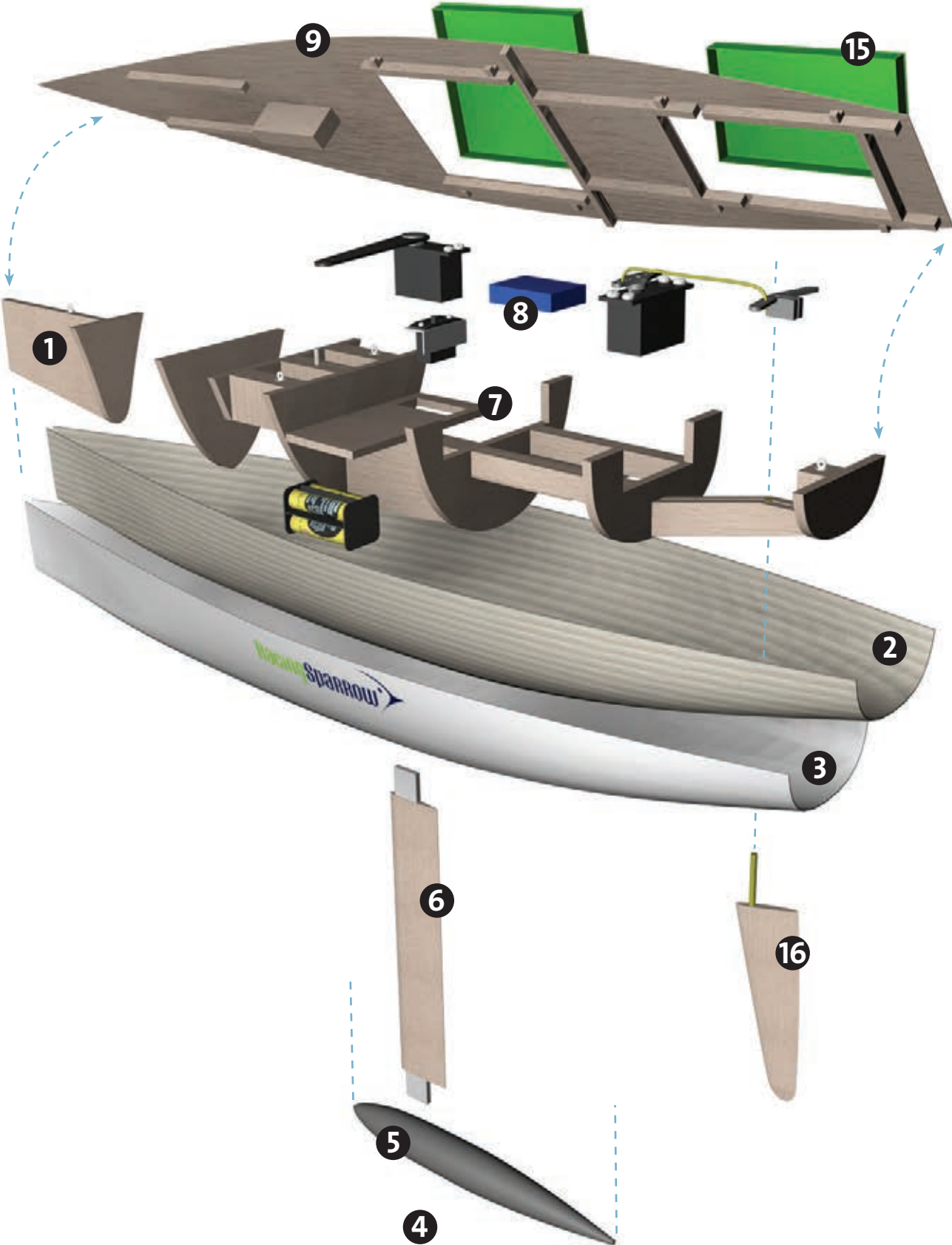


Construction Chapters Index



Chapters Index



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Tools Required

This is the complete list of tools needed to build a RacingSparrow radio-controlled yacht.

1. Chisel (Optional)



2. Craftknife



7. File



11. Lighter



19. Screwdriver



18. Scissors



12. Pen



6. Felt Marker



13. Pencil



15. Pliers



21. Sponge Brush (Several)



10. Hole Punch



22. Vice Grips



20. Spirit Level (Optional)



17. Sanding Block



14. Pins



Tools

1. Chisel (optional)
2. Craftknife
3. Drill Bit - 2mm (5/64in)bit
4. Drill Bit - 5mm (3/16in) bit
5. Electric Drill
6. Felt Marker
7. File
8. Hacksaw
9. Hammer
10. Hole Punch
11. Lighter
12. Pen
13. Pencil
14. Pins
15. Pliers
16. Ruler (steel)
17. Sanding Block
18. Scissors
19. Screwdriver
20. Spirit Level (optional)
21. Sponge Brush (several)
22. Vice Grips

Sandpapers

- 100grit
- 150grit
- 300grit
- 600grit

- 600grit wet and dry
- 800grit wet and dry
- 1200grit wet and dry

Miscellaneous

- Bed sheet (old)
- Gas Camping Burner
- Weights (anything)

4. Drill Bit - 5mm bit

5. Electric Drill

3. Drill Bit - 2mm bit

8. Hacksaw

16. Ruler (Steel)

9. Hammer

C1. Balsa Wood Skeleton

The skeleton is the basic shape of the yacht made up of bulkheads labelled A - G on the plans. The skeleton is made from balsa wood and cut out with a craftknife then fixed in place with PVA glue. The skeleton also contains built-in bracing for the rudder and the keel.

1 The large full-size plans can be found in the back of this book. Lay out the plans flat on your workspace. If you can source a 150mm- (6in)-wide and 910mm- (36 3/8in)-long sheet of 5mm (3/16in) balsa sheet, use this. If not, glue together two balsa sheets of 5x75x910mm (3/16x3x38 3/8in) to form one that is 150mm (6in) wide. Using tracing paper and a pen, trace the shapes A to G from the plans and then transfer to the balsa sheet by pushing the pen through to mark the sheet with dots. Then join the dots and draw a curve for each bulkhead. Roughly cut out each bulkhead with a craftknife, and sand to the correct shape using 150grit sandpaper. Use the plans as a visual guide.

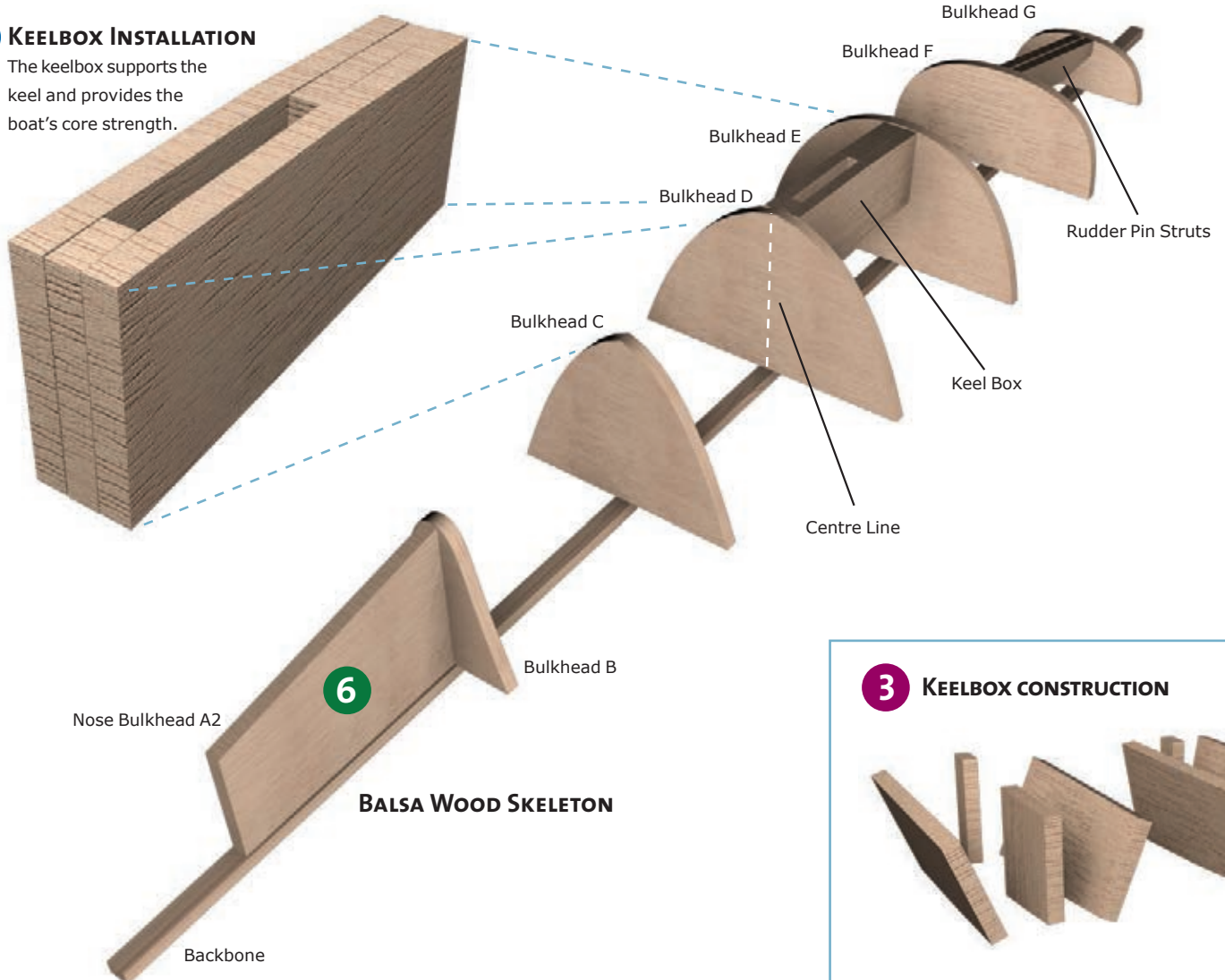


Draw centre lines on all bulkheads so you can align them correctly on the backbone. Dotted lines should be marked on Bulkheads E and F at this stage to mark where future cuts will be made for the internal structure.

2 With the offcut from the original glued sheet of 5mm balsa, create a 25x910mm (1x36 3/8in) backbone for the bulkheads to be glued to. Draw a centre line on the backbone

4 KEELBOX INSTALLATION

The keelbox supports the keel and provides the boat's core strength.

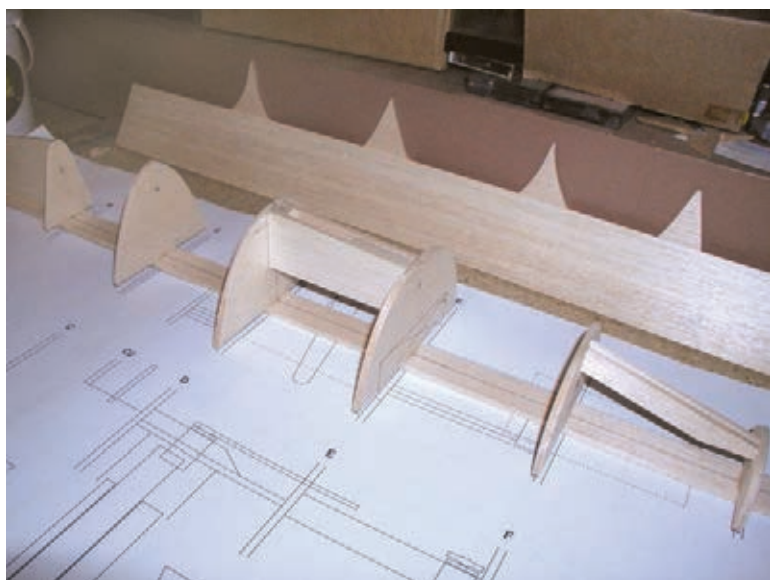


BALSA WOOD SKELETON

3 KEELBOX CONSTRUCTION



and mark accurately where the bulkheads will be glued. See the plans. Line up the centre line on the backbone with the centre line on all the bulkheads as you glue them on true and straight. Take all measurements directly from the plans.

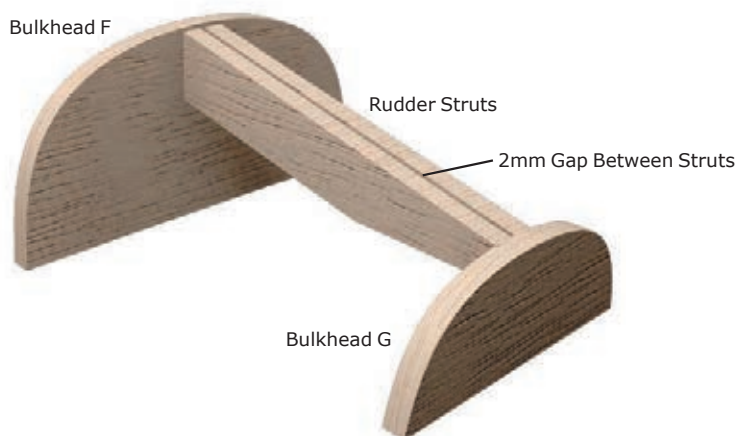


To Do List:

- 1 Transfer bulkhead shapes from the plans to balsa sheet. Cut out bulkhead shapes and finish with sandpaper.
- 2 Make backbone from balsa offcuts. Put measurements on backbone and glue bulkheads to it.
- 3 Cut out parts and construct keelbox. Parts (H4, H5, H6, H7).
- 4 Install keelbox between bulkheads D and E.
- 5 Cut out and glue in rudder struts.
- 6 Cut out and glue in nose bulkhead (A2).

5 RUDDER STRUTS DETAIL

The rudder struts support and provide strength for the rudder stock. The rudder comes up through the rudder stock and connects to the rudder servo.



Transfer the part shapes (Parts H4, H5, H6, H7) from the plans using tracing paper. Cut the shapes from 5mm (3/16in) balsa and assemble as shown in the diagram. Leave to dry properly before installing them between the bulkheads.

Tools: Craftknife, Sandpaper 150grit, Ballpoint Pen, Ruler.

Materials: 5mm (3/16in) Balsa, Tracing Paper, Instant Glue, PVA Glue.

C11. Painting

The painting is a task that when done properly can make the boat look fantastic. Clever masking techniques are described to get that professional finish.

1 Using masking tape mask off the ply decking. Start by applying masking tape to the very edge the whole way around the deck. Cut out a deck-shaped piece of thick paper or card, and tape to the deck so that it is completely protected from any overspray. Make sure there are no gaps for any spray-paint to get underneath.



2 Place the boat deck down on newspaper or an old sheet, in a well-ventilated but sheltered area. Spray the hull with a few coats of spray on putty. Fill any pin holes or larger depressions with standard putty.

3 Once the spray putty has dried, sand it smooth with wet and dry sandpaper using firstly 400grit, then 800grit and finally 1200grit to produce a silky smooth finish. The more effort that goes into this particular stage the better the final result will be.

4 Dry off and prepare the hull for undercoating in a well-ventilated but sheltered area that is warm. The ideal temperature for spraypainting is over 60°F/15°C. Professional spraypainters work in temperature-controlled environments to get the best results, so try your best to emulate this. Spray the hull with several coats of undercoat then leave to dry. Once well dry, quickly rub with 1200grit wet and dry in preparation for the final coat. Take off the deck masking and carefully peel off all the tape.

5 In reverse, mask off the hull and expose only the decking for polyurethane coating. Cover the keel by wrapping paper around it and taping it on. Tape right up to the gunwale, exposing only the wooden surface. With polyurethane it pays to practise

first on an offcut of ply. Still in your well-ventilated but sheltered space, practise applying several coats, each a few minutes apart. It can be very inconsistent compared to spraypaint. Once happy with your technique, spray the decking with several coats of polyurethane to a smooth and gleaming finish. Wait for just a few minutes between coats or until it seems sticky then re-spray. For more detail see the Appendix.



6 This part requires great patience and a steady hand. Wait until the newly polyurethaned deck is completely dry and then create a new protective mask for it. Rather than masking all the way to the gunwale as before, make the new mask 5mm (1/4in) short of the edge all the way around. This will allow a small overlap during the hull's top coat which will wrap over the sides and 5mm onto the deck to produce a professional yacht paint finish. Using scissors carefully cut out circular pieces for the back corners and bow before laying down the rest of the masking tape. Use good-quality masking tape if possible to get clean lines. For more details, see the Appendix.

7 Again in a well-ventilated and sheltered area lay down an old sheet and plenty of newspaper, to catch any overspray. Use a





rudder plug to stop paint from getting into the rudder stock. From scrap balsa cut two pieces to use as props.

Paint the gunwales first (deck-side up), then lay the boat on the props suspending it off the newspaper to protect the newly painted gunwales. Paint the hull with several top coats deck-side down, sanding lightly with 1200grit wet and dry in between each coat. This will help get a smooth and unblemished finish.

- 8 Once satisfied with your top coats gently go over one final time with 1200grit wet and dry. Allow to completely dry over a week then polish with a wax and polishing agent. Follow the directions suggested on the product to get the best results.



To Do List:

- 1 Mask out the ply deck.
- 2 Spray putty the boat and tidy up any imperfections.
- 3 Finely sand the boat with wet and dry, getting the boat to a smooth finish.
- 4 Undercoat the hull. Once dry remove the deck mask.
- 5 Mask the hull and polyurethane the ply deck with several coats.
- 6 When dry, mask the newly polyurethaned deck with a 5mm (1/4in) underlap, making corners with special masking tape techniques.
- 7 Top coat the hull with spraypaint using a rudder plug. Apply several coats.
- 8 Wet and dry with 1200grit then polish smooth.

Tools: Scissors, Masking Tape, Rudder Plug (Brass Tube), Sandpaper 400, 800, 1200grit wet and dry.

Materials: Polyurethane, Thick Paper, Newspaper, Old Sheet, Spray Putty, Putty, Topcoat, Spraypaint, Polish and Wax, Undercoat Spraypaint.