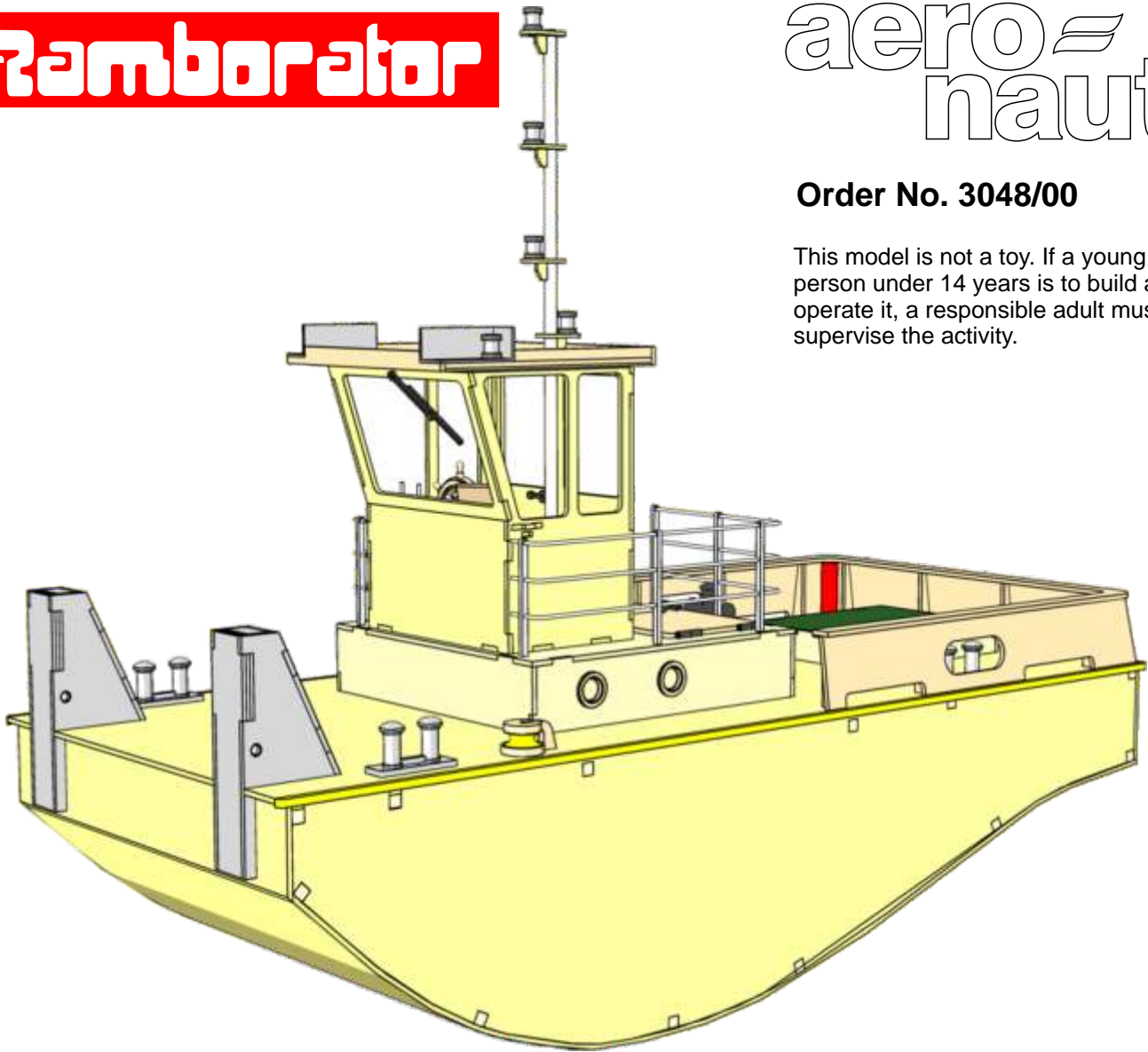


Ramborator

aero naut

Order No. 3048/00

This model is not a toy. If a young person under 14 years is to build and operate it, a responsible adult must supervise the activity.



Introduction:

The model should be assembled following the sequence of the part numbers. These instructions are arranged by stages in the correct order.

You may need to use a thin modelling knife to release the laser-cut parts from the sheets by cutting through on the reverse side. The dark edges of the laser-cut parts should also be rubbed off using abrasive paper or a sanding pad in order to obtain sound glued joints.

Check that all components fit accurately before reaching for the glue, and carry out any minor trimming required. Allow all glued joints to dry out fully before starting the next stage of construction. We recommend a fast-setting waterproof white glue for all joints.

We recommend that you apply a coat of sanding sealer (Order No. 7666/02) to all the wooden components and sand the surfaces smooth before painting them.



We recommend our aero-pick modelling pins, Order No. 7855/02, to hold parts together when building the model.

Tip: the laser-cut sheets include a large quantity of excess material which is not required for building the model. It is a good idea to place this material to one side, as it can be used later to make handles, latches, fuel filler stubs and similar, which help to give your model a livelier appearance.

RC functions

Optional

Rudder
Forward / reverse
Lighting system

Specification

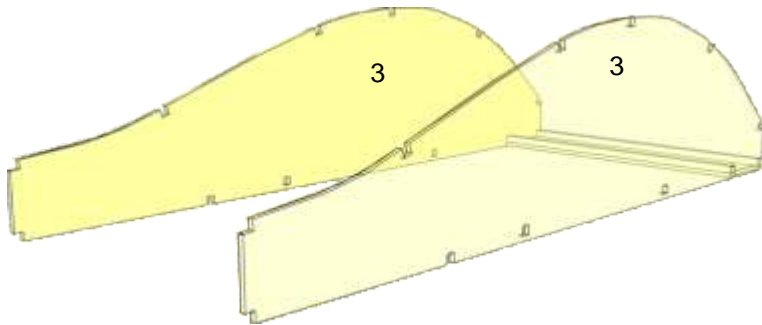
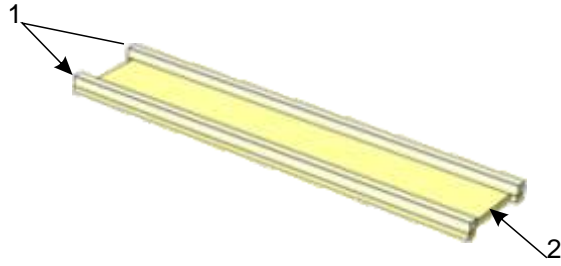
Length
Beam
Overall height

455 mm
200 mm
395 mm

RC
Motor
Servo
Battery

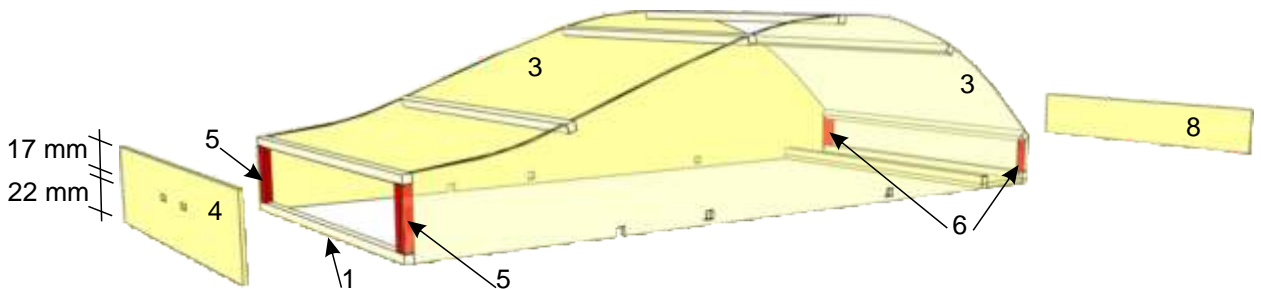
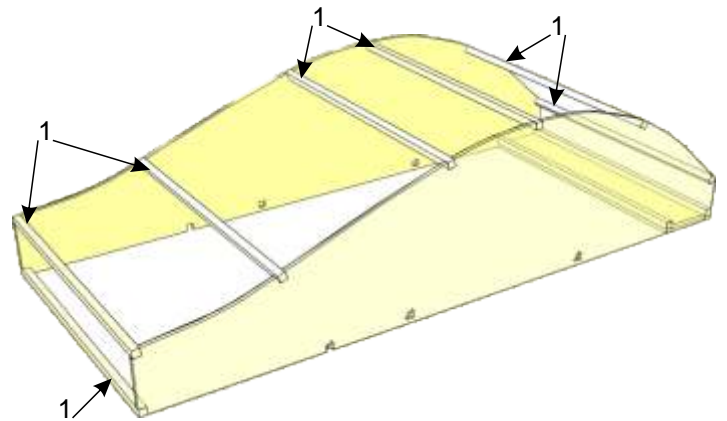
Min. two channels
Race 600 (7124/21)
Standard
6 V lead-acid, 7.2 V NiXX
or 7.4 V LiXX

1 Glue the deck beams (1) to the deck reinforcement (2).



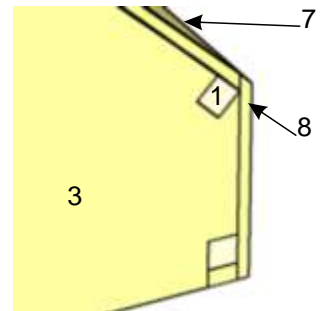
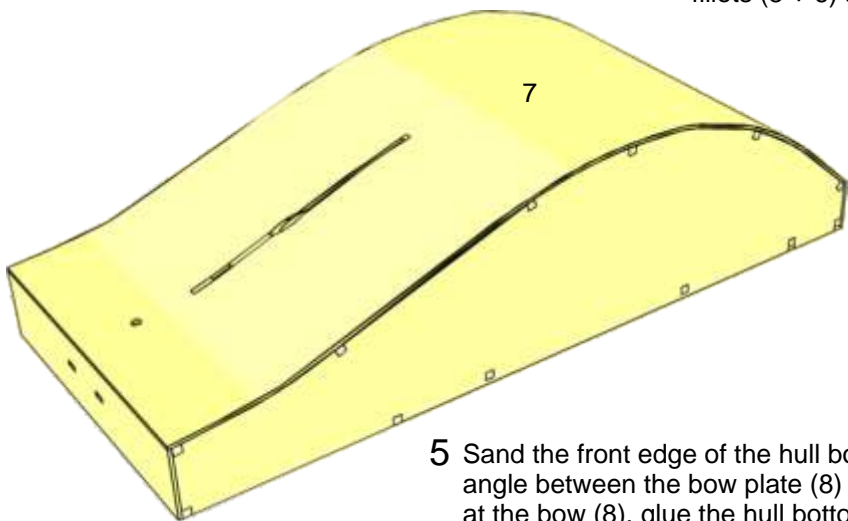
2 Glue the hull sides (3) to the deck reinforcement.

3 Glue all the hull bottom beams (1) in place as shown.
Check that all the parts are at right-angles to each other before leaving the glue to set hard.

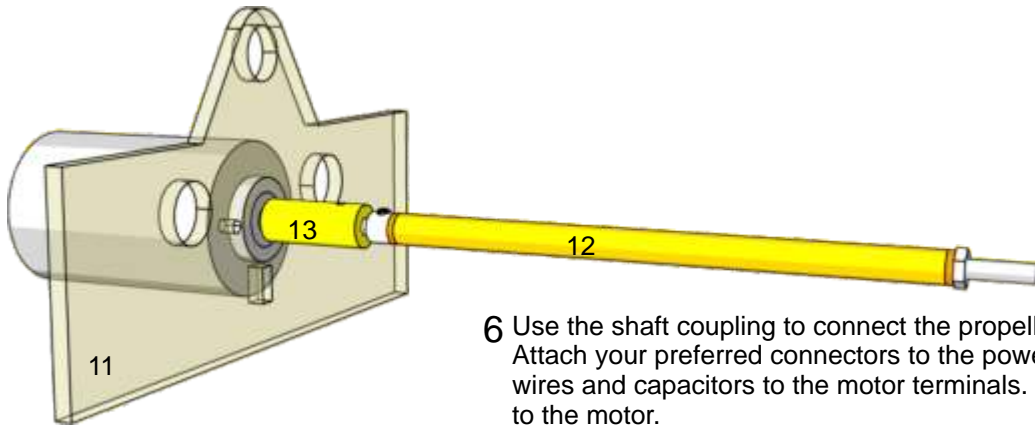


4 Caution:
The slots for the servo plate are located 22 mm below deck level.

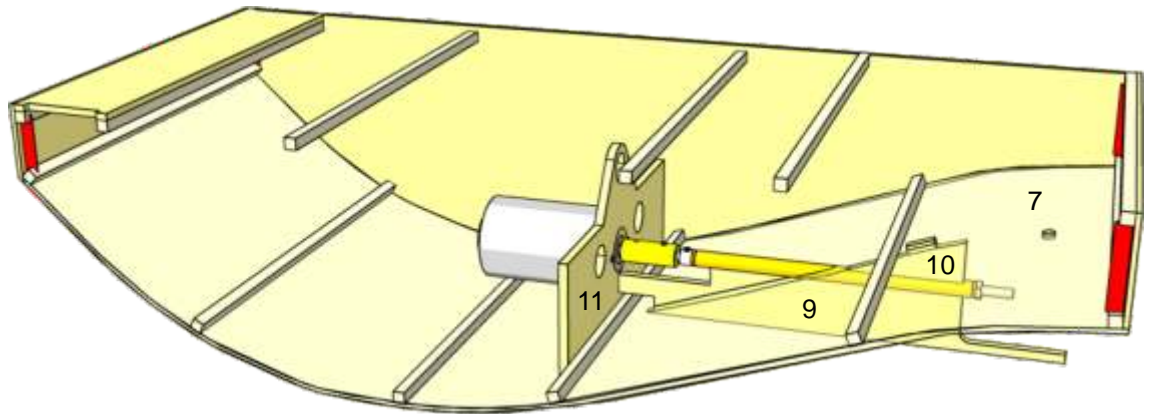
Glue the corner fillets (5 + 6) in place. Glue the transom (4) and the bow plate (8) to the corner fillets (5 + 6) and the hull sides (3).



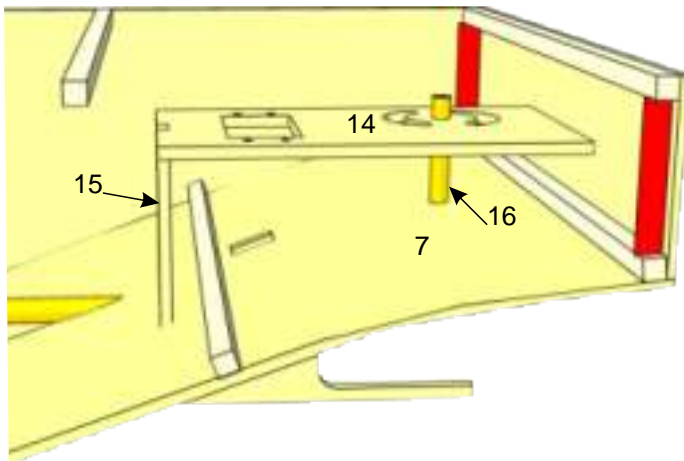
5 Sand the front edge of the hull bottom (7) to a chamfer so that it fits in the angle between the bow plate (8) and the bottom beam (1) as shown. Starting at the bow (8), glue the hull bottom (7) to the hull sides and the bottom beams. Round off the edges of the hull sides with abrasive paper.



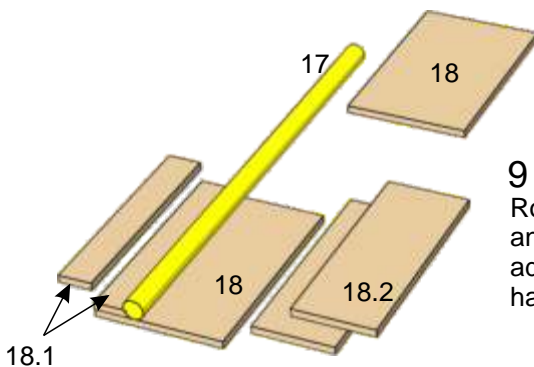
6 Use the shaft coupling to connect the propeller shaft to the motor shaft. Attach your preferred connectors to the power wires, then solder the wires and capacitors to the motor terminals. Screw the motor plate (11) to the motor.



7 Glue the wedge (10) to the underside of the hull bottom (7). Fit the prepared motor assembly through the slot in the hull bottom (7) from the inside, then fit the shaft support (9) through the bottom (7) from the outside, sliding it into the slot in the motor mount (11). You may need to trim the shaft opening slightly. Caution: check that the motor and shaft rotate freely and smoothly, and make any adjustments required to the openings in the hull bottom and the bottom edge of the motor mount.



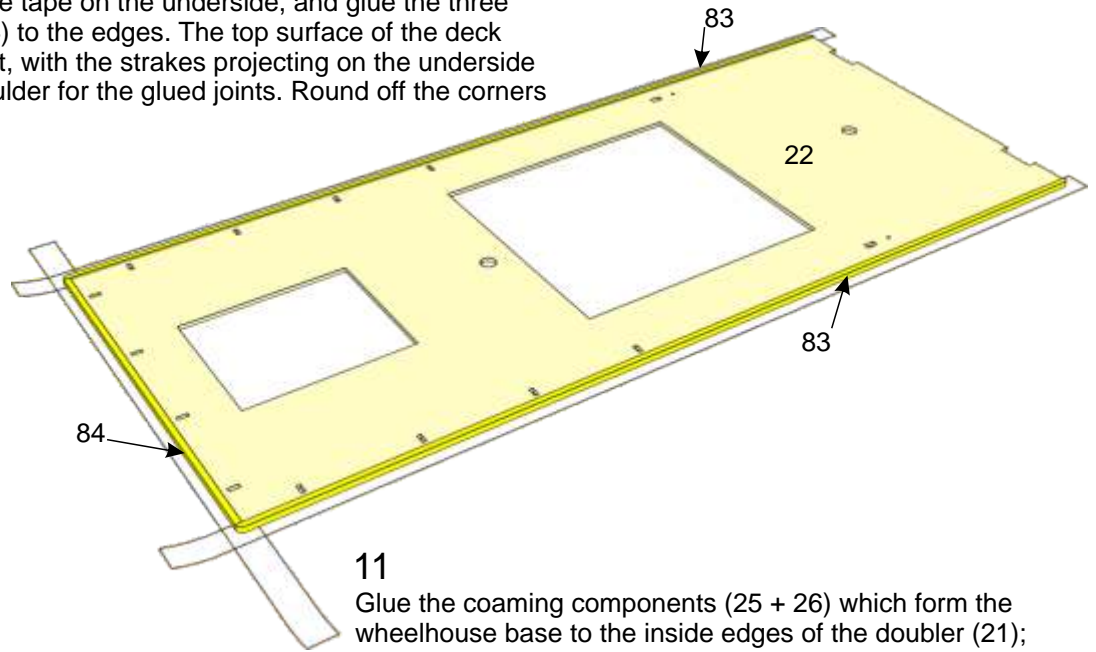
8 Glue the servo mount (14 + 15) to the hull bottom and the transom. Lightly sand the joint surfaces of the rudder bush (16) to provide a key for the glue, then insert the bush through the holes in the hull bottom (7) and the servo mount (14). Leave about 1 mm of the bush protruding on the underside to allow a fillet of resin to be applied, and glue it in place permanently. It is also possible to apply glue from above through the annular openings in the servo mount (14).



9 Roughen one end of the rudder shaft (17) over a length of 40 mm, and glue parts (18, 18.1 + 18.2) to the shaft using two-pack adhesive. Sand the rudder to a streamlined profile when the glue has set hard.

10

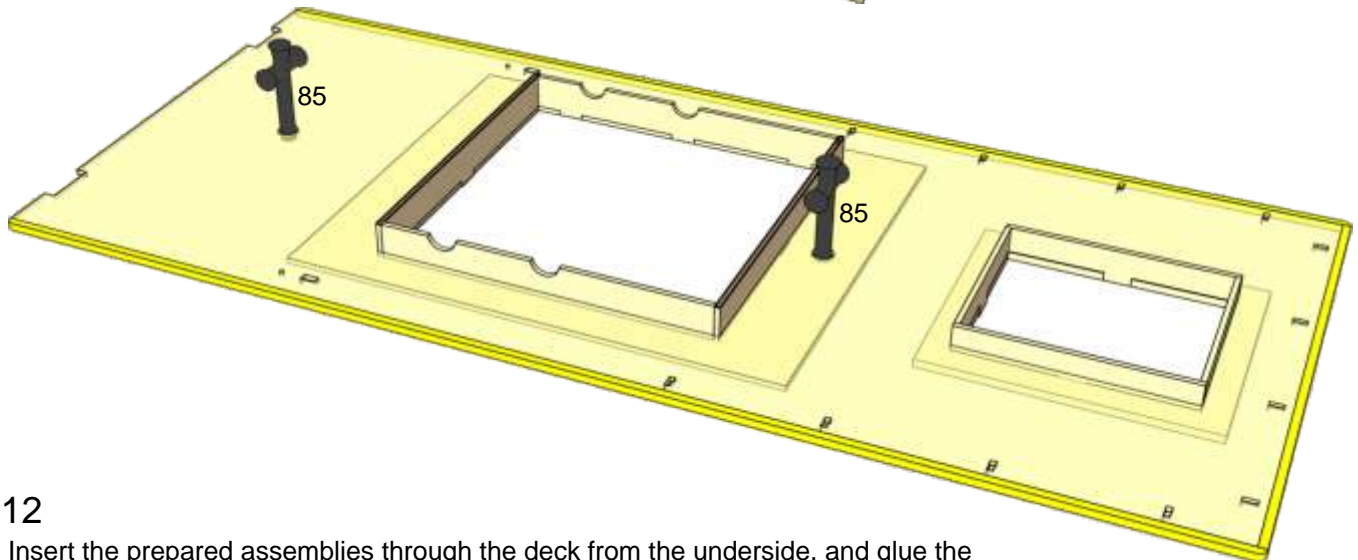
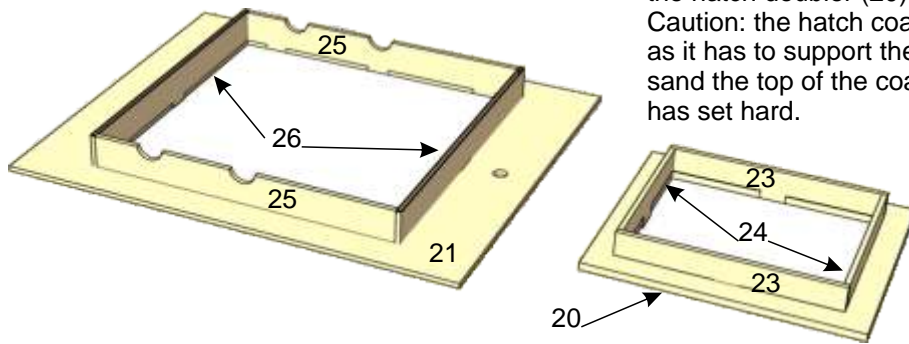
Glue three strips of adhesive tape to the outside edges of the top face of the deck (22), overlapping all round as shown. Lay the deck on a flat surface with the adhesive tape on the underside, and glue the three rubbing strakes (83 + 84) to the edges. The top surface of the deck should be completely flat, with the strakes projecting on the underside by 1 mm, forming a shoulder for the glued joints. Round off the corners of the rubbing strakes.



11

Glue the coaming components (25 + 26) which form the wheelhouse base to the inside edges of the doubler (21); repeat the procedure with the hatch coaming (23 + 24) and the hatch doubler (20).

Caution: the hatch coaming is designed to be a very tight fit, as it has to support the superstructure. It is a good idea to sand the top of the coaming to a slight taper once the glue has set hard.

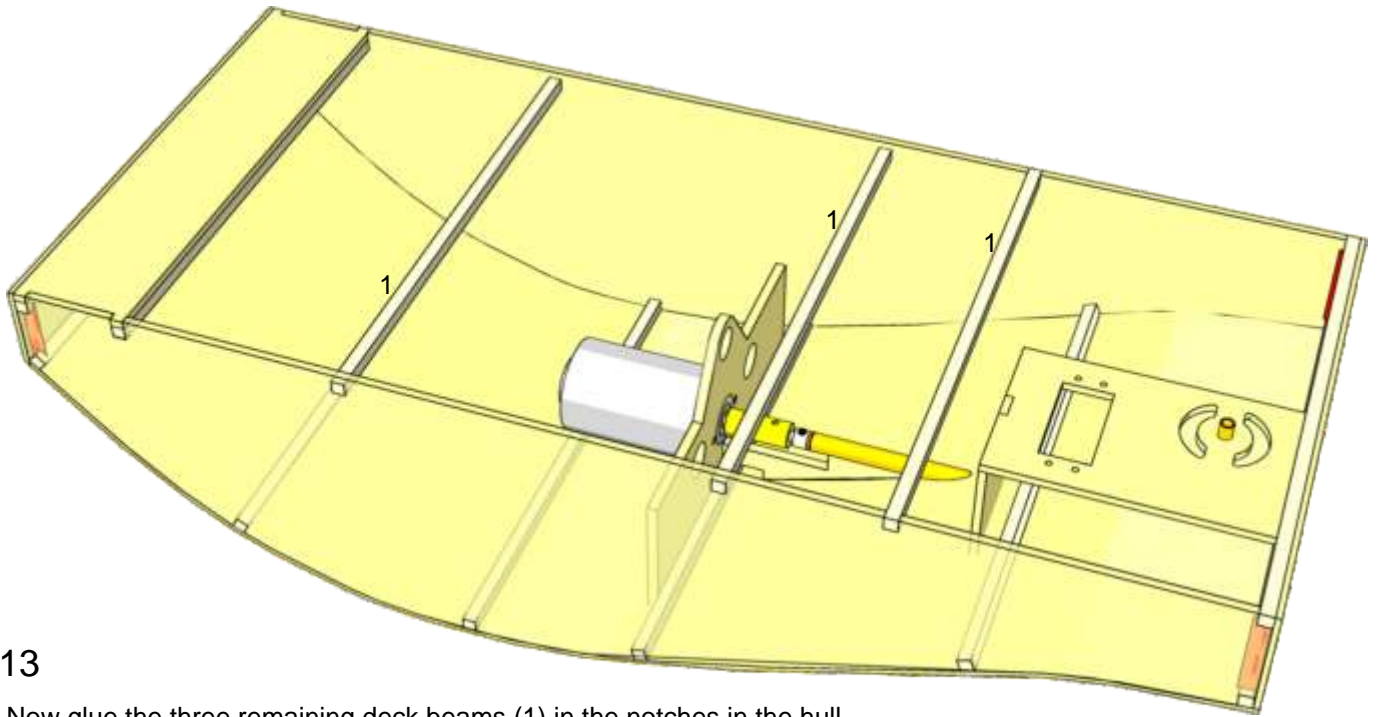


12

Insert the prepared assemblies through the deck from the underside, and glue the doublers in place over their full area.

The two bollards (85) can now be glued to the deck, applying adhesive to the underside; the bollards should project through the deck by about 4 - 5 mm.

Reinforce the joints with a fillet of glue round each one on the underside, as this area is subject to severe stress during towing operations.

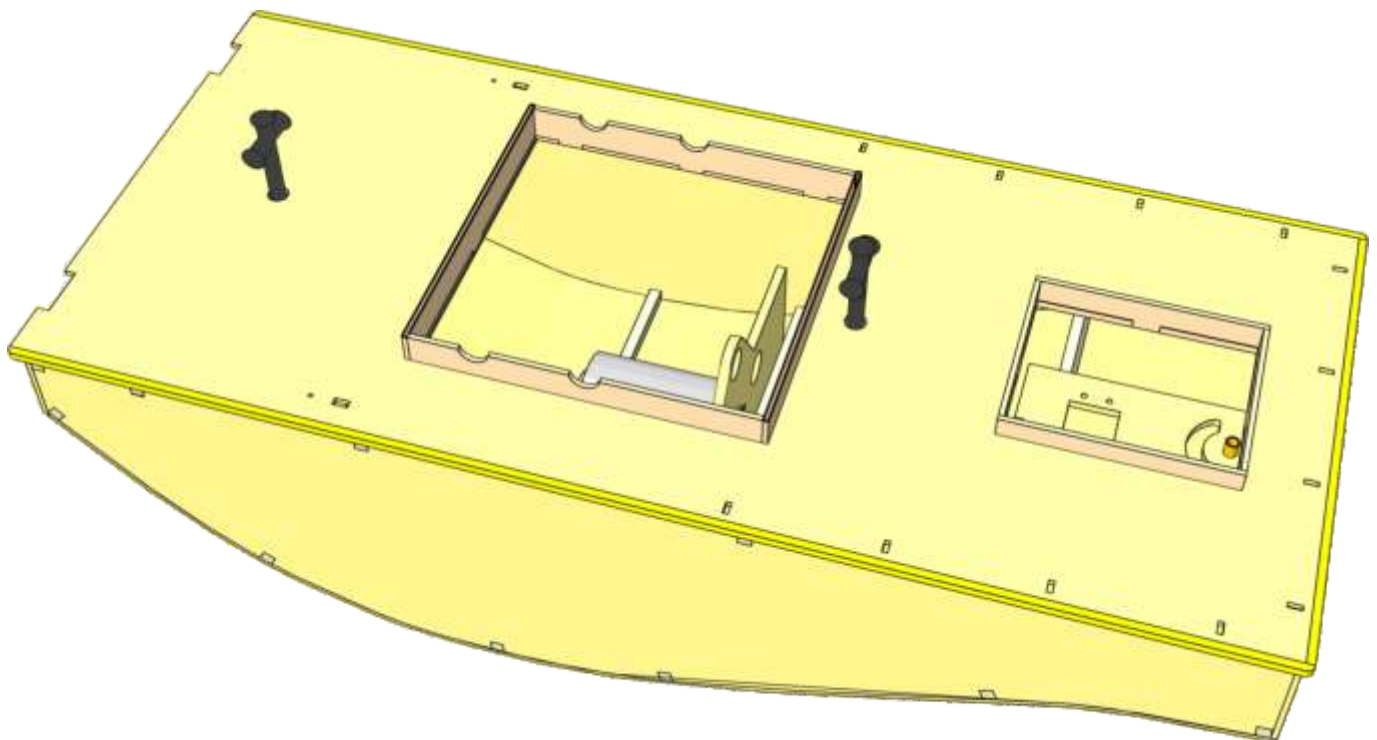


13

Now glue the three remaining deck beams (1) in the notches in the hull.

At this stage the whole of the hull and deck should be given two coats of sanding sealer.

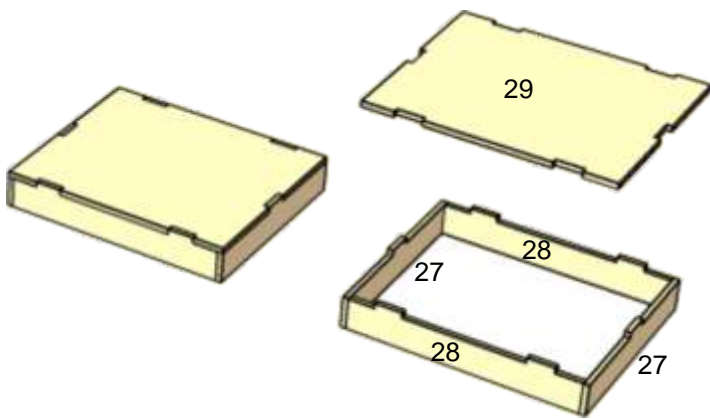
Install the motor in the hull, and cover it to protect it from soiling.



14

The deck can now be attached to the hull: apply plenty of glue to all the joint surfaces of the hull and deck beams, and place the deck in position. Fix the parts together temporarily using strips of adhesive tape. Turn the hull over and leave it inverted until the glue has set hard; you will need to use packing pieces to provide clearance for the bollards.

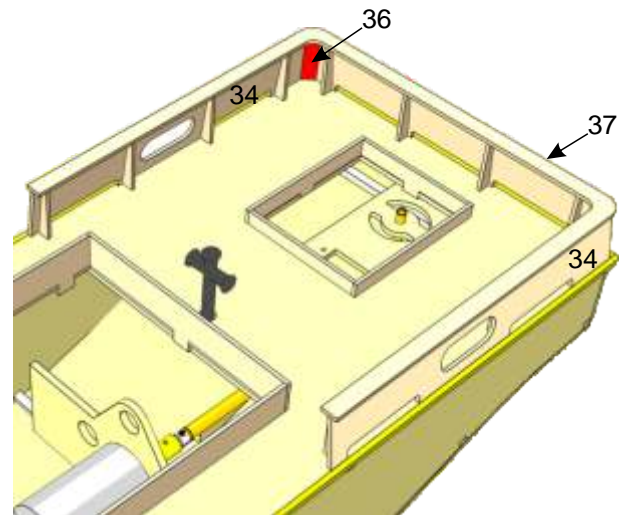
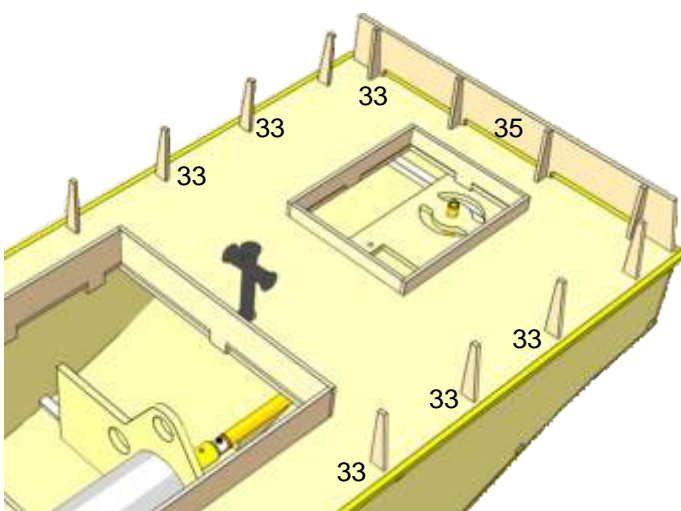
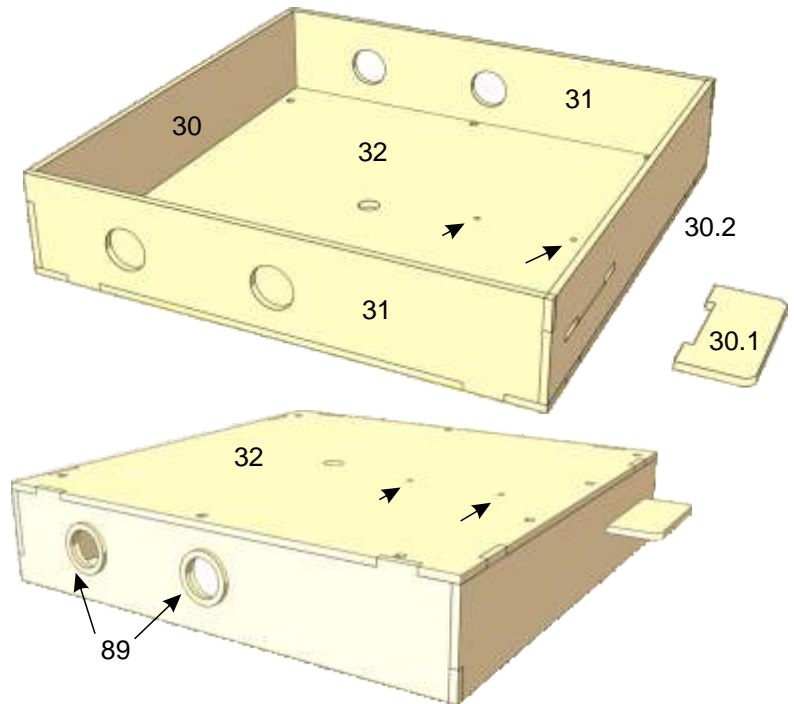
When the glue is dry, give the outside of the hull two or three coats of sanding sealer, rubbing down between coats.



15
 Assemble the rear hatch components (27, 28, 29) and glue the joints.

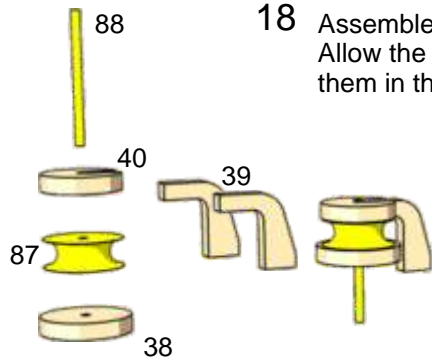
16

Assemble the parts of the engine room (30, 31, 32, 30.1) and glue the joints, taking care to position the roof (32) correctly; note the location of the holes (see arrows). Remove any rough edges from the inside edges of the engine room side panels (30, 31), as this guarantees a firm seating, and makes it easier to fit and remove the whole wheelhouse. Glue the portholes (88) in place as shown. Prime and paint this assembly.



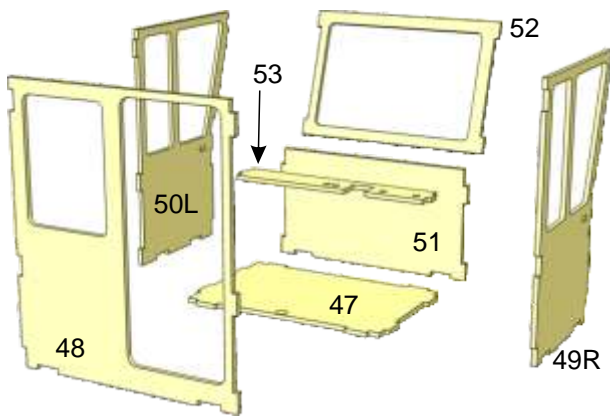
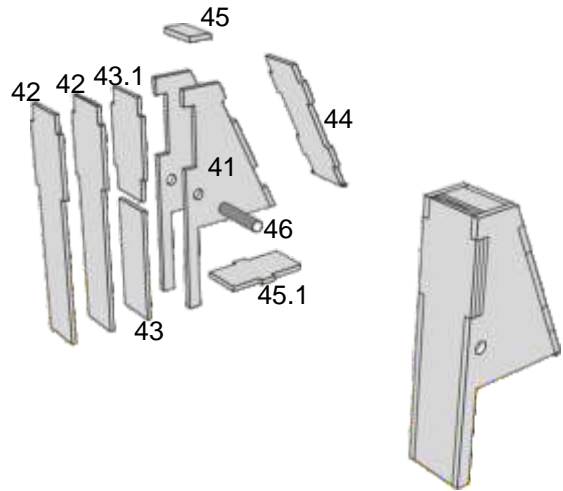
17
 Bulwark

Insert the bulwark stanchions (33) in the slots in the deck, but do not glue them. Glue the stern bulwark 35 to the bulwark stanchions. Glue the side bulwarks (34) to part (35) at the stern as well as to the side stanchions (33). Sand the corner fillets to fit, and glue them in place as shown. When the glue is dry, sand the corners of the bulwark to a rounded shape. Finally glue the handrail on top. The bulwark can now be painted.

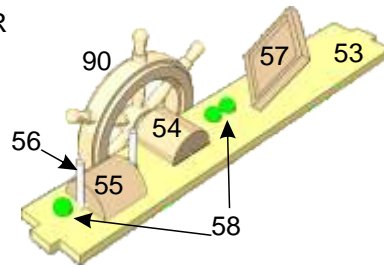


18 Assemble the return pulleys as shown in the picture. Allow the glue to dry and paint them before gluing them in the holes in the deck.

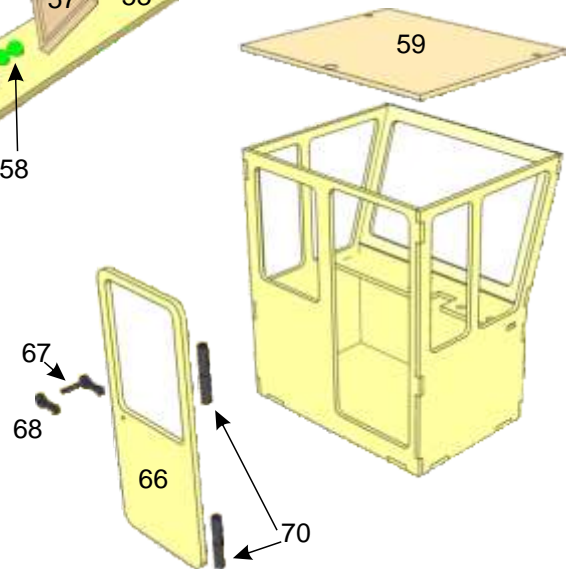
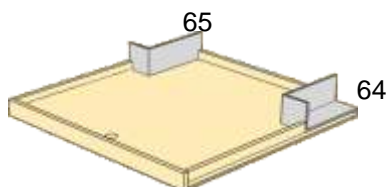
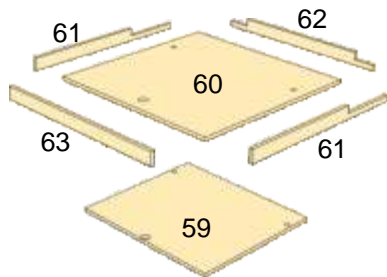
19 Assemble the dolphin posts as shown in the picture, then prime and paint the surfaces before gluing them in the slots in the deck.



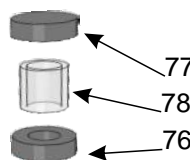
20 Assemble the wheelhouse side walls (48 - 51) and the window (52) around the wheelhouse floor (47), installing the instrument board (53) at the same time. Prime and paint this assembly.

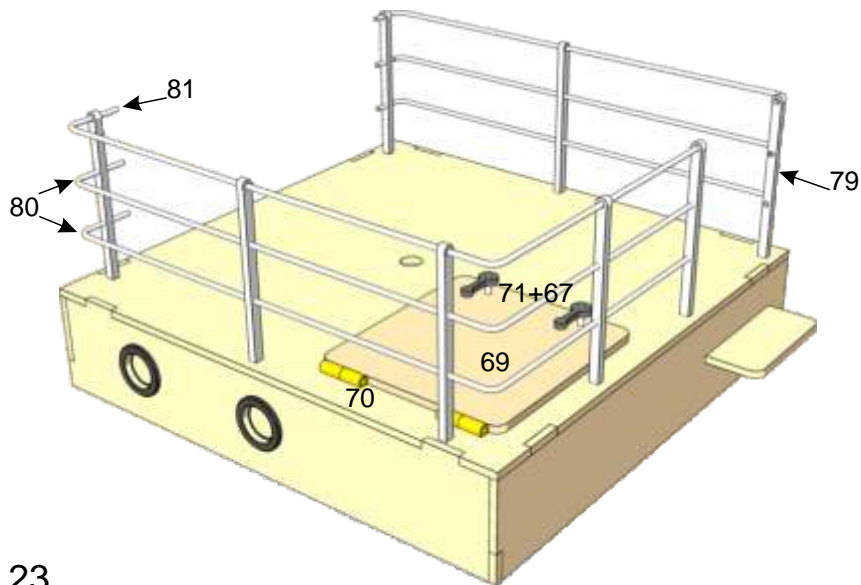


21 Assemble the instruments as shown in the drawing, paint them, and install them once the wheelhouse has been painted. After painting the wheelhouse, glue the door in place; the door hinges can be cut from lengths of brass rod. Trim the roof reinforcement (59) to fit, but do not glue it in place. Glue the side fairings (61 - 63) round the roof (60), and glue the reinforcement (59) to the underside of the roof.



22 Assemble the navigation lamp brackets from parts 64 and 65; they should be glued together before they are fixed to the roof. Note that the lamp brackets are handed (different right and left). Paint the roof at this stage: note that the inside of the lamp brackets should be black. Assemble the lamps from parts (76 - 78), and glue them to the lamp brackets (64 + 65).

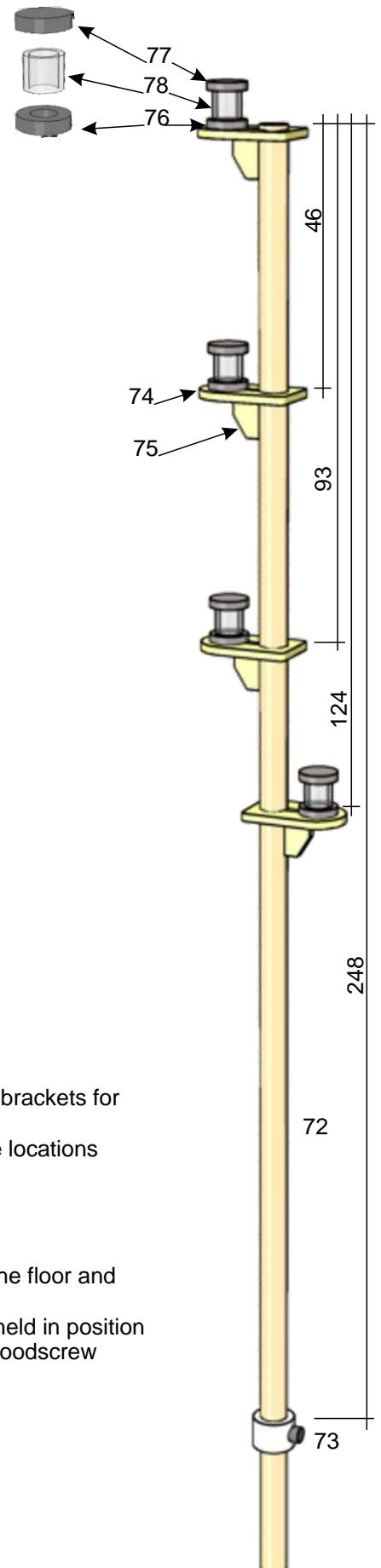




23

Thread the railing stanchions (79) onto the lower rails (80) and the handrail (81), bending all three rails at the same time. Insert the railing stanchions in the holes in the engine room roof. Position the railing components carefully before gluing the rails to the stanchions.

Allow these assemblies to dry before removing and painting them



24

The mast (72)

If you wish to fit working lights, drill 2 mm Ø holes in the mast below the lamp brackets for the wires to pass through.

Glue the platform supports (75) and the lamp platforms (74) to the mast at the locations shown in the illustration.

The mast can now be painted.

Paint the upper and lower parts of the lamps (76 + 77) black.

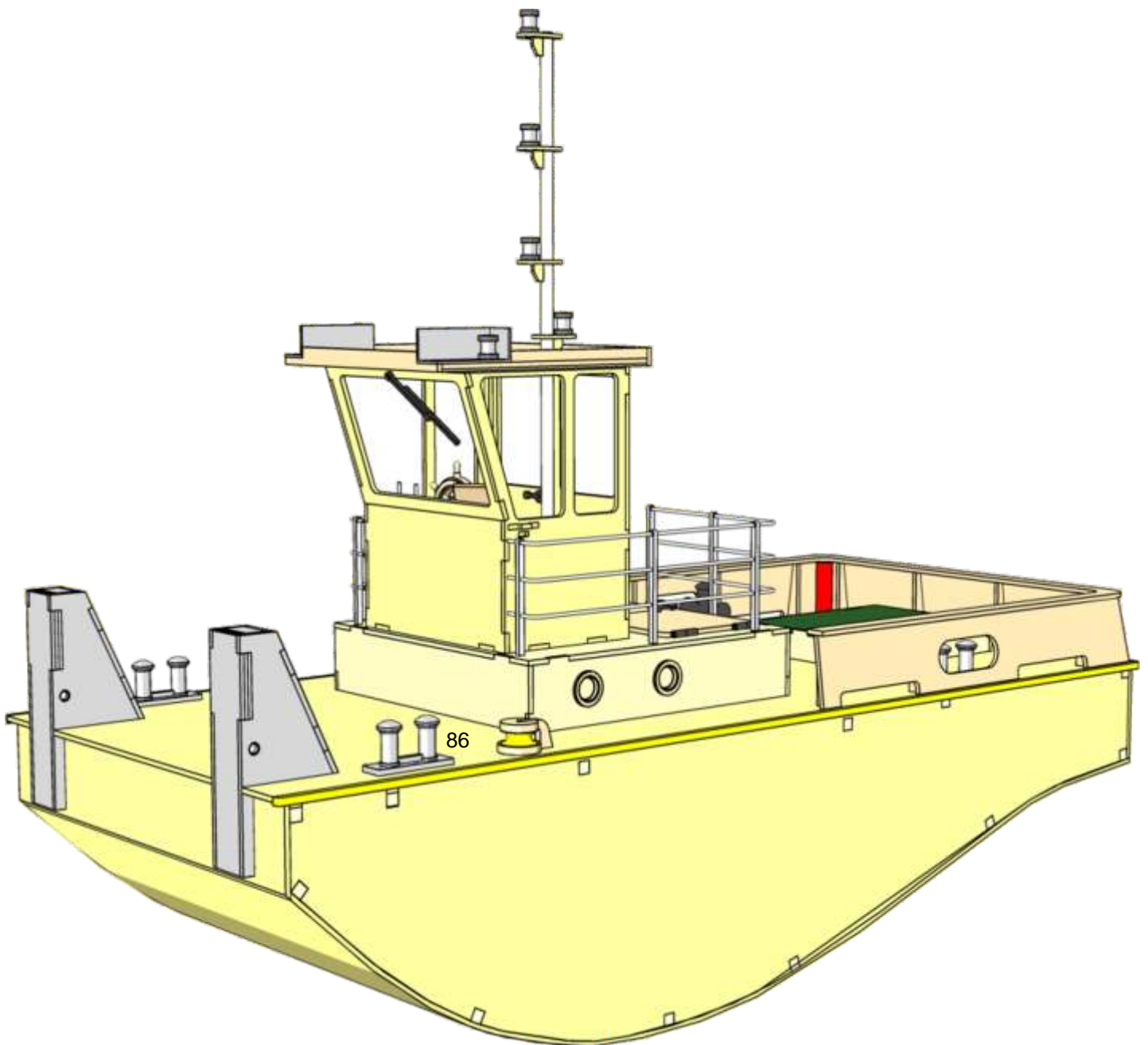
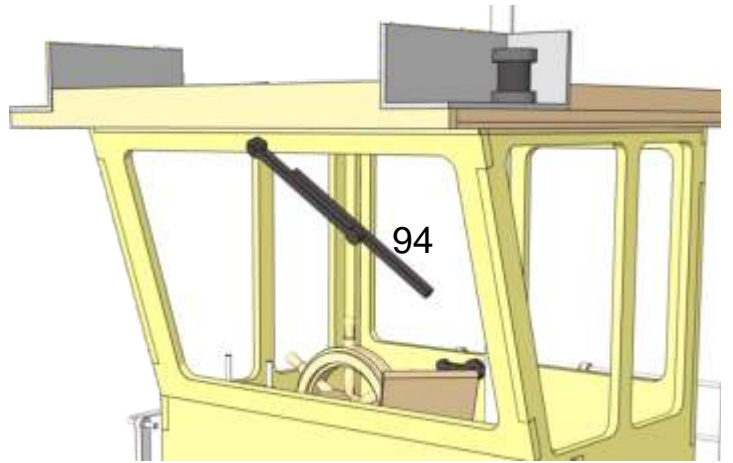
When the paint is dry, glue the clear lenses (78) between them.

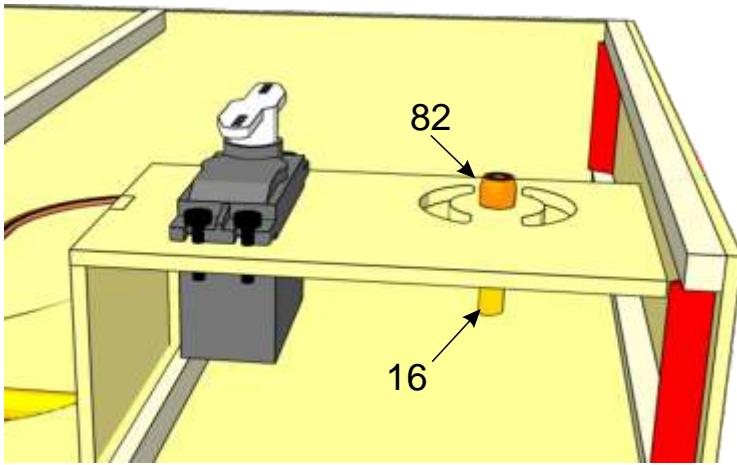
When the mast is complete, slip it through the holes in the wheelhouse roof, the floor and the engine room deck, and secure it by fitting the collet (73) at the bottom.

The wheelhouse as a whole is prevented from rotating by the railings, and is held in position by the mast collet. If you wish, the wheelhouse can be secured with a small woodscrew fitted from the underside.

25

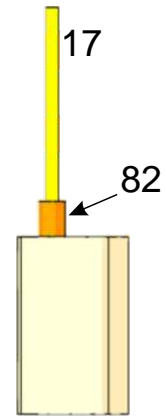
All the windows (95) can now be installed, and the screen wiper (94) fitted.





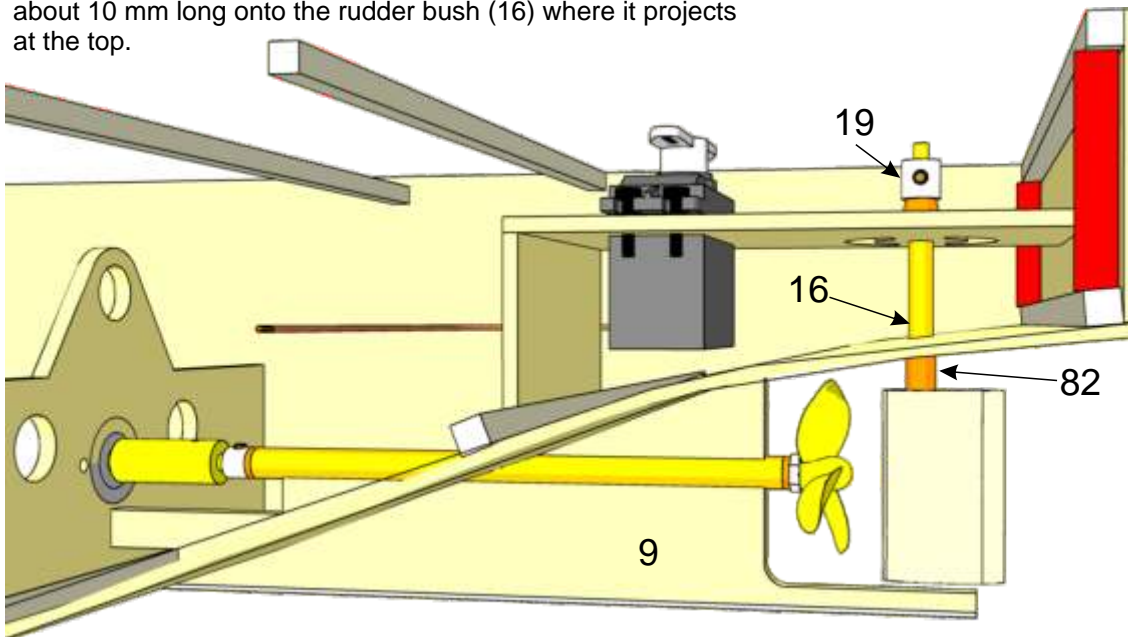
26

Install the steering servo. Push a piece of silicone tubing (82) about 10 mm long onto the rudder bush (16) where it projects at the top.



27

Push a piece of silicone tubing (82) about 10 mm long onto the rudder shaft (17).

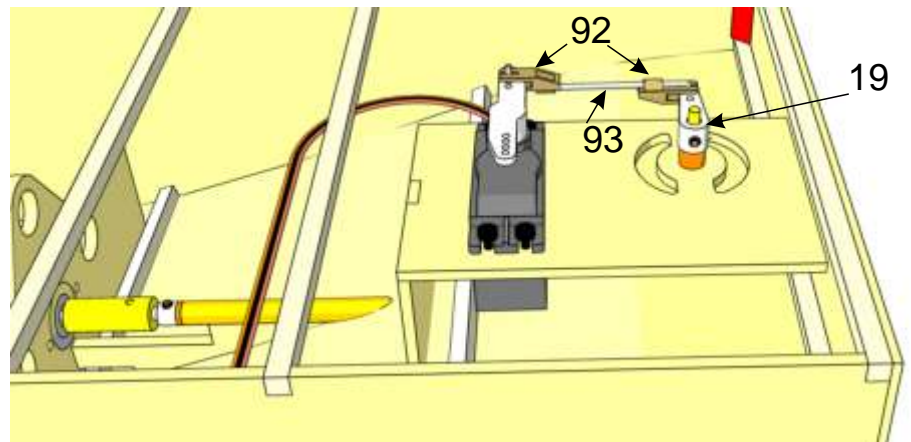


28

Fit the propeller (not included in the kit) on the propeller shaft, and secure it by tightening the locknut. Slip the rudder into the rudder bush (16), carefully pushing the shaft support (9) to one side to allow this. Fit the tiller (19) on the top end of the rudder shaft. Push the parts together so that they are under light tension, then tighten the screw which fixes the tiller (19) to the shaft. This holds the rudder in the correct position and at the same time provides a waterproof seal.

29

Bend the rudder pushrod (93) to shape and connect it to the servo output arm and the tiller. Push the plastic keepers (92) onto the pushrod (93) to hold it in place.



30

The receiver and speed controller can be fixed to the inside of the hull using Velcro (hook-and-loop) tape. The position of the battery varies according to the type of use you envisage for the boat. Stick the strip of Velcro tape to the hull floor forward of the motor to secure the battery. If you wish to use the model as a pusher (springer) tug, you will need to add ballast to trim the vessel correctly. Ensure that the shaft tube is always lubricated with oil or grease. Remove the battery from the model when it is not in use.

Have fun running your model!

Nr.	Bezeichnung	Anzahl	Platte Nr.	Material/ Abmessung
1	Deck- und Bodenbalken	12		Kieferleiste 5 x 5 x 200mm
2	Deckverstärkung vorne	1	3	Laserteil, Sperrholz. 2mm
3	Seitenteile	2	2	Laserteil, Sperrholz. 2mm
4	Heckspiegel	1	3	Laserteil, Sperrholz. 2mm
5	Eckverstärkung hinten	2		6 x 6 x 33mm Dreikantleiste
6	Eckverstärkung vorn	2		6 x 6 x 20mm Dreikantleiste
7	Bodenplatte	1	4	Laserteil, Sperrholz. 1,5mm
8	Bugplatte	1	3	Laserteil, Sperrholz. 2mm
9	Wellenträger	1	5	Laserteil, Sperrholz. 4,0mm
10	Wellenkeil	1	5	Laserteil, Sperrholz. 4,0mm
11	Motorträger	1	5	Laserteil, Sperrholz. 4,0mm
12	Stevenwelle	1	1	Fertigteil
13	Kupplung	1	1	3,17 x 4mm Fertigteil
14	Servoträger	1	2	Laserteil, Sperrholz. 2mm
15	Halteplatte	1	2	Laserteil, Sperrholz. 2mm
16	Ruderkoker	1		MS-Rohr 4,0 x 3,2 x 30mm
17	Ruderwelle	1		MS-Draht 3 x 95mm
18	Ruder	2	4	Laserteil, Sperrholz. 1,5mm
18.1	Ruder	2	4	Laserteil, Sperrholz. 2mm
18.2	Ruder	2	4	Laserteil, Sperrholz. 2mm
19	Ruderhebel	1		Fertigteil
20	Deckverstärkung Luke	1	3	Laserteil, Sperrholz. 2mm
21	Deckverstärkung Steuerhaus	1	2	Laserteil, Sperrholz. 2mm
22	Deck	1	1	Laserteil, Sperrholz. 2mm
23	Lukensüll seitlich	2	3	Laserteil, Sperrholz. 2mm
24	Lukensüll vorn/hinten	2	3	Laserteil, Sperrholz. 2mm
25	Maschinenhaussüll Seite	2	3	Laserteil, Sperrholz. 2mm
26	Maschinenhaussüll vorn/hinten	2	3	Laserteil, Sperrholz. 2mm
27	Luke vorn/hinten	2	3	Laserteil, Sperrholz. 2mm
28	Luke seitlich	2	3	Laserteil, Sperrholz. 2mm
29	Deckel	1	3	Laserteil, Sperrholz. 2mm
30	Maschinenhaus vorn	1	1	Laserteil, Sperrholz. 2mm
30.1	Stufe	1	1	Laserteil, Sperrholz. 2mm
30.2	Maschinenhaus hinten	1	3	Laserteil, Sperrholz. 2mm
31	Maschinenhaus seitlich	2	1	Laserteil, Sperrholz. 2mm
32	Deckel	1	1	Laserteil, Sperrholz. 2mm
33	Schanzkleidstützen	12	2, 3	Laserteil, Sperrholz. 2mm
34	Schanzkleid Seite	2	4	Laserteil, Sperrholz. 1,5mm
35	Schanzkleid hinten	1	4	Laserteil, Sperrholz. 1,5mm
36	Eckverstärkungen	2		6 x 6 x 30 Dreikantleiste
37	Handlauf	1	4	Laserteil, Sperrholz. 1,5mm
38	Rollenhalter unten	2	5	Laserteil, Sperrholz. 4,0mm
39	Bügel	4	4	Laserteil, Sperrholz. 1,5mm
40	Rollenhalter oben	2	5	Laserteil, Sperrholz. 4,0mm
41	Schubdalben Seite	4	1	Laserteil, Sperrholz. 2mm
42	Schubdalben Verstärkung	4	4	Laserteil, Sperrholz. 1,5mm
43	Schubdalben innen	2	4	Laserteil, Sperrholz. 1,5mm
43.1	Schubdalben innen	2	4	Laserteil, Sperrholz. 1,5mm
44	Schubdalben hinten	2	1	Laserteil, Sperrholz. 2mm
45	Schubdalben oben	2	1	Laserteil, Sperrholz. 2mm
45.1	Schubdalben unten	2	1	Laserteil, Sperrholz. 2mm
46	Schubdalben Lager	2	1	MS Rohr 4,0 x 3.2 x 21, ablängen
47	Steuerhausboden	1	3	Laserteil, Sperrholz. 2mm
48	Steuerhaus hinten	1	3	Laserteil, Sperrholz. 2mm
49	Steuerhausseite rechts	1	3	Laserteil, Sperrholz. 2mm
50	Steuerhausseite links	1	3	Laserteil, Sperrholz. 2mm

Nr.	Bezeichnung	Anzahl	Platte Nr.	Material/ Abmessung
51	Steuerhausseite vorn	1	3	Laserteil, Sperrholz. 2mm
52	Steuerhaus Frontfenster	1	2	Laserteil, Sperrholz. 2mm
53	Armaturenräger	1	3	Laserteil, Sperrholz. 2mm
54	Steuerradhalter	1		Rundholz Buche Ø 10 x 15mm
55	Fahrhebelgehäuse	1		Rundholz Buche Ø 10 x 10mm
56	Fahrhebel	1		MS-Draht Ø 1,2 x 25mm
57	Bildschirm	2tlg.	4	Laserteil, Sperrholz. 1,5mm
58	Kontrollleuchten	4		3mm LED, nicht im Bausatz enthalten.
59	Steuerhaus Dachverstärkung	1	3	Laserteil, Sperrholz. 2mm
60	Steuerhaus Dach	1	3	Laserteil, Sperrholz. 2mm
61	Dachverkleidung seite	2	3	Laserteil, Sperrholz. 2mm
62	Dachverkleidung vorn	1	3	Laserteil, Sperrholz. 2mm
63	Dachverkleidung hinten	1	3	Laserteil, Sperrholz. 2mm
64	Lampenbord rechts	3tlg.	4	Laserteil, Sperrholz. 1,5mm
65	Lampenbord links	3tlg.	4	Laserteil, Sperrholz. 1,5mm
66	Tür	1	3	Laserteil, Sperrholz. 2mm
67	Bolzen	2		MS-Rohr, 3,0 x 0,7 x 8mm, ablängen
68	Türdrücker	2	4	Laserteil, Sperrholz. 1,5mm
69	Maschinenraumluke	1	2	Laserteil, Sperrholz. 2mm
70	Scharnier	2		MS-Rohr, 3,0 x 0,7 x 8mm, ablängen
71	Hebel	2	4	Laserteil, Sperrholz. 1,5mm
72	Mast	1		MS-Rohr, 5,0 x 0,7 x 280mm, ablängen
73	Stelling	1		Ø 5,1mm
74	Lampenträger	4	4	Laserteil, Sperrholz. 1,5mm
75	Stütze	4	4	Laserteil, Sperrholz. 1,5mm
76	Lampenunterteil	6	3	Laserteil, Sperrholz 2mm
77	Lampenoberteil	6	3	Laserteil, Sperrholz 2mm
78	Lampenglas	6		Plexiglas 5mm
79	Relingstützen	9	3	Laserteil, Sperrholz 2mm
80	Relingdurchzug	2		MS-Draht Ø 1,0 x 500mm, ablängen, biegen
81	Relinghandlauf	1		MS-Draht Ø 1,2 x 500mm, ablängen, biegen
82	Silikonschauch	1		3x7x50mm (7274/57)
83	Scheuerleiste seitlich	2		3x3x650, Kiefer
84	Scheuerleiste hinten	1		3x3x200, Kiefer
85	Einzelpoller	1		Fertigteil 5440/55
86	Doppelpoller	4		Fertigteil, 5441/43
87	Rolle	2		Fertigteil (aus 5847/11)
88	Welle	2		MS-Draht Ø 1,5 x 30mm, ablängen
89	Bullaugen	4		Fertigteil, 5760/14
90	Steuerrad	1		Fertigteil, 30mm 5654/30
91	Bauanleitung	1		
92	Sicherungsclip	1		Fertigteil, 7489/07
93	Schubstange	1		1,5 x 100mm Eisendraht verz,
94	Scheibenwischer	2tlg.	4	Laserteil, Sperrholz. 1,5mm
95	Fenster			