Building Instructions Puddle Twin

The Puddle Twin is a twin engine park fly seaplane. It is controlled with elevator, rudder and throttle. The model has very docile handling characteristics and therefore is well suited for novice pilots. With the recommended power system takeoffs from water can be performed within about 15m or 50ft. Takeoffs from snow and even from wet grass are also possible. These instructions are only a recommendation on how to build this model.

For the build you will need the following:

- 1 plate 3mm Depron or Selitron 125cm x 80cm
- 1m carbon rod 2mm diameter
- 1 Pushrod guide tube (2mm inner diameter)
- 1 pushrod guide tube (0,8mm inner diameter)
- 176mm steel wire 0,8mm diameter
- Some tape to hinge the control surfaces
- UHU-Por, Epoxy resin or other suitable Styrofoam glue.

The parts are cut in accordance to the templates from the plan. The parts are arranged on the template sheet in such a way that the “fibre” direction of the Depron is correct for the part.

Fuselage:
Start with F3. This Frame forms the backside of the Fuselage Step. The Servo Plate F4 is inserted into the big slot from the top and glued in place. F5 is glued into the slot of F6. Subsequently glue F6 into the middle slot of Frame F3, make sure that the tapered side of F4 is on the same side as the Fuselage Bottom skin F6. Bend the forward fuselage bottom skin into shape by gently rolling it over a rounded table edge or similar and then glue it into the bottom slot of F3. Now bend the fuselage skin F1 along the dotted line gently to a u-shape. The centre part of F1 is going to form the wing support and therefore shall not be bent (Tip: If you cut out the slots for the stabilizer the Skin is very prone to braking during bending. Just mark the slots and cut out when the fuselage is glued).
Now the most difficult part. Lay the fuselage skin F1 flat on a flat surface. Now glue the already built up fuselage structure to one side of the fuselage skin. Start with Frame F3 and Servo Plate F4. Afterwards glue in place F2 following the fuselage bow contour all the way to the slot in the nose. Now gently fold F1 over and glue it to F3, F4 and F2 like on the other side. The slot in the nose should now be closed. You can glue this slot closed with epoxy or styro safe CA glue. Now glue the fuselage skin on both sides to the fuselage bottom F6. The parts F8, F9 and F7 form the cockpit area. F10 and F11 close the cabin at the end of the wing support. The Vertical Stabilizer F14 is glued into the slots of the horizontal stabilizer F12 and thereafter glued into the slots of the fuselage with epoxy. Now take the 0,8mm steel wire (176mm long) and make the lower bend in accordance to the drawing on the plan. Glue the water rudder F16 into that bend with epoxy. Now put a 40mm long pushrod guide tube onto the wire and bend the top sharp bend. The Rudder F15 is bevelled at the forward edge and hinged with tape. Now glue the water rudder with the sharp bend to the rudder and the pushrod guide tube to the Fuselage Frame F5. Bevel the elevator F13 and also hinge with tape.

Wing:
First take the wing skin W1. Along the leading edge grove the Depron with a blunt object (for example ball pen). To prevent breaking of the depron during bending put a wide strip of tape to the other side of the skin along the leading edge. Now glue the ribs to the wing skin. To do this put W1 on a level surface. The ribs are glued with the straight side down and butted up to

the leading edge to the dotted lines. The order of the ribs is (from the inside out) W2 on the wing centreline, W3 and W4 at the square holes, W5 and W6 at the round holes, W7 and W8 at the wingtip. Now sand the trailing edge following the contour of the ribs. Now we can close the wing by folding the top skin over and gluing it to the ribs and the trailing edge. Don't glue the centre rib W2 yet! To give the wing its dihedral put some epoxy or similar into the gap in the wing skins above the centre rib W2 then weight down one side of the wing and lift the other wingtip to 70mm. This should result in a dihedral of about 10°. To conclude the wing build glue 4 pieces of pushrod guide tube into the holes in the wing and cut them flush to the wing surface.

Sponsons:
Glue FL3 into the slot of FL2. The sponson bottom is now bent upward from the hole to the tip. Bend FL1 to U-shape and glue it to FL2 and FL3. Push the carbon rods (160mm long) thru the sponsons and glue in place flush to the bottom. Build the second sponson from FL4, FL5 and FL6. Push 4 short pieces of silicone tubing onto the carbon rods, these hold the carbon rods in place in the guide tubes in the wing. Now push the struts trough the tubes in the wing and put a piece of silicon tubing over the other end to secure them in place.

Other stuff:
6g Servos are sufficient for rudder and elevator. A light 4 channel receiver and ESC are recommended. I used 2ea Mabuchi 050 geared 3:1 and Guenther Propellers (also used on the Multiplex easy star).
Note from the translator: i`m using a 12A ESC, 2ea Speed 280 6V Motors and Guenther Props with 2S 800mAh pack and it flies perfect ! Flight time about 14minutes with lots of touch and goes.
Engines are mounted to 2ea 5mm x 8mm wood sticks glued into the square holes in the wing. A light 7-8 Cell NiMH 350mAh or 3S LiPo with 700mAh should be used. All up weight is around 280g.
Control throws:
Elevator +/- 15mm
Rudder +/- 20mm
Centre of gravity 45mm behind the leading edge.

To mount the wing 2 wood dowels are pushed through the fuselage and the wing is mounted with rubber bands. With the model now ready to fly adjust the sponsons so that they go about 15mm deep into the water.