Airscrew

Facts, opinions, pictures and fun

September 2020

https://northreppsmfc.com/

To contact me, or to join the newsletter mailing list, send an email to peter@northreppsmfc.com

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Chairman’s chat (or as he likes to call it ‘waffle’)

A bit of a busy month was August. Sadly not much flying but when the opportunity was there we had someone able to take advantage.

We have had a gent by the name of John Mosley down from Yorkshire on his holidays. He and his wife, Jean, came and spent a day with us. The field was ticking over with full size so it gave him the chance to get to grips with our system. He fared well and we hope he enjoyed his experience.

The new caravan is moving onwards. We managed to seal the roof and above the front windows and we had Mark Jordan and Paul McLeod out on paint duty as we have to paint the caravan green at the request of the airfield. The old caravan was removed. Sadly it did cost us quite a bit to get rid of it but on the positive side it is cleared from the site and everyone is back to happy. The Solar panel should be reconnected by the time you are reading this so we should be back to as normal as we can be in current times. All we want now is for the winds to drop again.

Don't forget the online meetings, the next is on the 19th September. They are only as good as the people taking part and it is definitely a case of the more the merrier. Taking that to the next level come and take part and have a drink at the same time :) See you all soon and keep safe. Life is too short at the best of times :).

Dave

The Deere Hunter

Many of you, but not all, know how much time Dave spends mowing and caring for our runway. However what you might not know is that he also repairs and maintains the John Deere mower. Hence the battle allusion. He does this in return for our use of it. Without Dave doing that the club would have to buy its own mower. Dave has, over the last year, replaced a lot of parts on the mower. He has just fitted a completely new deck. Not only did he carry out all the work but he also spent time getting a brand new deck at a very, very good price. So warm thanks is due to Dave from everyone in the club.

The new caravan

Many thanks to everyone who helped to get the new caravan up and running. Dave Wilcox did a great job finding and getting it free. Mike Whiting found some very clever ways to waterproof it and Mark Jordan painted it to meet the rules of the airfield. Alex wired up the solar panel. And of course many thanks to the kind donor for giving it to us. Dave Fines’ mum was caught cleaning it on the 16th and would not be persuaded. At least she now has a large sofa to sit on.

Model of the month: Flitework Shiny

UFOs over Northrepps

Model of the month this month is the Flitework Shiny. Yes that really is what it’s called. Brian has flown one and from what he said it sounded fun so I bought one. It is loaded with LEDs inside the wings and fuselage. As dusk falls you move a switch on the fuselage and the whole model lights up. It takes a 2.2Ah 3S and the only other things you need are a transmitter and a four channel receiver. No rudder. I am going to try fitting an electronic light switch plugged into a receiver channel. Sadly this model is no longer made. I managed to track one down at modelbauuk.com, acompany that I have included in Sources.

Three pictures this month, a daytime one, the logo on the wing and one all lit up at night. Do try night flying. I am told it's great fun. With luck the EDP will have letters reporting UFOs.

Genius number twelve: bug busting

These are suggestions from Ray to stop annoying bugs landing on you when you are flying or even lying down in the sun. Ray also has a Tilley hat (see, Dave?) I saw him squirting stuff on it. It turned out to be Jungle Formula insect repellent. He reckons putting it on your hat keeps the bugs at bay. Then he mentioned that he was advised to take vitamin B when going to countries that have lots of the blighters. Apparently it gives your skin a smell that puts them off (B off!). I happen to know that too much will also turn your urine green. So if you also eat beetroot, and add red to it as well, you might finish up with ready made Guiness.

Staking our claims

The two fields to the right of the triangular copse already have names, based on who crashed there. The nearer one is Peter's Paddock and the next one is Paul's Pasture. I am pleased to announce new territory. The rough strip between our runway and the full-size runway 15 is now called Alex's Alley. To be fair he has never crashed there to cause damage but he impressively adopted it as a landing strip. We have now explained where the centre line of the runway is and he has decided to use that instead. Talking of empires, I remember a history exam answer that went, 'The sun never set on the British Empire because the Empire was in the east and the sun sets in the west.'

Bob's Tales: Inclusive tours and Scotland

After a couple of years of flying turboprops with Channel Airways I began to get a bit bored with it to be honest. We were flying the scheduled services during the day to Holland, Belgium, France, Paris. At night you were doing what we used to call the bucket and spade flights, which were the first inclusive tours flights that came about in the early sixties. That was where people would arrive by coach and straight on to the aircraft and we'd fly that coachload of people down to Majorca, Ibiza, Barcelona, Perpignan, Malaga and various other destinations through the small hours of the night. We would be taking off at about eight o'clock at night in the Viscounts or HS748s and flogging our way down through summer thunder storms to the Mediterranean. We had a radar of sorts but we are talking the sixties here and it wasn't very good, not like the modern ones. Quite often we would just turn down all the lights in the cockpit and just stare out of the window and look for the lightest bit of dark of the thunderstorm cells.

I remember one particular incident, hitting a cumulonimbus front over Limoges, down through France. We were thrown about so much we could barely read the instruments. We were both on the controls trying to keep the thing level. Height? Well you just ignored that. You could be up a thousand feet or down a thousand feet but just trying to maintain the attitude of the aircraft in a safe attitude was the main priority and letting ATC know your current altitude. It would only last for a few minutes and we would break out the other side but not a very pleasant few minutes!

That was what the job became. A bit like bus driving. I decided at that time that I wanted something a little more interesting and a bit more like the bush flying in Australia. There was a new company starting up in Scotland called Logan Air. They'd been going for about a year so I wrote to them and got a job with them. There were only six pilots at that time and four aircraft, two Islanders and two Aztecs. We had the first two Islanders off the production line. It was a new aircraft then so we ended up with all the teething problems that you get with a new aircraft in the initial stages.

We had two aircraft scheduled to fly every morning at eight o'clock departing Glasgow to Stornaway on the Isle of Harris in the Outer Hebrides, loaded with newspapers. Come rain or shine the newspapers had to get through so we flew in some pretty lousy weather. It was a single pilot operation. Sometimes it was nice to climb up through all the weather, get up above the weather, light my pipe, sit back and survey the world below me. At other times it was a case of gritting your teeth and charging through quite severe icing and turbulence. Mountain wave effect over Scotland in a small aircraft could be quite severe. One minute you could be indicating something like 130 knots indicated giving you maybe 180 knots true airspeed. Without touching anything suddenly your airspeed would be back to maybe 100 knots and still going down because you were trying to maintain height as you are now in a downdraught. Next minute you'd have an indicated 180 knots and going up at a thousand feet a minute. It was a case of telling air traffic control that you couldn't maintain your assigned altitude because you were IFR [Instrument Flight Rules] and just riding it out till you got clear.

Icing was quite a problem in winter in Scotland. We had de-icing boots on the leading edges of the wings and the leading edge of the tailpane and the fin. The source of their power was the pressure side of the vacuum pump. They inflated once you set them going. They were on a timer and they inflated at different times. There were three in each group on the leading edge of the wings. Two would inflate and the middle one wouldn't. Then the two would deflate and the middle one would inflate. The idea was to break off the ice, which it did if it wasn't too severe. The secret was that you let the ice build up before you switched on the de-icing boots because if you had them on as anti-icing equipment it didn't work because the ice would build up over the boots while they were moving. The same for the tailplane and the fin.

For the props on the DC3 we had alcohol, which we used to pump down each blade of each prop from a small dispenser near the hub. But on these aircraft we had electric mats on the leading edge of the props. As soon as the ice broke off, as with the DC3, you'd have this banging on the side of the cockpit, more so on the side of the nose with the Aztec. With the DC3 for example, as it threw the ice off it was hitting the side just behind the crew door. Watch a movie called 'Island in the Sky' which appears on TV regularly and in the first few minutes you will see a classic example of a DC3 icing up. If you look at any DC3 just behind the crew door, which is on the port side, but the same on the starboard side, you'll probably see a number of small dents, where the ice has been thrown off and hit the thin aluminium of the fuselage.

On the way back from Stornaway we'd bring back passengers and bales of tweed. Sometimes we'd fly back down the islands and perhaps land at Benbecula where we got involved with picking up army personnal and dropping off some freight and passengers. Then on to Tiree and Barra, landing on the beach at Barra, at low tide of course and Machrahanish which was the RAF station. We'd go to Mull each day in the summer months with tourists. On the island of Mull we used to land at a grass airstrip near the Glen Foster Hotel. We sometimes had to chase the sheep off by flying low over them. I believe they've now got a sealed strip there and operating scheduled services with a Twin Otter but I might be wrong.

We carried out medical flights to the islands when the BEA Heron was away or unserviceable. I remember one Medivac Flight that I did which involved landing on the beach at Barra way after I would normally, with the water almost to the high water mark. The doctor on board assured me that it was that serious. We ended up taking off in a curve around the high water mark in a cloud of spray just before the water got too deep. Unfortunately, the water and sand

clogged up the nosewheel micro switches and I could not raise it,so flew back to Glasgow with it down. The engineers were not too happy! I am happy to say that the patient survived and I flew him back to Barra sometime later. This time at low water!

Vickers Viscount

Islander

Hawker-Siddeley HS 748

Piper Aztec

Let me know

If you think anything that I have said in this, or any other, newsletter is technically wrong, please let me know. We all learn by sharing our experience and knowledge.

The kV mystery

Electricity is by its nature more complicated than liquid fuel. The latter simply has energy per litre or kilogram. Electricity has three quantities - voltage, current and resistance – all of which interact. These have been covered in several newsletter articles.

However from conversations on the field I think people are still not clear about one number they see in motor specifications. Yes, it's kV. Correctly used it means kilovolts, which probably accounts for some of the confusion, because it feels as though it ought to be to do with energy or power. It is not. kV has nothing to do with either.

It means the number of thousands (k) of revolutions per minute (rpm) that the motor naturally rotates at for each volt (V) you use to power it. It would be clearer if it was written k/V.

An example will help.

We have an electric motor with a rating of 1200 kV.
On a fully charged 3S battery of about 12.6 V this turns at 12.6 x 1200 = 15120 rpm
On a 4S of 16.8 V this changes to 16.8 x 1200 = 20160 rpm
On a 6S of 25.2 V it's 30240 rpm!

So what's the message?
Motors with a high kV rating are intended for lower voltage batteries with fewer cells.

And what's another message?
If you are using batteries with a high cell count and voltage, use a motor with a kV in the low hundreds.

And what's the final message?
If you decide to power a motor with a higher voltage battery, say going from 3S to 4S, fit a smaller propellor. Then the motor can turn at a higher speed. If you don't, you will at best just waste energy into heat, and at worst burn out the motor or ESC.

Techie corner: ToolkitRC ST8 servo tester part two

None of this will make any sense unless you have read part one from last month.

PS/PC/PE positions

When you select KEY as the INPUT you can then scroll using OK to the the three values stored in PS, PC and PE. These can be used to measure the time a servo takes to move from one position to the next. Normally they would be left as 1000, 1500 and 2000 µs as these values give full 60º deflections.

Set **KEY** as the Input for S1 and set S2 to S4 to use the settings for S1.
Press **EXIT** to get the main screen.
Turn **OK** to move down to PS.
Press **OK**.
The servo jumps to a the extreme low position (1000 us).
Turn **OK** to move down to PC.
Press **OK**.

The servo jumps to the central position.
The time it took in milliseconds (ms) is displayed under Speed at the bottom.
Move to PE and test again.
You can jump between the **KEY** positions and see the times displayed.

I did this with the original four servos and found, unsurprisingly, that they were different. What was a surprise was that the times varied for each servo without any apparent pattern. The servo with the least variation was the cheapest one. The two digital (D) ones were worse than the analogue (A) ones. Variations were (%) 32, 95, 79, 68 (A, D, D, A). Perhaps it is to do with the order in which the PWM pulses were sent to the servos.

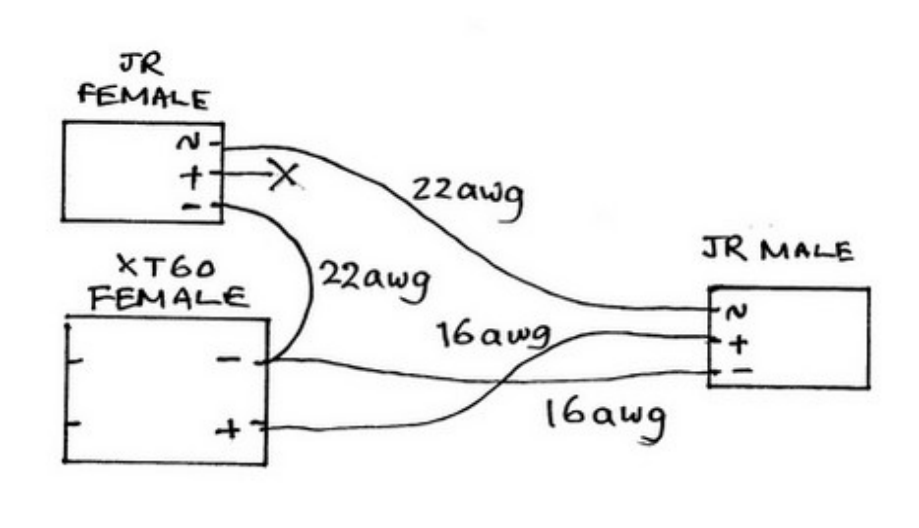
Then I tested the fastest servo I had, a coreless Aerostar ASI-621MG. I hoped it wouldn't blow up the tester. The speed averaged 0.16 s for a 60º swing, which was very close to the specified speed of 0.152 s at 4.8 V. The variation was way better at 8%. Current was about 2.6 A.

My final test was to see how much the same model of servo varied. I used four brand new Tower Pro SG90 9 g ones. One didn't work at all, which was worth knowing. It went in the bin. The others showed quite a range of variation, perhaps not surprising as they are cheap. But it does show the wisdom of matching up pairs of similar servos.

High power servos

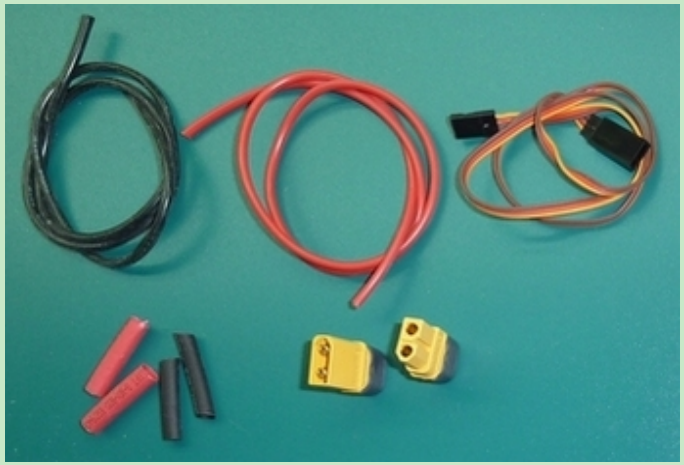
For high power servos try a slow deflection first. If it is clear that more than 2000 mA are needed then make up a lead.

Wiring diagram for the lead

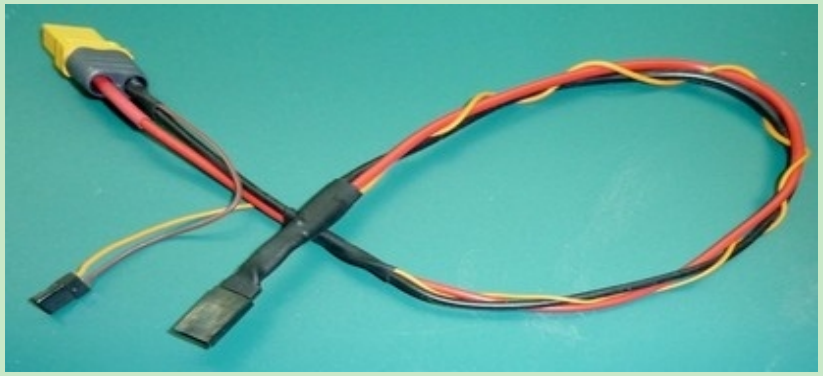


The bits you need

A 500 mm 22 awg servo extension, 500 mm each of red and black 16 awg silicone covered wire, an XT60 female connector and various bits of heat shrink. Which is the redundant part in the picture below? Note the use of male and female correctly refers to the metal parts, not the outside case as some non-electrically-knowledgeable people use to confuse us. Or perhaps it's so we buy the wrong thing and have to place another order?



Complete



Note that you need to mark which side of the JR plug is the signal pin. I had to alter the above lead to show that. I checked the cable for continuity and shorts with a multimeter and then it was time to try it out.

Plugged in

I decided to try this out with the Aerostar ASI-621MG servo.
The first step was to turn on the **OUTPUT** socket.
I went into Setup and switched the socket on at 5 V.
I plugged the servo in using the lead I had made.
It worked.
I used the speed test as above and got the same results for timing.
I did not get any useful data for current though, as it showed about 450.

This arrangement is useful for when the servo shows a current significantly more than 2000 mA on the normal test. It allows you to test servo speeds safely. It shows you that you need a bigger BEC or a power box. But it does not tell you the current drawn.

Taking signals from a receiver

I decided to send a standard PWM throttle signal from a FrSky X8R receiver throttle channel 1. I chose this channel because the transmitter throttle stick isn't spring loaded so I can set it to a value whilst I study it. The receiver was connected to a battery so I used a signal lead with the red wire removed (yellow and black in the picture).

This how it looked:

It worked, once I set S5 to PWM rather that the default S.BUS. As I moved the throttle stick the servo moved and the vertical signal bars scudded across the screen. However apart from finding the exact values of throttle maximum and minimum signals I don't think I learned anything new.

Using the screen

In the manual there are pictures of servo signals expanded on the screen. I was hoping that I could find a way to do it, but failed. Perhaps it's a software version problem? None of the youtube videos covered it either, but then they usually aren't a great deal of help anyway.

A version (not aversion)

Any techie will tell you that version 1 of any software or hardware is never properly finished. Usually, neither are versions 2, 3, 4, etc. Way, way back, the BBC very cleverly named the operating system for its first model B computer 'version 0.9'. When the bugs had been ironed out they released version 1.0. The OS was burned into a erasable read only memory chip (EEPROM). Back then computer enthusiasts knew how to rewrite the chip when the new version came out. Apart from those from Apple, which had already started to lock up its products, computers were open for people to change.

So I imagine, and hope, that when the updated ST8 operating system version 1.1 appears my criticisms, limited though they are, will be sorted out.

Using the FrSky Taranis X9D transmitter with a flight simulator

My thanks to Keith Eldred for this method.

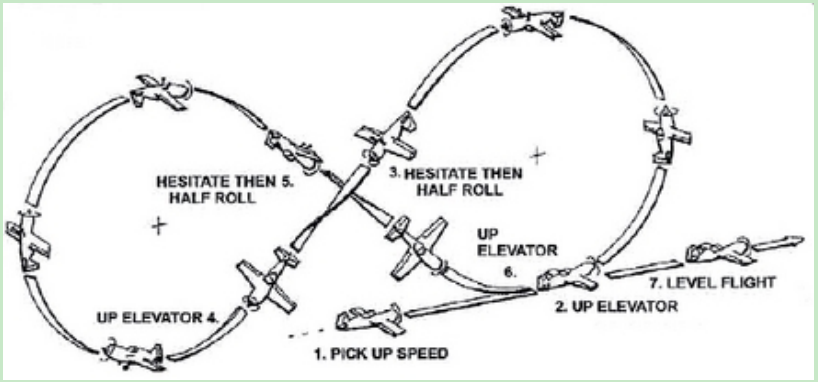
This will not tell you how to set up for a particular simulator (RealFlight etc). It will tell you how to change the channels to match what the sim expects. Let the model sit on the runway, then move one stick at a time to see what each stick movement does to the model. That way you will be able to see what needs changing.

Create a new model, calling it after the sim you are using.
Move to the MIXER page using PAGE.

To change a channel:
Use the – button to move to the channel you want to change, for example Ele.
Hold down ENT.
Press ENT to select Edit.
Move down to Source using the – button.
Press ENT to select it for edit. It will flash.
Move the stick you want for this channel, for example Rud.
The characters will change to the required stick in this case Rud.
Press ENT to fix it to the new value. It stops flashing.
Press EXIT twice.
Using the + or – button, move to the next channel you want to assign.

Manoeuvre of the month:The Cuban Eight

"The model picks up speed, and from level flight pulls up and executes five-eighths of an inside loop. When at 45 degrees, the model hesitates, performs a half roll, hesitates, executes three-quarters of an inside loop, when at 45 degrees hesitates, does a half roll, hesitates, pulls up and recovers to level flight. (Used by permission from the AM A rule book.) If this sounds confusing (it does), look at the illustration.



The Cuban Eight is a maneuver you will certainly want to keep in your bag of tricks. It is easy to perform and spectacular when well done. Good luck!

From RCSD December 1997 with permission

Competitions

The results to date are of course on the club website. However at the moment not the Climb and Glide Handicap. The new scoring system seems to be working so I have added the results here as well:

Climb and Glide

Mike Whiting	110
Mark Jordan	80
Alex Steele	50

Climb and Glide Handicap

Dave Fines	30
Keith Eldred	19
Mark Jordan	10

Spot Landing

Mark Jordan	95
Mike Whiting	50
Dave Fines	25

Airspeed indicator

Those of you unfortunate enough not to be using FrSky will not have an ASI available as part of your telemetry. I have fitted one to a Bixler and will be experimenting with the practicalities of the fast/ slow competition mentioned last month – next item.

New competition: Dash and dawdle

This is the first draft of a new club competition. As always the aims are having fun, improving flying skill and having a chance to heckle (Mark). Please let me have your comments and suggestions. We will have a trial run on a competition day as soon as I can get some long bamboo canes for the posts and an auger to sink them in.

The aim is to fly the same model twice over a straight course of about 100 metres (220 cubits). The first flight will be at maximum speed and the second at minimum. Each flight will be timed and the lower subtracted from the higher. The winner has the biggest difference.

Rules

1 Flights will only be made downwind or crosswind as some models can hover into a headwind.
2 The course will be marked by two vertical posts set about 100 metres apart.
3 Timing will be done by two marshalls, each seated next to one of the posts. Competitors may act as marshalls if necessary.
4 Two rounds will be flown in each session.

Procedure

1 One pilot flies at a time.
2 Only one attempt may be made at the fast and the slow passes and both must be in one shortish flight. The fast attempt must be made first.
3 The pilot announces an attempt by shouting ‘Time please!’
4 The pilot then flies roughly in level flight and low enough that marshalls can line the model up with the post.
5 The first marshall signals when the model’s nose passes the post using a flag, whistle or light.
6 The second marshall starts a stop watch at the first signal and stops it when the model’s nose passes the second post.
7 The judge calculates the the time differences and places the pilots in order.

Models

To make it an open but fair competition any model may be used that is:
1 Not designed to hover under power.
2 Fixed wing.
3 Not designed specifically for high speed flight e.g. high powered delta.
Flaps may be used. A Bixler or an Acrowot foam-e could be a good choice for this competition.

The judge’s decision will be final over the acceptibility of a model.

Climb and Glide feedback

We had a chat about the 2021 version during the skype call on the 21st. We couldn’t see how we could police the present set of models and motors to avoid unfair advantage in the climb. Dave suggested we should switch to the smallest Phoenix, the 1.6 m one. This is sold by Hobby King and by others, and is low priced. He did suggest that the wing servos were a bit flimsy and might be replaced. That is the most promising suggestion so far but if anyone else has an alternative please let me know.

Joke of the month: Translation of August's cockney rhyming slang.

So I can get out of me drum (drum head), come down the apples (and pears), put on me titfer (tat) and take a ball (of chalk) down the frog (and toad) with me trouble (and strife).

So I can get of bed, come down the stairs, put on my hat and take a walk down the road with my wife.

Incidentally some cockney slang has crept into normal English without the users knowing what it means. It is best not to use it in East London for fear of 'two lovely black eyes'. I am too polite to explain the rhyming words. I am sure you can work them out.

Lose your bottle (bottle and glass). Brown trousers resulting from terror. Some say 'to bottle it' which has no meaning at all.
Berk from Berkshire hunt.
Wally from the cockney name for a gherkin, with its reminiscent shape.
Cobblers from cobblers awls.

So don't say that someone is a berk or a wally talking cobblers or you might have a barney (rubble) that will cause you to lose your bottle.

Spot the fault: Answer to puzzle from August

Analysis

The clue is in the kV rating (see above). 1200 is quite high so when moving to a higher voltage it is quite possible that the motor cannot turn fast enough with the original propellor. This will raise the current draw and drain the batteries rapidly, especially as two in parallel effectively doubles the C rating and halves the effective internal resistance.

Solution

The flyer simply tried a smaller prop, moving from an 11 x 6 to a 10 x 5. A meter was used to measure the current, which dropped to two-thirds of what it was and the flight time more than doubled. Most likely the life expectancy of the ESC and motor will have increased too.

Back numbers of the newsletter

For club members these are available on the club website. Non-members need to go to my website at peterscott.website/flying. On it you will also find a lot of articles about flying that have not been published in newsletters.

Sources

Lidl

Lidl sells some great stuff for modellers, including Baufix thinner and small clamps, tools like pedestal drills, bench sanders, bandsaws and soldering stations, shorts with loads of pockets, and Dremel-type grinding, drilling and cutting tools. And lots more.

It is important that if you see it you buy it. Things sell out quickly and might not be there again for a few months or even years. Leave some for me though. You **must** walk **past** the caramel waffles though. They are at the far end of the bakery gondola. Remember my health warnings about those evil things in the October 2019 newsletter.

ModelbauUK

I wanted a Flitework Shiny but they apeared to be sold out everywhere. However I happened upon a supplier, ModelbauUK, that was new to me and had one in stock. It was at a lower price than listed elsewhere. Ordering was simple, delivery was speedy and communication from the company was excellent. They answer emails! So it is definitely worth adding them to your list of possible suppliers. https://themodelshop.net/

Sport corner and cartoon of the month

Sport corner started last month by accident but let's run with it for a while (geddit?) or at least this issue. I heard on the radio that the FIFA official, Gianni Infantino, appointed to clean up the organisation, is now himself under investigation. You couldn't make it up. Anyway it reminded me of a cartoon that I saw several years ago when it was the Bug Blatterbeast of Trall and his mates who were under investigation (Hitchhiker's Guide to the Galaxy, if you were trying to place it). So here it is.

Let us hope the beautiful game will soon be better managed internationally. What's that in the sky, Skippy? Is it a Gloster Meteor? No it's a Gloucester Old Spot. At least the result of the 2020 FA Cup was as it should be. Yet another Cup Final match programme to go in my collection. Or maybe there won't be one this year. What is it now? Oh yes, number fourteen. Ten percent of ALL cup finals ever.

Being sensible people I am sure that you are all football fans. If so let me tell you about the best football programme that is broadcast. You might have missed it because it is on BBC Radio5 Live on Tuesday mornings from 2 – 4 am. You can of course hear it on Sounds at any time. It's part of Up All Night and called World Football Phone-in. People from all over the world telephone with comments and questions. The people who answer and talk are legendary. The well-informed and witty Dotun Adebayo runs it and Tim Vickery, a Brit who has lived most of his life in South America, is is nearly always on it. His knowledge of world, and especially Latin American, football is breathtaking. Give him a player's name and he'll reel off the clubs he has played for and his strength and weaknesses. Regular contributors are given Brazilian shirt names. Tim's is Legendinho but he is also known as Vikipedia.

The very best shows are when Mina Rzouki is also on. Her intelligence and her knowledge of European football is outstanding. There is also a chemistry that is tangible. As you see from the picture she is beautiful, which is not surprising as she lives in Italy. When she announced one night that she was visiting England, Dotun and Tim were verbally climbing up each other's backs to take her out to dinner. I think Tim was prepared to fly over from Rio. My only reservation about Tim is that he is a Spurs supporter (sorry Alex but there it is). A caller asked recently, 'In a match where you don't support one of the teams, how do you decide which team to cheer for?' Both Tim and Mina said they would want

them both to win. Then Tim said, ‘Unless it’s a cup final between Arsenal and Chelsea, then I want everyone to lose.’ I was horrified to learn that Mina has taken verbal abuse from some dinosaurs who think a woman shouldn’t be involved with football. Oh yes, Dotun supports Charlton Athletic. Silence.

Dotun

Tim

And Mina

Sales

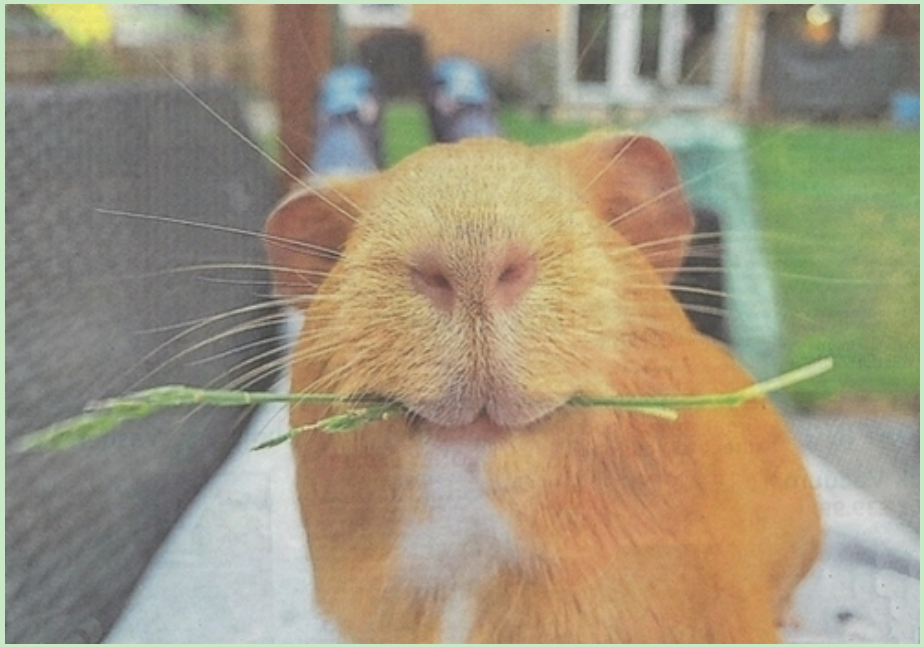
A brand new, never been out of the box except to photograph, Yak54 ARTF. This is a kit intended for electric use. It has a 49” wingspan. This is the sale of an airframe only and will require further items to complete and fly. It will require servos, motor, ESC, prop, battery along with your own choice of TX and Rx. £60
Contact: Ray Westfield 01692 405416

Other pictures on the club website.

There are also some remaining items for sale on our General Sales page - an OS61 MAX FX engine and a couple of models.

And finally…

Normally I find sloppy pet pictures nauseating. However this picture of Harvey the hamster from the August 30th EDP cannot be ignored (ignawed). Does it remind you of anyone? Suggestions to me.



There was a Private Eye front page once with John Aspinall at his private zoo looking into the open mouth of a tiger. The speech bubble read, ‘Are you alright in there, Lucky?’ For the younger ones, look up ‘Lucky Lucan’.
https://en.wikipedia.org/wiki/John_Bingham,_7th_Earl_of_Lucan