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Welcome

Welcome to the March 2025 issue of RCM&E.

Like many of you, no doubt, I was a bit shocked to find out from a couple of local clubs that my BMFA A and B certificates, which I passed many years ago, were not considered sufficient to issue me with a valid CAA Flyer ID. And if I wanted to carry on flying at those clubs, I would need to pass either the CAA DMARES (Drone & Model Aircraft Registration & Education Scheme) test or obtain the BMFA Registration Competency Certificate.

Now, I am a simple soul and regardless of the irritation this caused me, I thought I should crack on pronto and do what I was told. (I know, I know, but now's not the time nor place to go into all the details and the frustration caused by this situation. I'll let you take that up with the CAA and BMFA directly!) So, like many aeromodellers, I decided to let the BMFA deal with the CAA on my behalf and take the BMFA RCC test.

I listened to some tall tales from a couple of local modellers who said that the test was 'un-fail-able', which is probably true if you do some basic preparation and have taken the time to read the CAA Article 16 Authorisation guide on the BMFA website (<https://rcc.bmfa.uk/article-16>).

There's also nothing stopping you from having this document to hand, either printed out or on a separate screen or device, whilst taking the test.

It all sounded easy enough so in my wisdom I decided to jump right in and start the test, thinking that my decades of safe model flying would stand me in good stead. And so it did, but it wasn't long before a small degree of hesitation crept in, making me scour the above guide for clarification. There's also a few drone related questions which needed a bit of thinking about. I should also mention that I rather stupidly decided to start the test after a long day at work, with the beginnings of a nasty headache and a 20-minute 'Dinner won't be long!' deadline issued to me by my good wife.

The test consists of 40 mostly multiple-choice questions, with a few 'tick all that apply' questions too. The pass rate is 75%. Suffice to say that I passed with plenty of room to spare but I was frustrated to blow a few questions by my total lack of preparation. So, although I ended up with a shiny new BMFA RCC certificate fresh from my printer, by now I also had a really bad headache and a rapidly cooling plate of food on the kitchen table, not to mention a frosty reception from Mrs. C, for my trouble.

Don't panic dear reader if you have still to take the test. It really is no big deal, but please don't underestimate it and do take the time to do some basic preparation beforehand. I'd say to give yourself a clear hour to get ready and take the test and do have a read through the Article 16 Authorisation Guide, leaving it available close by for reference whilst you take the test. Make sure that you are relaxed and in a good frame of mind before starting, without any external pressures. That way you won't need a dose of paracetamol afterwards and be tucking into cold sausages and mash!

One last thing, just to cheer you up. It was only after taking the test that I realised that the certificate only lasts for five years. So, I'll be doing it all again at the start of 2030! Grrr...



Now for a quick look at some of the main articles in this month's magazine. Let's start with our regular 'Retro Ramblings' column in which Shaun Garrity looks at Reed radios, Remcon home-built sets and a flying model by Meccano. In 'Best Of British' Danny Fenton revels in a late summer gathering of British designs at BMFA Buckminster. Next, our 'Just For Fun' column catches up with David Ashby as he finds some modern parallels when reading a pile of old magazines and then flies a recent acquisition. Next, in 'Drawing A Plan' one of RCM&E's favourite model designers, Lindsay Todd describes the first steps in drawing up a plan for a semi-scale aircraft. Another popular plan designer, Peter Miller, follows with 'Estimating Materials' as he describes how to make a shopping list for wood and other materials needed to build from a plan. It's been a while since we have offered plans for a high wing trainer and Bertrand Choupin steps in to fill the gap with 'Ambisagrus', based on a classic design. In 'One Man & His Shed' Dave Goodenough finds a new supplier for his carbon requirements, browses the local 'Middle of Lidl' and test flies his latest simple scale design. Then it's over to Julie Fisher who reports from Denmark on the F3CN European model helicopter championships. In 'Aerobatic Scene' Keith Jackson reports from the UKF3A AGM which introduced the new Entry Level schedule for beginners and he also says hello to the UK F3A Team for 2025. To cap things off Ron Grosser reports from the Port Lincoln Model Aerospot Club's fly-in all the way down under in South Australia.

I hope you enjoy reading it all.
Happy Flying!

Kevin Crozier

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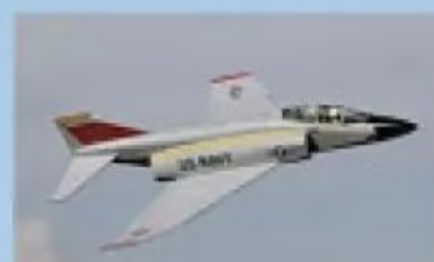
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On the cover

Photo: Danny Fenton

Late September 2024 saw many modellers congregate at the BMFA National Centre at Buckminster for the Laser and Best-of-British Fly-in. The event caught the imagination of many aeromodellers and was well attended. Our scale columnist Danny Fenton had a wonderful time catching up with people, as well as the many RCM&E forumites who were out in force, taking the opportunity to discuss the Chipmunk and Fury Mass Builds that were run a few years ago, especially the ones who were still working on their models





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Prototype of XFly-Models new 1200 mm span Supermarine Spitfire Mk.IX awaits her maiden flight.

XFLY SPITFIRES SCRAMBLE

Just before the end of 2024, RCM&E was asked to give our opinion of a prototype model of a new R/C Supermarine Spitfire that was being developed by XFly-Model in collaboration with their UK distributor, CML Distribution. After seeing 3D design pictures of the proposed 1200 mm span fighter the editor took up the offer in very short order!

The forthcoming kits, which should be finding their way onto model shop shelves in early March, were the brainchild of CML's MD, Jason Varley, who researched the backgrounds of the two Mk.IX variants being modelled. CML also backed this model with a large contribution to its costs.

With a 1200 mm wingspan and constructed using EPO foam, the XFly Spitfire will be offered in two matte finish scale liveries, one being for MK392, the aircraft which Commonwealth ace 'Johnnie' Johnson flew during the Normandy landings, complete with invasion stripes. Our prototype kit, however, was decorated in the alternative desert scheme of EN152, as flown by Neville Duke in Tunisia early in 1943. This distinctive livery is also the one adopted by Supermarine Spitfire LFIXc, MK356 of the Battle of Britain Memorial Flight, in which colours it was repainted in 2017.

According to CML's promotional literature, 'XFly's new Spitfires are supplied with a 4-blade propeller, an accurate canopy outline, pilot figure, exhaust stacks, cannons and outward retractable electric landing gear. The large battery hatch can accommodate a 4S 2600-4000 mAh 4S LiPo.

The combination of a 3541-KV745 motor and a 40A brushless ESC offers plenty of power for a satisfying scale performance. This model uses four panel split flaps, akin to its full-size counterpart. Day-bright LED wingtip lights aid visibility and add realism. RRP of both models will be £299.99"

So, what did editor, Kevin think of the new desert Spitfire:

'To be honest I couldn't really fault the assembly of XFly-Models new Spitfire as it went together very quickly and without any issues, bearing in mind that I didn't have a manual to work from. (A short but detailed manual is now available with production kits.) The one-piece wing, complete with ready fitted flaps and electric main undercarriage, simply bolted in place with four hex head countersunk screws, ditto the two tailplane halves. I'm always a little concerned about this type of tail fixing as the mouldings need to be very accurate to ensure no horizontal mismatch between the wing and the tailplane. But in this case, it was all spot on, so no packing at the tail was required.

The only set-up item to note is to disconnect the flap linkages before operating the flap servos for the first time in case they are over-driven and damage either the servo gears or the linkages—or both! (It was reassuring to see a prominent note to this effect being taped to the internal packaging of production kits.)

Having recently joined the Chedworth RCFC to take advantage of their tarmac strip, I was a little concerned about the risk of a nose over and inadvertently trimming the nicely moulded 4-blade prop—even with a spare to hand! So, I enquired about a suitable 2-blade prop to use for the test flights, a 12 x 8E being XFly's advice. I also asked for control

throws and the recommended balance point. The former came as percentages (of what, I wondered?) so I fell back on my own experience to set up a three-position flight mode switch, allowing me to reduce or increase aileron, elevator and rudder throws on the first flight by quickly operating a single switch.

As for CG, the recommended point is 65 mm back from the leading edge at the wing root. While waiting for an answer from XFly, I researched the balance point of other R/C Spitfires, albeit plan models, and the consensus seemed to be at around 30% chord. This would place the CG a centimetre behind the recommended position.

But trust me, XFly know what



Peeling away and showing the underside details. Flying pictures courtesy of Dick Spreadbury.



About to touch down with full flap. The test flights were flown using a 2-blade prop and no spinner, but we've added the 4-blade prop and spinner to show you the intended effect. If we knowingly modify pictures like this, we'll always try to let you know.

they are talking about, as I was to find out on the model's second flight...

To obtain the stated CG I had to place my 4S 3200 mAh Volz LiPo pack as far forward as possible in the generous battery bay. Even so, the Spitfire was a tad tail heavy. (I noted that with this LiPo alone the model balanced on my calculated 30% marks, so I banked this knowledge for the test flights.) To get the prototype model to balance at the recommended position of 65 mm I needed to add a 70-gram strip of lead to the 340-gram battery pack, secured with Velcro.

The appointed flying day dawned foggy and whilst it cleared as I made my way up the hill towards RAF Chedworth, I was more than a little disappointed to see the strip enveloped in low cloud when I arrived. It transpired that I had arrived during an EDF jet flying session, so I joined a cheerful bunch of club members to wait for the murk to clear. I was just about to throw in the towel when suddenly the sun made an appearance and the fog lifted.

Despite spoiling the looks of this fine model by fitting an APC 12 x 8E two blade prop for the first flight, which meant that the spinner could not be used, the desert scheme drew several admiring glances, which did surprise me a little as I thought most people would want the alternative grey/green camo version instead. But no, most of the pilots said they would opt for the desert version!

After a range check and a final control check I lined the Spitfire up

on the strip and reminded myself to hold in full up elevator and begin the take-off roll at low speed, it having been several years since my last Spitfire take-off from tarmac. Even so, the power available caught me by surprise and despite my caution the tail lifted too quickly and - zing! - the carefully balanced APC prop was rapidly trimmed to 11 inches! By now the model had lifted off and was climbing with gusto, despite still being at relatively low power. So, I decided to concentrate on trimming her out. I flew her in broad circuits at mid-power and I am pleased to say that my estimated control throws resulted in an easy-to-handle aircraft. I tentatively cycled the undercarriage to check for any changes in trim, with nothing of note seen, before lining her up in a broad, sweeping approach for a gentle roller landing. Lovely!

Before flight two I checked the prop (now definitely an 11 x 8!) for any damage to the length of the blades and sanded a tiny amount off the tip of the heaviest blade to correct a slight imbalance. As she was flying so well with the unintentionally modified prop, I decided to refit it for flight two, especially as I now wanted to try removing the nose weight and fly her at the 30% chord CG position. That flight didn't last long because although nothing untoward happened, I felt that she was happier at XFly's recommended CG position, so the strip of lead was refitted.

For flight three I was really getting in the groove and she looked



A production kit for the D-Day version has just arrived so look out for a full review of this eye-catching fighter very soon. Photo by XFly-Model.

marvellous, especially when pulling large loops (well, as large as the low cloud base would allow!) and very scale like barrel rolls, all with the electric main legs retracted. Time now to try the flaps at a decent altitude and with no surprises I tried for my first approach and go-around at half flap. The brown fighter trundled past with no ill effects on the controls, so I pulled her away and finished the flight with a full flap landing. The drag from the four flaps was much more noticeable and the Spitfire landed at a much lower speed. I was a bit too entranced and failed to get enough up elevator applied in time to prevent a gentle nose over at the end of the landing roll, thankfully with no further damage to the prop!

In summary, I found XFly-Model's prototype Spitfire Mk IX to be easy and fun to fly. She looks great and I doubt if anyone present would have noticed that she was a pre-production

kit, although maybe some of the stickers could have been a little better applied at close inspection. I would definitely recommend sticking to the suggested CG position and to this end I will be trying a Volz 4S 4200 mAh LiPo on our next outing, which weighs in at 415 g and should allow me to get rid of all of the nose weight.

Finally, now that I have my eye in with take offs and landings on tarmac with the Spitfire, I will also swap over to the four-blade propeller supplied. (You may have noticed that the flying pictures featured here, courtesy of Dick Spreadbury, do not show the two-blade prop used for testing. Instead, we have Photoshopped on the four blader, just for appearances sake.)

As I write this piece a full production kit for the D-Day version has just arrived in the office so look out for a full review of this impressive ARTF warbird very soon.'



TOP RC MILITARY TRAINERS

David Ashby takes to the air with a pair of mini replicas of well-known military training aircraft

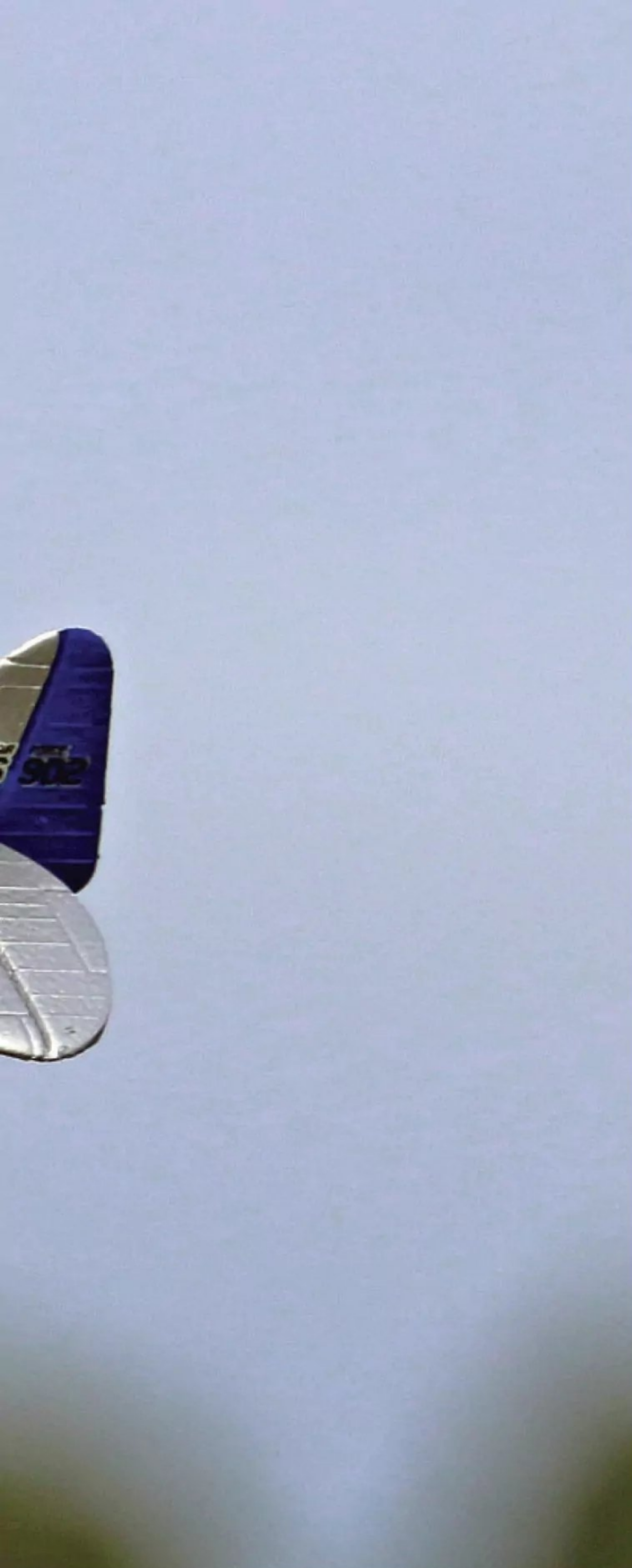
Words & Photos **David Ashby**

It's easy to get a bit blasé about new mini model releases, but that they're not P-51s, Spitfires or Bf-109s is what sets this new pair apart. That and the fact that they're exceedingly well finished and very pretty.

The AT-6 will need no introduction, it's also available in a yellow scheme, while the SIAI-Marchetti SF.260, the well-known Italian military trainer, is also available in a red/white

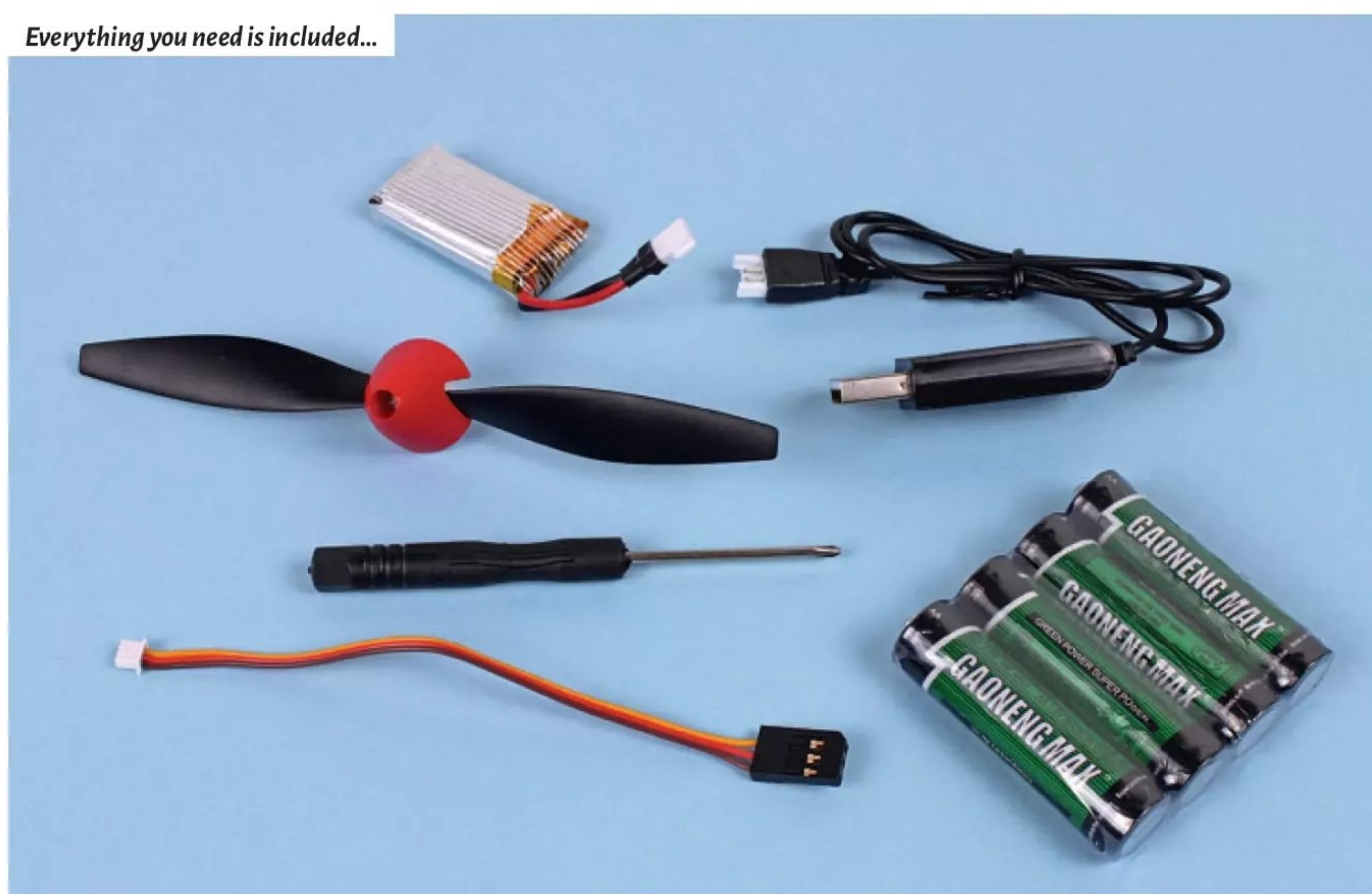
scheme. Both are moulded using EPO foam and come with a 1S flight battery, USB charge lead, a 2.4 GHz transmitter (Tx), AA cells for the transmitter, a spare prop and a good manual. Everything you need to fly, in other words. The little Tx is nicely made with decent main sticks but is only supplied in either Mode 1 or 2 configuration. So make sure you have the one that suits when you buy.

If you'd prefer to use your own Tx with these models then you're in luck as the on-board Rx is compatible with Open TX, so just bind and fly. In addition, the main electronics board has ports for DSM satellites and Futaba S-FHSS S-Bus receivers, for which a connection lead is included. Obviously space and weight limits may dictate the use of micro after-market receivers but items weighing just a gram or two can be found online



Both are very nicely finished. This is the SF260.

Everything you need is included...



“Like most mini warbirds both use an on-board gyro that’s built into the combined ESC/Rx/servo board”

WALKROUND

Ready to fly mini or ultra-micro models have certainly come a long way since Parkzone’s tiny Sukhoi SU-26 kick-started the genre way back in 2009. Not that this pair stand direct comparison. That EPS foam SU-26 weighed just 30g and was decidedly fragile. EPO is heavier, so these two come in at around 80g but have a robust feel that marks them out for park flying.

Like most mini warbirds both use an on-board gyro that’s built into the combined ESC/Rx/servo board. The gyro offers stabilisation across two flight mode types, selectable using the three-position Tx switch: 

...although few will use the clip-on wheels.



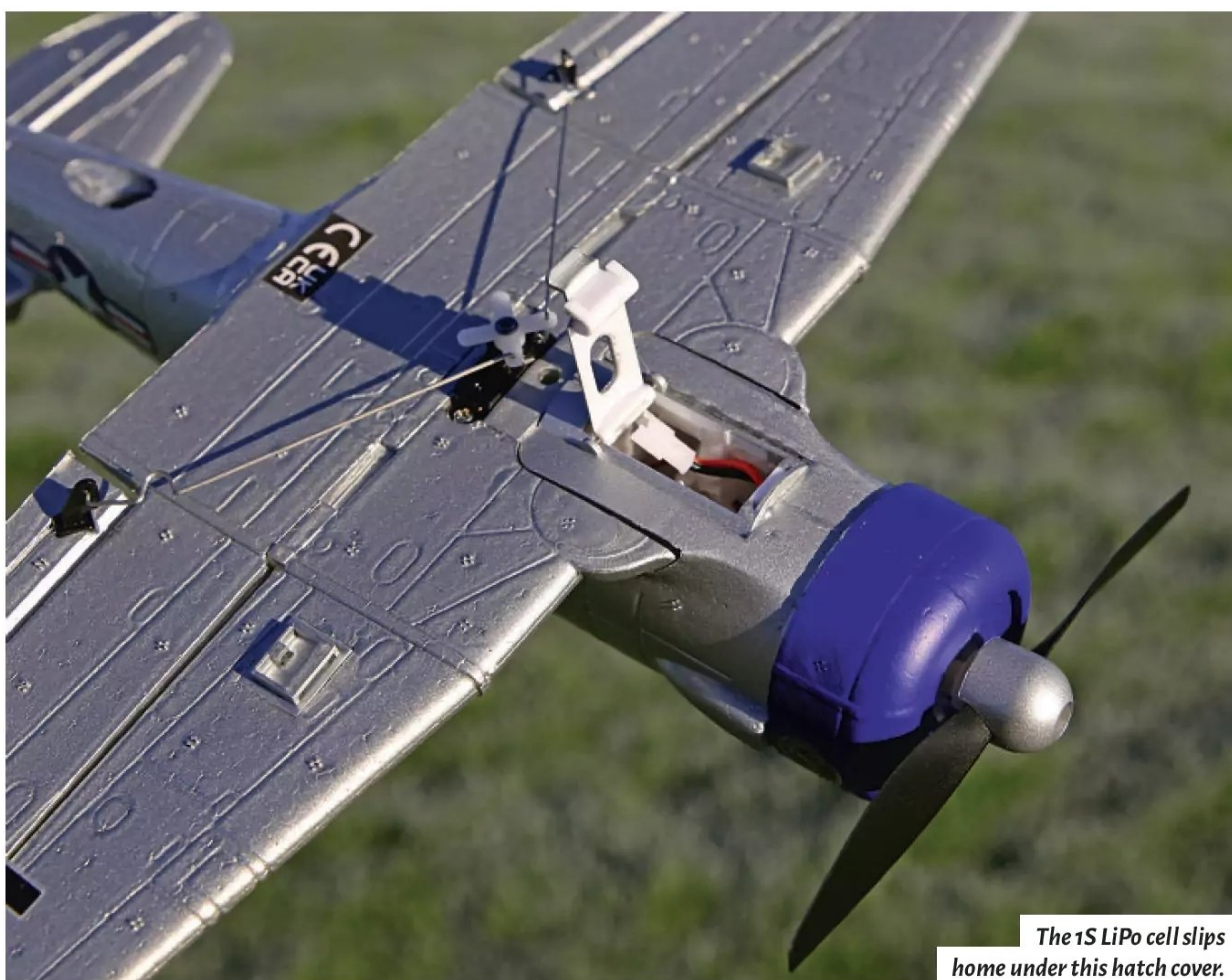
The little 2.4 GHz Tx supplied does the job.



Three flight modes can be used, all switchable in flight.



This overcomes the restrictions imposed by the stabilisation system when Expert Mode isn't in use.



The 1S LiPo cell slips home under this hatch cover.

“The manual says to expect around 10 minutes flying from a full charged battery and it's not far out”

- Beginner - a strong degree of self-levelling.
- Self-levelling - soft self-levelling for new or intermediate flyers.

The third position, Expert, switches the gyro stabilisation off.

SET UP

Charging the little 400mAh LiPo cell is as easy as connecting the charge lead, finding a 5V USB source and waiting for the LED to turn from red to green. Gyro calibration is just a case of placing the model on a level surface, powering up and placing the main sticks into the bottom outside corners before receiving a confirmatory beep. With both models using an underside battery hatch I calibrate the gyro before every flight after battery connection and once the model is sitting on a level surface.

An addendum sheet reminds of the need to place the battery as far forward as possible although, in the AT-6, there's no space at all other than directly under the hatch and precious little more in the SF260.

FLYING

For both models Beginner Mode is the one to use if you're a nervous launcher as it keeps the wings level during those vital few seconds when your launching hand is finding the Tx sticks eyes off. Underarm is fine. Again, for both models, pitch trimming was the only adjustment needed during the first circuit, with both adopting a nose heavy attitude.

It wasn't as calm as I'd have liked for the first few flights, with a 10-mph breeze blowing down the strip. That was within the 15-mph wind speed maximum the manual states and the models coped well enough thanks to the gyro stabilisation in Self-levelling mode. That's the mode most flyers will use as it smooths out the bumps yet doesn't feel intrusive. Beginner Mode



I wondered whether the exposed aileron servo would suffer when landing but that hasn't been the case.



Although probably unnecessary, the pushrod arms can be nipped at the U-bend to adjust.

does intrude by noticeably restricting the bank angle, but then that's how it's designed to be.

Both models have very similar flight characteristics. Loops and rolls aren't possible in Beginner or Self-levelling mode unless the one touch aerobatics button is used. Press that, wait for the beep then move the aileron or elevator to prompt either a very axial roll or a very tight loop. The loops are too tight but the rolls look very nice indeed.

Expert Mode switches off the gyro leaving the pilot with a very sensitive little model and,

much like its peers in the Mini series, it's a bit too twitchy to be enjoyable.

You've probably noticed that aileron servo on the underside, it does seem a bit exposed, but gentle landings don't seem to bother it, especially as these models carry very little mass. The speed range is wide so switching to beginner mode on finals can keep the wings level while the speed bleeds away before plopping into the grass. The push-on undercarriage legs supplied are only of use when flying from tarmac or concrete and are

best left off. Besides, both models look and fly better without them.

The manual says to expect around 10 minutes flying from a full charged battery and it's not far out. Perhaps a little less in the wintry conditions I've flown these two in but very respectable still.

FOR BEGINNERS?

We had a young lad join our club last year. He'd started with a mini warbird model like this, a Spitfire of course, teaching himself to fly in the local park. Impressively, the



The SF 260 flies a little smoother than the AT-6, although there's not much in it.



They're too fast for indoor flying.
Save 'em for the park or flying field.

Although calm days are better, the electronics
cope well when there's a breeze.



My favourite has to be the AT-6.

DATAFILE

Model type:	Micro park flyers
Manufactured by:	TOP RC Hobby
UK Distributor:	J.Perkins
	www.jperkins.com
RRP:	£88.99 (both models)
Power system:	1020-size cordless motor, ESC (built into main board), 1S 400mAh LiPo
Supplied with:	Transmitter (and batteries), spare prop and spinner, USB charge lead, S-Bus lead
Transmitter range:	100 m (300 ft)

AT-6

Wingspan:	450 mm (17.7")
All-up weight:	80.5 g (2.8 oz)

SIAI-Marchetti SF.260

Wingspan:	450 mm (17.7")
All-up weight:	85 g (3 oz)

little warbird had done its job, so he was soon steering the club trainer around without any bother at all.

'Suitable for beginners' it says on the box and that's certainly the case, especially for those seeking an affordable introduction to the hobby. Beginners through to experienced pilots will enjoy flying these two. The SF 260 flies a tad smoother but my favourite has to be the AT-6 as it just looks so sweet cruising past.

They're too fast for indoor flying but are perfect for the park and any flying space on a day when the breeze can be measured in single figures.

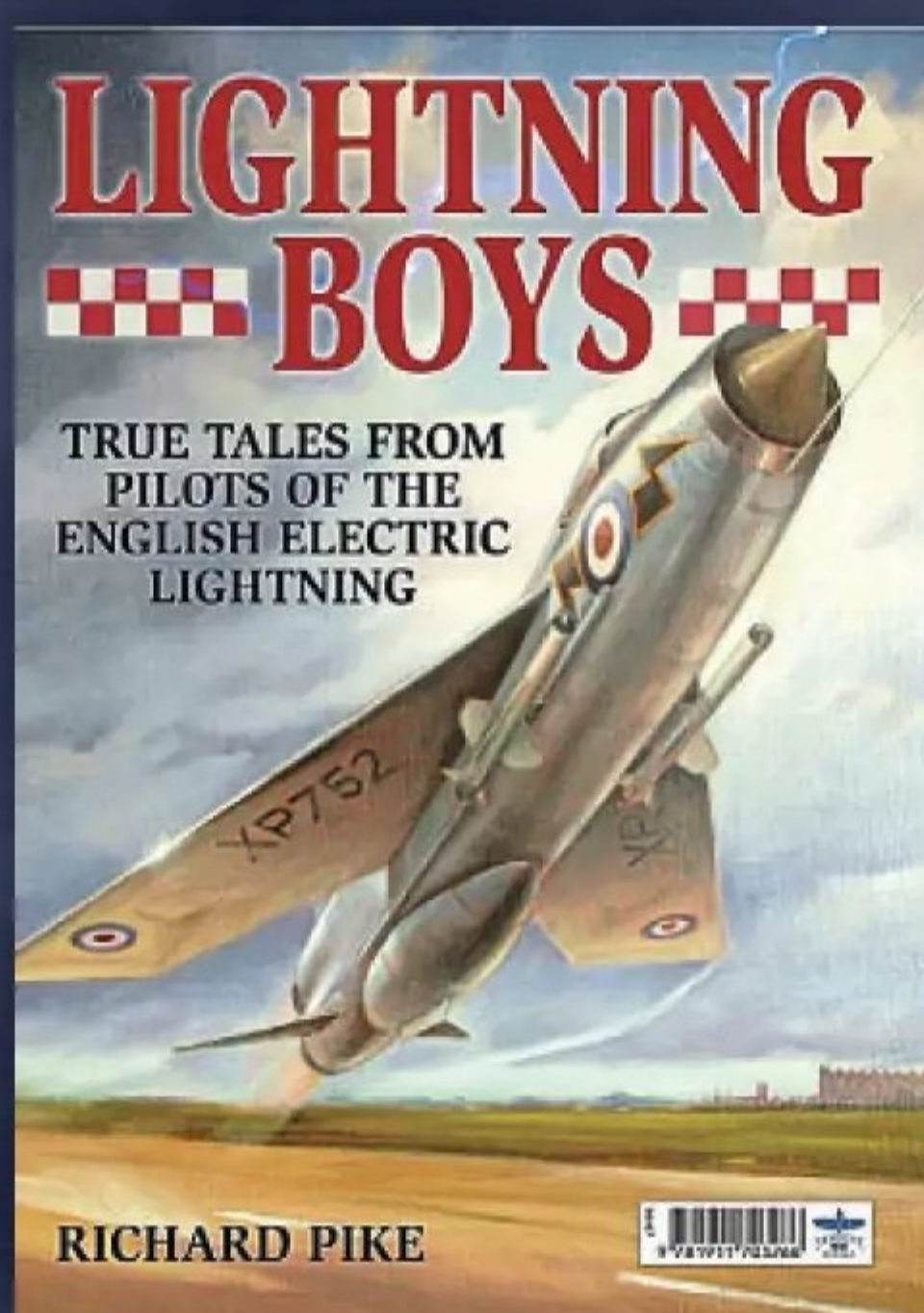
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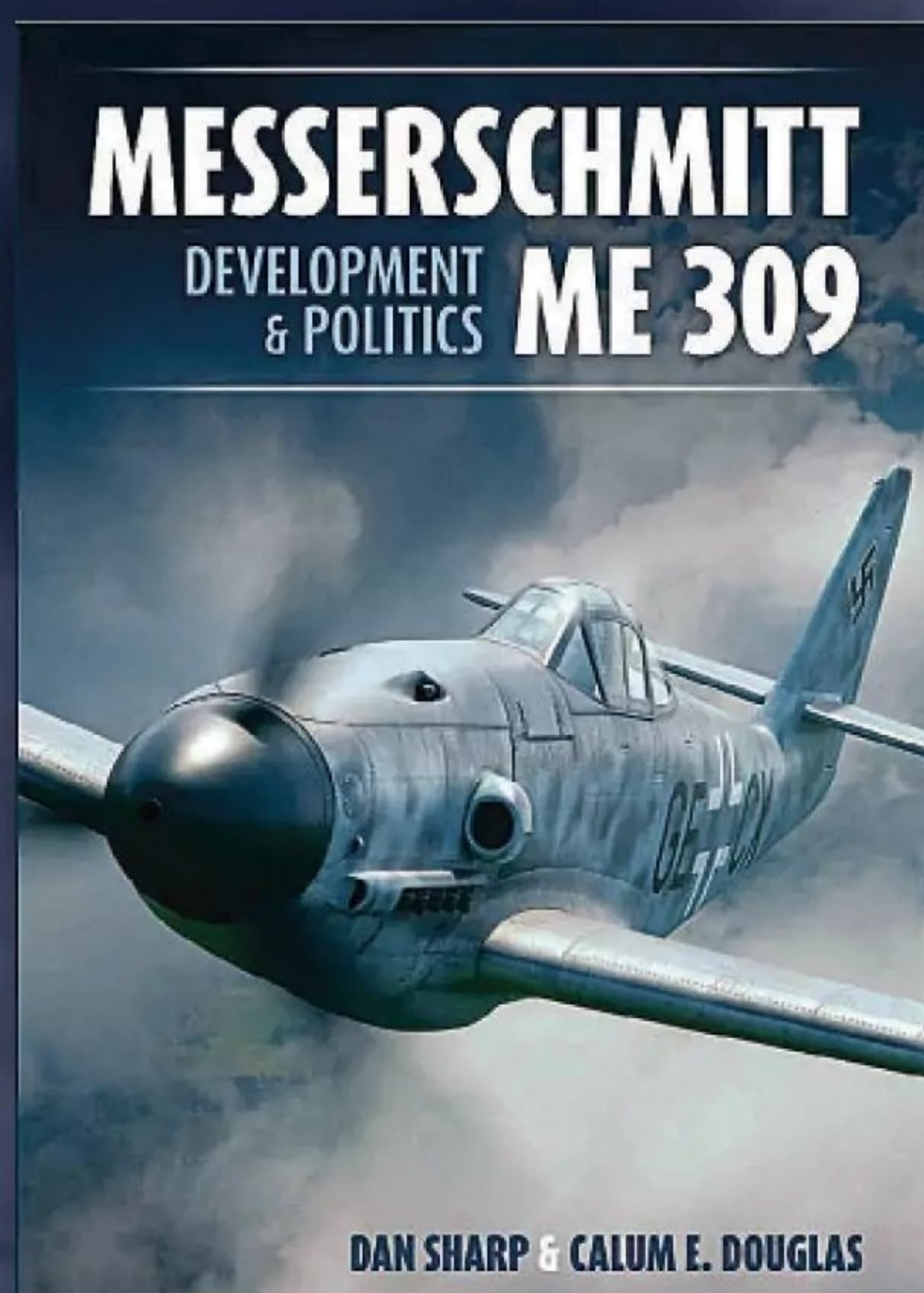
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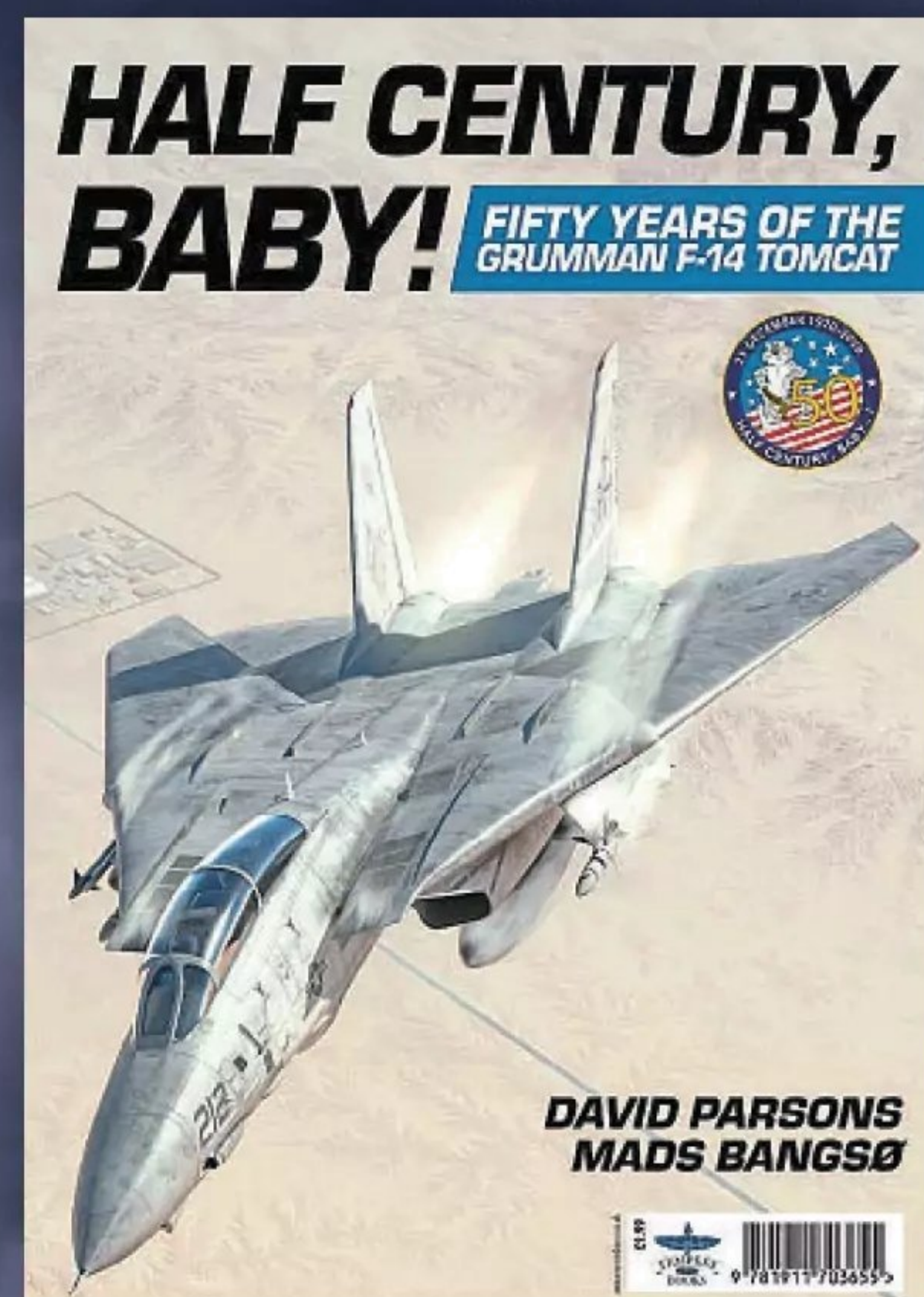
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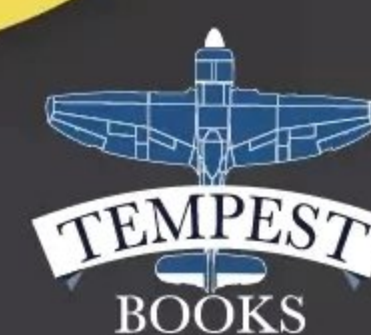
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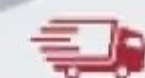
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One of the first commercial six channel UK reed sets was the ground-based ED Mk. 5 Everest. Prior to this they released a three-channel set which gave rudder using two channels and one for sequential throttle.

A MIXED BAG

This month Shaun Garrity mixes things up with a look at Reed radios, Remcon home-built sets, a flying model by Meccano and even squeezes in a mention of a modern moulded soarer!

words & photos **Shaun Garrity**

I hope you all had a great time over the Christmas holidays. I had a plan to get some festive cliff soaring done as I was going up to Aberdeen (a scant 400 miles away) when visiting my goddaughter and family. But I had a tiny problem - I failed to take the transmitter! I'm blaming it on the frantic packing of the car due to forgetting to set the alarm and waking up an hour later than planned. Anyway, at least I now know of some excellent sites for next time.

Last column's tales about my Ivinghoe gliding adventures generated some interesting emails and questions, especially about Reed

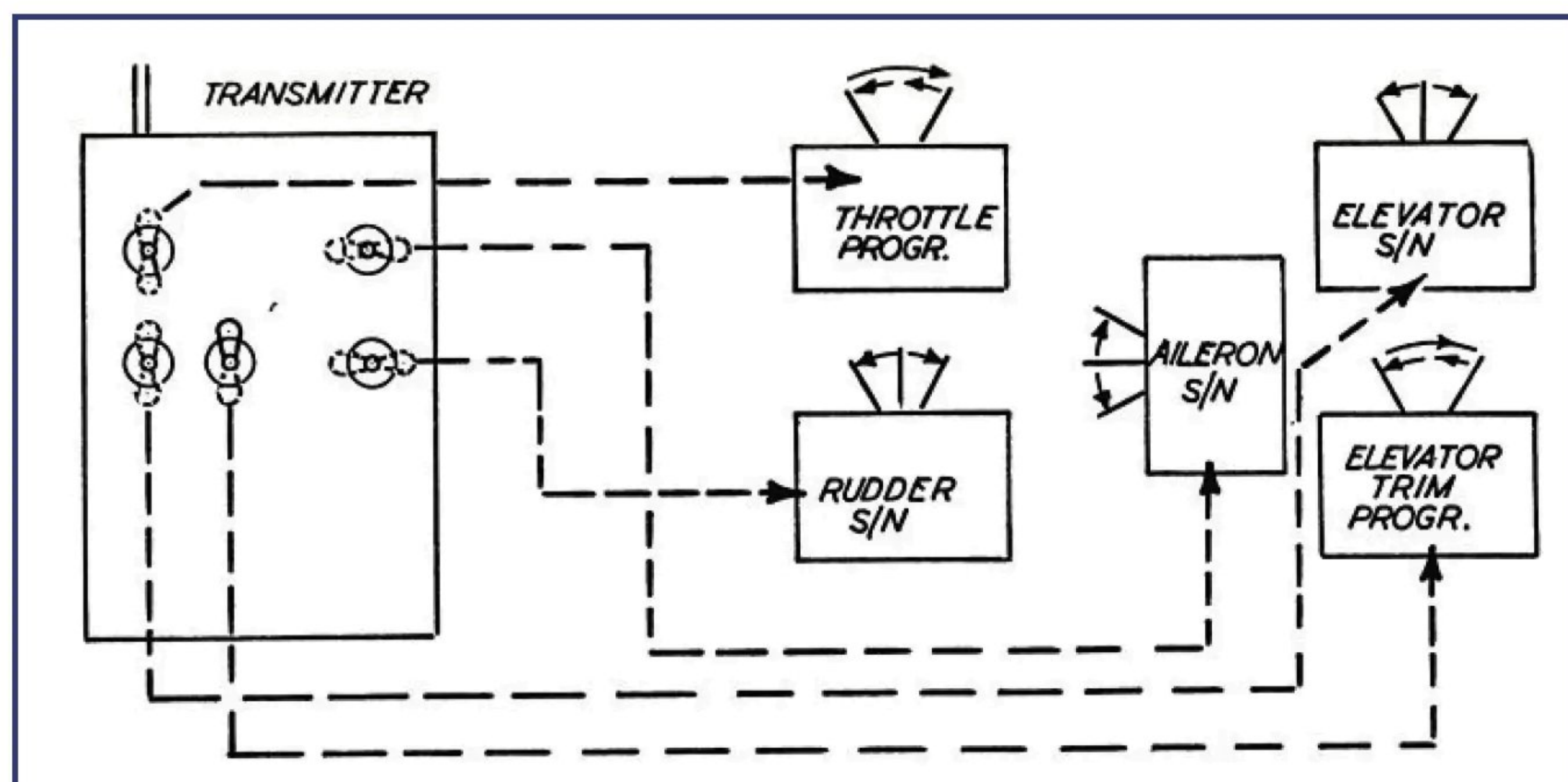
Transmitters and how they work. I have to admit to being occasionally guilty of assuming all modellers of a certain age know about old world R/C systems, so here goes...

REEDS & FILTERS

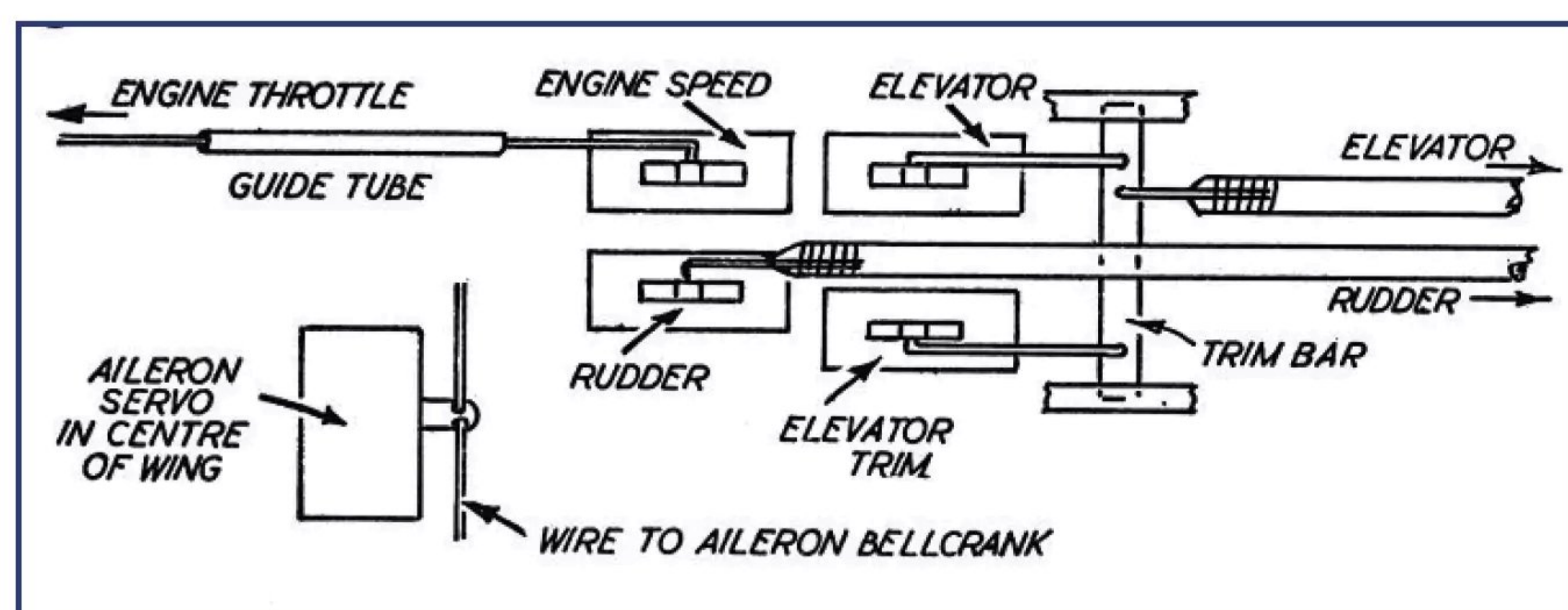
Radio control of model aircraft dates back to the mid 1930s when a number of individuals made serious attempts to develop a reliable working system. To help promote development a radio control only event was introduced in 1936 called the American Nationals and it has remained an annual gathering to date (except for a break due to WW2).



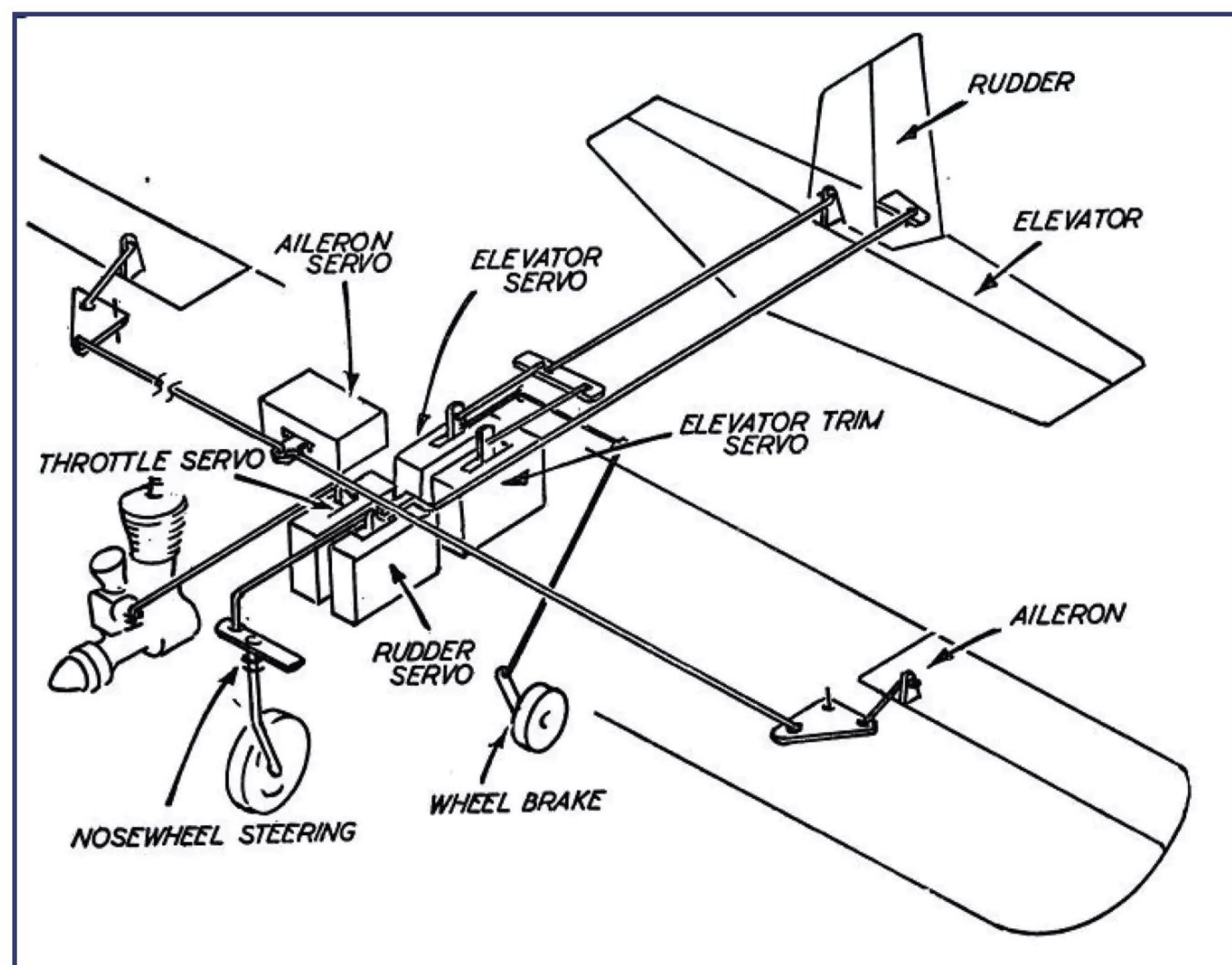
This is an excellent book if you want to find out more about Multi channel operation.



General layout of the switches on a reed transmitter.



Trim on a Multiset needed an additional servo, as shown in this diagram.



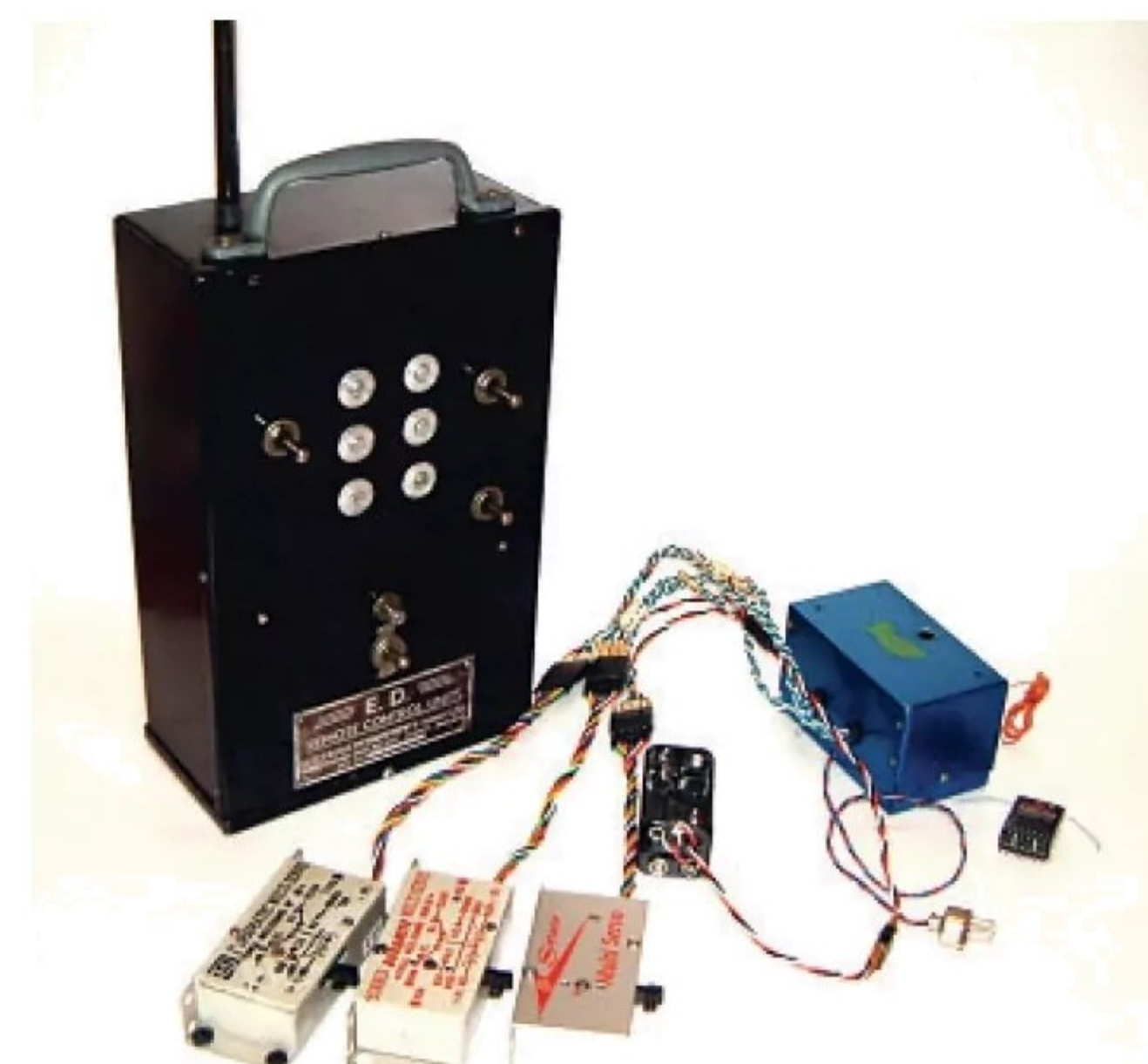
General layout of the servos and receiver in an aerobatic Multi model.

We were behind the curve in the UK and virtually nothing significant happened until the post war years. The first commercial British made equipment was made available in 1946. 1949 saw the introduction of a radio control event at our own British Nationals.

Original single channel radio was very simple. Just think of a light switch; it has two states - on and off. By using clockwork, electric or rubber powered actuators in the aircraft you could control the rudder, giving full left or right. By sequencing (chaining) actuators together and



A ready-made linkage was commercially available for Bonner servos.



The next generation of ED transmitters were handheld. Called the Black Prince it was a popular purchase for the well-heeled modeller. Available in 4 and 6 channel versions.



ED sold several parts for the home builder. From the left: a six-channel reed bank (comb), polarised relay and standard relay.



REP 3 channel receiver. Rudder control is via a Soraco servo, (basically a re-badged Bonner) and, for throttle, a Fred Rising sequential clockwork actuator.

a complicated sequence of button pressing you could potentially have rudder, elevator and throttle control, all from a single channel. This limited models to basically stable types, i.e. with lots of dihedral, and it could easily get confusing in operation.

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The Bonner Duramite was essentially the Futaba 148 of the day.

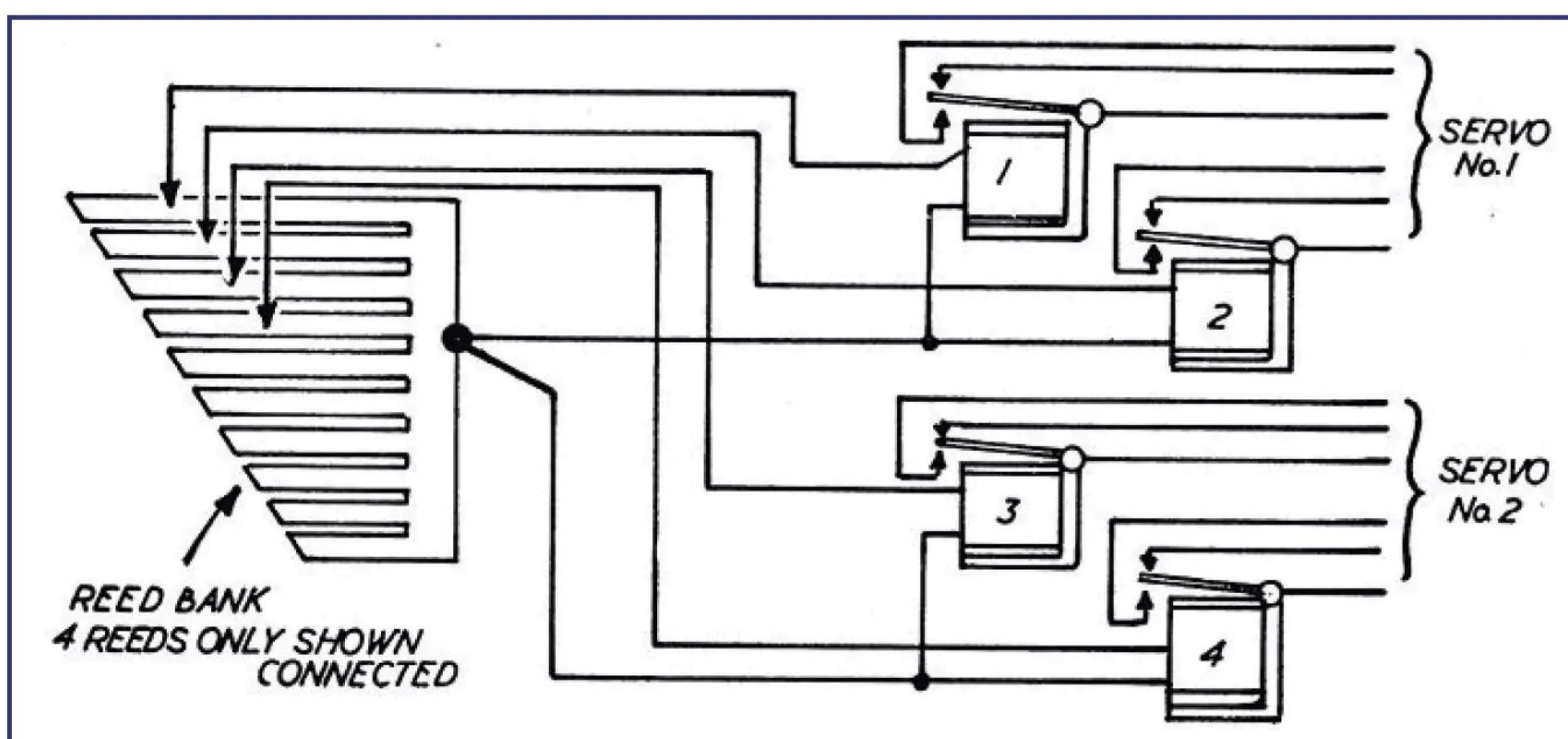


A selection of reed servos. From top left: Bonner Multi, Bonner Duramite, Graupner Bellamatic. Bottom left: RCS Multi Servo, OS Multi Servo.

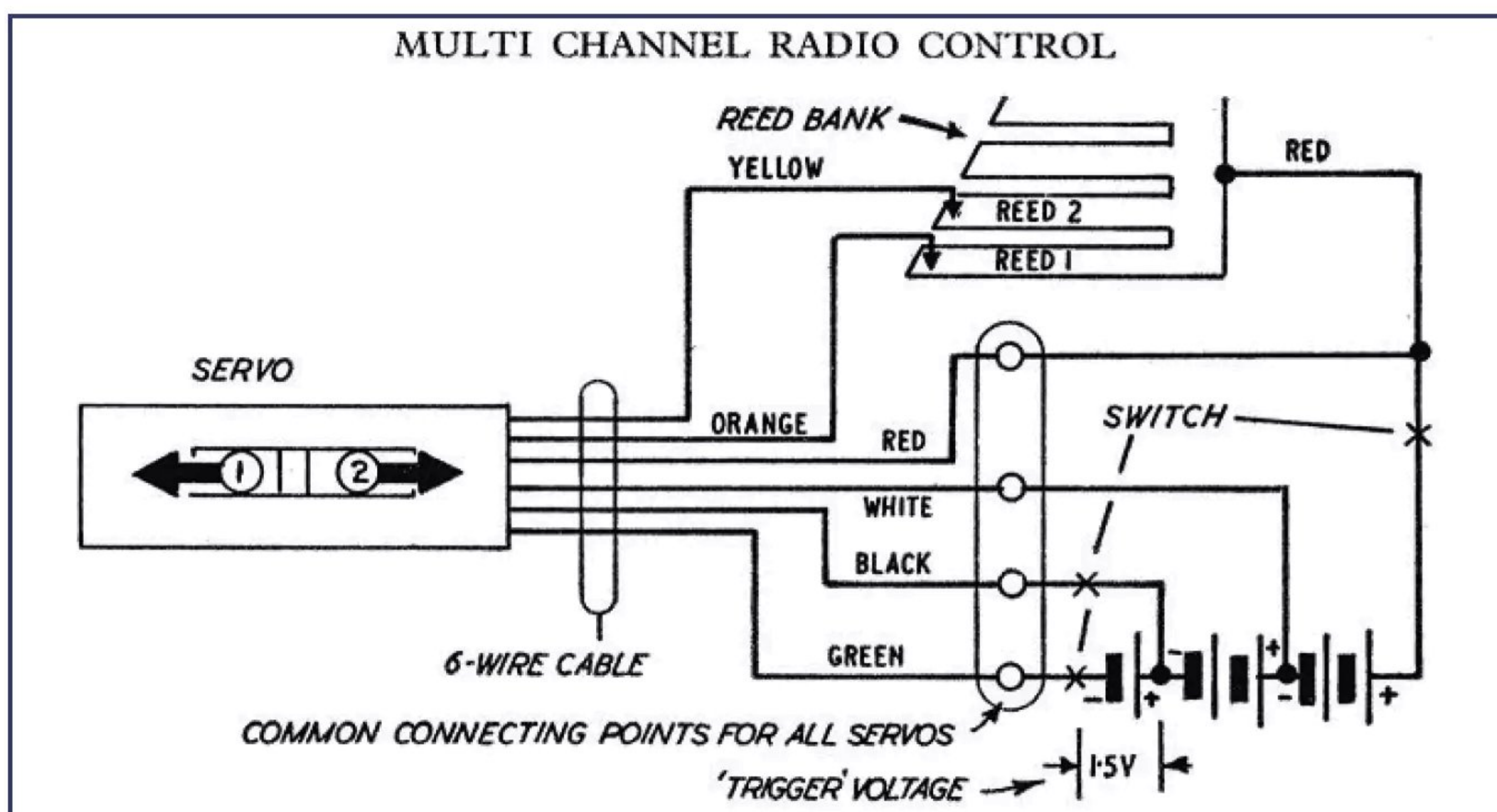
Modellers wanted to achieve complete control of all aircraft types and this necessitated more controls: Rudder, Aileron, Elevator and Throttle as a minimum. To achieve this (using the technology of the time) eight channels would be required, i.e. one for left rudder, one for right rudder, one for up elevator, one for down elevator etc. This was known as Multi Channel R/C.

The basic difference between Multi and Propo systems was Multi used a centre biased toggle switch for each control (which gave full on or off) whereas Propo uses a stick unit connected to a potentiometer that gives variable movement of the control.

Very simply, to achieve operation each of the switches (one per two channels) in a Multi set (i.e. left rudder, right rudder etc.) produces a unique tone when keyed (between 250 - 1000 cycles per second, from memory). This tone is transmitted to a receiver that has a reed bank, also known as a reed comb (see relevant image). The reed bank is essentially similar to the reeds in a mouth organ but is operated by magnetic pulses, not breath. Each reed of the bank vibrates at a specific tone so when it vibrates it closes a circuit and operates a relay (or electronic transistor switch in later versions). This then switches the relevant actuator (servo in modern parlance) in the required direction. The receiver reed tones could often be heard in the model and seasoned flyers could play simple tunes such as God Save the



In the earlier sets the reed comb was used to switch relays that operated servos such as the Bonner Duramite.



Later Bonners (known as the Transmite) had a transistor amplifier built in so smaller relayless receivers could be used and were directly wired to the reed comb.

Queen as a party trick. That was on the ground, not in flight!

Another oddity of the Multi system were the two types of actuators used, self-neutralising and progressive (also known as trim). Self-neutralising actuators were used for rudder (R), elevator (E), aileron (A) and progressive for throttle, elevator trim, flaps and retracting undercarriage. When you released the transmitter switch on R, E or A the control neutralised. This obviously wouldn't work for throttle or trim and progressive actuators stayed where last put.

Yes, I forgot to mention, there was no trim facility as with Propo, so you needed two actuators to achieve this. One self-neutralising and one progressive (see diagram showing how this was achieved). Elevator was the only control to use trim.

One other difference of reed actuators was they were considerably slower than modern servos and this was necessary to achieve pseudo proportional. If you blipped the control quickly the servo would move part way, then neutralise, giving less control. Longer blips gave more movement and consequently more control, as required for looping or rolling.

The wiring was far more complex in a reed set up, usually with six to eight wires per actuator required and various voltages from a tapped

battery pack. But there was an exception; the cleverly designed Graupner Bellamatic only needed two. Additionally, many weren't supplied with plugs, just bare leads, so you needed to be handy with a soldering iron or at least have a mate who was.

One manufacturer led the pack with reed actuators and that was Bonner and its Duramite multi servo weighing 70 g, having a stated 1.8 kg of thrust. This servo was used by many manufacturers of the time, often with their own logo put on. The Duramite was for receivers that had relays and the Transmite had electronic circuitry inside for use with newer relayless receivers.

Electronic Developments (E.D) were one of the first UK manufacturers to sell a commercial reed set up. It was a modification of their well-regarded, ground based single channel set but having a control box connected by a long lead to the main box on the ground. However, radio gear back then was expensive so home built sets were popular.

REMCON & RCM&E

In RCM&E, October 1964, details for a home-built set called the Remcon Twelve were published. Components such as the case, printed circuit board, switches, aerial etc. were available from Remcon Electronics Ltd. But



This issue of RCM&E featured probably one of the most popular kit-built Reed sets sold in the UK. Called the Remcon 12, it was known as Bi-Simul as two functions could be operated at once.

if you had the skills all the details were in the article for a full home build.

Remcon had previously published a design in RCM&E for a transmitter (Tx) called the Miniten and the Remcon Twelve was a much-improved version of it. As time went on and the product improved further, complete kits of parts, including the receiver, were sold. The advantage of home building was you could just buy the channels needed at the time, adding more at a later date as required. This kept the cost down to a minimum.

An updated Second-Generation version was again published in the April 1966 edition



My converted Versatile set retained just the original switches. The electronics used are Phil Green's nRf Arduino system. Unlike the original Remcon, this modern version has a raft of features such as servo reversing, ATV, range test, single channel emulation, inactivity timer, etc.



British kit radios, from the left: Remcon 12, Radio Modeller Simple 6 (featured in the third RM to be published) and the updated Remcon Versatile 12, which appeared a few years later as a full kit, including metalwork, switches, etc. This one is converted to 2.4GHz.

of RCM&E, with all the details required to home build the set or update your original Tx. This version was now called the Remcon Versatile Twelve.

The UK and USA went down the tuned reed path for Multi sets but an alternative system, popular in Germany, used tuned electronic filters. An interesting feature of the Graupner Variophon system was that the receiver was made up of plug together blocks to add additional channels as required, with no soldering needed. Another advantage of the tuned filter system was you could operate three controls simultaneously. Reed systems

were usually Bi-Simultaneous, so only two channels at a time.

Flying reeds is an interesting and rewarding experience and thanks to the work of Phil Green a modern version can be easily built using an Arduino based processor board and a 2.4G DIY RF module. Have a look at www.mode-zero.uk where you'll find all the details, along with lots of help and advice if required from contributors.

ARTF & RECEIVER READY ISN'T THAT NEW!

Having a dig through a pile of modelling related data sheets recently I came across



RCS Reed sets were extremely popular in the UK and sold as 'plug and go'. Available in 6, 10 and 12 channel versions.



Examples of the Graupner and Metz tuned filter sets, plus the Graupner plug together receiver allowing easy expansion of channels.

an interesting 1960s pamphlet from RipMax advertising Futaba single channel gear. Two models were shown, available in ARTF and Receiver Ready versions; a semi-scale Cessna 210 and a shoulder wing sportster called the Frontier.

The Cessna was 29.5" wingspan, with a Cox Pee-Wee 0.02 glow and their FR61 escapement pack already installed. Just add a receiver and it

was ready to go. But, as mentioned, it was also available as a bare airframe.

The Frontier, at 41" wingspan, came with an Enya 09 R/C and the FR62 Ergamite rudder pack, with the FR64 Ergamo throttle servo. Again, it was also available as a bare airframe.

I never saw either of these models back in the day and would be very interested to hear from

any modellers who took the plunge, owned one and how they performed.

This got me thinking (yes, dangerous, I know) that moulded models have also been around much longer than most modellers realise. In the 1960s Graupner had been producing a range of near scale R/C gliders featuring prefabricated fuselages from expanded polystyrene. But in October 1966 they upped their game and designed a superb 102" Foka with a moulded styrene fuselage (similar to ABS). One downside of these early moulded styrene fuselages was they required rubbing down to achieve a good paint finish, but it was a small price to pay for the convenience of having an almost finished item.

Glass fibre had been used for a while by this point and one model I remember getting as a lucky 14-year-old was the Dragon-Kraft Mistral glider fuselage. I couldn't believe the time saving but I also found a new dislike for glass fibre dust. I itched for about a week after drilling and fettling it!

Back to the present, I've finally got over my aversion to moulded models, bit the bullet and bought a fully carbon moulded F3F style, 2m slope glider from T-9 Hobby Sport (<https://www.t9hobbysport.com>) called the Screamer. There's thankfully no drilling or filing required for this superb example of modern composite wizardry and technically I'm staying true to my Retro Roots as we had moulded models back in the 60s. I will be covering the Screamer in a separate future article.



I've finally succumbed and bought a fully moulded, carbon projectile, 54 years after my first glass fibre experience that ended up with a week of itching.

FR81 CESSNA 210 WITH ENGINE AND ESCAPEMENT
A READY-TO-FLY AIRCRAFT complete with engine, plus integral tank, escapement and linkages. Wingspan 29½".

READY PAINTED WINGS, FUSELAGE AND TAIL SURFACES

QUICK RELEASE RUBBER BAND FIXING

COX 'PEE WEE' .02 GLOW ENGINE AND TANK

SPRUNG TRICYCLE UNDERCARRIAGE WITH AIRTRAP WHEELS

RUDDER OPERATED BY FR61 RUDAMITE ESCAPEMENT PACK

JUST ASSEMBLE ...ADD COMBO. OF YOUR CHOICE AND FLY..FLY..FLY !

FR91 CESSNA 210 WITHOUT ENGINE OR ESCAPEMENT

FR84 FRONTIER WITH R/C ENGINE AND SERVOS
A READY-TO-FLY AIRCRAFT complete with R/C engine and fuel tank, Rudder Servo, Throttle Servo and Linkages. Wingspan 41"

FUEL TANK AND ERGAMO SERVO HATCH

ENYA .09 R/C GLOW ENGINE

READY PAINTED WINGS FUSELAGE & TAIL

RUDDER OPERATED BY FR 62 ERGAMITE SERVO PACK

SPRUNG TRICYCLE UNDERCARRIAGE WITH AIRTRAP WHEELS

THROTTLE OPERATED BY FR 64 ERGAMO SERVO PACK

JUST ASSEMBLE..ADD COMBO. OF YOUR CHOICE ... AND FLY.. FLY..FLY!

FR94 FRONTIER WITHOUT ENGINE OR SERVOS

Two of the very first RTF, receiver ready models available were sold by Futaba.

MECCANO MODELS THAT FLY

While sorting through the aforementioned pile of data sheets I came across a Meccano Magazine from November 1969. Most modellers over 50 years old must have owned this great toy as a youngster and you may well be wondering how strips of metal, brass gears and various shaped metal plates could be made to fly. Well, they couldn't, but this particular magazine had plans for a 44" wingspan single channel trainer called Cracker, designed by Vic Smeed. The free plan had the traditional look of the ones often included in Aeromodeller, with a materials list and further construction notes printed on the sheet.

Interestingly it also had articles on mopeds, motor bikes, scooters, full sized aircraft, a feature on London's new container port, the

story of oil, postage stamps, the Suez Canal, along with a few Meccano construction features - certainly not what I expected! This format obviously worked though as it was first published in 1916 and ended in 1981. Not a bad production run at all.

NEW LEMONS

I've been a fan of Lemon products for several years now. In my experience they have been well manufactured, reliable, feature rich and offer superb value for money. Many of my retro Tx conversions have used their DIY RF modules and I've been 100% happy.

I recently saw advertised a new Gen 2 version of their 2S LiPo capable DSMP seven channel receiver that can now be easily programmed when using certain Spektrum and Radiomaster transmitters.

It features a triple axis gyro and integrated Barometer with Vario, Altimeter, Energy Meter (requires V/I sensor) or voltage probe. There is also a socket for an optional satellite Rx to further increase its diversity capabilities. I got mine from **Lemonrx** on eBay. I've used this seller previously and had good service. I would suggest downloading the data sheet to confirm the product meets your expectations but at only £26.79 it's an absolute bargain.

I've not flown it yet (the weather has been truly dire of late) but based on past experience I'm not expecting any issues whatsoever.

Keep building, keep flying and keep enjoying this great hobby. As always send your stories, pictures etc. to me at: aeromodeller@gmail.com ■

MECCANO NOVEMBER 1969
Magazine

★ Lighthouse Feature ★
★ Stamps ★ Battle ★
★ New Dinky Toys ★

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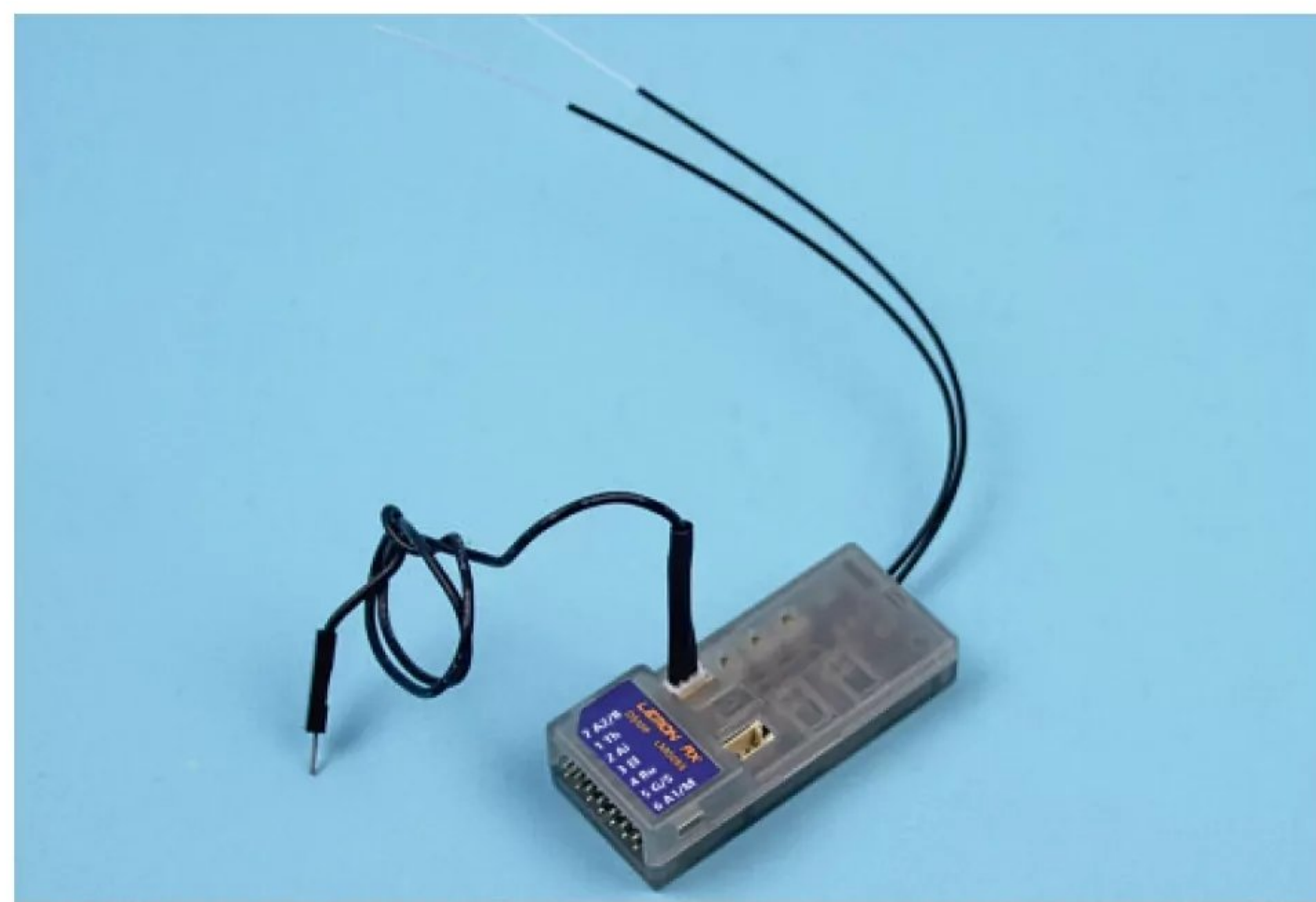
MAP HOBBY MAGAZINE

RADIO 4-2
FREE
R/C AIRCRAFT PLAN

THE PRACTICAL BOYS' LEISURE TIME MAGAZINE



Finding a balsa model in the Meccano magazine was unexpected.



The latest seven channel Gen 2 Lemon receiver with 3 axis stabilisation and telemetry sensors built in, for less than £30.00. Amazing value.



I loved Simon Ilsley's Kingfisher, built from an enlarged Brian Taylor design.

BEST OF BRITISH

Danny Fenton joins the crowds at a late summer gathering of (mostly!) British designs

Words & photos **Danny Fenton**

September 27th to 29th, 2024 saw many modellers congregate at the BMFA National Centre at Buckminster for the Laser and Best-of-British Fly-in. And what a magic event it was too.

This fly-in obviously caught the imagination of many aeromodellers and the Saturday, which was the only day that I managed to attend, was really well attended. A sprinkling of trade was very welcome too, with SLEC, Inwoods and Fighteraces keeping us topped up with essential winter building materials.

MASS BUILDERS

I had a wonderful time catching up with modellers that I hadn't spoken too since before the pandemic. I really should try and get to more relaxed events and not just confine myself to the scale competitions.

I must say it was good to see so many RCM&E forumites who were out in force. Some were taking the opportunity to curse me for the Chipmunk and Fury Mass Builds that we ran a few years ago as they were still working on their models! But thankfully, they were still enjoying them.



Typically British! A classic high winger towing an England banner.

Talking of the Hawker Fury, it was good to see Richard Dalglish and his model. I was

impressed how well it flew, reminding me that I must get mine flying.



This large KK Falcon (very large!) spent several hours floating high above the strip minding its own business.



SLEC now incorporates Belair Models.



Inwood Models stand in the Goldsmith Hangar.



Tony Nijhuis brought along several bare balsa EDF designs which are still in development. The Concorde was particularly nice.

“...it was good to see so many RCM&E forumites who were out in force”





Richard Dalglish's lovely Hawker Fury built from the Denis Bryant plan. Laser powered.



Ofcourse, there had to be a Chipmunk!



Also from the GB Scale Team, Mathew Dawson flew his Laser 200 V twin powered Black Horse Sea Fury.



I am sorry that I failed to identify the modeller who flew this lovely Fokker DVII.



Another member of the WW1 squadron pulls off a stunning downwind dead-stick landing with his Fokker Dr.1. Very impressive!



This delightful Flair Puppeter was flown with aplomb.



Another classic Flair kit patrols the skies.



As always, these events are about the socialising and not just the flying. These pictures, and the remaining flying photos, show some of the many and varied models that took part.



It's always lovely to see Brian Seymour fly his Macchi 202.



Richard Dalglish's lovely Corsair, built from the Brian Taylor plan.



Nick Somerville brought along his lovely Fw 190. Nicely flown, Nick!



Martin Collins flew this lovely Max Holst Broussard.



John Rickett flew his recently refurbished Chrislea Super Ace.

ACE SUPER ACE

It was nice to catch up with John Rickett, who brought along his lovely Chrislea Super Ace. John had recently given the model a refinish. When he first built the model, he also owned the full size and told me that he felt he had no excuse for not getting it right! John flew it superbly at a lovely scale speed. The model spans 120" (3.05 metres) so is 29% scale and weighs 28 lbs (12.7 kg). Power is from a Laser 180 (single) with a wooden 19" x 8" prop. Radio is Futaba, using all analogue servos.

The Super Ace is now 20 years old and is one that John kept a flight log for. It had recorded 365 flights up until being withdrawn from service due to failed fuel proofer, cracked and sagging covering and a few





This twin caught my eye and shows the diversity of designs that the event attracted.



This AcroWot XL flew well, as do all of Chris Foss's designs.



Chris Walby flew this Tigercat, powered by a pair of Laser FT-320 flat twins, with great authority.



Nigel Nixon, fresh from competing at the Scale World Championships in Romania, gave us a demonstration of his precise flying skills when flying his Phoenix Models 2.5 metre Tucano.

internal breakages. A bit like all of us when getting old, really!

Over the last year all the covering was removed and most of the yellowed glazing was

replaced. It was recovered, exhausting John's remaining stock of Koverall, and repainted using automotive 2K paint. The Laser engine has always powered this model, so it was

treated to new main bearings (Paul James did the job).

Saturday's flights were the first since the restoration was completed. John says it was a bit daunting flying with the others while trying to get the trims right and listening for any tell-tale signs of an unhappy engine. But it didn't end in tears so that was okay. It has a quirky characteristic of putting its nose down under power and back up again on power reduction but coupled throttle and elevator has helped tame it.

OTHER TREATS

Nigel Nixon flew his lovely Tucano. This aircraft shows what can be done with an ARTF. The model started as a green and yellow Brazilian schemed Phoenix Models 2.5 metre Tucano. Nigel had to make a new, more accurate cowl and a myriad of other changes, not to mention applying this wonderful Jubilee colour scheme.

There was a terrific WW1 contingent. This friendly group flew several times and it was wonderful to see such a large gaggle of fighters whirling around the skies. Several were built from Dudley Pattison's Flair kits.

The remaining pictures feature a selection of other models that caught the eye.

As always if you want to drop me an e-mail, I can be reached at cammnut@gmail.com ■



BMFA NATIONAL CENTRE AUCTIONS COMING SOON

March 8th

- Collectible engines and kits - over 300 lots of collectible aeromodeling items as well as modern engines and kits.
- Broadcast live on line - remote bidding only

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- Airframe and accessories sale - over 300 lots of brand new in box and new/unflown airframes and accessories.
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The first kit to be released will be the Howard DGA-3 "Pete," a 4-channel model with a 40-inch wingspan, designed for electric power.

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SMALL STUFF

David Ashby finds some modern parallels in a pile of old magazines and flies a recent acquisition

words & photos David Ashby

A recent purchase, Seagull's Magic Bird is the cheapest balsa ARTF they make.



I think that's called packing 'em in.

I love leafing through old model flying magazines, which is just as well because the club donations I was talking about last time also included a very big pile dating to the late 1980s and 90s. Along with plenty of good (still relevant) reading, I'd forgotten how old mags also offer the inestimable pleasure of seeing friends and well known hobbyists from the good ol' days when they had hair. Some were barely recognisable.

From the same period do you remember The Small Models Association? Back then models were getting bigger and the SMA was a little bit of reactionary fun. It wasn't a real association, rather a tongue-in-cheek device, the creation in Peter Miller and Dereck Woodward's scribbles in RCMW magazine and referenced in Radio Modeller and RCM&E too. You could become a non-member if you so wished and the only rule was that there were no rules. In the USA, its equivalent, the Small Model Airplane Lovers League took things a little more serious and had a governing precept dictating that any and all power sources must be no larger than a .26 cubic inch displacement glow engine. You get the idea.

SMA non-members met at Old Warden for flying and even had a logo that appeared on



Peter Miller's first published design dated to 1974.



MAK15 was his last and appeared in the July 2024 issue of RCM&E.

His first was published in 1974. Appearing in *Aeromodeller*, that was a pretty 36" span control line biplane for .25-size engines called Dutchess. In the succeeding 50 years he got to just shy of 200 published plans, not to mention five books, hundreds of articles and reviews and other bits and bobs for just about every UK model flying publication over the period, including several in the USA.

Aside from his prodigious and unmatched output, I always found him very down-to-earth, easy to chat to and work with when I occupied the editor's chair. He was a regular and helpful presence at modelflying.co.uk, RCM&E's online home, and just a super gentleman. He'll be much missed.

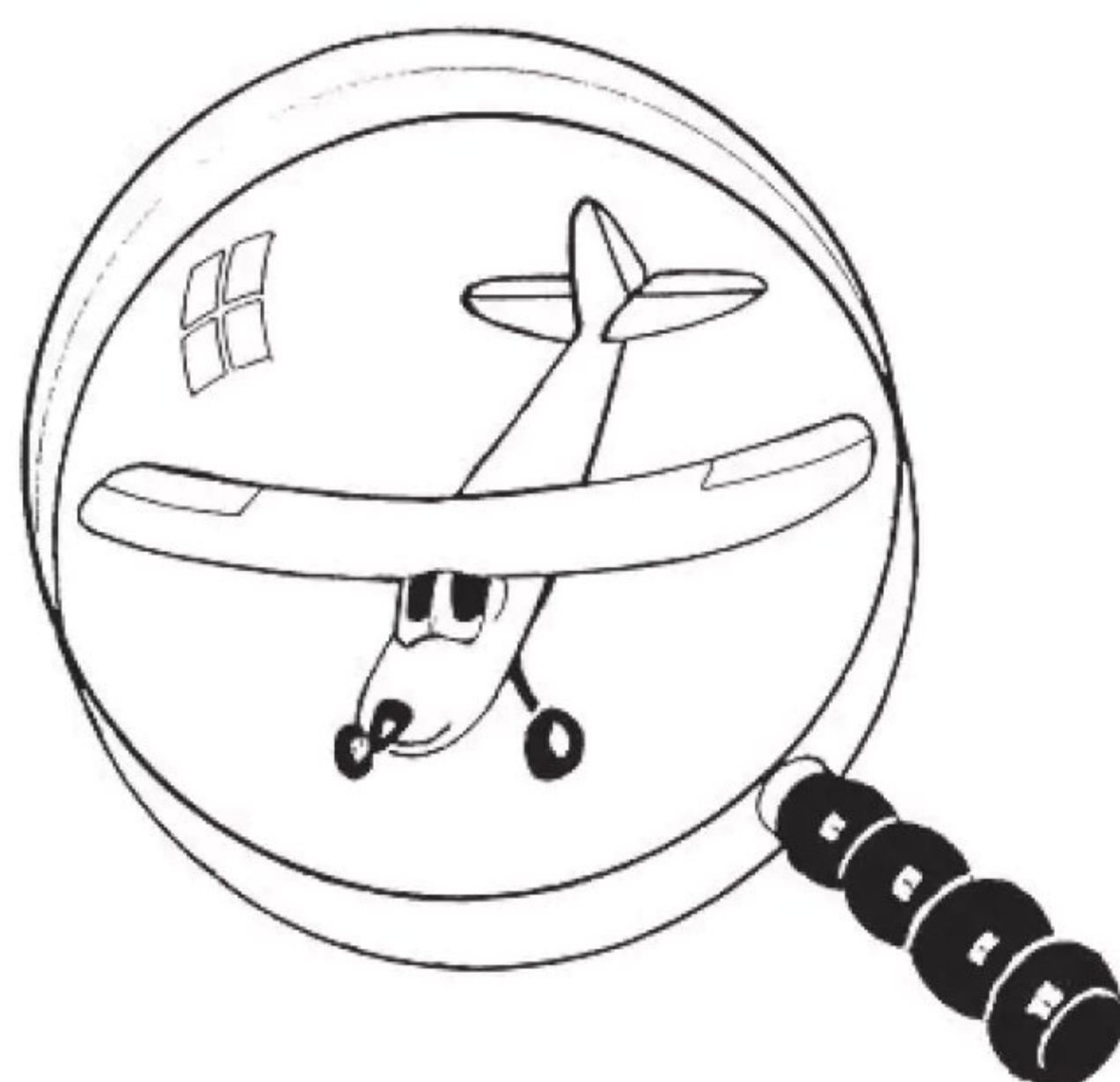
"The Lidl glider needs no introduction. I described mine in the September 2024 issue"

SMALL IS BEAUTIFUL

Small models, building your own small balsa models that is, has a lot of benefits both in terms of construction and flying. For starters, they're usually easy or relatively easy to build. They're quick to build too, so, unlike a three-year monster scale project, provide a sense of satisfaction within a reasonable amount of time. Pretty cheap and easy to repair, they also allow for creativity and experimentation without the worry that if anything goes wrong it's cheerio to £300 plus worth of balsa ARTF or RTF foamie.

I seem to be going through a small models phase myself at the moment. It started with a Lidl glider conversion, then moved on to a Limit EX slope aerobat. The Lidl glider needs no introduction; I described mine in the September 2024 issue and, many outings later, I am still amazed how well it flies. At £7.99 the fun-per-£ ratio is unequalled, especially if you already have a few bits of R/C gear lying about to go in. Better still, and despite plenty of 'flying adventures', it's a tough little thing and shows barely a scratch after hours of abuse. If proof were needed several flyers at my local slope have made one to the same spec' and often join me for a spot of Lidl combat. Great fun made even better knowing it costs next to nothing.

Limit EX was designed by Julian Beckett and the plan was published in this magazine some 20 years ago. Spanning 18", it's an all-balsa, V-tail slope soarer for ailerons and elevator. ➔



Anyone remember the Small Models Association?

their models and a few plans around that time. There were favourites too such as Dereck's 'Bit' series of stab-less designs that you still occasionally see and, along with many others, these days can be found at Sarik Hobbies.

PETER MILLER

It was very sad to hear that Peter had passed away in early November. I'd only chatted to him a few weeks prior when, knowing he kept a list, I checked how many designs he had produced.



My Limit EX. I still can't decide whether I like it.

I built mine over a rainy summer weekend, preferring to build up the wing as an alternative to the cut foam section Julian describes. Oralight finished it off.

Julian's build notes are online at modelflying.co.uk (just pop the name in the search box) and for good reason he mentions the perils you'll encounter with even a slightly rearward C of G. One thing to appreciate with small models is how very fine C of G adjustments can make a big difference to the flight performance. Long grass saved my model during its first flight. One moment it was banking gently across the slope front, then, with a smidgeon too much elevator, it wasn't. Five grams in the nose brought the stability required, although it remains a very agile little thing with a particularly zippy roll rate. It doesn't bounce like the Lidl glider but with an 'all-up' of 180 grams there's little mass to carry to the crash site and it is balsa, so easy to repair. It seems to prefer smoother air and I've learned to avoid the slope edge where even a smidgeon of turbulence can spoil the day. In truth I still can't decide whether I like it or not.

DUAL RATES

Going back to that pile of old magazines, the late Peter Russell's 'Straight and Level' column in RCM&E was always (and remains) very informative. The early 90s were a time when transmitters were becoming 'computerised' so flyers were encountering new features for the first time, those we now take for granted, dual rates, end point adjustment, exponential and so on. Peter seemed pretty sceptical about the benefits dual rates brought to the party but devoted plenty of column inches to the subject, where his readers debated the feature.

We were discussing dual rates at the flying field the other day. For relative newcomers who may not know 'dual rates' is an electronic

facility that reduces or increases control surface deflection at the flick of a switch. Usually, one switch is allocated to each control surface, but some radios will group multiple surfaces onto a single switch. The typical usage scenario pilots will cite is to reduce deflections to manage high speed flying, or to increase control authority to manage slow speed moments, perhaps when landing or through some aerobatic manoeuvres such as stall turns, flick rolls and so on.

I know flyers who always set dual rates before a maiden flight as a way of managing anything unexpected that a new airframe may present. But I've also seen pilots become confused when trying to manage multiple rate switches eyes off. Perhaps I'm lazy but I just can't be bothered to mess about with dual rates, so I asked my flying buddies whether they had. A near universal 'no' was the response from sport flyers, competition glider pilots and turbine jet pilots, with the exception being a few extreme aerobatic and 3D flyers who use high rates to provide greater control authority at slow speeds, when hovering or if large aileron deflections are blanking the tail surfaces and reducing their effectiveness.

Mind you, some 3D flyers achieve the same thing by increasing stick sensitivity at the centre, a reversed exponential if you like. These days most sport flyers find exponential (an electronic way of increasing or reducing stick sensitivity) far preferable to dual rates as in-flight switch fumbling can be avoided, although I think it's important not to use exponential for a maiden flight. It's better to see how the model flies without electronic aids as you may find they are simply not needed.

MAGIC BIRD

Every now and then I see something that appeals, the inertia is too powerful and, whether I have space in the shed or not, well... You know what happens next!

The Magic Bird is a recent example. It's made by Seagull in Vietnam, imported by J. Perkins and is an attractive 45" span low-wing racer



Exponential is usually used to soften stick response at the centre but 3D flyers can be the exception.



Sorry if it sounds terrible but I really can be bothered with dual rates. The two main sticks are plenty enough to occupy me.

Seagull's Magic Bird racer styled sportster just said, 'Buy me!'

"The kits come well equipped. This one has a fuel tank, spinner and wheels"

style aerobat. At around £160 it's the cheapest ARTF kit Seagull produce and is available as a balsa PNP in the USA, with pre-fitted servos and power system, but a standard 'fit your own stuff' ARTF kit here in the UK.

The phrase 'well-made but a touch heavy' pretty much sums up the many Seagull models I've assembled and flown over the years. Generally, the designs always fly well but, despite the inclusion of electric conversion kits and accessible battery hatches, often leave the feeling that they're made with a sturdiness and weight better suited to IC power.

Seagull has produced some exceedingly popular models and many flyers miss the discontinued range of lightweight designs for electric power that came along in 2007, not forgetting the scale gliders too. Perhaps transportation economics and disrupted balsa supplies have played a part as releases over



These are the stock wheels that I've since replaced.



It screws together easily enough though.



It's very Seagull. Well-made but perhaps a touch heavier than I'd like.



My electric powered version tracks really well and all the standard aerobatic moves fall easily.

the last few years have tended to be larger and pricier scale subjects, which makes this Sunday club sportster so welcome.

The kits come well equipped. This one has a fuel tank, spinner and wheels, although, in this case, you'll soon be consigning the spinner and unforgiving solid foam wheels to the bin

in favour of better items. In my case that meant a metal back-plate spinner and low-bounce Dubro tyres. The spinner supplied is intended to suit IC engines really and with higher RPMs, electric motors need something a bit better.

Whether IC or electric those replacement wheels are particularly important as

the undercarriage legs provide no shock absorption whatsoever. So even careful arrivals can prompt a series of entertaining bumps down the strip.

Assembly is typical ARTF fayre: cyano hinges, epoxied tail feathers and bolt-on undercarriage. Fitting the motor and cowl is the time-consuming bit where a bit of care is needed so I tend to knock that on the head first before breezing through the rest. My electric set-up was pretty much what I had spare, so an E-flite Power 25 outrunner spinning an 11 x 6" prop, a 60A ESC and a 4S 2200 – 2700 mAh LiPo battery. The large, removable canopy means battery changing and maintenance are straightforward.

That power system measures 300W and 24A peak so, on paper perhaps not quite enough for a 4 lb model. But at around 6 minutes endurance isn't too bad (those Power motors were always very efficient) and the set-up delivers a respectable flying repertoire. It doesn't punch holes in the sky but there's plenty of power for all the usual aerobatic manoeuvres and the roll rate is fast with aileron deflections at +/- 12mm.

Much like some of the other racers I've flown it tracks well, holding a good line through sharp turns without the worry that the nose will dig in. Inverted flight is trouble free and it shows no inclination to nose over when landing if you lean on elevator a tad, which you can thanks to the safe slow speed handling. With the suggested control surface deflections, 20% expo across ailerons and elevator suits me.

My comment about weight does apply in this case. It feels a tad heavier than it needs to be but it's certainly strong, a nice size, it looks good



Nice scheme too.



Futaba's new 26SZ system represents an evolutionary step up from the 18SZ.



The main screen is identical to the 18SZ, the menu layout also.



A sub-display shows timers or telemetry info but not both at the same time.

and flies well, with safe, vice-free handling when the speed drops off.

FUTABA 26SZ

I took the plunge a few months ago and bought Futaba's latest release, their higher-end 26SZ transmitter. Editor Kevin reviewed it in the December 2024 issue you'll recall.

Despite testing other systems for these pages over the years, a succession of Futaba transmitters have guided my models since the late 1970s. People often ask me why I haven't changed and, apart from being a creature of habit, I can only put it down to the sticks.

The sticks are a model flyer's main connection with the model so the feel, that intangible link they provide, is paramount. Other systems may

have a few more bells and whistles but, for me at least, none have managed to improve on that 'feel' and so dislodge Futaba's hold over my wallet.

I like the 26SZ. It's not perfect, no radio ever is. In particular the process to create and allocate .bmp image files to each model memory is an absolute faff. Few users will bother, so here's hoping a future software upgrade introduces the ability to add jpegs. The main screen and menu layouts are identical to the 16IZ and 18SZ, and model memories can be moved across from these systems using an SD card, although the 26SZ uses a micro-SD so the process takes a little longer if you're transferring data from the 18's standard size SD card.

That upper sub-screen means a neck strap won't impede information gathering, although

Futaba's sensors and timers provide audio feedback which is my preference. It would be nice if both a timer and a sensor info were displayed at the same time on that upper screen so, again, here's hoping a future software upgrade takes care of that.

For 18SZ users seeking an upgrade it represents an evolutionary transition and, most important for me at least, some very nice sticks. If you're considering the 26SZ then take a look at Matt Takhar's excellent YouTube channel where his recent videos examine several aspects of 26SZ use and compare it to Futaba's other systems.

That's it for now but, till next time, I'm at justforfunrcme@gmail.com so do drop me a line and tell me what you're up to. ■



Although the steps described in this article relate to designing a semi-scale model, they are also applicable to sport models like Lindsay's 'Kestrel'. Find a 3-view drawing of an aircraft you like, in this case a parasol wing plane, scale it up as required and change the outline anyway you choose.

DRAWING A PLAN

One of RCM&E's favourite model designers, Lindsay Todd describes the first steps in drawing a plan for a semi-scale aircraft

Words & Photos **Lindsay Todd**

Where to start? Well, I guess the real answer is a desire to create and finding a subject matter that inspires the challenge for drawing a plan. It is not so difficult as it might first appear as it is just a series of logical sequences and requires some basic geometry. In practice we can create a plan from any item that shows itself in, ideally, three views such that we can visualise it in three dimensions or, if you like, a solid form. This can be from an existing drawing, photographs, a solid model or even your own sketch. All can be configured and drawn out to an appropriate size suitable for our purposes.

Do I need CAD? That's easy to answer - no, you don't. CAD is simply a tool which has replaced paper, pencil and a drawing board for many designers and draughtsmen for lots of reasons. But almost all CAD designers and draughtsmen have learned the basics of technical drawing beforehand with pencil, paper, a ruler and a protractor.

THIRD ANGLE PROJECTION

With some basic geometry skills, we can learn to draw in what is known as third angle projection, which has been a standard arrangement since

the 1940s. It lays out an object in a specific way such that it can be interpreted as an engineering drawing. Adopting this method early on means we keep consistency in our drawings and clarity for everyone else as we draw a plan by a set of rules.

The basic arrangement in Figure 1 shows a central side view, above that a top view, below a bottom view, to the left a front view and to the right a rear view. The drawing format is often defined as being third angle projection by a specific symbol showing two sections through a conical form.

So why do I need to draw a plan? Well, really it's driven by the need to produce an accurate outline of the subject matter and produce constructional details and notes that can be referenced during construction. The nature of the 'design' defines the complexity required, so whilst a basic arrangement may suffice for one's own purposes to 'jog the memory' more detail is required if a plan is to be used by third parties, such as the pull-out Pro-Plans in RCM&E where a supporting article and photographs help with interpretation of the construction process.

It is also a fundamental step in the design process to undertake consideration of construction techniques, physical constraints

relating to size and weight, as well as analysis of practicality and performance characteristics. For a model aircraft this might be the physical size and weight of servos, an engine or electric motor and batteries in relation to an airframe's size and the ability to locate them in a position such that a flying model is possible. For example, can we achieve a calculated Centre of Gravity (CG) position without the need for excessive weight and can we fit servos in appropriate positions to ensure the correct function of control surfaces. 'Tweaking' a plan is easier than changing a partially completed model as it doesn't waste either building time or money, not to mention the frustration involved.

CENTRE LINE

All good plans start with a straight line. This is what is known as a datum line or centre line, often shown as a dashed line with a combination of long and short strokes, as shown on the third angle projection image in Fig 1.

From a practical point of view this may be a natural point in the shape that has a change of section, or a natural seam line or even a normalised thrust line. Often it will be incorporated into a natural construction

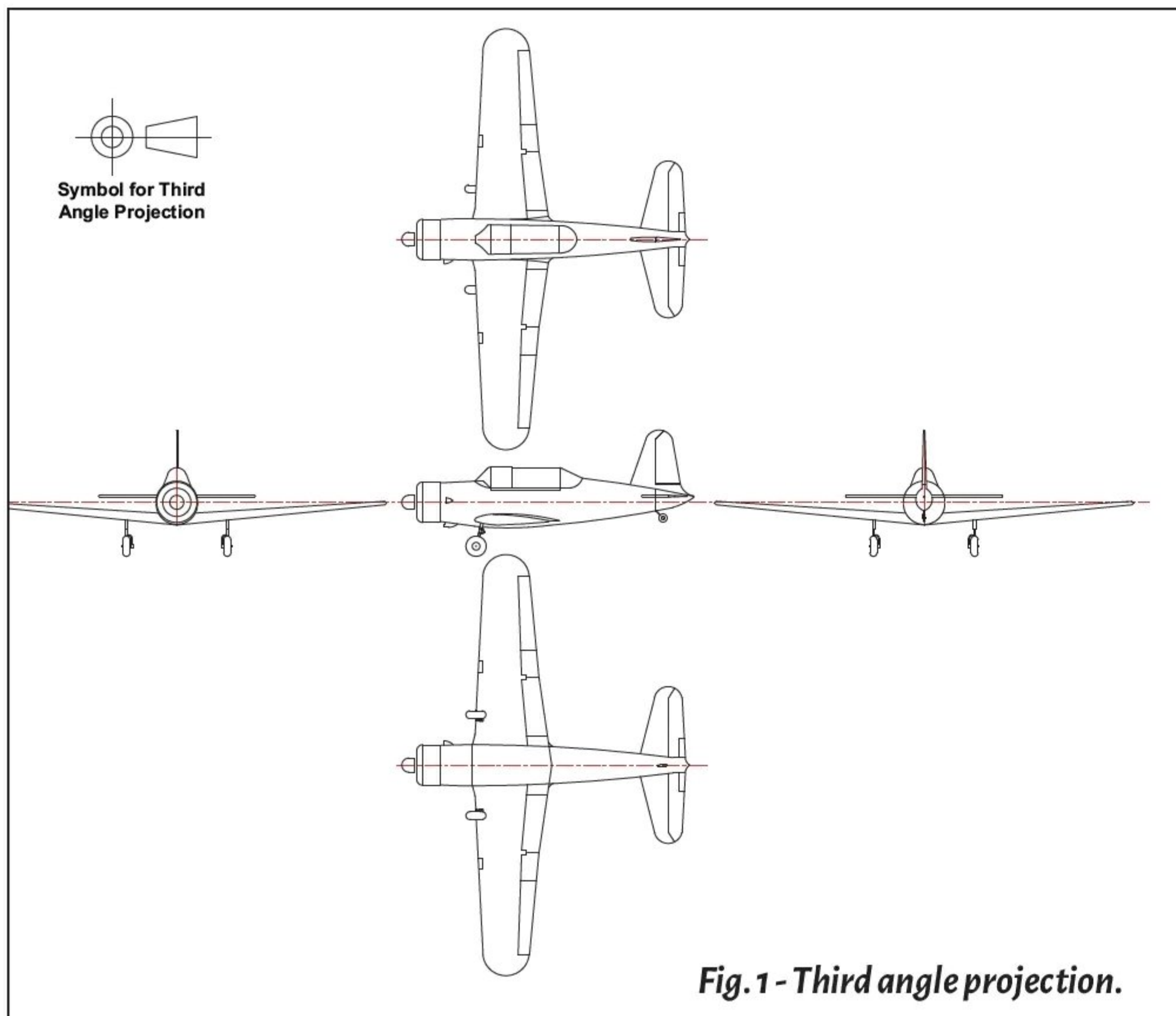


Fig. 1 - Third angle projection.

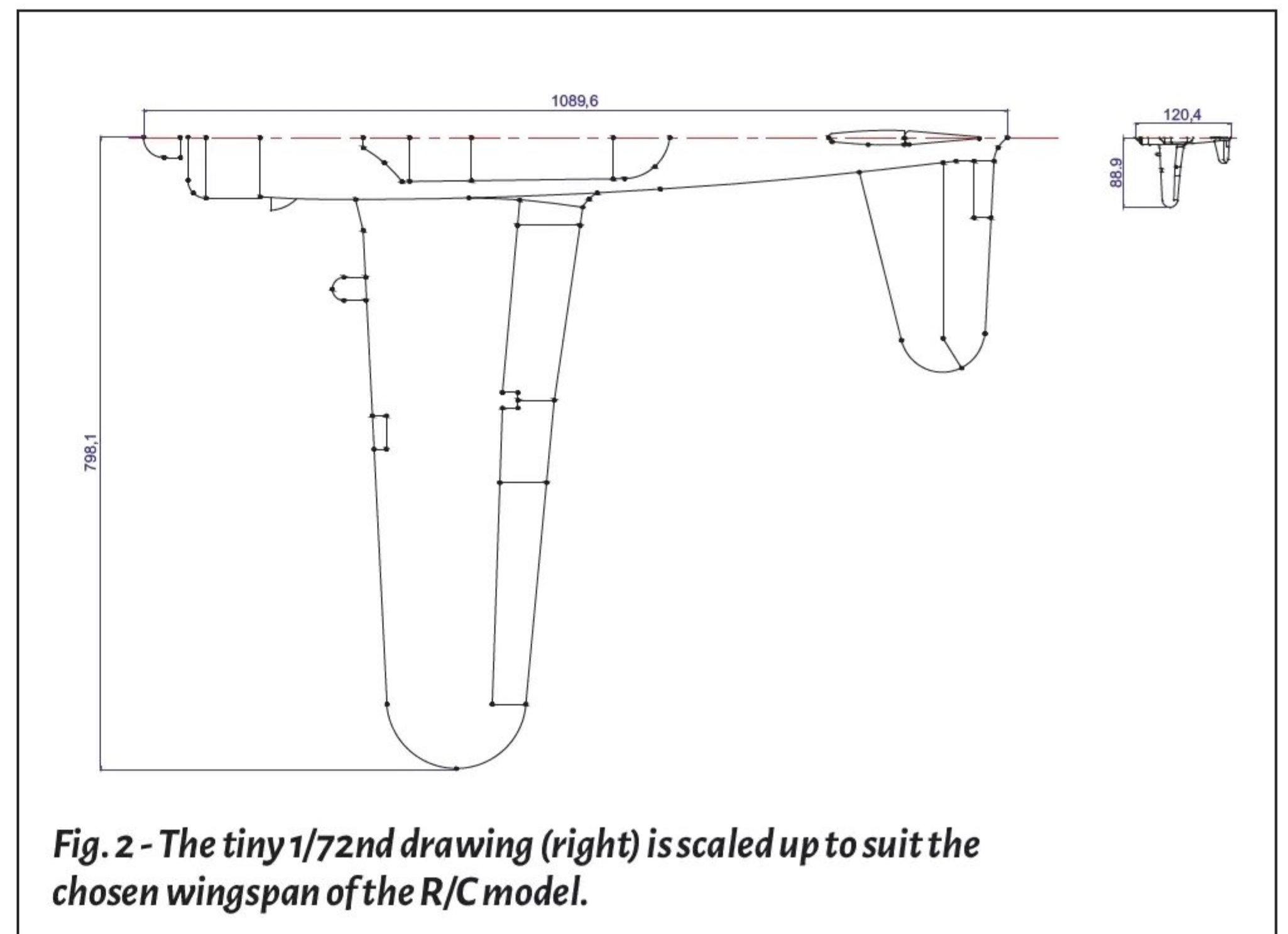


Fig. 2 - The tiny 1/72nd drawing (right) is scaled up to suit the chosen wingspan of the R/C model.

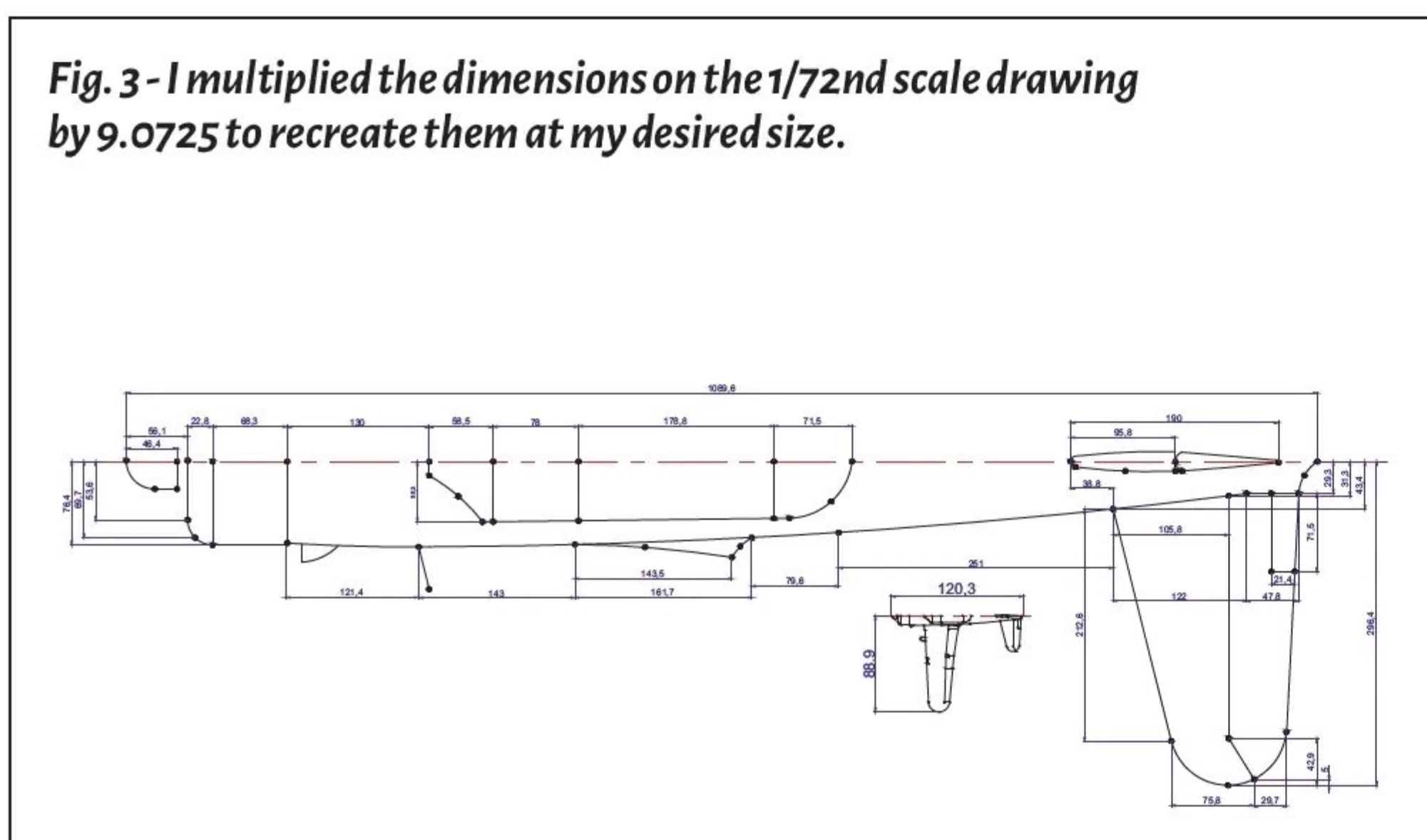


Fig. 3 - I multiplied the dimensions on the 1/72nd scale drawing by 9.0725 to recreate them at my desired size.

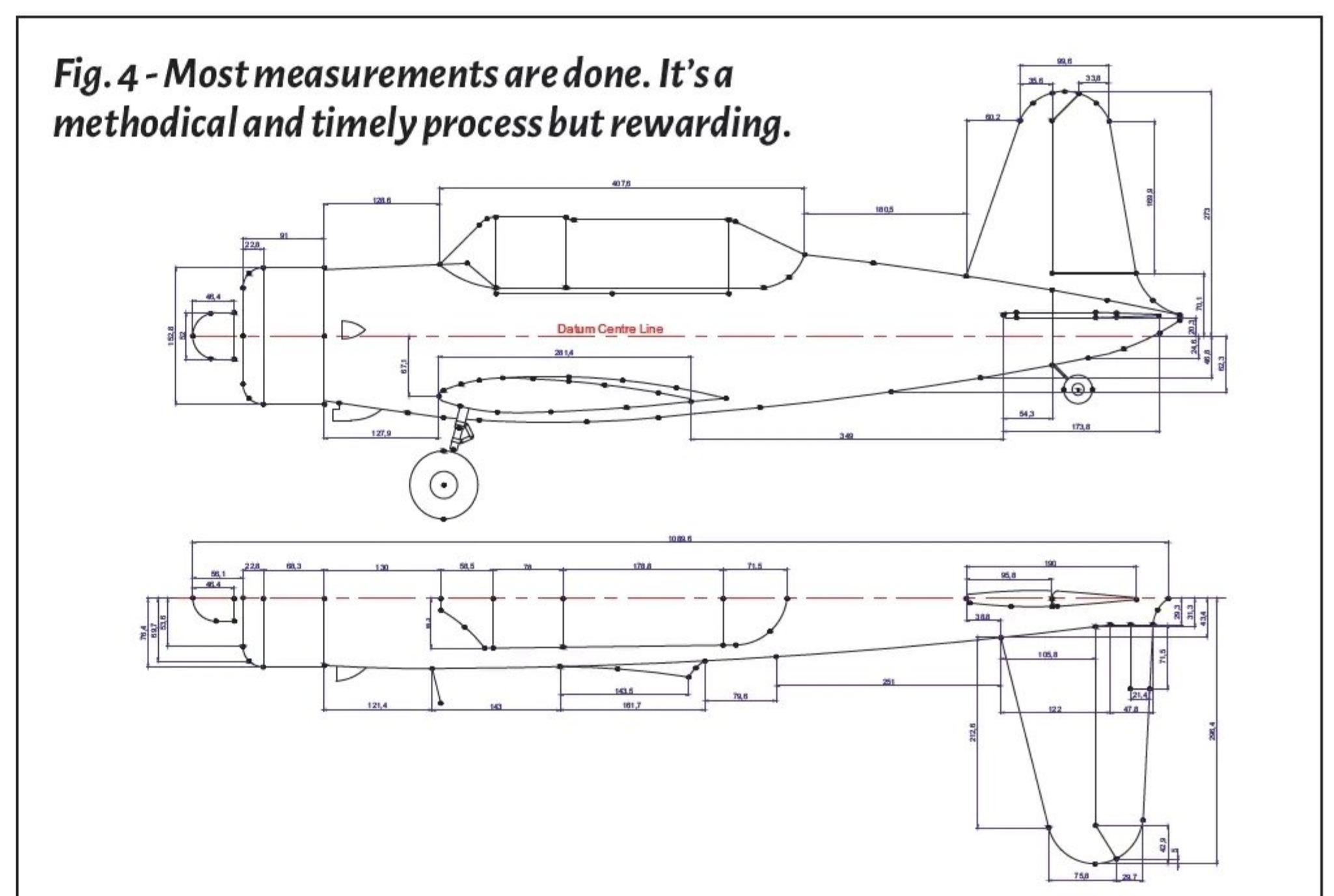


Fig. 4 - Most measurements are done. It's a methodical and timely process but rewarding.

point such as the edge of a fuselage side or a longeron, but it is a key element on the drawing from which everything else can be defined and controlled dimensionally.

A VALIANT CHOICE

For the purposes of this article, I have chosen a prototype that has adequate photographic references and an existing basic 1/72nd scale drawing. The subject in question is the Vultee Valiant, a 1940s low wing American training aircraft and a model I genuinely wanted to build anyway. So hopefully the results will align with a future free plan...

Given that this aircraft has some simple bits and some complicated bits we will take an overview of the salient aspects such that they can be absorbed rather than getting lost in too much detail.

Before we put pen to paper, I will just cover the reasons why I have chosen this subject. Firstly, I like the shape. It has a longish nose forward of the main wing which should aid achieving balance without adding weight in the nose or tail. The wing area is quite generous, with no strong taper or pointed wing tips, so I would expect reasonable stall characteristics and flying speeds. The deep, round fuselage has space to neatly install radio equipment within the structure. In addition, the fixing of the wing to the fuselage can be via conventional wing bolts from the underside and the tail surfaces could be

all sheet if I choose not to pursue a totally scale finished outline. In addition, widely spaced fixed undercarriages with good sized wheels always track well on the ground and tend to be less hassle than retracts on our grass strip.

There is a plastic kit available in 1/72nd scale but the one I found went for what I considered silly money on that well known internet auction site. So, I tracked down a 3-view drawing at the same scale and simply used that as my basis for

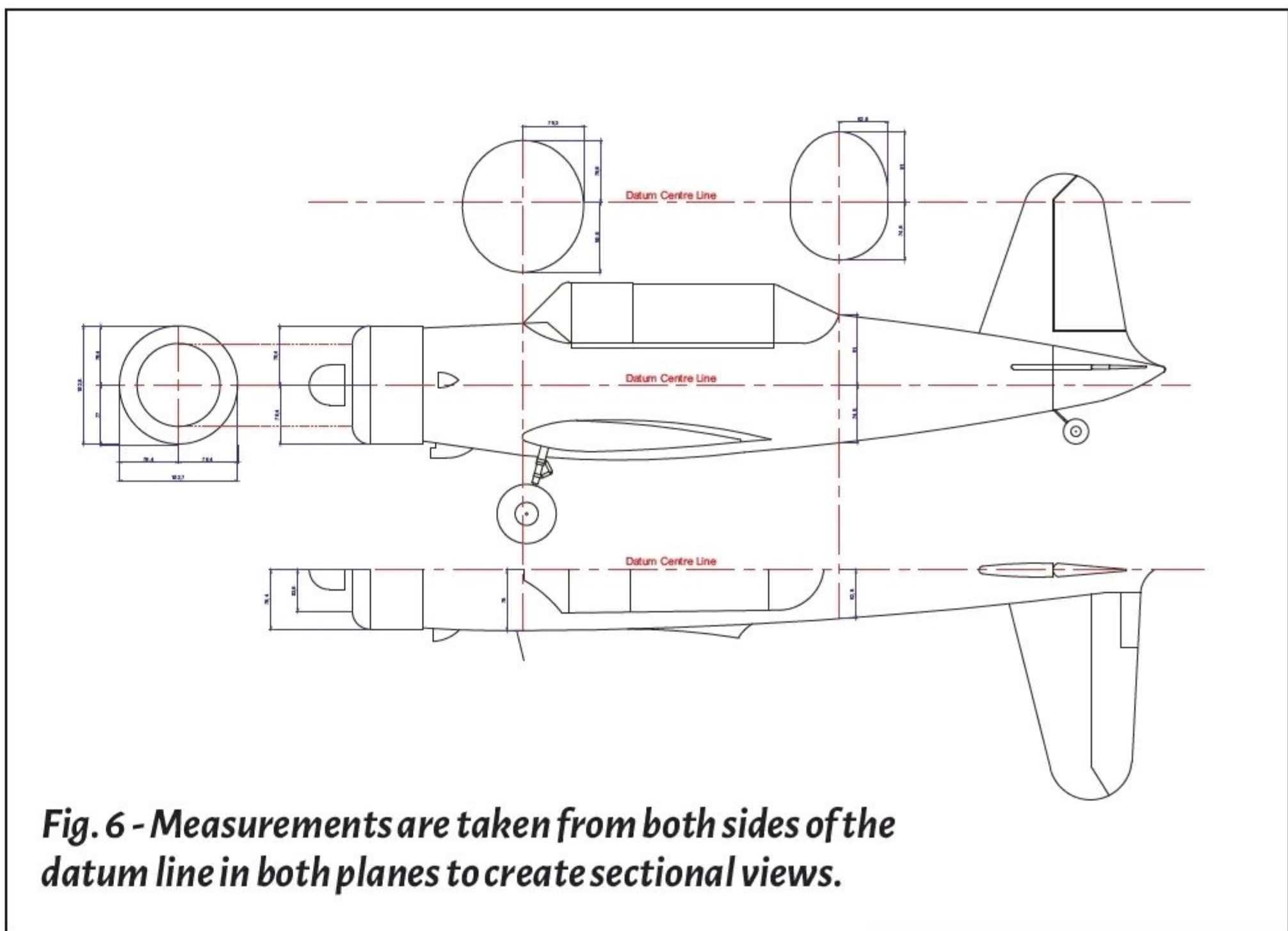
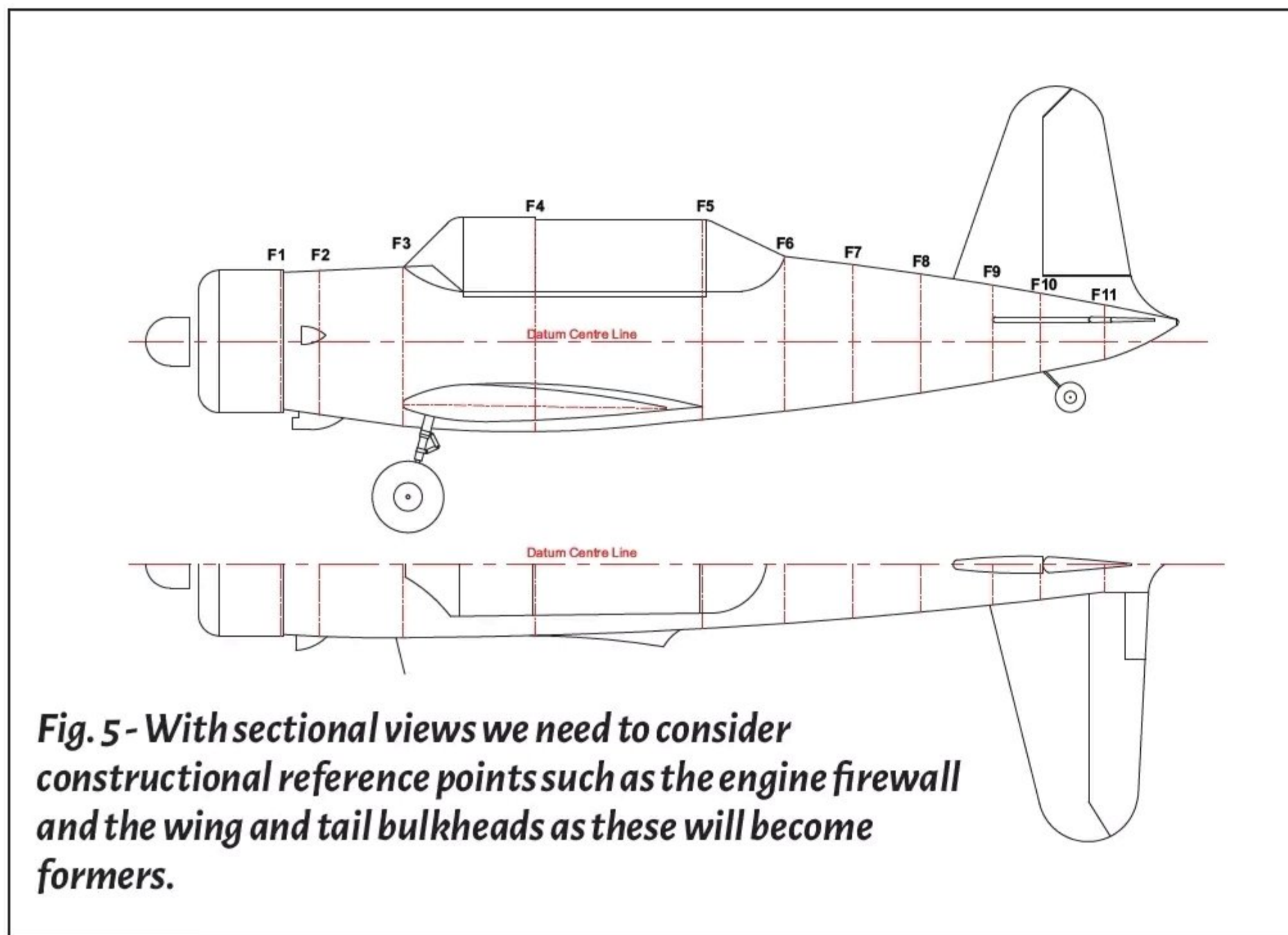
the model's dimensions.

WHAT SIZE?

So, I have a drawing but obviously it's too small. The first job is to work out an appropriate size for the model I intend to build. I am looking at a size suitable for a .52 four stroke or electric equivalent, so a rule of thumb* would suggest a finished wingspan of between 55 to 60 inches (1397 to 1524 mm).



Flycatcher gets its inspiration from the earliest years of aviation. Let your imagination soar!



(*A search of the RCM&E plans library held by Sarik Hobbies would be a good reference for this. Search for "52 four stroke" and you'll see a list of models with their wingspan included in the title—KC)

Figure 2 shows the 1/72nd scale original on the right versus the size of model I propose to build on the left. Therefore, there is a factor (number) I need to multiply the dimensions that I take from the small drawing to plot them out to the corrected size. There is no point in hiding behind the fact that this requires patience and a methodical approach.

Many have suggested going to a print company and getting a 1/72nd or other scale

drawing simply scaled up and printed out. This is achievable but a little costly and you often lose definition in the drawing. So, I prefer the old-fashioned way.

I start by drawing a datum or centre line through the small drawing, as identified by the staggered red line in Figures 2 and 3. A series of dots are then made around the drawings at key points that I can measure from. It is then a case of measuring on the drawing, multiplying by the factor and then re-drawing at the larger scale. I generally start from the nose of the aircraft and work my way back along the plan view of the fuselage first, as per Figure 3.

Assuming we don't have an asymmetric design we only need to draw half the fuselage and then trace or duplicate the dimensions to create the complete outline. Once the plan view is done then we can turn our attention to the side view and, again, using the same datum line measure, multiply and draw out the view.

CROSS SECTIONS

With the plan and side view created we can now use the dimensions to create the cross-sectional views. Use of both datum lines is critical here and from a model builder's perspective it is difficult not to simply decide how many sections we need and plan these around the formers and bulkheads we need in a design. A typical format would be as shown in Figure 5 which defines the key elements.

Keeping it simple the cowl is the easiest as it is a circle of fixed diameter with a radius to the front, so there's no need for complex measurements here. The fuselage, however, curves in all directions so we will need to measure at each section a distance above and below the datum on the side view and a width on the plan view. For more complex profiles we simply make more measurements and plot out the profile accordingly, but for the purposes of this project we will stick to just three main measurements and effectively freehand the curves to match. A form of very basic join the dots!

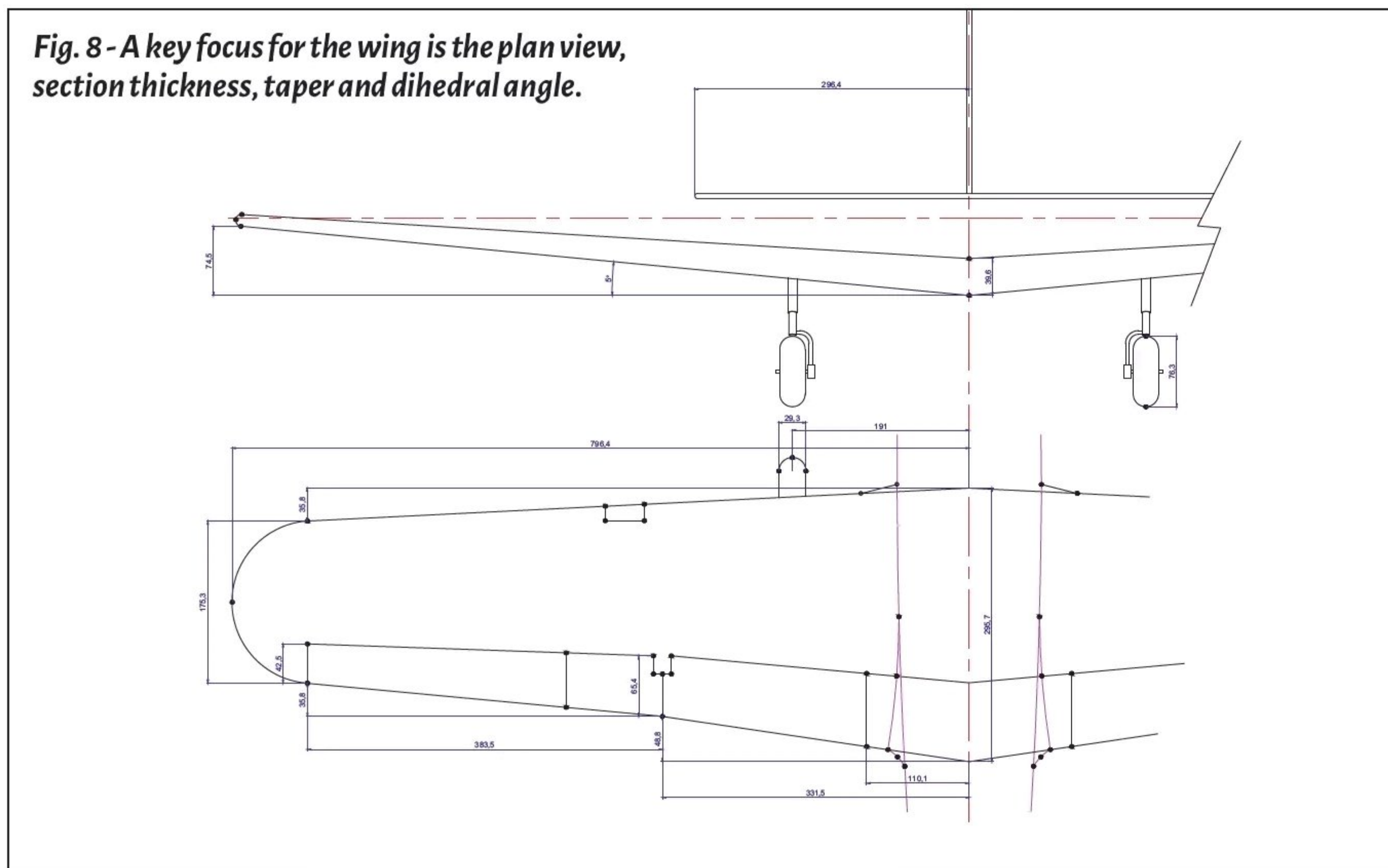
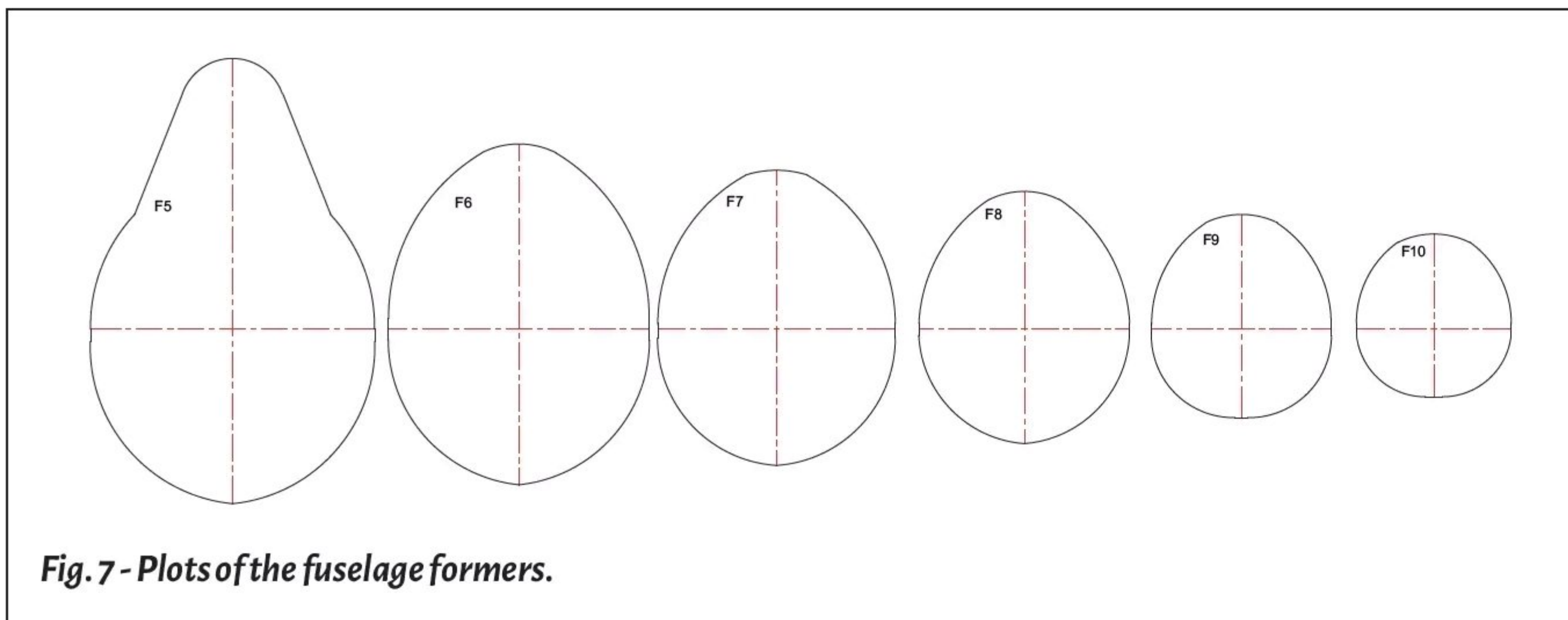
With time we can create a range of fuselage sectional views that will be used as a base for configuring the construction process. They themselves become the fuselage formers as shown Fig 7, which shows what will become rear formers F6 through to F10.

Note that the datum lines are maintained so we retain accurate alignment in the following construction drawing process.

PLOTTING THE WINGS

The process for the wings follows the above procedure, using the same centreline on the fuselage and measuring and plotting out points around the perimeter and surfaces.

There are at least two more key dimensions and these relate to the wing section thickness at the root and tip. The root wing section is on the centreline of the fuselage and will usually be the thickest part of the wing. The tip is commonly a rounded profile so it's often



easier to find the first logical straight line chord position and measure the thickness at that point.

What about the wing section, I hear you scream! Well, we can plot the wing section by creating a series of lines vertically along the chord length bisecting the chord datum. The chord datum line passes from the centre of the leading edge to the centre of the trailing edge and will clearly define the type of wing section being used by the distance above and below at certain points. It can then be noted how the section changes from root to tip in both section thickness, profile and incidence.

At this juncture we have the basics of a plan. It's an outline into which we can now figure out how to ensure structural integrity, together with the installation and operation of key elements such as the engine or motor, batteries and radio equipment, control linkages and even grades of material.

FOLLOW THE CURVES

The next part of the process does rely on a degree of either experience or being led by similar examples in determining the construction process. There are many ways to create a curved fuselage and I do not plan to cover them all here, but they all rely on a sub structure that supports the shape of the outer skin in some way. Therefore, there are basic principles to be applied.

I start by asking myself what motor or engine is being used as this will determine the thickness of material I need to use for the engine bulkhead. In this case, for a .52 four stroke, it would be 6 mm marine ply. For other formers which have a structural demand on them, such as wing dowels or bolts, then I would choose 3 mm marine ply. For the remaining formers, pending their position and potential for adding unnecessary strength or weight, I would use a combination of either 3 mm lite ply or medium grade balsa.

Now, it's fine creating all these formers to match our drawing and applying a material grade to each, but there is so much more to it than that. We need to think how each former will connect to each other such that we maintain accuracy in the build. We also need to think about internal spaces and how this needs to be configured to allow the



Or go full scale with your design, such as this lovely Lockheed Vega.

installation of equipment and provide access for servicing.

We also need to consider how we process the build steps. Unlike the full-size aerospace industry, we rarely build jigs to manufacture our models from. So, all parts need to have a way of keying into others in a natural sequence.

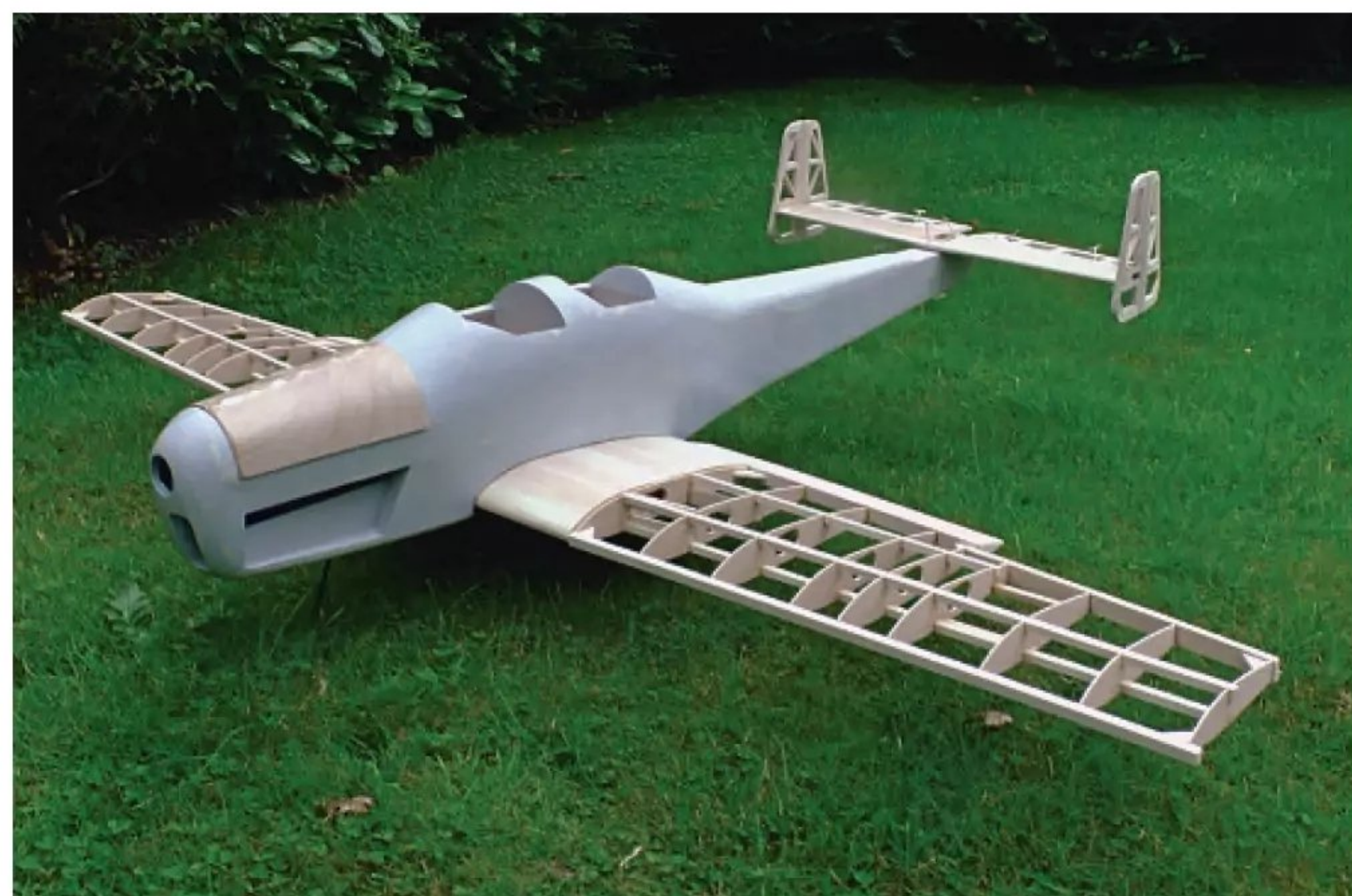
For the Valiant, I aim to use 2 mm sheeting to skin the fuselage. This means I must allow for this in the former dimensions. I then need to key the formers together with a series of longerons that will space the formers appropriately, and they also provide additional contact area for the sheeting to bond to. As the shapes curve the formers will need an additional internal structure to support and keep them square from the front end backwards. The rear section will have additional stringers to compliment the longerons.

There is no question that an ability to visualise in your mind the structure and processes needed is a huge advantage. It gets easier with experience but, even now, after designing many models, there are often times when a so-called thumb-nail sketch is required to give me clarity on which is the best way to

proceed. Once I have clarity, I can show these details on the plan in a sequence that I feel works best.

For the plan and side view of the fuselage I would show the 2 mm outer skin first by creating a dashed line for the internal side. The formers can then be added to show their thicknesses and grades at each point. It may not be practical to show all stringers and longerons, but the key structural items should be added. In turn, cut-outs in each former can be added at the appropriate points.

Figure 9 shows the Valiant side and plan views showing a basic colour coded structure. The formers are shown in blue at the appropriate thicknesses with the position of longerons, in this case 6 mm square sections highlighted in red. (For clarity not all have been drawn in.) You will also note a structure highlighted in pink which will be made from lite ply that runs within the structure to add appropriate strength and positively locates the positions of the formers, each having their own key point. The apertures are simply to remove excess weight towards the rear of the fuselage. You can also see how this internal structure sets the position and angle of the tailplane. ✈



Bare bones of Lindsay's distinctive Owlette design, later seen taking to the air.



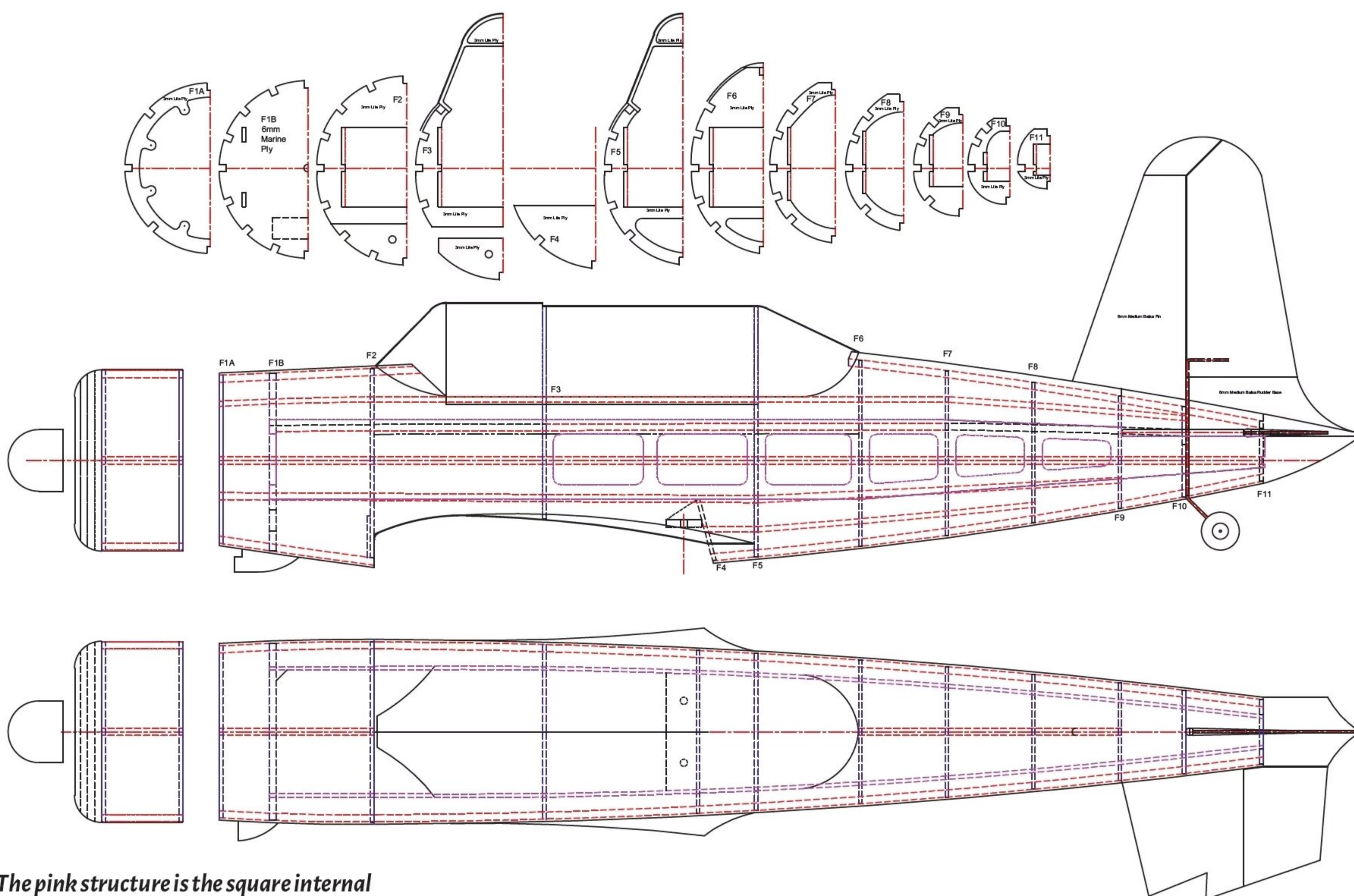


Fig. 9 - The pink structure is the square internal frame to which the formers are glued.

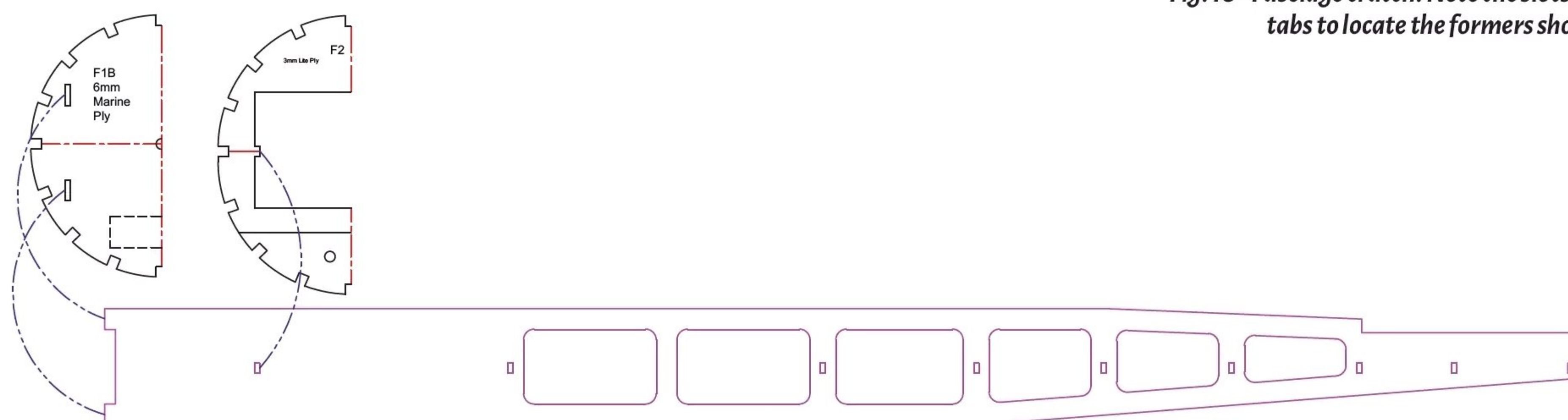


Fig. 10 - Fuselage crutch. Note the slots and tabs to locate the formers shown.

FUSELAGE CRUTCH

The internal crutch, for want of a better term, is a crucial component on the plan and it works in conjunction with the formers to hold the shape and maintain general alignment during construction. Note the thought process of adding details such as tabs to the internal face of the formers that align with slots. The structure will be further strengthened with balsa or ply sheet bridging between formers to provide a tank or battery space, cockpit flooring and servo trays, and supports for cable runs and wing bolt plates. Additional strength using triangular section will reinforce joints and maintain alignment during construction. We would then add stringers and sheeting, resulting in a very strong and accurate structure from which everything else can be mounted or accurately positioned.

This is the hub of the plan. ■

To be continued in the next issue.



A certain design feature could become your personal trademark. Note how Dawn Flyer's fin and rudder is very similar to the Flycatcher seen earlier.



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ESTIMATING MATERIALS

As promised in a recent issue, we still have a small number of articles to publish which were submitted by **Peter Miller** before his passing. Here's the first, in which Peter describes how to make a shopping list for wood and other materials needed to build from a plan

words & photos **Peter Miller**



Oodally is a classic Peter Miller design (RCM&E plan number RC2115). You can use this article to calculate all the parts needed to build one.

One of the most common questions on various forums is, 'Can we have a wood list?' or 'How do I work out the materials that I need?' Even experienced modellers ask this.

This basic skill was something that we learned very quickly when I started modelling because some of the old plans from the 1950s used to give you a list of the materials needed. If you trusted them, you could find yourself running out of some essential size of wood on a Saturday evening when the model shop was shut...

The trouble was that the designers often had a big box of scrap offcuts and they would use these for smaller parts. They would then forget to include these in the list of materials. I have designed quite a few plans, but I couldn't tell you just what I used unless I go over the plan myself.

Another piece of essential information that was very often missing from these lists was the grade of wood needed. This is pretty important information.

With a plan in front of you it is not hard to work out what you need. It just takes a little

thought. So, with pencil, paper and plan in front of you, let's get started on a shopping list.

MEASURE THE WING

The wing is the easiest place to start our list. It is all nice and simple. Well, most of it...

The spars are the obvious starting point. Usually there will be one on the top and one on the bottom. Assuming that the length of one wing is under 36", that will mean four spars of the given size. Write that on the list and specify 'rock hard'.



If you can interweave the ribs, you can get more out of each sheet.



A basic wing. Note the spars, leading edge and trailing edge. Compare it with your own plan.

The leading edge is often one piece of wood. That need not be quite as hard. Usually there will be a strip of wood, possibly the same size as the spars, but normally quite a lot larger. It can be medium wood unless otherwise specified. I have my own favourite leading edge which is made up of strips of 1/8" sheet. In that case you would have to estimate the width of the sheet. Allow a full sheet of 3" wide stock for that. It will not take the full sheet but what is left will not be of much use for any other part of the model.

The trailing edge may just be a strip of wood with the aileron hung onto it or it could be a proper shaped trailing edge. The plain strip of wood can be added to the list with a grade of 'medium'.

The strip aileron might be made from a piece of commercial trailing edge section, or it might have to be cut and shaped from sheet stock. Trailing edge can be added to the list as 'medium'. If the aileron is made from sheet, you will need to add a sheet of the specified thickness to the list. Strip ailerons would be 'medium' grade.

Wood grades for inset ailerons out at the tip will be the same as the basic wing. They will also need an aileron leading edge and an aileron spar on the wing. This spar may continue for the full length of the wing, in which case it will have been included with the main spars on your list.

Next, we have the wing sheeting to look at. Most wings have a sheet covered leading edge. Can this sheeting be done with 3" wide stock or do you need 4" wide material? You will need four sheets anyway.

There is also the centre section sheeting. Once the main leading-edge sheet is cut to length, will the offcuts be long enough to do some of the centre section sheeting? If not, you will need to work out how many sheets are needed for that job.

There will also be cap strips for the ribs and any spar webs. These can often be stripped from spare leading-edge sheet offcuts. Once you have built up a scrap box these parts can often be cut from scrap.

There will probably be some sheet along the trailing edge as well; you will need four strips in that case. How wide are they? Can you get them out of one 4" wide sheet or would two 3" wide sheets work better?

Sheet for the wing should be medium grade, but it should not be too stiff across its width as it has to be bent over the ribs. If it is too soft, and I mean really soft, it will not be strong enough for the job and will be liable to break when grabbing hold of the model due to simple finger pressure.

RIBS & OTHER PARTS

Estimating the amount of wood needed for the wing ribs is probably the hardest part for the wing. If the wing has a parallel chord one can make a ply template and use that to cut out the ribs. The template can be positioned to use just about every scrap of wood. However, this makes estimating the amount much harder. The best way is to take a rectangle that will just take one rib and find out how many times it will go into a sheet of balsa. In this way you will be certain that you have enough.

If the wing is tapered the job of estimating the wood is much harder. Probably the best way



A complete sheeted wing. Again, compare it with your own plan. Note the built-up ailerons in this example.



These are the sort of little details where you will need some extra ply.

is to use the rectangle method based on one of the ribs that is a bit larger than mid-range.

Remember to look at the list of ribs. Some will be thicker material and some may even be made from plywood or lite-ply. Make a note of those as they will have to be included in the plywood part of the list.

Ribs are normally made from stiff wood, graded as 'medium'.

There will also be a plywood dihedral brace and probably plywood mounts for bell-cranks or servo bays.

Go over the wing carefully and take note of any other parts such as the wing tips, ply plates for mounting control horns or reinforcing the area where wing bolts go through the wing.

FUSELAGE PARTS

A typical fuselage for a model that is a good first time build from a plan will be a box shape with a turtle deck of some sort. This makes estimating wood fairly easy.

We can start off with the sides. Are they less than 36" long? How wide are they? Can they be cut from 36" x 4" wood? If not, how much more will be needed? How thick are they?

In most cases the answers will be simple but if they are wider than four inches, how much ➔



Wing tips must be allowed for and that's why it is always better to have an extra sheet to hand.



This built-up fuselage will need to be measured up on the plan. Also, all the stringers will be needed, plus assorted pieces of sheet. Inside there are hardwood servo rails which should be shown on any plan.



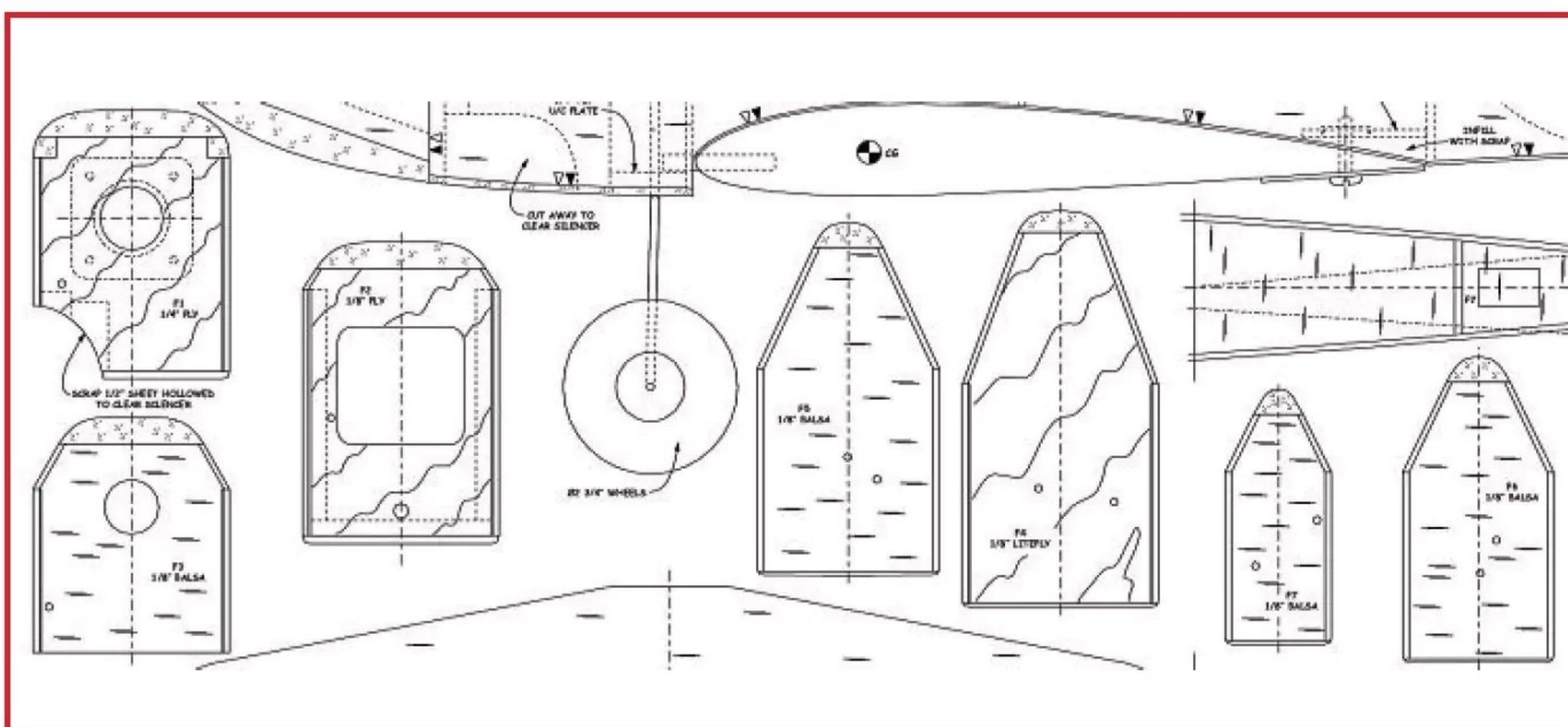
A sheeted fuselage. Note the thick sheet cowl and spine on top of the rear deck. The odd stringers could be cut from sheet in this case.



Rolled sheet turtle decks can use up quite a lot from a sheet.



Slab sides on a rear turtle deck with a thick sheet top. Note the plywood on the cockpit floor and the blind nut for the wing bolt, both of which need to be on your list.



Formers for a typical model. Note that there are three different materials specified.

more wood is needed? Sometimes the extra wood can be cut from the same sheet because you may only need a couple of small pieces on either side of the wing cut-out.

It is possible that you will need longer sides. You can buy 48" long sheet but it is much more expensive to buy and to have posted. You will be lucky to find a model shop that stocks such long wood. Using shorter wood means joining the sides and this will be shown on any decent plan. How much more wood is needed for the extra

part of the sides? When they are joined there should be a doubler behind the joint so don't forget to include that.

Fuselage sides should be 'medium hard' to 'hard' but not really 'rock hard'.

Most models will use ply or balsa doublers at the front of the fuselage where all the major stresses are. Note how long the doublers are and what material they are made from. Usually, they will be from thin plywood, but they could be balsa sheet.

Next, look at the turtle decks. The two most common methods of making these are either angled sheet with a thick sheet top portion or rolled sheet where the sides of the turtle deck are wrapped over curved formers. Once again, we measure up the material used on the turtle decks and add it to our list.

If the turtle decks use the angled sheet method then medium sheet can be used. Rolled sheet decks need soft sheet that bends easily across the grain. Any thicker wood used along the top of a turtle deck should be soft. Don't forget to include that in your list.

The bottom of the fuselage will be covered with sheet. Just note the length and add it to the list. Normally the bottom is covered with the grain running across the fuselage as this adds resistance to the fuselage splitting lengthwise in a crash. And since the fuselage is tapered you will use a bit less than you think, but that extra wood can be useful.

Very often a box fuselage will have strips of wood along the bottom to increase gluing area. So don't forget to include that in your list.

If the model has a fuselage built from strip, such as a vintage type or a scale model that has a fabric covered fuselage, you need to estimate the amount of strip needed.

The longerons will be 'hard' and in the example shown there are four of them, but make

sure that one strip is long enough to make a longeron as some may need to be cut and joined.

Cross members on the top and sides can be medium grade or even slightly softer as they are short and do not carry major loads. It is better to err on the side of excess material for the cross braces as they are not as easy to estimate and anyway you may need to waste one or two if you cut them to the wrong length. A good tip is to always work from the longest to the shortest so that a miscut cross member can be used for the next one along.

The cowlings on many models are made from thick sheet. This should always be soft material. It may be expensive to buy a full sheet of $\frac{3}{8}$ " or $\frac{1}{2}$ " sheet but it will usually make two or three cowls.

Formers can be made from an assortment of woods. The firewall or engine mounting bulkhead will probably be $\frac{1}{4}$ " ply while the next former back is more likely to be $\frac{1}{8}$ " ply. Other formers may be $\frac{1}{8}$ " lite-ply and $\frac{1}{8}$ " balsa. There may be $\frac{1}{4}$ " ply undercarriage mounts and ply plates for blind nuts. Servos need to be mounted on servo bearers. These are often not specified on plans but a length of $\frac{1}{2}$ " x $\frac{1}{4}$ " spruce will provide enough material for several models.

You will have to buy pieces of ply of the various thicknesses needed. The minimum size is 12" x 12" but that will leave some over for the next model. If you are building from one of my plans you will almost certainly need $\frac{1}{32}$ " ply up to 24" x 12".

For tail surfaces you will need the sheet of the specified thickness unless they are built up. In that case use the same measuring methods that you used on the wing.

ODDS & ENDS

Next, we come to the miscellaneous parts. You will need wire for undercarriages and probably for connecting the controls. Measure the undercarriage legs and make sure you can get them both from one length of the specified piano wire.

Then we have wheels, engine mounts, control horns, fuel tank, snakes or pushrods with quick links...

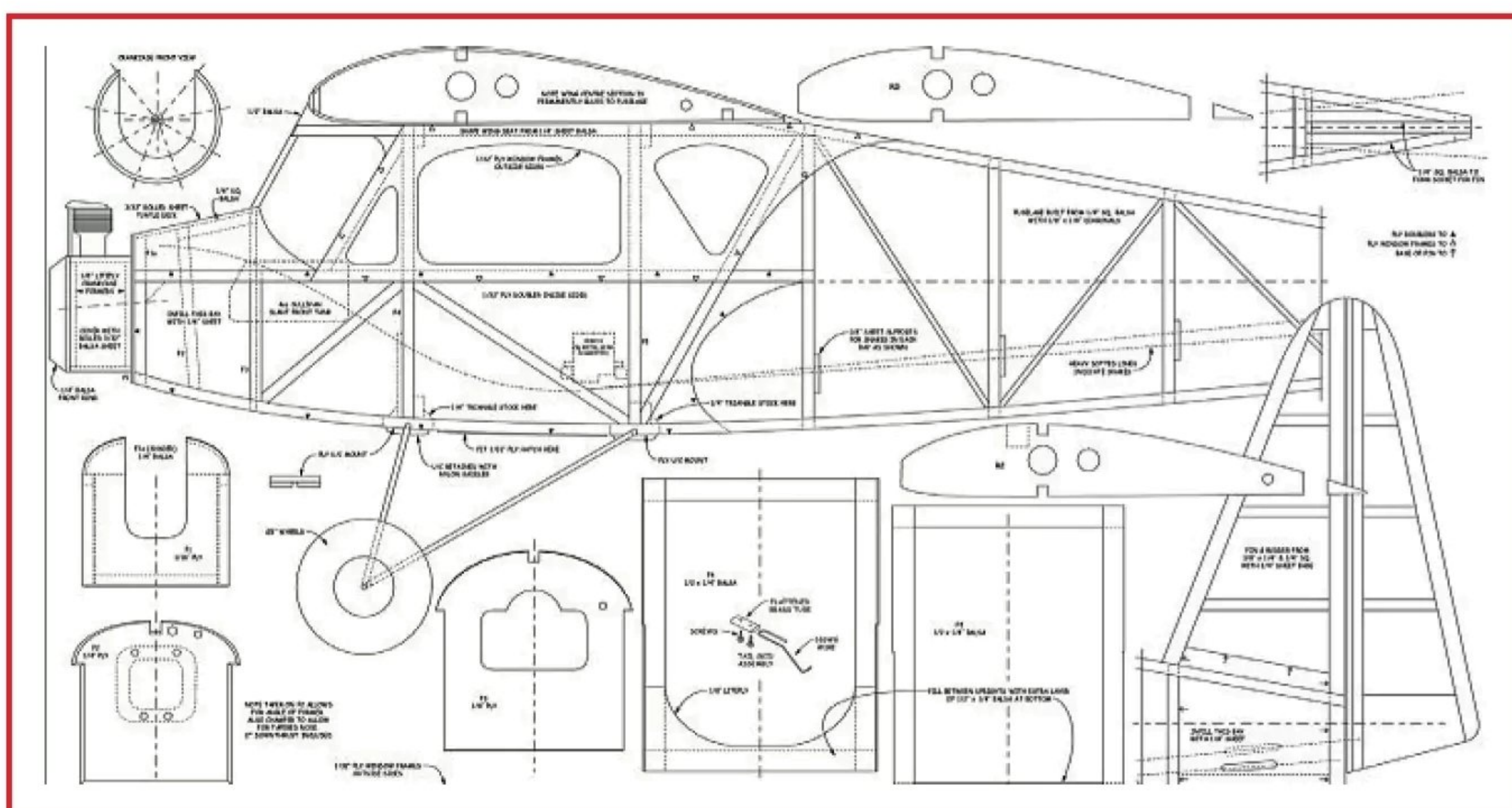
The list can go on for quite a bit longer, but you have got the idea.

YOU DON'T NEED IT ALL AT ONCE

One of the big advantages of building from plans is that you do not have to buy it all at once. You can buy what you need for the next part of the model when you are ready. This spreads the cost.

Of course, if you have to buy your wood by mail order it is cheaper to pay for all the postage in one go. But if buying from a shop the wood for the wings can be bought first and then that needed for the fuselage can be purchased at a later date. Accessories can be added once you are ready for them.

Never be afraid of buying too much wood. It will always come in useful for the next model. You can slowly build up a stock of wood and accessories which will always be useful. It is also nice to have a stock of wood so you can start building as soon as you get a new plan. ■



Working out all the strip wood can take a few minutes with a ruler. Always add a few more strips for luck!



Peter with his final RCM&E plan design, the MAK15.

Bernard prepares for another relaxing flight with Ambisagrus, his modern take on a classic high wing trainer design.



AMBISAGRUS

It's been a while since we have offered plans for a high wing trainer. Bertrand Choupin fills the gap with his updated version based on a classic design

Words & Photos: **Bertrand Choupin**

Okay, I'm French. Nobody's perfect. But please read on you Brits - you may forgive me.

When I decided to build my own high wing trainer (a Covid lockdown era project), I looked at the infinity of existing models of that type to select a good looking one. I choose (ta-da!) the Kamco Kadet, a superstar model in the UK in the 1970s. That said, if the aim was to stay close to the original on aesthetical matters, the design itself would be new and modern (electric to begin with) in all other respects. Also, I wanted to emphasise its attributes for beginners, even to the detriment of some versatility. Therefore the major modifications were:

- A thick(14%), flat bottom aerofoil.
- A slightly longer nose to maintain the correct balance point as electric motors are lighter than the original's IC engine.
- A 'Millerisation', inspired by Peter Miller, concerning fuselage moments and stabiliser surfaces etc.

You see, it is a very British project after all!

In case you were wondering about the name, Ambisagrus is a Celtic god of air and wind.



Ambisagrus is designed to be easy to build and fly. It's ideal for raw beginners or those just seeking a relaxing model to fly.



Prototype number three before covering. It's this one that our pull-out Pro-Plan will build into.



Bernard enjoying another chilled-out flight with Ambisagrus. Sometimes it's nice to build a trainer as a sports model, even if you have years of experience.

THREE PROTOTYPES

To cut a long story short, I made three prototypes and modifications were made to each one. So, the finished model shown in the pictures is NOT the final one as per the plan. It was made before the Millerisation and the rear fuselage was a bit too long, which caused balancing issues. The final one shown on the plan is lighter, being delightful in flight and with all the balancing issues solved. It will accept all kinds and weights of 3S LiPos, from 2200 to 4200 mAh (all successfully tested in flight). It is light and strong enough to cope with a variation of battery weights and delivers peaceful flights. The final version is the brown paper one in the picture above.

You may remember that there was a balsa supply crisis at the same time as the pandemic. So, I made the choice to avoid balsa as much as possible, designing the structure in lite ply, with lightening holes, fully sheeted with 3 mm Depron. Empennages were made from foamboard, which works very well, with the ailerons and leading and trailing edges etc. made from obechi (sometimes called samba wood). Mind you, they work perfectly well when made with balsa too! So, balsa is fully interchangeable with the materials mentioned above. Even so, please stick to plywood (lite ply is fine) for the structural parts such as the wing spars and formers.

EASY TO BUILD & FLY

I will not rewrite the very complete building instructions, available in English – oui Monsieur – that you can download here:

<https://www.modelflying.co.uk/wp-content/uploads/sites/8/2025/01/anglais.pdf>

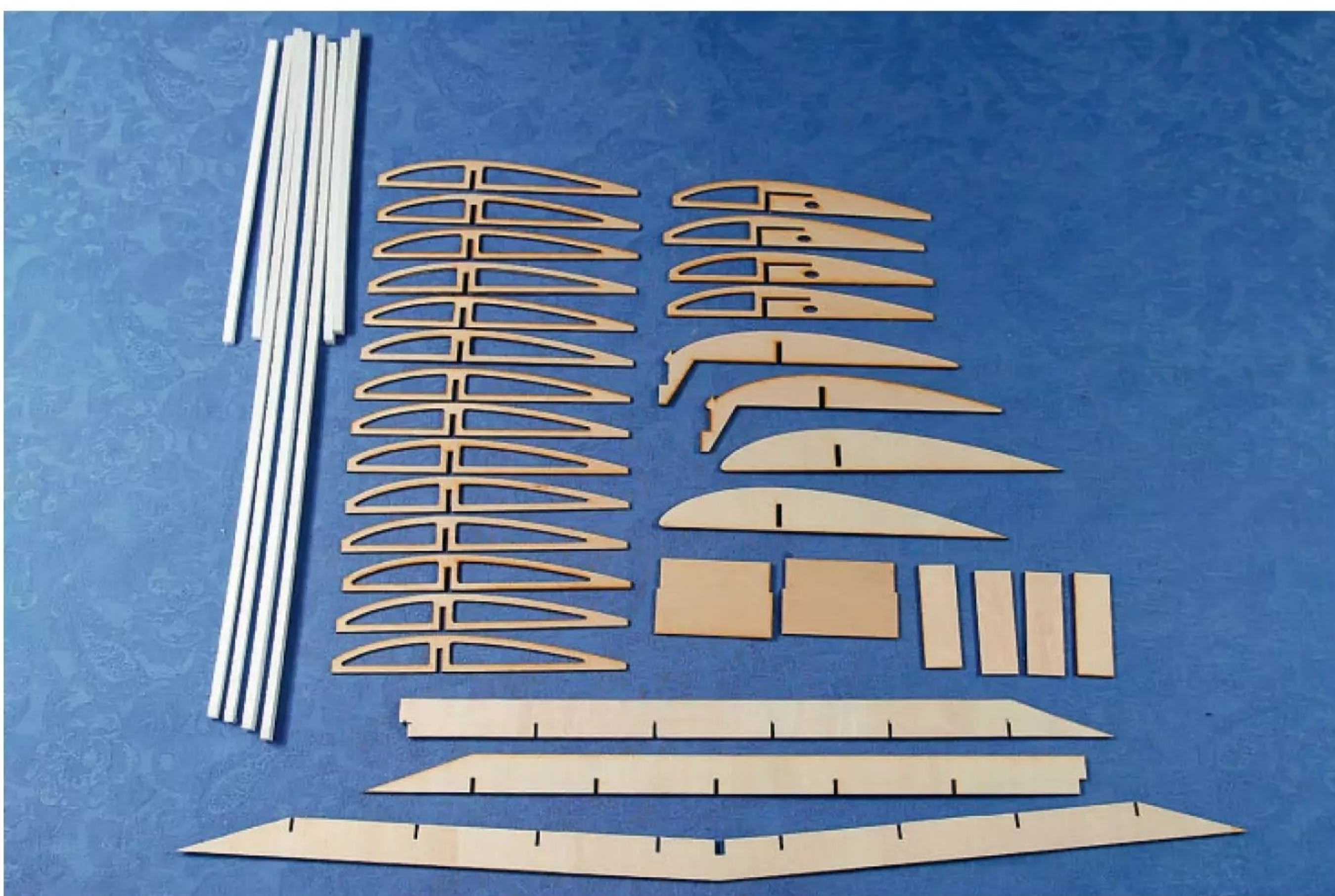
Some remarks though. As far as building and flying are concerned Ambisagrus is aimed at beginners or those wanting a relaxing model to fly, so nothing should be too difficult.

WINGS

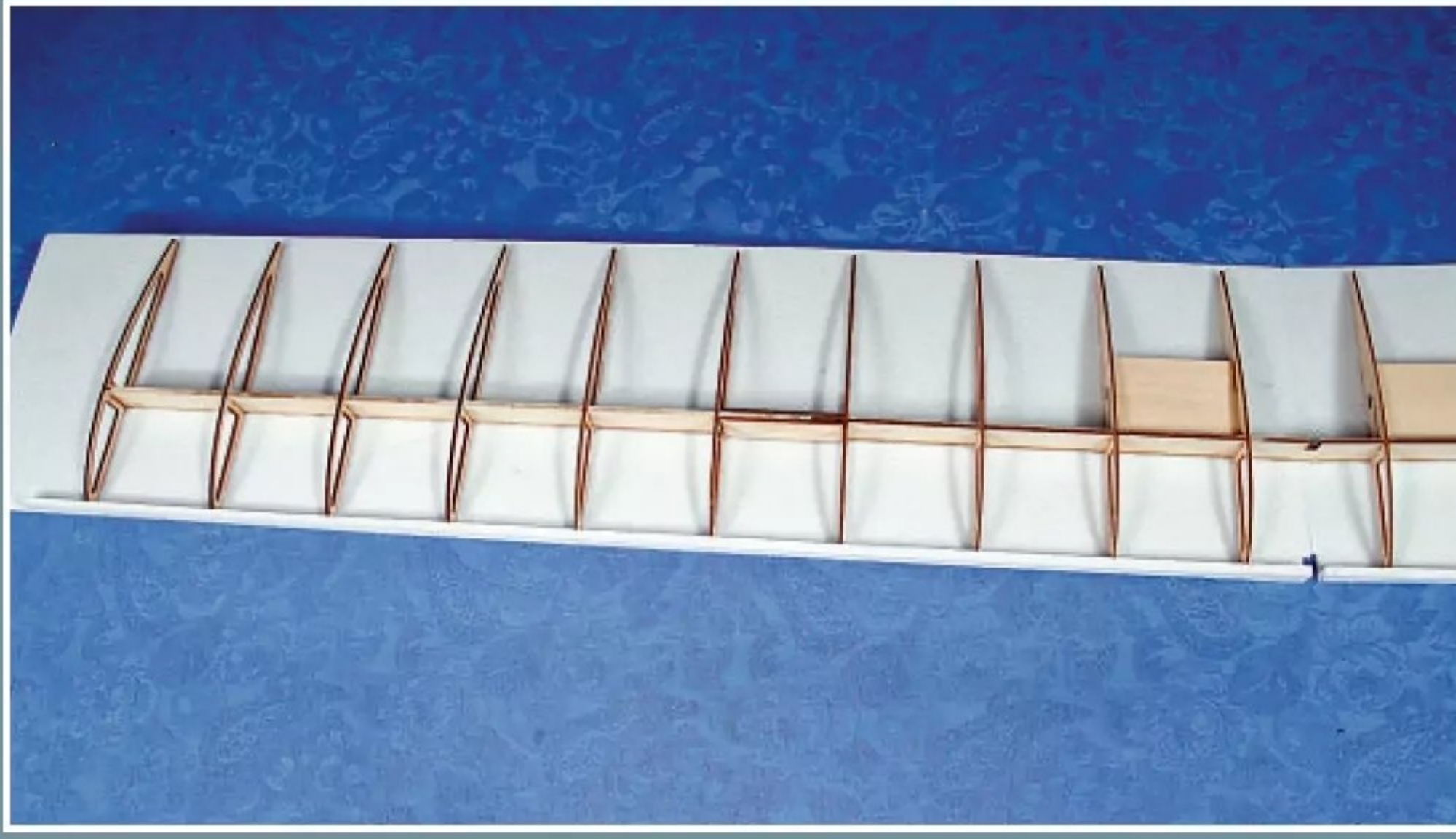
The wings are built flat on the underside Depron sheeting. The ribs and spar interlock. The spar is shown in three parts, but you might be able to build it in one piece if you have very long sheets of lite ply. There is no central reinforcement for the 3 mm lite ply spar but, relax, it works perfectly and will endure some loops and 'mild' hard landings.

"It is light and strong enough to cope with a variation of battery weights and delivers peaceful flights"

Cruising around at altitude.



Wing parts, excluding the Depron top and bottom sheets.



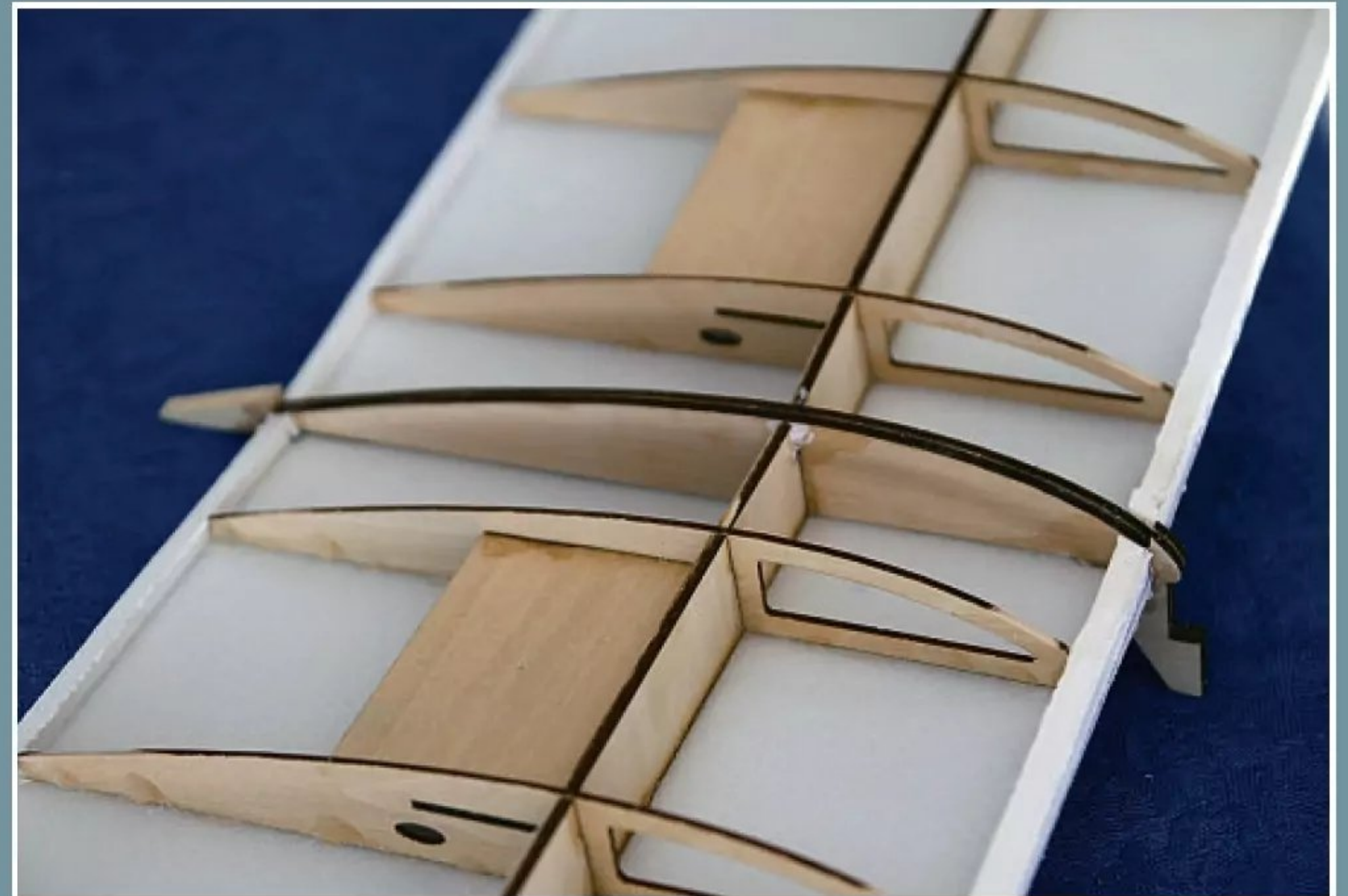
Each panel is built directly on top of the lower wing sheeting.



Central ply rib has a forward retaining 'hook' built in.



After attaching the top wing sheets weigh each of the panels down in turn to keep them warp free whilst the glue fully sets.



Wing centre section. Don't forget to add the aileron servo plates!



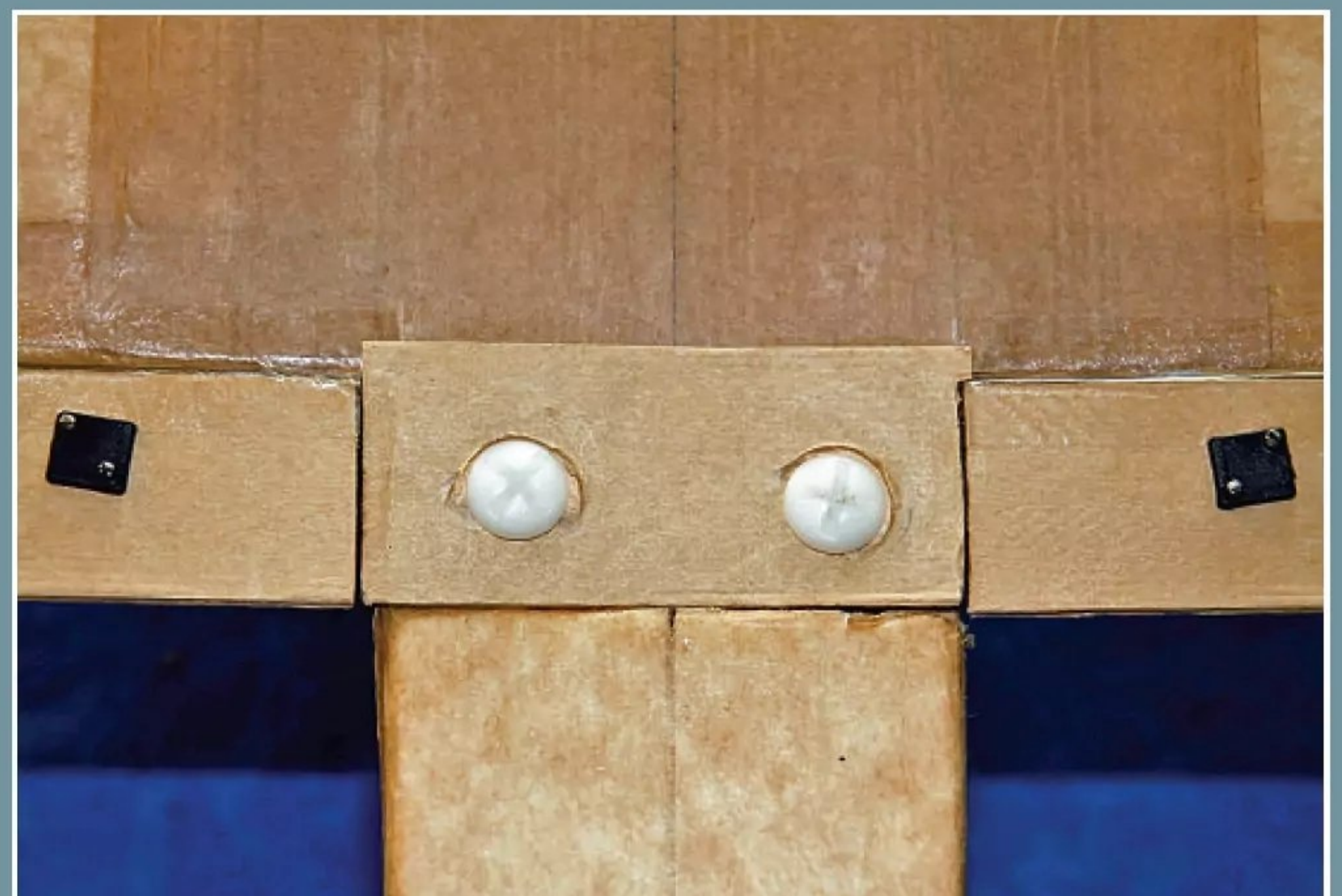
End view showing the wing construction around each rib. Leading edge is ready for shaping.



Tip rib added, showing how the brown paper covering wraps over the ends.



Some extra wraps of brown paper help to reinforce the centre section.

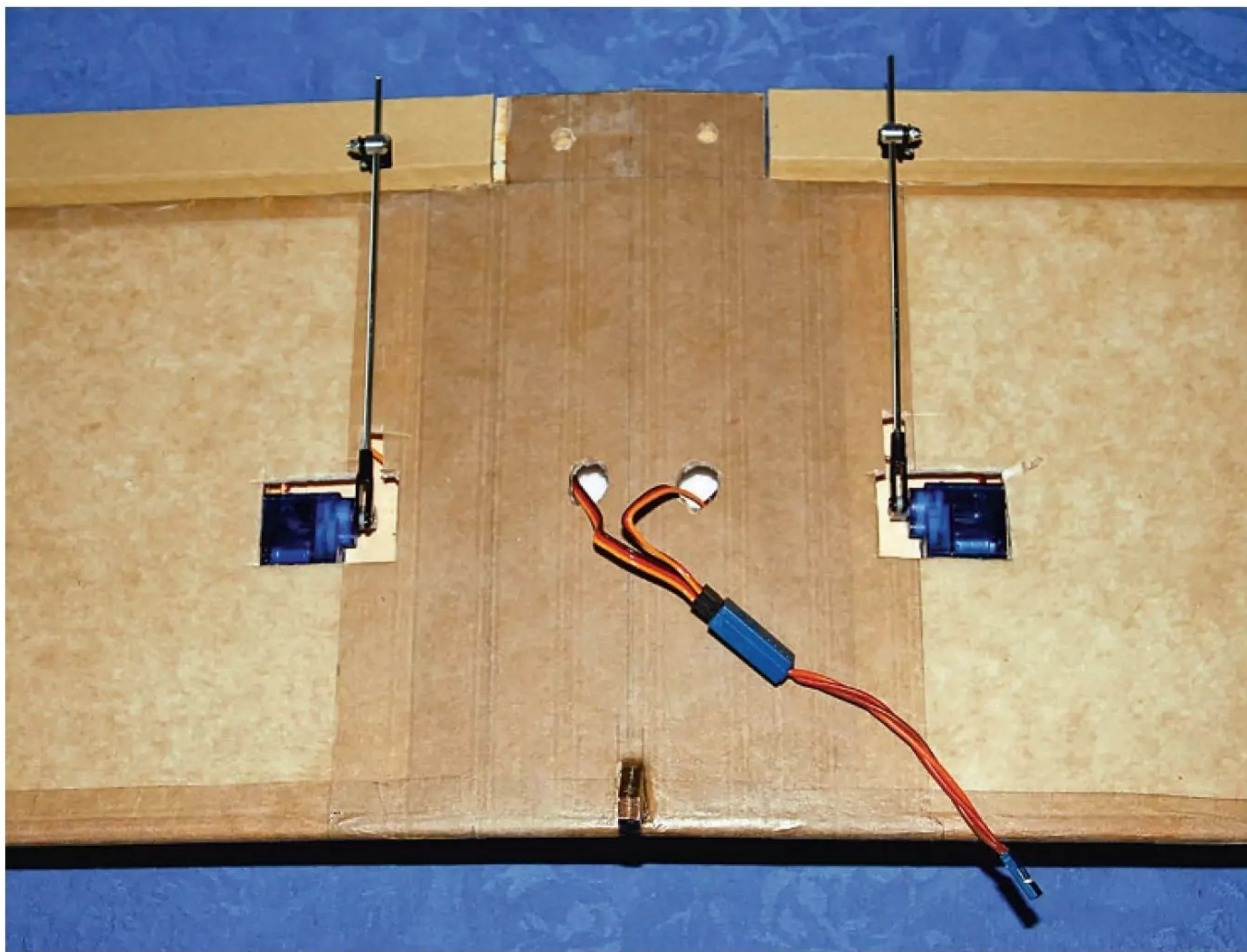


The wing is retained with nylon bolts. Note the angled aileron horn backplates.

“Don’t forget to fit the aileron servo plates between the two specified ribs in each panel, which feature matching slots”

First, glue a false leading edge made from 5 mm foamboard or balsa on the Depron sheet, cut to size. The noses of the ribs will be glued against this false LE. Don’t forget to fit the aileron servo plates between the two specified ribs in each panel, which feature matching slots. Check everything is square. Leave the central rib for later. Glue on a false trailing edge to complete the ‘box’. Remove from your building board when dry.

Build the other wing the same way then fit the centre rib made from 6 mm ply or a sandwich of 2 x 3 mm, as I did. Now, add the top sheeting. I find that using a contact glue such as UHU Por is good for this. Test the fit and movements required before actually gluing on the top sheets as you have only one chance! You can give the Depron some degree of pre-rounded shape by gently rolling it against the corner of your worktable, for example. Then complete the wings and leading edges etc.

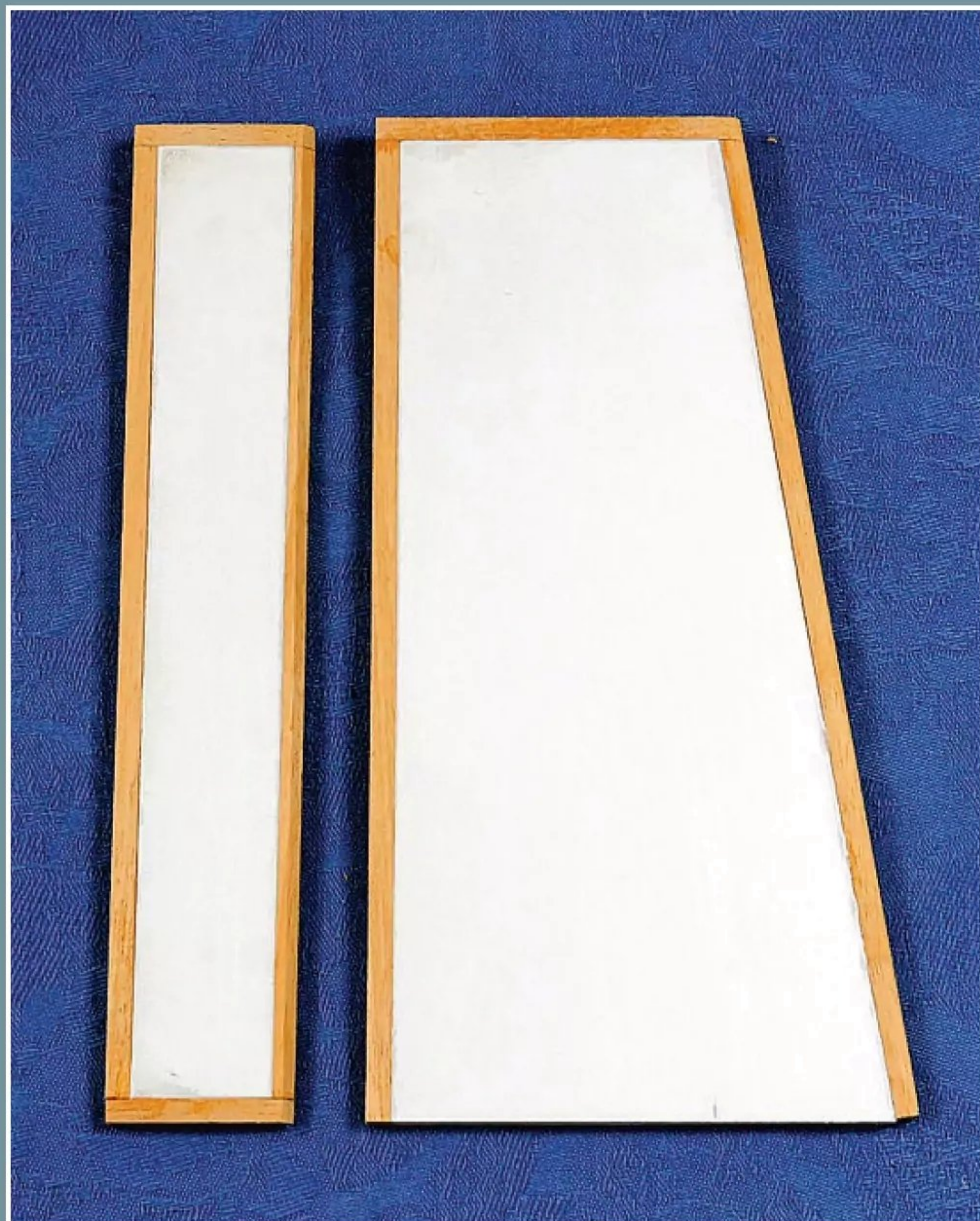


Underside view showing the aileron servos and pushrods.

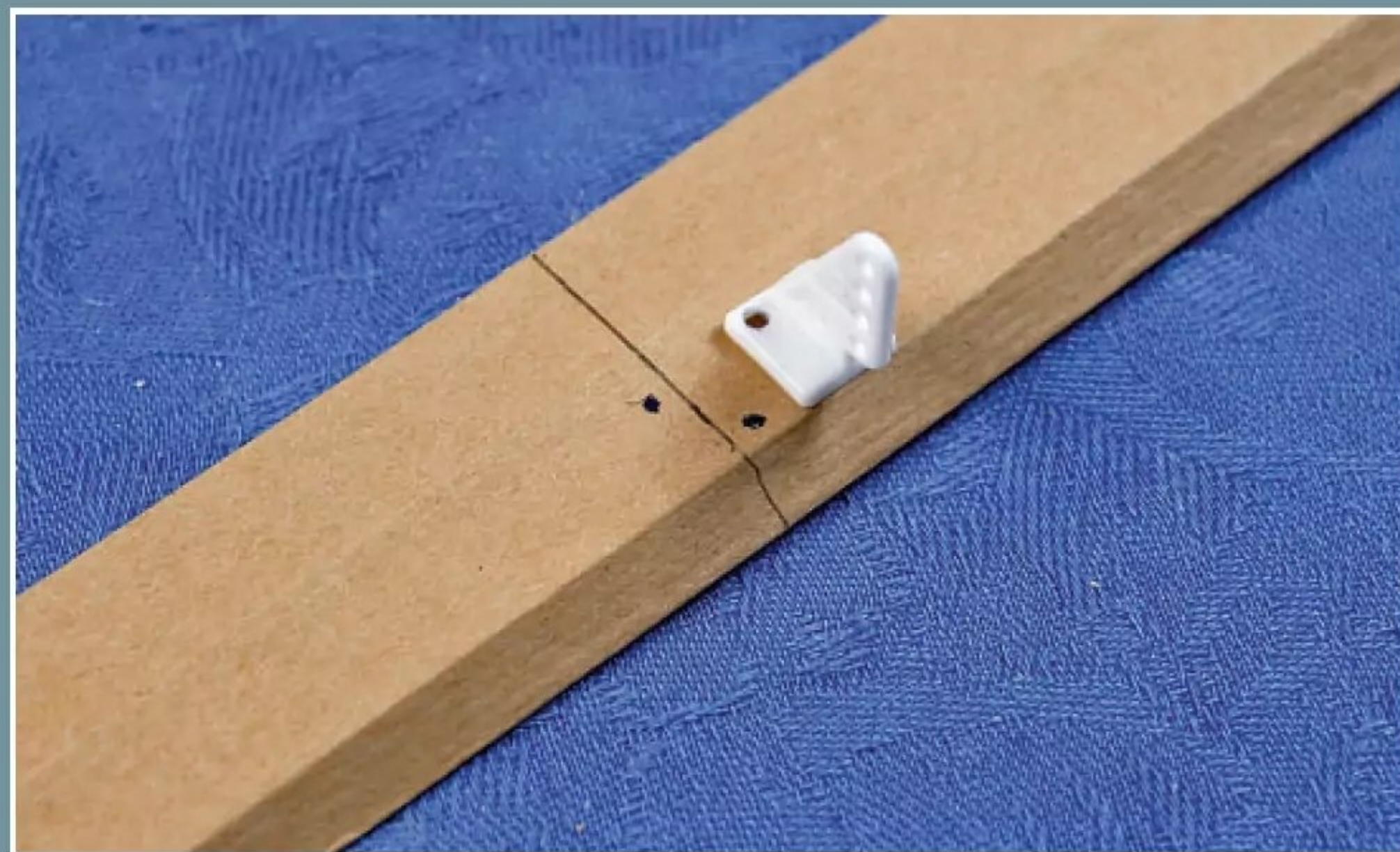
After covering in brown paper (or before, should you prefer) you can open holes in the Depron for fitting the aileron servos. You did mark their correct placements, didn’t you? The ailerons are made from pre-shaped commercial strip, or you can shape them from your own stock.

FIN & TAILPLANE

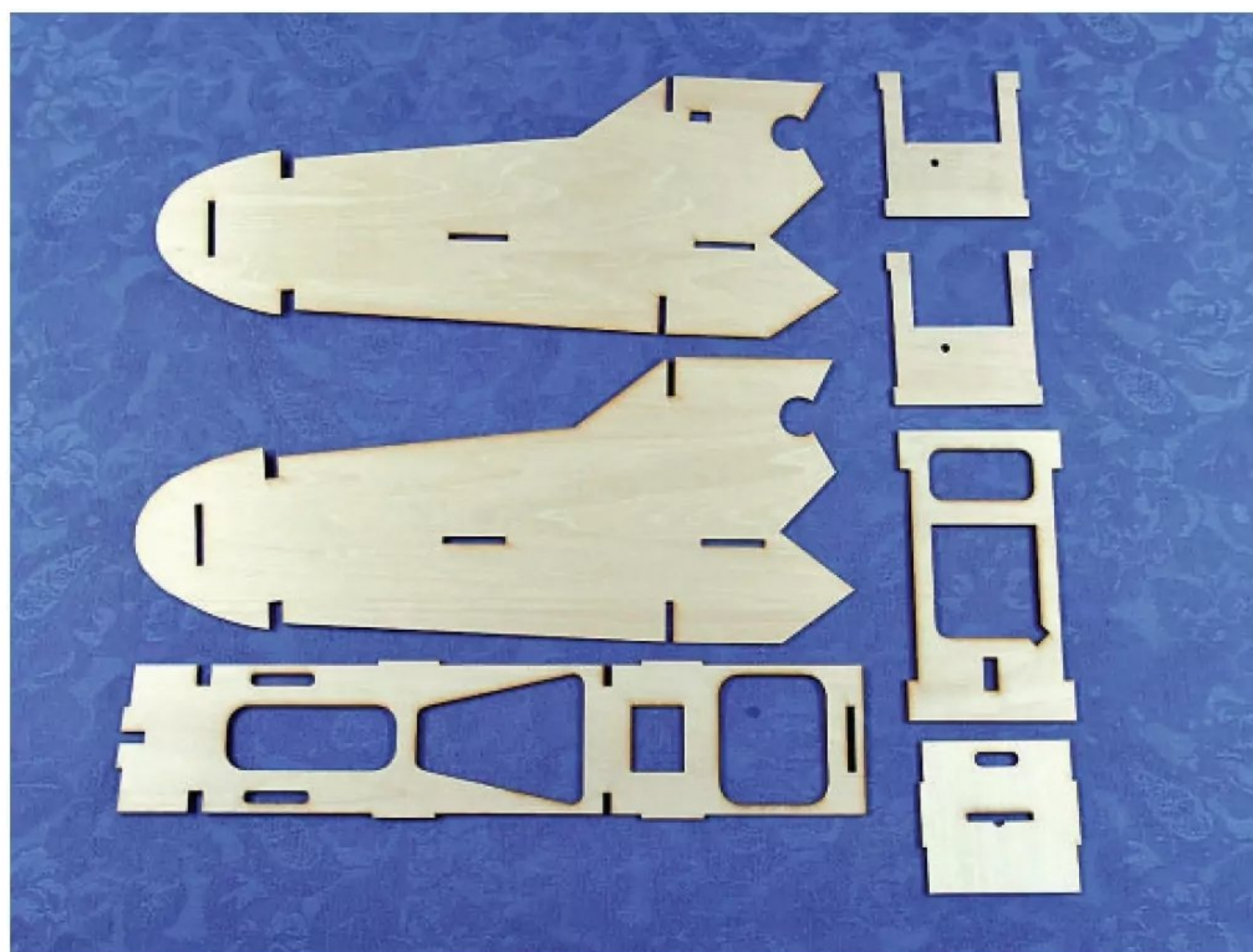
If you use foamboard for the tailplane glue some 5 x 5 mm balsa strip all around the edges for more rigidity and durability. All the control surfaces were articulated with Blenderm tape, but for the tail I used hinges. (I hate



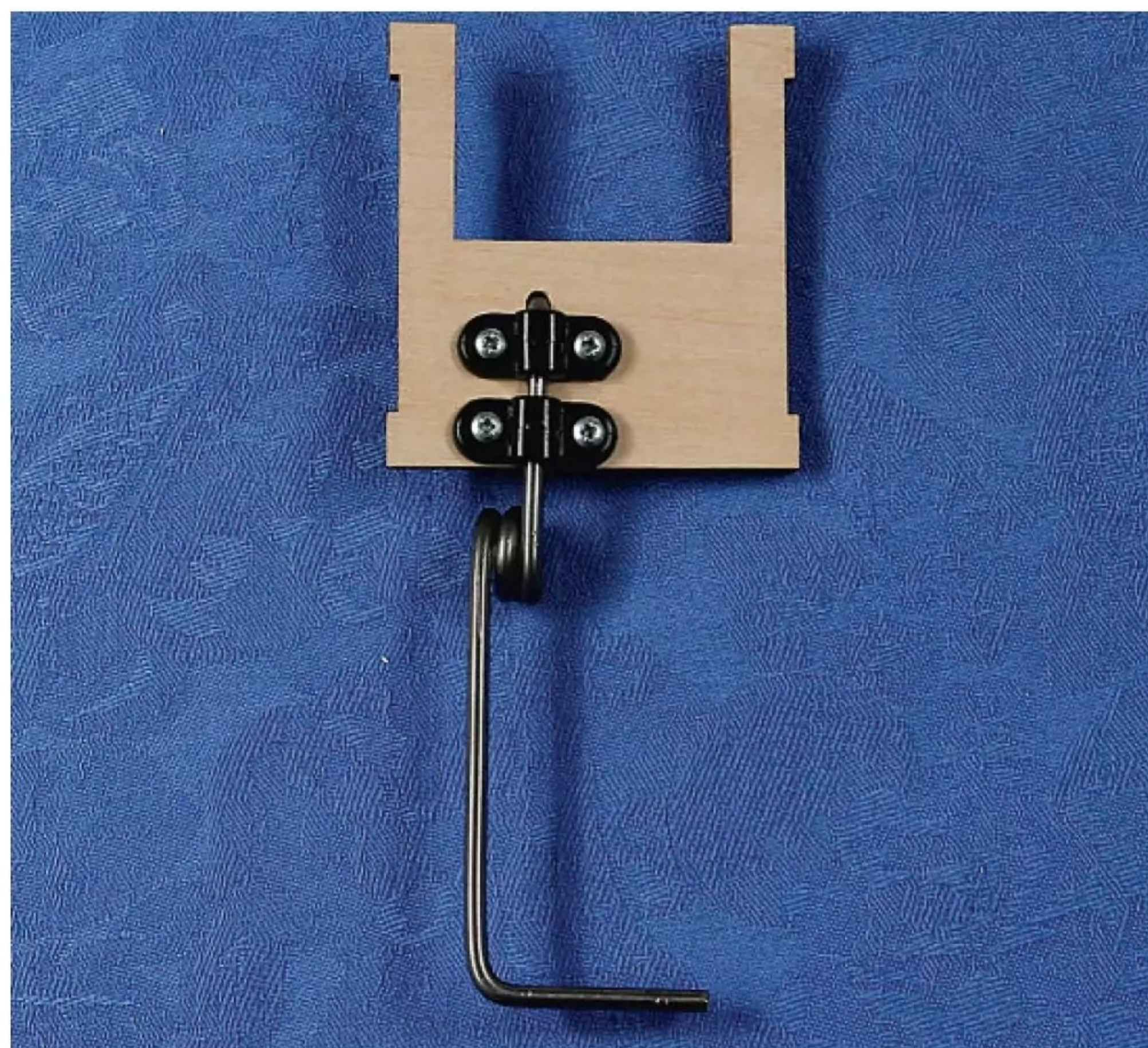
Foamboard fin and tail surfaces are edged in square balsa.



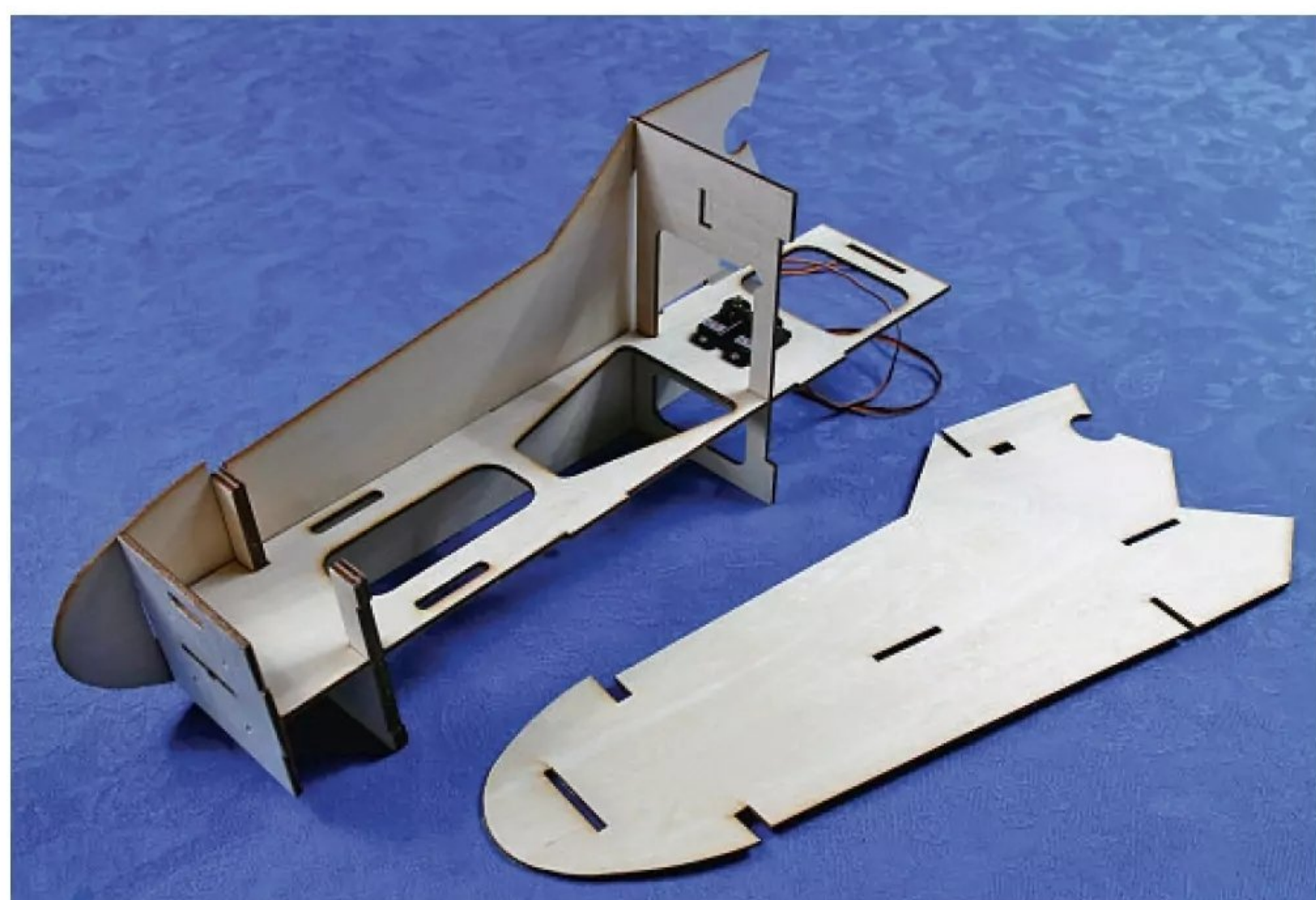
Both the elevator and rudder are bevelled ready for hinging. Standard nylon controls horns provide easy hook ups to the tail servos.



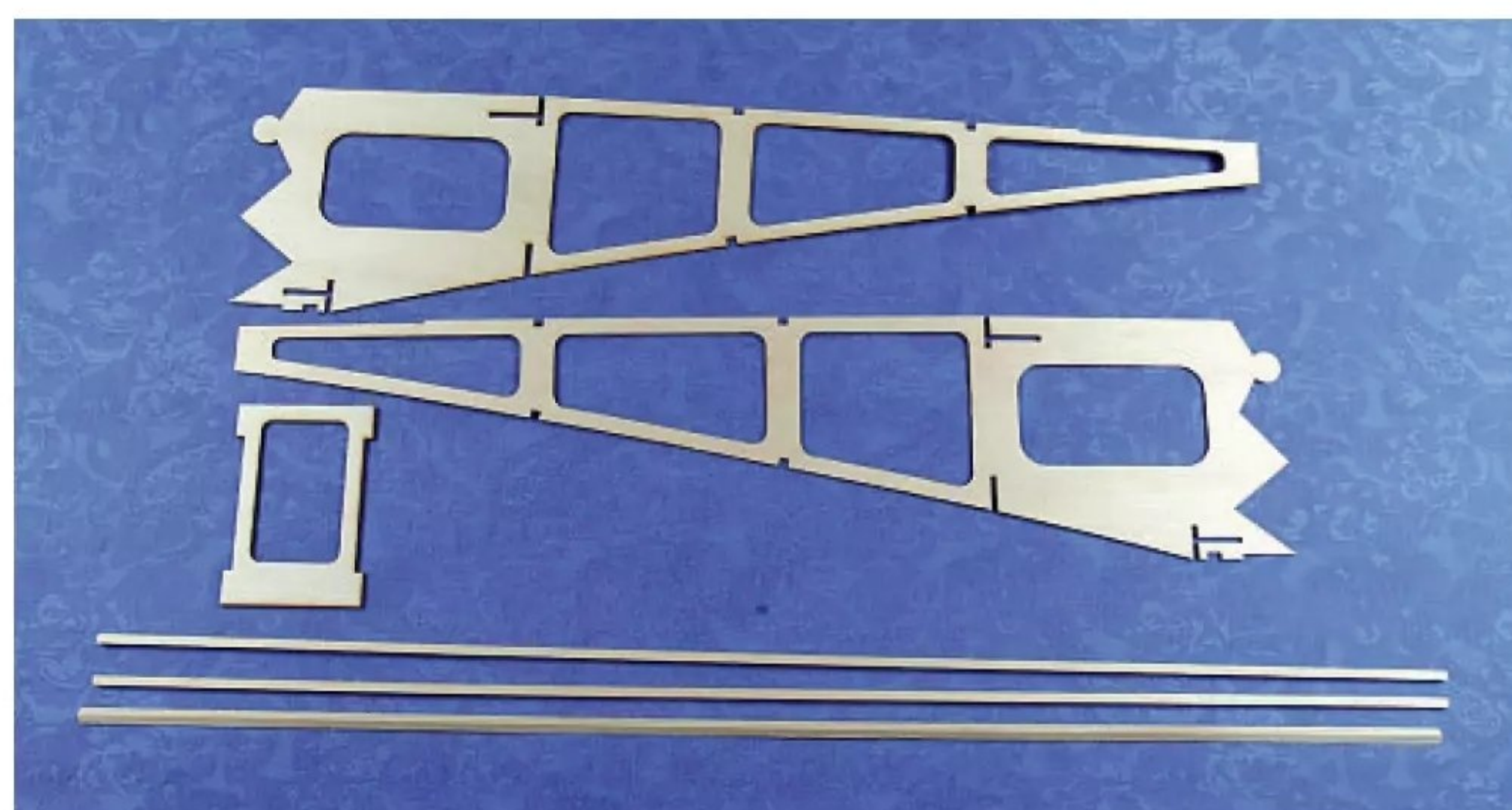
Front fuselage parts.



Pre-drill the front former for the nosewheel clamps before gluing to the first side panel.



Ply fuselage parts slot together for a quick and easy build.



Rear fuselage parts.



Each side piece is edged with square sticks.



Clamp the fuselage assembly together while the glue sets.

hinges. I have never been able to get them perfectly aligned.)

FUSELAGE

The ply formers and fuselage sides interlock. You can cut full length sides or build the front and back assemblies separately and glue them together at the zig-zag line shown on the plan, being sure to include the circular 'jigsaw' style locking area when cutting out the sides. The

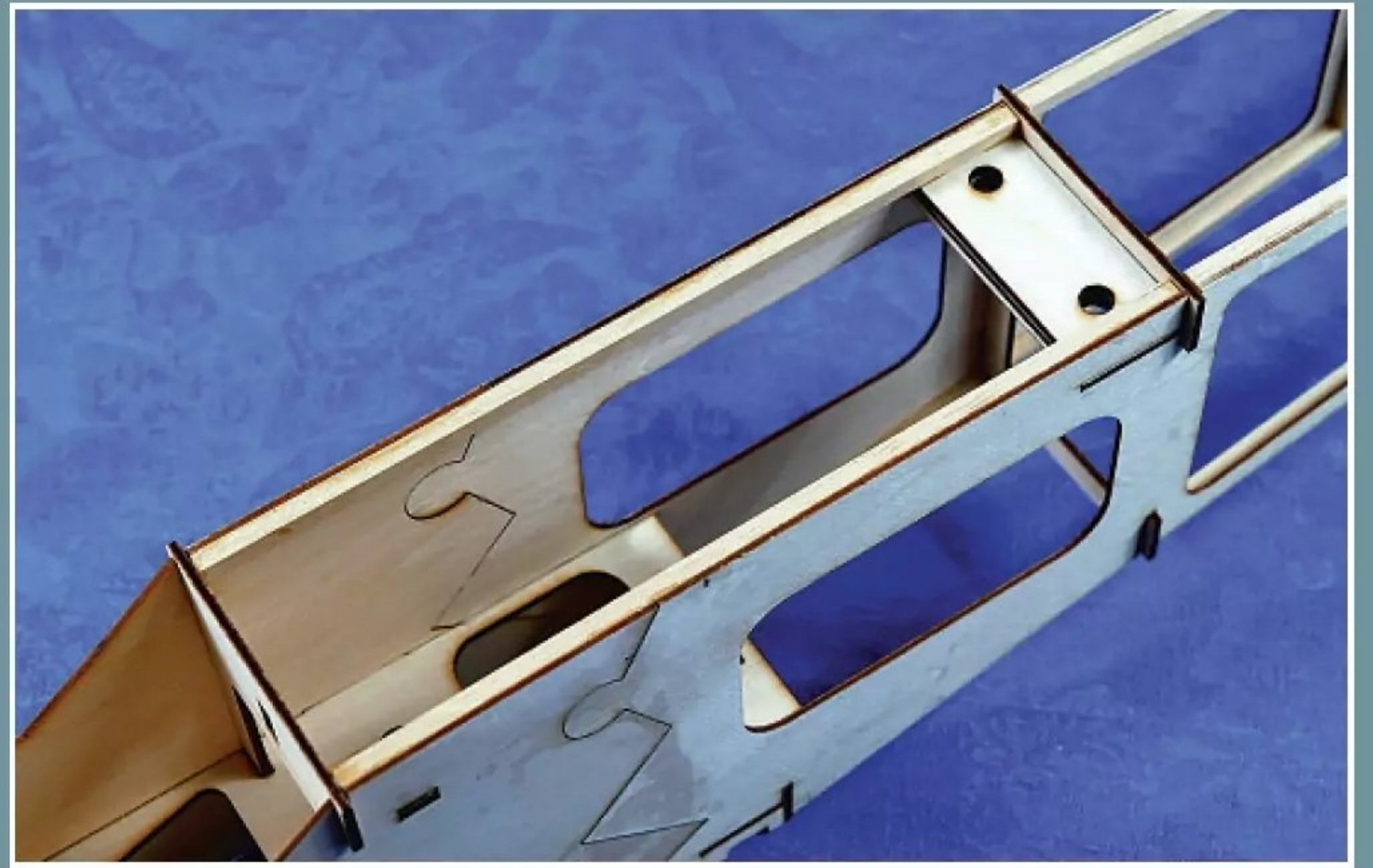
“Slots in the fuselage sides allow you to include some right and down thrust”

landing gear support was originally made with laminations of lite ply, but you may prefer to use ply blocks or hardwood. Slots in the fuselage sides allow you to include some right and down thrust. The horizontal tailplane also has some

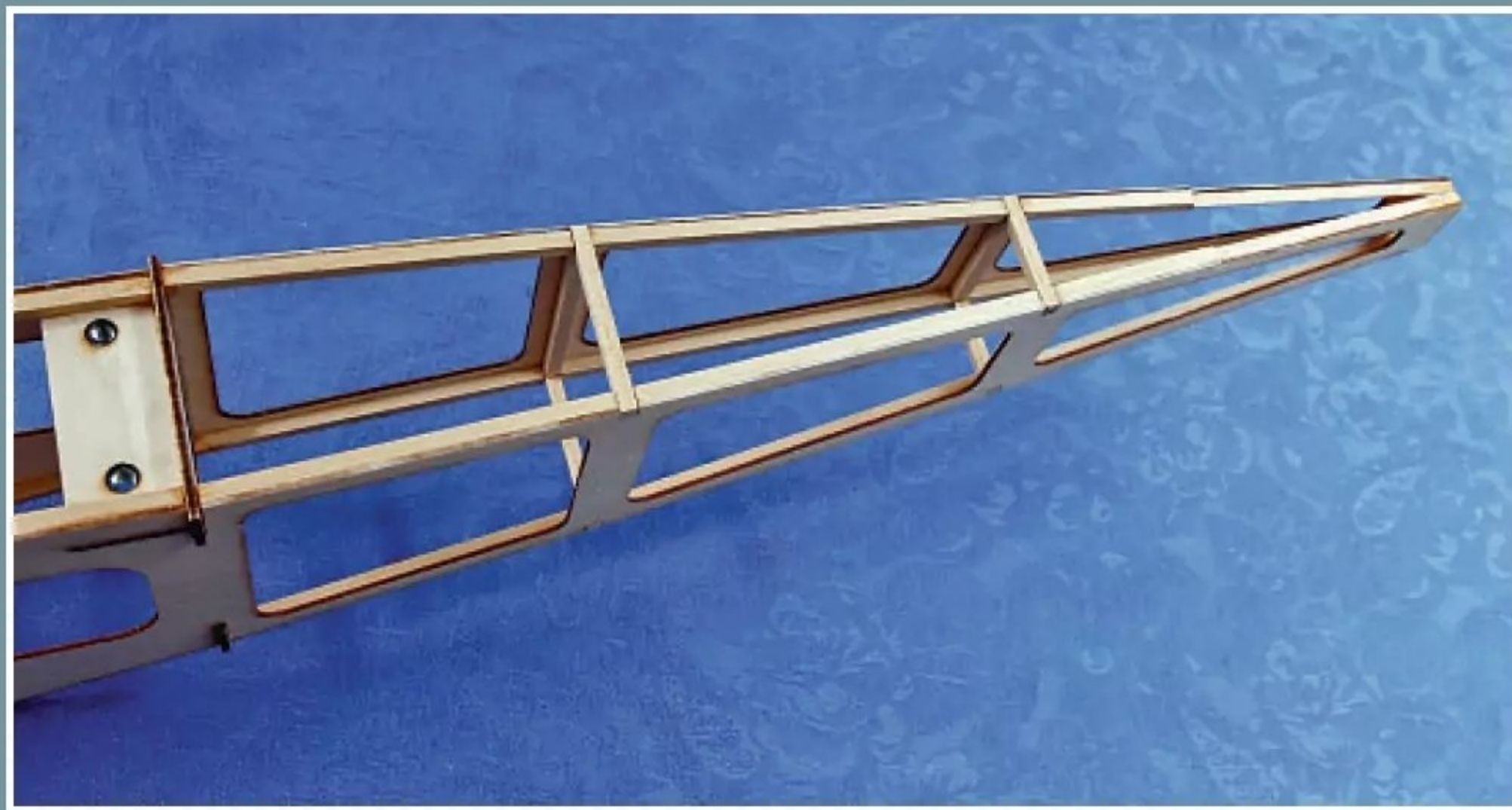
positive incidence, but Ambisagrus will still pull a little upwards under full power. Install the radio and motor gear (see the PDF instructions), then cover the sides with Depron. Voilà! Now you can choose your covering. ➔



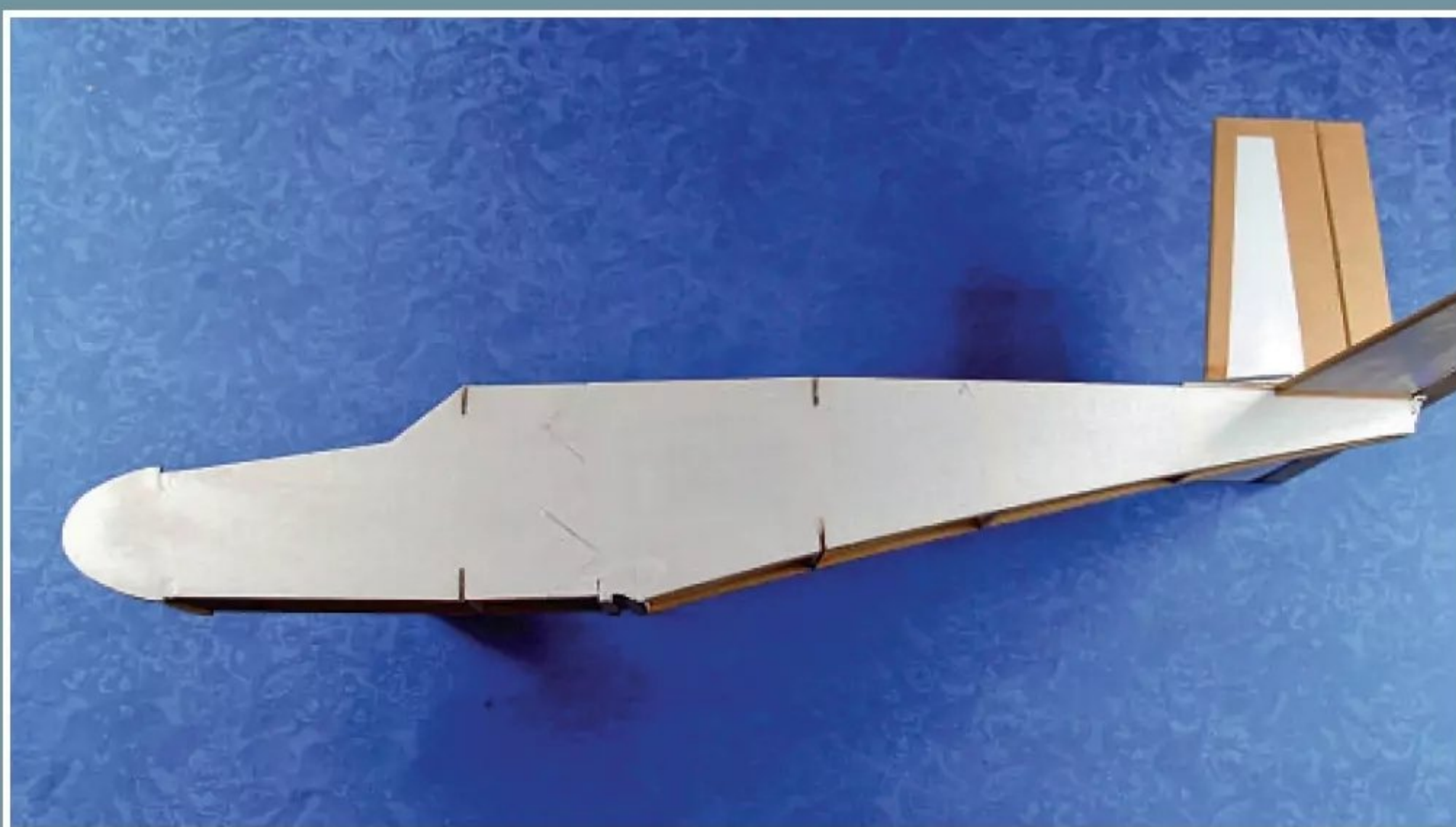
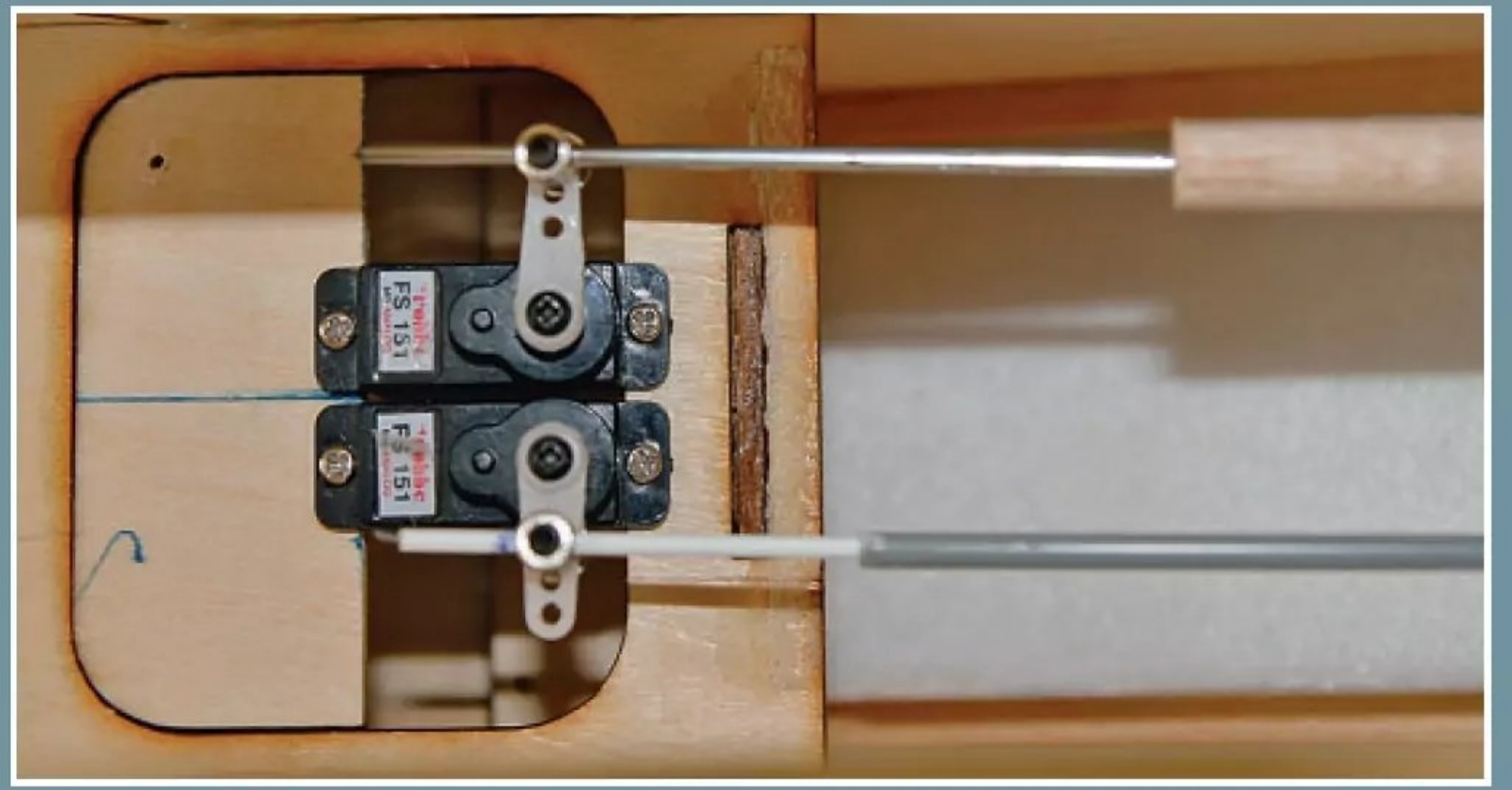
Main undercarriage mounting block detail.



Wing mount and retaining plate detail.



Don't forget to fit the rear fuselage cross braces!



Nearly there! Skin the fuselage sides with Depron before covering.



The tail servos are hooked up with a snake to the rudder and a wooden pushrod to the elevator. You could also use two snakes if you prefer but make sure to brace the runs along the fuselage to prevent them moving and introducing slop in the controls.



Ensure your LiPo is well retained by using a hook & loop strap and additional pieces glued to the battery bay floor.



Battery hatch before covering.



Ambisagrus lines up for another smooth landing.



Bertrand performs a control check before flying Ambisagrus. This should be done before each and every flight, whether a beginner or experienced pilot. Tyro pilots may prefer to do this from behind the model.



Scan this QR code, or visit the link shown, for construction shots and views of Ambisagrus: <https://youtu.be/-ABIN9jixGs>

COVERING

Depron brings little resistance but in this case, it provides a durable surface upon which you use several different finishing methods. But not iron-on films this time, I'm afraid, due to



Almost down and looking good for a well flown arrival.

the obvious danger of melting the foam. The prototypes used brown paper decorated with paint and/or vinyl film applied directly on to the Depron.

A note about vinyl films: they may not provide the lightest finishing method but they are probably the easiest and quickest way to add some colour. Ambisagrus is light enough to cope with them.

As for attaching brown paper to Depron, diluted white glue is okay, I guess. But I used a diluted version of a different product called 'glue varnish' which is used in scrapbooking (search for 'decoupage glue and varnish' - KC). It works fine.

I would love to see some Ambisagrus with full Union Jack decorations so please send the Editor some pictures! ■

DATAFILE

Name:	Ambisagrus
Model type:	High wing trainer
Designed by:	Bertrand Choupin
Wingspan:	1400 mm (55")
Wing area,:	32.2 dm2
Weight:	1600 g
Wing loading:	50 g/dm2
Functions (servos):	Ailerons (2), Rudder (1), Elevator (1), Throttle (ESC)
Motor:	300W - 1000kv
ESC:	40A
Props:	10 X 5
LiPos:	2200 - 3300 mA

Heat Shrinkable Polyester Film

5 Metres!

From £22.49 - Solid Colours

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Complete Electrical Setup For Ambisagrus by Bertrand Choupin



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4M-HESC40AV2 Brushless Electronic Speed Controller	£31.95
4x 4M-175AMG-030 17.55g Metal Geared Servos	£34.92
3S, 11.1V, 60C, 2,200mAh LiPo Battery	£24.00

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PPL-60C2S-2200	60C/120C, 2S (7.4V) 2200mAh	£18.25
PPL-40C2S-2600	40C/80C, 2S (7.4V) 2600mAh	£20.00
PPL-40C2S-3300	40C/80C, 2S (7.4V) 3300mAh	£25.00

PPL-25C3S-0350	25C/50C, 3S (11.1V) 350mAh	£8.50
PPL-60C3S-0450	60C/120C, 3S (11.1V) 450mAh	£9.50
PPL-60C3S-0800	60C/120C, 3S (11.1V) 800mAh	£12.00
PPL-60C3S-1000	60C/120C, 3S (11.1V) 1000mAh	£15.00
PPL-60C3S-1300	60C/120C, 3S (11.1V) 1300mAh	£17.00
PPL-60C3S-1800	60C/120C, 3S (11.1V) 1800mAh	£21.75
PPL-60C3S-2200	60C/120C, 3S (11.1V) 2200mAh	£24.00
PPL-60C3S-2600	60C/120C, 3S (11.1V) 2600mAh	£30.00
PPL-60C3S-3300	60C/120C, 3S (11.1V) 3300mAh	£38.00
PPL-60C3S-3700	60C/120C, 3S (11.1V) 3700mAh	£43.00
PPL-60C3S-4500	60C/120C, 3S (11.1V) 4500mAh	£55.50
PPL-40C3S-5000	40C/80C, 3S (11.1V) 5000mAh	£56.50
PPL-60C3S-6000	60C/120C, 3S (11.1V) 6000mAh	£70.00

PPL-60C4S-1800	60C/120C, 4S (14.8V) 1800mAh	£30.00
PPL-60C4S-2200	60C/120C, 4S (14.8V) 2200mAh	£33.50
PPL-60C4S-2600	60C/120C, 4S (14.8V) 2600mAh	£39.50
PPL-60C4S-3300	60C/120C, 4S (14.8V) 3300mAh	£49.00
PPL-60C4S-3700	60C/120C, 4S (14.8V) 3700mAh	£55.00
PPL-60C4S-4500	60C/120C, 4S (14.8V) 4500mAh	£70.00
PPL-60C4S-5000	60C/120C, 4S (14.8V) 5000mAh	£78.50
PPL-60C4S-6000	60C/120C, 4S (14.8V) 6000mAh	£96.00

PPL-60C5S-3300	60C/120C, 5S (18.5V) 3300mAh	£63.00
PPL-60C5S-3700	60C/120C, 5S (18.5V) 3700mAh	£71.00
PPL-60C5S-4500	60C/120C, 5S (18.5V) 4500mAh	£86.50
PPL-60C5S-5000	60C/120C, 5S (18.5V) 5000mAh	£96.00
PPL-60C5S-6000	60C/120C, 5S (18.5V) 6000mAh	£118.00

PPL-60C6S-3300	60C/120C, 6S (22.2V) 3300mAh	£79.00
PPL-60C6S-3700	60C/120C, 6S (22.2V) 3700mAh	£85.00
PPL-60C6S-4500	60C/120C, 6S (22.2V) 4500mAh	£103.00
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Fly Fun 130A HV	130A, Burst 160A, OPTO, 6-14 LiPo	£141.99
Fly Fun 160A HV	160A, Burst 200A, OPTO, 6-14 LiPo	£189.99

* XT60, ** XT90 on battery side



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	4M-056DHVMG-009 (High Voltage)	Digital Metal Geared Only 8mm Thick - 5.6g	0.90Kg @ 4.8V - 0.14sec/60° 1.05Kg @ 6.0V - 0.12sec/60° 1.20Kg @ 7.4V - 0.10sec/60°	1pcs £9.94ea 5pcs £8.95ea
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	4M-090AH-017	Micro Analog 9g	1.7Kg @ 4.8V - 0.09sec/60° 1.9Kg @ 6.0V - 0.07sec/60°	1pcs £3.99ea 5pcs £3.59ea
	4M-100AMG-022	Micro Analog Metal Geared - 10g	2.2Kg @ 4.8V - 0.12sec/60° 2.5Kg @ 6.0V - 0.10sec/60°	1pcs £7.49ea 5pcs £6.74ea
	4M-100DMG-022	Micro Digital Metal Geared - 10g	2.2Kg @ 4.8V - 0.12sec/60° 2.5Kg @ 6.0V - 0.10sec/60°	1pcs £9.05ea 5pcs £8.15ea
	4M-094DHVMG-026 (High Voltage)	Digital Metal Geared - 9.4g Ball Raced, 8mm Thick	2.0Kg @ 6.0V - 0.09sec/60° 2.6Kg @ 7.4V - 0.07sec/60°	1pcs £14.99ea 5pcs £14.17ea
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	4M-175AMG-030	Mini Analog Metal Geared - 17.5g	3.0Kg @ 4.8V - 0.13sec/60° 3.5Kg @ 6.0V - 0.11sec/60°	1pcs £8.73ea 5pcs £7.86ea
	4M-175DMG-030	Mini Digital Metal Geared - 17.5g	3.0Kg @ 4.8V - 0.13sec/60° 3.5Kg @ 6.0V - 0.11sec/60°	1pcs £9.99ea 5pcs £8.99ea
	4M-253AB-028	Standard/Mini Size Ball raced - 25.3g	2.8Kg @ 4.8V - 0.12sec/60° 3.3Kg @ 6.0V - 0.10sec/60°	1pcs £6.79ea 5pcs £6.11ea
	4M-410ABH-052	Standard Analog 41g	5.2Kg @ 4.8V - 0.20sec/60° 6.5Kg @ 6.0V - 0.16sec/60°	1pcs £4.73ea 5pcs £4.26ea
	4M-455AH-033	Standard Analog 45.5g	3.3Kg @ 4.8V - 0.15sec/60° 4.0Kg @ 6.0V - 0.12sec/60°	1pcs £6.99ea 5pcs £6.29ea
	4M-556AMG-087	Standard Analog Metal Geared - 55.6g	8.7Kg @ 4.8V - 0.15sec/60° 9.4Kg @ 6.0V - 0.13sec/60°	1pcs £12.59ea 5pcs £11.33ea
	4M-556DMG-087	Standard Digital Metal Geared - 55.6g	8.7Kg @ 4.8V - 0.15sec/60° 9.4Kg @ 6.0V - 0.13sec/60°	1pcs £15.74ea 5pcs £14.17ea
	4M-620DHVMG-112 (High Voltage)	Digital HV Metal Geared Dual Ball Raced 62g	9.35Kg @ 6.0V - 0.15sec/60° 11.2Kg @ 7.4V - 0.13sec/60°	1pcs £18.89ea 5pcs £17.00ea
	4M-556AMG-118	Standard Analog Metal Geared - 55.6g	11.8Kg @ 4.8V - 0.20sec/60° 13.2Kg @ 6.0V - 0.18sec/60°	1pcs £14.69ea 5pcs £13.22ea
	4M-556DMG-173	Standard Digital Metal Geared - 55.6g	17.3Kg @ 4.8V - 0.18sec/60° 20.4Kg @ 6.0V - 0.16sec/60°	1pcs £17.84ea 5pcs £16.06ea

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New

£439.99

SE5a

Wingspan 1690mm/66"
Battery 10S 5000mAh

Weight 8500g/18.7lbs
(Supplied Separately)



New

£424.99

Fokker DVII

Wingspan 2100mm/83"
Battery 6S 5000mAh

Weight 6000g/13.2lbs
(Supplied Separately)



New

£439.99

Miles 2.H Hawk Major

Wingspan 2480mm/98"
Battery 10S 5000mAh

Weight 9300g/20.5lbs
(Supplied Separately)



£109.99

Cloud Clipper

Wingspan 1800mm/71"
Battery 3S 2200mAh

Weight 1800g/4lbs
(Supplied Separately)



£99.99

Cloud Walker

Wingspan 1650mm/65"
Battery 3S 2200mAh

Weight 1250g/2.75lbs
(Supplied Separately)

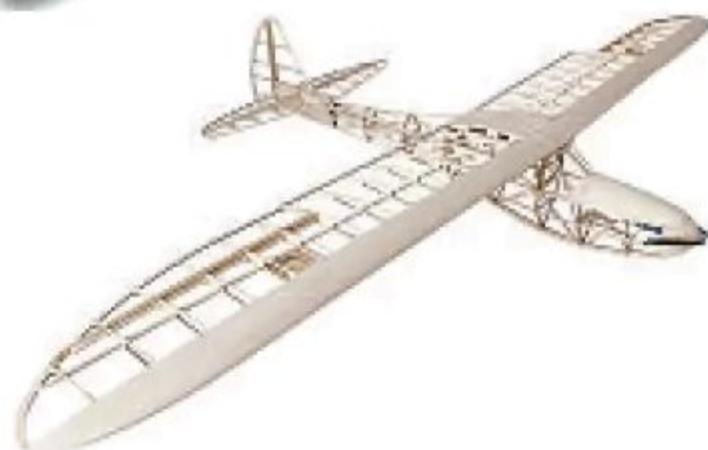


New

£169.99

Lippisch G108

Wingspan 2750mm/108.25" Weight 1700g/3.75lbs
Battery 3S 2200mAh - 3S 3700mAh (Supplied Separately)



£139.99

Super Sinbad

Wingspan 2500mm/98"
Battery 3S 2200mAh - 3S 3700mAh

Weight 1900g/4.2lbs
(Supplied Separately)



£49.99

Micro Sinbad

Wingspan 1230mm/48.4"
Battery 2S 350mAh

Weight 190g/6.7oz
(Supplied Separately)



£169.99

Leprechaun

Wingspan 2600mm/102"
Battery 3S 2200mAh - 3S 3700mAh

Weight 1650g/3.6lbs
(Supplied Separately)



New

£49.99

Micro Leprechaun

Wingspan 1200mm/27.25"
Battery 2S 450mAh

Weight 350g/12.3oz
(Supplied Separately)



£169.99 Kit
£299.99 ARTF

VP2600 Glider

Wingspan 2600mm/102"
Battery 3S 2200mAh

Weight 850g/1.9lbs
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HOTA D6 Pro - Dual I/P, Dual O/P 650W Charger



The D6 Pro is a dual I/P (AC & DC) and dual O/P high quality charger with each output capable of charging. It can charge between 2S - 6S LiPo, LiHV, LiFe and Li-ion batteries, Eneloop, Ni-Cd, Ni-MH, Ni-Zn. It also features wireless charging so you can charge your phone at the field. Great Value for just.

New

£109.99

HOTA F6+ - Dual I/P, Quad O/P 1000W Charger



The F6+ features dual I/P (100VAC - 240VAC & 6.5VDC - 30VDC) and has 4 high powered outputs each can charge up to 250W. It can charge between 2S - 6S LiPo, LiHV, LiFe and Li-ion batteries, each up to 15A. 1S - 12S Eneloop, Ni-Cd, Ni-MH, Ni-Zn. Brilliant Value for just.

New

£199.99

HOTA H6 Pro - Dual I/P, 700W Charger



The H6 Pro Smart Charger features dual I/P (100VAC - 240VAC & 6.5VDC - 30VDC) and can deliver up to 700W, 200W on AC (max 26A). This is the charger when you need large packs charged quickly. Balance current 2A Fantastic Value for just.

New

£79.99

HOTA S6 - Dual I/P, Dual O/P 650W Charger



The S6 is a high quality dual I/P (AC & DC) and dual O/P high quality charger with each output capable of charging. It can charge between 2S - 6S LiPo, LiHV, LiFe and Li-ion batteries, Eneloop, Ni-Cd, Ni-MH, Ni-Zn. Outstanding Value for just.

New

£169.99

ToolKitRC Q6AC - 1000W, Dual I/P, Quad O/P



The ToolkitRC Q6AC is a Dual Input, Quad Output Smart Charger. 2-6S LiPo, LiHV, LiFe, Lion and 1-16S NiMH. The charging power output on AC is up to 400W, on DC with a suitable power supply up to 1000W. The high power quad O/P charger.

New

£175.99

ToolKitRC Q4AC - 200W, Dual I/P, Quad O/P



The ToolkitRC Q4AC is a Dual Input, Quad Output Smart Charger. 1-4S LiPo, LiHV, LiFe, Lion and 1-10S NiMH. The charging power output on AC is up to 100W, on DC with a suitable power supply up to 200W. The Q4AC has intuitive menus.

New

£69.99

ToolKitRC M7AC - Multifunctional Dual I/P, 350W Charger



The M7ACs core function is being a single channel battery charger. 100W O/P when powered by AC and 300W when powered by DC. It is compatible with the main battery chemistries and supports direct connection with both XT60 and XT30 batteries.

£84.99

ToolKitRC M7 - is the worlds smallest 200W charger/ servo tester/cell checker with a colour screen!



Same size as the popular M6 but with 33% more power! With a 200W, 10A charger at its heart the M7 also has a servo tester, cell checker, a wattmeter, PWM/PPM/Sbus input testers and output generator along with a variable voltage and current DC output control. All of these features at a fantastic low price of

£49.99

ToolKitRC M9 - Dual I/P & Dual O/P, 700W



So many functions in a small charger! Battery internal resistance checker, wattmeter, servo tester, (Can output PWM/PPM/SBUS standard signal, accuracy up to 1µs) LiPo balancer. It also charges all the main types of rechargeable cell up to 25A. USB type A & C outputs

£79.99

ToolKitRC M4Q - 200W Quad Out Charger



The M4Q is a 4 in 1 charger that has 4x 50W charging circuits when powered by DC (4x 25W when powered by AC). Allowing you to balance charge 4 batteries at the same time. It features an internal power supply so you can just plug it into your nearest mains socket. It can also be powered by DC when at the field.

£84.99

ToolKitRC M4 Pocket - 80W O/P Charger



The ToolkitRC M4 Pocket is a small but powerful ~80W charger featuring dual input (USB Type-C / XT60) and dual output (XT60 / XT30). The charger can charge up to 4S LiPo/LiHV/ LiFe batteries. It can also be used to charge USB mobile devices with a USB-C socket. It features a 1.54" Wide angle colour display

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SKY High Power Discharger -



Fed up at how long it takes you to discharge your unused batteries? Then this is the discharger you have been waiting for. This can discharge your batteries up to 35A! (max 250W). Just set the discharge current and the end voltage you require and push the button, simple as that. We recommend that you just finish the storage process off on your charger.

£119.99

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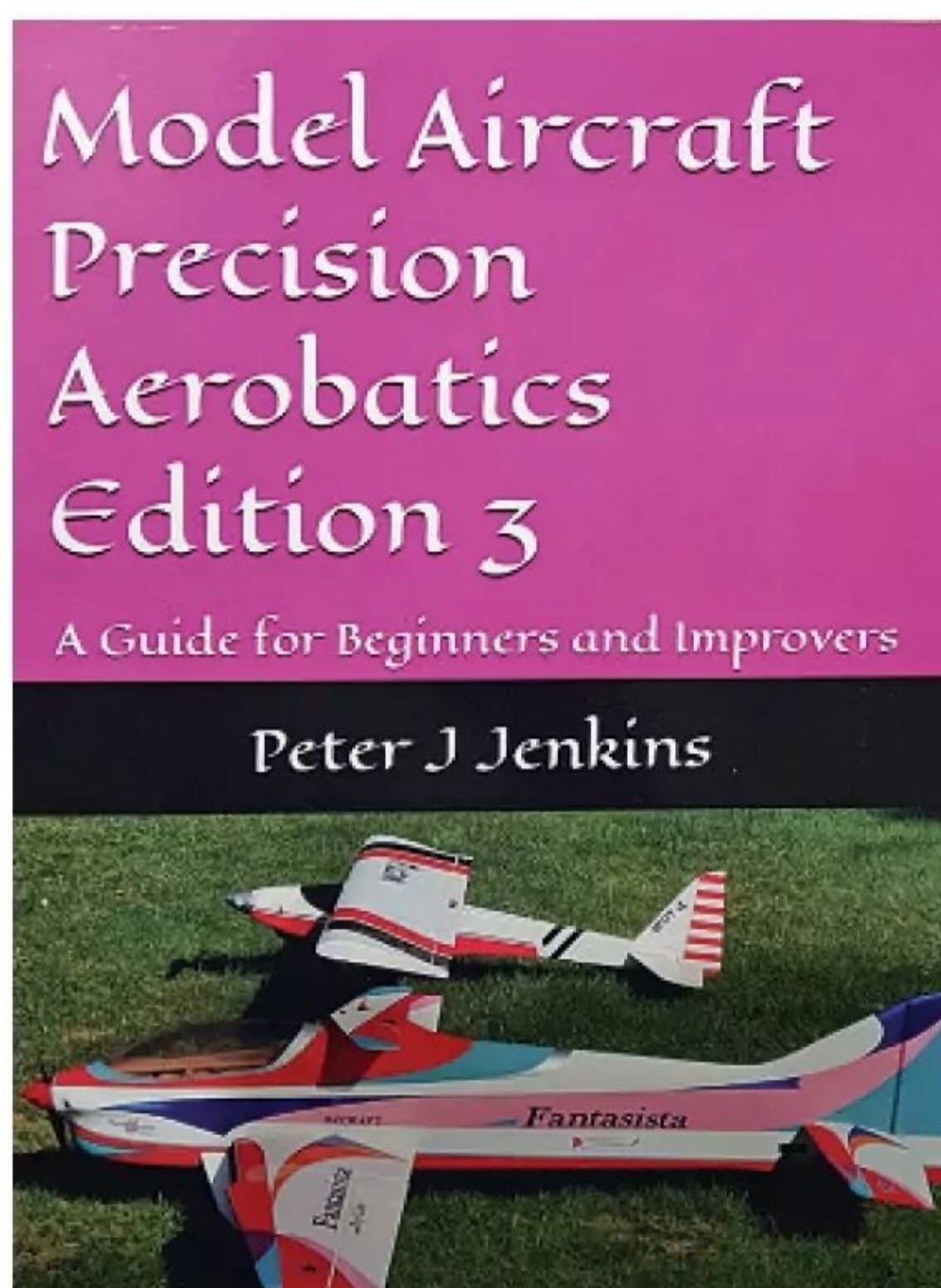
MODEL AIRCRAFT PRECISION AEROBATICS EDITION 3

£8.99 - £35.79 | www.amazon.co.uk

Written by Peter Jenkins, Edition 3 of this very informative publication is a guide for both beginners and improvers in the realm of model aircraft precision aerobatic competition, focusing on the new UKF3A Entry Level Schedule, UKF3A Association Clubman and Intermediate Schedules, with a chapter describing mini training schedules that allow you to build up your skills, and how to fly the Entry Level and Intermediate schedules. The book covers the basics of starting aerobatic flying from when you've just gone solo, taking you through the basics of aerobatic manoeuvres to preparing for the challenge of competition flying. Even if you're not interested in entering the competition arena, the wealth of information within these pages provides the knowledge and techniques that, with disciplined practice, will help develop your club aerobatic performance to a much higher standard.

There's a healthy abundance of information on how to set up your aircraft as regards Centre of Gravity position, engine/motor thrust lines and control throws, and a focus on transmitters and the functions that are particularly useful for precision aerobatics.

Available from Amazon (Kindle, paperback or hardback). RCM&E forum members can buy directly from Peter (paperback or hardback) at www.modelflying.co.uk.

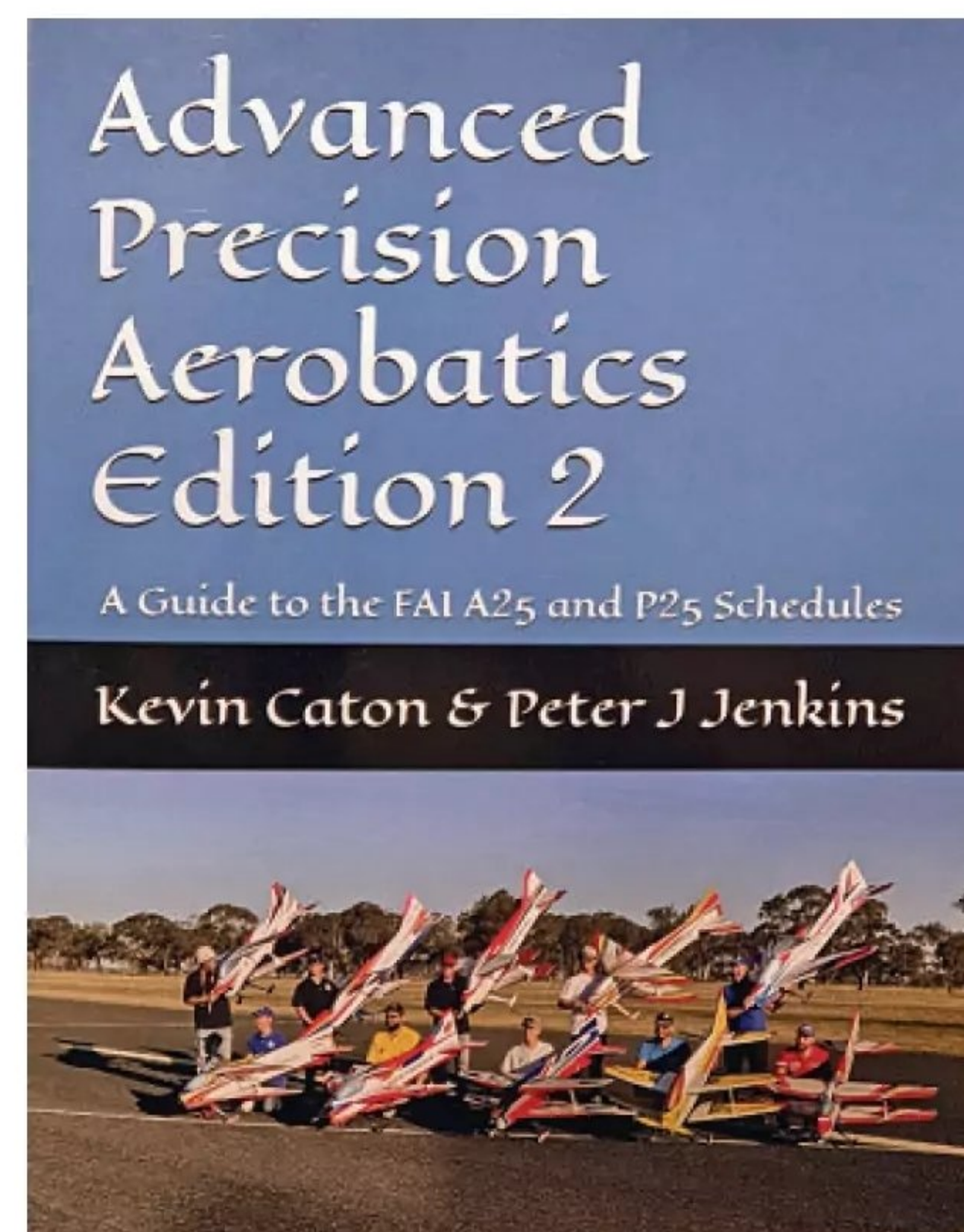


ADVANCED PRECISION AEROBATICS EDITION 2

£9.49 - £31.20 | www.amazon.co.uk

A joint collaboration between Kevin Caton and Peter Jenkins, Edition 2 of this popular page-turner updates the practical advice on how to fly FAI A25 and P25 schedules (the P25 'Preliminary Schedule' is flown in all Continental and World Championships and usually in National Competitions. The A25 'Advanced Schedule' is the precursor to the P25 and has the same manoeuvre geometry but with fewer in-manoevre elements. The object of flying A25 is that it enables an easier transition to P25 as the overall geometry remains the same. In the UK, both A25 and P25 are used in National League competitions). The book also provides information on how to use the Flight Coach system during practice in order to identify what you're doing wrong when flying manoeuvres. The subjects of trimming, transmitter setup, aircraft and control setup, how to practice effectively, countering wind effects and what's involved in competition flying are also addressed in depth.

This 'must' read for any pilot wishing to raise their standard of flying both in and outside competition is available from Amazon (Kindle, paperback or hardback). RCM&E forum members can buy directly from Peter (paperback or hardback) at www.modelflying.co.uk.



ARROWS P-51 (850mm)

£189.99 | www.jperkins.com

New to the Arrows warbird range this striking, beautifully realised, PNP red tail Mustang from J.Perkins has a high level of detail that includes LED nav lights, four-blade prop, drop tanks, cockpit detail, guns, intakes and grilles. Arrows' acclaimed Vector gyro stabilisation

system provides precise control and ample 'grunt' for vertical performance is assured from the pre-installed 2212 1300 kV motor / 30A ESC powertrain, fuelled by a (not included) 3S 1300-1600 mAh LiPo that locates in an easy-to-load sliding battery tray.

Made from durable EPO, assembly takes around 30 minutes. Suitable for intermediate / advanced pilots, four channel R/C and the aforementioned 3S LiPo are required to complete the model, which is priced at £189.99.





Sylvie Veyssiere poses with her 'tangle of bits' Demoiselle, a triumph of the art and a model with impeccable indoor manners. See 'French Fancies'.

CARBON CAPTURE

Dave Goodenough finds a new supplier for his carbon requirements, browses the local 'Middle of Lidl' and test flies his latest simple scale design

Words & Photos: **Dave Goodenough**

Most model builders, even us hoary-handed ancient and vintage types, have now succumbed to the benefits of carbon fibre in its many forms. Simple rod and strip are the usual 'off the shelf' sections we reach for, but there are others readily available. From stiffening to structural, the use of carbon is becoming ever more popular and the more models we design and build, the more we find reasons to include the material in our playthings.

I recently reached into my storage of said stock, only to find a paucity of almost everything I normally use. What to do?

POKE & STROKE

With the laptop under stress from excessive key poking, I searched 'the usual suspects' for the supply of longer pieces of small section carbon. Many are available at up to 1000 mm, but they are not always very cost-effective (read cheap!) due to the price of material, postage or both. I was about to succumb to the benefit of availability against high price, when I espied a link to an industrial supplier, Easy Composites. A few key presses brought up their stock lists and once I'd begun to rummage around, I realised that not only were their prices very reasonable



Easy Composites supplied me with various carbon sections at very reasonable prices. Perhaps they can help you too?

but so were their postage rates. Another surprise was that they can supply 2000 mm lengths, although I have no idea how much freight would be. Further rummaging showed that they mention 'ideal for modelmaking' on many items and that there appeared to be no minimum order requirement. Better and better!

I put together a small order for around eight various one metre sections of strip and tube, and was about to include postage when I saw an option for collection at their trade counter in Stoke-on-Trent. Also mentioned was that collection was possible just two hours after

completion of the order. Being only a few miles from my moorland hovel it was a no-brainer; it was time to go and 'black my nose'.

Early next day saw me at their base collecting my bounty from a very friendly couple of people in their workforce. I must state here that I have no link to the company whatsoever other than now being a very happy customer. I've no doubt that you will be similarly pleased with their stock and service.



Yes, it's a Wright Flyer; yes, it's balsa and tissue and yes, 'Wilbur' moves with the controls - incroyable!



SPADly pleasures! Sylvie Veyssiere crafts her own delectable models from 'stick and tissue'. Light and oh so good in the air.

FRENCH FANCIES

During my years in Brittany, I met several modellers that bucked the ARTF trend and both designed and built their own models. One couple took the scratch-building of traditional balsa-and-tissue R/C models for mostly indoor flying to an art form, designing from scratch and doing everything themselves from the original idea onwards.

Christian and Sylvie Veyssiere make and fly the most delicious aerial confections that, despite their apparent size, complexity and fragility are eminently practical flying machines. Many are of a size that can be flown outside in the lightest of conditions and it doesn't take much imagination to see that you too could emulate these beauties by building existing lightweight kit models sold as rubber-powered devices.

I've 'banged that drum' before and if your feedback demands, and when time and bench space allow, I'll source an appropriate kit to



Christian Veyssiere with his little 'Carte Postale' on charge. One of his simpler models.

describe the build and modification process. I know it's all been done before but a different 'take' on the methodology is never wasted knowledge or experience. Use my email contact to tell me if you want this idea to be developed.

WIRED FOR SOUND

I've been foam fiddling again, this time building a small 800 mm span, scale 1923 HP-Sayers. The aircraft was entered into the first ever light plane trials in Britain, down at Lympe on the south coast, but a dodgy engine put paid to its attempts. Designed for both indoor and outdoor flight the model was built a little stronger than what I'd call normal, but unpainted and powered by a 5 g outrunner it flies very well.

Unfortunately, I had a problem with the closed loop control lines. I'd used woven Dacron fishing line, plenty strong enough but a fiddle



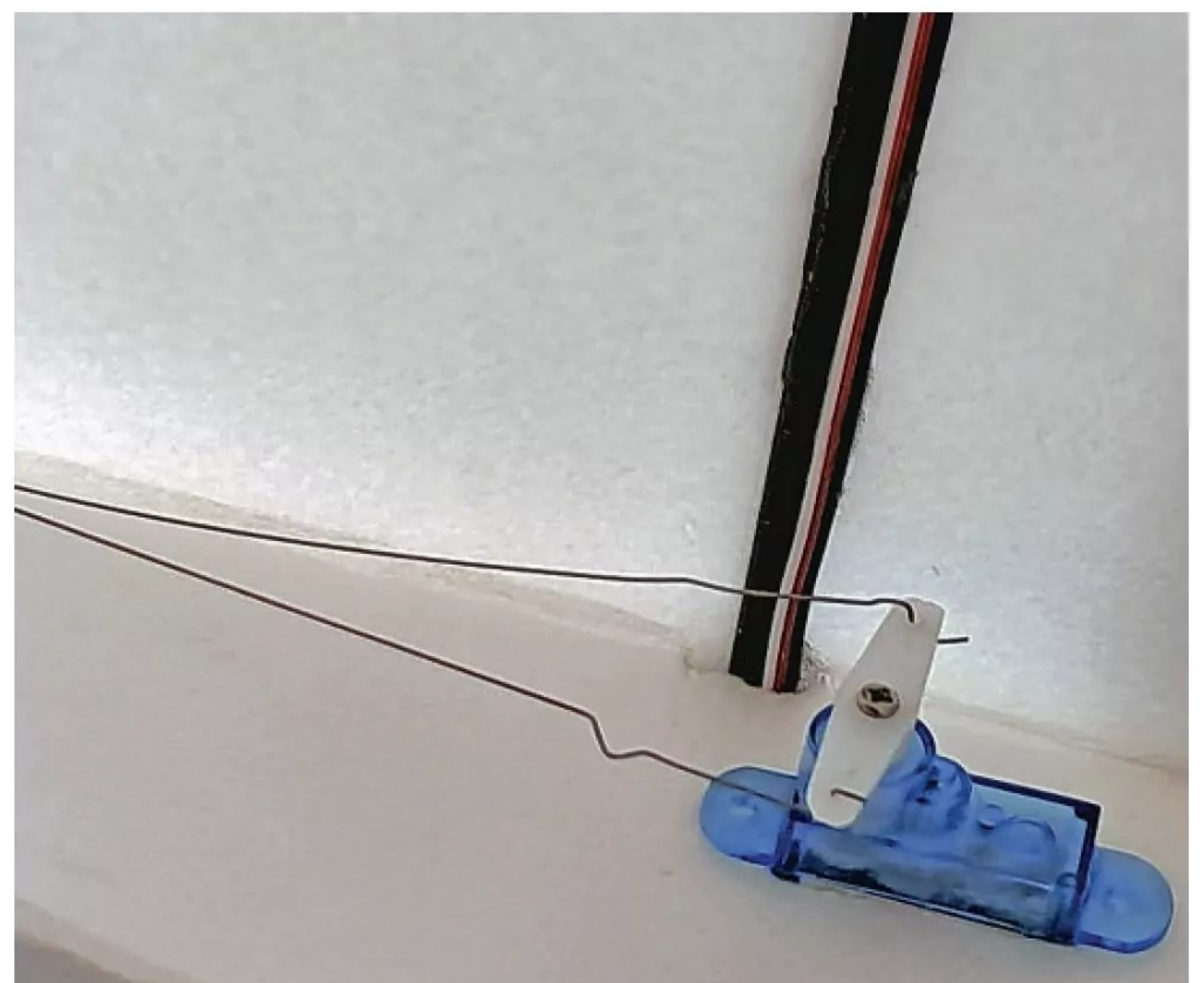
Although designed to be a rubber powered free flight model the Dumas Aeronca is just right for simple R/C conversion.

to install/knot and not as precise in the air as I'd hoped. What to do?

I had piano wire down to 0.5 mm diameter but even that was a bit heavy, so I searched for lighter fare. 'Music wire' found the answer online and 30 SWG (0.012 inch dia.),



Ultra fine piano wire is a super alternative to thread or fishing line in a small, closed loop installation. I found this 0.012" (30 swg?) wire in a harpsichord supplies shop.



Elevator control on the HP-Sayers using a 3.7 g servo and 0.012" piano wire closed loop wires with adjustment vees. A tad 'raw' but it does the job with no fuss.

also listed as 'wire size 3 or 4', provided the 'stiff' control lines I needed for the all-flying tailplane. Although still fiddly due to the nature of the installation the solid wire provided relative rigidity without any undue weight increase.

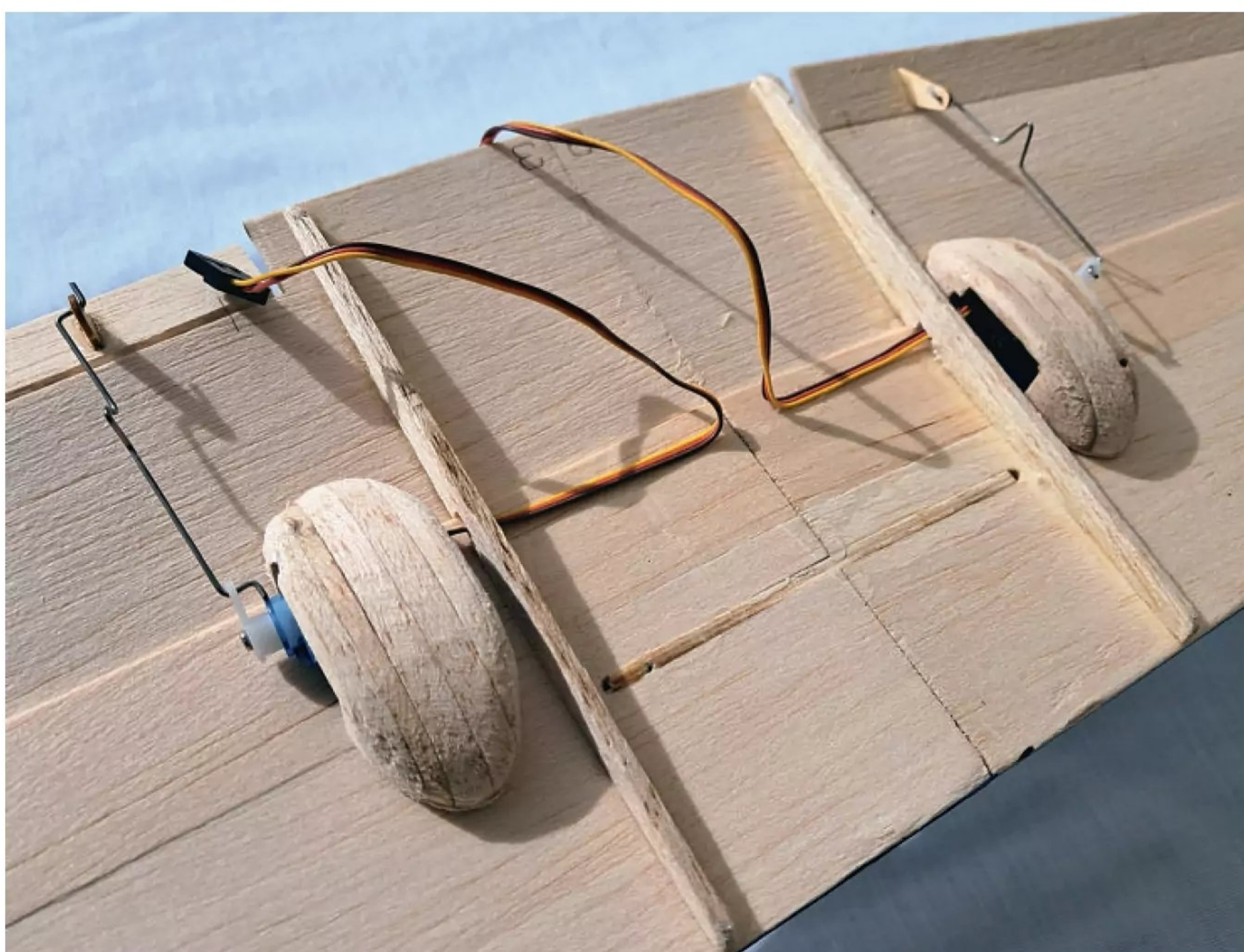
I found mine at Hugh Craig Harpsichords at a reasonable cost when considering its specialist nature and high quality.

DRILL PRACTICE

I've always got my 'weather eye' open for anything that can improve my lot when modelmaking, or that will make things just that little bit simpler. In the tool arsenal are ancient pin vices I use regularly. They are best described as a tiny chuck that's axially mounted on the end of a shaft, designed to take the smallest twist drills of less than 1.0mm dia. You rotate the pin vice shaft between your fingers to enable the chuck-clamped drill to bore the tiniest of holes.

'What possible use is that?', I hear some of you ask. Well, all I can answer is, once you've got one and realised how handy it is you'll be glad you had the wisdom to buy it, along with a set of tiny drills.

So, where am I going with this ramble? I was in the store that rhymes with middle and was drawn to the tool section. (It's a man/engineer thing, as you know.) Lying there, crying out to be fondled, was a small box that looked very interesting and had me disturb the wallet moths in very short order. Within were two sets of tiny drills, from sub-1.0mm to about 2.5mm dia. Not only that, but it included a very nice and well-knurled Pin Vice fitted with a chuck that was able to accept all those varied sizes. I was very nearly all a-tremble! Less than £6 later and with a wife who expostulated, 'Not more blo**y tools!', I was a very happy bunny. They are rarely ever available so keep an eye out and snap them up when you find them.



My Hiesbok 'Easy-2' needed these two reinforcing ribs next to the wing servo 'pods'. No more flexing in flight!

"I've always got my 'weather eye' open for anything that can improve my lot when modelmaking"

BEGINNER'S BUNDLE

Previously, I mentioned that I'd been building the Hiesbok 'Easy 2' beginner's model and I was now due to test it. The model proved to be every bit as good as I'd hoped and it garnered several honourable mentions of 'looks nice', 'a pretty little thing', etc.

On the close-cut patch and with the noise tap eased forward the 'Easy 2' hared away and it took very little trim adjustment to have it flying straight and level, if a little fast. A few minutes of playtime saw me bring it back for a landing on the simple undercarriage I'd added. But one of the lads noticed there was an inconsistency with the ailerons - both appeared to have an 'up' reflex (deflection). I knew that on the bench I'd adjusted them accurately. So, what was going on?

Being rubber-banded in place, the wing centre section had slightly deformed, flexing the wing panels just enough to force the aileron trailing edges to deflect upwards by a couple of millimetres. The solution was simple - glue a couple of ribs alongside the underwing servo mounts, preventing wing flex.

A test flight after the modification needed a minor trim change, a tad of down elevator to counter the slightly increased lift from the now correctly adjusted ailerons. The 'Easy 2' now flies better, a little slower and it is a super little 'toughie' for chucking about the sky. Such small and cheap packages can be so much fun!

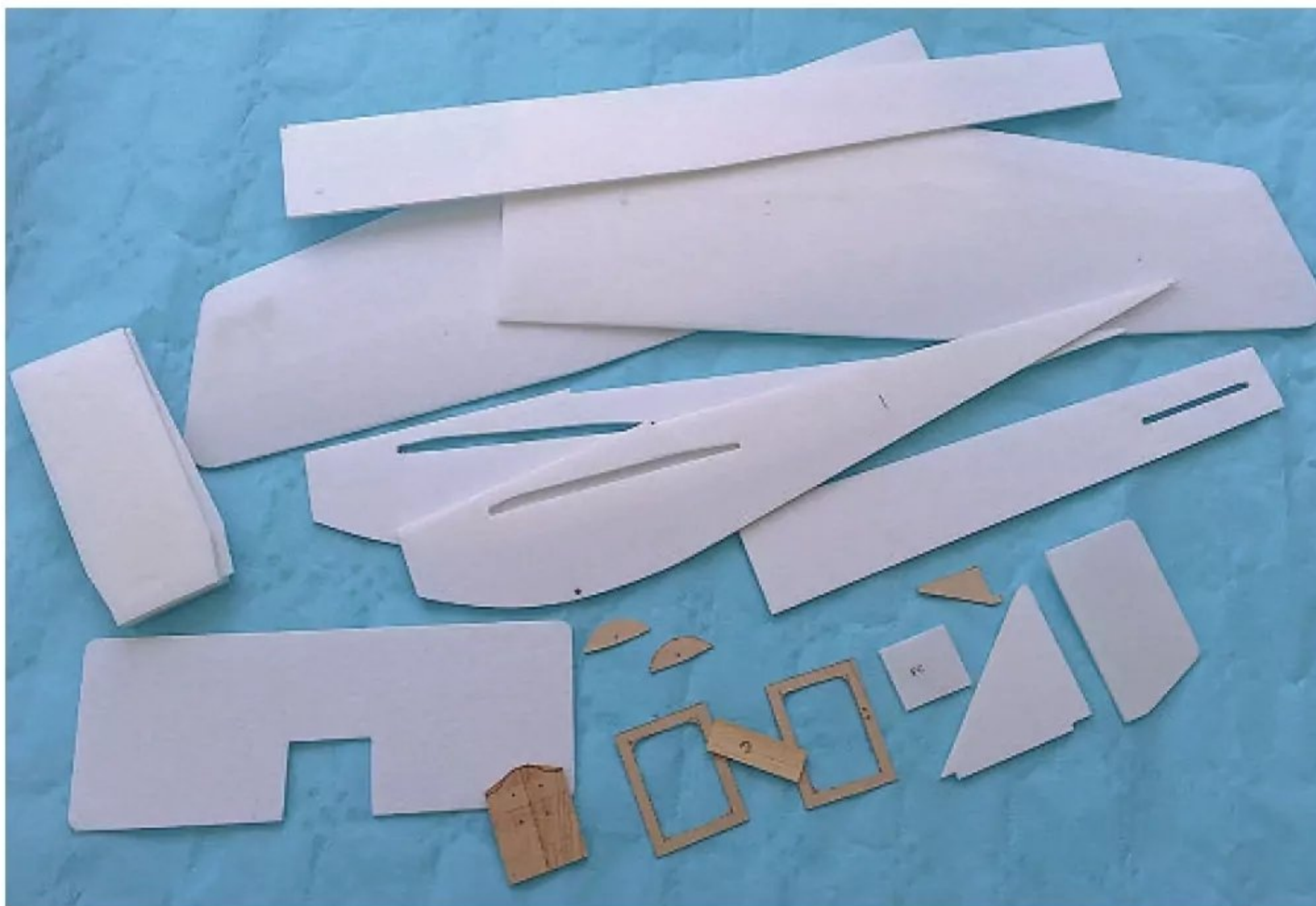
For the record, the kit says that the 'Easy' can be built with an all-up-weight of around 250 g. With the added undercarriage and an 1100 mAh LiPo, plus the doped decoration, my modified one came out at 330 g, about 30% heavier. But the model carries it well and remains very agile. The control surface deflections I use for mild flight are:

Aileron +/- 3 mm, Elevator +/- 4 mm, Rudder +/- 8 mm.

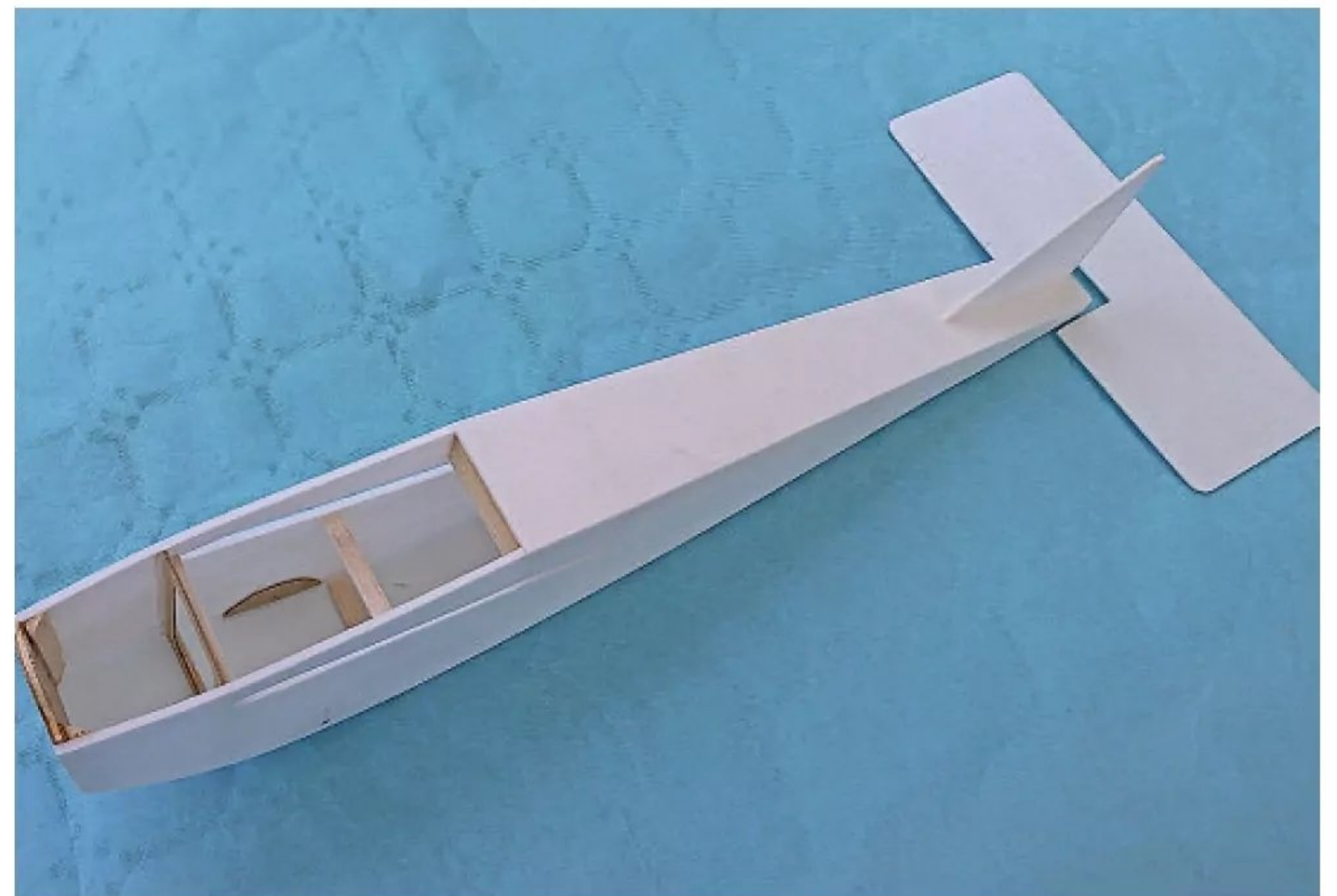


I found this in the 'Middle of Lidl'. A very useful pin vice and drill set. The ancient brass one is older than me by several decades!

First test flight! Despite marginal thrust (the wrong prop fitted), the little HP-Sayers is a sprightly little plaything.



That's all there is to a simple self-designed scale model. Just add glue, a bit of carbon and lightweight R/C.



How simple is that? All you need for a light and resilient fuselage structure.



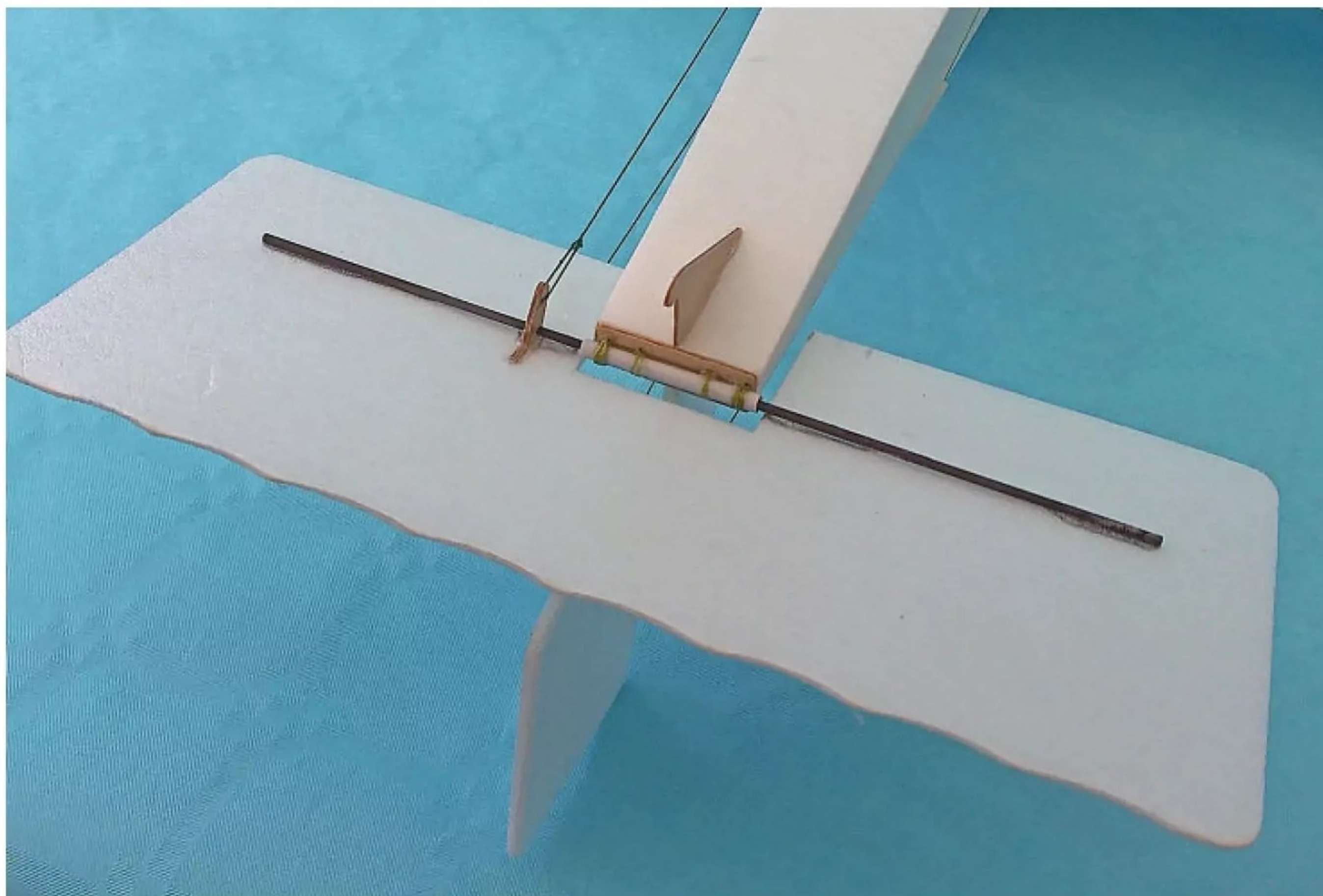
The rudder hinge is just Blunderm tape. The transverse tube is for the all-flying tailplane pivot/spar.

“The wings, tailplane and fin/rudder are solid Depron, with only the fuselage being a built-up structure”

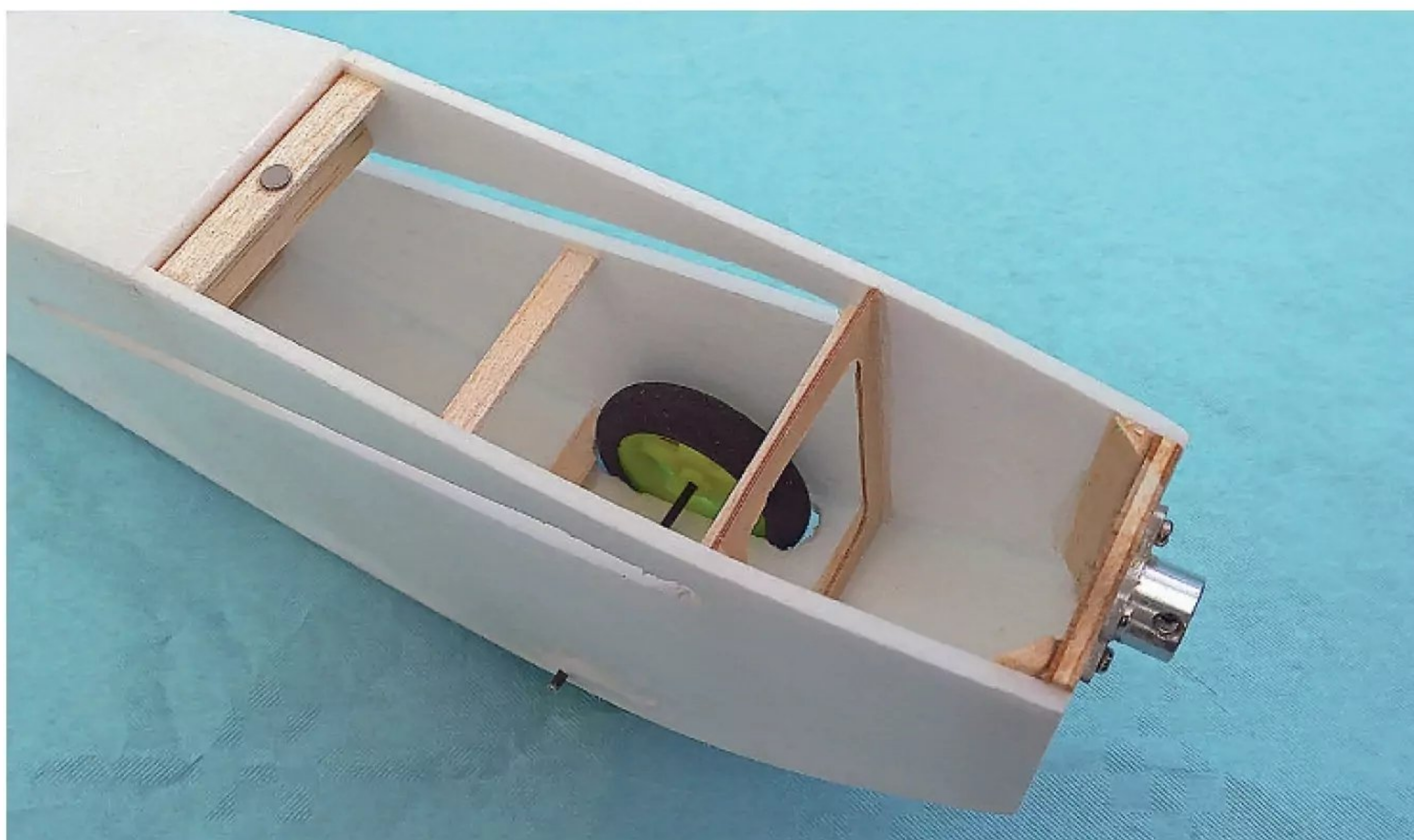
SIMPLE SCALE

As mentioned a bit earlier, I'd begun building another Depron confection. The 1923 HP-Sayers has been designed as an example of a simple-to-build, yet relatively close to scale model that can be flown in larger indoor spaces or outdoors in light conditions. The wings, tailplane and fin/rudder are solid Depron, with only the fuselage being a built-up box structure. A few photos

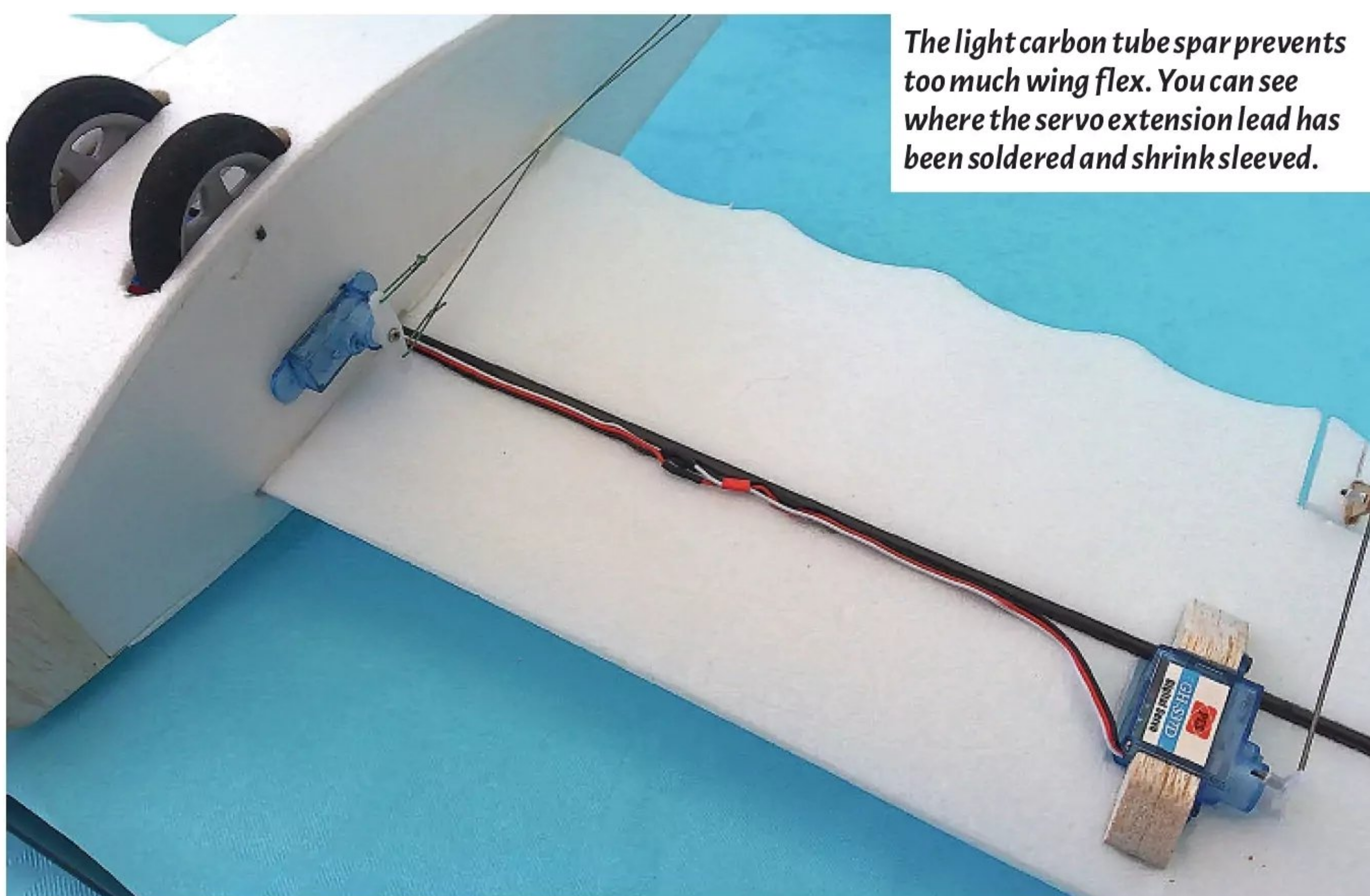
nearby show the simplicity of the basic model, plus the method of pivoting the all-flying tailplane. There's nothing too scary in there and you can easily follow the construction method to design and build your own version of whatever aircraft you have in mind. Also, the avionics and battery are all cheap 'off the shelf' items; you can buy far lighter items but that would involve ➔



The all-flying tailplane on the HP-Sayers. Simple, light and very effective.



Close up of the simple nose structure.



The light carbon tube spar prevents too much wing flex. You can see where the servo extension lead has been soldered and shrink sleeved.



The simple tube and pivot spar assembly is light and works very well. I've used it on several other models.

a cost penalty. Going down this route does add some weight to the finished model and if you were absolutely determined to build lighter, up to 25 g or more could be removed.

For instance, I used 6 mm thick Depron for the 800 mm span wing, sanded to an approximate aerofoil and reinforced underneath with carbon, using 2 mm OD and 1mm ID tube for 60% of the inner span and 1 mm solid rod for the 40% outer span. For indoor only models this could be reduced to a 3 mm thick wing and 1 mm carbon rod full-span reinforcement. The wing would flex considerably in flight, giving a curved dihedral that would negate the need for ailerons and their servos. A light thread support would be needed from near the wingtip to the fuselage bottom to prevent too much flex developing and possible structural failure. This much lighter wing would save at least 15 g.

For the fin, rudder and tailplane I again used 3 mm Depron. But for indoor it could be reduced to 2 mm. Other than the balsa/ply nose parts the fuselage was made from 3 mm; this too could be reduced to 2 mm.

The Sayers uses standard lightweight wheels of about 5 g per pair. Making them from 6 mm Depron faced with 0.8 mm (1/64") ply and using a tiny control snake offcut as a bearing could save 3 g, but it would be a right fiddle - yes, I've done it, glued my fingers together and cursed imaginatively, but they worked.

I'll detail more of this little aircraft in a future 'One Man' article.

JUST THINKING

"Tell me and I forget. Teach me and I may remember. Involve me and I learn." - Benjamin Franklin

Send me an email: Coetquidan@yahoo.com ■

USEFUL LINKS

Easy Composites

<https://www.easycomposites.co.uk/cured-composite-materials>

Fine music/piano wire

Hugh Craig Harpsichords, found on eBay

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BUILD) kits,

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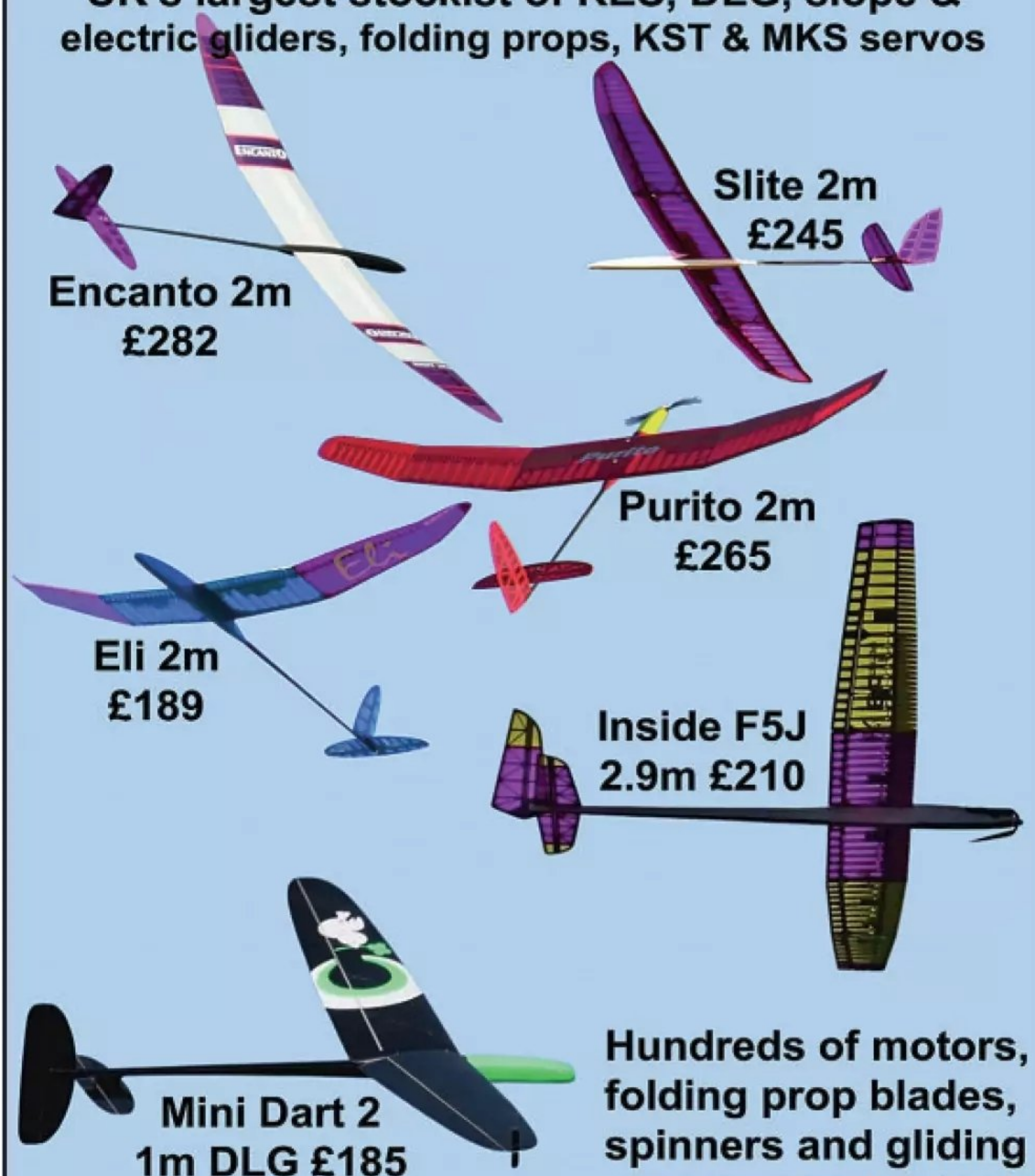
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Nationwide Coverage

Top letter

For his letter this month Pete Bree wins a compact e455 multi chemistry AC input charger courtesy of Overlander Batteries:

www.overlander.co.uk



CAR MEZZANINE DECK



Since vans have featured recently, I am sending you details of the mezzanine deck I built for my trusty Qashqai (other SUVs are available).

It was built from 30 x 5 mm wood strips harvested from an old door, a bit of MDF and pipe insulating foam tubes. It's shown with an Arrows Edge, a 38-inch foamie, an FMS Explorer and a 57-inch Eagle.

It allows for a folding chair, model stand, field box, battery box, field notes folder, transmitter, flask, snacks and insulated coffee cup, all to be accommodated aft of the front seats.

One unforeseen advantage is that models using fiddly screws for assembly can be put together in the warmth of the dining room before leaving for the field. A bungee cord



holds the deck against the front seat headrest pillars. The cords in the back are very slack and the models show little movement, even without them.

Pete Bree

Crikey, Pete!

And I thought I took too many models flying! Usually two, but sometimes three, and that would be a tiddler.

KC

MAGISTER STIRRUPS

Could you ask Roy Thompson where he got the more scale 'stirrup' undercarriage legs from for his Bowmans Magister?

A fellow member and I, both in the Chelmsford MFA, have acquired identical kits of the Magister. But neither kit had supplied undercarriage legs of the stirrup type! We have both electrified our models and I have flown mine in an unfinished state, but we would both prefer stirrups!

Clive Kerr

The undercarriage legs on my model came with it. Whoever built it originally did a nice job of reproducing the forks and oleo legs. The only part I can take credit for are the torque links, which are 3D printed.

The best I can tell, the oleos are made from a dowel stuck to the wire, with aluminium tape stuck around the lower part to simulate the shock strut.

The top part of the oleo is a thin aluminium tube, maybe a cut down cigar tube. The forks are formed steel strips silver soldered to the wire with collets. A similar technique is shown on the David Platt 65-inch Magister plan.

There does seem to be a common issue with the wire undercarriage legs in that they are too springy and will happily fold back on landing, parking the model on its nose. There is a mod to shorten the length of the horizontal torsion part of the leg and add a new dowel into the wings.

If you go to the RCM&E forum and search for



Bowman Miles Magister you will find my build thread and that of Martin Colins. We discussed the legs issue on Martin's thread: <https://forums.model flying.co.uk/index.php?/topic/53157-bowman-miles-magister-resurrection-thread/&do=findComment&comment=965992>

Roy Thompson

FOAM SAFE SPRAY

In keeping with the spirit of make do and mend, I feel sure, like me, that most foam model flyers will set about repairs after a disagreement with gravity. There seems to be a lot of information 'out there' on tips, tricks and techniques about reassembling, reinforcing and smoothing broken bits with various fillers and adhesives on offer.

Extending beyond this, could RCM&E consider a feature on how to touch up, repaint or simply change the colour scheme of a tired looking foam model. Having looked into this a bit, I have discovered that rattle can paints could give a much better and smoother paint finish, although the accelerant within the can will cause the foam to melt. Is there a safe and effective spray alternative without resorting to using a paint pot and brush?
Steve Hadland

Let's see what our readers say about this topic, Steve. Personally, I would think that the best way would be to use an airbrush to spray on light coats of acrylic paint, which is water based. Using an airbrush with air supplied from a compressor would eliminate the possibility of any damage caused by the accelerant in a spray can of compressed air.

KC

BACK TO BASICS

I was interested in the letter from John Rabone and your reply (RCM&E, January 2025). Whilst I appreciate that articles sometimes need to be a little sketchy at times (otherwise they could get too long) sometimes it would be useful to have something more basic, especially in these days of foam ARTF models where new flyers have no idea about things like the effects of a wayward Centre of Gravity or about trimming models.

Equally there may well be others who are seasoned flyers but who are thinking about trying something different. Where do you find information in these days when model shops are virtually non-existent? Yes, you might be lucky and be in a club where there are members who might be able to help, but what if you are not?

I have been building and flying models of one sort or another, man and boy, for more years than I can count (over 60!) These have been all sorts: free flight (mainly gliders), control line aerobatics and dabbling in combat (not successfully) and now R/C, moving from IC to electric only, where I have converted some IC models to electric. I still find it a bit of a 'black art' and although they have flown well enough, I sometimes wonder if they might have been better with a different set up.

Getting back to my point about finding information, I have been toying with the idea of indoor R/C but trying to find basic - and I mean really basic - information seems impossible. (Well, I haven't found it.) Yes, there are articles on indoor flying, but they seem to be aimed at those who already fly it. What I think is needed is an 'idiots

guide' or something even simpler.

The sort of thing I am thinking of is, what radio can you use? I have a Hitec Aurora and a Futaba 6EX but are there compatible receivers or would I have to get a replacement. And if so, what? I have several chargers but would I need a different one because the minimum cell count is 2S? I could go on.

The other 'problem' is finding if there is a club reasonably locally and where do they fly? There are two or three who mention indoor flying on the BMFA 'Find a Club' site, but looking at their websites, if they have one, there is no mention of indoor flying.

How many others may want to try something different but cannot find enough basic information?

Barry Parkinson

Hi Barry,

Kevin has passed your letter on to me as I am an active indoor flier and I also write RCM&E's 'Insider' column about it.

Indoor flying is different as whereas almost anything can fly in some manner or another outdoors, the constraints of walls and ceilings indoors requires a different approach. Venue sizes also vary, so it is therefore extremely important to get advice from the club that runs indoor flying sessions.

The best and always recommended way to find out about indoor flying, and the most suitable models, is through personal contact. This is important because at some venues very specific types of models are flown, i.e. aerobatic, small scale, free flight, etc. So, if you want

to find out where indoor flying is done in your area check with the local clubs. Contact them directly. Our club info lists indoor flying but does not say where or when as this has varied.

Many indoor flying venues are restricted to club members and are never advertised. I know of four locally. Some open ones are advertised through the BMFA News and in magazine events calendars, such as Going Places at the back of RCM&E.

Your radio gear may or may not be suitable depending on what model you build. However, generally speaking, it's best to have the lightest receiver, motor, ESC, servos and batteries to suit your model. Most of the R/C gear used in an average outdoor model is unsuitable for use indoors. At my club venue we have many models flying using 1S 150 - 250 LiPos, with the aerobatic models using 2S - 3S 350 - 500 LiPos. For example, we regularly have twelve E-flite Vapors in the air at a time. But your transmitters are not suitable as these models require a Spektrum Tx.

Your indoor possibilities will mainly depend on the type of hall and the type of models generally being flown. If I recommended a model kit or design, it could be that it is not practical to fly at certain venues. Local information is essential.

As you will appreciate, 'general' advice is not particularly helpful unless it's just to follow the local club's indoor model trends, always keep the model as light as possible and always build a model that you have the skill set to fly in the confined space of a hall.

I hope you can pursue your interest in indoor flying and can find a local venue.

John Stennard

GOLDEN GLOW

I enjoyed the article by Neil Hall about glow engines, most of which I fully endorse. I would like to mention a couple of points, both for and against.

On the negative side, glow engines are messy, even when synthetic oil is used. Electric power equates to not having to spend time cleaning up after every flight and the finish on the model is preserved rather than attacked by fuel residue. Also, if not used for long periods of time the fuel systems get gummed up, causing starting and running problems. This sometimes causes 'dead stick' landings and, sadly, crashes.

On the positive side, glow engines, unlike electric motors, do make a reasonable amount of noise. I am fairly deaf so the feedback I get from the engine sound gives me an indication of the power output at any moment, whereas with electric power the

feedback is much less, if at all.

Fred Burman

How much I was comforted by Neil Hall's 'Golden Glow' article!

Partly due to advancing age, I now fly only 'club size' models, powered by OS 55 AX or Irvine 53 engines, with Graupner 12 x 7 props on the OS engines and APC 12 x 6 props on the Irvines.

I like Neil's contention about noise levels of modern two strokes. Our field measures and logs full throttle noise for every model and the set ups I have above deliver 78 dBA flat out. You can often hear the noise from electric models over mine!

Fuel too is interesting. As a C/L stunt flier I began using synthetic oil as 50% of the oil content in the 1980s. And since 2004, in my R/C engines, it's been nothing but 100% synthetic. I've never had an engine wear out or ruin its bearings in all that time.

Regarding cost, pre Covid, at the height of my

activity, I was using a maximum of eight gallons of 10% fuel a year (now £170), for about 180 flights, each of about 15 minutes. A pound a flight! And with a SLEC orange tank, when I tried to check maximum flight time, I had to give up, becoming tired out at over 25 minutes. That's four, maybe even five flights of an electric model.

Electric flyers all maintain that their motors don't cut unexpectedly 'like a glow engine'. One of my best models, a 20-year-old Flair Kite, has 678 flights to its credit (yes, I keep a diary) and its glow engine has cut only three times. Another Kite I had made over 700 flights and had six engine stops. No cause for concern.

I am also told about the difficulties of starting glow engines, which electrics do not have. Perhaps it's partly due to my C/L stunt heritage, but I've usually started my glows in less than a minute. Not a problem at all if you do the preparation properly.

Hugh McQuiston



Great Britain's F3N Team with their models. As you can see from their medals, they did really well at last year's Euro Champs. Read on for full details.

F3CN EURO CHAMPS

Julie Fisher reports from Denmark on the European helicopter championships

Words & photos **Julie Fisher**

The 2024 European F3CN Championships took place in Aabenraa, Denmark from 10th - 17th August 2024. Two helicopter disciplines took part in this Championship: F3C (Precision Hovering & Aerobatics) and F3N (Freestyle Aerobatics).

For those not familiar with F3N it consists of three different rounds: Set Manoeuvres (flown twice), Freestyle and Flight to Music. This article will focus primarily on the F3N team as I was their Team Manager. The GBR F3N team consisted of Duncan Osbourn, Stu Smith, Dave Fisher, Summer Fisher and me, Julie Fisher.

The last European F3CN Championships took place in 2016 in Poland. The GBR F3N

team came first on that occasion. We knew that we would have our work cut out to get top place on the podium again this time around, but it was definitely achievable. Our strongest competitors were going to be the Danish team again (they came second in 2016) and with the Championships being on their home turf we knew that they were going to go all out to win.

The organisers had arranged for six practice sites within a 35-minute drive of the official site, RC Parken. We were fortunate enough to find a site that no-



Windy conditions at RC Parken, the official flying site.

one else wanted to use and that suited our purposes perfectly.

SET MANOEUVRES 1

The first round of the Championships took place on the Sunday morning. F3C flew first as both disciplines were sharing the same flightline and with 32 pilots flying precision aerobatics we had to wait until after 3pm for the first F3N round to start.

There should have been 15 pilots competing in F3N but unfortunately one of the Italians broke his thumb just a week or so before the Championships and so he was unable to compete. This put the Italian team out of the running for a team position. The remaining 14 pilots completed the Set Manoeuvres round and we were thrilled to find Duncan in first place, with Dave seventh, Stu eighth and Summer ninth. Dave, Stu and Summer all

Team GBR's practice field.



Duncan Osbourn oiling his machines before the first flight of the day.



Summer Fisher about to start her flight.



The F3N judges.



fluffed one of their set manoeuvres so there was room for improvement in the next Set Manoeuvres round, which would take place on the Tuesday.

FREESTYLE

On Monday we were all at RC Parken at 7.20 am to prepare for the Freestyle flights. Summer was up first at 8.20 am. It was an overcast morning so the sun was not an issue on this occasion. The first seven pilots had been told that they could have a warm-up flight at the other end of the runway before the round commenced. All four GBR pilots flew brilliantly, with Duncan finishing in second place, two points behind Luca Pescante (ITA) and ten points ahead of Rasmus Jakobsen (DEN). Stu came fourth, Dave sixth and Summer seventh.

With the second F3C round taking over the flightline it was time to head back to our accommodation to charge batteries and then make our way to the practice site where we could fly for the rest of the day preparing for tomorrow's Set Manoeuvres round and also Thursday's Music round.

SET MANOEUVRES 2

Dave was up first at 8 am in Tuesday's Set Manoeuvres round. The most difficult thing for the pilots, particularly those flying early in the round on a cloudless morning, was the sun, which was at 2 o'clock (the runway was not quite facing north, which created this problem). Fortunately, I had spoken with the organisers the night before and they provided a sun disk (a Perspex circle on top of a pole) which could be moved so that the shadow from the disk

Dave Fisher waiting to fly.



Stu Smith waiting to start his freestyle flight.



Checking out the sun blocker.



There is no 'I' in team! Duncan working on his music flight.



covered the pilot's face, allowing them to fly their helicopter without being blinded by the sun.

For the first time ever, I witnessed Duncan making an error in one of his Set Manoeuvres (the Rolling Double O One) which resulted in him coming fourth in this round behind Luca, Rasmus and Tillmann Baumener (GER). We knew that this would be Duncan's throwaway round; out of the four preliminary rounds flown each pilot's lowest scoring round would be eliminated. Our remaining GBR pilots came fifth (Stu), seventh (Dave) and ninth (Summer).

FLIGHT TO MUSIC

Wednesday's round (Flight to Music) started at 3 pm. Luca was fourth to fly and as Duncan's main rival we were all watching closely. He flew a very precise, to the music, routine and scored 539.5. Luca was going to be the one to beat in this round. Stu was the first of the GBR pilots to fly and he flew a fantastic round, scoring 498.5 points. The next of our pilots to fly was Summer, who put in a very solid round, scoring 448. The next pilot to watch was Danish No.1, Rasmus. His was a very entertaining flight, scoring 529.5, just 10 points behind Luca. Duncan flew immediately after Rasmus. The whole team had been helping Duncan finalise his music flight the night before as he was undecided on a few elements. He flew the flight of his life and scored 545, putting himself on top in this round. Dave was the last of the GBR pilots to fly and he also flew an amazing flight, scoring 501, his best ever Music score.

At the end of the Preliminary rounds the GBR pilots were positioned as follows: 1st Duncan Osbourn, 5th Stu Smith, 7th Dave Fisher, 9th Summer Fisher

It was the top 10 pilots who made it through to the Finals rounds, so all the GBR F3N pilots had qualified. This also meant that as a team we were currently in first place. However, as the Preliminary scores were amalgamated into one score (out of 1000) to carry through against the three Finals rounds (Sets / Freestyle / Music), we knew that we could take nothing for granted.

F3C UPDATE

Meanwhile, in the F3C competition, Ennio Graber (SUI) was in the lead, having won each of the four Preliminary rounds ahead of Eric Weber (GER) and Alessandro Del Lungo (ITA).

The GBR F3C pilots were in fourth place (Steve Roberts), tenth place (Mark Christy) and fifth place (Ian Emery). All were comfortably through to the F3C Semi-Finals which the top 28 pilots fly. The F schedule is flown in the Semi-Finals and Finals (top 14 pilots) and this is a different, more difficult schedule to challenge the pilots.

SET MANOEUVRES FINALS

We spent Thursday morning at the practice site, warming up ready for the Finals Set Manoeuvres round which was due to start at 2.30pm.

Duncan was seventh up in this round and he flew the best round of Sets I have ever seen him fly. He stormed into the lead with a raw score of 4055, an incredibly high score and well deserved.



GBR F3C pilot Steve Roberts checks the scores with GBR judge Bruce Naylor.



A colourful gathering of F3C models.

Stu, Dave and Summer were all a little disappointed with their scores and they finished in seventh, eighth and ninth place respectively.

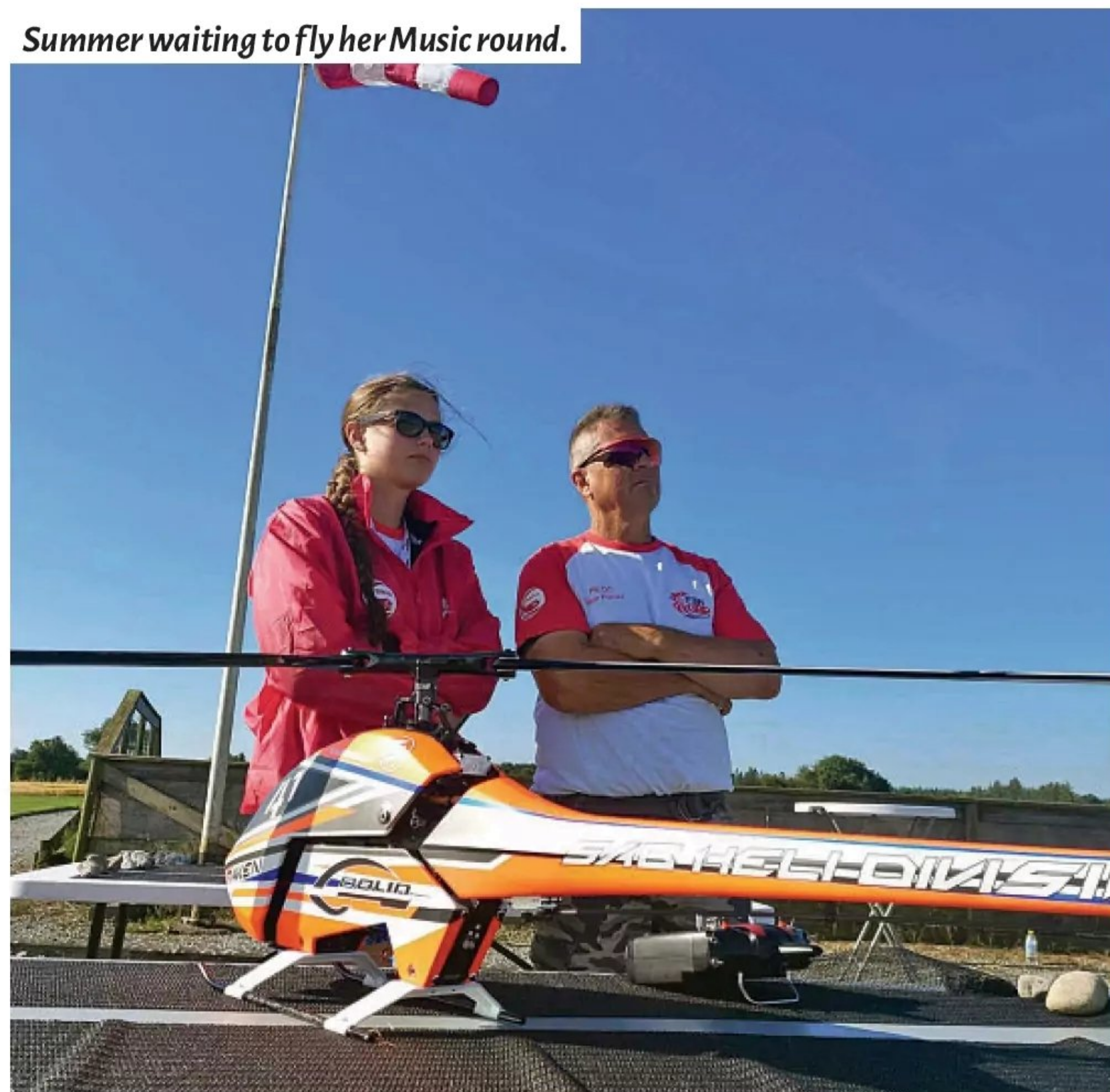
At the end of the round, the Danish team were one point ahead of the us, but it was still too early to call which team would come out on top.

FREESTYLE FINALS

Friday morning dawned and with it came the rain. The F3C round was meant to start at 8.30 am but didn't get going until 12 noon. There was another break for rain for about 1.5 hours and they finally got going again just after 3 pm. This meant it was 6 pm before the F3N Freestyle round could start.

Luca was up first. Unfortunately, after 48 seconds his main gear stripped and he had to land. It was such a shame as he should have been one of the top scorers. Kim Jensen (DEN) flew next - both Dave and Stu needed to beat his score to keep the GB team in the running for top place. He scored 429. Duncan was third up and flew a blistering round, which scored 487, a fantastic score that was definitely going to be the one to beat. Rasmus followed and he also flew a great round. We waited anxiously for his score to come out and were relieved to see him awarded 483 points. Dave was up next and flew a great round, scoring 446. Samuel ✈️

Summer waiting to fly her Music round.



Duncan about to start his Finals Set Manoeuvres flight.



Team GBR watching their fellow competitors closely.



So proud of these four GB pilots.



Luca Pescante (ITA) heading out to fly.



F3C individual winners with their models.



Our main rivals, the F3N team from Denmark.



F3C team podium.

Jenson (DEN), who was Stu's closest rival, was next to fly. His flight was more 'Global 3D' style rather than the usual F3N flying so we weren't sure how it would be received by the judges. He was pushing his model so hard that his

battery was dying towards the end of his flight and he only just managed to make it last to 3 minutes 20 seconds, the minimum flight time, so that he wasn't subject to a 5% reduction. He scored 463.

Stu followed Samuel and really pushed himself to try and beat his score. Unfortunately, it wasn't to be as he scored 452. Tillmann was up next and the GBR team watched his flight closely. They were relieved to see him finish with a score of 476 (third place). Summer was next to fly and she flew a polished routine, scoring 410. Finishing the round was Matthias Wohlrab (GER) who scored 382.

With all the scores in, we were excited to see Duncan winning the round, meaning that he could not now be beaten. He was our new European F3N Champion and he couldn't quite believe it. The team position, however, was still not resolved. It would all be decided in the final round, Flight to Music.

FINAL ROUND

Saturday dawned and we headed out to the practice site for the last time to warm up with our music flights. By 1 pm we were back at RC Parken to watch the final flights in the F3C competition.

Ennio Graber (SUI) had won every single round of the Championship, securing the title of F3C European Champion once again, an amazing achievement. Eric Weber (GER) came second and Alessandro Del Lungo (ITA) placed third. French pilot Arnaud Poyet had jumped to fourth place, with Steve Roberts slipping to fifth place, Mark Christy holding on to tenth place

Summer being presented with her FAI Certificate as the top female F3N pilot. She placed ninth overall.



Team GBR pilot and new F3N European Champion, Duncan Osbourn on the top step of the podium.



Euro Champs! GBR F3N Team on top of the podium.

and Ian Emery finishing 20th. The GBR F3C team came fifth overall out of 12 countries, with Germany, Switzerland and France coming first, second and third respectively.

It was now time for the final F3N round. Duncan was up first, scoring 523; not as high as his last music flight but having already won the Championship the pressure was off. Next was Rasmus, who flew a great flight, scoring 527.5. Stu managed to beat Samuel by four points (517 to 513), which he was very pleased with. Tillmann's flight was very precise and entertaining but unfortunately when he landed his model tipped over before his caller indicated that the flight had finished. This resulted in his flight being zeroed. Dave and Summer both scored less than their Preliminary Music round.

The penultimate pilot to fly was Luca. He had something to prove after forfeiting his Freestyle round after his gear had stripped. He flew like his life depended on it and was rewarded with a phenomenal score of 550. At this point we still didn't know if we had done enough as a team to win. With one pilot left to fly, Kim Jensen (DEN), we were going to have to wait for his score to know whether or not we had succeeded.

Everyone watched Kim's flight and then waited anxiously for the score to be published. Thankfully we didn't have to wait too long and with both Stu and Dave finishing ahead of Kim, we knew we had done it. Team GBR had won by the narrowest of margins - 1 point!

The final individual results were Duncan 1st, Stu 6th, Dave 7th and Summer 9th - an amazing achievement.

TEAM FIRSTS

There were a couple of firsts for Team GBR. Summer was the first ever female to compete in the F3N discipline and she surprised many with the high level and consistency of her flying throughout the Championships. Duncan was the first GBR pilot to win the F3N European Championships.

I would like to thank the team's sponsors for the event, AT Models and Midland Helicopters, who paid for a hire car for Stu and Duncan, plus the ferry crossing and fuel to get to Denmark for the Fishers. Thanks also go to all of those here in the UK who supported us in our fundraising endeavours and sent messages of encouragement to us during the Championships.

The same team has now qualified to represent GBR at next year's World F3CN Championships, which will take place in Romania. ■

GBR F3N Team with their well-deserved gold medals.





CARBON STORCH

I have a 93" wood model of the Storch from the Svenson kit and while it flies okay on a .90 engine it weighs 14.5 pounds. Plus, the fuselage was flexing at the tail. My

calculations show my new carbon tube version to come in at about 10 pounds, a 31% reduction and the tail cannot be twisted. The new model will be electric powered using a

Hacker A50L with an extended shaft. I have previously built a smaller carbon Storch for free flight.

Rob Caso



FORWARD SWEEP WING

I thought you might be interested in my latest creation, a FSW (Forward Swept Wing) Firestorm. Built loosely from a 1980s plan using lite-ply and blue foam and powered by a home-built contra-coax motor, she flies really well from a dolly launch. Weight is 5.5 lbs. A 4S 4000 mAh battery provides about eight minutes duration. The pictures are by Bill Pilsbury.

Jeff Barringer



ALL SQUARE

Just for interest, I did solve my car loading problem (see *Lucky Fun Fly, Pilots' Pictorial, last issue*) with slightly smaller follow-on designs - one of which folds in half!

Here are my latest flying wings, which were used at the 2024 Fun Fly Nationals. The idea was to make the simplest design possible, so it ended up a square! The twin motor design was for Class 1 and the single motor design was for Class 2. 'We' didn't do very well in the comp but they fly well.

Martin Wood



NEW ZEALAND PAIR

The past year I've been busy building Tony Nijhuis' larger Hawker Hunter and Mike Freeman's Vamoose from RCM&E pull-out plans.

The Hunter flew well with a good 100C 4S. I really have to keep my eye on the plane as she can really move!

The Vamoose build was more straightforward than the Hunter. Its maiden flight was exciting to say the least. Other club lads thought I would never get it back on terra ferma in one piece! The balance was correct, with 40% expo, but the throws advised gave an aggressive crazy ride. I have since increased the expo to 70% and reduced all the throws. The model now flies very controllably but again I have to keep my wits about me when flying the aeroplane

My next build will be the Antares, detailed in June '24 RCM&E. That's after I finish a Lazy Bee biplane with same size wings.

John Laker, New Zealand





Remember sunny days? Aerial combatants at the Knettishall National League event, September 2024.

ENTRY LEVEL AEROBATICS

Keith Jackson reports from the UKF3A AGM which introduced the new Entry Level schedule for beginners. But first, let's say hello to the UK F3A Team for 2025

Words & Photos: Keith Jackson, Matthew Smaillies

The UK team for 2025 was selected following a team trial held at the Plane Crazy Model Flying Club in Hurley in September 2024. The competition format included two rounds of FAI P25 and two of F25, flown over two days, with the best scores from each schedule counting. Seven pilots competed and the results are shown in the table opposite. Kevin Caton decided not to take up his place in the UK Team this year, so the actual team representing the UK at this year's World Championships in Muncie, USA was confirmed to be Thomas David, Dan Workman and Garry Peacock. Reserve position was taken by Jim Fallowfield. The role of Team Manager has not yet been confirmed.

The French team for Muncie is also organised and ready to go, comprising Stephanne Carrier, Antoine Paysant Le Roux (Junior World Champion) and Pierre Encognère.

UKF3A AGM

This year the UKF3A AGM was held at BMFA Buckminster and was also streamed live by Zoom to those members who could not attend



Thomas David with his Placebo design / Adverun contra drive.

Dan Workman with Halo biplane / Adverun contra system.



“To assist new pilots at their first competitions a mentoring system has been introduced for 2025”

a mentoring system has been introduced for 2025 where beginners can obtain direct help and advice from established UKF3A pilots attending the same event. This has worked very well in the past at single day NPOD or training days, as successfully organised by UKF3A members at Buckminster.

Additionally, a national coordination scheme is also to be introduced providing a central point of contact for anyone who wishes to run an introduction day, providing documentation and assistance as appropriate. The scheme will serve to publicise the new initiative via the BMFA News, RCM&E and social media, and be the point of contact for newcomers who wish to give F3A a try. More details of this can be found on the UKF3A website: <https://ukf3a.com>

FLIGHT COACH

At the AGM the current restriction on the use of Flight Coach recording during competitions was relaxed so that it only applies to the FAI P and F classes and will now be allowed in the lower classes. However, the flight recordings must only be used for personal feedback and cannot be used to challenge a Judge either during or following any competitions, for obvious reasons. After two seasons with Flight Coach being prohibited from use in UKF3A competitions the meeting felt that a limited relaxation could be trialled in 2025. The guidance notes on its use include the following points:

- Not to be used for discussion during the competition
- No challenge to the competition judges during or after the competition
- No publishing of flight traces or comments on any public forum during or after the competition

in person. After the usual tasks of reading minutes, approving accounts and announcing the UK team for 2025 etc. the main discussion centred around the introduction of new pilots to F3A aerobatics.

The current beginners or Sportsman schedule was a simplified turnaround pattern (detailed in January 2025 RCM&E), which many felt was a stretch too far for novice pilots and together with flying in front of judges etc. would serve to put people off from entering competitions. A new Sportsman schedule was introduced with the emphasis on making it more accessible for aspiring aerobatic pilots and was renamed Entry Level schedule 2025.

This schedule is similar to the previous Sportsman schedule but omits the mandatory turnaround manoeuvres, i.e. manoeuvres included to reverse the direction of the model. The inclusion of turnaround manoeuvres allows the aerobatic schedule to flow continuously and they are marked along with the centre manoeuvres. All manoeuvres in a schedule are awarded a difficulty level or ‘k factor’ and in the more difficult schedules, such as FAI P-25 or F-25, the k factor can reach up to 5. In the case of the Entry Level schedule each manoeuvre has a k factor of 1 and since manoeuvres are scored out of 10 the maximum score possible would be 70.

The usual requirements for flying F3A manoeuvres apply, even for the Entry Level schedule, these being accuracy, positioning and style. It is also desirable to have a constant model speed throughout the schedule but for the Entry Level schedule it is best just to concentrate on accuracy and positioning. Manoeuvre descriptions are available on the UKF3A website, along with judging points. To assist new pilots at their first competitions

UKF3A Entry Level schedule 2025

No	Manoeuvre	K factor	Direction
1	Take off & turnaround manoeuvre of choice	1	Into wind
2	1 inside Loop	1	Into wind
3	1 Horizontal Roll	1	Down wind
4	1/2 Roll, inverted flight, 1/2 Roll exit	1	Into wind
5	Cuban Eight, with 1/2 Rolls	1	Down wind
6	3 Spins	1	Into wind
7	Landing approach and landing	1	Into wind



Garry Peacock flew this BJCraft Anthem / Adverun contra drive.

A major development of the FlightCoach system is the public release of FlightScore, which is an automated scoring system that uses the flight data pre-recorded via FlightCoach. Pre-programmed schedule information is used by FlightScore to rate the pilot's flight according to the FAI rules, in the same way human judges assess flights. The system has been trialled over the last two years and is now mature enough for public consumption. See more at: <https://www.flightcoach.org/fcscorapp>

FANTASISTA BUILD ISSUE

Since my last column the build of the Fantasista 70 has finished and I was hoping to include some initial flight notes. However, the

“Pre-programmed schedule information is used by FlightScore to rate the pilot's flight according to the FAI rules”

weather has been against any flying with this type of model at my local club in Cheshire, so first flights are not looking like happening any time soon.

Instead, I thought I would include some further build notes relating to the wing - tailplane alignment, the requirement being that they should be parallel to one another. This is a fundamental requirement for all aircraft, let alone precision aerobatic aircraft and it

prevents the model precessing to one side when elevator is applied.

On the Fantasista 70 the all moving tailplane (AMT) rotates in a tube that the builder must

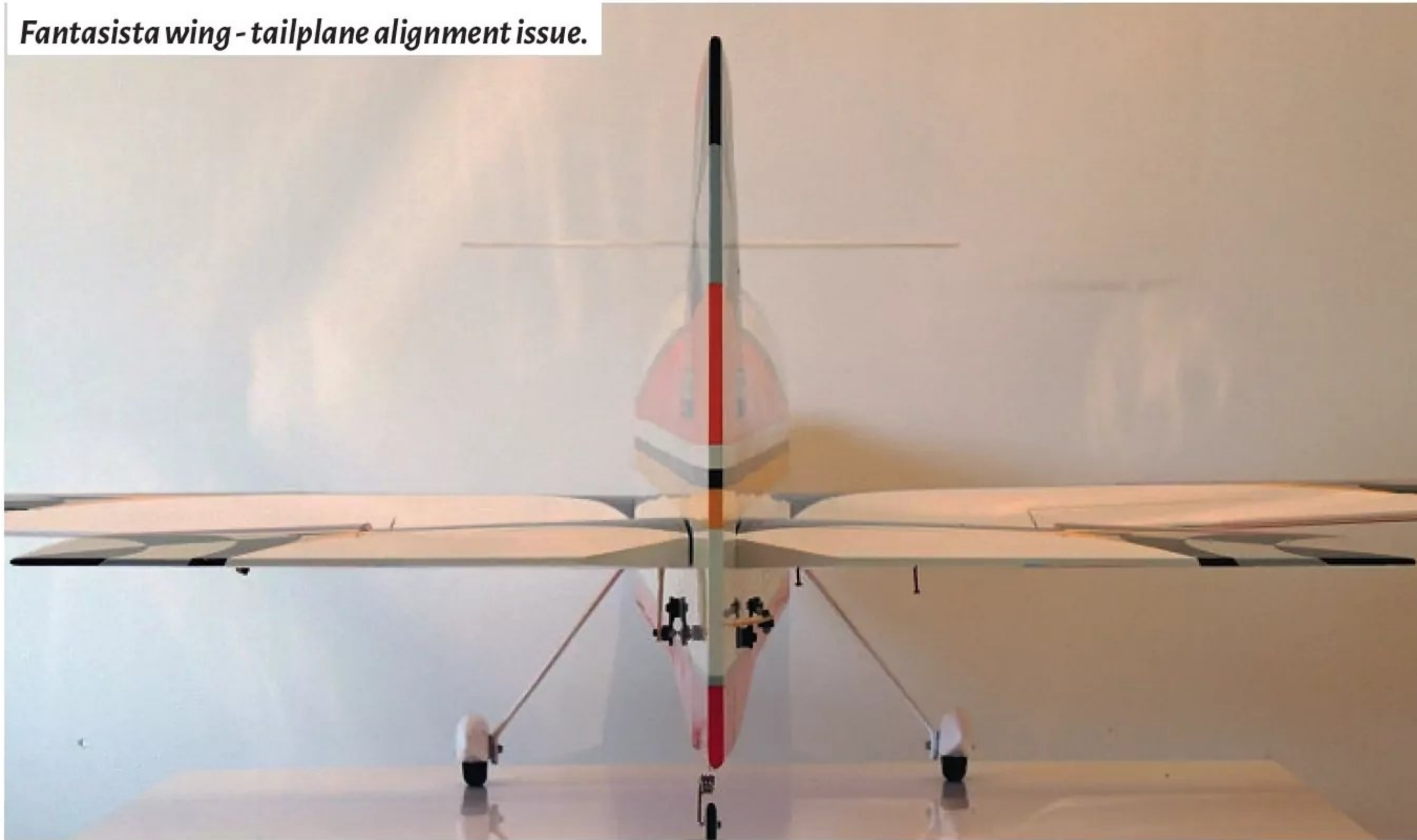


French Team ready for Muncie 2025. Left to right: Antione Paysant Le Roux / Oreka +, Stéphane Carrier / Velar, Pierre Encognère / Nexus.



All Moving Tailplane (AMT) arrangement in the Fantasista.

Fantasista wing - tailplane alignment issue.

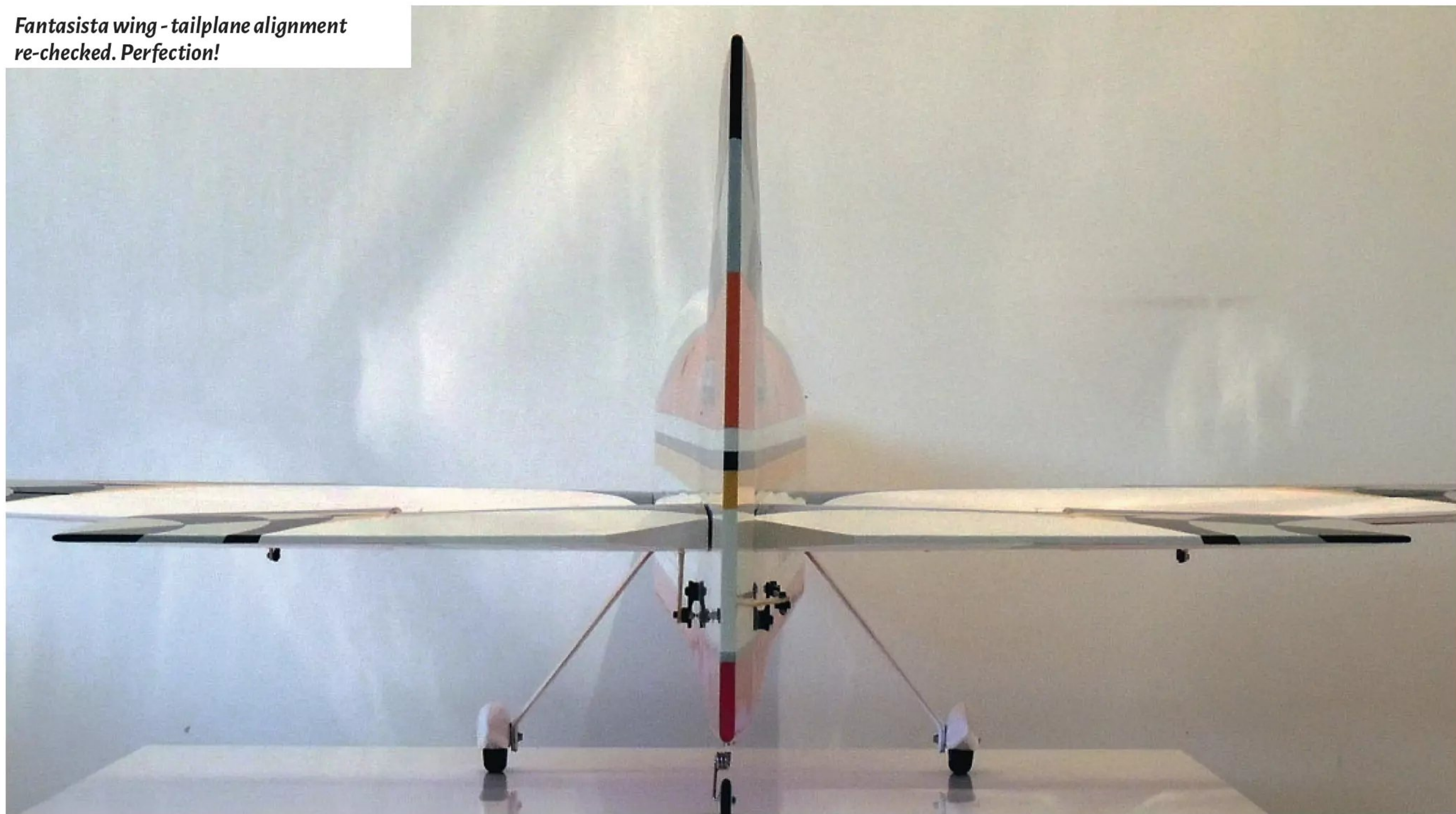


Chain drilling one side of the fuselage. A cocktail stick was used as packing to lift the tube by the required amount.



Finished modification.

Fantasista wing - tailplane alignment re-checked. Perfection!



glue in place across the rear fuselage. Initially the model must be assembled with wings and tailplanes in place and any slight misalignment corrected before bonding the tube with epoxy or similar.

Normally alignment can be achieved using the 'wreck of the eye' approach, i.e. by sighting the tail against the wing when viewing from the rear of the model. I'd completed this stage a month ago and was shocked on checking the final assembly to find that there was a noticeable difference between the wing and tailplanes. I still have no idea how I could have let this happen. Unfortunately, it was not something that I could live with, so I made the decision to carry out some remedial work to correct this fault.

The way I chose to do this was to chain drill around the tube on one side to break it free from one of the fuselage sides. This end of the tube was then lifted slightly using packing material, eventually using slow set epoxy mixed with carbon powder to bond the assembly back in place. Only a tiny amount of alignment change was required and the actual movement of the tube was probably of the order of a fraction of a millimetre. I used a long 0.5 mm drill to do this to allow the epoxy mixture to be pushed into the gap I'd created with the drill. The long drill size (60 mm) ensured that the drill was parallel to the tube and did not skew towards it and possibly cause collateral damage.

This process is much easier to carry out when an AMT is used as there is only one tube that controls alignment. Thankfully, this rectification achieved the desired effect of ensuring perfect wing - tailplane alignment.

SERVO COVERS

A further build note worth mentioning is the covering of the servo apertures with film to

maintain good streamlining and to help with the overall appearance of the finished model. Apertures are readily apparent when servos are mounted on the surface of the model structure close to the control surface. In fact the majority of ARTF models utilise this form of servo mounting as it allows direct control of the surface with the minimum of hardware required to produce low slop control linkages. They are also cheaper for the manufacturer to provide.

Providing the servo is mounted low enough in the model structure, with only the servo spline protruding the surface, covers can be made of a variety of materials to clean up the installation. Hard materials such as balsa, ply or even carbon sheet can be fitted into the aperture and secured using screws. I personally do not like this method as its fiddly and always visible, not to mention quite time consuming to achieve. I prefer to cover the aperture with heat shrink film and the nearby pictures detail how this is done.

First, it is important to have a small supply of film with the matching colour if the intention is to hide the aperture. Alternatively, a trim feature could be created to hide the servo aperture using a contrasting film colour such as a star or flash. A hole punch is preferred to cut the hole to allow the servo spline to protrude through and these are readily available to purchase. For the MKS servos I was using in the Fantasista, I employed a 7 mm diameter hole punch. This is better than simply poking a hole using a soldering iron as the heat tends to distort the surface of the film, preventing a smooth finish. A patch of film with approximately a 6 - 8 mm overlap to the aperture is then cut, with care being taken to align the hole into the correct position. The surface around the servo aperture is then carefully cleaned with

methyated spirits or similar before the patch is manoeuvred into position. It can be tacked into place using a covering film iron whilst trying maintain as much tension as possible in the film. Once done any slackness in the film can be removed with careful and gentle heating. I have been using this technique for several years now and think the result speak for themselves, producing a cover that is both neat and light.



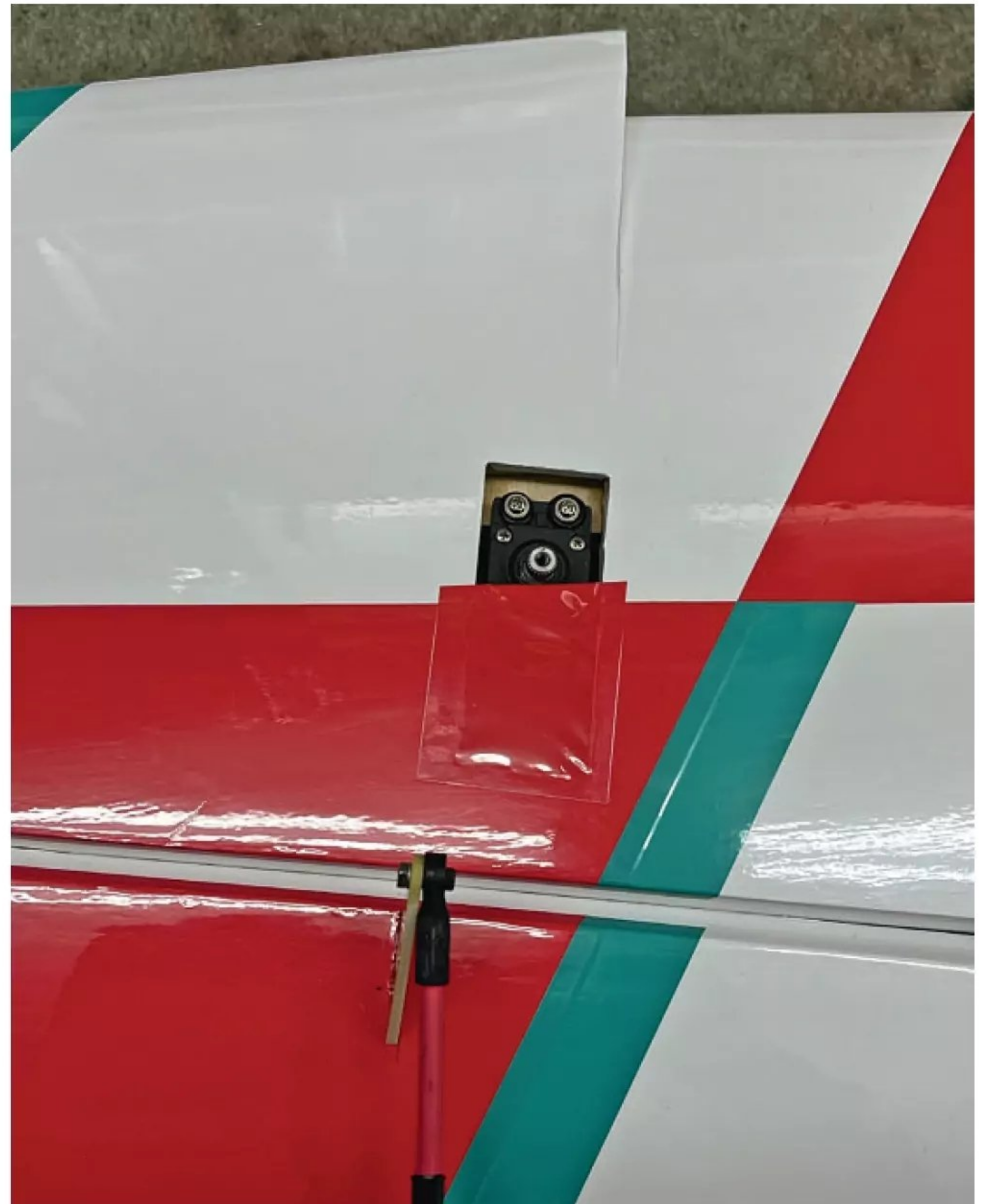
Traditional servo cover using plywood and screws.



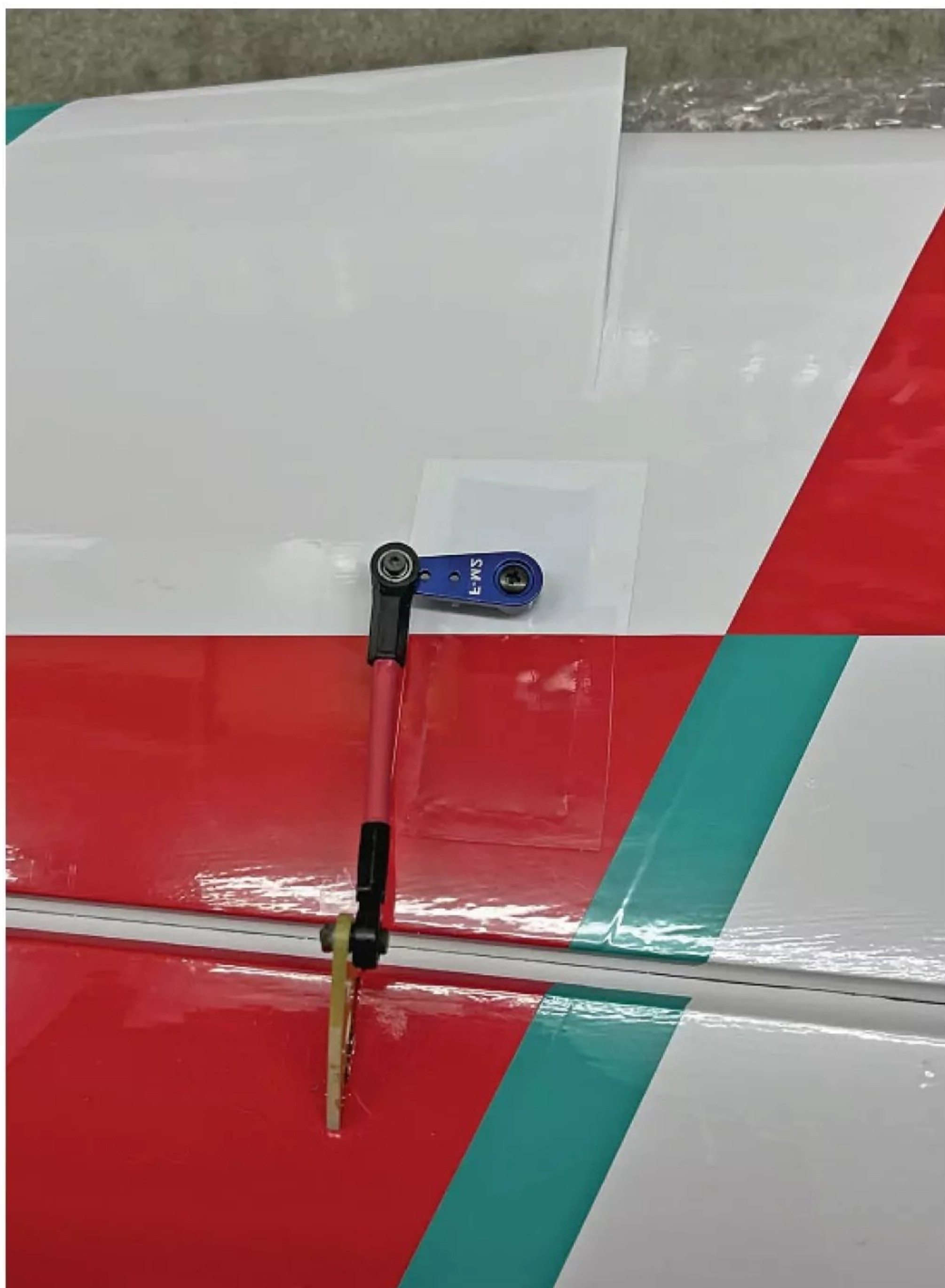
Servo cover made from carbon sheet and bonded into place.



Typical servo aperture with two colours.



First colour film applied.



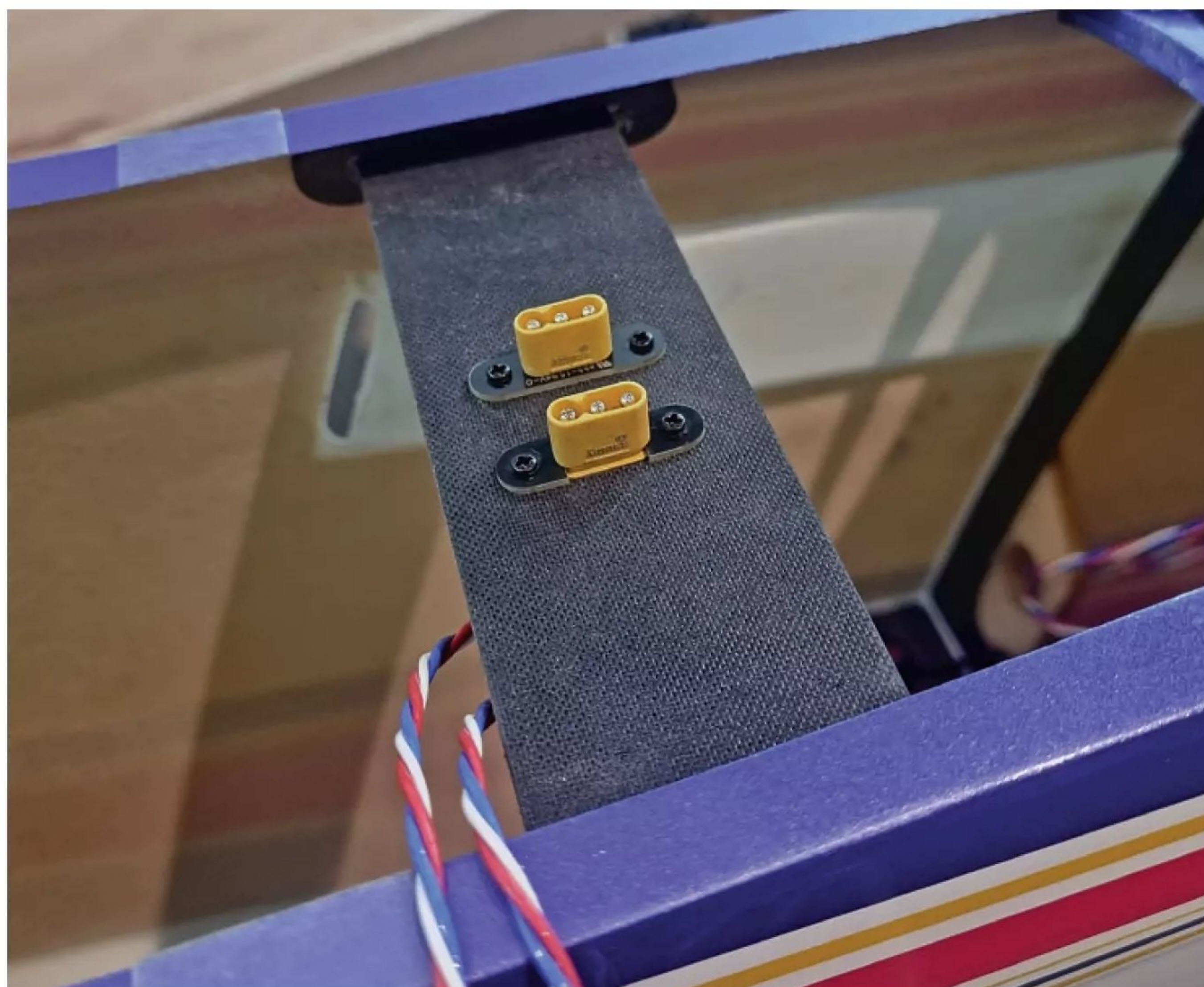
Finished results!



Aperture on the Fantasista rudder servo.



Three-layer servo cover is reasonably invisible.



Three pin connectors mounted in the upper and lower wing seats of Matt Smailles' Hui Yang Proteus biplane.

"I have been using this technique for several years now and think the result speak for themselves"

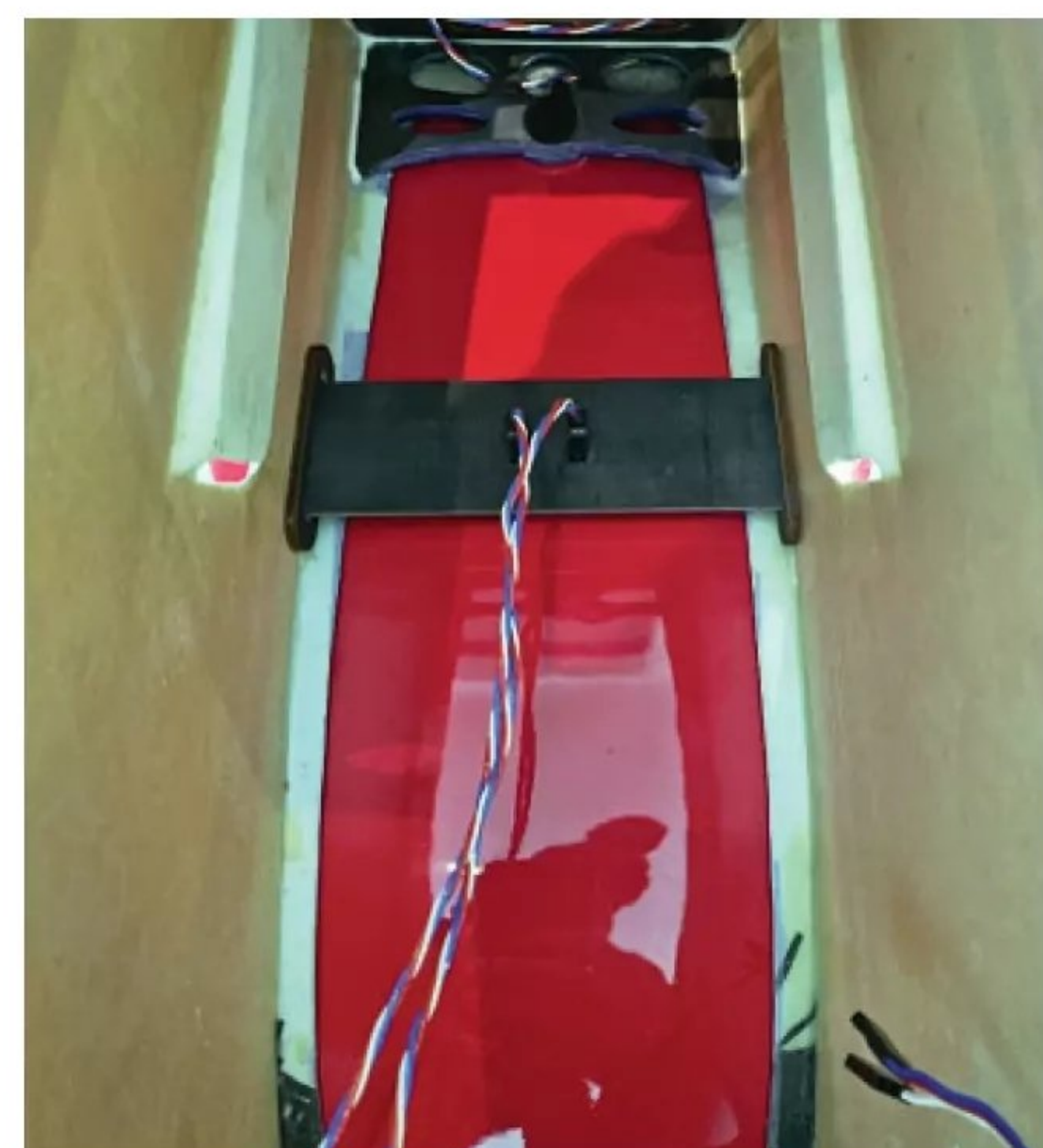
AILERON HOOK UP

Finally, a very neat method to hook up your ailerons was sent to me by UKF3A pilot Matt

Smailles, who has just completed assembling his Hui Yang Proteus biplane. I hope to include more pictures of this lovely model in my next column. ■



Matching plugs are mounted in each wing.



Hey presto! None of the fiddling required to attach four aileron servos when assembling your biplane.

Hui Yang Proteus biplane ready for action.



MEGA DEAL!

RCM&E



KEVIN CROZIER,
EDITOR

Welcome to RCM&E. In each issue we aim to bring to our worldwide readership the very best selection of radio control model aircraft news, views and kit reviews, alongside informative and entertaining feature articles covering each and every aspect of the diverse model flying and building hobby.

Whether you are interested in radios, warbirds, gliders, electric power, IC or petrol/ engines, jets, multirotors, new tech, traditional modelling or the latest techniques, we aim to cover the R/C model flying hobby in all its aspects.

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Garry Burgen's giant scale Waco sounded great powered by its five-cylinder Moki radial engine.

PORT LINCOLN FUN FLY

Greetings, says Ron Grosser, from the Port Lincoln Model Aerosport Club, all the way down under in South Australia

Words **Ron Grosser** photos **Ron Grosser, Ashley Smith**

We are a small country club of around 32 members situated in Port Lincoln, known as the Seafood Capital of Australia.

In early October we host a fun fly event, inviting clubs from other parts of the state to attend over three days. Last year's event was from 4th to 6th of October. Since our location is 650 kilometres from Adelaide it is difficult to expect modellers to travel that distance. However, we were pleasantly surprised to receive visitors from Broken Hill 750 km away and clubs in and around Adelaide and the York Peninsula. Port Lincoln is located on the very tip of the Eyre Peninsula in South Australia.



Drone eye's view of the Port Lincoln Model Aerosport Club field.



President of PLMAC, Jeff Cheyne, prepares to start his SIG Rascal.



Ashley Smith travelled 750 kms from Broken Hill in New South Wales and is responsible for most of our photos. Thanks, Ash.



Mick Sharman's Falcon jet with flaps and gear down, set up for a good landing.

CHALLENGING CONDITIONS

The first two days of the weekend presented us with some challenging flying conditions, with winds gusting up to 46 kilometres per hour, teaching some of us to fly in conditions we haven't normally experienced. However, for those that did not wish to fly and test their skills in the windy conditions much time was spent in our club rooms, around the fire, enjoying the company of our visitors.

After lunch on the Sunday we drew a raffle, the first prize being a small Tiger ducted fan jet donated by Modelflight RC in Adelaide. The jet was won by Garry Burgen. At the completion of the raffle draw Garry asked who our youngest member was, which happened to be 8-year Noah White. Garry presented the model jet to Noah, who carried it around for the rest of the day, proud of his new possession. During Sunday night Noah and his father Marcus assembled the little jet and Noah was able to fly it under his Dad's supervision several times during the better weather conditions on the Monday.



Noah White's EDF Tiger jet, kindly donated by Garry Burgen, is ready for another successful flight.



Our cooks Leo Yon and Graham Hage did a great job preparing our lunch each day.



Wendy Grosser and Josie Cheyne get ready to serve our lunch. Glen Paynter can't wait to get started!

“During Sunday night Noah and his father Marcus assembled the little jet”

CALMER SKIES

By the Monday the winds had moderated considerably and we were able to fly all types of models, including two of our members flying their turbine powered jets, with others flying a wide variety of models.

We were also honoured to have Garry Burgen visit from Adelaide with his giant scale Waco, which has a wingspan of 3.6 metres and is ✈



Noah flying his new Tiger closely watched by his father Marcus.

powered by a five-cylinder Moki radial. It took Garry around two years to build.

Later on Monday morning a friend, Mike Damp, who owns and flies a full-size Waco from Port Lincoln, after inspecting the workmanship and witnessing the flying ability of Garry and his model, arranged with us to halt model flying operations to allow Mike to fly several passes with his full-size aircraft.

FISH SPOTTING

A great example of the enjoyment we all get from building and flying model aircraft is demonstrated by one of our members, Lyall



The Moki in Garry Burgen's large Waco burbles away as the model taxis back after another super flight.

“We were also honoured to have Garry Burgen visit from Adelaide with his giant scale Waco”

Jaensch. For many years Lyall was a commercial pilot and he still maintains a private pilot's licence and owns and flies three full size aircraft. After his transition back into flying radio-controlled model aircraft, Lyall enjoys building and flying his mostly own design

simple models. He usually has more flights on our Saturday club flying days than most other members!

My home is only a short distance from Sky Park, a private airfield where Lyall keeps his aircraft. I recall one day a few years ago, while



The throaty sound of the seven-cylinder Jacobs radial in the full-size Waco owned and flown by Mike Damp of Port Lincoln was a definite contrast to some of our models.



Lyall Jaensch with a 2.6 metre span model of the Vickers Vimmy built from a David Boddington plan to commemorate the 100 years since brothers Sir Ross and Sir Keith Smith won the England to Australia Air Race.



Lyall with his Corby Starlet, Cessna 170 and Cassut Racer. Lyall is holding the old well-worn Bixler he used during his transition back into flying R/C models. The photo was taken 4 years ago.



Lyall's own design biplane built to suit the .61 cubic inch Webra he had spare.



Lyall spent thousands of hours flying Cessna 337 aircraft as a commercial pilot. This 2 m span Cessna 337 owned by Ron Grosser and flown on the Sunday in very strong winds has a unique sound with a .70 cubic inch Magnum four stroke in the front and an equal power Thunder Tiger .51 cubic inch two stroke in the rear.



This little monoplane was made up from bits and pieces and powered with a .35 cubic inch Webra.

working on a machine in our yard, hearing an aeroplane take off from Sky Park. On looking up I noticed that Lyall had taken off in his Cessna 170, obviously for a short local flight. About an hour later I received a phone call from Lyall; he was so excited because after putting



This Swamp Rat, now owned by Glen Paynter, was built by Ron Martin many years ago





Ron's 'Dragon Dancer' was built from the RCM&E free plan designed by Peter Miller.

the 170 back in the hangar he had flown three successful flights with the old Bixler he is holding in the photo.

Lyall spent many thousands of hours flying Cessna 337 aircraft during his time as a commercial pilot. During the 1980s these aircraft were used to find schools of tuna over a vast area of ocean, from the great Australian Bite to well south of Port Lincoln. In those early days the fish were caught by a method called polling and shipped back to Port Lincoln for processing. Today there are still approximately six full size Cessna 337 aircraft based in Port Lincoln which are still used for fish spotting operations, conducted from the

1st of December for approximately three to four months.

RCM&E PLAN BUILDER

Another of our Port Lincoln Model Aerosport club members is Ron Martin, 84 years of age and an avid builder of model magazine plans. The Swamp Rat in the nearby photograph, now on its third owner, is one of Ron's models. Ron has built 17 models from RCM&E plans, some of them twice, totalling 25 all up.



Ron Martin gifts a surplus Sbach electric model to junior member Aiden McLaughlan.

“Ron has built 17 models from RCM&E plans, some of them twice”

SUMMING UP

In summary the weekend was completely successful. Despite our distance from other model clubs, we will endeavour to run a fun fly again over our October long weekend this year.

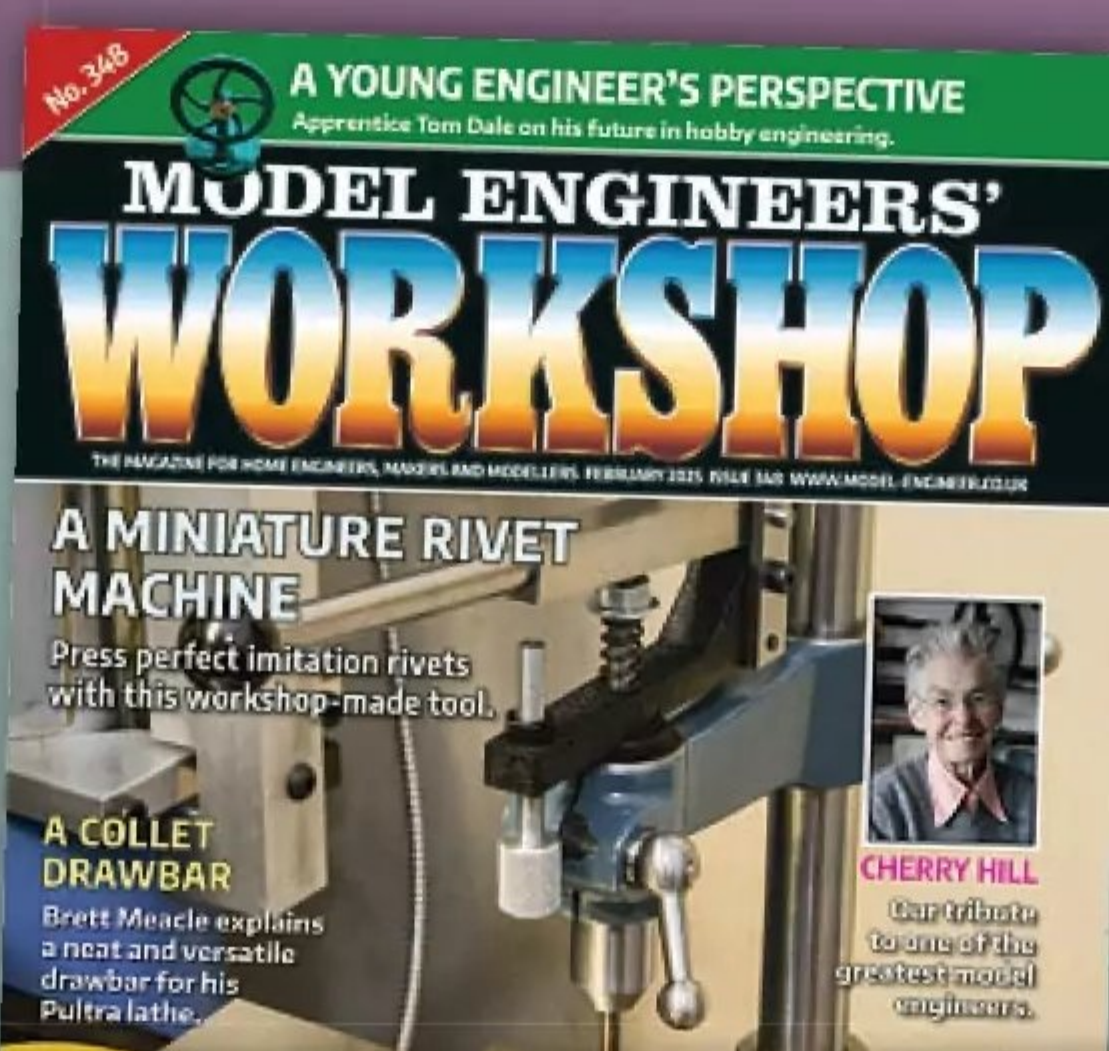
I would like to acknowledge one of our visiting modellers from Broken Hill, Ashley Smith for the many photographs he took and the quality of the photos that are included with this article. Thanks, Ash. ■



Ron on his 84th birthday at the South Hummocks Model Aerosport Club in November '24 with four of his RCM&E models that he had with him at the time.

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If you are planning an aeromodelling event over the next few months, then please send details - **up to 100 words maximum** - to Beth Ashby at: **Beth.Ashby@artichokehq.com**.

If you intend to visit any events listed, then please check with the organisers before travelling in case of any last-minute changes.

FEBRUARY

Feb 15

Waltham Chase Aeromodellers Medium Hall Indoor R/C Meetings at Crofton Community Centre, Stubbington Lane, Stubbington, Hants PO14 2PP. From 6.30pm to 9pm. The sports hall is four-badminton court size and particularly suitable for lightweight indoor R/C models. Flying at these events will take place in accordance with our indoor flying guidelines (available on our website). Admission £8 for fliers and £2 for spectators and junior fliers, whilst accompanied junior spectators and parents of junior fliers admitted free. Fliers will be required to show proof of insurance. These events are supported by the BMFA Southern Area. For further details please contact Alan Wallington on 01489 895157, email indoor@wcaero.bmfa.club or visit <https://wcaero.bmfa.club>

Feb 20

Waltham Chase Aeromodellers Small Models Meeting at Wickham Community Centre, Mill Lane, Wickham, Hants, PO17 5AL. From 7pm till 9.30pm. Hall is suitable for smaller indoor R/C models. Models to be limited to a max. weight of 95g for fixed wing inc. battery (max. 2S LiPo), helicopters limited to 305mm (12") rotor dia. Models will be weighed and judged on their suitability for the venue. Flying will be in accordance with our indoor flying guidelines on our website. Admission £6 for fliers, £2 for spectators and junior fliers. Accompanied junior spectators and parents of junior fliers admitted free. Fliers to show proof of insurance. For further details please contact Alan Wallington on 01489 895157, email indoor@wcaero.bmfa.club or visit <https://wcaero.bmfa.club>

MARCH

Mar 1

Wrexham RC Model Swap Spectacular at Gresford Trust Memorial Hall, Gresford Trust, off High Street, Gresford, LL12 8PS, five minutes from A483, Junction 6 (What 3 Words: stubborn.scripted.nothing). All types of flying models, engines, R/C equipment, building materials and associated model flying paraphernalia. 20 plus large tables available at £6 each. Entry and setting up for Stall Holders from 8:00 am. Entry for buyers is strictly from 9:00 am to 12:00 midday, admission £3 each. Tea/coffee and biscuits will be available. For further information and booking please contact Malc on 07886 288371 or email malcolmpdi@yahoo.com

Mar 1

Waltham Chase Aeromodellers Large Hall Indoor R/C Meeting at Havant Leisure Centre, Civic Centre Road, Havant, Hants PO9 2AY. From 6pm till 9pm. An eight-badminton court size sports hall, particularly suitable for lightweight indoor R/C models. Flying at these events will take place in accordance with our indoor flying guidelines (available on our website). Admission £10 for fliers and £2 for spectators and

junior fliers, accompanied junior spectators and parents of junior fliers admitted free. Fliers will be required to show proof of insurance. These events are supported by the BMFA Southern Area. For further details please contact Alan Wallington on 01489 895157, email indoor@wcaero.bmfa.club or visit <https://wcaero.bmfa.club>

Mar 2

Retford Spring Swapmeet at Carlton-in-Lindrick Civic Centre, Oakham Drive, Carlton-in-Lindrick, Worksop, Notts, S81 9RE. (what3words, blog.otherwise.nurse). Table set up from 8:30am till 9:15am, tables supplied. Pre-booked tables £7. On the day £8. Admission £3. Doors open at 9:30am till 11:45am. Hot sandwiches, tea, coffee available. For further information and booking contact Lee Davies on 07900 156803 or email lee301269@gmail.com or visit www.rmfc.bmfa.uk

Mar 6

Waltham Chase Aeromodellers Small Models Meeting at Wickham Community Centre, Mill Lane, Wickham, Hants, PO17 5AL. From 7pm till 9.30pm. Hall is suitable for smaller indoor R/C models. Models to be limited to a max. weight of 95g for fixed wing inc. battery (max. 2S LiPo), helicopters limited to 305mm (12") rotor dia. Models will be weighed and judged on their suitability for the venue. Flying will be in accordance with our indoor flying guidelines on our website. Admission £6 for fliers, £2 for spectators and junior fliers. Accompanied junior spectators and parents of junior fliers admitted free. Fliers to show proof of insurance. For further details please contact Alan Wallington on 01489 895157, email indoor@wcaero.bmfa.club or visit <https://wcaero.bmfa.club>

Mar 8

Tonbridge Gassers and Rubber Fanciers Indoor Flying at Kings Sport Centre, 601 Maidstone Road, Rochester, ME1 3QJ. From 6:30 pm until 10:00 pm. Free flight, Lightweight R/C and 3D R/C timed flying sessions throughout the evening. Contact Steve on 0208 942 5000 or Eric on 07763 398 416.

Mar 8

Gravesend Aeromodelling Flying Club Swapmeet at Istead Rise Community Centre, Worcester Close, Kent, DA13 9LB. From 10 am - 2 pm. Doors open for setting up at 9:00 am. Tables £6 each. Public £2 entry from 10 am. Plenty of free parking. Refreshments available. Booking essential. Contact Paul Holmes on 01634 261113 or 07984373012 or email pj.holmes303@btinternet.com

Mar 9

White Sheet RFC Scale Event. Scale Days could be either Saturday or Sunday, with the preferred day always being a Sunday. After analysing the forecasted conditions, the Scale Secretary will make the final on/off call on. Please note the reserve date of the 30th. Please check with the WSRFC before travelling: <https://whitesheet.bmfa.club>

Mar 15

Waltham Chase Aeromodellers Medium Hall Indoor R/C Meeting at Crofton Community Centre, Stubbington Lane, Stubbington, Hants PO14 2PP. From 6.30pm to 9pm. The sports hall is four-badminton court size and particularly suitable for lightweight indoor R/C models. Flying at these events will take place in accordance with our indoor flying guidelines (available on our website). Admission £8 for fliers and £2 for spectators and junior fliers, whilst accompanied junior spectators and parents of junior fliers admitted free. Fliers will be required to show proof of insurance. These events are supported by the BMFA Southern Area. For further details please contact Alan Wallington on 01489 895157, email indoor@wcaero.bmfa.club or visit <https://wcaero.bmfa.club>

Mar 16

Horam Swap Meeting at Horam Village Hall, A267, Horam, East Sussex TN21 0JE. What3Words self. planting.brave. Doors open to sellers 8.00am. Tables and one seller £8.00. Buyers entry from 9.00am and entry £3.00. Doors close at 12:00pm. Refreshment including our famous Bacon Butties. For bookings (essential) contact Robert Richardson: rob.richardson@talktalk.net

Mar 16

Beverley And District MAC Spring Swapmeet at Tickton Village Hall, Tickton, Nr. Beverley, HU17 9RZ. Entry £1.00, tables £5.00. Contact Simon Tweedale on 07753 856758 or email simontweedale66@gmail.com

Mar 20

Waltham Chase Aeromodellers Small Models Meeting at Wickham Community Centre, Mill Lane, Wickham, Hants, PO17 5AL. From 7pm till 9.30pm. Hall is suitable for smaller indoor R/C models. Models to be limited to a max. weight of 95g for fixed wing inc. battery (max. 2S LiPo), helicopters limited to 305mm (12") rotor dia. Models will be weighed and judged on their suitability for the venue. Flying will be in accordance with our indoor flying guidelines on our website. Admission £6 for fliers, £2 for spectators and junior fliers. Accompanied junior spectators and parents of junior fliers admitted free. Fliers to show proof of insurance. For further details please contact Alan Wallington on 01489 895157, email indoor@wcaero.bmfa.club or visit <https://wcaero.bmfa.club>

Mar 23

White Sheet RFC Open Slope for Vintage Scale, Modern Scale soarers, F3f and F5j competition models or 'Anything In Between' such as PSS gliders. The scheduled Sundays are preferred but as always Saturdays are an option. The Open Slopes Secretary will analyse the forecast and attempt to choose the most suitable day. The decision is usually made on the Friday before the event, occasionally earlier if conditions are more settled. Please check with the WSRFC before travelling: <https://whitesheet.bmfa.club>



Mar 23

Southern Counties Spring Swapmeet, Mountbatten School, Romsey, Hampshire, SO51 5SY. One of the largest swapmeets in southern England with over 50 tables. Sellers with a booking admitted from 8:00 am. Buyers from 8:30 am onwards. Noon finish. Admission only £4, under 16s free. First table costs £10 (including one admission), additional tables cost £6 each. Refreshments will be available. To pre-book tables only call Mike Stokes on 07702 742647. More details at hmfa.bmfa.org

Mar 30

Leafields Spring Swapmeet at Wharf Road, Pinxton, Derbyshire, NG16 6NY. The most popular swapmeet in the area with a well-established trading record of consistent numbers of traders and attendees. Doors will be open to the public at 10:00 am and traders are welcome from 8:45 am onwards. Admission is £2.00 pp at the door for adults with under 15s free entrance. Hot and cold refreshments will be available throughout the course of the morning. Tables are available at £5.00 each and are selling very well so if you wish to wish to book a table, please ring Dave Moore on 07793 815654 or email at gryrservices@w3z.co.uk.

APRIL

April 3

Waltham Chase Aeromodellers Small Models Meeting at Wickham Community Centre, Mill Lane, Wickham, Hants, PO17 5AL. From 7pm till 9.30pm. Hall is suitable for smaller indoor R/C models. Models to be limited to a max. weight of 95g for fixed wing inc. battery (max. 2S LiPo), helicopters limited to 305mm (12") rotor dia. Models will be weighed and judged on their suitability for the venue. Flying will be in accordance with our indoor flying guidelines on our website. Admission £6 for fliers, £2 for spectators and junior fliers. Accompanied junior spectators and parents of junior fliers admitted free. Fliers to show proof of insurance. For further details please contact Alan Wallington on 01489 895157, email indoor@wcaero.bmfa.club or visit <https://wcaero.bmfa.club>

April 5

Delyn Model Flying Club Swapmeet at Halkyn Parish Hall and library, CH8 8ES. What 3 words shrub.poems. continued.off. A55 junction, 32b. Open for sellers from 8:30am and buyers from 9:30am. Unlimited parking tea and coffee available. Lots of model flying goodies on offer, come and fill your boots. For booking ring Bill Lowes on 07811 159891 or darcyrabbit@aol.com.

Apr 6

White Sheet RFC Scale Event. Scale Days could be either Saturday or Sunday, with the preferred day always being a Sunday. After analysing the forecasted conditions, the Scale Secretary will make the final on/off call on. Please note the reserve date of the 27th. Please check with the WSRFC before travelling: <https://whitesheet.bmfa.club>

Apr 12

CADMAC Swapmeet at Stannington Village Hall, Stannington, Northumberland NE61 6EL. The Village

Hall is at the back of the Ridley Arms Pub car park. The event is open to all, but aeromodelling items only. Sellers fee £6 per table plus the entrance fee, all tables are provided. Admission £2, Ladies and under 16s free. Sellers set up at 12:00pm. Buyers enter at 12:30pm. Doors close at 3:00pm. All proceeds go to Northumbrian Air Ambulance. Please contact Bob Brown on rwbrown17@gmail.com or 07515 682543 to book a table.

Apr 12

Tonbridge Cassers and Rubber Fanciers Indoor Flying at Kings Sport Centre, 601 Maidstone Road, Rochester, ME1 3QJ. From 6:30 pm until 10:00 pm. Free flight, Lightweight R/C and 3D R/C timed flying sessions throughout the evening. Contact Steve on 0208 942 5000 or Eric on 07763 398 416.

Apr 12-13

The Great Cornish Model Show at Pool Academy, Church Road, Pool, TR15 3PZ. A celebration of modelmaking talent in Cornwall! Featuring around 15 working model train layouts, R/C and miniature model aircraft, model boats and ships, R/C trucks and cars, military modelling, model engineers, miniature figure painting, paper modelling, plastic kit modelling, wargamers, miniature room sets and dolls houses, modelling demonstrations. Full trade support. Open on Saturday from 10:00am – 5:00pm and Sunday 10:00am – 4:00pm. Tickets: Adults £8.00, under 16s £5.00, Family £15.00, under 5s free. Free parking, easy access, hot food and refreshments all day. For more information, please visit www.hfmrc.uk

Apr 12-13

PSSA 'Fly for Fun' event at The Great Orme, Llandudno, North Wales. Meet at the 'Tank Track' car park for pilots brief 10am each day. Proof of BMFA (or equivalent) Insurance and Pilot Competency certificate required. All models to be fitted with compliant CAA OpID number. Note due to slope access restrictions in place during Spring this event WILL NOT RUN as listed if the prevailing winds are Easterly and we would need to fly over the pier. In this case a decision will be taken in the week running up to the event and we will look to defer the date as best we can. For more information contact Phil Cooke on 07772 224719, email webmaster@pssaonline.co.uk or go to <http://www.pssaonline.co.uk/about-us/events/>

Apr 13

White Sheet RFC Open Slope for Vintage Scale, Modern Scale soarers, F3f and F5j competition models or 'Anything In Between', such as PSS gliders. The scheduled Sundays are preferred but as always Saturdays are an option. The Open Slopes Secretary will analyse the forecast and attempt to choose the most suitable day. The decision is usually made on the Friday before the event, occasionally earlier if conditions are more settled. Please check with the WSRFC before travelling: <https://whitesheet.bmfa.club>.

Apr 15

PMAC Swapmeet At Chelford Village Hall, Knutsford Rd, Chelford, Macclesfield SK11 9AS. Please note this venue is a replacement for this well-established Swapmeet (ex Deanwater). From 7pm to 9pm, doors open for table holders at 6:30pm. Tables £10 each

(includes entry for one person). Entry £3 per person. Tables limited to 30 only, table booking required. Vehicles greater than 2.1m tall will need to be advised to the organiser (use contact below) due to parking restrictions. Table bookings required by contacting Tim Cheal. email: tim.cheal@btinternet.com

Apr 16

Waltham Chase Aeromodellers Medium Hall Indoor R/C Meetings at Crofton Community Centre, Stubbington Lane, Stubbington, Hants PO14 2PP. From 6.30pm to 9pm. The sports hall is four-badminton court size and particularly suitable for lightweight indoor R/C models. Flying at these events will take place in accordance with our indoor flying guidelines (available on our website). Admission £8 for fliers and £2 for spectators and junior fliers, whilst accompanied junior spectators and parents of junior fliers admitted free. Fliers will be required to show proof of insurance. These events are supported by the BMFA Southern Area. For further details please contact Alan Wallington on 01489 895157, email indoor@wcaero.bmfa.club or visit <https://wcaero.bmfa.club>

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Waltham Chase Aeromodellers Small Models Meeting at Wickham Community Centre, Mill Lane, Wickham, Hants, PO17 5AL. From 7pm till 9.30pm. Hall is suitable for smaller indoor R/C models. Models to be limited to a max. weight of 95g for fixed wing inc. battery (max. 2S LiPo), helicopters limited to 305mm (12") rotor dia. Models will be weighed and judged on their suitability for the venue. Flying will be in accordance with our indoor flying guidelines on our website. Admission £6 for fliers, £2 for spectators and junior fliers. Accompanied junior spectators and parents of junior fliers admitted free. Fliers to show proof of insurance. For further details please contact Alan Wallington on 01489 895157, email indoor@wcaero.bmfa.club or visit <https://wcaero.bmfa.club>

Apr 18

Watton Radio Model Club Bring & Buy at Hingham Sport/Social Club, Watton Road, Hingham, NR9 4HB. Sellers from 5.30 pm. £5 per table additional helpers £1. Doors open 6 pm, entry £1. Bar open. Contact Martin Pawsey on 01953 883892 or email: martin.pawsey@btinternet.com or visit www.wrmlc.uk

Apr 26-27

Scale Indoor RC Nationals and Scale Indoor FF Nationals at Walsall Campus Sports Hall the University of Wolverhampton, Magdalene Road, Walsall WS1 3TA. Competitors can enter both days by completing the electronic entry form found on the BMFA Scale Technical Committee Website at: <https://scale.bmfa.org>. Spectators are welcome to view proceedings from the seated gallery area overlooking the sports hall. The fee for spectators is a bargain £5.00, allowing entry for both days (free for accompanied under 16s). There is ample free car parking for visitors onsite at the University. Why not come along and take part or be simply inspired by viewing the best in UK and European Scale Indoor aeromodelling. For further details please contact enquiriesbmfascale@yahoo.com

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RUCKUS, almost new with battery 3300/4S included. Uprated motor, as new, ready to fly - £150. Ruckus, great condition, with battery 3300/4S included. Uprated motor, as new, ready to fly - £140. 07855 200745 or email dennis1945@proton.me (Newcastle).

TWISTER 3DR/C HELICOPTER, 35m Rx, all servos and spares included. 3 sets of blades, tail boom, drive gear set, tail output gear set - £30 buyer to collect. 01494 445636 (Bucks).

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DOUGLAS F4D SKYRAY EDF - £225. Newly built but not flown, 1350 mm length and 976 mm span. Complete with servos and electric retracts and

comes with handbook. Uses 6S 5000 LiPo or similar. 07946 414532 (W.Yorks).

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PROCTOR NIEUPORT ELEVEN, built, rigged, uncovered, superb - £495. Proctor Nieuport 28, 75% built with guns, wheels, plans etc. Selling as too big for workshop - offers? Lockheed Vega from FSM plans, needs motor and electrics - offers? Mr Mulligan, also from FSM plans, needs motor and electrics - offers? 01508 570941 (Norfolk).

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ST8US

Mike Freeman was really pleased with his Hi8us flying wing, which featured in the July '22 issue. That is until one launch, when the spinning prop clipped a knuckle as it flew past. Thankfully Mike had gloves on and they took the brunt, but it still hurt! To avoid the risk of it happening again he decided to build an EDF version using one of the tiny 50 mm Powerfun units from 4-Max Models. Remembering a previous design with a tailplane made from foamboard, Mike thought it might be time to have another go with this material but was sure that he could come up with something a little more elegant. After a very interesting learning curve and three prototypes the St8us you see here finally emerged. Build your own St8us from the April Pro-Plan.



BARLING BOMBER

Having successfully scratch built some twin-engine biplanes, including the characterful Boulton Paul P-75 Overstrand featured in the October and November '24 issues of RCM&E, Jon Harper felt ready to take on a really challenging build. A few years ago, Jon's daughter bought him a 1965 Air Classics magazine that included an article on the Barling Bomber, which enticed him to make a scale R/C model. Its proper name is the Wittemann-Lewis XNBL-1 (experimental night bomber long range) 'Barling Bomber', lovingly named after British designer Walter H. Barling.

AVRO 707

Mike Roach's first adventure with EDF came to a sorry end when his brain and thumbs refused to catch up with a little foam Hawk he bought himself as a birthday present. After three increasingly bad crashes he excavated the hardware out of the wreckage and put it on a shelf, out of sight. A while later, Mike was talking to a friend about the Keil Kraft models they had built as kids. His favourite was the Avro 707. A browse on the internet found the plan he remembered so fondly. The 50 mm fan from the Hawk would easily fit in a twice-size version and with much more wing area it would surely fly slowly enough for him to keep up with - wouldn't it?



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KILLER BEE

Dominik Euteneier of the CARF Display Team was flying the CARF Models 1:3.2 scale GeeBee R2 at Weston Park when a sudden crosswind whilst landing tried to tip her over. Dominik's lightning reflexes managed to save an impending cartwheel. You could see why the full size GeeBee has the nickname 'Killer Bee' or 'Widow Maker'

DATAFILE

Photo:	Mike Freeman
Camera:	Nikon D7500
Aperture:	f/8
Focal Length:	200 mm
Shutter Speed:	1/640 sec
Lens:	Nikon VR 18-200mm f/3.5-5.6
ISO:	140
Metering:	Centre weighted
Exposure Comp:	0 EV

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Red/White -
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Wingspan: 67in (1.7m)
Motor: 20cc or Electric Equivalent

Yellow -
(Scheme 02)

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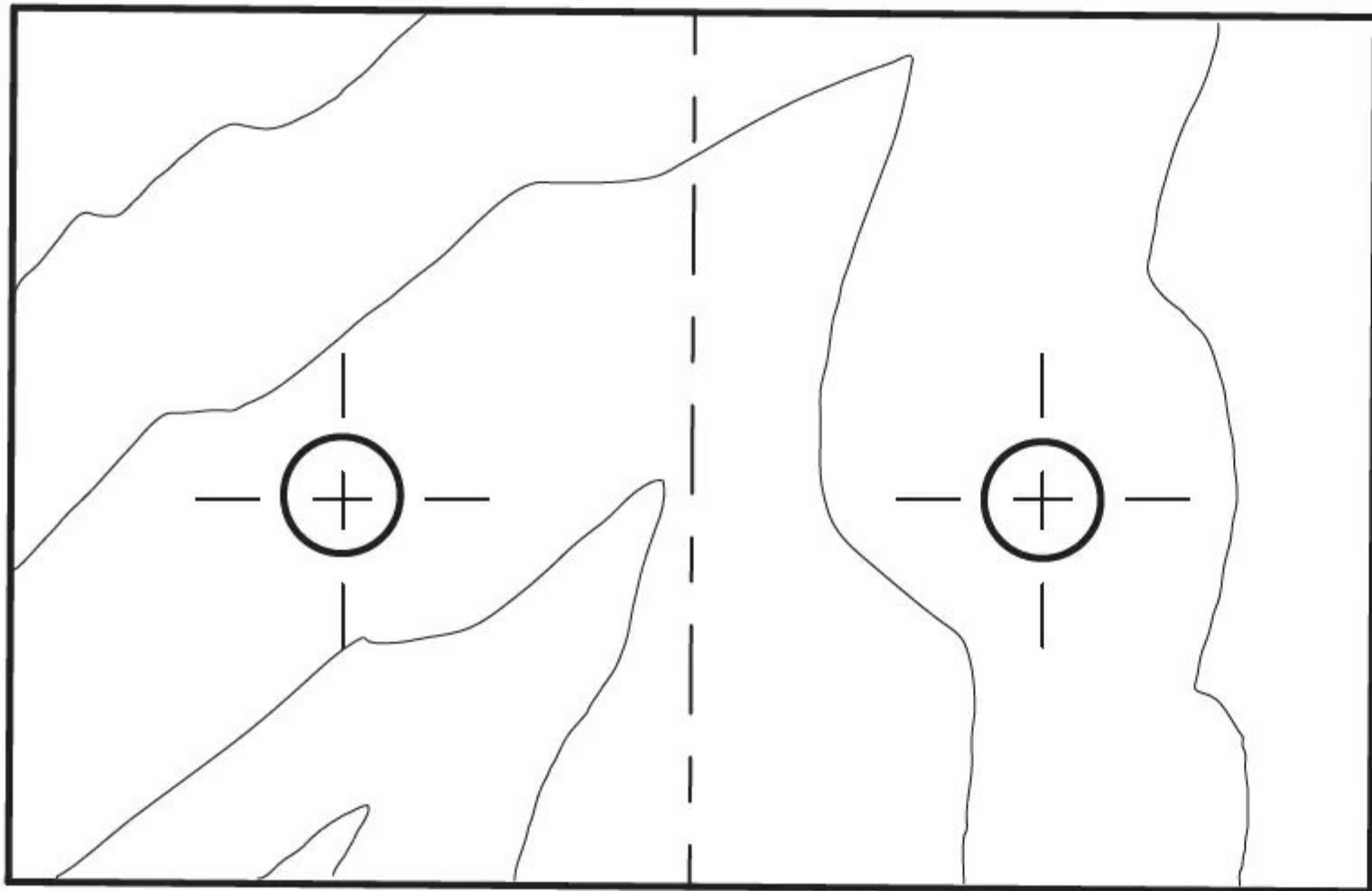
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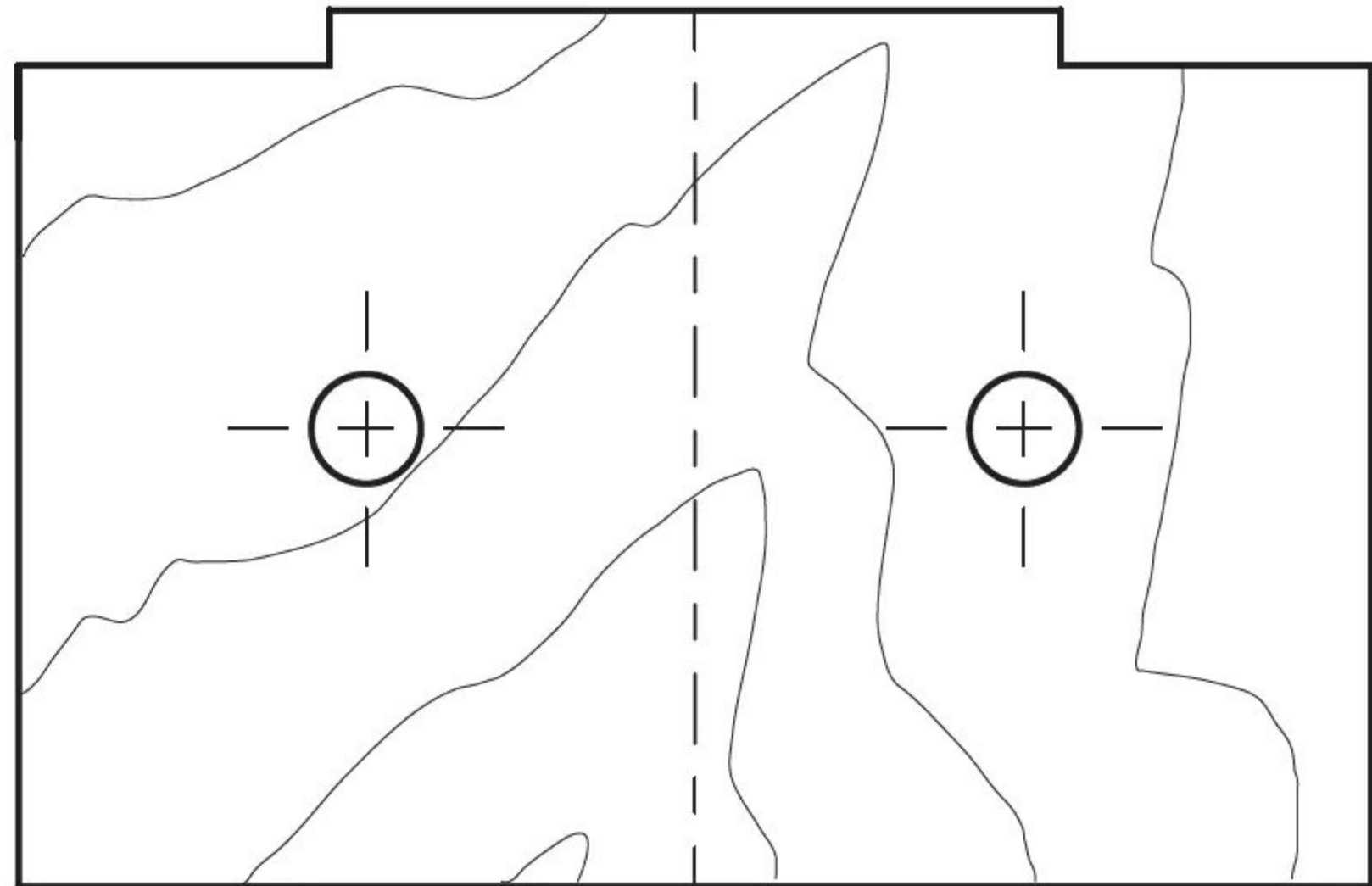
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F14
3mm LITE PLY
2 OFF



F13
3mm LITE PLY
2 OFF

HATCH - 5mm FOAM CORE
RETAINED WITH TAPE HINGE

NOTE POSITION OF
SLOT IN F2 TO
LOCATE F3 &
PROVIDE SIDE THRUST

F1 & F2
FORWARD FUSELAGE
2mm LITEPLY TO

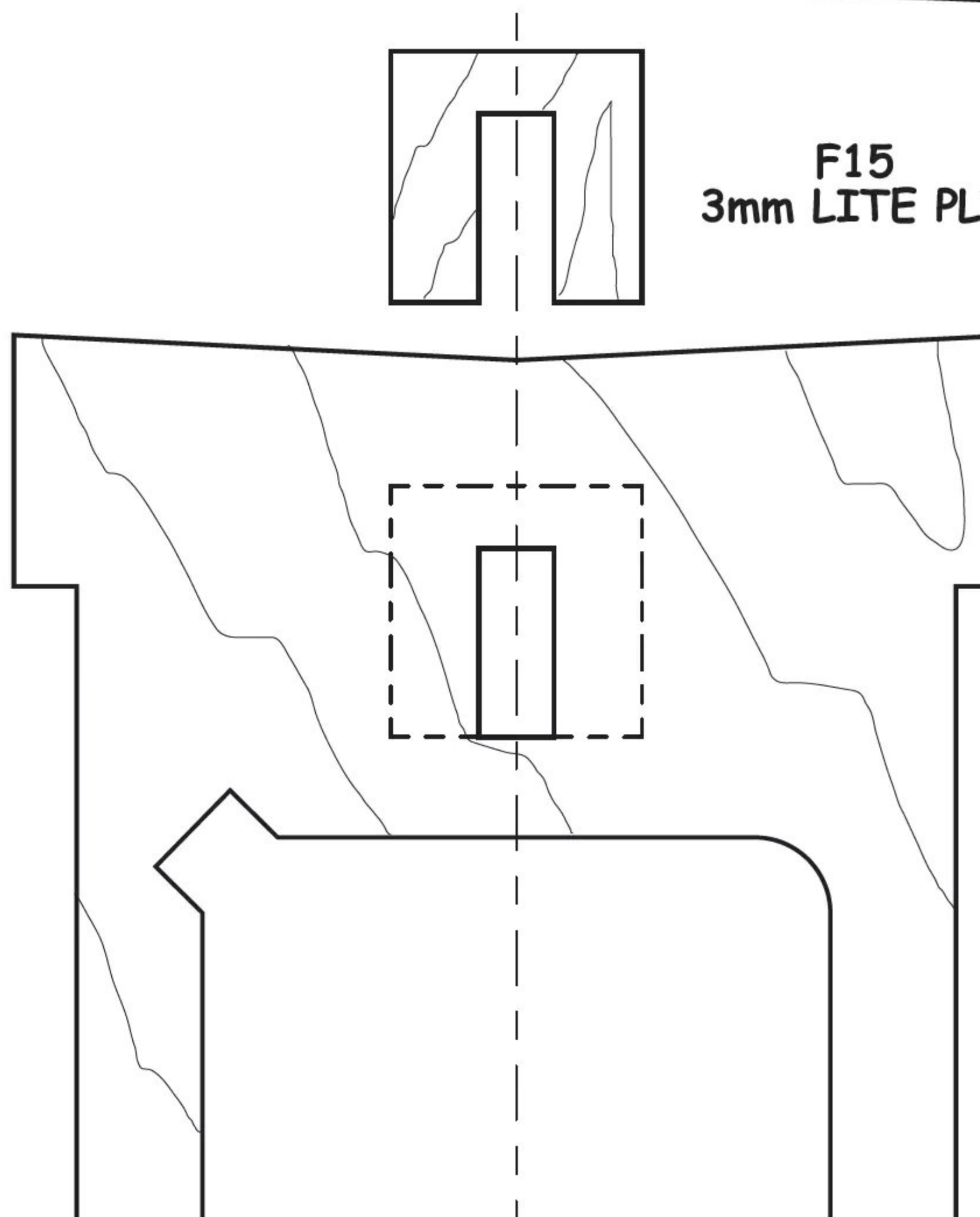
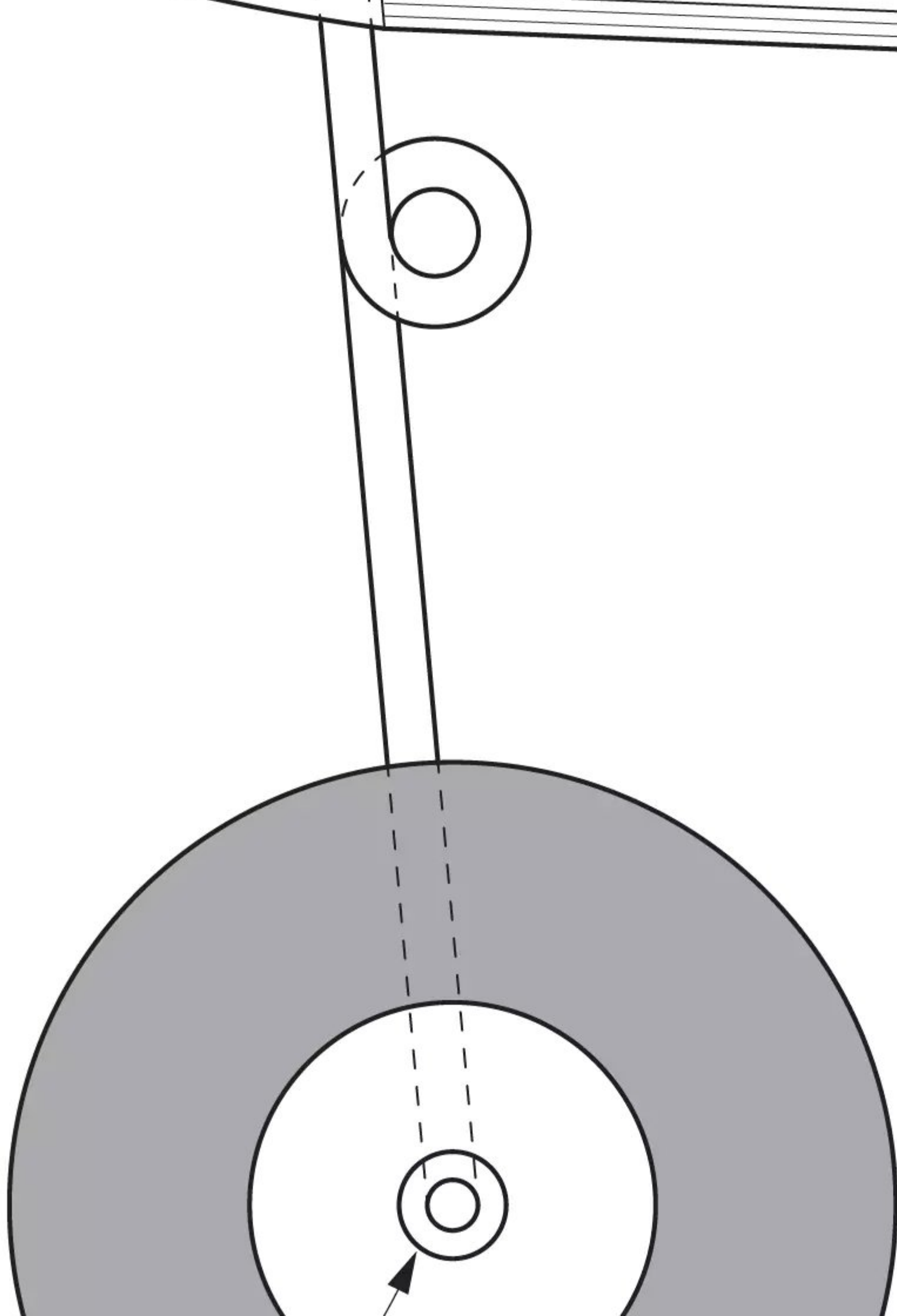
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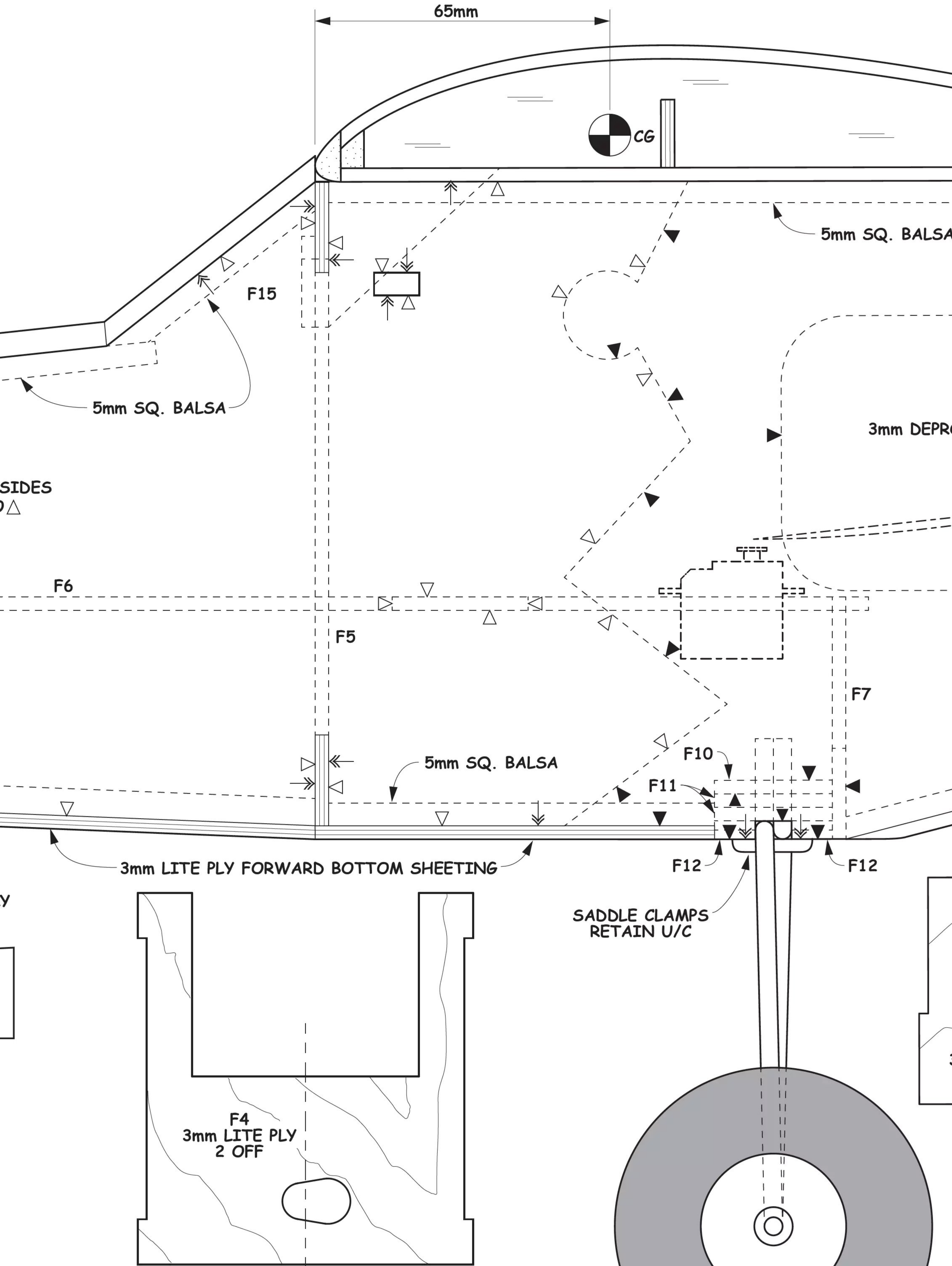
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6mm TRIANGLE BALSA

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3mm LITE PL

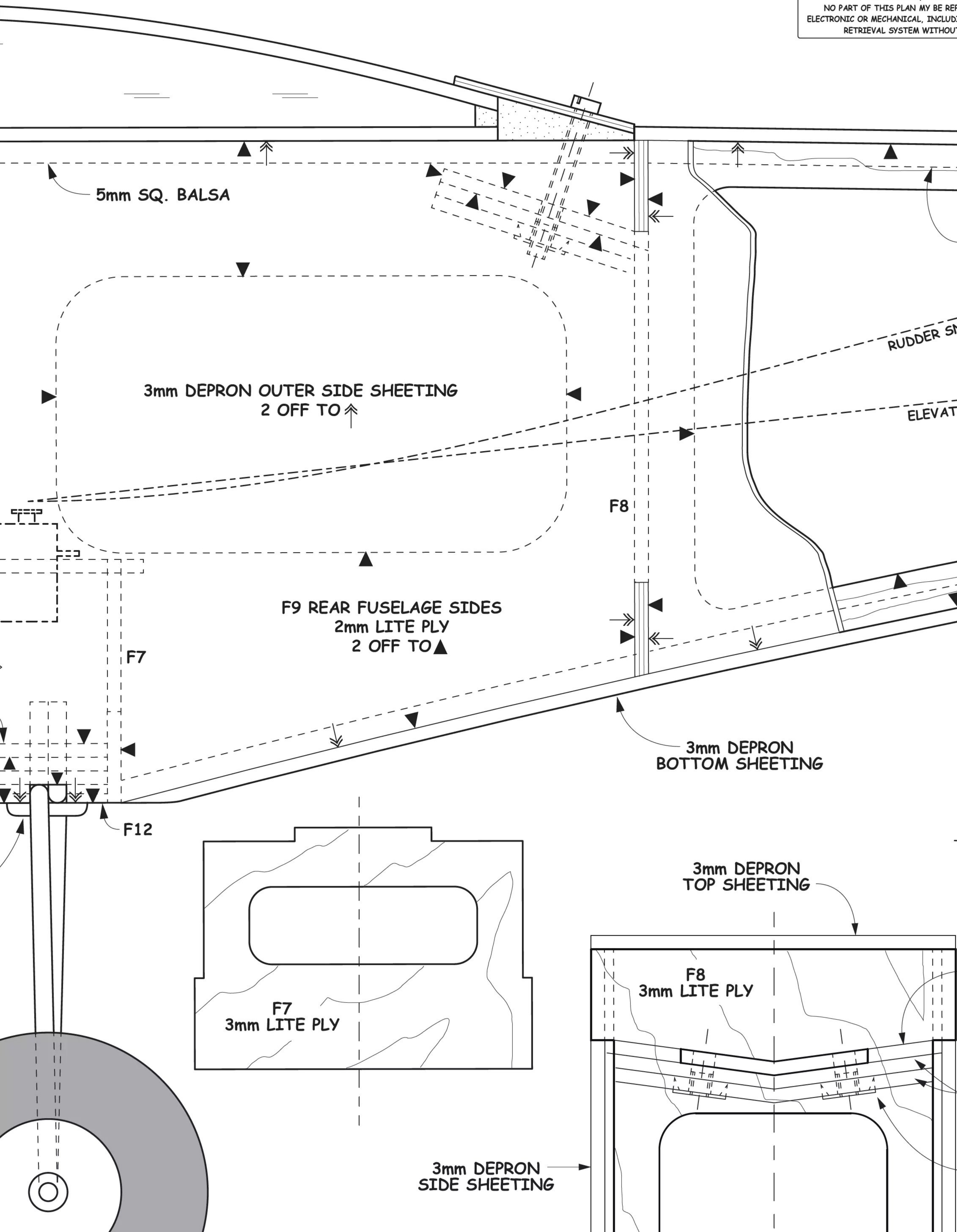
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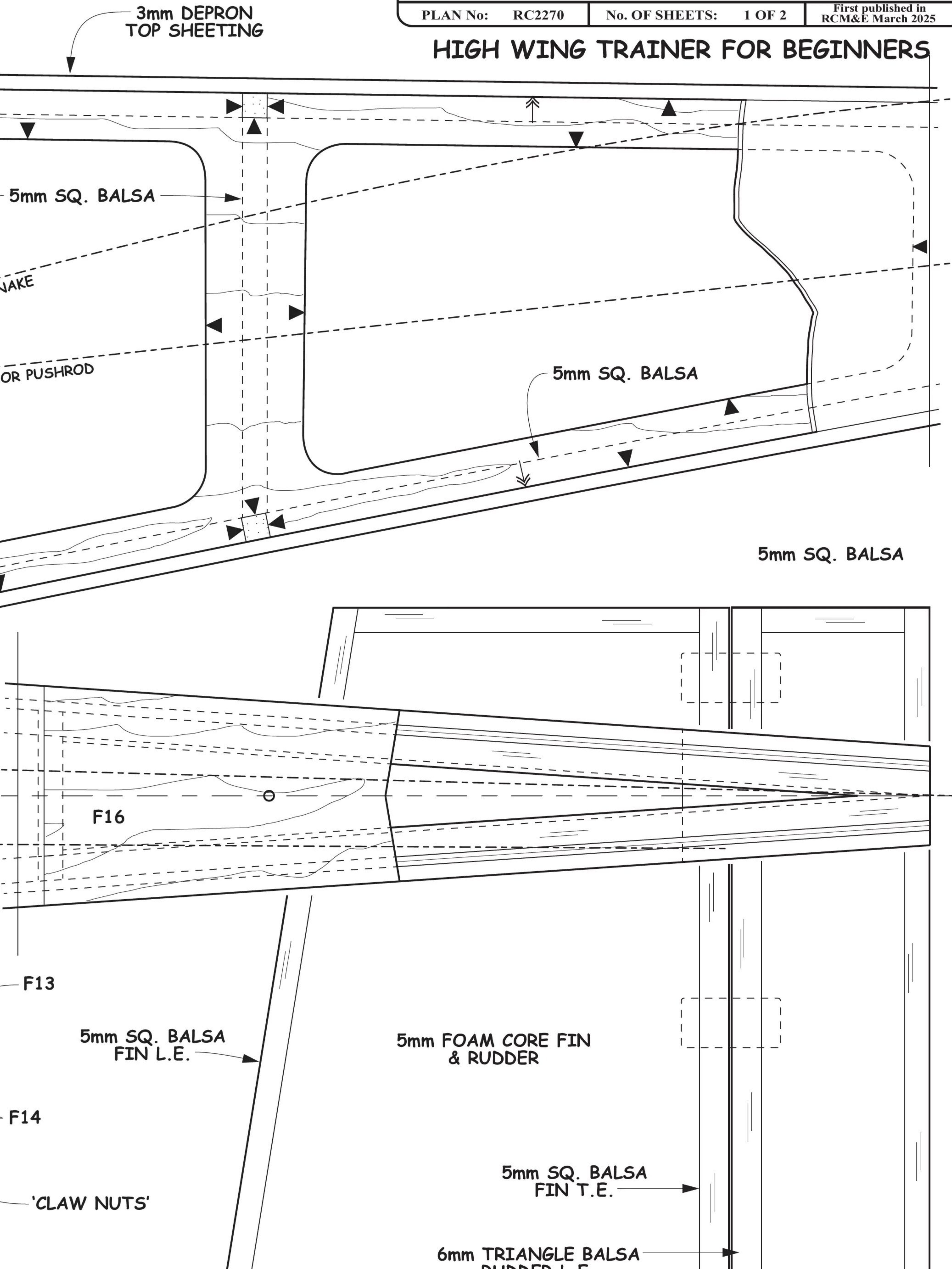
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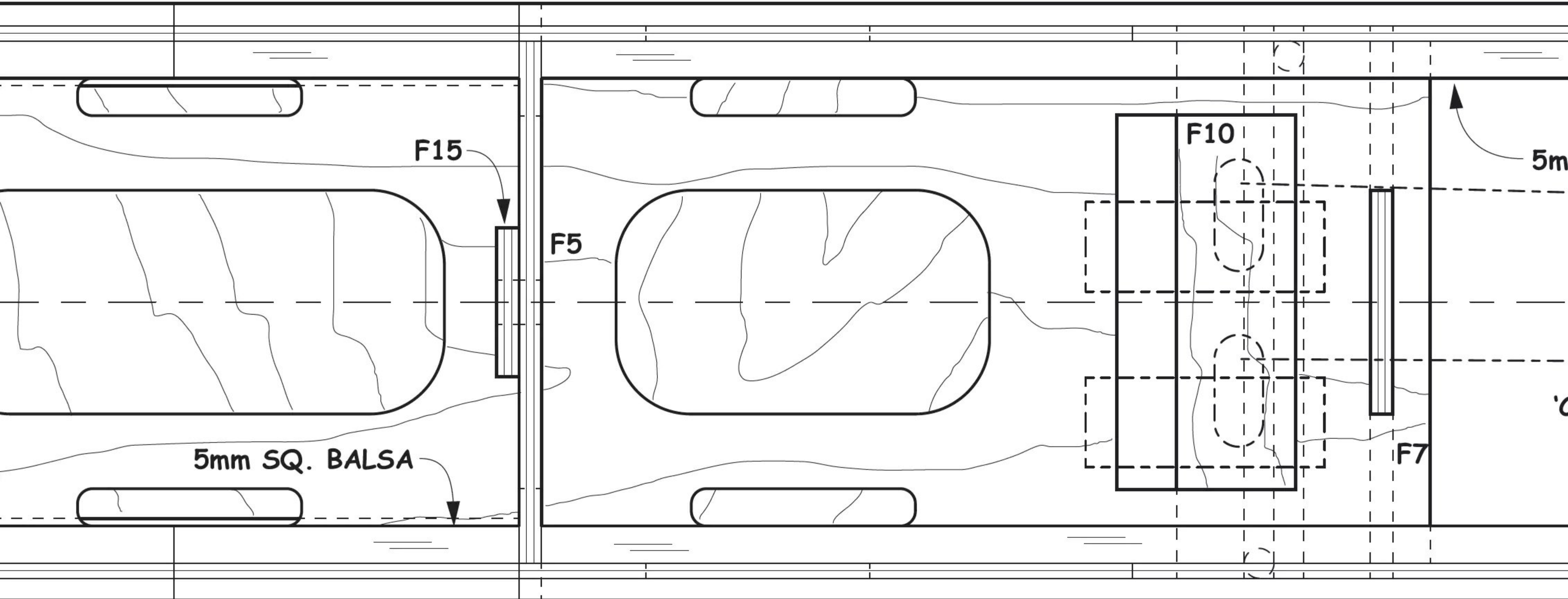
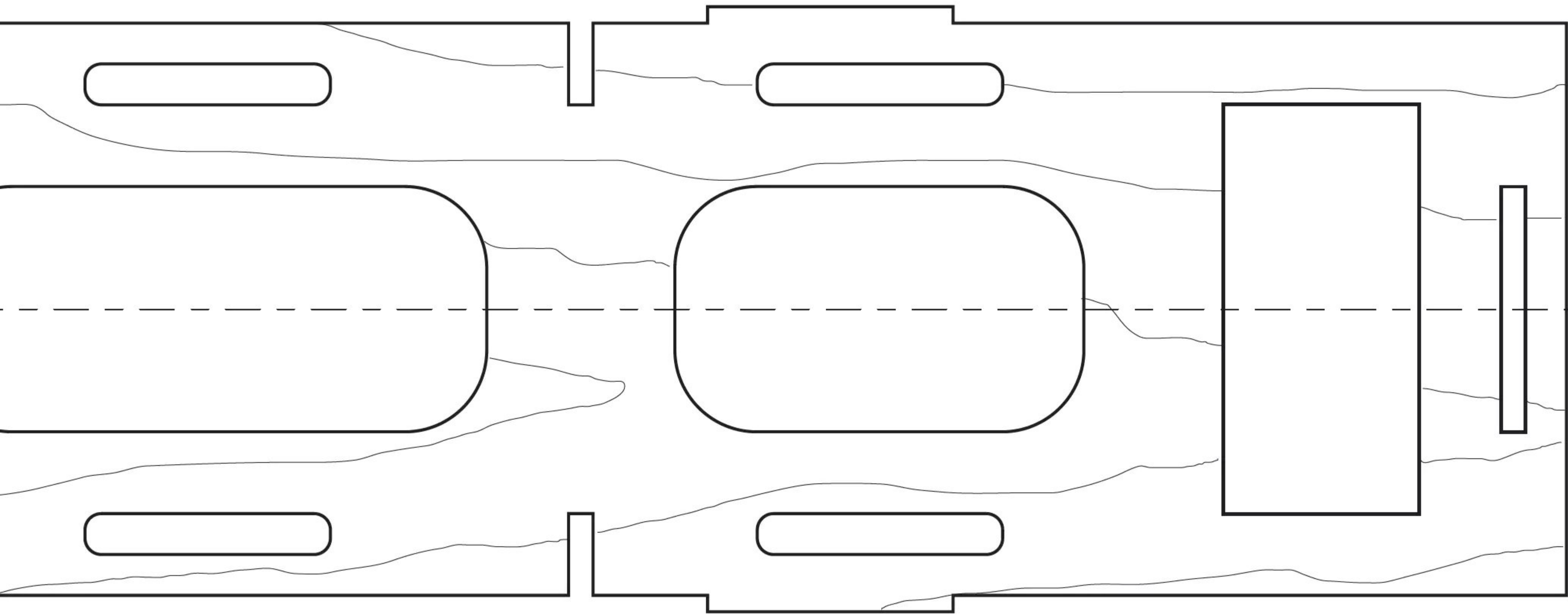
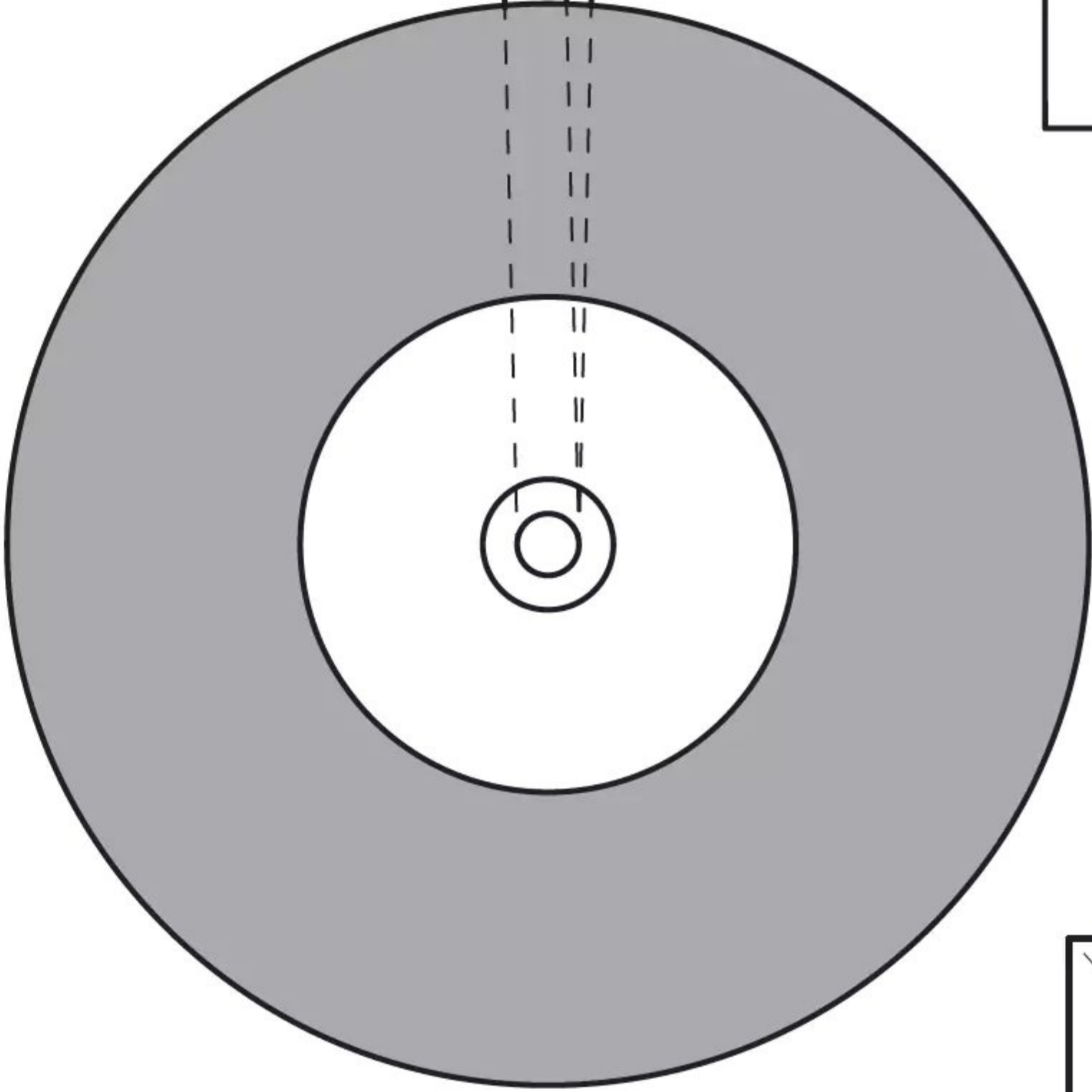
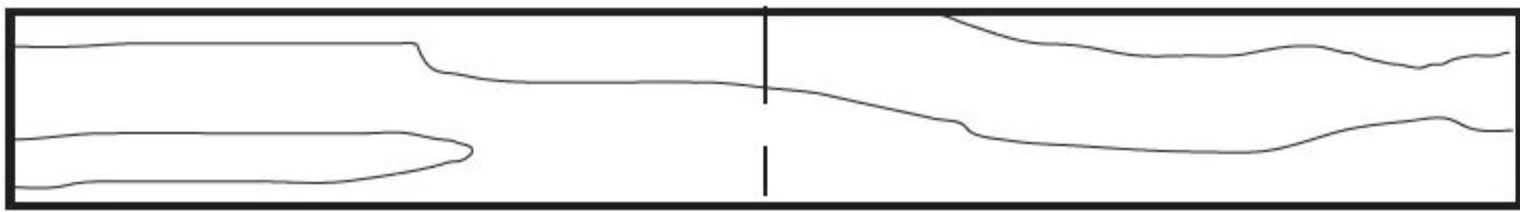
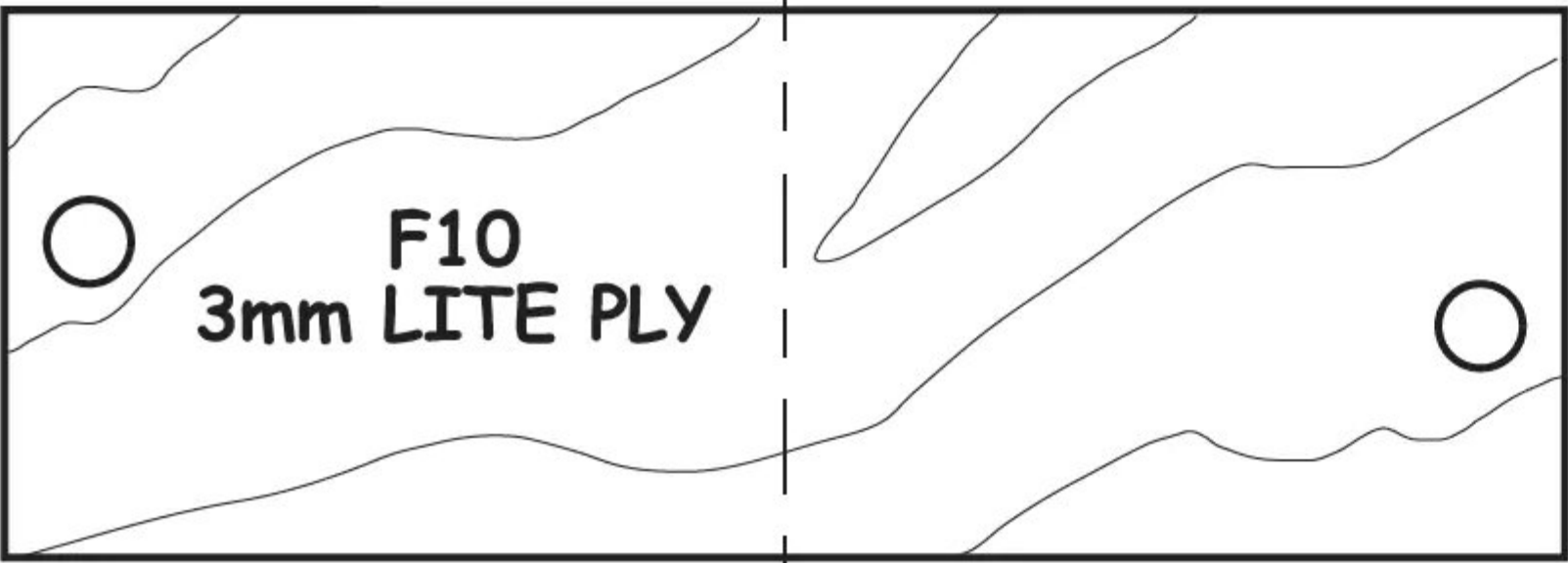
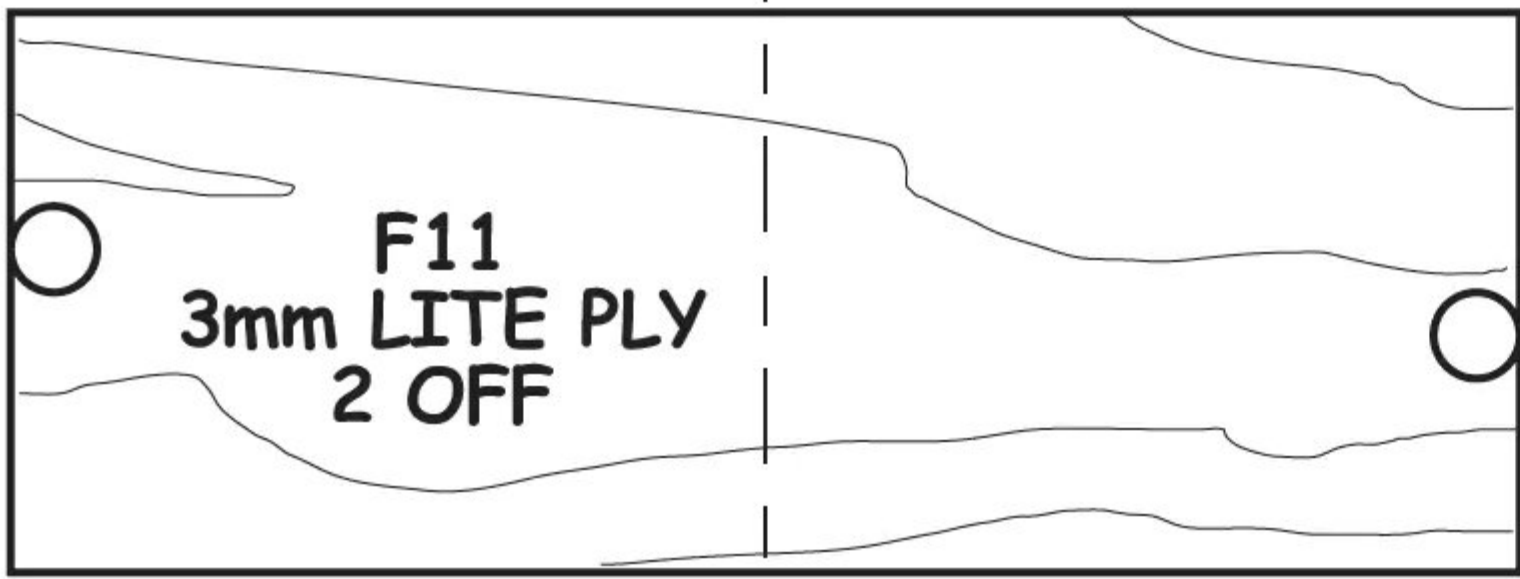
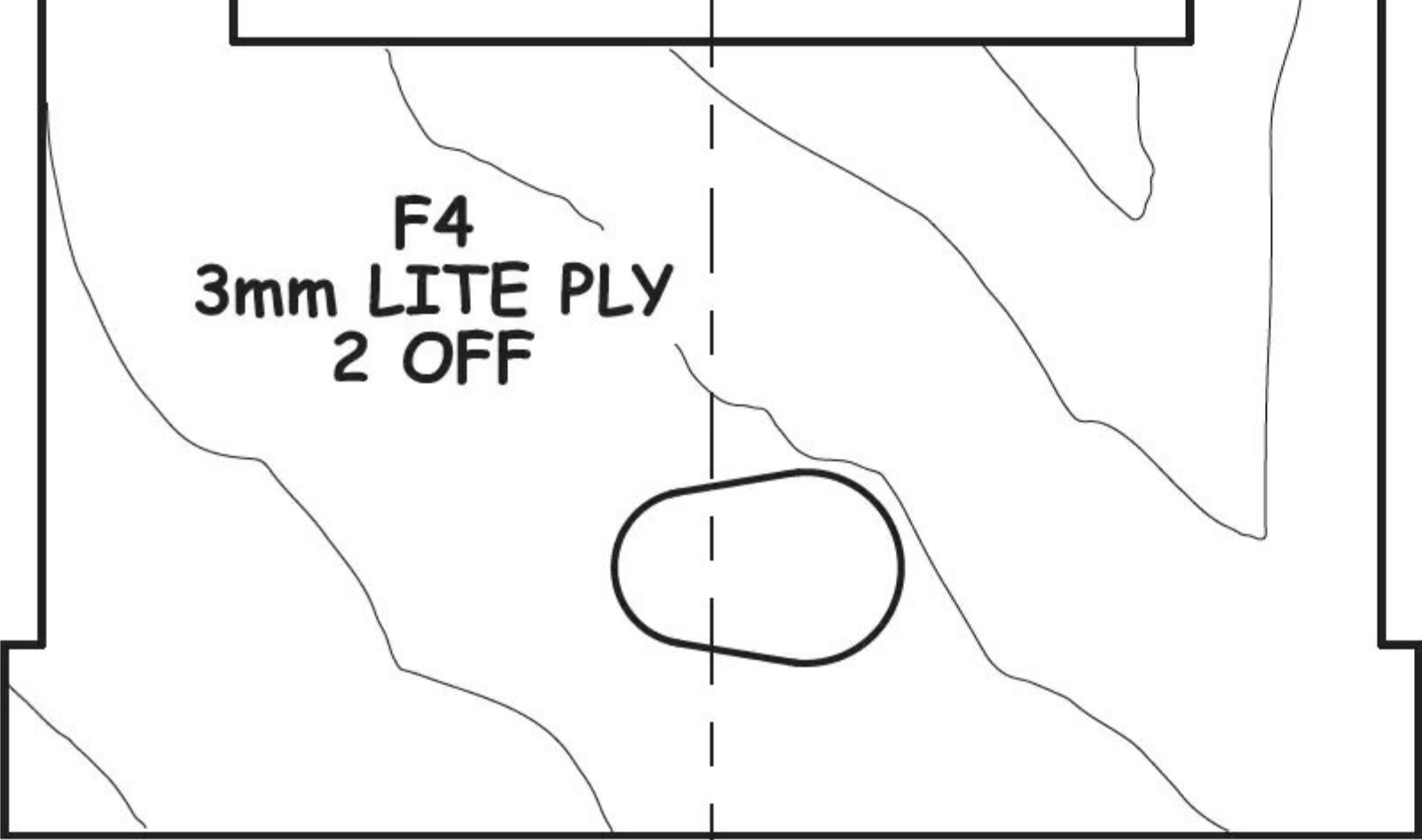
PLAN No: RC2270

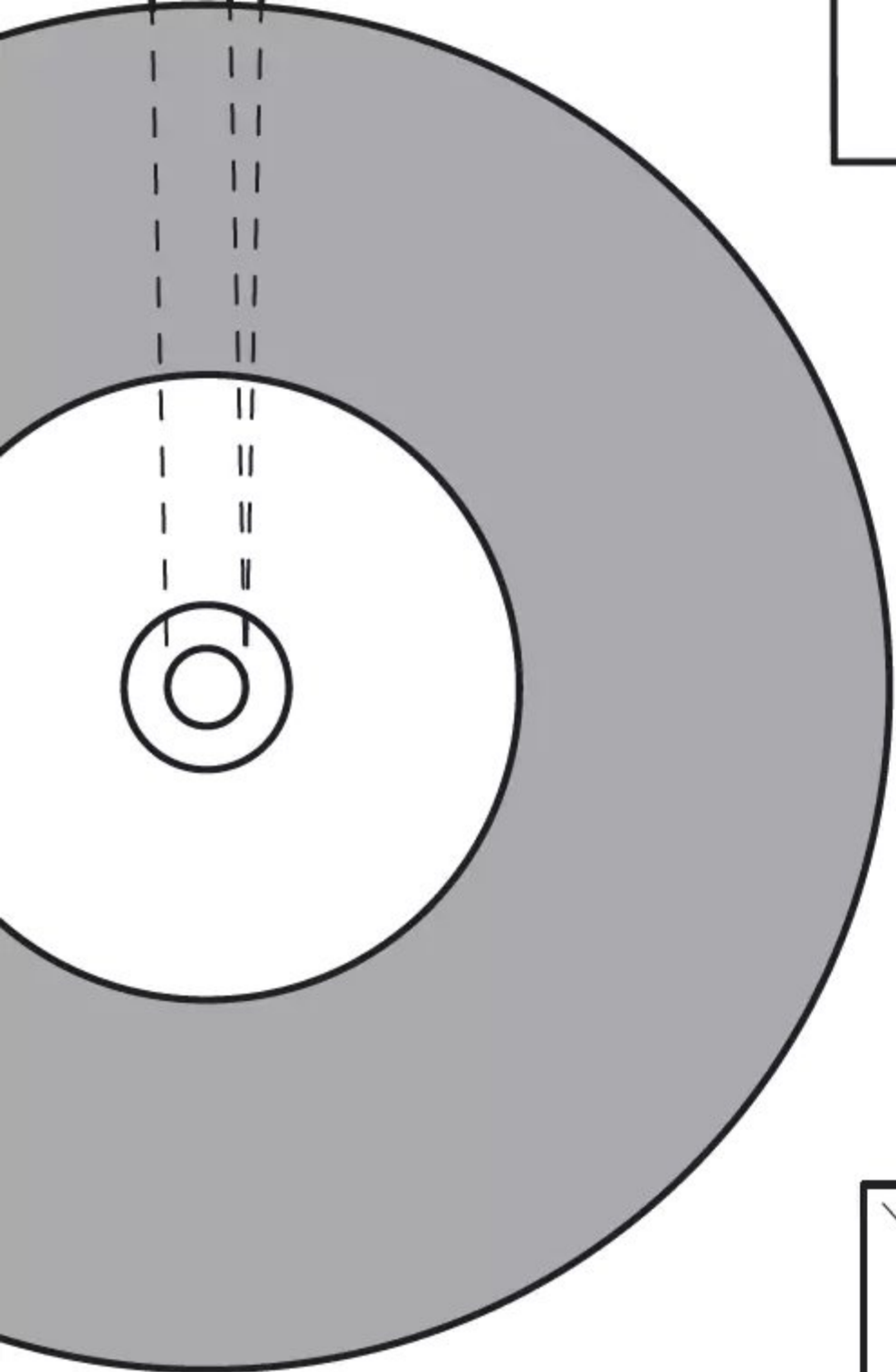
No. OF SHEETS: 1 OF 2

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RCM&E March 2025

HIGH WING TRAINER FOR BEGINNERS

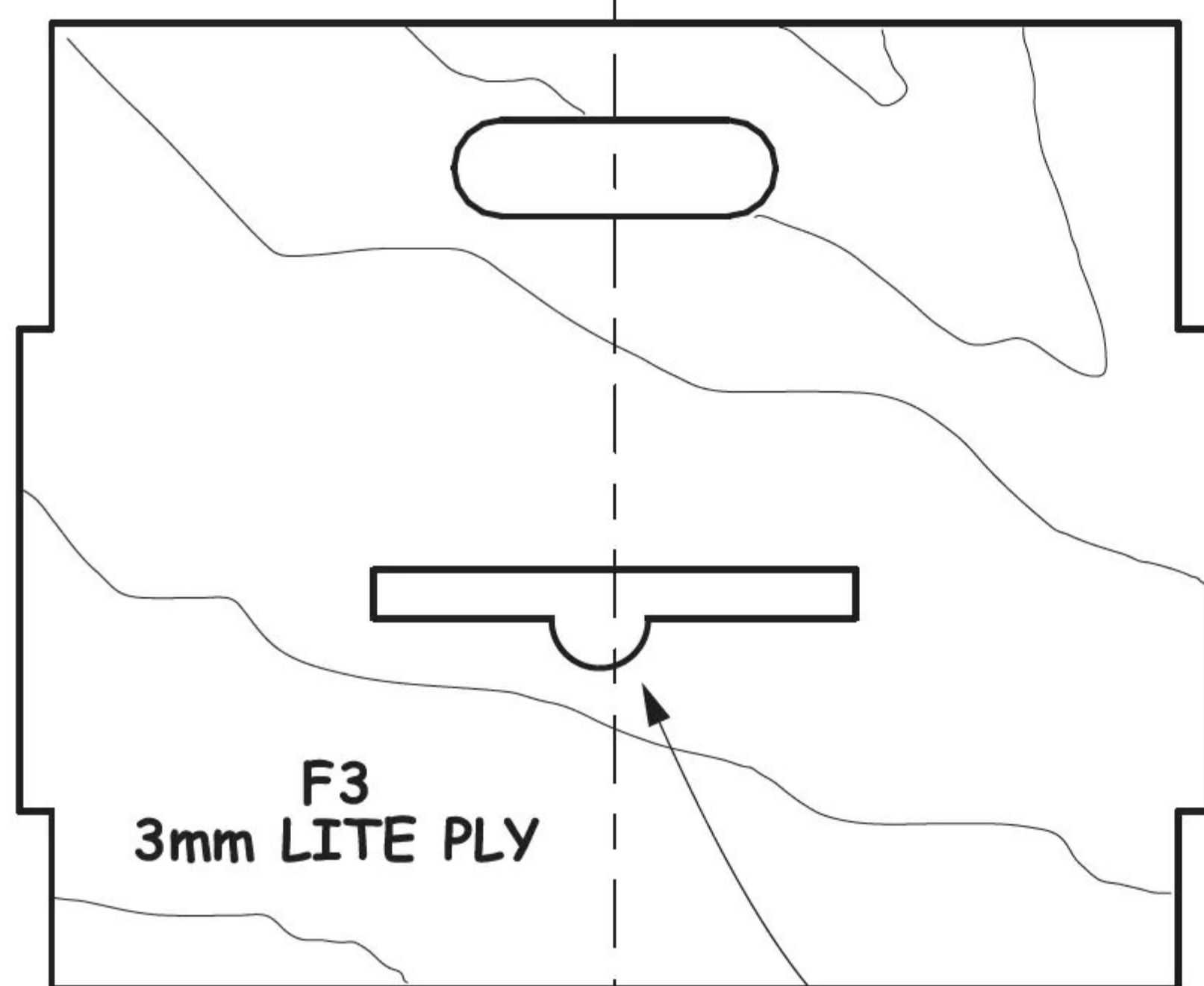






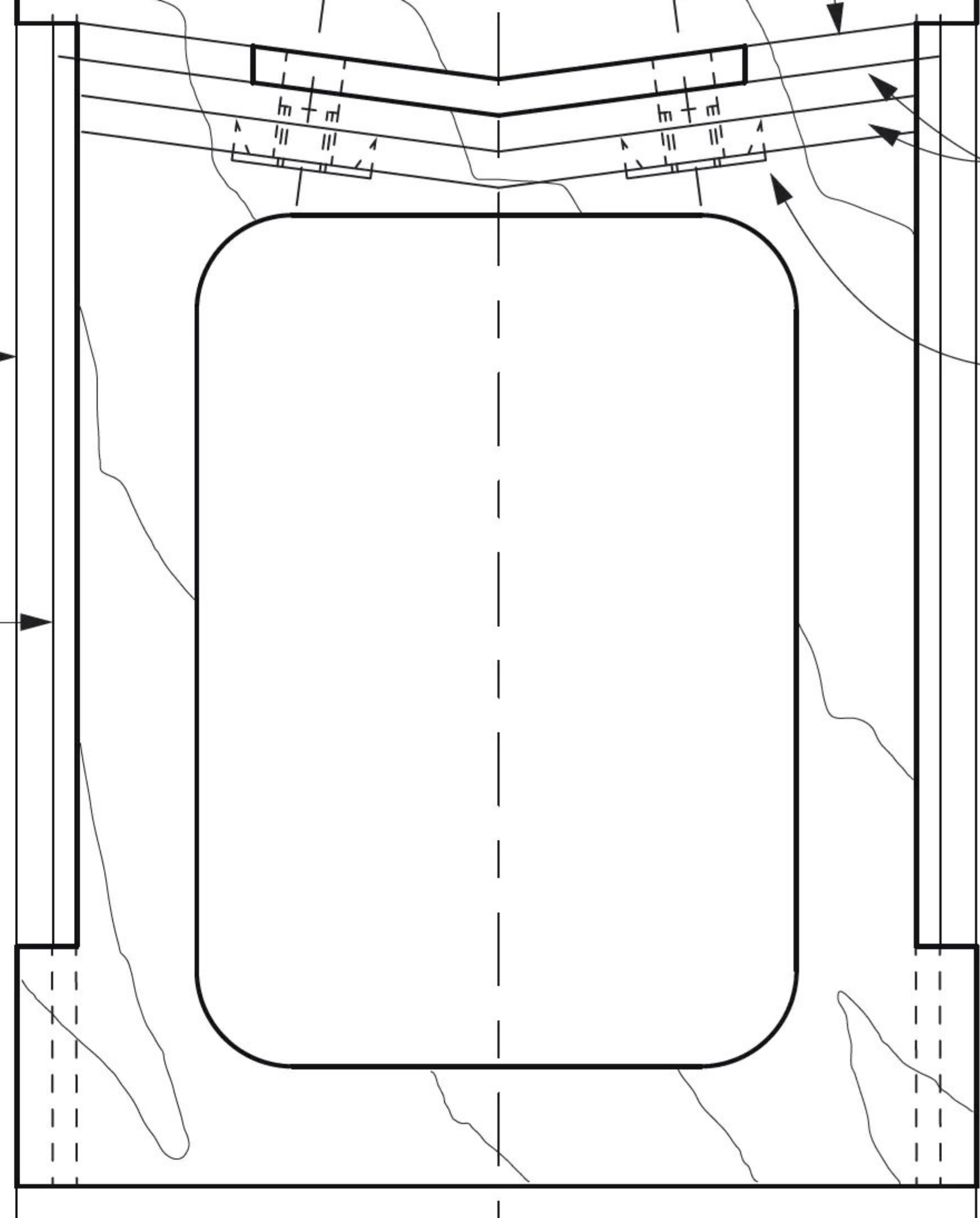
3mm DEPRON
SIDE SHEETING

2mm LITE PLY
SIDE

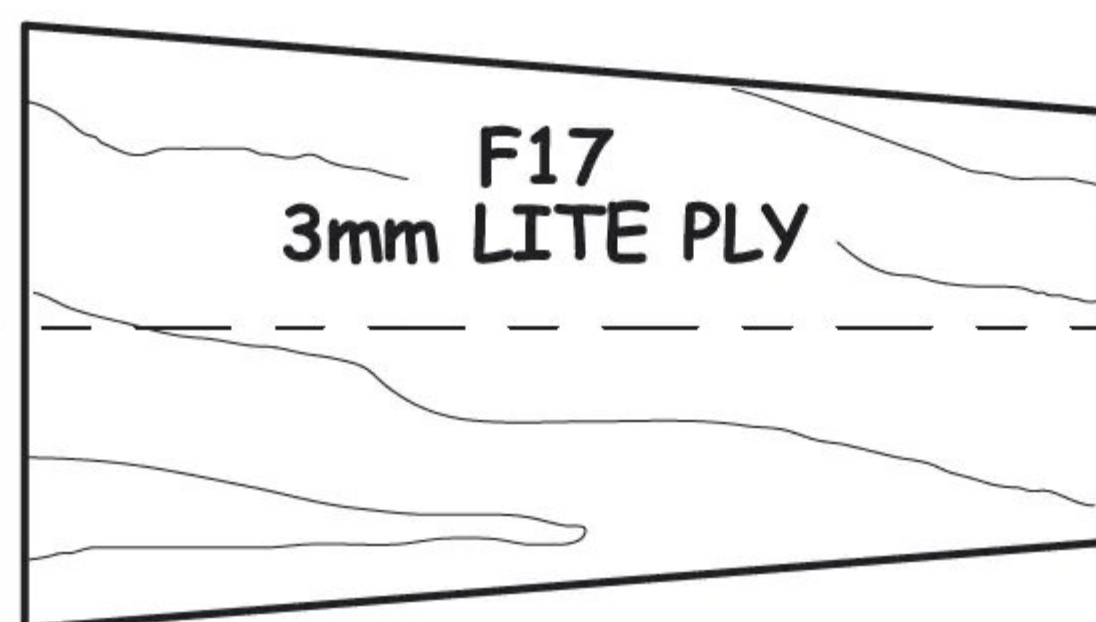
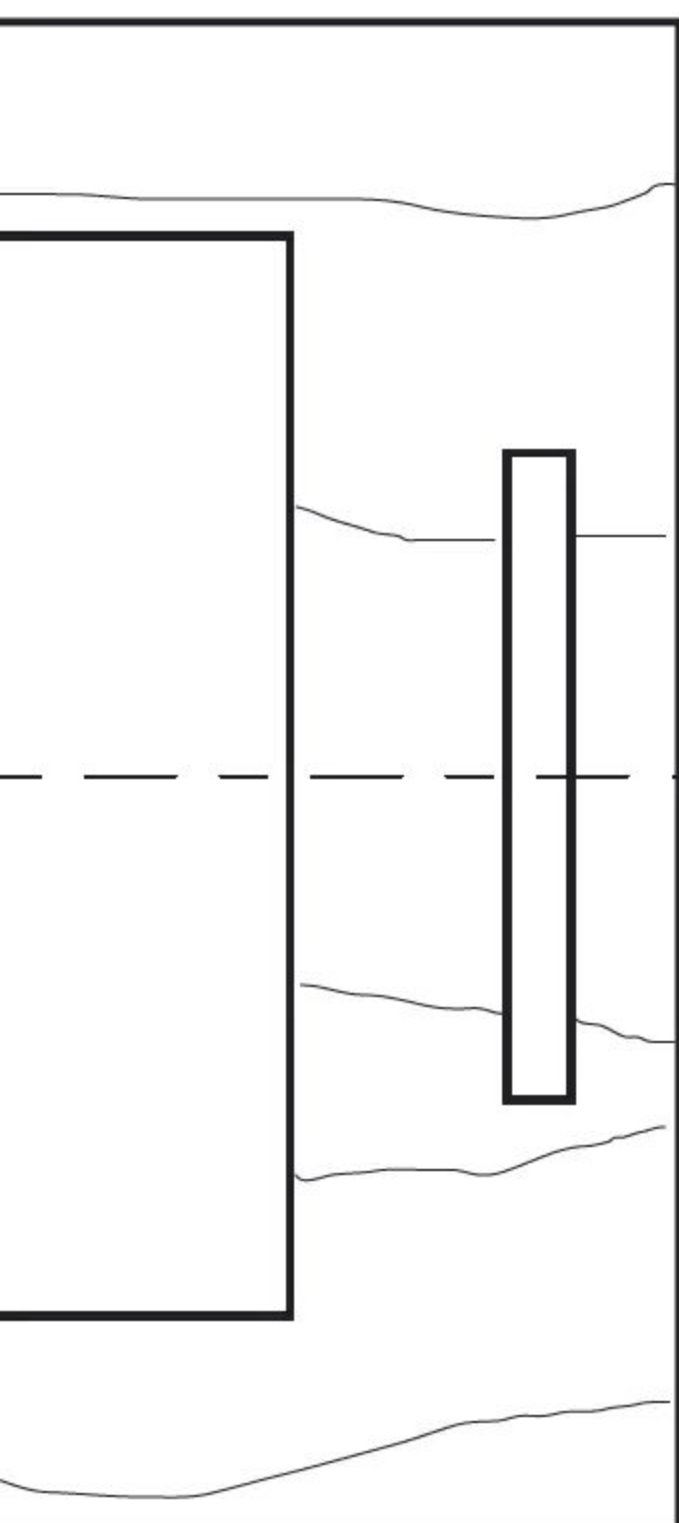


F3
3mm LITE PLY

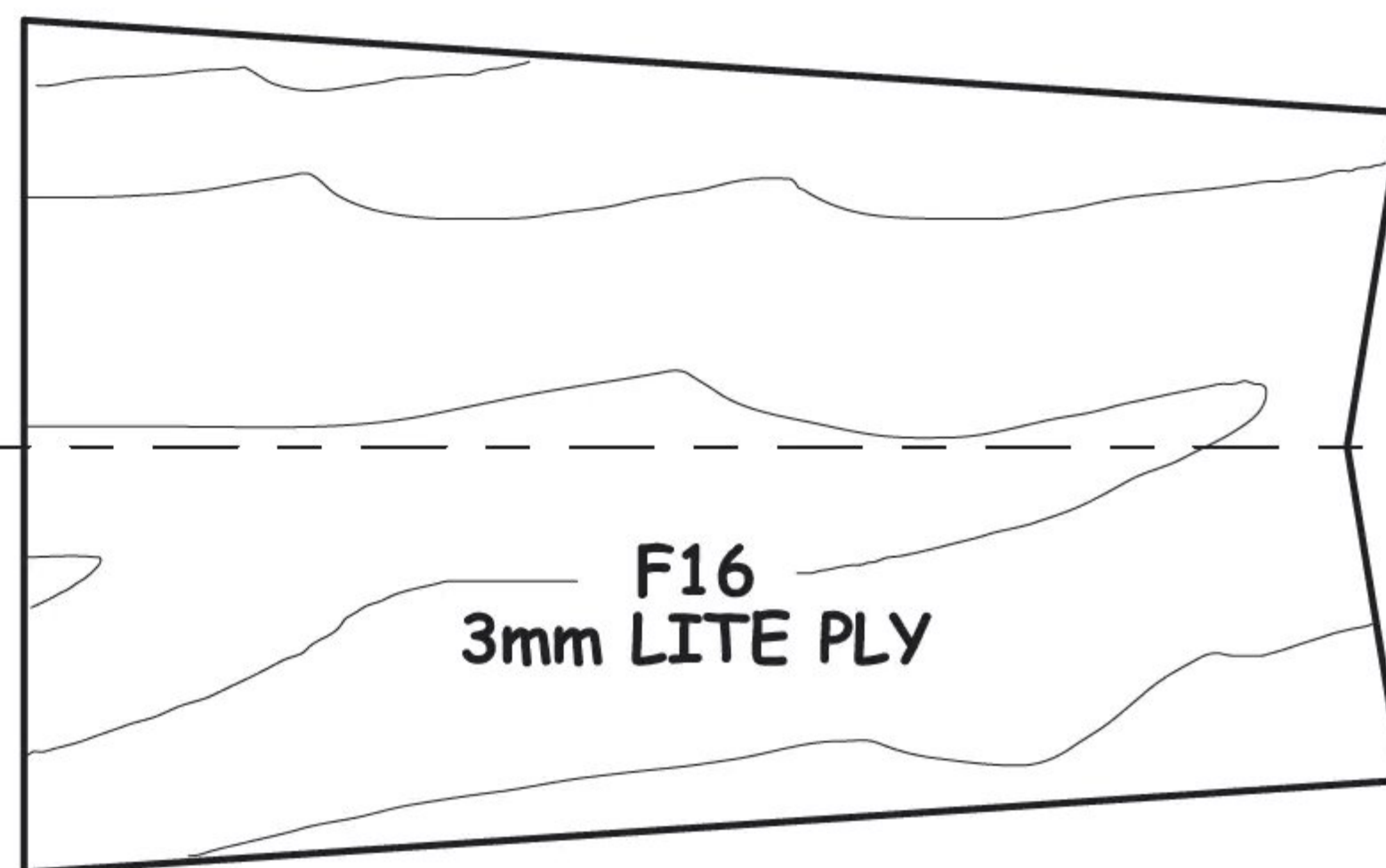
NOTE OFFSET



3mm DEPRON
BOTTOM SHEETING

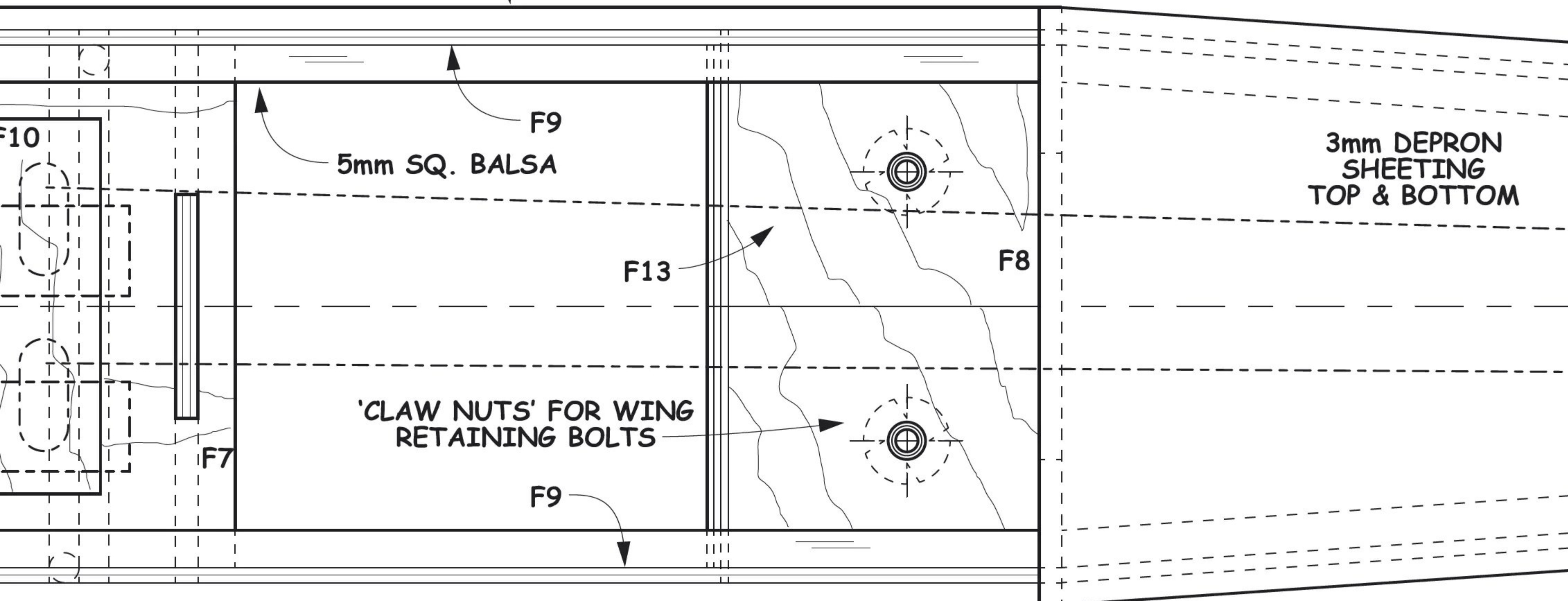


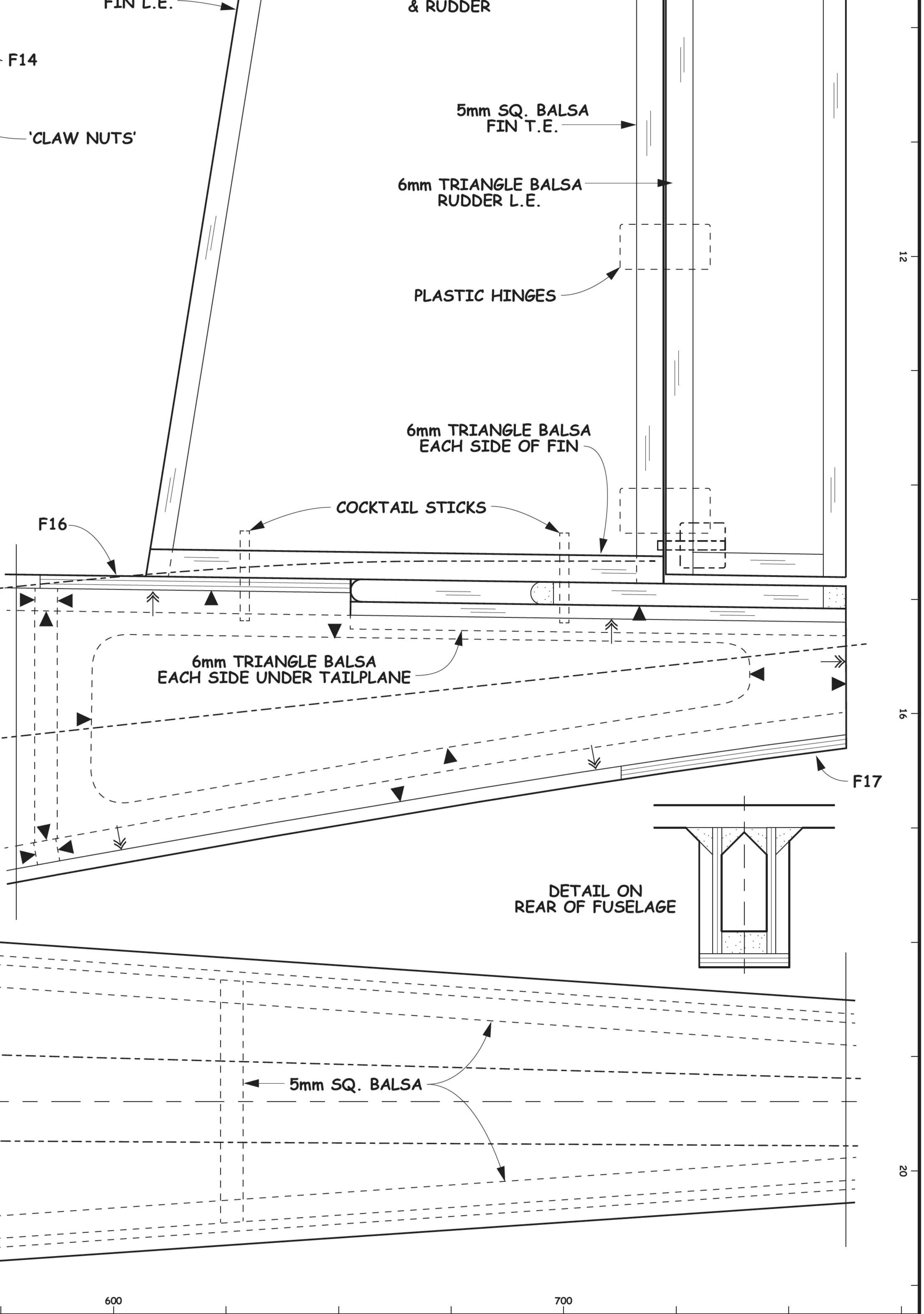
F17
3mm LITE PLY



F16
3mm LITE PLY

3mm DEPRON OUTER SHEETING





500

28

24

300

W25
WING TIPS
5mm Balsa
2 OFF



3mm DEPRON SHEETING
TOP & BOTTOM

W22

W19 OUTER SPARS

10mm x 30mm BALSA AILERONS
HINGE WITH TAPE

5mm BALSA T.E.

W22

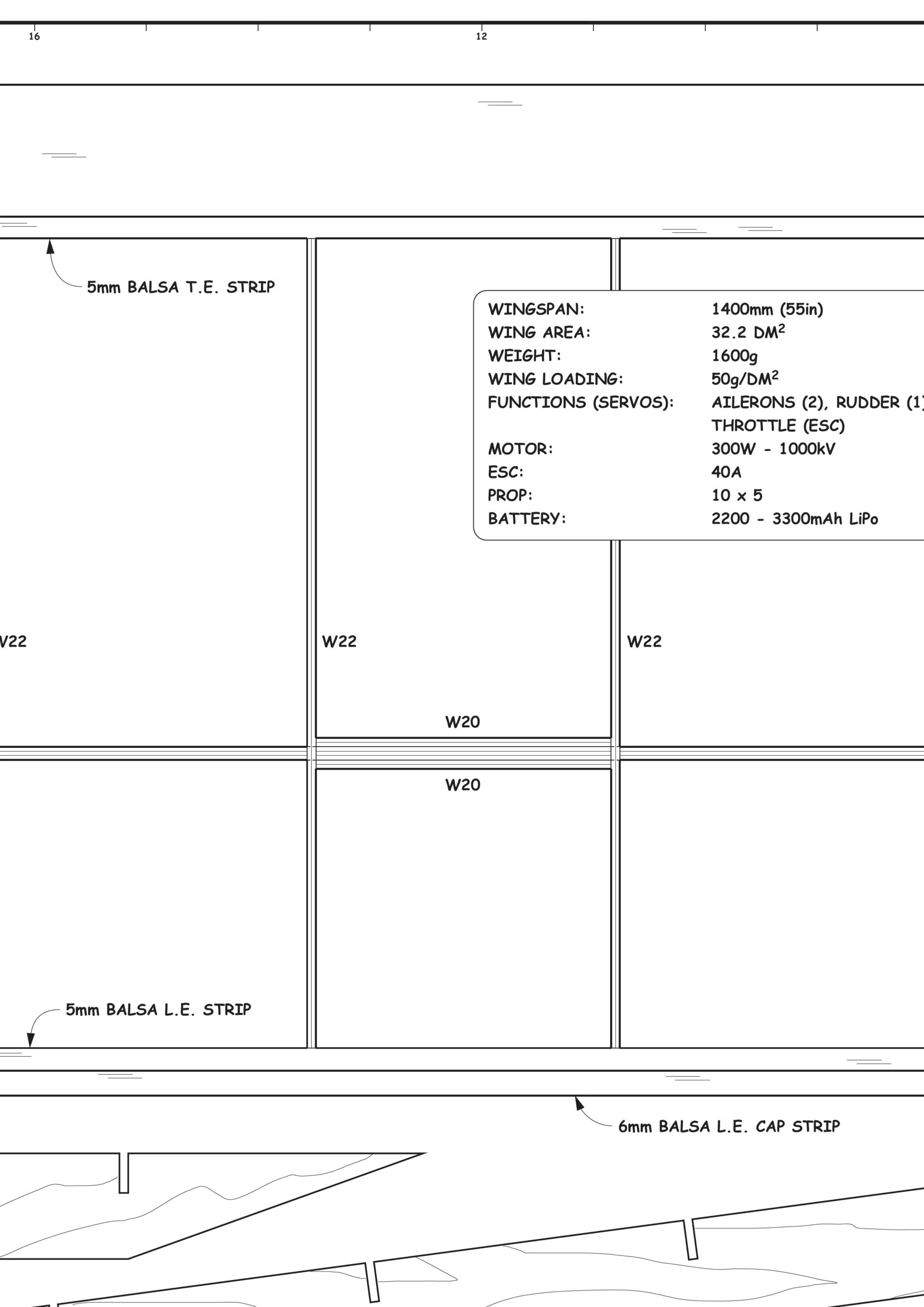
W22

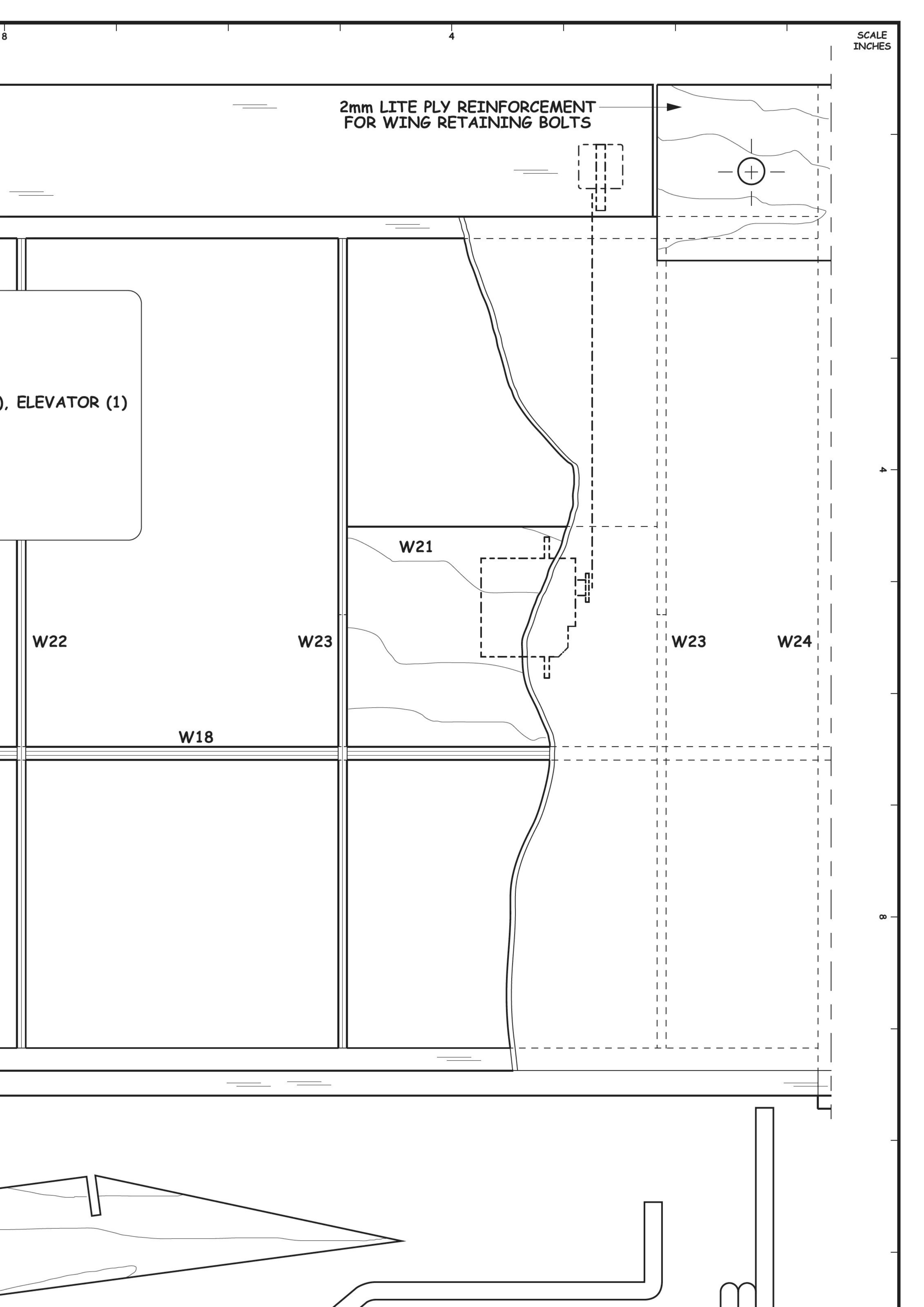
W22

W18

5mm BALSA L.E. ST

5 3mm LITE PLY 2 OFF





SCALE
INCHES

2mm LITE PLY REINFORCEMENT
FOR WING RETAINING BOLTS

), ELEVATOR (1)

W22

W23

W18

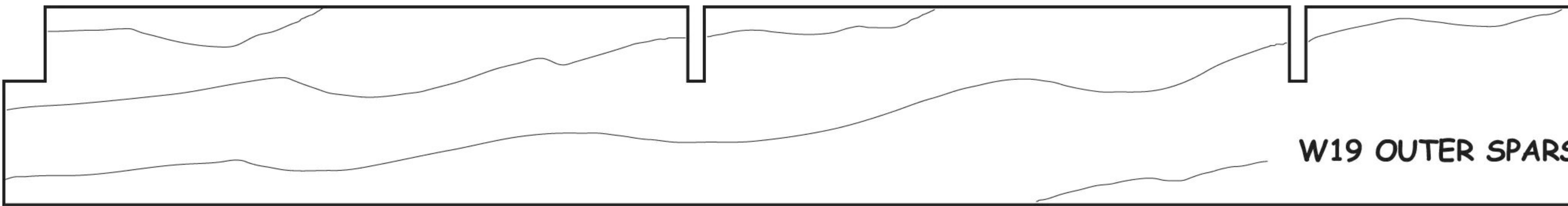
W21

W23

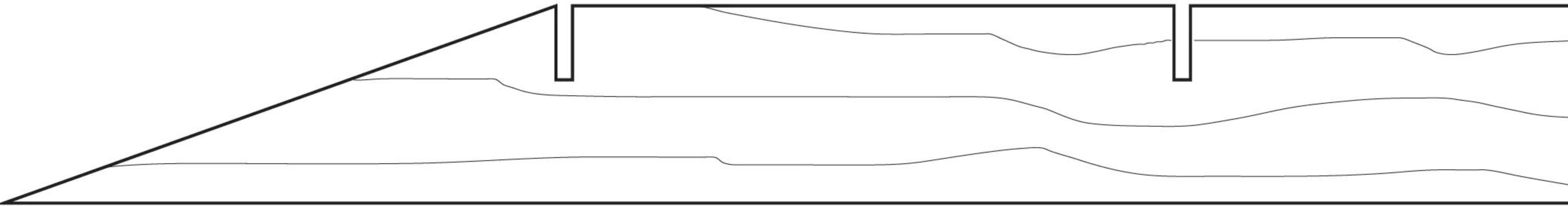
W24

4

8



W19 OUTER SPARS



L.E. CAP STRIP
6mm Balsa

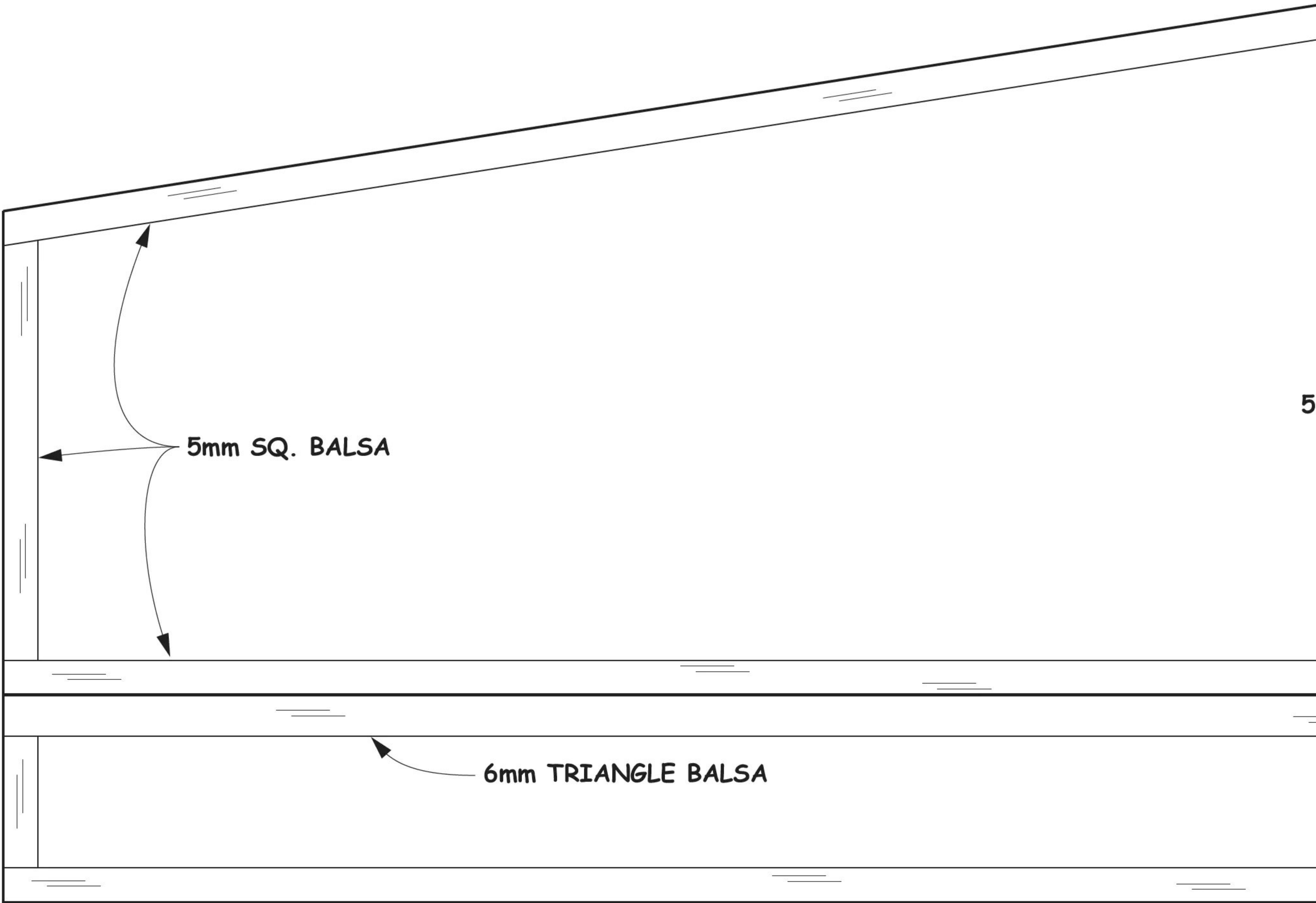
SPAR
3mm LITE PLY

SERVO PLATE
2mm LITE PLY

T.E. STRIP
5mm Balsa

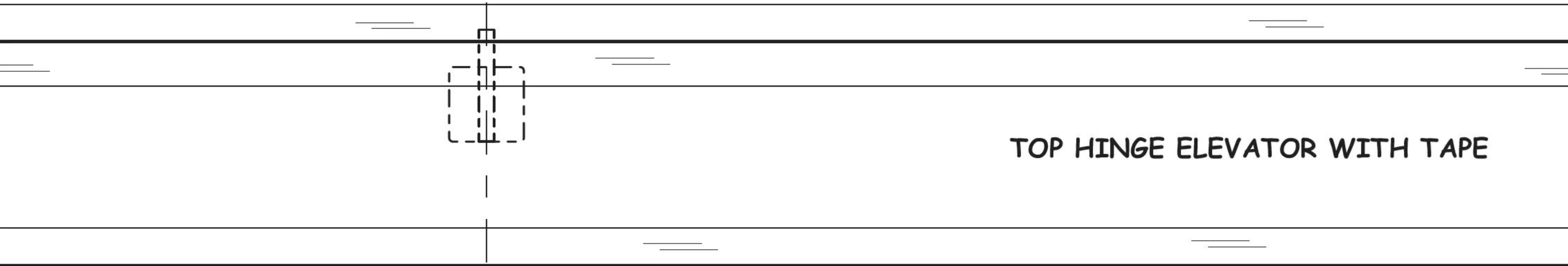
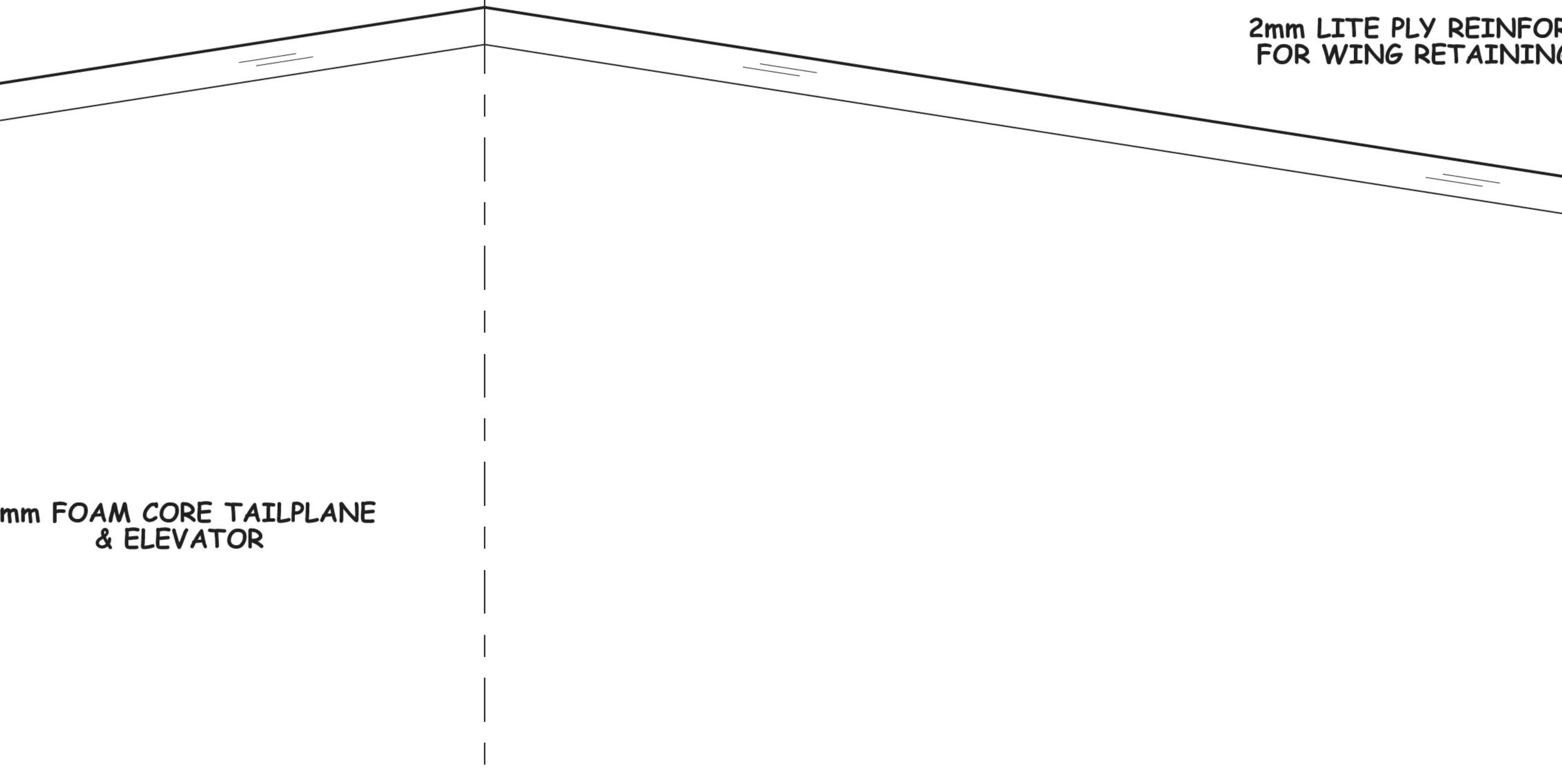
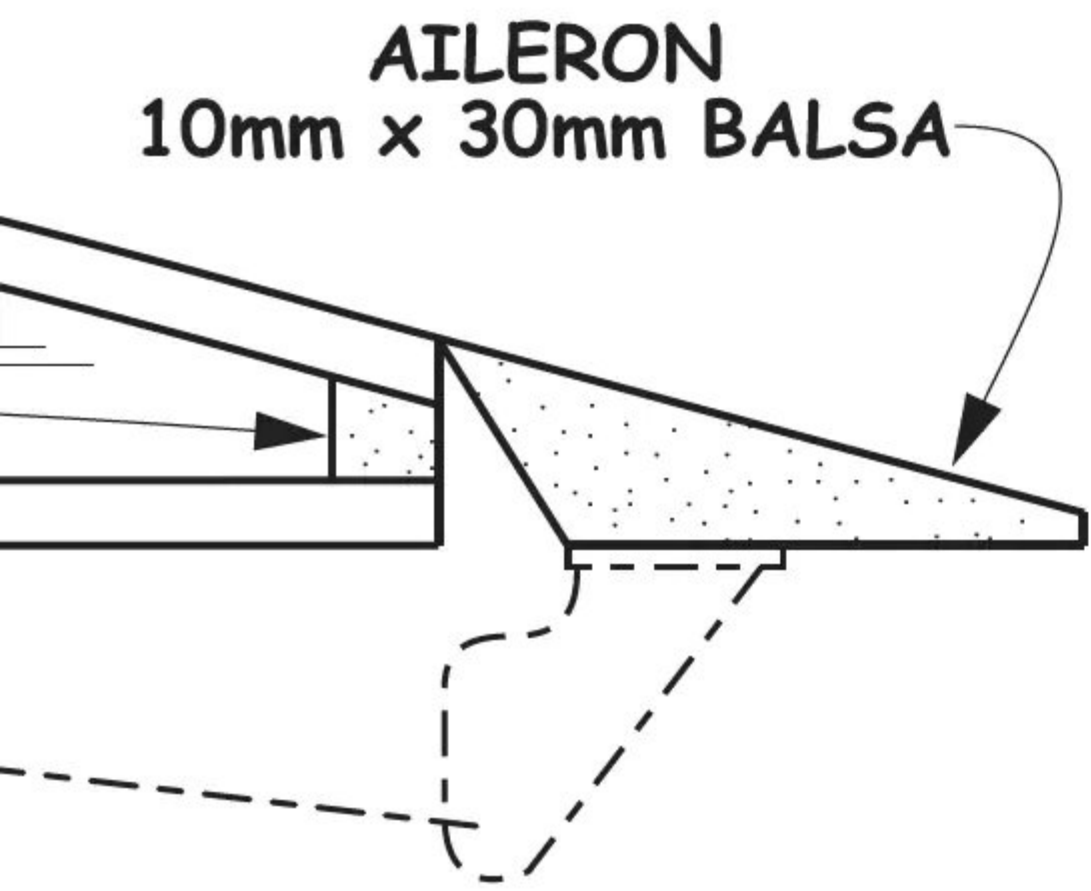
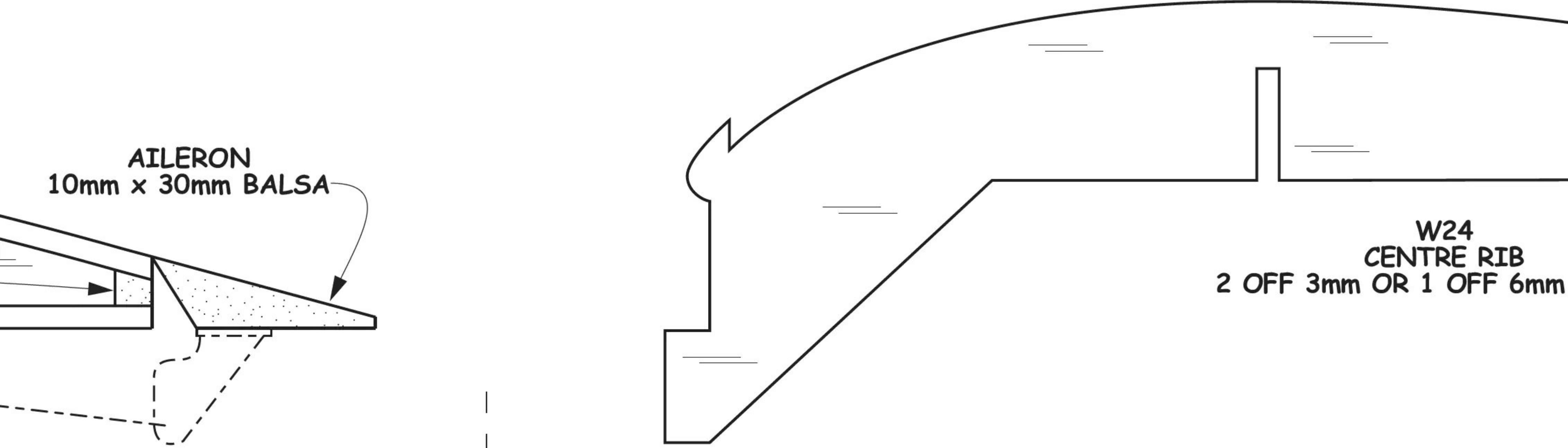
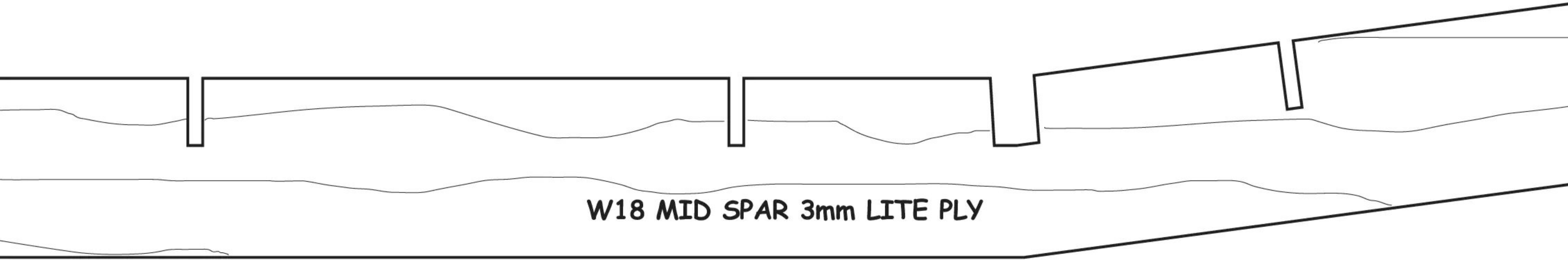
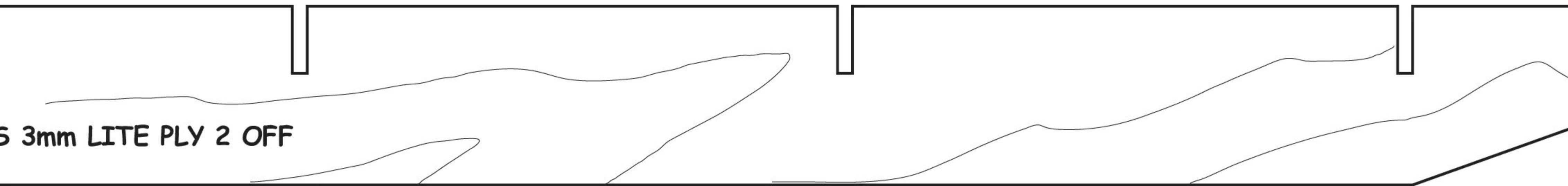
L.E. STRIP
5mm Balsa

WING SHEETING
3mm DEPRON
TOP & BOTTOM

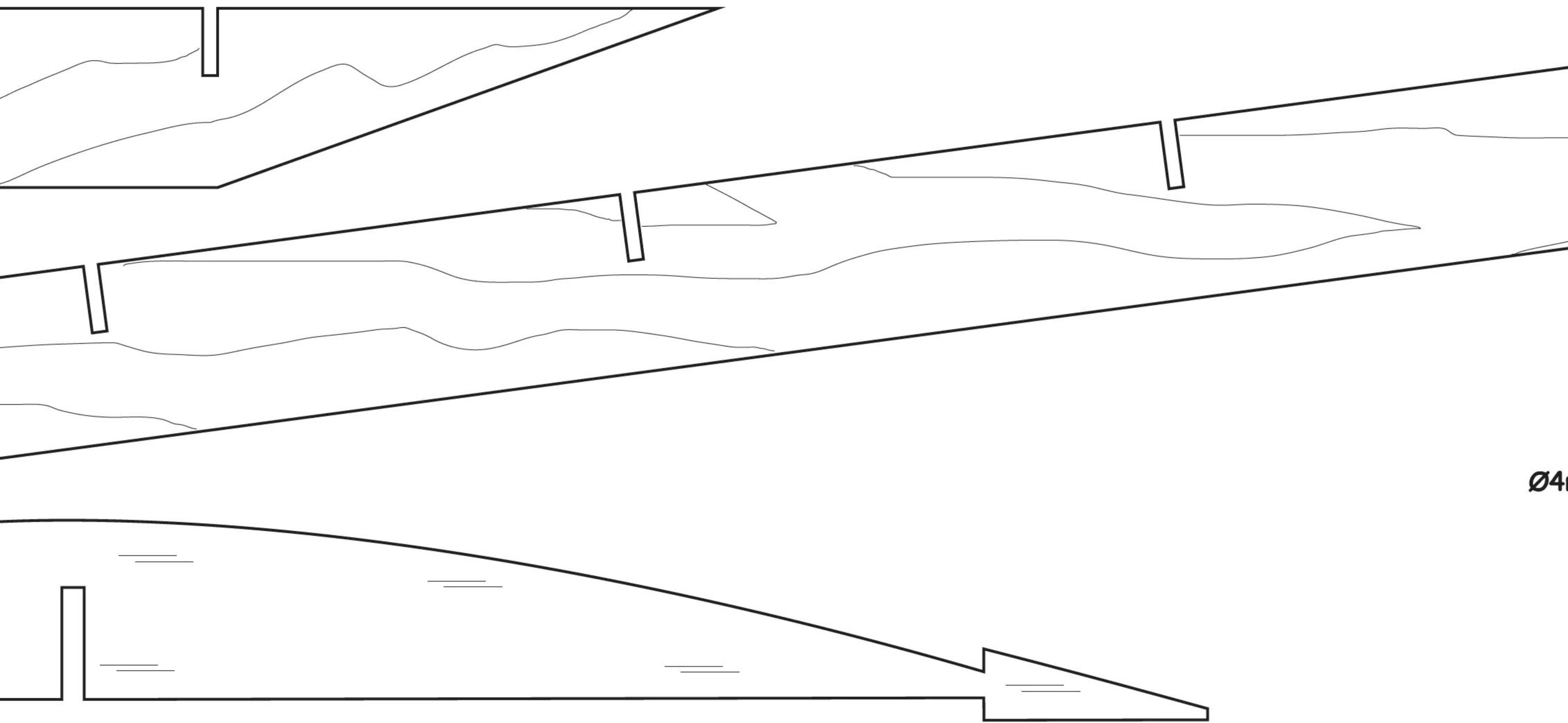


5mm SQ. Balsa

6mm TRIANGLE Balsa



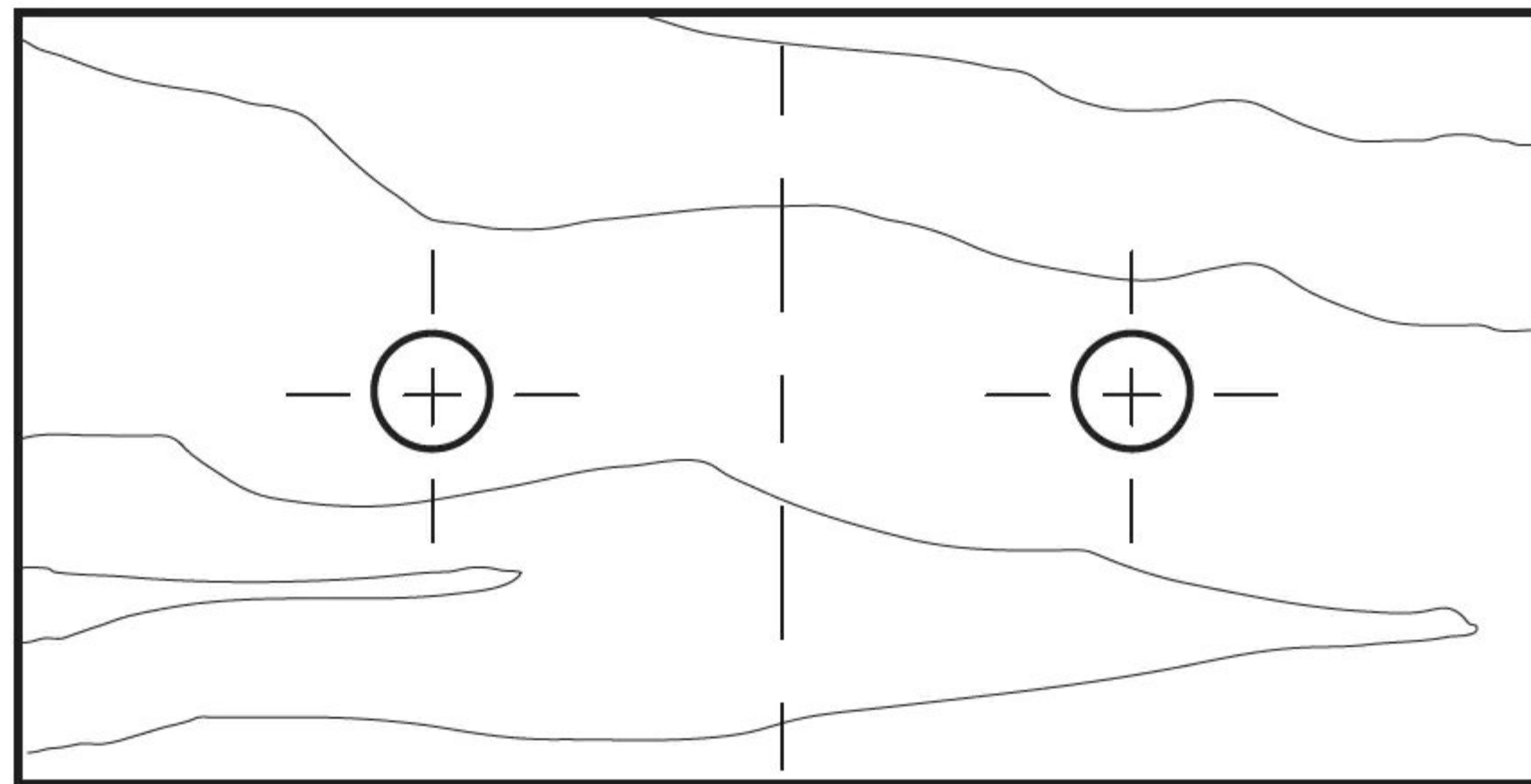
6mm Balsa L.E. CAP STRIP



Ø41

**W24
CENTRE RIB
2 OFF 3mm OR 1 OFF 6mm BALSA**

2mm LITE PLY REINFORCEMENT FOR WING RETAINING BOLTS

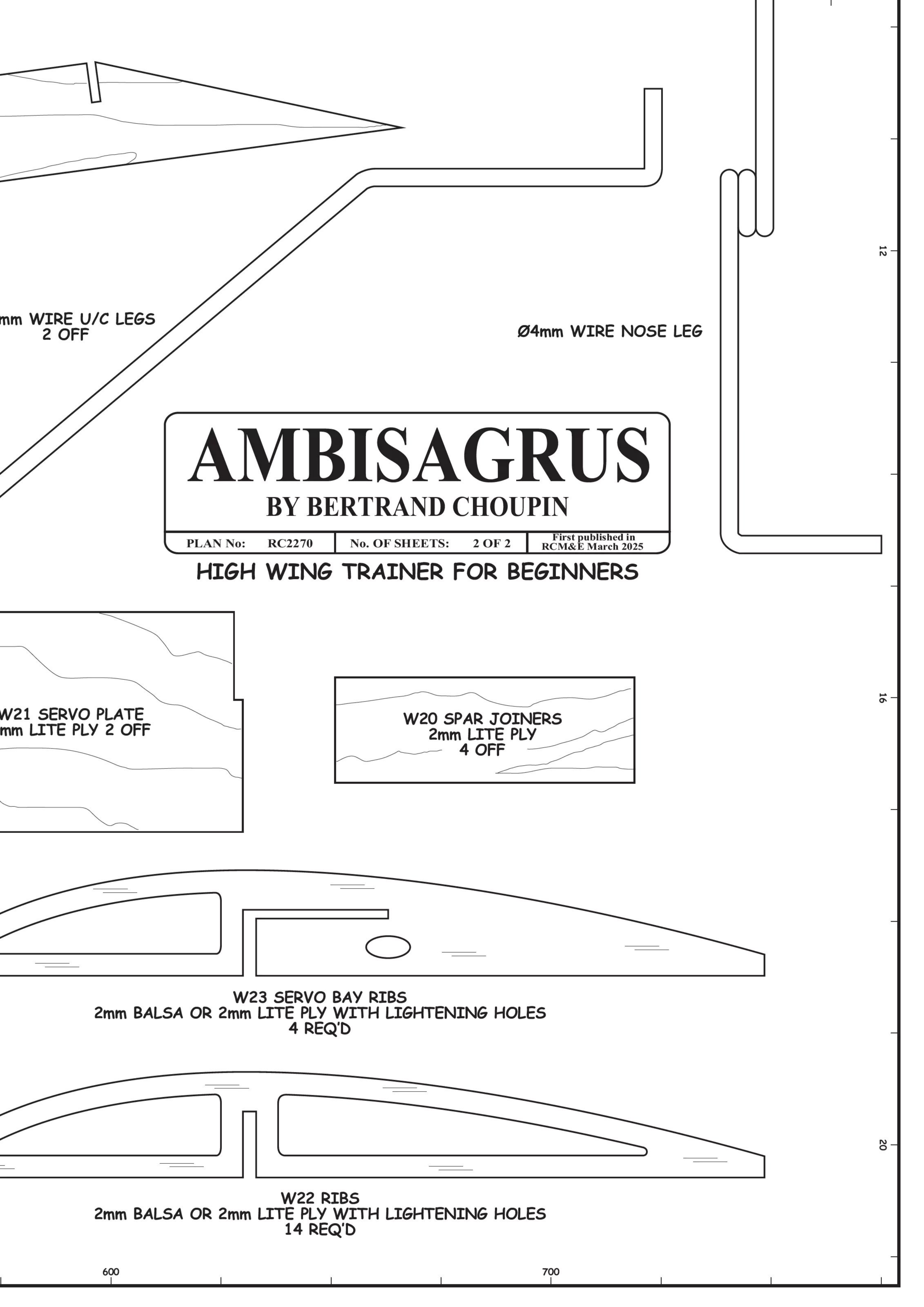


LEVATOR WITH TAPE

5mm SQ. BALSA

400

500



mm WIRE U/C LEGS
2 OFF

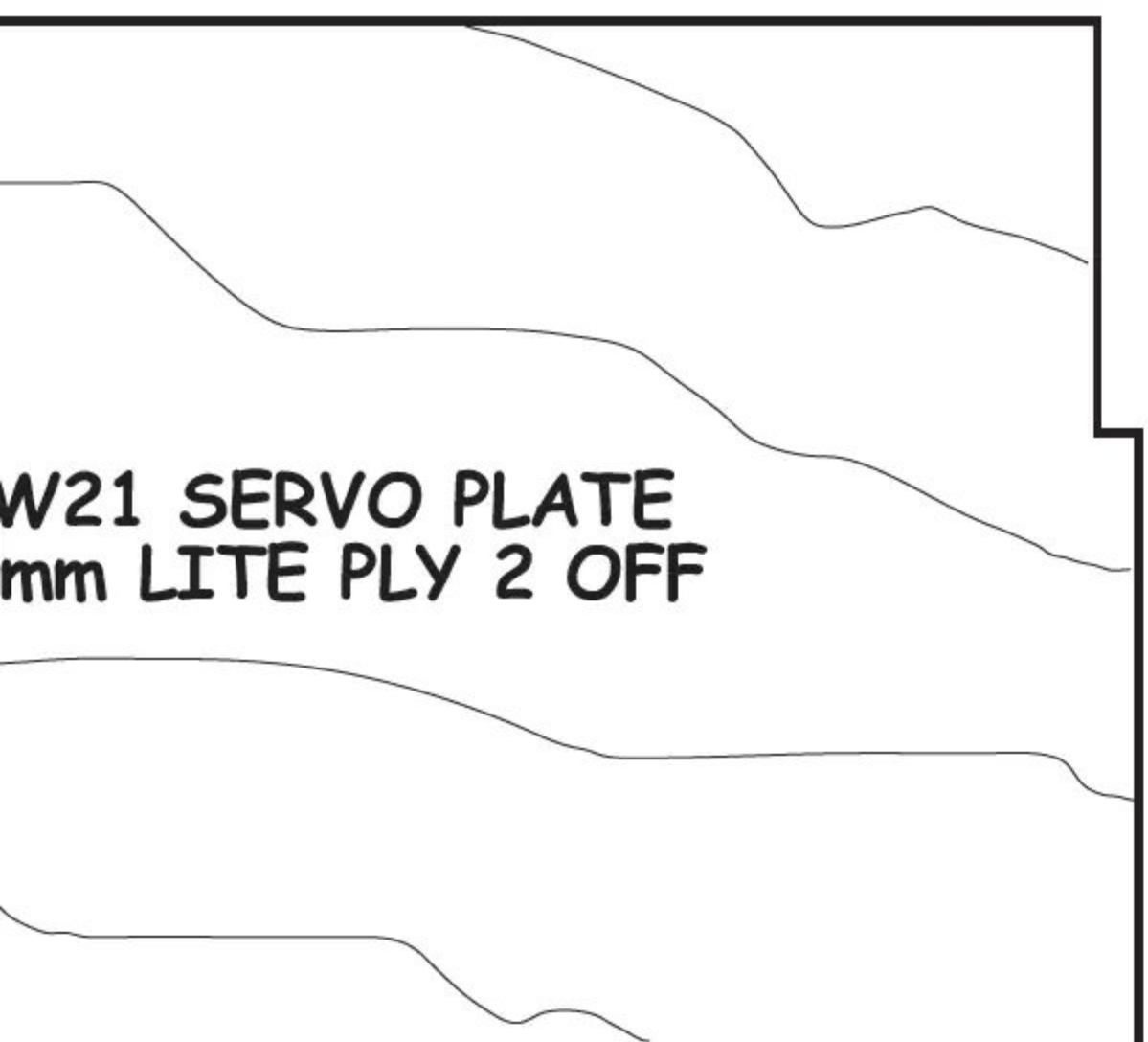
Ø4mm WIRE NOSE LEG

AMBISAGRUS

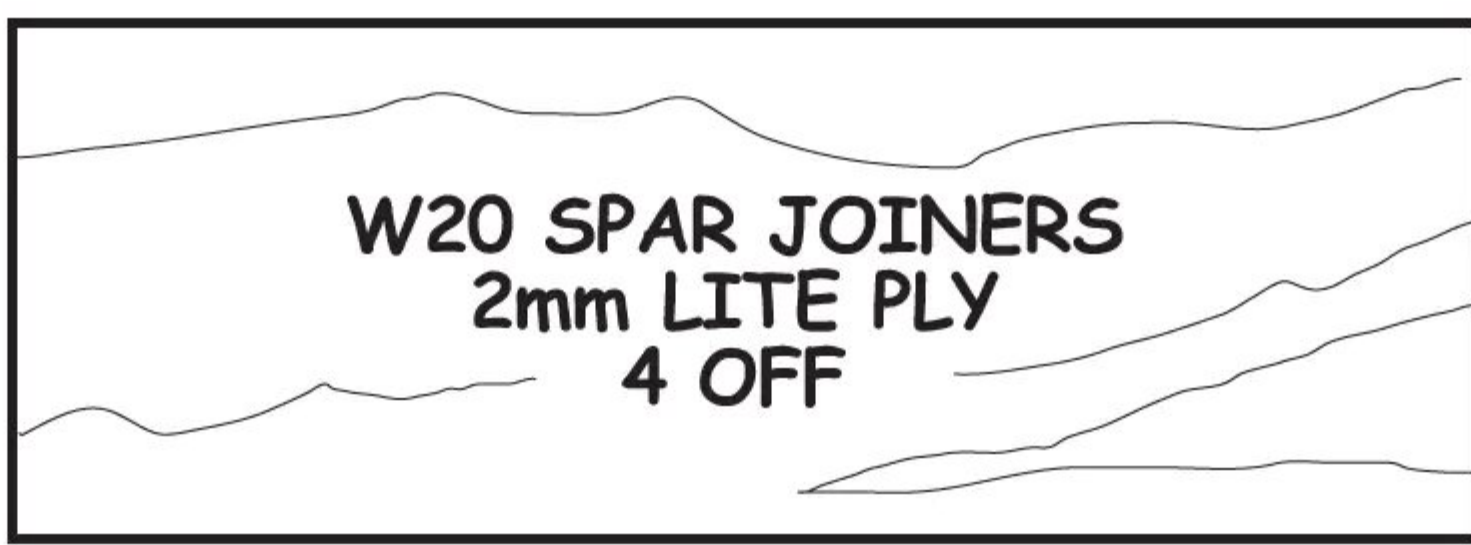
BY BERTRAND CHOUPIN

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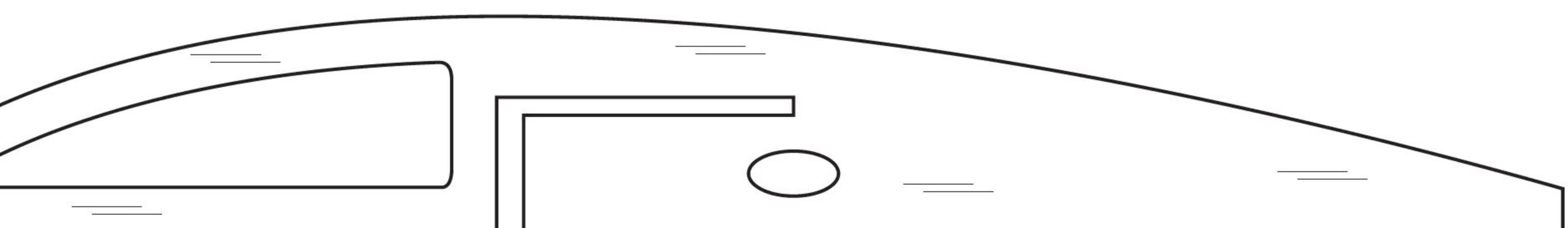
HIGH WING TRAINER FOR BEGINNERS



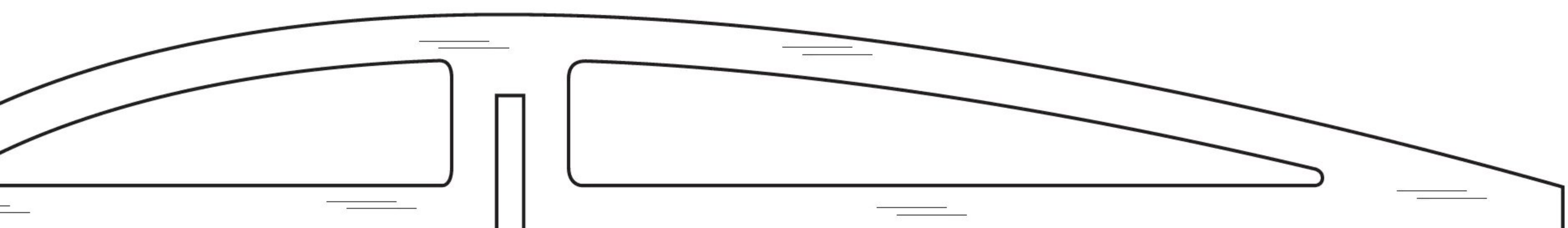
W21 SERVO PLATE
mm LITE PLY 2 OFF



W20 SPAR JOINERS
2mm LITE PLY
4 OFF



W23 SERVO BAY RIBS
2mm Balsa OR 2mm LITE PLY WITH LIGHTENING HOLES
4 REQ'D



W22 RIBS
2mm Balsa OR 2mm LITE PLY WITH LIGHTENING HOLES
14 REQ'D

600

700

12

16

20