BUILD LORD NELSON'S HMS VICTORY

Pack 6

Stages 51-60

DeAGOSTINI MODEL SPACE™

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Contents

Editorial and design by Continuo Creative, 39-41 North Road, London N7 9DP.

DeAGOSTINI MODEL SPACE™

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Published in the UK by De Agostini UK Ltd, Battersea Studios 2, 82 Silverthorne Road, London SW8 3HE.
Published in the USA by De Agostini Publishing USA, Inc., 915 Broadway, Suite 609, New York, NY 10010.

Stage 51: The rudder

This stage includes the ship's rudder, plus metal strips and pins to make its hinges. There are also parts for one of the ship's lanterns. Keep these until later.

Rudder parts

Laser-cut wooden rudder, 14 brass hinge strips, fixing pins, wire, eyebolt

Lantern parts

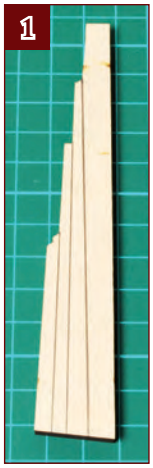
Lantern sides, top, base (with mounting bracket), yellow acetate for glazing

Where the parts fit

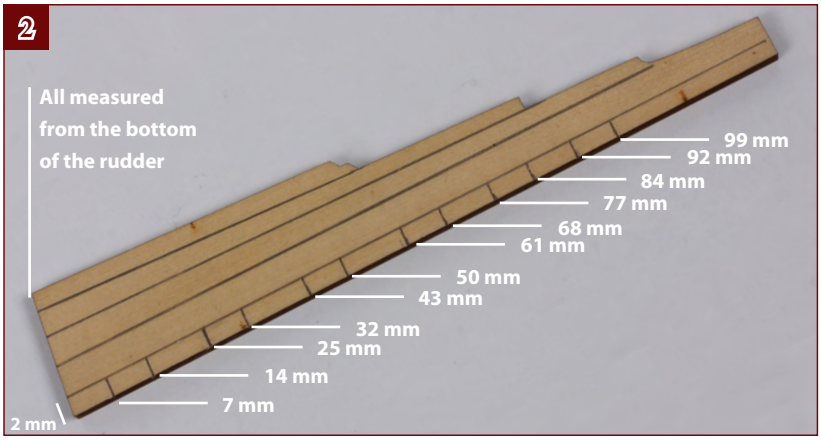
Victory's rudder extends up into a triangular hole cut through the planking of the stern counter. It is attached to the sternpost with six hinges (pintles and gudgeons) made from the brass strips supplied. Note that the gudgeon strips are bent to fit the curvature of the hull, and that the top one attached to the rudder is shorter than the others. The steps mainly refer to the natural wood option illustrated. If you are going to cover the hull with copper tiles, prepare the rudder and hinges as shown, but don't pin the hinges in place yet.

Preparing the rudder

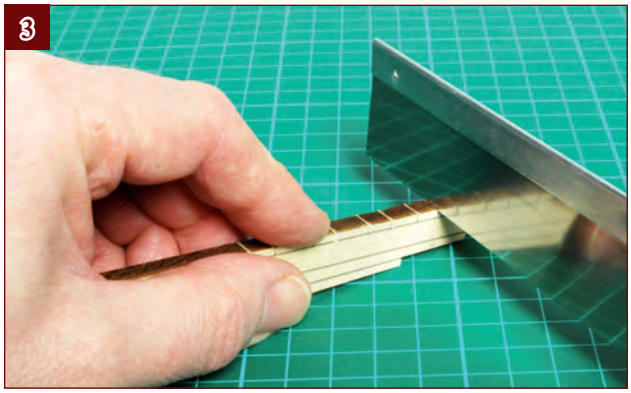
Before fitting the hinges to the rudder and the hull, you need to cut notches in the rudder and also cut the hole through which the rudder head extends up into the ship.



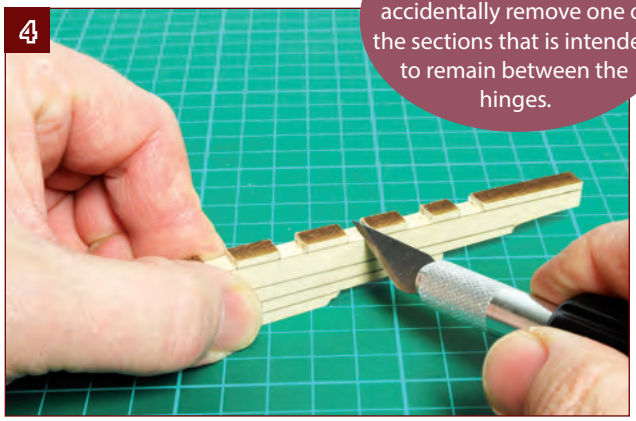
1. *Victory*'s rudder was constructed from vertical planks. If you are leaving the wood its natural colour, rather than painting it or adding copper tiles, the joints in the rudder can be simulated with pencil lines. Using the "steps" at the rear of the rudder as a guide, mark both sides of the rudder with matching lines. If you want to emphasise the pencil lines, you can make small grooves over them with a razor saw.



2. Mark the positions for the hinges using the dimensions given above as a guide.

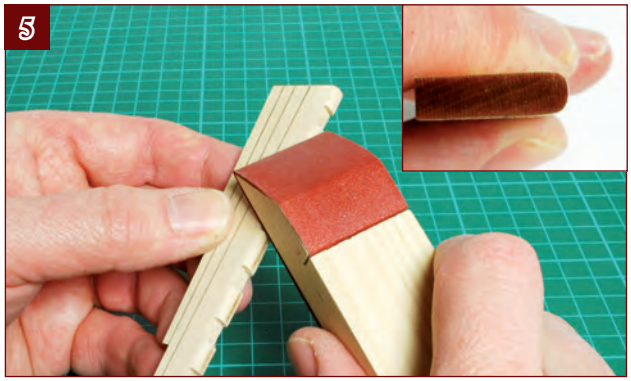


3. Using a razor saw and the 2-mm line as a guide to the correct depth, make 2-mm-deep saw cuts at the end of each hinge recess.



4. Using a craft knife, carefully remove the wood to make 2-mm-deep recesses.

QUICK TIP
Make sure you don't accidentally remove one of the sections that is intended to remain between the hinges.



5. Sand a radius on the front of the rudder to produce the profile shown inset. Also sand off the pencil guideline drawn 2-mm from the front edge of the rudder.

6. Draw a pencil line 11 mm from the stern post, then mark two lines at an angle to form the triangle.

7. Drill 2-mm holes at the two outer points of the triangle to form a curve at the corners.

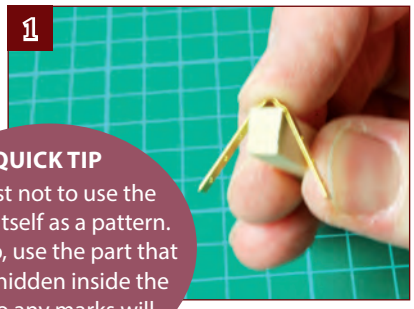
8. Carefully remove the wood to make a triangular opening. Use a fresh blade in your craft knife and remove the wood in small pieces rather than trying to cut it all out in one go.

QUICK TIP
Note that there are stern gallery supports underneath the planks, which makes this operation a little more tricky.

9. Paint the visible parts of the formers black to disguise them. Note that the formers will prevent the rudder from swinging more than a little, saving the hinges from undue strain.

Making the pintles

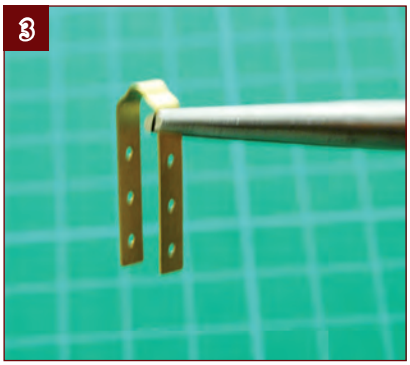
Prepare the six pintles that are attached to the rudder by bending the strips of brass supplied (there are two spares) until they are a good fit over the rudder, then add the hinge pins.



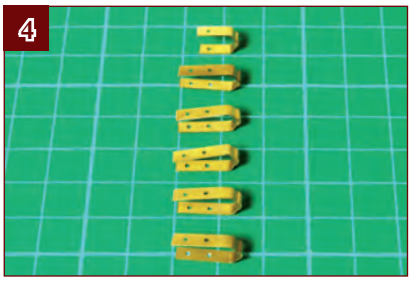
QUICK TIP
It's best not to use the rudder itself as a pattern. If you do, use the part that will be hidden inside the hull, so any marks will be concealed.

1. Open out six hinge strips by pushing them down over a scrap of 6-mm-thick wood.

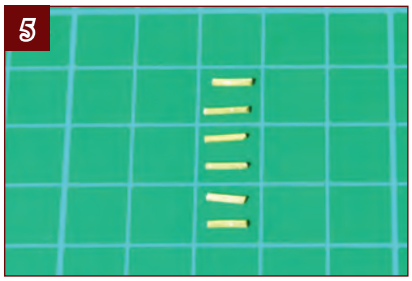
2. Now fold the legs of the hinge down so they are now nearly parallel, with a 6-mm space between them.



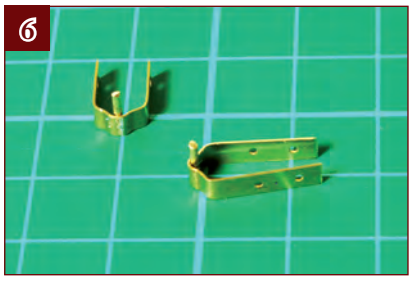
3. Finally, bend the pintles with pliers to make both legs parallel.



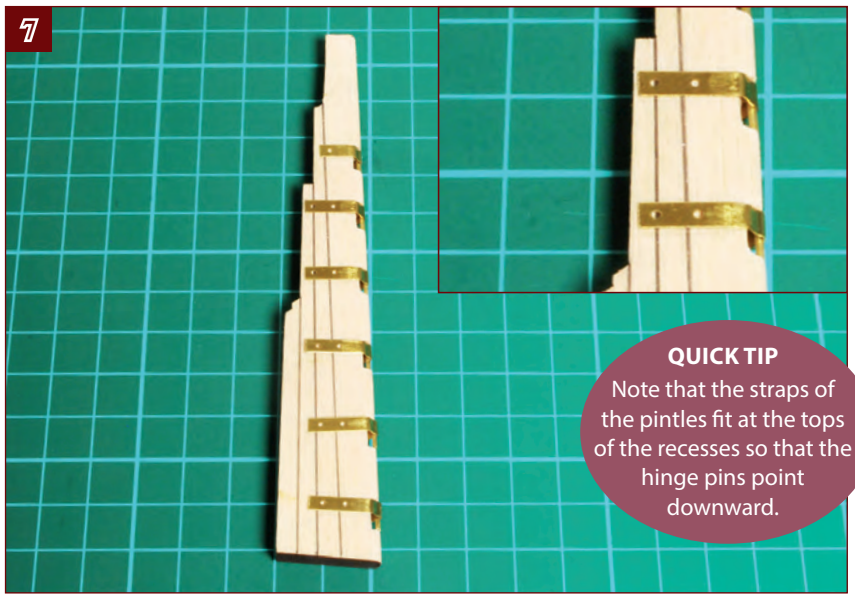
4. Cut one hinge strip so the legs are just one hole long, and five strips so the legs are two holes long. Neaten the cut ends with a file.



5. Make the hinge pins by cutting six lengths of brass wire. Each one needs to be 6 mm long, so cut a little oversize and neaten the ends with a file.



6. Glue one hinge pin into the centre of each hinge using superglue or quick-setting epoxy resin. Ensure that the pins are at right angles to the strips.



QUICK TIP
Note that the straps of the pintles fit at the tops of the recesses so that the hinge pins point downward.

7. Try the pintles in position. Make sure they do not overhang the rear edge of the rudder, and check that the hinge pins fit in the recesses cut in Steps 3 and 4.

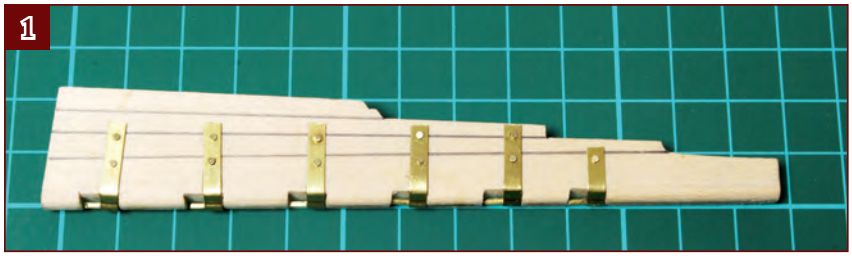
Copper and paint

If you are intending to finish the lower hull with paint instead of leaving it natural wood, you can follow the main sequence in the same way as shown here. When you paint the hull, apply the paint over the hinges.

On the other hand, if you are going to add copper tiles to the hull, keel and rudder, the hinge strips will need to fit over the copper. For this reason, don't fix the hinges to the rudder or to the hull yet. Stop at Step 7 and don't go on to Step 1 on the next page. The copper material is quite thin, so there is enough clearance in the pintles for the extra thickness of the copper tiles that will be applied to the rudder.

Hanging the rudder

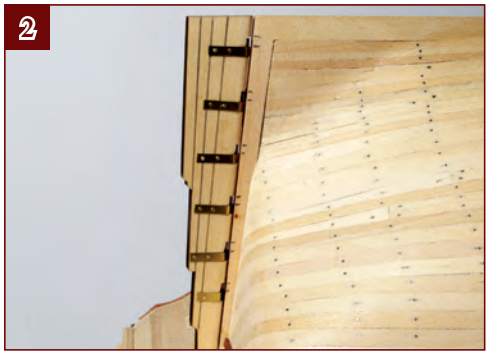
The six pintles are hinged to long gudgeons that are pinned to the sternpost and rear of *Victory*'s hull. Leave this stage until later if you are going to add copper plates to the hull of your model.



1. Apply a little epoxy to the inside of each hinge pin to reinforce it, then pin the straps of the hinges to the rudder.

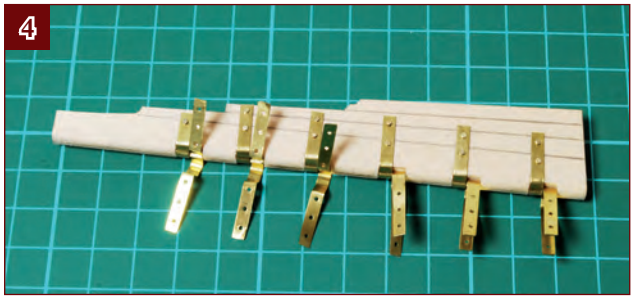
EXPERT TIP

As the rudder is only 6 mm thick, the pins need to be shortened to less than 5 mm by cutting them with wire cutters. Ensure you hold both ends of the pin when cutting it to prevent the sharp point from flying off and possibly causing an injury. It is advisable to wear eye protection.



2. Hold the rudder in place, and pencil the positions of the hinges to be fitted to the sternpost of your model.

3. Take six more hinge strips and carefully bend them so they match the shape of the hull in line with the positions marked.



4. Slide the hinges under the hinge pins, keeping them in order and making sure they are the right way up. You will have to flatten the sharp bends on the top three hinges to allow them to slide in, then reset the bend.

QUICK TIP

Note the pins on the bottom three hinges must be shortened to prevent them from going right through the sternpost.

5. Put the rudder in place and secure the hinges with nails. You should not need to use glue, as the pins are sufficient to hold the rudder on their own.

6. Drill a 0.7-mm hole in the rudder and fit the eyebolt with superglue as shown, ensuring that the eye is horizontal.

7. Check that the rudder moves from side to side (bearing in mind that the movement is restricted, as explained in Step 9 on the second page of this stage).

Stage 52: Making the companionway ladders

This stage includes parts for a companionway ladder, deck rails and another kit for a complete 12-pounder.

Wooden parts

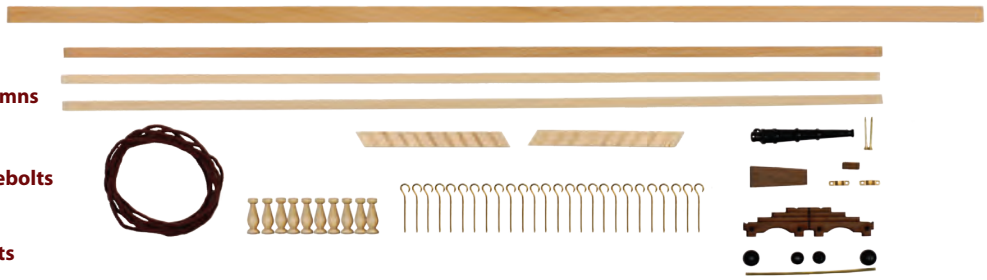
1 wooden strip 3 x 3 mm, 250 mm long
2 wooden strips 1 x 3 mm, 250 mm long
1 wooden strip 1 x 5 mm, 250 mm long
2 pre-cut ladder sides, 10 turned wood columns

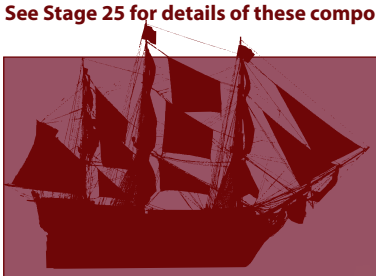
Handrail parts

Brown thread 0.8 x 600 mm, 26 x 15 mm eyebolts

Cannon parts

See Stage 25 for details of these components





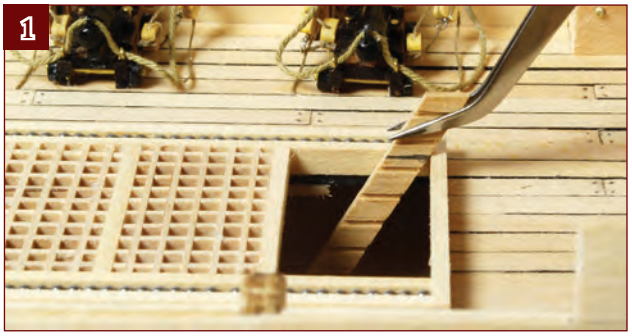
Where the parts fit

The ladder parts (two sides and a set of treads) are used to make the second of two companionways leading to *Victory*'s lower decks. You already have parts for the first ladder (provided with Stage 34).

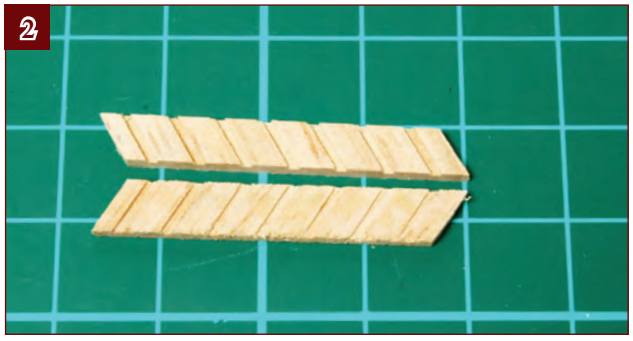
The eyebolts and thread are used to make handrails around the openings in the deck. Keep the parts to make the wooden railings, and the kit for the 12-pounder gun, for use in a later stage.

Making the companionway ladders

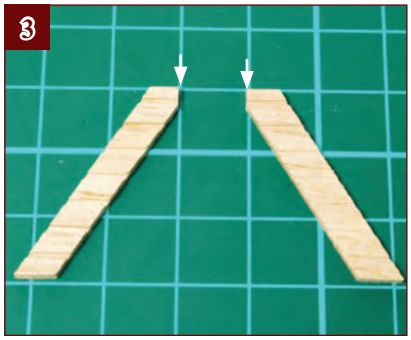
To make both sets of ladders shown in the following steps, you will need the parts supplied with Stage 34 as well as those provided with this stage.



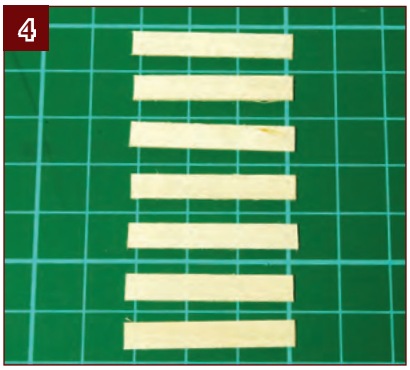
1. Take one of the ladder sides. Hold it through the hole in the grating so that the bottom sits on the deck below and the grooves for the treads are level. Make a pencil mark in line with the top of the grating.



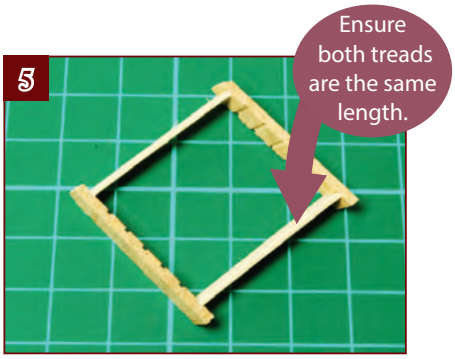
2. Cut the side to length. Then cut a second side to match. Before cutting the wood, make sure you have a left and right pair, that the lengths are exactly the same, and that the slots for the treads line up, as shown above.



3. Cut a flat on the tops of the ladder sides, as arrowed, about 3 mm long and square to the slots for the treads.



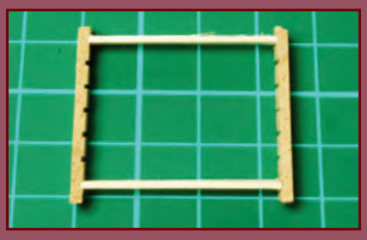
4. To make the treads, cut seven strips of 1 x 5-mm wood, each 31 mm long.



5. Take the two sides and two treads and glue them together. Make sure they are square and flat. Allow them to dry thoroughly before continuing.

EXPERT TIP

Use the squares on a cutting mat or graph paper to make sure the ladder is properly aligned.

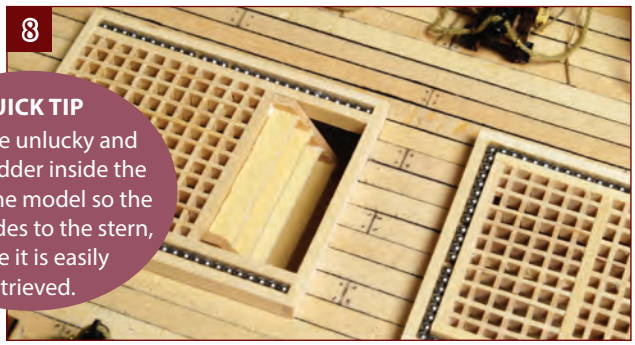


6. Now slide the rest of the treads into the slots and glue them in place. You may have to sand the treads a little until you get a sliding fit.

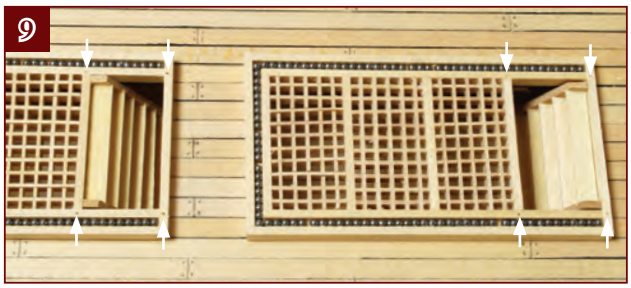
7. Ensure the ladder is the right way around, with the flats cut in Step 3 at the top. Apply glue to the bottom of the ladder, and the flats, then glue it in place.

QUICK TIP

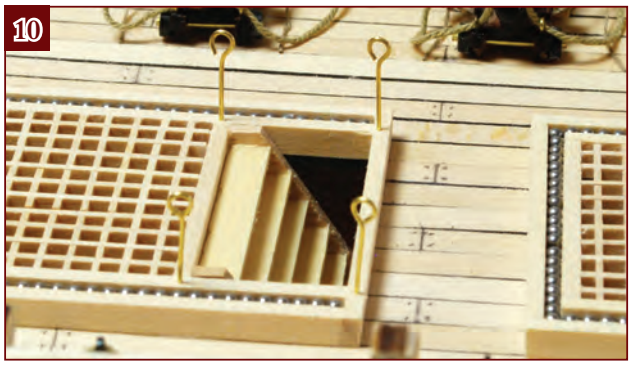
If you are unlucky and drop a ladder inside the hull, tip the model so the ladder slides to the stern, where it is easily retrieved.



8. Repeat Steps 1-7 for the ladder on the smaller grating.



9. Drill four holes, 0.7 mm diameter, beside each ladder at the arrowed points. The holes should be 2 mm deep, so place a piece of masking tape on your drill bit to act as a depth guide.

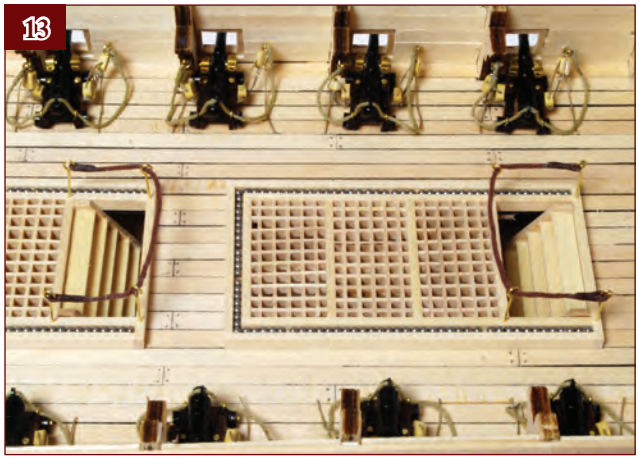


10. Insert one of the long brass eyebolts supplied into each hole, but do not glue them at this stage. Keep the excess eyebolts for later use.

11. Insert the brown thread through an eye, fold a short length back on itself, and glue it to represent a splice. Then thread it through the other three eyes.

QUICK TIP
It is easier to remove an eyebolt to glue the thread, which is why they were left unglued.

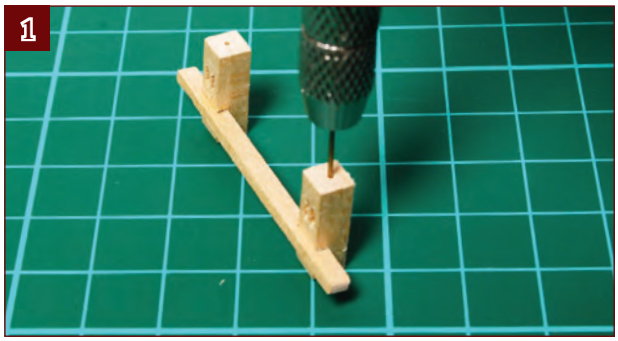
12. Cut the thread to length, leaving just enough excess to glue back on itself to make the splice. Then glue the eyebolts in place with superglue.



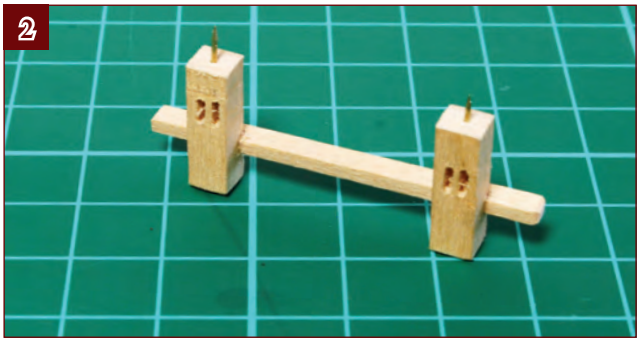
13. The completed companionways should look like this.

Fitting the bitts

The bitts constructed in Stage 47 are attached to the deck just to the rear of the medium grating forward of the main mast. The joint between the bitts and the deck needs to be reinforced with pins.

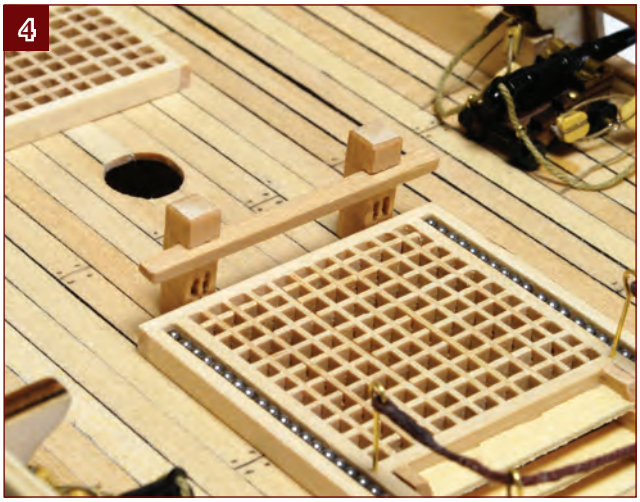


1. Drill a 0.7-mm-diameter hole, about 6 or 7 mm deep, in the bottom of each leg of the bitts. Make sure the hole is central and straight.



2. Cut the heads off two pins, and glue them with superglue into the holes you have just drilled. The points of the pins should protrude about 3 mm (the exact amount isn't critical).

3. Position the bitts as shown in the next step and use the points of the pins to mark the deck. Drill 0.7-mm holes where marked. Do not try to push the nails into the deck without drilling holes, as you may crack it.



4. Glue the bitts in place using superglue.

Stage 53: The deck supports and ship's wheel

The parts provided with this stage are used to make the deck beams that support the quarterdeck, which is built up in a similar way to the upper gun deck that you recently constructed.

Wooden strips

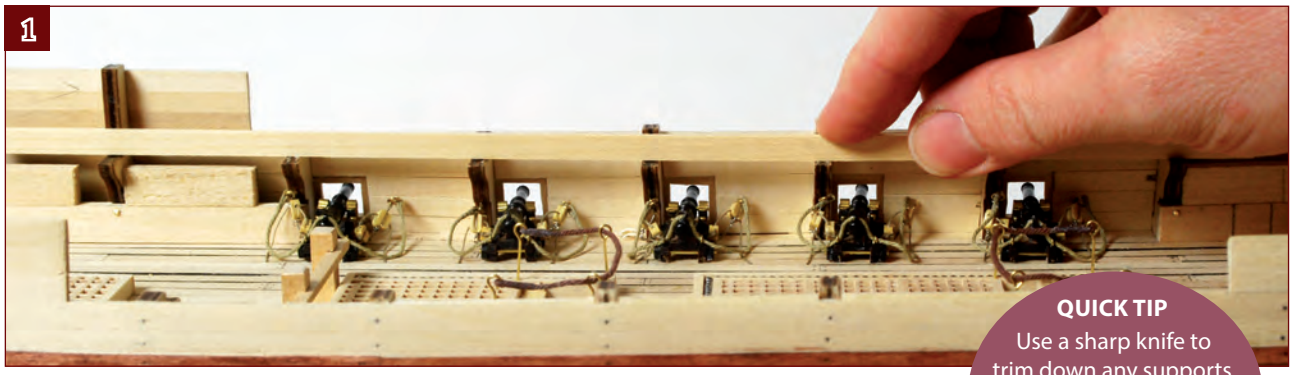
9 wooden strips 1.5 x 6 mm, 300 mm long to make deck beams

Where the parts fit

The wider wooden strips provided with this stage are used to make the supports for the quarterdeck planks. Each deck support beam is made in two halves, notched to fit around the hull frames. Note that the supports glued to frame 14 are cut short, as they fall in line with the mounting for *Victory*'s foremast.

Fitting the deck supports

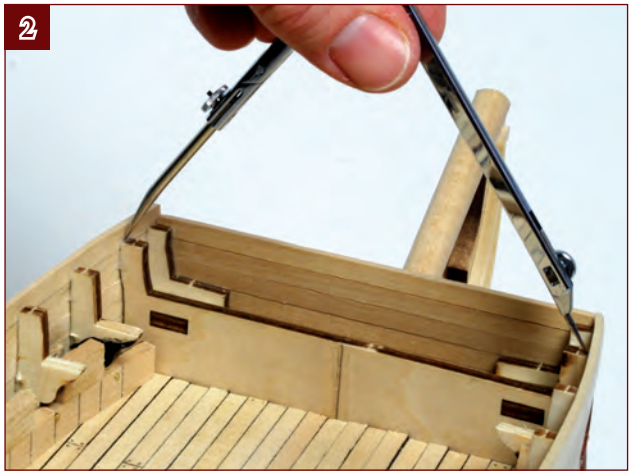
This time, you'll fit the first of the deck support beams. The remaining beams will be provided with the next stage. After fitting all of them, you will be ready to plank the deck.



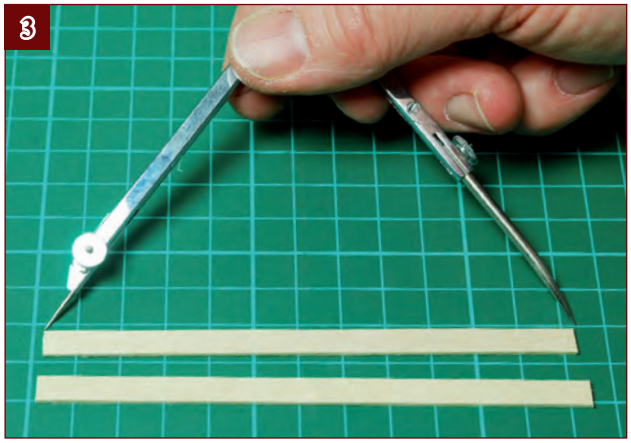
1. Take a spare plank, and hold it on edge against the deck beam supports to make sure that they are all the same height. Note that there is a natural gentle curve from bow to stern, so the plank will not sit perfectly flat.

QUICK TIP

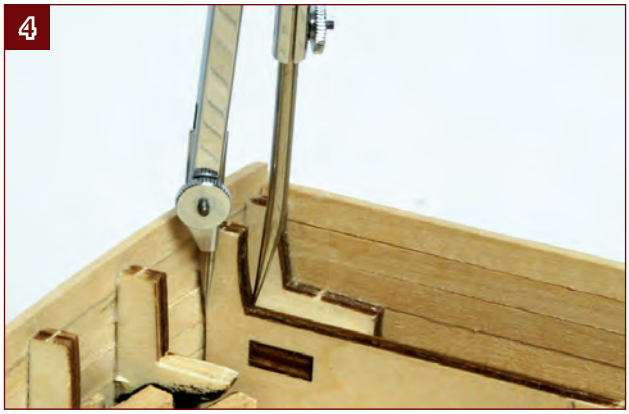
Use a sharp knife to trim down any supports that are too high, rechecking with the plank from time to time.



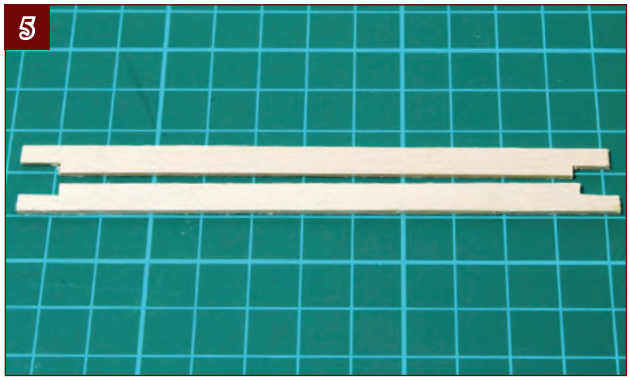
2. Measure across the full width of frame 12 between the inner faces of the hull planks. You can use a ruler for this, or dividers as we have done here.



3. Cut two lengths of 1.5 x 6-mm wood to the same length as you just measured. Note that because of the inward curve of the bow, you will have to shorten the front part of the deck support beam and cut the ends at an angle to fit.

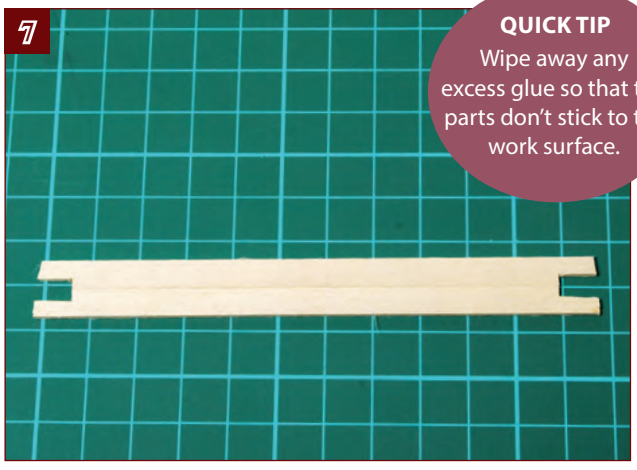


4. Measure the width of the upward-projecting sections of the frame. Again, you can use either a ruler or dividers.



5. Cut out notches in the ends of the beams. The notches should be 2-mm wide (half the thickness of the frames), and long enough to clear the side of the frame.

6. Try the beams in position, and trim them until they fit together tightly and sit flat on the top of the frame.

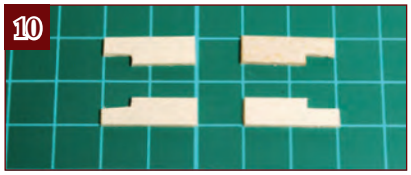


QUICK TIP
Wipe away any excess glue so that the parts don't stick to the work surface.

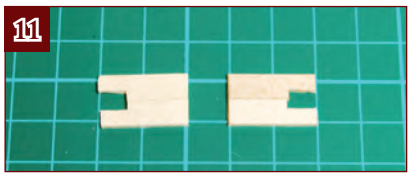
7. Remove the two beams, glue them together and allow them to dry on a flat surface.

8. Now glue the beam in place on frame 12, making sure that it stays flat while the glue dries.

9. Repeat Steps 2 to 8 to add a beam to frame 13, then frames 15 to 21. **Do not add a full beam to frame 14.**

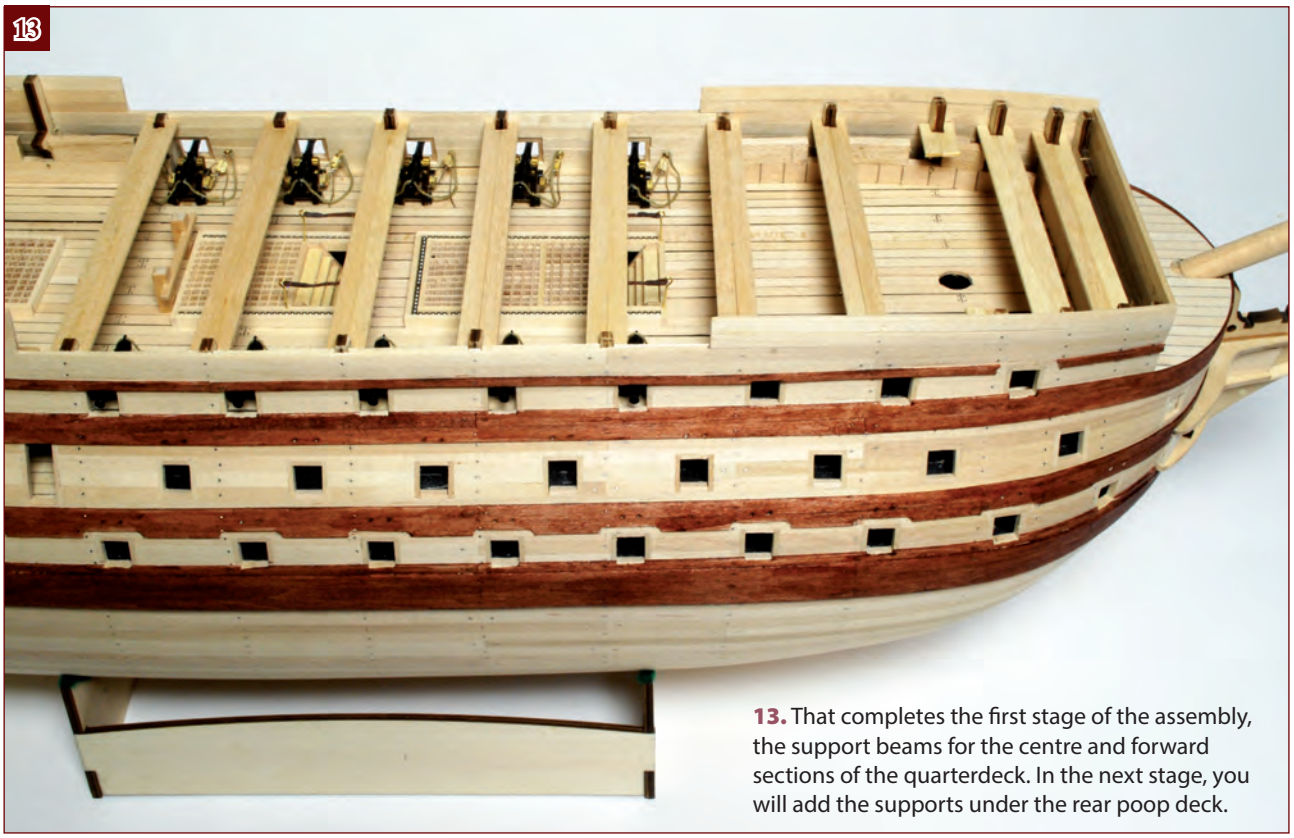


10. Cut four 20-mm lengths of 1.5 x 6-mm wood, and cut notches in the end of each to clear the ends of frame 14.



11. Glue these pieces together in pairs.

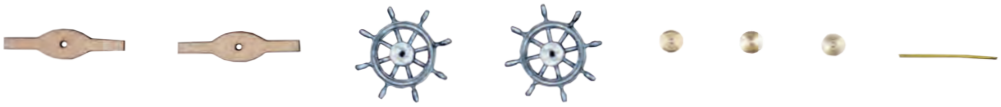
12. When the glue is dry, glue these pieces to the beam supports on frame 14.

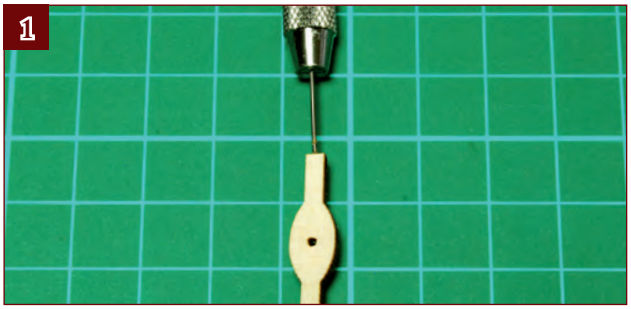


13. That completes the first stage of the assembly, the support beams for the centre and forward sections of the quarterdeck. In the next stage, you will add the supports under the rear poop deck.

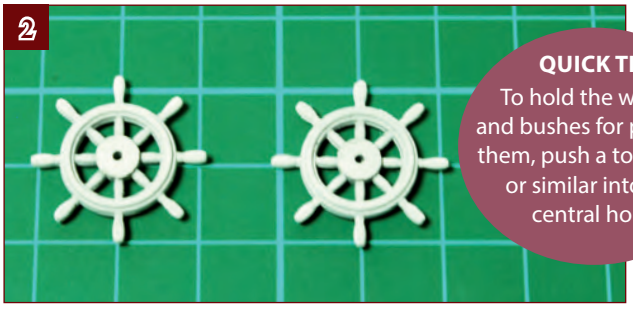
Constructing the ship's wheel

The parts for the ship's wheel (below) were provided with Stage 45. Assemble them now, ready to attach the complete wheel assembly to the deck at a later stage.



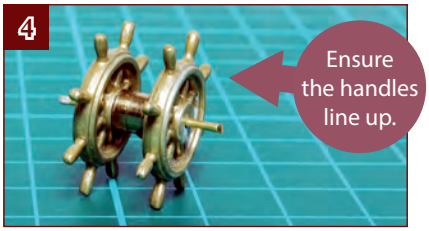


1. Drill a 0.7-mm hole in the end of each wheel support. Keep the drill as straight as possible. These holes will be used to pin the wheel in position when it is fitted.

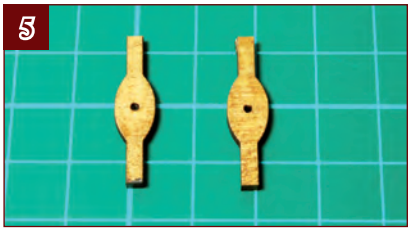


2. Spray the wheels with metal primer – grey car primer is ideal. If you choose the alternative painted version, also prime the edges of the brass bushes.

3. Paint the two wheels with gold/brass paint or follow the "Alternative paint finish" below.



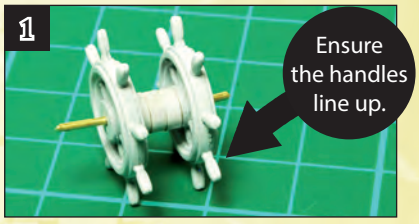
4. Glue one wheel onto the brass wire, followed by the three bushes, then the second wheel.



5. Stain the uprights a darker colour of your choice (dark oak was used here).

Alternative paint finish

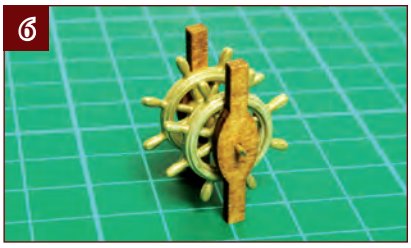
If you are finishing your model of HMS *Victory* in "Trafalgar colours," when it comes to painting the wheel, you have the option of using alternative colours to depict the finishes that were used on the ship.



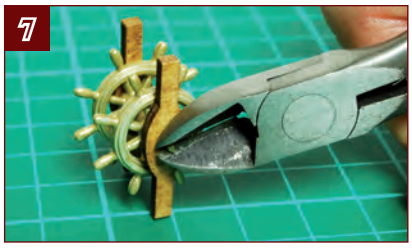
1. Using superglue, glue a wheel onto the brass wire, followed by the three bushes, then the second wheel.

2. Paint the wheels and bushes a mid-brown colour to simulate wood.

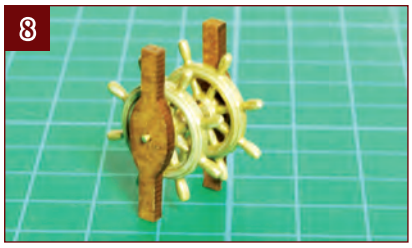
3. Paint the wheel supports black.



6. Glue the wheel supports to the wheel assembly.



7. Cut the surplus brass wire close to the wheel support.



8. Smooth the ends of the wire with a needle file.

Stage 54: Planking the quarterdeck

The parts supplied are used to complete the deck supports you began in Stage 53. You have also received the first of the planks for this deck.

Wooden strips

44 wooden strips 2 x 5 mm, 300 mm long, 10 wooden strips 1.5 x 6 mm, 300 mm long, plus fixing pins

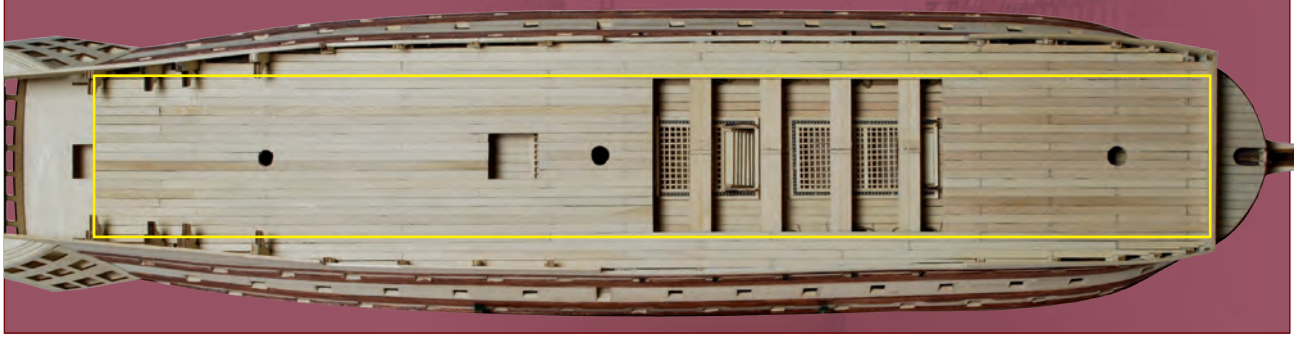
Wooden dowel

One 8-mm dowel 140 mm long, used as a test piece to check the alignment of the mast holes

Where the parts fit

The parts supplied complete the deck support beams and enable you to lay the first 17 planks in the central area outlined below. The quarterdeck will be completed in Stage 56, when additional planks are supplied. The planking needs to be sanded smooth, as it is a feature point of the model, so you only apply the nail heads and simulated joints *after* the surface of the deck is sanded.

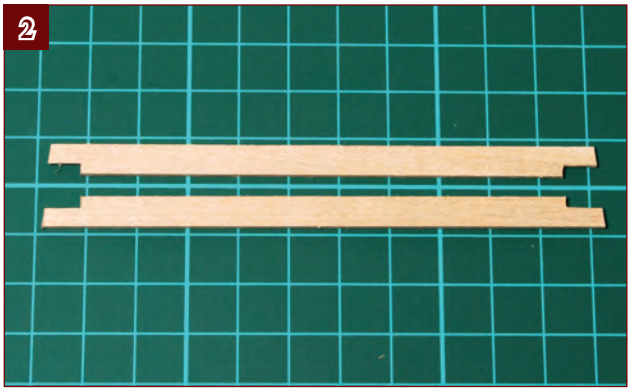
The 8-mm dowel is a test piece to allow the correct fitting of the deck around the mast. As well as being used in this stage, it will be needed later in the series, so do not discard it. The spare pins are for fixing various items during the construction of the model, so keep them at hand for use as needed.



Completing the deck supports

The rest of the deck support beams are fitted in a similar way to those you added in Stage 53. However, this time you need to assemble some of them in place on the hull.

1. Ensure the 8-mm dowel fits in the mizzen mast hole, and goes all the way to the bottom. You will find it easier to insert the dowel if you sand a bevel on the end.



2. Using the same method as in Stage 53, cut two beams to fit at the frame closest to the stern (frame 30).

3. Due to the shape of frame 30, you cannot insert the beam in one piece, so glue the pieces together at the same time as gluing them to the frame. Repeat for frames 28 and 27.

4. Cut the beams for frame 26, and use the dowel as a guide to make a cut-out to clear the mast.

5. Glue these beams in place, being careful not to glue them to the dowel.

6. Fit and glue the last four beams in place on frames 22 to 25. Allow the glue to dry thoroughly before continuing.

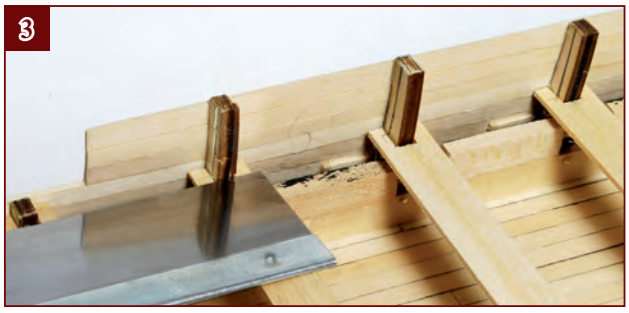
Trimming the frames

Before planking the deck, you need to trim some of the frames that will be planked on the inside to form open bulwarks around the quarterdeck.

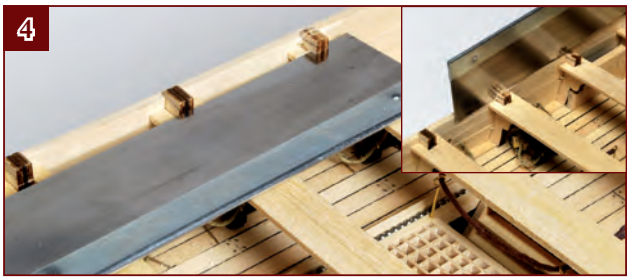
1. The frames need to be reduced to 3 mm thick. Glue two scraps of 1.5-mm strip together to form a 3-mm gauge. Use this to mark a line 3-mm from the outer planks on frames 7, 12 to 16, and 22 to 25.

QUICK TIP
If you left the nails in place, you will end up cutting through some, but a good-quality razor saw should work without difficulty.

2. Saw down the lines using a razor saw. Note that you will have to cut away the excess wood on frame 7 by using a knife, as there is no room for a saw.



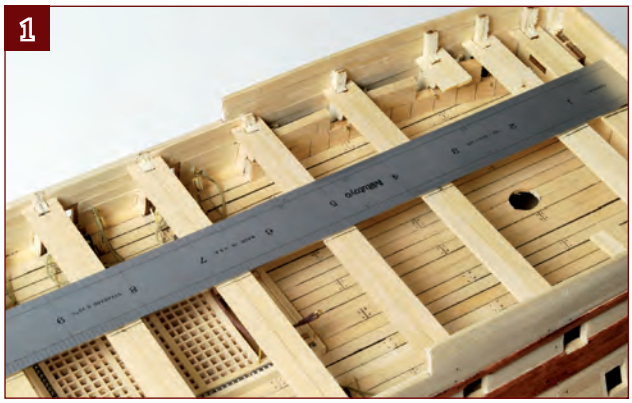
3. Remove the excess from each frame by sawing or cutting across the bottom, close to the deck support beam.



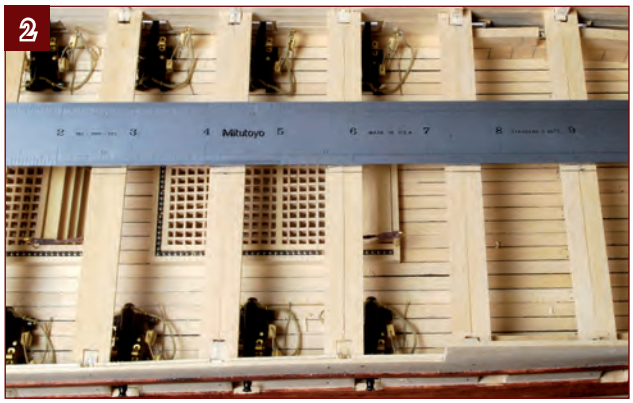
4. Cut the tops of frames 17 to 21 close to the bulwark, then remove by cutting close to the support beam. **Do not trim the outer planking.** You will plank over the top of the frames later.

Planking the quarterdeck

With all the deck support beams fitted, you can start to lay the deck planking. This time, you will lay the central area, which includes leaving some hatchway openings.



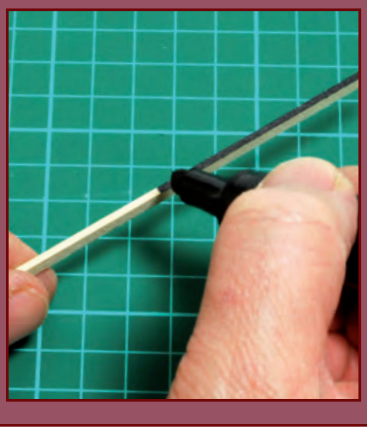
1. Measure the width of the hull across each frame. Divide by two to mark the centre line down each support beam.



2. Measure and mark a line 2.5 mm to the port (left) of the centre line. You will use this line to position the first plank, which is the one that runs adjacent to the centre plank.

QUICK TIP

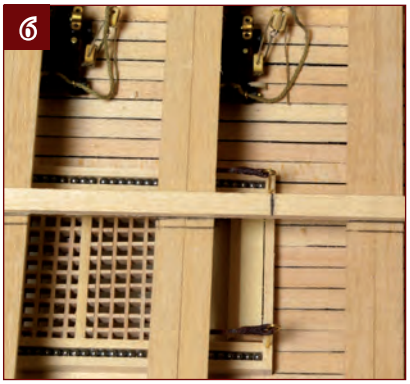
Simulate deck caulking by using a black marker pen to darken one edge of the planks.



3. Align the first plank with the outside of the marks you made, running from the forward bulkhead to frame 20. You will need to make a cut-out for the fore mast.

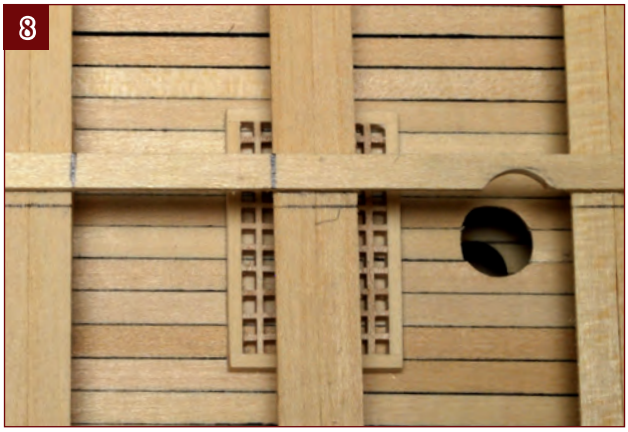
4. Fit a second plank from frame 20 to 27. This plank will require cut-outs to fit around the main and mizzen masts.

5. Complete the run by fitting a short plank at the stern.



6. Now you need to mark the positions of the openings in this deck. Make a pencil mark directly over the front of the grating on the third deck.

7. Make a second mark, directly over the bitts.



8. Make two more marks, in line with the edges of the beams at frames 22 and 23.

9. Lay the centre plank from the bow to the mark you made in Step 6, leaving a gap with the ends cut to clear the mast hole.

10. Fit the next sections of planking from the mark you made in Step 7 to the forward mark you made in Step 8 (at frame 22), again leaving a gap to clear the main mast.

11. Fit the aft sections of the centre plank, running from frame 23 to frame 30, this time leaving a gap to clear the mizzen mast.

12. Fit a further three planks – one on the left, two on the right – in line with the planks you fitted in Steps 10 and 11. This will make a total width of five planks as shown, with the centre plank in the middle. Don't forget to make appropriate cut-outs for the masts.

13. Add another six planks each side, running from the end of the large opening to the stern. A single plank is too short to reach the full length, so you will need to use two strips of wood for each one. Stagger the joints between them so that they fall alternately on frames 27 and 28.

14. Add a further 15 strips of wood at the bow, so that you have a total of 17 planks with the centre plank in the middle. You will trim their ends later.

Stage 55: The quarterdeck openings

This stage brings you the parts to make the pin rails on the quarterdeck, plus another of *Victory*'s 12-pounder guns.

Wooden strips

1 wooden strip 5 x 5 mm, 120 mm long;
1 wooden strip 3 x 3 mm, 200 mm long

Metal pins

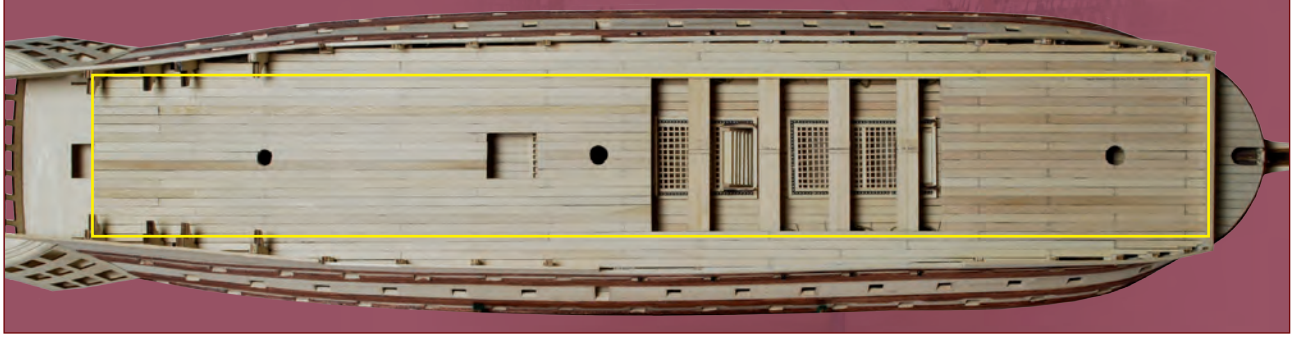
30 belaying pins

12-pounder gun parts

A complete set of components for a 12-pounder gun, as illustrated

Where the parts fit

This stage, you'll start by continuing the quarterdeck planking that you began in Stage 54. This time, you will finish off the large opening in the centre of the deck and the small hatchway astern of the main mast. You will also prepare the three pin rails (used to hold the belaying pins supplied this stage) that are fitted on the quarterdeck, although these aren't installed at this stage. You can also assemble the 12-pounder gun in the same way as the previous ones (there is a set of instructions in Stage 18) and keep it for later installation.



Finishing the quarterdeck openings

In the previous stage, you started by laying a guide plank from bow to stern. This runs across the two openings in the deck and needs to be cut away before you trim the holes.

1. Use a razor saw to cut away the section of the first deck plank that spans the central opening. Be careful not to damage the handrail, cannons or deck below.

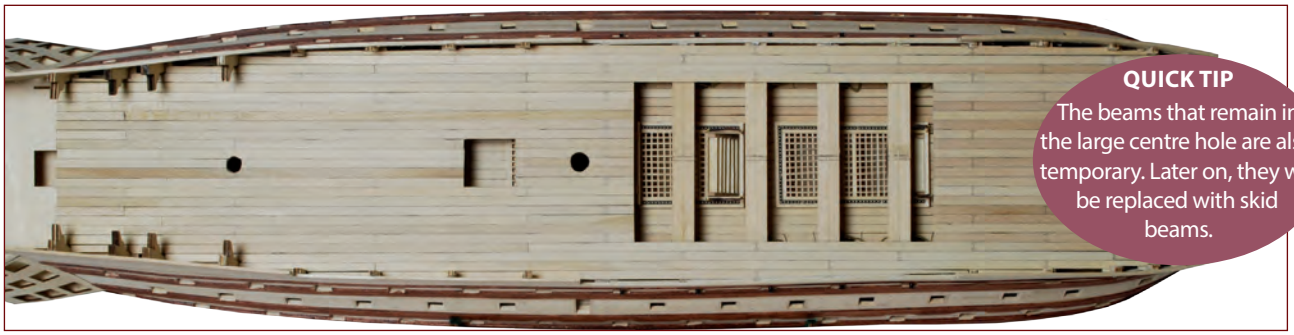
2. Cut away the section of deck plank that spans the smaller opening in the same way.

QUICK TIP
It's not necessary to tidy up the smaller opening, as its edges will be covered by a frame.

3. Draw straight lines across the ends of the planks as close as possible to the edges of the large opening.

4. Sand the ends of the planks back to meet the pencil line so that the opening is straight and smooth.

EXPERT TIP
Carefully place a piece of tissue over the guns to save them from getting covered in sawdust.



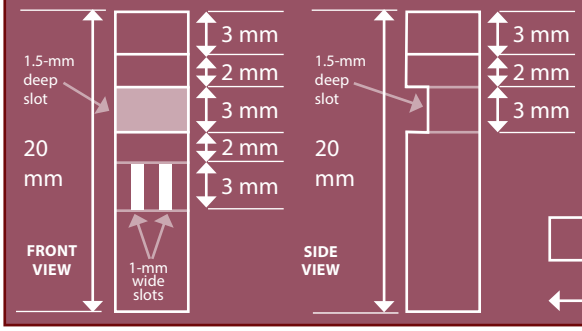
QUICK TIP
The beams that remain in the large centre hole are also temporary. Later on, they will be replaced with skid beams.

Constructing the centre pin rails

Victory **has three pin rails on the quarterdeck: two by the foremast and one by the mainmast. Cut the parts now, but don't assemble them until they are being installed on the model, to ensure an accurate fit.**

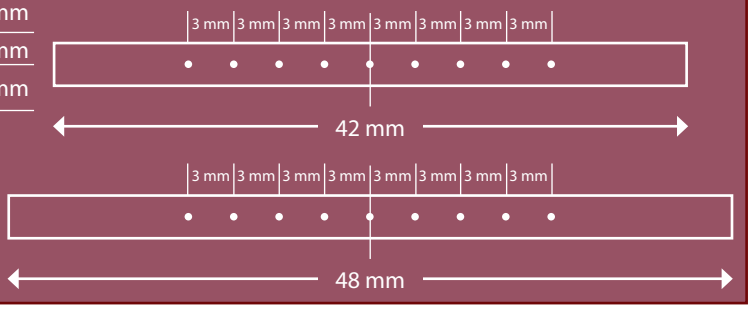
Dimensions for upright posts

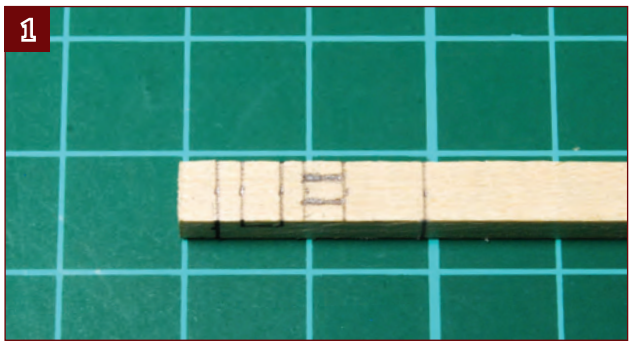
As shown in Steps 1-8, make six posts following these dimensions. It is best to shape them on the end of the strip, then cut them to length.



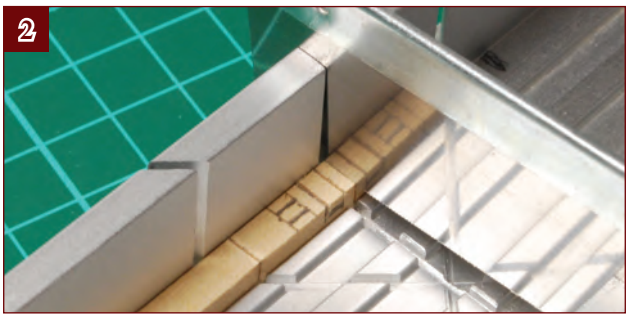
Dimensions for rails

As shown in Steps 9-11, make two rails 42 mm long, and one 48 mm long. Each has nine holes, 3 mm apart running along the centre line.

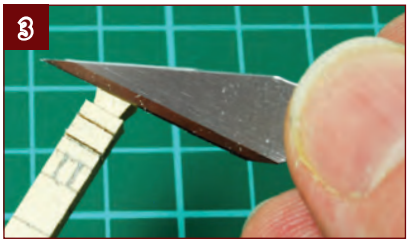




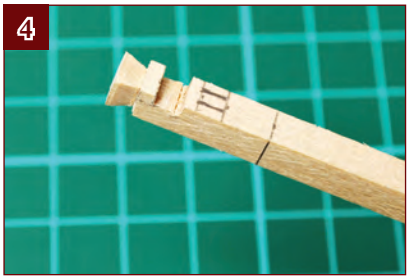
1. To make the first of the upright posts, mark one end of the 5 x 5-mm piece of wood according to the two diagrams above.



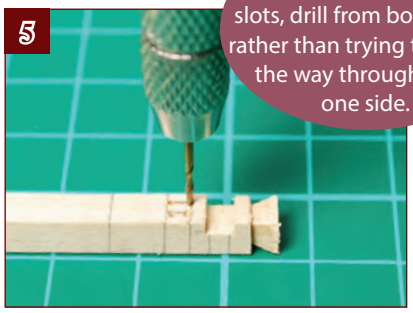
2. Mark a saw cut about 0.5 mm deep around the top line, and make two cuts 1.5 mm deep for the slot that holds the horizontal rail.



3. Shape the top with a sharp knife. First cut around the end mark to a depth of 1 mm. Then carefully cut in from the top corners at an angle as shown.

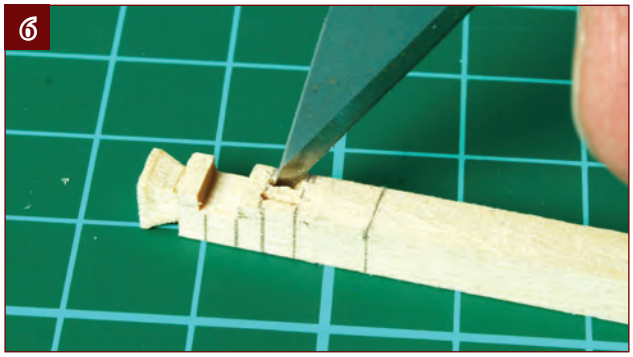


4. Remove the wood between the saw cuts to form the slot, which is 3 mm high and 1.5 mm deep.

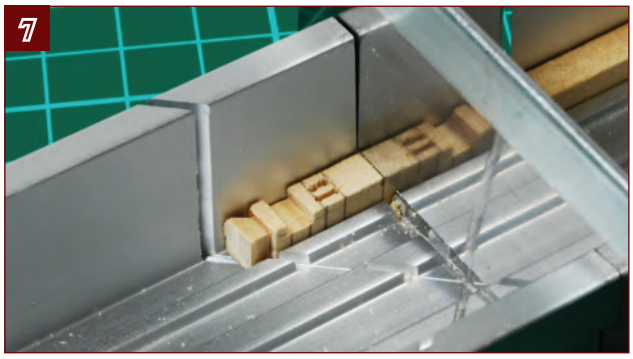


5. Drill 1-mm holes at the top and bottom of the slots.

QUICK TIP
To get more accurate slots, drill from both sides, rather than trying to drill all the way through from one side.

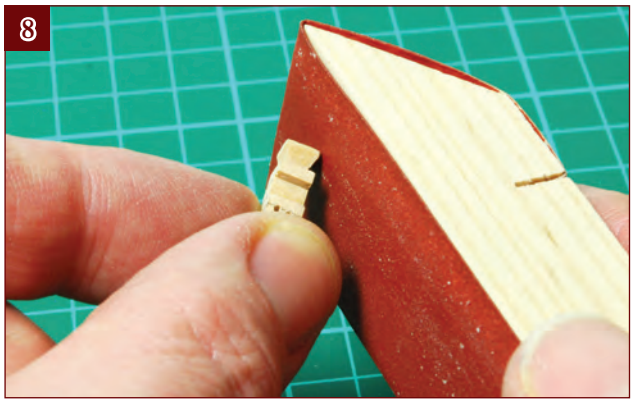


6. Cut away the wood between the holes to form the slots.

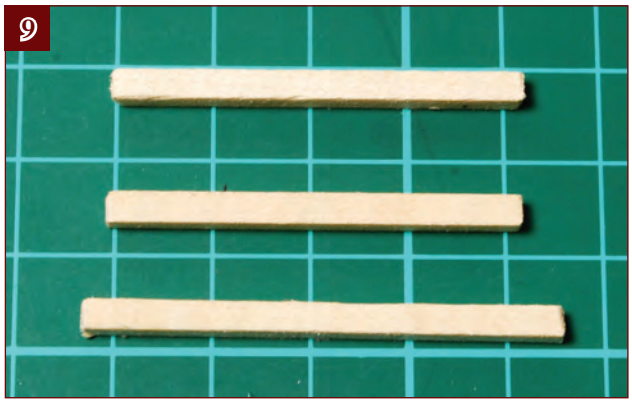


7. Cut the completed pin rail post from the end of the wooden stock. Repeat this to make a total of six posts.

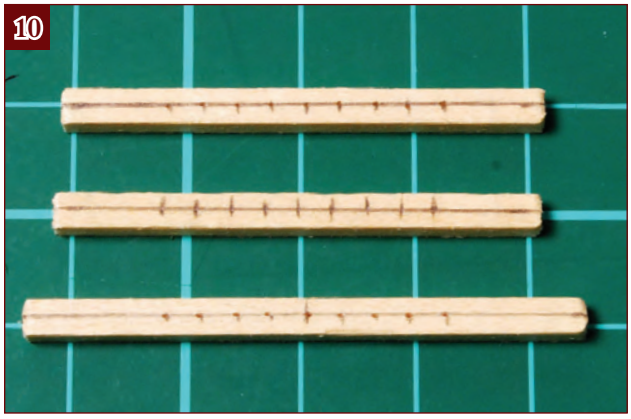
Two of the pin rails (bowline and sheet bitts) after installation on the quarterdeck beside the fore mast. Equipped with belaying pins, they are used for securing* Victory's *rigging lines.



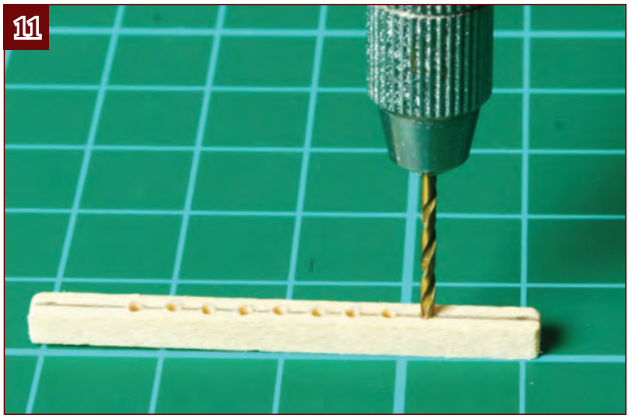
8. Sand the edges and corners smooth, and make sure the top and bottom are flat. Sand off any remaining pencil marks.



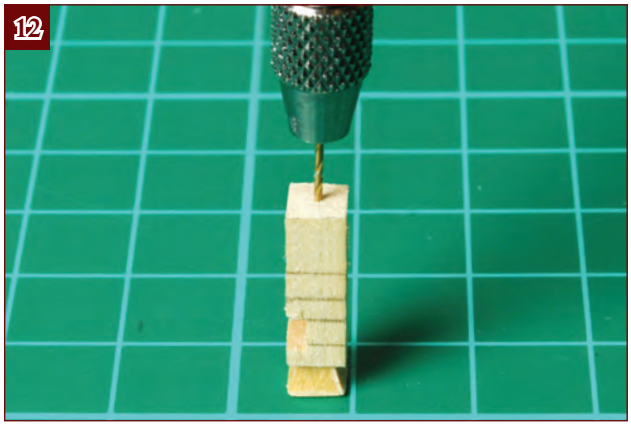
9. Cut the 3 x 3-mm strip into two lengths 42 mm long, and one length 48 mm long.



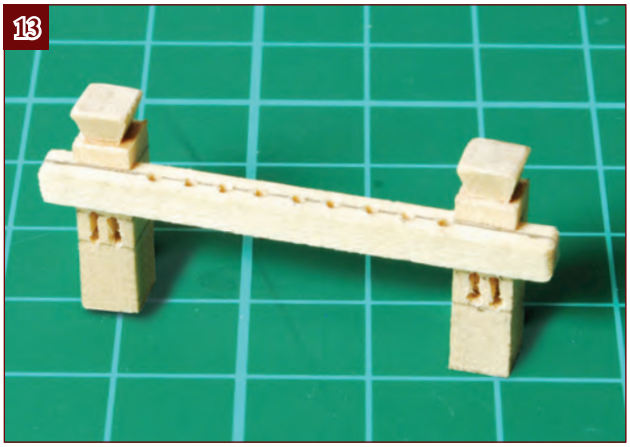
10. Mark nine holes on each rail according to the plans on the second page of this stage.



11. Drill all nine holes in each rail using a 1.3-mm drill bit.



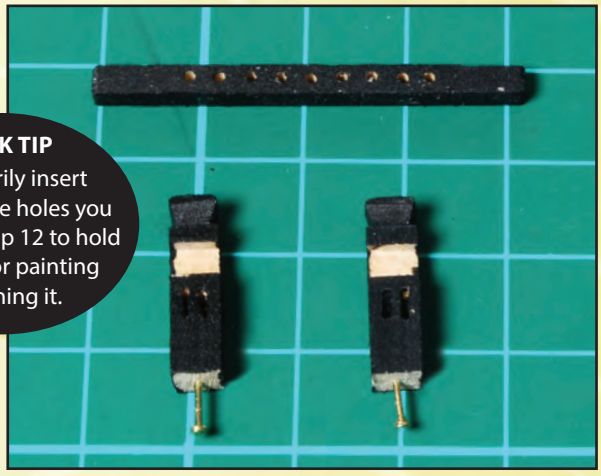
12. Drill a 0.7-mm hole centrally in the base of each post. This will be used to pin the posts to the deck when you fit them to the model.



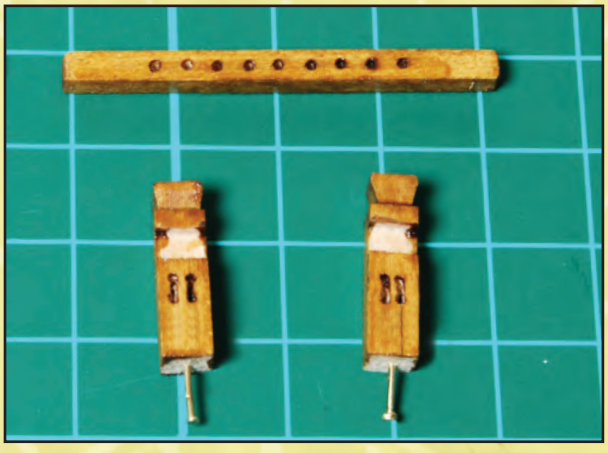
13. Test-assemble (but do not glue) the parts to make sure they fit together properly.

Optional colouring

QUICK TIP
Temporarily insert nails into the holes you drilled in Step 12 to hold the part for painting or staining it.



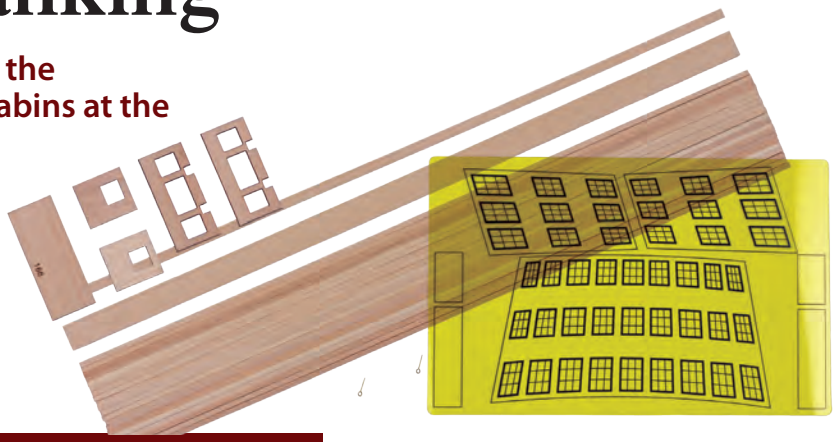
1. If you are painting your model in colour, paint the parts black. Do not paint the inside of the 3-mm slots.



2. If you are making a natural wood version, you can stain the parts with a colour of your choice (dark oak wood stain was used here). Do not stain the inside of the slots.

Stage 56: Complete the quarterdeck planking

This stage includes more planking for the quarterdeck, plus parts to make the cabins at the stern, which you will start next stage.

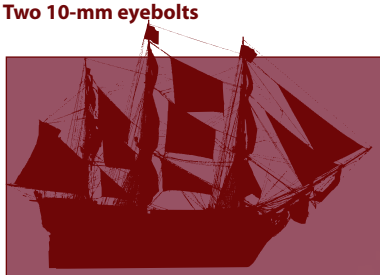


Wooden strips

20 wooden strips 2 x 5 mm, 300 mm long
1 wooden strip 4 x 11 mm, 300 mm long
1 wooden strip 1 x 4 mm, 300 mm long

Cabin parts

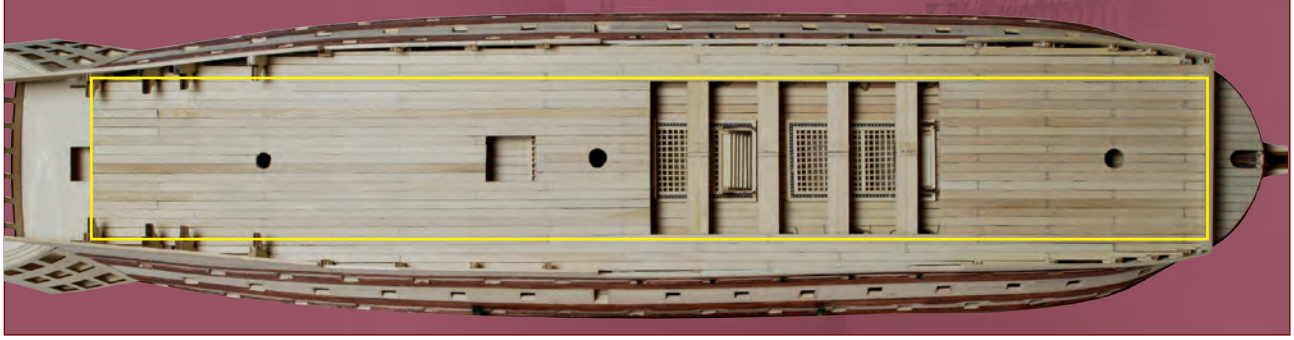
Five laser-cut parts for cabin partitions
Yellow acetate sheet printed with stern gallery windows
Two 10-mm eyebolts



Where the parts fit

You have already laid the central area of the quarterdeck outlined below. The extra planks supplied are used to fill in the narrow strips that remain down each side, beyond the yellow lines.

In the next stage, after you have laid the deck, the five shaped parts will be used to make the cabin partitions toward the rear of the quarterdeck, which will soon be covered by the poop deck at the stern. You'll also be adding the windows in these partitions and around the rear of the stern gallery. Keep these parts safe until then.



Complete the quarterdeck planking

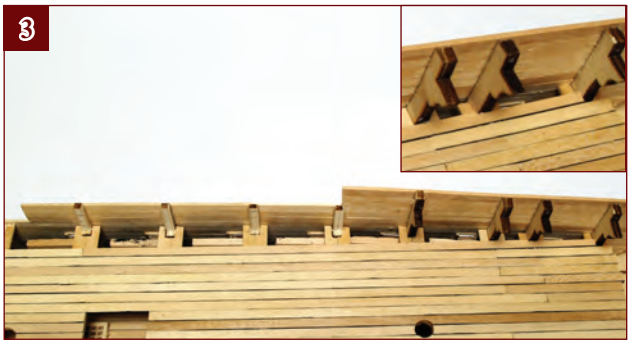
With the central area of the quarterdeck complete, you can fill in the narrow strips of planking along each side, some of which need to be trimmed to fit the bulwarks.

1

1. Lay the next plank from the bow to frame 16. Don't forget to use a black marker to simulate the caulking.

2

2. Lay another plank against the end of the one you just laid, so that it runs from frame 16 to frame 22.



3. Complete the row by laying a plank from frame 22 to frame 30. You may need to cut a step at the end to clear the frames at the stern (frame 28 and possibly frame 27).

QUICK TIP
Use an offcut of plank as a straightedge where a ruler is too long.

4. Add another two rows of planks in the same way. The join between the planks should be moved forward by two frames every row to maintain the planking pattern. The planks will need to be stepped at the bow and stern so that the planks can fit between the frames.

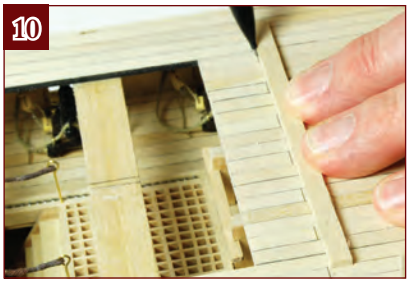
5. Lay a plank between frames 16 and 22. This plank should butt up against the edge of the hull planking. However, don't worry if the gap is less than 2 mm because this will be covered up at a later stage.

6. Fill the spaces between frames 22 and 26 and frames 12 and 16. Once again, gaps less than 2 mm between the deck and the hull planking do not need to be filled.

7. Repeat the same process on the other side of the deck, laying the first plank from the bow to frame 16. Joins between the planks should move aft by two frames every row (rather than stepping forward).

8. Once the glue is completely dry, sand the deck smooth. Always sand in a fore-and-aft direction to avoid the ink from the caulking staining the surface of the decking.

9. Sand the top of the lowest side planks so they are flush with the deck.



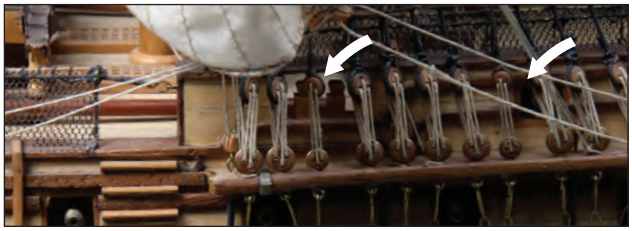
10. Simulate the ends of the planks with a pencil, and then add the marks to represent nails.

This completes the quarterdeck planking.

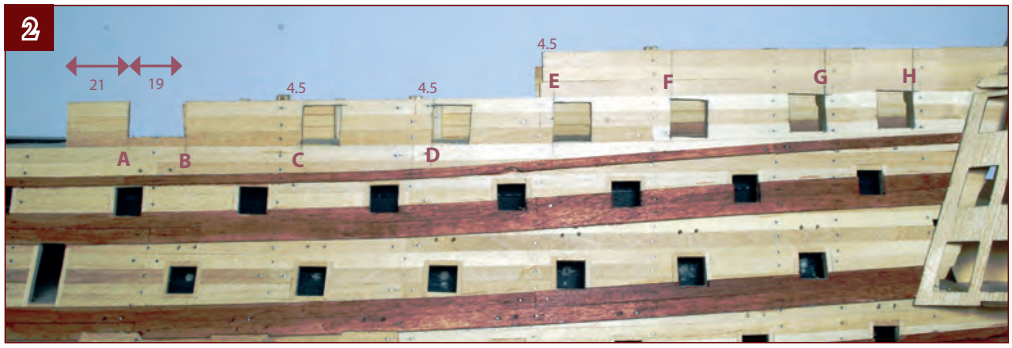
Cutting the quarterdeck gun ports

After marking the 12 gun ports and two openings for the mooring timber heads, cut them in the same way as previous ports (see Stage 29). We only show one side – repeat the process on the other side, too.

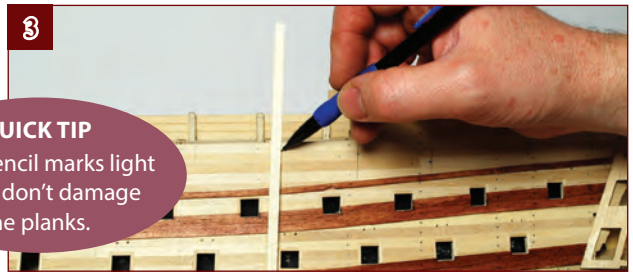
1. Check the height of the bulwark. It should be about 15.5 mm. If it is less than 15 mm, build it up with a narrow strip of plank. If it is higher than 16.5 mm, carefully sand it back to the required height.



The two posts of the timber heads, and the first gun port (arrowed), behind the rigging on the finished model.



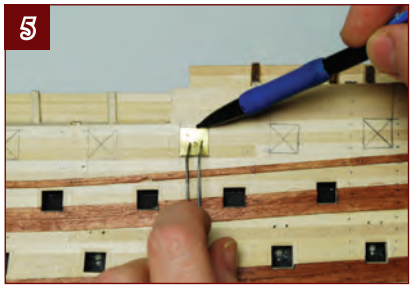
2. This picture of the completed cut-outs shows the positions of the guidelines to be drawn in the next step: A 21 mm from the front; B 19 mm astern of A; C, D, E, F 4.5 mm aft of the adjacent frames (23-26); G, H in line with the forward faces of frames 28 and 30.



QUICK TIP
Keep pencil marks light so you don't damage the planks.

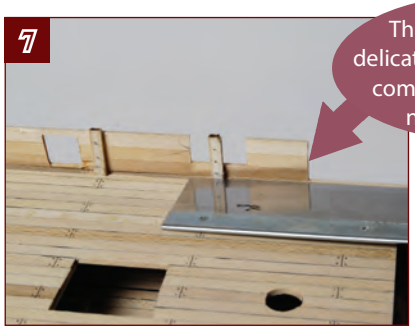
3. Pencil in the guidelines, following the position guide above. The forward five ports are directly above the second deck gun ports, so use a spare strip of plank to help you mark the positions.

4. Mark the bottom of the opening for the timber heads 12 mm from the top of the bulwarks. Mark the tops of the front two gun ports 2 mm below the top of the bulwarks. Follow the line of the deck to mark the remaining four gun ports. They are all the same height above the ports on the middle gun deck.



5. Use your 12-mm square template to mark the gun ports based on the position guides you marked in Steps 3 and 4.

6. Cut out the ports using the same process described in Stage 29. Remember to use a fresh knife blade.



7. Use a razor saw to cut away the frame that protrudes into the opening for the timber heads.

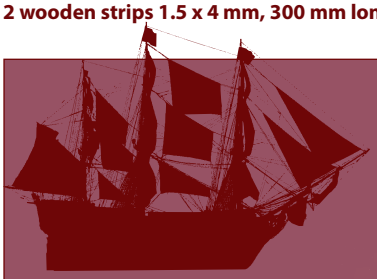
That completes the ports in the stern area, ready for lining in the same way as previous ports. The pencil marks will be sanded off when the gun port linings are sanded flush.

Stage 57: Lining the bulwarks

The wood supplied is used to line the bulwarks and make supports for dummy guns. Some will also be used later to make the poop deck.

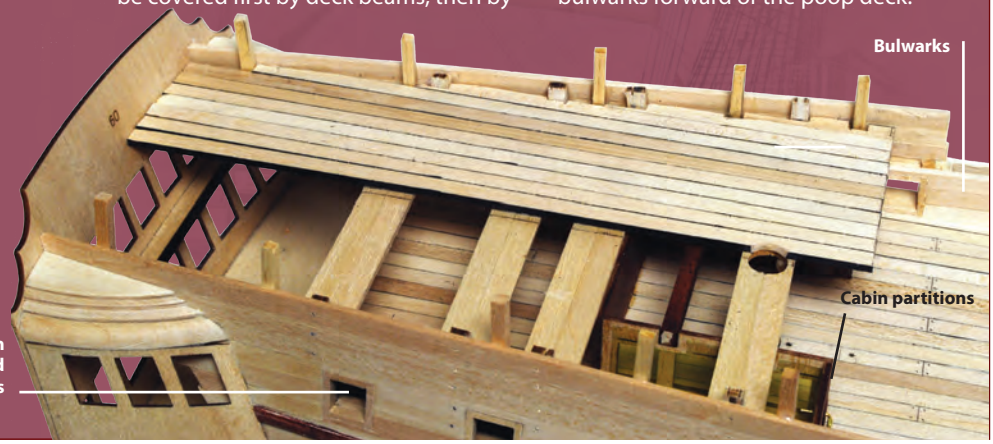
Wooden strips

1 wooden strip 4 x 11 mm, 300 mm long
2 wooden strips 1.5 x 8 mm, 300 mm long
5 wooden strips 1.5 x 6 mm, 300 mm long
1 wooden strip 4 x 4 mm, 300 mm long
1 wooden strip 3 x 3 mm, 300 mm long
35 wooden strips 2 x 5 mm, 200 mm long
2 wooden strips 1.5 x 4 mm, 300 mm long



Where the parts fit

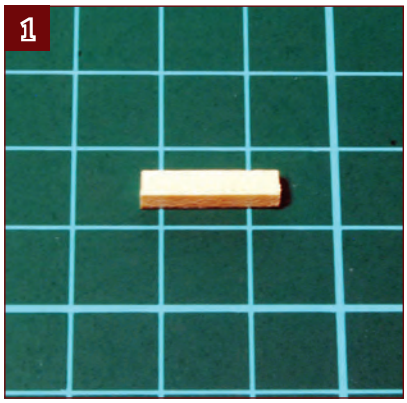
The picture below shows part of the construction of the poop deck – the final level at the stern of the ship – which you will begin next stage. As you can see, the rear of the quarterdeck will be covered first by deck beams, then by a layer of planks. Before you lay the poop deck, you need to fit supports for the gun barrels, construct the partitions that enclose the front of the poop deck, and line the exposed planking of the bulwarks forward of the poop deck.



Lining the bulwarks and cutouts

The exposed side planks through which you cut the ports are lined with a second layer of planking to give thickness to the bulwarks. These instructions are for one side – repeat on the other side of the hull.

1



1. Take the 3 x 3-mm strip of wood, and cut ten lengths, each 15 mm long.

2

QUICK TIP
Use clothespins or clamps to hold the pieces being glued.

2. Glue the pieces beside the openings in the bulwarks: one on either side of each gun port, one on each side of the opening for the timber heads, and one at each end.

3. Lay a length of 2 x 5-mm wood along the base of these strips. Apply a little glue to the vertical strips, and a very little to the bottom edge of the plank, so it is glued to the deck. It is best to hold the plank in place with clamps rather than pins.

4. Fit another layer of planking, cutting short pieces so as to leave gaps for the gun ports and openings at the timber heads.

EXPERT TIP
You may need to fit a further strip, cut to an appropriate width, if your bulwark is over 15.5 mm high.

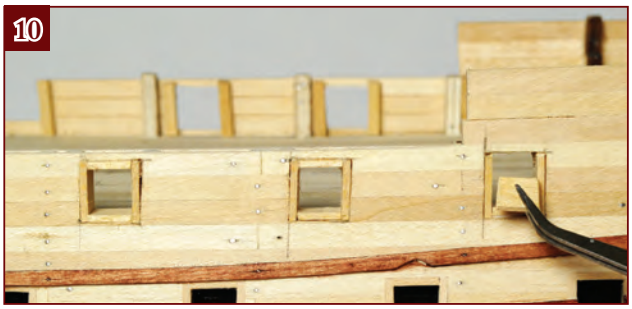
5. Fit a third plank above the short pieces, running the full length of the bulwark.

6. Carefully cut away any surplus in the planking you just laid, until the openings match the cut outs in the outer planking. Use a sharp knife blade and work inward through the gun ports and the recess around the timber heads.

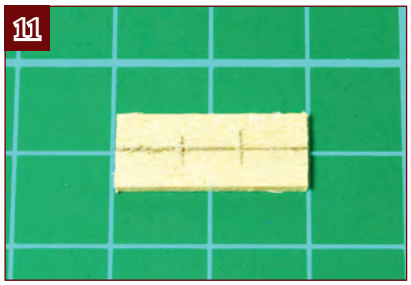
7. Smooth the edges with an emery board (nail file), and make sure the inner and outer edges are in line and square.

8. Sand the top edge of the bulwarks until the planking and any projecting frames or supports are smooth and level.

9. Line the rear three gun ports with strips of 1.5 x 4-mm wood. (Refer to Stages 34 and 35 for detailed instructions.)



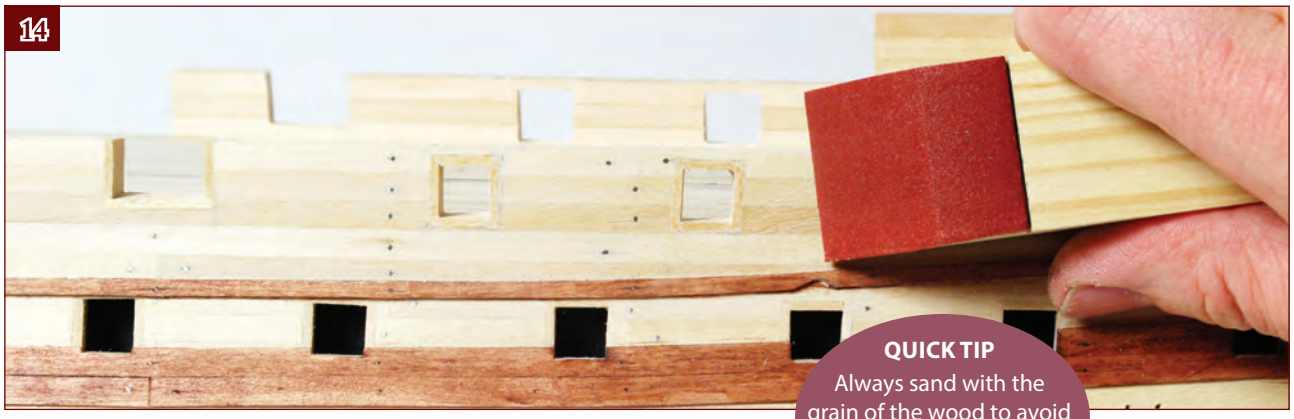
10. Line the front three gun ports with wider strips of 1.5 x 8-mm wood. Make sure the linings protrude slightly beyond the planking on both the inside and outside of the bulwark.



11. Cut a piece of 1.5 x 8-mm wood to fit in the bottom of the recess for the timber heads. Mark the centre line, and measure 6.5 mm in from each end. Drill 0.7-mm holes at these points, ready to pin the timber heads in place.

12. Glue the piece in place, making sure the pencil marks are underneath.

13. Line the sides of the recess.

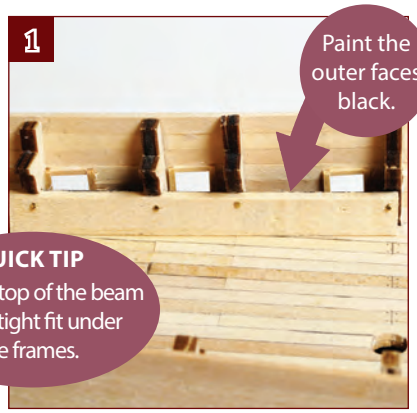


QUICK TIP
Always sand with the grain of the wood to avoid scratches that could spoil the finish.

14. Allow the glue to dry thoroughly, then sand the linings smooth. You need to sand the outside of all the ports and the recess for the timber heads, the insides of the forward three ports and the recess, as well as the top of the recess.

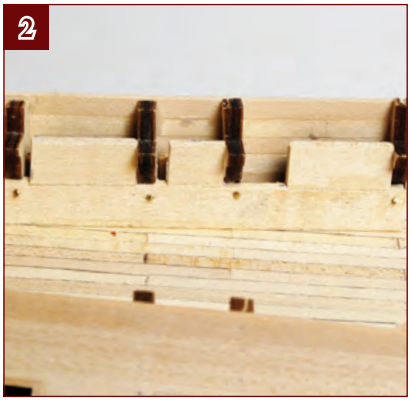
Adding the dummy gun supports

You need to fit support beams to take the dummy barrels inside the rear three gun ports on each side, under the poop deck. Some of the 4 x 11-mm wood used to do this was supplied with Stage 56.

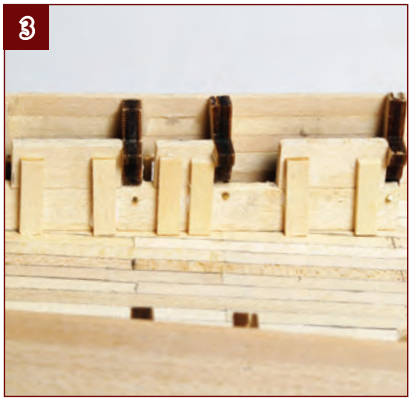


QUICK TIP
Sand the top of the beam if it is a tight fit under the frames.

1. Cut two 100-mm lengths of 4 x 11-mm wood, paint the outer side black, and glue them in position behind the aft three gun ports. Add a pin at each frame to fix them in position.



2. Cut a further four strips of 4 x 11-mm wood to 25 mm long, and two lengths to 15 mm long. Paint the outer faces black, then glue these pieces in position behind the gun ports.

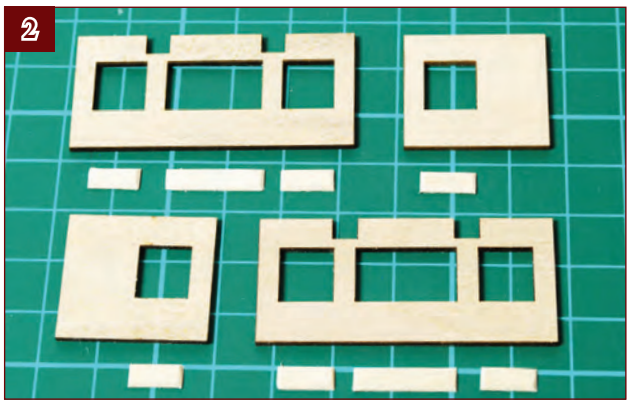


3. As these support beams will be inaccessible when you drill the holes for the dummy gun barrels, it is a good idea to add some scraps of plank to reinforce the joins.

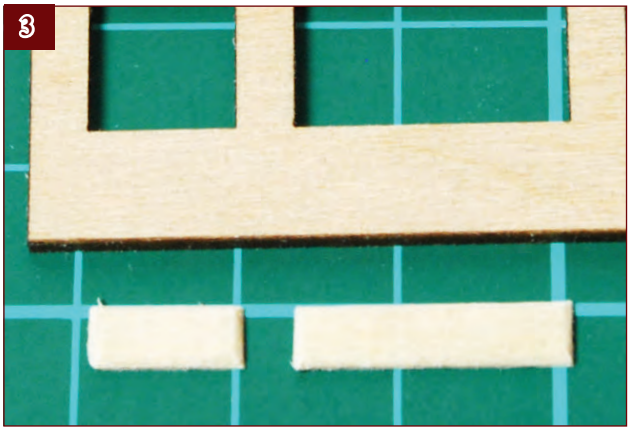
Preparing the cabin partitions

The four laser-cut panels supplied with Stage 56 are used to make the partitions for the officers' cabins at the rear of the quarterdeck. They need to be panelled before being stained and "glazed" next stage.

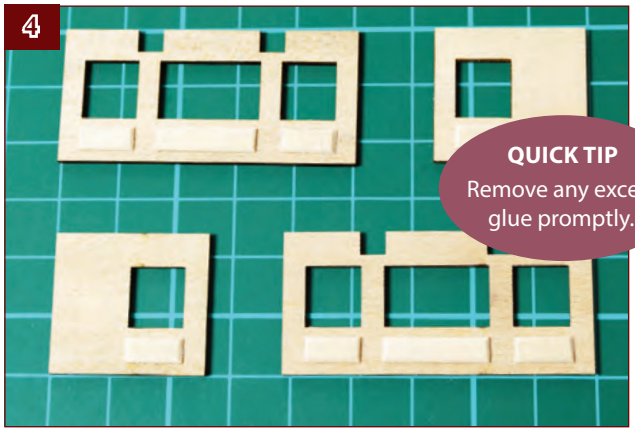
1. Check that the partitions are no higher than the deck supports projecting from the hull frames. Sand them to reduce the height if necessary.



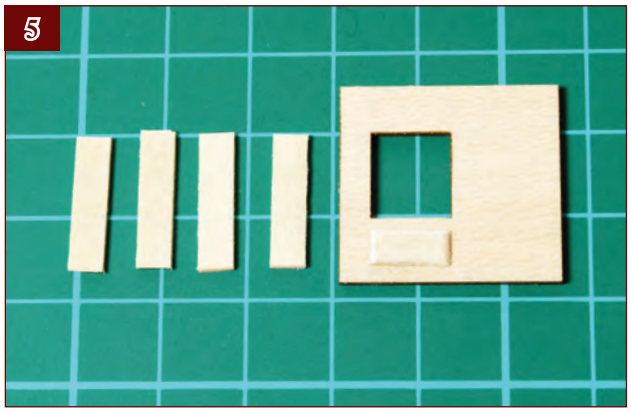
2. Take the 1 x 4-mm strip, and cut eight lengths the same length as each window, as shown above. Note which way around the smaller partition pieces have been positioned.



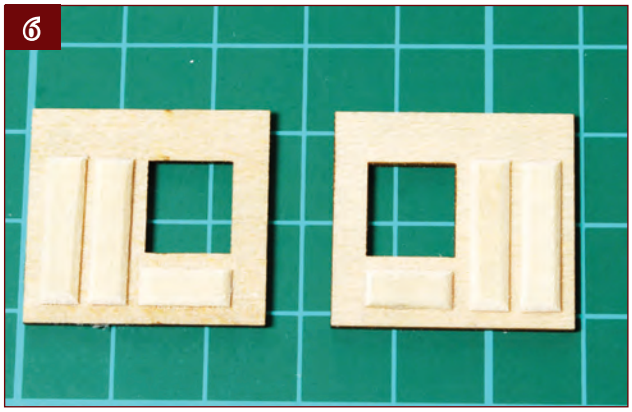
3. Sand a 45° chamfer along all four sides of one face of each of the strips to help simulate wood panelling.



4. Glue the strips below each window, leaving an equal gap above and below each "panel."



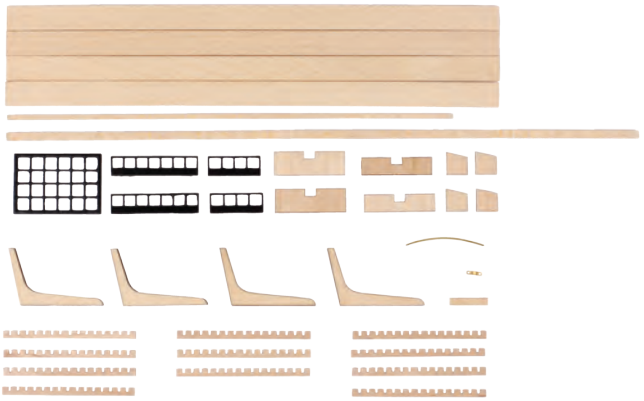
5. Cut four more lengths of 1 x 4-mm wood. These should be long enough to reach from the bottom of the "panel" to the top of the window.



6. Chamfer these four strips in the same way as you did the previous ones, then glue them onto the smaller partition pieces as shown.

Stage 58: Planking the poop deck

This stage contains parts for the fittings on *Victory*'s poop deck, including the flag locker, skylight and knees.



Wooden strips

1 wooden strip 2 x 2 mm,180 mm long
4 wooden strips 2 x 10 mm, 200 mm long
1 wooden strip 3 x 3 mm, 300 mm long

Laser-cut parts

23 wooden pieces for gratings, knees and the flag locker

Metal parts

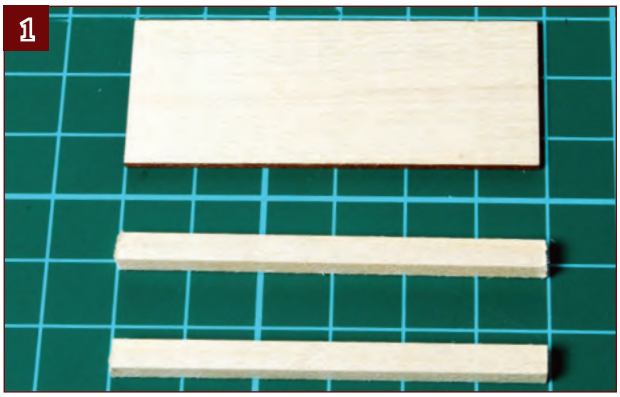
5 diecast frames for the skylight
1 brass clip
0.8 mm brass wire, 30 mm long

Where the parts fit

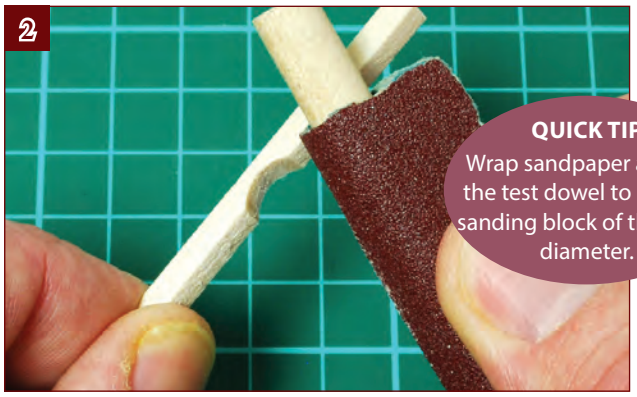
In this stage, you will complete the cabin partitions you began last time, before enclosing the stern cabins under the poop deck as shown on the right, using the strips of wood you have received for the planking and beams. Many of the smaller parts supplied with this stage, including the castings for the skylight and the shaped wooden components, cannot be fitted until the main assembly of the poop deck is complete, so keep these safe until later on.

Staining the cabin partitions

The partitions separating the officers' quarters need to be stained and "glazed" before gluing them to the rear of the quarterdeck. First, you need to make two crossbeams to fit across the top.



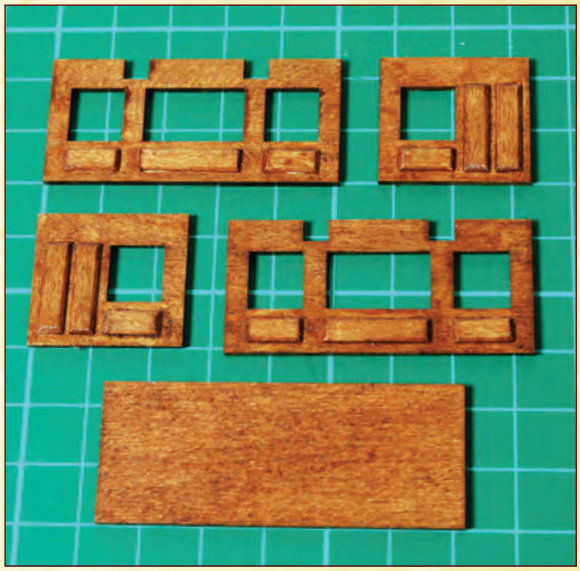
1. Cut two lengths of 4 x 4-mm wood the same length as the rear partition wall.



QUICK TIP
Wrap sandpaper around the test dowel to make a sanding block of the right diameter.

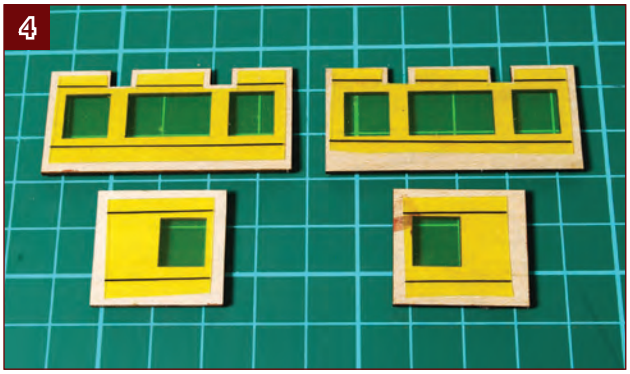
2. Take one crossbeam and carve/sand a recess in the centre to fit around the mizzen mast. This needs to be 2 mm deep.

Colour finish

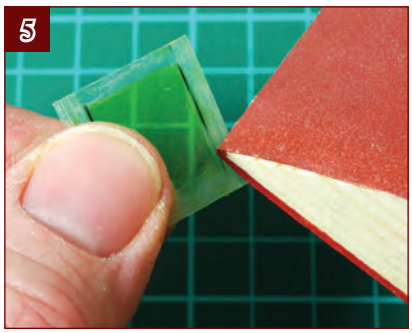


The partitions are varnished dark wood on the real vessel, so this finish is appropriate for both the natural wood and painted versions of the model. Use a dark wood stain (shown here is a walnut colour).

3. Stain the two strips with a dark wood stain. This is correct for both the painted and natural versions of the model.



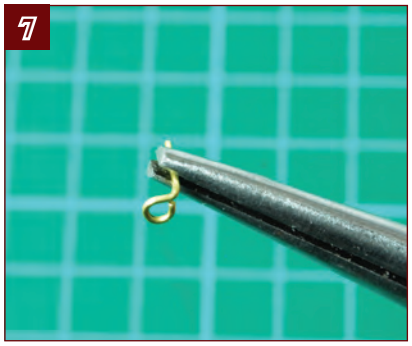
4. Cut the yellow acetate "window panes" to fit the back of the partitions and peel off the protective film.



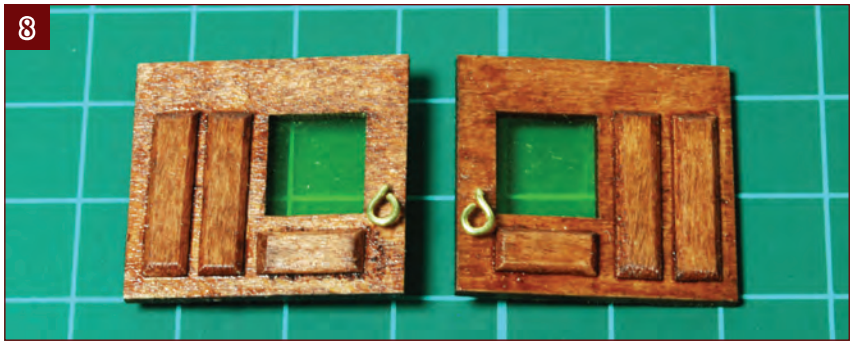
5. Sand the edges of the acetate beyond the area that will be visible through the window holes. This is to give a rough surface for glue to stick to.

QUICK TIP
Use the superglue sparingly, and only around the extreme edges, to avoid it fogging the acetate.

6. Glue the acetate panels in place using superglue.



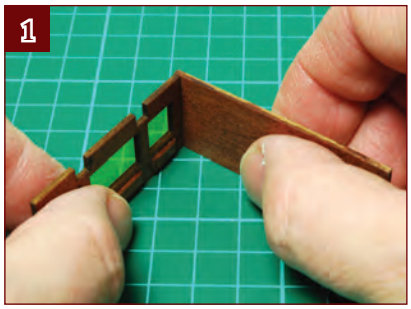
7. Bend the heads of both eyebolts over to 90°.



8. Drill a 0.7-mm hole in each partition at the point shown, and use superglue to stick the eyebolts in place to represent handles.

Fitting the cabin partitions

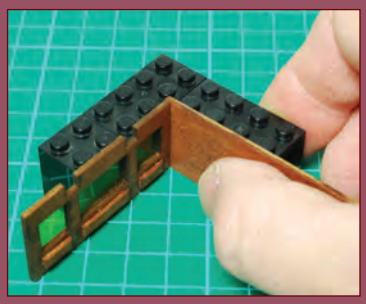
The partitions can now be glued together before you glue them to the deck planking to enclose the rear of the quarterdeck.

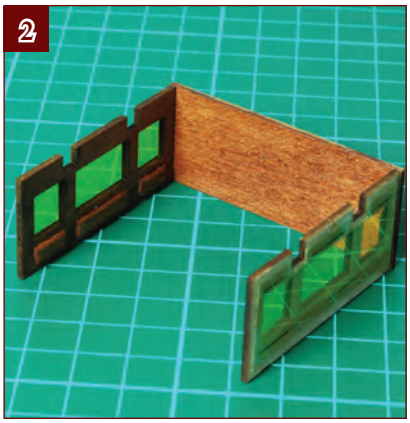


1. Glue the rear wall of the partition to one of the long sides, making sure it is square. Use superglue for this as stain won't take regular glue well. Handle the parts very carefully, as they are very delicate, until Step 6 is completed.

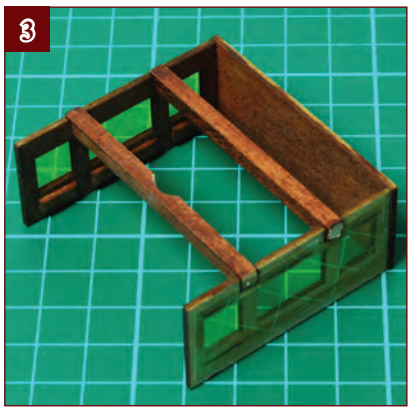
QUICK TIP

Although you can do this by eye, some child's building bricks make an excellent jig for keeping the joints square.





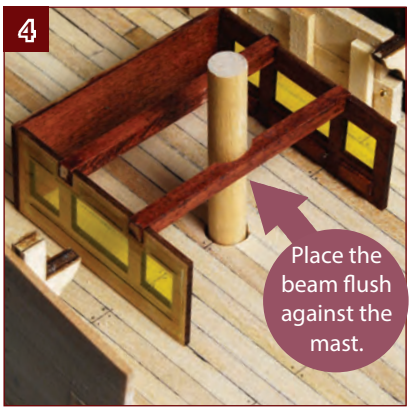
2. Repeat the process to glue the other side in place.



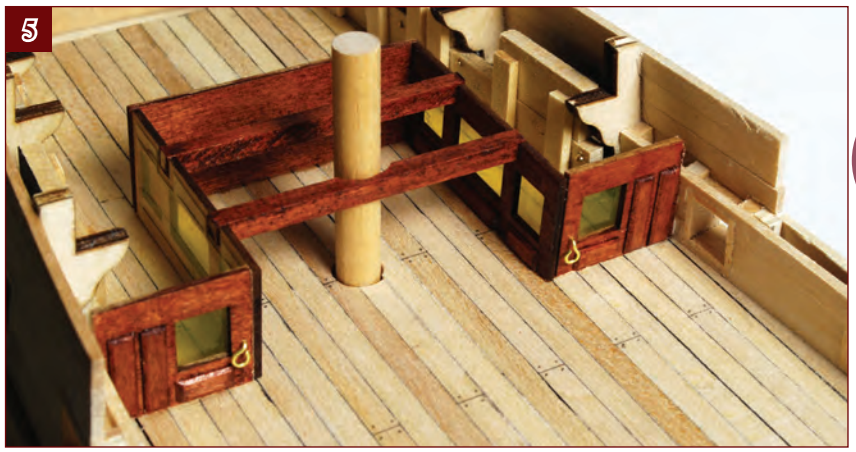
3. Glue the two crossbeams in place. The recess made in Step 2 on the first page of this stage goes on the forward beam, facing the rear.

Colour finish

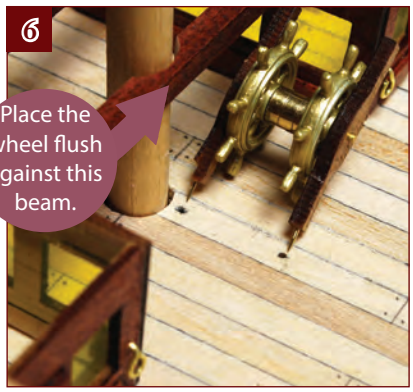
If you are painting the model, paint the insides of the bulwarks yellow ochre now, as this is easier than doing so after adding the partitions.



4. Insert the test dowel and glue the assembly to the deck, ensuring it is central and square. Use glue and remove any excess from the deck.



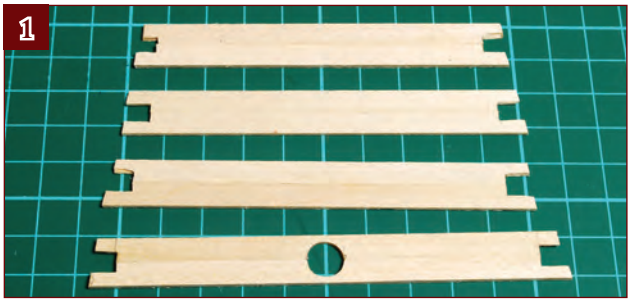
5. Allow the glue to dry thoroughly before continuing. Then add the two forward-facing partitions, sanding them to fit as necessary. Make sure they are square and in line, with the windows toward the centre and the "panels" at the bottom.



6. Take the ship's wheel and insert two cut-off pins in the holes drilled in the bottom. Using these pins as a guide, mark the positions on the deck with a pencil. Drill 0.8-mm holes at these positions.

Planking the poop deck

This is very similar to planking the quarterdeck in Stages 53 and 54. Refer to these stages for detailed instructions, and read through all the following steps to make sure you understand the process.



1. Prepare four deck support beams using the same method as you used for the quarterdeck beams. Note that the forward beam needs a hole to fit around the mizzen mast.

2. Glue all four deck support beams in place, using the test dowel to align the forward beam with the mast socket.

3. Use the 3 x 3-mm strip of wood to mark lines down the projecting tops of the frames, which need to be cut down to this thickness to make the bulwarks.

4. Using a razor saw, cut away the excess frame, leaving a frame just 3 mm wide.

5. Measure and mark the centre line of the deck, and then draw a further line 2.5 mm to the left (port) of the centre line. This is the position of the first plank.

6. Cut 10 pieces of 3 x 3-mm wood into 20-mm lengths. Glue them to the side of the hull in the positions shown. Note that about 10 mm should be left protruding above the planks.

7. Put the ship's wheel in position and check to see if its supports protrude above the deck support beam. If they do, cut the top off both of them carefully until they are the same height as the deck support beam.

8. If you wish, you can apply a coat of matte varnish to the deck in the cabin area, since this will be difficult to paint after the poop deck has been laid on top.

9. Add scraps of wood to fill the gap between the forward cabin partitions and the bulwarks. This can be stained to match the cabin partitions if desired.

10. With the wheel temporarily in place, lay the first plank along the guide lines to the left of the centre plank. The stern end should contact the gallery wall and the front end should line up with the front edge of the ship's wheel. Mark the plank at this point, then set the wheel aside again for the moment.

11. Glue the first plank in place, not forgetting to simulate the caulking with a black marker pen. Continue to plank the port (left) side of the poop deck, ensuring that each plank is cut so that the front edge of the planking is straight.

12. Glue the ship's wheel in position, making sure it is upright and in line with the centre line marked on the deck beams.

13. Add the centre plank, which needs to be in two pieces cut to fit the mizzen mast. The front section should be glued to the top of the wheel supports as well as to the deck beam and the adjacent plank.

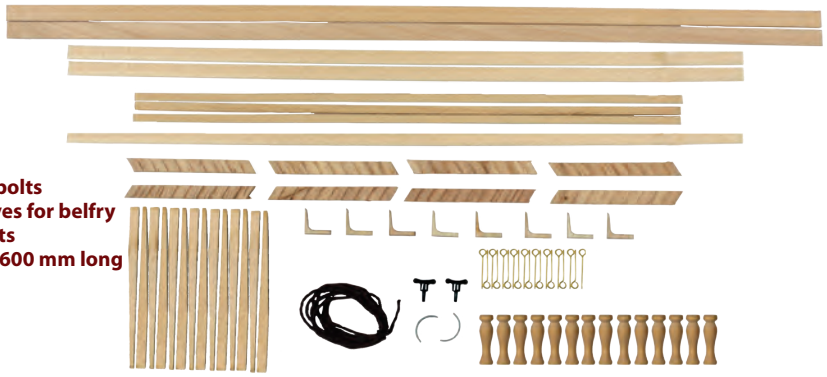
14. Continue to plank the right (starboard) side of the deck.

15. Allow the glue to dry thoroughly, then sand the deck smooth. You should also sand the front edge of the deck so that it is smooth and straight.

16. Carefully mark the planking pattern with a pencil.

Stage 59: Finishing off the poop deck

The parts supplied include linings, skid beams and companionways to finish the opening in the quarterdeck.



Wooden strips

2 wooden strips 2 x 6 mm, 300 mm long
2 wooden strips 2 x 8 mm, 250 mm long
3 wooden strips 3 x 3 mm, 200 mm long
1 wooden strip 1 x 5 mm, 250 mm long

Fittings

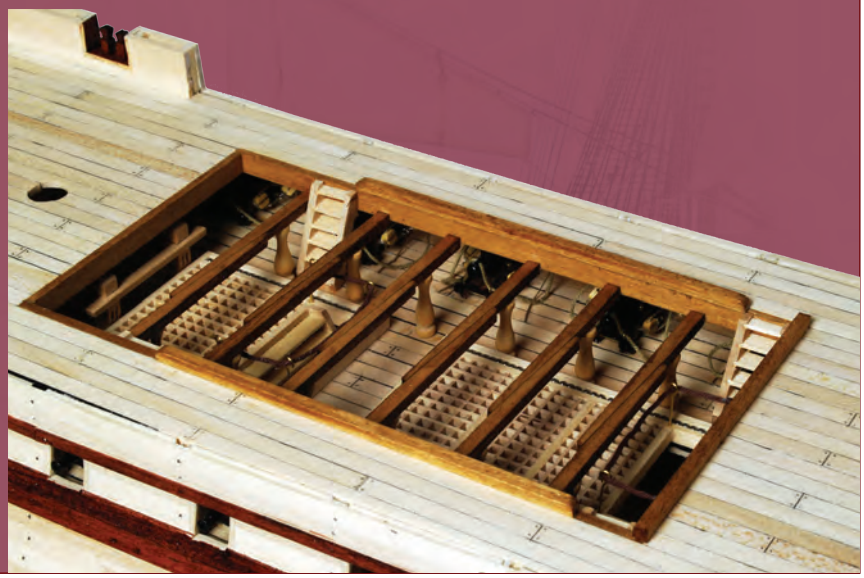
19 x 15 mm eyebolts
2 x die-cast curves for belfry
2 x die-cast cleats
0.8-mm thread, 600 mm long

Shaped wooden parts

8 pre-cut ladder sides, 14 laser-cut skid beams, 8 "L"-shaped rail supports, 14 turned wooden columns

Where the parts fit

The view on the right shows most of the parts supplied with this stage in place around the opening in the quarterdeck, including the linings around it, companionway ladders leading down and skid beams laid across the central space. Before starting this work, which begins on the last two pages of this stage, you need to finish off the poop deck and also install the four mooring timberheads, two of which are visible in the recess in the quarterdeck bulwarks, top left in the photograph.



Finishing off the poop deck

Before fitting out the quarterdeck, finish off the poop deck by building up the bulwarks that form low walls on each side, and adding an edging to the forward end of the deck planks.

1. Add two planks on top of the outer hull planking. Cut them long enough for you to chamfer the rear ends to fit neatly against the rear wall of the gallery while leaving the front edges overhanging the planks of the poop deck. Apply glue to the edges of the planks, as well as gluing them to the uprights.

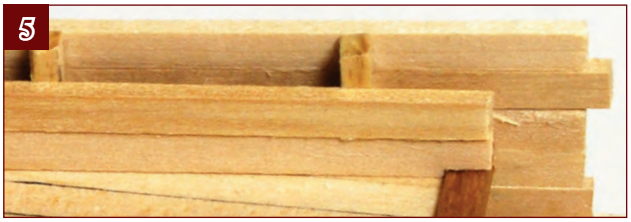
2. After building up both bulwarks, cut a length of 4 x 4-mm wood to fit across the front of the poop deck. Make sure it extends all the way to touch the external hull planking.

Colour finish

If you have chosen a natural wood finish, stain the strip that edges the poop deck a dark colour before gluing it in place. The example above left uses a dark oak stain. If you chose a painted finish, paint the strip black (above right).

3. After staining or painting the edging strip (see left), glue it in place. Position the top edge of the strip about 1 mm higher than the poop deck, creating a small lip.

4. Trim two planks to fit inside both poop deck bulwarks. Cut the stern ends to fit the rear gallery wall and cut the front ends in line with the front of the edging strip you have just added.



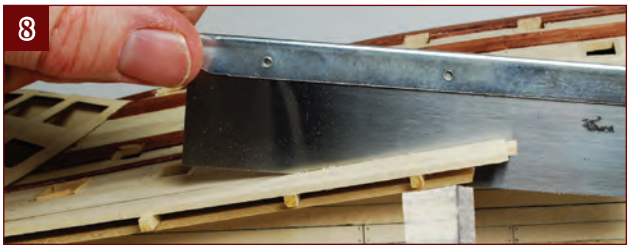
5. You will need to notch the lower plank to fit over the edging strip. Then glue both planks along the edges, as well as to the uprights, and allow the glue to dry thoroughly.

6. Measure the height difference between the inner and outer planking at the stern. (This example is 4 mm.) Then measure the height of the outer planking above the edging strip at the forward end of the poop. (This example is 15 mm.)

7. Transfer these measurements to the outside of the bulwark, and draw a line between them. It should slope down from just below the top of the rear gallery wall to just above the edge of the poop deck. Before sawing the bulwarks (Step 8), double-check that the line clears the edging strip at the forward end.

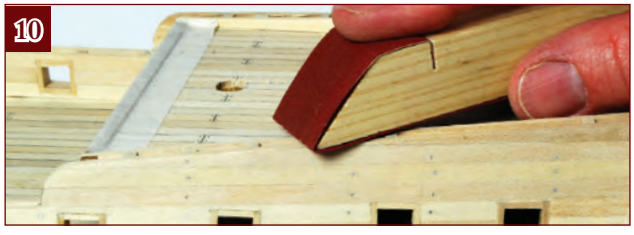
EXPERT TIP

Cover the edging strip with a piece of masking tape to protect the finished surface of the wood while sawing and sanding the bulwarks.



8. Lay the model carefully on its side, and cut through the bulwarks just above the line, using a razor saw.

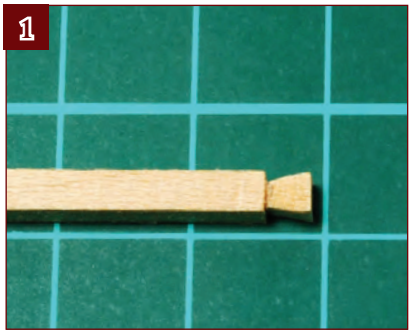
9. Using a coin about 2 cm in diameter (such as a penny or nickel), draw an arc on each bulwark running from the top of the quarterdeck bulwark to the front of the cross beam.



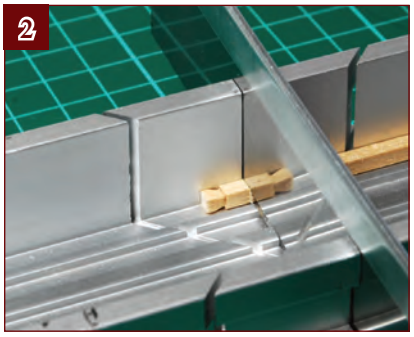
10. Sand the ends of both bulwarks to the arc you have just drawn. Sand the tops of the bulwarks smooth and flat, then sand the inside and outside surfaces smooth.

Making the timberheads

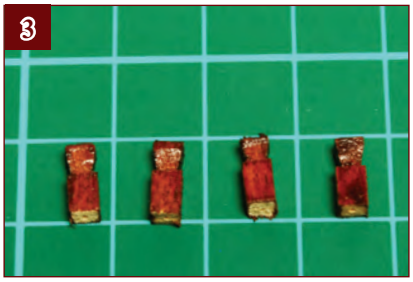
Take your time with the delicate job of carving the timberheads – use a sharp knife and aim to make the chamfers the same on all four sides, and on all four timberheads.



1. Make a 1-mm-deep cut 3 mm from the end of the 3 x 3-mm strip of wood supplied with Stage 58. Then carve a chamfer on all four sides, as shown.



2. Saw 8 mm off the end of the strip of wood to complete the first timberhead. Repeat the process to create three more timberheads in the same way.

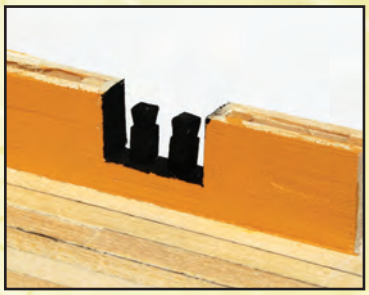


3. Drill a 4-mm-deep, 0.7-mm hole in the bottom of each timberhead to take the end of a mounting pin. Then stain or paint the timberheads (see below). These examples are finished in walnut stain for the natural wood version.

4. Stain the inside of the timberhead recesses on both the port and starboard sides. If you are painting your *Victory*, refer to the box on the right.

5. Glue cut-off pins in the holes in the bottoms of the timberheads, and then use superglue to secure the timberheads into the recesses.

Colour finish

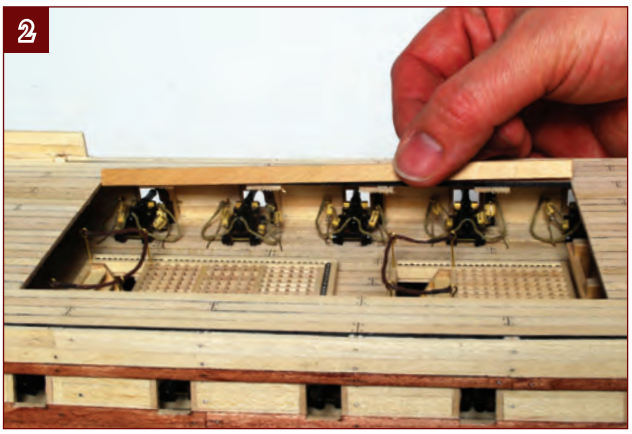


If you have chosen to build the *Victory* with the optional painted finish, paint the timberheads and the linings of the recesses black.

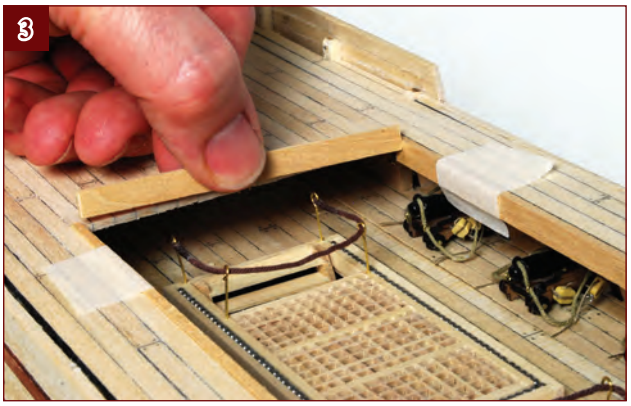
Lining the quarterdeck opening

With the poop deck and bulwarks complete, you can start to finish the large opening in the quarterdeck by cutting away the temporary deck supports and lining the edges.

1. Using a razor saw, carefully cut away the deck supports. Keep the saw vertical, and cut as close as you can to the deck planks.



2. Take a strip of 2 x 6-mm wood, and cut it to length to fit along one side of the opening. Repeat for the second side.



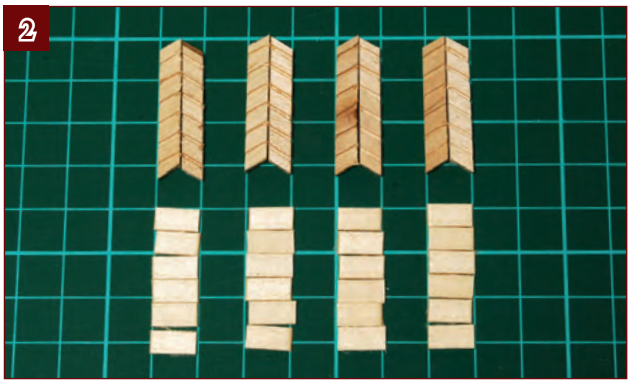
3. Secure the two long pieces of frame in place with masking tape. Then cut two more strips to fit between them to make the frame for the front and rear ends of the opening.

4. For the natural wood version, stain the linings with wood stain (this is dark oak). If you are painting your model, paint them black. Then glue them in place, flush with the deck.

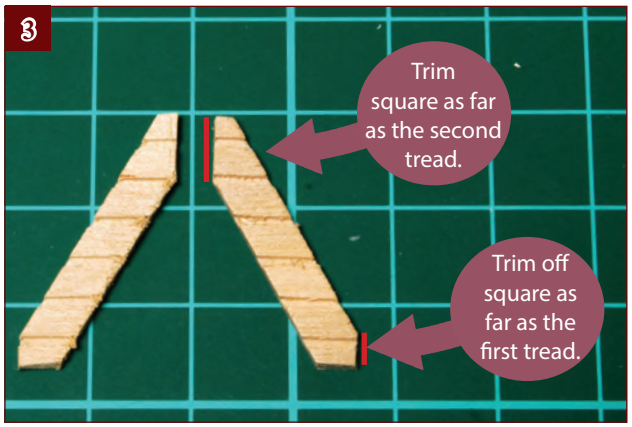
Making the companionways

With the linings in place, you can build up the ladder parts that you received with this stage. Refer to Stage 52 for more detailed instructions on this job.

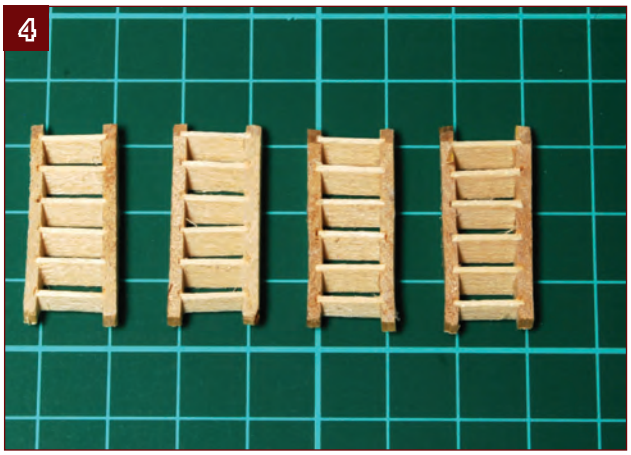
1. Take one of the ladder sides, hold it in position against the end of the opening with the treads level, and mark the height of the top of the deck.



2. Cut four matching pairs of ladder sides. Each will need six or seven treads. Cut these all from 1 x 5-mm wood that's 9 mm long.



3. Make sure each pair of ladder sides matches perfectly. Trim the back corners off the top of the ladder so it will fit against the vertical face of the lining, down to the second tread. Trim the front corners off the bottom as far as the first tread.



4. Assemble four ladders. Note that the top rung will need to be made narrower to match the top slot, which is narrower than the rest and measures about 3 mm.

Stage 60: Adding ladders and frames

This stage's parts include wooden strips for the bulwarks and shaped parts for deck fittings.

Wooden strips

3 wooden strips 2 x 5 mm, 300 mm long
1 wooden strip 2 x 12 mm, 300 mm long
1 wooden strip 4 x 4 mm, 250 mm long
2 wooden strips 3 x 3 mm, 250 mm long
2 wooden strips 2 x 3 mm, 200 mm long
1 wooden strip 2 x 8 mm, 160 mm long
3 wooden strips 2 x 6 mm, 160 mm long
1 wooden strip 6 x 6 mm, 100 mm long

Fittings

1 x diecast chimney
3 x 10 mm eyebolts
4 x bulwark trims
22 x 2 mm steel balls
80 x 80 mm yellow acetate sheet

Shaped wooden parts

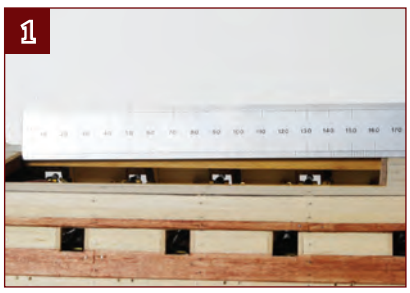
50 x 33 mm grating parts
3 mm dowel, 20 mm long
2 x L-brackets
2 x pin rails

Where the parts fit

This stage, you'll complete the opening in the quarterdeck and finish off the bulwarks around the quarterdeck, poop deck and forecastle. This includes adding the capping strips that finish off these areas neatly. You'll need parts supplied with this stage, as well as some that came with Stages 58 and 59. A number of smaller parts supplied with this stage aren't needed until later on, as they are for delicate deck fittings that are best fitted after you have completed the heavier work. Store all these parts carefully until they are needed.

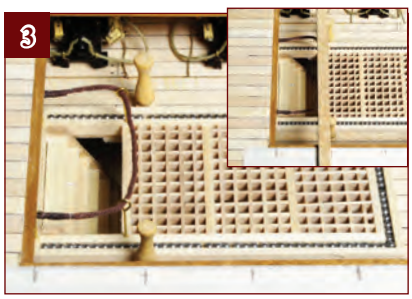
Fitting the skid beams

Using parts you received in Stage 59, you can now continue working on the quarterdeck opening by fitting the skid beams, each of which is supported on two turned wooden pillars.

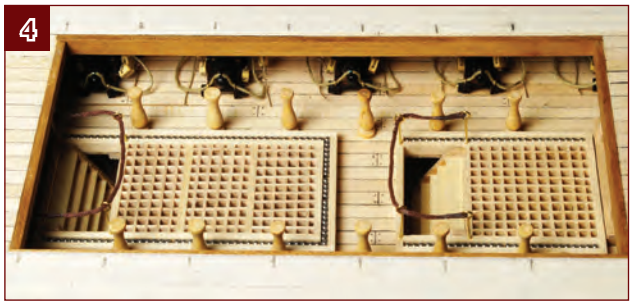


1. Measure the length of the opening. This example is 163 mm, but your model may be slightly different. Divide this measurement by seven (giving 23.3 mm in this case) to calculate the distance between the beams.

2. Place two strips of masking tape along the edges of the opening. Mark the front edge of the opening on the masking tape, then make six pencil marks, each spaced by the measurement you calculated in Step 1.



3. Take two pillars and make sure the tops and bottoms are smooth (sand them if necessary). Glue them on either side of the grating, using a strip of wood to ensure you place their centres in line with the second pencil marks.



4. Repeat Step 3 in line with all the pencil marks, until you have added six pairs of pillars (there should be two spare pillars left over). Leave the glue to dry thoroughly.

5. The skid beams are supplied in two parts. This close-up of a finished beam shows how they fit together. The outermost side is flat, while the other is parallel for a short distance, then tapers. Sand the laser-burned edges off the beams, and round off the pointed end as indicated on the picture above.

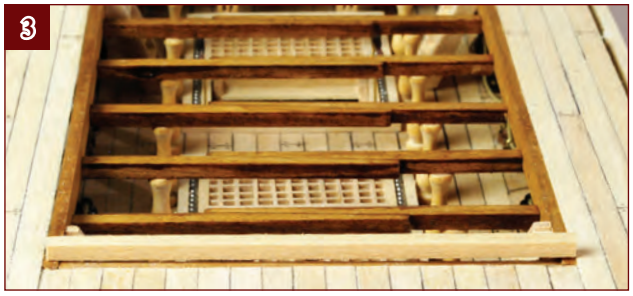
6. Apply glue to the area where the beams overlap. Fit the two halves together, holding them in position between the linings in the opening to get the length right. But do not glue them into position on the pillars at this stage.

7. When the glue on the skid beams is dry, stain the beams dark oak, or paint them black if you are painting your model. Then glue them on top of the pillars. Carefully remove the masking tape after the glue has dried.

Adding ladders and frames

With the skid beams in place, you can fit the companionway ladders you made in Stage 59, then finish off the frames around the opening.

1. Glue the four ladders you made last stage in position. The ladders nearest the bows fit up against the lining of the opening, and the aft ladders fit against the forward edge of the last beam.



3. Mark and cut a third strip of 3 x 3-mm wood to fit across the front of the opening.

2. Take a piece of 3 x 3-mm wood, mark and then cut a length to fit between the two ladders. Repeat this for both sides.

4. Round off the upper ends of the side strips, then stain or paint the three strips to match the rest of the linings of the opening, and then glue them in position on top of the linings.

Preparing the forecastle bulwarks

Turning to the bow of the model, start by planking the forecastle bulwarks, then cut them back and shape them in a similar way to the poop deck you completed in the previous stage.

1. Measure the height of the forward bulwark above the head deck. It should be 28 to 29 mm. If it is too low or high, build up the bulwark with a spare length of plank, or sand it down.

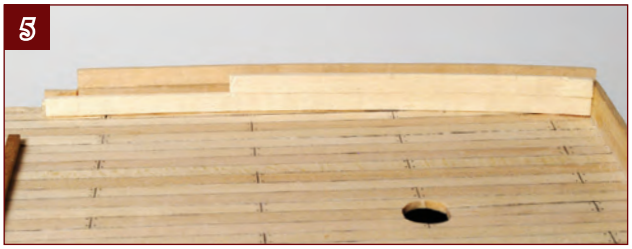
2. Measure 150 mm back from the inside planking of the forward bulwark and make a pencil mark on the side planking.

3. Cut a small piece of 3 x 3-mm wood, and glue it on the inside of the bulwark, so that it fits between the pencil mark you just made and the next rib forward.

4. Cut and glue a small piece of 2 x 5-mm plank to extend the lower planking as far as the pencil mark.

EXPERT TIP

Thin the forward frames from 3 mm to 1.5 mm. This makes it easier to cap the bulwarks neatly (see next page).



5. Cut and glue two strips of 2 x 5-mm planking to form the inside of the bulwark. The upper plank can stop about 50 mm short of the end, as the bulwark tapers down to the deck. Use a plank bender so the planks follow the curve of the bulwark.

6. Mark a line on the outside of the bulwark to cut it to height. The front mark is the same height as the forward bulwark (as measured in Step 1), and the rear mark is 2 mm above the deck. Use an offcut of the 2-mm plank to help you measure this.

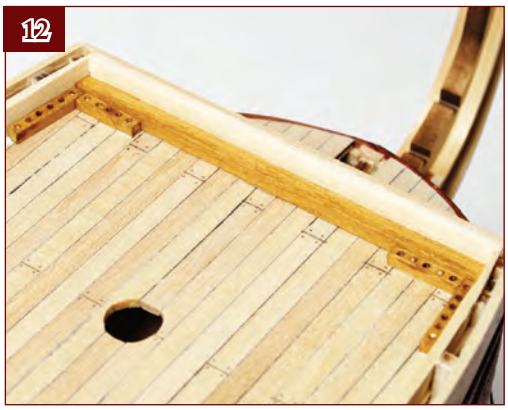
7. Using a razor saw, carefully cut along just above the line to remove the excess planking.

8. Sand the top of the bulwark so it is smooth and straight. Continue until you end up flush with the forward bulkhead.

9. Line the front bulwark with 2 x 5-mm planks. When the glue is dry, sand the top flush with the forward bulkhead.

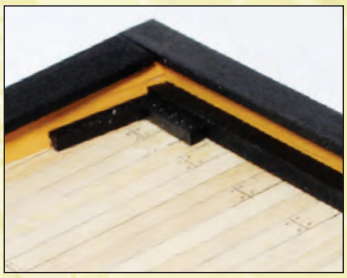
10. Take a length of 4 x 4-mm wood and cut a strip to fit across the front of the deck up against the bulwark.

11. Using 3 x 3-mm wood, cut two lengths 15 mm long, and two lengths 20 mm long. Drill shallow 1.5 mm holes spaced 3 mm apart.



12. Stain the parts made in Steps 10 and 11 the colour of your choice, and glue them in position.

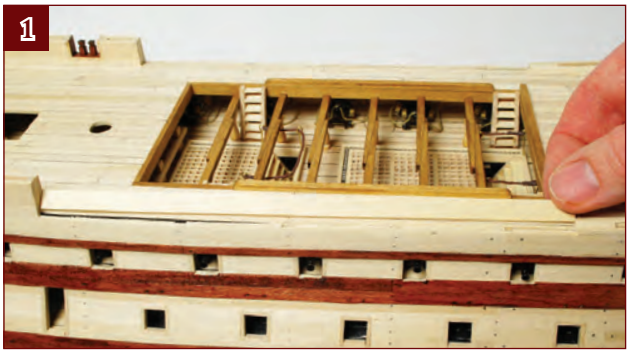
Painted finish



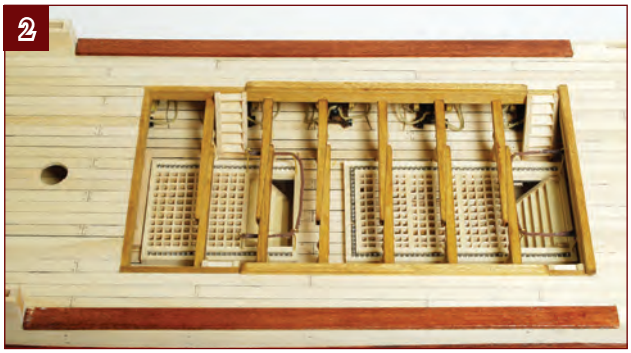
If you are painting your model, you will need to paint the inside of the forecastle and poop bulwarks yellow ochre and paint the pieces added in Steps 10-12 black. You will also need to paint all the bulwark caps (added in the stage below) black.

Finishing the bulwarks

Complete the bulwarks by adding capping pieces, using parts supplied with this stage and Stages 58 and 59.



1. Take the two lengths of 2 x 8-mm wood from Stage 59, and cut them to fit along the quarterdeck in the space between the forward and aft bulwarks, as shown.



2. Sand the strips to remove any rough edges, and round off the corners. Then stain them walnut, and glue them in place with the outer edges overhanging the hull planking by 1 mm.

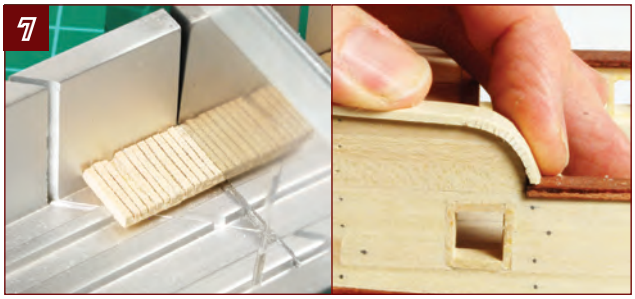
3. Using offcuts from Step 1, cut small uprights to fit the end of the aft quarterdeck bulwarks. Sand, stain and glue in place.

4. Fit a length of 2 x 10-mm wood (supplied in Stage 58) on top of the aft quarterdeck bulwarks. Cut out a section at the rear to fit around the curved planks of the poop deck bulwarks.

5. Trim the forward end of the bulwark capping flush with the uprights you fitted in Step 3.

QUICK TIP
Keep the offcuts, as they will be needed later.

6. Stain or paint these bulwark caps and glue them in place, overhanging the planking by 1 mm as before.



7. The poop deck bulwark cap needs a tight curve. Take a strip of the 2 x 10-mm wood from Stage 58, and make a series of shallow cuts with a razor saw across the first 20 mm of one end. Space the cuts 1 mm apart, and make them 1 to 1.5 mm deep. Be very careful not to cut through the wood. Soak the wood in water to make it more pliable and bend it around the bulwarks.

8. Because of the tight radius, it is better to glue these bulwark caps in place before staining them. Hold the front end of the cap in place with two pins inserted vertically in the cap you fitted in Step 6. Hold the main length of the cap down with weights or pins.

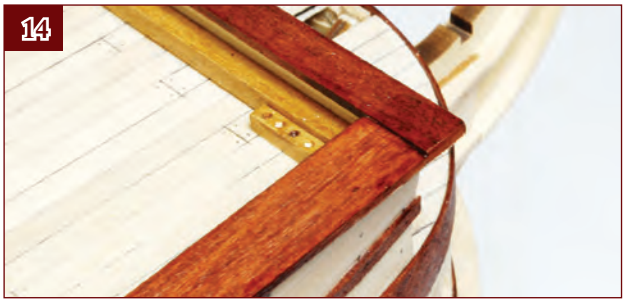
9. Using the offcuts from Step 5, cut small pieces to complete the bulwark caps forward of the stern gallery wall.

10. Cut a length of 2 x 8-mm strip so it is about 20 mm wider than the front bulwark.

11. Stain and glue this strip in place, leaving the front edge overhanging the forward bulwark by about 1.5 mm.

12. Cut pieces of 2 x 12-mm wood so that the forward end fits against the rear edge of the strip fitted in Step 11, and the rear end extends over the strip fitted in Step 2 by 1 mm.

13. Stain the strips and glue them in place, flush with the inner face of the bulwark at the front and the cap strip at the rear.



14. Trim the ends of the forward bulwark cap flush with the sides, sand, and then touch up the stain or paint as necessary.

That completes the bulwarks and their capping, as well as trimming the opening in the quarterdeck.

BUILD LORD NELSON'S

HMS VICTORY

Coming in Pack 7

Stages 61-70 add the main mast fighting top, as well as shaping the masts and finishing the hull.

Finishing the lower mast

Staining the hull

Assemble the main mast top