



1. As usual, cut out the parts. You will find that the superstructure sides are remarkably delicate, and may well break as they are cut. They can, of course, be re-glued, and that does not matter greatly, since they will be reinforced later, and will in any case be painted....
2. The plans were originally designed to test the capability of a CNC cutter (which worked well!), but if you do not have access to such a device, you may be better off making the

superstructure struts from several sections of balsa - using separate lengths for the uprights and cross-pieces.

3. The hull base is glued together under a weight to keep it flat, and then scored at the indicated points to let it bend up. Each side of the superstructure is similarly scored in two places to let it bend. The bow shaper and formers 1, 2 and 3 are then glued to the hull base, cementing in the slight bend.
4. Since much of the inside of the boat is visible, now is a good time to sand, seal and prime the hull base, which becomes the boat deck floor, and the insides of the superstructure sides. A top coat of white for the superstructure and grey for the deck can be added, keeping the paint clear of areas which will later be glued. If you do not do this, it will be very hard to sand and paint later!
5. The two front roof parts and two rear roof parts are then joined, with a slight angle to make a very shallow roof. Once dry, they should be lined with 1/8th balsa as shown on the plan so that they can be attached to the superstructure sides. The original had both removable, using magnets to retain them.
6. The superstructure sides are then added to the hull base, pushing the tags firmly into the base. At this point the roof assembly should be pinned loosely onto the superstructure sides to keep them parallel and vertical without bowing. After they are dry, formers 4, 5, 6, 7 and the Transom can be added. Check that the hull is symmetrical at this point. The rear cockpit wall should be glued in place (sanded and painted first) to ensure that the superstructure is in position. Once glued, reinforce the roof struts with 1mm thick birch strips. I used coffee stirers, which were ideal. Lollipop sticks will also do.
7. Note that the WC Door (for former 3) should be made detachable, since the compartment behind it may be used later for trim ballast. Two magnets will be sufficient to hold it in place.
8. If you want the boat to have its distinctive cutwater at the keel front, now is the time to trim the keel front as per the plan, add two side cheeks and a shaped birch cutwater in between them. A lollipop stick is an ideal birch source.
9. The motor and prop-shaft can be attached at this point. Note that the motor actually dips below the hull base (the motor mount shown on the plan has a cut-out to allow this to happen). The model should not go at high speed, and the original used a 140 motor with a 25mm 3 blade prop, which provided ample power. Make sure that the motor shaft and prop-shaft are closely aligned - if you use the recommended items (see the Hardware document) then both shafts will be 2mm diameter, and can be temporarily rigidly joined with a length of 2mm ID tube to facilitate this. Then glue the rear keel part on to support the prop-shaft.
10. The under-hull formers can now be added, and a thin strip of 1/16 square balsa attached to the outside of the superstructure sides, locating in the small slot in each former. It should create a gentle curve from the bow to the stern. If there is any discrepancy, you may have attached the formers incorrectly? A similar strip of 1/16" square is also attached to the side of the keel, locating in the slots in the lower formers, and a curved cross piece and rear wall is added at the stern. These strips will support the deck and sides.

11. The front WC and cockpit can now be built – the Bow Cabin Roof (sheet 11) goes on top of bulkheads B2 and B3, and the sloping roof is built on top, as shown in the sketch. Fix deck support B2a to the front of B2, and you are ready to install the deck.
12. The outside deck and bow deck can now be added. A curved ledge is attached to former 2 to locate the rear of the bow deck, and the sides curve down to meet the side deck. The outside of the side deck should precisely match the top of the formers - sand any high point down.
13. At this point the rudder servo can be fitted. Carve two pieces of softwood as shown and attach them to each side of the servo. A hole drilled in one will take the rudder tube. The rudder unit can be completely assembled outside the boat, adjusted, and then dropped in and attached with epoxy.
14. At this point you need to decide where the radio receiver and ESC will go. There are three possibilities - in the battery/motor compartment (like the original), in the rudder compartment at the stern, or in the WC compartment in the bow (where there will also probably be ballast required). Whichever you pick, suitable cables and connectors will need to be made up and threaded underneath the hull base, emerging at suitable points. Once installed and tested, the cables can be secured with a bit of glue.
15. If you are going to add figures to the boat (recommended - it looks much more realistic) now is the time to position and mount them if you are going to screw them to the floor (also recommended!). The Lark takes 1:25 scale figures, around 70-75mm high, often called 'G' or 'Garden' scale. Paint them up, then screw them to the hull base with 1.5M self-tap screws as shown on the web site.
16. Now the hull sides and bottom can go on - pinned and glued as shown on the web site. Once firm, they can be trimmed, sealed and sanded.
17. The Battery/Motor box can be made up, sealed, sanded and painted, with covers secured by magnets, then glued to the hull base floor. The rear deck hatch over the rudder servo compartment can be made and installed. The small spray rails at the bow should be attached now.
18. At this point the hull, deck and superstructure can be given their final paint coat - grey underwater, a red boot top, white hull and superstructure sides, grey roof, deck and floor.
19. Trims are now added. The roof handrails are made up, painted grey and attached. A rubbing strake from 1/16" strip is painted mahogany and attached as shown on the web site. Similar capping strips are added to the superstructure. The covers to the Battery/Motor box and the seats are also mahogany, and seated figures are attached to them with 1.5M screws. Decals can be made from the included text page, and the 3-d printed fittings are made and attached appropriately.
20. If a 1600 NiMH battery (as the original) is used, there will probably be a requirement to ballast the bow to get a correct waterline. This can easily be achieved by adding lead weights to the WC compartment. The original needed 3 oz.

Hardware comments.

There is very little room to conceal the motor and rudder fittings on this boat.

Luckily, the prototype is not a fast boat, so low power is all that is needed, and the drive components can accordingly be made quite small. It may be harder to purchase the various components at these sizes, but here is an indication of the requirements, and how the original hardware items were made.

The rudder unit is compact and fairly straightforward. It uses one of the common cheap 9g micro servos, and two wood blocks. Shapes are illustrated on the plan, with a sketch

The rudder was made from 0.025" brass sheet, set into a dremmel-slotted 3/15" rod. This was threaded M4 at the other end to take a brass arm 0.5" long.

The prop shaft is a piece of 2mm piano wire, threaded M2 at one end to receive an M2 25mm prop. You can buy 4" prop tubes with a 2mm shaft, but I made mine from a length of 4mm diameter brass tube with a 3mm insert at either end. This gave me a really slim prop drive. A sketch is on the plan.

The coupling is no more than a length of plastic wire insulation, conveniently a tightly fitting push fit on 2mm shafts. This was sufficient for the original EeZeBilts, and gives much-needed space in the motor compartment! If you want to be sophisticated, a 1" length of silicone tubing, 1mm id, 3mm od will work well.

Note that the motor and the ESC have small JST connectors fitted. There is no need for anything larger. The motor is a cheap 140 can running at 3-6v. Mabuchi designation is RE-140RA-12240/38.

Note that the motor is mounted so that it actually dips into the subdeck to keep the height to a minimum. This needs a special motor mount, cut out of timplat according to the sketch with the plan.

Happy sailing!