BUILD LORD NELSON'S HMS VICTORY

Pack 4

Stages 31-40

DeAGOSTINI MODEL SPACE™

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Contents

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DeAGOSTINI MODEL SPACE™

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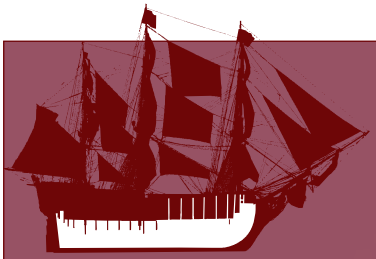
Stage 31: Completing the upper planking

The components provided with this stage include more strips of wood for planking *Victory*'s hull.

Wooden strips

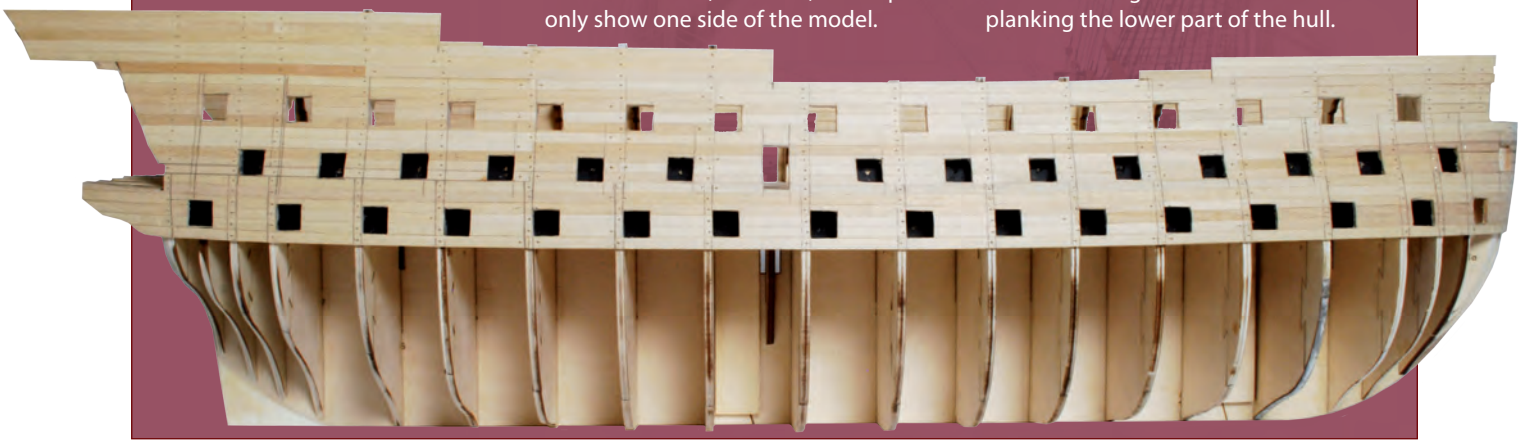
20 wooden strips 5 x 2 mm, 300 mm long, for hull planking, plus fixing pins



Where the parts fit

This stage completes the upper planking around the forecastle and poop deck. When you add the final layers, you will be checking – and, if necessary, adjusting – the height of the bulwarks (the planking that continues above the decks). As usual, the steps only show one side of the model.

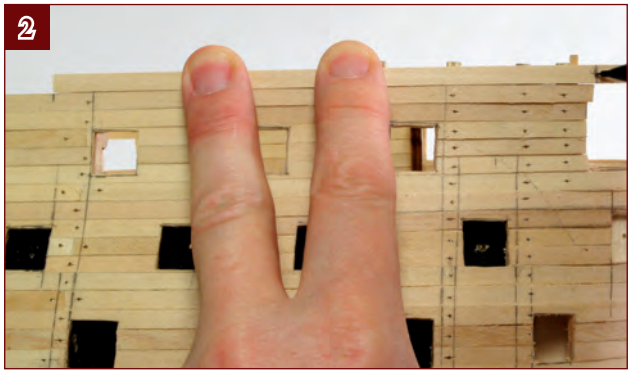
Remember to plank evenly, left and right, to avoid uneven pressure that might distort the hull. You will be cutting various short lengths of planking and it pays to keep all the larger offcuts. These pieces will be useful for filling in smaller areas when planking the lower part of the hull.



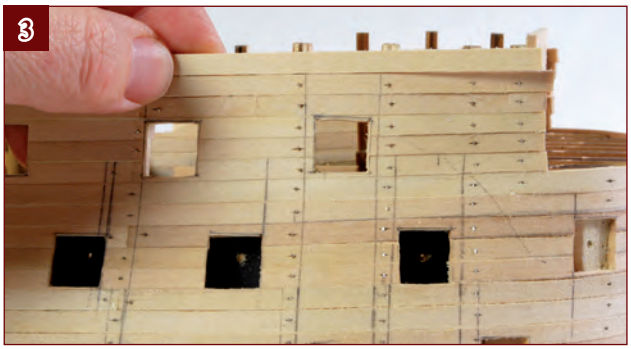
Continuing the upper planking

As the planking extends upward above the upper gun ports, you will see the outlines of *Victory*'s poop, quarterdeck, waist and forecastle begin to take shape.

1. You need to add two more layers of planking at the bow. Measure a point 142 mm back from the forward bulkhead and make a mark on the top plank.



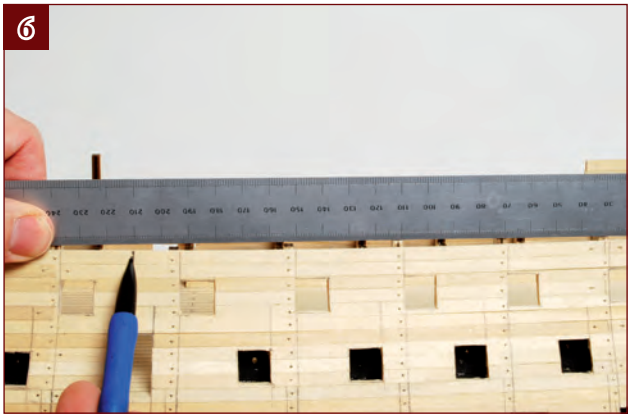
2. Mark and cut a plank to reach from the mark you just made and overhang the forward bulkhead by a few millimetres. Bend it to match the slight curve of the frames at this point.



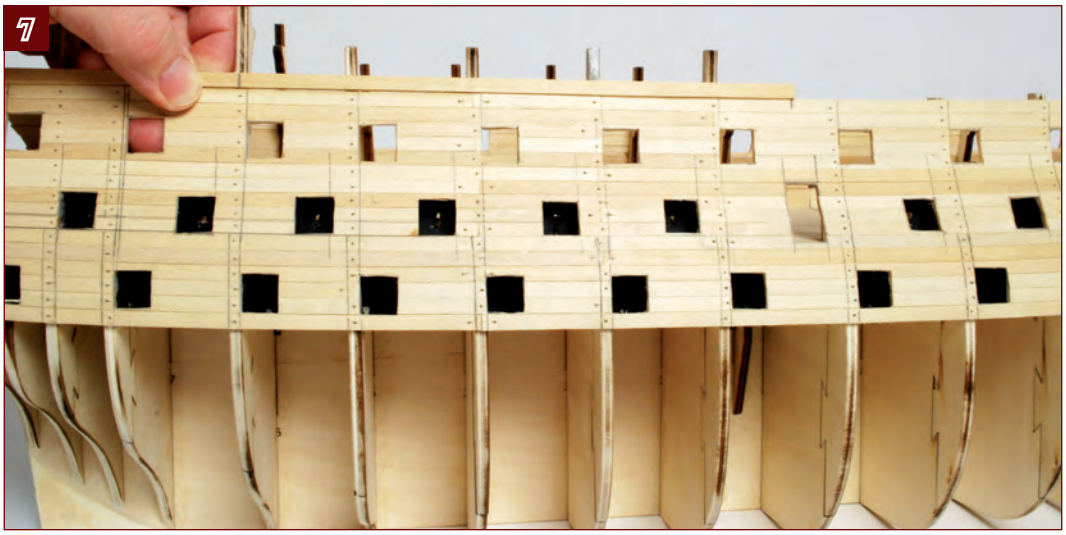
3. If there is too little of the frames projecting above this plank to add another, taper this plank to 3 mm at the bow end. Otherwise taper it the same amount as the planks below it.

4. Glue and pin the plank to the frames and the plank below. Use masking tape to hold the plank at the rear where there is no frame to pin it to.

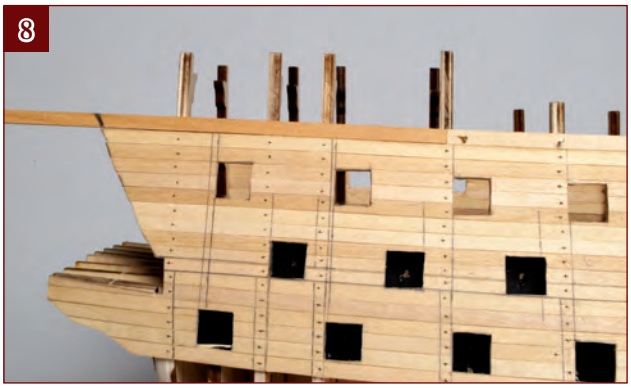
5. Cut a second plank to the same length, bend it and glue and pin it in position. You will need to angle the pins downward so they go into the frames. (Pull them out once the glue is dry, even if you are trimming the other pins flush.)



6. Make a pencil mark 210 mm back from the ends of the planks you have just fitted.



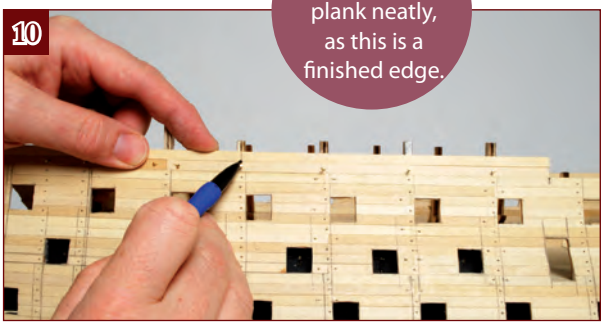
7. Cut a plank to fit from the pencil mark to the centre of frame 26. Glue and pin it in position.



8. Fit another plank from frame 26 to the stern of the model.

9. Use your card template as a guide to cut off the end of the plank that overhangs the stern.

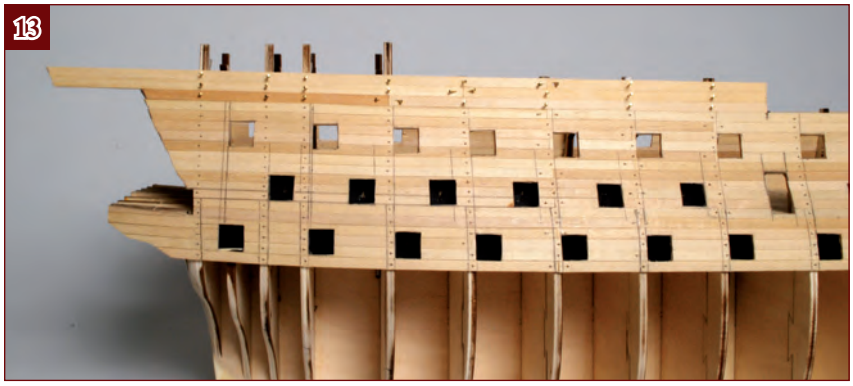
Trim the front end of the plank neatly, as this is a finished edge.



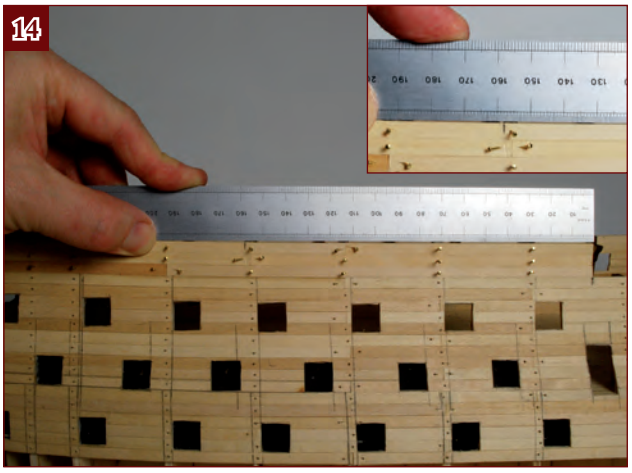
10. Fit the next plank from the pencil mark to the centre of frame 25.

11. Fit another plank from frame 25 to the stern of the model. Depending on the tapering of the planks below, this will probably need to go to the extended section of the template. If even part of the plank reaches this length, do not cut it to the shorter part of the template.

12. Fit this plank using glue and pins as usual. The aft section of the plank can be held with masking tape or a clothespin (see Step 4).



13. Complete a third row of planking that stretches from the marked point to the stern, with the two lengths of planking joining at frame 24.

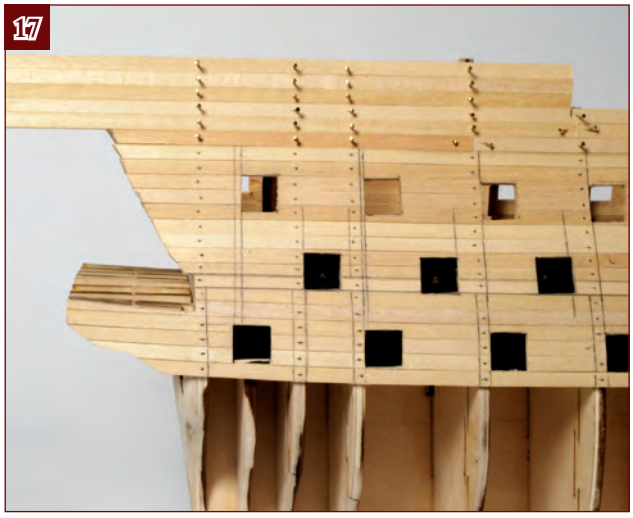


14. Draw a pencil mark 158 mm from the front of the planks you have just laid.

15. Measure a plank from this pencil mark to the stern.

16. Again, use the template to ensure that the plank is the correct length before cutting.

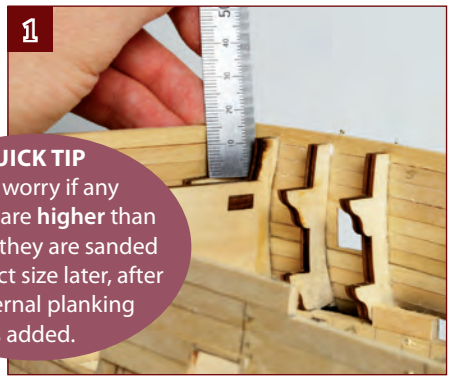
17. Add another two layers of planking. Do not worry about the height these reach, as further planks will be added to the top of the bulwarks later in the assembly.



Adjusting the height of the bulwarks

Check the height of the completed planking around the forecastle and quarter deck. If necessary, you may need to add extra strips to ensure that the planking finishes at the correct points.

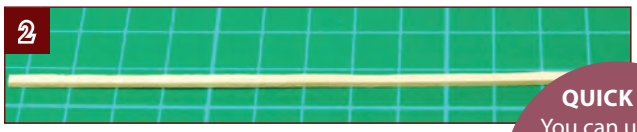
1



QUICK TIP
Don't worry if any bulwarks are **higher** than quoted – they are sanded to the exact size later, after the internal planking is added.

1. Measure from the upper side of the foremost deck support bracket to the top of the planking that forms the bulwarks. This distance should be **more than 14 mm.**

2



2. If the bulwark is not high enough, you can correct it by adding a thin strip of planking on top. Cut a length of plank to match the other planking, then trim its width to the appropriate amount to extend the bulwarks over 14 mm.

QUICK TIP
You can usually cut a plank in half lengthwise and get two strips from one plank.

3

3. Glue this thin strip to the top of the bulwarks and hold it in place with masking tape until dry.

4

4. Now check the height of the planking between frames 17 to 21. The planks should be **level with, or higher than**, the pencil marks you made in Stage 28, Step 8. If the planks are not high enough, cut a 210 mm strip of plank in half lengthways and glue this to the top of the planks as in the previous step.

5

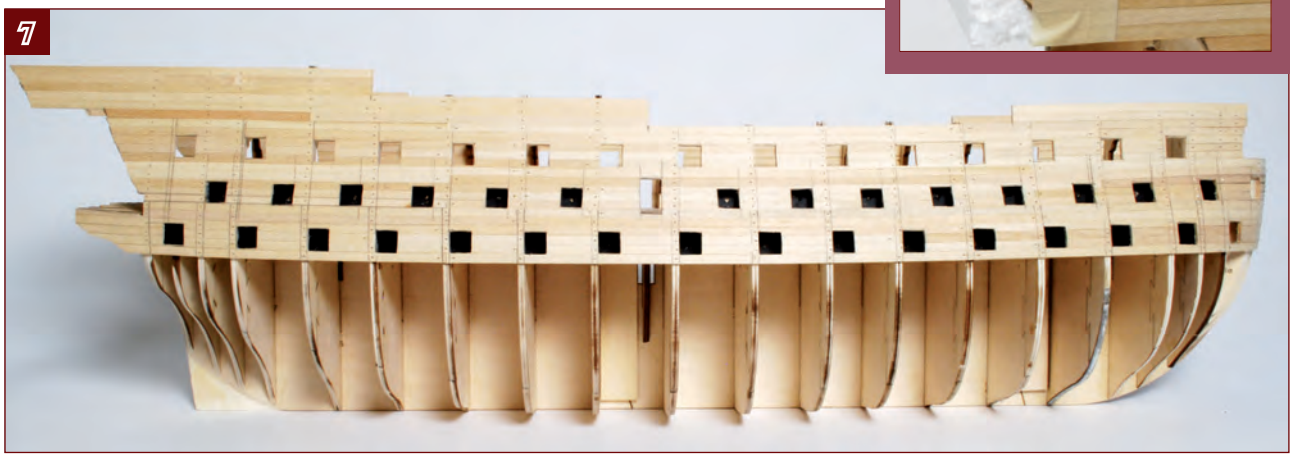
5. Measure the height of the bulwarks at frame 22. It should be at least 19 mm above the top deck support bracket. Use the same process to raise the height of the bulwark if necessary.

6

6. Don't be concerned about the height of the highest section of planking at the stern, as this will be extended later on in the series.

QUICK TIP
The overhanging stern planks are vulnerable to accidental knocks. Cut a block of Styrofoam (such as some leftover packaging) to fit tightly between the protruding planks at the stern, and tape it in place temporarily with masking tape.

7



7. When you have completed the planking shown here, your model should look like this. (If you have included the optional cutaway, it will be visible from this side.)

Planking the lower hull

With the planks above the waterline in place, it's time to plank the lower hull, beginning in the next stage. This involves dealing with much tighter curves, and will start by adding four layers at the bow.

So far, you have been laying planks more or less parallel, even around the curve of the bows. Any slight gaps were easily adjusted by tapering the planks a little and chamfering each of their edges.

On the lower hull, the frames of the bows and stern form complex curves that can't be covered with parallel planking. Instead, each plank has to be shaped to fit its neighbours. This is not difficult, as long as you take your time to fit each individual plank. But before you start, let's look at the basic principles.

Basic concepts

◆ Most importantly, **your planking pattern will not be exactly the same as the one in the steps**. This is because numerous small differences will make each model unique. Do not try to replicate the planking in the photos, but use the techniques shown to fit your planks to your own model.

◆ Plank evenly, on both sides of the model. The steps only show one side of the hull, but, as before, you should repeat each operation on both sides of the model. Planking one side of a hull first may cause it to twist from the force of the planks.

◆ The bow and stern planks are bent in a tight radius, so choose planks with a straight grain, as they are less likely to splinter or crack. Use less-perfect planks in the middle of the hull, where the bend is minimal.

◆ If you chose a natural wood finish, you may want to stain the lower hull. Ensure you remove all excess glue from the planks, as glue does not take stain very well.

The complex curves of the stern planks require some tight bends where they sweep up over the transom.

Bending planks

Planks bend best in one plane, although it's possible to give them a slight twist. Bend the planks to match the hull frames as closely as possible, but resist any temptation to force the planks to bend sideways. Gaps are a natural part of the process of planking the model, and should be dealt with by tapering the planks and fitting "droppers" and "stealers." Above all, do not use pins to force planks into place – this will result in strained glue joints that are likely to break easily.

Tapering planks

Take your time to taper each plank so that it fits neatly against the plank above it, and so that it lays flat on all the frames.

◆ One of the most common mistakes made is not tapering planks enough. This can lead to "clinkering," where the lower edge sticks out and does not sit against the frame.

◆ Only taper the top edge of the plank. Leave the bottom edge straight as this will make it easier to fit the adjacent plank.

◆ Where possible, you can get a more accurate fit if you taper a plank before you cut it to the exact length.

◆ Do not reduce a plank to less than half its width. This leads to pointed ends that are hard to fix securely and look unrealistic.

The lower hull curves in several directions, so the planks need more complex shaping than those fitted above the waterline.

Joints between planks

◆ Stagger the plank joints so that adjacent planks do not start on the same frame. We recommend staggering the joints between frames 18, 17 and 16 at the bow, and 25, 24 and 23 at the stern (repeating these joint positions on all three layers).

◆ Don't forget to chamfer the sides of each plank so that you don't get gaps appearing between them due to the curve of the hull.

◆ Remember to apply glue to the edges of each plank as well as the frames.

◆ Remove any excess glue as you go in order to prevent it from marring the finish later on.

Dropper planks

The curves of *Victory*'s bow and stern mean that the ends of the planks naturally want to overlap, unless they taper to a point, which is not authentic. To overcome this, use "dropper planks." This is where two planks are tapered as far as possible but stop short of the bow or stern, with a single filler piece (the dropper plank) continuing from this point (see below). More detail on fitting "dropper planks" will be given in Stage 32.

Stealers

The shape of the lower half of the stern means that planks will naturally want to spread, leaving gaps. A stealer is a piece of plank specially shaped to fill these gaps. We will explain how to fit a stealer when you come to planking the stern.

Examples of "dropper planks" at the bow, where two tapering planks stop short and are finished with a short, single plank.

Stage 32: Planking the bow

The components provided with this stage include more strips of wood for planking *Victory*'s hull.

Wooden strips

20 wooden strips 5 x 2 mm, 300 mm long, for hull planking, plus fixing pins

Where the parts fit

The planking on *Victory*'s lower hull continues from the first plank you laid in line with the lower gun deck. Start by adding four layers of planking at the bow, making the joints fall at frames 18, 17, 16, then 18 again. The first three layers continue down the sides of the hull, with planks extending back to frames 25, 24 and 23. Remember to plank both sides of the hull evenly, rather than doing one side first.

Troubleshooter

Before you start, test-fit some lengths of planking over the hull to check that you have faired the frames adequately and that there won't be any bumps or hollows. If there are high spots, you can carefully sand them a little more. If you have accidentally sanded off too much, you may need to build up a frame in order for the planks to curve smoothly, and be fully supported. Cut a narrow strip (or strips) of card stock and glue it to the edge of the frame using superglue. Then coat the strip with more glue and wait for it to harden completely. Finally, sand the frame again to fair the built-up area to the required shape.

QUICK TIP

Stick two or three layers of masking tape (or tape a scrap of card stock) over the exposed corners of the upper deck planks to protect them from damage while you are planking the underside of the hull.

Planking the bow

At this stage, you are going to add the first four layers of planking to the bow, continuing the first three of them back along the sides, ready to join the stern planks. Remember to plank both sides evenly.

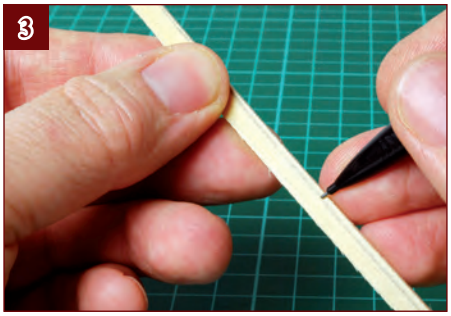
1

1. Trim the first plank to run between the mid-points of frames 18 and 25, using the same techniques that you did when working on the upper part of the hull. Glue and pin it in place.

2

2. Bend a plank to the curve of the bow. Hold it with one end in line with the plank you just fitted and the other flush with the planks at the bow, ensuring that it is in contact with the frames. The curve of the hull means that there will be a small gap between the new plank and the existing ones. Make a pencil mark where the gap is widest (in this case, at frame 13).

3



3. Draw a taper from the mark to the bow. (You will have to draw this by hand as the plank is curved.) The size of the gap in Step 2 indicates how much you need to taper the plank. If the gap was 2 mm, reduce the width of the plank at the bow by 2 mm.

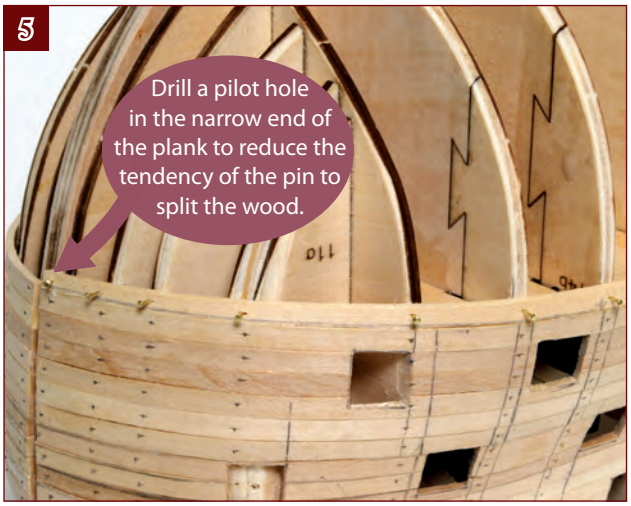
EXPERT TIP

Don't taper the planks too much. Always avoid reducing any plank to less than 2.5 mm wide (half its original width), as this will make it unrealistically pointed and difficult to fix in place. It is much better to cut the plank short and fill any large gaps with dropper planks (as shown in detail on the next two pages).

4

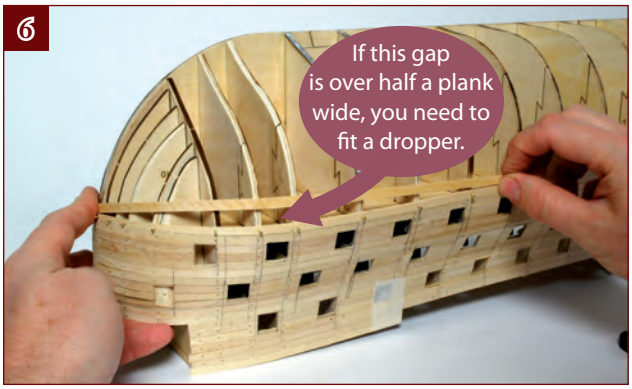
4. Taper the plank, trying it against the model frequently to check the fit.

5



5. Glue and pin the plank in position. Then trim the end of the plank at the bow so that it stops at the edge of the false keel.

6



6. If you bend the next plank and try it in position, you will almost certainly find the gap is over half a plank's width, which indicates that a dropper plank is required (see next page). In the unlikely event that your planking is different and the gap is smaller, you only need to taper the new plank (as in Steps 2-5), not fit a dropper.

Fitting dropper planks

To avoid making the planking too narrow and pointed, taper two adjacent planks to half their width, then continue with a single-width "dropper plank."

QUICK TIP

Remember the basic principle of a dropper plank (illustrated below with deliberately different-coloured pieces of wood to make it more obvious): To stop planks from becoming too narrow, taper the ends of the pair of them to half a plank's width, then run on using a single plank.

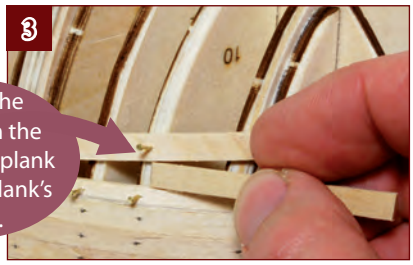
1

1. Start by defining the gap that will be filled by a pair of planks. Use two short pieces of planking material to act as spacers, and temporarily pin them against the first plank you fitted, running across frames 17 and 19.

2

2. Use the plank you tried at Step 6 on the previous page as a temporary edge-guide for the next two planks. Loosely pin one end above your two spacers. Loosely pin the other end at the bow, leaving about 2.5 mm between it and the plank below.

3



3. The dropper must end where the gap is one plank wide. Use the end of a small piece of plank to test the gap over each frame. Pin the temporary plank to the one where the end just fits the gap. As it is important that this point is in line with a frame, you may need to ease the temporary plank up or down a fraction.

4

4. Now hold two planks side by side to find out where the gap starts to narrow. Mark this with a pencil arrow (as shown above) to show where you need to start tapering the planks.

5

5. Remove the lower of the two spacer pieces, ready to fit the first plank.

6

6. Bend the first plank to fit the curve of the bow, ensuring that it is long enough to run from frame 17 to beyond the point you found in Step 3, where the dropper will start. Transfer the mark you made in Step 4 to the new plank.

7

7. Draw a taper, starting at the pencil mark, and running to the end of the plank, leaving an end width of 2.5 mm. Trim the plank to this line.

8

8. Cut the stern end of the new plank to finish over frame 17, one frame forward of the previous joint. Pin it in place, gluing it to the existing planking as well as to the frames.

9

9. You can now remove the second spacer, and fit a straight piece of plank in line with the one you've just fitted, extending the layer of planking back from frame 17 to end over frame 24.

10. Using the same method as in Steps 6-8, fit a second plank into the gap under the temporary plank. Stagger the end joint by one frame again, in this case so it finishes over frame 16.

Troubleshooter

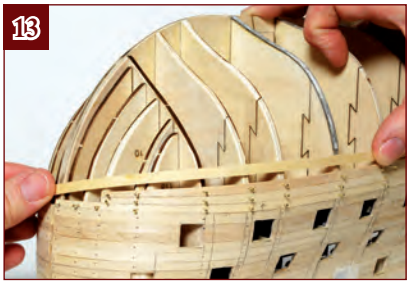
EXTRA-WIDE DROPPER PLANKS

If you find that your dropper needs to be wider than 5 mm (because you haven't tapered the main planks quite enough), take a scrap of plank twice as long as the dropper will be and cut it in half. Cut a thin strip off one piece, and glue it to the side of the plank using glue and clothespin clamps, to make a wider plank. The joint will be invisible, as the two pieces of wood are exactly the same colour. Do not soak the dropper before bending it, as water will soften the glue. An electric plank bender will bend dry wood, although it takes a little longer. Heat from the bender will soften the adhesive, so hold the plank together while it cools, and be careful not to burn your fingers!

Keep the temporary plank to use when fitting further dropper planks.

11. Remove the temporary plank and cut the tapered ends of the planks over the frame. The cut should be at right angles to the plank, so it may not necessarily follow the line of the frame.

12. Fit another plank to extend the plank you have just fitted. As you need to stagger the joints, this plank will run from frame 16 to frame 23.

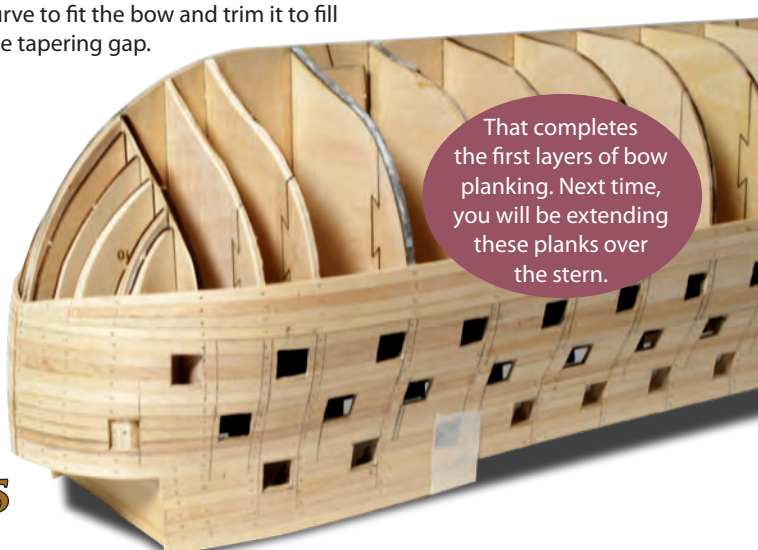


13. Bend and taper a permanent plank to replace the temporary one, following the method in Steps 2 to 5 in the 'Planking the bow' section earlier in this stage. Once again, this plank needs to end at frame 18 to stagger the joints, then run forward to the bow.

14. Glue and pin this plank in position, leaving a gap of at least 2.5 mm at the bow to fit the dropper plank.

15. To make the dropper, bend a scrap of plank in a gentle curve to fit the bow and trim it to fill the tapering gap.

16. Glue and pin the shaped dropper plank in place.



That completes the first layers of bow planking. Next time, you will be extending these planks over the stern.

Stage 33: Continuing the lower hull

The components provided with this stage include more strips of wood for planking *Victory*'s hull.

Wooden strips

20 wooden strips 5 x 2 mm, 300 mm long, for hull planking, plus fixing pins

Where the parts fit

Continue planking *Victory*'s lower hull by extending the four layers of planking that you started at the bow, taking the planks back to the stern and around the transom. Remember to plank both sides of the hull evenly, rather than doing one side first.

It's particularly important to fit the first plank well, as it forms a base for all the others. This can be quite difficult. Take your time, and check the fit against the model frequently. You may like to practise on a piece of scrap before committing to a whole plank.

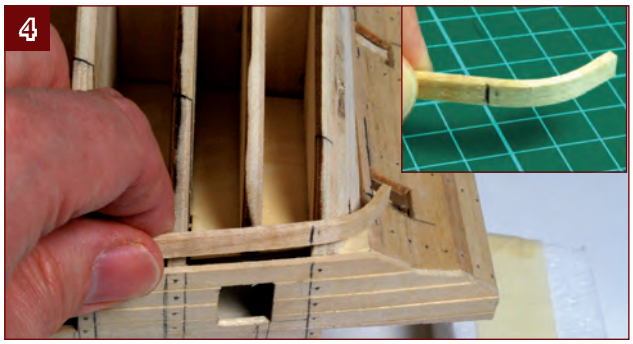
Fitting the first stern plank

The fit of the first plank will dictate the run of those that follow. Trim only a small amount of wood at a time, and then check the plank against the model to avoid removing too much material.

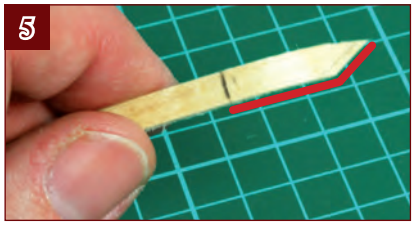
1. You will probably find that there is a small gap between the side planks and the point where the planking under the gallery support meets the transom.

2. To produce a smoother curve (and avoid any gaps on the finished model) you can fill this area with light-coloured wood filler and sand smooth, following the filler maker's instructions.

3. Take a full-length plank. Don't cut it to fit yet, but shape one end to fit around the stern, then trim off the surplus after the curved end is finished. Leave a generous overhang at the stern (around 25 mm) and mark the front of frame 30.



4. Make a tight bend to go around the transom, using several light bends to reach the right radius. Do not try to bend the plank in one go as it will almost certainly snap. Curve the remainder of the plank gently to match the curve of the hull.

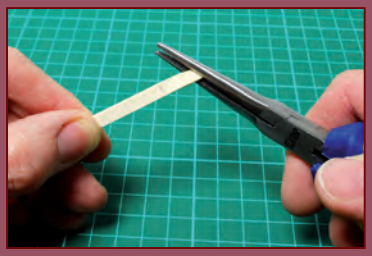


5. Cut the end of the plank at an angle, trying the plank against the model to gauge where to cut. The edge that fits against the existing planks will need chamfering quite strongly in the areas highlighted with red lines.

6. You now need to twist the end of the plank to fit the compound curve of the transom (see Expert Tip).

EXPERT TIP

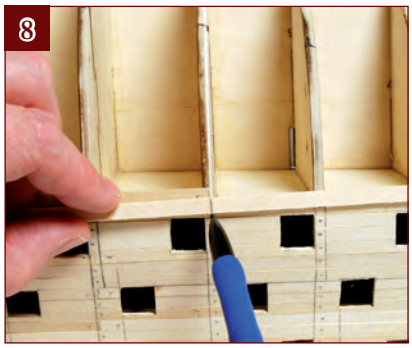
There are several ways to twist a plank. You can soak it in hot water to make the wood pliable, then shape it by hand, or you can use an electric plank bender. You can also use steam (from a non-electric kettle, as electric kettles cut out when they boil) to soften the wood. Hold the wood with smooth-jawed pliers to make the twist, because both steam and an electric bender can cause serious burns.



QUICK TIP

If a plank cracks during shaping, cut off the damaged end and save the rest for when you only need a shorter plank.

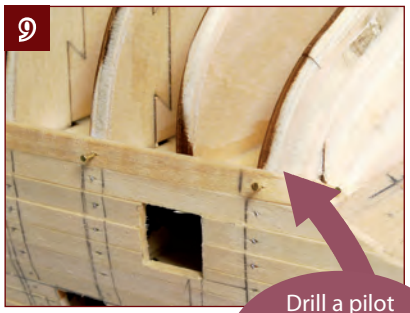
7. Check against the model frequently. It may take several goes to twist and chamfer the plank to get a perfect fit. Note how the twist means the plank covers the gap in Step 1, rather than just bending around the transom.



8. Hold the plank in position so you can mark the forward end and cut it to fit.

QUICK TIP

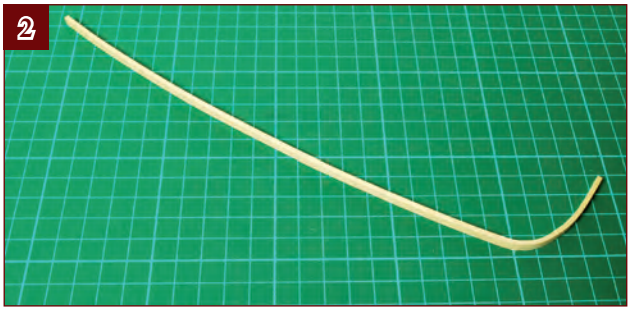
If you use the knife blade as a marker, it will draw a finer, more accurate line than a pencil. Cut the plank slightly too long, and then make very small cuts to bring it down to the exact length.



9. Glue and pin the first stern plank in position.

Continuing the stern planking

Successive stern planks are shaped and fitted in a similar way to the first ones you just fitted.



1. Take another full plank. Again, work from one end and cut it to length after the stern end has been fitted. Mark the front of frame 30, leaving enough extra to curve round the transom and finish at the bottom of the gallery support with some excess for trimming.

2. As with the first plank, put a gentle curve in this one forward of the pencil mark, and a tighter curve aft of the pencil mark.

3. Place the plank in position and mark the line of the gallery support, leaving an allowance for final fitting.

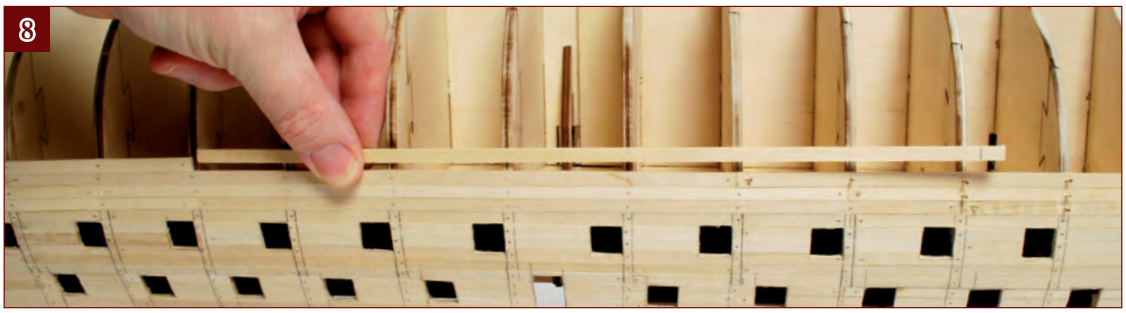
4. Chamfer the plank and trim the end to fit your model. You may need to sand a shallow curve along the edge of this plank to get a good fit.

5. Glue and pin the second plank in position.

6. Use the same process to fit the third plank and try it against the hull. Note that this plank may require tapering. See the Tapering the Stern Planks box on the next page for more detail on this.

7. After shaping the third plank (and tapering it, if necessary), trim it to length, then glue and pin it in place.

Drill a pilot hole to stop this pin from splintering the wood.



8. You need to add a straight plank in the middle of the hull (from frame 18 to 25) before continuing with the next stern plank.

Stage 34: Lining the gun and entry ports

The components provided with this stage include strips of wood for lining *Victory*'s gun ports, plus parts for the first of her companionway ladders.

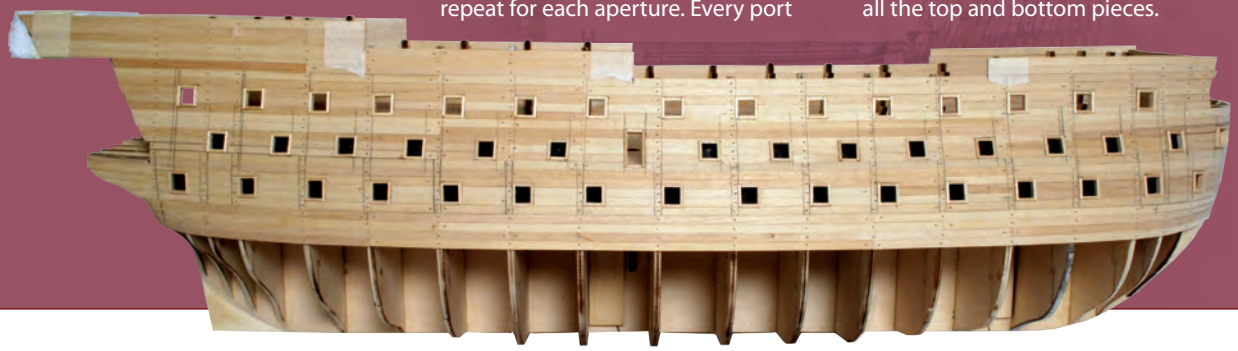
QUICK TIP
Keep the parts for the ladder safe, as you will construct it later, once you have the completed the holes in the decks into which it must fit.

Wooden strips

11 wooden strips 1.5 x 4 mm, 300 mm long, for lining gun ports, 2 pre-cut ladder sides, plus 2 wooden strips 1.5 x 4 mm, 200 mm long for ladder steps

Where the parts fit

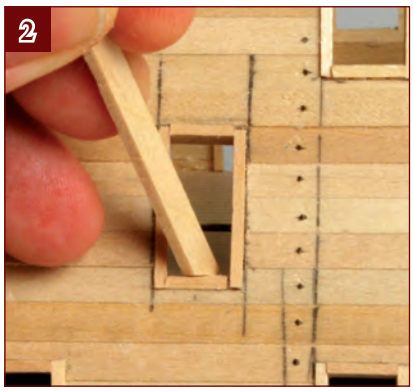
The gun ports are each lined with a "window frame" made from four pieces of wood. You have been supplied with 11 strips of wood, which should provide enough material to line the two large entry ports and complete all the gun ports on the starboard side. The material to complete the remaining ports will be supplied in the next stage. Note that we show only the process for lining one gun port, which you will need to repeat for each aperture. Every port will vary slightly – not only may you have cut the hole a slightly different size, but the angle of the side of the hull varies from deck to deck, and bow to stern. You can make the task quicker by fitting the side pieces to all the gun ports first and allowing the glue to dry (don't use superglue). Then cut and fit all the top and bottom pieces.



Lining the entry ports

Start with the two entry ports. The principle is similar to lining the gun ports, which is covered in more detail overleaf. However, as there are only two of them, it is not worth making a cutting jig.

1. Cut two side pieces to fit the opening in the hull, making sure that the angle of the ends follows the line of the deck. Apply a little glue and glue the linings in place, leaving the edges protruding by 0.5 to 1 mm, to be trimmed later. Position the linings with tweezers until the glue takes hold.

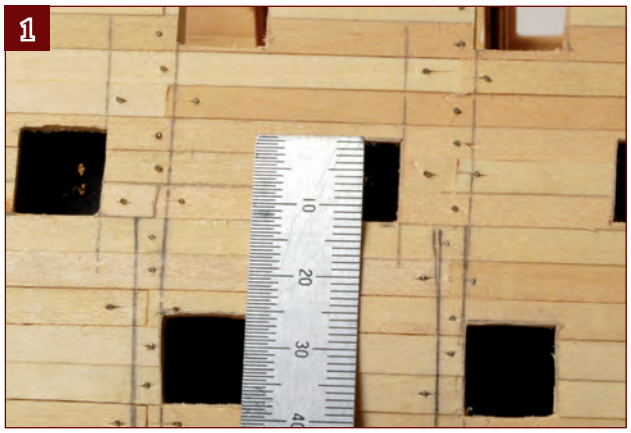


2. Cut two short pieces to fit between the side linings at the top and bottom. Glue them to the hull, using an offcut to hold them parallel with the decks.

3. Ensure that the top and bottom linings also protrude by 0.5 to 1 mm. The edge will not line up with the side linings, but this doesn't matter as it will be sanded flush later on.

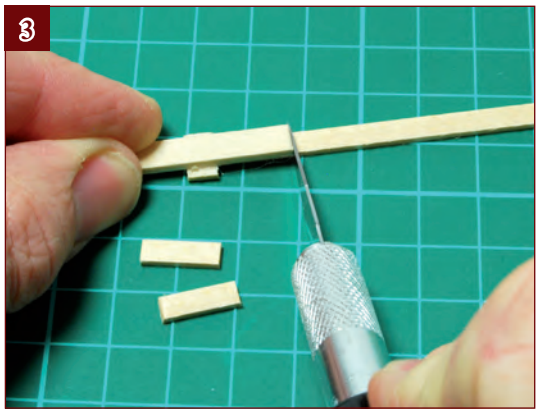
Lining the gun ports

The gun ports are each framed with four pieces of wood cut to fit. You can speed up the process by making small jigs using offcuts of plank left over from planking the hull.



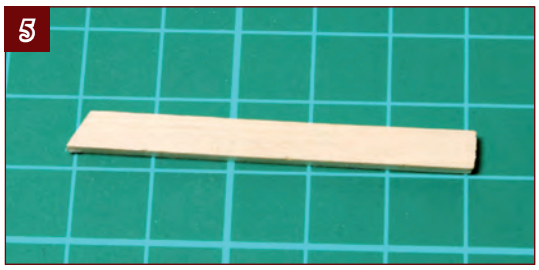
1. Measure the height of the gun ports. It should be 12 mm but check in case they are a little over- or undersized. Then add 0.5 to 1 mm to find the size for the cutting jig.

2. Using scraps left over from planking the hull, glue a small offcut of plank to a longer length of plank. The distance from the stop to the end (indicated above) should be the distance obtained in Step 1.

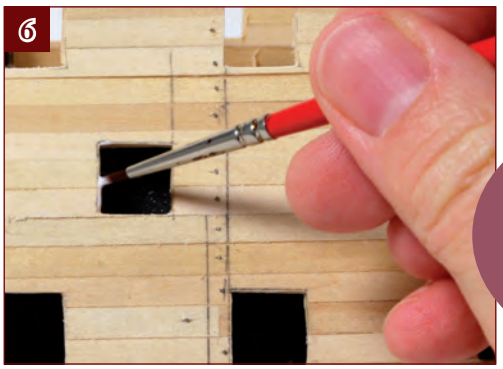


3. To use the jig, slide a strip of lining material under the end, up to the stop, and then cut the strip off at the end of the jig. These pieces will be slightly longer than needed, so you can trim the ends to the exact size of each port.

4. Trim a lining strip to fit the side of the port. Note that the bottom of the lining will need to be cut at an angle to match the angle of the deck.

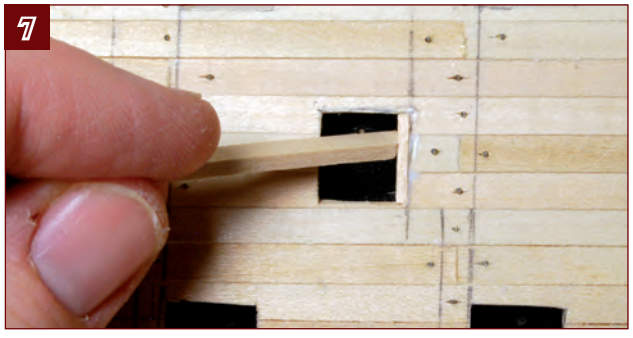


5. Take an offcut of plank and trim the end at an angle as shown. This tool is used to hold the lining in position until the glue takes hold.

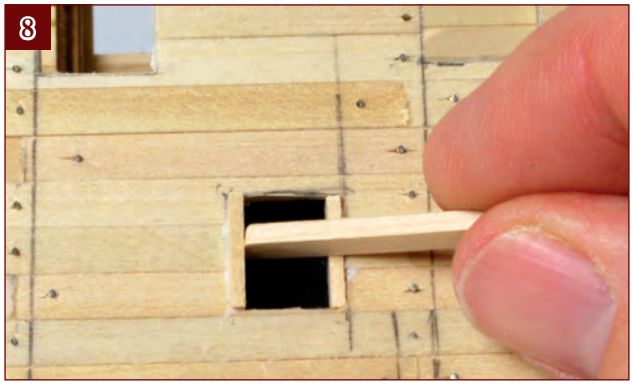


6. Apply a little glue to the edge of the gun port.

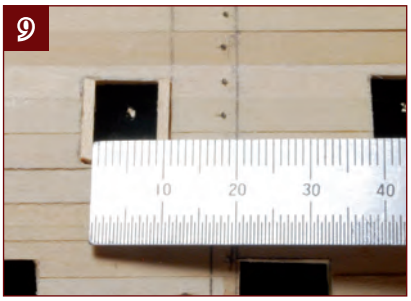
QUICK TIP
Use a brush to apply the glue more accurately, but don't let the glue harden on the brush and ruin it.



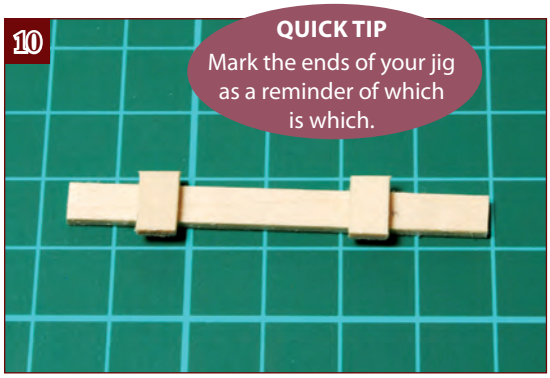
7. Put the piece of lining in position and hold it with the tool you made in Step 5. The lining should stick out from the hull by about 0.5 to 1 mm. The projecting material will be smoothed off flat when you sand the hull.



8. Repeat Steps 3, 4 and 6 to fit the lining to the left side of the gun port.



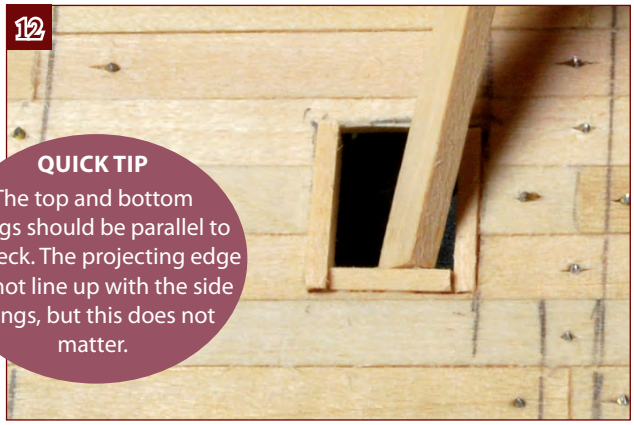
9. Now make a second cutting jig for the top and bottom linings. Measure the gap between the linings, which should be about 9 mm. Add 0.5 to 1 mm to this measurement.



QUICK TIP
Mark the ends of your jig as a reminder of which is which.

10. Glue another offcut on the other end of your cutting jig, according to the measurement obtained from Step 8.

11. Cut a strip of wood to form the bottom lining, and trim it to size.



QUICK TIP
The top and bottom linings should be parallel to the deck. The projecting edge will not line up with the side linings, but this does not matter.

12. Place the bottom piece in position and hold it while the glue takes. Again, it should protrude about 0.5 to 1 mm from the hull.

13. Repeat Step 11 to fit the top lining, and thus complete the whole lining. Continue lining the gun ports until you have completed all the ports along the starboard side.

14. The ports at the bow are partially blocked by the bow formers. Fit the linings in a similar way to the others, as shown. (These ports will be fitted with doors that are permanently closed.) Do not line the partially blocked gun ports under the stern gallery supports – leave these until later.

Stage 35: Completing the gun ports

The components provided with this stage include strips of wood for lining *Victory*'s gun ports, plus more planking

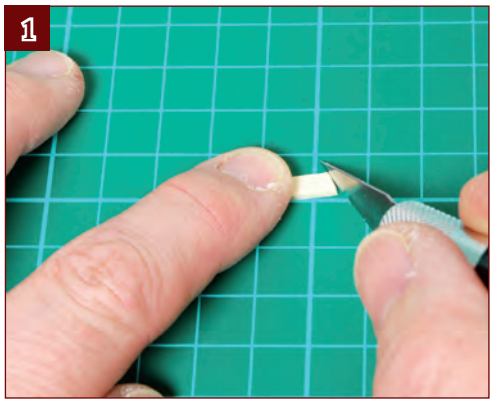
Wooden strips

8 wooden strips 1.5 x 4 mm, 300 mm long, for lining gun ports
20 wooden strips 5 x 2 mm, 300 mm long, for hull planking, plus fixing pins

Where the parts fit

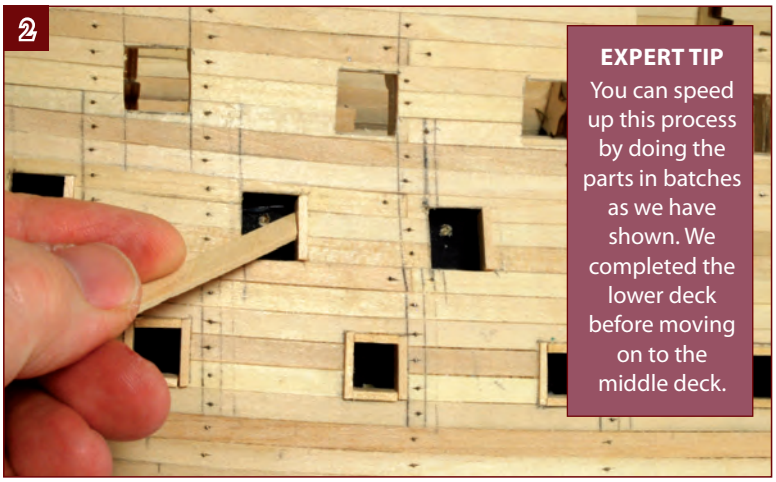
This stage completes the lining of the gun ports on the three main gun decks, by lining the holes you cut in the port side and the two gun ports under the stern.

1



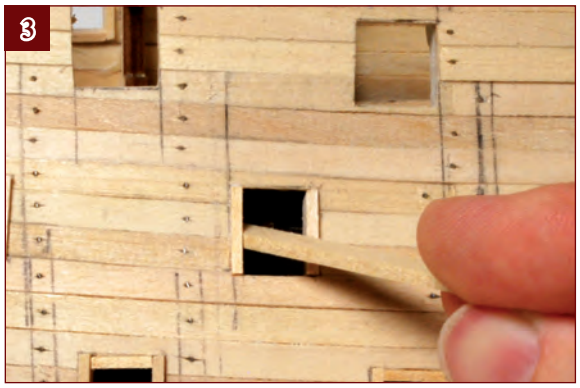
1. Cut out the strips of wood for the linings using the jig you made previously, and trim them to size. Note that the ends should be cut at an angle so they are parallel with the deck.

2

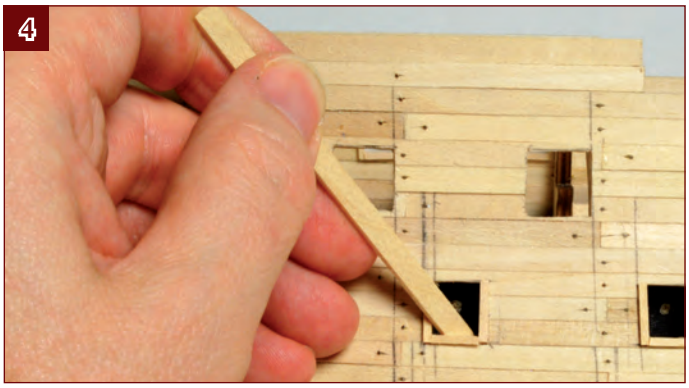


EXPERT TIP
You can speed up this process by doing the parts in batches as we have shown. We completed the lower deck before moving on to the middle deck.

2. Glue one side of the lining in place, holding it in place until the glue grabs.



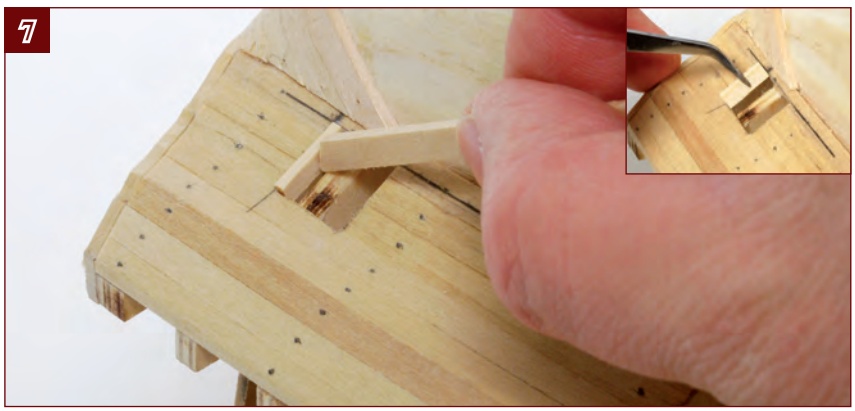
3. Repeat the process to add the other side.



4. Allow the glue to dry before adding the bottom section of lining.

5. Finally, add the top section of lining.

6. This completes all the gun ports on the port side of the ship.



7. The stern gun ports are completed in a similar fashion. You should be able to use your jig to cut the planks to approximate length. First trim the side pieces to fit, and glue one of them in position.

8. Repeat this to add the second side.

QUICK TIP
These gun ports will be permanently closed, so don't be concerned that the inside edges do not line up.

9. Trim the lining nearest the transom to size, and glue it in place. It will butt up to the exposed gallery support.

10. Finish with the lining nearest the stern.

Stage 36: Continuing the hull planking

This stage includes more strips to continue the hull planking downward and includes fitting the garboard plank alongside the keel.

Wooden strips

20 wooden strips 5 x 2 mm, 300 mm long, for hull planking, plus fixing pins

Where the parts fit

This time, you will add another eight layers of planks, followed by the garboard plank along the keel. The exact layout of your planks will vary slightly, so follow the basic techniques shown in Stages 32 and 33. Don't forget to chamfer the edges of the planks to get a gap-free fit, and remember to apply glue to the edges of the planks as well as to the frames. As usual, we only show one side, but you should repeat the process on both sides of your hull.

Continuing the hull planking

The exact layout of the planking will vary on every hull. Follow the techniques in Stages 32 and 33, tapering planks as necessary and fitting dropper planks where required.

1

1. Before you add the next plank at the bow, check it with a plank. You may need a dropper, as shown here, or you may simply need to taper a plank.

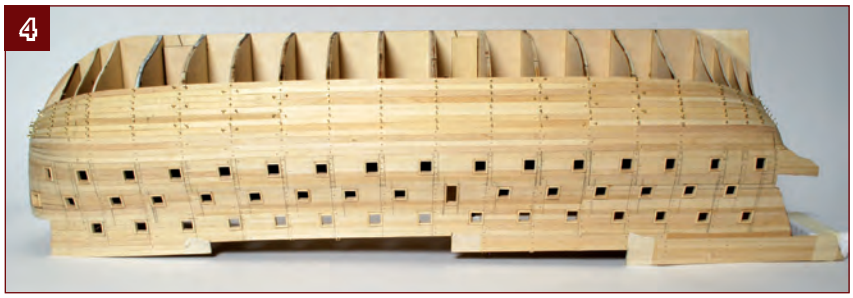
2

2. If you need to add a dropper, trim and fit the planks according to the instructions in Stage 32.

QUICK TIP

Remember to chamfer the edges of the planks for a gap-free fit, and apply glue to the edges of the planks, as well as to the frames.

3. Add the planks at the stern by tapering them as necessary, according to the instructions in Stage 33.



4. Continue planking another 8 rows. To ensure that the joints are staggered, the successive centre planks should run between frames 17 and 24, 16 and 23, then 18 and 25.

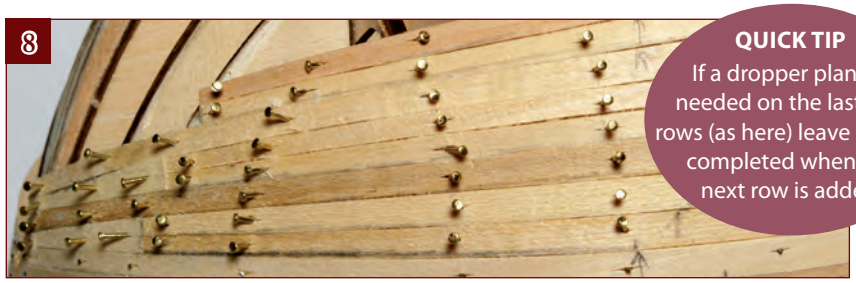
EXPERT TIP

If the stern gun port linings start getting in the way of fitting the planks around the transom, you can trim them flush with the planks under the gallery support.

5. The point where the taper starts will move forward as you progress with the stern planking.

6. When the stern planking reaches the false keel, trim the end of the plank against the edge of the false keel.

7. Continue adding stern planks, varying the taper and trimming them against the edge of the false keel.



QUICK TIP

If a dropper plank is needed on the last two rows (as here) leave it to be completed when the next row is added.

8. When you pin the planks around the curve of the bow frames, insert the pins parallel to the frames, rather than perdendicular to the planks. This will make it easier to align the pin with the frame and keep a neat straight line.

Fitting the garboard plank

If you fit the garboard plank next to the keel now, it will be easier to fit the remaining planks neatly, rather than ending up with a lozenge-shaped hole that needs filling with planks tapered to a point.

QUICK TIP

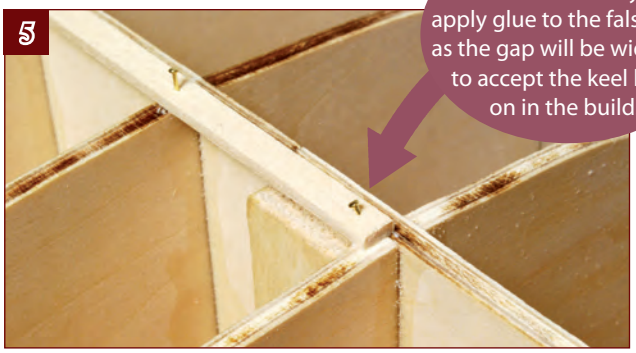
Use offcuts of planking cut to fit slightly proud of the false keel.

1. To provide extra support for the garboard plank, add small bits to the false keel between frames 12, 13, 14 and 15.

2. Glue the bits in place and hold them with clothespins or clamps. Allow to dry thoroughly before continuing.

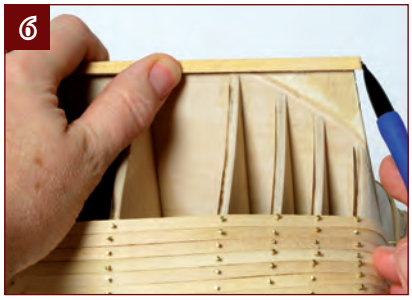
3. Sand the bits flush with the false keel, along the line of the ribs, similar to fairing the main frames of the hull.

4. Take an offcut of plank long enough to fit between frames 19 and 22, and cut so that the ends finish on the centre of the frames, as usual.



5. Glue and pin this plank in position, overlapping the false keel by about 1 mm. You only need to apply glue to the frames, not to the false keel.

QUICK TIP
It is not necessary to apply glue to the false keel as the gap will be widened to accept the keel later on in the build.



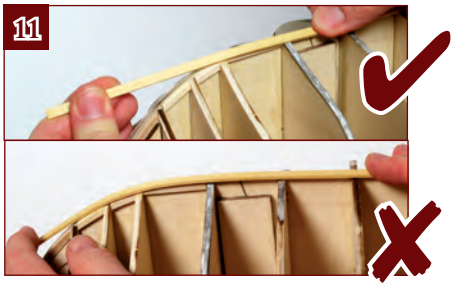
6. Butt a plank against the rear end of the one you just fitted, and cut it so that it overhangs the stern by about 4 mm.

7. This stern plank needs to be twisted. Soak the plank in warm water to make it pliable and easier to twist.

8. Apply glue to the frames and also over a band about 4 mm wide along the thinned stern section of the false keel.

9. Pin this plank in position. Again, allow it to overlap the edge of the false keel by about 1 mm. Use clothespins or clamps, not pins, to hold the plank to the thinned section of the false keel.

10. Where the plank twists vertically to run along the thinned portion of the false keel, make sure that it overhangs the top of the keel slightly to allow for later trimming.



11. The bow plank **must run straight on** from the centre section, twisted to fit the false keel and new bit between frames 13 and 14. **Do not bend the plank** to follow the curve of the keel.

12. Apply glue to the frames and the bits in the area where the bow plank will touch.

13. Pin the bow plank in position, ensuring that it overlaps the false keel by about 1 mm. Insert a final temporary pin through the plank into the false keel to ensure that the forward end of the plank is glued firmly to the fillets.

14. When the glue is thoroughly dry, trim the garboard plank off in line with the edge of the false keel.

Stage 37: Planking the stern

This stage includes more strips of wood to continue the hull planking down toward the *Victory*'s keel.

Wooden strips

20 wooden strips 5 x 2 mm, 300 mm long, for hull planking, plus fixing pins

Where the parts fit

At this stage, you need to continue planking until there is space for about 10 more rows between the area you have completed and the garboard plank you fitted in Stage 36. You will need to trim all these final planks to fit the remaining space – which is covered in the next stage. For now, use the same technique as before. However, the shape of the stern may also mean that the taper needs to extend further, so that it covers two planks, with a dropper added to complete the run, as shown on the following pages. As before, the steps only show one side of the hull, but you need to repeat them on both sides.

Continuing the planking

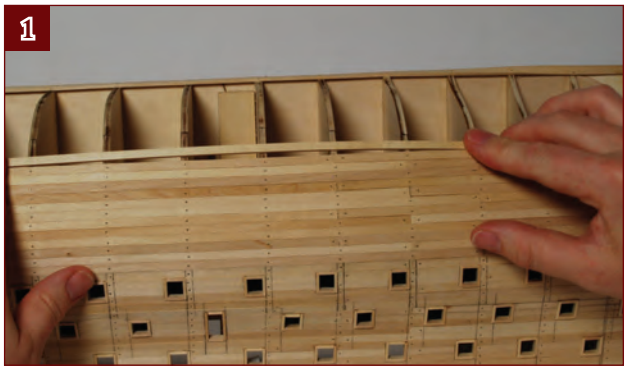
Don't forget that the exact layout of the planks will vary on every hull. Use the techniques shown in Stages 32 and 33 to continue the planking, tapering the strips as necessary and using dropper planks where required. The following pages introduce the new technique needed to fit a dropper at the stern.

1. Add planks to the point where there is room to fit in just 10 or so more rows. It will take another 8 or 9 rows of planking. If the last two rows require the use of a dropper plank, ensure you lay both the tapered strips – although you can safely leave off the final filler piece that goes at the end, as shown above.

2. The changing curves at the stern mean that the taper will vary from plank to plank. Fewer dropper planks will be needed. When one does become necessary, see the next page for a demonstration of the techniques involved.

Fitting a dropper plank at the stern

Add the stern planks as shown in Stage 36, tapering them as necessary. The exact layout will vary on every hull, but sooner or later, you are likely to need to add a dropper. Here is how to do it.



1. When trying a long plank over the curve of the stern, you may find that a gap starts to open up. If this gap is more than about 5 mm wide, you will need to taper two adjacent planks and fit a dropper at the stern.

2. Adding a dropper to the stern is done in a similar way to the ones fitted at the bow in Stage 32. Start by fitting two temporary spacers, spanning frames 21 and 23.

3. Bend a length of planking to go around the stern, and temporarily pin it in place. The forward edge should be flush with the two temporary spacers and the gap at the stern should be about 2.5 mm (as shown in the inset picture).

4. Try an offcut of plank material in the gap to find out where the gap is exactly one plank wide. Adjust the position of the temporary plank so that this point falls directly over a frame, and insert a pin to hold the plank in position.

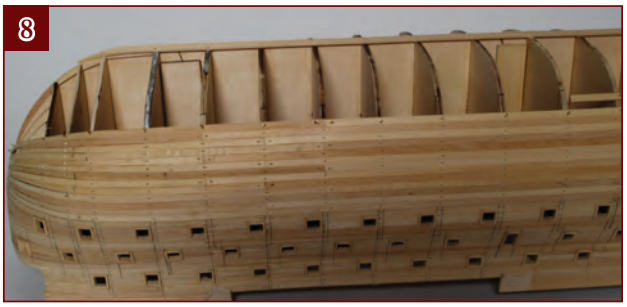
QUICK TIP
Remember to chamfer the edges of the plank for a gap-free fit, and apply glue to the edges of the planks, as well as to the frames.

5. Take two offcuts of planking material and hold them together side by side. Try them in the gap to find out where it starts to narrow to less than two planks wide. Mark this point with a pencil arrow (as above) to show where you have to start tapering the planks.

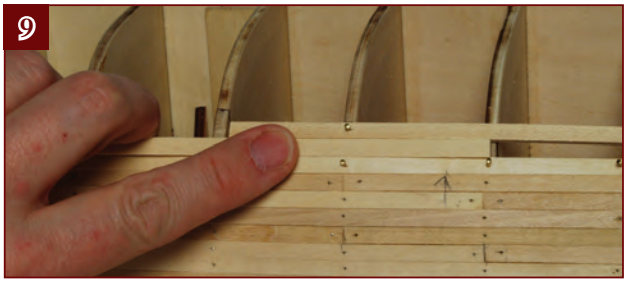
6. Fit the first plank as shown, making sure the end stops at the right frame to keep the stagger pattern correct. The plank in this example runs from frame 18 to frame 25, but yours may be different. Taper it gently from the mark you made in Step 5 to the stern end of the plank, where the width needs to fill half the gap.

QUICK TIP
Taper the top of the plank, **not** the edge closest to the keel.

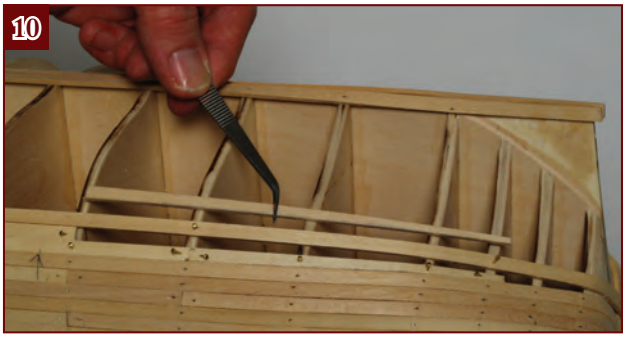
7. Taper and fit the continuation plank, which will slightly overlap the frame marked in Step 4. The tapered plank should start the same width as the end of the plank fitted in Step 6, and taper to 2.5 mm. Leave the plank slightly overlength for later trimming.



8. It's a good idea to fit the next plank at the bow to complete the full layer of planking. This will avoid leaving the end of the next plank overhanging when you continue with the next step.



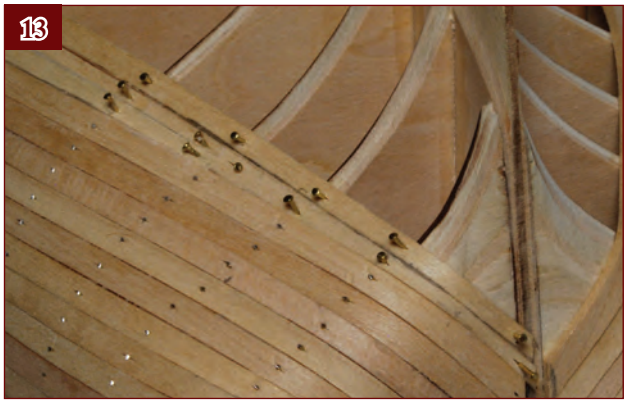
9. Remove the second temporary spacer, and fit the plank in a similar way to Step 6. Remember to stagger the joints so that they end one frame further along.



10. Repeat Step 7 to taper the second continuation plank, leaving it slightly overlength as before.

11. Glue and pin the second continuation plank in place, taking special care not to split the narrow end.

12. Remove the temporary plank fitted in Step 3. Taper this plank and fit it permanently, trimming the end at the keel.

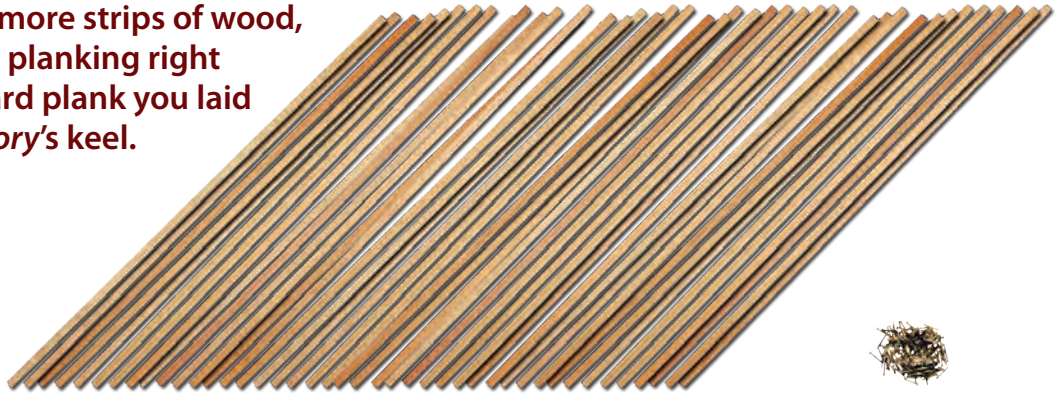


13. Finally, cut the dropper plank to fit the remaining gap.

This view shows what the stern planking will look like after the planks have been sanded smooth. You can see where two stern dropper planks have been fitted.

Stage 38: Tapering the planks

This stage includes more strips of wood, to continue the hull planking right down to the garboard plank you laid alongside your *Victory*'s keel.



Wooden strips

40 wooden strips 5 x 2 mm, 300 mm long, for hull planking, plus fixing pins

Where the parts fit

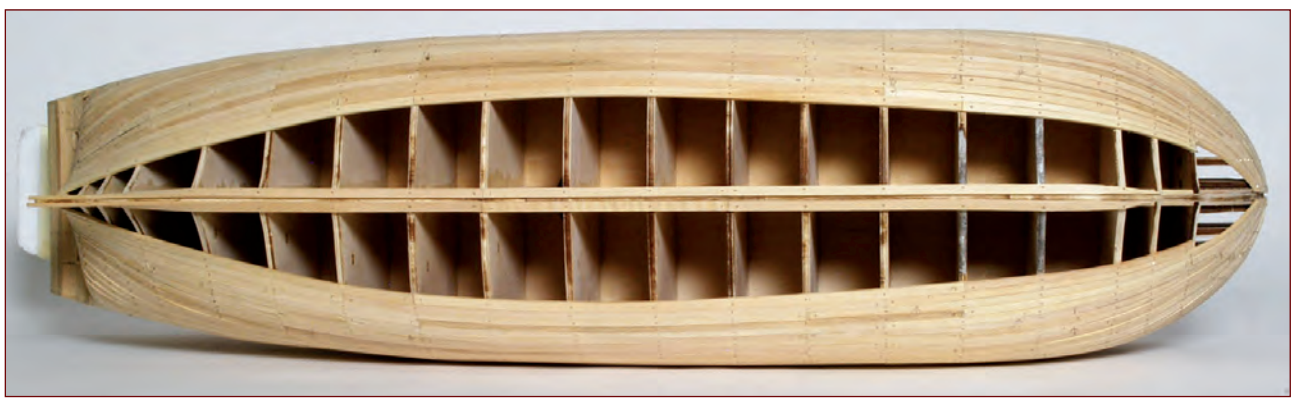
The final section of the hull uses a different technique so that all the planks can run continuously from bow to stern, giving a realistic appearance. To achieve this, all the planks need to be tapered to fill the remaining gap evenly. As before, we show only one side of the hull, but you will need to plank both sides the same way.

Remember these key points:

- Don't forget to chamfer each plank to get a good gap-free join.
- Always cut and chamfer the upper edge (the one closest to the waterline).
- Glue the edges as well as the frames.
- Remove any excess glue as you go.
- Keep all the sizable scraps of planking for use later in the build.

Tapering the planks

The gap in the planking is widest in the centre, tapering toward the bow and stern. To fit the same number of planks all the way along, you need to taper them to match the space available. The exception is at the stern, where you may need to add "stealer" planks, details of which is given in the Expert Tip box at the end of this stage.



1. The first step is to find out how many rows of planks you need. Measure the widest gap (probably near frame 20 or 21). Round up to the nearest 5 mm, then divide by 5. Here, the measurement is 49 mm, which rounds up to 50 mm. This means that you will need 10 rows of planks. Locate this number in the blue column in the table below.

2. Measure the width of the gap at each frame and fill in the yellow columns of the table. Divide the width by the number of rows to give the required width of the plank at each frame. For example, if the measurement is 35 mm and you are using 10 rows of planks, the width will be 35÷10 = 3.5 mm.

EXPERT TIP

If you have a digital caliper, this makes it easy to measure the gaps quickly and accurately. Use the jaws shown, which are designed to take accurate internal measurements.

Trim the plank to this measurement all the way to the bow.

3. The grid has been filled in with two rows of examples to show the principle. **Do not use these, as your model will be slightly different**. Locate the number of rows you require (up to a maximum 11) in the first column, write in the measurements at each frame and divide by the number of rows.

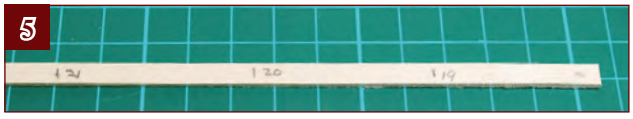
EXAMPLES

No. of rows	Frame 14		Frame 15		Frame 16		Frame 17		Frame 18		Frame 19		Frame 20		Frame 21	
10	36	3.6	38	3.8	40	4	43	4.3	45	4.5	47	4.7	49	4.9	49	4.9
9	36	3.7	35	3.9	36	4	38	4.2	40	4.4	42	4.7	44	4.9	44	4.9

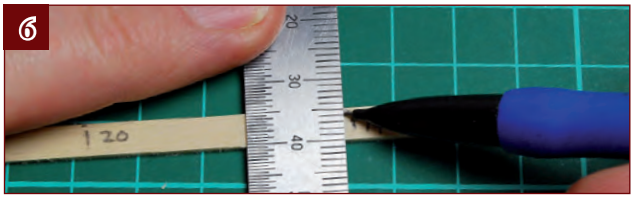
YOUR MODEL

No. of rows	Frame 14		Frame 15		Frame 16		Frame 17		Frame 18		Frame 19		Frame 20		Frame 21	
11																
10																
9																
8																
7																
6																
5																
4																
3																
2																

4. Take the first plank and hold it in position, making sure you have staggered the joints correctly against the next row. This example runs from frame 18 to 25, but yours may be different. Mark where each frame crosses the plank.



5. Here, the frame marks have been numbered for clarity. This is optional, but does help to avoid mistakes.



6. Check the measurements on the grid and mark the width required at each frame location. Be as accurate as you can – although the method shown here does automatically correct any errors as you lay each later row of planks.

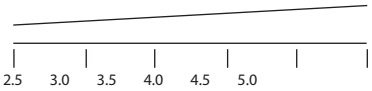
QUICK TIP
Place a scrap of plank under the free edge of the ruler to keep it level.

7. Draw a line, joining up the marks into a smooth curve.

8. Taper the plank. You can use a small modelling plane to remove the bulk of the material, but carry out the final trimming to size with sandpaper. It is better to slightly over-trim the plank than leave it too wide.

9. As a quick check that your plank is the right width, you can lay it on the diagram printed below. For greater accuracy, use a digital caliper if you have one.

10. The completed plank should look something like this.



You may find that the gap widens over these last few frames. If so, use the smallest measurement all the way to the end. For example, the plank in the top row is narrowest at frame 27, so make the plank 2.9 mm wide right to the end.

EXAMPLES

Frame 22		Frame 23		Frame 24		Frame 25		Frame 26		Frame 27		Frame 28		Frame 29		Frame 30	
48	4.8	45	4.5	41	4.1	35	3.5	30	3	29	2.9	30	~~3~~ 2.9	32	~~3.2~~ 2.9	35	~~3.5~~ 2.9
43	4.8	41	4.6	37	4.1	31	3.4	26	2.9	25	2.8	26	~~2.9~~ 2.8	28	~~3.1~~ 2.8	32	~~3.6~~ 2.8

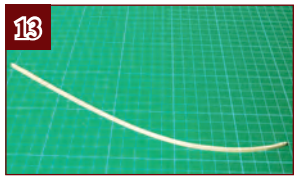
EXAMPLES

YOUR MODEL

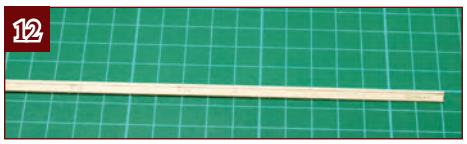
Frame 22		Frame 23		Frame 24		Frame 25		Frame 26		Frame 27		Frame 28		Frame 29		Frame 30	

YOUR MODEL

11. Glue and pin the plank in place with its tapered edge against the previous planking. (Drill pilot holes in the narrow portions to prevent the pins from splitting the wood.)



13. After you have tapered the plank, bend it to fit the curve of the bow frames.



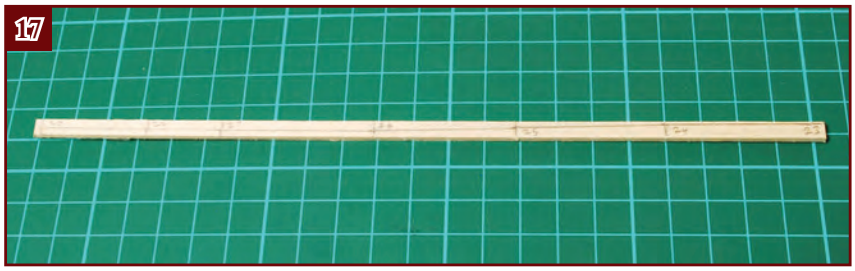
12. Repeat Steps 4 to 7 to measure and mark the plank that extends to the bow.

14. Now glue and pin the plank in position. In the example pictured here, the previous planks stop short because a dropper needs to be fitted to complete the run.

QUICK TIP
For all the bow planks, remember:
- The width of the end nearest the centre of the hull should be the same as the end of the plank onto which it butts.
- The width of the end nearest the bow should be the same as that you calculated at frame 14 – the part of the plank that runs from frame 14 to the bow should have parallel edges.

15. As before, trim the plank along the edge of the false keel (red dotted line), to leave a 4-mm gap between the planks.

16. Now is a good time to fit the dropper plank if one was needed in the previous rows running to the bow.



17. Repeat the same process to measure and mark the rear plank. Remember, as the example on the grid shows, **if your measurements show the gap widening toward the stern, trim this end of the plank to the smallest of the calculated widths.**

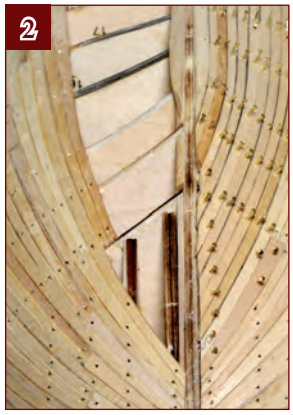
18. Bend and fit the stern plank, pre-drilling holes in the narrow section nearest to the stern.

Continuing the planking

Repeat Steps 2 to 18 to fit all but the last row of planks. By repeating the measuring process, you will automatically correct for any errors that may creep in due to inaccurate measuring or cutting.

1. Continue until one row of planks remains to be fitted and the hull looks like this. In theory, all the planks should be exactly the same size. In practice, they won't, which is why you need to remeasure.

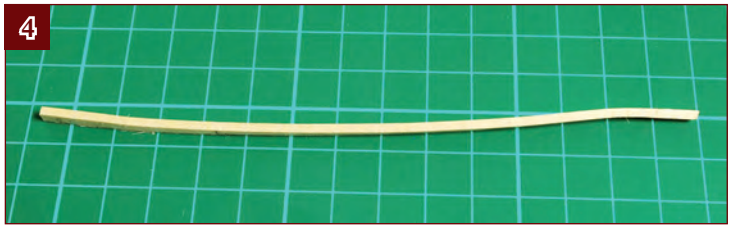
3. As planking progresses down the stern, you will need to twist the ends of the planks as they change from following the frames to lying on the surface of the false keel.



2. Taper the bow planks like this. If they are in danger of becoming too narrow, you can fit a dropper plank (see Expert Tip, right).

EXPERT TIP

If you need to add a dropper within the last few bow or stern planks, the process is the same as that described in Stages 32 and 37. However, you must reduce the widths of both spacer planks to the dimensions calculated on your grid.



4. To fit the lower stern planks, you will need to bend them in a double curve as shown.

5. Sooner or later, you may find that it 's impossible to fit a stern plank without leaving a triangular, tapering gap. If this happens, you need to fit a stealer plank (see below).

6. When there is only room for one more row of planks, it will become hard to measure the gap accurately – even using a caliper. A pair of dividers is the ideal tool for transferring the dimensions to the plank.

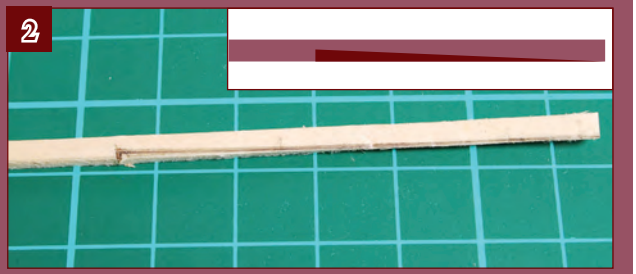
7. Carefully shape the final row of planks to fit the remaining gap. When you slot them in, remember to glue both edges.

The completed hull planking is now ready for sanding smooth and fitting the external keel.

Expert tip: Adding stealer planks

Short "stealer" planks are used to fill tapered gaps at the stern. To avoid having a pointed end, stealers must be cut square in line with a frame. The number of stealers you need to fit will depend on how you have tapered the planks, faired the hull, and numerous other small variations.

1. When the natural run of the stern planking leaves a triangular gap, don't pin the plank in place. Hold the plank firmly in position and mark it in line with the frame nearest to where the gap starts to appear.



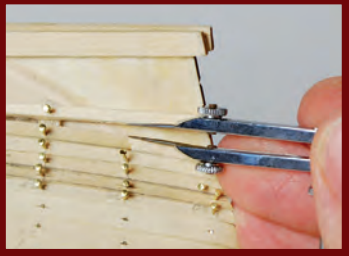
2. Cut about halfway across the width of the plank at the point you marked. Then remove the tapering portion of wood shown in dark red in the inset diagram, leaving the plank at its original width at the tip.

3. Fit the plank, using a peg or clamp to hold the stern. Allow the rear end to follow a natural line, but ensure that the gap at the stern is no more than 5 mm.

4. Shape and fit a small stealer plank to fill the remaining gap.

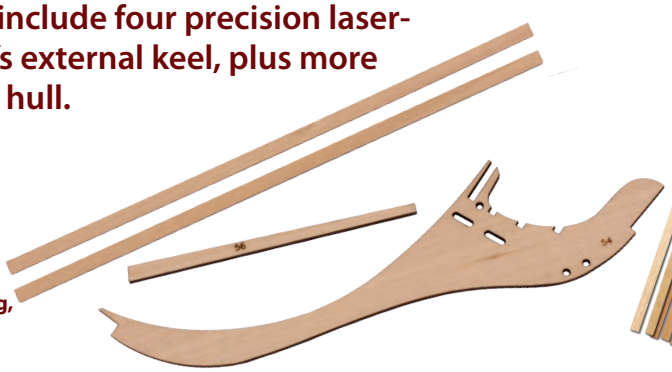
QUICK TIP

A pair of dividers makes it easy to transfer the width of the gap from the model to the stealer plank.



Stage 39: Fixing the keel

The parts with this stage include four precision laser-cut parts to make *Victory*'s external keel, plus more planking and pins for the hull.



Keel parts

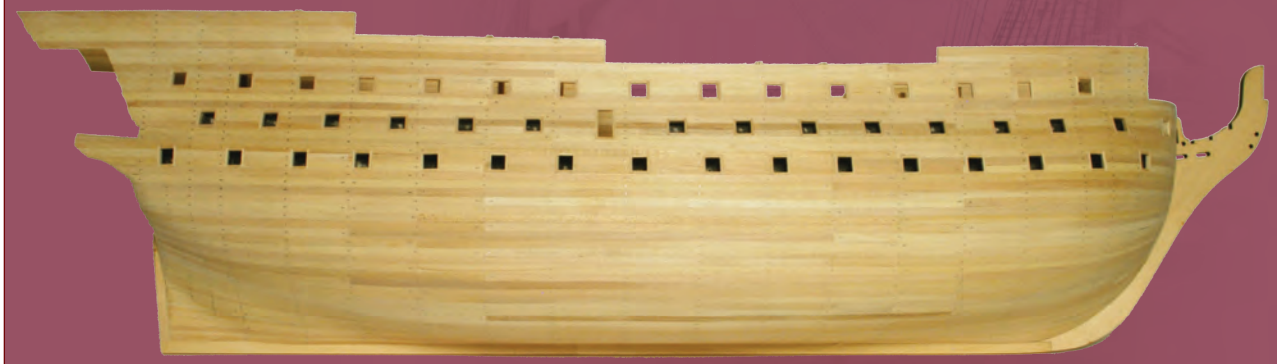
Two 6 mm x 8 mm keel strips, the stern post (part 56) and curved stem (part 54)

Wooden strips

20 wooden strips 5 x 2 mm, 300 mm long, for hull planking, plus fixing pins

Where the parts fit

The keel components are glued to the edge of *Victory*'s internal false keel. They are a little thicker than the slot you left in the planking, so this will need to be widened. However, you should sand the whole surface of the hull smooth before doing so. Cutting the keel slot after sanding the hull will ensure that you don't accidentally damage the edge of the planking.



Sanding the hull

This is one of the most important stages for achieving a good finish. It is time-consuming, but will be time well spent. Use a sanding block wherever possible, although it is impractical on concave surfaces.

1. If you have cut off the pins, rather than pulling them out, you need to push any protruding nails flush with the hull. An old teaspoon is a good tool for this.

2. Leave the packing to protect the vulnerable stern planking while you are sanding the main part of the hull. Sand the overhanging stern planks last.

3. Start by sanding the gun port linings flush with the hull. Be careful not to splinter the edges of the linings.

EXPERT TIP
If you find any ridges ("clinkering") or recesses over 0.5 mm in the planking, apply a little filler to avoid over-sanding and weakening the hull.

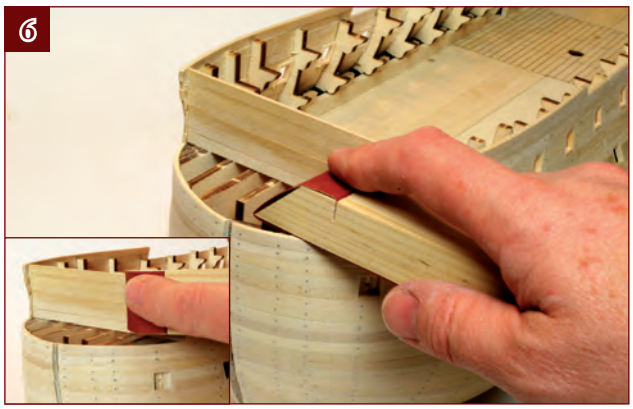
4

4. Sand the hull using medium grade abrasive paper until it is completely smooth and all pencil marks have gone. Then sand it again with fine sandpaper to remove any scratches. You will need a good quality abrasive paper, particularly if you left the pins in.

5

5. Sand the bottom of the gallery support smooth.

6

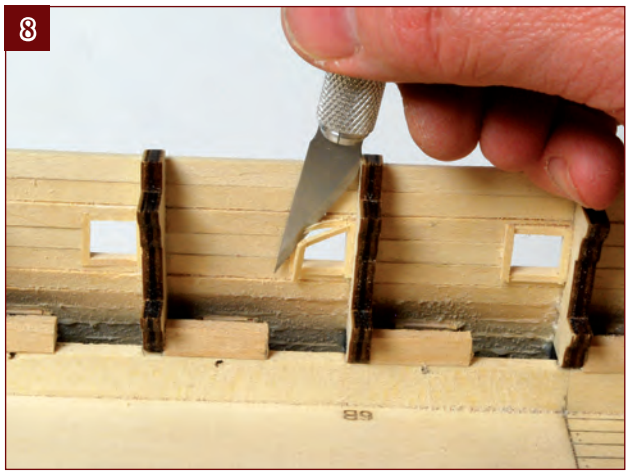


6. Sand the tops of the bow planks flush with the tops of the frames, and the ends of the planks flush with the bulkhead.

7

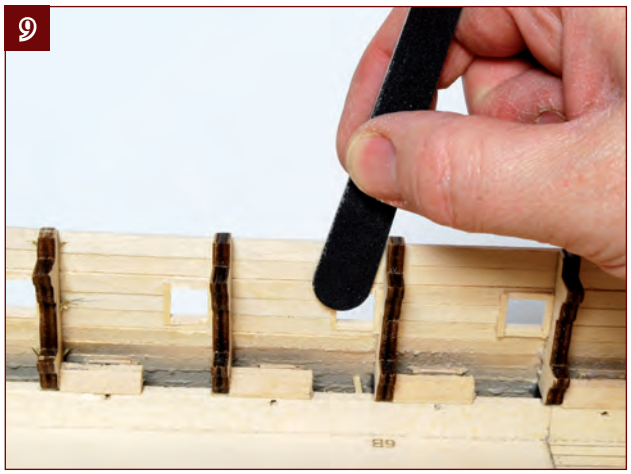
7. You need to sand the inside of the five gun ports on each side (10 in total) shown outlined in red.

8



8. First trim excess linings with a sharp knife.

9



9. Then sand the inside smooth with an emery board (nail file).

Fixing the keel

Mark the slot in the planking using the keel parts to ensure that they match. Always double-check your measurements before cutting away the planking that you have carefully fixed in place.

1

1. Take one of the strips of wood for the keel, and tape it over the gap in the planking using masking tape, so that it runs between frames 16 and 24.

2

2. Make sure the strip is taped centrally over the gap, in a straight line from bow to stern. Ensure you have used the thinner (6 mm) edge of the wood, or you will cut the slot too wide.

3

3. Run a knife blade down each side of the keel to mark the correct width. Take several light passes in order to make a fairly deep cut. Ensure the keel does not move.

4

4. Remove the strip and then cut right through the planking to make the slot for the keel.

QUICK TIP
Use a ruler or spare plank to extend the cut where the masking tape was, after removing the keel strip.

5

QUICK TIP
Ease the slot with an emery board if the keel is a tight fit. It will be easier to fit if you chamfer the inside edges a little.

5. Make sure the keel sits in the slot without forcing it.

6

6. Tape the keel strip over the planking at the stern in the same way you did in Step 2.

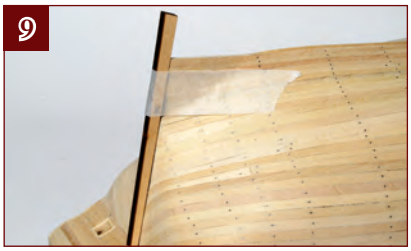
7

7. Run a knife along the edge of the keel strip to mark the planking, up to where the garboard planks twist to the vertical and are glued to the sides of the false keel.

8

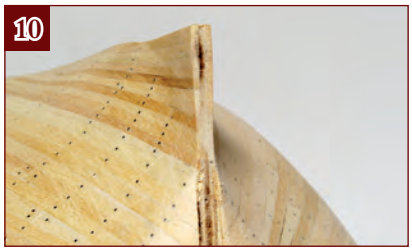
8. Remove the keel strip, and cut away the planking to form the slot, carefully ending it in a taper where the garboard planks twist to vertical. Sand the edge of the garboard planks flush with the edge of the false keel after this point.

9



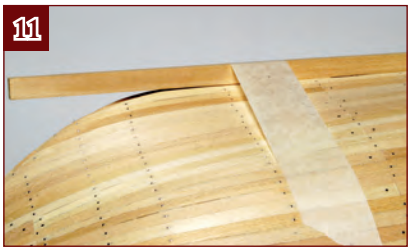
9. Repeat the process with the stern post, ensuring you tape it centrally in line with the false keel.

10



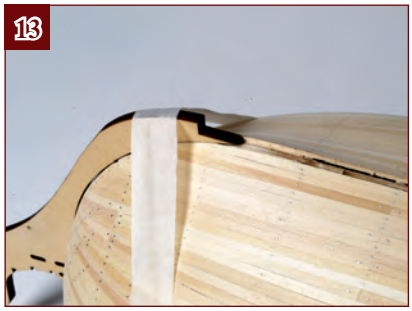
10. Again, pay attention to the area where the planks change direction, and sand the ends of the planks flush with the false keel.

11



11. Repeat the process to extend the slot as far as the straight keel strip goes to the bow, but do not try extending the slot around the curve.

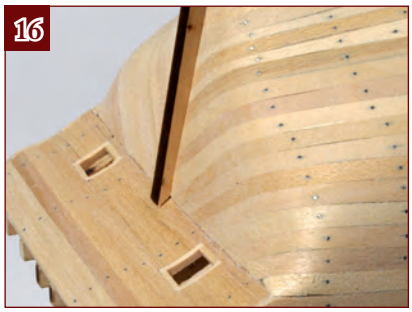
12. Take the curved stem and tape the top in position. Make sure it is centrally aligned over the false keel.



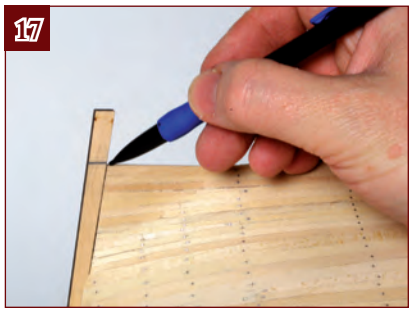
13. Tape the bottom centrally as shown and double-check that the top has remained straight and true.

14. Cut the slot as before, and test-fit the stem. Make sure it sits firmly in the slot without rocking. You may need to remove any excess glue from the slot.

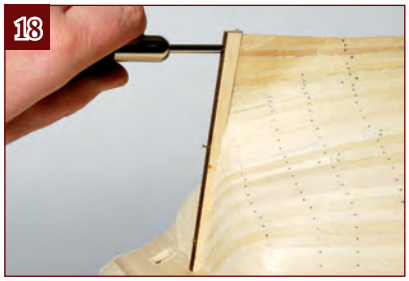
15. Make a pencil mark 4 mm below the top of the bow planks.



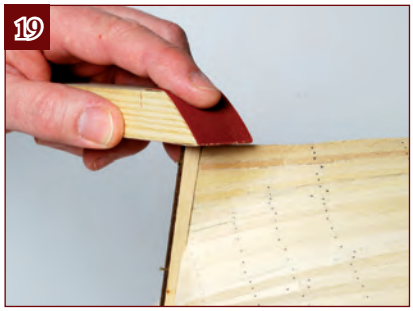
16. Sand the top of the stern post at an angle so it fits neatly against the underside of the gallery support.



17. Mark the other end of the stern post and cut it to length, leaving a small allowance for sanding.



18. Apply glue to the stern post and fix it with three pins. Remove these when the glue is thoroughly dry.

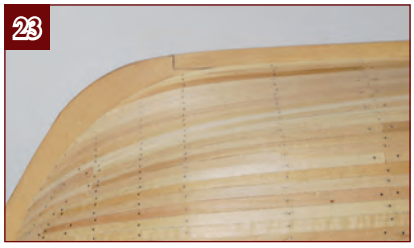


19. Sand the end of the stern post flush with the false keel.

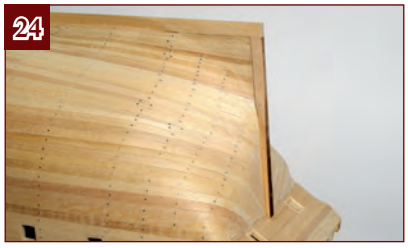
20. Glue the stem in position. Align the top with the mark you made in Step 15. Hold it with masking tape at the top, and two pins at the bottom. Remove the pins when the glue is completely dry.

21. Fit the first keel strip, sanding the front if necessary, so it fits perfectly against the stem. Glue it in position, holding it with tape while the glue dries. Do not worry if there is a slight step where the two sections join – this will be sanded later.

22. Glue and tape the second keel strip in place, butting the two ends together and allowing the excess to overhang the stern.



23. When the glue has dried, sand the bow to form a smooth curve, removing any step between the sections.



24. Cut the stern keel strip to length. Sand the end flush with the sternpost and sand the exposed sides flush with the planking on the stern of the false keel.

Stage 40: Beginning the stern gallery

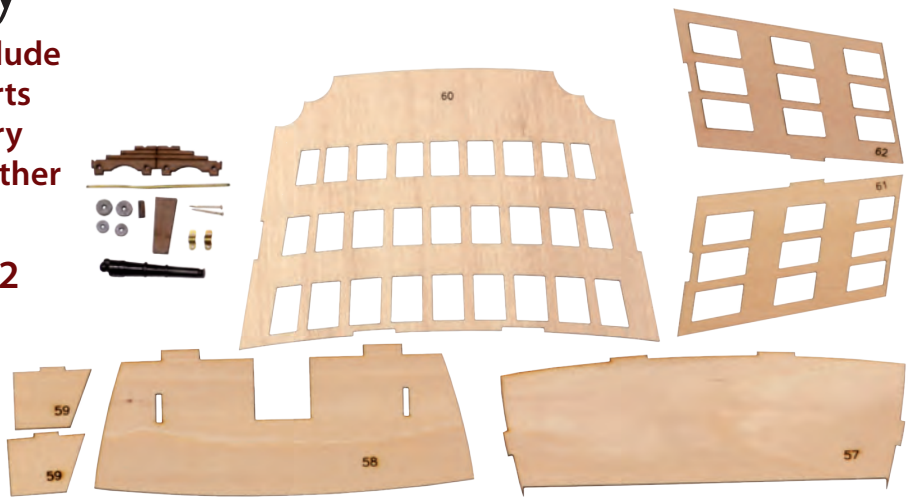
The parts with this stage include seven precision laser-cut parts to make *Victory*'s stern gallery – plus a complete kit for another of her 12-pounder guns.

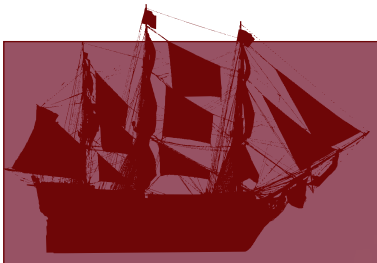
Parts 57, 58, 59, 60, 61, 62

Gallery panels and decks

Cannon parts

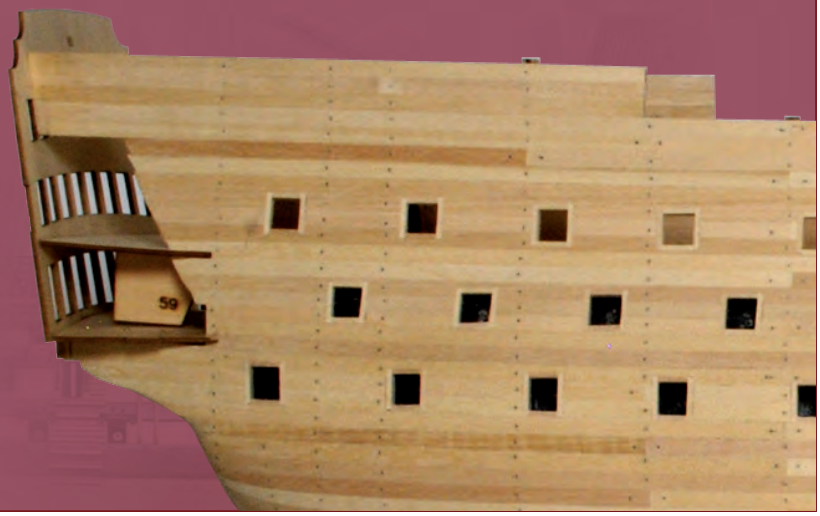
See Stage 25 for details of these components, plus assembly instructions.





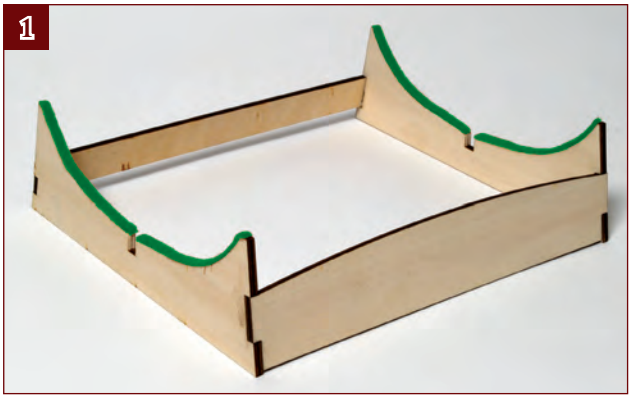
Where the parts fit

Parts 60, 61 and 62 are the rear and side panels to form *Victory*'s stern gallery, and are pierced with windows at the level of the three decks which it spans. Parts 57 and 58 are internal false decks of the gallery, which form extensions of the middle and upper gun decks. Parts 59 act as vertical supports between the two decks. Parts 61 and 62 are not permanently fitted at this stage, as you need to curve them to match some formers that are supplied with Stage 41.



Protecting the hull

Now that you have sanded the hull planking smooth, it's important to be careful not to dent or scratch it, particularly when turning it upside down.

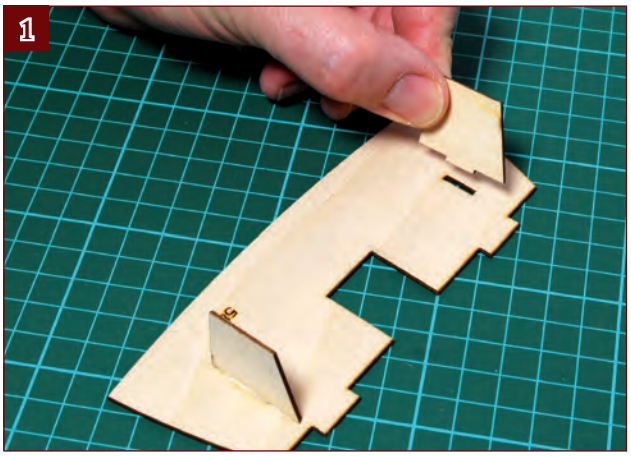


1. Line the building frame with felt, or a similar material, so it doesn't mark the hull. You may also need to widen the slot for the keel, so that the keel doesn't get jammed in it.

2. The planks under the gallery support may get a little thin when this area is shaped later on, so pack this area with a bit of wood filler to provide additional strength. Allow the filler to dry thoroughly, then sand the rear face flush.

Fitting the gallery decks and rear panel

Start by installing the false decks and rear panel of the gallery. Read all the instructions before starting, to familiarise yourself with the procedure. Take your time and test-fit everything before gluing any part.



1. Glue the two supports (59) to the upper false deck (58), making sure they are the right way round, square and upright.

2. You need to cut slots in the stern planking for the upper false deck. Extend lines from the top of the transom and the notches in it as shown.

EXPERT TIP
Use an offcut of plank as a straightedge – a ruler will not fit in the confined space.

3. Cut the slots using a razor saw. It is better to make them slightly too wide so you have room to ease the false deck into place a little. The slots are not visible on the finished model.

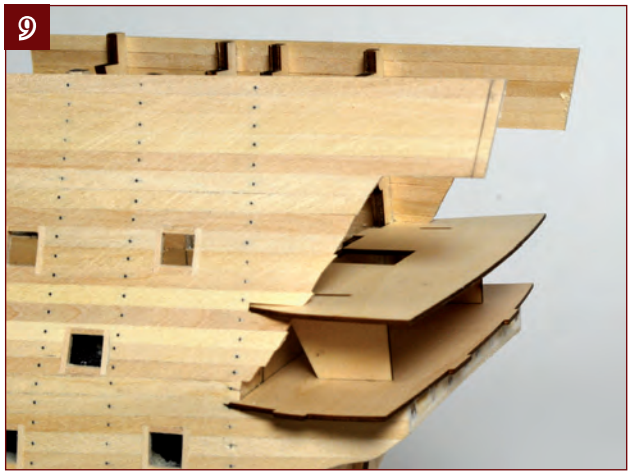
4. Test-fit the upper false deck in place, adjusting the slots if necessary, then remove it.

5. Now test-fit the lower false deck in place. Do not force it if it is a tight fit.

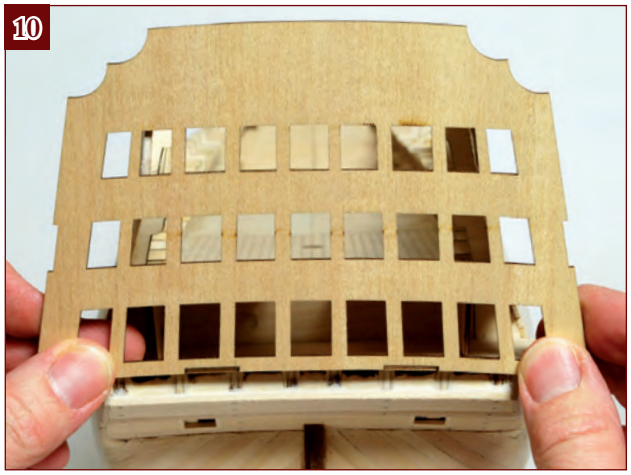
6. There are two points extending forward at the corners of the lower false deck. You may have to sand the planks where these touch the hull so that the false deck can slide fully forward. Mark these spots with a pencil.

7. Now replace the upper false deck. The two supports (59) should contact the lower deck.

8. Hold a ruler so it lies flat against the stern planking, resting on the ends of both the upper and lower false decks. Draw a line on the top planks as shown.



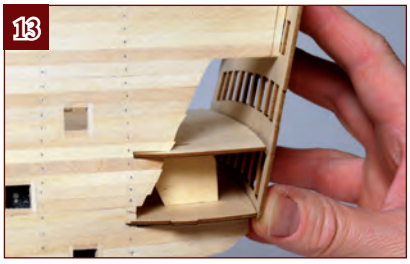
9. Trim the surplus off the stern planks using a razor saw and allowing about 8-10 mm excess for final fitting.



10. Test-fit the gallery rear panel (60), engaging the slots at the bottom with the tabs in the lower false deck.

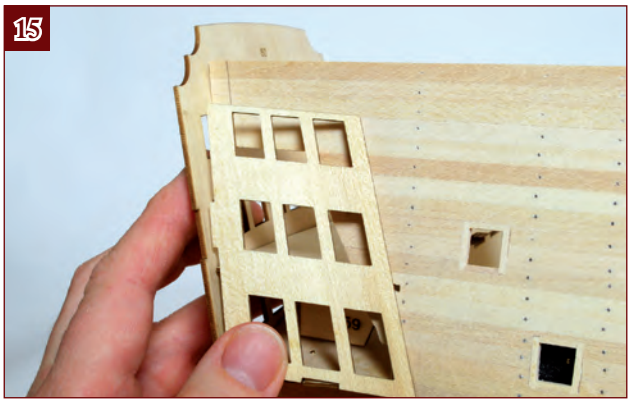
11. The outer edges of the false deck will need to be curved down slightly so that they line up with the curved bottom edge of the gallery rear panel.

12. Sand the outer one or two gallery supports on both sides until you can pull the end of the lower false deck down to match the curve of the bottom edge of the gallery rear panel.

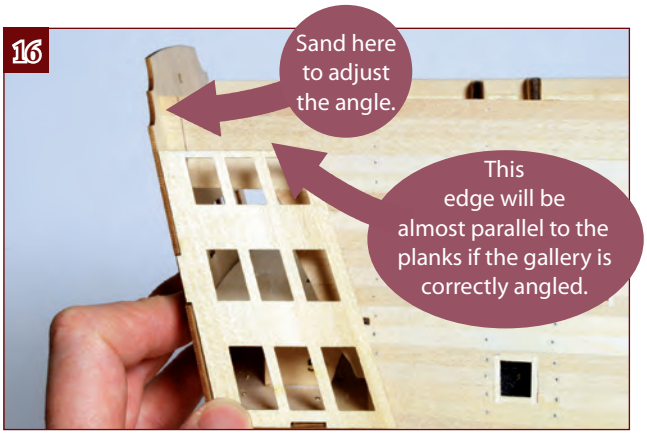


13. Don't overdo the sanding. When you think you are nearing the right point, reassemble the decks and rear panel to check the fit.

14. Soak the lower false deck in warm water for about 20 minutes to make it pliable, and then glue and pin it in place using glue (which will glue damp wood) and about 10 pins, as shown.

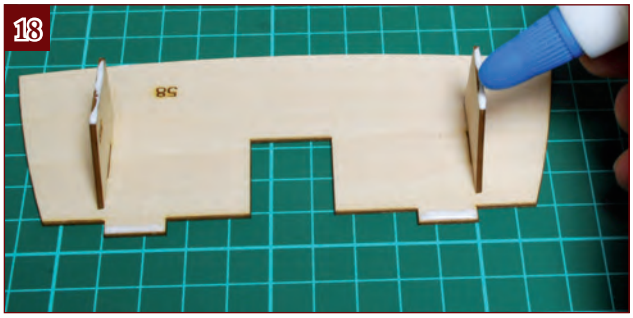


15. Hold the rear panel in place and try fitting the side of the gallery in position. (The side will be shaped to a curve at a later stage, but for now, this does not matter.)



16. You need to adjust the angle of the rear panel to make the side panels fit properly. Sand the ends of the upper planks to allow you to angle the rear panel forward. Do this a little at a time, until the tabs and slots in the side panel engage correctly with the lower false deck and rear panel.

17. Check that the upper false deck just touches the rear panel. You can slide the deck back in the slots a little, or sand it as necessary to adjust the fit.



18. Apply glue to the tabs and feet of the upper false deck, and slide it into position. Hold the gallery rear panel in position and check that it still just touches, as in Step 17.

QUICK TIP
Ensure the part number is on the inside.

19. Glue the gallery rear panel to the false decks and the ends of the planks.

20. Hold the panel in place with masking tape until the glue sets.

Building up the gallery support

Now that the curved lower deck of the stern gallery is in place, you can extend the gallery support to fit underneath it.

EXPERT TIP

Place the building stand sideways as shown to support the hull firmly while you are working on it upside down.

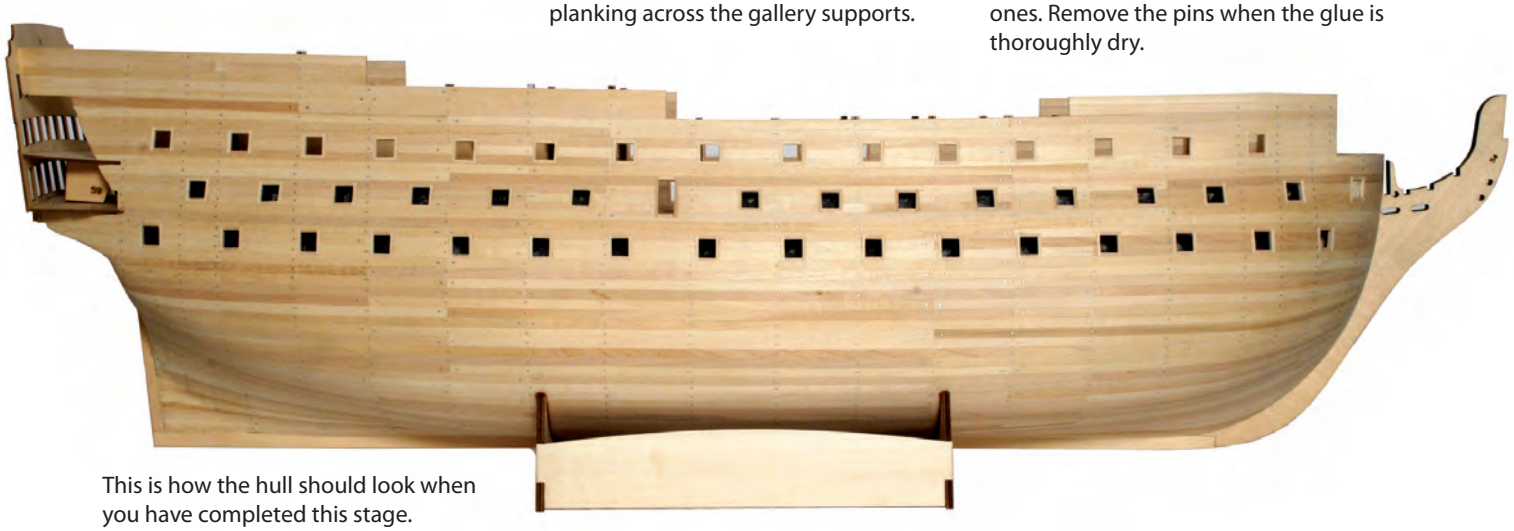
1. Cut a plank to fit across the ends of the gallery supports and glue it in place, leaving a 4 to 5-mm gap under the centre of the gallery. Hold it in place with a couple of nails while the glue dries.

2. Shape a plank to fit the curved gap left after fitting the plank in Step 1.

3. Glue this plank in place.

4. Remove the pins and repeat Steps 1 to 3 to double the thickness of the planking across the gallery supports.

5. Shape and fit a final plank. This plank can be a little shorter than the previous ones. Remove the pins when the glue is thoroughly dry.

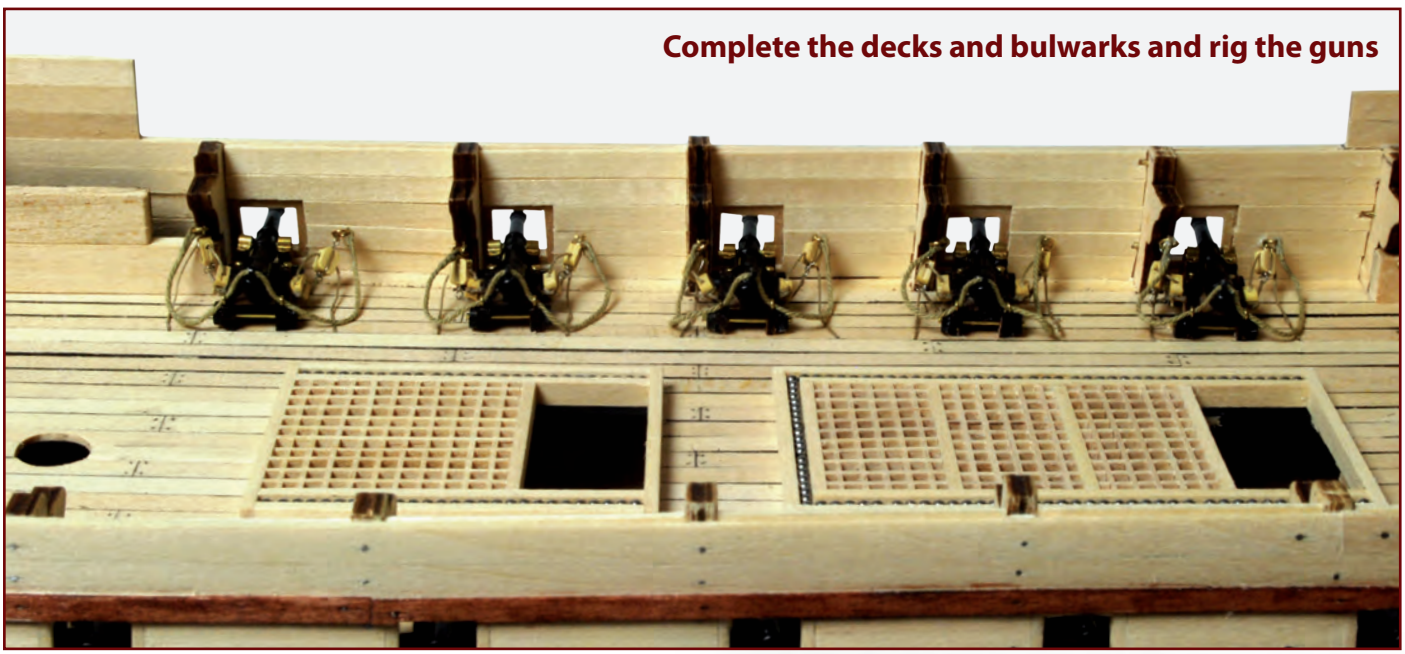


This is how the hull should look when you have completed this stage.

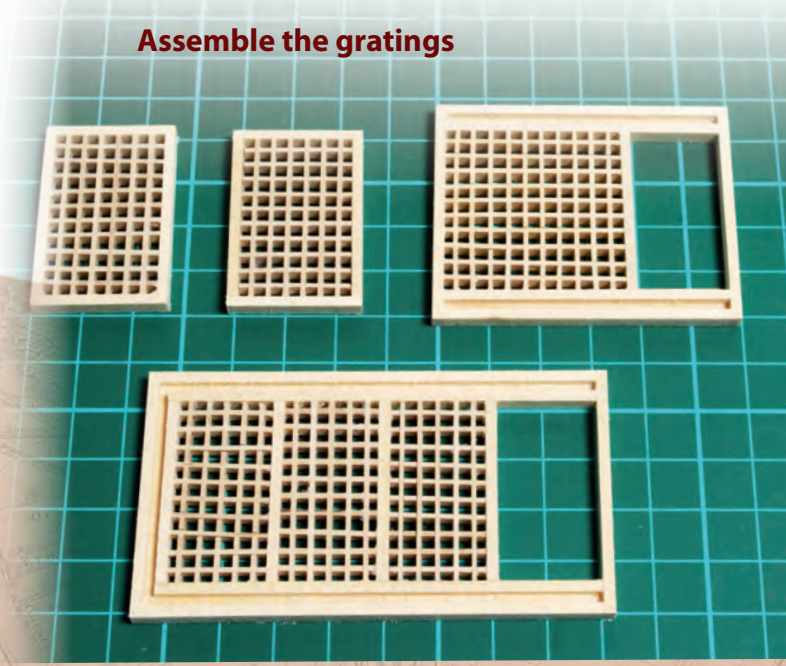
BUILD LORD NELSON'S HMS VICTORY

Coming in Pack 5

Stages 41-50 add the exterior strakes and wales, plus the deck planking, and also start to rig the guns.


Complete the decks and bulwarks and rig the guns


Build the stern gallery


Assemble the gratings