

Building Instructions

Diva cabin boat

Order no. 3093/00



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For pictured building instructions please see the German instructions.

The boat should be assembled following the sequence of stages as described in these instructions; the finished assembly is always shown in the illustration for the next stage. Check all components before reaching for the glue, as you may need to trim them slightly. Allow all glued joints to set hard before moving on to the next stage. We recommend a fast-setting white glue or UHU-hart for building this model. Take care not to smear glue on the exposed face of the unlacquered mahogany parts, as it will show up as an unsightly patch on the finished surface.

(1)

Press out all the die-cut rectangles from the building jig 0, and insert the large rectangle in the long slot, standing upright. The jig should be placed on a flat surface while the model is being built.

(2)

The first step is to cut the glasspaper 81 in half and stick it to the sanding block 82.

Write the part numbers on the die-cut components before carefully pressing them out of the parent sheets (see overview of die-cut parts at the end of these building instructions). At some points you will need to cut through the material using a thin, sharp balsa knife; clean up the edges of the separated parts using the glasspaper block.

(3)

Insert the hull frames 1 - 8 in the slots in the jig 0.

(4)

Carefully fit the keel 9 in the notches in the frames 1 to 4, and insert the bow end in the front notch in the jig; note that the keel 9 must finish flush with the frames 2 to 4. The keel 9 will project by about 2 mm at frame 1.

(5)

Insert the two spars 10 in the frames 4 to 8 as shown, and press them carefully into the notches to their full depth; the spars 10 must not project at all. Press the frame 8 onto the spars 10 from the stern end.

(6)

Apply glue to the corner joints of all parts 1 to 10.

(7)

Fit the two bow supports 11 in the notch in the keel 9, and lay the other end on the jig support in front of frame 1.

Note that parts 11 must not project forward beyond the keel 9.

Check that the frame 1, the keel 9 and the jig support are pushed fully into the slots in the jig; the bottom edge of part 11 should now lie flush with the outside edge of the frame 1. Glue the parts together, and pin them in place while the glue is setting.

(8)

Sand the joint edges of the two rear keel sections 12 at an angle, so that they meet neatly in the centre, and engage in the notches in the frames 5 to 8.

(9)

Glue the gunwale rails 13 to the frames 1 to 8.

The rails 13 must be pressed full-depth into the notches in the frames, especially at frame 1 at the bow. Pin the rails 13 in place while the glue is setting.

(10)

Insert the two chine rails 14 in the keel 9 and the frame 1, keeping the strips on edge and parallel. Note that the strips must be sanded back (using the sanding block) so that they do not project beyond the front edge of the keel 9 at the side or forward. Glue the rails to the keel 9 and the frame 1, and leave the joints to dry out thoroughly.

(11)

When the joints have set hard, glue the chine rails 14 in the notches in the frames 2 to 8, and hold them in place temporarily with pins.

(12)

Apply strips of adhesive tape along the edges of the hull sides, parts 15, to avoid any excess glue spreading onto the outer exposed face of the mahogany, as this would produce unsightly patches when the wood is lacquered. Any excess glue should be washed off immediately with water. Cut off the projecting tape ends.

(13)

Glue the first hull side 15 to the structure, fixing it in place with spring clamps and pins while the glue is hardening. Note that the side panels must rest squarely on the support lugs of the frames 1 to 8, and on the support lug of the keel 9 at the bow. The front edge of the hull side 15 should line up exactly with the centre of the keel 9 (see front view at top right). Allow the glue to set hard before attaching the second hull side in the same way. Use pins to fix it to the keel 9 at the bow, and tape it to the first hull side 15.

(14)

Lay the two bottom hull panels 16 flat on the bench, and tape them together temporarily with two strips of adhesive tape as shown.

Don't apply glue at this stage!

(15)

Lay the taped bottom panels 16 on the hull, and apply more strips of tape as shown, starting from the right (the stern). Ensure that the cut edges butt up exactly in the centre. At the left end (the bow) you will have to leave a gap of about 6 mm, as the material is too stiff to conform to the curvature.

(16)

Caution!

The next three stages of construction on this page have to be completed before the glue sets. It is therefore important to check the fit of the bottom hull panels 16 once more before you reach for the glue bottle.

Remove the hull bottom and apply a fillet of glue along the inside of the central joint. Now move on to the next two stages - 17 and 18 - before the glue has time to harden.

(17)

Apply glue to the frames 1 to 8, the keel 9, the rear keel sections 12, the spars 10 and the chine rails 14, and lay the hull bottom 16 on the structure, flush with the side panels 15 at the bow.

(18)

Pull in the bow end of the hull bottom 16 so that the panels join neatly, then fix the parts to the structure at the bow using pins. Apply pieces of adhesive tape as shown in order to pull the panels 16 down against the hull sides 15; check that the panels extend beyond the final frame 8.

(19)

Assemble the boatstand as follows: glue parts 17 and 18 together in pairs, and join them using the spruce rails 19.

The finished boatstand. The hull can now be placed in the stand, and left there for the remainder of the building process.

(20)

Break off the support lugs from the keel 9 and the frames 1 to 8, and sand the broken edges smooth and flat. Fill the gap between the hull bottom 16 and the chine rails 14 with glue.

(21)

Apply a thin coat of sanding sealer to all the components on the inside of the hull to render them waterproof. Caution: don't apply too much, otherwise you could dissolve the glued joints.

(22)

The Race 400 6V electric motor (Order No. 7000/42, not included in the kit) is installed next: fix the motor to the frame 4 using the self-tapping screws 80. You will also need a rechargeable six-cell sub-C drive battery.

Slip the propeller shaft / propeller 20 through the shaft tube 21, and push the plastic sleeve 22 on the plain end to form the shaft coupling.

(23)

Slip the shaft tube 21 into the hull from the underside, complete with the propeller shaft 20 and the flexible coupling 22, and push the coupling sleeve onto the motor shaft. Adjust the propeller shaft so that it forms a straight line with the motor shaft.

(24)

Glue the keel strake 23 between the bottom of the hull 16 and the shaft tube 21. Check that the strake does not foul the propeller; adjust the position of the shaft tube 21 if necessary.

Now glue the propeller shaft tube 21 to the hull, applying glue to the inside and outside of the joint.

(25)

Glue the battery support rails 24 in the hull.

(26)

Glue the cockpit floor support rails 25 in place as shown.

(27)

Glue the rudder support 26 in the notches of the spars 9 at the stern.

(28)

De-grease the brass rudder bush 27, and glue it in the holes in the hull floor 16 and the rudder support 26.

(29)

Glue the deck support rails 28 in the upper notches in the frames 3 to 8, clamping them in place while the glue dries. Press the rails 28 outward against the hull sides 1; see stages 30 and 31.

(30)

Glue the horizontal supports 29 in place, resting on the frames 5 to 7, and butting up against the frame 8. On both sides the frames 6 and 7 will project beyond the rails 28 towards the hull centreline; sand off the excess material at this stage.

(31)

Fit the side panels 30 in the slots in the frames 5 to 7, and press them up against the supports 29. Glue them in place, using clamps to hold them in position.

(32)

Glue the side coaming strips 31 to the deck support rails 28, and secure them with clamps. Do not glue them to the frames 2 and 3.

(33)

Sand the top edges of the frames 1 to 8 and the rails 13, to bring them to the same level as the hull sides 15. Drill 1.5 mm Ø pilot-holes at the seven marked points in the deck 32, then glue the deck to the hull and secure it with strips of tape as shown. Press the deck 32 onto the full length of the deck support rails 28, and clamp the superstructure side panels 39 in place as shown in Stage 37, with their bottom edges resting flush on the deck 32.

(34)

Glue the fore and aft coaming panels 33 and 34 to the deck 32. Drill 1.5 mm Ø holes at the four marked points on the transom 35, then glue it to the outside of the frame 8 to finish off the aft end of the hull.

(35)

Glue the door frame 37 to the cabin wall 36, lining up the window edges. Cut the mahogany strips 38 to length and glue them between the door frame uprights, overlapping as shown, to form louvres.

(36)

Place the cabin wall 36 in the hull as shown, and press it up against the frame 5. Glue the cabin side panels 39 to the cabin wall 36 only.

(37)

Glue the parts 40 to 43 together as shown. Allow the glue to set hard, then place this assembly on the coaming panels 31. Slide it as far forward as possible, and glue it between the cabin side panels 39. Do not glue it to the coaming panels 31.

(38)

Glue the front and rear cross-pieces 44 and 45 to the cabin side panels 39.

(39)

Drill 1.5 mm Ø holes in the cabin roof 46 at the marked points. Glue the roof to the side panels 39 and the front cross-piece 44.

(40)

Tape the window frames 7 together in the centre, and apply glue along the inside of the joint to glue the frames permanently. Immediately glue this assembly to the front roof 46 and the side panels 39.

(41)

Glue the main cabin roof 48 to the cabin, and secure it with tape while the glue hardens.

(42)

Assemble the aerial from the parts 49 to 51, and glue it to the centre of the cabin roof 48.

(43)

Sand the seat backrest 52 to a concave profile as shown, and glue it to the seat squab 53. Sand the outside of parts 52 and 53 to a rounded shape.

(44)

Sand the edges of the bench seat squab 54 and the backrest 55 to a rounded profile. Glue the backrest 55 to the seat squab 54, angled to the rear by about 10°.

(45)

Glue the bench seat support 56 to the rear of the cockpit floor 57, and glue the two feet 58 in the holes.

(46)

Place the cockpit floor 57 in the hull, and slide it forward until it rests against the rear cabin wall 36.

(47)

Glue the bench seat 54 to the support 56, and slide the backrest back as far as it will go (see Fig. 50).

(48)

Cut pieces from the limewood strip 78 and glue them to the hatch cover 59 and the table top 60 to form a frame.

(49)

Assemble the control stand from the parts 61 to 64.

(50)

Glue the control stand 61 to the rear cabin wall 36 at the front; do not glue it to the cockpit floor 57.

(51)

Sand the edges of the deck 32 and glue the limewood framing strips 78 to the edge of the deck using contact cement.

(52)

Cut the supports for the receiver and the speed controller from the plywood panel 85, and glue it to the floor support rail 25.

(53)

At this point all the wooden parts can be sanded smooth, and the whole model given several coats of sanding sealer, Order No 7666/02. Allow the sealer to dry thoroughly after each coat, and rub the model down with fine glasspaper before applying the next. Now place the boat in water to check that everything is watertight. As soon as all the surfaces look smooth and glossy, you can start applying the colour finish by painting the underwater hull and the seat.

(54)

Slip the rudder shaft 65 through the bush 27, and fit the first self-locking nut 67; tighten it just to the point where the rudder still swivels smoothly. Fit the tiller 66 on top, and tighten the second self-locking nut 67 fully, so that the tiller is clamped securely between the two self-locking nuts 67. The rudder servo A must be no larger than 30 x 14 x 30 mm (L x W x H) in size.

Connect the rudder pushrod 68 to the tiller 66 and the servo A, then fix the servo to part 36 using Velcro tape.

(55)

Bend the wire parts to the shapes shown in the drawing (see Parts List). Locate the holes in the deck 32 for the bow railing, and run a drill through them at an angle, i.e. parallel to the hull sides 15. Glue the bow railing in place, angled towards the outside, so that the two forward stanchions are parallel. Glue the handrails 70 in place, and glue the cleats 71 to the deck.

(56)

Drill 1.5 mm Ø holes for the bathing ladder 75, the bathing platform 73 and the flagstock 77, and glue these parts in them. Glue the truck 64 to the tip of the flagstock. Glue the lifebelt 72 and the steering wheel 78 in place. The steps 76 should be fixed between parts 75, and the bathing platform 74 to the holder 73.

(57)

Locate the flags on the last page and cut one out. Glue it to the flagstock 77. Parts 61, 64, 74, 76 and the flag must be given a coat of sanding sealer before the boat is run.

(58)

Apply the self-adhesive trim stripes to the sides of the hull.

The gold-coloured cover can be stuck to the point of the bow if you wish. The final step is to glue the glazing panels 79 to the inside of the cabin.

Have fun ...

Part No.	Part	Material	No. off	Size and type
0	Jig	Depron	1	Die-cut
1	Hull frame	Plywood	1	Die-cut
2	Hull frame	Plywood	1	Die-cut
3	Hull frame	Plywood	1	Die-cut
4	Hull frame	Plywood	1	Die-cut
5	Hull frame	Plywood	1	Die-cut
6	Hull frame	Plywood	1	Die-cut
7	Hull frame	Plywood	1	Die-cut
8	Hull frame	Plywood	1	Die-cut
9	Front keel section	Plywood	1	Die-cut
10	Spar	Plywood	2	Die-cut
11	Bow support	Plywood	2	Die-cut
12	Rear keel section	Plywood	2	Die-cut
13	Gunwale rail	Spruce	2	1.5 x 5 x 480 mm
14	Chine rail	Spruce	4	1.5 x 2.5 x 530 mm
15	Hull side	Mahogany	2	Die-cut
16	Bottom hull section	Birch plywood	2	Die-cut
17	Boatstand, front	Mahogany	2	Die-cut
18	Boatstand, rear	Mahogany	2	Die-cut
19	Boatstand rail	Spruce	2	5 x 5 x 180 mm
20	Propeller / shaft, stainless	Metal / plastic	1	Ready made
21	Propeller shaft tube	Brass	1	5 / 4 x 180 mm
22	Flexible coupling sleeve	Plastic	1	7274/51, 4.5 x 1.5 Ø x 25 mm
23	Keel	Plywood	1	Die-cut
24	Battery support rail	Spruce	2	5 x 5 x 230 mm
25	Cockpit floor support rail	Spruce	2	5 x 5 x 140 mm
26	Rudder support	Plywood	1	Die-cut
27	Rudder bush	Brass	1	4 / 3 Ø x 25 mm
28	Deck support rail	Spruce	2	3 x 3 x 365 mm
29	Horizontal support	Mahogany plywood	2	Die-cut
30	Side panel	Mahogany plywood	2	Die-cut
31	Coaming panel	Mahogany plywood	2	Die-cut
32	Deck	Mahogany plywood	1	Die-cut
33	Fore coaming panel	Mahogany plywood	1	Die-cut
34	Aft coaming panel	Mahogany plywood	1	Die-cut
35	Transom	Mahogany plywood	1	Die-cut
36	Cabin wall	Mahogany plywood	1	Die-cut
37	Door	Mahogany plywood	1	Die-cut
38	Louvre	Mahogany strip	1	5 x 1 x 490 mm
39	Cabin side panel	Mahogany plywood	2	Die-cut
40	Frame component	Mahogany plywood	1	Die-cut
41	Frame component	Mahogany plywood	1	Die-cut
42	Frame cross-piece	Mahogany plywood	1	Die-cut
43	Frame cross-piece	Mahogany plywood	1	Die-cut
44	Front cabin cross-piece	Mahogany plywood	1	Die-cut
45	Rear cabin cross-piece	Mahogany plywood	1	Die-cut
46	Front cabin roof	Mahogany plywood	1	Die-cut
47	Window frame	Mahogany plywood	2	Die-cut
48	Main cabin roof	Mahogany plywood	1	Die-cut
49	Aerial	Mahogany plywood	1	Die-cut
50	Aerial	Mahogany plywood	1	Die-cut
51	Aerial	Wire	1	15 x 65 mm
52	Control stand seat backrest	Balsa	1	Block, 35 x 25 x 12 mm
53	Control stand seat squab	Balsa	1	Block, 35 x 35 x 12 mm
54	Bench seat squab	Balsa	1	Block, 93 x 45 x 12 mm
55	Bench seat backrest	Balsa	1	Block, 93 x 35 x 12 mm
56	Bench seat support	Balsa	1	Strip, 8 x 8 x 80 mm
57	Cockpit floor	Mahogany plywood	1	Die-cut

58	Foot	Beech dowel	2	6 Ø c 40 mm
59	Hatch cover	Mahogany plywood	1	Die-cut
60	Table top	Mahogany plywood	1	Die-cut
61	Control stand front panel	Mahogany plywood	1	Die-cut
62	Control stand side panel	Mahogany plywood	2	Die-cut
63	Control stand cover	Mahogany plywood	1	Die-cut
64	Wheel / flagstock support	Mahogany plywood	2	
65	Rudder	Plastic / metal	1	Ready made, 7024/02
66	Tiller	Plastic	1	Ready made
67	M3 self-locking nut	Metal / plastic	2	Ready made, 7766/23
68	Rudder pushrod	Steel rod	1	Ready made
69	Bow railing	Wire	2	1.5 mm Ø
70	Handrail	Wire	2	1.5 mm Ø
71	Cleat	Metal / plastic	4	Ready made, 5400/12
72	Lifebelt	Plastic	1	Ready made, 6065/35
73	Bathing platform holder	Wire	1	1.5 mm Ø
74	Bathing platform support	Mahogany plywood	4	Die-cut
75	Bathing ladder string	Wire	2	1.5 mm Ø
76	Bathing ladder rung	Mahogany plywood	2	Die-cut
77	Flagstock	Wire	1	1.5 Ø x 80 mm
78	Rail	Lime	2	Strip, 2 x 2 x 580 mm
79	Glazing panel	PVC	9	Die-cut
80	Motor mounting screw	Metal	2	M2.5 x 6 mm
81	Glasspaper		1	
82	Sanding block	Balsa	1	100 x 35 x 5 mm
83	Glue sample		1	7638/08
84	Decal sheet	Plastic film	1	
85	Receiver / controller support	Plywood	2	Die-cut

Overview of die-cut parts, Diva cabin boat, Order No. 3093/00



