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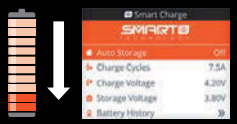

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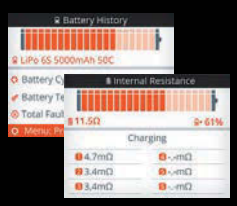

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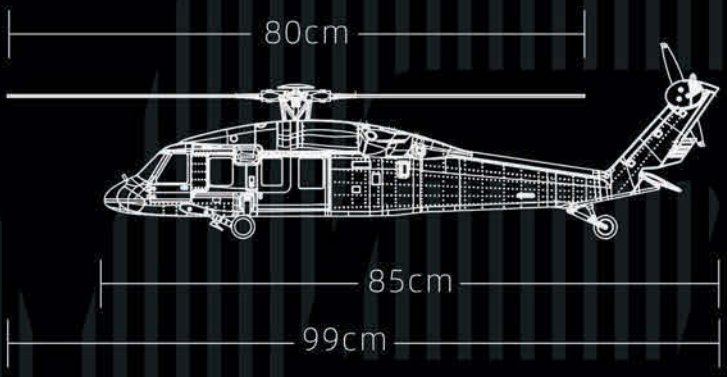

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Welcome

Welcome to the June 2026 issue of RCM&E.

Has anyone else noticed a slow decline in the shared use of our valuable flightlines? I'm not talking about the attendance at model flying fields as that seems quite healthy and on any decent flying day at my local model clubs there are sure to be quite a few club members enjoying a day out. But it's the quantity of models actually flying at any one time that seems to be declining.

When I started flying R/C models back in the 1970s it was common for all six primary frequencies to be in use. We flew using the 27 MHz band back then, with a coloured pennant attached to the end of our telescopic aerials to signify our chosen channel. One or two models might be on the ground, with their owners either starting their engines or being carried out to the flying strip, likely to be just a few paces away. But it was a regular experience to fly with at least four other models in the air at any one time and sometimes six or more aeroplanes would be circulating. I say more as there were always a couple of brave souls using split frequencies to avoid the queue waiting for the 'peg' that we used to clip onto our aerials to claim use of a particular colour for a few interference free minutes.

I wouldn't like to see us return to such crowded skies (although it can sometimes seem that way when I'm thermal soaring, but gliders are mostly flown far more spread out than power models). However, nowadays it's quite common to fly a power model alone or joined on rare occasions by another pilot. At one club there's often a short queue of pilots waiting for clear air so that we can fly solo! To outsiders this might all seem a bit weird considering the multitude of channels that we enjoy when using modern R/C sets.

Don't get me wrong. It's lovely to have the sky to myself for a few precious minutes but I think it's important that we retain the ability to fly with at least a couple of other models – and it's a skill that needs to be passed on to trainee pilots too! When flying sessions need to be kept short, say for just an hour or two, I don't have the luxury of hanging around too much for my next flying fix, so please excuse me if I join you for my next flight.

Crikey, it's time for the mid-summer issue already. So, what's in store this time?

Mike Freeman starts things rolling by investigating prop-driven thrusters fitted to a couple of display model jets. Next, E-flite's pretty little Sportix 1.1 m aerobat is put through its paces before we join Neil Hall (Golden Glow) for another IC power feature - petrol this time! Chris Williams returns to White Sheet hill for more 'Scale Gliding' before Kev Scott offers further advice on 3D printing, making accessories for a foam board plane.

This month's pull-out Pro-Plan is a real model builder's treat, accompanied by part one of Graham McAllister's article on building a semi-scale DH.87B Hornet Moth. Part two follows in the July issue.

Next, we test another easy to fly GPS scale helicopter, the Fly Wing Bell-412, before our roving European show reporter Thorsten Häs visits the Faszination Modellbau show, held late each year in Friedrichshafen, Germany. Dave Goodenough (One Man & His Shed) gathers more useful tips and hacks from his workshop before John Stennard (Insider) follows with news from his indoor flying venues, test flying a P-51 Cartoon Warbird and trying his hand at drone soccer.

I hope you enjoy reading it all.

Happy Flying!

Kevin Crozier

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On the cover

Photo: Graham McAllister

Graham McAllister was looking at the Tinker biplane plan by David Boddington. Whilst he liked the idea of building a simple cabin biplane, he thought it wouldn't be hard to build a sport scale cabin biplane in a similar manner. The DH.87 Hornet Moth came to mind with its boxy cabin and lovely de Havilland nose and tail. Things escalated and the result is a simple enough build and it flies like a three-channel vintage model. With a wingspan of 134 cm (52.5"), construction is conventional balsa and lite ply covered with heat shrink film.

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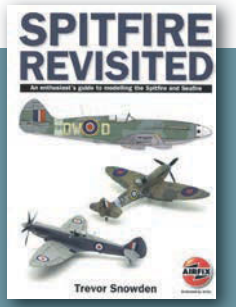

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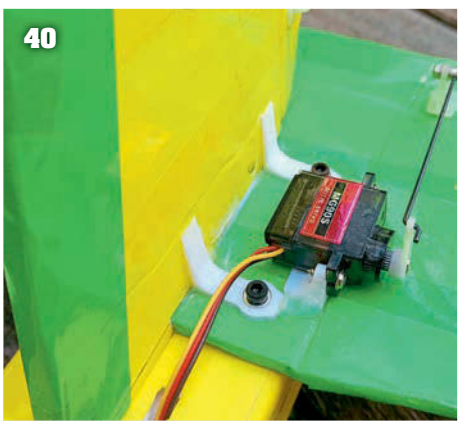


WORCESTER'S FAB FOUR

Pictured left to right: Neil Hall, Chris Layton, John Harris, Roger Styles, Mike Strain

Worcester Model Aero Club recently gained four BMFA Approved Instructors. Roger Styles reveals more about the club's training programme.

About eighteen months ago the committee at WMAC decided to launch a campaign to recruit new members into our club to share our wonderful and absorbing hobby. We embarked on a number of outreach activities such as engagement with local schools, providing talks and flight experience days for the local Air Cadet Squadrons, raising awareness through regular social media posts and showcasing our club through our website that shows we are a very active club with many events planned throughout the year.

It has been very satisfying to see our efforts rewarded with several new members joining the club. Whilst some already have R/C flying experience the majority need instruction. To date that instruction has been provided by a couple of club instructors who have selflessly given much of their time to training over the last twelve months. However, we recognised we needed to be a bit smarter if we were going to give our new members all the support they needed to get up and flying as quickly as possible. It is a club rule that pilots must hold a BMFA 'A' certificate to fly solo so we wanted to formalise the training so that student pilots could get the most from their time on the sticks and advance towards their A certificate as quickly as possible. Therefore, four club members volunteered to undertake the necessary study and practical tests to achieve BMFA Approved Instructor status.

This will have several advantages for the club and the student pilots. By following the training schedule as set out in the BMFA 'A Flying Start' we can ensure consistency of approach from all instructors. This has the advantage that students have much more opportunity to get instruction from any one of our four instructors rather than just pairing with one instructor and being limited to that instructor's availability. We have also introduced the use of logbooks for the students so any instructor can see at a glance what stage the student is at and what flying module they were last flying.

On Saturday 18th April the four volunteers, Neil Hall, Mike Strain, Chris Layton and Roger Styles were put to the test by John Haris from the BMFA Western Area. John is one of the Area Chief Examiners / Chief Instructors. The day dawned with lovely sunshine but arriving at the flying site we were greeted with a wicked gusty crosswind to contend with. I can't believe how nervous we all were despite having been R/C pilots with our B Certificates for many years. However, John was there to support and encourage us and gave some very good feedback and mentoring on the day, sharing tips for us to incorporate into our training going forward. Happily, we all passed and are now Approved Instructors and, as we hold our B certificates, we will automatically become Qualified Instructors after twelve months, providing we remain members of the BMFA during that time.

I have to say we all found the process of preparing for the Approved Instructor test very gratifying. To refresh ourselves on all the safety Codes of Practice, the terms of our Article 16 Authorisation from the CAA and all the training guidance from the BMFA has been an excellent opportunity to really improve ourselves as instructors.

It has also been surprising to find how complacent we can become in our flying. Be honest, when was the last time you practiced flying an accurate figure of eight or a rectangular circuit with a gusty crosswind? Competition pilots probably do it every single time, but the average club flyer? I doubt it.

I would recommend any club instructors to take the next step and apply to be an Approved Instructor. We at WMAC have learned a lot and have become better instructors for our efforts.

BANBURY MFC FLAIR WEEKEND

Banbury Model Flying Club have hosted a Flair weekend for the last two years and due to popular demand, we are doing it again in 2026!

In the past we have made a small entry charge as we needed to cover the costs of portable toilets. But I have provisional agreement from our BMFA region to cover that cost this year so entry will be free.

Over the weekend of Saturday 22nd and Sunday 23rd August 2026 we will be celebrating the much-loved Flair Models kits with two full days of relaxed flying, nostalgia and chatter in the pits. The event's focus will be on all the many Flair designs, from well-flown veterans to fresh restorations, plus other scale and sport models are welcome.

We hope to once again welcome Dudley and Jane Patterson, along with Flair designer Pete Nicholson, to join us over the weekend. I see from the Flair Facebook group that Dudley has been building again, so we hope to see him maiden a new model!

BMFC's field is near Moreton Pinkney, north of Banbury. We have a rolled grass strip with pits and plenty of parking. Camping on site will be available from Friday 21st August for £5 per night, with running water and toilets but no electric hook-up.

BMFA insurance and proof of competence will be required to fly. The usual soft drinks, tea, coffee hot dogs and burgers will be available with proceeds going to club funds. We don't currently have LiPo charging facilities, but generators are allowed.

Ben Smith proudly displays his Flair Puppeteer at Banbury's Flair Weekend in 2024. Picture courtesy of Mike Freeman.

For more information or to book camping, please contact Stuart at Banbury Model Flying Club: stuart.bmfc@gmail.com

Alan Hunt
BMFC Flair Weekend organiser

FLY-MI CHALLENGE AIRCRAFT

Fly-Mi EUROAVIA Milano is a student association from the Department of Aerospace Science and Technology (DAER) at Politecnico di Milano, a prestigious technical university based in the famous Italian city.

Founded in 2022, Fly-Mi is composed of around 100 students divided into specialised departments: aerodynamics, flight mechanics, structures, electronics and propulsion, marketing and communication. They design and build innovative fixed-wing drones, entirely developed by their students, with the aim of competing in international competitions and pushing further the boundaries of research and experimentation.

Among Fly-Mi's main prototypes are:

Nyx

Nyx is a fixed-wing aircraft designed and built to take part in the Air Cargo Challenge 2024, hosted by the Aachen Drone Development Initiative (ADDI) and EUROAVIA Aachen. The competition's goal was to transport as many billiard balls as possible in the fastest and most efficient way through a mission consisting of take-off, 90 seconds of efficiency flight, 90 seconds of velocity flight and landing.

To achieve this the team developed a single tractor-propeller configuration capable of carrying seven billiard balls. Nyx has a wingspan of three metres, a wing surface of 0.62 m², a fuselage length of 1.5 metres and a maximum take-off mass of 5 kg, with 65% structural mass and 35% payload.

The bullet-shaped carbon fibre fuselage houses electronics and payload, with a removable rear section to simplify loading operations. The mid-wing is directly integrated into the fuselage, while a 3D-printed T-tail is connected through a tube. A tricycle landing gear completes the design.

Entirely handcrafted using carbon fibre, Kevlar, Rohacell and fibreglass, with autoclave lamination, Nyx combines strength and lightness, delivering a reliable and competitive solution for the challenge.

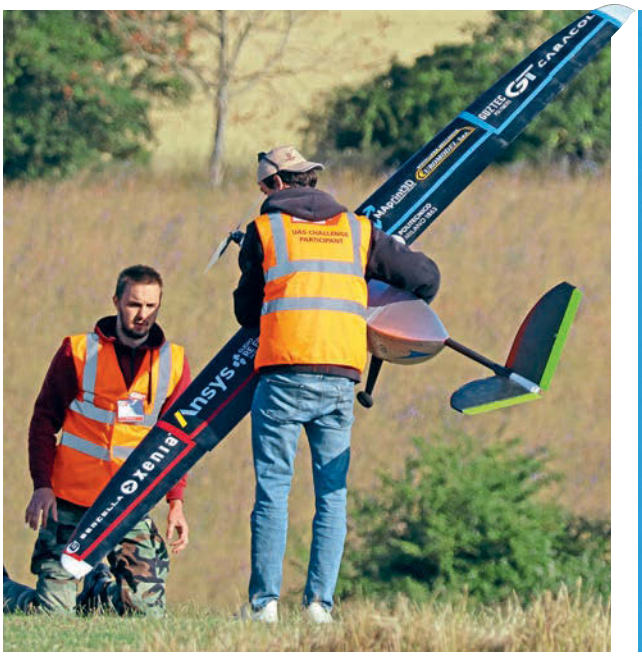
O.L.I.V.I.A.

In 2025, Fly-Mi EUROAVIA Milano achieved success with O.L.I.V.I.A. (Optimized Lightweight Intelligent Vehicle for Immediate Assistance), an aircraft developed for the UAS Challenge organised by IMechE. The competition focuses on designing autonomous UAVs capable of delivering humanitarian aid in emergency scenarios. Fly-Mi's team earned third place overall and was awarded the prestigious Safety Award for their innovative approach.

O.L.I.V.I.A. is a fixed-wing drone featuring a traditional longitudinal configuration with a V-tail and a semi-elliptic high wing. The fuselage is designed to accommodate a jettisonable, parachute-equipped payload bay, capable of carrying up to 1.75 kg of sand, the competition's standard payload. Built with advanced composite materials – carbon fibre, glass fibre, Rohacell and honeycomb – laminated in an autoclave, the structure offers both strength and low weight.

The project's most distinctive aspect lies in its electronics and control system. Two separate batteries power the propulsion and avionics independently, enhancing safety and reliability. Redundant GPS and radio links, along with a dedicated cooling architecture, contributed to securing the Safety Award.

Autonomous flight, developed using the open-source Ardupilot firmware, represents the technological core of the project, demonstrating Fly-Mi's commitment to innovation, safety and efficiency in UAV design.

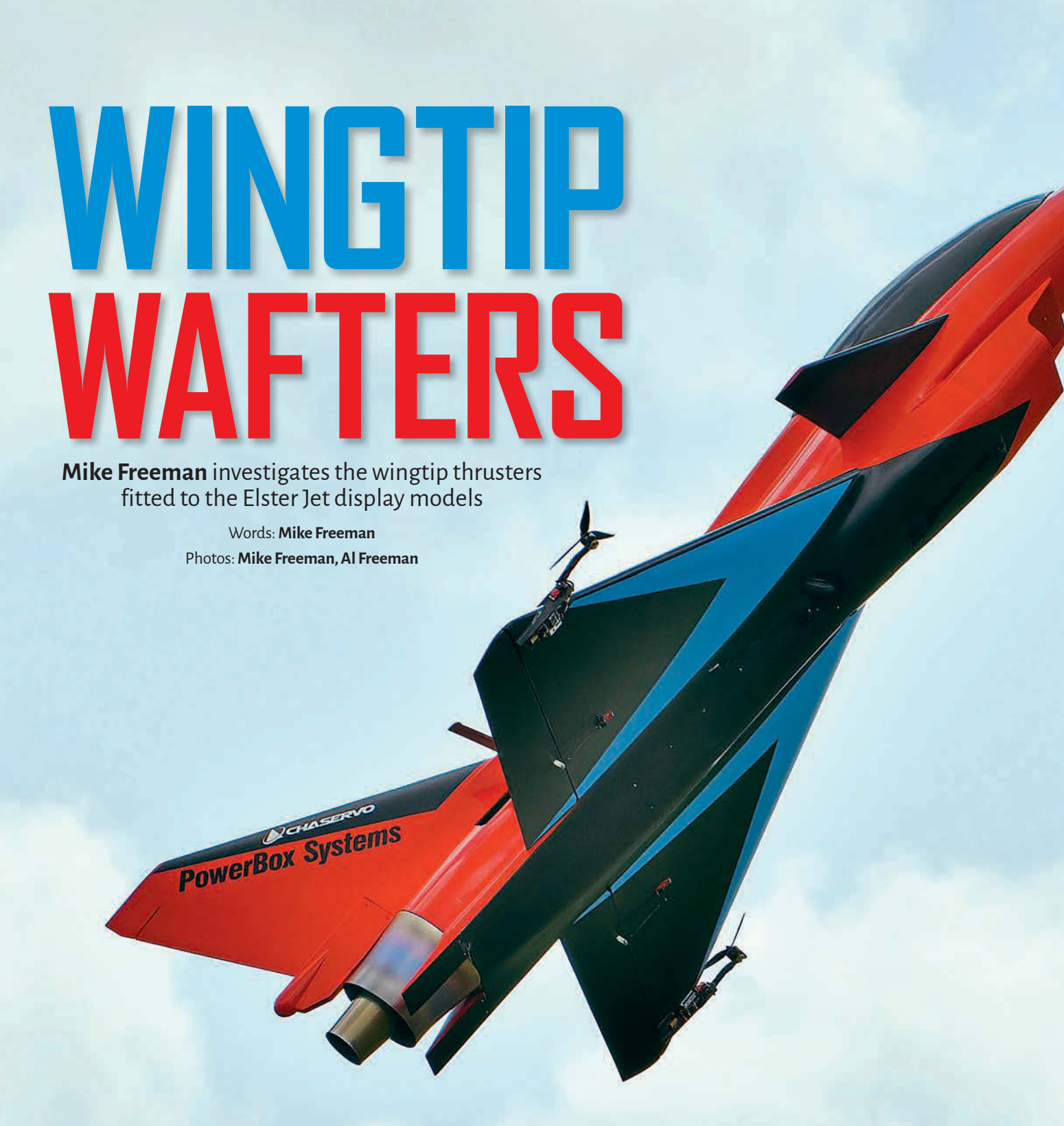


WINGTIP WAFTERS

Mike Freeman investigates the wingtip thrusters fitted to the Elster Jet display models

Words: **Mike Freeman**

Photos: **Mike Freeman, Al Freeman**



Elster Jet Display pilots Ralph Losemann and Enrico Thäter are regular visitors to Weston Park with their impressive vectored thrust jets, with which they perform stunning aerial displays. For the 2025 show they brought along a couple of 1:4.5 scale, 2.2 metre span Chengdu J-10 jets which they had designed and built themselves using lightweight carbon fibre and honeycomb construction, each powered by a JetCat P-250 Pro turbine. Gorgeous models but on closer inspection you couldn't help but notice the curious wingtip appendages attached to each model which demanded further investigation.

DESIGN DEVELOPMENT

Ralph and Enrico are always looking for ways to improve or enhance their duo displays. The jet turbine vectored thrust nozzles on their models allow for some amazing aerial antics but the lack of airflow over the ailerons in a vertical hover or high alpha pass means it is sometimes difficult for them to choreograph and display synchronised manoeuvres. To try and improve the roll control whilst hovering they started experimenting with wing tip mounted thrusters using electric motors and props. The original idea was to have the thrusters fixed to the wing tips with the props parallel to the direction of flight but it wasn't long before they had the idea of fitting the pylon mounts for the thrusters to the output arm of a servo and adding a new dimension to the idea, allowing them to rotate the thrusters so the props were at 90° to the direction of flight, enabling them to also use the electric drives for forward - and reverse - travel.

PRACTICALITIES

To provide enough thrust to drive the 24 kg models forwards and backwards would require a substantial motor/prop combination and after some experimentation Ralph and Enrico

Ralph Losemann (left) and Enrico Thäter stand behind their home-grown Chengdu J-10 jets at Weston Park 2025. Look closely at the wingtips and you can see the thrusters sitting in 'parked' mode.

The vectored thrust nozzle on Enrico's J-10 is perfect at keeping the model 3D controlled in pitch and yaw planes but is not very effective in the roll plane.

Ralph and Enrico use switches to rotate the thrusters to the desired position and a slider to control the motor speed for forward and backwards motion. When the thrusters are in 'enhanced roll' mode the ESCs are mixed with the ailerons to give differential thrust from each wing tip when the aileron stick is moved. Very clever!

See the drawing nearby which shows the thrusters in their different flight modes.

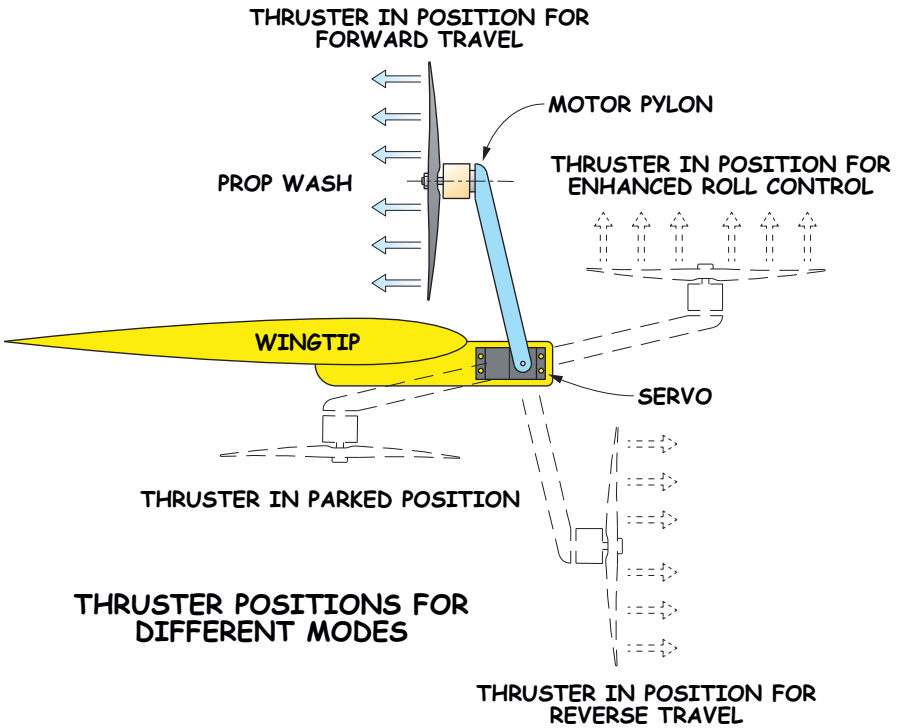
WAFTING

Ralph and Enrico gave the Weston Park crowd an entertaining display with a difference. They taxied out onto the strip in the usual way but Enrico intentionally overshot his starting point, pretending he was struggling to get lined up, saying over the PA system, *"Oh, no! I'm too far down the runway. What shall I do!"* After a brief pause, while Enrico was engaging reverse thrusters, the PA system suddenly burst into

"…they started experimenting with wing tip mounted thrusters using electric motors and props"

settled on a large brushless outrunner driving a 9 x 5 three-bladed prop powered by a 6S LiPo pack and a 65A ESC fitted to each wing tip.

The thrust from this combination on the end of the pylon mounts generates an immense torque at the servo, requiring servos with a holding torque and robust gearbox to match! After much experimentation and many shredded gears Ralph and Enrico finally settled on Chaservo HV7010 servos. These monsters have a massive holding torque of 70 kg.cm. (972 oz.in.). In context the servos in a typical club flier's model, like a Hitec HS-85MG, has a torque of 3.5 kg.cm.!



Once airborne the thrusters are switched to 'enhanced roll' mode ready for action. They're not necessary during normal flight when the ailerons are effective.

This year's Weston Park Model Air Show will take place on 19–21 June. Visitors can look forward to a special appearance by JetMan, who will perform impressive manoeuvres wearing his Gravity Jet Suit. Please check the show website for dates & times: https://www.airshowinternational.co.uk

The thrusters come into their own when the models are flying slowly or in a vertical hover when the ailerons are ineffective, helping Ralph and Enrico to position their models exactly where they want them.

"I particularly liked the rapid axial rolls whilst the J-10s were in a vertical hover"

Here the thruster on Enrico's model is halfway between 'parked' and 'reverse' modes. The beefy Chaservo HV7010 servo was the only one Ralph and Enrico could find capable of coping with the immense torque generated from the set up!

song with the 1977 song 'Baby Come Back' and Enrico's J-10 reversed back into the correct take off position. Very amusing!

Once in the air the thrusters were switched into 'enhanced roll' mode and used to augment the ailerons when airflow was insufficient. I particularly liked the rapid axial rolls whilst the J-10s were in a vertical hover.

When it came to landing their models, Ralph and Enrico climbed to altitude, switched the thrusters to forward travel mode and throttled back to idle. In the eerie silence you could just hear the thrusters running and with the Simon & Garfunkel song 'The Sound of Silence' playing over the PA they descended and landed. Very entertaining! ■

Enrico used the thrusters in 'forward' mode to overshoot his take of spot...

...and then, with the thrusters in 'reverse' mode and the song 'Baby Come Back' playing over the PA system, he reversed it back into position.

Ralph's J-10 takes to the air. The thrusters are tucked back in 'parked' mode during take-off.

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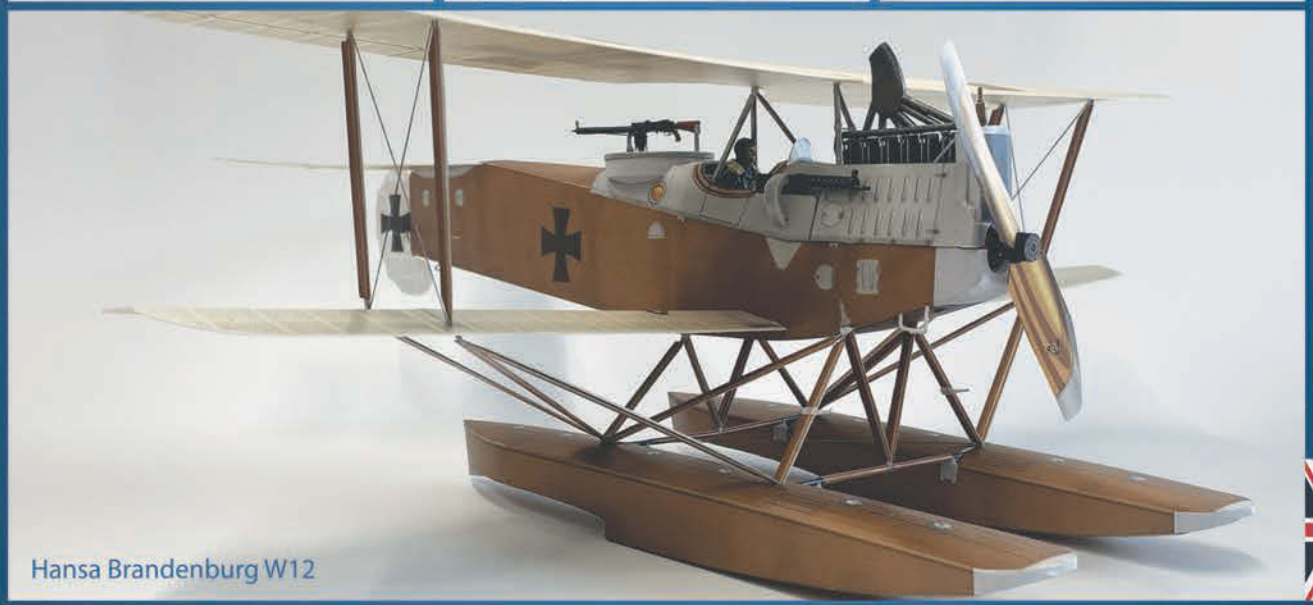
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Tony Ray Aero Model

Our Tony Ray range of balsa model kits is set to expand further this year. Firstly, with a 1/5th Bucker Jungmester BU133, then with a 1/6th 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 Kavans specification - their latest budget programmable set is about £95.00

Hacker CZ

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

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SPORTIX 1.1m

We test the BNF version of E-flite's attractive mid-winger, designated as a perfect 'next step after a trainer' and an everyday aerobat for more experienced pilots

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

Just when we think we've seen it all regarding foam models something comes along to prove that some manufacturers are not content to rest on their laurels. Take the Sportix 1.1m, a neat little sport aerobatic model from E-flite. It closely resembles a couple of similar size planes from the same brand that we've flown regularly over the past few years. They were very easy to put together and still fly very well, but since our last foray with an E-flite aeroplane it's obvious that they have made construction even easier and simpler, if you can imagine that is possible.

Our previous models have wing panels pushed onto carbon tube spars and secured with small screws. Ditto Sportix, but instead of screws the panels are secured with quarter turn spring retainers inside the radio/battery bay. Our older models have aileron servo leads that need pushing through holes in the fuselage sides and connecting to short extension leads from the receiver. Hardly a hardship, we know, but with Sportix the servo connectors are hard mounted at the wing roots, so they connect automatically when the wings are pushed into place. A press down and quarter turn on the retainers is all that is needed to lock each panel, so there are no small screws to fumble with. Also, there's no possibility of trapping the extension leads between the wings and fuselage sides which can cause the wires to break.

At the tail those older models had tail halves secured by either screws or just taped to the root fillets on the side of the fuselage. Again, easy and effective, but with Sportix the tail halves simply slide over a smaller carbon tube and clip into place. No screws and no tape. This makes them easy to remove if space is an issue when either storing or transporting the model.

No glue or special tools are required to assemble this sporty aeroplane!

BUILD DONE?

We've hardly started this review and the main assembly is complete. Say no more? Well, not quite. Let's rewind to unboxing the airframe, which comes nestled in a polystyrene tray within a colourful outer box. After several decades of building model aeroplanes, we still make a fuss over needing to read the manual (if there is one!) before starting work and this time we should have heeded our own words. Ironically, we fell at the first hurdle simply because of the quality of the illustrations in the 88-page multilingual manual, the first 23 pages of which are in English.

Each step is described by short text, accompanied by a line drawing. Stage one is to install the main landing gear. The metal undercarriage is factory finished and painted yellow, complete with spats enclosing the pre-fitted wheels. A quick glance at the drawing shows the U/C sandwiched between a moulded cover and the belly of the model where it is secured with four screws. You'd normally find such a moulding and screws in a bag of hardware. But of that, nor any other accessories, was there any sign. The outer box and its polystyrene tray were re-examined before common sense prevailed and we actually read the words in the manual: '*...remove the 4 screws from the landing gear cover installed in the bottom of the fuselage.*' A quick look at the fuselage revealed that the cover had been hiding in plain sight all the time!

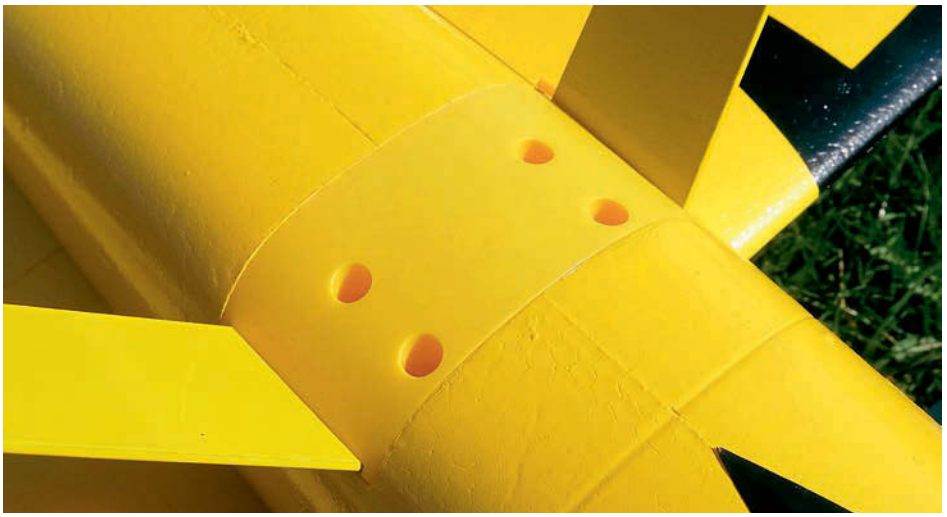
We almost made the same mistake with the wing and tail joiner tubes. Again, convention sees these taped into slots in the foam packaging. But the Sportix carries them inside its fuselage, pushed into holes in the roof of the turtle deck. You need to remove the canopy/battery hatch to find them but again the manual makes this clear. We really like this idea as what better place to store the joiner tubes than by reinserting them inside the model's turtle deck.

Quarter turn spring lock retainers make securing the wing panels a quick and easy task.

Two-piece wing has hands-free servo connections. Wing left, fuselage right.

"…what better place to store the joiner tubes than by reinserting them in inside the model's turtle deck"

The only other assembly tasks are to push the tailwheel into place and to fit the white 10" x 5" propeller, then secure the spinner. However, the prop is best left off until the radio set up is complete and a throttle hold switch has been allocated.

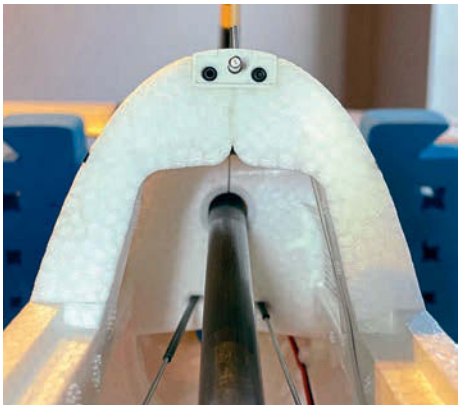


At first, we couldn't find the landing gear cover but it was hiding in plain sight, being temporarily screwed to the mounting plate. RTFM!

A LITTLE BIT OF FETTLING

Returning to the undercarriage, a quick spin of the wheels revealed that one was rotating freely but the other was binding slightly on its

Aluminium landing gear comes factory fitted with wheels and spats. Any binding on the spats can relieved by slackening the spat closure screws slightly.



Wing and tail joiner tubes can be reinserted underneath the turtle deck for transport and storage. Genius!

Tailwheel simply slots into place at the base of the large rudder.

Underneath the stylish cowling is a 3536-1030kV 14-pole brushless outrunner compatible with 3S and 4S batteries and matched to a white 10" x 5" propeller.

We fitted a Spektrum 2200 mAh 4S Smart LiPo so that we could use the telemetry functions provided by the AR631 six channel Rx and our Spektrum NX8+ Tx. But any 3S or 4S 2200 - 3200 mAh LiPo can be used if fitted with an IC3 (orange) or EC3 (blue) connector.

"It's far better to switch SAFE off so that AS3X+ is on all the time"

spat. This was relieved by slackening the spat closure screws by a small amount.

WHICH BATTERY

To fly the Sportix we used the recommended Spektrum 2200 mAh 4S Smart LiPo so that we could use the telemetry functions by matching it with the AR631 six channel receiver fitted to the BNF Sportix and our recently reviewed Spektrum NX8+ transmitter. However, any 3S or 4S 2200 - 3200 mAh LiPo can be used if fitted with either an IC3 (orange) or EC3 (blue) connector.

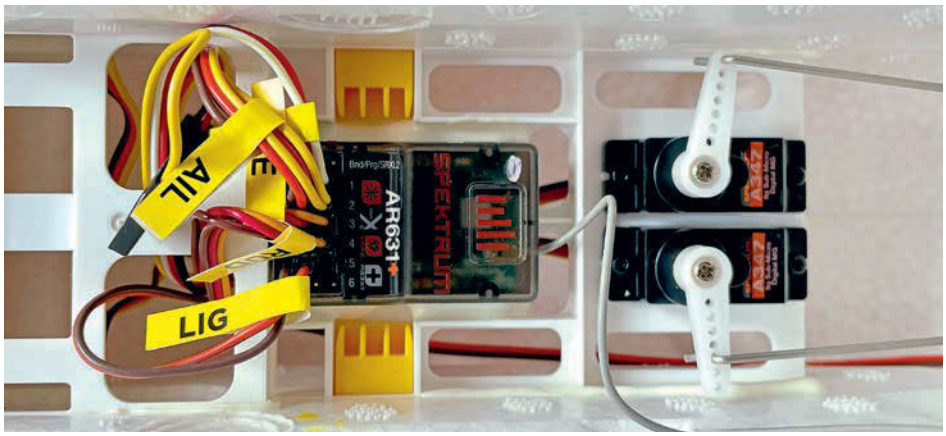
There is plenty of room on the battery tray to move the LiPo to achieve the correct Centre of Gravity position. The final CG will depend on personal preference and flying experience. However, we usually start with the manufacturer's recommended balance point, which in this case is 90 mm behind the leading edge of the wing, plus or minus 10 mm. To achieve this the LiPo was positioned almost at the front of the tray.

SETTING UP

As usual with E-flite BNF models a list of set up steps is shown in the manual for DX, NX and iX Spektrum transmitters. Or you can download an internal set up file for the Sportix after you have updated an NX or iX series transmitter to the latest firmware, or you can download the same file from the Spektrum website and import it into your Tx using a microSD card. You can read more about all this in the editor's RTFM column in the May issue of RCM&E.

However, our preferred option was to copy an existing model from our NX8+ transmitter and use that, making sure to zero any trims and cancel any specific set ups for the donor model. We then made sure that the dual rates and control throws matched those in the manual.

As supplied the control surfaces were set near to neutral. Indeed, we couldn't see any need to change the length of the aileron pushrods. We did tweak the rudder and elevator rods, popping off the ball-links to rotate them a half turn or so.



Factory fitted AR631+ receiver is loaded with a Smart Transmitter Model File that allows you to import settings for NX and iX series transmitters during binding.

Four A347 Sub-Micro Digital 9g Metal Gear servos operate the flight controls via ball-link linkages. Aileron servo shown here.

A large top mounted hatch provides easy access to the LiPo tray and the wing retainers.

We also set up a rudder/elevator mix to give slight down elevator on full rudder when performing knife edge passes. We copied this mix from our set up for the E-flite Artizan, which is a similar style of model and which we've enjoyed flying for several years.

IN AS3X WE TRUST

In Kevin's RTFM column in the May issue, he expressed some concern over the muted responses that we were getting from the Sportix AS3X+ stabilisation system compared to past experience with other AS3X gyro equipped models. We were expecting to see a lot of movement from the control surfaces when their responses to AS3X+ were checked. In this instance, whilst all the directions were fine the corrections made by the stabilisation system were very small.

KC queried whether this was because we had copied an existing set up, but when we checked the gyro gains against those from the NX8+'s internal set up file the responses were seen to be very similar. (The AS3X+ gains can be checked and adjusted in the Forward Programming screens of NX transmitters.) Having confirmed that the gyro responses were as intended, all was set for the model's maiden flight.

SWITCH IT OFF

Just a quick word about SAFE (Sensor Assisted Flight Technology). As usual with AS3X+ equipped models, Sportix allows access to this too. But as it's more of a training aid, to damp down the controls and limit the flight envelope, then if you need to use it then your flight training is probably not at a level where you should be attempting to fly a responsive model like

The bright yellow underside and LED navigation lights offer excellent visibility and orientation. The tail-light is especially effective.

the Sportix. It's far better to switch it off so that AS3X+ is on all the time. There are several ways to do this, as described in the manual.

If you're not a fan of stabilisation systems, on the NX8+, whilst allocating AS3X+ to a switch using Forward Programming, we discovered that we could switch the gyros off altogether. But AS3X+ does work well on this model so it would be a shame not to use it.

UP & AWAY

With a well-cut sward greeting us as we pulled up at the flying field the Sportix was quickly assembled. This only takes a couple of minutes thanks to the quarter turn wing locks and self-aligning servo connectors in each wing root.

Take off was quick and did not require anywhere near full power when using the 4S 2200 LiPo. Even when using a 3S pack it proved to be no slouch. Our attention to detail when setting up the tail surfaces paid dividends and we can honestly say that after several flights we haven't touched the trims, so proving that the basic airframe goes together nice and square.

All the usual club aerobatics are well within the scope of this attractive little model. Combinations of loops and rolls, with inverted circuits and bunts, were easily achieved and with power to spare thanks to the 4S pack. We did try a 3S 2200 pack and whilst Sportix retains its agility, it requires flying at near full throttle. So, we prefer the extra margin provided by a 4S LiPo.

The bright yellow underside contrasts well with the white upper surfaces so orientation is rarely a problem. Humpty bumps with an inverted entry are something we are currently practicing, following the illustration in Aerobatic Scene in the last issue, and the Sportix pulls through this demanding sequence with ease. But it's in knife edge flight that Sportix 1.1m excels. She will groove from one side of the flying field to the other, even without the rudder/elevator mix we mentioned earlier. But with a tad of down mix, she does feel a little more locked in.

Fortunately, when landing, Sportix does not share a trait of a couple of older gyro equipped models that we still fly which have a habit of

BNF Basic version is equipped with a Spektrum AR631+ receiver featuring AS3X+ stabilisation along with optional-use SAFE Select. We would recommend keeping AS3X+ always on.

Corner to corner knife edge flight is our favourite manoeuvre with the Sportix.

She's a great model for practicing inverted circuits.

Optional thrust reversing courtesy of the Avian Smart ESC can help shorten the roll-out after landing. We haven't tried it yet as our flying strips are more than long enough!

dropping to the ground when pulled up into the flare, when the gyro, thinking a stall is imminent, feeds in some down elevator. Since this happens inches above the ground there is no damage, but it looks scruffy. There are no untidy endings for the Sportix though. When setting up for landing, she settles onto finals with authority, after which she will groove in for a smooth three pointer.

ANOTHER WINNER

With Sportix 1.1m, E-flite have another winner to add to their long list of popular sport models. With her stylish lines, emulating a little of both full-size aerobatic and racing aeroplanes, and the colourful yellow, black and white livery, finished off with that neatly spatted undercarriage, she is really pleasing to the eye.

Although we did have concerns when comparing the AS3X+ system's control deflections with past models, it's obvious that Horizon Hobby have made great strides in tailoring the stabilisation system to each new aeroplane and the gyros work really well, aiding smooth flying but without doing anything strange that can make a pilot feel that they are not 100% in control, even if only for very brief periods.

Sportix 1.1m is an excellent example of the sport aerobatic breed and we would happily recommend it for its intended role as the *"perfect 'next step after a trainer' and an everyday aerobat for more experienced pilots"*. ■

DATAFILE

Model	Sportix 1.1m
Model type:	Sport aerobatic
Manufacturer:	E-flite
Distrubuted by:	Logic RC
	https://www.logicrc.com
RRP:	£319.99 BNF Basic
Wingspan:	1100 mm (43.31")
Length:	1105 mm (43.50")
Weight:	1105 g (38.98 oz)
Motor:	3536-1030 kV 14-pole brushless outrunner
Functions (servos):	Ailerons (2), Elevator (1), Rudder (1), ESC
LiPo:	3S - 4S 2200 - 3200 mAh

Sportix 1.1m is highly recommended for its intended roles as the next step after a trainer or an everyday aerobat for more experienced pilots.

Extreme Flight MXS with its 83-inch wingspan is, for me, the perfect size model. It just about fits in the car, has enough presence in the air to wow and its 35 cc DLE engine can be tamed enough so as not to cause issues at noise sensitive sites.

PETROL POWER

Neil Hall gets swayed by a second-hand bargain model and petrol engine in the swap meet at a famous model show

Words & Photos : **Neil Hall**

Summer 2024, June 13th at the Weston Park model airshow. This is an event I look forward to a lot and after putting a packed lunch together, along with some other bits and bobs, I scramble myself and my five-year-old daughter into the car and head off early for what is around a 40-minute drive on a typical wet British summer morning.

After arriving and having breakfast, myself and my little one head off under an umbrella to see my favourite thing at the show, the swap meet. There are usually loads of goodies in need of a new and loving home, but I didn't get to see much. In fact, I didn't get to see much that day at all. You see, to get to the swap meet we had to pass the fairground rides. My little boss lady had spoken and my day had been planned!

Wet fairground rides are not that much fun when you're in your 40s, so after about an hour of sitting on wet seats I decided I'd had enough. The little one was soaked and in need of a warm bath and dry clothes. The day was literally a wash out, but she had enjoyed a brilliant time.

RETURN TRIP

Originally, I had no plans to go back on the Sunday, so it was a pleasant surprise when my flying buddy, Chris, called me to ask if I wanted to go back the following day. The weather was better, but it was still muddy underfoot. We headed for a look around the stalls and to make our way to the swap meet. We passed the rides but luckily Chris wasn't as interested as my little girl had been!

Anyway, when approaching the swap meet something caught my eye. In the corner, next to the tent, was an 83-inch Extreme Flight MXS in red, white and blue. I could see a couple of minor issues, including a small tear in the covering at the rear, but nothing major. I was interested but although it was very well priced, it was more than I wanted to spend.

This model was a bargain. I've had a good year with it for less than what a half decent foamie would have cost me. She's a bit tatty now and in need of tidy up, a process I've already started.

Or rather, it was more than I could get away with telling the wife that I'd spent! (We've all been there!) It was worth the money, but I just didn't want to spend it.

DESTINY CALLS

The MXS was there all day, which surprised me. Between enjoying the show and walking around looking at the stalls it was as if I could see the model from everywhere. It was calling to me! At one point I got the details from the seller, which made it even more desirable. In fact, very desirable indeed. But it was still more than I wanted to spend

Anyway, the day went on and around mid-afternoon, just as we were passing the swap meet again, the guy doing the selling called to me, "*You know you want it!*" I said it was too much and he said, "*How much have you got?*" I opened my wallet, quickly counted the contents and Chris said, "*I've got £20.*" He opened his wallet which almost never happens! The seller said that will do, so with my cash and Chris' contribution I purchased myself an MXS with six Savox digital servos, a Spektrum receiver and a brand new DLE 35 RA with header pipe and a DLE canister exhaust. All the engine parts looked new and I paid very little for it, about a third of the asking price. My guess was that the seller was fed up with the rain, so I guess I had better thank mother nature.

> "In the corner was an 83-inch Extreme Flight MXS in red, white and blue"

Whatever had happened to Chris to make him so generous was slowly wearing off. I walked to the stalls with him to get him some glow fuel, using my debit card to repay the £20 I had borrowed. But every 30 seconds I was reminded of it, so normality was restored. I mean it's not like I could run off as I had travelled there in his car and I wasn't going to walk home, especially not with an 83-inch MXS!

CHECK OVER

Back home I give the model a good check over and repaired any superficial damage whilst inspecting as much of the airframe as I could. I used an endoscope to visually check the internals as much as possible.

With the airframe all good, I turned my attention to that beautiful DLE 35 RA. It's a 35-cc petrol engine and was a new method of power for me. I've not got a great deal of experience with petrol engines and anything I've ever had around 30-cc size would have had something like a Saito 180 four stroke or an OS 200 FS glow engine. In the past, all our petrol engines were looked after by my dad.

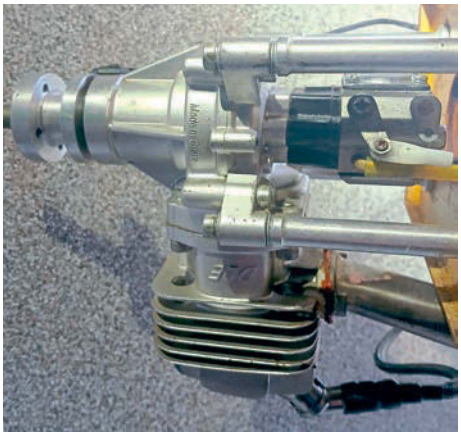
The chap selling the model told me that the engine was new and had not been run.

I did fit her with a 20 x 7 wooden prop and, wow, the performance gain was really impressive, although it didn't do much to reduce noise. I'm told carbon props reduce dB levels significantly so it's time to fire up the credit card.

These spark plugs are cute. This is the one that was in the model when I brought it. A spark plug can tell you a lot about how your engine is running. A light tan or greyish color on the insulator tip would indicate efficient combustion and proper fuel mixture.

The spark-plug cap and insulator that I needed to change. It was simple to do and new parts were swiftly sent courtesy of Probuild.

DLE canister muffler and header. This whole assembly comes in at 450 mm so is quite a hefty bit of kit. But a good muffler is needed for flying at normal club fields as the engine would be fairly noisy without it.



My lovely DLE 35 RA. A superb engine, very reliable, very powerful and very economical. I love it.

In this type of situation you can only go by their word, but it didn't look smell or feel like it had been run, so I assumed that it needed to be run in. But that's me going off my experience with glow engines, so with no instruction manual to hand, I turned to Google for advice. I wanted four bits of information:

- The basics
- Fuel/oil mixture ratio for running in & what oil to use
- Needle settings as a starting point
- Recommended propeller size

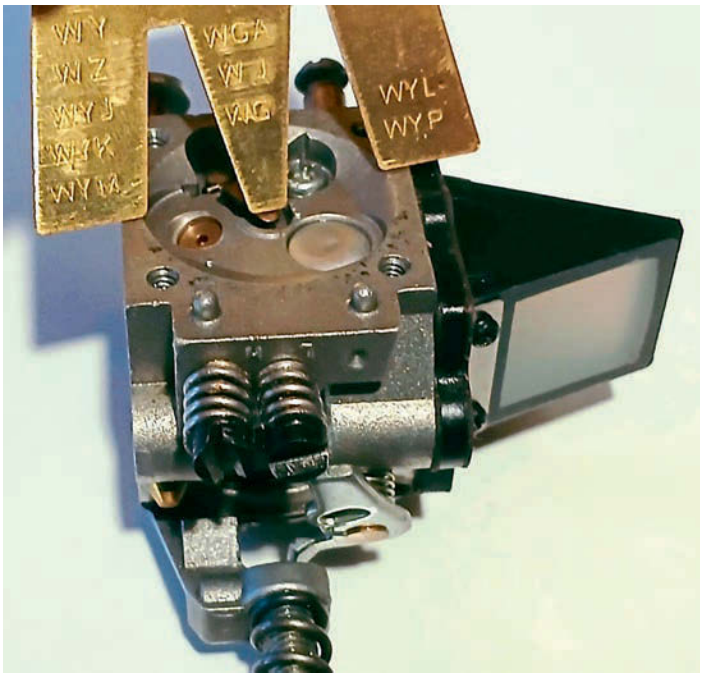
As usual with the internet, I found a lot of differing opinions via the forums and such. But luckily, I also found a DLE user manual that I could download. This was extremely useful, recommending 30:1 mixture for running in. You can go a to 40:1 once run in and using a good fully synthetic oil for two strokes is recommended. Within the recommended propeller sizes was an 18 x 10, a wooden version of which was already fitted to the model. As for the needle settings it needed1.25 turns out for the low-speed needle and 1.5 out for the high-speed. Finally, I needed fresh 93 to 97 octane fuel.

I purchased three litres of petrol and then went to my local car spares shop who recommended Castrol Actevo 2T oil. They have bundles of knowledge in that shop, so I had no reason not to trust their recommendation. 100 ml of oil added to my 3 litres of petrol gave me my 30:1 mix. I also treated myself to a new fuel pump with some petrol tubing.

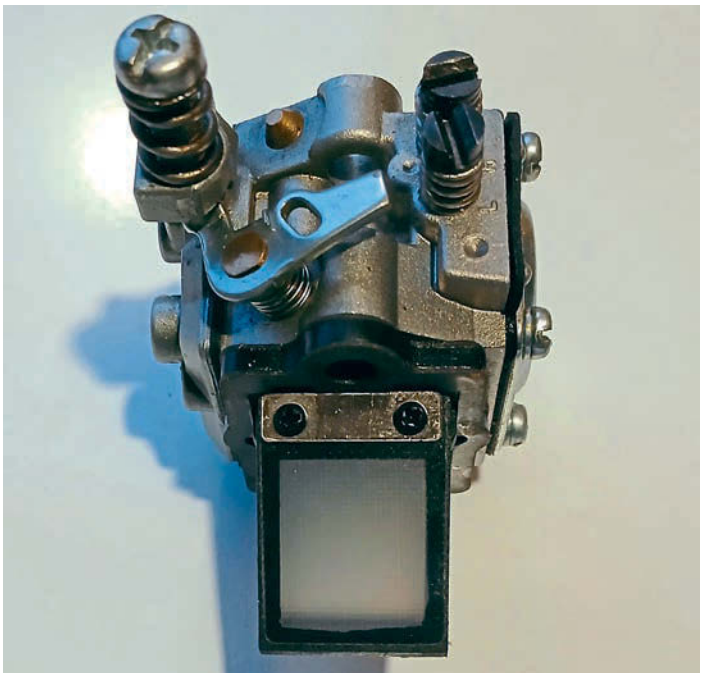
FIRST TRY

There was nothing left to do, so with a tank full of petrol, choke on and ignition off, the propeller was moved back and forth across compression too prime the engine. Air pressure from this causes the diaphragm in the carb to move back and forth, pulling fuel from the tank to the carb. But nothing was coming through. I followed all the suggestions that more research threw up but with no luck so I had to assume

My good friend and clubmate Chris Layton feeling first-hand the power that the DLE has to offer. Just look at the smile on his face!



Using the metering gauge supplied with the service kit to ensure the metering lever is set correctly. Note that the carb isn't as clean as it was when I first purchased the model.



The reed valves should be sealed. Dry spots around the edge would indicate they are not. When researching why my engine wouldn't run at first this popped up a lot.

that the diaphragm was no good as I wasn't getting any fuel.

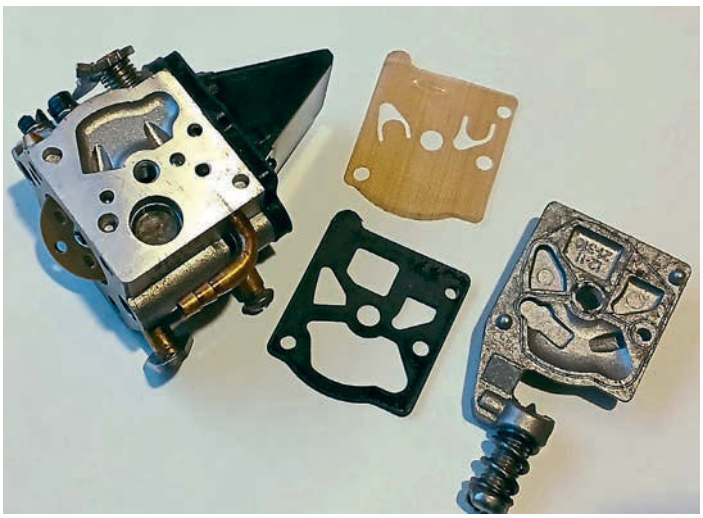
I purchased a carb service kit, which came with all the bits needed, and gave the carb a full service. Again, I turned to the internet for information as the thought of doing the service myself was slightly worrying. I know experienced modellers who have brought new carbs rather than service them, but I wanted to try and actually it wasn't too bad. My carb didn't need a full service and only really needed the bottom diaphragm to be replaced, but my thinking was, *'Well I'm already in, so why not!'* It's all about learning. The hardest part was changing the metering needle. This is very fiddly and definitely not what my big, clumsy fingers were designed for. But with the help of some tweezers and a few choice words I got there in the end. Inside, the carb was immaculate, as if new, so I found it a bit odd that the diaphragm was so stiff. I guess we never really know the full history of used models and engines, but I would honestly say to anyone with a poorly carburettor to have ago at servicing it. The kits are very well priced and easy to find.

I set the needles to DLE's recommended settings and tried again. This time it worked, pulling through fuel, so I turned on the ignition and started flipping the prop. It coughed but didn't start, so I checked the spark plug and it was wet, so I assumed that I had over primed. I cleaned the plug, let it dry and then checked for a spark. It seemed weak but the plug is an NGK CM6 which is tiny, so I wondered how much spark you actually get from such a small plug.

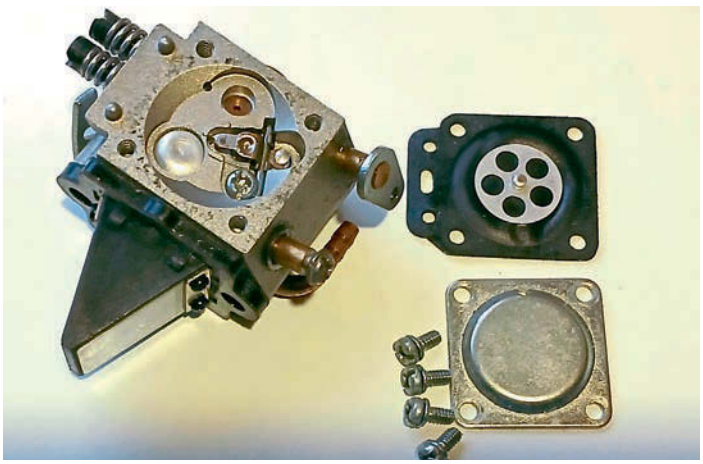
I refitted the spark plug and started again, only to get the same results. Digging a bit deeper I found a tiny split in the insulator inside the spark plug cap. I pondered this and then thought I would give Probuild a call. They deal in DLE engines and the chap I spoke to was brilliant, full of knowledge and very helpful. He confirmed that deterioration in the insulator would prevent the engine from running. They had spark plug caps in stock and everything I needed was in the pack, so I ordered one, along with a new spark plug.

48 hours later they were delivered. The cap was easy to assemble and fit. Push the electrode through the insulator, slide three pieces of heat shrink down the HT lead, starting with the small one and working up. Slide on the clamp and connect the HT lead to the electrode. It's a simple push fit. Fit the two halves of the cap around the insulator and connect together by folding the tabs over. I found long nose pliers best for this. Bring the outer sleeve over the bottom of the cap and hold in place using the clamp, fit the ring to the front of the cap, place the heat shrink tubing in place and shrink using a heat gun.

I then fitted the new spark plug, filled the tank, choke on and the engine was primed.



Pump side of the carb showing the pumping diaphragm and gasket.



Metering side of the carb. Fitting the new metering needle assembly was a bit fiddley, to say the least. Note the Welch plug, metering diaphragm, gasket and cover.

There were different diaphragms in the service kit. Internet searches suggested the black rubber ones tend to dry up so as I wouldn't be flying the model every week I opted for the Teflon type, which proved to be a good choice.

The parts needed to service the WT series carb on my DLE engine. The kit came with two of everything and parts for other carb types but finding the bits you need is straightforward.

I flicked the prop and on the third try it coughed. Choke off and with another four flicks of the prop it was running and I was buzzing. All my research and effort had paid off.

A NEW MIX

A few days later I took the MXS to the flying field and tuned the DLE as best as I could. I found the parameters to be very fine. The first flights were very exciting and the engine was working okay but it was not great. It wasn't happy when I inverted the MXS or put it on its side in knife edge. But with more running over time it got much better, helped by a bit of fine tuning along the way.

I had about a month of brilliant performance from the DLE until one day I noticed it wasn't very happy. I realised that I'd had the fuel for a while so the next time I took four litres of fresh petrol and added 100 ml of oil, giving me a 40:1 mix as the engine was now run in. The difference was obvious and my new petrol engine was back performing brilliantly. Using fresh petrol is really important.

I LOVE IT!

As time goes on, I'm trusting the engine a lot more, which is allowing me to push the model more too. Honestly, I love it. The MXS is superb, goes where you point it and does anything you ask of it. The DLE engine has incredible power and it sounds lovely, as my Worcester club chairman, Dave Evans pointed out, saying that that DLE canister exhaust takes away the high notes, leaving a lovely, low and powerful sound that isn't annoying to the ear.

I never really intended to try petrol power as I understand and trust glow engines. But my DLE has really impressed me and a petrol engine in an R/C aeroplane smells absolutely lovely.

All the stuff I needed to purchase to get my fuel mixed with oil and into my tank. It's all very straightforward, easy to get hold of and cheap to buy.

The DLE has also surprised me how economical it is and I like the idea of using fuel that's readily available at the pump. My first solo experience of petrol power has been a good one and I will be doing more of it, so watch this space.

FINAL THOUGHTS

I still wonder why such a good model and engine would be sold so cheaply. Maybe the engine, not running due to the stiff diaphragm, could have forced the seller's hand. Either way I'm glad it was for sale and I'm pleased to let the previous owner know that she is in good hands and turning heads at the flying field. And, no, you can't have her back!

> "I like the idea of using fuel that's readily available at the pump"

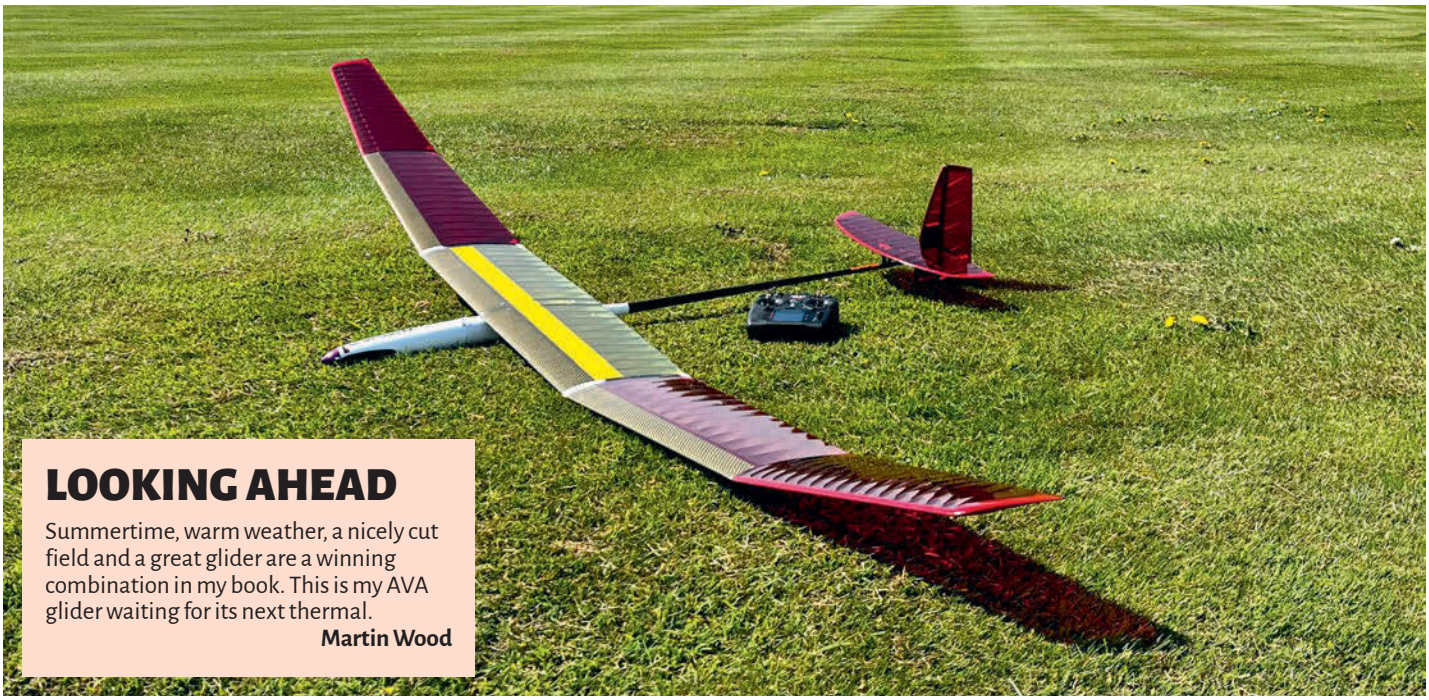
I have plans to try different propeller sizes. I'm told a 20 x 7 works well on the DLE 35 RA. I also plan on purchasing some of the original covering to bring the MXS back to its original state. I've patched it up using similar colours but from a different brand so there are some differences. There are a few model shows fast approaching and I have intentions of finding a similar bargain model again. One man's treasure and all that!

Isn't it funny how you can sometimes go for so long sticking to the same thing. I never really intended to try petrol power as I understand and trust glow engines, and 'Golden Glow' has never let me down. But I'm so glad I've had a taste of petrol. It has really impressed me and a petrol engine in a radio-controlled aeroplane smells absolutely lovely. I do like a model with a good smell!

Who knows, maybe one day I might even dive into the dark side and try electric! We will see...

You can contact me about all things glow and now petrol power via email at **bareknuckleflying1@gmail.com** ■

Get your planes in print! Get in touch… kevin.crozier@kelsey.co.uk



LOOKING AHEAD

Summertime, warm weather, a nicely cut field and a great glider are a winning combination in my book. This is my AVA glider waiting for its next thermal.

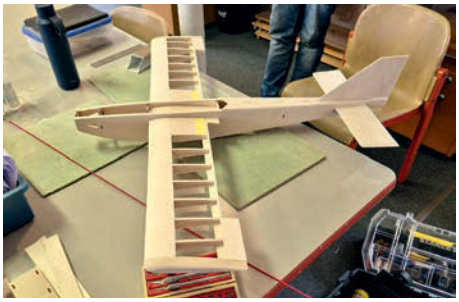
Martin Wood

CHICA CLUB BUILD

This year at Leidsche Luchtvaart Club (LLC) in the Netherlands we're building the Chica by Ton van Munsteren using the RBC kit. It's been featured in RCM&E two times, I think.

Last year we did a Depron build, the BuschTrottel from the FlugModell magazine plan. We made 22 of those in total. They fly surprisingly well, both outdoor and indoor.

Alfred Vink



PBY-2 CATALINA

I decided that I needed to build another seaplane and after a search I settled on the PBY-2 Catalina from a plan by Bud Chappell. This is a 66-inch span model originally designed for IC but which I converted to electric, powered by two 2836 kV 1100 motors via two 30A ESCs and a 3S 3300 mAh LiPo which gives a flight time of over eight minutes.

There were a few deviations from the plan. I planked the topside of the hull/fuselage with 3 mm balsa and the bottom with 1 mm ply. In addition, I made the wing tip floats deployable by hinging them, although this has to be done manually prior to flight. It hasn't been presented to water yet but I built a take-off dolly for land-based flying which works very well.

The model is lovely to fly, having no obvious vices, and can be easily flown at scale like speeds; low passes coming in from far off are very realistic. The power combination gives ample urge for take-offs and to do mild aerobatics, but of course it's not designed for these.

James Wilson

GREEN GLADIATOR

I just picked up the November issue on the stands here in the Hudson Valley of New York State. It was a great issue, as always.

The Parting Shot got my attention. The Gladiators looked great. One of my pals built the same Durafly kit in the 73rd Squadron markings. I built my version of the old girl in Belgian markings of the 2nd Fighter Squadron. Regrettably, I think they were pretty much destroyed in the first day of the German invasion. I hope you find the photo of some interest.

Jim Donick

SOARCER-EEE

I was wondering if you would be interested in a project that I have started? It's all based on trying to get non builders into balsa bashing and having fun at the same time.

I wanted to be able to produce a laser cut kit for my fellow club members to build over the winter months and then for them to be able to enter some fun, season long competitions with the model. The design had to be such that it would be simple to build whilst also teaching a lot of the grass roots of balsa bashing. When finished it also needed to guarantee, more or less, good flight tendencies.

With that in mind, I decided upon a simple powered glider with three channel control - throttle, elevator and rudder - so I wanted a classic design that would also easily fit in the car. I homed in on Dave Hughes' Soarcerer and built a prototype powered by an inexpensive motor and 3S LiPo pack. Whilst pleased with that choice I felt that I could make it more suitable for my needs. Thus, the SoarcerEee was born.

I have now produced 28 kits for one of my clubs which far exceeded my expectations (I had hoped for 12!) and these have now been delivered to the club members who have already started the builds.

Ron Gray

Event Organiser, Nick Whittaker launches his LS10.

SCALE SOARING ON WHITE SHEET HILL

A break in spring's foul flying weather sees **Chris Williams** and his scale gliding chums gather on top of Wiltshire's fabulous slope soaring venue

Words & Photos: **Chris Williams**

After the longest, wettest, most depressing winter I have ever experienced, it came as a considerable shock to find that on the designated weekend of the White Sheet club's first scale fly-in of the season that at least one of the days showed some much-needed promise. A light north-westerly wind was forecast, which put us on 'Morgans', a slope that has seen much in the way of scale gliding activity these last fifty years or so. To my mind the conditions on 14th March were perfect. There were periods with more than the forecast wind speed and times when things got a little more challenging and FOLO entered our hearts. (FOLO: Fear of Landing Out, remember?) Having said that, not one model suffered that awful fate and some epic thermals formed during the day.

Over in the Carbon Section, Graeme Mahoney was campaigning the latest edition to his fleet, a rather nice-looking DG 600, whilst Event Director, Nick Whittaker's 5.18 m LS10 had a fine time whatever the conditions, sometimes thanks to its FOLO-busting sustainer. Pete Cushion and ex-WSRFC Chairman, Dave Bradfield were both flying versions of the RCM&E 1/7th scale Wolf, during which a frank exchange of views was held between myself and Dave on the subject of the benefits of the coupled rudder. (He remains unconvinced, but I'll keep working on him.)

Gerry Stone, no stranger to the sound of a tortured slipstream, had a new ASG32 from Tomahawk models, spanning 4.4 m, to which he showed little in the way of mercy. Bill Ebdon

View of the White Sheet event from the K18.

Dave Bradfield's RCM&E Wolf in action at White Sheet

This vintage, vintage Bergfalke 1 is surprisingly aerobatic.

Graeme Mahoney with his recently acquired DG 600.

flew his pretty RCM&E Minimoa and took on the camera to record the slope maidens of my 1:4.5 scale Petrel and Dart 15, an occasion the waiting for which had caused much impatience to myself (both lived up to the promise shown on their previous aerotows). An indispensable addition the fleet on a light wind forecast is the little K18 whose sustainer allows it to be flown just about anywhere at any time and which allowed for the aerial view of the proceedings.

Mike Seale is a regular visitor to the hill with his 1/6th scale Bergfalke 1 which, despite its appearance, is highly aerobatic, far more so than my original. This design, stretching back to its publication in the last century, is so old that it probably qualifies as vintage!

An excellent day, then, and a fine start to the White Sheet club's event season. I can only assume that Event Director Nick has managed to find some kompromat on one of the Weather Gods and I hope he can continue to use it for the rest of the year...

Bill Ebdon's RCM&E Minimoa revelled in the conditions.

Mr. W gives the DG a launch.

Motley (Geoff Crew) looks not nervous at all before the maiden flight of the new 1/5th scale Dart 17R.

Sky in action at CMFC.

Author with the pre-maiden pic of the Slingsby T34 Sky.

Sky on tow on a rare flyable day.

PROJECT VALIDATIONS

The New Year started with a host of maiden flights due the lack of flying opportunities of the previous months. First up, it was time for the Slingsby Sky to take up the challenge behind Smallpiece's trusty Cub. After the demise of the K6 you'd think a certain nervousness would be apparent on these occasions, but I have to say, Smallpiece was very calm. There was little to complain about during the tow and subsequent flight, the glider performing smooth turns, a no-fuss stall test and resisting the pull of gravity for an impressive period of time.

As mentioned last time, the 1:4.5 scale version of the Slingsby Dart 15 seemed to rapidly assemble itself and once again it was maiden time at CMFC. As this model was scaled down from the 1/4 scale Dart 17R and the wings appropriately clipped without any subsequent redesign, they were slightly thicker in section than is my usual 12% at the tip. Any thoughts that I might notice a difference in performance were put to rest as the Dart, too, seems to be a smooth performer with no discernible vices. She had her slope maiden at the aforementioned White Sheet scale fly-in where Bicycle Bill managed to capture her in action with the trusty Canon.

Meanwhile, Motley, never one to let the dust settle on his workbench, had persuaded me to scale the Dart 17 drawings down to 1/5th scale. He went into lockdown for what seemed like only a couple of weeks and emerged with a very nice version of the '17, complete with retract. (He admitted that, at this scale, the retract unit was a cast-iron–son-of-a-female-dog to shoehorn in place!) This, too, was lined up behind Smallpiece's Cub and the maiden perpetrated, once again without any undue fuss.

That's it at the time of writing (early April) and here's the state of play here at Williams Towers:

Bill Ebdon (Bicycle Bill) models the pre-flight appearance of the Slingsby Dart 15.

Motley's Dart 17 gets its maiden flight underway.

The Sky still awaits its slope maiden. Meanwhile another project has been completed and maidened at CMFC. But more of that next time...

FACTORY LAY-OFF

These days I can't help but notice that barely have I had the chance to get to know a new model when another maiden rears its ugly head and the previous one retires into the hangar to gather dust with all the other gliders that I've barely got the chance to know. That this should have come to pass can be squarely laid at the feet of the Weather Gods, from whom, for the first quarter of this year, only four or five flying sessions have been granted. So, what to do...?

I've decided to go Cold Turkey. No more modelling until I've learned the first names of the last half-dozen gliders that I have built. Here's my first statement at my inaugural appearance at the local chapter of the AA (Aeronautics Anonymous): *'Hi, my name is CW and I'm a buildaholic. It has been two weeks since I've handled balsa or ply'.*

Smallpiece reckoned I'd only last a week, but what does he know...? (PS: Does anyone know the wingspan of the average Turkey?)

c_williams30@sky.com

Dart 15 tastes the air for the first time.

Dart 15 at the White Sheet event.

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CIG81020	6.1 x 3 x 2.4m	140613572	£319.00	£406.80	£382.80
CIG81220	6.1 x 3.7 x 2.5m	140613576	£369.00	£466.80	£442.80
CIG81224	7.3 x 3.7 x 2.5m	140613578	£459.00	£574.80	£550.80
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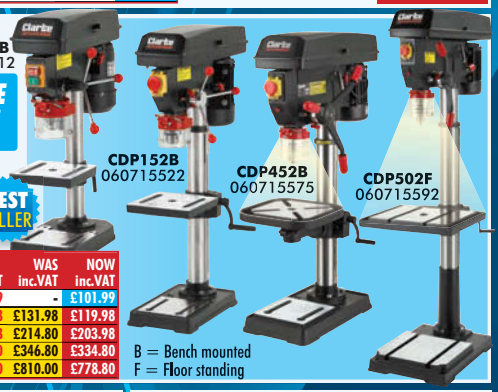

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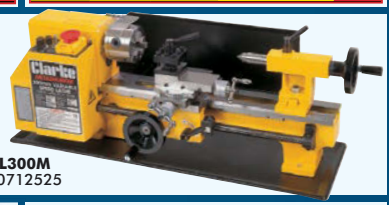

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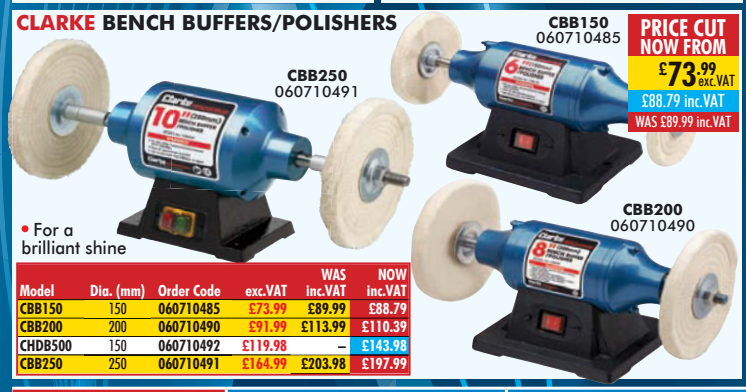

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The author's High Hopes foam board plane.

3D PRINTED PARTS

Homemade 3D printed parts for R/C models are becoming increasingly popular. **Kev Scott** describes the ones he uses on his own design foam board aircraft

Words, pictures & 3D graphics: **Kev Scott**

3D printing is great fun and it is fascinating to see something that you have created in a CAD program (or downloaded) taking shape before your eyes. It's a bit like watching a cake decorator pipe icing, apart from the fact this this is moving a lot faster and you can't eat the finished result! In particular, the ability to now be able to buy and download 3D planes from the likes of Eclipson, PlanePrint and 3DLabPrint has now become very popular and I have made a few myself. However, this article is not about that side of the technology but instead is about using 3D printed parts as accessories for models made using more traditional building techniques, in this case foam board planes.

As a relative newcomer to aeromodelling, and someone who likes to tweak things, I was looking for an easy to build plane that was economical and easy to experiment with, say by adding a V-tail or a different wing profile and potentially adding an FPV camera. The list

It's always good to have a spare (or two).

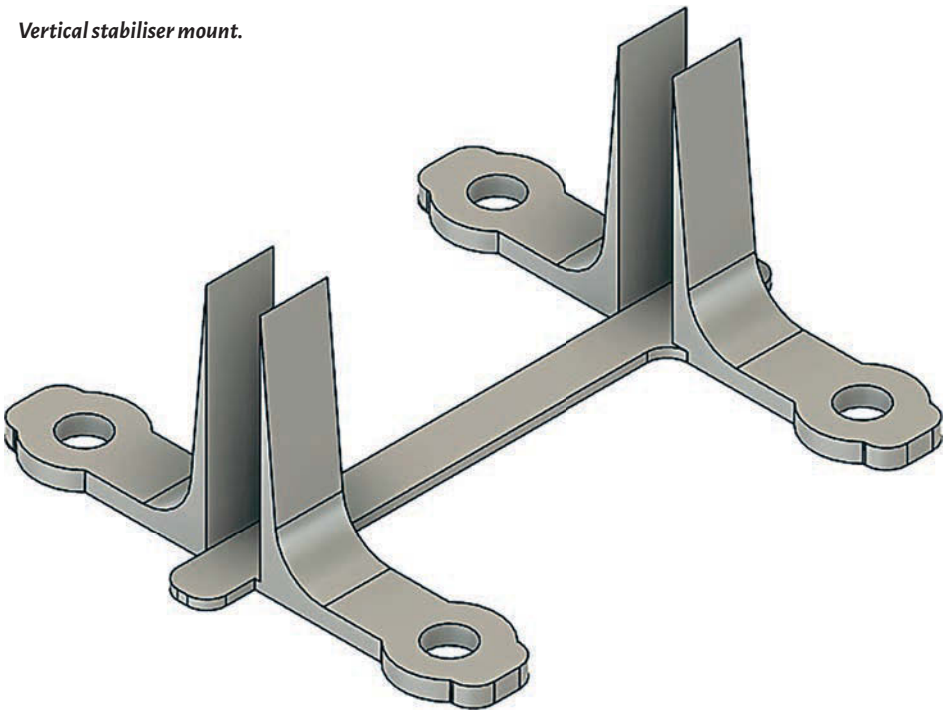
Tail assembly showing one side of the vertical stab mount and the elevator servo mounts.

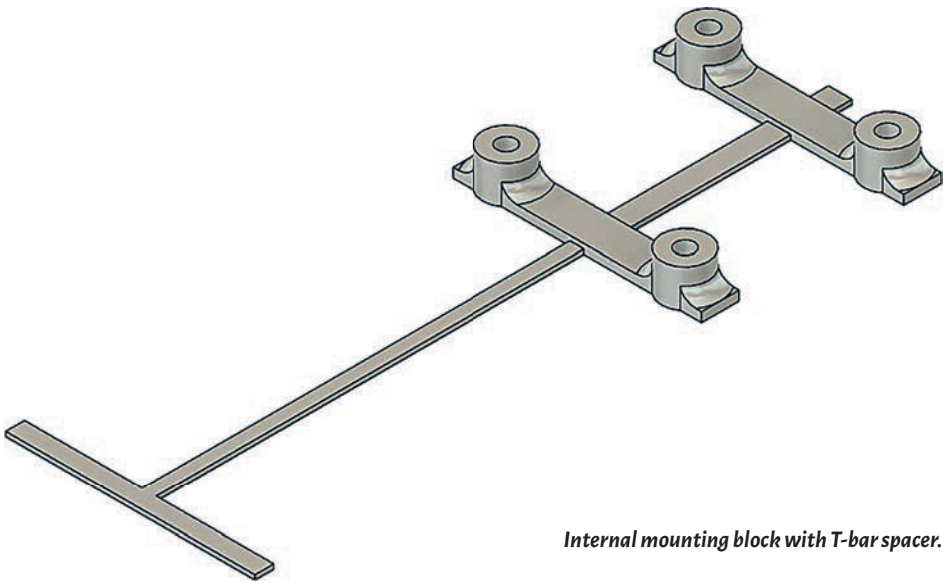
goes on. It also had to be reasonably robust and easy to produce in quantity (I did mention I was relatively new to this, didn't I!). The picture nearby gives an example of what I am talking about. The nose has taken one too many impacts but I already have a couple of fuselages ready as replacements.

You can imagine my surprise, therefore, when I came across the early Experimental Airlines videos on YouTube. Here was a man (Ed) who named his planes things like the Ansley Peace Drone, named after his daughter and because he wants peace in the world. I thought here is a man who embodies my dormant hippy itch and being made of foam board they were cheap to boot (satisfying my not so dormant cheapskate itch) and I decided I needed to build one of his planes. I will refer to Experimental Airlines as EA in the rest of the article.

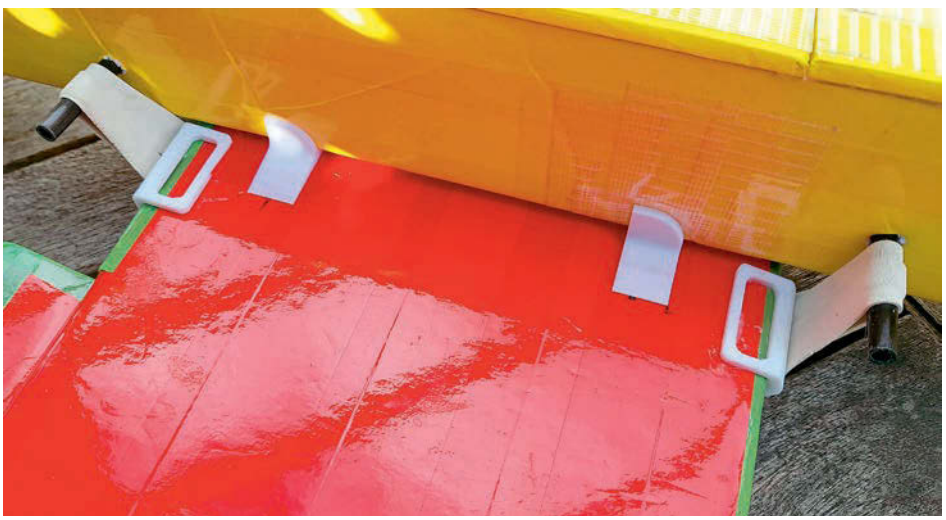
Ed's planes are based on foam board, covered with coloured packing tape. I created a plane that I call 'High Hopes' and it follows all of Ed's techniques but modified for some British considerations that I will go into as we go through the article. You can see the plane in the headline picture. The fuselage length is based on an A1 sheet length and each wing is an A1 sheet width. The plane flies great, has been well exercised and worked well for me as a trainer. Its bright colours also help with orientation. The All-Up-Weight of this model with a 3S 2200 mAh LiPo is around 900 grams.

Vertical stabiliser mount.





Internal mounting block with T-bar spacer.



Underside of High Hopes wing.

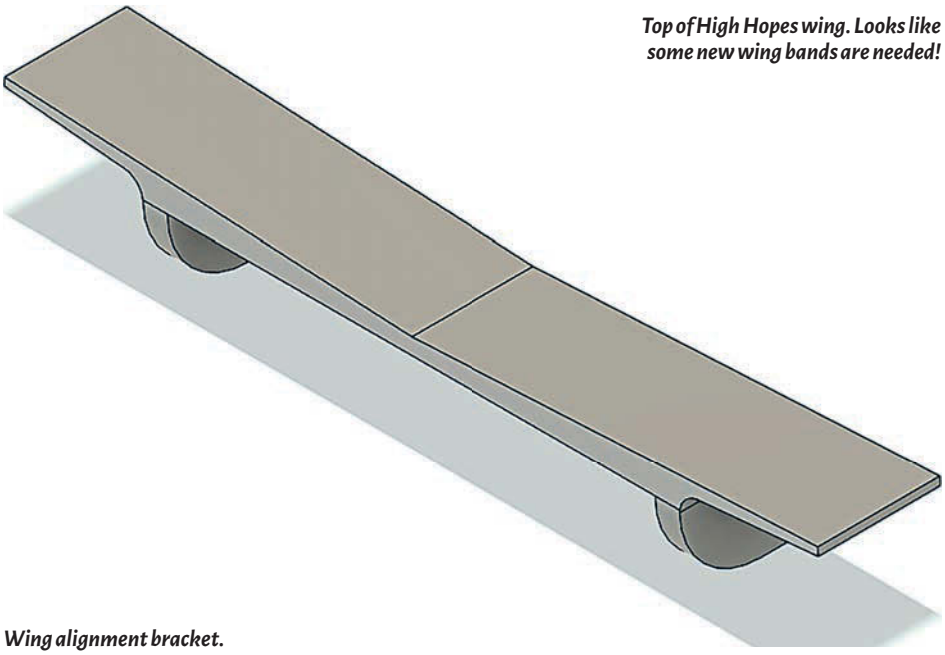
This article is about my use of 3D printed parts as part of the build and as tools for the assembly. I hope you find the information useful and that it is something you could use on your own builds.

TAIL SECTION

The tail section is made up with a few 3D printed parts.

The servo mounts are pretty standard fare and the design is generally available as an stl file from most of the suppliers of 3D printed planes listed earlier. It is attached using CA glue.

The vertical stabiliser mount serves two purposes. It allows the stabiliser to be mounted completely square onto the horizontal stabilizer and also proves alignment holes for the complete assembly into the fuselage, allowing a tail section to be quickly attached



Wing alignment bracket.

Top of High Hopes wing. Looks like some new wing bands are needed!

Wing protection tabs.

(or replaced – don't ask how I know this!). It is also attached using CA glue.

This brings us onto the third part, which fits inside the fuselage. This is the tail mounting block. It consists of four holes that align with the vertical stabiliser mount. Each of these holes has a thermally inserted M3 threaded insert inserted before it is fixed into the fuselage. I use these threaded inserts quite a lot and at the end of the article I will cover how these are inserted (a subtle trick to ensure you keep reading!). Holes are also punched through the foam board to align with the inserts. The block is fixed with two-part epoxy.

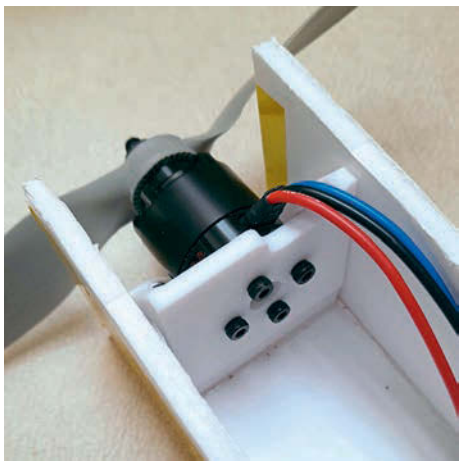
You will see that there is a 'T-bar' sticking out the front of the block. This is to ensure the best alignment possible. The T-bar (as is the main section) is the width of the inside of the fuselage and ensures that the four holes are as accurately aligned as possible. Glue is not applied to this part and it is cut off after the installation is finished.

WING

If you have an EA style wing (Armin, in other words) with some dihedral on it and you are following the Ed philosophy of keeping the fuselage as basic as possible (i.e. a square tube), you will have a mismatch between the wing and the fuselage. We could start cutting into the fuselage to allow the wing to be mounted into it but another approach, and the one I like to take, is to print a bracket that is glued to the underside of the wing, one at the front and one at the back. This sorts out the dihedral problem and the tabs hang down the side of the fuselage so that wing alignment is assured.

Notice that the tabs also have a curved front to them. In the event of a heavy landing, where the wing attempts to twist, the curved front rides up on the fuselage and allows the twist to occur with minimal damage. I tend to fix these brackets on with CA glue so that in a really hard landing the glue will shear off.

The wing also has protection for the foam board from the rubber bands, as you can see in the picture nearby. Is this overkill? Maybe (pieces from a lollipop stick would do the same job), but I tend to put my rubber bands on quite tight and I was finding some crushing still taking place. I also haven't got the design quite right yet as the diagonal bands miss at the back, but you get the idea! These parts are attached using two-part epoxy.



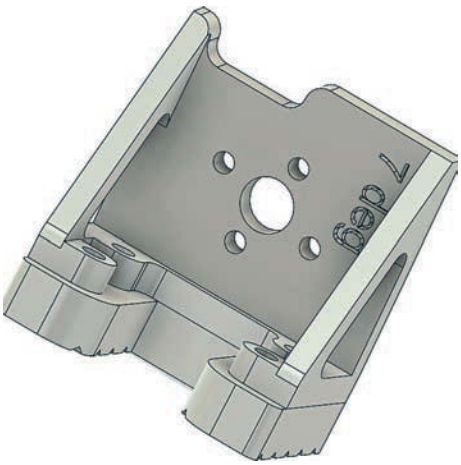
Sunnysky 2212 attached.

MOTOR

I like to use a fixed base bracket on the fuselage, then attach a second adaptable bracket to it that carries the motor. By doing this I can change the thrust angle of the motor. I just print another motor bracket and 'Bob's your uncle'. In a similar way, if I want to change to a different motor entirely, say go from a 2212 to a 2822 (in one of those 'I feel the need for speed' moments which I quickly regretted!), again it is just the case of printing another bracket and off you go.

With my 900 grams of EA style plane, I just attach the base part directly to the foam board using two-part epoxy and that has served me well. If you are considering this idea in a much larger plane, you may want to think about gluing some plywood inside the foam, then gluing the base to that, just to spread the load.

You should also take a look at the temperature your motor is likely to get to. My motor runs well below 40 degrees C but if you



Motor mount assembly.

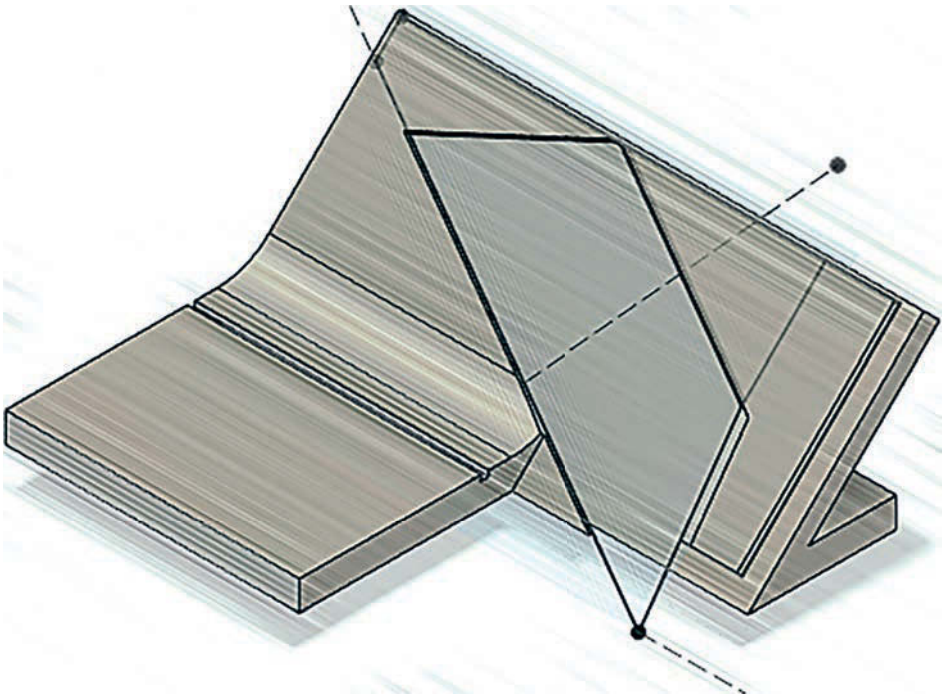
have one running above 60 deg. C then you will need to swap from using regular PLA to a high temperature variant like HT-PLA.

The image nearby shows the two parts. The motor bracket is pretty straightforward (I have about 7 degrees of downthrust on this one), but the base is more interesting in that it has slots on the bottom which are to allow for better adhesion between the two-part epoxy and the foam board. It also has threaded brass inserts in it. These are permanently fixed in the base and allow the motor mount to be easily swapped out for a different one. The general intention is that the sacrificial element in this, if you hit terra firma hard, is the motor mount, so that the mount breaks, protecting the motor and the base part remains in place, allowing another motor mount to be quickly fitted. It doesn't always work but it has saved the fuselage more times than not for me. Notice that the angle is printed onto the mount so you know which one is which!

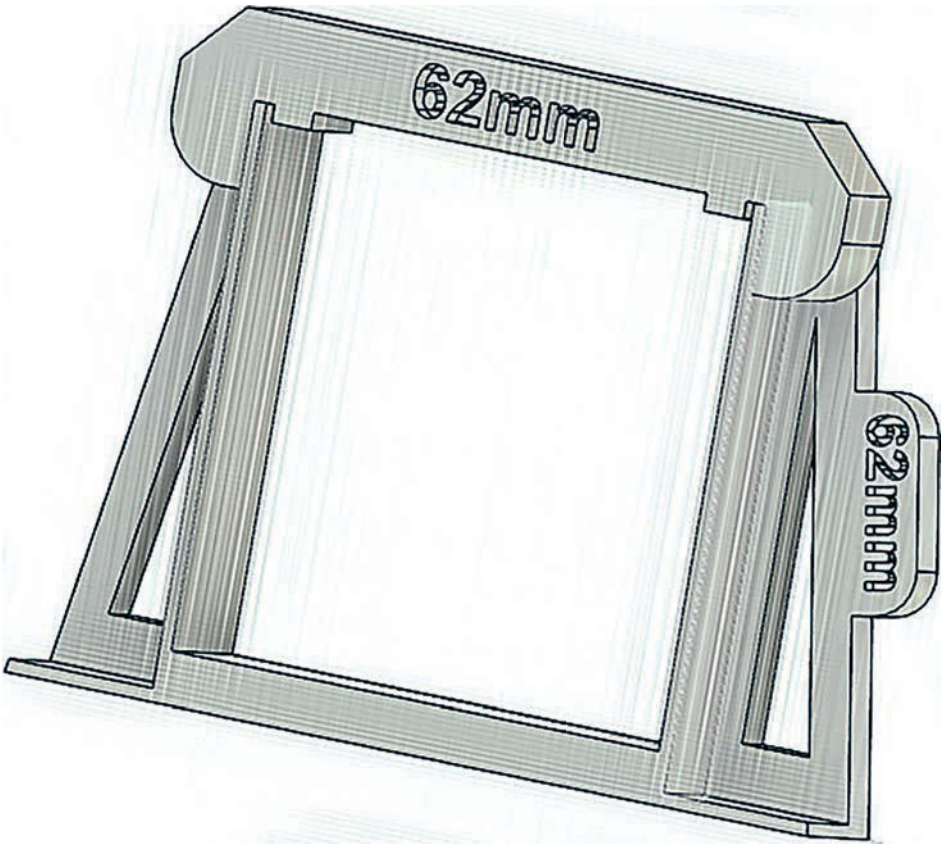
BUILDING AID

The EA project videos on YouTube use Dollartree foam board and remarkably it is still available for a little over a dollar ($1.25). As you might imagine sheets are not available in the UK and as an alternative I go for the foam board that Hobbycraft sell. You can get four sheets for £12 at the time of writing. I typically need a couple of sheets for High Hopes so it is very economical way to make a new plane.

One problem (and it is a big one!) is that the EA videos show the paper being stripped off the back of the foamboard where you should bend it. But this is very difficult to achieve with the Hobbycraft board. The advice on the internet (including the RCM&E forum) is to cut the surface and then either soak the paper or use an iron/heat gun. Neither of these worked well for me. What I did instead was to 3D print a mitre tool, as you can see in the image. This takes a standard utility knife blade and the blade is held at 45 degrees and descends 4.7 mm into the foam (0.3 mm short of full depth). You hold the blade in place manually with the sharp edge recessed into the jig apart from the tip. The tool is run along the length of the foam against a steel rule (set 25 mm from the desired cut line) and cuts the mitre one way. The tool is then turned around and when run back the other way it cuts the other half of the mitre, resulting in an effective place to form the fold without any need to remove paper.



Mitre cutting tool.



Fuselage build jig.

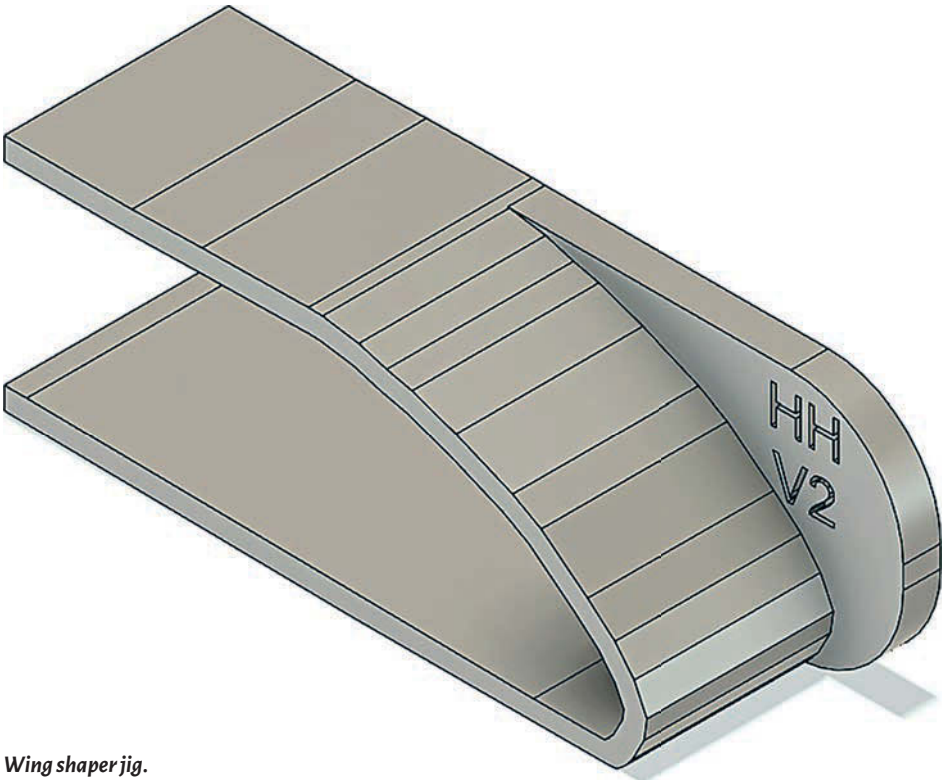
FUSELAGE JIG

When it comes to assembling foam board planes, especially after using the cutting jig above, the next step is to fold the foam board. You could use a SLEC building jig for this and it would work well, but my approach is slightly different. Since I am squeezing hot glue into the mitre joints over quite a long length, time is very limited to get everything square before the glue dries. Rather than using a jig on a board and taking the work to there, I have small jigs that I can hold in my hand and very quickly slip onto the foamboard. You will notice again the dimensions on the jig.

WING SHAPER

When I make the EA (Armin) style wing, given the way I have constructed the wing, I end up gluing paper to paper. Rather than using hot glue for this, I like to use PVA glue. It seems to give a stronger joint and allows more positioning time. Some Armin style wings that I have seen also tend to be a series of straight lines rather than following a more curved Clark Y style shape on the upper surface.

To address this, I 3D printed a series of wing shapers which can be seen in the image overleaf. Once the PVA is applied inside the wing, these are then placed over the leading edge (typically five per metre) where they help the wing keep its shape until the glue has dried.



Wing shaper jig.

Insert tool fitted to soldering iron.

USING 3D INSERTS

The inserts I tend to use are M3 size at around 6 mm long and 4.6 mm in diameter. You can typically get 150 of them from Amazon for under a tenner. For that diameter, I use a 4 mm hole in PLA and set my soldering iron to around 215 degrees C, but you might need to do some experimentation with your own brand of PLA (mine is from Anycubic).

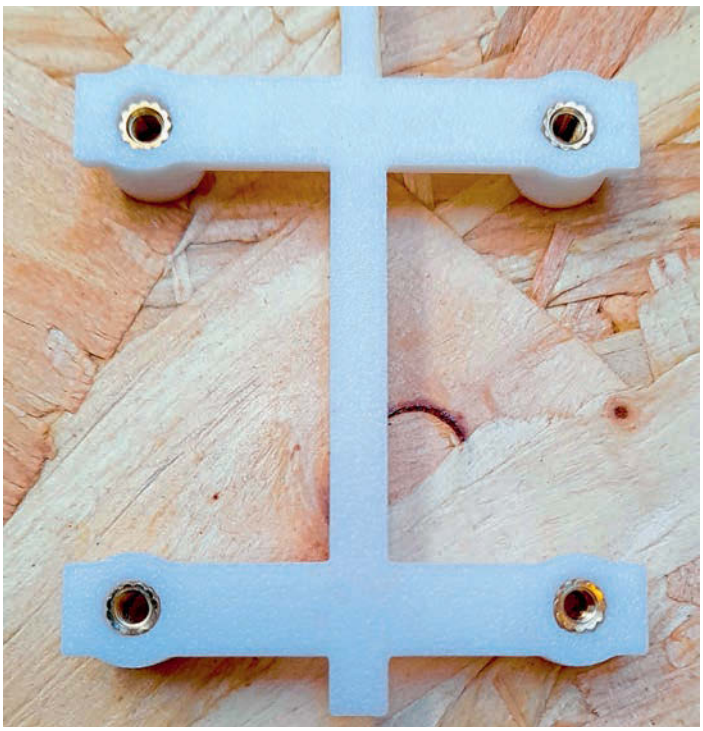
You can take a standard soldering iron tip and insert that into the brass insert to heat it but a better approach is to get a 'Heat-Set Insert Soldering Tips Adaptor' (Amazon search term) which gives a square edge against the insert. Exactly which type you need depends on the type of soldering iron you have. When you push the insert in, take it slowly and stop halfway to check that the direction is correct, making any adjustments for the rest of the travel as needed.

CONCLUSION

Hopefully, this has given you some thoughts on how you might design 3D printed utility parts for your own design. If you have any questions about any of this, why not put them up on the 3D printing section of the modelflying.co.uk forum and I will try my best to answer them:

https://forums.modelflying.co.uk/index.php?/forum/86-3d-printing/ ■

Some typical inserts.



Inserts in place on internal mounting block.

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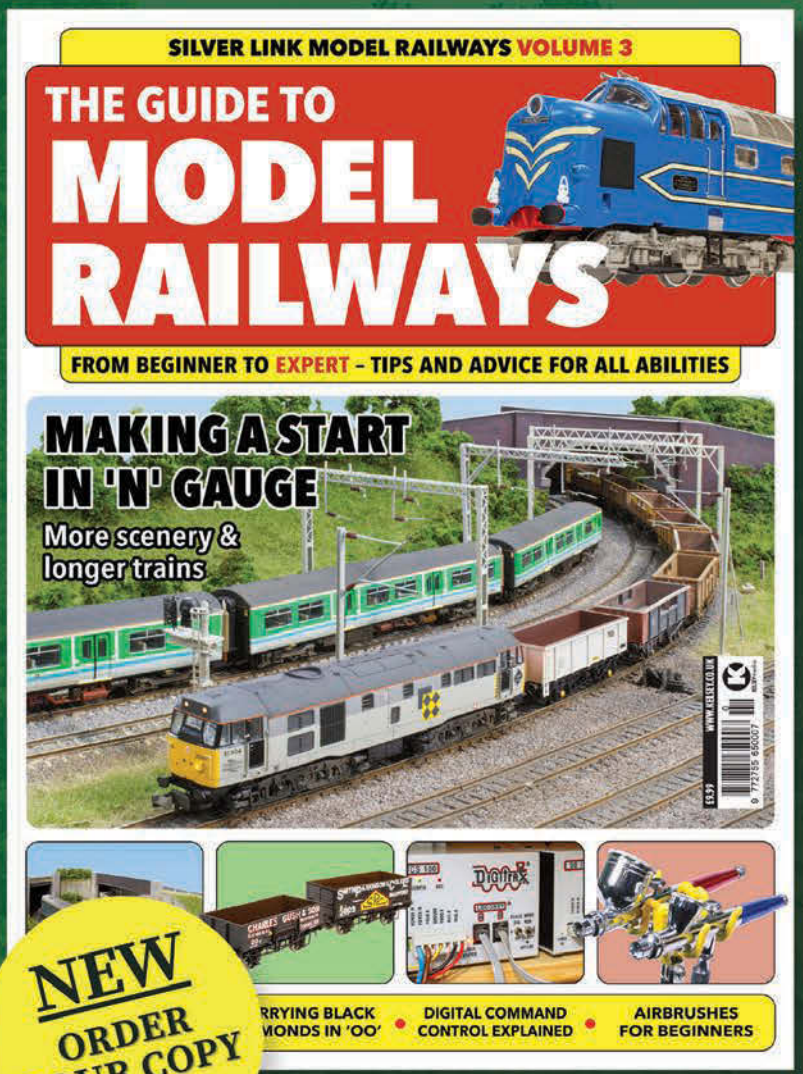

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HORNET MOTH

Enjoy building this sport scale de Havilland DH.87B, designed by **Graham McAllister**

Words : **Graham McAllister**

Photos : **Graham McAllister, Bob Olson II**

During the winter of 2023, I was looking at the Tinker biplane plan by David Boddington. I liked the idea of building a simple cabin biplane for easy flying. But my mind wandered and I thought it wouldn't be so hard to build a sport scale cabin biplane in a similar manner. The DH.87 Hornet Moth came to mind with its boxy cabin and lovely de Havilland nose and tail. Well, things escalated but the result is a simple enough build and it flies like a three-channel vintage model. Exactly what I was looking for so that I could add scale details over time.

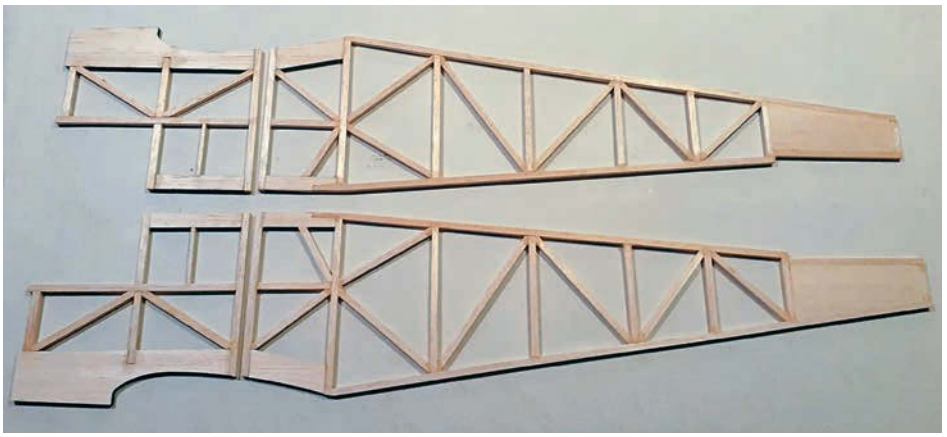
First, I looked for available plans and found several nice free flight designs. In particular, H. J. Towner's plan of the tapered wing D.H.87A version gave me good outlines, so I simplified from that starting point. I have a Dynam Tiger Moth (foam RTF) so I decided to scale the Hornet Moth to match that, which gives a wingspan of 134 cm (52.5"). Construction is conventional balsa and lite ply for the most part, covered with heat shrink film. I did consider using a .45 cu.in. four stroke engine and the structure should handle that (with a different engine mount) but I decided to stay with electric. So, the option is there to make this as an IC model and get that lovely four-stroke sound.

TWO PIECE FUSELAGE

Fuselage construction is a little different in that the front and rear sides are built separately to achieve the sudden angle change of the fuselage when viewed from above. Use 6 x 6 mm hard balsa for the top and bottom longerons and medium stock for the uprights. The diagonal braces in the rear half can be medium weight 6 x 6 mm and 6 x 3 mm balsa where shown on the plan. The diagonals in the front sides are 6 x 6 mm. The top and bottom wing saddle parts are cut from medium 6 mm balsa sheet. In the front section the first three bays are filled with medium 6 mm balsa sheet. Note the position of the undercarriage mounting tube and drill for it now so that both sides are the same. Use brass tube to fit over the 3 mm or 1/8" U/C wire. The back bay in the rear halves is infilled with light 6 mm sheet. When building the sides over the plan be sure not to glue the uprights together at the break!

Cut Floor 1, Floor 2 and F3 from 3 mm lite ply. Floor 1 will slot into Floor 2, passing through the

This gentleman's tourer looks great doing gentle wing overs and low fly-bys.

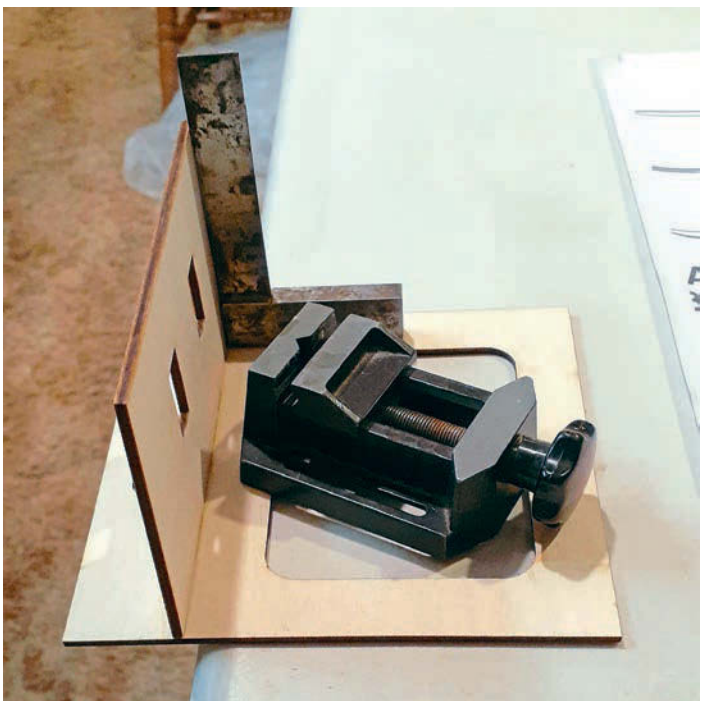


Fuselage side front and rear sections are built separately.

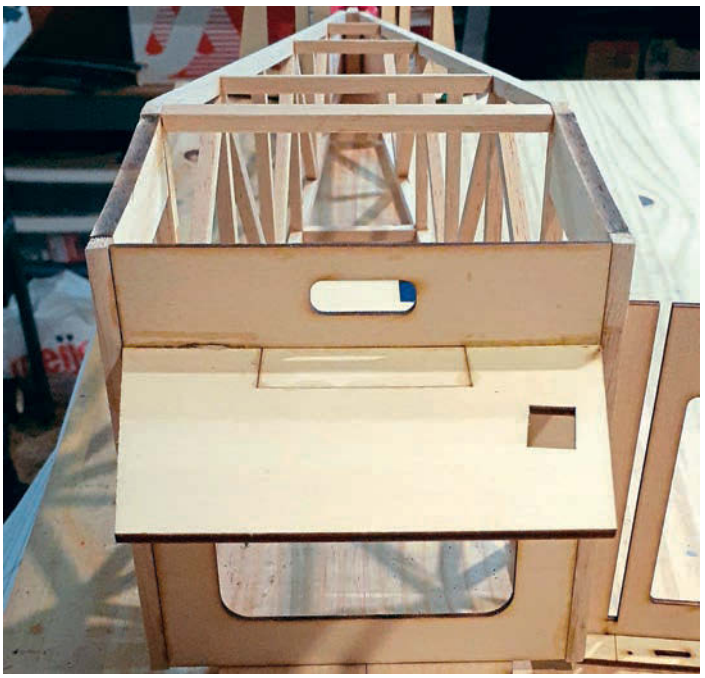
slot in F3. These parts are glued together with the floor flat and F3 set at 90 degrees to them. The servo hole in Floor 1 in the photos was for a throttle servo so it can be ignored for electric power. The angle of the fuselage sides will be set by these floor parts.

The fuselage side uprights should be chamfered where they join at the floor angle for a tight joint. The rear fuselage sides are glued onto this floor structure first. Do this with the sides inverted and flat on the building board. The sides meet at the front edge of F3.

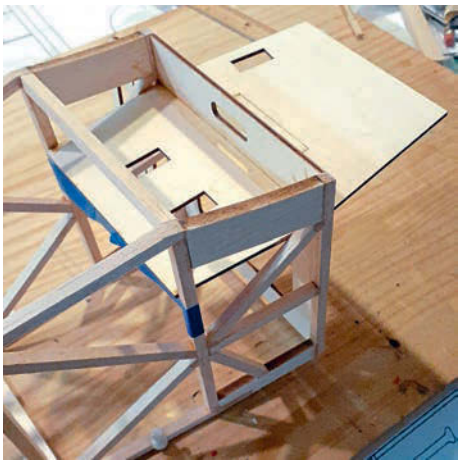
Use a spacer under F3 so that it aligns with the bottom wing saddle and the top surface of the fuselage. Clamp the fuselage rear together using a 6 x 6 mm stick as a temporary tail post between the sides. When you're satisfied that everything aligns over the plan, glue in



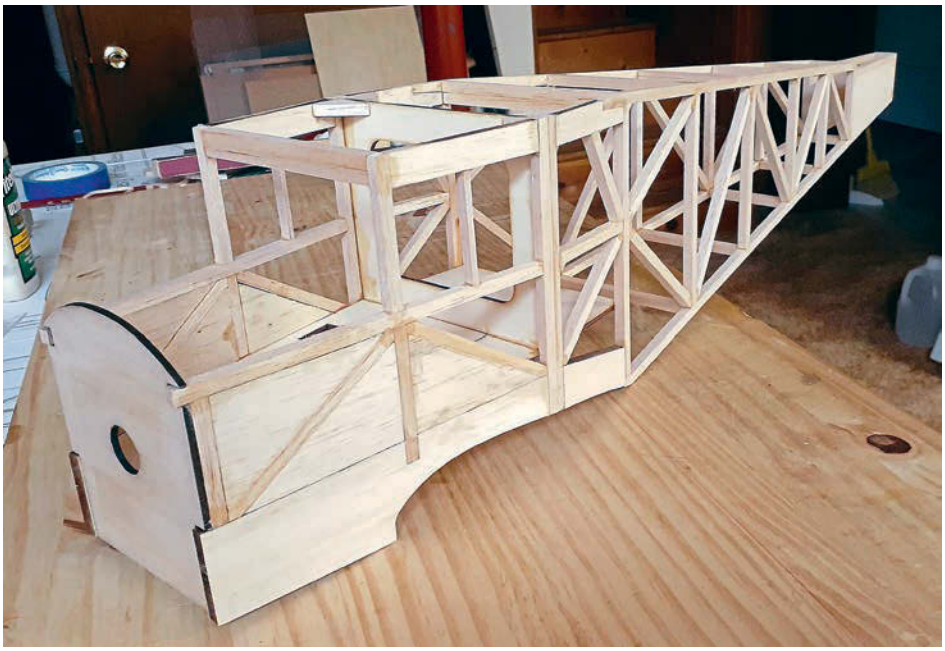
Floor and F3 being glued in place.



The forward servo hole in Floor 1 is for a throttle servo so it can be ignored for electric power.



Floor structure and F3 align the rear fuselage sides.



Front fuselage sides after being glued to the rear fuselage and the floor structure.

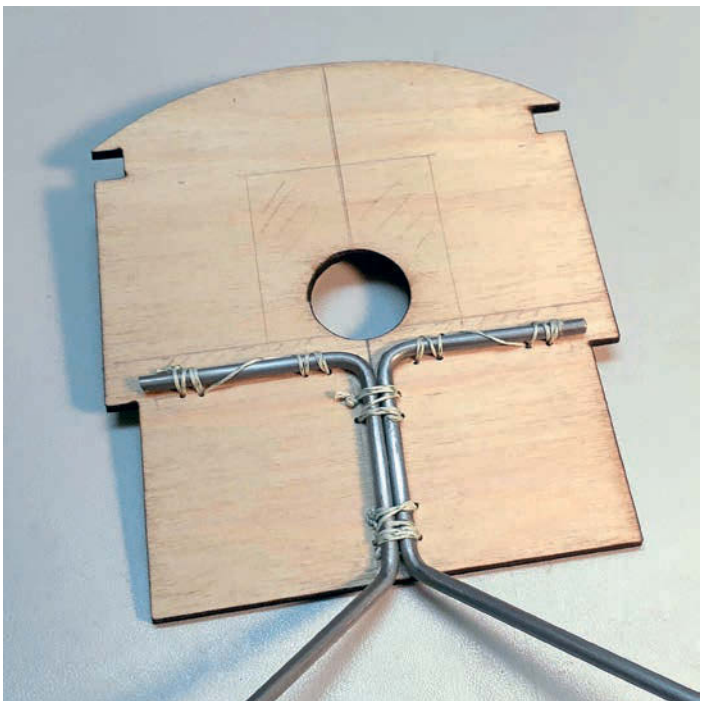
"Select some hard and straight 6 x 3 mm balsa for the side and top stringers"

place with a good wood glue (I used Titebond III throughout). When dry, add the 6 x 6 mm cross braces top and bottom. Make a tail post by tapering a length of 12 mm sheet.

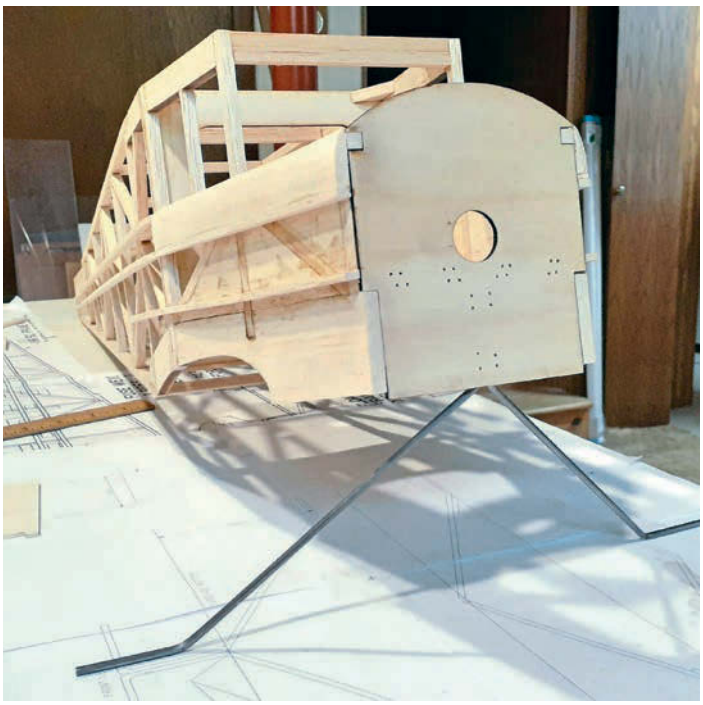
Cut F1B from 3 mm birch ply. Dry fit the front fuselage sides and F1B onto Floor 1 and the rear fuselage sides to make sure everything aligns. Adjust as needed. When satisfied, glue the sides in place but DO NOT glue F1B to the front yet. Tape together and leave to dry. Add the one top cross brace. Add medium/hard balsa triangles where the top wing fits, each side of F3 and behind the front top cross brace. Four of these will become the wing mount nut holders.

The front legs of the undercarriage are bent and stitched to the rear of F1B. The front undercarriage legs are shown at true length on the plan. They are all from 3 mm piano wire. Bend the front legs first, being careful to get the wheel axles in the correct position behind F1B. When you have them equal, mark the position on F1B and drill 1.5 mm holes for the stitching thread. Use strong thread to bind the legs to the back face of the former, then liberally apply epoxy over and around the thread and legs. Now you can glue F1B to the front of the fuselage sides with the undercarriage legs sloping backwards. Sand the front of the fuselage sides flush with the front of F1B. Cut F4 from 3 mm lite ply and drill for the 4.5 mm hardwood dowel wing peg. Cut the

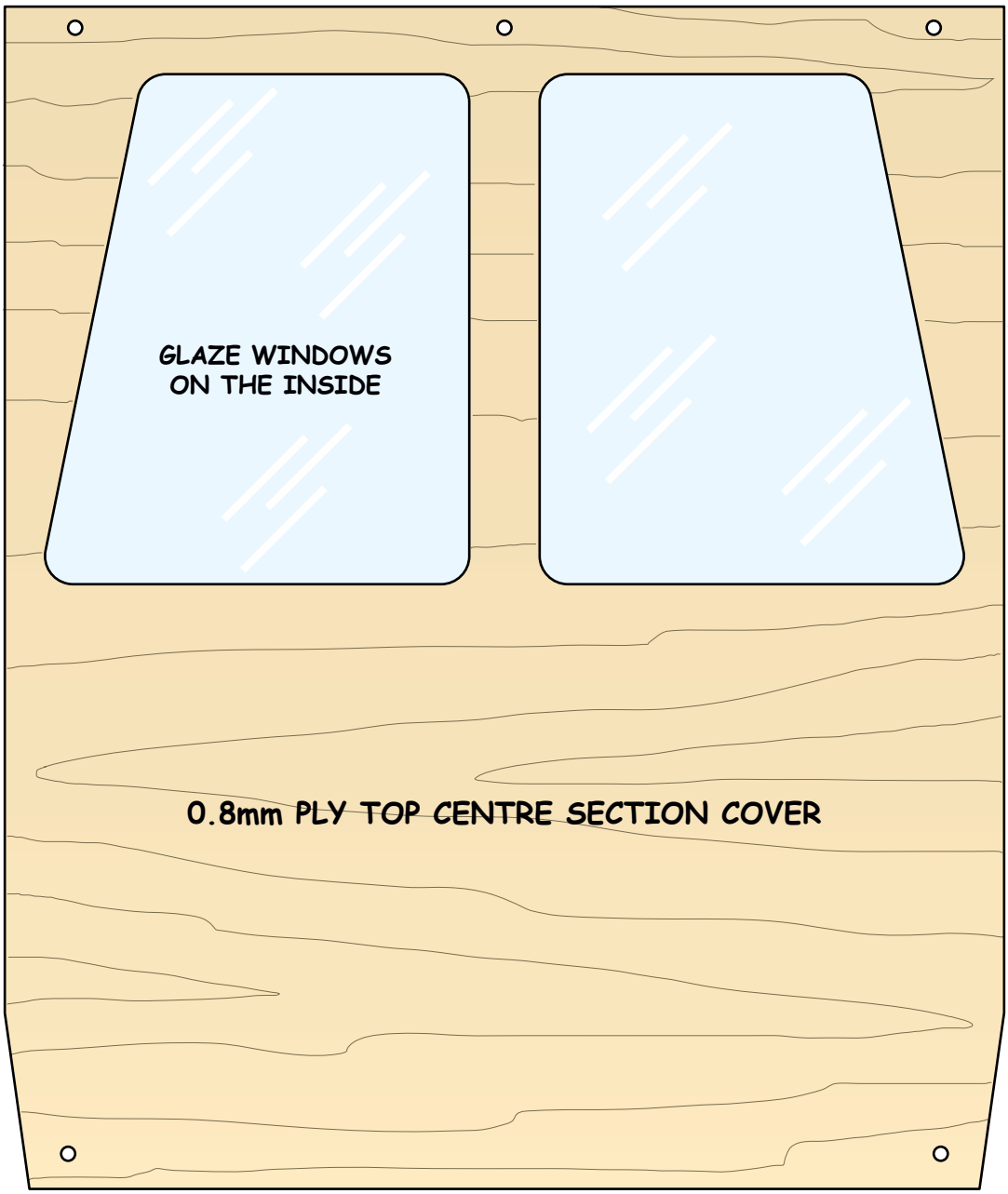
Undercarriage mounting tube is from brass tube sized to fit over the 3 mm or 1/8" U/C wire.

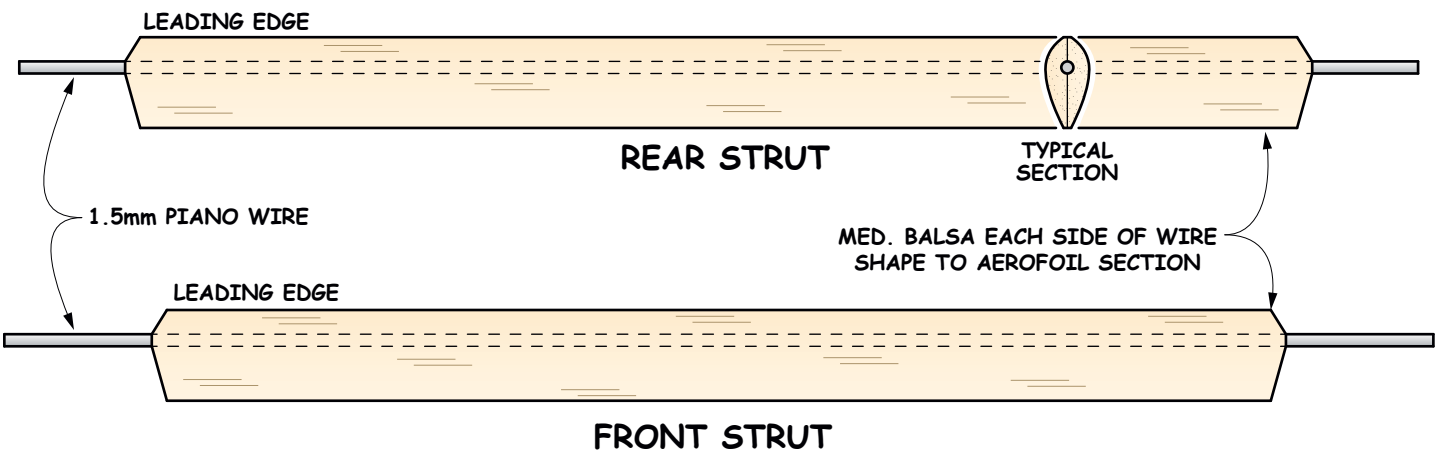


Undercarriage legs on the rear face of F1B are stitched and epoxied in place.

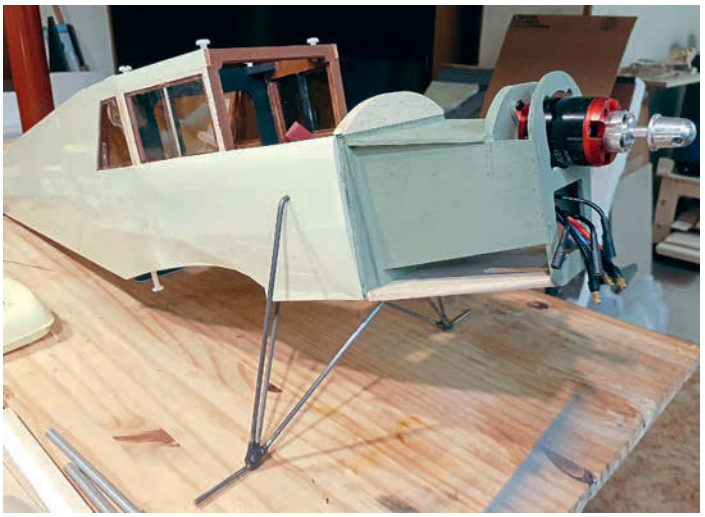


F1B, side stringers and the top side sheets in place on the fuselage.


GLAZE WINDOWS
ON THE INSIDE
0.8mm PLY TOP CENTRE SECTION COVER


LEADING EDGE
REAR STRUT
TYPICAL
SECTION
1.5mm PIANO WIRE
MED. BALSA EACH SIDE OF WIRE
SHAPE TO AEROFOIL SECTION
LEADING EDGE
FRONT STRUT

Bottom view of the motor and ESC in the motor mount structure.



Another view of the motor mount with the balsa cowl bottom in place.

forward fuselage bottom from 3 mm lite ply and notch the front to clear the undercarriage legs. Glue F4 between the fuselage sides and the ply floor onto the bottom of the front fuselage sides. Cut a length of 3 x 6 mm bass to go from the front floor plate up to the bottom of the cabin front top cross member. This is to support the vertical upright at that position. Glue in place inside the fuselage.

Select some hard and straight 6 x 3 mm balsa for the side and top stringers. The top one stops at the front edge of F3, the fuselage side joint. The second one down is in two parts and goes to the front of F1B. The third goes from the front of F1B to the joint, then a second part goes part way back down the fuselage. Glue these in position as 6 x 3 mm strips, then plane and sand them to taper towards the tail post and create a nice curve across the fuselage side joint. See the plan top view.

Next cut a piece of medium 6 mm sheet which will fit on top of the second stringer down, from the front of F1B to the fuselage joint at F3. This will be shaped to follow the curve of the stringer it sits on and also curve in at the top edge to meet the main fuselage longeron while about 1 mm thick. Add another doubler layer of 6 mm sheet between the second and third stringers from the front of F1B back to about 12 mm behind the undercarriage tube position. Continue the hole through this doubler and glue in place. Below the third stringer glue a 6 x 6 mm strip down the edge of F1B, tapered into a triangle. This will give an edge for the covering film to fix to. Now epoxy the brass U/C tube across the inside of the fuselage. The ends should be flush with the outer fuselage sides. I also added shaped strips to create a support frame for the side doors. I made separate doors and this gave me a solid surface to attach them to. The top fuselage stringers butt up to F6 which is located on a fuselage cross member as shown. The middle stringer is tapered down to 1 mm at the rear. The other two top stringers are shorter.

MOTOR MOUNT

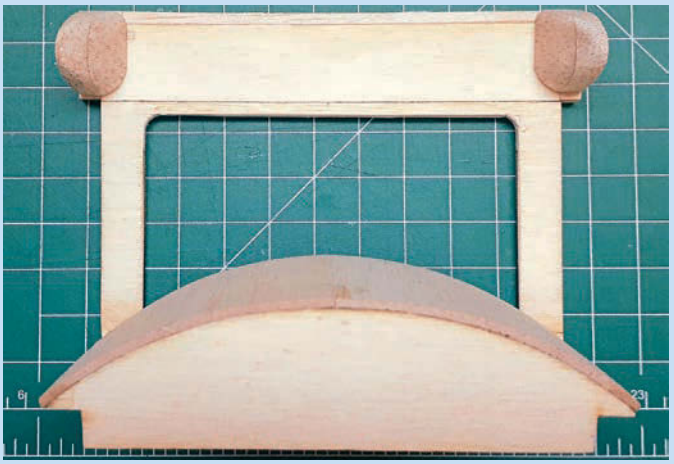
Motor mount parts are cut from 3 mm lite ply, except M2 which is 3 mm birch ply to take the motor mounting screws. They interlock to create the right and down thrust for the motor. Tape the parts together first. Check that the motor and mount plate will fit through the upper hole in M1. This is how the motor will be fitted/removed. Centre the motor in that space and mark the motor mount holes on M2. The parts are epoxied together on F1A which in turn will be glued to F1B. M6 is the ESC mounting plate and is glued between M2 and F1A. Cut a 6 mm balsa sheet (M7) to fit between the bottom of F1B and the bottom of M1. Curve the bottom edges towards the front and glue in place.

COWLING

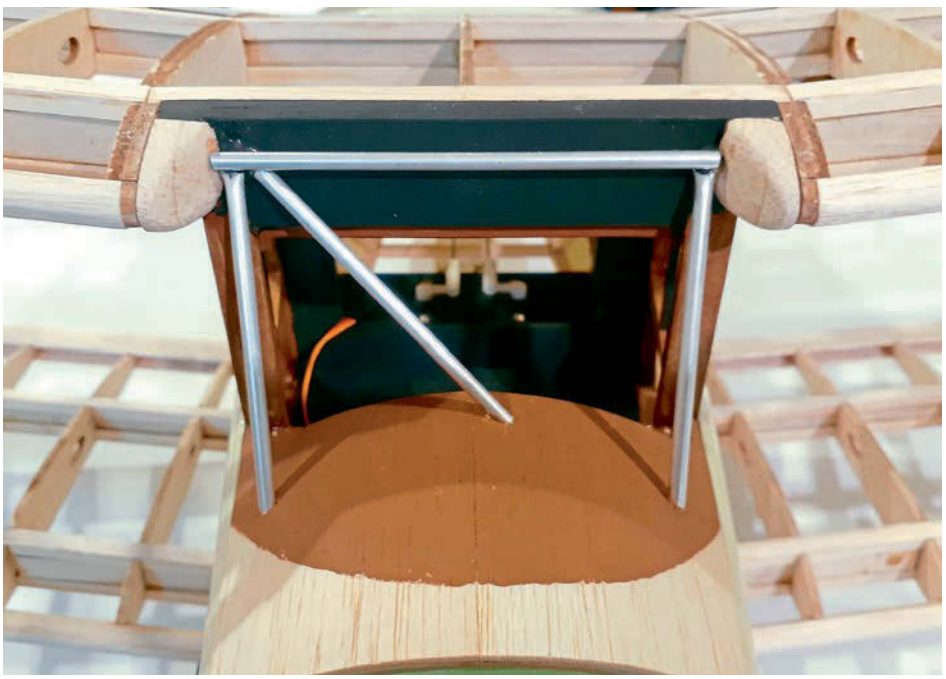
Make the cowling after the fuselage is covered.

Once the motor mount and motor are fitted the cowling can be built around them. The

Views showing the windscreen being glued on with canopy glue and the cowl sections being shaped and fitted.



Hatch structure under construction.



Showing the dummy fuselage tubes in place, with the hatch located between the wing ribs.

cowl front is carved from laminated 9 or 12 mm medium balsa and attached to M1 with three pairs of neodymium magnets. The cowling top and sides are made from thin printer card covered on one side with heat shrink film. Glue scraps of balsa to make hard points for the panels to screw or stick to. The top cowl, ahead of the hatch, is screwed on to allow access to the top of the motor. I found high strength double sided tape (kite making tape) ideal for sticking the side panels and doors in place, film-to-film.

BATTERY HATCH

The battery hatch is best built after the wings so that you can check the fit between the wing ribs but before drilling the wing mounting holes as it will help in aligning the upper wing. Glue three strips of 6 x 3 mm between H1 and H2 to support the hatch sheeting. The structure will be weak until the 4 mm alloy tube braces are added. The top ends are squashed flat and fit behind the top cross tube. The lower ends pass through the 1.5 mm hatch top sheeting. Epoxy them in position.

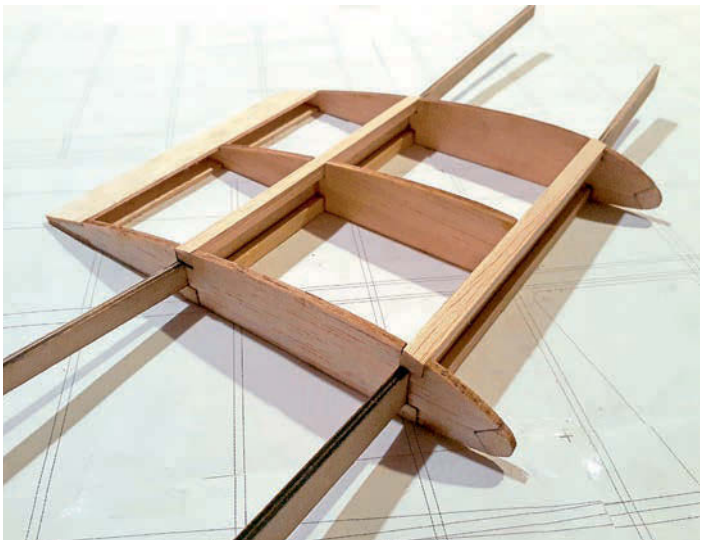
The balsa blocks that blend the wing ribs into the windscreen area can be cut and shaped now. Use a card template to determine the exact shape of the windscreen. Glue a small plate to the back of F1B to position another magnet to hold the hatch in place.

WING CENTRE SECTIONS

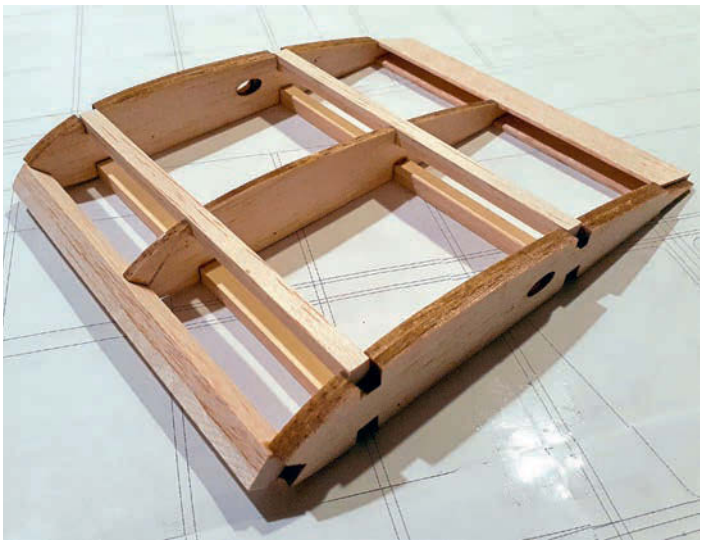
I chose to use a thicker-than-scale wing section for easy flying and to position the spars so that the centre section windows would be unobstructed. All wing spars are 6 x 6 mm bass (or straight spruce) for the bottom spars and 3 x 6 mm hard balsa laminated to 3 x 3 mm bass for the top spars. The balsa on top of the bass makes it easier to shape the spars to the rib profile. The trailing edges are from 1.5 mm medium balsa. Wing joiners are all 1.5 mm birch ply laminated in pairs to be 3 mm thick for extra strength.

Build the two centre sections first. The top wing centre section uses ribs R1 and R1A

Lower hatch detail showing one of the hold-down magnets.



Top wing centre section under construction.



Bottom wing centre section under construction.

"The battery hatch is best built after the wings"

which are from 3 mm balsa and two R2 ribs of 3 mm. Laminate the R2 ribs to the outside of the R1 ribs. The ribs are built onto the short bottom spars, WP1, WP2 and the bottom trailing edge. (WP1 and WP2 are the wing mounting plates. Glue in place behind each bottom spar.) Add the top trailing edge. Carefully cut slots for the wing joiners at the back edge of the spar slots and glue the joiners in place on the bottom spars. Check that there are no twists. Now glue the top short spars into the slots and onto the wing joiners.

The bottom centre section is built in a similar way but using R2 and R2A ribs of 3 mm balsa, WP3 and a 9 x 9 mm square hard balsa leading edge. The wing dowel can be added later after shaping the leading edge.

NEXT TIME

Be sure to join Graham in the July issue of RCM&E as he builds the wings and tail of his Hornet Moth and test flies it for the first time. July's issue will also contain the third and final sheet of the DH.87 Pro-Plan as well as a bonus small model called Zig-Zag. ■

DATAFILE

Name:	de Havilland Hornet Moth DH.87B
Model type:	Sport scale biplane
Designed by:	Graham McAllister
Wingspan:	1340 mm (52.5 in)
Length:	1040 mm (41 in)
Weight:	1895 g (4 lb 3 oz)
Functions:	Rudder, elevator, throttle (via ESC)
Motor:	G-Force G15 3542 -920kV (or .45 four stroke)
ESC:	60A
LiPo:	4S 2200 mAh

Join us for the July issue of RCM&E as Graham finishes and flies his lovely Hornet Moth.

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4M-HESC60A35V2*	60A, Burst 80A, 5V 7A BEC	£47.95
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Fly Fun 160A HV	160A, Burst 200A, OPTO, 6-14 LiPo	£189.99

* XT60, ** XT90 on battery side

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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	5.3g	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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EMAX	ES08MA II	Micro	12g	1.2Kg @ 4.8V - 0.12sec/60° 1.8Kg @ 6.0V - 0.10sec/60°	Analog, Metal Geared	1pcs £8.35ea 5pcs £7.52ea
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EMAX	ES3301	Micro	10.6g	2.0Kg @ 4.8V - 0.12sec/60° 2.2Kg @ 6.0V - 0.10sec/60°	Analog, Metal Geared, 9mm Thick	1pcs £8.79ea 5pcs £7.91ea
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	12.5g	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	13g	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	18.3g	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	49g	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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RBC MB-339

€355 I www.rbckits.com

Looking for a 'builders' EDF? How about this Aermacchi MB-339 from RBC Kits. The full-size was developed during the early 1970s as a replacement for the MB-326, with deliveries to the Italian Air Force commencing in 1979. Suitable for a 100 mm Midi Evo fan, HET EDF 700-75-1400kV motor and 8S 5000 mAh LiPo (2 x 4S) minimum (10–12S if more power is desired), the kit for this 1800 mm span '339 is an absorbing, traditional build that features 288 CNC-cut balsa and ply parts and all the supplementary wood, including 2 x balsa and 15 x lite-ply sheets, plus spruce and balsa stringers. A two-piece vac-formed canopy, nosecone, tip tanks, inlet lip, inlet duct, paper outlet duct and full-size rolled CAD plans are included, with instructions / construction pictures available for download from RBC's website. 3D print files for other parts, including a 'drop in' fan system, are also available for download. No hardware is included so you'll need to source horns, hinges, control runs etc. For 6-channel R/C - aileron, elevator, flaps, throttle, retracts, rudder & nosewheel steering - a separate 3S LiPo and BEC will be required for your chosen receiver and a 2S for the recommended JP Hobby ER-005 electric retracts. Time invested in building this classic EDF will be rewarded with a superb flight performance that experienced pilots are sure to enjoy.

FMS DHC-2 BEAVER (800MM)

£119.99 (PNP) £189.99 (RTF) I www.jperkins.com

Supplied in both RTF and PNP formats this new, compact FMS 800 mm Beaver is ideal for raw beginners and bursting with appeal for experienced hands. Packing training-friendly, 3-mode gyro stabilisation and GPS – with a 'return to home' safety net – the transmitter, charger and battery-equipped (2S 850 mAh LiPo) RTF version offers a superb-flying, stable introduction to the hobby, while the PNP, receiver-ready airframe will appeal to qualified pilots who are drawn to the Beaver's rugged, radial engine design and workhorse performance. An exceptionally fine, nicely detailed foamie.

TOP RC MINI T-28 RTF (450MM)

£88.99 I www.jperkins.com

Joining the expansive range of iconic aircraft in Top RC's mini plane series, this T-28 is supplied in two striking colour schemes. Spanning 450 mm, gyro-equipped and supplied ready to fly, complete with a 1S 400 mAh LiPo and 4-channel Tx (plus 4 x AA batteries) it's super-detailed, has an authentic clear canopy and features a removable wing for easy radio access. Like all the models in this series it performs exceptionally well, boasts an impressive 12-minute duration and comes with everything included in the box, all at an affordable price. Available in Mode 1 & 2 the T-28's crash-resistance and durability make it perfect for all skill levels.

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BELL 412

Last year we tested a Fly Wing JetRanger, one of a new breed of GPS model helicopters, but wished for more heli-like turns in forward flight. Does the Bell 412, with its new ACE control system, get us back in the groove?

Words : **Kevin Crozier**

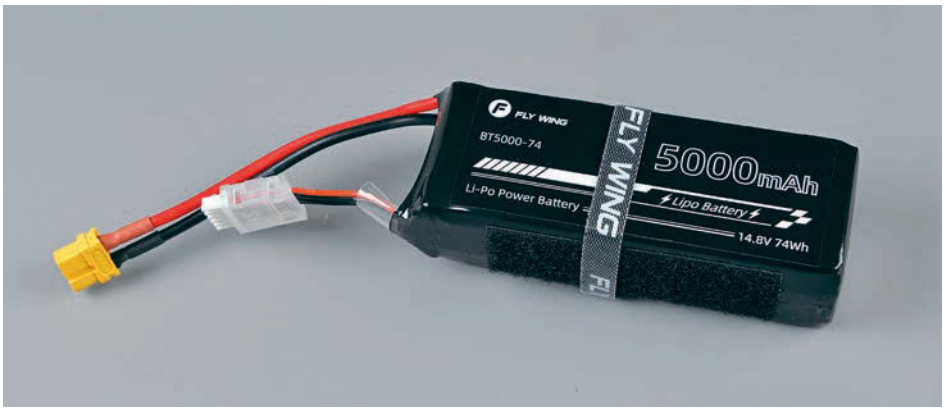
Photos : **Kevin Crozier, Barry Atkinson**

When I reviewed the Fly Wing Bell 206 JetRanger last year (see September and October issues) I was very impressed with the helicopter's painted scale body set and the ease of handling in GPS mode. But I felt a little underwhelmed by the tame response in forward flight, especially the flat turns. This great looking model could be made to fly more realistically by selecting 3D mode but that meant having to constantly keep pressure on the centre sprung throttle/pitch stick to stop it descending as these models are flown with a drone style controller rather than a traditional R/C transmitter with a ratchet on the throttle/pitch stick.

If you read my RTFM column in the last issue you will have seen the letter from Francis Donaldson, who invested in a Fly Wing Bell 206 after reading my review. However, Francis' machine came with a different type of flight

Fly Wing's Bell 412 offers a quick and easy way into scale helicopter flying.

It comes with the same controller as used for the Bell 206 JetRanger but with ATT (Attitude) control replacing 3D mode. Much more appropriate for scale flying.



A 4S 5000 mAh LiPo is supplied, along with a hook & loop strap to secure it to the battery tray.

Accessories include an AC LiPo charger (lead & plug not shown), a set of Allen keys, a bind plug and a thin, but informative manual. Take it to the flying field in case you forget how to start the heli!

Detachable front cabin provides a good example of the scale details incorporated into the body set such as clear windows, doors and rivets.

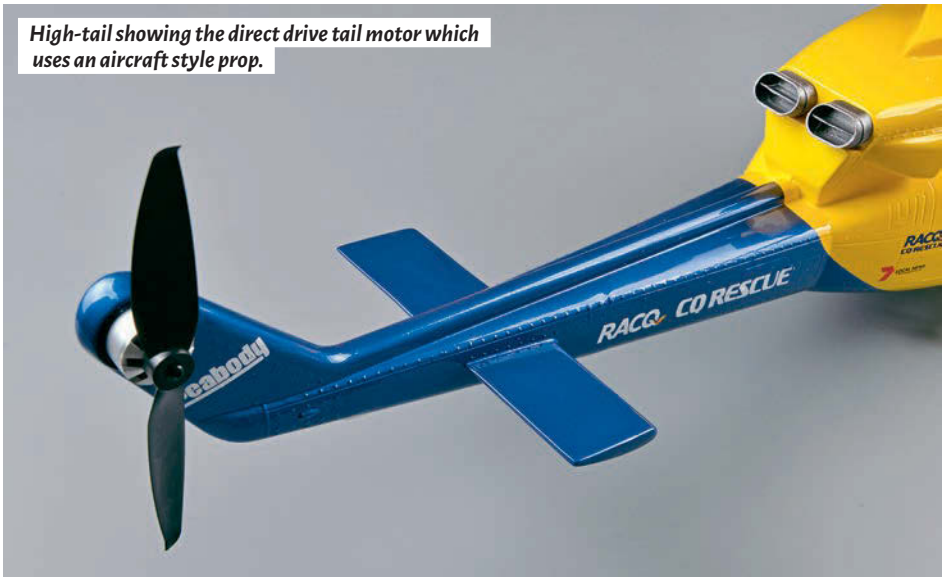
control system called ACE, where the 3D mode is replaced by ATT (Attitude) mode. When selected ATT allows the heli to fly much more like a normal R/C helicopter, drifting in any wind and making banked, sweeping turns. Even in GPS mode the heli will now make nicely banked turns thanks to the ACE control system.

Intrigued by Francis' letter, I sent an email to Fly Wing asking if our JetRanger could be upgraded to ACE. I received a prompt reply, but with another kind offer, this time to provide a Bell 412 for review that was already equipped with the ACE system.

SOFT BOX

The new model arrived and the lid of the colourful outer box was lifted to reveal another good-looking scale machine safely ensconced in a large cut-out in the soft but firm foam inner packaging.

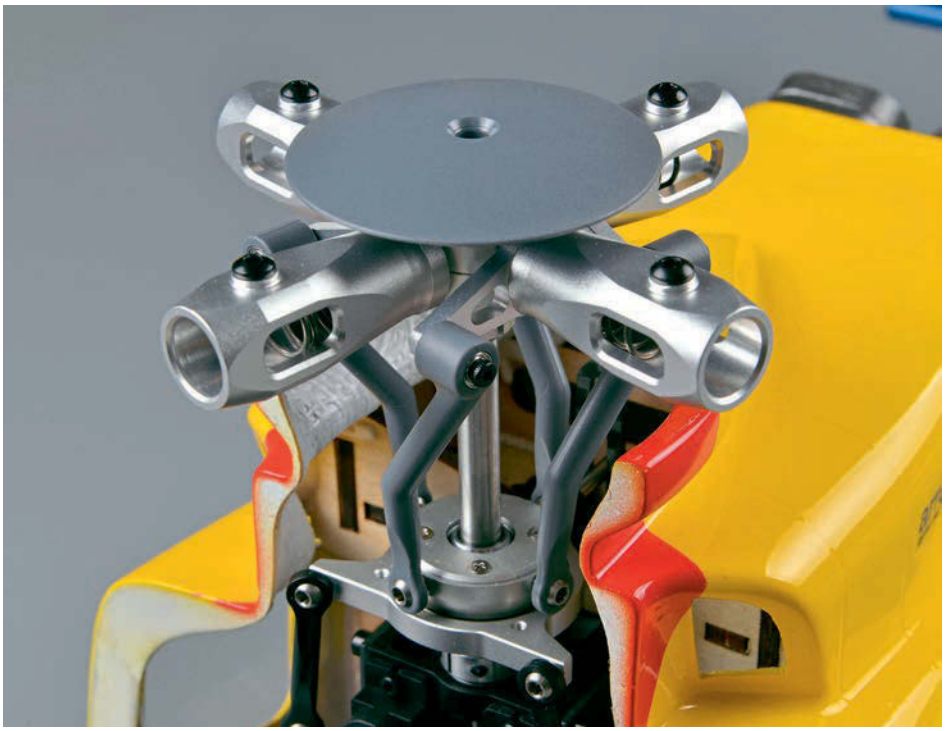
Fishing from other pockets in the foam you will find a twin stick controller, a 4S 14.8V 5000 mAh LiPo, a packet of rotor blades, a mains-powered 4S LiPo charger and a combination set of Allen keys. There's also a bind plug (although the model comes pre-bound to its controller), as well as a 20-page English manual. The manual is worth reading to become well acquainted with the controller, especially the various switches at the top. It also shows how to re-calibrate the compass should the model become difficult to control in GPS mode (often showing up as making slow 'toilet bowl' circles when hands off) or if you fly it in a new location far from your original flying site.



High-tail showing the direct drive tail motor which uses an aircraft style prop.

> "…it's simply a case of 'push, twist and pull' on each blade to securely fix it in place"

The model's multi-colour paint finish is again sprayed to a very high standard and, like the JetRanger, the Bell 412 includes a wealth of moulded in scale details such as doors, panels, rivets and ready fitted transparent windows. Full-size 412s are powered by P&W Twin-Pac twin turboshaft engines with a pair of distinctive exhaust deflectors at the rear of the main cabin, both of which are nicely



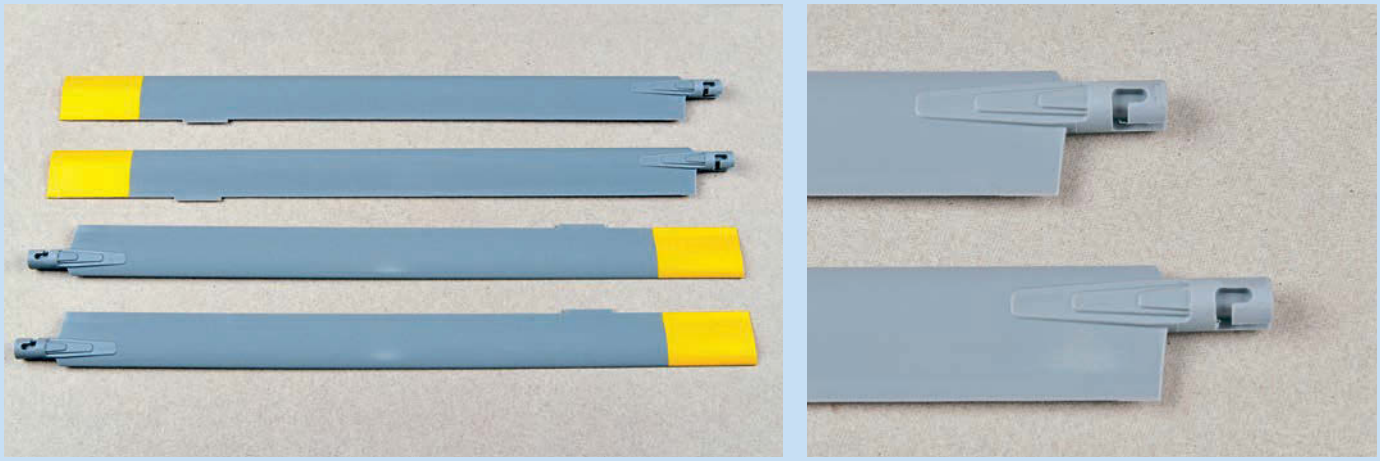
Four bladed rotor head is a lovely piece of engineering.

replicated, as is the swept up 'high-tail' tail rotor. The use of an electric motor at the rear, fitted with an aircraft style propeller is the only real deviation from scale, but it does do away with complicated belt or rod tail drives and associated gearboxes, plus traditional pitch change mechanisms. However, the downside is that this high revving motor constantly changes speed in response to yaw commands which does detract from the nice buzz made by the main blades.

Talking of which...

FOUR BLADER

Our Bell 206 came with a traditional two blade rotor head, but the Bell 412 is a four bladed helicopter. When storing a two-blade heli I usually just fold the blades back over the tail boom and hold them in place with a blade holder so that I don't have to unbolt them after a flying session. But with four blades at least two would need taking off. Fortunately, Fly Wing have avoided any such hassles by putting an L-shaped slot in the blade roots. Each blade is inserted in its blade holder with its trailing edge upwards and then turned 90 degrees so that the end of the slot engages with a pre-fitted bolt, locking the blade in place. The holder has

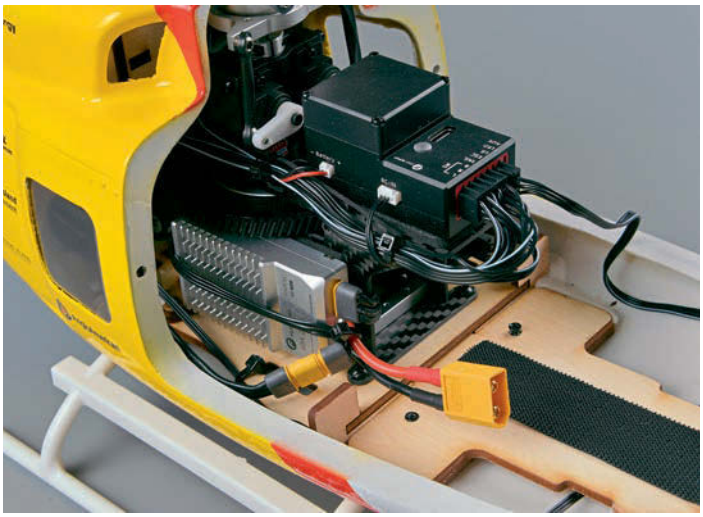


Each of the four rotor blades has an L-shaped slot in the root to engage with bolts permanently fitted to each blade holder.

Each blade is inserted vertically, pushed in against a spring and then turned to lock them in place.

All four blades can be fitted in a matter of seconds.

The last three shoulder switches on the ACE controller now access different functions to the H1 set used by our previous Bell 206. SW-B has three sensitivity settings instead of auto circle and figure of eight patterns whilst SW-C has an ATT setting in place of 3D mode. Finally, the unused SW-D now switches on C-Turn - but we won't be using it.



Heart of the machine! Unlatching the front canopy reveals the ACE controller and side mounted ESC. Wiring is neatly installed.

a spring inside so the blade cannot work loose. So, it's simply a case of 'push, twist and pull' on each blade to securely fix it in place, working in reverse to take them off again at the end of a flying session. It works really well and only takes a few seconds to fit all of the blades.

CONTROLLER

The controller is the same style as that used for the Bell 206 but with different stickers next to the switches on the right-hand shoulder. SW-C now shows HOME-GPS-ATT, with ATT replacing the 3D position.

SW-D was not used on the JetRanger controller but now sports a sticker showing OFF and C-Turn. When C-Turn is switched on the yaw (rudder) stick is used for turning. To quote the manual, "*The flight controller automatically increases roll (aileron) control helping the heli to turn in a smaller radius and with a more realistic posture.*" In use this does work but when flying a normal R/C heli the rudder stick is not used to roll the aircraft so it's a bit strange using it when you should be using the aileron stick to make banked turns. It also tends to raise the nose in turns when really you want the opposite to happen. So, while it was interesting to try, I think I'll be leaving C-Turn off.

BIGGER BATTERY

This model comes with a bigger battery than the JetRanger, being supplied with a 4S 5000 mAh LiPo. Checking the CG, which should be close to or in-line with the main rotor shaft, revealed that the Bell 412 is slightly nose heavy, even with the chunky LiPo as far back as it will go on its plate underneath the removeable front cabin. There's not a lot that can be done about this (apart from maybe using a lighter LiPo), so you just have to trust the electronics to sort things out, which they do well. The Bell 412 flies just dandy!

FALSE START

As recalled in last month's RTFM (Read The Flippin' Manual) column the first flight of the Bell 412, well, didn't. Fly that is. I couldn't even get it started!

Colourful paintwork is based on a medical care and search & rescue support helicopter operated by RCCQ covering remote areas of North and Central Queensland, Australia. Now known as BMA CQ Rescue the Bell 412s have been superseded by AW139 aircraft. You can read more about this vital service at https://www.cqrescue.org.au

Fly Wing ACE Heli Start Procedure

1. Flick all shoulder switches up, away from the pilot.
2. Switch on the controller (transmitter).
3. Plug in the helicopter's LiPo.
4. Flight controller light goes Purple (Return To Home) because switch 3 is in the up, Home, position. Replace canopy.
5. Put switch 3 in middle GPS position and wait until flight controller light turns solid Green. This may take several seconds.
6. Put both Tx sticks in bottom outer corners for several seconds (min. 5) to unlock controller. Servos will twitch and swashplate should now respond to stick movements. (Note: If H1 controller instead of ACE, the swashplate doesn't move in GPS mode.)
7. Green light on flight controller will flash so good to fly. Nav lights (if fitted) will also flash.
8. Move switch A from Stop to Run and main and tail rotors will start.

What a lovely looking machine!

Fly Wing helicopters require a specific 'safety first' start procedure which is laudable. The procedure is covered in the manual but, not for the first time, I must eat my own words as I didn't take the booklet with me. So, after a few frustrating minutes I did the sensible thing and took the model home to read up on how to get it going. Even the manual isn't the clearest but there are some useful videos online which make things a lot easier to understand, especially those from Mike Duncan in South Africa. See 'Mike Duncan's RC Heli tips' on YouTube.

Just in case you missed it and are thinking of buying a Fly Wing helicopter, I have repeated a modified version of the 'Heli Start Procedure' nearby so why not make a copy and tape it to your controller for easy reference; I have mine taped to the back of the battery bay cover. Please note that this should more correctly say Fly Wing ACE Heli Start Procedure as with the original H1 flight controller fitted to the Bell 206 JetRanger the swashplate will not move in GPS mode.

BACK AT THE PATCH

With the correct start procedure fresh in my mind, I was very pleased to see the main and tail rotors start up. When they had stabilised, I pushed the throttle stick forward and the Bell 412 rose quickly into the hover. I think the take off with ACE has been softened a bit as it doesn't seem so rushed as with the H1 controller in the JetRanger. (This is confirmed in the manual, which states that the ACE controller takes control of vertical velocity until it reaches one metre in altitude.)

Pushing out into the circuit whilst still in GPS mode, I could immediately tell that the ACE system was offering a smoother, more realistic flight pattern whilst still allowing hands off flying whenever I wanted to take a short break. Gone were those annoying flat turns, replaced with nicely banked corners as the model was guided through some smooth figure of eights and slow circuits.

SW-B on the JetRanger's controller allows for a couple of novelty, hands free, flight patterns, putting the model into ether a circle or a figure of eight. That's gone now, to be replaced by Soft, Normal and Sport settings, allowing you to choose the sensitivity to the controls that suit you best depending on your experience of flying model helicopters. As an experienced (but cautious) heli pilot, I found that even the Sport setting was easy to handle. It allows you to get the nose down and pick up a bit of speed, which gives the model a very realistic impression of a full-size commuter helicopter flying overhead in the cruise. It's a far better use of the switch than those pseudo flight patterns!

FLYING WITH ATTITUDE

Flick SW-C into ATT mode and the model will maintain altitude until you command otherwise, but it will start to drift in any breeze that might be present. In this respect it feels much more like flying a 'normal' R/C helicopter. Those nicely banked turns are retained but to be honest I haven't really had enough flight time in this mode to decide if I prefer it over GPS mode. The problem here is that GPS using the ACE system now offers pretty much what I would want from a scale helicopter, with good forward speed and realistic banked turns. The only downside would be that you could become reliant on its stability when hovering nose in and forget how to perform that important task when returning to fly a standard R/C helicopter.

As with the Bell 206, the Return To Home function works well should you ever get into


No complaints about flat turns now. Thanks to ACE the Bell 412 performs nicely banked turns. It can roll much more than this picture suggests yet remains easy to fly.

"…she will rise up and track back to overhead where you started her from, then descend slowly for a perfect landing"

trouble when flying the Bell 412. Simply flick SW-C to Home and she will rise up and track back to overhead where you started her from, then descend slowly for a perfect landing. It's mesmerising to watch!

IT'S ACE!

With their ACE flight control system, Fly Wing have literally aced (sorry, I couldn't help it!) the main issue that I had with the original H1 controller fitted to the Bell 206, this being the flat turns in GPS mode.

Replacing the inappropriate 3D mode (for scale flying) with ATT attitude mode make a lot more sense and even if you are a low time heli pilot and you accidentally activate ATT then all it will do is start to drift, leaving you time to flick back to the easy to fly GPS mode. But if you accidentally flick into 3D with a H1 model, without a bit of previous experience, the model will drop suddenly, which could cause a novice to panic or freeze on the sticks, possibly leading to heavy contact with the ground - or worse!

As an aside, the good news is that for owners of H1 helis like the Bell 206 reviewed last time, there is a way to replace 3D mode with ATT mode, which I will cover in a future RTFM article.

But this review should be all about the Fly Wing Bell 412. And what a great job Fly Wing have done with it. It probably still won't please pedantic heli purists as there's no doubt that the ACE flight system is taking over a large share of the hard learned piloting that many heli pilots have worked hard to master over the past few decades. But who cares when the resulting model looks so good, is easy to fly and now turns like a proper helicopter. ■

Slipping past slowly overhead.

DATAFILE

Model	Bell 412
Model type:	Scale helicopter
Manufacturer:	Fly Wing
	https://www.flywingrc.com
Main rotor diameter:	810 mm
Fuselage length:	750 mm
Height:	240 mm
Weight:	1000 g (without LiPo)
Power System:	3508 brushless (main), 2008 brushless (tail)
LiPo:	4S 5000 mAh

A final look at the four blade Fly Wing Bell 412. Lovely!

A star performer at Faszination Modellbau 2025 was Robin Trumpp with his Skymaster F-14, accompanied by sounds from Top Gun. You could almost feel Maverick's presence!

FASZINATION MODELLBAU

Thorsten Häs reports from Friedrichshafen in late 2025 to cover one of Germany's last big model shows of the year

Words: **Thorsten Häs**

Photos: **Thorsten Häs, Fynn Häs**

From October 31st to November 2nd, 2025, the European model building scene gathered once again for Faszination Modellbau to mark the end of the year. For many aeromodellers the show heralds the end of the outdoor flying season and the start of the model building season. In addition to outdoor model flying, at the FMT 'Star of the Year' airshow, indoor flying is also presented in the halls at 'Indoor Action', also supervised by the FMT team. In addition, all the other model building genres are represented with cars, trucks, marine, railway, military, plastic and cardboard model building. The Lego exhibition and real steam indoor meeting were also a focus.

The show is held at the Messe Friedrichshafen, close to the shore of Lake Constance in Germany. It was visited by over 50,000 visitors, with many coming from the border triangle of Germany, Austria and Switzerland.

Anyone who wants to can already start planning for this year's Faszination Modellbau, which will take place from October 30th to November 1st. I will try to give you an overview from the last show and maybe it will convince you to visit in 2026.

1 & 2: aero-naut Modellbau

The new product for the coming season was the 'Spike' electric glider with a six-flap wing and designed for rapid performance! With the

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option of a custom fuselage design – classically round or extravagantly octagonal – it is something special. Applications extend from thermal soaring to dynamic slope flying. Spike has a span of 3.45 metres and weighs approx. 2.7 kg for a 4S drive.

In addition to familiar models such as the Shorty (a 1.3 m trainer), the Sporty aileron trainer (1.3 m span with flaps) and the advanced Rhino-Racer (880 mm span, approx. 630 g), many other models from the aero-naut range were also on display. Accessories, small parts and expert advice are always available at the aero-naut booth.

3: AGF-RC

This company presented a wide selection of servos and accessories, as well as their newly assembled helicopter sets.

4 to 6: CHAServo

Not only did this company present further innovations with their servos but they also displayed CHA-Zoom, a foam aerobatic and 3D trainer with a 1 m wingspan for a 3S LiPo and 4 x DS115 servos. The new CHADesign Falcons jets (presented at JetPower) were flown, as well as the TomJets X130 (1.44 m wingspan, approx. 11 kg with Xicoy X132) with its impressive flight profile. The CHADesign Piper Super Cub J3 of 6.45 m wingspan, with its 6-cylinder


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Kolm engine and 24 x HV7010 servos, was also skilfully flown. In terms of servos the focus was on new SVH types from the industrial sector.

7: Daims Kabelshop
This cable supplier displayed and sold its wide range of cables, plugs/sockets, and accessories.

8: Derkum mit D-Power
With their large trade fair stall, Derkum not only offered models at low prices but also servos, controllers, motors and batteries from their range. HELLO transmitters were also on display for visitors to see.

9: Minicars
The Minicars team presented the various Futaba transmitters and offered a wide range of items from their shop.

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10: Genspow
Alex Byrizckcy offered a huge selection of different battery types which were purchased by the many visitors. These included the latest cell technologies from Genspow/Tattu as well as the available chargers. Focus remains on the G-Tech system, which enables direct communication between the charger and the battery via the balancer plug, essentially ruling out incorrect operation. Alex also showed the new TA300 four-way charger from Tattu.

11: Graupner Service
As well as being able to discuss the various Graupner transmitters and their functions and programming options, visitors were able to find out about the latest TOP transmitter, the MC32ex.

12: Helikopter Baumann
This dealer presented its portfolio of helicopter kits, mechanics, and accessories from Switzerland, including the Bell 412 from Roban in the Canada Rescue design. The model is

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almost completely built and painted, with all the mechanics in place, ready to be installed in the fuselage. It has a rotor diameter of 1.76 m, weighs approx. 8.2 kg and is powered by a 12S drive (Kontronik Pyro 700-52L and YGE 125 Aureus).

13 & 14: Horizon Hobby
A wide variety of new products for 2025 and well-known models were available for purchase at the trade fair and on display at the exhibition. There was a focus on the Micro Scrappy (800 mm wingspan), a model based on Mike Patey's back-country bush plane. Or the ARF Eratix 3D with a wingspan of 1.6 m, a large wooden version of the popular Eratix 3D FF (Flat Foamy). Also new was the E-flite Airbus A320neo Twin with 64 mm EDF for 6S 3200-7000 packs with LED navigation lights, functional flaps and retractable landing gear. Wingspan 1.52 m, 1.58 m length and weighing approx. 2.9 kg. It's available as either PNP or BNF.

15 & 16: Kavan
Kavan presented their new V5 transmitter with a simplified operating system (from ETHOS) ECOS. The Tx has the 2.4 G ACCST D16/ACCESS protocol and can transmit up to 24 channels and is equipped with a black-and-white LCD (128 x 64). The V20 version is now supplemented by the V20Pro with a revised transmission system, with even greater range, short response times, telemetry, etc. Also new are various combustion engines in the Kavan range from twin 4-strokes to boxer or radial engines. LTX80GT and LTX95GT turbines are also expected soon.

17: KST Servo
The indoor 'eKSTra Fun' with a wingspan of 863 mm and a weight of 170 g was introduced at the trade fair. The model is suitable for KST servos A08 or X08.

18: Oracover
A wide selection and great offers on iron-on, adhesive, plotter, fabric and decorative films, plus top-notch advice from the Oracover team and Mr. Lanitz himself.

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19: Para-Aviation
This company has been optimising their existing products in recent months. The Libra 3.7 RS is the latest model in the paraglider range, maintaining a high glide ratio even during acceleration. This is the only way to achieve true large-scale thermal flying with an R/C paraglider.

20 & 21:Pichler Modellbau
Harald Pichler and his team exhibited their foam and wooden models, RTF FliteZone helicopters and a wide range of accessories. The stand was well attended due to the many interesting models and offers on display.

22: Perma-Grit
In Friedrichshafen, British company Perma-Grit was once again represented by Björn, who was able to advise visitors in several languages. If you are not yet familiar with Perma-Grit, you should take a closer look at their products as they are a must have for any model-making workshop.

23: RC-Hangar 15
The novelty at this booth was the Radiomaster TX15 Max transmitter. Otherwise, visitors could get advice on various products from the RC-Hangar shop and take them home right away.

24: SMG Helischule
This stand displayed a 1:4 scale Lama SA-315B with electric drive (5 kW) and a rotor diameter of 2.49 m with authentic LED lighting and turbine sound module. It also provided information about its construction service and presented offerings of its model helicopter flight school.

25: SG-Modellbau
The Amigo is a well-known name among model aircraft enthusiasts. For many an Amigo was their first model. Now there is a new addition, the Amigo XL with a wingspan of 2.8 m and a launch weight of 2.5 kg with 4S. The new model has ailerons and flaps but is still intended for beginners and leisurely flying.

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26: Stich & Faden
A wide variety of model bags and transport backpacks were available for purchase. Visitors also had the opportunity to discuss customisation options and ideas.

27: Teil-Q
The multifunctional 'Teil-Q Workbench' shown overleaf is the latest innovation from Christian Janda. It's a sturdy workbench that is mobile, modular and can be adapted to customer requirements. The frame is made of high-quality aluminum profiles and 125 mm rubber casters (with brakes) ensure mobility in the workshop. Other well-known Teil-Q products were also exhibited and sold.

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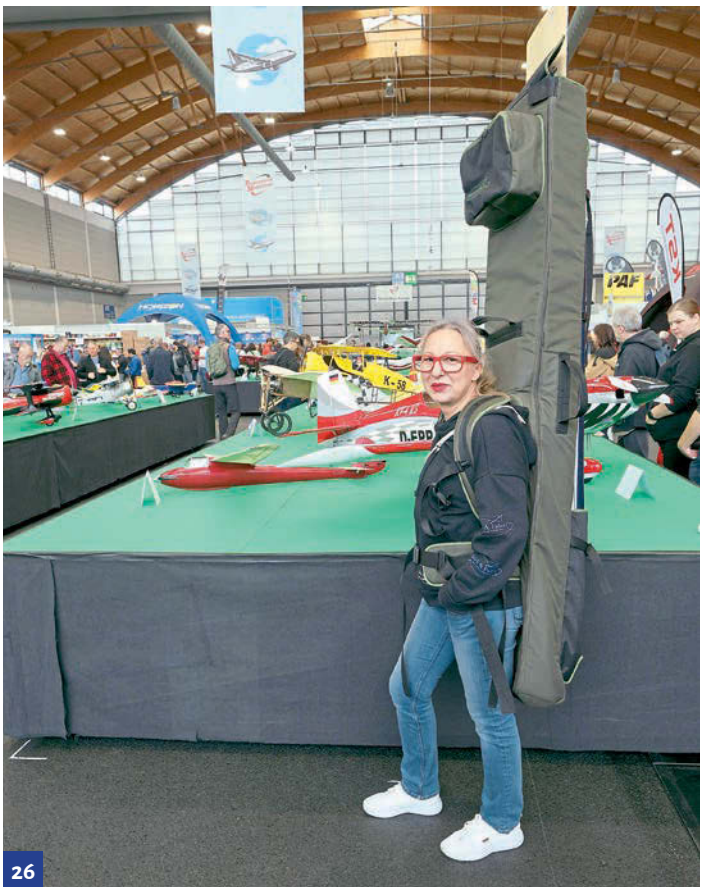
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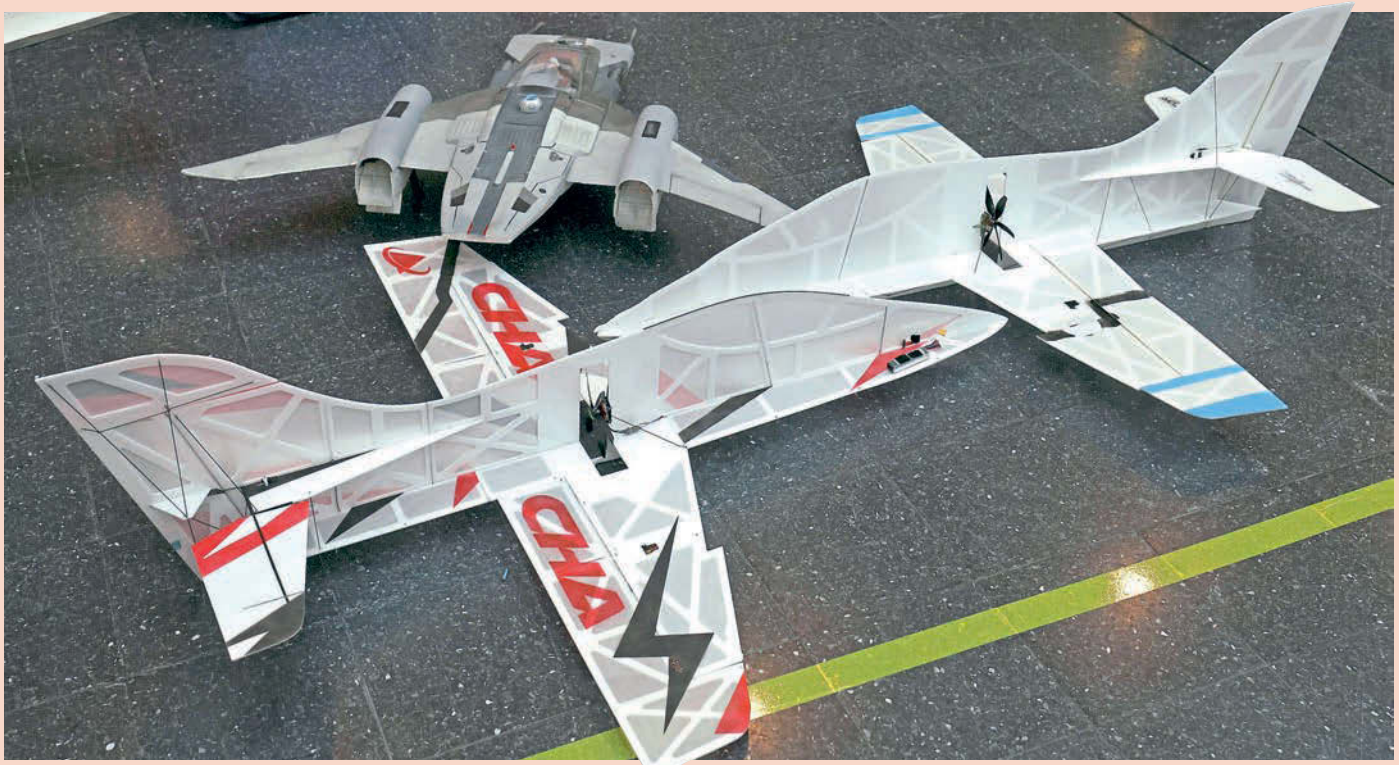
28: Unilight.at
As always, Ulrich Rockstroh's team offers a wide selection of lighting, lighting control systems, electronic cable winches and KINGMAX servos. It is the ideal place to get advice for your next flight project regarding lighting or servos.

29: WildCopter
Offering GPS assisted helicopter models from FlishRC, FlyWing and Roban in scale options in various designs and sizes. The models usually have a GPS mode that stabilises the models on all axes, an ATT mode that keeps the altitude and tail stable or a 3D mode in which all control functions are free and unlimited, where only the tail rotor is stabilised in the classic manner. Depending on the model, return-to-home or automatic take-off are also possible. The models are also usually delivered with a transmitter.

FLIGHT SHOWS
Besides all the exhibits and stands to see inside Messe Friedrichshafen there are also indoor and outdoor flying displays, a small selection of which are shown here.

Don't forget to make a date to visit this year's Faszination Modellbau, which will take place from October 30th to November 1st, 2026. Here's Luca Baumann with the Krill Ares XL, wingspan 2.7 m, JetCat Turbine P350 Pro-S, flying in the FMT 'Stars of the Year' airshow. Patrick Georg and Gernot Bruckmann with tow pilot Maximilian Klein performed double sailplane aerotowing followed by synchronised aerobatics with two Lo 100 half scale 5 m gliders. Opposite: a wide variety of models were displayed and flown at FMT Indoor Action including these profile 'jets', a F-104 in FAT style and the chunky Alpha Jet Squadron. ■



VMC's Westland Lysander kit makes a lovely model but demands that your building skills are 'up to snuff'. See 'Favouritism'.

CLOUDED PERCEPTION

Dave Goodenough heads for the hills for his local PSS event – and comes straight back down again...

Words & Photos: **Dave Goodenough**

Recently dragged from my slumbers by a pre-set phone calendar alert, I dragged myself, my wondrous foul-weather fishing suit and various other togs and accoutrements down to the model taxi, early on a Sunday morn of less than favourable outlook. At this chosen time our slope club was to hold their celebrated PSS event, somewhere in the Peaks.

The wind direction said, 'The Gate', close to The Mermaid ex-pub and I sallied forth north

What the hardy slope addict wears for winter flying. I may look an odd sight, but I certainly keep warm!

and uphill. The drizzle on the windscreen was a precursor, as was a glance at The Roaches rock formation across the valley which was wearing a woolly hat. At the near-Mermaid roadside viewpoint there wasn't much to see and following another 100 ft plus of elevation the cloud base was below us and of visibility there was very little.

Already herding by 'The Gate' were the normal suspects. A handful of stalwarts up for mayhem in the worst of nadgery conditions. Big Bob mentioned, "*You can see a bit of the slope!*", but that's only because he'd blundered through the cloud to find it! It was great to chat with the few that made the trip

The paint pens get a workout on the VMC Lysander tailwheel.

One of the Lysander engine cowling 'blisters' gets the paint pen treatment. They are very handy for detail work.

uphill, but we weren't surprised when Comp. Sec. Ant 'called it' and cancelled.

Thank goodness. My extremities were complaining and it was raining again! Never mind, we'll play another day...

INKY PINKIES

Grandchildren are handy devices to have around at times, especially when they're

Paint pens come in a bewildering array of colours. This is part of my 36-pen set.

More views of the Westland Lysander built for the VMC display cabinet.

using something that gets the model building antenna wiggling. Being as going outside to commit mayhem was in effect telling them to take a cold shower, out came the electronic gadgets. But for one artistic soul a box of colouring pens spilled onto the table.

I may not be fast on the uptake but the 'felt tip pens' in use seemed to have a greater colour density than normal. I had a closer look and read on the box that these were 'Acrylic Paint Pens'. Our budding Picasso allowed me to carry one off to the workshop to test on a small model I was building.

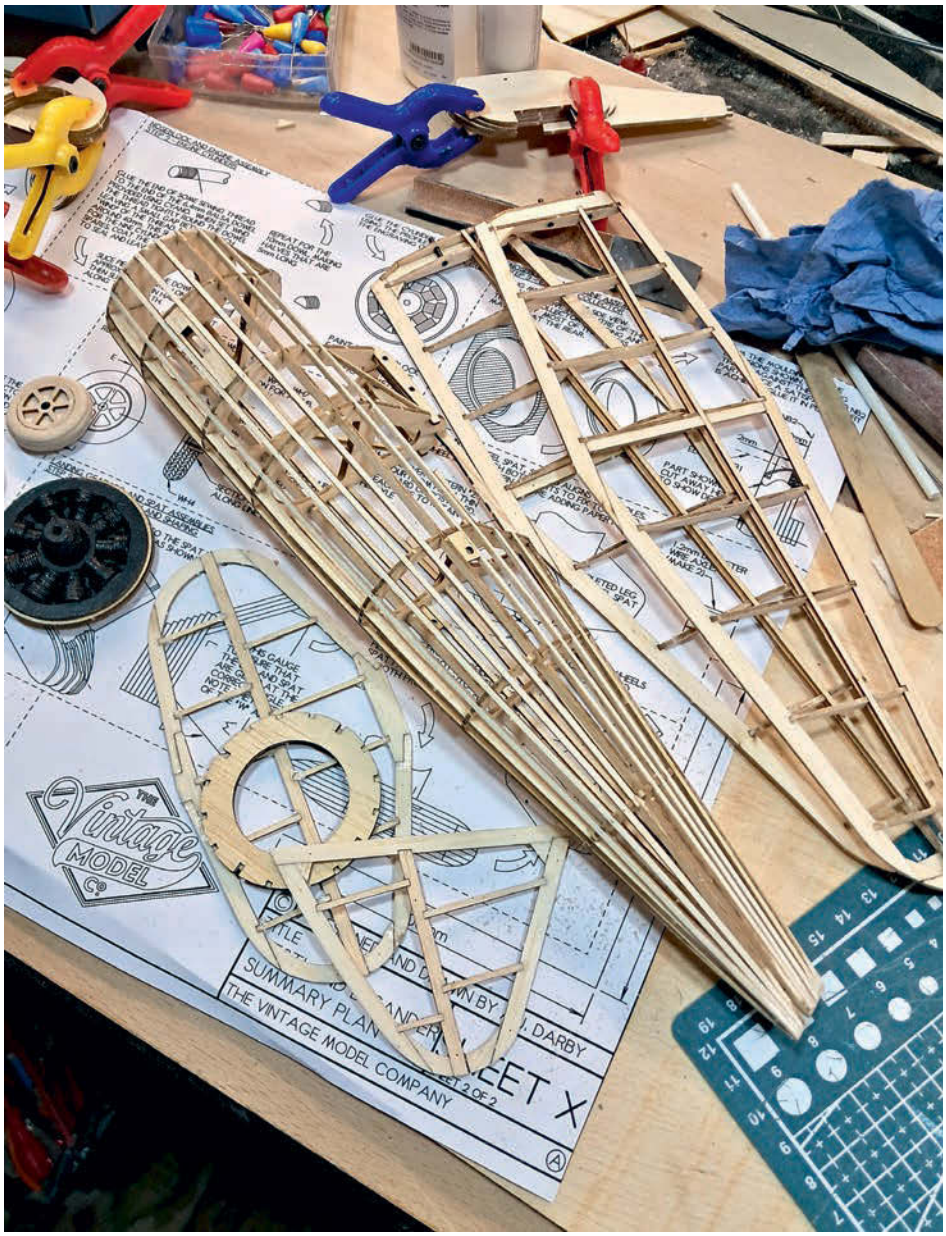
Lo and behold! Though not as 'paint like' as tubes of acrylic colour, the ink is dense enough to use for adding colour detail on small parts, figurines, cockpits and the like. I bought a 36-colour set of these double-ended pens for just £8 from eBay. A decent investment, methinks.

FAVOURITISM?

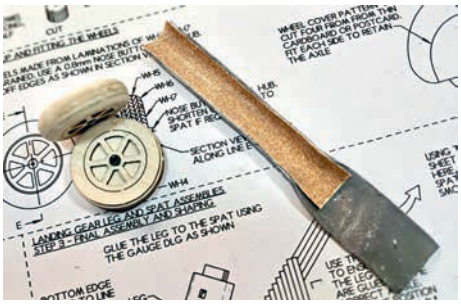
My proximity to The Vintage Model Company's premises and a review of a new Balsa Basics glider that you might have seen had owner Hadi asking for assistance. He was short of a display model for one of the cabinets the company uses at sales fairs. Could I help?

Cue the delivery of a Magnificent Flying Machines 22" Westland Lysander kit. Opening it, I was amazed at the quality from box to bits. The little build manual was detailed, as were the two rolled plans, parts layout sheets and paper aircraft markings. The build was entirely logical, if a little involved, but the size, or lack of it, was a challenge for my sausage-shaped fingers and squiffy close-up eyesight.

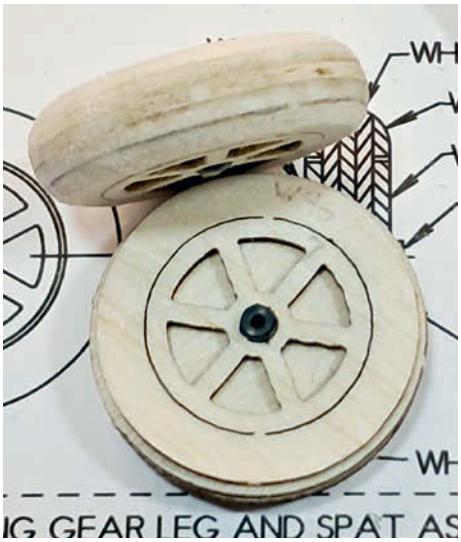
A complete rethink of my normal 'get stuck in' build policy was needed and I had to revert to first principles, or rather the skills learned many decades ago on Keil Kraft and Veron small-scale kits. Once 'in the zone' I found that the initial fumble-fingered frustration gave way to a return of both comfortably manipulating tiny parts and having the confidence to trust my abilities. Covering open



Building the VMC Lysander was an enjoyable challenge and it certainly sharpened skills whilst testing my dodgy digits.



Another use for lead strip. Face it with sandpaper, form a concave curve and you've got a simple sanding and shaping tool.



Lysander wheel before and after shaping in the improvised sanding tool.

My poor battered razor plane saw hard use on the 'Overture' build. Regular blade replacement was demanded by the iron-hard wood.

structures with tissue nearly 'brought on the vapours' but again the old skills flowed back into my fingers.

Did I do a good job? You'll have to ask Hadi.

WHEELY GOOD

One 'challenge' I had with the Lysander was to round-off the sandwich of discs that form the wheels and the very distinctive wheel spats. Held loose in the hand and using a small flat sanding tool saw me chasing the parts across the building board and workshop floor several times, until my atrophied little grey cells kicked into life. My old engineering foreman used to tell me, *'If it's awkward, find a different way of holding the part, or shape a tool to make life easier!'* A wise man was Stan.

I've mentioned before that I'd bought a short roll of lead flashing for ballast duties. But there's another use - sanding tools. Never

My old 'Overture' kit had rock 'ard wood that made the razor plane (and me!) grunt a bit. I ruined several blades whilst shaping and forming.

mind your confusion; to make life easier with the Lysander wheels, plus flying surface edge rounding, I cut a small section of scrap flashing, stuck some 180 grit abrasive paper to one side, then used a piece of dowel (a pencil or screwdriver shaft would do too) to form the lead into a convex shape, abrasive on the inside. The inside curve of the tool and a certain lightness of touch saw the wheel profile appear 'as if by magic'.

If you do the same, remember that lead is toxic so wear thin gloves or wash your hands thoroughly after handling it.

CARPENTRY

The old Balsa Cabin 'Overture' kit that I've recently been bench bothering has at last come together 'in the buff' and makes a pleasant looking parasol-winged trainer-ish device that should provide some low-stress flying patch playtime. The minimal ailerons (a modification) should provide a small degree of roll control to compliment the original rudder/elevator waggling.

One detail in the kit has been causing some diligent work with my razor plane and sanding tools; some of the wood was of challenging and very resistant density. The 'lite ply' fuselage sides weren't very, lite that is, and some of the balsa sections could have been used for garden furniture or even bridge building! My poor razor plane's blades suffered depletion of workshop stock and once hefty amounts of elbow grease were expended, the shaped leading edge of heroic proportions had rendered the sandpaper almost bald!

Which all goes to illustrate an old industry standard - a poor workman blames his tools! When all is said and done, it's up to you to keep your equipment 'up to snuff'. Don't hack with blunt blades and worn abrasives as the result will be to over-exert pressure on your workpiece (the model's structure), sometimes wrecking the very thing you've spent time crafting.

Ask me how I know one day and I'll spin tales of models that never quite got to the covering stage!

As for the 'Overture' and its build-in-progress, I reckon the model could be a risk to the local flora as the 'tough as old boots' wooden structure poses a threat to any innocent tree that steps in front of the model. We all know that trees roam about looking for prey and an Overture/arbre interaction is likely going to be very risky for the tree!

BEGINNER'S BUNDLE

Many builders of models, whether kits or own designs, will use a sealing and anti-chafe strip betwixt wing and fuselage seat. This prevents 'fretting', the wearing away of covering and wood through chafing. For me, I've only used the strips on larger, heavier models but really, I should retrofit something on some smaller planes that are flown a lot and show wear to the wing seat.

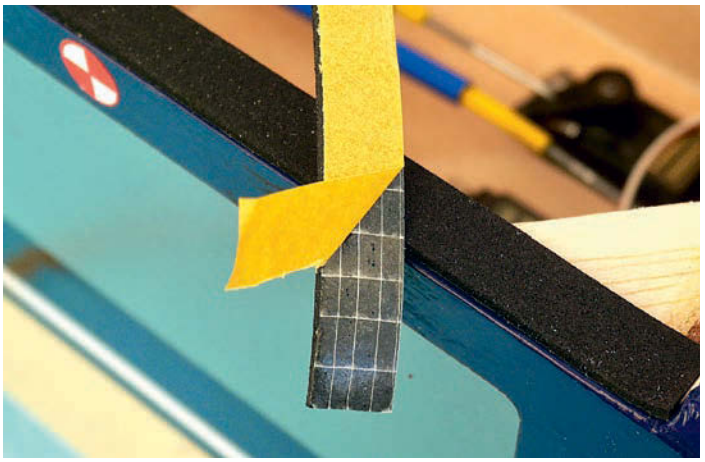
The simplest material to use is thin self-adhesive backed EPDM 'foam rubber' as it's simple to apply and wears well. The cheap and ultralight 'door and window sealing strip' foams will be okay for the very smallest models, but they have no 'body' to deal with larger, heavier models. EPDM foam strip is available in a huge range of widths and thicknesses.

Sometimes a rather tougher 'seat' is needed, a case in point being my 'in build' Balsa Cabin 'Overture' which carries the wing on two 5 mm wide wooden 'rails'. Motor vibration and flight flexing of the wing would chafe on these quickly, and badly, and a very narrow foam strip wouldn't provide either support or wear resistance. So, what to do?

'U' section rubber edging was used to good effect on the 'Overture' wing rails. It stops the wing from wandering and chafing on the rails.

A few EPDM foam sections along with a foam tube. The tube can be carefully split lengthways to provide soft edging.

'U' section rubber edging. Narrow type on the left is perfect for cockpit coaming, with a wider version (right) perfect for slipping over wider wooden sections.



Self-adhesive flat EPDM foam used on 'The Bigger Ship' wing seat. No wing wandering and chafing here!

USEFUL LINKS

Magnificent Flying Machines
www.vintagemodelcompany.com
Acrylic paint pens
eBay, Amazon or art shops
EPDM and rubber 'U' sections
eBay & Amazon
Nuts & button head screws/bolts
eBay, engineering parts suppliers
Zeus data booklet
Engineering parts suppliers

Many industrial situations demand that sheet metal or plastic panels have a 'safe' edge, very often a 'U' section rubber moulding. Rummaging around the internet highlights a bewildering array of rubber 'U' sections; you just have to choose the one that suits your particular needs. For the Overture a 10 mm deep x 5 mm internal width square-section 'U' was exactly what I needed.

I already had some 7 mm deep x 1.5 mm internal width edging from another job which was perfect for the open cockpit edge coaming.

DROPPED NUTS

Virtually all in/outrunner motor propeller attachments use metric threads. But if you are a practitioner of infernal confusion engines there are a sometimes a bewildering array of threads used on the motor crankshafts. The corresponding nuts often become marmalised, chewed or even lost whilst being wrestled on and off using inappropriate tools, most often pliers of some form. As an engineer it makes me cringe to see such casual vandalism when the correct size spanners, either ring or open type, are cheaply available and should be in every modeller's toolbox.

Once knackered or lost, most of you will buy the first 'wottle' replacement nut for your motor. You know, one wottle fit. Wiser souls will source a new nut from the engine's spares distributor, if they are available. But what to do when you can't track one down?

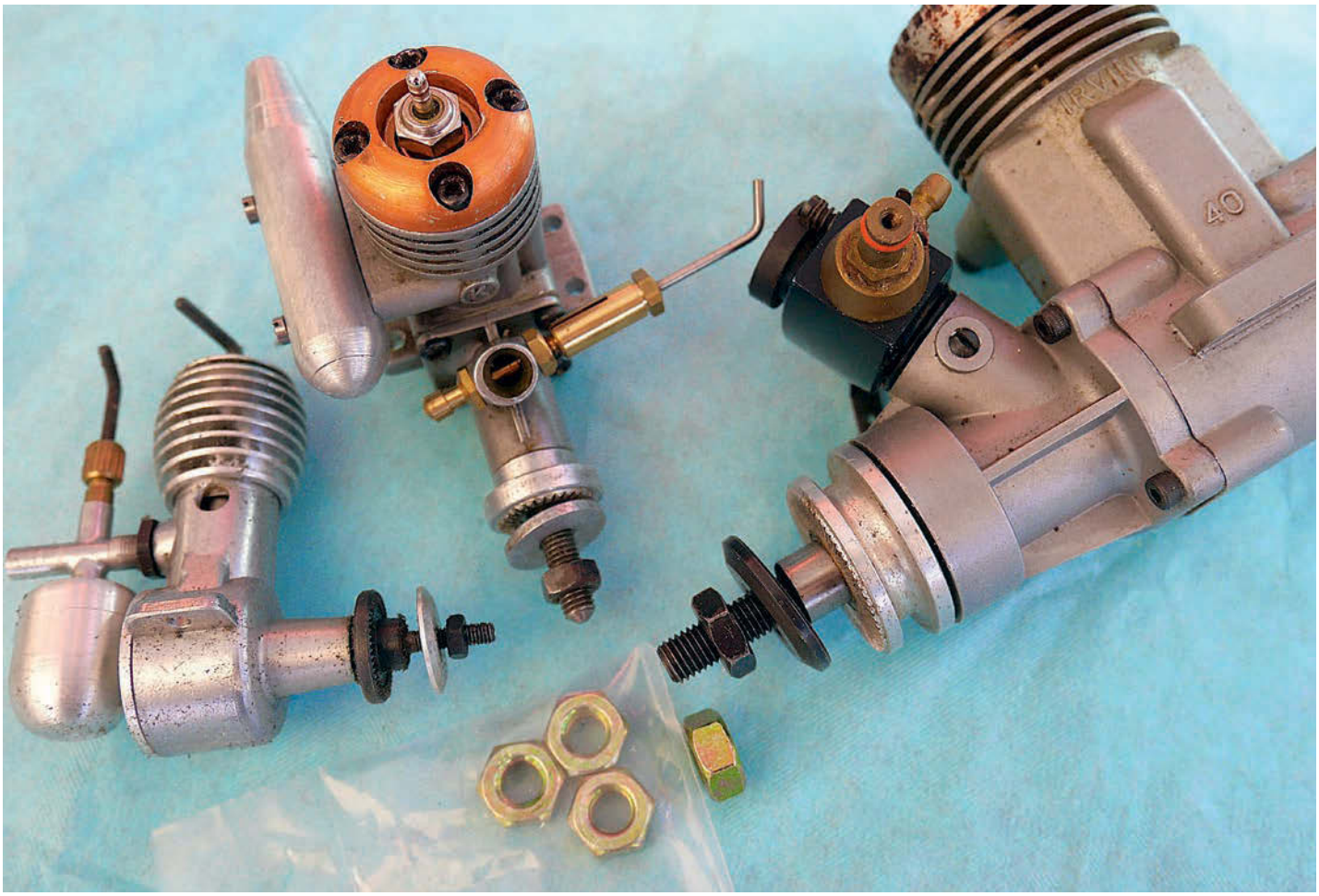
All engineering male threads have a standard nominal outer diameter size and TPI (Threads Per Inch) according to the type and form of thread. Many, but not all, crankshaft threads are of ISO Metric sizes; another popular thread form is UNF (Unified Fine). One thing to be aware of when buying nuts for engine crankshafts is that steel 'hardware store' nuts are mostly produced by using a lower grade steel and looser 'tolerance'. This aids rapid and cheap production, not quality. For IC engines we need a better grade of steel and a closer 'fit', where the nut won't run so loose on the crankshaft. Stay with me a bit longer and I'll get to the point...

I've no doubt that you will have stripped the thread from a bolt, nut or both by being

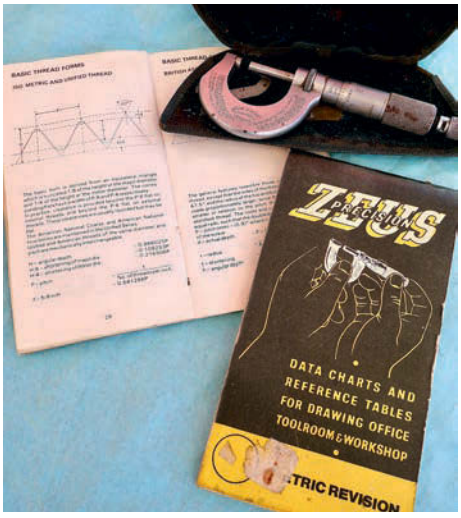
Small section EPDM foam is just right for small model wing seats. This is 12 mm wide light foam, scored to tear cleanly into 6 mm wide strips.

half-a-heave too heavy on the spanner at some time. I'll bet that most of those fixings were low grade, with 'free fit' loose tolerance threads. A better option is to search for 'grade 5' or 'grade 8' fixings. These are machined with tighter tolerances and of a higher steel grade. In some cases, the tag 'Aircraft Quality' is used.

I've been working on an old Super Custom .32 engine, readying it for use in the 'Overture'



These engines have different crankshaft thread sizes, but all require 'Grade 8' nuts if replaced, which are stronger and with closer tolerances for secure prop mounting. M3 (left), 2BA (centre) and 1/4"-28 UNF (right), plus new 1/4" nuts in the bag.



I couldn't be without my 'Zeus' booklet, the engineer's go-to friend for many decades.

model I'm finishing, and like a total dimwit I dropped the prop securing nut! True to form the blasted thing dropped down a tiny gap in the workshop floor and rolled underneath. Cue a short rant and cursing of my fumbling fingers, plus the fact that there was no way I was going to attempt to move the whole workshop to find the runaway nut.

With the engine crankshaft measured at 1/4" diameter and the thread pitch checked as 28 TPI, my trusty engineering data booklet told me it was a 1/4" UNF thread. A quick search on eBay saw me discount all the usual nuts and bolts until a 'Grade 8' high tensile nut hove into view. I ordered a pack of five for less than five of our UK Sterling pounds and being as I have several similar motors it was a worthwhile investment and probably cheaper than buying a single nut from the engine spares dealer.

For checking thread types and sizes I have my 60-year-old 'Zeus' data booklet. But you have the interweb where all threadly information is freely available.

INTERFERENCE

I carefully fitted a motor mount to a bulkhead recently, measuring twice, drilling once, only to find that when I offered it up the motor wouldn't align with the holes drilled in the mount's arms. I'd forgotten to allow for the depth of the cap screw head and washer securing the mount to the bulkhead.

I wasn't going to start slotting the holes in the arms as that was a whoopsie waiting to happen.

Needing to 'find' a couple of millimetres of depth, I reached for the fastener box and dug out some M4 'button' head screws that were lurking there. 'Button' heads have a lower, broader profile than ordinary cap screws and can consequently be fitted without washers. With a solid fixing in place and 2.5 mm of freedom 'found', the motor dropped in place over the mount arms, aligning with the originally drilled holes. Thank goodness for that! And proof that 'there's always another way of doing things' and swerving a cock up.

'Cap' and 'button' head screws/bolts. You can see the height saving of the button over the cap type. There's virtually no difference in strength.

TAILWHEEL

My wife will occasionally find me in a quiescent state, seemingly struck rigid and dumb, with slack jaw and a vacant expression on my visage. A quick nudge and sarky comment of, *"Are you off with the fairies again?"* will bring forth my studied comment, thanks to Wernher von Braun, rocketeer of the Parish:

"Research is what I'm doing when I don't know what I'm doing."

In other words: leave me alone, I'm dreaming something up!

Send me an email: **coetquidan@yahoo.com**

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

Whether you are interested in radios, warbirds, gliders, electric power, IC or petrol/ engines, jets, multirotors, new tech, traditional modelling or the latest techniques, we aim to cover the R/C model flying hobby in all its aspects. There's even some free flight and control line coverage too! Not only that but each issue contains at least one full-size model building plan.

Kevin Crozier

Editor

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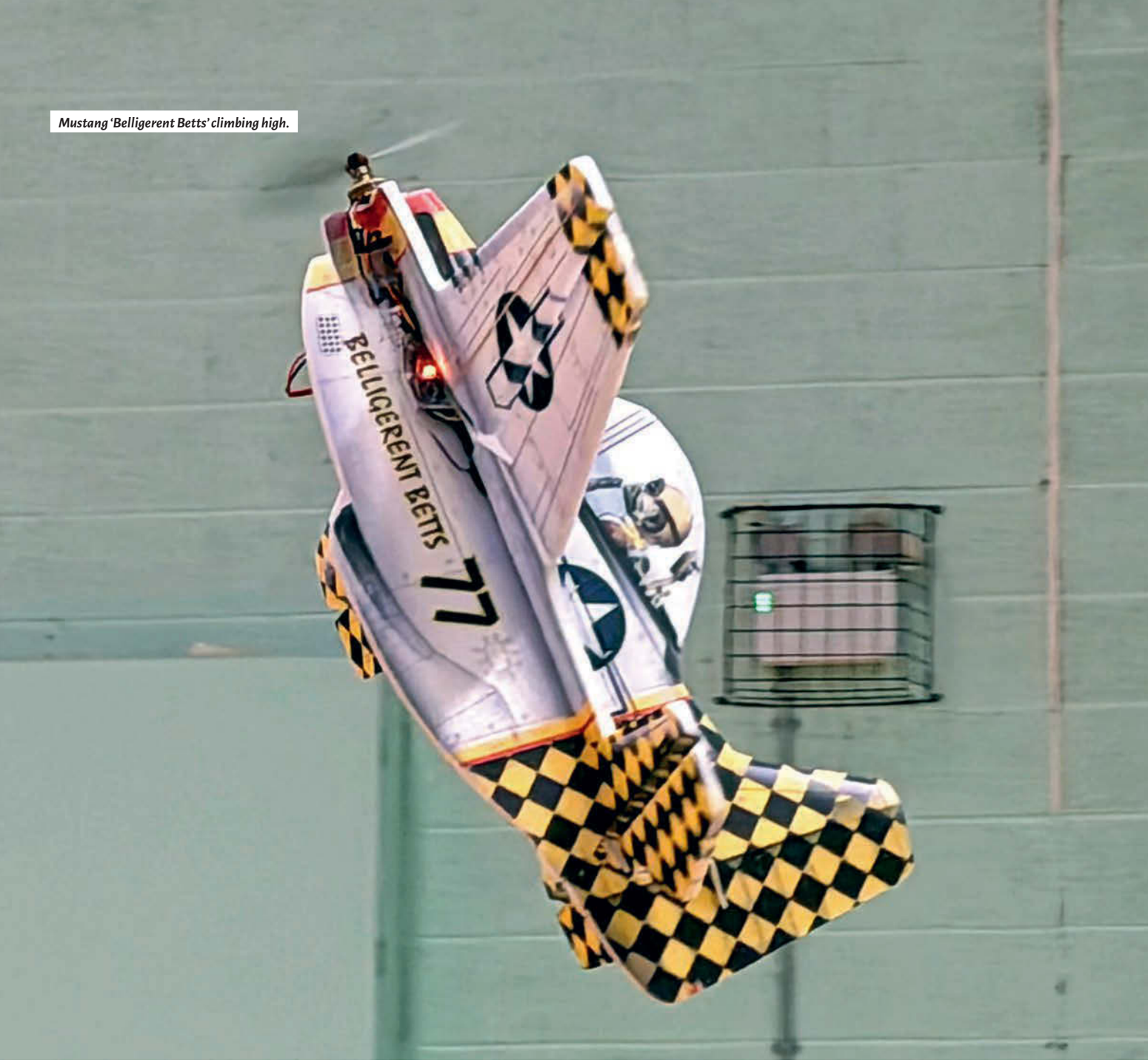


Mustang 'Belligerent Betts' climbing high.

CARTOON MUSTANG

John Stennard's indoor column this month starts with a chunky warbird. But a soccer drone may just take a sneaky corner and score a goal!

Words & Photos: **John Stennard**

In many ways indoor enthusiasts have never had it so good. Except for the cost of hiring halls, of course! But in whatever way the venue is financed it guarantees the opportunity to fly models of many types whatever the weather and surely that's worth paying for, whether it comes from club or personal funds.

At our venue the timed session system allows for at least two sessions with each type of model during an evening and sometimes more. Our club has been running this system since we started flying indoors but I appreciate that other clubs will have a different approach. What our system does do is encourage a wide variety of model types within a category.

We are quite flexible and now, by popular demand, we include a Drone Soccer session. More on that later...

CARTOON WARBIRDS

I have mentioned 'cartoon' models before, often linked to so-called 'fatty' models. RC Factory have come up with a nice new range of small Cartoon Warbirds. These are profile foam models with out of proportion fuselages and the range includes a Spitfire, Texan, Zero and Mustang. With an average 550 mm wingspan and 160 g flying weight these models are ideal for both indoor and small outdoor flying space

I chose the P-51 as I liked the overall impact of the shape and colour.

use. Videos on the RC Factory website show you just how manoeuvrable they are.

I purchased a P-51 Mustang from Aerobatix. Sadly, it's not personalised as 'Micky Mouse' from the great 1982 book 'Goodbye Micky Mouse' from Len Deighton. After years of very active modelling, it's rare that I need to buy anything other than the kit. I just raid my shelves for servos and motors, etc. This model is intended for indoor/outdoor flying, so I needed to keep a careful eye on the AUW.

The RC Factory website includes downloadable assembly instructions and as usual I downloaded the file to my tablet. I can open it when I need it and it saves on printed paper. The decorated 10 mm foam parts are beautifully done and as usual with RC Factory models everything is well designed. Although the model can be built more quickly with CA, I chose to use Gorilla Glue Contact adhesive. The instructions are for the Zero, but all the models have the same parts so that's not an issue. Before doing any building, I checked that my servos were the right size for the provided openings and that my motor would fit on the plastic motor mount.

Basic construction is very simple as all the control surfaces use living hinges. This type of hinge can vary; sometimes they are thin but loose and other times they are thicker but less flexible. I've had to use additional tape hinges on some of the thinner ones and cut slots on the hinge line for the thicker ones. On this model they are a perfect combination of thickness and flexibility.

A slightly unusual feature is the use of an almost full span 10 x 2 mm hard wood wing spar. This provides great strength for minimum weight. Counting the wooden wing spar there are only seven parts to be glued together and using 10 mm interlocking foam the assembly is nicely rigid.

My chosen servos fitted the cutouts perfectly. It's always important to ensure that the servos' outputs are centred before installing as it can sometimes be hard to access the output arms after assembly. As usual a special output arm is provided to attach to the existing aileron servo arm. This provides differential and an increased degree of movement.

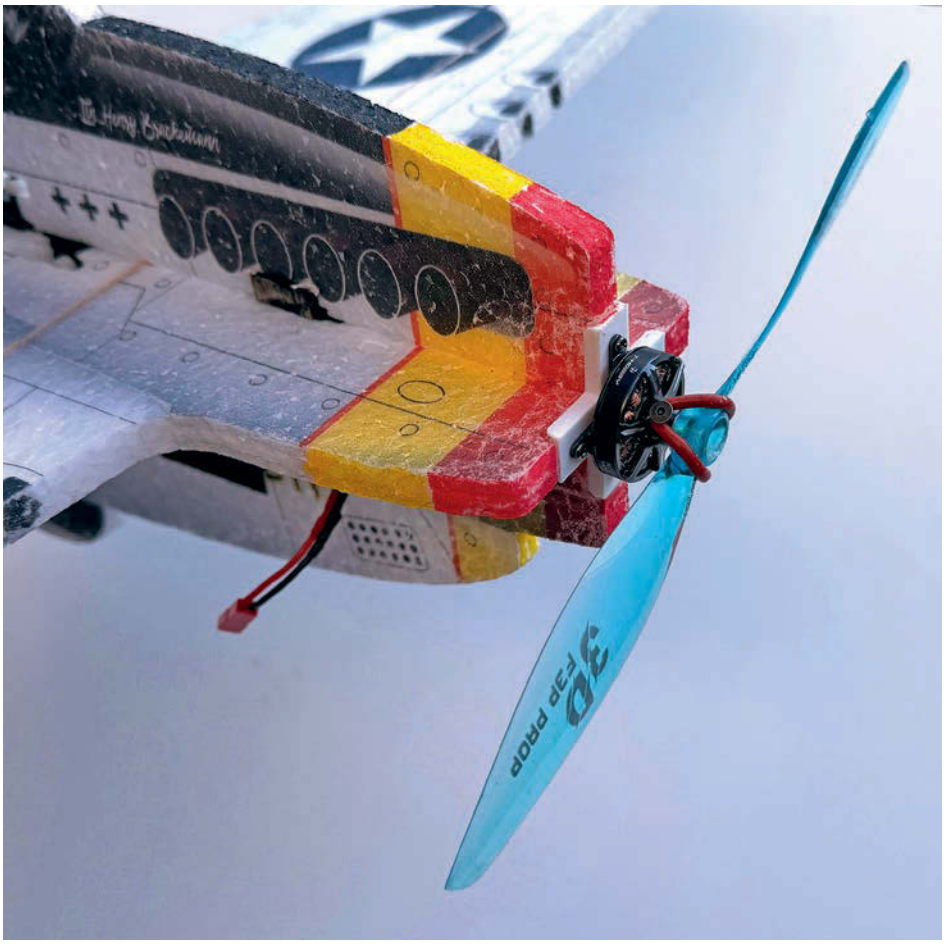
My usual practice is to install the receiver (Rx) and speed controller on the left and the battery on the right to help counter any torque reaction. With a profile model it's always difficult to do a neat and tidy installation job with the four servo leads but I did my best. I initially fitted a 7030 slow-fly prop to the F3P

Four models are available in the RC Factory Cartoon Warbirds series.

P-51 is a great performer and as lively as you like!

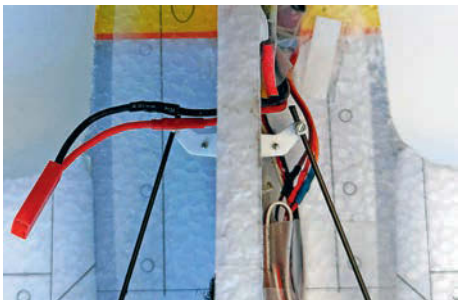
Fitting the correct spec motor made all the difference.

With the Rx and ESC on one side and the 2S 450 LiPo on the other.



Just look at those exhausts. You can almost hear the Merlin!

She may be a touch 'chubby' but still looks the part.



An extended aileron servo arm is fitted to get more movement.

6 g servos almost disappear in the 10 mm thick EPP.

"I was immediately impressed by the agility of my P-51 and the ease of handling"

W28-15 1800 k/v motor and using a 2S 450 LiPo there was enough power to hover with ease.

Like many RC Factory models this one uses 1 mm CF (carbon fibre) pushrods for the rudder and elevator. The rods run in five supporting guides and provide very smooth action. However, I did not use the supplied system for connecting the rods to the control horns. The kit includes special plastic ends for the pushrods; these push through the hole in the horn and then expand. I find them quite difficult to use due to the tightness of the fitting in the hole, so I substituted good old Z-bends! Checking out the control responses, I needed to reduce the aileron throws and add my usual generous amount of expo.

My airframe's weight turned out at 136 g so adding a 2S 350 - 450 LiPo gave an almost spot on recommended flying weight.

The first flights were made outdoors and I was immediately impressed by the agility of my P-51 and the ease of handling. This was repeated indoors where the ability to fly tight manoeuvres made the model very easy to handle indoors. However, I did question whether the motor I was using was giving the best performance, so I changed it to a T-Hobby AS2303 2200 k/v, the recommended size, using the same 7030 prop. This made a noticeable difference to the performance. I tried a 3S LiPo and also an 8045 prop, but I did not think these gave any improvement.

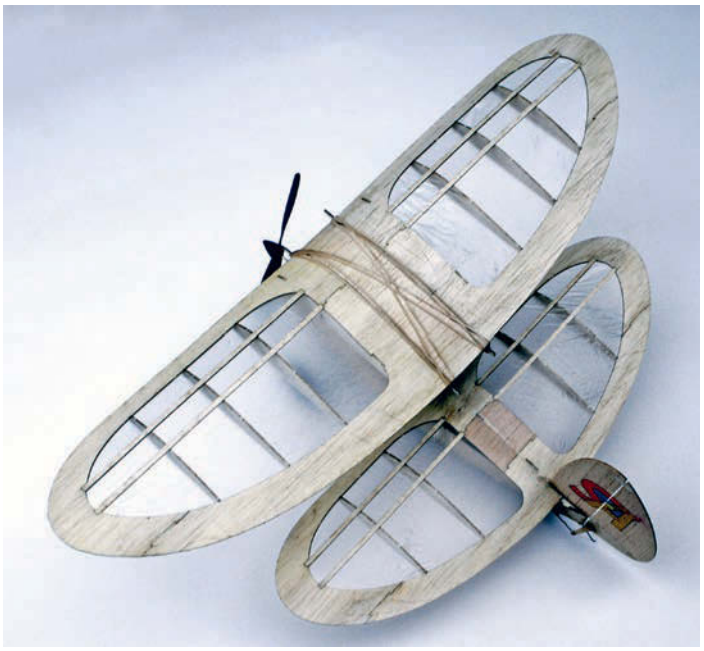
I love flying this model. It gets a big thumbs up from me!

THERE'S A POU IN THE AIR

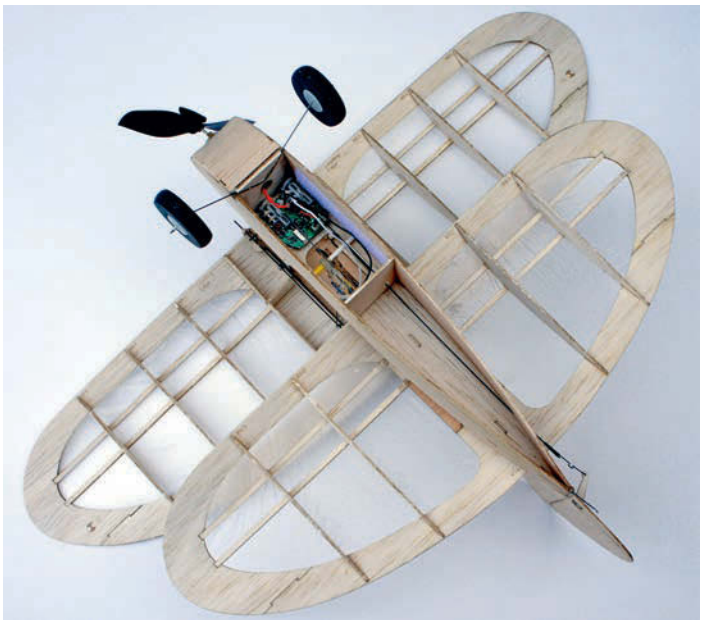
I'm talking of course about the 'Pou-du-Ciel', the Flying Flea, or HM.14, the iconic 1933 home-build design from Henri Mignet.

The HM.14 was the first of 300 different variations and plans are still available. Aerodynamic control issues resulted in several fatal crashes but when modified the aircraft flew well and was popular with homebuilders. The reasons for the crashes are understood and fully explained. There's plenty of info online and it's worth reading.

I spotted a nicely built Stevens Aeromodel version of the Pou at our 'enthusiasts' indoor session and remembered that I once had a



My small Stevens Aero Pou flew well.



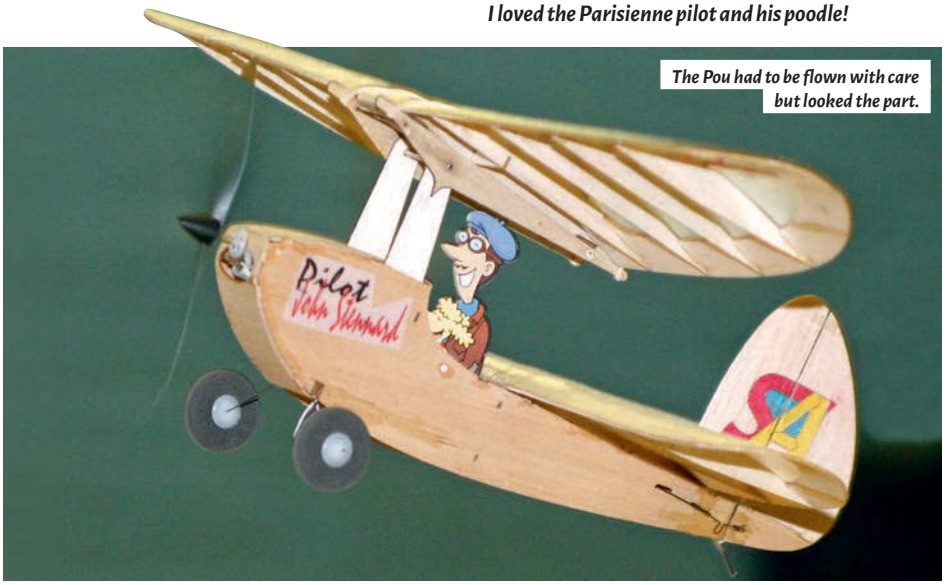
A bellcrank rotated the wing and weight was saved by leaving the under fuselage uncovered.

smaller but similar model. I realised after some research that both models were made from kits from the US firm Stevens Aeromodel. Mine had been the S-Pou, UM Toonscale version with a wingspan of 450 mm and 40 g flying weight. My favourite part was the pilot with his poodle in the cockpit! It had a very light wing loading and the control system of variable wing incidence and rudder was always sensitive, but with careful handling it flew well. A bit like the original!

Paul's Pou is from the bigger S-Pou 300 Toonscale series and has a 736 mm wingspan, a 196 g flying weight and much higher wing loading. Paul has made an excellent job of covering his model and it looks superb. And the flying? Well, again we have the same issues with control sensitivity and careful handing is required.

Stevens Aeromodel have some very interesting scale models available and some highly unusual British designs. There's the 1923 Avro 558, a biplane motor glider, and the 1930 Granger Archaeopteryx, plus others. I used

I loved the Parisienne pilot and his poodle!



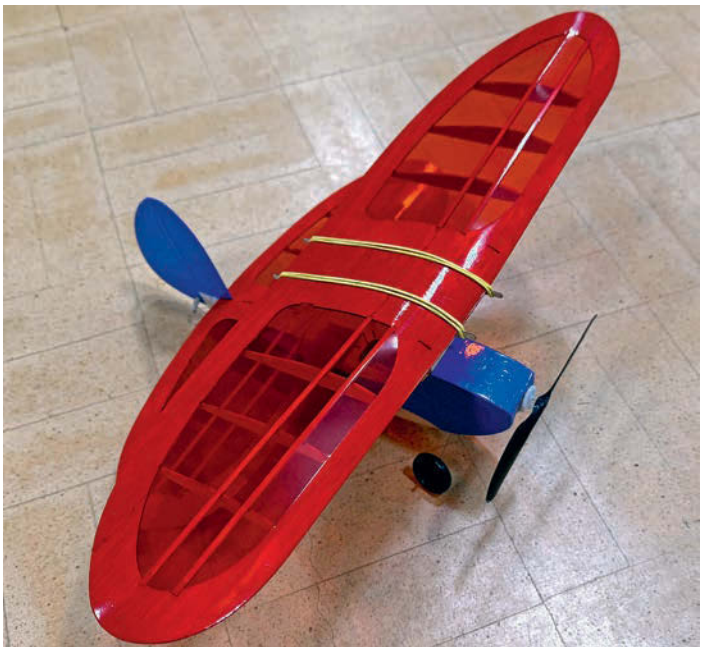
The Pou had to be flown with care but looked the part.

to buy model kits, etc. from shops like Ace RC and Tower Hobbies in the US but this is now problematic due to a combination of price and postage. The small UM Pou kit costs $55 and the larger version $159, then add a hefty postage charge. Even so the Stevens Aeromodel site is worth visiting to view some of the lovely models covering a range of indoor, outdoor, scale and non-scale types.

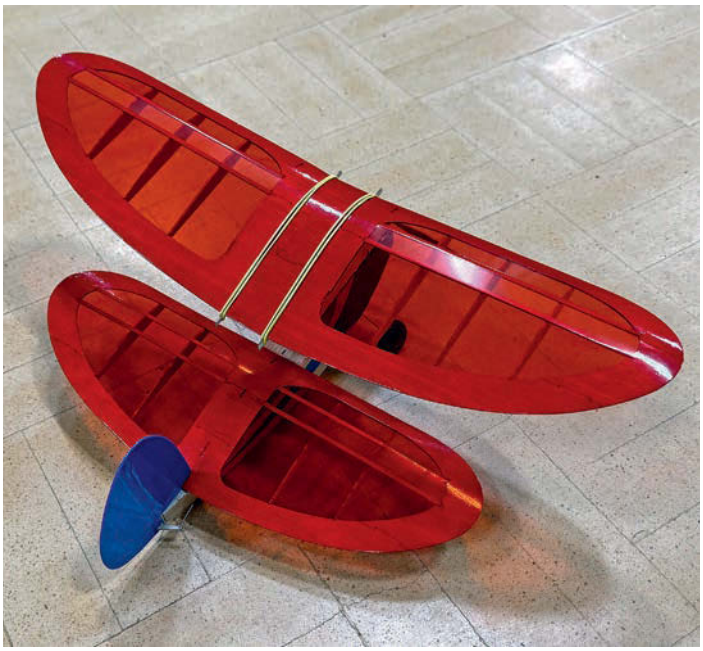
JOHN'S JETS

I've featured John's micro EDF jets before and he has built some new ones. They are a Concorde, a Vulcan and a Su-27, and all perform extremely well.

The Su-27 breaks new ground, but I'll look at the Concorde first. This model has a 275 mm wingspan, uses two 30 mm micro drone 7 mm coreless motors and shrouds, a standard four channel micro-Rx and two 1.7 g servos.



Paul's larger version, also from Stevens Aero.



Paul's model is skilfully built and finished. It flies nicely.

John's Concorde flies well and celebrates this fantastic aircraft.

> "John is always experimenting with his indoor models, and they are always well-designed and fly beautifully"

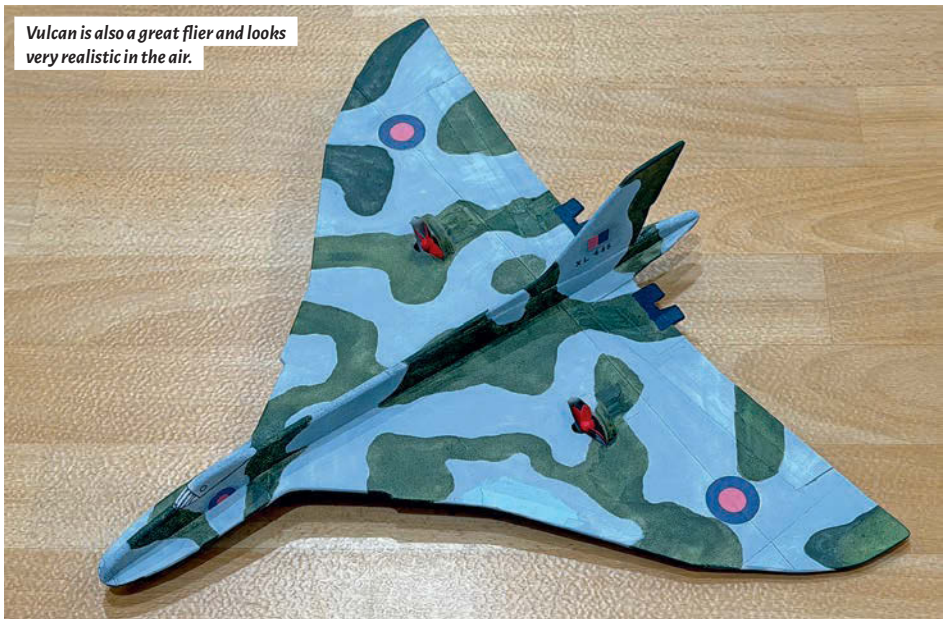
A 1S 380 LiPo is used for power and with a weight of 38 g the model flies very well.

The Vulcan uses the same R/C gear and shrouds/motors, with a wingspan of 470 mm. The AUW is 41 g and again the Vulcan flies beautifully and looks very good in the air.

The Su-27 is very different as although it only has a 410 mm wingspan it's an altogether bigger model with a flying weight of 58 to 65 g depending on whether a 1S 380 or 1S 660 LiPo is used. This model has shrouds and brushless motors taken from a micro drone. A micro-Rx with two brushless motor outputs is used, with two 2 g servos on elevons. This is a lovely model and flies particularly well. John often passes me the transmitter (Tx) so I can enjoy the fruits of his many labours!

John is always experimenting with his indoor models, and they are always well-designed, well-built and fly beautifully. He really does take advantage of the opportunities offered by an indoor flying venue. Generally speaking, indoor models of the type John builds and flies are very inexpensive in material costs, and the price of suitable receivers, servos and motors is still very affordable.

It is great to see many variations on a theme at our indoor sessions and models like our Airbug hovercraft appear with many different approaches to their construction and



Vulcan is also a great flier and looks very realistic in the air.

Su-27 uses two brushless units from a quad and flies brilliantly.

The more the merrier as our team players increase in number. We definitely need a ref!

equipment. Some modellers are now utilising 3D printing to generate parts and this always adds interest to our sessions.

OFFSIDE!

Following our fun time with micro size soccer type drones at our Drone Day at Aerospace Bristol there was immediate interest in going up a league. We found a distant source where a 200 mm, brushless, soccer drone could be purchased for around £35. A demo led to a rapid increase in numbers, in fact enough to make two teams if we wanted to.

A hard day's combat for one of my Sumos! Taken 15 years ago.

At our first indoor sessions general uncontrolled controlled mayhem took place. There were no injuries to the players but a couple of balls needed first aid. It never was a good idea to try to score baskets! Just to make it slightly more meaningful we put a hoop in the middle of the hall with the challenge to fly through it - or stop anyone else flying through it! This encouraged pilots to fly their balls in a smaller area.

While I'm a Mode 1 pilot, I can handle drones in Mode 2. However, I was delighted to find that the Tx can be set to Mode 1 at switch on. This enables me to fly more intuitively and with more precision. At the high-speed setting these balls can really move and nimble fingers on the sticks are essential.

Following my first SG600 MAX drone I noticed that a number of similar balls had appeared at even cheaper prices. Working on the theory that a reserve player can always be useful, I purchased a lower price 4 DRC V51. It uses a 1S 1300 LiPo and also has a mode change switch and several different features. Physically it has a light bar with three LEDs in addition to the central light and a switch in case your player ends up on its back when tackled or it's mishandled. This will get it back on its feet without needing a helping hand. We have actually suffered prop damage with three drones (how, we are not sure) so we ordered a bulk supply of replacement props.

The SG 600 has a weight of 119 g, the 2S 2300 LiPo is 51 g, giving an AUW of 170g. The 4DRC V51 has a weight 92 g, the 1S 1300 LiPo is 35 g, giving an AUW of 127 g.

I was really only interested about the potential for general flying rather than specifically for match play. The soccer drone versions we have been flying are relatively inexpensive and while they would not make a proper Drone Soccer league, they have proved perfectly adequate for our needs.

While we may like the idea of proper drone soccer our club wouldn't want to spend the considerable amount of money on an inflatable, netted, flying zone. I can see that any investment of this type would be great for a dedicated drone soccer group and can certainly see the attraction for young people. But for our indoor group, with an interest in a wide variety of models, these are just another part of our flying fun and will be enjoyed in that context.

Next time it will be another 'aircraft heavy' feature and will include the indoor champion combat model of yesteryear, the Sumo. ■

Top letter

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

HOVER FUN ON THE BEACH

I was delighted to read the 'Floating on Air' article in the March issue as I also do some 'low flying' myself on the local beaches. They are superb for long drifting turns, weaving between abandoned sandcastles and scooting over the pools of water left behind by the tide.

My hovercraft are not as sophisticated as the impressive SR.N6. The blue Griffon is mainly made from foamboard with a single fan providing thrust and lift, controlled using a two channel R/C car Tx and Rx. The red Sirrius is mainly vac formed with separate lift and thrust fans; I use a four-channel car set up with a reverse function which is very useful in slowing things down because sitting on the low drag cushion of air momentum keeps it going when you close the throttle.

Alan Williams

HOVERCRAFT TEST PILOT

I do not know how you keep RCM&E fresh. Please do not change it too much, but reaching out on the subject of hovercraft (March issue) is a good example of really readable stuff.

The SR N6 article was great. I only wish my late father-in-law, Bob Strath could had seen it. He worked for Saunders-Roe (SR) and flew as Master Observer in the SR45 Princess flying boat where he met and flew with Geoffrey Tyson. He was deeply involved with the trials of the SR53 jet, getting to know John Booth. I wonder if these names are still remembered.

Bob took over the testing of the SR1 (the Flying Saucer!) and finally became the Chief Test Pilot for hovercraft, piloting all the SR hovercraft from the SR1 onwards, including lifting one of the SR4 cross channel craft off the Cowes pad in Dingy week, much to the amazement and concern of the harbour master!

For a while I flew in gliders and as soon as I reached the dizzy heights of AE1 (air experience status) I was able to share it with a brilliant father-in-law.

Tony Baker

I'm glad you liked Mike Freeman's hovercraft article, Tony. Here is a little bit of information for our readers about the brave test pilots you mention who were colleagues of your father-in-law, Bob Strath, who is widely described as a 'hovercraft legend'.

Geoffrey Tyson FRAeS OBE (1907 - 1987) was an RAF officer, a barnstormer with 'Cobham's Flying Circus' and a test pilot. He is best known for his aerobatic skills and the test flying of the Saunders-Roe SR.A/1 and Princess flying boats.

Squadron Leader John Stanley Booth DFC & Bar (1919 - 1958) was a pilot in the Royal Air Force who, after WW2, became a test pilot for Saunders-Roe. Sadly, he was killed while test flying the SR.53, an experimental interceptor of mixed jet and rocket propulsion. **KC**

SPORTY OR SHORTY

Reference page 90 of the March issue of the magazine.

Just a note to say that there is an Instruction Manual available in English.

The 'Sporty' looks to be a good fun model. My question is it 'Shorty' per the Manual or 'Sporty' per the review.

Link to aero-naut follows:

https://aero-naut.de/Service/Downloads/Anleitungen-englisch/

Keith Cherrington

aero-naut offer two versions of this easy to build, 1300 mm wingspan design. Shorty is a simple, easy to fly, rudder/elevator/throttle model with a Jedelsky style wing while Sporty is a slightly more advanced version with a built-up wing fitted with ailerons and flaps. It is Sporty that Bernd's review in the March issue covers, as per the sticker on the right-hand wing panel - see picture opposite. But unless you are aware of both versions then it is an understandable source of confusion. So, thank you, Keith for your letter which gives us the chance to let our readers know about both models. Keith has since replied:

"I now see one can even purchase a standalone kit for the Sporty wing as an upgrade for the Shorty. Top marks to Aero-Naut.

It reminds me of my original plan built Tauri trainer. There was a separate plan available to upgrade/convert to strip ailerons which I added quite soon after initial flights on Epsom Downs."

KC

MORE FROM KEITH

Reference Page 43 of the March issue (RAF Fe2b). Curiosity got the better of me! Mats Johansson refers to 'cellulose varnish' which he brushes on the structure where the tissue will be affixed using acetone as a solvent.

kevin.crozier@kelsey.co.uk

I am familiar with clear dope (shrinking), banana oil (non-shrinking dope) and sanding sealer. Is 'cellulose varnish' something entirely different or essentially the same as clear dope? Can you provide a link.

Keith Cherrington

I use cellulose dope, non-shrinking type, for wood. In Sweden it is called NA-189. I think it is the same as clear dope or banana oil!

Mats

SIX MONTH SHIFT?

Around the end of each year the committee at our club becomes concerned with retaining members into the new year. There's always a rush of people who renew as soon as the invitation goes out in early December then a steady drip-drip as reminders are sent out until a small flurry just before the 31st of January deadline. But the club usually starts the new year down 15 to 20% and then attracts new members during the year. I imagine other clubs experience the same. Model flying probably isn't highest on people's priorities around the end of each year with the short days, 'sub-optimal' flying conditions and multiple distractions of the festive season.

Then I had an inspiration. Why not make the club's membership year run from a summer month, say 1st June to 31st May, rather than January to December? During the better weather and longer daylight hours it's going to be easier to retain members who are flying regularly and not still smarting from Christmas expenses. Of course, there would be some admin to manage during a transition period, plus the misalignment with the BMFA's membership year.

I already know of some clubs that don't manage their members' BMFA renewals and, in any case, it's easy enough to do it directly with the BMFA. Or perhaps this idea could be considered by the BMFA as a way to improve member retention at a national level too?

Alex Blackwell

WHEN MAGPIES ATTACK

I have just read the All Write section in RCM&E, November 2024 (I'm a slow reader) regarding birds' interaction with model aircraft. I thought that you may be interested in an Antipodean story if you have the space.

Experience in Brisbane, Australia is that occasionally (very rarely) a bird has had a go at a model which has left some scratches or holes in it. But my experience with an R/C replica Eagle was very offensive. I was flying said model at my local private airfield site when a very determined Australian Magpie began swooping on my rather realistic model Eagle. I immediately began landing the model, but when I had descended to about 20 feet it knocked one wing at full speed, putting it into a rapid flat spin, resulting in a sudden arrival on terra firma about 30 feet away on the strip. The bird then jumped on the model and commenced some serious pecking and ripping of the grounded and unfortunate 'bird' until I shooed it away and rescued my largely unscathed model. The Magpie kept swooping at me until I hid the model.

Magpies in Australia have caused several fatalities over the years by stabbing people in vulnerable places with their beaks, although my interaction with them on my acreage property is thankfully a friendly one over the last 36 years.

Ian Swadling

*Thank you for your letter, Ian. Just to balance things a bit for these birds it seems that swooping attacks by a minority of male Australian Magpies during their breeding season are quite common whilst protecting their nests. Residents are advised that the best thing to do is avoid them and authorities often erect signs warning of magpies in an area, but this is obviously difficult to do if your model flying site is in an area where magpie nests are present. Incidentally, despite sharing their name and similar colouration to the Eurasian magpie seen here in the UK, the two species are not closely related. **KC***

MORE BIRDWATCHING DOWN UNDER

I also noted in one of the earlier editions the letters regarding birds of prey. We do not mess with ours as the huge Wedge Tail Eagle will make short work of a model. However, we have a dozen or so Wedgies flying around our field and they have never bothered us in any way. I have had one form up on my wing tip of my P-51 and do a couple of circuits. Until he or she became bored with the whole show and climbed up out of sight in a few minutes.

We did some trouble with our Magpies at breeding time until they became used to us. Now they see us as a food source and walk behind the mowers, picking up the worms and bugs that we disturb.

Love the magazine and have not missed an issue in fourteen years. I must also say the service from the shops that advertise with you is second to none. I ordered parts from Brisbane, just a three-hour drive to the north, and plans from Sarik Hobbies on the same day. I will let you guess which parcel arrived first!

Daryl Woolfe

JODEL FLIGHT OFFER

I have seen a Radio Modeller article that refers to a set of plans for a 58" wingspan Jodel 117A created by Keith Humber. In this article there is a picture of Keith's partner holding the model which is a replica of the full-size aircraft I own and fly, G-AXAT. I would be thrilled to unite the two and give the present owner of the model a chance to fly the real aircraft.

Can you help?

Andy Stockd

Going Places

Diary dates for the coming season

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.

MAY

May 16

Bickley MFC Open Boot at Bickley MFC, Church Road, Sutton at Hone, Dartford, Kent, DA4 9EX. Gates open 9:00 am for 9:30 am start. 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 or visit https://bickleymfc.org/. For more information contact James Gordon on 07966 439835.

May 17

Bickley MFC Open Scale Day, at Bickley MFC, Church Road, Sutton at Hone, Dartford, Kent, DA4 9EX. Open from 10.30 am -17.00 pm (note earlier date for 2026). Scale models of all types welcome, flying or static! Informal, relaxed scale fly-in, open to any BMFA member and includes a lunchtime barbecue. Toilet on site and camping available if booked in advance at admin@bickleymfc.org or visit https://bickleymfc.org/. For more information contact James Gordon on 07966 439835.

May 16-17

PSSA 'Fly for Fun' 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. NOTE: This event WILL NOT BE RUN if the winds are from the East due to slope access limitations. For more information contact Phil Cooke on 07772 224719, email webmaster@pssaonline.co.uk or visit https://www.pssaonline.co.uk/about-us/events/

May 17

Power Scale Soaring 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.

May 24

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

May 30-31

ModelAir Mayfly at BMFA Buckminster will be a fly-in with as many of the modelling disciplines and attractions there used to be at Old Warden including R/C flying, C/L flying, F/F & Radio Assist, Tethered Cars, Drone Racing, Camping. Excellent cafe. Pricing for pilots is £10 per person per day. Spectators £5 per person per day. To trade or car boot at the event please use the form at: https://modelair.info/contact-us/Car Booters will be charged £5 per pitch, Traders are free. R/C flying will take place from 10:30 am to 4:30 pm each day. All types welcome but unfortunately no gas turbines. 15 kg weight limit. A B-Certificate is required or an A-certificate for slow vintage types. Models must be flown on 2.4 GHz only. Free Flight and Radio Assist flying will take place twice per day, from early morning until 10:30 am. The second session is 4:30 pm into the evening. 500 g weight limit, with a max. engine capacity of 0.8 cc or 100 W. Radio Assist 2.4 GHz only. BMFA membership required. For more information contact modelair.oldwarden@gmail.com or phone 07966 439835 (evenings and weekends only). Camping available; please enquire at BMFA Buckminster: https://nationalcentre.bmfa.uk

JUNE

June 6

Truro RC Model Flying Club is hosting the Truro RES gliding day competition events of the South West Area at their Trendeal 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.

June 13 - 14

Model Fly-in & Swapmeet at Teesside Model Flying Club, Drovers Lane, Redmarshal, Stockton-on-Tees. Google Maps: https://maps.app.goo.gl/MSxv4rexasWLNjBW7 or What3Words: https://what3words.com/fight.pulse.league. Proof of BMFA membership and flier ID + operator ID required for flyers, plus A cert and B cert if over 7.5kg. 400 ft height limit, 25 kg weight limit. £5 per day per person flying. Free camping but booking is required (60) spaces. Please arrive Friday after 12:00 hrs. Swapmeet sellers £5 per day, free entry for buyers. Contacts for flying and camping are Chris Harle at cnharle@aol.com or Keith Brough at keithbrough65@hotmail.com or for the Swapmeet contact Brian Cockerline on adriennecockerline@outlook.com

June 14

Bickley MFC Avicraft/Fun Fly Competition Open Day, at Bickley MFC, Church Road, Sutton at Hone, Dartford, Kent, DA4 9EX. From 10:30 am – 17:00 pm. One of our most popular events of the year. A light-hearted competition day with your favourite club style Fun Fly competitions plus a few new ones! Open to any BMFA member and any club sport models or Fun Fly models welcome to join in the fun. Event and prizes supported by the London and Southeast BMFA areas, Avicraft and the British Fun Fly Association. Toilet on site and camping available if booked in advance at admin@bickleymfc.org or visit https://bickleymfc.org/. For more information, contact James Gordon on 07966 439835.

June 14

White Sheet Radio Flying Club Scale Event. Back up date 28th June. Weather call will be the Friday before. For more information visit https://whitesheet.bmfa.club/

June 19

Weston Park Air Show at Weston-under-Lizard, Shifnal, TF11 8LE. Gates open each day at 8:00 am, show starts at 10:00 am and ends at 17:30 pm. Saturday evening dusk show starts at 20:30 pm and ends at 23:00 pm. In its 29th year, Weston Park is a beloved family-run event in Staffordshire. Offering a unique experience, the camping price includes full access to the show and park. However, please note that disabled camping spots are limited, so it is important to inform the gate staff upon arrival. Weston Park is a family run event and is fun for all the family. Enjoy the show in your caravan, motor home or tent and as an added bonus children under 16 go free for 2026.

June 21

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

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 OpID 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 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 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: pjtvw@msn.com, or Paul Howey on 07405 164040, email: G4BBP@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.

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 OpID 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 2

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

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 jamesrrg@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 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/

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: pjtvw@msn.com, or Paul Howey on 07405 164040, email: G4BBP@aol.com

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 Trendeal 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

Southern Model Show at Headcorn Aerodrome, Kent. More details to follow.

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 bmac.club/events or @basingstokemac 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: pjtvw@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/

OCTOBER

Oct 4

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

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 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/

NOVEMBER

Nov 1

White Sheet Radio Flying Club Scale Event. Back up date 22nd November. Weather call will be the Friday before. For more information visit https://whitesheet.bmfa.club/

Nov 15

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

Nov 15

Horam Swap Meeting at the Horam Village Hall. Horam East Sussex TN21 0JE. What3Words: self.planting.brave. Doors open to sellers 08:00-12:00 with a table and one person costing £9.00. Buyers, £3.00 from 09.00-12.00. Usual refreshments and delicious bacon rolls. Come and grab a bargain or catch up with friends. Booking ESSENTIAL. Contact Robert Richardson: rob.richardson@talktalk.net

Nov 29

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

Marketplace

Sell off your unwanted airframes and engines or maybe buy a few new ones

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-njiiri@kelsey.co.uk**

FOR SALE

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).

STEARMAN 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 cowling, 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-17G 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).

T-7A RED HAWK 64mm EDF Kit, New in box, 960mm length, span 750mm with a lovely finish to surface of foam. Will operate from grass. Call for photos - £85 P&P £5.95. 07946 414532 (Yorks).

NEW KITS, Flightline Bearcat - £220. FMS 70mm Advanti - £220. FMS J-10 Vigorous Dragon Grey - £150. FMS Corsair 800mm - £100. Arrows 50mm Viper - £100. Kavan Twin Sarik Glider - £220. X-Fly Twin 40mm F18 - £100. Buyer to collect. 01763 663016 (Herts).

ARMSTRONG WHITWORTH WHITLEY 48" complete with 2 motors, 2 speed controllers and servos. In as new condition - £160 ono. Hawker Typhoon 48" complete with motor, speed controller and servos - £120 ono. 01242 680659 (Cheltenham).

MODEL CANTABRIAN high-wing, completed ARTF from 10 years ago. Flown once and then stored. Sanwa controller with buddy box etc. - £100 for all. Call Pete on 07759 874916 (Kent).

SOARERS, 1980 Wildflecken 144" kit, built 1990 'Proton' 136", ailerons, flown a little but undamaged, well stored, both GF fuselages, servos, towline releases and accessories complete - £ free with a charity donation. Buyer to collect. Email Christopher on cjmail@flyskipper.com or call 07950 467485 (Kent).

FREEWING Grippen 80mm fan R/C model - £200. Freewing F-16 70mm fan R/C model - £150. Freewing Hawk 70mm fan R/C model - £200. FMS F18 70mm fan R/C model - £200. All kits are complete and unassembled as new. Buyer to collect. 01763 663016 (Herts).

RADIO CONTROL MODEL KITS, as new and not assembled. FMS Advanti, ducted fan - £200. FMS J10 ducted fan - £150. FMS Corsair, prop, £100. Flightline Bearcat, prop, £200. Arrows Viper, ducted fan - £100. X Fly F18 twin, ducted fan - £100. Kavan Shark, powered glider - £220. Buyer to collect. 01763 663016 (Herts).

RADIO CONTROLLED MODEL AIRCRAFT by David Boddington 2004, two unopened 1-72 scale Airfix Vulcan kits. XM607, series A5005 Falklands war, includes paint brush, series 09002 XH562—offers plus P&P. Call Andrew on 01989 564932 (after 5pm).

OS GGT 15 gas/glow engine, new - £245. Call Julian on 07934 531930 (Cambs).

UNIQUE PRAZISE MODELLBAU R/C, all aluminium Hornet kit. Beautiful kit from some years ago and will need careful building - £300 ono. 07718 464066 (Dorset).

WANTED

GOLDBERG JUNGMANN 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 0857317939 (Dublin).

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

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).

ALL R/C MODELS, planes, boats, cars, kits, engines, radios etc. Complete collections wanted. Cash buyer, will collect countrywide. Email dorsetmodel@aol.com or call Michael on 01747 229725 (Dorset).

ALL UNMADE plastic aircraft kits; Frog, Airfix, Revell etc. Also aviation and military books, diecast aircraft etc. Please call 07973 885754 (Kent).

Aviation Classics Monthly

Aviation Classics Monthly celebrates the legendary aircraft that ruled the skies from World War II to the end of the Cold War. Every issue dives into iconic machines—from Spitfires, B-17s and Zeros to jet-age giants like the F-86 Sabre, MiG-21 and B-52. Expect meticulously researched features, rare archival photography and specially commissioned artwork, bringing the engineering, missions and people behind these aircraft vividly to life. From combat accounts and development stories to restorations and preserved airframes, it's aviation history told with authority and style. Plus: every 88-page issue includes a 6-page gatefold cover with poster artwork worthy of framing.

Subscribe today!

shop.kelsey.co.uk/aviation-classics-monthly

Next issue

HORNET MOTH

Our two-part Pro-Plan feature about building Graham McAllister's sport scale DH.87B continues in the July issue. Next time Graham completes the build of his pretty biplane and finishes and flies the 52.5-inch span model. He opted not to use ailerons because scale dihedral is only a little less than used for Graham's plan and his feeling was that adverse yaw was likely to be an issue and require ample rudder to be used in turns anyway. As a three-channel model there is good positive control in reasonable winds, up to 10 mph.

ZIG-ZAG

One afternoon, after gluing the horizontal stabiliser for his new Depron model in place, Alex Dalidis needed to check if the wings were sitting parallel to it. So, he inserted the lower wing through the openings in the fuselage but did not bother to centre it. Then the upper one followed, this too being off centre. Do you get the picture?

Alex was in two minds about the emerging design and if it was worth the effort to finish it. But when he discussed his concerns about his asymmetric biplane with an old friend, John, he simply said, *"Wonderful idea. Go ahead and finish it like this. Experimentation is what it's all about!"* He didn't have to twist Alex's arm any longer and Zig-Zag has proven to fly really well.

VQ TIGER MOTH

If this lovely looking semi-scale Tiger Moth from VQ Models looks familiar, then that's because it has already been featured in an unboxing feature as part of the editor's series of RTFM articles, as seen in the October 2025 issue. Kevin handed it over to John Freeman to build and the delightful biplane had its maiden flight on a sunny spring day. John sums up his review by saying that VQ's TM is quick to put together and builders shouldn't have any problems. It's certainly a good-looking aircraft in the air.

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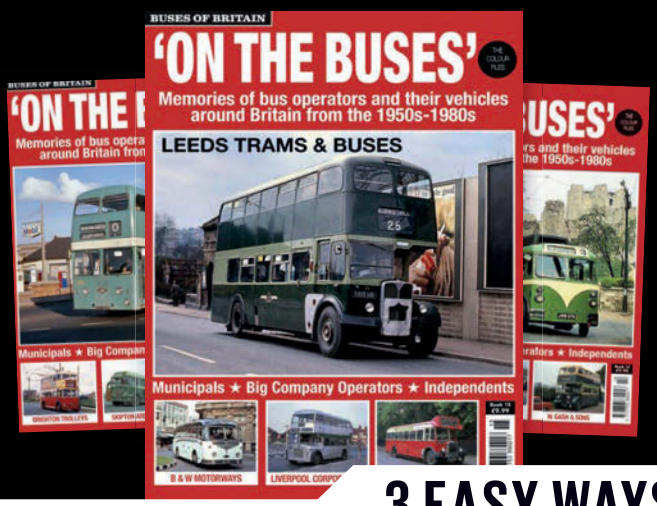

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WELL CAMOUFLAGED

The trees at the Weston Park Model Show usually give a superb backdrop for photographing models. The bright colours of most models' 'pop' nicely against the green background. It was a different story though when Max Chrubasik from CARF Models was flying their MiG-17 in full camo colour scheme. I found it tricky to keep the model in my viewfinder but lucked out with a couple of nice shots!

Mike Freeman

DATAFILE

Camera:	Nikon D500
Lens:	Nikon VR 70-200mm f/2.8E
Aperture:	f/5.6
Shutter Speed:	1/1250 s
Exposure Mode:	Shutter Priority
Focal Length:	135 mm
ISO:	100
Metering:	Centre Weighted
Exposure Comp:	0 EV

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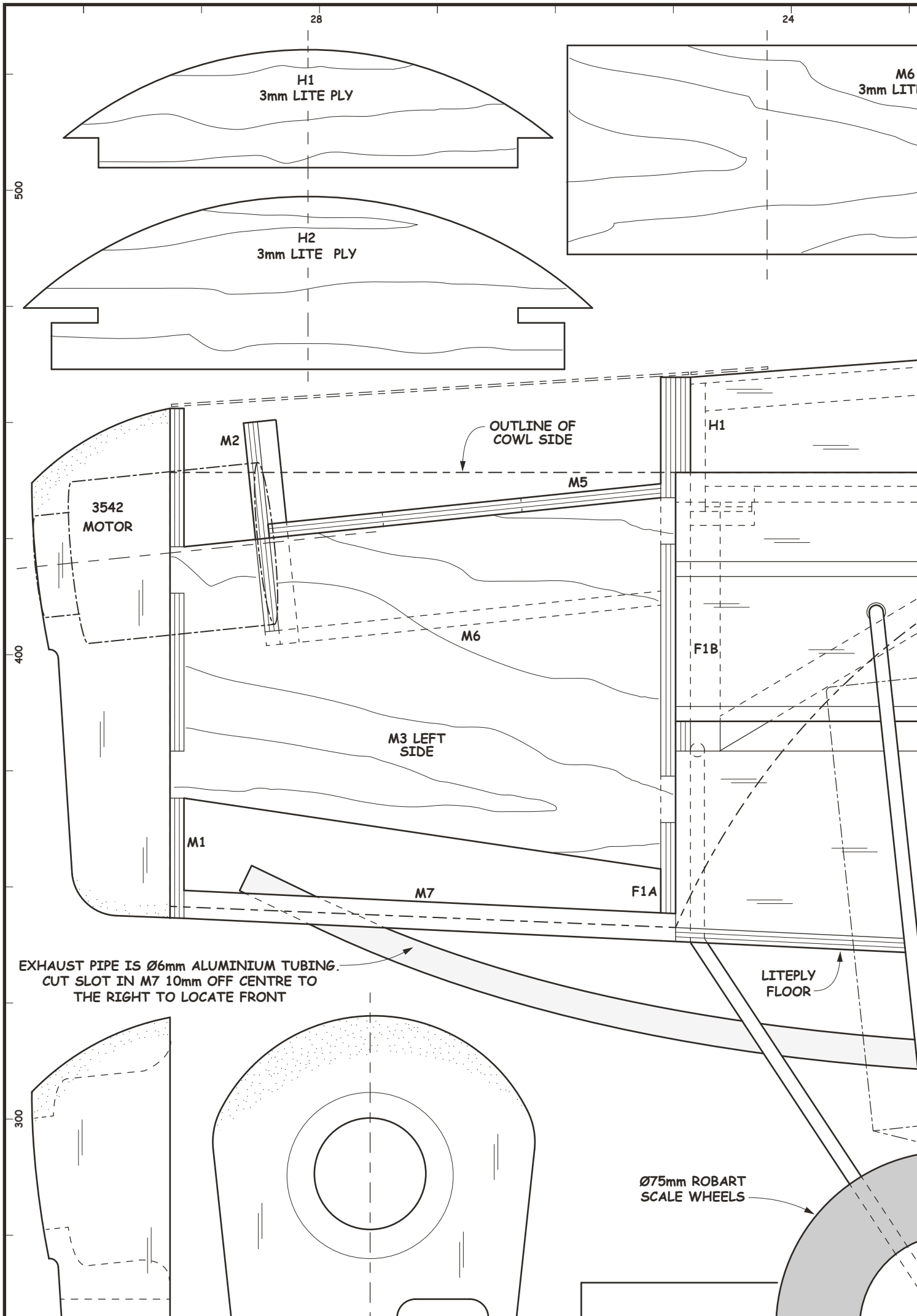
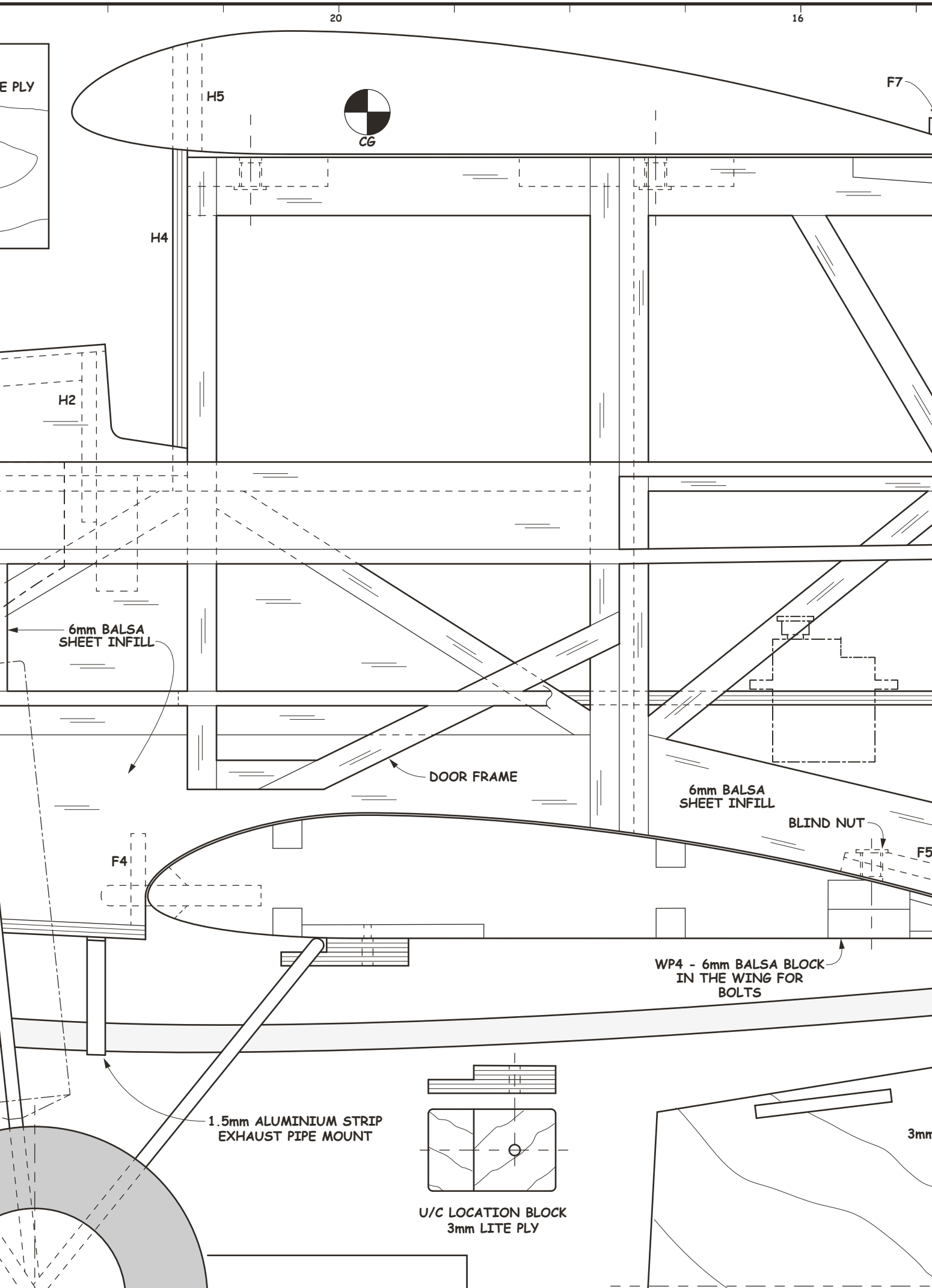
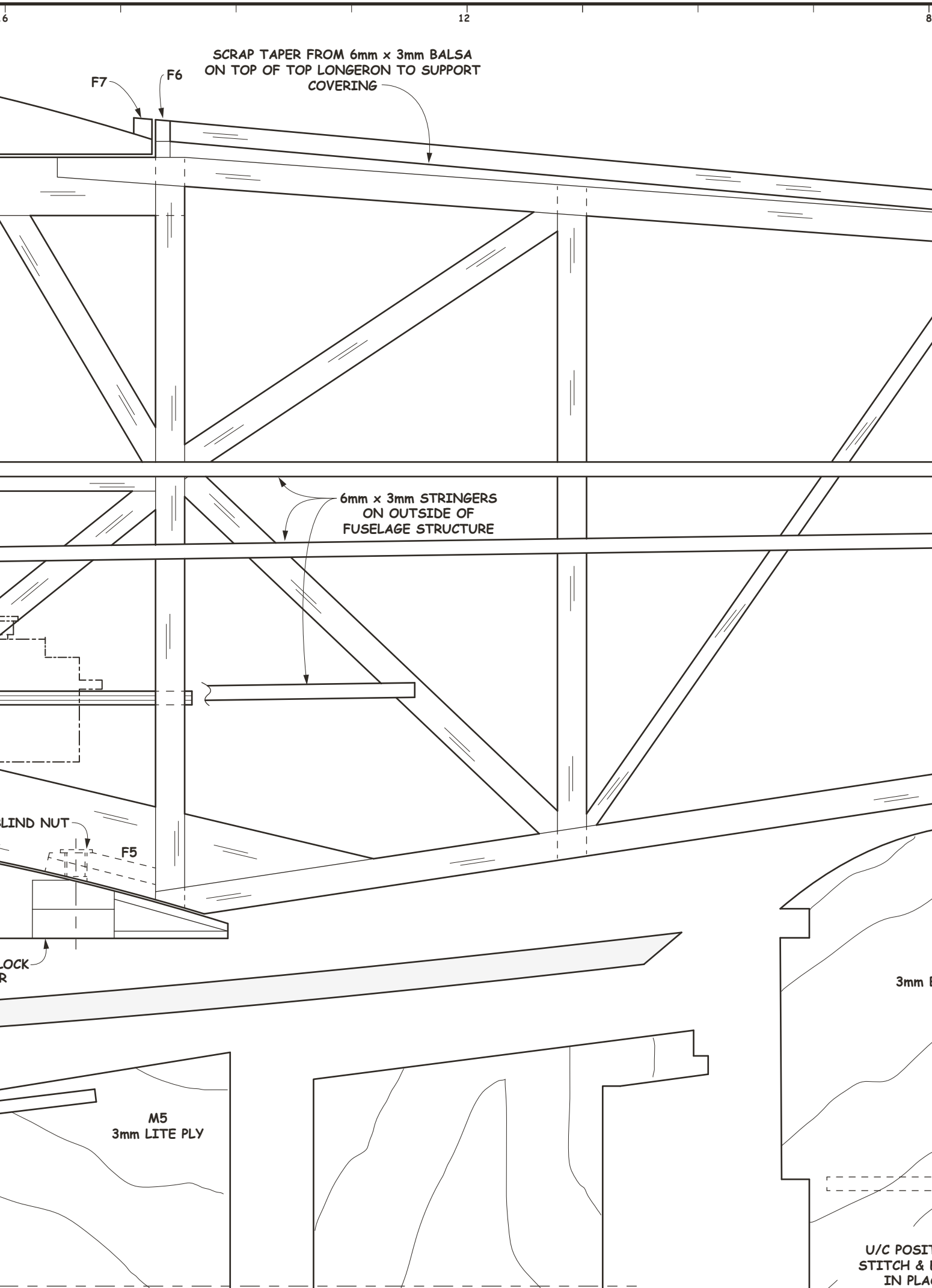

28
24
H1
3mm LITE PLY
M6
3mm LITE
H2
3mm LITE PLY
500
OUTLINE OF
COWL SIDE
M2
H1
M5
3542
MOTOR
400
M6
F1B
M3 LEFT
SIDE
M1
M7
F1A
EXHAUST PIPE IS Ø6mm ALUMINIUM TUBING.
CUT SLOT IN M7 10mm OFF CENTRE TO
THE RIGHT TO LOCATE FRONT
LITEPLY
FLOOR
300
Ø75mm ROBART
SCALE WHEELS


20
16
E PLY
H5
CG
F7
H4
H2
6mm BALSA
SHEET INFILL
DOOR FRAME
6mm BALSA
SHEET INFILL
BLIND NUT
F5
F4
WP4 - 6mm BALSA BLOCK
IN THE WING FOR
BOLTS
1.5mm ALUMINIUM STRIP
EXHAUST PIPE MOUNT
U/C LOCATION BLOCK
3mm LITE PLY
3mm


SCRAP TAPER FROM 6mm x 3mm BALSA
ON TOP OF TOP LONGERON TO SUPPORT
COVERING
F7
F6
6mm x 3mm STRINGERS
ON OUTSIDE OF
FUSELAGE STRUCTURE
LIND NUT
F5
LOCK
R
M5
3mm LITE PLY
3mm
U/C POSIT
STITCH &
IN PLA

SCALE
INCHES

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HORNET MOTH

DESIGNED BY GRAHAM MCALLISTER

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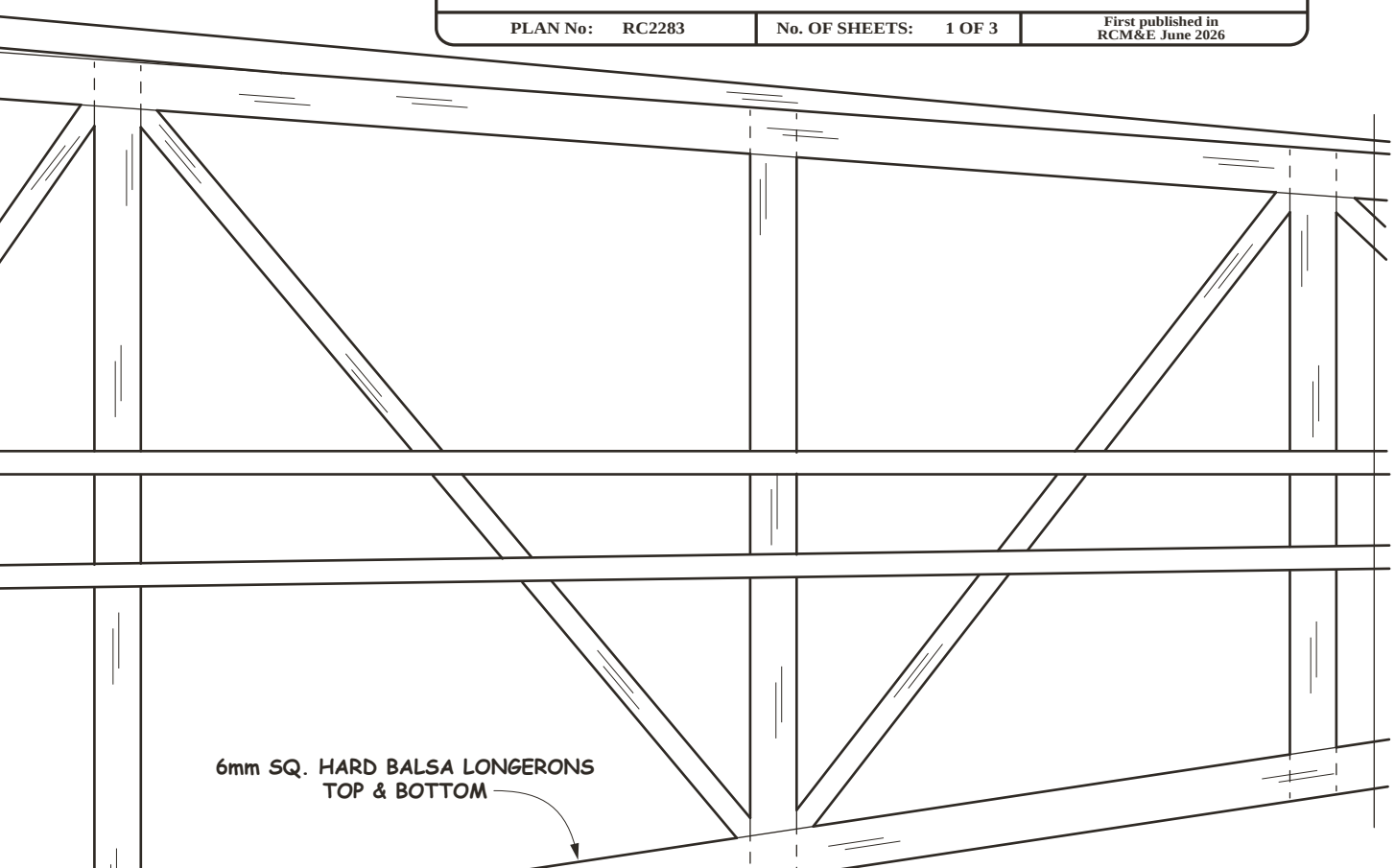

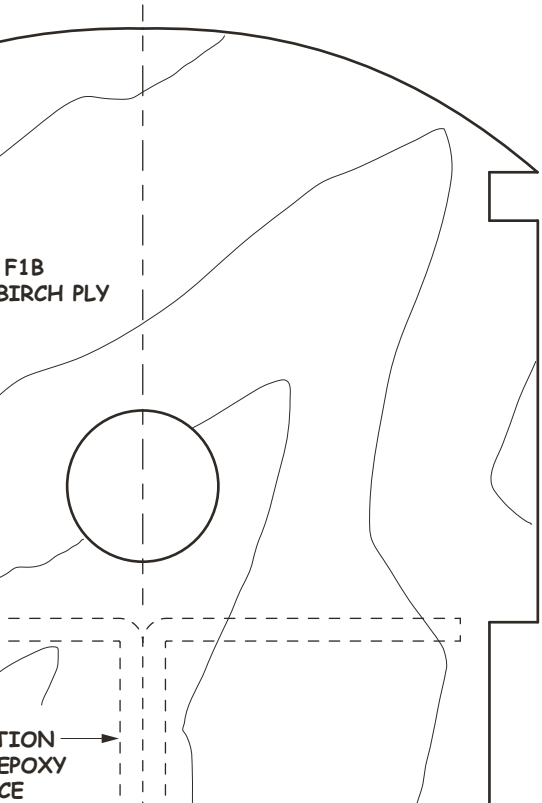

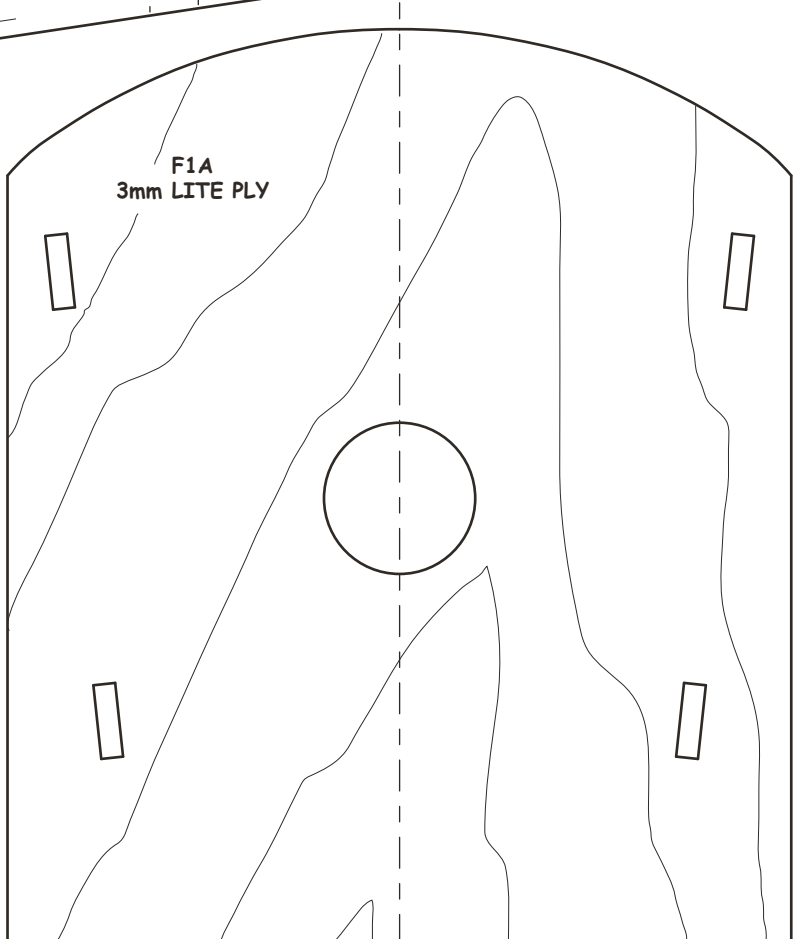

Ø75mm ROBART
SCALE WHEELS

NOSE BLOCK
CARVED FROM LAMINATED 9mm OR 12mm MEDIUM BALSA
ATTACHED TO M1 WITH THREE PAIRS OF NEODYMIUM MAGNETS

COWL SIDE PATTER
COWL SIDES & TOP FROM THIN PRINTE
ONE SIDE WITH HEAT SHR

M2
3mm BIRCH PLY

M4
M2
MAGNET
M5
NOTE HATCH
NOT SHOWN IN TH
F1A
M3
F1B

200
100

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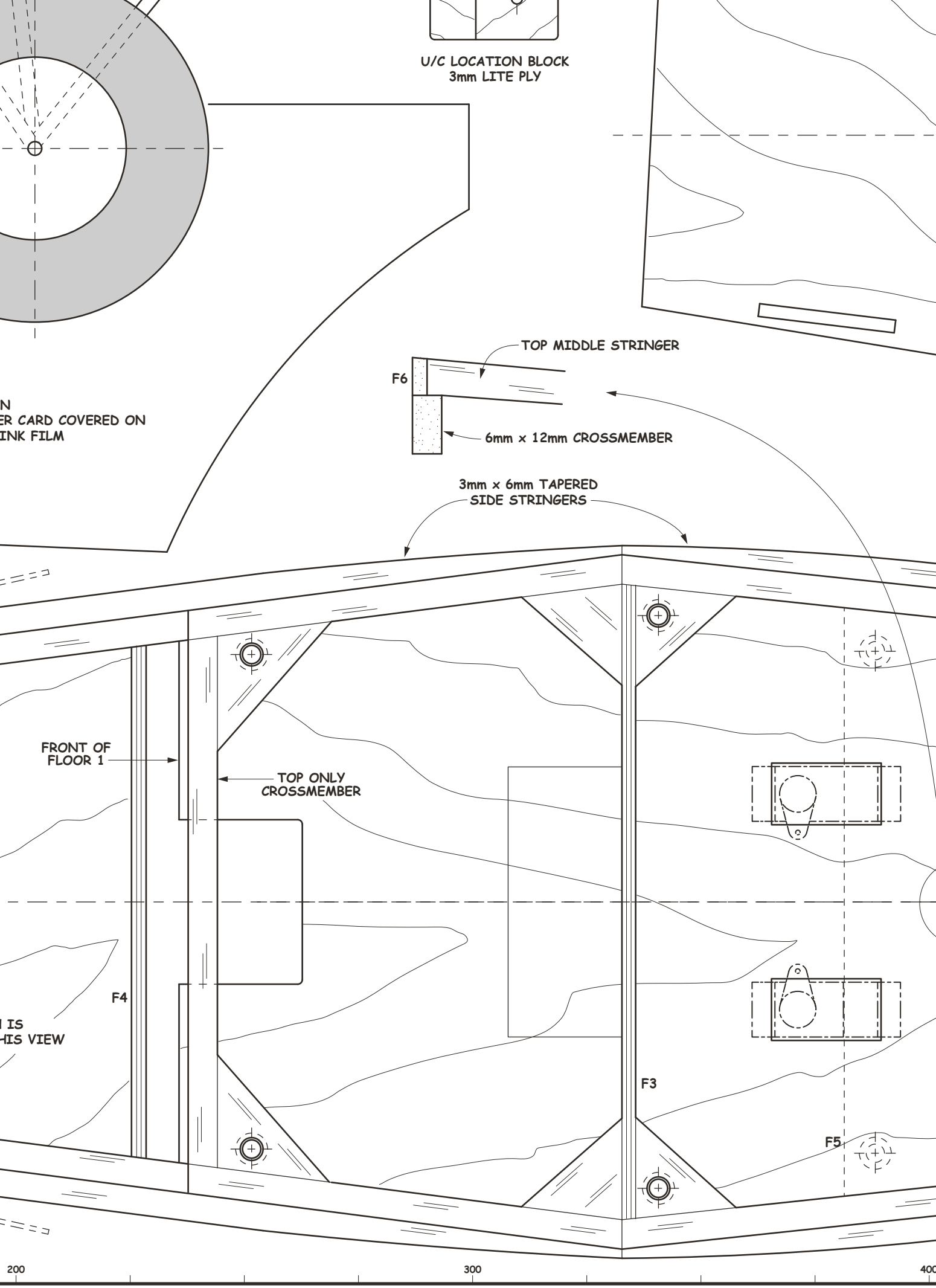
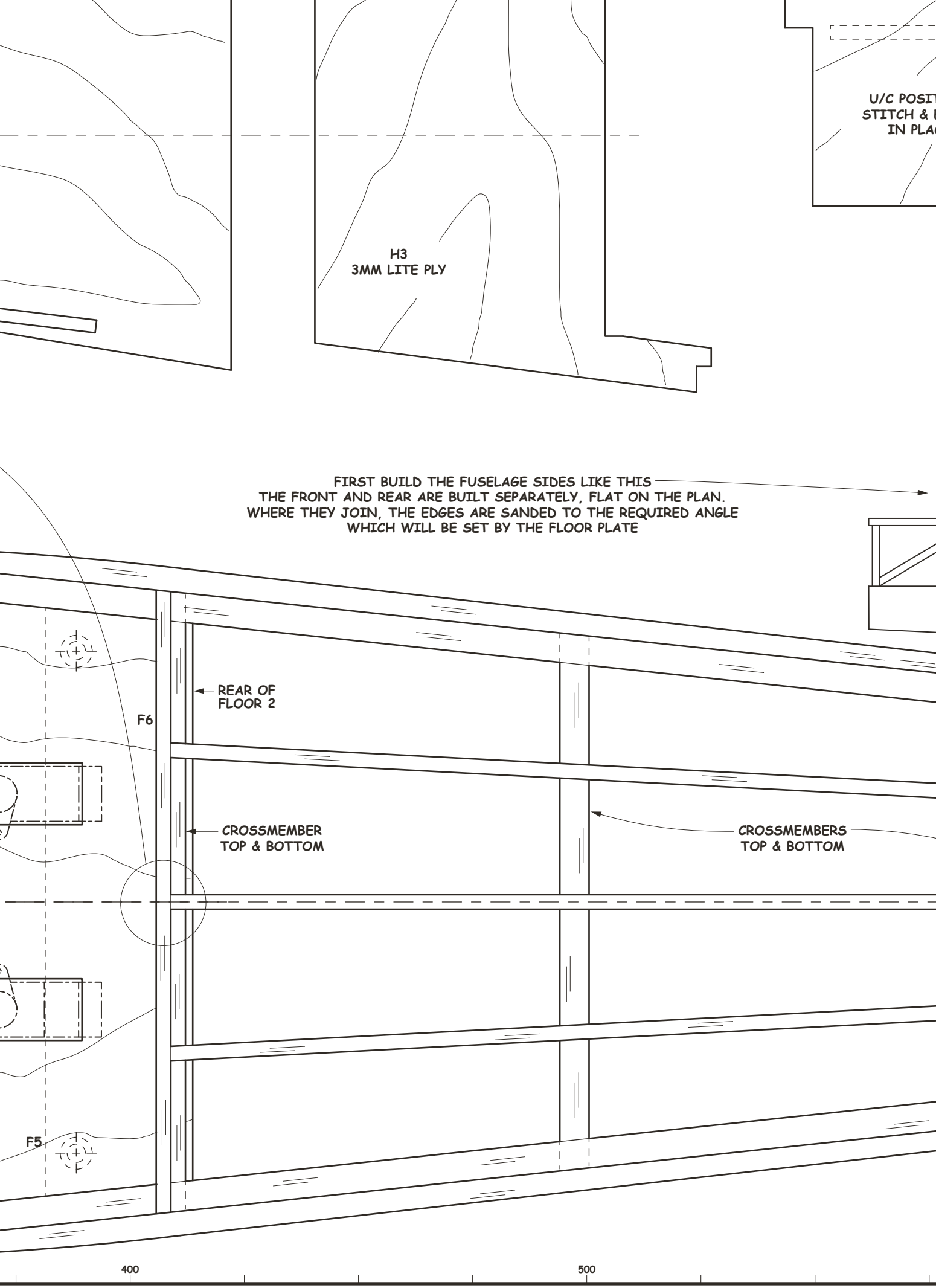
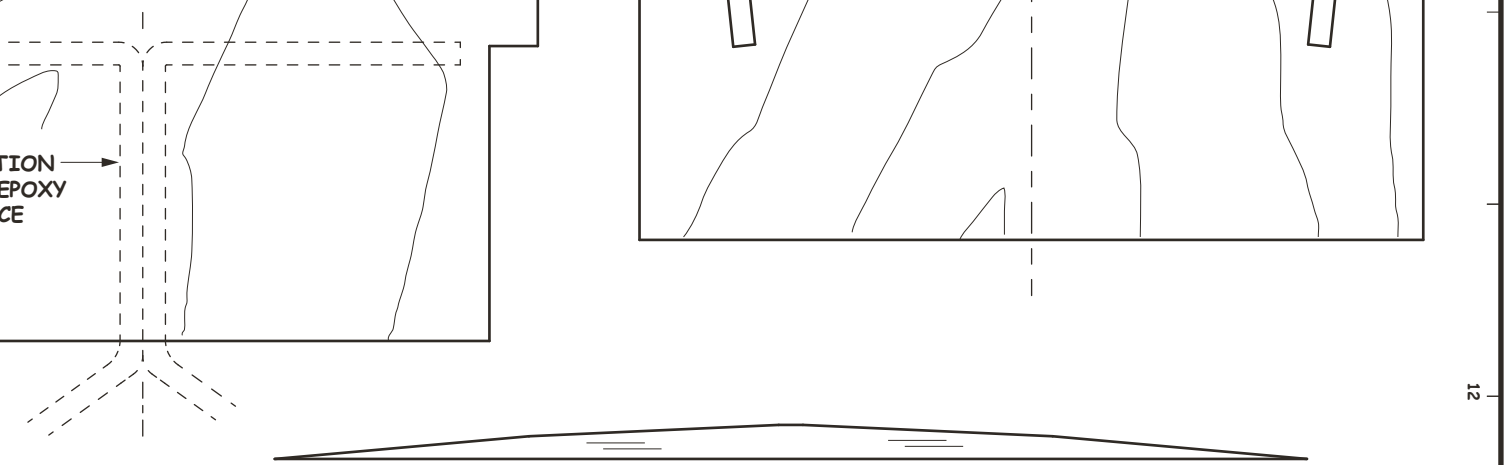
SCALE
MM

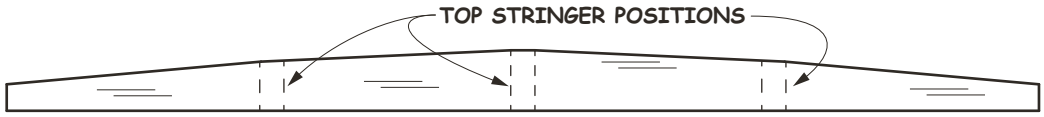
100


U/C LOCATION BLOCK
3mm LITE PLY
N
ER CARD COVERED ON
INK FILM
TOP MIDDLE STRINGER
F6
6mm x 12mm CROSSMEMBER
3mm x 6mm TAPERED
SIDE STRINGERS
FRONT OF
FLOOR 1
TOP ONLY
CROSSMEMBER
F4
I IS
HIS VIEW
F3
F5
200
300
400

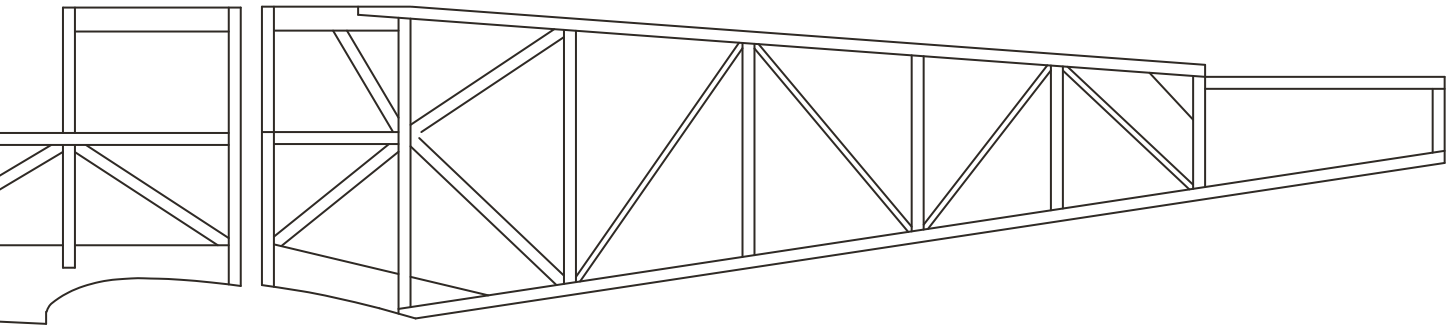

H3
3MM LITE PLY
U/C POSIT
STITCH &
IN PLA
FIRST BUILD THE FUSELAGE SIDES LIKE THIS
THE FRONT AND REAR ARE BUILT SEPARATELY, FLAT ON THE PLAN.
WHERE THEY JOIN, THE EDGES ARE SANDED TO THE REQUIRED ANGLE
WHICH WILL BE SET BY THE FLOOR PLATE
REAR OF
FLOOR 2
F6
CROSSMEMBER
TOP & BOTTOM
CROSSMEMBERS
TOP & BOTTOM
F5
400
500

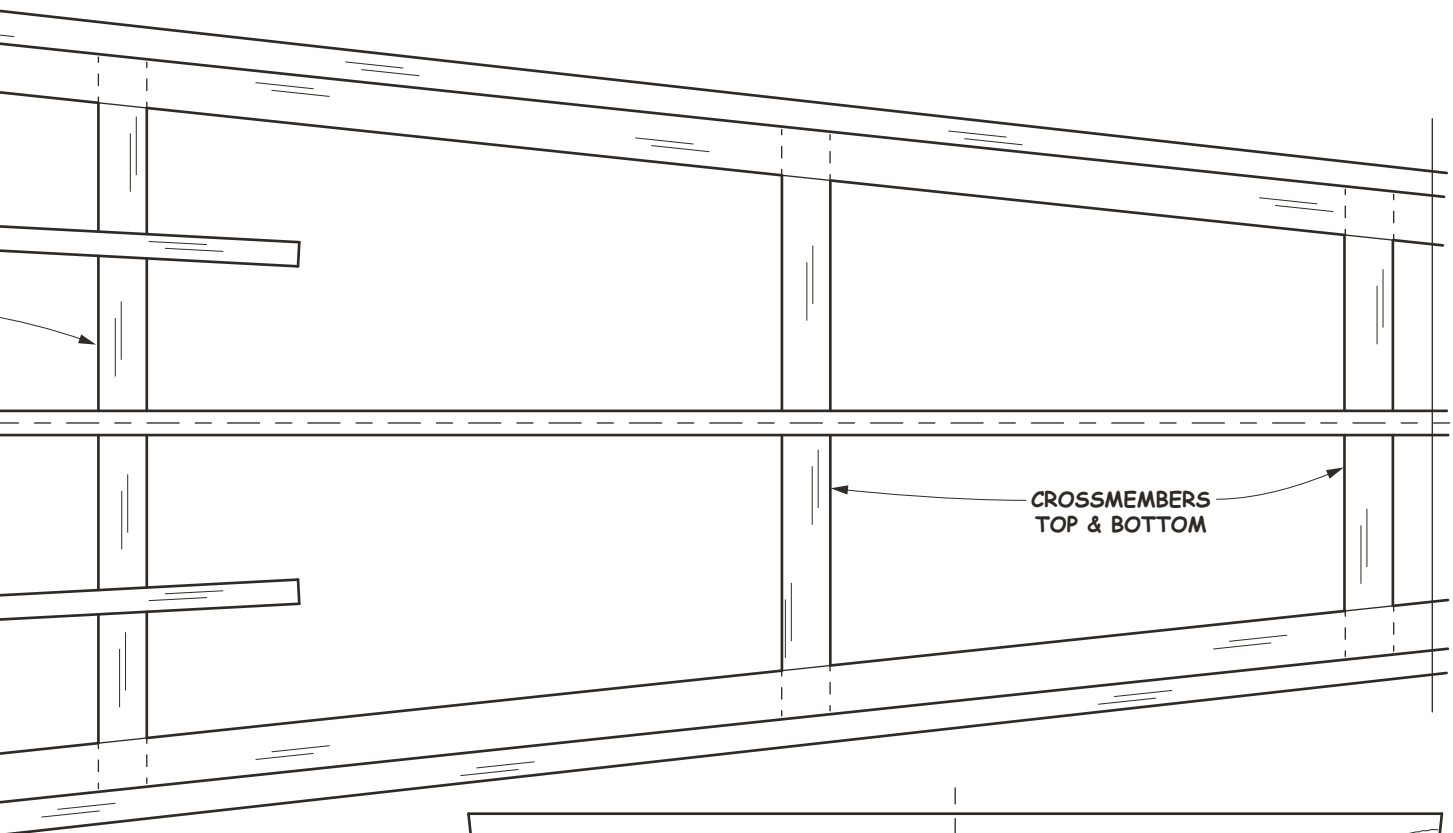


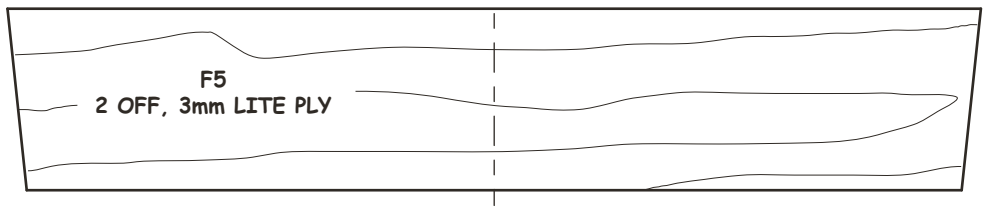
F7 - 3mm BALSA, GLUED TO TRAILING EDGE TO SUPPORT THE WING COVER

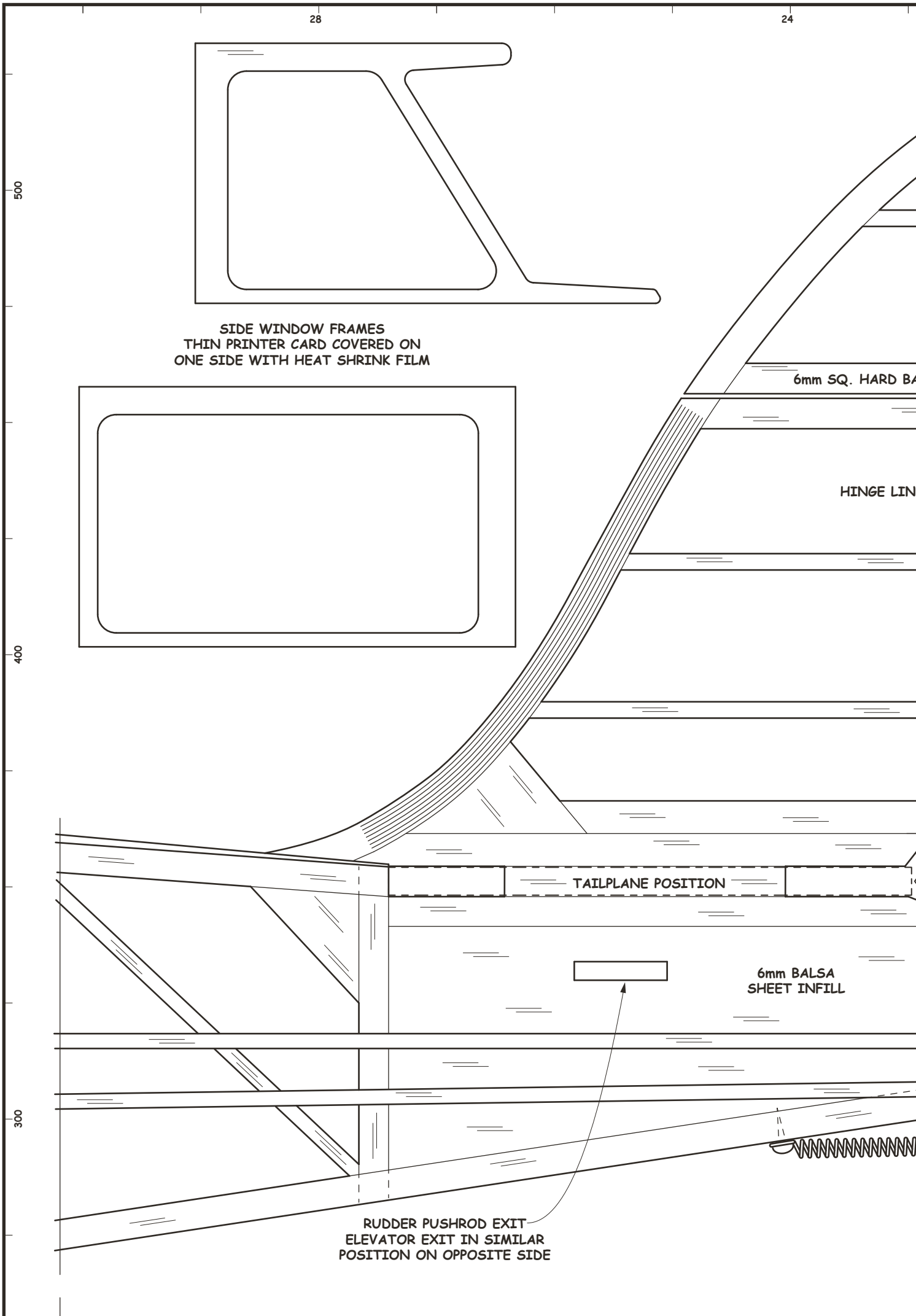


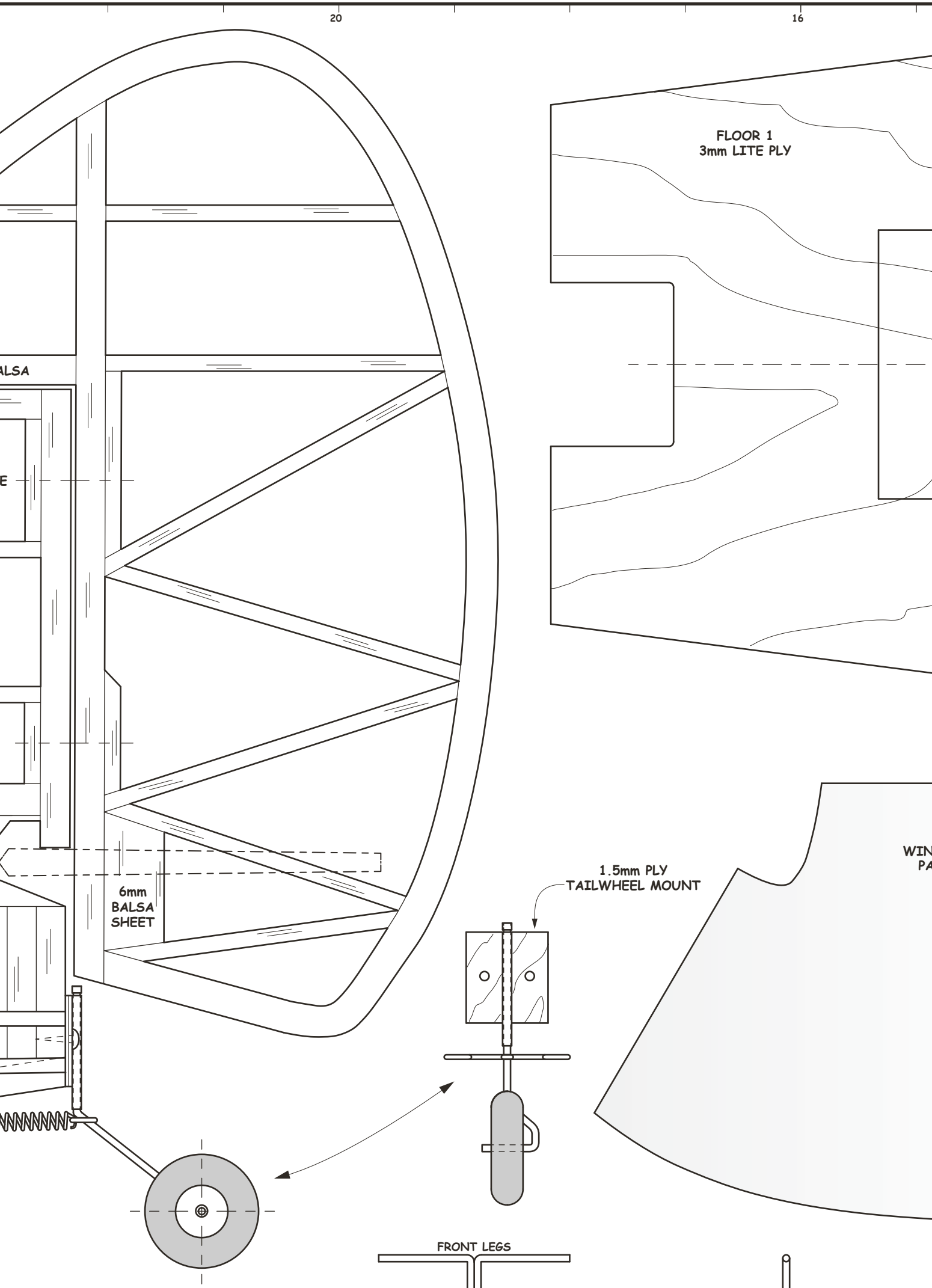
F6 - 3mm BALSA

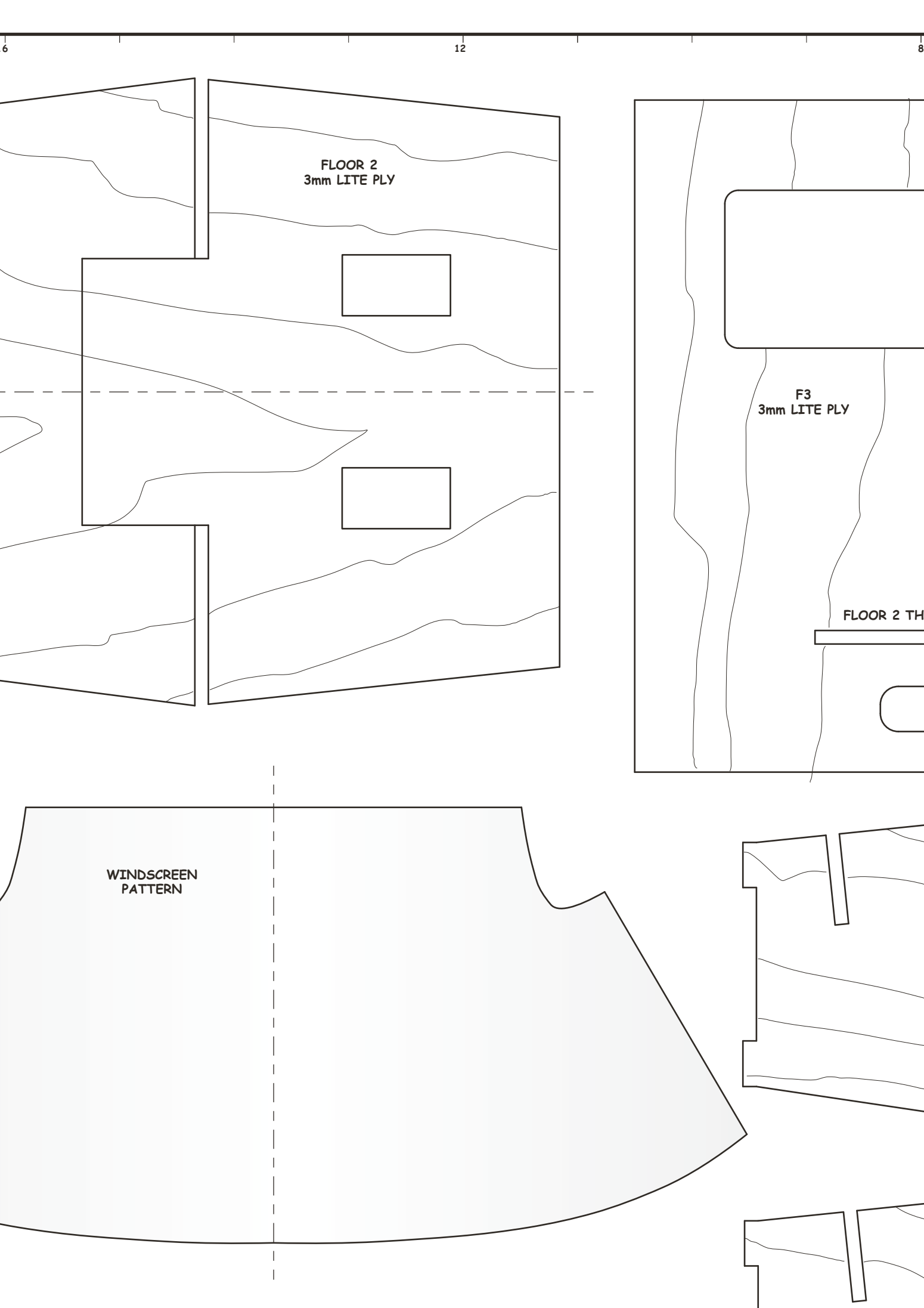




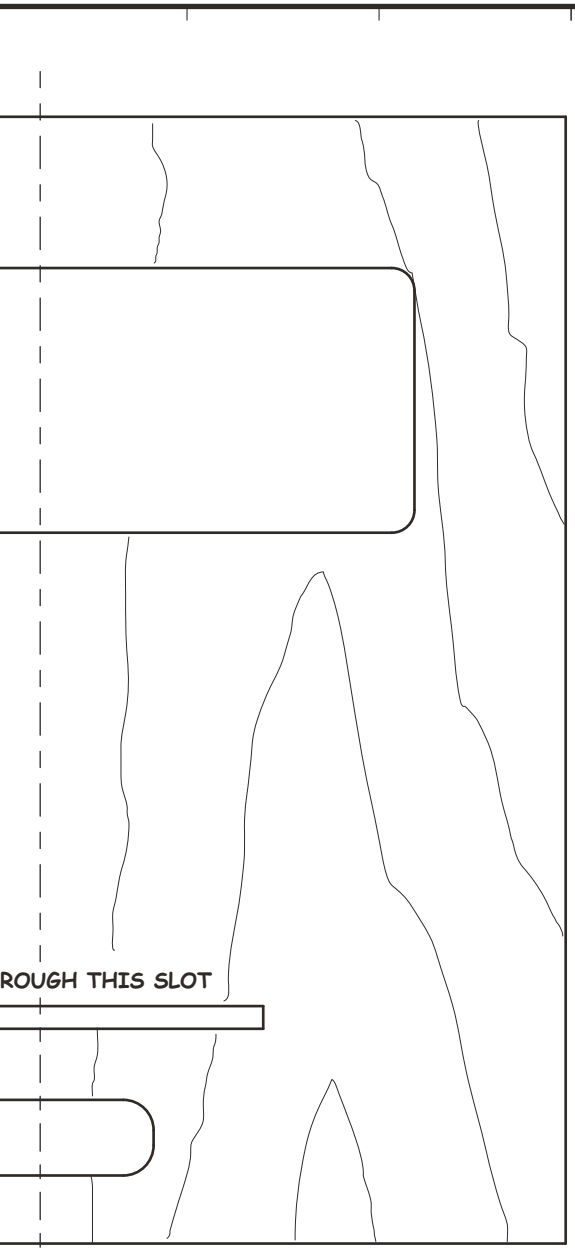


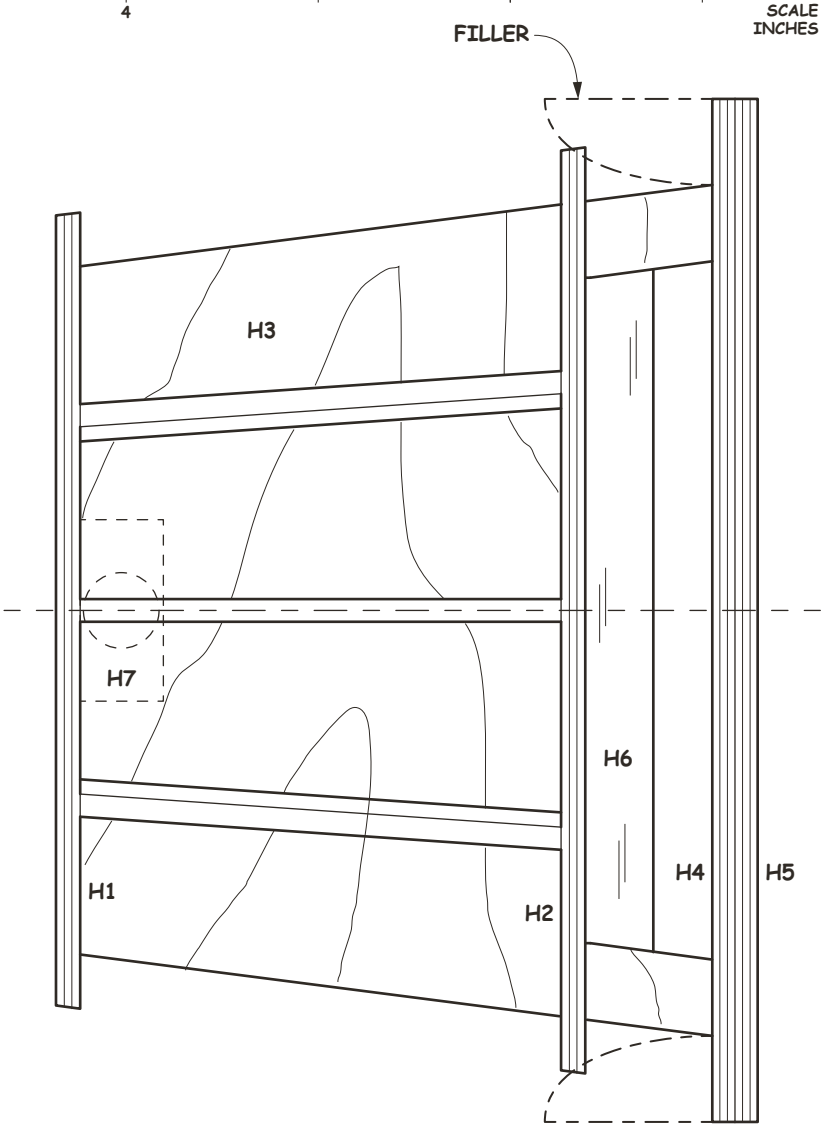

28
24
500
400
300
SIDE WINDOW FRAMES
THIN PRINTER CARD COVERED ON
ONE SIDE WITH HEAT SHRINK FILM
6mm SQ. HARD BA
HINGE LIN
TAILPLANE POSITION
6mm BALSA
SHEET INFILL
RUDDER PUSHROD EXIT
ELEVATOR EXIT IN SIMILAR
POSITION ON OPPOSITE SIDE

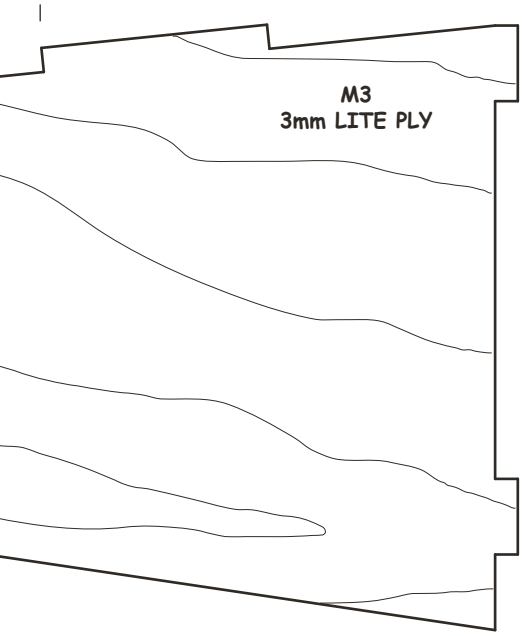

20
16
FLOOR 1
3mm LITE PLY
ALSA
E
6mm
BALSA
SHEET
1.5mm PLY
TAILWHEEL MOUNT
WIN
PA
FRONT LEGS

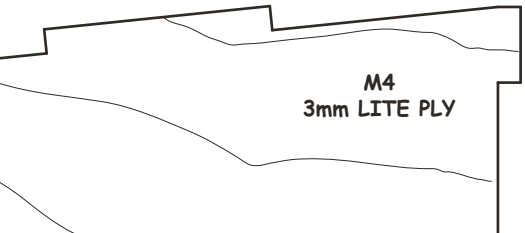

6
12
8
FLOOR 2
3mm LITE PLY
F3
3mm LITE PLY
FLOOR 2 TH
WINDSCREEN
PATTERN

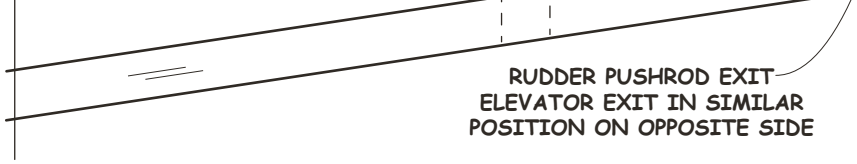
SCALE
INCHES

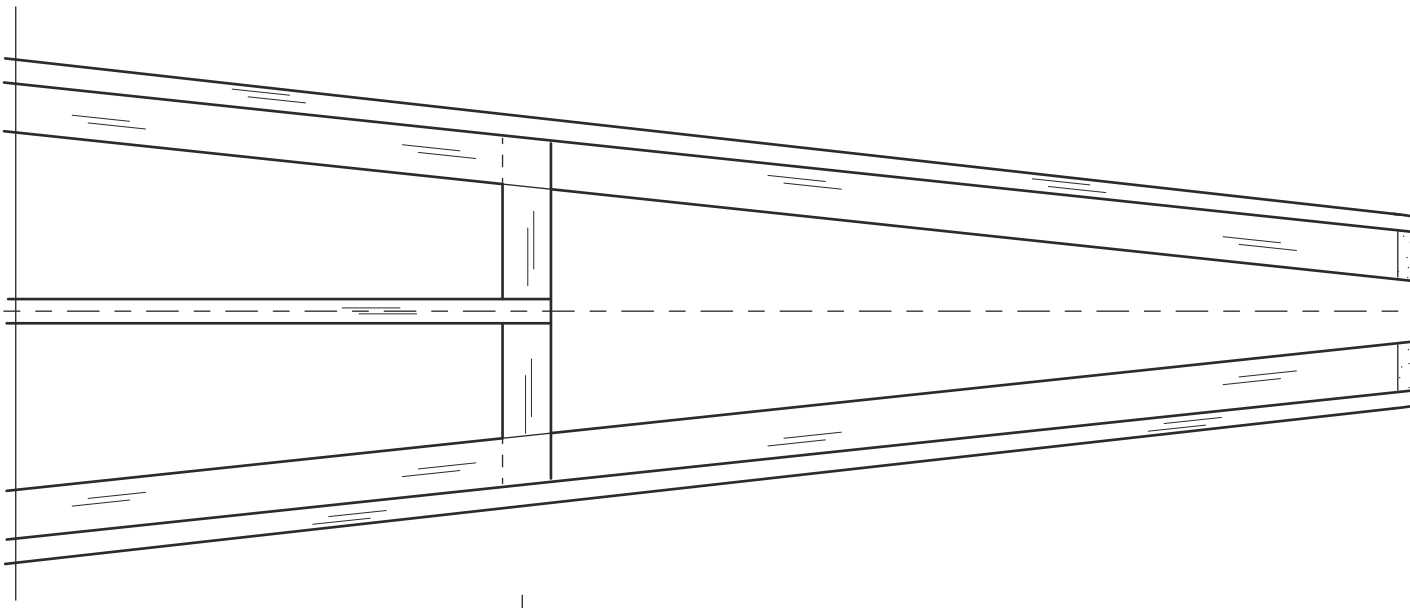


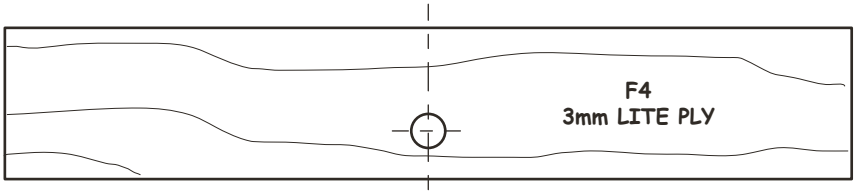


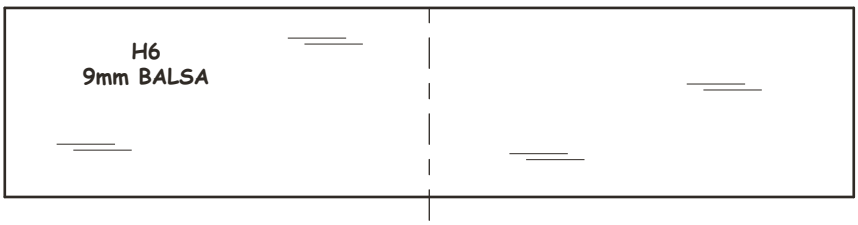


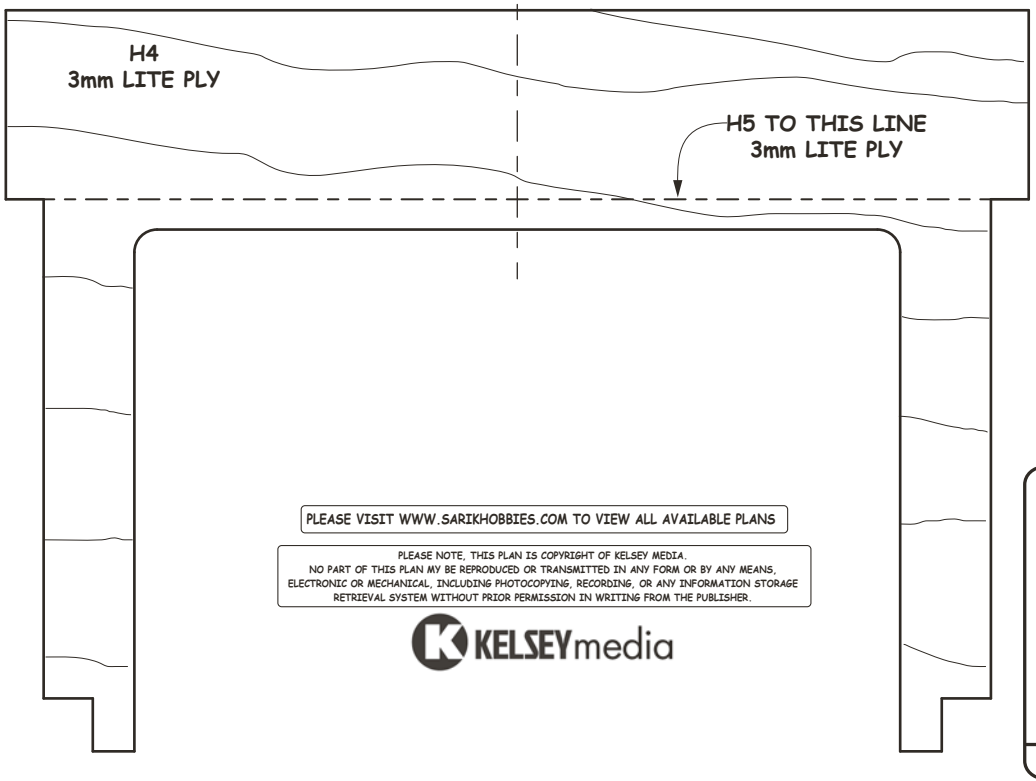


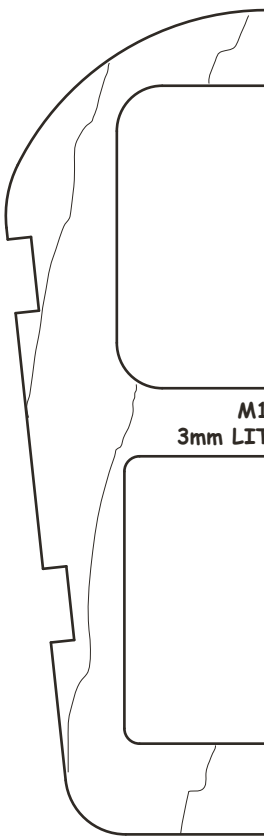












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SCALE
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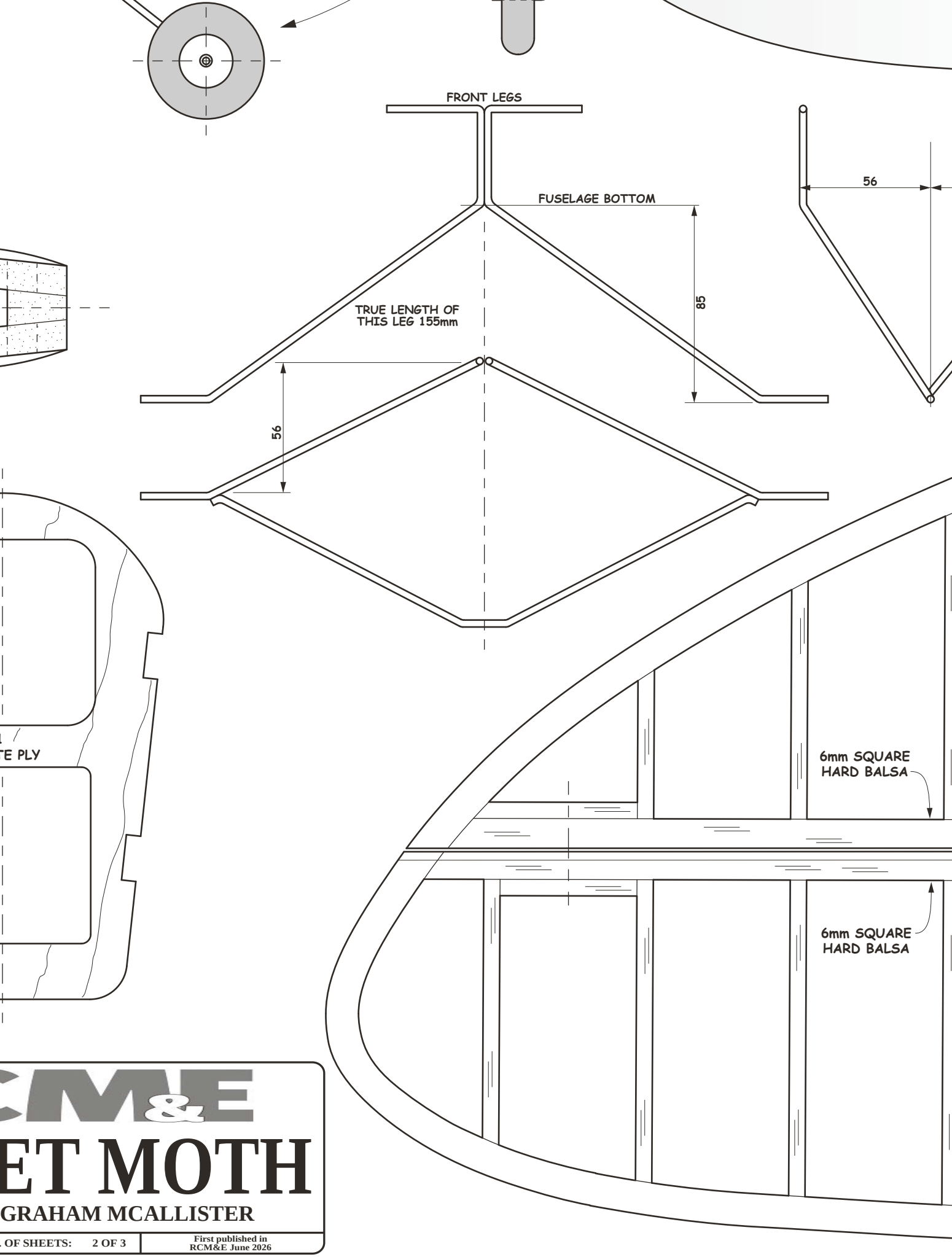

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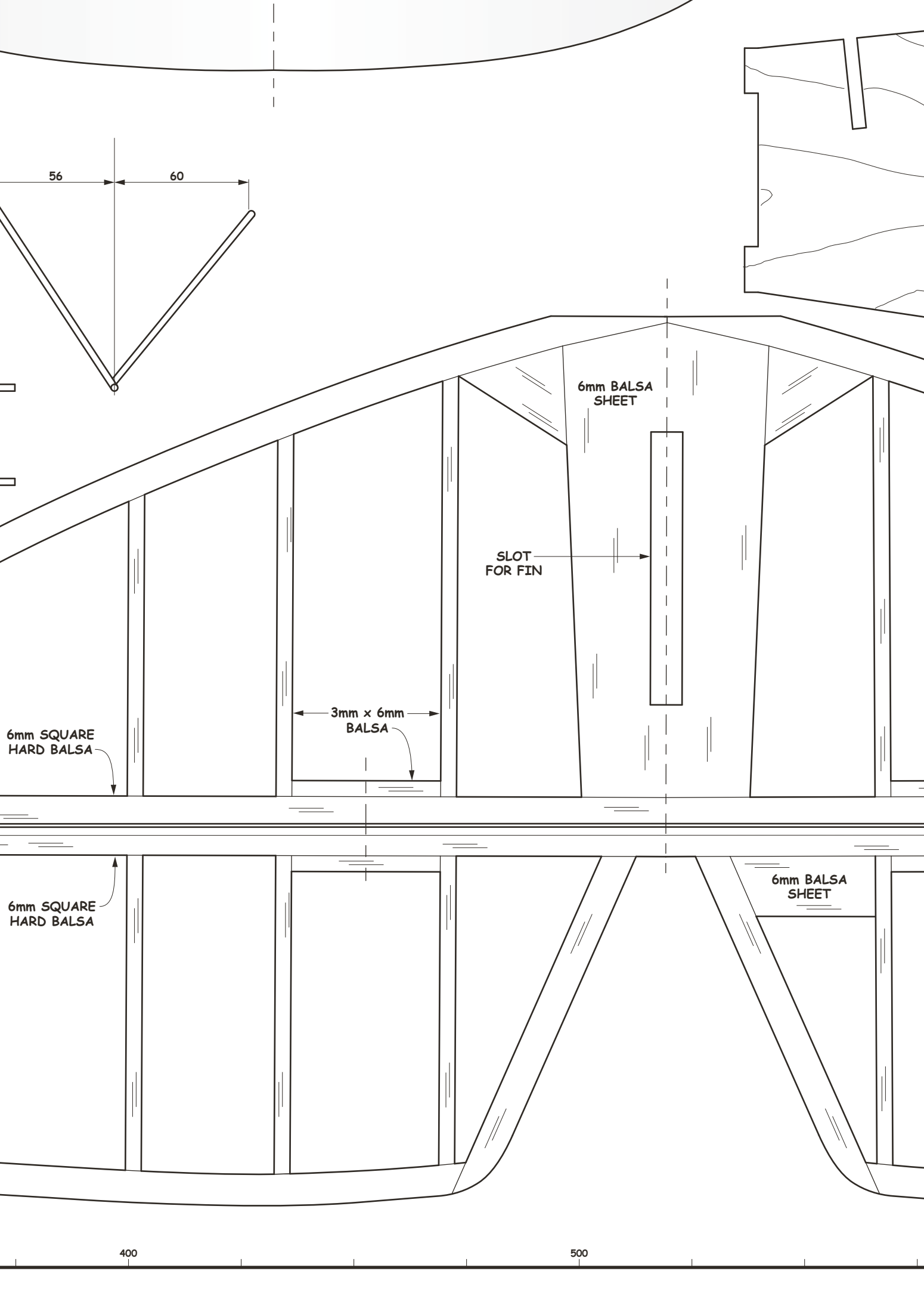
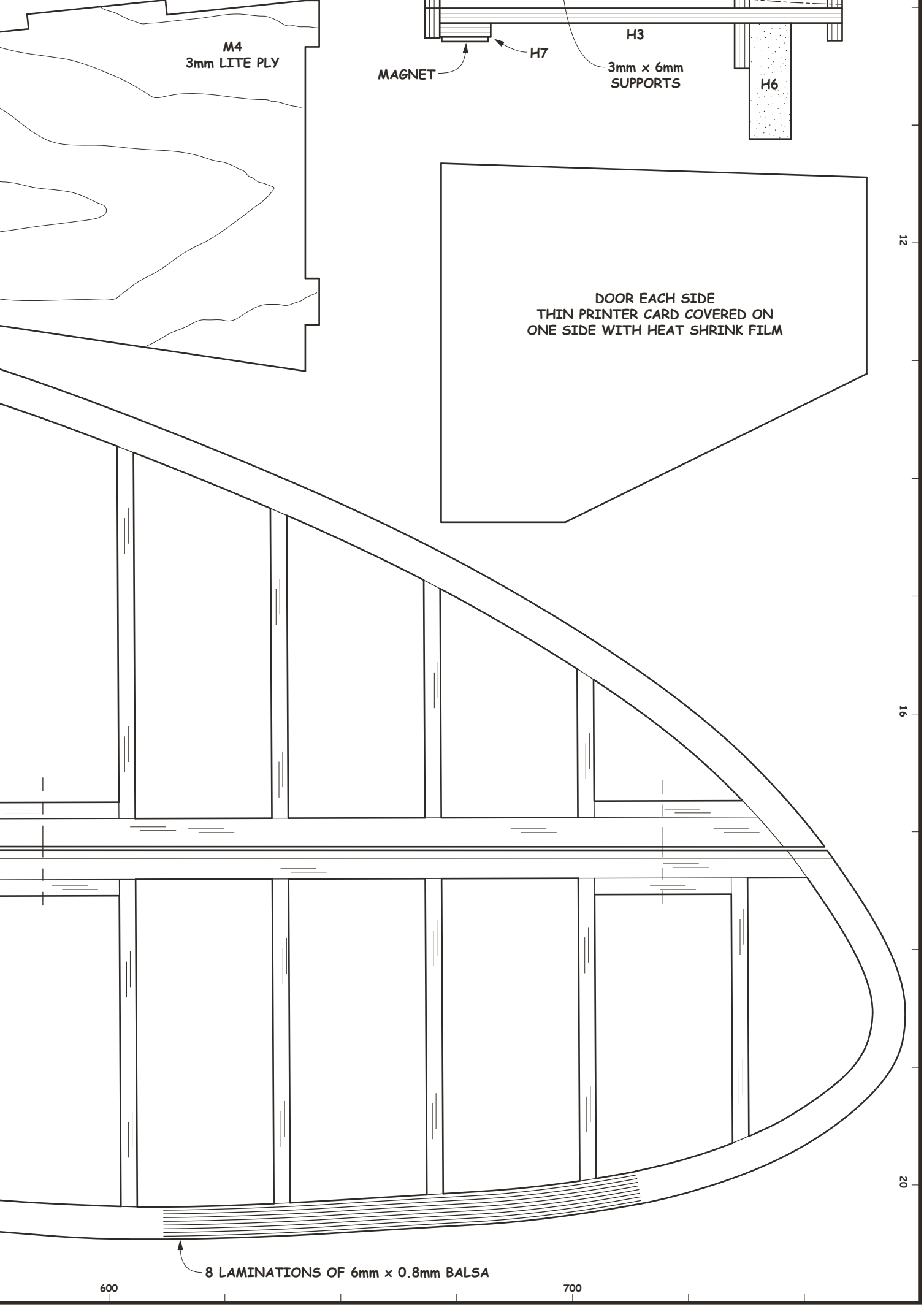
200 300 400


56
60
6mm BALSA
SHEET
SLOT
FOR FIN
3mm x 6mm
BALSA
6mm SQUARE
HARD BALSA
6mm SQUARE
HARD BALSA
6mm BALSA
SHEET
400
500


M4
3mm LITE PLY
MAGNET
H7
H3
3mm x 6mm
SUPPORTS
H6
DOOR EACH SIDE
THIN PRINTER CARD COVERED ON
ONE SIDE WITH HEAT SHRINK FILM
8 LAMINATIONS OF 6mm x 0.8mm BALSA
600
700
12
16
20

ADDICTION V4

Iconic 1m 3D Aerobat - Reborn

NEW!

Performance Highlights

- **Effortless hovering, torque rolls & harriers**
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- Latest V4 FiberFusion® airframe – lighter, stiffer & stronger than ever
- Full-span ailerons for maximum control authority and aggressive manoeuvres
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- Wide flight envelope – from ultra-slow precision to high-energy aerobatics
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- Carbon fibre reinforced throughout for strength without weight penalty
- Two-piece wing design for easy transport

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SPECIFICATIONS:

- Wingspan: 1000mm (39.5")
- Length: 1063mm (41.8")
- Weight (RTF): approx. 750g
- Wing Area: 485 sq.in
- Wing Loading: 7.85 oz/sq.ft

Precision Aerobatics Addiction V4
Part No: PL-1036V3-P (Purple) PL-1036V3-B (Blue)
PL-1036V3-G (Green) PL-1036V3-R (Red)

RRP: £309.99

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