

ALBATROS

Famous Baltimore Clipper 1840

Art. 771

ASSEMBLY INSTRUCTIONS

English Version

*Newly translated and improved by
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For the

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HISTORICAL BACKGROUND

The armed clipper “*Albatros*” was built in Baltimore in 1840 and at that time, schooners of this type were to be found in harbours all along the eastern coast of North America, and were also becoming common in Europe. The characteristic design - originating in the 1830's - has sharp forward-raking bows and masts raking aft. The term ‘clipper’ is now a much-abused term of no real precision, but generally denotes a fine-lined, fast sailing vessel. The term was first applied to the Baltimore clipper and was then widely extended in the mid nineteenth century to describe many types of fast sailing ship. So successful were these ships in the 1840's that by 1848 the slang term *clipper* came to mean ‘anything first-rate of its kind’.

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 1.
- Figure numbers given below (Figure.1, etc) refer to the numbered figures on Plan 1.
- Part numbers (Part 12, etc.) refer to the detailed or exploded drawings on Plan 2.
- The sequence given here is the recommended order for completing the model.

PLAN NUMBER 1

This plan shows how to construct the frame of the ship, and how to plank the hull and stern. The three full-sized drawings of the laser-cut plywood parts can be used as reference to identify the parts once removed from the sheets.

Also on Plan 1 is a group of numbered detail drawings of the superstructure components, these being referenced from the scale views on Plan 2. These will be used later in the building process.

Equip yourself with three storage boxes to hold the plywood components. On the three plywood sheets, mark the identity numbers on the parts with a soft pencil. Remove all of the plywood parts from the sheets with a craft knife, smoothing all edges with fine sandpaper and taking care not to destroy the laser-cut outline of each piece. Place the parts in the three boxes for safekeeping.

Building the Hull Structure

Step 1: Simulate the Deck Planking. On the deck plywood part n.33, first score an accurate centre-line into the plywood from bow to stern with the back edge of a Stanley-type blade or craft knife and using a sturdy ruler as a guide. Now accurately score lines 4mm apart to simulate the deck planks. Simulate the caulking between the planks by running a fine pointed black pen down each scored groove in the deck.

Step 2: Assemble the Hull Structure.

Warning, the frames are delicate and will fracture if forced

- Test the correct assembly of the frames without glue, inserting frames n.1-n.12 into the keel n.13, carefully filing or sanding to get a good sliding fit where necessary. The two diagrams at the bottom left corner of Plan 1 show the side view and overhead view of the keel-and-frame structure and identify the positions of the numbered frames.
- Glue the frames into the keel. Before the glue sets, check the frames are square to the keel and aligned down the centre-line of the keel. Put aside until the glue is dry.

Step 3: Fit the Deck

The deck is now to be glued to the top of the frames and the keel. Dampen the underside of the deck n.33 and with your hands, gently bend the deck from the centre, so that the deck will fit onto the curved tops of the frames. Apply glue to the top surfaces of the frames and fix the deck accurately in position. Hold the deck firmly against the tops of the frames with clamps, or with nails driven into the frame tops through the scored planking lines.

Step 4: Trim the Frames

The deck is used to determine the shape of the hull and the frames must be flush with the edge of the deck all along the hull. Trim the frames with a file so that they do not extend beyond the deck. Using a hull plank as a guide, bevel the front edges of frames n.1 to n.5 towards the bow, so that the hull planks will make a smooth line around the frames to the bow, and so the area for adhesion on the each frame is increased. Similarly, check and bevel the rear edges of frames 7 to 12 towards the stern.

Step 5: Plank the Hull

Please read the general information on planking provided at the end of this booklet. The planking of the hull is an important visual element of this ship and if done carefully, will enhance the beauty of the finished model. The work is not difficult, but does require patience and care to achieve a high-quality result. Albatros has a single layer of planking using 1.5x5 Lime planks.

- Pin the two bow strips n.13A to the bow without glue - they are used to hold the hull planks in position during assembly and will be removed later. Space the strips 1.5mm from the ends of the frames so that the 1.5mm-thick hull planks can be inserted between the frames and the bow strips. Set the top of the strips level with the deck.
- Select the first 1.5x5x400 Lime plank. The top of the first plank is to be set 3mm below the underside of the deck and will follow the vertical curve of the deck between bow and stern. Use a plank bender to form the plank to fit the curve around the bow. Chamfer the bow end of the plank so that it fits snugly against the side of the keel at the bow. Apply glue to the frames and insert the plank behind the bow strip. Clamp or pin the plank to each frame along the hull. If using pins, don't hammer them home, as they should be removed once the glue has set. Leave the excess planking to protrude beyond the stern for the moment. Fit a first plank on the other side of the hull in the same way.
- Lay the next plank directly below and butting up against the first and then continue planking down the hull to the keel, putting two or three planks on each side alternately to avoid twisting the hull. Taper planks where necessary, as described in the instructions, so that the planks fit against each other with a natural lay, without twisting and with no need to be forced into position. Fill any gaps with carefully cut sections of plank. Apply glue to the frames and to the bottom edges of previously fitted planks to bind the planking together as you proceed.

Step 6: Fit the Bulwarks

- Fit the bulwarks plywood parts n.33A on top of the topmost hull planks. Use the Beech clamping block n.37 supplied to hold the bulwarks together at the bow until the glue sets. Glue and temporarily pin the bulwarks to the frames along the length of the hull. The bulwarks will extend beyond the stern.

Step 7: Finish the Hull

- Trim the planking at the stern edge of the keel by the rudder.
- Trim the hull planks at the stern and fit 1.5x5 Lime planks under the stern. Fit 1.5x5 Lime planks across the stern to make the transom as shown in the end view in the lower middle right of Plan 1.
- Make up the handrails n.33B from the Walnut 'U' channel supplied and carefully fit them to the bulwarks using the diagrams in the centre of Plan 1 as a guide. To achieve the necessary curvature at the bow, it may be necessary to soak the bow ends of the channels in very hot water for a few minutes before attempting to bend them. The bow ends of the handrails need to be chamfered to butt together in a sharp point. Use the bulwark clamp block n.37 to hold the bow ends in place while the glue sets. Fit a piece of handrail across the stern transom.
- Remove the bow strips n.13A and the bulwark clamp block n.37 from the bow. Remove all temporary pins, nails or tape from the planking.
- Rub down and scrape the entire hull to remove excess material and achieve a smooth profile, filling any gaps or splits with slivers of planks, and leveling any high spots. Finish off with various grades of sandpaper, starting with medium grit and finishing with fine grit.

Step 8: Paint the Hull

Mask off the bulwarks n.33A and deck area and paint the entire outside of the hull and keel below the bulwarks with matt white acrylic paint. Use the colour photograph on the box as a guide. 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. Sand lightly between coats for a good finish.*

Step 9: Make the Cradles.

- **Working Cradle.** It is useful to hold the keel in a vice (such as **Mantua Model Art. 8155**) or a cradle while the superstructure is being assembled. If you do not have a suitable vice, make up a working cradle by fixing two pieces of 5mm thick plank onto a wooden spaced apart by 5mm, so that the keel n.13 will slot in and be held between the two wooden runners. The material for the working cradle is not supplied in the kit.
- **Display Cradle.** Make the display cradle from plywood parts n.15, n.16 and n.17. Sand and paint or vanish the cradle. **Note. This cradle is relatively delicate and should not be used to support the ship during the building process. Use the working cradle instead.**

PLAN NUMBER 2

This plan shows a full-sized overhead (plan) and a full-sized side view including rigging. A sectioned side view showing the superstructure items is also provided. These views should be used to check the dimensions and positions of the various items on the ship.

- The items numbered with a small font (**10**, etc.) on the two views are belaying (terminating) points for the rigging. Where two numbers are assigned to a rope, this indicates that the rigging is doubled up, with terminating points on either side of the ship.
- The items numbered with a large font (**53A**, etc.) on the side view and the perspective view refer out in some cases to the exploded views on Plan 1 and Plan 2 which show the detailed parts to be made up and fitted to the ship. **Caution: the detail drawings are not all to the same scale.** In other cases, the numbers identify the parts supplied in the kit. The following instructions will take you through all of these items step-by-step.
- In addition, the right-hand half of the plan contains a set of explanatory diagrams showing particular construction methods in more detail.

Step 10: Gunports. Line the outer rims of the gunports with 1.5x2 Walnut plank, mitred as shown on the side view.

Step 11: Freeboard. The freeboards or rubbing strakes are timbers fitted along the length of the hull to protect the sides of the ship from damage. Refer to the colour photograph on the outside of the kit's box as a guide to the shape and positioning of the strakes. Fit a strake made from 2x2 walnut plank to either side of the hull with the bottom edges of the strakes lined up with the bottom of the bulwarks n.33A. To achieve the curvature around the bow, soak the strakes in very hot water for two minutes or so before bending them to shape. Glue and pin these strakes into position. See the two diagrams at the bottom-right of Plan 2 for details.

Step 12: Deck Moulding. Glue a 2x3 Walnut plank to the deck around the inside edge of the bulwarks. To achieve the curvature at the bow, soak the planks in very hot water for two minutes or so before bending them to shape. Glue and pin these planks in position.

Step 13: Bulwark Ribs. Glue pieces of 1.5x2 Walnut plank to the bulwarks between the handrail and the deck moulding to simulate the ribs that protrude above deck. The ribs are spaced at roughly 15mm intervals – but take the dimensions from the overhead view as some items of superstructure need to fit between them, so positioning is important. These ribs will remain visible, so ensure that they are fitted vertically and are cut accurately to length.

Step 14: Hawse Holes. Carefully drill two $\varnothing 4$ holes in the deck to take the anchor chains and glue a ring made from brass wire around each. Carefully drill two $\varnothing 3$ holes in the bow to take the anchor chains and glue a ring made from brass wire around each.

Step 15: Bowsprit Hole. Carefully drill a small hole in the bow above the ship's ram and file it out to $\varnothing 8$ to take the $\varnothing 8$ bowsprit stem dowel.

Step 16: Channels. These hold the chain plates for the deadeyes that tension the mast shrouds.

- **Channels Part 22.** Make two channels from 2x6 Walnut plank 40mm long and shape them to the dimensions shown in the detail drawing for part 22 on Plan 1
- **Channels Part 23.** Make two channels from 2x6 Walnut plank 35mm long and shape them to the dimensions shown in the detail drawing for part 23 on Plan 1
- Glue the channels on the outside of bulwarks n.33A as shown in the side view. The positions relative to the masts are important, as are the vertical positions on the bulwarks. Take the dimensions from the side view. To make a strong bond, drill two $\varnothing 0.8$ holes 4mm deep in the edge of each channel and glue in brass nails, cutting off the heads to leave a short tenon in each. Carefully drill $\varnothing 0.8$ holes in the bulwarks to take the tenons and glue the channels in position on the bulwarks.

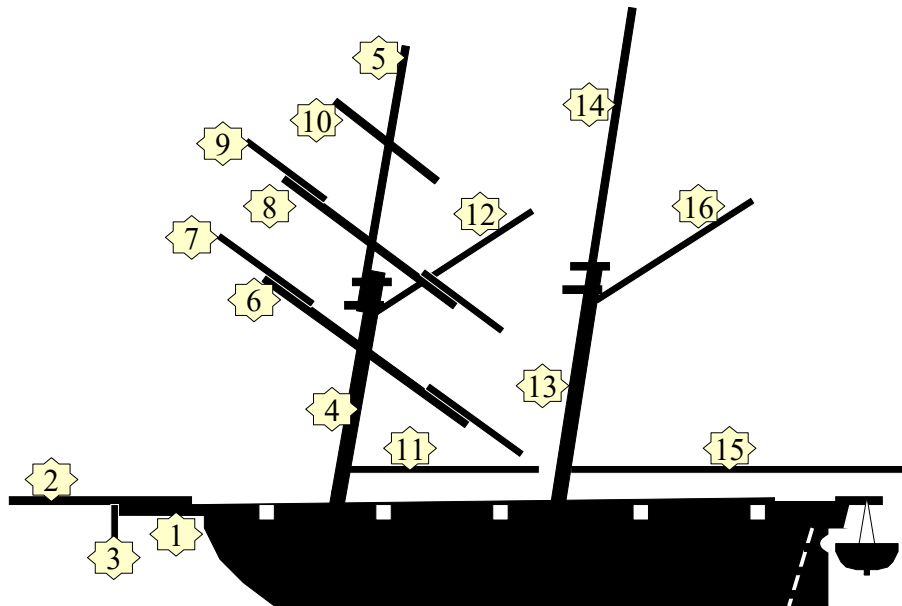
Step 17: Belaying Pin Racks. These hold the belaying pins (sometimes called treenails) for the rigging.

- **Racks Part 24.** Make four racks from 2x4 Walnut plank 47mm long. Drill twelve equispaced $\varnothing 1.3$ holes.
- **Racks Part 25.** Make two racks from 2x4 Walnut plank 25mm long. Drill four equispaced $\varnothing 1.3$ holes.
- **Racks Part 26.** Make two racks from 2x4 Walnut plank 15mm long. Drill four equispaced $\varnothing 1.3$ holes.
- Taking the positions from the overhead view on Plan 2, notch the back edges of the racks so that they sit around the ribs against the bulwarks. Glue them in place 3mm under the handrails. Glue in the belaying pins.

Step 18: Varnishing. Apply two coats of matt varnish to all unpainted areas, sanding between coats.

Step 19: Cutting Masts, Spars and Yards.

- The diagram below identifies the various masts and spars used on the *Albatros*. Cut and taper the dowels provided to the dimensions stated in the cutting table below. Taper the masts and spars using a drill and sandpaper, or using a hand plane and sandpaper, or preferably, using a lathe such as *Mantua Model Art. 8160*.
- Drill and fit the yardarm supports (plywood parts supplied) to the Fore Yard and Lower Top Yard, and lash the yardarms in place as shown on the side view on Plan 2.
- Smooth and apply two coats of matt varnish to all masts and spars, sanding lightly between coats. Label the parts temporarily with masking tape.



Mast and Spar Scheme on Albatross

Identifier	Length	ØMax	ØMin	Name
Bowsprit				
1	155	8	7	Lower bowsprit
2	162	4	2	Upper bowsprit or jib boom
3	35	2	1.5	Bowsprit outrigger or martingale
Foremast				
4	260	8	6	Foremast
5	245	5	2	Fore topmast – <i>with ball end</i>
6	226	5	2.5	Fore yard – <i>tapered both ends</i>
7	115	2	1.5	Fore yardarm - <i>two needed ##</i>
8	135	3	2	Fore lower top yard – <i>tapered both ends</i>
9	45	1.5	1	Fore lower top yardarm - <i>two needed ##</i>
10	90	2.5	2	Fore topgallant yard – <i>tapered both ends ##</i>
11	135	4	2.5	Fore spanker boom
12	120	4	2.5	Fore gaff
Mainmast				
13	265	8	6	Mainmast
14	243	6	2	Main topmast – <i>with ball end</i>
15	230	4	2.5	Main spanker boom
16	135	4	2.5	Main gaff

Note. Spars marked ## are cut from the same piece of Ø3x500 dowel

Superstructure items

Step 20: Fife Rails - Part 20. These hold belaying pins for the rigging. Make two rail assemblies as shown in the detail drawing for Part 20 on Plan 1. Make the supports from 3x3 Walnut plank 15mm long. Make the rails from 2x3 Walnut plank with mitred joints. Drill equispaced $\varnothing 1.3$ holes and fit belaying pins to each. Varnish and glue in position on the deck as shown in the overhead view.

Step 21: Anchors – Part 21. Make the stocks from the two plywood parts n.21A supplied; using a file to taper the ends as shown. Wind 5 or 6 turns of $\varnothing 0.5$ rope in four places on each stock as shown using a simple whipping technique to hold the ends of the thread under the binding. Fix the thread with a little glue. Open the hole through the centre of each stock and fix the stocks on the anchors, ensuring that the stocks line up at right angles to the flukes. **Warning. The anchor castings are brittle and will snap if bent.** Varnish the stocks. Insert a $\varnothing 6$ brass ring on each anchor tail. Fix a 250mm length of anchor chain to each anchor ring. The anchors will be placed on the hull after the rigging has been completed.

Step 22: Rudder and Tiller.

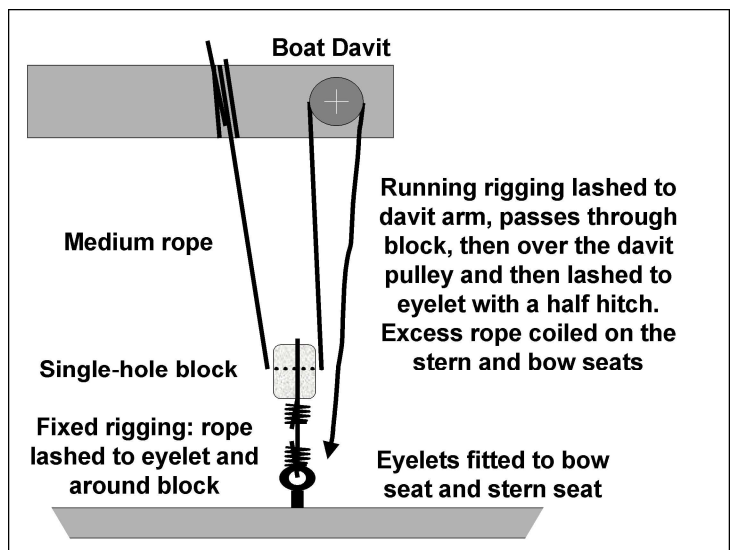
- **Rudder.** Varnish the rudder plywood part n.14. Carefully drill a hole through the deck and stern to take the top of the rudder stem. Fit three of the black 'u'-shaped rudder shackles supplied to the keel as shown in the side view. Slide the rudder up into position and mark the position of the rudder shackles on the rudder and fit three 'u'-shaped brackets to the rudder blade. Fit the rudder in position and glue the three rudder pins in place to hold the rudder onto the stern in line with the keel.
- **Tiller.** Make the tiller from $\varnothing 3$ dowel 35 long and the tiller head from the plywood part (not numbered) from the laser-cut sheet that contained the deck. Cut a square hole in the tiller head to take the stem of the rudder, and glue the tiller head onto the rudder as shown in the sectional side view on Plan 2. Varnish the tiller and head.

Step 23: Gratings. These provide light and ventilation to the lower deck.

- **Grating - Part 18:** Three gratings required as shown in detail part 18 on Plan 1. Assemble each grating using 14 grating pieces supplied to make a grid of seven pieces long by seven pieces wide. Secure with a drop of instant glue on each joint. Frame the gratings with 2x2 Walnut plank and fit a mitred overhang of 4x4 Walnut 'U' channel around the top rim of each grating. Varnish and fit to the deck as shown on Plan 2.
- **Grating - Part 19:** One grating required as shown in detail part 19 on Plan 1. Assemble the grating using 20 grating pieces supplied to make a grid of ten pieces long by ten pieces wide. Secure with a drop of instant glue on each joint. Frame the gratings with 2x2 Walnut plank and fit a mitred overhang of 4x4 Walnut 'U' channel across the fore and aft sides as shown. Varnish and fit to the deck as shown on Plan 2.

Step 24: Boat Davits – Part 41. The davits are supplied in the kit as plywood parts 41A. Chamfer the end of the davits at a 45-degree angle. On each davit, drill a $\varnothing 2$ hole through the jaws and fit a brass pulley and a $\varnothing 2$ brass axle. Varnish and glue the davits to the stern handrails as shown in the side view.

Step 25: Lifeboat – Part 42. The lifeboat is assembled from the plastic parts supplied. Trim any excess plastic moulding or sprue from the parts and shape them where necessary to achieve a smooth profile. Glue the bilge boards into the bottom of the boat with instant glue. Glue the top section to the hull with instant glue. Fit a piece of 2x2 Walnut plank into the prow slot to make the head of the prow. Fit a piece of 2x2 Walnut plank into the stern slot to simulate the tiller. Drill a $\varnothing 1$ hole in the bow seat and in the stern seat and glue a brass ring eyelet in each hole with instant glue. Paint the hull matt white and the seats and gunwales matt brown. Fit the lifeboat to the boat davits with block and rigging each end as shown here.



Step 26: Cat Davits – Part 43. The davits for the anchors are supplied in the kit as plywood parts 43 and 43A. The assembly of the davits is shown in the detail drawing for Part 43 on Plan 2. Joint the two parts as shown so that the davits reach over the handrails. On each davit, drill a $\varnothing 2$ hole through the jaws and fit a brass pulley and a $\varnothing 2$ brass axle. Glue the davits to the bow handrails as shown in the side view and overhead view on Plan 2. Varnish over.

Step 27: Hatch Cover – Part 27. The hatch cover parts are supplied with the kit (plywood parts 27A and 27B). Glue the two plates together and glue the assembly in position on the main deck. Varnish the assembly.

Step 28: Capstan – Part 28. Make the capstan handles from 1.5x1.5 Walnut. Make eight handles 12mm long. Taper the ends and insert them into the groove in the capstan body supplied in the kit. Take care to set the handles in place accurately. Glue the assembly onto the deck as shown in the overhead view.

Step 29: Chain supports (Bits) – Part 29. Make the rail from 3x3 Walnut plank 40mm long. Drill the feet of the two support posts or knights (plywood part n.29B) and inset headless brass nails as tenons. Glue the rail into the notches in the knights. Drill the deck and glue the tenons and knights to the deck with instant glue. Make the supports from plywood parts 29C and fit them in place on the deck. Varnish the assembly.

Step 30: Bowsprit Assembly

- **Bowsprit Bitt - Part 30:** Make the rail from 3x3 Walnut plank 25mm long. Drill the feet of the two support posts or knights (plywood part n.30B) and inset headless brass nails as tenons. Glue the rail into the notches in the knights and varnish the assembly. Drill the deck and glue the tenons and knights to the deck with instant glue.
- **Bowsprit Splice.** Splice the two parts of the bowsprit as shown in the side view. The length of the splice should be 60mm. Glue the two parts together, ensuring that the bowsprit is straight when assembled. Adjust the hole in the mast cap (plywood part n.53B) and slide it over the end of the bowsprit joint, gluing it in place. Bind the back end of the splice with medium thread using the same lashing method as used on the anchor stocks. Varnish over.
- Drill the underside of the mast cap and glue the bowsprit outrigger in place.
- Insert the bowsprit through the hole in the bow cut previously and glue in position so that the end of the bowsprit sits 2mm behind the bitt, and so that the outrigger is aligned vertically with the keel.

Step 31: Binnacle – Part 31. The parts are supplied with the kit. Follow the detail diagram for Part 31 on Plan 12. The sides A are plywood parts 31A. The top B is plywood part 31B. Item C is 0.2 thick celluloid sheet 6x25mm. Framing pieces D, E, F, G, H and I are made from 1.5x1.5 Walnut plank. The brass bell supplied is fitted to the support made from $\varnothing 0.5$ brass wire formed with round pliers. Parts L and M are plywood parts 31L and 31M respectively. Glue the plywood parts together. Fit the celluloid sheet window. Add the walnut framing pieces and finally drill the top and fix the bell support and bell. Varnish the assembly and glue it on the deck as shown in the overhead view.

Step 32: Guns.

- **Small Guns - Part 38. Six required.** Assemble the carriage by fixing plywood sides 38 A to the plywood base 38B and plywood front 38C as shown in the detail drawings for part 38 on Plan 1. Fit the wheel-and-axle units 38E supplied to the carriage with instant glue. Polish the brass cannons 38G and varnish them to protect the finish. Insert the pivot pins 38 F supplied into the cannons and fix with a drop of instant glue. Carefully drill one $\varnothing 1$ hole in each side of the carriage for the rigging eyes. For each rigging point, fit a brass ring 38I through a bifurcated eye 38H and then insert the eye into the cannon side, bending the ends over on the inside faces to secure them. Assemble the barrels to the carriages with the pivot brackets 38L using glue and brass pins.
- **Large gun – Part 39.** Make the gun up in the same way as above, using the detail diagram for Part 39 as a guide. Note that the large gun has two rigging points on each side.
- Rigging the guns will add realism to the model. The detail drawing at the bottom-right of Plan 2 shows you how to do this, using eyelets fitted to the bulwarks and deck, and using blocks and rope.
- For the small guns, glue the cannon wheels to the deck with the barrels protruding from the gunports by 5mm.
- For the large gun, fit this in place on the deck as shown in the overhead view on Plan 2.

Step 33: Assemble the Masts

Tip: Use the side view as a guide to dimensions and positioning of the mast parts.

- Using a file, carefully chamfer the tops of the mainmast and foremast so that the caps plywood parts 53A will sit on them at the raked angle shown in the side view. Fit the caps in place with pins and glue.
- Fit the support cheeks (the un-numbered plywood parts on the sheet that contained the deck) either side of the mast with pins and glue, ensuring that they line up with the mast caps.
- Enlarge the holes in the mast caps (plywood parts 53A) as necessary to take the ends of the upper masts. Insert the upper masts into the caps until the lower ends are halfway down the support cheeks. Glue in position after ensuring that the mast sections are in alignment.
- Fit and glue the notched trestle trees plywood parts 52C either side of the masts and seated on the top of the support cheeks. Fit the cross-trees plywood parts 52A and 52B into the trestle trees as shown in the detail drawing for part 52 on Plan 1. Part 52B goes towards the bow on each mast. The detail drawing to the right of the side view on Plan 2 gives further details of the assembly.
- Trial fit the mainmast and foremast assemblies into the deck, making adjustments to the mast holes as necessary to ensure perfect alignment. When satisfied, remove the masts from the deck. Slide each mast into a mast foot made from brass wire. Apply glue to the bottom-most sections of the masts and insert the masts into the deck. Using small slivers of wood to hold the masts in place, ensure that the masts line up with the centre-line of the ship and make the raked angle to the deck as shown in the side view. Trim off any wood slivers and glue the brass mast feet down to the deck. Put aside to dry.

Step 34: Chain Plates. These are made from the wire parts and the Ø5 wooden deadeyes supplied. The assembly of the chain plates to the channels is shown in the detail view at the top right of Plan 2. Fit the chain plates into the channels and nail them to the hull with brass nails and a drop of instant glue. Note that the chain plates are each angled differently because of their alignment with the shroud lines. Use the side view to position the chain plates accurately on the hull.

Step 35: Gaff and Boom Jaws. Cut a slot in the ends of the gaff and boom spars to take the 'Y'-shaped plywood gaff jaws supplied. Glue and pin the jaws in place. Bind the joint with a few turns of medium thread using the same lashing technique used for the anchor stocks. Drill a Ø1 hole in each prong to take the fixing ropes. Fit the jaws to the masts using medium thread tied through the prongs, passed around the mast and knotted under each prong. Secure in place with glue.

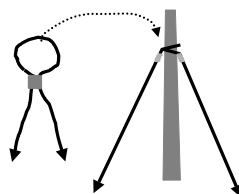
RIGGING

Step 36: Rigging Eyes.

- Drill Ø1 holes and glue in brass rigging pintles along the deck in the places shown on the overhead view on Plan 2 (rigging points 2, 4, 6, 7, 14, 16, 18 and 20, on the port side, and 1, 3, 5, 8, 15, 17, 19, and 21 on the starboard side).
- Drill a Ø1 hole in the bow under the bowsprit and fit a brass wire eyelet for the bowsprit lower guy.
- Drill Ø1 holes and fit two pintles in the bow either side of the bow for the bowsprit side guys.

Step 37: Fixed Rigging

- The fixed or standing rigging holds the masts in place. Ensure that the rigging is tight and under tension, but does not deform the masts. The thickness of the lines on the diagram indicate the two rope thicknesses: thin or thick rope
- **Rigging the Shroud lines and Deadeyes.** Rig the shrouds (the stays supporting each side of the masts) as shown in the scale side-view, using medium thread. The recommended method for fixing the 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. Use this method to secure all ropes around the masts. The diagram to the right of the side view shows details of how the shroud lines are secured to the masts



- The shrouds are terminated around deadeyes. These deadeyes are rigged and tensioned to the deadeyes in the chain plates using the method shown in the diagrams in the upper-right of Plan 2. Use thin thread for the deadeye lanyards and secure the knots with a drop of instant glue. Tension the deadeyes and shrouds, but not so much that they deform the masts.
- **Bowsprit Rigging.** Rig the bowsprit stays and guys to the outrigger and to the pintles either side of the bow. Rig the bowsprit tip to the outrigger and to the eyelet under the bow.
- **Rigging the Other Stays.** Working from the stern to the bowsprit, fix the other mast stays in place following the details in the side view. The diagram centre-right of Plan 2 shows how to rig the fore topmast stay and the general method of rigging the other stays on the ship

Step 38: Running Rigging

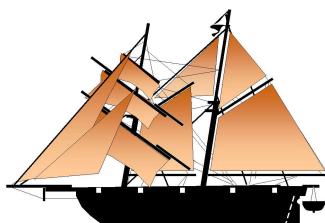
- **Fitting the Blocks.** Before securing the yards to the mast, it is advisable first to tie all the necessary blocks to the masts and the yards separately, before bringing them together on the ship. The side view shows where the blocks need to be fitted. All blocks are single-hole and all hauling lines use thin rope. The small diagram at the top right of Plan 2 shows how to 'seize' the rope around a block. The fixed ends of the hauling lines are first secured to the fixed rigging around the blocks, then pass through the blocks.
- **Rigging the Yards.** The recommended sequence for rigging is to follow the small numbers 1 to 36 shown on the side view starting with the main spanker boom rigging points 1 and 2. The terminal points are shown on the plan-view and side-view. Dual ropes 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. Ensure that rigging is tight, but does not deform masts or spars. All blocks are single-hole (part 40 on the diagrams). Note that the yards on the foremast are lashed to the masts and are supported by rope halyards as shown in the detail drawing to the right of the side view on Plan 2. Rig the foremast yards across the ship at rightangles to the centre-line of the ship (the side view shows them at an angle for clarity).
- **Terminating the Ropes to Belaying Pins.** Where the rigging point is a belaying pin in a rack or fife rail, use the method shown in the small diagram to the right of the side view on Plan 2 to terminate the rope. To add realism and 'weight' to the rope ends, wind some excess rope around a 10mm former and apply a little instant glue to the coil. Remove from the former and drape the coil over the belaying pin. Hold the coil down with a needle and apply instant glue to the coil to set it in place.
- **Rigging the Footropes.** The yards on the foremast are fitted with footropes as shown in the side view. Use thin rope for these and secure the knots with a drop of instant glue.

Step 39: Finishing Off

- **Rigging the anchors.** Secure the anchors in place on the bows by lashing the rings to the cat davits. Feed the anchor chains through the hawse holes, around the bits and into the deck holes. Secure with a drop of glue.
- **Part 30 - Flag.** Secure the flag on the mainmast pointing forward. 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.

SAILS

Sails have not been included with this model. However, please note that a ready-made set of sails for the Albatros together with rigging instructions may be purchased separately from Mantua Model Part number **Art 34203** refers.



LIST OF THE MATERIALS CONTAINED IN THE KIT

Plywood laser-cut board 2mm thick

Plywood laser-cut board 5mm thick

Plywood laser-cut board 5 mm thick

Walnut Planks

1 off 1.5x1.5x580

3 off 1.5x2x500

1 off 1.5x3x80

3 off 2x2x580

1 off 2x3x150

2 off 2x3x500

1 off 2x3x580

1 off 2x4x300

1 off 2x6x150

1 off 3x3x580

Dowel

1 off Ø3x500

1 off Ø3x500

2 off Ø4x500

1 off Ø5x560

1 off Ø6x310

1 off Ø8x150

1 off Ø8x580

Lime Planks

40 off 1.5x5x400

Flag Pack

1 off Beech Block 15x30x30

1 off Silk flag

Deadeyes Pack #1

32 off deadeyes Ø5 mm

40 off blocks 5mm – one hole

20 off gratings 36mm

Gun Pack 30mm

6 off guns 30mm

6 off pins Ø1.5x11mm

6 off wheels 18mm

6 off wheels 20mm

12 off rings 3 mm

12 off bifurcated pins

14 off pivot brackets

Lifeboat Pack

1 off lifeboat complete (3 parts)

2 off brass stem eyelets

2 off block 5mm 1-hole

2 off brass pulleys Ø5mm

2 off brass pins Ø2x5mm

Gun Pack 40mm

1 off gun 40mm

1 off pins Ø1.5x11mm

1 off wheel 18mm

1 off wheel 20mm

4 off rings 4 mm

4 off bifurcated pins

Gratings Pack

42 off gratings 26mm

Rope Pack

12m Thin rope Ø0.25mm

12m Thick rope Ø0.75mm

100 off brass nails 8mm

Capstan Pack

23 off brass stem eyelets

1 off capstan body 10x15

1 off hank brass wire Ø0.5x800

1 off brass bell 6x8

6 off rudder hinges

3 off rudder pins

Anchor pack.

2 off Anchors

2 off Brass rings Ø6 rnrn

40 off belaying pins 8mm

1 off chain 500mm

2 off brass pulleys Ø5 rnrn

2 off brass pins Ø2x5

2 off blocks 5mm I-hole

1 off celluloid sheet 8x25mm

1 off brass wire Ø1x45mm

1 off Construction plans (2 sides)

1 off Instruction booklet

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 plank 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 that 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 this manner from 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. **To avoid twisting the hull, cover each side of the hull alternately, working three to four planks at a time.**

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 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 that extend beyond the hull planking.

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 there are a number of these pieces to make, 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. Plank the inside faces of the bulwarks, covering the inside of the first layer of white planks. Carefully smooth this last section of 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.** A number of sizes are available, the larger handle being the most useful. Many blades are 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, and 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 are available. All give a very fine cut. Usually tenon-backed, these can be obtained in sets to include handle, mitre box, or just the blade.

