

Newsletter

January 2017

Happy New Year to you all. Hope you all had a really good Christmas. We spent most of ours down in Shropshire with family. My wife's daughter came over from Australia which was a very nice surprise for her them all.

Being a decrepit old git, I have been enjoying sleepless nights due to 'knee problems'. I'm actually having to get around on crutches and they're now giving me the highest strength pain patches. Ah the joys of getting old!

Last time I saw a model aircraft actually fly was just before Christmas at the indoor. This is Justin's evil looking model he bought on EBay. Accepting that Justin is a very good pilot, the model was nevertheless impressive in his hands. I think he said it cost him £25 - good value!

You probably get sick of hearing me say this, but indoor flying is such fun and you have to be lightning fast on the sticks - there really is no room for error.

I've got the drawings ready now to build a scale SE5A (600mm span for indoor) - it should look quite pretty in the air and will be satisfying to build.

My knee is going to have to get better first before I am able to venture back down to my cellar where I build models.



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I think this is one of Jake's models - I love that swanky rudder.

Jason showing the sort of damage you get when someone cuts into your model with his propellor.



The same model taken minutes later after having a bit of clear tape repairing the cut in the fuselage - as you can see, it flew perfectly well after that repair.



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This year's AGM was held at the Marton Institute. The following members were elected for the committee for 2017.

Paul Cusworth	Chairman
Jason Reid	Vice Chairman & Safety Officer
Mark Conlin	Treasurer
Andy Harrison	Membership Secretary
Peter Cathrow	Secretary
Pete Eyres	Committee Member
Justin Goldstone	Committee Member
John Prothero	Committee Member
Steve Warburton	Committee Member
Allan Bates	Committee Member

The new Club fees are now fixed at :-

Club Subs for any returning Senior member before or on 31st January £80.00

Club Subs for any returning Senior member after 31st January £100.00

Club Subs for Junior or Social members £22.00

BMFA Fees 2017:

Seniors £33.00 Juniors £17.00 Family Senior £33.00

Family Partner £22.00 Family Junior £13.00

Payments should be made to B&FRCMS and sent to :-

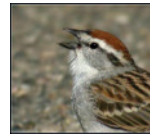
Andy Harrison, 28 Grenville Avenue, St Annes, Lancs, FY8 2RR

At our first committee meeting of the year, Allan Bates offered to take on the role of Events and Public Relations.



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A VIEW FROM THE HEDGE. (By Will Sparrow)



Well, the solstice is well behind us, Christmas, and all your lovely, aeroplane-related presents, are but a distant memory and it's much too late for me to wish you all Season's Tweetings (but I'll do it anyway!). The hedge AGM had a good turn-out of sparrows and our annual quiz (who on earth can remember the name of the first sparrow to fly to the Isle of Man?) and berry feast was a great success. Yes, the days are lengthening, and all those winter projects, that you've spent weeks applying the stickers to, are itching to be flown: the new flying season is just around the corner. I, for one, can't wait!

You have some stalwarts in your club who can't wait for the new flying season to start. Such a designation is meaningless to them because they fly all year round. As long as the day is suitable – and there are lots of stunning flying days, even in the depths of winter – these hardy chaps are ever-willing to provide us twig-sitters with something interesting to view. So it was on the day of the New Year bank holiday Monday. Bright and early, vehicles started to arrive. Imagine my disappointment when they turned out to be a posse of shooterists and not modellers! A few of us, just the other day in fact, had been chatting to one of the local pheasants, Kevin by name, and he told us that one of their number, renowned for his psychic insights, had had a premonition of impending doom. By all accounts, the doom (whatever its nature) was to descend on the pheasants on the second day of January... unless the pheasants vacated the area in time. As you can imagine, this caused much consternation in the pheasant community: it was decided to hold a referendum. The "leavers" won a decisive victory over the "remainers". Glancing over my shoulder from my viewing twig I could see no pheasants on this fine winter morn... and then I spotted just a couple in the field to the east of the hedge – it seemed that at least two "remainers" had decided to remain! Twenty minutes later, two loud bangs announced the score line "shooterist 2, remainers 0". Did no modellers turn up to take advantage of a beautiful bright day with no wind and a clear sky, (you may be wondering)? Well yes, just one! He had half a dozen really nice flights and went home happy.

I always think that once we are the other side of the New Year then we can all really start to look forward. It isn't long before we begin to notice that the days are, indeed, becoming longer and everywhere green shoots are starting to appear, buds are swelling at the prospect of an early spring and even some from the avian community are starting to get a bit of a twinkle in the eye! (My mother once told me that I was once just a twinkle in my father's eye – Jim Sparrow). So, if you are gifted a nice day, seize the moment, you really don't have to wait until your twitter feed tells you that it's safe to put down your little screen, lever yourself off the sofa and enjoy all that the real outdoors has to offer.

WS

The Awards for 2016

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Steve Warburton receives the 'Most improved flyer award'



The Aerobatic Trophy being awarded to Allan Bates



Jason here being awarded the Jet Trophy



Thanks to Mark Conlin for the photos



Important Information for A Cert Candidates

January 2017

Dave asked me to remind 'A' certificate candidates that examiners now have to include the 'Mandatory Questions as part of the test.

Examiners will only be asking **five** of these questions but that is of course up to the examiner to decide which of those questions to ask! Refresh your memories:-

Mandatory Questions

*****"From August 25th 2016 the Air Navigation Order will be updated, the changes that affect us are minor and consist of changes to the article numbers, to reflect these changes the list of mandatory questions has been modified, specifically questions 3, 4, 8, 9, 10, 11, 12, 14, 15 and 16, please see below. "*****

From April 2016 it is a requirement of all tests (excluding C certificate tests) that candidates must answer correctly 5 questions taken from the list of mandatory questions based on legal aspects of model aircraft flying. The examiner should only ask 5 questions and if the candidate does not know the answer to any question the test must be considered as a fail. BMFA, the examiner will then proceed to ask a minimum of 5 (A tests) or 8 (B tests) questions based on the BMFA Safety Codes for General Flying and local flying rules and for the 'B' certificate the 'Safety Code for Model Flying Displays'.

The examiner should indicate on the test form which questions have been asked.

It is expected that examiners will select questions that are appropriate to the test being taken, however candidates should familiarise themselves with all of the questions on the list. Candidates are not expected to be "word perfect" with their answers but they should be able to demonstrate that they are fully aware of the legal controls for model aircraft flying. For example if a candidate gives the answer to Question 4 (What does article 241 of the ANO state?) when asked Question 3 (What does article 140 of the ANO state?) it is likely they are aware of both answers and the examiner should point out they have answered the wrong question and ask for the correct answer.

Mandatory Question List

Q(1) Who Regulates all civil flying activities over the United Kingdom, including model aircraft ?

The Civil Aviation Authority

Q(2) How are the rules and regulations for flying established in law by Parliament (statute) ?



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As a series of Articles contained within in the Air Navigation Order (ANO).

Q(3) What does Article 240 (previously 137) of the ANO state ?

'A person must not recklessly or negligently act in a manner likely to endanger an aircraft, or any person in an aircraft.'

Q(4) What does Article 241 (previously 138) of the ANO state ?

'A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property.'

Q(5) Who is legally responsible to ensure that a model is flown safely ?

The pilot in command

Q (6) Which Civil Aviation Publication (CAP) relates specifically to the use of model aircraft, and for which specific purposes only ?

CAP 658, for sport and recreation purposes only

Q(7) According to CAP 658, which model aircraft are required to have an operating failsafe and what is the minimum setting ?

- Any aircraft over 7kg
- Any Gas Turbine powered aircraft
- Any powered model aircraft fitted with a receiver capable of operating in failsafe mode

As a minimum, reduce the engine(s) speed to idle on loss or corruption of signal.

Q(8) What does Article 94 (previously 166) of the ANO say about the responsibilities of the person in charge of a small unmanned aircraft ?

The person in charge of a small unmanned aircraft may only fly the aircraft if reasonably satisfied that the flight can safely be made.

Q(9) What does Article 94 (previously 166) of the ANO say about visual contact with small unmanned aircraft ?

The person in charge must maintain direct, unaided visual contact with the aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions.

Q(10) What does Article 94 (previously 166) of the ANO say about small unmanned aircraft above 7kg ?



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The person in charge of a small unmanned aircraft which has a mass of more than 7 kg must only fly the aircraft:

- Clear of controlled airspace unless with Air Traffic Control (ATC) permission.
- Clear of any Aerodrome Traffic Zone (ATZ) unless with ATC permission.
- At less than 400 ft above the point of launch except with permission as above.

Q(11) What does Article 94 (previously 166) of the ANO say about 'commercial operation' (previously referred to as 'aerial work') for small unmanned aircraft ?

The person in charge of a small unmanned aircraft must not fly the aircraft for the purposes of commercial operation except in accordance with a permission granted by the CAA.

Q(12) How is a flight for the purpose of 'commercial operation' (previously referred to as 'aerial work') defined ?

Any flight for which 'valuable consideration' is given or promised in respect of the flight or the purpose of the flight. Essentially any operation of an aircraft in return for remuneration or other valuable consideration.

Q(13) How is 'a small unmanned surveillance aircraft' defined ?

An aircraft which is equipped to undertake any form of surveillance or data acquisition.(this includes all camera equipped aircraft)

NOTE: The provision of data solely for the use of monitoring the model is not considered to be applicable to the meaning of 'surveillance or data acquisition'.

Q(14) What are the separation requirements of Article 95 (previously 167) – for small unmanned surveillance aircraft – when operating over or within a congested area or organised open-air assembly of more than 1,000 persons ?

The aircraft must not fly over or within 150 metres of a congested area or organised open-air assembly of more than 1,000 persons

Q(15) What are the separation requirements of Article 95 (previously 167) – for small unmanned surveillance aircraft – in respect of any vessel, vehicle or structure which is not under the control of the person in charge of the aircraft ?

The aircraft must not fly within 50 metres of any vessel, vehicle or structure not under the control of the person in charge of the aircraft.



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Q(16) Except during take-off and landing, what are the separation requirements of Article 95 (previously 167) – for small unmanned surveillance aircraft – excluding the person in charge of the aircraft or anyone under their control ?

The aircraft must not fly within 50 metres of any person

Q(17) What must be obtained before any flight within controlled airspace or an ATZ of an aircraft over 7kg?

Obtain permission from the appropriate air traffic control unit.

Q(18) CAA General Exemption E 4049 – permits FPV flight without a buddy box, but with a competent observer. (a) How must the competent observer monitor the flight and (b) What is the maximum mass of aircraft that may be flown under this exemption?

- (a) The competent observer must maintain direct unaided visual contact with the model at all times
- (b) The aircraft must be below 3.5kg including batteries and fuel

Q(19) Who has legal responsibility for the safety of an FPV flight a) conducted with a buddy box lead and b) conducted without a buddy box lead ?

- (a) The person in charge who must maintain direct unaided visual contact with the model at all times
- (b) The person piloting the aircraft (SUA)

Q(20) According to CAP 658 what are the 8 'Only fly if' checks for an FPV flight of an aircraft over 3.5kg ?

- The activity is solely for 'sport and recreation' purposes;
- Two pilots take part;
- A Buddy Box system is employed;
- The person in charge operates the master transmitter;
- The person in charge does not wear the headset or view a screen;
- The aircraft remains within the natural unaided visual range of the person in charge;
- Reliable operation of the Buddy Box is established; and
- A clear handover protocol is established.



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TX Setup - 6

Article by Brian Holdsworth

The basic configuration uses channels 1 to 4, controlled by aileron, elevator, throttle, rudder sticks (or throttle, aileron, elevator, rudder for Spektrum/JR etc.). Dual aileron wing types control channel 6 (or 5) as a second aileron channel with, optionally, channel 5 (or 6) as a flap channel. Other wing /tail types may define other channels to operate additional ailerons, flaps, elevators, rudders etc. Channels not controlled by these options are considered to be spare.

Switched channels may be used for a variety of purposes such as retractable undercarriages or more exotic function such as smoke or switched lights. They may also be used to drive the flaps with two/three positions where the middle position would be used for part flap; the servo throws are then set as required with no flap at one extreme and full flap at the other.

These spare channels may be defined by selecting the appropriate menu option and allocating a suitable switch (or knob/slider), with the resultant servo direction adjusted via the "Reverse" option and movement adjusted via "Servo Throw" as for the channels controlled by the sticks. A "Channel Input" etc. option may be available which allows channels to be allocated to a stick or switch. Alternatively, the option may be identified as "Aux Chan", "Ch 5 and Ch 6 Set" or similar but some sets are more obscure, hiding the option under headings such as "Params". It may take some finding - some seem to document no provision limiting their usage! Some default to use a pre-defined switch, which must be set to none if the channel is required for other purposes - somewhat limiting if this switch cannot be changed! Where a three-position switch is selected, the middle position is normally fixed at centre; subtrim may be used to alter this over a limited range, which will also change the other positions.

Some sets have an airbrake option to control flaps, and sometimes flaperons, with elevator compensation but only allowing two positions (one adjustable) even if a three position switch is selected or pre-defined. To implement three flap positions, the flap channel may be controlled as a switched channel by the three position switch selected for the airbrake - the flap setting in the airbrake option should be left at zero. Flaperon setting would be available at full flap selection which is generally the only useful position. Elevator compensation would be available through the airbrake setting (or a separate menu option using the same switch) at full flap. If compensation is required at part flap, this may be achieved using a free mixer, enabled by the airbrake switch.



TX Setup - 6 Continued/...

January 2017

Article by Brian Holdsworth

Mixers are accessed by menu options, generally with a descriptive title such as "Free" or "Programmable" mixers, with the values displayed in a sub-menu entry for the selected mixer. The manuals are generally poor with many failing to even describe the basic setting-up, let alone any usage so that experimentation may be the only practicable method of identifying available options and any limitations. Some sets such as the FrSky Taranis with its free OpenTX software use mixers for everything with not even the basic configuration defaulted; while this has the potential to be very flexible allowing many interactions, the practical benefits would seem somewhat limited for the considerable complexity and users would need to maintain notes of the chosen options to avoid confusion and unwanted interactions, especially when making adjustments at the flying field.

Some sets, such as Hitec, have virtual channels which may be driven by a stick, switch, knob/slider or even a mixer which can allow relatively complex control options by using the virtual channel as the source to a mixer without needing an otherwise unused servo channel. The manual descriptions are minimal but possible uses will be outlined later.

Often, an inhibit ("INH") item needs to be toggled to enable the mix and allow values to be changed. The controlling source and the controlled destination servo channel ("Master" and "Slave", "N > N" etc) are set along with the percentage mixing value for each control direction which defines the amount of coupling proportional to stick movement, so that setting 50% mix would produce half movement at full stick and proportionally less for lower stick movements. An "Offset" value is usually available to change the centre reference for the mixing values. A switch ("Ctrl", "Switch" etc) controls the mix active status; some sets allow it to be always active or the switch meanings can often be set to achieve the same effect.

The source may be defined as Aileron, Elevator, Throttle, Rudder together with Flap and Gear but this convention presents obvious problems for more than six channels and can be confusing; many use the servo channel number. Where dual servos are used the resultant coupling is determined by the specified channel; for example, dual ailerons via channels 1 and 6 would link aileron input if channel 1 is specified and flaps for channel 6. The input to the mixer is generally (?!) modified by any active rates and/or exponential, or a throttle curve. A separate option in the sub-menu may be available to include/exclude trim changes or the trim may or may not be included, sometimes contradicting the manual!



TX Setup - 6 Continued/...

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Article by Brian Holdsworth

The destination is generally defined by its channel number with the output becoming the sum of its active sources - stick, mixers etc. In some cases, only the designated channel will be affected or, for dualled servos such as flaperons, V-Tail or elevon, the effect may depend upon which channel was selected as for the source above, described by Spektrum/JR as "Back Mixing", but some implement with no mention in the manual!

The mixing value as a percentage of the input is set for each controlling direction which is produced by stick input or switched channel selection. The value may be positive or negative as required, and identifying the required sense is easiest by experiment - try one and, if not appropriate, use the other! Where a Servo Monitor option is available, this may be more convenient (and safer!) than using the model; the displayed servo movement may be difficult to relate to the control surface direction, but moving the controlling stick and observing the display change is a simple technique. Usually, only small mixing values will be required so that 5 to 10% may be a reasonable starting point, with flight tests used to refine the values - even if not otherwise required, using a switch would allow the effects with/without the mixer to be observed easing the estimation of the required mix values in flight.

Setting the offset value moves the centre reference for the mixer and is rarely used. When defaulted to zero, no mix is generated at stick centre with the mix increasing as the stick is moved to its limits. Setting 10% offset, for example, would mean that no mix would be produced with the stick at 10% from its centre; the mix output is proportional to the stick movement so that nearly 10% of the full mix would be produced at stick centre. The option is selected and a value entered as required. Sometimes, the value is set by moving the stick to the required position and pressing the enter button; such settings are rarely visible in the menu entry making small adjustments awkward.

Sometimes, "Curve" mixers are available which can provide considerable flexibility by allowing differing sensitivities through the stick movement range, effectively changing gear. Setting up can be awkward due to the difficulty of observing the effects upon the model flight; the small adjustments likely to be needed can be difficult to make. Perhaps inevitably, manual descriptions are poor so that experimentation is likely to be needed! These mixers allow a different mixing value to be defined for each of several stick positions so that the mix varies linearly between them. There may be a fixed number of points with pre-defined stick positions, or up to the maximum number allowed can be set as required.

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TX Setup - 6 Continued/...

Article by Brian Holdsworth

Each position can have any mix percentage value so that a complex shape may be defined. An option ("EXP" or similar) can be set to smooth the values into a curve to avoid steps. The setting procedure is usually similar to that for the "Throttle Curve" option where available. These mixers may be used as for the other linear mixers by setting the point values as required; no Offset is available but an equivalent response may be achieved where user-specified points are available.





List of our instructors.

January 2017

Jason Reid, John Higgins, Chris Vernon, Brian Holdsworth, Jim Sheldon, Paul Cusworth, Andy Harrison, Lee Connor, Justin Goldstone & John Prothero.

Social Calendar for 2016/17

2017 Social Evenings - Marton Institute, Oxford Square, Blackpool

8 th February	Flight Simulator Night
1 st March	Guest Speaker
12 th April	Mystery Night
3 rd May	Open Forum and Safety Talk

In the last newsletter you will see that I appealed to members for any ideas as to what they would like us to do on our social evenings. I received not one single response to this appeal.

The meetings are not well attended which is disappointing, after all, the Club pays money to hire the hall each month.

We have to carefully consider that if the attendances remain poor and we receive no responses from yourselves as to what activities you want to do, we may have to cease having these Social evenings.

In the meantime I thank our contributors again the month, Mark Conlin for his AGM award photos Will Sparrow and Brian Holdsworth.

It may be cold and a bit wet but there is good flying to be had at the field - there are some really calm days - enjoy.