

FREE PRO-PLAN! | SPERBER JUNIOR - PART 1
HANNA REITSCH'S GLIDER

VOL. 69 NO. 08 AUGUST 2026

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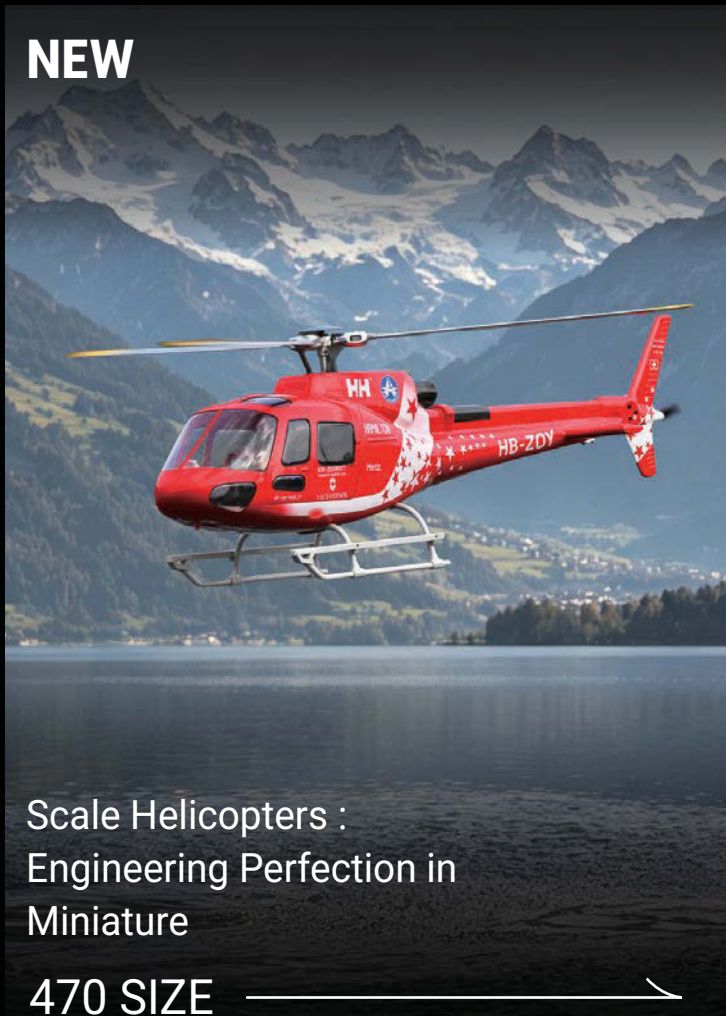
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Welcome

Welcome to the August 2026 issue of RCM&E.

I'm not often stuck for words, when writing that is, but I'm sitting in my home office pondering over how to begin this issue of the magazine. I've just returned to my desk after a short lunch break which is where I like to catch up with the latest lunchtime news. I say 'like' loosely as there's not much to like about it these days, but especially not today as a good half of it was spent discussing the weather! You see, today is the first day of a two-day 'Extreme Heat' Red Weather Warning here in the UK, but I don't need anyone telling me how hot it is, especially as I sit here in shorts, wearing very little else. (I'm sorry if the image of that has put you off your tea, but you can do that sort of thing when you work from home – just so long as you don't make any video calls!)

Sadly, my writer's block continues simply because I can't think of much more to share with you apart from how all this hot weather is playing havoc with my planned modelling sessions. After a weather based 'Welcome' last month, grumbling about too much wind, I had promised myself not to use that topic again. But complaining about too much sun must be a first, so here goes...

It's been going on for a few days now as the heat has built and even at night there has been very little respite, which means that I can't even escape into my shed to enjoy a bit of modelling as it's even hotter in there despite being well insulated.

So far this week I've had two club evening competitions called off (a fun fly and a gliding event), as well as an afternoon model testing and photography session where I was hoping to complete the finishing touches on at least two kit reviews. Fingers crossed it will be back to normal for the weekend when my local club will be hosting an important Memorial Event for a much-respected club member.

Okay, with all that off my chest let's take a quick look at what's inside the August issue of RCM&E.

Rob Bennett starts thing off with a build and flying report of Seagull's impressively large Shock Cub bush plane, with its dangly wheels and broad flap and slat equipped wings. In Retro Ramblings,



Shaun Garrity looks forward to this year's Single Channel & Retro R/C Fly-in at Pontefract Park. Next, John Sweatman buys some CAD software and uses it to design his own DIY thermal soarer before John Stennard assembles and flies the very lightweight Hacker Aerix F3P aerobat. Jeff Barringer draws the first half of the magazine to a close with an article about using a resin moulding kit to cast small parts for a multitude of scale models.

Our Pro-Plan this month is for the fuselage of a 1:4.5 scale Sperber Junior glider designed by classic glider guru, Chris Williams. Plans for the wings will follow in the September issue.

Our roving show reporter Mike Freeman begins his 2026 event reports from the flightline at the Popham Model Show before we return to Chris Williams for his Scale Gliding column in which Chris builds another 1:4.5 scale soarer, the Skylark 3, and shows how to use filler to seal large gaps in scale airframes. After dropping a few hints in recent Insider columns, John Stennard finally gets to tell us all about his attempts at drone soccer. I wrap things up in my latest RTFM feature by unboxing an EPO Goshawk, which is nothing too unusual until you realise that this foamy is destined to be powered by a gas turbine jet engine...

I hope you enjoy reading it all.

Happy Flying!

Kevin Crozier

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Building your very own model from plan is one of the most satisfying achievement any modeller can experience..... so go on, give it a try and don't miss out on this wonderfully therapeutic side to this great hobby...Tony Nijhuis



34



46

On the cover

Photo: RCM&E

When the editor asked if Rob Bennett would assemble the Seagull Models Shock Cub, he was happy to do so as their models are usually well made and go together well. This proved to be the case, with just minor adjustments as Rob went along. The Shock Cub is provided with a fuel tank and stand-offs for fitting a 35 to 50 cc I.C. engine, as well as an adjustable motor box and battery carrier for electric power, which is the version built by Rob.





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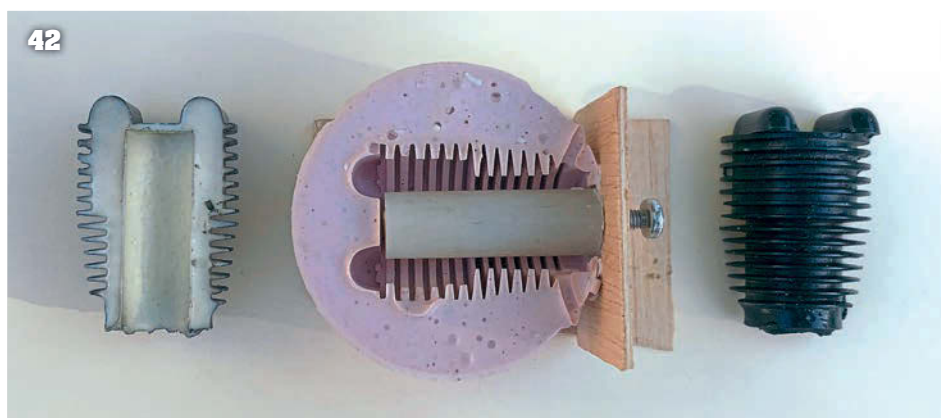
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Chris Williams starts the first of two construction articles about his latest two-part Pro-Plan for a 1:4.5 scale classic glider. Fuselage plans this month, wings next month.



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... and receive SPITFIRE REVISITED, an enthusiast's guide to plastic modelling of the Spitfire and Seafire FREE! See page 76 for details



RCM&E ON THE HIGH STREET

You may have seen recent news reports regarding the planned closure of several TC Jones stores (formerly WH Smith). At present, it remains unclear whether your nearest store will be affected. To ensure you continue receiving future issues without interruption, we encourage you to consider one of the

following alternative options should your local store close:

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JERSEY JERK FLIES!



Builder of the model, Kevin Powling (left) with test pilot Dave Wilshire. As CARF's UK representative, Dave sells a wide range of CARF models and accessories, plus those from many other brands, from his business Motors & Rotors based in Kings Langley, Hertfordshire.



'Jersey Jerk' awaits its maiden flight in a start-up box at Phoenix Model Flying Club.

Cast your mind back to the May issue of RCM&E last year and you are sure to remember the magnificent P-51D Mustang 'Jersey Jerk' which was the subject of the Model Magic article in that issue. Loaded with extra scale details, this superb model of the famous fighter was built from the CARF Models kit by Kevin Powling. His article relates how his model was taken on a visit to Ultimate Warbird Flights, who are based at Sywell in Northamptonshire, to be

photographed alongside their leased P-51 which is also painted to replicate 'Jersey Jerk', as flown by Don Strait of 361 Fighter Squadron when stationed at Martlesham Heath in 1944. Kevin was lucky enough to be taken for a flight in the full-size aircraft.

At the end of his article, Kevin says, "I am still yet to fly the CARF Models Mustang. Hopefully it will happen sometime in 2025 - when the weather improves!"

It took a lot longer than intended but we were very pleased to hear from CARF's UK representative, Dave Wilshire at the end of May, who told us, "I finally test flew Kevin's Mustang at Phoenix MFC. Two near perfect flights."

Our congratulations go to Kevin for a successful conclusion to this almost three-year project and a big thank you to Dave for letting us know about its maiden sorties. Pictures are courtesy of Vince Nardone.

KINROSS RADIO MODEL FLYING CLUB

Neil Grayson, Secretary of the Kinross Radio Model Flying Club, writes to share news of a significant anniversary for the club in 2026:

As KRMFC celebrates its 30th anniversary in 2026 it is worth reflecting on how we came into being. The vision for forming what was to become the Kinross Radio Model Flying Club (KRMFC) stems back to the mid-1990s when several members of the Glenrothes Aeromodelling Club found that their flying field was unsuitable for models with engines larger than 10 cc.

A member of the Kinross and District Model Aircraft Club, who flew models at Balado airfield near Kinross, approached the owner of the airfield and asked if model flyers could expand the use of the disused runway. The owner agreed and the first tentative steps towards developing a new club began. In 1996 it was agreed that a new club should be formed

and a committee was elected. The adopted name of the club was Kinross Radio Model Flying Club (KRMFC).

An inaugural airshow, with a fly-in and gala, was organised and widely publicised. It took place in May 1996 and continued annually for the next four years. There was a large turnout with over 1000 people attending and about 900 cars in the car park! The event was supported by Scottish Microlights, the Scottish Gliding Union and Classic Motor Bikes, along with model shop trade stands and children's shows. KRMFC expanded to becoming the largest club in Scotland, with over 100 members, some of whom travelled significant distances to use the superb runway for turbine jets.

Unfortunately for the club, Balado became the new site of the 'T in the Park'

music festival from 1997, after moving from Strathclyde Park. This meant that flying was not possible for three months or more in the summer and another site eventually had to be found.

About the Club

The current Kinross Radio Model Flying Club is located on land rented from a farmer along the A977, approximately 2.5 miles west of Kinross. When established at its current site in 2006 the location was perfect, with a wide expanse for unrestricted flying. However, due to a BP pipeline running to the south-east of the flying site, flying takes place to the south rather than to the north. This can be an issue in the winter months due to the sun being lower in the sky, but it rarely causes a problem in the summer months.



In recent years the Club has had to apply some further flying restrictions. Land in adjacent fields is being used for a new business – a dog walking park – situated within two hundred metres of our main runway. We have a good relationship with the dog walkers, some of whom occasionally drop by when we are flying to show interest in what we are doing.

Membership levels vary from year to year and can be between 40 and 55 members. As is to be expected our junior membership fluctuates due to other interests and commitments, but we do try very hard to attract younger members with advice and encouragement. Although designated Club days are on Wednesday and Sunday, if the weather is suitable there are usually at least a couple of members flying on any day of the week.

The club is affiliated to both the SAA and the BMFA and caters for most aspects of model flying, including gliders, scale models, EDF, fixed wing, IC and electric. There is also a large group



Pits and starting tables at the Kinross RMFC club.



KRMFC members fly a wide variety of models.



Bill McDiarmid gets ready to cut KRMFC's 30th anniversary cake.

of helicopter flyers and two members who fly gyrocopters. Unfortunately, it is no longer safe to fly jets due to the proximity of the dog park.

Anniversary Fly-In

As part of our 30th Anniversary celebrations a special fly-in was held on 23rd May. Some flying took place but due to strong winds the day turned into more of a social event with a barbeque and birthday cake! Attendees included members from KRMFC and the Glenrothes and Balbedie clubs. Our special guest was Pat Baxter, who was instrumental in forming the Club and its first Chairman. The event also allowed us to test out the new club electrics and charging station, with facilities to boil water for hot drinks.

Wider enterprises

The Club is available for joint BMFA/SAA events and last year we hosted a well-attended training and testing weekend.

We host one of the annual Scottish Waterplanes events on Loch Leven, during August. Flyers from all over the UK turn up in their campervans full of seaplanes and spend two days enjoying the Scottish weather - some years more enjoyable than others!

Our club is also active on the indoor flying scene. A monthly evening event is held in the gym of Loch Leven Community Campus with helicopters, drones and fixed wing aircraft all vying for space. It is well attended by members from the local Clubs.

In recent years KRMFC has also become the host of the Scottish heat of the yearly UKROC (UK Youth Rocketry Challenge). It is always heartening to see young people on site and maybe one day a few of them may turn their heads from rocket launching to model planes.

To help widen the Club's local profile our Secretary publishes a regular Club newsletter, available on our website, and we have also created the role of Social Media Manager. This is carried out by Kev Scott (a contributor to this publication). As well as being a key contributor to the Club newsletter, Kev provides a monthly article to the Kinross Community newsletter and manages the Club's Facebook page.

With an active group of members, with varied skills and interests, who are keen to share their knowledge and expertise, the Club is in a healthy position to move forward. Here's to the next 30 years!

For more info about KRMFC, check out our Facebook page or website: krmfc.bmfa.club



As the name implies the full-size Shock Cub is equipped with 'ultra-performing' shock absorbers and a forward landing gear position, all neatly replicated on the Seagull model.

SHOCK CUB

Rob Bennett builds and test flies a 102-inch wingspan bush plane from Seagull Models

Words: **Rob Bennett** Photos: **Rob Bennett, RCM&E, Barry Atkinson**

If this model looks familiar, then it may be because it was the subject of an unboxing article by John Daniels in the September 2024 issue of RCM&E. Unfortunately, John was unable to progress with the model, so the editor passed it over to Rob Bennett to complete. Although it had been in limbo for quite some time, Rob was equal to the challenge of building this impressively large

ARTF kit and he had the Shock Cub ready for its maiden flight in just a few weeks.

Here's how he got on.

MAKING A START

When the editor asked if I would assemble the Seagull Models Shock Cub, I was happy to do so as I have found that their models are well made with good materials and go together

well. This proved to be the case, with just minor adjustments as I went along.

The Shock Cub is provided with a plumbed fuel tank and stand-offs for fitting a 35 to 50cc I.C. engine, as well as an additional adjustable motor box and battery carrier for electric power.

I started assembly of the Shock Cub by rubbing down all the fibreglass horns and the leading-edge slats where they were to be glued



to remove the paint and give a good key, using epoxy glue to fix them in place.

The wings came first, fixing the aileron and flap servos. Strings were already in place to pull the aileron servo wires through and they needed extension leads to get to the wing root. The flap servo leads were long enough.

The flap pushrods are partly internal and as such were a bit fiddly to get the horn onto the servo. You have the option of using a double-sided horn and operating the slats in unison with the flaps via the horn sticking out from under the wing. But after discussion with Kevin it was decided to have the slats fixed to start with and decide later whether to try them operated by the flaps.

I masked up the areas to remove the covering to glue the slat hinges, taking care to not cut into the balsa leading edge. They needed a bit

“...the wings were set aside in the large, padded wing bags provided”

of fettling with a file to get them to sit well onto the leading edge.

There are metal brackets and threaded posts to be fixed to the wings to retain the wing struts and braces, with all screws provided.

The final job was to fit the wing end plates. After this the wings were set aside in the large, padded wing bags provided. 



Fixtures and fittings are all usable and to a good standard.



Full-size Shock Cub is based on the Italian 'Savage' bush plane. Production moved to the Czech Republic in 1999, to be carried out by Zlin Aviation s.r.o.

BIG FUZ

I went slightly out of sequence from the manual for the fuselage, leaving the tail feathers until last to make it easier to manage the big fuselage whilst fitting it out.

The first job was to fit the provided motor box, as this was going to be a 12S electric version, lining up the hole at the back of the box with that on the firewall, then marking and drilling it to match up with the ones on the firewall with the installed threaded keepers. Using the dimensions provided for the distance from the firewall to the prop hub, I then glued on the triangular stock provided to lock the ply motor face in place as it's a sliding arrangement to accommodate different motors.

The motor we fitted was a Dualsky GA4000.7 using a Castle Creations 120-amp ESC. The motor position was confirmed by a trial fitting of the cowl and the ESC was attached to the bottom of the motor box where cooling air can get to it.

The rudder and elevator servos were fixed in place, with their horns centred using a spare receiver bound to the transmitter. This is my preferred method as I have found using a servo tester to not be so accurate. The same was done with the aileron/flap servos.

TAIL SURFACES

The horizontal stabiliser was next, cutting away the film carefully where it's to be glued to the fuselage. The slot at the tail did need a bit of easing to get a good sliding fit, care being taken



Wings come with pre-fitted flaps and control surfaces. This image shows the hinge detail of one of the shrouded flaps.



It's nice to see such a large model kit come with a comprehensive instruction booklet. That's not always the case these days!

to keep it all square. Epoxy was used to glue it in place, taking care to clean up any residue.

The rudder and elevators were provided with Mylar hinges and these were fixed in place with thin cyano. The control surfaces were then



Protective padded wing bags are included in the kit. The struts can be folded against the undersides and fit easily alongside each wing panel.



Shock Cub can be powered by a 35 to 55 cc glow or petrol engine, but we opted for 12S electric power using the additional motor box supplied to fit a Dualsky GA4000.7 motor.

connected to the servos using the included hardware, the rudder being a push-pull style. The rigging wires were next and are structural so should not be left off.



Tailplane rigging wires are structural so should not be left off.



Tailwheel assembly with its scale leaf-spring is a nice piece of engineering.

The tailwheel is a nice piece of engineering and it was fixed in place with the provided screws.

FINISHING OFF

The pieces of cabin glazing were carefully trimmed and glued in their respective places and the hinged door screwed in place. The main windscreen that runs from front to back of the cabin was left until the final positioning of the flight batteries so that I could get the C of G right. The radio power pack comprises of a pair of 2S LiFe batteries running through a PowerBox Sensor V3 switch and, with all the servos being MacGregor HV (high voltage) types, the switch was set to 7.8V.



Fitting the windscreen was left until last to give easy access whilst assessing the CG position.

When I went to assemble the main undercarriage, I found that one of the A frames was rusty and the paint was peeling off. This needed rubbing down, priming and spraying with black enamel. This aside, everything went together well and the wheels, with their large air-filled 140 mm dia. tundra tyres, were assembled and fixed in place.

TRIAL ASSEMBLY

A trial assembly was made at my local flying field as at 1:3.5 scale this is one very large airframe and it would have been a real handful at home. The wing struts were fixed to the wings with screws and nyloc nuts, and the strut braces attached with pins and



Tubular undercarriage parts are sprayed gloss black. Unfortunately, one set had gone rusty whilst in its unforeseen period of storage so needed a respray.

R-clips. The wing tube is not very long so the wing struts are structural. The struts are then fixed to brackets on the fuselage with pins ✈



Shock Cub benefits from high quality balsa and plywood construction. The airframe is neatly covered in either silver or yellow Oracover, the liveries replicating authentic colour schemes.

Rear quarter view of Shock Club with its barn door flaps deployed. Pivoting slats on the leading edge of the wing allow the full-size Shock Cub to fly at low speed and high angles of attack. We fixed the slats in the open position for the model's test flights.



“A trial assembly was made at my local flying field as this is one very large airframe and it would have been a real handful at home”

and R-clips, with the holes in the painted brackets needing to be cleaned out first.

A bent R-clip, retained by a screw in the starboard wing, acts as a retainer to hold the fuselage door up and out of the way

to allow access to the batteries and the PB Sensor switch.

We found that the wing struts and brace can be left on the wings by removing the R-clips and pins. They then sit flat on the

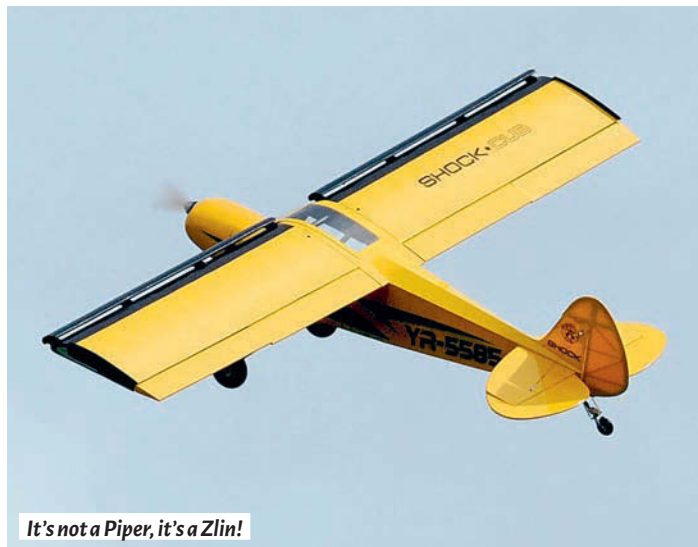
wings, allowing them to be put back in their wing bags.

A QUESTION OF BALANCE

The motor batteries, 2 x 6S 5000 mAh in series, plus the two 2100 mAh LiFe radio batteries, were fixed to the battery tray. The tray is slid forward into position where it is secured with a nylon screw. However, to achieve the correct C of G without adding unnecessary weight I reversed the battery tray fitting, putting the LiPo packs close to the servos. There are plenty of slots in the tray to use hook and loop straps to hold them in place.



Lifting off for her maiden flight. Wheels are fitted with large 140 mm air-filled balloon (aka tundra) tyres.





Without the cowl in place the motor was run up with an amp meter connected and surprisingly it was pulling only 51 amps at full throttle. This gives scope to experiment with prop sizes and pitch as this figure is well below the motor/ESC maximum ratings.

Once we were happy with the battery placement the main glazing was fixed in place. Since the glazing has wide yellow painted borders, I decided to use double sided tape to attach it rather than glue, the thinking being that should serious access be needed to the cabin area the glazed piece can be removed and hopefully replaced without damage. Certainly, leaving fixing it until last made assembly a lot easier!

With the cowl fixed in place and the provided spinner trimmed to suit the 20 x 10 APC propeller the next step was the Shock Cub's maiden flight.

FIRST FLIGHTS

With the Shock Cub assembled, range test and failsafe checks were carried out. I asked an experienced club member to go over the plane and double check that I hadn't missed or got anything wrong. As everything was okay, we went for the maiden flight.

Take off was a little less than straight but it had sufficient power to get into the air in short order. Trimming was then carried out, needing a fair amount of up trim and just a few clicks of aileron. I had set up conditions on my Futaba 26SZ for the flaps as I could then have independent trims for the main controls; first stage of flap did need some down trim and full flap understandably needed a lot of down trim to prevent ballooning. The recommended low throws were fine on the elevator and rudder but

DATAFILE

Model:	Shock Cub
Model type:	ARTF bush plane
Scale:	1:3.5
Manufacturer:	Seagull Models
UK importer:	J Perkins https://www.jperkins.com
RRP:	£899.99
Length:	1733 mm (68.2")
Wingspan:	2590 mm (102")
Weight:	9.6 kg (21 lbs)
Wing loading:	75 g/dm ²
Wing area:	1803 sq. in. (116.3 dm ²)
Engine size:	35-55 cc petrol or 12S electric
Servos:	Flight controls (7), throttle (1)
Functions (servos):	Ailerons, elevators, rudder, throttle, flaps

were a bit soft on the ailerons. One thing that did become apparent very quickly was that it needed some rudder input to tidy up the turns. After about five minutes I called landing and the Shock Cub came in without any issues.

For the second flight an aileron rudder mix of 20% was programmed in and this really improved the handling and made the flying way more enjoyable. Landing on this flight was made with full flap, which slowed the plane down nicely and lets you drop the nose without gaining too much speed to then round out for landing.

This Cub will ground loop, as I found out on the second take-off with a crosswind. So, use careful application of the throttle and make sure you take off directly into wind until you get used to it.

I think a change to a 20 x 12 propeller may help as vertical performance was limited with the 20 x 10. With more flights we can experiment with the control throws etc. and then play with the leading-edge slats which are currently fixed. This will also allow us to test out the Shock Cub's short take-off and landing credentials.

SUMMARY

All in all, Seagull's Shock Cub has been an easy build. It is a stable aircraft capable of all regular aerobatics and should provide a lot of fun, especially when testing its STOL capabilities. ■



Builder of the model Rob Bennett with the mighty Seagull Shock Cub.

Every year we have a cornucopia of retro excellence at the Pontefract Single Channel & Retro meeting.



TARANIS & HIS TANTRUMS

Shaun Garrity starts his latest old-timer column with that traditional British obsession - the weather!

Words & Photos: **Shaun Garrity**

The good weather has finally put in an appearance in the UK. In fact, I've dug out the factor 50, Panama hat and sunglasses from what has seemed to be perpetual hibernation. Then, guess what, as I sat down to pen this column hailstones the size of grapes started falling earthbound. Yes, this is in May!

So as not to disappoint and give a false perception that Meteorological Summer was

just around the corner, the very next day I was subjected to a deluge of good old H₂O so prolific the gutters on the house looked like mini Niagara Falls as they couldn't cope with the volume and spectacularly gushed over like a budget Hollywood special effect.

Anyway, despite Taranis' best efforts to ruin my fun, I've had some excellent flying recently. When out gliding I hit a thermal so strong I'm sure it could have hauled a breeze block

skyward. Good job the model had carbon wing joiners to withstand the rigours of a slightly frantic and rapid spiral descent.

FYI., Taranis was an ancient pan-Celtic God of Weather, whose name literally translates to 'Thunderer'. So, there you go, some weather waffle and the origin of the name of a popular FrSky R/C transmitter, disproving the old belief that 90% of what you learn at school will be of absolutely no use in adult life - now it's only 89%!

“...throughout the day any S/C, retro or vintage models are welcome to fly”

PONTEFRACT SINGLE CHANNEL & RETRO FLY-IN

Hello again, fellow button-pushers, escapement winders and propo stick twitchers. We have a date for the 14th Single Channel & Retro R/C Fly-in at Pontefract Park, with hosts PANDAS (Pontefract & District Aeromodeller's Society). Our club website is www.pandas.bmfa.org where all the coming season's events are listed.

This year's meeting is on Saturday and Sunday, August 22nd and 23rd 2026, so please keep those dates clear. The gates open at 8:30 am on both days and free camping is available (email me for details).

Since 2010 our small band of Single Channel & Retro enthusiasts has grown and grown, and we now have a multitude of S/C and Retro friends all over the world, all coordinated via our dedicated forum at www.mode-zero.uk and www.singlechannel.co.uk

For 2026 we're expecting to welcome lots of new faces, new models and lots of fascinating new gear too. Via the S/C forum we've seen a variety of new S/C, Reeds and Propo conversions and more have taken up the 'Galloping Ghost' and 'Pulse proportional'



Colin's Windbag shouldn't fly but it does (in a fashion) and is always very entertaining. I hope it shows its face again this year.

challenge. If you've never seen a Galloping Ghost setup then you're in for a treat.

Saturday the 22nd will be an open fun-flying day (IC and electric) whilst Sunday the 23rd sees the actual S/C and Retro R/C event. It's nothing too formal and we'll no doubt have the very popular and just-for-fun spot landing comp and a few prizes for anything special that catches our eye. Or just come to fly for fun or exhibit your models if you don't want to fly.

Every year we have an optional 'theme' session. Previously we had the 'Sharkfest', a full squadron of Mercury Galahads, formation Veron Impalas, the 'Boddo' theme and

Blunderbird Racing. For the unique Vic Smeed Pulstar theme, with the theme details not released until two weeks before the event, we had a last-minute building frenzy.

The theme this year is simply any model kitted in the 60s or 70s, with a special category for unorthodox models such as canards, ornithopters, washboards, broomstick witches etc. of any size, scaled up or down, balsa or Depron, e-power or IC, controlled with single, pulse, reeds or propo. Plans are available from Sarik Hobbies and web-based plans sites etc. So, get creative, get building and we can have a mass launch if you want to get involved. ✈



The hordes of enthusiasts start to assemble.

Of course, the theme is just one event of many and throughout the day any S/C, retro or vintage models are welcome to fly. The main objective, as usual, is to get everyone interested in retro-R/C flying together for equal amounts of banter and fun. Feel free to bring along any modelling related items to sell or trade.

Once again, we will have a busy Control Line circle, with our resident control line experts demonstrating their stunt skills and possibly, at their discretion, the odd have-a-go session.

We are very much looking forward to seeing as many of you as possible - it's going to be a fantastic weekend again.

REFTEC LIVES!

I found time to convert an old Reftec UHF transmitter last month. I started by completely gutting it, refurbishing the sticks and switches, fettling the case, then transplanting a Phil



Almost a Farnborough pass. I'm sure it was intentional!



One of my all-time favourite Veron models, the Robot. It still makes a brilliant trainer.

Green encoder and Tobe's latest UHF module (previously detailed in Retro Ramblings). I now had something, in my experience, quite unique - a reliable Reftec R/C system.

My previous dalliances with Reftec were not great, with components that fell out of the receiver in flight and inconsistencies in

operation of the transmitter. Maybe I was unlucky but several modellers I knew back then relegated their sets for boat use only, which was a shame because with its short aerial the set has a well-balanced feel in the hand, especially if you're a thumbs-on-sticks flyer.

I can report so far that in its modern updated 2026 guise it's been very reliable and looks like becoming one of my favourite sets.

TX PRESSURE REGULATOR

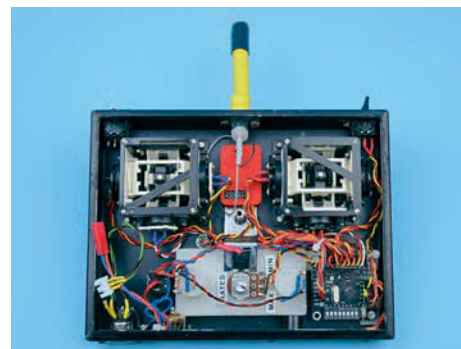
My piece on the TK pressure regulator struck a chord with Martin McIntosh who emailed me the following information:

"Hi Shaun,

Once again, you have taken me back quite a while to my earlier modelling days. Some of this may be of interest.

Terry Cooper started off as my F3A mentor, amongst other things, and we soon became best friends (or enemies at comps, because I started to beat him to first place). When he invented the TK (Terry and Keith) regulator I went round to his house to witness the first trial of the prototype,

"It's rewarding to know that modellers actually build the updated models from my youth that I've featured"



Although it may look a little intimidating to wire up it isn't that hard to convert or update older sets as long as you follow the instructions to the letter, work carefully and neatly, and, importantly, know which end of a soldering iron to hold and not get burnt - or have a pal who does!



My 'new' old Reftec set is now working reliably with Tobe's modern UHFRF module, receiver and a Phil Green encoder.



My collection of UHF systems. All currently work. In fact, I have recently flown the Talisman and Cotswold in an Impala slope soarer.



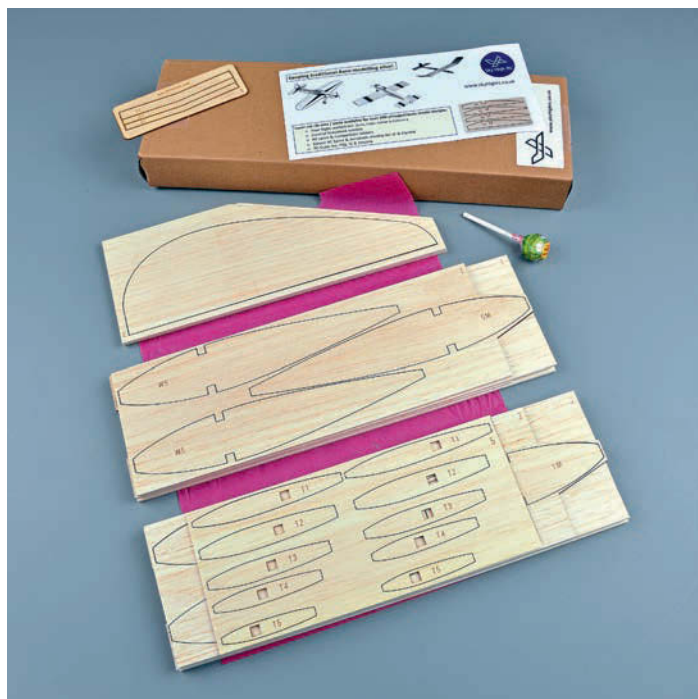
An example of the TK (Terry & Keith) pressure regulator that revolutionised the reliability of IC engines.

machined from Tufnol by another genius called Alan Thomas.

Terry had worked out the expected crankcase pressure (timed in that case) which would be sufficient to operate the device. Instant success! The tank was on the end of a long tube and could be placed anywhere and even when squeezed hard there was no effect on the motor. We went on to use OPS Ursus 60 motors and fitted them with the so-called Kavan pressure carbs, which were like dustbins. These, coupled with Terry's extensive modifications to the porting, gave us incredible power. We later abandoned the timed pressure and used one-way valves made from control rod tubing containing a tiny ball bearing pinched from Noble Rx switches. Other competitors could not understand how we, with our fully leaned out motors, could get two practice flights from a single 12 oz. tank.



Wildthing is a simple and quick to build all-sheet biplane originally designed for Galloping Ghost. I updated it for e-power and modern three channel propo years ago.



Contents of a laser cut Sky High RC parts set. Very good quality and well presented.

Going back even further in time, I had an ED Boomerang Tx and an ECC Telecommander 951A valve Rx when I was 12 but I never did get it to work. Terry built an RCM&E UK Rx, with miniature valve plus transistors, and so did I, getting my first R/C flights with this using Terry's tone Tx because I could not afford the parts to make one. I later built a Tinytone Rx from the magazine and further miniaturised it, enabling me to fit it in a Cox TD .010 powered model using the smallest hearing aid 22.5V, 1.5 and 3V batteries. I also built the Minitran 4 ch. reed Tx from the mag. This was fitted inside a tobacco tin.

The passage of time, eh!"

SKY HIGH RC

I came across these guys (and girls) a few months ago when Steve Haley came to our club night meeting and gave a presentation on the company's products and services.

Steve comes from a modelling family; his father's aeromodelling endeavours dating back to the early 1950s, so there is a wealth of experience on tap. What struck a chord was the extensive range of quality CNC cut balsa and ply parts for classic and retro models, plus modern gliders, on offer, with many that celebrate the heritage of our hobby including R/C, control line and free flight. So, if you're wanting a new charge at Ponte this year, they have plenty of suitable models in their range.

The downside of this was that I already had a raft of projects that were on the 'must build' or 'build again' list and it has now grown yet again. If you fancy not letting the age-old art of gluing small bits of balsa and plywood together to make a larger piece, then why not peruse their range and keep the scourge of ARTF foam at bay: www.skyhighrc.co.uk

WILDTHING RETURNS

It's rewarding to know that modellers actually build the updated models from my youth that I've featured. I received the following missive from Mike Anderson in New Zealand:

"Hello Shaun,

Last weekend my wife insisted that I clean up my 'office'. While obeying her command, I came across an article that I had photocopied out of RCM&E a long time ago. I can't remember when as there was no date on the photocopy. I went into my hangar (okay, shed) and took down the original Wildthing I had built years ago following your original plan and build. It still flies well.

I enjoyed it so much that later I penned a larger version with foam core balsa covered wings, ailerons, rudder and elevator, which flies even better.

I'm currently working on an even larger version that is currently hanging from the garage roof, waiting for the (about 2 metre span) wings to be constructed. I am still deciding whether to use



Another Wildthing, exquisitely trimmed. No vinyl decals here, just years of modelling skill, tissue, dope and a very sharp modelling knife.



Mike Anderson has been bitten by the Wildthing bug. This is his third one and they are getting bigger each time. This one will be two-metre span.



CO₂ motors always held a fascination for me. This no longer produced example of a Gasparin 120 Twin (0.24 cc) can turn a seven-inch prop and is a superb example of precision engineering. Its power to weight ratio is far superior to the original Brown motors. A Sparklets CO₂ bulb is shown for comparison. The plastic and metal widgets hold the bulb to enable re-fuelling of the tank.

foam core and balsa sheet covered wings or to go for more traditional built-up wings covered with 'heat-shrink'."

Mike Anderson (aged 83)

It just goes to show, there's no age limit for this great hobby.

CO₂ R/C

1947 was a memorable year as Bill Brown Jr. introduced his take on a practical and reliable CO₂ engine. It would use an entire Sparklet CO₂ cartridge per flight so the set up was relatively heavy. Coupled with an 8 x 3 prop it could power models of up to three or four-foot span. Its capacity was 0.018 cu. in.

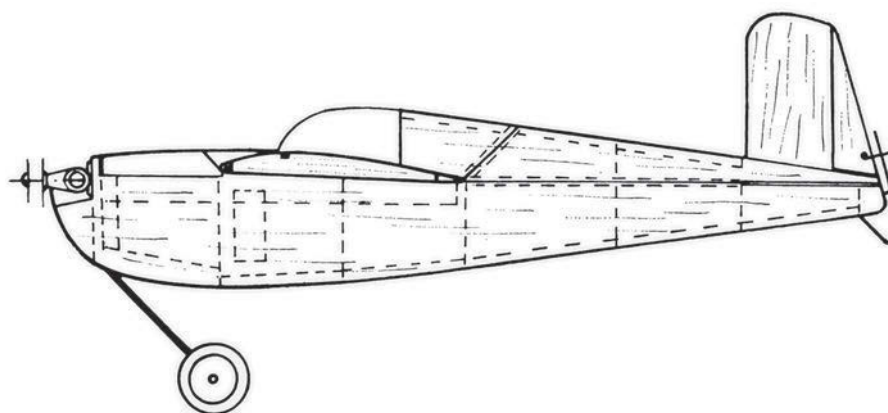
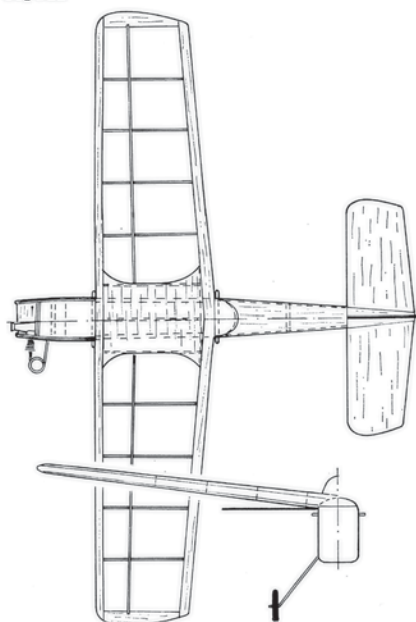
Brown's next model was a miniscule motor with a capacity of only 0.0015 cu. in. known as the Campus A-100. Including the tank and prop it weighed in at approximately 0.3 oz. which is the same as a newborn African Hedgehog. (Look at that. Another fact from school - I'm at 88% now!)



ACE Pulse Commander was the defacto R/C set in the USA for single surface models. Over the pond our fellow modellers tended to prefer pulse proportional systems to the UK's favoured escapements. This is a slightly 'posher' set having two channels. It was great for micro modelling. Various pulse actuators were available in single and twin configurations, giving different power outputs.

CO₂ BEE

by Howard McEntee



Brown Junior CO₂ motor powered 'CO₂ Bee' by Howard McEntee, spans 19½ in. With Bentert magnetic actuator and Albin receiver, plus button cells for power, the model weighs 2.8 oz. all up! Only for calm weather outdoor flying, but how about indoors. . . .

Semi-scale in appearance CO₂ Bee flew well in the correct conditions and was a true achievement back in the day.

Howard McEntee's CO₂ Bee.

The one problem was that back in the early 1950s R/C gear weighed about as much as a blacksmith's anvil, so there was less chance than no chance of having a CO₂ powered R/C model. Bill's final motor was the 0.6 oz. Campus B of 0.005 cu. in.

Production ceased in 1951, but he continued developing his engines and in the early 1970s he produced a lightweight, powerful new Brown Junior. Around this time a well-regarded US modeller called Howard McEntee, who had a particular penchant for mini-R/C models, decided to take up the challenge and design a suitable model for this motor and the

recently available, small and lightweight ACE Commander pulse proportional R/C system. The 19.5" span CO₂ BEE flew well. His only issue was the lack of suitable props, so he had to use small commercial nylon props of around 5" diameter. They worked okay but being (relatively) stiff and heavy they would often bend the motor shaft on a nose over landing. Fortunately, Williams Brothers came to the rescue manufacturing suitable polystyrene props that were flexible. Now broken props were not uncommon, but the precious motor was free from damage.

I did dabble with CO₂ in the 1990s using a superb Gasparin GM 120 motor, initially flying with a manually pulsed radio manufactured by CETO. It was incredibly small for the day but not great for long flights.

Manual pulse works by biasing the actuator to, say, full right rudder; when you press the button you get full left so to fly straight you needed to pulse the rudder so left and right averaged out and the model went straight. Definitely no good for faster models! I got bored with this quickly and used an ACE Pulse Commander instead. So, the relatively expensive itch was scratched and another tick in the box of things to try was done.

THAT'S IT, AGAIN

I hope you can get to our Ponte Fly-In in August and imbibe the heady aroma that is retro modelling.

Any questions, stories you would like to share please email me at: aeromodeller@gmail.com ■



If you can pick up a copy of Radio Control Manual 4 there's more information on Howard McEntee's exploits.

My CETO manual pulse set from the early 1980s was a revelation in miniaturisation. Just compare it to the current miniature four channel Rx and two 2 g servos. It was miles ahead of the curve considering the 40 plus year gap.





Designed & Manufactured in England.

1948 Bernard Gross Flying Wing *Rapid Build*

A unique and innovative design years ahead of its time.
 A true powered floater that can stay aloft for hours
 given the right conditions.

V3.5 now with fully sheeted fuselage.

This is a full wood pack that includes carbon and the control snake.
 Requires some hardware, electronics, propeller and wheel etc. to finish.

- Wingspan 94" – 2388mm
- 4 Channel – Elevons, Rudder and Throttle



New V3.5
£255.00

MvM Delta Rapier *Rapid Build*

Do you want Unlimited Vertical, Square Loops, and a
 plane that's comfortable going both fast and slow?

Full wood pack and carbon pack. Requires hardware, electronics and
 coverings etc. to finish.

- Wingspan 38" – 965mm
- 4 Channel – Elevons, Rudder and Throttle

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Vic Smeeds' Shove Ha'Penny



£69.99

- Wingspan ~50" or 1270mm
- 2-3 Channel – Throttle, Rud, Elev

MvM Oldtimer *Rapid Build*



from
£64.99

- Wingspan ~42" or 1060mm
- 3 channel – Elevator, Rudder, and Throttle

MvM Oldtimer IC *Rapid Build*



from
£64.99

- Wingspan ~42" or 1060mm
- 2-3 channel – Elevator, Rudder, and potentially Throttle

MvM's mission is to breathe new life into some fascinating vintage models, redesigning them to better accommodate modern building techniques, materials and electronics while still maintaining the characteristics of these original models.

Designed & Manufactured in England.



MODERN VINTAGE MODELS

MvM Colonel Bowden Midget

Traditional Build

Get ready to wow your friends with this quick to build lovely plane.

Includes all the wood, acetate and hardware needed to complete this wonderful model. Although, you will need adhesives, tools motor, electronics etc.

- Wingspan ~23" - ~600mm
- Power 0.5cc Diesel or Equiv
- Free flight or Radio Controlled
- 2-3 Channel - Throttle, Rud, Elev

£69.00



MvM Cumulus *Rapid Build*

Designed to be a powered glider, a thermal soarer or even a slope soarer, it ticks all the boxes.

Full wood pack and carbon pack. Requires hardware, electronics and coverings etc. to finish.

- Wingspan ~65.5" - ~1670mm
- Glider, Powered Glider, Slope Soarer
- 2-3 Channel - Throttle, Rud, Elev



Available NOW!



MvM Howard DGA-3 Pete *Rapid Build*

£165.00



- Wingspan ~40" or 1000mm
- 4 channel - Ailerons, Elevator, Rudder and Throttle

MvM Boomer Bus *Rapid Build*

£149.00



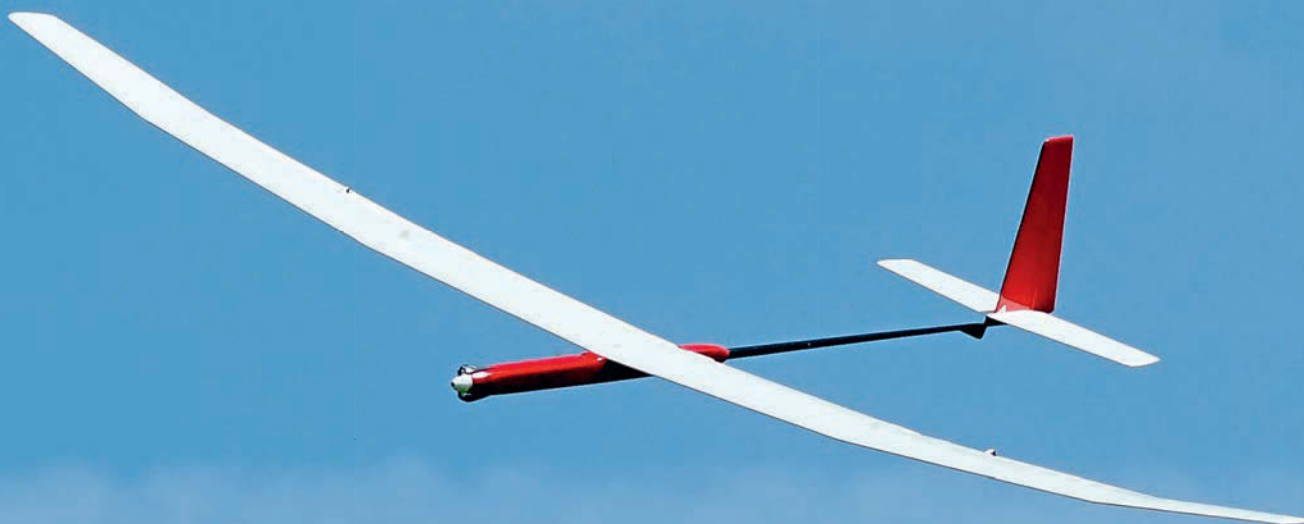
- Wingspan ~54" or 1370mm
- 3 channel - Elevator, Rudder and Throttle

MvM SG38 Training Glider *Rapid Build*



- Wingspan ~51" or 1300mm
- 4 channel - Ailerons, Elevator, Rudder and Throttle

MvM's mission is to breathe new life into some fascinating vintage models, redesigning them to better accommodate modern building techniques, materials and electronics while still maintaining the characteristics of these original models.



OTTO

John Sweatman reveals all the whys and wherefores about building his own design DIY sailplane

Words : **John Sweatman**

Photos : **John Sweatman, RCM&E, Barry Atkinson**

Semi-retired in 2020 and with the Covid pandemic under way, I found myself with a lot of spare time. So, I decided to dig out my dad's 40 to 50-year-old bungee launch gliders from the attic and get them flying again. After much nagging and leg-pulling from my Malvern Soaring Association clubmates, I decided to convert them to electric launch. (The only good thing about bungee launching is that it keeps you fit!)

Having just rudder and elevator as control surfaces, and with the other guys flying beautifully moulded carbon F5J types, I was feeling somewhat left out. In any case, I was

blaming my unreliable flying performances on my old machines and, being very honest, on my lack of experience and coordination. Yes, I still occasionally move a control stick the wrong way!

THE WHY

So, I wanted to fly a big machine with flaps and ailerons, but I didn't want to buy an expensive moulded glider at this stage in case I smashed it. I enjoyed converting my old gliders to electric power and adding flaps to my Big Impala slope soarer, so I wondered if I could design and build my own glider. I mentioned this to a clubmate and he told me about devWing, a CAD software package. A trial session was all I needed to

realise that a design and build was possible, so long as I could find someone with a laser cutter that could read the devWing output files.

After much searching, I found Modern Vintage Models, who have been extremely helpful and adaptable to my wishes, spending a lot of time finding a way to improve the building platform (jig) for the wing and other challenges, including cutting the fuselage pod sides and formers from my basic design drawings made using Excel.

THE HOW

The devWing software is an excellent way to design a wing and you don't have to know



You might be forgiven for thinking that John named his new glider after Otto Lilienthal, the famous pioneer of manned glider flights. Instead, says John, "What a hero, and that would have been an intelligent choice. But unfortunately, I didn't name my glider after him. I needed to save my first wing design file and looked up for inspiration. There on the mantelpiece was a photo of my nephew's newborn son, Otto."

anything about CAD to use it. But you do need a mouse to use it efficiently. The software package guides you through about 14 pages/steps, not all of which you need. In each step you can see what you are creating by viewing it as a 'full wing'. This image can be moved, rolled, turned and zoomed, or you can select any rib to view as a profile. Using the latter option, you can measure lengths and angles (a regular CAD feature).

To start your design, you must decide on basic parameters like wingspan, number of wing sections, chord lengths, rib spacing, dihedral and aerofoils for each section, as well as washout, if required. The software has its own comprehensive library of aerofoils, or you can import files, as I did, using the AG35 by Mark Drela from airfoiltools.com. Then you choose the structural design, e.g. conventional top and bottom wooden spars with various D-box options, or something different. Having seen the neat and simple design of my friends' Puritos, I chose carbon fibre tubing for the main and rear spars.

Following advice from one of my club's 'Top Gun' flyers, I also added a shear web to the inner wing section for extra strength, fixing it between upper and lower sheets and butting it up against the front of the main spar. In other steps you can design sheeting, leading and trailing edges (from stock or to your own design), control surfaces and wing tips.

The program contains a library of construction materials. As you design the wing, you can specify the component materials so that the software can calculate the weight of the wing. The library has a range of standard densities for various types of balsa and ply, or you can add the densities of your own bespoke materials (in my case, the carbon tubing). This is an accurate and very useful feature which almost eliminates guess work when calculating the C of G during the fuselage design stage.

Another fantastic feature of the software is the option to produce a building platform (jig). It does this by creating 'negative' ribs in the same positions as the ribs and fixing these with simple push-fit joints onto a platform.

The platform fixes to vertical sides, again using push-fit joints, thus forming a building structure. Each wing section has its own structure and these fit together to ensure the correct dihedral at each joint.

Modern Vintage Models designed an excellent improvement to the way they join, cutting jig-saw puzzle type push-fit joiners, meaning that I was able to confidently build each half-wing square and true with no warping. To build the other half-wing, you simply invert the platforms.

THE BUILD

Prior to this build my only modelling experience was making numerous plastic Airfix models and, more relevantly, a Big Impala glider kit when I was about twelve - fifty years ago! And Dad did the tricky bits on the Impala. So, I was starting this project with very little experience, and it was apparent at many points throughout the process of design and build that almost everything that I did was new to me. Consequently, I developed by default another golden rule to run alongside, 'Measure twice, cut once', that being, 'Thinking 90%, doing 10%'

The first task was to buy proper tools, so I spent a very happy sum on those, including decent files and sandpaper, a rotary hand tool, a PermaGrit block and a digital vernier calliper. Then I spent another pile of money on a range of glues, all of which were used; some rarely, some often.

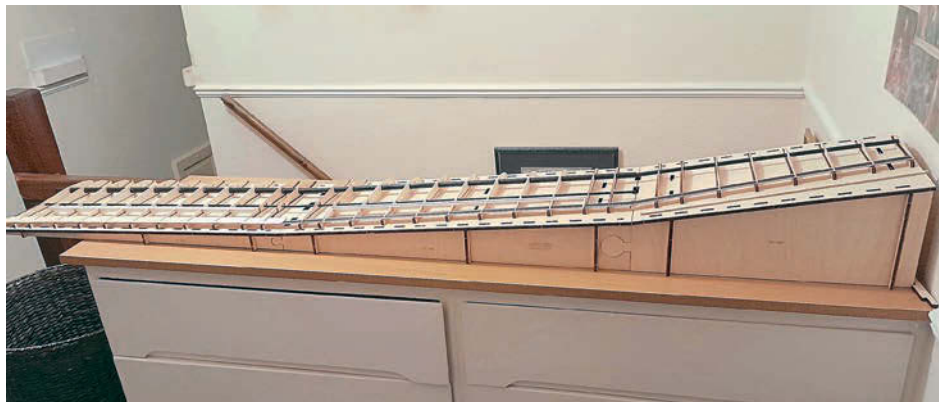
POLYHEDRAL WING

The wing is polyhedral and tapers from a root chord length of 250 mm to 125 mm at the tips. There are three sections to each half wing. The inner section A joins to the mid-section B with 5 degrees dihedral and is removable for transport. B is glued to the outer section C at 10 degrees dihedral. The two inner sections A (left and right wings) are glued at 2 degrees.

I started by making section A on its platform. I chose to omit the lower sheeting from the negative ribs cut-out so that each rib could sit properly on the jig while I glued them to the main and rear spars. The jig is not required to fit the sheeting once the ribs are glued to the spars. Assembly was very easy, just sliding the ribs over the spars, but it was essential



Otto uses Mark Drela's AG35 wing section with carbon fibre tubing for the main and rear spars.



A polyhedral wing sitting on its building platform. Note the jig-saw puzzle type push-fit joiners in the platform sides.



Once cut the carbon joiners were sandwiched between hard balsa to fit snugly inside the carbon wing tubes.

“I learnt that AI is only as good as the information and questions you present it with”

to get the rib order correct as with a tapering wing they are all different lengths and heights (thickness). I chose to place the main spar at the ‘max thickness’ of the aerofoil and this determined its outside diameter for each wing section (A: 10mm, B: 8mm, C: 6mm).

I used ChatGPT to help me calculate if the spars were strong enough and so I learnt that AI is only as good as the information and questions you present it with. Even then it made silly mathematical mistakes which I was able to check by writing all the formulae in Excel. In the end, I backed up all the maths with a highly scientific but simple ‘bend it over the knee’ test: it hurts so it must be strong enough!

CARBON JOINERS

I cut the section joiners from 3 mm carbon fibre sheet, using a 3D printed plastic template to get the angle exactly right. I marked the cut lines on the carbon sheet by scoring with a sharpened bradawl, then rubbing chalk into the scored line.

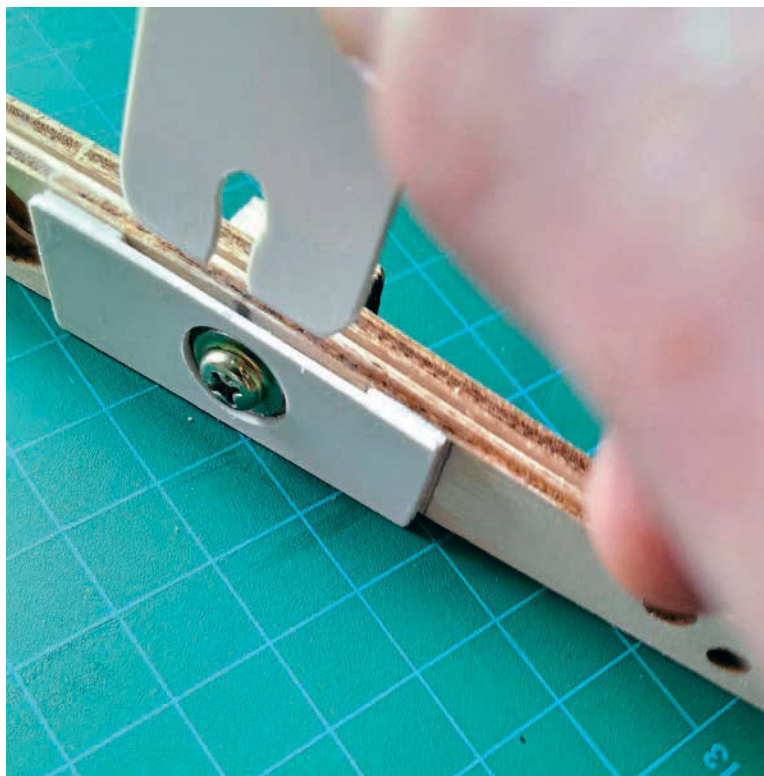
At first, I cut the sheet with a manly hacksaw, but this took over an hour for the first joiner, blunted the saw blade and left hours of filing down to the correct size (constantly checking against the template). To cut the remaining four joiners, I used an electric jigsaw with a fine blade running on maximum stroke rate and no oscillation, with the carbon sheet clamped down on the workbench very tightly. This left much less filing/sanding to finish.

A word of warning: you must wear a good dust mask when working with carbon because its dust is carcinogenic.

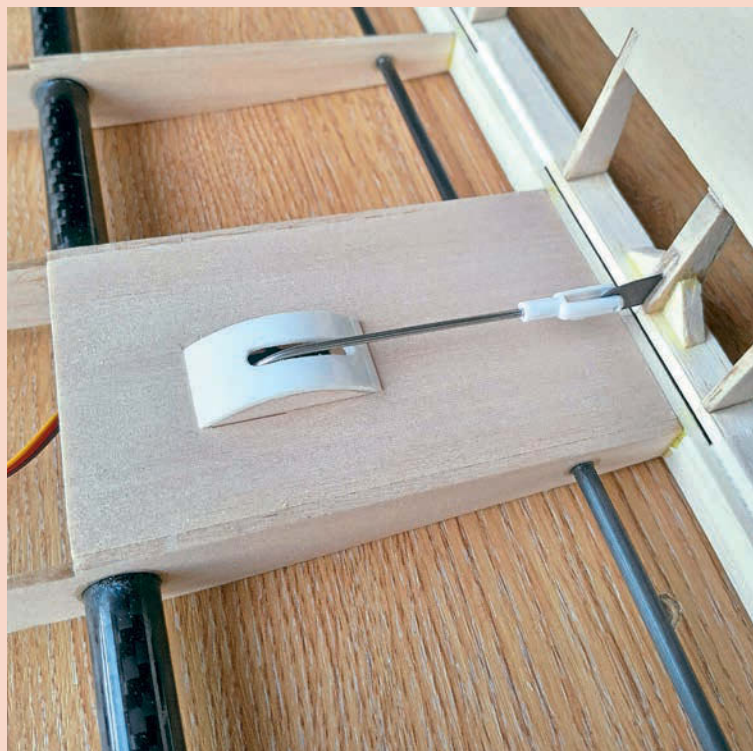
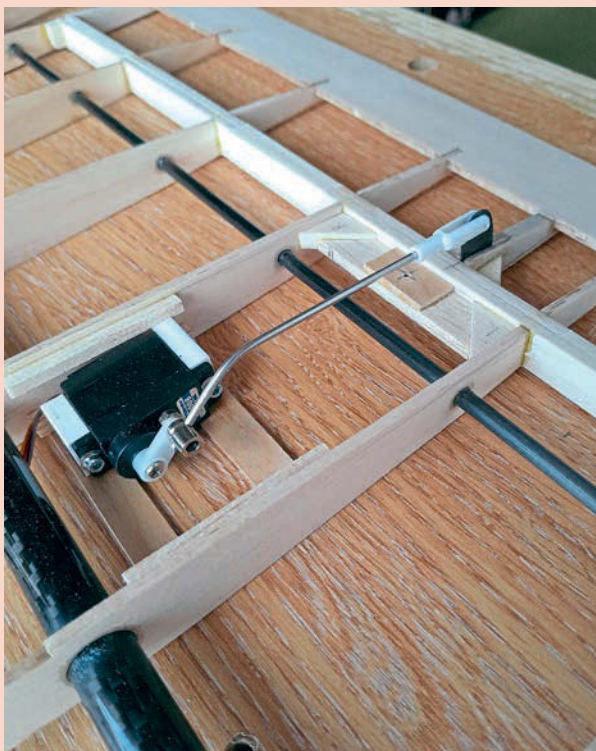
Once cut I sandwiched the carbon between hard balsa to make a snug fit inside the carbon tubing. Since the rear spar is only 4 mm OD, 3 mm ID, I joined it using aluminium tubing as a sleeve over the carbon.



Servo wire connections between wing sections were made by crimping standard connectors and gluing them into the end ribs, having programmed the exact cut-out sizes in devWing.



Rather than taping the wing sections together John made a forked tongue from 1 mm ABS plastic sheet to slide behind a flanged screw head.



Wing servos are mounted on ply strips glued between ribs with covers made from plastic pill pots glued onto sheets of balsa.

“I wanted to fly a big machine with flaps and ailerons, but I didn’t want to buy an expensive moulded glider in case I smashed it”

WIRING UP

Another challenge was making suitable servo wire connections between wing sections A and B (the ailerons being fitted in B). This I did by crimping standard connectors and gluing them into the section end ribs, having programmed the exact cut-out sizes in devWing.

Then I had to find a way of keeping the wing sections together in flight. I thought that using wing tape on Oracover Light may, in time, lift the covering off the wood, so I decided to make a forked tongue from 1mm ABS plastic sheet to slide behind a flanged screw head. The photos nearby describe this better than words.

I mounted the mini servos on ply strips glued between ribs. The servo arms are too long to be contained within the aerofoil, so I made covers from a plastic pill pot, gluing them onto a sheet of balsa to form the access cover.

The photos show my original design for the control surfaces (in this case, a flap). However,

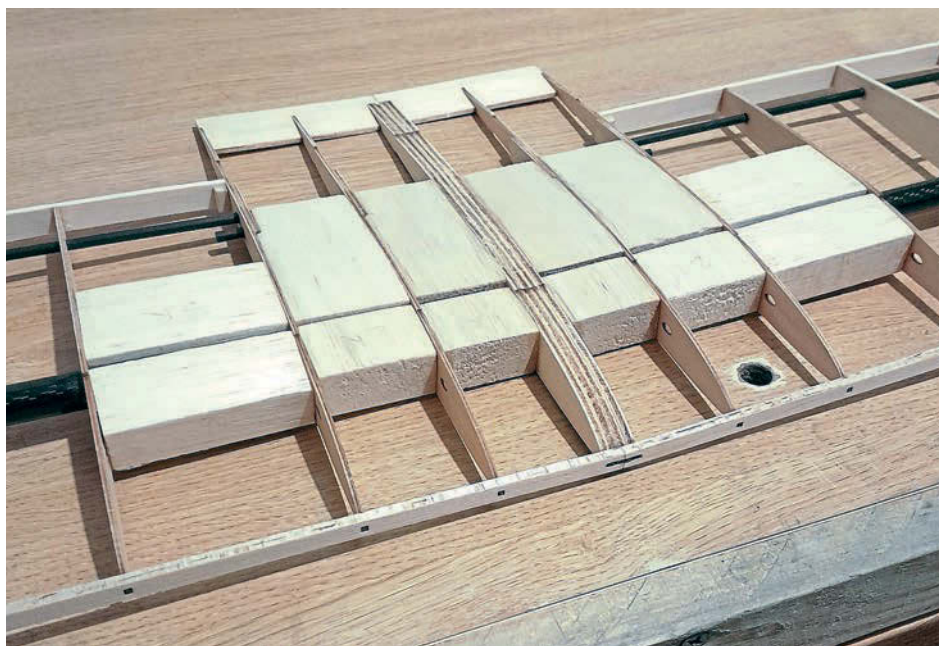
they were too weak and flexible using this rib method, so I later replaced them with solid balsa (sanding using a PermaGrit block is an essential tool for accuracy).

Once the wing construction was complete, I found that it was too flexible, so I added solid balsa fillers to the inner rib sections, giving a great improvement in strength but adding more weight. In hindsight, it might have been better to make a second carbon joiner to fit through the inner ply ribs between the front and rear spars.

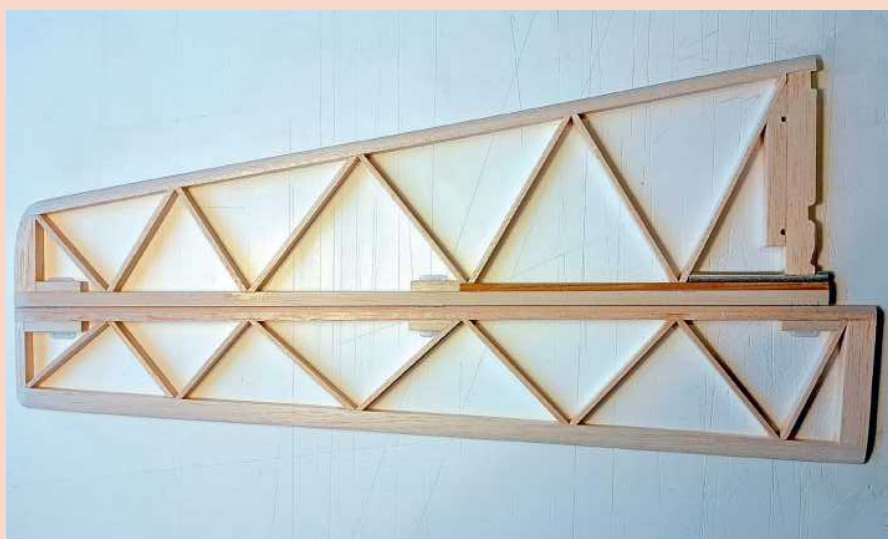
TAILPLANE & FIN

Then I moved onto the tailplane and fin which I designed using devWing’s geodetic option and making them over printed plans (a devWing output option) stuck to the workbench.

I made a mount from a balsa block to seat the tailplane onto the tapering carbon fibre boom, setting it to give an angle of attack of -1 degree. The fin slides onto a 4mm carbon rod, sleeved within the fin by an aluminium tube (as with the rear spar joiners).



Once the wing was complete, John found that it was too flexible, so he added solid balsa fillers, greatly improving strength but adding weight. It might have been better to make a second carbon joiner to fit through the inner ply ribs between the front and rear spars.

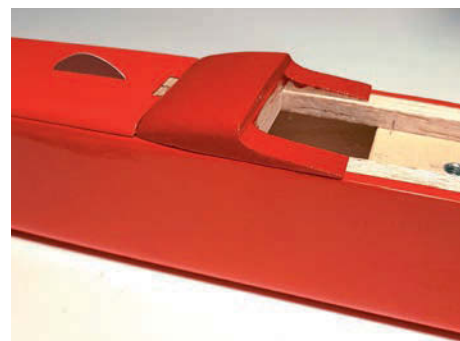


The tailplane and fin were designed using devWing's geodetic option and constructed over printed plans stuck to the workbench.

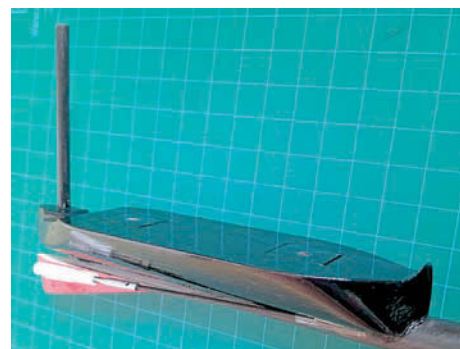
OTTO'S FUZ

Finally, the fuselage, which is a very simple balsa pod with a tapering carbon fibre tail boom. Though relatively easy to build, it was important to get the overall length proportional to the wingspan and then to calculate where the wing would sit. I did this by

inputting the moments of each component to a spreadsheet and then I could also establish a range for the C of G. I decided to sit the wing on the fuselage sides which I sloped rearwards at 1 degree from Fz (at the wing leading edge), giving a combined angle of attack of 2.5 degrees.



The wing sits on the fuselage sides which slope rearwards at 1 degree from Fz at the wing leading edge, giving a combined angle of attack of 2.5 degrees.



A balsa block mount seats the tailplane onto the tapering carbon fibre boom, setting it to give an angle of attack of -1 degree. The fin slides onto a 4 mm carbon rod.

AT THE FLYING FIELD

Fortunately, I had some very experienced help from my clubmates on Otto's maiden flight day. And, most importantly, I did not crash!

The all up weight is 1650 g and the XPower F2919/10 motor with a 1,000 mAh 3-cell battery blasts it upwards with a good rate of climb. ✈



The fuselage is a simple balsa pod with a tapering carbon fibre tail boom. A tapering balsa sandwich gives a neat finish to the boom/fuselage joint.



John says, "If you are inspired to design and build your own model, then do it!"

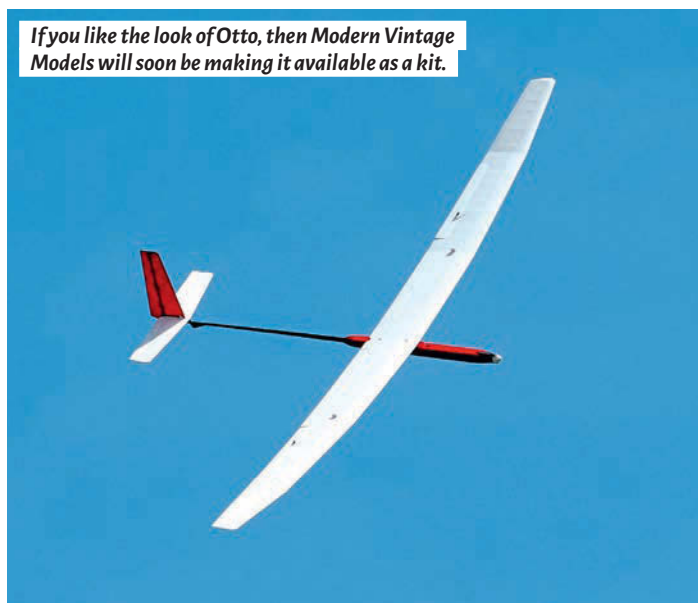


Large flaps are very effective, just like those fitted to his clubmates' expensive F5J carbon gliders.

Otto's traditional construction is revealed.



If you like the look of Otto, then Modern Vintage Models will soon be making it available as a kit.



Otto powers away for another thermal scouting mission.



“I enjoyed that indescribably good feeling when you find lift and stay in it”

However, the ‘pros’ advised that it could do with more dihedral and it was quite slow to react to turn inputs on the first day. Following my buddies’ advice I have since increased the control surface travel and mixed more rudder with ailerons, and this has improved turning. But to make it better I would need to build another wing with more control surface area. This could well be a nice project for the winter months (but how to tell the wife?).

I have flown Otto two more times recently and, on both occasions, I enjoyed that indescribably good feeling when you find lift and stay in it. On the first of those days, I even had to bail out several times with full flap to avoid a fly-away.

CONCLUSION

If you are inspired to design and build your own model, then do it. The design and build are as much fun as the flying, and you can do the former whatever the weather.

Modern Vintage Models will be making this glider available in kit form over the next few months: www.modernvintagemodels.co.uk

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HACKER AERIX

John Stennard assembles a precision indoor aerobatic model designed for both beginners to F3P and experienced pilots alike

Words: **John Stennard** Photos: **John Stennard**, RCM&E

For some while I was the sole member flying an FP3 type model at our indoor sessions. As a lone flier I could only lay claim to the occasional bit of free air. This has now changed and four of us, soon to be five, circulate our four-court sports hall. With flying slots established there's no holding us back!

Although very happy with my second Clik (a Clik 25), I'm always looking at alternative FP3 type models. As these are a more specialised

genre there are not many around. When editor Kevin, now hooked on aerobatic indoor models via his UMX Eratix, mentioned the Hacker Aerix available from Model Shop Leeds, I immediately checked it out.

WHAT IS AN AERIX?

The Hacker Aerix F3P model is classed as an 'indoor special lightweight aerobatic model' and 'lightweight' particularly attracted my attention. Performing aerobatics indoors

as slowly as possible is the aim of FP3 fliers, whether competitively minded or fun fliers, and the AUW is a key factor. Although of a similar overall appearance and design, following the well-established EPP foam FP3 format, it differed enough for me to order one.

What makes the Aerix a bit different? Well, at 843 mm wingspan and 945 mm in length it's of a comparable size, but the flying weight is lower. A weight of 100 g is listed without the battery, which is quite a bit lower than a Clik

*Aerix is up and away with ease.
No gravity issues here!*



or Synergy. My well used Klik 25 weighs 130 g without a battery and 148 g with a 2S 300 mAh LiPo. A 2S 150/300 LiPo flight pack is suggested for the Aerix, but realistically, for a reasonable duration, a 2S 300 is required. Another different feature is the use of a closed loop system for the rudder and elevator.

I was interested enough in an Aerix that when I found a new home for my Klik 25, I did not hesitate to order one.

SLIM BOX

As expected, the lightweight box enclosed attractively decorated 3 mm EPP parts and a lot of CF rod and strip. Something I've not come across before was a ply jig used to ensure that the profile fuselage is assembled accurately; this was

very useful. The A4 B&W instruction manual is very comprehensive and runs to 94 photos. If you prefer a colour downloadable manual then this is available from the Download menu of the Aerix pages on the Model Shop Leeds website. There is quite a bit of reading to do with this model before you reach for the CA. I would emphasise that it is extremely important to follow the building sequence. I only did a couple of things differently which I will mention later.

An important feature of this model is the extremely lightweight construction making extensive use of various sizes of CF strip and rod. The CF rod is in various diameters and it's important to use the specified size. The same applies to the strip - definitely a 'measure twice and cut once' scenario. You will need a

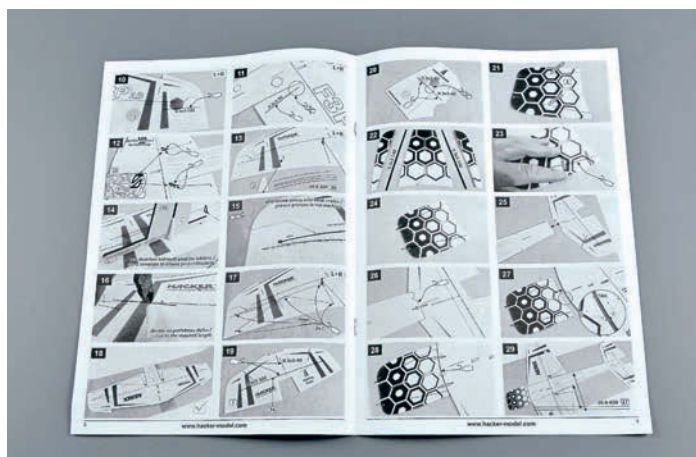
"An important feature of this model is the extremely lightweight construction"

mm rule and, occasionally, a scalpel, but, more importantly, tools to cleanly cut CF rod and strip.

CA and kicker are required plus patience. I say this because foam construction is often 



The slim box contains neatly decorated 3 mm EPP parts and a copious amount of CF rod and strip.



The comprehensive black and white instruction manual is illustrated by 94 photos.

viewed as a quick and fairly carefree option. This is definitely not so with the Aerix or indeed with any of the high-performance type FP3 models.

HAVE YOU GOT WHAT IT TAKES?

If you have built similar models before you may not need to purchase the required R/C gear. In my case a small four channel Rx, a 6A ESC, a suitable motor, two 5 g servos and one 9 g servo were all 'in stock'. The two suggested motors are aimed at different performance levels as the T-Motor AM20 (1900 k/v) uses a 10 x 3 prop and the Hacker



Your editor is building an Aerix too (slowly!) and opted for Model Shop Leeds' recommended Hacker Equipment Set comprising an M Force 2812CA-27 motor, a Hacker MC-06 Lite 6A continuous ESC and a GWSEP-0843 prop.

to existing arms. Thread binding is shown but I used small screws. This can take longer than you think and I was glad later that I had done this.

The actual building starts with the fuselage centre section and wings. Make sure that all the 3 mm strengthening strips are pushed right down into the slots in the 3 mm EPP before gluing; it's helpful to run a scalpel along the slots to check they are fully open. I find that sometimes CA does not work as well as expected so check joins for their integrity. The aileron stiffening CF rods are next and give you a taste of what's to come!



MF D53 Metal HC4303

Weight: 6.5g (including cable and servo arm)
Voltage range: 3.7-6V
Operating speed: 0.06/60° (6V)
Stall torque (6V): 1.1kg/cm
Size: 20.3x8.6x24.2 mm
Type: Digital
Gearing: Metal
Servo cable length: 16cm

MSL's recommended servos are two Kavan GO-03 3.7g servos for the tail surfaces and an MF D53 Metal geared servo for the ailerons.

"The closed loop control system is neat but quite tricky to fit"

2812CA-27 (1780k/v) the usual 8 x 4.3. It is quite possible to use budget brands if you are looking at a fun model rather than a competitive one.

One mismatch in the listings, I think, is a >70W motor. I can't see why this is required for a 130 g model of this type and so I will be using a motor which has been perfectly adequate for similar FP3 models.

A quite large, flat, building board is required. No pins are needed but some weights are. Some type of plastic covering is also needed to avoid the EPP sticking to the building board.

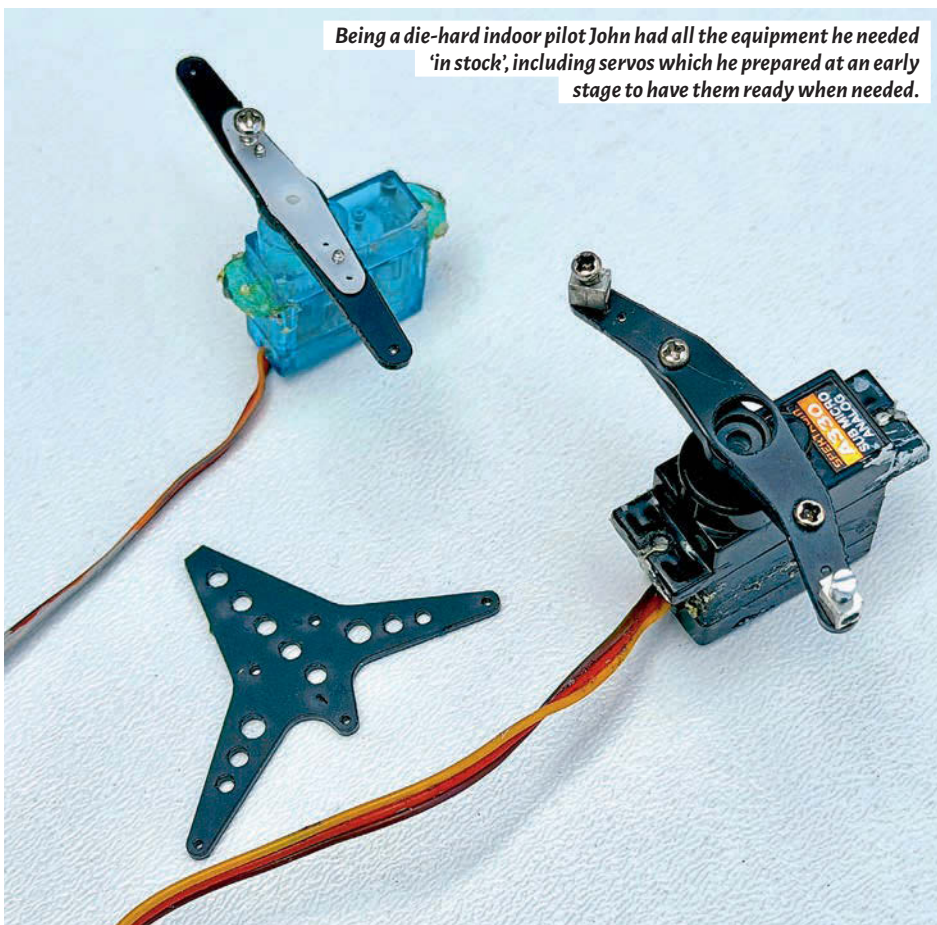
READ & BUILD

Here's a short guide to assembling the Aerix.

I'm assuming it's unlikely that a complete novice will be building an Aerix so I'm aiming at modellers who can follow the quite complex instructions and are familiar with EPP foam and CA. I've only included the main areas of construction and have not included fitting the small parts covered in the instructions.

I actually started by working on the servos, although this is step 62-64! They all have extended output arms which must be fitted

Being a die-hard indoor pilot John had all the equipment he needed 'in stock', including servos which he prepared at an early stage to have them ready when needed.



The aileron control horns are also fitted at this time.

The tailplane and fin strengthening is as shown but be careful with the nose parts. The 3mm CF strip is shown extending beyond the nose and this is required when locating the motor mount. With the tailplane and nose glued to the fuselage centre the lengthways 3 mm CF strip can be fitted; this runs from nose to tail. However, I made a change here as I did not like one instruction in diagram 31. The 3 mm strip meets the wing strengthening strip and is shown coming out of its slot, going over the wing strengthening strip, and back into its slot. This seemed difficult to achieve neatly and I cut the fuselage strip at the meeting point with the wing strip. I appreciate some structural strength is lost but there is so much other strengthening I was happy to do this.

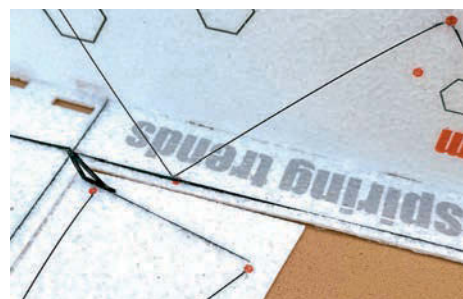
Before gluing the lower fuselage in place, I made sure that the aileron servo would fit in both the wing and lower fuselage. It's also worthwhile modifying the rudder and elevator servo cut outs, if required, before assembly.



John also fitted the aileron servo earlier than shown in the instructions.



Wings, lower fuselage and tailplane are the first elements to be built. The ply jig helps when fitting all the CF rod bracing.



Red dots make the positioning of the CF rods easy.

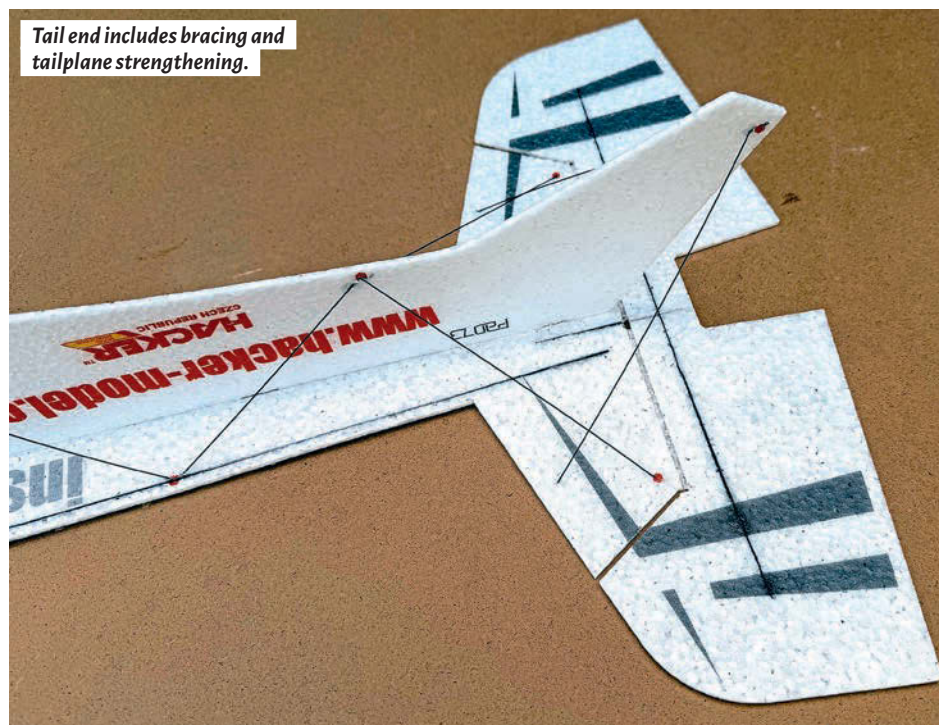
The ply jig now comes into play because it is used when gluing the lower fuselage to the horizontal fuselage and fitting all the CF rod strengthening rods. This is fairly laborious but is simplified by red dot markers showing their positions. It must be done carefully or you could run out of 0.6 mm diameter rod. With all of these rods in place the two vertical CF strips which help locate and secure the top fuselage must be fitted; if missed out they would be difficult to fit later.

We are now at step 47 but according to the instructions the aileron servo is not fitted until step 68. I chose to fit and connect it to the ailerons before fitting the top fuselage. I replaced the 90° bend and plastic collar retainer used at the control horn end with a wire Z-bend. It is important to have set all your servos to neutral before fitting as getting to

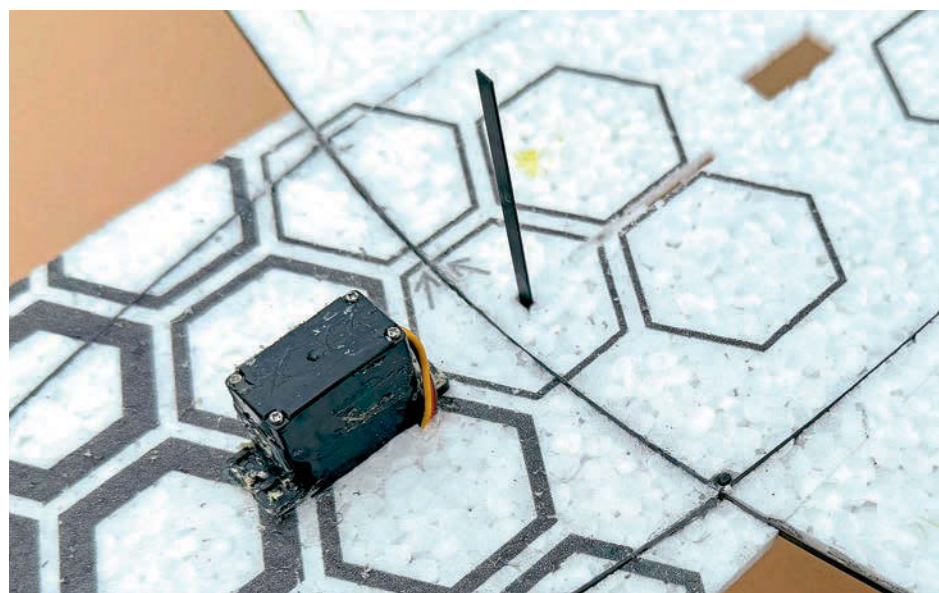
them later is quite difficult. The top fuselage is glued in place, helped by the vertical CF strips.

The undercarriage is now fitted and I made a change here. As designed the Aerix has foam spats but no actual wheels. However, I like wheels, so I fitted a pair of small, lightweight ones. I used bent piano wire, heat-shrink tube and CA for the axles; this will have only added a few grams.

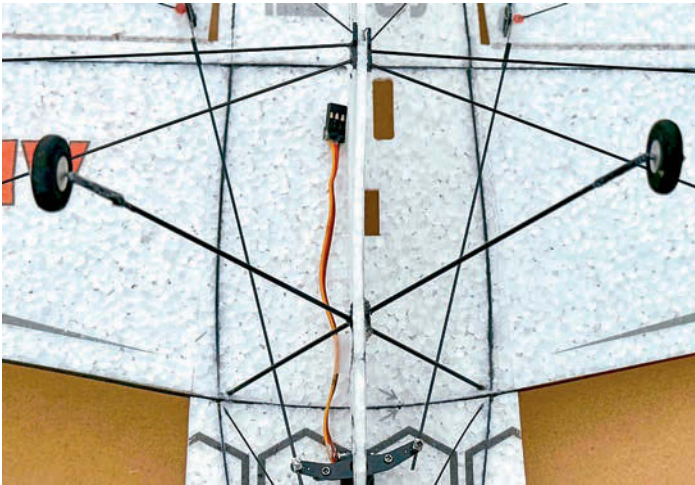
Steps 53-57 are important as the closed loop control horn has to be fitted to the elevator and rudder. A separate plastic hinge is used and this requires a tiny 5 mm long CF rod pin to locate it on the horn. A mistake with the CA here would result in a non-flexing hinge and big problems. Also, note that the control horn for the rudder has a slot in it. The fin is now glued in position and almost the last CF strengthening rods are also glued in place. Phew!



Tail end includes bracing and tailplane strengthening.



An upright CF strip both locates and strengthens the upper fuselage.



John fitted a pair of small wheels rather than having 'no wheels, just spats'.



Closed loop control horn and hinge. The horn is quite large.

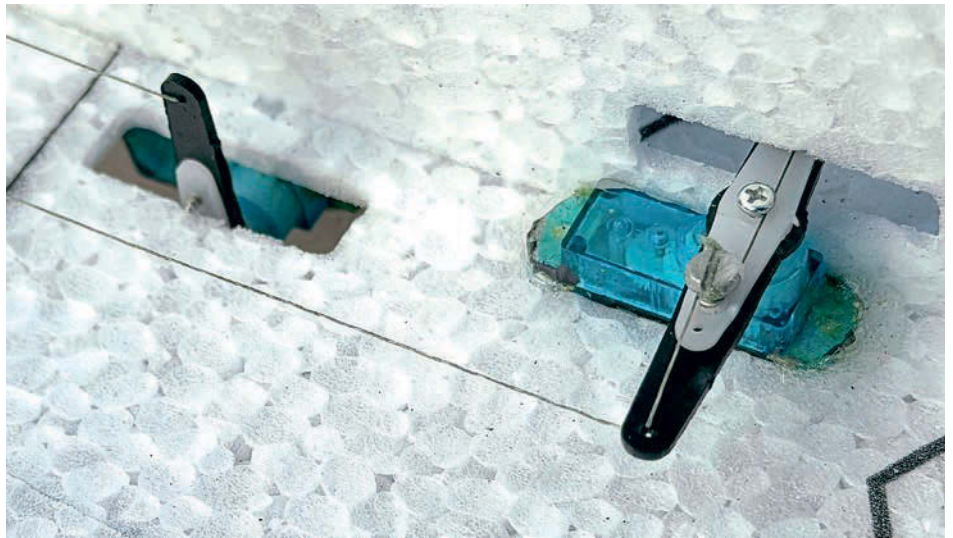
The closed loop control system is neat but quite tricky to fit. I spent several hours on this. The system incorporates a screw in the servo output arm by which the threads can be loosened or tightened. It is recommended to loosen them when the model is not being used. No less than ten diagrams are required for this installation! A continuous thread, long enough to go from one side of the servo arm to the control horn, through several holes, which then returns to the other side of the servo arm, is used. The two ends of the continuous thread are twisted around the screw on the top of the servo arm and then glued into the top of the screw. When the screw is rotated, with a pair of pliers, the threads are slackened or tightened. As shown a crosshead screw is used but I found it extremely difficult to hold the threads across the head of the screw after twisting them around it and then gluing them in position on the top of the screw. The area you are working in is very restricted and having an extra hand would not help. Eventually I replaced the crosshead screws with a slotted head screw and then managed to complete the process.

It's worth checking the compatibility of your motor with the mount before gluing it in place. In my case the holes in the mount matched my motor perfectly. My ancient, but still fully functional 2803/38 brushless motor was fitted along with a T-Motor 8 x 4.4 prop.

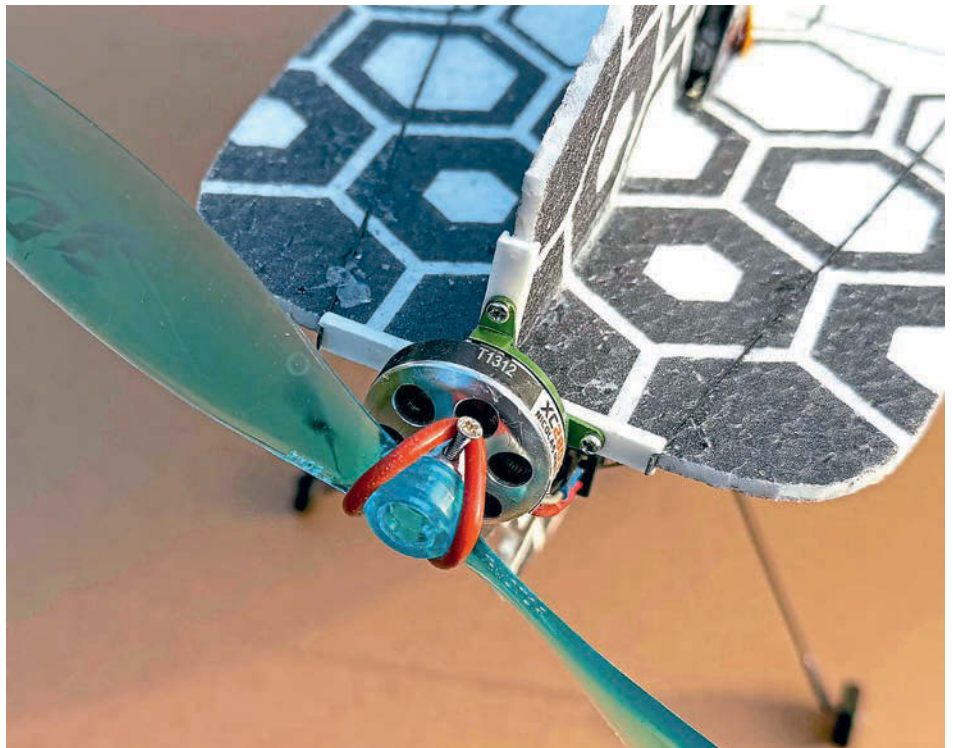
With the wing fences and top and bottom airflow winglets in place the Aerix was virtually ready to fly. The installation of the ESC, receiver and hook & loop strip for retaining the battery completes the job and these can be fitted in whatever position you wish.

TESTING TIMES

I had been watching the weight as I built the model and apart from my luxury of real wheels, I had not really added anything. However, I realised that I was not going to achieve the minimum suggested weight of 100 g. It was therefore no surprise when my completed Aerix weighed in at 127 g. Complete with a 2S 300 mAh LiPo, this put the flying weight to 140 g. This is a quite normal weight for a model of this type unless it has been specifically built for competitive purposes.



Elevator and rudder servos with their extended arms. Note the closed loop tightening screw.



Motor mount is installed after checking the motor fit.

Showing off the Aerix's good looks.



Canalisers are fitted on the top and bottom of the fuselage.

As far as flying goes, tests in the garden showed that the Aerix hovered comfortably at 2/3rds throttle and had plenty more power. With the new indoor season some way off, I headed out into the great outdoors on a calm day for the test flights. I would normally do



As is usual with F3P designs, wing fences are also fitted.

this anyway, even with my tiny 12 g weight indoor models. I flew the Aerix more or less how I would do indoors, keeping it quite close. I very quickly felt comfortable with the handling and once I was happy with the trim, I explored her capabilities.

Rolling into knife edge for another fly-by. Aerix is very happy and comfortable in this position.



DATAFILE

Model:	Aerix
Model type:	F3P indoor aerobatic
Manufacturer:	Hacker Model Production
UK importer:	Model Shop Leeds
	https://www.modelshopleeds.co.uk
RRP:	£79.99
Length:	945 mm (37.2")
Wingspan:	843 mm (33.2")
Weight:	100 g (3.5 oz) target, 127 g (4.48 oz) actual
Rec. Motor:	MFORCE 2812CA-27 (KV1780, 19 g) or T-Motor AM20 (KV1500, 10 g)
Servos:	1 x 5 - 9 g (ailerons), 2 x 4 - 5 g (elevator & rudder)
Functions:	Ailerons, elevator, rudder, throttle

The vertical performance and hovering were very good and very tight loops and inside loops could be flown. Fast and slow rolls were really smooth and the knife edge performance was very easy to hold. I thought that the inverted performance was excellent and I am now really looking forward to flying her indoors. Watch out for an update as soon as the new indoor season starts but I am very confident that my Aerix will be the one to watch.

FINAL THOUGHTS

Unless you are in competitive mode fit the lightest R/C gear you can, but don't get too anxious about the weight. I found the closed loop system quite tricky to install and while pushrods will be heavier, they would be much easier to fit. The spats are a bit fragile and I prefer my undercarriage with its wheels.

My motor is certainly adequate but it is old and well used. I will be fitting a new 10 g T-Motor AM 20, plus the matching 1.1 g 6A ESC. Again, watch for an update in my regular Insider column. ■

Top letter

For his letter this month Derek Latimer wins a compact e455 multi chemistry AC input charger courtesy of Overlander Batteries:
www.overlander.co.uk



WHERE'S PILOTS' PICTORIAL?

I see my Lidl Stuka didn't make the cut into Pilot's pictorial which doesn't seem to be a regular fixture now. That's a shame as I always enjoyed that bit.

Derek Latimer

Don't worry, Derek. Pilots' Pictorial is still a regular. But it's the short features

that get moved over to the next issue first if there's a last-minute surge of advertising. It sometimes happens to our All Write letters pages too!

Indeed, it is likely to happen with PP in this issue. So, if our readers' models picture gallery goes AWOL again, then please don't worry. Just keep an eye out for it in future issues.

And, to all of our readers, please do keep sending us pictures of your latest models!

As a consolation and a thank you for being patient, we've decided to show your Lidl Stuka here (see below), as well as combining both your messages to take the Top Letters prize for this month. KC

STUKA CONVERSION



Just a quick couple of shots of my Lidl Glider conversion coming into land at the DMFC field at Mabie, Dumfries. You can see it flying at:

<https://www.youtube.com/watch?v=aC7zP1VEXiA>

It runs on a 3S 1000 mAh LiPo and is controlled by 4 x 12 g servos. I used bits and pieces I had to hand simply to avoid putting money into a project that initially I had not a lot of confidence in. It's hardly a 'scale' job but is probably recognisable to most readers. The picture is by R. Whiting.

The glue used throughout was Beacon Quick Grip, but the foam used seems very tolerant of solvents used in adhesives, so epoxy, polyester, contact cement and cyano all seem to be compatible.

I removed the wing tip dihedral by cutting out a fine wedge from the underside and gluing it back together with a couple of 'lolly stick' reinforcing

strips. The wing was then cut in half at the centre and each half had a fine wedge cut out from the top surface at the 'gull wing' V position. This was reinforced by two pieces of scrap lite ply. A 50 mm x 150 mm x 20 mm piece of high-density foam was used to re-join the wing halves, again reinforced by scrap lite ply. Finally, a bandage of lightweight glass cloth was PVA'd across the underside of all four central wing joints.

The undercarriage is made from layers of 1 mm ply and foam, glued into the wing. I trimmed the rear of each wing straight and a thin 5 mm strip was glued along the rear of the wing which I was going to use to attach the ailerons. The ailerons were sanded from 5 mm balsa sheet and eventually attached to the wing underside with 'barbed pin' hinges and small lite ply washers, the other half of each hinge being partially sunk into the control surface, thus offsetting the ailerons.

The 37 mm cannons are 'Sharpie' pen caps pushed onto the nib ends, with a piece of BBQ stick protruding from them and scraps of balsa on the end whizzed to shape on my electric drill.

The fuselage was hacked, sawn and carved to shape. I did find that carving leaves a much better finish than sanding. The 'office' was made by ramming a wooden mould into a lemonade bottle and blasting it with a hot air paint stripper gun. The pilot and gunner inside the 'greenhouse' are from Denmark (Lego).

I remain astounded that this plane flew as well as it did. I have another Lidl flyer, more conventionally modified to three axis R/C, which flies very well on a 2S 1000 mAh LiPo. The glider itself is good value but two of them do tie up the thick end of £200 worth of radio gear and motors. Luckily most of mine was 're-purposed'.

Derek Latimer

FMS HAWK



I have just read your article about foam jets (RTFM, July issue) and would just like to say how much you will enjoy the FMS Hawk. I have had mine since release and it is, in my opinion, the nicest, most realistic EDF jet I have flown to date. It has absolutely no flaws and operates from our SRFC grass with no problems. I know - pushing fate!

I am currently working on a new scale twin design and build project which never saw light of day in WW2. If I say it was designed by R.J. Mitchell it should be a clue.

Paul Gladstone

Thank you for your enthusiastic recommendation of the FMS Hawk, Paul. Your comments match others I have heard so I am very much looking forward to flying it. However, sadly, at the time of writing it is not listed in the current FMS line-up on the J. Perkins website. I must have been lucky to have grabbed one of the last in stock!

Best of luck with your Supermarine Type 327. Thank you for the picture of the wing. That will be a very interesting aeroplane and I'm looking forward to seeing the finished model. **KC**

ONE AT A TIME

Yes, I do read your editorials! In the June one you mentioned solo flying. We were talking about this at our club last week. The North Norfolk Aeromodellers allow four aircraft airborne in the circuit at any one time. However, we mostly fly 'solo sorties'. We believe this is a legacy from the Covid era. If you remember, we were advised to keep our distance and fly solo.

There is 'safety in numbers'. We always say that the only time you will have a mid-air is when there are only two aircraft in the circuit.

Ian Nelson

PRO-PLAN PARTS

I subscribe to your magazine and look forward to the postman delivering it every month. I would suggest an additional service would be well received by your readers.

This month's plan of the de Havilland DH.87B (June & July issues) is a magnificent aircraft and one I would be very keen to build. However, there is no way I would search around for all the materials.

I would suggest you cooperate with someone like SLEC before publication and offer a kit for the current month's plan. George at 4-Max always offers the complete electrical set up so why not also be able to offer readers



the option of buying the complete wood and hardware package. I for one would be a buyer for the Hornet Moth!

Clem Parkes

Thank you for your suggestion, Clem. We have a long-standing agreement with Sarik Hobbies, who can choose whether it's viable to produce a laser cut wood pack and other parts for the plans featured in RCM&E. They used to cut parts for all our plans since the agreement took effect, but experience has shown that not all the models sell in volume and if they are not careful, they can spend a lot of time and money producing parts and then have them sitting in their warehouse. Therefore, we leave it to them now to decide which models they think will be worth making laser cut parts available for. I am pleased to say that they have already decided to make a laser cut wood pack and additional wood pack for the Hornet Moth.

Sarik Hobbies also respond well to requests from RCM&E readers to produce parts for particular Pro-Plans so it's well worth contacting them to enquire if they are intending to make parts for any pull-out plan from RCM&E that you may be interested in. **KC**

ZINC CHROMATE LOOK-A-LIKE



With reference to David Ashby's article concerning Brian Cullen's use of a Valspar 'Colour Sample' pot to mimic zinc chromate primer on his Spitfire (Just For Fun, May issue), have a go with the can in the picture. Sold in Halfords, I use it for anything which needs a factory primer look such as gear bays etc. It's a great match.

Ken Rolph



MOULDING SCALE PARTS

Jeff Barringer shows how to make good use of a resin moulding kit to make repeats of scale parts for a variety of models

Words & Photos: **Jeff Barringer**

As a (lazy) scale modeller, I spend a lot of time trying to figure out how to do things as efficiently as possible, often spending more time trying to save time than I would have spent just doing it!

However, when accurate reproduction is required, it can make a lot of sense to create an original object, use it to make a mould and

then turn out as many copies as required. This dilemma originally came to a head when I needed machine gun blisters for my Brian Taylor P-51 Mustang. On later versions of the P-51 there are six blisters and while relatively simple to make by turning down dowel, it occurred to me to create a mould from the wooden original so that all copies would be exactly the same.



P-51 machine gun blister original made from wood alongside a resin copy.



Jeff's Brian Taylor P-51 Mustang has three moulded gun blisters along each of the wing's leading edges.

POLYCAST RESIN KIT

Enter the Polycraft Moulding & Casting Resin Kit - Mini from MB Fibreglass. (I'm sure other makes of kits are available.): <https://www.mbfiberglass.co.uk/polycraft-moulding-casting-resin-kit-mini.html>

The mini kit comprises casting resin, liquid latex, hardeners for both, mixing pots, gloves and mixing sticks, all for £20!

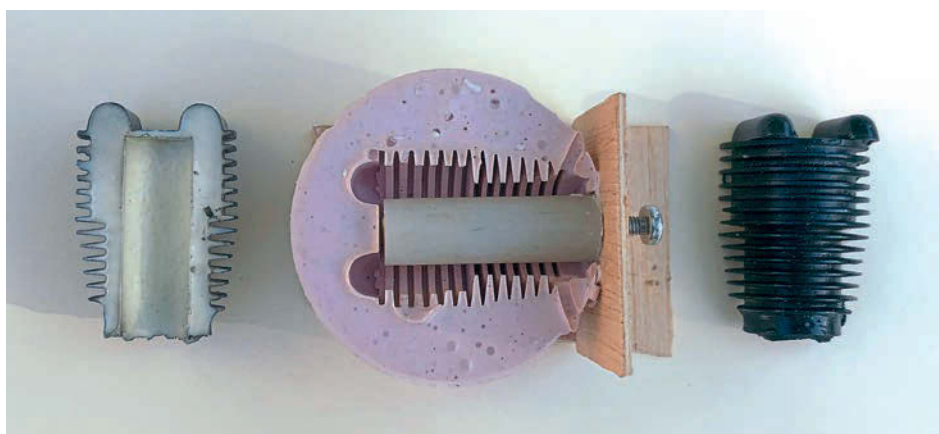
The system is very simple to use. After finding a suitable vessel to contain the latex and support the original piece, the liquid latex is mixed with 10% hardener and poured around the object to be copied. Care must be taken to ensure that removal from the mould is possible, but it is then left overnight to set. The original can be removed by simply prising it from the latex mould.

Copies of the original may then be made by mixing the casting resin and hardener 50:50 and pouring into the mould. But don't waste any time here as the mixture begins to set after couple of minutes and the completed copy may be removed within a half hour. In this way multiple copies can easily be produced in a very short time.

As mentioned above, my first experience was in making gun blisters for my P-51, but I've since used the kit multiple times and still have around 30% of the resin left.



Mustang gun blisters fitted and weathered with cordite smoke.



Mould for a Siemens Radial cylinder and two copies.

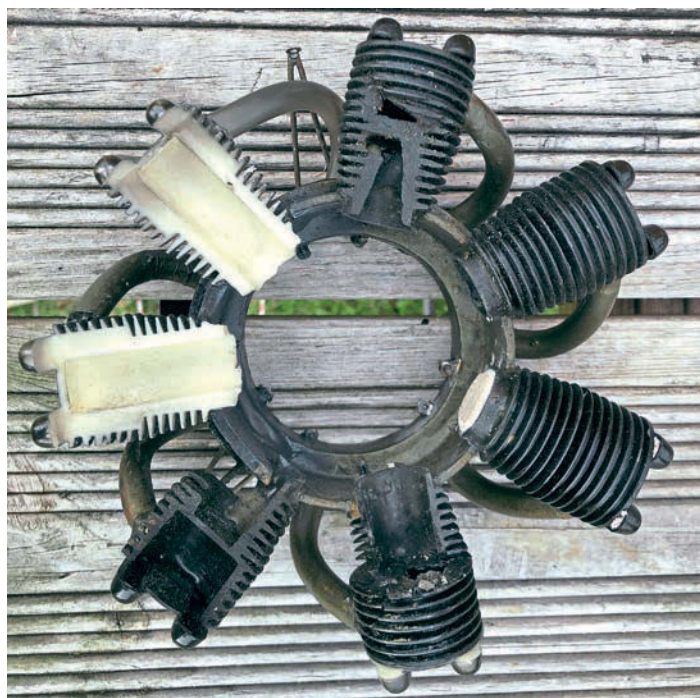
OTHER EXAMPLES

In converting a Jungmeister from IC to electric the original dummy Siemens radial had two cylinders missing due to the need for cooling air over the original IC engine. Looking at the dummy radial, I was able to create a mould from one of the original cylinders and then

reproduce it. I introduced a greased (Vaseline) stick of Acetal in order to keep the centre of each cylinder hollow and reduce the weight of the final casting.

The moulded part is an exact half, so I could produce a complete engine by gluing half-cylinders together in pairs. ✈

"I could produce a complete engine by gluing half cylinders together in pairs"



Two missing cylinders were added to the dummy 7-cylinder radial.



Front view of the dummy radial after the missing cylinders were fitted.



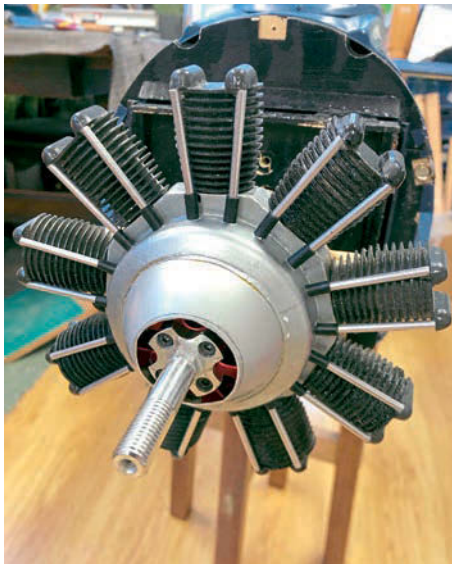
Siemens Radial test fitted to Jeff's Jungmeister.



With the Jungmeister's cowl fitted the dummy radial really looks the part.



Jeff also made a complete 9-cylinder dummy radial for his SBD Dauntless using the same moulding kit.



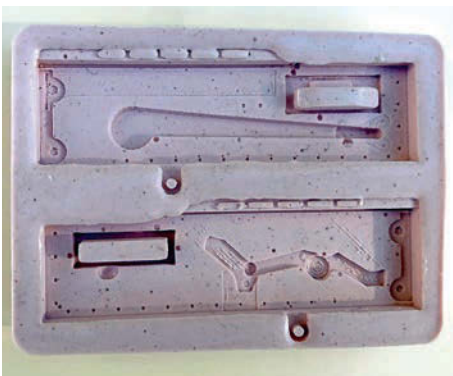
Dauntless dummy radial after fitting over the somewhat smaller diameter electric motor.



With the radial fully cowled and fitted with a dummy variable pitch 3-bladed prop, Jeff's Dauntless nears completion.

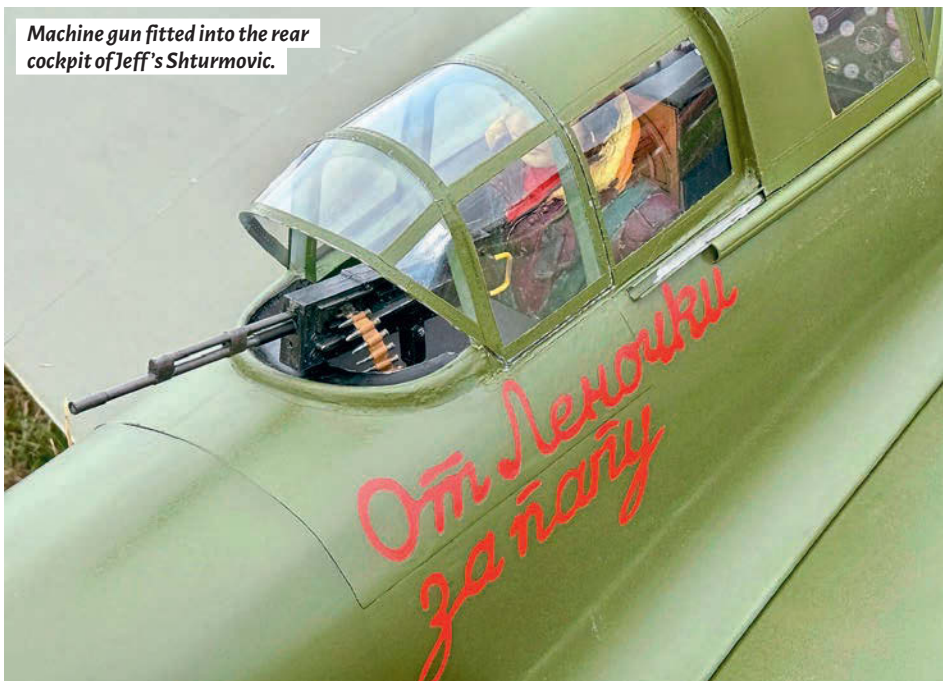
MACHINE GUNS

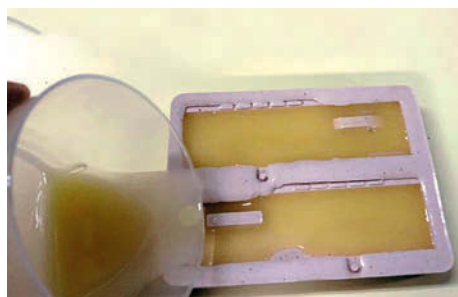
The IL-2 Shturmovik ground attack aircraft was crewed by a pilot and rear gunner/radio operator (often husband and wife teams). Since mine was scratch built, I had to create the machine gun and, luckily, I came across a plastic kit for just such a gun at the correct scale. As I am also building an SBD Dauntless, I knew that I would need three gun mechanisms



Machine gun mould.

Machine gun fitted into the rear cockpit of Jeff's Shturmovik.





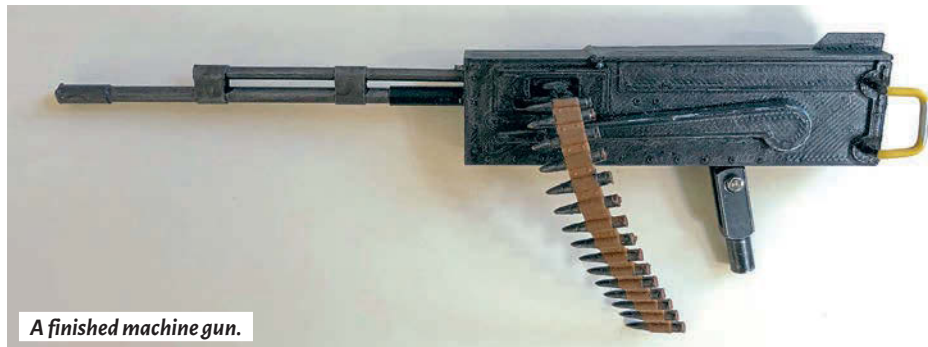
Pouring resin into the mould.



Jeff's moulds have provided him with plenty of 1/6th scale pilot heads and machine gun blisters.



A moulding taken from the head of a popular action figure.



A finished machine gun.

(the Dauntless has a twin machine gun). So, again, I created a mould for each of the two halves and glued the resulting pairs together. Then I added barrels and handles. Nearby pictures show the mould, one gun and the gun mounted in the Shturmovik.

PILOT BUST

Well, that's about it for current copies, apart from one more thing. That popular brand of action figure is one sixth scale and as many of my models are about that size, guess what I do with any left-over resin mix? That's right, I pour

"Nearby pictures show the mould, one gun and the gun mounted in the Shturmovik"

it into my head mould so that I always have a suitable sized head available. ■



Front view of the completed Shturmovik.

Lending scale to the elegant 135-inch span gull-wing glider.



SPERBER JUNIOR

Chris Williams starts the first of two construction articles about his latest two-part Pro-Plan for a 1:4.5 scale classic glider

Words and Photos : **Chris Williams**

The DFS Sperber Junior (Hawk Junior) was a sailplane that was purpose built for the famous German test pilot, Hanna Reitsch. A one-off machine, it disappeared in the aftermath of WWII, so drawings and photographs are all that remain. The prototype has been scaled at 1:4.5 to come out at roughly the same size as my previous Flamingo and Petrel designs. The main deviation from scale lies in the positioning of the spoilers, which otherwise

should be placed right over the gull bend with all the accompanying complications. The gull wing is built in one piece with the first spar fitted initially and the second retrofitted later. Like its predecessors, the Junior is a vice-free, handily sized glider, equally at home on the slope or behind a tug.

FUSELAGE

The fuselage is built in two half-shells, the first side being built flat on the bench and the other

side added afterwards. Commence by pinning the keels to the board, including the short piece to tie the centres of F6 and F7 together. After making up the extra gluing areas on the appropriate formers with 5 mm balsa, cyano (CA) the formers to the keels.

Add the top longeron at the front, cutting through the centre of the longeron at the front where the required bend is at its severest. For the full-length longeron a standard 48" length of spruce strip is a few inches short, so

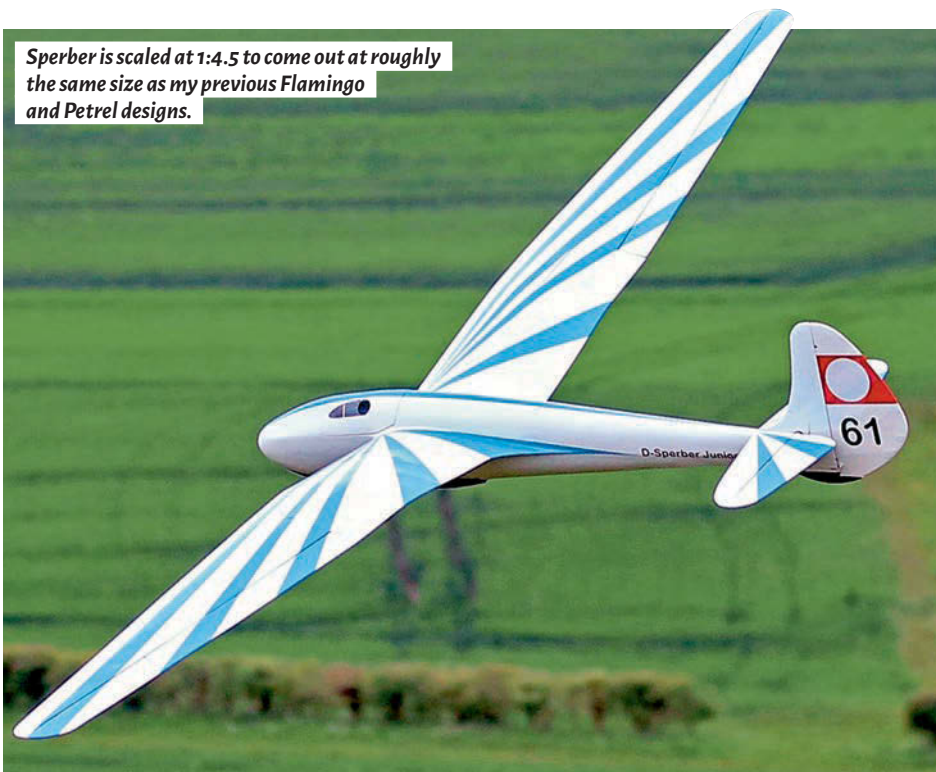
it needs an extra piece added at the end. Once again, saw through the front of the longeron to remove the bending stress over the first four or five formers, putting PVA into the cut to make the bend permanent.

Fill in between the formers from F8 rearwards with 5 mm sq. balsa strip on the top and bottom keels and the main longeron to lock all the formers in place.

Start to add as much of the ply planking as you can, one set of three planks at a time, using PVA. (Three planks are scored out of a suitably sized tapered blank and cracked open slightly to form a curve). Whilst this is going on 5 mm sq. balsa diagonals can be added to the rear to help render the half-shell rigid. Once this has been achieved, the half-shell can be removed from the board and process repeated for the other side, taking care to regularly check that the fuselage remains straight.

When the planking at the front has been completed make up the nose profiles, glue in place and proceed to apply car body filler to obtain a solid nose cone, as well as putting a coat over the planking. A thin, bendy plastic spreader is ideal for the job. This will need to be done in stages as too much application of filler will cause it to sag and require more work

Sperber is scaled at 1:4.5 to come out at roughly the same size as my previous Flamingo and Petrel designs.



Setting up the tailplane mount.

“...the Junior is a vice-free, handily sized glider, equally at home on the slope or behind a tug”

to remove. Also, don't spend too much time perfecting the fit of the planking as it will all be rendered by filler on the outside and fibreglass on the inside. Depending on the ambient temperature, wait until the filler has not quite completely cured and it attack with 40 grit paper, saving 80 grit for the final stages when it has completely cured.



First stage of fuselage construction.



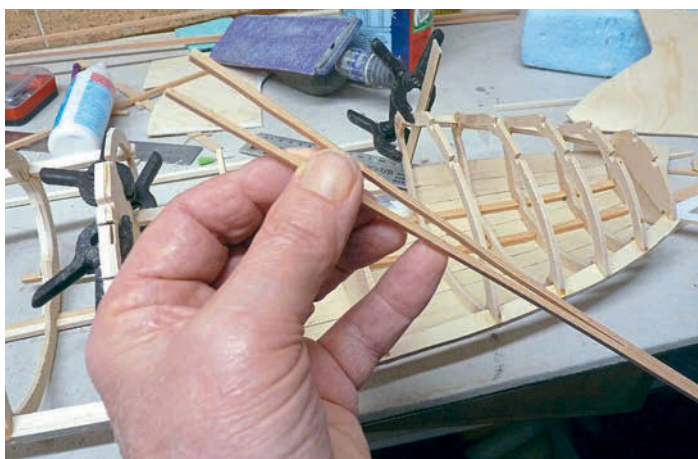
Once enough of the front planking has been added, plus the balsa diagonals at the rear, the half-shell can be removed from the board.



Adding formers to the other side of the fuselage.



It's time to remove the temporary formers before glassing the interior.



A five-millimetre spar, cut down the middle at the front to ease the curve.



Finalising the planking at the front.

“Steam some bends into the front ply sheeting sides to make fitting easier”

CANOPY

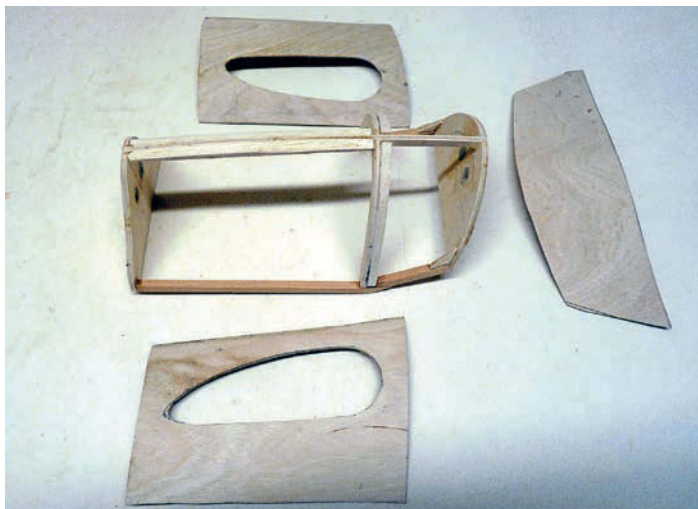
Make up the side frames of the canopy from 5 mm sq. spruce, cut to fit between C1 and C2. When the joints have set, fit C1 and C2 in place and epoxy the side rails to them. Tape over the cockpit aperture at the joints to prevent unwanted glue application.

Once the basic frame is complete, now is the time to add the 8 x 3 mm magnets. Drill out pilot holes through C1 and C2 before opening

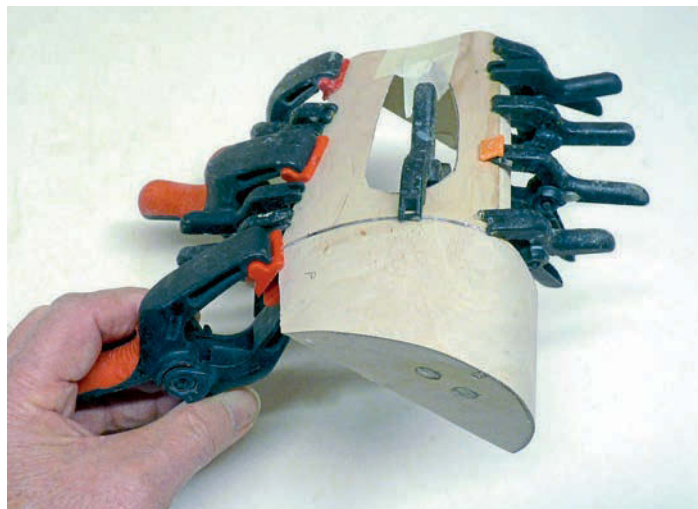
out for the magnets and epoxying them in place. Add the top rail C3 and the former C4, adding 5 mm balsa behind C4 and both sides of the C3 to increase the gluing area.

Add the rear 0.8 mm ply sheeting in one piece. Steam some bends into the front ply sheeting sides to make fitting easier and then fit one at a time.

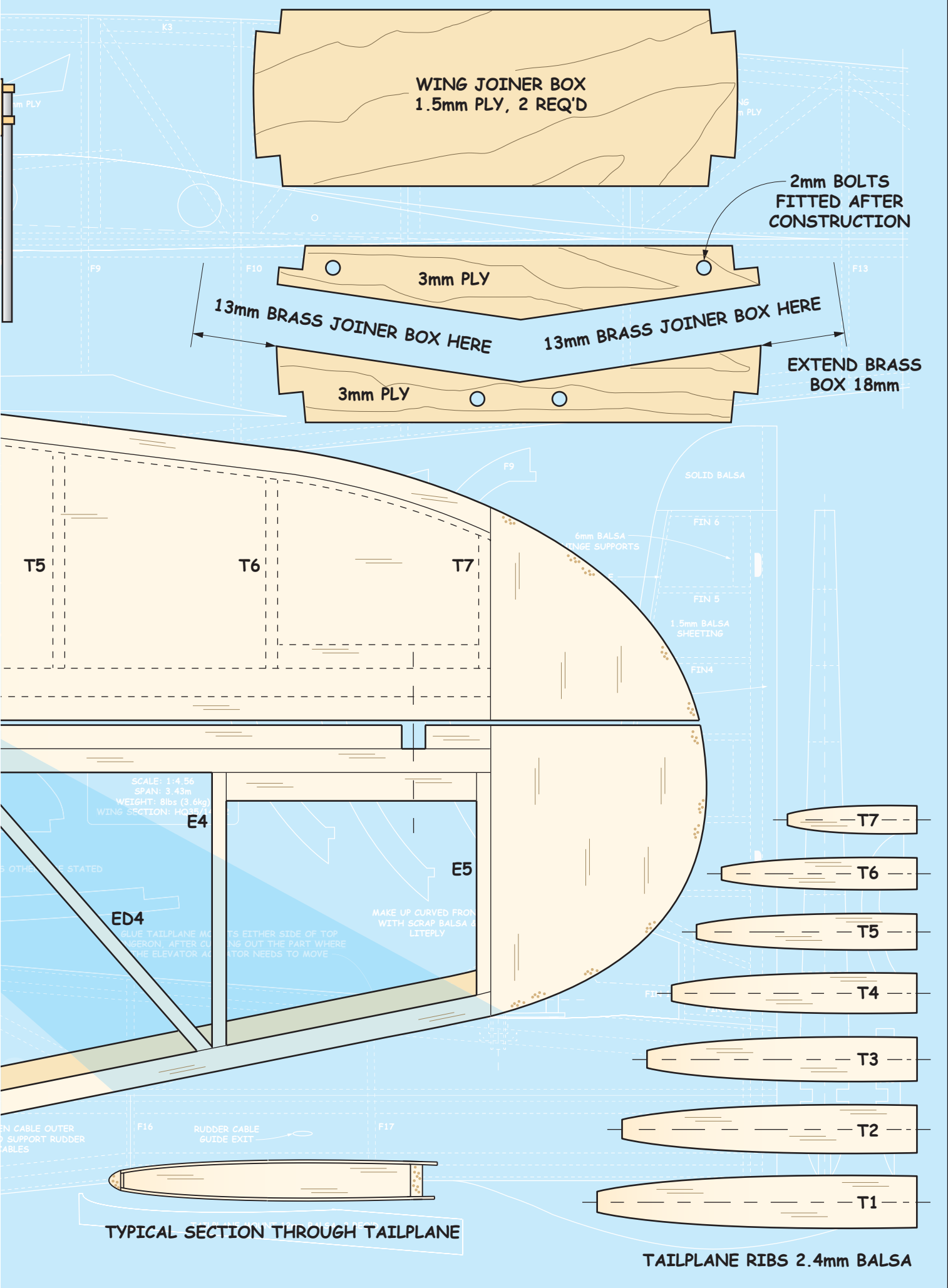
Obtain the final fit between the canopy and fuselage with a skim of filler. ➔



Canopy top and sides, ready to glue together.



PVA is used here, with the canopy parts clamped together until it has dried.



BASIC TAILPLANE CONSTRUCTION

PIN THE 6mm Balsa T.E. UPSIDE DOWN ON THE PLAN, I.E. WITH THE FLAT SIDE DOWN. ADD THE RIBS AND THE FALSE L.E. THEN REMOVE FROM THE PLAN SOLID Balsa CENTRE SECTION BETWEEN THE TWO CENTRE RIBS. ADD THE TOP 1.5mm Balsa S SUPPORTS AND ADD THE BOTTOM SHEETING, WEIGHING IT DOWN TO ENSURE THAT IT IS SEAT SUPPORTS PROPERLY.

BASIC FUSELAGE CONSTRUCTION SEQUENCE

- 1: PIN KEELS TO PLAN & TEMPORARY KEEL BETWEEN
- 2: ADD FORMER HALVES AND 5mm SQ. SPRUCE IN
- 3: START TO BUILD UP 1.5mm PLY PLANKING AT IS ENOUGH TO RENDER THE FRONT SEAM
- 4: FILL-IN BETWEEN FORMERS ON REAR KEEL 5mm SQ. Balsa STRIP FROM F8 REAR & ADD THE 6mm SQ. Balsa DIAGON
- 5: AFTER ADDING ENOUGH PLANKING RIGID, REMOVE IT FROM THE BO & REPEAT PROCESS FOR THE OT

ROUGH TEMPLATE FOR FRONT SECTION

SOLID Balsa TIPS

50mm
PIN HINGES

6mm Balsa BLOCKS
SUPPORT THE HINGES

5mm Balsa L.E.

SKID FROM 8mm Balsa CORE WITH 1.5mm PLY SIDES

T.E. 10mm x 1.5mm SPRUCE LAMINATED
WITH 5mm x 3mm Balsa

MAKE
1.5mm

E5

E4

E3

E2

E1

ED1

ED2

ED3

ED4

ALL ELEVATOR RIBS 3mm Balsa

AND FIT THE
SHEETING
ED IN THE

5mm Balsa L.E.

1.5mm Balsa SHEETING
OVERLAPS TO FORM ELEVATOR
SHROUD

-1.5mm
FALSE L.E.

HOLE FOR
Ø3mm THREADED ROD
LOCATING PIN

SOLID Balsa
CENTRE SECTION

AMINATED
3mm Balsa

HOLE FOR Ø5mm
PLASTIC RETAINING
BOLT

5mm Balsa
FALSE L.E.

MAKE UP 3mm
Balsa DIAGONALS

BUDDER RIBS FROM 3mm HARD Balsa

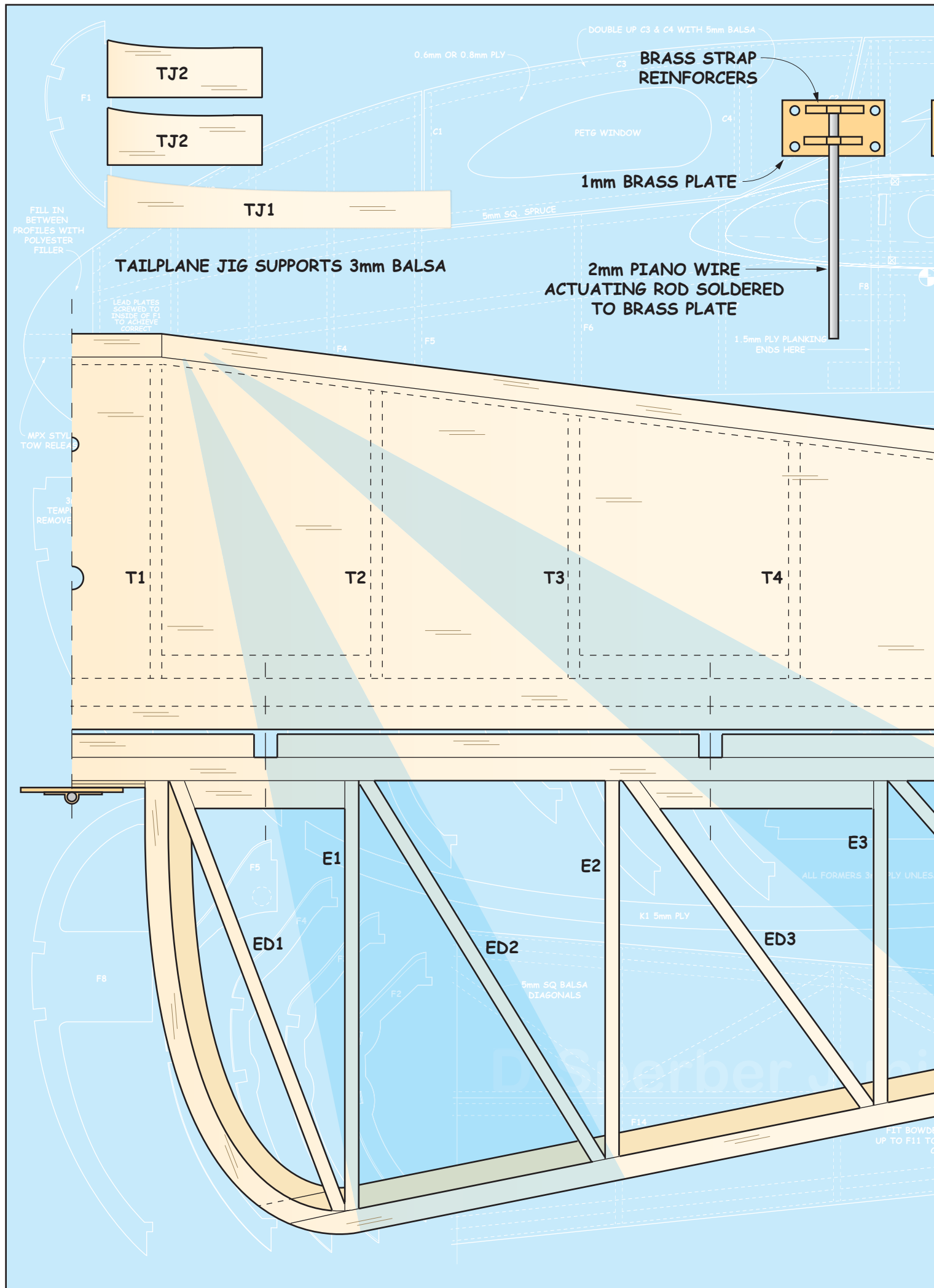
UP WING RIBS
PLY BLANKS TO WING RIBS
AROUND

FILL IN WITH Balsa & PLY

MAKE UP T.E. SPAR F11
FROM 5mm HARD Balsa:
USE RIBS TO MEASURE TAPER.
NOTE: TAILPLANE TAPERS
ON THE LOWER SURFACE &
IS BUILT UPSIDE DOWN

3mm Balsa

1.5mm PLY T.E.





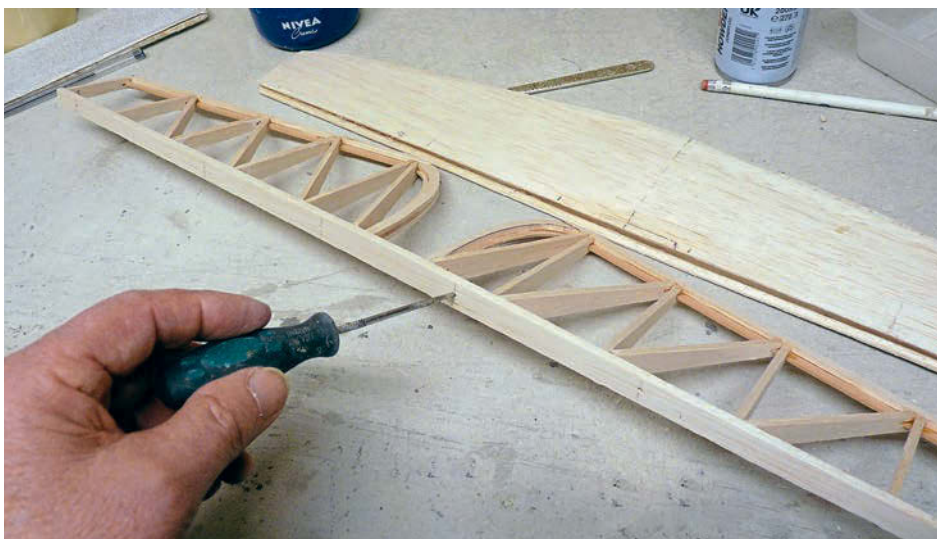
Fuselage front end is completed.

TAILPLANE & ELEVATOR

Tailplane construction commences by pinning the 6 mm balsa TE upside down on the plan, i.e. flat side down. Add the ribs and the false LE, then remove from the plan and fit the solid balsa centre section between the two centre ribs. Add the top 1.5 mm balsa sheeting with PVA, then place upside down onto the jiggling supports and add the bottom sheeting, weighing it down to ensure that it is seated in the supports properly. When the glue has dried, remove from the jigs and add the 6 mm balsa LE.

Make up a slightly oversize false LE for the elevator and hinge it up to the tailplane using medium Robart style hinges. Once hinged, sand the false LE flush with the tailplane, then offer it up to the plan and cyano in place the root and tip elevator ribs and the laminated TE. Repeat for the other side and then carefully eye up the two elevator halves to see that they line up correctly with each other before adding the remaining ribs and diagonals. Now, add the final 5mm balsa LE and cut out for hinges. Once again, sand flush with the tailplane. Remove the elevator and

“...add ply sheeting in separate panels to accommodate the curvature at the top of the fuselage”



Elevator leading edge hinge holes being drilled out to match the tailplane before assembly.



Tailplane completed.

add the 6 mm balsa pieces that will increase the gluing area for the hinges.

At the same time, fill in the TE with balsa at the centre to match the width of the centre LE. Round off the elevator LE, insert the hinges so that the knuckles are inside the false LE and offer up to the tailplane, trimming off where necessary to achieve smooth rotation of the elevator.

Now is the time to fit the rudder and elevator servos in the fuselage and make up the 5 mm carbon tube pushrod. Epoxy the 3 mm threaded rod at the rear end but leave the front end loose for the moment. Fit the 5

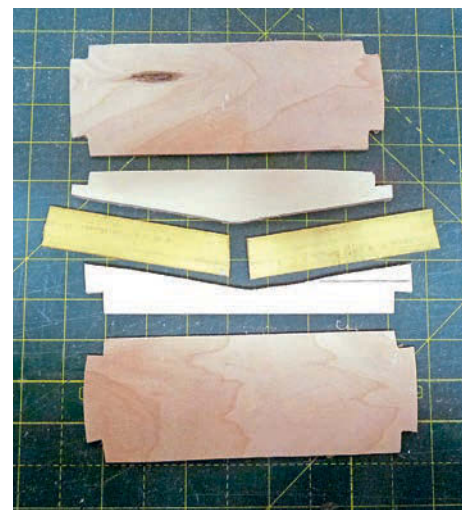
mm threaded captive nut into the rear of the fuselage in order to bolt the tailplane in place with a 5 mm plastic bolt. Make up the actuator rod assembly and screw it to the elevator. Now trap the pushrod at the rear by filling in around it with balsa, checking that at full up-elevator the ball link doesn't come away from the rod.

FUSELAGE CONTINUED

Having doubled up the top of the formers back to F12, add ply sheeting in separate panels in order to accommodate the curvature at the top of the fuselage. Now add the top rear sheeting in one piece, making up a card template first



Finalising the tailplane mount before sheeting.



Component parts of the wing joiner box for the fuselage.



The fin post slots in between the ply side sheets.



Underside view of the elevator pushrod with its ball-link connector.



Rear turtle decking is formed from separate sheets to accommodate the compound curve.

to negotiate the shape and then steaming some curve into the ply.

Make up the wing joiner box, noting that the sheeting at F8-9 only comes down to the upper longeron to allow access for the later fitting of the joiner box. Once satisfied with the fitting

of the elevator pushrod apply the rear lower ply sheeting in two pieces, after first inserting lengths of Bowden cable outer to act as guides for the rudder cables. Make up the fin and rudder assembly next, before epoxying the fin in place on the fuselage.

DATAFILE

Name:	DFS Sperber Junior
Model type:	Mid 1930s scale glider
Designed by:	Chris Williams
Scale:	1:4.5
Wingspan:	3.43 m (135 in)
Wing section:	HQ35/14-12
Weight:	3.6 kg (4 lbs)
Functions:	Rudder, elevator, ailerons, spoilers, tow release

Once you have done this, you can make up the fin/tailplane fairing. This is basically just a framework to support the ply, the final shape being achieved with, once again, the use of filler.

NEXT TIME

Join Chris in the September issue as he builds the Sperber's distinctive gull wings and prepares the model for its maiden flight.

A full set of build photographs and parts PDFs is available FOC from the designer: c_williams30@sky.com ■



Be sure to catch up with Chris in the September issue as he finishes the model for its maiden tow and slope flights. We will also be presenting wing plans for the Sperber in the next issue.

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PPL-60C2S-1000	60C/120C, 2S (7.4V) 1000mAh	£9.25
PPL-60C2S-1300	60C/120C, 2S (7.4V) 1300mAh	£11.00
PPL-40C2S-1800	40C/80C, 2S (7.4V) 1800mAh	£14.50
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
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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
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4-Max	4M-037AH-0045	Sub Micro	3.7g	0.45Kg @ 4.8V - 0.10sec/60° 0.55Kg @ 6.0V - 0.08sec/60°	Analog, Light Weight, High Speed	1pcs £6.84ea 5pcs £6.16ea
4-Max	4M-045DH-005	Sub Micro	4.5g	0.5Kg @ 4.8V - 0.10sec/60° 0.6Kg @ 6.0V - 0.08sec/60°	Digital, Light Weight, High Speed	1pcs £4.72ea 5pcs £4.25ea
EMAX	ES9051	Sub Micro	4.1g	0.8Kg @ 4.8V - 0.09sec/60°	Digital, High Torque, High Speed	1pcs £7.69ea 5pcs £6.92ea
4-Max	4M-056DHVMG-009	Sub Micro	5.6g	0.90Kg @ 4.8V - 0.14sec/60° 1.05Kg @ 6.0V - 0.12sec/60° 1.20Kg @ 7.4V - 0.10sec/60°	Digital, High Voltage, Metal Geared, 8mm Thick	1pcs £9.94ea 5pcs £8.95ea
New	4-Max	4M-053HVDMG-010	Sub Micro	1.0Kg @ 4.8V - 0.09sec/60° 1.5Kg @ 6.0V - 0.08sec/60° 1.8Kg @ 7.4V - 0.07sec/60°	Digital, High Voltage, Metal Geared, 8mm Thick, High Speed	1pcs £11.10ea 5pcs £9.99ea
EMAX	ES9052MD	Sub Micro	5.5g	1.1Kg @ 4.8V - 0.11sec/60° 1.3Kg @ 6.0V - 0.09sec/60°	Digital, Metal Geared, Coreless Motor	1pcs £13.83ea 5pcs £12.45ea
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4-Max	4M-100AMG-022	Micro	10g	2.2Kg @ 4.8V - 0.12sec/60° 2.5Kg @ 6.0V - 0.10sec/60°	Analog, Metal Geared, High Torque	1pcs £7.49ea 5pcs £6.74ea
4-Max	4M-100DMG-022	Micro	10g	2.2Kg @ 4.8V - 0.12sec/60° 2.5Kg @ 6.0V - 0.10sec/60°	Digital, Metal Geared, High Torque	1pcs £9.05ea 5pcs £8.15ea
New	4-Max	4M-125HVDMG-028	Micro	2.8Kg.cm @ 4.8V - 0.144sec/60° 3.4Kg.cm @ 6.0V - 0.111sec/60° 4.5Kg.cm @ 7.4V - 0.105sec/60°	Digital, High Voltage, Metal Geared, High Speed, Dual Ball Raced	1pcs £12.21ea 5pcs £10.99ea
New	4-Max	4M-130HVDMG-040	Micro	3.8Kg.cm @ 5.0V - 0.112sec/60° 4.0Kg.cm @ 6.0V - 0.096sec/60° 4.5Kg.cm @ 7.4V - 0.083sec/60°	Digital, High Voltage, Metal Geared, High Speed, High Torque, Very Low Play in Gears	1pcs £11.10ea 5pcs £8.15ea
4-Max	4M-094DHVMG-026	Mini	9.4g	2.0Kg @ 6.0V - 0.09sec/60° 2.6Kg @ 7.4V - 0.07sec/60°	Digital, High Voltage, Metal Geared, Ball Raced, 8mm Thick	1pcs £14.99ea 5pcs £14.17ea
4-Max	4M-160AH-027	Mini	16g	2.7Kg @ 4.8V - 0.13sec/60° 3.0Kg @ 6.0V - 0.11sec/60°	Analog, Great Value Mini Servo	1pcs £6.29ea 5pcs £5.66ea
4-Max	4M-175AMG-030	Mini	17.5g	3.0Kg @ 4.8V - 0.13sec/60° 3.5Kg @ 6.0V - 0.11sec/60°	Analog, Metal Geared	1pcs £8.73ea 5pcs £7.86ea
4-Max	4M-175DMG-030	Mini	17.5g	3.0Kg @ 4.8V - 0.13sec/60° 3.5Kg @ 6.0V - 0.11sec/60°	Digital, Metal Geared	1pcs £9.99ea 5pcs £8.99ea
New	4-Max	4M-183HVDMG-044	Mini	4.4Kg @ 4.8V - 0.101sec/60° 6.5Kg @ 6.0V - 0.078sec/60° 7.3Kg @ 7.4V - 0.059sec/60°	Digital, High Voltage, Metal Geared, High Speed, High Torque	1pcs £14.99ea 5pcs £13.49ea
4-Max	4M-253AB-028	Standard/Mini	25.3g	2.8Kg @ 4.8V - 0.12sec/60° 3.3Kg @ 6.0V - 0.10sec/60°	Analog, Ball raced	1pcs £6.79ea 5pcs £6.11ea
EMAX	ES3004	Mini	17g	3.0Kg @ 4.8V - 0.15sec/60° 3.5Kg @ 6.0V - 0.13sec/60°	Analog, Metal Geared, Ball Raced	1pcs £12.09ea 5pcs £10.88ea
EMAX	ES3054	Mini	17g	3.0Kg @ 4.8V - 0.15sec/60° 3.5Kg @ 6.0V - 0.13sec/60°	Digital, Metal Geared, Ball Raced	1pcs £17.59ea 5pcs £15.83ea
4-Max	4M-455AH-033	Standard	45.5g	3.3Kg @ 4.8V - 0.15sec/60° 4.0Kg @ 6.0V - 0.12sec/60°	Analog, Great Value Standard Servo	1pcs £6.99ea 5pcs £6.29ea
EMAX	ES3001	Standard	37g	3.5Kg @ 4.8V - 0.17sec/60° 4.8Kg @ 6.0V - 0.14sec/60°	Analog, Ball Raced	1pcs £7.69ea 5pcs £6.92ea
4-Max	4M-410ABH-052	Standard	41g	5.2Kg @ 4.8V - 0.20sec/60° 6.5Kg @ 6.0V - 0.16sec/60°	Analog, High Torque	1pcs £4.73ea 5pcs £4.26ea
4-Max	4M-556AMG-087	Standard	55.6g	8.7Kg @ 4.8V - 0.15sec/60° 9.4Kg @ 6.0V - 0.13sec/60°	Analog, Metal Geared	1pcs £12.59ea 5pcs £11.33ea
4-Max	4M-556DMG-087	Standard	55.6g	8.7Kg @ 4.8V - 0.15sec/60° 9.4Kg @ 6.0V - 0.13sec/60°	Digital, Metal Geared	1pcs £15.74ea 5pcs £14.17ea
New	4-Max	4M-490AMG-108	Standard	10.8Kg @ 4.8V - 0.13sec/60° 13.8Kg @ 6.0V - 0.11sec/60°	Analog, Metal Geared, Waterproof	1pcs £17.76ea 5pcs £15.98ea
4-Max	4M-620DHVMG-112	Standard	62g	9.35Kg @ 6.0V - 0.15sec/60° 11.2Kg @ 7.4V - 0.13sec/60°	Digital, High Voltage, Metal Geared, Dual Ball Raced	1pcs £18.89ea 5pcs £17.00ea
EMAX	ES3005	Standard	42g	10Kg @ 4.8V - 0.16sec/60° 12Kg @ 6.0V - 0.14sec/60°	Analog, Ball Raced, Waterproof	1pcs £27.49ea 5pcs £24.74ea
4-Max	4M-556AMG-118	Standard	55.6g	11.8Kg @ 4.8V - 0.20sec/60° 13.2Kg @ 6.0V - 0.18sec/60°	Analog, Metal Geared	1pcs £14.69ea 5pcs £13.22ea
4-Max	4M-556DMG-173	Standard	55.6g	17.3Kg @ 4.8V - 0.18sec/60° 20.4Kg @ 6.0V - 0.16sec/60°	Digital, Metal Geared	1pcs £17.84ea 5pcs £16.06ea

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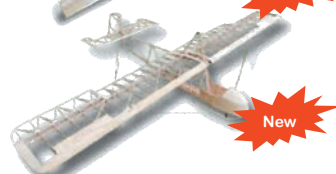


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Luke Oliver and Joe Hampson
flew a duo slot with a pair of quarter scale
Hangar 9 T-45 Hawks. Not sure which one this is!

PREMIUM POPHAM

Mike Freeman visits his first big model show of the 2026 season

Words & Photos: **Mike Freeman**

I always look forward to the Popham Model Show. The anticipation of a brand-new display season along with the friendly atmosphere and intimate surroundings at Popham are an exciting combination. The 2026 show was over the weekend of 9th and 10th May so with my camera gear dusted off and batteries fully charged I headed along the A303.

The show's Flightline Directors, Dave Franks and Pete Bennett, along with commentators Brett Houghton and Robert Ward, were back for another year so I knew we were in for an exciting and informative day of flying. There was also a bumper selection of traders and other activities to enjoy.

Popham 2026 did not disappoint! Here's just a taste...



The combination of stunning models, a packed trade avenue and near perfect weather brought the crowds in their droves to the 2026 Popham Model Show. The pits extended the whole length of the flight line. Here is just a small section.



Dynamic Duo, Dave Franks and Pete Bennett were the Flightline Directors. They made sure we had a continuous and entertaining turnover of flying slots. Well done, chaps!

FIRST TIMERS

It's great to meet up with the regular display pilots after the winter break and find out what they have in store for us for the new season. But it's also good to see new faces, some of whom were displaying at Popham for the first time.

The youngest 'First Timers' this year were 7-year-old Ruby Hampson and 9-year-old Teddy Williams. Both are part of the AZ Aerosports Junior Display Team, a brilliant initiative to get youngsters involved in this fabulous hobby of ours. They shared a slot, with Ruby flying her Pilot-RC 67" Skywolf via a buddy box with



Ruby and Teddy in the pilot box doing their stuff. Ruby is still training so was buddy box connected with her brother Joe, who is himself an accomplished display pilot. Teddy already has his 'B' certificate and had proud dad Dan spotting for him.



It's great to see youngsters getting involved with R/C. Here are Ruby Hampson (age 7) and Teddy Williams (age 9) before their first Popham shared display. Ruby was flying her Pilot-RC 67" Skywolf and Teddy his 3D Pilot-RC Slick 67.



Luke Oliver's 2.5 m span, Kingtech K240 G5 turbine powered Tomahawk Integral produced a lovely 'Blue Note' in flight.



Luke also flew his YAK110 with its twin GP76 twin engines each swinging a 25 x 9 prop and single Jet Italia turbine. The combination of these three power sources produced an eerily futuristic sound at various stages in his display.

brother and established display pilot Joe as her trainer. Teddy flew his Pilot-RC Slick 67 with proud dad Danny acting as his spotter. Dan told me Teddy is teaching him to fly and he has already helped him achieve his 'A'.

Other models, new to Popham this year, can be seen in the photos dotted around. The captions give the details.

3D SOUND

There was the usual array of 3D models on show again this year, including both prop and vectored thrust turbine models. These are mesmerising to watch and static photos don't really do the piloting skill involved justice. So, I've changed dimensional emphasis this year! Three models produced

unique sounds with an added dimension whilst being displayed.

Luke Oliver's 2.5 metre span Tomahawk Integral had a lovely 'Blue Note' tone as it flew past. Luke told me the sound is most likely generated by a combination of the gas turbine, the air intakes and nose leg opening causing a resonance in the airframe.



The Doppler effect from the Moki 250 cc 5-cylinder radial engine in Jon Horne's 1/3rd scale YAK11 during a high-speed pass sounded awesome!



Steve Carr had a 60% scale version of himself 3D printed by ScaleMeDown to adorn his 60% scale Vickers 22 Monoplane.





Leon Nichols' Bush Cub had an underslung smoke canister ignited by a MenaceRC PyroTRIGGER in flight. Simple and cheap, but an effective smoke system for club flyers. The smoke canister is simply clipped into a 3D printed bracket mounted underneath the fuz.

Luke was also flying his YAK 110 (two YAK 55's joined together—you do the maths!) which has the already lovely resonance of a twin with the added squeal of the turbine drifting in whilst doing energy sapping manoeuvres, producing an eerily futuristic sound.

PASS OF THE DAY

There's always one fly-past at a model show that makes me go 'WOW!' as I'm panning my camera down the flight line. This year's 'Pass of the Day' was Jon Horne's YAK 11 in Ukrainian Air Force livery. The combination of Jon's Farnborough Pass against the backdrop of trees and the authoritative growl of the Moki 250 cc five-cylinder radial as it flew past was just superb!

PILOTS

I think there should be a law that says scale models should have a pilot 'in the office', especially open cockpit models. There were two piloting personnel this year that caught my eye. Steve Carr's 'Mini Me' in his half scale Vickers 22 and the iconic Miss Piggy in Alan Page's 1/3rd scale SIG Spacewalker.

SMOKE ON - GO!

Most turbine jets and a lot of prop driven models have smoke systems fitted to



Miss Piggy was spotted piloting Alan Page's 1/3rd scale SIG Spacewalker. The Magnum 5-cylinder radial compliments the model really well.



Smoke adds drama during a display. Here's Adam Broomhead's 44% Pitts Challenger on a knife edge pass with a PowerBox Smoke Pump producing the white stuff.

enhance the spectacle of the display and very effective they are too. These rather complicated features usually combine pumps and fuel tanks which are expensive,

take up a lot of space and can be quite messy if not set up correctly. One model at the show had a relatively cheap 'n' cheerful solution with a solid fuel smoke canister →



Jon Horne likes a YAK! Here's his 1/3rd scale YAK 52 with Moki 250 cc 5-cylinder radial power leaving a plume of smoke. The undercarriage hasn't stuck; this is the 'wheels up' position of the full size. Look out for this model in a future Model Magic feature.



Members of Basingstoke Model Flying Club were back for another Foamboard combat slot, this time with a flock of Angry Birds and a Flying Pig!

slung underneath. The smoke was switched on by an electronic match triggered by a Menace RC Pyro TRIGGER plugged into a spare channel.

COMBAT CAPERS

There were several Combat Slots throughout the day with multiple models flying at the same time. Some had trailing streamers attached to chase and cut whilst others were out 'n' out 'Destruction Derbys' where total model annihilation was the sole intent!

OTHER HIGHLIGHTS

The flight line saw a constant turnover of lovely models flown beautifully by the talented display pilots. This, along with the Trade Avenue, was the main attraction for most of the visitors, but there was a lot more going on at Popham. Dotted around is a flavour of what was on show. Appetites were well catered for too with a good array of food outlets.



Each Angry Bird had a trailing streamer for others to attack. This one seems to have achieved a comprehensive kill!



Sometimes the Panic combat got a bit too close for comfort. But airframe damage was minimal - this time!



Members of the Oxford Panic Display Team flew a combat slot with their Avicraft/Perkins Panics, typically powered by .72 to .91 size two-strokes. They've been displaying together for over 30 years.



Popham's flightline had a constant queue of models waiting for their slot. As soon as one slot had finished the next was ready to take to the air.



Paul Privett's halfscale 4.2 m span CARF Fly Baby flew with its Fiala 210 cc engine providing plenty of authority for some lovely scale aerobatics. Paul last displayed at Popham when it was a club event seven years ago. He was surprised at how much the show had grown since then.



Several helicopters were displaying again this year. Kevin Knight's 1/8th scale McDonnell Douglas MD500E looked particularly nice against the Popham backdrop in its St. Louis County Police Dept. Metro Air Support livery. A 5000 mAh 6S battery pack swings a one-metre diameter rotor giving around 5 - 8 minutes flight time.



Neil Garnett's CARF J-10 looked fabulous on a high-speed beat along the strip. Powered by a Jets Munt M222NG turbine the 1.5 m span and 2.6 m long model has a flying weight of 15 kg, 5 kg of which is fuel.



Keith Barnes' Skip Models Pitts Challenger climbs out powered by a DLE 120 cc twin engine plus 28 x 10 Falcon prop.



Keith Barnes' 1/3rd scale Sopwith Pup with Zenoah 38 plus Tony Clark Reduction Unit looked and sounded lovely as it took to the air. But it really needs a pilot in that open 'office'.



Other activities at the show included the Drift Circuit with multiple cars and trucks side slipping around the track.



Here youngsters 5-year-old Harrison and 7-year-old Imogen are enjoying a go on the sticks. Poor Dad and Grandad, standing behind, didn't get a look in!



The little bod in Bert Baker's Fokker D7 from the Balsa USA kit adds a finishing touch to the model, don't you think?



Portsmouth and District Model Boat Club were back with their pop-up boating lake.



Plenty of second-hand models for sale in the Swapmeet pen.

FINAL ANALYSIS

Popham 2026 was easily the largest and best Popham Model Show so far. The organisers have really got the mix of models, talented pilots and other attractions spot on, making for a very enjoyable day for the whole family and setting a high bar for the rest of the 2026 model shows.

I certainly enjoyed it! ■

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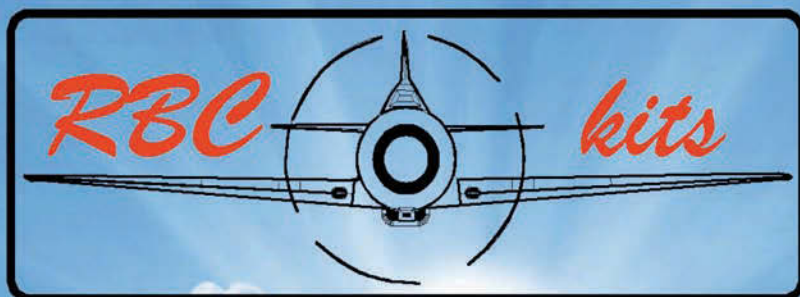
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DOWNSIZING

Chris Williams boots up his PC to scale down another of his large scale glider designs

Words & Photos : **Chris Williams**

One of the pitfalls in drawing up glider plans in CAD is the danger of becoming lazy. Instead of drawing up something new from scratch, it is far less irksome to simply scale up or down an existing drawing and build something again, but at a different size. (There are upsides, too. It was by this process that I discovered my new favourite scale of 1:4.5,

which has given me what I consider to be the ultimate versions of the Petrel and the Flamingo.)

Thus, it was that one day, whilst loitering in the hangar, that my eye fell on the 1/6th scale Skylark 3, a model whose flight characteristics far exceed that which should be possible for a model of this size. The die was cast so it was up to the office, fire up the PC and animate the mouse!

Construction pretty much followed the original, with the fuselage built in two halves and the full-scale three-piece wing. Once again, thanks to extreme length of the hillside grass we seem to get in the summer these days, top surface spoilers were fitted to avoid the nightmare of lower surface airbrake blades being ripped off before Terra Firma reintegration can take place.



Bicycle Bill (Bill Ebdon) gives scale when launching the 1:4.5 scale Skylark 3.



Lining up the outer wing panel accurately.



Getting towards the finish, the Skylark airframe awaits its ailerons.

“...old photos of wooden gliders being built or repaired clearly show the use of filler, so I don’t want the Scale Police to start clutching their pearls”

Landings need plenty of concentration at the best of times, without the addition of last-second brake closure to complicate things.

On that subject, you might wonder what the best procedure might be for those models still fitted with top and bottom brakes. My solution is to program them to open halfway only, in the hope that being partially inside the wing aperture they will be more protected from the clutches of the hillside greenery.

THREE INTO ONE

There are challenges, too, with a three-piece wing, one being that of lining up three separate wings into a unified whole, all with the same angle of attack. The procedure I have adopted proceeds thus:

Assuming that all three wing parts have been built entirely flat, that it to say without any twist, one panel is offered up to the centre section via the wing joiner blade and a suspicious eye cast over the proceedings to ensure that the holes for the incidence pegs do actually line up. Once satisfied, the brass tubing is glued into the centre section first, then the outer wing panel offered up with the brass tube in place but as yet unglued. This now allows for any last-minute adjustments, up or down, for the tube to achieve perfection, this being the neat lining up of the two trailing edges, easily realised by clamping them together.

Covering once again was achieved with heat shrink film, with yours truly becoming quite a dab hand at this process now. ✈

On her maiden flight behind Smallpiece's tug.





Skylark tastes the slope for the first time.

(He said, modestly.) The colour scheme is Slingsby generic, with inspiration from a couple of full-size examples. At this scale the model still seems fairly large, from an

OAP's perspective, spanning four metres and weighing in at 9 lbs. (4 kg.).

First flights behind Smallpiece's trusty Cub showed pretty much the same

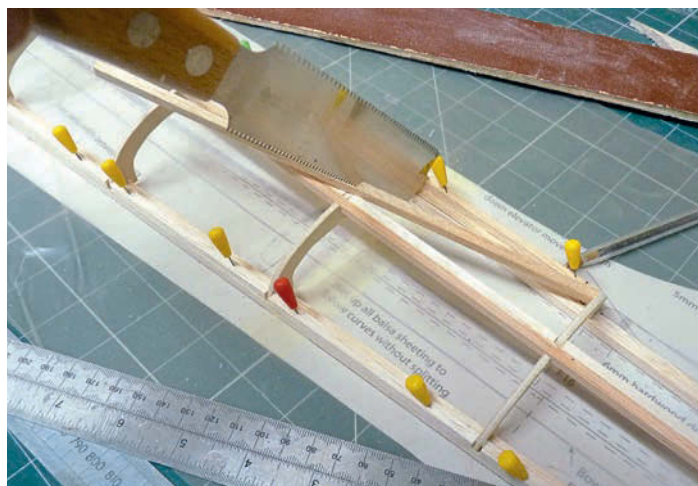
characteristics as the smaller version writ large, and one occasion for hill-testing, albeit in rather gusty conditions, showed similar promise.



View of the Wiltshire countryside from aboard the Skylark.



Smoothing the fuselage/pylon junction with a custom ply spreader.



Shogunin flush cut saw comes into its own.

WORKBENCH WIGGLES

When it comes to smoothing out shapes on a fuselage it is usually necessary to reach for the filler. Two-part polyester filler has been around since way back in the last century. Indeed, old photos of wooden gliders being built or repaired clearly show the use of filler, so I don't want the Scale Police to start clutching their pearls. Most commercial filler applicators consist of a stiff, rectangular piece of plastic which is okay for most jobs, but for our applications there are better alternatives. One such is 1/32" ply, the flexibility of which will improve the application process immeasurably and thus cut down on the elbow grease required to sand it down. When it comes to tight radius curves though, such as the underside of a wing to fuselage fairing,

then the Mk. 1 forefinger has little in the way of equal.

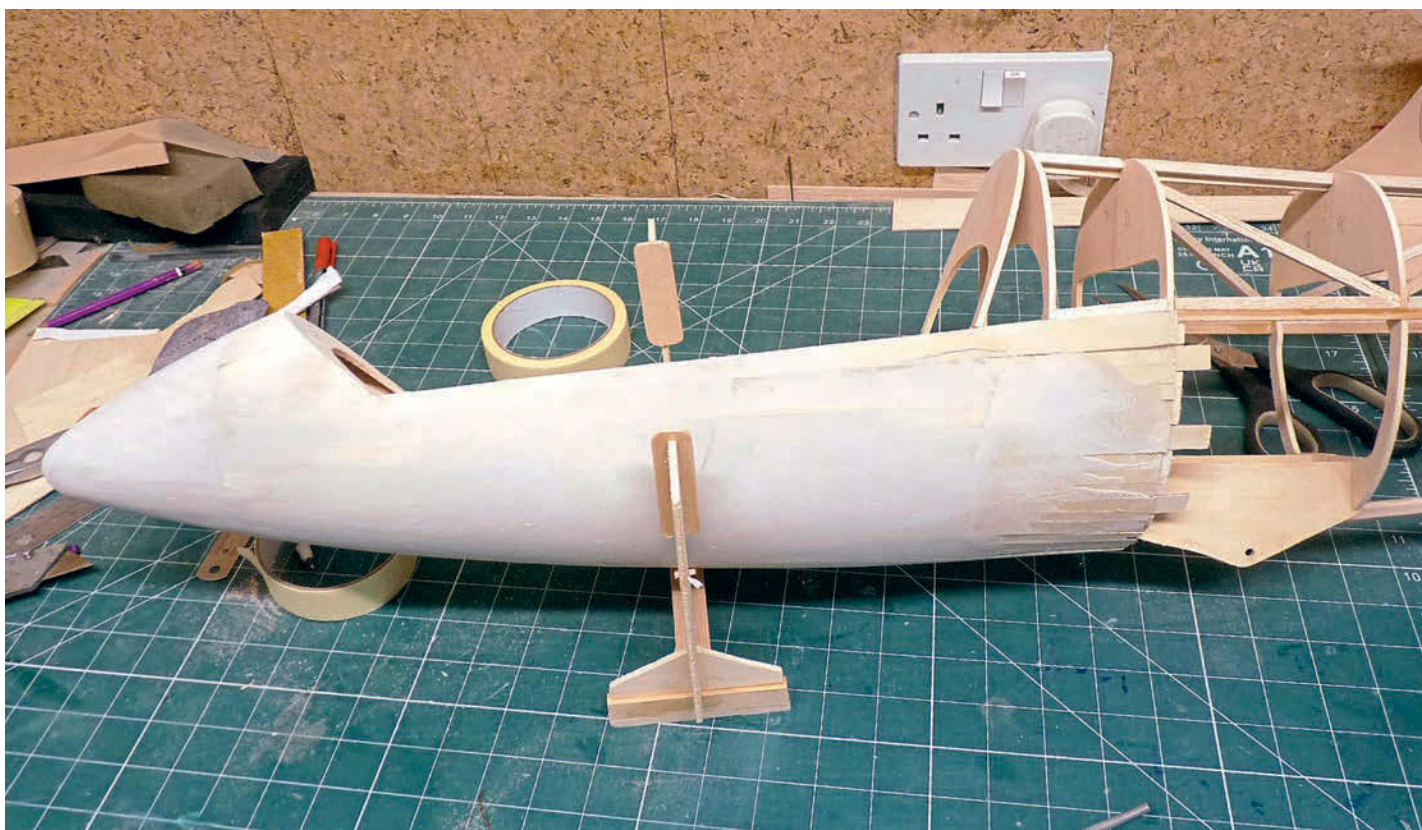
I mentioned sometime back the Shogunin flush cut saw and another use for it has come into sight. Fitting diagonal supports to the rear of a fuselage used to be a bit of a convoluted business, what with all of the complicated angles that have to be cut, and many a balsa strip has been discarded when it came up too short. Thanks to the saw's thin profile, it is now a doddle to offer up the strip in the appropriate place and make an accurate cut with the saw, with a very good chance that it might actually fit!

FILLING THE BIG GAP

One of the trickier aspects of fitting the tailplane to a full-size fuselage lies in the

“At this scale the model still seems fairly large, from an OAP's perspective, spanning four metres”

fact that there needs to be a fairly large gap at the bottom of the fin in order to allow for the coupling up of the elevator to the control stick cables. The same applies to our 



Less elbow grease is required for smoothing.



The 1/32" ply conforms well to the shape of the fuselage.

models too, so how can we make up a fairing to cover the gap?

The problems might seem daunting; it has to fit snugly around the leading edge of the fin; there must be a gap big enough to allow for up movement of the elevator; there are often

compound curves involved; and finally, you don't want it falling off...

The first, and easiest part is to offer up some 3 mm lite ply to the bottom of the fin aperture, draw around it and cut it out. Now for the base. My preferred plan is to

wrap some thin card around the fin and draw around it onto some lite ply laid on the tailplane and then cut out again. Now a lower base can be made, which is extended to cover more of the tailplane and, hopefully, the tailplane retaining bolt, whilst leaving a gap for the elevator movement. The next step is to join all three pieces by making up a vertical central lite ply spacer that will hold the top and bottom parts together. (I find cyano good for this!)

Now, how to stop it falling off in a typical Williams landing? I have tried many methods over the years, mostly involving friction, but I got tired of looking through the long grass for the missing fairing, so now I try to fit magnets wherever possible. In this case it was a simple task to drill through into the tailplane for a couple of 8 mm round magnets and fit them before the fairing is completed.

Next up, 1/64" ply is wetted and steamed into a curve with a sealing iron and clamped in place around the appropriate parts. The profile for the compound curves at the front is next and then it's on to the filler to complete the job.

I'm not sure how many of these I've made over a lifetime but I'm thinking of applying for the world record!

c_williams30@sky.com ■



Basic parts of the fin fairing being glued together.



Clamping up the 0.4mm ply.



Front profile added after fitting the magnet.



Job done!

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There's a difference in size between these two soccer drones but so are the players in any soccer team!

ON THE BALL

John Stennard takes a closer look at the more affordable end of the drone soccer craze

Words & photos : John Stennard

There's not so much about fixed wing models this month but plenty of the vertical type! Small quads/drones are very at home in small flying zones and certainly have their place at our indoor flying sessions. They can be very inexpensive but have an amazing performance.

Since I like flying any type of aircraft, I'm very positive about these clever little gizmos. Most indoor fliers do not actually use the full potential of these little machines and you rarely see pilots flying figure eights, backwards, etc.

The Soccer Drones featured later are superb for young novices as all the moving parts are enclosed and they are almost crash proof. They really do bounce! There are other games that can be played with them, and they are cheap and fun to fly.

But first, I've now flown the QIDI-570 indoors and have had good fun with this drone/plane machine, so I'm starting this month with a close look at this model.

QIDI-570

Although this model is identified as a QIDI-570, the words VECTOR and Sci Fi SKY are also used



The transmitter supplied with the QIDI-570 is a decent size but it is the wrong mode for me.



I flew my both my Convergence and mini version outdoors and indoors.



QIDI-570 is smaller than a Mini Convergence and more suitable for indoor use.

on the aircraft and instruction manual. Having had fun with the E-Flite Convergence and Mini Convergence, I was attracted by this smaller model. Initially it was too pricy, but when the price suddenly dropped (depending on who you were buying from!), I took a second look. This led to me ordering one with indoor flying in

mind. One issue was that it was only available on Mode 2. I can fly model drones and helis okay on this mode, although I am a Mode 1 aircraft pilot. Naturally, I would choose Mode 1 if possible but as the QIDI was basically a drone I went ahead.

What makes the QIDI-570 a bit different is that it is a drone/aircraft but also has a vertical



Ripmax VTOL was quite exciting to fly and I did demo it indoors - once!



Original LiPo (top) and my replacement.

flight hovering mode. It is made from crash resistant EPP with a 320 mm wingspan, is 350 mm in length, with a flying weight of 180 g. The included 2S 1000 mAh LiPo, conveniently fitted with an XT 30 connector, gives a 5 to 14-minute flight depending on the model's configuration. I did not have any extra packs of this size, so ➔



Three-blade prop and hidden motor tilt system.



Vertical hovering position, which is also used in aircraft mode.

“...it’s an interesting model and a good buy if you want something a bit different”

I purchased two GN3 2S 1100 mAh packs from HobbyRC UK. These fit perfectly and work well.

The QIDI-570 is nicely made and is very ingenious. All three brushless motors are

identical and use the same size of 3-blade propeller. While the mini servos for the elevons are visible, the motor rotating mechanisms are totally enclosed. I’m not sure how they work.



QIDI-570 is very stable and suitable for indoor flying.



Rear rotor uses the same 3-bladed prop.

The manual is in English and Chinese and takes a little bit of understanding. There are three flight modes, but, as with the Convergence models, the horizontal/aircraft mode must be treated with care. A three-position switch selects which mode.

The ‘3-axis vertical mode’ is basically hovering like a drone so this will probably be the usual flying mode. Pre-flight, the transmitter’s sticks are placed in different positions to set the gyro and to start the motors. The Tx includes a two-position rate switch and a switch to change the colour of the lights. In the 3-axis vertical mode the model is easy fly and has indoor flying potential.

The ‘2-axis vertical’ mode is interesting and great fun. With the model stood vertically the switch is operated and the motors move through 90°. The motors are started and the QIDI flies beautifully in a vertical position. There is no ‘push button’ landing facility so all landings need to be ‘flown’.

Watching an on-line video convinced me that I should approach ‘Flat flight’ mode with caution. This is a small model and will very quickly go ‘out of sight’ (OOS), particularly when flown on a different Tx mode!

In theory you can fit a DSM receiver via a socket on the control board and use your own transmitter (Tx). I used a satellite receiver (Rx), but it only worked up to a point. The difficulty was that the outputs from the Tx sticks did not match the QIDI’s Rx settings. I tried changing channel outputs on the Tx but eventually gave up. I am sure someone with more knowledge would be able to get this option to work correctly.

My experience with both the Convergence and Mini-Convergence taught me to be very cautious with the model in ‘aircraft’ mode. Once switched to this ‘Flat flight’ mode the model accelerates away very quickly as this is a small model. Orientation can become difficult, as I learnt with the larger E-Flite Convergence models. Unfortunately, due to the Tx mode



It is very interesting to fly in vertical hover mode.

issue, I have not felt confident enough to fly it in this configuration. Maybe I'll try it on a nice day this year...

The QIDI-570 cost a little more than a small helicopter for indoor/garden use would, but it does offer a different type of flying experience. The manual take-off and landing needs more pilot input, which is not necessarily a bad thing. It's a model I've enjoyed flying in the garden and indoors and it's an interesting model and a good buy if you want something a bit different and it's your sort of thing.

ANYONE FOR FIVE-A-SIDE?

No, I haven't lost the plot. I am talking about Drone Soccer where each side flies five soccer drones! A web search will give you all the details about this use of drones and refer you to FIDA. That's the Federation of International Dronesoccer Association; there is also a UK Drone Soccer Association. Drone soccer is played in around thirty countries and the USA are the 2025 World Champions. Competitively there are set sizes for the arena (a netted enclosure) and the size of the soccer drones and hoop goals. All of these details can be found online.

Basically, the diameter of the soccer drone sphere, generally 400 mm or 200 mm, sets the level at which you are playing. The larger types use brushless motors and weigh up to 1000 g, while the smaller types with coreless motors weigh around 110 g. A common feature is that the spheres must have a ring of coloured LEDs around their equator. The 'goals' are discs with a hole in them and their size can vary. When played competitively electronic scoring will score when a 'striker' drone flies through the hole in the goal disc.

A team consists of five drones, of which only one is the striker and it is marked with a tag. The other four drones support the striker by tackling opposition drones to clear a path for the striker. Large 'professional' soccer drones with brushless motors can cost hundreds of pounds but I've seen a 200 mm brushless version for around £60.



Yours truly up close and enjoying the experience!

I wondered if a basic game could be played in a simple way in our usual flying space. We already have some hula hoops attached to stands that we use for demos. For our use we would not be surrounded by netting, which of course normally encloses the drones' playing zone, with the pilots outside the netting and standing at each end. I was interested in the simpler basic type of soccer drone for possible club use but also to use at our outreach

demos. Soccer drones are ideal for 'have-a-go' situations as all the moving bits are totally enclosed in the drone's spherical cage.

I decided to examine some of the smaller drones and take it from there. After all, you need more than one player for a game!

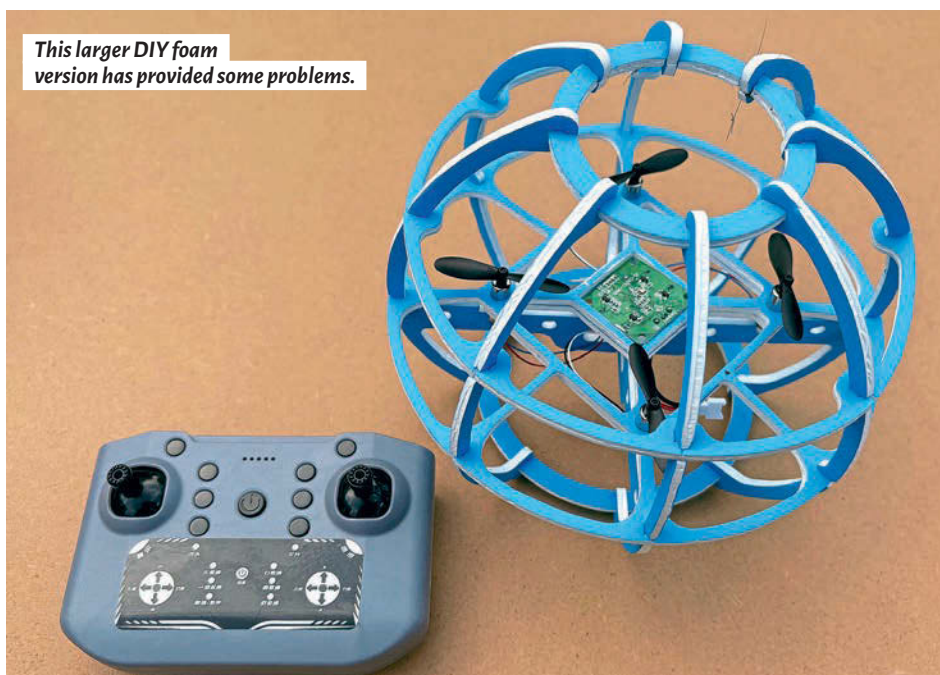
Player Number 1

Although a spherical cage with equator LEDs, the 4DRC is actually called the 'Magic Ball'. ✈



My first two Magic Ball, non-professional soccer drones.

This larger DIY foam version has provided some problems.



“Soccer drones are ideal for ‘have-a-go’ situations as all the moving bits are totally enclosed in a spherical cage”

However, ‘competitive soccer drone’ has now been added to its description! It’s the 4D-V49 and has a 145 mm diameter and 49 g flying weight. As it was not initially designed as a soccer drone it has the usual micro drone features and is quite sophisticated. These include three speeds, one key take-off, flips, one-key rotation, etc., all of course not required by a soccer drone (although maybe flipping would be useful?). It is easy to control, flies well and is extremely robust. It uses a hard cased, 1S 300 mAh LiPo which is charged via a USB lead. This drone is available with a black or white cage.

Player Number 2

The F180 CDA-02 is a DIY type with unknown flying functions - but read on! The kit includes the material for the cage and all the drone parts, motors, flight board, etc. The cage is made of a rather soft foam and just clips together. Mine only had Chinese instructions and while the soccer drone could be assembled quickly using the illustrations this did not apply to information regarding the flight board and Tx. This was frustrating as there are ten buttons on the transmitter! By experimentation I was able to arm and fly this soccer drone but was not happy with my lack of knowledge. It has a 180 mm diameter, a flying weight of 40 g and uses a standard 1S 300 mAh LiPo charged by a USB charging lead. A self-adhesive strip of micro-LEDs is provided for the lighting and plugs into the board.

Although the soft foam provides some degree of resilience, I feel it is less robust than a plastic cage. The main issue with the pliable foam and slot together construction is that the sphere does not keep its shape very well. So, collisions with other soccer drones might not go well!

Player Number 3

The HGLRC A125 is advertised as a soccer drone. However, it is smaller than the others and does not have the equator LEDs. It does have a centrally mounted light unit with a forward and rear element. Using a switch on the Tx the colours can be changed independently. This drone also has a quite sophisticated transmitter with speed controls, flip function, etc., plus the bonus of a Mode 1 or 2 option. At 125 mm diameter it seems quite small when viewed next to the 4DRC and has a 42 g flying weight. It uses a hard cased 1S 400 mAh LiPo which can be charged via a USB lead.

This soccer drone is available with a green or yellow cage and proved very easy to fly and



HGLRC is one of the smallest, but it handles very well.



LO717 is lively and great to pilot.



The wide variation in transmitter designs can be challenging!

performed really well. However, if matched against a 4DRC size drone, even though it's very nimble, it's size and weight could be a disadvantage.

Player Number 4

Although the magic words 'soccer drone' appear in the advert, in fact it comes in a box labelled LO 717. Not only is there no mention of soccer but the instruction book calls it a 'Multifunctional Aircraft'. It's one of the smaller types with a diameter of 128 mm and a flying weight of 48 g. It has lights which can be switched on and off on the central body, blue at the front and green at the rear. It is powered by a hard case 1S LiPo, probably around 500 mAh capacity, and is available in several colours. This drone can perform all the usual functions and like the similarly sized HGLRC A125 it is very easy to pilot. On the maximum speed settings, it is very lively.

TEAM TRIALS

In some ways drone soccer is a bit like drone combat as it has a purpose. But unlike our foam aircraft, which do suffer a bit in close encounter scenarios, these drones are almost destruction proof. Some dedicated model fliers may question whether this really is model flying but, basically, it's flying a quad/drone in a competitive situation, which sounds fairly normal. It also demands precise piloting and



Although the drone at the top is larger, I don't think the foam construction is very practical.

teamwork. I'm sure a soccer drone activity would appeal to a youthful age group and minimal space is required. It could be played without the refinements of a netted enclosure in quite a small space.

I'll report on our team trials when we see just how easy or difficult it is to tackle other soccer drones. Just remember that the drones mentioned are in the bottom division and are not the top league versions, so buyer beware!

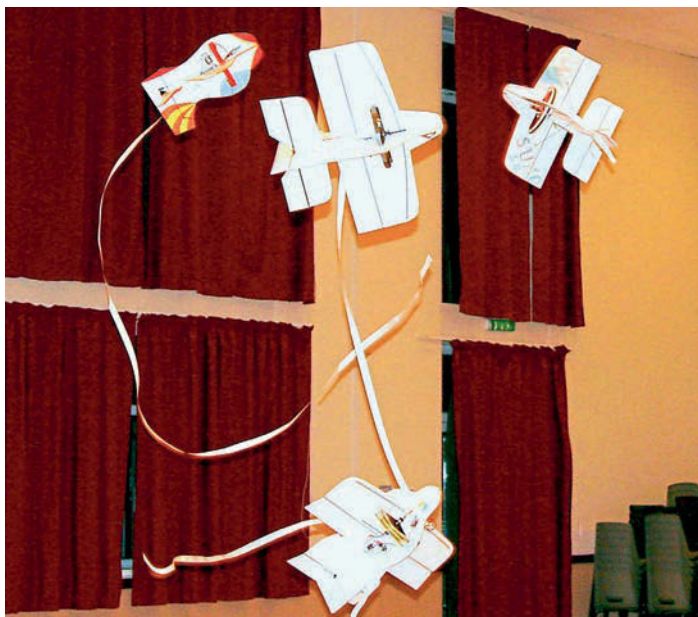
I note that, due to rising demand, some of these soccer drones have soared in price! Prices for the same drone can vary enormously. A wooden slot together, DIY version is also available, but this would lack the ruggedness of the plastic cage types.

An outreach team from our club and our local BMFA area run regular talk/demo sessions at Aerospace Bristol. The soccer drones will be a fun thing to fly (we normally avoid any contact when flying our drones) and will delight the spectators. We are always looking to include 'have a go' sessions and the soccer drones could be the ideal thing to use.

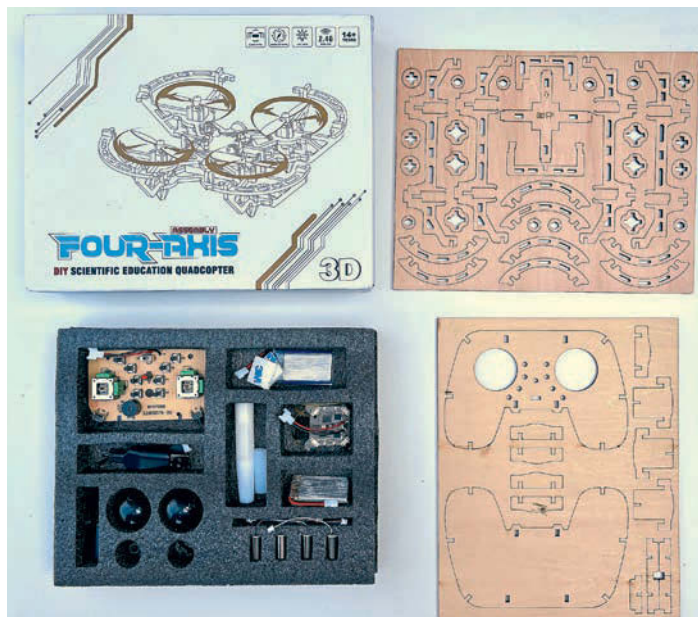
COMING SOON

I've been working on a Sumo - a big job! This amazing indoor model used to dominate our indoor skies so can it make a comeback?

There are still some quad/drones to come in a future Insider, including a wooden one. Yes, really! ■



Four SUMOs in close combat. No quarter given!



Yes, it's a wooden DIY drone and it flies really well.



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Scaled up from the extremely popular UMx and Evolution 1.5m versions, E-flite's Conscendo 2.0m delivers the same blend of soaring, sport, high speed and aerobatic flight performance with additional features including optional use landing gear and separate flaps that support multiple

configurations such as flaperons, spoilers and crow. The factory installed powertrain includes a brushless outrunner motor, telemetry capable 70A ESC and durable folding propeller which on 4S 3200 mAh - 5000 mAh LiPos delivers plenty of thrust for fast climbs to soaring altitude, sport



flying and aerobatics. Fitting a 6S provides more speed and thrust for unlimited vertical and aerobatic performance, the stresses of which are easily absorbed by a composite reinforced, high density composite EPO airframe. Available in PNP and BNF versions, both include 6 x digital metal geared servos with ball-link equipped linkages. The BNF also includes a factory-installed Spektrum AR8360T+

receiver which delivers full range, real time telemetry, including altitude and variometer data, to compatible transmitters, plus enhanced AS3X+, optional use SAFE Select and Hand Launch Assist technologies, along with a convenient Smart Transmitter File (STF). Both versions are also compatible with an optional LED night light set (available separately).

ACROBAT

£129.90 | www.mk-modelltechnik.com

Rugged and versatile, the 1200 mm span Acrobat from mk-modelltechnik offers flight characteristics that will appeal to both beginners and experienced

pilots alike. Forgiving low speed performance and sports aerobatic capability combine to make this a great all-rounder, aided by large wheels that make life easier when



operating from less than perfect runways. The kit for this Piocelan foam airframe is quick to assemble and comes with a tow hitch for glider / banner towing, a set of floats for flying off water and a sheet of decals. The recommended powertrain (AL35-12 brushless motor, Avicon 40A ESC, Electro Line 10" x 5"

propeller and spinner) is available separately for €85 and provides ample power from a 3S 2400 mAh LiPo. The required servos (5 x DS-220 BBMG digitals) are also available for €69.50. Well priced and with a long-term plan for spares backup in place, the Acrobat is an attractive proposition as a go-to, all-year 'hack'.



DPR VAMPIRE

£88.99 | www.jperkins.com

Kitted by DPR and offering satisfaction by the bucketload, this traditional kit, based around a 50 mm fan and 3S 2200 mAh LiPo, builds well and flies beautifully. Constructed using CNC-cut balsa and ply parts over an accurate full-size plan, assembly is both straightforward and pretty rapid. Diligently penned by Tony Nijhuis, one of the most prolific and successful model aircraft designers of our age, the EDF optimised airframe offers a blend of strength, lightness and efficiency to produce a model that can be hand launched with ease and flies with all the spirit and grace of the famous mid '40s fighter.

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Tony Ray Aero Model

Our Tony Ray range of balsa model kits is set to expand further this year. Firstly, with a 1/5" Bucker Jungmeister BU133, then with a 1/6" FW190 and later this year with a famous British WWII model.



Micro series

Tony's range of 11 micro models are designed for indoor flying using micro servos and receivers compatible with Spektrum & Futaba.

Kavan Radios

Kavan are expanding their range of radios that are manufactured by FrSky but to Kavan's specification - their latest budget programmable set is about £95.00



Hacker CZ

Hacker's range of EPP indoor & outdoor models continues to expand! Their latest Aerix F3P will be featured in RCM&E shortly.



Brand Focus

A selection of old school brands from the US:



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GORGEOUS GOSHAWK

Kevin Crozier unboxes a gas turbine powered semi-scale foam jet!

Words & Photos: Kevin Crozier

In the last issue I introduced you to a pair of drop-dead gorgeous foam jets that I hope to have flying quite soon. In last month's RTFM, I described the 6S EDF 'Red Arrow' kit from FMS which I will be using to become familiar with the flight characteristics of an R/C Hawk jet.

I have heard from multiple sources how good this model is so it bodes well as an

'advanced trainer' for when I am ready to fly the subject of this edition of RTFM, the stunning T-45 Goshawk EPO foam jet from HSDJETS.

TURBINE REFRESHER

With a wingspan of 59.1 inches the Goshawk is just over 18 inches greater in span than the FMS Hawk but rather than being powered by

an Electric Ducted Fan (EDF) it is set up ready to drop in an 8 - 10 kg gas turbine engine. Both models were supplied by J. Perkins Distribution, so I took the opportunity to buy the recommended gas turbine from them at the same time, this being a Swiwin 80 which produces 8 kg (80 Newtons) of thrust.

Just as the Hawk will not be my first 6S EDF jet, I am no stranger to flying a gas turbine model,



'Gorgeous Goshawk' is an apt name for this sleek jet, I hope you will agree. Once again, my thanks go to Graham Ashby for another fine shot of his finished jet.

having enjoyed several flights with a 'company jet' when I worked for MacGregor Industries back in the early 2000s. This was a Graupner Hotspot which was powered by a JetCat turbine. The Hotspot was maintained by Dave Stickley, who constructed it with his long-time building partner, his father, Bob. So, it was Dave who quite rightly had first dibs at flying it whenever we took it to jet meetings. Unfortunately, whilst the model and turbine were reliable the air retracts were not, especially one of the mains. So, most times it only had one flight before the leg collapsed and we had to put it away for repairs. Sadly, this meant that I could not get much airtime with her, which is a situation that I'm hoping to avoid with the Goshawk. I most definitely need to ramp up my jet hours!

But first I need to assemble the model, so let's look at what's inside the big box...

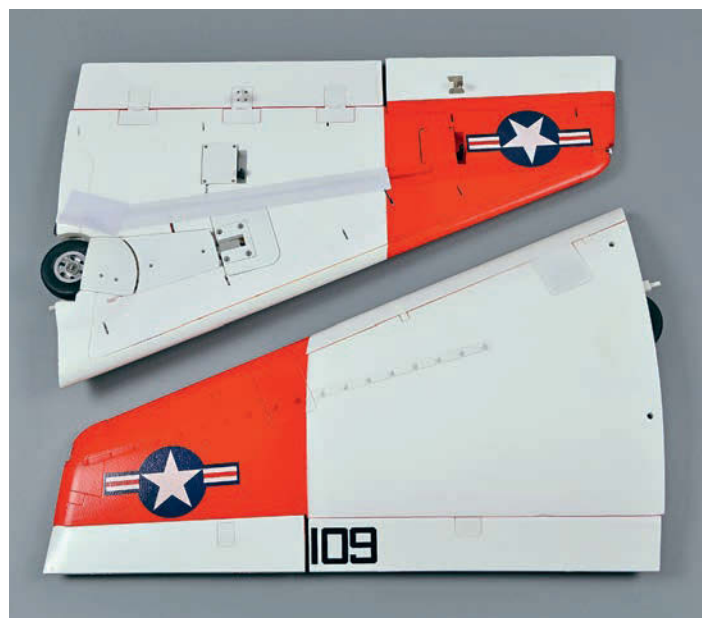
AIRFRAME PARTS

The first thing you notice is that this is no ordinary foam model. It has a smooth, hard skin which is a feature of its '20 times EPO' construction. This is a high density, harder grade of Expanded Polyolefin (EPO) foam which is used to increase airframe durability and can handle the higher speeds demanded when flying a turbine jet.

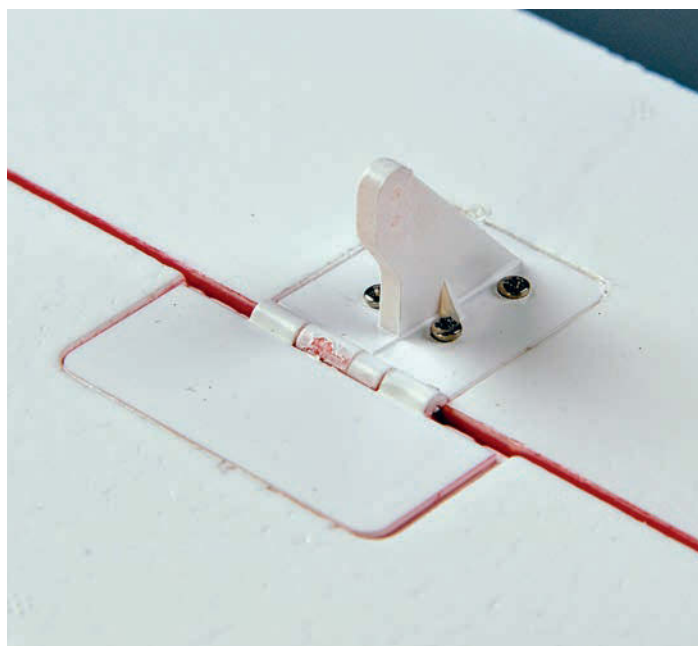
However, this does mean that the airframe parts are heavier than you might expect from a similar size foam aircraft. But, hey, with 80 Newtons of thrust to play with, this 20 lb. model is sure to be more than adequately powered!

The wings are factory fitted with all-metal, oleo style electric retractable undercarriage legs, with electromagnetic brakes fitted to each wheel and covered by sequenced wheel doors. ✈

"I took the opportunity to buy the recommended gas turbine at the same time, this being a Swiwin 80 which produces 8 kg of thrust"



Wing panels are factory fitted with slats, flaps and ailerons, together with matching digital servos and electric retracts with brakes.



Flaps are operated via a sturdy single control horn.



Ailerons have the security of folded metal horns, with the arms extending on each side of the pushrod's ball-link.



Accessory pack showing the ready-made pushrods with ball-links at each end.



Upper wing surfaces are lined with a row of small turbulators. Whilst not unusual on foam ARTF models these are in fact scale details from the full-size.



LED nav lights are fitted to each wingtip.



What big teeth you have! Nose section contains the retractable nosewheel, hidden by its gear doors.

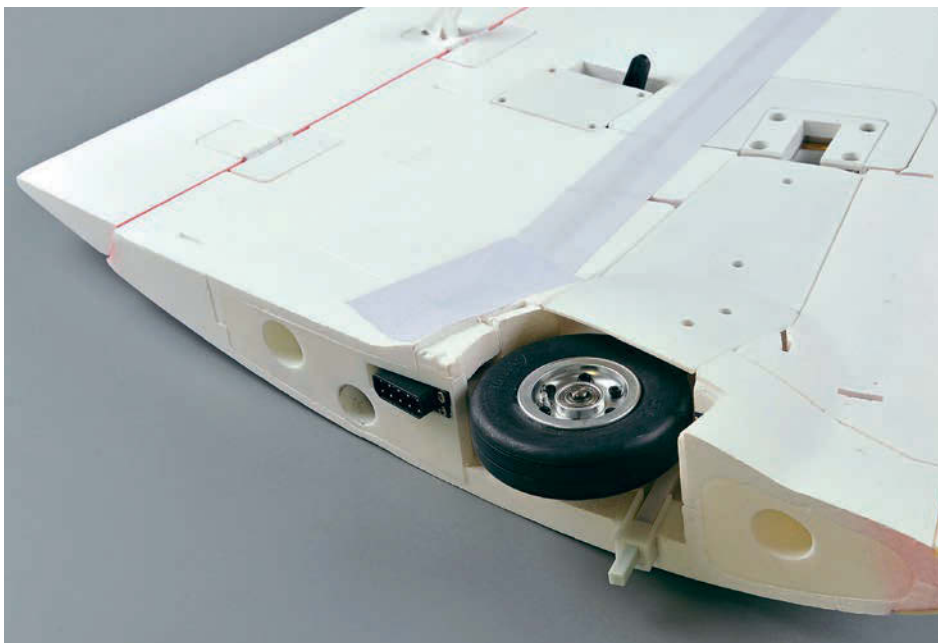
Functional leading-edge slats are fitted, and the flaps and ailerons are hinged and ready to connect to metal geared digital servos with short, strong wire pushrods with ball-links at each end. The flaps are operated by single control horns whilst the ailerons have the security of folded metal double horns on either side of the ball-links.

LED nav lights are fitted to each wingtip with the lighting and servo wiring being channelled mid-chord down the length of each panel. The channels are covered with strips of white and red tape, which is really the only area I can find to gripe about. Such tape coverings are commonly used to hide the wiring on many foam models, but these ones are wide, not really the same shades as the red and white used on the rest of the model and not very well trimmed, with straight overlaps. This is a pity as the model is very well finished in all other respects.

TWO PART FUZ

The Goshawk's curvaceous fuselage is replicated in two parts, split mid-way along the cockpit, no doubt to bring the overall length down to a more manageable size for kitting purposes. The smaller nose piece contains the factory fitted retractable nosewheel and associated gear doors.

At the front of the one-piece mid and rear section is the radio bay with its pre-fitted multi-function flight controller, plus smoke and fuel systems, all located under a plywood floor, leaving plenty of space on top for an



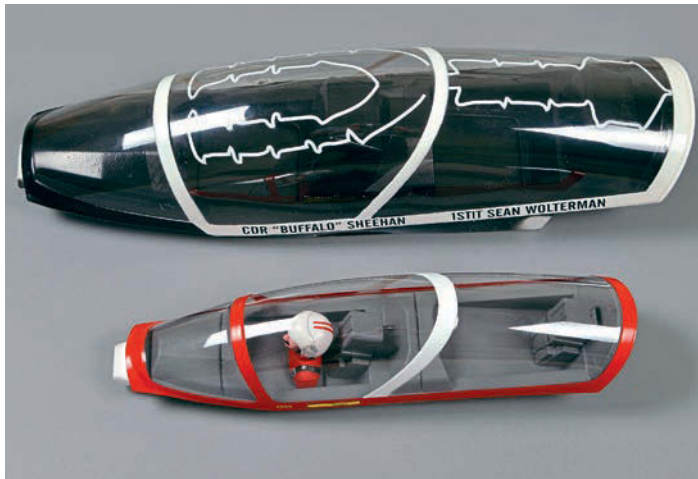
Close up on a wing root showing the wiring connector and retracted wheel with its close-fitting door. Note also the off-colour tape covering the wiring channel, which is my only small gripe with this otherwise excellent model.

11-channel receiver, two 2S LiPo packs for operating the R/C gear (LiPos being dictated by the flight controller) and a 2S LiPo to operate the turbine.

Just visible to the rear of the cockpit are the main fuel and smoke tanks. The fuel system includes a UAT (Ultimate Air Trap) to trap any

bubbles of air in the fuel and stop them from reaching the turbine. It also helps maintain a constant fuel supply.

Further back is the access hatch to the engine bay which is lined with heat reflective foil and fitted with a curved metal under-engine plate, again designed to reflect heat away from the



Goshawk canopy, top, is considerably larger than the FMS Hawk canopy below. Don't worry, two nice pilot busts are provided!



Mid and rear fuselage section is an impressive piece of EPO moulding. It comes fitted with tail and speed brake servos, plus flight controller, fuel and smoke systems. Tanks for smoke oil and fuel are fitted too!



Fuselage wing root showing a sequenced gear door and servo.



Turbine mount is surrounded by lots of heat reflective material. Note the bell-mouth entry to the jet pipe.



Easy access is provided to the buttons of the multi-function flight controller. I will be using a Futaba S-Bus receiver so setting up is almost 'Plug N Play'.



Swiwin 80 gas turbine. Before fitting it to the model I did intend to get used to running it on a test bench, but with the clock ticking I will probably just fit it straight into the Goshawk.



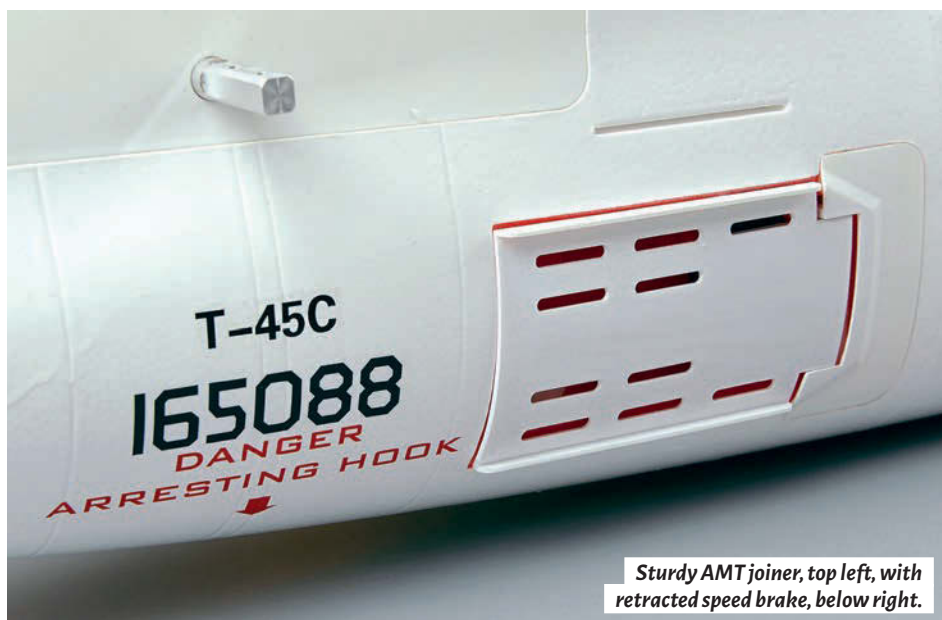
Neatly decorated fin with rudder and the two all-moving tail halves.

EPO fuselage. The turbine is screwed to broad plywood mounts. At the back of the engine bay is the bell-mouth inlet to the jet pipe which the jet efflux is directed into.

Moving further to the rear of the fuselage we come to a pair of chunky, square metal joiners for attaching the one-piece, all-moving tailplanes. Working speed brakes are fitted immediately aft and below, these being retracted and ready for action. On top is the fin housing, including an integral rudder servo with its unusually shaped rectangular control horn.

Finally, right at the back, you get a glimpse of what stops the red-hot jet gasses from melting the foam, the jet pipe showing its multi-layer, corrugated construction. The corrugated layer and surrounding foil linings are key to keeping the exhaust temperatures within comfortable limits in order to retain integrity of the EPO foam.





Sturdy AMT joiner, top left, with retracted speed brake, below right.

“Finally, right at the back, you get a glimpse of what stops the red-hot jet gasses from melting the foam”

TAIL PIECE

All this talk of tail pipes is a convenient point to bring this edition of RTFM to a close otherwise I would be waxing lyrical about this impressive model for several more pages.

I'll return to both the FMS Hawk and the HSDJETS T-45 in future articles when both have been assembled and maybe, just maybe, they will have flown! ■



Rudder servo is fitted with an unusually shaped oblong control horn that slots into the fin assembly.



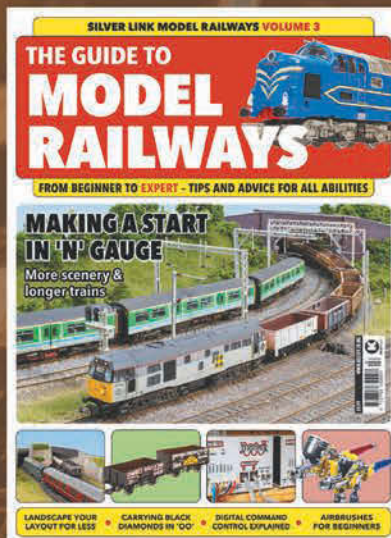
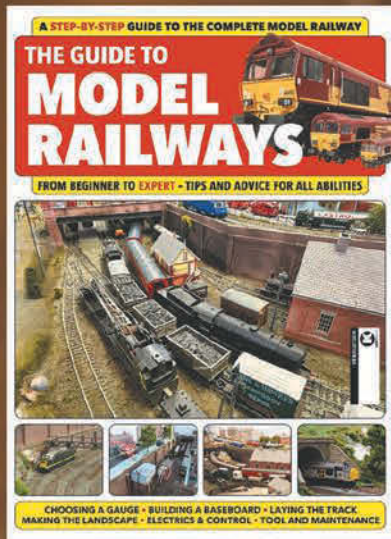
Jet pipe detail. Note the corrugations and the surrounding foil, all designed to help shield the foam from the turbine's hot gasses.



To close, here's another view of Graham Ashby's completed T-45 Goshawk. Hopefully mine will look like this fairly soon!

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

JULY

July 1-5

PSSA 'Fly for Fun' event with the Lleyn MAC at Nr Abersoch, North Wales. Meet at the SPAR car park in Llanbedrog for 09:30 am each day (only applicable 4th/5th July). A slope map will be left in shop window for late arrivals. Proof of BMFA (or equivalent) Insurance and Pilot Competency certificate required. All models to be fitted with compliant CAA OplD number. A daily flying charge will be payable at certain flying sites. For more information contact Phil Cooke on 07772 224719, email webmaster@pssaonline.co.uk or visit <https://www.pssaonline.co.uk/about-us/events/>

July 4-5

LMA Sleep Airshow at Sleep Airfield, Shrewsbury, SY4 3HE. Large Model Airshow, including some full-size displays, over 20 traders, swap meet, food/drink stalls, R/C tanks, camping available onsite with evening entertainment (live music, bar and informal night flying). Children under 16 go free! Purchase advance tickets online now. Follow the LMA social media accounts or check the events page on the LMA website for all updates and announcements.

July 10-18

FAI 2026 World Scale Championships
At BMFA Buckminster, located on the Leicestershire/Lincolnshire border close to the towns of Melton Mowbray and Grantham, UK. The site hosts the National Visitor Centre and Model Flying site of the British Model Flying Association (BMFA). For more information visit: info@worldscale26.bmfa.uk

July 11

Tonbridge Gassers and Rubber Fanciers Indoor Flying at Kings Sport Centre, 601 Maidstone Road, Rochester, ME1 3QJ. 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.

July 12

White Sheet Radio Flying Club Scale Event. Back up date 26th July. Weather call will be the Friday before. For more information visit <https://whitesheet.bmfa.club/>

July 19

Classic Glider at Hole of Horcum, Pickering, North Yorkshire, YO18 7NR. A fun day for all R/C model PSS gliders. BMFA membership required. £5 for non-club members. Location What3Words - snowmen.ordinary.caps. Lat - 54.332235. Lon - -0.690234. Due to MOD restrictions, please contact beforehand for details. For more information call 07747 614074 or email michaelkitchen@me.com or call 07796 364738 or email jonedison@btinternet.com.

July 19

White Sheet Radio Flying Club Open Slopes. For more information visit <https://whitesheet.bmfa.club/>

July 19

Cocklebarrow Vintage Rally at Aldsworth, Glos, on the B4425 between Cirencester/Burford and off the A40 between Northleach and Burford. What Three Words: positives.arrival.calculate. All model types to 1975. BMFA membership required for flyers Contact Peter Marsh on 07831 193091,

email: pjtw@msn.com, or Paul Howey on 07405164040, email: C4BBP@aol.com. For more information call 07747 614074 or email michaelkitchen@me.com or call 07796 364738 or email jonedison@btinternet.com.

July 26

Bickley MFC Open Ducted Fan & EDF Day at Bickley MFC, Church Road, Sutton at Hone, Dartford, Kent, DA4 9EX. From 10:30 am - 17:00 pm. A popular open day for EDF and Ducted Fans of all types. Also, some fun competitions for those who want to take part. Open to all BMFA members but sorry no turbines. Toilet on site. Camping available if booked in advance at admin@bickleymfc.org. For more information visit <https://bickleymfc.org/> or James Gordon on 07966 439835.

July 31 July - Aug 2

The Best of British Radio Controlled Aircraft Model Show at BMFA Buckminster. Onsite camping and café with trade presence. Anything 'British' can come along, be that a British aeroplane, something designed by a Brit, something built by a Brit, something powered by a Brit engine - in fact you can fly more or less anything. The emphasis is on having fun so think of it as a flying club event but on steroids! For more information visit <https://events.bmfa.uk/event/best-of-british>.

AUGUST

Aug 1-2

PSSA 'Fly for Fun' event at The White Horse, Westbury, Wiltshire. Meet at the White Horse car park (location link below). Pilots brief at slope location at 10:30 am each day. Proof of BMFA (or equivalent) Insurance and Pilot Competency certificate required. All models to be fitted with compliant CAA OplD number. Note this meeting will only run with locally forecast winds from West through to North. For more information contact Phil Cooke on 07772 224719, email webmaster@pssaonline.co.uk or visit <https://www.pssaonline.co.uk/about-us/events/>

Aug 1-2

Melton & District Model Club Model Show at Longfield Academy, Ambleside Way Melton Mowbray, LE13 0BN. R/C aircraft and helicopters, model boats, slot cars, model railways, drones, Meccano, classic car show, swap meet, car boot sale, tombola & raffle with prizes. Refreshments available. Free parking. For more information on swapmeet, car boot and classic car bookings contact us at meltonmodelclub@hotmail.com for further details.

Aug 2

White Sheet Radio Flying Club Open Slopes. For more information visit <https://whitesheet.bmfa.club/>

Aug 8-9

LMA Elvington Airshow at Elvington Airfield, York, YO41 4AU. Large Model Airshow and family fun weekend. Over 35 traders, swap meet, food and drink stalls, ride on steam trains, R/C Off-road truck racing, classic vehicle display, military display, giant inflatable assault course, vintage fairground rides, pre WW2 cycle car racing, R/C plane trial flights and simulators, discounted entry to onsite Yorkshire air museum, camping available onsite with evening

entertainment (live music, bar and informal night flying). Children under 16 go free! Follow the LMA social media accounts or check the events page on LMA website for all updates and announcements.

Aug 9

White Sheet Radio Flying Club Scale Event. Back up date 30th August. Weather call will be the Friday before. For more information visit <https://whitesheet.bmfa.club/>

Aug 15-16

British Fun Fly Association's Fun Fly National Championships at BMFA Buckminster. Open to any BMFA member with an A certificate and newcomers are very welcome! Classes 1, 2 and 3 including the Foamy Sub Class will be flown. Take part in up to two classes for no extra fee. Briefing at 9 am both days. Rules and entry forms at <https://funfly.bmfa.org/>. £30 entry fee for the weekend (paid on the day). Juniors FREE! Camping available from the Buckminster office. More details at <https://funfly.bmfa.org/>. Contact James Gordon on 07966 439835 or email jamesrsg@hotmail.com

Aug 15-16

PSSA Fly-In at The Bwlch, Nant-y-Moel, Bridgend, South Wales. Kindly supported by the SWSA: <http://a470soaring.blogspot.co.uk/>. Meet at the 'Ice-Cream' car park for 10 am each day. Proof of BMFA (or equivalent) Insurance and Pilot Competency certificate required. All models to be fitted with compliant CAA OplD number. For more information contact Phil Cooke on 07772 224719, email webmaster@pssaonline.co.uk or visit <https://www.pssaonline.co.uk/about-us/events/>

August 16

Cocklebarrow Vintage Rally. All model types to 1975. BMFA membership required for flyers. Aldsworth, Glos, on the B4425 between Cirencester/Burford and off the A40 between Northleach and Burford. What Three Words: positives.arrival.calculate. Contact Peter Marsh on 07831 193091, email: pjtw@msn.com, or Paul Howey on 07405 164040, email: C4BBP@aol.com

Aug 22-23

Flair Fly Weekend at Banbury Model Flying Club, near Moreton Pinkney, North of Banbury. Rolled grass strip, plenty of parking and pits. Celebrating Flair Models kits with two days of relaxed flying, nostalgia and chatter. Camping available from Friday 21st. Any and all Flair designs from well flown veterans to fresh restorations, plus other scale and sport models welcome. Free entry for all pilots and spectators this year supported by provisional funding from the BMFA for toilet facilities. Camping on site at £5 per night with running water and toilets but no electric hookup. BMFA insurance and proof of competence required to fly. Soft drinks, tea, coffee hot dogs and burgers will be available, proceeds to club funds. No LiPo charging facilities, but generators allowed. We hope to once again welcome Dudley and Jane Patterson, along with Flair designer Pete Nicholson, to join us over the weekend. For more information or to book camping, please contact Stuart at Banbury Model Flying Club: stuart.bmfc@gmail.com

Aug 22-23

14th Single Channel & Retro R/C Fly-in at the Pontefract Racecourse, WF8 4QD. what3words location: mostly.deed.



token. Gates open at 8:30 am on both days and free camping available (email for details: aeromodeller@gmail.com). 22nd is an open fun-flying day (IC & electric) whilst the 23rd sees the actual S/C and Retro R/C event. Bring and buy on both days for modelling related goods (bring your own table). The theme this year for Sunday (if you want to get involved) is simply any model kitted in the 60s or 70s with a special category for unorthodox models such as canards, ornithopters, washboards, broomstick witches etc. of any size, scaled up or down, balsa or Depron, e-power or I/C. Get creative, get building and we can have a mass launch. Our club website is www.pandas.bmfa.org and more details available on www.mode-zero.uk and www.singlechannel.co.uk

Aug 22 - 23

White Sheet Radio Flying Club F3F English Open. For more information visit <https://whitesheet.bmfa.club/>

Aug 29

Bickley MFC Open Boot Sale at Bickley MFC, Church Road, Sutton at Hone, Dartford, Kent, DA4 9EX. Boot sale for all your modelling bits and pieces. Also, a perfect place to grab a bargain! Non club members £5 to sell. Toilet on site. Camping must be pre-booked at admin@bickleymfc.org. For more information, please visit <https://bickleymfc.org/> or contact James Gordon on 07966 439835

Aug 30

Bickley MFC Open Glider Fly-In, 10.30 - 17.00. All types of gliders are welcome, including DLG, F5j, foam gliders, GPS gliders, FxRES, aero tow or anything else we haven't thought of! It will be a very informal event and an opportunity to see as many different glider types as we can. Please note 400 ft height limit for models over 7.5 kg. Toilet on site. Camping must be pre-booked at admin@bickleymfc.org. For more information, please visit <https://bickleymfc.org/> or contact James Gordon on 07966 439835

SEPTEMBER

Sept 5

Truro RC Model Flying Club is hosting the Truro RES gliding day competition events of the South West Area at their Trendale field, near Ladock, Cornwall. 2 miles off the A3058. Qualified BMFA members only but spectators very welcome. Use the BMFA Truro & District Model Flying club website via the 'Locate Us' map for details plus confirmation of dates and start times if reserve days for bad weather is forecast.

Sept 5 - 6

LMA Much Marcle Airshow at Much Marcle, Ledbury, HR8 2LX. Large Model Airshow with over 20 traders, swap meet, food/drink stalls, camping available onsite with evening entertainment (live music, bar and informal night flying). Children under 16 go free! Purchase advance tickets online now. Follow the LMA social media accounts or check the events page on LMA website for all updates and announcements.

Sept 5 - 6

Southern Model Show at Headcorn Aerodrome, Kent. Bring the whole family to the South East's best R/C model show, with something for all ages. Gates open between 9:30 am to 17:30 pm. Enjoy stunning flying displays throughout the day featuring expertly piloted model aircraft. On Saturday evening don't miss the Pyrotechnic Flying Display followed by fireworks. Our Bring & Buy will be operating both days; bring along your old models for us to sell. Alongside this

there is a wide range of R/C model stalls, selling models, kits, tools and parts, plus plenty of food and drink options. Model cars and trucks will also be on display, with opportunities for everyone to have a go. Weekend camping is available, with facilities including showers, toilets (including accessible), water points and waste disposal. Well-behaved dogs are welcome on lead. For more information visit <https://headcornsouthernmodelshow.uk/about/>

Sept 6

White Sheet Radio Flying Club Scale Event. Back up date 27th Sept. Weather call will be the Friday before. For more information visit <https://whitesheet.bmfa.club/>

Sept 6

Basingstoke MAC 21st Electric Fly-In. Gates open 9:00a m with a pilots' briefing 10:00 am and then the fun starts. Free entry, BBQ, hot & cold drinks plus an on-site loo, but we hope to get you to buy some raffle tickets. BMFA proof of insurance required, location and contact details at [@basingstokemac](https://bmfa.club/events) on Facebook.

Sept 13

Scale Gliders at Hole of Horcum, Pickering, North Yorkshire, YO18 7NR. A fun day for all R/C model PSS gliders BMFA membership required. £5 for non-club members. Location What3Words - snowmen.ordinary.caps. Lat - 54.332235. Lon - -0.690234. Due to MOD restrictions, please contact beforehand for details. For more information call 07747 614074 or email michaelkitchen@me.com or call 07796 364738 or email jonedison@btinternet.com.

Sept 19 - 20

PSSA 40th Anniversary Mass Build event at The Great Orme, Llandudno, North Wales. Meet at the 'Tank Track' car park for pilots brief 10 am each day. Proof of BMFA (or equivalent) Insurance and Pilot Competency certificate required. All models to be fitted with compliant CAA OpID number. This event will stage the Harvard/AT-6 Texan Mass Build event marking the Association's 40th Anniversary. For more information contact Phil Cooke on 07772224719, email webmaster@pssaonline.co.uk or visit <https://www.pssaonline.co.uk/about-us/events/>

Sept 20

Cocklebarrow Vintage Rally. All model types to 1975. BMFA membership required for flyers. Aldsworth, Glos, on the B4425 between Cirencester/Burford and off the A40 between Northleach and Burford. What Three Words: positives.arrival.calculate. Contact Peter Marsh on 07831 193091, email: pjtw@msn.com, or Paul Howey on 07405 164040, email: G4BBP@aol.com

Sept 20

White Sheet Radio Flying Club Open Slopes. For more information visit <https://whitesheet.bmfa.club/>

Sept 25

UKCAA @ Buckminster (Classic Aerobatics) at BMFA NFC, Buckminster, Lincolnshire, NG33 5RW. Primarily a fly-in for pre-1996 aerobatic and similar airframes. There will be the usual Pick5 and Pick7 contests over the lunch break.

OCTOBER

Oct 4

White Sheet Radio Flying Club Open Slopes. For more information visit <https://whitesheet.bmfa.club/>

Oct 11

LMA Gaydon Indoor Static Show at British Motor Museum, Gaydon, Lighthorne Heath, Warwick, CV35 0BJ. Large Model Static Indoor Display. Multiple traders, small swap meet, access to the British Motor Museum included in entrance ticket, onsite café. Tickets will be available online nearer the time via the British Motor Museum website. BMFA and LMA members receive discounted entry when paying on arrival. Follow the LMA social media accounts or check the events page on LMA website for all updates and announcements.

Oct 11

White Sheet Radio Flying Club Scale Event. Back up date 18th October. Weather call will be the Friday before. For more information visit <https://whitesheet.bmfa.club/>

Oct 13

PMAC Swapmeet at Chelford Village Hall, Knutsford Rd, Chelford, Macclesfield, SK11 9AS. This is the very popular swap meet that used to be held at the 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 (below) due to parking restrictions. Table bookings required by contacting Tim Cheal on tim.cheal@btinternet.com

Oct 17

Delyn MFC Autumn Swapmeet at Halkyn Parish Hall and Library, just off the A55, junction 32B, CH8 8ES. wot3words: charmingly.costly.repaying. Doors open for sellers 8:30am, buyers 9:00am. Table price £3.00 with plenty of tables available. Entry for buyers and browsers £1.00. Loads of bargains, come and fill your boots. Unlimited parking. For table booking ring Bill Lowes on 07811 159191 or email Peter on Knaus321@gmail.com.

Oct 18

Beverly and District MAC Autumn Swapmeet at Tickton Village Hall, Tickton, Beverley, East Yorks, HU17 9RZ. Doors open at 9:00am, teas and coffees available, entry fee £2 on the door. Tables £5 which includes one helper. To book a table contact Simon Tweedale on simontweedale66@gmail.com or call 07753 856758.

Oct 17-18

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. For more information contact Phil Cooke on 07772 224719, email webmaster@pssaonline.co.uk or visit <https://www.pssaonline.co.uk/about-us/events/>

Oct 25

White Sheet Radio Flying Club F3F. For more information visit <https://whitesheet.bmfa.club/>

Oct 25

Rolls Royce (Hucknall) Model Aircraft Club Swap Meet at the John Godber Centre, Ogle St., Hucknall, Nottingham, NG15 7FQ, just a few minutes away from Junctions 26 and 27 on the M1 motorway. We are returning to this fantastic venue with lots of free parking and easy access for what we are sure will be our best swap meet yet. Set up from 9:00 am and entry at 10:00 am until 1:00 pm, with refreshments available. Traders are £5 per table with one person and normal entry is £2. Book your table now by calling Ivan on 07858 913525.

Marketplace is a free ad service (no commercial advertising please) for our readers to sell modelling related items such as models, kits, engines and R/C gear etc. Each ad should include a short description of each item, up to 150 words, along with your best contact number, the price you would like and the county you live in. Wanted ads are also welcome. Please send your Marketplace ads to: beth.ashby-nijiri@kelsey.co.uk

FOR SALE

RCM&E 2014 PLAN RC2137, Jocasta N25400, 1.76m wingspan built and RTF but never flown. Includes Spektrum DX6 transmitter in metal carry case. 3 x 3S 3300 mah batteries with charger in fire retard carry bag. 2 spare props. Fully wired ESC, motor, Rx, 4 servos. No elastic bands to hold wing on. As seen £150 ono, buyer to collect. Pictures available. Please email peter@prussell.f9.co.uk (Gloucestershire).

MAGAZINES FOR SALE, RCM&E, RCMW, Radio Control Scale Aircraft, Radio Modeller, Silent Flight, Tamiya Modellers Magazine, Scale AMI, SAM – offers? 07596 541919 (Bedford).

HANGAR-9 PIPER PAWNEE, 80" span, electric. Just add battery and transmitter - £200. Augusta 109 helicopter, Hirobo Freya mechanics, OS91 engine, digital servos, flybarless AR7200BX retracts - £600, buyer to collect. 07955 766244 (East Anglia).

DREAM FLIGHT WEASEL slope soarer requires receiver pack and receiver good condition £45 / £5 P&P. Call Steve on 07757 277166 (York).

TOP FLITE CORSAIR 60", unflown, retracts, servos and plan - £175. Fitted with RCV90SP four-stroke, run in only, original box - £125. Can sell airframe and engine separately if required. Buyer to collect, photos available. 07818 481941 (Berkshire).

22 VINTAGE & OLD AERO ENGINES & PROPS, all will need cleaning and recommissioning. 5 x Cox 30s, 2 x PAW, 3 x ED, 1 x King Cat, 2 x AM, 2 x Mills, 3 x DC, 1 x Irvine 20 ABC with tuned pipe – offers? Balsa Cabin Sonata 3 in 1 kit - £75. Call Keith on 07548 203834 (Wilts).

SPITFIRE MK IX TOP-FLITE USA, for 0.61 - 0.91 engine, RAF camouflage Futaba servos, Robart retracts, Pete's Pilot, glass skinned. Good flyer. For details and photos call David Smith on 07720 848548 (Lincs).

QUARTER SCALE STAMPE, built, just needs covering, radio and engine. Set up for Laser 150, engine available. Stampe kit now sells for £362 – offers? Proctor Nieuport 11, also built and requires covering, engine and radio – offers? Delivery possible. 01508 970541 (Norfolk).

SEARMAN PT-17 STERLING MODELS USA, trainer colour scheme, 64", tex covered, good detail, excellent flyer, fitted Laser engine - £275 ono. For details and photos call David Smith on 07720 848548 (Lincs).

BEECHCRAFT D17 stagger wing, unstarted scale biplane project. Complete kit, aluminium cowlings, plans and all balsa parts, 1422 mm wingspan, rare kit - £275 plus P&P. Call Rob on 07791 268498 (Telford).

HOBY CAT GLIDER ready to fly, very rare, made by the makers of Hoby Cats full sized catamaran sailing boats. Never seen another. Polystyrene protection box. Photos available – offers? 07718 464066 (Poole).

RUDDER BUG vintage electric plane, outrunner motor, red and white by engineer. Photos available. Several beautiful seaplanes, all electric and with 4ft span – offers? 07718 464066 (Poole).

MAX THRUST V2 electric aircraft, never built or flown. Battery included, 140 cm wingspan. A lot of aeroplane - £240. Call Adrian on 07593 364486 (Bucks).

HIROBO SHUTTLE PLUS 95% built, Irvine 36H, Sanwa R06000 Sport 35 MHz. Everything included to finish. Field box, power panel, training undercarriage, head loaders, instructions and manuals. All new and unused - £120. Buyer to collect. Call Mick on 07539 572200 (Kent).

ADVANCED SCALE MODELS, C-130 100" Hercules and B-17C 100" Flying Fortress. Both still boxed and untouched - £300 ono. 07947 822794 (Oxon).

HOBBY HORIZON CARBON CUB S2 1.3m BNF scale. Bush Trainer new with AS3X safe, 3S LiPos, manual and box fittings included for optional floats. Never flown, was £299 new with LiPo battery. Will sell for - £250. Call Paul on 07778 034316 (Walsall).

RC SKYLARK, 6' wingspan and 4'8" Dolphin gliders. Transmitter, receiver, battery, charger plus many other extras including motors, propellers and assorted wiring. Great for inspiring beginners - £100. 07951 454003. (Cheltenham).

WANTED

GOLDBERG JUNG MANN kit, in box. Great Planes Super Skybolt ARTF in any condition. Great Planes Shoe String, fibreglass version. Top prices plus postage paid! Call Conor on 08573 17939 (Dublin).

DRC GLIDER WINCH. Also, RES 2m span lightweight glider. Prefer pod and loom. Pick up available in Cornwall or Devon, otherwise RM at cost. Call Allan on 07840 423893 or email allanglover2@yahoo.co.uk

ALL R/C MODELS WANTED, new or old, planes, gliders, kits, engines, boats, cars, radios, complete collections or job lots, countrywide collection. No hassle, cash buyer. Call David on 07940 791959 or email deserteagle357@hotmail.com (Clevedon).

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Next issue

JUMBO PRO-PLAN! SPERBER JUNIOR – PART 2

The September issue of RCM&E will include sheets 3 & 4 of a four-sheet pull-out plan for the latest in Chris Williams' series of 1:4.5 scale gliders. The Sperber Junior was a sailplane that was purpose-built for the famous German test pilot, Hanna Reitsch. The prototype has been

scaled at 1:4.5 to come out at roughly the same size as the previous Flamingo and Petrel gliders designed by Chris. Just like its predecessors the Junior is a vice-free, handily sized glider which is equally at home on the slope or being aerotowed behind a tug.



CONTROL SURFACE THROW GAUGE

When measuring the throws on the control surfaces of a new model, Mike Freeman invariably ends up juggling with a ruler and trying to move the stick, hold the model and line up what he thinks is the centre line of the surface with the ruler and then memorise the distance. Sound familiar? Previously, he has made specific throw gauges for various models, but he wanted something universal and easy to use, like the pendulum gauges which can be seen online and which have also appeared in the pages of RCM&E. After a brief CAD session on his computer, Mike had a sketch drawn up and a basic prototype was soon ready for testing. After a few tweaks to the design, he reveals his version of a pendulum control surface gauge, if you'd like to make one yourself.



PILOT-RC SLICK

Unlike the editor, Rob Bennett doesn't suffer from severe procrastination when it comes to building large models. So KC was very grateful when Rob agreed to take on the assembly his Pilot-RC Slick 84 and have it ready to fly in just a few weeks. As you'd expect from the well-proven aerobatic steeds offered by this popular manufacturer, the 84-inch span Slick doesn't disappoint and both Rob and Kevin have thoroughly enjoyed putting her through her paces.



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PARTING SHOT



STREAMER STRUGGLE

Members of the Oxford Panic Display Team flew a combat slot at the Popham Model Show with their Avicraft/Perkins Panics, typically powered by .72 to .91 size two-strokes. They've been displaying together for over 30 years.

Each Panic has a streamer connected which was released by a servo once airborne.

Steve Higgs' Panic (top picture) got a streamer offcut caught on a wingtip which caused havoc with the aerodynamics. No amount of aerobatic antics could shake it off! Steve told me the eclectic colour scheme is due to multiple repairs and the team's rule that different coloured coverings must be used.

Mike Freeman



DATAFILE

Camera:	Nikon D500
Lens:	Nikon 70-200mm f/2.8
Aperture:	f/18
Shutter Speed:	1/100 s
Exposure Mode:	Auto
Focal Length:	280 mm
ISO:	100
Metering:	Centre Weighted
Exposure Comp:	0 EV

T-HOBBY®

to the fore

AM SERIES COMBOS



AM480 COMBO (48IN PLANE)

Includes: AM480 900KV Motor + AM66A ESC + AM Link + 2 x T-Motor 13 x 6.5" Propellers.

TM-AM480-C900

£169.95



AM600 COMBO (60-65IN PLANE)

Includes: AM600 (525KV or 555KV) Motor + AM116A ESC + AM Link + 2 x T-Motor Black 16 x 8" Polymer Propellers.

TM-AM600-C525/TM-AM600-C555

£299.95



AM670 COMBO (67IN PLANE)

Includes: AM670 520KV Motor + AM116A ESC + 1 x T-Motor 18 x 8" Carbon Propeller complete with Prop Covers.

TM-AM670-C520

£324.95



AM20 PRO COMBO (50G-100G F3P)

Includes: AM20 Pro motor + AM06A ESC + T10 x 3.1 carbon propeller.

TM-AM20-C1500/TM-AM20-C1900

£89.95



AM30 COMBO (80-180G F3P)

Includes: AM30 motor + AM16A ESC + T8040 carbon propeller

TM-AM30-C1450

£79.95



AM40 V2 COMBO (150G-320G F3P)

Includes: AM40 V2 1550KV or 1880KV motor + AM19A ESC + 2 x T8542 propellers.

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£55.95

AM SERIES MOTORS



AM480

600 or 900KV 3D Freestyle Motor

£64.95



AM600

525 or 555KV 3D Freestyle Motor

£129.95

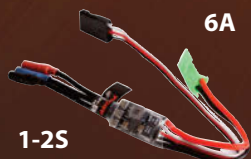


AM670

480 or 520KV 3D Freestyle Motor

£141.95

AM SERIES ESC



6A

1-2S

AM06A

£23.95



16A

2-4S

AM16A

£22.95



66A

3-6S

AM66A

£89.95



116A

3-6S

AM116A

£154.95



AM-LINK

£49.95

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Supermarine Spitfire Mk. IX



The **XFly Spitfire Mk. IX "Spirit of Kent"** is a scale replica of one of the most iconic fighters of World War II, featuring a **1200mm wingspan** and durable **EPD foam construction**, finished in an authentic matte scale livery inspired by the celebrated Spirit of Kent aircraft, named in honour of the county that played a vital role in Britain's aerial defence. XFly captures the elegant, timeless lines of the Spitfire Mk. IX with a high level of scale realism, including a **4-blade propeller**, accurately profiled canopy, detailed pilot figure, exhaust stacks, wing cannons, and **outward-retracting landing gear**. Designed to impress both in the air and on the ground, this version delivers a true warbird presence worthy of its historic inspiration.



FEATURES:

- High power 3541-KV745 motor and 40A brushless ESC offering outstanding thrust
- Electric retractable landing gear with shock absorbing struts
- Large battery hatch for easy placement of the battery and radio equipment
- Available in Green D-Day invasion version and Brown desert version
- Scale four panel split flaps for easier takeoffs and landings
- LED wingtip lights for added visibility and realism
- Scale 4-blade propeller

SPECIFICATIONS:

- Length: 1010mm/39.8"
- Wingspan: 1200mm/47"
- ESC: 40A
- Flying Weight: 1350g
- Wing area: 22dm²
- Motor: 3541-KV745
- Propeller Size: 11x7" 4-blade
- Servos: 9g servos x 6
- Recommended Battery: 4S 2600-4000mAh
- Radio: 6CH- aileron, elevator, throttle, rudder, retract, flaps
- Skill Level: Intermediate
- Requires: Radio, battery and charger to complete



WFLY-MODEL



Part number XF123P-S - 1.2M SPITFIRE MK.IX "SPIRIT OF KENT" W/O TX/RX/BATT

RRP: £299.99



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0.6mm OR 0.8mm

500

F1

FILL IN
BETWEEN
PROFILES WITH
POLYESTER
FILLER

LEAD PLATES
SCREWED TO
INSIDE OF F1
TO ACHIEVE
CORRECT
C of OG

K2

C1

400

F1

F2

F3

F4

F5

MPX STYLE
TOW RELEASE

SMOOTH OVER
CAR

K1

F6

3mm LITEPLY
TEMPORARY FORMER:
REMOVE AFTER PLANKING

F7

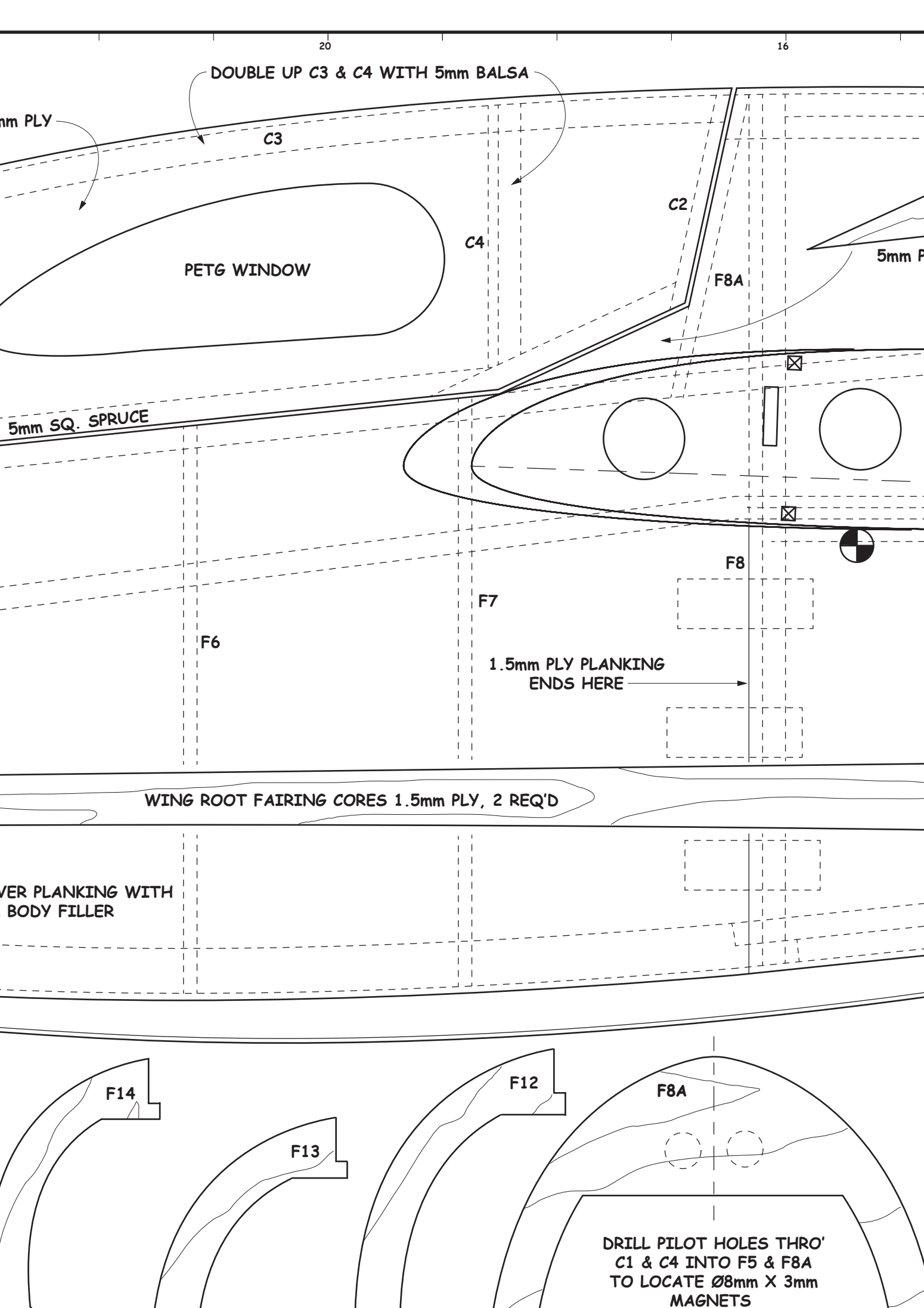
3mm LITEPLY
TEMPORARY FORMER:
REMOVE AFTER PLANKING

F16

LINE SKID WITH
ALI. STRIP

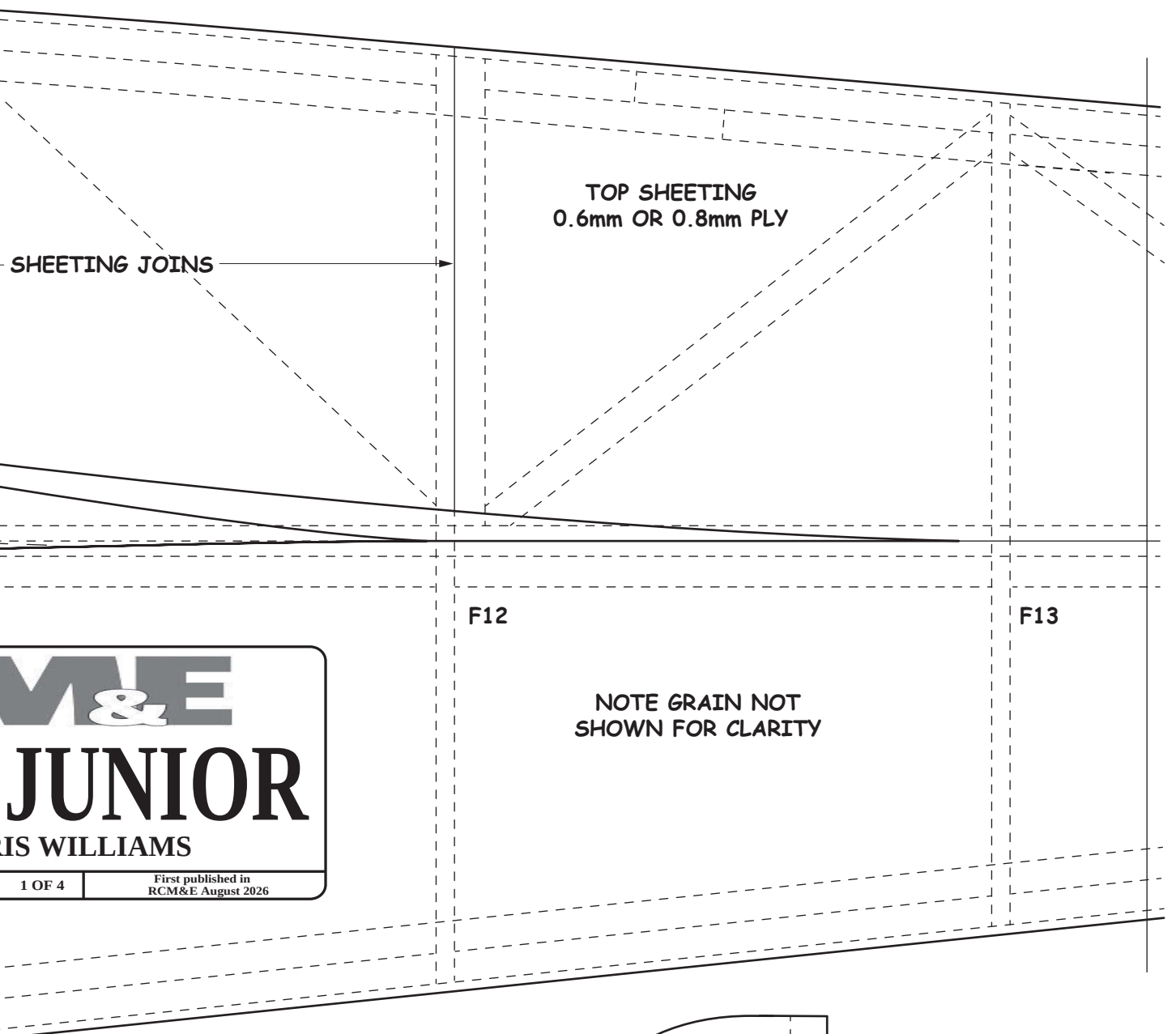
300

F15





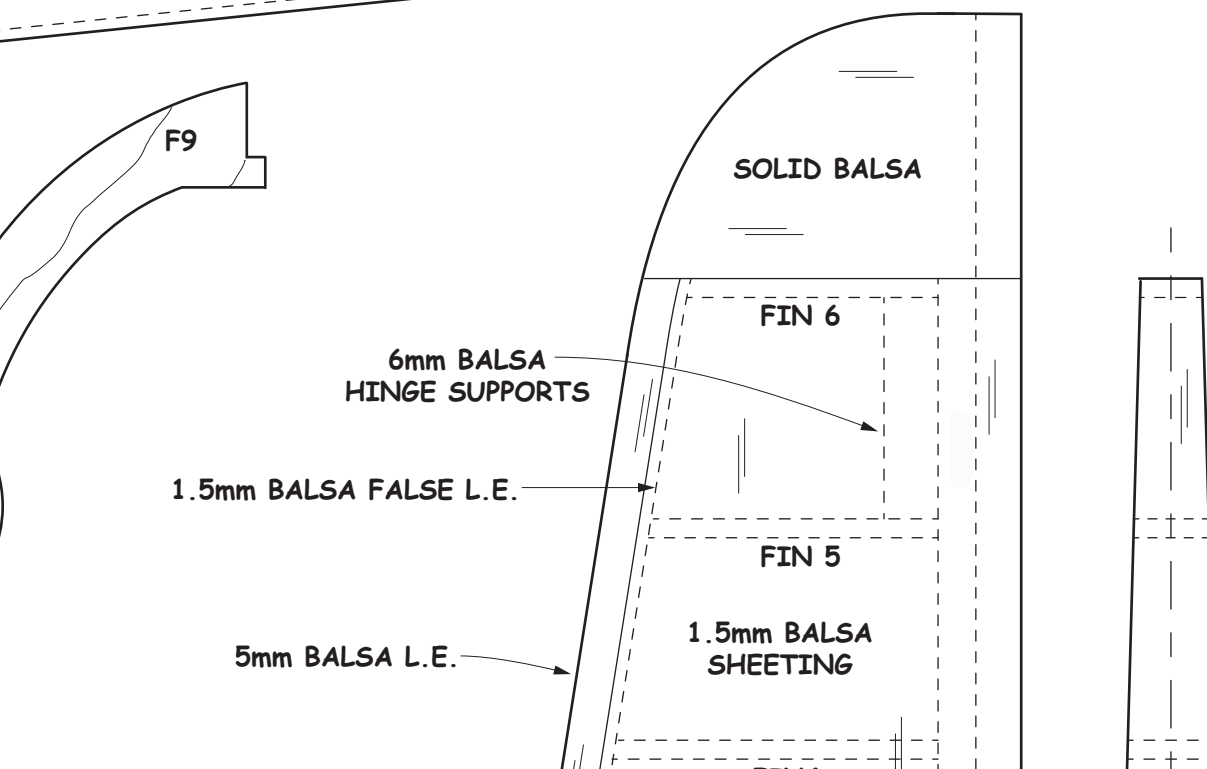
5mm PLY

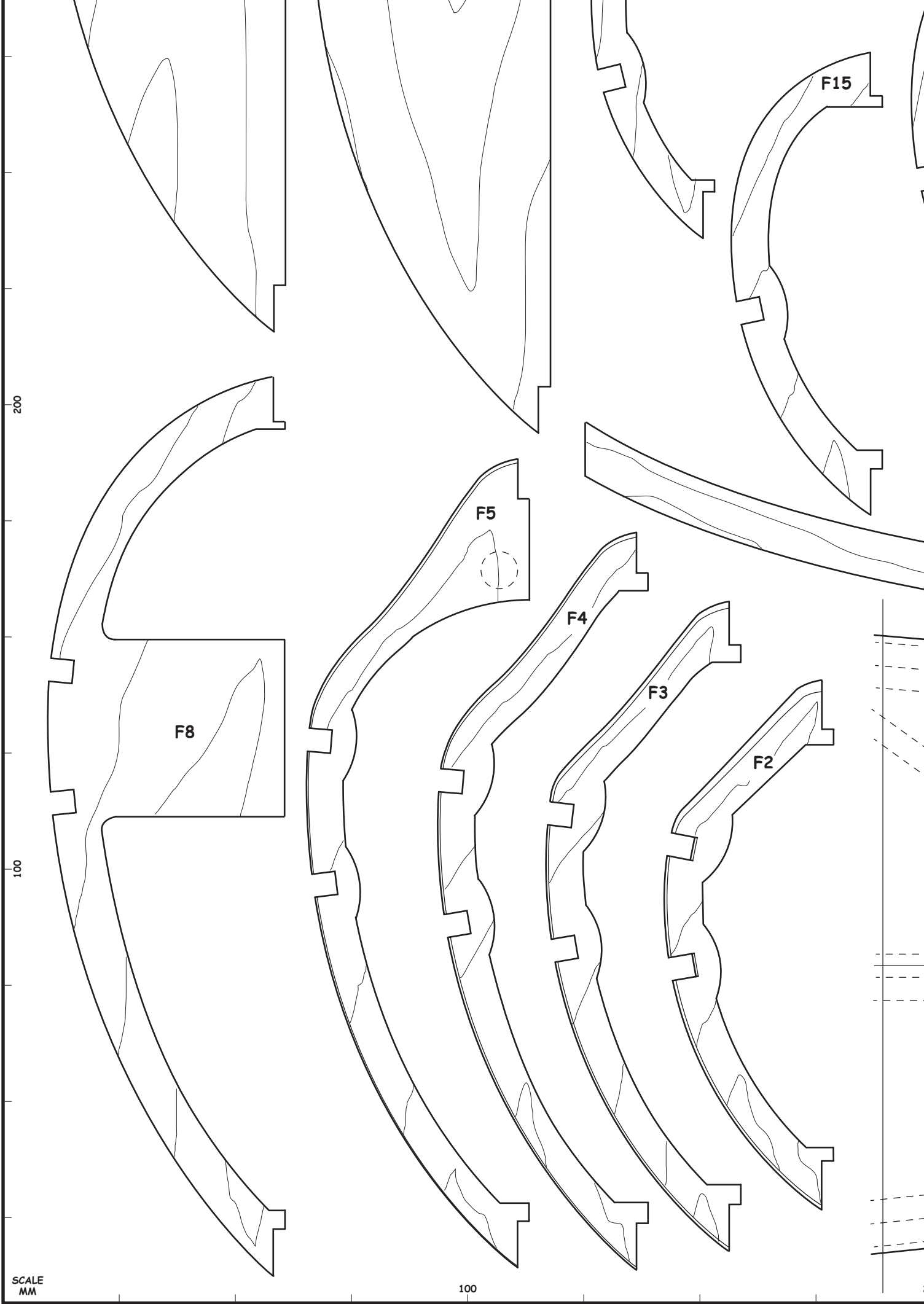


M&E
JUNIOR
IS WILLIAMS

1 OF 4

First published in
RCM&E August 2026





200

100

SCALE
MM

100

DRILL PILOT HOLES THRO'
C1 & C4 INTO F5 & F8A
TO LOCATE Ø8mm X 3mm
MAGNETS

C1

ALL FORMERS 3mm PLY UNLESS OTHER

K1 5mm PLY

5mm SQ BALSA
DIAGONALS

D-Sperber Junior

F14

F15

FIT BOWDEN CAB
UP TO F11 TO SUPP
CABLES

HRO'
'8A
3mm

NOSE PROFILES
3mm LITEPLY

SCALE: 1:4.56
SPAN: 3.43m
WEIGHT: 8lbs (3.6kg)
WING SECTION: HQ35/14-12

LY UNLESS OTHERWISE STATED

MAKE UP CURVED
WITH SCRAP BAL
LITEPLY

GLUE TAILPLANE MOUNTS EITHER SIDE OF TOP
LONGERON, AFTER CUTTING OUT THE PART WHERE
THE ELEVATOR ACTUATOR NEEDS TO MOVE

NOTE GRAIN NOT
SHOWN FOR CLARITY

IT BOWDEN CABLE OUTER
TO F11 TO SUPPORT RUDDER
CABLES

F16

RUDDER CABLE
GUIDE EXIT

F17

TAILPLANE MOUNT 12mm Balsa, 2 REQ'D

400

500

1.5mm BALSA SHEETING

FIN4

OVERLAP SHEETING BY
6mm TO MAKE RUDDER
SHROUD

FIN3

FIN2

FIN 1

FRONT
LSA &

FIN FAIRING
0.8mm PLY

FIN 1A

FIN 1B

FIN 1C

F17

F18

F18

FIN POST
5mm HARD BALSA

TAILSKID

600

700

12

16

20

28

24

500

F14

F15

C3 3mm PLY

400

BASIC FUSELAGE CONSTRUCTION SEQUENCE

- 1: PIN KEELS TO PLAN & TEMPORARY KEEL BETWEEN F1 & F8
- 2: ADD FORMER HALVES AND 5mm SQ. SPRUCE MAIN & UPPER LONGERONS
- 3: START TO BUILD UP 1.5mm PLY PLANKING AT THE FRONT UNTIL THERE IS ENOUGH TO RENDER THE FRONT SEMI RIGID
- 4: FILL-IN BETWEEN FORMERS ON REAR KEELS AND TOP OF LONGERON WITH 5mm SQ. BALSA STRIP FROM F8 REARWARDS & ADD THE 6mm SQ. BALSA DIAGONALS
- 5: AFTER ADDING ENOUGH PLANKING AT THE FRONT TO RENDER THE HALF-SHELL RIGID, REMOVE IT FROM THE BOARD & REPEAT PROCESS FOR THE OTHER SIDE

K3 5mm BALSA

300

NOTE GRAIN NOT
SHOWN FOR CLARITY

F16

K2 5mm PLY

RUDDER LAMINATION

C2

RUDDER T.E. 1.5

C4

FI

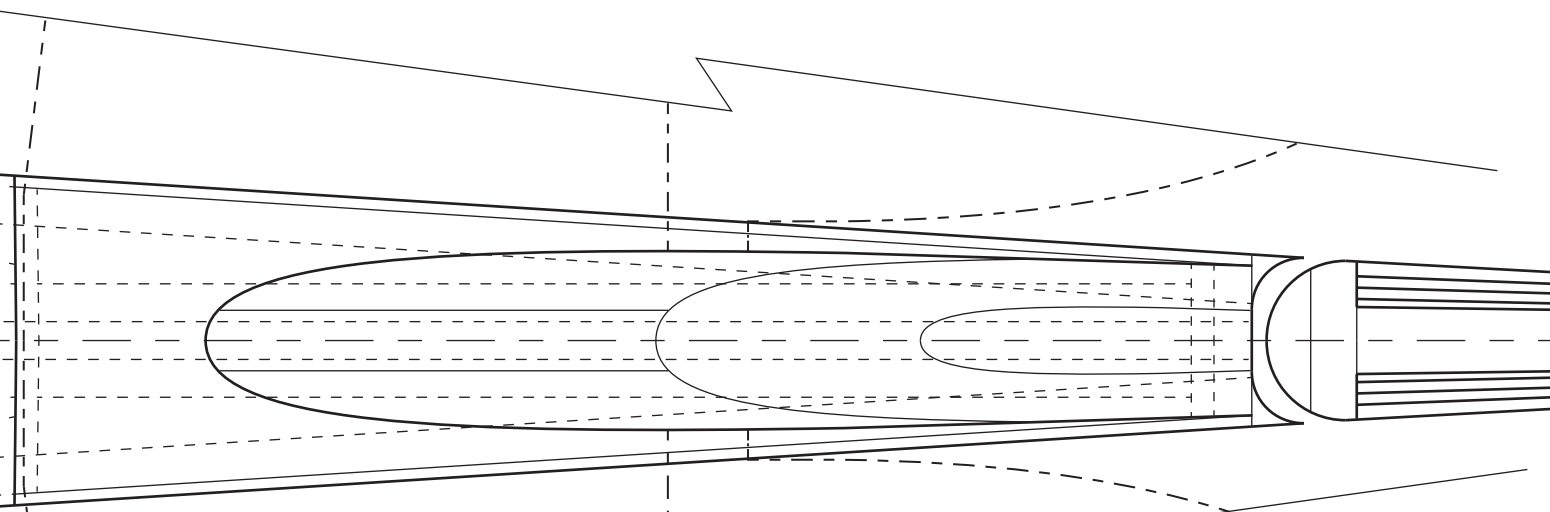
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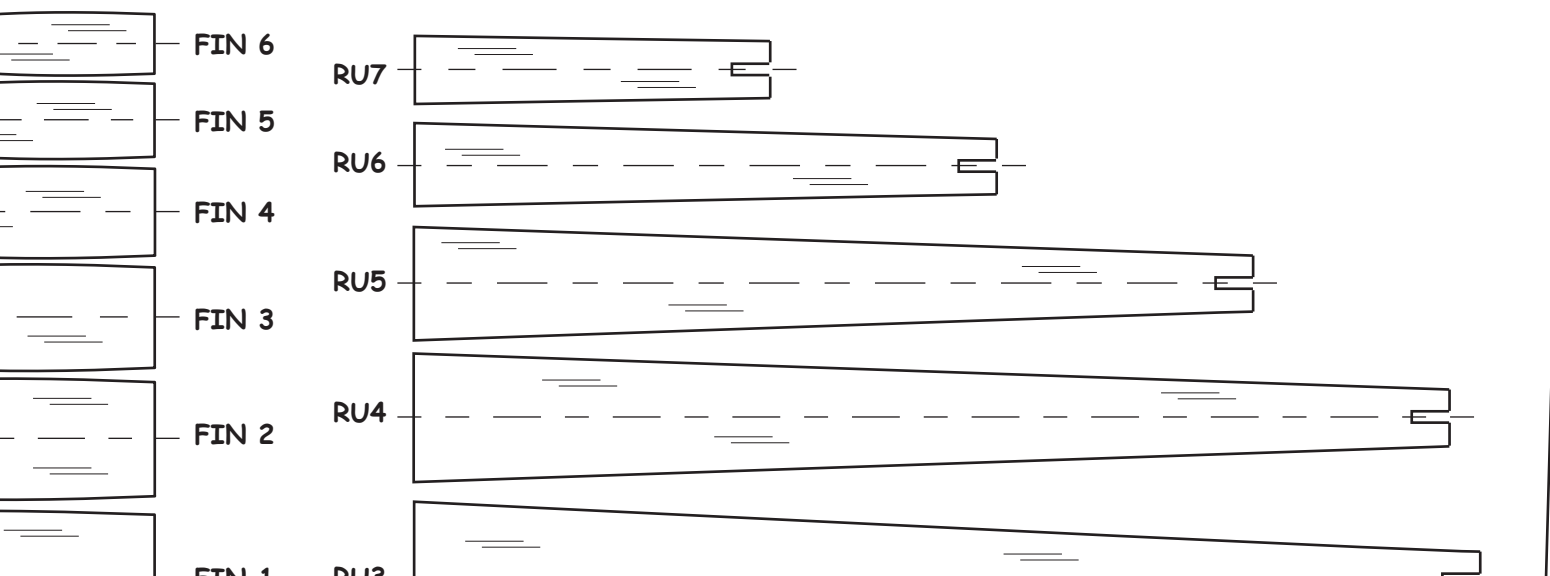
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RUDDER LAMINATIONS 3mm BALSA

RUDDER T.E. 1.5mm PLY



TAILSKID 6mm PLY

SOLID BALS

RCM&E

SPERBER JUNIOR

DESIGNED BY CHRIS WILLIAMS

PLAN No: RC2285

No. OF SHEETS: 2 OF 4

First published in
RCM&E August 2026

RU7

6mm Balsa
HINGE SUPPORTS

RU6

0.6mm OR 0.8mm PLY GUSSETS
BOTH SIDES, FEATHER OUT TO
RAZOR EDGET.E. 1.5mm PLY, LAMINATED
EACH SIDE WITH 3mm Balsa

RU5

70mm ROBERT STYLE PIN HINGES
FOR THE MIDDLE & LOWER POINTS,
50mm HINGE FOR THE TOP

RU4

RUDDER FALSE L.E.

MAKE UP 3mm
Balsa DIAGONALS

ROUGH TEMPLATE FOR FRONT SECTION OF CANOPY

SKID FROM 8mm Balsa

F1

F2

F3

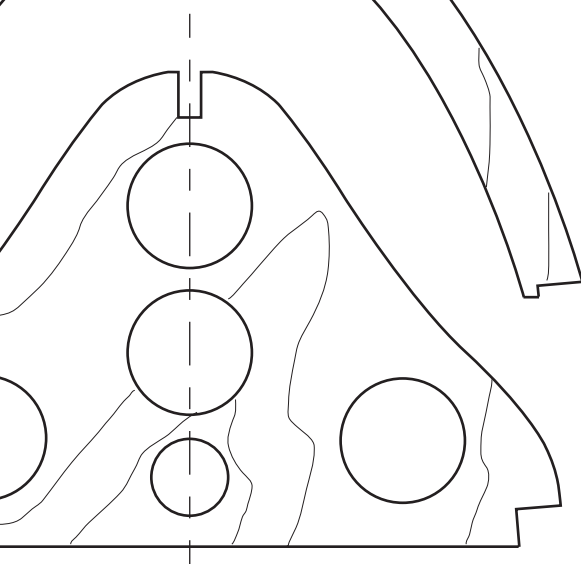
F4

F5

C1

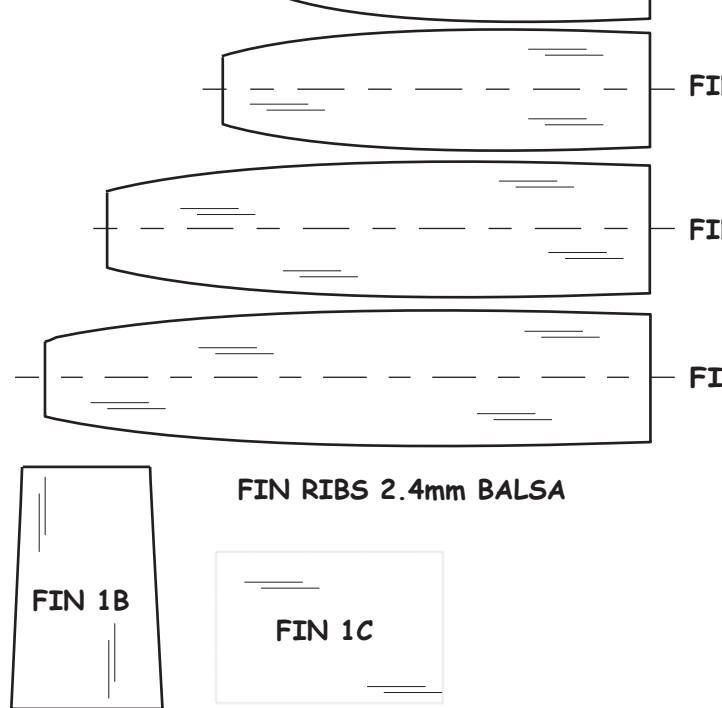
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OPTIONAL INSTRUMENT PANEL

ORE WITH 1.5mm PLY SIDES

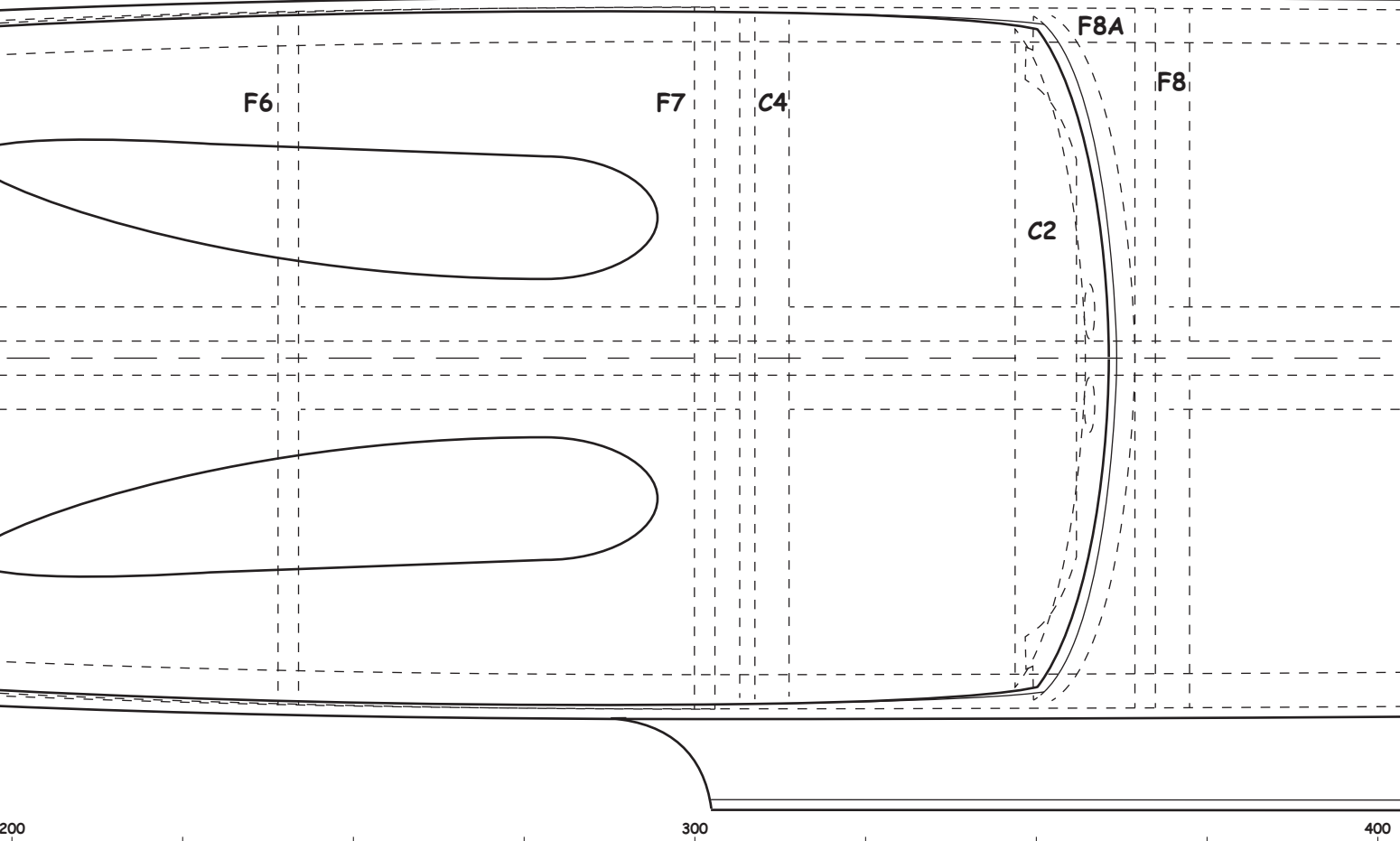


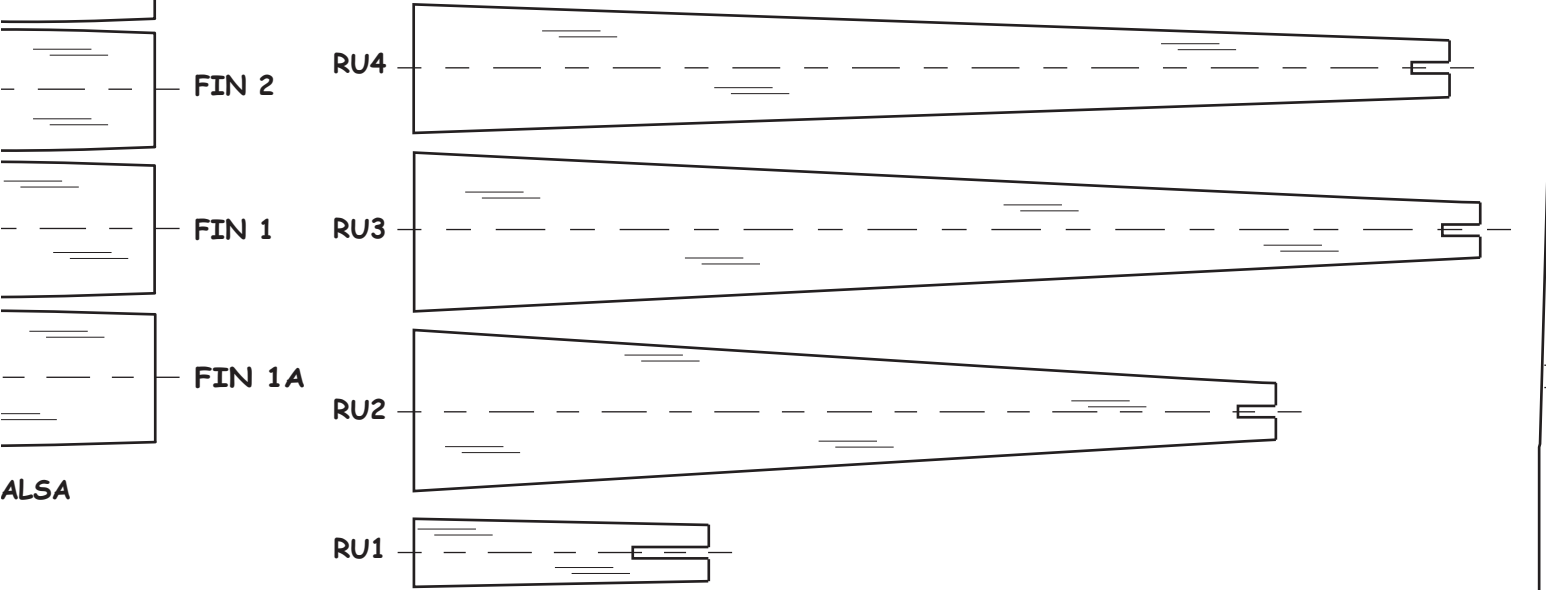
FIN RIBS 2.4mm BALSA

FIN 1B

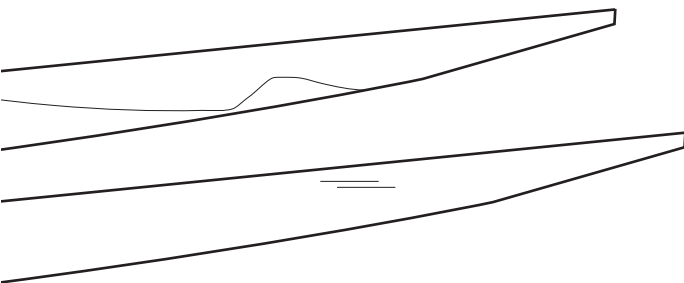
FIN 1C

MAKE UP V
1.5mm PLY



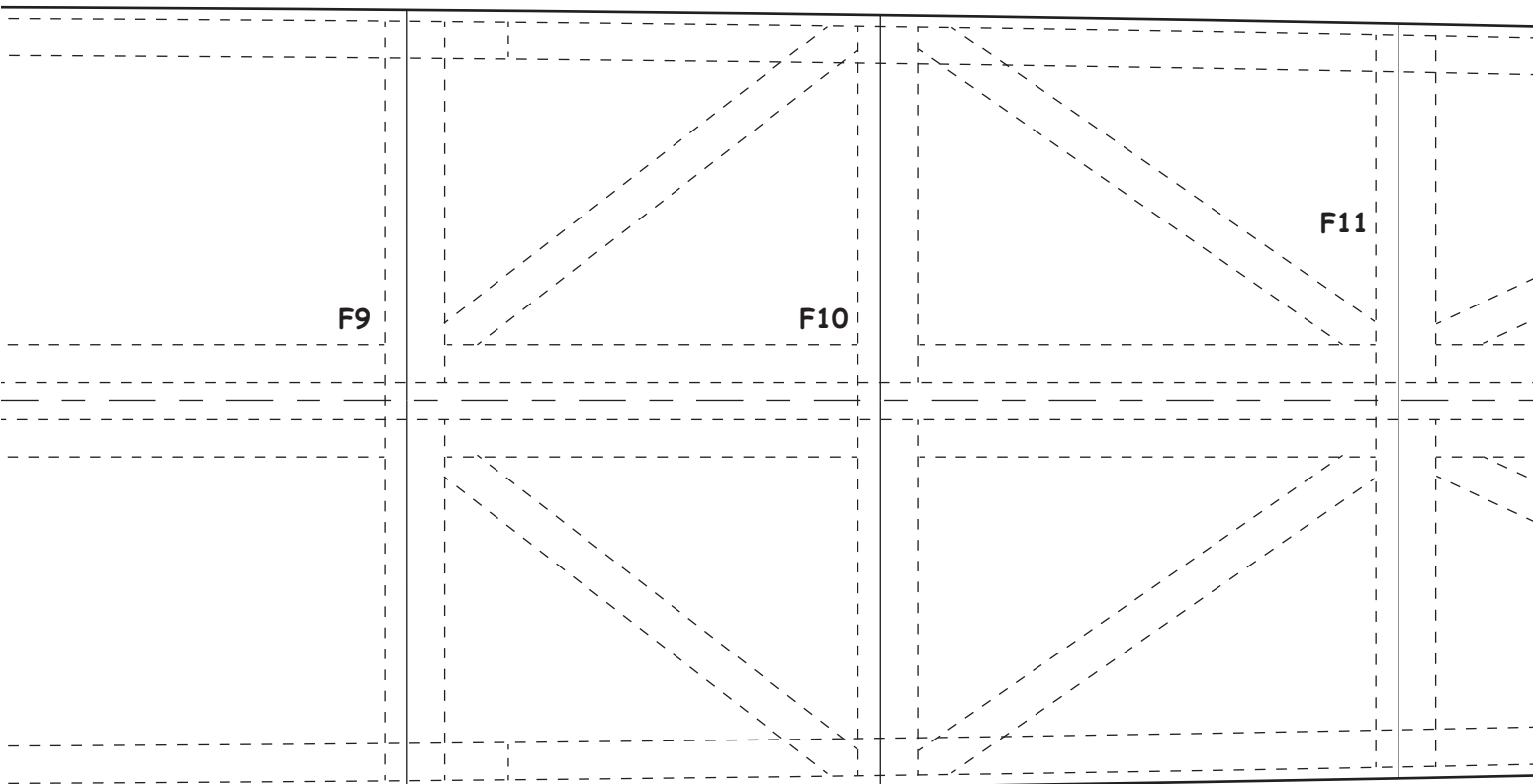


RUDDER RIBS FROM 3mm HARD BALSA



MAKE UP WING ROOT FAIRINGS BY OFFERING UP
1.5mm PLY BLANKS TO WING ROOT AND DRAWING
AROUND

FILL IN WITH BALSA & FINISH OFF WITH FILLER



400

500

