NISHA

Brixham Mumble Bee

1907

Building Manual

VANGUARD MODELS

BY CHRIS WATTON

Designed, developed and produced in the UK

PART NUMBER – VM-08

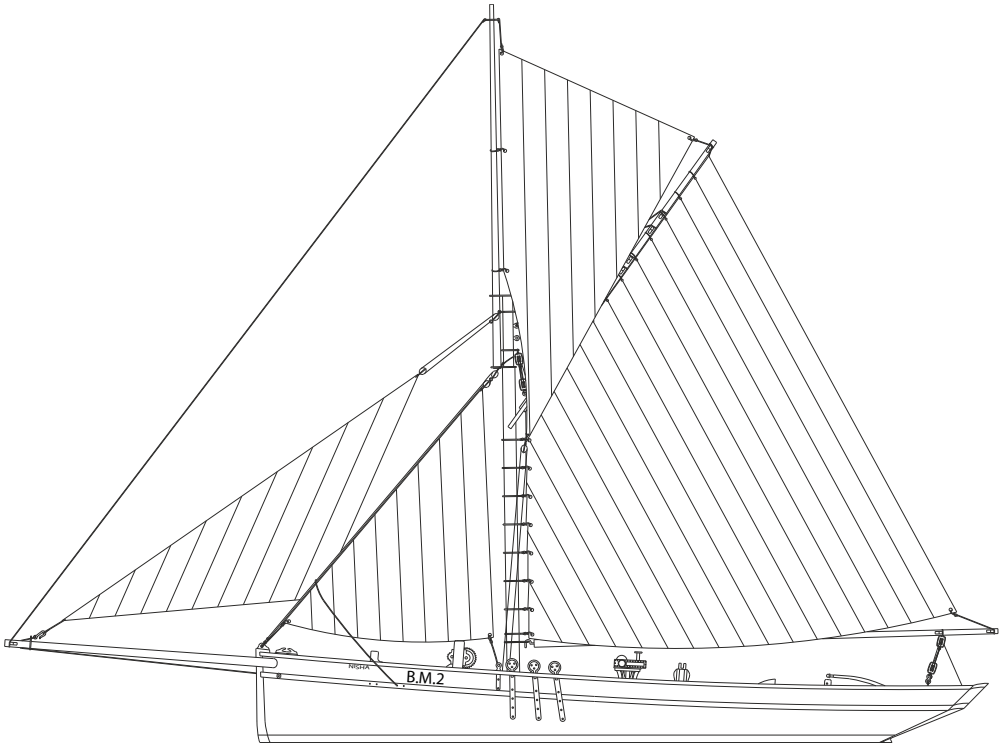
The Brixham Mumble Bee *NISHA*

The ‘Mumble Bee’ was cutter rigged, full bowed and broad beamed. They were strongly built and many survived to a good old age. Because of their fine lines, a few of these vessels were converted to yachts in their later life.

Those fishing off the Welsh coast out of Tenby, working the fishing grounds in Mumbles Bay, aquired the collective term ‘Mumble-Bees’. In part, this was coined because of the large numbers of them ‘buzzing’ around the Mumbles like bees around a hive, and also arose by their adopting some of the features of the establised Mumbles boats encountered.

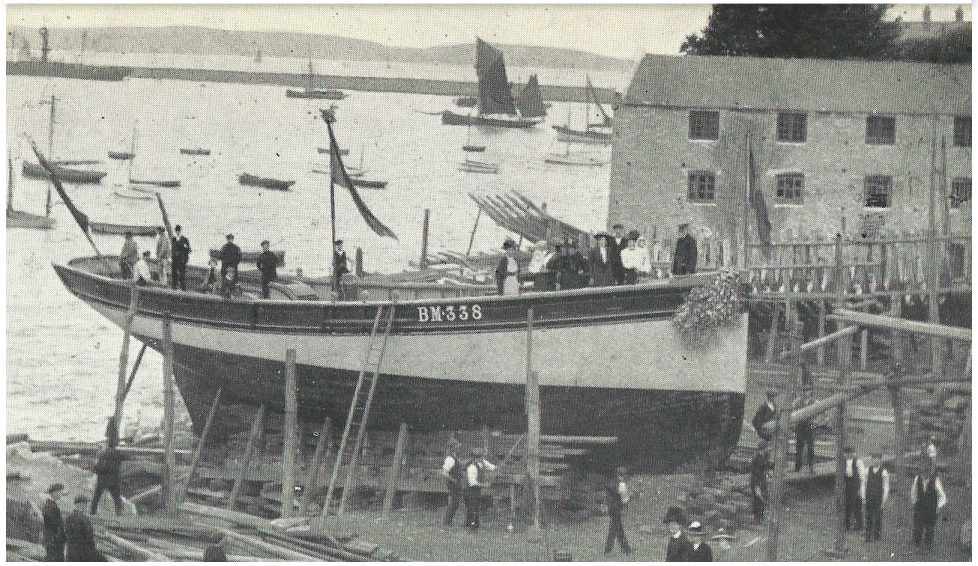
Nisha was built in 1907 by J.W. & A. Upham to the order of W.H. Robert, the agreement for hull, boat and spars being £250, with £5 extra for mizzen fittings, so evidently it was expected that later she would be converted to ketch rig.

Nisha had an overall length of 59 feet 3 inches, moulded beam of of 14 feet. She had a deep drag aft with a draft of 7 foot 10 inches vut only 4 feet forward. Her fine lines translate into a very pleasing hull shape, making a very attractive display model.



Two Photographs of Brixham Mimble -Bee’s that are very similar to Nisha.

Above - ‘White Violet’, 25 tons, built in 1891with all four sails set
Below A Brixham Mule, very similar to the Mumble-Bee, ready for launching in 1913



THE KIT

The model kit is designed to be as accurate as possible for a commercial kit in both scale and detail and has been developed with the beginner to intermediate modeller in mind, with some aspects simplified for ease of construction. More experienced modellers can modify the kit how they wish. This kit is an ideal introduction to the world of Plank on Bulkhead (POB) modelling, and the modeller will learn many valuable lessons through its construction.

Although the kit of Nisha is as easy to build as we can make it, very basic woodworking skills (and patience) are still required. A small workspace will have to be put aside for the assembly. Do not remove parts from the laser cut sheets until actually required for fitting, as they can be easily damaged or lost.

Take plenty of time to study this manual until you are confident enough to tackle each stage of construction. Patience is the key word when building any scale model. Treat each stage as a separate project and the overall effect of the completed subject will be much enhanced.

Care should be taken when cutting parts from the laser and brass etched sheets. The sheet from which you are going to cut the parts should be laid on a hard, flat surface. Use a heavy-duty craft knife (a Stanley Knife or Swann Morton scalpel are perfect) with a good strong blade to cut through the tabs holding the parts in place. It is easier to paint most of the photo-etched parts before removing them from their sheets. They can be touched up again once in place on the model.

Recommended Paints, stains and adhesives

1: White PVA wood glue or Titebond.
2: Cyanoacrylate (superglue) thick and medium viscosity
3: Natural colour wood filler
4: Matt polyurethane varnish (Not satin or gloss)
5: Green, Red, Black Red-Brown paints (recommend either Humbrol, Vallejo or Tamiya)
6: Red Oxide (Hull below waterline) (Recommend Plastikote Red Oxide Primer)
7: White Paint for ‘Boot Topping’ above waterline (Recommend Plastikote Super Matt Spray)

Recommended tool list

(All items listed were used by the designer to build the Lady Eleanor prototype model)
1: Craft knife (or standard Stanley Knife, which is robust enough for most jobs)
2: A selection of needle files
3: Razor saw
4: Small wood plane (for rough tapering of masts and yards before sanding smooth)
5: Pin vice or small electric drill.
6: Selection of drill bits from 0.7mm to 1mm
7: Selection of abrasive paper and sanding block (typically 120 – 240 grade)
8: Selection of good quality paint brushes
9: Pliers/wire cutters (Good quality side cutters are excellent for trimming rigging ends)
10: Good quality set of fine tweezers (For small parts and rigging)
11: Steel ruler (300mm - for providing a straight edge for tapering the planking)
12: Clothes pegs or small clamps
13: Good quality pencil or drawing pen
14: Masking tape (Tamiya or Tesa masking tape are highly recommended)
15: Waterline marking out tool, such as the one from our web store.
16: A Pin Pusher (Or you can just use a pair of pliers to push pins into the planking and bulkhead edges)
17: Cutting mat

Recommended tools from Vanguard Models

Our waterline marking tool is supplied in a sheet of laser-cut, 4mm plywood that needs assembly. Assembly time is around 15 minutes and very easy. Metal fittings are supplied to aid the change in position of the pencil carriage. Vanguard Models pencil is supplied with each tool.

The Waterline Marker will mark a level from between 25mm to 150mm, and an engraved gauge will help you achieve the correct level.

Pin Pusher With Adjustable Depth Stop

This is a slightly larger version of our other pin pusher, and has the added advantage of an adjustable depth stop to ensure that all pins are pushed ‘home’ to the same depth. It is ideal for model boat/ ship hull planking, and setting miniature n-gauge rail track on to board, or for nailing tasks on wooden boat models, dolls houses and picture frames.

Pocket sized Pin Pusher
Can push pins in to 9 mm of plywood or MDF
Ideal for pushing brass pins
Nailing, pin pushing or riveting can be frustrating if the wrong type or an oversized hammer is used. Not to mention the dangers involved. Small pins and nails should be driven in using a precision tool rather than a regular DIY hammer. Pin pushers will make inserting small panel pins and nails a breeze and virtually eliminate sore thumbs!

This plank bending tool is the ideal boat modeller’s tool for the bending strips to the desired curvature. Used for perfect and precise bending of all wooden strips, such as planking on model boats up to 2mm thickness. For bending at an angle, change the cutting angle and the plank will ‘spiral’. The more cuts produced the tighter the bend. Includes a plastic blade stopper.

Ideal for bending planking strips to the desired curvature
Modelcraft Plank Bending Tool Kit 220-240v, 30w

•The Plank Bending tool is ideal for bending planking strips to the desired curvature
• The rounded head on the tool should be warmed up and the wooden strip should be placed on the wooden template form. The strip is then heated by running the tool head over it a few times until the required curve is achieved.
• It works on dry strips with a maximum thickness of 1mm
• For thickness over 1mm, the strip must be dampened
• Set includes: Tool with a rounded head, tool stand & wooden template form.
• Use with caution as parts will be hot

Spring-Loaded Finger Sanders available in 4 sizes, 10mm, 20mm, 25mm, 40mm (Medium Grade)
Unique shape for flat and curved surfaces
Easy to fit band with spring mechanism

These sanders have a unique shape for working on both flat and curved surfaces and come with pre-fitted medium sander band. The sanders also have an ergonomic shape meaning that they're comfortable when in use.

Flexible Masking Tape x2

This is available in TWO sizes, and there are two rolls in each packet.

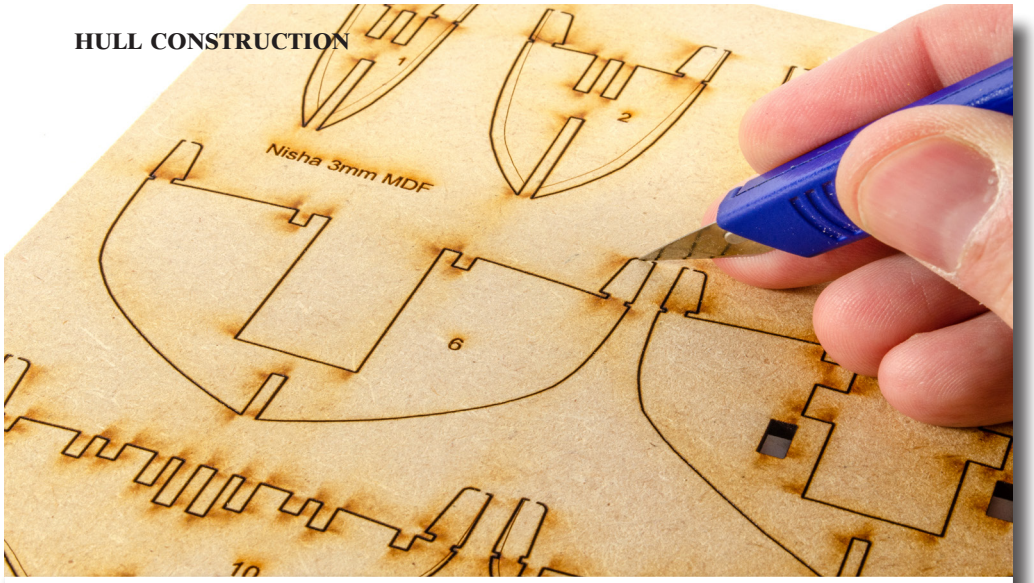
3mm wide x 18m long
6mm wide x 18m long
Absolutely ideal for masking hull waterlines! These masking tapes are also ideal for general modelling, airbrushing, arts, crafts, and even those smaller DIY tasks. The tape sticks, stays and removes cleanly. This flexible acid-free tape is designed to follow curved lines and contoured surfaces without creasing, tearing or paint bleed.


B.M.2
NISHA


NISHA
B.M.2

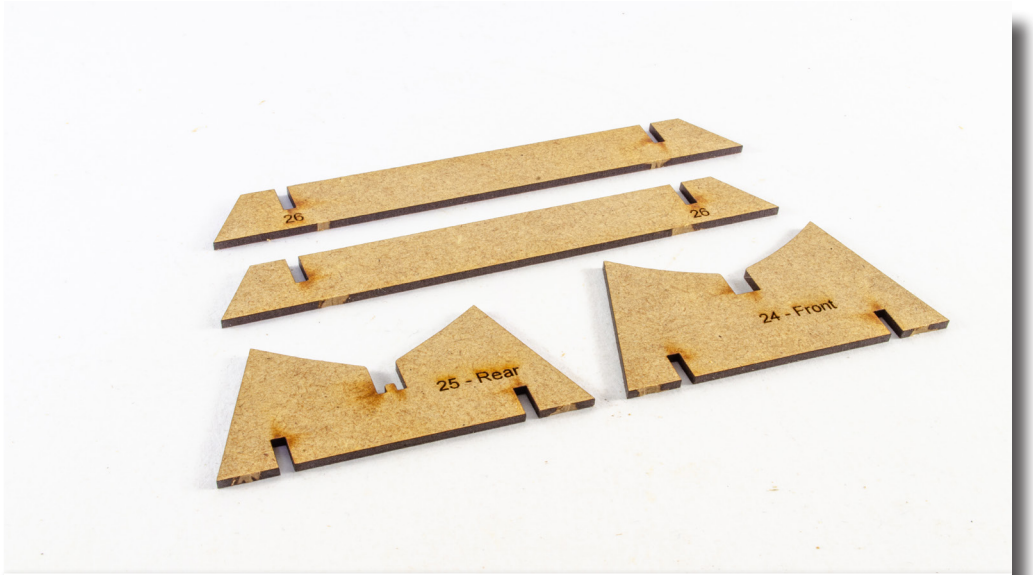

B.M.2

HULL CONSTRUCTION

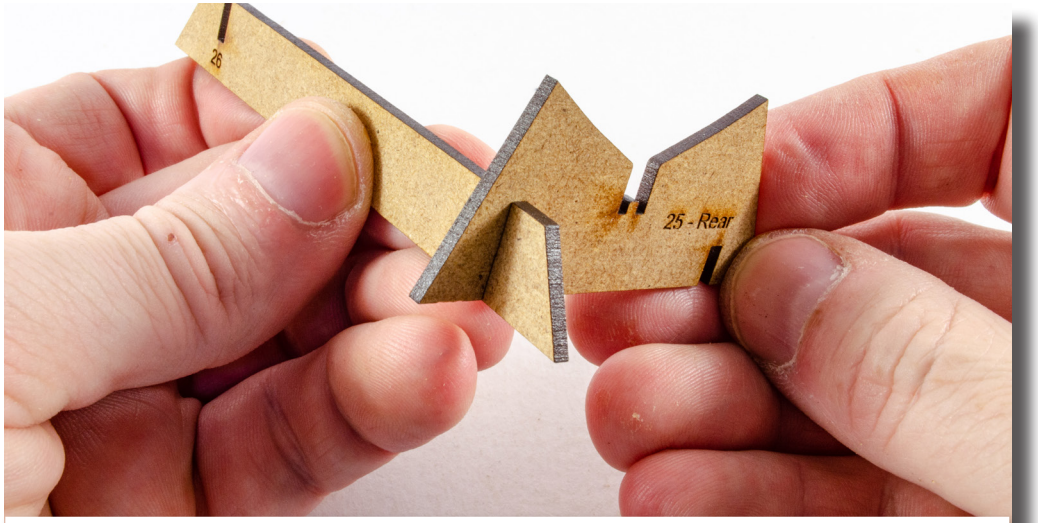


1. Carefully remove parts from sheets using a knife with a fresh blade. We suggest a good hobby knife or scalpel such as Swann Morton, or a heavier duty knife such as a Stanley.

2. When you remove parts from sheets, remove the remnants of the connecting tab with either sanding paper or a sharp knife.



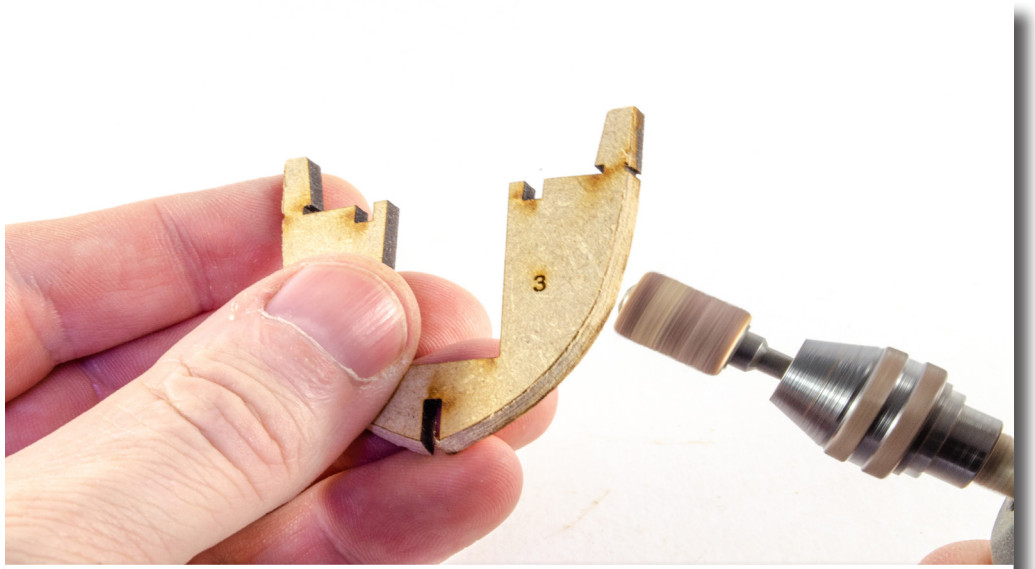
3. BUILDING THE TEMPORARY CRADLE: From the 2mm MDF sheet, remove parts 24, 25, and 26 (x2).



4. Slot one end of each part 26, into the slots on part 25. Make sure they are pushed all the way in. When complete, slot part 24 into the other ends of parts 26.

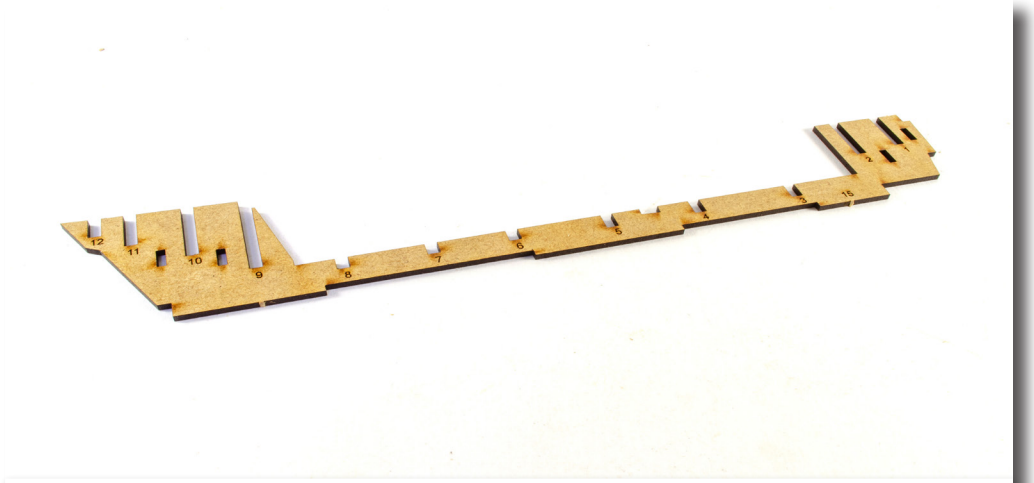
5. Your finished cradle will look like this. The fit of the parts is quite tight and it shouldn't need any glue, but you can brush some slightly diluted wood glue into the joints after assembly. Remember, this is only to hold the boat during building, and will be discarded when the model is complete.

6. The shape of Nisha is defined by its bulkheads. From the 3mm MDF sheet, remove the bulkheads numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12. Notice that some of these have lines engraved on them. We'll come to that now.

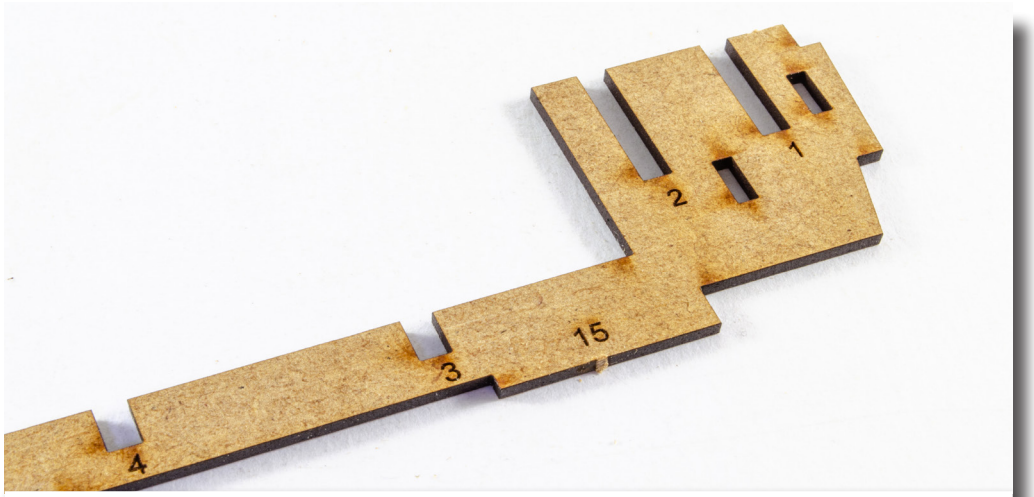


7. Using sandpaper or a rotary tool such as a Dremel, bevel the parts with engraved lines, from the line to the opposite corner. A suitable tool speed is 8000rpm. This task is called 'pre-bevelling'.

8. The bevelled parts will look like this.



9. From the 2mm MDF sheet, remove part 15. This is called the keel, and the bulkheads will slot onto this.

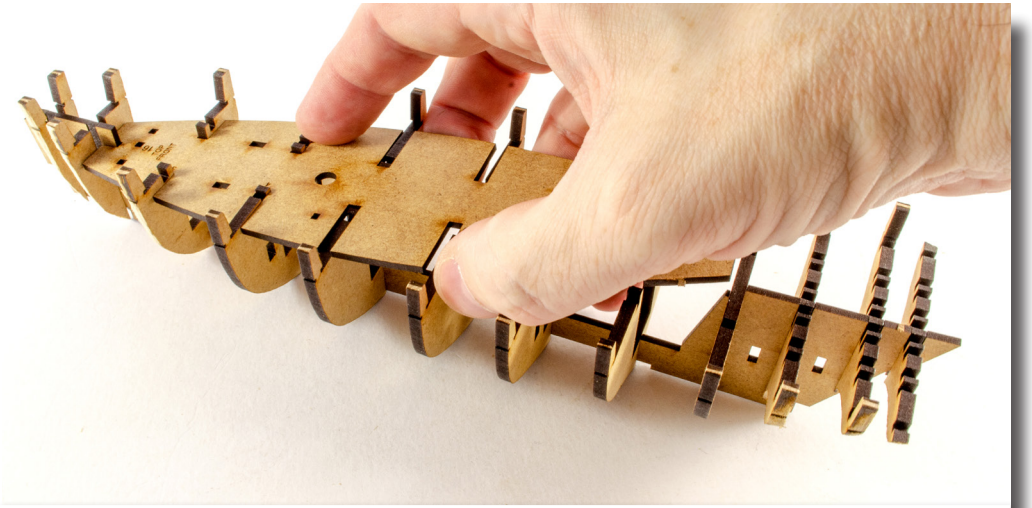


10. Notice how each slot has an engraved number. That relates to the bulkhead which you will fit into there.

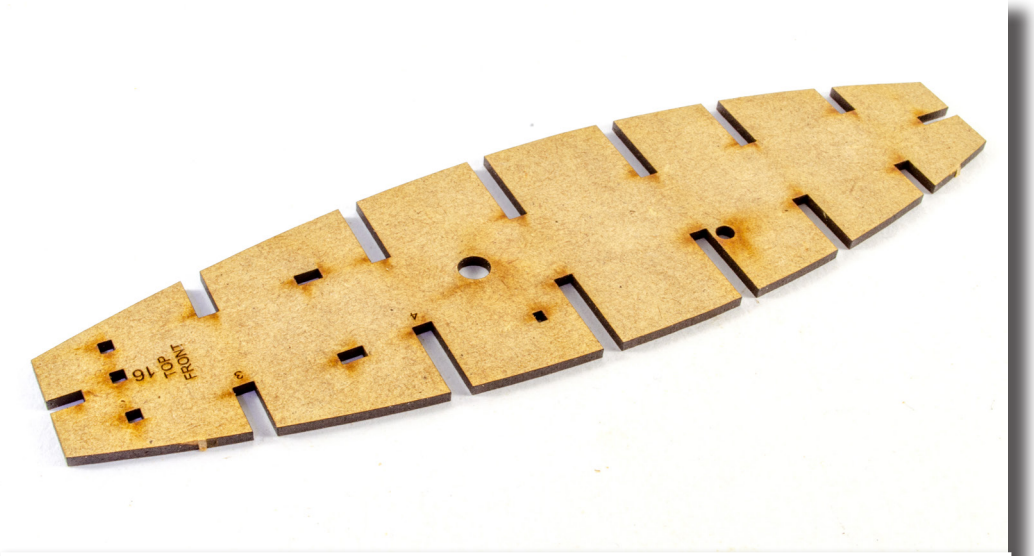
11. Dry fit (no glue) bulkheads 1, 2, 3, 4, 5, and 6 into their slots on the keel. IMPORTANT: Note that bulkheads 1, 2, and 3 have their bevelled edge facing towards the front (bow) of the model

12. Now dry fit (no glue) bulkheads 7, 8, 9, 10, 11 and 12 into the remaining keel slots. IMPORTANT: Note that bulkheads 10, 11 and q2 must have their bevelled side facing towards the back (stern).

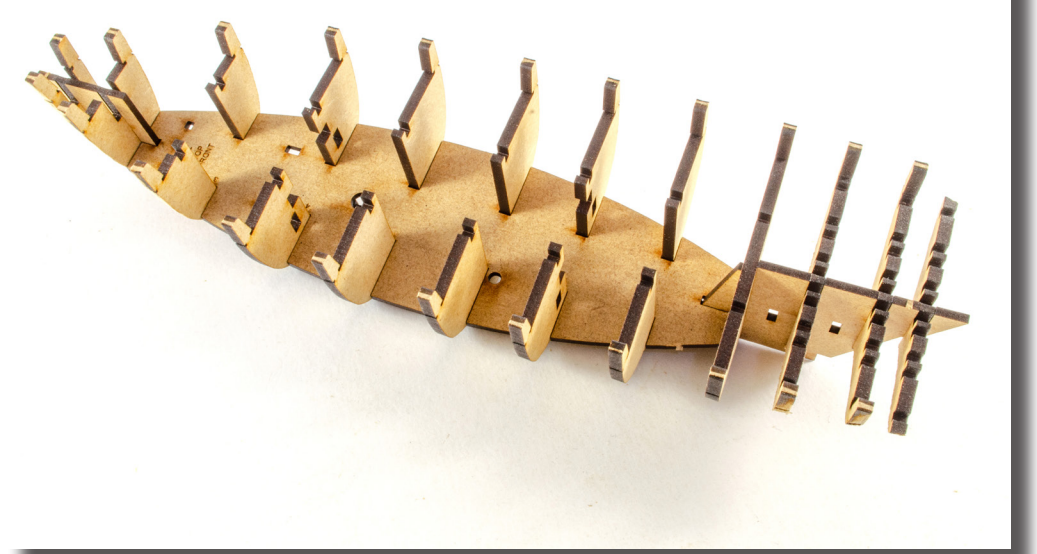
13. Your Nisha should now look like this.



15. Dry fit (no glue) part 15 over the bulkheads on Nisha so that it sits flat on the upper edge of the keel. You may need to gently joggle the bulkheads to allow it to sit all the way down.

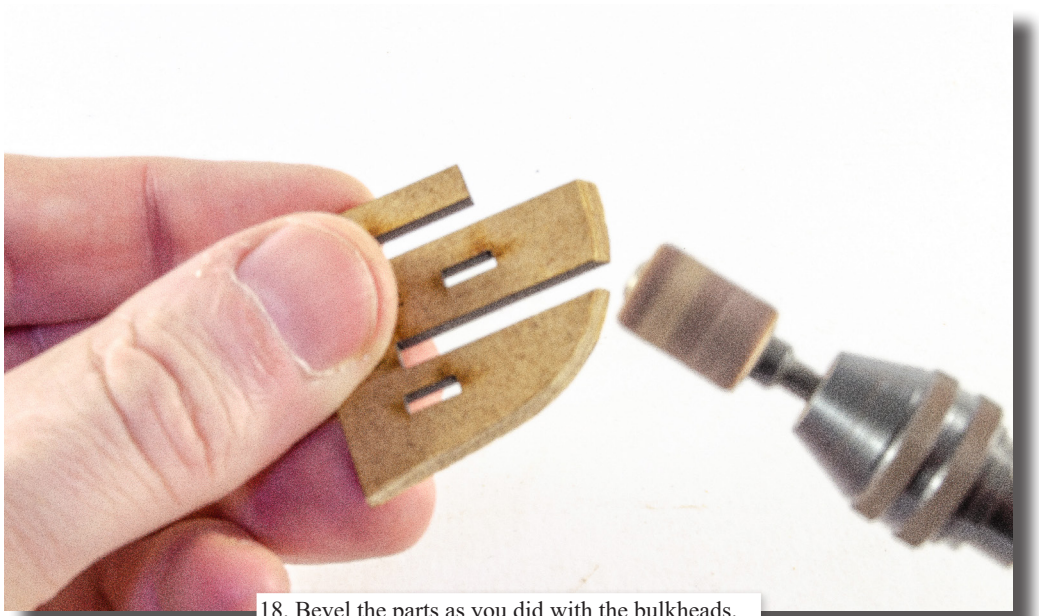


14. From the 2mm MDF sheet, remove part 16. Note how the upper side is engraved, along with a note to tell you which is the front.

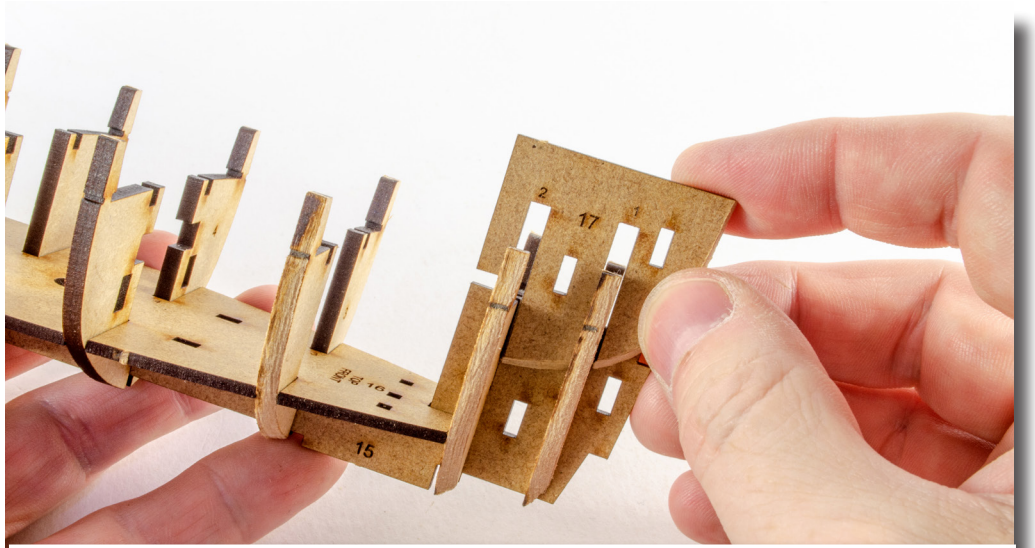


16. With part 15 in place, Nisha will look like this.

17. From the 2mm MDF sheet, remove both parts 17. Again, see how these have engraved lines for bevelling. These parts also have engraved numbers indicating which bulkheads the part will slot over.



18. Bevel the parts as you did with the bulkheads.

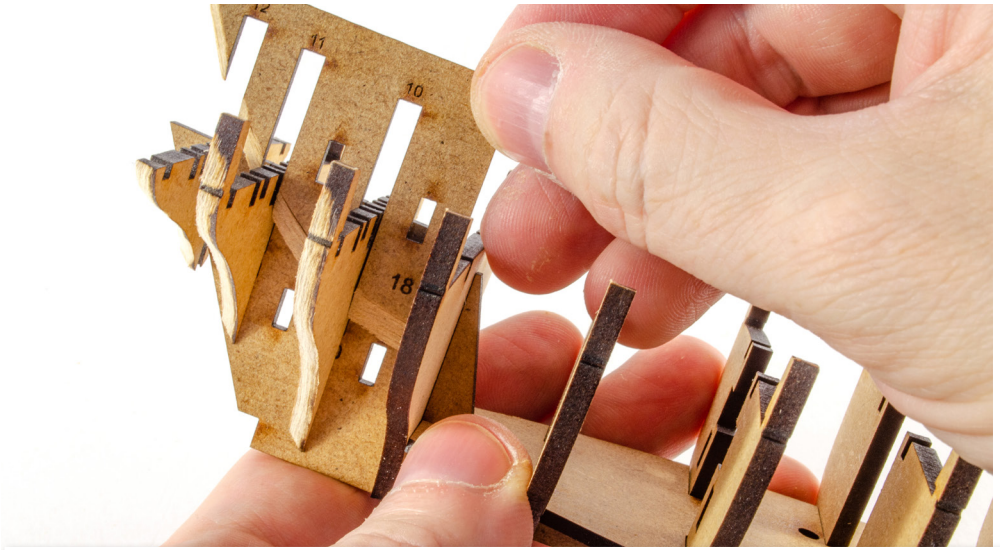


19. Glue both parts 17 into position on the keel (not to the bulkheads) and ensure the two holes align with those in the keel. Also, the bevelled side faces outwards.

20. With both parts 17 in place, glue the locating pegs through the holes to ensure correct alignment. The locating pegs are parts 19, found on the 2mm MDF sheet.

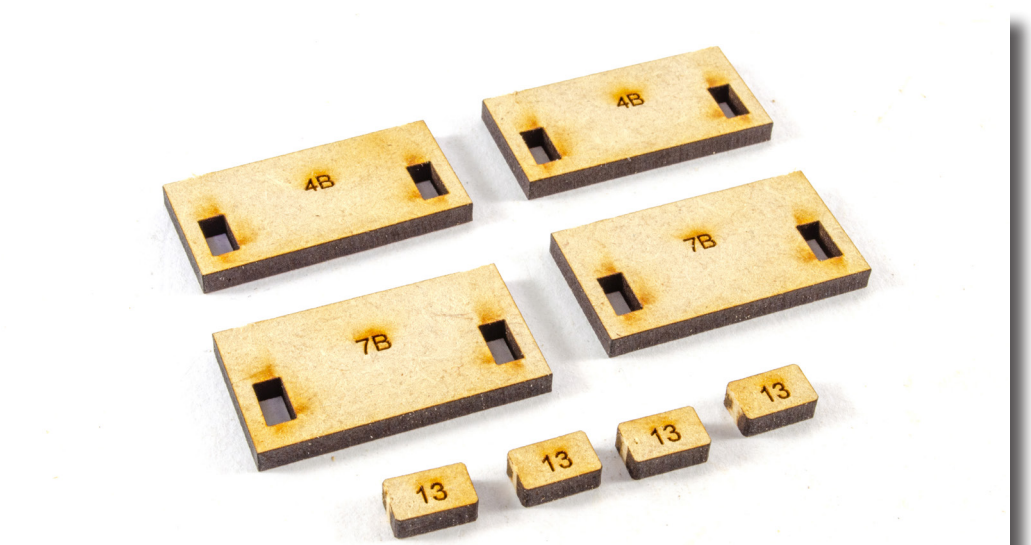
21. From the 2mm MDF sheet, remove both parts 18. Again, these have a bevelling line.

22. Bevel the parts in the same way you are already using.



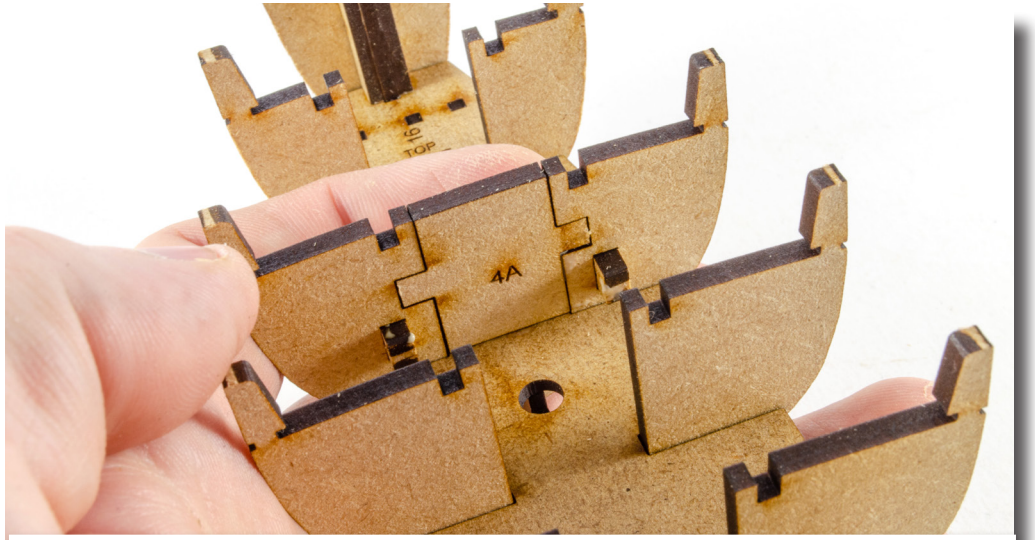
23. Slot and glue both parts into position onto the keel at the stern of the boat, using the numbered slots to identify the location on the correct bulkheads.

24. In position, they will look like this.

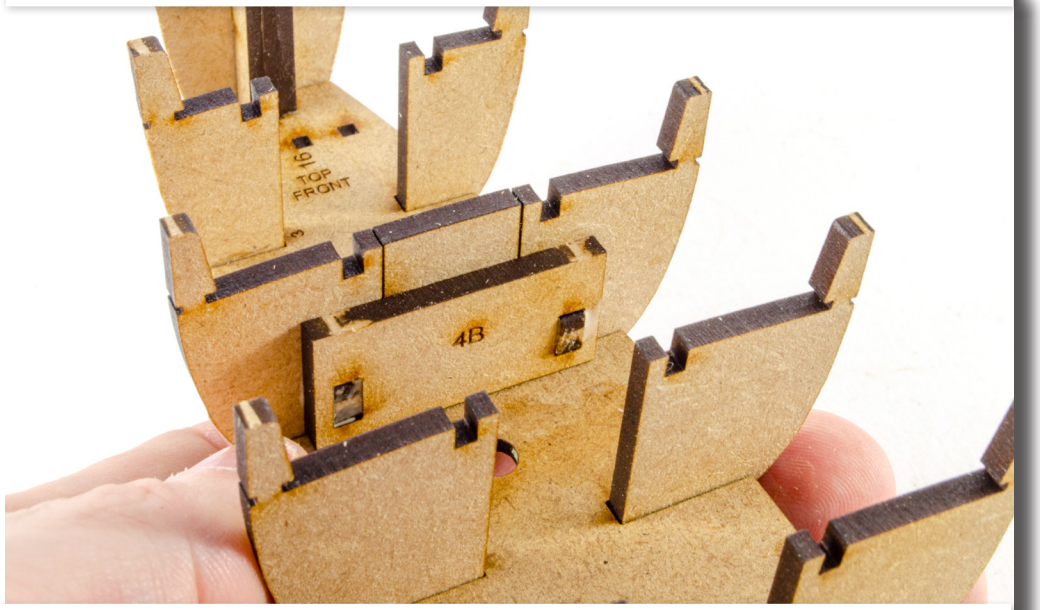


25. From the 3mm MDF sheet, remove parts 4b (x2), 7b (x2) and 13 (x4).

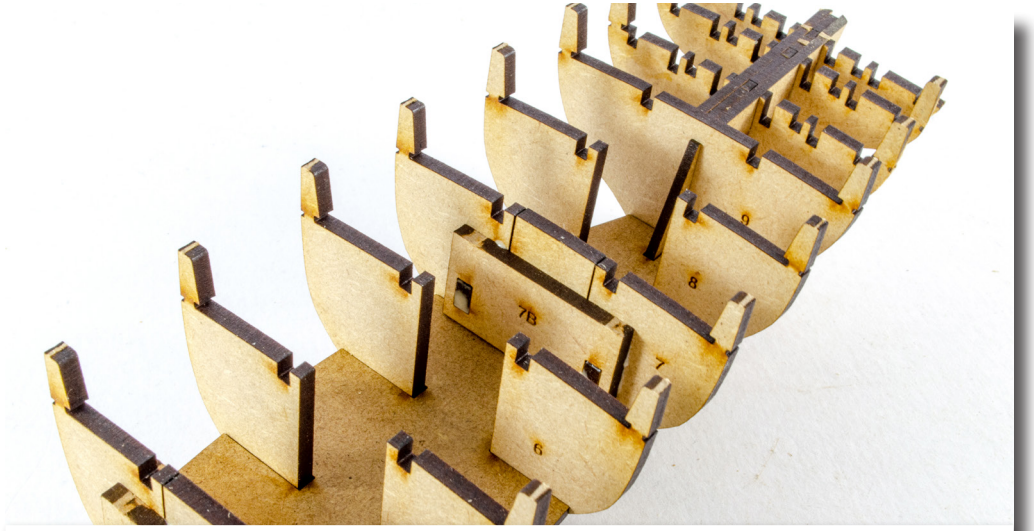
26. Using two of the pegs (13), glue 4b into position on one side of bulkhead #4.



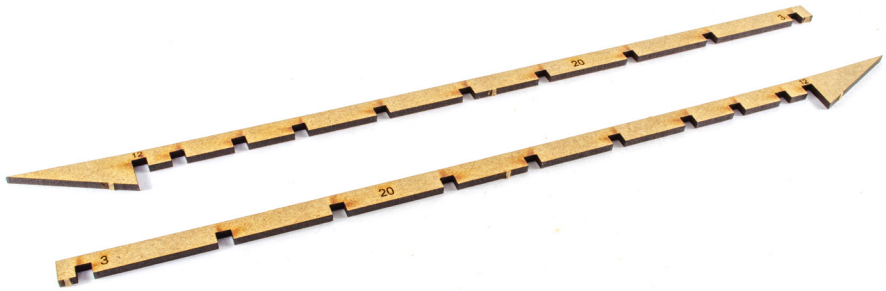
27. Remove part 4a from the 3mm MDF sheet and glue into position in the middle of bulkhead #4, as shown.



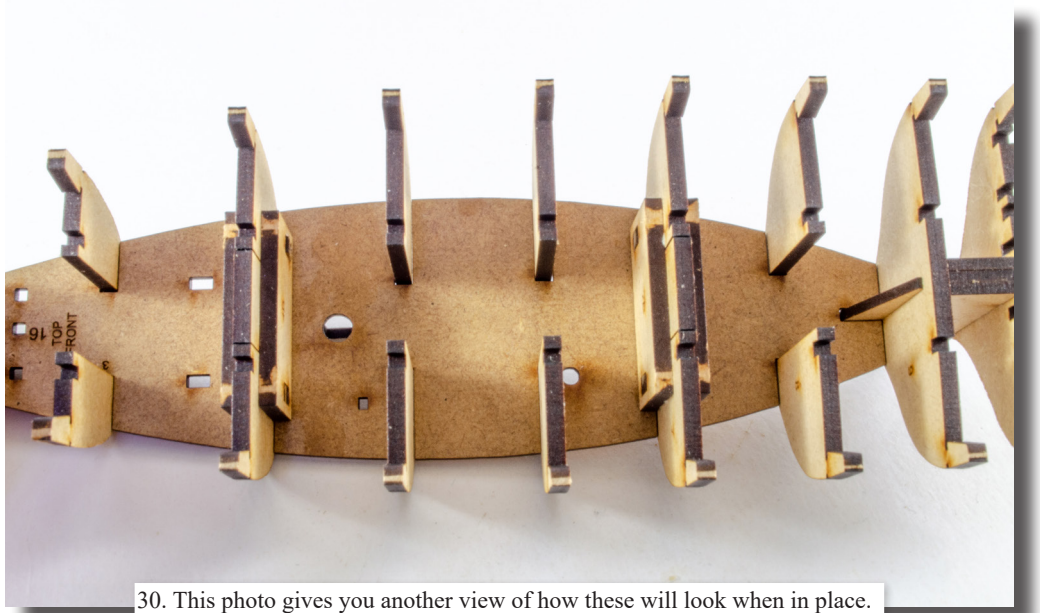
28. Now glue the remaining part 4b into position on the opposite site of the bulkhead to the first, sandwiching part 4a.



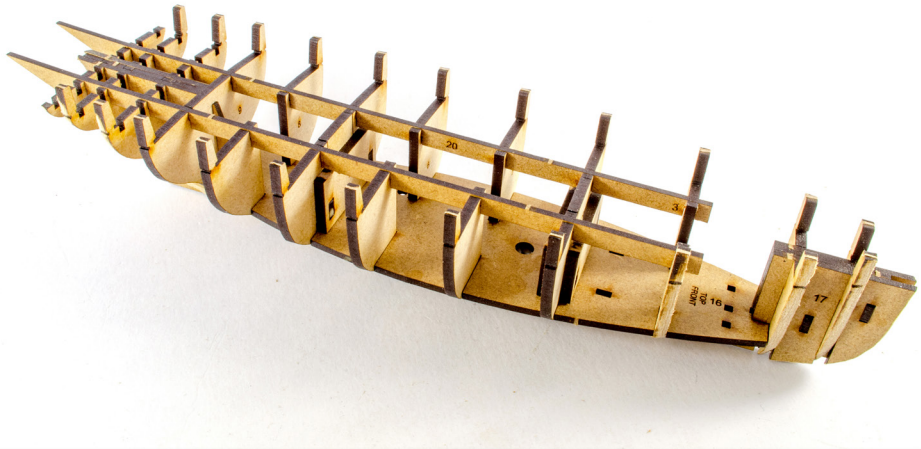
29. Now do the same for bulkhead #7, whilst fitting part 7a from the 3mm MDF sheet into the middle of bulkhead 7.



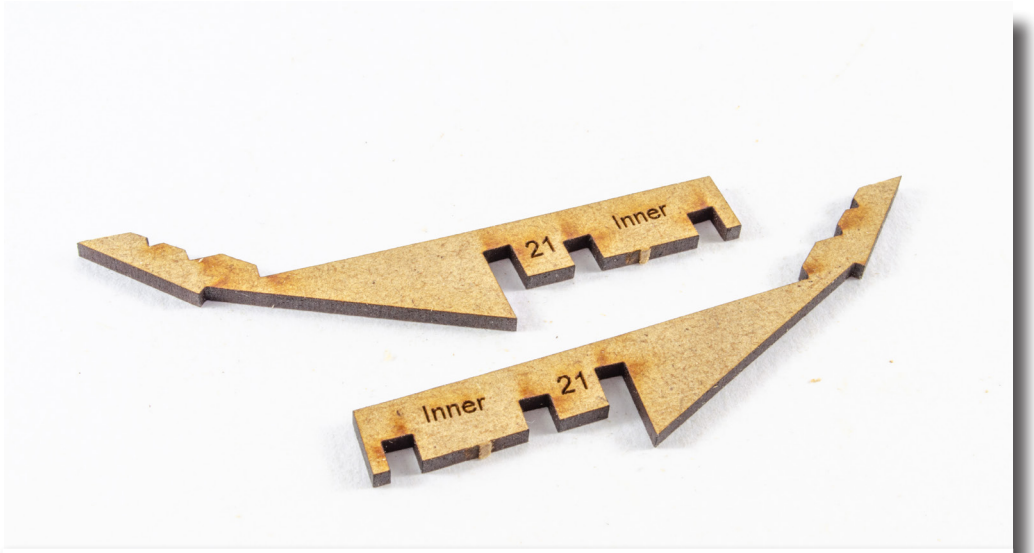
31. From the 2mm MDF sheet, remove both parts 20.



30. This photo gives you another view of how these will look when in place.

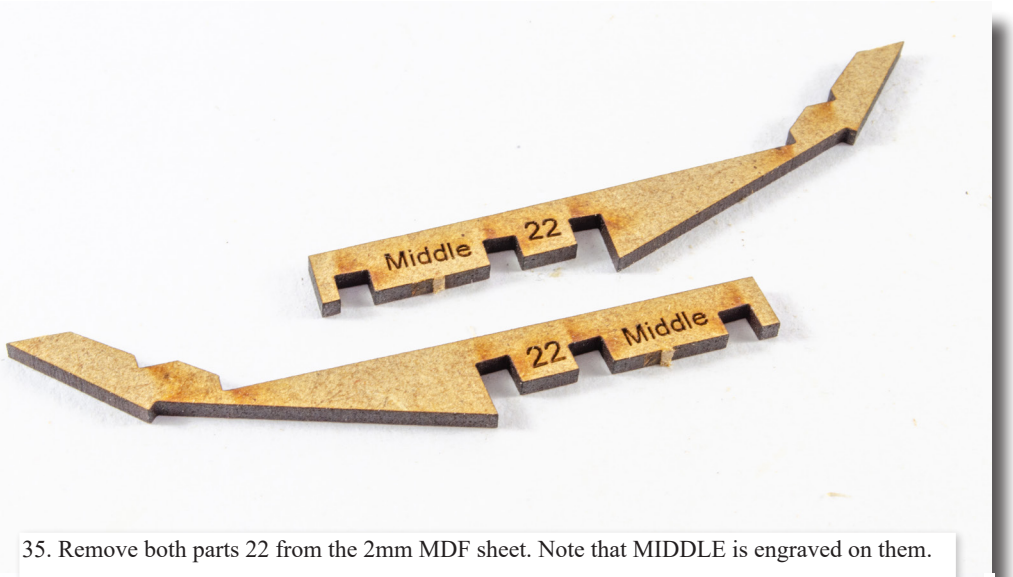


32. Dry fit (no glue) both parts 20 into the slots on top of the bulkheads. The front of parts 20 will first fit into the top of bulkhead #3, with the rear sitting at the stern. You may need to joggle the bulkheads a little to make it sit fully. Do not use any force. If you feel the need to use force, it's because something isn't sitting properly and you need to check your construction.

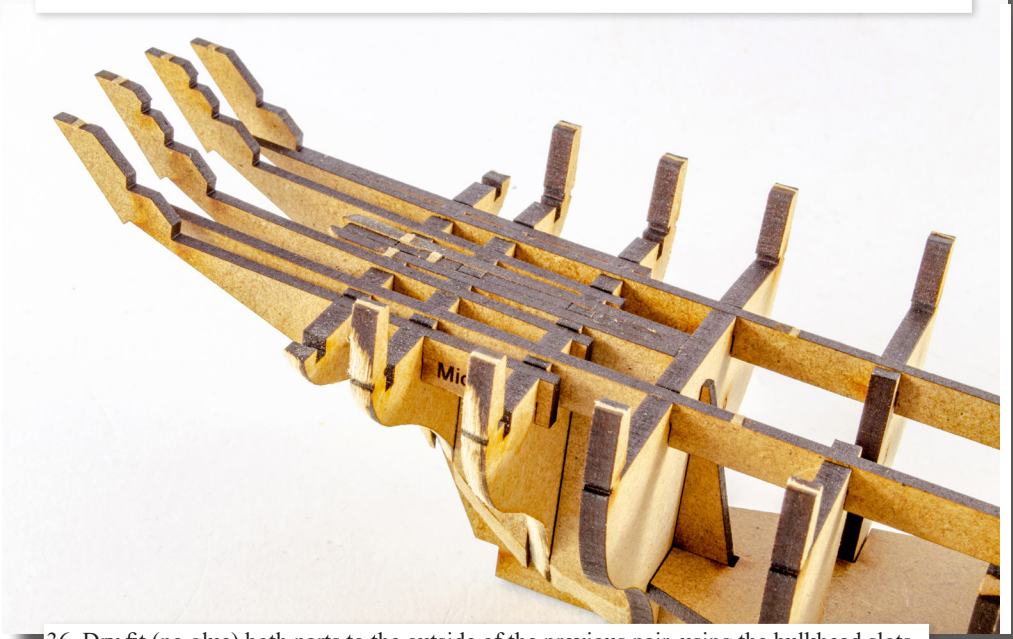


33. From the 2mm MDF sheet, remove both parts 21. Note that INNER is engraved on them.

34. Dry fit (no glue) both parts at the stern, as shown. They will fit into the first series of bulkhead slots, adjacent to the parts you just fitted.



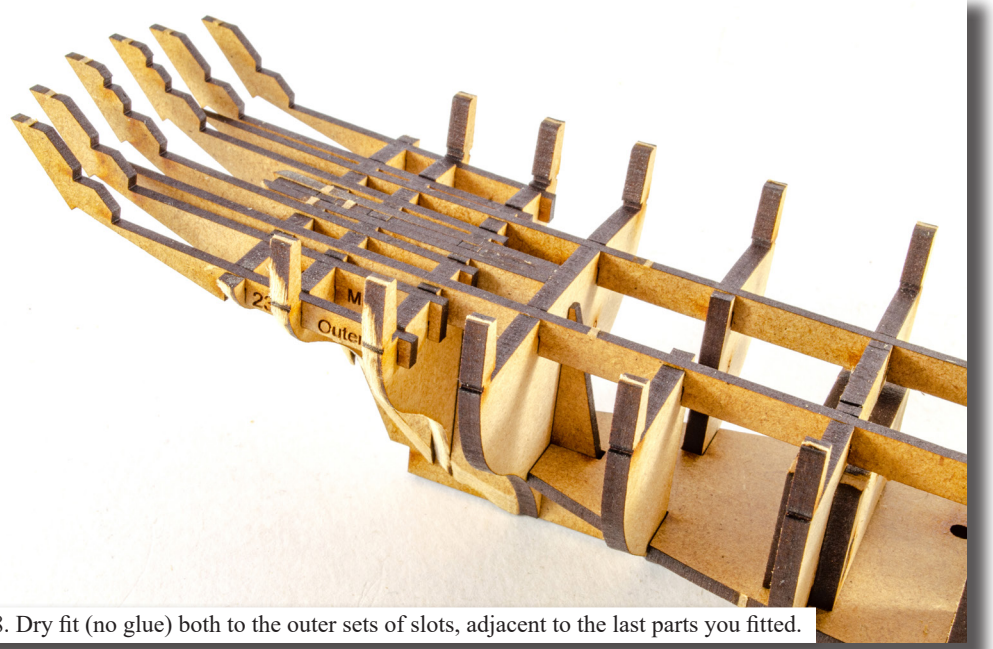
35. Remove both parts 22 from the 2mm MDF sheet. Note that MIDDLE is engraved on them.



36. Dry fit (no glue) both parts to the outside of the previous pair, using the bulkhead slots.

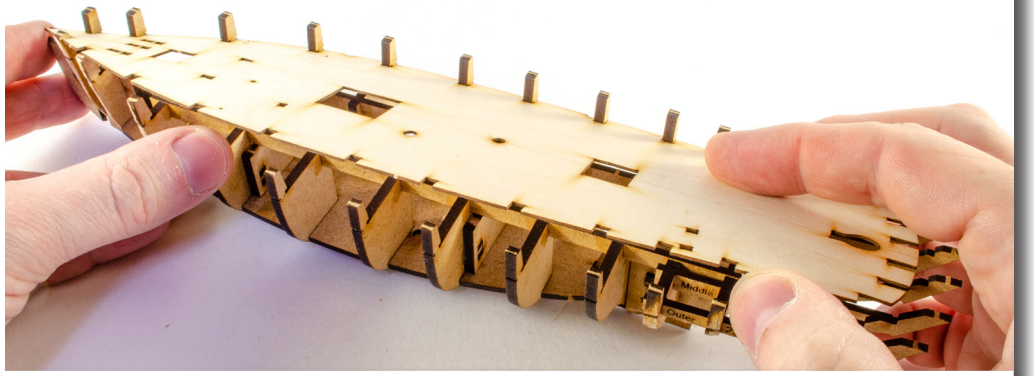
37. Now remove both parts 23 from the 2mm MDF sheet. Note that these have OUTER engraved on them.

39. Make sure all parts are pushed into position and then paint dilute wood glue around the various joints and slots. Set aside to thoroughly dry.

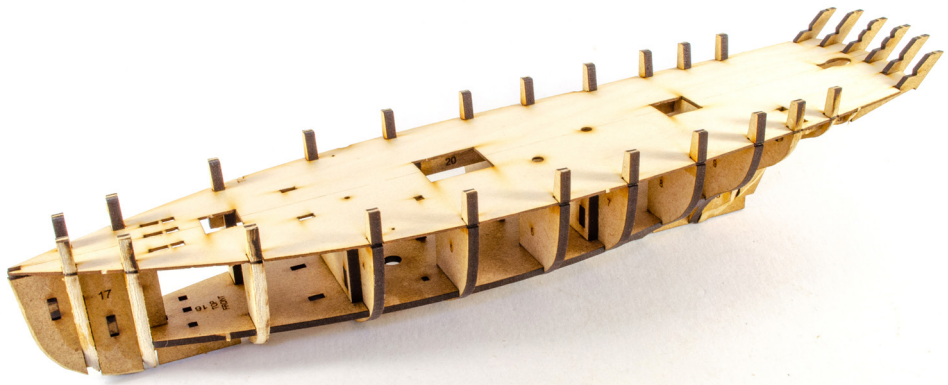


38. Dry fit (no glue) both to the outer sets of slots, adjacent to the last parts you fitted.

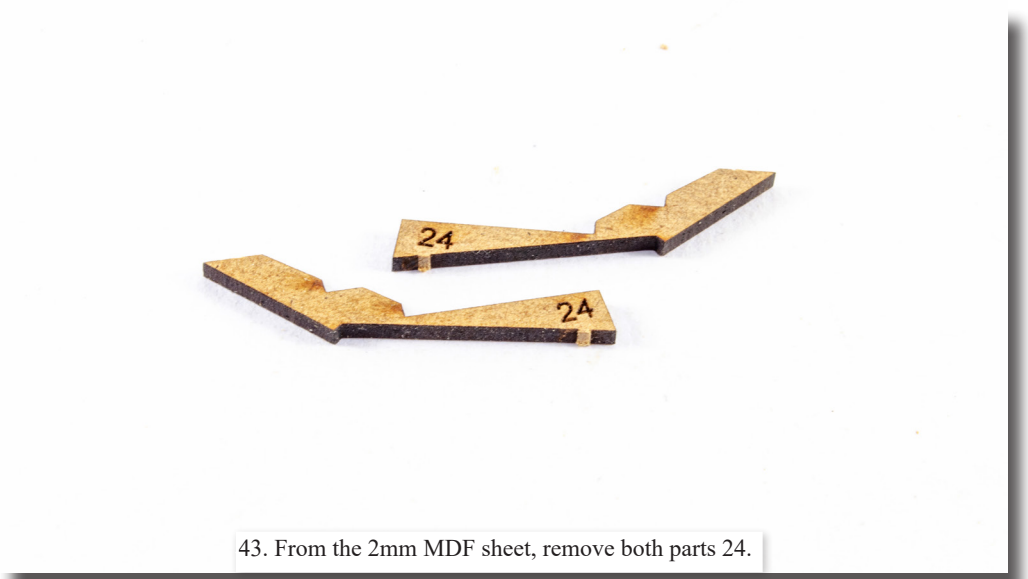
40. Nisha will now look like this.



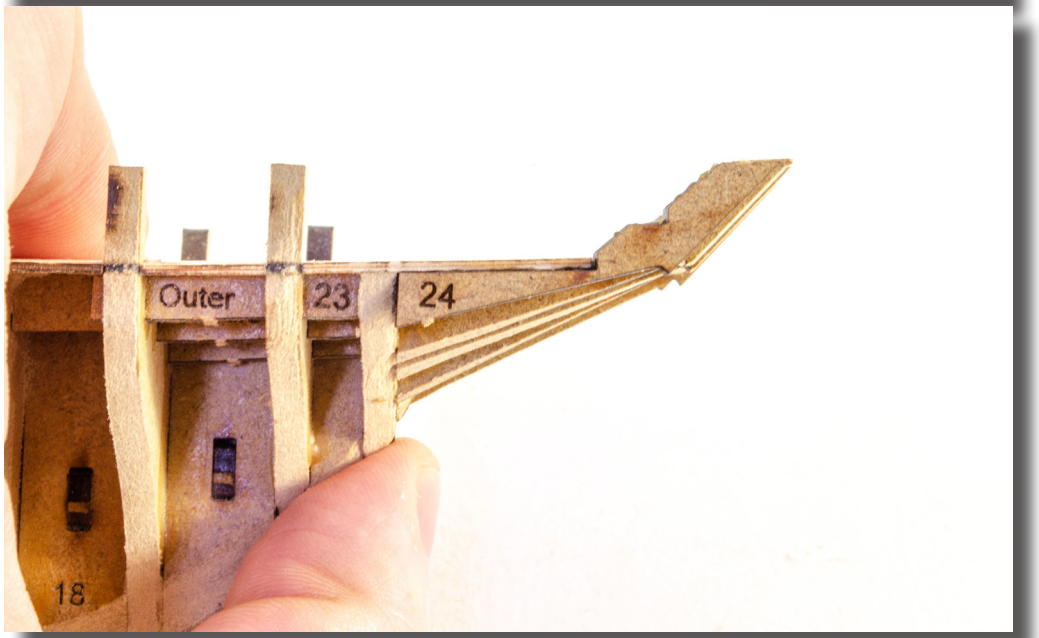
41. Take the 0.8mm ply deck (28) and carefully slot one side so it fits into the small notch at the base of the bulkhead ears. This will hold the deck secure along that edge. Now gently flex the deck so you can locate it at the opposite side. If the deck doesn't line nice and flat, it's simply because you haven't properly located the deck into the bulkhead notches. Check every one of them. They will all fit with almost click precision. VERY IMPORTANT: make sure the deck is fitted with the engraved centreline facing upwards!



42. With the deck fitted, paint in some dilute wood glue around the underside connections and leave to dry. You shouldn't need to pin the deck at all.

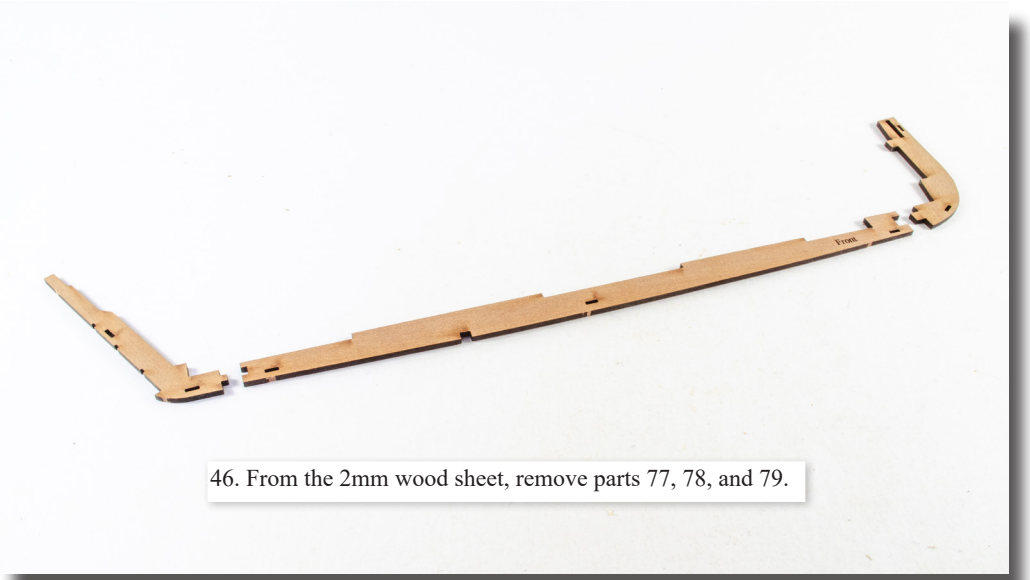


43. From the 2mm MDF sheet, remove both parts 24.

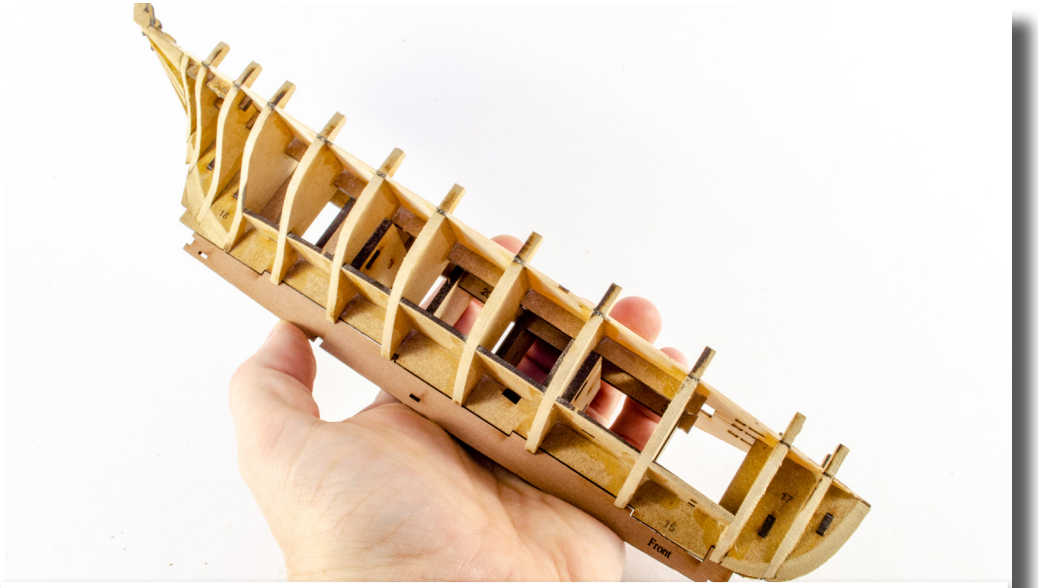


44. Glue into place next to the OUTER part you added earlier.

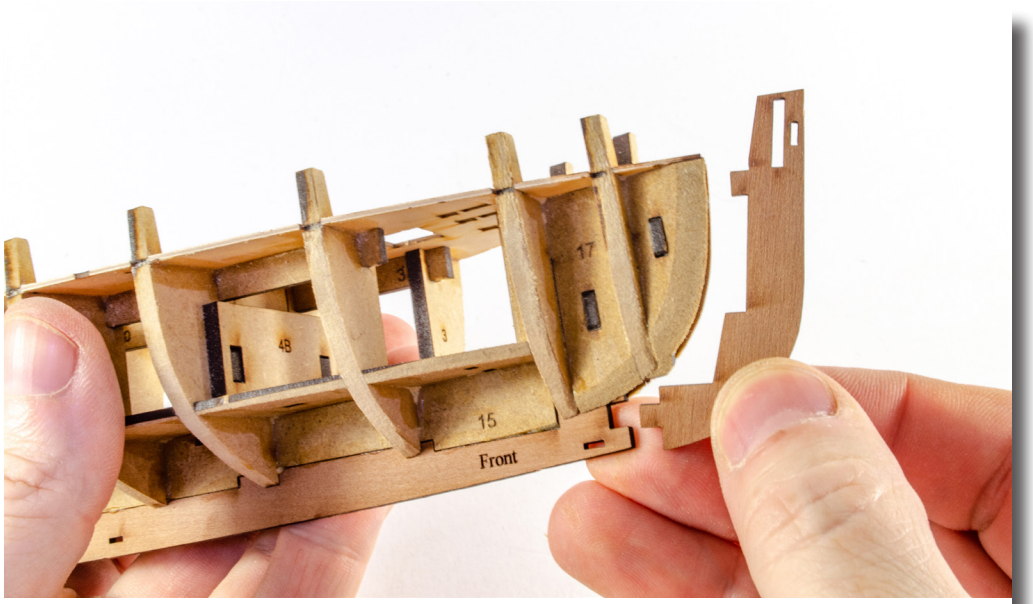
45. The hull now needs to be prepared for planks so that they run smoothly over all bulkheads with maximum contact and no awkward corners etc. This process is called ‘fairing’. To do this, use sand-paper or a flexible sanding stick and sand with the natural curves of the hull. Test a plank across the bulkheads to make sure there is maximum contact to all areas. IMPORTANT: Like wood, MDF is not healthy to breathe in. Make sure you wear a face mask whilst doing this, no exceptions.



46. From the 2mm wood sheet, remove parts 77, 78, and 79.



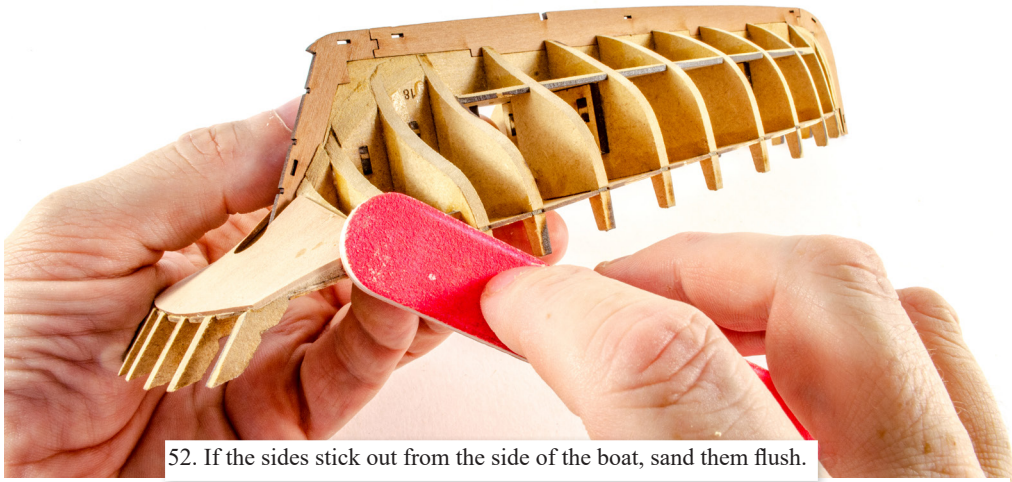
47. Glue part 77 into position on the hull as shown, making sure it is in line with the keel and not at an angle. To help with orientation, the front of this part is engraved.



48. Take part 78 and glue into position as shown, making sure it's in alignment.

49. Now take part 79 and glue as shown. The top of this will protrude through the hole in the deck.

50. Remove part 60 from the 1mm wood sheet. This is the inner stern counter.

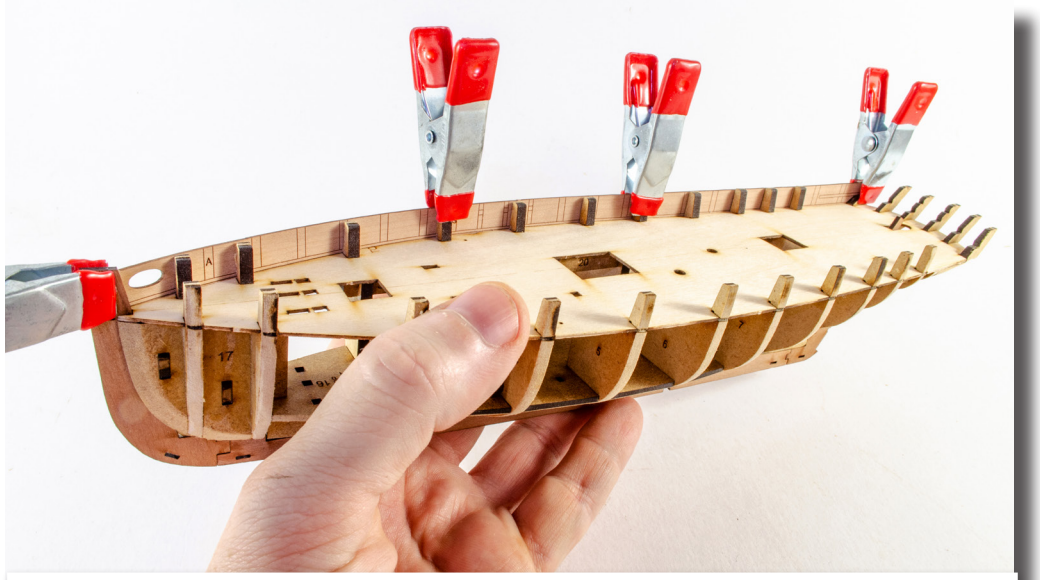


52. If the sides stick out from the side of the boat, sand them flush.

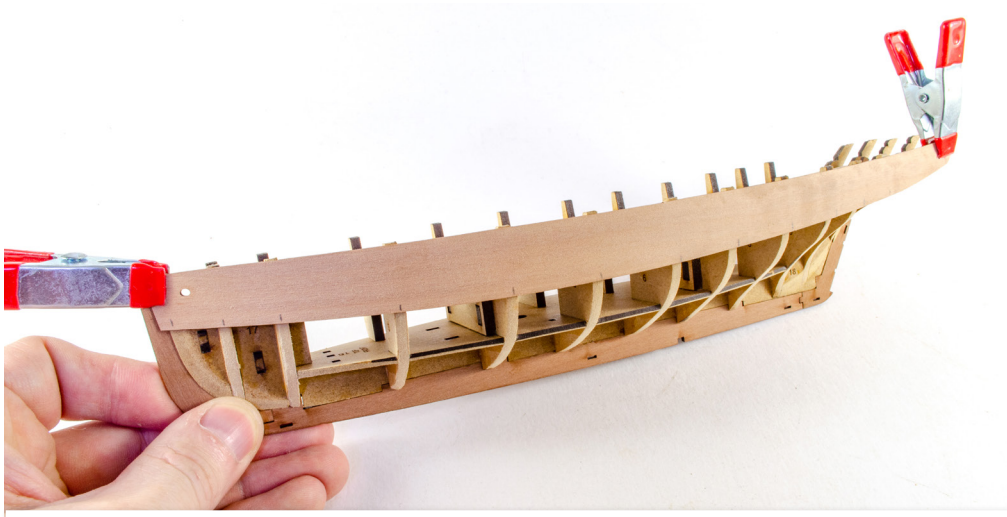
51. To make sure you get a good shape to this that matches your hull, soak the part in hot water for 30 mins and then clamp in place on the model. Leave this for over 12hrs to dry out as pear expands a lot when wet. It needs to be its original size when you come to fit it. Once dry, glue into position and leave to thoroughly set.

53. From the 1mm wood sheet, remove parts 45 and 46. These are called the bulwarks, and the engraved side will point inwards.

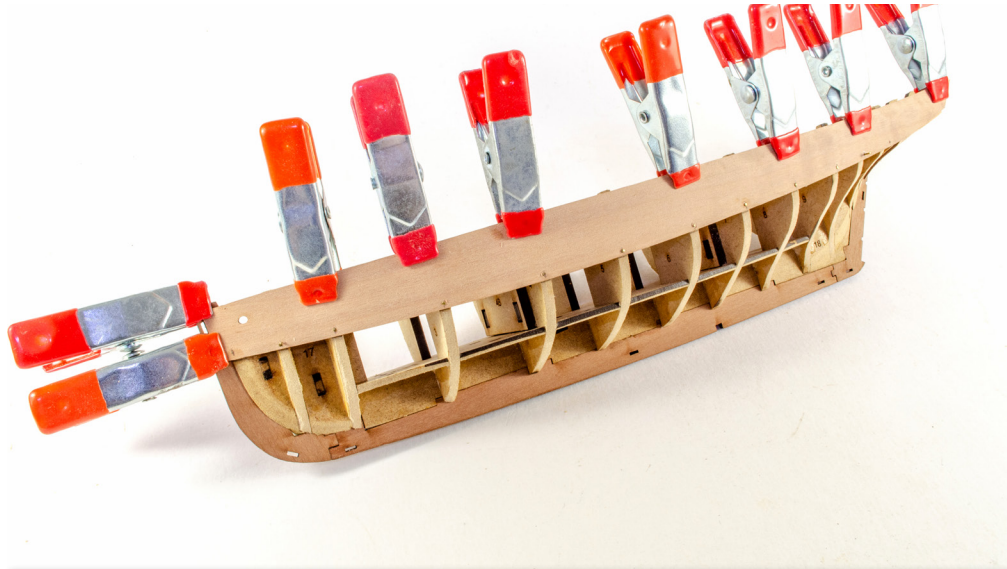
54. Take part 45 (Right Front) and bevel the forward edge. Sit this in position on the model to make sure the bevelled edge sits nicely against the 2mm wooden bow.



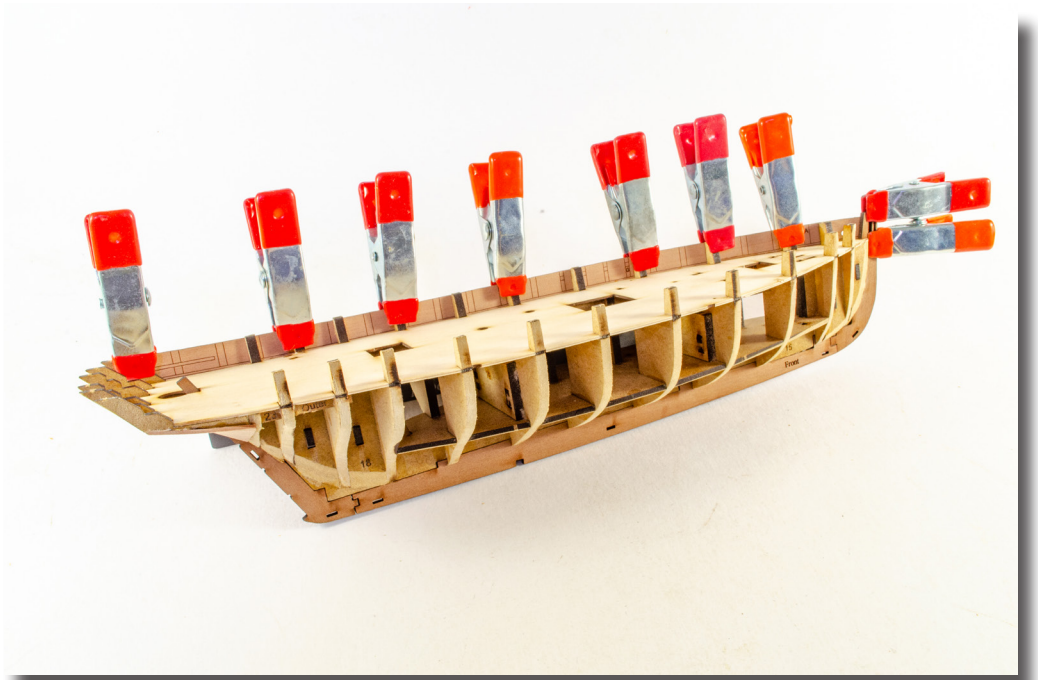
55. Clamp the part in place on the model, so the lowest long engraved line is level with the deck.



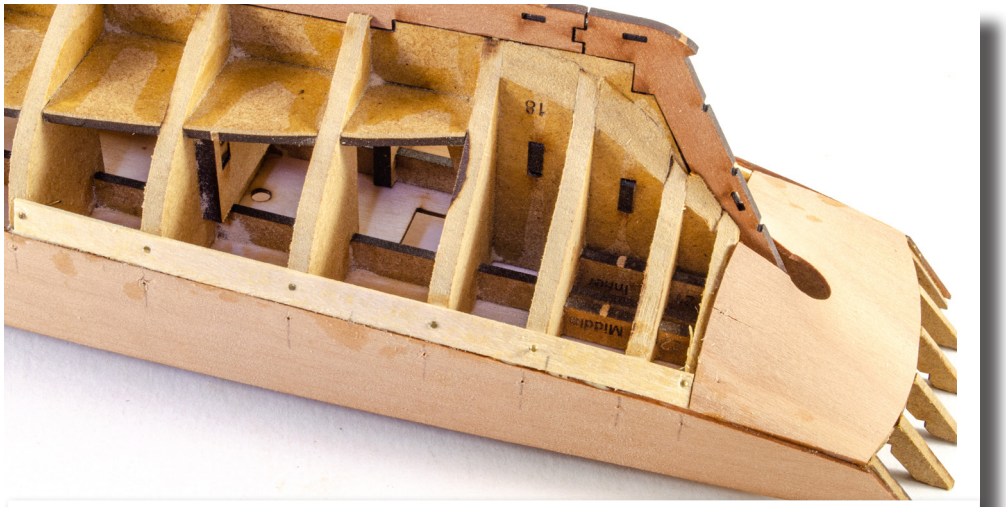
56. Now mark the positions of the bulwarks on the outside face. A few millimetres up from the bottom of each mark, drill a 0.5mm hole. These will be for the pins.



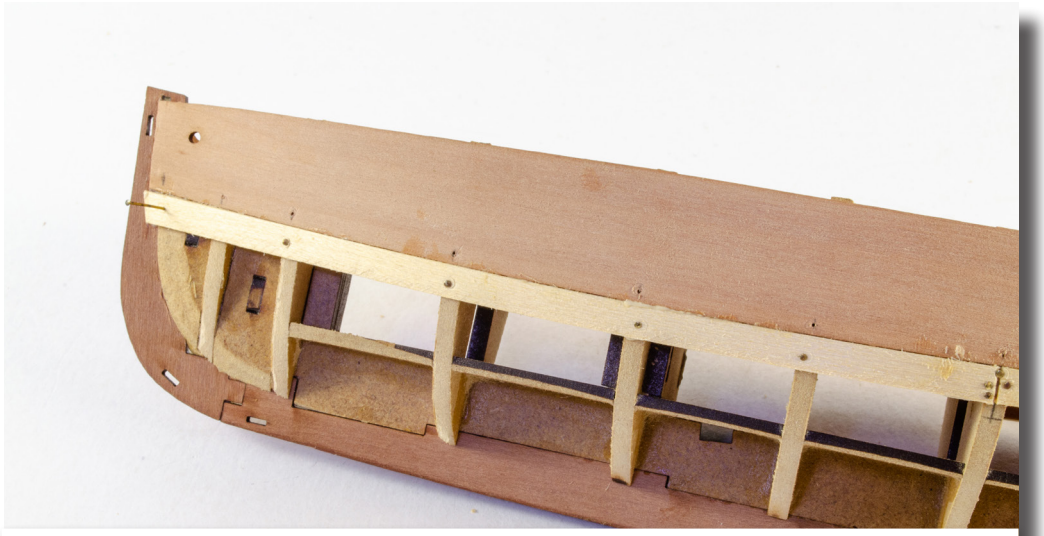
57. Remove the bulwark and now use glue to fit it to the model. Use clamps and pins to secure.
IMPORTANT: Do NOT use glue on the MDF bulkhead ears above deck level. These will eventually be removed area and gluing them will ruin the inside bulwark face.



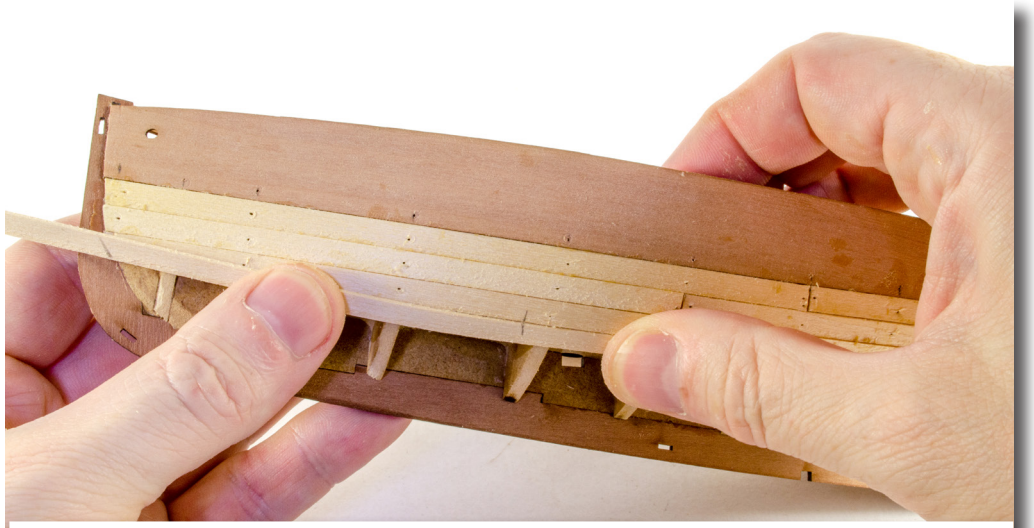
58. Now fit the opposite bulwark in the same way. Leave glue to thoroughly dry.



59. Nisha must now have her hull planked. This isn't a complicated process, and for the first layer, it doesn't really matter how it looks, as long as it sits on all bulkheads and has no long gaps between planks. To make things easier at this stage, you can add the planks in halves. Here you see the first plank, sat up against the bulwark you added. Half is fitted first, glued with wood glue and pinned into place using brass pins.



60. The forward half is now fitted. Here, you must angle the front to patch the curve of the bow, and also bevel slightly on the inside front edge, so it sits neatly against the 2mm wood stem.



61. On Nisha, we found you could fit the first three planks with ease, and no tapering, but you can plank how you decide. You will soon need to start tapering planks. To do this, mark on a plank where it naturally starts to cross over the previous plank.

62. Angle the front of the plank to the bow shape, as before. Now make a mark on the front edge of the plank, about 25% to 50% the way down from the top. Run a steel ruler between the two marks and cut with a sharp knife.

63. Here you can see that tapered plank. **IMPORTANT: You may find it useful to now start edge-bevelling the planks along the top edge so that you don't get any gaps between them.**

64. Work your way down the hull sides until you feel that planking is getting a little harder. Now you can work upwards from the bottom keel, towards the planking you just installed. The first plank you fit along the bottom is called the 'garboard plank'. If you get any little gaps at the stern or between the last planks, you can infill these with scrap lime strip. These little infill parts are called 'stealers'. NOTE: There are may ways to plank a model, some of which are more complicated but give a very satisfying finish. For Nisha, we are taking a total beginners approach which will still yield a very nice result, and for which much of the lower hull will also be under paint.

65. From the 1mm wood sheet, remove part #62. This is called the stern board. The engraved lines will face inwards.

66. Glue the stern board in position so the engraved lines match up with the stern timbers, as shown. Don't worry if you have an overhang on each side. This will be sanded flush in the next stage.

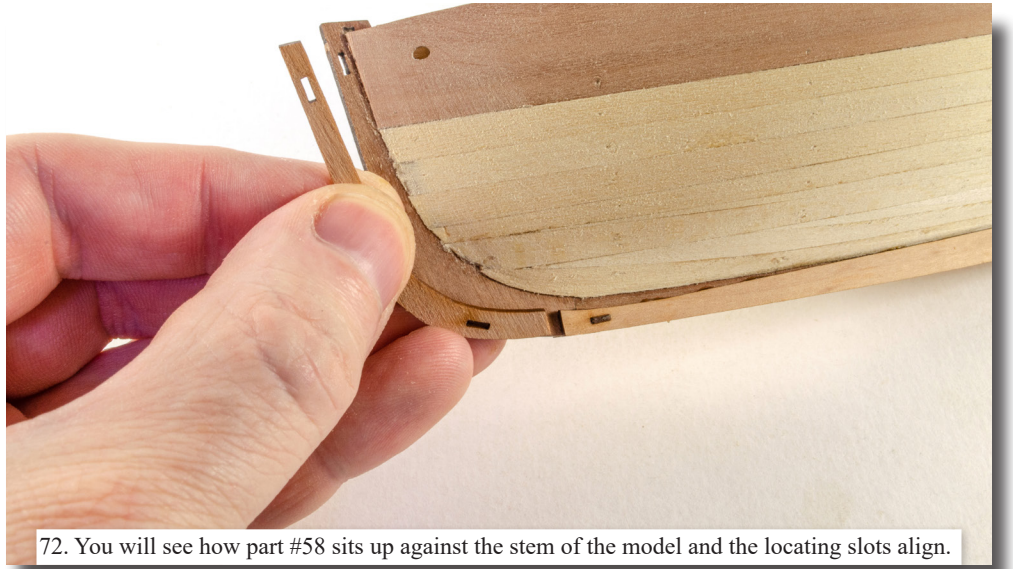
67. Using sandpaper or around 110 grit, sand the whole hull smooth so that the planking blends into the bulwarks and all planks are smooth to the touch. Ensure there are no unevenly-levelled planks and that you are creating a smooth surface onto which the next layer of planks will fit. The whole hull will feel like one unit. Towards the stern, gently round the rear of the bulwark where it curves into the inner stern counter.

68. From the 1mm wood sheet, remove part parts #48 (x2). These are called the keel rabbet patterns. Also remove three of the keel rabbet locating pegs, #59.

69. Test fit the keel rabbet part against the hull. You will find it only comfortably fits in one direction, where the peg locating holes align.

70. Glue part #48 into place along the keel so the locating slots perfectly align. Clamp until dry. You can now insert those pegs into the slots, using glue, and then glue/clamp the other part #48 onto the opposite side of the keel.

71. From the 1mm wood sheet, remove both parts #58, and two more locating pegs.



72. You will see how part #58 sits up against the stem of the model and the locating slots align.

73. Glue part #58 into position and clamp. You can then fit the locating pegs through the parts and flue the other part #58 into position on the opposite side of keel.

74. From the 1mm wood sheet, remove both parts #57, and two more locating pegs.

75. Slot part #57 up into the rudder post hole on Nisha and you will see how the locating slots align.

76. Once you are happy to fit the part, glue into position and clamp. When set, add the locating pins and glue part #57 into place on the opposite side of the model.

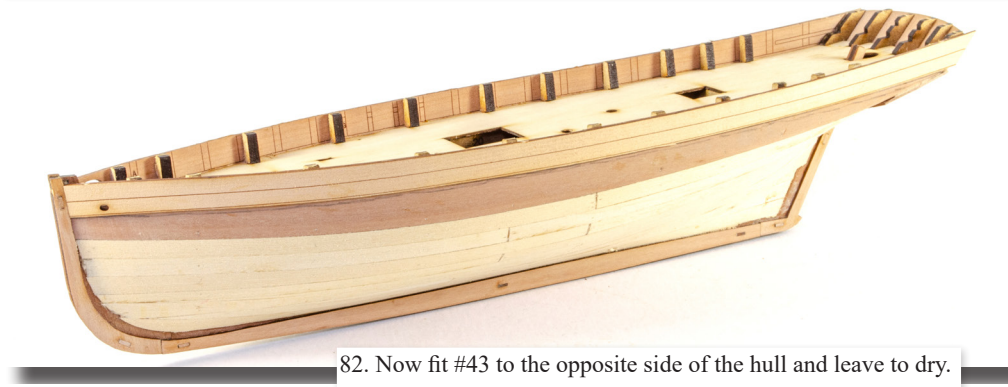
77. To begin the second later of wood on the hull, we first need to remove part #38 from the 0.8mm wood sheet.

78. We strongly advise that you soak this part in hot water for 30 minutes and then clamp inti position as shown until the part is completely dry. We suggest a minimum of 12hrs as pear expands a lot when wet. Clamping this part will help it to conform to some of the slight compound curves present in this area. When dry, glue the part into place on the hull.

79. When the glue is dry, sand the overhanging areas of this part so they are flush with the side of the bulwark.

80. From the 0.8mm wood sheet, remove parts #43 and #44.

81. Take part #44 and glue into position so that the top edge is the same height as the inner bulwark you are gluing to. NOTE: The front of #44 will neatly sit in the rebate that the keel rabbet created, and up against that part. You may need to bevel #44 at the front edge, but we didn't need to for the prototype. Leave the bulwark to dry once clamped.



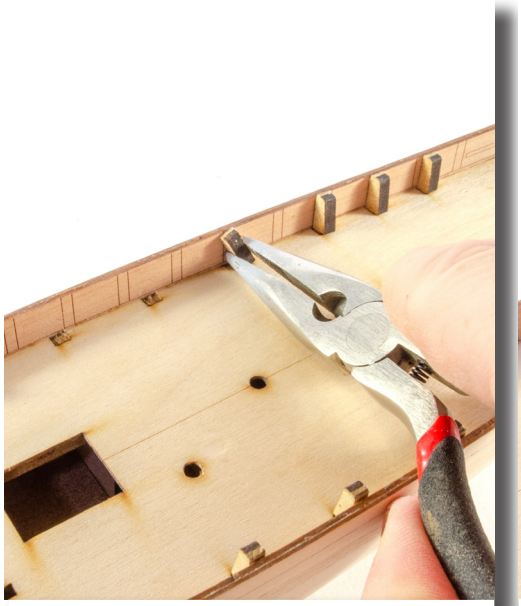
82. Now fit #43 to the opposite side of the hull and leave to dry.

83. The 0.8mm pear wood planks are now going to be fitted. You are free to do this as you wish, depending on your own experience, but if you are new to the hobby, then you can do this in the same way you did the first layer of planks. The only difference is that the model will benefit from fitting the first few planks as single pieces so you can't see any joint. It doesn't matter of you can't. All we say is if you do fit in halves, try to stagger the positions and make them very neat. Again, if you need to fit slivers and stealers, this should be further down the hull and you won't tend to see them under the paint.

84. From the 0.8mm wood sheet, remove part #39.

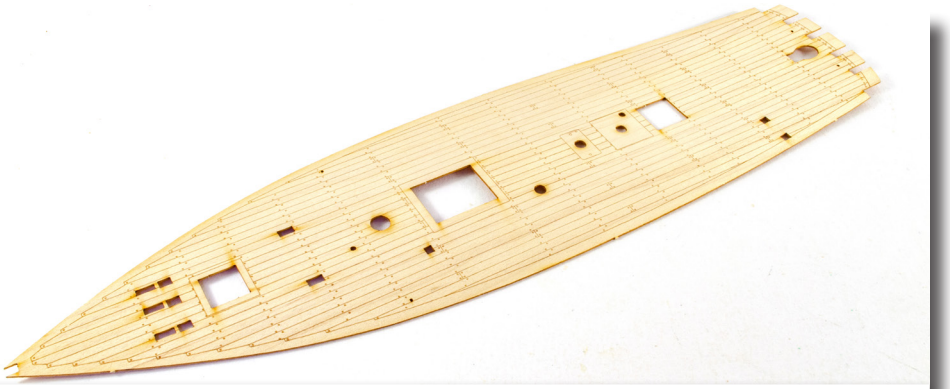
85. Glue the part to the stern of your model. Feel free to crop and trim this to frame the stern properly. You can let the sides overhang the bulwarks slightly, should you wish.

86. Use masking tape to protect the engraved bulwarks and sand the hull smooth using 110 grit paper to start and then something much finer, such as 320 grade. Even out any raised edges or lumps. As this is your preparation surface for paint, it needs to be as good as you can get it.



87. Use pliers to twist off the MDF bulkhead ears above deck.

88. Now use sandpaper to remove any material so everything is flush with the deck.



89. You will now need the 0.8mm maple engraved deck. Remove any centres there may be in the deck holes.

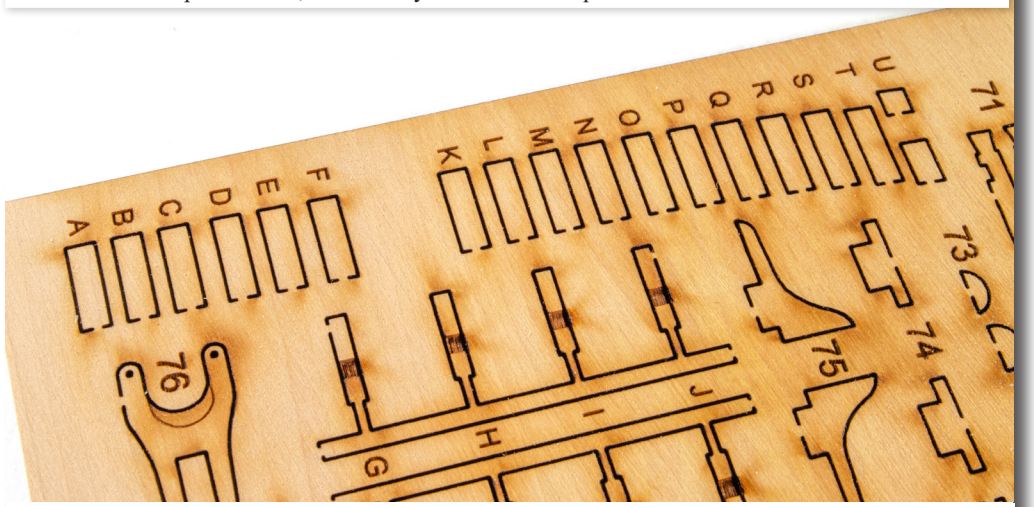
90. Test fit the deck to ensure it fits properly all the way around and pushes down around the edges. Carefully sand the edges to adjust, if necessary. Once satisfied with the fit, glue into position.

91. We recommend using small clamps to hold the deck fully down around the edges.

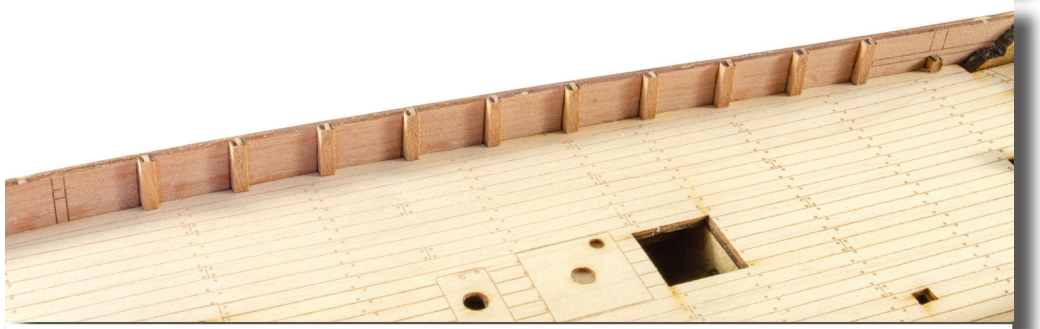
92. Nisha will now look like this. Pretty, huh?

93. We now need to fit the timberheads along the inner bulwark. Notice the positions are engraved with ‘A’ being engraved for the first one. All the others follow in suite….B, C, D, E etc.

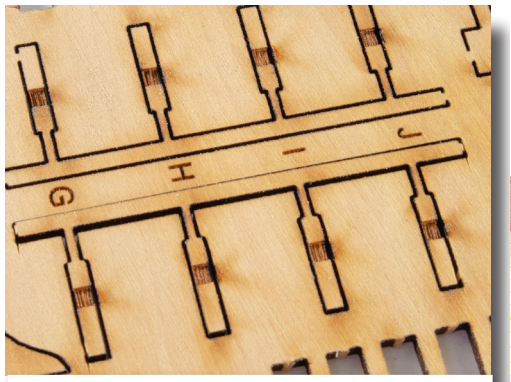
94. On the 1.5mm wood sheet, notice how the timberheads are also alphabetically labelled? So…timberhead ‘A’ fits in position ‘A’, followed by the others in sequence.



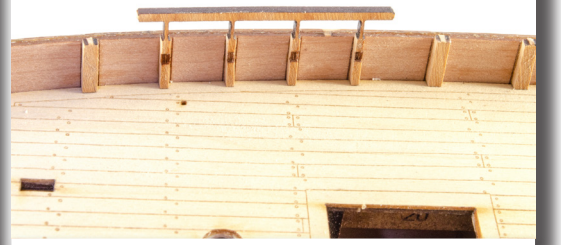
95. Fit timberheads A thru to F.



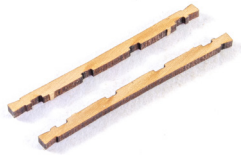
96. Now fit the timberheads K thru to U (leaving out the three engraved positions that look different). Notice that ‘U’ is only the small part you will fit for the moment. You may also need to bevel the underside of the timberheads so that they sit flat to the deck.



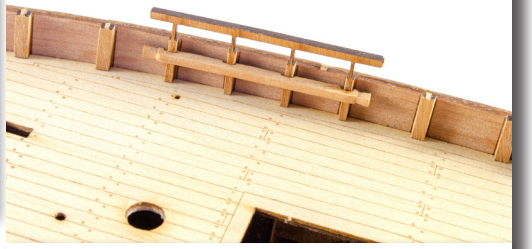
97. Now remove the single piece that holds G, H, I and J.



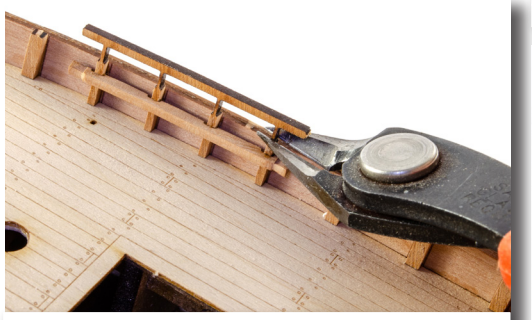
98. Glue into position as shown. Repeat the fitting of timberheads on the opposite side of the hull.



99. From the same 1.5mm wood sheet, remove both parts #71.



100. These glue across the timberheads you just installed. You can shape the ends of these rails a little as shown.



101. Use cutters to snip away the beam and connectors that run along these timberheads. That was only there to hold the timberheads in the correct position.

102. From the 1mm wood sheet, remove part #47.

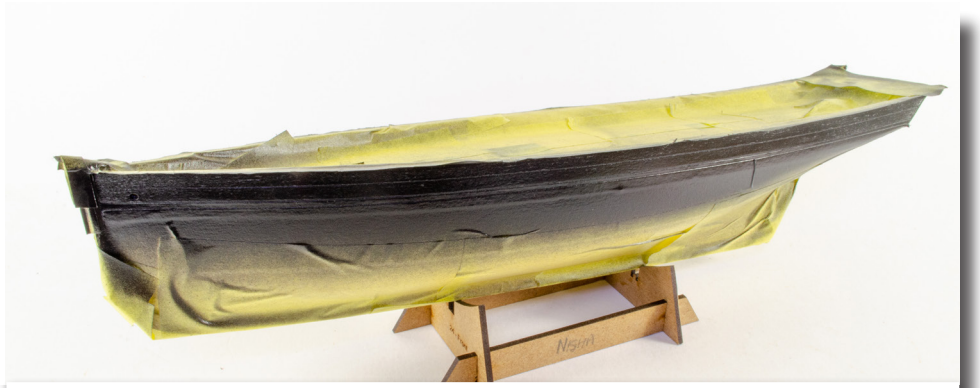
103. Glue this into position as seen here. This will sit into the notches on the stern timbers, and also on top of the short timberheads.

104. Now glue the top parts of timberheads ‘U’ into place over the part you just fitted.

105. From the 1mm wood sheet, remove part #64.

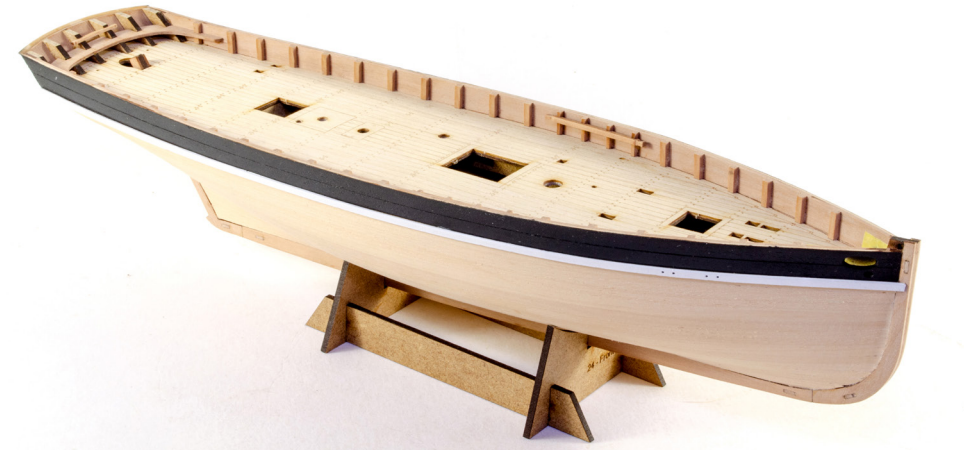
106. Glue this into the notches in the stern timbers, as seen here.

107. Use either a rigid sanding stick or ruler wrapped in sandpaper and draw it along the tops of the bulwarks. This will make them even and flat, in readiness for the top rails (gunwales).



108. We decided to paint the upper bulwarks black for Nisha. Whichever colour you choose, first paint a layer of varnish onto this area to seal it. When dry, mask your hull and spray your chosen colour onto the upper bulwarks. Leave to thoroughly dry.

109. From the 0.8mm wood sheet, remove both parts #42.



110. Using the lowest engraved line on the upper bulwarks, glue the rails into position directly underneath that line. You will need to bevel the front inner end a little, so it sits against the stem.

111. From the 0.8mm wood sheet, remove both parts #41.

112. We decided to paint our lower rails white, to contrast the black. When painted (if you choose to do so, glue these into place atop the upper bulwarks. We used CA gel for this so no pinning or clamping was necessary.

113. From the 0.8mm wood sheet, remove part #40.

114. Glue into position over the stern of the boat. Trim as necessary.

115. We are now going to add a waterline to the hull. This needs to be marked along the uppermost line on your plan, at the top of the white boot.

116. After masking the area off above the waterline, the lower area has diluted acrylic filler applied to any imperfections. This is then sanded, and more filler applied if necessary.

117. From the 2mm wood sheet, remove part #85. This is the rudder. Also remove parts #30 and #31 from the 0.6mm wood sheet.

118. Glue the then parts to either side of the rudder, with the engravings facing outwards. NOTE: you are best applying the glue to the 2mm part and then applying the thinner parts, as this will prevent the thin parts from curling with the glue.

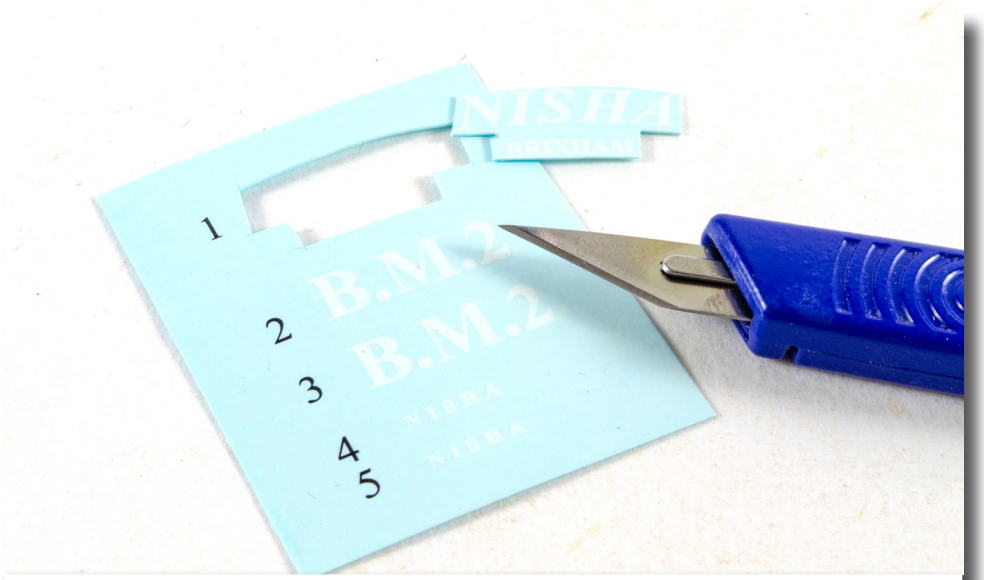
119. From the PE sheet, remove the six parts PE-18. These are the rudder hinges. Use CA to glue them into position on the engraved marks on both sides of the rudder.

120. Glue the rudder to the hull. Now remove the six parts PE-17 from the PE sheet and glue on both sides of the rudder post, as shown here.

121. Spray the lower hull in primer to check for any blemishes. If you find any, use more filler to fix them and sand the hull again. Repeat this process until you are happy with the finish of the hull. When complete, spray the lower hull in white paint.

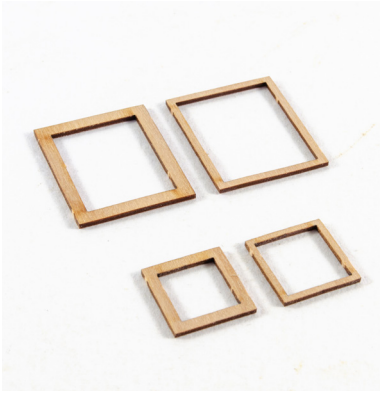
122. Run a length of 3mm wide tape along the underside of the waterline. We recommend flexible tape as sold in our web store. With the tape in place, spray red oxide paint over the lower hull. When dry, remove the 3mm wide tape (shown), and then the remainder of the hull masking.

123. Nisha will now look like this, so it's time to give her some individuality.

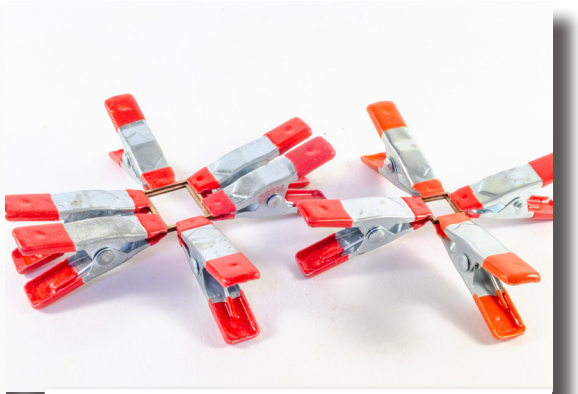


124. Take your decal sheet and cut out the various decals. It's a good idea to trim as close to the decal as you can.

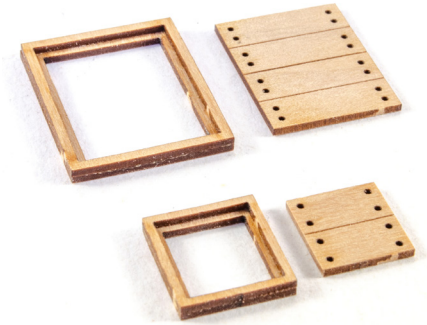
125. Apply the decals to your hull as shown in the plan. Decals must be soaked in tepic water for 10 seconds or so until it moves freely on the backing paper.
NOTE: We suggest you apply them to a GLOSS surface for best adhesion. We also recommend a decal setting solution which will help the decals to conform perfectly to any little anomaly that might exist on your surface. A few hours after the decal has been applied, seal it in with clear acrylic varnish.



126. FISH HATCHES: From the 1mm wood sheet, remove parts #65, #66, #68 and #69.



127. Glue the two larger frames together, and the two smaller frames in the same way. Clamp until dry.

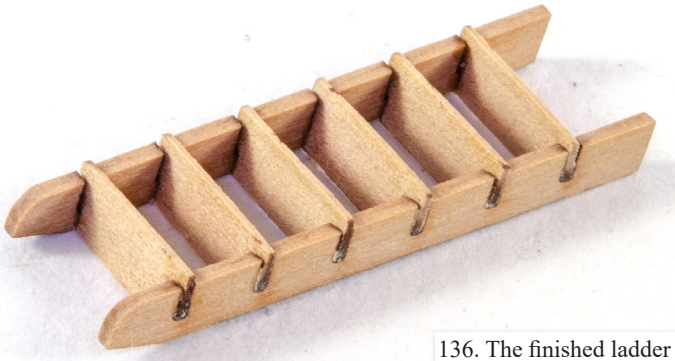


128. From the same 1mm wood sheet, remove parts #67 and #70.

129. Glue these parts into the frames you just made.

130. Use a length of 0.5mm natural thread and add the handles to the hatches. Each can be done in one length as shown here. First tie a knot and one end and slip through the first corner hole from underneath. Just thread through the other holes and then use CA to seal the end on the underside.

131. Glue the hatches into position on the deck.

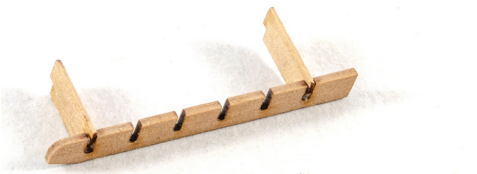


136. The finished ladder will look like this.

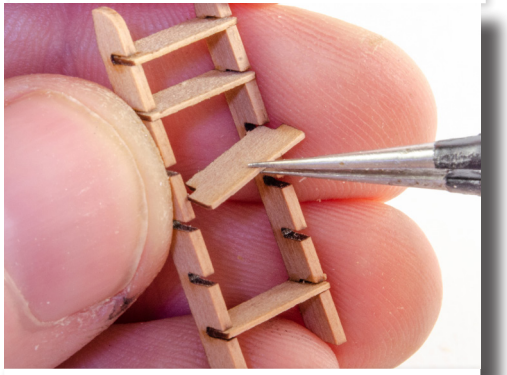
132. LADDERS: From the 1mm sheet, remove both parts #95. From the 0.6mm wood sheet, remove all parts #33.

134. Glue the opposite ladder side into position and leave to set.

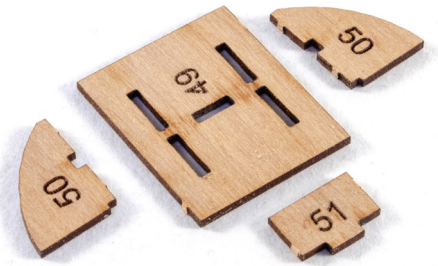
137. Glue the ladders into place within the hull, as shown. Do this carefully so you don't lose them inside the hull.



133. Glue one of the steps to the top and one to the bottom of the 1mm side piece. Make sure there's no twist and everything is aligned. Leave to set.



135. Finally, glue all the remaining steps into position.



138. COMPANIONWAY: Before we build the companionway, we'll first assembly a jig. From the 1mm wood sheet, remove parrs #49, #50 (x2) and #51.

139. Glue post parts #50 into position on base part #49. When dry, glue #51 into the slot between them. Leave to dry.

140. From the 1mm wood sheet, remove parts #54, #55, and #56.

141. Assemble as shown here and **LEAVE TO DRY!**

142. Sit (NO GLUE!) the assembly onto the jig.

143. Make sure the assembly is properly positioned with the front bar up against the jig sides.

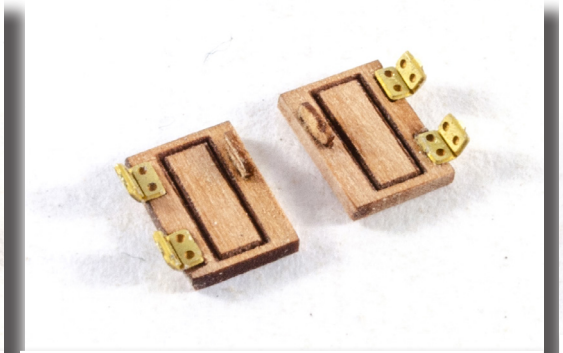
144. From the 0.6mm wood sheet, remove part #37. Two are provided in case you break one. Glue the read edge of this part into position as shown, using a clamp to stop it moving. Leave to dry. Note that I have used croc clips to hold the assembly to the jig, with slivers of wood to protect the outer, engraved sides.

145. Carefully bend the part over the curved assembly. We suggest CA gel for this as you won't need to clamp anything.

146. Once set, remove the assembly from the jig. The jig can be discarded.

147. From the 0.6mm wood sheet, remove two parts #35.

148. Carefully glue these into position as shown.



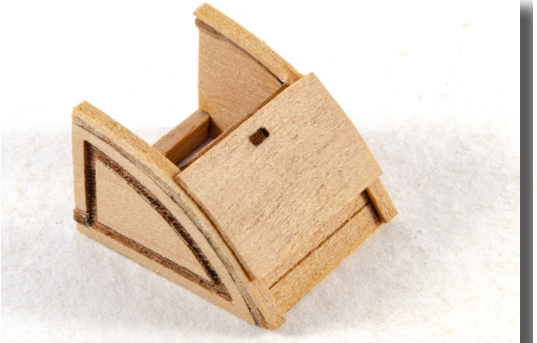
153. Assemble as shown. If you wish to pose the doors open, then bend the PE hinges.

154. Glue the completed doors to the companionway, and add another handle #36 to the hatch roof.

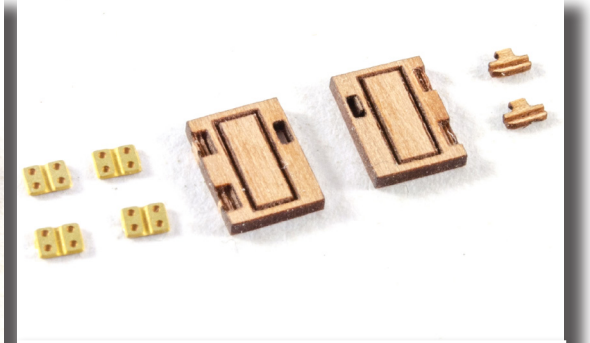
149. From the same 0.6mm wood sheet, remove part #34.

150. This is the companionway hatch roof and will fit into whatever position you want on the assembly.

155. Fit the companionway to the deck as shown.

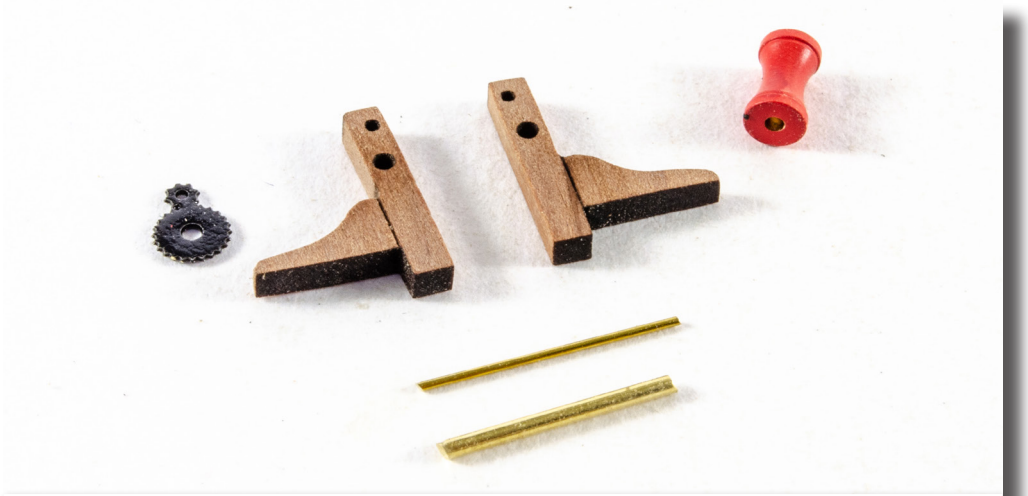


151. We posed the hatch roof in an open position.



152. From the 1mm wood sheet, remove parts #52 and #53. From the 0.6mm wood sheet, remove two parts #36. From the PE sheet, remove four parts #PE-23

156. Take all your brass and 3D printed parts (not all shown here) and prime them before painting in your chosen colour. Our prototype used red paint.



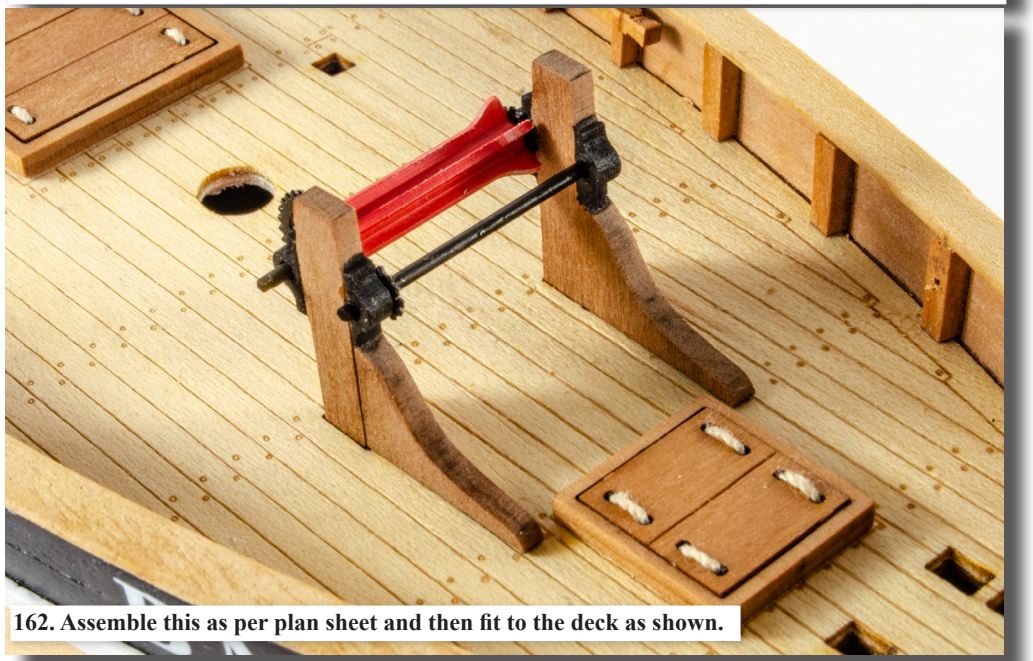
157. DANDY WINK: From the PE sheet, remove parts #PE-24 and #PE-25. We opted to paint these black before fitting to the deck, within the engraved positions.

158. Cut two lengths of brass rod as directed on your plans. Remove parts #83 and #84 from the 2mm wood sheet. Also remove part #PE-28 from the PE sheet. Lastly, you ill need your painted brass drum.

159. Slide the PE gear onto the thicker brass rod, followed by the drum, then glue the rod into #83. This will mean the engraving on part #33 is on the outside. Slip and slue the thinner rod into the wooden part, first locating through the small gear on the PE part. Lastly, fit the opposite wooden side.

160. Fit the completed assembly to the deck as shown.

161. MAIN WINCH ASSEMBLY: You will now need the 3d roller you painted earlier. From the 2mm wood sheet, remove parts #81 and #82. Also remove PE-26 and two PE-27 from the PE sheet.



162. Assemble this as per plan sheet and then fit to the deck as shown.

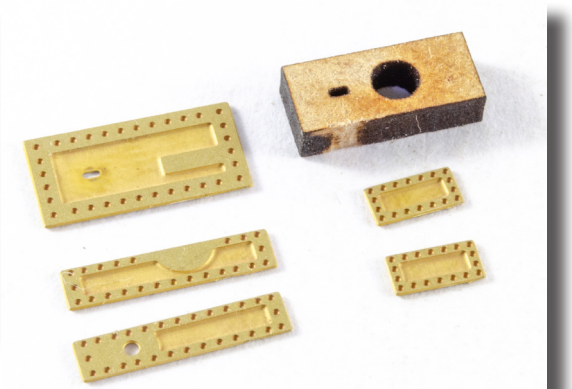
163. STEAM WINCH ASSEMBLY: From the PE sheet, remove all #PE36. From the 1mm wood sheet, remove both parts #63. Now cut a length of 3mm dowel, 22mm long.

164. Slot - DO NOT glue, one of the discs onto the dowel.

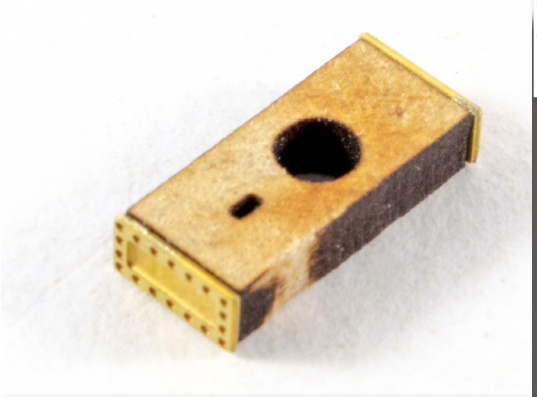
165. Now slot the other disc onto the other end and then sit the PE parts into the holes between the two, ensuring the holes are aligned on both discs. When you have all PE fitted, push the discs so the PE is properly trapped between them. Twist and adjust as necessary. Use a little CA on a cocktail stick and apply it to all joints.

166. Remove both parts #PE-29 from the PE sheet.

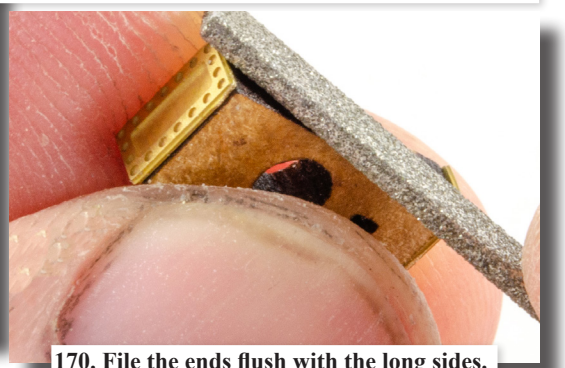
167. Glue these to either side of the assembly. You can then remove the dowel.



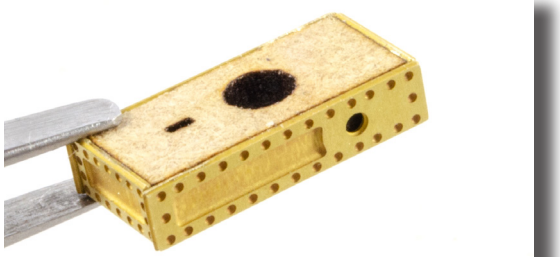
168. You will now need the very last MDF part, #14. This will form the core of the head assembly. From the PE sheet, also remove parts #PE30 thru #PE33.



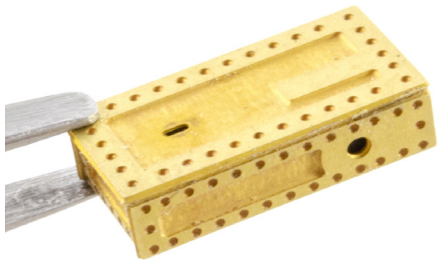
169. Glue parts #PE-33 to each end of the MDF.



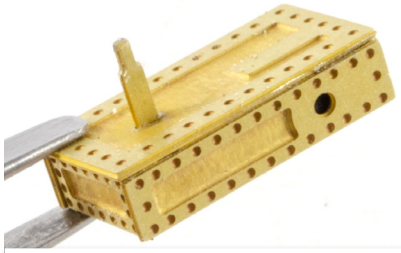
170. File the ends flush with the long sides.



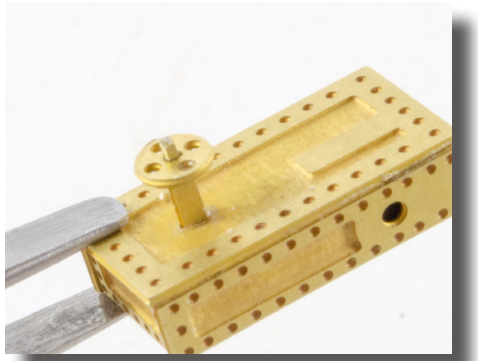
171. Now glue the side parts into position. These are parts #PE-31 and #PE-32. The orientation of these is very important. Use these photos and the plan to confirm you have this right. When complete, gently sand the top side of the assembly so it's totally level.



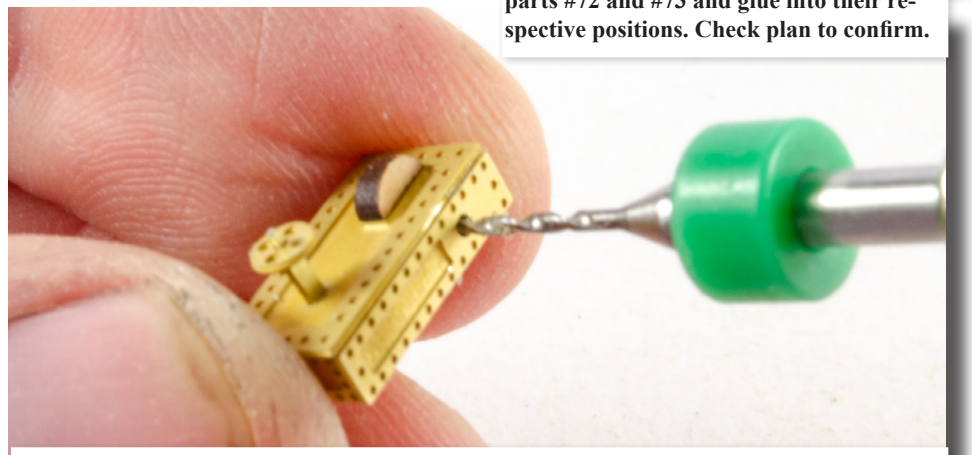
172. Glue the top into position. This is #PE-30.



173. Glue #PE-32 into the slot as shown, then fit/glue ´PE-35 onto the top of it. PLEASE NOTE - The hole is missing from the production winch top, so cut off the area of PE-32 that is hidden and glue directly to the top of PE-30.



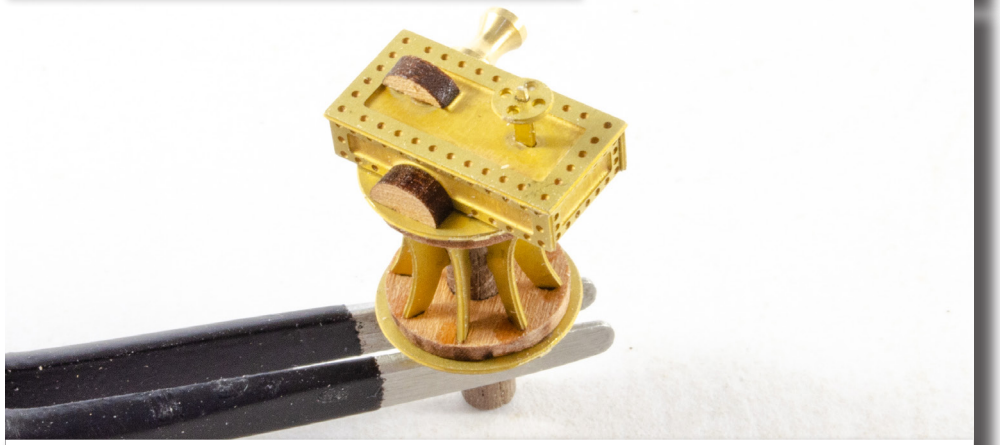
174. From the 1.5mm wood sheet, remove parts #72 and #73 and glue into their respective positions. Check plan to confirm.



175. Use a 1mm drill bit to drill through the hole in the side of the assembly, and into the MDF.

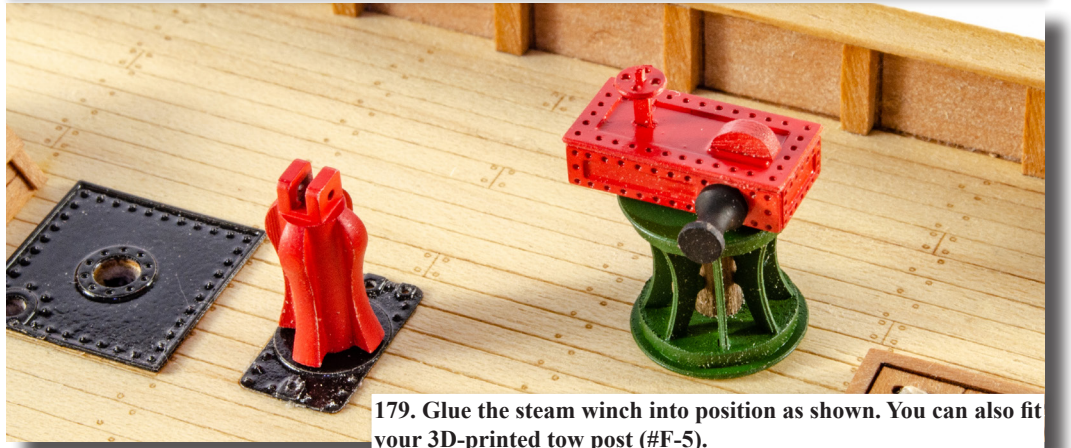
176. This is where the winch drum will glue. You can leave this separate for the moment and glue once it has been painted.

177. Your steam winch assemblies should look like this.

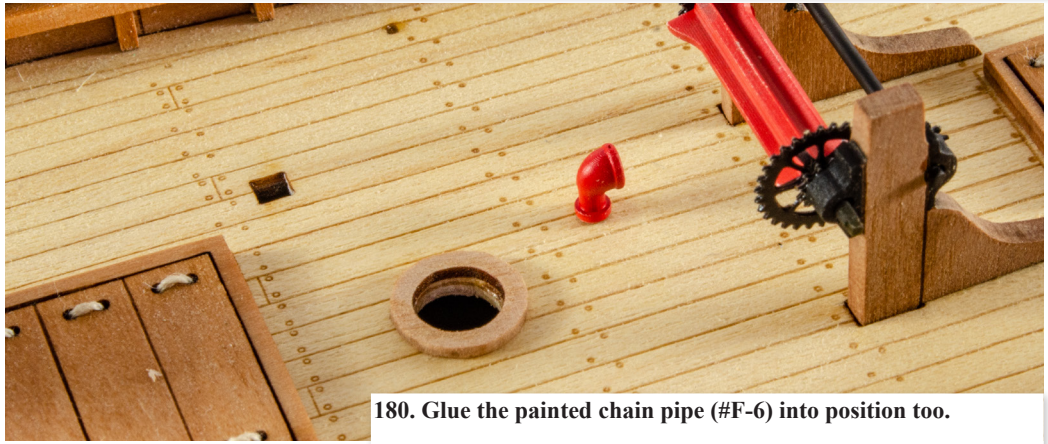


178. When fitted together, it will look like this. You will be best painting these assemblies before gluing them together, using the sort of colours which were generally renowned for working vessels. For Nisha, we chose both green and red.

Paint the boiler plate (PE-24) and the smaller Tow Post Plate (PE-25) black and glue them into their respective positions on the deck



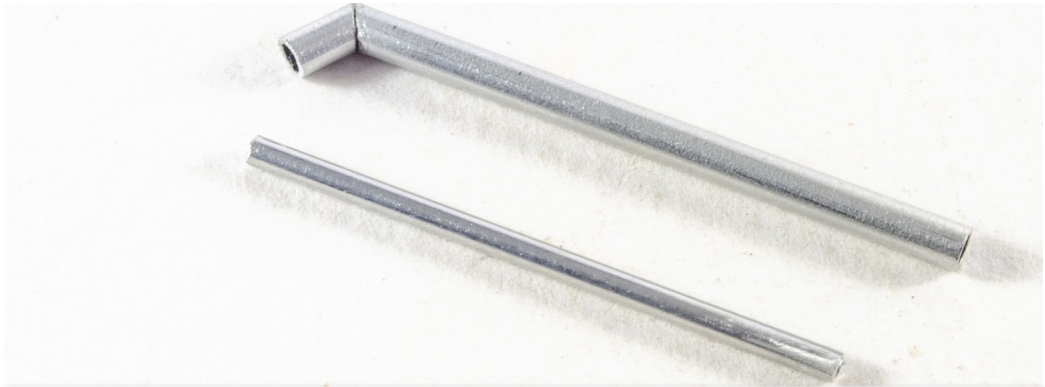
179. Glue the steam winch into position as shown. You can also fit your 3D-printed tow post (#F-5).



180. Glue the painted chain pipe (#F-6) into position too.

181. FAIR LEADING POST: Remove part #80 from the 2mm wood sheet. Also cut a length of 0.5mm brass wire, 6mm long. Glue the brass wire through the hole in the post.

182. Glue the post into position. You can also now remove #PE-11 and #PE-13 from the brass sheet. Paint these black and slide small ring onto the main part. Now fit this to the deck as shown.



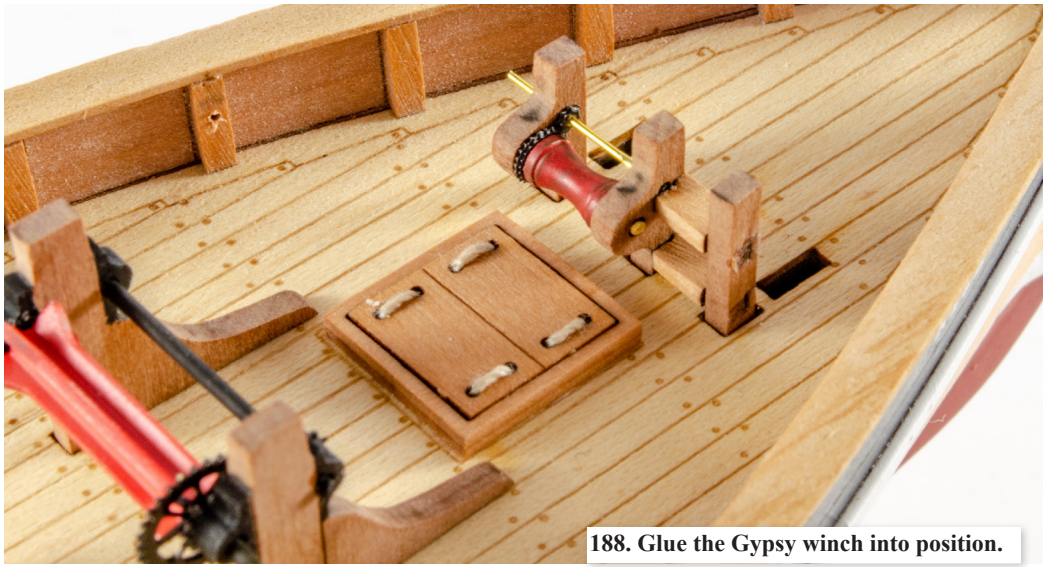
183. CHIMNEYS: Nisha was fitted with two chimneys. The small one is very easy to make. Simply cut a length of 2mm alloy tube, 39mm long and deburr the ends. The large chimney is made from 3mm tube. Cut the lengths as shown, with the adjoining angle, then use CA to glue the parts together. Made sure all parts are deburred.

184. Plug into position on the deck and then paint each chimney black.

185. GYPSY WINCH: From the 2mm wood sheet, remove parts #86, #87, and #88. From the 1.5mm wood sheet, remove both parts #74

186. Assemble parts #74 with #86 and #87, as shown. This orientation is vital. Double check with plans if unsure.

187. Now assemble the remainder of the winch as shown, referring very closely to the plan sheet. These photos will act as confirmation of the plans.

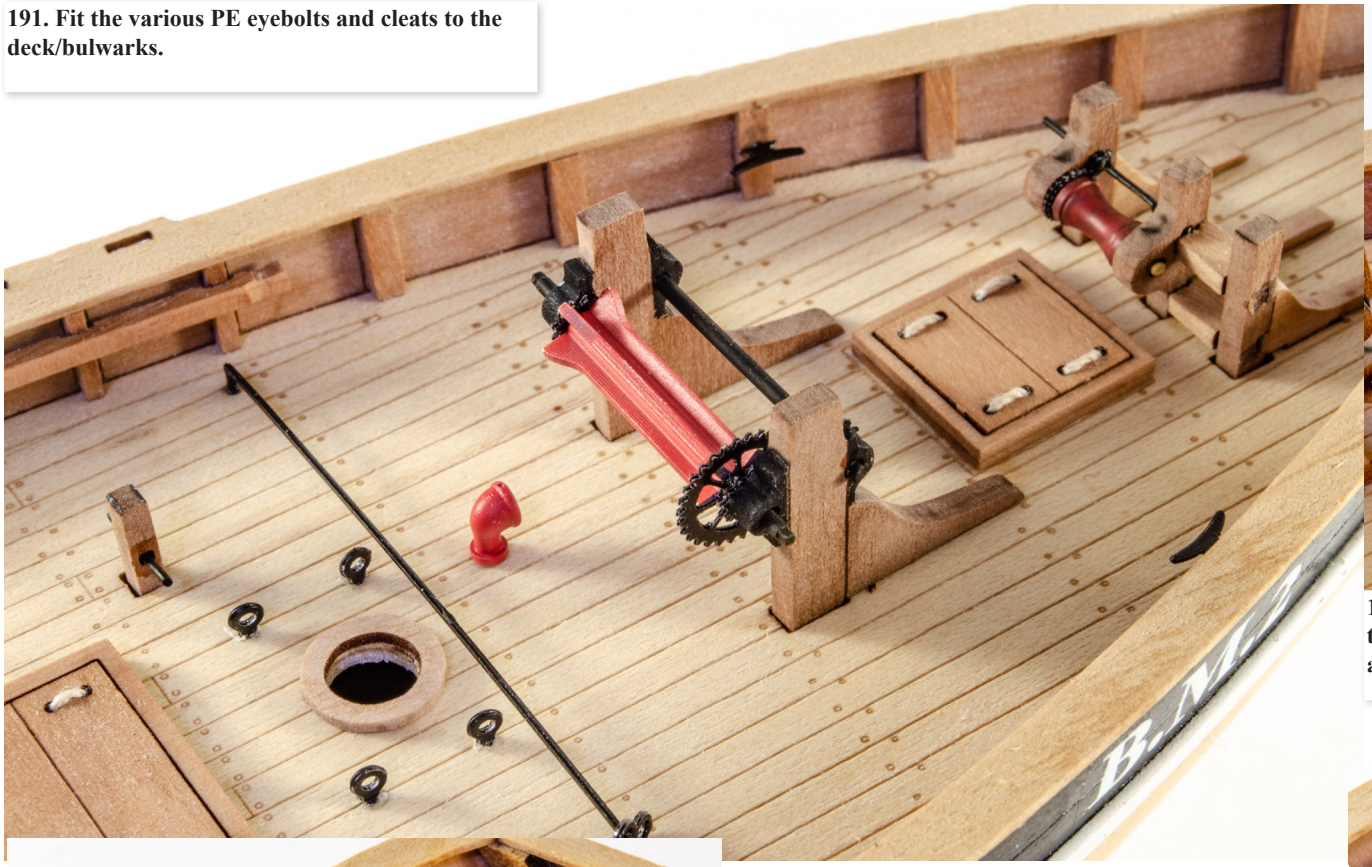


188. Glue the Gypsy winch into position.

189. Remove the three parts #75 from the 1.5mm wood sheet.

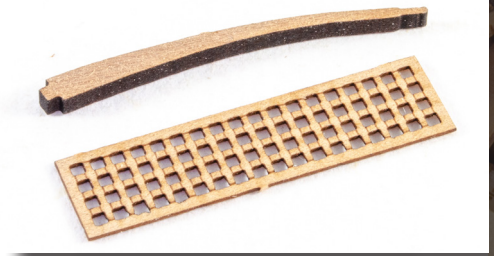
190. Glue into position in front of the Gypsy winch, as shown. These will rest against the winch pillars.

191. Fit the various PE eyebolts and cleats to the deck/bulwarks.



192. Using your plans as reference, fit #PE-9, #PE-15, and #PE-16 to the bow area, as shown. You will need to drill some 0.8mm holes to allow the PE to plug into position in the timber.

193. Also from the PE sheet, remove parts #PE-12 and #PE-13. Paint these black and again slip the ring onto the main part before fitting the deck, just behind the rudder post.



194. From the 2mm wood sheet, remove part #89. From the 0.6mm wood sheet, remove part #32.

195. Fit these parts as shown.

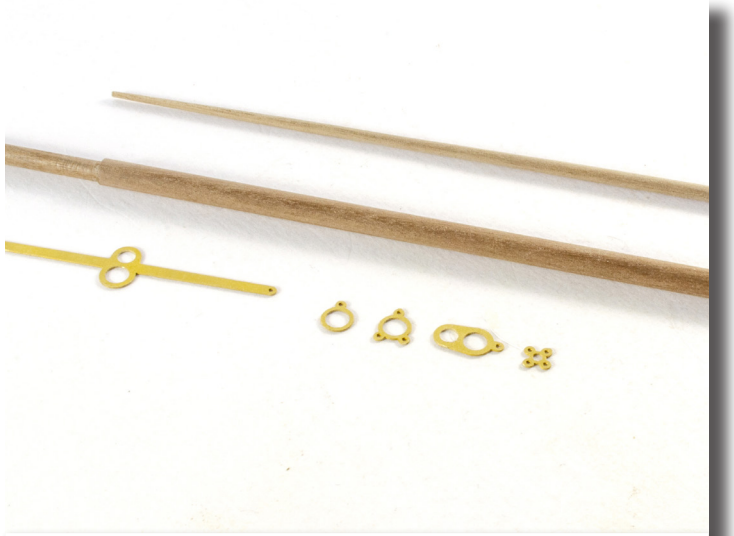
196. Nisha will now look just like this!

197. Remove #PE-19 from the PE sheet and take six 3mm deadeyes. This sequence shows how to install the deadeyes into the PE. First, splay open the PE slightly, then insert the deadeye. Finally, use tweezers to pinch the PE so it goes back to its original shape. This task is very easy.

198. Using the plans as reference, fit the assemblies to the hull as shown.

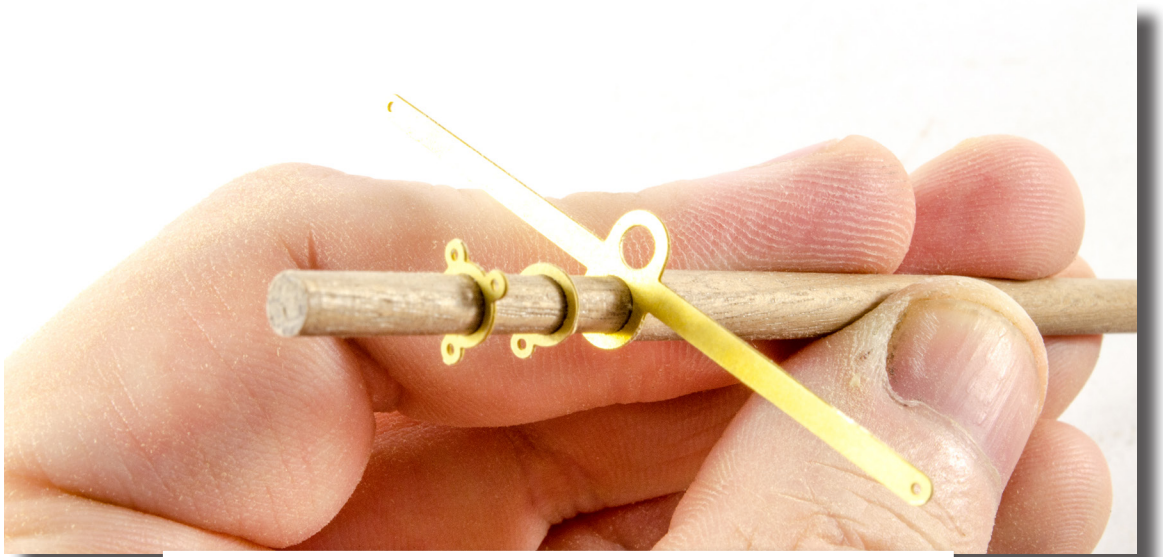
199. MASTS: Cut the two sections of dowel for the mast, as shown on your plan.

200. The lower mast section needs to be reduced in diameter towards the top.



201. Check your plans and remove the correct PE parts for the mast. It would be a good idea to now prime and spray the parts black whilst on the PE sheet first.

202. Start to assemble the mast, as shown on the plan.

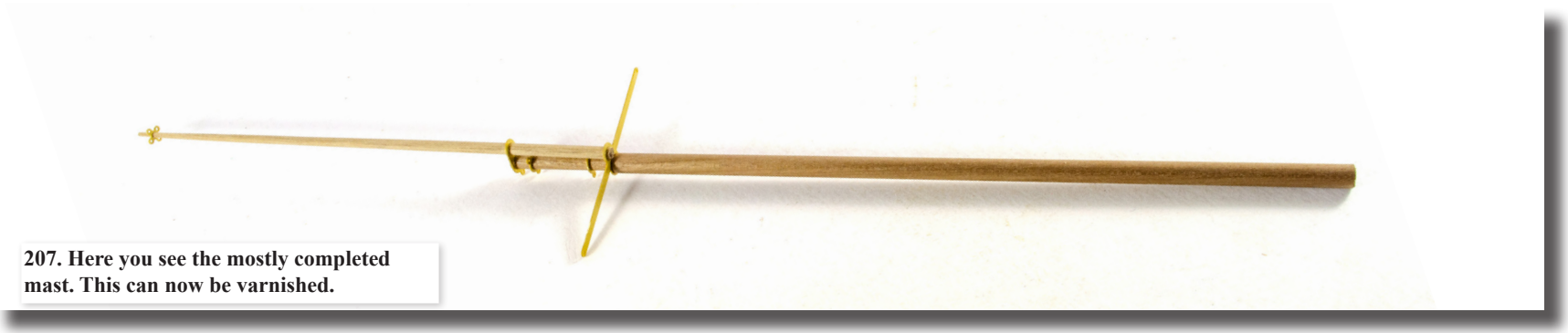


203. Remember to fit all parts shown before fitting the upper mast section.

204. Here you see the upper mast section, ready for installation.

205. And here you see the assembled mast. There will be a small number of other PE parts to drill and fit to the mast.

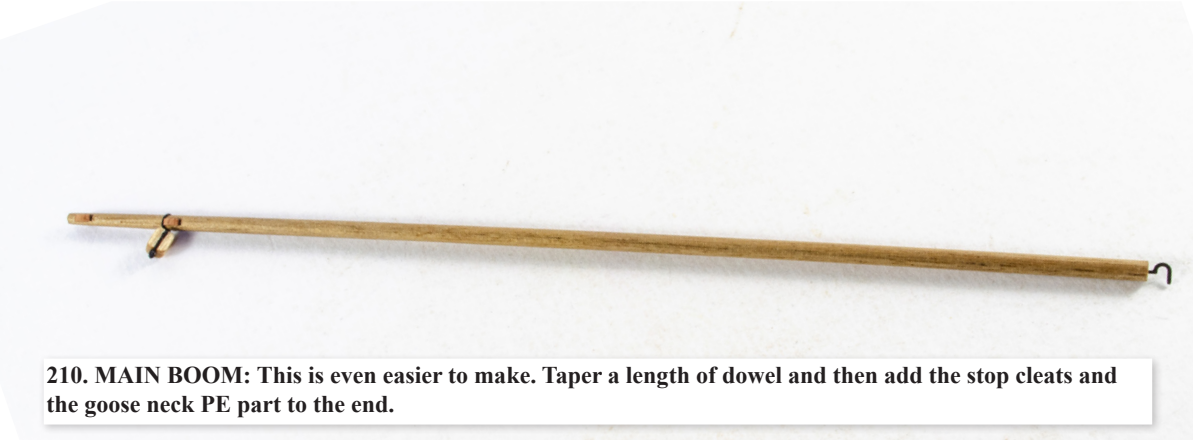
206. The top of the mast has this PE ring fitted to it.



207. Here you see the mostly completed mast. This can now be varnished.

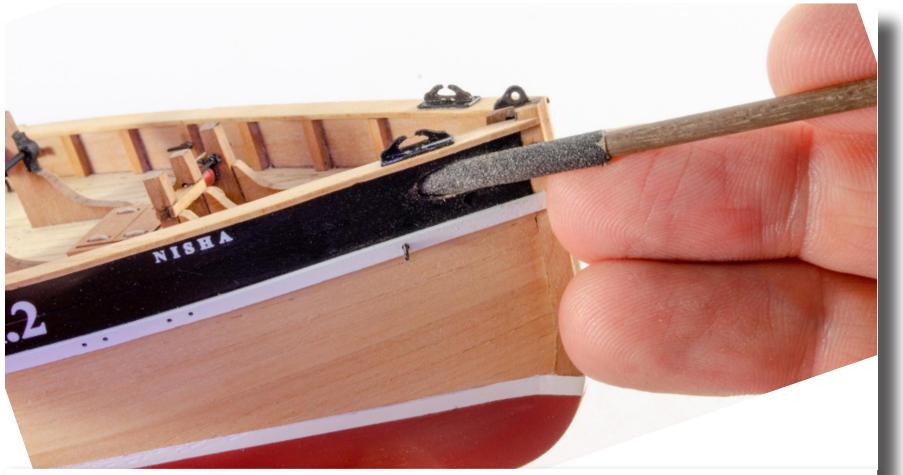
208. Fit the mast out with the PE eyelets and the correct rigging blocks.

209. MAIN GAFF: This is a very easy item to make. Taper your 3mm dowel down to 2mm and fit part #76 to the wider end. Now add the Stop Cleats and then the rigging blocks.



210. MAIN BOOM: This is even easier to make. Taper a length of dowel and then add the stop cleats and the goose neck PE part to the end.

211. Also make the bowsprit, shown here, to complete the four assemblies you need to complete the woodwork on Nisha.



212. Before the bowsprit can be added, you need to elongate the hole for it to fit. I found the easiest way of doing this was to take a length of 3mm dowel and glue a single wrap of 180 grade sandpaper to the end. This was then repeatedly pushed through and rotated in the hole, from front to back. Test fitting the bowsprit is also a good indicator of when the task is complete.

213. Here you can see the bowsprit fitted and running into the Bowsprit Post Assembly.

214. OPTIONAL SAILS: Whilst you can build Nisha without sails, she does look quite nice with the fitted. If you have purchased a set, then dye them in a suitable colour for working vessels. We chose a dark brown. These are then fitted out as per the plan sheets, with rigging lines, PE and blocks etc.

215. You must first complete the main sail before fitting to the mast and then adding the PE cleats to the bottom.

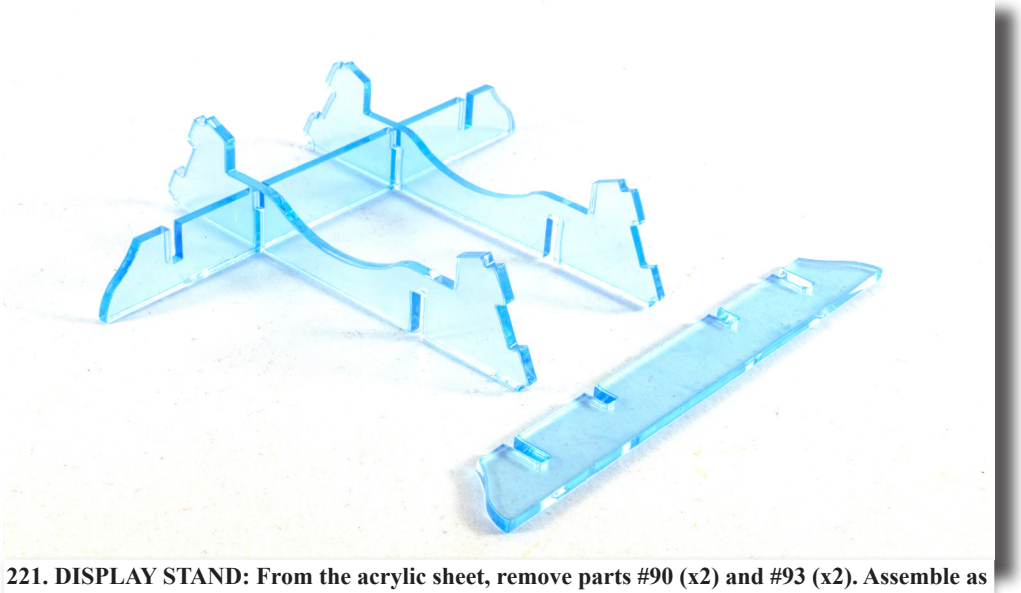
216. MASTING: Carefully glue the mast to the hull, making sure it sits all the way into hull and isn't twisted.

217. Before you can progress any further, you must add the shrouds, lanyards, and ratlines. These are a little tedious, but on Nisha, they are quick and straightforward to do. All this has to be done on the model. There are no tools to allow you to make them off model. We have included a paper template to help you with spacing. You can cut this from the plan and past to some card for rigidity.

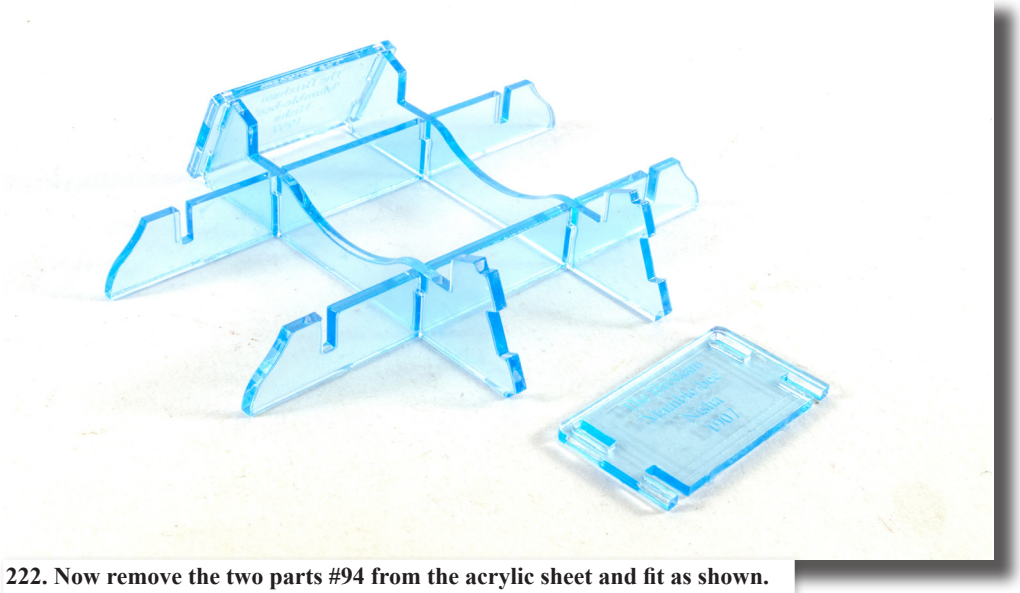
218. Here you see this standing rigging complete.

219. Now complete Plan Sheet #8, ‘Main Sails’.

220. Lastly, complete Plan Sheet #9, ‘Fore Sails’. Nisha is complete, but now we need to make something more suitable for her to sit on.

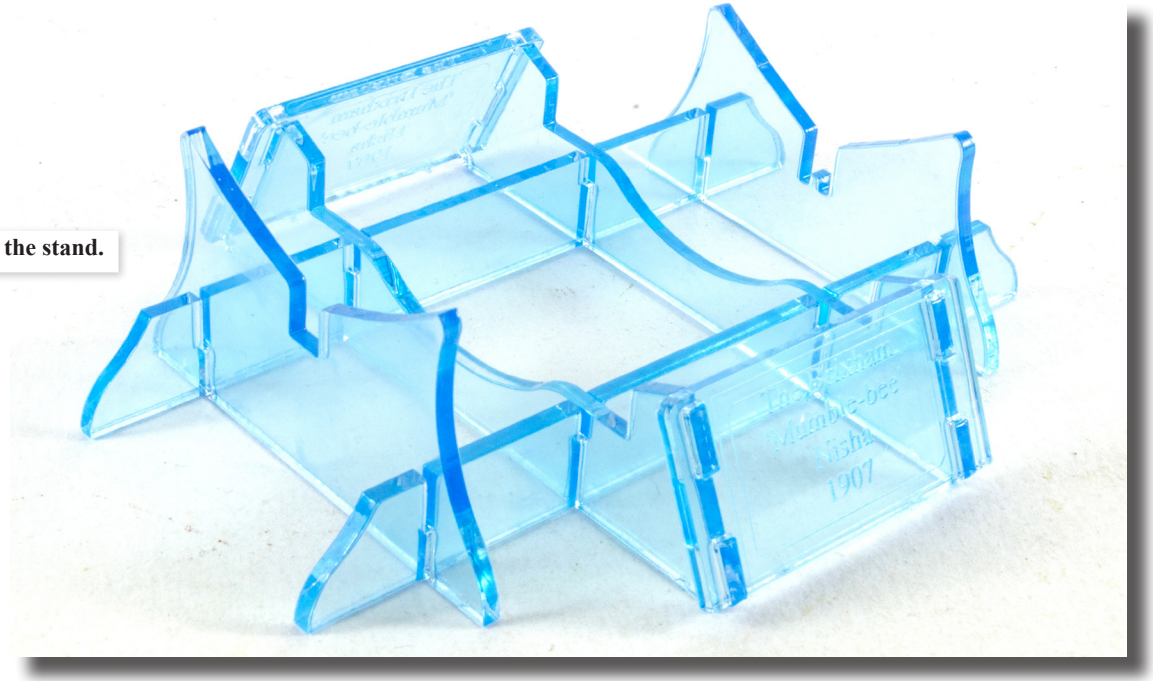


221. DISPLAY STAND: From the acrylic sheet, remove parts #90 (x2) and #93 (x2). Assemble as shown. NOTE: You MUST remove the blue protective film from the parts before assembly. We have left it on for clarity when taking photos.



222. Now remove the two parts #94 from the acrylic sheet and fit as shown.

223. Finally, slot parts #91 and #92 onto the stand.



224. Your Nisha is now complete! We hope you enjoyed building this lovely little fishing boat.

The Brixham Mumble Bee NISHA– 1:64th scale
PARTS LIST

Pt. No	Description	Material	QTY
	3mm MDF		
1	Bulkhead	3mm MDF	1
2	Bulkhead	3mm MDF	1
3	Bulkhead	3mm MDF	1
4	Bulkhead	3mm MDF	1
4a	Bulkhead Wall/Lower Deck Clamp	3mm MDF	1
4b	Cross Clamp for 4a	3mm MDF	2
5	Bulkhead	3mm MDF	1
6	Bulkhead	3mm MDF	1
6a	Bulkhead Thickness Extension Pattern	3mm MDF	4
7	Bulkhead	3mm MDF	1
7a	Bulkhead Wall/Lower Deck Clamp	3mm MDF	1
7b	Cross Clamp for 7a	3mm MDF	2
8	Bulkhead	3mm MDF	1
9	Bulkhead	3mm MDF	1
10	Bulkhead	3mm MDF	1
11	Bulkhead	3mm MDF	1
12	Bulkhead	3mm MDF	1
13	Locating Tabs for Parts 4B and 7B	3mm MDF	4
14	Steam Windlass Top Plate	3mm MDF	1
	2mm MDF		
15	Keel	2mm MDF	1
16	Lower Deck Pattern	2mm MDF	1
17	Bow Planking Edge Pattern (Right)	2mm MDF	1
17a	Bow Planking Edge Pattern (Left)	2mm MDF	1
18	Stern Planking Edge Pattern (Right)	2mm MDF	1
18a	Stern Planking Edge Pattern (Left)	2mm MDF	1
19	Locating Pegs for Bow and Stern Patterns	2mm MDF	1
20	Longitudinal Hull Brace Pattern	2mm MDF	2
21	Stern Frame (Inner)	2mm MDF	2
22	Stern Frame (Middle)	2mm MDF	2
23	Stern Frame (Outer)	2mm MDF	2
24	Stern Frame Outer Filling Pattern	2mm MDF	2
25	Building Cradle (Rear)	2mm MDF	1
26	Building Cradle (Front)	2mm MDF	1
27	Building Cradle Cross Piece	2mm MDF	1
	0.8mm Birch Plywood		
28	Sub Deck	0.8mm Birch Plywood	1
	0.8mm Maple Veneer		
29	Deck Pattern	0.8mm Maple Veneer	1
	0.6mm Wood		
30	Rudder Side Pattern (Right)	0.6mm Wood	1
31	Rudder Side Pattern (Left)	0.6mm Wood	1
32	Helmsman Grating	0.6mm Wood	1
33	Companionway Ladder Steps	0.6mm Wood	8
34	Companionway Sliding canopy Hatch	0.6mm Wood	2
35	Companionway Sliding Hatch Rail	0.6mm Wood	4
36	Companionway Door Handle	0.6mm Wood	4
37	Companionway Curved Canopy	0.6mm Wood	2
	0.8mm Wood		
38	Stern Counter Pattern (Outer)	0.8mm Wood	1
39	Stern Frame Surround	0.8mm Wood	1
40	Stern Gunwale	0.8mm Wood	1
41	Gunwale	0.8mm Wood	1
42	Bulwark Lower Rail Pattern	0.8mm Wood	1
43	Bulwark Outer Pattern (Right)	0.8mm Wood	2
44	Bulwark Outer Pattern (Left)	0.8mm Wood	1
	1mm Wood		
45	Inner Bulwark Pattern (Right)	1mm Wood	1
46	Inner Bulwark Pattern (Left Left)	1mm Wood	1
47	Transit Rail	1mm Wood	1
48	Keel Rabbet Pattern	1mm Wood	2
49	Companionway Jig Base	1mm Wood	1
50	Companionway Jig Side	1mm Wood	2
51	Companionway Jig Cross Piece	1mm Wood	1
52	Companionway Door Panel (Right)	1mm Wood	1
53	Companionway Door Panel (Left)	1mm Wood	1
54	Companionway Door Cross Piece	1mm Wood	1
55	Companionway Side Panel (left)	1mm Wood	1
56	Companionway Side Panel (left)	1mm Wood	1
57	Stern Post Rabbet Pattern	1mm Wood	2
58	Stem Rabbet Pattern	1mm Wood	2
59	Keel Rabbet Locating Pegs	1mm Wood	9
60	Stern Counter Pattern (Inner)	1mm Wood	1
61	Mast Base	1mm Wood	1

62	Stern Board	1mm Wood	1
63	Steam Winch Upper and Lower Plate	1mm Wood	2
64	Stern Cavil	1mm Wood	1
65	Main Hatch Coaming (Bottom)	1mm Wood	1
66	Main Hatch Coaming (Top)	1mm Wood	1
67	Main Hatch Cover Boards	1mm Wood	1
68	Fore Hatch Coaming (Bottom)	1mm Wood	1
69	Fore Hatch Coaming (Top)	1mm Wood	1
70	Fore Hatch Cover Boards	1mm Wood	1
95	Companionway Ladder Sides	1mm Wood	2
96	Stop Cleat	1mm Wood	20

1.5mm Wood

A-U	Bulwark Support Timbers (left & Right)	1.5mm Wood	38
71	Cavil Rail	1.5mm Wood	2
72	Steam Windlass gear Guard (Large)	1.5mm Wood	1
73	Steam Windlass gear Guard (Small)	1.5mm Wood	1
74	Bowsprit Post Cross Beam	1.5mm Wood	2
75	Bowsprit/Fore Windlass Drum Post Knee	1.5mm Wood	3
76	Main Sail Boom Jaws	1.5mm Wood	1

2mm Wood

77	Keel Pattern	2mm Wood	1
78	Stem Pattern	2mm Wood	1
79	Stern Post	2mm Wood	1
80	Fair Leading Post	2mm Wood	1
81	Main Winch Post (Left)	2mm Wood	1
82	Main Winch Post (Right)	2mm Wood	2
83	Dandy Wink Post (Left)	2mm Wood	1
84	Dandy Wink Post (Right)	2mm Wood	1
85	Rudder	2mm Wood	1
86	Bowsprit Support Post (Right)	2mm Wood	1
87	Bowsprit/Gypsy Windlass Post (Centre)	2mm Wood	1
88	Windlass Drum Post (Left)	2mm Wood	1
89	Tiller Arm	2mm Wood	1

2mm Clear Acetate

90	Cradle Spacer	2mm Clear Acetate	2
91	Fore Cradle	2mm Clear Acetate	1
92	Aft Cradle	2mm Clear Acetate	1
93	Name Plate Cross Support	2mm Clear Acetate	2
94	Nameplate	2mm Clear Acetate	2

0.4mm Photo Etched Brass

PE-1	Main Boom Iron Collar	0.4mm Photo Etch	1
PE-2	Main Mast Iron Cap (Lower)	0.4mm Photo Etch	1
PE-3	Main Masthead Iron Collar (Triple Eye)	0.4mm Photo Etch	1
PE-4	Main Boom Iron Collar (Single Eye)	0.4mm Photo Etch	1
PE-5	Main Mast Iron Cap (Upper)	0.4mm Photo Etch	1
PE-6	Topmast Spider Band (4 Eyebolts)	0.4mm Photo Etch	1
PE-7	Main Sail Ring	0.4mm Photo Etch	8
PE-8	Bowsprit Ring (Single Eye)	0.4mm Photo Etch	1
PE-9	Iron Plate and Eye for Stay	0.4mm Photo Etch	1
PE-10	Main Boom Gooseneck	0.4mm Photo Etch	1
PE-11	Iron Horse (Fore)	0.4mm Photo Etch	1
PE-12	Iron Horse (Main Boom)	0.4mm Photo Etch	1
PE-13	Iron Horse Double Ring	0.4mm Photo Etch	3
PE-14	Iron Cleat	0.4mm Photo Etch	6
PE-15	Fairlead Base	0.4mm Photo Etch	3
PE-16	Fairlead	0.4mm Photo Etch	3
PE-17	Rudder Strap (Rudder Post)	0.4mm Photo Etch	9
PE-18	Rudder Strap (Rudder)	0.4mm Photo Etch	8
PE-19	3mm Deadeye Strop & Chainplate (Main)	0.4mm Photo Etch	7
PE-20	Bulwark Rigging Strap & Eyebolt	0.4mm Photo Etch	4
PE-21	Common Eyebolt	0.4mm Photo Etch	24
PE-22	Rigging Hook	0.4mm Photo Etch	16
PE-23	Companionway Door Hinge	0.4mm Photo Etch	6
PE-24	Boiler Plate	0.4mm Photo Etch	1
PE-25	Tow Post Base	0.4mm Photo Etch	1
PE-26	Main Winch Gears	0.4mm Photo Etch	1
PE-27	Main Winch Small Gear	0.4mm Photo Etch	3
PE-28	Winch Drum Gears	0.4mm Photo Etch	2
PE-29	Steam Winch Top and Bottom Plate	0.4mm Photo Etch	2
PE-30	Steam Winch Casing Top Plate	0.4mm Photo Etch	1
PE-31	Steam Winch Casing Side Plate (Left)	0.4mm Photo Etch	1
PE-32	Steam Winch Casing Side Plate (Right)	0.4mm Photo Etch	1
PE-33	Steam Winch Casing End Plate	0.4mm Photo Etch	2
PE-34	Steam Winch Handle Stem	0.4mm Photo Etch	1
PE-35	Steam Winch Handle	0.4mm Photo Etch	1
PE-36	Steam Winch Handle Whelp	0.4mm Photo Etch	8

Fittings & Materials

F-1	Steam Winch Drum	Brass	1
F-2	Small Winch Drum	Brass	2
F-3	Fine Brass Pins	Brass	200
F-4	Windlass Drum	Casting	1
F-5	Tow Post	Casting	1
F-6	Chain Pipe	Casting	1
F-7	Not in Use		
F-8	1mm Brass Wire x 60mm Long	Brass	1
F-9	0.5mm Brass Wire x 60mm Long	Brass	1
F-8	3mm Aluminium Tube x 200mm Long	Aluminium	1
F-9	2mm Aluminium Tube x 60mm Long	Aluminium	1
F-10	2.5mm Thimble/Sheave	Wood	8
F-11	3mm Deadeye	Wood	14
F-12	3mm Single Block	Wood	14
F-13	4mm Double block	Wood	10
F-14	0.1mm Diameter natural thread		20m
F-15	0.25mm Diameter natural thread		20m
F-16	0.5mm Diameter natural thread		10m
F-17	0.1mm Diameter black thread		20m
F-18	0.25mm Diameter black thread		10m
F-19	0.5mm Diameter black thread		5m
F-20	5mm Dowel x 330mm long	Wood	1
F-21	4mm Dowel x 330mm Long	Wood	1
F-22	3mm Dowel x 330mm Long	Wood	2
F-23	1 x 5 x 340mm Long Limewood	Wood	26
F-24	1 x 4 x 340 mm Long Second planking	Wood	34
D-1	Stern Name Decal	Decal	1
D-2&3	Side Number Decal	Decal	2
D-4&5	Name Decal (Side)	Decal	2
F-25	Sail Set (Optional)	Cloth	4


B.M.2
NISHA

VANGUARD MODELS

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Nisha was designed and developed in the UK by Chris Watton
Finished prototype model with sails made and photographed (plus text) by James Hatch

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