Safety Regulation Group

Civil Aviation Authority

CAP 797

Flight Information Service Officer Manual

www.caa.co.uk

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Flight Information Service Officer Manual

January 2013

ISBN 978 0 11792 793 3

First Edition January 2013 (Effective 1 April 2013)

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The latest version of this document is available in electronic format at www.caa.co.uk, where you may also register for e-mail notification of amendments.

Published by TSO (The Stationery Office) on behalf of the UK Civil Aviation Authority.

Printed copy available from:
TSO, PO Box 29, Norwich NR3 1GN
Telephone orders/General enquiries: 0844 477 7300
Fax orders: 0870 600 5533
www.tsoshop.co.uk
E-mail: caa@tso.co.uk
Textphone: 0870 240 3701

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Foreword

1 Introduction

1.1 Air Traffic Services within the UK are provided in accordance with the Air Navigation Order (ANO) 2009 (as amended) and Rules of the Air Regulations. Generally these are in line with the Standards and Recommended Practices (SARPs) of the International Civil Aviation Organisation (ICAO).

1.2 This document contains instructions and guidance for Flight Information Service Officers (FISOs) providing Flight Information Services (FIS), to cater for both routine and emergency situations. However, nothing in this manual prevents FISOs from using their own discretion and initiative in response to unusual circumstances, which may not be covered by the procedures herein.

2 Language Requirement

2.1 In accordance with ICAO requirements the English language shall be used for all operational communications at FIS Units within the United Kingdom (UK).

2.2 Operational communication between UK and non-UK ATSUs shall, on the part of the UK Air Navigation Service Provider (ANSP), be conducted in the English language.

2.3 ANSPs may designate, within their unit, operational areas in which all communications (operational and non-operational) shall be in the English language.

3 Flight Information Service (FIS)

3.1 An FIS, as defined by ICAO, is a service provided for the purposes of supplying information and advice useful for the safe and efficient conduct of flight, together with pertinent information about:

a) weather;

b) changes to serviceability of facilities;

c) conditions at aerodromes; and

d) any other information likely to affect safety.

3.2 The ICAO requirements for an FIS are met in the UK Flight Information Regions through the provision of:

Aerodrome Flight Information Service (AFIS);

A suite of services detailed in CAP 774 (www.caa.co.uk/CAP774), known collectively as the UK Flight Information Services, which comprises:

a) Basic Service;

b) Traffic Service;

c) Deconfliction Service;

d) Procedural service.

NOTE: FISOs are not licensed to provide a Traffic Service, a Deconfliction Service, or a Procedural Service.

3.3 FIS Units comprise:

a) Aerodrome Flight Information Service (AFIS) units; and

b) Area FIS units.

3.4 Where the term 'FIS unit' is used in this manual, it applies to all FIS units, whether at an aerodrome or an area centre.

4 Flight Information Service Officer (FISO)

4.1 An FISO at an aerodrome is referred to as an Aerodrome Flight Information Service Officer (AFISO).

4.2 Where the term FISO is used in this manual, it applies to all FISOs, whether at an aerodrome or an area centre.

5 Purpose

5.1 This document contains procedures, instructions, and information which are intended to form the basis of the services provided by FISOs within the UK. It is published for use by FISOs and pilots. This document will be supplemented by local instructions.

5.2 To avoid any misunderstanding within this document, certain words or terms are to be interpreted as having specific meanings as follows:

is to, are to, shall, must	Mean that the instruction is mandatory.
should	Means that it is strongly advisable that an instruction is carried out; it is recommended or discretionary. It is applied where the more positive 'shall' is unreasonable but nevertheless a pilot/FISO would have to have good reason for not doing so.
may	Means that an instruction is permissive, optional or alternative, e.g. 'an FISO may seek assistance ….' but would not if he did not need it.
will	Is used for informative or descriptive writing, e.g. 'pilots will file…' is not an instruction to the FISO.

5.3 Where reference is made to an Area Control Centre (ACC) it shall be the centre within whose Flight Information Region (FIR) the aerodrome is situated. Where guidance on an air traffic matter is required, it may be obtained from the watch supervisor at the ACC.

6 Gender

In the interests of simplicity, any reference to the masculine gender can be taken to mean either male or female.

7 Enquiries

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Glossary of Terms

Definitions

The following terms have been defined to remove any doubt about the meaning of instructions in the text of the Manual and associated documents. Where a definition in law exists it is given here. Suitable interpretations, where they exist, have been selected from national and international documents. Some terms appear in more than one document and sometimes with different meanings. Terms which have not been annotated are those which have specific meanings within the text and have been defined to avoid ambiguity or misunderstanding. In some cases they are slight modifications of definitions in other documents.

A

Advisory Airspace	An airspace of defined dimensions, or designated route, within which air traffic advisory service is available. (ICAO)
Advisory Route	A designated route along which air traffic advisory service is available. (ICAO)
Aerodrome	Any area of land or water designed, equipped, set apart or commonly used for affording facilities for the landing and departure of aircraft. (ANO)
Aerodrome Control Service	Air traffic control service for aerodrome traffic. (ICAO)
Aerodrome Traffic	All traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome. (ICAO)
Aerodrome Traffic Zone	Airspace of defined dimensions established around an aerodrome for the protection of aerodrome traffic. (ICAO)
Aircraft	Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface. (ICAO)
Aircraft Identification	A group of letters, figures or a combination thereof which is either identical to, or the coded equivalent of, the aircraft callsign to be used in air-ground communications, and which is used to identify the aircraft in ground-ground air traffic services communications. (ICAO)
Air-Ground Communication	Two way communication between aircraft and stations or locations on the surface of the earth. (ICAO)
Air Navigation Service Provider	An organisation having applied for a certificate to provide such services. (EU 1035/2011)
Air Traffic	All aircraft in flight or operating on the manoeuvring area of an aerodrome. (ICAO)
Air Traffic Advisory Service	A service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on Instrument Flight Rules (IFR) flight plans. (ICAO)
Air Traffic Control Clearance	Authorisation for an aircraft to proceed under conditions specified by an air traffic control unit. (ICAO)

Air Traffic Flow Management	A service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that Air Traffic Control (ATC) capacity is utilised to the maximum extent possible, and that the traffic volume is compatible with the capacities declared by the appropriate ATS authority. (ICAO)
Air Traffic Management	The aggregation of the airborne and ground-based functions (air traffic services, airspace management and air traffic flow management) required to ensure the safe and efficient movement of aircraft during all phases of operations. (EC 549/2004)
Air Traffic Service	A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service). (ICAO)
Airway	A control area or portion thereof established in the form of a corridor. (ICAO)
Alternate Aerodrome	An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. (ANO)
Altitude	The vertical distance of a level, a point or object considered as a point, measured from mean sea level. (ICAO)
Approach Control Service	An air traffic control service for any aircraft which is not receiving an aerodrome control service, which is flying in, or in the vicinity of the aerodrome traffic zone of the aerodrome in respect of which the service is being provided, whether or not the aircraft is flying by visual reference to the surface. (ANO)
Approved Departure Time	An allocated take-off time calculated from the elapsed flight time between the aerodrome of departure and the point at which the regulated flow is effective.
Apron	The part of an aerodrome provided for the stationing of aircraft for the embarkation and dis-embarkation of passengers, for loading and unloading of cargo and for parking. (ANO)
Area Control Centre	An air traffic control unit established to provide an area control service to aircraft flying within a notified flight information region which are not receiving an aerodrome control service or an approach control service. (ANO)
Area Control Service	An air traffic control service for any aircraft which is flying neither in nor in the vicinity of an aerodrome traffic zone. (ANO)
Arrival Routes	Routes identified in an instrument approach procedure by which aircraft may proceed from the En-route phase of flight to an initial approach fix. (ICAO)

ATS Route	A specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services. (ICAO) **Note 1:** Includes airways, advisory routes, arrival and departure routes, helicopter main routes, link routes, supersonic routes etc. **Note 2:** An ATS route is defined by route specifications which include an ATS route designator, the track to or from significant points (waypoints), distance between significant points, reporting requirements, and as determined by the appropriate ATS Authority, the lowest safe altitude.
ATS Surveillance Service	Term used to indicate a service provided directly by means of an ATS surveillance system. (ICAO)
ATS Surveillance System	A generic term meaning variously, Automatic Dependent Surveillance Broadcast (ADS-B), Primary Surveillance Radar (PSR), Secondary Surveillance Radar (SSR) or any comparable ground-based system that enables the identification of aircraft. A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology to have a level of safety and performance equal to or better than monopulse SSR. (ICAO)

B

Backtrack	To taxi on a runway-in-use, in the opposite direction to the aircraft's take-off or landing direction.

C

Clearway	An area at the end of the take-off run available, selected or prepared as a suitable area over which an aircraft may make a portion of its initial climb to a specified height.
Cloud Ceiling	In relation to an aerodrome, means the vertical distance from the elevation of the aerodrome to the lowest part of any cloud visible from the aerodrome which is sufficient to obscure more than one half of the sky so visible. (ANO)
Control Area	Controlled airspace which has been further notified as a control area and which extends upwards from a notified altitude or flight level. (ANO)
Controlled Airspace	Airspace which has been notified as Class A, Class B, Class C, Class D or Class E airspace. (ANO)
Control Zone	Controlled airspace which has been further notified as a control zone and which extends upwards from the surface. (ANO)
Co-ordination	The act of negotiation between two or more parties each vested with the authority to make executive decisions appropriate to the task being discharged.
Cruising Level	A level maintained during a significant portion of a flight. (ICAO)
Current Flight Plan	The flight plan, including changes, if any, brought about by subsequent clearances. (ICAO)

D

Duty Engineering Officer	Generic term meaning the person(s) responsible for the specified task, namely engineering/telecommunications/ surveillance systems etc. As appropriate, locally established personnel shall be specified in unit local procedures.

E

Elevation	The vertical distance of a point or level on, or affixed to, the surface of the earth measured from mean sea level. (ICAO)
En-route Operations	Operations conducted on published ATS routes, direct point-to-point operations between defined waypoints, or along great circle routes which are other than take-off, landing, departure, arrival or terminal operations. [ICAO Doc 9613] This includes all transit flights outside published ATS routes in receipt of an ATS from either a civil or military ATS provider.
Entry Point	The first airways/advisory airspace reporting point over which a flight passes on entering an FIR. (ICAO)
Exit Point	The last airways/advisory airspace reporting point over which a flight passes before leaving an FIR. (ICAO)
Estimated Time of Arrival	For IFR flights, the time at which it is estimated that the aircraft will arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the aerodrome, the time at which the aircraft will arrive over the aerodrome. For Visual Flight Rules (VFR) flights, the time at which it is estimated that the aircraft will arrive over the aerodrome. (ICAO)

F

Flight Level	A surface of constant atmospheric pressure, which is related to a specific pressure datum, 1013.2 mb, and is separated from other such surfaces by specific pressure intervals. (ICAO)
Flight Plan	Specified information provided to ATSUs relative to an intended flight or portion of a flight of an aircraft. (ICAO)
Flight Visibility	The visibility forward from the flight deck of an aircraft in flight. (ANO)

G

General Air Traffic	Flights conducted in accordance with the regulations and procedures for flight promulgated by the state civil aviation authorities and operating under the control or authority of the civil ATS organisation.

H

Heading	The direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic or compass). (ICAO)
Height	The vertical distance of a level, a point or an object considered as a point, measured from a specified datum. (ICAO)

Holding Point	a) A specified location, identified by visual or other means, in the vicinity of which the position of an aircraft in flight is maintained in accordance with air traffic control clearances. b) A speech abbreviation used in radiotelephony phraseology having the same meaning as runway holding position or intermediate holding position as defined in CAP 168 Licensing of Aerodromes.
Hot Spot	A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary. (ICAO)
I	
Instrument Meteorological Conditions	Weather precluding flight in compliance with the Visual Flight Rules. (ANO)
K	
Known Traffic	Traffic, the current flight details and intentions of which are known to the controller/FISO.
L	
Level	A generic term relating to the vertical position of an aircraft in flight and meaning variously height, altitude or flight level. (ICAO)
M	
Manoeuvring Area	The part of an aerodrome provided for the take-off and landing of aircraft and for the movement of aircraft on the surface, excluding the apron and any part of the aerodrome provided for the maintenance of aircraft. (ANO)
Minimum Sector Altitude	The lowest safe altitude for instrument flight within sectors of an aid, facility or aerodrome which is published in the appropriate approach chart.
N	
Night	The time between half an hour after sunset and half an hour before sunrise (both times inclusive), sunset and sunrise being determined at surface level. (ANO)
O	
Operational Air Traffic	Flights conducted under the control or authority of the military ATS organisation.
P	
Prevailing Visibility	The visibility value that is reached or exceeded within at least half the horizon circle or within at least half of the surface of the aerodrome. These areas could comprise contiguous or non-contiguous sectors.
Procedural Control	Term used to indicate that information derived from an ATS surveillance system is not required for the provision of ATC service. (ICAO)
Q	
Quadrantal Cruising Level	Specified cruising levels determined in relation to magnetic track within quadrants of the compass.

R

Radar Service	Term used to indicate a service provided directly by means of radar.
Radial	A magnetic bearing extending from a VOR/VORTAC/TACAN
Reporting Point	A specified geographical location in relation to which the position of an aircraft can be reported. (ICAO)
Runway	A defined rectangular area on a land aerodrome prepared for the landing and take-off run of aircraft along its length.
Runway holding Position	A designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorised.
Runway Incursion	Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

S

SAFETYCOM	A common frequency (135.475 MHz) made available for use at aerodromes where no other frequency is allocated, to enable pilots to broadcast their intentions to other aircraft that may be operating on, or in the vicinity of, the aerodrome. SAFETYCOM is not an air traffic service and procedures for its use by pilots are notified in the UK AIP.
SIGMET	Information issued by meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.
Significant Point	A specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes. (ICAO)
Stopway	A defined rectangular area at the end of the take-off run available, prepared and designated as a suitable area in which an aircraft can be stopped in the case of a discontinued take-off.
Surface Visibility	The horizontal visibility as measured at a height of 2 metres above the ground.

T

Taxiway Holding Position	A designated position at which taxiing aircraft and vehicles may be required to hold in order to provide adequate clearance from a runway or taxiway.
Terminal Control Area	A control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes. (ICAO)
Threshold	The beginning of that portion of the runway usable for landing. (ICAO)
Track	The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid). (ICAO)
Traffic Information	Information issued to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight.

Transponder	A receiver/transmitter which will generate a reply signal upon interrogation.
Transponder Mandatory Zone	A Transponder Mandatory Zone (TMZ) is airspace of defined dimensions within which aircraft are required to operate a transponder in accordance with promulgated procedures.

U

Unknown Traffic	Traffic, the flight details and intentions of which are not known to the controller/FISO.

V

Visibility	Visibility for aeronautical purposes is the greater of: a) The greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognised when observed against a bright background; b) The greatest distance at which lights in the vicinity of 1,000 candelas can be seen and identified against an unlit background. (ICAO) **Note:** The two distances have different values in air of a given extinction co-efficient, and the latter b) varies with the background illumination. The former a) is represented by the meteorological optical range.
Visual Approach	An approach by an IFR flight when part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to terrain. (ICAO)
Visual Meteorological Conditions	Weather permitting flight in accordance with the Visual Flight Rules. (ANO)

W

With the surface in sight	Means with the flight crew being able to see sufficient surface features or surface illumination to enable the flight crew to maintain the aircraft in a desired attitude without reference to any flight instrument and 'when the surface is not in sight' shall be construed accordingly. (ANO)

Abbreviations

A

AAC	Army Air Corps
AAIB	Air Accidents Investigation Branch
AATSD	Aerodrome and Air Traffic Standards Division
ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
ADR	Advisory Route
ADS-B	Automatic Dependent Surveillance-Broadcast
AFIS	Aerodrome Flight Information Service
AFISO	Aerodrome Flight Information Service Officer

AFTN	Aeronautical Fixed Telecommunications Network
AGCS	Air/Ground Communications Service
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIRPROX	Aircraft Proximity
AIS	Aeronautical Information Service
amsl	Above Mean Sea Level
ANO	Air Navigation Order
ANSP	Air Navigation Service Provider
ARCC	Aeronautical Rescue Co-ordination Centre
ASR	Altimeter Setting Region
ATAS	Air Traffic Advisory Service
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer
ATCU	Air Traffic Control Unit
ATD	Actual Time of Departure
ATFM	Air Traffic Flow Management
ATIS	Automatic Terminal Information Service
ATS	Air Traffic Service
ATSU	Air Traffic Service Unit
ATZ	Aerodrome Traffic Zone
AUS	Airspace Utilisation Section
C	
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAS-T	Temporary Class D Controlled Airspace
CFME	Continuous Friction Measuring Equipment
c/s	Callsign
D	
DAP	Directorate of Airspace Policy
DfT	Department for Transport
DME	Distance Measuring Equipment
D&D	RAF Distress and Diversion Cells
E	
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure

F

FIR	Flight Information Region
FIS	Flight Information Service(s)
FISO	Flight Information Service Officer
FL	Flight Level
ft	Foot (feet)

G

GAT	General Air Traffic

H

H	Hour
hPa	Hectopascal

I

ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions

K

kg	Kilogramme(s)
km	Kilometre(s)
kt	Knot(s)

M

m	metre(s)
mm	millimetre(s)
MATS	Manual of Air Traffic Services
MHz	Mega-hertz
MLS	Microwave Landing System
MoD	Ministry of Defence
MOR	Mandatory Occurrence Report
MTOM	Maximum Take-off Mass

N

NATS	National Air Traffic Services
NDS	Non-Deviating Status
NM	Nautical Mile(s)
NOTAM	Notice to Airmen

P

PIB	Pre-flight Information Bulletin

Q	
QFE	Atmospheric pressure at aerodrome elevation
QNH	Regional atmospheric pressure at sea level
R	
RA	Resolution Advisory
RAF	Royal Air Force
RFFS	Rescue and Fire Fighting Service
RN	Royal Navy
RTF	Radiotelephone
S	
SAR	Search and Rescue
SARPs (ICAO)	Standards and Recommended Practices
SDD	Safety Data Department
SRG	Safety Regulation Group
T	
TA	Traffic Advisory
TACAN	Tactical Air Navigation
TCAS	Traffic Alert and Collision Avoidance System
TMZ	Transponder Mandatory Zone
TQHF	The Queen's Helicopter Flight
TRA	Temporary Reserved Area
U	
UAA	Unusual Aerial Activity
UHF	Ultra High Frequency
UIR	Upper Flight Information Region
UK	United Kingdom
UKAB	United Kingdom AIRPROX Board
UTC	Co-ordinated Universal Time
V	
VFR	Visual Flight Rules
VHF	Very High Frequency
VOR	VHF Omni-directional Range
VORTAC	VHF Omni-directional Range Tactical Air Navigation
VVIP	Very Very Important Person

Section 1 FISO Procedures

Chapter 1 Service Provision by FISOs

1 Responsibility

1.1 FISOs shall issue information to aircraft in their area of responsibility useful for the safe and efficient conduct of flights. They are not permitted to issue instructions, except for those circumstances in paragraph 1.2, or when relaying a clearance from an air traffic control unit. Pilots therefore are wholly responsible for collision avoidance in conformity with the Rules of the Air.

1.2 In granting or refusing permission under Rules 40 and 41 of the Rules of the Air, AFISOs are permitted to pass instructions to vehicles and personnel operating on the manoeuvring area, as well as:

a) departing aircraft about to move or moving on the apron and manoeuvring area up to and including the holding point of the runway to be used for departure;

b) arriving aircraft moving on the manoeuvring area and apron, following the completion of the landing roll;

c) all other taxiing aircraft intending to move or moving on the apron and manoeuvring area, including the crossing of runways;

d) to helicopters engaged in air taxiing for departure, up to and including the holding point of the runway to be used for departure or up to and including such other location on the aerodrome from which the helicopter will depart; and

e) to helicopters engaging in air taxiing on completion of landing or that have reached the hover prior to air taxiing.

Elsewhere on the ground and at all times in the air, information shall be passed.

2 Liaison between AFIS Units and other ATSUs

2.1 Introduction

2.1.1 Where necessary, FIS units should develop letters of agreement with appropriate ATSUs for the handling of arriving and departing aircraft. The procedures in paragraphs 2.2 and 2.3 below may be used as a template for the inter-unit liaison detailed within such a letter of agreement.

2.2 Arriving Traffic

2.2.1 For arriving traffic the following information should be exchanged:

- Estimated time of arrival (ETA) updated as necessary;
- Traffic known to the AFISO which the arriving aircraft should be aware of before transfer of communication; and
- Aerodrome QNH.

2.2.2 Transfer of communications shall be achieved in sufficient time to allow the AFISO to provide information on other aircraft operating in the vicinity of the aerodrome.

2.2.3 Should the aircraft fail to establish communications with the AFIS unit within five minutes after the latest received ETA, the AFIS unit shall inform the ATSU from whom the ETA was received and take appropriate action as required.

2.3 Departing Traffic

2.3.1 For departing traffic the following information should be exchanged:

- Estimated time of departure (ETD) updated as necessary;
- When necessary, runway-in-use;
- When requested, actual time of departure (ATD); and
- ATC clearance including transponder code when required, as well as traffic information about traffic known to the ATC unit that the departing aircraft will need to be informed of before departure.

2.3.2 The AFISO shall read back the ATC clearance received.

2.3.3 The AFISO shall relay to a pilot the ATC clearance provided, transponder code, and traffic information in exactly the form it was received and ensure a correct readback is received.

2.4 Tactical Co-ordination with other ATSUs

FISOs are not permitted to enter into tactical co-ordination with other ATSUs regarding aircraft receiving a service, due to the limitations of the FISO Licence.

Chapter 2 Altimeter Setting Procedures

1 Units of Pressure

Hectopascals (hPa) are the notified units for the measurements of pressure for flying within UK airspace. Pilots are normally expected to carry out their own conversion from hectopascals to inches of mercury if this is necessary and FISOs will only provide pressure settings in inches of mercury when specifically requested by an individual aircraft. A conversion table can be found in Appendix B.

2 Pressure Setting

A correctly calibrated pressure altimeter when set to:

a) QNH altimeter setting – will indicate altitude;

b) QFE altimeter setting – will indicate height above the reference datum.

Both of these settings are rounded down to the nearest whole hectopascal before being passed to the pilot. However, they are given to the nearest tenth of a hectopascal if requested.

3 System of Flight Levels

Flight Levels are measured with reference to the standard pressure setting of 1013.2 hPa. In the UK, consecutive Flight Levels above the transition level are separated by pressure intervals corresponding to 500 ft up to FL200. At and above FL200 the pressure interval corresponds to 1,000 ft (except in an active Temporary Reserved Area (TRA) where 500 ft pressure intervals are applied up to FL245).

4 Regional Pressure Setting

4.1 The Regional Pressure Setting is a forecast of the lowest QNH value within an Altimeter Setting Region (ASR). The values which are made available hourly for the period Hour (H) + 1 to (H) + 2 are given in whole hectopascals.

4.2 AFIS Units are to have available the Regional Pressure Setting for the ASR in which they are situated and appropriate adjacent regions. Area FIS Units are to have available Regional Pressure Settings for their area of coverage and appropriate adjacent regions. These values are to be passed to pilots when requested or at the discretion of the FISO. However, a pressure setting shall not be volunteered if an FISO is uncertain that it is appropriate to the flight.

4.3 Airspace below Terminal Control Areas (TMAs) and Control Areas (CTAs) listed in the UK Aeronautical Information Publication (AIP) at ENR 1-7-2 does not form part of the ASR Regional Pressure Setting system. Instead, the QNH of an adjacent aerodrome should be used for aircraft at or below the Transition Altitude.

5 Transition

5.1 Transition Altitude

Transition altitude is the altitude at or below which the vertical position of an aircraft is normally controlled by reference to altitude. Unless otherwise notified the transition altitude for civil aerodromes is 3,000 feet.

5.2 Transition Level

Transition level is the lowest Flight Level available for use above the transition altitude. It is determined from the table in Appendix B as follows:

a) Within controlled airspace by the controlling authority, where it will normally be based on the QNH of the major aerodrome;

b) Outside controlled airspace by the Aerodrome Operator, where it will be based on the aerodrome QNH.

5.3 Transition Layer

Transition layer is the airspace between the transition altitude and the transition level.

6 Expression of Vertical Position of Aircraft

6.1 A pilot normally assesses the vertical position of his aircraft above obstacles by using an accurately set altimeter. It is imperative, therefore, that FISOs always issue the correct pressure setting and that they check the readback from the pilot.

6.2 When transmitting altimeter pressure settings that are lower than 1,000 hPa, FISOs are to specify clearly the unit of measurement and pay particular attention to the readback.

6.3 For flights in the vicinity of aerodromes, the vertical position of aircraft shall, except as provided for in paragraph 6.4, be expressed in terms of altitudes at or below the transition altitude and in terms of flight levels at or above the transition level. While passing through the transition layer, vertical position shall be expressed in terms of flight levels when climbing and in terms of altitudes when descending.

6.4 When an aircraft is completing its approach using atmospheric pressure at aerodrome elevation (QFE), the vertical position of the aircraft shall be expressed in terms of height above aerodrome elevation during that portion of its flight for which QFE may be used.

6.5 The following table shows the altimeter subscale settings, the terms in which vertical position is reported and the occasions on which they are used to report to FIS Units.

Subscale Setting	Expressed in terms of	When used to report vertical position to FIS Units
1013.2 hPa	FLIGHT LEVEL	1. At, or above, the transition level. 2. Climbing through the transition layer. 3. Above 3,000 feet (ft) above mean sea level (amsl) and not in the vicinity of an aerodrome.
QNH	ALTITUDE	1. At, or below, the transition altitude, i.e. in the vicinity of an aerodrome or beneath specified TMAs and CTAs listed in ENR 1-7-2. 2. Descending through the transition layer. 3. During final approach.
QFE	HEIGHT	During final approach, as local procedures require or when requested by the pilot.
REGIONAL PRESSURE SETTING	ALTITUDE	At, or below, 3,000 feet amsl when outside controlled airspace and not in the vicinity of an aerodrome.

Chapter 3 Flight Priorities

1 Table of Flight Priorities

Normally requests shall be dealt with in the order in which they are received and issued according to the traffic situation. However, certain flights are given priority over others and the following table shows the categorisation.

Category	Type of Flight
A	Aircraft in emergency (e.g. engine fault, fuel shortage, seriously ill passenger). Aircraft which have declared a 'Police Emergency'. Ambulance/Medical aircraft when the safety of life is involved.
B	Flights operating for search and rescue or other humanitarian reasons. Post-accident flight checks. Other flights, including Open Skies Flights, authorised by the CAA. Police flights under normal operational priority.
C	Royal Flights and Flights carrying visiting Heads of State which have been notified by NOTAM/Temporary Supplement.
D	Flights notified by the CAA carrying Heads of Government or very senior government ministers.
E	Flight check aircraft engaged on, or in transit to, time or weather critical calibration flights. Other flights authorised by the CAA.
NORMAL FLIGHTS	
i) Flights which have filed a flight plan in the normal way and conform with normal routing procedures. ii) Initial instrument flight tests conducted by the CAA Flight Examining Unit (RTF callsign "EXAM").	
Z	Training, Non-standard and other flights.

2 Airspace Utilisation Section (AUS)

2.1 Unusual Aerial Activity (UAA) is a generic term which, in its ATS context, includes the following:

a) A concentration of aircraft that is significantly greater than normal;

b) Activities that may require the issue of a Permission or an Exemption from the ANO or Rules of the Air Regulations;

c) Air Shows, Displays, Air Races or other competitions; and

d) Activities which require the establishment of a temporary ATSU.

2.2 FISOs may become involved in arrangements for UAAs, which can take place in any class of airspace. Approval and clearance for a UAA within controlled airspace rests with the relevant airspace controlling authority. However, many UAAs, whether in or outside controlled airspace, involve the AUS in co-ordination with the sponsor and other participants and require notification of the event to the aviation community.

2.3 Early warning of all UAAs is essential if co-ordination and notification is to be completed in good time by AUS. Notice requirements and the responsibilities of sponsors of UAAs are described in the UK AIP and Aeronautical Information Circulars (AICs). AUS notifies affected ATS units of airspace reservations or temporary procedures, which have been agreed with participating agencies by means of NOTAM and Airspace Co-ordination Notices. This initial dissemination may be supplemented by, or transferred to, Temporary Operating Instructions or other locally produced briefing material.

2.4 AUS is responsible for the allocation of General Air Traffic (GAT) flight priorities and Non-Deviating Status (NDS) in addition to co-ordinating Temporary Class D Controlled Airspace (CAS-T) requirements, Very Very Important Person (VVIP)/special/calibration flights, air-to-air refuelling, military deployments and exercises.

3 Police Flights

3.1 A Police flight is defined as a flight by an aircraft operating under a Police Air Operator's Certificate, the purpose of which is to facilitate police operations, where immediate and rapid transportation is essential, which includes the following:

a) Responding to a 'Police Emergency'. The pilot of a police aircraft is likely to declare a 'Police Emergency' in situations where an immediate response is required when life is at immediate risk or a serious crime or major incident is in progress;

b) Supporting ground personnel in often sensitive and serious operations; and

c) Non-standard and other flights.

3.2 The flight categories relevant to Police flying operations are:

a) Flight Category A: authorised for use by aircraft which have declared a 'Police Emergency';

b) Flight Category B: normal operational priority. The operation will not wish to draw attention to itself. The pilot will be expecting the FISO to ask his intentions in the event that the flight would cause a delay to other traffic; and

c) Flight Category Z: authorised for training, test and other flights involving police aircraft.

3.3 The callsign for a Police flight consists of three elements:

- The radiotelephony callsign 'POLICE'. The ICAO three-letter telephony designator is 'UKP'.
- A two-digit individual aircraft identifier, which reflects the parent police force's Police Constabulary Number. Exceptionally, sequential three-digit identifiers will be allocated to units operating two or more aircraft. These will consist of a Police Constabulary Number based root followed by single digits to reflect the number of aircraft in a particular unit's fleet.
- When on a 'Police Emergency' flight, the two or three-digit identifier is to be suffixed with the Flight Category letter 'A' to highlight to the FIS provider the priority status requested by the pilot, e.g. 'POLICE 01A'.

4 Helicopter Emergency Medical Services (HEMS)

4.1 HEMS flights operate to incidents where an immediate response is required for the safety of life, e.g. road traffic accidents, and includes transporting patients to hospital.

4.2 The flight categories relevant to HEMS operations are:

a) Flight Category A: applies to all HEMS flights on emergency operational tasks;

b) Flight Category E: is authorised for use by an aircraft positioning for the purpose of conducting HEMS duties, e.g. returning to its base after delivering a casualty to hospital. It is afforded priority over normal flights;

c) Flight Category Z: authorised for training, test and other flights involving HEMS aircraft.

4.3 The callsign for a HEMS flight consists of three elements:

- The radiotelephony callsign 'HELIMED'. The ICAO three-letter telephony designator is 'HLE'.
- A two-digit individual aircraft identifier allocated to each HEMS aircraft by DAP.
- When on an emergency flight, the two digit identifier is to be suffixed with the Flight Category letter 'A' to highlight to the FIS provider the priority status requested by the pilot, e.g. 'HELIMED 01A'.
- On routine operational tasks, training or other flights, no suffix letter will be appended, e.g. 'HELIMED 01'.

5 Mareva Injunctions

5.1 A Mareva injunction (variously known also as a freezing order, Mareva order or Mareva regime) is a court order which prevents a defendant from removing assets from the UK and, thus, from the jurisdiction of the court. FIS providers and their personnel may be notified of Mareva injuctions imposed on specific aircraft. Although an injunction is most likely to be served at the aerodrome where the aircraft is located, it is possible that an injunction could also be notified to an FIS unit in relation to an aircraft in flight.

5.2 Mareva injunctions relating to aircraft are likely to specify the aircraft registration rather than a particular callsign. Upon receipt of such a Mareva injunction, FIS providers should establish whether they are in communication with the aircraft in question.

5.3 Where an aircraft subject to a Mareva injunction is being provided with an FIS, FISOs should inform the pilot:

"You are subject to a Court Order prohibiting your aircraft from leaving the United Kingdom, what are your intentions?".

This procedure is to be applied irrespective of whether the aircraft is conducting an internal UK or an international flight.

5.4 FISOs must not take any actions that would be detrimental to flight safety; consequently, FIS should continue to be provided as normal, even in the event that the pilot continues his flight. It should be noted that Mareva injunctions are relevant to international flight and that aircraft subject to such an injunction could be flying legitimately on an internal flight with no intention of leaving the UK territorial boundaries.

5.5 FIS providers should promulgate, as considered necessary, local procedures dealing with the circumstances of a Mareva injunction being served. In developing such local procedures, FIS providers should also consider taking legal advice as required in order to ensure that the procedures are consistent with legal obligations in relation to the injunction.

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Chapter 4 Flight Rules

1 Division of Airspace

UK airspace is divided into two Flight Information Regions (FIRs). Within each region the airspace below FL245 is known as the lower FIR and that at and above as the Upper Flight Information Region (UIR).

2 Classification of Airspace

The classification of the airspace within an FIR determines the flight rules which apply. These are summarised below.

Class	Flight Rules
A	IFR only
B	IFR and VFR
C	IFR and VFR
D	IFR and VFR
E	IFR and VFR
F	IFR and VFR
G	IFR and VFR

3 Aerodrome Traffic Zone (ATZ)

3.1 ATZs adopt the classification of airspace within which they are situated. Therefore aircraft flying within the ATZ are subject to the Rules of the Air, the specific conditions of the airspace, and the level of ATS provided at the particular aerodrome. At aerodromes where an AFIS or Air/Ground Communication Service (AGCS) is provided, pilots shall obtain information from the unit to enable the flight to be conducted safely within the zone and maintain a listening watch. Non-radio aircraft must comply with any conditions prescribed by the unit prior to the commencement of the flight.

3.2 The commander of an aircraft flying within the ATZ of an aerodrome shall:

a) cause a continuous watch to be maintained on the appropriate radio frequency notified for communications at the aerodrome; or

b) if this is not possible, cause a watch to be kept for such instructions as may be issued by visual means; and

c) if the aircraft is fitted with means of communication by radio with the ground, communicate his position and height to the air traffic control unit, the FIS unit or the AGCS at the aerodrome (as the case may be) on entering the zone and immediately prior to leaving it.

4 Visual Flight Rules (VFR)

The pilot of an aircraft is responsible for determining whether or not the meteorological conditions permit flight in accordance with the VFR. The criteria for determining Visual Meteorological Conditions are summarised in the tables below.

By Day	**Distance from Cloud**		**Flight Visibility**
	Horizontal	Vertical	
At and Above FL100			
Class C, D, E, F and G airspace	1500 m	1000 ft	8 km
Below FL100			
Class C, D, E, F and G airspace	1500 m	1000 ft	5 km
Alternatively at or below 3,000 ft amsl			
Class F and G airspace For aircraft, other than helicopters, flying at 140 kt IAS or less	Clear of cloud and with the surface in sight.		5 km
Class C, D and E airspace	Clear of cloud and with the surface in sight.		5 km
Class F and G airspace For helicopters	Clear of cloud and with the surface in sight.		1500 m
Class C, D and E airspace	Clear of cloud and with the surface in sight.		1500 m
Class F and G airspace	Clear of cloud, with the surface in sight and at a speed which, having regard to the visibility, is reasonable.		1500 m

By Night	**Distance from Cloud**		**Flight Visibility**
	Horizontal	Vertical	
At and Above FL100			
Class C, D, E, F and G airspace	1500 m	1000 ft	8 km
Below FL100			
Class C, D, E, F and G airspace	1500 m	1000 ft	5 km
Alternatively at or below 3,000 ft amsl			
Class F and G airspace For aircraft other than helicopters	Clear of cloud and with the surface in sight.		5 km
For helicopters	Clear of cloud, with the surface in sight and at a speed which, having regard to the visibility, is reasonable.		3 km

NOTE: For fixed-wing and helicopter flights taking off or landing at aerodromes within Class C or D airspace the reported meteorological visibility at the aerodrome concerned shall be taken to be the flight visibility.

5 Instrument Flight Rules (IFR)

5.1 A pilot must fly according to the IFR:

- if the airspace has been notified as Class A;
- if the meteorological conditions preclude VFR flight.

5.2 The IFR require a pilot to observe the minimum height rule and additional rules according to the type of airspace. These are summarised below.

5.2.1 Within Controlled Airspace (Classes A to E):

a) File a flight plan and obtain a clearance before proceeding with the flight;

b) Conduct the flight in accordance with clearances and instructions from ATC;

c) Maintain a listening watch on the appropriate radio frequencies; and

d) Report the position of the aircraft according to published procedures.

5.2.2 Outside Controlled Airspace (Classes F and G):

Comply with the quadrantal rule when in level flight above 3,000 ft amsl. The altimeter is set to 1013.2 mb and the cruising level is selected according to the magnetic track unless the aircraft is holding according to published procedures or is otherwise instructed by ATC.

Quadrantal Rule – Flights at levels below FL195:

Magnetic Track	Cruising Level
Less than 090	FL030, 050, 070, 090 etc. up to FL190
090 but less than 180	FL035, 055, 075, 095 etc. up to FL175
180 but less than 270	FL040, 060, 080, 100 etc. up to FL180
270 but less than 360	FL045, 065, 085, 105 etc. up to FL185

6 Speed Limit

6.1 Below FL 100 a speed limit of 250 kt IAS is imposed according to the class of airspace as follows:

Class C	VFR flights
Class D, E, F and G	IFR and VFR flights

7 Filing of Flight Plans

7.1 Flight plans fall into two categories:

a) **Full flight plans:** the information required on Form CA48/RAF2919.

b) **Abbreviated flight plans:** the limited information required to obtain a clearance for a portion of flight, e.g. flying in a control zone, crossing an airway etc. filed either on the Radiotelephone (RTF) or by telephone prior to take-off.

7.2 The local FIS Unit may assist in compiling flight plans and checking them. However, the ultimate responsibility for filing an accurate flight plan rests with the pilot or aircraft operator.

7.3 The destination aerodrome will be advised of the flight only if the flight plan information covers the whole route of the flight.

7.4 An airborne flight plan may be filed provided that the pilot leaves sufficient time for the clearance to be issued before the aircraft reaches the boundary of controlled airspace (normally 10 minutes).

7.5 A pilot may file a flight plan for any flight.

7.6 A pilot is required to file a flight plan:

a) for all flights within controlled airspace, which are conducted in accordance with IFR;

b) for flights within Class C and D airspace conducted in accordance with VFR;

c) when he wishes to receive an Air Traffic Advisory Service (ATAS) (Class F airspace);

d) for all flights which will cross a UK international FIR boundary; and

e) for any flight where the destination is more than 40 km from the aerodrome of departure and the aircraft's maximum total weight authorised exceeds 5700 kg.

7.7 A pilot is advised to file a flight plan:

a) if his flight involves flying over the sea more than 10 miles from the UK coast or flying over sparsely populated areas where Search and Rescue (SAR) operations would be difficult; or

b) if he intends to fly into an area in which SAR operations are in progress. The flight plan should include the expected times of entering and leaving the area and the details must also be passed to the parent ACC. The ACC is to notify the Aeronautical Rescue Co-ordination Centre (ARCC) concerned.

7.8 A pilot who has filed a flight plan to a destination without an ATSU and not connected to the Aeronautical Fixed Telecommunications Network (AFTN) shall comply with the following procedure:

a) Nominate a responsible person at his destination and inform him of the planned ETA. If the aircraft fails to arrive within 30 minutes of the ETA the responsible person will notify the parent ATSU. That ATSU will then initiate Alerting action; or

b) If no responsible person can be found, the pilot will contact the parent ATSU and request that they act in the same capacity. The pilot is then required to inform the parent ATSU of his arrival within 30 minutes of the notified ETA, otherwise Alerting action will automatically be initiated.

8 Availability of Supplementary Flight Plan Information

8.1 Where the operator or departure handling agency of an aircraft at the aerodrome from which it departs closes before ETA at destination plus one hour, they will advise the FIS Unit at the departure aerodrome of the number of persons on board. If there is no FIS Unit, the aerodrome operator or departure handling agency will file with the parent ACC the name and address of a person who has access to flight departure records.

8.2 If the FIS Unit at the departure aerodrome closes before ETA at destination plus one hour, the AFISO shall forward the details contained in field 19 of the flight plan form to the parent ACC ensuring that any change to the endurance or number of persons on board is included.

9 Booking-out

Pilots who do not file a flight plan either full or abbreviated, are required to inform the AFIS Unit at the aerodrome of their departure. This is referred to as booking-out. The AFIS Unit is to record the departure. No further action is required.

10 Infringement of Legislation

When notification of a flight is received, which if completed as planned, would involve a breach of regulations, the attention of the pilot should be drawn to the probable infringement. The warning should be recorded in the watch log.

11 Weather Minima

An FISO is not responsible for ensuring that pilots observe their weather minima and shall not initiate action in this respect or query the right of a pilot to attempt a landing or take-off.

12 Non Standard Flights and Exemptions

All requests from operators for exemption from the legislation for particular flights shall be referred to the appropriate ACC.

13 Failure of Navigation Lights

13.1 Paragraphs a), b) and c) below shall apply to aircraft in the UK.

a) An aircraft shall not depart from an aerodrome if there is a failure of any light which is required by the Air Navigation Order to be displayed at night and the light cannot be immediately repaired or replaced;

b) Subject to paragraph c), if the aircraft is in flight and any such light as is referred to in paragraph a) fails and cannot be immediately repaired or replaced, the aircraft shall land as soon as it can safely do so, unless authorised by the appropriate air traffic control unit to continue its flight;

c) An aircraft may continue to fly during the day in the event of a failure of an anti-collision light provided the light is repaired at the earliest practicable opportunity.

13.2 FISOs shall notify pilots if they become aware that the aircraft has experienced failure of any navigation or anti-collision light. FISOs shall not issue authority for pilots to continue flight when they experience failure of any navigation light required by the Air Navigation Order, as this may only be issued in certain circumstances by an air traffic control unit. In such circumstances the FISO should contact the parent ACC.

14 Action when Captive Balloons Break Free

When an FIS Unit receives information that a captive balloon has broken free, the appropriate ACC shall be telephoned without delay stating:

- The type of balloon and whether carrying any person;
- Position of balloon site;
- Direction and speed of drift;
- Length of cable attached to balloon; and
- The balloon operator's name and telephone number.

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Chapter 5 Airborne Collision Avoidance System (ACAS)

1 Introduction

1.1 Airborne Collision Avoidance System (ACAS) is an aircraft system based on SSR transponder signals, which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.

1.2 All civil turbine-engine aircraft having a maximum take-off mass (MTOM) exceeding 5,700 kg or a maximum approved seating configuration of more than 19 are mandated to carry and operate ICAO SARPs-compliant ACAS equipment. The only equipment currently able to meet the ACAS II mandate requirements is the Traffic Alert and Collision Avoidance System II (TCAS II), software version 7. Certain military transport-type aircraft may also be TCAS II equipped. Civil registered historical and ex-military turbine-engine aircraft are exempted from this requirement.

1.3 Aircraft Operators experiencing ACAS equipment failure may request permission to operate in UK airspace for up to 10 days in accordance with current TCAS II Minimum Equipment List provisions. Due to the safety benefits arising from TCAS operations and the collaborative way in which it arrives at collision avoidance solutions, any aeroplane with an unserviceable transponder as well as an unserviceable TCAS will not be permitted in UK airspace for which mandatory carriage of a transponder is required.

1.4 The carriage and use of TCAS II acts only as a safety net, and does not in any way alter the respective responsibilities of pilots and air traffic service staff for the safe operation of aircraft.

2 TCAS II Warnings

2.1 TCAS II encounters may take place within all classifications of airspace. TCAS II equipment reacts to the transponders of other aircraft to determine whether or not there is a potential risk of collision. The warning, based on the time to an assumed collision, enables the pilot to identify the conflicting traffic and, if necessary, take avoiding action.

2.2 Warnings for aircraft equipped with TCAS II are given in two steps:

Typically 45 seconds before the assumed collision*	Traffic Advisory (TA) warning. Pilots are advised not to take avoiding action on the basis of TA information alone but may ask for traffic information. Pilot looks for conflicting aircraft visually. Does NOT manoeuvre.
Typically 30 seconds before the assumed collision*	Resolution Advisory (RA) warning. Pilot receives advice to climb, descend or maintain their existing flight profile. Rate of climb or descent may also be given. Pilots are expected to respond immediately but have been instructed to restrict manoeuvres to the minimum necessary to resolve the confliction, advise the FIS unit as soon as is practical thereafter and return to their original flight path as soon as it is safe to do so.

*The times quoted vary with altitude and these examples relate to an aircraft at approximately FL200. The times will increase or decrease, above or below that level respectively.

2.3 If a conflicting aircraft is not reporting altitude, a Traffic Advisory (TA) may be given, but not a Resolution Advisory (RA).

2.4 RAs will be presented only if the conflicting aircraft is transponding on Mode C or Mode S. Where both aircraft in an encounter are fitted with TCAS II, the transponders will communicate with each other to agree complementary RAs. If the conflicting aircraft is not transponding, no warnings are given.

2.5 TCAS II is programmed to take account of the host aircraft's performance characteristics and level when issuing RAs.

3 TCAS Phraseology

Specific ICAO TCAS phraseology has been adopted. The phraseology is clear, simple, concise and to the maximum extent devoid of ambiguity and potential to cause operational confusion.

When a flight crew responds to a RA:

Pilot: (C/S) TCAS RA

FISO: (C/S) ROGER

After the RA response is completed:

Pilot: (C/S) CLEAR OF CONFLICT RETURNING TO (previous level)

FISO: (C/S) ROGER

or

Pilot: (C/S) CLEAR OF CONFLICT (previous level) RESUMED

FISO: (C/S) ROGER

4 Reporting

All ACAS RAs are required to be reported under the Mandatory Occurrence Reporting (MOR) scheme, further details of which can be found in CAP 382 Mandatory Occurrence Reporting Scheme. If there is good reason to believe that the appropriate details of the occurrence have already been, or will be, reported under the MOR scheme by someone else (e.g. UK airline or pilot), there is no need to file a duplicate report. The filing of the report does not absolve the FISO from additionally reporting an AIRPROX or other report about the same incident using form SRG1602, according to the circumstances. CAP 382 and SRG1602 can be found at www.caa.co.uk/publications.

Chapter 6 Diversion Procedures

1 Introduction

1.1 Aircraft may divert from their planned destination to another aerodrome on the initiative of the pilot or as requested by the appropriate authority on the ground.

1.2 Diversions will normally be made for the following reasons:

a) When the weather at the planned destination is reported to be below the minima prescribed by an aircraft operator for their aircraft;

b) When obstructions on the landing area, which constitute a hazard to aircraft landing, cannot be cleared within a reasonable period;

c) The failure of airborne equipment;

d) The failure of essential ground aids to landing in circumstances which would require their use;

e) Unacceptable delay due to congestion of air traffic; or

f) The closure of the aerodrome of destination.

1.3 The aerodrome operator is responsible for decisions regarding the availability of the aerodrome.

2 Diversions Initiated by the Pilot

2.1 The pilot of an aircraft is primarily responsible for its safety, therefore he will normally decide whether he can or cannot effect a safe landing at a given aerodrome. He will normally be aware of weather conditions at his planned destination and alternate aerodromes, thus whenever he considers a diversion to be necessary, he will make his intention known.

2.2 When specifically requested by the pilot that his company or a nominated addressee be advised of his diversion, the FISO is to pass this message to the ATSU at either:

a) the original destination; or

b) the aerodrome nearest to the original destination.

2.3 An ATSU receiving such a message is to pass it to the addressee.

3 Diversions Requested by FIS Units

3.1 When, for traffic reasons, an FISO considers it advisable to request a pilot to divert he shall consult the aircraft operator where appropriate. The request to divert shall be passed to the pilot together with reasons for the diversion.

3.2 In cases of emergency it may be necessary for an aircraft to be diverted without prior consultation with the aircraft operator. In this event, the FISO shall pass the message to the pilot expressed as a request and inform the aircraft operator where appropriate as soon as possible. When the operator of the aircraft is not known, the pilot is to be asked to nominate an addressee.

3.3 On receipt of the diversion message the pilot will acknowledge and comply with the request or give his reason for non-compliance. If he decides against diversion, permission to attempt a landing shall not be refused unless the aerodrome has been closed by the Aerodrome Operator.

4 Diversion of Military Aircraft

All information concerning the diversion of military aircraft is to be passed to the RAF Distress and Diversion Cell (D&D).

Chapter 7 Royal Flights

1 Introduction

1.1 A Royal Flight within UK airspace is defined as the movement of an aircraft specifically tasked to carry one or more members of The Royal Family afforded such status by the Head of Royal Travel, The Royal Household.

1.2 Flights within UK airspace by members of other Royal Families, other reigning sovereigns, Prime Ministers and Heads of State of Commonwealth and foreign countries, may also be afforded Royal Flight status by the CAA.

2 Procedures for Royal Flights in Fixed-wing Aircraft

2.1 Establishment of Temporary (Class D) Controlled Airspace (CAS-T).

2.1.1 Royal Flights in fixed-wing aircraft will, whenever possible, be planned to take place within the national ATS route structure. Standard ATC procedures shall be applied to Royal Flights when operating in permanent Class A, C and D airspace. In all other instances the airspace around the route will be designated CAS-T.

2.1.2 CAS-T will be notified as Class D airspace; applicable access criteria and separation standards apply. Gliders shall not fly in CAS-T.

2.1.3 CAS-T of appropriate height/width bands, and levels, will be established to encompass any portion of the track and flight level of the Royal aircraft, which lies outside of permanent Class A, C and D airspace. Temporary control zones and control areas will be established around all aerodromes used for the departure or arrival of a Royal Flight.

2.1.4 Regardless of the prevailing meteorological conditions, aircraft shall only fly within CAS-T when an ATC clearance has been obtained from the controlling authorities.

3 Procedure at AFIS Units on notification of a Royal Flight

AFIS units being notified of an intended Royal Flight movement shall contact the appropriate CAA AATSD regional office so that procedures for handling of the aircraft can be agreed.

4 Promulgation of Royal Flight Information

Dissemination of information concerning a Royal Flight is made via a Notification Message on a Royal Flight Collective, giving full flight details. Information on the establishment of CAS-T, including vertical limits, is promulgated by NOTAM.

5 Royal Flight Callsigns

The flight plan identification and the radiotelephony designators for flights flown in aircraft of No. 32 (The Royal) Squadron, the Queen's Helicopter Flight (TQHF) or in civilian chartered aircraft are contained in the UK AIP (ENR) Section.

6 Royal Flights in Helicopters

6.1 CAS-T is not normally established for Royal Flights in helicopters. Normal ATC procedures apply to a Royal helicopter within, or wishing to join, controlled airspace. For Royal helicopter flights outside controlled airspace, a Royal Low Level Corridor will be promulgated, details of which are contained in the UK AIP (ENR) section.

6.2 **Selected Helicopter Flights**

6.2.1 Selected Helicopter Flights are flights carrying members of The Royal Family other than those listed in paragraph 1, or other VVIPs. The routes and timings of these flights, together with preferred Delegated ATSUs in each of the Safeguard Areas affected by the helicopter's routes, will be promulgated by LATCC (Mil) as information to all Safeguard Units, Delegated Units and Military Flying Units.

6.3 **SSR Code**

6.3.1 SSR code 0037 has been allocated for the exclusive use of helicopters engaged on Royal Flights and code 0035 has been allocated for Selected Helicopter Flights. These codes will be displayed from take-off to landing, whether or not an ATS surveillance service is being provided; consequently, they are to be treated as unvalidated and unverified.

7 Diversions

The operational control of Royal aircraft of No. 32 (The Royal) Squadron is vested in the RAF and diversions must be authorised by D&D. The pilot, however, retains authority to deviate from flight plan if he thinks it necessary. The operational control of civilian chartered aircraft being used for a Royal Flight remains with the company and diversions will be arranged in accordance with normal civil practices.

8 Incidents Involving Royal Flights

When an FIS Unit receives information that a Royal Flight has been involved in an incident giving rise to public comment, the FISO is to pass the details immediately to the parent ACC.

Section 2 Aerodrome Flight Information Service

Chapter 1 Flight Information Service at Aerodromes

1 Introduction

1.1 AFIS is the term used to describe the provision of information useful for the safe and efficient conduct of aerodrome traffic, including assisting pilots in the prevention of collisions.

1.2 An AFIS unit provides AFIS to traffic operating within, and in the vicinity of the Aerodrome Traffic Zone (ATZ). Additionally an AFISO may provide a Basic Service to other aircraft upon request.

1.3 Traffic information on traffic operating in the vicinity of an aerodrome shall be issued in a timely manner when, in the judgement of the AFISO, such information is necessary in the interests of safety, or when requested by aircraft. When a pilot report indicates, or an AFISO considers, that there may be a collision risk, specific traffic information shall be passed to each pilot concerned.

1.4 Traffic information shall be described so as to be easily identified by the pilot.

1.5 A pilot receiving a Basic Service, and not operating in the vicinity of an aerodrome, should not expect any form of traffic information from an AFISO, as there is no such obligation placed on the AFISO under a Basic Service and the pilot remains responsible for collision avoidance at all times. However, on initial contact the AFISO may provide traffic information in general terms to assist with the pilot's situational awareness. This will not normally be updated by the AFISO unless the situation has changed markedly, or the pilot requests an update. However, if an AFISO considers that a definite risk of collision exists, a warning may be issued to the pilot.

Information in general terms could include warnings of aerial activity in a particular location, e.g. "Intense gliding activity over Smallville".

1.6 Due to the limits of their licence, AFISOs shall not enter into agreements with pilots on a short term tactical basis when providing a Basic Service.

Agreements can be established between a controller (not an FISO due to limits of the licence) and a pilot on a short-term tactical basis, such that the operation of an aircraft is laterally or vertically restricted beyond the core terms of the Basic Service or Traffic Service.

1.7 Further details about provision of a Basic Service can be found in CAP 774 UK Flight Information Services manual (www.caa.co.uk/CAP774).

1.8 AFISOs shall maintain a continuous watch by visual observation on all flight operations on and in the vicinity of an aerodrome as well as vehicles and personnel on the manoeuvring area.

1.9 AFISOs, in common with all air traffic services, provide an Alerting Service

1.10 Detailed procedures for AFISOs at aerodromes shall be contained in the unit local instructions.

2 Wake Turbulence and Jet Blast Hazards

2.1 The responsibility for wake turbulence avoidance rests entirely with the pilot in command. AFIS units shall, to the extent practicable, advise aircraft of the expected occurrence of hazards caused by turbulent wake. Such information will be provided by the warning 'caution wake turbulence' and may also include relevant information on the aircraft concerned.

NOTE: Occurrence of wake turbulence hazards cannot be accurately predicted and AFIS units cannot assume responsibility for the issuance of advice on such hazards at all times, nor for its accuracy.

2.2 Wake turbulence categorisation information for common aircraft types is provided at Appendix D. This information is provided solely as reference material and places no responsibility on an AFISO for the issuance of advice. Fixed wing aircraft are divided into several groups with aircraft in the Heavy category producing the greatest wake turbulence. For helicopters there are two groups with Small helicopters producing greater wake turbulence than Light helicopters.

2.3 In providing information, AFIS units should also take into account the hazards caused by jet blast, helicopter downwash turbulence and propeller slipstream to taxiing aircraft, to aircraft taking off or landing, particularly when intersecting runways are being used, and to vehicles and personnel operating on the aerodrome.

NOTE: Jet blast, helicopter downwash turbulence and propeller slipstream can produce localised wind velocities of sufficient strength to cause damage to other aircraft, vehicles and personnel operating within the affected area.

2.4 When hovering or air taxiing, a helicopter directs a forceful blast of air downwards which then rolls out in all directions. This downwash and associated turbulence can drift a substantial distance downwind and may affect an adjacent runway or taxiway.

To minimise the effects of this turbulence AFISOs should:

a) instruct helicopters where possible to ground taxi rather than air taxi when operating in areas where aircraft are parked or holding; and

b) note air-taxi helicopters close to taxiways or runways where light aircraft operations (including light helicopter operations) are in progress. If air taxiing is imperative, helicopters must be routed to:

   i) avoid over-flying parked aircraft, vehicles or loose ground equipment; and

   ii) follow standard taxi routes where helicopters and fixed wing aircraft share common areas on a movement area.

2.5 When a helicopter is hover taxiing or in a stationary hover, AFISOs should avoid taxiing light aircraft or helicopters within a minimum area comprising three times the rotor diameter of that helicopter. AFISOs should consider this to be a minimum distance which will need to be increased for larger helicopters.

2.6 Caution should be exercised when a helicopter or fixed-wing aircraft of a lower weight turbulence category is landing on a runway immediately after a helicopter of higher weight turbulence category has taken off from that runway's threshold.

3 Windshear

3.1 Introduction

3.1.1 Windshear is a sustained change in the wind velocity along the aircraft flight path, which occurs significantly faster than the aircraft can accelerate or decelerate.

3.1.2 Windshear can occur at any level, but it is low-level windshear, occurring from the surface to a height of approximately 1,500 ft which can cause problems of sufficient magnitude to affect the control of aircraft in departure or final approach phases of flight.

3.2 Conditions Conducive to Windshear

3.2.1 AFISOs should be alert to the possibility of the existence of windshear in the following circumstances:

a) The presence of frontal/squall/thunderstorm activity in the vicinity of the aerodrome;

b) The presence of low level inversions where the surface wind will be significantly different from that at only a few hundred feet above the ground; and

c) Local terrain or buildings considered in relation to wind speed and direction; such large obstructions can cause windshear as well as the more usual turbulence and gusts.

3.3 AFISO Action

3.3.1 Whenever a pilot reports windshear conditions to an AFISO, the information shall be relayed to subsequent inbound and outbound aircraft until confirmation is received that the condition no longer exists. Furthermore, details of the windshear conditions shall be entered in the watch log.

3.3.2 Reports from pilots should contain the following information:

a) A warning of the presence of windshear;

b) The height or height band where the shear was encountered;

c) The time at which it was encountered; and

d) Details of the effect of the windshear on the aircraft, e.g. speed gain or loss, vertical speed tendency, change in drift.

4 Essential Information on Aerodrome Conditions

4.1 Essential information on aerodrome conditions is information necessary to safety in the operation of aircraft which pertains to the movement area or any facilities usually associated therewith. For example, construction work on a taxiway not connected to the runway-in-use would not be essential information to any aircraft except one that might be taxied in the vicinity of the construction work. As another example, if all traffic must be confined to runways, that fact should be considered as essential aerodrome information to any aircraft not familiar with the aerodrome.

4.2 Essential information on aerodrome conditions shall include information relating to the following:

a) Construction or maintenance work on, or immediately adjacent to the movement area;

b) Rough or broken surfaces on a runway, a taxiway or an apron, whether marked or not;

c) Snow, slush or ice on a runway, a taxiway or an apron;

d) Water on a runway, a taxiway or an apron;

e) Snow banks or drifts adjacent to a runway, a taxiway or an apron;

f) Other temporary hazards, including parked aircraft and birds on the ground or in the air;

g) Failure or irregular operation of part or all of the aerodrome lighting system;

h) Aircraft parked close to the runways or taxiways and aircraft engaged in ground running of engines; and

i) Any other pertinent information.

NOTE: Up-to-date information on the conditions on aprons may not always be available to the AFIS unit. The responsibility of the AFIS unit in relation to aprons is, with respect to the provisions of paragraphs 4.1 and 4.2, limited to the transmission to aircraft of the information which is provided to it by the authority responsible for the aprons.

4.3 Essential information on aerodrome conditions shall be given to every aircraft, except when it is known that the aircraft already has received all or part of the information from other sources. The information shall be given in sufficient time for the aircraft to make proper use of it, and the hazards shall be identified as distinctly as possible.

NOTE: 'Other sources' include NOTAM, and the display of suitable signals.

4.4 The CAA has given guidance to operators and pilots as to the percentage increase to be added to landing/take-off distance on grass aerodromes in wet conditions. In the landing case, a higher figure is added when the surface is 'very wet' as opposed to 'damp'. AFISOs should appreciate the significance of these conditions and are to warn pilots of arriving aircraft when 'very wet' surface conditions are known to exist.

4.5 When a not previously notified condition pertaining to the safe use by aircraft of the manoeuvring area is reported to or observed by the AFIS unit, the appropriate aerodrome authority shall be informed and operations on that part of the manoeuvring area terminated until otherwise advised by the appropriate aerodrome authority.

5 Ground Vehicles and Personnel

5.1 At AFIS aerodromes all vehicles employed on the manoeuvring area shall be capable of maintaining two-way radio communication with the AFIS unit, except when the vehicle is only occasionally used on the manoeuvring area and is:

a) accompanied by a vehicle with the required communications capability; or

b) employed in accordance with a pre-arranged plan established with the AFIS unit.

5.2 A vehicle or person shall not go or move on the manoeuvring area of an aerodrome without the permission of the person in charge of the aerodrome, and during the notified hours of watch, the AFIS unit. At all times, vehicles and persons on the manoeuvring area of the aerodrome shall comply with instructions issued to them by the AFISO.

5.3 The movement of persons or vehicles including towed aircraft on the manoeuvring area shall be subject to approval by the AFIS unit. Persons, including drivers of all vehicles, shall be required to obtain approval from the AFIS unit before entry to the manoeuvring area. Notwithstanding such an approval, entry to a runway or runway strip or change in the operation authorised shall be subject to a further specific authorisation by the AFIS unit.

5.4 All vehicles and persons shall give way to aircraft which are landing, taxiing or taking off, except that emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic. In the latter case, all movement of surface traffic should, to the extent practicable, be halted until it is determined that the progress of the emergency vehicles will not be impeded.

5.5 When an aircraft is landing or taking off, vehicles shall not be permitted to hold closer to the runway-in-use than:

a) at a taxiway/runway intersection - at a runway holding position; and

b) at a location other than a taxiway/runway intersection - at a distance equal to the separation distance of the runway holding position.

6 Work on the Manoeuvring Area

6.1 When repair or installation work, authorised by the Aerodrome Operator, is to take place on the manoeuvring area, a representative of the working party must be briefed by the AFIS Unit or the Aerodrome Operations team about subjects relating to the proposed work, for example:

- Methods of access to working area;
- The area in which vehicles may operate;
- The runway-in-use and the effects of any changes;
- Methods of obtaining permission to cross the runway-in-use; and
- Signals or methods of indicating that vehicles and personnel must leave the manoeuvring area.

6.2 The representative of the working party should possess an authorisation to work on the aerodrome issued by the Aerodrome Operator. This is to be counter-signed by the duty AFISO subsequent to the briefing and a copy retained or a record entered in the Watch Log.

7 Crossing Runways

7.1 If the instructions given to surface traffic involve crossing a runway-in-use, approval to cross shall be withheld until no confliction exists.

7.2 When an approval to cross a runway-in-use is issued, a 'report vacated' instruction shall be included. The report shall be made when the entire aircraft is beyond the relevant runway holding position. However, this instruction may be omitted when the AFISO has continuous sight of the aircraft or vehicle crossing.

8 Uncertainty of Position on the Manoeuvring Area

8.1 Except as provided for in paragraph 8.2, a pilot in doubt as to the position of the aircraft with respect to the manoeuvring area shall immediately:

a) stop the aircraft; and

b) simultaneously notify the AFIS unit of the circumstances (including last known position).

8.2 In those situations where a pilot is in doubt as to the position of the aircraft with respect to the manoeuvring area, but recognises that the aircraft is on a runway, the pilot shall immediately:

a) notify the AFIS unit of the circumstances (including the last known position); and

b) if able to locate a nearby suitable taxiway, vacate the runway as expeditiously as possible, and then stop the aircraft.

8.3 A vehicle driver in doubt as to the position of the vehicle with respect to the manoeuvring area shall immediately:

a) notify the AFIS unit of the circumstances (including the last known position); and

b) simultaneously, unless otherwise instructed by the AFIS unit, vacate the landing area, taxiway, or other part of the manoeuvring area, to a safe distance as expeditiously as possible, and then stop the vehicle.

8.4 In the event an AFISO becomes aware of an aircraft or vehicle that is lost or uncertain of its position on the manoeuvring area, appropriate information shall be provided immediately to other pilots affected and assistance provided to the aircraft or vehicle concerned to determine its position.

9 Runway Incursion or Obstruction

9.1 In the event the AFISO becomes aware of a runway incursion or the imminent occurrence thereof, or the existence of any obstruction on or in close proximity to the runway likely to impair the safety of an aircraft taking off or landing, appropriate action shall be taken to inform the aircraft of the runway incursion or obstruction and its location in relation to the runway.

9.2 Pilots and AFISOs shall report any occurrence involving an obstruction on the runway or a runway incursion. The report may be recorded on the CAA Mandatory Occurrence Report form SRG 1602 (www.caa.co.uk/atsforms).

NOTE: In EU Member States, air traffic incidents are to be reported to the authority designated by the Member State according to provisions in Article 5 of Directive 2003/42/EC. The report will be made according to national regulations transposing Directive 2003/42/EC. In the UK this requirement is transposed into law by article 226 of the Air Navigation Order (ANO) 2009 (as amended) and incorporates the Mandatory Occurrence Reporting Scheme (CAP 382).

10 Visual Signals

When communication by a system of visual signals is deemed to be adequate, or in the case of radio communication failure, the signals given hereunder shall have the meaning indicated therein:

Characteristic and colour of light beam or pyrotechnic	From an aerodrome		From an aircraft in flight to an aerodrome
	to an aircraft in flight	to an aircraft or vehicle on the aerodrome	
Continuous red light	Give way to other aircraft and continue circling	Stop	-
Red pyrotechnic light or red flare	Do not land, wait for permission	-	Immediate assistance required
Red flashes	Do not land, aerodrome not available for landing	Move clear of landing area	-
Green flashes	Return to aerodrome, wait for permission to land	**To an aircraft:** You may move on the manoeuvring area and apron. **To a vehicle:** You may move on the manoeuvring area	-
Continuous green light	You may land	You may take off	-
Continuous green light, or green flashes, or green pyrotechnic light	-	-	**By night:** may I land? **By day:** may I land in a direction different from that indicated by the landing T?
White flashes	Land at this aerodrome after receiving continuous green light and then, after receiving green flashes, proceed to the apron	Return to starting point on the aerodrome	I am compelled to land
White pyrotechnic lights, or switching on and off the navigation lights, or switching on and off the landing light	-	-	I am compelled to land

11 Aerodrome Signals and Markings

Signals and markings used at aerodromes are contained in CAP 393 Air Navigation Order, Section 2 Rules of the Air Regulations.

12 Selection of Runway

12.1 The term 'runway-in-use' shall be used to indicate the runway or runways that, at a particular time, are considered by the AFIS unit to be the most suitable for use by the types of aircraft expected to land or take off at the aerodrome.

NOTE: Separate or multiple runways may be designated for arriving aircraft and departing aircraft.

12.2 Normally an aircraft will land and take off into wind unless safety, the runway configuration, meteorological conditions and or air traffic conditions determine that a different direction is preferable. In selecting the runway however, the unit providing AFIS shall take into consideration, besides surface wind speed and direction, other relevant factors such the aerodrome traffic circuits, the length of runways and the approach and landing aids available.

12.3 A runway for take-off or landing, appropriate to the operation, may be nominated for noise abatement purposes, the objective being to utilise whenever possible those runways that permit aeroplanes to avoid noise-sensitive areas during the initial departure and final approach phases of flight. Runways should not be selected for noise abatement purposes:

a) if the runway surface conditions are adversely affected;

b) when wind shear has been reported or forecast or when thunderstorms are expected to affect the approach or departure; and

c) when the crosswind component, including gusts, exceeds 15 kt, or the tailwind component, including gusts, exceeds 5 kt (see Appendix A);

12.4 A pilot-in-command can refuse a runway-in-use suggested by an AFISO. In such circumstances, AFISOs shall provide detailed information on other local traffic that is utilising the runway-in-use to assist the pilot in ensuring that safe spacing is maintained when using an alternative runway.

13 Runway Changes

Should a change of runway be necessary, AFISOs shall inform the following:

- Aircraft receiving a service;
- Aerodrome Fire Service;
- Contractors working on the aerodrome who will be affected by the change; and
- Other agencies according to local instructions.

14 Closure or Restricted Operation of Aerodromes

14.1 Responsibilities of the Aerodrome Operator

14.1.1 The Aerodrome Operator is responsible for decisions regarding the operational status of the aerodrome including the apron and manoeuvring area in respect of:

a) routine operational limitations, e.g. runway maintenance;

b) unforeseen hazards to aircraft operations, e.g. deteriorating surface conditions, obstructions etc. Specifically, the Aerodrome Operator will make decisions regarding:

i) the closure or re-opening of the aerodrome;

ii) the withdrawal or return to use of runways, taxiways and associated lighting aids;

iii) the revision of declared distances;

iv) any marking required in connection with the above; and

v) initiating NOTAM action to promulgate changes in serviceability.

14.2 Responsibilities of the AFIS Unit

14.2.1 The Aerodrome Operator shall be informed immediately it becomes apparent from reports or observations that there is a hazard to the movement of aircraft on the apron or manoeuvring area.

14.2.2 When the obstruction is obviously outside the cleared and graded area but on or in the vicinity of the apron or manoeuvring area, the pilot will be advised of the position and nature of the obstruction. It is the responsibility of the pilot to decide whether or not to continue operations.

14.2.3 When the Aerodrome Operator has decided the operational status of the apron or manoeuvring area they will inform the AFIS Unit.

15 Use of Runway Holding Positions

15.1 Aircraft shall not hold closer to a runway-in-use than at a runway holding position.

NOTE: Runway holding position locations in relation to runways are specified in CAP 168 Licensing of Aerodromes (www.caa.co.uk/CAP168).

15.2 Aircraft shall not line up and hold on the approach end of a runway whenever another aircraft is effecting a landing, until the landing aircraft has passed the point of intended holding.

16 Order of Priority for Arriving and Departing Aircraft

16.1 An aircraft landing or in the final stages of an approach to land shall normally have priority over an aircraft intending to depart from the same or an intersecting runway.

16.2 When a helicopter lands or departs from a location in the vicinity of a runway-in-use, especially if its track to or from the landing site requires crossing over a runway-in-use, AFISOs shall ensure that sufficient information is passed to all pilots concerned to enable them to arrange their flight safely. Pilots at all times remain responsible for decisions regarding the safety of their flight.

16.3 There may be occasions when an AFISO, having informed a pilot to land at his discretion, decides that a subsequent request to use the runway is of a higher priority, e.g. a request by rescue and fire fighting services for an emergency crossing of the runway to attend an incident. The AFISO shall first inform the pilot of the details and obtain an acknowledgement that the runway is now occupied before allocating it to any other agency. A pilot shall, after assessing the information provided by the AFISO, decide if the approach can be safely continued pending further information from the AFISO that the runway is available, or if this is not possible, informing the AFISO that he is going around.

17 Information Related to Departing Aircraft

17.1 Start-up Time Procedures.

17.2 At AFIS units where start-up procedures are employed, or when pilots request a start up clearance, AFISOs shall provide start-up instructions.

17.3 When so requested by the pilot prior to engine start, an expected take-off time should be given.

17.4 Start-up time procedures should be implemented where necessary to avoid congestion and excessive delays on the manoeuvring area or when warranted by air traffic flow management (ATFM) regulations. Start-up time procedures should be contained in local instructions, and should specify the criteria and conditions for determining when and how start-up times shall be calculated and issued to departing flights.

17.5 When an aircraft is subject to ATFM regulations, it should be advised to start-up in accordance with its allocated Approved Departure Time.

18 Taxi Instructions

18.1 Before moving on the apron and manoeuvring area, the commander of the aircraft is required to obtain the permission of the person in charge of the aerodrome or from the AFISO during the notified time of being on watch.

18.2 On receiving information that an aircraft is about to taxi, the AFIS unit shall determine where the aircraft concerned is parked.

18.3 Prior to taxiing for take-off, aircraft shall be advised of the following elements of information, with the exception of such elements which it is known the aircraft has already received:

a) relevant information on local traffic and aerodrome conditions shall be provided, as well as taxi instructions to the holding point of the runway-in-use;

b) the runway to be used;

c) the QNH altimeter setting and, either on a regular basis in accordance with local arrangements or if so requested by the aircraft, the QFE altimeter setting; and

d) the air temperature in the case of turbine-engine aircraft.

18.4 The importance of issuing clear and concise instructions to taxiing aircraft cannot be over-emphasised. The visibility from an aircraft flight deck is limited and, when taxiing, the pilot is dependent to a large degree upon the AFISO to assist him in determining the correct taxi route to be followed. Essential aerodrome information is to be passed to the pilot to assist him in preventing collisions with parked aircraft and obstructions on or near the manoeuvring area.

18.5 In the interests of safety, use of the runway-in-use for taxiing purposes is to be kept to a minimum.

18.6 In addition to providing instructions about the route to be followed, all taxi instructions are to contain a specific limit, which should be a location on the manoeuvring area or apron.

18.7 Care must be exercised when issuing instructions for an aircraft to taxi to the holding point of the runway-in-use, for the aircraft is then permitted to cross all runways which intersect the taxi route designated in the instructions, whether active or not. Therefore when a taxi instruction contains a taxi limit beyond a runway, it is to contain an explicit approval to cross that runway. If such an approval cannot be given the specified route must exclude that runway and any route beyond it. When the AFISO considers it appropriate, the phrase 'hold short' may be used to emphasise that the aircraft is not authorised to cross an intermediate runway, e.g. "taxi to holding point Delta 2, hold short of runway 25".

18.8 The phrase 'follow the…' is useful when issuing taxi instructions. However, AFISOs are warned that this phrase could lead to an aircraft inadvertently following another past a holding position or on to the active runway. AFISOs are therefore to use caution when issuing taxi instructions containing the phrase 'follow the…', especially in the area of a runway-in-use or runway holding positions.

18.9 AFISOs may use the phrase 'Hold Position' for aircraft taxiing on the manoeuvring area and for departing aircraft up to and including the holding point of the runway-in-use.

18.10 AFISOs must be alert to the potential for visual mis-identification of aircraft on the aerodrome.

19 Take-off

19.1 AFISOs shall provide relevant information on local traffic and aerodrome conditions to assist pilots to decide when to take off. Such information shall be updated at AFISO discretion or when requested by the pilot.

19.2 When an ATC clearance is required prior to take-off, the AFISO shall not issue 'take off at your discretion' until the ATC clearance has been transmitted to and read back correctly by the aircraft concerned. The ATC clearance shall be forwarded to the aircraft with the least possible delay after receipt of a request or prior to such request if practicable.

19.3 Prior to take-off aircraft shall be advised of:

a) the surface wind direction and speed, including significant variations. An AFISO will pass the two minute average wind where available, however where this is not available the word 'instant' is to be inserted to indicate that the wind being reported is not the two minute average; significant variations include:

   i) a change in mean direction of 60 degrees or more, the mean speed before or after the change being 10 kt or more, but a change of 30 degrees when 20 kt or more;

   ii) a change in mean speed of 10 kt or more; or

   iii) a change in gust speed of 10 kt or more, the mean speed before or after the change being 15 kt or more;

b) changes in altimeter setting;

c) changes in the air temperature for turbine engine aircraft;

d) significant meteorological conditions in the take-off and climb-out area, except when it is known that the information has already been received by the aircraft; and

e) current traffic circuits and other traffic when necessary. When a pilot report indicates, or an AFISO considers, that there may be a collision risk, specific traffic information shall be passed to each pilot concerned.

NOTE: Significant meteorological conditions in this context include the occurrence or expected occurrence of cumulonimbus or thunderstorm, moderate or severe turbulence, windshear, hail, moderate or severe icing, severe squall line, volcanic ash, freezing precipitation, severe mountain waves, sandstorm, dust storm, blowing snow, tornado or waterspout in the take-off and climb-out area.

19.4 In order to expedite departing traffic, an AFISO may request a departing pilot to report lined up, when a previously landed aircraft or traffic crossing the runway has yet to complete a backtrack and/or vacate the runway. In such situations, the departing pilot shall be informed of the landed, backtracking, or crossing traffic, as well as other relevant circuit traffic, so that he can decide whether he considers it safe to line up. AFISOs should also consider providing information about the aircraft lining up to any other traffic using the runway that may be concerned by its presence.

19.5 Pilots shall inform AFIS units of their intentions, e.g. 'holding', 'lining up', 'taking off'. 'Lining up' denotes the act of entering the runway for departure, whereas 'lined up' indicates that an aircraft is in position on the runway, aligned with the take off direction.

19.6 Pilots should not take off if there are other aircraft on the runway.

19.7 Where a pilot reports lined up, before a preceding landing aircraft or traffic crossing the runway has vacated, he shall be informed 'runway occupied'. The 'take off at your discretion' information shall be transmitted when the traffic situation permits.

19.8 Only one departing aircraft should be holding on the runway awaiting a landed aircraft, or traffic crossing the runway, to vacate.

19.9 When an AFISO has informed an approaching pilot 'land at your discretion', he shall instruct pilots who subsequently report ready for departure from the same runway to hold position at a suitable holding point. 'Take off at your discretion' information will be transmitted when the traffic situation permits.

19.10 When several runways are in use and/or there is any possibility that the pilot may be confused as to which one to use, the runway designator will be stated.

19.11 FISOs shall ensure that traffic information is passed if a departing aircraft may catch up a preceding aircraft.

19.12 When necessary or desirable, e.g. due to reduced visibility conditions, a departing aircraft may be requested to report airborne.

20 Designated Positions in the Traffic Circuit

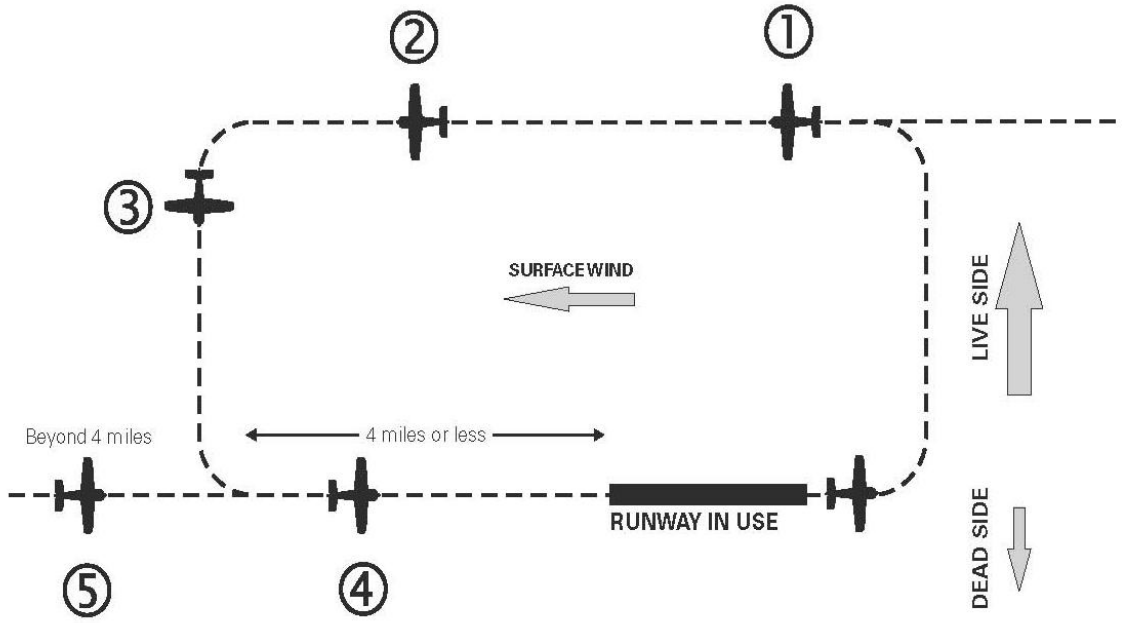

Figure 1 Designated Positions in the Traffic Circuit

Position 1: Aircraft reports on 'downwind' leg when abeam upwind end of the runway.

Position 2: Aircraft reports 'late downwind' if it is on the downwind leg, has been unable to report 'Downwind' and has passed the downwind end of the runway.

Position 3: Aircraft reports 'base' leg (if required).

Position 4: Aircraft reports 'final'.

Position 5: Aircraft reports 'long final' (between 8 and 4 miles) when aircraft is on a straight-in approach.

NOTE: For light aircraft operations, circuit dimensions may be reduced, but the relative RTF reporting points are maintained.

21 Arriving Aircraft

21.1 Prior to entering the traffic circuit or commencing its approach to land, an aircraft shall be provided with the following elements of information, with the exception of such elements which it is known the aircraft has already received:

a) the runway-in-use;

b) the QNH altimeter setting and, either on a regular basis in accordance with local arrangements or if so requested by the aircraft, the QFE altimeter setting;

c) current runway surface conditions, in case of precipitants and other temporary hazards;

d) changes in the operational status of visual and non-visual aids essential for approach and landing; and

e) other relevant information.

21.2 In applying the provisions in paragraph 21.1 it should be recognised that information published by NOTAM or disseminated by other means may not have been received by the aircraft prior to departure or during En-route flight.

21.3 At the commencement of final approach, the following information shall be transmitted to aircraft:

a) The mean surface wind direction and speed, including significant variations as described in paragraph 19.3 a). An AFISO will pass the two minute average wind where available, however where this is not available the word 'instant' is to be inserted to indicate that the wind being reported is not the two minute average;

b) Changes in altimeter setting; and

c) The latest information, if any, on wind shear and/or turbulence in the final approach area.

21.4 During final approach, the following information shall be transmitted without delay:

a) The sudden occurrence of hazards (e.g. unauthorised traffic on the runway);

b) Significant variations in the current surface wind, expressed in terms of minimum and maximum values;

c) Significant changes in runway surface conditions; and

d) Changes in the operational status of visual or non-visual aids;

21.5 In addition to the information listed in paragraph 21.1, before entering the traffic circuit an aircraft should be informed of the current traffic circuits and other traffic when necessary. When a pilot report indicates, or an AFISO considers, that there may be a collision risk, specific traffic information shall be passed to each pilot concerned.

21.6 Pilots shall not land if there are other aircraft on the runway. AFISOs shall provide relevant information on local traffic and aerodrome conditions to assist the pilot in deciding whether to land or go-around. Such information shall be updated at the discretion of the AFISO or when requested by the pilot.

21.7 A landing aircraft shall not be informed 'land at your discretion' until the runway is unobstructed.

21.8 Where a pilot indicates his intention to execute a low approach and go-around, he shall not be informed 'low approach and go around at your discretion' until the runway is unobstructed, as he may continue the approach to just above the runway.

21.9 FISOs shall ensure that traffic information is passed if an aircraft executing a go-around may catch up a preceding aircraft.

21.10 When necessary or desirable, e.g. due to reduced visibility conditions, a landing or a taxiing aircraft may be requested to report when a runway has been vacated. The report shall be made when the entire aircraft is beyond the relevant runway holding position.

22 Availability of Aerodrome Services Outside Published Hours

To cover the possibility of an aircraft which departs within 15 minutes of normal aerodrome closing time having to return, the aerodrome authority should normally retain sufficient services and equipment for 15 minutes after ATD. If the aerodrome authority informs the FISO of a change in the extent of services or equipment which will be available during this period, the pilot should be informed accordingly.

23 Abnormal Aircraft Configuration and Condition

23.1 Whenever an abnormal configuration or condition of an aircraft, including conditions such as landing gear not extended or only partly extended, or unusual smoke emissions from any part of the aircraft, is observed by or reported to the AFIS unit, the aircraft concerned shall be advised without delay.

23.2 When requested by the flight crew of a departing aircraft suspecting damage to the aircraft, the departure runway used shall be withdrawn from use and inspected without delay. The flight crew shall be advised in the most expeditious manner as to whether any aircraft debris or bird or animal remains have been found or not.

24 Release of Racing Pigeons

In agreement with the Royal Racing Pigeon Association, it has been agreed that a proposed liberation of racing pigeons within 13 km of a licensed aerodrome should be notified to the Aerodrome Operator or air traffic service provider at least fourteen days prior to the date of release. In addition, the FIS unit should be notified by telephone at least 30 minutes before release time, in order to confirm, where practicable, the number of birds due to be liberated and the intended destination and direction of flight. If necessary the FIS unit may request a delay of up to 30 minutes (or longer in exceptional circumstances) for traffic purposes.

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Chapter 2 Aerodrome Lighting Aids

1 Lighting Systems in use at UK Aerodromes

The requirements for lighting at aerodromes in the UK appear in CAP 168 Licensing of Aerodromes (www.caa.co.uk/CAP168). The particular system in use at an aerodrome is notified in the UK AIP (AD) section.

2 Operation of Lighting Systems and Intensity Controls

2.1 Operating instructions for individual lighting systems and the intensity setting to be used in different weather conditions, by day and night, shall be detailed in local instructions. Guidance on typical luminous intensity settings can be found in CAP 168 Licensing of Aerodromes, Chapter 6 Aeronautical Ground Lighting. These settings may be varied at the AFISO's discretion or at the request of a pilot, provided that other aircraft will not be adversely affected.

2.2 When the reported visibility consists of two values, the lower of the two values shall be used when determining whether or not to illuminate aerodrome lighting.

3 Periods of Display

3.1 Aerodrome lighting shall be displayed from 15 minutes before any ETA and until 15 minutes after any ATD as follows:

By day: High intensity systems, where installed on the runway to be used, whenever the visibility is less than 5 km and/or the cloud base is less than 700 ft;

By night: Irrespective of weather conditions.

3.2 Systems incorporating sodium lamps require 10 to 15 minutes to reach full brilliancy and should therefore be switched on 30 minutes before any ETA.

3.3 Obstruction lighting, hazard beacons and aerodrome light beacons shall be displayed at night during the published hours of watch. Hazard beacons shall also be displayed by day whenever the visibility is less than 3,500 m.

3.4 When the actual time of departure of an aircraft is such that lighting will be displayed after aerodrome closing time, the pilot concerned should be warned that the aerodrome will close at the normal published time, which should be stated, and advised that lighting only will be displayed for 15 minutes after his departure. The availability of other aerodrome services, e.g. the Aerodrome Fire Service, approach aids, etc. during this 15 minute period should also be clearly stated.

3.5 In addition to the display periods shown above, lighting may be displayed at any other time if it is requested by the parent ACC, required by local instructions or considered necessary by the AFISO.

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Chapter 3 Aerodrome and Lighting Inspections

1 Aerodrome Inspections

1.1 The AFISO is normally responsible for carrying out airfield inspections. Aerodrome surface and lighting inspections are carried out to ensure that:

a) AFISOs become aware of any unserviceabilities or obstructions that may affect the use of the aerodrome, and are able to supply pilots with accurate essential aerodrome information;

b) where appropriate such information may be promulgated by other means, e.g. NOTAM; and

c) unserviceabilities or obstructions that are observed may receive attention.

1.2 At least two regular surface inspections shall be made daily. An inspection should be made before flying commences and if night flying is to take place an inspection should be made before night flying commences.

1.3 Additional surface inspections should be made:

a) at cessation of work on the manoeuvring area;

b) when a runway not previously inspected is brought into use;

c) following an aircraft accident;

d) following an abandoned take-off by a turbine-engine aircraft due to engine malfunction, or by any aircraft due to burst tyres;

e) during snow and ice conditions as frequently as weather conditions warrant; and

f) as detailed in local instructions.

1.4 At aerodromes with more than one runway, the inspection should cover the runway-in-use and those likely to be used prior to the next regular inspection, together with their associated prepared strips, clearways, stopways and appropriate taxiways.

1.5 At grass aerodromes, the inspection should cover the movement area and those likely to be used prior to the next regular inspection, together with any permanent or de-lineated taxiways. Where a grass area exists for landing light aircraft, this area should be included in the inspection.

1.6 The person carrying out the inspection is not normally required to proceed outside the aerodrome boundary. He should carry out his inspection from a vehicle driven slowly over the area to be inspected, halting as necessary when individual items require closer inspection. He should report his findings in accordance with local orders.

1.7 In the following paragraphs reference to temporary obstructions is made. These should be regarded as anything which is considered would impede the normal movement of aircraft, or infringe current aerodrome obstruction criteria.

1.8 The inspection should be made to ascertain whether or not:

a) the runways, stopways, clearways, taxiways and holding areas are free from obstructions, collections of loose stones, etc;

b) temporary obstructions that exist on, or adjacent to, the runways or taxiways are properly marked or lighted;

c) bad ground (particularly on non-runway aerodromes) is adequately marked;

d) runway indicator boards, traffic signs, boundary markers, etc., are serviceable and in position; and

e) flocks of birds, or large single birds, are on the manoeuvring area or in the vicinity of the aerodrome.

1.9 A note should be taken of the exact position of any obstruction or unserviceability observed, and entered in the watch log. Any of the above conditions that are encountered should be reported to the aerodrome authority whose responsibility it is to deal with them.

1.10 The AFISO should issue a warning when pilots may not be aware of conditions which may lead to a braking efficiency reduction.

1.11 A deterioration of wheel braking action may occur as a result of thawing snow, slush or ice, or due to heavy rainfall beyond the capacity of the drainage system, or obstruction of the system.

1.12 As far as possible the checks for abnormal conditions should be carried out and in addition a check should be made to ensure that:

a) badly rutted or frozen ground is adequately marked; and

b) runways and taxiways are de-lineated if covered with snow or ice and a note taken of the extent of sweeping or sanding carried out.

1.13 The measurement of snow, slush, ice and associated standing water is the responsibility of the Aerodrome Operator. The FIS unit is responsible for issuing reports to pilots of aircraft with whom they are in communication, but the general dissemination of information is the responsibility of the Aerodrome Operator. However, special arrangements may be made at some aerodromes for the measurement and reporting of snow and slush to be delegated to the FIS unit.

2 Significant Changes

The following changes, relating only to runway conditions, are classed as significant:

a) Any change in surface deposit, i.e. snow turned to slush, water to ice, etc., and the effect on braking action where appropriate;

b) Changes in depth greater than the following: 20 mm for dry snow, 10 mm for wet snow, and 3 mm for slush;

c) Any change in the available length or width of runway(s) of 10% or more;

d) Any change in the type of deposit or extent of coverage which requires re-classification in item F of the SNOWTAM;

e) Any change in the distance apart of snowbanks from the criteria declared to be the value from which reporting begins;

f) Any change in the serviceability of runway lighting caused by obscuring of the lights, with particular reference to the threshold; and

g) Any other conditions known to be significant according to local circumstances.

3 Runway Surface Condition Reporting

3.1 It is CAA policy that Continuous Friction Measuring Equipment (CFME) should not be used on runways contaminated with wet snow, slush or water, and FISOs must not pass runway co-efficient of friction measurements to pilots in such conditions. The reason for this is that readings obtained from CFME equipment such as 'Griptester' and 'Mu-meter', unless used only on compacted snow and ice, are considered unreliable and in some cases may indicate a surface condition that is better than the actual condition. UK runways contaminated with compacted snow and ice are not normally made available for use, with Aerodrome Operators applying a 'back to blacktop' policy.

3.2 Feedback from aircraft operators has shown that data relating to type, depth and extent of contamination reported for each third of the runway is useful to aircrew for performance calculations. Each runway-in-use should be divided into a Touchdown Zone, a Mid Point, and a Stop End for reporting purposes. Within each of the three zones the % coverage, the type of contaminant, and the depth of contaminant together with the cleared runway width and length should be recorded and promulgated. The Aerodrome Operator or its delegated FIS Unit should promulgate runway surface condition using the following format.

	Touchdown Zone			**Mid Point**			**Stop End**		
Runway	% Cover	Type	Depth	% Cover	Type	Depth	% Cover	Type	Depth
XX									
YY									

3.3 Further details of the UK Snow Plan and procedures for dealing with winter contamination of aerodrome surfaces can be found in CAP 168 Licensing of Aerodromes, Appendix 3D, and UK AIP (AD) section. Annual variations are published in an AIC before the onset of winter.

3.4 The following terms are to be used to describe deposits on the surface of an aerodrome:

a) **Ice:** water in its solid state, it takes many forms including sheet ice, hoar frost and rime;

b) **Dry snow:** a condition where snow can be blown if loose, or, if compacted by hand, will fall apart again upon release;

c) **Wet snow:** a composition which, if compacted by hand, will stick together and tend to, or does form a snowball;

d) **Compacted snow:** snow which has been compressed into a solid mass that resists further compression and will hold together or break up into chunks if picked up;

e) **Slush:** a water-saturated snow which, with a heel and toe slap down action with the foot against the ground, will be displaced with a splatter;

f) **Associated standing water:** standing water produced as a result of melting contaminant in which there are no visible traces of slush or ice crystals.

3.5 **Wet Runways**

3.5.1 The aerodrome authority is normally responsible for assessing runway surface conditions. When the presence of water on a runway is brought to the attention of the AFISO the available information shall be passed to aircraft.

3.5.2 The presence of water on a paved runway is to be reported on the RTF using the following descriptions:

Description	Occasion issued
Dry	The surface is not affected by water, slush, snow or ice. **NOTE:** Reports that the runway is dry are not normally to be passed to pilots. If no runway surface report is passed, pilots will assume the runway to be dry.
Damp	When the surface shows a change of colour due to moisture. **NOTE:** If there is sufficient moisture to produce a surface film or the surface appears reflective, the runway will be reported as WET.
Wet	When the surface is soaked but no significant patches of standing water are visible. **NOTE:** Standing water is considered to exist when water on the runway surface is deeper than 3 mm. Patches of standing water covering more than 25% of the assessed area will be reported as WATER PATCHES.
Water Patches	When significant patches of standing water are visible. **NOTE:** Water patches will be reported when more than 25% of the assessed area is covered by water more than 3 mm deep.
Flooded	When extensive standing water is visible. **NOTE:** Flooded will be reported when more than 50% of the assessed area is covered by water more than 3 mm deep.

3.5.3 When reported, the presence or otherwise of surface water on a runway will be assessed over the most significant portion of the runway, i.e. the area most likely to be used by aircraft taking off and landing. This area may differ slightly from one runway to another but will approximate to the central two-thirds of the width of the runway extending longitudinally from a point 100 m before the aiming point to 100 m beyond the aiming point for the reciprocal runway. The assessed area may be different on runways with a displaced threshold or other unusual configuration, e.g. starter extension. The Aerodrome Operator is responsible for determining the exact dimensions and location of the area that is assessed.

3.5.4 Reports of the runway to be used include, sequentially, the conditions in each third of the assessed area. For example, 'Runway surface is wet, water patches, wet', or 'Runway surface is wet, wet, wet'.

3.5.5 A brief description of any water patches greater than 9 mm in depth, which may affect engine performance, will be appended to a runway surface condition report. In such conditions, further information on the location, extent and depth of the water patches will be available from the Aerodrome Operator.

3.5.6 A brief description of any notable quantity of water outside the assessed area, e.g. water collected at the runway edge, will be appended to a runway surface condition report.

3.5.7 Pilots of aircraft may report, or observations from the visual room may indicate, that the amount of water present or runway surface condition is different from that being reported. Under no circumstances is an AFISO to pass pilots information which suggests that the runway surface condition is better than the official report. However, when a pilot's report or an observation from the visual room indicates a worse runway surface condition, this information is to be passed.

3.5.8 Unofficial observations from the visual room or pilot reports are to be passed in the following form:

'Unofficial observation from the tower (or from a pilot's report). The runway surface condition appears to be (damp, wet, water patches or flooded, for each third of the runway).'

4 Aerodrome Lighting Inspections

The aerodrome lighting should be inspected before night flying commences. The inspection, which includes only those lights which can easily be seen from the aerodrome, should cover the following:

a) The serviceability of runway, taxiway and obstruction lighting, traffic lights, beacons and, in some cases, portions of the approach lighting;

b) A check that lighting is not obscured by long grass or other obstructions; and

c) Visual approach path indicators are accurately set up and serviceable.

5 Reporting Unserviceabilities

Unserviceabilities or obstructions observed during aerodrome surface and lighting inspections should be recorded and action taken in accordance with local instructions.

6 Post-Accident Checks

Immediately after an accident in the landing phase where the lighting installation is in use, it shall be ground checked and the result of such a check recorded. Action should then be taken in accordance with local instructions. If the circumstances of the accident are such that a post-accident flight check is to be made, no adjustment or re-lamping should be carried out in the event of any unserviceability until the flight check has been completed.

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Chapter 4 Aerodrome Fire Service

1 Introduction

AFIS Units should co-operate with the Aerodrome Fire Service and Aerodrome Operator in the pre-planning of preferential routes through the manoeuvring area. AFISOs are to ensure that they are familiar with these routes.

2 Aerodrome Categories

The fire service category of an aerodrome is assessed according to the length of the longest aircraft expected to use it. The categories are tabulated in Section 5 of this CAP.

3 Reduced Protection

3.1 Changes in the level of Rescue and Fire Fighting Service (RFFS) protection normally available at an aerodrome will be notified by the Aerodrome Operator to the appropriate AFIS unit to enable the necessary information to be provided to arriving and departing aircraft. AFIS Unit responsibilities are limited to the dissemination of information to flight crew, as provided by the Aerodrome Operator.

3.2 AFIS units shall ensure that unplanned reductions in the RFFS category are notified to flight crew via RTF. On receipt of such information, flight crew will decide whether to continue their flight or to divert. FISOs should normally expect the aircraft to divert if the available RFFS category does not meet that required for the aircraft type as described in CAP 168 Licensing of Aerodromes.

3.3 Exceptions to the above could be expected for emergency landings, and for occasions when, in the pilot's opinion, a diversion or hold may introduce a more significant hazard. AFISOs shall continue to provide a normal service in response to flight crew intentions.

4 Practice Exercises and Drills

4.1 The necessity for rapid and co-ordinated action in the event of a crash requires the closest co-operation between the AFIS Unit and the Aerodrome Fire Service, and the frequent rehearsal of procedures. Details of procedures will be found in Aerodrome Emergency Orders.

4.2 AFIS Units, in consultation with the Aerodrome Fire Service, are to assist in providing practice emergencies which are to be held frequently and made as realistic as possible.

5 Exercises on the Manoeuvring Area

5.1 The Aerodrome Fire Service will obtain instructions before testing vehicles or carrying out exercises on the manoeuvring area.

5.2 Arrangements shall be made in co-operation with the Aerodrome Fire Officer for AFIS Units to provide instruction to Aerodrome Fire Service personnel concerning light and visual signals used on an aerodrome.

6 Other Duties of the Aerodrome Fire Service

6.1 At certain aerodromes the Aerodrome Fire Service may undertake other extraneous duties. These duties will not interfere with the prime function of the Aerodrome Fire Service.

6.2 The Aerodrome Fire Service is frequently called upon for 'Special Services'. These include attendance at accidents to personnel, pumping out flooded premises, clearance of fuel spillage etc. If any of these is considered to be an emergency and occurs within the radius of action of the Aerodrome Fire Service, attendance will be made immediately. AFIS Units will be informed and advised of any depletion of the emergency services.

Section 3 Flight Information Service at Area Control Centres

1 Introduction

1.1 FISOs at ACCs provide a Basic Service in accordance with CAP 774 UK Flight Information Services to aircraft from dedicated positions and on discrete frequencies. This service is provided by London/Scottish Information within airspace and during periods that are notified in the UK AIP, for the purpose of supplying information useful for the safe and efficient conduct of flight.

1.2 Further details about provision of a Basic Service can be found in CAP 774 UK Flight Information Services manual (www.caa.co.uk/CAP774).

1.3 Detailed procedures for FISOs at ACCs shall be contained in the unit MATS Part 2. Some of the guidance in this chapter also applies to other FISOs but, for simplicity, the text will refer only to those performing the London/Scottish Information role.

1.4 The service includes information regarding weather (including SIGMETS), changes of serviceability of facilities, conditions at aerodromes and any other information pertinent to safety.

1.5 FISOs provide a link between aircraft and other ATSUs and may also provide the following services:

a) Pass ETAs to destination aerodromes in special circumstances, such as diversions, or at particular locations where traffic conditions demand it; and

b) Accept airborne flight plans and pass the information to the appropriate authority.

1.6 FISOs at ACCs, in common with all air traffic services, provide an Alerting Service.

2 Limiting Factors

2.1 Information is issued entirely at the discretion of the FISO, subject to the following limitations:

- Civil and military aircraft may fly on random tracks with consequent multiplicity of reporting points;
- Communication with the appropriate ACC is not mandatory;
- Absence of accurate navigation and associated position fixing may cause unreliable position reporting and estimates;
- The size of the sectors makes it difficult for FISOs to be aware of the many geographic locations used and their proximity to each other;
- Even when flight plan information is known to the FISO he frequently has no indication as to whether such aircraft are adhering to planned routes, altitudes and timings; and
- RTF coverage may not be available in all parts of the unit's airspace.

2.2 FISOs cannot:

a) exercise positive control over aircraft;

b) issue clearances to alter course, climb or descend unless relaying a clearance and/or instruction on behalf of an air traffic control unit and a correct readback is received; and

c) give positive advice on the avoidance of collision.

3 Co-ordination and Liaison

3.1 Flights crossing FIR boundaries are to be co-ordinated as shown in the table below:

Aircraft Position	Co-ordinated Action
Flights within the UK:	
a) Aircraft has passed an estimate for the boundary.	Details passed to the appropriate ATSU in the adjacent FIR (if workload and communications permit).
b) Aircraft reports at the boundary or details had not been passed.	Advise aircraft to contact the appropriate ATSU in the adjacent FIR.
Flights leaving the UK:	Details passed to appropriate ATSU, unless otherwise instructed in MATS Part 2.

3.2 The passing of information between FISOs conducting the London/Scottish Information task does not imply any SAR obligation. However, if at any stage of a flight the pilot has made his intentions clear and subsequently does not arrive or report when expected, FISOs should take overdue action.

4 Aircraft Joining or Crossing Controlled or Advisory Airspace

When a pilot requests permission from an FISO at an ACC to join or cross controlled or advisory airspace, either in his own or an adjacent FIR, the FISO shall either:

a) obtain the clearance from the appropriate ATSU and pass it to the pilot; or

b) inform the pilot that he should change frequency in time to make the request direct to the appropriate ATSU.

5 Flight Information Display

Flight Information Displays (FIDs) are used at the London, and Scottish Area Control Centres to assist in the reduction and prevention of airspace infringements by aircraft, and as an additional resource tool for carrying out the FISO task at these units. The use of FIDs is subject to CAA approval and local derived procedures.

6 Code Assignment Plan

In addition to those listed below, the SSR Code Assignment Plan provides a complete set of UK conspicuity codes, including those used at specific units or locations.

Code	Use	Notes
0024	Radar Flight Evaluation or Calibration	Only be used for the duration of the radar evaluation or calibration. The code shall not be used whilst transiting to/from the trial.
0033	Para Dropping	Unless a discrete code has already been assigned, pilots will select conspicuity code 0033 five minutes before the drop commences until the parachutists are estimated to be on the ground.
1177	London AC (Swanwick) FIS	Aircraft in receipt of a Basic Service from London Information. Shall only be selected with ATS direction.
7000	Conspicuity Code	
7001	Military Fixed Wing Low Level Conspicuity and Climb-out	Used by military fixed-wing aircraft operating in the UK Low Flying System. When an ATS is required on climb-out from the Low Flying System, the aircraft will retain the code until an ATC unit passes alternative instructions.
7002	Danger Areas General	
7003	Red Arrows Display/Transit	
7004	Aerobatics and Display	Unless a discrete code has already been assigned, pilots of transponder equipped aircraft will select conspicuity code 7004 five minutes before commencement of their aerobatic manoeuvres until they cease and resume normal operations.
7005	High Energy Manoeuvres	Unless a discrete code has already been assigned, outside controlled airspace below FL195 and outwith the UK low-flying system, pilots of military fast-jet aircraft will select Mode A code 7005 prior to engaging in sustained high-energy manoeuvres.
7006	Autonomous Operations within TRA and TRA (G)	
7010	Aerodrome Traffic Pattern Conspicuity Code	The purpose of this code is to facilitate greater availability of the collision avoidance function provided by ACAS. It also allows a unit with appropriate equipment to filter or highlight the aircraft's position symbol as appropriate. May be allocated by ATSUs, or selected by a pilot as local procedure may require, when the aircraft is operating in or within approximately 2 miles of the aerodrome traffic pattern.
7401	Scottish FIS	Aircraft in receipt of a Basic Service from Scottish Information. Shall only be selected with ATS direction.

7 Transponder Mandatory Zone (TMZ)

7.1 TMZ is airspace of defined dimensions within which aircraft are required to operate a transponder in accordance with promulgated procedures.

7.2 A TMZ may be established for overriding safety reasons, where the airspace classification would not ordinarily require aircraft to carry a transponder. The pilot of an aircraft that wishes to operate in a TMZ without such serviceable transponder equipment may be granted access to the TMZ subject to specific ATC approval. Procedures pertinent to each TMZ shall be promulgated, which specify detailed access and notification requirements.

7.3 Within a TMZ, standard ATC procedures and separation/deconfliction minima, appropriate to the airspace classification are to be applied.

8 Frequency Monitoring Codes

8.1 In order to both prevent and mitigate the consequences of airspace infringements, pilots operating close to the peripheries of certain controlled airspace and monitoring the relevant frequency (but not requiring an Air Traffic Service) should select a local SSR conspicuity code and the Mode C pressure-altitude mode (if available) as specified to indicate they are monitoring the promulgated ATC frequency.

8.2 This will allow the appropriate Air Traffic Control Unit to attempt to establish contact with an aircraft which is displaying such a code and which is considered to be infringing, or is likely to infringe, controlled airspace in order to resolve an actual or potential infringement quickly and efficiently. Selection of such codes does not imply the provision of any form of Air Traffic Service and the use of such codes does not prevent a pilot from requesting an Air Traffic Service at any time should they subsequently decide they require one.

Section 4 Phraseology and Communications

Chapter 1 Communication Procedures

1 Introduction

The communications procedures and phraseology shall be in accordance with CAP 413 Radiotelephony Manual (www.caa.co.uk/CAP413). Pilots, ATS personnel and other ground personnel shall be thoroughly familiar with the phraseology and procedures contained therein.

2 Readback of Instructions, Clearances and Safety Related Information

2.1 ATS messages listed below are to be read back in full by the pilot/driver. If a readback is not received the pilot/driver will be asked to do so. Similarly, the pilot/ driver is expected to request that instructions are repeated or clarified if any are not fully understood.

Taxi/Towing Instructions

*Level Instructions

*Heading Instructions

*Speed Instructions

*Airways or Route Clearances

Runway-in-Use

Instructions to cross, or hold short of any active runway

SSR Operating Instructions

Altimeter Settings (including units when value is below 1000 hPa)

Frequency Changes

Type of ATS Service

Transition Levels

*When issued on behalf of an ATC unit.

NOTE: If the level of an aircraft is reported in relation to standard pressure 1013.2 hPa, the words 'FLIGHT LEVEL' precede the level figures. If the level of the aircraft is reported in relation to QNH/QFE, the figures are followed by the word 'FEET'.

2.2 The FISO shall listen to the readback to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the readback.

3 Phraseology regarding the provision of information

3.1 Most phraseology contained in paragraphs 5, 6 and 7 of this Chapter show the text of a complete message without call signs. They are not intended to be exhaustive, and when circumstances differ, FISOs, pilots and ground personnel will be expected to use plain language, which should be as clear and concise as possible in order to avoid possible confusion by those persons using a language other than one of their national languages.

3.2 All phraseology shall be used in conjunction with callsigns (aircraft, ground vehicle, FIS or other) as appropriate. In order that the phraseology listed in paragraphs 5 and 6 should be readily discernible, callsigns have been omitted. Provisions for the compilation of RTF messages, callsigns and procedures are contained in CAP 413 Radiotelephony Manual (www.caa.co.uk/CAP413).

3.3 The callsign of the FIS unit shall be the name of the aerodrome followed by 'Information'.

3.4 As regards phraseology for the movement of vehicles and tugs towing aircraft on the manoeuvring area, the operative word in the message is 'PROCEED' and 'TOW' respectively.

3.5 The phraseology in paragraphs 5, 6 and 7 do not include phrases and regular radiotelephony procedure words contained in CAP 413.

3.6 Words in parentheses indicate that specific information, such as a level, a place or a time, etc., must be inserted to complete the phrase, or alternatively that optional phrases may be used. Words in square parentheses indicate optional additional words or information that may be necessary in specific instances.

3.7 For aircraft in the heavy wake turbulence category the word 'HEAVY', and in the case of an Airbus A380 the word 'SUPER', shall be included in the initial call made by a pilot.

3.8 On initial contact, student pilots who are flying solo shall use the callsign prefix 'STUDENT'. Once acknowledged, it will not normally be necessary for student pilots to use the prefix in subsequent transmissions until making initial contact with other ATSUs, unless they feel they are being instructed to do something with which they are unfamiliar.

3.9 FISOs will acknowledge the initial call, again using the prefix, and can be expected, in so far as is practicable, to make due allowance for the limited experience and ability of student pilots in determining the pace and complexity of instructions and/or information which are subsequently passed.

4 Aerodrome Helicopter Operations

4.1 Introduction

4.1.1 Rotary-wing flight characteristics mean that helicopter operations at aerodromes can differ significantly from fixed-wing operations. These paragraphs describe standard phraseology and procedures to address the different requirements for a helicopter lifting, taxiing, taking off, and landing (including the approach and departure phases), particularly at aerodromes where rotary-wing and fixed-wing operations are integrated.

4.1.2 Standard phraseology should be used in all situations for which it is specified. When standard phraseology cannot serve an intended transmission, plain language should be used. The use of plain language may further assist when describing rotary-wing aircraft manoeuvres. Care should be exercised to ensure that all parties involved achieve clear understanding.

4.1.3 Standard phraseology for aerodrome helicopter operations is listed in paragraphs 5 and 6.

4.2 Helicopter Phraseology for Taxiing

4.2.1 Phraseology and procedures are described below for helicopters taxiing for departure, or after landing, or for general manoeuvring on the aerodrome. Phraseology and procedures for specific manoeuvring on the aerodrome, for example for training purposes, should be described in local procedures.

4.2.2 The term 'LIFT' shall describe a manoeuvre where the helicopter gets airborne and enters a hover. 'HOVER' describes a manoeuvre where the helicopter holds position whilst airborne in ground effect, waiting to proceed. Hover allows spot/axial turns (i.e. about the central axis of the helicopter). When required, further instructions should subsequently be transmitted to permit the helicopter to proceed.

4.2.3 The term 'AIR TAXI' shall be used when it is necessary for a helicopter to proceed at a slow speed above the surface, normally below 20 kt and in ground effect.

4.2.4 The instruction 'GROUND TAXI' shall be used for the movement of a helicopter, in contact with the surface of the aerodrome, under its own power. This could be required for a helicopter fitted with wheels, to reduce rotor downwash.

4.2.5 An instruction to 'TAXI' leaves the pilot free to select the most appropriate method, either ground taxi or air taxi. Pilots and FISOs should use air taxi or ground taxi when required to differentiate between air taxiing and ground taxiing (for helicopters equipped with wheels). Air taxiing helicopters shall be issued with detailed taxi routes and instructions as appropriate to prevent collisions with other aircraft and vehicles. Helicopters are expected to follow procedures/routes on aerodromes appropriate to aeroplanes unless otherwise authorised.

4.2.6 FIS units should avoid issuing instructions that result in taxiing helicopters coming into close proximity with small aircraft or other helicopters and should give consideration to the effect of turbulence from taxiing helicopters on arriving and departing light aircraft.

4.2.7 For a helicopter ground taxiing, the instruction 'hold' shall indicate a requirement to come to a standstill. A helicopter air taxiing and instructed to 'hold in the hover' will hold position whilst airborne in ground effect, waiting to proceed.

4.3 Helicopter Phraseology for Take-off and Landing

4.3.1 At aerodromes, helicopter take offs and landings may not be restricted to designated runways or landing areas. Where appropriate local procedures exist, helicopters may take off and land at any location on the aerodrome.

4.3.2 When helicopters land or take off the phrase 'land at your discretion' or 'take off at your discretion', as appropriate, shall be used. Relevant traffic information on other aircraft (airborne or on the ground) shall also be passed.

4.3.3 ‘Touch down' shall be used to describe an aircraft (helicopter or fixed-wing) coming into contact with the surface. A helicopter pilot in receipt of a 'land at your discretion' may either enter a low hover, or to touch down, as appropriate.

5 General

5.1

Traffic Information ... to pass traffic information	a) TRAFFIC (information); b) NO REPORTED TRAFFIC; c) [ADDITIONAL] TRAFFIC (direction) BOUND (type of aircraft) (level) ESTIMATED (or OVER) (significant point) AT (time); d) TRAFFIC IS (classification) UNMANNED FREE BALLOON(S) WAS [or ESTIMATED] OVER (place) AT (time) REPORTED (level(s)) [or LEVEL UNKNOWN] MOVING (direction) (other pertinent information, if any);

5.2

Meteorological Conditions	a) [SURFACE or INSTANT] WIND (direction and speed) [(units)]; b) WIND AT (level) (number) DEGREES (number) KNOTS; **NOTE:** Wind is always expressed by giving the mean direction and speed and any significant variations thereof. c) VISIBILITY (distance) (units) [direction]; d) PRESENT WEATHER (details); e) CLOUD (amount, [(type)] and height of base) (units) (or SKY CLEAR); f) CAVOK; **NOTE:** CAVOK pronounced CAV-O-KAY g) TEMPERATURE [MINUS] (number) (and/or DEWPOINT [MINUS] (number)); h) QNH (number) [hPa]; i) QFE (number) [hPa]. j) At (time) a departing/arriving (a/c type) reported windshear at (altitude). Airspeed loss/gain (number) knots, strong left/right drift.

5.3

Additional Reports	
... to request a report at a specified place or distance	a) REPORT PASSING (significant point); b) REPORT (distance) MILES (GNSS or DME) FROM (name of DME station) (or significant point); c) REPORT PASSING (three digits) RADIAL (name of VOR) VOR;
... to report at a specified place or distance	*d) (distance) MILES (GNSS or DME) FROM (name of DME station) (or significant point); *e) PASSING (three digits) RADIAL (name of VOR) VOR;
... to request a report of present position	f) REPORT (GNSS or DME) DISTANCE FROM (significant point) or (name of DME station); g) REPORT POSITION;
… to report present position	*h) OVERHEAD (significant point); *i) (distance) MILES (GNSS or DME) FROM (name of DME station) (or significant point).
NOTE: These transmissions from an AFIS unit are requests and do not constitute an instruction.	* Denotes pilot transmission.

5.4

Aerodrome Information	a) [(location)] RUNWAY SURFACE CONDITION RUNWAY (designator) (condition); b) LANDING SURFACE (condition); c) CAUTION CONSTRUCTION WORK (location); d) CAUTION (specify reasons) RIGHT (or LEFT), (or BOTH SIDES) OF RUNWAY [designator]; e) CAUTION WORK IN PROGRESS (or OBSTRUCTION) (position and any necessary advice); f) UNOFFICIAL OBSERVATION FROM THE TOWER (weather information); g) UNOFFICIAL OBSERVATION FROM A PILOT'S REPORT (weather information).

5.5

Operational Status of Visual and Non-visual aids	a) (specify visual or non-visual aid) RUNWAY (designator) (description of deficiency); b) (type) LIGHTING (unserviceability); c) TAXIWAY LIGHTING (description of deficiency); d) (type of visual approach slope indicator) RUNWAY (designator) (description of deficiency).

6 Phraseology for use on and in the Vicinity of the Aerodrome

6.1

Identification of Aircraft	SHOW LANDING LIGHTS

6.2

Acknowledgement by visual means	a) ACKNOWLEDGE BY MOVING AILERONS (or rudder); b) ACKNOWLEDGE BY ROCKING WINGS; c) ACKNOWLEDGE BY FLASHING LANDING LIGHTS.

6.3

Starting Procedures	
... to request permission to start engines	*a) [aircraft location] REQUEST START UP;
... at aerodromes where AFIS can issue start up	b) START UP APPROVED; c) START UP AT (time);
… at aerodromes where AFIS cannot issue start up, AFIS replies	d) START UP AT OWN DISCRETION (local information); e) EXPECT DEPARTURE (time). START UP AT OWN DISCRETION; * Denotes pilot transmission.

6.4

Taxi	*a) (position) READY TO TAXI; b) [GIVE WAY TO or FOLLOW (details)] TAXI TO HOLDING POINT [(name)] RUNWAY (designator) [VIA TAXIWAY (name)]; c) HOLD POSITION; d) CROSS RUNWAY (designator) [REPORT VACATED]; e) BACKTRACK RUNWAY (designator) [REPORT VACATED]; *f) [GIVE WAY TO or FOLLOW (details)] TAXI TO HOLDING POINT [(name)] RUNWAY (designator) [VIA TAXIWAY (name)]; *g) HOLDING; *h) CROSS RUNWAY (designator) [WILCO]; *i) BACKTRACK RUNWAY (designator) [WILCO]. *Denotes pilot transmission.

6.5

Relaying Clearance	a) (ATC unit) CLEARS (details of clearance);
Relaying advisory information	b) (ATC unit) ADVISES (details);
Confirmation or otherwise of the readback of clearance	c) [THAT IS CORRECT] or [I SAY AGAIN] or [NEGATIVE I SAY AGAIN] as appropriate;
Relaying frequency instructions	d) [AFTER PASSING (level)] (contact/ freecall instructions).

6.6

Take-off	a) [REPORT READY]; *b) READY FOR DEPARTURE; c) [DO YOU REQUIRE TO BACKTRACK THE RUNWAY?]; d) AT YOUR DISCRETION BACKTRACK RUNWAY (designator) REPORT (LINED UP or LINING UP); e) REPORT LINING UP This is a request for a pilot to report the act of entering the runway for departure; f) REPORT LINED UP This is a request for a pilot to report when lined up on the runway in the take-off direction; g) HOLD POSITION; h) [Traffic (details)] [no reported traffic] RUNWAY (designator) TAKE OFF AT YOUR DISCRETION, [SURFACE or INSTANT] WIND (direction and speed) [(units)]; *i) HOLDING; *j) LINING UP RUNWAY (designator) [VIA BACKTRACK]; *k) LINED UP RUNWAY (designator); *l) TAKING OFF RUNWAY (designator). * Denotes pilot transmission.

6.7

After take-off ... to request airborne time	a) REPORT AIRBORNE.

6.8

Aircraft wishes to enter the ATZ for landing	*a) (aircraft type) (position) (level) REQUEST JOIN; b) RUNWAY (designator) LEFT/RIGHT HAND CIRCUIT, QFE or QNH (number) [hPa] [traffic information and essential aerodrome information as required]; *c) RUNWAY (designator)) LEFT/RIGHT HAND CIRCUIT QFE or QNH (number) [hPa] [LOOKING OUT/TRAFFIC IN SIGHT/NEGATIVE CONTACT]. * Denotes pilot transmission.

6.9

In the circuit	REPORT (position in circuit, e.g. DOWNWIND/BASE/FINAL) *a) (position in circuit, e.g. DOWNWIND/ BASE/FINAL); b) RUNWAY (designator) LAND/TOUCH AND GO AT YOUR DISCRETION, [SURFACE or INSTANT WIND] (direction and speed) [(units)] or NUMBER (in sequence) (traffic information) or RUNWAY OCCUPIED (traffic information). * Denotes pilot transmission.

6.10

Approach	a) REPORT BASE (or FINAL, or LONG FINAL) **NOTE:** The report "Long Final" is made when aircraft turn on to final approach at a distance greater than 4nm from touchdown or when an aircraft on a straight in approach is 8nm from touchdown. In both cases a report "Final" is required at 4nm from touchdown; *b) BASE (or FINAL, or LONG FINAL); c) TRAFFIC (details); d) RUNWAY (designator) LAND/TOUCH AND GO AT YOUR DISCRETION, [SURFACE or INSTANT WIND] (direction and speed) [(units)]; e) RUNWAY (designator) OCCUPIED, TRAFFIC (details); f) LOW APPROACH AND GO AROUND AT YOUR DISCRETION *g) WILL LAND/TOUCH AND GO RUNWAY/LOW APPROACH AND GO AROUND (designator); *h) GOING AROUND. * Denotes pilot transmission.

6.11

Information to aircraft	
... when pilot requests visual inspection of landing gear	a) LANDING GEAR APPEARS DOWN;
	b) RIGHT (or LEFT, or NOSE) WHEEL APPEARS UP (or DOWN);
	c) WHEELS APPEAR UP;
	d) RIGHT (or LEFT, or NOSE) WHEEL DOES NOT APPEAR UP (or DOWN);
... wake turbulence	e) CAUTION WAKE TURBULENCE [FROM ARRIVING or DEPARTING (type of aircraft)];
... jet blast on apron or taxiway	f) CAUTION JET BLAST;
... propeller-driven aircraft slipstream	g) CAUTION SLIPSTREAM.

6.12

Runway vacating and communications after landing	a) TAXI [VIA (designator)] TO STAND (designator);
	b) TAXI [VIA (designator)] TO THE APRON.

6.13

Helicopter operations	HOVER When necessary to instruct a helicopter to hold position whilst airborne in ground effect, waiting to proceed. HOLD POSITION When necessary to instruct a helicopter to hold position whilst ground taxiing. [GIVE WAY TO or FOLLOW (details)] AIR TAXI TO HOLDING POINT [(name)] RUNWAY (designator) [VIA TAXIWAY (name)]; [GIVE WAY TO or FOLLOW (details)] GROUND TAXI TO HOLDING POINT [(name)] RUNWAY (designator) [VIA TAXIWAY (name)]; RUNWAY (designator) TAKE OFF AT YOUR DISCRETION, [SURFACE or INSTANT] WIND (direction and speed) [(units)]; (Designated point) TAKE OFF AT YOUR DISCRETION, [SURFACE or INSTANT] WIND (direction and speed) [(units)]; RUNWAY (designator) LAND AT YOUR DISCRETION, [SURFACE or INSTANT] WIND (direction and speed) [(units)]; (Designated point) LAND AT YOUR DISCRETION, [SURFACE or INSTANT] WIND (direction and speed) [(units)].

6.14

Aircraft wishes to transit the ATZ	*a) (aircraft type) (position) (level) REQUEST TRANSIT THE ATZ; b) (traffic and aerodrome information), REPORT ENTERING/ OVERHEAD/ LEAVING THE ATZ; *c) (TRAFFIC IN SIGHT/LOOKING OUT/ NEGATIVE CONTACT) WILCO. * Denotes pilot transmission.

7 Phraseology for vehicles/persons on the Manoeuvring Area

7.1

Vehicle/tug traffic Regards phraseology for the movement of vehicles and tugs towing aircraft on the manoeuvring area, the operative word in the messages shown is 'PROCEED' and 'TOW' respectively.	*a) (vehicle callsign) (location) REQUEST PROCEED/TOW TO [intentions]; b) PROCEED/TOW APPROVED TO HOLDING POINT [designator] VIA [specific route to be followed] RUNWAY [(designator)] or; c) PROCEED/TOW APPROVED HOLD SHORT OF RUNWAY (designator) or; d) PROCEED/TOW APPROVED CROSS RUNWAY [(designator)]; *e) PROCEED/TOW APPROVED TO HOLDING POINT (designator) RUNWAY (designator) VIA (specific route to be followed) or PROCEED/TOW APPROVED HOLD SHORT OF RUNWAY (designator) or PROCEED/ TOW APPROVED CROSS RUNWAY (designator)]; *f) (vehicle callsign) REQUEST DETAILED INSTRUCTIONS; g) TAKE (or TURN) FIRST (or SECOND etc.) LEFT (or RIGHT); h) PROCEED/TOW APPROVED VIA (identification of taxiway); i) PROCEED/TOW APPROVED VIA RUNWAY (designator); j) PROCEED/TOW APPROVED TO TERMINAL (or other location, e.g. General Aviation Area); *k) (vehicle call sign) (location) REQUEST PROCEED TO (destination on aerodrome);

	l) PROCEED/TOW APPROVED STRAIGHT AHEAD; m) PROCEED/TOW APPROVED WITH CAUTION; n) GIVE WAY TO (description of traffic); *o) GIVING WAY TO (traffic); *p) TRAFFIC IN SIGHT; q) FOLLOW (description of traffic); *r) FOLLOW (traffic); s) VACATE RUNWAY (designator); *t) RUNWAY (designator) VACATED; u) EXPEDITE [reason]; *v) EXPEDITING; w) [Caution] PROCEED SLOWER [reason]; *x) SLOWING DOWN. * Denotes vehicle driver transmission. The procedure words ROGER and WILCO are insufficient acknowledgement of the instructions HOLD, HOLD POSITION and HOLD SHORT OF (position). In each case the acknowledgement shall be by the phraseology HOLDING or HOLDING SHORT, as appropriate.

7.2

Holding vehicles ... to hold not closer to a runway than specified	a) HOLD POSITION; b) HOLD (distance) FROM (position); c) HOLD SHORT OF (position); *d) HOLDING; *e) HOLDING SHORT. * Denotes vehicle driver transmission. The procedure words ROGER and WILCO are insufficient acknowledgement of the instructions HOLD, HOLD POSITION and HOLD SHORT OF (position). In each case the acknowledgement shall be by the phraseology HOLDING or HOLDING SHORT, as appropriate.

7.3

To cross a runway - vehicles	*a) REQUEST CROSS RUNWAY (designator); **NOTE:** If the AFIS unit is unable to see the crossing vehicle/person (e.g. night, low visibility), the instruction should always be accompanied by a request to report when the runway has been vacated. **NOTE:** The driver will, when requested, report "RUNWAY VACATED" when the vehicle is beyond the relevant runway holding position. b) CROSS RUNWAY (designator) [REPORT VACATED]; c) EXPEDITE CROSS RUNWAY (designator) TRAFFIC (aircraft type) (distance) MILES FINAL; *d) [EXPEDITE] CROSS RUNWAY (designator); *e) RUNWAY VACATED. * Denotes driver transmission.

8 Liaison between FIS units and other ATSUs

8.1

Estimates message and revision	a) (Direction of flight) ESTIMATE (callsign) (type) ESTIMATED OVER (significant point) AT (time) (level) VIA (route); b) REVISION (callsign) NOW ESTIMATED OVER (place) AT (time) or [other revisions, e.g. a different level].

9 Emergency Phraseology

9.1

Distress	*MAYDAY, MAYDAY, MAYDAY (message).
Urgency	*PAN PAN, PAN PAN, PAN PAN (message).
Acknowledgement	(A/c identity) (FIS Unit callsign) ROGER (MAYDAY or PAN).
Imposition of silence	ALL STATIONS (FIS Unit callsign) STOP TRANSMITTING - MAYDAY.
Cancellation	ALL STATIONS (FIS Unit callsign). DISTRESS TRAFFIC ENDED. *BALLISTIC RECOVERY SYSTEM DEPLOYED. * Denotes pilot transmission.

10 Mareva Injunction

10.1

	YOU ARE SUBJECT TO A COURT ORDER PROHIBITING YOUR AIRCRAFT FROM LEAVING THE UNITED KINGDOM, WHAT ARE YOUR INTENTIONS?

11 AFIS Requirements for Communications

11.1 Air to ground communication

11.1.1 Air to ground communication facilities shall enable direct, rapid, continuous and static-free two-way communications to take place between an AFIS unit and appropriately equipped aircraft and should be available for use within 10 nm and 3,000 ft of the aerodrome concerned (AIP GEN 3-4-5).

Section 5 Alerting Service

1 Application

1.1 An alerting service is provided to notify appropriate organisations regarding aircraft in need of SAR aid and assist such organisations as required.

1.2 The alerting service is available for all aircraft which are known by the air traffic services to be operating within UK FIRs.

1.3 Overdue action is not related solely to the filing of a flight plan. If at any stage of a flight the pilot has made his intentions clear and subsequently does not arrive or report when expected, FISOs should seriously consider taking overdue action.

1.4 The responsibility for initiating action normally rests with the ATSU that was last in communication with the aircraft in need of search and rescue aid or that receives the news from an outside source.

1.5 Overdue action should not be considered in isolation and the emergency actions described in other Chapters should be applied if they are appropriate.

1.6 ACCs shall serve as the central point for collecting all information relevant to a state of emergency of an aircraft operating within the FIR and for forwarding such information to the appropriate rescue co-ordination centre.

1.7 Overdue action described in this Chapter must be commenced **not later** than the times shown in the table at paragraph 3. The decision to take overdue action before these times is left to the discretion of the FISO.

2 Action by FIS Units

2.1 FIS units, when aware that an aircraft is in need of SAR aid, shall immediately:

a) set in motion the local rescue services and emergency organisations, as described in Chapter 7; and/or

b) notify by telephone the Watch Supervisor at the parent ACC. The contents of the telephone message are shown in paragraph 6.

2.2 Nevertheless, whenever the urgency of the situation so requires, the responsible FIS unit shall first alert and take other necessary steps to set in motion all appropriate local rescue and emergency organisations which can give the immediate assistance required.

3 Phases of Emergency

The table below shows the phases into which emergencies fall. The decision to declare a phase earlier than described must be left to the discretion of the FISO.

Type of aircraft emergency							
Radio Failure	Overdue	Operating Efficiency Impaired	Forced Landing (Crash)	**Exceptions**	**Phase**	**Duration**	**Action Taken**
No communication within a period of 30 minutes after the time it should have been received OR from the time an unsuccessful attempt to establish communication was first made.	Fails to arrive within 30 minutes of the ETA last notified to, or estimated by FIS whichever is the later OR has commenced an approach and fails to land within 5 minutes of the estimated landing time.	-	-	No doubt exists as to the safety of the aircraft and its occupants.	UNCERTAINTY	Maximum of 30 minutes.	ARCC and ACC collect and evaluate reports. Rescue and other ARCCs may be informed of the situation.
Attempts to establish communication during the UNCERTAINTY phase have failed.	Enquiries to relevant sources during the UNCERTAINTY phase have failed to reveal any news OR fails to land within 5 minutes of the estimated time of landing and communication cannot be re-established.	But not to the extent that a forced landing is likely.	-	Evidence exists that would allay apprehension as to the safety of the aircraft.	ALERT*	Maximum of one hour.	ARCC alerts the search and rescue services for immediate action.
Further attempts to establish communication during the ALERT phase have failed.	More widespread enquiries during the ALERT phase have failed to reveal any news OR the fuel on board is considered to be exhausted or insufficient to enable the aircraft to reach safety.	To the extent that a forced landing is likely.	Known to have force landed or crashed.	Where there is a reasonable certainty that the aircraft and its occupants are not threatened by grave imminent danger and do not require immediate assistance.	DISTRESS	Until the aircraft is found and the survivors rescued OR it is clear that there is no longer any chance of so doing.	ARCC puts the search and rescue plan into operation and directs it for the duration of this phase.

* **An ALERT phase will be initiated when an aircraft is known or believed to be the subject of unlawful interference.**

4 Aeronautical Rescue Co-ordination Centres

4.1 An Aeronautical Rescue Co-ordination Centre (ARCC) is responsible for promoting efficient organisation of search and rescue service and for co-ordinating the conduct of search and rescue operations within a search and rescue region. In the UK the ARCC is located at RAF Kinloss, near Inverness.

4.2 The ACC shall notify aircraft emergencies which require search and rescue aid to the ARCC. Other ACCs, which may be involved, shall also be informed. Details of the telephone message appear in paragraph 6.

4.3 The ARCC controller is responsible for initiating search and rescue action. To assist him in this task, the Watch Supervisor at the ACC may include a recommendation for search and rescue action in the telephone message.

4.4 Messages shall not be delayed because of lack of information. If a message is incomplete a further message is to be sent when the information is available.

4.5 Further messages are to be sent:

a) if any useful additional or significant information is received, e.g. information relating to any dangerous goods carried by the aircraft; and

b) when the emergency situation no longer exists.

4.6 The SAR organisation is described in the UK AIP (GEN) section.

5 Rescue Craft – Callsign

5.1 The callsign aircraft when involved in search and rescue operations will be prefixed by the word 'Rescue'. Helicopters and marine craft will prefix their callsigns 'Rescue helicopter' and 'Rescue boat'.

5.2 When aircraft in the service of the Coastguard are being used for search and rescue purposes they will adopt the callsign "Coastguard Rescue".

6 Telephone Message

The alerting message by telephone shall comprise the following information:

The phase of emergency - Uncertainty, Alert or Distress

Aircraft identification	Item 7}	from the transmitted flight plan
SSR mode and code allocated		
Flight rules	Item 8}	
Type of aircraft	Item 9}	
Equipment	Item 10}	
Aerodrome and time of departure		
	Item 13}	from the transmitted flight plan
Speed, level and route	Item 15}	
Destination/ETA/Alternative	Item 17}	
FIR boundary estimate	Item 18}	
Other information	Item 18}	

Supplementary Information Item 19}

Pilot's name } from the filed flight plan retained at
Operator (if not included above) } the departure aerodrome

Unit which made the last contact, time and RTF frequency

Last reported position and method of determination

Aircraft colour and markings

Dangerous goods carried as cargo

Action taken by reporting unit

Other pertinent information (To include recommendation for SAR action if appropriate)

Section 6 Emergencies, Communication Failure and Contingencies

Chapter 1 Aircraft Emergencies

1 Introduction

The various circumstances surrounding each emergency situation preclude the establishment of exact detailed procedures to be followed. The procedures outlined herein are intended as a general guide to FISO personnel.

2 FISO Responsibilities

2.1 FISOs should always be alert to the possibility of an aircraft emergency. Speed may be necessary in certain circumstances but calm co-ordinated actions are essential in all situations.

2.2 As much assistance as possible should be given to an aircraft which is considered to be in an emergency situation. An emergency situation may require alerting action to be taken immediately or it may develop to that point later.

2.3 If a report concerning an aircraft emergency or accident is made from an outside source the FISO should, in addition to taking the appropriate emergency action, obtain the name, address and telephone number of the person making the report.

2.4 When an emergency is declared by an aircraft, the FIS unit should take appropriate and relevant action as follows:

a) Unless clearly stated by the flight crew or otherwise known, take all necessary steps to ascertain aircraft identification and type, the type of emergency, the intentions of the flight crew as well as the position and level of the aircraft;

b) Decide upon the most appropriate type of assistance which can be rendered;

c) Enlist the aid of any other ATS units or other services which may be able to provide assistance to the aircraft;

d) Provide the flight crew with any information requested as well as any additional relevant information, such as details on suitable aerodromes and weather information;

e) Obtain from the operator or the flight crew such of the following information as may be relevant: number of persons on board, amount of fuel remaining, possible presence of hazardous materials and the nature thereof; and

f) Notify the appropriate ATS units and authorities as specified in local instructions.

2.5 FIS units are responsible for alerting the rescue and fire fighting services whenever:

a) an aircraft accident has occurred on or in the vicinity of the aerodrome; or

b) information is received that the safety of an aircraft which is or will come under the jurisdiction of the AFIS unit may have or has been impaired; or

c) requested by the flight crew; or

d) when otherwise deemed necessary or desirable.

2.6 Procedures concerning the alerting of the rescue and fire fighting services shall be contained in local instructions. Such instructions shall specify the type of information to be provided to the rescue and fire fighting services, including type of aircraft and type of emergency and, when available, number of persons on board and any dangerous goods carried on the aircraft.

3 Recognising an Emergency Situation

3.1 An FISO may suspect that an aircraft is in an emergency situation or has suffered unlawful interference when:

a) radio contact is not established at the time it is expected to be established;

b) radio contact is lost;

c) a pilot makes a report about the malfunctioning of his aircraft or the unusual behaviour of persons on board;

d) the erratic behaviour of an aircraft is observed;

e) it is overdue at an aerodrome; or

f) the pilot reports that the aircraft is short of fuel.

3.2 If the FISO is in radio contact with the aircraft he should ask the pilot if he wishes to declare an emergency and, if not specified by the pilot, the class of emergency being declared.

3.3 More positive indications that an aircraft is in an emergency are described in the following paragraphs.

4 Distress and Urgency Messages

4.1 There are two classes of emergency message:

Distress: A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.

Urgency: A condition concerning the safety of an aircraft or other vehicle, or of some person on board or within sight, but which does not require immediate assistance.

4.2 The message will contain as many as possible of the following items:

MAYDAY, MAYDAY, MAYDAY (for distress messages)

or

PAN PAN, PAN PAN, PAN PAN (for urgency messages)

and

- Name of the station addressed (time and circumstances permitting);
- Identification of the aircraft;
- Nature of the emergency;
- Intention of the person in command;
- Present position, level and heading;
- Qualification of the pilot e.g. Student, Instrument Meteorological Conditions (IMC) or full instrument rating (urgency messages); and
- As much other information as time permits.

5 Indications by Visual Signal from Aircraft

5.1 Notification of distress by visual signal will be by one or more of the following methods:

a) The signal 'SOS' with signalling apparatus;

b) A succession of pyrotechnical lights fired at short intervals, each showing a single red light; and/or

c) A parachute flare showing a red light.

5.2 For an aircraft in difficulties which compel it to land without requiring assistance, notification of urgency by visual signal will be as follows:

a) Switching the landing light on and off repeatedly;

b) Switching the navigation lights on and off repeatedly; or

c) A succession of white pyrotechnical lights.

6 Use of Communication Facilities

FIS units shall, as necessary, use all available communication facilities to endeavour to establish and maintain communication with an aircraft in a state of emergency, and to request news of the aircraft.

7 Plotting Aircraft in a State of Emergency

When a state of emergency is considered to exist, the flight of the aircraft involved should be plotted on a chart in order to determine the probable future position of the aircraft and its maximum range of action from its last known position.

8 Information to Aircraft Operating in the Vicinity of an Aircraft in a State of Emergency

8.1 When it has been established by an FIS unit that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved shall, except as provided in paragraph 8.2, be informed of the nature of the emergency as soon as practicable.

8.2 When an FIS unit knows or believes that an aircraft is being subjected to unlawful interference, no reference shall be made in FIS air-ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.

8.3 Changes of radio frequency should be avoided if possible and should normally be made only when or if an improved service can be provided to the aircraft concerned. When appropriate, other aircraft operating in the vicinity of the aircraft in emergency should be advised of the circumstances.

NOTE: Requests to the flight crew for the information contained in paragraph 2.4 e) will be made only if the information is not available from the operator or from other sources and will be limited to essential information.

9 Aircraft Lost

Every possible assistance is to be given to a pilot who reports that he is lost or uncertain of his position. However, FISOs should not hesitate in suggesting that the pilot changes frequency to 121.5 and contacts the D & D Cell.

10 Distress and Diversion Cells

10.1 The RAF Distress and Diversion (D&D) cell at Swanwick can provide assistance to civil aircraft in an emergency in addition to the service provides for military aircraft on 243.0 MHz. The D&D cell has access to NATS radars, with a facility to detect emergency SSR squawks automatically and can provide an ATC surveillance service to an emergency aircraft in transit to its diversion aerodrome.

10.2 D&D's low level radio coverage (below 3,000 ft amsl) is poor and so an early transfer of communication to the diversion aerodrome may be sought by the D&D controller. In certain circumstances, e.g. a UHF-only equipped aircraft diverting to a VHF-only equipped aerodrome ATSU, it may be impossible to transfer RTF communications with the aircraft to its destination aerodrome. In these circumstances the aircraft may initially need to be kept high and/or very early information from the AFISO passed to the pilot via the D&D controllers, so that all details are passed before loss of RTF occurs.

10.3 D&D controllers have a detailed knowledge of minor aerodrome availability within their area as well as a comprehensive database that enables rapid communication with aerodromes, aircraft operators, ATSUs, and SAR organisations including Police Air Support Units and the regional emergency services. The D&D cell can assist a pilot of an aircraft in an emergency and the civil ATSU to select the most suitable diversion aerodrome. The D&D cell also provides facilities for practising emergency procedures to both civil and military pilots.

10.4 The D&D cell at Swanwick can provide an instant VHF auto-triangulation fixing service on 121.5 MHz. This service is only available to aircraft operating over land south of the river Humber and east of Airway N864 at and above 3,000 ft amsl and at and above 2,000 ft amsl within 40 nm of Heathrow. A manual fixing service is available outside this area throughout both FIRs, where there is a reasonable possibility of fixing the position of an aircraft transmitting on 121.5 MHz at 3,000 ft and above over the UK land area and coastal waters. However, in mountainous areas, coverage at lower levels will be adversely affected.

11 Reports from Outside Sources

If a report concerning an aircraft emergency or accident is made from an outside source the FISO should, in addition to taking the appropriate emergency action, obtain the name, address and telephone number of the person making the report.

12 Unlawful Interference and Aircraft Bomb Threat

12.1 FISOs shall be prepared to recognise any indication of the occurrence of unlawful interference with an aircraft.

12.2 Whenever unlawful interference with an aircraft is known or suspected or a bomb threat warning has been received, FIS units shall promptly provide assistance as far as practicable and inform the associated ACC.

12.3 The following additional procedures shall apply if a threat is received indicating that a bomb or other explosive device has been placed on board a known aircraft. The FIS unit receiving the threat information shall:

a) if in direct communication with the aircraft, advise the flight crew without delay of the threat and the circumstances surrounding the threat; or

b) if not in direct communication with the aircraft, advise the flight crew by the most expeditious means through other ATS units or other channels.

12.4 The FIS unit in communication with the aircraft shall ascertain the intentions of the flight crew and report those intentions to other ATS units which may be concerned with the flight.

12.5 The aircraft shall be handled in the most expeditious manner while ensuring, to the extent possible, the safety of other aircraft, and that personnel and ground installations are not put at risk.

12.6 An aircraft on the ground should be advised to remain as far away from other aircraft and installations as possible and, if appropriate, to vacate the runway. The aircraft should be suggested to taxi to a designated or isolated parking area in accordance with local instructions. Should the flight crew disembark passengers and crew immediately, other aircraft, vehicles and personnel should be kept at a safe distance from the threatened aircraft.

12.7 FIS units shall not provide any suggestions concerning action to be taken by the flight crew in relation to an explosive device.

12.8 An aircraft known or believed to be the subject of unlawful interference or which for other reasons needs isolation from normal aerodrome activities shall be suggested a route to the designated isolated parking position. Where such an isolated parking position has not been designated, or if the designated position is not available, the aircraft shall be suggested to proceed to a position within the area or areas selected by prior agreement with the aerodrome authority.

13 Ballistic Recovery Systems

13.1 Ballistic recovery systems, which take the form of a parachute, are fitted to some general aviation aircraft for use in situations where a pilot considers continued safe flight is no longer possible. Such situations could include engine failure and loss of control.

13.2 They are typically activated by use of a handle which deploys a solid fuel rocket out of a hatch covering the compartment where the parachute is stored. Where the system has been activated but has not deployed, the possibility exists that the rocket may still be live.

13.3 Deployment of the parachute assists a controlled descent rate, and in many situations the pilot should be able to maintain radio contact subject to the level at which the parachute is deployed and VHF coverage. The aircraft will generally drift with the wind and the pilot will have no further control over the path of the aircraft. It should be noted therefore, that deployment of the parachute does not guarantee survivability of an in-flight incident.

13.4 If time permits, a pilot deploying such a recovery system should notify this as part of additional information within the normal emergency message, using the RT phraseology:

'Ballistic recovery system deployed'

13.5 FISOs should treat such pilot reports with the same priority as those pertaining to engine failures and forced landings. Furthermore, they should ensure that RFFS are provided with this information, as not only may it aid in identification of the aircraft but will reassure them that if the chute has deployed, the system should present no further hazard.

13.6 Where it is known that a recovery system has been activated but has failed to operate, FISOs should also provide this information to RFFS, which should be alert for the possibility of a live rocket on board the aircraft.

14 Explanation of Terms

14.1 Aircraft Accident

14.1.1 An aircraft receives substantial damage or causes death or serious injury or damage to property.

14.1.2 An aircraft accident in the vicinity of an aerodrome should in addition to local procedures be notified by phone to the ACC Watch Manager. Subsequently an SRG 1602 form should be completed by all concerned and sent to SDD; address details are at Appendix D. Additionally if it is a Reportable Accident it should be notified by phone to the Aerodrome Operator.

14.2 Reportable Accident

14.2.1 An occurrence taking place between the time any person boards an aircraft with the intention of flight until such time as all persons have disembarked, in which either:

a) a person suffers a fatal or serious injury as a result of:

- being in or upon the aircraft, or
- direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
- direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

b) the aircraft sustains damage or structural failure which adversely affects the structural strength, performance or flight characteristics of the aircraft, and would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tyres, brakes, fairings, small dents or puncture holes in the aircraft skin; or

c) the aircraft is missing or is completely inaccessible.

Chapter 2 Communications Failure

1 Air to Ground Communications Failure

1.1 Radio failure procedures should not be considered in isolation, and emergency action shall be applied if appropriate. For example, if an aircraft fails to make an expected report, overdue action may have to be taken.

1.2 As soon as it is known that two-way communication has failed, action shall be taken to ascertain whether the aircraft is able to receive transmissions from the FIS unit by requesting it to transmit, if possible, a specified signal in order to indicate acknowledgement.

1.3 After attempts to establish or re-establish communication have failed, FISOs should carry out the following procedures:

a) ask other aircraft to attempt to contact the radio failure aircraft;

b) transmit weather and other relevant information, prefixing the transmission with the phrase 'transmitting blind';

c) ask a nearby radar equipped unit (if available) for assistance.

1.4 If the aircraft fails to indicate that it is able to receive and acknowledge transmissions, it is assumed that the aircraft will:

a) if in visual meteorological conditions:

i) continue to fly in visual meteorological conditions;

ii) land at the nearest suitable aerodrome; and

iii) report its arrival by the most expeditious means to the appropriate ATS unit;

or

b) if in instrument meteorological conditions or when conditions are such that it does not appear likely that the pilot will complete the flight in accordance with a) above:

i) proceed according to the current flight plan route to the appropriate designated navigation aid or fix serving the destination aerodrome and, when required to ensure compliance with ii), hold over this aid or fix until commencement of descent;

ii) commence descent from the navigation aid or fix specified in i) at, or as close as possible to the estimated time of arrival resulting from the current flight plan;

iii) complete a normal instrument approach procedure as specified for the designated navigation aid or fix; and

iv) land, if possible, within 30 minutes after the estimated time of arrival specified in ii) or the last acknowledged expected approach time, whichever is later.

1.5 As soon as it is known that two-way communication has failed, appropriate information describing the action taken by the FIS unit shall be transmitted blind for the attention of the aircraft concerned.

1.6 Pertinent information shall be given to other aircraft in the vicinity of the presumed position of the aircraft experiencing the failure.

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Chapter 3 Contingencies

1 Introduction

The various circumstances surrounding each contingency situation preclude the establishment of exact detailed procedures to be followed. The procedures outlined below are intended as a general guide to FISO personnel.

2 Radio-communications Contingencies

2.1 Contingencies related to communications, i.e. circumstances preventing an FISO from communicating with aircraft in the area of responsibility, may be caused by either a failure of ground radio equipment, a failure of airborne equipment, or by the frequency being inadvertently blocked by an aircraft transmitter. The duration of such events may be for prolonged periods and appropriate action to ensure that the safety of aircraft is not affected should therefore be taken immediately.

2.2 Unauthorised use of AFIS Frequency

2.2.1 Instances of false and deceptive transmissions on FIS frequencies which may impair the safety of aircraft can occasionally occur. In the event of such occurrences, the FIS unit concerned should:

a) correct any false or deceptive information which has been transmitted;

b) inform all aircraft on the affected frequency that false and deceptive information is being transmitted;

c) request all aircraft on the affected frequency to verify information before taking any action;

d) if practical, request aircraft to change to another frequency; and

e) if possible, inform all aircraft affected when the false and deceptive information is no longer being transmitted.

3 Malicious use of Lasers against Aircraft and FIS Facilities

3.1 The targeting of aircraft and FIS installations by lasers poses a threat to aircraft safety and security through the physiological impact upon pilots and FISO personnel. This can include distraction, glare, temporary flash blindness, after-image and possibly eye injury. Current expert opinion is that it is extremely unlikely, except over very short distances, that laser light would pose a significant threat of permanent or long-term personal injury. At critical stages of flight, however, distractions caused to aircrew or FISO personnel by lasers may threaten aircraft safety.

3.2 Whilst the majority of incidents appear to be the result of opportunists, the number of reported events is increasing significantly, and reports of aircraft being subjected to illumination from multiple co-ordinated lasers have been received.

3.3 UK police forces treat all reports of laser attacks upon aircraft and FIS facilities very seriously, and will respond to any reported activity. FIS Units are encouraged to establish procedures with their local police authority to facilitate the rapid reporting of all such incidents, and the passing of all information that may assist in the apprehension of those responsible. Such guidance should be published in the unit local instructions.

3.4 Malicious use of lasers against aircraft

3.4.1 Where local arrangements have not been established, FISOs should take the following actions whenever a report of a laser attack upon an aircraft is received:

a) Acknowledge the report from the pilot;

b) Seek as much information regarding the incident as possible from the pilot, including:

i) the time of the attack;

ii) altitude and position at the time of the attack;

iii) description of the laser light, i.e. colour, whether continuous or pulsing, etc.;

iv) any avoiding action taken;

v) any impact upon vision/concentration.

c) Anticipate the need for the pilot to adopt manoeuvres/operational techniques to minimise the impact on the aircraft;

d) Dial 999, and pass all relevant information to the local police;

e) Advise other aircraft in the vicinity that laser activity has been reported;

f) Record the details in the watch log and complete an ATS Occurrence Report SRG 1602 (www.caa.co.uk/atsforms).

3.5 Malicious use of Lasers against FIS units

3.5.1 FIS Units should provide guidance to their staff in the event of being subjected to malicious illumination by lasers. Measures should include:

a) Look away from the laser beam if possible. Do not attempt to find the light source by staring at the laser;

b) Shield eyes and consider the feasibility of lowering/raising 'sun blinds' to reduce the effects of the laser;

c) Advise aircraft in contact that a laser is illuminating you;

d) Avoid rubbing the eyes to reduce the potential for corneal abrasion;

e) Consider the feasibility of increasing ambient light levels to minimise any further illumination effects;

f) Consider handing over the position to a colleague in a position not exposed to the laser;

g) Where local arrangements have not been established, inform a Supervisor who in turn can: decide on restricting traffic in/out of the aerodrome, inform the aerodrome operator, dial 999 and pass all relevant information to the local police;

h) Ensure the event is recorded in the watch log and reported for further investigation by completing an ATS Occurrence Report SRG 1602 (www.caa.co.uk/atsforms).

Chapter 4 Aerodrome Emergency Services

1 Introduction

1.1 The responsibility for alerting the aerodrome emergency services normally rests with the AFISO.

1.2 No specific instructions can be made for an aircraft which crashes during the transfer of communication from one unit to another, but as soon as either unit becomes aware of the incident it must be agreed immediately which unit is to alert the emergency services.

2 Aerodrome Authority

The aerodrome authority is responsible for:

a) the preparation of detailed aerodrome emergency orders applicable to a particular aerodrome and making them available to all personnel concerned in aircraft emergencies;

b) determining the radius of action of the aerodrome fire service, which may include an area adjacent to and outside the boundary (the size of attendance within this radius will as far as is possible be pre-determined and detailed in local instructions);

c) advising the AFISO and aircraft operators whenever the fire and rescue services are depleted for any reason (such messages will normally be given in a form which is suitable for immediate relay to aircraft).

3 Action by AFISO

3.1 When the AFISO becomes aware that an aircraft is in need of rescue aid within the radius of action, he should immediately alert the emergency services and, in accordance with the aerodrome emergency orders, give them the fullest available information.

3.2 If the rescue services are depleted for any reason the AFISO at the aerodrome should:

a) transmit to the aircraft the message received from the aerodrome authority; and

b) inform the ACC Supervisor.

3.3 Whenever possible AFISOs should anticipate the need for aerodrome fire service vehicles to cross runways and should issue information in advance of requirements. Other traffic may be requested to hold position or diverted to avoid conflict with appliances.

3.4 If it is known that an aircraft which has crashed or is about to crash has radioactive material on board, or is carrying any dangerous goods, including agricultural chemicals in a crop-spraying aircraft, the rescue services shall be informed.

3.5 The aerodrome fire service will be responsible for final determination of the size of the attendance which will depend upon whether the accident is within or outside the aerodrome boundary. Normally a full attendance is made to all incidents within the boundary.

4 Categories of Emergency

4.1 The following terms are used in relation to alerting emergency services.

4.1.1 **Aircraft Accident/Aircraft Accident Imminent**

Aircraft accidents which have occurred or are inevitable on, or in the vicinity of, the aerodrome.

4.1.2 **Aircraft Ground Incident**

Where an aircraft on the ground is known to have an emergency situation, other than an accident, requiring the attendance of emergency services.

4.1.3 **Full Emergency**

When it is known that an aircraft is, or is suspected to be, in such trouble that there is a danger of an accident.

4.1.4 **Local Standby**

When it is known that an aircraft has, or is suspected to have, developed some defect but the trouble would not normally involve any serious difficulty in effecting a safe landing. Also used at some units when an aircraft has to be searched following a bomb warning or requires inspecting on the ground by the aerodrome fire service.

4.1.5 **Weather Standby**

When weather conditions are such as to render a landing difficult or difficult to observe.

4.1.6 **Domestic Fire**

The classification 'Domestic' is given to any fire:

a) on the aerodrome not included in the categories above;

b) outside the aerodrome boundary (other than aircraft accidents) which is liable to constitute a danger to flying or aerodrome property; and

c) which the aerodrome fire service should attend:

   i) according to an agreement with the local fire brigade; or

   ii) in response to calls from the public or police on humanitarian grounds.

5 Removal of Crashed Aircraft

5.1 Removal of crashed aircraft is the responsibility of the aerodrome authority and the aircraft owner or operator. In the case of a reportable accident the permission of the Air Accidents Investigation Branch (AAIB) is required before removal action can be commenced.

5.2 **Emergency Removal**

5.2.1 If it is apparent that continued obstruction of a runway by a crashed aircraft might further endanger life, e.g. other arriving aircraft having insufficient fuel for diversion, the AFISO should ensure that the emergency situation is fully understood by the aerodrome authority. Under normal circumstances, the AAIB may be contacted at any time without undue delay. Exceptionally, in case of communication difficulties, the aerodrome authority may wish to take action in accordance with Rule 7(2) (a) (iv) of the Civil Aviation (Investigation of Air Accidents and Incidents) Regulations which provides that an aircraft may be removed or interfered with so far as may be necessary for the purpose of preventing any danger or obstruction to the public or to air navigation.

Section 7 Administration

1 Opening Watch

1.1 In addition to local requirements, before opening watch an FISO should carry out the following actions as appropriate:

a) Obtain a met briefing;

b) Read latest orders, including relevant NOTAMS;

c) Test the telephone lines;

d) Switch on the RTF and test it;

e) Check voice communications recording facilities where these are available;

f) Take appropriate action on unserviceabilities;

g) Sign and enter up log book;

and additionally for an AFISO:

h) Conduct an airfield inspection;

i) Check the serviceability of radio aids;

j) Select the runway-in-use and check the signals square and indicator boards;

k) Check the aerodrome fire service complement and test the crash alarms;

l) Check serviceability of Aldis lamp;

m) Check availability of signal pistol and cartridges.

1.2 The RTF communication channel should be guarded throughout the published hours of watch.

2 Handing over Watch

The procedure for handing over watch shall be as follows:

a) Explain the traffic situation to the person taking over watch in the fullest detail;

b) Inform the person taking over of the serviceability states of the aerodrome and facilities.

3 Closing Watch

Before closing watch, the FISO shall inform all those concerned of his intention.

4 Accuracy of Clocks

The FISO is responsible for ensuring that clocks are accurate in the visual room and for carrying out time checks. The best way of checking the accuracy of clocks is through the BT speaking clock.

5 Emergency Telephone

The emergency telephone, where provided, should only be used in the event of an emergency or disaster. This telephone should be tested at the opening of the watch.

6 Watch Log

6.1 A watch log should be maintained at each unit. All entries should be made in ink in chronological order, using UTC.

6.2 Entries should be sufficiently detailed to enable an authorised person to have a complete understanding of all action during any watch period. All entries should be made in a precise, legible manner, in keeping with the status of the document.

6.3 When completed the log book is to be retained for a period of twelve months. If a separate movements log is kept it should be retained for one month and then disposed of in accordance with local instructions.

6.4 A record of the following items, as appropriate, should be kept in the watch log or other document:

a) Time of opening, handing over and closing watch;

b) Incidents, accidents;

c) Changes in serviceability of the aerodrome;

d) Lighting serviceability;

e) Aircraft movements; and

f) Other entries as required by local procedures and detailed in unit local instructions.

7 Data Display

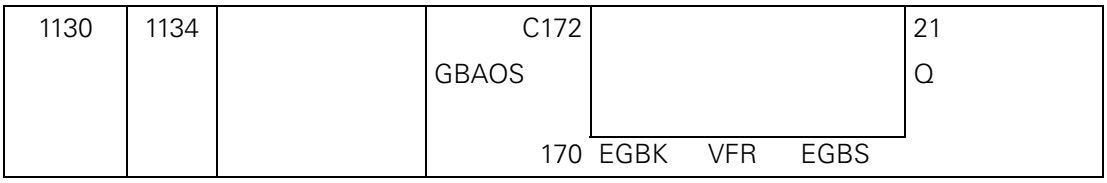
Introduction

A data display must be maintained in accordance with local instructions. Where it is convenient to use a strip display, it is recommended that the system described below is used.

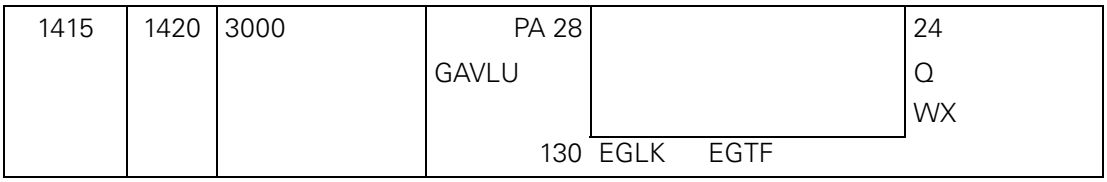
<table>
<tr><td rowspan="2">Estimate</td><td rowspan="2">Actual</td><td rowspan="2">Level</td><td>Type</td><td colspan="3" rowspan="2">ATC Clearance</td><td rowspan="2">Domestic</td></tr>
<tr><td>CALLSIGN</td></tr>
<tr><td></td><td></td><td></td><td>Speed</td><td>Dept. Airfield</td><td>Route</td><td>Dest. Airfield</td><td></td></tr>
<tr><td>ETA/ETD</td><td></td><td>Level reported
Level requested
(IFR Only)</td><td>Cruising TAS</td><td colspan="3"></td><td>Runway-in-use
Altimeter etc.</td></tr>
</table>

Examples of different uses of this basic strip are shown below.

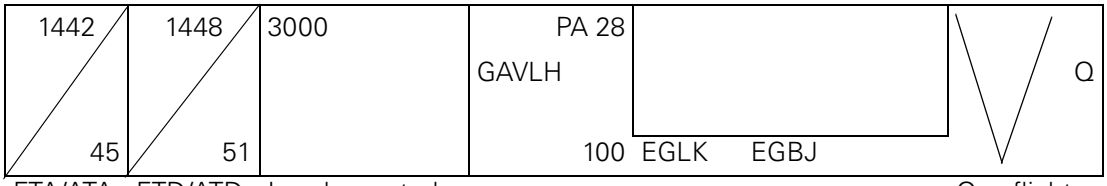
Example 1 Departing VFR



Example 2 Arriving VFR or IFR



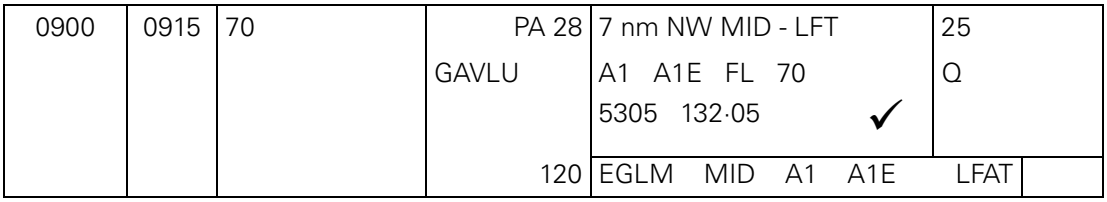
Example 3 Transitting ATZ



Position could be overhead of known landmarks.

Example 4 Departing IFR (includes an airways clearance)

Clearance from ACC passed verbatim to aircraft. Tick denotes that it has been passed verbatim and read back



The clearance in this example would be passed as:

London Control clears GAVLU to join controlled airspace seven nautical miles north west of Midhurst to Le Touquet via Alpha one Alpha one east at flight level seven zero. Squawk 5305. Contact frequency 132.05.

8 Symbols

Aicraft given time check	**T**	Current Weather	**WX**
Altimeter setting passed	**Q**	Overflight	∨
Climb	↑	This information has been passed and acknowledged	✓
Overhead	**QFG**	Leaving Symbol	
Joining Symbol			

9 Local Instructions

9.1 Local instructions amplify and interpret at local level the instructions and information contained in the FISO manual. This local information is also used in the conduct of validation examinations.

9.2 A sample index is shown below which indicates the subject headings to be found. Although not exhaustive, this list would cover the requirements of most units. At some units, the Emergency section will be incorporated in the Aerodrome Emergency Orders.

9.2.1 General Operating Procedures

Altimeter Setting Procedures:	Transition Altitude
	Transition Levels
Aerodrome Operations:	Non-radio aircraft
	Gliding
	Parachute dropping
	Helicopters
	Balloons
	Flying training
Meteorological Information:	Reports and forecasts
	Local observations
	Local distribution
Flight Plans:	AFTN arrangements (including requirements to send messages e.g. DEP, ARR etc.)
Traffic Data Display	
Administration:	Logs and records
	Checks, maintenance
	Extension of hours
	Management instructions

9.2.2 Aerodrome

Aerodrome Operations:	Description of airfield
	Daily checks
	Circuit procedures
	Dual runway operations
Surface Operations:	Procedures

	Restriction on manoeuvring areas
	Aircraft parking, taxying and holding
	Movement of vehicles
	Surface inspections
	Reporting unserviceabilities
	Work authorisation permits
Bird Scaring:	Dispersal
	Reporting
Lighting:	Aerodrome and Obstruction lighting
	Operation and inspection
	Emergency/Standby
	Visual approach path indicators
	Post-accident checks
Telecommunications:	Equipment checks and maintenance
	Radiotelephony
	Telephones

9.2.3 **Emergency**

Aerodrome Fire Service:	Services available
Emergency Action:	Responsibility
	Crash away from airfield
Reporting Action	
Search and Rescue:	Procedures
	Coastguard
	Police

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Section 8 Aeronautical Information Service

1 Introduction

1.1 The function of the Aeronautical Information Service (AIS) is to:

a) collect, collate, edit and disseminate Aeronautical Information, necessary for the safety and efficiency of air navigation, or interested parties. This includes CAA, ANSPs, Aircraft Operators, aircrew, flying clubs and other aviation-related organisations; and

b) receive post-flight information.

1.2 The effectiveness and efficiency of AIS is highly dependent upon the accuracy and timely provision of raw data. AIS does not originate information; raw data is provided by the authority responsible for the operation of the various facilities and services such as government departments, the Ministry of Defence (MoD), aerodrome and facility operators and the CAA.

2 AIS Office

The tasks of AIS can be categorised under two distinct headings.

2.1 International NOTAM Office (INO)

The main functions of the INO are:

a) preparation and issue of UK civil and military NOTAM via AFTN;

b) receiving/transmitting information from/to international NOTAM offices; and

c) dissemination of AIS data to enable the production of Pre-flight Information Bulletins (PIBs). These may be obtained via www.ais.org.uk.

2.2 Static Data Office

This office consists of two departments:

2.2.1 UK AIP Publications Section

2.2.1.1 The UK AIP Publications Section maintains records of licensed UK aviation facilities. This information is used to prepare the UK Integrated Aeronautical Information Package (IAIP) which consists of the following elements:

a) AIP including amendment services (Aeronautical Information Regulation and Control (AIRAC) and Non-AIRAC permanent changes);

b) AIP Supplements (normally temporary information of long duration, or where there is extensive text and/or graphics); and

c) AICs, information of technical or legislative matters that does not qualify for inclusion into the AIP.

2.2.1.2 The Publications Department is also responsible for the maintenance and updating of CAP 550 Random Flight Plan AFTN Address Book. This simplifies the addressing of flight plans by using AFTN codes (collective addresses), which in most cases include all FIR/ACC addresses en-route to the destination aerodrome.

2.2.2 Foreign Library Section

2.2.2.1 The Foreign Library Section maintains records and Aeronautical Information Publications for all foreign States issuing AIPs.

2.2.2.2 The Overseas Non-Scheduled Flight Clearance Guide is published by AIS as an aid to pre-flight briefing and planning by non-scheduled operators for obtaining over-flight and diplomatic clearance over foreign States.

2.3 Amending the Aeronautical Information Publication

2.3.1 Permanent changes to the AIP will be promulgated in re-printed pages and included on the CD version of the AIP. Amendments to the AIP may contain both AIRAC and Non-AIRAC changes.

2.3.2 These amendments will be published every 28 days and in accordance with the AIRAC Schedule.

2.4 Sponsors of Amendments to the AIP (AIRAC and Non-AIRAC)

Sections of the UK AIP are sponsored by the relevant policy holders or the aerodrome operating authority. The sponsor will complete a form 933 (www.caa.co.uk/DAP933) and send this to the AIS and the CAA for an AIP amendment to be issued.

2.5 UK AIP Amendment Service/Supplements to the AIP and Aeronautical Information Circulars

2.5.1 For up to date information on the UK AIP, Supplements to the AIP and AICs, reference should always be made to the website www.ais.org.uk.

2.5.2 For up to date information on the organisation and services of AIS refer to UK AIP (GEN) section.

2.6 Telephone Information Line

2.6.1 This telephone service supplements the information available on the website. Call 0500 354 802.

2.6.2 The recorded message provides information on Emergency Restrictions, Airspace Upgrades and Restricted Areas (Temporary) notified within the UK for the day.

2.7 NOTAM (Notices to Airmen)

2.7.1 For up to date information on NOTAMs, reference must always be made to UK AIP GEN 3.1 Aeronautical Information Services.

2.7.2 NOTAM Service

2.7.2.1 NOTAMs are distributed to stations connected to the AFTN and identified by a suffix letter:

NOTAMN - contains new information;

NOTAMC - cancels a previous NOTAM;

NOTAMR - replaces a previous NOTAM.

2.7.2.2 A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration or when operationally significant permanent or temporary changes of long duration are made at short notice, except for extensive text and/or graphics. The ICAO Aeronautical Information Services Manual Doc. 8126 details the circumstances and the type of information that may be promulgated by NOTAM.

2.7.3 NOTAM Proposal

A NOTAM proposal can be submitted to AIS by the appropriate authority e.g. ATSU or Aerodrome Operator. The proposal should preferably be transmitted by AFTN to AIS (EGGNYNYX) or by fax 020 8750 3775.

The NOTAM proposal should contain the following information:

NOTE: All times in UTC.

Example Meaning

A001/01 NOTAM (Your own reference number/year NOTAM)

A) EGCC ICAO code (Example Manchester)

B) 0108120800 Start of activity year/month/day/hour/minute

C) 0109112359 End of activity YY/MM/DD/HR/MM

D) MON-FRI 0800-2359 Periods of activity

E) RWY 26 closed Plain language text or ICAO abbreviations

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Section 9 Reporting procedures

1 Introduction

1.1 A holder of an FISO licence is to report, within 96 hours, any occurrence which has, or if not corrected would have, endangered an aircraft, its occupants, or any other person.

1.2 An ATS Occurrence Report shall be submitted by the unit(s) concerned in accordance with the CAA's Mandatory Occurrence Reporting Scheme (CAP 382). Form SRG1602 'ATS Occurrence Report Form' can be downloaded at www.caa.co.uk/atsforms. The scope of reportable occurrences is wide and varied. FISOs should be familiar with the list of reportable occurrences detailed in CAP 382.

2 Explanation of Terms

2.1 Reportable Occurrence

2.1.1 Any incident which endangers or which, if not corrected, would endanger an aircraft, its occupants or any other person.

2.2 Aircraft Accident

2.2.1 An aircraft receives substantial damage or causes death or serious injury or damage to property.

2.2.2 An aircraft accident in the vicinity of an aerodrome should in addition to local procedures be notified by phone to the ACC Watch Manager. Subsequently an SRG1602 form should be completed by all concerned and sent to SDD; address details are at Appendix D. Additionally if it is a Reportable Accident it should be notified by phone to the Aerodrome Operator.

2.3 Reportable Accident

2.3.1 An occurrence taking place between the time any person boards an aircraft with the intention of flight until such time as all persons have disembarked, in which either:

a) a person suffers a fatal or serious injury as a result of:

- being in or upon the aircraft; or
- direct contact with any part of the aircraft, including parts which have become detached from the aircraft; or
- direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

b) the aircraft sustains damage or structural failure which adversely affects the structural strength, performance or flight characteristics of the aircraft, and would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tyres, brakes, fairings, small dents or puncture holes in the aircraft skin; or

c) the aircraft is missing or is completely inaccessible.

2.4 Aircraft Proximity (AIRPROX)

2.4.1 An AIRPROX is a situation in which, in the opinion of a pilot or an FISO, the distance between aircraft as well as their relative positions and speeds have been such that the safety of the aircraft involved was or may have been compromised.

2.4.2 If the pilot wishes to file the report by RTF the FISO should, whenever possible, accept the relevant details, particularly when the flight is bound for a foreign destination. If, due to the FISO's workload this cannot be done, the pilot is to be requested to file the details after landing.

2.4.3 The pilot's report by RTF should commence with the term "AIRPROX Report". If the pilot omits the prefix the FISO shall ask him if it is his intention to file an AIRPROX report. The complete message will comprise:

a) The words "AIRPROX Report";

b) Position at time of incident;

c) Time of incident;

d) Altitude/Flight Level (climbing, descending or level flight);

e) Heading;

f) Brief details of incident including first sighting and miss distance; and

g) Weather conditions.

2.4.4 If the pilot states that he intends to file an AIRPROX report after landing he is to be reminded that, to avoid any delay in its progression, the details are required as soon as possible after he has landed.

2.4.5 FISOs must not offer opinions as to cause or responsibility, either to pilots at the time or to operators or pilots subsequently. Pilots may be told that the incident will be investigated.

2.4.6 The identity of the reported aircraft is to be established as soon as possible by any practical means.

2.4.7 AIRPROX report form CA 1094 is available from the UKAB website. AFIS Units should hold stocks so that they can be supplied to pilots if required. FISOs when filing an AIRPROX shall use form SRG1602, available from the CAA website, and sent to SDD.

2.4.8 Pilots of aircraft involved in an AIRPROX initiated by an FISO should be informed by the FISO as soon as possible that an AIRPROX is being submitted.

2.4.9 Any completed AIRPROX reports, initiated by pilots received at an FIS Unit are to be sent without delay to the UKAB.

3 Birdstrikes

Pilots are required to report all birdstrikes in UK airspace whether or not damage is caused (ANO 2009, article 227). An FISO receiving a report should obtain as much information as possible to complete and transmit a birdstrike report form, SRG 2004 (www.caa.co.uk/SRG2004). However, local arrangements may dictate that the completion and processing of birdstrike report forms is administered by the Aerodrome Operator. In this case the details obtained should be forwarded to the appropriate person.

4 Maritime Pollution

4.1 Pilots sighting substantial patches of oil or possible harmful substances have been asked to make reports to the ATS unit with whom they are in communication, or to the appropriate personnel providing an FIS at an ACC. Reports on RTF will be prefixed 'Oil Pollution Report', or '... Pollution Report' if a harmful substance other than oil is suspected.

4.2 An FISO receiving a report should obtain as much information as possible to complete a report in the format shown below.

4.3 **FIS Unit Action**

4.3.1 Any FIS Unit receiving such reports should pass them without delay to an ACC.

A list of telephone numbers and locations is shown in the directory at Appendix D.

A Date and time pollution observed and identity of aircraft reporting.

B Position and extent of pollution.

C Tide, windspeed and direction.

D Weather conditions and sea state.

E Characteristics of pollution.

F Name and nationality, or description, including any distinctive markings, of any vessel seen discharging oil or other harmful substances; also assessment of course and speed of vessel and whether any pollution observed ahead of the discharging ship and the estimated length of pollution in her wake.

G The identity of any other vessels in the immediate vicinity.

H Whether or not photographs have been taken.

4.3.2 Similar procedures should be followed if a pilot makes such a report by telephone after landing.

5 Recording and Retention of Data for Investigative Purposes

All relevant flight data including paper and/or electronic flight progress strips shall be retained for a period of at least 30 days. Radio-telecommunications and co-ordination data shall be recorded and retained for at least the same period of time.

6 Search Action

6.1 The duty FISO is to institute search action if the identity of an aircraft which has been involved in an incident or has apparently infringed legislation is not known.

6.2 Data such as arrival and departure times are to be examined and every means consistent with safety used in an attempt to identify the aircraft.

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Section 10 Meteorological Services

This section is under development. Guidance on Meteorological Services is covered in CAP 746 Requirements for Meteorological Observations at Aerodromes.

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Appendix A Tailwind and Crosswind Component Table

These tables provide guidance on the calculation of tailwind and crosswind components and should be used when determining 'out of wind runway' operations.

Wind Speed (knots)	**Tailwind component (knots)** Difference between Wind Direction and QFU (degrees)								
	100°	110°	120°	130°	140°	150°	160°	170°	180°
5	1	2	3	4	4	5	5	5	5
10	2	4	6	7	8	9	10	10	10
15	3	6	8	10	12	13	15	15	15
20	4	7	11	13	16	18	19	20	20
25	5	9	13	17	20	22	24	25	25
30	6	11	16	20	24	26	29	30	30

NB:

- Tailwind component, where necessary has been rounded up.
- Values in excess of 5 knots have been shaded.

Wind Speed (knots)	**Crosswind component (knots)** Difference between Wind Direction and QFU (degrees)								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
5	1	2	3	4	4	5	5	5	5
10	2	4	6	7	8	9	10	10	10
15	3	6	8	10	12	13	15	15	15
20	4	7	11	13	16	18	19	20	20
25	5	9	13	17	20	22	24	25	25
30	6	11	16	20	23	26	29	30	30
35	7	12	18	23	27	31	33	35	35
40	7	14	21	26	31	35	38	40	40
45	8	16	23	29	35	39	43	45	45
50	9	18	26	33	39	44	47	50	50
55	10	19	28	36	43	48	52	55	55
60	11	21	31	39	46	52	57	60	60
65	12	23	33	42	50	57	62	65	65
70	13	24	36	46	54	61	66	69	70
75	14	26	38	49	58	65	71	74	75
80	14	28	41	52	62	70	76	79	80
85	15	30	43	55	66	74	80	84	85
90	16	31	46	58	69	78	85	89	90

NB:

- Crosswind component, where necessary has been rounded up.
- Values in excess of 15 knots has been shaded.

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Appendix B Pressure Setting Tables

1 Determining Transition Level

Aerodrome QNH (Hectopascals)	TRANSISTION ALTITUDE (feet)			
	3,000	4,000	5,000	6,000
	FLIGHT LEVEL	FLIGHT LEVEL	FLIGHT LEVEL	FLIGHT LEVEL
1050 1032	25	35	45	55
1031 1014	30	40	50	60
1013 996	35	45	55	65
995 978	40	50	60	70
977 960	45	55	65	75
959 943	50	60	70	80

2 QNE Values

During conditions of exceptionally low atmospheric pressure it is not possible to set hPa or QNH on some aircraft altimeters. In these circumstances an aerodrome or runway QNE can be requested. The QNE is the reading in feet on an altimeter with the sub-scale set to 1013.2 hPa when the aircraft is at aerodrome or touchdown elevation.

QFE Aerodrome / Threshold (hPa)	0	1	2	3	4	5	6	7	8	9
970	1202	1174	1146	1117	1089	1061	1033	1005	977	948
960	1486	1458	1429	1401	1372	1344	1315	1287	1259	1230
950	1773	1744	1715	1687	1658	1629	1601	1572	1543	1515
940	2062	2033	2004	1975	1946	1917	1888	1859	1830	1802
930	2353	2324	2295	2265	2236	2207	2178	2149	2120	2091
920	2647	2618	2588	2559	2529	2500	2470	2441	2412	2382
910	2944	2914	2884	2855	2825	2795	2766	2736	2706	2677
900	3243	3213	3183	3153	3123	3093	3066	3033	3003	2974

Adjust for decimal fractions

	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Subtract in feet	3	6	9	12	15	17	20	23	26

Example: Given QFE 943.8 hPa, to calculate QNE:

a) enter first column at the figure 940 and follow this line to column headed 3. Read off result at point of intersection, in this case 1975 ft;

b) refer to lower table if original QFE contains a fractional figure, 0.8 in this example, and apply the difference as shown - i.e. subtract 23 ft. QNE = 1975 - 23 = 1952 ft.

3 Table for Converting Hectopascals to Inches of Mercury (Hg)

940.0 - 959 hPa

Tenths hPa	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
Hectopascals	Inches Hg									
940	27.75	27.76	27.76	27.76	27.77	27.77	27.77	27.77	27.78	27.78
941	27.78	27.79	27.79	27.79	27.79	27.80	27.80	27.80	27.81	27.81
942	27.81	27.82	27.82	27.82	27.82	27.83	27.83	27.83	27.84	27.84
943	27.84	27.84	27.85	27.85	27.85	27.86	27.86	27.86	27.87	27.87
944	27.87	27.87	27.88	27.88	27.88	27.89	27.89	27.89	27.89	27.90
945	27.90	27.90	27.91	27.91	27.91	27.92	27.92	27.92	27.92	27.93
946	27.93	27.93	27.94	27.94	27.94	27.95	27.95	27.95	27.95	27.96
947	27.96	27.96	27.97	27.97	27.97	27.97	27.98	27.98	27.98	27.99
948	27.99	27.99	28.00	28.00	28.00	28.00	28.01	28.01	28.01	28.02
949	28.02	28.02	28.02	28.03	28.03	28.03	28.04	28.04	28.04	28.05
950	28.05	28.05	28.05	28.06	28.06	28.06	28.07	28.07	28.07	28.08
951	28.08	28.08	28.08	28.09	28.09	28.09	28.10	28.10	28.10	28.10
952	28.11	28.11	28.11	28.12	28.12	28.12	28.13	28.13	28.13	28.13
953	28.14	28.14	28.14	28.15	28.15	28.15	28.15	28.16	28.16	28.16
954	28.17	28.17	28.17	28.18	28.18	28.18	28.18	28.19	28.19	28.19
955	28.20	28.20	28.20	28.21	28.21	28.21	28.21	28.22	28.22	28.22
956	28.23	28.23	28.23	28.23	28.24	28.24	28.24	28.25	28.25	28.25
957	28.26	28.26	28.26	28.26	28.27	28.27	28.27	28.28	28.28	28.28
958	28.28	28.29	28.29	28.29	28.30	28.30	28.30	28.31	28.31	28.31
959	28.31	28.32	28.32	28.32	28.33	28.33	28.33	28.33	28.34	28.34

Table for converting Hectopascals to Inches of Mercury (Hg)

960.0 - 979 hPa

Tenths hPa	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
Hectopascals	Inches Hg									
960	28.34	28.35	28.35	28.35	28.36	28.36	28.36	28.36	28.37	28.37
961	28.37	28.38	28.38	28.38	28.39	28.39	28.39	28.39	28.40	28.40
962	28.40	28.41	28.41	28.41	28.41	28.42	28.42	28.42	28.43	28.43
963	28.43	28.44	28.44	28.44	28.44	28.45	28.45	28.45	28.46	28.46
964	28.46	28.46	28.47	28.47	28.47	28.48	28.48	28.48	28.49	28.49
965	28.49	28.49	28.50	28.50	28.50	28.51	28.51	28.51	28.52	28.52
966	28.52	28.52	28.53	28.53	28.53	28.54	28.54	28.54	28.54	28.55
967	28.55	28.55	28.56	28.56	28.56	28.57	28.57	28.57	28.57	28.58
968	28.58	28.58	28.59	28.59	28.59	28.59	28.60	28.60	28.60	28.61
969	28.61	28.61	28.62	28.62	28.62	28.62	28.63	28.63	28.63	28.64
970	28.64	28.64	28.65	28.65	28.65	28.65	28.66	28.66	28.66	28.67
971	28.67	28.67	28.67	28.68	28.68	28.68	28.69	28.69	28.69	28.70
972	28.70	28.70	28.70	28.71	28.71	28.71	28.72	28.72	28.72	28.72
973	28.73	28.73	28.73	28.74	28.74	28.74	28.75	28.75	28.75	28.75
974	28.76	28.76	28.76	28.77	28.77	28.77	28.77	28.78	28.78	28.78
975	28.79	28.79	28.79	28.80	28.80	28.80	28.80	28.81	28.81	28.81
976	28.82	28.82	28.82	28.83	28.83	28.83	28.83	28.84	28.84	28.84
977	28.85	28.85	28.85	28.85	28.86	28.86	28.86	28.87	28.87	28.87
978	28.88	28.88	28.88	28.88	28.89	28.89	28.89	28.90	28.90	28.90
979	28.90	28.91	28.91	28.91	28.92	28.92	28.92	28.93	28.93	28.93

Table for converting Hectopascals to Inches of Mercury (Hg)

980.0 - 999 hPa

Tenths hPa	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
Hectopascals	Inches Hg									
980	28.93	28.94	28.94	28.94	28.95	28.95	28.95	28.96	28.96	28.96
981	28.96	28.97	28.97	28.97	28.98	28.98	28.98	28.98	28.99	28.99
982	28.99	29.00	29.00	29.00	29.01	29.01	29.01	29.01	29.02	29.02
983	29.02	29.03	29.03	29.03	29.03	29.04	29.04	29.04	29.05	29.05
984	29.05	29.06	29.06	29.06	29.06	29.07	29.07	29.07	29.08	29.08
985	29.08	29.09	29.09	29.09	29.09	29.10	29.10	29.10	29.11	29.11
986	29.11	29.11	29.12	29.12	29.12	29.13	29.13	29.13	29.14	29.14
987	29.14	29.14	29.15	29.15	29.15	29.16	29.16	29.16	29.16	29.17
988	29.17	29.17	29.18	29.18	29.18	29.19	29.19	29.19	29.19	29.20
989	29.20	29.20	29.21	29.21	29.21	29.21	29.22	29.22	29.22	29.23
990	29.23	29.23	29.24	29.24	29.24	29.24	29.25	29.25	29.25	29.26
991	29.26	29.26	29.27	29.27	29.27	29.27	29.28	29.28	29.28	29.29
992	29.29	29.29	29.29	29.30	29.30	29.30	29.31	29.31	29.31	29.32
993	29.32	29.32	29.32	29.33	29.33	29.33	29.34	29.34	29.34	29.34
994	29.35	29.35	29.35	29.36	29.36	29.36	29.37	29.37	29.37	29.37
995	29.38	29.38	29.38	29.39	29.39	29.39	29.40	29.40	29.40	29.40
996	29.41	29.41	29.41	29.42	29.42	29.42	29.42	29.43	29.43	29.43
997	29.44	29.44	29.44	29.45	29.45	29.45	29.45	29.46	29.46	29.46
998	29.47	29.47	29.47	29.47	29.48	29.48	29.48	29.49	29.49	29.49
999	29.50	29.50	29.50	29.50	29.51	29.51	29.51	29.52	29.52	29.52

Table for converting Hectopascals to Inches of Mercury (Hg)

1000.0 - 1019 hPa

Tenths hPa	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
Hectopascals	Inches Hg									
1000	29.53	29.53	29.53	29.53	29.54	29.54	29.54	29.55	29.55	29.55
1001	29.55	29.56	29.56	29.56	29.57	29.57	29.57	29.58	29.58	29.58
1002	29.58	29.59	29.59	29.59	29.60	29.60	29.60	29.60	29.61	29.61
1003	29.61	29.62	29.62	29.62	29.63	29.63	29.63	29.63	29.64	29.64
1004	29.64	29.65	29.65	29.65	29.65	29.66	29.66	29.66	29.67	29.67
1005	29.67	29.68	29.68	29.68	29.68	29.69	29.69	29.69	29.70	29.70
1006	29.70	29.71	29.71	29.71	29.71	29.72	29.72	29.72	29.73	29.73
1007	29.73	29.73	29.74	29.74	29.74	29.75	29.75	29.75	29.76	29.76
1008	29.76	29.76	29.77	29.77	29.77	29.78	29.78	29.78	29.78	29.79
1009	29.79	29.79	29.80	29.80	29.80	29.81	29.81	29.81	29.81	29.82
1010	29.82	29.82	29.83	29.83	29.83	29.84	29.84	29.84	29.84	29.85
1011	29.85	29.85	29.86	29.86	29.86	29.86	29.87	29.87	29.87	29.88
1012	29.88	29.88	29.89	29.89	29.89	29.89	29.90	29.90	29.90	29.91
1013	29.91	29.91	29.91	29.92	29.92	29.92	29.93	29.93	29.93	29.94
1014	29.94	29.94	29.94	29.95	29.95	29.95	29.96	29.96	29.96	29.96
1015	29.97	29.97	29.97	29.98	29.98	29.98	29.99	29.99	29.99	29.99
1016	30.00	30.00	30.00	30.01	30.01	30.01	30.02	30.02	30.02	30.02
1017	30.03	30.03	30.03	30.04	30.04	30.04	30.04	30.05	30.05	30.05
1018	30.06	30.06	30.06	30.07	30.07	30.07	30.07	30.08	30.08	30.08
1019	30.09	30.09	30.09	30.09	30.10	30.10	30.10	30.11	30.11	30.11

Table for converting Hectopascals to Inches of Mercury (Hg)

1020 - 1039 hPa

Tenths hPa	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
Hectopascals	Inches Hg									
1020	30.12	30.12	30.12	30.12	30.13	30.13	30.13	30.14	30.14	30.14
1021	30.15	30.15	30.15	30.15	30.16	30.16	30.16	30.17	30.17	30.17
1022	30.17	30.18	30.18	30.18	30.19	30.19	30.19	30.20	30.20	30.20
1023	30.20	30.21	30.21	30.21	30.22	30.22	30.22	30.22	30.23	30.23
1024	30.23	30.24	30.24	30.24	30.25	30.25	30.25	30.25	30.26	30.26
1025	30.26	30.27	30.27	30.27	30.28	30.28	30.28	30.28	30.29	30.29
1026	30.29	30.30	30.30	30.30	30.30	30.31	30.31	30.31	30.32	30.32
1027	30.32	30.33	30.33	30.33	30.33	30.34	30.34	30.34	30.35	30.35
1028	30.35	30.35	30.36	30.36	30.36	30.37	30.37	30.37	30.38	30.38
1029	30.38	30.38	30.39	30.39	30.39	30.40	30.40	30.40	30.40	30.41
1030	30.41	30.41	30.42	30.42	30.42	30.43	30.43	30.43	30.43	30.44
1031	30.44	30.44	30.45	30.45	30.45	30.46	30.46	30.46	30.46	30.47
1032	30.47	30.47	30.48	30.48	30.48	30.48	30.49	30.49	30.49	30.50
1033	30.50	30.50	30.51	30.51	30.51	30.51	30.52	30.52	30.52	30.53
1034	30.53	30.53	30.53	30.54	30.54	30.54	30.55	30.55	30.55	30.56
1035	30.56	30.56	30.56	30.57	30.57	30.57	30.58	30.58	30.58	30.59
1036	30.59	30.59	30.59	30.60	30.60	30.60	30.61	30.61	30.61	30.61
1037	30.62	30.62	30.62	30.63	30.63	30.63	30.64	30.64	30.64	30.64
1038	30.65	30.65	30.65	30.66	30.66	30.66	30.66	30.67	30.67	30.67
1039	30.68	30.68	30.68	30.69	30.69	30.69	30.69	30.70	30.70	30.70

Table for converting Hectopascals to Inches of Mercury (Hg)

1040 - 1049 hPa

Tenths hPa	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
Hectopascals	Inches Hg									
1040	30.71	30.71	30.71	30.72	30.72	30.72	30.72	30.73	30.14	30.14
1041	30.74	30.74	30.74	30.74	30.75	30.75	30.75	30.76	30.17	30.17
1042	30.77	30.77	30.77	30.77	30.78	30.78	30.78	30.79	30.20	30.20
1043	30.79	30.80	30.80	30.80	30.81	30.81	30.81	30.82	30.23	30.23
1044	30.82	30.83	30.83	30.83	30.84	30.84	30.84	30.84	30.26	30.26
1045	30.85	30.86	30.86	30.86	30.87	30.87	30.87	30.87	30.88	30.88
1046	30.88	30.89	30.89	30.89	30.90	30.90	30.90	30.90	30.91	30.91
1047	30.91	30.92	30.92	30.92	30.92	30.93	30.93	30.93	30.94	30.94
1048	30.94	30.95	30.95	30.95	30.95	30.96	30.96	30.96	30.97	30.97
1049	30.97	30.97	30.98	30.98	30.98	30.99	30.99	30.99	31.00	31.00

NOTE: Uses density of mercury at 0 C of 13595.1 kg m^{-3} and acceleration of gravity 9.80665 m s^{-2}.

Then 1 hPa = 0.02953 in. Hg

Values are rounded down to the nearest 0.01 in. Hg

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Appendix C Wake Turbulence Categorisation

1 Categories

1.1 The UK wake turbulence categories differ from those of ICAO. In the UK, aircraft are divided into five categories for approach, and four categories for departure, according to their Maximum Take-off Mass (MTOM) in kg as described below.

Category	ICAO and Flight Plan (kg)	UK Departures (kg)	UK Arrivals (kg)
Heavy (H)	≥136,000	≥162,000	≥162,000
Medium (M)	>7,000 and <136,000	>40,000 and <162,000	N/A
Upper Medium (UM)	N/A	N/A	>104,000 and <162,000
Lower Medium (LM)	N/A	N/A	>40,000 and ≤104,000
Small (S) (UK only)	N/A	>17,000 and ≤40,000	>17,000 and ≤40,000
Light (L)	≤7,000	≤17,000	≤17,000

NOTE: The medium category is not split for departure wake turbulence separation.

1.2 In the UK the following aircraft have been re-classified:

a) Heavy to Medium (Upper Medium in approach): B707, DC8, VC10 and IL62.

b) Medium to Upper Medium in Approach: B757.

1.3 The differences between ICAO and UK criteria do not affect the composition of flight plans which should be completed in accordance with ICAO PANS-ATM. The wake turbulence category of an aircraft should be indicated on the flight plan (item 9) as J (A380-800), H, M or L.

1.4 UK wake turbulence categories for common aircraft types are shown in the table below:

HEAVY aeroplanes	UPPER MEDIUM aeroplanes
MTOM > 162,000 kg	MTOM < 162,000 kg and > 104,000 kg
Airbus A380-800 (special criteria apply)	Boeing 757, 707
Airbus A300, A310, A330, A340	DC8
Antonov AN22, AN124,	IL62
Boeing 747, 767, 777	VC10
C5	
DC10	
IL76	
L1011	
MD11	

LOWER MEDIUM aeroplanes	**SMALL aeroplanes**
MTOM <104,000 kg and > 40,000 kg	MTOM < 40,000 kg and > 17,000 kg
Airbus A318, A319, A320, A321	ATR 42-500
Avro RJ85	ATR 72
Avro RJ100	BAe ATP
BA146	Bombardier Canadair Challenger 601, 604
BAC 1-11	Bombardier Canadair CRJ 100, 200 and 700
Bombardier Global Express	Dassault DA50 Falcon
Boeing 717, 727, 737	Dash 7
DC9	Dash 8-300
Fokker 100	Dash 8-400
Gulfstream 5	Embraer 135 / 145
IL18	Fokker 27, 28, 50, 70
Lockheed Hercules	Gulfstream 4
Lockheed Electra L188	HS 748
MD80	SAAB 20
Tupolev 134/154	

LIGHT aeroplanes
MTOM < 17,000 kg
Aero Commander
ATR 42-300
Bae125/Hawker 800/900/1000
Bae Jetstream J31, J32 & J41
Beechcraft 200 / 300
BN Islander / Trislander
Bombardier Learjet 45, 55, 60
CASA CN-235
Cessna 310
Cessna Citation
Dassault DA20 Falcon
Dornier 328
Embraer 110 Bandeirante
Learjet 25 / 55
Piper Navajo / Seneca
Rockwell Sabreliner
SAAB 340
Shorts 330 / 360
YAK40

SMALL helicopters

Aerospatiale Puma
Boeing Vertol Chinook
EH 101
Sikorsky CH53 E
Sikorsky S61N
Sikorsky S92
Westland WAH 64

LIGHT helicopters

Augusta 109
Bell 212
Gazelle
Lynx
MBB BO 105
Sikorsky S76

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Appendix D Directory

AAIB (Air Accident Investigation Branch)

Berkshire Copse Road
Aldershot
Hants
GU11 2HH

Tel. 01252 512 299
Fax. 01252 376 999

CAA Safety Regulation Group

AATSD

2W Aviation House
Gatwick Airport South
West Sussex
RH6 0YR

Tel: 01293 573 423
Fax: 01293 573 974
Email: ats.enquiries@caa.co.uk

ATS Investigations — Tel: 01293 573 650

Regional Offices

Southern Region
Aviation House, Gatwick

Tel: 01293 573330
07780 957 547 (outside office hours)
Email: ats.southern.regional.office@caa.co.uk

Central Region
Atlantic House
Atlas Business Park
Simonsway
Manchester
M22 5PR

Tel: 0161 216 4514
07802 615 788 (outside office hours)
Fax: 0161 216 4599
Email: ats.central.regional.office@caa.co.uk

Northern Region
First Floor, Kings Park House
Laurelhill Business Park
Stirling
FK7 9JQ

Tel: 01786 457 400
07801 901 111 (outside office hours)
Fax: 01786 457 440
Email: ats.northern.regional.office@caa.co.uk

Safety Data Department (SDD)

2W Aviation House
Gatwick Airport South
West Sussex
RH6 0YR

Tel: 01293 573 220
01293 573 699
Fax: 01293 573 972

Outside office hours contact Safety Data via Pager:

Call 0870 055 5500 or 01523 523 523; then ask for 861 145.

CAA Airspace Utilisation Section

Directorate of Airspace Policy
K702, CAA House
45 - 49 Kingsway
London
WC2B 6TE

Tel: 0207 453 6599
Answerphone service outside office hours

Fax: 0207 453 6593

CAA Aviation Regulation Enforcement

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CAA House
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Weekdays between 1800 and 0830 (local), weekends and public holidays the contact number for the Duty Press Officer can be obtained on 0207 379 7311.

DfT Transport Security Division

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Outside Office Hours
Tel: 0207 944 5999
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Military

D&D Cell

Tel. 01489 612 406

NATS

London AC

NATS En-route Ltd
Sopwith Way
Swanwick
Hants
SO31 7AY

Watch Manager
Tel: 01489 612 420

Flow Management Unit (Post Box 23)
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Scottish AC and Shanwick OAC (Prestwick)

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Prestwick
Ayrshire
KA9 2TR

Operational Supervisor
Tel: 01294 655 300

United Kingdom AIRPROX Board (UKAB)

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Ruislip
Middlesex
HA4 6NG

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Fax: 0208 842 6056

Email: info@airproxboard.org.uk

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