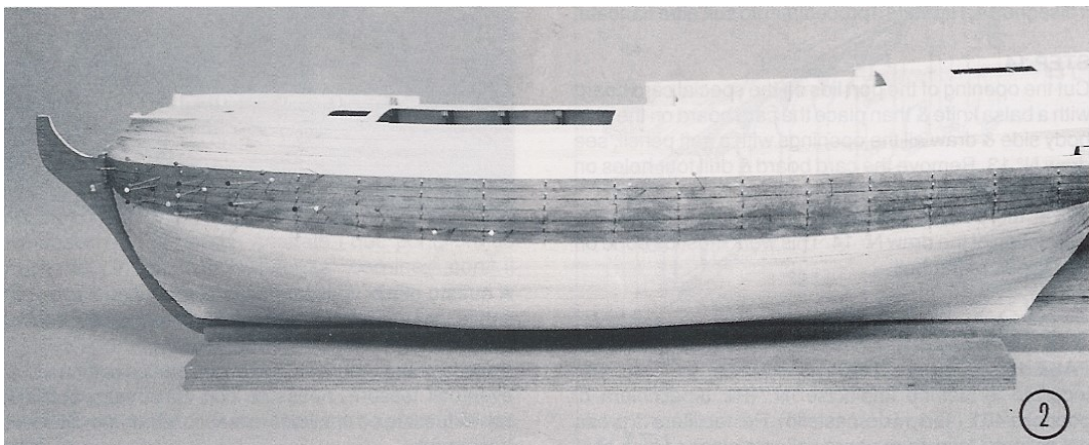
The first (inner) layer of planks is made from 1.5x5 Limewood planks; the second (outer) layer of planks is made from 1x5 Walnut planks. The thick black line on **figure 10** shows the position of the first planking strip, which should be positioned horizontally in line with the bottom edge of the keel. Proceed with the planking in the sequence recommended in the specific instructions on planking provided in the last section of this booklet. Where necessary, trim the planks with a Stanley-type blade or a hobby plane as shown in **figure 11**. Plank from the top to the bottom alternately on each side and then add more planks above the first plank to bring the sides up to the deck level and to make the parapet walls above the decks. Use the cardboard gunport pattern supplied as a template for the parapet wall heights. The diagrams in **figures 12 and 13** indicate the appearance and profile of the finished planking.

When the first planking has been fitted, remove any nails or pins and fill any cracks or splits with slivers of wood. Dilute some PVA or aliphatic glue and using a flat brush, coat the entire surface of the hull planking squeezing the glue into the joints (see **picture 1** below). When the glue has dried, scrape the hull surface with a blade or scaper to remove any high spots and then sand it smooth.



## STEP 12: Planking the Hull – Outer layer

The second (outer) layer of planks is made from 1x5 Walnut planks using the same technique as the first. Fill any splits or pinholes and scrape and sand the hull smooth.





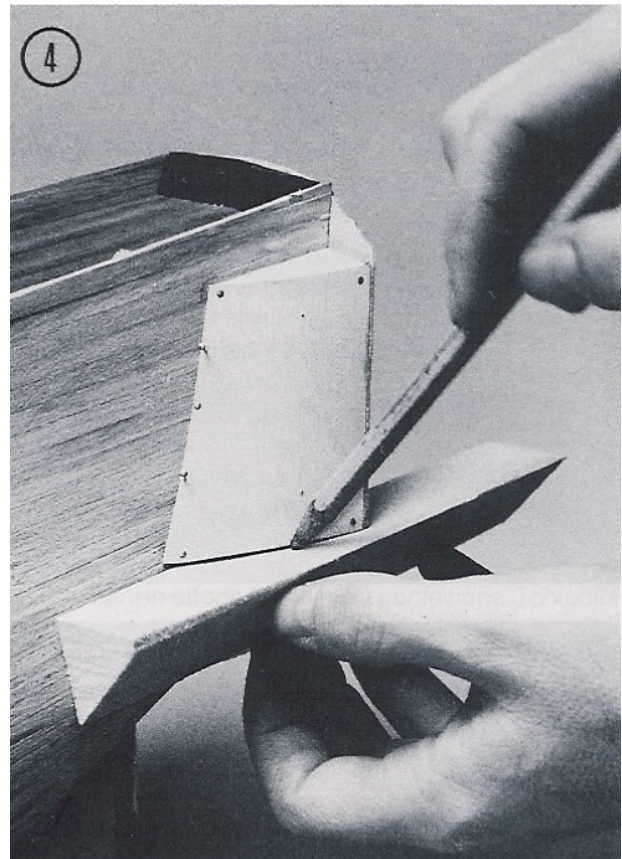
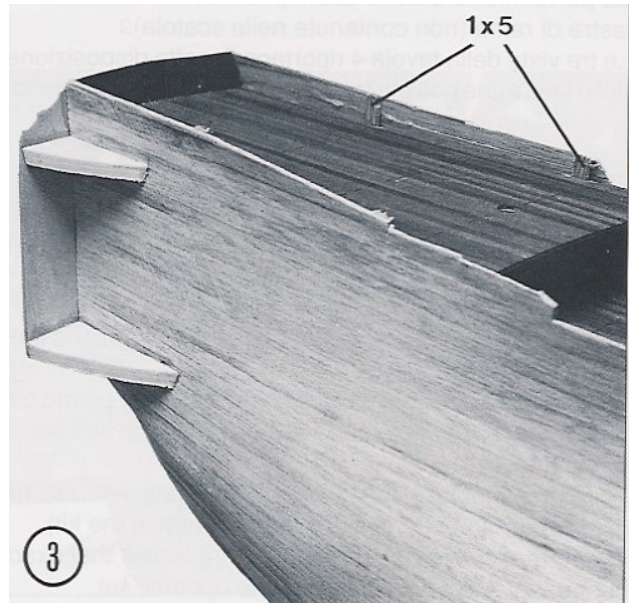
## STEP 13: Adding the Stern Gallery

Fit parapet banisters made from vertical pieces of 1x5 Walnut plank against the parapet wall at the ends and middles of the parapets as shown in **picture 3 below**. Plank the inside of the parapet walls between the banisters with 1x5 Walnut planks laid horizontally. Scrape and sand the planks smooth

As shown in **picture 4** below, fit and glue the two sides n.40 on the stern gallery, clamping with tape and pins until set.

The pyramid-shaped base supports for the stern gallery are made from sections of the balsa block provided.

- Offer the balsa up beneath the gallery as shown in **picture 4** below and mark the profile on the top face of the triangular section as shown.
- Cut the marked portion off the block and then plane the hypotenuse face back (about 8 mm) until level with the outside point of the gallery marked on the block, maintaining the section angles of 45 degrees.
- Offer the block up under the gallery once more and place the pencil marks in their original positions. Mark the point on the bottom of the block where the hull planks start to curve around the frame n.1 – so that the lower point of the support will just butt against the back edge of the hull. Use the side and end views on **Plan 4** as a guide.
- Mark cutting lines on the block from the top face to the lower point marked previously. Trim the blocks on the two end faces to make the pyramid shapes required. Glue the blocks in place under the gallery and clamp in position until set. Sand the joints smooth.
- Using **figure 12 on Plan 3** and the side and end views on **Plan 4** as guides, plank across the stern under the gallery using two layers of 1x5 Walnut planks, trimming the end joints neatly. Plank the faces of the gallery support blocks with a single layer of 1x5 Walnut planks.
- Using **figure 15 on Plan 4** as a guide, plank the roofs of the gallery with a single layer of 1x5 Walnut planks. Plank the gallery sides with 0.5x3 Walnut planks laid horizontally and making neat butt joints with the hull. Plank the inside face of the stern transom over the deck and over the galleries with 0.5x3 Walnut planks laid vertically, trimming them off level with the transom profile.



## STEP 14: Cutting the Gunports

Using a sharp craft knife and a straightedge, cut the openings for the gunport lids out of the cardboard template supplied. Trim the excess cardboard from around the template. Place the template on the starboard (right hand) side of the hull and align it with the decks, securing it in place with pieces of masking tape. Mark the openings on the hull planks using a soft pencil. Remove the template, turn it around and repeat the process on the port (left-hand) side. See **figure 13** on **Plan 3** for guidance.

**Figure 14:** Remove the cardboard template and drill a small hole in each corner of each gunport. Use a small saw blade to cut out each gunport and file the ports to size.

## STEP 15: Finishing the Galleries

**Figure 15** on **Plan 4:** Glue the previously painted photo-etched stern transom plate n.31L and the gallery sides n.40L to the stern, abrading the back of the parts with sandpaper and fixing them in place with instant glue. Frame the parts with 1x2 Walnut planks

## STEP 16: Finishing the Hull

**Gunwale planks.** Using the side view on **Plan 4** as a guide, apply the lower three gunwale planks made from 1.5x6 Walnut plank on each side of the hull. Apply the upper gunwale plank made from 2x2 Walnut plank. 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.

**Handrails.** Using the side view on **Plan 4** as a guide, make the handrails and stanchion supports from 2x4 Walnut plank and fit them to the parapets as shown.

**Painting.** Sand the hull again with thin emery-paper and apply a coat of sanding sealer. When dry, fill any imperfections with filler and sand again. Apply a second coat of sanding sealer. When fully dry, mask off the stern galleries, the decks, the handrails, the gunwale planks and the hull below the waterline to protect them from paint.

- Paint the hull sides with matt yellow ochre acrylic enamel as shown on the colour photographs on the box. 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.
- Optionally, the hull below the waterline may be 'coppered' with copper plates (Mantua Model **Art.32900** - not included in this kit). The three views show how the copper plates are fitted. Ask your supplier for details. Alternatively, leave the hull unpainted but varnished as shown on the box

## STEP 17: Finishing the Gunports

Using **figure 16** on **Plan 3** as a guide:

- Drill two Ø0.5 holes in each gunport lid to take the ropes that raise or lower the lids.
- Paint the outside of the gunport lids and frames matt yellow ochre. Paint the inside of the gunport lids matt red. When dry, insert the lids into the frames and glue them into the hull with epoxy glue.
- Drill a Ø0.5 hole through the hull above each gunport (see the side view on **Plan 4** for hole positions). Apply a little instant glue to the end of a short piece of thin rope to stiffen it, and insert the end of the rope through the hull side securing it in the hole with instant glue. Thread the rope through the lid, secure the lid in the open position and knot the rope behind the lid to hold the lid open as shown in **figure 16**. Secure the knot with a drop of instant glue. Repeat for each lid.
- Make up 86 off dummy barrel bases each 6mm long. Drill Ø3 holes at 6mm intervals along the centre-line of a 6x6 Lime wood plank. Paint the plank matt black and then cut the plank into 6mm long pieces. Insert a dummy gun barrel in each base. Glue a base behind each gunport so that the gun barrels protrude 8mm from the gunports (but not in those on the middle and upper gun decks where full gun carriages are mounted - see the views on **Plan 4**).