

Building instructions

Clipper

Order No. 3002/00

**aero-
naut**



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Cut the glasspaper 62 to the size of the plywood block 61, and glue it to both sides. Carefully press the components out of the die-cut sheets and sand the edges smooth using the sanding block.

- 1) Mask off the edge of the channeled face of the deck 1 using adhesive tape to avoid soiling the deck surface when glue is applied. Cover the work surface with plastic film, and lay the deck 1 on it, channeled face down. Insert the keel 2 in the slot, and place the bulkheads 3 to 8 on the deck 1.
- 2) Insert the keel components 9 and 10. Check that the keel 2 is exactly central.
- 3) Glue all the assembled parts together at the corners.
- 4) Sand the front of the bow 11 to a point on both sides (red area) to match the shape of the deck 1, and glue it to the deck 1 and the bulkhead 3. Ensure that part 11 is exactly vertical and central. Glue the bulkhead 12 to the deck 1 and to the keel 10. Pin parts 11 and 12 in place while the glue is drying.
- 5) Allow the glued joints to set hard.
- 6) Sand the balsa strips 13 at an angle as shown in the full-size plan view, glue them to the bow 11 and allow the glue to harden. Don't glue them to bulkhead 3 at this point!
- 7) When the glue has set, stick the balsa strips 13 to bulkheads 3 to 8 and 12, again using pins to hold them in position. Ensure that the bow 11 remains straight when you curve the strips 13.
- 8) Fit the mast socket 14 through the deck 1 and into the hull. Part 14 must end flush with the top surface of the deck 1.
- 9) Set the mast socket 14 exactly central relative to the keel 9. Glue a piece of the 3 cm wide fabric tape 23 over both sides of the mast socket 14 and the keel 9. Glue the mast socket 14 to the deck 1.
- 10) Glue the two reinforcements 15 to the deck 1, butting up against the rear of the bulkhead 12.
- 11) Glue the hull sides 16 to the structure, aligning them with the bow 11 and the bulkhead 12. Clamp the sides to the balsa strips 13 using clothes pegs. If there is a gap between the deck 1 and the hull side, tape the ply panel to part 1 while the glue is setting.
- 12) Check that the notches in parts 17 + 18 match the keel 2, and sand them to the correct size if necessary. Glue the bottom hull panels 17 + 18 to the structure and tape them in place; they should finish flush with the hull sides 16.
- 13) This completes the basic hull structure; sand off the excess balsa strip material 13 at the bulkhead 12 so that they do not project beyond it.
- 14) Assemble the boatstand from parts 19, 20 and 21, and glue the joints.
- 15) Clean the metal ballast bulb 22 using soapy water.
- 16) Place the ballast bulb 22 centrally in parts 19 and 20, rounded end facing forward, pointed end aft. Place the hull between parts 19 and 20 and glue the keel 2 centrally to the ballast bulb 22.
- 17) Glue a strip of 10 cm wide fabric tape 23 to the ballast bulb 22 and the keel 2 for extra strength.
- 18) Fit the rudder bush 25 in the hole in the bottom of the hull 17; it should project on the underside by 11 mm. Glue part 25 to the hull bottom 17 and the keel 10.
- 19) Glue a strip of 3 cm wide fabric tape 61 to the bush 25 and the keel 10.
Fit the shaft of the rudder 24 through the bush 25, fit a washer 26 on the top end and screw the self-locking nut 27 onto the threaded part.
Fit the steering arm 28 on the rudder shaft, and tighten the second self-locking nut on top to clamp the steering arm 28 in place. Check that the rudder 24 rotates freely when the steering arm 28 is moved.
- 20) Glue the plywood reinforcements 30 and 31 to the smooth face of the hatch cover 29, with the lugs projecting beyond the ends of the panel. Clamp the parts together.
Fit the handle 32 through the slot and glue it in place.
The finished hatch 29 as seen from the underside.
- 21) Glue the hatch support rails 33 to the underside of the deck 1 at the sides, centred on the access opening; allow the glue to set hard. The hatch 29 can now be fitted as follows: slide the wider end of the hatch cover (with part 30) under the deck 1, press the opposite (narrow) end (with part 31) down and then slide the hatch back. The hatch cover will now snap into place, with the lugs of parts 30 + 31 engaging under the deck 1. To open the hatch, press the wider end down into the hull by about 3 mm, slide it forward to clear the lugs, then lift it off.
- 22) Tape together the superstructure components 34 to 37. Apply glue to the corner joints on the inside.
- 23) Cut the windows from the clear packaging material, and glue them on the inside of the superstructure.
- 24) Glue the roof 38 to the superstructure.
- 25) Glue the superstructure floor 34 to the deck 1, leaving a visible gap about 1 mm wide between the wall 35 and the access opening in the deck 1.

26) The ends of the superstructure side panels 36 are not yet fixed; bend them as shown, pin them in this position and glue them to the deck 1.

The completed hull can now be given several coats of sanding sealer (primer) to render it completely waterproof. Push a piece of paper towel into the mast socket 14 to prevent sealer running into it. When the sealer is completely dry, place the hull in the water, and check that it floats level and does not leak.

27) The tablings (corner reinforcements) 41 to 47 can now be glued to the sails: peel off the backing film from the double-sided tape, and press them onto the sails in the exact positions shown.

28) Attach the stainless steel rings 48 and oval rings 49 to the sails.

29) Slide the three spring-rings 51 onto the mast 50. This is done by squeezing the loop and the other end together, and pushing it onto the mast.

30) Slide the rings 48 down the mast to attach the mainsail 40 to it, and connect the oval ring 49 to the spring-ring 51.

31) Connect the jib 39 to the spring-ring 51 using the oval ring 49.

Slip the boom 53 through the rings 48 attached to the bottom of the jib 39. The left and right rings must be positioned between the loop and the end of the spring, so that the sail cannot move out of position.

32) Slide two spring-rings 51 onto the boom 52; note that the hole for the screw 54 must be on the left-hand side. Slide the boom 52 through the lower rings 48 in the mainsail 40.

33) Fit the boom 52 over the lower spring-ring 51 attached to the mast 50. Fit the screw 54 through the boom 52 and the spring-ring 51, and secure it with the nut 55.

34) Draw the cord 57 through the left-hand hole in the sliding clamp 56 and tie it securely. Now run the cord through the left-hand spring-ring 51, through the middle and right-hand holes in the sliding clamp 56, and through the right-hand spring-ring.

35) Screw the three ring-screws 58 in place as shown.

Connect the left-hand spring-ring 51 on the boom 53 to the ring-screw 58 with the oval ring 49. Tension the jib 39 to the top of the mast 50 using the spring-ring 51. Tie the cord 57 to the ring-screw 58 in front of the mast 50.

36) Tie the cord 57 to the rear ring-screw 58.

37) Adjust the position of the two sliding clamps so that both booms 52 + 53 are able to swing out as far as the hull sides 16.

38) Glue the servo plate 59 in the hull.

39) Connect the (medium-sized) servo to the steering arm 28 using the pushrod 60. Fix the servo to the servo plate 59 using Velcro (hook-and-loop) tape. Fit the receiver and receiver battery in the forward area of the hull on either side of the keel 2.

40) The boat is intended for light to medium-strength winds only.

If the boat heels (leans over) too far, give the sails a little more freedom to swing out. This is accomplished by adjusting the position of the sliding clamp 56.

No.	Component	Material	No. off	Type
1	Deck / jig	Obechi	1	Die-cut
2	Keel	Plywood	1	Die-cut
3	Bulkhead	Plywood	1	Die-cut
4	Bulkhead	Plywood	1	Die-cut
5	Bulkhead	Plywood	1	Die-cut
6	Bulkhead	Plywood	1	Die-cut
7	Bulkhead	Plywood	1	Die-cut
8	Bulkhead	Plywood	1	Die-cut
9	Keel	Plywood	1	Die-cut
10	Keel	Plywood	1	Die-cut
11	Bow	Plywood	1	Die-cut
12	Bulkhead	Plywood	1	Die-cut
13	Corner strip	Balsa	2	5 x 5 x 495 mm
14	Mast socket	Aluminium	1	7 Ø x 41 mm
15	Reinforcement	Mahogany	2	Die-cut
16	Hull side	Plywood	2	Die-cut
17	Hull bottom	Plywood	1	Die-cut
18	Hull bottom	Plywood	1	Die-cut
19	Boatstand	Plywood	1	Die-cut
20	Boatstand	Plywood	1	Die-cut
21	Boatstand	Plywood	2	Die-cut
22	Ballast	Metal	1	14.5 Ø x 95 mm
23	Fabric tape	Cotton	1	Ready made, 350 mm
24	Rudder	Plastic	1	Ready made, shaft M3 x 35 mm
25	Rudder bush	Brass	1	4 Ø x 24 mm
26	Washer	Brass	1	Bored 3 mm Ø
27	Self-locking nut	Metal	2	M3, ready made
28	Steering arm	Plastic	1	Ready made
29	Hatch cover	Obechi	1	Die-cut
30	Reinforcement	Plywood	1	Die-cut
31	Reinforcement	Plywood	1	Die-cut
32	Handle	Plywood	1	Die-cut
33	Hatch support rail	Obechi	2	Die-cut
34	Superstructure floor	Mahogany	1	Die-cut
35	Superstructure wall	Mahogany	1	Die-cut
36	Superstructure side panel	Mahogany	2	Die-cut
37	Superstructure wall	Mahogany	1	Die-cut
38	Superstructure roof	Mahogany	1	Die-cut
39	Jib	Fabric	1	Die-cut
40	Mainsail	Fabric	1	Die-cut
41	Sail tabling	Fabric	1	Die-cut
42	Sail tabling	Fabric	1	Die-cut
43	Sail tabling	Fabric	1	Die-cut
44	Sail tabling	Fabric	1	Die-cut
45	Sail tabling	Fabric	1	Die-cut
46	Sail tabling	Fabric	1	Die-cut
47	Sail tabling	Fabric	1	Die-cut
48	Ring	Stainless steel	16	Ready made
49	Oval ring	Stainless steel	7	Ready made
50	Mast	Aluminium	1	6 Ø x 510 mm
51	Spring-ring	Stainless steel	7	Ready made
52	Main boom	Aluminium	1	6 Ø x 250 mm
53	Jib boom	Aluminium	1	6 Ø x 160 mm
54	Screw	Brass	1	M2 x 12 mm
55	Self-locking nut	Brass	1	M2
56	Sliding clamp	Plastic	2	Ready made
57	Cord			1000 mm
58	Ring-screw	Brass	3	Ready made
59	Servo plate	Plywood	1	Die-cut
60	Rudder pushrod	Steel	1	Ready made
61	Sanding block	Plywood	1	Pre-cut
62	Glasspaper		1	Pre-cut