

# Flying Displays and Special Events: Safety and Administrative Requirements and Guidance

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## Revision History

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**Edition 12****March 2010**

This revision incorporates changes to the Air Navigation Order (ANO) references to reflect the 2009 edition of the ANO.

Other minor editorial corrections, convenient to be included at this time, have also been included. All technical changes are marked by a marginal line.

**Edition 12, Amendment 2012/01****June 2012**

This amendment amends Chapter 6, paragraphs 3.1 and 4 to address two AAIB Safety Recommendations (2011-001 and 2011-002 in FACTOR 02/2011). Due to their urgent nature these changes have been made ahead of the major revision to this CAP.

**Edition 13****February 2015**

This revision is a complete rewrite of CAP 403. The CAP is now split into Part A and Part B covering Flying Displays and Special Events respectively.

**Edition 13, Amendment 2016/01****March 2016**

Amends to reflect change in display application requirements (Chapter 3 Part A, Chapter 4 Part A and Annex A – Risk Assessment) and introduction of fitness assessment for Flying Display Directors and Display Pilots (Chapter 1 Part A). All subsequent to CAA's review of Flying Display regulation conducted in 2015/6. Due to their urgent nature these changes have been made ahead of a major revision to this CAP in late 2016.

**Edition 13, Amendment 2016/02****April 2016**

Amends to reflect change to requirements on FDDs, requirements attached to Display Authorisations and preliminary planning requirements (Chapter 2 Part A), and amends to reflect changes in site assessment and display planning rules and new requirements on post event feedback and safety breach reporting (Chapter 3 Part A). Introduction of requirement to collect and communicate information on latent hazards within aircraft (Chapter 4 Part A). Further amends on DAE appointment and

competency and the requirements and processes attached to Display Authorisations and Display Authorisation renewals (Chapter 5 Part A).

All subsequent to CAA's review of Flying Display regulation conducted in 2015/6.

### **Edition 13, Amendment 2016/03**

**May 2016**

Amends to adjust minimum Separation Distance for light and rotary wing aircraft and to clarify requirements in relation to Display Authorisation revalidation and currency.

Amends subsequent to introduction of online application for Flying Display and special event Permissions. Minor addition to guidance on Risk Assessment

### **Edition 13, Amendment 2017/01**

**February 2017**

Amends to reflect introduction of FDD accreditation scheme and inclusion of revised risk management guidance.

### **Edition 14**

**May 2017**

A new edition, restructured to improve accessibility, update references and provide greater focus on Flying Displays by removing Part B of the existing document that related to other events not requiring CAA Permissions. Implementation of the CAA's air display review and organisational responses to AAIB recommendations have led to regulatory and policy developments relating to: Display Areas and public protection, FDD accreditation, Airborne FDDs (AFDDs), pilot declarations, FDD documentation checking requirements, warning and stop call guidance and Display Authorisation renewal.

### **Edition 14, Amendment 2017/01**

**May 2017**

Minor clarifying amendments relating to definition of Aerobatic Manoeuvre, reporting of terminate calls, use of drones by the general public at displays and restrictions within the Display Area. Addition of a number of definitions to the glossary.

### **Edition 15**

**March 2018**

Amendment includes minor clarifications and editorial changes throughout, the addition and amendment of certain definitions, details of the acceptability of certain foreign display authorisations, additional guidance for Flying Display and Special Event applications, additional information concerning military participation, further secondary spectator considerations, additional hazardous material information,

clarification concerning display practises on the day of an event, further details of FDD Accreditation, the provision of Deputy FDDs, reinforced requirement for submission of Flying Display Director Post-Display Feedback Form, updated information concerning the Police, the removal of reference to ORS4.1174 for display flight outside of the Display Area, revised requirements for DAEs, revised requirements for DAs, inclusion of a Suspension and Revocation procedure for FDDs, DAEs and DAs, amendments to DA Categories and Groups, incorporation of the Tyro DA scheme, Appendix B review, the removal of the 120 day notification period for RA(T)s for major events and further details concerning reporting and feedback.

### **Feedback**

The CAA seeks to continually improve its regulation and guidance and your feedback is helpful to us in doing that. If you have any comments on or suggestions about CAP 403 please send them to [ga@caa.co.uk](mailto:ga@caa.co.uk) with subject line 'CAP 403 comments'.

# Terminology and Definitions

Throughout this CAP the following terms and definitions are used:

Term	Abbreviation	Definition
<b>Aerobatic Manoeuvre</b>		The definition of an aerobatic manoeuvre is as defined in the <u>Air Navigation Order</u>
<b><u>Airborne Flying Display Director</u></b>	<b><u>AFDD</u></b>	<p>A DA qualified Pilot participating in their own single item Flying Display who is responsible to the CAA for the safe conduct of that Flying Display.</p> <p><b>NOTE 1:</b> The EO and the AFDD may in some cases be the same person.</p> <p><b>NOTE 2:</b> No more than 3 individual AFDDs may take part in the same event at the same location on a single day.</p>
<b>Aircraft Parking Area</b>		An area used for the parking of aircraft to which the public has no access during the period of the display.
<b>Airfield Boundary</b>		The line delineated by the Airfield Boundary fence, or where no such fence exists, the area confined to that prepared and used solely for the purpose of ground manoeuvring of aircraft.
<b>Air Traffic Control</b>	<b>ATC</b>	References to 'ATC' contained in this CAP apply to all ground to air radio telephony transmission communications carried out using approved frequencies.
<b><u>As Low As Reasonably Practicable</u></b>	<b><u>ALARP</u></b>	<u>As defined by the Health and Safety Executive</u>
<b>Car Park(s)</b>		Where the words 'Car Park(s)' are used in the text of this CAP, they are intended to apply to Car Park(s) to which Spectators have access during the Flying Display and as such must be considered in the same manner as the Spectator area.
<b>Close Formation</b>		Close Formation is defined as when an aircraft is flying in close proximity (usually within 50 metres) to another aircraft in such a manner as to require the following aircraft to take all external visual references solely from the lead aircraft.
<b>Congested Area</b>		A Congested Area is defined in Schedule 1 of the <u>ANO</u> as being any area in relation to a city, town or settlement which is substantially used for residential, industrial, commercial or recreational purposes <sup>1</sup> .

<sup>1</sup> For planning purposes and clarification, a golf course attached to a Congested Area is considered as part of that congested area and should be treated as such when considering overflight restrictions.

Term	Abbreviation	Definition
<b>Crowd Line</b>		The line delineating the closest edge of any area, including Car Parks, accessible to Spectators with respect to the Display Area/line.
<b>Display Area</b>		<u>The Display Area is the ground area footprint of the airspace within which displaying aircraft are manoeuvred in a manner which requires the pilot to exercise the privileges of their Display Authorisation and fly to prescribed conditions and minima. Any manoeuvres which are not compliant with SERA must be conducted within the Display Area; SERA.5005(f)(1) and SERA.5005(f)(2) apply outside the Display Area as applicable.</u>
<b>Display Authorisation</b>	<b>DA</b>	A national document detailing the categories of aircraft in which a pilot is authorised to display, together with any limitations and other specific endorsements.
<b>Display Authorisation Evaluator</b>	<b>DAE</b>	A person authorised by the CAA qualified to conduct evaluations and tests for the award of a Display Authorisation.
<b>Display Item</b>		A single, formation or group of aircraft, flying as one single display 'act' throughout.
<b>Display Line or Display Axis</b>		A line defining the track and distance along which displaying aircraft may operate.
<b>Display Pilot</b>		<p>A pilot who holds a Display Authorisation (DA) or exemption, issued by <u>their</u> national aviation authority, which allows <u>them</u> to take part in a Flying Display.</p> <p><b>NOTE:</b> In the UK this only applies to civil Display Pilots. Military Display Pilots are approved and authorised as specified by the MOD <u>through the Public Display Authority process. Foreign military pilots are approved as described in RA2335.</u></p>
<b>Display Routine</b>		A series of linked manoeuvres to be performed during a Flying Display
<b>Essential Personnel</b>		A person or persons authorised and permitted to be within designated restricted areas, forward of the Crowd Line, during a Flying Display. Examples of Essential Personnel include members of Emergency Services, essential ground support crew, Air Traffic Control personnel, the FDD and members of the FCC, refuelling operatives, barnstorming display act ground Participants when in conjunction with their specific role and CAA FSOs whilst pursuant to their duties.
<b>Event Organiser</b>	<b>EO</b>	The EO is the person responsible for all matters pertaining to the wider planning and execution of an event that includes a Flying Display and for the safety of the general public, both at the event and those affected by the wider impacts of the event.
<b><u>Fédération Aéronautique Internationale</u></b>	<b><u>FAI</u></b>	<u>The world air sports federation.</u>



Term	Abbreviation	Definition
<b>Flying Control Committee</b>	<b>FCC</b>	A group of Suitably Qualified and Experienced Persons ( <u>SQEP</u> ) assembled to assist the FDD in safety management of a Flying Display.
<b>Flying Display</b>		Any flying activity deliberately performed for the purpose of providing an exhibition or entertainment at an event that has been advertised and is open to the public.
<b>Flying Display Director</b>	<b>FDD</b>	The person responsible to the CAA for the safe conduct of a Flying Display.  <b>NOTE:</b> The Event Organiser and FDD may in some cases be the same person.
<b><u>Flying Display Director Mentor</u></b>	<b><u>FDDM</u></b>	<u>A Flying Display Director that has been accredited under the joint CAA/MAA FDD accreditation scheme so endorsed as to permit mentoring of aspiring FDDs.</u>
<b>Flypast</b>		An aircraft flying, either singly or in formation, past a gathering of Spectators along a pre-planned route without manoeuvring, other than when necessary for safe and accurate navigation. Accordingly, this will not include Aerobatic Manoeuvres. A Flypast is considered to consist of one single pass unless otherwise specified on the appropriate Permission.
<b><u>Flypast (Mil)</u></b>		<u>A Flypast (Mil) involves aircraft flying, either singly or in formation, over or past a gathering of spectators along a pre-planned route without manoeuvring, other than when necessary for safe and accurate navigation. Accordingly, they will not include aerobatic manoeuvres.</u>
<b>Formation</b>		A Formation is considered as two or more aircraft conducting synchronised flying.
<b>Funeral Flypast/Funeral Flying Display</b>		Flying activity performed on commemorative and 'in memorial' occasions. The terms 'Flypast' and 'Flying Display' in this context are as defined elsewhere in this section.
<b><u>Military Aviation Authority</u></b>	<b><u>MAA</u></b>	<u>The Military Aviation Authority (MAA), established on 1 April 2010, provides the regulatory framework, certification and approvals for the acquisition, operation and continued airworthiness of air systems within the Defence aviation environment. It has full oversight of all Defence aviation activity and, through independent audit, provides assurance to the Secretary of State for Defence that the highest standards of aviation safety and airworthiness are maintained in the conduct of military aviation. It brings together the regulatory functions previously carried out by the Directorate of Aviation Regulation and Safety (DARS), Defence Airspace and Air Traffic Management (DAATM), the Air Systems Group and the Military Flight Test Regulator (MFTR).</u>

Term	Abbreviation	Definition
<b>Minimum Aerobatic Height</b>		The most restrictive of: <ul style="list-style-type: none"> <li>▪ The minimum aerobatic height specified in the Permission</li> <li>▪ The minimum aerobatic height quoted on relevant pilot's DA (in relation to the aircraft being flown)</li> <li>▪ The minimum aerobatic height imposed by the FDD</li> </ul>
<b>Non-aerobatic Flying Display</b>		A dynamic, manoeuvring display carried out without any Aerobatic Manoeuvres.
<b>Participant</b>		A Flying Display or Special Event performer, or any person directly involved in the conduct of a performance.
<b>Permission</b>		The document issued by the CAA permitting the proposed flying activity to take place with regard to the <a href="#">ANO</a> and <a href="#">SERA</a> .
<b>Pleasure Flights</b>		Any passenger flight starting from, or arriving at, the display site (or adjacent site) purely for the purpose of Commercial Air Transport pleasure flying on the day of a Flying Display or Special Event.
<b>Private Flying Display</b>		Any flying activity deliberately performed for the purpose of providing an exhibition or entertainment at a private event requiring a Permission to operate contrary to the requirements of <a href="#">SERA</a> .5005(f). (See also 'Flying Display')
<b><u>Regulatory Article 2335</u></b>	<a href="#">RA2335</a>	<u>Regulation detailing the requirements for Flying Displays held over MOD Occupied Property and events over non-MOD Occupied Property where the only participants are military registered aircraft.</u>
<b>Separation Distance</b>		The lateral distance between the displaying aircraft and Crowd Line.
<b><u>Secondary Spectator</u></b>		<u>A person viewing a Flying Display from a location outside of the area specifically designated for spectators by the FDD.</u>
<b>Special Event</b>		Any flying activity deliberately performed requiring a Permission to operate contrary to the requirements of the <a href="#">ANO</a> , the Rules of the Air or <a href="#">SERA</a> . Special Events include Private Flying Displays, Funeral Flypasts, the dropping of articles, activities requiring exemptions to SERA 3210.(c)(3) (overtaking) and Rule 10(1) of the Rules of the Air 2015 (land after) and can include film work or any other unusual activity.  <b>NOTE:</b> With the exception of Private Flying Displays, Special Event Permissions do not include aerobatics, unless otherwise stated.
<b>Spectator</b>		A person attending a Flying Display specifically to witness the event.

Term	Abbreviation	Definition
<b>Static Aircraft Park</b>		An area used for the parking of aircraft to which the public may have access at all times.
<b><u>Swept Wing Jet</u></b>		<u>A jet aircraft is considered to be swept wing if the leading edge of the wing is at an angle of 30 degrees or more from the perpendicular to the longitudinal axis.<sup>2</sup></u>
<b>Tailchase</b>		A Tailchase is defined as a number of aircraft following a leader in loose proximity, in line astern, whilst the leader carries out a series of manoeuvres of an aerobatic or semi-aerobatic nature.
<b><u>Twilight</u></b>		<u>The period of time falling between sunset/night and night/sunrise. In this context, the term 'night' is as defined in the ANO.<sup>3</sup> The terms 'sunset' and 'sunrise' are determined at surface level at the display location.</u>
<b><u>Tyro Display Authorised Pilot</u></b>	<b><u>TDA</u></b>	<u>A display pilot operating within the first 25 months from initial evaluation for the grant of a Display Authorisation.</u>

<sup>2</sup> Classification of a particular aircraft type is the responsibility of the CAA.

<sup>3</sup> "Night" means the time from half an hour after sunset until half an hour before sunrise (both times inclusive), sunset and sunrise being determined at surface level.

# General information

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## Introduction

Flying Displays and aerial Special Events form a significant part of the UK leisure industry. Organisation, administration and participation in displays need careful consideration if the highest safety standards are to be achieved and maintained. This publication contains specific requirements and is intended as a code of best practice. It offers guidance material to enhance the safety of both the Participants and the Spectators.

Protecting the public is of paramount importance and as such any participant or organiser of a Flying Display or Special Event is responsible for carrying out their tasks with the utmost professionalism and to the highest standards. Flying Displays and Special Events must be carefully planned both on the ground and in the air and nothing should be conducted without careful thought towards ensuring that the risks have been considered and the activity is as safe as reasonably possible.

The impromptu, *ad hoc*, unrehearsed or unplanned should never be attempted.

## Background

The Civil Aviation Act 1982 empowers the Civil Aviation Authority (CAA) to regulate civil Flying Displays within the United Kingdom in accordance with the requirements of the ANO. This publication sets out the safety and administrative procedures to be followed by organisers and Participants at such events.

Military Flying Displays are referred to in Article 86 paragraph (15) of the ANO. Military Flying Displays and Flypasts are conducted under the regulation of the Military Aviation Authority ([MAA](#)) and in accordance with [MAA Regulatory Article 2335](#).

Guidance is also provided, beyond the statutory requirements, so that experience gained from past displays can be of use to those new to both the organisation and participation in such events.

When an application is made for a Permission to hold a Flying Display, Flying Display Directors (FDDs) are required to confirm that the organisation and conduct of the Flying Display will be in accordance with the provisions of this CAP.

Unless otherwise stated, nothing in this publication is intended to conflict with the ANO or other legislation, which, in case of doubt, must be regarded as overriding.

Aeronautical Information Circulars (AIC) 'Regulation of Flying Displays' and 'Notification of Unusual Aerial Activities' are issued periodically to update the information in this publication.

Further useful information can be found at [www.caa.co.uk/General-aviation/Displays,-events-and-activities/Flying-displays-and-special-events/](http://www.caa.co.uk/General-aviation/Displays,-events-and-activities/Flying-displays-and-special-events/)

### **Reporting**

The CAA is keen to encourage open feedback and reporting from any member of the Flying Display community operating in any capacity in an attempt to increase the safety and performance of the Flying Display industry as a whole. The CAA would like to receive any comments/observations/lessons learnt related to the safety of either a specific Flying Display or Flying Displays in general. Any issue can be reported, no matter how small and insignificant it may seem, and can cover aspects such as Human Factors, concerns over performance, near misses, things that might have lead to an incident or accident had they been left or not caught, etc. Although FDDs are required to submit [SRG 1305](#), the joint CAA/MAA 'Flying Display Director Post Display Feedback Form', the same form may be used by anyone wishing to report an issue in the interests of Flying Display safety. All reports will be treated confidentially and all personal information will be removed during any follow up to protect the reporter.

Participants, organisers and supervisors are also encouraged to report any incidents or examples of errors involving human factors that occur during a display to [CHIRP](#) who have a dedicated Flying Display reporting stream designed to promulgate to the wider community any lessons learned that could be of benefit to others.

## Chapter 1

# Flying Display legal requirements

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## Article 86

- 1.1 Article 86 of the [ANO](#) 2016 (as amended) deals with civil Flying Displays within the United Kingdom. Where such a Flying Display is at an advertised event which is open to the public, Article 86 places responsibilities on the Event Organiser ([EO](#)), the [FDD](#) and the participating pilots. For such an event, the FDD must obtain, in writing, a Permission to hold the event from the CAA and to participate in the event, civilian Display Pilots must hold a Display Authorisation (DA) or a DA Exemption.
- 1.2 Before a Permission can be issued, the CAA must be satisfied that the FDD is **a person who is fit and competent as an FDD, having regard in particular to their previous conduct and experience, their organisation, staffing and other arrangements, to safely organise the proposed Flying Display.** To this end, the FDD is required to provide such evidence and undergo such tests and examinations as the CAA may require of them.
- 1.3 Similarly, a pilot must satisfy the CAA that: **They are a fit person to hold a Display Authorisation (DA) and are qualified by reason of their knowledge, experience, competence, skill, physical and mental fitness.** To this end, the pilot is required to provide such evidence and undergo such tests and examinations as the CAA may require of them.
- 1.4 In deciding if an application for a Permission under Article 86 should be made, the FDD should note that the 'open to the public' requirement is the principal requirement rather than the 'advertised' element. If the general public are permitted onto the site for the purposes of witnessing the Flying Display, with or without payment, an Article 86 Permission will be required.

- 1.5 However, AOC Emergency Service Companies may be issued exemptions from the provisions of Article 86 of the ANO 2016 (as amended) for the purpose of Emergency Services Role Demonstrations at UK offshore sites and/or UK onshore sites pre-notified to the CAA Flight Operations Inspectorate (Helicopter) Section.

## Special Events

- 1.6 Flights at events that are not open to the public (Special Events) remain subject to the Rules of the Air Regulations and the Standardised European Rules of the Air (SERA). To hold such an event, an appropriate Permission is to be sought from the CAA should there be a need to contravene any aspect of these rules (low flying for the purpose of a Private Flying Display for instance). If it is intended to perform at such an event where a SERA Permission is not necessary, a NOTAM is highly recommended in order to notify other airspace users of this Unusual Aerial Activity. Display pilots/organisers may obtain a NOTAM Request Form by email to: [AROps@caa.co.uk](mailto:AROps@caa.co.uk) or by calling 0207 453 6599; this email/number is monitored Mon-Fri 0830-1630. NOTAM requests should be submitted as soon as practicable to ensure NOTAMs are promulgated in good time.
- 1.7 Although Special Events do not require a Flying Display Director, as with an Article 86 Permission, many of the organisational aspects and requirements of this CAP are still applicable, particularly the contents of chapters 2, 3, 5, 7 and Appendix A for smaller events. The CAA may still require FDDs and Flying Control Committees (FCCs) for larger Private Flying Displays and for any of the other requirements of this CAP to be met (for instance, the CAA may require a Flying Display Risk Assessment to be completed in accordance with Appendix A for large Special Events). If organising such an event, early engagement with the [CAA GA Unit](#) is recommended in order to assess event requirements.



## Flying Events

- 1.8 Races and contests, are specifically exempt from the requirements of Article 86 of the [ANO](#) 2016 (as amended). However, where the public has access to the site of the race or contest, the organiser should comply with those parts of this CAP relating to public safety, particularly in relation to minimum Separation Distances between aircraft, in flight and on the ground, and the public.
- 1.9 CAA Permissions are not required for other flying events such as fly-ins, provided none of the Article 86 qualifying conditions are met and all flying activity is in accordance with the [ANO](#) and [SERA](#).

## Military events, venues and military participation in civil Flying Displays

- 1.10 Displays organised by the MOD as specified in Article 86 of the [ANO](#) are exempt from the other provisions of Article 86 .
- 1.11 Events involving only military Display Items are not subject to an [ANO](#) Article 86 Permission.
- 1.12 Flying Displays held on or over MOD property are also exempt from the provisions of Article 86. Participation by civilian pilots in such displays will be subject to compliance with [RA 2335](#) and display limits as approved by the [MAA](#).
- 1.13 Before any military aircraft can participate in a UK Flying Display, its participation must be approved by the MOD. In the case of UK military aircraft, it can be assumed that the required approval has been given by the MOD when the display aircraft is allocated to the Flying Display by the relevant Service.

## Foreign participation

### Foreign civil participants from countries operating a DA system

- 1.14 Certain other countries have issued, or are in the process of issuing, DAs to their Display Pilots. DAs issued by other countries may be accepted by

the UK CAA for pilots participating in displays in the UK ([ANO](#) Article 86) where they provide a similar level of assurance to the UK system. The limitations imposed on pilots holding a DA issued in another country whilst displaying in the UK are the more restrictive of the limits specified in the pilot's DA and the limits imposed in the Article 86 Permission.

- 1.15 At present the CAA have reciprocal agreements with Norway and Switzerland whose DA holders may display in the UK. Swiss DA holders may however be subject to some additional requirements and should check with their National Aviation Authority.
- 1.16 Confirmation of the acceptability of holders of any other non-UK DA should be directed to the UK [CAA GA Unit](#).
- 1.17 Non UK Pilots may hold, if they wish, a UK DA provided they have met all the requirements as specified in Chapter 10 and have been recommended to the CAA by a UK DAE. The limitations of the UK DA will apply to Flying Displays flown in the United Kingdom.

### **Foreign civil participation from other countries without a DA system**

- 1.18 Any foreign civil licensed pilot from countries without a DA system wishing to take part in a Flying Display under an Article 86 Permission is required to hold a UK DA or, exceptionally, an exemption from the need to hold one. Where a foreign qualification equivalent to a DA is held, the CAA may be prepared to accept it as confirmation of competence in considering the issue of a UK DA or an exemption from the need to hold a DA. Further details may be obtained from the [CAA GA Unit](#).

### **Foreign military participation**

- 1.19 All foreign military Display Items require the specific approval of the MOD before participating in a UK Flying Display. FDDs should seek early clarification from the [MAA](#) if they believe that such items will be participating in their Flying Display; refer also to [Regulatory Article 2335](#).
- 1.20 In some countries, foreign military registered aircraft may be operated by non-military organisations. In this case the [MAA](#) and the [CAA GA Unit](#)

must be consulted for clarification as to whether a form of military PDA/validation or civilian DA is required prior to participating in a UK Flying Display.

- 1.21 In some countries, foreign civilian registered aircraft may be operated by foreign military organisations. Again in this case the [CAA GA Unit](#) and the [MAA](#) must be consulted for clarification prior to participation in a UK Flying Display.

### **Civil foreign registered aircraft**

- 1.22 Where foreign registered aircraft are carrying passengers for valuable consideration into an airfield hosting a Flying Display, a Permission under Article 250 of the [ANO](#) may be required. The FDD should advise the operators of such aircraft to contact the UK CAA ([foreign carrier permits](#)) for clarification and full details.
- 1.23 Civil foreign registered aircraft, other than those covered by [ORS4 1249](#), operating on any form of non-standard or restricted Certificate of Airworthiness (equivalent to the UK Permit to Fly) require an exemption to fly in UK airspace. Exemptions are issued by the CAA [Applications and Approvals Department](#). In addition, for ex-military aircraft with a Maximum Take-off Mass Allowed (MTMA) in excess of 2730kgs, a degree of equivalence with BCAR A8-23/24/25/26 and [CAP 632](#) will be required. Details on making an application for an exemption to fly in UK airspace can be obtained from the [Applications and Approvals Department](#).

### **Further reading**

- 1.24 A list of the articles of the [ANO](#) with particular relevance to Flying Displays is given at Appendix I.

## Chapter 2

## Applying for a Flying Display or Special Event

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### Applying for permission

- 2.1 This chapter deals with the process and information required by the CAA when applying for a Permission to carry out a Flying Display or Special Event. Applications do not necessarily need to be made by EOs or FDDs, however, it should be noted that the CAA will correspond directly with the FDD, or an agreed designated assistant, regardless of applicant, concerning any issues raised during application processing for an Article 86 Permission.
- 2.2 An application for a Flying Display or Special Event Permission is made online by either visiting the [CAA web site](#) or selecting this [link](#). All applications require a colour 1:50,000 scale Ordnance Survey map extract and a list of participating aircraft. This list may be entered on the on-line form itself or by using an [aircraft Display Item schedule](#) which can be completed separately and uploaded with the application. In addition, applications for Article 86 Flying Displays will also require a fully completed Flying Display Risk Assessment. Further guidance on the production of a suitable Flying Display Risk Assessment can be found at Appendix A.
- 2.3 If applying for an Article 86 Permission, the application incorporates a declaration in which the FDD undertakes that the Flying Display will be conducted in accordance with the relevant provisions of this CAP. Additionally, the FDD certifies that a process is in place to communicate information concerning the handling of potential hazardous materials or equipment contained within performing aircraft in the event of an incident.
- 2.4 If applying for an Article 86 or SERA Permission to conduct a Flypast, unless otherwise informed, the CAA will issue a Permission for a single Flypast as defined in this CAP. If multiple Flypasts are required, details of

the intended number of passes must be entered in the 'display item description' area of the online application form so that any Permission can be issued accordingly.

- 2.5 The application fee is calculated automatically and payment is part of the application process. All major credit and debit cards are accepted.
- 2.6 The applicant will receive a confirmation email, which is generated automatically, that will include a reference number and a PDF copy of the completed form.
- 2.7 The application must be made no later than 42 days before the event date.
- 2.8 It is strongly recommended that applicants contact the [CAA GA Unit](#) if the required Permission has not been received 10 days prior to the proposed event.

### Identifying the permission required

- 2.9 The following tables can be referred to when determining the type of Permission required for a proposed event:

Events Over Civilian Land								
Type of Event	Advertised and open to the public				Not advertised and private			
Applicable Permission	Article 86 Permission				SERA Permission			
Permission in place	Yes		No		Yes		No	
Registration of aircraft	Mil Reg	Civ Reg	Mil Reg	Civ Reg	Mil Reg	Civ reg	Mil Reg	Civ Reg
Permitted Activity	Display Flying Role Demo Flypast (Mil)	Display Flying Flypast	Role Demo Flypast (Mil)	None (regardless of height)	As per Permission	As per Permission	Role Demo Flypast (Mil)	In accordance with ANO/SERA
Regulation (most restrictive of)	RA 2335 CAP 403	CAP 403	RA 2335	N/A	RA 2335 CAP 403	CAP403	RA 2335	ANO/SERA

Events Over MOD Occupied Property				
Military Regulated				
Registration of aircraft	Military Reg		Civilian Reg	
Type of Event	Flying Display	Other Event	Flying Display	Other Event
Permitted Activity	Display Flying Role Demos Flypast (Mil)	Role Demos Flypast (Mil)	Display Flying Flypast	As per the ANO/SERA
Regulation (most restrictive of)	RA 2335	RA 2335	RA 2335 CAP 403	ANO/SERA

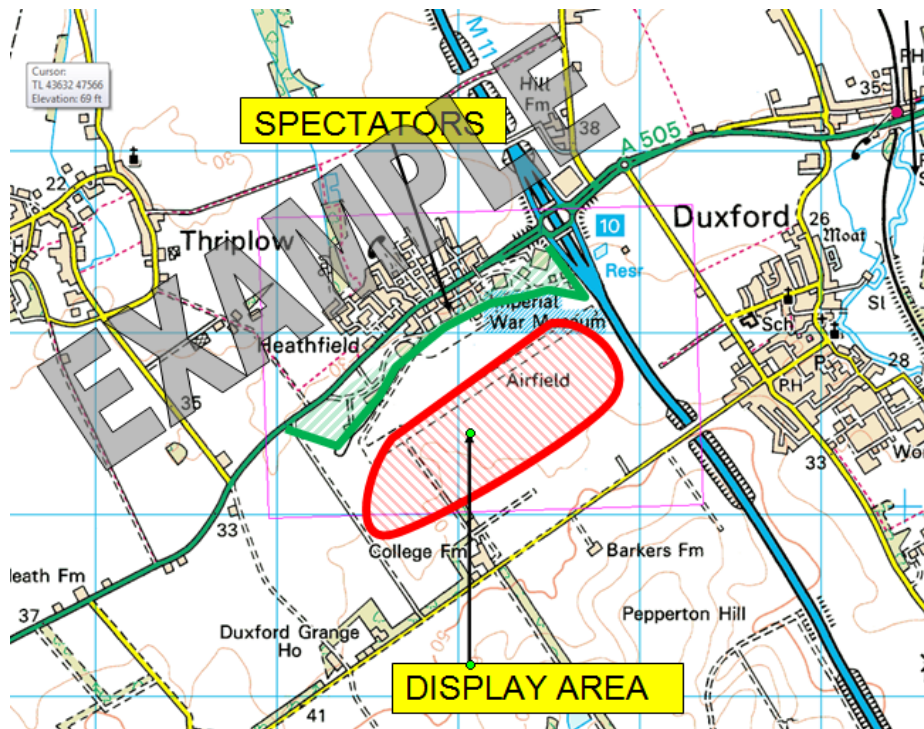
**Note: The CAA will not issue an Article 86 or SERA Permission for any event over military occupied property or for any event over civilian land where the only participants are military registered aircraft.**

## The Map

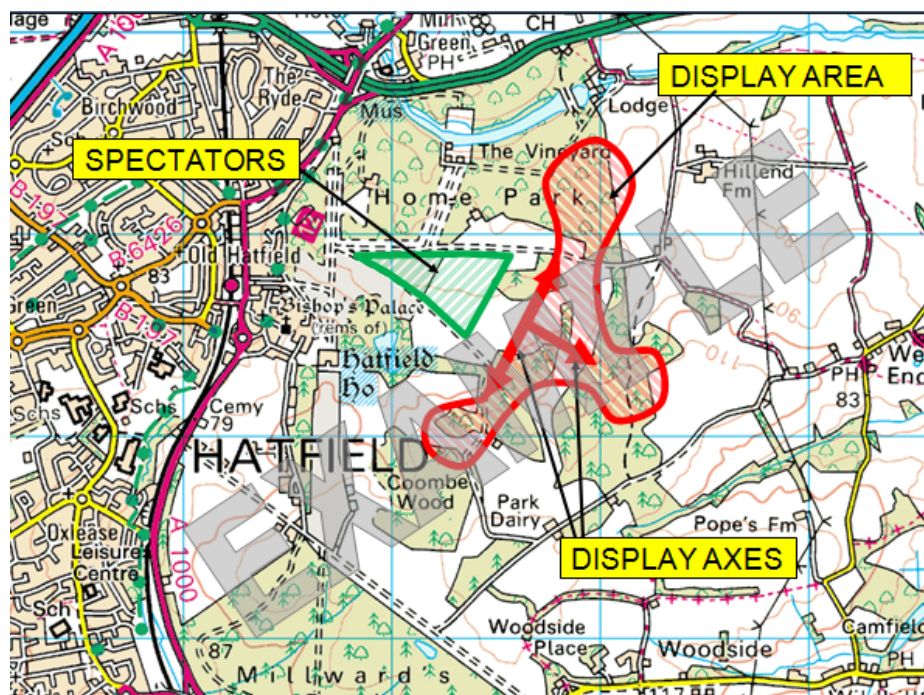
- 2.10 The colour 1:50,000 scale Ordnance Survey map extract should clearly show the event location and the layout of the site including:
- Boundaries of the Display Area
  - Any relevant features within the Display Area, including but not limited to:
    - Buildings potentially occupied by non- essential personnel
    - Areas where secondary spectators may assemble.
  - Spectators' enclosures and Car Parks
  - Features outside of the Display Area that are put at increased risk as a result of the display taking place including, but not limited to:
    - Congested Areas
    - Masts, railway lines, bridges and other local infrastructure
    - Major / busy roads
    - Areas where secondary spectators assemble
- 2.11 It should be noted that all maps submitted with applications must show the Display Area required for the intended flying activity but may include



Display Lines/axes for illustration if desired. The following example shows a simple Display Area:

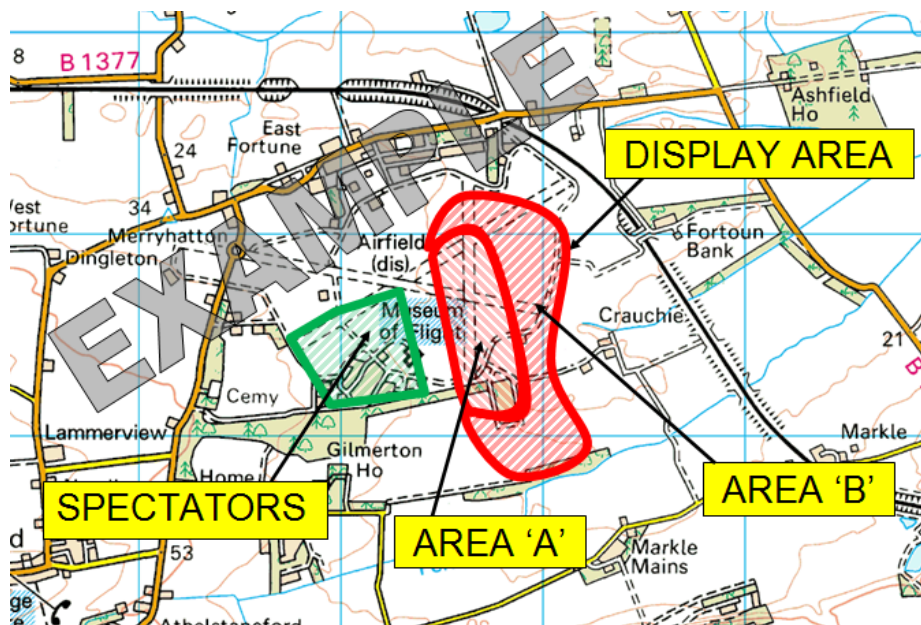


In the following example, although not essential, the display axes have also been shown in addition for added clarity.





The following example illustrates a case where 'sub-areas' have been used.



- 2.12 For further information on Display Areas and associated 'sub-areas' see Chapter 5.

### Flying Displays and Special Events featuring only military aircraft

- 2.13 If your Flying Display or Special Event includes only military aircraft, you must notify the CAA separately using [DAP1920D: Request for Airspace Coordination and Notification - Air Displays](#) or [DAP1920F: Request for Airspace Coordination & Notification – Flypasts](#) as appropriate.

## Chapter 3

# Application Timescales

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## Notification to the CAA

- 3.1 The smooth and expeditious planning for a Flying Display, or any other Special Event, requires that various applications are made to the CAA within an appropriate timescale. These timescales are dictated by the requirements of the CAA to discharge their obligations to third parties, to achieve preparation of appropriate documentation including various regulations in the case of a Restricted Area (Temporary) (RA(T)) and to achieve satisfactory dissemination of the information to all interested parties. The timescales given are the **minimum** requirements. Where possible, and certainly in the busy summer periods, EOs are requested to give as much warning as possible. All contact addresses, telephone numbers and details are given in Appendix J.

## 90 days prior to the event

### Restricted Area (RA(T))

- 3.2 Applications should be made to [AROps@caa.co.uk](mailto:AROps@caa.co.uk) in respect of a RA(T) for all events at least 90 days prior to the event.

Note: RA(T)s are automatically provided for the Royal Air Force Aerobatic Team (RAFAT) The Red Arrows and other major military Formation display teams but only for the duration of their display plus a small margin.

- 3.3 RA(T)s may be available for any Flying Display sited at natural choke points, in otherwise unprotected airspace such as coastal events or where the size and nature of the event warrant the setting up of a RA(T). Event Organisers should contact [AROps@caa.co.uk](mailto:AROps@caa.co.uk) for guidance.

### Air Traffic Control Service

- 3.4 If it is intended to establish a Temporary Air Traffic Control (ATC) Unit at an event, the provider of Air Traffic Control must be nominated and is

required to apply to the appropriate CAA Air Traffic Management (ATM) regional office.

- 3.5 Established ATC Units intending to facilitate a Flying Display or Special Event that involves any new, or significant changes to established ATM arrangements at their units should notify their ATM regional office.
- 3.6 Event Organisers who wish to provide a Flight Information Service (FIS) at a temporary site, or an established site not normally providing a FIS, are required to apply to the appropriate CAA ATM regional office and also submit an application on Form [SRG 1417](#) to the Radio Licensing Section.

### Frequency allocation

- 3.7 A request for a frequency is integral to the [ANO](#) approval process. EOs seeking approval are advised to apply as early as possible but on no account later than 90 days prior to the event. Initiation of the frequency allocation process is achieved through submission of Form [SRG 1417](#).

## 60 days prior to the event

### Aerodrome licence

- 3.8 Where the event is held at a licensed aerodrome the licensee remains responsible for ensuring that the conditions of the aerodrome licence are not contravened. If any such condition is likely to be contravened then discussion must take place between the Event Organiser and/or the FDD, the Aerodrome Licensee and the CAA ([aerodromes@caa.co.uk](mailto:aerodromes@caa.co.uk)) at least 60 days prior to the event.
- 3.9 In the case where a temporary aerodrome licence is required, application must be made to the CAA ([aerodromes@caa.co.uk](mailto:aerodromes@caa.co.uk)) at least 60 days prior to the event on Form [SRG 2003](#). Further information can be obtained from the CAA ([aerodromes@caa.co.uk](mailto:aerodromes@caa.co.uk)) and [CAP 168](#) Licensing of Aerodromes.

### Air Traffic Control Service

- 3.10 If an EO is intending to provide a flight information service, procedures for safe and efficient management of flights shall be collated and submitted.

Guidance for the format of the local instructions is detailed in [CAP797](#) Flight Information Service Officer Manual.

- 3.11 A copy of the proposed Manual of Air Traffic Services Part 2 (MATS Part 2) should be submitted to the CAA ATM Regional Office as soon as possible but no later than 60 days before the event. Guidance on the format of the MATS Part 2 is provided in CAA [CAP 670](#).

## 42 days prior to the event

### Notification to the CAA GA Unit and CAA Airspace Regulation Department

- 3.12 To discharge its obligations and issue the necessary Permissions or Exemptions, the [CAA GA Unit](#) and [Airspace Regulation Department](#) require full details of the event, including press or practise days.
- 3.13 The [application](#), map, Risk Assessment (if required) and appropriate payment (by credit/debit card) should reach the [CAA GA Unit](#) at least 42 days before the display date.
- 3.14 If your event consists of, or includes, military aircraft carrying out a Flying Display or the RAF Falcons Parachute Display Team you must complete and submit form [DAP1920D](#) no later than 42 days before the event.
- 3.15 It should be noted that during busy periods it may not be possible to process applications with shorter notice than 42 days' notice. However, it is appreciated that FDDs may not have complete details of the participating aircraft this far in advance. The [CAA GA Unit](#) and [Airspace Regulation Department](#) will, therefore, accept forms where the participating aircraft section is still incomplete to allow processing to start. The full list of aircraft should be sent as soon as it becomes available.

## 30 days prior to the event

### Air Traffic Service personnel

- 3.16 Air Traffic Control Officers (ATCOs), or Flight Information Service Officers (FISOs) intending to provide an ATS at a Flying Display or Special Event

based at a temporary site, or a site not normally providing the service intended must ensure that they:

- a) Provide a minimum of 30 days' notice to the appropriate Principal Inspector (ATM) specifying the type of service they wish to provide, confirming their licence details and requesting examination dates
- b) Submit completed Forms [SRG 1411](#) or [SRG 1414](#)
- c) In the case of ATCOs, comply with the relevant requirements of [CAP1251](#).

## 14 days before the event

### Military aircraft

- 3.17 If your event consists of, or includes, military aircraft Flypasts you must complete and submit form [DAP1920F](#) no later than 14 days before the event.

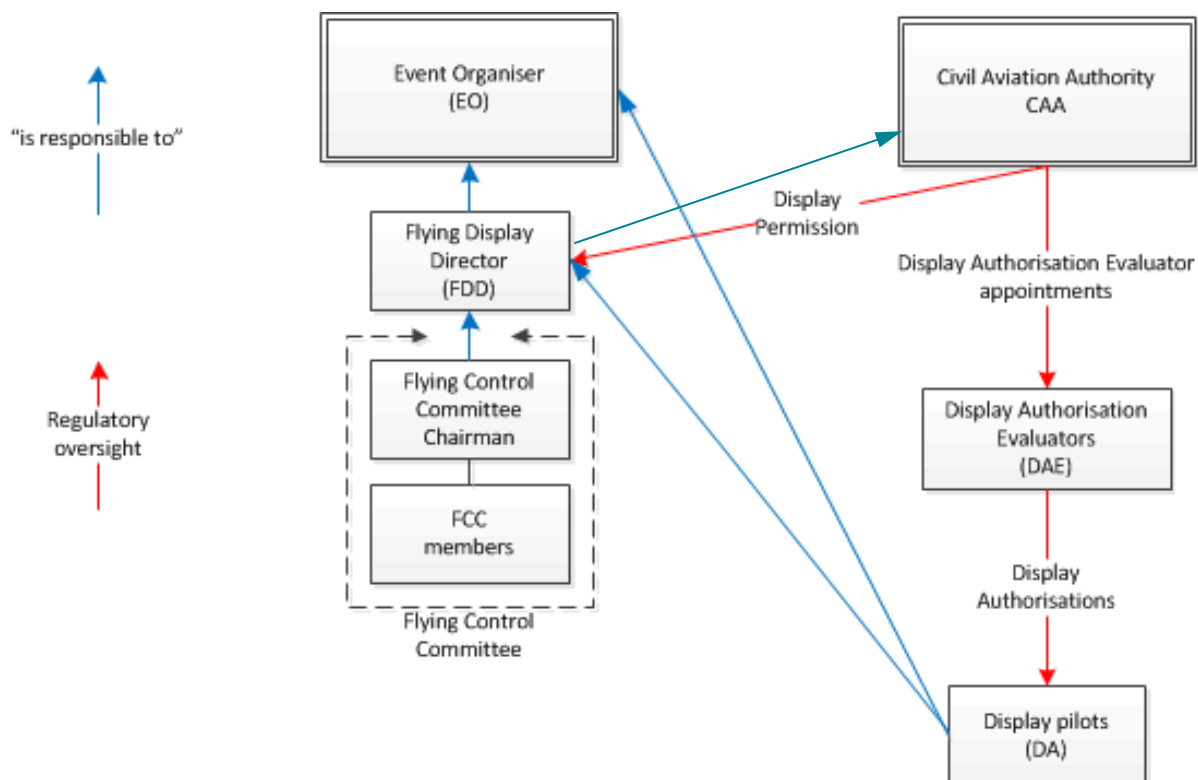
### CAA GA Unit

- 3.18 Providing **complete** and **accurate** applications for either Article 86 Flying Displays or Special Events have been received by the [CAA GA Unit](#) no later than 42 days prior to the event date, the appropriate Permissions **should** be issued no later than 14 days before the event. However, for **late** applications and those requiring extensive correspondence due to **being incomplete or inaccurate on receipt, this may not be possible.**

## Chapter 4

# Personnel

## Lines of responsibility



## The Event Organiser (EO)

- 4.1 The EO is responsible for the planning, organisation and wider aspects of the Flying Display and any event surrounding it. The EO is ultimately responsible for the conduct of the event and the safety of the general public, but is subordinate to FDD in matters relating to air safety.
- 4.2 One person must assume overall responsibility as the EO. Responsibility for particular aspects (such as site survey, air traffic services, provision of emergency services, liaison with local Safety Action Groups (SAG) and conduct of flying activities) should only be allocated to people with the relevant experience and, if applicable, licences. Further guidance specific to EOs is contained in Chapter 7.

## The Flying Display Director (FDD)

- 4.3 The FDD is the person responsible to the CAA for the safe conduct of the Flying Display and is named as such on the Permission issued under Article 86 of the ANO. The FDD is responsible for flying discipline generally, control of the Flying Display programme and cancellation or modification to the programme in the light of prevailing weather conditions or other circumstances. The FDD has primacy over the EO in matters concerning Flight Safety.
- 4.4 Although a ground based FDD is always encouraged, participating pilots may act as AFDDs as above.
- 4.5 At a Flying Display with up to 6 items, the role of Event Organiser and FDD may be combined. It is however recommended to separate these two duties where possible.
- 4.6 At displays of 7 items or more, the nominated FDD may not undertake any duties other than the role of FDD.
- 4.7 Further guidance for FDDs is contained in Chapter 8.

## Flying Control Committee (FCC)

- 4.8 For Flying Displays consisting of more than 6 items, the CAA will generally not grant a Permission unless an FCC is detailed on the application. In exceptional circumstances, where an applicant can provide written justification containing reasons why an FCC would not be required, the CAA may grant a Permission if satisfied with the reasons given. Additionally, the CAA, on review of the complexity of an application, may require an FCC for Flying Displays with fewer than 7 items.
- 4.9 The roles of the FCC are:
- a) To assist the FDD in the safe execution of the Flying Display
  - b) To assist the FDD in monitoring display standards
  - c) To provide specialist knowledge for specific Display Items
  - d) To provide opinion in case of any regulatory infringements



- e) To monitor the conduct of all display Participants for regulatory compliance
  - f) To intervene or stop, on the grounds of safety, any Display Item or, in extreme cases where the FDD cannot be consulted, the whole Flying Display
  - g) To assist the FDD in other duties as directed and agreed
- 4.10 The FCC should, wherever possible, consist of a core of pilots with experience on the categories of aircraft being flown at the Flying Display and can be supplemented by other Suitably Qualified and Experienced Personnel (SQEP). Additionally, some members of the FCC should hold, or have held, a UK DA or UK PDA.
- 4.11 The FCC should be available throughout the period of the Flying Display.

### Appointment of officials

- 4.12 Experienced staff must be available to supervise the parking of aircraft and cars, to operate any public address system and to control messengers and other staff. Sufficient marshals must be available to control members of the public, to ensure that on and off site emergency vehicle access is kept clear, to be available in the case of emergency and to prevent public access beyond the Crowd Line.
- 4.13 At displays with more than 10 items, only personnel suitably trained and experienced in flight line ground handling of aircraft must be used in the aircraft movement area. For Car Parking, the services of one of the organisations that specialise in the arrangement and management of Car Parks may be worth considering. All officials must be thoroughly briefed in the duties expected of them and provided with some means of identification, such as arm-bands.
- 4.14 Air cadets and other youth organisations should not be used as marshals unless well briefed and supervised.

## Flight crew

- 4.15 All participating civilian pilots must hold a current licence with a current class or type rating, or, where no type rating exists, an Aircraft Type Rating Exemption (ATRE), which entitles them to fly the type of aircraft to be displayed. Any questions relating to license matters should be addressed to CAA's Shared Service Centre at [fclweb@caa.co.uk](mailto:fclweb@caa.co.uk).
- 4.16 All civilian Display Pilots taking part in a Flying Display which requires Permission under Article 86 of the [ANO](#) must possess a current and valid DA issued by the CAA. DAs issued by other countries may be accepted by the CAA. Details of the UK DA system, validity of DAs and DA currency requirements can be found in Chapter 10. Additional information may be sought from the [CAA GA Unit](#).
- 4.17 DAs are only valid if the pilot holds either an EU medical certificate issued by an Aeromedical Examiner or an ICAO medical certificate that is of an equivalent or higher standard.
- 4.18 Pilots authorised to perform standard level aerobatics are only permitted to perform loops or barrel rolls in civil registered ex-military jet aircraft at civil Flying Displays if they have received an additional explicit approval from a suitably qualified DAE and this is recorded on their DA.
- 4.19 Exemptions from the need to hold a DA may exceptionally be issued, but only for a specific display approved by the [CAA GA Unit](#). No deviation from the agreed routine is permitted, except where this is justified by safety concerns. This is of particular relevance to Air Operator's Certificate (AOC) operators of large transport aircraft where the display Permission will generally be for a simple demonstration or Flypast.
- 4.20 AOC emergency service companies may be issued with Exemptions from the requirement for the aircraft commander to hold a DA in accordance with the provisions of Article 86 of the ANO. Before a DA Exemption can be considered for an AOC operator, the proposed display routine/role demonstration must be approved and recommended to the [CAA GA Unit](#) by the assigned CAA Flight Ops Inspector. The display routine/role

demonstration must be included in the AOC Emergency Services Company Operations Manual. Confirmation that such an Exemption is held, and that any display routine/role demonstration performed at a public event will be carried out in accordance with the procedure contained within the Company Operations Manual must be obtained from the AOC Chief Pilot.

- 4.21 Military Display Pilots are approved and authorised as specified by the MOD.

## Chapter 5

## The Flying Display – planning and categorisation

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### Site assessment

- 5.1 Where the Flying Display is held at a licensed aerodrome, the aerodrome licensee remains responsible for ensuring that the conditions of the aerodrome licence are not infringed. If any such condition is likely to be infringed then early discussion must take place between the Event Organiser and/or the FDD, the aerodrome licensee and CAA Aerodrome Standards. The aerodrome licensee, their representative or the aerodrome operators (if the aerodrome is unlicensed) must be involved at all stages of preparation for the Flying Display.
- 5.2 While many Flying Displays and Special Events are held at licensed aerodromes and can take advantage of facilities already available, many are staged at other sites. In assessing any proposed site the following aspects should take into consideration:
- a) The suitability of surfaces used by aircraft for take-off, landing and taxiing
  - b) The take-off and landing distances available and required
  - c) Obstructions in the vicinity with regard to the aircraft types which are expected to take part
  - d) The proximity of Congested Areas. It should be noted that, with few exceptions, flight below 1000 feet over such areas is illegal except when an aircraft is taking off, practising approaches to or landing at a civil or government aerodrome
  - e) The proximity of any sensitive or restricted areas. Local police should be able to advise on such areas
  - f) The presence of livestock or wildlife conservation areas. The local branch of the [National Farmers' Union](#) can often help in identifying the owners of particular fields

- g) The proximity of controlled airspace, aerodromes, heliports, helipads, airstrips, microlight sites, ballooning sites, parachuting, hang gliding, gliding, ridge soaring, paragliding sites, model aircraft flying sites and visual reference points
- h) The availability of clear entry and exit routes for on and /or off site emergency service vehicles appropriate to the scale of the event

5.3 In assessing the suitability of a possible display site consideration should be given to the aircraft types intended to participate with specific regard to the ground area and vertical space likely to be required.

### **Spectator enclosures and car parks**

- 5.4 Sites for Spectator enclosures and Car Parks require careful selection. Any area to which spectators have access must never be located closer than the appropriate Separation Distance to the planned Display Area or lie underneath it.
- 5.5 Normally Spectator enclosures and Car Parks should be confined to one side of the site thus allowing aircraft maximum freedom of movement on the other side.
- 5.6 If no practical alternative exists, Spectators' vehicles and visiting aircraft may be parked under the Display Area provided the EO and/or FDD does not permit access to these areas by the public for the duration of the Flying Display.
- 5.7 Spectator enclosures and Car Parks should be sited away from taxiways and runways and so arranged that no part of a taxiing aircraft passes within 10 metres of the enclosure or Car Park. This distance will need to be increased significantly if Spectators are positioned behind or close to areas where aircraft are using significant amounts of power, such as ground running of engines (particularly in the case of high powered aircraft and large helicopters) and turning.

- 5.8 Spectators should not be allowed closer than 15 metres to any fixed refuelling area, nor closer than 15 metres radially from any fuelling or venting point on an aircraft or bowser whilst refuelling is being carried out.
- 5.9 Gas-filled toy balloons when released are a potential hazard to aircraft and the sale of such is not to be permitted in public enclosures.
- 5.10 Existing legislation provides that unmanned, gas-filled advertising balloons should not be flown in captive flight at or near an aerodrome without written Permission from the [Airspace Regulation Department](#). Any such balloon, or other obstruction with vertical extent such as tethered hot-air balloons and bungee jumping cranes, are to be lowered to ground level during the period of the display.
- 5.11 The use of UAVs (drones) by the general public at Flying Displays poses a possible risk to aircraft and should not be permitted. Consideration should be given to raising public awareness of their legal responsibility and the importance of compliance. Possible measures include signage, information on tickets, social media and advice from the commentator. Members of the event staff and attending emergency service officers should be briefed to intervene as appropriate if drone operation is suspected or observed. Additional information can be found on the CAA website at <http://www.caa.co.uk/Consumers/Unmanned-aircraft-and-drones/> and at [Dronesafe](#) where a simple 'Drone Code' can be found.

### **Commentator and public address systems**

- 5.12 A public address system covering the Spectator enclosures is essential. Such a system, when installed, must be audible throughout the whole area to which Spectators have access.
- 5.13 The commentator should be suitably positioned, with a robust means of communication with the FDD in place, in order to liaise programme changes, important messages or the rapid broadcast of emergency information to the public.

- 5.14 If an emergency arises the commentator will be essential if crowd control is required. FDDs should ensure that the commentator is in possession of a pre-scripted emergency message covering major emergencies.

### **Secondary spectator considerations**

- 5.15 It is important to consider at the planning stage the likelihood and management of areas of potential secondary spectator build up along with actions that can be put in place to help prevent such gatherings. Examples of possible actions include agreements with local landowners, road and footpath closures, the screening of vantage points, signage, articles in local newspapers and public forums, on the day patrols, etc. It is strongly recommended that the offer of free tickets to any spectators assembled at such locations is **not** made due to the risk of such an offer being circulated on social media, thus attracting further spectators and possibly escalating the situation to a point of loss of public control. Secondary spectator considerations should be included in the event Risk Assessment.

### **Parking and ground manoeuvring of aircraft**

- 5.16 Aircraft taking part in the Flying Display should be segregated from both visiting and static aircraft parks. Aircraft can be moved from these locations if they are required to take part in the Flying Display. However, aircraft should not start engines or APUs in these areas as they could present a hazard to the public.
- 5.17 Appropriate security should be in place to guard against interference with aircraft. Pilots should be advised to ensure that starting systems etc. are isolated. Fire extinguishers should be readily available and aircraft should be parked so that fire vehicles can achieve easy access and move freely amongst them. Parking areas must be out of bounds to Spectators when aircraft engines are running or aircraft are taxiing.
- 5.18 Where possible, taxiing parallel to the Crowd Line, shutting down and towing or pushing into place should be considered during the planning of



marshalling activities. Consideration must also be given to any expected aircraft arriving without brakes or possessing poor turning capability.

- 5.19 Helicopters should, if capable, only be permitted to surface taxi.
- 5.20 Effective barriers and marshalling arrangements are required to keep Spectators clear of aircraft manoeuvring areas. Areas in which Spectators are not permitted must be properly enclosed at all times. Marshals must be detailed to control the movement of Spectators throughout the event. Pilots and passengers of visiting aircraft must remain behind the Crowd Line during the period of the display. If the visiting Aircraft Parking Area is remote from the Spectators' area, a method of transporting pilots and passengers must be established.
- 5.21 In the interests of safety, smoking must not be permitted in Aircraft Parking Areas or Static Aircraft Parks.
- 5.22 Aircraft may take-off and land provided the runway centre line is at least 75 metres from the Crowd Line. The CAA GA Unit may grant a concession to allow a lesser distance where geographical or topographical features or the layout of the airfield restrict the distances available. The grant of any concession is conditional on the type of aircraft involved.
- 5.23 The runway should be kept available as much as possible for emergency purposes during the Flying Display and aircraft departing and landing should minimise the time they occupy the runway whilst other aircraft are displaying. Certain Display Items, such as the RAFAT, may require the runway to be available for emergency landings for the duration of their display.

### **Summary of separation distances for Flying Display planning**

- 5.24 The following table summarizes the separation distances to be considered when planning a Flying Display:

Summary Of Separation Distance Considerations For Flying Display Planning	
Distance between spectator enclosures and any part of a taxiing aircraft	10 metres
Distance between spectator enclosures and any refuelling or aircraft fuel vent point	15 metres
Distance between spectator enclosures and runway centreline	75 metres

## Latent hazards

- 5.25 All operators of aircraft used for flying displays are required to identify, and where practicable replace or remove<sup>4</sup> any materials that may be hazardous to first responders and other personnel should an accident occur. Information of hazardous materials should be included on a Display Pilot's [Appendix B](#) Certified Declaration submitted prior to the display. FDDs are required to check this information and to ensure that it includes contact details for individuals or organisations who are available on the day of the event and capable of offering advice on the safe handling of such material. FDDs must further ensure that they have a means of communicating this information to the emergency services, should an accident or incident occur.
- 5.26 As Military Participants are not required to submit an [Appendix B](#) certificate, the FDD is to obtain details of any hazardous materials contained on or within the display aircraft along with contact details for competent persons and organisations as above. Military pilots can advise on the specific hazardous materials in relation to their aircraft.

## Display area

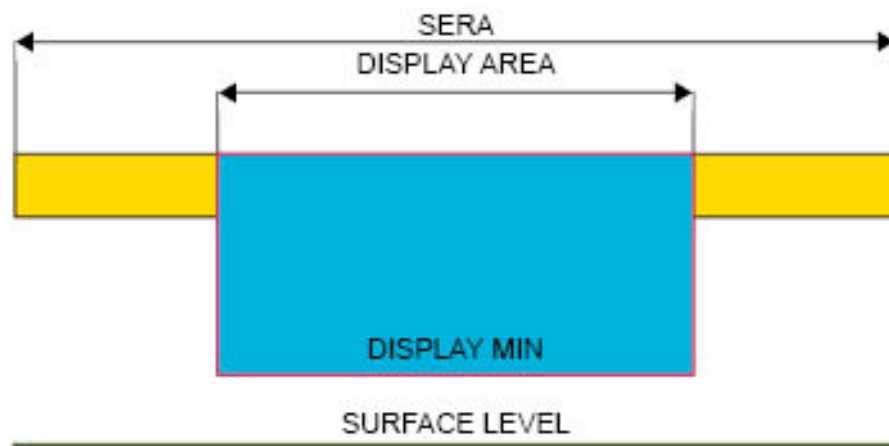
- 5.27 It is important that the Display Area intended to be used is considered and decided on early in the planning stage; the Display Area should be suitable for all wind conditions in which the participating aircraft are likely

<sup>4</sup> Any replacement or removal must be carried out with the support of the aircraft's Maintenance Organisation and/or Continued Airworthiness Management Organisation. Any removals which constitute a Design Change shall be approved in accordance with the aircraft's Continuing Airworthiness requirements.

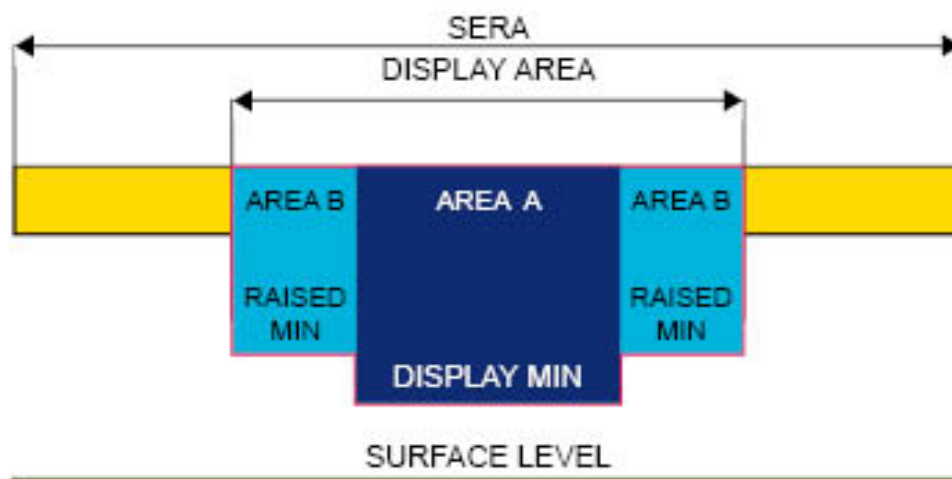
to display and should be separated from primary display Spectators by defined Separation Distances.

5.28 The Display Area is the ground area footprint of the airspace within which displaying aircraft are manoeuvred in a manner which requires the pilot to exercise the privileges of their Display Authorisation and fly to prescribed conditions and minima. Any manoeuvres which are not compliant with SERA must be conducted within the Display Area; SERA apply outside the Display Area.

5.29 A cross section through a typical Display Area, adequate for the majority of Flying Displays is shown below:



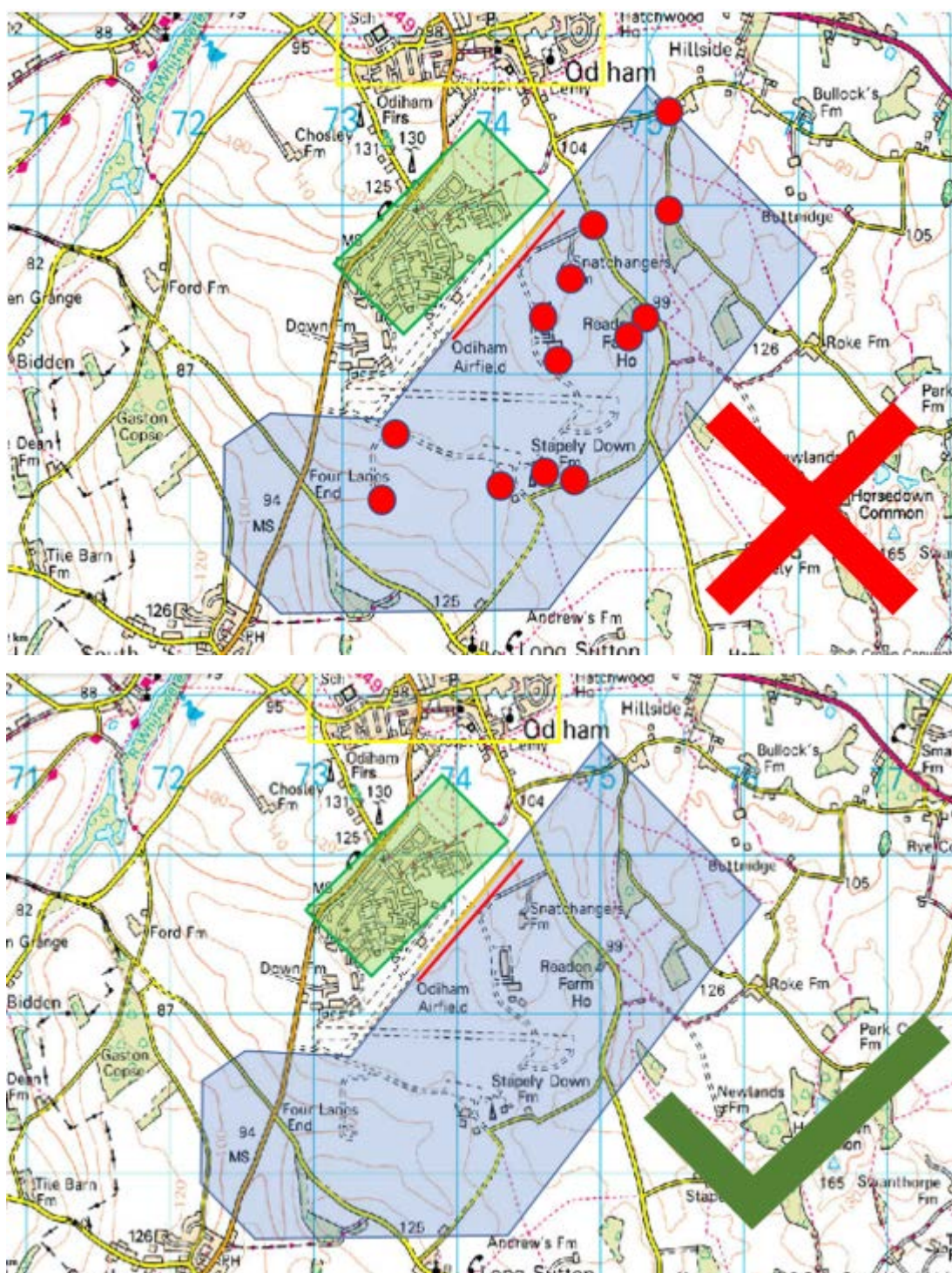
5.30 A Display Area can, if desired, be split into sub-areas (area 'A', area 'B', etc) with varying base minima. This allows the FDD to take different approaches to mitigating hazards within the areas and provide an area for transitting between SERA requirements and display minima. A cross section through such a Display Area is shown thus:



- 5.31 For standardisation, when using 'sub-areas', the inner most area where operation to display minimum is permitted should always be designated 'Area A'.
- 5.32 Aerobatic flight may be performed outside of the Display Area in accordance with SERA, to allow aircraft positioning/repositioning between manoeuvres.
- 5.33 Deciding on the size and shape of the Display Area during the planning stage should help in highlighting any specific areas of concern such as major/minor roads, adjacent congested/built up areas, likely areas for gatherings of secondary spectators, terrain, etc. Once identified these issues should assist in the production of the Flying Display Risk Assessment and help define appropriate mitigating actions.
- 5.34 The following additional constraints are to be applied within the Display Area:
- Display Pilots are not permitted to perform Aerobatic Manoeuvres above any structures occupied by non-Essential Personnel or known secondary spectator crowds within the Display Area.
  - Any non-aerobatic overflight of such structures or crowds is not permitted below 500 feet Above Ground Level (AGL).



- 5.35 FDDs should endeavour, through mitigating actions and other arrangements, to produce a display area unhindered by 'avoids' so that participating pilots are free to focus on producing a smooth, flowing, safe display rather than being concerned about manoeuvring to avoid hazards.



Note: These example maps are for illustration purposes only.

- 5.36 Once the Display Area has been promulgated, display pilots should review any aspects of their display that might not fit within the available Display Area and adjust accordingly. Where these changes constitute a variation to their 'practised display', they should ensure they have adequate opportunity to practise any modifications before the display. Pilots who are required to substantially alter or restrict their display should not be pressured into flying an unpractised display.
- 5.37 A Display Area restricted in size by its surroundings may ultimately dictate the suitability and practicality of the Display Items or can even raise the question as to whether or not any form of Flying Display is suitable at the proposed site.

### **Holding areas**

- 5.38 During the planning stage, consideration should be given for the need to locate, identify and appropriately position aircraft holding areas. Holding areas should be away from controlled airspace, ideally positioned so as to avoid unnecessary over-flight of built up or local sensitive areas. Depending on the size and scope of the intended Flying Display, more than one holding area may be considered appropriate. Holding areas must be positioned so as not to cause any potential conflict issues with displaying aircraft. Holding fixes can be referenced to a variety of locations, for instance; a VOR radial and distance, a custom GPS waypoint, a prominent landmark or feature, etc. Details of holding areas must be included in the pilots' notes and covered in briefings.

### **Minimum heights**

- 5.39 FDDs should consider imposing minimum height restrictions and avoids over local sensitive and Congested Areas. Details of any restrictions imposed should be clearly promulgated in the pilots' briefing notes and included within the Flying Display Risk Assessment.
- 5.40 FDDs must ensure that pilots are advised of the minimum heights applicable at the Flying Display in writing, supported by verbal or telephone briefings.

- 5.41 Military pilots participating in a civil Flying Display should advise the FDD of their individual height minima. Article 86 of the ANO stipulates that military pilots are subject to the more restrictive of the limits imposed by RA 2335 or the Flying Display Permission. In practise, this rarely causes difficulty because the limits set down in RA 2335 are generally at least the same as, or greater than, those imposed in this CAP. This does not apply to the RAFAT<sup>5</sup>, who are permitted to display to their set limits.

### Categorisation of a flying display

- 5.42 The following table should be used by the EO and FDD to categorise the Flying Display into the appropriate Tier. The FDD associated with a display Permission should be accredited to at least the same level as that of the event. However, the CAA may categorise an event at a different Tier on review of the application for an event.

No of Display Items	Low Complexity		High Complexity	
	Low Energy	High Energy	Low Energy	High Energy
1	Tier 1	Tier 1	Tier 1	Tier 1
2-3*	Tier 1	Tier 2	Tier 1	Tier 2
4-7	Tier 1	Tier 2	Tier 2	Tier 2
8-12	Tier 2	Tier 2	Tier 2	Tier 3
13+	Tier 3	Tier 3	Tier 3	Tier 3

\* If the event consists of Flypasts only it can be considered Tier 1.

**NOTE:** Any Flying Display with a High Energy display team consisting of 2 or more aircraft (e.g. RAFAT) **should** be categorised as at least a Tier 2 Flying Display.

**High energy.** Flying Displays should be considered as High Energy if they contain aircraft >1200kg maximum take-off mass or a display at >150KIAS. All other displays should be Low Energy

<sup>5</sup> See additional information concerning military participation and RAFAT in Chapter 6



**Complexity.** EOs and FDDs should consider the following when making the judgement on whether an event is High or Low complexity.

- a) **Airspace.** Consider the complexity of the airspace surrounding the display venue, including proximity to controlled airspace or areas with specific limitations that may affect the type of aircraft displaying
- b) **Geography.** Consider the difficulty of the terrain in addition to crowd and event layout
- c) **Built Up Areas.** Consider the proximity, density and size of adjacent built up and Congested Areas
- d) Secondary Spectators / other members of the public. Consider the likelihood and controllability of spectators gathering outside the designated crowd area and any effect the display may have on members of the public in the vicinity. Consider the proximity of major roads, railway lines and local infrastructure and how busy they are
- e) **Display Length.** Consider the effect of the Flying Display window on deconfliction issues, e.g. 3 items over 2 hours is less complex than 3 items over 15 minutes
- f) **Display Team Size.** Consider the number and type of aircraft in a display team with respect to the size and nature of the display venue
- g) **Event Type.** Consider the type of event and how flying activity is integrated; is the Flying Display the focus of the event or just an additional attraction?

## Use and allocation of radio frequencies

- 5.43 With the exception of small events, most Flying Displays will require the use of some level of radio communications. Details of the Air Traffic Control aspects, allocation of frequencies and the use of frequencies can be found in Chapter 13
- 5.44 Where feasible and within the constraints covered in Chapter 13, FDDs should endeavour to allocate a quiet frequency for use during the Flying Display with another frequency being available for administrative requirements and communication with non-display aircraft. If only one frequency is available, the FDD must emphasise, in the written brief and

at the verbal briefing, the need for good Radio Telephony (RT) discipline and for the minimum use of RT.

### **Insurance**

- 5.45 Although there is no requirement within UK civil aviation legislation for third party insurance cover of Flying Displays and other aviation events, EOs and Participants are strongly advised to give this particular aspect serious consideration. Insurance cover is normally conditional on compliance with legal requirements, and violation of the law or the conditions of a Permission or exemption may render insurance invalid.
- 5.46 EOs are strongly advised to seek professional guidance on liability aspects and to obtain advice from a reputable insurance broker with aviation experience as to the appropriate level of third party liability coverage that should be effected.
- 5.47 The MOD will require EOs to buy into the MOD insurance policy as a condition of allowing military aircraft to take part in the Flying Display.

## Chapter 6

# The Flying Display – Management

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## Display Line or axis

- 6.1 Displaying aircraft perform relative to the Display Line which must be clearly identified. On an aerodrome this is usually parallel to a runway or, in the case of off aerodrome sites, parallel to some significant feature. Where the Display Line is not clearly delineated by a paved runway or other obvious line feature it should be marked with day-glo pyramids or panels, whitewashed lines or by some other suitable method.
- 6.2 Marking of more than one Display Line is at the discretion of the FDD. Ideally, two clearly defined lines, covering the Separation Distances most likely to be used by pilots during the Flying Display should be presented, allowing pilots to interpolate for intermediate distances. Intelligent positioning of the Crowd Line in relation to existing ground features, such as the runway edges, can be of great assistance in this respect.
- 6.3 FDDs may find it helpful to identify and mark a number of specific points (eg the display datum, if one is required) to help pilots position for the benefit of the spectators. The location and rationale for the marked points should be included in all pilot briefing material.

## Sea-front displays

- 6.4 In preparing for seafront displays, FDDs should contact the Maritime and Coastguard Agency to inform them of the intended display and to ask, where appropriate, for them to issue a local radio transmitted navigation warning immediately prior to and during the event. Harbour masters should be contacted where the safety of a Flying Display can be enhanced by the control of positioning and occupation of vessels within a harbour.

- 6.5 At sea-front displays it is essential that the Display Line is marked with hi-visibility buoys or marker floats. Additionally, unless a suitable feature cannot be clearly designated for the purpose, a distinctive buoy or group of buoys should be used to mark display datum, if a datum is required.

### Separation distances

- 6.6 Aircraft are not permitted to display above any point on the surface closer to any area occupied by spectators or their vehicles than that specified in the following table as appropriate to the maximum display speed of the aircraft. For aircraft flying in Formation, the distances are applicable to the aircraft performing nearest to the Crowd Line.

- 6.7 The minimum distances are as follows:

Type of aircraft	Type of display	Separation distance
All aircraft	All fixed wing aircraft and rotary-wing aerobatics	230 metres
All aircraft	Speed greater than 300KIAS with velocity vector towards crowd	450 metres

For the following aircraft and activities, reduced minimum separations are permitted:

Type of aircraft	Type of display	Separation distance
Light Aircraft	MTOM less than 1200kg and speed less than 150KIAS	150 metres
Rotary-wing	Non-aerobatic flight and under-slung load operations	150 metres
VSTOL Aircraft	Vertical take-off and landing, and non-wing borne flight at low speed	150 metres
VSTOL Aircraft	Conventional wing borne flight	230 metres

- 6.8 The speed ranges given above are the speed of the aircraft at any particular time during the display. A pilot may vary the Separation Distances if the speed of the aircraft varies during the display.

- 6.9 CAA Exemptions to the separation distances quoted in the table above have been issued. Holders of such Exemptions are permitted to operate to the separation distances contained therein provided the qualifying conditions are met. The FDD is responsible for assessing whether or not operation to the permitted separation distance contained on the Exemption is appropriate to the specific venue, therefore, operation to the Exemption minima requires the agreement of the FDD. If verification of an Exemption is required, the FDD should contact the [CAA GA Unit](#) .
- 6.10 The CAA will consider applications to display at the lower Separation Distance of 150 metres where MTOM of participating aircraft is greater than 1200kg but mass at time of display is less than 1200kg on a case by case basis.
- 6.11 If any doubt exists about a particular aircraft or relevant distances, or if Touch and Goes (in light STOL types) are to be part of a display routine, the [CAA GA Unit](#) should be consulted.
- 6.12 Low speed, high angle of attack Flypasts and/or simulated go-arounds together with any Flypasts which may entail aircraft reconfiguration and/or material power changes must be flown at the lateral Separation Distance applicable for aerobatic flight in the speed range used during the Flypast. Manoeuvres such as these can have a detrimental effect on available energy and should therefore be flown with caution.
- 6.13 Pilots should plan their display routine such that they can always regain the Display Line without infringing the minimum lateral Separation Distance from the Crowd Line. Effects of any on-crowd velocity vectors and on-crowd wind component must be taken into account. It should be noted that the applicable Separation Distance is the minimum and not the target.
- 6.14 Rotorcraft must not be flown in such proximity to Spectators' enclosures, buildings or aircraft on the ground as to cause a possible hazard either from downwash or as a result of control difficulties. Similarly, helicopters

with under-slung loads should only be flown over areas free of Spectators, vehicles, buildings, personnel and aircraft on the ground.

### Separation distances and third parties

6.15 Within the Display Area, Display Pilots are not permitted to:

- a) Perform in aerobatic flight over any building, vessel or vehicle which the commander has reason to believe is occupied by non-essential personnel
- b) Perform below 500 feet Above Surface Level (ASL) in non-aerobatic flight, over any building, vessel or vehicle which the commander has reason to believe is occupied by persons

6.16 Owners/occupiers of buildings located beneath a Display Area may be contacted and, if any building can be guaranteed to be unoccupied for the duration of the Flying Display, no restriction would be necessary provided full details of the hazard, risks and mitigations, including copies of the written confirmation from the owners/occupiers, are included in the Flying Display Risk Assessment.

### Over-flight of spectators

6.17 Display aircraft are not permitted to overfly the Spectator enclosure unless with the specific written Permission of CAA GA Unit.

6.18 Permission may be granted for crowd rear arrivals provided the application is for an established Formation Team of similar powered fixed wing aircraft, supported by a comprehensive Flying Display Risk Assessment (updated annually).

6.19 Aircraft carrying parachutists may overfly the Spectators' enclosures or Car Parks whilst positioning to drop, but not below a minimum height of 1500 feet ASL.

## Setting of minimum heights

- 6.20 Where Flying Displays are held at an aerodrome, the CAA will normally authorise the FDD to allow pilots to fly down to the minimum height specified in their individual DA.
- 6.21 Where Flying Displays are held away from an aerodrome, the CAA will impose a minimum height. This is usually 200 feet AGL over land and 100 feet ASL over water. In these circumstances the minimum height becomes the higher of either the CAA's imposed height or that specified in the pilot's Display Authorisation. Higher minima may be imposed if considered appropriate at a particular venue.
- 6.22 Civil registered ex-military jet aircraft are not permitted to perform Aerobatic Manoeuvres below 500 feet AGL/ASL.
- 6.23 FDDs are not required to accept DA minima and are free to impose higher height minima deemed appropriate. However, pilots who are asked to substantially alter or restrict their display as a result may effectively and unwittingly be pressured into flying an unpractised display. FDDs should take into account that any increase in height minima may, for the above reason, increase risk and not actually increase safety.
- 6.24 For parachute displays, the minimum height by which parachutists must have their main parachute open is normally 2,500 feet AGL. Fédération Aéronautique Internationale (FAI - the world Air Sports Federation) 'C' and 'D' Certificate holders and British Parachute Association 'C' and 'D' licence holders. may, exceptionally, delay opening to 1500 feet AGL.
- 6.25 For private events requiring a CAA Permission other than an Article 86 Permission (a Permission permitting flight below 500 feet contrary to the requirements of SERA.5005(f)(2) for example) when no DA is necessary, acceptable minimum heights will depend on the particular site, the pilot's experience and competence on type, the task, compliance with the Rules of The Air and the prevailing weather. In addition to the minima quoted in 6.30 below above, the following may be permitted and can be used for guidance:



- a) 100 feet - Erect straight and level Flypast, flour bag bombing, and air race finishing lines
- b) 500 feet - Balloon bursting, streamer cutting and complete recovery from Aerobatic Manoeuvres and inverted flight

However, the CAA will stipulate the specific minimum for the event on the Permission document.

- 6.26 The recommended minima do not absolve any individual(s) from compliance with the [ANO](#), Rules of the Air and [SERA](#) unless an exemption or Permission has been issued by the CAA. The [CAA GA Unit](#) will give advice on any particular circumstances.

### Military participation

- 6.27 Pilots of military aircraft participating in a civil Flying Display should advise the FDD of their individual height minima<sup>6</sup>. Outside the Display Area, military aircraft are permitted to fly at 250' (up to 90° angle of bank) and 500' (greater than 90° angle of bank) in accordance with RA 2335. FDDs remain responsible for approving military aircraft to use the above limits and must consider if it is appropriate for their event given the location and environment and must be risk assessed accordingly.
- 6.28 However, pilots of military aircraft are reminded that Article 86 of the ANO states that any conditions<sup>7</sup> subject to which the Permission for the Flying Display has been granted, also apply to military registered aircraft. FDDs should inform pilots of military aircraft of any such conditions at the earliest opportunity. Such pilots are subject to the most restrictive limits of those imposed by a Flying Display Permission or RA 2335.
- 6.29 The Royal Air Force Aerobatic Team ('The Red Arrows') are permitted to display to their set limits and in accordance with RA 2335, subject to FDD approval. RAFAT are therefore responsible for conducting their own risk assessment for each of their displays; note that this may result in RAFAT

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<sup>6</sup> Military aircraft may be permitted to operate to the height minima stipulated in RA2335 provided display flying is in compliance with the appropriate PDA and subject to FDD approval.

<sup>7</sup> Such as specified avoids or additional minimum height restrictions.

requesting a different display orientation. After carrying out this risk assessment, RAFAT should inform the FDD at the earliest opportunity of any issues identified that might affect the Flying Display Risk Assessment. The FDD is responsible for incorporating any such amendments into the Flying Display Risk Assessment. If the FDD considers any amendments to be unacceptable, RAFAT should not be permitted to display.

- 6.30 A serious accident or incident involving a military aircraft at any display must be reported immediately to the appropriate military authorities. If appropriate military personnel capable of undertaking this task are not present or available, initial reporting is to be by telephone to the MOD DCD Staff Duty Officer number given in Appendix J. Further details can be found in the military Operation Order, where one has been issued.

### Aircraft maximum speeds

- 6.31 An absolute true limit of Mach 0.90 or 600 kt, whichever is reached first, is not to be exceeded in straight and level flight. Aircraft flying at or approaching this speed should reduce speed further before initiating any manoeuvre to avoid inadvertent sonic booms.
- 6.32 Operators of aircraft due to perform at an Article 86 Flying Display that intend to exceed the maximum speed limit of 250 KIAS when flying below Flight Level 100, are required to apply for a specific approval from the CAA GA Unit to allow alleviation from the SERA speed limitations. Applications for such approvals should be made using Form SRG 1318.

### Weather minima

- 6.33 Minimum weather conditions must be determined in advance, published and strictly observed. Flying Display absolute minima are contained in the table below:

Type of aircraft	Type of display		Weather minima	
			Cloud <u>ceiling*</u>	Visibility
VSTOL aircraft, rotorcraft and other aircraft with a stalling speed below 50 KIAS <sup>8</sup>	Flypasts	Solo aircraft	500 feet	1500 metres
		Formations	500 feet	3000 metres
	Full aerobatic displays	Solo aircraft	800 feet	3000 metres
		Formations	800 feet	5 km
Flying Displays by other aircraft	Flypasts or flat aerobatic displays	Solo aircraft	500 feet	5 km
		Formations	800 feet	5 km
	Full aerobatic displays	Solo aircraft	1000 feet	5 km
		Piston Formations	1000 feet	5 km
		Jet / turboprop Formations	1500 feet	8 km

\* Cloud Ceiling is ‘the height Above Ground Level (AGL) of the base of the lowest cloud covering more than half of the sky (BKN or OVC)’

Pilots and FDDs should give greater consideration to visual reference when there is little or no defined horizon.

- 6.34 FDDs should carefully consider the operating characteristics of participating aircraft which may necessitate specific increases in the above minima. Military displays, particularly jet formations, may have significantly higher weather limitations than those specified above.
- 6.35 FDDs and pilots should also be aware of a condition known as the ‘goldfish bowl effect’ at coastal display sites. Where visibility is reduced, an impression can be created such that the sea and sky appear to merge. The subsequent loss of a good visual reference can make positioning difficult and compromise safety.

<sup>8</sup> This applies only to VSTOL aircraft operating in VSTOL mode.

- 6.36 It should be borne in mind that Participants may be further restricted by their licence or rating privileges.

### Pyrotechnics used for ground special effects

- 6.37 The use of explosives for simulated groundbursts, smoke and other special effects must be strictly controlled by a competent person appointed by the Event Organiser in agreement with the FDD. Debris from such effects must not impinge on aircraft, Spectators or the runway/taxiways and to this end the scale of any effects must be known before the event. Briefings for ground officials and Display Pilots should draw attention to the hazardous nature of such devices and must include details of positioning and timings of detonations with respect of manoeuvring aircraft. Agreement in advance for the use of such devices during a Flying Display should be sought from all affected Display Pilots. The location of the explosives and safety radii, if appropriate, are to be out of bounds to all staff except those directly involved with their operation. Operatives should be appropriately authorised for such activity.

### Briefing

- 6.38 Regardless of the size of the Flying Display, the importance of a thorough, formal briefing cannot be over-emphasised. No pilot is to take part in a Flying Display unless he has received a briefing.
- 6.39 A comprehensive written brief covering the arrangements for the flying programme should be circulated in advance to all participating pilots, Air Traffic Controllers, Pleasure Flight operators and those in charge of particular aspects of the display, such as safety services. A suggested minimum list of points which should be covered is given in Appendix D.
- 6.40 A formal verbal briefing must be given on each day of the Flying Display and at any rehearsal or press day, and all Participants must attend if physically possible. The briefing should, as a minimum, include all the points detailed in Appendix D. Pilots must be reminded of the need to keep within the boundaries of any NOTAMed or Restricted Area (Temporary) (RA(T)) issued whilst displaying.

- 6.41 Participants not operating from the Flying Display site must contact the FDD by telephone as close to their slot time as possible to obtain a full formal briefing. A crib sheet identical to both FDD and Participant, issued by the FDD as part of the comprehensive written brief, should be used.

### **Impromptu displays at Flying Displays**

- 6.42 FDDs are to ensure that pilots of display aircraft do not carry out any form of impromptu display such as on arrival or departure.
- 6.43 Display practises at the event location, on the day of a Flying Display, may only be carried out prior to the arrival of any spectators on site and with the agreement and briefing from the FDD and EO. Practises of this nature require a SERA.5005 (f)(2) Permission issued specifically for the purposes of display practise or rehearsal to be in place.<sup>9</sup>

### **Standard Warning and STOP calls**

- 6.44 If the FDD and/or FCC perceive a breach of minima or have concern that a limit is being exceeded, or have safety concerns that require a cessation of a display, the following Standard Calls and responses are to be used:

<b>FDD/FCC Warning call</b>	<b>Pilot response</b>
“(call sign) TOO LOW”	“ <u>ROGER</u> (call sign)”
“(call sign) TOO CLOSE”	“ <u>ROGER</u> (call sign)”
<b>FDD/FCC Terminate call</b>	<b>Pilot response</b>
“(call sign) TERMINATE”	“ <u>WILCO</u> (call sign)”
<b>FDD/FCC STOP call</b>	<b>Pilot response</b>
“(call sign) STOP, STOP, STOP <u>acknowledge</u> ”	“ <u>WILCO</u> (call sign)”

<sup>9</sup> For clarification, it is permissible for display practises on the day of a Flying Display to be carried out away from the display area/event site in accordance with SERA and not in front of the spectators.

**NOTE:** A STOP call must be made if a third Warning Call is required.

- 6.45 **Terminate Call.** A Terminate call is to be used when a Participant is required to stop a Display for a reason other than their fitness or competence (eg intruder aircraft, birds, etc). A Terminate call can also be used by a pilot to notify intention to halt a display if deemed necessary for any reason. At the discretion of both the FDD and the Display Pilot, the display may be resumed if safe to do so.
- 6.46 **STOP Call.** A STOP call must be made where primarily the FDD/FCC has a safety concern related to a pilot's fitness or competence. When a STOP call is made, the Participant is required to stop their display and not recommence it. A fully briefed procedure is to be established and in place to communicate a STOP call to any participating non-radio aircraft. Similar methods of communication are to be considered for the radio failure during a display scenario. If an aldis lamp signal is to be used for such a purpose, for standardisation, it is recommended that a 'steady white'<sup>10</sup> signal be used.

## STOP Call and safety breach reporting and procedures

- 6.47 For calls other than a STOP call, the FDD may debrief the pilot who may continue to exercise the privileges of their DA.
- 6.48 For civilian pilots, where a STOP call has been made, the FDD is required to report it to the [CAA GA Unit](#) by calling 01293 573919 as soon as is reasonably practical. This is a dedicated telephone number manned daily throughout the display season.
- 6.49 The following information is expected to be included in any such call to the dedicated 'STOP call' telephone number:
- a) Event name and location
  - b) Flying Display Director and contact number
  - c) Time of STOP call
  - d) Item/registration

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<sup>10</sup> 'Steady white' light signal recommended as this is not a current ICAO light signal.

- e) Name of pilot and contact number
  - f) Details of debrief if carried out
  - g) A full account of the perceived breach
  - h) Contact details of FDD at any event the Display Pilot is known to be appearing at later on the same day
- 6.50 When a STOP call is made, the relevant pilot's DA will be provisionally suspended. Details of the STOP call suspension and re-instatement procedure can be found in Chapter 10.
- 6.51 For military pilots where a STOP call is made, Regulatory Article 2335 requires the pilot to inform their Duty Holder prior to conducting any further display flying. In this case the FDD is to debrief the military pilot but the CAA need not be informed by way of the dedicated STOP call number.
- 6.52 Details of any warning, terminate or STOP calls issued should be included on the joint CAA/MAA 'Flying Display Director Post Display Feedback Form' SRG 1305, regardless of whether the breach was by a civilian or military pilot.

### **Carriage of persons onboard display aircraft**

- 6.53 No persons other than minimum crew, as detailed in the aircraft Certificate of Airworthiness or Permit to Fly, shall be onboard a civil registered aircraft during a Flying Display unless the prior written Permission of the CAA GA Unit has been obtained.

### **Displays by Air Operator's Certificate (AOC) operators**

- 6.54 Displays by AOC operators i.e. large transport aircraft, will normally be conducted under an exemption from the need to hold a DA issued by the CAA GA Unit. The requested display profile is to be submitted in advance to both the CAA GA Unit and the assigned CAA Flight Operations Inspector (FOI) in the form of a Captain's brief. The exemption will be issued only after the assigned FOI has agreed the content of the Captain's brief.



- 6.55 Passengers are not to be carried during a Flying Display by AOC operators. However, additional flight crew or specialist maintenance personnel may be carried provided that a recommendation to that effect is made to the [CAA GA Unit](#) by the assigned FOI.
- 6.56 Formation flights by large Commercial Air Transport aircraft will not normally be permitted but specific applications will be considered on their merits.
- 6.57 Displays by UK registered Emergency Services Helicopters are exempt from the requirements for the Captain to hold a DA provided any operation is in accordance with the approved company Operations Manual detailing such flights and the Operating Company is named on the annual AOC Emergency Services Company Article 86 Display Exemption as issued by the [CAA GA Unit](#).

### Pleasure flights

- 6.58 Pleasure Flights for valuable consideration may only be conducted by companies holding an AOC and (with the exception of flights in helicopters) may take place only at Government or licensed aerodromes. Initial application for a temporary aerodrome licence, if required, should be made to the CAA using form [SRG 2003](#).
- 6.59 Flights conducted under Safety Standards Acknowledgement and Consent (SSAC) or Charity Flights must not be conducted during a day when a Flying Display or associated media coverage is organised.
- 6.60 FDDs are to coordinate Pleasure Flights and are to ensure that they do not take place during the Flying Display period itself, unless the prior approval of both ATC and the Flying Display Participants has been obtained. At other times care should be taken to ensure integration with other air traffic.
- 6.61 For Pleasure Flights operated from Flying Display sites, passengers must be escorted between the Spectator enclosures and the aircraft, both before and after each flight, and are to remain behind the Crowd Line

whilst aircraft are displaying. The escort route must be planned to take them safely clear of other aircraft. All personnel associated with the pleasure flying operation are to remain behind the Crowd Line when aircraft are displaying unless approval from the FDD has been granted and the requirement has been appropriately assessed in the Flying Display Risk Assessment. Smoking must not be permitted in or near to the Aircraft Parking Area.

- 6.62 If helicopters are used for Pleasure Flights they must be positioned and routed so as to prevent problems with rotor downwash. In all cases, the site used for passenger loading and unloading must be safely clear of the flying area, and approved by the FDD. If the helicopter operating area is not adjacent to the Spectator enclosure, as could be the case at off-aerodrome events, those parts of the site at which passengers would be expected to assemble before being escorted to the helicopter should be fenced off securely. Arrangements must also be made to prevent access to the helicopter operating area by third parties.
- 6.63 Operators of aircraft involved in Pleasure Flights are to maintain a list of passenger names so that it is known who is onboard during each Pleasure Flight. This information could prove invaluable to police and rescue services in the event of an accident.

### **Pleasure flight escorts**

- 6.64 Pleasure Flight escorting must be carried out in accordance with the procedures and provisions outlined and contained within the AOC holders Operations Manual. Escorts must remain on duty until all Pleasure Flights have finished.

### **Emergency Services**

- 6.65 The FDD should ensure the aerodrome operator and EO communicate any degradation in available emergency service cover. Flying may need to be restricted as a result of any such loss of cover.

## Inspection of Flying Displays and Special Events by the CAA

- 6.66 The [CAA GA Unit](#) is required to inspect and monitor safety standards at a number of events annually. Formal written notification will normally be given to the FDD in adequate time stating that a formal inspection of the event will take place. However, the CAA reserves the right to inspect any Flying Display or Special Event without notice.
- 6.67 The CAA Air Traffic Management oversight team may exercise its right to inspect facilities, equipment, processes and procedures in cases where a formal Approval against Articles 180, 205 or 206 of the ANO 2016 (as amended) is necessary.

## Chapter 7

# Event Organiser (EO) – Guidance and information

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## The Event Organiser (EO)

- 7.1 This chapter outlines matters of particular relevance to the role of Event Organiser. The EO has a broad role in relation to the planning, organisation and wider aspects of the Flying Display.

### Finding an FDD

- 7.2 It is vital that an EO engages and works with a CAA accredited FDD from the start of the planning process. FDDs are ultimately responsible for the management and safety of a Flying Display and should therefore be involved, consulted and aware of any arrangements made that affect it.
- 7.3 The CAA will administer a combined military/civilian [accredited FDD list](#) that will be available to EOs and HoEs. The list will detail an individual's qualification (ie [FDD Tier accreditation](#)) and will record Flying Displays directed. The MAA are responsible for administering military personnel on the combined list.

## Liaison with the Local Authority and Emergency Services

- 7.4 Liaison with the Local Authority, Police and Emergency Services (including [Maritime and Coastguard Agency](#) and [Royal National Lifeboat Institution](#) for offshore display sites) at the start of the planning stage for a Flying Display or Special Event is absolutely vital. Local Authorities and Emergency Services have considerable expertise in planning for large public events and can assist Event Organisers in the planning process. Notification to the local Safety Advisory Group (SAG) will enable the Local Authorities and Emergency Services to start initial planning and provide early guidance and support to the EO. However, time is of the essence and contact should be made as soon as planning for an event is started.

As a guide the model timescales for contacting Local Authorities, Emergency Services, coastguards, etc, are:

Event size	Classification	Ideal notice period
<u>Tier 1</u>	Small	2 - <u>3</u> months
<u>Tier 2</u>	Medium	<u>4</u> - 6 months
<u>Tier 3</u>	Large	10+ <u>months</u>

- 7.5 Given the considerable variation of Flying Display activity, both in terms of size and content, it is impossible for this CAP to specify in detail what level of emergency cover should be provided. Specific local circumstances, availability of on-site services (particularly at an active airfield), type and numbers of displaying aircraft and the anticipated crowd size will all influence the level of emergency cover required.
- 7.6 Information within the event Emergency/Safety plan and Flying Display risk assessment detail the control measures to be used to mitigate the risks identified. This information is used by the Local Authority and Emergency Services to determine their capability to respond to an emergency.
- 7.7 Where SAG meetings are held, attendance by the EO and / or FDD is essential to the Local Authority and Emergency Services understanding of the risks identified at specific events. Control measures and capability can then be discussed with the responsible authorities in order to establish the level of support required from each agency and how they can be best prepared should an emergency situation occur.

## The emergency plan

- 7.8 The information contained in the Health and Safety Executive (HSE) Event Safety Guide - known as the [Purple Guide](#) - applies to Flying Displays. Since the EO is responsible for the production of an Emergency Plan, it is strongly recommended they read the HSE Event Safety Guide prior to writing the Emergency Plan. Suitable and sufficient Risk Assessments must be produced and circulated to all contractors and

emergency services working at the event location or in the adjacent affected areas. These Risk Assessments should contain specific mitigation for dealing with any aviation related hazardous materials which could become an issue following an accident.

- 7.9 An integrated Emergency Plan is an essential pre-requisite for any Flying Display and is strongly recommended for Special Events. The extent of the Emergency Plan will vary depending on the size of the event. The Emergency Plan must be agreed by all the services having a role to play within the plan, and the local SAG.
- 7.10 EOs must remember that an Emergency Plan will require strategies for crowd management and welfare, transport management, fire, first aid, major incident and contingency planning. If the worst does happen, a well-planned event will have a more effective response.
- 7.11 The Emergency Plan must include information about how to communicate information on any potential latent hazards that exist within attending aircraft to emergency services in the event of an incident.
- 7.12 The size and location of an event can have bearing when deciding who to notify and liaise with within the Local Authorities and Emergency Services. Notifying the local police and local authority planning department can adequately cover a village fete with Flypast. However, for medium and large events, or if in doubt, EOs should direct their initial correspondence to the relevant Local Authority Event Planning Department and / or SAG Chair as well as the Chief Constable, Chief Fire Officer and Ambulance Trust Chief Executive Officer. If the Flying Display is to take part over the sea, liaison should be extended to include the local harbourmaster, coastguard, Royal National Lifeboat Institution, etc. The EO should notify each in writing, and, if the event straddles more than one area (e.g. two local authorities ), all SAGs should be notified.
- 7.13 The EO and/or FDD should maintain a record of their engagement with the SAG and/or Local Authority and Emergency Services as appropriate.

- 7.14 Costs are a matter for the EO and the agency involved and should be agreed as soon as practicable.

## Risk Assessment

- 7.15 Risk Assessment is an essential element of the production of any safety plan. The procedure detailed at Appendix A should suit most Flying Display and Special Events needs.
- 7.16 Flying Display applicants are required to submit information about any risks that will be actively managed during the event to the CAA as part of the Flying Display application process. The information should be submitted using the Flying Display Risk Assessment provided.
- 7.17 It is essential that the EO actively engages and requires direct involvement from the FDD concerning all risk mitigations connected with the Flying Display if not personally acting in the role of FDD.
- 7.18 Whilst the FDD is responsible for the content of the Flying Display specific content of an event risk assesment, it is the EO who is responsible for the event Risk Assessment as a whole.
- 7.19 At many events, particularly airfield sites, the congregation of secondary spectators outside of the Airfield Boundary on the 'live-side', or other members of the public in the vicinity of the Flying Display, may give organisers cause for concern. Neither the police nor the local authority may have the power to remove such people. The EO should endeavour to anticipate this during the planning process and take necessary steps to reduce the likelihood where possible. Blocking the view from obvious vantage points is one method. Consideration should also be given to notifying landowners (or if over water, pleasure boat owners) of the risks of allowing Spectators to watch the display/event from their land/vessel. Landowners/owners should be advised that they have a legal responsibility to protect the public from obvious and anticipated risks at public events and, in the event of an accident, that they could be held liable for injuries to Spectators on their property. It is advised that professional legal advice on such notification is taken prior to action.



- 7.20 EOs should be aware of the increasing use of hazardous materials such as carbon fibre in modern military and civilian aircraft construction. Information on such hazards should be included in the Risk Assessment. Military Participants can advise on specific hazards in relation to their individual aircraft. Civilian Participants can advise with regard to hazardous materials specific to their particular aircraft.

## Local Authorities

- 7.21 Local Authorities have control of the various public services which an EO may wish to use. In addition, they need to be aware of the aerial activity which is to take place in order to anticipate any queries or complaints which may arise. Depending on the size of the event this may include liaison with local SAG(s). The Event Emergency Plan will be expected to comply with the Local Authority's existing major incident plans and the Civil Contingencies Act 2004.

## The Police

- 7.22 The role of the police at any public event is:-
- a) the protection of life and property
  - b) the prevention and detection of crime
  - c) the prevention of breaches of the peace
  - d) to respond in the case of an immediate threat to life and public safety and co-ordinate the response of the emergency services

The emergency services should not be expected to fill any gaps in event arrangements due to either inadequacies/omissions in the planning process or shortfalls in provisions to be delivered by any other party involved in the organisation, staging or management of the event.

- 7.23 The likelihood of criminal activity (including terrorist attack) or disorder should be incorporated into the event Safety/Emergency Plan and Risk Assessment. Further information on Counter Terrorist Security Advice for EOs can be found on the National Counter Terrorism Security Office website: [https://www.gov.uk/government/organisations/national-counter-](https://www.gov.uk/government/organisations/national-counter-terrorist-security-office)

terrorism-security-office. Police forces have counter terrorist security advisors who can be consulted as part of the planning process. Early engagement will ensure that EOs are appropriately briefed about the national threat level and any emerging intelligence or threat relevant to their event.

- 7.24 The Police have no general powers to control or direct traffic at events unless during an emergency situation. This function is to be delegated to an accredited Traffic Management Company. Although the Local Authority are responsible for approving the traffic management plan ([Part II Traffic Management Act 2004](#)), its development will involve the EO, the Police and, where appropriate, the [Highways Agency through the SAG.](#)
- 7.25 Some events have an onsite event control where a police presence may be required to deal with policing issues and to co-ordinate incident response. Many of the agencies involved in SAG meetings during the planning stages of an event will be the same as those called to respond to a major incident through strategic and tactical co-ordination arrangements.
- 7.26 In the event of a major incident, the Police will co-ordinate the multi-agency response through the activation of Strategic and Tactical Co-ordination Centres. This is resourced and supported by the Local Authority and Emergency Services through the Local Resilience Forum. Other agency leads may also be required to attend.
- 7.27 In the event of a fatal accident or death on site, the police act as coroner's officers and, as such, have statutory duties which include securing and preserving evidence at the scene (including testimonies in the form of written statements and recovery of any video / photographic evidence). The Police will conduct an investigation in conjunction with the relevant Air Accident Investigation Board.
- 7.28 The Police will usually co-ordinate media liaison in the event of a major incident.

## Fire and Rescue Services

- 7.29 Adequate facilities must be available on site to respond to any fire or rescue emergency. Aerodromes may have dedicated trained staff available. The degree to which these need to be supplemented will be decided through the Risk Assessment.
- 7.30 EOs should ensure that the Fire Service for the area is notified of an event, even if there appears to be adequate on site resources.
- 7.31 If flying is to be conducted over water then the appropriate emergency services, namely, the Maritime and Coastguard Agency and/or the Royal National Lifeboat Institution, should be informed.

## Local landowners

- 7.32 The CAA strongly recommend that EOs engage and work with local landowners early on in the initial planning stage of any event in an attempt to accommodate and resolve any potential issues or concerns held. Early engagement, good communication and patient diplomatic liaison often pays dividends in helping to build good relationships preventing the escalation of any potentially harmful and unnessesary conflict.

## Medical

- 7.33 Medical provision is essential for any event. Notification of an event should be directed to the local National Health Service ([NHS](#)) Trust and the Ambulance Service.
- 7.34 A suitable facility in an accessible location should be made available and equipped as a first-aid and casualty reception centre. Local branches of the [Red Cross](#) and [St John Ambulance Brigade](#) can usually provide first-aid teams and ambulances. These facilities should be suitably marked and located within the Spectator area, but with access to the Display Area.

## Air Accident Investigation Branch (AAIB)

- 7.35 The DfT Air Accident Investigation Branch ([AAIB](#)) must be informed of any [aircraft accident or serious incident](#) by the quickest means of communication available (Contact details can be found in Appendix J). The police also require notification.
- 7.36 A serious accident or incident involving a military aircraft at any display must be reported immediately to the appropriate military authorities. Event Organisers should undertake these tasks if military personnel directly associated with the aircraft are unable to do so. Initial reporting is to be by telephone to the MOD DCD Staff Duty Officer number given in Appendix J, followed by a call to the parent unit. Further details will usually be found in the military operation order, where one has been issued.

## Other considerations and specific responsibilities

- 7.37 Existing legislation provides that unmanned, gas-filled advertising balloons should not be flown in captive flight at or near an aerodrome without written Permission from [Airspace Regulation](#). If such Permission has been granted, or if the Flying Display is not sited at an aerodrome, the EO must arrange that any such balloon, and other obstructions with vertical extent such as hot-air balloons and bungee jumping cranes, are lowered to ground level during the period of the display.
- 7.38 EOs should ensure that gas-filled toy balloons are not sold in public enclosures and that public use of gas-filled balloons and UAVs is not permitted. [Refer also to Chapter 5.](#)
- 7.39 EOs are responsible for the organisation, preparation and planning of any part of an event that does not involve or include aircraft movements, such as car parking, [site](#) access, refreshments, sales stands, toilets, etc.
- 7.40 Further relevant requirements, guidance and information for the role of EO can be found throughout this CAP, in particular Chapters 1, 2, 3, 4, 5, 6 and Appendix A.

## Chapter 8

## Flying Display Director (FDD) – Requirements and information

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### General

- 8.1 The FDD is required by law to have a Permission from the CAA to act as FDD for an Article 86 Flying Display.
- 8.2 The CAA may grant Permission for an individual to act as an FDD once it is satisfied that the person is fit and competent to safely organise the proposed Flying Display, having regard in particular to the potential FDD's previous conduct and experience, their organisation, staffing and other arrangements. It is therefore emphasised that it is the FDD that is responsible for the conduct of the activity carried out pursuant to a Permission under Article 86 of the ANO and for compliance with the conditions contained within it.
- 8.3 The FDD accepts responsibility in the declaration on the Flying Display application form by stating that the display will be organised in accordance with the relevant provisions of this CAP. The CAA will correspond with them directly, or an assistant acceptable to the CAA, in relation to any issues raised during the process of granting a Permission.
- 8.4 It is imperative that FDDs manage their workload appropriately by not accepting more responsibility than that required of them. Their main focus should be with the management of the operational aspects of a Flying Display and to ensure that the display is run in compliance with the provisions of this CAP. One important aspect of this role is the delegation of duties to suitable personnel where appropriate. FDDs should, where possible, avoid unnecessary involvement with EO tasks and responsibilities.

- 8.5 Although the majority of the content of this chapter concerns ground based FDDs, single item AFFDs are expected to read the entire chapter and note and comply with the relevant aspects.
- 8.6 The FDD must take an active role in every aspect of the Flying Display including selection of Display Items, display timings, and pre-event briefings with on and off site emergency services where appropriate. Chapter 6 should be read in conjunction with this chapter.
- 8.7 FDDs who are also EOs for a particular event should read the contents of Chapter 7 - Event Organiser (EO) – Guidance and Information.

### **Obtaining Flying Display Director accreditation<sup>11</sup>**

- 8.8 To gain accreditation as an FDD, applicants are required to complete the following:
- a) For applicants with prior FDD experience, advice on any mentoring requirements should be sought from the CAA GA Unit or the MAA as appropriate<sup>12</sup>.
  - b) For initial FDDs with no prior FDD experience<sup>13</sup>, gain agreement to be mentored from an existing accredited FDD with mentoring privileges.
  - c) Gain the requisite experience (as outlined in the Flying Display Director Accreditation Course section below) through shadowing the FDD Mentor (FDDM)<sup>14</sup>.
  - d) Perform the functions associated with applying for and running a Flying Display under the supervision of the FDDM<sup>15</sup>.

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<sup>11</sup> If an organisation/individual wishes to suggest an alternative method of accreditation they should contact the FDDCO at [ga@caa.co.uk](mailto:ga@caa.co.uk)

<sup>12</sup> Flying Displays directed overseas are acceptable experience where the host country's regulation is based on CAP 403.

<sup>13</sup> Valuable and valid experience can be gained as a member of an FCC. FCC members aspiring to become FDDs should log any experience gained. This should be counter-signed by the relevant event FDD.

<sup>14</sup> Courses are available for training in many aspects associated with the role of the FDD such as public safety planning, risk management, crowd management, incident planning, etc. Applicants may find these beneficial and will add credibility to any application made for grant of FDD privileges.

<sup>15</sup> Candidates must ensure that any experience gained is accurately logged and certified by the mentoring FDD.

- e) Apply for FDD accreditation via form [SRG1326](#). Completed forms should be submitted to [CAA GA Unit](#) as an email attachment with the subject line 'FDD accreditation application'. The application must be supported by a comprehensive training record from the FDDM. This training record can take many forms such as a training folder or log, but should be detailed enough to allow the CAA to review the applicant's progress and performance.
- f) Undergo a behavioural and attitudinal fitness assessment. A completed form [SRG 1303B](#) should be submitted at the time of application for FDD accreditation to allow sufficient time for processing prior to commencing an FDD accreditation process<sup>16</sup>
- g) Attend a joint CAA/MAA FDD Accreditation course, usually held at the Defence Academy each spring. Details of course dates can be found on the [CAA website](#) or by contacting [CAA GA Unit](#)
- h) Arrange for a CAA Flight Standards Officer to attend a Flying Display at which the applicant is acting as FDD under supervision

### **Flying Display Director accreditation course**

- 8.9 The CAA and MAA have developed an accreditation course for both civilian and military FDDs. Any person intending to act in the role of FDD is required to pass an accreditation course
- 8.10 The course covers a number of topics specific to display flying as well as the planning, organisation and management of Flying Displays, in addition to presentations from the regulators and experienced members of the display community. An Applicant's performance is observed during group workshops and assessed via a written examination in a number of areas:
- a) Regulatory compliance
  - b) Planning and organising safe Flying Displays
  - c) Flying Display Risk Assessment management and review

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<sup>16</sup> If an applicant has concerns as to whether or not a favourable behavioural and attitudinal fitness assessment outcome is achievable, it is recommended that a form [SRG 1303B](#) be submitted for assessment to [CAA GA Unit](#) before commencing any of the requirements outlined above.



- d) Obtaining necessary Permissions and planning display in accordance with regulatory rules
- e) Air Traffic Control and radio communication at displays
- f) Maintaining flying discipline
- g) Briefing and debriefing of participating aircrew
- h) Safe coordination of Flying Displays and Flying Display programmes
- i) Cancellation or modification to the programme in the case of adverse weather or other conditions
- j) Flying Display monitoring and warning calls
- k) FCC & FDD coordination
- l) Dealing with contingencies
- m) Post display briefing
- n) MOR and post event reporting
- o) Learning from what happens
- p) Understanding of human factor influences on the safety of Flying Displays and how to address them
- q) Knowledge of AAIB and display accident investigation

8.11 At the end of the course, an applicant's performance and results are assessed by a panel and a judgement made as to the suitability of the candidate to act in the role of FDD. If successful, they will be accredited to one of three competency tiers and their accreditation will enable them to manage displays up to that level of complexity<sup>17</sup>. The tier that the applicant is initially accredited to will be based on an assessment of the applicants past relevant experience and their past performance in FDD roles (if applicable). For further details of Flying Display tier categorisation, please refer to Chapter 5.

### **Validity and currency**

8.12 **Validity.** FDD accreditation will remain valid for a period of 3 years subject to ongoing fitness for the role. Behavioral and attitudinal fitness assessments are valid for 1 year. A completed [SRG 1303B](#) is to be

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<sup>17</sup> Initial FDD applicants will only normally be issued with a maximum tier 1 accreditation. However, previous experience will be taken into account and such applicants may be accredited at a higher tier level.

submitted each year prior to, or alongside, the first Flying Display application made by the individual FDD.

- 8.13 **Currency.** To maintain currency the FDD must act as FDD within the appropriate tier at least once every two years. However if, for example, a tier 3 FDD only acts as FDD for a tier 1 or 2 Flying Display(s) within the currency period, the tier 3 privileges will be forfeited and those of the relevant tier 1 or 2 maintained, until such time as the FDD conducts a tier 3 event under the supervision of an FDDM.

## **Upgrades**

- 8.14 Upgrading to a higher level of FDD accreditation can be achieved by progressing through each complexity level in turn. For clarification, a tier 1 FDD may only upgrade to a tier 2 and a tier 2 to a tier 3. Once an FDD has achieved a higher level of accreditation a period of consolidation<sup>18</sup> is required before any further upgrade.

To upgrade to a higher FDD tier level, applicants are required to complete the following:

- a) Gain agreement to be mentored from an existing **accredited FDD** with mentoring privileges who is accredited to at least the equivalent tier level to that desired<sup>19</sup>.
- b) Be able to demonstrate experience at the higher level of complexity including, but not limited to, the following areas<sup>20</sup>:
  - i) Planning a safe Flying Display (including the risk assessment)
  - ii) Obtaining the necessary Permissions
  - iii) Understanding and compliance of Flying Display regulations
  - iv) Management and assessment of participant regulatory compliance

<sup>18</sup> This period should be sufficient to allow the applicant to demonstrate the required competencies at the new level prior to being considered for a further upgrade.

<sup>19</sup> Experience can be gained by acting as FDD under supervision. Nomination as such can be included on an Article 86 Permission with prior agreement from **CAA GA Unit**. Names of FDDMs can be found on the **accredited FDD list**.

<sup>20</sup> For tier 1 FDDs applying to upgrade to tier 2, elements of this experience can be gained by active involvement as a member of the FCC at tier 2 and 3 events under the direction of the FDDM.

- v) The briefing of participating aircrew
  - vi) Control of the Flying Display programme (including active management and monitoring)
  - vii) Simulated emergencies
  - viii) Post display debriefing
  - ix) Production of [SRG 1305](#) 'Flying Display Director Post Display Feedback Form'
- c) Act as FDD under the supervision of the mentor FDD at a minimum of 3 Flying Displays at the higher level of tier complexity.
- d) Apply for FDD accreditation via form [SRG1326](#) outlining the experience gained in the categories above in the area provided. The application must be supported by a comprehensive training record from the FDDM. This training record can take many forms such as a training folder or log, but should be detailed enough to allow the CAA to review the applicants progress and performance.
- e) Undergo a behavioural and attitudinal fitness assessment by submitting a form [SRG 1303B](#)
- f) Arrange for a CAA FSO to attend a Flying Display at which the applicant is acting as FDD under supervision in order for the CAA to accredit the applicant to the higher tier<sup>21</sup>.

### **Lapsed and expired FDDs**

8.15 FDD accreditation is considered lapsed if the minimum currency requirements stated above have not been met. In this case the FDD will need to re-apply for FDD accreditation by submitting forms [SRG1326](#) and [SRG 1303B](#) to CAA GA Unit. The CAA GA Unit will then advise on the requirements needed for re-accreditation.

8.16 FDD accreditation is considered expired if the currency requirements have not been met and a period in excess of 3 years has elapsed since last renewal. In this case the FDD will need to re-apply for FDD accreditation as above and attend a Flying Display Director Accreditation Course. The

<sup>21</sup> CAA FSO observation may be carried out on the third of the required series of Flying Displays quoted in paragraph c) above.

CAA GA Unit should also be consulted as, dependant on the period of time expired, further mentoring and/or experience may be required.

- 8.17 FDDs who are current but have forfeited privileges may be re-accredited to their previous tier by shadowing an appropriately accredited FDD at a Flying Display. Once satisfactory evidence has been submitted to CAA GA Unit previously held privileges may then be restored.

### **Revocation**

- 8.18 In the event of a FDD who is found to be underperforming an investigation will be undertaken in accordance with the Flowchart Analysis of Investigation Results (FAIR) System at Appendix H.
- 8.19 Once the investigation is complete, a decision will be made as to whether any further action is required. Actions can include, continuing in role, downgrading to a lower FDD tier level, suspension, further training/mentoring or revocation.
- 10.20 Appeals should be made to the CAA GA Unit within 14 days of notification<sup>22</sup>.

### **Airborne Flying Display Directors (AFDD)**

- 8.21 Provided a pilot is acceptable to the CAA, and the appropriate behavioural and attitudinal assessment has been completed satisfactorily, Display Pilots may act as AFDDs at Flying Displays. In this case a suitable person responsible for contacting emergency services in the event of an incident must be present on the ground and should be clearly nominated and agreed in advance. Details of this person are to be entered on the on-line Flying Display or Special Event [application](#) form.
- 8.22 Pilots may act as AFDDs at events consisting of up to 3 single Display Items per day at the location of the event. A single application should be submitted specifying one AFDD as the person responsible for correspondence with the CAA and the subsequent briefing and display

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<sup>22</sup> In accordance with Regulation 6 of The Civil Aviation Authority Regulations 1991.

co-ordination with the other participating AFDDs. A single Flying Display Risk Assessment is to be produced with the combined involvement of each AFDD (including a signed declaration from each) and submitted with the application. Each AFDD will be named on the Permission. However, on review of any application, the CAA may require a ground based FDD to be in place.

- 8.23 It is vital that Display Pilots acting as AFDDs are fully aware, and understand, the extent of the responsibility being accepted when accepting and agreeing to act in this role. A relevant knowledge of the contents of this CAP is required, in particular the contents of Chapters 1, 4, 5, 6, 7, 8, and Appendix A.
- 8.24 Display Pilots that are intending to undertake AFDD roles in 2018 are **strongly advised** to complete the FDD Accreditation course.

### **Risk Assessment and emergency planning**

- 8.25 It is important that the FDD is actively involved in the production of the Flying Display aspect of any event Risk Assessment and is to assume overall responsibility for that content. The FDD should work closely with the EO in this respect, if not carrying out both roles themselves. The procedure and information contained within Appendix A contains guidance and suggestions on features for consideration in the production of the Risk Assessment. Further relevant useful information can also be found in the Health and Safety Executive (HSE) Event Safety Guide, known as the Purple Guide.
- 8.26 Completed Risk Assessments are to be submitted to CAA GA Unit along with the application. Further information on the application process is contained in Chapter 2.

### **Deputy FDDs**

- 8.27 To help safeguard against last minute eventualities, particularly for larger Flying Displays, it is recommended that at the planning stage consideration is given to the risks associated with the primary FDD

becoming unavailable at short notice and the possible consequences this could have with regard to the Flying Display. One solution is the nomination of a suitably accredited Deputy FDD. Such a deputy should be familiar with all aspects of the planning of the specific Flying Display and be aware of, and prepared for, any particular duties expected of them on the day of the event.

- 8.28 When it is considered necessary to have a Deputy FDD, details of the nominated person should be entered on the Flying Display application form..

## Document checks and insurance

- 8.29 Prior to the Flying Display, FDDs are responsible for satisfying themselves that all pilot, aircraft and insurance documentation is current, valid, applicable and appropriate.
- 8.30 A certified Pilot's Declaration as contained at [Appendix B](#) is acceptable documentation for civilian pilots. However, FDDs have the right to check all documentation at their discretion. Participating pilots should be prepared to produce copies of all the documents referred to in [Appendix B](#) if required for inspection. It is the Display Pilot's responsibility to ensure that the information submitted is not false, inaccurate or misleading and that any flight is undertaken with valid documentation.
- 8.31 Although details of a pilot's DA is included in the [Appendix B](#) declaration, FDDs are nevertheless required to check the Display Authorisation document for each Display Pilot for validity, applicability and minimum heights, particularly for the appropriate endorsement for loops and barrel rolls for pilots intending to perform the manoeuvres in civil registered ex-military jet aircraft<sup>23</sup>.
- 8.32 For military participants it may be assumed that the required documents contained in [Appendix B](#) are in order once the booking has been confirmed by the MOD.

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<sup>23</sup> A second pilot of a multi crew aircraft should hold a DA if possible

- 8.33 Where military pilots are to conduct a role demonstration or a Flypast (Mil) at an Article 86 Flying Display, the CAA considers the military Aviation Duty Holder (ADH) and Accountable Manager (Military Flying)'s (AM(MF)) approval of role demonstration manoeuvres and their Orders detailing the limitations specific to their Area of Responsibility for carrying out Flypasts (Mil) to be appropriate authorisations for the pilot to conduct those activities.
- 8.34 As Military Participants are not required to submit an [Appendix B](#) certificate, the FDD is to obtain details of the display routine as authorised in their PDA for reference during planning and display monitoring.

### **Military participation**

- 8.35 For further guidance related to military participation at a Flying Display (both UK and foreign military), refer to chapter 1 of this document and [Regulatory Article 2335](#).
- 8.36 FDDs are to ensure that military participants are aware of any Article 86 Permission that may be in place at the same location and on the same day as any military involvement. This particularly applies to smaller events.

### **Foreign civilian participation**

- 8.37 For further guidance related to foreign civilian participation refer to chapter 1 of this document.

### **Tyro DA (TDA) participation**

- 8.38 To help facilitate an opportunity for newly qualified display pilots to gain experience and exposure within the Flying Display community, the CAA allows FDDs to offer up to 2 slots per Flying Display to TDAs without incurring any extra charge should the additional item(s) move their display into a higher price band. It follows therefore that the maximum number of display items in each price band need to be occupied before any free TDA slot(s) becomes available.



8.39 The maximum number of TDAs permitted at a Flying Display are:

Flying Display Price Band	Number of TDAs permitted
1 – 3 display items	0
4 – 6 display items	1
7 - 12 display items	2
13 - 18 display items	2
19 – 24 display items	2

8.40 When [applying](#) for a Flying Display Permission, FDDs should not include TDAs in the Participating Display Aircraft count on the application form. It is essential though that any TDA display items are shown on the [Aircraft Display Item Schedule](#) and included in the totals at the bottom of the form. The initials 'TDA' must also be entered next to the pilot's name on the schedule. An email must be sent to the [CAA GA Unit](#) to notify the intention to include TDAs in a Flying Display and must include the Flying Display application number (ADO XXX), pilot's name and type of aircraft to be displayed.

8.41 The FDD should check the display pilot's TDA letter and log for validity (expiry date and number of logged TDA displays) and, to avoid inadvertent charges, gain confirmation from the display pilot that the available number of free TDA slots will not be exceeded (therefore invalidating the qualifying requirements) before participation in the planned Flying Display.

8.42 The FDD must comment on the TDA on the joint CAA/MAA 'Flying Display Director Post Display Feedback Form' [SRG 1305](#), if any TDA participation was planned regardless of whether or not the TDA performed the display.

8.43 For TDA eligibility refer to chapter 10.

## Flying Display Director further considerations

- 8.44 It is essential that FDDs and FCCs are located where the entire Display Area is clearly visible and displaying aircraft can be monitored for safety and compliance with limitations. It may be necessary to split the location of FCC members to cover the whole display site. In all cases FCC members must have robust and immediate means of communicating with the FDD.
- 8.45 The Display Area must be observed for pop-up gatherings of secondary spectators, or other members of the public, and, if observed, the action plan instigated as appropriate.
- 8.46 During the Flying Display, the FDD, supported by FCC members and assisted by any DAEs present, should monitor the safety of the performances with reference to conditions contained on the Permission documents and the information that they have about the intended manoeuvres/routine. The FDD must stop the display item, or in some cases the whole display, where safety concerns exist. Further guidance on this can be found in Chapter 6.
- 8.47 It is vital that the FDD has adequate means of communications with all appropriate agencies and Flying Display Participants throughout the Flying Display. In the event that the FDD is sited away from the air traffic services unit, it is recommended that a robust communications link must be established to enable two-way communications in the event of an emergency. Mobile telephones should not to be used for this purpose, except in extremis.

## Minimum heights

- 8.48 FDDs are free to impose more restrictive limits than those contained on the Article 86 Permission, however, when considering the imposition of more restrictive limits, FDDs should take into account how this may affect display manoeuvres/routines and whether any adjustment to the limits may inadvertently create more risk, particularly the risk of human factor errors.

8.49 The FDD/FCC should pay careful attention to the pilot's understanding of Aerobatic Manoeuvre safety gate parameters, energy management and planning (and practise) of escape manoeuvres if the required parameters are not achieved. During the display, although difficult to monitor from the ground, the FDD/FCC should monitor the aircraft manoeuvres and if the required parameters look likely to not be met, the display should be halted with a STOP call.

- a) Pilots with a higher minimum aerobatic height than Flypast display height are (having achieved the necessary entry parameters) permitted to fly a straight climb from Flypast height into an Aerobatic Manoeuvre. Similarly, they can, once certain of achieving a recovery no lower than their minimum aerobatic height, ease down to Flypast height if the next manoeuvre is non-aerobatic. Where one Aerobatic Manoeuvre is linked directly to another, the aircraft must remain above minimum aerobatic height throughout the transition
  - i) A straight climb from minimum Flypast height into an Aerobatic Manoeuvre should be flown at no more than 30 degrees pitch angle until passing minimum aerobatic height
  - ii) Similarly, when easing down to Flypast height after an aerobatic recovery the aircraft should remain straight and at no more than 30 degrees pitch angle (In practice, the descent will be shallow and flown at much less than 30 degrees pitch angle). It is important that FDD/FCC monitor visually all aerobatic recoveries to confirm they are flown to the aerobatic minima rather than Flypast minima
- b) When aircraft blend between aerobatic and Flypast minima as described above, the FDD/FCC should see a definite reduction in aircraft pitch rate while the aircraft is still above minimum aerobatic height as the pilot relaxes and enters a gentle descent to the lower Flypast height. If the aircraft is pitching hard throughout the final portion of the recovery and only achieves level at Flypast height, the

pilot has clearly not met the requirement to be able to level off at aerobatic minima

## **STOP Calls, Standard Calls and safety breach reporting**

- 8.50 An important part of the FDD's role is the monitoring of safety and ensuring compliance with separation distances and minimum heights by participating pilots.
- 8.51 In order to communicate any concerns to the displaying pilot, the standard calls outlined in Chapter 6 should be used and the appropriate standard response expected.
- 8.52 These calls are deliberately brief but contain clear messages. The purpose of a call and response is to verify that the required message has been received and appropriate corrective action by the pilot should therefore subsequently be expected.
- 8.53 FDDs should consider the safest and most appropriate time to make a warning, terminate or STOP call and to not jeopardise safety by causing an unnecessary distraction for the pilot at a critical point during their display.
- 8.54 For information related to safety breach reporting refer to Chapter 6.

## **Post display feedback**

- 8.55 FDDs are required to submit a post display feedback report using the joint CAA/MAA 'Flying Display Director Post Display Feedback Form' SRG 1305 within seven days of the conclusion of the Flying Display. The report contains details of the Display Items that performed on each day of the display, what went well, any lapses and breaches from the required standards, any warning, terminate or STOP calls made and any lessons learned. In addition to the pilot's name and aircraft type, when reporting warning calls it is important to include details of the trigger and subsequent actions, and any debriefs undertaken. The FDD should use any information provided by the Flying Control Committee, performing pilots and any DAEs in attendance in writing the report.

- 8.56 It should be noted that the submission of a completed [SRG 1305](#), within the prescribed timescale, is a condition related to the issue of an Article 86 Permission and as such, if not complied with, an FDD would be in breach of the Permission. Further Permissions to such an FDD will only be permitted once all previous Flying Display Director Post-Display Feedback Forms have been received.
- 8.57 The CAA uses the intelligence gathered from these reports to better understand the risks associated with civil Flying Displays, assist DAEs in monitoring and evaluating standards, feedback lessons learnt to the Flying Display community through briefings and seminars, identify opportunities to improve Flying Display safety and inform the annual review of CAP 403.

## Reporting of occurrences and incidents

- 8.58 In addition to post-event feedback, FDDs are reminded of the importance of reporting safety related events which endanger or which, if not corrected or addressed, could endanger an aircraft, its occupants or any other person. FDDs are encouraged to report any events that fall into this category by following this link: [Occurrence reporting](#).
- 8.59 FDDs are also encouraged to report any incidents or examples of errors involving human factors that occur during a display to [CHIRP](#) who have a dedicated Flying Display reporting stream designed to promulgate to the wider community any lessons learned that could be of benefit to others.
- 8.60 Both of these reporting schemes are confidential and any follow up, or material published, is disidentified to protect the reporter.

## Air Accident Investigation Branch (AAIB)

- 8.61 The DfT Air Accidents Investigation Branch ([AAIB](#)) must be informed of any [aircraft accident or serious incident](#) by the quickest means of communication available (contact details can be found in Appendix J). The police also require notification.

- 8.62 A serious accident or incident involving a military aircraft at any display must be reported immediately to the appropriate military authorities. FDDs and/or EOs are to ensure these tasks are carried out if military personnel directly associated with the aircraft are unable to do so. Initial reporting is to be by telephone to the MOD DCD Staff Duty Officer number given in Appendix J. Further details can be found in the military Operation Order, where one has been issued.

### Application for Flying Display permission

- 8.63 Details of the application process and requirements are contained in Chapter 2

### Summary of FDD responsibilities

- 8.64 The FDD is responsible for:
- a) The conduct of the activity carried out pursuant to a Permission under Article 86 of the ANO
  - b) The Flying Display component of the event Risk Assessment
  - c) Designing a Display Area
  - d) Ensuring their Flying Display is safely organised and in compliance with the provisions of this CAP
  - e) Satisfying oneself that all pilot and aircraft documentation is current, valid, applicable and appropriate
  - f) The coordination, control and safety of all flying activity
  - g) Monitoring flying discipline
  - h) The briefing and debriefing of participating aircrew
  - i) The control of the Flying Display programme and cancellation or modification to the programme in the case of adverse weather or other conditions that directly affect the event
  - j) The Formation and management of a Flying Control Committee (FCC) (if required)
  - k) Ensuring appropriate arrangements for the Flying Display are in place, including procedures for incident management

- l) Submitting post event feedback (and occurrence reporting if required)
- m) Having an in depth working knowledge of the contents of this CAP

## Chapter 9

## Display Authorisation Evaluators (DAE)

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### General requirements

- 9.1 Under Article 86 of the [ANO](#), the CAA shall authorise a person to conduct such examinations or tests as it may specify for the award of a Display Authorisation (DA). The CAA shall approve a person as qualified to furnish reports on these examinations or tests to the CAA. Such persons are known as DAEs.
- 9.2 The CAA Evaluator Oversight Officer (EOO) administers the DA and DAE system and will refer any pilot who is seeking a DA to a DAE in their discipline and geographical area.
- 9.3 To be nominated as a DAE an individual must:
- a) Have received a written recommendation from either the CAA EOO, an organisation associated with a particular display discipline or a credible source from within the Flying Display community. The sponsor must have personal knowledge of the individual's work, standards and integrity
  - b) Hold a valid pilot's licence with normally a minimum of 1,000 hours as pilot-in-command or equivalent experience acceptable to the CAA
  - c) Have normally held a DA for at least three years
  - d) Normally be an active Display Pilot

### Appointment as a DAE

- 9.4 Appointment as a DAE is conditional on CAA assessment of current competence, experience and fitness.
- 9.5 The appointment process includes an assessment of the potential DAE's:
- a) Current competency in display flying



- b) Ability to act as a role model for the CAA in carrying out Display Authorisation evaluations
- c) Knowledge of display flying and Flying Display regulation
- d) Knowledge of DA approval, renewal and upgrade processes
- e) Experience of mentoring and knowledge of ongoing responsibilities in relation to Display Pilot monitoring
- f) Knowledge of display flying human factors
- g) Knowledge of CAP 403, the ANO and SERA.
- h) Ability to write useful and meaningful assessment reports
- i) Ability to maintain personal records of Evaluations and Mentoring

9.6 DAE nominees are required to submit a behavioural and attitudinal fitness questionnaire ([SRG 1303B](#)) to the [CAA GA Unit](#) during the appointment process to inform the fitness assessment.

## Responsibilities and limitations

9.7 A person who is selected by the CAA DAE selection panel and listed as a DAE is authorised to evaluate a pilot's display competency within specific categories and submit a report to the [CAA GA Unit](#) on Form SRG 1301 Display Pilot Authorisation Application (only available from the [CAA GA Unit](#)) in the case of an initial issue, on Form [SRG 1302](#) for the Renewal or Form [SRG 1300](#) for an Upgrade of a DA.

9.8 DAEs are appointed for a maximum of 3 years. During this time DAEs may continue to conduct display competency evaluations as long as:

- a) They remain current in Flying Display activity.
- b) They attend at least one annual CAA hosted DAE Seminar
- c) They complete at least one evaluation observed by the CAA EOO

9.9 DAE performance will be subject to periodic review. If it becomes necessary to remove an evaluator from the list of DAEs due to inactivity or deficient performance, then the CAA will give notification in writing

explaining the reason for such termination. Any appeal should be made to the [CAA GA Unit](#) within 14 days of notification<sup>24</sup>.

- 9.10 DAEs should actively monitor Display Pilot standards throughout the display season. Where a DAE perceives a lapse in safety standards he is to bring the matter to the attention of the Display Pilot and, if no improvement noted, the CAA EOO. If any lapses are observed at a Flying Display, the FDD should be informed, followed by the CAA EOO<sup>25</sup>.
- 9.11 DAEs are also encouraged to report any observed incidents or examples of errors involving human factors to [CHIRP](#), who have a dedicated Air Display reporting stream designed to promulgate to the wider community any lessons learned that could be of benefit to others.
- 9.12 The [CAA GA Unit](#) organise a DAE seminar each year, where current and topical issues relating to DAs and display flying are discussed. Where possible, DAEs should attend annually, but must attend at least one out of every three seminars.

## Display Authorisation Evaluation processes

- 9.13 When assessing a DA, either for initial issue, renewal or upgrade, details should be recorded on the respective form (SRG [1300](#), [1301](#) or [1302](#)).

## Documents

- 9.14 The DAE should:
- Inspect the applicant's logbook to determine total flying experience, display experience, aerobatic or other relevant experience, total time on both the aircraft type and display aircraft category that will be used in the flight demonstration
  - Check the applicant's pilot licence, medical certificate, certificate of experience or test (if any) to enable particular aircraft types to be included in the DA

<sup>24</sup> In accordance with Regulation 6 of The Civil Aviation Authority Regulations 1991.

<sup>25</sup> The DAE should forward a report to the [CAA GA Unit](#) clearly stating the nature of the breach with supporting evidence, in order for the CAA to consider any course of action.

- c) Check the aircraft documentation including the Certificate of Airworthiness or Permit to Fly (and the limitations contained within), the ARC/NARC/Flight Release Certificate (as applicable), Certificate of Registration, Certificate of Release to Service, radio station licence and aircraft insurance certificate. If the aircraft is operated on any alternative system of certification then all relevant documents should be checked

## Oral examination

9.15 The DAE should:

- a) Discuss the weight, balance and loading limitations; airframe and engine operating limitations; 'G' load restrictions and any other operating limitations that are applicable to the demonstration aircraft
- b) Discuss personal motivation, philosophy and reason for applicant's wish to obtain a DA. Include in the discussion common causes of Flying Display accidents
- c) Require the applicant to describe the display which he intends to demonstrate. Discuss the logic of their routine, energy management, the planning of the manoeuvres in relation to aircraft limitations, the effects of density altitude, the effects of surface and upper winds and how to adjust the display to compensate for external constraints<sup>26</sup>.
- d) Discuss and observe a display briefing whether the applicant is displaying as a singleton or leading a formation.
- e) Highlight the importance of a walk through as preparation for a singleton or formation display or flypast.
- f) Discuss and ensure a thorough understanding of the need to:
  - i) Achieve aerobatic gate parameters at manoeuvre apex before committing to continuing the manoeuvre.

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<sup>26</sup> Note that to obtain a Display Authorisation, pilots must be able to prove that they can plan and perform a series of linked manoeuvres.

- ii) Plan and practise escape manoeuvres for those occasions when gate parameters are not achieved.
  - iii) Establish entry parameters for all Aerobatic Manoeuvres, including the speed adjustment required, when entering from a climb to aerobatic minimum height (e.g. from Flypast minimum height)
  - iv) Remain above minimum aerobatic height when directly linking Aerobatic Manoeuvres
- g) Discuss and ensure a thorough understanding that when flying with a minimum aerobatic height higher than minimum Flypast height:
- i) When climbing from minimum Flypast height into an Aerobatic Manoeuvre, the pilot must fly straight and at no more than 30 degrees pitch angle until passing minimum aerobatic height
  - ii) **When certain of being able to recover from an Aerobatic Manoeuvre by minimum aerobatic height** and the next manoeuvres are non-aerobatic, that it is permitted to fly a straight descent at no more than 30 degrees pitch angle when descending through minimum aerobatic height to minimum Flypast height (In practice, the descent will be shallow and flown at much less than 30 degrees).
- h) Discuss the applicant's emergency planning and escape-manoeuvres for items, such as awareness and avoidance of inadvertent stalls/spins, engine or system failures, key heights and speeds and actions if these are not achieved and changes in the weather during the display
- i) Discuss the pilot's responsibilities during a Flying Display briefing and on receipt of any written brief
  - j) Discuss human performance and its limitations relating to display flying, including stress, cumulative fatigue, mental attitude and personal limitations

- k) Discuss the importance of thoroughly reading and checking the conditions contained on any CAA Permission granted for a Flying Display or Special Event

9.16 The DAE should determine the applicant's knowledge of:

- a) The terms and conditions of a Permission issued by the CAA to a FDD under Article 86
- b) The relevant parts of this CAP
- c) The [Rules of the Air Regulations](#) currently in force
- d) The Standardised European Rules of the Air ([SERA](#)) in force with particular reference to SERA.5005
- e) The [ANO](#) currently in force with particular reference to Articles 7, 11, 86, 240, and 241
- f) Limitations imposed by the pilot's licence
- g) The actions necessary to maintain a valid pilot's licence and DA
- h) The normal separation standards between the Crowd Line and the Display Line(s)
- i) Mandatory requirements to adhere to minimum heights specified or referred to in any Permission granted by the CAA which override the holders DA minima
- j) Compliance with any limitations or conditions associated with an aircraft's Certificate of Airworthiness (C of A) or Permit to Fly at all times. Such conditions always take precedence over any CAA Permission issued for Flying Displays and Special Events
- k) The procedures to be adopted in the event of a radio failure during a Flying Display

## Pre-flight inspection

9.17 The normal pre-flight inspection is to be carried out with special emphasis on the following areas:

- a) Fuel and oil adequate for the planned flight with contingency reserve
- b) Aircraft structural integrity and freedom of flying surfaces and engine controls

- c) Thorough check for loose objects in the cockpit and elsewhere in the aircraft
- d) Parachute, if carried, and emergency equipment inspection
- e) Altimeter setting to proper reference
- f) Planned use of transponder
- g) Emergency door or canopy releases inspected for proper operation security and marking
- h) Safety precautions and checks on ejection seats and explosive canopy release or MDC, if fitted

## Flight demonstrations

- 9.18 At the discretion of the DAE, pilots who are demonstrating Aerobatic Manoeuvres for the first time may be required to conduct an initial flight at or above 1000 feet AGL/ASL before demonstrating at a much lower height as may have been requested by the applicant. For low level display evaluations, an exemption from SERA.5005(f)(2) may be required.
- 9.19 The DAE must be satisfied that the demonstrating pilot is operating well within their personal competence, capacity and experience level, in a safe and controlled manner and with strict adherence to limits.
- 9.20 Evaluation criteria must include<sup>27</sup>:
- a) Precision of manoeuvres
  - b) Orderly execution of planned manoeuvres
  - c) Airspeed and height control
  - d) Energy management
  - e) Ability to remain within the Display Area and to conform to display axis separation minima
  - f) Ability to compensate for wind drift
  - g) Ability to adjust routine to accommodate unplanned constraints
  - h) Ability to execute a planned series of manoeuvres in an order agreed by the DAE
  - i) Ability to handle emergencies during a Flying Display performance

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<sup>27</sup> Items g), i) and j) should be covered verbally and demonstrated where possible.

- j) Ability to perform escape manoeuvres when gate parameters are not achieved
  - k) Maintenance of slot times and duration
- 9.21 Where revalidation takes place at a display, the DAE must formally de-brief the pilot after the performance, to cover any variation of planned display due to conditions and include a discussion on how the pilot would have varied the display to accommodate other unplanned constraints. The written details of the de-brief should be included in section 4 of the form [SRG 1302](#).
- 9.22 Other than for the revalidation of Formation and Tailchase categories, evaluation flight demonstrations for the renewal or revalidation of a Display Authorisation cannot be assessed whilst the applicant is following any other aircraft.
- 9.23 DAEs are to ensure during evaluation that pilots have made adequate provision for the safe recovery from spins, be they intentional or unintentional.

### Spin training and departure awareness

- 9.24 An initial application for a DA that includes an authorisation for display aerobatics must include evidence that the applicant has received appropriate spin training. Additionally, the applicant must show that he is current on spin entry and recovery techniques preferably on the aircraft type flown during the evaluation (if permitted) by log book evidence and/or demonstration. DAEs are to indicate that these conditions are satisfied in the 'Applicant's previous Spin/Aerobatic Training' section of Form SRG 1301.
- 9.25 If the DAE is not satisfied that the applicant is sufficiently aware of, or current in, spin entry and recovery techniques the he must restrict the recommendation to non-aerobatic displays until such time as the applicant has received additional appropriate training.

- 9.26 During the oral examination of DA initial and renewal candidates, the DAE is to satisfy oneself that the pilot is well versed in the symptoms of, and recovery from, inadvertent departure from controlled flight. The candidate must be aware of the particular characteristics of the aircraft to be flown in the demonstration and be well versed in the avoidance of danger areas associated with aerobatic displays.

### DAE formation approvals

- 9.27 Only DAEs who are appropriately approved for Formation evaluations may recommend an applicant for the inclusion or upgrade of a Formation authorisation on a DA.
- 9.28 The following levels of Formation evaluation approval are available to DAEs:
- a) Basic Formation Authorisation - Allows these DAEs to recommend the issue or upgrade of a Formation DA, as a member or as a leader, with up to 4 aircraft but not tailchasing unless specifically authorised
  - b) Intermediate Formation Authorisation - Allows these DAEs to recommend the issue or upgrade of any level of Formation DA, except Advanced Formation
  - c) Advanced Formation Authorisation - Allows these DAEs to recommend the issue or upgrade of any level of Formation DA, including aerobatic Formation flying

### Formation category evaluations

- 9.29 DAEs are to satisfy themselves that the DA applicant has completed a period of Formation training prior to being assessed for a Formation DA; as a minimum, this should include a check of the applicant's logbook.
- 9.30 The level of Formation authorisation recommended will be dependent on the previous Formation experience level of the applicant, the extent and level of the training carried out and the applicant's performance during the evaluation.



- 9.31 Before any unlimited Formation authorisation is recommended, the applicant must have extensive previous Formation experience or must have demonstrated a consistently high standard of ability over a number of display seasons at a lower level of authorisation.

### **Close formation flying with up to 4 aircraft**

- 9.32 Before a DAE recommends an applicant for a 'Close Formation flying with up to 4 aircraft' authorisation the applicant must show a clear understanding of the basic principles of Formation flying including:
- a) The principles of safely joining into Close Formation; the safe escape manoeuvre if the join-up is incorrect; the break from Close Formation and the rejoin
  - b) The effects of inertia; assessment of closing speed; throttle handling (if appropriate, the differences between jet and piston engine handling and response must be appreciated by the applicant) and flying control effects
  - c) Clear definition of the position cues for the three basic Formation positions - echelon starboard, echelon port and line astern - in relation to the aircraft being flown in the evaluation
  - d) Procedures for moving safely from one Formation position to another; the executive commands for making a change of Formation; the safety aspects and routine of moving Formation when more than two aircraft are involved
  - e) The need for regular monitoring of aircraft parameters, particularly engine temperatures and pressures and fuel contents; the timing of these airmanship checks
  - f) Aircraft emergency procedures and handling when in Formation
  - g) Actions in the event of losing sight of other aircraft in the formation.
- 9.33 During the Formation flight evaluation the DAE should either fly as the Formation leader or, if the applicant's aircraft is suitably equipped, with the applicant. It is recommended that initial Formation manoeuvring be carried out at medium altitude to confirm the applicant's ability. However, before a recommendation is made, representative manoeuvring must be

carried out at display height. The flight should consist of at least two aircraft and should cover the following minimum requirements:

- a) If appropriate, a pairs take-off in echelon
- b) Manoeuvres in the three basic Formation positions. Within the constraints of the aircraft limitations and performance, the manoeuvres should include straight and level, climbing, descending and turning flight at high and low speeds and power settings
- c) Change of Formation position in straight and level flight and moderate bank turns, appropriate to the level of approval sought
- d) Breaks and rejoins from both echelon positions in straight and level flight and moderate banked turns
- e) An emergency break during manoeuvre
- f) Confirmation that the applicant is carrying out airmanship checks (fuel calls etc.)
- g) A Close Formation run and break into the visual circuit

### **Close formation leading with up to 4 aircraft**

9.34 Before a DAE recommends an applicant for a 'Close Formation leading with up to 4 aircraft' authorisation the following must be considered:

- a) The applicant must have adequate experience in flying as a Formation member in addition to suitable training in Formation leading
- b) The applicant must be aware of their responsibilities as a leader specifically in relation to:
  - i) The need to fly smoothly and with consideration for the other Formation members
  - ii) The use of power by the leader and the power margins the leader needs to allow for other Formation members, particularly in manoeuvre and where the Formation contains more than one aircraft type
  - iii) The leader's responsibility for terrain clearance, lookout and positioning relative to the Display Line for all Formation members

- iv) Actions in event of an emergency
- c) The applicant must brief and lead a Formation with the DAE acting, ideally, as the applicant's wingman. The briefing must cover all required aspects, particularly safety precautions, in a logical manner and include a walk through of the planned display routine or flypast.
- d) The in-flight portion of the evaluation must include an assessment of the leader's abilities in all normal and display related manoeuvres including, if appropriate, Formation aerobatics

### **Tailchasing with up to 4 aircraft and tailchase lead evaluations**

- 9.35 An application for a Tailchase authorisation will not be considered unless the applicant already holds, or is recommended for, a Formation member authorisation.
- 9.36 Before a DAE recommends an applicant for a 'tailchasing with up to 4 aircraft' authorisation, the applicant must demonstrate the following minimum standards during an evaluation:
- a) During the pre-flight briefing the applicant must demonstrate awareness of the following areas:
    - i) The positions usually flown
    - ii) How the position can be maintained by use of 'lead and lag' and the need to follow the leader's flight path without over anticipating the manoeuvre
    - iii) Assessment of Separation Distances and closing speeds
    - iv) Avoidance of, the dangers of and action in event of hitting slipstream
    - v) Loss of leader (or aircraft ahead) procedure - 'safe area', radio call, no rejoin until contact with all other members and they are aware of the rejoining aircraft
  - b) The applicant must successfully carry out a realistic Tailchase at medium level and at a representative display height during the in-flight portion of the evaluation

- 9.37 An application for a Tailchase leading authorisation will not be considered unless the applicant already holds, or is recommended for, a Tailchase member authorisation and a Formation leading authorisation.
- 9.38 Before a DAE recommends an applicant for a 'Tailchase leading' authorisation the applicant must demonstrate the following minimum standards during an evaluation:
- a) During the briefing the applicant must demonstrate awareness of the pertinent leadership factors such as maximum speeds and power to be used, maximum 'g' loading, type of manoeuvres used in tailchasing, consideration for other Formation members and the emergency and loss of leader procedures
  - b) The applicant must demonstrate the ability to satisfactorily lead a representative Tailchase.

### Forms and reporting

- 9.39 Following an evaluation for initial issue of a DA or the renewal or upgrade of an existing DA, the DAE is to make a written recommendation or report to the [CAA GA Unit](#) on the appropriate form. (Form SRG 1301 for initial issue and Form [SRG 1302](#) for renewal or Form [SRG 1300](#) for upgrade.)
- 9.40 Where a candidate fails to achieve the required standard for either the initial issue of a DA or the renewal or upgrade of an existing DA, the DAE is to ensure that the application form is returned to the [CAA GA Unit](#) clearly indicating that the applicant has failed to achieve the required standard, stating reasons for this and recommending any remedial action such as further training. The candidate is to contact the [CAA GA Unit](#) prior to arranging any further evaluation.
- 9.41 Forms [SRG 1300](#) and SRG 1301 incorporate a check list to assist DAEs in conducting evaluations.
- 9.42 It is strongly recommended that if any human factors issues are encountered during a DA evaluation, either through observation or discussion, they are reported to [CHIRP](#) for inclusion in the dedicated Air

Display reporting stream for promulgation to the wider community so lessons learned can be of benefit to others.

## Fitness assessment

- 9.43 Renewal is dependent on a positive Behavioural and Attitudinal fitness assessment. For renewals where there has been no change to details entered on a previously submitted SRG 1303B fitness assessment questionnaire, a simple declaration can be made on the SRG 1302 DA renewal form by way of a tick box. If there has been any change to any of the information previously declared, form SRG 1303B should be completed in full and submitted to the CAA GA Unit along with the SRG 1302 DA renewal form

## Enforcement

- 9.44 In the event of a DAE who is found to be underperforming, the EOO is to be notified. At this point a review board will be convened and an investigation will be undertaken in accordance with the FAIR System at Appendix H.
- 9.45 Once the investigation is complete, a decision will be made as to whether any further action is required. Actions can include: continuing in role, suspension, further training, or revocation<sup>28</sup>.
- 9.46 A DAE will be offered the right of review in circumstances where enforcement action follows an investigation. A request for a review must be made to the CAA GA Unit within 14 days of receipt of written notification<sup>29</sup>.

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<sup>28</sup> In accordance with the Air Navigation Order, Article 253 'Prohibited behaviour, directive, rules, powers and penalties'.

<sup>29</sup> In accordance with Regulation 6 of The Civil Aviation Authority Regulations 1991.

## Chapter 10

# Display pilot and the Display Authorisation (DA)

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## General

- 10.1 In order for any pilot to fly in a Flying Display for which a Permission under Article 86 of the [ANO](#) has been issued by the CAA, the pilot must hold a valid DA issued by the CAA or by a country with an [approved DA evaluation system](#)<sup>30 31 32 33</sup>.
- 10.2 Before participating in any event for which a Permission under Article 86 of the ANO has been issued the pilot must seek confirmation from the FDD that such a Permission has been obtained and is also required to obtain a copy for self briefing.
- 10.3 When applicable, pilots must also ensure that any necessary exemptions from the ANO, Rules of the Air Regulations and SERA are in place before carrying out practise flights at any location. This is particularly important where it would not be possible to adhere to the provisions of any relevant low flying rules.
- 10.4 Where a long term CAA Permission is in effect careful attention should be paid to the precise nature of the permitted activity and any conditions contained on the document. For example, where a long term Permission exists permitting flight below 500ft for the purpose of 'display practise or rehearsal', any unusual aerial activity outside of that scope will require a separate specific application and Permission from the CAA.

## Charges

- 10.5 A charge is made for the initial issue of a DA, an upgrade or change to the DA privileges, or where a replacement copy of the DA is required. The

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<sup>30</sup> Military pilots holding a PDA or who have been specifically authorised for Flypast (Mil) are exempt from this requirement. For foreign military participation, see chapter 1.

<sup>31</sup> Norway and Switzerland are currently the only countries that the CAA has agreement with.

<sup>32</sup> For foreign civilian pilots that wish to display in the UK who do not come from an approved country, the pilot would need to obtain a UK DA.

<sup>33</sup> Whilst not essential, a second pilot of a multi crew aircraft should hold a DA if possible.

charges are as specified in the [ORS5 No. 312: CAA Scheme of Charges \(General Aviation\)](#). Payment as specified must accompany the initial application or an application for the extension or change of DA privileges.

10.6 No charge is made for the renewal of the DA.

### **Minimum requirements**

10.7 The following should be used as a guide for DA applicants and DAEs when considering the minimum sensible level of experience required before a DA application should be considered:

- a) Pilots of aircraft with piston engines of 800hp or greater, 2730 kg mass or greater, jet powered or helicopter - a minimum of 500 hours total time, of which not less than 300 hours should be as pilot-in-command
- b) Pilots of fixed-wing aircraft that do not fall within these display aircraft categories - a minimum of 200 hours total time, of which not less than 100 hours should be as pilot-in-command
- c) Pilots of microlight aircraft - a total of 100 hours flying of which not less than 50 hours must be as pilot-in-command of a microlight aircraft
- d) Pilots of gliders - a total of 100 hours flying of which not less than 50 hours must be as pilot-in-command of a glider
- e) Pilots of powered parachute, powered paragliders, powered hang gliders, hang gliders or paragliders - a total of 50 hours flying of which not less than 25 hours must be as pilot-in-command of a powered parachute, powered paraglider, powered hang glider, hang glider or paraglider as appropriate

### **Required medical certification**

10.8 Display Authorisation for pilots of all registered aircraft are only valid if the pilot holds either an EU medical certificate issued by an Aeromedical Examiner or an International Civil Aviation Organization medical certificate that is of an equivalent or higher standard.

## Obtaining a Display Authorisation

- 10.9 Before a pilot can undertake an evaluation prior to the initial issue of a DA, he must apply to a CAA appointed DAE. A map showing the location UK DAEs can be found [here](#)<sup>34</sup>. Once the DAE has agreed to mentor and/or evaluate the pilot, the pilot shall send a display-relevant C.V. to the [CAA GA Unit](#). Applicants are also required to undergo a Behavioural and Attitudinal fitness assessment to determine their suitability for a Flying Display role; therefore a completed [SRG 1303B](#) form should be submitted along with the C.V. The CAA will convene a DA panel to assess the candidate, and provided the applicant meets the minimum requirements as set out above, passes the Behavioural and Attitudinal fitness assessment and the panel accept the application, the [CAA GA Unit](#) will issue Form SRG 1301 to the nominated DAE. A provisional DA number will be allocated at the same time as the form is issued. DAEs must only report on initial evaluations using SRG 1301 forms stamped and dated by the [CAA GA Unit](#) and with the provisional DA number clearly allocated. The form and provisional number will be valid for 24 months after the date of issue. Once issued, the DA candidate may commence training with their nominated DAE in accordance with chapter 9.
- 10.10 Part of the application process is a degree of mentoring. All initial DAs will be mentored by an appropriate DAE throughout their process of work up. It is highly recommended that the mentoring continues after the DA is initially issued.
- 10.11 An initial application for a DA that includes an authorisation for display aerobatics must include evidence that the applicant has received appropriate spin training. Additionally, the applicant must show that they are current on standard spin entry and recovery techniques, preferably on the aircraft type flown during the evaluation (if permitted), by log book evidence and/or demonstration.

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<sup>34</sup> Once the link to 'My Maps' has been opened, to view the DAE Category layers it is necessary to select 'Open in My Maps' from the menu.



- 10.12 Where a candidate fails to achieve the required standard for the initial issue of a DA, the DAE is to ensure that the application form is returned to the [CAA GA Unit](#) clearly indicating that the applicant has failed to achieve the required standard, stating reasons for this and recommending any remedial action such as further training. The candidate is to contact the [CAA GA Unit](#) prior to arranging any further evaluation.

### Issue of the Display Authorisation and validity

- 10.13 A DA consists of the Display Authorisation and a Certificate of Test and Competence. The categories or specific aircraft types authorised along with the type of display, any specific approvals to perform loops and barrel rolls, the level of Formation and Tailchase approval, the minimum altitude for aerobatics (if authorised) and Flypasts will be specified in the DA. Initial issue will be in one of the categories shown in the table at para 10.18.
- 10.14 The DA is valid once the pilot receives a copy issued by the [CAA GA Unit](#).
- 10.15 An initial DA is valid for a period of 6 months from the date of successful evaluation. Following successful revalidation the DA will remain valid for a further 6 month period. Subsequent renewals are then valid for periods of 13 months at a time.
- 10.16 First time DA pilots are strongly encouraged to attend a DA seminar in the first 12 months from the date of their initial evaluation. Thereafter a seminar must be attended at least once every 5 years for the DA to remain valid.
- 10.17 The initial issue of an unlimited level aerobatic DA will only be granted under specific circumstances, on a case by case basis, after application to and consideration by the CAA GA Unit DA panel.

### Tyro DA (TDA) privileges

- 10.18 To benefit from the scheme the display pilot must have attended a DA seminar.

- 10.19 TDA privileges may be exercised within the first 25 months following the initial DA evaluation and are valid for the first 8 displays of the new DA's career.
- 10.20 TDA privileges are not available for previously expired DAs
- 10.21 Display pilots who passed initial DA evaluation within the previous 18 months, have completed fewer than 8 public displays and attended a DA seminar may apply for TDA privileges by contacting the CAA GA Unit.
- 10.22 TDA privileges expire after 25 months or 8 display slots<sup>35</sup> from initial DA evaluation, whichever occurs first.
- 10.23 The CAA will send a letter of confirmation to the TDA once all of the eligibility requirements have been satisfied. The letter will state the expiry date of the TDA period and include an area where any display flown using TDA privileges is to be logged. A copy of this letter and log must be presented to the FDD as evidence of eligibility to qualify for a free TDA slot.

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<sup>35</sup> Any scheduled display performance not completed, for whatever reason, is not included in this total.

## Aircraft categories for Display Authorisation

10.25 The following aircraft categories and individual type classifications are used in the DA<sup>36</sup>:

Category	<u>Group</u>
<b>Single-Engine Piston aeroplanes (SEP)</b>	
A	Less than 200 hp
B	Between 200 and 600 hp
C	Exceeding 600 hp
<b>Multi-Engine Piston aeroplanes (MEP)</b>	
D	Less than 300 hp total
E	Between 300 and 600 hp total
F	Single Pilot Exceeding 600 hp total, specified by type
Z	Multi-crew Exceeding 600 hp total, specified by type
<b>Jet powered aeroplanes</b>	
<u>G1</u>	<u>Straight wing single engine jet aeroplanes specified by type</u>
<u>G2</u>	<u>Swept wing single engine jet aeroplanes specified by type</u>
H	Multi-engine jet aeroplanes specified by type
<b>Turbo-prop powered aeroplanes</b>	
I	Single-engine turbo-prop aeroplanes specified by type
J	Multi-engine turbo-prop aeroplanes specified by type
<b>Helicopters and Gyroplanes</b>	
L	Helicopters specified by type
M	Gyroplanes specified by type
<b>Gliders, Hang Gliders and Paragliders</b>	
N	Gliders of all types
O	Hang Gliders of all types
Y	Paragliders of all types

<sup>36</sup> For the purposes of the classifications in this table, an aircraft's horsepower is rated at sea-level.

Category	<u>Group</u>
	<b>Microlight aeroplanes</b>
T	Microlight aeroplanes of all types with weight shift control
U	Microlight aeroplanes of all types with three axis control
V	Microlight aeroplanes of all types with hybrid control
	<b>Powered Parachutes, Powered Paragliders and Powered Hang Gliders</b>
W1	All types of Trike Unit Powered Parachutes
W2	All types of foot launched Powered Paragliders
W3	All types of foot launched Powered Hang Gliders

10.26 The following disciplines (which are elaborated on in Chapters 11 and 12 of this CAP) are used to define the skill levels in the DA:

<b>Aerobatic <u>skill level</u></b>	
S	Standard
I	Intermediate
A	Advanced
U	Unlimited
<b>Formation <u>Skill Level</u></b>	
B	Basic
I	Intermediate
A	Advanced
<b>Formation numbers</b>	
4	Up to 4 aircraft
U	Unlimited

## Currency

- 10.27 In addition to a valid Certificate of Test and Competence, to maintain a valid DA a Display Pilot is required to meet certain currency requirements as depicted below before taking part in a Flying Display. Routines flown at flying displays, and those flown during dedicated practises, may be used to maintain currency. In each case, a complete routine must be flown to count towards currency; simply flying some aerobatic manoeuvres during a flight is not sufficient to maintain display currency. Lapsed currency cannot be regained at a Flying Display.

Display Pilot <b>minimum</b> currency requirements preceding <b>Flying Display</b>		
Display aircraft	Within 90 days of date of display	Within 30 days of date of display
All except those included below	3 <u>complete</u> Display <u>Routines</u>	1 <u>complete</u> Display <u>Routine in that category</u>
800hp or greater, and/or 2730kg or greater, and/or Jet powered <sup>37</sup>	3 <u>complete</u> Display <u>Routines in that category</u>	1 <u>complete</u> Display <u>Routine in that category</u>

Display Pilot <b>minimum aerobatic</b> currency requirements preceding <b>Flying Display</b>		
Aerobatic Skill Level	Within 90 days of date of display	Within 30 days of date of display
Standard	3 <u>complete</u> Display <u>Routines</u>	1 <u>complete</u> Display <u>Routine in that category</u>
Intermediate Advanced Unlimited	3 <u>complete</u> Display <u>Routines in that category</u>	1 <u>complete</u> Display <u>Routine in that category</u>

<sup>37</sup> As defined in CAP 632.

- 10.28 It is emphasised that the above requirements should be viewed as the minimum requirements for display currency and that pilots are encouraged, particularly during the winter months or pre-season work up, to undertake sufficient practise to ensure that a sufficiently high standard of safety is maintained.
- 10.29 Display routines and practices must be recorded in the pilot's logbook.

### **Lapsed and expired DAs**

- 10.30 If a period of greater than 13 months occurs without revalidation, but a period of less than 5 years has elapsed since the date of the last evaluation, the DA is considered to be lapsed. To revalidate the DA, the holder will have to conduct a successful renewal evaluation.
- 10.31 If a period of more than a 5 years has elapsed since the date of the last evaluation the DA is considered to have expired. To revalidate the DA, the full initial process for gaining a DA must be followed.
- 10.32 In addition, the DA's validity is based on the holder attending a DA Seminar at least once every 5 years and renewal evaluations at the required intervals. If a DA Seminar has not been attended in a 5 year period the DA will lapse. However, it should be noted that a DA cannot be renewed on the strength of attending a DA Seminar alone, nor (in the case of not attending a DA seminar) can it be renewed solely by conducting a renewal flying evaluation.

### **Renewal**

- 10.33 The renewal of a DA will be by certification of the DA Certificate of Test and Competence. The renewal evaluation must be conducted by a suitably qualified DAE and a written report made to the [CAA GA Unit](#) using form [SRG 1302](#).
- 10.34 In the case of a lapsed DA, where no upgrade of the privileges is being sought, the Certificate of Test and Competence can be signed and

revalidated by the DAE provided a period of less than 5 years has elapsed since last evaluation.

- 10.35 Renewal is dependent on a positive Behavioural and Attitudinal fitness assessment. For renewals where there has been no change to details entered on a previously submitted SRG 1303B fitness assessment questionnaire, a simple declaration can be made on the SRG 1302 DA renewal form by way of a tick box. If there has been any change to any of the information previously declared, form SRG 1303B must be completed in full and submitted to the CAA GA Unit along with the SRG 1302 DA renewal form.
- 10.36 The necessary criteria to satisfy a DAE of a pilot's display competency will combine a check of recent display activity (actual and practise) and an observation of the pilots flying competence. Any observation of a pilot's display flying competency, either at a display or during a practise, must be pre-arranged with the DAE conducting the evaluation.
- 10.37 A Display Pilot authorised to perform at or above standard level aerobatics in one or more aircraft groups is required to renew their Display Authorisation in a category within each group every 13 months.
- 10.38 A Display Pilot authorised to perform at standard level aerobatics in one of these groups will be required to renew their DA in a category within that group every 26 months.
- 10.39 A Display Pilot authorised to perform **at or above** standard level aerobatics in multiple aircraft groups that include jet powered and helicopter groups is required to renew their DA on a type within the jet powered or helicopter group every second renewal.
- 10.40 A display pilot authorised to perform at standard level aerobatics in one or more of the Turboprop, MEP or SEP groups is required to rotate their renewal across each group year on year, thus ensuring that their DA is renewed on a type within that group at least every second renewal.

- 10.41 A Display Pilot authorised in one category and in more than one type is required to renew their DA by rotating between those types year on year.
- 10.42 A Display Pilot is not permitted to have a DA revalidation assessment conducted by the same DAE for more than two consecutive years. Where geographical coverage and specialisation of DAEs means that this is not possible the following options can apply:
- a) Revalidation by the same DAE observed by CAA Flight Standards Officer
  - b) Application to the CAA EOO for exemption from the requirement. This is only possible where prior approval has been sought and the CAA EOO receives adequate written assurance that any conflicts of interest have been minimised
  - c) Applications for retrospective exemptions will not be accepted
- 10.43 When a DAE has prepared a report recommending the issue/renewal of a DA it must be forwarded direct to the CAA GA Unit.
- 10.44 Where a pilot fails to achieve the required standard for the renewal or upgrade of a DA, the DAE is to ensure that the renewal form containing reasons for this and any recommended remedial actions is submitted to the CAA GA Unit. The candidate is to contact the CAA GA Unit prior to arranging any further evaluation.
- 10.45 Any pilot who is denied a recommendation to obtain a DA by a DAE may apply directly to the CAA EOO at the CAA GA Unit for consideration by the CAA GA Unit DA panel.

## Upgrade

- 10.46 Where an upgrade to the privileges of the DA is desired, engagement with an appropriate DAE should be sought for both suitable mentoring and guidance in fulfilling the necessary requirements. In addition, the Certificate of Test and Competence can only be signed and revalidated by the CAA GA Unit. In all cases, a completed Form SRG 1300 Application for the upgrade of a DA must be returned to the CAA GA Unit for record



- keeping or action purposes as appropriate. This applies to upgrades in display discipline, aircraft categories and skill levels.
- 10.47 Upgrade is dependent on a positive Behavioural and Attitudinal fitness assessment. Where there has been no change to details entered on a previously submitted SRG 1303B fitness assessment questionnaire, a simple declaration can be made on the SRG 1300 DA upgrade form by way of a tick box. If there has been any change to any of the information previously declared, form SRG 1303B must be completed in full and submitted to [ga@caa.co.uk](mailto:ga@caa.co.uk) along with the SRG 1300 DA upgrade form.
- 10.48 Applications for upgrades in aerobatic skill level should specify the requested level. DAEs will need appropriate evidence of competence before submitting the recommendation to the CAA EOO.
- 10.49 Applications for formation DAs will need to specify the level of authorisation requested in both formation level and formation numbers. DAEs will need appropriate evidence of competence before recommending a specific formation authorisation.
- 10.50 An application for a formation leading authorisation will not be considered unless the applicant already holds, or is recommended for, a formation member authorisation.
- 10.51 Extensive formation experience, or a proven track record of a consistently high standard of ability over a number of display seasons at a lower level of Formation authorisation, will be pre-requisite before any of the unlimited authorisations can be considered.
- 10.52 Tailchase authorisations will not be issued unless a Close Formation authorisation is already held by the applicant or recommended by the DAE as part of the application. To participate in a Tailchase a pilot must hold a DA which specifically authorises Tailchasing.
- 10.53 Tailchase leading authorisations will not be issued unless a Tailchase authorisation and Formation leading authorisation are already held by the applicant or recommended by the DAE as part of the application. To lead

a Tailchase a pilot must hold a DA which specifically authorises the holder to lead Tailchasing.

- 10.54 To fly or lead an aerobatic Tailchase, a pilot must hold an aerobatic authorisation on their DA and hold a Tailchase Member or Tailchase Leader authorisation (as applicable) without a 'Non-Aerobatic tailchase only' limitation.

### **Pre-display notification to FDDs**

- 10.55 Civilian pilots participating at civilian Flying Displays are required to submit a pre-display declaration certificate in the form of [Appendix B](#). Once completed, this should be sent to the appropriate FDD.
- 10.56 The pilot in command is responsible for the safe operation of the aircraft and must be legally certified to operate the aircraft for the specific flight. Part of this responsibility is to ensure all aircrew licences, authorisations and aircraft documents are current and valid before flight.
- 10.57 It is the duty of the Display Pilot to ensure that the information included in the [Appendix B](#) declaration is correct and accurate. It is the Display Pilot's responsibility to ensure that the information submitted is not false, inaccurate or misleading and that any flight is undertaken with valid documentation.
- 10.58 Display Pilots are reminded that it is an offence under Article 256 of the Air Navigation Order 2016 (as amended) to make, with intent to deceive, any false representation for the purpose of procuring the grant, issue, renewal or variation of any certificate, licence, approval, permission or other document.
- 10.59 Pilots should be able to produce copies of the documents declared in their [Appendix B](#) certificate on request if required for inspection. Electronic or paper copies are acceptable for this purpose.
- 10.60 As part of the [Appendix B](#) declaration, pilots are required to provide contact details for FDDs of events that they intend to perform at later on the same day.

- 10.61 At least one day before a Flying Display, any pilot intending to fly aerobatic display routines that flow directly from one aerobatic manoeuvre into the next must notify the FDD of the series of linked aerobatic manoeuvres that they intend to perform. It is acknowledged that pilots may need to adapt their aerobatic display routine appropriately to local conditions on the day of the display. Pilots should discuss any aspect of the local conditions that might affect their display routine with the FDD.

## Responsibilities to military organisers

- 10.62 Under military flying regulations ([RA2335](#)), military organisers will require to see the DA of participating civilian pilots as evidence of display competency, currency and limitations.

## Safety Breach/STOP Call procedure

- 10.63 Display Pilots are to be fully conversant with the Standard Warning and STOP Calls, and the Safety Breach Reporting Procedure in Chapter 6.
- 10.64 If in receipt of a 'STOP call' the display must be ceased immediately and acknowledgement of compliance passed to the FDD by way of a simple RT response of "WILCO" followed by callsign.
- 10.65 Where a STOP call is issued they will be subject to a provisional suspension of their Display Authorisation. If the safety breach or STOP is called due to an issue associated with a formation or tailchase, all of the pilots involved will be subject to a provisional suspension of their DAs<sup>38</sup>. The pilot(s) should **not** exercise the privileges of their Display Authorisation until an investigation by the CAA is complete<sup>39</sup>.

## Enforcement

- 10.66 Where the CAA deems it necessary to provisionally suspend a DA, either as a result of a STOP call or for a safety breach, formal notification will be given to the DA holder. Upon receipt of this, the DA holder must surrender

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<sup>38</sup> In the case of large formations of greater than 4 aircraft, this will apply to the formation element only.

<sup>39</sup> In accordance with the Air Navigation Order, Article 253 'Prohibited behaviour, directive, rules, powers and penalties'.

their DA by sending it, accompanied by the acknowledgement slip, via recorded delivery to the CAA GA Unit.

10.67 At this point the CAA GA Unit will investigate the circumstances leading to the provisional suspension. This will be conducted in two areas:

- a) An investigation will be conducted to understand what happened and consider any mitigating circumstances. The CAA GA Unit will contact relevant parties in order to establish the nature, cause and circumstances of the incident.
- b) The provisionally suspended pilot(s) will be invited for interview at the CAA GA Unit.

10.68 Once the facts have been established the pilot(s) will be informed of the proposed course of action. Potential outcomes include reinstatement, reinstatement following further training/evaluation by a CAA nominated DAE, suspension or revocation. Each case will be considered with reference to FAIR System, illustrated at Appendix H.

10.69 Note that if such a safety breach results in external investigation such as by the police or AAIB, the result of the provisional suspension may be dependent on any additional evidence brought to light as a result of that investigation.

10.70 At all stages of this process, pilots will be kept informed of events by the CAA GA Unit.

10.71 Appeals should be made to the CAA GA Unit within 14 days of notification<sup>40</sup>.

### **Single item display Airborne FDDs**

10.72 See Chapter 8 for details.

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<sup>40</sup> In accordance with Regulation 6 of The Civil Aviation Authority Regulations 1991.

## Reporting

- 10.73 In addition to the desired reporting channel covered in the General Information section of this CAP, it is strongly recommended that if any human factors issues are encountered during a Flying Display, practise or work-up, either through observation or personal experience, they should be reported to [CHIRP](#) for inclusion in the dedicated Air Display reporting stream for promulgation to the wider community so lessons learned can be of benefit to others.
- 10.74 Further relevant requirements, guidance and information associated with the role of Display Pilot can be found throughout this CAP, in particular Chapters 1, 6, 9, 11, 12, and Appendices B and

## Chapter 11

# Aerobatic categories – Skill levels for authorisation

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## Standard

### 11.1 Standard aerobatic displays.

- a) **Lines** – Mainly horizontal or up to 45° climbing/diving lines in normal flight
- b) **Turns** – Turns through 90° to 360° in normal flight
- c) **Spins** – Erect Spins of one turn, with entry and exit in normal flight
- d) **Stall turns** – Stall turns with normal entry and exit
- e) **Loops and eights** – Inside circular loops with normal entry and exit
- f) **Combinations** – Half an inside loop followed by a half roll ('Roll off the Top'.) Five eighths of an inside loop combined with a half roll on diving exit Line ('Half Cuban 8'). 45° climbing line followed by a half roll and pull through to level flight ('Reverse Half Cuban 8')
- g) **Rolls** – Slow, aileron or barrel rolls on horizontal line, or where combined with a combination manoeuvre listed above, on the diving or climbing line

**NOTE:** Pilots authorised at this level are only permitted to perform loops or barrel rolls in civil registered ex-military jet aircraft at civil Flying Displays if they have received explicit approval from a suitably qualified DAE.

## Intermediate

### 11.2 Intermediate aerobatic displays.

- a) **Lines** – Mainly horizontal or 45° climbing or diving Lines in normal or inverted flight
- b) **Angles** – Change of flight path between lines normally through angles of not more than 90°

- c) **Turns** – Turns through 90° to 360° in normal flight, starting and finishing in normal or inverted flight
- d) **Spins** – Erect spins of one or two turns with entry and exit in normal flight
- e) **Stall turns** – Stall turns with normal entry and exit, with or without half rolls in the vertical climb and/or dive
- f) **Loops and eights** – Inside half loops, loops and ‘Cuban 8s’ with normal entry and exit. Loops may be circular or square
- g) **Combinations** – Half to five eighths of an inside loop may be combined with entry or exit lines and angles. Quarter or half rolls may be included on the lines
- h) **Rolls** – By definition these are inserted in lines or other figures. Slow or aileron rolls, two point or four point rolls, with between a quarter and one rotation flown in any one of the positions referred to above. Positive flick rolls

## Advanced

### 11.3 Advanced aerobatic displays.

- a) **Lines** – Horizontal, climbing and diving in normal flight and vertical Lines climbing and diving. All lines may be flown with or without rolls
- b) **Angles** – Flight through any angle between such lines, with a change of flight path typically between 45 and 135°
- c) **Turns and rolling turns** – Turns through 90 to 360° starting and finishing in normal or inverted flight, with or without rolls, with rotation in the same or opposite direction to the turn
- d) **Spins** – Normal and Inverted spins with entry and exit in normal or inverted flight
- e) **Stall turns** – Stall turns with normal or inverted entry and exit with or without rolls in the vertical climb and/or dive
- f) **Loops and eights** – Inside and outside half loops, loops and horizontal eights (‘inside’ + ‘outside’), with normal or inverted entry and exit. Loops may be circular, square, diamond or eight-sided. Rolls may be inserted in loops and eights

- g) **Combinations of lines, angles, loops and rolls** – Half to three-quarters of an inside or outside loop may be combined with entry or exit lines or angles and rolls may be included on the lines
- h) **Rolls** – By definition these are inserted in lines or other figures. Slow or aileron rolls, 2 point, 4 point or 8 point rolls, positive or negative flick rolls with typically between a quarter and one rotation flown in any of the positions referred to above

## Unlimited

- 11.4 Unlimited Aerobatic Displays - By definition, there are no restrictions on aerobatic figures, including autorotative figures which a pilot flying Unlimited category aerobatics may perform.

**NOTE:** Although based on FAI skill levels, these aerobatic DA skill levels have been adjusted to reflect the normal display aerobatic environment. They should not be confused with the FAI skill levels.



## Chapter 12

## Formation and tailchase flying

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### Formation

- 12.1 In order to take part in a Formation display the pilot must hold a DA permitting Formation flying in the required category. Formation DA authorisations are broken down as follows:
- a) Where Close formation station keeping is permitted it will be limited to:
    - i) Close formation station keeping with up to 4 aircraft; or
    - ii) Close formation station keeping with unlimited numbers of aircraft
  - b) Where Close formation leading is permitted it will be limited to:
    - i) Close formation leading with up to 4 aircraft; or
    - ii) Close formation leading with unlimited numbers of aircraft
- 12.2 Close Formation flying numbers may be restricted by the [CAA GA Unit](#) where necessary.
- 12.3 Close Formation flying is further classified into Basic, Intermediate and Advanced (Aerobatic) skill levels. The levels are defined as:
- a) **Basic.** Gentle Formation manoeuvring where bank and pitch angles are limited to approximately 30 degrees. Formation manoeuvring should be smooth and progressive.
  - b) **Intermediate.** Formation manoeuvres, including gentle wingovers, with pitch and bank angles limited to approximately 60 degrees. Formation manoeuvring should remain smooth and progressive. However, the formation may be required to undertake more rapid changes in pitch and bank angles during the flight.

- c) **Advanced.** Formation manoeuvring where there is no limit to bank angle or pitch angle (Aerobatics).

## Close formation

- 12.4 A close formation leader is responsible for all aspects of their formation of aircraft. This includes, but is not limited to: safety, terrain clearance, positioning, handling, briefing and walk through of the planned display routine or flypast.
- 12.5 The size of the planned close formation dictates the DA requirements of all Participants. Any close formation with more than 4 participating aircraft requires all pilots, including the leader, to hold an Unlimited Numbers Formation/Leader DA, as appropriate.
- 12.6 However, where a large formation is planned with elements consisting of four, or less, aircraft in each element, pilots holding a 4 Aircraft Formation/Leader DA may participate subject to the following limitations:
- a) The overall formation leader holds an Unlimited Numbers Formation Leader DA
  - b) Individual formation element leaders hold, at a minimum, 4 Aircraft Formation Leader DAs
  - c) All participating formation members hold, at a minimum, 4 Aircraft Formation DAs
  - d) The elements are flown in trail (line astern) with sufficient separation between each element to enable each element leader to clearly define their own flight path and, if necessary, for them to disengage their element from the formation without endangering other aircraft. The separation required will depend on individual aircraft characteristics but, as a guide, should be in the order of 100 to 200 metres between the rear of one element and the lead of the next element

## Tailchase

- 12.7 During a tailchase, each aircraft in turn will generally follow the leader's flight path but retain a high degree of individual decision making over the exact path taken using the principles of lead and lag. Separation Distances usually vary from 50 to 200 metres.
- 12.8 Mock combat or dog-fight displays, whilst not necessarily following the definition of a Tailchase, do require many of the same skills such as assessment of closing speed and angle off. Consequently, these types of display are to be treated as tailchases from the DA point of view.
- 12.9 A Flypast of individual aircraft in loose trail (200 metres plus) with manoeuvres restricted to gentle turns is not a tailchase and a Formation / Tailchase DA is not required for this type of display.
- 12.10 Tailchases are restricted to a maximum element size of 4 aircraft. However, more than one element may participate in a tailchase with the leader of the rear element(s) deciding the specific flight path for their element under the overall direction of the main leader. Where more than one element is involved in the tailchase, each element leader must hold a DA which specifically authorises the pilot to lead tailchasing and, additionally, the overall Formation leader must hold an authorisation for Unlimited Formation Leading on their DA.
- 12.11 For details on obtaining formation or tailcase authorisations refer to the DA upgrade section in Chapter 10. For details of formation or tailchase authorisation requirements refer to the appropriate sections of the DAE section in Chapter 9.

## Chapter 13

# Air Traffic Control – requirements and information

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## General

- 13.1 This section provides guidance on the requirements for the provision of an Air Traffic Service (ATS), Air Ground Communications Service or Radio Communications Service at a Flying Display or Special Event.
- 13.2 Event Organisers should ensure that the type of service they intend to provide is appropriate for their event and that notification periods outlined in both this Chapter, and Chapter 3, are complied with. The CAA may, in the interests of safety, direct the person in charge of any aerodrome (other than a Government aerodrome) to provide an Air Traffic Control Service, a Flight Information Service or an Air/Ground Communication Service as considered appropriate.
- 13.3 As a general guide, if an event is likely to generate more than 100 movements **per day**, proposals should be discussed with the appropriate Principal Inspector (ATM). These discussions must be initiated in order to allow at least 90 days from submission of the application to the date of the event. If any doubt exists as to the need to provide an Air Traffic Control Service, the organiser should contact the appropriate Principal Inspector (ATM) for advice.

## Air Traffic Control Service

- 13.4 The requirement to provide an Air Traffic Control Service depends on various factors, some of which are listed below:
- a) The number of aircraft expected to attend, the arrival/departure 'time window' available for these aircraft and the movement rate generated by such

- b) The complexity of the flying programme itself, e.g. is the event fixed-wing only or a mix of rotary/fixed-wing? Are a wide variety of types expected? Is it intended to operate cross runways/night operations?
  - c) The need to co-ordinate the activity with other ATS units in the area
- 13.5 Established ATC Units intending to facilitate a Flying Display or Special Event that involves any new or significant changes to established ATM arrangements at their units should notify their ATS regional office.
- 13.6 Approval for a Temporary Air Traffic Control Unit is required under Part 7 of the [ANO](#). Article 205 Approval (Air Traffic Service Equipment) and Article 206 Approval (Air Traffic Service Equipment Records) are included in this requirement. It is essential that details of the radio and recording equipment to be used are submitted a minimum of 90 days before the date of the event.
- 13.7 If it is intended to establish a Temporary Air Traffic Control Unit at an event, it is essential that organisers/operators refer to CAA [CAP 670](#) ATS Safety Requirements, which contains comprehensive information and requirements for the establishment of such a unit.
- 13.8 Information on the licensing of controllers for the purpose of establishing a Temporary Air Traffic Control Service is available in [CAP1251](#).
- 13.9 The provider of an Air Traffic Control Service must be nominated and he is required to apply to the appropriate CAA ATM Regional Office for approval by a minimum of 90 days in advance of the event . Applicants for the provision of a temporary Air Traffic Control Service should complete Form [SRG 1417](#) (Application to establish or change an Aeronautical Ground Radio Station) and submit to the Radio Licensing Section within the same timescale. A copy of the proposed Manual of Air Traffic Services Part 2 (MATS Part 2) should be submitted to the CAA ATM Regional Office as soon as possible but no later than 60 days before the event. Guidance on the format of the MATS Part 2 is provided in CAA [CAP 670](#).

- 13.10 Questions relating to air traffic personnel requirements, provision of a Visual Control Room and the procedures relating to the inspection and approval of any facility should be addressed to the appropriate Principal Inspector (ATM).
- 13.11 The addresses of the CAA ATM regional offices are detailed in Appendix J of this document.
- 13.12 Further information applicable to the conduct of Special Events and ATC licensing requirements may be obtained from the following documents:
- a) [CAP 670](#) ATS Safety Requirements
  - b) [CAP1251](#) Air Traffic Controllers - Licensing
  - c) [CAP 793](#) Safe Operating Practices at Unlicensed Aerodromes
  - d) [Aeronautical Information Circulars](#)
  - e) [CAP 393](#) Air Navigation Order

### Flight Information Service

- 13.13 Event Organisers who wish to provide a Flight Information Service (FIS) at a temporary site, or at an established site not normally providing FIS, are required to apply to the appropriate CAA ATM Regional Office and submit a completed Form [SRG 1417](#) to the Radio Licensing Section at least 90 days prior to the event.
- 13.14 Temporary FIS must be provided in accordance with [CAP 797](#) and [CAP 1032](#).
- 13.15 Established FIS Units intending to facilitate a Flying Display or Special Event that involves any new or significant changes to established ATM arrangements at their units should notify their ATS regional office.
- 13.16 All relevant systems used in the provision of an ATS will require approval in accordance with the requirements of the [ANO](#).
- 13.17 Procedures for safe and efficient management of flights shall be collated and submitted a minimum of 60 days before the event. Guidance for the

format of the Local Instructions is detailed in [CAP 797](#) Flight Information Service Officer Manual.

13.18 Organisers should refer to the following documents which are also available on the CAA website:

- a) [CAP 1032](#) Aerodrome Flight Information Service Officer Licensing
- b) [CAP 797](#) Flight Information Service Officer Manual
- c) [CAP 774](#) Flight Information Services
- d) [CAP 413](#) Radiotelephony Manual

13.19 Further guidance may be obtained from the appropriate ATM Regional Office and an application Form [SRG 1417](#) may be obtained from the [CAA web site](#).

### **Air Ground Communication Service (AGCS)**

13.20 Many temporary events are supported by the provision of an Air Ground Communication Service (AGCS). [FDDs](#) must ensure that they have obtained an Article 205 approval and that personnel providing the AGCS possess a Radio Operator's Certificate of Competence (ROCC) (CA 1308). The holder of the Wireless Telegraphy Act Licence is responsible for ensuring that all individuals using the radio are competent in both the operation of the equipment and local procedures, and must sign the certificate of competence to confirm this. [FDDs](#) should refer to:

- a) [CAP 452](#) The Aeronautical Radio Station Operator's Guide; and
- b) [CAP 413](#) Radiotelephony Manual

13.21 Applications for AGCS should be made using Form [SRG 1417](#) and sent to Radio Licensing.

### **Operational Control (OPC)**

13.22 Some events require communication for synchronisation or intervention purposes only. Typically OPC assignments are used for synchronising single aircraft movements with music or other ground activities. Such assignments can also be made for the purposes of facilitating FDD

intervention during a display. The latter use will normally be assigned a 'Judges' callsign. Event Organisers must ensure that they have obtained an Article 205 Approval and the Wireless Telegraphy Act (WTA) Licence. The WTA Licence holder is responsible for ensuring that users of these groundstations use appropriate radio discipline.

- 13.23 OPC applications should be made using form [SRG 1417](#) and sent to Radio Licensing.

### Air Traffic Service personnel

- 13.24 ATCOs, or FISOs intending to provide an ATS at a Special Event or Flying Display based at a temporary site, or a site not normally providing the service intended must ensure that they:
- a) Provide a minimum of 30 days' notice to the appropriate Principal Inspector (ATM) specifying the type of service they wish to provide, confirming their licence details and requesting examination dates
  - b) Submit completed Forms [SRG 1411](#) or [SRG 1414](#)
  - c) In the case of ATCOs, comply with the relevant requirements of [CAP1251](#)

### Frequency allocation

- 13.25 A request for a frequency is integral to the [ANO](#) approval process. Event Organisers seeking approval are advised to apply as early as possible but not later than 90 days prior to the event. Initiation of the frequency allocation process is achieved through submission of form [SRG 1417](#). For frequencies intended to be used by display aircraft only, it is recommended that the use of "XXXXXX Display" is applied for when proposing the event callsign on form [SRG 1417](#).
- 13.26 Change of use of an already allocated and approved radio frequency is not permitted without the further approval of the CAA (ATM Regional Office), and written consent of the existing WTA Licence and [ANO](#) Approval holder (where not the applicant).



- 13.27      Event Organisers should note that frequencies for use in Flying Displays and other Special Events are in extremely short supply, and allocation cannot be guaranteed.

## Chapter 14

## Ballooning as part of a Flying Display

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### Legal requirements

- 14.1 The carriage of fare paying passengers requires the balloon operator to hold a valid Air Operators Certificate (Balloons) whether tethered or free flight.
- 14.2 Pilots of free flight balloons are granted an exemption from the requirement to hold a DA by a General Exemption (refer to the next section).
- 14.3 Pilots of tethered balloons are not required under Article 86 of the [ANO](#) to hold a DA.

### General exemption

- 14.4 The General Exemption states that any pilot who is the holder of a Private Pilot's Licence (Balloons and Airships) or a Commercial Pilot's Licence (Balloons) is authorised to act as the pilot of a balloon taking part in a Flying Display without holding a DA.
- 14.5 The General Exemption is available at [ORS4 No.1196](#).

### Considerations

- 14.6 Balloons require a large area to lay out and prepare for inflation. This area can be between the Crowd Line and the display axis. The specific requirements for the setup, lay out, inflation, free flight, tethered flight and deflation should be discussed with the FDD in advance.
- 14.7 Balloon participation as part of a Flying Display usually happens as a tethered flight or a free flight or a combination of both. Free flights usually take place early morning or early evening and tethered flights can take place at any time.

- 14.8      If aircraft are displaying, wake vortices may be generated which could affect the lay out and inflation of the balloons. Consideration by the FDD and or the EO must be given to the effects on the Balloon of any form of wind generation.

## Chapter 15

## Parachuting as part of a Flying Display

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### Legal requirements

- 15.1      Whilst parachuting itself does not constitute a Display Item requiring an Article 86 Permission, this chapter is included in order to assist EOs and/or FDDs.
- 15.2      Display parachuting may be arranged as an additional attraction at many events including Flying Displays, or as an event in its own right. Display teams must be in possession of a valid parachuting Permission as required by Articles 89 and 90 of the [ANO](#). This document is issued by the [CAA GA Unit](#) with a condition that all parachuting operations are conducted in accordance with the relevant provisions of the parachuting Operations Manual currently in force as submitted to the CAA.
- 15.3      Parachute dropping aircraft are NOT permitted to execute a low pass after the drop, unless the pilot holds a valid DA, an Article 86 or SERA.5005 Permission is in place and it has been approved by the FDD.
- 15.4      Aircraft may only be used for parachute dropping if there is information available in the Flight Manual or Flight Manual Supplement relating to parachute dropping for that particular aircraft. The aircraft must have approved modifications, if necessary, for the purpose of parachute dropping and must be operated in accordance with the Flight Manual or Flight Manual Supplement.
- 15.5      The parachute display team leader is responsible for obtaining any air traffic Permission in principle (e.g. Non-Standard Flights in Controlled Airspace) and for notifying the proposed display to [Airspace Regulation](#), the [British Parachute Association](#) and to the local police a minimum of 28 days prior to the event.

- 15.6 The parachute display team will require the written Permission of the landowner concerned or their agent.

### **Liaison and reconnaissance**

- 15.7 An experienced team member will need to visit the proposed landing area in order to plot existing and anticipated hazards. This visit will ideally be made at least six weeks before the proposed display.
- 15.8 The EO, FDD or appropriate representative should be present at this visit in order to discuss:
- a) Weather minima
  - b) Dimensions of the landing area required by the team
  - c) Arrangements for crowd control
  - d) Location of overshoot/undershoot areas, buildings and power lines
  - e) Locations of Spectator enclosures, Car Parks, marquees and other hazards (e.g. cranes used for bungee jumping)
  - f) First aid
- 15.9 The FDD must ensure that the display team is informed of any other aviation related activities known to be taking place at the event or nearby (e.g. helicopter Pleasure Flights, tethered balloons, model aircraft).

### **The landing area**

- 15.10 Where the designated landing area is on the display side of the Crowd Line, no part of that area should be closer than 15 metres to the Crowd Line.
- 15.11 Where the designated landing area is in an area set aside for the Spectators, it should be enclosed with rope, tape or fencing and no parachutist should intentionally land closer than 15 metres to any Spectator.
- 15.12 The landing area available must be a minimum of:
- i) 5000 sq metres in area with a minimum width of 50 metres for 'C' licence parachutists

- ii) 20000 sq metres in area with a minimum width of 100 metres for 'B' licence parachutists

15.13 The landing area should be suitably marked and should be clearly identifiable by each parachutist from the time he exits the aircraft.

### The display

15.14 The EO is responsible for the arrangements concerning crowd control.

15.15 When the display of parachuting forms part of a Flying Display, the commander of the parachute dropping aircraft must obtain a briefing from the FDD.

15.16 The parachute display team will provide a ground party at the landing site who will be able to communicate with the parachute dropping aircraft by means of signal panels and/or radio.

15.17 Parachute display team leaders should study the additional guidance material for parachuting displays contained within [CAP 660](#) Chapter 4.

15.18 Aircraft landing or taking off, other aircraft with engines running and turning propellers or rotors constitute a hazard to parachutists. In order to minimise the risks FDDs are to ensure that the following procedures are followed:

- a) All pilots are to be briefed on the procedures to be followed during any parachute drop
- b) Under no circumstances are propellers, jet engines or helicopter rotors to be turning closer than 250 metres from the intended parachute landing site during the period that the parachutists are descending
- c) Pilots of aircraft outside a radius of 250 metres (1000 metres in the case of Pleasure Flights), both airborne and on the ground, should remain aware of the progress of the descending parachutists and, if on the ground, be prepared to stop engines or rotors if the descending parachutists are seen to be drifting close to their aircraft

FDDs should consider programming events in such a manner that potential conflicts between aircraft and parachutists are minimised.

## Chapter 16

## Paragliders and Hang-gliders (unpowered) as part of a flying display

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### General

- 16.1 Displays encompassing the operation of paragliders and hang-gliders present unique issues to the Event Organiser and/or the FDD. These issues should be discussed early in the development of the flying programme.
- 16.2 FDDs should consider programming events in such a manner that potential conflicts between other aircraft, paraglider and hang-glider pilots are minimised.

### Pilot requirements

- 16.3 Pilots must hold a valid recognised paragliding qualification or rating, for example a British Hang-Gliding and Paragliding Association 'Pilot' qualification or the FAI International Para Pro Level 4 qualification.
- 16.4 Pilots must hold a valid UK CAA DA with the relevant category included.
- 16.5 Pilots must hold a valid radio licence (if required). The use of non-aviation frequency radios is not recommended.
- 16.6 Pilots must ensure they have valid 3rd party and public liability insurance, that includes display flying, to an appropriate minimum level of cover.
- 16.7 Pilots will be required to evidence their valid ratings/licences (etc) to the FDD prior to the event by providing a certified declaration as per [Appendix B](#).
- 16.8 The paraglider or hang-glider Display Pilot or team will require the written Permission of the landowner concerned or their agent.



## Liaison and reconnaissance

- 16.9 The FDD, Display Pilot or an experienced team member will need to visit the proposed take off, flying and landing areas in order to plot and record existing and anticipated hazards. This visit should ideally be made at least six weeks before the proposed display.

The FDD must be present at this visit in order to discuss:

- a) Weather minima
  - b) Dimensions of the landing area required
  - c) Arrangements for crowd control
  - d) Location of overshoot/undershoot areas, buildings, power lines, roads and Congested Areas
  - e) Locations of Spectator enclosures, Car Parks, marquees and other hazards (e.g. cranes used for bungee jumping)
  - f) First aid
- 16.10 The FDD must ensure that the Display Pilot or team is informed of any other aviation related activities known to be taking place at the event or nearby (e.g. helicopter Pleasure Flights, tethered balloons, model aircraft flying, displaying aircraft).

## The Landing Area

- 16.11 Where the designated landing area is on the display side of the Crowd Line, no part of that area should be closer than 30 metres to the Crowd Line parallel to the approach.
- 16.12 Where the designated landing approach and landing direction is towards a Crowd Line, no part of the landing area should be closer than 30 metres from the Crowd Line.
- 16.13 Where the designated landing area is adjacent to an area set aside for Spectators, it should be enclosed with rope, tape or fencing. In this case, the minimum designated landing area should have a minimum of 60 metres available for landing into wind with at least 30 metres laterally. In

addition to the 30 metre x 60 metre landing area there must be a minimum lateral separation of 30 metres in all directions from any Spectators.

- 16.14 No paraglider or hang-glider pilot should overfly any Spectator.
- 16.15 The landing area should be suitably marked and must be fully briefed to each pilot prior to launch.

### **The display (when the display forms part of a flying display)**

- 16.16 The EO is responsible for the arrangements concerning crowd control.
- 16.17 The paragliding/hang-gliding pilot or display team will provide a ground party at the landing site who will be able to communicate with the launch point or dropping aircraft by means of signal panels and/or radio. The ground party should also be able to communicate with the airborne pilots by signal panels or radio.
- 16.18 The display elements must be completed and the paraglider/hang-glider must be in normal flight to commence the landing approach at a height no lower than 200 feet when over land and 100 feet when over water.
- 16.19 Aircraft landing or taking off, other aircraft with engines running and propellers or rotors turning constitute a hazard to paraglider pilots. In order to minimise the risks FDDs are to ensure that the following procedures are followed:
- a) All pilots are to be briefed on the procedures to be followed during any paraglider display
  - b) Under no circumstances are propellers, jet engines or helicopter rotors to be turning closer than 250 metres from the intended landing site during the period that the paragliding/hang-gliding pilots are approaching
  - c) Pilots of aircraft outside a radius of 250 metres (1000 metres in the case of Pleasure Flights), both airborne and on the ground, should remain aware of the progress of the paraglider/hang-glider pilots, and, if on the ground, be prepared to stop engines or rotors if the

approaching paragliders or hang-gliders are seen to be drifting close to their aircraft

## Post-landing

- 16.20 A specific area suitably clear of obstructions should be set aside for the packing up of the equipment. Ideally it should not be under the Display Area or be exposed to any downwash, jet blast etc.

## Separation distances

- 16.21 Minimum Separation Distances for paragliders and hang-gliders are contained in the table below:

Type of aircraft	Type of display	Lateral separation distance
Paraglider and Hang-glider (unpowered)	Take-Off / Landing	30 metres
	Flypast	100 metres
	Full Aerobatic*	150 metres

\* Full aerobatic flight for these aircraft include, but are not limited to, angles of bank exceeding 60 degrees, spins, loops, inverted flight, figures in which all or part of the aircraft is moving backwards or rotating and manoeuvres in which all or part of the aircraft is collapsed.

- 16.22 Takeoff may be commenced from a point no closer than 30 metres from the crowd provided the takeoff run and subsequent climb out continues away from the crowd to meet and maintain the minimum Separation Distance for the duration of the display.

## Down draughts, prop wash and jet blast

- 16.23 Moving/disturbed airflow, however caused, has a great effect on the control of a paraglider or hang-glider as they are susceptible to air turbulence. Provision should be made to reduce the likelihood of rotating propellers, jet blast and turning rotor blades being within the proximity of paragliders so as not to affect them.

## **Preceding and following display items**

- 16.24 The content and order of the Flying Display programme must take into account the type of display act that is before and after paraglider/hang-glider participation with particular consideration to Separation Distances and times required for residual vortices from other aircraft to dissipate, particularly in light (or nil) wind conditions.

## Chapter 17

## Foot-launched aircraft as part of a flying display

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### **General**

- 17.1 Flying Displays encompassing the operation of foot-launched aircraft present unique issues to the organiser and/or the FDD. They should be discussed early on in the flying programme development
- 17.2 Pilots must hold a recognised foot-launched aircraft qualification or rating
- 17.3 Pilots must hold a valid UK CAA DA with the relevant category included
- 17.4 Pilots must hold a valid radio licence (if required). The use of non aviation frequency radios i.e. 'walkie talkies' is not recommended
- 17.5 Pilots must ensure they have valid insurance that includes third party liability and display flying

### **Pilot access to the launch area**

- 17.6 A specific area suitably clear of obstructions should be set aside for the set up and subsequent re-packing of the equipment. Ideally it should not be under the Display Area. When selecting a suitable operating area, careful consideration must also be given to terrain and obstruction induced turbulence.

### **Separation distances**

- 17.7 Separation Distances for foot-launched aircraft must comply with the table in Chapter 6. Takeoff may be commenced from a point no closer than 30 metres to the crowd provided the takeoff run and subsequent climb out continues away from the crowd to meet and maintain the minimum Separation Distance for the duration of the display. Otherwise the minimum Separation Distance for take-off and landing shall be 50 metres.

## **Down draughts, prop wash and jet blast**

- 17.8 Moving/disturbed airflow, however caused, has a great effect on the control of a foot launched aircraft as they are susceptible to air turbulence. Provision should be made to reduce the likelihood of rotating propellers, jet blast and turning rotor blades being within the proximity of the foot-launched aircraft so as not to affect them.

## **Maximum wind limitations**

- 17.9 Take off and landing has to be made directly into wind, with a maximum wind strength of only 10kts for some foot-launched aircraft.

## **Preceding and following display items**

- 17.10 The content and order of the Flying Display programme must take into account the type of display act that is before and after foot-launched aircraft participation with particular consideration to Separation Distances and times required for residual vortices from other aircraft to dissipate, particularly in light (or nil) wind conditions.

## Chapter 18

## Air racing as part of a flying display

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### General

- 18.1 An 'Air Race' can provide an alternative spectacle for an Article 86 Flying Display audience. Display flying involves operating aircraft close to their permitted limits while close to the ground without the element of competition. Air Races add an element of competition which can subject aircraft and aircrew to greater than normal risks, together with the added psychological pressure of performing to an audience. Accordingly, an unscripted air race involving multiple aircraft flying the same course in competition introduces a large degree of unpractised manoeuvring that does not fit within the Article 86 Flying Display environment.

**NOTE:** This does not exclude competition flying involving single aircraft flying a set course against the clock from being incorporated as part of an Article 86 Flying Display.

- 18.2 Pre-briefed, 'stage-managed' air racing is permitted at Article 86 Flying Displays. This will usually be arranged with the slowest aircraft taking off first followed by progressively faster aircraft, with take-offs timed so that after flying a number of visual circuits, all arrive almost together, but in a pre-briefed order, at the nominal finish.
- 18.3 Aircraft fly at pre-determined normal operating speeds, rather than at maximum possible speed.
- 18.4 All pilots must hold a minimum of a Tailchase DA. The lead pilot at the finish of the 'race' must hold a Tailchase Leader DA. All pilots must hold a DA appropriate to any combined manoeuvring planned after the end of the 'race'.
- 18.5 The minimum Separation Distance between aircraft during the 'race', including while overtaking, is 50 metres.

- 18.6 The minimum Separation Distance from the crowd must be in accordance with Chapter 6.
- 18.7 The minimum height (within the authorised Display Area) must be the event minima or the individual pilot's permitted minima, whichever is the higher. In addition, for air race scenarios, an absolute minimum of 100 feet AGL/ASL applies.
- 18.8 The FDD should consider and plan for the variations in speed of the different types involved, as well as any ground handling differences.
- 18.9 The FDD should ensure that the 'air race' briefing includes departure order and timing, overtaking, the requirement for aircraft to manoeuvre predictably and to avoid the aircraft ahead especially during and after overtaking, post-race positioning and landings.



## Chapter 19

## Banner towing as part of a flying display

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### **General**

- 19.1 Banner towing as part of a flying display requires good co-ordination between the FDD, the Participant and ATC as the 'combination' is slow to manoeuvre and susceptible to drift.
- 19.2 Aircraft may only be used for banner towing if there is information available in the Flight Manual or Flight Manual Supplement relating to towing for that particular aircraft. The aircraft must have approved modifications if necessary for the purpose of towing and must be operated in accordance with the Flight Manual and any applicable Flight Manual Supplements.

### **DA requirements**

- 19.3 The Participant must hold a valid UK CAA DA which includes Permission to tow banners.

### **Separation distances**

- 19.4 Pick up gates and drop zones should be no closer than 75 metres from the crowd.
- 19.5 Display passes should be such that if the banner should fall it shall be no closer than 100 metres horizontally from the crowd. The tail of the banner should not be lower than 200 feet above surface level.

### **Considerations**

- 19.6 Banner towing requires a dedicated area that should be set aside for the set up, pick up and dropping of the banner. This area should be on open ground with no obstructions particularly on the approach and climb out which is usually into wind.

- 19.7 The combination of towing aircraft and banner must not be flown under / over or around by any other aircraft.
- 19.8 Formation as defined in Chapter 12 of this CAP may be flown with a banner in tow, or with a tow rope attached, provided that any Formation changes are at a safe distance behind the lead aircraft taking into account the possibility of the banner or tow rope separating from the towing aircraft.
- 19.9 When banner towing is conducted outside of an Article 86 Flying Display or SERA Minimum Height and Visual Flight Rules Permission time period, the combination must at all times comply with the Rules of the Air and SERA, with particular attention to Congested Areas, increased density of people and the ability to land clear in the event of an engine failure.

## Chapter 20

# Twilight and airborne pyrotechnic displays

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## General

- 20.1 Displays at twilight should take account of many factors that differ from those during daylight. Particularly but not exclusively:
- a) Reduced and deceptive visual references
  - b) Factors influencing light levels such as cloud
  - c) Inadvertent entry into cloud
  - d) Ability to choose a suitable area to alight clear and to land before official night when natural and artificial light may be limited
- 20.2 Additional planning by the FDD and the Participant is essential in order to identify and reduce the hazards associated with flying in low light conditions (for instance, Display Lines may be marked with lights).
- 20.3 FDDs should have an increased awareness of meteorological factors such as showers and their effects.
- 20.4 Pre-declared (to the FDD) increased minima above those specified in the DA must be used by the pilot taking into account at least terrain, ambient light levels and the loss of visual cues and references when flying over or in 'black holes'.
- 20.5 It is essential that pilots familiarise themselves with the local topography in daylight.
- 20.6 Spinning and gyroscopic aerobatics are not permitted at twilight displays. Consideration should be given to avoid manoeuvres that turn the aircraft away from clear visual reference points.
- 20.7 Advanced manoeuvres that increase the risk of losing situational and spatial awareness with low light levels and limited visual reference points should be avoided.

## Airborne displays using pyrotechnics

- 20.8 Airborne displays using Pyrotechnics should take into account the following but not limited to:
- a) Momentary blindness when firing and looking into pyrotechnics
  - b) Fall-out from emitting fireworks
  - c) Increased fire hazards both on the ground and in the air
- 20.9 Pyrotechnic devices must not be released with a trajectory towards any spectators. This includes pyrotechnic projectile, dross, embers or remnants. Due consideration should be given to release height, wind drift and release vector.
- 20.10 Both the FDD and pilot(s) should discuss their planned action(s) in the event of an engine failure when the pyrotechnic is burning or still hot.

## Minimum heights for release

- 20.11 Pyrotechnics have different burn rates and descent rates. After testing and practise, an established minimum release height with a margin for error must be established in order to prevent any burning, hot particles or remnants landing among spectators, near taxiing or static aircraft, supporting personnel or ground equipment and without causing damage or injury on the ground.

## Wind speed and direction of fallout and rate of fall

- 20.12 Careful consideration must be given to where any fallout may land during normal operation or if a malfunction occurs.

## Anticipating a pre-ignition and/or failure in the air and on the ground

- 20.13 Consideration must be given to:
- a) The potential for uncommanded ignition or pre-ignition in the air and on the ground, which may cause momentary blindness in the air, or a fire on the ground

- b) Anticipating a forced or early landing before the pyrotechnic has extinguished
- 20.14 Additional pre display planning is essential to cater for a pyrotechnic that may still be alight or hot when the aircraft reaches the ground.
- 20.15 Routing to and from the venue should be carefully planned so as to minimise the risks associated with falling debris.
- 20.16 Spent pyrotechnic canisters may cause runway FOD issues therefore planning to minimise runway disruption is essential.

### **Safety information and special handling details**

- 20.17 All pyrotechnics require safe and careful handling. Details of specific handling requirements must be sent to the FDD and communicated to the emergency services prior to the event.
- 20.18 FDDs should discuss the types of pyrotechnics that are to be used during the display with the operator and/or pilot to ensure that emissions during the display will be contained within the risk assessed area.

## Chapter 21

## Model aircraft as part of a flying display

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### General

- 21.1 Uncontrolled free flight models should not be flown during the period of a Flying Display.
- 21.2 Drones included as part of a Flying Display must observe all of the Separation Distances referred to in this chapter. Their use is to be approved by the Event Organiser, the FDD and the Model Flying Display Director (MFDD).
- 21.3 Where the designated model aircraft Display Area is in an area set aside for the Spectators it should be safely enclosed.
- 21.4 Model aircraft with a mass of more than 20kg are required to hold a CAA Exemption to fly. The Exemption will state the physical characteristics of the model and the name(s) of the pilot(s) allowed to fly the model. An Exemption to Test Fly is not valid at a public event including Flying Displays. Pilots are required to hold a British Model Flyers Association (BMFA) Qualification B, or a Large Model Association (LMA) Proficiency, or an equivalent qualification and valid insurance that includes third party liability.
- 21.5 The FDD and the MFDD should consider the need to add an additional Separation Distance for models of exceptional dimensions, weight or performance. Some jet model aircraft are capable of speeds in excess of 200 mph.
- 21.6 The FDD should be responsible for ensuring that model aircraft displays are adequately separated in distance or time from other flying events. Where the model flying is taking place on the display side of the Crowd Line, there should be direct communications between the FDD and the

MFDD to ensure that in the event of an aircraft emergency the model flying can be stopped as quickly as possible.

- 21.7 The MFDD will assist in the planning of the model Flying Display and is responsible for arranging strict control and use of model aircraft transmitters and frequencies, the airworthiness of all model aircraft, the competence and the briefing of the model aircraft pilots and control of the model flying area.
- 21.8 An appropriate number of Flight Line Marshalls responsible to the MFDD must be appointed at medium to large scale events to directly control the active model flying. At smaller events this role may be assumed by the MFDD.

### Model aircraft display limitations

- 21.9 The Separation Distances between Spectators and model aircraft should be maintained whether the models are flown in a specified area or on the display side of the Crowd Line. Refer to [www.caa.co.uk/CAP658](http://www.caa.co.uk/CAP658).
- 21.10 The Minimum Separation Distance for models under 7 kg is 30 metres. For models over 7 kg the Minimum Separation Distance is 50 metres, but this distance may be reduced to 30 metres for take-off and landing only.
- 21.11 For models of over 20kg, and all gas turbine powered model aircraft, a greater Minimum Separation Distance of 75 metres is required. This distance may be reduced to 30 metres for take-off and landing only.
- 21.12 The FDD and MFDD should also consider the need to add an additional separation distance for models of exceptional dimensions, mass or performance.
- 21.13 The recommended weather limits for model aircraft flying are a minimum visibility of 500 metres and a maximum wind strength of 25kts.

### Full size and model aircraft synchronised displays

- 21.14 Where a Display Item consists of a full size aircraft and a model aircraft, a number of risk factors must be considered. The Display Pilots should

determine a safe method of flying the routine taking into account the difficulties of ensuring that the required Separation Distance between the two (or more) aircraft and the Spectators is maintained. The judging of Separation Distances by the ground based pilot becomes increasingly difficult as the horizontal distance between them and the model aircraft increases.

- 21.15 The Display Pilots will need to fully brief the FDD on the display routine including any specific requirements for set up and recovery prior to and after the display.
- 21.16 The model aircraft pilot is not required to hold a DA but must hold a BMFA B or a LMA Proficiency, or an equivalent qualification to display at a Flying Display. The Display Pilot must have successfully passed an evaluation to upgrade the DA to include 'Display flying with model aircraft'.



## Appendix A

# Risk Assessment

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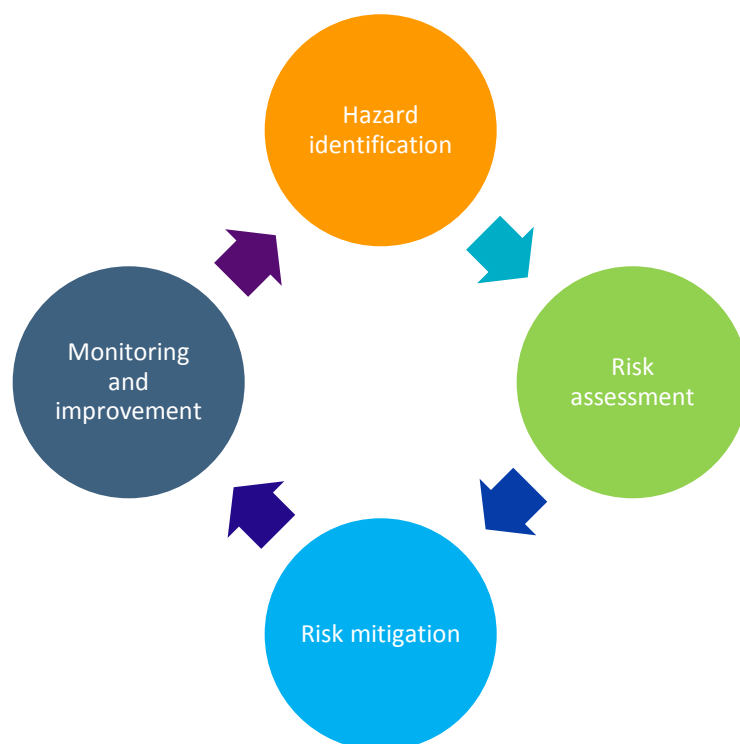
## Flying Display risk management

- A1 At any Flying Display or Special Event there are hazards that may cause harm to people. Event Organisers are accountable for ensuring that their events are managed safely and this includes managing the risks created by any display flying that forms part of their event.
- A2 The display risk management procedure that follows should suit the needs of most Flying Displays and Special Events. If you require further advice on the Flying Display Risk Assessment process please contact the [CAA GA Unit](#).

## The risk management process

- A3 The risk management process starts with identifying the hazards created by the Flying Display or Special Event and then assessing the risks associated with those hazards in terms of likelihood (what is the likelihood of the risk associated with a hazard happening?) and severity (if the risk associated with a hazard occurs how bad will it be?). Once the level of risk is identified, appropriate mitigation measures can be implemented to reduce the level of risk to as low as reasonably practicable (ALARP). The implemented mitigation measures should then be monitored to ensure that they have had the desired effect.
- A4 The complexity of the risk management process should reflect the scale of the risk created by the display being planned. This applies both in terms of the scale of the event and in terms of the individual hazards that are identified. For example, it would be expected that a large Flying Display with a number of different Display Items/types with a significant number of Spectators will require more consideration than a much smaller event where far fewer people and aircraft (which includes balloons, microlights etc) will be involved.

- A5 Risk Assessments should cover all people associated with a Flying Display, including pilots, staff and volunteers and members of the public both inside and outside of the event. In general, the purpose of the Risk Assessment is to determine the risk posed to people and how to mitigate that risk. It is not primarily concerned with the impact that an incident will have on the operational aspects of a Flying Display or Special Event.
- A6 It is important to include people with relevant expertise and experience in the risk management process to ensure its robustness. All Risk Assessments are reliant on both the quality of the information used and the knowledge of the people involved when conducting the assessment.
- A7 Therefore, the risk management process must be undertaken by people who are aware of the risks associated with the activity being assessed, knowledge of the range of mitigations available to reduce any risk and who will use sound judgement in the preparation of the assessment. The assessor(s) should also be aware that in the event of a subsequent accident or incident, the Risk Assessment process might be challenged.
- A8 The risk management process is illustrated below:



## **Hazard/risk definition**

- A9 A hazard is defined as a condition, event or circumstance that has the potential to cause harm to people or damage to aircraft, equipment or structures.
- A10 A risk is defined as the potential outcome from the hazard and is usually defined in terms of the likelihood of the harm occurring and the severity of the outcome if it does.
- A11 For example, bird activity in or around an aerodrome is a hazard to aircraft operations. One risk associated with this hazard is that a bird strike causes an aircraft engine to fail resulting in the aircraft crashing, harming the pilot and/or the public.
- A12 In general a hazard exists in the present whereas the risk associated with it is a potential outcome in the future.

## **Hazard identification**

- A13 Hazard identification is fundamental to effective Flying Display risk management and there are benefits to approaching the task formally. Depending on the size of the display, and the organisation surrounding it, there are many ways of identifying hazards. The following methods may be useful:
- a) Brainstorming. Where a safety committee, Flying Control Committee and others involved in the organisation of a display meet to identify possible hazards. Simulation and table top exercises of possible scenarios can be an effective part of the brainstorming process. It should be noted that brainstorming sessions need not be limited to Safety Committee and FCC members and can include any interested parties or person thought worthy of inclusion
  - b) Reviewing data from previous accidents and incidents
  - c) Mandatory/voluntary incident reporting schemes (internal and external)
  - d) Internally or externally conducted safety assessments/audits

- e) Safety information from external sources; e.g. similar organisations, media, AAIB, CAA, HSE, etc
  - f) Generic hazard checklists
- A14 When defining risks in relation to hazards all initiating events should be considered and listed. This will help avoid mistakes when calculating the risk rating and assist in identifying potential mitigations.
- A15 The CAA recommends recording the process used to identify Flying Display hazards, along with a list of hazards identified but deemed not applicable. This information may be requested by the CAA GA Unit during the approval process of a Flying Display or Special Event Permission or by other agencies should the risk assessment ever be scrutinized.
- A16 Examples of features at Flying Displays that need to be considered as part of a hazard identification process include hazardous materials carried by aircraft, Congested Areas in the vicinity of a Display Area, electricity pylons, displaying and non-displaying aircraft, human factor influences, sources of visual confusion, major and minor roads, public footpaths and rights of way, potential areas of congregation for secondary spectators etc.
- A17 The CAA expects Flying Display Risk Assessments to always include consideration of risks related to a specific display location. These risks include occupied properties and concentrations of people both inside and outside of the display location that are put at increased risk by the aerial activity.
- A18 Further information on hazard identification can be found in the CAA's CAP760, 'Guidance on the Conduct of Hazard Identification, Risk Assessment and the Production of Safety Cases'.

## Risk evaluation

- A19 A risk evaluation process starts with defining the risk(s) associated with the hazard(s) previously identified. There may be more than one risk

associated with a particular hazard and a Risk Assessment may need to be conducted for each risk.

A20 The next step is to assess the risks in terms of likelihood and severity. Note that the initial Risk Assessment should assume that all legal requirements and good practice guidelines contained within CAP 403 are already being met.

A21 Once the risks have been assessed in terms of likelihood and severity, mitigating actions necessary to reduce the risk to an acceptable level (ALARP) can be decided upon. Implemented mitigation measures should reduce the likelihood of the risk occurring and/or reduce the severity of the outcome if it does.

### **Risk Likelihood (L)**

A22 In order to assess an initial risk likelihood (L) any mitigation measures currently in place to reduce the likelihood should be taken into account.

A23 To help assess the likelihood the following questions should be asked:

- a) Is there a history of similar occurrences (either at the proposed display location or at others) to the one under consideration, or would this be an isolated occurrence?
- b) What impact do the types of aircraft and display items have on the likelihood of incidents occurring?
- c) How many people are involved and how likely is it that they would be harmed?

A24 A guide to assessing likelihood is in the table below:

Likelihood of Occurrence (L)	
Description	Meaning
<b>Probable (5)</b>	Anticipated to occur i.e. likely to occur at a number of <u>Flying Displays</u> over the course of a UK season.
<b>Occasional (4)</b>	Foreseeable to occur i.e. will happen at a small number of <u>Flying Displays</u> over the UK season.
<b>Remote (3)</b>	Unlikely to occur – i.e. will occur (on average) at one <u>Flying Display</u> in the UK each season.
<b>Extremely Remote (2)</b>	Not anticipated to occur - i.e. not likely to occur at a UK <u>Flying Display</u> for many years.
<b>Extremely Improbable (1)</b>	So unlikely that it is not anticipated to occur during any UK <u>Flying Display</u> for decades.

### Risk Severity (S)

A25 In order to assess the initial severity (S) any mitigation measures that are already in place to reduce the severity should be taken into account.

A26 To help assess the severity the following questions should be asked:

- a) What harm would be caused?
- b) Would lives be lost?
- c) Who would be affected (pilots, Spectators, bystanders, volunteers, workers, etc)?
- d) What are the likely commercial implications or media interest?
- e) Would there be a loss of reputation?

A27 A guide to assessing severity is in the table below:

<b>Severity of consequences (S)</b>	
<b>Classification</b>	<b>Meaning</b>
Catastrophic (5)	Multiple deaths, usually with loss of aircraft.
Hazardous (4)	Large reduction in safety margins leading to serious or fatal injury to small number of people. i.e. ground fatality and/or pilot fatality.
Major (3)	Significant reduction in safety margins leading to serious incident or injury.
Minor (2)	Minor injury.
Negligible (1)	Any event which is considered to be less severe than 'Minor'

### Risk tolerability

A28 Once the likelihood (L) and severity (S) have been defined, a risk tolerability matrix such as the one below can be used to assess how tolerable the risk is.

<b>Risk likelihood (L)</b>	<b>Risk severity (S)</b>				
	<b>Catastrophic (5)</b>	<b>Hazardous (4)</b>	<b>Major (3)</b>	<b>Minor (2)</b>	<b>Negligible (1)</b>
<b>Probable (5)</b>	Unacceptable	Unacceptable	Unacceptable	Review	Acceptable
<b>Occasional (4)</b>	Unacceptable	Unacceptable	Review	Review	Acceptable
<b>Remote (3)</b>	Unacceptable	Review	Review	Acceptable	Acceptable
<b>Extremely remote (2)</b>	Unacceptable	Review	Review	Acceptable	Acceptable
<b>Extremely improbable (1)</b>	Review	Acceptable	Acceptable	Acceptable	Acceptable

- A29 Using a risk tolerability matrix the risk can then be classified as either acceptable, to be reviewed or unacceptable. A suitable risk mitigation strategy can then be developed if required.

### Risk rating categories

- A30 **Unacceptable:** If the risk falls into the Unacceptable category, either the Flying Display should not proceed (programmed items may be reviewed) or major mitigation will be necessary. Mitigation measures to reduce the severity of the risk from the hazard and/or the likelihood of harm occurring should be implemented in order to control the risk to a lower level. Most often it is the likelihood of the occurrence that can be reduced rather than the severity.
- A31 **Review:** If the risk falls into the Review category, the likelihood or severity of occurrence is of concern and measures to mitigate the risk to ALARP should be sought. If, after further mitigating actions, the risk is still in the review category it may be that the cost in terms of money, time and resources needed to implement further actions are too prohibitive. The risk may be considered tolerable and accepted, provided that the risk is understood and has the endorsement of the Flying Display Director.
- A32 **Acceptable:** If the risk falls into the Acceptable category, the risk may be considered to be low (the chance of the hazard occurring is sufficiently unlikely and/or the consequence is not overly severe). However, consideration should still be given to reducing the risk further.

### Risk mitigation

- A33 If the level of risk falls into the Unacceptable or Review categories, additional mitigation measures will be required to reduce the risk to ALARP.
- A34 Unacceptable risks should always be mitigated to at least the Review level to become tolerable. Mitigation action should be taken whenever possible to reduce risk ratings even when the risk is in the Acceptable category. However, risks from a Flying Display (or Special Event) do not



need to be reduced to the Acceptable level and can remain at the Review level provided it can be demonstrated that the risks are being effectively managed.

- A35 Mitigation measures are actions or changes, such as changes to operating procedures, equipment or infrastructure that reduce either the severity and/or the likelihood.
- A36 As with hazard identification, defining appropriate mitigations will benefit from a formal approach and similar methods should be used.
- A37 Generally risk mitigation strategies fall into three categories:
- a) Avoidance: The operation or activity is cancelled or avoided because the safety risk exceeds the benefits of continuing the activity, thereby eliminating the risk entirely
  - b) Reduction: The frequency of the operation or activity is reduced or action is taken to reduce the magnitude of the consequences of the risk
  - c) Segregation: Action is taken to isolate the effects of the consequences of the risk or build in redundancy to protect against them

By way of example: a Flying Display is scheduled to take place by the coast. In the past, boats have gathered to watch the display off shore. This creates the risk that if an accident occurs the public may come to harm.

Actions to mitigate the risk could then include:

- a) **Avoidance.** Cancel the Flying Display (eliminates both the severity and likelihood). This option will generally only be necessary as a last resort
- b) **Reduction.** Only including light aircraft in the display so that if accidents occur the severity of impact is limited
- c) **Segregation.** The Display Area is moved to keep displaying aircraft at a safe distance from where boats congregate

- A38 As initial risk ratings must assume that the legal requirements and good practice recommendations contained both in CAP 403 and other applicable regulations are in place, further mitigations must extend beyond those published.
- A39 Mitigating risks to third parties not involved in the Flying Display itself can pose particular challenges for FDDs as it can be difficult to control/predict their location. When seeking to mitigate these risks organisers should be aware of the range of options open to them which include:
- a) Engagement with local authority Safety Advisory Groups, Highways England, local Highways Authorities and rail network operators where appropriate
  - b) Application for road closures and/or Temporary Traffic Orders for the duration of the Flying Display
  - c) Providing alternative routes for members of the general public who wish to avoid passing directly by the Flying Display location
  - d) Ensuring that there is adequate information provided to the general public, both in advance of and during the display
  - e) Engaging with the owners or controllers of land near a display site where the general public may or are known to gather
  - f) Providing the Coastguard with event details if the display is taking place over water. This will allow appropriate forward planning by Coastguards, both in Operations Centres where they can warn and inform Maritime users by adding information to Maritime Safety Information broadcasts, and Coastguard Rescue Service volunteers who can plan and, if required, re-locate so as to be able to respond to any incident along the shoreline
  - g) Contacting harbour authorities to discuss risk mitigation measures that may be possible for displays over a harbour
  - h) Informing the public that the safest viewing point is always within designated Spectator areas provided by the Event Organiser
  - i) Preventing overflight of areas where people have been known to congregate if they cannot be prevented from doing so

- A40      The CAA recommends that the process used to identify mitigations should be recorded along with the mitigations to be implemented and any considered unjustifiable in terms of money, time or people.
- A41      The Risk Assessment process concludes with a reassessment of the risk rating if planned mitigations are put in place. The reasons why the mitigating actions put in place affect the final severity and likelihood scores should be recorded.

### **Risk register and ongoing monitoring and review**

- A42      The hazards identified, Risk Assessments and subsequent follow-up actions need to be clearly documented in a Flying Display Risk Register which is to be submitted to the CAA as part of a Flying Display or Special Event Permission application. In order to ensure that all the people associated with an event can understand the content of the register, acronyms should be avoided or a glossary provided alongside the register.
- A43      The register should include each identified hazard, the associated risk(s) and the results of the initial Risk Assessment which assumes current legal and best practise mitigation measures are in place. Further additional risk mitigation measures (if required) should then be recorded along with a re-assessment of the risk rating following implementation.
- A44      The Risk Register is a working document and should be reviewed regularly, especially during any Safety and Flying Control Committee meetings. The Risk Register should be available to all people involved in its effective management. Personnel should be accustomed with any part pertinent to their role.
- A45      The register should be reviewed after the event to determine what was managed well and to identify areas where improvements could be made. Findings should be recorded in such a way that they are accessible for future events.

## Risk Assessment in Flying Display applications

A46 Applicants for Article 86 Permissions are required by the CAA to provide a Risk Assessment containing, as a minimum, all of the following information:

- a) **The name of the Flying Display.**
- b) **The Flying Display date(s).**
- c) **Details of the risk assessment team** (i.e. names).
- d) **The date that the risk assessment was conducted/amended/updated.**
- e) **Hazard identification.** Including all of the likely hazards in the Risk Assessment gives the CAA assurance that the hazard identification process is robust.
- f) **Clearly defined risks.** Good risk definitions provide detail about who could be affected by them and will make the Risk Assessment process much easier.
- g) **Pre-mitigation likelihood, severity and risk ratings.** A key point is that these initial ratings must assume that regulatory requirements are being met and that the impact of the requirements on controlling the underlying risk has already been addressed. The CAA are looking to assess the robustness and consistency of the risk scoring process.
- h) **Mitigating actions.** Any risk mitigation should consider how effectively it will mitigate the risk. Is it practical and realistic to action? Will it be acceptable and followed by the people concerned?
- i) **Post-mitigation likelihood, severity and risk ratings.** It may be helpful to add remarks about how the additional mitigations will reduce the risk. In assessing Risk Assessments, the CAA are looking for evidence that the impacts of the mitigations are being reasonably assessed, and explanation helps with that.
- j) **Comments about any out of the ordinary aspects of the Risk Assessment.** The CAA is looking for assurance that Risk Assessments submitted as part of Flying Display and Special Event applications demonstrate that the risks at the event will be managed effectively. Explanations of any out-of-the-ordinary aspects of the Risk Assessment such as obvious

hazards that are not listed, risk treatments that do not follow the standard approach or anomalous risk ratings help the CAA gain the necessary assurance without having to return to the applicant for further information.

- k) **Sign off by the FDD (in all cases) and, where applicable, the EO (if a different person).** A declaration that the risk management activities conducted are suitable and sufficient to manage the risks associated with the Flying Display.

A47 This information allows the CAA to assess whether or not the planned Flying Display follows CAA guidance and that risk management plans reflect the hazards that are present. Evidence is required to demonstrate:

- a) That any risks related to a particular Flying Display location are specifically covered
- b) That all reasonably foreseeable hazards and associated risks have been identified
- c) That the risk scoring process is robust and consistent
- d) That risk mitigations are appropriate.

If the risks to the public caused by the Flying Display cannot be managed to a sufficiently low level, the size of the Display Area may need to be revised and/or the type of display planned reviewed.

A48 The CAA Flying Display Risk Assessment<sup>41</sup> should be used for the submission of Risk Assessment information to the CAA GA Unit but other formats are acceptable. In all cases, Risk Assessments must provide sufficient level of detail for the CAA to evaluate the extent to which it complies with our guidance.

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<sup>41</sup> Form SRG1303RA will be superseded by an online Risk Assessment Tool early DS18.

## Appendix B

# Pilot's certified declaration for submission to the FDD

## False Representation Statement

It is an offence under Article 256 of the Air Navigation Order 2016 to make, with intent to deceive, any false representation for the purpose of procuring the grant, issue, renewal or variation of any certificate, licence, approval, Permission, exemption or other document which is required by or under the Air Navigation Order 2016. This offence is punishable on summary conviction by a fine up to £5000, and on conviction on indictment with an unlimited fine or up to two years imprisonment or both.

## Required information

I (name): .....

being the pilot of (aircraft type): ..... ("the said aircraft")

registration: .....

intend to participate in a Flying Display ("the said Flying Display") to be held at: .....

.....

on: .....

hereby certify that:

- a) The following documents covering the said aircraft will be current and valid (as applicable) permitting participation in the said Flying Display:
  - i) Certificate of Registration (C of R)
  - ii) Certificate of Airworthiness (C of A) or Permit to Fly valid until .....
  - iii) National Airworthiness Review Certificate (NARC) or Airworthiness Review Certificate (ARC) valid until .....
  - iv) Certificate of Release to Service (CRS) or Permit Maintenance Release (PMR) valid until .....
  - v) Aircraft Radio Licence valid until .....
  - vi) 250kt Exemption valid until .....

Pilot's name:		A/C Type:		A/C Reg:	
Form SRG1327 Issue 02 Dec 2017	Page		of		<i>*delete as applicable</i>

b) I hold a valid Pilot's

Licence:.....(number)

with a Certificate of Revalidation valid until:

.....(date)

and a Class: ..... Medical Certificate valid until:

.....(date)

permitting me to fly the said aircraft

**Note:** A Display Authorisation is only valid if the holder possesses either an EU medical certificate issued by an AME or an ICAO medical certificate that is of an equivalent or higher standard.

c) My Display Authorisation: ..... (number) is valid until: ..... (date) and includes the appropriate endorsements for the said aircraft and display flying I intend to perform at the said Flying Display.

A copy of my Display Authorisation is attached to this declaration.

ENDORSEMENTS CONTAINED ON DISPLAY AUTHORISATION						
Categories, types authorised & min Flypast height	Formation member	Formation leader	Tailchase leader	Tailchase member	Aerobatic category & min height	Other
I hold a CAA Exemption to operate to a lateral Separation			subject to these conditions:			

**Note:** copies of any additional CAA exemptions must also be included with this declaration if held.

d) I intend to confine my display to the following practised and evaluated manoeuvres (list):

(continue on separate sheet if required)

Pilot's name:		A/C Type:		A/C Reg:	
Form SRG1327 Issue 02 Dec 2017		Page		of	
					<i>*delete as applicable</i>

- e) The following table contains details of hazardous materials contained on or within the said aircraft and contact details for competent personnel or organisations available on the day of the said Flying Display able to advise, or assist, in making safe should an incident occur

Hazardous material	Location on aircraft	Competent person or organisation available on the day able to advise
		Contact name: ..... Organisation: ..... Contact telephone: ..... Alternative contact: .....
		Contact name: ..... Organisation: ..... Contact telephone: ..... Alternative contact: .....
		Contact name: ..... Organisation: ..... Contact telephone: ..... Alternative contact: .....
Continue on separate sheet if required.		

Examples of hazardous materials include pyrotechnics contained in jettison/ejection release units, canopy jettison systems, MDC (miniature detonating cord), fire bottle squibs, pyrotechnics used as part of a "pyro display", smoke generating canisters, cartridge engine starters, etc. Consideration should also be given to any hazardous materials used in the manufacture of aircraft structures and components such as phenolic asbestos drop tanks.

- f) The insurance policy covering the said aircraft will cover participation as a display aircraft at the said Flying Display. The policy or policies limits meet or exceed the minimum limits required by EC Regulation 785/2004, (Ref. [CAA's Mandatory Insurance Requirements for Aircraft](#)) and contains the following third party cover: .....

Pilot's name:		A/C Type:		A/C Reg:	
Form SRG1327 Issue 02 Dec 2017		Page		of	
<i>*delete as applicable</i>					



- g) Following participation in the said Flying Display, I intend to participate at the following events on the same day

Name/location of Event	FDD Name	FDD contact telephone number

(Enter N/A if not applicable)

**NOTE:** It is the responsibility of the Display Pilot to notify the FDD of the said Flying Display of any display bookings received after submission of this certificate.

- h) In the event of an incident, please notify:

Name: .....

Relationship: .....

Contact Telephone No: .....

Address:

.....

.....

.....

## **Declarations**

- a) The display that I intend to perform complies with the limitations contained within the aircraft's Flight Manual, the relevant limitations specified in my Display Authorisation and the conditions listed on the aircraft's C of A or Permit to Fly (if applicable)

Pilot's name:		A/C Type:		A/C Reg:	
Form SRG1327 Issue 02 Dec 2017		Page		of	
					<i>*delete as applicable</i>

- b) I am/will be\* compliant with the currency requirements contained within CAP 403 necessary for my Display Authorisation to be valid during the said Flying Display;
- c) I/we\* have made the necessary Part SPO declaration to the CAA (applicable to affected EASA aircraft only):
- d) I will, *on request, be able to produce copies of the documents referred to on this document if required for inspection;*

**NOTE:** Paper or electronic copies are acceptable for this purpose.

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*Declaration: I hereby certify that to the best of my knowledge and belief the information in this form, and on any separate sheets accompanying this form, is true and complete. I acknowledge that any changes to this information may invalidate my authorisation to participate at the said Flying Display.*

Signature: ..... Date .....

Pilot's name:		A/C Type:		A/C Reg:	
Form SRG1327 Issue 02 Dec 2017		Page		of	
					<i>*delete as applicable</i>

## Appendix C

## Useful guidance for display pilots

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### General

- C1 The following paragraphs, whilst not exhaustive, are intended to give Display Pilots some display flying guidance.
- C2 The actual construction of a display routine will vary considerably from pilot to pilot because of requirements to deal with varying factors such as experience and competence levels, aircraft capabilities, requirements to deal with varying weather conditions and display sites etc. For the novice, early guidance should be sought from a DAE or an experienced Display Pilot and from [CAP1047](#) 'Civil Air Displays - A Guide for Pilots'.

### Briefings and walk throughs

- C3 It is essential that in addition to the FDD's written and verbal briefings that all display items consisting of formations are thoroughly briefed. It is vital that every member of the formation has a clear picture of the objectives of the formation as a whole and of their individual positioning and responsibilities within it. Walk throughs are an integral part of this briefing process and it is strongly recommended that they are adopted as a standard part of all formation briefings.
- C4 Walk throughs are not exclusive to formation briefs and can also be of benefit to the solo display pilot.

### Vintage or unique aircraft

- C5 Owners, operators, pilots and DAEs are encouraged to take into consideration the age, the rarity value and the need for continued preservation of aircraft when developing display routines. In general terms, the limitations placed on the operation of the aircraft, either generally or in a display situation, should show a level of sympathetic appreciation of these factors whilst allowing the aircraft to be safely flown and displayed.

- C6 Limitations and conditions associated with an aircraft's C of A or Permit to Fly are to be complied with at all times and take precedence over any CAA Permission issued for Flying Displays and Special Events, a condition that an 'aircraft shall not be flown over any assembly of persons or any congested area of a city, town or settlement' being an example.

### Displaying multi-engine aircraft

- C7 Deliberate asymmetric flight as part of a display routine is not permitted at UK Flying Displays.
- C8 Limitations and conditions associated with an aircraft's C of A or Permit to Fly are to be complied with at all times and take precedence over any CAA Permission issued for Flying Displays and Special Events, a condition that an 'aircraft shall not be flown over any assembly of persons or any congested area of a city, town or settlement' being an example.
- C9 DAEs are to ensure, during initial evaluation or renewal, that pilots holding DAs covering multi-engine types have made adequate preparation for asymmetric difficulties during their display planning.

### Crowd separation distances – on crowd wind

- C10 During any display, pilots are to be aware of, and make due allowance for, any on crowd wind component. Note that if flying towards the crowd, but inadvertently too close to turn safely, an early decision to terminate the manoeuvre and climb, even if this involves the final resort of overflying the crowd, is preferable to risking an overstress or departure from controlled flight by pulling too hard.

### Minimum heights during displays

- C11 All Aerobatic Manoeuvres (including passes flown at high angle of attack/below normal approach speed, inverted passes and manoeuvres which involve pulling through the vertical) are to be fully recovered above the approved aerobatic minimum height. For ex-military jet aircraft, this height can be no lower than 500 feet AGL/ASL.

- C12 For pilots operating to different aerobic and non-aerobic minimum display heights, whether as part of their DA or the event requirements, the following also apply:
- a) Where one Aerobic Manoeuvre is linked directly to another, the aircraft must remain above minimum aerobic height throughout the transition.
  - b) Where a mixture of aerobic and non-Aerobic Manoeuvres are flown, blending is permitted as follows:
    - i) Once certain of being able to recover by minimum aerobic height, when the next manoeuvres are non-aerobic, a gentle straight descent to minimum Flypast height is permitted providing the aircraft remains at a pitch angle of 30 degrees or less. (In practise, the descent will be shallow and flown at much less than 30 degrees.) Under no circumstances is the minimum Flypast height to be used as the target minimum for recovery from Aerobic Manoeuvres
    - ii) A straight climb from minimum Flypast height into an Aerobic Manoeuvre is permitted providing the aircraft remains at a pitch angle of 30 degrees or less until passing aerobic display height

Note: This paragraph does not apply to non-aerobic displays

- C13 When applying for or renewing a DA, Pilots will be required to demonstrate an understanding of the need to:
- a) Achieve aerobic gate parameters at manoeuvre apex before committing to continuing the manoeuvre
  - b) Plan and practise escape manoeuvres for those occasions when gate parameters are not achieved

- c) Establish entry parameters for Aerobatic Manoeuvres, including the speed adjustment required when entering from a climb to aerobatic minimum height (e.g. from Flypast minimum height).

### Spinning as part of a display

- C14 Pilots are only permitted to include spinning as part of their display routine if they hold an aerobatic DA, the aircraft is approved for the manoeuvre and they have been evaluated conducting such a manoeuvre.
- C15 When developing a display routine that includes spinning the pilot is to determine the spin parameters that will ensure adequate safety margins are maintained throughout the manoeuvre. Specifically, the following should be taken into account when determining the minimum spin entry height:
- a) Spin characteristics of the aircraft including ability to recover consistently
  - b) Height lost per spin turn
  - c) Height lost during normal recovery
  - d) Margin required to allow for inconsistencies in either the aircraft or on the part of the pilot

## Appendix D

## Written, verbal and telephone briefings

### The written brief

D1 The FDD is responsible for ensuring that, in advance of the Flying Display, all Participants are sent a written flying briefing. The content of the briefing will vary depending on the complexity of the Flying Display but the following items should, where appropriate, be included:

- a) Place, date, time (UTC or local time) and duration of the Flying Display
- b) Name and contact details for the FDD and other key personnel, including those for use on the day of the display
- c) Provisional flying programme
- d) Map of the display location showing the site layout and local area with Spectator enclosures, Car Parks, Crowd Line, Display Line(s), Display Area and any adjacent sensitive areas clearly marked. A minimum of a marked up colour 1:50,000 Ordnance Survey map should be included but it is often beneficial to include complementary charts, colour photographs and satellite images for additional clarity and illustration. For standardisation, the following colours are suggested:

Suggested colour coding of lines on maps	
Orange	150 metre display line
Red	230 metre display line
Blue	450 metre display line
Yellow	Restricted areas (no overflight/no aeros/min heights for example)
Red triangle	Display datum
Green	Spectator areas, Car Parks and Crowd Line.

Clearly marked colour lines on satellite images often provide a very powerful, clear pictorial image for pilots to familiarise with during display preparation and planning.



- e) Details of how Display Lines will be marked at the site and how they will be recognised on the day by the pilot
- f) Details of the display datum, whether an easily identifiable feature, a Lat/Long or a grid reference



- g) Air Traffic Services information including:
  - i) Type of air traffic service available to pilots – A/G, AFIS or ATC
  - ii) Arrival and departure procedures (including taxi instructions)
  - iii) Radio frequencies and, if required, transponder codes
  - iv) Procedures during the Flying Display
  - v) Radio failure procedures
  - vi) Holding areas and altitudes
  - vii) Adjacent air traffic conflicts
  - viii) Local flying restrictions
  - ix) Local diversion airfields
- h) Any deviations from Flying Display limits and weather minima set out in CAP 403
- i) A requirement that only known, practised and evaluated manoeuvres, including bad weather ‘flat–display’, are to be flown
- j) A requirement that aircraft commanders ensure that the positioning of their aircraft at all times is such that, in the event of an engine or airframe failure causing a forced landing or uncontrolled ground impact, no part of the aircraft will infringe the crowd area
- k) Procedures to be followed when the Flying Display includes items such as ballooning, parachuting, parascending, paragliding, hang-gliding, banner towing and foot launched aircraft
- l) Procedures for cancellation or variation of programme
- m) Details of aircraft parking and refuelling arrangements
- n) Arrangements for any Pleasure Flights and visiting aircraft
- o) References to emergency service cover and any specific procedures
- p) Details of place and time where the formal pre–display verbal briefing will be conducted at the event
- q) Details of arrangements for telephone briefings for any pilot unable to attend the formal pre-display briefing

D2 It is recommended that where possible the Pilot’s written briefing notes are in a bound A5 format. In addition, it is recommended that one of the cover pages consists of a crib sheet with an acetate overlay to facilitate

pilot's noting significant information as suggested in the following illustration:

Flying Display name, location and date.	
Area for listing prominent details such as ATC frequencies, FDD contact details, location and time of briefing, etc.	
Airfield Pressure Setting	
Airfield Surface Wind	
<b>Preceding Display Item</b>	
<b>T/O time</b>	
<b>Display Time ON</b>	
<b>Display Time OFF</b>	
<b>Following Display Item</b>	
Space for inclusion of any other significant information, instructions, maps, notes, etc	

D3 To heighten the chance of important information contained within a written brief not being missed, it is often better to keep the content concise and to the point, including pertinent information and not an excess of reproduced requirements and minutiae as already contained in CAP 403 or other irrelevant information. There is a common human factor trait that if

attention is lost during reading then a tendency to skip over content is adopted. This leads to the possibility of significant information being overlooked.

## The verbal brief

D4 The FDD is responsible for ensuring that all participating pilots receive a thorough verbal briefing before the Flying Display on each day of the event. A copy of the Flying Display Permission must be available at the briefing.

D5 Flying Display Briefing Checklist (and Telephone Brief if required).

Flying Display briefing checklist	Notes
<b>Attendance check</b> / Roll call.	
<b>Time check</b> (specify UTC or Local time).	
Show a <b>large-scale map of the Display Area</b> , showing Display Lines, Display Area, avoid areas, Car Parks, crowd areas or any other sensitive areas.	
Show a copy of the <b>CAA Flying Display Permission</b> , to include any conditions attached to it.	
Air Traffic Control briefing:	Notes
Type of service available (A/G, FIS or Full ATC)	
Arrival & departure procedures	
Radio frequencies, transponder codes	
Display procedures	
Holding areas & altitudes	
Adjacent air traffic conditions	
Local flying restrictions	
Full details of diversions airfields	
Ejection & abandonment areas	

<b>Weather briefing:</b>	<b>Notes</b>
Current conditions	
Forecast conditions	
Weather forecast for diversion airfields	
Any local weather conditions/effects	
Weather minima for the display	
<b>Ground briefing / arrangements:</b>	<b>Notes</b>
Arrival & departure procedures	
Parking areas	
Refuelling arrangements	
<b>Flying programme:</b>	<b>Notes</b>
Confirmation of pilots, aircraft, call signs	
Flying Display minima	
Display programme timing <sup>42</sup>	
Alternative plans if incidents or weather holds	
If parachute activity, stress the need for no rotors/engines turning	
Any other activity? (before, arrivals, departures after display)	
Handling of ground & air emergencies	
<b>Contact numbers &amp; locations for:</b>	<b>Notes</b>
Flying Display Director	
ATC	
Event Organiser	
Any other relevant contacts	
<b>Questions?</b>	

<sup>42</sup> To include details of previous and subsequent display items

## Telephone briefing

D6      At Flying Displays at non–airfield sites, or for Participants who are flying into a display from a different location, a briefing may be conducted by telephone.

The briefing conducted by the FDD should be from an identical crib sheet (written specifically for the telephone briefing) to the one issued to the Participant as part of the briefing material, containing all the relevant safety items for that pilot.

## Appendix E

# Charges for temporary radio frequency allocation and licensing, ATCU and FISO

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## Charges

- E1 Charges become payable when an application is made for the temporary allocation of a radio frequency, the establishment of a temporary ATCU and the establishment of a temporary FISO unit in support of a Flying Display or Special Event.

## Radio licensing charges

- E2 Full details of Radio Licensing fees, including a fee calculator can be found in the [Radio-licensing Section](#) of CAA's web-site.
- E3 Some types of licences are charged at a single rate whilst others attract bespoke prorated fees that reflect the amount of spectrum used.
- E4 Advice on charging and the making of payments may be obtained from the [radio.licensing@caa.co.uk](mailto:radio.licensing@caa.co.uk).

## Charges for the establishment of a temporary ATCU

- E5 Charges for the establishment of a temporary ATCU are detailed in ORS5 CAA Scheme of Charges (Aerodrome Licensing and EASA Certification and Aerodrome Air Traffic Services Regulation) and can be found at [www.caa.co.uk/ors5](http://www.caa.co.uk/ors5).
- E6 On making an application to carry out a Flying Display or Special Event where a temporary ATC service is required, a fixed charge, as detailed in the Scheme, will be made plus a specified amount per hour for any hours in excess of the standard 6 hours spent by the CAA on processing the application and carrying out its investigations up to a maximum charge of £20,000 during any period of 12 months following receipt of the application by the CAA.

- E7 Advice on charging and the making of payments may be obtained from the appropriate CAA ATS Regional Office.

### **Charges for the establishment of a temporary FISO unit**

- E8 Charges for the establishment of a temporary FISO unit are detailed in ORS5: 'CAA Scheme of Charges (Personnel Licensing)' and can be found at [www.caa.co.uk/ors5](http://www.caa.co.uk/ors5).
- E9 When making an application for the naming of a place, or any additional place, in a FISO Licence, the applicant shall pay to the CAA the charge specified in the Scheme, and for any examination conducted by the CAA for that purpose, the applicant shall pay to the CAA the charge specified.
- E10 Advice on charging and the making of payments may be obtained from the appropriate CAA ATS Regional Office.

## Appendix F

## Charges for permissions for Flying Displays and Special Events

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### General

- F1 A charge becomes payable when an application is made to carry out a Flying Display or Special Event as outlined in Chapter 2.

### Flying Display charge bands

- F2 The amount payable is dependent on the number of chargeable Display Items, and a 'Display Item' is defined as 'a single aircraft or a Formation of aircraft, flying as one single display 'act'. **NOTE:** Random collections of aircraft are not considered to be a single Display Item unless they are flying together as a Formation.

### Charges

- F3 The actual charges payable are as published in the [CAA Scheme of Charges \(General Aviation\)](#) and these will vary from time to time.
- F4 The total payment due is automatically calculated whilst completing the [on-line application form](#) and the amount payable is quoted at the appropriate stage of the process. Payments can be made by credit or debit card.

### Exempt items

- F5 The following items are currently exempt from charges:
- a) Any race, rally or competition event
  - b) Any parachute display
  - c) Any balloon display
  - d) The dropping of ashes
  - e) The dropping of poppies for religious and ceremonial purposes



## Charge concessions

- F6 Charge concessions may be available for repeat displays at the same location. Further information can be found in the [CAA Scheme of Charges \(General Aviation\)](#)

## Assessment of charges

- F7 If in doubt about the amount payable, please contact the [CAA GA Unit](#) (01293 573988). Payment in full is made at the time of submission of the completed [on-line application form](#).

## Appendix G

## Summary of deadlines for Flying Display or Special Event organisers

### Timeline

G1 As detailed in Chapter 3, a number of critical deadlines need to be met in the planning for a Flying Display or Special Event. These are summarised below:

Type of Event	Airspace Regulation (For RA(T) action) <a href="mailto:AROps@caa.co.uk">AROps@caa.co.uk</a>	Air Traffic Action (CAA ATS Regional Office) Form: <a href="#">SRG 1417</a>	Aerodrome Licensing Action (ASD) Form: <a href="#">SRG 2003</a>	Airspace Regulation (For deconfliction) <a href="mailto:AROps@caa.co.uk">AROps@caa.co.uk</a>	CAA GA Unit Action Form: <a href="#">here</a>
Flying Displays <u>and</u> <u>Special Events</u>	90 Days	90 Days	60 Days	42 Days	42 Days
Balloon Events	90 Days	90 Days		42 Days	
Parachuting	90 Days	90 Days		28 Days	
Microlight Events (Non–display)	90 Days	90 Days		42 Days	42 Days*
Helicopter Events (Non–display)	90 Days	90 Days	60 Days	42 Days	42 Days*
Air Races and Rallies	90 Days	90 Days	60 Days	42 Days	42 Days*

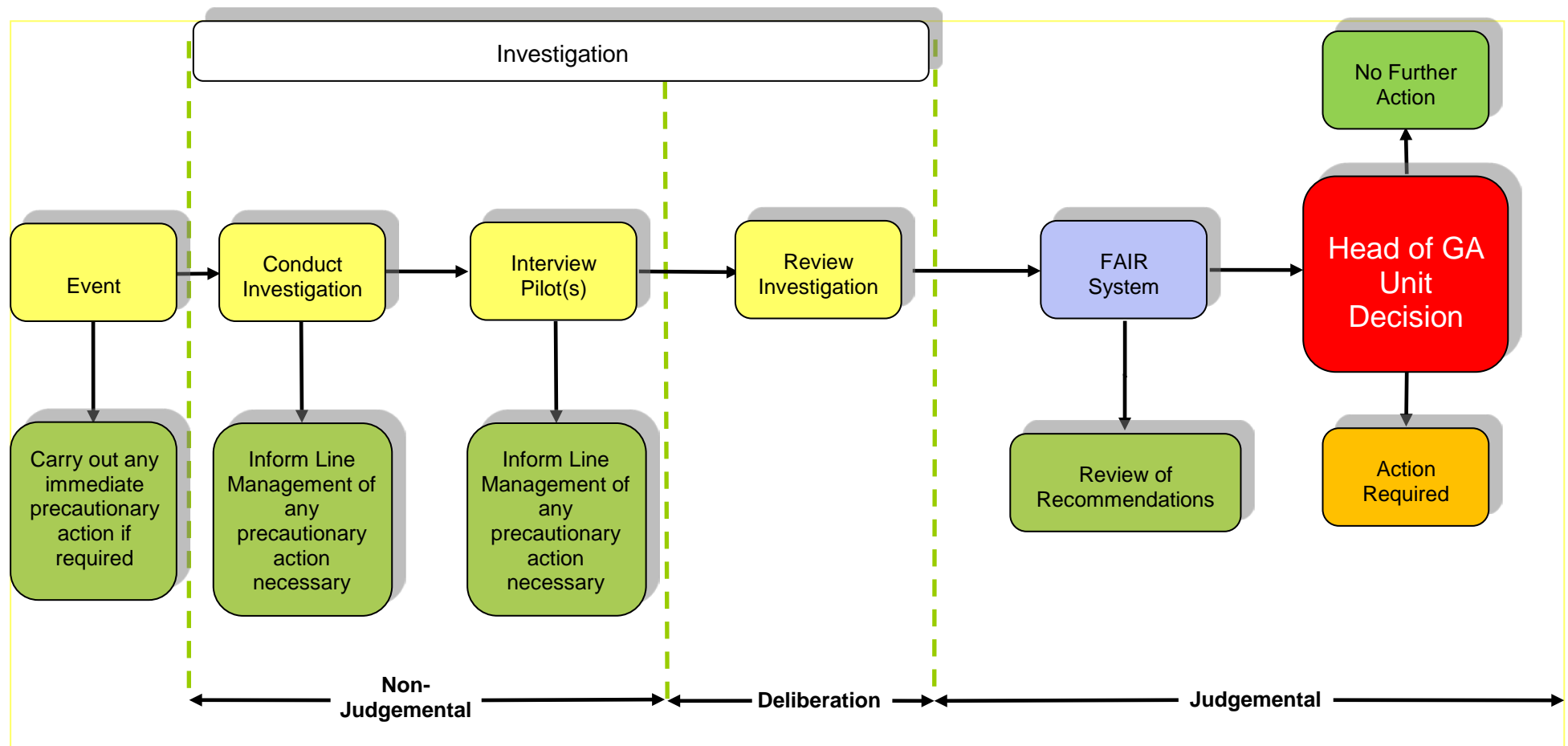
\*A minimum of 42 days notice is required for any Permission or Exemption from the Standardised European Rules of the Air.

- G2      The 42 day requirement for applications is the minimum time period needed to process applications. For new display sites, or events where extensive investigation may be required, substantially more notice should be given, and organisers are advised to obtain CAA agreement for the proposed display prior to entering into any formal commitment.
- G3      For further information on application timescales refer to Chapter 3.

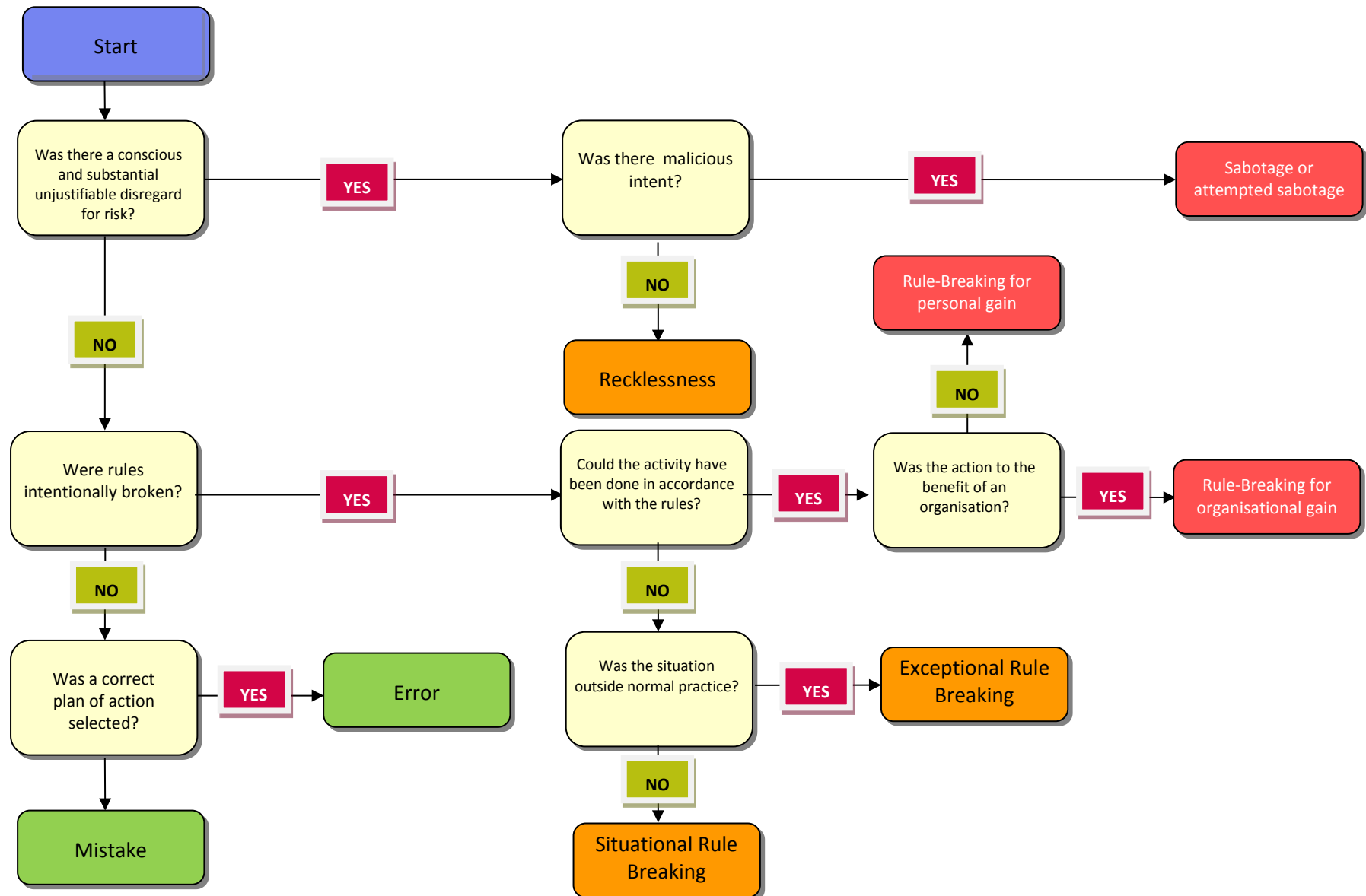
## Appendix H

## FAIR System

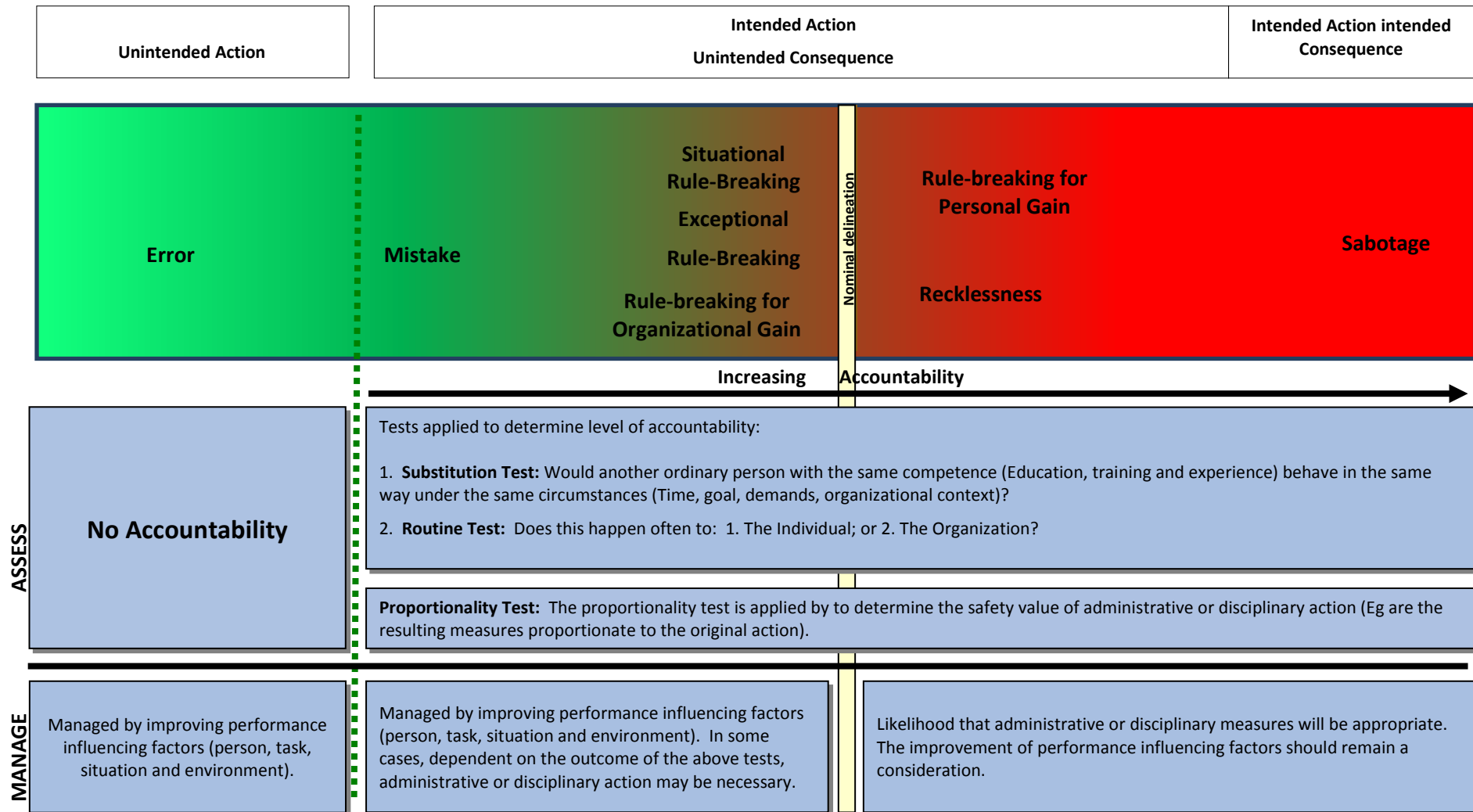
H1 Flowchart Analysis of Investigation Results (FAIR) System. Distinction between non-Judgmental and judgemental phases of an investigation



## H2 Just culture, behavioural types.



### H3 Accountability framework



## Appendix I

## Relevant legislation

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### The Air Navigation Order 2016 ([ANO](#))

Article(s)	Subject
6,7	Public transport and commercial operations (examples of private flights).
11-14	Exceptions for certain classes of aircraft.
86	Flying Displays.
88	Towing, picking up and raising of persons and articles.
89	Dropping of articles and animals.
90	Dropping of Persons.
92, 93,	Balloons, kites and airships, gliders and parascending parachutes.
94, 95	Regulation of small aircraft.
136-146, 148-151	Flight crew, licences and ratings. (Also Schedule 8.)
152	Grant, renewal and effect of flight crew licences.
180	Requirement for air traffic approval for the provision of air traffic services.
188	Prohibition of unlicensed Air Traffic Controllers, student Air Traffic Controllers and aerodrome flight information service officers.
200	Licensing of flight information service officers.
205	Air traffic service equipment
206	Air traffic service equipment records
207, 208, 210	Aerodromes – public transport of passengers and instruction in flying.

Article(s)	Subject
239	Power to prohibit or restrict flying.
240	Endangering safety of an aircraft.
241	Endangering safety of any person or property.
250	Restriction with respect to carriage for valuable consideration in aircraft registered outside the United Kingdom.
252	Restriction with respect to aerial photography, aerial survey and aerial work from aircraft registered outside the United Kingdom.
<u>253</u>	<u>Prohibited behaviour, directive, rules, powers and penalties.</u>
Schedule 1	Interpretation (definitions).

## Rules of the Air Regulations 2015

Rule 4	Aerobatic flights
Rule 8	Avoiding aerial collisions
Rule 10	Landing and taking off

## Standardised European Rules of the Air (SERA)

SERA.5005	Visual Flight Rules
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## Civil Aviation Authority Regulations 1991

<u>Regulation 6</u>	<u>Guidance for SARG on conduct of reviews of decisions or proposals made by the CAA Safety and Airspace Regulation Group</u>
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## Appendix J

## Useful contact details

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### Civil contact details

- J1 Civil Aviation Authority – Safety and Airspace Regulation Group  
Aviation House  
Gatwick Airport South  
West Sussex RH6 0YR  
Telephone 01293 567171  
Central Fax 01293 573999  
[www.caa.co.uk](http://www.caa.co.uk)
- J2 GA Unit  
Safety and Airspace Regulation Group  
Aviation House  
Gatwick Airport South  
West Sussex RH6 0YR  
Telephone: 01293 573988  
Email: [ga@caa.co.uk](mailto:ga@caa.co.uk)
- J3 Aerodrome Standards (Aerodrome Standards Matters)  
& Aerodrome Standards (Fire and Crash Rescue Matters)  
Safety and Airspace Regulation Group  
Aviation House  
Gatwick Airport South  
West Sussex RH6 0YR  
Telephone: 01293 768374  
Email: [aerodromes@caa.co.uk](mailto:aerodromes@caa.co.uk)
- J4 Shared Services Centre  
Aviation House  
Gatwick Airport South  
West Sussex RH6 0YR  
Telephone: 01293 573700 (Licensing)  
Telephone: 01293 768374 (Customer services)  
Email: [fclweb@caa.co.uk](mailto:fclweb@caa.co.uk) (for flight crew licensing)  
Email: [ats.licensing@caa.co.uk](mailto:ats.licensing@caa.co.uk) (for ATCO/FISO licensing)

- J5      Flight Operations Rotary Training and Technical  
Aviation House  
Gatwick Airport South  
West Sussex RH6 0YR  
Telephone: 01293 573991  
Email: [FOI.Helicopters@caa.co.uk](mailto:FOI.Helicopters@caa.co.uk)
- J6      Regional Manager ATM Safety Regulation  
(Refer to Chapter 13 for areas of responsibility)  
ATM Southern Regional Office  
Safety and Airspace Regulation Group  
Aviation House  
Gatwick Airport South  
West Sussex RH6 0YR  
Telephone: 01293 573330  
Email: [ats.southern.regional.office@caa.co.uk](mailto:ats.southern.regional.office@caa.co.uk)
- J7      Regional Manager ATM Safety  
(Refer to Chapter 13 for areas of responsibility)  
Northern Regional Office  
First Floor  
Kings Park House  
Laurelhill Business Park  
Stirling FK7 9JQ  
Telephone: 01786 457400  
Fax: 01786 457440  
Email: [ats.northern.regional.office@caa.co.uk](mailto:ats.northern.regional.office@caa.co.uk)
- J8      Principal Inspector (ATM)  
Northern Regional Office  
First Floor  
Kings Park House  
Laurelhill Business Park  
Stirling FK7 9JQ  
Telephone: 01786 457400  
Fax: 01786 457440  
Email: [ats.northern.regional.office@caa.co.uk](mailto:ats.northern.regional.office@caa.co.uk)
- J9      Aeronautical Radio Licensing  
Directorate of Airspace Policy  
CAA House, K6 G4  
45-59 Kingsway  
London WC2B 6TE  
Telephone: 0207 453 6555  
Email: [radio.licensing@caa.co.uk](mailto:radio.licensing@caa.co.uk)

- J10      Airspace Regulation  
CAA House K6 G2  
45-59 Kingsway  
London WC2 6TE  
Telephone: 020 7453 6599  
Email: [AROps@caa.co.uk](mailto:AROps@caa.co.uk)
- J11      National Air Traffic Services  
UK Aeronautical Information Services,  
NATS Swanwick,  
Room 3115,  
Sopwith Way,  
Southampton,  
Hampshire, SO31 7AY  
Telephone: 01489 887462 (General Enquiries)  
Telephone: 01489 612488/2489 UK NOTAM Office  
[www.nats-uk.ead-it.com](http://www.nats-uk.ead-it.com)  
Email: [aissupervisor@nats.co.uk](mailto:aissupervisor@nats.co.uk)
- J12      Department for Transport (DfT)  
Zone 1/25  
International Aviation Negotiations 2  
Great Minster House  
76 Marsham Street  
London SW1P 4DR  
Telephone: 020 7944 5847  
[www.dft.gov.uk](http://www.dft.gov.uk)
- J13      Air Accidents Investigation Branch  
Farnborough House  
Berkshire Copse Road  
Aldershot GU11 2HH  
Telephone: 01252 510300 – General enquiries only  
Telephone: 01252 512299 – Reporting accidents (24 hrs)  
Fax: 01252 376999  
<https://www.gov.uk/government/organisations/air-accidents-investigation-branch>  
Email: [enquiries@aaib.gov.uk](mailto:enquiries@aaib.gov.uk)

## Representative Bodies

- J14      Airport Operators' Association  
3 Birdcage Walk  
London SW1H 9JJ  
Telephone: 020 7799 3171

[www.aoa.org.uk](http://www.aoa.org.uk)

Email: <mailto:info@aoa.org.uk>

- J15      Aircraft Owners and Pilots Association  
50A Cambridge Street  
London SW1V 4QQ  
Telephone: 020 7834 5631/2  
Fax: 020 7834 8623  
[www.aopa.co.uk](http://www.aopa.co.uk)
- J16      The British Air Display Association  
Website: [www.bada-uk.com](http://www.bada-uk.com)  
Email: [admin@bada.uk.com](mailto:admin@bada.uk.com)
- J17      British Aerobatic Association Ltd.  
84 Green End Road  
Sawtry  
Huntingdon PE28 5UZ  
Telephone: 01487 833022 (during business hours only)  
[www.aerobatics.org.uk](http://www.aerobatics.org.uk)
- J18      British Balloon and Airship Club (BBAC)  
Ms Wendy Rousell  
2 Briarwood Way  
Wollaston  
Northants NN29 7QR  
Telephone: 07973 198279  
[secretary@bbac.org](mailto:secretary@bbac.org)
- J19      British Gliding Association  
8 Merus Court  
Meridian Business Park  
Leicester LE19 1RJ  
Telephone: 0116 289 2956  
[www.gliding.co.uk](http://www.gliding.co.uk)  
Email: [office@gliding.co.uk](mailto:office@gliding.co.uk)
- J20      British Hang Gliding and Paragliding Association Ltd  
8 Merus Court  
Meridian Business park  
Leicester LE19 1RJ  
Telephone 0116 289 4316  
Fax: 0116 289 8741  
[www.bhpa.co.uk](http://www.bhpa.co.uk)  
Email: [office@bhpa.co.uk](mailto:office@bhpa.co.uk)

- J21      British Helicopter Association  
Graham Suite, West Entrance  
Fairoaks Airport  
Chobham  
Woking GU24 8HX  
Telephone: 01276 856100  
[www.britishhelicopterassociation.org](http://www.britishhelicopterassociation.org)  
Email: <mailto:info@britishhelicopterassociation.org>
- J22      British Microlight Aircraft Association  
The Bull Ring  
Deddington  
Oxford OX15 0TT  
Telephone: 01869 338888  
[www.bmaa.org](http://www.bmaa.org)
- J23      British Model Flyers Association  
Chacksfield House  
31 St Andrews Road  
Leicester LE2 8RE  
Telephone: 01162 440028  
[www.bmfa.org](http://www.bmfa.org)
- J24      British Parachute Association  
5 Wharf Way, Glen Parva  
Leicester LE2 9TE  
Telephone: 0116 278 5271  
[www.bpa.org.uk](http://www.bpa.org.uk)
- J25      European Airshow Council  
Nutwood  
Horbling  
Sleaford NG34 0JD  
Telephone: 07894 725340  
[www.european-airshow.com](http://www.european-airshow.com)
- J26      Honourable Company of Air Pilots  
Dowgate Hill House  
14-16 Dowgate Hill  
London WC4R 2SU  
Telephone: 020 7404 4032  
[www.airpilots.org](http://www.airpilots.org)  
Email: [office@airpilots.org](mailto:office@airpilots.org)

- J27      Helicopter Club of Great Britain  
Ryelands House  
Aynho, Banbury  
Oxon OX17 3AT  
Telephone: 01869 810646  
[www.hcgb.co.uk](http://www.hcgb.co.uk)  
Email: <mailto:jeremy@ryelands.net>
- J28      Historic Aircraft Association  
23 Mill Road  
Hartford  
Huntingdon  
PE29 1YJ  
Telephone: 07941 439141  
[www.haa-uk.aero](http://www.haa-uk.aero)  
Email: [info@haa-uk.aero](mailto:info@haa-uk.aero)
- J29      Light Aircraft Association  
Turweston Aerodrome  
Brackley  
Northants NN13 5YD  
Telephone: 01280 846786  
[www.lightaircraftassociation.co.uk](http://www.lightaircraftassociation.co.uk)  
Email: [office@laa.uk.com](mailto:office@laa.uk.com)
- J30      RAeC Records Racing & Rally Association  
28 Herbert Road  
Gosport  
Hampshire PO12 3RZ  
Telephone: 02392 5821762/07713 329300  
<http://www.royalaeroclubrrra.co.uk/>
- J31      The General Aviation Safety Council (GASCo)  
Rochester Airport  
Chatham  
Kent  
ME5 9SD  
Telephone: 01634 200203  
<http://www.gasco.org.uk/contact.aspx>  
Email: <mailto:penny.gould@gen-av-safety.demon.co.uk>

## Military Contact Details

### Military accident reporting

J32      Military Accident Reporting  
MOD DCD Staff Duty Officer  
Telephone: 030 6788 8938 (24 hrs) Ministry of Defence

### Military correspondence

J33      Ministry of Defence  
A1 DARS(MOD)  
Royal Air Force Northolt  
West End Road  
Ruislip  
Middlesex HA4 6NG  
Telephone: 020 8833 8095  
Fax: 020 8833 8098

J34      Military Aviation Authority  
#5104 Juniper Wing 4, Level 1  
MOD Abbey Wood (North)  
Bristol, BS34 8QW  
Email: [DSA-MAA-Display@mod.gov.uk](mailto:DSA-MAA-Display@mod.gov.uk)

## Requests for Military Participation in the UK

### Royal Air Force - Applications by 30 September for the following season

J35      Royal Air Force Air Events Team  
Bentley Priory Building  
RAF Northolt  
West End Road  
Ruislip  
Middlesex HA4 6NG  
Tel: +44 (0) 20 8833 8769 / 8762 / 8063  
Fax: +44 (0) 20 8833 8763  
Email: [CER-AirEventsTeam@mod.gov.uk](mailto:CER-AirEventsTeam@mod.gov.uk)

### Royal Navy - Applications by 30 November for the following season

J36      JSATO  
FAO: JSATO Admin  
Cormorant House  
Yeovilton  
Somerset BA22 8HL  
Tel: 01935 455332  
Email: [NAVYCSAV-JSATOAdmin@mod.gov.uk](mailto:NAVYCSAV-JSATOAdmin@mod.gov.uk)

### Joint Helicopter Command – Applications by 31 October for the following season

J37      BH Tasking JHC  
Land Command  
HQ Army  
Monxton Road  
Andover  
Hampshire SP11 8HJ  
Tel: 01264 381471  
Email: JHC-Tasking at [Mailbox@mod.gov.uk](mailto:Mailbox@mod.gov.uk)