Pack 02 | Build Instructions

Your 1:200 scale model of the legendary battleship Bismarck is packed with intricate details which precisely replicate every aspect of this state-of-the-art warship. Each piece has been created using premium quality materials to bring maximum enjoyment during your complete build.

In your second model pack, you will assemble:

**STAGE 09:** GEARBOX FOR THE BOW ANCHORS: 2
**STAGE 10:** THE SECOND SECTION OF THE UPPER DECK
**STAGE 11:** THE PORT HULL AND SUPPORT STAND
**STAGE 12:** GEARBOX FOR THE FORWARD GUN TURRET
**STAGE 13:** HINGED SUPPORTS FOR THE BREAKWATER
**STAGE 14:** MOTOR FOR THE FORWARD GUN TURRET

**STAGE 15:** HULL ASSEMBLY AND SUPPORTS FOR THE FORE BREAKWATER
**STAGE 16:** FORWARD GUN ELEVATION MOTOR
**STAGE 17:** WIRING FOR THE FORWARD TURRET
**STAGE 18:** TESTING THE WIRING OF THE TURRET
**STAGE 19:** THE JACKSTAFF AND BOW LIGHT
**STAGE 20:** ANOTHER SECTION OF THE HULL
Advice from the experts

Spare screws are included with each part. Occasionally, you may be instructed to keep spare or unused screws for a later stage. Keep these spares in a safe place and label them correctly.

Please make sure you don’t mix up the screws. They look quite similar, but the threads do vary slightly. Using the wrong screws may damage the parts.

When securing parts together using multiple screws, fit each screw loosely to ensure all the parts are correctly aligned before gently tightening them firmly, but not overtight, in the order in which you placed them.

The screwdriver can be magnetised by stroking it with a magnet (fridge magnet, etc.) enabling it to hold the screws and make assembly easier.

If a screw is tight going into a metal part, do not force it as you may shear the head off. Remove it and put a tiny smear of Vaseline, soap or light oil on the thread. That will lubricate it and make it easier to drive home.

During the course of this build, you will receive many pieces that you will assemble immediately – following the instructions in the corresponding stage – and other pieces that you should store safely to one side, for use in future assembly stages.
STAGE 09
GEARBOX FOR THE BOW ANCHORS: 2

COMPONENTS CHECKLIST

9-01: Two cogs with shafts
9-02: Double cog with shaft
9-03: Cog with peg
9-04: Cog
9-05: Two shafts
9-06: Anchor motor
9-07: Switch
PB: Eleven 2 x 6 mm screws

01. MOUNTING THE GEARS AND SHAFTS

Take the upper part of the gearbox housing 7-02, which was assembled in stage 7. Insert a shaft 9-05 into the hole in the middle of the gearbox housing as shown. Identify the cog 9-04. Note that this has a smaller cog at the centre whereas the similar cog 9-03 has a peg at the centre.
Fit the cog 9-04 onto the shaft 9-05. Fit the second shaft 9-05 into the hole near the end of the gearbox as shown. Identify the cog with a peg 9-03.

Fit the cog 9-03 onto shaft 9-05. Make sure that the peg (indicated by the arrow) is at the angle shown. See also section 02, photo 4.

Holding the gearbox above the worksurface, fit the shaft of the gear 9-02 into the hole in the gearbox on the other side of cog 9-04 as shown.

Holding the gearbox above the worksurface, take the two cogs with shafts 9-01. One end of the shaft has splines which pass through the gearbox housing to protrude on the other side. Fit the shafts into the holes either side of the central cog.

02. INSTALLING OF THE ANCHOR MOTOR AND SWITCH

Take the lengthwise shaft 7-05 supplied with stage 7 and fit the grey end onto the shaft of the anchor motor 9-06, as indicated by the arrow.

Fit the motor and lengthwise shaft assembly 9-06/7-05 into the gearbox housing. Make sure that the sprockets of the cogs on the shaft (indicated by the arrows) engage with the cogs.
When fitting the anchor motor 9-06 into the gearbox, make sure that the cables run upwards (as indicated by the arrow).

Take the lower part of the gearbox housing 7-01 and, after checking the shafts are correctly aligned, fit it on top of the upper section 7-02.

Insert the switch 9-07 in the gearbox housing so that its pin is to the left of the peg on cog 9-03 (see inset).

Secure the two parts of the gearbox together using six PB screws as shown.

Turn the fore section of the upper deck 1-01 upside down, taking great care not to damage any of the details fitted previously. Take the gearbox housing and thread the two anchor chains 7-06 through the small holes in the upper deck (indicated by the arrows).

Position the gearbox 7-02 on the four raised sockets on the underside of the upper deck 1-01. Taking care not to damage the deck details, fix the gearbox housing in place with four PB screws. Carefully turn the fore section of the upper deck right side up.

03. FITTING THE GEARBOX AND ANCHOR CHAINS
Applies a little superglue to the bottom of the capstan head 1-04 supplied with stage 01. Glue part 1-04 to the end of shaft 9-02, which protrudes through the hole in the warping winch baseplate 1-02. Two other shafts show through holes in the deck (indicated by arrows).

Fit the two capstans 5-05 assembled in stage 05, on the splines on the ends of shafts 9-01 (see also two arrows in photo 3). Note that the green capstan should be on the starboard (right) side and the red capstan on the port (left).

Take the starboard anchor chain 7-06 and wrap it around the base of the green capstan 5-05. The chain should run between the shaft 5-06 and the anchor chain guide 5-08.

Wrap the port anchor chain 7-06 around the red capstan 5-05. Again, it passes between the shaft 5-06 and the anchor chain guide 5-08.

Thread the port anchor chain 7-06 along the upper deck towards the bow and through the anchor bracket 8-05.

The starboard anchor chain 7-06 runs from the capstan drum towards the bow and beneath the anchor bracket 8-05.
04. ATTACHING THE TWO SIDE BOW ANCHORS

Take out the two anchors assembled in stage 07. Take one of the anchor chains 7-06 and a ring 7-07. Carefully lever the ring open so that you can thread it through the last link in the chain. You may find it helpful to use tweezers and a magnifying glass.

Completed work
The gearbox for the bow anchor is completed and mounted under the forward section of the deck. The anchor chains have been positioned so that they wrap around the capstans, and the anchors have been attached to the chains.

Repeat the last step on the other side of the upper deck so the second ring 7-07 is threaded through the last link on the second anchor chain 7-06 as shown.
STAGE 10
THE SECOND SECTION OF THE UPPER DECK

COMPONENTS CHECKLIST
10-01: Second section of the upper deck
10-02: Barbette (turret A)
10-03: Fore breakwater
10-04: Vent
10-05: Two skylights
10-06: Vent
10-07: Vent
10-08: Hatch
10-09: Handwheel
10-10: Five skylights
PB: Five 2 x 6 mm screws

01. THE BARBETTE FOR THE FOREMOST TWIN TURRET

Place the second upper deck section 10-01 on your work surface. Take the barbette 10-02 and insert it in the opening on the upper deck. The four tabs should fit in the recesses (as indicated by the arrow).

The main photo shows the barbette 10-02 in place on the upper deck section 10-01. The inset shows the two parts from underneath with the four tabs fitted into the recesses.
02. DETAILS FOR THE SECOND UPPER DECK SECTION

Place the front breakwater 10-03 upside down in front of the upper deck section 10-01. Apply thick superglue to the four tabs on the breakwater (circled).

Fix the breakwater 10-03 in place so the tabs on 10-03 fit into the recesses at the front edge of the upper deck section 10-01. It is helpful to use tweezers for this step.

The handwheel 10-09 is fitted behind the breakwater 10-03. Apply a little thick superglue to the peg on the base of 10-09 to fix it in place.

Glue the vents 10-06 and 10-07 into the recesses in the front area of the upper deck section 10-01, as shown.

The vent 10-04 is also positioned in the front area of the upper deck section. Apply a little glue to the peg on the base of 10-04 to hold it in place.

Take the two skylights 10-05. Check their orientation in the recesses on the deck into which they fit. Apply thick superglue to the undersides of the skylights 10-05 and fix in place on the deck section as shown.
Take the hatch 10-08 and glue it in place behind the handwheel on the upper deck section as shown.

At the very back of the upper deck section identify the recesses for the five identical skylights 10-10 behind the barbette. Glue them in place.

**03. ASSEMBLING THE UPPER DECK PARTS**

Taking care not to damage any of the parts that have already been fitted, turn the front of the upper deck 1-01 and the second upper deck section 10-01 upside down. You will need four PB screws to fix them together.

Fit the lip on the edge of the forward deck section 1-01 over the raised screw sockets on the second deck section 10-01. Again, take care not to damage any of the parts on the other side. Fix them together with four PB screws.

**Completed work**

The second upper deck section has been fitted with various details and then attached to the forward section of the upper deck.
STAGE 11
THE PORT HULL AND SUPPORT STAND

COMPONENTS CHECKLIST
11-01: Second port hull section
11-02: Hull support (1)
11-03: Hull support (2)
11-04: Two support bases
PM: Four 2 x 4 mm screws

NOTE: You will also need additional PM screws supplied with Stage 04.

01. TWO SECTIONS OF THE PORT HULL ARE ASSEMBLED

Take the first port hull section 4-04 (from stage 04) and align it with the second port hull section 11-01 so that the raised socket on 11-01 fits into the hollow socket on 4-04.

Check that the parts are flush and then fix the hull sections together with a PM screw.
Check how the assembly 4-04/11-01 fits on the parts of the hull that have already been assembled. The upper edge of part 4-04 should be flush with the bow section of the hull (see blue arrows) and there should not be a gap where the upper sections of the hull butt up against the section of the hull below the waterline.

Using the PM screws supplied in stage 04 and in this stage, join the assembly 4-04/11-01 to the hull. The positions of the five PM screws are indicated by the blue lines.

Place one of the two support bases 11-04 on your work surface. Take the bracket 11-02 and fit the pegs on the lower edge into the two inner holes of the base, as indicated. Note that all supports have a front and a back, as shown in the inset.
The photo shows the assembled support bracket for the bow of the model. Place the second support 11-03 and the support base 11-04 on your work surface.

Fit the pegs on the lower edge of 11-03 into the holes of the second support base 11-04.

The photo shows the support stand pushed as far back along the hull as possible.

Fit the hull into the support 11-03. Gradually slide the support to the rear of the hull, as indicated. The side of the support labelled “front” should be facing the bow.

The length of the port side of the hull has increased. The hull is safely supported on the first two stands.

Slide the bow support stand 11-02/11-04 back from the bow. Again, the side of the support labelled “front” should be towards the bow.

Completed work
**STAGE 12**

**GEARBOX FOR THE FORWARD GUN TURRET**

Place the upper deck section 1-01 upside down on your worktop, taking care not to damage any of the parts that are fixed to the deck. Take cog 3 12-07 and fit it into the circular hole for the front turret. The orientation of the gear is indicated by the small triangle (see detail image), which should point towards the bow. This triangle is circled in the main picture. Carefully turn the upper deck right side up, holding cog 12-07 in place.
Holding the gun turret 2-01 in position, turn the deck over again. Fix the turret base 2-02 to cog 12-07 using two PB (2.3 x 6 mm) screws, as shown.

02. THE GEARS FOR THE ELEVATION OF THE GUNS

Insert cog 12-02 into the gearbox housing 12-06 with the cog teeth inside. The next parts you need are the cog 12-01, hub 12-04 and a PB (2 x 6 mm) screw.

Fit cog 12-01 into the gearbox housing 12-06 with the cog teeth inside. Fit the hub 12-04 into the central opening of 12-01, as shown.

Attach the hub 12-04 to the gearbox housing 12-06 with an PB (2 x 6 mm) screw. Identify the gear lever mechanism 12-03.

Fit the gear lever mechanism 12-03 in the gearbox housing 12-06 so that the peg on cog 12-01 fits into the slot in part 12-03 (see arrow). The next part to be fitted is the smooth shaft 12-09.
Fit the other half of the gearbox housing 12-05 over part 12-06 as indicated.

Fit the shaft 12-09 into the central hole in cog 12-02 as shown.

Guide the gear lever mechanism 12-03 through the elongated opening on the motor mount 2-08, as indicated. Have the splined shaft 12-10 ready.

Fix the two halves of the gearbox housing (12-05 and 12-06) together, using four PB (2 x 6 mm) screws, as shown.

Fix the gear lever 12-03 to the slot in the motor mounting 2-08 by pushing the shaft 12-10 through one hole in the arm of 12-03, then through the slot in 2-08 and then into the other hole in 12-03. You may find it helpful to use long-nosed pliers.

Completed work
The first turret is mounted on the deck, with its gearbox in place. Mounting brackets to hold the gearbox in place will be supplied with the next stage. The cog 12-08 will be fitted in stage 14.
STAGE 13
HINGED SUPPORTS FOR THE BREAKWATER

COMPONENTS CHECKLIST
13-01: Third keel section
13-02: Supports x 10
13-03: Left gearbox mounting bracket
13-04: Right gearbox mounting bracket
13-05: Hinge joints x 10
PB: Seven 2 x 4 mm screws

01. MOUNTING THE GUN ELEVATION GEARBOX

Gently turn the upper deck upside down, taking care not to damage any previously fitted parts. Fit the right gearbox mounting bracket 13-04 onto the three pegs on the gearbox housing 12-06.

Attach the right gearbox mounting bracket 13-04 to the gearbox housing 12-06 with a PB screw as shown.
On the other side of the gearbox, fit the left gearbox mounting bracket 13-03 on the pegs on the gearbox housing 12-05.

On the right side of the gearbox, fix the right gearbox mounting bracket 13-04 to cog 12-07 using two PB screws.

On the left side of the gearbox housing, fix the left gearbox mounting bracket 13-03 to cog 12-07 using two PB screws.

Push the end of the support 13-02 that has a socket into the hinge joint 13-05. The pins on part 13-05 fit into the socket and lock it in place, but the part 13-02 remains movable. Do not use glue.

Take one of the supports 13-02. Separate a hinge joint 13-05 from the plastic framework, taking care that they do not fly off. Use sandpaper to smooth away any unevenness where the part was removed from the framework.

02. THE FIRST HINGED SUPPORTS FOR THE FRONT BREAKWATER
Repeat steps 1 and 2 with the remaining nine supports 13-02 and joints 13-05, to make a total of 10 hinged supports.

Apply a drop of superglue to the bottom of a hinge joint 13-05 (see inset). Glue it in the outermost recess in front of the breakwater on the port side of the upper deck 1-01 as shown.

Continue working along the breakwater, fitting four hinged supports 13-02/13-05 into the next four recess in the deck. The supports 13-02 lean against the front of the breakwater 10-03.

Glue the five remaining joints 13-05 into the recesses in front of the breakwater on the upper deck 1-01.

**Completed work**

The gun elevation gearbox is fixed under the forward gun and the first 10 hinged supports are mounted in front of the breakwater on the upper deck. The keel section 13-01 will be fitted in a future stage.
STAGE 14
MOTOR FOR THE FORWARD GUN TURRET

COMPONENTS CHECKLIST
14-01: Gun turret motor
PWB: Three 2.3 x 5mm screws

01. FITTING THE GUN TURRET MOTOR

Take the gun turret motor 14-01. It controls the lateral rotation of the first 38cm gun turret. Fit the cog 12-08 onto the brass rotor of the motor. The cog was supplied with stage 12. Check that you fit it the right way round on the motor. The inset shows the cog correctly fitted.

Note: The gun turret motor is a step motor, more commonly called a stepper motor, that controls the rotation of the turret in small steps.
Place the deck 1-01 upside down on your work surface, taking care not to cause any damage. Position the motor 14-01 on the underside of the deck, as shown, so that the screw holes in the tabs on the sides of the motor are aligned with the raised screw sockets on the deck. When it is in the right position, the teeth of the cogs 12-07 and 12-08 will interlock, as shown in the inset.

Fix the motor in place with two PWB screws, as shown.

**Completed work**
The motor that rotates the forward 38cm gun turret is mounted on the underside of the upper deck.
STAGE 15
HULL ASSEMBLY AND SUPPORTS FOR THE FORE BREAKWATER

COMPONENTS CHECKLIST
15-01: Port lower hull section
15-02: Hinge joints (x10 on a single fret)
15-03: Supports (x10)
PM: Three 2 x 4mm screws

01. JOINING THE KEEL AND LOWER HULL SECTIONS

Take the third keel section 13-01 (supplied with stage 13). Fit the two tabs with screw holes on the left side of part 13-01 over the corresponding screw sockets on the lower hull section 15-01. Have two PM screws ready.
Fix the two parts of the hull, **13-01** and **15-01**, together with the two **PM** screws as shown.

Store the assembly safely. It will be needed again in a later stage.

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**02. FITTING THE LAST 10 HINGED SUPPORTS FOR THE FORE BREAKWATER**

Remove a hinge joint **15-02** from the plastic fret and gently remove any remnants of the bar that connected it to the fret using sandpaper. Take a support **15-03** and push it into the joint **15-02**, as shown in the inset. Note that the metal support should be gripped so that it can swing freely, do not glue it. The use of tweezers might be helpful here.

Repeat the process with the other nine hinge joints **15-02** and supports **15-03** to create a total of 10 hinged supports.
Working from the middle of the deck towards the starboard side, glue the hinge joints 15-02 in the recesses in the deck 1-01. The metal supports 15-03 should lean up against the breakwater 10-03.

Continue working across the deck to the outer edge so that all 10 hinged supports are glued in place.

Completed work
Two more hull sections have been fixed together and the complete row of hinged supports is in place in front of the fore breakwater.
STAGE 16
FORWARD GUN ELEVATION MOTOR

COMPONENTS CHECKLIST
16-01: Elevation motor
PB: Three 1.7 x 6 mm screws

01. FITTING THE ELEVATION MOTOR

Take the elevation motor 16-01. Check how the shaft of the motor fits into the cog 12-02, as indicated by the arrow. Have two PB screws ready on your work surface.
Fit the elevation motor 16-01 on the gearbox housing 12-06 so that the shaft of the motor engages with the cog 12-02. Check that the motor is the right way round, with the cables running towards the aft of the ship, as indicated by the arrow.

Fix the elevation motor 16-01 to the gearbox housing 12-06 using two PB screws, as shown.

Completed work
This view of the underside of the deck shows the elevation motor fixed to the gearbox housing.
STAGE 17
WIRING FOR THE FORWARD TURRET

COMPONENTS CHECKLIST
17-01: Circuit board box
17-02: Cable tie

PB: Four 2.3 x 6 mm screws

01. FITTING THE FIRST CIRCUIT BOARD BOX

Take the circuit board box 17-01 and check how it fits on the gearbox housing 7-01. Lower part 17-01 in place on the housing as indicated. Have three PB screws ready.
When the circuit board box **17-01** is in the correct position, the screw holes will align with screw sockets on part **7-01**.

Fix the circuit board box **17-01** to the gearbox housing **7-01** using three **PB** screws. Support the deck carefully as you fix the screws in place.

**02. CONNECTING THE ANCHOR CABLES**

Take the cable from the anchor motor **9-06** and untie the wire if you have not already done so.

Feed the cable from the anchor motor **9-06** through the eyelet on the circuit board box **17-01** (indicated by the red arrow).

Turn the upper deck around so that you can see cable ports 1, 2 and 3 on the side of the circuit board box **17-01**. Plug the anchor motor cable **9-06** fully into port 2 (see arrow). Make sure that you fit the cable the right way round, with the notches facing downwards.

This photo shows the cable fitted in port 2 of the circuit board box.
The next step is to fit the cable from the switch 9-07. The notches on the connector plug should face downwards, with the yellow wire on the right.

Plug the cable 9-07 fully into port 3 of the circuit board box as shown.

03. CONNECTING THE TURRET CABLES

Turn the upper deck around so that you can see ports 5, 6, 7 and 8 on the other side of the circuit board box. Identify the cable from the motor 2-12.

Feed the cable from the motor 2-12 through the large eyelet on the underside of the upper deck section 10-01 as indicated by the arrow.

Plug the cable 2-12 fully into port 6 of the circuit board box. The notches on the plug face downwards and the black wire is on the right.

Now take the cable from the elevation motor 16-01 and untie the wire, if you have not already done so. Bring it around the gearbox 12-05 / 12-06 as shown in the photo.
Thread the cable from the elevation motor **16-01** through the large eyelet on the underside of the upper deck.

Bring cable **16-01** round to the side of the circuit board box so that you can plug it in to port 8.

Plug cable **16-01** fully into port 8 of the board box as shown. The notches on the plug face downwards and the black wire is on the right.

Finally, take the cable of the gun turret motor **14-01**. Remove the wire if you have not already done so.

Thread the cable from gun turret motor **14-01** through the large eyelet on the underside of the upper deck as shown.

Plug the cable **14-01** fully into port 7 of the circuit board box. Again, the notches on the plug face downwards. The blue wire is on the right.
04. FITTING THE CABLE TIE

Take the cable tie 17-02 and wrap it around the two cables 16-01 and 2-12 as indicated.

Tighten the cable tie 17-02 around the two cables. The cable tie should be roughly level with the two front screws of the gearbox housing 12-05 (indicated by the dotted line).

Cut off the excess length of the cable tie 17-02 with a side cutter or suitable scissors.

The photo shows the cable tie 17-02 trimmed and in the correct position.

Completed work
Five cables have been fitted to the circuit board box: they connect the bow anchors and the front turret motors. The first connections will be tested in the next stage.
STAGE 18
TESTING THE WIRING OF THE TURRET

Component Checklist
18-01: Tester box
18-02: Tester cable (three wires)
18-03: Circuit board cable (four wires)

01. CONNECTING THE TESTER TO THE BATTERY BOX

Place the three parts on your worktop. The circuit board cable 18-03 will not be needed until a later stage. Keep it in a safe place. Take the tester cable 18-02 and remove the protective wire.
**02. INITIALIZATION**

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**01.** Set the switch of the battery box 4-07 to “Off” (see inset). Take the tester cable 18-02 and lead it to port 5 of the board box 17-01.

**02.** Plug the connector of the tester cable 18-02 into port 5 of the circuit board box. The notches face upwards with the orange wire on the right.

**03.** The photo shows the tester cable 18-02 connected to the right port of the tester box 18-01. Plug the tester cable 18-02 into the right port of the tester box 18-01. The notches face upwards with the orange wire on the right.

**04.** Take out the battery box 4-07. Disconnect the plug of the battery box cable (arrow) from the port of circuit board 4-06, which is not needed at this stage. Plug the connector from the battery box cable 4-07 into the left port of the tester box 18-01, with the notches facing upwards and the black wire on the right.
Switch the battery box 4-07 to "On" (inset). The initialization will start automatically. During this sequence, the gun turret rotates to starboard and stops before returning to the original position.

**Note:** During the initialization, the functions of the tester box 18-01 are not available.

03. THE TURRET TEST

When you have completed the initialization on the tester box 18-01, press the “S1” button (inset). The full turret test will commence. All three turret functions are carried out simultaneously: rotation, elevation and firing. End the test by pressing the “S1” button again.

The arrows in the photo illustrate the actions of the gun during the turret test: the turret rotates, the gun barrels raise and lower and they fire.

**Note 1:** On the finished model, all three turret functions can be controlled separately. During the test they are simultaneous.

**Note 2:** Always stop a test before starting the next test.
Completed work

The tester box has been used to test the action of the bow anchor and the forward 38 cm double gun turret.

If you press the “S2” button on the tester box 18-01 (inset), the anchor test will begin. The two anchor spools turn first in one direction, then in the other direction. As a result, both anchors are lowered a little and then raised up again. Depending on the position of the anchor chain, there may be a slight delay in starting.

**Note:** The test is repeated at short intervals until you press the “S2” button again.

The buttons “S3” and “S4” on the tester box 18-01 do not have any function at this stage. The button “S3” will be used to test the bow light, which will be supplied with the next stage.

**Note:** When not in use, carefully unplug the tester box 18-01 and store it safely. It will be used again and again during the construction of your model.
STAGE 19

THE JACKSTAFF AND BOW LIGHT

COMPONENTS CHECKLIST
19-01: Third section of the upper deck
19-02: Barbette for the second gun turret
19-03: LED cover
19-04: Fibre optic cable guide
19-05: Fibre optic cable mount
19-06: Support for the jackstaff
19-07: Two plugs
19-08: LED cable
19-09: Jackstaff
19-10: Fibre optic cable
PB: Two 2 x 4 mm screws

01. FITTING THE BARBETTE FOR THE SECOND 38 CM GUN TURRET

Take the barbette 19-02 and insert it into the opening of the upper deck section 19-01, as shown.

When the barbette 19-02 is correctly mounted, the four tabs on the lower rim of the barbette snap-fit into the recesses in the deck 19-01 (see inset).
02. PREPARE THE BOW LIGHT

01

Place the forward deck assembly upside down on your desktop, taking care not to cause any damage. Fit the fibre optic guide 19-04 between the raised shapes near the bow, as shown.

02

Insert one of the plugs 19-07 into the top end of the 19-09 jackstaff (the end that is further away from the notch, see inset). The second plug 19-07 is a spare.

03

Take the fibre optic cable 19-10 and make a knot near one end. This will form the lamp at the bow, so pull it quite tight (see inset).

04

Thread the other end of the fibre optic cable 19-10 through the opening in the jackstaff 19-09. Push the cable down the jackstaff so that it comes out of the open end (see curved arrow). The straight arrow indicates where the knot is.

05

Cut off the short end of fibre optic cable 19-10 directly above the knot (the arrow indicates where the knot is).

06

Pull the fibre optic cable 19-10 through the jackstaff 19-09 so that the knot sits in the opening. (Make sure that the knot is not so small that it can slip through the opening.)
03. ASSEMBLING AND CONNECTING THE BOW LIGHT

01

Turn the deck assembly 1-01 over and guide the fibre optic cable 19-10 through the hole in the bow. Have the jackstaff support 19-06 ready.

02

Fit the support 19-06 on to the top of the jackstaff 19-09 and slide it down the pole.

03

Put a drop of superglue on each of the two feet of the support 19-06 as indicated by the arrows.

04

Fix the two legs of support 19-06 into the recesses of the upper deck. Adjust the jackstaff so that the knot of the fibre optic cable is at the front (see arrow).

05

Noting the orientation, thread the fibre optic cable 19-10 through the fibre optic cable mount 19-05. Put a tiny drop of glue on the pin of the mount.

06

Glue the mount 19-05 in the recess on the underside of the upper deck 1-01 near the bow, as shown.
Cut the fibre optic cable 19-10 at the point where it comes out of the second recess in the raised section on the underside of the deck (see also next step). Always take care when using a craft knife.

Fit the fibre optic cable 19-10 into the recesses on the guide 19-04 and the bottom of the deck 1-01, as indicated by the three arrows.

When trimmed correctly, the end of the fibre optic cable 19-10 is flush with the rear edge of the raised shape that holds the fibre optic cable guide in place, indicated by the arrow.

Have the LED cover 19-03 and a DP screw ready. Take the LED cable 19-08 and bring the LED towards the end of the fibre optic cable 19-10, as indicated by the arrow.

The LED at the end of the LED cable 19-08 fits into the recess and butts up to the end of the fibre optic cable 19-10.

Fix the LED cover 19-03 over the LED using a DP screw. Take care to support the deck whilst doing this, so as not to damage previously fitted parts.
Thread the free end of LED cable 19-08 through the eyelet on circuit board box 17-01.

Plug the connector of the LED cable 19-08 into port 1 of the circuit board box. The black wire is on the right.

**04. TESTING THE BOW LIGHT**

Set the switch of the battery box 4-07 and after the turret has finished its start-up sequence, press the button “S3” on the tester box 18-01. The bow light comes on.

Viewed from the underside of the deck, you can see how the light travels from the LED to the knot on the jackstaff.

**Completed work**
The jackstaff has been mounted on the bow of the deck and the LED and fibre optic bow light have been fitted and tested. The second gun turret barbette has been fitted to the third section of the upper deck (not shown).
STAGE 20
ANOTHER SECTION OF THE HULL

COMPONENTS CHECKLIST
20-01: Lower starboard hull section
20-02: Port connector
20-03: Starboard connector
PM: Seven 2 x 4 mm PM screws

01. CONTINUING THE HULL ASSEMBLY

Take the hull assembly 13-01/15-01 from stage 15. Check the fit of hull section 20-01: two screw sockets on the edge of the hull fit into the two tabs with screw hole on the right of part 13-01, as shown.

This shows the hull section 20-01 in the correct position. You will need two PM 2 x 4 mm screws for the next step.
Fix the hull section 20-01 to part 13-01 using two PM screws, as shown.

**NOTE:** The unevenness between the sections of the hull will disappear once the screws are fully tightened.

Take the bow hull assembly and stands from stage 11. Stand the bow section on the support stands. Place the two connectors 20-02 and 20-03 on the work surface and have four PM 2 x 4 mm screws ready.

Fit the forward hole of the port connector 20-02 in place on hull section 6-01. Fix in place with a PM 2 x 4 mm screw. Repeat to fit the starboard connector 20-03 in place.
Position the hull section completed in step 3 against the bow hull assembly and check that the parts are correctly aligned, with no gaps or unevenness between the sections.

Fix the connectors **20-02** and **20-03** to the hull sections **15-01** and **20-01** using two **PM 2 x 4 mm** screws, as shown.

**Completed work**
The next hull section has been fitted to the bow hull section completed earlier. The completed hull section sits on the stand.