

# Littorina

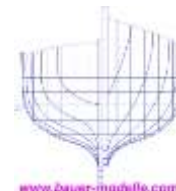
Best.Nr. 4.1700

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Bauanleitung  
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# Instructions for ship model **Littorina**



Order no. 4.1700

The Littorina is a German research cutter. Owner is the Federal Republic of Germany. The ship is operated by the Helmholtz Centre for Ocean Research Kiel (GEOMAR) together with the University of Kiel.

The ship was built in 1974/75 at the Julius Dietrich shipyard in Oldersum.

Keel laying 23 November 1974

Launch 18 April 1975

Today, the ship, which has an operating radius of approx. 2,000 nautical miles, is used for marine research and sampling in shallow waters down to a depth of 500 metres. In addition to the five-man crew, it offers space for six scientists on multi-day trips. On one-day trips, up to twelve scientists can be accommodated on board. The main areas of operation are the North Sea and Baltic Sea, but the vessel can also be used in the English Channel and along the Norwegian coast to Lofoten.

The model was designed according to the latest drawings and many photos. Modifications that have been made to the ship over the years are incorporated into the model, which shows the condition as of March 2010.

Tools / adhesives	Use for	order no.
MD Megabond 25g	ABS - ABS, ABS - wood, ABS - brass, gap filling	4.MMB.S502000
UHU plast special UHU Hard plastic	ABS -ABS, ABS polystyrene, gap-filling, Crystal clear, for all adhesive plastics	763206 4.46650
MD Glue Xtreme 2	CA adhesive, medium viscosity, odourless, solvent-free	
MD Glue Xtreme 3	CA adhesive, low viscosity, odourless, solvent-free	
Canopy Glue Tacky, transparent	for gluing fittings onto painted surfaces, window panes, etched parts, remains tough elastic	6.44085
Drills 1.0, 1.5, 2.0, 5.0mm		7.18225, 7.18200
Grinding sponge grit 120, grit 220	Grinding of bonding areas and laser burr	807097
Phillips cross screwdriver 1	x 150 mm WIHA, for bow thruster repair	21115

colors

Underwater	RAL 3002	carmine red
above water	RAL5013	Cobalt blue
Decks	RAL 6002	Leaf green
Superstructures	RAL 9016	Pure white
Winches	RAL 7000	Feh grey
Crane	RAL 2001	Red orange

## **Tip**

On the back of the laser plates, remove all burrs from the laser cuts before removing the parts from the plates. Place the plate on a flat surface.

Use our grinding sponges to grind grain 120 807097 or grain 220 807098.

Always grind circularly to avoid scoring.

The parts can then be removed more easily.

## **building instruction**

### **Stand**

Separate the parts of the ship's stand from the plywood board. Bend the parts in the laser plates alternately slightly up and down until the bars break. This will prevent the wood from bursting on the wooden surfaces. Glue a 5x5mm strip 3 each on the top and bottom of the rear side of the longitudinal struts 1, insert the stand boards 2 and secure them with the 4 "anchors" 4. Glue and paint the stand.

A cord can be pulled through the holes one above the other to transport and insert the model into the water.

### **hull**

Cut the two surfaces of the anchor holes out of the fuselage.

The two anchor bags are glued together from parts 5-9 and glued into the cut-outs with Megabond 2000.

Sand the hull cut-out with the anchor pocket without burrs.

The chain tube will be fitted later.

### **Bilge keels**

Place the two parts 11 on the fuselage and mark the pins. Cut the cut-outs for the pins out of the hull. Insert the keels and tack them with some super glue. Glue the inside of the pins watertight with Megabond 2000.

Fill the upper and lower throat with Megabond from the outside. Round off with a stirring rod or similar. With spirit the throat can be formed and excess Megabond 2000 can be removed, as long as the Megabond 2000 does not begin to harden.

### **Drive unit**

Drill a 7mm hole through the shaft in the fuselage. Dimension in picture 1

Drill a 2mm hole through the aluminium nipple in the engine mount into the shaft tube for oiling. Put a piece of silicone hose on the nipple as oil supply.

Screw the two drive-in nuts to the motor flange. Drive-in nut at the bottom, screw from above.

Lightly grease the screw.

Remove the shaft and insert the sterntube through the opening. The shaft should have a gradient to the rear of approx. 1-2°. Fit the support plate 13 under the drive-in nuts into the fuselage.

Glue the shaft tube into the fuselage opening. Glue the drive-in nuts onto the support plate using Megabond 2000.

### **Rudder**

Drill 4.0 mm through the rear part of the rudder skeep. Push a 4mm round material through and mark the position of the rudder coker on the hull approx. 36mm in front of the transom. Drill 5.0mm through the hull. Insert the complete rudder into the holes and mark the bevel on the rudder support. Edit the rudder support to fit. Insert the complete rudder into the hull and the rudder skeep. Shorten the rudder shaft if necessary.

A steel wire is laminated into the rudder skeep and can therefore be bent away to the side.

Glue the rudder coker into the hull, glue the rudder support with Megabond 2000 to the hull.

So that the rudder can be dismantled again in case of a possible exchange, the rudder coker may be can only be glued in the bottom of the fuselage, without lateral reinforcements in the hull.

When disassembling, simply bend the rudder hoe to the side and pull out the rudder. The assembly is done accordingly. The rudder fin can be removed by pulling out the wire.

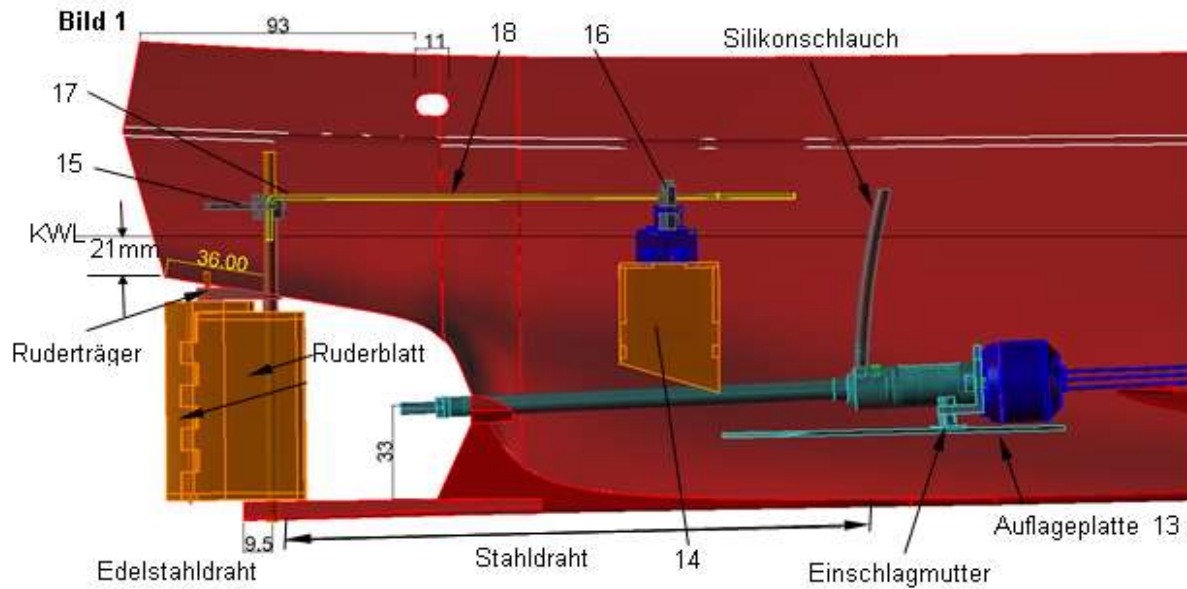
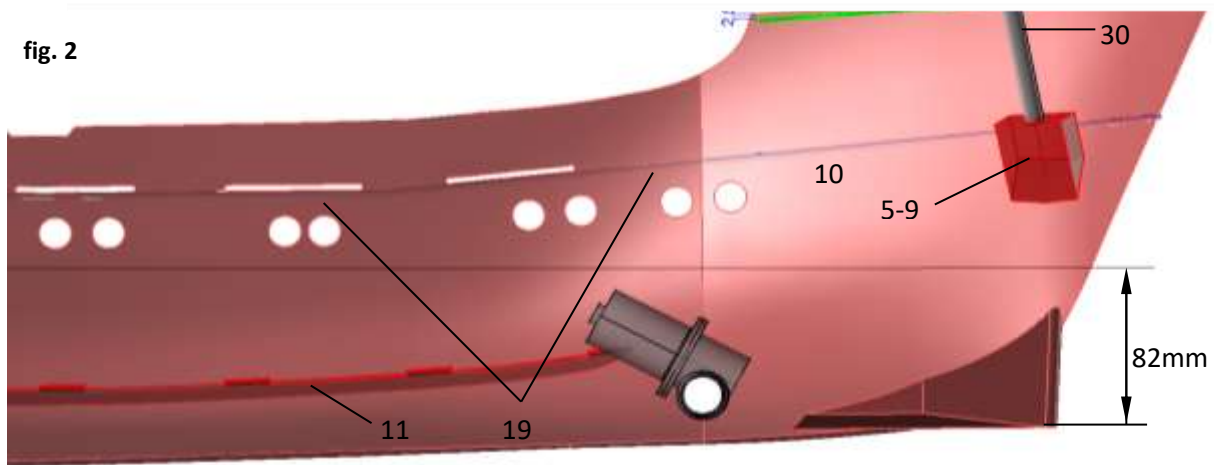


fig. 2



### Deck

Mark the inside of the deck wall rail in the hull. 2,0mm below this line, glue the support strips 19 for the deck into the hull with superglue.

The scuppers in the side of the ship are in the original from front to back continuous. We recommend to interrupt them and to leave some "struts". Insert the deck and adjust the rear corners of the deck to the GRP hull.

Now mark out the desired lengths of the scuppers and cut them out with a height of approx. 2.0 mm above the wall rail.

Do not glue in the deck yet!

### Bow thruster (Bt) pic. 2

Open the markings for the Bt in the fuselage and enlarge them for the Bt to be installed.

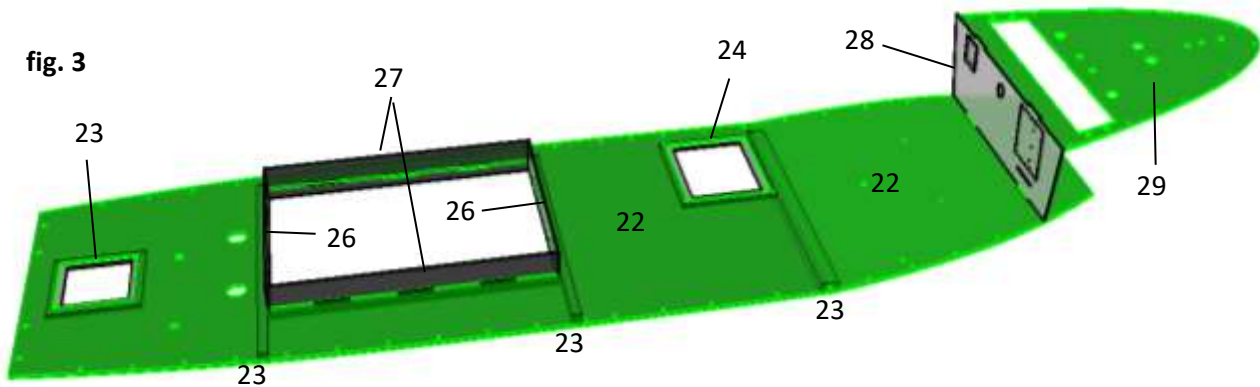
Insert the Bt into the holes. Insert the deck and turn the Bt so that the long Phillips-head screwdriver is in contact with the cover screws. Glue the extension tubes into the rudder. Glue the Bt inside and out into the fuselage using Megabond 2000. Shorten and sand the tubes.

### Rudder servo

Glue the servo holder 14 together, fit it into the hull and glue it in place. Mount the servo. Mount the linkage on the rudder shaft. Connect the rudder linkage and the rudder lever and servo to the linkage connection. Push the safety clip onto the rudder lever.

### portholes

Cut the pipe 20 into 18 pieces of 10mm length each. Grind one side flat and place this side on a smooth surface coated with release agent. Pour a 2-3mm thick layer with clear resin or glue. After hardening, glue the pipes horizontally into the fuselage with the panes facing inwards. Sand the outside flush with the fuselage. When painting, mask the windows with a suitable adhesive.



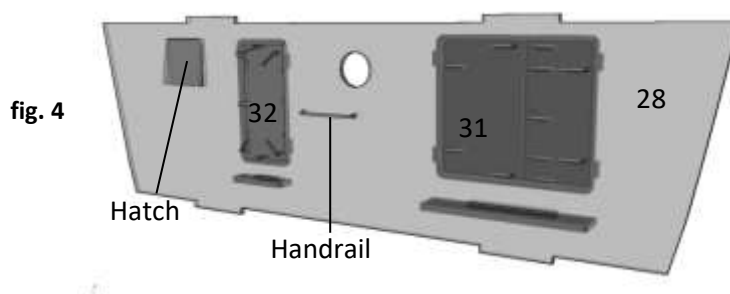
Cut the deck beams 23 to 210mm. Glue the coaming 26 and 27 into the deck. Glue two deck beams in front and behind. They must end approx. 10mm before the deck edge.  
 Glue the front deck beam halfway under the rear deck section. The overhang is the support for the front deck section.  
 Glue the rear deck section into the hull. Then glue the front part in place.  
**Make sure** that the holes of the bulwark supports are not filled with glue.  
 Insert the bulkhead 28 provisionally into the deck. Hold vertically with staples or adhesive strips.  
 Do not glue in!

#### Forecastle lower deck

Fit the lower deck 29 for the lower deck approx. 2.5-3.0 mm below the fuselage edge into the fuselage, bevel the outer edge.  
 It will not be glued to the deck later, but has a distance of 0.5-1mm to the deck. This increases the stability of the mast. The rear edge of part 29 is about 2.5mm below the top edge of the bulkhead.  
 Insert the two chain downspouts 30 through the lower deck into the anchor pockets and glue them in place.  
 For checking purposes the lower deck can be removed and the glued seam reworked.  
 Glue the lower deck into the hull.

#### The bulkhead 28

from the deck and complete with the doors and handles. Push out the hatch in the bottom of the bulkhead a little to the rear and glue it in place. There are original pictures where a window is installed.  
 The lower edge of the bulkhead is painted up to a height of 4mm in the deck colour RAL 6002.  
 Above is the bulwark and the bulkhead white RAL 9016.



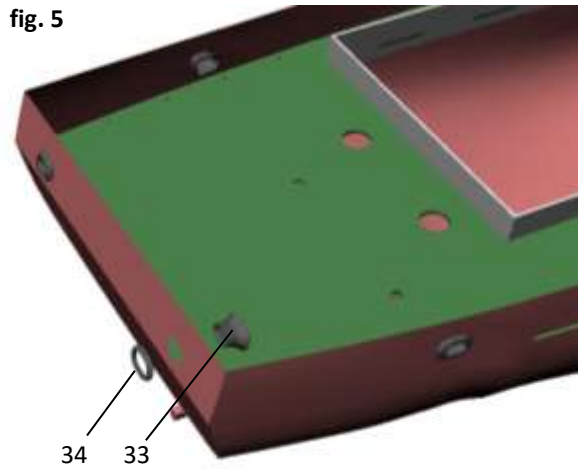
Paint the bulwark inside and the bulkhead white. Cover the bulwark and bulkhead to the bottom 4mm with masking film or adhesive tape. Paint the deck and free areas of the bulkhead and bulkhead green RAL 6002.

After drying, glue in the bulkhead. Glue the deck beam to the bulkhead and glue it into the fuselage. Glue the chain downpipe into the downstand beam.

#### Linen hawse

Make openings in the fuselage according to parts 33. Insert from the inside through the bulwark. Fit, glue and sand the cover flange 34 from the outside.

fig. 5



#### Bulwark stanchions / handrail

The bulwark stanchions 35 have a longer pin at the bottom for insertion into e.g. a balsa board, foam or similar to hold it in place when painting. After varnishing shorten this pin to 2mm length.

The foot rail 36 is put into the slots of the bulwark stanchions and reinforces the stanchions and the bulwark.

Glue the stanchions and the rail together.

There is no foot rail on the tailgate.

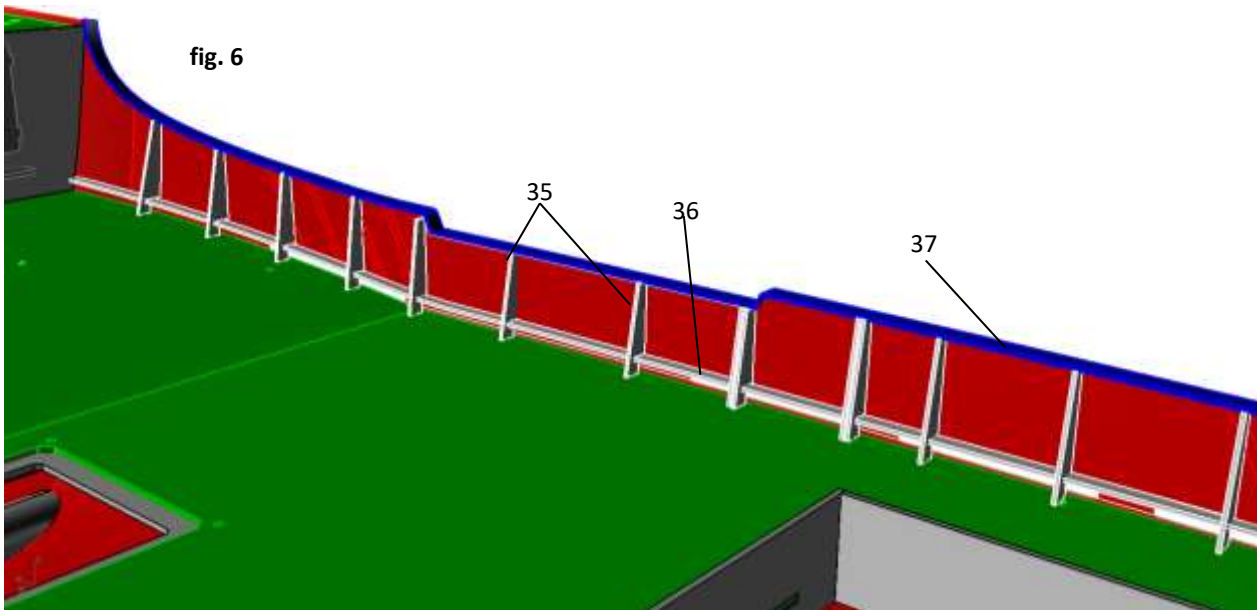
Remove the entire unit from the deck and paint it white.

Glue the bulwark stanchions into the deck and onto the bulwark after drying.

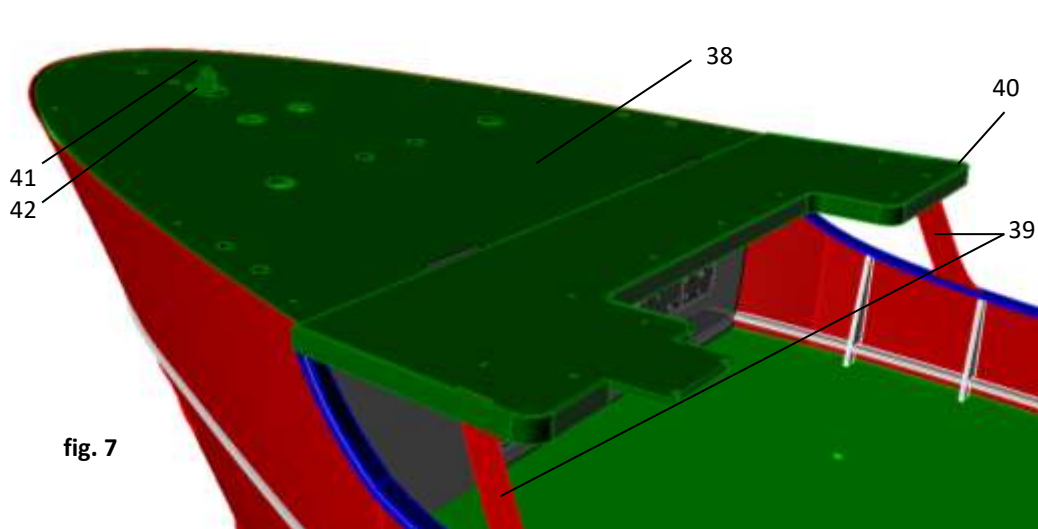
Shorten the stanchions at the top to the upper edge of the side wall.

Cut the handrail 37 according to the side of the ship, shape it and glue it together.

fig. 6



## Forecastle deck



Bend the rear part of the forecastle deck up approx. 4° at the engraving line.

Bend the reinforcement 40 around the rear part of the deck 38 and glue it on.

Insert the holder 41 into the slot of the deck and glue it from below. Push on the reinforcement 42 from above and glue it in place.

Insert the forecastle deck and insert it into the bulkhead spigots. Adjust the end of the handrail.

Insert the struts 39 into the slots of the forecastle deck and adjust if necessary. Adjust the underside of the struts to fit the handrail. Make sure that both struts are at the same angle.

Glue the outer edge of the forecastle deck to the fuselage and bulkhead. Fill the splices with Megabond 2000 and sand.

Paint the entire handrail in cobalt blue and glue it onto bulwark supports and the side of the hull. Struts 39 and reinforcement 40 are white. The forecastle deck deciduous green

Paint the outside of the hull. The dimensions are shown in pictures 1 and 2. The continuous deck wall rail is white.

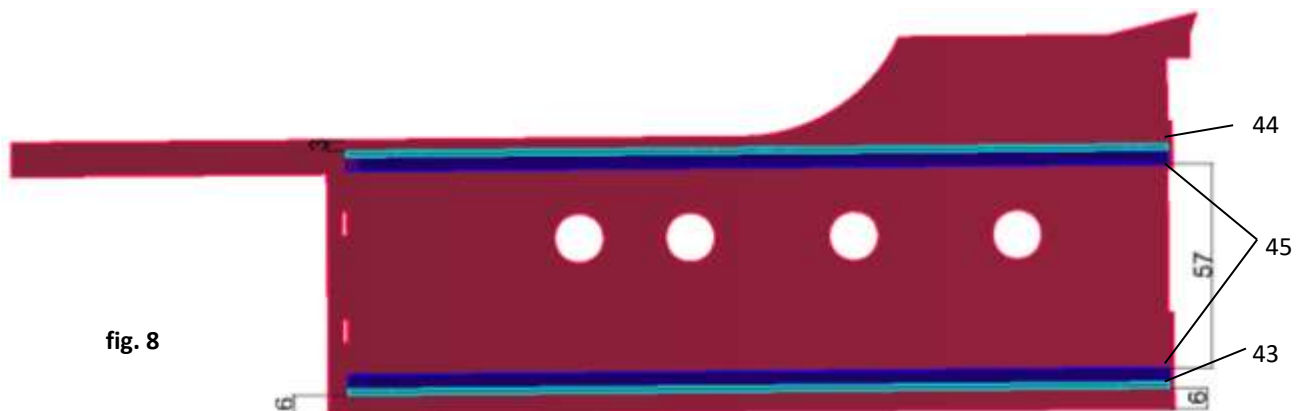
## Deckhouse

Glue the reinforcements 45 on frame 43 to the outer edge.

Glue the front 47 and rear 48 panels to the right side panel 49.

Glue the lower frame 43 6mm from the lower edge into the panels 47, 48 and 49.

Glue the left plate 46 and secure with adhesive tape. It is best to place the part on the deck over the coaming board until it has hardened.



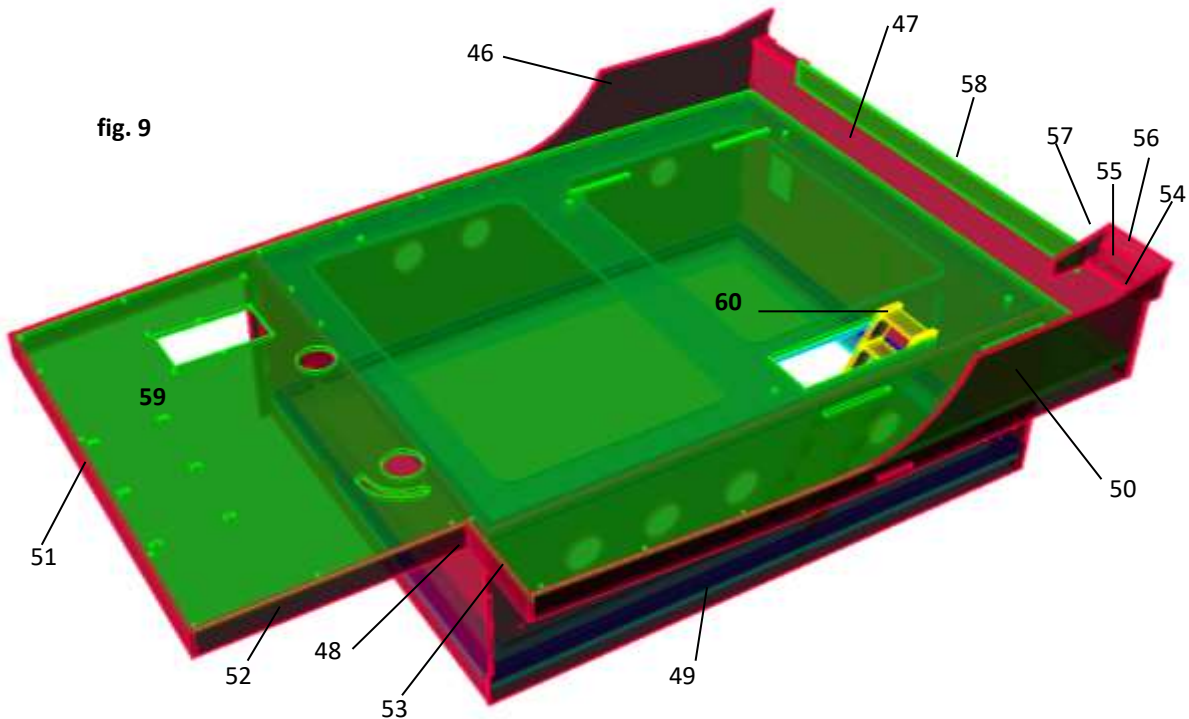


fig. 9

Insert deck 59 and place skirting boards 51-53, secure to deck with adhesive tape. Glue the Nockwand 50 to the front plate 47, secure with adhesive tape.

Glue the right and left cam from parts 54-57 together in mirror image.

Glue the nock into the deckhouse.

Attach part 58 with 2,0mm upper overhang inside stick on the front wall. At the side there must be a distance of at least 1.5 mm to the Nock Part 57.

Remove the boat deck and paint green at the top and white at the bottom.

After drying, protect the boat deck green with masking film from damage.

Insert the boat deck and glue it into the skirting boards/side plates from below/inside.

Glue the stairs 60 (optional) into the deck cutout on the lower bulkhead.

Glue together the staircase from parts 61-64.

Cut 6 pieces of 35mm each from the 1.0mm MS wire. Bend the steps 65 according to the illustration and glue them into the staircase.

Stick a door 66 to the right side of the staircase and provide it with the handles. Bend the handles from 1.0 mm brass wire.

Stick a door 67 without porthole, without step on the right wall 49 and complete with the handles.

From the etched parts, slide 6 handrail supports onto the handrail 75 and glue them into the holes of part 49. The handrail extends to the rear wall 48.

At the front of part 47, complete the double door 69 with step and glue it on.

Cut the two fan pipes 70 to size and glue them in place with a projection of approx. 4 mm.

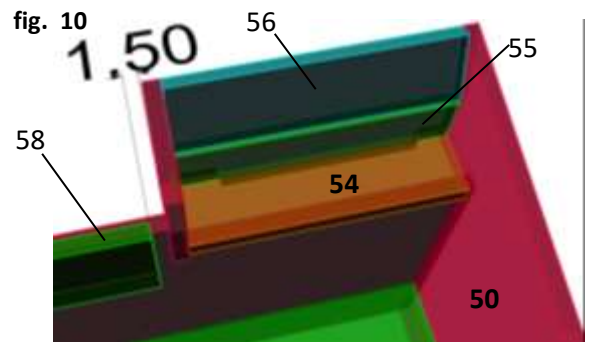


fig. 10

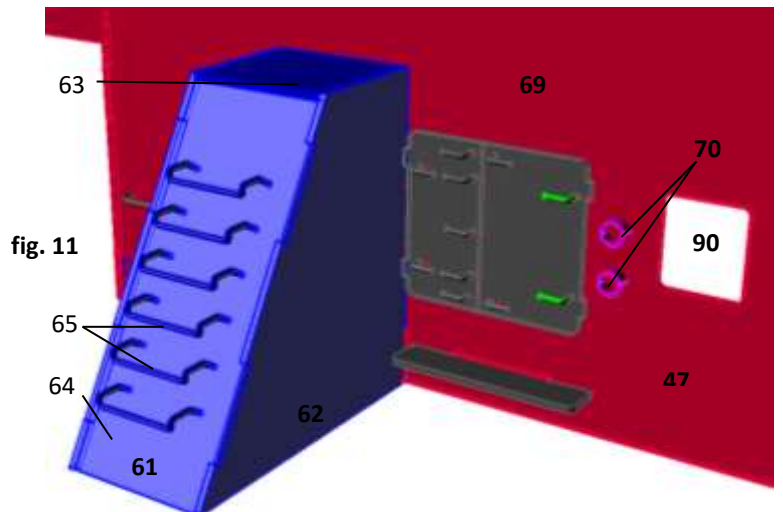


fig. 11



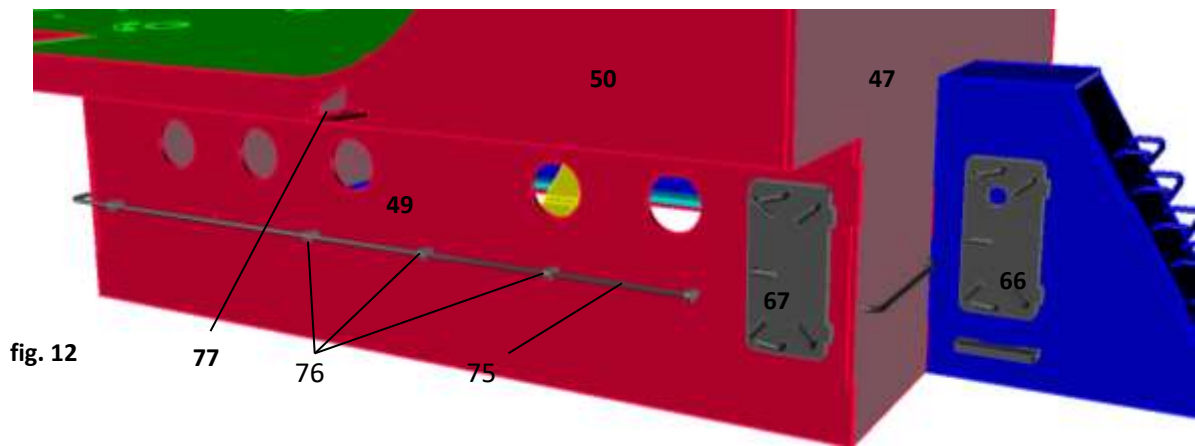
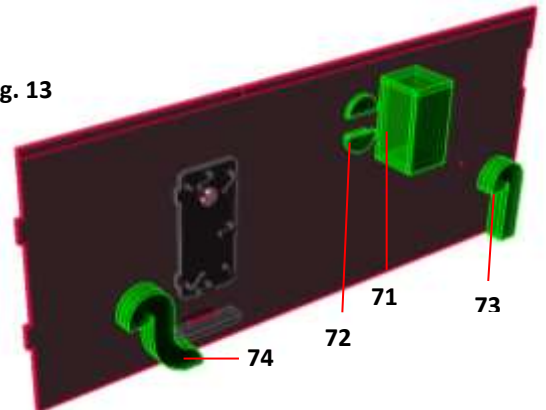


fig. 12

Glue the panes 86 and 90 into the deckhouse with protective film.

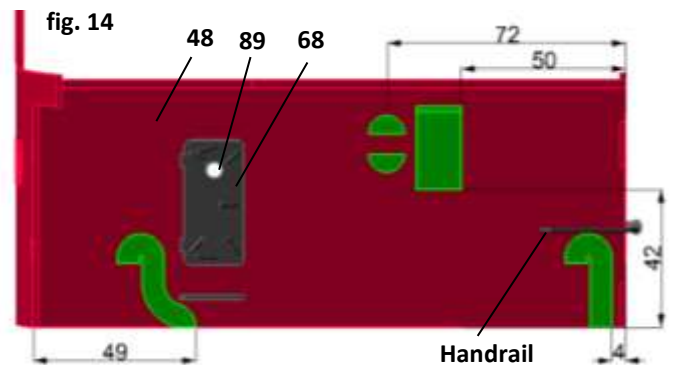
Glue the parts 71 together to a cuboid.  
Glue the parts 72 together as a cable holder.  
Sand the gluing points and glue all parts to the rear panel 48 as shown in the next illustration.

fig. 13



Glue the panes 89 into all doors with windows.  
The fans 73 and 74 are each composed of 3 parts and glued to the rear wall at the appropriate places.

Paint the whole lower deckhouse white.



pic. 15

Sand a bevel at the front edge of part 78 so that it fits into the wheelhouse later.  
Glue the two parts 78 and 79 together. The holes in the masts must lie exactly on top of each other.  
Paint part 79 green and mask with masking film.

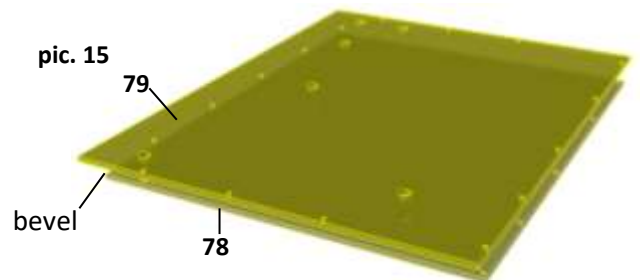
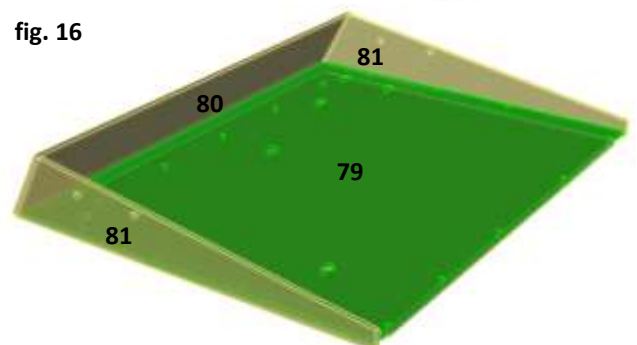


fig. 16

Glue the panel 80 in front of the side plates 81.  
Secure with adhesive tape.  
Insert the roof 79.  
Turn the roof over with the panel and glue everything together from below.



Remove the window panes 87-88 from the Vivak panel **with** the protective film on both sides and glue them into the respective windows.

Use a canopy adhesive Tacky, 6.44085, not a superglue!  
Only remove the protective film from the windows after varnishing.

Because of the pins, place a 1.5 ABS residue under part 82. Glue the side walls 83 to the floor 82.

Glue the rear panel 84 behind it.

Glue the bridge window 85 flush at the top in front. Secure everything with adhesive tape.

Insert the roof until the adhesive has cured.

Paint the wheelhouse inside and out.

fig. 17

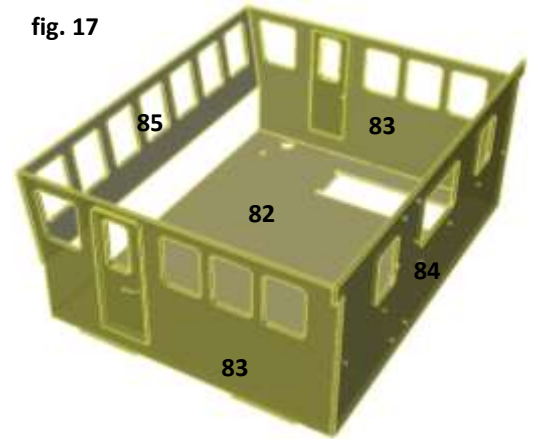
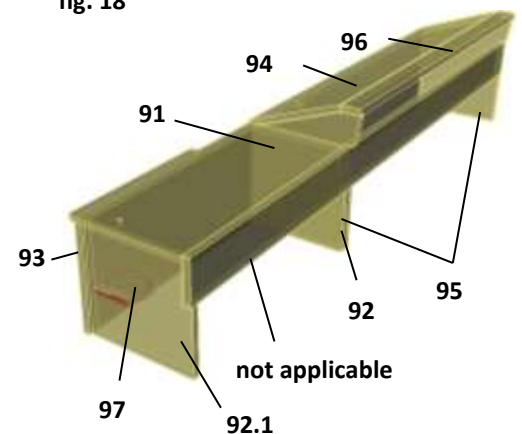


fig. 18



Glue together the chart table from parts 91, 92.

Control panel: On feet 95 glue a control panel 94. Glue above cover 96. Glue facing 93 under a control panel and a card table.

The hole in part 93 is the position of the steering wheel (not included).

The control panel can be removed at your discretion or by taking photos. Glue together the seat corner from parts 98, 99, 100 and paint green.

The gear motor of the radar can be plugged into the ring 97.

Connect the upper radar to the motor shaft with a thin spring steel wire through the table plate 91.

For the worktable, first glue the parts 101 and 102 together, then the front panels 103 and then the table top 104.

On the sides the two plates 105, 105..

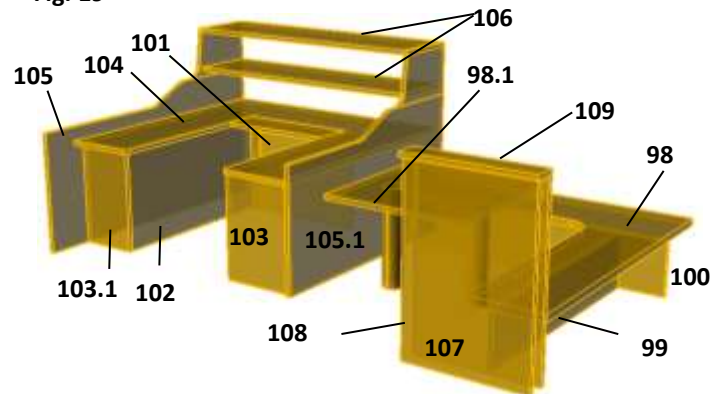
Glue one shelf 106 at the top between the side plates, the other one in the middle between them.

Fit the table of the seating corner 98.1 with 22mm long feet 98.2 and glue them into the seating corner.

Glue together the cover from parts 105-106.

The original parts are made of medium brown wood. Paint accordingly and glue into the wheelhouse.

Fig. 19



-Remove the protective film from the windows first!

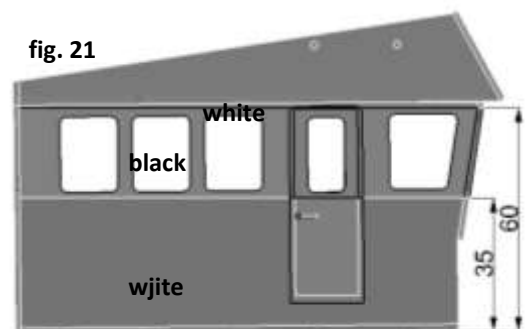
Glue the window panes 111 into the wheelhouse doors 110.

The door handles from 1,0mm

Bend and glue in Ms wire.

Paint the black area of the wheelhouse and doors (Fig. 21).

fig. 21



Glue the discs 131.1 onto the two centrifugal discs 131, paint them black and glue them onto the two discs.

Glue the furniture into the wheelhouse.  
The wheelhouse can be inserted by hooking the lower edge of the front window into the stop 110.

Connect it to the boat deck from below with 4 screws 113.  
Cut the ladder 114 in the length 69mm.

Bend two 1.0mm MS wires as U according to the distances in the deckhouse and solder them to the ladder. Paint the ladder white.

Bend the handrail 115 and the passages 116 of the Peildeck railing section by section.  
The 16 stanchions 398 are etched parts and are included in the [scale kit 4.1702](#).  
Attach the 3-compartment stanchions.  
Secure the completely bent sections on the peak deck roof with adhesive strips and then bend the next section.  
The handrail is only inserted into the rear wall 84 and serves as a locking device for the roof.  
Carefully solder the railing to the roof. Remove from the roof for painting.

Glue the roof supports 120 for the left pane to the struts 122.  
Glue the supports 121 for the right pane to the struts 122.  
Insert the supports under the roof overhang (81) into the bulwark. Glue only to the bulwark, otherwise the roof cannot be opened for repairs.  
Glue the supports 124 for the left life raft to the strut 125.  
Glue the supports 123 for the right life raft to the strut 124.  
Slide it under the roof overhang (81) and glue it to the bulwark.  
Glue the stowage boxes 126, 127 and 128 together, paint them white and glue them to the roof.  
Make the two panes 129 from Vivak and glue them with Canopy glue to the supports 120, 121.  
Glue the two life rafts 130 (not included).

fig. 20

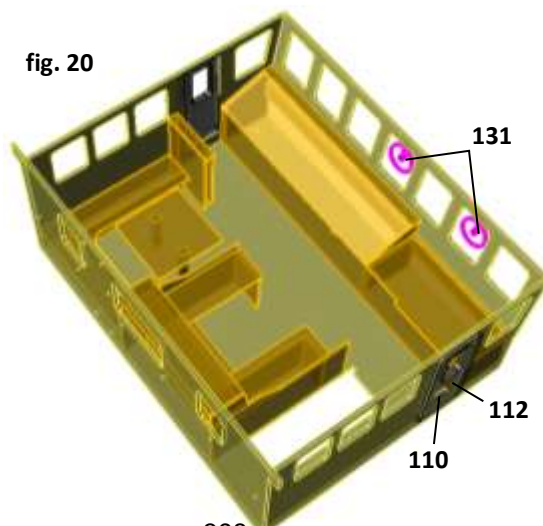


Fig. 22

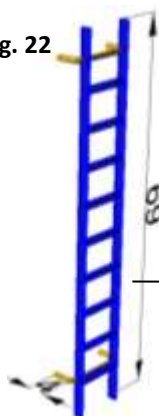
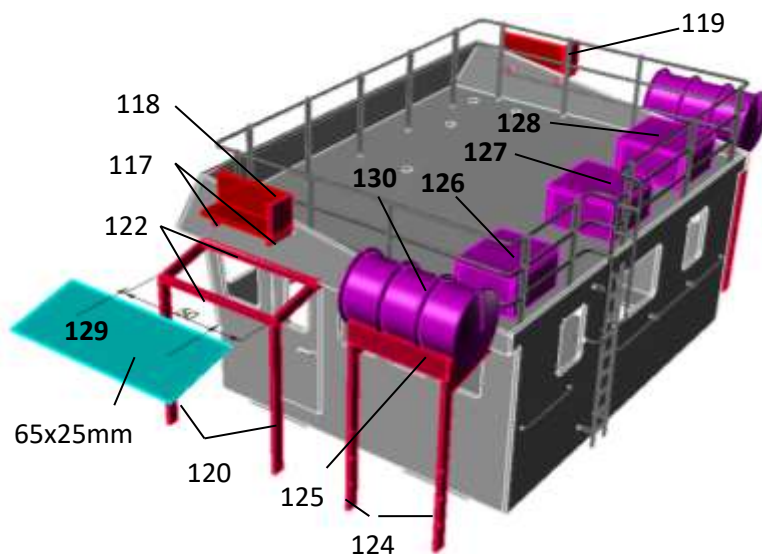
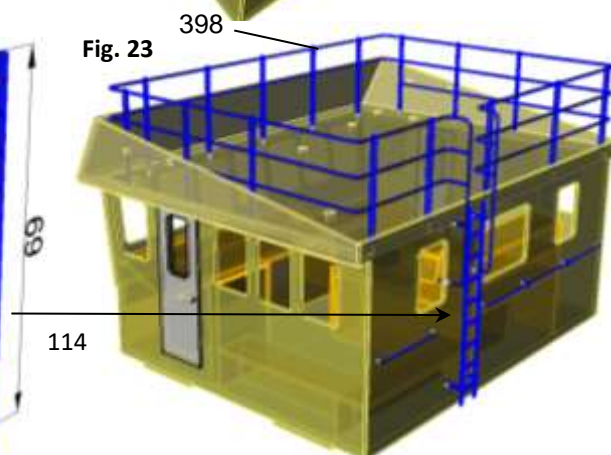


Fig. 23



Glue the two lamp boards from parts 118 and 119 together.  
 Insert the four supports 117 into the side parts 81. Paint the lamp boards white on the outside and black on the inside. Stick on the lamp boards.

All antenna masts on the top deck consist of 4.0 mm ALU tube.

Cut the individual aluminium tubes to length according to the drawing.

132 = 123mm

133 = 85mm

Drill a 1.0mm hole for the strut 139 into the mast 133 according to the drawing.

Glue the ring 136 on the mast 132.

Glue the gusset plate to the mast and ring.

Insert part 133 through the hole in part 136 and glue in place. Insert the wire 139 through the holes of the rings into the mast and glue.

Fit and glue the ring 137.

Glue on the upper ring 138.

3x 1,0mm holes above the ring 137 at an angle of 120° to each other.

Insert and glue the struts 140.

Glue on the radar holder 141.

Paint the entire mast white.

The two radars are included with the geared motors in scale kit 4.1702.

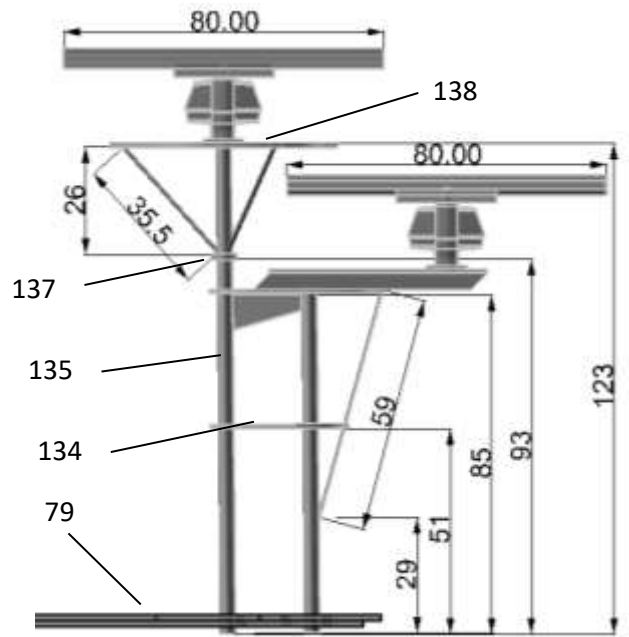


Fig. 27

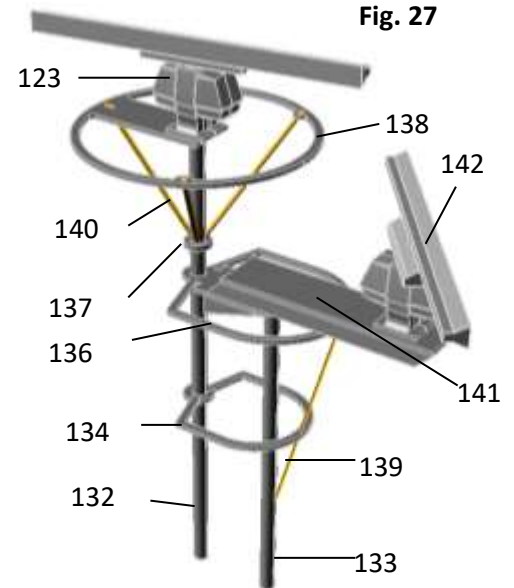


Fig. 28

Glue the compass 143 onto the hole.

Cut the 144 tube for the 145 headlight to 31mm.

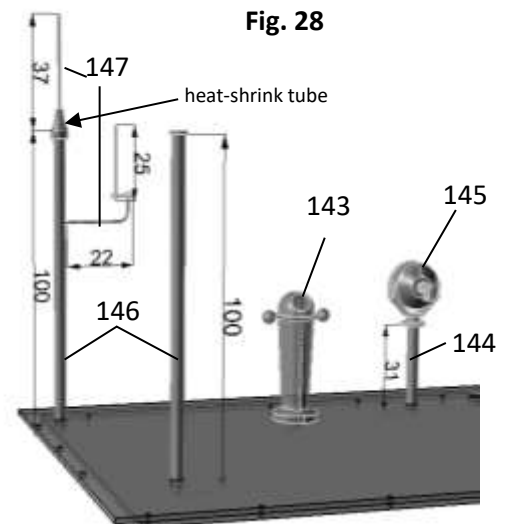
Adjust the headlight holder to the tube and glue it on.

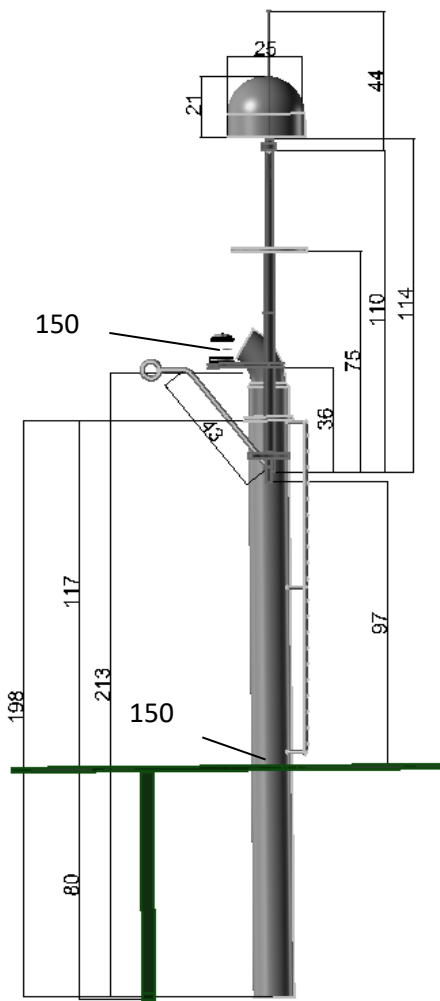
If an LED is to be installed, drill a 3mm hole into the headlight body and glue the LED in place. Cover the lamp glass with masking film and insert into the headlight.

Glue the headlight onto the tube and paint white.

Fasten the upper antenna 147 into the antenna mast with a piece of shrink tubing.

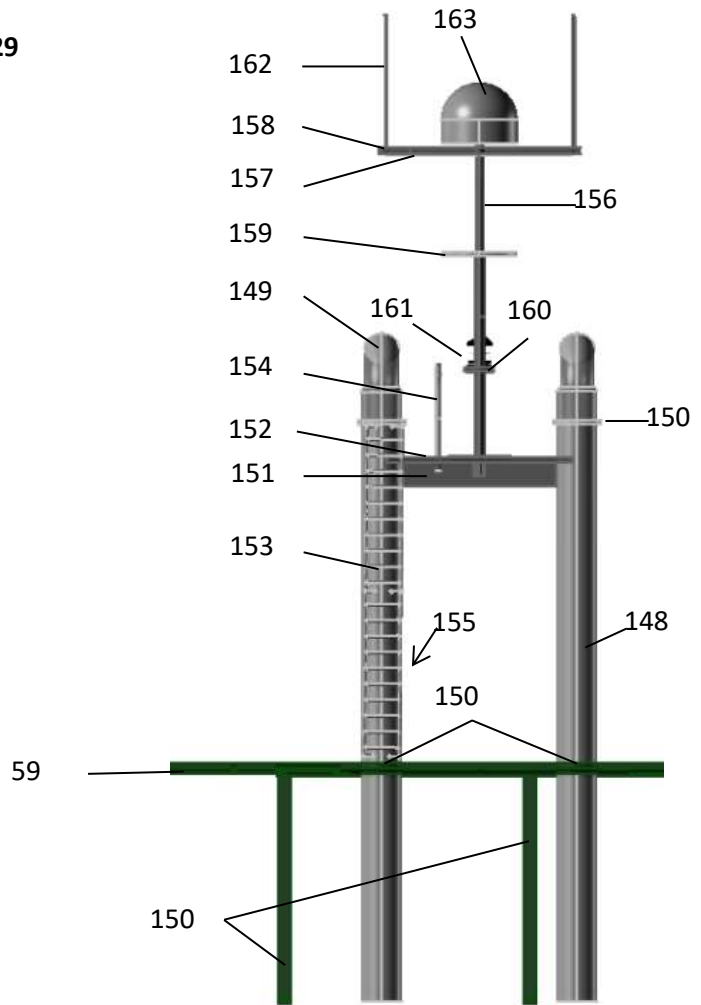
Glue the side antenna 147 into the mast.





View from right, right tube hidden

Fig. 29



Front view

Cut the two exhaust pipes 148 to size. Glue a ring 150 on top of each. Glue on one copper bend 149 each. Glue the two spacers 151 and 152 together to form a traverse. Glue this traverse between the pipes 148. Distance lower edge tube 148 - lower edge traverse = 176mm

Place the two lower rings 150 on the tubes.

The tubes are held at the bottom of the main deck.

Place the deckhouse on the deck. Insert the two tubes through the boat deck into the main deck. The exhaust system is 117mm to the upper edge of the truss above the boat deck. Push the two lower rings up to the boat deck and fix them to the pipes. Do not glue to the boat deck.

After drying, pull out the unit again and glue the rings together.

Cut the ladder 153 to 100mm. Bend the ladder sides backwards. from 1,0mm MS-wire rests Bend a spacer U-shaped and glue or solder it centrally to the ladder. Mark the ladder position on the right pipe (from the front view), pre-drill and glue in the ladder. Bend the flag holder 154 out of 1.0 mm MS wire and glue it onto the traverse next to the mast. Drill 1.0mm through part 152 at an angle so that the flag holder holds well.

Glue the clamp 155 to the inside of the right post.

Drill 156 5.0mm from above through the mast with 1.0mm. Push the reinforcement 157 through. Attach the antenna spacer 158 to the top and glue it to the reinforcement and the mast.

Place the ring 159 and the lamp holder 160 on the mast and glue them together. Glue the two antennas 162 into the Saling 158.

Glue the radome 163 to the top of the mast.

Grind off the bearing 165 a little at the support to fit it at the exhaust post. The adhesive will later fill the open areas.

Insert the parts 167 into the boom 164.

Insert part 166 in between and connect with bolt 169.

Insert the bolt 168 through the bearing and the block 171.

Attach the boom fittings 170 turned by 90° to the other end of the boom. Bend an eye 172, hang in the block and glue it into the post 148, 3mm below the ring 150 (pre-drill), Fig. 32.

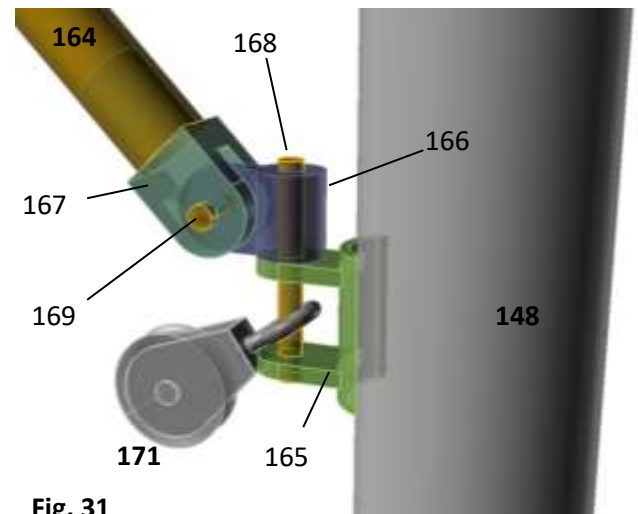


Fig. 31

Please see the photos for the line guide.

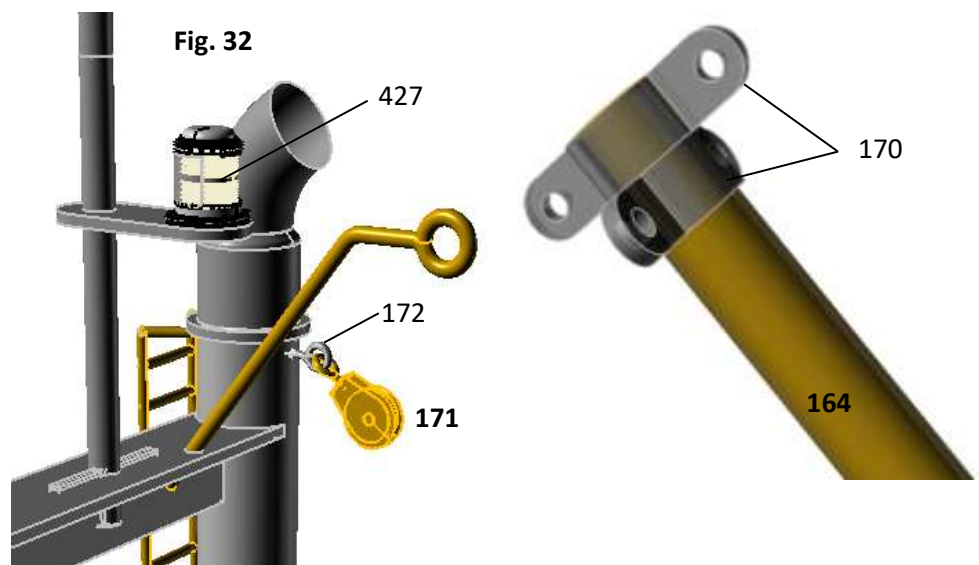


Fig. 32

First build the parts of the boat deck.

The storage boxes are all to be built according to the same principle, without floor.

Glue backrest 175, front wall 176 and rear wall 173 to sides 173. Then glue on the seat and cover.

The other two storage boxes 179 and 180 are only longer.

Glue both sides 182 to the fan base 181. Glue the fan plate 184 in place. After drying, roll the cover 183 over a table edge and bend it.

Paint white and glue on.

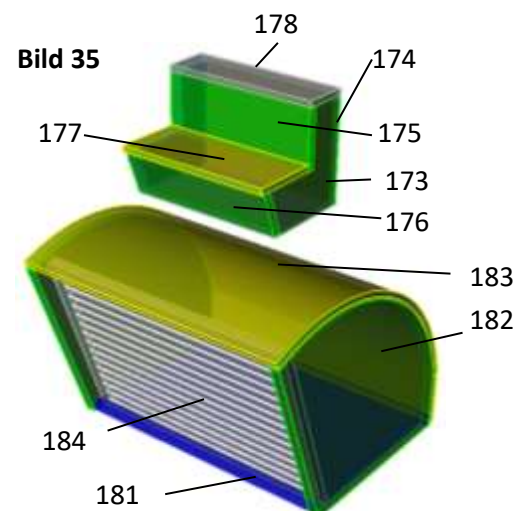
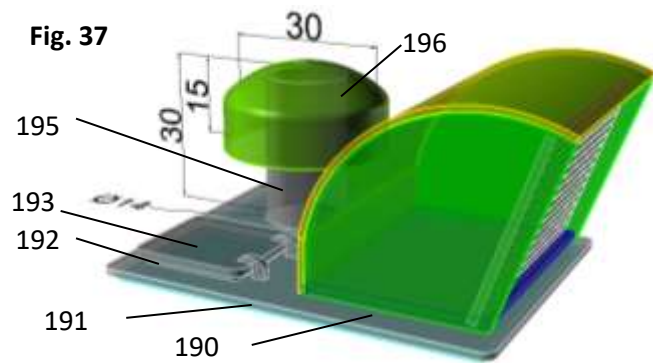
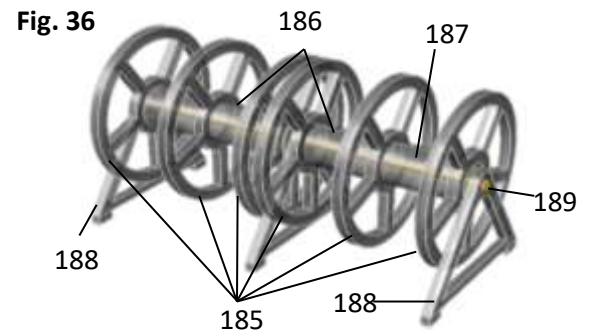


Bild 35

Glue the coaming 191 under the hatch 190 in the middle.  
 Glue the 192 plate under the 193 hatch cover.  
 Glue on pipe 195 a fan cover 196.  
 The two fans are white, the hatches green.  
 Glue the three parts onto the hatch 190.  
 The opening in the fan housing can be the sound outlet of the loudspeaker.



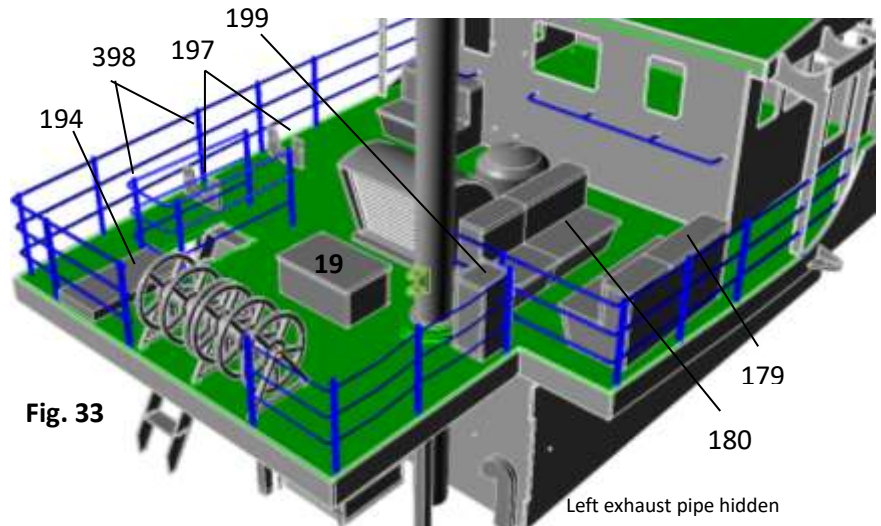
Glue together 2 lines reels from parts 185 and 186.  
 Glue 1 pipe 187 each into part 186.  
 Insert the brass wire 189 as a shaft through the reels and the supports.  
 Paint white.



The railing pullthroughs on the boat deck consist mainly of steel cable or chains in the rear part. Please inform yourself about the pictures.

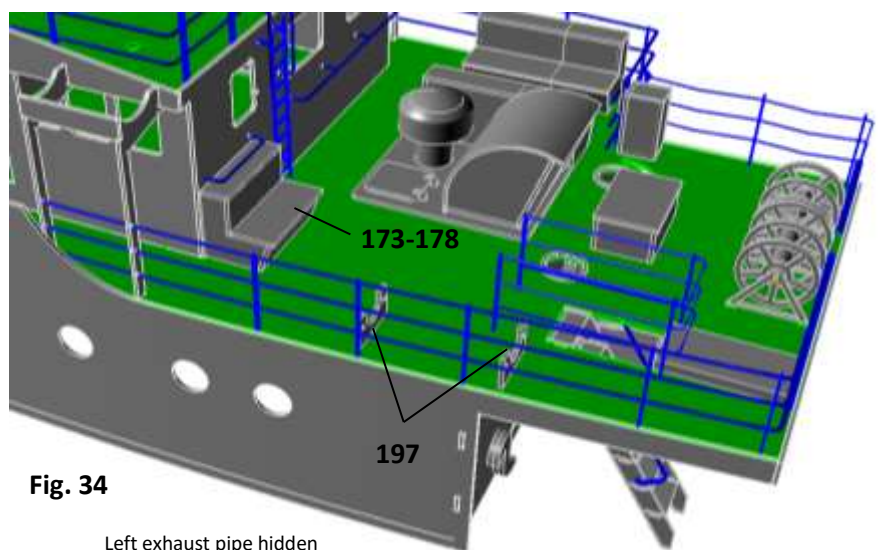
After finishing the railing, glue all parts to the boat deck.

The 19 stanchions 398 are etched parts and are included in the [scale kit 4.1702](#).



The two boat supports 197 are suitable for the enclosed inflatable boat.

The three divers can be shown on the model as crew.  
 The line guidance of the loading boom you take please from the pictures.  
 The load hook is hooked into the handrail of the railing.  
 Hang the two ropes for moving the boom with a hook in an eyelet 239 on the handrail of the hull (see pictures).



Overview of the rear area

Fig. 38

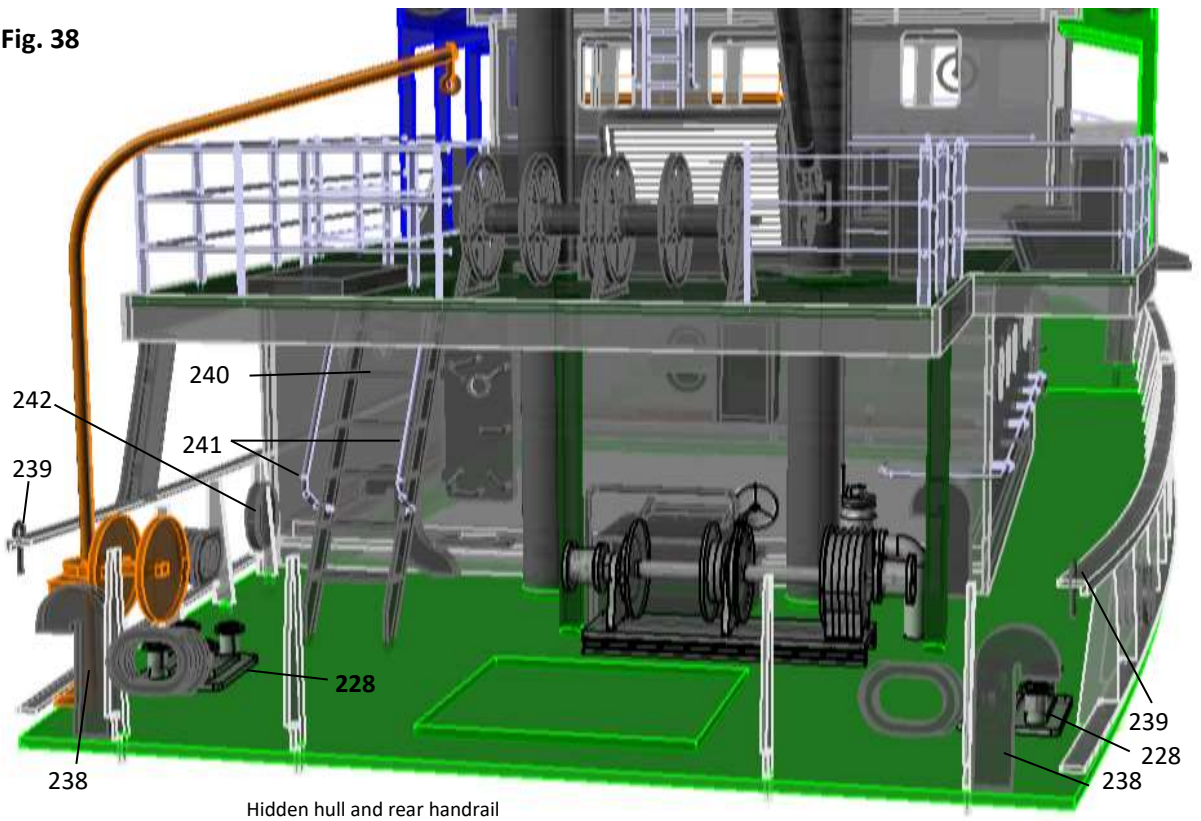


Fig. 39

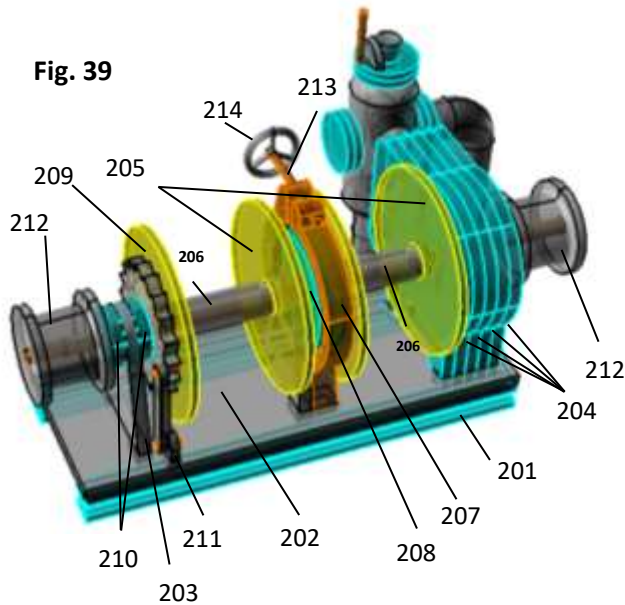
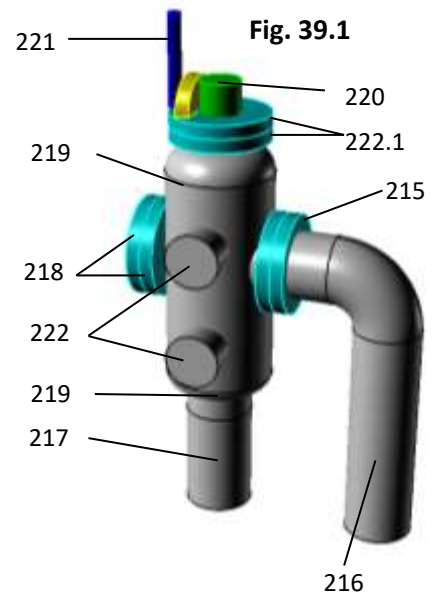
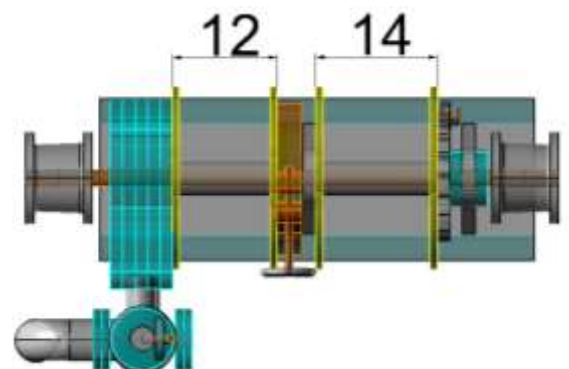


Fig. 39.1



Mount the steam winch in the stern according to the drawings. The tube 216 is made of soft annealed copper so that it can easily be bent in a narrow radius, if necessary anneal again and quench with water. The safety valve 219-221 can only be indicated, but can be detailed on the basis of the pictures. The whole winch is painted in light grey.





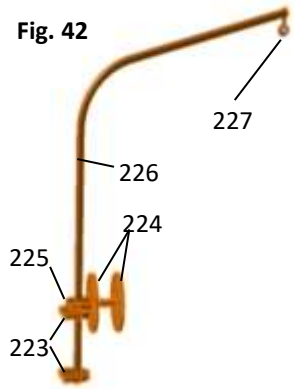
Bore through one end of the crane arm 226 with 1mm and solder in a bent eyelet 227.

Glue the holder 225 at 27mm from below onto the crane.

Glue the two reel discs 224 onto the holder.

Fit the two swivel bearings 223 onto the crane.

Paint orange and glue to the rear left side of the board wall.



On both double bollards on the aft deck, the posts facing the centre of the ship are inclined inwards by approx. 3-4°.

Fig. 43



Assemble the hatch 231-236 on the aft deck as shown in Figure 44.

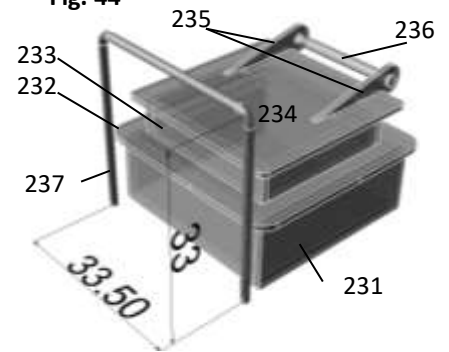
Paint grey.

Place the deckhouse on the deck and glue the hatch between the exhaust posts at about 1.0mm from the rear wall.

Bend the guard rail 237 and glue it into the deck.

The position in the deck is not pre-drilled!

Fig. 44



Glue the two fans 238 together from 3 parts each, paint them white and glue them to the tailgate.

To glue in the eyelets 239 of the boom rope, pre-drill the handrail with 1.0 mm.

Glue the stairs to the boat deck 240 together. Glue into the boat deck. Bend the two handrails 241 and glue them into the two holes in the boat deck and on the stairs.

Glue the fire extinguisher box 242 to the left rear bulwark.

Glue the support 243 to the strut 244.

Fit between handrail (part 37) and deckhouse (part 49).

Drill a 1.0 mm hole into the adhesive seam and glue a piece of 1 mm brass wire into it.

Drill a 1.0mm hole in the handrail up to the GRP side wall.

Paint the support white. Glue on the handrail with a little glue.

Fig. 44.1

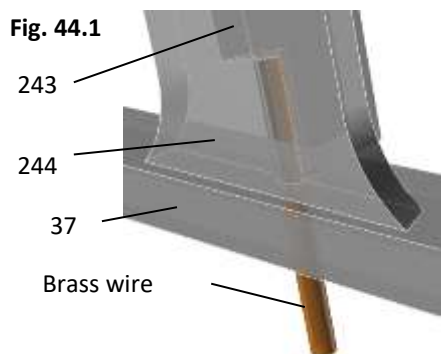
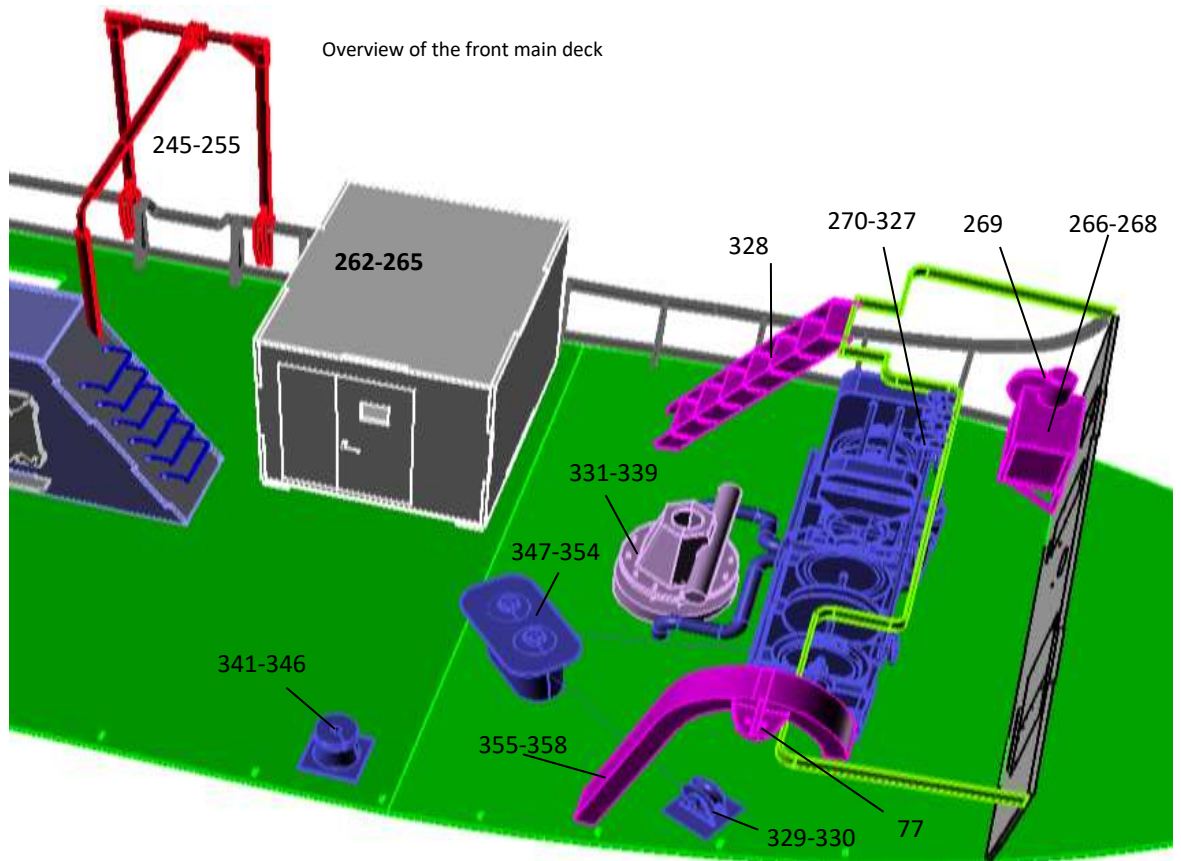


Fig. 45

Overview of the front main deck



Glue together the container from parts 262.  
 Glue 1.0 mm plastic round into the base plates.  
 Glue the corners under the container corners.  
 Until the container has hardened, insert the feet of the container into the holes in the deck.  
 After painting, glue the pane 263 in place.

**Side crane**

Slit the crane columns at the top so that the gusset plate 249 can be inserted.  
 Slit the traverse 248 on both sides.  
 Push the two bearings 250 into the cross member 248. Glue the traverse and crane columns to the gusset plates 249.

Push joints 246 into crane columns 247 and connect with a wire for alignment. Glue the joints into the tubes.  
 Glue into part 252, part 246. Insert the joint between the bearings 250 and secure with an brass wire. Paint everything orange.  
 Drill a 4.0mm hole for part 253 diagonally into the companionway. Glue in part 253 vertically.  
 Paint the brackets white, mount them on the joints and glue them to the handrail and the side wall. see figure 47.2.

Fig. 46

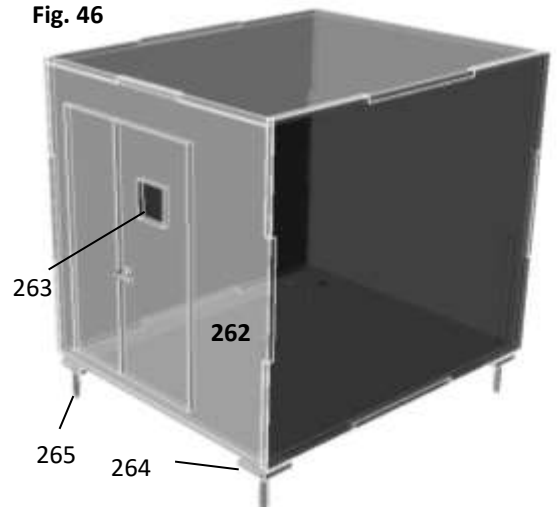
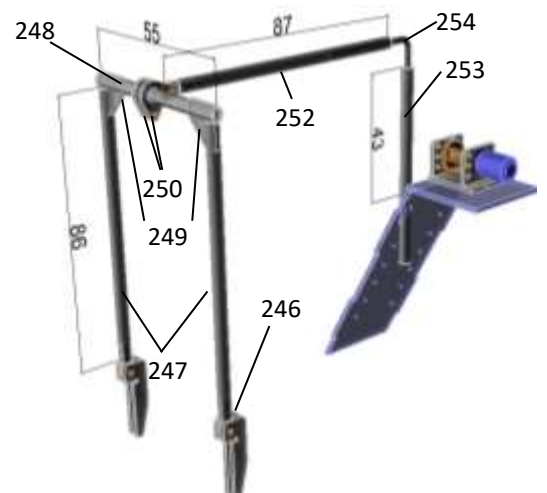


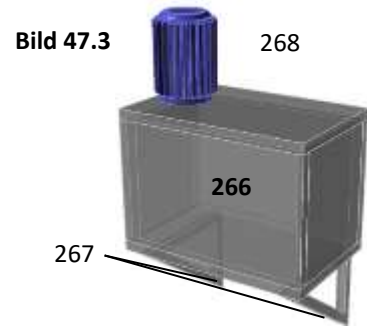
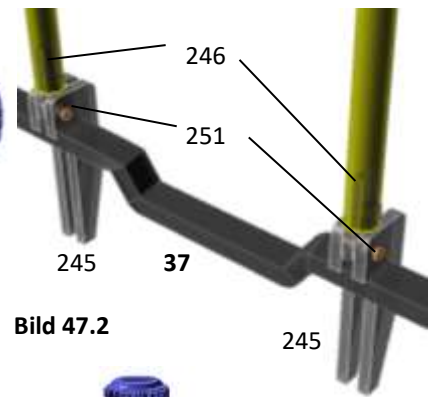
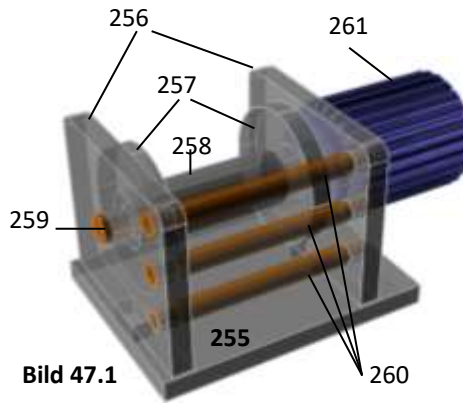
Fig. 47



Mount the winch, paint it orange and glue it to the companionway.

As part 254, bend a 2.0mm brass wire at right angles. Insert into part 253 and glue into part 252.

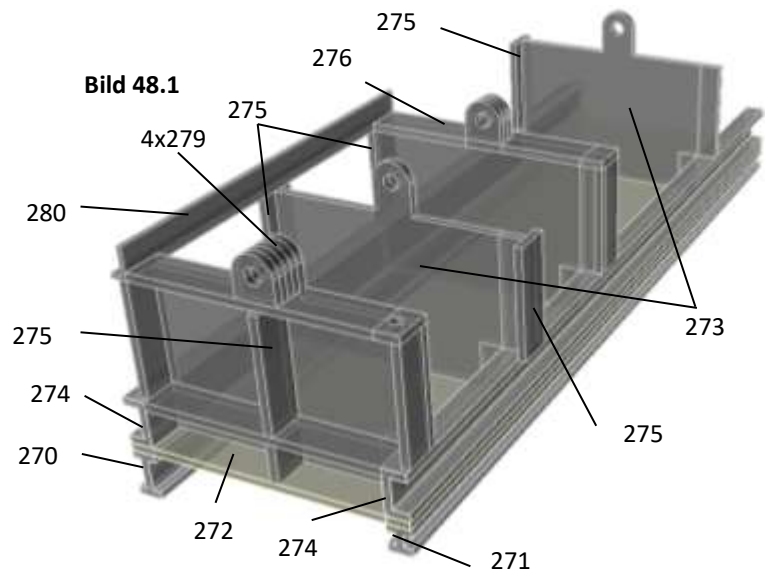
To remove the wheelhouse, pull the wire bracket out of the holder 253. The crane is swivelled outboard. Glue the hydraulic pump from parts 266 together.



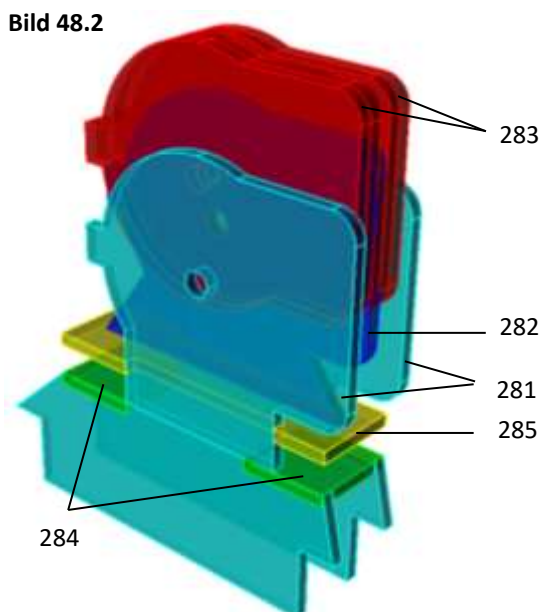
Glue the supports underneath. Glue the motor to the right side. Paint everything orange. Glue to the left side of the front bulkhead. Glue the second fire extinguisher box 269 to the ship's side.

### Steam Net winch

First build the following assemblies  
winch foundation



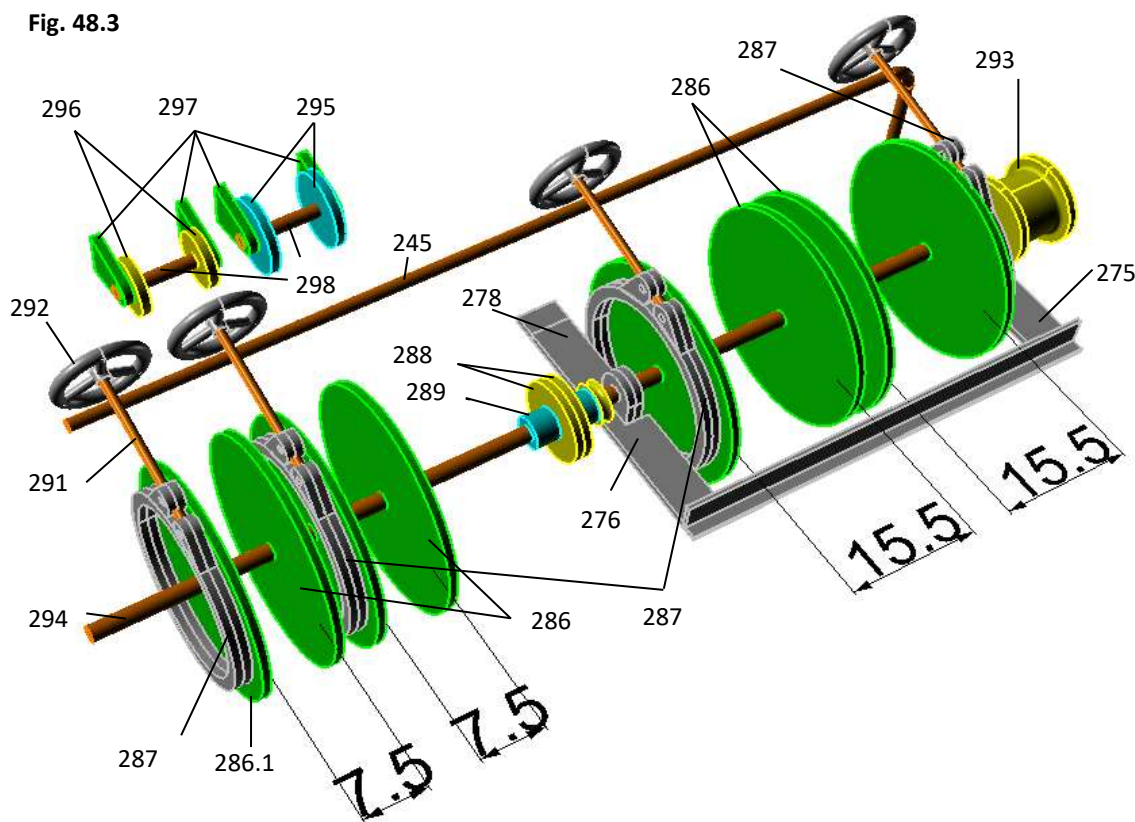
steam drive



Glue this component together. Align the holes with a 2.0mm wire.

The drums are no longer rotatable after completion. Drill a 1mm hole through the ends of the brake rings 287 in the middle. Later the brake rods 291 are inserted there. The lever mechanism of the release bearing was not shown. Between the drum discs can be inserted tube pieces 4x2x7,5mm or 4x2x15,5mm . Thus the drums remain rotatable for the time being. Wind any ropes onto the drums before inserting the brake rods.

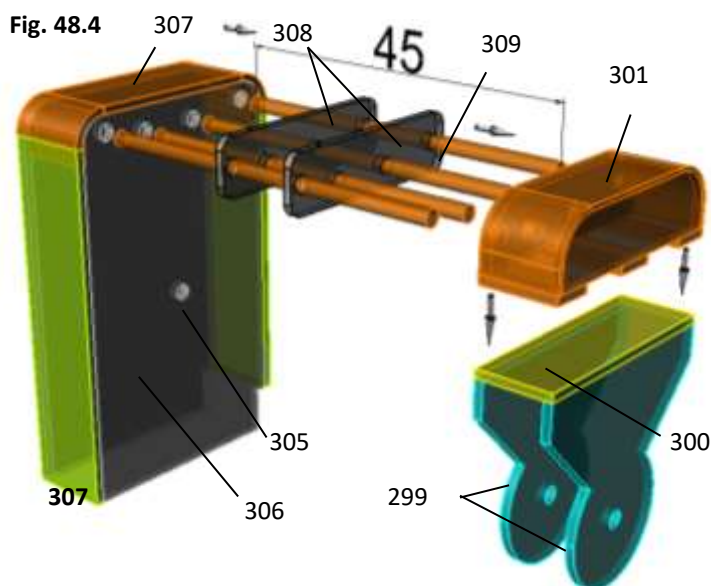
Fig. 48.3



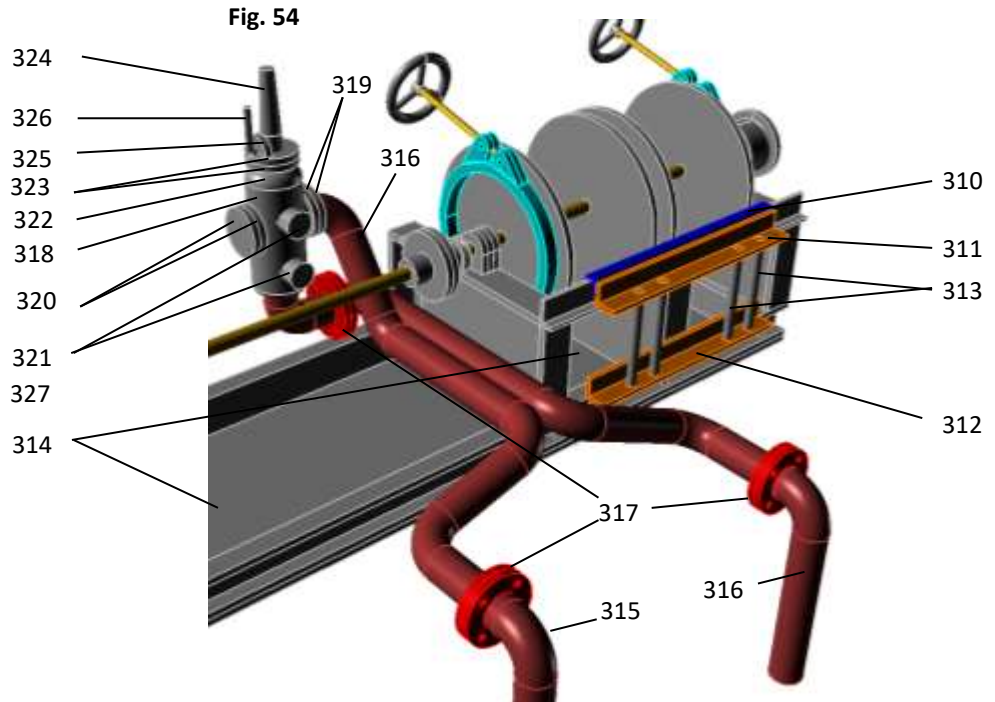
During assembly, push the shaft 294 through the bearings in the winch foundation and push on the drums. After mounting the winch on the deck, the two pulleys are glued over the drums to the back deck skirting board 40. The steel cables of the two small drums are deflected over these.

Parts 301 and 307 are 3D printed parts. The holes may have to be redrilled. Place part 308 as template. The bearing holders 299 are pushed over the steam drive parts 245.

Fig. 48.4

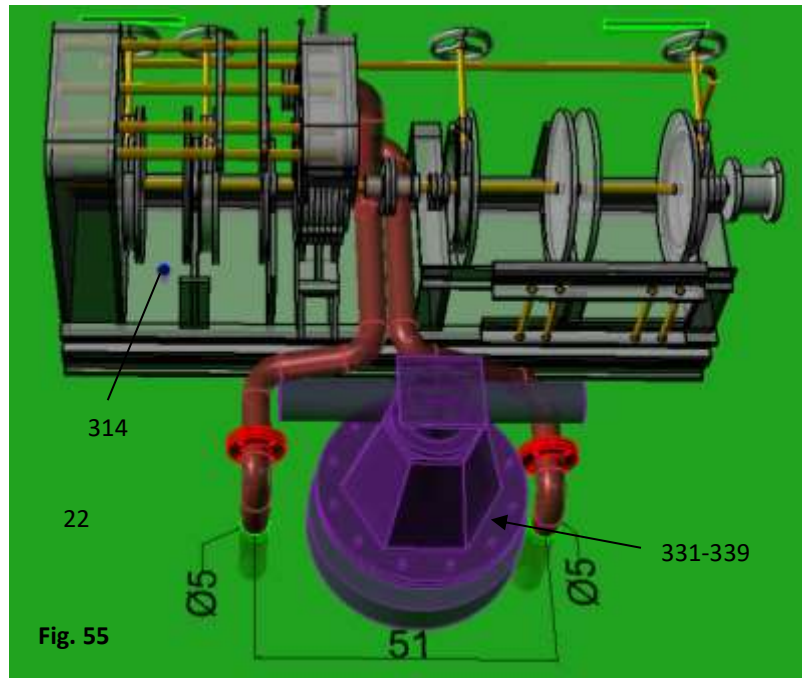


Glue the steam valve parts 317-327 together.  
 Bend and cut the copper pipe for part 316.  
 Bend and cut part 315.  
 The lines can be routed below deck.  
 Two 5mm holes must be drilled.  
 Please refer to Fig. 55 for dimensions.  
 For tightness reasons, the pipe should end on the deck.  
 Parts 314 are used to position the winch in the holes of the main deck.

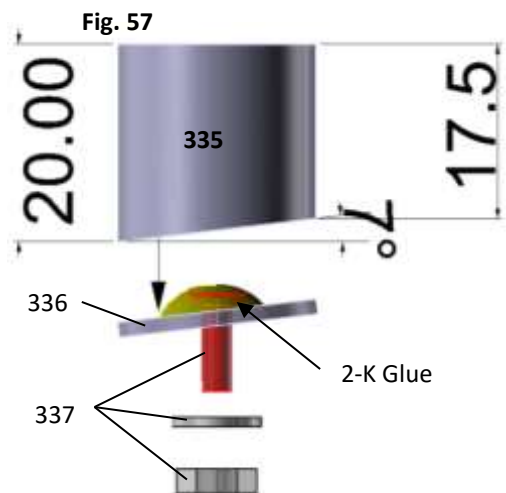


The crane foundation is located between the two steam pipes.

Carefully bend the hexagonal casing part 331 at the engraving lines and glue it together. Glue in the inner flange 333.  
 Insert into the outer flange 332 and glue everything together.



Grind the underside of the crane foundation 335 at an angle of 7°.  
 Glue the inclined pipe part 336 and grind it flush with the outside of the pipe. Push the screw 336 through.  
 Insert the part into the deck hole, screw below deck and glue the screw head in the pipe.



Glue the lower flange 334 to the outer flange. Round material or screws ( $\varnothing 1.0\text{mm}$ ) can be inserted into the screw holes.

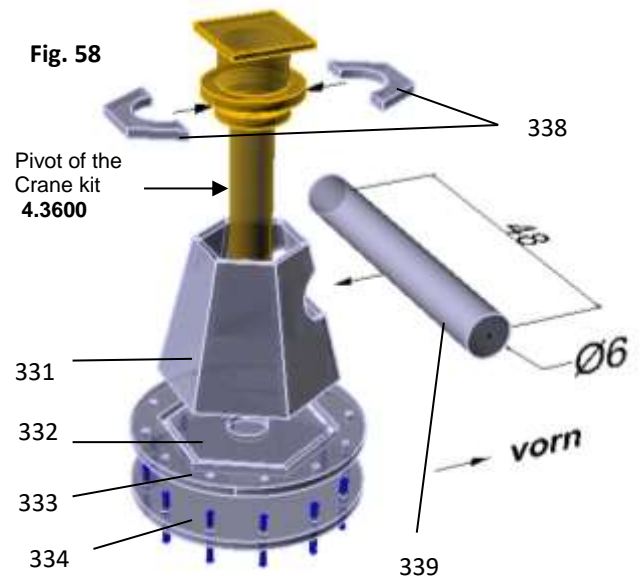
Glue the tube for the hydraulic cylinder at the ends and glue it in the middle of part 331.

Insert the two half-shells 338 into the lower groove of the pivot pin and glue them to part 331. The pivot should remain rotatable.

The crane is mounted on the plate of the pivot.

The crane and the pivot are part of the [crane kit 4.3600](#) or the [scale kit 4.1702](#) in our shop.

Glue stair 328 together, paint white and glue to the forecastle deck.



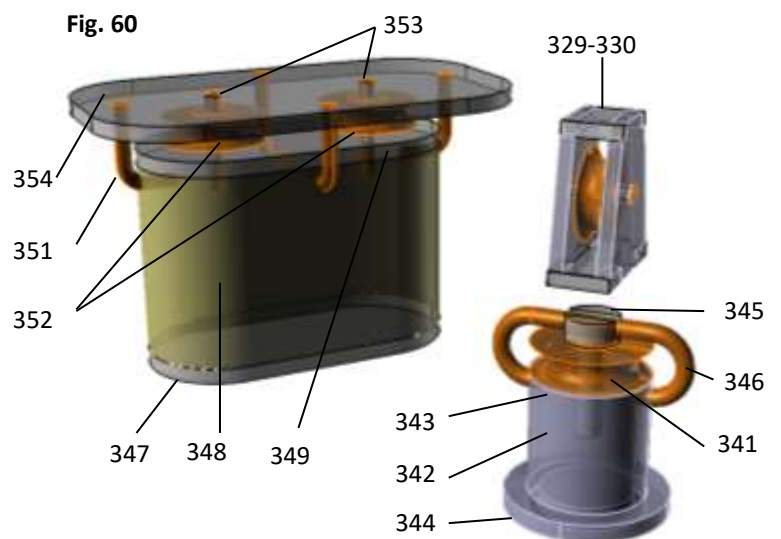
Assemble the pulleys 329-330 and 341-345 according to the drawing,

Make the intermediate piece 348 from balsa or similar and glue it between the plates 347 and 349 and adapt it to the contour of these plates.

The 345 shaft can consist of a 1.5mm  $\varnothing$  screw with a sophisticated head, a small 1.5mm split pin or rivet.

In the case of a screw, unscrew the thread to 1.5mm.

After painting, glue the parts to the deck.

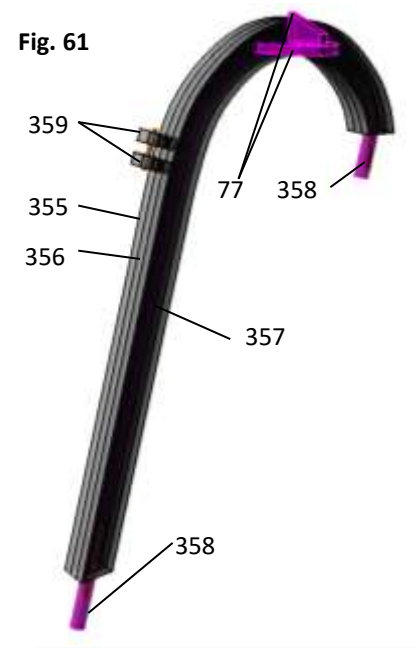


Glue the net gallows from parts 355-357 together.

Glue the two roll holders 77 and 359 into the recesses. A 1.0mm brass wire through part 359 can be used to hold a single-pane block.

Through the two holes in part 77, a 1.0mm U-bent wire is used to hold another single-pane block. The same block is attached to the bracket in the Nockwand 50.

Use Megabond 2000 or CA adhesive to glue the two brass wires 358 into the two openings of the net gallows. Paint white and glue into the two holes of the main deck and the back deck.



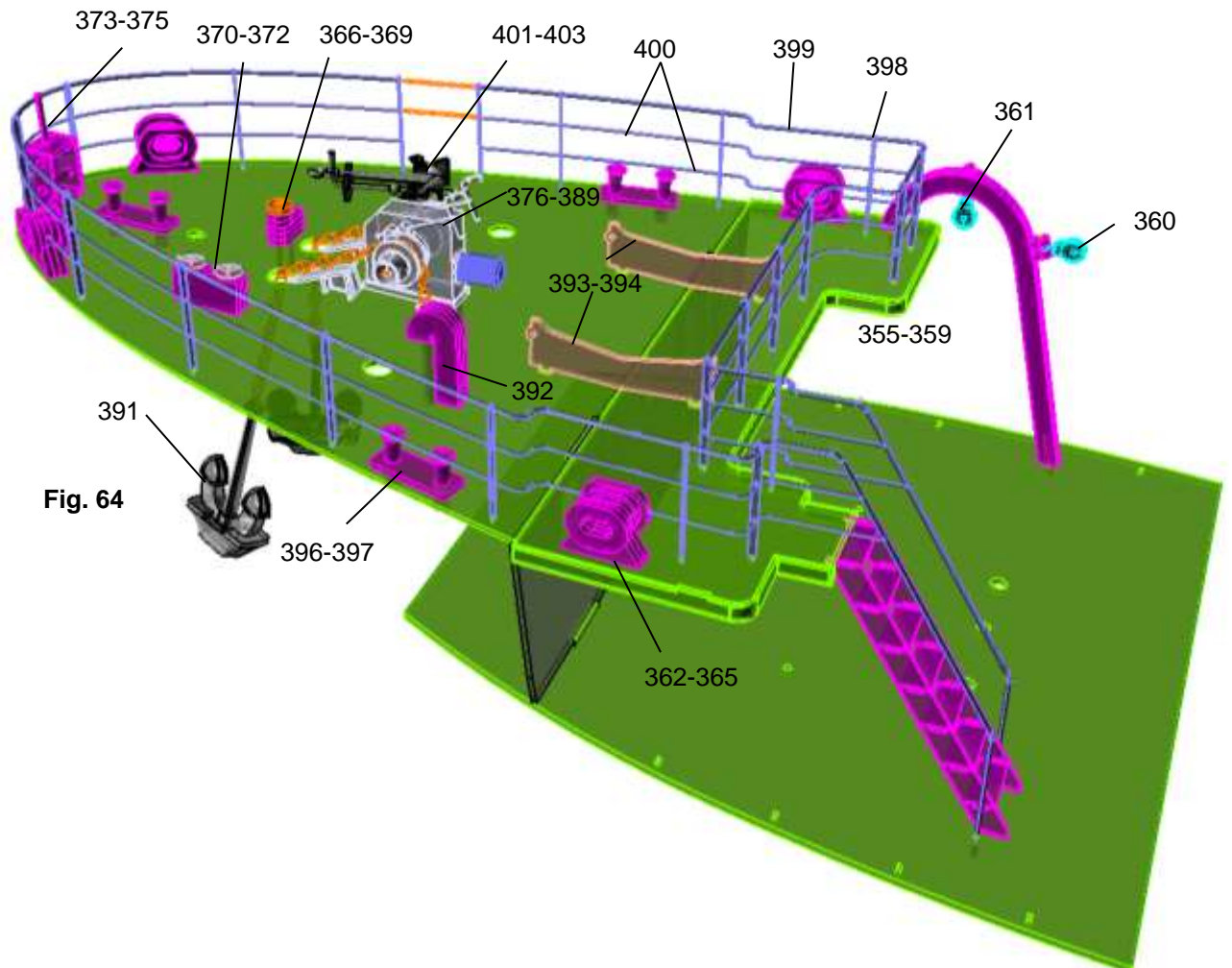


Fig. 64

Push the railing stanchions 398 onto the handrail 399 and the pullthroughs 400. Bend the railing in stages and fix it to the deck/hull with adhesive strips.

Solder carefully and paint white.

The 22 stanchions 398 are etched parts and are included in the [scale kit 4.1702](#).

The boat trailers 393-394 are suitable for the zodiac 4.3610 (not included)

Smooth and glue together the 3D print parts 362-363 of the line nozzles.  
Paint black.

Glue the line nozzles 362-365 onto the forecastle deck only after completion of the railing.

Glue together the pulley from parts 366 and 367.

Insert the two brass wires 369 into the holes.

Paint all green

Attach the roll 368.

Glue the valve box from parts 370 together.

Glue the wires 372 for the handwheels in the middle with the incisions. Slightly round the handwheels.

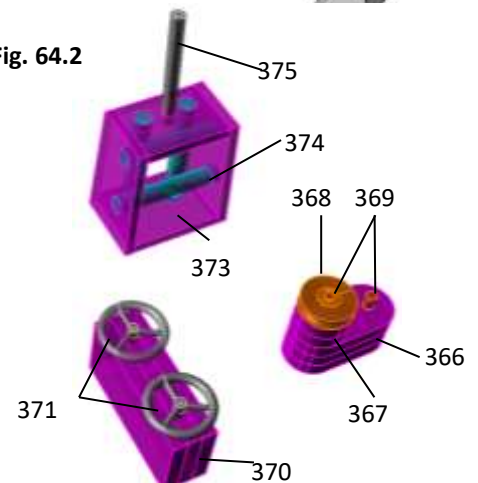
Paint green.

The cable guide 373 is no longer in operation, the shafts 374 have been dismantled. It only serves as a holder for the Gösch. The component is white. Only after the completion of the railing S tick on the deck.

Fig. 64.1

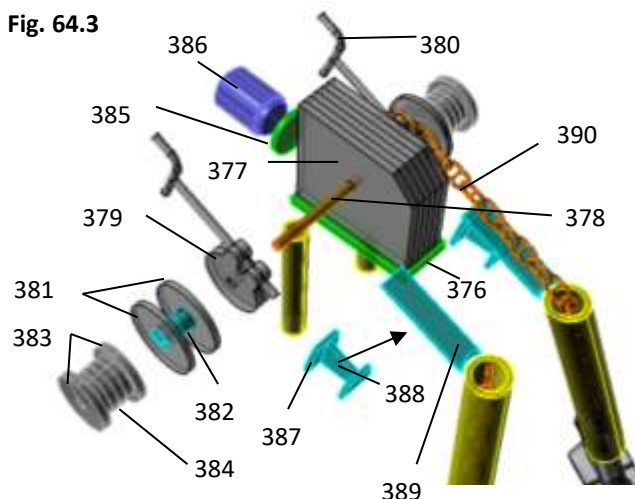


Fig. 64.2



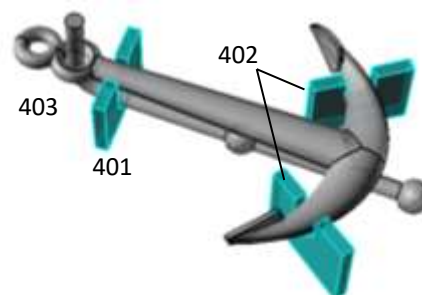
Glue the winch body 376 and 377 together.  
 Push the shaft 378 through.  
 Fit the brakes 379.  
 Drill a 1.0 mm hole for the brake spindle through the two elevations in part 379.  
 The length of the brake spindle = 25mm.  
 Solder the handle to the brake spindle.  
 Insert the spindle and glue the brake to the winch body at an angle of approx. 28° to the base plate.  
 Make the chain sprockets from parts 381 and 382.  
 If an electric windlass is to be installed below deck, the chain sprocket must remain easily rotatable.  
 Glue the capstan head together and round it off.  
 Glue the chain stopper from parts 387-389 together.  
 Paint the winch and chain stopper green.

Fig. 64.3



Paint the bracket for the spare anchor green and fix it to the anchor.  
 Glue the brackets to the forecastle deck after finishing the railing.

Fig. 64.4



forecastle deck  
 bollards

Glue the bollard covers 397 onto the posts 396.  
 Insert the posts into the bollard bench and glue them over the bollard bench with a projection of 8 mm.  
 Lacquer black.

Rail

Thread some railing supports onto the handrail and the pullthroughs. To bend, start with the handrail on the stairs.

Bend one section (3-4 supports) and fix it to the deck and hull with adhesive tape.

Gently solder in sections of handrail and pullthroughs. Use a soldering iron that is not too small. The stronger the soldering iron, the faster the solder flows and the less heat is released into the plastic deck.

After soldering, remove the railing and plaster it, then paint it white. Glue the railing into the deck.

Position the bollards. Line nozzles and the rope guide and cut out the corresponding pull-through elements.

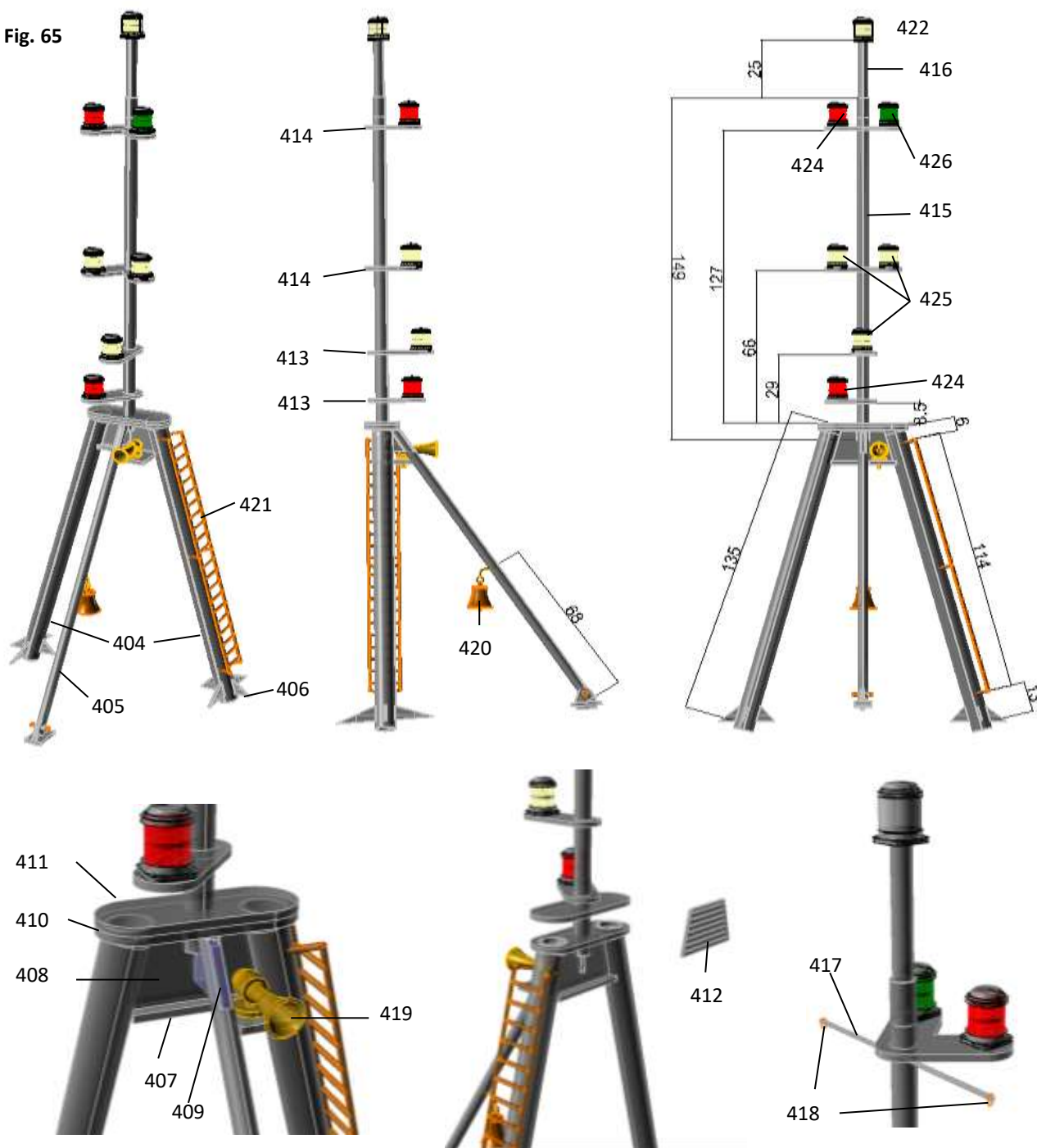
Bollards. Glue the line nozzles and the hawser guide onto the deck.

Paint the boat trailers 393+394 green and glue them into the forecastle deck.

Assemble the boat 4.3610 ([included in the Scale kit](#)).



Fig. 65



### Mast

Insert the tubes into the deck openings or the front bracket to glue them together.

The strut 405 must be slotted in at the top and bottom to accommodate the gusset plate 409 or the holder 41. A 2.0 mm hole is drilled crosswise at the bottom. There a 2,0x6mm brass wire is put through to fix the mast.

The holder 428 for the yellow rotating light is located 15mm under the saling 418 and is turned 45° to the left.

(Free rider lamp for NOK)

A small printed circuit board can be accommodated under the grid 412, where the lamp groups are combined. Glue the grid only with contact adhesive. In this way you will always get the cable connection in case of repair.

We wish you much success with the construction of this high-quality model and always a hand's width of water under the keel.

Uwe Bauer, Bauer-Modelle

Recommended accessories: Order numbers = in the shop [bauer-modelle.com](http://bauer-modelle.com)

<a href="#">Akku 7,4V5800mAh</a>		Best.Nr. 316645MPX	
<a href="#">Bow thruster</a>		Best.Nr. 702013	22mm
<a href="#">control for bow thruster</a>		Best.Nr. 4.4015	6-9,9V, 8A
<a href="#">Lighting set fishing boat</a>		Best.Nr. 4.4304,	(Decksstrahler nicht berücksichtigt)
<a href="#">Soundmodul USM-RC3</a>		Best.Nr. 4.4229	Sound-, Schalt- und Lichtmodul
<a href="#">Laudspeaker</a>		Best.Nr. 4.4261	25W
<a href="#">Dinghi</a>	Best.Nr. 4.3610		Spritzgussatz
<a href="#">Crane</a>		Best.Nr. 4.3600	Spritzgussatz
<a href="#">Motor</a>		Best.Nr. 4.281575	Langsamläufer, brushless
<a href="#">Controller</a>		Best.Nr. 8.C9759	15A
<a href="#">Servo</a>		Best.Nr. 4.4837	Standard
<a href="#">Propeller</a>		Best.Nr. 716607	(45mm, links, Form A)
<a href="#">Signalhorn</a>		Best.Nr. 568216	MS, 16mm
<a href="#">Glocke</a>		Best.Nr. 568008	8mm
<a href="#">Stanchions 3-züigig,</a>	2 Sets	Best.Nr. <a href="#">560395</a>	Ätzteile
<a href="#">Anchor</a>		Best.Nr. <a href="#">562150</a>	Hallanker Breite 29mm. Höhe 50mm
<a href="#">Ankerkette</a>		Best.Nr. <a href="#">4.5150</a>	
<a href="#">Anchor chain 5,3x3,1mm</a>			
<a href="#">Reserveanker</a>		Best.Nr. 562340	Admiralitätsanker 40mm
<a href="#">einscheibiger Block</a>	8mm	Best.Nr. 522724	
<a href="#">einscheibiger Block</a>	5mm	Best.Nr. <a href="#">522722</a>	
<a href="#">Hook</a>		Best.Nr. 4.5160	MS
<a href="#">Spotlight</a>		Best.Nr. ro1640	
<a href="#">Radar</a>		Best.Nr. 4.1705	
<a href="#">Compass</a>		Best.Nr. 4.5360	
<a href="#">Life raft</a>		Best.Nr. 4.5362	36x18mm
<a href="#">Chain for Reling</a>		Best.Nr. 562703	0,3mm
glue			
ABS-ABS		Best.Nr. 763206, 764642	<a href="#">UHU-Plast spezial</a> , <a href="#">Ruderer</a> , <a href="#">UHU Allplast</a>
<a href="#">Window pane</a>		Best.Nr. 44142KR	Tacky
<a href="#">GfK-Kunststoff-Metall. ABS</a>		Best.Nr. 4.MMB.S252000	Megabond 2000
<a href="#">Cyano middle</a>		Best.Nr. 4.MGL.X2-F25	MD Glue Extreme 2
Trimm lead, 4x		Best.Nr. 4.5110	

#### tip

Fill the lead balls into servo boxes. Glue them with adhesive tape and fasten them to the floor with Velcro tape. You will need approx. 4 boxes of lead balls. The light LiPo battery can be fixed on the base plate 13 on both sides of the motor.

The model is very deep trimmed and lies stable in the water without heeling in curves.

With lead battery 7Ah the centre of gravity of the model is approx. 5cm higher.

#### Important safety instructions

BAUER-MODELLE cannot monitor compliance with the assembly and operating instructions in connection with the model, nor the installation, operation, use and maintenance of the components associated with the model. Therefore BAUER-MODELLE does not assume any liability for losses, damages or costs resulting from faulty operation, faulty behaviour or in any way connected with the aforementioned. Unless required by law, the obligation of BAUER-MODELLE to pay damages, for whatever reason, including personal injury, death, damage to buildings, as well as damage due to loss of turnover or business, business interruption or other indirect or direct consequential damage resulting from the use of the model, is excluded.

Total liability under all circumstances and in all cases is limited to the amount you actually paid for this model.

The Littorina model is built and operated solely at the operator's risk. Only careful and thoughtful handling during operation will protect against personal injury and damage to property.

Before using the model ship for the first time, check whether your private liability insurance includes the operation of model ships of this type. If necessary, take out special RC model liability insurance.

These safety instructions must be kept and passed on to the buyer if the model is resold.

The ship model kit is not suitable for children under the age of 14.

Before you let the model drive, check it for a safe function of the remote control and the electrical plug connections for a safe and firm connection. Check whether the channel you are using is free. Never drive if you are not sure whether the channel is free.

Note that radios or transmitters can interfere strongly with the function of the model. If possible, make sure that none of these devices are operated in the vicinity while you are operating the model.

Do not exceed the recommended operating voltage. A higher voltage can destroy the electronics and the model.

#### Care and Maintenance

Allow the model to dry out thoroughly after use.

Remove any water that has penetrated the model by removing the superstructure. If water has penetrated into the electronics, dry them. Spray the electronics with WET Protect, then it is water-protected (observe instructions).

I am thankful for hints on how to improve the translation. Uwe Bauer, Bauer-Modelle

No.	Designation	number	sheet	material
1	stringer	2	8	Laser cut, plywood 4,0mm
2	stand	2	8	Laser cut, plywood 4,0mm
3	reinforcement	4		Pine strip 5 x 5 x 470mm
4	connector (anchor)	4	8	Laser cut, plywood 4,0mm
5	anchor locker inner	2	6	Laser cut, ABS 1,5mm
6	anchor locker front	2	6	Laser cut, ABS 1,5mm
7	anchor locker outside	2	6	Laser cut, ABS 1,5mm
8	anchor locker rear	2	6	Laser cut, ABS 1,5mm
9	anchor locker zop	2	6	Laser cut, ABS 1,5mm
10	hull	1	6	GfK
11	bilge keel	2	2	Laser cut, ABS 2,0mm
12	shaft drive	1		Prefab
13	support plate	1	2	Laser cut, ABS 2,0mm
14	servo holder	1	2	Laser cut, 2,0mm, 5-parts
15	rudder lever	1		Prefab
16	pushrod connectors	1		Prefab
17	safety clip	1		Prefab
18	linkage	1		1,5mm steel wire zinc-coated.
19	deck support	2		pine strip, 3x3x1000, cut to size
20	tube for portholes	16		ABS-tube, 12 x 10 x 10mm, cut to size
22	main deck front - rear	1	1, 2	Laser cut, ABS 2,0mm, 2-parts
23	deck beams	3		pine strip, 5x8x 210mm, cut to size
24	reinforcement rear hatch	1	3	Laser cut, ABS 2,0mm
25	reinforcement Container	1	2	Laser cut, ABS 1,5mm
26	coaming board back-rear	2	3	Laser cut, ABS 1,5mm
27	coaming board	2	3	Laser cut, ABS 1,5mm
28	bulkhead	1	3	Laser cut, ABS 1,5mm
29	forecastle deck reinforcement	1	2	Laser cut, ABS 2,0mm
30	chain tube	2		ABS-tube, 8 x 6 x 65mm
31	double door with step	1	5	Laser cut, ABS 1,5mm
32	single door with step	1	5	Laser cut, ABS 1,5mm
33	<a href="#">hawse</a>	4		<a href="#">3D printing</a>
34	<a href="#">Cover flange</a>	4		<a href="#">3D printing</a>
35	stanchions	40	7	Laser cut, ABS 1,5mm
36	base rail	5	7	Laser cut, ABS 1,5mm, cut to size, fit in
37	handrail	2,5m		7 x 3,5mm Kst. L-Profil, 772893
38	forecastle deck	1	6	Laser cut, ABS 1,5mm
39	strut	2	6	Laser cut, ABS 1,5mm
40	reinforcement	1		0,5 x 3,5x400mm, ABS profil, 772726
41	holder	1	5	Laser cut, ABS 1,5mm
42	reinforcement for holder	1	5	Laser cut, ABS 1,5mm
43	lower frame	1	5	Laser cut, ABS 1,5mm
44	upper frame	1	5	Laser cut, ABS 1,5mm
45	reinforcing strips	8		ABS profil 3x3x2000mm, cut to size
46	left side plate	1	4	Laser cut, ABS 1,5mm
47	front plate	1	5	Laser cut, ABS 1,5mm
48	rear plate	1	5	Laser cut, ABS 1,5mm
49	right plate	1	5	Laser cut, ABS 1,5mm
50	nock wall	1	3	Laser cut, ABS 1,5mm
51	baseboard	1	4	Laser cut, ABS 1,5mm
52	baseboard	1	4	Laser cut, ABS 1,5mm
53	baseboard	1	4	Laser cut, ABS 1,5mm
54	nock bottom	2	5	Laser cut, ABS 1,5mm
55	nock front	2	5	Laser cut, ABS 1,5mm
56	nock top	2	5	Laser cut, ABS 1,5mm
57	nock inner	2	5	Laser cut, ABS 1,5mm
58	stop	1	5	Laser cut, ABS 1,5mm
59	boat deck	1	3	Laser cut, ABS 1,5mm

60	stair	1	1	Laser cut, ABS 1,5mm
61	stairwell front	1	4	Laser cut, ABS 1,5mm
62	stairwell left	1	4	Laser cut, ABS 1,5mm
63	stairwell top	1	4	Laser cut, ABS 1,5mm
64	stairwell right	1	4	Laser cut, ABS 1,5mm
65	steps	6		Brass wire 1,0mm,35mm.cut to size,bend
66	single door with step + port hole	1	5	Laser cut, ABS 1,5mm
67	single door without step	1	5	Laser cut, ABS 1,5mm
68	single door with step + port hole	1	5	Laser cut, ABS 1,5mm
69	double door with step	1	5	Laser cut, ABS 1,5mm
70	fan pipe	2		5 x 4 x 10mm, ABS-tube, cut to size
71	switch cabinet 6-parts	1	4	Laser cut, ABS 1,5mm
72	wireholder 3-parts	2	4	Laser cut, ABS 1,5mm
73	gooseneck fan straight	1	5	Laser cut, ABS 1,5mm
74	gooseneck fan bent	1	5	Laser cut, ABS 1,5mm
75	handrail	1		1,0x 300mm Brass wire, cut to size
76	handrail supports	6		Ätzteil, not included, <a href="#">560395</a>
77	holder für pulley	2	3	Laser cut, ABS 1,5mm
78	wheelhouse ceiling	1	4	Laser cut, ABS 1,5mm
79	top deck roof	1	3	Laser cut, ABS 1,5mm
80	top deck panel	1	4	Laser cut, ABS 1,5mm
81	top deck side	2	4	Laser cut, ABS 1,5mm
82	rear wheelhouse floor	1	4	Laser cut, ABS 1,5mm
83	wheelhouse, side	2	4	Laser cut, ABS 1,5mm
84	rear wheelhouse	1	4	Laser cut, ABS 1,5mm
85	wheelhouse window	1	4	Laser cut, ABS 1,5mm
86	pane Deckhouse	10	9	1,0mm Vivak laser cut to
87	pane wheelhouse	21	9	1,0mm Vivak Laser cut
88	pane front window	7	9	1,0mm Vivak Laser cut
89	panes for bulkheads	3	9	1,0mm Vivak Laser cut
90	front deckhouse window	1	9	1,0mm Vivak Laser cut
91	chart tabletop	1	7	Laser cut, ABS 1,0mm
92	base	2	7	Laser cut, ABS 1,0mm
92.1	base for motor holder	1	7	Laser cut, ABS 1,0mm
93	cover	1	7	Laser cut, ABS 1,0mm
94	control desk	1	7	Laser cut, ABS 1,0mm
95	foots	2	7	Laser cut, ABS 1,0mm
96	cover	1	7	Laser cut, ABS 1,0mm
97	holder für geared motor	1	7	Laser cut, ABS 1,0mm
98	lounge	1	7	Laser cut, ABS 1,0mm
98.1	table	1	7	Laser cut, ABS 1,0mm
98.2	table legs	2		4x2x22mm, ABS tube772834
99	longitudinal foot	1	7	Laser cut, ABS 1,0mm
100	transverse foot	1	7	Laser cut, ABS 1,0mm
101	rear panel	1	7	Laser cut, ABS 1,0mm
102	Inner side plate	1	7	Laser cut, ABS 1,0mm
103	front panel	1	7	Laser cut, ABS 1,0mm
104	table top	1	7	Laser cut, ABS 1,0mm
105	side plate outside	1	7	Laser cut, ABS 1,0mm
106	shelf bottom	2	7	Laser cut, ABS 1,0mm
107	cover	2	7	Laser cut, ABS 1,0mm
108	cover side	1	7	Laser cut, ABS 1,0mm
109	cover top	1	7	Laser cut, ABS 1,0mm
110	wheelhouse door	2	5	Laser cut, ABS 1,5mm
111	door pane	3	9	1,0mm Vivak Laser cut
112	door handles and bolts			1,0x200mm Brass wire cut to size, bend
113	screw	4		not included, 2,9x6,3mm
114	ladder	1		69mm, cut to size 574004
115	handrail	1		1,0x1m Brass wire, cut to size

116	pullthroughs	2		Brass wire 0,8mm, 2x1m, cut to size
117	support for lamps	4		Ø 2 x 14mm, ABS-round, cut to size
118	lamp board left	1	6	Laser cut, ABS 1,5mm
118.1	sidelight (port side)	1		Prefab, not included
119	lamp board right	1	6	Laser cut, ABS 1,5mm
119.1	side light (starboard)	1		Prefab, not included
120	roof supports links	2	6	Laser cut, ABS 1,5mm
121	roof supports rechts	2	6	Laser cut, ABS 1,5mm
122	strebe	4		3x3x50mm, ABS Profil 772705
123	supports für Rettungsinsel re.	2	6	Laser cut, ABS 1,5mm
124	supports für Rettungsinsel li.	2	6	Laser cut, ABS 1,5mm
125	strut	1	6	Laser cut, ABS 1,5mm
126	storage box Top deck	1	5	Laser cut, ABS 1,5mm
127	storage box Top deck	1	3	Laser cut, ABS 1,5mm
128	storage box Top deck	1	3	Laser cut, ABS 1,5mm
129	Roof discs	2	9	Vivak, 65x25mm made from leftovers
130	Life raft 36mm	2		<a href="#">4.5362</a> , not included
131	slinger disk	2	7	Laser cut, ABS 1,0mm
131.1	drive atttrappe	2	7	Laser cut, ABS 1,0mm
132	mast tube	1		Alu tube 4 x0,45x123mm 773504
133	mast tube	1		Alu tube 4 x0,45x85mm 773504
134	safety ring below	1	7	Laser cut, ABS 1,0mm
135	gusset	1	7	Laser cut, ABS 1,0mm
136	Safety ring middle	1	7	Laser cut, ABS 1,0mm
137	holder	1	7	Laser cut, ABS 1,0mm
138	Safety ring top	1	7	Laser cut, ABS 1,0mm
139	Strut	1		1,0x65mm, Brass wire, cut to size
140	Strut	3		1,0x40mm, Brass wire, cut to size
141	radar holder	1	7	Laser cut, ABS 1,0mm
142	radar	2		Prefab, <a href="#">4.1705</a> , not included
143	compass	1		<a href="#">4.5360</a> , not included
144	holder für searchlight	1		Alu tube 4 x0,45x31mm 773504
145	searchlight	1		Prefab <a href="#">ro1640</a> , not included
146	antenna mast	2		Alu tube 4 x0,45x100mm 773504
147	antenna	1		Brass wire 1,0 x 70mm, cut to size
148	exhaust pipe	2		14x12x198mm ABS-tube, 772845
149	exhaust bow	2		Cu-Bogen 12mm, 45°
150	rings	4	5	Laser cut, ABS 1,5mm
151	Crossbeam upper	1	5	Laser cut, ABS 1,5mm
152	Crossbeam top	1	5	Laser cut, ABS 1,5mm
153	ladder	1		100mm, Prefab AE574004
154	flagg holder	1		Brass wire1,0mm, 60mm, cut to size
155	clamp for flag line	1		1,0x30mm MS.-Draht, bend, cut to size
156	mast	1		Alu tube 4 x0,45x100mm AE 773504
157	reinforcement	1		Brass wire1,0x60mm,cut to size,bend
158	antenna carrier	1		Brass wire1,0mm, 61mm, cut to size
159	ring	1	5	Laser cut, ABS 1,5mm
160	lamp holder	1	5	Laser cut, ABS 1,5mm
161	stern light	1		Prefab, <b>9mm hoch</b> included in the fitting set 4.1702
162	antennas	2		Brass wire1,0mm, 50mm, cut to size
163	radom	1		Prefab , 3-D Druck
164	derrick boom	1		Alu tube 5 x0,45x150mm 773505
165	bearing	1		Prefab Bauer-Modelle
166	pivot bearing	1		Prefab Bauer-Modelle
167	swivel bearing	1		Prefab Bauer-Modelle
168	pivot pin	1		Brass wire1,5mm, 50mm, cut to size
169	swivel bearing pin	1		Brass wire1,5mm, 50mm, cut to size
170	beem fitting	1Satz		Prefab Bauer-Modelle

171	single Block 5mm	3		Prefab, <a href="#">522722</a> , included in the fitting set 4.1702
172	eyelet	1		1,0x30mm MS.-Draht, cut to size, bend
173	Storage box Seite	3	6	Laser cut, ABS 1,5mm
174	Rear wall	3	6	Laser cut, ABS 1,5mm
175	backrest	3	6	Laser cut, ABS 1,5mm
176	frontwall	3	6	Laser cut, ABS 1,5mm
177	seat	3	6	Laser cut, ABS 1,5mm
178	cover	3	6	Laser cut, ABS 1,5mm
179	storage box 1 Boat deck	1	6	Laser cut, ABS 1,5mm (part 173-178)
180	storage box 2 Boat deck	1	6	Laser cut, ABS 1,5mm (part 173-178)
181	fan bottom	1	7	Laser cut, ABS 1,0mm
182	fan side	2	7	Laser cut, ABS 1,0mm
183	fan cover	1	7	Laser cut, ABS 1,0mm
184	fan grid	1	7	Laser cut, ABS 1,0mm
185	reel	6	3	Laser cut, ABS 1,5mm
186	shaft	2		6x4x26mm, ABS tube 772838
187	shaft between	2		4x2x26mm, ABS tube 772834
188	supports	3	3	Laser cut, ABS 1,5mm
189	shaft	1		2,0x57mm Brass wire
190	hatch	1	6	Laser cut, ABS 1,5mm
191	coaming	1	6	Laser cut, ABS 1,5mm
192	coaming	1	5	Laser cut, ABS 1,5mm
193	hatch	1	5	Laser cut, ABS 1,5mm
194	sliding hatch Stair	1		Laser cut, ABS 1,5mm
195	fan tube	1		12x10x15mm, ABS-tube
<a href="#">196</a>	<a href="#">intake fan hood</a>	<a href="#">1</a>		<a href="#">Prefab, 3D Druck</a>
197	boat storage	2	6	Laser cut, ABS 1,5mm
198	stowage box	1	7	Laser cut, ABS 1,0mm
199	stowage box	1	5	Laser cut, ABS 1,5mm
200	load hook	1		not included, Best.Nr. <a href="#">4.5160</a>
201	double-T-beam	2		3,5x3,5x53mm, ABS profil 772945
202	base plate	1	4	Laser cut, ABS 1,5mm
203	bearing block	2	4	Laser cut, ABS 1,5mm
204	drive	4	4	Laser cut, ABS 1,5mm
205	reel	4	4	Laser cut, ABS 1,5mm
206	reel shaft	1		4x2x17mm, 4x2x18mm, Kst-Rohr772834
<a href="#">207</a>	<a href="#">brake</a>	<a href="#">1</a>		<a href="#">3D printing, Prefab</a>
<a href="#">208</a>	<a href="#">Included in 207</a>	<a href="#">3</a>	<a href="#">4</a>	<a href="#">3D printing, Prefab</a>
<a href="#">209</a>	<a href="#">ratchet wheel with disk</a>	<a href="#">1</a>		<a href="#">3D printing, Prefab</a>
210	disc Between	2	4	Laser cut, ABS 1,5mm
211	handle with Holder	1 Set		Laser cut, ABS 1,5mm
<a href="#">212</a>	<a href="#">capstan head</a>	<a href="#">4</a>		<a href="#">3D printing, Prefab</a>
213	shaft	1		Brass wire 1,0mm, 30mm, cut to size
214	handwheel	1	4	Laser cut, ABS 1,5mm
215	flange	2	4	Laser cut, ABS 1,5mm
216	steam pipe	1		5x4x26mm, CU-Rohr 773955
217	condensate pipe	1		6,0x20mm ABS-tube 772838
218	control valve	1		8x6x20mm ABS tube 772842
218	blind flange	2	4	Laser cut, ABS 1,5mm
219	safety valve	1		10.x8x16mm ABS-tube 772846
220	safety valve	1		4x2x10mm, ABS tube 772834
220.1	flange	2	4	Laser cut, ABS 1,5mm
221	Lever	1		1,0x15mm Brass wire
222	steam connection	2		6,0x6mm ABS tube 772838
223	pivot bearing top/bottom	2	1	Laser cut, ABS 2,0mm
224	reel discs	2	3	Laser cut, ABS 1,5mm
225	holder	1	1	Laser cut, ABS 2,0mm
226	crane arm	1		2,0x175mm Brass wire
227	eyelet	1		1,0x 15mm Brass wire, cut to size, bend

228	double Bollard bench	2	5	Laser cut, ABS 1,5mm
229	stanchion	8		4x2x10mm, ABS tube 772834
230	cover	8	5	Laser cut, ABS 1,5mm
231	coaming	1	7	Laser cut, ABS 1,0mm
232	cover	1	7	Laser cut, ABS 1,0mm
233	bit on top	1	7	Laser cut, ABS 1,0mm
234	flap	1	7	Laser cut, ABS 1,0mm
235	hinge	2	7	Laser cut, ABS 1,0mm
236	weight	1		2,0x22mm, Brass wire, cut to size
237	guardrail	1		1,5x100mm, Brass wire, cut to size
238	fan	2	5	Laser cut, ABS 1,5mm
239	hook-in eyelet	2		1,0x 15mm Brass wire, cut to size, bend
240	stair	1	7	Laser cut, ABS 1,0mm
241	hand rail	2		1,0x160mm Brass wire, cut to size, bend
242	fire extinguisher box round	2	4	Laser cut, ABS 1,5mm, 2-parts
243	strut	1	6	Laser cut, ABS 1,5mm
244	strut support	1	6	Laser cut, ABS 1,5mm
245	holder for side crane	4	6	Laser cut, ABS 1,5mm
246	hinge	3	5	Laser cut, ABS 1,5mm
247	crane columns	2		Alu tube 4 x0,45x100mm 773504
248	crossbeam	1		Alu tube 4 x0,45x55mm 773504
249	gusset	1	5	Laser cut, ABS 1,5mm
250	bearing	2	5	Laser cut, ABS 1,5mm
251	hinge pin	4		1,5mm Brass wire, cut to size
252	tube drive	1		Alu tube 4 x0,45x87mm 773504
253	holder	4	5	4x2x40mm, ABS tube772834
254	connector	1		2,0x40mm, Brass wire, cut to size, bend
255	baseplate	1	4	Laser cut, ABS 1,5mm
256	holder	2	4	Laser cut, ABS 1,5mm
257	disc	2	4	Laser cut, ABS 1,5mm
258	reel	1		4x2x16,5mm, Kst-Rohr 772834
259	shaft	1		2,0x16mm Brass wire, cut to size
260	rope guide	3		1,5x16mm Brass wire, cut to size
261	motor atrappe	1		5,8x8,3mm, Prefab
262	container	4	6	Laser cut, ABS 1,5mm
263	disc	1	9	1,0mm Vivak, Laser cut
264	support	4	6	Laser cut, ABS 1,5mm
265	foot	4		2,0x 10mm, ABS round 772604
266	hydraulic reservoir	1	6	Laser cut, ABS 1,5mm
267	supports	2	6	Laser cut, ABS 1,5mm
268	motor atrappe	1		16,4x12,2, Prefab
269	fire box	1	4	Laser cut, ABS 1,5mm
270	double-T-Tbeam front	1		6x3x116mm 772964
271	double T-beam rear	1		4x4x116mm 772946
272	base plate	1	7	Laser cut, ABS 1,0mm
273	support plates	1	4	Laser cut, ABS 1,0mm
274	U-beam	2		6x3x116mm 772907
275	bearing plate outside	1		3D printing, Prefab
276	bearing plate inner	1	7	3D printing, Prefab
277	not applicable			included in 3D printing
278	not applicable			included in 3D printing
279	not applicable			included in 3D printing
280	angel	1		4x2x53mm, Kst. Angel 772890
281	bearing plate outside	2	7	Laser cut, ABS 1,0mm
282	bearing plate Middle	1	7	Laser cut, ABS 1,0mm
283	bearing plate between	4	7	Laser cut, ABS 1,0mm
284	connector	2	7	Laser cut, ABS 1,0mm
285	bearing plate	1	7	Laser cut, ABS 1,0mm
286	reel disks	4	7	Laser cut, ABS 1,0mm

286.1	reel disks	4		3D printing, Prefab
287	brake	4		3D printing, Prefab
288	coupling flange	2	7	Laser cut, ABS 1,0mm
289	couplingsbuchse	2		4x2x6mm ABS-tube, 772834 cut to size,
290	release bearing 10mm	1		Pulley, 584710, drill out
291	brake pin	4	7	1,0x20mm, Brass wire
292	handwheel	4	7	Laser cut, ABS 1,0mm
293	capstan head	1		3D printing, Prefab
294	shaft	1		2,0x 123mm Brass wire
295	pulley, big		7	Laser cut, ABS 1,0mm
296	pulley, small		7	Laser cut, ABS 1,0mm
297	holder	4	7	Laser cut, ABS 1,0mm
298	shaft	2	7	1,0x10mm, Brass wire
299	bearing holder	2	7	Laser cut, ABS 1,0mm
300	support	1	7	Laser cut, ABS 1,0mm
301	gear	1		3D printing, Prefab
302	included in 301			
303	included in 301			
304	included in 301			
305	included in 301			
306	included in 301			
307	cover	1		3D printing, Prefab
308	guide carriage	2	7	Laser cut, ABS 1,0mm
309	guide	4		2,0x 45mm Brass wire
310	top carriage	1		2,3x2mm ABS U-Profil, 772501
311	top carriage	1		3,5x3,5x36mm Angel ABS, 772875
312	bottom carriage	1		3,5x3,5x36mm Angel ABS, 772875
313	guide wheels	4		1,5x16mm Brass wire
314	fixiers	2		2,0x 5mm ABS-Rund 772604
315	steam pipe	1		3D printing, Prefab
316	condensate pipe	1		3D printing, Prefab
317	flanges	10	7	Laser cut, ABS 1,0mm
318	steam valve	1		3D printing, Prefab
319	flange for steam pipe	2	7	Laser cut, ABS 1,0mm
320	blind flange	2	7	Laser cut, ABS 1,0mm
321	connecting pipe	2		5x4x5mm, ABS-tube 772837
322	cover	1	7	Laser cut, ABS 1,0mm
323	flange f. safety valve	2	7	Laser cut, ABS 1,0mm
324	safety valve	1		3D printing, Prefab
325	half flange	1	7	3D printing, Prefab
326	lever	1		1,0x20mm, Brass wire
327	flange for pipe	2	7	Laser cut, ABS 1,0mm
328	stair	1	7	Kst.-Prefab, grau
329	reel holder	4-parts	3	Laser cut, ABS 1,5mm
330	pulley 10mm	1		MS-Prefab, <a href="#">584710</a>
331	footing cover	1	7	Laser cut, ABS 1,0mm
332	outer flange	1	6	Laser cut, ABS 1,5mm
333	inner flange	1	6	Laser cut, ABS 1,5mm
334	botton flange	1	6	Laser cut, ABS 1,5mm
335	crane fundament	1		20x18x16mm, ABS-tube 772849
336	lower bearing plate	1	6	Laser cut, ABS 1,5mm
337	screw+nut+wascher	Je 1		M4
338	pivot bearings	2-parts	6	Laser cut, ABS 1,5mm
339	hydrauik cylinder	1		6x4x48mm ABS tube
340	omitted			
341	pulley 10mm	1		Brass, Prefab, <a href="#">584710</a>
342	reel holder	1		10x8x12mm, ABS tube
343	cover	1	5	Laser cut, ABS 1,5mm
344	foot	1	5	Laser cut, ABS 1,5mm



345	shaft	1		1,5x10mm Brass wire
346	line guide	1		1,5x10mm Brass wire
347	base plate	1	3	Laser cut, ABS 1,5mm
348	adapter	1		16x20x32mm, Balsa, o.ä. not included
349	coverl	1	3	Laser cut, ABS 1,5mm
350	shaft	2		1,5x10mm Brass wire
351	holder	4		1,5x10mm Brass wire
352	pulley	2		1,5x10mm Brass wire
353	shaft	2		1,5x10mm Brass wire
354	cover			Laser cut, ABS 1,5mm
355	net gallows inside	1	1	Laser cut, ABS 2,0mm
356	net gallows middle	1	1	Laser cut, ABS 2,0mm
357	net gallows outside	1	1	Laser cut, ABS 2,0mm
358	fixing pine	2	1	1,5x20mm Brass wire
359	reel holder	2	1	Laser cut, ABS 2,0mm
360	single Block 5mm	1		<a href="#">522722</a> not included
361	single Block 8mm	2		<a href="#">522724</a> not included
<a href="#">362</a>	<a href="#">hawse base</a>	4		3D printing, Prefab
<a href="#">363</a>	<a href="#">hawse</a>	4		3D printing, Prefab
<a href="#">364</a>	<a href="#">included in 362</a>			3D printing, Prefab
<a href="#">365</a>	<a href="#">included in 363</a>			3D printing, Prefab
366	holder	3	5	Laser cut, ABS 1,5mm
367	adapter flansch	2	5	Laser cut, ABS 1,5mm
368	pulley 8mm	1		<a href="#">584708</a> MS-Prefab
369	shaft	1		1,5mm Brass wire
370	valve box	3	5	Laser cut, ABS 1,5mm
371	Hand wheel	2	7	Laser cut, ABS 1,0mm
372	spindle	2		1,0mm Brass wire
373	rope guide	4-parts	5	Laser cut, ABS 1,5mm
374	shaft	4		2,0mm Brass wire
375	flagg holder	1		2x1x20mm ABS-tube 772831
376	windlass base	1	6	3D printing, Prefab
377	winch body	6-parts	6	3D printing, Prefab
378	shaft	1		2,0x47mm Brass wire
379	brake	2x2-parts	6	Laser cut, ABS 1,5mm
380	brake spindle	2		1,0mm Brass wire
381	chain sprocket	4	6	3D printing, Prefab
382	chain sprocket	2	6	3D printing, Prefab
383	capstan head	4		3D printing, Prefab
384	capstan head	8		3D printing, Prefab
385	motor flange	1	6	Laser cut, ABS 1,5mm
386	motor atrappe	1	1	3D printing, Prefab
387	chain stopper Supports	4	6	3D printing, Prefab
388	chain stopper strenghtening	2	6	3D printing, Prefab
389	chain stopper Support	2	6	3D printing, Prefab
390	anchor chain	1m		<a href="#">562728</a> included in the fitting set 4.1702
391	anchor	2		<a href="#">562150</a> included in the fitting set 4.1702
392	fan	3	6	Laser cut, ABS 1,5mm
393	boat stand front	1	6	Laser cut, ABS 1,5mm
394	boat stand rear	1	6	Laser cut, ABS 1,5mm
395	bollard bench	3	5	Laser cut, ABS 1,5mm
396	posts	6		4x2x12, ABS-tube
397	cover	6	5	Laser cut, ABS 1,5mm
398	stanchion, 3-section	21 Stück		<a href="#">560395</a> 2 Sätze, included in the fitting set 4.1702
399	handrail	1m		1,0mm Brass wire
400	railing pull-through wire	2m		0,8mm MS Draht
401	anchorholder in front	1	5	Laser cut, ABS 1,5mm
402	achorholder	2	5	Laser cut, ABS 1,5mm
403	reserve anchor	1		<a href="#">562340</a> included in the fitting set 4.1702

404	mast tube	2		8x7,1x135mm ALU-Rohr
405	strut	1		4x3,1x140mm ALU-Rohr
406	gusset	2x4-parts	7	Laser cut, ABS 1,0mm
407	crossbeam for signal horn	1	5	Laser cut, ABS 1,5mm
408	bar	1	5	Laser cut, ABS 1,5mm
409	gusset for strut	1	5	Laser cut, ABS 1,5mm
410	distance holder	1	5	Laser cut, ABS 1,5mm
411	cover	1	5	Laser cut, ABS 1,5mm
412	grid	1	7	Laser cut, ABS 1,0mm
413	lamp holder single	2	5	Laser cut, ABS 1,5mm
414	lamp holder double	2	5	Laser cut, ABS 1,5mm
415	lamp mast	1		5,0x4,1x149mm ALU-tube
416	masttop	1		4,0x3,1x40mm ALU-tube
417	saling	1		1,0x50mm Brass wire
418	eyelet	2		1,0mm Brass wire
419	Signal horn	1		<a href="#">568216</a> , included in the fitting set 4.1702
420	bell	1		<a href="#">568008</a> , included in the fitting set 4.1702
421	Lleddar	1		114mm , 574004
422	Top light	1:32		included in the fitting set 4.1702
423	roundlight / anchorlight	1:32		included in the fitting set 4.1702
424	roundlight red	1:32		included in the fitting set 4.1702
425	roundlight white	1:32		included in the fitting set 4.1702
426	roundlight green	1:32		included in the fitting set 4.1702
427	stern light	1:32		included in the fitting set 4.1702
428	Holder für yellow light	1	5	Laser cut, ABS 1,5mm
429	day sign anchorball	2	7	Laser cut, ABS 1,0mm
430	lifebelt	2		<a href="#">7.1335</a> , included in the fitting set 4.1702
431	flagg Germany	1		included in the fitting set 4.1702
431	flagg Schleswig-Holstein	1		<a href="#">9.112228</a> , included in the fitting set 4.1702
433	instruction	1		
434	decal sheet	1		
435	Ship name/home port (plot)	1		

Typical model ship accessories are not included in the kit, but can be purchased in our shop.

The recommended drive and the drive battery have been tested in our master model.

The ballast used in conjunction with the LiPo battery shifts the centre of gravity downwards by approx. 50mm compared to a lead battery.

This makes the model very stable.

For the sound and switching module USM-RC3 we use a 3-cell LiPo battery.

The recommended accessories have been incorporated into the design of the model.

If other parts are used, the included parts or the accessories themselves must be changed.

In this case, no guarantee can be given for accuracy of fit or function.

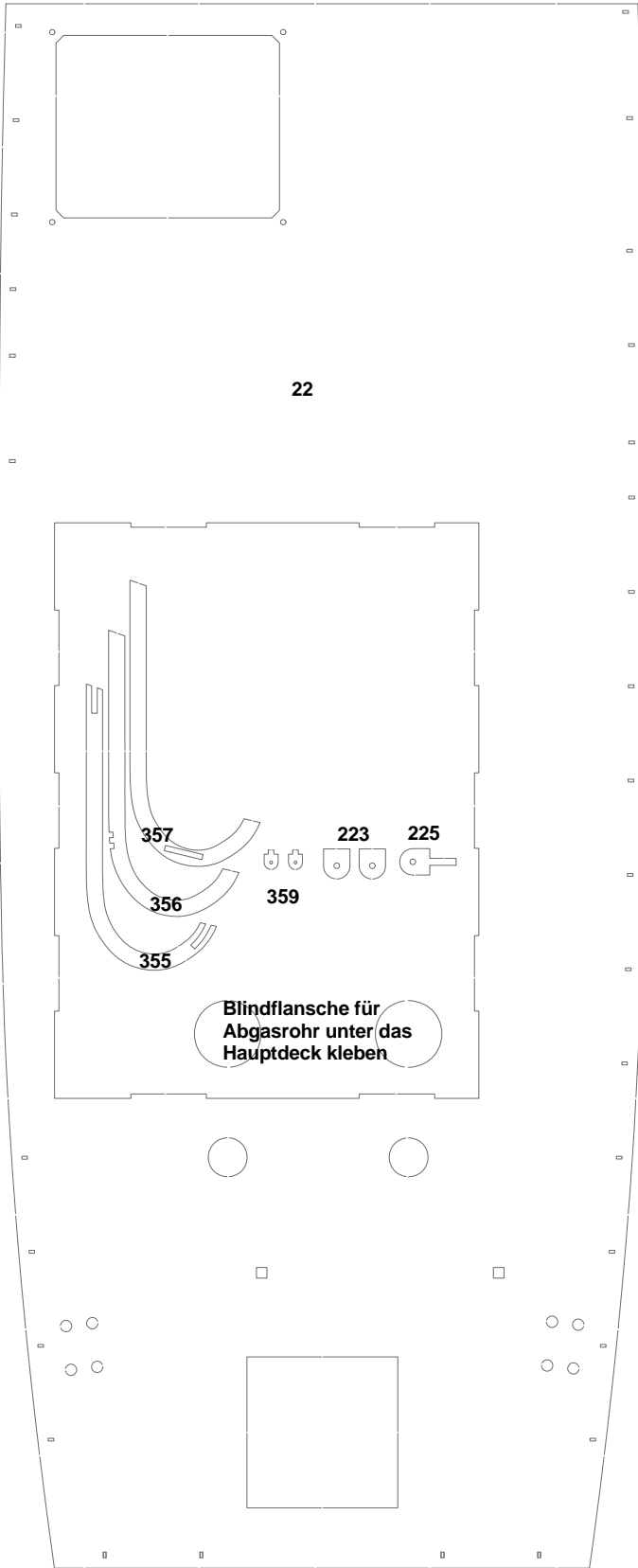
Order numbers written in the parts list are for possible subsequent purchase.

You can find these numbers in our shop or as a link.

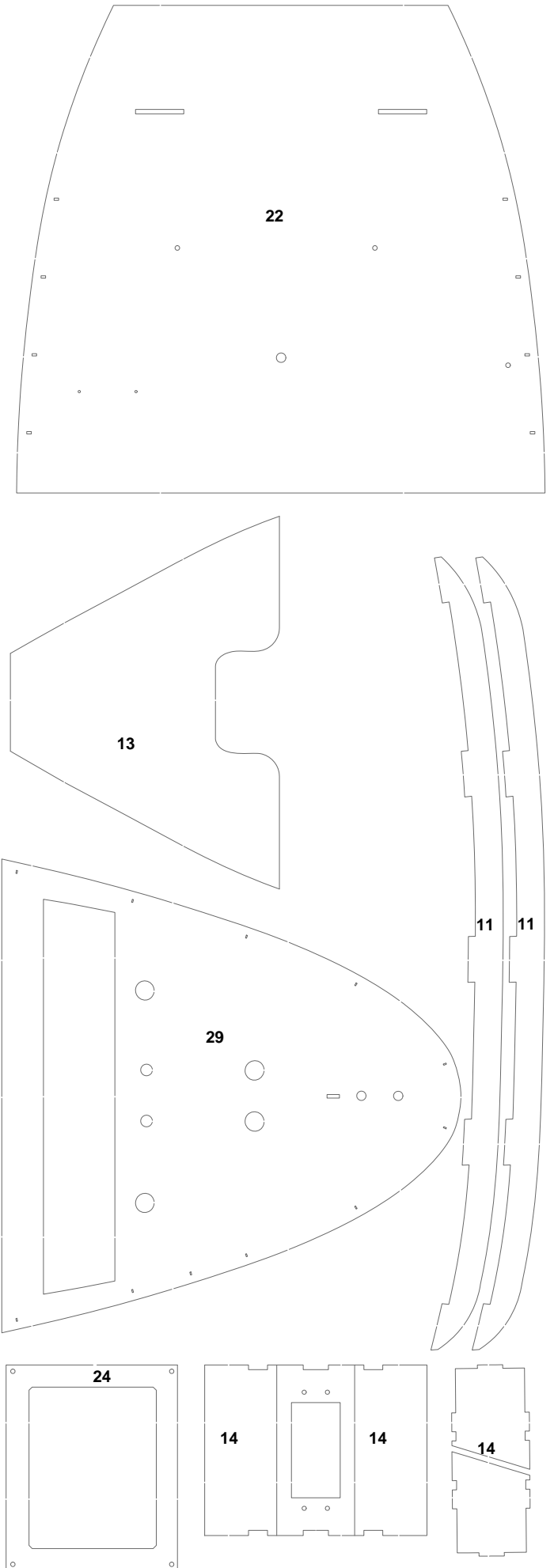
Uwe Bauer  
Bauer Models

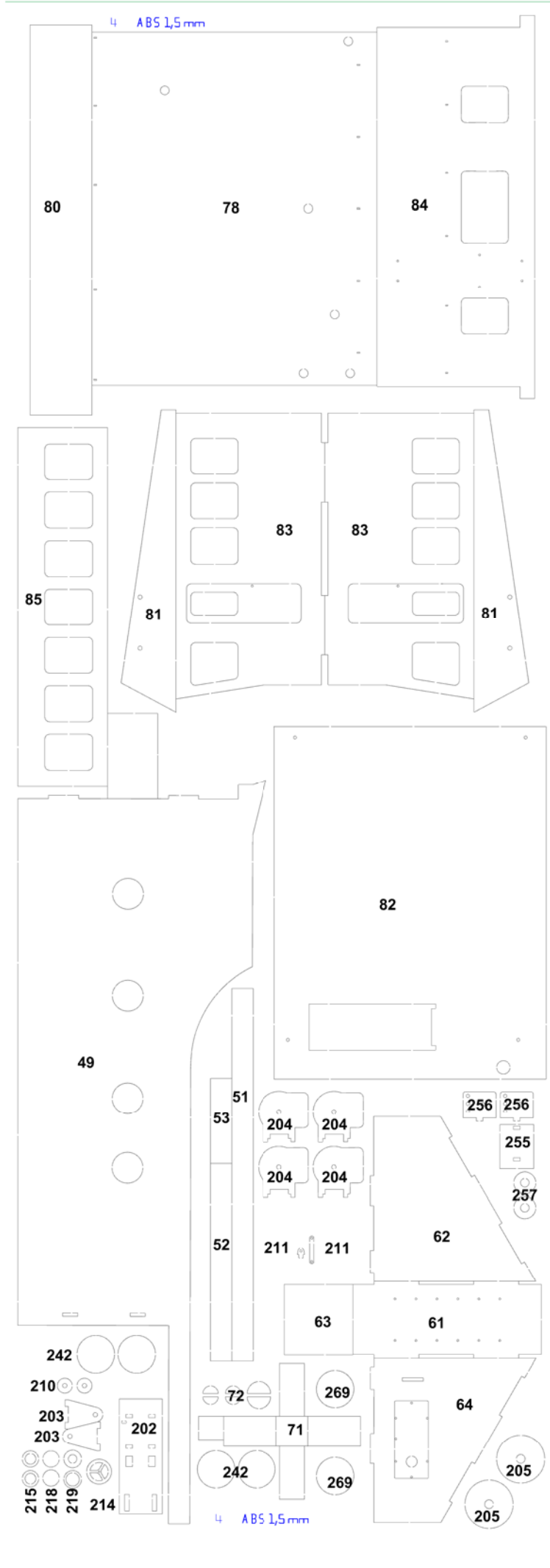
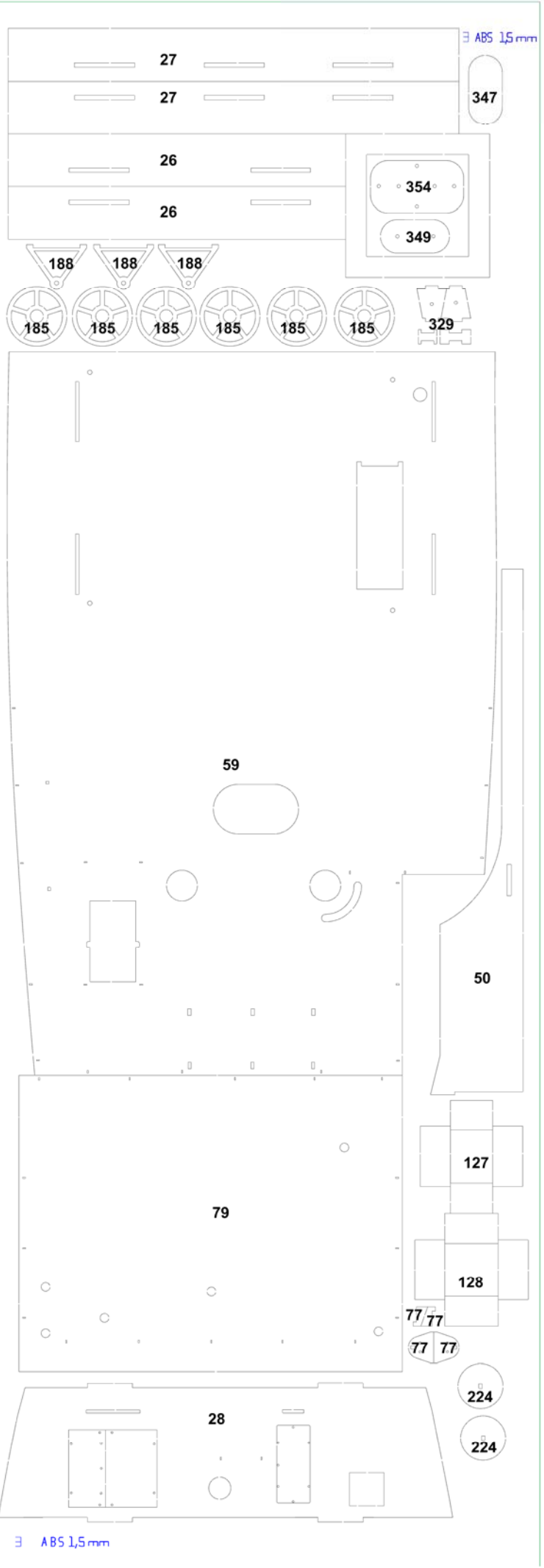
I am grateful for any hints that may help to improve the English translation.

1 ABS 20 mm



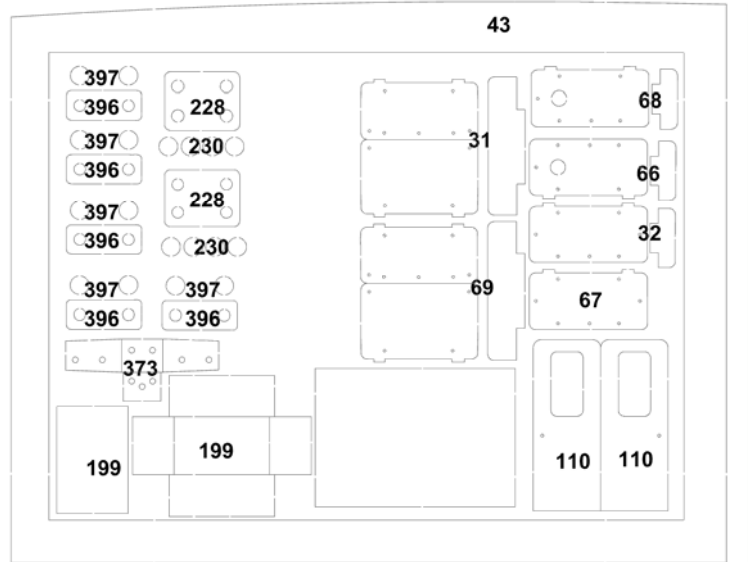
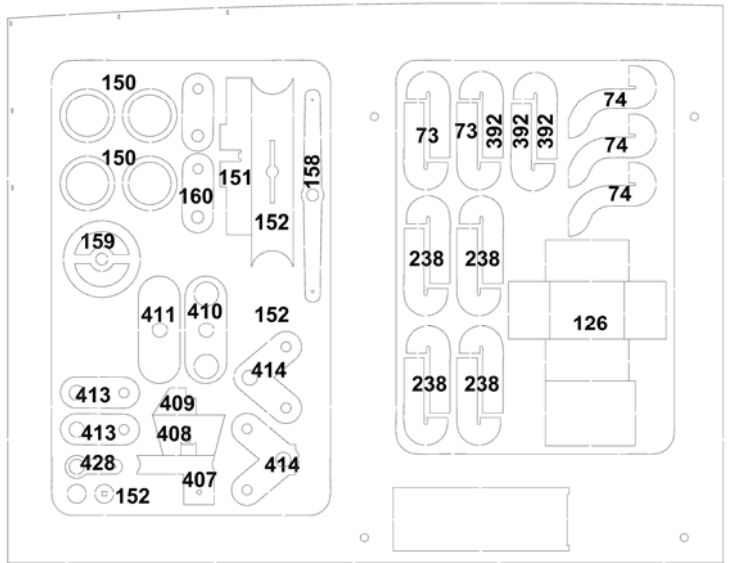
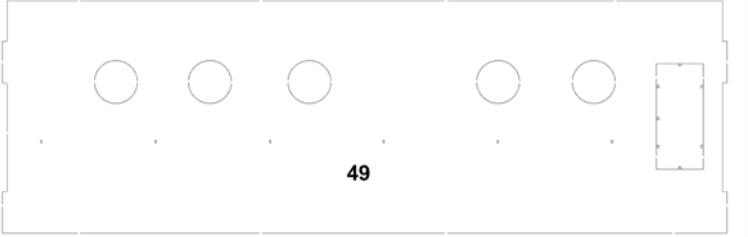
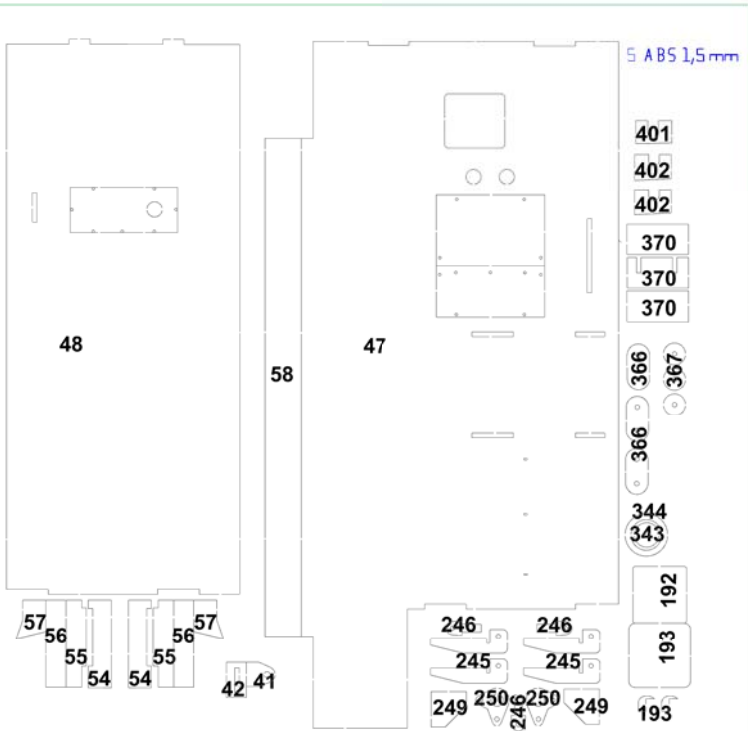
2 ABS 20 mm



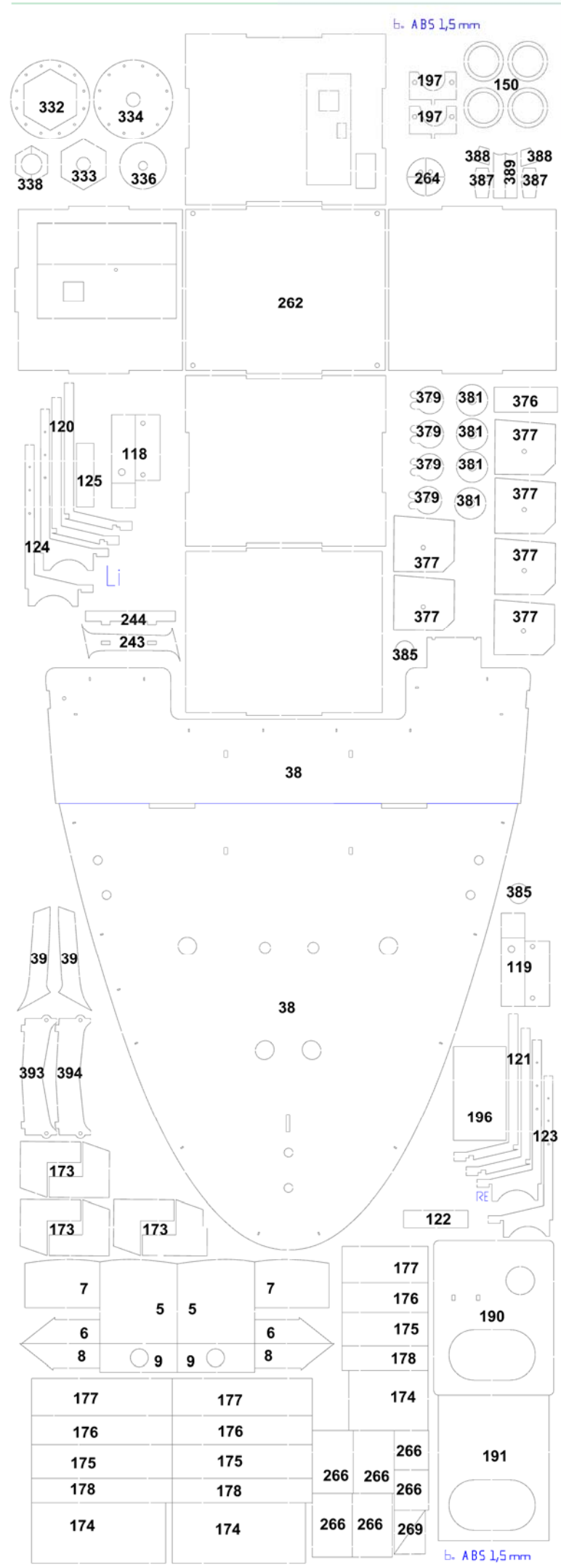


3 ABS 1,5mm

4 ABS 1,5mm

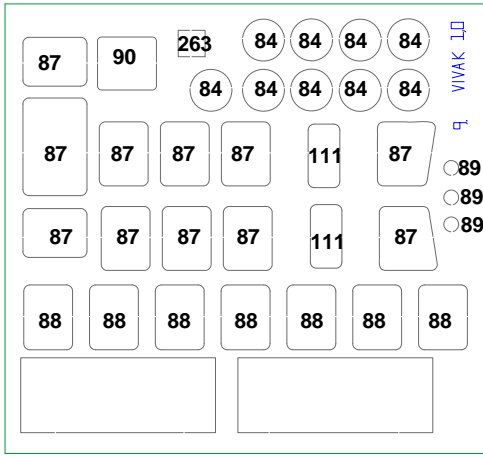


5 ABS 1,5 mm



b. ABS 1,5 mm





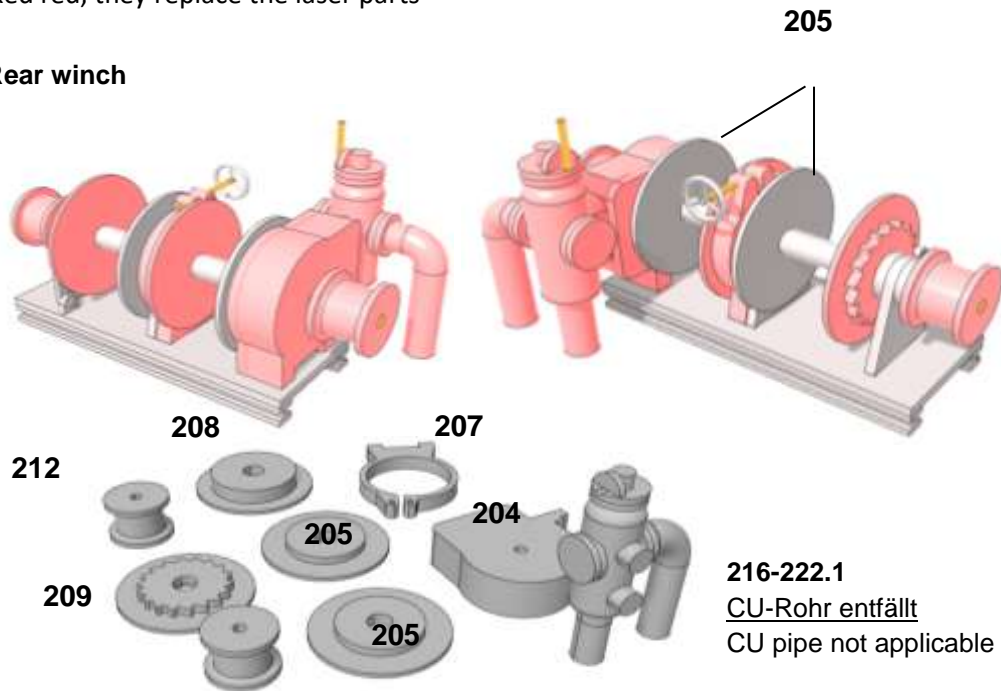
### 3D-Druckteile Littorina, 3D printing parts of Littorina

Druckteile rot gekennzeichnet, Sie ersetzen die Laserteile

Print parts marked red, they replace the laser parts

#### Heckwinde , Rear winch

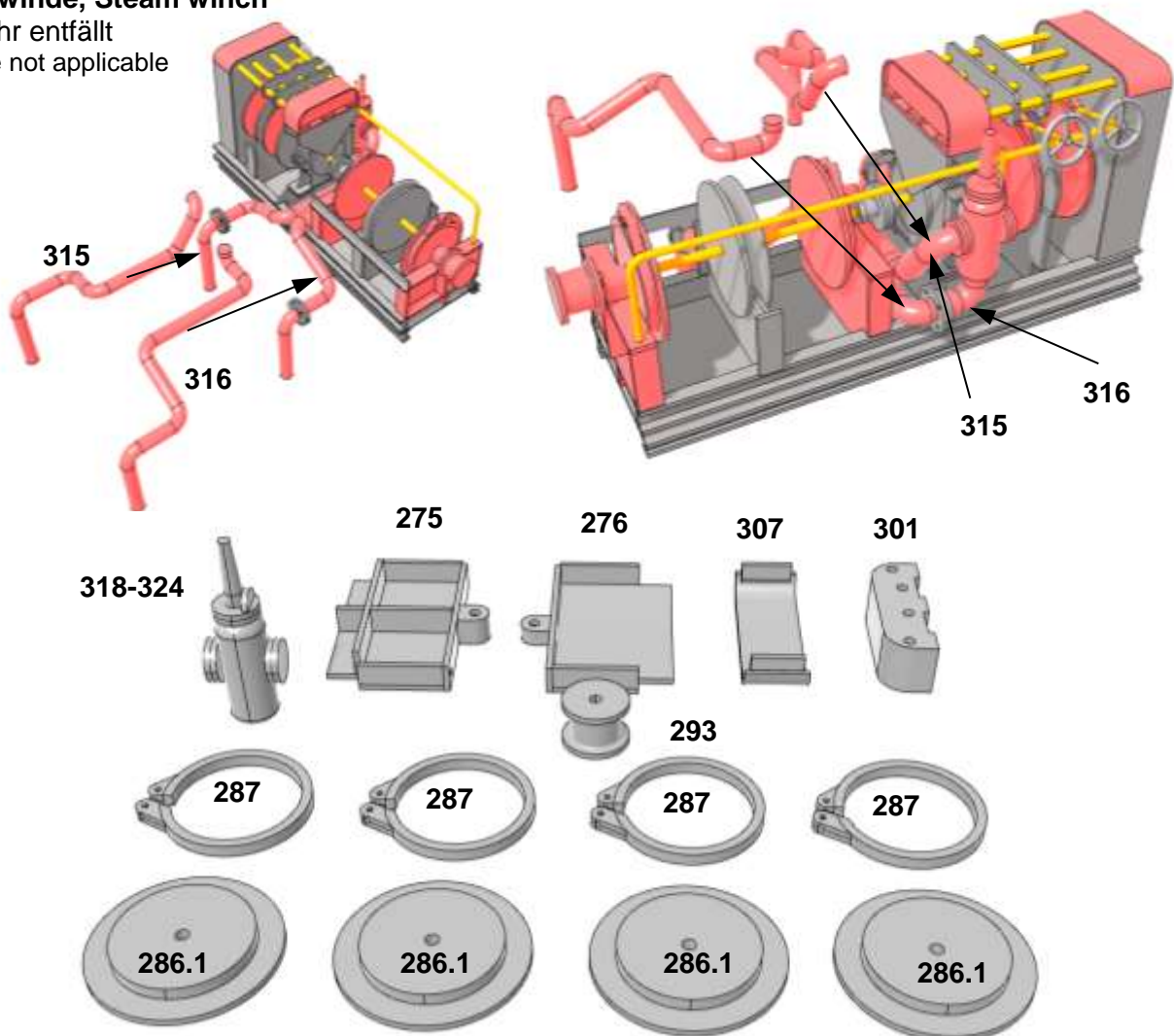
Bilder 39



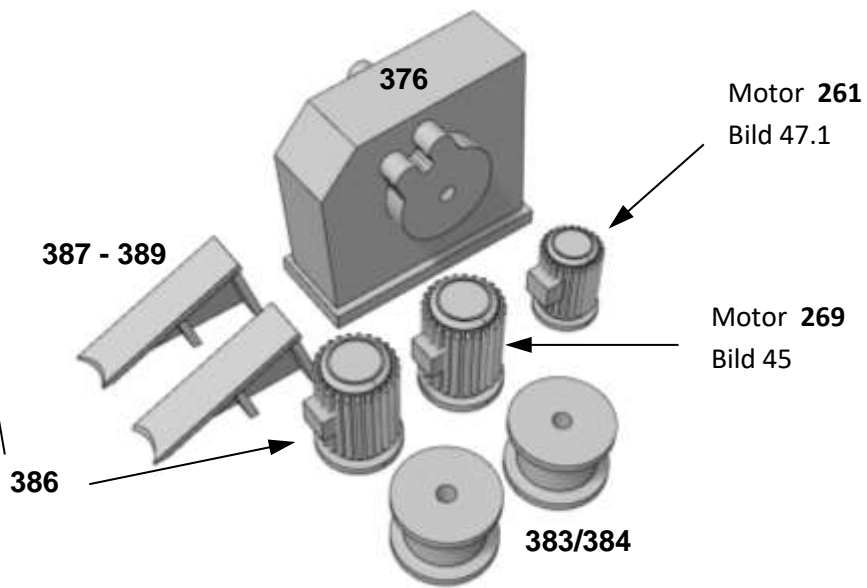
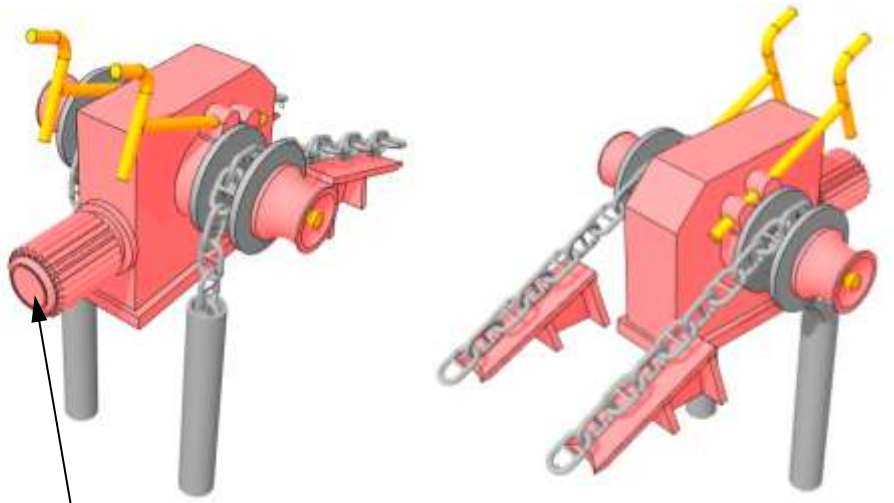
#### Dampfwinde, Steam winch

CU-Rohr entfällt

CU pipe not applicable







**Radom**



**Lüfter**

