

Assembly instructions for the BEATA model boat, Order No.: 2024

The full-size

The BEATA sports motor yacht was designed and built at the Swedish Båtbyggarna dockyard in the year 2000. The vessel features the beautifully harmonious, flowing lines which are a characteristic of Ocke Mannerfelt's designs. The hull is identical to that of the B-24 racing boat, which has been very successful in competition racing. As a result the boat is capable of a maximum speed of 50 kn (92 km / hr)!

The model

Our model of the BEATA was developed using original documents supplied by the Swedish designer, and drawn up to a scale of 1 : 13. The BEATA is intended for the beginner to modelling, and therefore calls for limited manual skill to complete successfully. It can be assembled to various levels of sophistication, so that the modeller can build the vessel to the standard of which he is capable. We have intentionally not completed everything at the factory, as we wanted to give the newcomer the chance to learn basic modelling skills on parts which are not crucial to the model technically or visually. Neither is it absolutely essential to apply a painted finish, as all the important decorations are included on the decal sheet.

Specification

	Model	Full-size
Length approx.	930 mm	11.9 m
Beam approx.	260 mm	
All-up weight incl. RC approx.	2.4 kg	
Scale approx.	1 : 13	

Important safety notes

You have purchased a kit which can be assembled to produce a fully working RC model when fitted out with the appropriate accessories. As manufacturers, we at GRAUPNER are not in a position to influence the way you install, operate and maintain the model, nor the other components used in connection with the model. For this reason we are obliged to deny all liability for loss, damage or costs which are incurred due to the incompetent or incorrect use and operation of our products, or which are connected with such operation in any way. Unless otherwise prescribed by binding law, the obligation of the GRAUPNER company to pay compensation, regardless of the legal argument employed, is excluded. This includes personal injury, death, damage to buildings, loss of trade or turnover, interruption of business or other indirect or direct damages which are caused by the operation of the model.

Under all circumstances and in all cases the company's overall liability is limited to the amount which you actually paid for this model.

The model is operated at the sole risk of the operator. To avoid injury to persons and damage to property please handle your model boat carefully and operate it conscientiously at all times.

Before you run the boat for the first time it is important to check that your private third party insurance policy provides cover when you are operating model boats of this kind. If you are not sure, take out a special insurance policy designed to cover the risks of RC modelling.

These safety notes are important, and must be kept in a safe place. If you ever dispose of the model, be sure to pass them on to the new owner.

The following points are important and must be observed at all times:

- This model is not suitable for young persons under 14 years of age.
- This is a high-speed model, which means that you must **NEVER** operate it when there are persons or animals in the water, otherwise there is a serious risk of causing injury.
- Never run your boat in a protected site, an animal or plant sanctuary or a site of special scientific interest (SSSI). Check with your local authority that the stretch of water you wish to use is suitable for model boats.
- Do **not** run the model in salt water.
- **Never** run your boat in adverse conditions, e.g. rain, storm, strong wind, choppy water or strong currents.

- Before you run the model check that the radio control system is working reliably, and that all connections are secure.
- If you are using dry cells as a power supply, please note that these must never be recharged. Only batteries marked specifically as “rechargeable” can safely be recharged.
- It is important to charge the batteries before each session, and to check the range of the radio control system. The transmitter and receiver batteries in particular must be fully charged at the start of each run. If you are using the recommended electronic speed controller with BEC system, a separate receiver battery is not required.
- Ensure that the channel you intend to use is not already in use by other modellers. Never run your boat if you are not certain that your channel is free.
- Read and observe the recommendations and instructions supplied with your radio control system and accessories.
- Do not work on the power system unless the motor is disconnected from the drive battery.
- When the drive battery is connected, keep **well clear** of the area around the propeller, as this represents the greatest risk of accident and injury. Make sure any spectators do the same.
- Do not exceed the recommended voltage of the drive battery. Increasing the voltage may cause the motor and / or the speed controller to overheat, and the electrical leads can even melt. In the worst case this may cause the model to go up in flames and be completely ruined.
- Check that all the drive train components work smoothly and freely. This applies in particular when you are running the model, as leaves and other detritus can get caught up in the power train. If this happens and you do not remove the obstruction, the motor, speed controller or rudder servo may be ruined due to overloading.
- Ensure that the servos are not mechanically obstructed at any point in their travel.
- Dry cells and rechargeable batteries must never be short-circuited. Do not allow them to come into direct contact with water.
- Allow the drive motor and speed controller to cool down after each run. Don't touch the hot surfaces!
- Remove all batteries from the model prior to transporting and storing it.
- Do not subject the model to high levels of humidity, heat, cold, vibration or dirt.
- Secure the model, batteries and RC equipment carefully when transporting them. They may be seriously damaged if they are free to slide about.
- If you wish to operate the model on moving water (e.g. a river), remember that it could be washed away downstream if the battery fails or a malfunction occurs.
- If you have to **salvage** the model, take care **not to risk your own life or that of others**.
- Check regularly that the lower part of the hull is completely watertight, as the model may sink if too much water enters the hull. Check the boat for damage before every run, and ensure that water cannot penetrate the hull through the shaft or rudder openings.
- Take care to seal the model before every run, so that water cannot enter. Check that the hatch cover cannot slip out of position while the boat is running. Take care also that any water which does find its way into the hull cannot make contact with the RC components. **TIP:** it is a good idea to fill a plastic bag with scrap pieces of styrofoam and stow this in the bow of the model. Provided that the buoyancy of the bag is greater than the total weight of the model, it cannot sink even if an accident occurs.
- The parallel-wired drive batteries should only be connected together for the period of the run, as interference effects may occur between the two packs under no-load conditions, and this may result in battery damage. This means: keep the batteries separate, and plug them together only when you are about to run the boat; disconnect them again at the end of each run. It is important not to store the batteries with the parallel cable connected.

Care and maintenance

- Clean the model carefully after every run, and remove any water which penetrates the hull. If water gets into any of the RC components, dry them out and send them to your nearest GRAUPNER Service Centre for checking.
- Clean the model and RC components using suitable cleaning agents only. Ask your model shop for information.
- Lubricate the propeller shaft and the Hydro drive shaft at regular intervals. The plastic bearing of the Hydro unit in particular should be lubricated with a small drop of oil (Order No. 206) before each run.
- If the model is not to be operated for a considerable time, it is important to dismantle all the moving parts (propeller shaft etc.), and clean and re-lubricate them.

Notes on building the model

- Before you start building the boat it is important to study the plan and read right through the instructions, referring to the parts list constantly. In general terms the instructions and parts list reflect the sequence of assembly.
- If you are a beginner to modelling we recommend that you read the book “Schiffsmodellbau fuer den Einsteiger” (Model boat building for the beginner - German language), ISBN 3-88180-723-3. This book describes in detail all the essential techniques in model boat construction, and is therefore very useful to the beginner. It can be ordered from vth-Verlag, Baden-Baden, Germany, under the Order No. 310-2123 (on-line ordering is possible via www.vth.de). You can also obtain it from your nearest bookshop or through a model shop.
- These assembly instructions describe all the steps required to build the complete model. If you are not sure of your ability to cope with particular procedures, you will find that some sections are marked **(non-essential)**, which means that you can safely leave them until later. These stages are not vital to the model's operation.
- Building the two chairs and the table does call for some experience in modelling techniques, so, if you are a beginner to modelling, we recommend that you leave them until the BEATA is completed.
- Please bear in mind that many tools can be dangerous if misused or handled carelessly.
- The best method of cutting out the vacuum-moulded ABS parts is to use a pair of Lexan shears (e.g. Order No. 26). Locate the moulded-in cut-lines and run a waterproof felt-tip pen (i.e. one which writes on any surface) round them. **TIP:** it is advisable to avoid cutting right to the marked line immediately; instead cut the parts oversize at first, then trim off thin strips until you reach the marked line. Leave an excess of about 0.5 mm, which can be removed using a sanding block.
- For sanding the cut ABS parts flat, we suggest that you stick a sheet of abrasive paper to a flat piece of wood using double-sided adhesive tape. We recommend 120 and 240 grits for this. For fine-sanding of the finished surface we recommend 600-grit wet-and-dry paper; this is also ideal for preparing surfaces which are to be painted.
- The heat-shrink sleeve material provided can be shrunk by heating it to about 300 to 350°C using a heat-gun (designed for shrinking iron-on film on model aircraft). If you do not own a heat-gun, a match can be pressed into service. Don't hold the sleeve directly in the flame, as it will simply burn. A distance of about 5 cm to the flame is usually about right.
- All the laser-cut wooden parts feature a black cut-line caused by the cutting process. However, the wooden parts are finished using a teak-colour stain, so the black edges are barely noticeable on the completed model.
- If you intend to install auxiliary working systems, it is essential to plan their installation before you start construction. See the last section of the building instructions for hints and tips on extra working systems.
- The electric motor must be suppressed by fitting a 470 nF capacitor (Order No. 3588). Solder the capacitor across the motor terminals to form a bridge (as shown in a sketch on the plan).
- Deploy all electrical cables neatly, without crossing them over. Take great care to avoid any bare positive wire touching any negative wire.
- Be sure to use cable which is capable of carrying the high currents which flow when the boat is operating. If you use the recommended components a conductor cross-section of 2.5 mm² is adequate (e.g. Order No. 3689).
- Deploy the receiver aerial as far away as possible from any high-current cables (at least 3 cm).
- The shaft system and the Hydro drive unit must be lubricated; be sure to use only a type of grease or oil which does not soil or contaminate water (grease: Order No. 570; oil: Order No. 206).
- Before gluing parts together it is important clean the joint surfaces carefully. This is best done by sanding lightly, followed by wiping with a non-greasy liquid detergent or methylated spirit (“meths”). The same applies to all surfaces which are to be painted, as this improves the paint's adhesion considerably.
- Recommended adhesives for joining particular materials:

Material - material	Suitable adhesives
Metal - metal	Cyano-acrylate, UHU plus
ABS - wood	Cyano-acrylate, UHU acrylit
ABS - ABS	Cyano-acrylate, UHU acrylit, UHU plast spezial
ABS - metal	Cyano-acrylate, UHU acrylit
Wood - wood	Cyano-acrylate, UHU hart, white glue
Wood - metal	Cyano-acrylate

Read the instructions supplied with the adhesives. Be sure to observe any special notes in the instructions regarding particular adhesives. If you are using acetone, methylated spirits or any other solvent as a cleaning agent, special safety measures are necessary. Read the instructions supplied with these materials.

Assembly instructions

1. Cut out the boatstand (part 1) along the marked lines. **TIP:** the support surfaces for the hull can be lined with soft felt or foam rubber to avoid scratching the hull surface. This is particularly important once you have painted the hull.
2. Clean the hull (part 2) inside and out with methylated spirits ("meths") to remove any lingering traces of grease; this ensures that glued joints will be as strong as possible.
3. Solder the motor power cables (part 4) and the suppressor capacitor (part 5) to the terminals of the electric motor (part 3), as shown in the sketch on the plan. **NOTE:** if you have no experience using a soldering iron, please ask for advice from your local model shop, an experienced modeller, or a specialist electronics shop.
4. Attach the stern tube (part 6) to the shaft coupling (part 7). Fix the motor permanently to the motor mount (part 8) using the motor retaining screws (part 9). The shaft coupling can now be connected to the motor.
5. Insert the stern tube in the hull; the correct position of the motor assembly is dictated by the inner cradle. The assembly must be an easy fit in the hull, without being tight or under stress at any point; if this is not the case, open up the hole in the hull slightly using a round file.
6. Now assemble the drive coupling (part 10), and attach the coupling to the Hydro drive unit. Note that the shaft must have slight axial play (approx. 0.5 mm) in the Hydro drive unit. The propeller (part 12) should not be fitted until the boat is finished and painted.
7. Place the Hydro drive unit on the stern tube, align the Hydro unit carefully and fix it in place using the three retaining screws (part 13). You may need to adjust the position of the drive assembly to ensure that the shaft is aligned exactly as shown on the plan. When you are confident that everything is positioned correctly, tack the stern tube to the two supports in the cradle with a drop of cyano.
8. Leaving the motor on the motor mount, rotate the assembly to one side, apply thick cyano to the joint surface and glue the motor mount in the correct position. The stern tube joint must be watertight; use thick cyano or UHU acrylit at this point. In the area where the servo plate (part 18) will be fitted later, take care not to allow excess adhesive to get onto the support surfaces for the plate, otherwise this component will not rest straight and true. Any glue which gets onto this area must be sanded away again.
9. Unscrew the Hydro drive unit again, as it will get in the way during subsequent operations. Screw the top-mounting pushrod connector (part 14) to the Hydro drive unit, as shown in the photos. Push the rubber bellows (part 15) onto the aluminium tube (part 16), and glue the parts together using a little cyano.
10. The 6 mm Ø hole for the aluminium tube can now be drilled. The exact position of the hole is shown on the plan; alternatively you can use the following method. **TIP:** hold the Hydro drive unit in the intended position against the hull, slip the 2 mm Ø steel rod for the rudder pushrod (part 17) through the pushrod connector, set the rod straight, and mark its position on the hull. This point is the centre of the 6 mm Ø hole. Glue the aluminium tube to the hull using cyano, again taking great care to keep the joint watertight. The Hydro drive unit can now be installed again.
11. Cut out the servo plate (part 18) along the marked lines. Cut a piece from the double-sided adhesive tape which fits neatly in the servo plate well. Press the servo (part 19) onto the tape, and check that it is firmly secured.
12. Drill out the outer hole in the servo output arm to 2 mm Ø, and attach the side-fixing pushrod connector (part 21) to it. Glue the plate to the appropriate support surfaces using UHU acrylit.
13. Cut the 2 mm Ø steel rod to a length of about 150 mm to form the rudder pushrod (part 17). Carefully slide the rod through the rubber bellows (take care not to damage it!), and fit the ends in the two pushrod connectors. Set the servo to neutral from the transmitter, set the Hydro drive unit to centre, and tighten the two pushrod connectors fully. **NOTE:** maximum travel of the drive unit should only be around 20°. We advise against setting any greater travel, as the result could be damage to the articulated joint when the motor is running at high speed. You can safely set a maximum travel of up to 30° if the motor is only run at low speed. If you wish to use the larger travel, it is important to avoid using the full travel when the motor is running at high speed.
14. Cut out the hatch cover (part 22) along the marked lines. You do not need to sand the cut edges exactly smooth, as they are later concealed by the deck. You can use thick cyano (if possible solvent-free, as this type does not leave grey edges when it cures), or UHU allplast to glue it in place. Please note that the hatch is not square, and therefore can be glued in either of two positions. This is deliberate, as the hatch is curved on one side, and this matches the camber of the deck.
15. Cut out the cockpit glazing section (part 23) along the marked lines. Here again a final sanding of the cut edges is not essential. The glazing unit should be a neat fit in the deck, but not tight. Glue the glazing unit in the hull when you are satisfied: carefully apply UHU allplast to the joint area, slide the unit into the hull and gently press it down against the deck. Note that it takes at least five minutes for the glue to harden to the point where the unit will no longer shift out of position.

16. The guide rails (part 25) can now be glued to the roof (part 24); the length of the rails is stated on the plan.
17. Drill 2 mm Ø holes for the railing stanchions (part 26) at the marked points in the roof. Slip the roof railing (part 27) through the railing stanchions and insert the stanchions in the holes in the roof. Ensure that the ends of the railing finish flush with the end-pieces, or project by the same amount on both sides. Glue the railing stanchions to the railing. When the glue had set hard, remove the railing assembly and paint it separately. The railing can be glued in place permanently once the roof has been painted.
18. Cut off the excess stanchion length on the underside of the roof, otherwise the roof will not rest properly on the glazing unit. Glue the roof to the glazing unit.
19. Trial-fit the stern cover (part 28) in the hull. It should fit in the hull easily, without requiring pressure.
20. Fix the cockpit back panel (part 29) to the stern hatch using clear adhesive tape. Check that the assembly is an easy fit in the cockpit unit, i.e. without pressure. Sand back the cockpit back panel if necessary until everything fits properly. **TIP:** if you wish to use the window decal with the white frame, the decal should be applied before the back panel is fitted. Cut out the white inner area along the inside of the silver frame using a sharp knife and steel rule. This white area cannot be cut out before you apply the decal, as it would not stay in shape when applied. When you are confident that everything fits correctly, apply adhesive tape over the whole of the joint between the back panel and the hatch to create a waterproof seal.
21. **(non-essential)** Stain both surfaces of the main deck (part 30), the top step tread (part 31), the middle tread (part 32) and the bottom tread (part 33); don't just stain one face, as the stain contains water which will distort the wooden panels. When the stain has dried out, apply several coats of clear lacquer or varnish to the wooden parts, again painting them on both sides, until they are completely impervious to water. Do not be tempted to fit the untreated wooden parts on the model and place it in water, as they will invariably swell up or warp.
22. **(non-essential)** Cut out the fender shells (part 34) along the marked lines, and sand the gluing surfaces flat. Check that the prepared shells are semi-circular, so that the finished fender is circular. Glue the fender shells together. Cut out the fender holder (part 35). When these parts are finished and painted, they can be glued to the stern cover (once that has also been painted).
23. **(non-essential)** Hold the right-hand mast shell (part 36) and the left-hand shell (part 37) together, and apply a strip of adhesive tape along one side. The mast shells can now be glued together using cyano. Wipe off any excess cyano which is squeezed out of the joint. When the glue has set hard, slip the heat-shrink sleeve (part 38) over the joint area. Position the sleeve so that it projects by about 10 mm at the top, and shrink it in place. Cut a groove in the sleeve using a sharp knife at the points where the masthead and stern lights (part 39) fit. Shorten the heat-shrink sleeve where it projects at the top, so that the anchor light (part 40) fits on the projecting part of the sleeve. The lights can be glued to the mast once it has been painted. Glue the signal horn (part 41) to the left-hand side of the mast.
24. **(non-essential)** Cut out the top section (part 42) and the bottom section (part 43) of the radar antenna along the marked lines, and sand the joint surfaces flat. Glue the two shells together. Fix the completed mast to the radar antenna after painting it.
25. **(non-essential)** Drill the two 3 mm Ø holes for the searchlights (part 44) in the roof; the positions are stated on the plan. Glue the searchlights to the roof. **TIP:** even if you don't intend to install working searchlights, we still recommend that you route the wires down into the cockpit, as this at least gives you the option of wiring them up at some later date.
26. **(non-essential)** Paint the inside of one navigation lamp housing (part 45) red, the other green. Glue the navigation lights to the roof. **NOTE:** red is left (port), green is right (starboard).
27. **(non-essential)** Drill three 1.5 mm Ø holes for the windscreen wipers (part 46) in the glazing unit, in the positions stated on the plan. Glue the screen wipers to the glazing unit.
28. **(non-essential)** Drill 2 mm Ø holes for the bow railings (part 47) and the bow railing stanchions (part 48) at the marked points in the bow. **TIP:** it is important to apply the grey decals which indicate the non-slip areas before you install the railings, otherwise you will have to slit the decals to apply them. Fit a washer (part 49) on each end of the bow railings, and fix them with a strip of tape so that they do not move out of position when the railings are installed. The railing assemblies can now be glued to the hull. Install the bow railing stanchions using the same principle. When fitting these parts be careful to set them parallel to the front part of the railing itself. Glue the railing to the stanchion using cyano; soldering is not necessary.
29. **(non-essential)** Insert the flagstock (part 50) in the flagstock base (part 51), and glue the flag (part 52) to the stock. UHU alleskleber is a suitable adhesive for this, or any other household glue which dries clear.
30. **(non-essential)** The next step is to assemble the chairs (part 53) and the brass rod for the swivels (part 54). The construction is shown in an exploded drawing on the plan. First glue the two long legs

to the backrest, then fit two brass rods in the holes, projecting by about 1 cm at both ends; glue them on the inside using a drop of cyano. Fit the two short legs, and insert two brass rods in the holes. Fit the seat squab in the backrest and place the squab on the rod. Check that the chair now stands upright, then glue the parts together, and snip off the projecting rod ends.

31. **(non-essential)** The table (part 55) and the rod for the swivels (part 56) can now be assembled; construction is again shown in an exploded drawing on the plan. Fit one brass rod in one of the table frames, then fit the two table legs followed by the second table frame; these are the inside table legs. Fit two brass rods in the holes, and glue them in place. Push the small spacer rings on the central axis, and fit the two outer table legs. Insert the brass rod in the hole. Set the parts of this assembly straight, and glue the parts together. Cut the excess rod ends off when the glue is hard. Glue this assembly to the table top, lining it up with the engraved markings.
32. Install the electronic speed controller (part 57) in the model using Velcro (hook-and-loop) tape (part 61); it can be positioned on one of the two platforms on either side of the motor.
33. Install the receiver (part 58) on the second platform, again using Velcro tape (part 61). If you wish to fit a whip aerial, you must shorten the flexible aerial attached to the receiver by the length of the whip, i.e. the total length of the aerial must be unchanged.
34. Fit the two drive batteries (part 59) in the cradles in the stern of the model, using Velcro tape (part 61). The cradles are deliberately slightly oversized, so that you can adjust the boat's Centre of Gravity (balance point) if necessary by re-positioning the packs.
35. Connect the parallel cable (part 60) to the speed controller. **NOTE:** the batteries must only be connected for test-running and operating the boat.
36. For normal running it is sufficient to tape the flexible wire aerial attached to the receiver to the inside of the hull. **IMPORTANT:** the aerial should be as far above the waterline as possible. Refer to the Stage photos here, as they show the position of the aerial clearly.
37. If you are not using one of the recommended high-quality FM systems (e.g. X-306 FM or better) you will need to install the external whip aerial (part 62). Bend a loop with a diameter of about 3 mm in both ends of the wire, drill a 3 mm Ø hole in the model and fix the whip in place using the M3 screw, three washers and nut (grouped as part 63). **TIP:** solder the shortened end of the receiver aerial to one of the washers. **TIP:** the aerial must not make contact with any of the metal parts of the searchlight or the mast.

Painting

- Thanks to the comprehensive decal sheet it is not absolutely essential to paint the model overall, but we still recommend a painted finish as it gives the boat a very impressive appearance.
- We suggest that you ask your local model shop or a specialist paint dealer for recommended paint types.
- Be sure to use **ONLY** paints of the same type and make, otherwise they might react with each other, either dissolving the earlier coat, or causing unsightly bubbling. Be particularly careful when combining spray can paints with types designed for brush application; always check on some scrap material that the paints are compatible with each other.
- To obtain good paint adhesion sand the surfaces lightly beforehand using fine wet-and-dry paper (600-grit to 800-grit). Remove all traces of grease from the surfaces using a non-greasy liquid detergent or meths. Try not to touch the cleaned surfaces again before you paint them, as the perspiration in your skin also contains grease which will soil the surface once more.
- If you are using spray paints, carefully mask off all areas which are not to be painted. Seal all holes too, as the fine mist of paint penetrates every opening, no matter how small.
- To mask out fine, straight edges you should use the thinnest adhesive tape you can find, e.g. trim striping tape. Apply the tape neatly and accurately, without placing it under tension, then you can mask out the remaining areas using paper masking tape and scrap paper or plastic film.
- Read and observe the instructions supplied by the paint manufacturer.
- Before you start building the model you should work out the best sequence for painting it, or simply follow our recommendations, as certain areas are much more difficult - or even impossible - to paint once joined or installed.
- **TIP:** this is a good procedure for painting small parts: apply double-sided tape to a piece of wood or similar, and stick the parts to it by their joint surface. They can then be painted, allowed to dry, removed from the tape and glued to the boat permanently.

Recommended painting sequence

- After you have installed the drive system components (but without attaching the Hydro drive unit), the hull should be painted white. Any drive system and RC system components which you wish to leave in the boat must be covered by scrap paper or similar to prevent soiling by paint. The cockpit glazing

unit and the hatch should not be glued in place prior to painting. If you forget this, you will need to mask them out very carefully.

- Paint the roof and the fitted guide rails white.
- Paint the stern cover white.
- Paint the hatch window frame silver, using a paintbrush. The hatch should not be glued in place at this stage.
- Paint the assembled railing silver using a paintbrush.
- Paint the mast silver using a paintbrush.
- The blue stripe decals and the non-slip surfaces can now be applied, or alternatively painted on.
- Paint the remaining small parts (radar unit etc.) before attaching them permanently to the model.

Staining the wooden parts

- The wooden parts, especially the chairs and table, should be treated with teak stain. We recommend CLOU 2528 Teak or similar, which is available from DIY stores. Read the application notes supplied with the stain, and check that it is compatible with the clear lacquer you intend to use (**TIP**: try out the stain and lacquer on some scrap wood).
- Wooden parts should not be sanded after they have been stained, otherwise you will probably sand away part of the stained surface. Another coat of stain does not remedy the situation, as this makes the existing stain darker and produces a patchy finish.
- Wooden parts which are already soaked in glue or paint will not accept stain. It is therefore essential to stain the wooden parts before gluing them in place.
- The stained wooden parts should be finished with a coat of semi-matt clear varnish, as this produces the most realistic appearance.
- It is important to give all the wooden parts several coats of clear lacquer, as they are constantly exposed to water when the boat is running. You must ensure that water cannot penetrate the wooden parts!

Colour scheme

To help you select the correct hues, the table below states the colours required using standardised RAL names and numbers. You can take this information to any specialist paint supplier, who will then be able to obtain the correct colours for you. Explain to your advisor in the paint shop that you are painting a model boat, so that he can select the optimum paint type for your application. We recommend using synthetic enamels. Cellulose paints must not be used!

Hull, deck, roof, cover, radar unit:	White, RAL 9016
Non-slip deck areas, fender body:	Light grey, RAL 7035
Lateral hull stripe:	Cobalt blue, RAL 5013
Hatch window frame, railing, mast, flagstock, fender holders:	Silver
Navigation lamps:	Red (port), green (starboard)
Fender tips:	Light blue, RAL 5012

Applying the decals

- Use a sharp pair of scissors to cut out the individual decals as neatly as possible, leaving little or no margin round them.
- When applying a particular decal first place it on the boat with the backing film in place, so that you can check the exact location and orientation. This allows you to detect potential problems and correct them before it's too late.
- The silver strips for the window frames should be cut out using a sharp knife, and carefully applied to the window surface. Rub the strips firmly into place using a rubber spatula or similar tool. If you prefer, silver or chrome coloured trim stripe tape can be used as an alternative method of representing the window frame bars.
- A special decal is provided for the cockpit back panel; this should be applied carefully to the back panel, keeping it exactly straight. When the model is to be painted, cut off the white frame and apply just the silver window frames.
- The non-slip deck decals require some care to apply neatly. Cut them out and trial-fit them accurately on the model with the backing film still in place, and only apply them when you are satisfied. It is important that the decals do not overlap the areas marked on the deck, as they will otherwise lift and come loose at that point.

- **NOTE:** the blue areas shown in the kit box illustration cannot be applied in the form of a decal, and must be painted on. The equivalent blue areas on the decal sheet are a different shape, and are designed for ease of application. If you decide to paint the blue area, cut the red line from the bottom of the decal and apply this to the model to complete the effect.
- **NOTE:** the hatch window frame is not supplied in decal form, as it would be virtually impossible to apply once cut out. To simulate this frame you really have to paint it on.
- **TIP:** this is a good procedure for applying long decals: first place the decal on the boat, with the backing film still in place, and fix one end in place with adhesive tape so that it cannot shift. Now fold the decal back and peel off the backing film from the taped end. Press the decal into place, working steadily along its length, until the whole area is stuck down.
- **TIP:** take care not to apply tension to the decals when applying them to the boat, as the film is flexible, and may distort or change its length when stretched.
- **TIP:** When applying the larger decals there is a danger of trapping air bubbles underneath. If this should happen, pierce the bubble with the point of a pin and carefully press out the air through the hole.

Possible auxiliary functions

Auxiliary function	Accessories required	Notes on fitting and operation
Lighting system	1 pack miniature lamps, red / green (Order No. 1087.6) 1 pack miniature lamps, clear (Order No. 353.6a), Power supply: one light-weight 6 V battery (e.g. Order No. 2587)	The lamp housings are supplied in the kit. For running, only the navigation lamps, the masthead light and the stern light should be switched on; the anchor light must not be lit (this is only on when the boat is moored at anchor). The searchlights can be switched separately; they should not operate continuously. To switch the system on and off we recommend micro-switches (e.g. Order No. 3757), which can be actuated by the output arm of a servo. The output arm presses on the micro-switch at one end-point to switch the searchlights on.

Maiden run

Charge the batteries fully and test the model's working systems one by one. Carry out a range check. If all is well, you are ready for the boat's maiden run. Take your time to get used to the model's handling characteristics.

We hope you have loads of fun building and running your BEATA.

Parts List

Part	Description	No. off	Material	Size and thickness in mm
1	Boatstand	1	ABS	Vac. moulded, 1.5 mm
2	Hull	1	ABS	Ready made, vac. moulded, joined and CNC-trimmed
3	Electric motor	1	-	Order No. 3308
4	Motor power cable	1	-	Order No. 3389 + 2989
5	Suppressor capacitor	1	-	Order No. 3588
6	Stern tube	1	Metal	Ready made
7	Shaft coupling	1	Metal	Ready made
8	Motor mount	1	Plastic	Ready made
9	Motor retaining screws	2	Brass, plated	M4 x 8 mm
10	Drive coupling	1	-	Ready made
11	Hydro drive unit	1	Plastic	Ready made
12	Propeller	1	Plastic	Ready made, 42 mm Ø
13	Drive unit retaining screws	3	Stainless steel	2.2 Ø x 9 mm
14	Pushrod connector, top-mounting	2	Metal	Ready made
15	Rubber bellows	1	Rubber	Ready made
16	Aluminium tube	1	Aluminium	6 / 5 Ø x 10 mm
17	Rudder pushrod	1	Steel, plated	2 Ø x 150 mm
18	Servo plate	1	ABS	Vac. moulded, 1.5 mm

19	Rudder servo	1	-	Incl. in RC set
20	Double-sided adhesive tape	1	Plastic	approx. 35 x 30 mm
21	Pushrod connector, side-mounting	1	Metal	Ready made
22	Hatch cover	1	ABS	Vac. moulded, 1.0 mm
23	Cockpit glazing section	1	ABS	Vac. moulded, 1.0 mm
24	Roof	1	ABS	Vac. moulded, 1.5 mm
25	Roof window guide rails	6	ABS	Square, 2 x 2 mm, length as plan
26	Railing stanchions	9	Plastic	Ready made
27	Roof railing	1	Steel	2 mm Ø, pre-formed
28	Stern cover	1	ABS	Vac. moulded, 1.5mm
29	Cockpit back panel	1	ABS	1.0 mm, laser-cut
30	Main deck	1	Birch ply	Plywood, 1.5 mm, laser-cut
31	Top step tread	1	Birch ply	Plywood, 1.5 mm, laser-cut
32	Middle step tread	1	Birch ply	Plywood, 1.5 mm, laser-cut
33	Bottom step tread	1	Birch ply	Plywood, 1.5 mm, laser-cut
34	Fender shell	6	ABS	Vac. moulded, 1.5mm
35	Fender holder	1	ABS	Vac. moulded, 1.5mm
36	R.H. mast shell	1	Steel	2 mm Ø, pre-formed
37	L.H. mast shell	1	Steel	2 mm Ø, pre-formed
38	Heat-shrink sleeve	1	Plastic	4 Ø x 70 mm
39	Masthead light / stern light	2	Plastic	Ready made
40	Anchor light	1	Plastic	Ready made
41	Signal horn	1	Plastic	Ready made
42	Top radar antenna section	1	ABS	Vac. moulded, 1.5mm
43	Bottom radar antenna section	1	ABS	Vac. moulded, 1.5mm
44	Searchlight	2	-	Ready made
45	Navigation light	2	Plastic	Ready made
46	Windscreen wiper	3	Plastic	Ready made
47	Bow railing	2	Steel	2 mm Ø, pre-formed
48	Bow railing stanchion	2	Steel	2 mm Ø, pre-formed
49	Washer	6	Brass, plated	4.5 / 2.2 Ø x 0.5 mm
50	Flagstock	1	Plastic	Ready made
51	Flagstock base	1	Plastic	Ready made
52	Flag	1	Fabric	Ready made
53	Chair	2	Birch ply	Plywood, 1.5mm, laser-cut (6 parts)
54	Rod for swivels	4	Brass	1 mm Ø, length as plan
55	Table	1	Birch ply	Plywood, 1.5 mm, laser-cut (11 parts)
56	Rod for swivels	5	Brass	1 mm Ø, length as plan
57	Electronic speed controller	1	-	Order No. 2875
58	Receiver	1	-	Incl. in RC set
59	Drive battery	2	-	Order No. 2596.7
60	Parallel cable	1	-	Order No. 3061
61	Velcro (hook-and-loop) tape	1	-	Length as plan
62	Whip aerial	1	Steel	0.6 Ø x 330 mm
63	Whip aerial fixing	5	-	Screw, nut, three washers

In addition to the kit components, the Parts List contains components which are not included, and which have to be obtained separately. As plan = the dimensions are shown or stated on the plan

The following parts are also required (not included in the kit)

- 1 x SPEED 700 Turbo electric motor, Order No. 3308
- 1 x suppressor capacitor, Order No. 3588
- 1 x NAVY V 40R speed controller, Order No. 2875
- 2 x Graupner ECO-POWER 7N-3000 RC drive battery, 8.4 V / 3 Ah, Order No. 2596.7
- 1 x G2 parallel cable, Order No. 3061
- 1 x copper flex cable, 2 m, Order No. 3389
- 1 x G2 connector system, Order No. 2989

Radio control system

- 1 x X-306 FM radio control system, Order No. 4709
 - or
 - 1 x MC-12 radio control system, Order No. 4725
- Other Graupner/JR 40 MHz FM radio control systems may also be used.