

Directorate of Airspace Policy



CAP 722

**Unmanned Aerial Vehicle Operations in UK
Airspace - Guidance**

www.caa.co.uk

CAP 722

Unmanned Aerial Vehicle Operations in UK Airspace - Guidance

© Civil Aviation Authority 2004

All rights reserved. Copies of this publication may be reproduced for personal use, or for use within a company or organisation, but may not otherwise be reproduced for publication.

To use or reference CAA publications for any other purpose, for example within training material for students, please contact the CAA at the address below for formal agreement.

ISBN 1 904862 06 3

Previously published as DAP Unmanned Aerial Vehicle Operations in UK Airspace - Guidance
- June 2001

First edition of CAP 722 29 May 2002

Second edition 12 November 2004

Enquiries regarding the content of this publication should be addressed to:
Off-Route Airspace, Directorate of Airspace Policy, CAA House, 45-59 Kingsway, London, WC2B 6TE.

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: 0870 600 5522
Fax orders: 0870 600 5533

www.tso.co.uk/bookshop
E-mail: book.orders@tso.co.uk
Textphone: 0870 240 3701

List of Effective Pages

Part	Chapter	Page	Date	Part	Chapter	Page	Date
		iii	12 November 2004		Chapter 21	1	12 November 2004
		iv	12 November 2004		Chapter 21	2	12 November 2004
		v	12 November 2004		Chapter 22	1	12 November 2004
		vi	12 November 2004		Chapter 23	1	12 November 2004
		vii	12 November 2004		Chapter 24	1	12 November 2004
		viii	12 November 2004		Chapter 25	1	12 November 2004
		ix	12 November 2004		Chapter 26	1	12 November 2004
		x	12 November 2004		Chapter 27	1	12 November 2004
		xi	12 November 2004		Chapter 28	1	12 November 2004
	Foreword	xii	12 November 2004		Annex A	1	12 November 2004
	Abbreviations	xiii	12 November 2004				
	Glossary	xiv	12 November 2004				
	Chapter 1	1	12 November 2004				
	Chapter 1	2	12 November 2004				
	Chapter 2	1	12 November 2004				
	Chapter 2	2	12 November 2004				
	Chapter 2	3	12 November 2004				
	Chapter 3	1	12 November 2004				
	Chapter 4	1	12 November 2004				
	Chapter 4	2	12 November 2004				
	Chapter 4	3	12 November 2004				
	Chapter 5	1	12 November 2004				
	Chapter 6	1	12 November 2004				
	Chapter 7	1	12 November 2004				
	Chapter 8	1	12 November 2004				
	Chapter 8	2	12 November 2004				
	Chapter 9	1	12 November 2004				
	Chapter 9	2	12 November 2004				
	Chapter 9	3	12 November 2004				
	Chapter 10	1	12 November 2004				
	Chapter 11	1	12 November 2004				
	Chapter 11	2	12 November 2004				
	Chapter 12	1	12 November 2004				
	Chapter 12	2	12 November 2004				
	Chapter 13	1	12 November 2004				
	Chapter 14	1	12 November 2004				
	Chapter 15	1	12 November 2004				
	Chapter 15	2	12 November 2004				
	Chapter 15	3	12 November 2004				
	Chapter 15	4	12 November 2004				
	Chapter 16	1	12 November 2004				
	Chapter 16	2	12 November 2004				
	Chapter 17	1	12 November 2004				
	Chapter 18	1	12 November 2004				
	Chapter 19	1	12 November 2004				
	Chapter 20	1	12 November 2004				

Contents

	List of Effective Pages	iii
	Chapter Sponsors	x
	Explanatory Note	xi
	Foreword	xii
	Abbreviations	xiii
	Glossary of Terms	xiv
Chapter 1	Introduction	
	Policy	1
	Definition	1
	Classifications	1
	Point of Contact	2
Chapter 2	Legal Considerations	
	Policy	1
	Law	1
	Lead Agency	3
	Point of Contact	3
Chapter 3	Certification - Military	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1
Chapter 4	Certification - Civil	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	3
	Point of Contact	3

Chapter 5	Registration - Military	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1
Chapter 6	Registration - Civil	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1
Chapter 7	Maintenance and Inspection - Military	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1
Chapter 8	Maintenance and Inspection - Civil	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	2
Chapter 9	CAA Policy on Unmanned Air Vehicle Sense and Avoid Criteria	
	Scope	1
	Lead Agency	1
	Introduction	1
	Aim	1
	Policy	1
	Summary	2
	Factors for Consideration when Developing Sense and Avoid Criteria for Unmanned Air Vehicles	2

Chapter 10	Spectrum Issues	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1
Chapter 11	Security Issues	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	2
	Point of Contact	2
Chapter 12	Operator Qualifications	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	2
	Point of Contact	2
Chapter 13	Approval to Operate - Military	
	Policy	1
	Point of Contact	1
Chapter 14	Approval to Operate - Military Trials (Under D/Flying Jurisdiction)	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1
Chapter 15	Approval to Operate - Civil	
	Lead Agency	1
	Introduction	1
	Policy	1
	Source Documents	3
	Point of Contact	4

Chapter 16	Flying Operations	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	2
	Point of Contact	2
Chapter 17	Cross Border Operations	
	Scope	1
	Lead Agency	1
	Policy	1
	Point of Contact	1
Chapter 18	Flying Regulations - Military	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1
Chapter 19	Flying Regulations - Military Trials (Under D/Flying Jurisdiction)	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1
Chapter 20	ATM Procedures - Military	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1

Chapter 21	ATM Procedures - Civil	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	2
Chapter 22	Emergency ATM Procedures - Military	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1
Chapter 23	Emergency ATM Procedures - Civil	
Chapter 24	Breaches of ATC Regulations - Military	
	Scope	1
	Lead Agency	1
	Policy	1
	Source Documents	1
	Point of Contact	1
Chapter 25	Breaches of ATC Regulations - Civil	
	Scope	1
	Point of Contact	1
Chapter 26	Incident/Accident Procedures - Military and Occurrence Reporting	
	Scope	1
	Occurrence Reporting (Military)	1
	Point of Contact	1
Chapter 27	Incident/Accident Procedures - Military Trials (Under D/Flying Jurisdiction)	
	Scope	1
	Lead Agency	1
	Source Documents	1
	Point of Contact	1

Chapter 28**Incident/Accident Procedures - Civil**

Scope	1
Lead Agency	1
Policy	1
Source Documents	1
Point of Contact	1

Annex A**Document List**

Chapter Sponsors

Chapter	Subject	Lead Agency
1	Introduction	ORA4
2	Legal Considerations	CAA Legal Department
3	Certification – Military	ALTG ADRP2c
4	Certification - Civil	CAA SRG Design & Production Stds Div/ Approvals & Quality Assurance Section
5	Registration - Military	ALTG ADRP1c
6	Registration - Civil	CAA Aircraft Registration
7	Maintenance and Inspection - Military	EA(Air) Eng Pol Reg
8	Maintenance and Inspection - Civil	CAA SRG Air Maint Stds Dept
9	CAA Policy on UAV Sense & Avoid Criteria	CAA SRG
10	Spectrum Issues	CAA DAP S & S
11	Security Issues	UAVS
12	Operator Qualifications	CAA SRG PLD POL
13	Approval to Operate - Military	MART
14	Approval to Operate – Military Trials	MOD DPA D/Flying
15	Approval to Operate – Civil	CAA SRG GAD
16	Flying Operations	CAA DAP ORA4
17	Cross Border Operations	CAA DAP ORA4
18	Flying regulations - Military	MART
19	Flying regulations – Military Trials	MOD DPA D/Flying
20	ATM Procedures - Military	HQ STC 3 GP ATC
21	ATM Procedures - Civil	CAA SRG ATSSD
22	Emergency ATM Procedures - Military	HQ STC 3GP ATC
23	Emergency ATM Procedures - Civil	CAA SRG ATSSD
24	Breaches of ATC Regs - Military	HQ STC 3GP ATC
25	Breaches of ATC Regs - Civil	CAA SRG SIDD (SDU 3)
26	Incident/Accident Procedures - Mil	MOD DASC
27	Incident/Accident Procedures – Mil Trials	D/Flying Flight Safety
28	Incident/Accident Procedures - Civil	CAA SRG SDU2/AAIB

Explanatory Note

1 Introduction

- 1.1 The CAA has made many of the documents that it publishes available electronically. Where practical, the opportunity has been taken to incorporate a clearer revised appearance to the document.
- 1.2 This is a living document and will be revised at intervals to take account of changes in regulations, feedback from industry, and recognised best practice. Contact addresses, should you have any comments concerning the content of this document or wish to obtain subsequent amendments, are given on the inside cover of this publication.

2 Revisions in this Edition

The major changes in this document are on legal, certification, spectrum and security issues. Details of the CAA Policy on Model Aircraft/Light UAV have also been included.

Foreword

This second Edition of CAP 722 - Guidance for Unmanned Aerial Vehicle (UAV) Operations in UK Airspace is compiled by the Civil Aviation Authority's Directorate of Airspace Policy (DAP) to cater for the burgeoning capabilities and anticipated proliferation of UAVs. It is a living document and will be updated as necessary. The Guide is intended as a 'signpost' for all UAV operators. It does not replace civil or military regulations but is intended to draw together various independent civil and military guidance notes and letters of advice and is wholly dependent on contributions from responsible agencies. Wherever possible consolidated guidance will be simplified and harmonised with other European nations. Additionally, it is acknowledged that not all areas of UAV operations have been addressed, thus additional comment from all industry and government sectors is welcomed and should be addressed to DAP (ORA4).

Geoff Bowker
Lieutenant Commander Royal Navy
DAP
ORA4

K6 G3
CAA House
45-59 Kingsway
London
WC2B 6TE

Tel: 020 7453 6544
Fax: 020 7453 6565
E-mail: geoff.bowker@dap.caa.co.uk

Abbreviations

ATS	Air Traffic Service
ATC	Air Traffic Control
CAA	Civil Aviation Authority
DAP	Directorate of Airspace Policy
D&PSD	Design and Production Standards Division
DPA	Defence Procurement Agency
D Flying	Director Flying
DSTL	Defence Science and Technology Laboratories
EMC	Electro-Magnetic Compatibility
GCS	Ground Control Station
HIRF	High Intensity Radio Frequency
MART	Military Aviation Regulatory Team
MoD	Ministry of Defence
MUAVC	Master Unmanned Aerial Vehicle Controller (D/Flying)
RAC	Range Air Controller (D/Flying)
SRG	Safety Regulation Group
STC	Strike Command
TAC	Target Air Controller (D/Flying)
UAV	Unmanned Aerial Vehicle
UAV-p	UAV Pilot
UAVs	Unmanned Aerial Vehicles
UAVS	Unmanned Aerial Vehicle System
UAVC	Unmanned Aerial Vehicle Controller (MOD DPA Terminology)

NOTE: It should be noted that the terminology for describing personnel involved in UAV Operations continues to evolve and such evolution could be subject to ICAO or pan-European discussion and agreement in the future. To facilitate current UAV operations in segregated UK airspace, existing abbreviations used by disparate agencies, are accepted by DAP as valid. However, in anticipation of more extensive operations outside danger areas the use of the words 'controller' and 'operator' to describe those personnel involved in flying a UAV may lead to confusion and have been discouraged. See Chapter 9, Operator Qualifications.

Glossary of Terms

UAV	An aircraft which is designed to operate with no human pilot on board.
UAVS	An Unmanned Aerial Vehicle System (UAVS) comprises individual 'UAV System Elements' consisting of the flight vehicle (UAV), the 'Control Station' and any other UAV System Elements necessary to enable flight, such as a 'Launch and Recovery Element'. There may be multiple UAVs, Control Stations, or Launch and Recovery Elements within a UAV System.
UAV Commander	A suitably qualified person responsible for the safe operation of a UAV System during a particular flight and who has the authority to direct a flight under her/his command.
UAV Operator	The legal entity operating a UAV System.
UAV Pilot	The person in direct control of the UAV.

Other Definitions as Stated in JAA Eurocontrol UAV Task-Force Final Report

The following are terms used by D/Flying as defined in JSP 556 (see also Chapter 10):

Unmanned Aerial Vehicle Controller	A member of the team responsible for the direct input of flight commands to the UAVS.
Master Unmanned Aerial Vehicle Controller	The member in charge of the UAVC team who is, effectively, the commander of the aircraft. NOTE: The actual individual can change either because of the way the UAVS operates or because he/she is relieved during protracted operations. There will, however, always be one individual who is the MUAVC during any stage of flight and is therefore ultimately responsible for the UAV.
Range Air Controller	A qualified Air Traffic Control Officer (ATCO) responsible for airspace management within the range. The RAC is responsible for applying the appropriate separation between all aircraft.
Target Air Controller	A Range Air Controller or an Assistant Range Air Controller (ARAC), working under the RAC, responsible for the issuing of instructions to the UAVC team in order to achieve the profile required for the flight.

The following are terms used by the UK Military as defined in JSP 550:

Unmanned Aerial Vehicle Commander	Every flight of a UAVS must be under the command of a UAVS Commander. The UAVS Commander is a qualified, competent and current person who is in overall charge of, and responsible for, a particular UAVS flight or set of flights. The UAVS Commander can either be in direct control of the air vehicle by remote controls; co-located with the UAVS-p or monitoring the state and progress of the air vehicle at the flight deck location in the Ground Control Station. The UAVS Commander must meet the training and currency required stated in R320 and AOA or Command/Group Orders.
Unmanned Aerial Vehicle pilot (UAVS-p)	The UAVS-p is a qualified, competent and current person who is actively exercising remote control of a non-autonomous UAVS flight, or monitoring an autonomous UAVS flight. The UAVS-p may or may not be the UAVS Commander. The UAVS-p must meet the training and currency required stated in R320 and AOA or Command/Group Orders.

Chapter 1 Introduction

1 Policy

- 1.1 It is CAA policy that UAVs operating in the UK must meet the same or better safety and operational standards as manned aircraft. Thus UAV operations must be as safe as manned aircraft insofar as they must not present or create a hazard to persons or property in the air or on the ground greater than that attributable to the operations of manned aircraft of equivalent class or category.
- 1.2 In consideration of the limited aviation background of many UAV manufacturers, the guidance is comprehensive and necessarily prescriptive. The CAA will supplement this CAP with further written advice when required. Rules for Avoiding Aerial Collisions are set out in the Rules of the Air Regulations 1996 (Rule 17). The term 'See and Avoid' for manned aircraft is referred to as 'Sense and Avoid' for the purpose of UAV operations.
- 1.3 UAVs may not be flown without obtaining the relevant national approvals. See Chapters 13-15.

2 Definition

- 2.1 For the purposes of this Guide a UAV is defined as:
'An aircraft which is designed to operate with no human pilot on board.'
- 2.2 Guidance on the use of armed UAVs, Cruise Missiles and recreational Model Aircraft is not included here.
- 2.3 Guidance on the operation of Model Aircraft is published in CAP 658 *Model Aircraft: A Guide to Safe Flying*.

3 Classifications

There are many different classifications of UAV. A commonly accepted classification is by Mission Group or Design Environment but some nations favour classification by weight. Such classifications are recognised as valid but, for the purposes of airspace management, the CAA and JSP 550 classifications are:

Group 1

Those intended to be flown in permanent or temporarily segregated airspace (normally a Danger Area) over an unpopulated surface (normally the sea following 'clear range' procedure).

Group 2

Those intended to be flown in permanent or temporarily segregated airspace (normally a Danger Area) over a surface that may be permanently or temporarily inhabited by humans.

Group 3

Those intended to be flown outside Controlled Airspace (Class F&G) in the United Kingdom Flight Information Region (UK FIR).

Group 4

Those intended to be flown inside Controlled Airspace (Class A-E) in the United Kingdom Flight Information Region and United Kingdom Upper Information Region (UK FIR and UK UIR).

Group 5

Those intended to be flown in all airspace classifications.

4 Point of Contact

Lt Cdr G N Bowker RN
DAP ORA4
K6 G3
CAA House
45-59 Kingsway
London
WC2B 6TE

Tel: 020 7453 6544

Fax: 020 7453 6565

E-mail: geoff.bowker@dap.caa.co.uk

Chapter 2 Legal Considerations

1 Policy

1.1 The Chicago Convention

- 1.1.1 As a signatory to the Chicago Convention and a member of the International Civil Aviation Organisation, the United Kingdom undertakes to comply with the provisions of the Convention and Standards contained in Annexes to the Convention save where it has filed a Difference to any of those standards.
- 1.1.2 Article 3 of the Convention provides that the Convention applies only to civil aircraft and not to State aircraft. State aircraft are defined as being aircraft used in military, customs and police services. No State aircraft may fly over the territory of another State without authorisation. Contracting States undertake when issuing Regulations for their State aircraft that they will have due regard for the safety of navigation of civil aircraft.
- 1.1.3 Article 8 of the Convention provides that no aircraft capable of being flown without a pilot shall be flown without a pilot over the territory of a Contracting State without special authorisation by that State.

2 Law

2.1 European Regulation

- 2.1.1 EC Regulation 1592/2002 (the EASA Regulation) establishes the European Aviation Safety Agency and makes provision for Implementing Rules dealing with airworthiness certification and continuing airworthiness. Detailed requirements for airworthiness certification and continuing airworthiness are set out in two Implementing Rules.
- 2.1.2 Neither the EASA Regulation nor the Implementing Rules apply to aircraft engaged in military, customs, police or similar services (state aircraft). EU Member States must however ensure that such services have due regard as far as practicable to the objectives of the EASA Regulation.
- 2.1.3 Certain categories of civil aircraft are also exempt from the need to comply with the EASA Regulation and its Implementing Rules. The exemptions which are of relevance for UAVs are:
- aircraft specifically designed or modified for research, experimental or scientific purposes and likely to be produced in very limited numbers;
 - aircraft whose initial design was intended for military purposes only; and
 - unmanned aircraft with an operating mass of less than 150 kg.
- 2.1.4 Any aircraft which is subject to the EASA Regulation and Implementing Rules (e.g. an unmanned aircraft more than 150 kg which is neither experimental nor military) will be required to have an EASA airworthiness certificate.
- 2.1.5 Aircraft which are state aircraft or which come within one of the excepted categories remains subject to national regulation so far as airworthiness certification and continuing airworthiness are concerned.

2.1.6 Equipment requirements, operational rules, personnel licensing, aerodrome regulation and regulation of air traffic services are not (yet) dealt with by European Regulations and so are all a matter for national regulation for all categories of aircraft.

2.1.7 In the case of the United Kingdom, the National Regulations are as described in paragraph 2.2 below.

2.2 National Regulation

2.2.1 Civil and Military Regulations

2.2.1.1 In the United Kingdom, there are two regulatory regimes, civil and military. Military requirements are a matter for the Ministry of Defence. A military aircraft for this purpose includes any aircraft which the Secretary of State for Defence certifies should be treated as a military aircraft.

2.2.1.2 Any aircraft which is not a military aircraft must under United Kingdom aviation safety legislation comply with civil requirements. There is no special provision for aircraft used in police, customs or other similar services.

2.2.2 The Air Navigation Order 2000 and the Rules of the Air Regulations 1996

2.2.2.1 The main civil requirements are set out in the Air Navigation Order 2000 (ANO) and the Rules of the Air Regulations 1996.

2.2.2.2 The provisions in the ANO and Rules of the Air concerning equipment requirements, operational rules, personnel licensing, aerodrome regulation and regulation of air traffic services apply to all non-military aircraft, organisations, individuals and facilities.

2.2.2.3 However, as explained above, insofar as these national requirements concern airworthiness certification or continuing airworthiness they will only apply to categories of aircraft which are exempt from the need to comply the EASA Regulation and Implementing Rules and thus remain subject to National regulation.

2.2.2.4 A non-military aircraft registered in the United Kingdom and which is exempt from the EASA Regulation and Implementing Rules must have a certificate of airworthiness or a permit to fly issued by CAA under the ANO.

2.2.2.5 The ANO includes exceptions for small aircraft. A small aircraft is defined in the ANO as any unmanned aircraft weighing not more than 20 kg. None of the above main requirements apply to such small aircraft. Instead, a set of conditions are included at Article 87 of the ANO subject to which small aircraft may be flown without complying with airworthiness or flight crew licensing requirements or with the Rules of the Air. These conditions include a prohibition on flight in controlled airspace or within an aerodrome traffic zone unless in either case the permission of the air traffic control unit has been obtained, a normal maximum height of 400 ft above the surface and a prohibition on flight for the purposes of aerial work without the specific permission of CAA.

2.2.2.6 These rules for 'small aircraft' have been principally developed for the purposes of regulating recreational model aircraft flying.

2.3 Exemptions

2.3.1 A UAV which weighs more than 20 kg is not a 'small aircraft' for the purposes of the ANO so that all the requirements referred to above (certificate of airworthiness or permit to fly, licensed flight crew, Rules of the Air) must be complied with. If a UAV cannot comply with all of these requirements the CAA may be prepared to issue an Exemption under Article 127 of the ANO. To operate a UAV which weighs less than 20 kg but more than 7 kg for aerial work purposes, a CAA Permission is also required as described in ANO Article 87.

2.3.2 The CAA has permitted a small number of light UAVs weighing more than 20 kg, which were granted exemptions to allow them to fly before the current requirement for a recommendation from an accredited body came into force, to continue to fly without such a recommendation. It is the CAA's intention that with effect from 1 August 2008 these 'grandfather rights' will cease and a recommendation from a suitable accredited body will be required for all light UAVs.

2.4 Insurance

2.4.1 It is important to note that insurance is not a safety issue.

2.4.2 With the exception of aircraft operated by commercial air carriers based in the United Kingdom (which hold an operating licence issued under EC Regulation 2407/92), there is at present no legal requirement for an aircraft in the United Kingdom to be insured.

2.4.3 A new EC Regulation will however come into force on 1 May 2005 requiring most operators of aircraft, irrespective of the purposes for which they fly, to hold adequate levels of insurance in order to meet their liabilities in the event of an accident. This EC Regulation specifies amongst other things the minimum levels of third party accident and war risk insurance for aircraft operating into or within the EU (including UAV's) depending on their MTOM.

3 Lead Agency

European legislation	-	European Aviation Safety Agency
National military regulations	-	Ministry of Defence
National civil regulations	-	CAA Legal Department
Insurance	-	Department for Transport

4 Point of Contact

R J Allan
CAA Legal Department
CAA House
45-59 Kingsway
London
WC2B 6TE

Tel: 020 7453 6161
E-mail: robin.allan@caa.co.uk

Chapter 3 Certification - Military

1 Scope

This guidance describes the requirements involved in obtaining authorisation for the flying of UK Military UAVS.

2 Lead Agency

Defence Aviation Safety Centre - Airworthiness Design Requirements and Procedures (ADRP).

3 Policy

The air vehicle elements, including control station telemetry equipment, of UK Military UAVs are to be treated as UK Military aircraft. They are therefore to be subject to military aviation regulations. The MOD Release to Service is the release document that authorises service flying on behalf of the Service Chief of Staff.

4 Source Documents

- [1] JSP 550 Military Aviation Policy Regulations and Directives.
- [2] JSP 553 Military Airworthiness Regulations.
- [3] Defence Standard 00-970 Design and Airworthiness Requirements for Military Aircraft.
- [4] Defence Standard 05-57 Configuration Management of Defence Materiel.
- [5] Defence Standard 05-123 Technical Procedures for the Procurement of Aircraft, Weapons and Electronic System.

5 Point of Contact

ALTG ADRP2c
AIR/LAND TECHNOLOGY GROUP
Ash 3b #3312
DPA
MOD Abbey Wood
Bristol
BS34 8JH

Tel: 0117 91 35379
Fax: 0117 91 35910
E-mail: altg-adrp2c@dpa.mod.uk

Chapter 4 Certification - Civil

1 Scope

Design and production standards applicable to the civil certification of the whole UAVS, including components of UAVS remote from the aircraft that support or can affect the airworthiness of the UAVS.

2 Lead Agency

2.1 With the creation of the European Aviation Safety Agency (EASA) (reference paragraph 4 [1]) in September 2003, responsibility for certification of UAVS has transferred to EASA (with some exceptions - see paragraph 2.2). General queries and applications for certification for UAVS regulated by EASA should be addressed directly to EASA.

2.2 UAVS not covered within the scope of EASA are excluded by various articles of European Council Regulation 1592/2002, as follows:

- Article 1 excludes aeronautical products, parts and appliances, as well as personnel and organisations involved in the design, production or maintenance of such products, part or appliances, that are engaged in military, customs, police or similar services. However, Member States shall undertake to ensure that such services have due regard as far as is practicable to the objectives of European Council Regulation 1592/2002.
- Article 4(1) and Annex II excludes aircraft specifically designed or modified for research, experimental or scientific purposes, and likely to be produced in very limited numbers.
- Article 4(1) and Annex II excludes unmanned aircraft with an operating mass of less than 150 kg.

2.3 Responsibility for airworthiness regulation of civil UAVS that are outside the scope of EASA remains with the National Aviation Authorities, which, for the UK, is the Design and Production Standards Division of the Civil Aviation Authority, Safety Regulation Group.

3 Policy

3.1 UAVS Subject To EASA Regulation

3.1.1 Applications or enquiries relating to the certification of UAVS within the scope of EASA should be addressed directly to EASA.

3.1.2 A joint JAA/Eurocontrol Task-Force has recently completed a study to develop a concept of regulation for UAVS, which will be offered to EASA as the basis for its own regulatory system (reference paragraph 4 [2]). Whether the concept is adopted, in whole or in part, is a decision for EASA, and the reference is provided here solely for background information.

3.2 UAVS Subject to National Airworthiness Regulations

The CAA has developed policies covering general UAVS certification procedures and standards, together with a Light UAVS policy to address light line-of-sight UAVs. The

Light UAVS policy is an alternative to the general certification procedures and standards and offers a route whereby the CAA may grant an exemption to ANO regulations, provided the UAVS meets specific applicability criteria and operates within the constraints stipulated by the CAA. If a light UAV is intended for operation outside of these constraints, the applicant should discuss these issues directly with the CAA at the earliest opportunity to determine whether equivalent safety measures can be applied that would allow an exemption to be issued. Failing this, compliance with the general UAVS certification policy would be expected.

3.2.1 **General UAVS Certification Policy**

3.2.1.1 Under the General UAVS Certification Policy (reference paragraph 4 [3]), organisations undertaking design and/or manufacture of civil UAVS will be required to hold appropriate approvals under EASA Part 21 requirements or similar requirements acceptable to the CAA.

3.2.1.2 Airworthiness design requirements appropriate to each type of UAVS seeking certification will be derived from the existing codes of requirements as currently applied to manned aircraft. Certificates of airworthiness will be issued to individual UAVs following acceptable demonstration of compliance with the applicable requirements.

3.2.1.3 Where any function of a UAVS is essential to, or can prejudice, continued safe flight and landing of the UAV, that function, and the equipment performing that function, (including equipment remote from the UAV), shall be considered as part of the aircraft for the purposes of the validity of the certificate of airworthiness. As such, that function will have to comply with the applicable airworthiness requirements.

3.2.2 **UAVS Regulated by the 'Light UAVS Policy'**

3.2.2.1 Light UAVS have parallels with model aircraft used for recreational purposes. Using the principle of applying equivalent standards, the CAA has reviewed the safety record of model aircraft and concluded that a similar level of regulation can be applied to a UAVS, provided that the UAVS in question has no greater capability than the majority of the existing model aircraft fleet and is subject to procedures and limitations that are at least as demanding as those applied to model aircraft.

3.2.2.2 UAVS that are designed or modified not to exceed defined maximum speed and kinetic energy levels representative of the existing model aircraft fleet, may be exempted from compliance with certain requirements, provided that operational restrictions at least as demanding as those applied to model aircraft are complied with. The applicable operational limitations include: not operating more than 500 metres from the UAV-pilot; not operating at a height exceeding 400 ft above the surface, and not over or within a defined distance of any person, vehicle or structure not directly involved in the aerial work activity. (Further details of the Light UAVS policy can be obtained from reference paragraph 4 [4] and is summarised, together with model aircraft requirements, in Chapter 15 of this document).

3.2.2.3 The granting of the exemptions and permissions needed to allow the operation of a UAVS within these constraints will be subject to receipt by the CAA of a positive recommendation from an organisation approved for that purpose. Such recommendations will be made following appropriate examination of design and manufacture and witnessing of a successful programme of function and reliability flight-testing. Series examples of light UAVS will not automatically qualify for an exemption but will be subject to individual approvals to ensure consistency in build standards and flight characteristics. Modification to a light UAVS is prohibited for the same reason, unless the UAVS is subject to re-examination/re-assessment and a further recommendation from an approved organisation is submitted to the CAA for issue of a new exemption.

4 Source Documents

- [1] Regulation (EC) No.1592/2002 of the European Parliament and of the Council of the 15 July 2002 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency.
(Available to download from the EASA website: www.easa.eu.int.)
- [2] The Joint JAA/Eurocontrol initiative on UAVs. UAV Task-Force Final Report.
(Available to download from the JAA website: www.jaa.nl.)
- [3] CAA Paper "*Aircraft Airworthiness Certification Standards for Civil UAVs*"
D.R.Haddon/C.J.Whittaker; August 2002.
(Available to download from the CAA website www.caa.co.uk/docs/393/srg_acp_00016-01-120203.pdf.)
- [4] CAA Paper "*UK-CAA Policy For Light UAV Systems*"
D.R.Haddon/C.J.Whittaker; June 2004.
(Available to download from the CAA website http://www.caa.co.uk/docs/393/srg_str_00002-01-180604.pdf.)
- [5] CAA Airworthiness Information Leaflet AIL/0165 - "*Applications for the Approval of Aircraft and Modifications to Aircraft*".
(Available to download from the CAA website www.caa.co.uk/docs/33/AIL0165.pdf.)

5 Point of Contact

5.1 For enquiries relating to CAA UAV design standards:

Head of Certification and Approvals Department
Design & Production Standards Division
Civil Aviation Authority
Aviation House
Gatwick Airport South
West Sussex
RH6 0YR
UK

Tel: 01293 573284
Fax: 01293 573976
E-mail: derek.blackall@srg.caa.co.uk

5.2 For enquiries relating to CAA approval of design and production organisations:

Head of Approvals & Quality Assurance Section
Certification and Approvals Department
Design & Production Standards Division
Civil Aviation Authority
Aviation House
Gatwick Airport South
West Sussex
RH6 0YR
UK

Tel: 01293 573120
Fax: 01293 573976
E-mail: john.marshall@srg.caa.co.uk

5.3 For EASA contact details, see the EASA web site www.easa.eu.int.

Chapter 5 Registration - Military

1 Scope

The regulations governing the registration of military aircraft are contained in Joint Service Publication 553 Military Airworthiness Regulations. The regulation applies to all aircraft required to be registered within the UK as a military aircraft.

2 Lead Agency

MoD DPA SMG ADRP.

3 Policy

It is MoD policy that all military UAVs are to be registered as military aircraft in accordance with JSP 553.

4 Source Documents

[1] JSP 553 military Airworthiness Regulations.

5 Point of Contact

ADRP1c
AIR/LAND TECHNOLOGY GROUP
Ash 3b #3312
DPA
MOD Abbey Wood
Bristol
BS34 8JH

Tel: 0117 91 35207
Fax: 0117 91 35910
E-mail: altg_adrp1c@dpa.mod.uk

Chapter 6 Registration - Civil

1 Scope

The registration requirements for civil UAV's are contained in the Air Navigation Order 2000 and are in line with the requirements of ICAO Annex 7.

2 Lead Agency

CAA - Aircraft Registration Section.

3 Policy

3.1 The registration requirements for UAV's are the same as for any other powered aircraft. The legislative requirements are contained in the Air Navigation Order 2000 Articles 3, 4 and 5.

3.2 As mentioned earlier in the document, exceptions are made for small aircraft. A small aircraft is defined in the Order as any unmanned aircraft weighing not more than 20 kg. None of the registration requirements apply to such small aircraft.

4 Source Documents

[1] Air Navigation Order 2000, Articles 3, 4 and 5.

Other guidance material is available at http://www.caa.co.uk/srg/aircraft_register/default.asp.

5 Point of Contact

Any enquiries for guidance on the Registration of civil UAV's in the UK should be sought from CAA, Aircraft Registration Section.

Robert Ferris
Head of Aircraft Registration
CAA House
45-59 Kingsway
London
WC2B 6TE

Tel: 020 7453 6660

E-mail: aircraft.reg@caa.co.uk

Web: http://www.caa.co.uk/srg/aircraft_register/default.asp

Chapter 7 Maintenance and Inspection - Military

1 Scope

General information on maintenance policy and procedures for military aircraft, including UAV, is contained in the JAP 100A-01 (Military Aviation Engineering Policy and Regulation). Regulations within the JAP 100A-01 apply to all those concerned with the maintenance of military registered aircraft and are applied on either a single-Service or joint-Service basis.

2 Lead Agency

Director General Logistics (Strike) Engineering Policy Branch.

3 Policy

It is MoD policy that military UAV are maintained in accordance with the same policy and procedures requirements applicable to manned aircraft, although within the JAP 100A-01 no distinction is made between manned aircraft and UAV. Subject to the provisions of the appropriate aircraft design and airworthiness requirements, Integrated Project Team Leaders are therefore responsible for the development and publication of specific procedures to effectively support and maintain the airworthiness of their aircraft.

4 Source Documents

General information on maintenance policy and procedures for military UAV is contained in the JAP 100A-01 with specific reference to UAV in Chapter 2.1.

5 Point of Contact

Engineering Policy Regulation (EPR)
Room B007
Block B
RAF Wyton
Huntingdon
Cambridgeshire
PE28 2EA

Tel: 01480 52451 x 6153
E-mail: engpolreg@hqlcr.mod.uk

Chapter 8 Maintenance and Inspection - Civil

1 Scope

Continuing airworthiness requirements including maintenance applicable to civil UAVs, including components of UAVs that can affect the airworthiness of the UAV.

2 Lead Agency

CAA - Safety Regulation Group (SRG), Aircraft Maintenance Standards Department (AMSD).

3 Policy

3.1 UAVs on the UK Civil Register will be required to hold valid certificates of airworthiness. (Some limited exceptions will be made; for example, to continue to allow flights without certificates of airworthiness by 'model aircraft'). For civil UAVs subject to EC regulations the CAA as the UK competent authority will issue the airworthiness certificate. For civil UAVs not subject to EC Regulations certificates of airworthiness will be subject to the provisions of the Air Navigation Order (ANO).

3.2 Continuing airworthiness requirements including maintenance, appropriate to each type of UAVs issued with an airworthiness certificate will be in accordance with the requirements that currently apply to manned aircraft.

3.3 Organisations undertaking continuing airworthiness and maintenance tasks on civil UAVs will be required to hold appropriate approvals and licences under EC Regulations or the ANO as applicable.

4 Source Documents

[1] Regulation (EC) No.1592/2002 of the European Parliament and of the Council of the 15 July 2002 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency.

[2] Commission Regulation (EC) No. 2042/2003 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks.

- annex I – Part M Continuing airworthiness requirements
- annex II – Part 145 Approval of maintenance organisations
- annex III – Part 66 Certifying Staff, aircraft maintenance licence
- annex IV – Part 147 Training organisation requirements.

[3] The Air Navigation Order 2000, as amended.

5 Point of Contact

For enquiries relating to the continuing airworthiness and maintenance requirements for UAVs:

Chief Surveyor
Aircraft Maintenance Standards Department
Operating Standards Division
Civil Aviation Authority
Aviation House
Gatwick Airport South
West Sussex
RH6 0YR

Tel: 01293 573362

Fax: 01293 573984

E-mail: jim.mckenna@srg.caa.co.uk

Chapter 9 CAA Policy on Unmanned Air Vehicle Sense and Avoid Criteria

1 Scope

Guidance to industry on how to progress Sense and Avoid criteria.

2 Lead Agency

CAA - Safety Regulation Group (SRG).

3 Introduction

3.1 At present, Unmanned Air Vehicle Systems (UAVS) that operate within the UK are almost entirely those flying under the auspices of the MOD Flying Regulations. These seek to ensure at least an equally effective level of regulation to the regulations contained within the ANO. Currently an equivalent level of safety to that required for 'manned flying' is achieved by both appropriate regulation and restricting peacetime military UAV operations to segregated airspace (i.e. Danger Areas). Further, there are currently no national procedures, which permit either civil or military UAVS to routinely fly in non-segregated airspace.

3.2 A significant increase in both civil and military UAVS flying is anticipated, most of which will require access to all classes of airspace if it is to be both operationally effective and/or commercially viable. To achieve this, UAVS will have to be able to meet all existing safety standards, applicable to equivalent manned aircraft types, appropriate to the class (or classes) of airspace within which they are intended to be operated.

4 Aim

The aim of this policy statement is to clarify the position of the CAA in respect of its role in assisting the UAV industry to find a solution to achieving a capability and level of safety, which is equivalent to the existing 'see and avoid' concept. It is also recognised that 'see and avoid' is only one of a number of requirements that will need to be addressed for safe operation of UAVs.

5 Policy

The CAA policy on UAV Sense and Avoid Criteria is as follows:

- a) The overriding principle when assessing if a proposed UAV sense and avoid criteria is acceptable is that it should not introduce a greater hazard than currently exists. Any proposed criteria must demonstrate equivalence with manned aircraft safety standards, and the capability of any UAV to comply with the rules and obligations that apply to manned aircraft in relation to collision avoidance.
- b) There has already been considerable discussion between the CAA and industry representatives on matters such as specific distances, or time factors by which a UAV must avoid other airborne objects. From these discussions and its own

deliberations the CAA has concluded that the full range of parameters which may have to be taken into account in any solution of the sense and avoid problem has yet to be established. Consequently it is considered premature at this stage to try to reach agreement on any specific criteria while their significance for any final solution remains unclear. The CAA considers that, until such time as research and development work has been carried out to define potential system concepts and architectures, the parameters that will govern the performance characteristics of a sense and avoid system cannot be identified with any certainty, (and so cannot be agreed).

- c) It is not the role of the CAA to carry out such research and development; this must be performed by the UAV industry. However, it is considered advisable that the CAA has a defined role in the regular review of any such activity in order that the CAA can provide guidance to the UAV industry on the appropriate interpretation of the applicable rules and regulations.
- d) Any agreed Sense and Avoid Criteria must be acceptable to other existing airspace users.
- e) The CAA therefore strongly recommends that any parties developing sense and avoid technology for the use of UAVs in non-segregated airspace should set up a programme of regular discussion and review of their research and development activity with the CAA by making contact at an early stage with the Design and Production Standards Division (D&PSD), Operating Standards Division (OSD) and the Aerodrome, Air Traffic and Licensing Standards Division (AALSD) of the CAA Safety Regulation Group. This will ensure that system developers will have access to the best advice on the applicable regulations, thereby increasing the likelihood of the ultimate acceptance of any sense and avoid system by the civil authorities.

6 Summary

If the UAV industry is to produce UAVs capable of operating in unsegregated airspace, it is essential that 'sense and avoid' issues be addressed. Without a means of ensuring equivalence with manned aircraft, UAV operations will be severely limited and subject to the restrictions of segregated airspace. If every intended UAV flight needs to rely on using segregated airspace then it is highly unlikely the UK UAV industry will progress and grow at the rate it desires. Furthermore, it is doubtful whether sufficient segregated airspace could be made available to meet UAV demand. The CAA considers that the way forward is for the UAV industry to investigate potential solutions and for the research and development process to include full and open consultation with the CAA at appropriate stages.

7 Factors for Consideration when Developing Sense and Avoid Criteria for Unmanned Air Vehicles

The CAA Safety Regulation Group does not define the matters to be taken into account for the design of aircraft or their systems. However, for the guidance of those engaged in the development of Sense and Avoid systems, some of the factors that the CAA believes may need to be considered are listed below;

- a) Ability to comply with the Rules of the Air.
- b) Airworthiness.
- c) Control method, controllability and manoeuvrability.

- d) Flight performance.
- e) Communications procedures and associated links.
- f) Security.
- g) Emergency actions, reversionary or failure modes in the event of degradation of any part of the UAV and its associated Control and/or Relay Stations.
- h) Actions in the event of lost communications and/or failure of onboard sense and avoid equipment.
- i) Ability to determine real-time meteorological conditions and type of terrain being overflown.
- j) Nature of task and/or payload.
- k) Autonomy of operation and control.
- l) Method of sensing other airborne objects.
- m) UAV-p level of competence.
- n) ATC communications, procedures and links with control station.
- o) Means of launch/take-off and recovery/landing.
- p) Reaction logic to other airspace objects.
- q) Flight termination.
- r) Description of the operation and classification of the airspace in which it is planned to be flown.
- s) UAV physical characteristics.

This list is not exhaustive.

Chapter 10 Spectrum Issues

1 Scope

- 1.1 Guidance to industry on the suitability, and where appropriate assignment, of frequencies.
- 1.2 Guidance to and support for industry on how to progress the allocation of dedicated Command and Control (including sense and avoid) spectrum through the ITU process.

2 Lead Agency

CAA - Directorate of Airspace Policy (DAP).

3 Policy

- 3.1 To ensure that frequencies used to support the command and control (including sense and avoid) functions of UAV operations meet both international and national regulations/legislation.
- 3.2 To assist in the identification of suitable dedicated spectrum to support UAV command and control (including sense and avoid) functions to meet the requirements of the airspace in which they wish to operate.

4 Source Documents

- [1] ITU Radio Regulations.
- [2] UK Peacetime frequency allocation table.

5 Point of Contact

Spectrum & Surveillance
K6 G6
CAA House
45-59 Kingsway
London
WC2B 6TE

Primary John Mettrop
Tel: +44 (0) 20 7453 6531
E-mail: john.mettrop@dap.caa.co.uk

Alternate Alistair Abington
Tel: +44 (0) 20 7453 6535
E-mail: alistair.abington@dap.caa.co.uk

Chapter 11 Security Issues

1 Scope

- 1.1 This guidance relates to all UAV System development activities that are intended to lead to civil certification and operation. (Some limited exceptions will be made; for example, to allow flights without certificates of airworthiness by 'model aircraft' and UAVs that operate within the auspices of the 'Small UAV Initiative').
- 1.2 For UAVs to operate within non-segregated airspace it is CAA Policy (See Chapter 13 Flying Operations) that "any UAV outside a UK Danger Area will not increase the risk to existing users and will not deny airspace to them". This Policy requires an equivalent level of Safety as that enjoyed by manned flight. To achieve all the fundamental pillars of a safe system, Airworthiness, Operations, ATM, Security and Certification, must be addressed. Security measures can also benefit the UAV System by preventing 'denial of service', assuring 'integrity of data' and providing 'confidentiality of operations'.
- 1.3 The protection of the data link, the authenticity of the user and the correctness of data transfer and processing are dealt with as matters of security. Physical protection of the pilot is not covered in this Chapter.
- 1.4 The system vulnerability, determined by undertaking Threat and Weakness analyses, determines the extent that a particular system needs specific levels of security measures in each area. The Vulnerability analysis is used to justify what is necessary and sufficient to mitigate the Threats.

2 Lead Agency

Unmanned Aerial Vehicle Systems (UAVS) Association.

3 Policy

- 3.1 The Development, Design and Operation of a UAV System shall be secure. Proof of UAV system security shall be proven using the principles provided herein.
- 3.2 General Principles for Vulnerability Analysis:
 - a) Vulnerability analysis must assess both Threats and Weaknesses and vulnerability only occurs where both of these exist.
 - b) All operational scenario factors should be considered including but not limited to, flight rules, air vehicle capability, kinetic energy, population density, lethal area, airspace, accessibility, desirability etc., when assessing the total threats to a system.
 - c) All weaknesses factors should be considered including but not limited to, employees, location, accessibility, technology, design properties, link protocols, command structure, etc., when assessing the total weaknesses to a system.
- 3.3 General Principles for Security in Development, Design and Operation. In accordance with the vulnerability analysis:
 - a) The standards by which UAV systems are developed must be equivalent to those applied to manned aircraft.

- b) The evaluation shall determine that no additional software and/or hardware have been added in any systems components for malicious use at a later date.
- c) The evaluation shall determine that hardware and software within all system components will perform the intended function and that no other function other than that intended can be performed.
- d) All uploaded functions will be signed to ensure correctness and authenticity of transfer.
- e) All users of the system shall be authenticated to the system as authorised users of that system.
- f) All commands between the system components shall not be reputable.
- g) All commands and/or transmissions between the system components shall be acknowledged.

4 Source Documents

[1] ISO 15408 (Common Criteria).

5 Point of Contact

5.1 For enquiries relating to CAA approval of design see Chapters 10 and 12.

5.2 For enquiries relating to UAV security design processes:

Mr Gary Clayton
UAV Systems Association - Best Practice Leader – Security
c/o EADS Defence and Security Networks Limited
Meadows Road
Queensway Meadows
Newport
South Wales
NP19 4SS

Tel: 01633 292303

Fax: 01633 292444

E-mail: gary.clayton@cogent-dsn.com

Chapter 12 Operator Qualifications

1 Scope

There are currently no regulations governing the qualifications required to operate a civil registered UAV in UK airspace. For the operation of military UAVs, specific requirements are set out in the MARDS and, for contractors, in AvP67. Qualifications for UK Military operators are laid down in JSP 550 Regulation 320. Individual UAV manufacturers have their own company requirements.

2 Lead Agency

CAA - Safety Regulation Group (SRG), Personnel Licensing Department (PLD).

3 Policy

3.1 In anticipation of wider operations of UAVs in Groups 3-5 (see Chapter 1), DAP is considering using the word 'crew' to mean flight crew, that is, the UAV Commander and the UAV-p, each of whom is a crew member.

UAV Commander Every flight of a UAV must be under the command of a UAV Commander. The UAV Commander is a qualified person who is in overall charge of, and responsible for, a particular UAV flight or flights.

The UAV Commander can:

- be in direct control of the vehicle by remote controls; or
- co-located with the UAV-p; or
- monitoring the state and progress of the vehicle at the flight deck location in the GCS.

UAV-p The UAV-p is a qualified person who is actively exercising remote control of a non-autonomous UAV flight, or monitoring an autonomous UAV flight. The UAV-p may or may not be the UAV Commander. The UAV-p must meet the training, qualifications, proficiency and currency requirements stated in the approved Flight Operations Manual of the operating organisation.

The UAV Commander is tasked with overall responsibility for the operation and safety of the vehicle in flight and must be fully trained and qualified to assume these responsibilities. The UAV Commander therefore assumes the same operational and safety responsibilities as those of the captain or pilot-in-command of a piloted aircraft performing a similar mission in similar airspace. A UAV Commander may simultaneously assume the prescribed responsibilities for more than one UAV when this can be accomplished safely by directing activities of one or more UAV-p.

For all flights in Groups 3-5, the UAV Commander must be licensed and appropriately rated according to airspace classification and meteorological conditions/flight rules. This may mean an instrument rating appropriately endorsed 'UAV'.

3.2 The Flight Operations Manual of the UAV Operating Organisation must specify the required qualifications and levels of training and proficiency for flight crew members, that is, for the UAV Commander and UAV-p. The following aspects shall be addressed:

- Aeronautical knowledge.
- Knowledge of flight critical systems of the relevant UAV.
- Manned aircraft pilot qualifications.
- Communications procedures.
- UAV flight training levels.
- Flight proficiency and currency with the relevant UAV.
- Meteorology.

4 Source Documents

[1] JSP 550.

5 Point of Contact

Personnel Licensing Department
GE Aviation House
Gatwick Airport
W Sussex
RH6 0YR

Tel: 01293 768530
Fax: 01293 573996
E-mail: simon.white@srg.caa.co.uk

Chapter 13 Approval to Operate - Military

1 Policy

Guidance on the Approval to operate military UAVs should be sought in the first instance from the Military Aviation Regulation Team who will advise on any further points of contact if necessary.

2 Point of Contact

Military Aviation Regulatory Team
Cormorant Hse G2
RNAS Yeovilton
Yeovil
Somerset
England
BA22 8HT

Tel: 01935 45 5077

Fax: 01935 45 6572

Military E-mail: MILAVREGS-RN

E-mail: mart-rn@a.dii.mod.uk

Chapter 14 Approval to Operate - Military Trials (Under D/Flying Jurisdiction)

1 Scope

All UAV Flying under D Flying jurisdiction must comply with any approvals/restrictions issued by the D Flying before they are permitted to fly. See Chapter 19.

2 Lead Agency

MoD DPA D/Flying.

3 Policy

- 3.1 All operations will be subject to an appropriate level of approval similar to that applied to manned flights.
- 3.2 This will include approvals for, as appropriate, the company, designated head of flying, operating airfield(s), UAV controlling staff and sight of specific UAV types.
- 3.3 Under normal circumstances and until appropriate national airspace procedures have been promulgated, flights will only be permitted within D Flying- approved Danger Areas. These Danger Areas must provide adequate radar services (or such processes that are agreed to be considered equivalent) such that the ANO requirement for the 'Commander' of the aircraft (i.e. the master UAV Controller), to avoid aerial collisions, can be fully acquitted.

4 Source Documents

- [1] AvP67.
- [2] JSP 550 series.
- [3] Military Aeronautical Information Publication.

5 Point of Contact

Mr Matt Syndercombe
D Flying UAV Ops
Directorate of Flying (DPA)
Building 419
MoD Boscombe Down
Salisbury
Wiltshire
SP4 0JE

Tel: 01980 664029
Fax: 01980 663027
E-mail: altg-d-f-uav@dpa.mod.uk

Chapter 15 Approval to Operate - Civil

1 Lead Agency

CAA - Safety Regulation Group (SRG), General Aviation Department (GAD).

2 Introduction

All civil aircraft fly subject to the legislation of the Air Navigation Order 2000 and the associated Rules of the Air Regulations 1996. However, in accordance with its powers under Article 127 of the ANO, the CAA may exempt UAV operators from the provisions of the ANO and the Rules of the Air, depending on the UAV's potential to inflict damage and injury.

3 Policy

3.1 The table below summarises current CAA policy for UAVS to fly in UK airspace and identifies the operating constraints that would normally be applied. (Associated 'model' aircraft requirements used for recreational use are included for comparison.)

3.2 The CAA may issue an exemption or permission for model aircraft/light UAVs to operate if the applicability criteria detailed below are met and the CAA is satisfied that the model/light UAV will be operated within the constraints stipulated. If a model/light UAV is intended for operation outside of these constraints, the applicant should discuss these issues directly with the CAA at the earliest opportunity to determine whether equivalent safety measures can be applied that would allow an exemption to be issued.

	Recreational Use	Commercial Use (Aerial Work)
<7 kg	'Small Aircraft' under ANO Art 129 <ul style="list-style-type: none"> • Minimum operational constraints • No airworthiness standards 	'Small Aircraft' under ANO Art 129 <ul style="list-style-type: none"> • Minimum operational constraints • No airworthiness standards
7-20 kg	'Small Aircraft' under ANO Art 129 <ul style="list-style-type: none"> • Operational constraints required by ANO Art 87(2)(a) – (d) • (See Note 1) • No airworthiness standards 	'Small Aircraft' under ANO Art 129 <ul style="list-style-type: none"> • Operational constraints required by ANO Article 87(2) (a) – (d) • (See Note 1) • CAA Permission required under ANO Art 87(2)(e) which is subject to additional constraints as the CAA thinks fit • (See Notes 2 and 3) • No airworthiness standards
20-150 kg	<ul style="list-style-type: none"> • Exemption required against ANO incorporating constraints as the CAA thinks fit • (See Notes 1 and 2) • LMA recommendation (or equivalent) in lieu of airworthiness standards 	<ul style="list-style-type: none"> • Exemption required including constraints at Notes 1, 2 and 3 • Impact kinetic energy must be determined to be not more than 95 KJ • (See Note 4) • Airworthiness recommendation from accredited body • (See note 5)
>150 kg	N/A	<ul style="list-style-type: none"> • Existing national operating rules • EASA airworthiness standards

Note 1: Applicable Operating Constraints (ANO Art 87(2)(a) – (d))

Shall not fly such an aircraft:

- a) unless the person in charge of the aircraft has reasonably satisfied himself that the flight can safely be made;
- b) in Class A, C, D or E airspace unless the permission of the appropriate air traffic control unit has been obtained;
- c) within an aerodrome traffic zone during the notified hours of watch of the air traffic control unit (if any) at that aerodrome unless the permission of any such air traffic control unit has been obtained;
- d) at a height exceeding 400 ft above the surface unless it is flying in airspace described in sub-paragraphs b) or c) and in accordance with the requirements thereof.

Note 2: Additional Constraints the CAA may Think Fit to Apply

Additional constraints the CAA may think fit will normally include a prohibition on flight:

- a) at a distance beyond the visual range of the UAV-pilot/model operator of the said aircraft and in any event at a distance exceeding 500 metres from the operator;
- b) within a specified distance, normally 150 metres, of any congested area of a city, town or settlement;
- c) within a specified distance, normally 50 metres, of any person, vessel, vehicle or structure not under the control of the aircraft operator except that during the take-off or landing an aircraft to which this subparagraph applies shall not fly within 30 metres of any person other than the person in charge of the said aircraft or a person in charge of any other small aircraft or a person necessarily present in connection with the operation of such an aircraft;
- d) unless the aircraft is equipped with a mechanism that will cause the said aircraft to land in the event of a failure of or disruption to any of its control systems, including the radio link, and the person in charge of the said aircraft has satisfied himself that such mechanism is in working order before the aircraft commences its flight.

Note 3: Additional Operating Constraints for Commercial Use

Additional constraints are as follows:

- a) maximum achievable steady speed in level flight must not exceed 70 kt;
- b) aerobatics will be prohibited;
- c) tasks that involve aerial inspection of, or close to, any object or installation that would present a risk to safety in the event of damage due to any impact by the UAV. (e.g. Chemical/gas storage areas) shall be prohibited;
- d) participation in any public flying display is prohibited, (except with the written permission of the CAA).

Note 4: Kinetic Energy Limits

Two crash scenarios should be considered in determining the impact kinetic energy of the UAV, as follows:

- a) a free-fall from 400 ft for all UAVs; and
- b) additionally, for a UAV capable of high forward speed, a maximum impact speed (set as 1.4 x maximum achievable steady speed in level flight).

Assuming negligible aerodynamic drag, an object dropped from 400 ft will hit the surface at 95 kt and the kinetic energy at impact will be 95 KJ if the mass of the object is 80 kg. Should the object in fact exhibit significant aerodynamic drag, (without reliance upon any onboard parachute deployment system), the impact velocity will be less and a higher mass may be permissible without exceeding a calculated 95 KJ.

In the second scenario and with a maximum speed of 70 kt, 95 KJ equates to a mass of 75 kg. The mass can be increased up to a maximum of 150 kg, provided the maximum achievable steady level flight speed is sufficiently low that the energy limit is not exceeded (e.g. at 150 kg a maximum speed of 49 kt is permitted).

Further detail on the policy can be found in a CAA Paper available on the CAA Website at: http://www.caa.co.uk/docs/393/srg_str_00002-01-180604.pdf.

Note 5: An Accredited Body to Make Recommendations

For the granting of exemptions the CAA's objective is to be able to place reliance on recommendations from CAA-approved bodies, rather than carry out investigations itself. This is equivalent to current practice for manned aircraft. Accordingly, the CAA would welcome the establishment of a recognised body or bodies, able to provide it with recommendations concerning the design and build standards of UAVS and to oversee the test flying of UAVS. (i.e. To perform a role similar to that carried out by the Large Model Association (LMA) in respect of large recreational model aircraft). In the absence of such an approved body, the CAA may accept representations from other sources on a case-by-case basis where acceptable evidence of their expertise is presented. In all cases the CAA will expect to be presented with evidence that the standards applied are at least as demanding as those applied by the LMA to large models.

- 3.3 Application for an Exemption should be made to the CAA General Aviation Department, stating the weight and speed of the UAV. It is vital to be clear who is the operator (defined in ANO Article 129(3)). The operator, i.e. the person having management of the aircraft, and not another person who may, for example, have contracted with the operator to have work done, should apply for an Exemption.
- 3.4 Security of radio control links and provision for flight termination in the event of a malfunction should be considered from the outset.
- 3.5 UAVs (other than balloons) intended for operation beyond visual range of the UAV-p will require an approved method of aerial collision avoidance that ensures compliance with Rule 17 of the Rules of the Air Regulations 1996 (Rules for avoiding aerial collisions), or will be restricted to operations within segregated airspace. For practical purposes, it is considered that the maximum range over which effective visual control can be exercised should not normally exceed 500 metres. Note that the collision avoidance rules apply to flights conducted under the instrument flight rules (IFR) and to flights made with an air traffic control clearance, as well as to flights under the visual flight rules (VFR).

4 Source Documents

- [1] Air Navigation Order 2000, Rules of the Air Regulations 1996.
- [2] CAP 32 UK Aeronautical Information Publication.

5 Point of Contact

Gill Galway
SRG - GAD
Aviation House
Gatwick Airport South
Gatwick
West Sussex
RH6 0YR

Tel: 01293 573226
Fax: 01293 573973
E-mail: gill.galway@srg.caa.co.uk

Chapter 16 Flying Operations

1 Scope

This guidance relates to civil and military UAV operations outside Danger Areas (Groups 3-5 see Chapter 1). Information on airspace regulation within Danger Areas should be sought from the relevant Danger Area authority. DAP will assist in identifying the appropriate authority if required.

2 Lead Agency

CAA - Directorate of Airspace Policy (DAP).

3 Policy

3.1 Airspace Principles for UAV Operations in the UK

- a) UK aviation legislation is designed to enable manned aircraft to fly safely in various classes of airspace, UAV operators should seek to operate within existing arrangements.
- b) UAVs will not have an automatic right to airspace use if safety provision cannot be made.
- c) In order to integrate with other airspace users, UAV operators must ensure that their aircraft show an **equivalent level of compliance** with the rules and procedures that apply to manned aircraft.
- d) UAV operators should recognise the expectations of other airspace users, which are that the routine flight of any UAV outside a UK danger area **will not increase the risk to existing users** and will not deny airspace to them.
- e) In the near-term, one-off or occasional UAV flights outside Danger Areas may be accommodated. However, this will involve long lead-times and thorough consultation in the flight planning stage, and during the early flights, will almost certainly involve the **exclusive** use of temporary segregated airspace.
- f) The provision of an Air Traffic Service (ATS) to a UAV must be **transparent to the ATC controller**. In other words, the controller must not have to do anything different using RT or landlines than he would with other aircraft under his control. Nor should he have to apply different rules or work to different criteria. UAVs must be able to comply with ATC instructions and with equipment requirements applicable to the class of airspace within which they intend to operate. To ensure that air traffic controllers are aware that a flight is a UAV flight, all UAV callsigns shall include the word "UNMANNED".

3.2 General Principles for UAV Operations in the UK

- a) For all flights outside Danger Areas or reserved (exclusive use) airspace, the vehicle performance and all communications with ATC must be continuously monitored by the UAV-p. The UAV-p must be capable of taking immediate active control of the UAV at all times, and of complying with ATC instructions.
- b) Special equipment (e.g. SSR (Mode S), TCAS or equivalent system etc) mandated for manned aircraft in certain classifications of airspace shall also be fitted to UAVs intended for use in such airspace. Such equipment should be regarded as a minimum.

- c) An approved method of aerial collision avoidance is required. This might be a combination of radar coverage and a chase aircraft or an approved onboard system.
- d) For all flights outside Danger Areas an approved method of assuring terrain clearance is required.
- e) Standard Operating Procedures are required and will include:
 - Take-off and landing procedure.
 - Loss of control data link.
 - Abort procedures following critical system failure.
- f) UAVS must comply with the IFR or VFR as they affect manned aircraft. Thus UAVs fitted with non-visual collision avoidance systems must still comply with the IFR when IMC (i.e. they may not fly VFR in IMC just because they can 'sense' and avoid; quadrantal/semi-circular rules will continue to apply).
- g) Details on how sense and avoid criteria should be arrived at can be found at Chapter 9.

4 Source Documents

- [1] CAP 393 Air Navigation: the Order and the Regulations.
- [2] JSP 550 Military Aviation Policy, Regulations and Directives.
- [3] JSP 552 Military Air Traffic Services.
- [4] UK AIP Integrated Aeronautical Information Publication.

5 Point of Contact

ORA 4
K6 G3
CAA House
45-59 Kingsway
London
WC2B 6TE
Tel: 020 7453 6544
Fax: 020 7453 6565
E-mail: geoff.bowker@dap.caa.co.uk

Chapter 17 Cross Border Operations

1 Scope

For the purposes of this guide, international boundaries are considered coincident with FIR/UIR divisions.

2 Lead Agency

CAA - Directorate of Airspace Policy (DAP).

3 Policy

3.1 DAP will provide guidance on cross border ATC procedures. Guidance on foreign national procedures should be sought from the appropriate State CAA/MoD.

3.2 Article 8 of the Convention on International Civil Aviation ('Chicago Convention') states that:

"No aircraft capable of being flown without a pilot shall be flown over the territory of a contracting State without special authorisation by that State and in accordance with the terms of such an authorisation. Each contracting State undertakes to insure that the flight of such an aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft"

3.3 For the purposes of the Convention the territory of a State shall be deemed to be the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such state (Chicago Convention Article 2).

4 Point of Contact

ORA4
K6 G3
CAA House
45-59 Kingsway
London
WC2B 6TE

Tel: 020 7453 6544
Fax: 020 7453 6565
E-mail: geoff.bowker@dap.caa.co.uk

Chapter 18 Flying Regulations - Military

1 Scope

Military Flying Regulations are contained in JSP 550. The regulations apply to all those concerned in the operation of UK Military Aircraft and non-Service aircraft contracted to support military tasks.

2 Lead Agency

Military Aviation Regulatory Team.

3 Policy

- 3.1 It is MoD policy that UAVs must show an equivalent level of compliance with the regulations for manned aircraft.
- 3.2 UK military aircraft are not bound by the majority of the civil aviation legislation regulated by the Civil Aviation Act 1982. A Statutory Instrument of that Act is the Air Navigation Order 2000 (as amended) (ANO), which governs civil aviation and again military aircraft have an exemption from the majority of these regulations. However, it is Ministry of Defence policy that military regulations in relation to the Rules of the Air and Avoidance of Aerial Collisions should conform to the civilian rules.
- 3.3 During operations involving the use of a chase aircraft, the flight shall be classified as a formation flight and shall have the same right of way status as aircraft engaged in airborne refuelling or towing. A chase aircraft shall not be used in conjunction with a UAV IFR flight when VMC cannot be maintained.

4 Source Documents

The operation of UAVs is covered in JSP 550, Regulation 320.

5 Point of Contact

Military Aviation Regulatory Team
Cormorant House
RNAS Yeovilton
Somerset
BA22 8HT
Tel: 01935 45 5077
Fax: 01935 45 6572
E-mail: mart-rn@a.dii.mod.uk

Chapter 19 Flying Regulations - Military Trials (Under D/Flying Jurisdiction)

1 Scope

- 1.1 D/Flying provides the Regulatory authority, operational and flight safety arrangements for UK military registered aircraft involved in R&D, Clearance and Production flying, and in-Service Return-to-Works (RTW) activities. D/Flying also regulates Civil Owned Military Type Aircraft (COMA) and this extends to Civil Owned Military Registered (COMR) aircraft when they are allotted to a contractor for RTW activities. D Flying also regulate some non-Service UAV Systems.
- 1.2 D/Flying (ATC) is responsible for the regulation and approval of ATC/ Range Air Control staff (and associated equipment) providing services within air Danger Areas operated by QinetiQ on behalf of MoD.
- 1.3 From a MoD perspective, all Integrated Project Team Leaders (IPTLs) **must inform** Directorate of Flying before any new contract involving **any** flying operation is let.

2 Lead Agency

MoD DPA D/Flying.

3 Policy

The MoD require, in JSP 553, that internal regulatory arrangements for military aircraft should be at least as effective as those which follow from the ANO for civilian aircraft, this includes UAVs.

4 Source Documents

- [1] AvP67.
- [2] JSP 556.
- [3] D Flying ATC Policy Statements.

5 Point of Contact

C Smith
D Flying ATC
Directorate of Flying (DPA)
Building 419
MoD Boscombe Down
Salisbury
Wiltshire SP4 0JE

Tel: 01980 663028
Fax: 01980 663027
E-mail: altg-d-f-atc@dpa.mod.uk

Chapter 20 ATM Procedures - Military

1 Scope

The regulations concerning military air traffic services are contained within JSP 552. These regulations apply to all those concerned with the operation of British Service aircraft, but they do not absolve any person from using best judgement to ensure the safety of aircraft and personnel.

2 Lead Agency

MoD HQ STC 3 Gp ATC.

3 Policy

It is MOD policy that UAVs must show an equivalent level of compliance with regulations for manned aircraft. Routine operations of any UAV outside a UK Danger Area must not increase the risk to other airspace users and should not deny the airspace to them. Any one-off unusual air activity¹, that requires de-confliction with, coordination with and notification to other airspace users should be notified through the DAP Airspace Utilisation Section (AUS) in the same way as for manned aircraft. From the air traffic controller's perspective, the provision of an ATS to a UAV must be transparent. This includes all stages of the flight from pre-notification to landing; there should be no difference in RT, landline communications or transponder data procedures nor should the controller have to apply different rules or different criteria.

4 Source Documents

[1] JSP 552.

[2] UK Military AIP.

5 Point of Contact

SO1 ATC (Area)
Room 1W25 E Block
HQ STC (3 Group)
RAF High Wycombe
Bucks
HP14 4UE

Tel BT: 01494 495703

RAFTN: 95221 5703

Fax: 5716

E-mail: CHOTS 3GP-ATC Area SO1

milopsarea@nats.co.uk (E-mails should be marked FAO SO1 ATC (Area))

1. Unusual Air Activity: an event such as an air exercise, trial, display, formation, balloon or kite flight which could adversely affect the operations of other airspace users.

Chapter 21 ATM Procedures - Civil

1 Scope

- 1.1 The Air Traffic Service (ATS) system in the UK comprises three levels of service, Air Traffic Control, Flight Information Service and the Air/Ground Communication service.
- 1.2 It is not possible to anticipate all of the issues and queries relating to ATS integration that will inevitably arise during the future development of UAVs and their operational procedures. Any enquiries for further guidance or to establish the UK policy on a particular issue should be made to the address below.

2 Lead Agency

CAA-SafetyRegulationGroup(SRG),AirTrafficStandardsServicesDepartment(ATSSD).

3 Policy

- 3.1 Individual ATS units may provide services within clearly defined geographic boundaries (such as a specific portion of airspace) or may provide services within a general area (for example, in the vicinity of an aerodrome).
- 3.2 The rules pertaining to aircraft flight and to the air traffic service provided will be determined by a number of factors (including airspace categorisation, weather conditions, aircraft flight rules and type of air traffic service unit).
- 3.3 Not all aircraft within the same geographic area will necessarily be in communication with the same ATS unit or operating under the same rules.
- 3.4 It is important that those managing UAV operations are familiar with the relevant rules and procedures applicable within any airspace through which the aircraft will be flown. Should a UAV wish to fly through Controlled Airspace which is the subject of Air Traffic Flow Management procedures, then it must obtain and comply with an AFTM slot time.
- 3.5 UAV operation is expected to be transparent to ATS providers. The UAV-p will be required to comply with any air traffic control instruction or a request for information made by an ATS unit in the same way and within the same timeframe that the pilot of a manned aircraft would. These instructions may take a variety of forms and, for example, may be to follow another aircraft or to confirm that another aircraft is in sight.

4 Source Documents

- 4.1 Further information about the various levels of ATS and the services available from ATS units can be found in the following documents:
 - [1] Air Traffic Control - CAP 493 Manual of Air Traffic Services Part 1.
 - [2] Flight Information Service - CAP 427 Flight Information Service and the FISO Licence.
 - [3] Air/Ground Communication Service - CAP 452 Aeronautical Radio Station Operator's Guide.

- 4.2 Further information about the classification of airspace and flight rules can be found in CAP 32 UK Aeronautical Information Publication.
- 4.3 Further information about radiotelephony procedures can be found in CAP 413 Radiotelephony Manual.

5 Point of Contact

Guidance on civil ATM procedures for UAVs should be sought from CAA - Safety Regulation Group (SRG), Air Traffic Services Standards Department (ATSSD).

Head of ATS Standards Department
Safety Regulation Group
Civil Aviation Authority
Aviation House
Gatwick Airport South
West Sussex
RH6 0YR

Tel: 01293 573423

Fax: 01293 573974

E-mail: richard.taylor@srg.caa.co.uk

Chapter 22 Emergency ATM Procedures - Military

1 Scope

Regulations and information relating to the UK emergency organisations are contained within JSP 552. For UK airspace, assistance on the VHF (121.500 MHz) and UHF (243.00 MHz) International Aeronautical Emergency Frequencies is provided by the RAF from 2 Distress and Diversion (D&D) sections at LATCC (Mil) and ScATCC (Mil) equipped with extensive radar coverage, communications and specialist facilities.

2 Lead Agency

MOD STC 3 Gp ATC.

3 Policy

It is MOD policy that UAVs must show an equivalent level of compliance with regulations for manned aircraft. The provision of emergency aid and position fixing services to UAVs should be transparent to the D&D controller.

4 Source Documents

[1] JSP 552.

5 Point of Contact

SO1 ATC (Area)
Room 1W25 E Block
HQ STC (3 Group)
RAF High Wycombe
Bucks
HP14 4UE

Tel BT: 01494 495703

RAFTN: 95221 5703

Fax: Ext 5716

E-mail: CHOTS 3GP-ATC Area SO1

milopsarea@nats.co.uk (E-mails should be marked FAO SO1 ATC (Area))

Chapter 23 Emergency ATM Procedures - Civil

Guidance on Emergency ATM procedures for civil UAVs should be sought from CAA - Safety Regulation Group (SRG), Air Traffic Services Standards Department (ATSSD).

Head of ATS Standards Department
Safety Regulation Group
Civil Aviation Authority
Aviation House
Gatwick Airport South
Gatwick
West Sussex
RH6 0YR

Tel: 01293 573423

Fax: 01293 573974

E-mail: richard.taylor@srg.caa.co.uk

Chapter 24 Breaches of ATC Regulations - Military

1 Scope

Regulations relating to the reporting and investigation of breaches of ATC regulations are contained in JSP 552.

2 Lead Agency

MoD STC 3 Group ACC.

3 Policy

The reporting and investigation of incidents of any sort is essential to the safe management of the air traffic services provided by military units. Additionally, dissemination of the knowledge gained from each incident will enable an assessment to be made of any safety implications so that appropriate follow-up action can be taken. It is therefore, MOD policy that operators of UAVs should comply fully with the incident reporting and investigation system as detailed in JSP 552 in the same way as operators of manned vehicles.

4 Source Documents

[1] JSP 552.

5 Point of Contact

SO2 ATC Incidents
Room 1W21 E Block
HQ STC (3 Group)
RAF High Wycombe
Bucks
HP14 4UE

Tel BT: 01494 495709

RAFTN: 95221 5709

Fax: Ext 5716

E-mail: CHOTS 3GP-ATC Incidents SO2

milopsarea@nats.co.uk (E-mails should be marked FAO SO2 ATC Incidents)

Chapter 25 Breaches of ATC Regulations - Civil

1 Scope

Guidance on breaches of civil ATC regulations should be sought from CAA - Safety Regulation Group (SRG), Safety Investigation and Data department (SIDD), SDU3.

2 Point of Contact

SRG - SIDD(SDU 3)
Aviation House
Gatwick Airport South
Gatwick
West Sussex
RH6 0YR

Tel: 01293 573220

Fax: 01293 573972

E-mail: sdd@srg.caa.co.uk

Chapter 26 Incident/Accident Procedures - Military and Occurrence Reporting

1 Scope

Guidance on Incident/Accident procedures for Military UAVs should be sought from MOD Defence Aviation Safety Centre (DASC) SO1 FW.

2 Occurrence Reporting (Military)

Military UAV occurrence reporting is to be carried out iaw with Command Orders and SOPs. UAV Operators are asked to provide copies of all reports to the Defence Aviation Safety Centre (DASC) (fao SO1 Ops Sp). It is intended to integrate UAV occurrence reports into the Flight Safety Information Management System (FSIMS) when it reaches Full Operating Capability. All UAV operators will have access to FSIMS via the Defence Information Infrastructure (DII).

3 Point of Contact

MOD DASC
PO Box 333
RAF Bentley Priory
Stanmore
HA7 3YN

Tel: 0208 838 7613
Fax: 0208 838 7638

Chapter 27 Incident/Accident Procedures - Military Trials (Under D/Flying Jurisdiction)

1 Scope

Incidents/Accidents involving UAVs operating under D/Flying's jurisdiction.

2 Lead Agency

MOD DPA D/Flying.

3 Source Documents

- [1] AvP67.
- [2] JSP 551 Volumes 1 and 2.
- [3] JSP 556.

4 Point of Contact

Tug Wilson
D/Flying Flight Safety
Directorate of Flying (DPA)
Building 419
MoD Boscombe Down
Salisbury
Wiltshire
SP4 0JE

Tel: 01980 662106
Fax: 01980 663027
E-mail: altg-d-f-saf@dpa.mod.uk

Chapter 28 Incident/Accident Procedures - Civil

1 Scope

Any Accident / Serious Incident / Incident involving UK aviation facilities, including aircraft operators, ATC providers, aerodrome operators. Also includes third parties within the UK.

2 Lead Agency

Accident / Serious Incident

Aircraft Accident Investigation Board (AAIB).

Incident

CAA - Safety Regulation Group (SRG), Safety Investigation and Data Department (SIDDD).

3 Policy

Accident / Serious Incident - to be reported to the AAIB.

Incident - to be reported to the CAA.

4 Source Documents

[1] The Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 1996.

[2] Air Navigation Order 2000 - Article 117.

[3] CAP 382 (The Mandatory Occurrence Reporting Scheme).

5 Point of Contact

5.1 Accident / Serious Incident -

DETR AAIB
Berkshire Copse Road
Aldershot
HANTS
GU11 2HH

Tel: 01252 510300
Fax: 01252 376999

5.2 Incident -

SRG SDU1
Aviation House
Gatwick Airport South
Gatwick
West Sussex
RH6 0YR

Tel: 01293 573220
Fax: 01293 573972
E-mail: sdd@srg.caa.co.uk

Annex A Document List

Documents, or extracts thereof, are available from:

Military AIP	No 1 AIDU RAF Northolt West End Road Ruislip Middx HA 4 6NG
JSP 550	Military Aviation Policy, Regulations & Directives MART Cormorant House RNAS Yeovilton Somerset BA22 8HL
JSP 552	HQSTC 3 Gp ATC
Civil CAP, AIP & ANO	Details for purchasing paper copy can be found at www.caa.co.uk Electronic copies of the CAPs and the ANO are available at the same web address, and AIPs at www.ais.org.uk .
AvP67	www.ams.mod.uk/ams/content/docs/flyregs/avp67.pdf