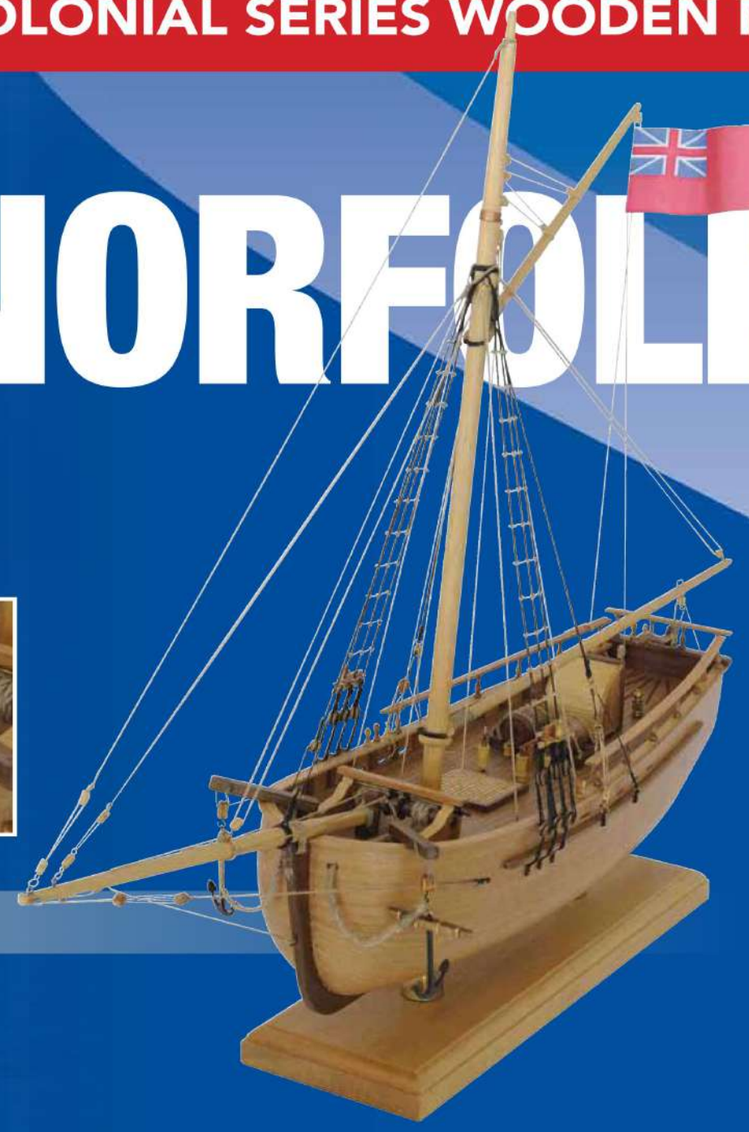
AUSTRALIAN COLONIAL SERIES WOODEN MODEL KIT

SLOOP NORFOLK 1798

SCALE 1:36

LENGTH: 590mm HEIGHT: 450mm

ITEM CODE: KTMS1002



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BUILDING INSTRUCTIONS

Version 4.0

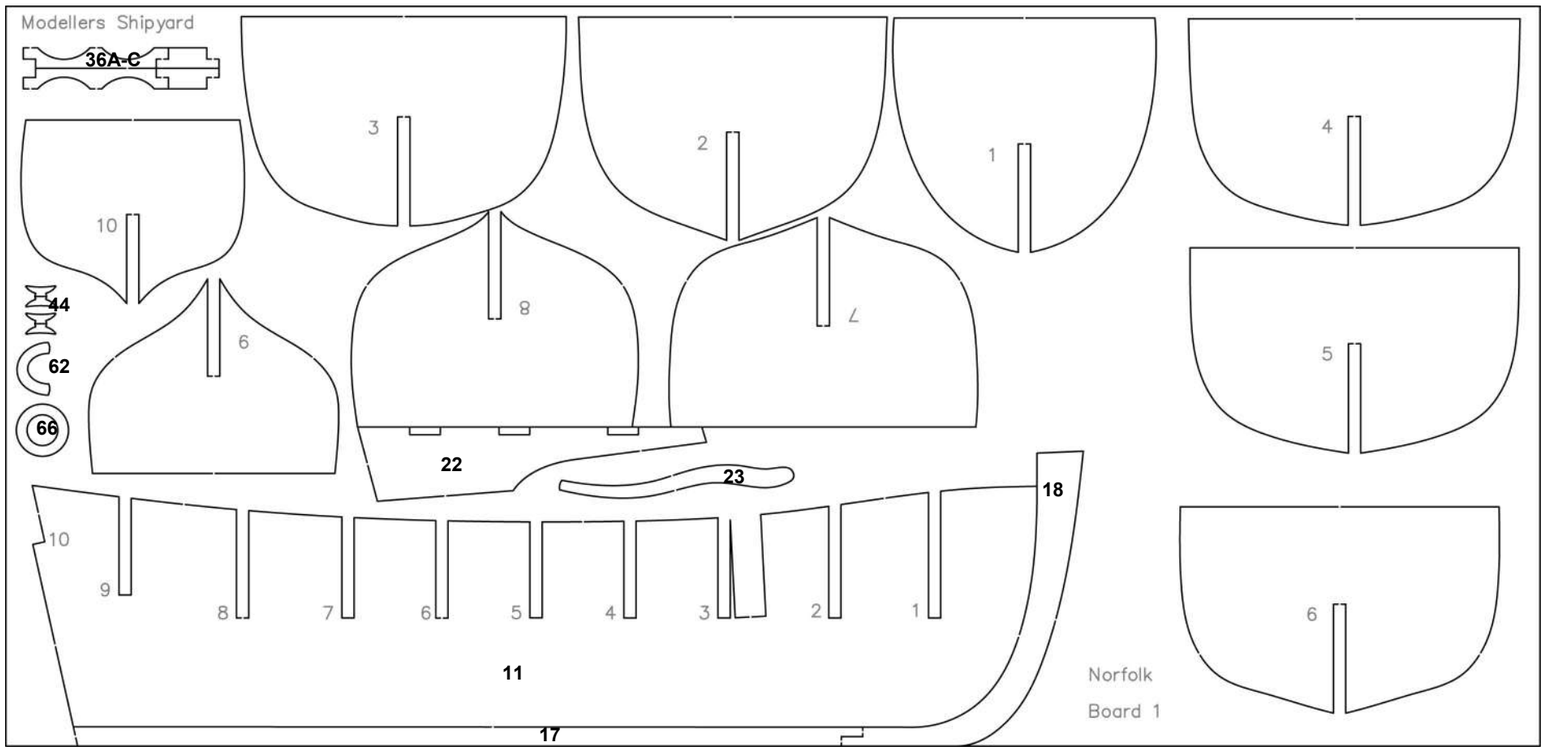
Parts List (Modeller's Shipyard reserves the right to make changes to the instructions, components &/or kit contents at any time without notice)

Part No	Description	Quantity	Material
1-9	Bulkhead Frames	9	Board 1
10	Transom	1	Board 1
11	Keel	1	Board 1
12A-H	Bow Blocks	16	Board 2
13	Bow Block Key	2	Board 2
14	Deck	1	Board 3
15	Limewood - 2x5x400mm	50	Timber Stock
16	Bulwarks	2	Board 3
17	False Keel	1	Board 1
18	Stem Post	1	Board 1
19	Silver Ash - 0.6x4x400mm	8	Timber Stock
20	Teak - 0.6x5x400mm	60	Timber Stock
21	Walnut - 2x4x500mm	1	Timber Stock
22	Rudder	1	Board 1
23	Tiller	1	Board 1
24	Rudder Hinges	3	Parts Card 2
25	Nails - Brass	Bag	Parts Card 2
26	Beech - Flexible 2x5x500mm	3	Timber Stock
27	Not Used	——	——————
28	Not Used	——	——————
29	Limewood - 4x4x500mm	1	Timber Stock
30	Anchor Winch	1	Parts Card 2
31	Pumps	2	Parts Card 2
32	Anchors	2	Parts Card 3
33	Grating	1	Board 3
34	Limewood - 2x2x200mm	1	Timber Stock
35	Walnut 5x5x150mm	1	Timber Stock
36A-C	Barrel Base	4	Board 1
37	Eye Pins	Bag	Parts Card 2
38	Barrels	2	Parts Card 2
39	Buckets	2	Parts Card 2
40	Companionway - Sides	2	Board 3
41	Companionway - Front	1	Board 3
42	Limewood - 1x2x250mm	1	Timber Stock
43	Door Hinges	4	Parts Card 2
44	Cleats	4	Board 1
45	Hawse Pipes	2	Parts Card 1
46	Cord F - Anchor 2x500mm	1	Parts Card 1
47	Cord G - 0.25mm - Fawn	1	Parts Card 1
48	Cord H - 0.5mm - Fawn	1	Parts Card 1
49	Cord J - 1.0mm—Black	1	Parts Card 1

Part No	Description	Quantity	Material
50	Block A - 5mm 1 Hole	18	Parts Card 3
51	Block B - 5mm 2 Hole	5	Parts Card 3
52	Block C - 7mm 2 Hole	2	Parts Card 3
53	Block D - Violin 7mm	2	Parts Card 3
54	Stanchions	16	Parts Card 3
55	Wire - Brass - 1mm x 80mm	1	Parts Card 2
56	Rowlocks	6	Parts Card 3
57	Belaying Pins	2	Parts Card 3
58	Dowel - 10x420mm	1	Timber Stock
59	Dowel - 8x220mm	1	Timber Stock
60	Dowel - 5x200mm	1	Timber Stock
61	Dowel - 6x300mm	1	Timber Stock
62	Boom Support	1	Board 1
63	Copper Strap—3x50mm	1	Parts Card 3

Part No	Description	Quantity	Material
64	Gaff Yoke	1	Board 3
65	Boom Yoke	1	Board 3
66	Mast Heel	1	Board 1
67	Deadeyes - 7mm	12	Parts Card 3
68	Deadeye Straps	6	Parts Card 3
69	Deadeye - 5mm	6	Parts Card 3
70	Flange Straps	6	Parts Card 2
71	In-Out Haul Ring	1	Parts Card 3
72	Rings	Bag	Parts Card 2
73	Parrel Beads	Bag	Parts Card 2
74	Red Ensign	1	Parts Card 3
75	Trim the Cat	1	Parts Cards 2
76	Cradle ends	2	Board 2
77	Cradle bars	2	Board 2

Board 1



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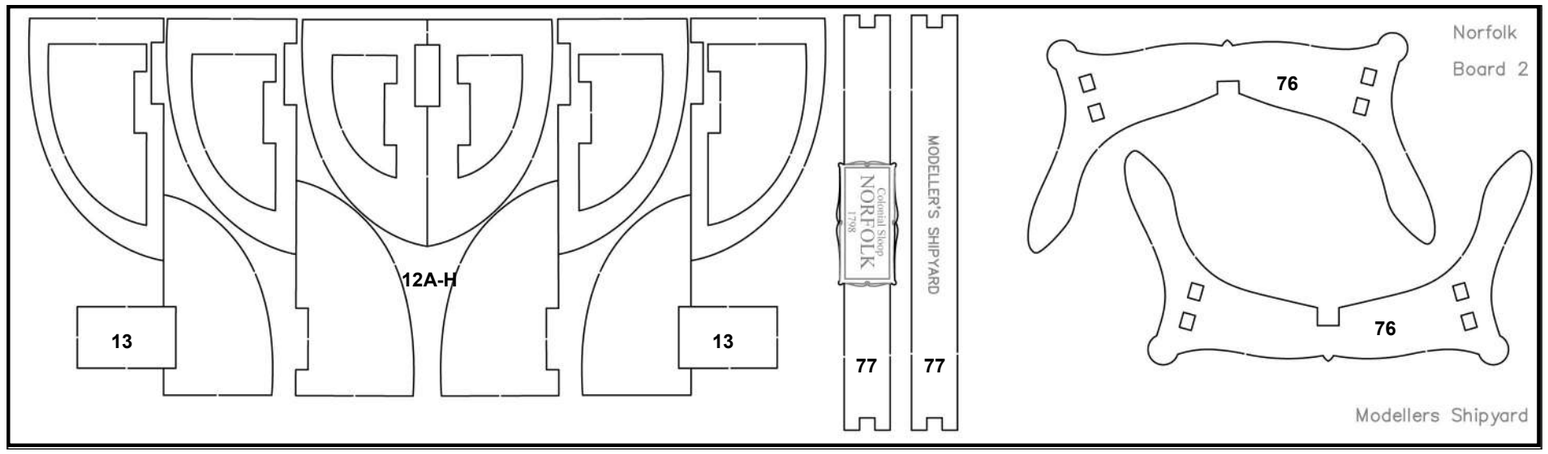
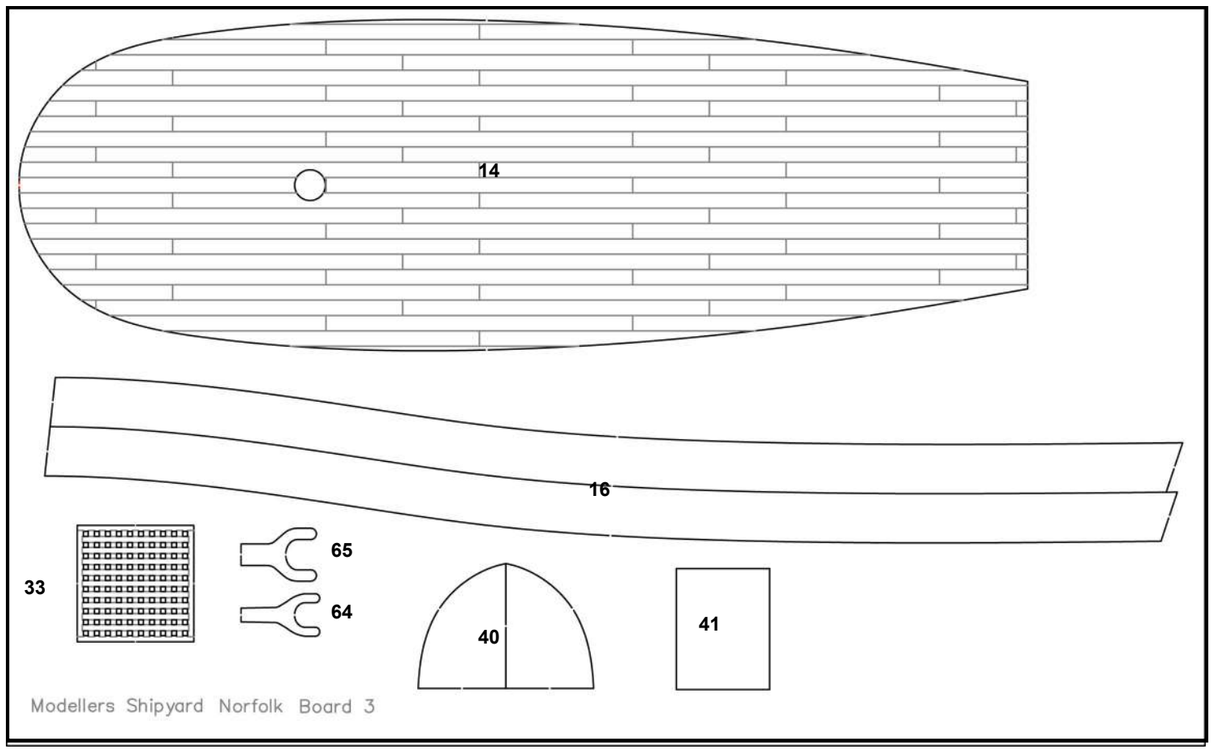
Board 2



Board 3



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1.0 Introduction

Modeller's Shipyard is proud to present another wooden model ship in our Australian colonial vessel series. This model of the Colonial Sloop *Norfolk* is based on a typical English sloop of the late eighteenth century. Additional information on the ship was obtained from *"Matthews Flinders—Navigator & Chartmaker"* Geoffrey C. Ingleton 1986.

2.0 Historical Notes

The sloop *Norfolk* name was from Governor Hunter's simple description of her arrival at Sydney Cove, 15 June 1798 - it was a sloop, and was from Norfolk Island, having been built there, on a decked longboat pattern. Built on Commandant John Townson's orders but contrary to Governor Hunter's orders, she was promptly confiscated by Hunter on her arrival in Sydney Cove. Governor Hunter ordered the sloop to be fitted out from June to October for Lt Matthew Flinders and George Bass to explore south and to prove whether Van Diemen's Land was an island separated by a strait.

Flinders as captain, along with Peter Hibbs as master, and George Bass, and their eight crew with 12 weeks provisions departed Sydney, 7 October 1797 ,sailed southwards. They were the first to circumnavigate Van Diemen's Land making many discoveries and naming some, e.g. Point Hibbs. The strait was named after Bass on Flinders' request. They returned to Sydney 12 January, 1799. *Norfolk* departed Sydney again this time with Flinders' young brother Samuel on board to replace Bass, and sailed as far as Hervey Bay (Queensland), arriving back in Sydney, 20 August, 1799. On the 7 January 1780 *Norfolk* went together with the HM schooner *Francis* on a supply voyage to the Hawkesbury River both returning to Sydney with cargoes of timber and planks for building vessels at Sydney.

On a subsequent voyage in October to the Hawkesbury for a cargo of grain for Sydney, the *Norfolk* was seized by 15 convicts in Broken Bay at the mouth of the Hawkesbury River. The convicts sailed north and ran into a storm. Attempting to shelter in Coal River (Hunter River) they only succeeded in wrecking her in November 1800 at what is now Stockton opposite Newcastle - a point named officially Pirate Point. A commemorative plaque, unveiled by Bern & Jan Cuthbertson, January 1999, marks the point near the wreck site.

Six of the escaped convicts ran into the bush. The others took a small boat and went to sea but were soon recaptured. Two were hanged and seven were sent to Norfolk Island. Much later it was learned that those who went bush got to Port Stephens, and sick and hungry three decided to give themselves up and started walking to Sydney. They met Lt James Grant at Pittwater in *Lady Nelson* and surrendered.

The sloop *Norfolk* had a short 2½ years life but a very eventful one for the colony at a critical time, providing superior service.

Lieutenant Matthew Flinders: Born 16 March 1774 at Donington, England. His father and grandfather were doctors, expecting him to follow. However, with other ideas, he was on a quarter deck August 1791 in the *Providence*, sailing to Tahiti with Captain Bligh on his second voyage - following the *Bounty* mutiny of 28 April, 1789. Flinders arrived in Australia on *Reliance,* September 1795.

Surgeon George Bass: Born Aswarby, Lincolnshire, early 1771, later moving to Boston, when George was 7 after his father had died. His mother wished him to be doctor and he wished to go to sea. He did both. He was at sea as a naval surgeon July 1789. At 23 he joined *Reliance* arriving Sydney with Flinders and also Daniel Paine, a boat builder, selected by Governor Hunter at Deptford Dockyard, for the settlement.

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3.0 General Instructions

These instructions and kit are designed to make the construction of the model as trouble free as possible. Everyone who completes their model in accordance with these instructions and using the materials supplied will have good cause for pride and satisfaction in their achievement.

1. It is **essential** that the modeller study these instructions and plans thoroughly before commencing construction. While reading these instructions, familiarise yourself with the contents of the kit.

2. Parts are numbered in the approximate order of assembly—please note there are some minor variations in this numerical order. Parts are identified as, for example P25 — means Part No 25.

3. Few, if any, parts can be simply glued in place without some preparation. Always dry fit parts and if necessary reshape the parts before final gluing.

4. Don't hurry. Take your time. If you are uncertain of anything take the time to study the instructions, the diagrams and your kit parts. Most problems will be overcome with a little time spent pondering the issue at hand.

5. Check the contents of the kit against the Parts List. Note that some parts need to be made by the modeller from the stock of timber supplied in the kit.

6. The construction of a wooden model ship can be divided into the following steps.
   - Hull Construction
   - Deck & Deck Furniture
   - Masts & Yards
   - Rigging

These written building instructions are to be followed to build your model.

For the modeller who would like additional detail on particular techniques on building this model, a DVD on *"How to Build the Colonial Sloop Norfolk"* is available from Modeller's Shipyard. In this DVD there is over 1 hour 40 minutes of narration and demonstration by a master modeller as the model is built. There are many techniques and tips presented on every detail of building the *Norfolk* from opening the box to putting the finishing touches of the rigging. ***Note:*** There are some features presented in the DVD that may not be in the kit. Also the DVD may not necessarily follow the building steps presented in the written instructions.

For further details on this DVD visit the website www.modelerscentral.com - see DVD Practicums on our home page.

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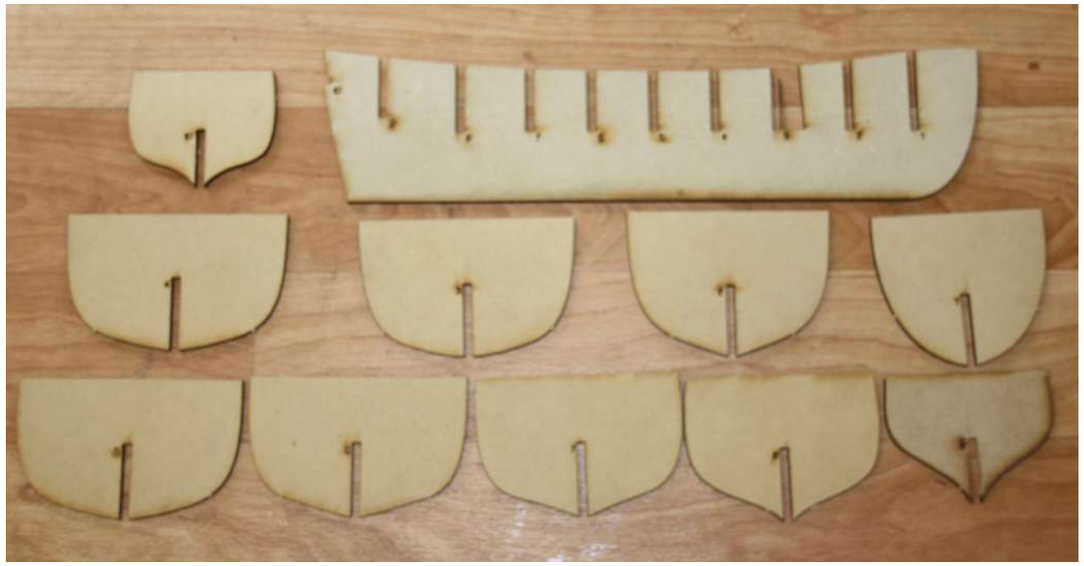
4.0 Hull Construction

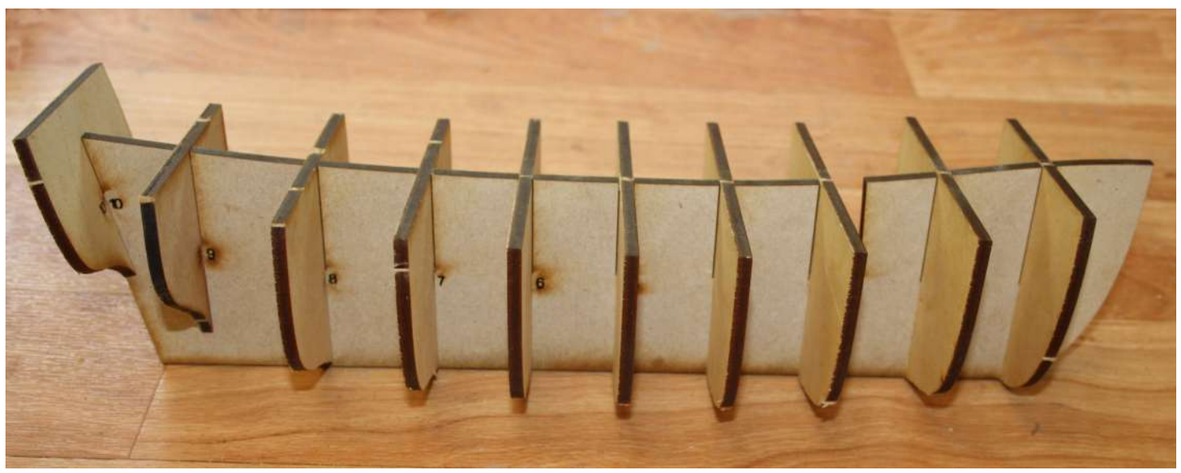
4.1 Assemble the Keel & Bulkhead Frames

Step 1 On the laser cut sheets in your kit use a pencil to mark the relevant numbers on each piece before removing them from the sheet. Remove the keel, bulkhead frames and transom from the 4mm plywood sheet. Use a snap blade knife to carefully cut through the tabs holding the parts to the plywood board.



Step 2 Dry fit the bulkhead frames into the keel slots. Do not glue anything at this stage. Do not force the bulkhead frame into the keel slot. You may need to use a flat needle file to fractionally open the slot in both the keel and bulkhead frame. The fit should be firm but no loose.

There may also be a need to adjust the slot depth in the keel and/or bulkhead frames to ensure the top edge of each bulkhead frame is flush with the top edge of the keel. Do not glue anything at this stage. Also ensure bulkhead frames 1 to 8 are level with the bottom of the keel.



Step 3 You may wish to make a working base as shown Figure 1. This will help to ensure the keel does not become distorted. Cut the slots in the keel supports to correspond with the bulkhead frames.

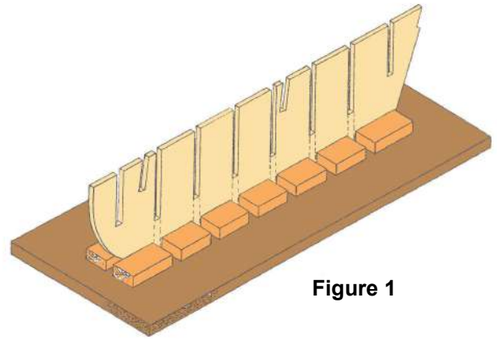
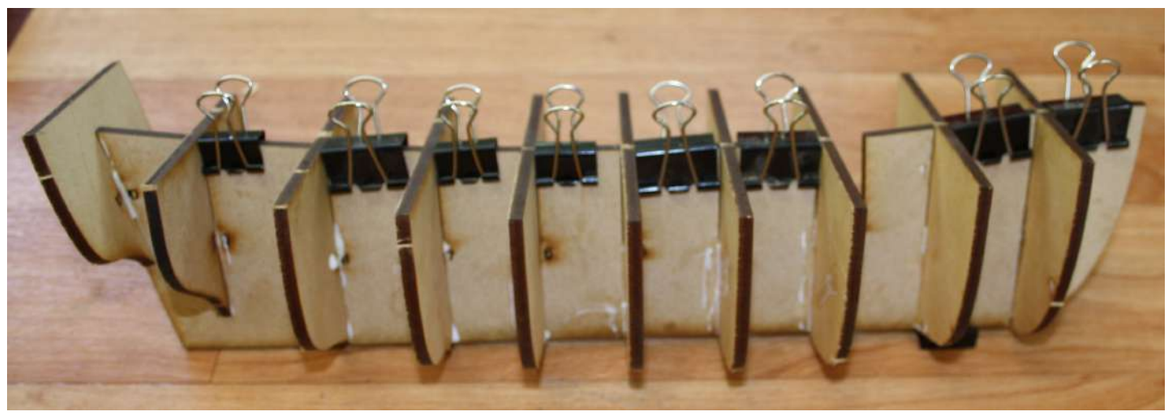


Figure 1

Step 4 Once you are satisfied with the dry fit of the frames and keel, glue each frame and the transom in place with PVA white wood glue. It is important to make sure the frames are square to the keel. Place a “bull dog” clip on the keel against each frame to ensure it remains square while the glue sets. Place the keel and frame construction aside and allow 24 hours for the glue to set.



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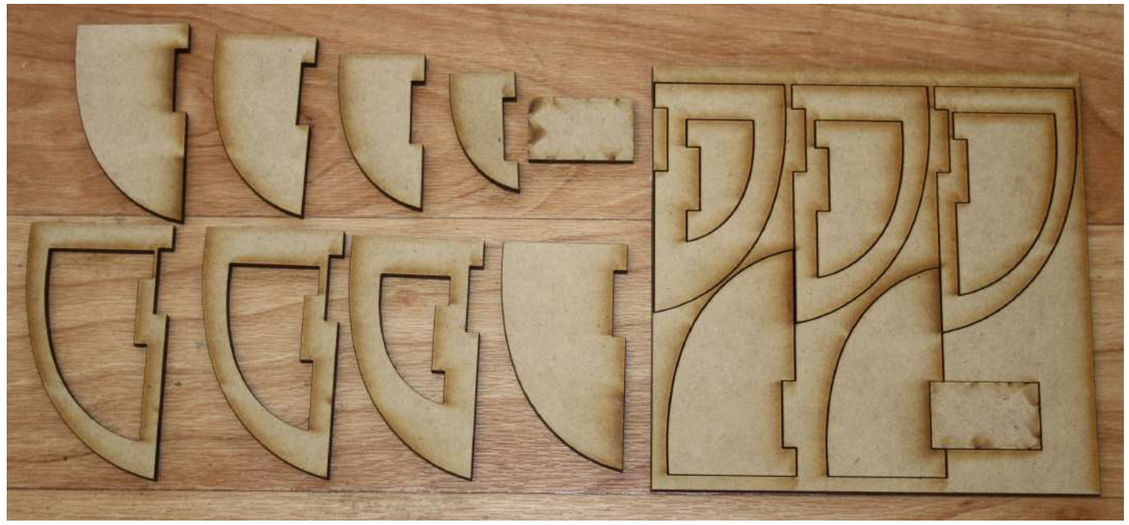
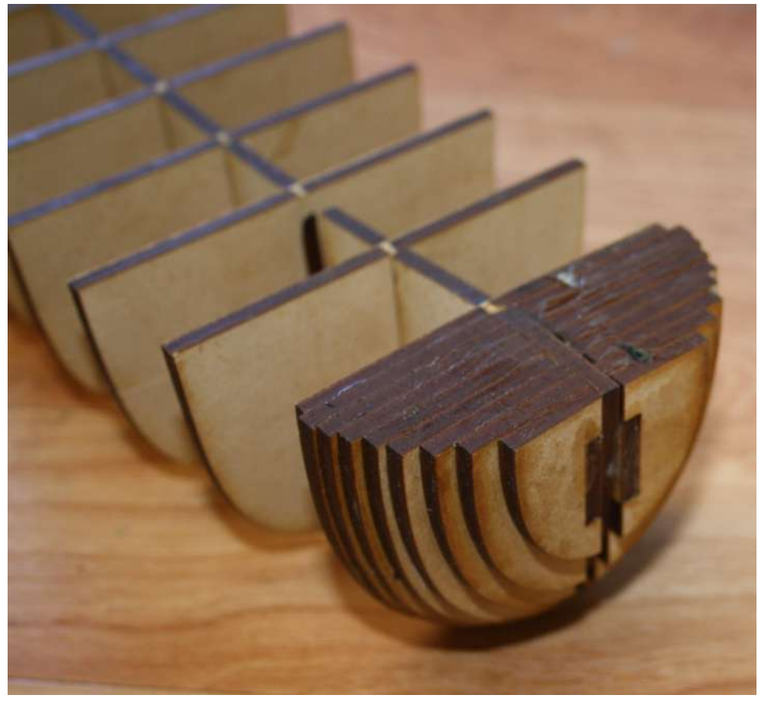
Step 5 Bow Filler Blocks The bow filler blocks P12A-H provide a sound base for securing the planks at the bow. Identify the bow blocks and the key P13. Dry fit the blocks as shown. Once satisfied glue each together as shown. Use an adjustable clamp to hold the blocks in place while the glue sets. Repeat for the second set of bow blocks. Allow 24 hours for glue to set.



Next use PVA white wood glue to fix the two sets of blow blocks in place as shown. Use clamps to hold the blocks in place against bulkhead frame 1. You may also need to use a clamp to hold the blocks against the keel as shown. Allow 24 hours for the glue to set.



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Next place the deck P14 on the top of the bulkhead frames and align it with the front of the keel. Temporarily pin the deck in place as shown. Use a pencil to draw the outline of the deck across the top of the bow blocks as shown - then remove the pins and deck.

There three (3) curves now to shape the bow blocks - the deck outline, bulkhead frame 1 and the keel at the bow. Using a range of shaping and filing tools, shape the bow block to these curves. Continually check the shape against these three (3) lines. Also file the individual bow block pieces from one edge to the other until you achieve the required curvature as shown.

Next use a flexible brass strap to place around the curvature of the bow blocks to ensure a continuous curved surface as shown.

Finally, use a flat file to ensure the top of the bow blocks are flat - this will ensure a good glue bond between the deck and bow blocks when the deck is fixed in place later.

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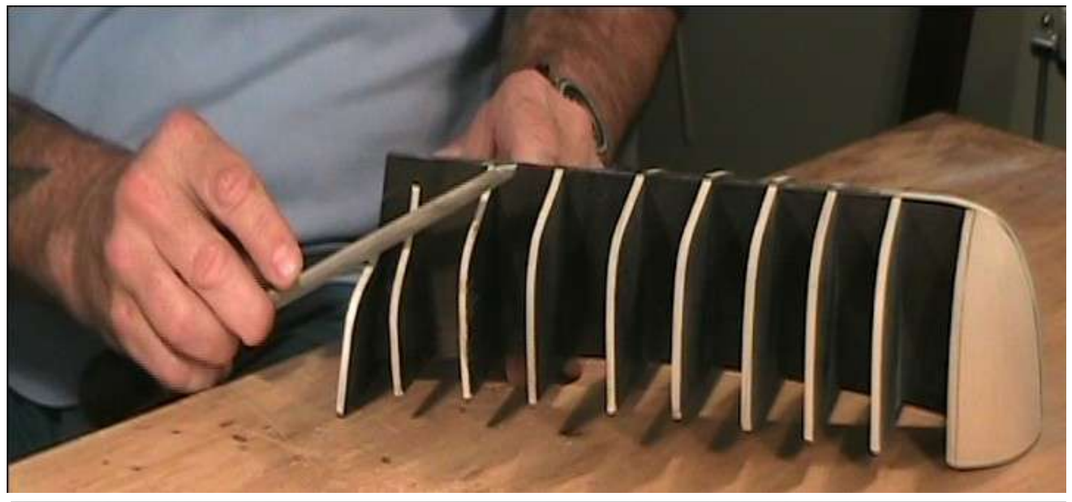
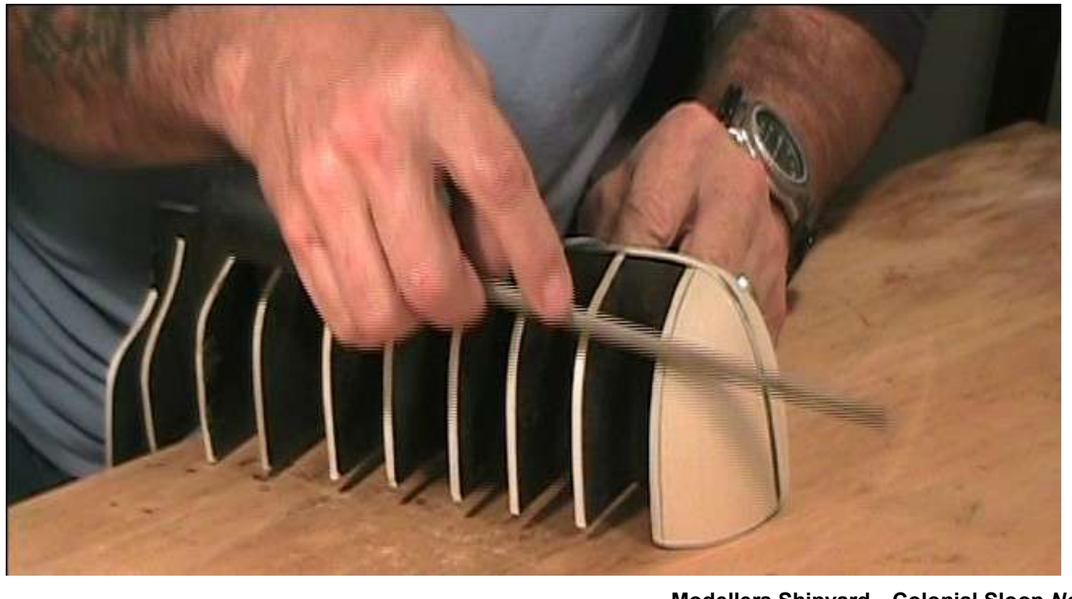
Step 6 Fairing the Frames

“Fairing” the frames is a very important part of the preparation for planking the hull. The principle of “fairing” the frames is to ensure the planks lay flat on the edge of each frame to ensure a good glue bond is established between each plank and the frame of the model and to ensure that when planked the hull is smooth and free of bumps or hollows. Take your time. Completing this process properly will ensure a good finish to the hull.

Using a pencil number the frames starting at the bow—1, 2, 3 , through to 9 with 10 being the transom. Lay a plank over a few frames. You will see that the plank does not sit flat across the edge of all frames.

Use a file to move across the edges of two frames at a time. Once two frames are complete move to the next one. Always make sure you are filing across two frames. Regularly check by laying a plank across the frames. Move to the bow applying the same approach as above. Move to the stern and transom applying the same approach as above. Move to the top of the frames and repeat the process. Check across all frames along the complete length of each. Move the plank across all frames to ensure a good fit.





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Step 7 Deadwood Area

The area between the bottom edge of the keel and the bottom of the bulkhead frames at the stern is known as the **deadwood area**. The deadwood area will be planked with two layers of planking consistent with the rest of the hull. The stern post and rudder however will only be planked with the second layer of planking. So when the stern post and rudder are eventually fitted you need to ensure there is a consistent thickness between stern post, rudder and the stern area of the keel.

The keel, stern post & rudder are all 4mm plywood. The stern post and rudder will be planked with 0.6x5mm teak P20. However the keel in the deadwood area will be planked with the first layer of planking—2mm thick (on each side) and then planked with the second layer of planking. Clearly, if no adjustment is made when the stern post and rudder are fitted there will be a significant discrepancy between the thickness of the stern area of the keel and the stern post and rudder.

To ensure there is consistency of thickness between the stern post, rudder and the hull in the deadwood area there is the need to ensure that when the first layer of planking is fixed in place the total thickness does not exceed the thickness of the stern post/rudder post.

To achieve this you will need to take two steps.
Step 1. Before fitting the first layer of planking reduce the thickness of the keel in the deadwood area by approximately 1mm on each side— i.e. reduce the keel thickness by about half in the deadwood area.
Step 2. Once the **first layer of planking** has been fitted then reduce the thickness of this planking by approximately 1mm on each side as well—fractionally adjusting to meet required thickness.

This will then reduce the total thickness of the keel and first layer of planking in the area to be 4mm thick thus meeting the requirement for consistency of thickness. This will ensure that when the second layer of planking is fitted there will be the same thickness between the keel, stern post and rudder.

5.0 Planking the Hull

Planking the hull is not technically difficult but it does require some thought and study so that the principles are understood. It also requires some patience. Once mastered the process is straight forward.

There are a few points to remember:

- Use a mini plane to taper the planks.
- Always taper the **lower** edge of the plank—ie the edge that will be closer to the keel.
- Prepare two planks together—one for each side of the hull.
- It is most important to fit and glue the planks in pairs—one on each side of the hull as this will minimise the chance of the keel being distorted or bent

5.1 Planking—First Principles

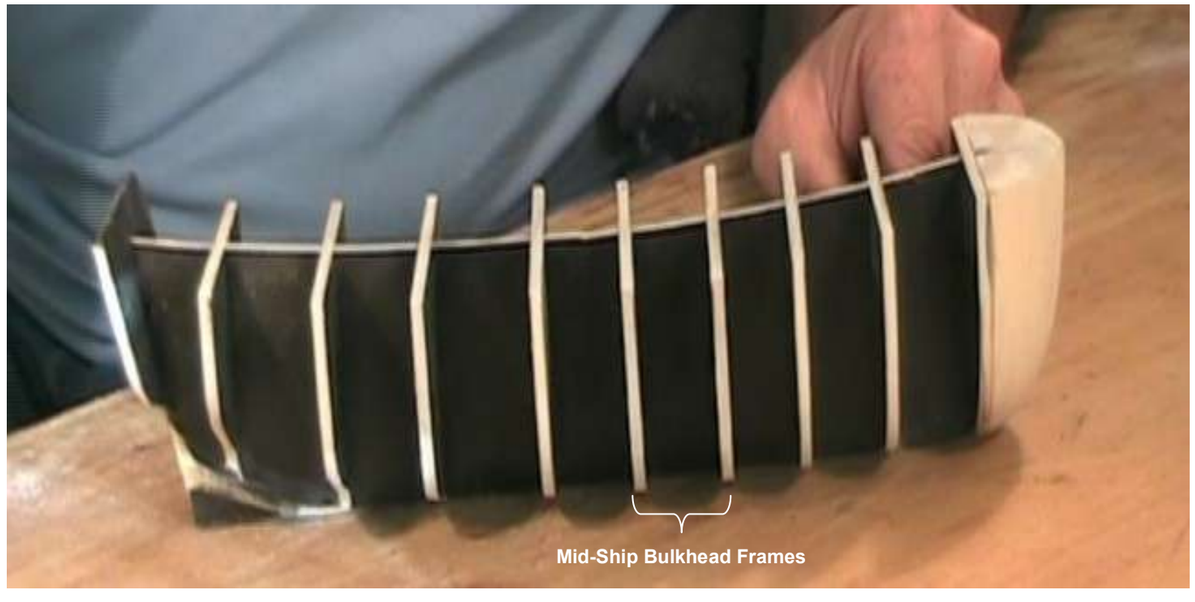
Spend a few moments with a dressmakers tape measure and measure from the top of the each bulkhead frame around the outside of the frame to the toe of the bulkhead frame where it meets the keel. You will notice that the measurements around the bulkhead frames in the middle or “mid-ship” of the model are greater than the measurement around the bulkhead frames at the bow (front) of the model.

We always assume that the “mid-ship” bulkhead frames are the largest distance and it is at this part of the model the planks will be at their full width. On the Norfolk the mid-ship frames are 4 & 5.

From your measurements it will be clear that the planks will need to be tapered at the bow across frames 1, 2 & 3.

When making your measurements of frame 9 & the transom 10, include the “deadwood” which is the distance from the bottom of the frame where it fits into the keel to the bottom of the keel.

Across these frames you will find the measurement from the first plank to bottom of the keel will be greater across say frame 9 & the transom 10 than it is at “midships”. Where this occurs we will be inserting short triangular planks known as “stealers” or “wedges” to cover the extra distance. This will be shown later.



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5.2 First Layer of Planking

The Norfolk is “double planked”. This means there are two layers of planking. The first layer of planking provides strength to the whole hull and a solid base for the second layer of planking which is a more decorative timber. The first layer of planking timber P15 is limewood. It is a white/cream coloured timber 2x5x400mm long. Clearly identify these planks before proceeding further.

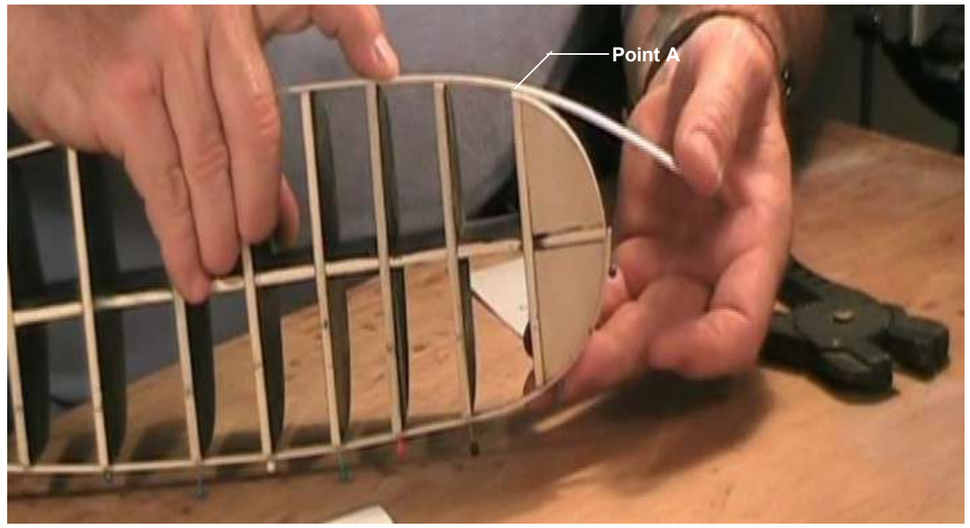
5.3 Fitting the First Plank

The placement of the very **first plank** (plank 1) is most important. The placement of the first plank needs to be 3.5mm down from the top of the frames. This space will allow for the bulwark to be fitted later. Using one of the identified planks spring it gently around the curve of the bow. Note where it starts to bend. With a pencil mark this as Point A on the plank.

Take a second plank and transfer this point on to it. On each plank mark an arrow pointing towards the bow. Also mark each plank “P” for port (left) and “S” for starboard (right). We will do this for all the planks we prepare. We will also make all planks in pairs. **The first plank will not be tapered.**

From Point A use a hand held plank bender to gently crimp the plank toward the bow. Trial fit the plank. If needed use the plank bender again by gently crimping between the previous crimps. This will increase the curvature of the plank. Repeat this process until you are satisfied with the curvature of the plank..

From the top of each bulkhead frame mark a line 3.5mm on the frame. Fit this first plank along this line starting at the bow and work towards the stern. Apply PVA glue to this plank and use planking screws/map pins to hold the plank in place while the glue sets. Repeat this process for the other side of the hull. Note again that the first plank will **not be tapered**. Check to make sure that both planks (left and right or “port” and “starboard”) follow the same line and are a mirror image of each other.



5.4 Completing the first layer planking

Establish a table as shown below representing the number of bulkhead frames - include the transom. To determine the plank width at each bulkhead frame use a dressmakers tape measure to measure the distance between Plank 1 and the keel at each bulkhead frame. Record these measurements in your table.

The distance between Plank 1 and the keel at the mid-ship bulkhead frames is 88mm. The plank width is 5mm. Therefore there will need to be 88/5 = 17.6 planks to be fitted to cover the hull. We will approximate this figure to 17 planks as there will always be a small amount to creep in plank width as you progress down the hull.

Using the measurements you have made and recorded in the table, divide each by the number of planks to determine the plank width at each bulkhead frame. Record in your table.

Bulkhead Frame	1	2	3	4	5	6	7	8	9	Transom
Measurement mm				88	88					
Plank Width mm				5	5					

Table 1

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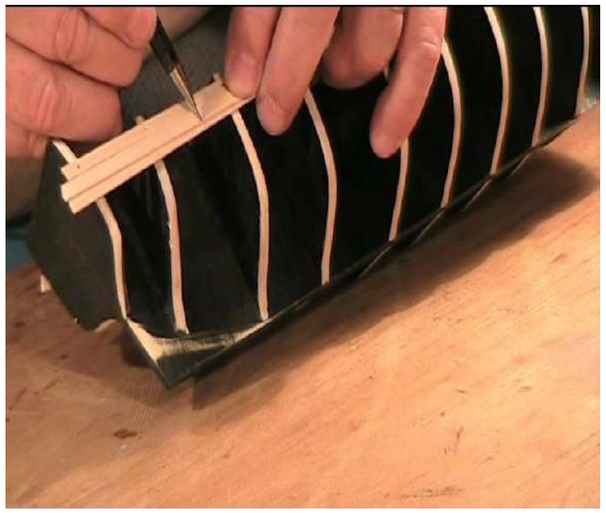
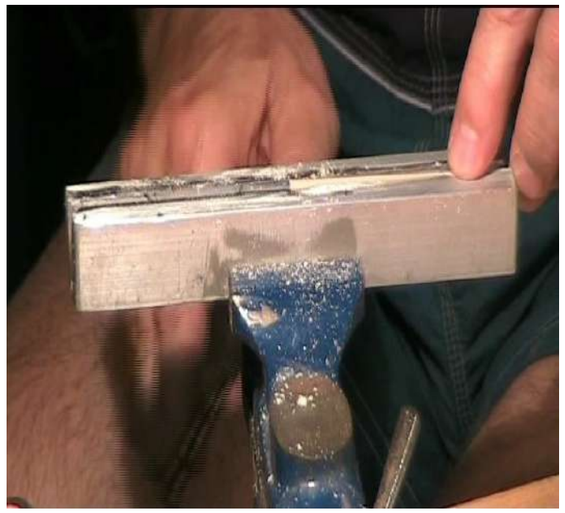
From your measurements you will find that approximately 1mm will need to be tapered off the bow and stern end of the planks. You will find the planks will need to be tapered from Point A (where the plank starts to bend around the bow) previously identified.

At the stern the planks will need to be tapered from approximately half way between bulkhead frames 8 & 9. Clearly mark each of these points on your planks—always prepare two planks together.

Don't forget to mark your planks as previously described.

Taper the two planks together. To taper the planks place them in a vice with the amount to be taken off sitting proud of the vice jaws and position the marked point sitting flush with the jaws. Use a mini plane and/or file to remove the unwanted timber. Use this approach for all the planks to be prepared.





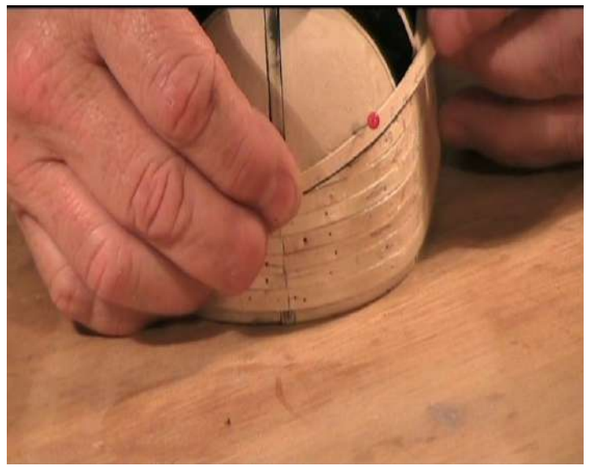
Fit each plank under the previously placed plank. Glue and pin in position.

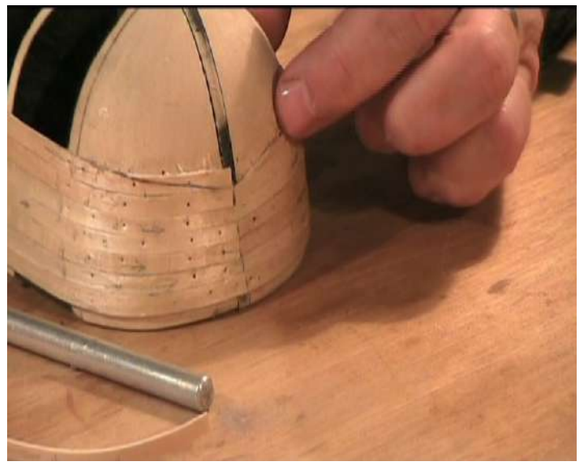
The next point is most important:
As you progress with you planking down the hull you will arrive at a point where the plank does not want to lay flat. Forcing the plank into position will cause it to twist and a gap will appear between the plank and the bow block.

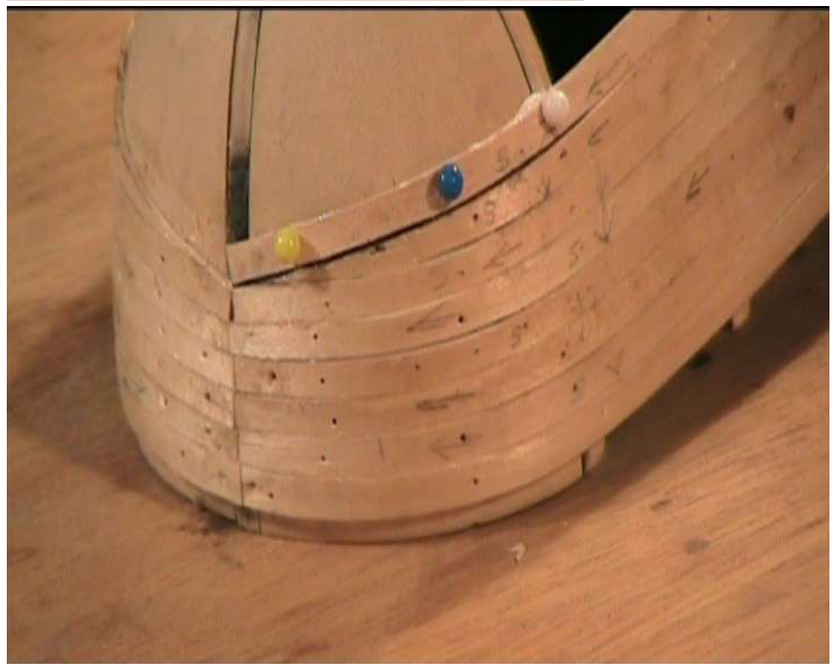
At this point you will have to **change the direction of the plank** to ensure it sits flat on the hull. Follow the steps below to achieve this change in plank direction.

1. Lay the plank along the length of the hull against the previously placed plank. At the bow you will see the plank wants to take a different direction—allow the plank to follow its natural course and lay over the previously placed plank. Temporarily pin the **new** plank in position and use a pencil to mark the line of plank overlap.
2. Use a sharp blade to fractionally remove the marked area of the **previously** placed plank.
3. Fit and glue in position the new plank along its new direction.

This process is called **Directional Change.**







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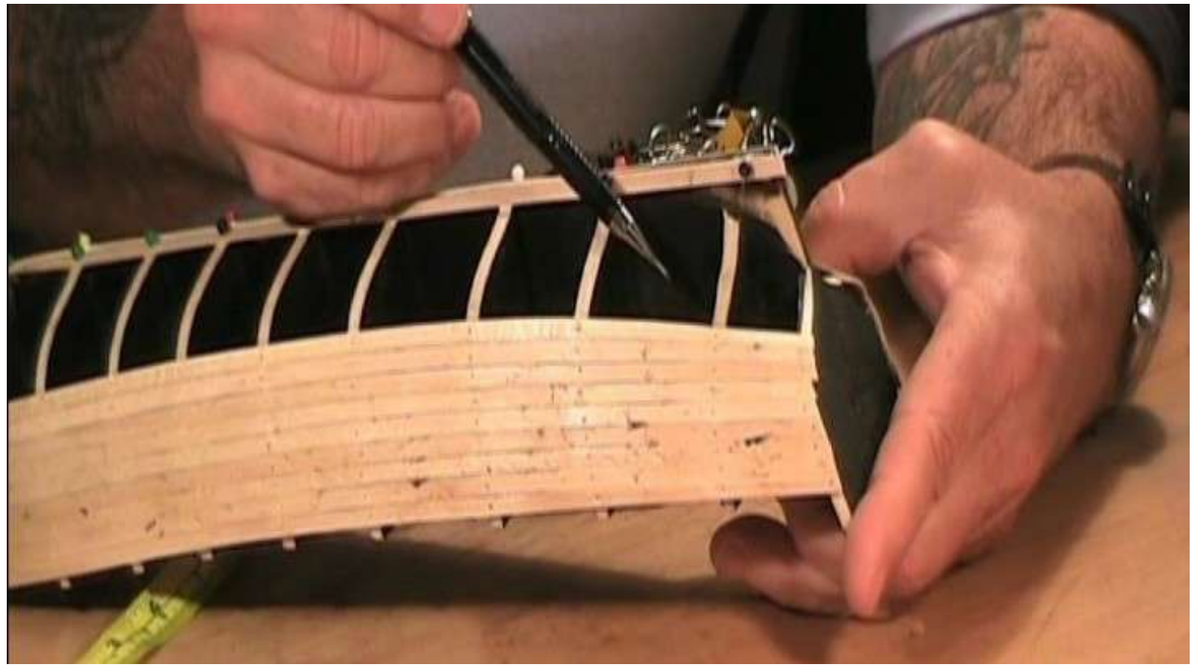
The next step is fit & fix the garboard plank. This is the plank that is fitted adjacent to the keel. Place a plank along the keel and notice at the bow you will have to trim the edge of the plank that fits against the keel to a sharp point. Do not glue the garboard plank in place yet.

Next use your tape measure and take some measurements between the garboard plank and the last plank fitted from the mid-ship bulkhead frames to the bow. We want to create the same distance across these frames. This measurement is approximately 40mm. Don't worry about the distance across the frames at the stern area. As this area will include the deadwood you will need to fit stealers or wedges in later.

You will more than likely find the distance at bulkhead frame 1 is slightly less than 40mm. You will need to trim the garboard plank at bulkhead frame 1 to make the distance of the gap along the frames the same.



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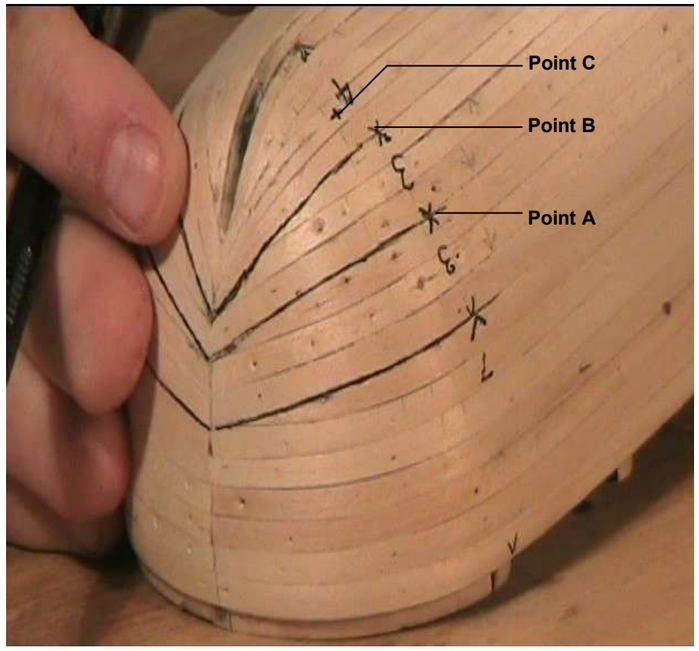
Fit one more plank on each side of the hull. Repeat the process to change and straighten the direction of the planks - Point A. Take measurements again. Adjust the width of the planks to ensure they fit into the reduced gap. Fit three more planks on each side of the hull.

Repeat the process to straighten the direction of the planks - Point B. Take measurements again. Adjust the width of the planks to ensure they fit into the reduced gap.

Repeat the process to straighten the direction of the planks - Point C. Fractionally fit the final four planks to fit into the remaining gap.



5.5 Stealers or Wedges

At the stern area allow the planks to follow their natural course. Do not force them. A gap will be formed in the "deadwood" area at the stern. This is where a "Stealer" or "Wedge" needs to be fitted to fill the gap. Fix and glue each plank in place. Shape and fit the "Stealers" into the remaining gaps at the stern - Figure 2.

To finish the first layer of planking trim - off any excess overhang of planking. Sand the finished hull using a medium and fine grade sandpaper. Apply wood filler if needed.

This completes the first layer of planking of the hull.

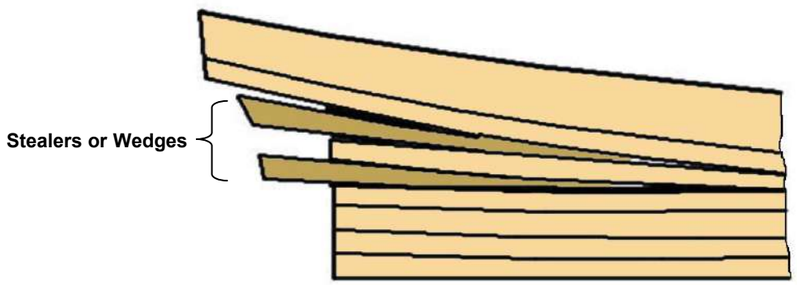


Figure 2

5.6 Deck

Fitting the deck is the next step. Identify the deck P14 from the 2mm laser cut ply-wood. Apply PVA glue across the top of the frames and hammer map pins in place to hold the deck in place while the glue sets. Once the glue has set remove the pins and use a file to shape the deck edge to align with the bulkhead frames if needed. Once the glue has dried spray a clear matt or satin polyurethane finish on to the deck to seal and protect the deck surface.

5.7 Bulwarks

The next step is to fit the bulwarks. The bulwarks are P16. The bulwark has to be shaped to fit around the bluff bow. This is achieved in the following manner.

- Trial fit the bulwarks to fill the 3.5mm gap at the top of the planking. Use a pencil to mark where the bulwark starts to bend.
- Use a hand held plank bender to shape the bulwark from the pencil mark around the bow area. Fill a container with boiling water and place the shaped end of the bulwarks into the container. Let the bulwark pieces soak for approximately 10 minutes.
- Remove the soaked bulwark pieces and fix in place around a circular container and allow to dry naturally overnight - do not dry in sunlight.
- Fit the bulwarks in place using a two part epoxy resin.

5.8 False Keel & Stem Post

The false keel is P17. Identify this part from the 4mm plywood sheet. The stem post is P18. Identify this part from the 4mm plywood sheet. Fit & fix the false keel and stem post in place. Using 0.6x5mm teak strip P20 plank the stem post and false keel.

5.9 Second Layer of Planking

Completing the second layer of hull planking is largely a repetition of the process for completing the first layer but with the added advantage of having a more solid foundation on which to work. The second layer of hull planking is the 0.6x5x400mm teak strips P20. Identify these planks before proceeding. To glue the planks in place use a non-drip contact type adhesive such as “Selley’s Gel Grip”. This type of glue will help stop any tendency for the edges of the thin second layer of planking to buckle and at the same time generally speeds up the planking process.

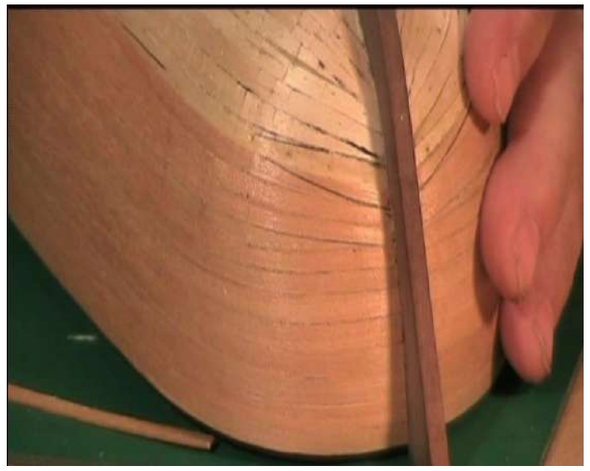
5.10 First Planks

The first few planks of the second layer to be fitted are over the bulwark and some way down the hull. These planks will **not** be tapered. The first six planks can be fitted and glued in position without any tapering. As the planks are a veneer use a contact glue.

As you progress with your planking down the hull continually check the measurements between the bottom of the last plank fitted and the keel at a few points along the hull. These points would be the mid-ship area, the bow area and the stern area. As you start to see some reduction in the measurement at the bow area you will need to start tapering the planks at their bow end from this run of planks. Use the same process as previously described for the first layer of planking. Apply the contact glue to both surfaces with a brush and allow the surfaces to dry completely. Take care when placing the plank in position as once contact has been made the plank cannot be moved. If a plank is wrongly positioned it will have to be cut and scraped off.

Continue this process until you reach a point where the plank will not lay flat along the line of planks particularly at the bow area - across the bow area the plank will distort and buckle.

This is where you will need to change the direction of the plank. Use the same principle to change the plank direction as previously presented.



Continue to work down the hull and applying the directional change when required. Continually check the distance between the plank just placed and the keel.

At the stern area you will allow the planks to run along their natural direction. You will need to place stealers or wedges where there are gaps left.

Once you have completed the second layer of planking give the whole hull a light sanding and finish with 2 or 3 coats of a clear satin varnish—this will protect the hull from scratches and marks while building the rest of the model.

5.12 Inner Bulwark and Transom

Plank the inside of the bulwark with 0.6x5mm teak strip P20. Glue the timber strips in place using PVA glue. Plank both sides of the transom P10 with 0.6x5mm teak strip P20.

Using 2x4mm walnut P21 - cut 36 pieces 13mm long. These pieces simulate the frames of the sloop. Fit and glue these pieces in place approximately 12mm apart along the inside of the bulwark on the port and starboard sides making sure they are square to the deck.

5.13 Rudder

Identify the rudder P22 from the 4mm plywood sheet. Plank the rudder with 0.6x5mm teak strip P20. Identify the tiller P23 from the 4mm plywood sheet. Stain the tiller teak. Shape a hole 5mm from the top of the rudder post and fit the tiller.

Fit & fix the rudder to the transom and hull using the rudder hinges P24 and nails P25 as shown .

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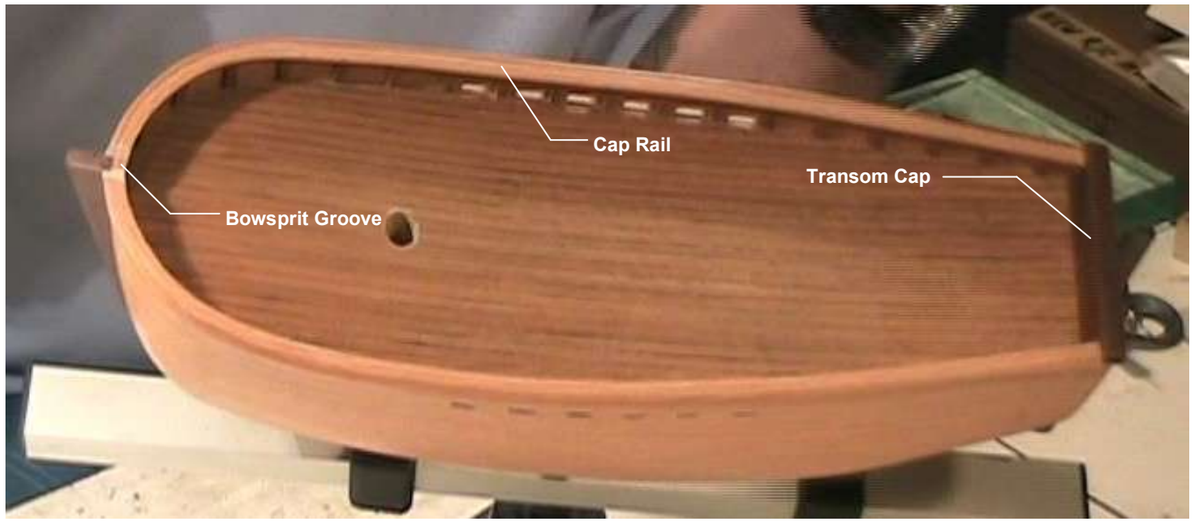
5.14 Cap Rails
Use 2x5mm flexible beech P26 as the cap rail. Shape the flexible beech to fit on top of the bulwark and around the bow - trial fit in place - once satisfied glue in place along the top of the bulwarks.

5.15 Transom Cap
Cut a length 2x5mm basswood P15 as the transom cap. Stain with walnut and fit and fix in place across the top of the transom.

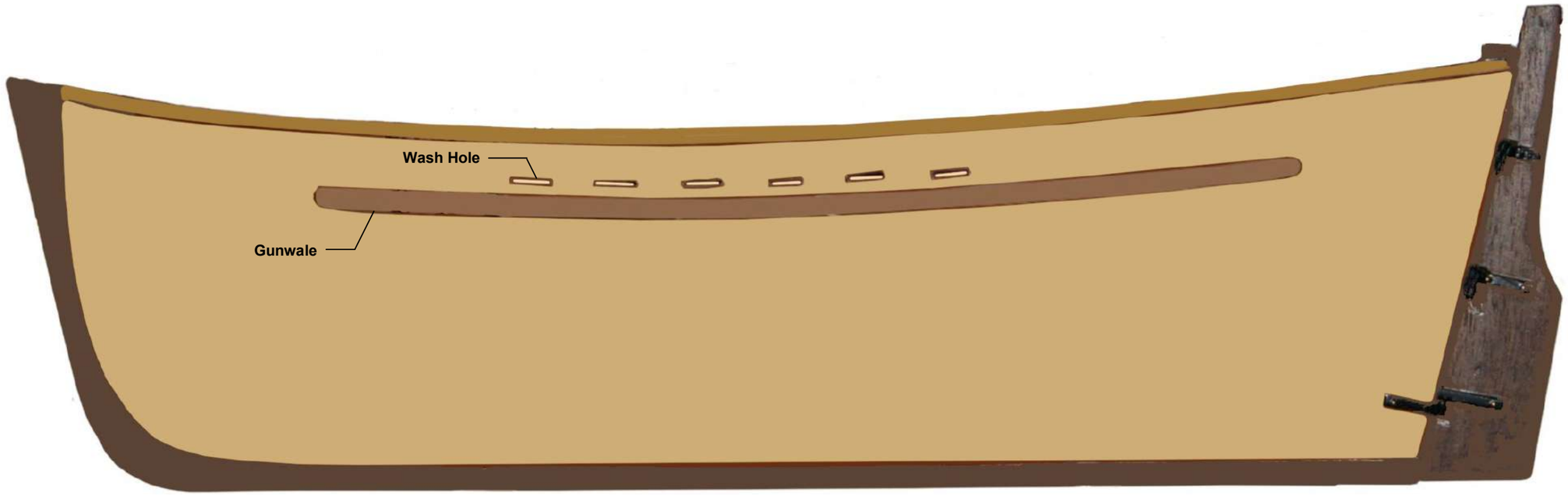
5.16 Wash Holes
Cut-out the wash holes at deck level between the false ribs as shown.

5.17 Bowsprit Groove
Use a round file to hollow-out a shallow groove in the stem post and cap rail for the placement of the bowsprit later as shown.



5.18 Gunwales
The gunwales are 4x4mm limewood P29. Cut two lengths of timber to 220mm. The gunwales will need to be bent to fit on the side of the hull. To achieve this retrieve the 2mm plywood sheet the false deck was taken from. Using the mid-ship area as a guide draw a line on a flat piece of timber. Hammer some nails along this line to make the jig as shown.

Next, fully immerse the timber lengths in a container of boiling water and allow to stand for about 10 minutes. Take the timber out of the water and place both lengths in the jig as shown and leave overnight to completely dry. Once dry stain a walnut colour. Once dry fit and fix the gunwales to the side of the hull at a distance of 15mm from the underside of the cap rail as shown.



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6.0 Deck Furniture

The next step is to assemble and fit in position the deck furniture. The deck furniture includes the catheads, companionway, pumps, winch, headstock, barrels, cargo hatch and anchors. The following describes the assembly and placement of each of these items. The placement of the deck furniture is shown Sheet 17.

6.1 Anchor Winch

The anchor winch is P30. Assemble as shown.

6.2 Pumps

The pumps are P31. Assemble the pumps as shown.

6.3 Anchors

The anchors are P32. Assemble the anchors as shown.

6.4 Cargo Hatch

The cargo hatch is made from the grating P33. Cut lengths of 2x2mm limewood P34 to fit around the grating - stain walnut colour. Once dry glue in place.

6.5 Cat Heads

Cut two 45mm lengths of 5x5mm walnut P35. Drill four 0.7mm holes in one end of each length as shown Figure 5. Cut two 9mm lengths of 5x5mm walnut . Shape and assemble as shown Figure 5.

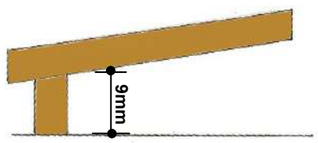

Figure 4

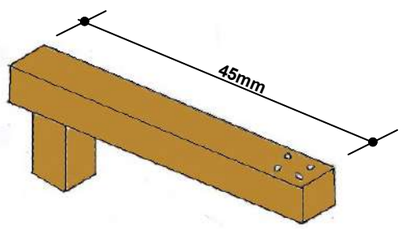

Figure 5

6.6 Barrels & Barrel Base

Using P36A-C assemble the barrel base as shown. Fit eye pins P37 at corners and mid points of base as shown. Fit the barrels P38 and tie them in place with rigging cord P48 tied-off to the eye pins. Fit a bucket P39 on the deck beside each barrel.

6.7 Head Stock and Base

Head stock: Cut a 12mm length of 5x5mm walnut P35. Use a file to slightly round the top. Drill a 1mm hole in the top 5mm from the top. Insert a15mm length of 1mm brass wire P55 through this hole. Locate it centrally.
Base: Cut a 6mm length of 5x5mm walnut P35. Cut a 2x3mm slot 2mm from the top through the base.

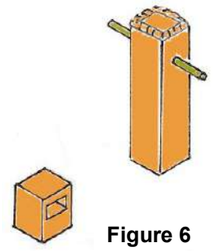

Figure 6

6.8 Companionway

Assemble the companionway using P40 & P41. Use Blue Tac to hold the pieces in place while the glue sets. Plank across the curved side frames and the outer sides of P40 with 0.6x4mm silver ash P19. Plank the front panel with 0.6x5mm teak P20. Cut lengths of 1x2mm limewood P42 as the coaming to the base - stain walnut then glue in place front side and top as shown. To create the doors cut and fit 2mm wide lengths of silver ash P19 and fit as shown Figure 7. Fit the door hinges P43 as shown Figure 7.

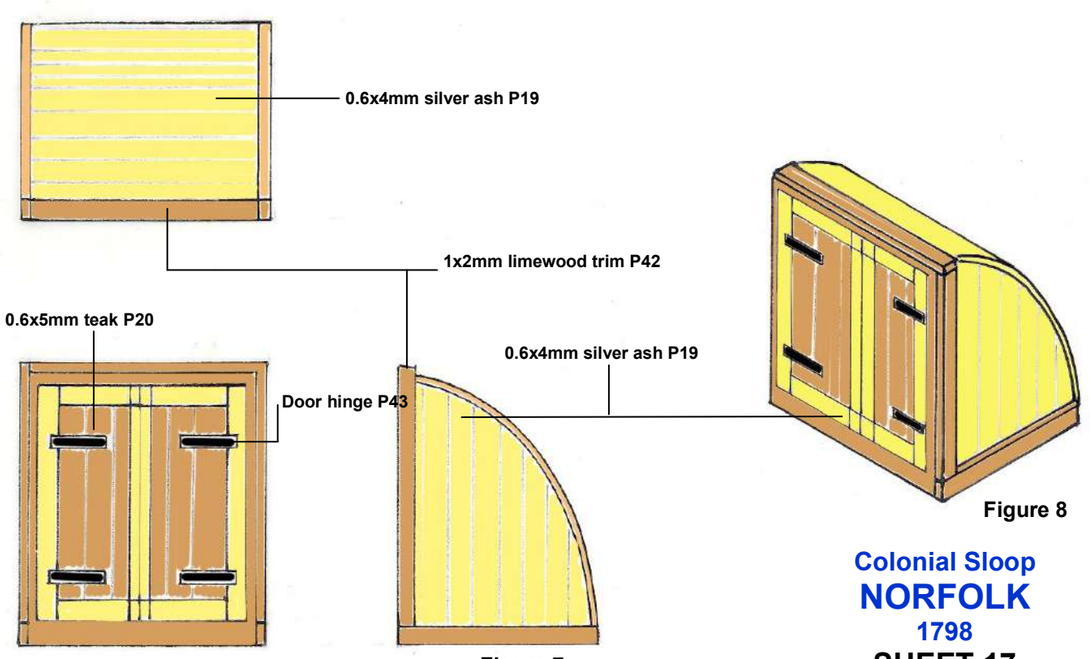

Figure 7

Figure 8

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6.9 Deck Furniture Placement

Fit & fix the deck furniture as shown Figure 9. See legend for identification of furniture items.

Modellers Shipyard

DECK & BELAYING PLAN

BELAYING POINTS

1 Backstay—Port
2 Backstay—Starboard
3 Jib Halliard—Port
4 Jib Halliard—Starboard
5 Throat Halliard
6 Topping Lift
7 Peak Halliard—Port
8 Peak halliard—Starboard
9/10 Flag Hoist
11 & 12 Jib In/Out Haul

At belaying points 1, 2, 3, 4, 7 & 8 fix an eye pin P37 into the deck.

At belaying points 5 & 6 fix belaying pins P57

LEGEND

A Head Stock & Base
B Companionway
C Winch
D Main Cargo Hatch
E Pumps
F Rudder Tiller
G Cat Heads
H Barrels & Base

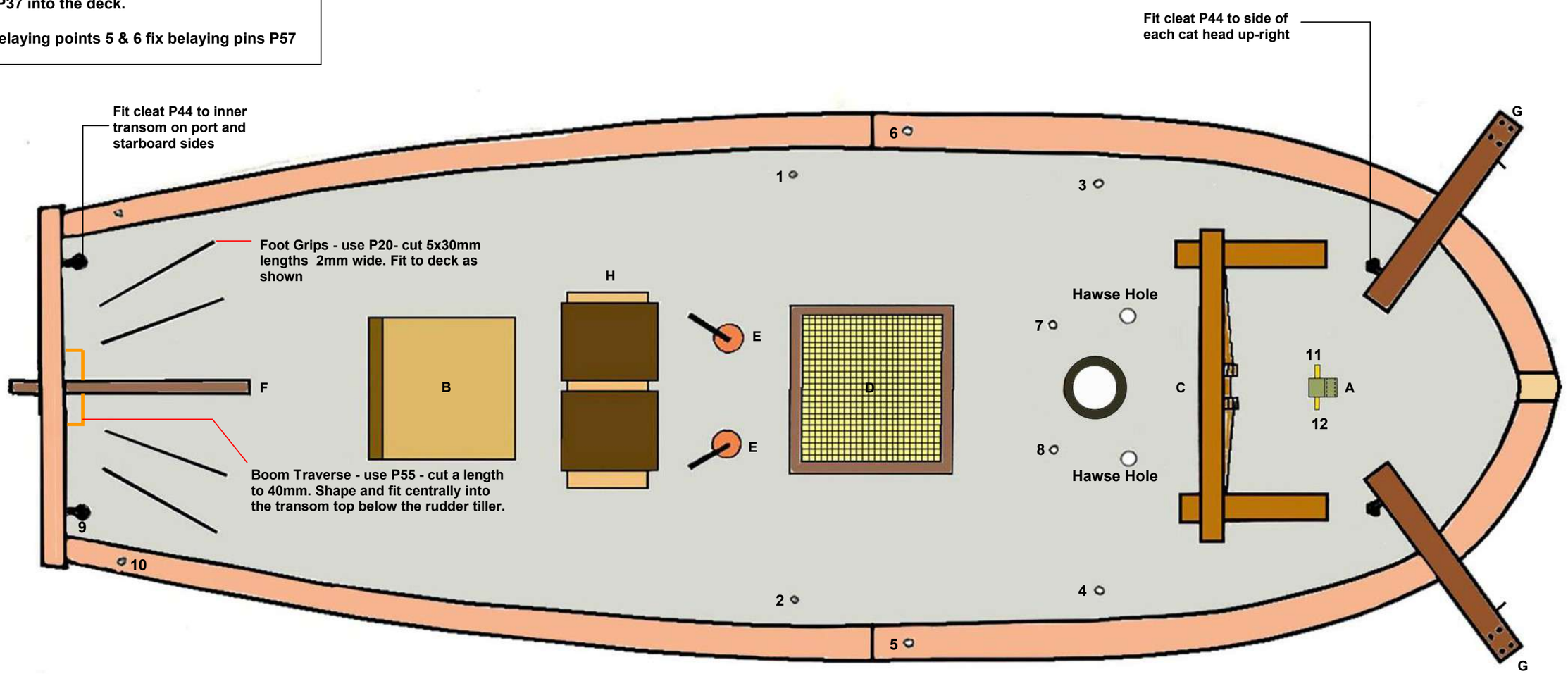

Figure 9

Scale 1:1

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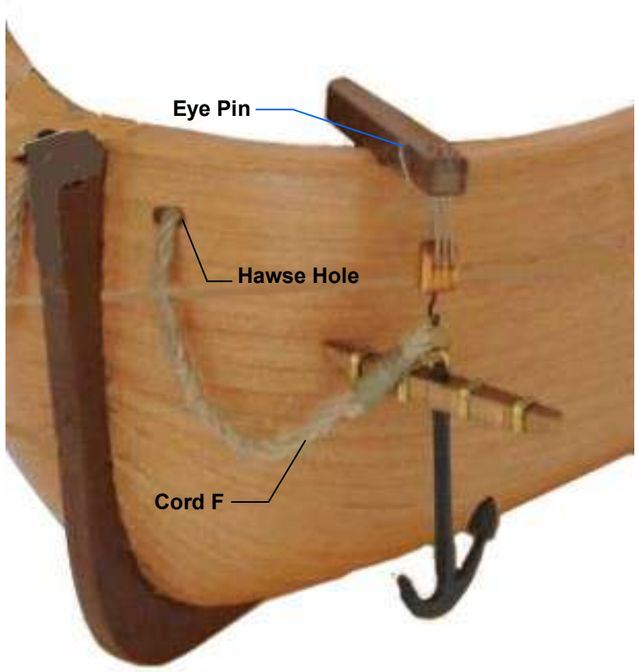
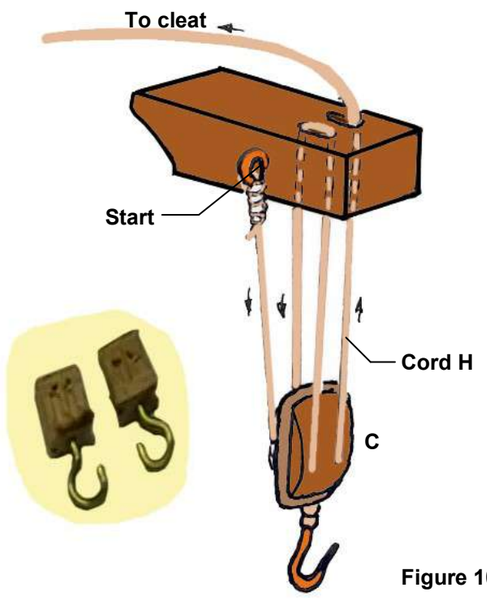
6.10 Anchors

Drill two hawse pipe holes in the deck as shown Deck Plan and fit the two hawse pipes P45. For the hawse holes drill a 3mm holes through the bulwark on the port and starboard sides as shown. Using 2mm cord P46 cut two lengths 250mm long. Taking one end of the 2mm cord, thread it through the large brass ring on the end of the anchor shaft, wrap approximately 15mm back on itself and secure with 0.25mm cord P47. Feed the other end of the 2mm cord through the hawse hole in the bulwark and wrap around the winch as shown. Thread the remaining 2mm cord into the hawse hole into the deck.

Fit an eye pin P37 to the side of each cat head as shown. Identify the 7mm 2 hole blocks P52 - fit an eye pin P37 to the end of each and shape into a hook as shown Figure 10. Use 0.5mm cord P48 to rig the anchor pulley as shown Figure 10. Terminated at the cleat on the cathead upright. Repeat the sequence for the second anchor.





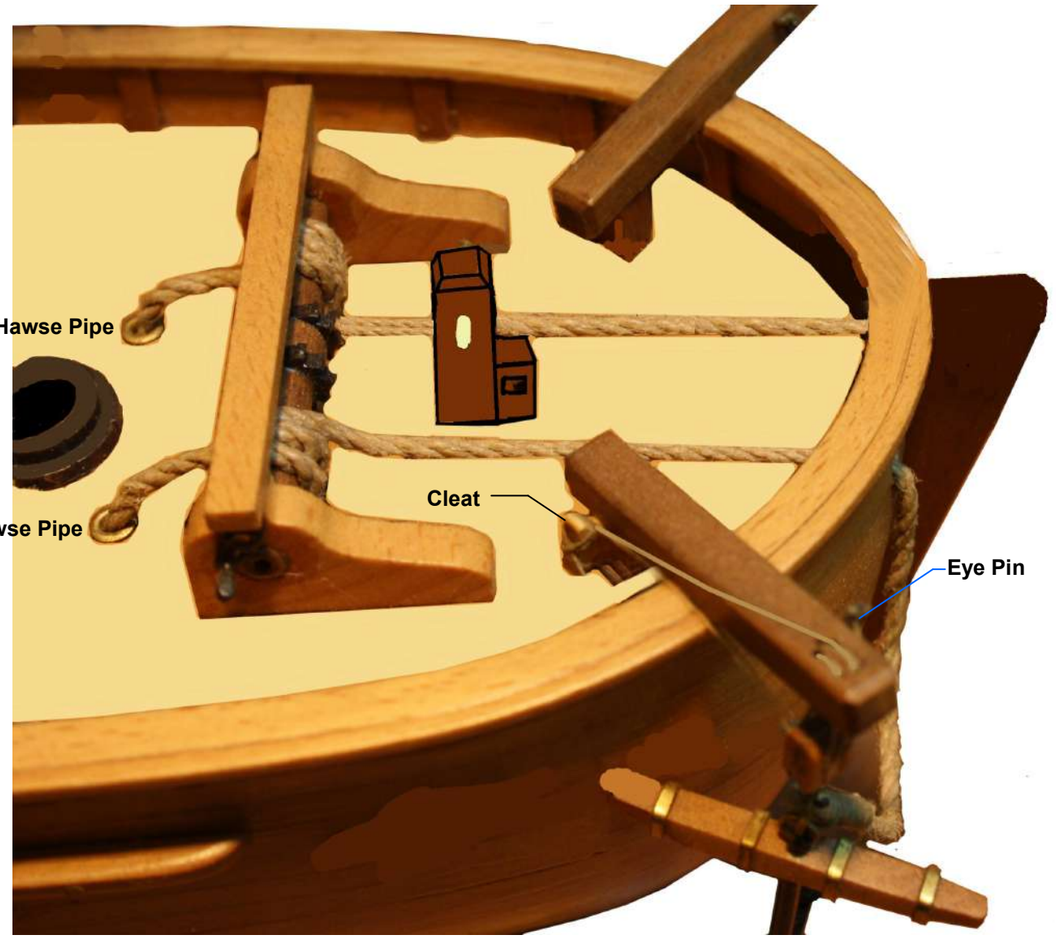


Figure 10

CORD KEY		
Size	Fawn	Black
2mm	F	
0.25mm	G	—
0.5mm	H	—
1.0mm	—	J

BLOCK KEY		
Size	1 Hole	2 Hole
5mm	A	B
7mm	—	C
Violin	D	—

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6.11 Stanchions & Banister Railing

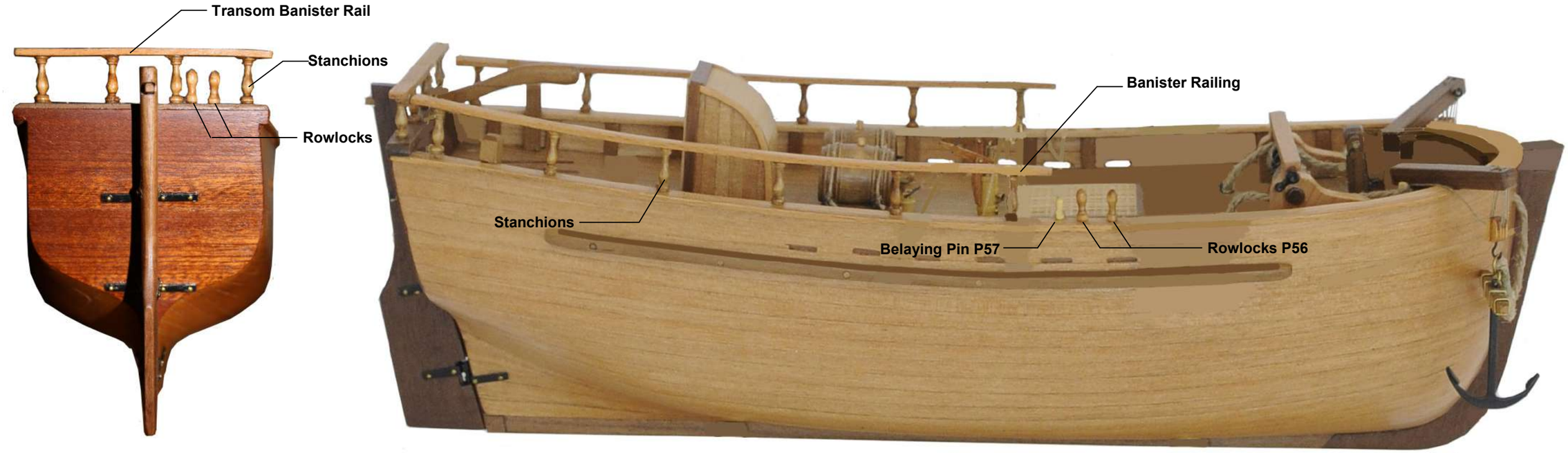
Identify the stanchions P54. Fix in place along the top of the port & starboard and transom cap rails as shown. Use 2x5mm flexible beech P26 as the banister railing. Cut two lengths at 190mm as the banister railings and one at 75mm as the transom banister rail. Shape and fix the port and starboard banisters rails in place as shown. Fix the transom banister rail in place as shown.

6.12 Rowlocks

Identify the rowlocks P56. Fix in place on the port and starboard cap rails and on the transom cap rail as shown.

6.13 Belaying Pins

Identify the belaying pins P57. Fix in place on the port and starboard cap rails as shown.



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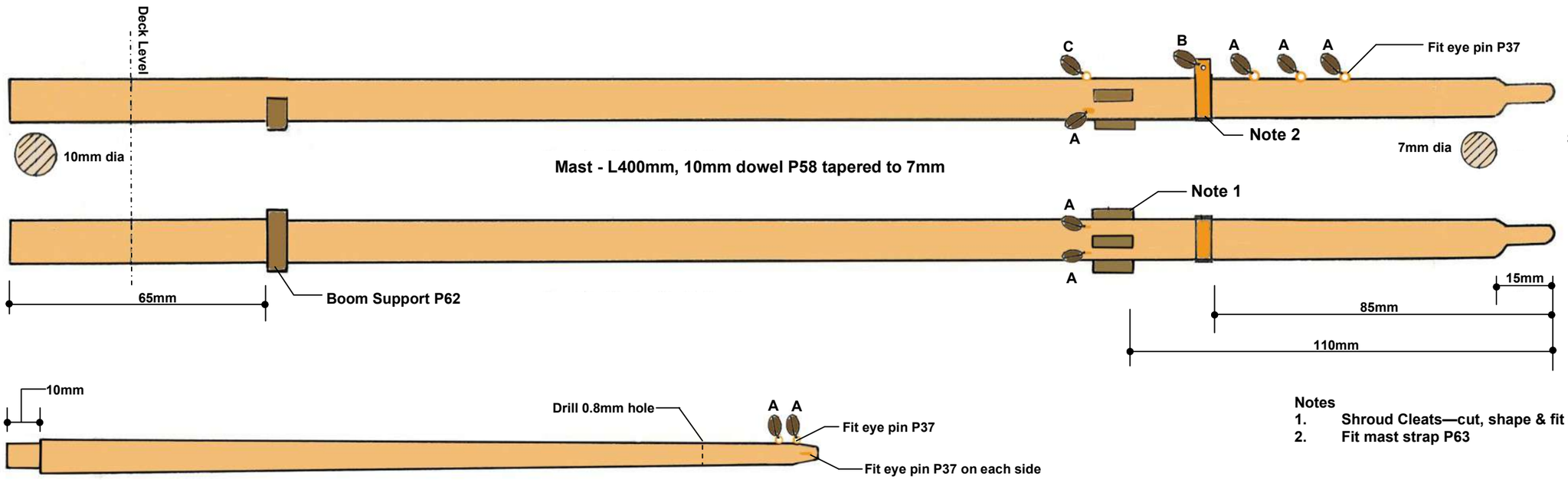
7.0 Mast, Bowsprit, Gaff and Boom

The next step is to shape and assemble the mast, bowsprit, gaff & boom. Identify the various sizes of dowels, blocks and fittings to be used for this stage of building the model. Tapering the dowels can be achieved using a mini plane, a file and sandpaper and using the technique presented in Figure 12. Shape the mast using dowel P58. Fix in place the boom support P62 on fore side of mast as shown. Shape and fix in place the three shroud cleats - port, starboard and fore sides of mast. Shape and fix in place the mast strap P63. Shape the bowsprit with dowel P59 as shown. Shape the gaff with P60. Shape and fit the gaff yoke P64. Shape the boom with dowel P61. Shape & fit the boom yoke P65. Fit eye pins P37 to the mast, bowsprit, gaff and boom and attach relevant blocks to each as shown. Fix the mast heel P66 to the deck. Fit & fix the mast in place.



Notes
1. Shroud Cleats—cut, shape & fit three 2x5mm limewood P15
2. Fit mast strap P63

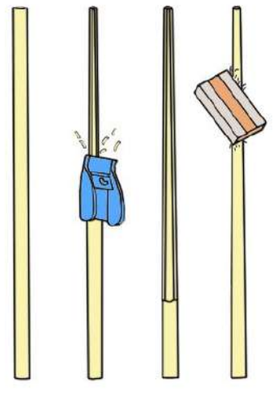


Figure 12

Figure 11

Not to Scale

BLOCK KEY		
Size	1 Hole	2 Hole
5mm	A	B
7mm	—	C
Violin	D	—

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8.0 Rigging

Types of Rigging

The rigging of a ship can be divided into two main parts:
1. “Standing” rigging, which is used to support the Masts and Bowsprit.
2. “Running” rigging, which is used to manipulate yards and sails through pulley blocks.

On an “actual” ship any rigging that did not pass through a pulley block was coated with tar to help prevent it rotting. To simulate this the cord supplied in the kit for the standing rigging is black 1mm cord P49. The running rigging is fawn and of two sizes, 0.25mm P47 and 0.5mm P48 respectively.

Preparation for Rigging

If needed drill out the holes in the blocks and deadeyes to facilitate the threading of the rigging cord when the time comes. For the most inaccessible blocks, insert a short piece of thin rigging cord through the hole and glue it to itself forming a loop. Later, when you wish to insert the permanent running rigging you cut the loop, glue the new cord to one end and pull it through the hole using the other end of the pilot cord.

There are a few points to remember when rigging.
- Never cross rigging lines with each other.
- Never run rigging lines on the forward side of the yards.
- Never bend rigging lines around obstacles.
- Never run rigging lines through ratlines.
- Never make knots in rigging lines.

8.1 Standing Rigging

The standing rigging includes the rigging of the shrouds, forestay and backstays and is completed before the running rigging.

Completing the standing rigging is fairly straightforward and should present few difficulties. Work from the centre of the model out and try to avoid difficult and confined spaces. The rigging of the shrouds, forestay and backstays are each shown in detail in this section.

The standing rigging should be taut but not over tensioned so as to cause bending of any mast.

Before starting the standing rigging the deadeye straps with lower deadeyes need to be fitted. Fitting these parts is the next step.

8.2 Deadeye Straps & Lower Deadeyes

The deadeyes P67 are 7mm. The deadeye straps are P68. Fit the deadeyes into the straps. Make sure the three holes of the deadeye are positioned with the lowest one being the centre of the three. Apply a small amount to glue to hold each deadeye in position.

The placement of the deadeye straps is shown below. The first deadeye strap is placed in line with the centre of the mast. The next deadeye strap is fitted 10mm toward the aft of the model. The third deadeye strap is again fitted a further 10mm toward the aft of the model. Fit the deadeye straps so as the top of the deadeyes are inline with the top of the cap rail. Use brass nails P25 to fix the deadeye straps to the gunwale & hull as shown.

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8.3 Shrouds

Fit the shrouds to the model. On the port side fit the first pair of shrouds by cutting a piece of 1mm black rigging cord P49 to a length long enough to go from the lower deadeyes to the shroud cleat twice with approximately 30mm overhang. Using an alligator clip glue one end of the rigging cord around a deadeye. Make sure the centre hole of the upper deadeye is the highest of the three. This deadeye should then be temporarily connected to the front portside lower deadeye using the deadeye jig as shown. This jig will provide the correct spacing between the upper and the lower deadeye and ensure the deadeyes are in straight rows parallel each other.

The loose end of the rope then goes up and around the mast and over the shroud cleat and down to the position of the lower deadeye immediately behind the first. Using super glue, alligator clip and another jig, the upper deadeye is attached to the shroud. Using a short length of 0.25mm rigging cord P47 seize the two shrouds together around the mast - Figure 13. Once the first pair of shrouds has been completed, the exercise is repeated on the starboard side. For the port side single shroud cut a piece of 1mm black rigging cord P49 to a length long enough to go from the lower deadeye around the mast and over the shroud cleat with approximately 30mm overhang. Using an alligator clip glue one end of the rigging cord around a deadeye. Repeat the process for the starboard single shroud.

At the upper deadeye bind the double thickness of cord immediately above the upper deadeye with 0.25mm rigging cord P47. Seize the end of this cord with a dab of glue.

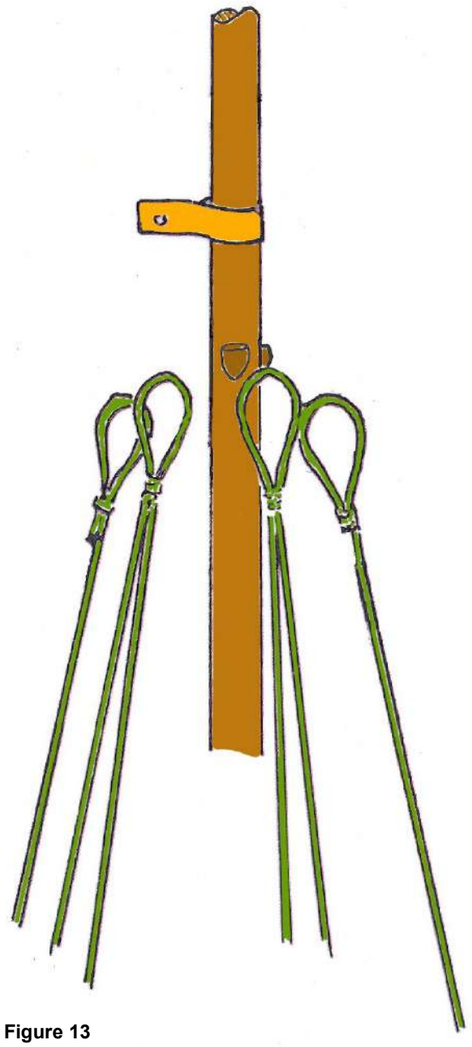


Figure 13

Deadeye Jig

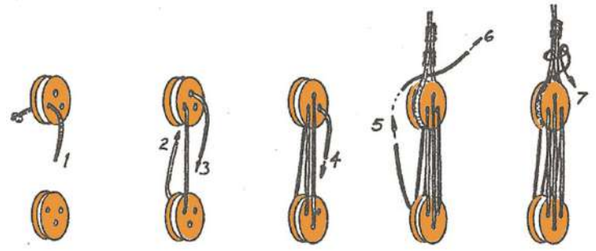


Figure 14

8.4 Lanyard Strip

Fit a length of 2x3mm walnut P42 to the shrouds as shown as the lanyard strip.

8.5 Ratlines

The ratlines are the rope ladders used by the crew to climb up the mast. Using fawn 0.25mm cord P47 tie off the ratlines to the shrouds. A rigging tool will assist this process. Space the ratlines approximately 5mm apart making sure they are horizontal and parallel with each other. Seize each knot with a dab of glue and trim excess cord - Figure 15.

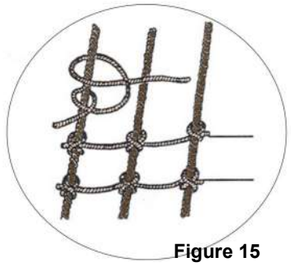
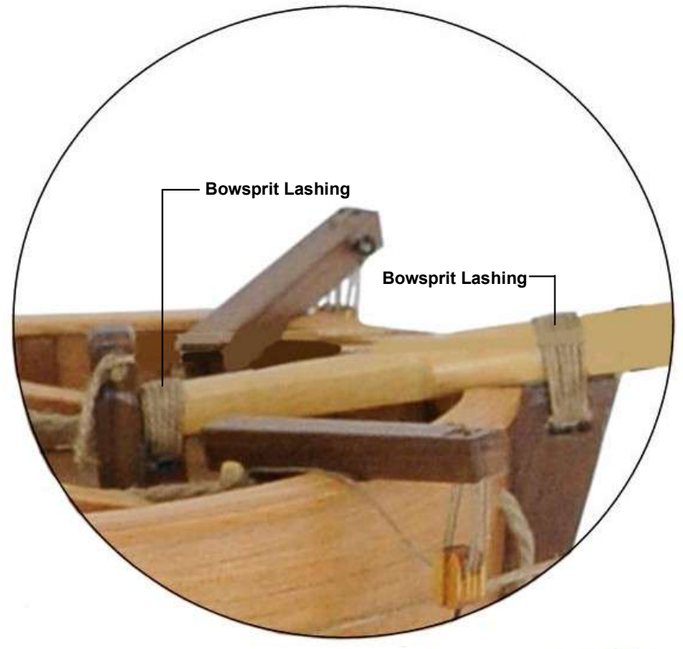


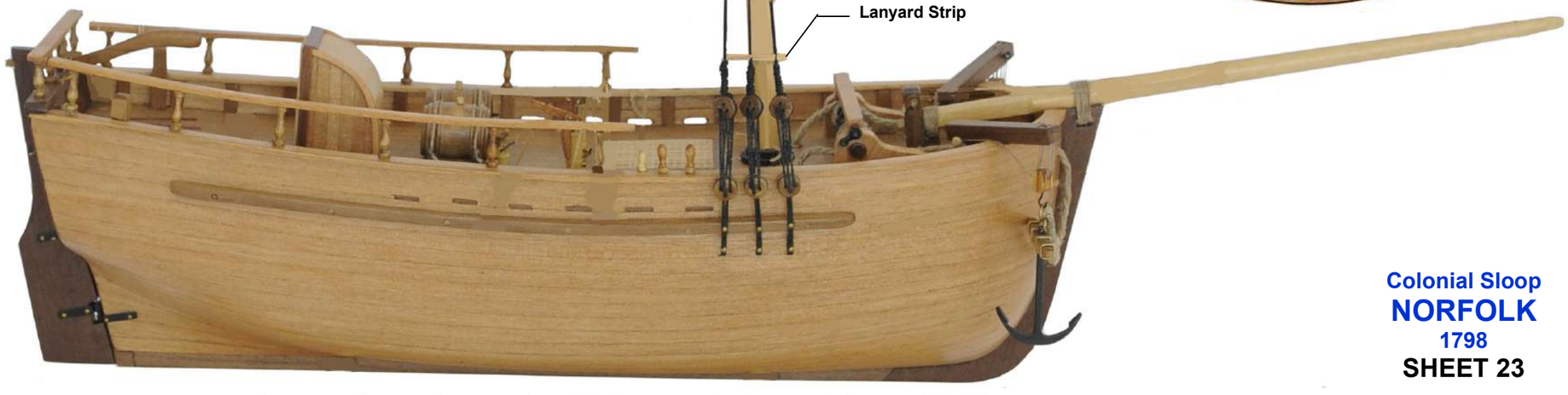
Figure 15

8.6 Bowsprit Lashing

The bowsprit needs to be lashed to the stem post and the headstock base. Cut a 2x5mm hole through the stem post 5mm from its top.

Fix the bowsprit in place and lash to the headstock base and at the stem post with 0.5mm cord P48 as shown.





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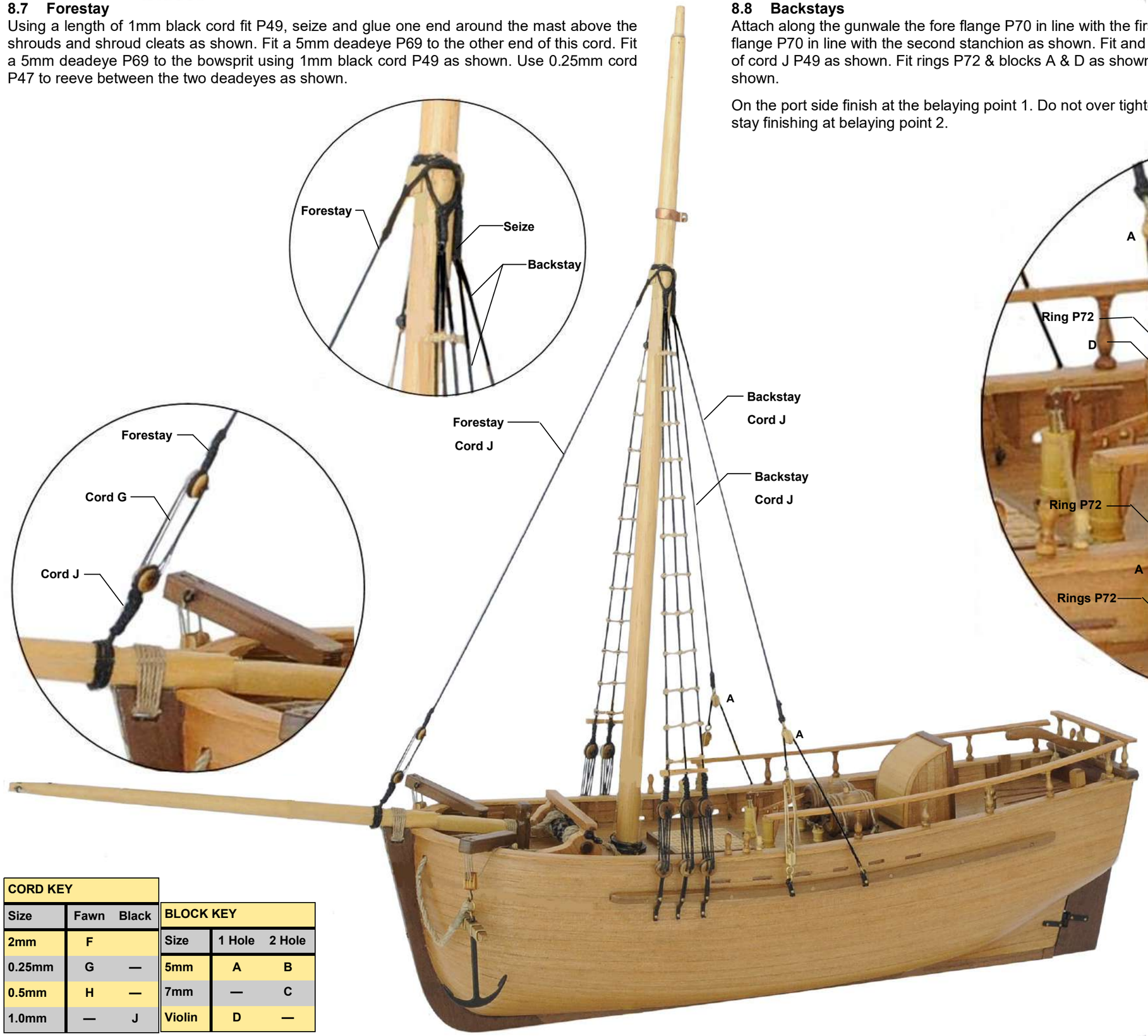
8.7 Forestay

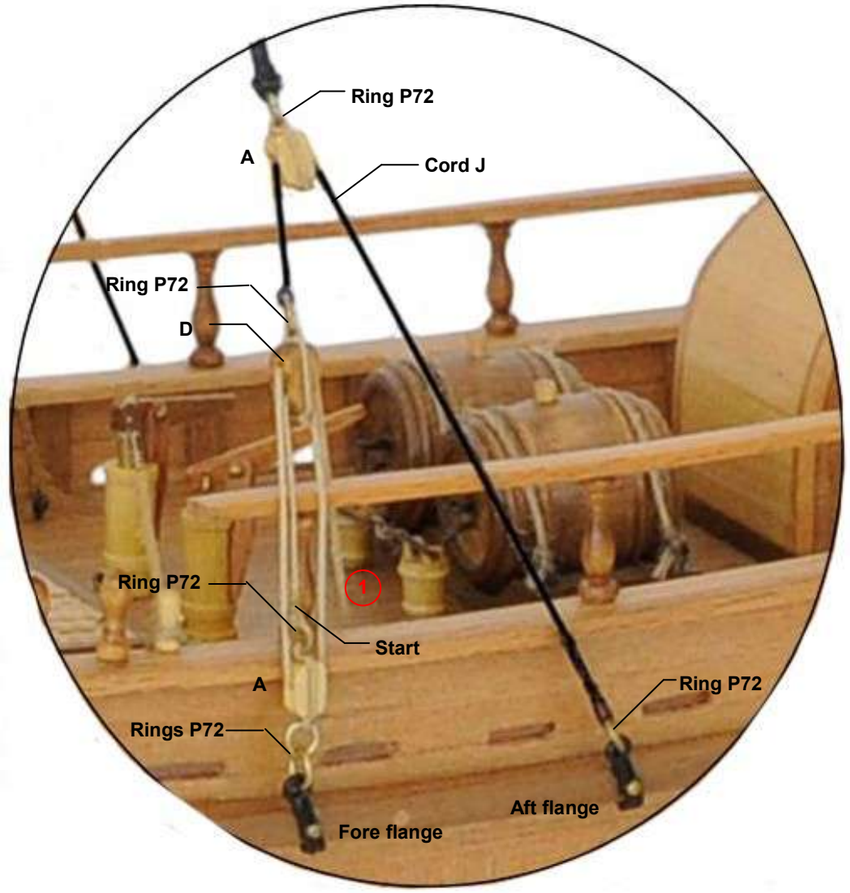
Using a length of 1mm black cord fit P49, seize and glue one end around the mast above the shrouds and shroud cleats as shown. Fit a 5mm deadeye P69 to the other end of this cord. Fit a 5mm deadeye P69 to the bowsprit using 1mm black cord P49 as shown. Use 0.25mm cord P47 to reeve between the two deadeyes as shown.



8.8 Backstays

Attach along the gunwale the fore flange P70 in line with the first stanchion and the aft flange P70 in line with the second stanchion as shown. Fit and seize at the mast a length of cord J P49 as shown. Fit rings P72 & blocks A & D as shown. Rig the backstay as shown.

On the port side finish at the belaying point 1. Do not over tighten. Repeat these steps for the starboard side back-stay finishing at belaying point 2.



CORD KEY		
Size	Fawn	Black
2mm	F	
0.25mm	G	—
0.5mm	H	—
1.0mm	—	J

BLOCK KEY		
Size	1 Hole	2 Hole
5mm	A	B
7mm	—	C
Violin	D	—

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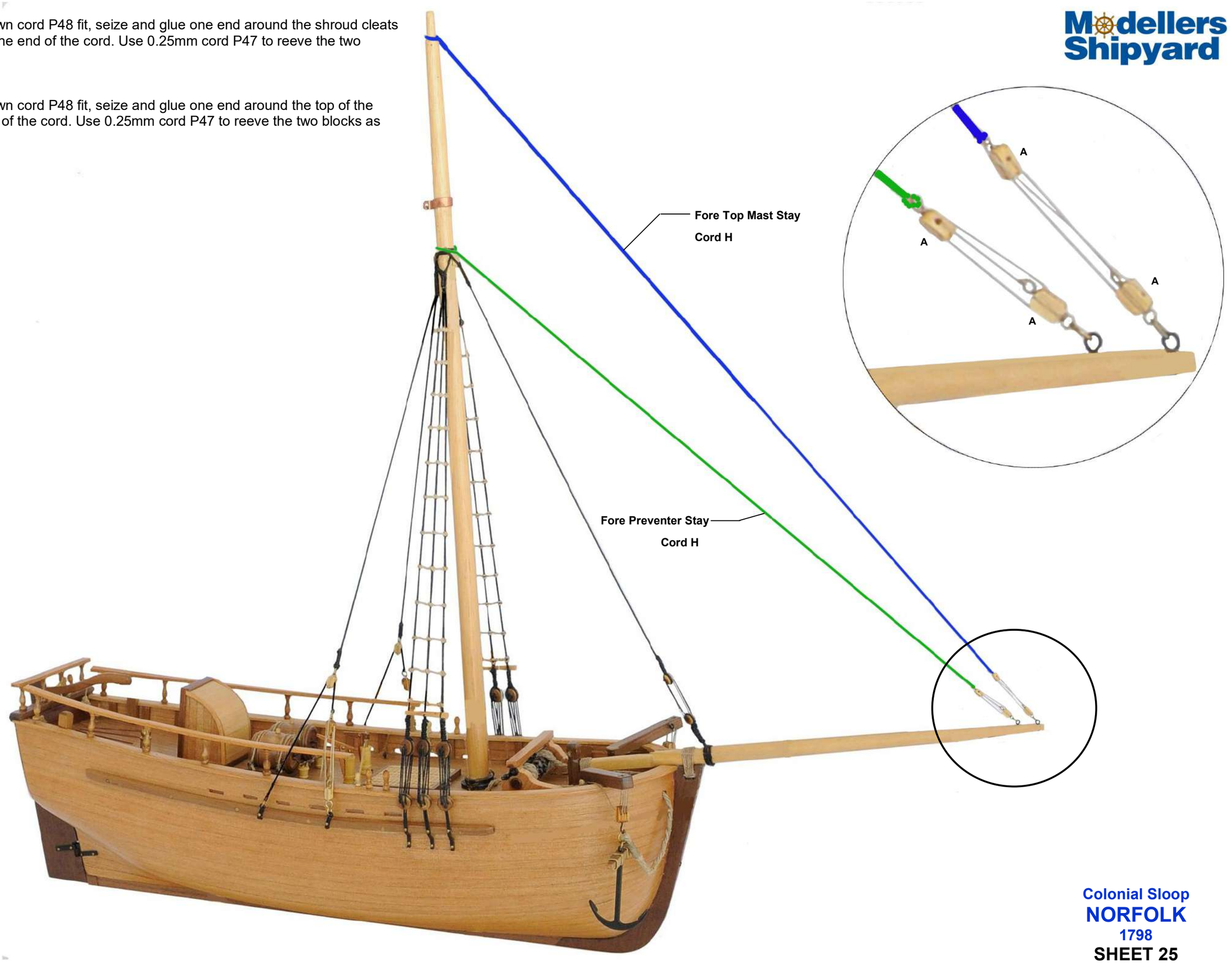
8.9 Fore Preventer Stay
Using a length of 0.5mm fawn cord P48 fit, seize and glue one end around the shroud cleats on the mast. Fit block A to the end of the cord. Use 0.25mm cord P47 to reeve the two blocks as shown.

8.10 Fore Top Mast Stay:
Using a length of 0.5mm fawn cord P48 fit, seize and glue one end around the top of the mast. Fit block A to the end of the cord. Use 0.25mm cord P47 to reeve the two blocks as shown.



BLOCK KEY		
Size	1 Hole	2 Hole
5mm	A	B
7mm	—	C
Violin	D	—

CORD KEY		
Size	Fawn	Black
2mm	F	
0.25mm	G	—
0.5mm	H	—
1.0mm	—	J

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8.11 Jib Halliard

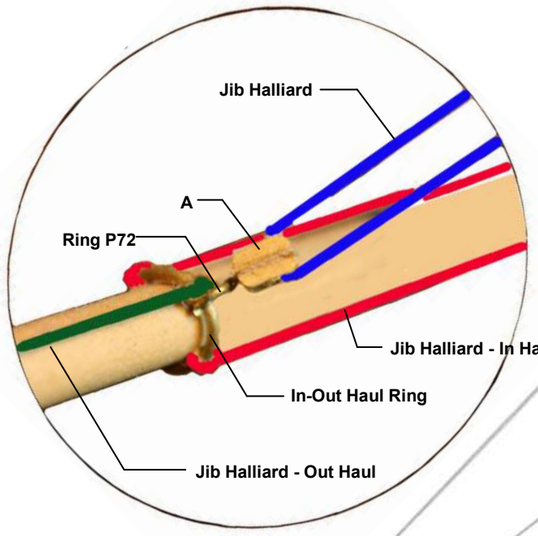
Fit the In-Out Haul ring P71 to the bowsprit as shown. Fit a ring P72 to the top of the in-out haul ring as shown. Attach a block A to the ring P72 as shown. Rig as shown and terminated at belaying points 3 & 4 - see Belaying Plan.

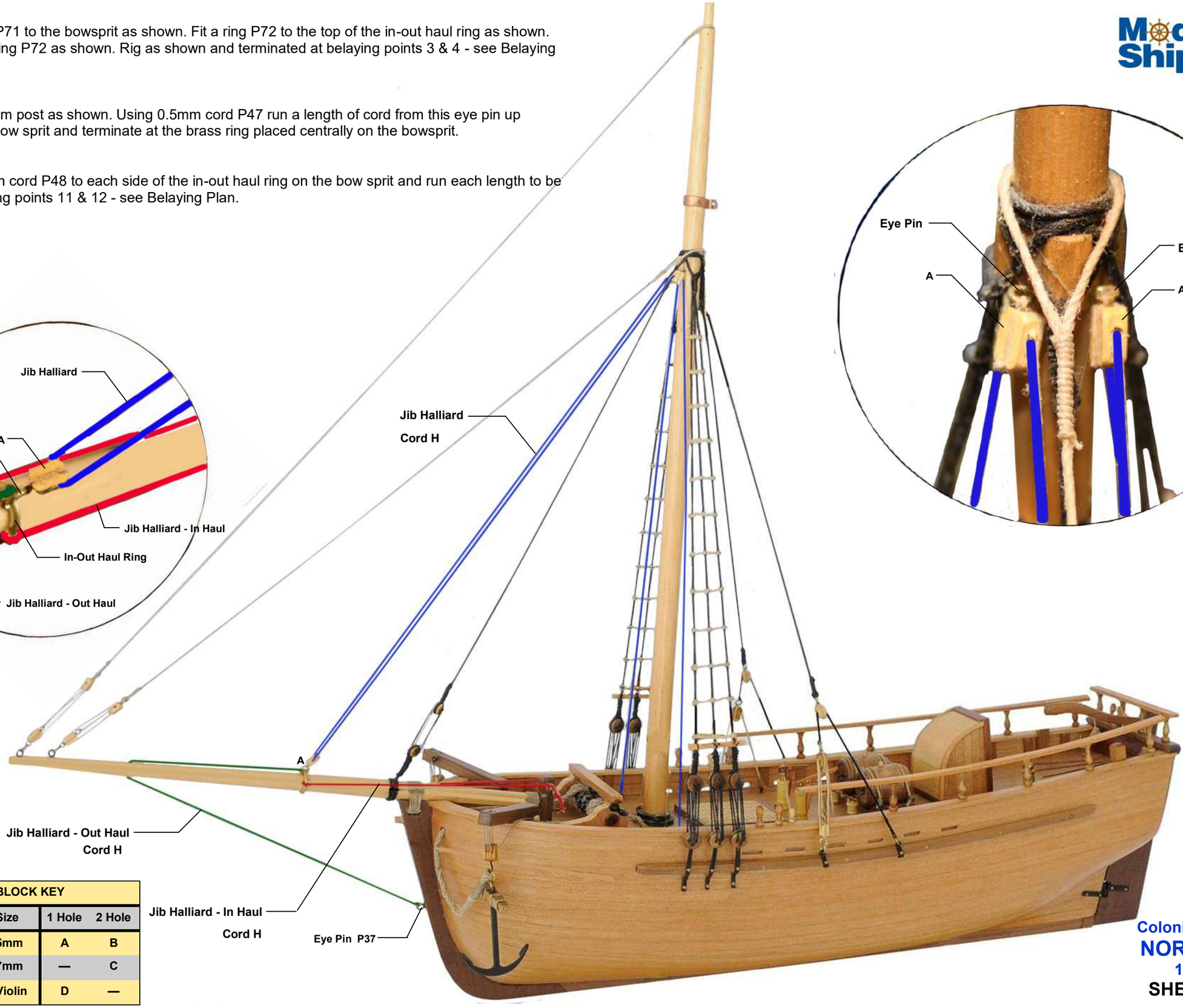
8.12 Jib Out Haul

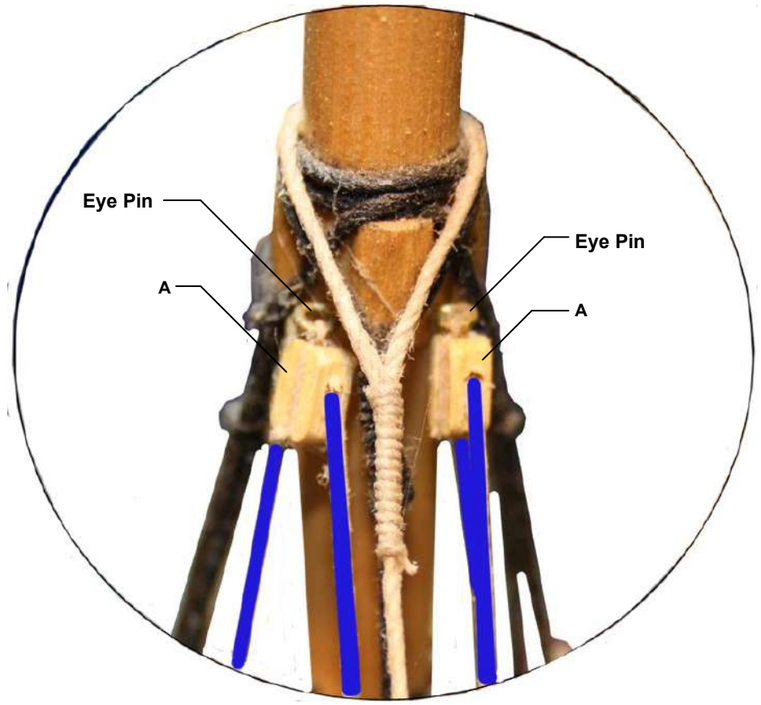
Fit an eye pin P37 to stem post as shown. Using 0.5mm cord P47 run a length of cord from this eye pin up through the hole in the bow sprit and terminate at the brass ring placed centrally on the bowsprit.

8.13 Jib In Haul

Attach a length of 0.5mm cord P48 to each side of the in-out haul ring on the bow sprit and run each length to be terminated at the belaying points 11 & 12 - see Belaying Plan.







CORD KEY		
Size	Fawn	Black
2mm	F	
0.25mm	G	—
0.5mm	H	—
1.0mm	—	J

BLOCK KEY		
Size	1 Hole	2 Hole
5mm	A	B
7mm	—	C
Violin	D	—

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8.14 Throat Halliard

Attach the gaff to the mast as shown - use parrel beads P73 and cord P47 to attach the yoke to the mast. Rig the throat halliard as shown. Terminated at the starboard side belaying pin—belaying point 5 - see Belaying Plan

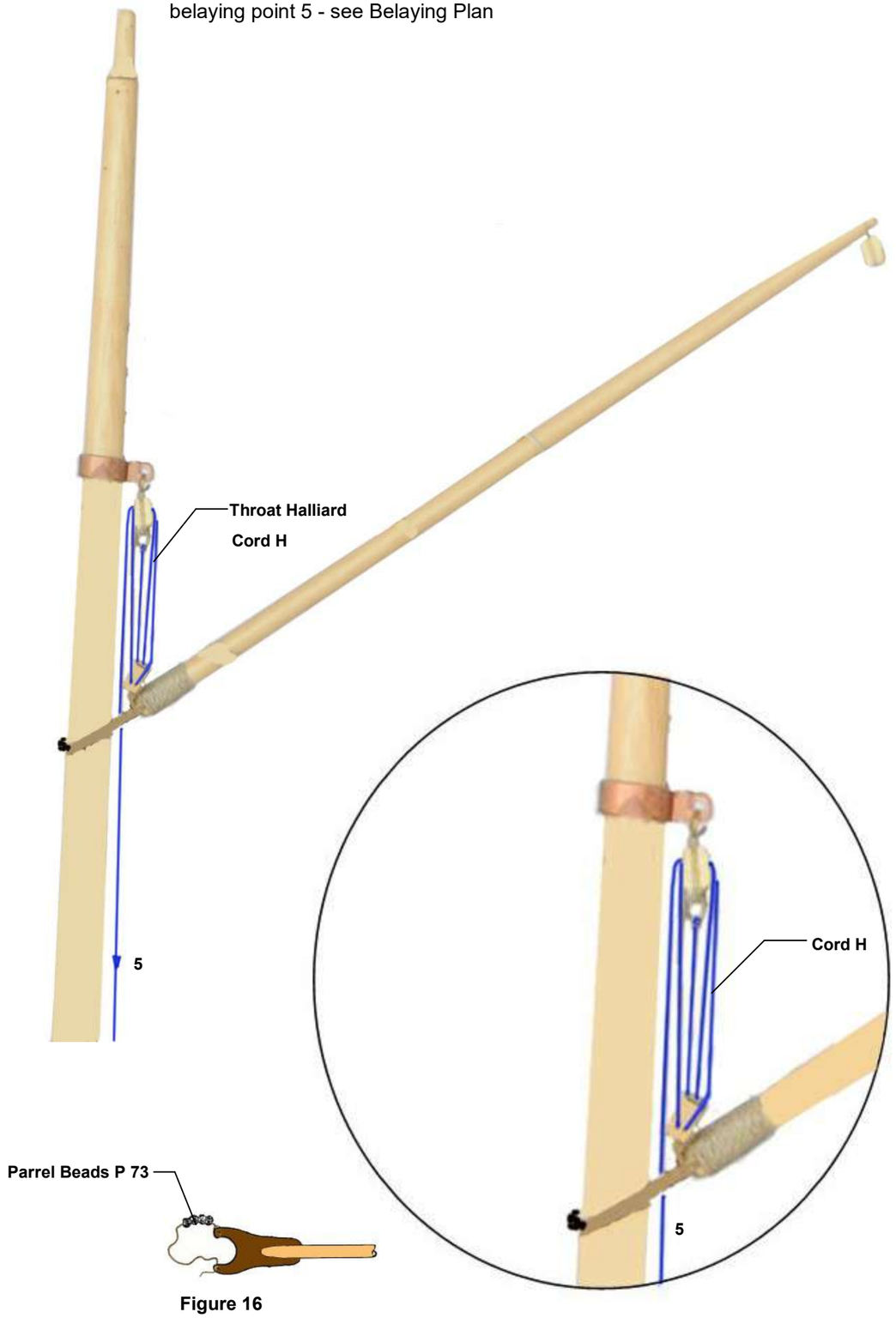

Figure 16

8.15 Peak Halliard

Rig the peak halliard as shown. Terminate at belaying points 7 & 8 - see Belaying Plan.

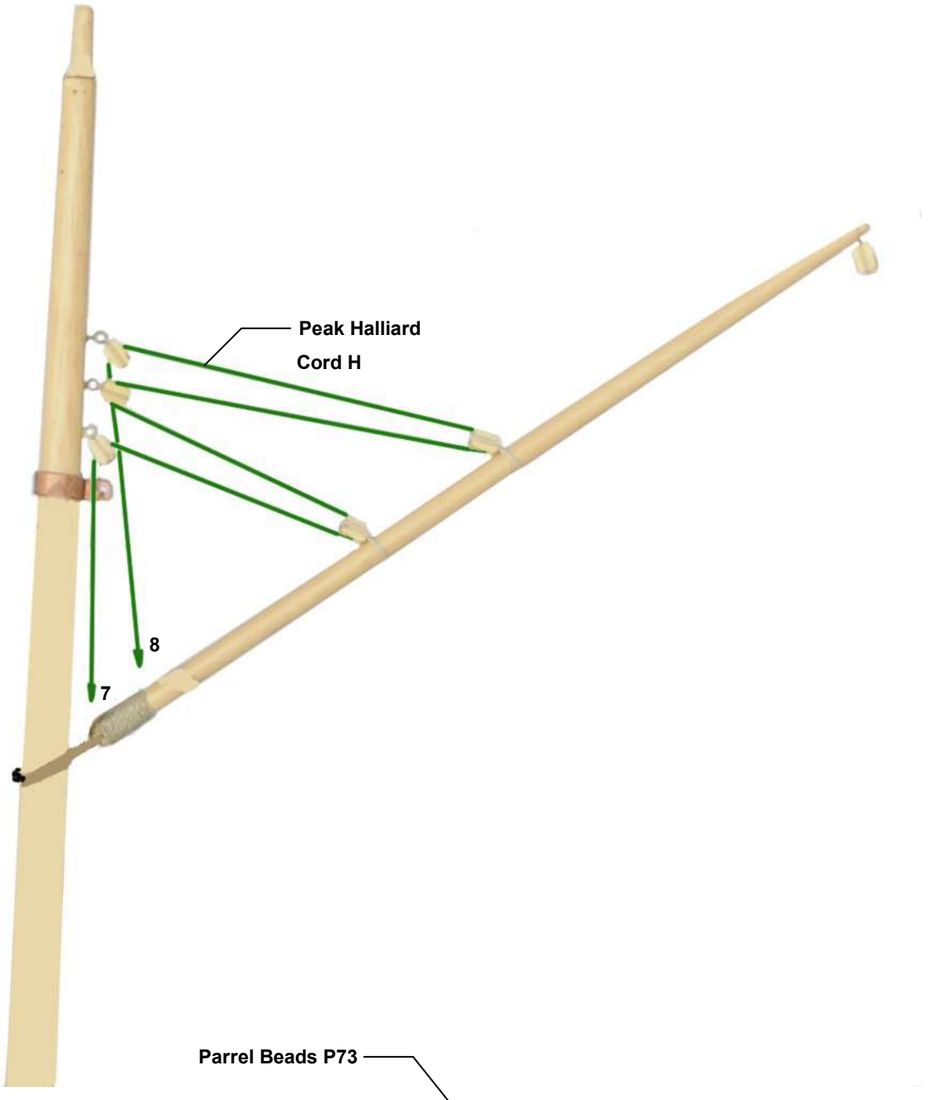

Figure 17

CORD KEY		
Size	Fawn	Black
2mm	F	
0.25mm	G	—
0.5mm	H	—
1.0mm	—	J

BLOCK KEY		
Size	1 Hole	2 Hole
5mm	A	B
7mm	—	C
Violin	D	—

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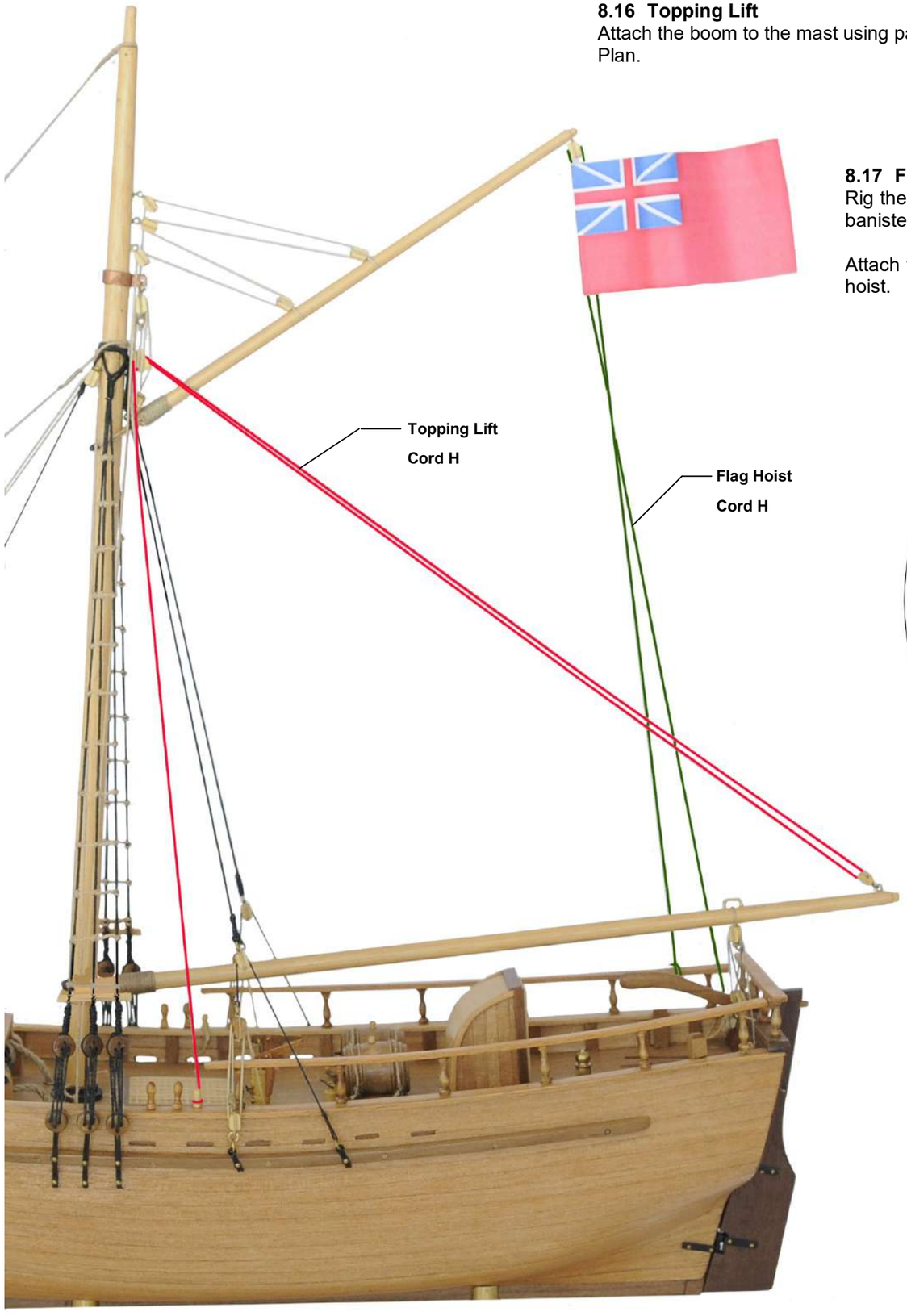
8.16 Topping Lift

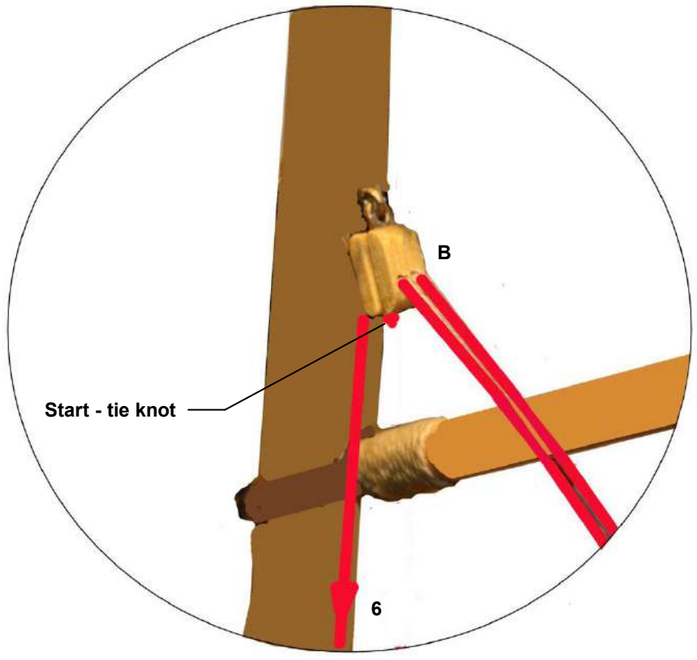
Attach the boom to the mast using parrel beads P73. Rig as shown. Terminate at the port side belaying point 6 - see Belaying Plan.

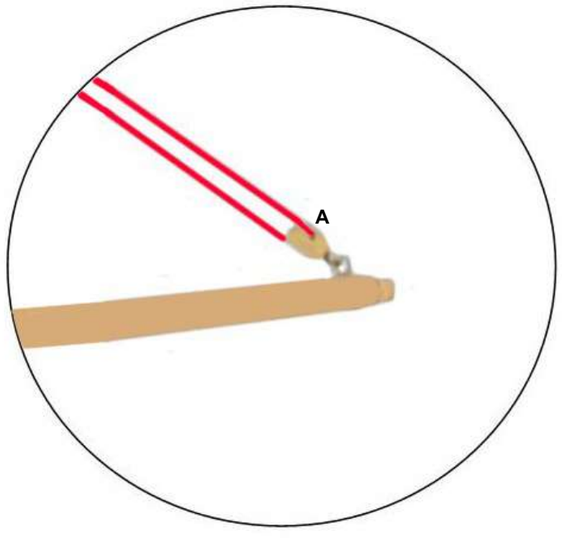


8.17 Flag Hoist

Rig the flag hoist by starting at the cleat on the inner starboard side of the transom—belaying point 9 as shown. Tie-off on the banister rail at belaying point 10 - see Belaying Plan.

Attach the flag P74 to the hoist by applying a paper based glue to the inside of the flag, Folding in half and attach to the flag hoist.





CORD KEY		
Size	Fawn	Black
2mm	F	
0.25mm	G	—
0.5mm	H	—
1.0mm	—	J

BLOCK KEY		
Size	1 Hole	2 Hole
5mm	A	B
7mm	—	C
Violin	D	—

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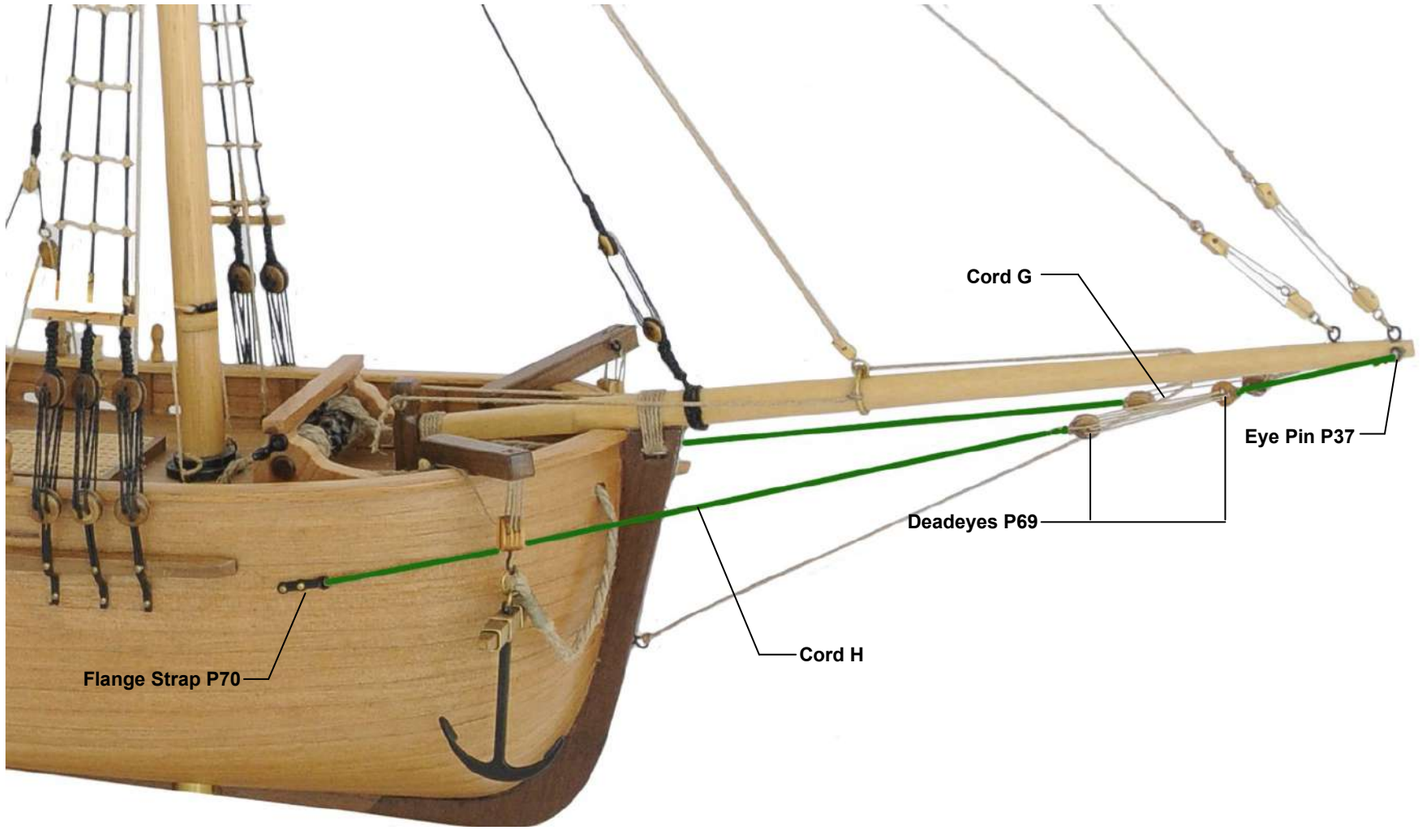
8.18 Bowsprit Guys

Fit a flange strap P70 to each side of the hull immediately in front of the gunwale as shown. Rig the guys as shown. Reeve the two dead-eyes as shown. Repeat the steps for the starboard side.



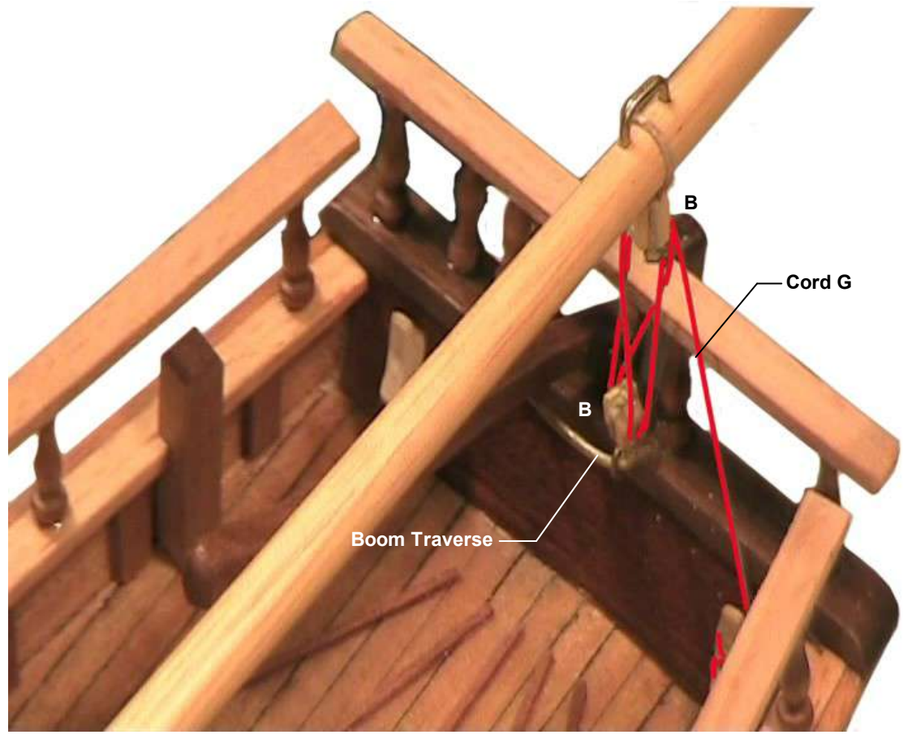
CORD KEY		
Size	Fawn	Black
2mm	F	
0.25mm	G	—
0.5mm	H	—
1.0mm	—	J

BLOCK KEY		
Size	1 Hole	2 Hole
5mm	A	B
7mm	—	C
Violin	D	—

8.19 Mainsheet

Attach a block B to the boom traverse as shown.

Reeve the two blocks as shown. Terminate the cord at belaying point 9 - cleat attached to the inner port side of the transom - see Belaying Plan.



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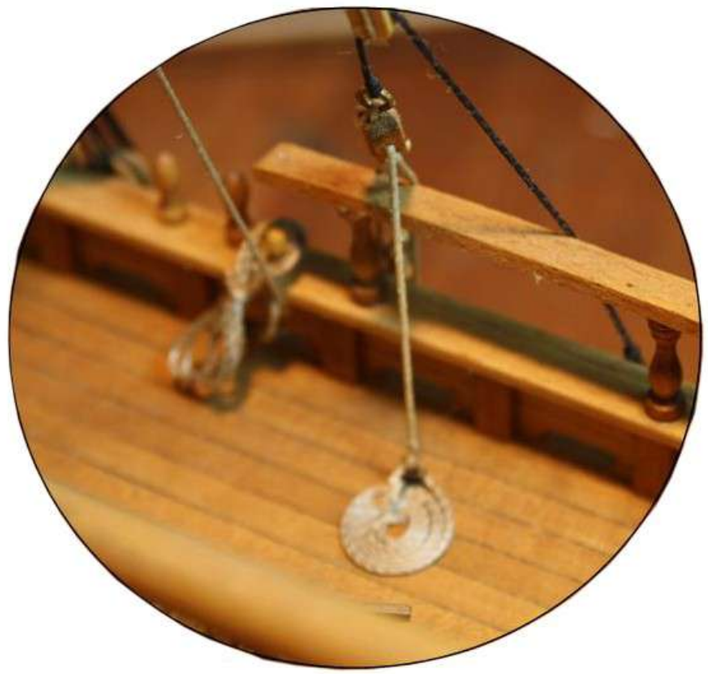
8.20 Trim the Cat

As you may know, whenever Matthew Flinders went to sea he always took his cat Trim. Historical records show that Trim was a black cat with a little white on his chest. Trim the cat is P75. Fix Trim to the deck as shown.

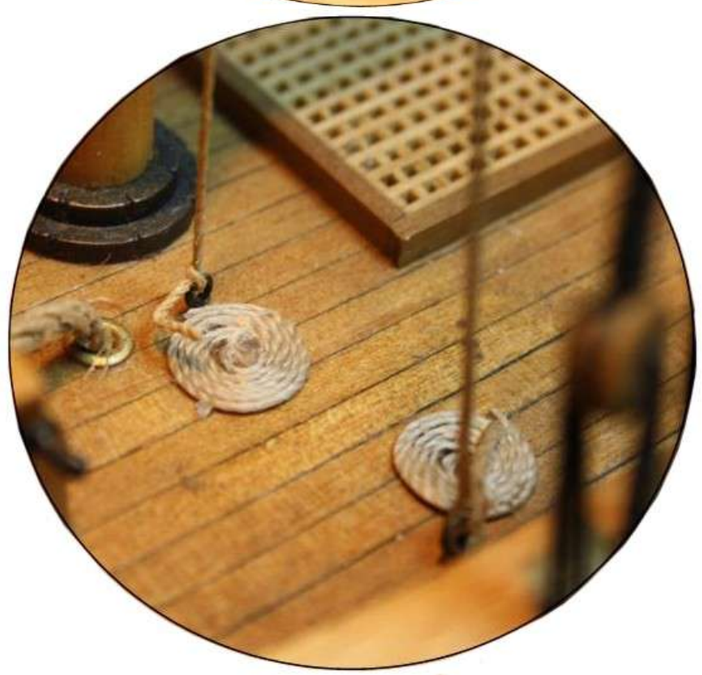
8.21 Rope Coils

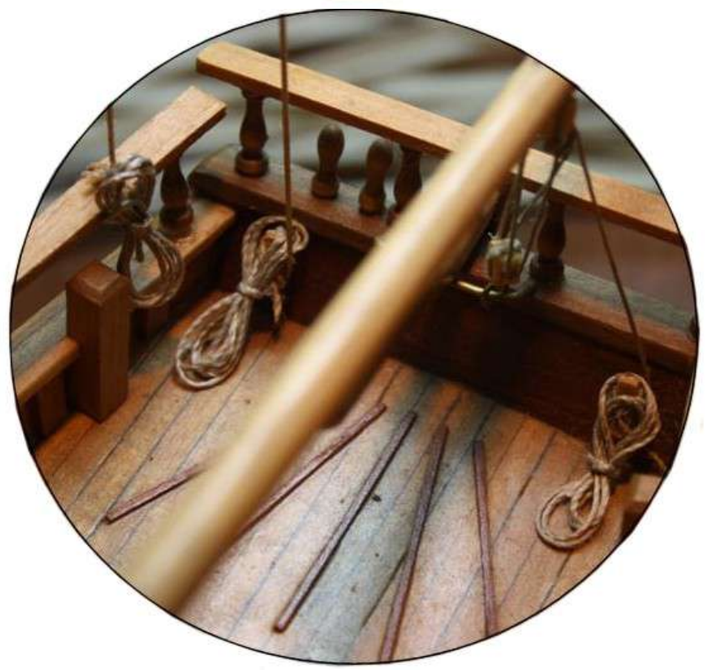
Make rope coils to be place at the various belaying points on the deck a shown.



8.22 Cradle

Assemble the cradle P76 & P77. Paint black or stain walnut or teak if desired.





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9.0 Finishing Touches

Look carefully over the instructions, photos & drawings and check to ensure that you have not forgotten anything.

Proudly display your model and take great pride in your achievement of building a work of art to be handed-on to future generations and contributing to the perseveration of Australia's rich maritime history.

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