https://youtu.be/FNqyPRNJlnk
https://youtu.be/FNqyPRNJlnk?t=27
micheldeman, your build is really starting to come along. Really well done.

Thanks for posting the video. The linkages work very smoothly, and the pictures are worth "a thousand words".

Many years ago, in one of the model magazines, there was an add for a hidden linkage, but the servo action was ninety degrees different from the one you show. Maybe it used a cam to transfer the side ways movement to up and down movement....sorry, but I can't remember where, or how long ago. Maybe some one else will remember?
John

Interesting build.
Don't move the elevator function inboard. It will reduce the effectiveness as it will be closer to the cg. They may act more like flaps.
Your main problem, as with many tailless models will be overcoming adverse yaw. You cannot use differential as it will be like adding up elevator when you apply aileron. You could add rudders. If you do then they act more like drag rudders and the rudder inboard of the turn should move a lot, the outboard much less if at all (differential rudders).
Depending on the mixing ability of you tx there are some interesting possibilities to try and overcome aileron adverse yaw using two surfaces out board (splitting the existing surfaces in half).

I don't think adverse yaw is going to be a problem for this model.

With the cambered airfoil inboard - thus its nose down pitching moment, and the rather large amount of twist outboard - that outer portion of the wing will be lifting down throughout most flight conditions. With negative lift in that area, the effect of aileron input will proverse yaw - assisting the turns.

On the subject of inboard surfaces, Northrop's wings had the elevator surface inboard a bit, and two of my wings are flying very well with elevons inboard of the area where this wing transitions. I suspect that separating the aileron and elevator functions would work fine on this model, though it would take two more servos - and thus require more nose weight.

There's a rotary type available from **IRF**

Michael - have you got any idea on how much travel the elevons will need to have? Having read these two conflicting opinions on splitting ailerons and elevators in addition to the reduced weight of one-servo-elevons would actually hint at keeping elevon functions together. Maybe others wil chime in as well.
Not sure about your transmitter, but I am flying with a relatively simple Spektrum dx6i (dsm2), and with these things you have the possibilty to mix 125% of elevator to aileron, and 125% of aileron to elevator, and thus one has a possibility of getting a little more elevon travel for either function through transmitter programming. I am thinking with a wing like this and the elevons out there at the tips, already relatively

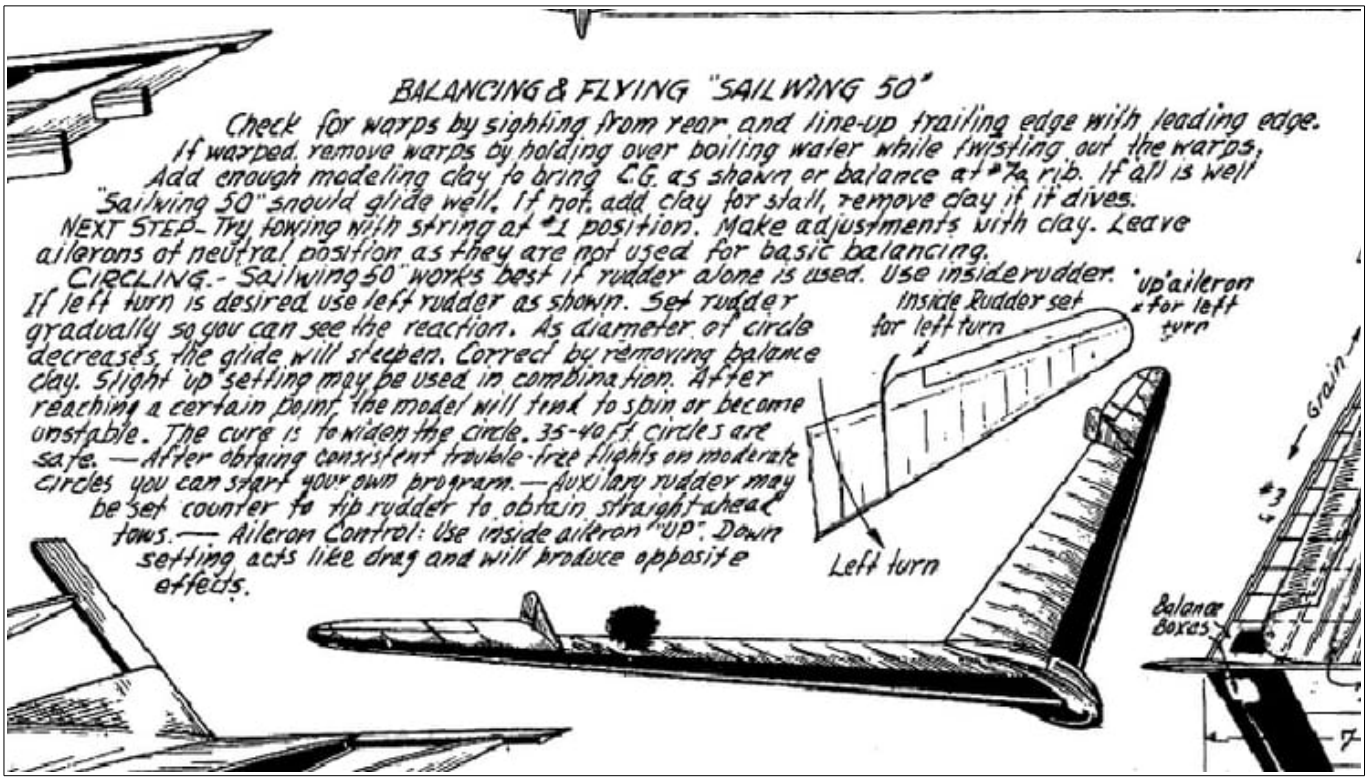
small elevon deflections might have strong effects, especially if the area of the elevon is enlarged to the rear spars? I think that my suggestion of internal linkage should not stand in the way of feasibility and functionality - if it doesn't work on this design, then it's maybe something for the next model.

Thanks Ryan, good picture, that's the Rotary Driver System (RDS) as KNS mentioned. A very nice and sophisticated way to drive the ailerons without linkages visible.

Here's another solution provider:
http://www.servocity.com/html/servo_...l#.Uy_c9YWRit8

Thanks folks for the input and thinking.
I understand the comments of HerkS, the outer wing tips with their -8 degrees rotation compared to the main wing section, do have a negative lift already. When using the ailerons function on the elevons, the outboard elevon panel, will reduce the negative lift and a reduced drag. the inboard elevon will get more negative lift and an increased drag. But will the Dihedral wing have a negative effect too in the case the model has adverse yaw?

However, also important I assume, see Frank Zaic comments on the plan about balancing and circling.



With regard to weight, my experience on free flight gliders converted to RC is that little extra weight improves the capabilities of the model to fly in more windy conditions as well. Also, I think sweep back flying wings have already their CG better than conventional models with seperate stabilizor.

Having the elevons close to the rear spars increases the effectiveness, so less deflections required for the elevons resulting in less drag. Also trimming the plane would be easier, as with small elevons, balancing requires bigger deflections of the elevons, disturbing the airfoil more and introducing constant drag as well. For your information, the airfoil of the wing tips are symetrical

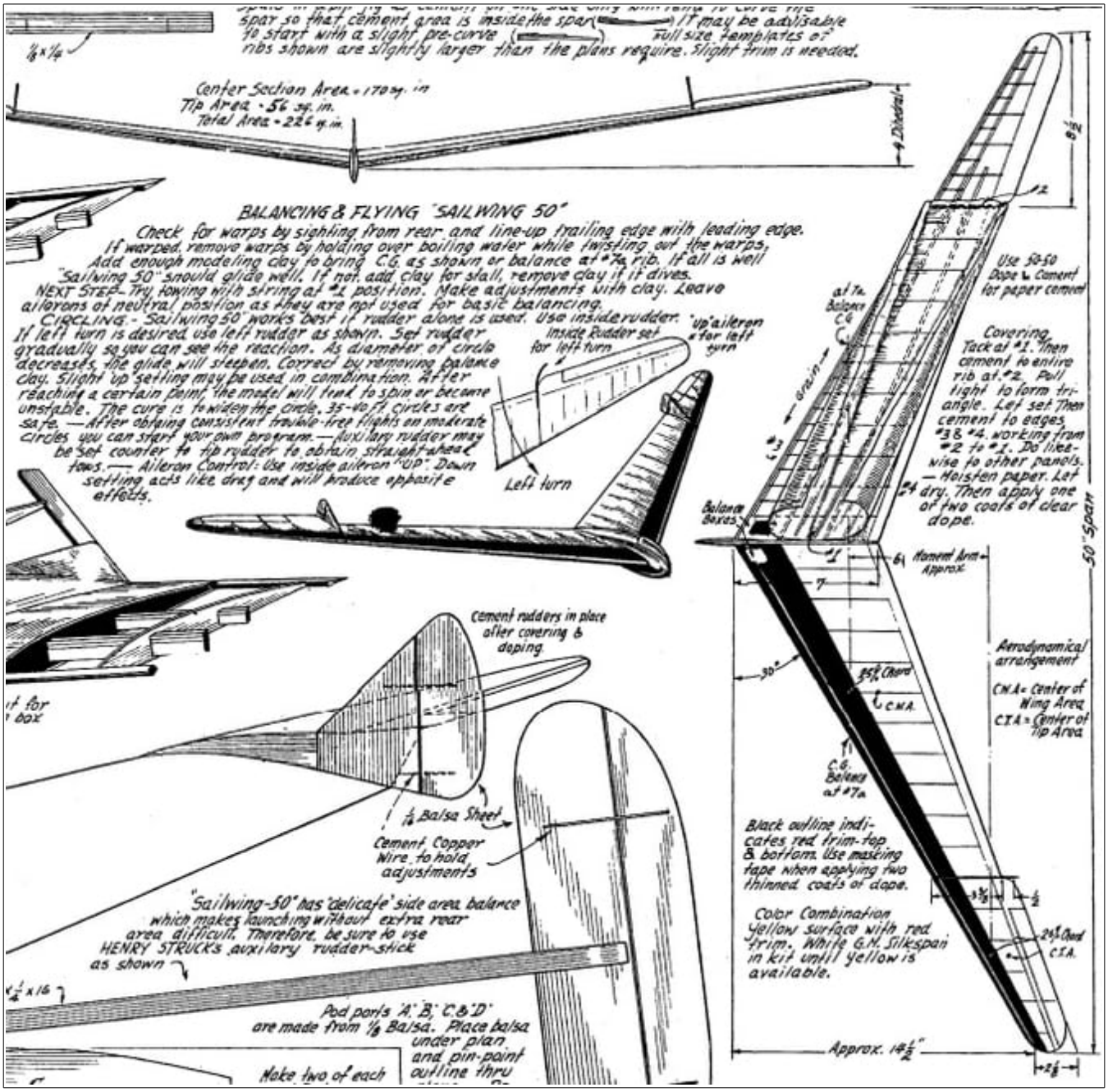
The interesting part of Zaic's comments is also about using the rudders preferably over the use of the elevons.

To be honest I have never thought about the effect of wing twist or camber change of adverse yaw. All my wings have been small twist with constant low camber sections.
You learn something new every now and again.
I would probably build it as per plan but include the option to split the elevons at a later date if required.

Looking back at post # 11, I guess one should talk to the California Condor (Eut?) about the issue, since it appears he might have had a flying version at some point.

Nothing to be shamed of, I am also learning here right now as I only have made conventional 2RC gliders sofar.

To be able to visualize things, I have copied in a picture from the plan that locates the various forces. One force is the lift of the main wing section, then we have gravity, CG, which is in the front of the main wing lift component and the negative lift component of the stabilizor (wing tips), which is behind the lift component. The last force is the drag, which may have several (unequal) components, depending whether the elevons are in use or not. The picture below copied from the plan shows these forces apart from the drag component(s). I have been told once that you need to see forces always with respect to the CG point of the model.



When using the elevons in aileron state, let's say we want to make a right turn, the right elevon will move upwards, increasing the negative lift and drag, while the left elevon will move downwards. Reducing the negative lift and reducing the drag I assume. This will tilt the model nicely into a right curve.