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British Model Flying Association

Members' Handbook

Annex A -

Model Flying Display Handbook

2021 Edition

About this Document

Model flying displays take on many forms, from the smallest club based event to the largest display attracting thousands of visitors.

When organising any event with a model flying display element there are a number of responsibilities and obligations incurred by the organiser as well as a whole host of practical considerations that can potentially affect the safe and smooth running of the event.

This handbook has been put together to assist all those involved in the organisation of a model flying display, including organisers and the display pilots who will be taking part.

Successful events in general, and flying displays in particular, are not successful by accident. It takes considerable planning and attention to detail to arrive at a well run, well organised event.

This document should be read in conjunction with the British Model Flying Association Members' Handbook (latest version).

Throughout this handbook, *he*, *him*, and *his* are used for convenience; of course, the male gender does not have exclusive rights to run model flying displays and feminine equivalents should be substituted where appropriate.

CONTENTS

Abbreviations used within this document

- AAIB------ Air Accident Investigation Branch
- BMFA----- British Model Flying Association
- CAA------- Civil Aviation Authority
- SAA------- Scottish Aeromodellers Association
- LMA------- Large Modellers Association
- CAP------- Civil Aviation Publication
- NOTAM--- Notices To Airmen
- FDD-------- Flying Display Director
- FLD-------- Flight Line Director
- FLM-------- Flight Line Marshal
- FLH--------- Flight Line Helpers
- FOD-------- Foreign Object Debris
- GHz-------- Gigahertz
- TX---------- Transmitter
- RT---------- Radio Telephony
- 4WD------- Four Wheel Drive

MODEL FLYING DISPLAYS

The BMFA Model Flying Display Handbook has been prepared to give guidance to organisers of, and participants in, public displays which include model flying as part of a demonstration or entertainment. It contains a wealth of information that will assist the organisers in meeting their direct responsibility for the safety of spectators and nearby persons and property.

Our Article 16 Authorisation defines a model flying display as:

Any flying activity deliberately performed, by model aircraft, for the purpose of providing an exhibition or entertainment at an advertised event.

The recommendations contained herein are not intended to apply to:

(a) competitive model flying events where spectators attend in the knowledge that model aircraft will be taking part in contest flying; for these events specific safety rules are included in the appropriate competition rules; or

(b) general model flying, the safety requirements for which are covered in the BMFA Safety Code for General Flying.

We have developed a Tier system to help Event Organisers determine what requirements may apply:

Tier 1 – **Contest/Event (not a Display) using Aircraft < 7.5Kg**
Flown to local site rules under Article 16.

Tier 2 – **Contest/Event (not a Display) using aircraft >7.5Kg but <25Kg >400ft**
Flown to local site rules under Article 16 but requires a BMFA Site Permit. A NOTAM is also required unless the site is permanently notified in the Aeronautical Information Publication (AIP).

Tier 3 – **Contest/Event (not a Display) using aircraft >25Kg >400ft**
Flown to local site rules under Article 16 but requires a BMFA & LMA Site Permit. A NOTAM is also required unless the site is permanently notified in the Aeronautical Information Publication (AIP).

Tier 4 – **Display (models up to 25Kg MTOM)**
Requires BMFA Display Permit (which may permit aircraft >7.5Kg but <25Kg >400ft) and a NOTAM.

Tier 5 – **Display featuring Large Models (>25Kg)**
Requires BMFA & LMA Display Permits (which may permit >25kg >400ft) and a NOTAM.

Tier 6 – **Display featuring Large Models (>25Kg) and full-size manned aircraft**
Requires BMFA & LMA Display Permits (which may permit >25kg >400ft) and a NOTAM. Manned aircraft should be displayed in accordance with CAP403.

Section 1 provides an overview of the requirements for organising a model flying display, whilst Section 2 provides more detailed advice for display organisers.

1. Organising a Model Flying Display

Our Article 16 Authorisation permits members to operate model aircraft as part of a flying display within the terms set out. Model aircraft participating in a display of full sized manned aircraft must be operated in accordance with the terms of CAP 403.

If the flying display will exceed 400ft, it must be authorised by obtaining a BMFA Display Permit from the BMFA and notified to other airspace users using a NOTAM. The BMFA Display Permit may also authorise the operation of aircraft with a MTOM exceeding 7.5kg above 400ft which is no longer subject to the requirement for an exemption to be issued by the CAA.

Please note that pilots of aircraft with an MTOM of more than 25kg are subject to the requirements of a separate Article 16 Authorisation held by the Large Model Association as well as individual Operational Authorisations issued by the CAA for their aircraft. Pilots must be able to provide evidence of this before taking part in a BMFA authorised display.

Non-UK residents flying at a display may operate model aircraft in accordance with all operating conditions of our authorisation, provided that they meet all the following conditions:

a) Hold temporary or full membership of a UK model flying association named in the authorisation
b) Comply with the rules and practices of that association

Note 1: Any non-UK remote pilot must meet the requirements of the authorisation in respect of pilot competence

Note 2: Any non-UK UAS operator must comply with the registration requirements set out in the authorisation. This may be achieved by displaying the operator I.D. of a UK 'host' operator, with their agreement and understanding of their legal obligations as a UAS operator of the aircraft.

This Handbook has been prepared to give guidance to organisers of, and participants in, public displays which include model flying as part of a demonstration or entertainment. The Handbook will assist both pilots and organisers in meeting their direct responsibility for the safety of spectators and nearby persons and property.

The quoted minima for sites, distances maintained from spectators and proficiency standards required from flyers of model aircraft at displays are recommended in accordance with our Authorisation and as a result of many years' experience. As there are several different types of model aircraft, they each require different facilities and site conditions for safe and effective displays. The different types will therefore be treated separately below.

The BMFA is available to give advice to display organisers, insurance companies, local authorities, etc., in specific cases.

1.1. Organisation

One person, the **EVENT ORGANISER**, should assume overall responsibility for the event; he will make arrangements for:

(a) Site assessment

(b) Risk assessment

(c) Spectator control or, in the case of an event at which model flying is part of a large function, the siting of the model flying area with respect to spectator enclosures, car parks etc.

(d) Verification of flyers' competence. The BMFA and other organisations have voluntary achievement schemes for R/C flyers and organisers should consider these as they are all guides to the proficiency of flyers wishing to take part in the display or event. Details of the BMFA Achievement Scheme are included in the Achievement Scheme Handbook.

(e) In the case of R/C flying, establishing effective transmitter control (see Section 2.16).

(f) Airworthiness and safety checking of all model aircraft and equipment to be used in the display.

(g) Verification of third-party insurance validity, covering individual flyers, the model flying club carrying out the flying and the display organisers.

The appointment of a **FLYING DISPLAY DIRECTOR** who will be responsible for the safe conduct of the flying display and who will assume overall responsibility for the planning, organisation and subsequent running of the event.

(h) The appointment of a **FLIGHT LINE DIRECTOR** who will assist in the planning of the flying, the briefing of pilots and who will take full control of the model flying area (in modelling terms, a Contest Director or CD).

The appointment of a **FLIGHT LINE MARSHAL** who is responsible to the Flight Line Director and who will directly control the active model flying.

A POLICE AND EMERGENCY SERVICES LIAISON OFFICER who is responsible for all contact with police and emergency services both before and during the display.

His duties will be to liaise with police and local authorities or, in the case of model flying as part of a wider function e.g. fetes, traction engine rallies etc, to notify the function organisers, in writing, of any special requirements.

The Flying Display Director and Flight Line Director's posts can be held the same person but the Flight Line Marshal must be a separate post and it would be sensible if the Emergency Services Liaison Officer was a separate person too.

(I) The Flight Line Marshal must exercise authority over all flying matters as he is directly responsible for the flying safety of the display. He must not hesitate to discipline pilots if necessary and it cannot be stressed too strongly that his is the final say on all matters on the airside of the flightline.

This places a great deal of responsibility on the Flight Line Marshal and it almost defines his job. A very pro-active approach must be taken so that these responsibilities are fulfilled and all display organisers are urged to consider very carefully the quality of the person appointed to this task.

1.2 BMFA Display Permit

The CAA no longer issue authorisations for model flying displays or exemptions to permit the operation of aircraft with an MTOM greater than 7.5Kg at heights above 400ft. Responsibility for issuing model flying display permits (which may include operating aircraft with an MTOM greater than 7.5Kg at heights above 400ft) has now been delegated to the BMFA and LMA under the terms of our respective Article 16 Authorisations.

Applications must include the following:

- Full details of the event – when/where/what type of event.
- Details of the organiser, Flying Display Director (with evidence of their competency to fulfil the role), other key personnel (for larger displays) and the host Club (where applicable).
- Details of the site layout (including maps/diagrams showing the pilots box, active runways, pits area, crowd line and also any other features in the immediate area that may have a bearing on the overall safe running of the display such as nearby roads, buildings, car parking facilities or other attractions.
- Details of the pilots permitted to fly (number, level of competency required).
- Details of the types of aircraft to be flown and whether permission is sought for operation of aircraft with MTOM's greater than 7.5Kg or 25Kg.
- Details of any special features (such as toffee bombing/pyrotechnics/night flying or inclusion of full-sized manned aircraft displays).
- Details of any arrangements for transmitter control.

- A risk assessment - guidance and templates for conducting a risk assessment are available at https://rcc.bmfa.uk/.

- Supporting documentation (such as a copy of any agreement if operating within an FRZ).
- A declaration that the organisers are familiar with the terms of our Article 16 Authorisation, BMFA Members Handbook and the BMFA Model Flying Display Handbook.

Applications for a BMFA Display Permit may be submitted via the BMFA website (https://rcc.bmfa.uk/exemptions/public-display-application). Applications should ideally be submitted at least 4 weeks prior to the date of the Display (preferably more).

The application will be reviewed by the BMFA and, subject to approval, a BMFA Display Permit will be issued which will detail the agreed parameters (our target is to review applications and issue Permits within 14 days of receipt). The BMFA may visit selected Displays to audit compliance.

Applications seeking approval for the display of aircraft >25Kg will also be subject to review and approval/endorsement by the LMA.

The process (including details of all Display Permits issued) will be audited annually by the CAA, who also reserve the right to carry out on-site inspections at selected displays.

1.3 Display Areas for Control Line Aircraft

The flying area shall be substantially flat. The aircraft are tethered and fly in a circular path; the minimum radius of the area required is the maximum control-line length to be used during the display, plus 13 metres.

A three metre diameter circle should be marked in the centre of the flying and pilots should ensure that they do not leave this circle while flying.

Under no circumstances should the boundary of the flying area be less than 50 metres from ANY overhead cables or masts supporting such cables.

1.4 Display Areas for Radio Controlled Aircraft

A minimum area for take-off and landing of 100 x 40 metres, with the 100metre direction substantially parallel to the wind direction, shall be available, with a tarmac or mown grass surface.

To the upwind and downwind sides of this area there should be no spectators, parked or moving vehicles, or other obstructions within a minimum 150 metres of the boundaries of the take-off and landing area. Specific attention shall be paid to the possibility of turbulence caused by nearby tall buildings, trees, marquees, etc.

It is essential that the site be positioned so that all flying can take place without car parks and spectator areas being overflown.

No radio-controlled flying displays should take place within a Flight Restriction Zone of a Protected Aerodrome without prior permission of the air traffic control officer of the airfield, or the airfield itself. You can find details of these at: https://dronesafe.uk/restrictions. Any consultation should be sought at least 30 days before the display is due to take place.

Clubs wishing to organise or participate in displays away from their normal flying site must take great care not to interfere with the legitimate flying of other clubs or groups near the display site.

Enquiries should be made (with the BMFA, with local club contacts and local model shops) and if any club or group is flying within 2 miles of the display site, the display should only take place with their agreement and co-operation.

1.5 Control and Siting of Spectator and Car Parking Areas

(a) Control Line Aircraft

Spectators should be behind stout rope barriers or similar restraints surrounding the flying area. Sufficient marshals should be available to ensure that spectators are adequately controlled and organised.

(b) Radio Controlled Aircraft

Spectators should be behind a stout rope or other barrier located parallel to the take-off and landing direction. They should thus be on only one side of the flying area for radio-controlled aircraft. In NO circumstances should take-off or landing be performed towards or over spectator or car park areas. Sufficient marshals should be appointed to ensure that spectators are appropriately controlled and supervised.

1.6 PLANNING AND CONDUCT OF MODEL FLYING DISPLAYS

The Event Organiser should preferably be an experienced flyer of the type(s) of model aircraft being used at the display, but in any case must be thoroughly familiar with the operating characteristics of the aircraft taking part. The organiser is responsible for the postponing or cancelling of all or part of the display in case of adverse circumstances likely to cause a hazard to safety. It is also their responsibility to ensure that minimum nuisance is caused, and that no unauthorised flying takes place. All flyers should have had experience with the aircraft they are to fly and the types of manoeuvres to be performed. In the case of radio-controlled flying;

(i) It is recommended that all flyers should be BMFA 'B' Certificate holders or equivalent.

(ii) All helpers (as described in section 2.8 and 2.14) should be familiar with the relevant Safety Codes and Article 16 Authorisations.

(a) Control Line Flying

Model, control-lines, handle and safety straps shall be subjected to the pull test specified for the type of aircraft in the contest rule book before each flight, and visually examined for damage. Safety wrist straps shall be used at all times. All helpers in the control-line flying area shall wear safety helmets and should be familiar with the safety codes within this handbook. All control lines shall be of steel.

(b) Radio Controlled Flying

All display pilots should have a helper/caller with them when they are flying.

All ground helpers should be familiar with the relevant BMFA safety codes.

All flyers should hold the BMFA 'B' Certificate or its equivalent (SAA Silver Wings or LMA Proficiency Certificate).

When using the LMA Proficiency Certificate in place of the BMFA 'B' Certificate, the following conditions must be complied with.

(i) The pilot must be a paid-up member of both the BMFA and the LMA.

(ii) The pilot may only fly the type of model for which he holds an operational authorisation.

(iii) The terms of the applicable BMFA and LMA Article 16 Authorisations must be complied with.

(iv) The pilot's helper/caller should be either a 'B' certificate or LMA Certificate holder.

It is STRONGLY recommended, especially for larger public shows, that only aircraft using 2.4GHz radio equipment should be included in the display, and the number of operating transmitters should

be kept to a minimum.

At the planning stage enquiries should be made to ascertain whether any hospitals, factories, military or public service establishments in the vicinity may use radio equipment or any other electronic or electromechanical devices likely to cause interference.

Strict control of all operating transmitters is highly desirable.

All control functions of each aircraft shall be checked before each flight (1) when the radio is switched on and (2) with the engine at full throttle before take-off. All power-driven aircraft flown at displays should have throttle control.

Particular attention should be paid to the state of both transmitter and receiver batteries - dry batteries must not be used and rechargeable battery packs should be fully charged at the start of the display.

No flying should take place if the surface wind speed exceeds 25 knots, or if the visibility is less than 500 metres.

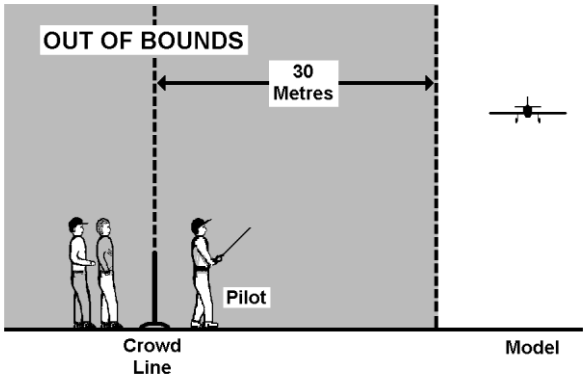
No turn should terminate with the aircraft on a heading towards the spectator enclosure.

No aircraft may be flown within 30 metres of spectators. For models over 7.5 kg and all gas turbine powered models this distance should be 50 metres. This may be reduced to 30 metres for take-off and landing only.

The organisers, especially the Flight Line Marshal, should also consider the need to add additional separation distance for models of exceptional dimensions, weight or performance and any models of this type should be specifically noted in the application for a Display Permit.

The Flight Line Marshal must position the pilots so that they are between the spectators and the flying models.

Note that the distance of 30 metres shown in the diagram must be a minimum of 50 metres for models over 7.5 kg and 75 metres for large models over 25Kg and gas turbine powered models.



(c) Toffee Bombers

Our Authorisation permits the dropping of materials from model aircraft subject to the condition that:

a) The remote pilot must not cause or permit any article or animal to be dropped from an unmanned aircraft so as to endanger persons or property.

Models dropping toffees should not weigh in excess of 7.5 kg. The toffee bomber should fly alone. All other models should remain on the ground during the toffee drop. An area within the public enclosure should be provided for those children wishing to take part.

The toffee bomber should make its drop from as high an altitude as is practical. It should then circle at height upwind and should not fly over the area where the toffees have landed. If this is not possible without flying over car parks, houses, roads etc, no toffee drop should be included in the programme.

Children should be controlled by officials and/or the PA system and prevented from leaving the

enclosure until the toffees have been dropped and the model is away from the area. The field should then be cleared as soon as possible after the drop. All children must be safely back in the spectator's enclosure before the pilot is permitted to bring the model back for its landing.

(d) Young Pilots

Organiser must be aware of the minimum age requirements (section 3.3) as set out in our Authorisation. Whenever a young pilot takes part in a display, it is very strongly recommended that a suitable person is tasked to stand with them as a safety pilot. This should be a person known to the organisers as being proficient.

(e) Smoke Systems

Some of the oils used in model aircraft smoke systems are known to be carcinogenic when burnt and all of them are irritants to varying degrees, even the purer types.

Smoke should only be used when the wind is blowing away or at least along the pits / flightline area and there is no possibility of the smoke cloud being blown over pilots or spectators.

(f) General

It is important that a written description of arrangements for the model flying programme be circulated in advance to all people participating in the display. This should be reinforced and, if necessary, updated by a further oral briefing on the day of the display.

1.7 The Club Fly-In, Small Display or Open Day

The Model Flying Display Handbook was written to cover the larger type of display and questions are often asked about what to do in the case of the smaller display or club fly-in.

The answer lies, as it so often does, in the organisers acting in what may be seen to be a reasonable manner.

As an organiser, you should read the Model Flying Display Handbook very carefully and pick out the parts that you feel apply to your event and apply them carefully. If it's a big event, then it is likely that it will all apply.

There is no doubt that a Display Organiser to take overall control of the event and a Flight Line Marshall to take responsibility for all the flying would be required posts regardless of the size of the event.

However, you may feel that you do not need the full range of other personnel that would be required at a larger display and, although most of the jobs are valid, the responsibilities could be shared by a smaller number of people.

The requirement for pilots to hold a 'B' Certificate is also sensible for a large display but at a smaller event it could be appropriate to accept a lesser/alternative qualification (or conduct a flight test with the pilot prior to the event) and take care that the flying is carefully monitored.

Checking a pilot's insurance details and CAA Operator Registration is essential and should always be done.

The Model Flying Display Handbook will give you the guidance you need and you should try to operate within the spirit of the document. You should also remember that, if there is an incident, your actions will be judged on the basis of 'did you act reasonably?'.

2. Advice for Display Organisers

You may be wondering how this fits in with a smaller display or even your club fly-in. The answer is that whilst you may not need to apply all aspects of the guidance, a great deal of what is written will apply to you, particularly the legal and safety requirements.

A common sense approach is required and any organising group should carefully consider the guidance contained within this document and decide how it should be applied.

The individual posts referred to within this handbook may be amalgamated where appropriate and some of the wider aspects of the duties set out may not be required; you should at least be familiar with all the concepts of organisation, if only to prepare yourselves for problems that you may not have foreseen.

2.1 Initial Planning

The planning for a good model flying event starts many months (sometimes years) before the date of the display.

The very first steps are to decide why you are putting on the display and what you are aiming to achieve from it.

From a club point of view, it may be a profile raiser as part of a membership recruitment drive. At the other end of the spectrum, it may be a commercial event that is primarily run for profit. In either case, the basic considerations and legal responsibilities are the same.

2.2 Legal Obligations and Considerations

When organising a model flying display there are a number of legal aspects that you must consider. Everyone involved with the organisation of the event should be familiar with the following:

- The terms of the Article 16 Authorisation(s) they will be operating under. The display may be organised under the BMFA's Article 16 Authorisation, but large model aircraft (greater than 25Kg) will also be subject to the requirements of the Article 16 Authorisation issued to the Large Model Association.

- If the model flying display is part of a display of full sized manned aircraft, then you must be familiar with the terms of CAP 403.

- The BMFA Members Handbook which contains essential information and guidance on compliance with its Article 16 Authorisation.

2.3 Roles and Responsibilities

There are a number of key roles which have been identified for the successful and safe delivery of a public model flying display (as per a full size manned aircraft display). Below is an overview of each position and its functions.

2.4 Flying Display Director (FDD)

This is the person with the ultimate responsibility for <u>all</u> matters relating to the organisation and running of the display. The full legal responsibility rests with this person and as such this role must not be undertaken lightly.

The post holder should be appointed with the following characteristics in mind.

- Experienced model flyer with broad knowledge of all disciplines relevant to the display and ideally a BMFA 'B' Certificate (or equivalent) or an established track record as an FDD.
- Experience relevant to the type and size of display.
- Strong organisational skills.
- Good communication skills, both written and verbal.
- Good leadership skills, a "people person".
- Work well under pressure.
- Ability to make rapid but reasoned decisions.
- The ability to cultivate the respect of the pilots and organisational team.
- A sense of humour!

For a small club-based display, the requirements could be viewed as less stringent; however, for a major event attracting large numbers of pilots and spectators, the above list should not be compromised.

Of course, the limitation may also be the "pot" of candidates from which you are able to draw your team; it is worth bearing in mind that those who volunteer may not always be the most suitable persons to carry out the task.

The main duties and responsibilities of the Flying Display Director are outlined below. Again, this list is not exhaustive and the important point is that the FDD delegates tasks as he feels appropriate.

- Overall responsibility for all aspects of the flying display.
- Conduct the risk assessment.
- To appoint suitable team members for all roles.
- All paperwork relating to the CAA (NOTAMs and exemptions).
- All paperwork relating to BMFA (Display Permit Application Form).
- To ensure that suitable insurance arrangements are in place for the display.
- To liaise with any full size manned aviation activity taking place as part of the same event (or in close proximity).
- Pilots' introduction and briefing.
- Disciplinary measures.

These could be seen as the main areas of responsibility for the FDD; there are many others but these would usually be delegated to other members of the team and are therefore covered in this document under the role description for those team members.

Of course the responsibility for ensuring that these tasks are carried out in an appropriate manner remains with the FDD.

2.5 Flight Line Director (FLD)

This is an absolutely key role and the person appointed is really the one who makes it all "happen" on the day.

Most of the desirable characteristics for the FDD apply also to this role but primarily it is "people skills" that count as this person will be the main point of contact with the pilots. You are looking for a calm relaxed and professional approach as this tends to cultivate the same approach from the pilots.

Areas of responsibility are outlined below but the important point is that the FLD works closely with the Flying Display Director throughout the duration of the display.

- Setting out of the flightline, display line and crowd line on site.

- Airworthiness and safety checking of all model aircraft and equipment to be used in the display.
- Verification of the competence of all pilots taking part in the display.
- Verification of appropriate third party public liability insurance covering individual flyers.
- Liaising with other flightline personnel.
- Liaising with pilots.
- Ensuring that flying slots are allocated in line with the show requirements.
- Ensuring that the flying slots operate in line with the published/desired timings and order.
- Ensuring that pilots are aware of impending flying slots with sufficient notice.
- Ensuring that back up pilots and models are prepared and on standby in case of aborted slots.

2.6 Flight Line Marshal (FLM)

It is usual to appoint one or more Flight Line Marshals (depending on the size of the event). Their role varies considerably but they would usually work closely with the FLD in order to promote the smooth running of the flight line.

Their overriding function, however, is to be out on the flightline with the active pilots to watch and monitor all aspects of the flying taking place. The watchword of the FLM has to be *safety*; they must be given the authority to advise pilots on all safety aspects of their display flight and they should discipline wayward pilots by ordering them to land if necessary.

Taking this a step further, a FLM must be able to advise the FLD that any particularly difficult pilot should not be allowed to fly again in the display and the FLD should act on this advice and not overrule the FLM.

2.7 Scrutineers

It is usual for the FLD to appoint a scrutineer (or small team of) to work in the pits area to check models for basic integrity and airworthiness. This can be a difficult and sensitive task as the legal responsibility for the safety of each flight will always rest with the pilot and this of course includes any pre-flight and airworthiness inspection.

It is becoming standard practice at model flying displays for pilots to be responsible for airworthiness, with scrutineering being carried out on a “spot check” basis rather than to every single airframe (this position and practice has been agreed with the CAA).

The scrutineers should be carefully chosen and adequately briefed for the task that they will be carrying out. It is important to utilise experienced and respected model flyers, preferably with a range of building and displaying experience.

Scrutineers must consider their role and actions carefully; they should aim to confirm airframe integrity to a suitable standard, not to perform a destructive test on the aircraft. Some caution must be exercised as accusations of favouritism or victimisation have been known to arise.

If practicable, fail safe checks should be conducted as part of the scrutineering process.

The weighing of models can also be undertaken on a “spot check” basis. It is recommended that suitable weighing equipment be available, particularly where large models, or those that are known to be close to the CAA 25 kg exemption limit, are booked in to fly.

2.8 Flight Line Helpers (FLH)

The FLH(s) can often form the interface between the pilots and the FLD and act as “runners” to ensure that pilots are given sufficient notice of impending flight slots; also FLH(s) can form the link with the commentators where a commentary is a feature of the display.

2.9 Other Flight Line Personnel

It is possible that you may consider it necessary to have additional persons on the flight line but it is important that you carefully consider who has access and whether they actually need to be there. It is very easy to end up with “hangers on” who have no specific role other than to get in the way.

The aim should be to only have people who are actually involved with the display on the live side of the flight line; this is good from a safety point of view and also for the public perception of a tidy and well organised display area.

2.10 Commentators

As with full size manned aircraft airshows, the commentary can form an important part of a model flying display. A good commentary will keep the public informed on what is taking place out on the flight line, what is coming up next, and help to make the crowd feel like part of the proceedings.

Commentaries for model displays can take a number of forms but the aim should always be to inform and entertain the spectators. Commentators should be chosen carefully as they provide a high profile component of the show.

The FDD should have a direct line of communication available to the commentator for the duration of the display.

Pilots should be encouraged to provide a comprehensive information sheet to the commentators which should include the following:

- Information about the model including its size, weight, power plant, manufacturer or construction method, age, notable features or functions, installed equipment, and handling characteristics.

- Any interesting background information relating to the chosen markings, colour scheme and, for scale models, the history of the subject aircraft.

- Information about the pilot and any high profile helpers.

- A description of the display: this could be a comprehensive list of manoeuvres or a generic description of the type of flight.

Never permit commentators to goad pilots or incite them to carry out unplanned manoeuvres – although a little pre-arranged showmanship can add a sense of excitement for the audience. Similarly, never permit commentators to distract pilots with ‘live interviews’ whilst flying, other than with prior agreement as it may ‘overload’ some pilots increasing the risk of errors. If this is going to be a feature of the Display, the risk assessment should reflect that potential risks have been considered and mitigated.

2.11 Insurance

It is important that insurance is considered as part of the planning for any flying display, show or event. We live in a society where litigation has been made commonplace; steps should be taken to protect all entities (i.e. club/landowner) and personnel involved.

Where the Show/display is a commercial entity, it will need to be insured as such with an appropriate commercial policy.

Events that are “club” based can be covered under the terms of the policy provided to BMFA affiliated clubs; however, the cover is not automatic and there are certain requirements that must be fulfilled before cover is granted.

The BMFA membership provides £25 million of cover as standard but policies from other providers can be accepted where the FDD is comfortable with the level of cover provided. The BMFA recommends that £10 million is regarded as the minimum level of cover. Visiting pilots from overseas can be covered by the BMFA’s insurance cover by arrangement.

Where you are hiring in equipment such as portable toilets, generators, etc, you will usually be responsible for insurance cover against damage or theft.

Equipment cover is provided as standard to BMFA affiliated clubs up to a level of £10,000.

This provides cover in respect of items and equipment for which the club is responsible (hired or loaned equipment), additional cover for equipment falling above the standard figure can be purchased directly from the BMFA insurance brokers (Tysers 0161 419 3089).

2.12 Location and Site

The location and nature of the display site should be given careful consideration, Often the specific location of the display will be predetermined by external factors, but where a display is being planned from scratch there is the opportunity to give some thought to the type and location of the site.

Perhaps the easiest site to utilise for small displays is the club’s “usual” site as those involved and in particular the FDD will be familiar with the nature and topography and the various modes of operation relative to differing wind directions. Of course, the addition of spectators or members of the public will require additional considerations and measures to be implemented.

Where a site other than the club flying field is to be used, such as a showground or village fete, then the FDD must ensure that the site is suitable and that the model flying can safely integrate with any other activities taking place at the location during the display. It is important for the FDD and the FLD to visit the site along with any other relevant personnel from the organising team in advance of the planned event.

Model flying displays often take place at full size aerodromes. The FDD must ensure that suitable channels of dialogue and ongoing communication are established with the airfield manager, air traffic control unit, and airfield users. When utilising full size airfields, the agreement between the owner/operator and the FDD must be comprehensive and clear and cover the detail of the display as well issues such as times of operation, entry and exit arrangements, takeover/handover criteria, litter and waste disposal, etc.

The risk of FOD (foreign object debris) should not be ignored. On military airfields there is often a requirement stated within the agreement or licence document to ensure that the risks are minimized.

Where a model flying display is planned at a location other than the usual club site it is important to research the location of any nearby model flying clubs or activity; this is particularly the case where the 35MHz band is to be employed, but this protocol should still be adhered to even where only 2.4GHz will be used.

Where 35MHz channels will be used and there is a club operating at a distance of two miles or less,

some form of frequency sharing/allocation agreement is compulsory in order to address the endangering provisions of the ANO. However, irrespective of potential frequency clashes, any nearby clubs should be informed on a courtesy basis, and involved where possible.

When looking at the site in the initial planning stages, ensure that you take appropriate steps to ensure its overall suitability. Tools such as Google Earth can prove a huge benefit as well as reference to Ordnance Survey maps and full size quarter and half million VFR air charts.

2.13 The Pilots: to B or not to B?

This is an issue that regularly receives much discussion when planning a model flying display and the BMFA office receives a large number of calls each year asking the same question: do all pilots flying at a public display require a BMFA B Certificate?

The simple answer is “no”, however, this short answer requires a degree of expanding upon in order that the FDD can make an informed decision.

At large public displays, and particularly where all pilots are not personally known to the FDD, the requirement for a B Certificate for all participating pilots should be considered as compulsory.

There is a little more leeway at the smaller club-based event where all participating pilots are likely to be personally known to the FDD. In these circumstances the FDD might relax the requirements relating to pilot certification to either an A Certificate or in exceptional circumstances, no certificate. The FDD could also take steps to assess the competency/suitability of a pilot by conducting a flight test in advance of the display.

The FDD should never lose sight of the fact that he is legally accountable for the decisions that he makes in relation to the safe running of the display. When considering the competence of display pilots, all factors must be carefully considered as it must never be forgotten that should there be a serious accident or incident, it is the FDD who will be responsible for filing a report to the AAIB/CAA which would require justification of any decisions falling outside of the requirements set out in the Article 16 Authorisation/BMFA Guidance. The BMFA would also be required to justify why they had permitted the display.

It is important that the rationale behind such decisions is recorded during the planning stage and this should form part of the safety (or risk) management documentation for the event.

The relaxing of pilot requirements should not generally be a “blanket” move but rather conducted on a case by case basis; where this process is implemented, the FDD should be mindful of the “political” implications and the potential for relaxed requirements to be seen as “mates’ privileges”.

Another scenario where there may be a relaxation of pilot certification requirements is where the models to be flown are considered as lower “risk”, for example where only lightweight, low inertia models (e.g. foamies) are to be displayed.

When selecting pilots for any display there are a number of additional considerations which must be borne in mind. It should be remembered that not all model flyers make good display pilots; even the safest most experienced pilot can “go to pieces” under the pressure of display flying, even in front of a small crowd. Pilots must be chosen who are able to perform under pressure and to be organised and ready for their flying slot; not all pilots can work to timings.

Clearly, the selection of pilots is easiest when they are known to the FDD or other team members. A judgement on the pilots’ strengths, weaknesses, and skills can be made and flying slots allocated as appropriate. It also pays to have a short list of pilots who are known to be completely reliable and are capable of filling flight slots at short notice.

Where applications are received from “unknown” pilots, the selection process can be a little more difficult: try to find out as much as you can about the pilot; ask around to see if anyone has seen him fly and, where possible, have a chat with him in person. Also consider how the application form is

filled in; this may give you clues as to the type of character that you are dealing with.

Do bear in mind that whilst we would all like to see the top model flying “names” featuring on our pilots list, some thought should be given to “undiscovered talent”; the top pilots all had to start somewhere.

In summary the FDD must be comfortable with any decision that he reaches on this matter as it is his legal responsibility, but the BMFA also has a legal responsibility for oversight.

Note: All reference to the BMFA B Certificate within this document can be read as SAA Silver Wings or LMA Certificate of Competence as appropriate.

2.14 Pilots’ Helpers

When a pilot is flying a model display, it is important that he has a helper or caller to assist him.

The role of the helper can be fairly varied depending on the type of display and the requirements of the pilot; it is useful if the pilot and helper are a regular partnership as they will become conversant as to what information should be passed on and what is not required.

At the most basic level the helper should inform the pilot of conflicting traffic in the display and circuit area and warn of any potential incursion into no fly zones or dead airspace.

However the pilot’s helper is a second set of eyes and the role extends to encompass lookout, liaison, monitoring, timing, model dispatch and model recovery.

It is important that all communications are clear and concise and particularly that clear directive terminology is used where instructions are required for de-confliction or collision avoidance e.g. go around, stay high, land long etc.

Ensuring that any starting equipment is tidied away and safely stowed can be a very useful additional task for helpers in order to promote a safe and tidy pits and flightline area.

2.15 Display Teams

Team displays can provide an interesting addition to the flying programme but they can bring their own problems. It is important that any team presence booked into the display is a known quantity and that they have experience of flying together.

When planning the display, ensure that sufficient additional time is built in to cater for the increased complexity in preparing and dispatching multiple aircraft and for their recovery after flight.

Ensure that the “team leader” is identified and used as the primary point of contact at all times and ensure that team members are clear on procedures if one or more aircraft are lost during the display.

2.16 Transmitter Matters

With the advent of the 2.4GHz band, many of the larger UK shows have taken the step of limiting participating pilots to using only this frequency band.

There is no doubt that the 2.4GHz band addresses a number of issues and concerns and on the face of it makes the whole process much easier and much safer. However, no system of radio control is entirely without the potential for problems and steps should still be taken to control all transmitters that will be used at the event.

As a minimum, all transmitters should be “booked in” and basic checks for compliance should be carried out, where the transmitter marking is unclear or the transmitter is clearly a non standard unit, the owner should be able to provide paperwork from the manufacturer or importer that demonstrates the unit’s compliance with UK legislation.

In circumstances where such documentation is not available and there is significant doubt over the

legality of the transmitter, then its use in the display should be refused. Initially this is the remit of the TX control team, but any dispute should be referred to the FDD whose decision is final.

Once transmitters have been booked in and recorded, they should be identified with either a sticker or tie on label. Make sure that anything that you use does not in any way interfere with the operation of the transmitter: tie on labels can flutter distractingly where there is any wind.

Although the 2.4GHz band is proving to be very robust, some thought should still be given to the overall number of “live” transmitters in the vicinity of the display area. This can be addressed either by implementing a transmitter pound or through the pilots briefing; the aim should be to limit unnecessary transmission where possible.

Where 35MHz is being used, provision must be made for some form of transmitter control and that frequency control measures must be implemented. The exact mechanics of how these requirements are met can vary depending on the size and type of event. The important point is that a suitably experienced person is appointed to be in charge of transmitter control and is entirely clear on what their duties involve.

It is important that any booking in and control measures run smoothly and efficiently in order to promote the pilots’ confidence in the system.

The level of checking of transmitters will vary depending on the type of event, but as a basic requirement checks for basic compliance and transmission on the marked frequency should be carried out.

At larger events a dedicated transmitter control tent should be established. All transmitters should be impounded until such time that they are required for use, when they should be issued by a member of staff and recorded as being “in use”. Only in this way can safe frequency separation be maintained.

At larger events some form of scanning or monitoring equipment should be employed; 35MHz scanners are readily available and a dongle device is available to plug into a standard laptop computer to provide a basic 2.4GHz spectrum analyser.

It is common practice for the FLD to delegate to the transmitter control staff the checking of pilots’ insurance cover. For most pilots, the ability to show a valid membership card for one of the approved associations will suffice. If there are any doubts as to whether a pilot holds appropriate insurance, the matter should be referred to the FLD.

2.17 The Models

The aircraft operated at model flying displays take many forms depending on the nature of the display.

Whilst the legal responsibility for the safety of each flight rests with the pilot, the Flying Display Director has a responsibility to ensure that the pilots who will be taking part in the display are able to fly to the required standard and that the equipment that they will be using is of suitable specification and fit for purpose.

It is also a CAA requirement that any pilot operating a ‘large model aircraft’, or a jet turbine powered model aircraft of any mass, for the purpose of a ‘model aircraft flying display’, must be able to demonstrate sufficient recency of pilot competence by having flown, as a minimum, one complete display routine, within the preceding 30 days of the ‘model aircraft flying display’, on an aircraft which is reasonably representative of the aircraft to be flown within the display event.

A paper trail can be a useful starting point in this respect. Providing the pilots with a declaration to sign for each airframe that they intend to display and to confirm their pilot currency, may help them to focus on the airworthiness of their model and standard of their operating equipment.

2.18 Over 25kg Aircraft

Where over 25kg models are participating in the display, it is important to ensure that the pilots are in possession of the correct CAA Operational Authorisation.

It can be useful to request copies of paperwork at the initial booking in stage prior to the event as the details can then be checked against the Large Model Association's on-line database of exemptions. Pilots must have the appropriate original documentation available for inspection by the FDD or his appointee at the event.

It is worth bearing in mind that the operation of an over 25kg model without the Operational Authorisation in place is unlawful and can leave the pilot open to prosecution by the CAA: this has happened.

Additionally you should ensure that those booking in large models are competent at displaying them. Large aircraft can give rise to issues that are not present in smaller models, such as the considerably larger "footprint" of the display.

Where exceptionally large models are booked in, consideration should be given to the overall ground and airborne presence of these aircraft. They could occupy more space in the pits and their flight path might cover significantly more area; these factors should be discussed with the pilot in the planning of the event. There is no doubt that these "super models" are a huge attraction to the spectating public, but they should only be included after considering all of the relevant factors.

2.19 Turbines

The inclusion of turbine powered aircraft can greatly enhance a model flying display programme. Where aircraft utilising this power source are included; there are a number of additional considerations that must be made.

From a ground operation and safety point of view it is often a good idea to provide a separate or remote start up area at a safe distance from the crowd line; the risk of fire as a result of a "wet start" must never be overlooked.

You should ensure that all operators of turbine aircraft carry a suitable fire extinguisher and that it is present during the start up phase, it is also important that additional larger extinguishers are available on the flightline and pits area for use in the event of a larger or spreading fire as a result of a crash or fuel spillage.

In times of dry weather or when crops are within the over-flight area of the models, a fire vehicle would be a prudent addition to the flightline. This does not have to be a dedicated fire engine; a 4WD vehicle would be suitable if equipped with some good sized fire extinguishers and several paddle type fire beaters.

Operators of turbines should be fully conversant with the BMFA/JMA Code of Practice which details their operation and safety considerations.

From a flying point of view, turbine powered aircraft are generally faster and have the potential to overfly a larger area than conventionally powered aircraft. These factors should be considered when planning the display.

Consideration should also be given to the takeoff and landing area (allowing for a safety factor) as turbines often have a higher wing loading which combined with small wheels (particularly on scale models) can lead to long ground runs.

The length and surface of the available runway as well as any significant slope, also the overshoot and undershoot areas and in particular the distance to and the height of any obstructions should all be considered when establishing the flying programme.

Pilots should be briefed to avoid high energy manoeuvres towards the crowd-line and also to conduct

take off and landing at a suitable distance (the measurements in our Article 16 Authorisation should be regarded as a minimum) as the lack of prop wash can lead to a loss of directional control at lower speeds.

2.20 Helicopters

Where you are planning to include helicopters in the display programme some thought should be given to their operation as there are differing requirements depending on the nature and size of models.

Consideration should be given to pitting and start up arrangements and a separate area for helicopters is recommended. Also, the take off location and surface should be evaluated based on the type of models included in the display; tarmac or very smooth surfaces can be problematic for scale helicopters due to potential resonance through the skids as the helicopter approaches lift off speed or spools down after touchdown; this phenomenon can be very rapid and very destructive.

Where 3D displays are featured ensure suitable separation distances are maintained throughout the display

The exact distances can be established based on the size of aircraft featured but particularly where “hard 3D” displays are featured it is important that high energy or very low manoeuvres are well away from the spectators due to the potential for airframe failure or destruction following a blade strike.

If the display is to consist of multiple helicopters, then discuss with the pilots whether they stand together in the prescribed pilot’s box or whether there is a preference for separation.

The role of the pilot’s assistant/spotter is particularly important in these circumstances.

2.21 Full Size Manned Aircraft Considerations

Many model displays feature a full size manned aircraft element or take place as part of a full size aircraft display; where this is the case there are a number of additional considerations that must be addressed by the FDD or his appointee.

It is vital that there is a clearly defined route of communication between any full size manned element and the model flightline; this can either be by direct contact or through radio communication.

It would be usual to appoint a dedicated contact from the model display team to act as the liaison with the full size manned aircraft activity. Where a transceiver is employed to communicate direct to aircraft; the operator must hold the appropriate radio telephony (RT) licence.

Where full size aircraft are inbound to display, all model aircraft must be grounded with a sufficient time “buffer” in order to guarantee a safe separation; a ten minute lead time would be usual but the exact figure will depend on a number of factors such as the method of communication and the type of aircraft involved.

Once the full size manned aircraft display has finished, model flying must not recommence until the FDD has confirmed that it is safe to do so.

2.22 Preparation, Paperwork and Risk Assessment

As already outlined, the preparation for a model display starts well in advance of the event itself. A paperwork trail is required and advisable on a number of levels and falls into two categories: documents that form legal requirements and documents that assist with the smooth running of the event.

These may be summarised as follows:

Legal

- **BMFA Display Permit.** Under our Article 16 Authorisation, a BMFA Display Permit is required for all public model flying displays where it is intended to operate models (of any weight) at heights exceeding 400ft.

- **Risk Assessment.** This will be required as a condition of obtaining a BMFA Display Permit.

- **NOTAM Submission.** NOTAMs (notices to airmen) are produced for short duration activity such as displays and are primarily to warn other air users of a temporary hazard which they must avoid; large model displays fall within this category. Full size aviators are required to check NOTAMs as part of the planning process for all flights. The contact details for the NOTAMs department are available “on line” and the information can be submitted using a web based form or verbally over the telephone.

- **Large Model – Operational Authorisation Paperwork.** If you are accepting models weighing over 25kg, then these will require a CAA Operational Authorisation in order to fly. It is useful to request a copy of this Operational Authorisation at an early stage as it is a legal document. Whilst the FDD has a duty to ensure that as far as possible the aircraft taking part in the display are legal and compliant, the final responsibility rests with the pilot.

Advisable

- **Pilot Application Forms.** For the larger displays it is advisable to have a process whereby prospective pilots can “apply” to participate in the display. This gives the organising team the opportunity to refuse applications that do not fit the desired criteria. The initial application form should require basic details of pilots and their intended display models. Once a decision has been reached on each application, the applicant should be informed of the decision in a timely manner. Where an application is accepted a further form can be provided for more detailed information (particularly useful where a commentary is to be provided).

- **Slot Planning.** Once the desired number of pilots and aircraft are booked in, it is advisable to start planning a slotting order for the display. This can take the form of a time table or a simple running order; it is much better to start the display with an idea of what will be flying when, rather than try to make it up as you go along. Whichever method is chosen, a degree of flexibility should be built into the programme.

- **Issue Passes and Information to Pilots.** Where passes are required to access the venue, ensure that these are provided in order that pilots do not have a "hassled" start to the weekend. It is also useful to provide pilots with a "key facts" sheet which states the location and time for pilots' briefings, the start and finish times for the flying display, and a contact telephone number for the flight line.

2.23 On the Day

Model displays can run in a number of ways to suit the "ethos" of the event; where the display is a club based activity supported predominantly by club members, there is a little leeway for a more relaxed approach to the day's proceedings. Where the display is a larger event, a more professional approach should be the aim. Whatever the nature of the event, the prime consideration should be safety.

The FDD and his team should lead by example and aim to be at the flightline well in advance of the arrival of the pilots.

Some thought should be given to the layout of the pits and model parking area as a "static line" can form a significant part of the display; remember that the models will spend a matter of minutes in the air, and several hours assembled on the ground. Encourage pilots and helpers to stand with their models and to engage with spectators; this is especially important immediately after a display slot.

2.24 Pilots' Briefing

The flying day should begin with the display briefing. A briefing template is shown at **Annex B**. It should be stressed that pilots will not be permitted to fly unless they have received a briefing. Exceptionally, this may be conducted on an individual basis for those who could not attend the main briefing.

The pilots briefing is a hugely important part of any display and can set the tone for the whole event. Ensure that you sufficiently publicise the time and location of the briefing (use the key facts sheet) and make attendance at the briefing compulsory for <u>all</u> pilots and helpers.

In circumstances where a pilot is unable to attend the official briefing then he should not be permitted to fly until he has received a personal briefing from the FDD or his appointee.

Some show organisers issue a briefing sheet to all pilots, but generally briefings should be in a verbal format. Use a briefing guide to ensure no major points are forgotten.

Briefings should start with an introduction of the FDD and his team and it is useful to outline what the main aims of the display are. Be sure to thank participating pilots at an early stage, remember without the pilots you have no display.

2.25 Weather Factors

Clearly, the weather is one of the most significant factors in the success or otherwise of a model flying display; frustratingly it is an element over which we have no control. We can, however, give some thought to the subject and put some contingencies in place for when the conditions fail to meet our "sunshine and gentle breeze" expectations.

The weather conditions affect what we do on two separate fronts, of course the primary considerations relate to the conditions for the duration of the actual display, again the overriding consideration is compliance with Article 16.

Wind. The most common consideration in the UK is wind strength and it is important to monitor the conditions throughout the display, should significant wind speeds be experienced then consideration must be given to limiting the type of aircraft that can fly and ultimately to scrubbing the display altogether if deemed appropriate.

Also it is not just the strength of the wind that needs to be considered but also the strength of any gusting, and most important of all the direction in relation to the display line, clearly a wind that is blowing directly along the display line is of less concern than where there is a significant element pushing aircraft towards the crowd line.

It should also be borne in mind that some aircraft types are limited in directional stability and control authority and any crosswind element can create a significant hazard during takeoff and landing, where this is the case steps should be taken to ensure an increased crowd separation distance during these phases of flight. Other types such as WW1 aircraft can be assisted by permitting operation with a cross runway element where space and separation permit, it is important that sufficient helpers are available to retrieve aircraft at the end of flight slots, as many of these aircraft will be unable to effectively taxi where a significant wind is present.

Flying may continue during light drizzle but where any significant rainfall is experienced flying should cease on safety grounds until it has passed, this is primarily to protect the equipment used and the integrity of the R/F link with the aircraft, experience has shown that 2.4GHz radio equipment in particular is likely to suffer a significantly reduced performance where excessive moisture is present.

Any conditions leading to significantly reduced visibility should be grounds for ceasing operation, this includes any mist or fog and also where a low cloud base is present, any indication that cloud base is falling below 400' should be evaluated by the FDD in order that a decision can be taken on the continuation or otherwise of the display, it may be entirely appropriate to continue with a reduced programme and carefully selected aircraft until conditions improve permitting a return to the full intended programme.

If the forecast looks in any way suspect it is important to have a contingency plan in mind for the running of the event but if conditions are very poor it may be a case of making it up as you go and just drawing from suitable pilots and aircraft that are willing and available to you.

The other aspect of the weather that may have bearing on your event is ground conditions, it is important to consider the implications of wet weather prior to your event and their bearing on access and exit arrangements and in particular access for the emergency services should it be required.

2.26 Running the Show

The aim should be to run a smooth relaxed event. Pilots should be given reasonable notice before each flying slot.

It is useful if the FDD stands back and takes in an overview of the proceedings rather than becoming directly involved in one specific area; in this way he is more likely to spot problems at an early stage. However this will depend on the size of the display and the number of team members available.

When decisions are required at short notice, it is important that the FDD takes a firm and proactive stance; "dithering" will not endear him to the rest of the organising team or the pilots. Try to establish the final slotting order four or five slots in advance so pilots can be well prepared and also so that you can move a slot forward should you have a failed start or unserviceable aircraft at short notice.

A calm and professional approach should be cultivated at all times, there is no place for panicking, shouting or rudeness on the flightline; remember it is not just the models that are on display.

2.27 Incidents and Accidents

The FDD should be fully conversant with Chapter 16 of the BMFA Members Handbook with regard to what constitutes an incident or an accident and what is legally reportable to the AAIB, the CAA and also to the BMFA.

Following an incident the FDD will be required to make a number of potentially difficult decisions depending on the nature and seriousness of the incident.

It is important that all involved remain calm in order that the correct processes can be implemented effectively.

Any press presence following a serious incident must be carefully managed and one person must be appointed by the FDD as the official point of contact. Think very carefully about what is said to the press. The term “no comment” can give the impression that there may be something to hide. It is very difficult to prevent reporters talking to the public following an incident, but making an “official” available can help to ensure the incident is correctly reported.

Where a serious incident has occurred resulting in substantial injury or fire, then the first action is to contact the emergency services. The FDD must ensure that information relating to the site location is readily available and that suitable personnel are dispatched to key locations in order to guide the emergency services to the correct location within the site.

The decision on whether to continue with the display will depend on a number of factors such as the seriousness of the incident and the exact location within the site. The initial decision must be taken by the FDD, but in circumstances where a Police presence is required, the appointed Police Incident Officer will make this decision.

The FDD should suspend flying activity until it is safe to resume and this has been agreed with the Incident Officer.

It can be helpful for the commentator to have a plan to implement in case of a major accident. This could include a script or guiding notes to be used to encourage calm amongst spectators and participants. Where the decision is taken to suspend flying activity, an appropriate announcement must be made; this may also incorporate a call for witnesses of the incident, notably those with photographs or video evidence which may help with accident reporting, insurance claims, and any legal investigation.

A serious incident Checklist is included in **Annex C**

A Commentators Incident Announcement Briefing is at **Annex D**

2.28 Disciplinary Measures

Occasionally, disciplinary action will be required in relation to the conduct of those participating in the model flying display; this can be for a number of reasons, from conduct whilst flying to general behaviour.

The first action in the event of unsafe or inappropriate flying conduct should be to ensure that the offending pilot does not fly again until the matter has been investigated. Extreme or repeat offenders should be removed from the display schedule.

2.29 Night Flying Displays

The operation of model aircraft at night is a recognized aspect of model aircraft activity and provided pilots can maintain compliance with the relevant provisions of the ANO, then it is a lawful activity. The official CAA definition of “night” is 30 minutes after sunset to 30 minutes before sunrise.

There are a number of additional safety considerations with the running of a night display. Perhaps the most significant of these is crowd separation distances. Whilst the CAA have not at this time specified any separation distance for night displays, they have however, indicated that increased distances should be applied between the display line and the crowd line, the exact distance used is currently at the discretion of the FDD and should be chosen to reflect the intended activity and aircraft.

From a display pilot’s point of view, there are a number of additional challenges with displaying an aircraft at night and pilot selection for such events must be carefully considered. It is recommended that only pilots with known night flying experience are permitted to take part.

Consideration should be given to the facilities provided for pilots at a night display and a well illuminated preparation area should be provided. It is, however, important that any lighting towards the live side, and particularly the pilots' box, is carefully controlled so that pilots do not have their night vision compromised at any time during their flight.

It can be useful to provide low level illumination of crowd barriers in order that they are easily identified by spectators without being intrusive to pilots and flight line personnel.

Lastly, it is important that robust failsafe procedures are implemented to cover the additional safety considerations associated with night flying. Any aircraft that loses its identification lighting must be "ditched" immediately to prevent intrusion into dead airspace (the spectator area). This action must be carried out immediately at the instruction of the FDD or FLM and this requirement should be covered in the pilots' briefing.

2.30 Out of Hours Flying

Many of the larger displays where camping is permitted allow "out of hours" flying by the pilots and helpers who are participating in the display.

Careful thought should be given to this aspect as legally this still falls under the responsibility of the FDD.

As a minimum a suitable person should be placed in charge (this can be an appointee of the FDD) and all of the usual protocols of group/club based model flying activity should be adhered to, such as frequency control, dead airspace and clearly-defined pits and pilots' boxes.

2.31 Special Effects/Pyrotechnics

Displays containing special effects must be given additional consideration and planning to ensure that these elements are conducted safely.

Where large pyrotechnic displays are planned, these should be under the care of suitably qualified experts. Access to the detonation areas must be strictly controlled.

You should ensure that suitable fire fighting equipment is in place and that medical support is at an appropriate level with staff briefed on the substances and equipment in use.

If pyrotechnics are attached to aircraft, then additional thought needs to be given to preventing the spread of fire should a model crash with live stores on board.

There is no doubt that the addition of special effects can greatly increase the "wow factor" of a model flying display; however, it is equally evident that many additional considerations and measures need to be implemented in order to arrive at a safe outcome. Some venues will not readily lend themselves to these additions.

Where a pyrotechnic element is included in the display, it is advisable to make an announcement prior to the commencement of the slot; this is particularly the case where loud bangs or large amounts of smoke are expected.

2.32 Additional Considerations

Where members of the public are invited into any event, there are a number of considerations that must be made for their safety and wellbeing outside of the basic “display” requirements.

Matters such as:-

- Access and exit requirements
- Internal and external traffic management
- First aid
- Catering
- Other entertainment/activities
- Lost children provision
- Poor weather contingencies
- Toilets

All of these factors will require consideration based on the expected number of visitors.

Where larger numbers of visitors are expected, it can be a useful step to appoint a dedicated person on the organising team to look after all non-aviation aspects of the event.

2.33 The Debrief

After the display (but preferably within a month or so) the FDD should organise a get together of the organising team to debrief the event; this is particularly useful if the display is an annual event.

Be sure to keep notes on what worked and what didn’t and ways in which the display and visitor experience could be enhanced.

Feedback from the pilots is also an important aspect of the meeting as it is important that pilots feel they have made a valued contribution to the event.

2.34 PR and the Press

There are two aspects of press interaction that potentially have a bearing on our model flying displays, firstly the model magazine press have the potential to bring a significant positive benefit to our model flying display, both for this year and of course for future events that we may be planning to run.

Secondly the wider press will have a significant influence on the reporting of any serious incident that may occur at the event.

Aim to cultivate a good working relationship with the modelling press and consider them in your planning for the event. Members of the press should be readily identifiable, so issue them with passes and ensure flight line officials are briefed on the areas to which the press should be granted access.

Photographers will appreciate the freedom to move around the pits area and flight line. Establish their familiarity with these environments and, if there is any doubt about whether safety might be compromised, ensure they are offered the necessary guidance. Remember, not only do quality photographs of interesting models sell modelling magazines; they also help to promote model flying events.

Consider using local media to promote your event. Local newspapers and radio stations can be great allies in getting people through the gate.

You may need to deal with the press following a newsworthy incident or accident. This can be a

difficult situation to manage and as described earlier in this handbook, it is useful to appoint one person as the press point of contact.

It is practically impossible to prevent press photographers from taking pictures that either invade privacy or could portray model flying activities in a negative light. The Police have some powers to limit access by members of the press if their presence could hinder an investigation or if they would have to trespass in order to take photographs.

2.35 In Summary

Putting on a model flying display is not difficult or complicated; however, it does require a degree of practical organisational skill and more importantly, a whole load of motivation and enthusiasm.

Successful displays come about from good planning and careful consideration of all the factors that affect the outcome of the event. As always, the devil is in the detail.

The BMFA is here to help you. Should you require assistance or advice regarding the planning or organisation of your display, then contact the office to chat through the process and any concerns that you have.

Dave Phipps, CEO

Manny Williamson, Development Officer

May 2021

Annex A

DISPLAY CHECKLIST

The checklist below should help you to ensure that you haven't forgotten anything in the planning of your display.

You may find it useful to utilise the sheet from the start of the planning and organising until the event itself, you should end up with a full tick list before the day of the display, just tick the N/A box for anything that isn't relevant to your event.

Initial

	Yes	N/A
• Venue agreed/booked	☐	☐
• Agreements signed	☐	☐
• FDD appointed	☐	☐
• Risk Assessment Completed	☐	☐
• BMFA Public Display Permit obtained	☐	☐
• Nearby clubs notified	☐	☐
• NOTAM applied for	☐	☐
• BMFA Event Calendar Notified	☐	☐
• Publicity Organised	☐	☐
• Pilots recruited	☐	☐

Secondary

	Yes	N/A
• FLD appointed	☐	☐
• FLM(s) appointed	☐	☐
• Scrutineer(s) appointed	☐	☐
• Transmitter Impound staff appointed	☐	☐
• Full size Liaison appointed	☐	☐

- Emergency Liaison appointed ☐ ☐
- Pilots/aircraft booked in ☐ ☐
- Site layout established ☐ ☐
- Full size manned aircraft activity booked ☐ ☐
- Full size manned aircraft activity notified ☐ ☐
- Pilot/aircraft information forms sent ☐ ☐
- First aid cover organised ☐ ☐
- Toilet facilities booked ☐ ☐
- Commentary/PA booked ☐ ☐
- Catering organised ☐ ☐
- Car parking established ☐ ☐

Final

	Yes	N/A
• Commentary brief sheets produced	☐	☐
• Passes dispatched	☐	☐
• Event access/exit clarified	☐	☐
• Organising team briefed	☐	☐

Annex B

Pilots Briefing template

The main body of the briefing should cover the following points:

- Introduction - introduce yourself and your team, set the scene for the day, refer to the purpose of the event, thank your pilots.

- General housekeeping – cover locations of toilets, catering arrangements, parking and vehicle considerations.

- Expected weather conditions – obtain the most up to date weather information, brief on the expected and how it will affect the operation (e.g. on-crowd wind as opposed to off-crowd wind).

- Pitting practices and taxying procedures – outline how you require the pitts to be laid out (this will already have been partly set as pilots arrive) where particular aircraft should park (turbines) start up areas and practices for accessing runway.

- Site layout, including boundaries, the pits, start areas, pilots' boxes, and runway in use.

- Separation distances / safety lines – use physical references on the site, distances mean very little without a marker (a large scale map of the location can be very useful).

- No fly areas – outline no fly areas, again use physical references (and map), also refer to procedures that will be used for repeated incursions into no fly areas.

- Flight patterns – cover the safety aspects and also the display considerations.

- Special features (such as pyrotechnics or toffee drop)

- Start finish times

- Stand down times (if any)

- Full size manned aircraft participation – cover notice times and additional matters such as full size aircraft landing after their display.

- FOD warnings and considerations – the usual request for a tidy pits and flight area and a request for a FOD sweep at the end of the display (particularly important if the display is located on a full size airfield.

- Contingencies – cover contingencies for adverse weather conditions, how you will aim to deal with an abbreviated flight programme (if required) and what you expect from the pilots.

- Emergency procedures.
- Take questions.
- Thank your pilots again.

Annex C

ACCIDENT AND INCIDENT MANAGEMENT

This section is intended as a guide to managing the immediate aftermath of a serious incident. There is a legal requirement for the Mandatory Occurrence Reporting of accidents and serious incidents and you should refer to Chapter 16 of the BMFA Members Handbook for detailed guidance.

Immediate Actions

- Prevent risk to life
- Contact emergency services: CALL 999 (state rendezvous point and nominate someone to meet them on arrival)
- Contact AAIB (01252 512299)
- Inform Event Organiser
- Prevent further damage
- Control participants and spectators: use PA (Annex D), marshals, move barriers

Considerations

- Preserve evidence (cordon, locate and secure wreckage, impound documents and equipment)
- Clear an emergency services access route

Emergency Services Liaison

- Identify Incident Officer
- Location of casualties
- Hazardous materials (fuel, batteries, composite materials)

Subsequent Actions

- Establish a Crisis Management Centre (assemble officials, under cover, equipped with communications (telephone, radio), limit access)
- Keep the public informed (Annex D)
- Nominate a press officer: prepare a press announcement (Annex D)
- Reporting: obtain photographic and video evidence, identify key witnesses
- Submit a report using the BMFA's online reporting portal - see https://reporting.bmfa.uk).

Annex D

SPECTATOR AND PRESS BRIEFINGS

The following scripts are intended as a guide to be used when briefing the press and spectators in the immediate aftermath of an accident or incident.

Immediate PA Announcement

"Ladies and gentlemen, there has been an incident at the right hand end of the display line involving a model aircraft and a number of spectators. If you were not involved in the incident, please keep the area clear and be careful not to restrict the access of emergency vehicles which will be arriving shortly. If you are a medical professional or first responder, please make yourself known to the flight line marshals."

"Ladies and gentlemen, please remain calm. There is no need to evacuate the area. Please do not return to your cars; it is important that we minimise congestion in all access routes to enable the unrestricted passage of emergency vehicles. Please assist our marshals by moving towards the left hand end of the spectator area."

Subsequent Request for Photographic and Video Evidence

"Ladies and gentlemen, if you were taking photographs or video of the red Hughes helicopter during or shortly before the incident, please make yourself known to the flight line marshals. We ask that you are respectful to those involved in the incident; please carefully consider the possible consequences of posting potentially sensitive images on social media networks."

Final PA Announcement

"Ladies and gentlemen, we regret that it has been decided to cancel the remainder of the flying display for today to enable the safe conduct of the investigation into this afternoon's incident. [Repeat photo/video request above.] If you are able to come again tomorrow, your ticket for today may be used to gain entry, and you will be most welcome to join us for a full flying programme. Have a safe journey home."

Initial Press Statement

"I regret to report that there has been an incident involving a model aircraft and a number of spectators. I cannot report on the condition of the spectators who have been taken by ambulance to [location] hospital. The incident will be the subject of an investigation by the Air Accident Investigation Branch. A press conference will be held at [time and location]."

Annex E

Debriefing template

- **Event timing**
- **Safety points**
- **Compliance with regulations or recommended procedures**
- **Event planning**
- **Administration**
- **Publicity**
- **Site layout and infrastructure**
- **Flight Line**
    - Briefings
    - Communications
    - Slotting
    - Flying displays (the good, the bad, and the ugly)
    - Commentary
- **Spectators**
    - Numbers
    - Ticketing
    - Arrivals and departures
    - Parking
    - Barriers
    - Facilities (catering, toilets)
    - Litter
- **Overall success?**

Annex F

Useful Telephone Numbers and Email Addresses

BMFA Office: 0116 2440028 (0900 – 1700 Mon – Fri)

BMFA email: admin@bmfa.org

BMFA out of hours (South) EMERGENCY USE ONLY
07778 287350 (Manny Williamson)

BMFA out of hours (Midlands) EMERGENCY USE ONLY
07790 511661 (David Phipps)

BMFA out of hours (North) EMERGENCY USE ONLY
07402 151122 (Andy Symons)

Tysers (risk management assistance)
0161 4193000

Tysers (crisis management) EMERGENCY USE ONLY
07768 887689 (Chris Jones)

Accident reporting (Out of Office Hours)
Air Accident Investigation Branch (AAIB): 01252 512299

Annex G

SUBMITTING A NOTAM

Civil Aviation Authority NOTAM Procedures - Submitting a NOTAM
It is a Civil Aviation Authority (CAA) requirement that all air users should be advised of unusual air activities that might be hazardous. This includes model aircraft displays. The process for notifying air users is called the "Notice to Airmen" or NOTAM. This appendix describes how to request a NOTAM.

NOTAMs are requested 28 days before the event by sending an email to arops@caa.co.uk . The email follows a specific format which is summarized below:

A) Club 0001

B) Anytown. Grid Ref SX5678. 1 mile radius

C) 0606251000 local

D) 0606251700 local

E) Model Aircraft flying Display - Surface to 1500 ft - POC Fred Smith 07123 123123.

Decode of the automatic input format:

Line A: Reference number, user defined and unique
Line B: Location in text and 4-figure grid reference or lat-long
Line C: YY MM DD time for start. Add "local" otherwise they assume GMT.
Line D: YY MM DD time for finish
Line E: Activity and requested airspace, ask for what you really need and don't overstate it. Contact number should be someone onsite that pilots can talk to.

The email should be sent to arops@caa.co.uk and titled "NOTAM Request". If you want to talk to the cell for advice telephone 020 7453 6599.