

GOLDEN STAR

English Brig of the 17th and 18th Centuries

Art. 769

ASSEMBLY INSTRUCTIONS *English Version*

*Newly translated and improved by
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For the

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HISTORICAL BACKGROUND

A brig is a vessel with two masts square-rigged like a ship's foremast and mainmast, but carrying also on her mainmast a fore and aft gaff-and-boom mainsail. In wide use in the merchant marine during the 17th and 18th centuries, the brig was introduced into English naval service from the 1770's.

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 F1, A9, etc.) refer to the detailed or exploded drawings on Plans 2 or 3.
- The sequence given here is the recommended order for completing the model.

PLAN NUMBER 1

On the two plywood panels, mark the part number on each laser-cut, plywood component with a soft lead pencil before removing the parts with a craft knife. The identity of the removed parts can be easily checked from the scale drawings provided on Plan 1. Smooth all the edges of each piece with fine sandpaper, taking care not to damage the machined profiles of the pieces.

Figure 1.

- Draw the central line on each of the frames n.2-n.8 and n.16 using a square.
- Using the scale side-section view on Plan 1, draw the positions of the false bow strips n.1A on both sides of the keel. Temporarily nail the bow strips to the keel using brass nails.
- On frame n.4, mark the position of the strip n.4A, and glue and then glue and nail n.4A on the frame using brass nails.
- Glue the frames to the keel, checking before they are set that they are square to the keel when viewed from the side. Use a rule or long strip across the top of the frames to check that the central lines of the frames are aligned with the central line of the keel. Put aside to dry.

Figure 2.

- With a hard pencil, and starting from the central line, score the surface of the decks n.9, n.10, n.13 and n.24 at 3.mm intervals to simulate the deck planking.
- Glue the main deck n.9 down onto support strip n.4A on the frame structure, aligning the sides of the deck with frames n.4 and n.8.
- With reference to the side-section view and Figure 4, glue the two stern transom support brackets n.11 onto the rear of frame n.2. Glue the poop deck n.10 onto the top of frames n.2, n.3 and n.4 overhanging frame n.4 by 2.mm, and aligning the sides of the deck with the frames.

Figure 3.

- With a hard pencil score the surfaces of the deck transoms n.12 & 14 with vertical lines at 3.mm intervals to simulate bulkhead planking. Glue the fore deck n.13, the main deck transom No 12 and the fore deck transom n.14 in place, aligning the edges with the frames.
- Taking the dimensions from the side section drawing cut a 6x5 square hole 2mm deep in each side of parts n.15 with a craft knife and paint the hole black. This porthole provides a fixing for the dummy cannon. Glue parts n.15 accurately in place between frames 4 and 5.
- To enable the hull planking to form a smooth line from the frames to the bow, and to the stern, and to increase adhesion, remove the rear-facing sharp edges of frames n.2 and n.3, and the bow-facing edges of frames n.6, n.7 and n.88 with a file. Smooth with a sandpaper block.

Figure 4. Glue the stern transom plywood part n.16 on the support brackets n.11.

Figure 5 - Planking. To form the hull planks into a curve (to fit the shape of the bow) without risk of the planks breaking, a plier-type plank bender is recommended. The 1.5x6 Walnut planking strips are to be glued on the frames side-by-side (not overlapping) and lengthways along the ship. The first plank will be positioned level with the main deck and parallel with the bottom of the keel. Form one end of the plank into a curve to fit the curve of the frames at the bow and trim the bow end of the plank so that it abuts neatly against the keel in front of strip n.1A. Apply glue to the frames and position the plank holding it in place with clamps or pins. (*Caution: do not cut off the excess planking overhanging the stern yet, as this will be trimmed later.*)

The general instructions on planking at the end of this booklet provide practical advice on how to achieve a good line to the hull, with planks that abut neatly, leaving only small gaps. Note that this model is single-planked (only one layer) so that all the planks need to be applied with care if a good finish is to be achieved. Continue planking down the hull until the planking reaches the dummy porthole. Mark the centre-line of the porthole on the plan – to make it easier to find the porthole position later. Continue planking down the hull to the keel. Taper and trim the ends of the planking where necessary to fit and cover the hull. Cut the planking neatly away from around the dummy porthole on each side.

Figure 6. Continue the planking upward from the first plank, to create a parapet wall around each deck as shown. Fit transom plywood part n.17 in place using the sectional view as a guide, and plank up the sides at least 2mm above the top edge.

Figures 7 and 8. Carefully trim the hull planking at the stern, down the sides of the transom n.16, the curved area under the transom formed by parts n. 11 and the sides of frame n.2. Plank the stern with horizontal 1.5x6 planks as shown. Any gaps or splits in the planking should now be filled with thin pieces of plank. When the glue is dry, remove all nails, and finish the hull by scraping and smoothing with sandpaper. Any small cracks remaining should be filled with suitably coloured plastic wood and finished with fine emery paper or sandpaper.

Figure 9. Assembling the Rudder. Make a slot $\varnothing 3$ and 5 long in the top of rudder plywood part n.18. Cut a piece of $\varnothing 3$ dowel 52 long and glue it into the rudder slot. Fix two the metal hinges item 20 onto the keel with brass nails as shown in figure 12. Mark and cut a small hole in the underside of the stern, insert the rudder and mark the position of the hinges on the rudder. Fit the hinges to the rudder with brass nails and re-assemble the rudder into the stern. Join the two parts of the hinges by gluing in the hinge-pins item 21. Glue the tiller head (plywood part n.22) onto the rudder dowel. Shape the tiller from $\varnothing 3$ dowel 30 long and glue into place in the tiller head.

Figure 10. Fit the upper deck part n.24 as shown, and trim the side planks level with the deck.

Figure 11. Building the Ship's Cradle. Join plywood parts n.26 and n.27 with two plywood strips 5x10x210 long, glued and nailed in position. When dry, sand until smooth and paint black.

Figure 12. Finishing the hull.

- Frame the stern with 2x2 Walnut strips & glue the windows (plywood parts n.28) in position on the stern and sides as shown (see also the stern view by fig.13). Paint the windows black. Optionally, paint in the window frames using gold paint and a small brush.
- Above the windows glue mouldings (item 29) made from 1.5x3 Walnut plank.
- Glue the handrail plywood parts n.30 to the bow, and fit handrails items 31 and 32 made from 1.5x3 Walnut plank (see the plan-view on Sheet 2).
- Rubbing strakes. These are timbers fitted along the length of the hull to protect the sides of the ship from damage. Two strakes are fitted to the Golden Star made from 2x2 Walnut plank (items 33 and 34 in fig. 12). Before gluing the rubbing strakes to the sides of the hull, mark their positions using the scale side-view on Plan 2 as the guide. Check that they are at the same height either side; so that the moulding under the stern ransom will line up with them and be horizontal (see the stern view by fig.13). Glue and pin these strakes into position.

Figure 13.

- **Channels.** These boards hold the deadeyes supporting the shroud lines. Glue plywood parts n.35 and n.36 to the sides of the hull and support them with the brackets (plywood parts n.37) using five brackets under channel n.35 & four brackets under channel n.36. Use the plan view on Plan 2 to get the correct positioning in relation to the two masts. The securing strip item 38 is added later when the chainplates have been fitted. Drill a $\varnothing 1$ hole in the front side of each fore-channel to take the anchor securing rope.
- **Gun ports.** Make these from 1x6 and 1x4 Walnut plank, and glue them to the hull in the positions shown in the side-view on Plan 2. Drill a $\varnothing 2$ hole in the centre of each of the two dummy portholes and fix the dummy cannons (item 40) in place. Glue open the ports above the dummy barrels.
- **Steps.** Fix the seven outer steps (item 41) made from 2x2 Walnut 12 long to the hull sides, as shown on the side view.

PLAN NUMBER 2

The numbered exploded views in this plan show the details for completing the superstructure. Refer to the scale side-view and scale plan-view for dimensions and the positions of the numbered detail parts. **Caution: the detail drawings are not to scale.** To make working easier, place the hull on the ship's cradle that was made previously.

Figure F1 – Banisters Item 42. The two banisters with belaying pins are situated on the front of the poop deck and at the rear of the foredeck. Make the rails (item 42) from 1.5x3 Walnut plank 38 long, checking the hole positions on the plan view. Drill six $\varnothing 1.3$ holes for the belaying pins and three $\varnothing 0.8$ fixing holes. Make the 5mm long pillars (item A) from $\varnothing 2$ dowel and drill $\varnothing 0.8$ holes in one end. Fix the rails to the pillars with brass nails and glue. Glue the assemblies on deck in the positions shown on the plan-view.

Stern deck handrails - Item 43. Take the dimensions from the plan-view and make up the three handrails fitted onto the stern deck. Make the rails from 1.5x3 Walnut plank, checking the hole positions on the plan- and side-views. Make the 5mm long pillars from $\varnothing 2$ dowel and drill $\varnothing 0.8$ holes in one end. Drill and fix the rails to the pillars with brass nails and glue. Glue the assemblies on deck in the positions shown on the plan-view. Drill two $\varnothing 1.3$ holes in the front rail for the two belaying pins.

Figure 2 – Stairs. Shape the backs of the ready-made stairs items 44 (6x6x8 mm) and item 45 (20x20x8 mm) so that they fit snugly against the transoms, and glue in place on the deck. Make the cylindrical handrails from $\varnothing 1$ brass wire. Drill $\varnothing 1$ holes in the deck and glue the handrails in place.

Small Parts.

Glue the doors plywood part n. 46 (6x12 mm) on the central transom n.12.

File the bottom edge of the stern ornament (plywood part n.47) to create a backward tilt and glue onto the rear of the stern deck.

Glue on the bow the four cleats plywood parts n.48: fit two just underneath the bow railing, and fit two on the deck.

Figure 3 - Fife rails item 49. Taking the dimensions from the plan-view, make up the two fife rails, modifying the four fife rail supports (plywood parts n.49) with a small file as shown. Make the two 25mm-long rails from 3x3 Walnut plank and drill four $\varnothing 1.3$ holes for the belaying pins.

Figure 4 - Capstan item 50. Glue the tapered drum (item A) supplied to the two sides (plywood parts 50B). Make the ratchet plate (C) from 10mm long 3x3 Walnut plank and the support pillar (item D) from 7mm long 1.5x3 mm Walnut plank. Glue these parts as shown on the plan. . Drill $\varnothing 1$ mm holes in the deck, wind two lengths of $\varnothing 0.5$ rope around the ends of the capstan and insert the free ends into the deck (see plan).

Figure 5 - Hatchway item 51. Glue the plywood sides 51B to the plywood end gables 51A, chamfering the top outside edges of 51B to allow the roof to overhang the sides. Make the roof from 1.5x6 Walnut planks 40mm long chamfering the top joint to make a neat joint along the roof apex. Sand smooth when dry. Glue on the eight skylight covers (plywood parts 51D) as shown. Glue the assembly onto the deck.

Figure 6 - Hatchway item 52. Glue the plywood sides 52B to the plywood end gables 52A, chamfering the top outside edges of 52B to allow the roof to overhang the sides. Make the roof from 1.5x6 Walnut planks 9mm long chamfering the top joint to make a neat joint along the roof apex. Sand smooth when dry. Glue on the four skylight covers (plywood parts 52D) as shown. Glue the assembly onto the deck.

Figure 7 - Steering wheel item 53. Make the axle (item B) from $\varnothing 2$ dowel 18 long. Reduce the outer diameter of the axle from 2 mm to 1.5 mm for a length of 4 mm with a file. Insert the axle through the supports (plywood parts 53A) and into the steering wheel. Fix with instant glue. Glue in position on the deck (see plan).

Figure 8 - Lantern item 54. Assemble the supplied parts A, B, C, D, E and F using epoxy resin or instant glue. Fix to the stern using the side- and plan-views on Plan 2 as guides and with reference to the stern view on Plan 1.

Belaying Pin Racks items 55, 56 and 57. Cut the belaying-pin racks from 1.5x6 mm Walnut plank as follows and drill $\varnothing 1.3$ holes for the belaying pins:

- Item 55 - two pieces 20 mm long – five pins;
- Item 56 - four pieces 15 mm long – four pins;
- Item 57 - four pieces 25 mm long – six pins.

Glue the belaying-pin racks inside the hull parapet, under the handrails, in the positions shown on the plan-view on Plan 2, and in the sectional-view on Plan 1.

Figure 9 - Falconets item 58. Drill the handrails with $\varnothing 0.8$ holes and fix the brass falconet supports (item A) onto the handrails with brass nails in the positions shown on the plan. Fix the barrels (item B) with pins (item C) made from $\varnothing 1$ brass wire 4mm long and clenched with pliers to secure the pins in place.

Figure 10 - Cat Davits item 59. Make the davits (item A) from 3x3 Walnut plank 23 long. Drill two $\varnothing 1.5$ holes in one end, 3 mm apart. Make the support posts (item B) from 3x3 Walnut plank 20 long and chamfer the ends to fit against the hull and the davits as shown. Glue onto the bow in the positions shown on the bow view and the two scale views on Plan 2.

Figure 11 - Anchors item 60. Taper the ends of the two anchor stocks (plywood parts 60A) as shown on the figure 11. Wind 5 or 6 turns of $\varnothing 0.5$ thread in four places on each stock as shown, fixing the thread with a little glue. Fix the stocks on the anchors, ensuring that the stocks line up at right angles to the flukes as shown. Insert a $\varnothing 6$ brass ring on each anchor tail. Tie a 150mm length of large thread to each anchor ring and bind it with thin thread as shown. The anchors will be placed on the hull after the sail work has been completed.

Hawse holes. Carefully drill two $\varnothing 3$ holes in the bow to take the anchor ropes, as shown in the bow view. Glue a $\varnothing 4$ brass ring around each hole.

Rigging Eyes. Drill $\varnothing 1$ holes and glue in the brass rigging eyes (item 69): two on the poop deck (points 48), two on the foredeck (points 4), three on the bow for the bowsprit, two on the stern sides and four on the channels, as shown in fig. P5 and on the side- and plan-view.

MASTING THE SHIP

Figures 12, 13, P4 and the scale side-view show how to assemble the mast tops – the joints and platforms between the sections of mast.

Figure 13 – Assembling the Tops. The construction process is the same for all four top assemblies. The four platforms (tops) are made from plywood parts 61, 62 and 63 (2 pieces). Here we explain how to make the top for the mainmast.

- Glue the two crosstrees (plywood part 61B) into the two tressle-trees (plywood parts 61A).
- Glue the platform (plywood part 61) onto the crosstrees ensuring that the platform lines up correctly with the platform edges.
- Frame the platform with plywood part 61D on the front upper face, and a kick plate (item 61C) made from 2x2 Walnut plank on the rear upper edge.
- Drill three $\varnothing 1.5$ holes in each side of the platform for the shroud lines.
- Drill a $\varnothing 1$ hole in the back edge of the platform and glue in a brass rigging eye.

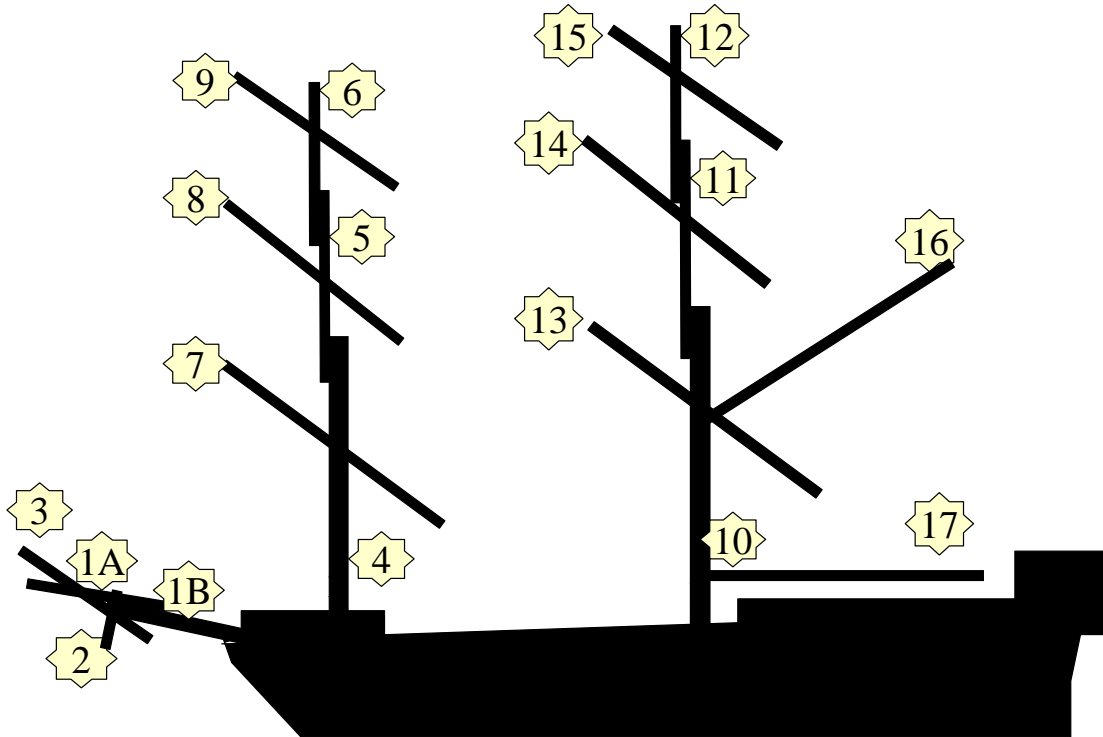
Make up the other three top assemblies in the same way – but omit the rigging eyes.

Mast caps. Shape the plywood parts 61E, 62E and 63E as shown on Figure 12. Carefully drill the holes to the sizes of the prepared mast ends.

Mast Fife Rails. Drill plywood parts 65 and 66 with eight equispaced $\varnothing 1.3$ holes for belaying pins.

Masts, Spars and Yards.

Using the dowels provided in the kit, cut and taper all the masts and yards to the cutting and shaping dimensions in the table below. The **Identifier** is the circled number on the drawing below: **Length** = finished length, **ØMin** = the smallest diameter, **ØMax** = the largest diameter. Parts are tapered towards one end only, unless stated otherwise.



Mast and Spar Scheme on the Golden Star

| Identifier | Length | ØMin | ØMax | Name |
|-----------------|--------|------|------|--|
| Bowsprit | | | | |
| 1A | 97 | 2.5 | 4 | Upper bowsprit |
| 1B | 105 | 4 | 4 | Lower bowsprit |
| 2 | 48 | 2 | 3 | Bowsprit outrigger |
| 3 | 130 | 1.5 | 3 | Bowsprit yard – tapered both ends |
| Foremast | | | | |
| 4 | 195 | 4 | 5 | Foremast |
| 5 | 115 | 3 | 4 | Fore upper mast |
| 6 | 82 | 2 | 3 | Fore topgallant mast |
| 7 | 152 | 2 | 3 | Foresail yard – tapered both ends |
| 8 | 125 | 2 | 3 | Fore topsail yard – tapered both ends |
| 9 | 103 | 2 | 3 | Fore topgallant yard – tapered both ends |
| Mainmast | | | | |
| 10 | 210 | 4 | 6 | Mainmast |
| 11 | 130 | 3 | 4 | Main top mast |
| 12 | 98 | 2 | 3 | Main topgallant mast |
| 13 | 176 | 2 | 3 | Mainsail yard – tapered both ends |
| 14 | 144 | 2 | 3 | Main topsail yard – tapered both ends |
| 15 | 98 | 2 | 3 | Main topgallant yard – tapered both ends |
| 16 | 112 | 2 | 3 | Gaff |
| 17 | 136 | 2 | 4 | Spanker boom |
| Flagpole | | | | |
| None | 50 | 2 | 3 | Flagpole |

Assembly of Masts and Mast Tops.

- Fit the mast ends through the assembled tops and into the mast caps, joining the lower mast, topmast and topgallant mast sections. Before the glue has set, check that the mast parts align correctly.
- Fit the support cheeks made from plywood parts 61F, 62F and 63F respectively to the sides of the two mast sets. Glue the tressle-trees down onto the support cheeks, checking that the tops line up correctly with the fore and aft line of the mast.
- Tie reinforcing rope around each mast in the four positions shown, and secure with glue.
- 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.
- Remove the masts and slide the base of each mast into the appropriate mast fife rail (part 65 and 66) and then the appropriate mast foot (plywood parts 67 and 68). Glue the masts in place, using small wedges if necessary to ensure that the masts and tops align with the centre-line of the ship. Glue the mast feet in place. Glue the mast fife rail in place on each mast.
- Varnish the mast assemblies and the yards.

Figure 14 – Gaff and Boom fixings. Fit the jaws (plywood parts 64) into slots cut in the end of the gaff and the boom. Reinforce each structure with a length of Ø0.25 rope

Figure 15. Chain-plates item 70. Gently roll the Ø0.5 brass wire around the Ø5 dead-eyes (item A) and make a small loop in the other end using round-nosed pliers, checking the correct length against the scale side-view. Insert the wire into the channel slots (parts 35-36) and secure the chain-plates to the hull with brass nails. Drill and fit the chain-plate securing strips (item 38 figure 13, sheet N° 1 made previously) to the channels with glue and brass nails.

Bowsprit. Assemble the two bowsprit sections into the bowsprit cap (plywood part 61E shaped as shown on the scale side view). Chamfer the end of the outrigger to fit it snugly against the upper bowsprit, and fix it to the cap using glue and two brass nails. Glue the bowsprit in place and lash (gammon) it to the ram with rope as shown in the side-view.

Belaying pins. Glue a belaying pin (supplied in the kit) into each of the belaying pin holes drilled previously, using a small drop of instant glue.

Rigging

Before securing the yards to the mast, it is advisable to tie all the necessary blocks to the masts and the yards, for both the running rigging shown on Plan 2 and for the sail rigging on Plan 3.

Figure 16 - Materials for the Rigging. The diagram F.16 to the left of the plan shows how to secure ropes to blocks. Dimensions of small or large blocks and the thickness of the ropes are readily distinguished by differences in outlines in the scale side-view drawing and in the key F.16 on the left of the plan:

- A = 3 mm single-eye block
- B = 3 mm double-eye block
- C = 5 mm double-eye block
- D = Ø0.25 mm rope
- E = Ø0.50 mm rope

The recommended sequence for rigging is to follow the small numbers (from 1 to 53 shown on the side-view) starting with the mainmast lower shroud lines numbers 1, 2 and 3. The process will take you first through the fixed rigging (used to tension the masts), and then through the running rigging (used to attach the yards to the masts and to raise and lower them). 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 and deadeyes. Ensure that rigging is tight, but does not deform masts or spars.

Figure P.1 – Lower Shroud lines. Make these from medium thread and secure them to the masts by using a seized loop as shown in the diagram on the right-hand-side of Plan 2. (*Note that the diagram P.1 in the centre of the plan is incorrect and should show the platform in place and deadeyes connecting the upper shrouds to the lower shroud lines*). The shroud lines are secured around the mast, above the tressle trees (shown in the second figure P.1 on the plan), are passed down through the gaps in the tops and are then tied off to the deadeyes.

Figure P.2 - 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 P.2.

Top Shroud Deadeyes. On the platforms, fit deadeyes for the top shrouds with medium thread. Pass the threads down through the drilled holes in the platforms and tie the threads off to the tops of the lower shroud lines just below the tressle-tree support cheeks.

Top Shrouds. Rig the top-shrouds as shown in the scale side-view, using medium thread. 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. Secure the top-shrouds to the top deadeyes.

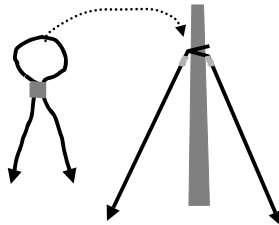


Figure P.3 – Ratlines. When the shrouds are fitted and tensioned correctly, make and bind the ratlines to the shrouds using thin thread and using the knotting techniques shown in P.3. Secure the end knots with a drop of instant glue.

Figure P.4 shows how the 'great ropes' or stays used to tension and support the masts are secured to the masts to form a 'stay head'. The rope is fed through the platform, around the back of the mast, and then looped in front of a 'preventer' knot fitted to the rope to stop the loop tightening around the mast when under tension.

Figure P.5 shows how to make the halyards to support the spanker boom, using thin thread and blocks.

Figure P.6 shows how to secure a rigging line to a belaying pin.

PLAN NUMBER 3

Making and Rigging the Sails

Plan Number 3 shows how to make the sails, fit (bend) them to the yards, and rig them so they can be operated. Note that a ready-made set of sails for the Golden Star may be purchased separately from Mantua Models: **Art 34209** refers.

Step 1. Cut each sail following the outer dotted line. Fix a length of $\varnothing 0.50$ rope around the edges of each sail, folding the rope in the lower corners to make clewing rings as shown on the plan.

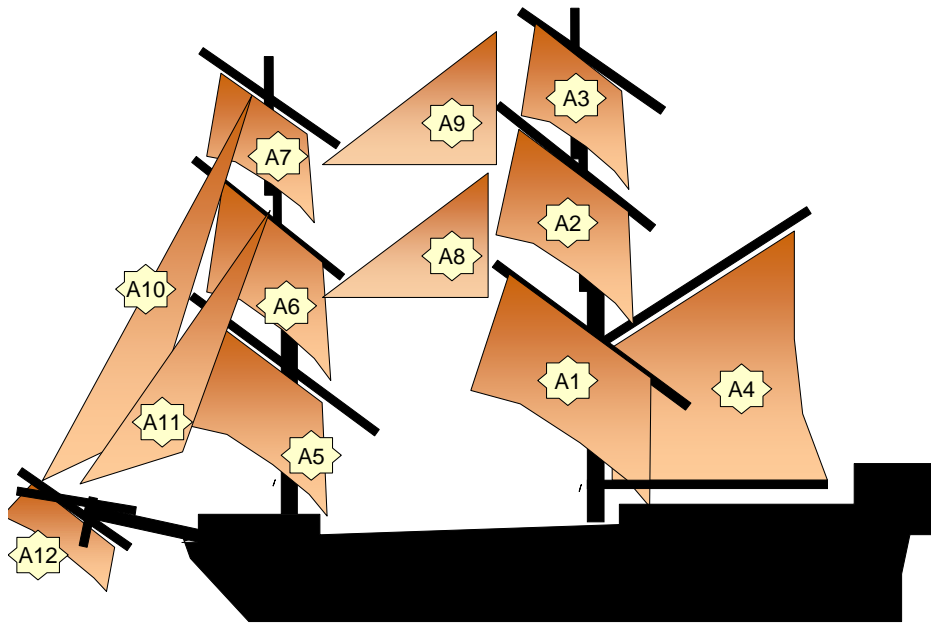
Step 2. Fold the outer hems of the sail over the rope and sew the hem up with thin cotton thread.

Step 4. Bend the jibs and staysails to the stays using the $\varnothing 4$ brass rings as shown on the side-view.

Step 4. Bend (tie on) the other sails to the yards as shown on the sail plan.

Step 5. Rig the sails in sequence, following the small numbers on the side view and the material key F.16 on Plan 2. The plan view shows all the points where the rigging is made fast.

The diagram below identifies the names of the sails fitted to the Golden Star.



Sail Scheme on the Golden Star

| Identifier | Name |
|------------|--------------------------|
| A1 | Mainsail or main course |
| A2 | Main topsail |
| A3 | Main topgallant sail |
| A4 | Spanker |
| A5 | Fore-sail or fore-course |
| A6 | Fore topsail |
| A7 | Fore topgallant sail |
| A8 | Main top staysail |
| A9 | Main topgallant staysail |
| A10 | Flying Jib |
| A11 | Jib |
| A12 | Spritsail |

Finishing off

- When the rigging is completed, fit mast end caps to the main and fore topgallant masts. Drill a $\varnothing 0.8$ hole in the end of the two topgallant masts (to take a brass nail) and make up two end caps from $\varnothing 3$ dowel drilled through with a $\varnothing 0.8$ hole. Fix with glue and a brass nail.
- Secure the anchors in place on the bows. The anchor rigging is shown on Plan 2.
- Secure the flag on the flagpole and on the main topgallant mast. To give the flags an appearance of weight and droop in the absence of wind, fold and secure each flag in a draped position using some thin pins, and then spray the flags with fixer or transparent hair lacquer.
- Varnishing: Leave all parts their natural colour and varnish them with matt varnish.

LIST OF THE MATERIALS CONTAINED IN THE KIT

Plywood laser-cut board 2x140x475 mm

N. 1A-9-10-12-13-14-17-22-24-28-30-35-36-37-46-47-48-508-51 A-51 C-51 D-52A- 528-52C-53A- 61-61 A-61 8-61 D-61 F-62-62A-628-62D-62F-63- 63A-638-63D-63F-64-65-66-67 -68

Plywood laser-cut board 5x170x470 mm

N. 2-3-4-5-6-7-8-11-15-16-18-26-27-49-60A-61E- 62E-63E

Walnut Planks

1 off 1x4x100 mm
1 off 1x6x110 mm
3 off 1.5x3x350 mm
1 off 2x2x150 mm
3 off 2x2x380 mm
2 off 2x4x380 mm
1 off 3x3x300 mm
40 off 1.5x6x400 mm

Rudder hinge pack.

4 off Rudder hinges
2 off Hinge pins
2 off Dummy cannon barrels 12 mm
19 Eyelets Ø1 brass

White poplar plywood plank

1 off 5x10x420 mm

Belaying-pin pack.

80 off Walnut belaying-pins 8 mm

Walnut dowels

1 off Ø 2x150 mm
3 off Ø 3x450 mm
1 off Ø 4x260 mm
1 off Ø 4x350 mm
1 off Ø5x195 mm
1 off Ø 6x210 mm

Rigging rope pack.

1 off Rigging rope Ø0.25 mm – 45 m long
1 off Rigging rope Ø0.50 mm -15 m long

Lantern pack.

2 off Lantern tops 10x6 mm
2 off Lantern bases 6x1 mm
2 off Lantern bodies
2 off Cap decorations
2 off twisted brass wire Ø2x50 mm
1 off twisted brass wire Ø1x150 mm

FITTINGS

Sail pack

1 off Sailcloth

Falconet pack.

10 off Falconets brass 15 mm
10 off Falconet supports brass
2 off Ladder blocks 6x6x8 mm wooden
2 off Ladders blocks 20x20x8 mm wooden

Nail pack

100 off brass nails 8 mm long

Capstan pack.

1 off Walnut capstan roller 30 mm
1 off Ship's Steering wheel 20 mm brass
2 off English flags

Deadeyes pack #1.

28 off Dead-eyes Ø5 mm

Deadeyes pack #2.

20 off Dead-eyes Ø3 mm

Blocks pack #1.

94 off single-eye 3 mm rigging blocks

Anchor pack.

2 off Anchors
2 off Brass rings Ø6 mm
20 off Brass rings Ø4 mm
1 off Hank of brass wire Ø1x400 mm
1 off Hank of brass wire Ø0.5x800 mm

Blocks pack #2.

15 off double-eye 3 mm rigging blocks

1 off Instructions book

Blocks pack #3.

20 off double-eye 5 mm rigging blocks

3 off Plan sheets

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

GENERAL PLANKING INSTRUCTIONS (applicable to all kits)

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 system that we consider is most effective, and 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, which are those planks that extend beyond the 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. Proceed to plank the inside faces of the bulwarks, covering the inside of the first layer of white planks. Carefully sand this last section of planking smooth 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, 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.** There are various grades of miniature saw blade available that all give a very fine cut. They are usually tenon-backed and can be obtained in sets to include the handle, mitre box, or just the blade.

