DSR Kümo Kühlungsborn

German Coaster Kühlungsborn

Assembly Instructions

V1.0, July 2026



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1 Introduction

1.1 About the ship

This is a model of a 500 series Kümo, Kümo is short for “Küstenmotorschiff”, aka coaster. A total of 15 of the 500 series coasters were built in the mid 1950s for the East German shipping company DSR. 500 series stands for the tonnage, and they are named after ports and towns on the Baltic coast. These are rather small vessels, built for the local trade in the Baltic. All units were sold off by DSR by the 1970s at the latest and served other owners. As far as I can tell most were lost or scrapped, although one or two may still survive, although in a sorry (wrecked) state.

I chose the name Kühlungsborn – a popular seaside spa - but you are free to pick other names of the series, such as Greifswald, Koserow, Sassnitz, Zingst or others.

The model will fit nicely any H0 model railway with a port scenery, but will also be fine display model by itself.

1.2 Preparations for assembly

Tools you will need: a cutter and maybe a small file for cutting and finishing the parts that come off the printer. Make sure that you remove all access plastic, adhesion brims and other unwanted residues from the printing process. Tweezers may be helpful for installing some small part. You may also have to rework pins/holes for connecting parts due to the small scale. And you will need glue for plastic models.

1.3 About the model

The model is in H0 model railway scale (1:87) and has close to 200 parts that need to be assembled. I designed it using Tinkercad and have printed my copies on a Bambu Lab X1C printer using PLA filament. The joints and part fittings are designed with tolerances of 0,2mm, which should give a good fit – not too tight, not too loose. You may have to cut and file some edges after print.

Enjoy.

2 Files and Parts

The model is divided into multiple files that can be printed separately (see below). This gives you a lot of flexibility in your choice of filament color for different parts when printing. I suggest to print the files with small parts using brims.

Filename	Contains	Suggested Color	# Parts
Hull files			
Kümo Kühlungsborn Hull (3).stl	Bow name plate (print twice)	Hull + White	1 (x2)
Kümo Kühlungsborn Hull (4).stl	Bow stripes	Hull + White	2
Kümo Kühlungsborn Hull (5).stl	Hull midship section	Black or Blue	1
Kümo Kühlungsborn Hull (6).stl	Hull stern section	Black or Blue	1
Kümo Kühlungsborn Hull.stl	Hull bow section	Black or Blue	1
Kümo Kühlungsborn Red (1).stl	Waterline mitship section plus red position light	Red	2
Kümo Kühlungsborn Red (5).stl	Waternline bow + stern, funnel stripe	Red	3
Various part files			
Kümo Kühlungsborn Black (5).stl	Portholes, funnel parts, bollards, anchors and other black parts	Black	53
Kümo Kühlungsborn Brown (1).stl	Hatch walls	Brown	2
Kümo Kühlungsborn Brown.stl	Wooden decks, boats, doors, steering wheel	Brown	15
Kümo Kühlungsborn Green (1).stl	Midship deck	Green	2
Kümo Kühlungsborn Green.stl	Deck section, green position light	Green	4
Kümo Kühlungsborn Silver (3).stl	Hatch covers, porthole rims, stairs and ladders, various other parts	Silver	61
Kümo Kühlungsborn White (1).stl	Railings, masts, instruments, crane parts, flagpoles, parts of the superstructure	White	21
Kümo Kühlungsborn White (4).stl	Wheelhouse, crane parts, stairs, walls, davits	White	20
Kümo Kühlungsborn Yellow.stl	Funnel parts	Yellow	2
Kümo Kühlungsborn Red (2).stl	Lifesaver (print 6 times)	Red+White	1(x6)
Other files			
Kümo Kühlungsborn.3mf	All of the above files plus coloring in a .3mf file for Bambulab printers		

The original ship had a black hull. I used blue color for the hull for my copy throughout these instructions, which makes is easier to see contrasts and shades.

3 Hull structure assembly

3.1 Prepare the portholes

The ship's hull has close to 30 portholes. Portholes consist of two parts, a black center part and a silver rim (see Figure 1). Glue the black center part into the rim of each porthole.



Figure 1 Porthole assembly - parts on top, assembled portholes on the bottom

3.2 Pre-assembly of bow section

The parts for the bow section of the hull are shown in Figure 2. The hull is symmetric, preassemble each side as follows:

1. Glue the name plate into the corresponding opening in the hull
2. Glue the striped decoration plate into the corresponding opening
3. Glue the anchor into the anchor hole
4. Glue the two portholes into the circular holes.

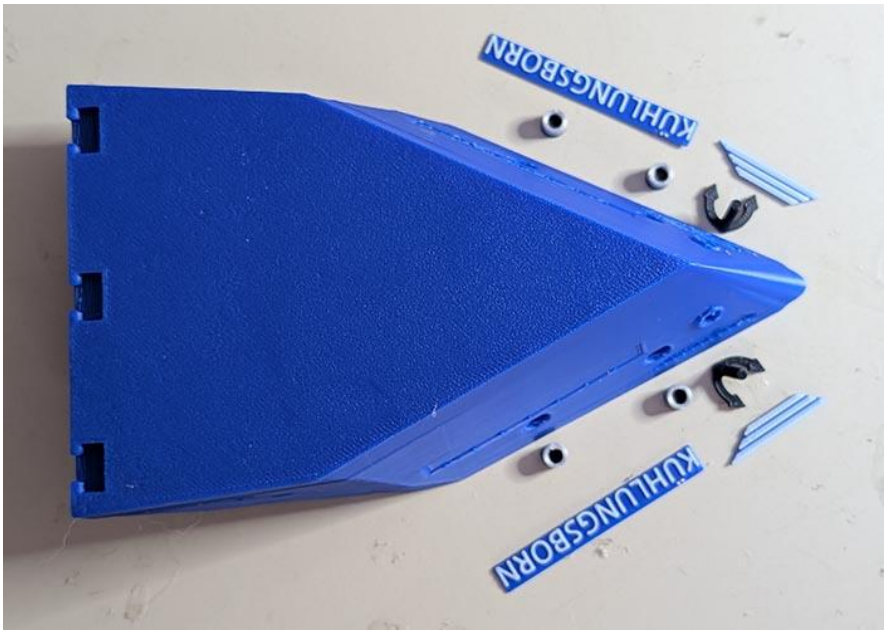


Figure 2 Parts layout for bow section of the hull

The result is shown in Figure 3.



Figure 3 Bow section after preassembly

3.3 Pre-assembly of stern section

The parts of the stern section are shown in Figure 4. Glue the portholes into the circular holes on both sides of the hull. The result is shown in Figure 5.

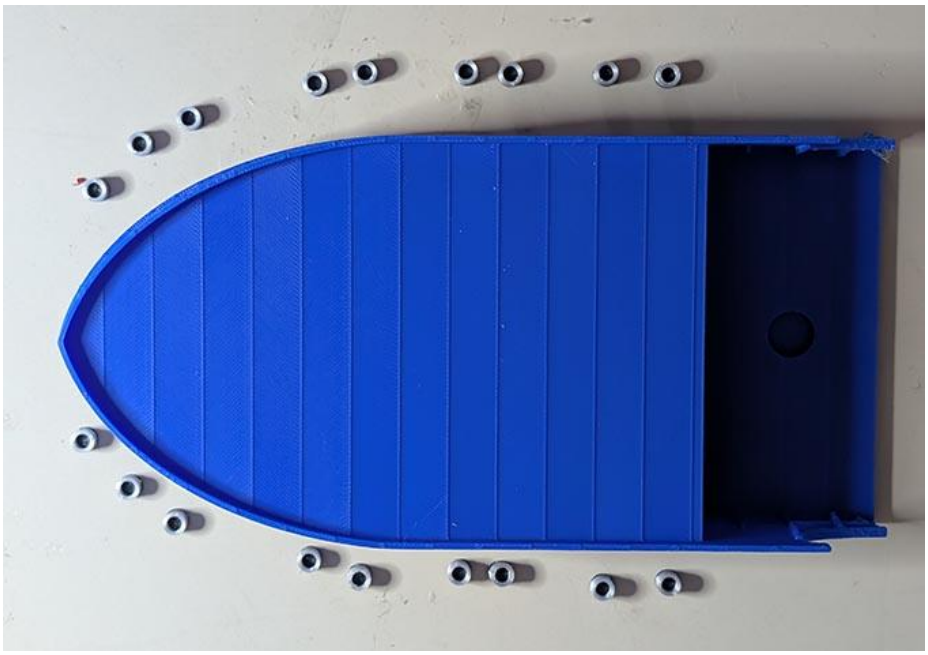


Figure 4 Parts layout for stern section of the hull

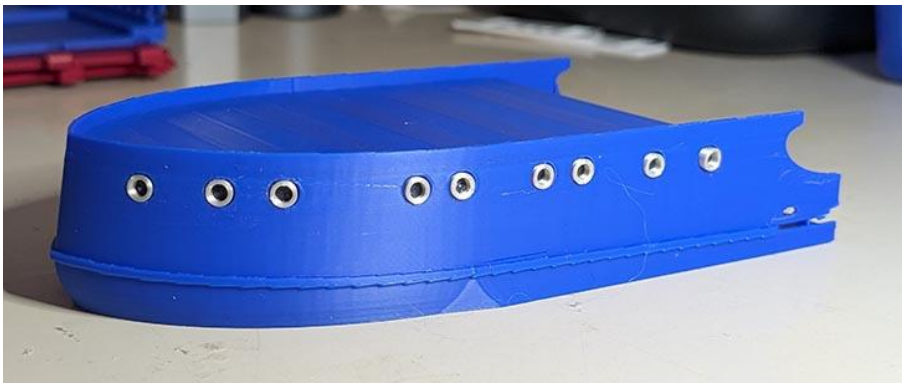


Figure 5 Stern section after preassembly

3.4 Hull structure assembly

The hull is divided into three sections which can be printed on standard size 3D printers. The parts must be assembled as shown in Figure 6:

1. Glue the red waterline parts together at the joints.
2. Glue the blue hull sections onto the waterline parts. There are holes at bottom which will match the protruding waterline joints for a correct fit.

The result is shown in Figure 7.

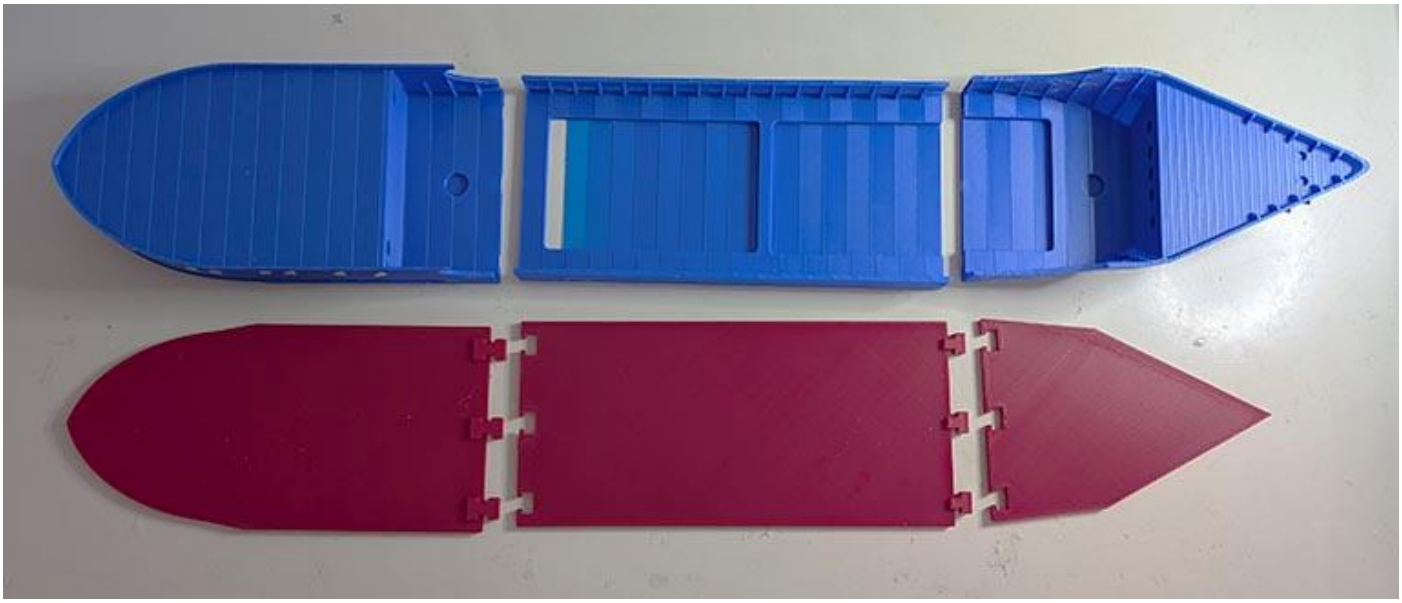


Figure 6 Parts layout for hull structure assembly

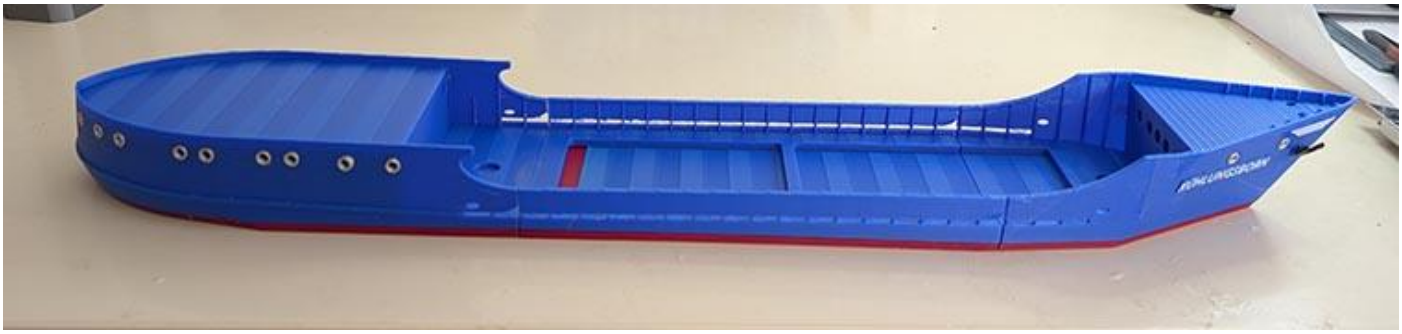


Figure 7 Hull structure after assembly

4 Midship section assembly

4.1 Install the midship deck and the hatches

The parts for the midship deck and hatches are shown in Figure 8. Install as follows:

1. Glue the three green deck plates onto the midship hull structure. The deck plates have little slots which will slide over the ribs on both sides.
2. Glue the brown hatch walls into the corresponding holes in the deck plates
3. Glue the silver hatch covers onto the hatch walls
4. Install the four black pollards onto the deck plates front and back

The result is shown in Figure 9.



Figure 8 Midship deck and hatches ready for installation



Figure 9 Midship deck with hatches installed

4.2 Install the back and front wall panels

The parts of the midship wall panels front and back are shown in Figure 10. Install as follows:

1. Glue the white wall panels onto the vertical end on the hull structure
2. Glue the brown doors into the openings in the wall panels
3. Glue the portholes into the circular openings, two for the back wall, five for the front wall

The result is shown in Figure 11.

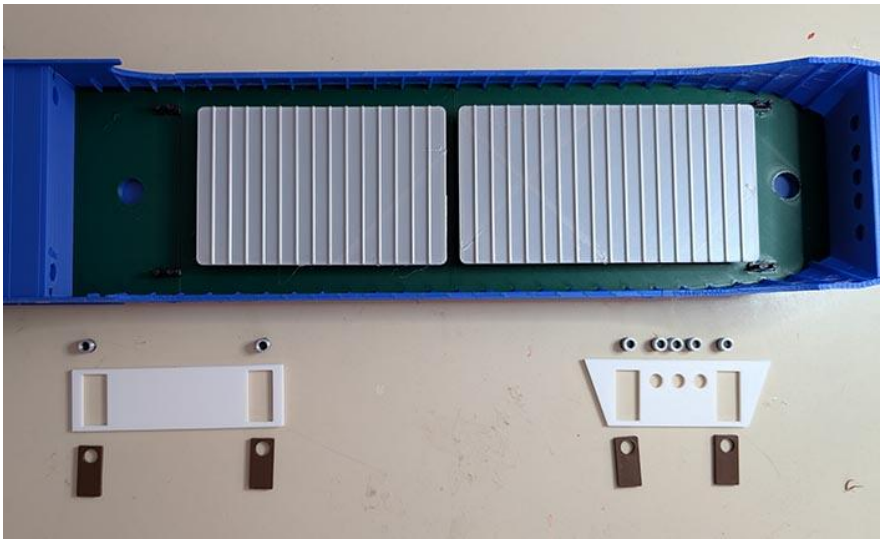


Figure 10 Midship front and back walls ready for installation



Figure 11 Front (top) and back (bottom) wall panels installed midship

5 Bow section assembly

5.1 Preassemble the cranes

The ship has two identical cranes which are installed into the deck of the bow section and stern section. Preassemble the crane tower and crane boom first. The parts for the crane tower are shown in Figure 12. Assemble as follows:

1. Glue the silver control wheel into the hole on the operating console.
2. Glue the silver cable rolls to the top of the crane mast and into the backside of the crane mast, about 1/3 up.
3. Glue the white motor onto the holders on the foundation.

The result will look as shown in Figure 13.

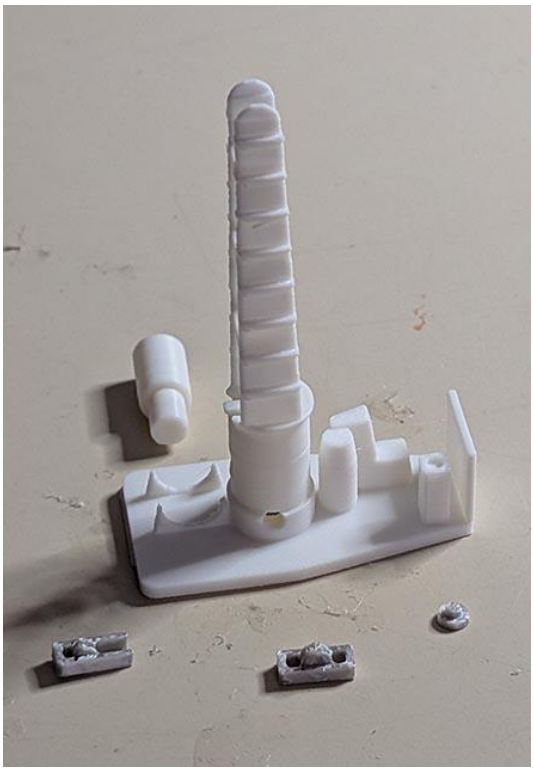


Figure 12 Parts of the crane tower ready for assembly

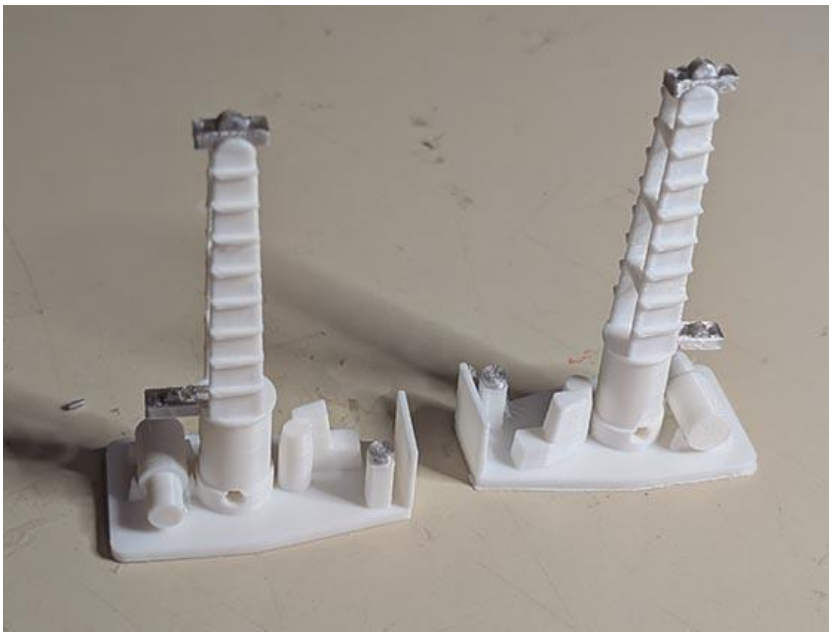


Figure 13 Both crane towers after preassembly

The parts of the crane boom are shown in Figure 14. Assemble as follows:

1. Glue the silver cable roll into the tip of the crane boom
2. Glue the small silver lamp and the black lamp cover into the hole of the triangular black cable holder.
3. Glue the black triangular holder into the slots on the lower side of the boom

The result will look as shown in Figure 15.



Figure 14 Parts of the crane boom ready for assembly

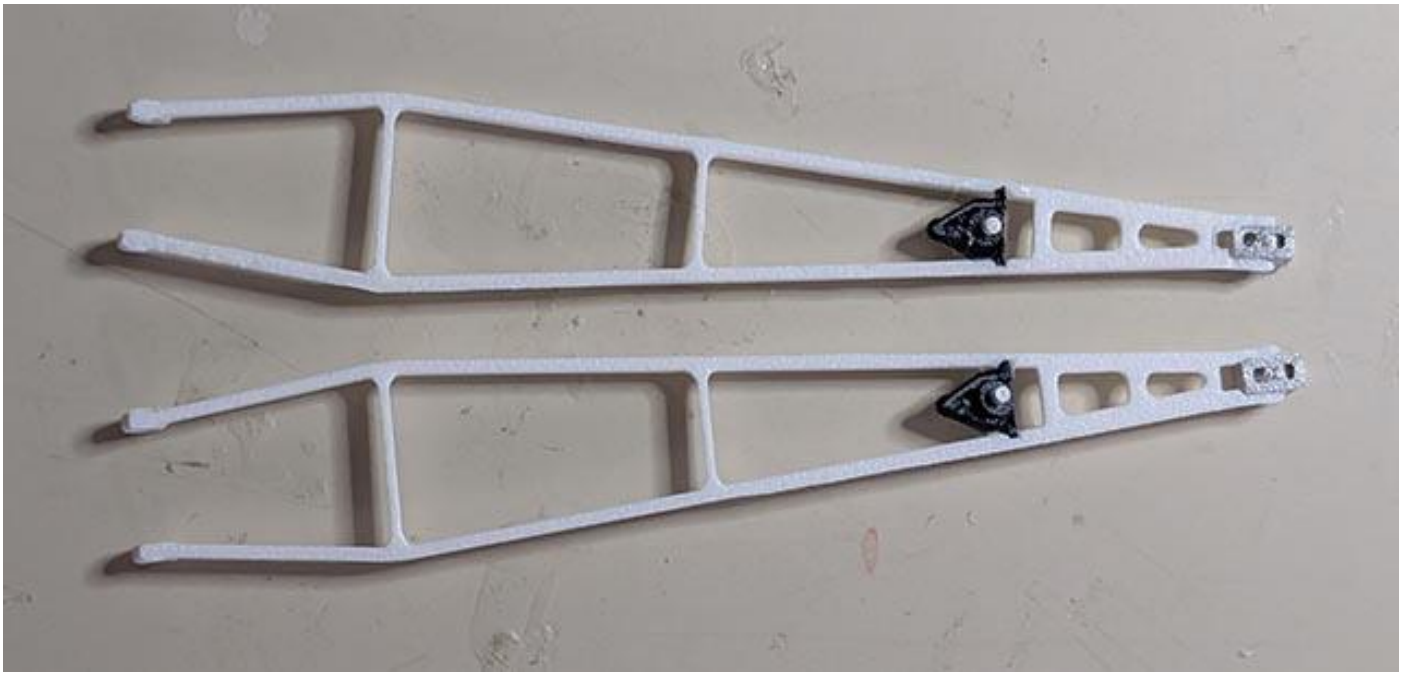


Figure 15 Both crane booms preassembled

5.2 Bow section final assembly

The parts for the bow section are shown in Figure 16. Assemble as follows:

1. Glue the bow deck onto hull bow section. Make sure that the little slots will fit over the ribs on each side of the hull.
2. Glue the white railing at the rear side of the bow deck onto the edge of the deck.
3. Install the bow crane:
    a. Glue the cylindrical crane post into the hole at the bottom of the crane tower. Make sure that the holes of the post are facing left and right.

b. Glue / slide the little white axle through the holes of the crane boom, crane tower and crane post. This will hold the crane parts together.
c. Slide the crane post through the circular hole of the bow deck and glue it into the hole on the midship deck.

4. Glue the bow railing onto the hull rim.
5. Glue the bow flagpole vertically into the hole on the bow deck.
6. Glue the four black pollards into their slots on the bow deck.
7. Glue the small silver hatch into the corresponding slot next to the crane.
8. Install the bow mast on the bow deck. Glue the silver lamps into the corresponding holes about halfway up the mast.
9. Glue the black spools into the holes of the white anchor winch left and right and glue the anchor winch into the corresponding slot forward of the mast.
10. Glue the red/white livesavers onto the white railing at the rear end of the railing.
11. Glue the silver ladder from the midship deck to the rear end of the bow deck, on the left side of the crane.

The bow deck after installation is shown in Figure 17 to Figure 19.

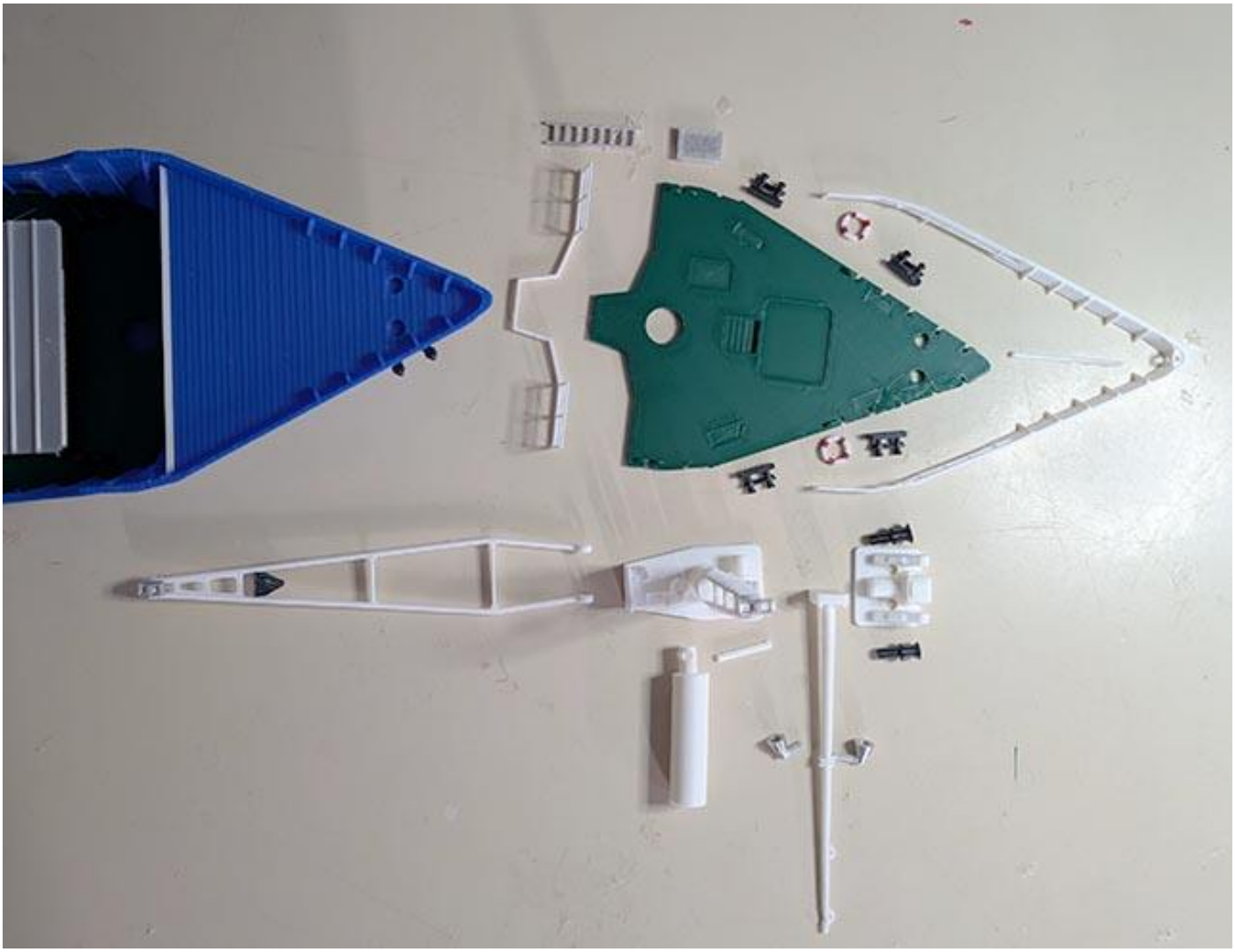


Figure 16 Bow section parts ready for assembly



Figure 17 Bow section after assembly, side view



Figure 18 Bow section after assembly, top view



Figure 19 Bow section after assembly, view from behind

6 Stern section assembly

6.1 Preassemble the wheelhouse

Preassembly of the wheelhouse is shown in Figure 20. Preassemble as follows:

1. Glue the brown doors into the openings left and right, upper and lower level
2. Glue the brown top deck onto the wheelhouse.
3. Glue the white top deck railing onto the wheelhouse.

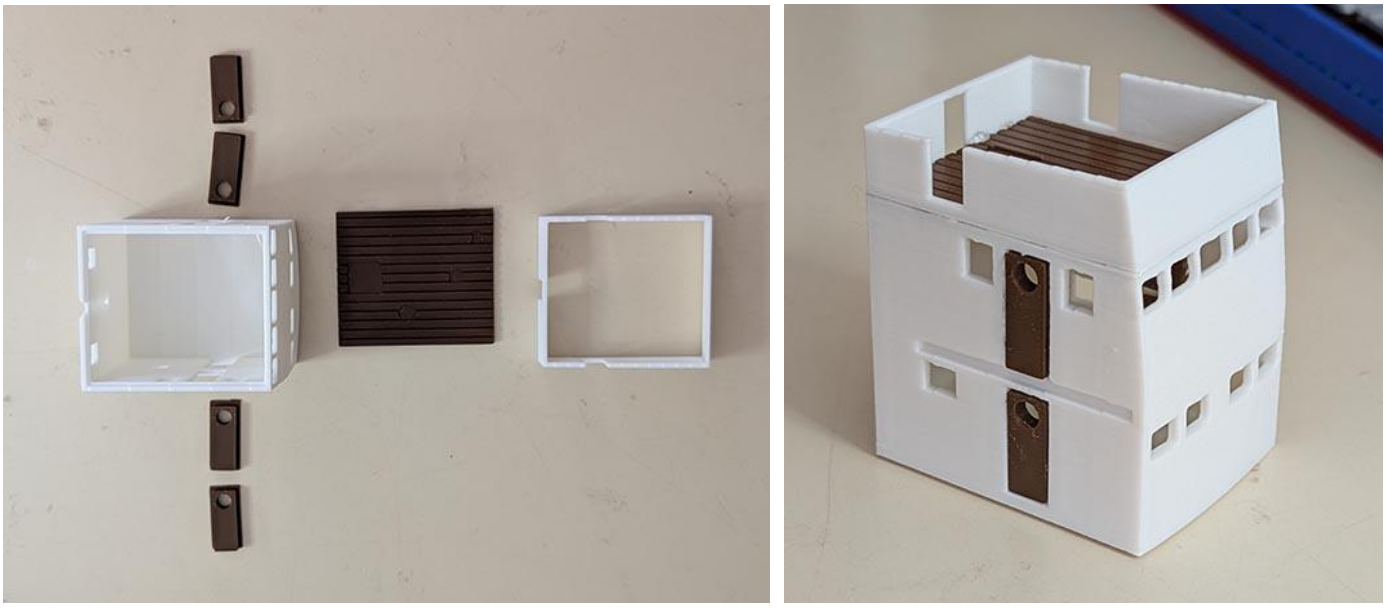


Figure 20 Wheelhouse parts ready for preassembly (left) and after preassembly (right)

6.2 Preassemble the funnel

Preassembly of the funnel is shown in Figure 21. Preassemble as follows:

1. Stack the funnel sections as shown: yellow, black, red, black, yellow.
2. Install the black exhaust pipes into the holes on top of the funnel.

Preassembly of the funnel base is shown in Figure 22. Glue the eight silver vents into the corresponding slots of the sloped sections of the funnel base.



Figure 21 Funnel parts (left) and after preassebly (right)

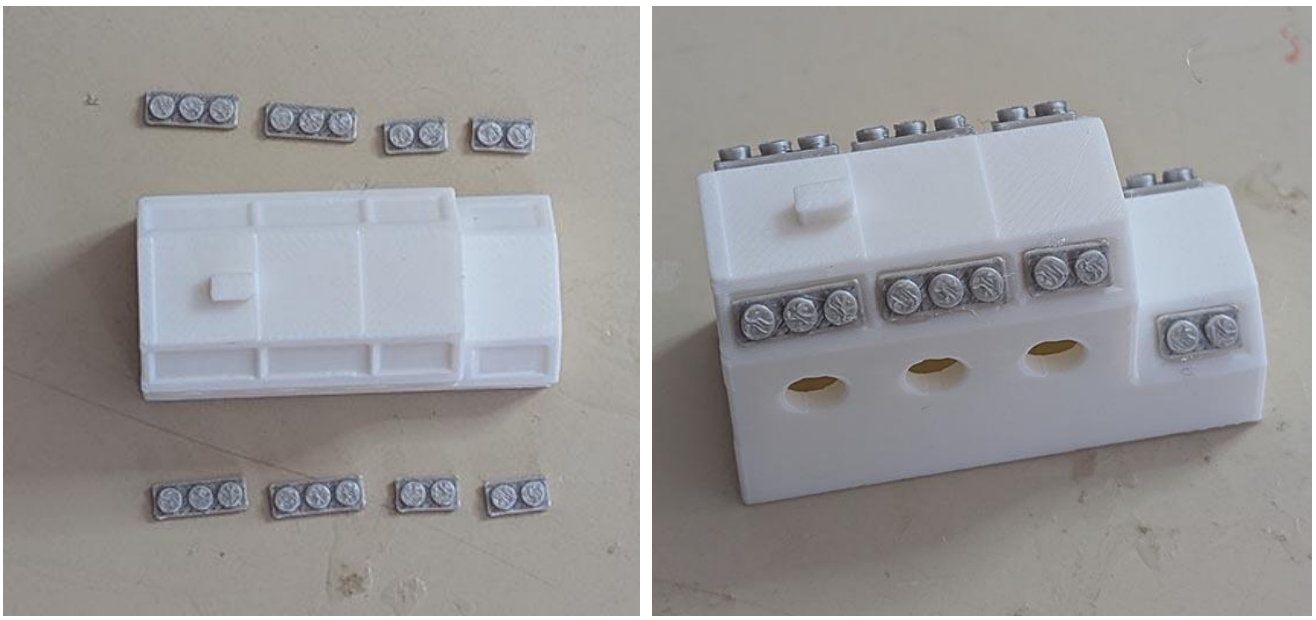


Figure 22 Funnel base parts (left) and after preassembly (right)

6.3 Install the stern deck, stern crane and core superstructure

The parts for stern deck, crane and superstructure are shown in Figure 23. Assemble as follows:

1. Glue the brown rear end of the stern deck onto the hull.
2. Glue the green forward end of the stern deck onto the hull.
3. Glue the white forward railing onto the forward end of the green stern deck.
4. Install the stern crane in the same way as the bow crane:
    a. Glue the cylindrical crane post into the hole at the bottom of the crane tower. Make sure that the holes of the post are facing left and right.

b. Glue / slide the little white axle through the holes of the crane boom, crane tower and crane post. This will hold the crane parts together.
c. Slide the crane post through the circular hole of the stern deck and glue it into the hole on the midship deck.

5. Glue the silver stairs down to the midship deck into the openings of the green stern deck left and right.
6. Glue the wheel housing into the opening of the green stern deck, onto the hull section.
7. Glue the funnel base into the opening of the brown stern deck, onto the hull section.
8. Glue the funnel onto the funnel base.

The result will look as shown in Figure 24 and Figure 25.

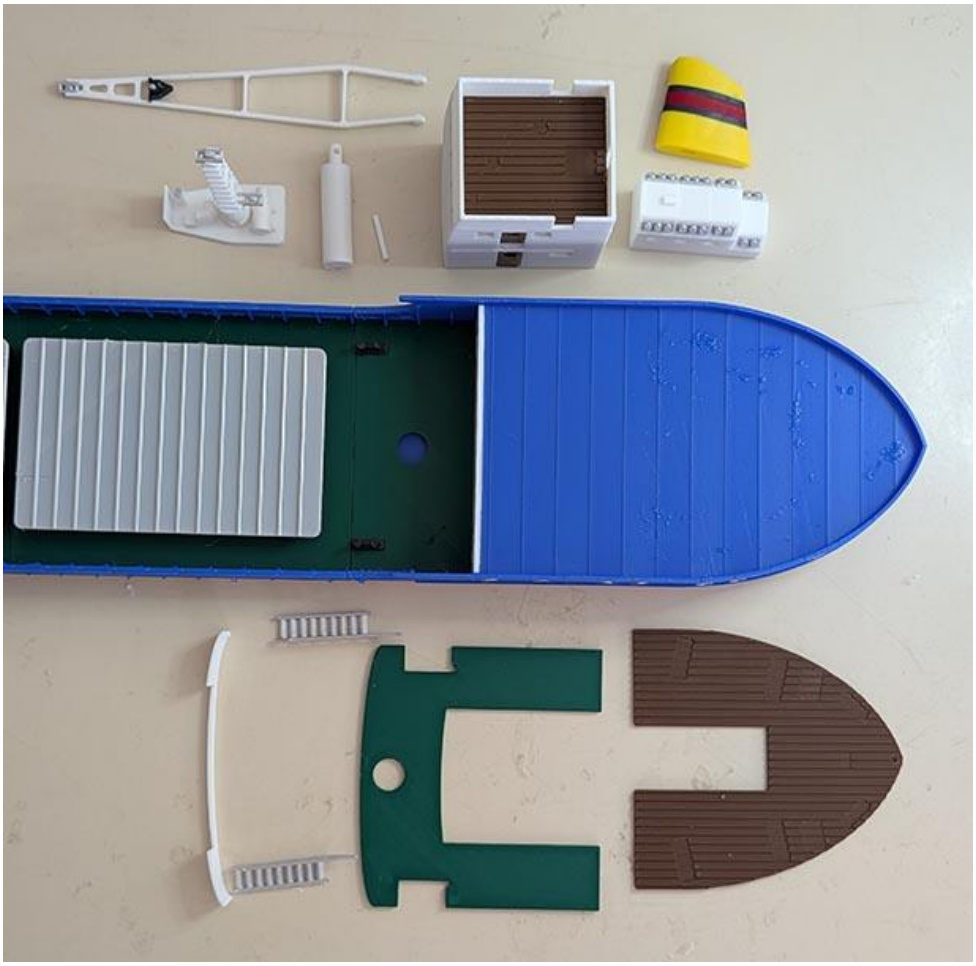


Figure 23 Stern deck, crane and superstructure ready for assembly



Figure 24 Stern deck, crane and superstructure installed (side view)



Figure 25 Stern deck, crane and superstructure installed (front view)

6.4 Finalize the superstructure

The parts of the superstructure are shown in Figure 26. Assemble as follows (port and starboard are symmetrical):

1. Glue the white curved outer side of the superstructure onto the rim of the blue hull. The grid section should be facing backwards.
2. Glue the brown outer bridge deck into the slots of the wheelhouse.
3. Install the position lights into the slots on the U-shaped bridge railing (green on starboard/right side, red on port/left side).
4. Glue the bridge railings onto the curved outer side and onto the brown bridge deck and onto the front end of the wheelhouse
5. Glue the white stairs from the stern deck to the bridge deck into the corresponding slots along the wheelhouse.

The result is shown in Figure 27 to Figure 29.

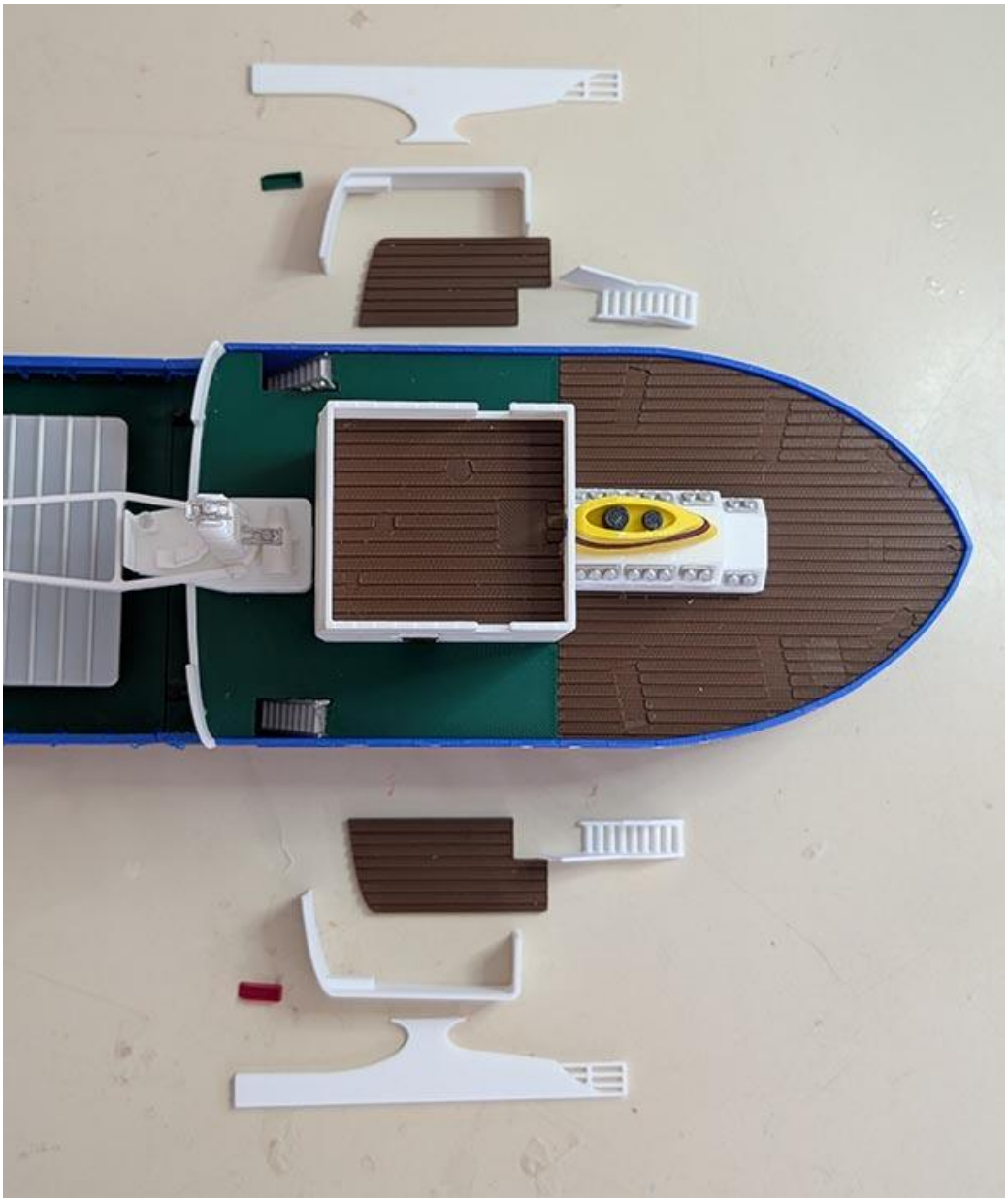


Figure 26 Superstructure parts ready for installation

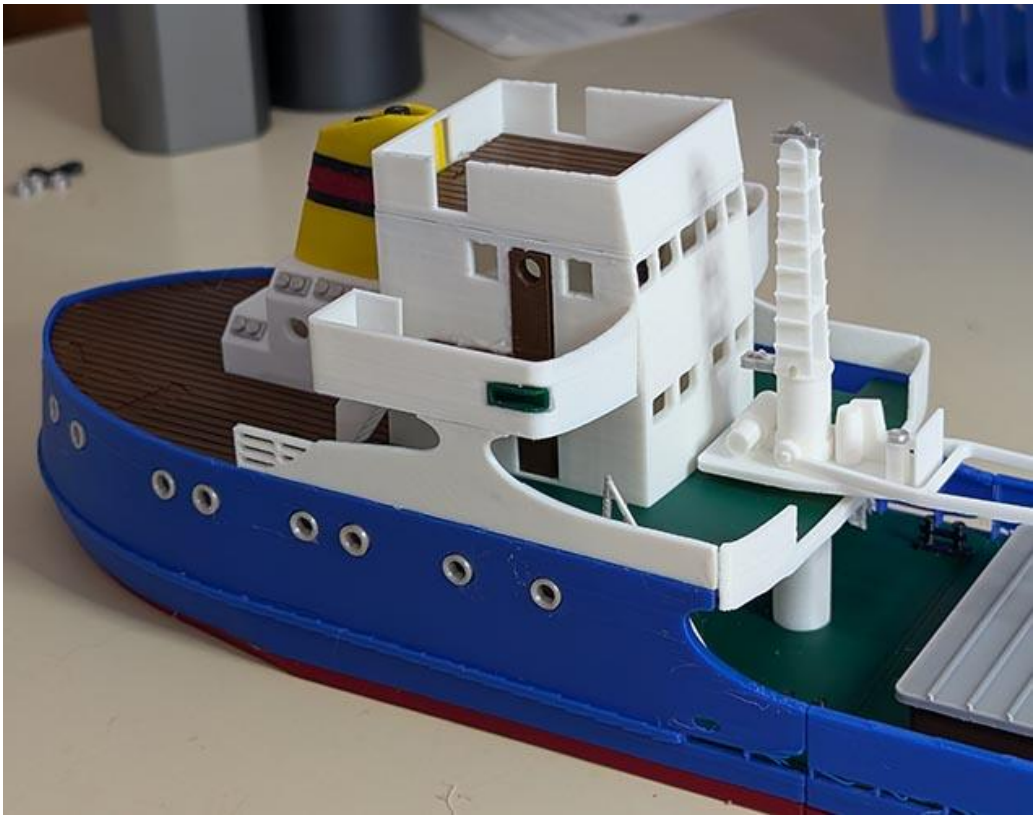


Figure 27 Superstructure complete, front view



Figure 28 Superstructure complete, side view



Figure 29 Superstructure complete, rear view

6.5 Finalize the stern deck

The parts for the stern deck are shown in Figure 30. Assemble as follows:



Figure 30 Stern deck parts ready for installation

1. Glue the four white davits into the corresponding slots on the stern deck, a pair of two on each side.
2. Glue each boat onto the pair of davits.

3. Glue the white boat winch into the corresponding slots behind the boats and davits.
4. Glue the two black pollards into the corresponding slots on the stern deck.
5. Glue the white steering wheel post and the brown steering wheel together and install them on the stern deck towards the rear end.
6. Glue the two small railing sections onto the blue hull rim, between the boats and the pollards.
7. Glue the rear railing section onto the blue hull rim at the end of the stern deck.
8. Install the rear flagpole through the rear railing at about 45 degrees angle.

The finalized stern deck is shown in Figure 31 and Figure 32.



Figure 31 Stern deck complete, side view

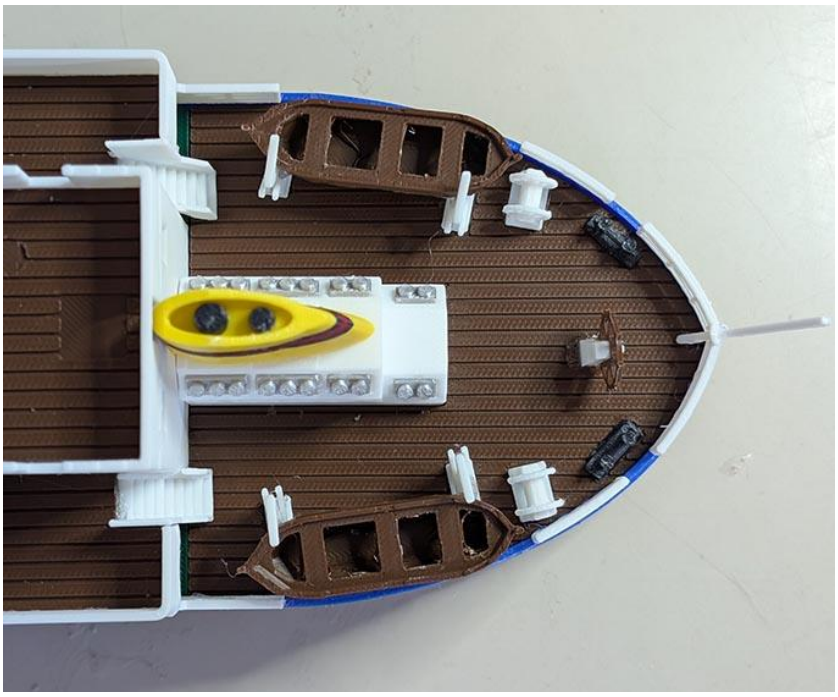


Figure 32 Stern deck complete, top view

6.6 Finalize the top deck

The parts of the top deck are shown in Figure 33. Install as follows:

1. Glue the silver lamp disc into the hole of the searchlight post. Then install the searchlight on the left side of the top deck.
2. Install the compass center forward.
3. Install the stern mast center towards the rear end.
4. Install the antenna structure on the right hand side.
5. Glue the silver ladders to the top deck onto the outer wall of the wheelhouse, aligned with the opening of the top deck railings.
6. Install a pair of lifesavers on the outer side of the top deck railings on each side.
7. Install a pair of lifesavers on the rear end of the bridge railings, on the outer side.

The result is shown in Figure 34.

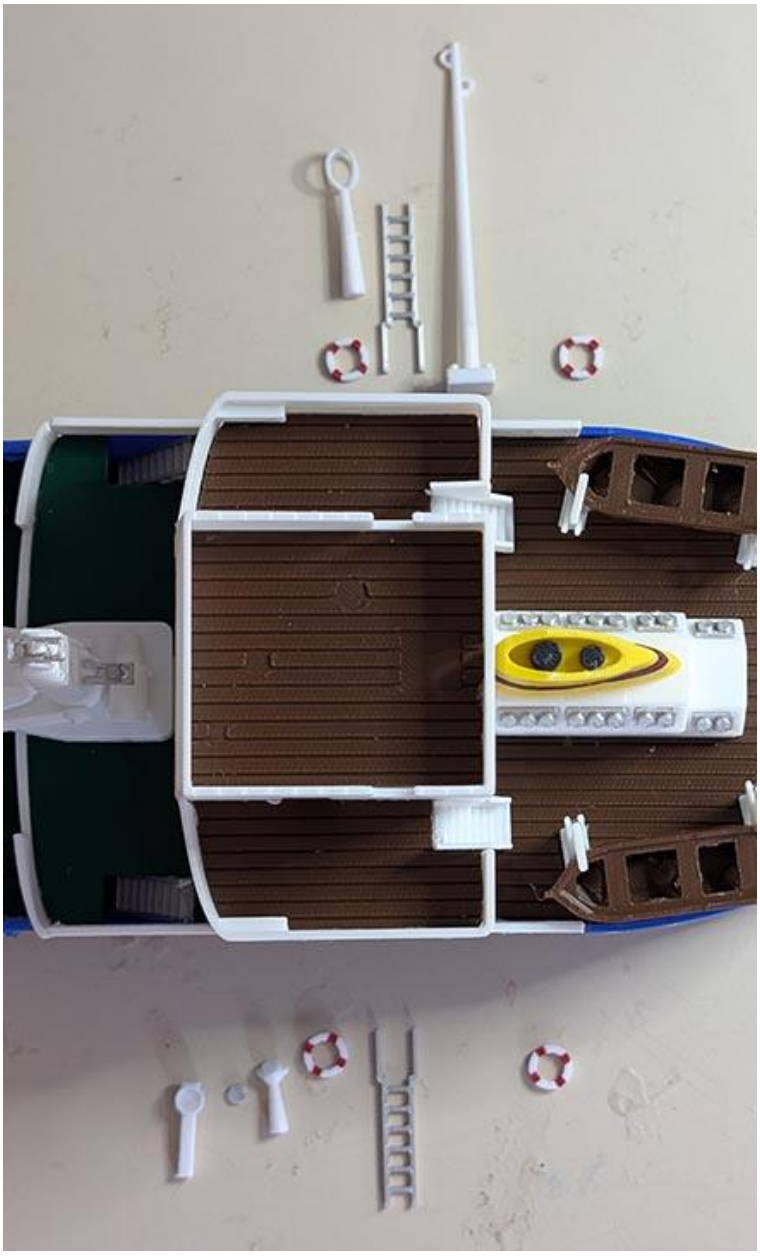


Figure 33 Top deck parts ready for installation

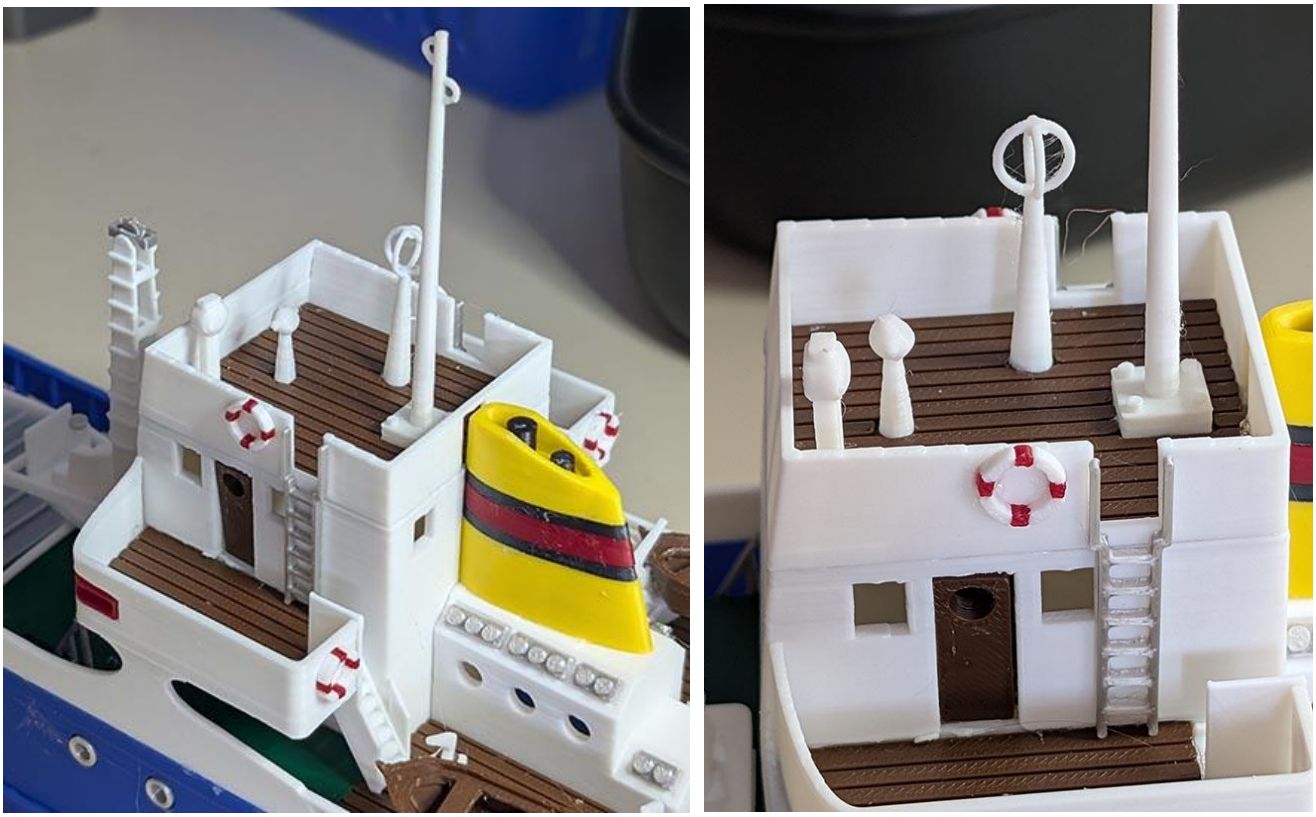


Figure 34 Top deck complete, rear view (left) and detailed side view (right)

7 Final result

Congratulations. You finished the model assembly. The final result is shown in Figure 35 to Figure 41.



Figure 35 Ship fully assembled, side view (top) and top view (bottom)



Figure 36 Ship fully assembled, view from front-right



Figure 37 Ship fully assembled, view from front-left



Figure 38 Ship fully assembled, front view



Figure 39 Ship fully assembled, view from rear-right



Figure 40 Ship fully assembled, view from rear-left



Figure 41 Ship fully assembled, rear view