BUILD LORD NELSON'S HMS VICTORY

Pack 1

Stages 1-10

DeAGOSTINI MODEL SPACE™

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Assembly Guide Pack 1

Stages 1-10

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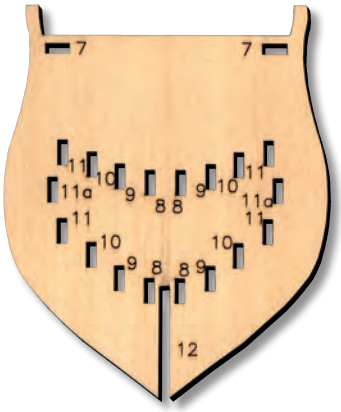
Stage 1: Assembling the bow frames and 12-pounder gun

The parts provided include four precision, laser-cut frames to form the bow of *Victory*, plus glue, and all the components for the first of the guns that formed her main armament.

Part 1
Bow section of internal "keel"



Part 12
Forward bulkhead

Parts 8
Bow formers

Where the parts fit

Victory's hull is built up around a series of "U"-shaped rib frames that run the full length of the ship. The ribs slot into an internal "keel" that runs from bow to stern below the gun decks. The parts provided are the bow section of the internal keel (1), the forward bulkhead (12) and two bow formers (8).

12-pounder gun

Component check

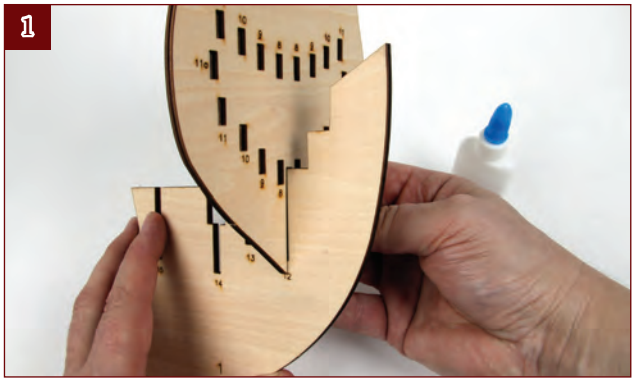
SMALL PARTS

The components that make up the gun are very small, so ensure that none of the components shown (right) are missing before you assemble it as shown later in this stage. Note that one pair of wheels is larger than the other, and that the two pins that fix the gun to the deck are not used until later.

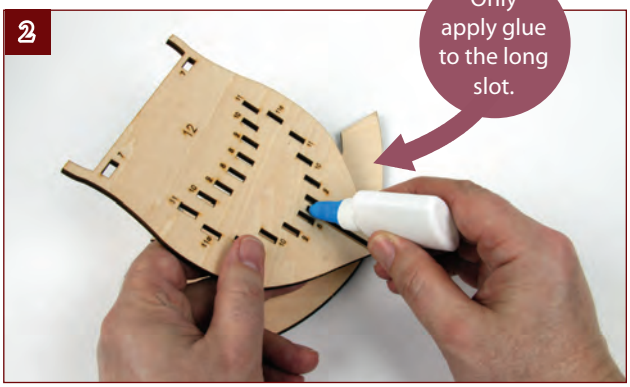
glue

Assembling the bow frames

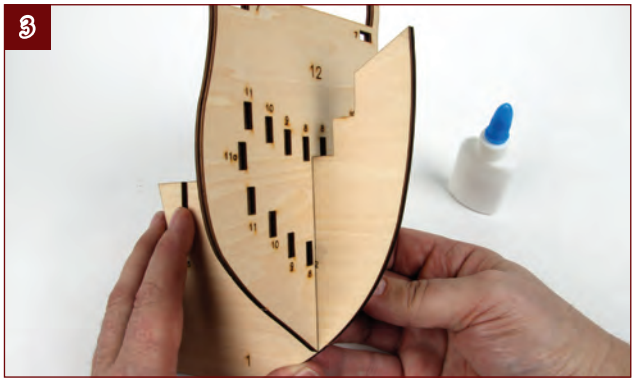
The wooden pieces form the main framework of *Victory*'s bow. You can either start to assemble them now using the glue provided or wait until you have opened more packs to build up the framework of the hull.



1. The forward bulkhead (12) fits into slot number 12. Test-fit to check that the bottoms of the two slots touch and the base of the bulkhead lines up with the curved edge of the keel.



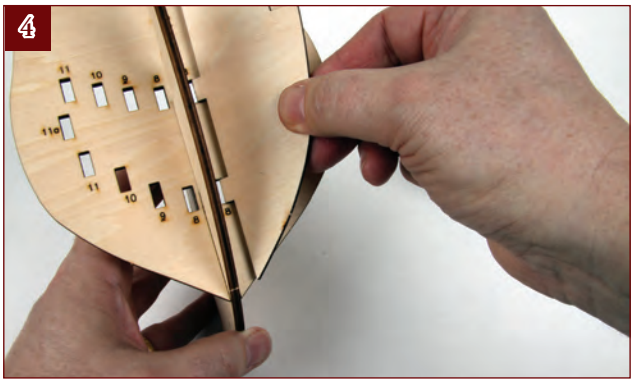
2. Separate the keel from the forward bulkhead again and apply a thin line of glue along both sides of the slot in the forward bulkhead.



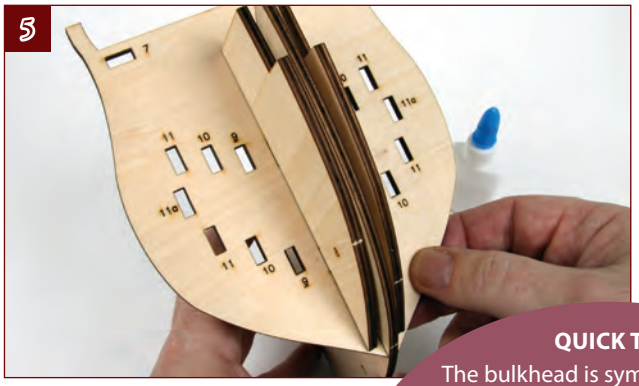
3. Before the glue starts to dry, slide the two parts together again. Make sure that the bottom of the bulkhead ends up flush with the curved edge of the keel.

QUICK TIP

The edges of the wood are accurately cut using a laser (which is the reason they are a darker brown). As a result, there should be no stray splinters to prevent the joints from sliding together easily. But if there are any rough spots, lightly rub the parts with fine sandpaper to remove them.



4. The two bow formers (8) have a pair of projecting tabs that fit into the matching holes numbered 8. Test them in position before applying glue to the tabs and the straight edges of the bow formers.



5. Press both bow formers into place. Check that the joints between all four parts are at right angles and set the assembly aside to dry. If necessary, you can use a little masking tape to hold the parts until the glue has set.

QUICK TIP

The bulkhead is symmetrical, so it will fit into the slot in the keel either way around. Make sure you install it with the numbers facing forward, as shown. Otherwise, it will be harder for you to match up the numbered bow formers (parts 7 to 11a) when you receive them in later stages.

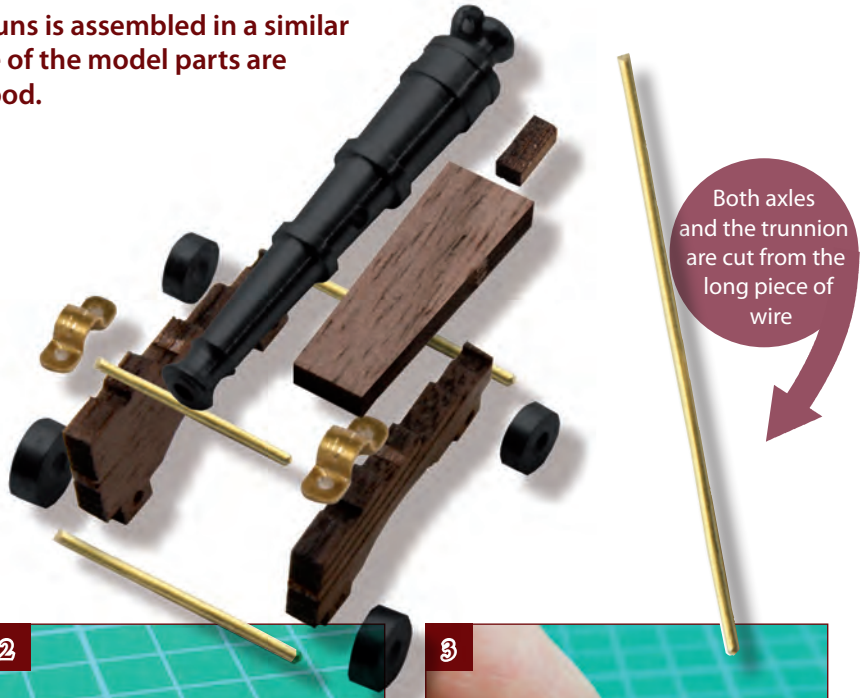
Assembling the 12-pounder gun

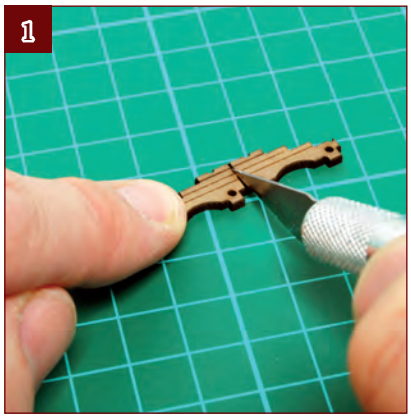
This model of one of *Victory*'s deck guns is assembled in a similar way to the real thing, although some of the model parts are made of brass instead of iron and wood.

Before you start

Make sure you have all the components shown in the exploded view (right) before you start. You will need:

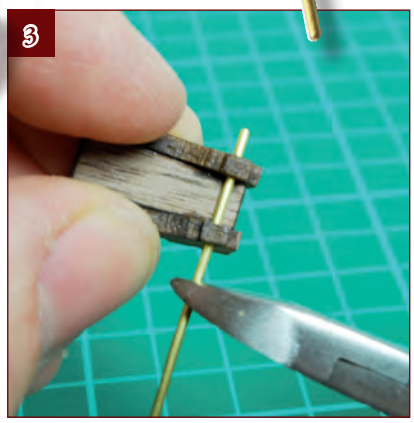
- A craft knife
- Side cutter pliers (from model shops)
- Superglue (cyanoacrylate adhesive) to fix the parts together
- A pair of tweezers to hold the parts
- A flat needle file (from model shops)



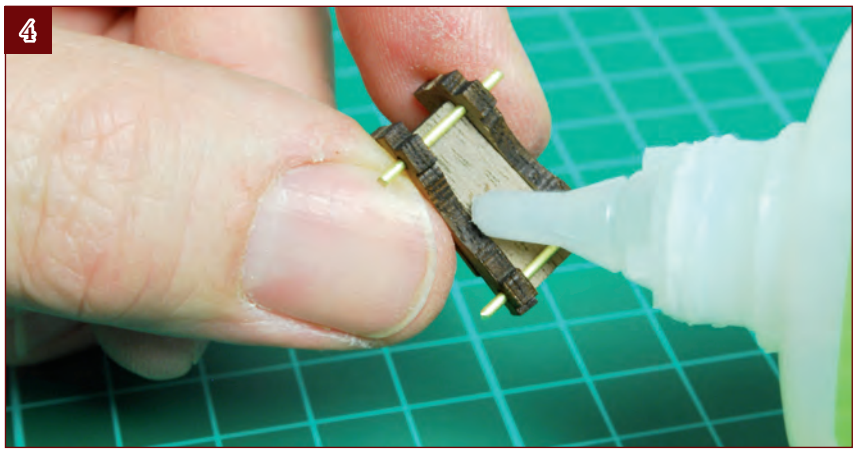


1. Use a craft knife to separate the two sides of the gun carriage. Support the parts on a cutting mat or work surface to ensure that you do not split the wood as you cut the tab that joins them.

2. Fit the sides and base of the carriage together like this, ensuring that the ribbed surfaces of the sides are facing out. Then gently push the brass wire through one set of axle holes.



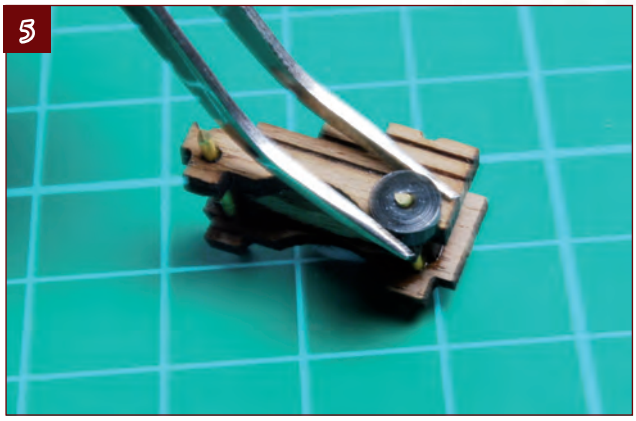
3. Leave enough wire projecting to form an axle for one of the wheels (about ⅛ in). Use side cutters to snip the wire on the other side of the gun carriage, with the same amount projecting.



4. Push the remaining piece of wire through the other pair of axle holes. As before, trim the wire off leaving a small bit projecting from both sides to take the wheels. Now hold the carriage upside-down. Ensure that the base touches the axles and that the axles are centred, then carefully apply a tiny amount of superglue to the underside so that it runs into the joints.

PAINTWORK
Trafalgar finish

The guns carried on board ships of the line were painted black, using a mixture of black lead, linseed oil and other materials to prevent the iron from rusting. To achieve this finish, paint all the brass parts using a fine brush and black modelling paint. HMS *Victory*'s gun carriages were painted a dull yellow ochre. You will need to apply this colour before fitting the barrel.



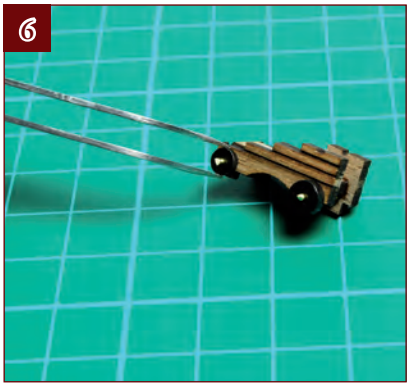
5. When the glue has set, turn the carriage on one side and place **one of the larger wheels** on the end of the front axle. Apply a tiny drop of glue to the centre to fix it in place.

Expert Tip

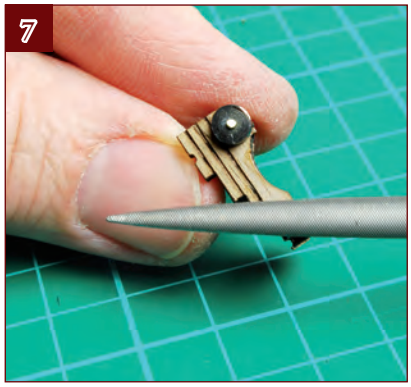
USING SUPERGLUE

Liquid superglue of the type recommended for the model is very runny and it is easy to apply too much. It can also bond skin in seconds, so if you are unfamiliar with using it, read the safety instructions on the pack.

When using superglue to assemble a finely detailed model like *Victory*, it can be tricky to apply the small amounts needed. Never apply glue to the model until you have first tried it on a piece of scrap card to see how quickly it runs out of the nozzle. To apply tiny amounts accurately, you may find it easier to run out a blob of glue onto the card and pick up a droplet on the point of a pin.

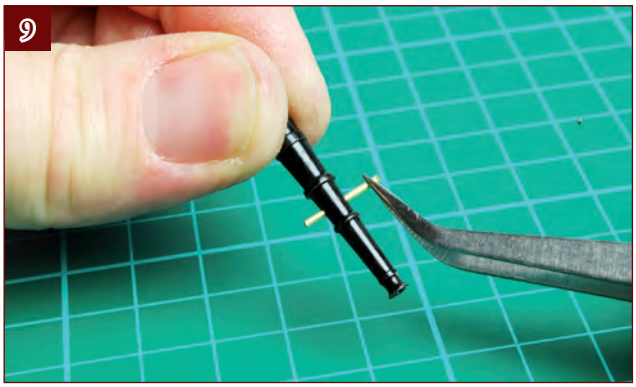


6. Glue **one of the smaller wheels** to the rear axle, then turn the carriage over and add the other two wheels.



7. To finish the axles off neatly, you can file the projecting ends of the wire flush using a flat needle file.

8. Lay the remaining wire in the grooves running across the top of the sides. Cut it off flush with the sides of the carriage.



9. Push the cut length of wire through the hole in the gun barrel to form the trunnion, then lay the barrel on the gun carriage with the ends of the wire in the grooves.

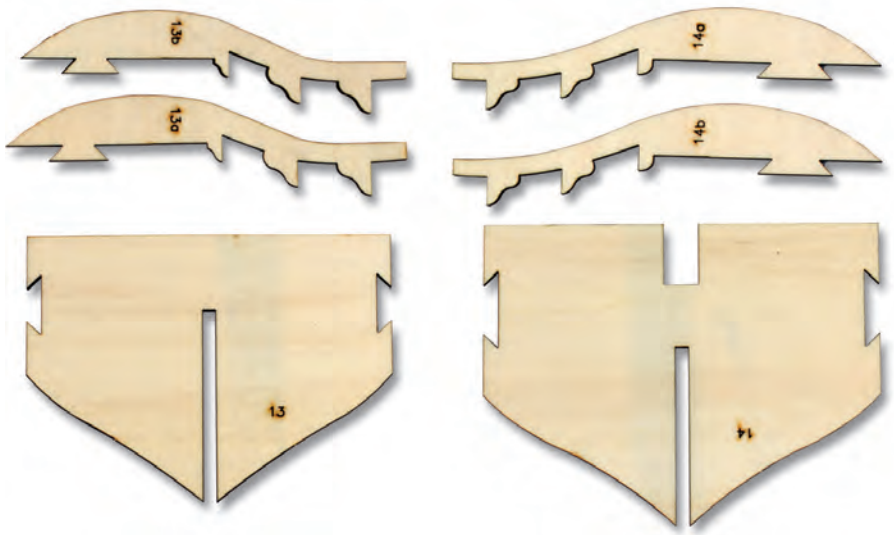
Ensure the ring on the barrel (called the thimble) is facing up

10. Glue the two brass "cap squares" over the ends of the wire. The easiest way to do this is to hold the cap square with tweezers. Put a drop of glue on a piece of paper, touch the cap square to the glue, then hold it in position on the gun carriage until the glue sets.

11. Take the remaining small rectangle of wood and use a craft knife to shave it to a wedge shape. Glue the wedge to the back of the gun carriage, so that it raises the rear end of the gun barrel.

Stage 2: Assembling the bow frames and anchor

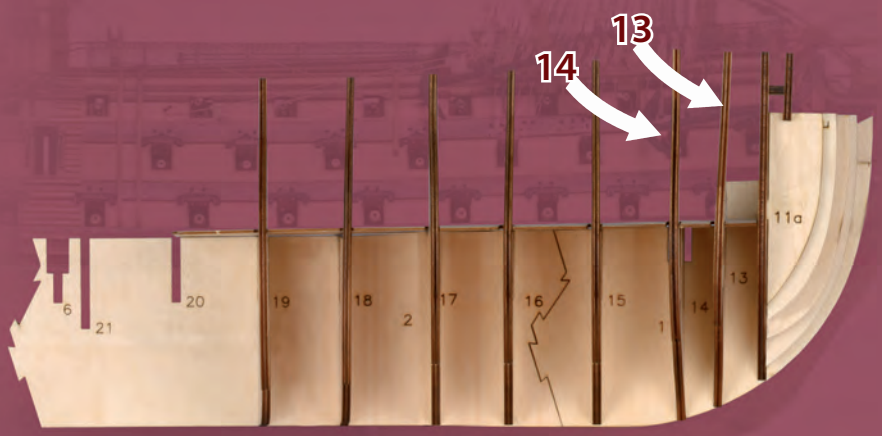
The parts provided include six precision laser-cut plywood parts for the first of the "U"-shaped rib frames that support *Victory*'s planking, plus all the components for the first of the four massive anchors used to moor the warship.



Parts
13, 13a, 13b
Rib frame

Parts
14, 14a, 14b
Rib frame

Where the parts fit



Victory's hull planking is built up around a series of "U"-shaped rib frames that run the full length of the ship, plus a series of curved frames that support the rounded planking of the bow. The parts provided are the first two rib frames that form the hull (13 and 14).

SMALL PARTS

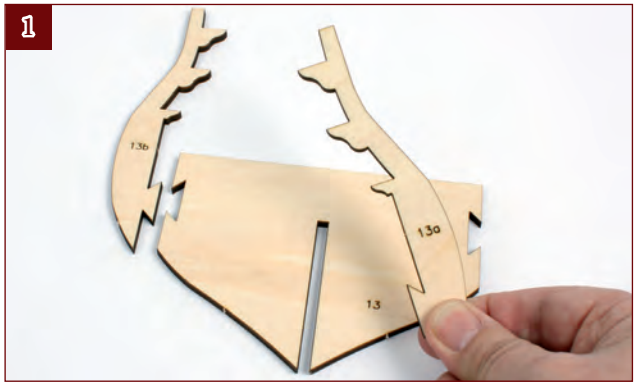
The brass ring that goes through the eye of the anchor is very small, so make sure that it does not get misplaced. Note that there are two coils of thread – a thick one and a thin one. The thin thread is used to bind the anchor stock; the thick one is used to make the mooring line.

Anchor
6 components

Assembling the bow frames

The wooden pieces form the main framework of *Victory*'s bow. You can either start to assemble them now using the glue provided or wait until you have opened more packs to build up the framework of the hull.

1

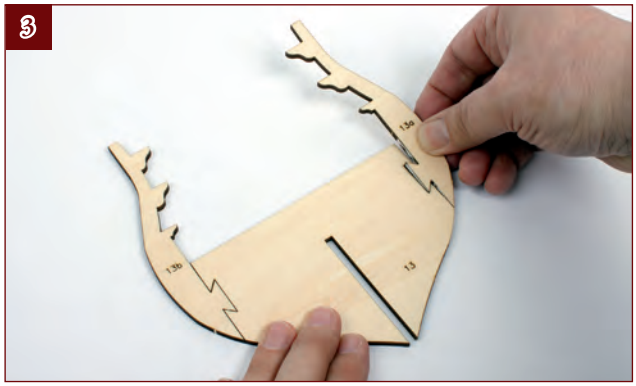


1. Take the three plywood components labelled 13, 13a and 13b. Together, they make up the first of the 17 "U"-shaped rib frames that form *Victory*'s hull.

2

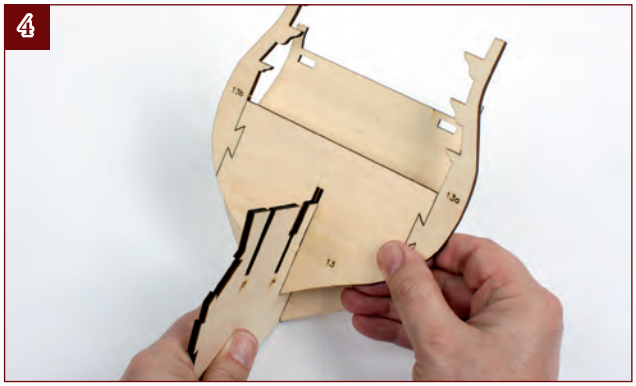
2. The dove-tailed joints are a close fit, so **don't assemble them without glue, as they may be hard to separate**. Apply a little glue as shown and press the parts together.

3



3. Make sure that both ribs are straight and not twisted, then set the completed frame down on a flat, non-stick surface, such as a plastic worktop, to let the glue dry thoroughly.

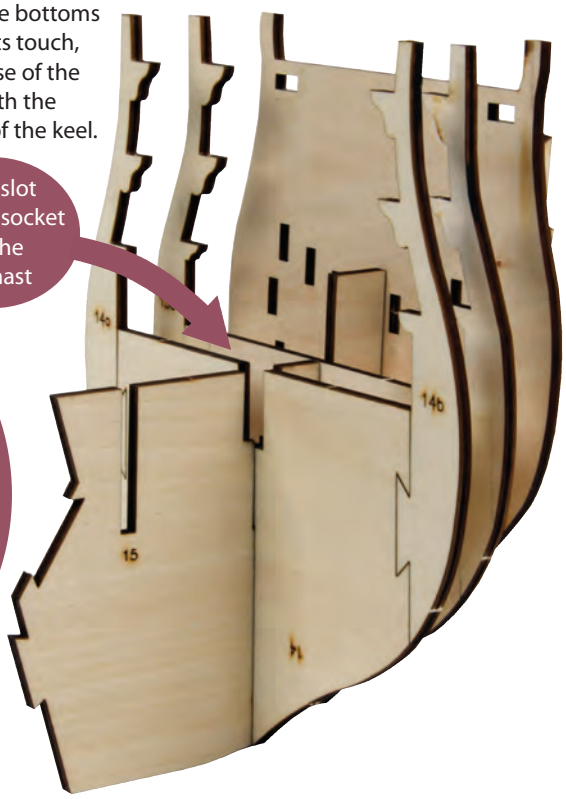
4



4. The rib frame slides into the number 13 slot immediately behind the forward bulkhead. As you did with the bulkhead, ensure that the bottoms of the two slots touch, so that the base of the rib lines up with the curved edge of the keel.

5

5. Assemble rib frame 14 in the same way as you did for 13. When the glue is dry, try the rib frame in place in the keel. Note that the slot is thicker at the top. This will form a socket for the base of the foremast.



QUICK TIP

We recommend that you don't glue the "U"-shaped rib frames to *Victory*'s internal keel yet as it's important to align the tops with the frames that are still to come. However, you can slot both rib frames into the bow assembly to see *Victory*'s hull start to take shape.

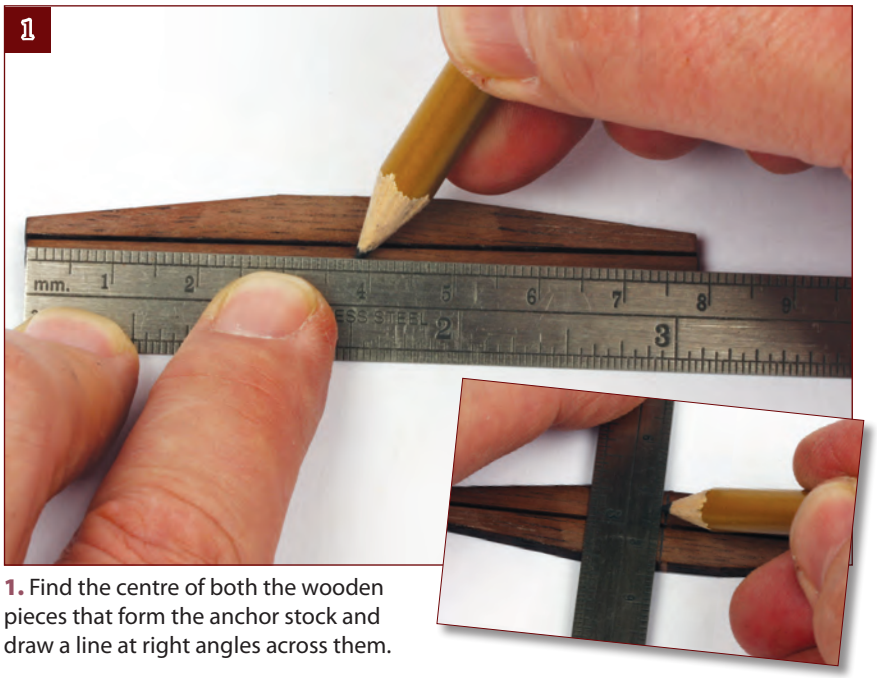
Assembling the anchor

Victory's anchors are assembled in a similar way to the real thing, with a cast metal shank and arms and a wooden stock that is made from two pieces bound tightly together. As on the full-size ship, the anchor will be roped in place against the hull.

Before you start

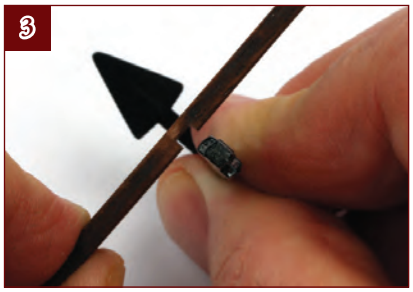
Make sure you have all the components before you start. You also need the following tools:

- Ruler and pencil
- Needle file
- Craft knife and pliers
- Modelling vice and clothespin

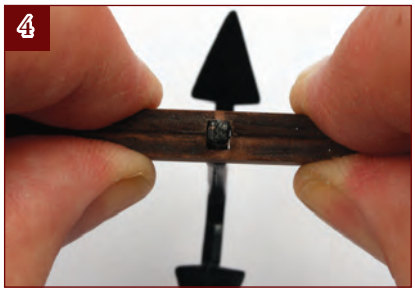


1. Find the centre of both the wooden pieces that form the anchor stock and draw a line at right angles across them.

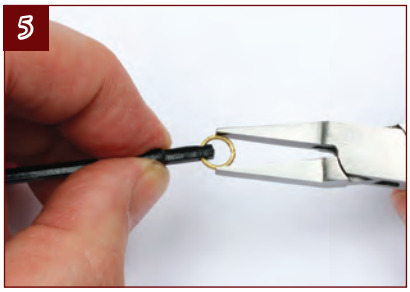
2. Use a needle file to form a slot in line with the mark on the first half of the stock, down to about halfway through. A small vice will help to hold the wood.



3. The slot needs to be the same width as the shank of the anchor, so check that this will fit. Note that the points of the anchor go at right angles to the stock.



4. File a slot in the other piece of the stock, ensuring that the two slots line up. Check that the two halves fit around the shank and don't leave a gap.



5. It's easiest to fit the ring into the eye at the end of the shank now, rather than after you glue the stock in place. Open it and pinch it back together using pliers.

QUICK TIP

It's possible to manage without a modelling vice as used in Step 2. However, a table-top model (right) may not cost that much and can be used in many ways as your model progresses. A swivelling head and interchangeable jaws are useful features.

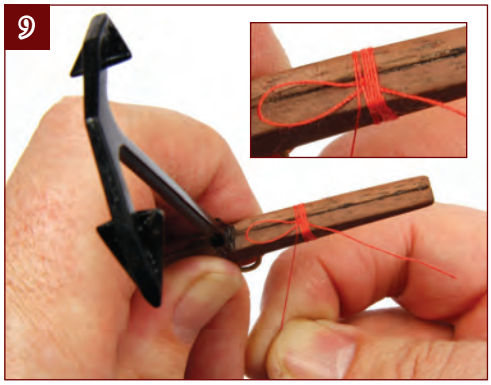
6. Apply glue sparingly to one half of the stock. Apply a little to both the central slots.

7. Press the two halves together around the shank, ensuring that they line up with each other. Clamp lightly (clothes-pins are a simple alternative to clamps or a vice) and leave to dry thoroughly.

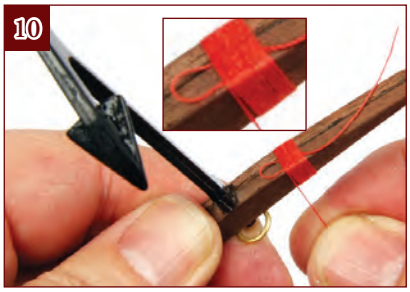
8. When the glue is dry, smooth off the corners of the stock using a small piece of fine sandpaper.

IMPORTANT NOTE

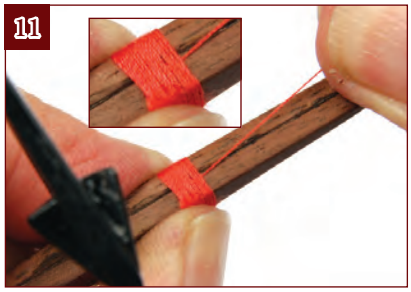
We have demonstrated Steps 9-13 using brightly coloured thread to make it easier to see the whipping technique. However, you must use the dark thread provided, to produce the result shown in Step 14.



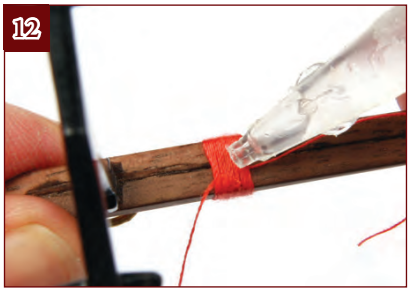
9. Use thin thread to simulate the steel banding. To avoid an unsightly knot, make a loop near one end and lay it under the stock. Then start wrapping around the stock, toward the loop.



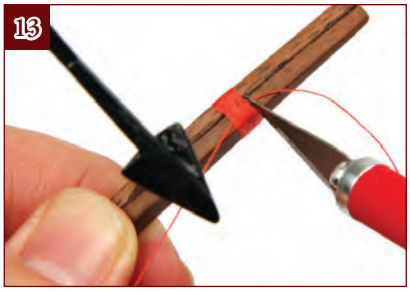
10. When you have enough turns, take the free end of the thread through the loop and hold it tight.



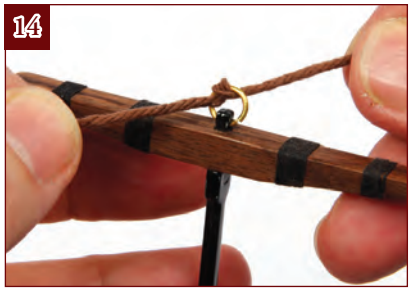
11. Gently pull the free end of the thread until the loop and the end of the wrapping disappear under the binding.



12. Apply a drop of superglue; it will soak into the binding and secure the thread permanently.

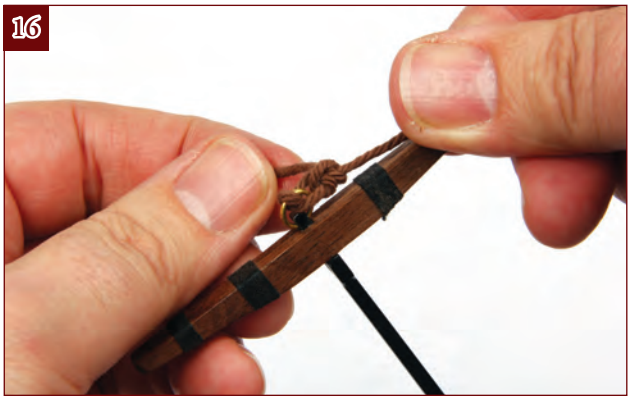


13. Use a sharp knife to trim off both ends of the thread flush with the binding. Then add three more bindings in the same way in the positions shown in Step 16.



14. The correct knot to use for the mooring line is a fisherman's bend. Start by taking a turn through the brass ring.

15. Then take the short end behind the long one and tuck it through the turn you just made.

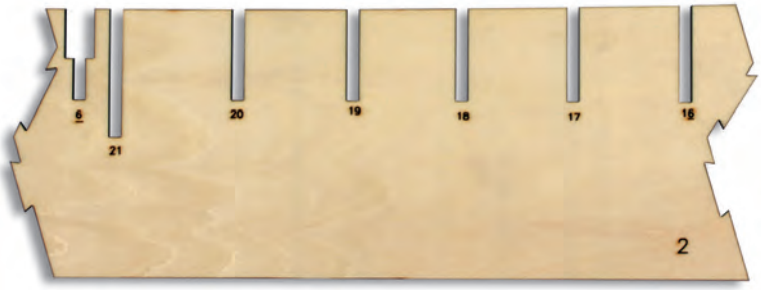


16. Finish off by making another half-hitch, then tighten the knot by holding the long end and pulling on the short one.

Stage 3: Extending the internal keel and assembling the carronade

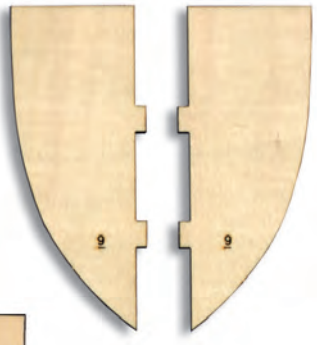
The parts provided include four precision laser-cut sections to extend the hull of *Victory*, and all the components for the first of the two carronades, or "smashers," she carried on deck for close-quarters engagements.

Parts 15
Centre of rib frame

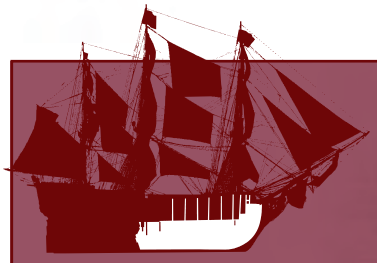


Part 2
Extension of internal "keel"

Bracing pieces

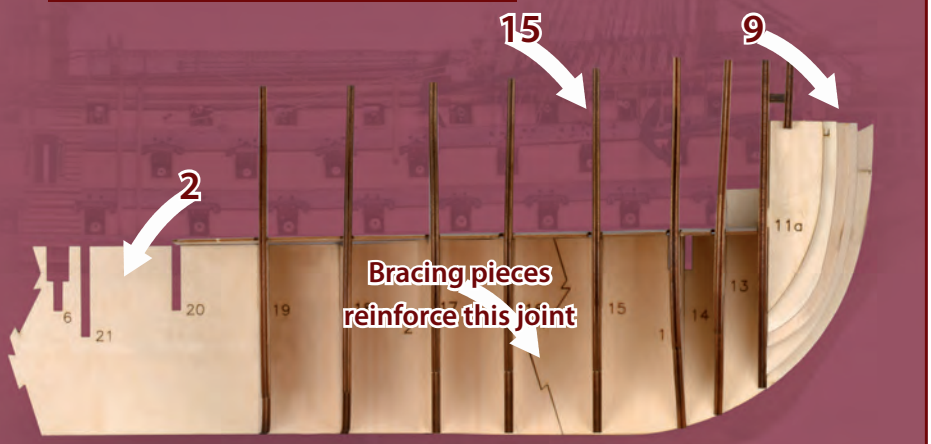


Part 9
Bow formers



Where the parts fit

Victory's hull is built on a series of "U"-shaped rib frames that run the length of the ship. The ribs slot into an internal "keel" running from bow to stern below the gun decks. The parts provided are the extension of the internal keel (2), part of a rib that slots into it (15), and two more formers for the bow (9).



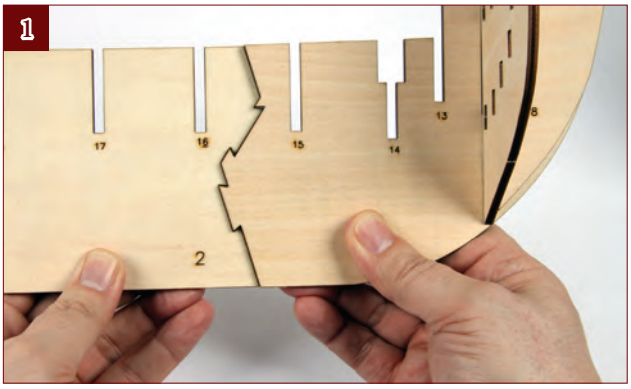
Carronade
The components

SMALL PARTS

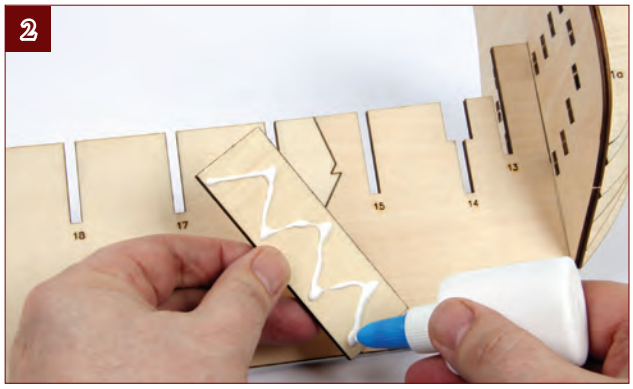
The parts that make up the carronade are very small, so make sure that none of the components shown (right) is missing before you assemble it as shown later in this stage. Note there are 10 eyebolts (on the left of the picture) and three pins (far right, top), of which two are not used until later.

Extending the internal keel

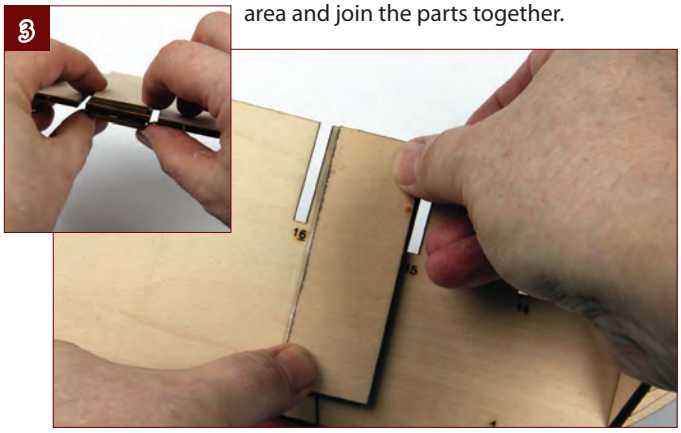
The largest wooden piece provided extends the main framework of *Victory*'s hull toward the stern. You can fix this and the bow formers now, using the glue provided with Stage 1, but don't attach the ribs permanently until you have collected more parts to build up the framework of the hull.



1. The extension of the internal "keel" (2) has an end joint that fits onto the bow section (1). Apply a little glue to the contact area and join the parts together.

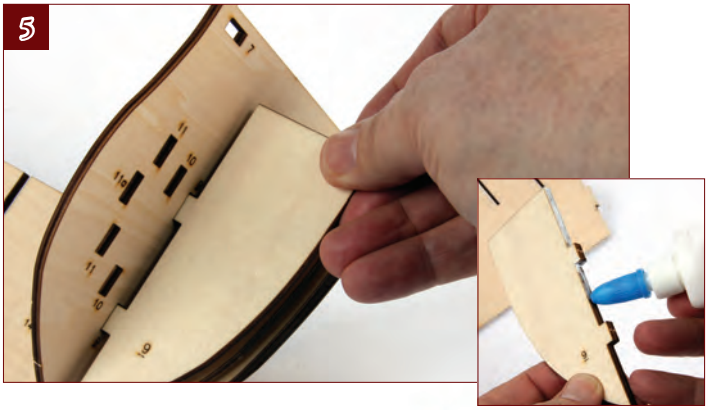


2. Lay the keel down flat. Before the glue has dried, apply glue to each of the bracing pieces, covering the surface as shown.



3. Fit one bracing piece to each side of the "keel." Ensure that the tops align with the top of the "keel" and that the bracing pieces don't cover slots 15 and 16.

4. Clamp the assembly together firmly. It is quite easy to dislodge the bracing pieces as you do this, so make sure that they are still in the correct position, then set aside to dry.



5. Glue the straight edges (but not the ends of the tabs) of the two bow formers (9). Push the tabs into the holes in the forward bulkhead, (also marked "9"). Check that the bow formers are in line with the existing ones, with an even gap between them, then set them aside to allow the glue to dry.

QUICK TIP

You can slot the "U"-shaped rib frames into the bow assembly to see *Victory*'s hull start to take shape, but don't glue them yet as it's important to align them with the frames that are yet to come.

Assembling the carronade

This model of one of *Victory*'s two 68-pounder "smashers" is assembled in a similar way to the real thing, although some of the model parts are made of brass instead of iron and wood.

Before you start

Make sure you have all the parts shown in the exploded view (right) before you start.

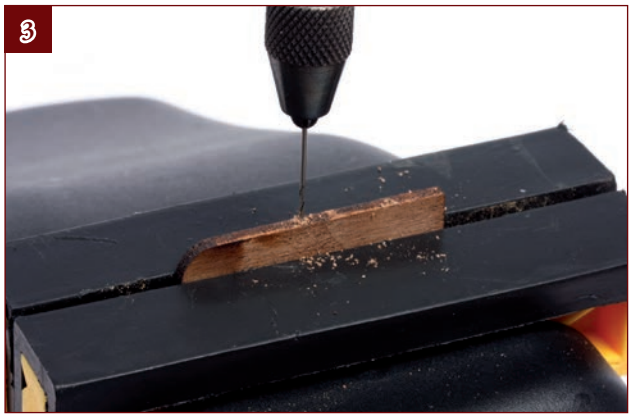
You will need:

- Craft knife
- Tweezers
- Wire cutters
- Long-nose pliers
- Round-nose pliers
- Flat needle file
- Modelling vice
- Micro drill
- Wire-gauge drill bits (two sizes)
- Pin hammer

You also need superglue (as well as the glue provided with Stage 1), a panel pin and a cocktail stick. A magnifying glass may also prove useful.

1. Use a craft knife to shave off any whiskers of wood attached to the three larger wooden components.

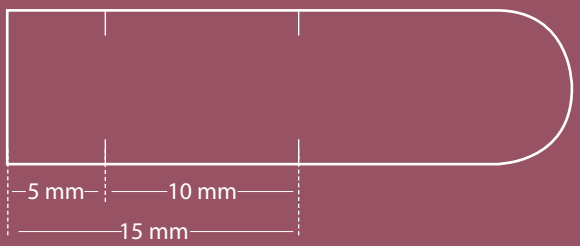
2. Following the diagrams at the top of page 14, mark the positions of the holes in the side of the wooden base and mark where the base, the rounded slide that goes on top, and the square mounting platform that goes under it fit together.



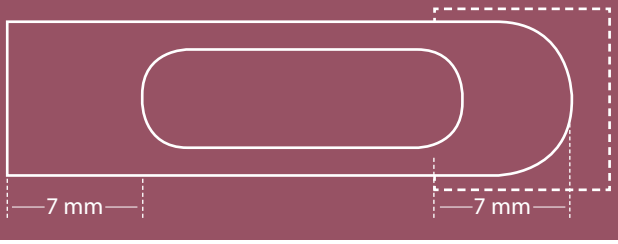
3. Clamp the wooden base in a modelling vice and use a micro drill to drill the four holes in the side of the base. The wire-gauge drill bit needs to be a fraction larger than the shaft of an eyebolt.

Where to drill and position the wooden parts

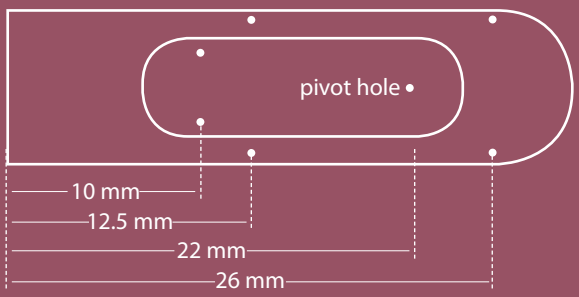
1. HOLES IN THE SIDE OF THE WOODEN BASE



2. LOCATION OF SLIDE AND MOUNTING PLATFORM



3. HOLES THROUGH THE BASE AND SLIDE



The carriage of the carronade comes in three parts: the wooden base (with one rounded end); the upper slide (with two rounded ends); and the square mounting platform. Drill four holes in the sides of the base **before assembly**. Then glue all three parts together before drilling the seven holes (above) right through them. Note that the pivot hole is larger than the other six.

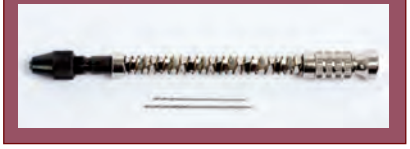
4. Apply a small amount of glue to the underside of the slide and wipe off any surplus.

5. Press the two components together, aligning the positioning marks, and allow the glue to dry.

6. Apply a little glue to the rounded end of the base and glue the mounting platform in line with the marked point.

EXPERT TIP

Drill all the holes using a modeller's micro drill (Archimedean drill) and wire-gauge drill bits (below). The latter come in sets – the higher the number, the smaller the drill. You normally need a No. 65 and a No. 72 to drill the wood, but check by drilling a test hole to make sure that a pin and eyebolt will fit. The brass parts (see next page) need a No. 62.

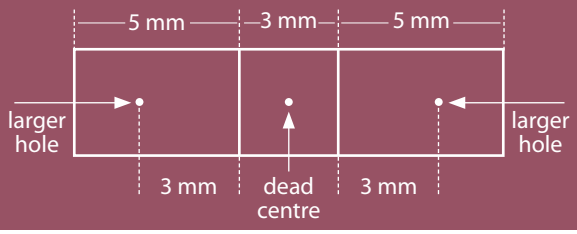


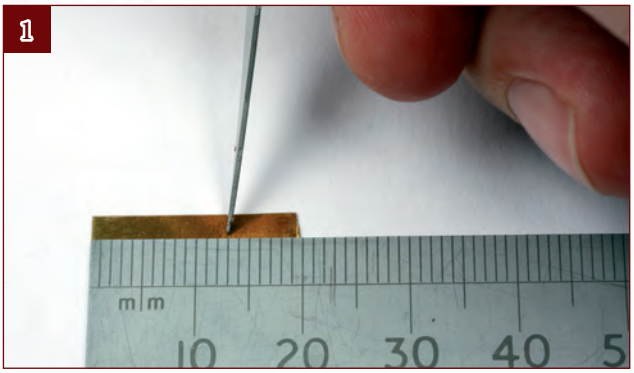
7. Following the diagrams, mark the positions of the holes in the side of the wooden base and the rounded slide that goes on top.

8. Clamp the base in a modelling vice and use a micro drill to drill the six eyebolt holes and one pivot hole right through all the parts.

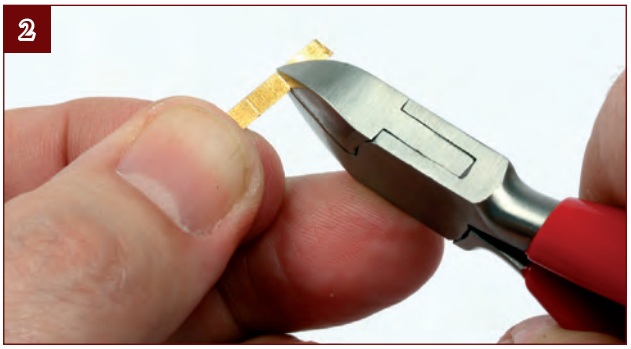
Where to drill and bend the pivot

The pivot is made from the thin brass strip, supplied oversize. Mark the dimensions as shown.

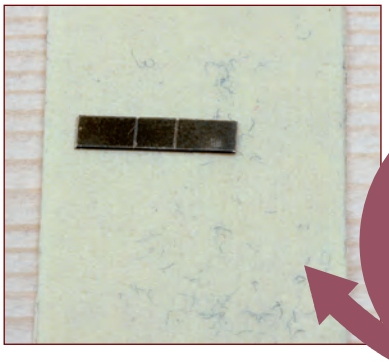




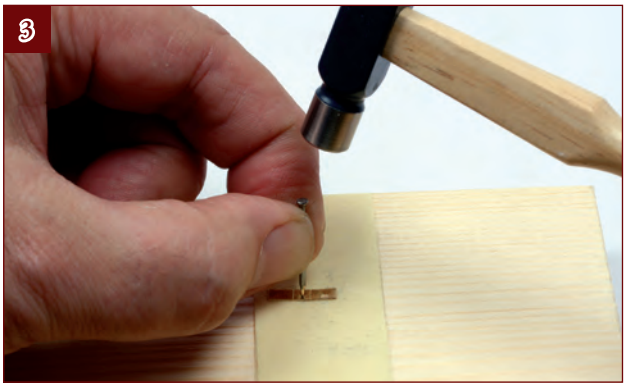
1. Following the dimensions on the left, measure the small brass strip and score lines at the marked points (including the total 13 mm length required) using the point of a craft knife.



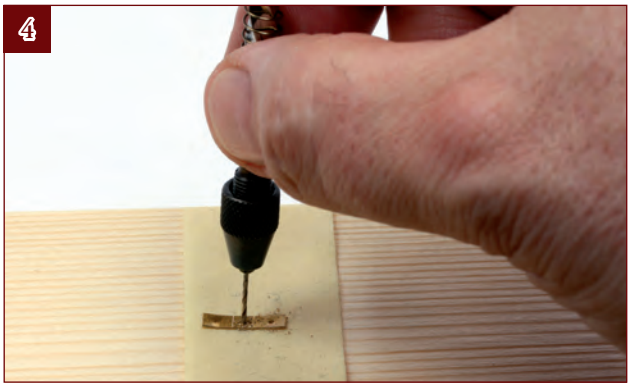
2. Snip off any surplus from the end of the brass strip. Take care, as the small piece will fly off with some force.



EXPERT TIP
To hold the brass strip for drilling, stick it to a piece of double-sided tape (or masking tape wound backward) on a block of scrap wood.



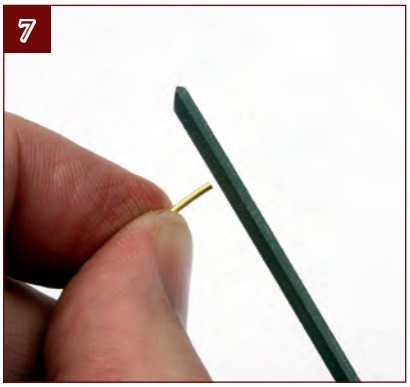
3. Gently punch marks for three drill holes at the points indicated on the diagram above, using the point of a sharp panel pin.



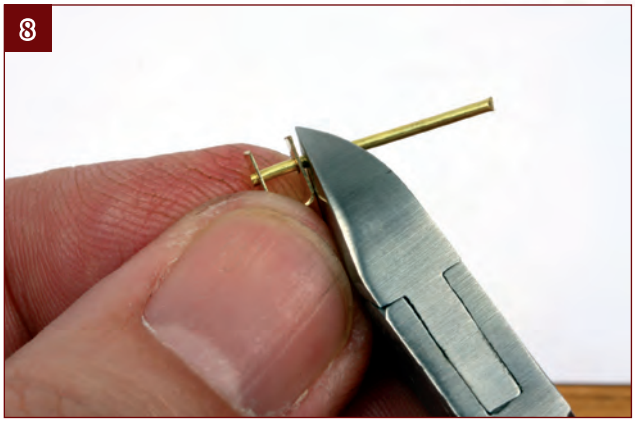
4. Drill the three holes using your micro drill, taking care not to apply too much pressure and snap the drill bit on the relatively hard material.

5. The two end holes need to be larger than the centre one. Check that the brass wire will slip through.

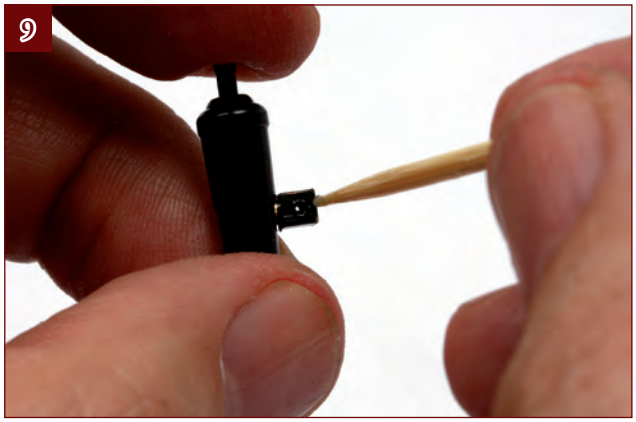
6. Use long-nose modelling pliers to bend the brass strip into a square U shape as shown.



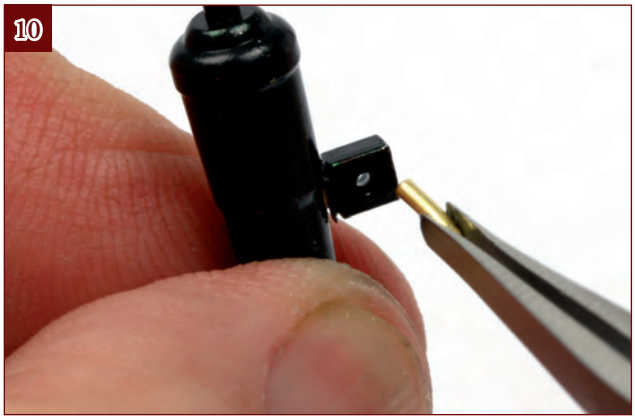
7. Trim the end of the brass wire square with a flat needle file and bend it straight if necessary.



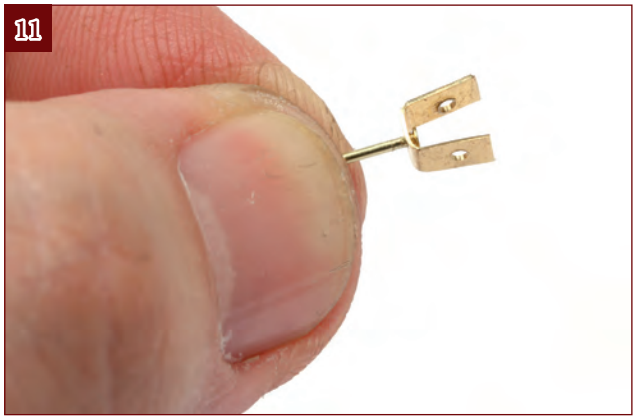
8. Cut a length of brass wire to fit through the arms of the U shape you just made. File the cut end square, leaving a short amount projecting on both sides.



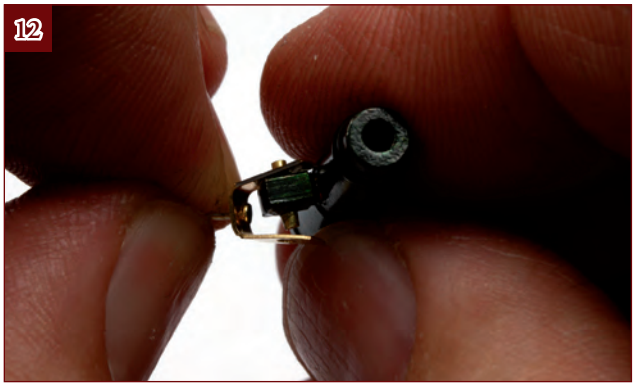
9. Ensure that the pivot on the carronade is square to the barrel. If necessary, twist it into place and fix it with superglue. Then place a drop of superglue in the hole in the pivot.



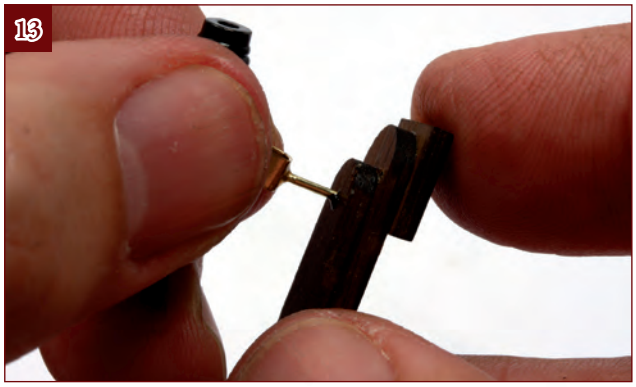
10. Glue the short length of brass wire into the hole, leaving an equal amount projecting on both sides.



11. Insert one of the three brass pins through the centre of the brass "U" and pull the head level with the metal.



12. Holding the pin, spring the two arms of the "U" over the projecting ends of the brass wire. Pinch the arms together with the pliers to complete the barrel mounting.



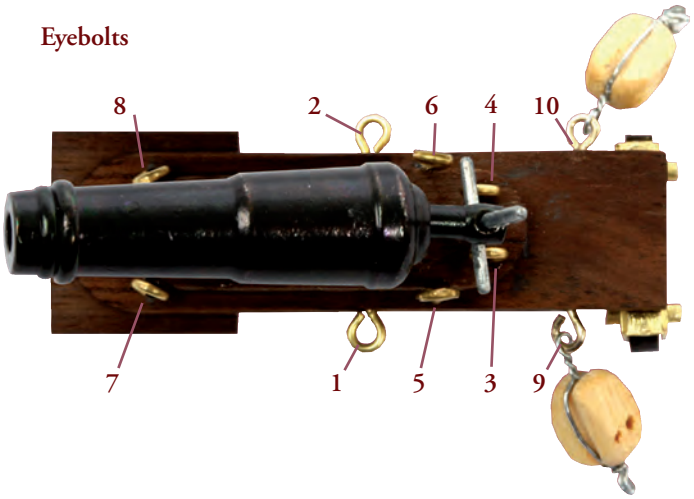
13. Apply glue to the projecting pin and the underside of the brass "U" and insert the pin through the centre hole in the slide.

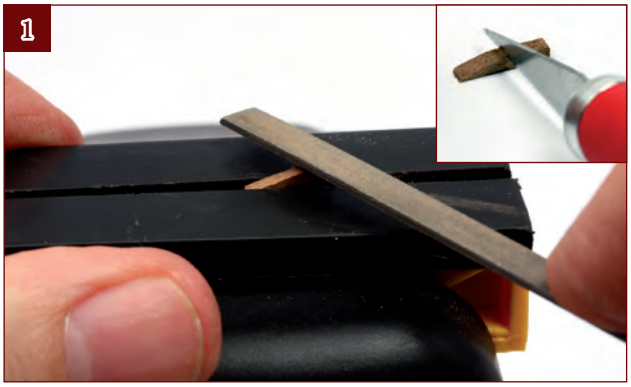
CUSTOM FINISHING

You have the choice of leaving the materials of the carronade in their natural finish to show the construction of the model or painting them to look even more like the original on *Victory*. In the latter case, you may wish to touch in the brass pivot with a little black modelling paint. It's easiest to do this now, before adding the eyebolts and other fittings around the outer edges of the wooden base.

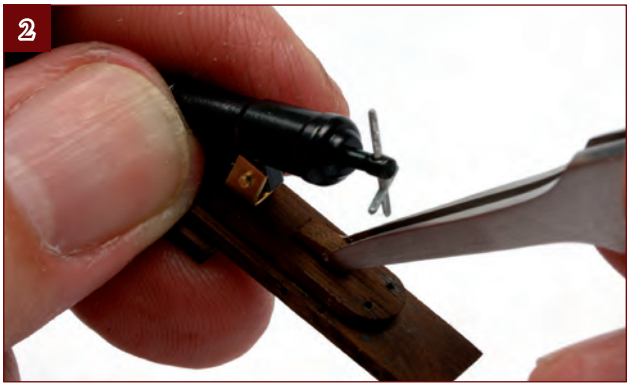
Adding the eyebolts and pulley blocks

Use this overhead view of the finished Carronade assembly to see where to position the 10 eyebolts. Note that the rear two are wired to the two small wooden pulley blocks. As described below, you must do this before gluing the eyebolts into the wooden base as it will be almost impossible to twist the wire afterward. The eyebolts and pulley blocks will be used at a later stage to attach the ropes that hold the carronade in place on the deck.

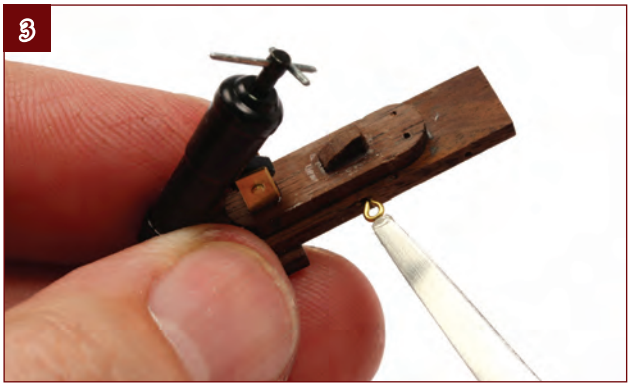




1. Gently file one end of the smallest piece of wood into a shallow wedge shape to form the quoin that goes under the barrel of the carronade. Cut the wedge to around 3 mm long (inset). This piece is small and can easily become lost once it's cut off, so pay close attention.



2. Insert the cross-shaped elevating screw through the eye in the end of the barrel. Then glue the wedge under the thickest part of the barrel, ensuring that it clears the elevating screw.

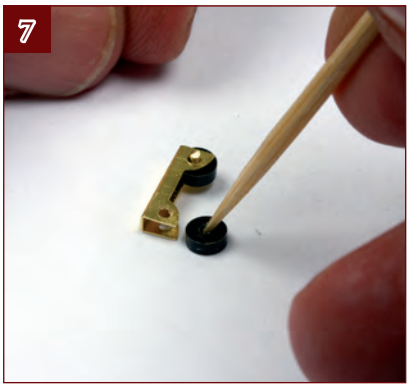


3. Glue the first two of the 10 brass eyebolts (numbers 1 and 2 in the picture at the top of the page) into the front holes in the sides of the wooden base, ensuring that the flat of the eyes lies parallel to the edge of the wood.

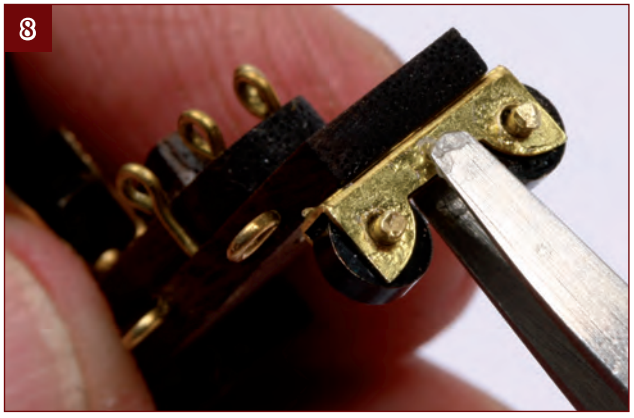
4. Glue six of the other eyebolts (numbers 3-8) through the top of the base, noting that they go in different directions (see above). Snip off all the projecting ends of the eyebolts and the pin holding the barrel, then file them flush with the base.

5. Take the shaped piece of brass and use long-nose pliers to bend it into a "U" shape along the marked lines.

6. Snip off short lengths of brass wire to fit through the holes at each end of the channel and file both ends square.

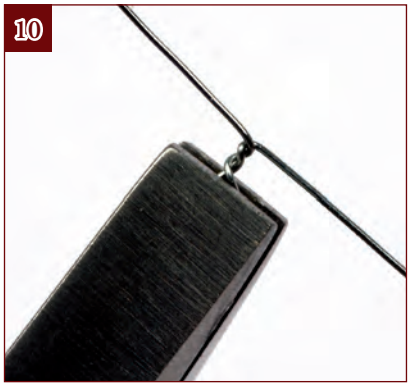


7. Superglue the holes in the two small wheels, slip each one into the channel and insert the wire to form axles.

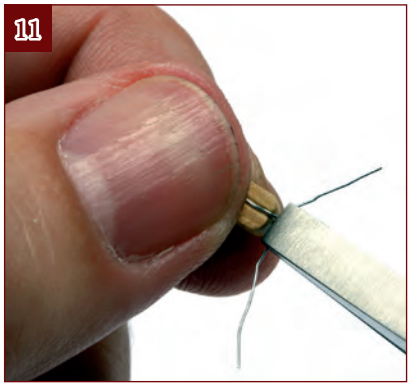


8. Glue the completed assembly to the end of the base to form the carronade's side-to-side training wheels.

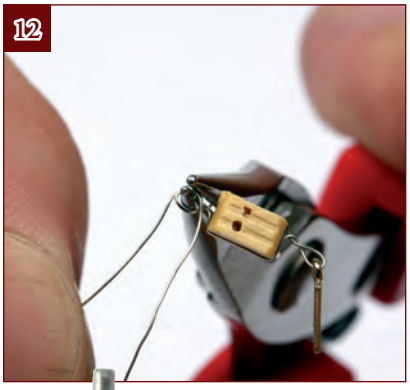
9. Snip off about 2 in (5 cm) of the fine wire and lace through one of the remaining eyebolts, leaving equal lengths projecting.



10. Use a pair of pliers to form a loose loop through the eye, then twist the free ends to secure the loop.



11. Take one of the wooden blocks and wrap the free ends of the wire around it. Twist the ends to secure the block.

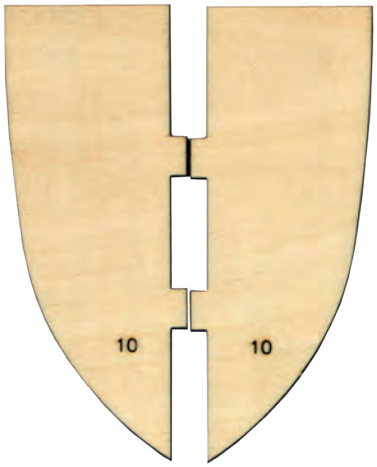


12. Then use round-nose pliers to form another eye in the free ends of the wire, and twist to secure it.

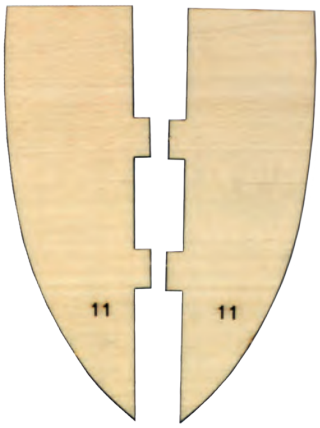
13. Snip off the ends of the wire, then glue the eyebolt into one of the remaining holes in the side of the base as shown right. Repeat the assembly of the other block in the same way.

Stage 4: The bow framing

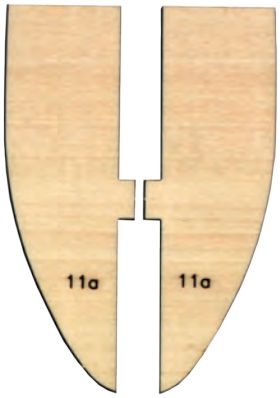
The components provided include 13 precision laser-cut parts to complete the bow framing and assemble another of *Victory*'s rib frames.



Parts 10
Bow formers



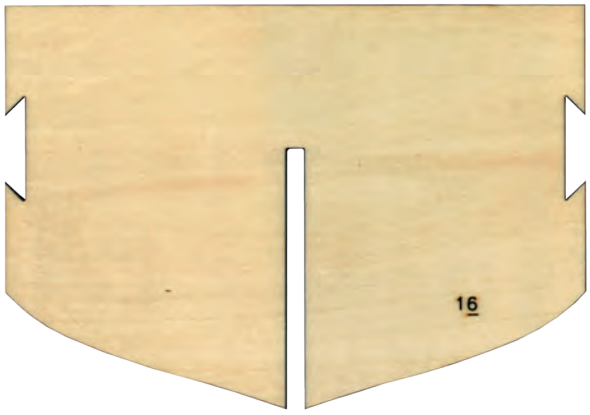
Parts 11
Bow formers



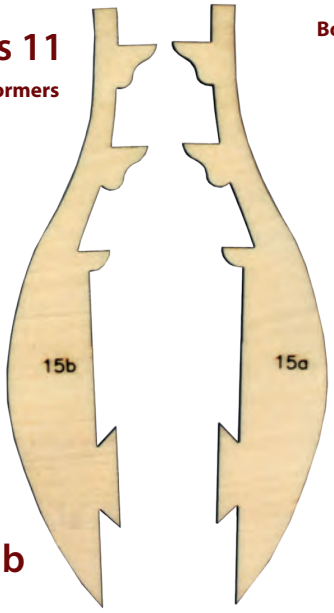
Parts 11a
Bow formers

Parts 7
Bow formers

Parts 7a
Bow former supports



Part 16
Rib frame



Parts 15a, 15b
Rib frames

Where the parts fit

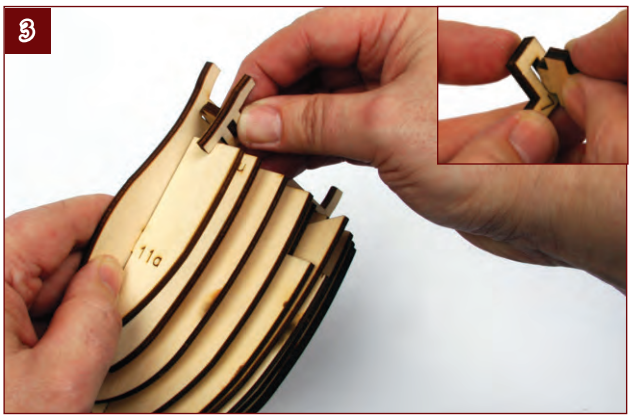
Victory's bow is built up around a series of closely spaced curved formers that slot into the forward bulkhead. The planking is fixed to these, and the "U"-shaped rib frames that run the full length of the ship, slotting into an internal "keel" that runs from bow to stern. The parts provided complete the bow framing.

The bow framing

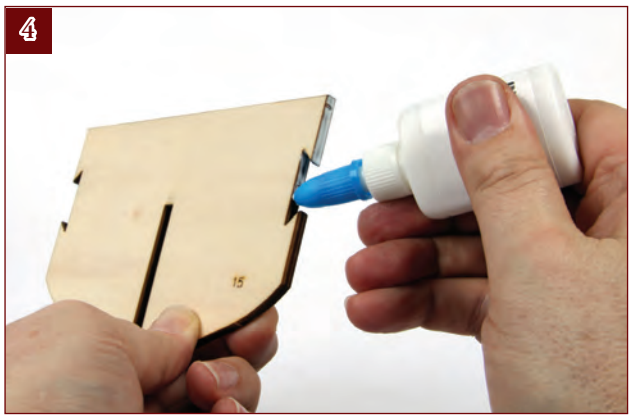
***Victory*'s bow planking forms a tight curve. For this reason, the model – like the ship herself – has a series of closely spaced formers to make a framework that gives the planking a good support.**

1. Apply a little glue to the straight edges of the two number 10 formers, then press them into place, ensuring that they are at right angles to the forward bulkhead.

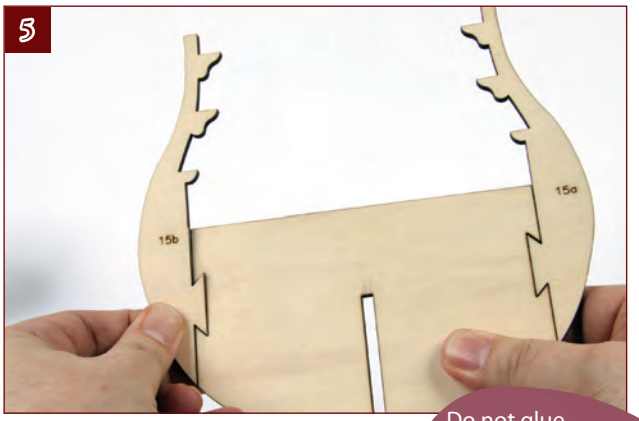
2. Repeat the process to add the two number 11 bow formers, followed by both the number 11a formers, which fit alongside the number 11 formers.



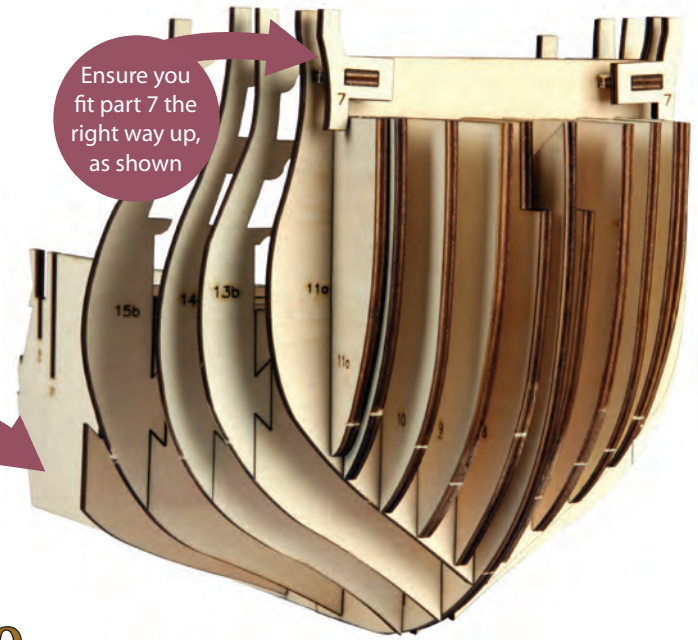
3. Glue the long tab on one of the two small cross shapes (7a) into the slot in part 7. Glue the other tab into the bulkhead. Ensure the curve on part 7 is the right way up (below right).



4. As you did with the previous ribs, apply a little glue to the two joints that attach parts 15a and 15b to the main section of rib 15.



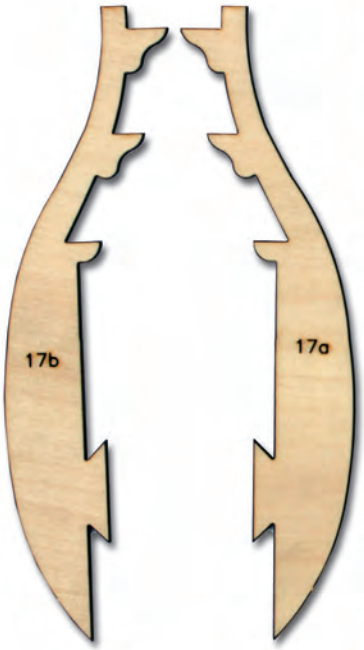
5. Add parts 15a and 15b, then lay the completed rib assembly to one side to allow the glue to dry, ensuring that the parts are straight and level.



Stage 5: The rib framing

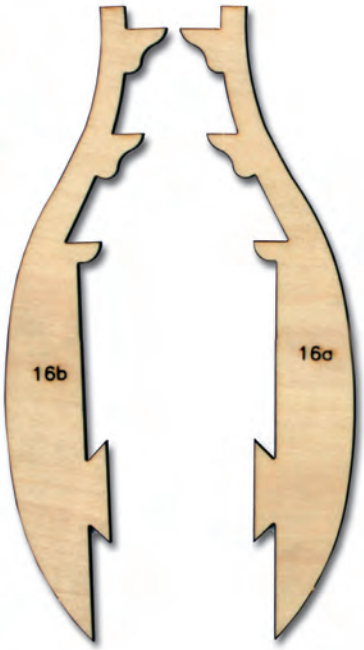
The components provided include six precision laser-cut parts to continue building up the rib frames for the hull of *Victory*.

Part 18
Rib frame



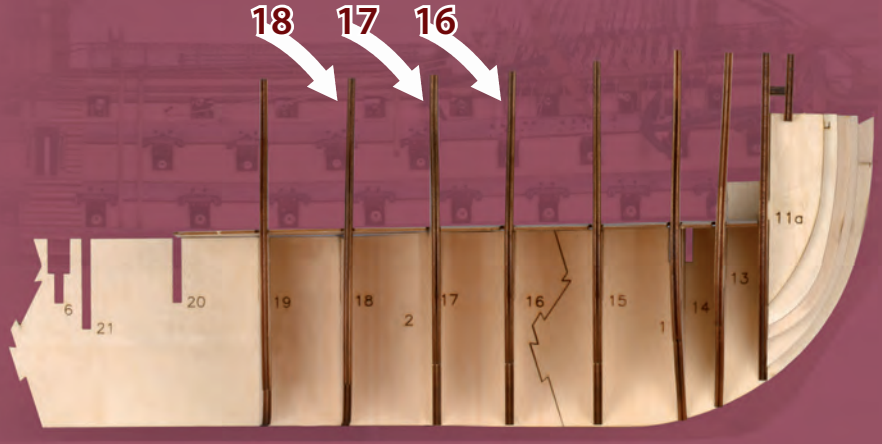
Parts 17a, 17b
Rib frame

Part 17
Rib frame



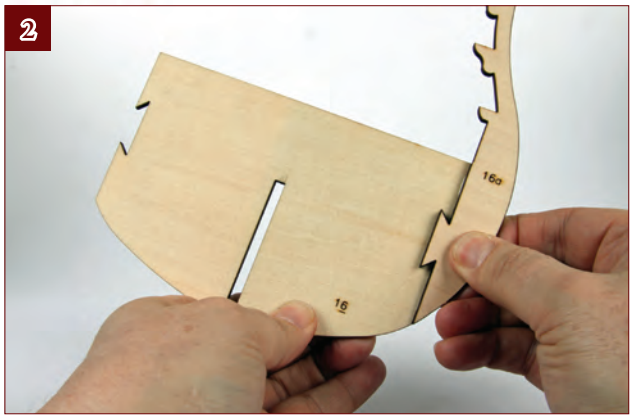
Part 16a, 16b
Rib frame

Where the parts fit

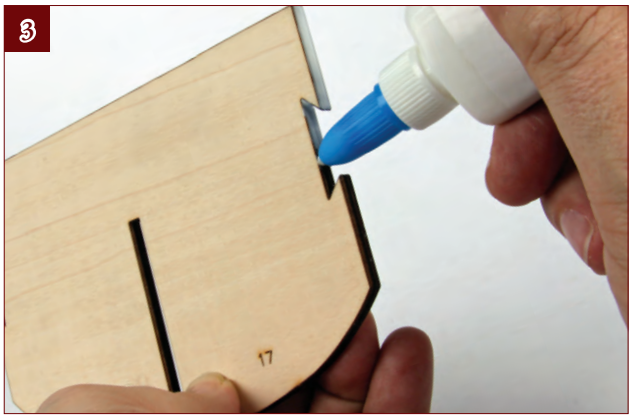


Victory's hull is built up around a series of "U"-shaped rib frames that run the full length of the ship, slotting into the internal "keel" that runs from bow to stern. The parts provided – 16, 17 and 18 – are parts of the remaining ribs in her forward section.

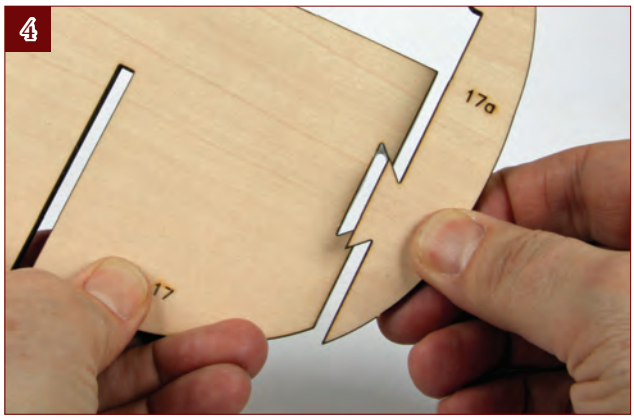
1. Take the centre section of rib frame 16 (supplied with the previous stage) and apply a little glue to the dovetail joints on both sides.



2. Attach the two wing sections (16a and 16b) to complete the rib frame. Ensure that the parts are lined up flush and lay the frame down flat to dry.



3. Repeat the process, using the three sections you received to assemble rib frame 17.



4. After joining the parts, make sure the joints are in line, then set the frame aside to dry flat.

QUICK TIP
To see more of the forward section of *Victory*'s hull taking shape, you can loosely assemble the rib frames. Do not glue them at this stage.

Stage 6: Beginning *Victory*'s launch and planking the hull

The components provided are the first parts for a model of the first of *Victory*'s ship's boats – the 34-ft (10.36m) launch, the largest of the work boats she carried.

The launch was a multi-purpose work boat, usually rowed by 16 oarsmen seated eight on either side – although it could also be sailed using two masts and a "cutter rig." It was routinely used to ferry food, water and other supplies to the ship, as well as for anchor work and even as a tug. The launch also carried armed men when attacking an enemy coast or boarding a captive ship. The ship's boats were not used as lifeboats – they could only carry a fraction of the crew, and would take too long to launch to rescue a man overboard. During battle, such boats were often towed astern of the ship to keep them out of the way and to clear the decks, but during the Battle of Trafalgar, most of *Victory*'s boats remained on the skid beams.

***Victory*'s launch could be rowed or sailed. The completed model is equipped with a set of oars, a tiller, mast and anchor, which are shown stowed away in this picture.**

Your first components

Planking

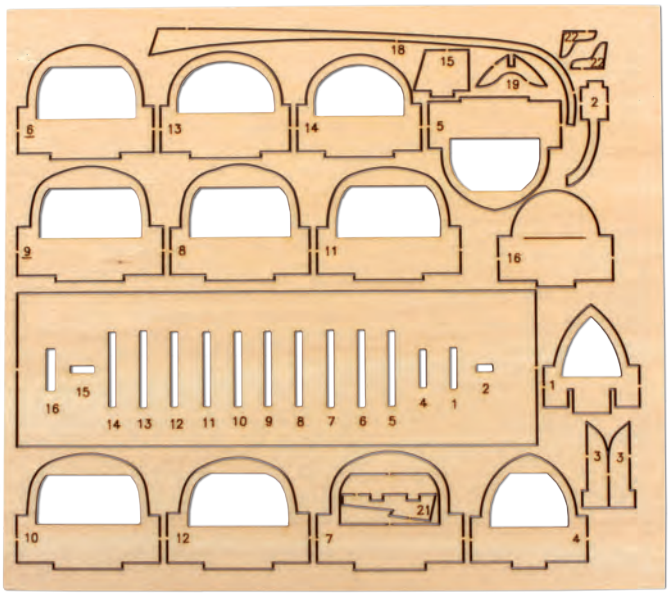
(21 strips of thinner material)

Assembly jig support strips

(two strips of thicker material)

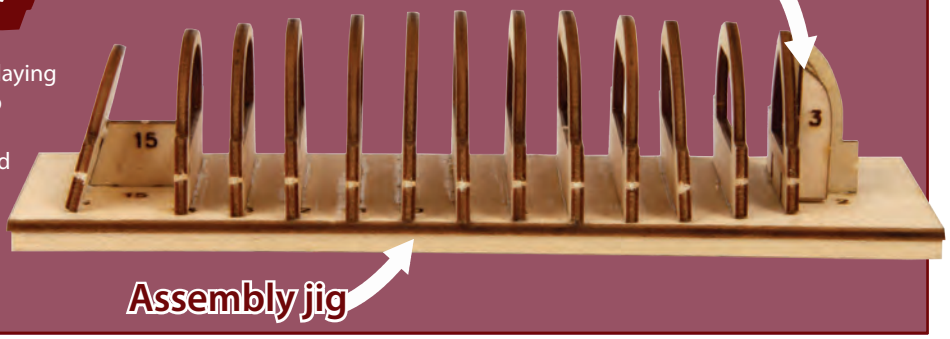
Parts 1-22

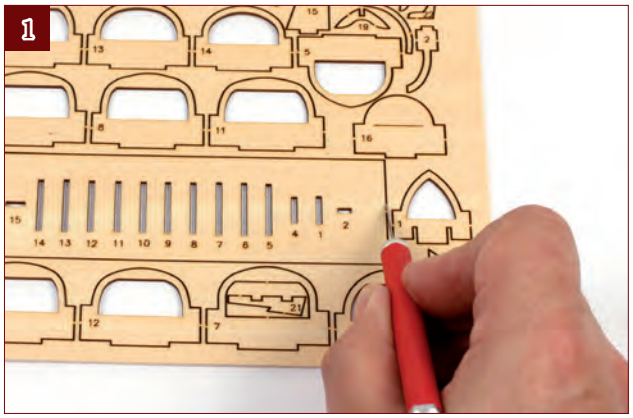
Assembly jig, frames, keel and tiller



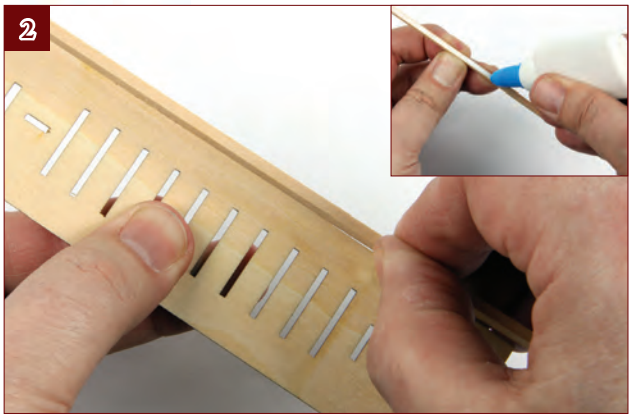
Where the parts fit

The hull is built upside-down, by laying planks over a set of "U'-shaped rib frames (parts 1-16). To hold the frames in position, they are slotted into the rectangular assembly jig, which is removed after planking. Parts 17-19 are not used until later on in the building process.

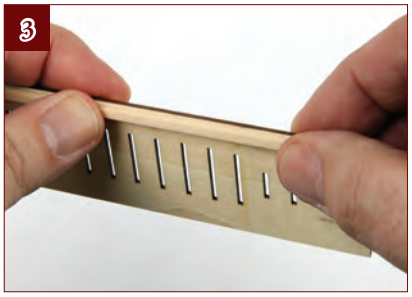




1. Each of the laser-cut plywood parts is attached to the sheet by two small tags. Use a craft knife to cut through the two that retain the temporary assembly jig (part 1).

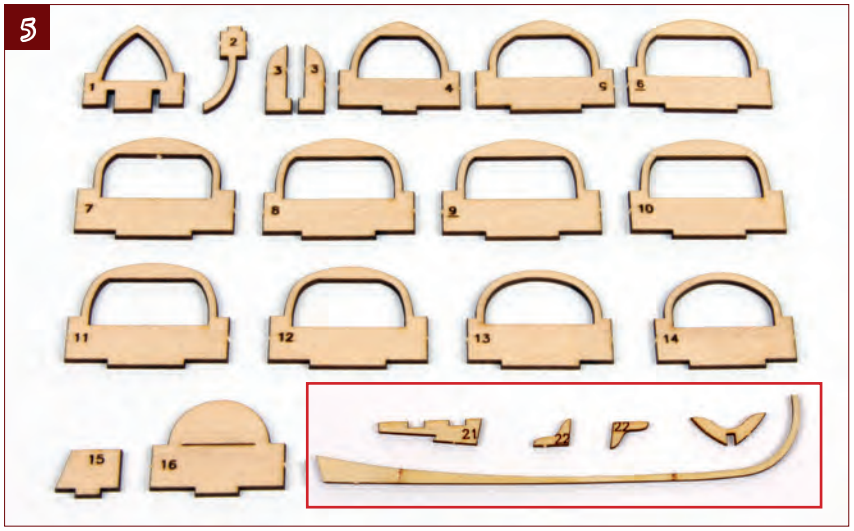


2. Two support strips (thicker than the planking) are provided to prevent the jig from warping. Apply glue to the thin edge of one of these and line it up with the edge of the jig.



3. Press the support strip into place, ensuring it is on the underside of the jig (the side without the numbers).

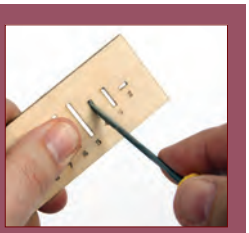
4. Add the second strip to the other side of the jig, then leave to dry using clamps or a weight to keep the assembly flat.



5. Carefully separate the remaining parts from the carrier sheet. Note that parts 17-22 (in red box) are not used until later on in the process, so set these aside for safe-keeping and be very careful not to lose or damage them.

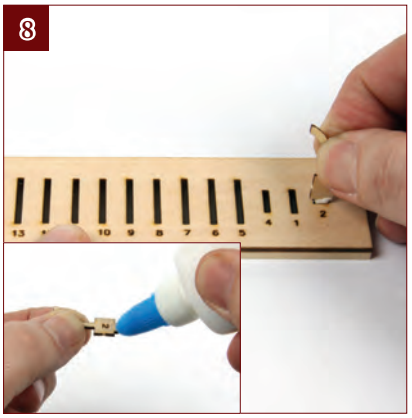
EXPERT TIP

Try a couple of the frames in the slots in the assembly jig. If they don't slip in easily, ease the slots a little using a needle file, before going on to Step 6.

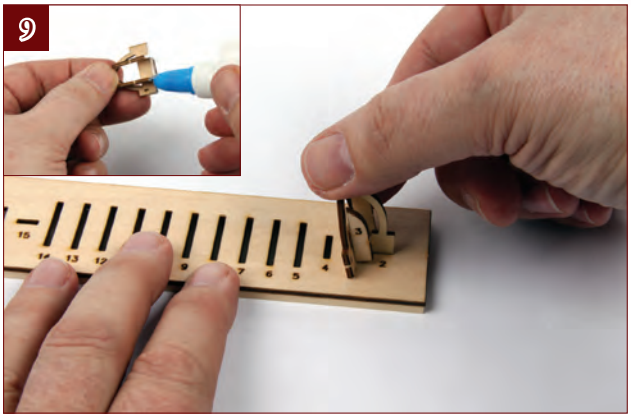


6. Start by taking parts 1, 2 and both parts 3. Apply a little glue to the small tab on one of the two part 3s.

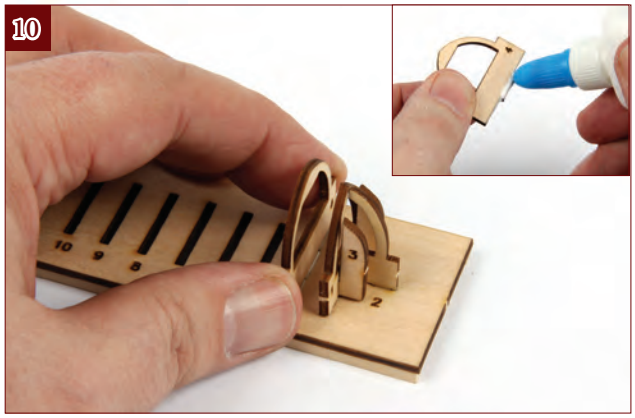
7. Press the tab into the matching slot in part 1, then repeat for the second part 3. Push both up to the top of the slots.



8. Apply a little glue to the tab on the end of part 2 and insert it into slot 2 in the jig, facing in the direction shown.



9. Apply glue to the tab on the base of frame 1 and press it into slot number 1. Apply a spot of glue at the point where the curved end of part 2 touches the top of frame 1.

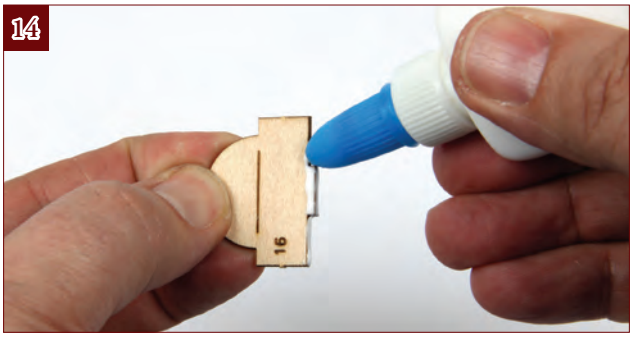


10. Glue the tab on the base of frame 4 and press it into slot 4. Ensure that it is fully seated on the assembly jig and that frames 3 and 4 are parallel.

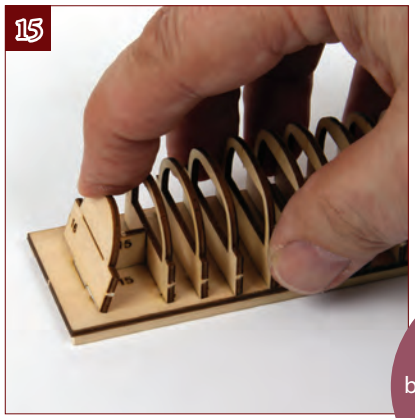
11. Continue adding frames in this way, ensuring that they are in the correct numbered slots and are all parallel.

12. Fit part 15 at right angles to frame 14, so that the sloping side of part 15 faces slot 16.

13. Apply a little glue to the sloping side of part 15.



14. Now apply glue to the tab on the base of part 16 (the transom at the stern of the launch). Note that one side of part 16 has the number and also a line marked on it.



15. Fit the transom into slot 16, leaning over against part 15, and hold it in place until the glue is dry.

QUICK TIP

This completes the assembly of the boat-building jig. Leave it to dry thoroughly, as the next stage involves sanding the frames.

Planking the hull

With the assembly jig complete, you can start planking the hull of the launch, using the thin strips of wood supplied.

1. Make sure that you have left the completed assembly jig until the glue has hardened completely – ideally overnight – otherwise it may not withstand sanding.

2. Using a fine file or sandpaper over a small sanding block, start to sand the "U"-shaped frames so that they form a smooth curve, with no hard edges (see Step 5).

3. Be very gentle when sanding the two bow supports (parts 3) as the upper ends are unsupported.

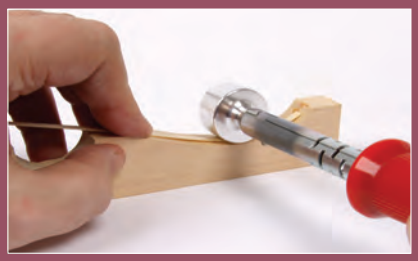
4. Do not sand away the square "step" just above the numbers on each frame. Sand above it, parallel to the base.

5. After sanding, the jig should look like this. Test that the planking can be laid in a smooth curve from bow to stern as shown in Step 6, on the next page.

Expert tip: Bending the planks

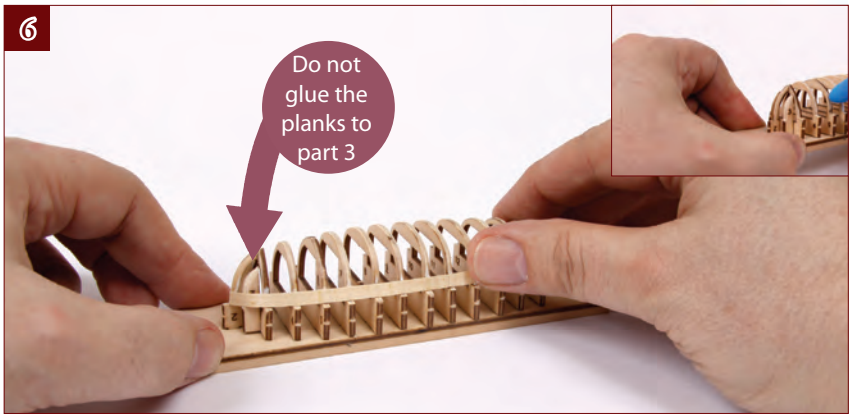
The planks forming the hull of the launch are curved. Although the strips of wood supplied are flexible enough to bend, they will try to spring back straight, and will snap if bent too far. Thicker planking can be bent using bending pliers that "crimp" the material but these will snap the thin wood used here. To form the tight curves for the launch, you need to employ a similar method to that used for the original *Victory*: using steam to soften the wood. It can then be bent more easily and will take up a permanent "set" when allowed to cool and dry. As shown here, you can improvise with a kettle or pan of water, but you may prefer to invest in an electric bending iron. Although this is quite expensive for a small job like this, it will also make light work of the heavier timbers used to plank *Victory*'s hull later on.

You can improvise a steam bender using a kettle of boiling water. When the wood softens, it can be bent into a curve, which will remain after the wood cools. Be very careful to avoid burning your fingers.

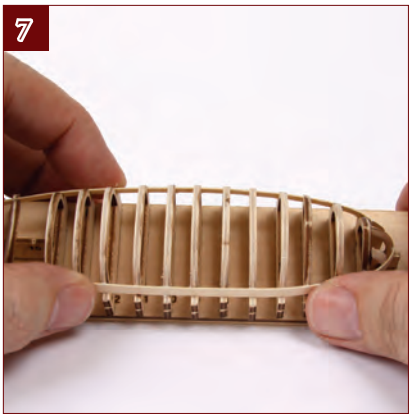


An alternative is to buy a special electrically heated plank bender, like this one. Dampen the wood and press it over the shaped wooden former, forming tight curves in stages, rather than in one go.

Whichever method you use, you will need to form the planking into curves like this, which are particularly tight in the area of the bows. Try each piece in place, then allow the wood to dry before gluing it.

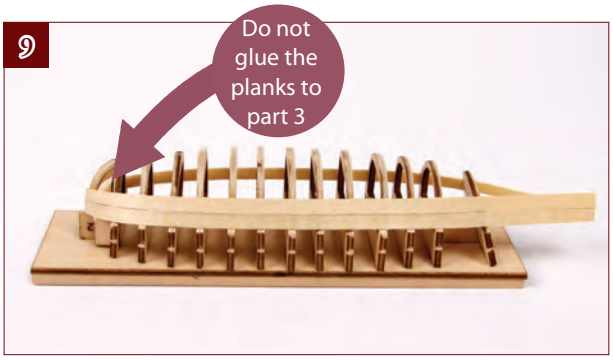


6. Bend a plank to fit from bow to stern so it sits on the "steps" in the frames following the slight up-and-down curve without being forced. Cut the bow in line with the centre of frame 2 . Apply glue and hold the plank in place until the glue sets.



7. Repeat on the opposite side. Note how the planks are touching at the bow, but are left overlength at the stern.

8. Before bending the second layer of planks, sand one end to produce a gentle taper, as shown in the next step.

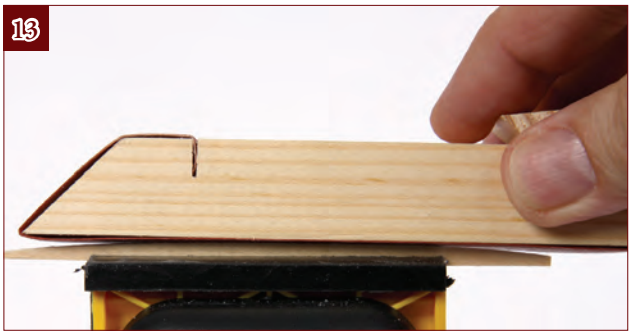


9. Bend and fit the second layers of planking in the same way as the first, tapering toward the bow as shown. When the glue has set, trim off the surplus at the stern.

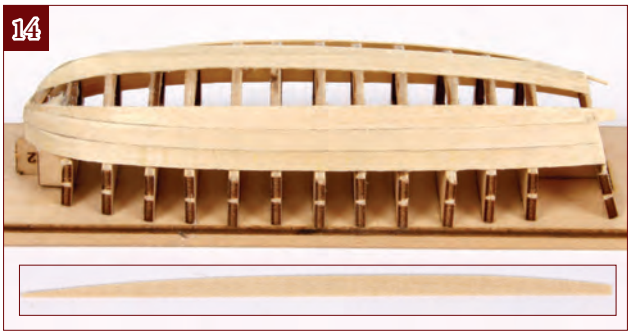
10. Taper the end of two more planks as shown, trying them in position as seen in the next step, so that they follow the shape of the bow.

11. Mark the centre of the stern transom (inset) and bend the first plank to follow the centre line from bow to stern as seen. Glue the plank in place, lining up the tapered end at the bow.

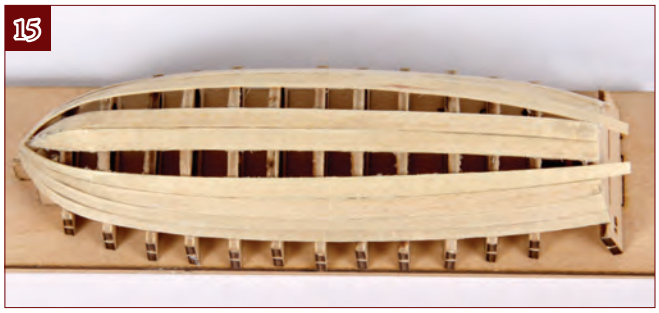
12. Shape another plank and glue it on the opposite side.



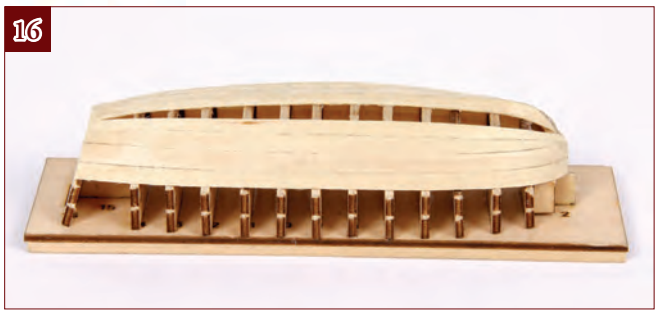
13. You will need to taper the next planks to fit the spaces remaining. This is a matter of sanding off a bit at a time and trying them in place, aiming for the result shown in Step 14.



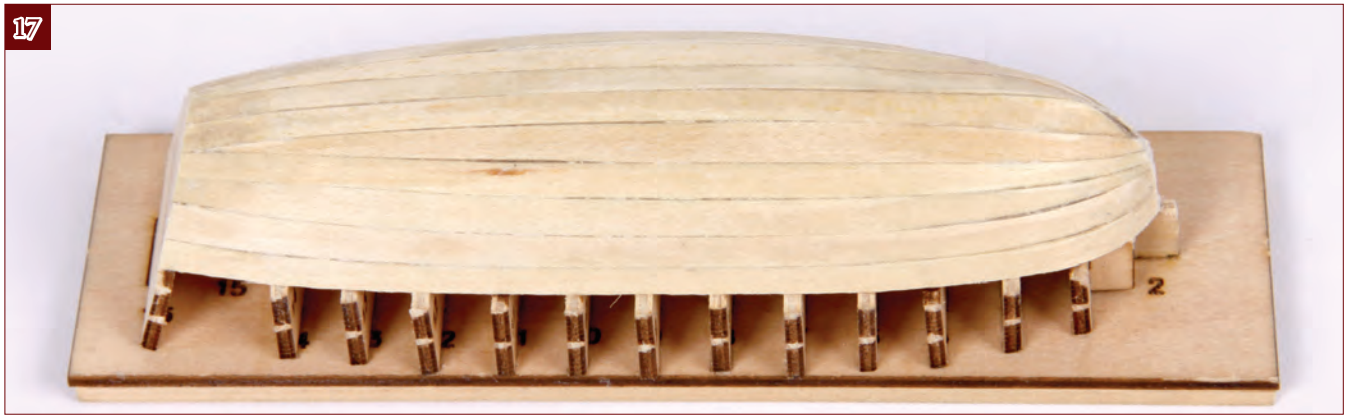
14. Add the next layers of planking like this, after creating the long point at the bow and a lesser taper at the stern, which you should leave slightly overlength to allow for trimming.



15. Repeat the process on the opposite side of the hull. The surplus at the stern can be cut away when the glue is dry.



16. The final planks need to be tapered at both ends to fit into the gaps, but they won't need to be bent very much.



17. You may find that the gap is a little too wide to fill with one plank. This is perfectly normal and if it happens on your model, cut thin slivers, which are known as "stealers," to fit the gaps and glue them in place along the edges. Run a little glue into the joints between all the planks and leave to dry.

18. Lightly sand the outside of the hull to a smooth finish, but be very careful not to go through the thin planking.

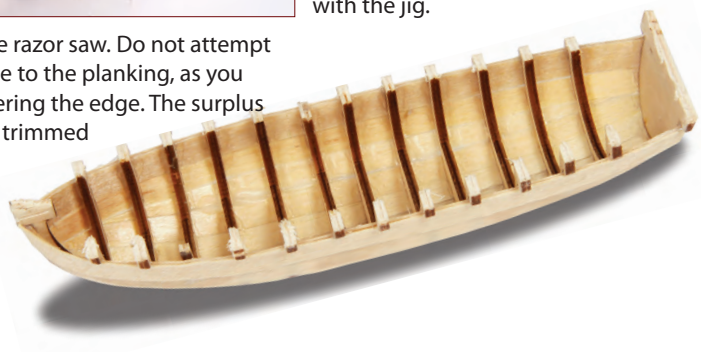
19. Bend and glue an extra layer of planks on top of the first two planks you laid, running along the "step."

20. Leave the hull to dry thoroughly. If any cracks remain, run a little glue into the gap and sand lightly when dry.

21. After the assembly has set completely, it's time to separate the hull from the jig. Cut the frames below the lowest planks, either using a sharp pair of side cutters…

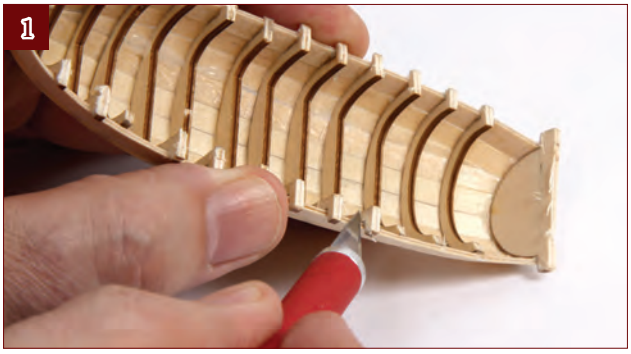
22. … or a fine razor saw. Do not attempt to cut too close to the planking, as you will risk splintering the edge. The surplus frames will be trimmed later.

23. The completed hull should look like this – ready for trimming and fitting out. Note that the temporary bow formers (parts 3) should fall away with the jig.



Trimming the ribs and adding the fittings

With the hull planking complete, you can trim the internal ribs and add the external fittings – the keel and rubbing strips.



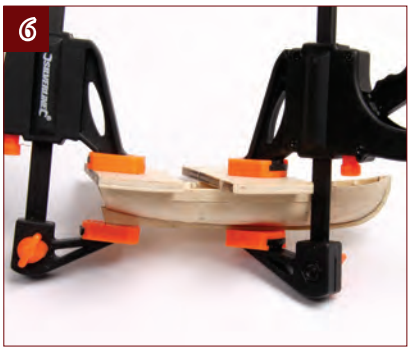
1. The completed hull has parts of the assembly jig attached to the U-shaped ribs. Using a sharp modelling knife, cut off the surplus at an angle of about 45°, so the ends slope inward.

2. Cut right across the transom, using the marked line as a guide. Be very careful not to remove too much: you may find it easier to leave some surplus and finish off by sanding it away.

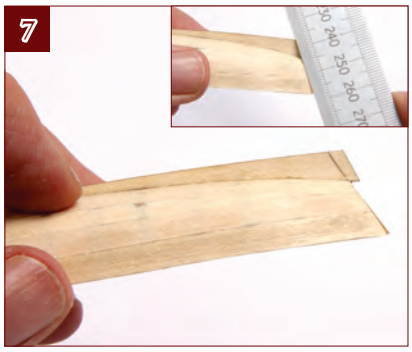
3. Smooth off the ends of all the ribs, using fine abrasive paper or a very fine file.

4. Try the keel (part 18) in place. If it does not fit easily over the curves of the planking, you may need to sand the hull lightly to ensure that there are no gaps.

5. Apply glue to the inside of the keel where it will touch the hull, then fit it back in place.



6. Clamp the keel in place until the glue has dried, using pieces of scrap wood to spread the clamp pressure as shown.



7. The keel is supplied slightly overlength. Mark the surplus in line with the end of the transom and cut it off.

8. Finish off by sanding the end of the keel flush with the transom, using fine abrasive paper and a sanding block.

9. Lightly sand the length of the keel to remove sharp edges.

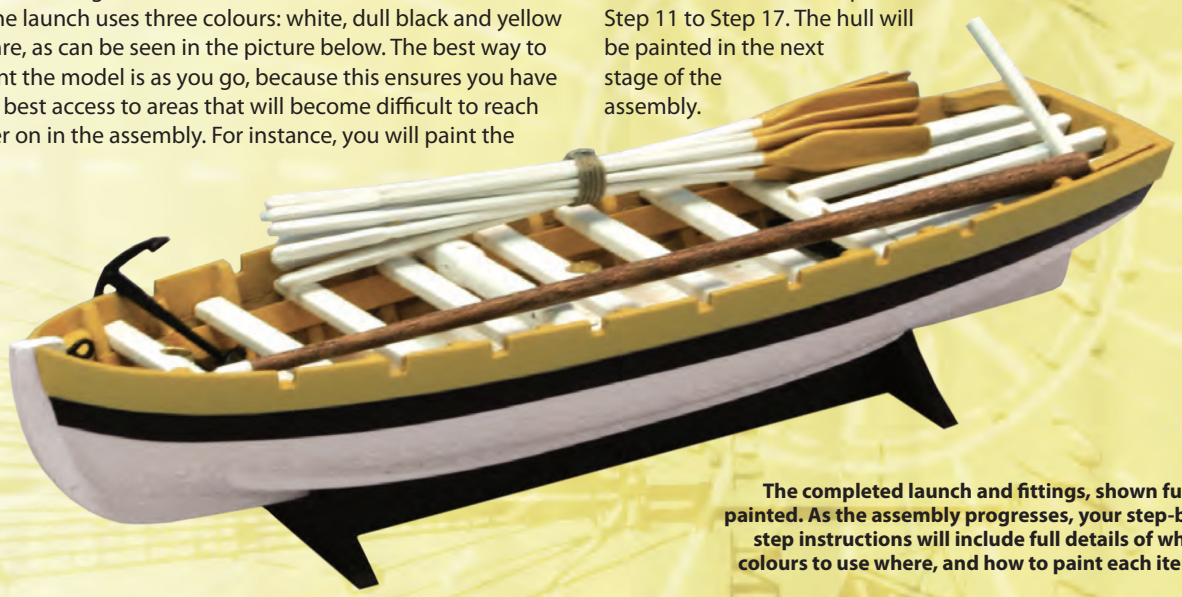
10. Lightly sand the hull to remove surplus glue or marks.

Optional decorative finish

The main assembly instructions show you how to put together the launch with a natural finish that will show off your woodwork. If you prefer to paint the model to look like the full-size original, you need to decide this now, although you won't start applying paint until the next stage, which comes in Stage 9.

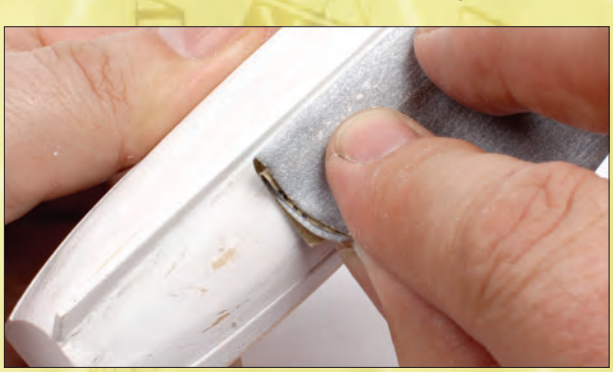
The launch uses three colours: white, dull black and yellow ochre, as can be seen in the picture below. The best way to paint the model is as you go, because this ensures you have the best access to areas that will become difficult to reach later on in the assembly. For instance, you will paint the interior yellow, before fitting the rowers' seats ("thwarts").

Another reason you need to decide about painting now is that you will get a smoother finish by filing and sanding the hull, which is easier now than after you fit the rubbing strips (Steps 16 and 17). After filing and sanding the hull, carry on as shown in the main sequence from Step 11 to Step 17. The hull will be painted in the next stage of the assembly.



The completed launch and fittings, shown fully painted. As the assembly progresses, your step-by-step instructions will include full details of what colours to use where, and how to paint each item.

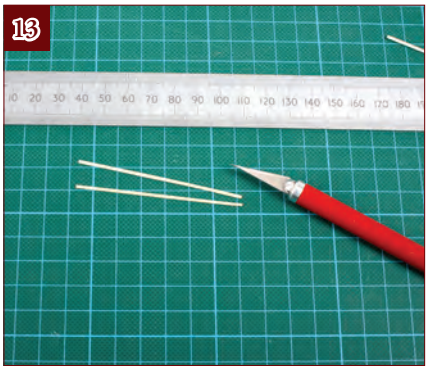
To get a perfectly smooth finish on the outside of the boat, it pays to fill any cracks between the planks. The easiest way to fill small cracks is to apply a coat of white primer.



When dry, sand lightly until the surface is smooth. If any cracks remain, you can either apply more primer or, if the gaps are large, use a little filing putty. Then sand again.

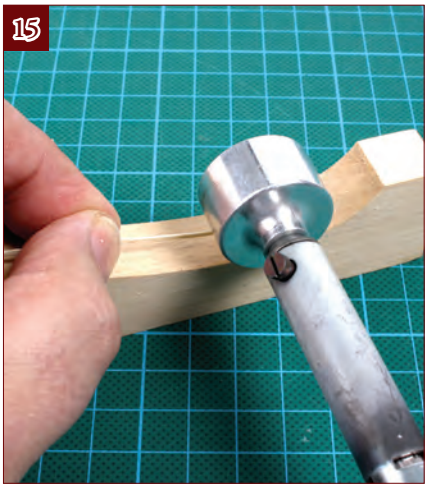
11. Mark the position of the rubbing strips. They start 25 mm forward of the transom, 9 mm away from the keel.

12. They run forward to 13 mm from the bows, curving out in the middle so they are 11 mm away from the keel at the centre point.



13. Cut a 70-mm length of one of the spare planking strips. Split it lengthwise into three equal strips. One of these is a spare.

14. Lightly sand both ends of two of the strips so that they taper from one side and are widest in the middle.



15. Gently bend the strips along their thin edge so that they fit the curve of the hull, as shown in Steps 16-17.

16. Check that the strips fit without being forced into shape, then apply glue along the inside of the curved edge.

17. Press the rubbing strips into place, following the lines you marked in Steps 11-12, and hold until the glue sets.

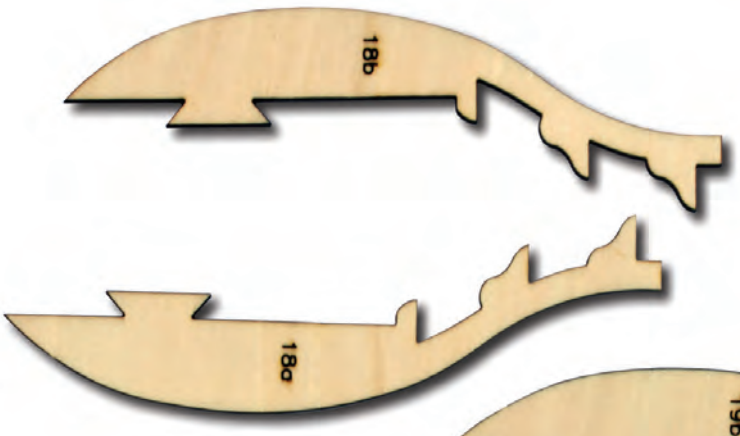
18. The finished result should look like this. If you opted for a painted finish, the hull will be patched with filler/primer, but you will apply a smooth white paint at the next stage.

Stage 7: Continuing the rib framing

The components provided include five precision laser-cut parts to continue building up the rib frames for the hull of *Victory*.

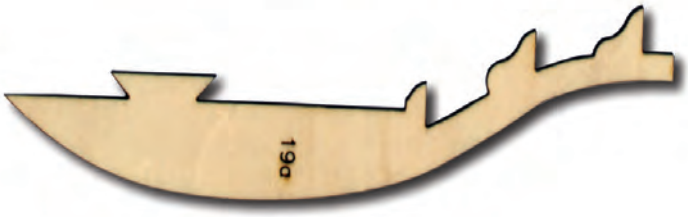
Parts 18a, 18b

Rib frame



Part 19

Rib frame

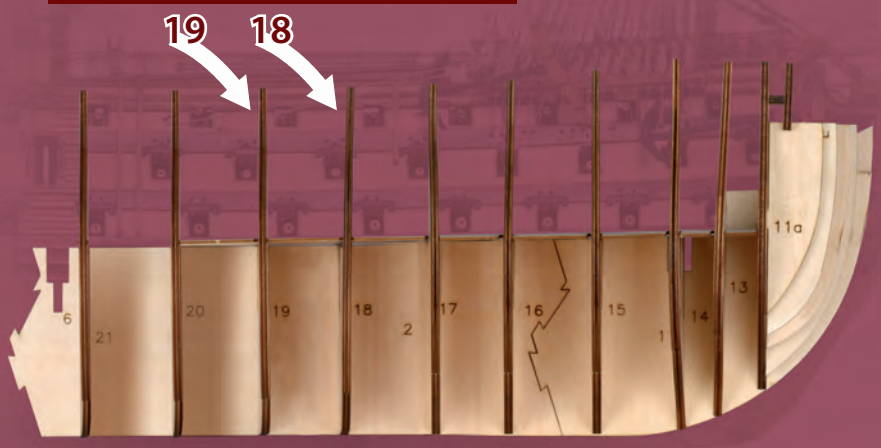


Part 19a, 19b

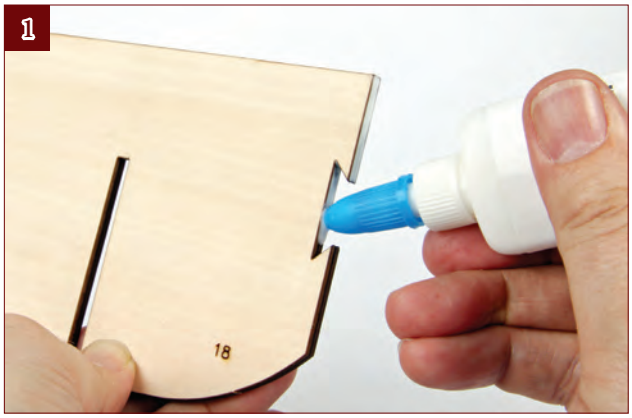
Rib frame

FORMING THE HULL
If you place the ribs in order, you will see how they form the curves of *Victory*'s hull, including the narrowing above the waterline known as the "tumblehome."

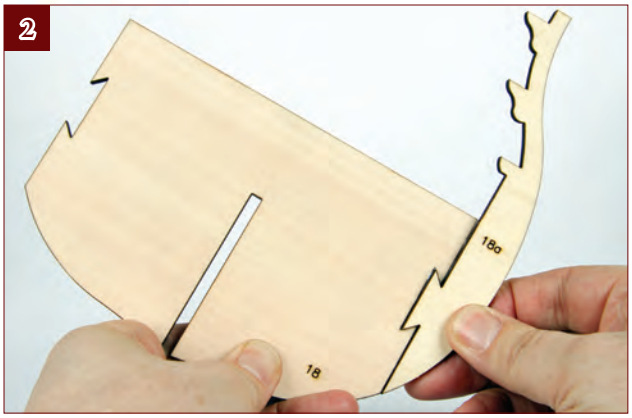
Where the parts fit



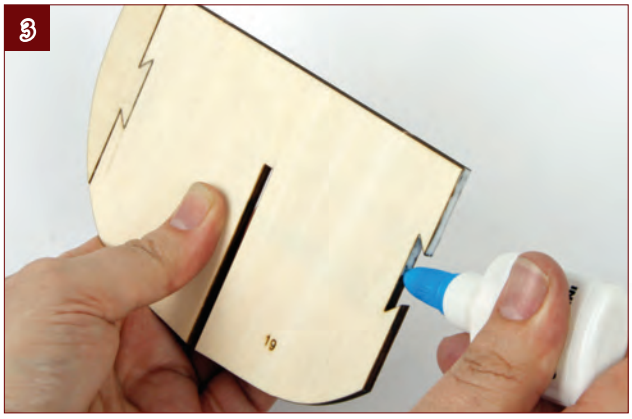
Victory's hull is built up around a series of "U'-shaped rib frames that run the full length of the ship, slotting into the internal "keel" that runs from bow to stern. The parts provided, 18 and 19, are parts of two of the ribs forming her forward section.



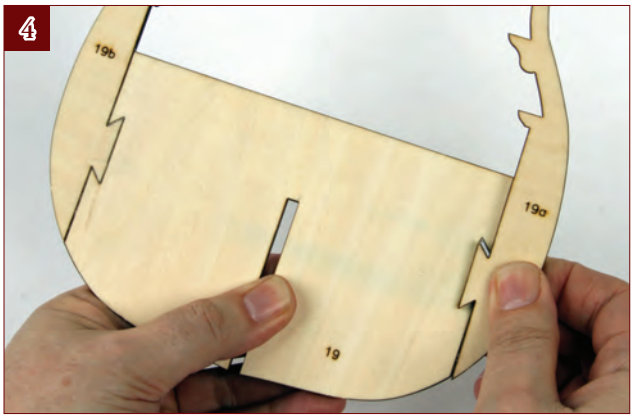
1. Take the centre section of rib frame 18 (which was supplied with the previous stage) and apply a little glue to the dovetail joints on both sides.



2. Attach the two wing sections (18a and 18b) to complete the rib frame. Ensure that the parts are lined up flush, then lay the frame down flat to dry.



3. Repeat the process, using the three sections you received with this stage, to assemble rib frame 19.

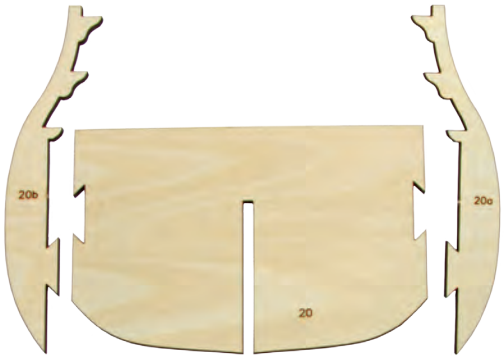


4. After joining the parts, make sure the joints are in line, then set the frame aside to dry flat.

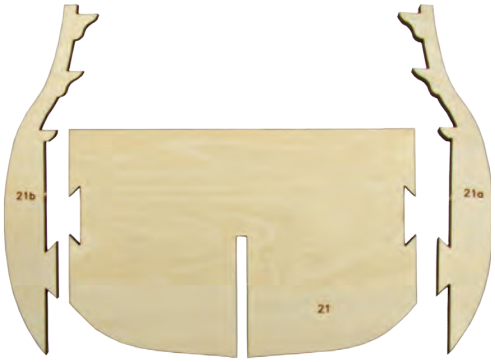
QUICK TIP
You can loosely assemble the frames to see the forward section of *Victory*'s hull take shape, but don't glue them at this stage.

Stage 8: Continuing the rib framing

The components provided include six precision laser-cut parts to continue building up the rib frames for the hull of *Victory*.



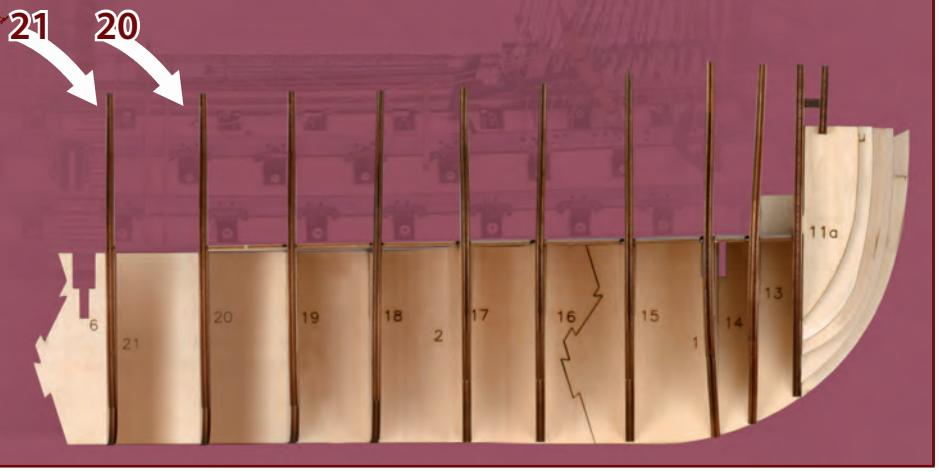
Parts 20, 20a, 20b
Rib frame



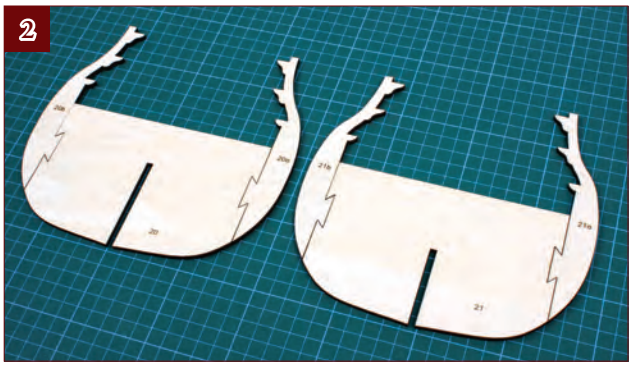
Parts 21, 21a, 21b
Rib frame

Where the parts fit

Victory's hull is built up around a series of "U'-shaped rib frames that run the full length of the ship, slotting into the internal "keel" that runs from bow to stern. The parts provided, 20 and 21, are parts of the last two of the ribs forming her forward section.



1. Match up the numbers of the three sections of each rib, as shown at the top of the page, and glue them together.



2. Ensure that all the parts are lined up flush, then lay the frames down flat to allow the glue to dry.

QUICK TIP
You can loosely assemble the frames to see the forward section of *Victory*'s hull take shape, but don't glue them at this stage.

Stage 9: Continuing *Victory*'s launch

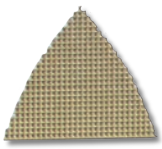
The components provided include wooden parts to make the thwarts (rowers' benches), internal planking, windlass and mast, plus the duckboards, metal anchor and oars of *Victory*'s launch.

Wooden and brass strips

9 wooden strips 1 x 3mm, 100 mm long (I)
3 wooden strips 0.6 x 3mm, 100 mm long (D)
5 wooden strips 1.5 x 3mm, 100 mm long (C), (L)
1 wooden strip 1.5 x 1.5mm, 100 mm long (L)
1 wooden rod, 3 mm round, 100 mm long (H)
1 brass strip 100 mm long (G)
1 brass wire 50 mm long (F)
1 wooden strip 3 x 3 mm, 50 mm long (F)
The letter codes refer to the annotation in "Where the parts fit," below.

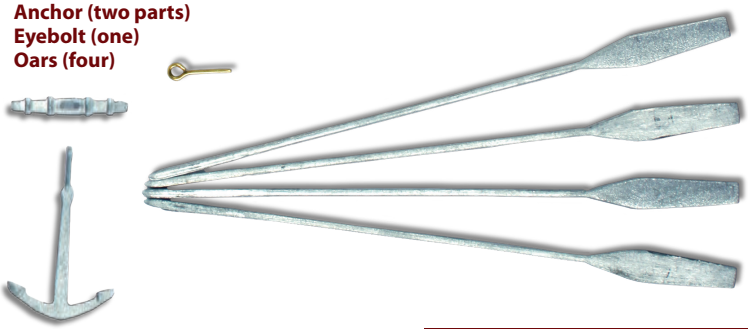
Twine

Anchor cable



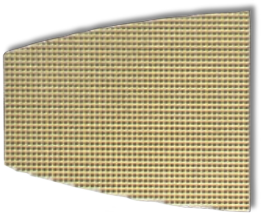
Metal fittings

Anchor (two parts)
Eyebolt (one)
Oars (four)



Brass gratings

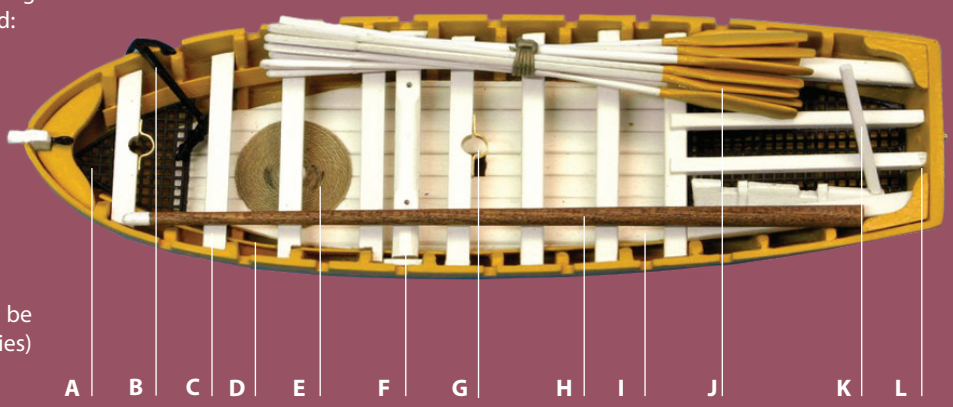
Front and rear duckboards



Where the parts fit

This picture of the completed launch shows the internal fittings made from the parts supplied:

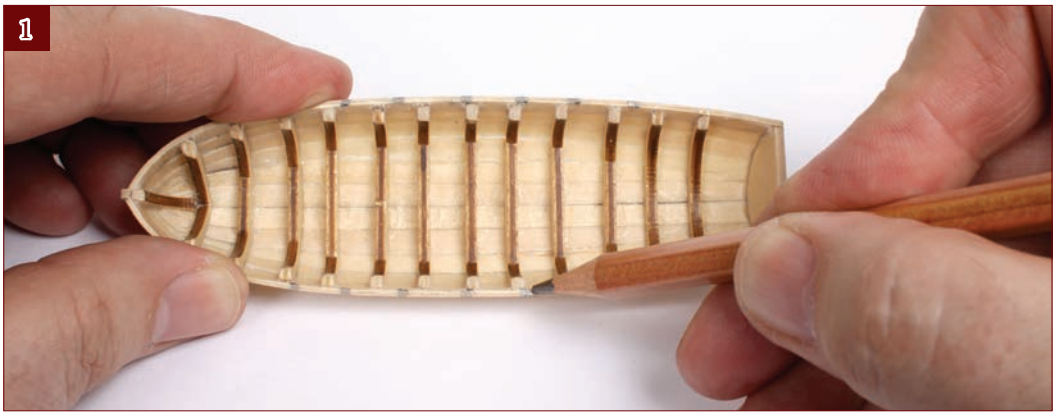
- **A** Duckboards (x2)
- **B** Anchor
- **C** Thwarts (x8)
- **D** Thwart supports
- **E** Anchor cable
- **F** Windlass
- **G** Mast step (x2)
- **H** Mast
- **I** Floorboards
- **J** Oars (some of these will be supplied later in the series)
- **K** Tiller
- **L** Rear braces (x4)



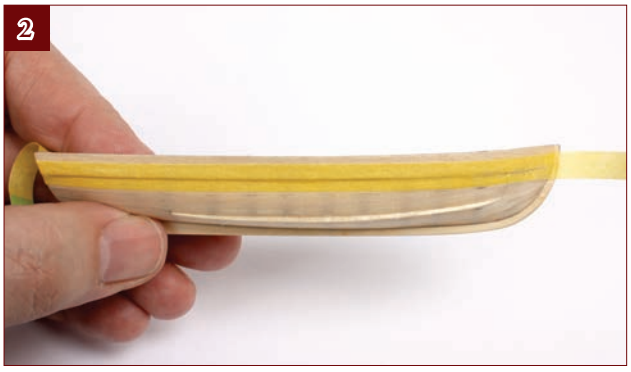
Cutting the oar slots

With the hull complete, the next step is to cut slots for the rowers' oars, and then you'll be ready to install the thwarts and other internal fittings.

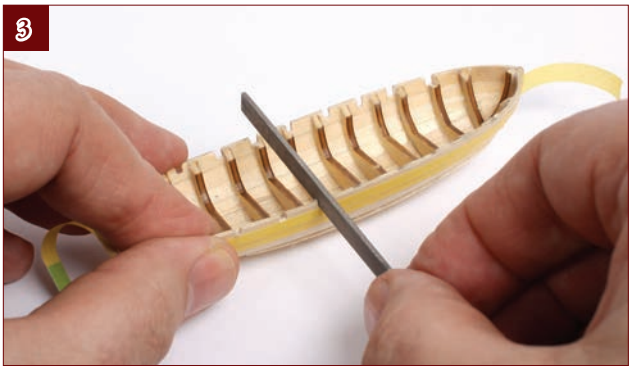
The launch was propelled by rowers operating eight oars on each side. These top and side views show where to position the eight slots on each side of the hull.



1. Mark the positions of the oar slots in pencil, ensuring that they are evenly spaced. Note that the spacing is not the same as that of the internal ribs.



2. Use a strip of masking tape to indicate the right depth for the slots in the hull.



3. Cut the slots using a thin, flat needle file.

Optional decorative finish

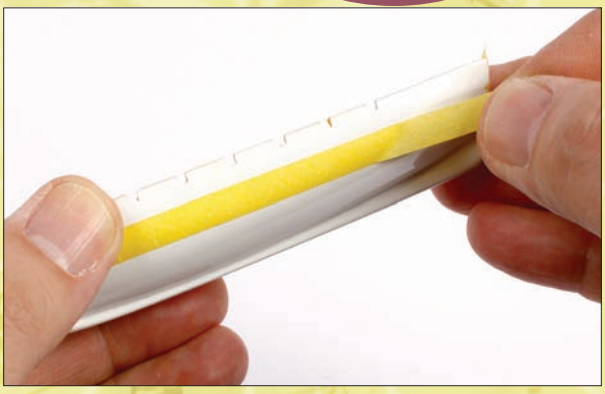
If you decided to paint the launch, as discussed in Stage 6, you should already have filled and primed the hull. After cutting the slots as shown on the previous page, and completing Steps 4-8 opposite, you can apply the first base colours. It's important to do this now, because some areas will become inaccessible when you install the internal fittings. You will need to paint the internal fittings later.

The launch uses three colours: white, dull black and yellow ochre, as can be seen in the picture below. At this stage, you need to paint the outside white, the inside yellow ochre, and add the yellow and black bands running along the outside of the hull.

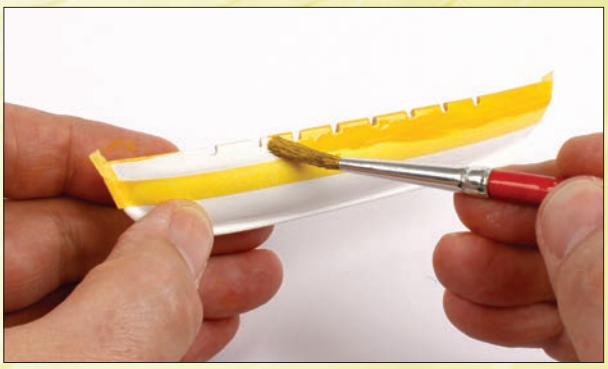
QUICK TIP

It's important to paint the main areas of the hull now, as it will be impossible to reach the interior with a paintbrush once the thwarts, windlass and supporting pieces are in place.

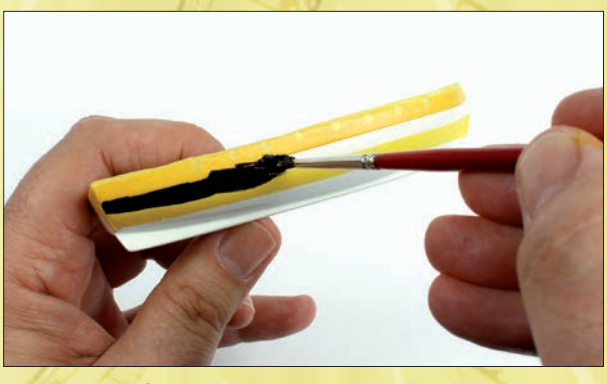
Paint the outside of the launch white. Do not apply the paint too thickly – it's better to apply two or more thin coats, sanding lightly when the paint has dried before applying the next coat, as this will produce a better finish.



After cutting the slots (as in the main Steps 1-8), apply masking tape along both sides of the hull, slightly below where you want the bands of yellow ochre to finish. This ensures the black bands will form a neat line.



Paint the inside of the hull with yellow ochre, ensuring you don't miss any patches around the ribs. Then paint the outside yellow bands, going slightly over the masking tape. Allow the paint to dry, then carefully remove the tape.



Apply strips of masking tape over the yellow bands, leaving the bottom edges exposed. Add two more strips to form the lower edges of the black stripes, then apply the black paint. Allow it to dry, then carefully remove the tape.

4. Take the small part 19, which was supplied with Stage 6.

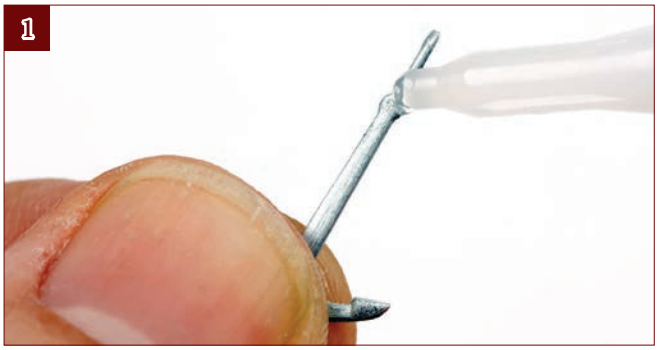
5. Try in position (see Step 8) and gently sand it to fit the curve of the bows.

6. Apply a little glue to the two sides next to the central slot.

7. Press the part in place, ensuring that it fits down below the part of the ribs that you filed at an angle.

8. The finished result should look like this. If you opted for a painted finish, the hull can now be painted in white, yellow ochre and black, as shown on the previous page.

The launch's anchor



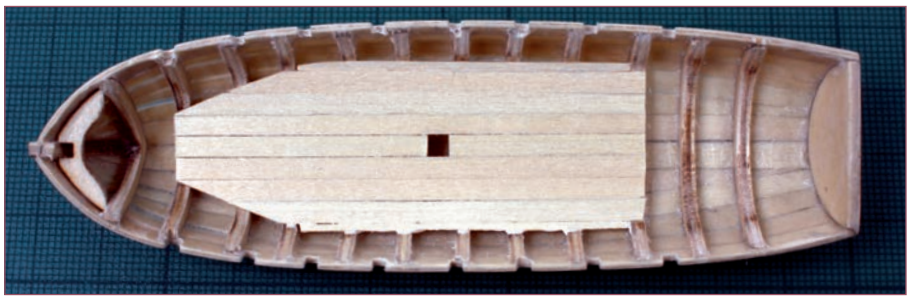
1. Test-assemble the anchor as shown in Step 2, then apply a little superglue just above the thicker part of the shank.

2. Fit the stock crosswise as shown and allow the glue to dry.

3. Paint the entire anchor black and allow it to dry. Store it carefully until you are ready to install it in the launch.

Fitting the floorboards

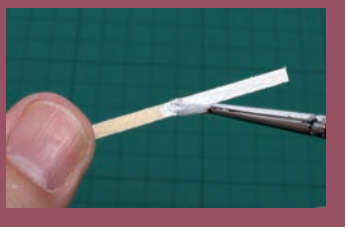
With the hull complete, the next job is to fit the floorboards and duckboards, then install the supports for the thwarts.



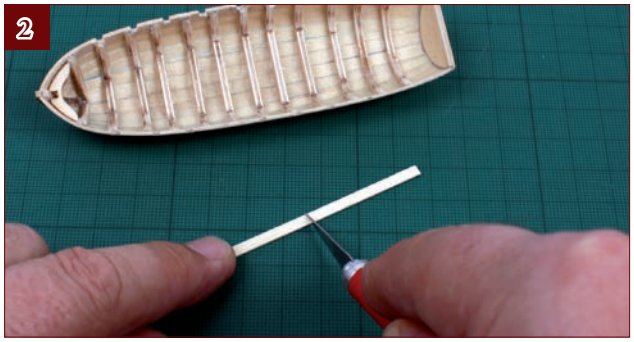
This view shows where the bottom floorboards fit. They are shown actual size. Note the hole for the mast and the angles that fit into the bow.

QUICK TIP

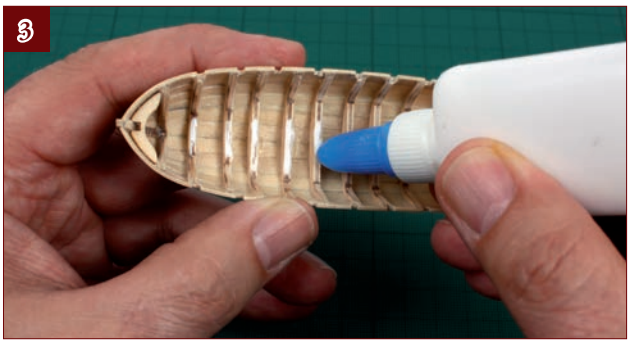
If you are painting the launch (see the following page), you need to cut all the boards to size, paint them white and allow to dry before gluing.



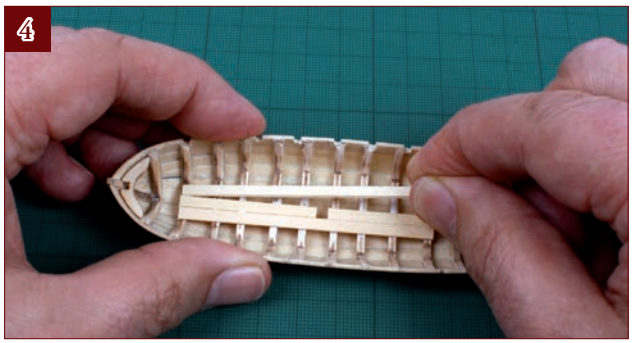
1. The floorboards are made from the nine wooden strips of 1 x 3 mm wood that were supplied with the previous stage. These are 100 mm long, so they have to be cut to length.



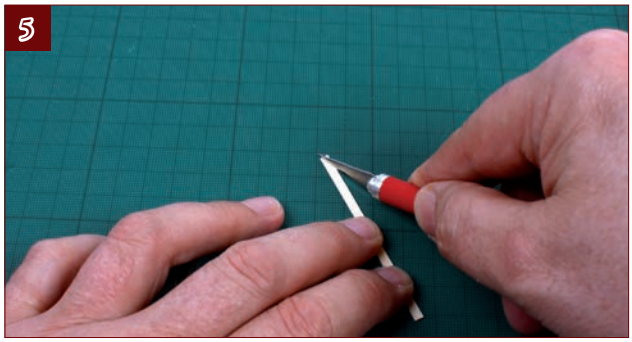
2. Cut four pieces for the three centre boards (the middle one is in two parts), following the picture above and checking on the model to ensure that they reach from rib to rib as shown.



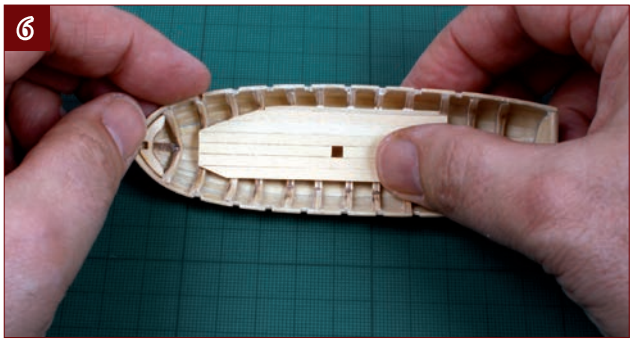
3. Apply glue to the flat central sections of the ribs onto which the floorboards will fit.



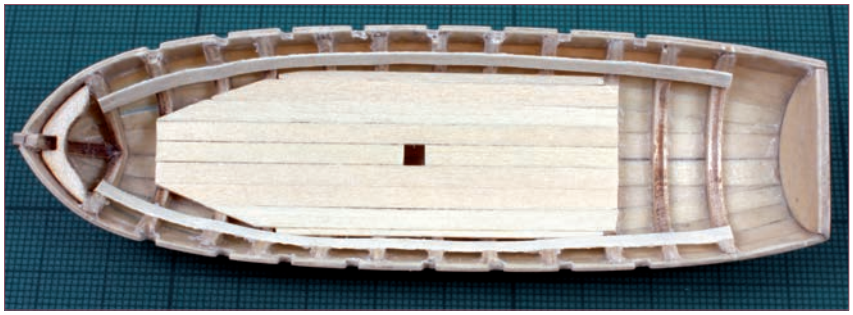
4. Press the cut strips into place, ensuring that they are straight and central and that you leave the hole for the mast.



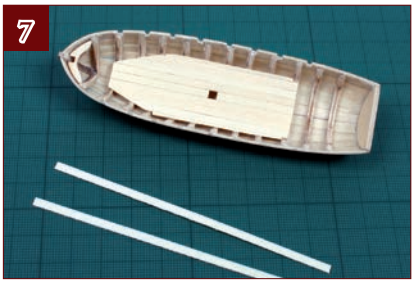
5. The next two rows of boards on each side have to be cut to a pointed angle, then trimmed to length.



6. Glue the outer boards in place. The last two boards are thin strips, cut to fit the space remaining.

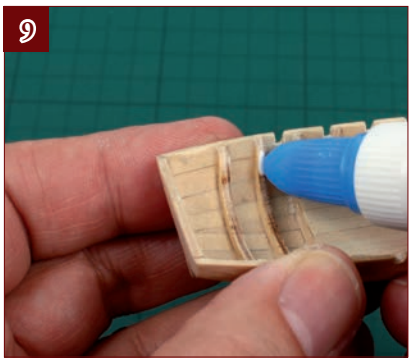


This view shows where the two thwart supports fit. They need to be positioned 5 mm below the edge of the hull.



7. The thwart supports are made from two of the 0.6 x 3 mm wooden strips supplied with the last stage.

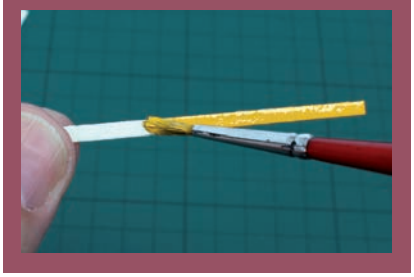
8. Press the strips into the hull so that they take up the curve, then mark and cut to the length needed.

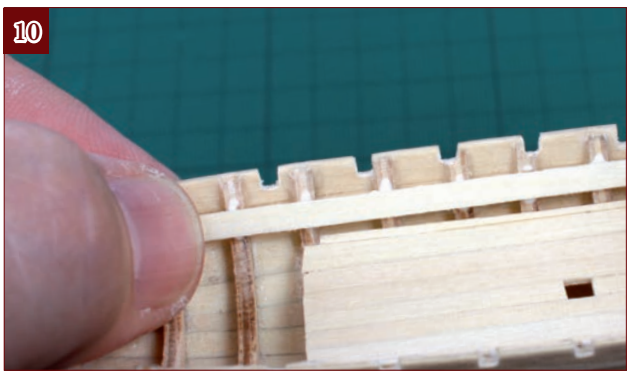


9. Apply glue to the insides of the ribs at the points where the supports touch them (see above).

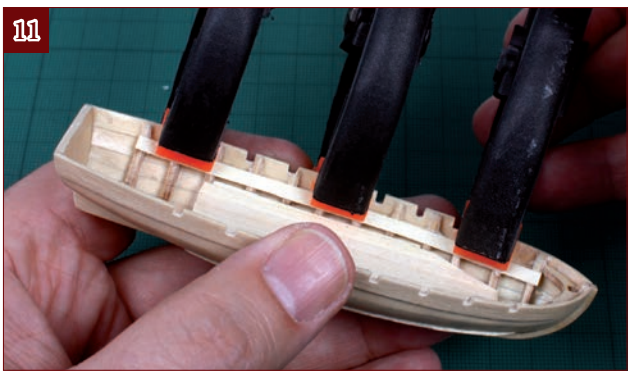
QUICK TIP

For the painted option (see below), you need to cut the supports to size, paint them with yellow ochre and allow to dry before gluing.





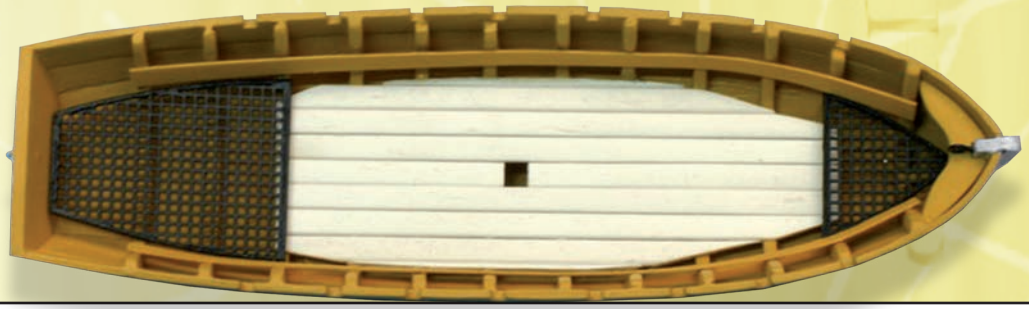
10. Press each strip in place, ensuring that it is in line with the edge of the hull and both ends are supported by the ribs.



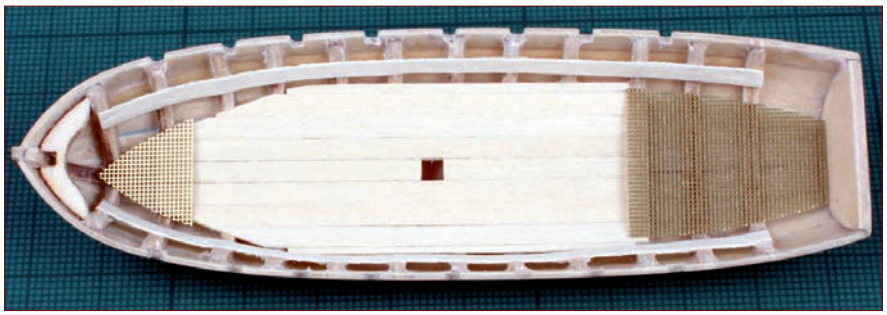
11. Lightly clamp the thwart supports in position until the glue is dry, using spring clamps or clothespins.

Optional decorative finish

If you decided to paint the launch, as discussed earlier, you should already have painted the interior with yellow ochre, because the internal fittings you are adding now will make parts of the hull inaccessible. Paint the internal fittings before gluing them in place and make sure you don't get excess glue on them. The thwart supports need to be painted all over, as the inside faces will remain partially visible.

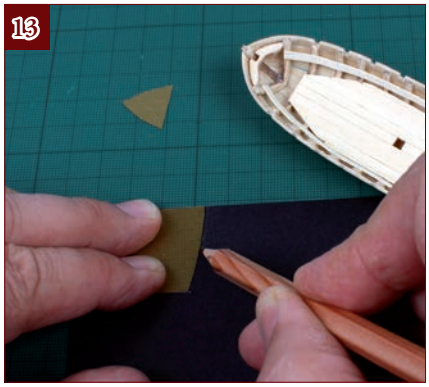


Before gluing the interior fittings in place, paint the bottom floorboards white, the thwart supports yellow ochre and the duckboards black.



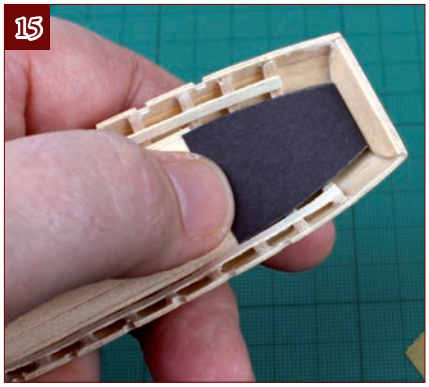
This view shows where the two duckboards fit, slightly overlapping the ends of the bottom floorboards.

12. The brass grids supplied with the last stage are slightly oversized so that you can trim them to fit your model exactly.

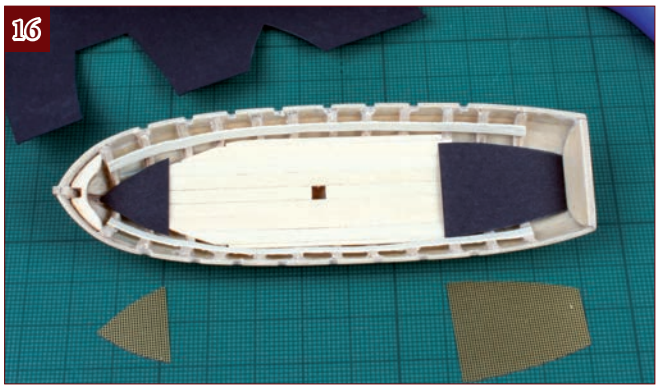


13. Mark a piece of thin card stock with the exact size of the two metal parts. This will be used as a pattern.

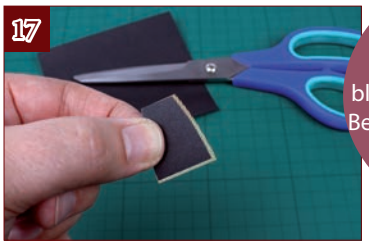
14. Cut the card stock to shape. It doesn't matter if it isn't exactly the same size as the metal – you will be trimming it down.



15. Try the patterns in place, following the picture top left.



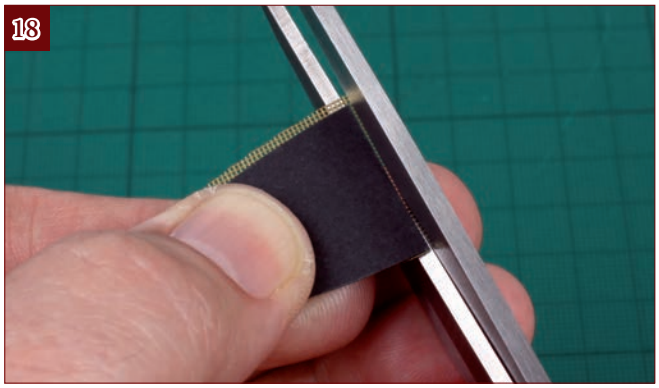
16. You will need to cut small strips off the edges until both patterns fit like this. There is no need to cut notches for the ribs.



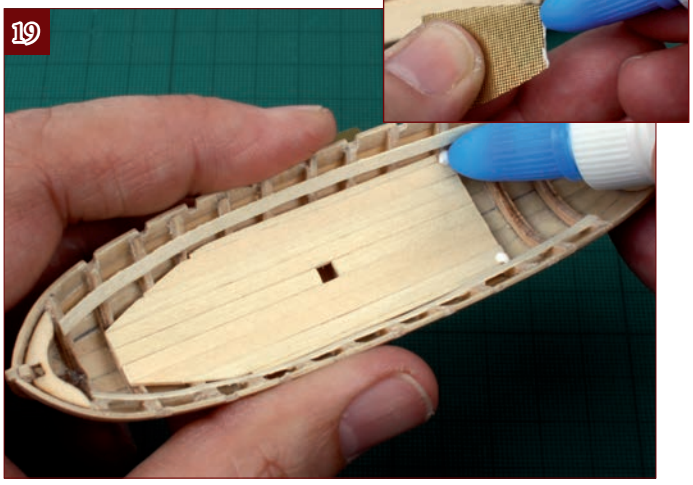
17. Take the trimmed patterns and lay them on top of the brass grids, which will be slightly larger.

QUICK TIP

For the painted option (see opposite), paint the grids black before gluing them in place. Be careful to apply the paint thinly as it is easy to clog the fine mesh with it.



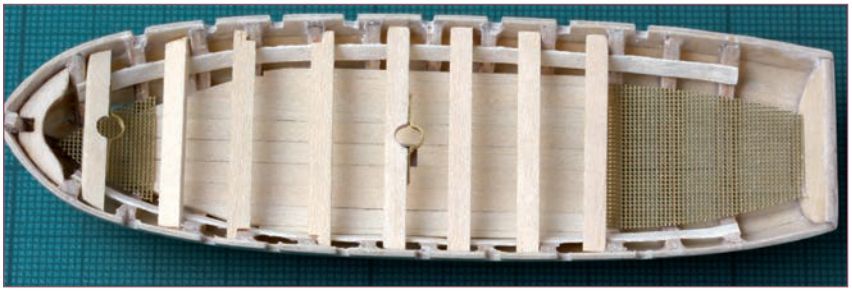
18. Trim the metal to match the patterns, using a stout pair of sharp scissors.



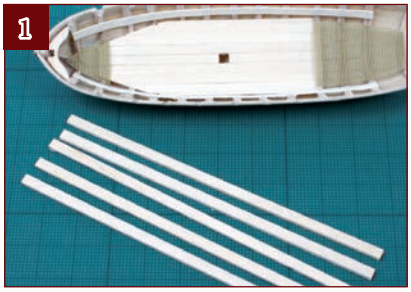
19. Sparingly apply spots of glue at the points where the duckboards meet the hull, including their edges (inset) and press them into place.

Installing the thwarts

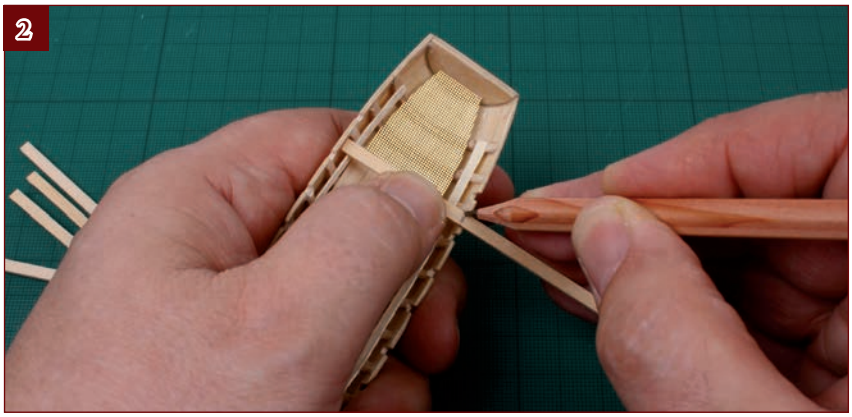
With the interior fitted out, the next job is to install the eight thwarts for the rowers and start to construct the windlass used for working the anchor.



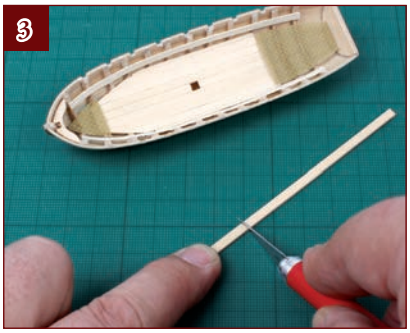
This view shows where the thwarts fit. They are shown actual size, but you should measure against your model. Note two thwarts have mounting holes for the mast.



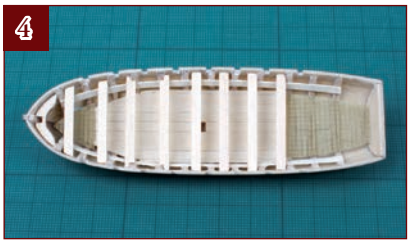
1. The thwarts are made from the five strips of 1.5 x 3 mm wood that were supplied with Stage 9. These are 100 mm long, so they have to be cut to length.



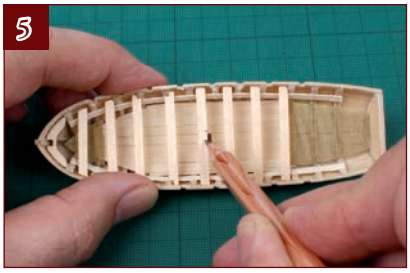
2. Referring to the picture above, position each thwart in turn and mark what length it needs to be. Remember that it sits inside the hull, supported by the two long strips you added last time.



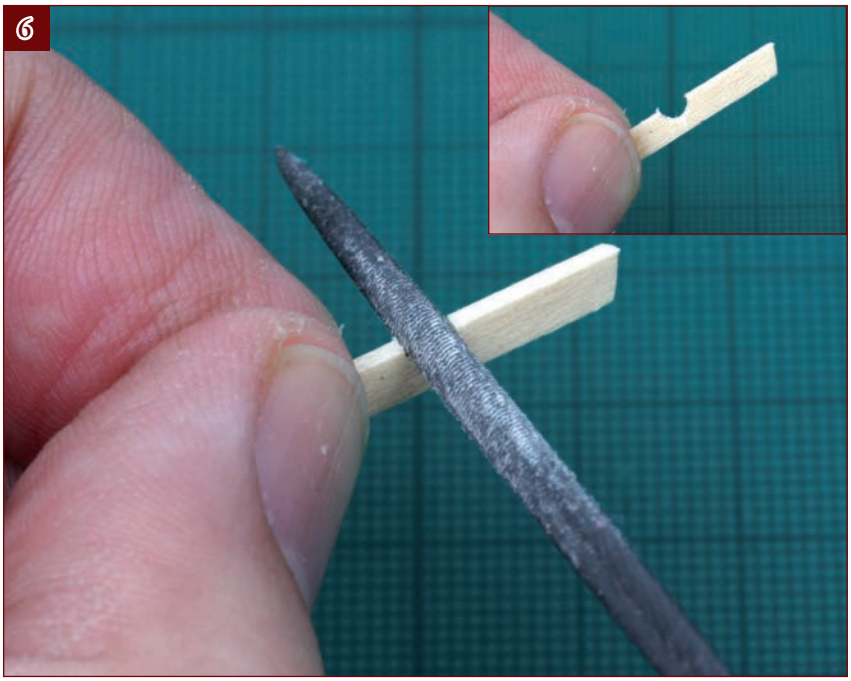
3. Cut each thwart to the correct length. Although you have some spare wood, it is best to cut overlength and trim to fit.



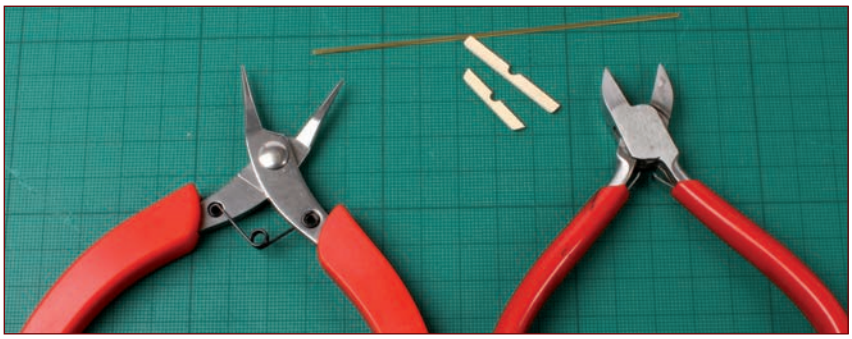
4. Lay each of the thwarts in position. Those at third and fourth from the left need to have notches cut at the ends to fit over the ribs inside the hull.



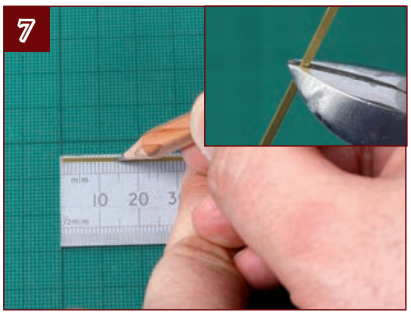
5. The first and fifth from the left need to have cut-outs for the mast, so mark the position of these.



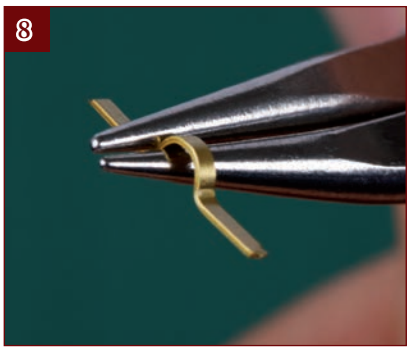
6. Use a round needle file to form a semicircular cut-out (measuring approximately 4 mm across) in each of these thwarts.



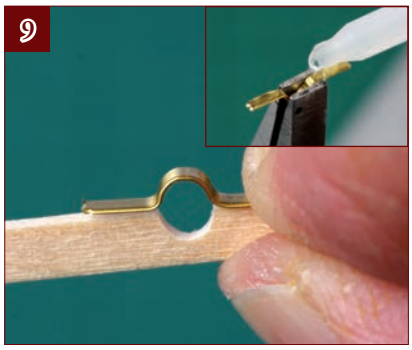
The mast will be made from the rod provided with Stage 9, and you can use this to check the size of the cut-outs. You also need the thin brass strip provided.



7. Mark two 15-mm lengths of brass and cut to length with side-cutters. Use a needle file to round off the sharp ends.



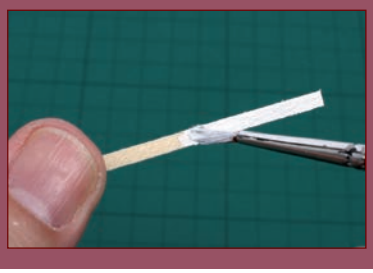
8. Use needle-nose pliers to form a semicircular bend in the middle of each strip of brass.



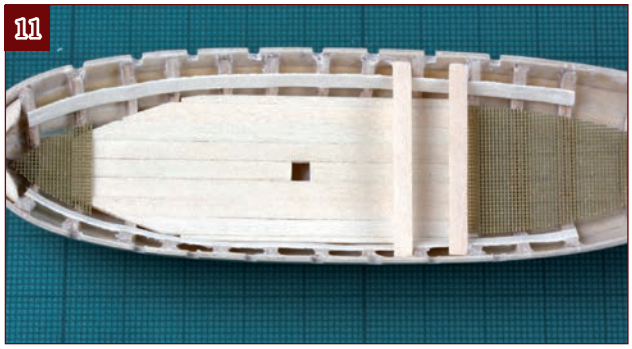
9. When fitted to a thwart, this should form a complete circle. Use superglue to attach the brass strip to the wood.

QUICK TIP

If you are painting the launch (see below), you need to paint all the thwarts white and allow them to dry before gluing.



10. Apply spots of glue to the thwart supports at the positions where each of the thwarts fit.

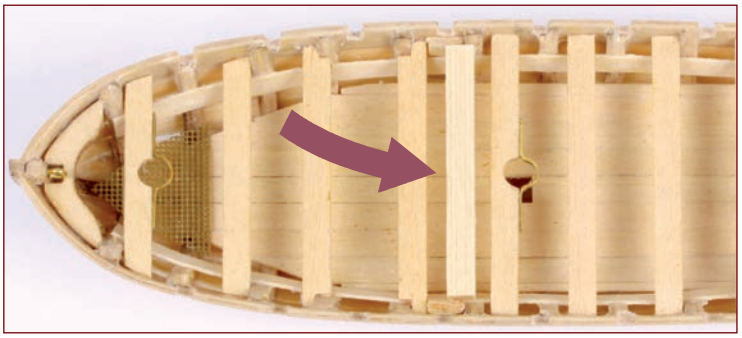


11. Add each of the eight thwarts in turn and allow the glue to dry.

Optional decorative finish

If you decided to paint the launch, as discussed earlier, you should already have painted the interior with yellow ochre, because the internal fittings you are adding now will make parts of the hull inaccessible. Paint the internal fittings before gluing them in place and make sure you don't get excess glue on them. The thwart supports need to be painted all over, as the inside faces will remain partially visible.

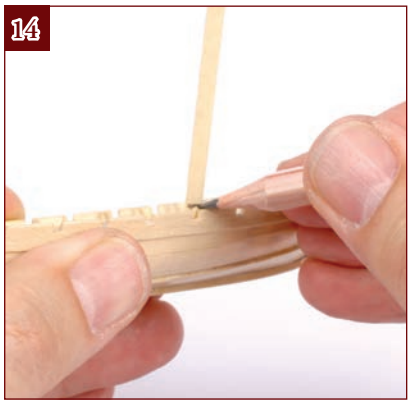
Before gluing the interior fittings in place, paint the bottom floorboards white, the thwart supports yellow ochre and the duckboards black.



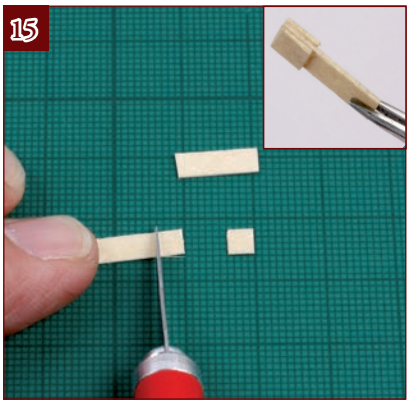
With all the thwarts fitted, start constructing the windlass, which is made from a thick piece of wood (arrowed, above) fitted between two supports.

12. Take the 3 x 3 mm wood supplied with Stage 9. You will also need some surplus planking material.

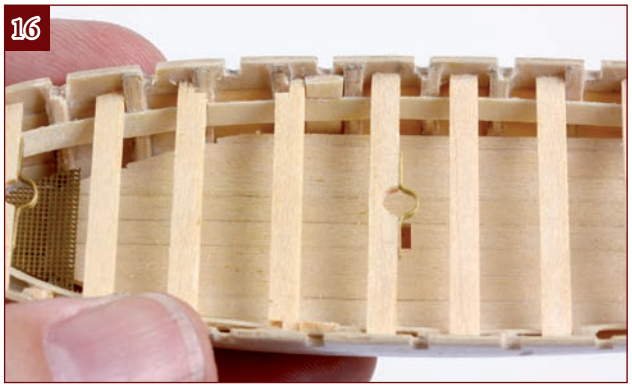
13. Slip the end of a strip of planking down between thwarts 4 and 5, behind the thwart support strip.



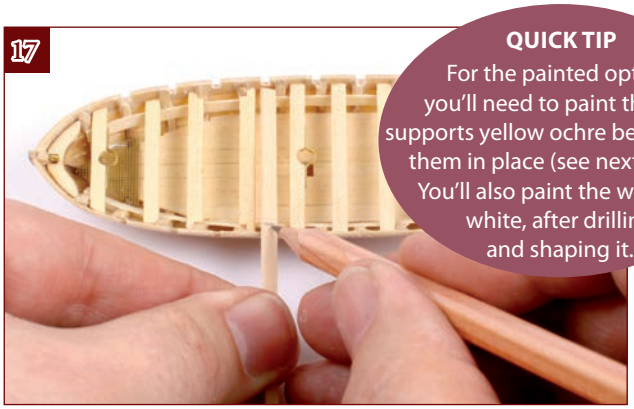
14. Mark the end of the wood so you can cut a length that stops just below the level of the notches for the oars.



15. Cut two more 5-mm lengths and glue them on opposite sides of one end of the support, as shown in the inset.



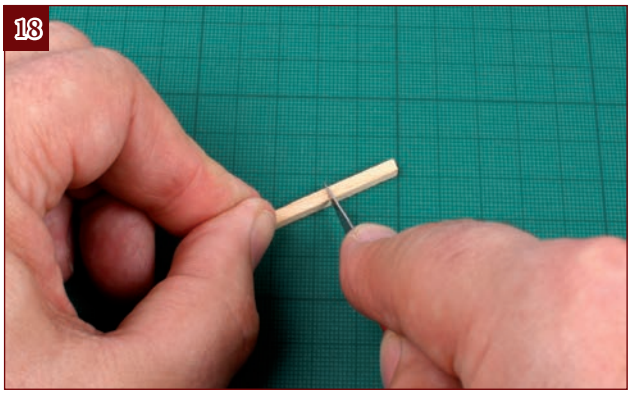
16. Make up a second support in a similar way and test-fit both in place. Do not glue them in position yet.



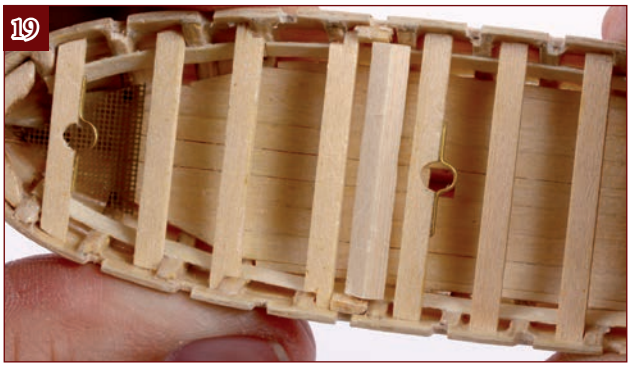
17. Mark the 3 x 3 mm wood for cutting to fit between the inside faces of the two supports, leaving a little clearance.

QUICK TIP

For the painted option, you'll need to paint the two supports yellow ochre before fixing them in place (see next stage). You'll also paint the windlass white, after drilling and shaping it.



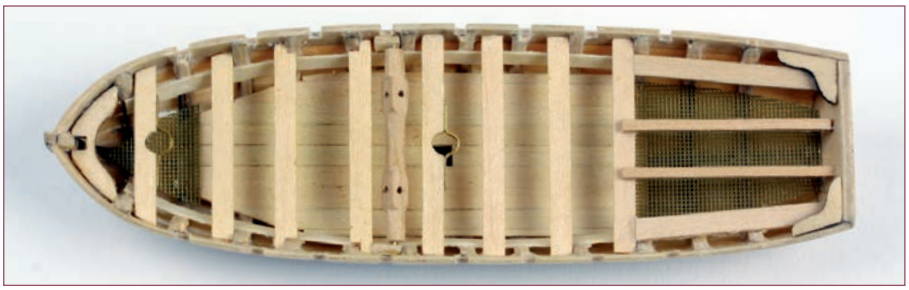
18. Cut the windlass to length. There is no spare material, so carefully double-check that it will fit properly before you cut it.



19. This is the result you should end up with. Do not glue the windlass in place, as you need to shape it and form the pivots at each end first. This is covered next.

Completing the windlass

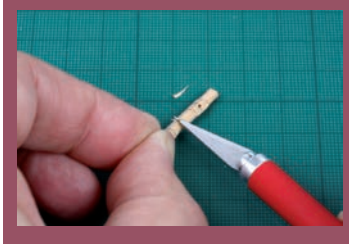
The next stages are completing the windlass and fitting it to the launch, then adding more of the internal fittings.



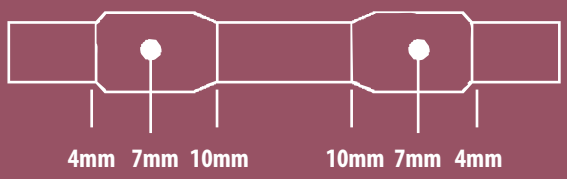
The windlass you cut last time needs to be shaped and drilled, then fitted between the two supports you made. You will also be fitting the rear braces, as on the right of the picture.

QUICK TIP

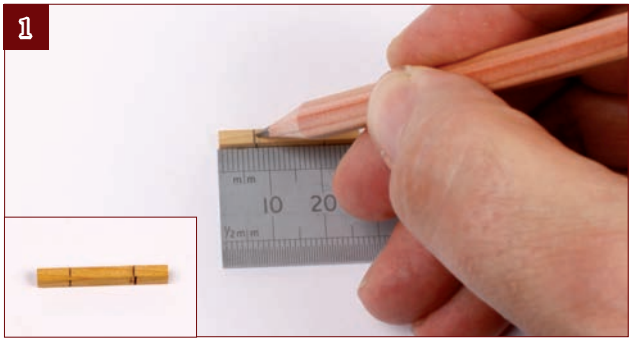
When using a craft knife to carve small items, such as the windlass, remember the golden rules – use a sharp blade and a cutting mat, and cut away from you.



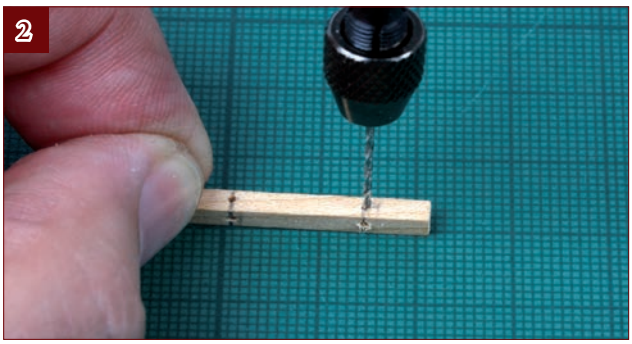
WINDLASS DIAGRAM



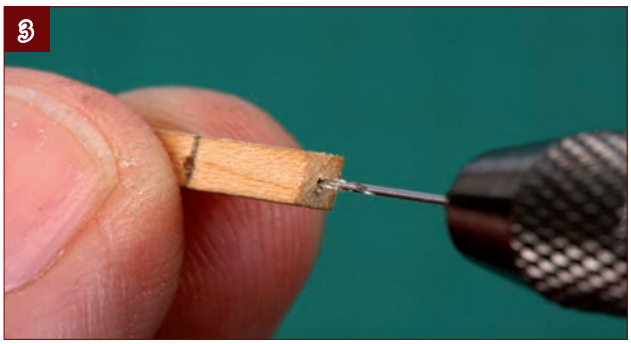
Here are the detailed dimensions of the windlass, measured from each end, as the overall length may vary. Note the holes drilled in the sides (above), for the handles used to turn the windlass. You also need to drill holes in the ends to take the pivot pins.



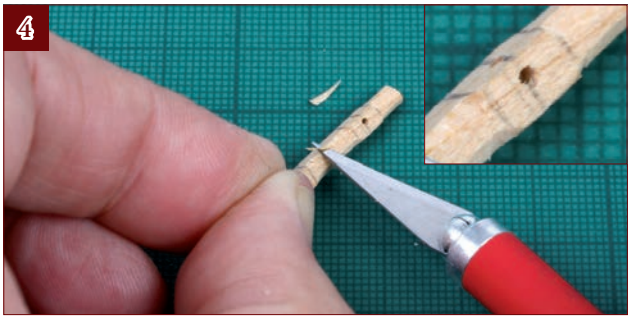
1. Measure and mark lines 7 mm in from each end of the length of wood, marking all the way around. These lines will be guides for drilling holes through the windlass.



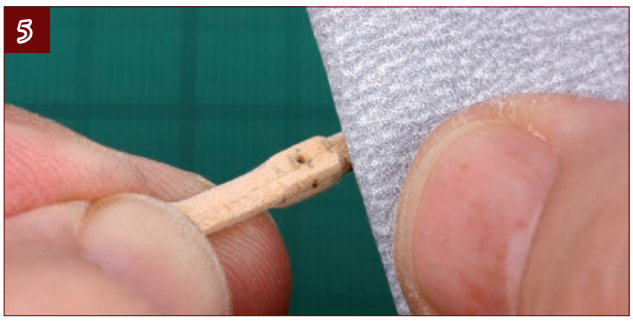
2. Using a 0.5mm/No. 64 drill bit, make two holes at right angles to each other through the centre of the wood, in line with the points you marked at each end of the windlass.



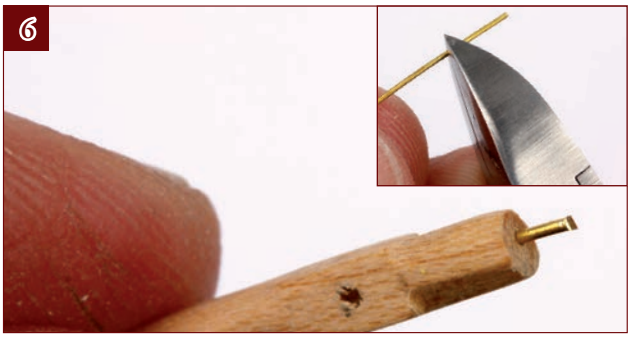
3. Take a bit the same diameter as the piece of brass wire and drill a hole in the centre of each end of the piece of wood, to a depth of about 5mm.



4. Mark the other lines at 4 mm and 10 mm from the ends. Then shave off the corners of the wood at the ends and between the marks to give these areas a hexagonal shape.

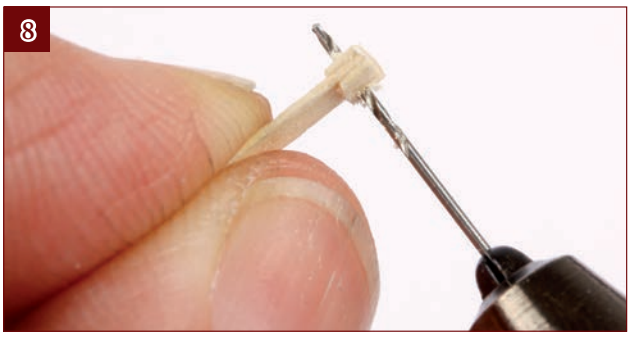


5. Once your windlass has been roughly carved to shape, you can finish off using needle files and sandpaper to neaten and smooth the edges.



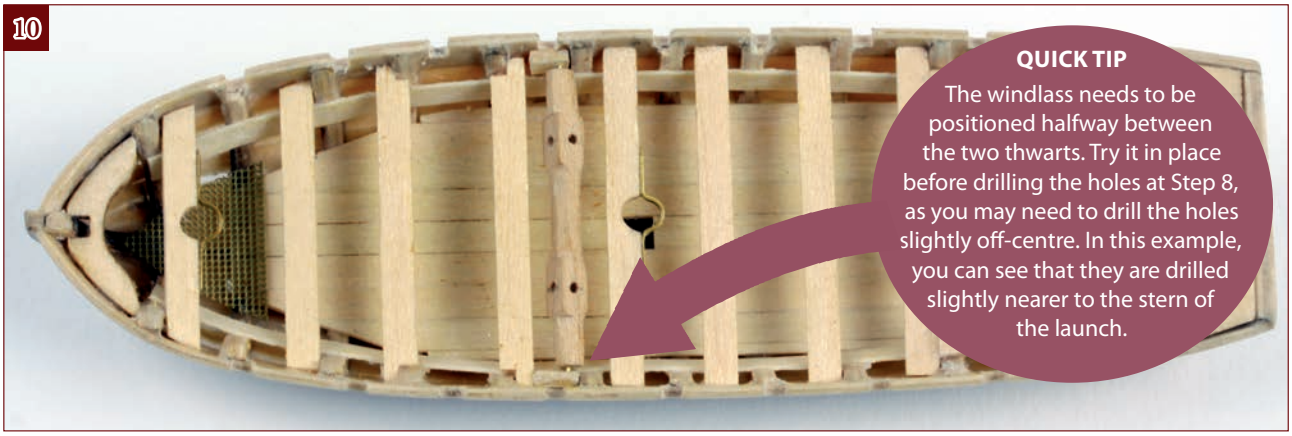
6. Snip off short lengths of wire and superglue them into both ends of the windlass, leaving a few millimetres protruding.

7. Your windlass should now look like this. Check that it fits inside the launch, trimming the wire ends as necessary.



8. Using a bit slightly larger than the wire, drill holes 2 mm from the top of the reinforced ends of the supports you made.

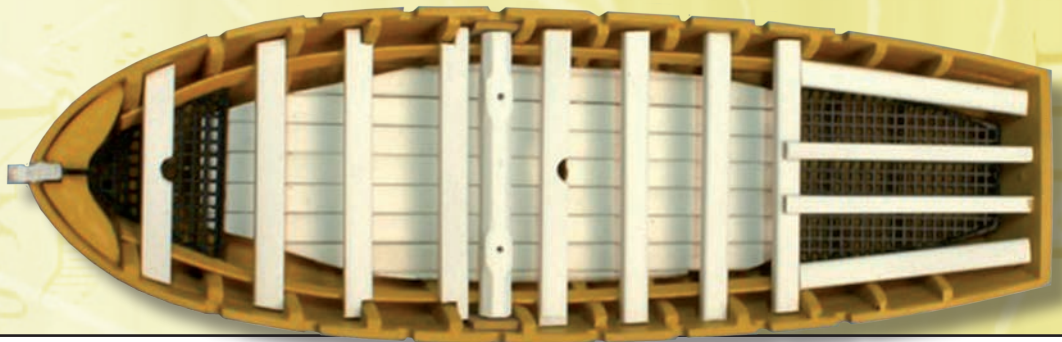
9. Slide the supports onto the protruding wires at each end of the windlass. It is now ready to mount in the launch.

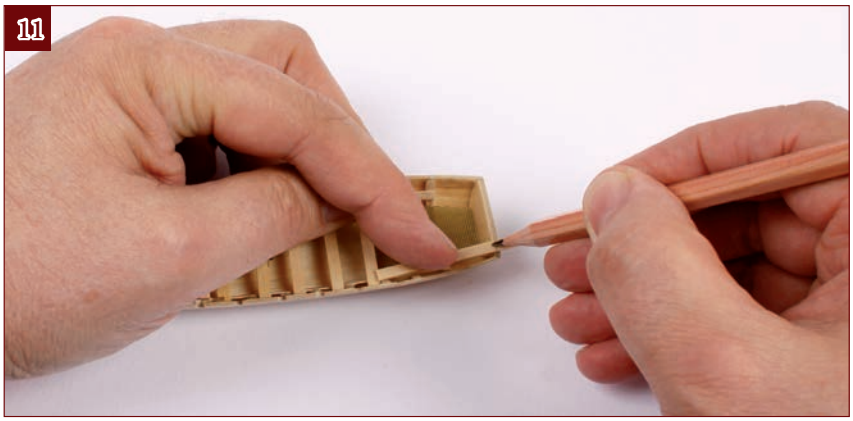


10. Carefully ease the windlass into the launch between the fourth and fifth thwarts. Once you have tested the fit, apply glue to the outside faces of the supports, slide the assembly into place, and hold until dry.

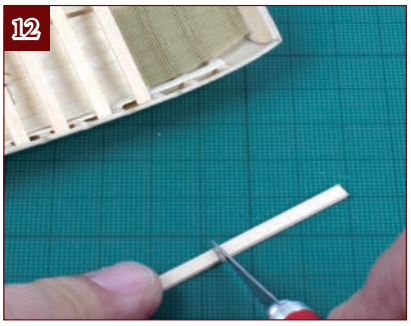
Optional decorative finish

If you have decided to paint your launch, paint the windlass white and its supports ochre before gluing the assembly into place. Be careful not to apply too much paint to the windlass, or you may block up the holes you drilled for the handles. You should also paint the rear braces white, as shown below, before gluing them in place.

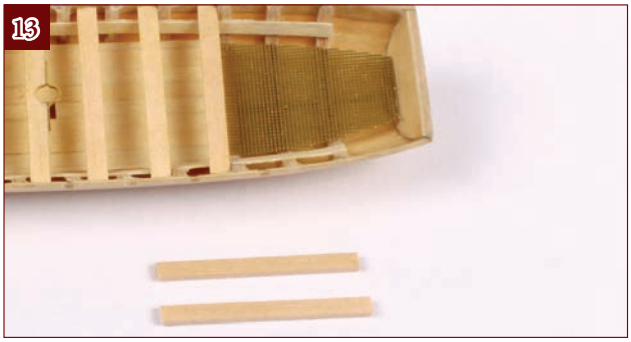




11. Take the remaining 1.5 x 3 mm wood supplied with Stage 9 and mark two lengths to fit between the stern transom and the rear thwart.

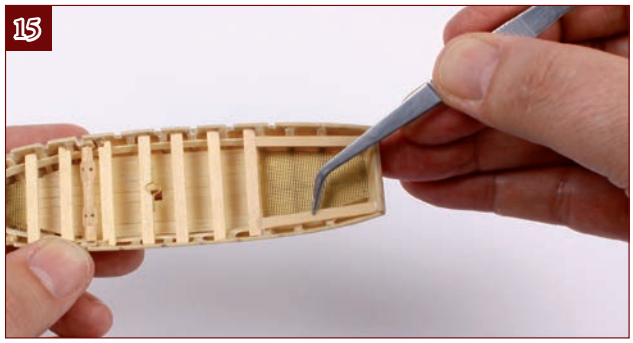


12. Cut both pieces to size after double-checking the length. Note that the ends need to angle slightly as they don't meet the transom and thwart at right angles.



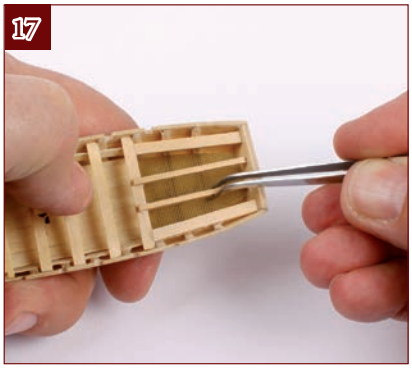
13. Test-fit the two braces and trim the ends if necessary.

14. Apply a little glue to both ends of the two braces.

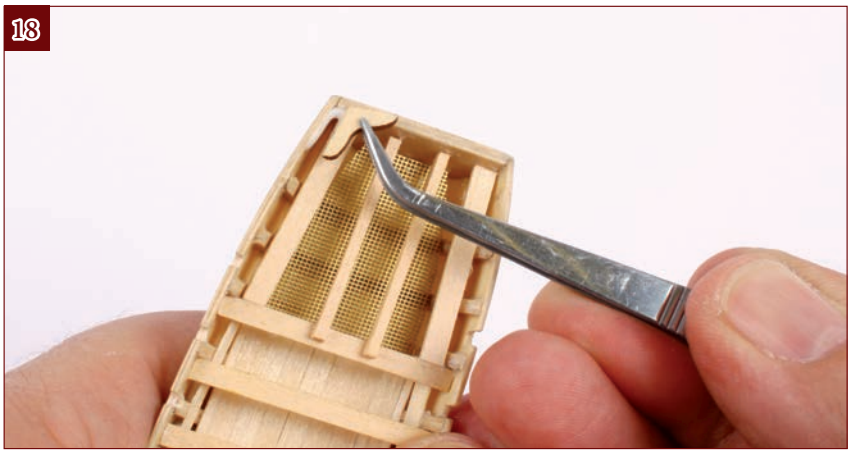


15. Fit the two braces in place and hold them until the glue dries.

16. Take the 1.5 x 1.5 mm wood supplied with Stage 9 and mark two lengths to fit between the stern transom and the middle of the rear thwart. Note that these angle upward slightly.



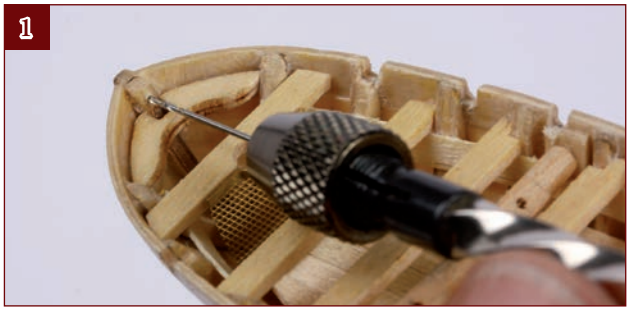
17. Cut the wood to the marked lengths, angling the ends so that they will fit snugly in place. Paint them white if you chose the painted option. Then glue them at both ends and fit them in place, leaving 6 mm between them.



18. Glue the two L-shaped braces (parts 22, which were supplied with Stage 6) inside the stern, above the two side braces. If you opted for a painted finish, paint them yellow ochre first.

Attaching the eyebolt

With the launch nearing completion, you can add the eyebolt used to attach the painter (mooring line), then make the rudder.

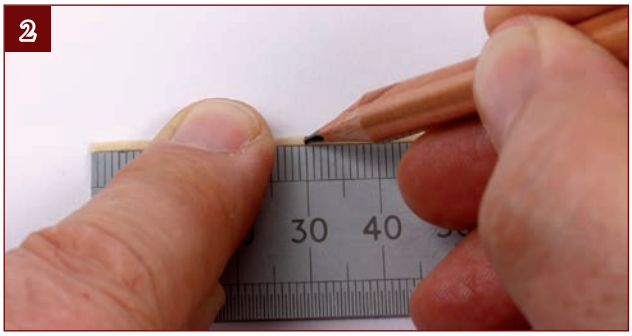


1. Drill a hole inside the end of the keel just above the bow brace, using a bit the same size as the eyebolt (0.5mm/No. 74).

2. Apply a drop of superglue to the eyebolt and carefully insert it into the hole with the eye pointing up and down.

Making the rudder

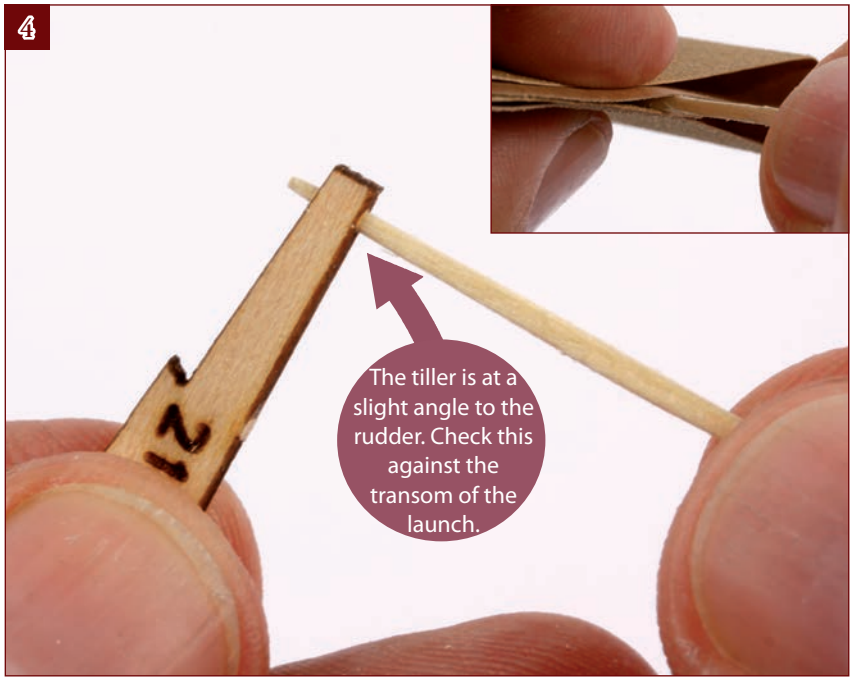
1. The rudder is Part 21, the last of the plywood pieces you received with Stage 6. You also need the brass strip, brass wire and the 1.5 x 1.5 mm wooden strip.



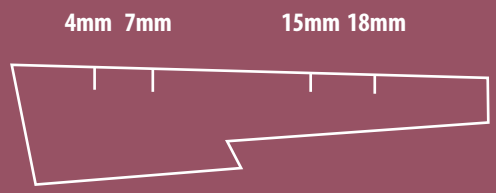
2. Mark and cut a 30-mm length of the wooden strip.

3. Using a 1mm/ No. 61 bit, drill a hole into the edge of the plywood just below the tip at the thinnest point of the rudder. You need to drill right through, as shown.

4. Fold a small piece of sandpaper with the abrasive on the inside and draw the tip of the strip of wood you cut through it, to produce a slight, rounded taper. Try this in the hole until you can just push it through as shown, with a slight projection. Take it out again and put it to one side. Do not glue it at this stage.



RUDDER DIMENSIONS



You need to file two notches in the long edge of the rudder. The dimensions of these are shown above, measured from the top left corner of the rudder outline.

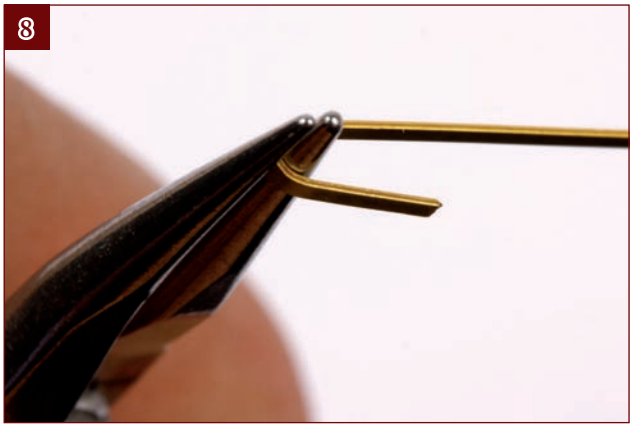
5. Use a pencil to mark the rudder at the points indicated.

6. Use a needle to file the notches to a depth of 1.5-2 mm.

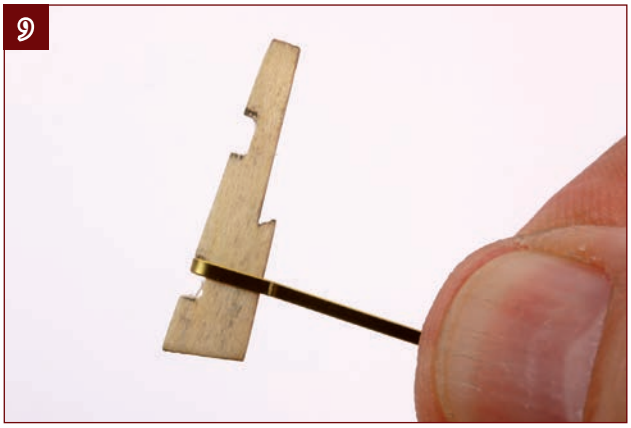
7. After filing, the rudder should look like this.

QUICK TIP

If you are painting the launch, you need to paint the rudder white. If you are planning to leave it natural, you don't want the number to show, so lay the rudder in the launch with the number on the underside.



8. Take the brass strip and use needle-nose pliers to form a 2-mm bend about 5 mm from one end.

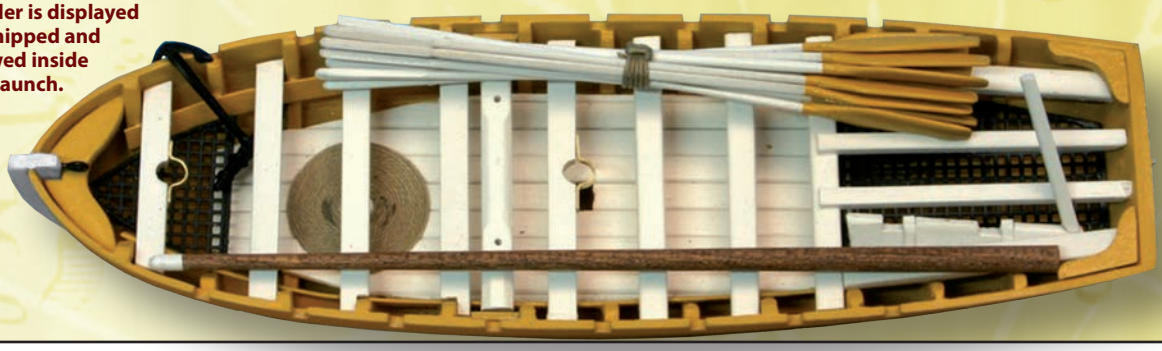


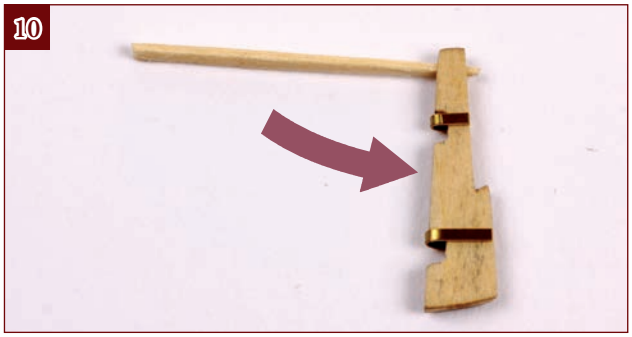
9. Fit the strip over the rudder at the top of the lower notch as shown and cut the ends flush with the edge of the rudder.

Optional decorative finish

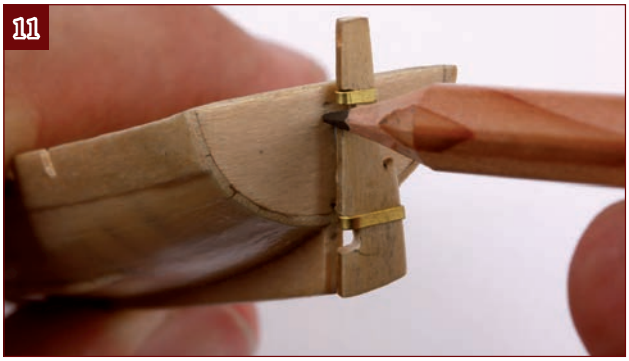
If you decided to paint the launch, as discussed earlier, you will need to paint the completed rudder white. You will also need to paint the eyebolt black and touch up the white paint on the transom after fitting the pintles.

The completed rudder is displayed unshipped and stowed inside the launch.

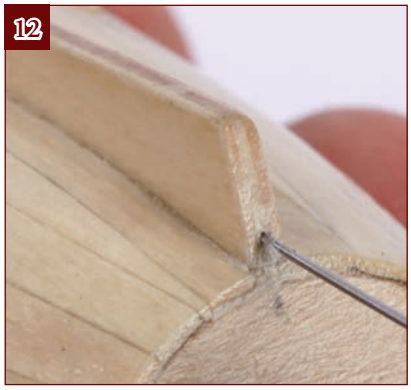




10. Bend another piece of brass strip so that it fits over the top notch as shown. When you are happy that both strips fit correctly, attach them using superglue.

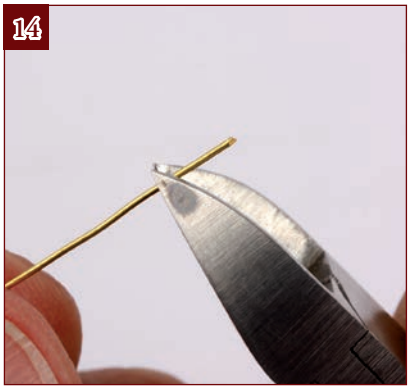


11. Hold the rudder against the stern of the launch so it lines up with the keel, and mark just below the two brass strips.



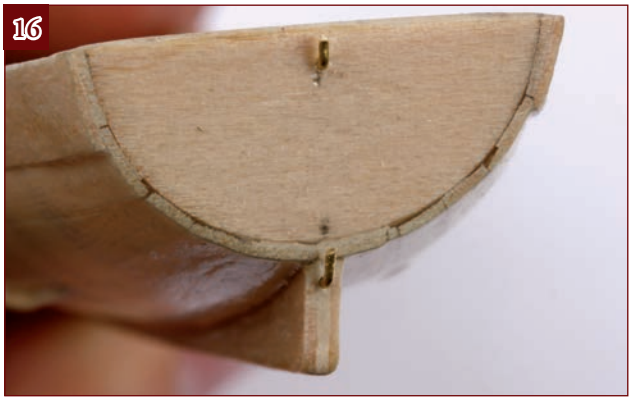
12. Using a drill the same size as your brass wire, drill a shallow hole in the keel at the marked point.

13. Drill another hole in the transom. This will go right through the wood.



14. Cut two 4-mm lengths of brass wire and bend them in the middle so that they make "L" shapes.

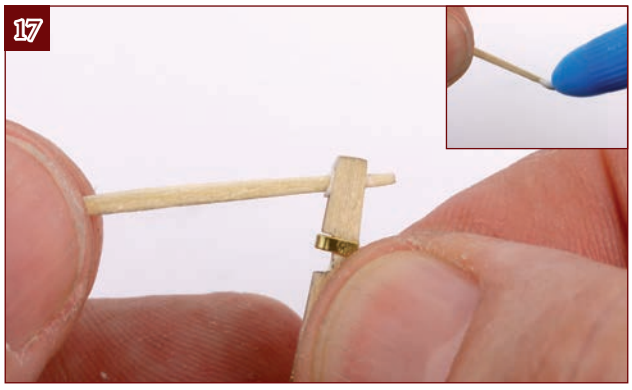
15. Put a drop of superglue on one end of the "L" and insert it into the lower hole, leaving the other arm projecting slightly, facing up.



16. Repeat for the other hole so you have two projecting pins ("rudder pintles") as shown.

QUICK TIP

For the painted option, paint the entire rudder white, including the tiller and the two brass gudgeons.



17. Glue the end of the tiller and insert it into the hole at the top of the rudder.

18. You can fit the rudder in place by hooking the brass strips (the "gudgeons") over the pintles. However, the rudder is best displayed unshipped and stowed inside the launch, as shown opposite.

Painting the oars

The launch is nearly complete. All that is left to do is to finish off a few fittings that are loosely stowed inside – the oars, anchor rope and mast.

1. The oars are metal castings and the first four were supplied with Stage 9.

2. Gently clean any surplus moulding "flash" off the oars, using fine abrasive paper.

QUICK TIP

To make it easy to hold the oars while you paint them, use an ordinary cork. Make a small cut in one end and gently push the blade into it to hold the oar firmly.

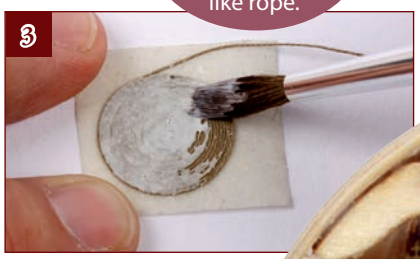
3. Paint the whole oar with white metal primer. When it's dry, paint the shaft white and the blade yellow ochre.

4. Paint all four oars the same way. You will receive the remaining oars to finish equipping the launch later in the series.

Coiling the anchor rope

1. The anchor rope is made from the twine supplied with Stage 9. Cut a square of masking tape and start to form a neat coil on it, working out from the centre.

2. Continue until the coil is around 17 mm in diameter.



3. Lightly brush on glue, covering the whole coil. Avoid letting the glue soak through.

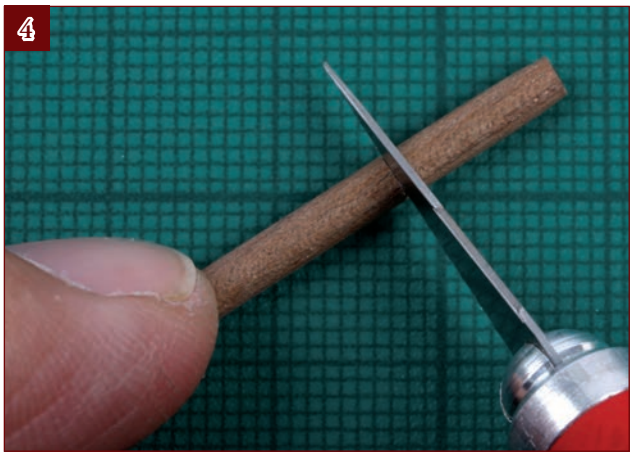
4. Allow the glue to dry thoroughly and go clear. Then peel off the masking tape to reveal a neat coil of rope. Cut the twine to leave a tail about 40 mm long and lay the coil inside the launch.

Making the mast

The mast is made from the 3-mm wooden rod supplied.

1. Gently pull the rod through a piece of folded sandpaper, rotating it slowly, so that you taper it starting from a point about 70 mm from one end.

2. Aim to produce a smooth, even taper, coming down to a diameter of around 1.5 mm at the thinnest point.



3. Round off the tip, then measure and mark a length of 90 mm from the thinner end.

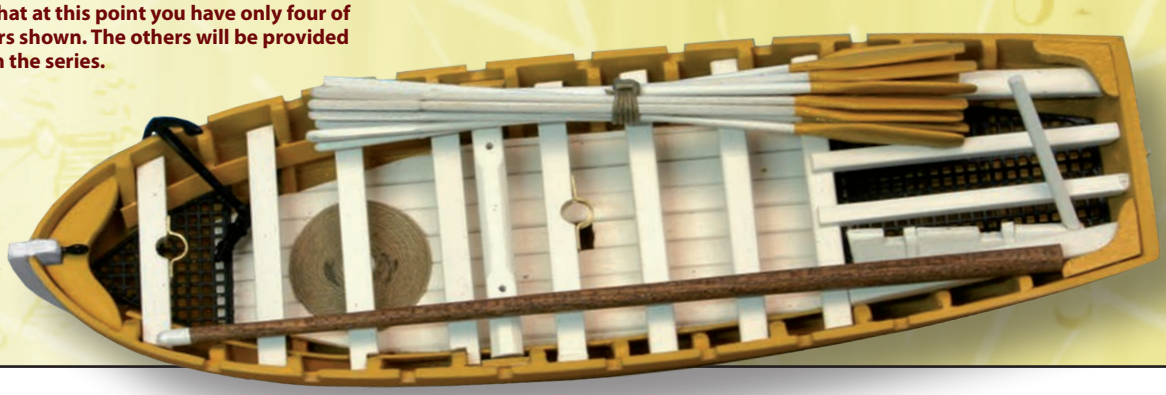
4. Cut off the surplus by rolling the mast under the blade of a sharp craft knife.

5. The completed mast should look like this, shown full-size. If you opted for the painted finish (see below), paint the final 4 mm of the tip white.

The finished launch

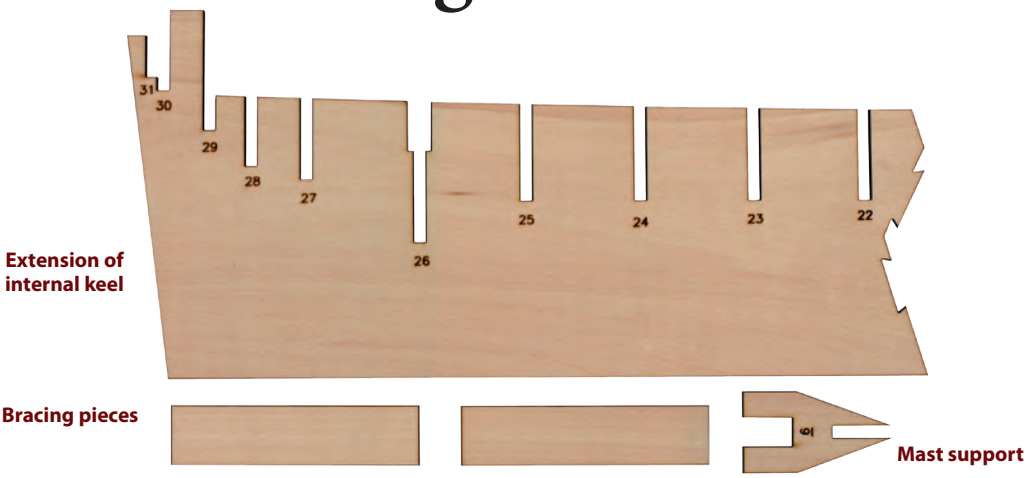
Whether you opted for the natural or painted finish, you can use this picture as guidance to the way that the fittings are stowed inside the finished launch. Store the launch carefully until you are ready to install it on the completed *Victory*.

Note that at this point you have only four of the oars shown. The others will be provided later in the series.



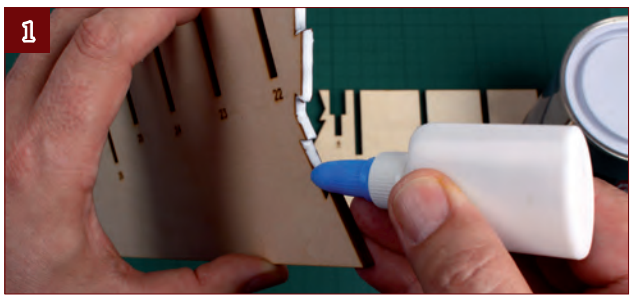
Stage 10: Continuing the internal keel

The components provided include four precision laser-cut parts to extend the keel of *Victory* right to the stern of the ship.

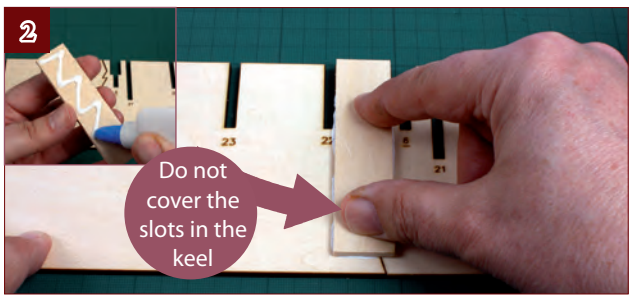


Where the parts fit

Victory's hull is built up around a series of "U'-shaped rib frames that run the full length of the ship, slotting into the internal keel that runs from bow to stern. The parts provided include the extension of the keel to the stern of the ship, and pieces to brace the joint and to support the base of the mast.

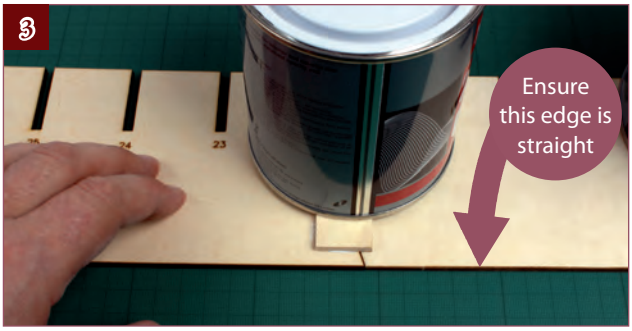


1. Lay the forward part of the keel on a non-stick surface, overhanging the edge of the work so it will lie flat. Apply glue to the end joint on the keel extension and fit in place.



2. Apply glue to one of the bracing pieces. Lay it on top of the joint, avoiding the slots on either side.

3. Use a straightedge to check that the bottom of the keel is straight, then place a weight on top to hold it flat. Leave it to dry, then glue and clamp the brace on the other side.



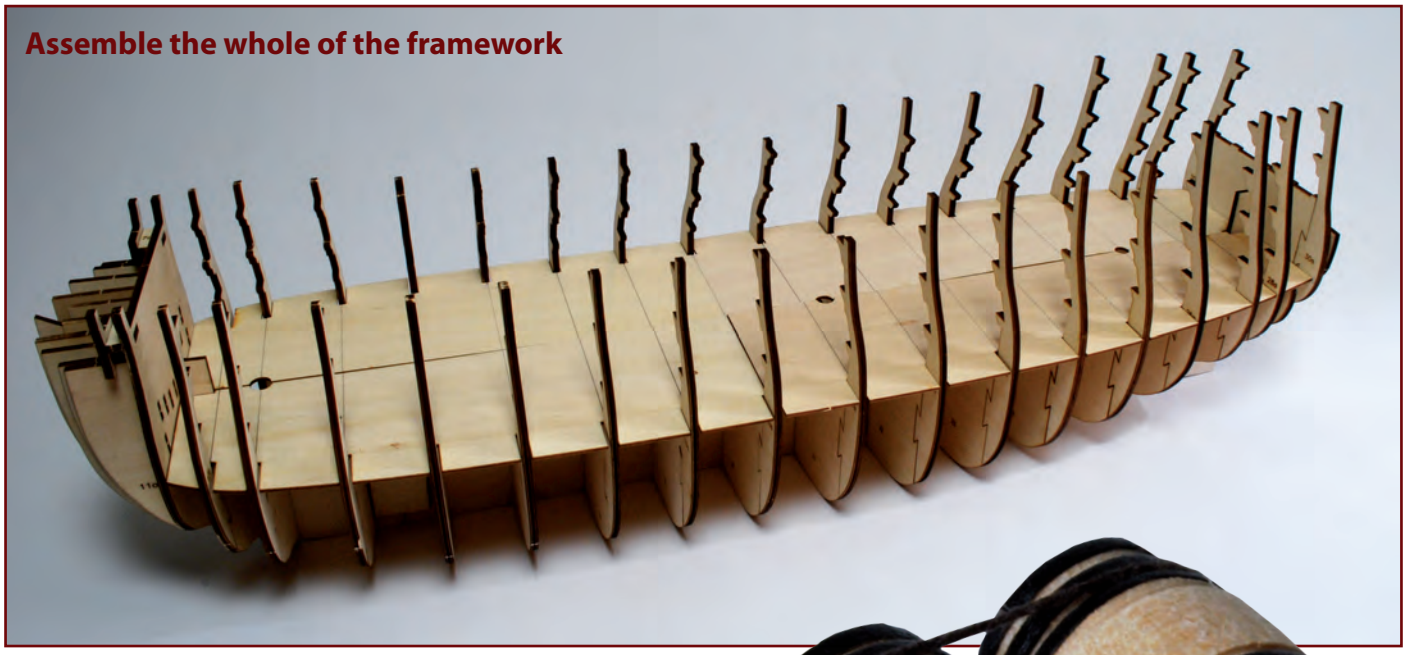
QUICK TIP

After joining the keel, you can loosely assemble the frames to see the whole of *Victory*'s hull take shape. But don't glue them at this stage.

BUILD LORD NELSON'S HMS VICTORY

Coming in Pack 2

Stages 11-20 include the remaining rib frames, the first of *Victory*'s internal decks and external planking, plus more of her fittings and equipment.



Assemble the whole of the framework

Begin the planking

Build more deck fittings and equipment

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