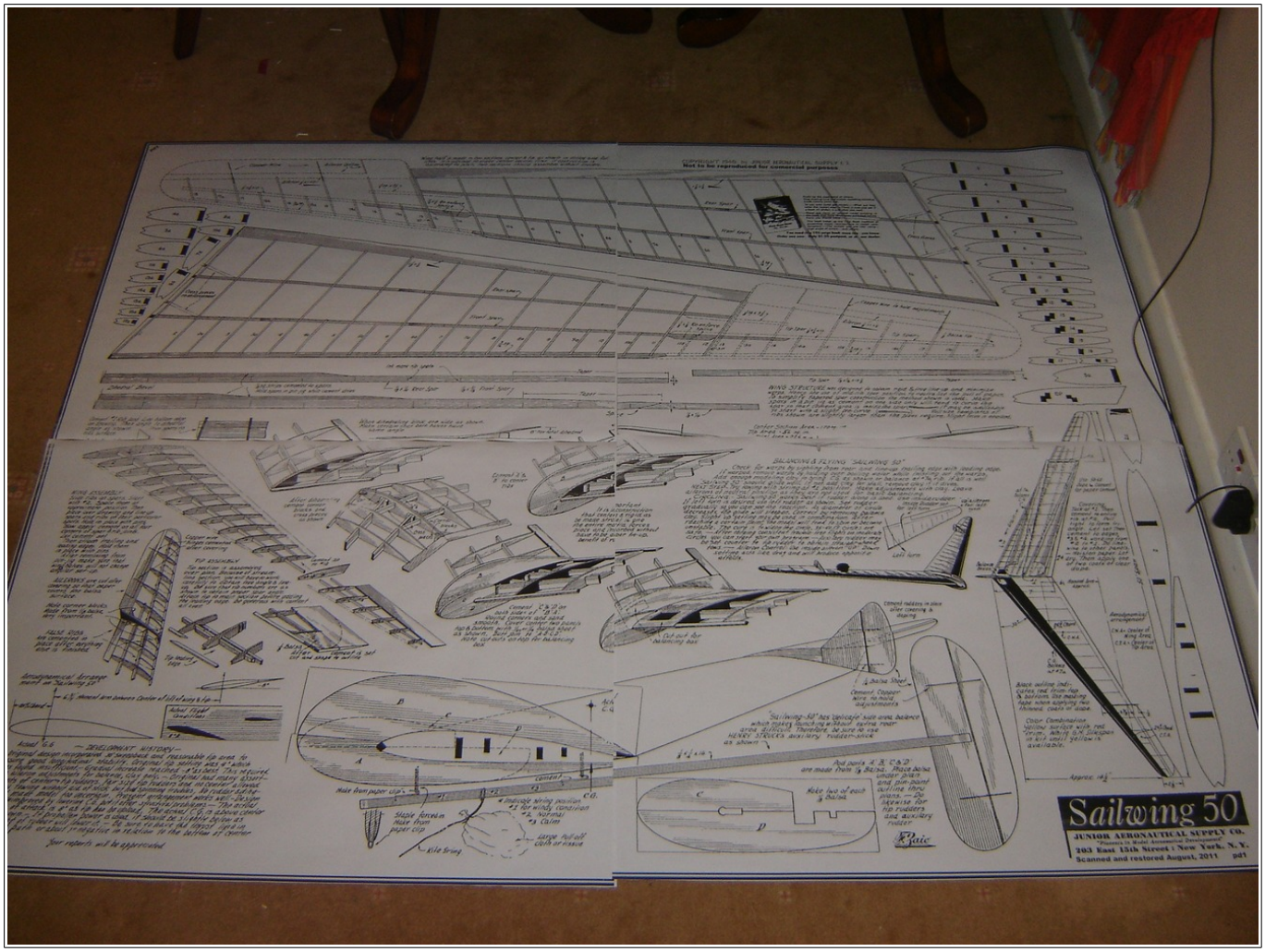


In the development history of design on plan itself is written that without central fin (fuselage) the model is easy to tow up, but soon suffered from in-flight spin. The oval shape on the drawing is very high to improve the stability of the model in free flight. As I am going to provide the model with RC, such in-flight instabilities can be corrected, what else is the remote control used for? So a flat fuselage that serves as fin is therefore not really necessary, but the tail wing fins still do.

After having had a good look at the "thing" you will always find some challenges. Because the whole is scaled up by a factor of 2 , the construction of the wings , which , after all, is based on 125cm span should be adjusted accordingly to comply. First of all, the span of 100" (250cm) is misleading. Because of the large sweepback they each are actually almost 150cm long . So you can safely say that the model has a span of 10FT (300cm) and so is the construction to be adjusted accordingly.

The original plan uses 1/8 inch wide balsa main spars. The front main spar height is 5/8 tapered to 3/8 inch at the wing tips. If I I'm this scale up later to a similar main spar, I would end-up with a spar of 3cm in

height tapered to a height of 2cm at the wing tips. That does not seem to be appropriate for this scale . I can make them thinner and work with multiple main beams instead.

However, the original construction of the main spars, going through the centre of the ribs also enables to give rotation at the wing tips. If the main spars would run through the bottom of the ribs, they need to be interrupted in order to connect them to the spars through the wing tips for the angle rotation. The wing tips have a difference in angle of -8 degrees with the main wing. But a solution is already figured out.

I will use spruce (or pine wood) for the spars instead of balsa wood as used in the original plan. They are available at the local DIY store in lengths of 8FT and can be glued on the top of each other to improve strength.

I also need to think about the hollow fuselage and how it will allow the 2 wing halves to be assembled to it. I probably need to work with steel rods and brass pipes.

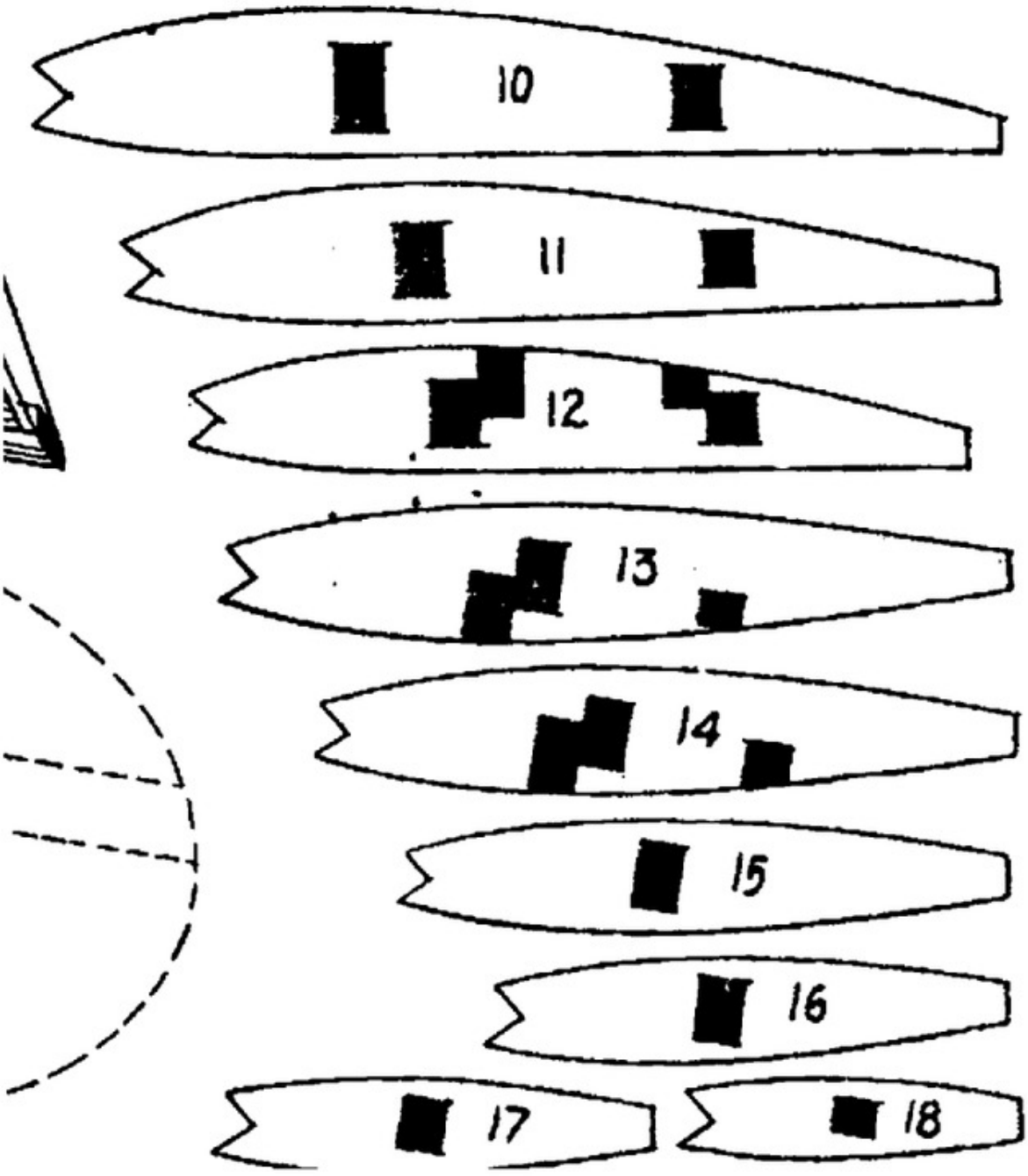
As said before, I don't like the way the main spars go through the centre of the ribs. First of all, alignment of the ribs with wing spars will be very difficult, especially when you have to cut all the parts by hand. Secondly, as you can see from the snapshot of the plan below, the main spars of the main wing and those of the wing tips are aligned but shifted compared to each other. This results in a poor overlap area to bond them together.

I am in the process to redesign the way the spars are going through the ribs. They will not be adjacent next to each other, but will be positioned on the top of each other, resulting in better and stronger splices/joints.

The front and rear main spars will be both split in 2, each 6 mm in width, 1 on the bottom of the ribs, the other on the top of the ribs and possibly tapered from 12 mm to 6 mm in height towards the wing tips.

As the wing tips are rotated -8 degrees compared to the main wing and the leading edges are in line, the trailing edge of the wing is positioned higher than the one of the main wing. This allows room to place the lower front main spar of the wing tips to be positioned on the top of the lower front main spar of the main wing.

For the rear main spar, a similar construction will be applied.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Old situation:
Ribs 10-12 are part of the main wing. From rib 13, they are part of the wing tips. Position of the main spars is rotated. At ribs 12, 13 en 14 you can see the overlap of the main spars which have an offset in hight as well and no good area to bond them together.

As reason for the main spars going through the centre of the ribs is given on the plan: "Wing Structure was designed to obtain rigid & true line-up and minimise warps. Hence the use of mid-spar position to neutralise the pull of paper."

The design of the sail wing was, I think, primarily experimental and has never been a commercial success and were difficult to built as far as I can see now.
They have been available as kit, but not as popular as the Thermic gliders, then and still now as can be concluded from lack of information to be found on the Internet.

I have started to cut out the ribs from the plan and copied onto balsa sheets of 3mm. I have cut them out without any of the slots for the main spars or leading edge. They will come later as the design for the spars and leading edge has been finalised.

I have used 3 mm balsa with good grains, so quite strong balsa wood for the ribs.

I noticed that the height of the wing ribs and the height near the trailing edge of the wing tip ribs is hardly higher than the height of the ribs of the main wing near the wing tips, although the chord of the wing tips ribs is much longer than the chord of the main wing ribs near the wing tips. As the width of the trailing edge of the wing tips is also much longer (2 times) than the trailing edge of the main wing, you get a sort of bend in the transition from the ribs with the trailing edge on the wing tips. Rib SP on the plan which connects the last rib of the main wing and the first rib of the wing tips shows the same bend, so it was known to the designer at the time.
However, it is still not very nice. I will try to reduce this bend in the build, but need to be careful not to disturb the design if I am going to change the air foil of the wing tips, as the model is balanced as it currently is with the -8 degrees wing tip rotation. I may want to make the wing tips fully rotatable instead of using ailerons for optimal trimming and adjusting and balancing the model.

It's going to be a hard job I noticed already, but the ribs of the main