Airscrew

Facts, opinions, pictures and fun

https://northreppsmfc.com/ *February 2020*

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Chairman's chat

Club, BMFA and CAA Fee Collection - 2020 Onwards

As you all know the BMFA have introduced their new Go Portal system to run the membership side of things. I am sure anyone who had to deal with their old system realised as well as they did that things needed to be updated as a matter of some urgency. There have been the odd teething problems which is expected in the main because of the human factor involved, differing interpretations and the fact it is new and different. However it does seem to be doing the job it was purchased for now.

Going back a step to the human factor involved, this is now you :) The desire behind this shiny new system is that each and every member takes responsibility for their own memberships within our big happy family of model flyers.

Sadly there is always a problem and this is no exception to the rule. The cost to use the Go Portal from a Club perspective is to our mind way too expensive and thus prohibitive. Perhaps Club use should have been negotiated into the original cost so Clubs could use it free instead of expecting us to keep on digging deep into the pockets all the time. Another argument for another day perhaps. So this all singing all dancing Go Portal will not collect all your fees in one go because we won't waste your club money paying them extra to do so. So from now on you will continue to pay us your club fee per annum but then will need to go to the BMFA Go Portal and pay them your subscriptions to the BMFA and if chosen the CAA Tax to Fly fee.

From our perspective it makes things a lot simpler and seeing as we do it for the love of the hobby and the Club, anything that makes it simpler and quicker is a bonus.

This year as a compromise for the final year we agreed to collect all the fees as normal for anyone that renewed straight off at the AGM up to around the first week in January, plenty of time for most. We then paid the BMFA en-bloc along with the CAA fee for any that paid that also. This option has now expired and any further renewals or joiners will need to follow the procedure as laid out above. Our website and membership forms have been adapted accordingly and I hope now reflect the new practice.

As a Club we will not print out your BMFA etc documents, this is part of your desired use of Go Portal. I will however compromise on this, if you have trouble finding and downloading your BMFA documents let me know and I will use the Club access to send you a copy by email for you to print. I do not really envisage this being used as it is simple to navigate once you have had a look around.

As always, any problems, questions, suggestions let me know. If you don't ask us you will never know ;)

Dave

Model of the month: FMS Kingfisher

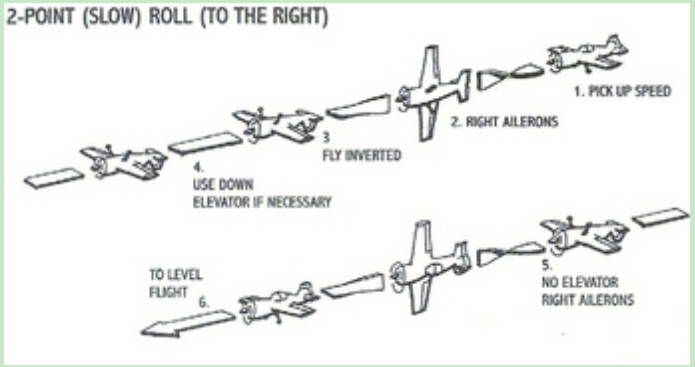
No, this model isn't a skyblazer, immaculate scale model or 3D monster. It is however a superb 1.4m first trainer. It does what it says on the box and has got Keith Eldred flying his first non-glider with ease. It has similar characteristics to the Tundra with its big wheels and stability but it is much more robust and has a less bouncy undercarriage. It is also a bit cheaper at about £150. The motor is excellent and Keith says he takes off at about one-third throttle (doing an IC-style take off). The model has plenty of power on the 2.2Ah three cell battery and flight times seem very good.

Manoeuvre of the month – two point (Hesitation) roll

From RCSD with permission

Once you have mastered the (continuous) roll, you might like to try the hesitation or point roll, which is very interesting to do and to watch. A point roll must hesitate with equal time on each point of its axis, hence the name hesitation roll. There are three basic types of hesitation rolls and many variations on these. In order of difficulty we have the two point roll, the four point roll and the eight point roll.

The two-point roll is the easiest. The aircraft rolls to inverted, stops (hesitates), and then rolls right side up to level flight. Get a goodly amount of airspeed; then, from straight and level, with ailerons only (no coupled controls please!), roll to inverted flight and stop the ailerons. Continue inverted for a second or two, then (with ailerons only), roll right side up to straight and level flight. You might or might not have to add a little bit of down elevator when you are inverted to keep the nose up.



This maneuver presents no difficulties! Once you have mastered this, move on to the four point roll. *[and knife edge! - ed. See targets later]*

Competition news

We finally got the 2020 comps underway on Sunday 19th January. There was some very pleasant flying weather. Mike Whiting is presently in the lead in both Spot Landing and Climb and Glide. Git flyin' y'all. Full results on our website.

Bix-catchers

Talking of manoeuvres I am making a small boast. The other day I joined Keith in the Bix-catchers club. Witnessed by Keith and Mark Jordan.

Genius: number six - foam model stand

The best things often arrive in a big box and instead of card spacers they have used polystyrene foam. You feel bad about throwing away the everlasting plastic, and jamming it into your rubbish bin fills it up. Well, here is one way to make use of some of it. It's another of Keith Eldred's neat inventions, a stand for models. It is soft so can't damage the fuselage.

The raw material

The finished stand holding up a Phoenix fuselage and keeping the wheel off the ground.

Come on all you clever folk out there! I am sure you all have clever ideas to share that I haven't spotted at the field. Boast a little!

Nerds niche: Halloween and Christmas

Having alluded to binary last month in the article on Arduinos, here is a number joke (well, to be exact, it is probably only a joke for nerds).

Why do computer people confuse Halloween and Christmas Day? Because **31 oct = 25 dec**

Puzzled? Answer next month. If you already know the answer, well done, you are a red-hot computer person.

A target for 2020

No this isn't the ploy politicians use to look as though they are doing something. This is a genuine aim. Last year I set myself the target of a whole five minute flight inverted, except landing and takeoff. I did it last November. This year's is a complete circuit on knife edge. There, I've said it now so I'll have to do it. Why don't you set yourself a target and let me know? You'll get a special mention at the AGM in December when you have achieved it.

Humpty Dumpty's words – a new item

"When I use a word,' Humpty Dumpty said in rather a scornful tone, 'it means just what I choose it to mean — neither more nor less.' If you listen to BBC Radio 4's 'I'm Sorry I Haven't A Clue' you will know how, in the Uxbridge English Dictionary, word meanings are redefined. Amongst my favourites are: 'Aperitif' – 'cockney dentures', 'Circumspect' - 'Circumcision performed by a chicken' and 'Perpetuate' - 'How the bill is made up in a Korean restaurant'. In that vein Keith has redefined the words 'Stretch marks'. These are now the cracks and grooves in the paint that foam models suffer in crashes.

Techie corner - FrSky ('free-sky') Neuron electronic speed controllers (ESCs)

First impressions were very good. The ESCs come packed in foam in a substantial plastic box. They are very strongly made with a thick aluminium plate top and bottom. All sides are open. There are two servo-style sockets to connect to the receiver – one for the throttle/BEC lead (PWM) and the other for the telemetry Smartport (S.Port). You need leads with both ends female (socket rather than pin). You will need to cut the red core on the PWM lead if using a separate receiver battery, but this is a separate lead so you are not cutting one that is permanently connected to the ESC. The ESCs are compact with good heat sinks and are available in 40, 60 and 80 amp versions with extra capacity for short times (burst). All versions are the same size and weight, though different prices, and can be connected to 3S to 6S batteries.

After soldering on XT90 and 4mm bullet connectors and sleeving, the device weighed 73g. This is exactly the same as a Turnigy Plush 60A, though of course the latter has no telemetry. The sizes are: Neuron: 60 x 33 x 16 mm Plush: 72 x 30 x 17 mm so the Neuron is a bit shorter. Other ESCs are available. Later I will describe even smaller versions.

Clearly this is designed with racing quads in mind, as it is marked BLheli. Maybe more about BLHeli another time. Or not.

The device includes a range of FrSky telemetry. I tested the telemetry using a Taranis X9D plus transmitter running OpenTx V2.2.2 and a freestanding X8R receiver. Initially no motor was connected, so the current, rpm and mAh consumption data were zero. I allowed the ESC to power up the receiver through the BEC and the voltage shown in RxBt was 4.9V. Using a voltmeter I checked whether this was the voltage sent by the BEC and it was, so the BEC appears to default to 5V. It can provide 7A. The voltage can be changed.

After using ‘Discover new sensors’ on the Taranis all of the data appeared as follows:

Name	Values during test.	
0E50	2560804	Stores BEC values whatever that means.
EscV	16.71V	Lipo voltage
EscA	0.00A	Motor current
EscR	0rpm	Motor speed
EscC	0mAh	Consumpt – mAh used
EscT	44°C	ESC temperature

As you see the data (sensors) have different names from the ones created by separate telemetry devices. You can change them if you want but they seem sensible. All have the same device ID (17). If using two of these ESCs in a twin motor model you will have to change the device ID for the devices on one ESC.

I then added the new data to a numeric telemetry screen which worked perfectly. I decided also to add EscA+ and EscR+ so that I can have a reading of the maximum current and motor speed during the flight. The former will be essential to make sure that I have the correct propellor fitted. To get maximum safe power I want about 95% of the maximum current for the motor when the prop is unloaded in the air.

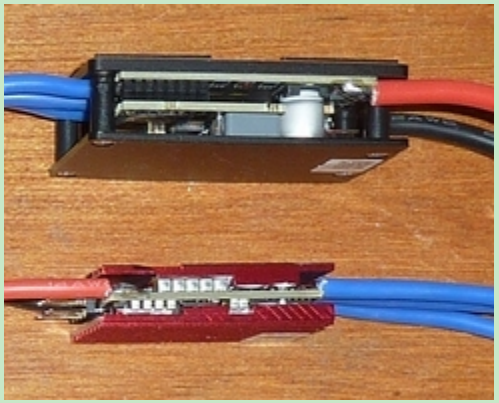
Then I connected a sizable 4Max motor and ran it up slowly, hand held without a propellor. Sensors EscA, EscR, EscC now generated data. The rpm one showed over 30000 rpm which puzzled me until I remembered that rpm has to be calibrated for the number of coils in the motor, and defaults to one. I’ve edited the sensor to the 6 coil pairs for the Eflite Power 46 that it will be connected to when I install the ESC in a model. The defaults appear to work fine for fixed wing.

Neuron S versions

In late 2019 FrSky issued updated versions of the Neurons, designated ‘S’ (small?). I bought a 60S and a 40S. They are very much smaller as you can see from the photographs comparing the 60 and the 60S. FrSky has done an amazing job squeezing the speed control circuitry and the telemetry into such a small device. The S has a jumper to select whether the BEC is used so you don’t need to cut the red core on the throttle lead if it isn’t. One last bonus was that the throttle did not need calibrating. It presumably defaults to 1000 to 2000 ms.

60	76g	60 x 33 x 16 mm
60S	47g	45 x 22 x 12 mm

In both cases weights are with one XT90 and three bullet connectors



I have installed the 40S in my Acrowot foam-e. It fitted perfectly in the original position. I don't need to connect the battery balance lead to a voltage sensor for voltage telemetry so the wiring is much neater. And now I know when I've used 1500 of the 2200 mAh in the battery cos the nice lady tells me. I used the default 5V BEC on the 40S.

I fitted the 60S in my Wot4. It was much smaller and lighter than the Turnigy Plush ESC so I was able to put it in a more convenient place and add a NiMH receiver battery and switch. As always, in both cases the telemetry data was found by the Taranis without a problem.

What's more, for now you get a free USB linker toolstick with the S for use with the BLHeliSuite software to program the ESC if you need to, which you probably don't for fixed wing.

Advantages

There are three: size, weight and cost

Size: The dimensions of the Neuron are good compared with other makes especially the S variants. No further sensors are needed so the whole setup takes up much less space. Glider pilots might want the separate vario and GPS sensors, though the former is now built in to some FrSky receivers.

Weight: The Neuron is no heavier than most ESCs and you will not need to install other sensors with their associated wires. To match the Neuron you need lipo voltage, current and speed/temperature sensors which add up to about 27g plus wires. We are not told what the current sensor will read up to, but I assume that it will be at least the current capacity of the ESC.

Cost (January 2020 prices): Neuron 40 £45.60, 40S £55.20, Neuron 60 £55.20, 60S £60.00 Neuron 80 £63.60. Unless you need an air speed, vario or GPS sensor, that's it. The cheapest FrSky sensors are: lipo £10.44 (2.8g), current £17.00 (17g), rpm/temp £14.50 (6.7g). That would be another £42 – in effect this is what you save by using a Neuron.

Programming the Neurons

The Neurons have a lot of parameters that can be set. Most of these are only of use in drones. The two that apply to fixed wing models are BEC voltage and throttle calibration. BEC voltage defaults to 5V so for most people will not need changing. Glider pilots will want to set brake on for the folding props. Throttle calibration can be done using the usual transmitter method. Switch on with full throttle. Wait for the tune to stop. Move to zero throttle. Again wait for the music to end. Done. It is most likely that the default throttle range will be fine. If you want to do more, use the USB toolstick and BLHeliSuite32 software:
http://www.mediafire.com/file/9ylhp0s0ces4tw2/BLHeliSuite32_32700.zip/file
You can't set the BEC voltage using the toolstick though. For that you have to install Freelink software from https://www.frsky-rc.com/s-port-airlink/ on your computer and buy an Airlink S device.
This is poor and one of the rare times when I am cross with FrSky. I hope that it soon produces a programming card so we can set parameters without all that nonsense.

Flight testing

Setup
For testing I fitted a 60 in a Wot trainer with a separate receiver battery. This has an Eflite Power 46 turning a 13 x 8 prop. Motor current ratings are 40A continuous and 55A burst. I set up my telemetry screen to display current, maximum current, rpm, maximum rpm, consumpt (mAh used) and battery voltage. The battery was a fully charged 5 Ah 4S nanotech with internal resistances of about 3mΩ.

Current and power
Full throttle current was 55A static and 40 to 50A in the air. This rose to 52A in manoeuvres. This makes the maximum average power about 52 x 14.4 = 748 W. The spec shows 800W. Cruise current was 20 to 30A in level flight and taxiing was around 15A.

Consumption
I also checked the consumption figures. I landed after nine minutes having used 3000mAh according to telemetry. A meter showed 49% remaining, which was a bit high. The charger pushed in 2870mAh to full charge. The error on mAh was 5% which is excellent for a low cost device and good enough to rely on for maximum safe flying time.

Rpm
You just have to set the correct number of coil pairs in the transmitter telemetry setup. This appears to be the number of coils, eg fourteen, divided by two.

Power
After carrying out the flight tests I realised that I could have displayed the power as well. So I created a calculated sensor called Watt by multiplying current and voltage and setting the unit to watt W. I selected integer value so avoiding decimal places. I displayed Watt and Watt+ on the screen. I carried out a static test. Clearly the current is measured in amps not milliamps as the simple multiplication gave watts not milliwatts. With a fully charged battery I got a reading of just over 900W. The full charge voltage is 16.8 so multiplying this by 55A gives 924W. Therefore the calculation seems to give a correct result. It also shows that under full charge the motor is being asked to produce slightly more than the specified power.

Test conclusions

The devices are compact and light. The telemetry gives good results. To use the telemetry you must use a FrSky transmitter, but apart from that Neurons should be usable with any transmitter make. Despite from a niggle about the programming I recommend these devices.

Encouraging news on drones

I predicted a public backlash against drones when they start to fall on people, cars and houses. Well, the crashes have already started. More, more, more! Not on people of course, but the more of a nuisance they become the bigger will be the backlash.

“Norwich police drone crashed 'with a second's notice'”
BBC News 9 January 2020

A police drone crashed in a city after spinning out of control with a second's notice, according to investigators. The DJI Matrice 210 unmanned aircraft was being operated at Hammond Court, Norwich, at 15:00 BST on 11 June 2019 when the crash happened. The drone, fitted with optical and thermal imaging cameras, lost power and crashed in an open space. Nobody was injured and no property damaged. Investigators said this type of drone may be affected by damp conditions.

The Air Accidents Investigation Branch (AAIB) has looked at a number of crashes involving DJI Matrice drones. It has recommended that the Civil Aviation Authority tell users of this drone, which typically sells for about £5,000, that moisture entering the aircraft could result in "sudden loss of control".

'Motor overload'

The AAIB report said the Norfolk Police operator had flown the drone 80m (260ft) in the air, at a time when light rain was forecast. It had been up for 10 minutes when the "motor overload" message was displayed, and soon after it began to spin before crashing to the ground and was destroyed. The drone operator considered the accident was caused by either a motor or electronic speed controller (ESC) failure. He said the extra weight and position of the thermal camera may have destabilised the drone and contributed to the crash.

The report said the operator thought restrictions on operating this drone in congested areas should be reintroduced as he only had a second's warning of the failure before control of the aircraft was lost. Sgt Danny Leach, of Norfolk Police, said the crash was due to a manufacturing fault, and that the drone had been flown "well within its manufacturer's safety recommendations" and not over "any members of the public or property". He added: "The manufacturer has since replaced the drone with a different version with no expense to the constabulary."

Neat servo covers from spray bottle tops

By Genaro Solé
With permission from RCSD December 2011

Landing your glider on grass, mud or dust can ruin your servos, but linkage covers are there to protect servos and prolong their life. Most linkage covers are cheap, but sometimes it’s difficult to find one that suits your needs. You can make them yourself with fiber, but that requires time and patience.

Here I present a cheap and easy solution: sprayer covers, made from the upper section of most cleaning sprayers. They weigh just

0,07 oz (2 grams), are tough enough, and perfect to protect servos on landings. They even work great to prevent the wing tips from touching the ground on hard surface fields.
1. First, find a cleaning spray cap that suits your needs. You can choose from a big selection of sizes, shapes and colors. I prefer those rounded corners in order to reduce drag. *[Then persuade the family buyer always to buy that brand - ed]*
2. Next step is to pull the plastic upper cover away from the pump system.
3. With a Dremel cutting disc, cut the cover to your desired size and remove the internal plastic channels that can compromise the servo arm and linkage movement.
4. Finally, fix the cover with cyanoacrylate, or use your preferred fixation method. I use these linkage covers on my Multiplex Easy Glider and my Fun One without problems.
The good news is that the sprayer can still operate without the protective cap, so don't worry about complaints! *[Just as if… Ed]*

A wide range of tops

Typical trigger sprayer

Top removed

Top trimmed

Linkage protector fixed in place

Spot the fault

Problem

The model was on its maiden flight using a Taranis X9D transmitter. The pilot had set up the model with exactly the correct throws using only low rate settings for the first flights. He also made sure the centre of gravity was correct. Not trusting how correct the settings might be, he (no, not they – yuk!) added a lot of expo (50%) to the elevator. The model took off and flew quite stably, but hands off it flew nose up and so needed down trim. It also turned to port. The pilot added several clicks of down elevator trim. It made very little difference. He added more clicks reaching full trim throw, but the model was still flying nose up. Oddly the pilot was able to cancel the turn using rudder trim. Why could the pilot not trim out the elevator problem?

Answer to January's puzzle

Reason

There was a dry joint on one wire in the ESC XT60 connector probably caused by using an inadequate 100W electric iron. This was only discovered when disconnecting the battery during tests. One wire pulled out of the connector and the heat shrink. When high currents were flowing no doubt there was arcing that caused the noise and poor running. The wire was held in place with heat-shrink and a shroud so it did not disconnect completely. Fortunately there was enough of a connection to provide energy to the receiver and servos. Whilst a full disconnection would have made the problem obvious it would have made a heap of bits out of the model.

Cure

The XT60 connector was resoldered with a powerful gas iron (see August 2019 newsletter) and the problem disappeared.

Zen in the art of model flying

This is an opening extract from ‘Zen In The Art Of Archery’ by Eugen Herrigel. It is an account of how a German man went to Japan for several years in the 1920’s to study Zen through archery. It is a fascinating book but re-reading it recently I was struck by how similar the techniques were to those we use in flying. We only fly well when we can stop thinking about it and let our bodies just do it. As Suzuki says in the foreword, ‘Man is a thinking reed but his great works are done when he is not calculating and thinking. “Childlikeness” has to be restored after long years of training in the art of self-forgetfulness. When that is attained, man thinks yet he does not think’. All I did was replace all the archery words in the text with those about flying. I changed nothing else. So, tovarichi, our flying is an exercise in Zen.

“At first sight it must seem intolerably degrading for Zen—however the reader may understand this word—to be associated with anything so mundane as model flying. Even if he were willing to make a big concession, and to find model flying distinguished as an ‘art’, he would scarcely feel inclined to look behind this art for anything more than a decidedly sporting form of prowess. He therefore expects to be told something about the amazing feats of 3D trick-artists, who have the advantage of being able to rely on a time-honoured and unbroken tradition in the use of radio control. For in the Far East [Cromer] it is only a few generations since the old means of flying were replaced by modem weapons, and familiarity in the handling of them by no means fell into disuse, but went on propagating itself, and has since been cultivated in ever widening circles. Might one not expect, therefore, a description of the special ways in which model flying is pursued to-day as a national sport in Britain?

“Nothing could be more mistaken than this expectation. By model flying in the traditional sense, which he esteems as an art and honours as a national heritage, the Briton does not understand a sport but, strange as this may sound at first, a religious ritual. And consequently, by the ‘art’ of model flying he does not mean the ability of the sportsman, which can be controlled, more or less, by bodily exercises, but an ability whose origin is to be sought in spiritual exercises and whose aim consists in hitting a spiritual goal, so that fundamentally the flyer aims at himself and may even succeed in hitting himself.

“This sounds puzzling, no doubt. ‘What’, the reader will say, ’Are we to believe that model flying, once practised [in full size] for the contest of life and death [see *End* below], ... has been degraded to a spiritual exercise? Of what use, then, are the model and radio control? Does not this deny the manly old art and honest meaning of model flying, and set up in its place something nebulous, if not positively fantastic?’.

“It must, however, be borne in mind that the peculiar spirit of this art, far from having to be infused back into the use of model and radio control in recent times, was always essentially bound up with them, and has emerged all the more forthrightly and convincingly now that it no longer has to prove itself in bloody contests. It is not true to say that the traditional technique of ... flying, since it is no longer of importance in fighting, has turned into a pleasant pastime and thereby been rendered innocuous. The ‘Great Doctrine’ of model flying tells us something very different. According to it, model flying is still a matter of life and death to the extent that it is a contest of the flyer with himself; and this kind of contest is not a paltry substitute, but the foundation of all contests outwardly directed—for instance with a bodily opponent. In this contest of the flyer with himself is revealed the secret essence of this art, and

instruction in it does not suppress anything essential by waiving the utilitarian ends to which the practice of knightly contests was put."

Later Herrigel says, 'The flyer [archer] ceases to be conscious of himself as the one who is engaged in hitting the pattern [bull's-eye] which confronts him. This state of unconscious is realized only when, completely empty and rid of the self, he becomes one with the perfecting of his technical skill, though there is in it something of a quite different order which cannot be attained by any progressive study of the art.'

End: a last thought. As the late, great football manager Bill Shankly might have said about flying, 'Some people think flying [football] is a matter of life and death. I assure you, it's much more important than that.'

Harrall memories: Navajo autopilot

My first job in civil aviation was flying Navajos and Chieftains from Norwich Airport in the late 1970s. The CAA required that you took type specific exams on the technical side of the aircraft and its systems.

I arrived at the examination centre in Redhill. Quietly confident that I had boned up on all the available tech books, I sat down and was presented with pages of multiple choice question papers. Amongst these was one paper dedicated to the autopilot. AUTOPILOT, we don't have autopilots in our aircraft, consequently I had no access to any autopilot literature.

The marking system was such that in order to pass the Technical Exam, a good standard was required in every subject.

Throughout its life the Navajo/Chieftain had had many different makes of autopilot and to cover this there were four separate question papers each covering one particular type.

At that time answer papers were marked by placing a marking template over them, so that cutout squares coincided with the correct answer tick box. My only hope of passing this particular subject was to assume that the same marking template would be used no matter which autopilot type was to be marked.

Usually one of the four suggested answers to each question is more obviously wrong than any of the others. I went through the same numbered question on each paper gradually whittling down to what appeared to be the less wrong answer for each.
Well it worked, I passed and our company never fitted autopilots.

Mike Harrall

Cartoon

With permission from RCSD

Health corner

As promised, no warnings this month. Enough already. Just a joke from The Burkiss Way (Radio 4 extra).
Doctor to patient - 'I think you are a hypochondriac'.

Patient - 'I haven't got hypochondria. It's the only disease I haven't got'.

Web sites to watch: full size electric

From Ian Ruston:
https://youtu.be/KJ_gGbd4ioA
https://youtu.be/Kb3OmhO7_ao

And from me:
An Israeli passenger aircraft:
https://www.eviation.co/

And an electric seaplane. Bail out well before you crash in the water or you'll be electrocuted. That was the advice given to the Solar Impulse pilots.
https://youtu.be/1-RJeg7D-Jo

Caption competition

Photo with permssion from RCSD

My first attempt: ‘He went on to eBay to buy aileron horns. The ones he found were too dear.’
You can do better. Entries to me by email please.

Sources: boxes and beasts

Small storage boxes

I use a lot of small plastic stacking boxes with hinged lids for storage (170 x 100 x 70 mm). I have found two good cheap sources for these – Lidl and IKEA. Lidl only has them occasionally so I buy them up when they appear. IKEA always has them online, called GLIS. They are £2.25 for three at https://www.ikea.com/gb/en/p/glis-box-with-lid-white-light-green-blue-80098583/

Beasts

Hobby King now has a Turnigy RotoMax electric motor with ‘the power of a 150cc gas [petrol] engine’, as used in large 3D models. It boasts 9800W (13HP), 190A and uses up to a 14S battery. It weighs 2.53kg so is lighter than petrol engines which appear to be around 4kg. Hey Mark, how about a ducted fan model with this beast in it? Blimey! One on each wheel would power a small car.

Sales

None this month. Time for a spring clean everybody.

Buffering on Hobby King

I have been getting cross with Hobby King's website lately. As soon as I start a search all I get is the buffering symbol, which goes on for ever.

However when, straight-away, I search the site on another, lower-powered computer running a version of linux called ubuntu instead of Windows (spit), it works normally. I am still using Windows 7 as I have tried 10 (spit spit) and find it awful. Maybe the bright young things who do the website at HK are now assuming that 7 is no longer in use as support has stopped. So if you have the same problem, try a different machine or operating system. Might work.

If you also are tired of Windows (spit) have a chat with me about upgrading to ubuntu or mint. I know about ubuntu and there is a club member who uses mint. I have forgotten whom though. You'll also get another ten years use out of your computer as both ubuntu and mint are very efficient and fast. You get a full office suite compatible with Microsoft's office software, a Firefox browser and the Thunderbird emailer built in and there is sound, image, drawing, photo and video editing software available for download. Oh yes, even better, they are all **free for ever**. Take a look at https://ubuntu.com/download. You can put ubuntu on a DVD or memory stick so you can try it out without installing it on your computer. Obviously it works more slowly doing it that way.

So, I hear you cry, why do I use Windows (spit) at all? It's because I use some software that only runs under Windows and for which there is no ubuntu equivalent e.g. flight simulators, Dreamweaver, Abbyy scanner software, Access, TomTom Home. The last one is ironic because the TomTom satnav software has linux at its heart.

February events

2nd Climb and Glide competition	11:00
15th Insiders at Stalham Sports Centre	**12:00 to 15:00**
16th Spot Landing competition	11:00