



# WMF

## Safety Rules & Procedures

This document is required by the Constitution of the Club and is to be fully adhered to by all members.

Flying model aircraft safely is largely a matter of common sense. The British Model Flying Association (BMFA) approach to the subject is **'Safe Flying is no Accident'**.

Members are responsible for their own safety, all other members and members of the public at all times. Each and every member is responsible for pointing out any unsafe acts or breaches of the rules to individuals and reporting such acts to the committee if appropriate.

Club members should be familiar with the safety information contained in the latest BMFA Members' Handbook and abide by the recommendations unless in conflict with these club rules in which case the club rules prevail.

This document is intended to re-enforce some of the BMFA recommendations or to make them more specific to the particular needs of Warwick Model Flyers.

Safety bulletins are regularly issued by the BMFA. These will be displayed on the Club website and notice board in the Clubhouse and should be read by all members on an on-going basis.

This document is made up of 8 sections:-

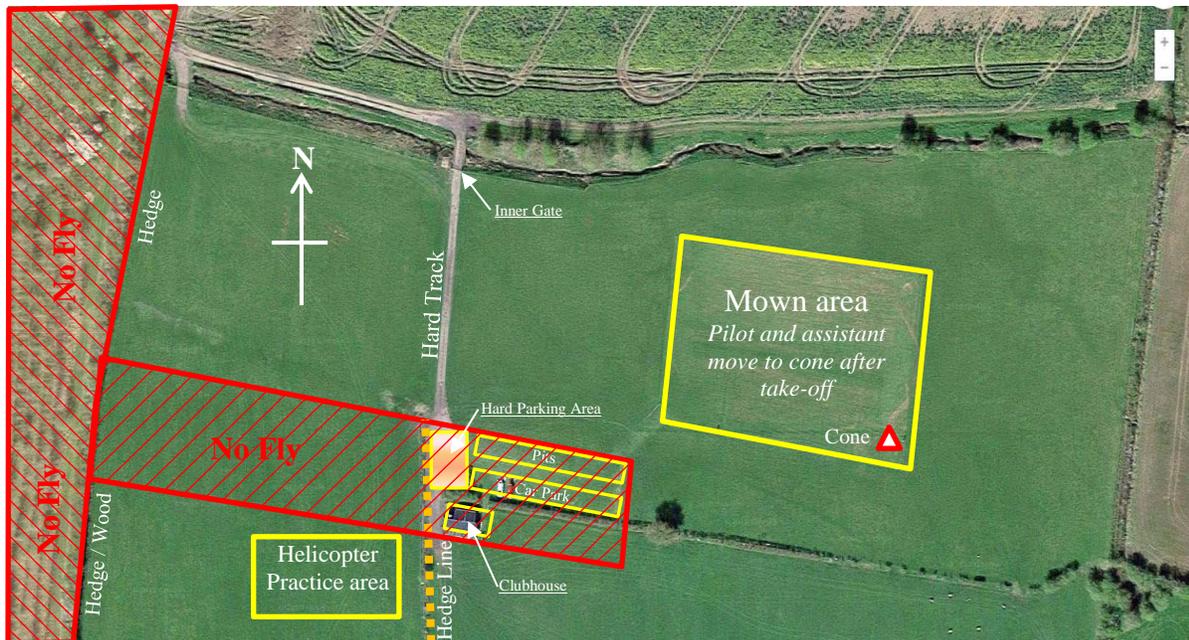
- 1) Flying Site Procedures
- 2) Peg Board System & Frequency Control
- 3) Pits Area Code of Conduct
- 4) Flying Code of Conduct
- 5) First Person View (FPV) flying
- 6) Helicopter and Multirotor Practice Area
- 7) New Members, Flying Solo and Trainees
- 8) General Safety & Summary of the SAFE FLYING IS NO ACCIDENT code.

## 1) Flying Site Procedures

Members are reminded that when using the Club field the following procedures are to be adopted at all times:

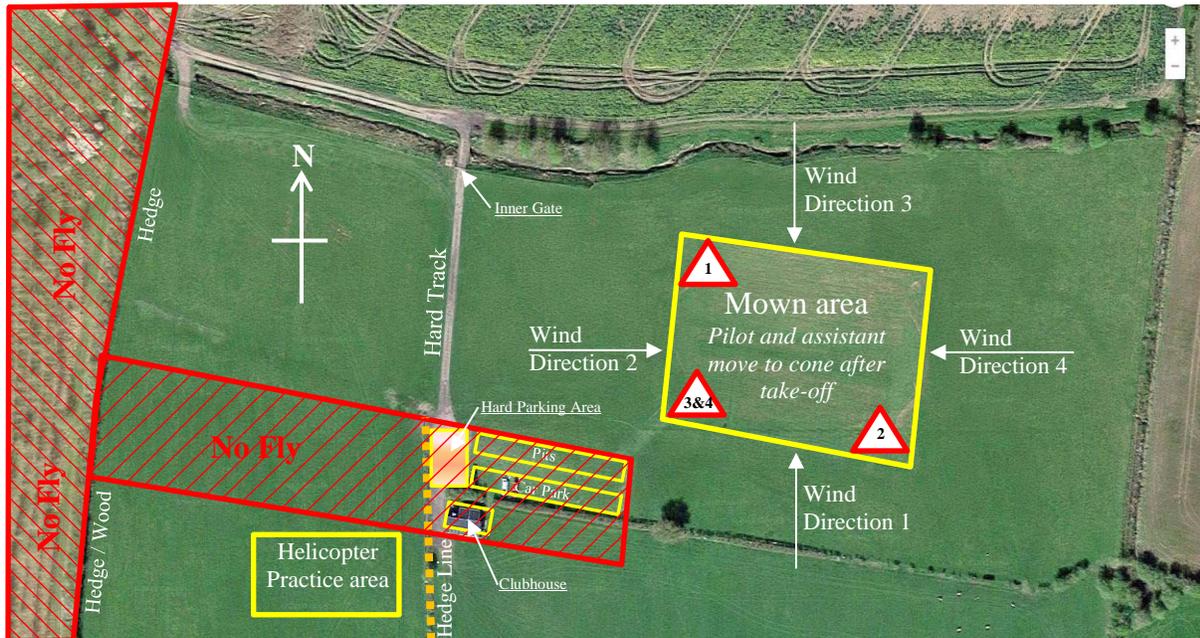
- i) The flying of any model aircraft before 10:00am is not permitted nor is the running of Internal Combustion (IC) engines
- ii) The flying or running of IC aircraft is not permitted after 2:00pm on Sundays, except by prior permission of the committee for special functions. Electric flight and glider flight is permitted after 2:00pm on Sundays.
- iii) Models must be flown in a manner as to avoid the 'no fly zone' to the west of the field at all times. In particular no flying should take place over or beyond any part of the lane beyond the western hedge. This lane is a right of way for our neighbours and no overflying is an obligation made for the club's planning permission for the site. The imaginary line delineating the helicopter practice area as described in Section 6: Helicopter and Multirotor Practice Area, must not be crossed by aircraft utilising the main flying field.
- iv) The inner gate of the Hard Track – see diagram - must be shut as you pass through at all times, do not rely on the next vehicle. The outer gate must be closed if you are the last person leaving the site.
- v) The last person leaving the flying site must ensure that:
  - The inverter is switched off.
  - The electric fence is erected and switched on.
  - All windows secured.
  - The storage compartment, generator cabinet and Porta Loo are secured.
  - Gas rings and gas fire are turned off.
  - Any litter is removed.
  - The 'Clubhouse' is locked.
  - All gates are shut behind them.
- vi) It is considered a matter of good manners when leaving the field that if there was just one person remaining, they should be asked if any help was required with any of the actions listed above.
- vii) On entering or leaving the field by the hard track to the gate, attention should be kept for any aircraft flying overhead.
- viii) Junior club members must be supervised at all times by a responsible adult who is either their parent or guardian or a senior member requested to do so in writing by the junior member's parent or guardian.
- ix) Dogs must be kept on a lead and restrained at all times.

- x) Set out the peg board, if appropriate, as in Section 2: Peg Board System & Frequency Control.
- xi) Pits and car parking are adjacent to the hedge by the 'Clubhouse' not near the mown circle.
- xii) Winter parking, or when the field is unsuitable for cars, and the hard parking places are full, shall be at the end of the farm drive. Do not block the drive or gateways.
- xiii) If Lithium-Polymer (Li-Po) batteries are to be charged in the Clubhouse they must be placed in a fire safe bag, dedicated charging box or ammunition box for the duration.
- xiv) Napton flying site plan view (not to scale).



N.B. The No Fly Zone extends along the whole length of the western hedge, and hence the entire lane which goes to the main road.

The first members to arrive for flying should establish the pilot's area with respect to the wind direction. The Cone should then be placed at that position as a reference marker. See diagram below:-



Normally the pilot's box is established dependent upon wind direction and would be as per the diagram above. When the wind direction is not exactly in the direction shown (i.e. diagonal to the square) then the most applicable of the four cone positions should be used. Should one of the offset directions cause take-off into wind towards the pits, then the take-off must be partially cross wind, or a turn made well before the pits or flying should not be undertaken. **Under no circumstances must the pits be over flown.**

When positions 3 and 4 are being used, pilots must not block the circle entry/exit position between the two posts.

When the wind direction is such that anticlockwise circuits are made then the turns at the Western end should be made beyond the hard track to avoid the plane flying directly towards the pits on the North to South leg.

If an alternative pilot's box position is to be established then this should be by agreement of those present. It should be noted however that in these circumstances the start point of the take-off run should be from a point approximately in front of the box. This requirement may place limits on where the box can be positioned if planes require an extended take-off run. This ensures that if the plane deviates from its course during take-off it cannot endanger the pilots. Once agreed all pilots must stand close together and the use of no other position is acceptable without all agreeing to move.

In adverse weather conditions when flying is still safe (e.g. the circle is waterlogged, but the field to the west or east is firm, or if there is low bright sunlight in the 'into wind' direction) agreement between all flyers should be established for safe alternative take-off and landing positions. **All No Fly zones must be still maintained.**

## 2) Peg Board System & Frequency Control

The Club operates a peg board for the 35MHz band.

- i) The board is marked with the channel numbers for the 35 MHz band.
- ii) It is the responsibility of every member using the club field with a 35MHz transmitter to provide themselves with a peg clearly marked with their name and frequency. With new transmitters members are particularly asked to check the crystals in the transmitter and receiver and not rely on the number indicated on the box. They have been found to differ, with disastrous results (The Club has a frequency monitor which is available in the Clubhouse if required).
- iii) The first member at the field intending to operate on the 35MHz band is responsible for getting the pegboard out. 2.4GHz users do not need to utilise the pegboard.
- iv) Before switching on 35 MHz transmitters, members must on every occasion inspect the peg board to see if the channel is free. If a peg is attached, the channel is in use and not available. If there is a peg on either or both sides of your channel then an interaction check should be carried out with the adjacent channel users. If no peg is present and adjacent channels are clear then the member may attach their peg to the board on the appropriate number and switch on.
- v) After use of a channel, the member should remove their peg from the board unless no other members are using that frequency during their flying session.
- vi) If using Pulse-code modulation (PCM) transmission, members should be aware that a failsafe is in operation, (usually failsafe hold) even if this has not been activated by the user. Anyone wishing to use PCM should be aware of this and reprogram the failsafe setting to close the engine throttle. Similarly, 2.4GHz equipment is also provided with failsafe settings and these must be appropriately set.
- vii) The last member on the 35MHz band leaving the field is responsible for returning the peg board to the Clubhouse.

## 3) Pits Area Code of Conduct

- i) Starting and running up of aeroplane engines must be performed at the front of the pits by the electric fence, propellers pointing away from the pits with no obstruction within the line of rotation. Refuelling, radio checking, assembly etc. may be carried out adjacent to vehicles.
- ii) When starting IC engines, the aircraft must be suitably restrained to avoid forward movement. A number of club restraints are available in the

Clubhouse. Members should ensure that no one is in the line of rotation for 3m either side while starting or revving the engine.

- iii) When fuelling and starting IC engines, precautions should be taken to capture unburnt or spilt fuel, where this can be done safely, to avoid damage to the grass. If required drip trays are available for this purpose but if used should be positioned and used with care to avoid contact with the propeller.
- iv) When starting helicopter engines in the pits, the rotor head must be held firmly. When the engine is running carry the model a sensible distance from other people before running up or flying.
- v) Running up of helicopter engines must be performed beyond the pits and away from pilots flying at the circle.
- vi) Flying within and unconstrained taxiing into and within the pits is forbidden.

#### 4) Flying Code of Conduct

Communication of intentions, and respect between pilots about to fly, flying or about to land are paramount safety requirements.

- i) When pilots are passing others already flying then this should be done behind them. This is to ensure that the vision of those already flying isn't obscured and that the transmitter signal is not compromised by absorption of the human body. Note that this may require you taxiing your plane at a safe distance in front of the other pilots whilst you pass behind them.
- ii) IC engines should only be re-started in the flying circle – and clear from the active runway - if properly restrained and away from flying pilots.
- iii) To facilitate all round awareness, pilots about to take-off should seek clearance from pilots already flying. Take-off should be from a point approximately in front of and away from other pilots in the flight area. After take-off, pilot and assistant should immediately move to the area by the Cone. Live operating transmitters should be as close together as possible so that pilots are not flying from diverse positions around the site thus running the risk of interference from other's transmitters and ensuring effective communications. **Note:** When helicopter or multirotor models are being flown in their practice area this rule obviously cannot be complied with but the dead airspace separation should provide the necessary safety.
- iv) Helicopters, multirotor and transition planes should take-off and land at a safe distance in front of the pilot and other pilots in the flight area. If practicing hovering and small circuits these should be done in the helicopter practice area.
- iv) After landing, pilots must confirm with those flying that they are happy for the pilot to collect their model. This should be done as quickly as possible once

agreed and the remaining pilots should be informed once the runway has been cleared.

- v) **REMEMBER: Landings, emergency or normal, always take priority over take-offs.**
- vi) Operating 35MHz transmitters should not be over flown. Operating 35MHz transmitters should also not be taken out on to an active flying circle when models are being retrieved, or away from the pilot's position or pits when retrieving models from outfield landings when other people are flying.
- vii) There will be no further taking off when there are already **six (6) models airborne** (with the exception of specifically organized events where the safety aspects and flying conditions have been assessed e.g. club competitions).
- viii) Pilots should not make irregular or unduly small circuits. Circuits should normally be flown such that the plane traverses the runway only into wind i.e. in the designated landing direction and then turn to take the plane away from the pilot so that it will not pass behind him. This avoids conflicting flight patterns over the active runway but does not prohibit other styles of flying away from it. The outer leg should normally be greater than 100 meters further away than the centre line of the runway. This rule can be relaxed when there is a sole flyer or by mutual agreement.
- ix) Pilots should be aware of anyone entering or exiting on the hard track and take care accordingly.
- x) Mixed Flying

The majority of members fly powered fixed wing remote control aeroplanes. There are members who fly remote control helicopters, multi-rotor aircraft, transition aeroplanes, unpowered gliders and control line aircraft.

This can be catered for safely with good communication, common sense and co-operation between pilots wishing to have flights during the course of a day.

It can be uncomfortable for pilots of fixed wing and helicopters (including multi-rotor aircraft) to fly at the same place, and from the same circle. Agreements should therefore always be made between both parties to enable separate sessions to take place on the main flying circle allowing a fair proportion of flights according to the number of each type of model wishing to be flown (See also section 6: Helicopter and Multirotor practice area).

Unpowered gliders and powered fixed wing aircraft should fly in the same field. The operation of the bungee should be possible for all wind directions.

The glider pilot should be able to launch within easy hearing distance to other pilots so that appropriate calls can be heard. At such times the powered pilots

should avoid the bungee, both on the upward climb and the chute assisted decent.

The circle should be large enough to accommodate a parallel line of take-off and landing for power and the bungee, thus reducing the risk of damage to landing models and the bungee.

Pilots wishing to fly control line must fly in the circle to the exclusion of all others. Agreement must be obtained from all other pilots present.

- xi) Crash debris must be removed from the location immediately.
- xii) Report any damage caused by models to the landlord's fences or any buildings to a committee member immediately.
- xiii) In the event of an incident which either causes injury to an individual, damage to property (other than the plane itself) or resulted in a 'near-miss' in one of these categories then the Incident Reporting Form must be completed and submitted to the Club Secretary within 7 days. Forms are available on the club website or by request to a committee member. The purpose of this rule is to ensure the committee is aware of all such incidents and have the opportunity of considering any improvements to the safety rules and procedures for members.
- xiv) Prompt notification of all incidents/accidents that may result in a claim on the BMFA policy is essential. The BMFA's Leicester Office should be contacted within 24 hours by telephone. Reports out of office hours will be recorded on the office answerphone.
- xv) In cases where interference is believed to have resulted in any loss of control of an aircraft then the BMFA Interference Reporting Form should be completed and given to a committee member. Forms will be available on the Club web page or by request to a committee member.
- xvi) **Overflying the pits is prohibited at all times and at all heights.**

## 5) First Person View (FPV) flying

The club recognises the use of FPV, but it may only be employed when fully complying with the legal requirements and BMFA guidance. A précis of these requirements is given below. To emphasise, this is a **legal requirement** not just a safety requirement of the club and must be adhered to in order to remain insured. Civil Aviation Publication (CAP) 658 documents these requirements.

- i) **FPV:** FPV refers to live video which is normally displayed to the pilot through 'video goggles' worn on the pilot's head or through a stand-alone monitor.

- ii) **Legal Position:** The law requires that the person in charge of a model aircraft must maintain direct unaided visual contact with the aircraft sufficient to monitor its flight path so that collisions may be avoided. This is obviously not possible if the person in charge is wearing goggles.
- iii) **Safety Concerns:** Video images afford the pilot little by way of depth perception and no peripheral vision. Moreover, the field of view available is often very limited and is likely to be distorted towards the edges. This can make it very difficult for the pilot to accurately judge speed and distance and to maintain sufficient awareness of the area surrounding the aircraft to effectively ‘see and avoid’ obstacles and other aircraft. The ability to control the aircraft and avoid collisions is also greatly affected by the quality of the video which can be very variable. Furthermore, in the event of a loss of data link, which can easily occur if the aircraft is flown beyond the range of the transmitter or indeed if the battery or another component of the systems fails, the pilot is likely to experience difficulty in locating the aircraft relative to his own position and visually acquiring it before loss of control occurs.
- iv) **Control Measures:** One mechanism to address these safety concerns is the Buddy Box system, whereby control of the aircraft can be instantly transferred to the master transmitter (This is the method our club will adopt). In a First Person R/C scenario it enables the person in charge of the model to hold the master transmitter and maintain direct unaided visual contact with the model whilst another person flies the model by live video from the on-board camera. In the event of an emergency or problem the person in charge with the master transmitter retakes control of the aircraft and takes whatever action necessary to maintain safety.
- v) **Only fly if:**
  - a. The activity is solely for ‘sport and recreation’ purposes.
  - b. Two pilots take part.
  - c. A Buddy Box system is employed.
  - d. The person in charge operates the master transmitter.
  - e. The person in charge does not wear the headset or view a screen.
  - f. The aircraft remains within the natural unaided visual range of the person in charge.
  - g. Reliable operation of the Buddy Box is established.
  - h. A clear handover protocol is established.
  - i. The person in charge is solely responsible for the safety of the flight.

These operating conditions very clearly place the legal responsibility for the safety of the flight on the person in charge who must maintain direct unaided visual contact with the model at all times.

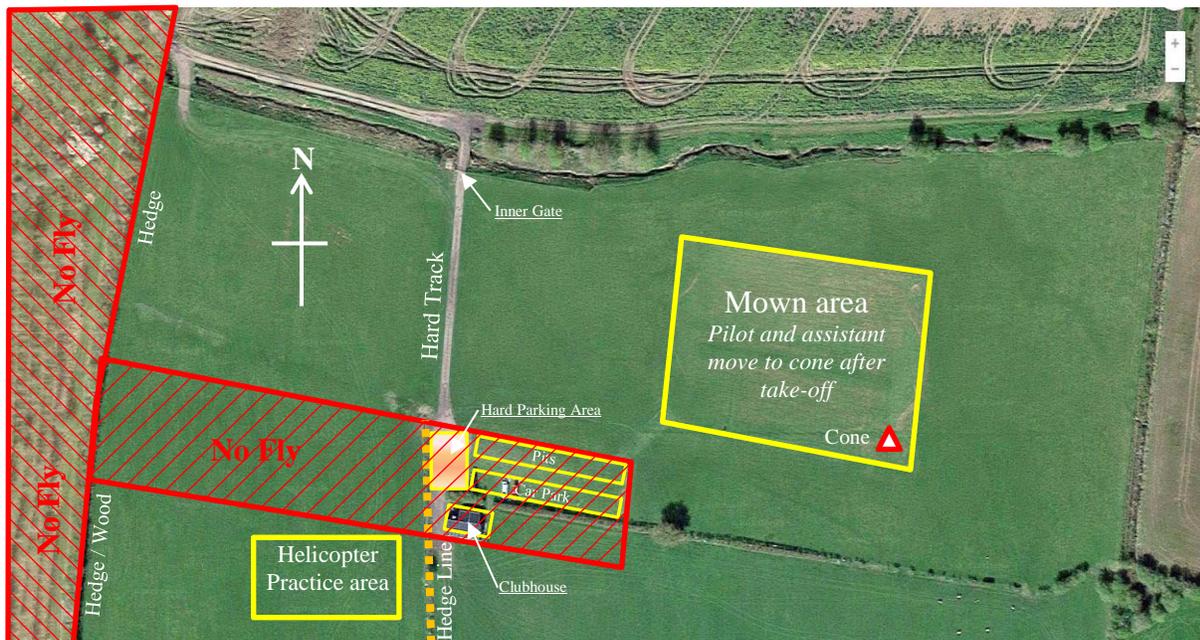
- vi) **BMFA Notes:** Because the model is equipped with a video camera and video link to the ground which is sending recordable data, it will automatically be classed by the Civil Aviation Authority (CAA) as a small aircraft equipped for surveillance. Consequently, all of Air Navigation Order (ANO) Article 167,

(Small unmanned surveillance aircraft) will apply to any flights made. This can be read in full in the BMFA handbook section 'Legal Controls over Model Flying'. Again, **these are strict legal requirements.**

- vii) The above requirements may be relaxed in accordance with CAA general exception 4049 if the aircraft is below 3.5kg in weight including batteries and fuel. In this circumstance the FPV pilot may fly without a buddy box as long as he is accompanied by a competent observer who must maintain direct unaided visual contact with the model at all times. In this case the pilot is solely responsible for the safety of the flight.

## 6) Helicopter and Multirotor Practice Area

The Helicopter practice area is not delineated but is on the far side of the hedge line behind the Clubhouse bordering the track leading from the gate to the pits and in line with the rear line of the Clubhouse. When a helicopter, multirotor or transition aeroplane pilot wishes to practice hovering or carry out localised circuits this should be done at the helicopter practice area. The use of this area may only take place using 2.4 GHz transmitters.



- i) At no time must the helicopter or multirotor model travel beyond an imaginary line drawn in line with the rear line of the Clubhouse or the hedge line.
- ii) Helicopter and multirotor testing and limited flying may be undertaken from the helicopter practice area. Limited flying is defined as within the field not exceeding the imaginary line, the wood or the hedge line i.e. not entering Dead Air Space.

## **7) New Members, Flying Solo and Trainees**

- i) All new members and trainees have to be declared as competent to fly solo by either their sponsor or a committee member before being allowed to fly unaccompanied.
- ii) Until this declaration is given the member must be supervised at all times they are flying. This means that the supervising member must, at the very least, be by their side while they are flying and preferably buddy boxing them.
- iii) In order to provide supervision the member must be at least BMFA 'A' certificate standard and have sufficient experience (a minimum of 1 year flying solo).
- iv) It is strongly recommended that new members and trainees attain their BMFA 'A' certificate. This is a simple test that confirms the pilot's ability to perform the basic flying manoeuvres required to fly safely and that they are aware of their legal responsibilities and the safety rules of the site. Many clubs require people to hold an 'A' certificate before they permit them to fly at their club.

## **8) General Safety & Summary of the "SAFE FLYING IS NO ACCIDENT" code**

Accident statistics and low insurance rates that we enjoy show that model flying is not a dangerous sport but as with other sporting activities, hazards can arise if common sense rules are not applied.

All activities should be conducted in a safe and considerate manner with regard to other club members and the landlord's property.

Members agree to familiarize themselves with and operate aircraft within guidelines published by the BMFA, particularly those relating to noise emission, and operating distances from inhabited buildings.

It is the duty of all members to exercise reasonable care to see that their models and radio equipment are sound and in proper order.

All models must comply with the Department of Environment (DoE) noise code as per the current BMFA Handbook. Models should only be flown if noise emission is not greater than 82 dB(A), measured at 7 meters. If any model is perceived to have a noise level in excess of this, then the Committee will request a noise test. Any model failing the test will have to be modified and retested before any further flights.

Members operating models over 7 Kg weight shall make themselves fully aware of and comply with the CAA requirements for the operation of such models.

All flyers using the club site must ensure that the site is entirely suitable for the type and size of model they wish to fly before attempting to use it.

Visitors may fly at the club field if they are members of the BMFA and have their current membership card available for inspection. A guest who does not participate in the hobby, but wishes to 'have a go' under the direct control of a member who must be at least 'A' Certificate rated, must notify the secretary at least 7 days in advance to ensure BMFA insurance requirements are maintained. A WMF club member must accompany any guest at all times. For full requirements relating to guests see section 18: Visitors and Guests, of the Club Constitution.

Spectators accompanying members are the responsibility of the member as far as safety is concerned.

The committee has the right to ban any member:-

- whose models repeatedly exceed the noise emission levels.
- repeatedly flies unairworthy models.
- repeatedly uses unreliable remote control equipment including transmitters.
- who flies in such a manner that they cause annoyance, endanger the public or other members.
- who repeatedly breaks the WMF Safety Rules & Procedures.

A potential source of danger to people is from models flying in proximity to the pits, car parking and spectator areas, and over the lane the other side of the western hedge. Flying over these areas is prohibited at all times.

There is a public footpath running through the site which is used by people who may not appreciate the hazards of model flying. Please be vigilant of this 'eventuality' and react accordingly. Currently there are no notices contrary to the recommendations of the BMFA.

Some medications may render you unfit to fly, and the effects of alcohol should not be ignored. As a guide, if you are fit to drive a motor vehicle then you are probably fit to fly. If there is any doubt then do not fly solo. As always, however, the responsibility for the final decision on whether to fly rests with you, the pilot.

### **Action by Committee Members during Flying Session**

Check the disposition of the flying field as set up by the first arrivals. If there is any significant change of wind, stop flying and reset it.

Restrain pilots from:-

- a. Flying over the pits, in the no fly zone (dead air space), in a circle with the pilot in the centre, or in any temporary no fly zone set up during mixed flying.
- b. Taking off anywhere other than along the duty runway.
- c. Being dilatory in clearing the runway after take-off and landing.
- d. Making irregular or unduly small circuits.

- e. Taking off when there are already six (6) models airborne.

Persistent offenders should be reported to the committee. However officials should try to be educative rather than admonitory, especially when dealing with the less experienced.

Pilots should be encouraged to communicate effectively with each other. Landing aircraft have priority at all times. Pilots about to take-off should seek clearance from pilots already flying and pilots should announce their intentions to land by calling 'landing' to ensure that others flying know that aircraft has priority. Deadstick and emergency landings should be declared and have the highest priority.

### **Safe flying is no accident**

Set out below is a summary of some items from the BMFA leaflet of the same name.

#### **Generally:**

The Air Navigation Order (ANO) applies to all aircraft, manned or unmanned, and of any weight. You are required **by law** to fly your aircraft in a safe and sensible manner. Everything that follows here has the aim of helping you to do this.

It is recommended that rounded spinners or safety propeller nuts of the domed type are fitted to IC and electric powered models and that glider and pusher powered aircraft noses should also be rounded (no needle noses).

Do not use metal, damaged or repaired propellers.

Never fly in bad light or poor visibility.

Always 'ditch' your model rather than risk hitting someone.

#### **Radio Control**

Before starting to use a site make every effort to ensure no radio interference is present.

Remember, be **S.M.A.R.T.** with your transmitter:-

- **S – Switch** on
- **M – Model** selected is correct / **Meter** in the Green
- **A – Aerial** secure, extended, undamaged and at correct angle
- **R – Rates** switches in correct position
- **T – Transmitter voltage** good with **Trims** in correct positions and Failsafe working.

All flyers must use the same take-off area during a particular flying session, unless another area has been designated for reasons such as bungee launch or helicopter training.

Always do a ground range check before flying a new model or with new or repaired equipment.

Before each flight check all controls, under full power if applicable. All controls should be seen to be working correctly, if in doubt, **DO NOT FLY**.

Always make the initial turn after take-off away from the pits and car parking. Diving manoeuvres should always be pointed away from these areas.

Do not overfly houses, domestic gardens, car parks, traffic, railways, organized games, people or spectators.

Inexperienced flyers should never fly without an experienced helper, and never when spectators are present.

Do not fly in a circle with yourself as its centre. Always keep a clear view of your model.

At any sign of malfunction or after jettisoning of any parts, land as soon as is safe to do so.

Never distract pilots, especially during their take-off or landing.

### Pre-flight Checks

Before each flight, all the checks recommended by the BMFA should be carried out.

Some examples are:-

- i) Radio equipment protected against shock.
- ii) Check that all controls operate freely and do not bind or stick at any point in their movement.
- iii) All fasteners are secure and done up tightly.
- iv) Check servos securely fixed and move in the correct sense.
- v) All fuel lines sound, clunk free and fuel tank tight.
- vi) Receiver aerial not damaged and for 2.4 GHz users, is at correct angle.
- vii) Controls surfaces are in their correct position with the transmitter trims at neutral and operate correctly without being slow or jittery. If in doubt **DO NOT FLY**.

### R/C Achievement Schemes

To encourage R/C flyers to reach a safe standard of flying ability, they may qualify for either the 'A' or the higher level 'B' certificates, by taking a flying test and a short oral test on safety practices. Details are available from the club examiners or the BMFA.

### Models Weighing Over 7Kg

The club supports the BMFA recommendation that those flying model aircraft weighing over 7Kg should hold a BMFA 'B' certificate or its equivalent standard and ensure that their models and flights comply fully with CAA regulations. See your current BMFA handbook for further details. Those members who do not hold a 'B' certificate have the responsibility to ensure they are capable of meeting these requirements.

‘...Safety rules are not an obstacle to the enjoyment of model flying, they help to prove that model flyers are the responsible citizens they proclaim to be...’ (FAI Safety Notes)