Harrier Aerial Photography Ltd

OPERATIONS MANUAL

This document is a combined Safety and Operations Manual, compliant with Volume 1 – Operations Manual as set out in CAP722A, covering all aspects of Harrier Aerial Photography Ltd utilising unmanned aircraft with a MTOM less than 25 kg operating in the Specific Operating Category in accordance with CAP722 and the requirements of a UK Civil Aviation Authority's Pre-Defined Risk Assessment Operational Authorisation.

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Document Author: Jason Runnquist

Accountable Manager: Jason Runnquist

Amendment Record

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2.2	23/12/2021	Registered office address updated	Jason Runnquist
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2.5	10/03/2023	Registered office address updated	Jason Runnquist

Document Control and Amendment Process

All amendments to this Operations Manual are to be made by Jason Runnquist and must be recorded in the Amendment Record Page found at the front of this document. Each amendment is identified with a new Version Number, an Amendment Date, and a list of the major Amendments Incorporated. All amendments will be signed off by the Accountable Manager, Jason Runnquist.

The CAA will be informed of all major updates that affect the current Operational Authorisation.

All Harrier Aerial Photography Ltd employees will be informed of any changes to this Operations Manual and they must ensure they have access to a current up-to-date version either in electronic or paper format.

Referenced Documents

Reference	Full Title	Issue Number & Date of Issue
CAP 382	Mandatory Occurrence Reporting Scheme	July 2021
CAP 722	Unmanned Aircraft System Operations – Guidance	V9.1 – 22 December 2022
CAP 722A	Unmanned Aircraft System Operations in UK Airspace – Operating Safety Cases	V2 - 7 December 2022
CAP722C	Unmanned Aircraft System UAS Airspace Restrictions Guidance and Policy	V2 - 7 December 2022
CAP 1789A	UK Consolidation Regulation (EU) 2019/947 (as amended)	V7 – 2 December 2022
ANO 2016/765	The Air Navigation Order 2016 (as amended)	13 April 2022
2022.10	DJI User Manual – Mavic Air 2S	V1.2 – 26 October 2022

Acronyms and Abbreviations

Below is a list of abbreviations used in this Operations Manual:

Reference	Full Title
ANO	Air Navigation Order
ATC	Air Traffic Controller
ATSU	Air Traffic Support Unit
ATZ	Aerodrome Traffic Zone
CAA	UK Civil Aviation Authority
CTR	Controlled Traffic Zone
DMARES	UAS & Model Aircraft Registration & Education Service (CAA)
ECCAIRS	European Coordination Centre for Accident & Incident Reporting System
ERP	Emergency Response Plan
FRZ	Flight Restriction Zone
GVC	General VLOS Certificate
MOR	Mandatory Occurrence Reporting
OA	Operational Authorisation
PDRA	Pre-Defined Risk Assessment
RAE	Recognised Assessment Entity
UAS	Unmanned Aircraft System(s)
VLOS	Visual Line of Sight

Definitions

Below is a glossary of Definitions that apply to this Operations Manual:

"LUC" refers to a light UAS operator certificate, which means a certificate issued to a UAS operator by the CAA under point UAS.LUC.050 of Part C of the Annex to the Unmanned Aircraft Implementing Regulation;

"Remote Pilot" means an individual responsible for safely conducting the flight of an unmanned aircraft by operating its flight controls, either manually or, when the unmanned aircraft flies automatically, by monitoring its course and remaining able to intervene and change the course at any time; where in the text of the consolidated UAS Articles from the ANO, the term pilot in command shall be synonymous with Remote Pilot;

"tethered unmanned aircraft" means an unmanned aircraft—

(a) having a MTOM, within the meaning of Article 2 of the Unmanned Aircraft Implementing Regulation, of not more than 1 kg; and

(b) which is flown within limits imposed by a restraining device which attaches the aircraft to the surface or to a person on the surface.;

"UAS" refers to an unmanned aircraft system, and means an unmanned aircraft and the equipment to control it remotely;

"UAS operator" means any person operating or intending to operate one or more UAS;

"unmanned aircraft" means any aircraft operating or designed to operate autonomously or to be piloted remotely without a pilot on board;

"unmanned aircraft subject to certification" means any unmanned aircraft forming part of a UAS required to be certified under Article 40(1)(a), (b) or (c) of the Unmanned Aircraft Delegated Regulation;".

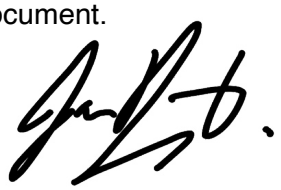
Commitment of Accountable Manager

This Operations Manual describes the organisation, aircraft systems, personnel, flight operations and procedures by which Harrier Aerial Photography Ltd carries out its Unmanned Aircraft Systems (UAS) operations within the Specific Operating Category working with UAS under 25 kg with the UAS retained within Visual Line of Sight (VLOS) by the Remote Pilot under a Pre-Defined Risk Assessment Operational Authorisation (PDRA) issued by the CAA.

All Operations will be carried out in accordance with the issued Operational Authorisation PDRA-01 and abide by the requirements of ANO 2016/765 or as amended and UAS Implementing Regulation 2019/947 (as retained in UK Law).

Harrier Aerial Photography Ltd is committed to the safe conduct of all its UAS operations and will ensure that the systems deployed are maintained and prepared in accordance with industry best practice, are operated in accordance with the procedures and bounds of this Operations Manual and within any limitation or condition specified in any UK Civil Aviation Authority (CAA) Operational Authorisation granted for such UAS activity.

It is accepted that the contents of this document do not override the necessity of reviewing and complying appropriately with any new or amended regulation published from time to time by the CAA addressed by this document.

Signed:  10 January 2023

Accountable Manager: Jason Runnquist

UAS Operator: Harrier Aerial Photography Ltd

For and on behalf of Harrier Aerial Photography Ltd, a company registered in England & Wales, Company Number: 12891301, with a registered office at 46 Magnolia Green, Gorleston, Great Yarmouth, England, NR31 8DY

Enquiries regarding the content of this document should be addressed to Harrier Aerial Photography Ltd at the above address.

Contents

1. INTRODUCTION

1.1. Purpose

The purpose of this document is to record the key data associated with the safe operation of any Unmanned Aircraft System (UAS) with a Maximum Take-Off Mass of up to 25 kg by Harrier Aerial Photography Ltd personnel within the Specific Operating Category under a UK CAA OA referred to as a PDRA-01.

1.2. Scope

Harrier Aerial Photography Ltd's traditional business is aerial photography and videography.

Its customer base includes estate agents, event and PR companies, hotels, other venues and individuals. Additionally, it may partake in freelance work for other UAS organisations.

The nature of the work will be the capturing of still and moving images for use in sales, promotional and personal literature, videos and websites.

1.3. Overarching Strategy

Harrier Aerial Photography Ltd will, over time, increase and update its UAS fleet to cater to a wider range of requirements. This will necessitate an increase in qualified personnel.

It will be looking to establish themselves as an expert in the agricultural applications for drones. It will also expand further into the fields of surveying and inspection.

As new technologies and new applications for UAS are introduced, Harrier Aerial Photography Ltd. will investigate their viability for incorporation into their business.

Safety is paramount and Harrier Aerial Photography Ltd has put essential safeguards in place to maintain a safe environment for all involved or connected to Harrier Aerial Photography Ltd UAS operations.

2. SAFETY POLICY

2.1. **Policy**

Safety is the priority in all Harrier Aerial Photography Ltd activities. The business is committed to implementing, developing and improving strategies, management systems and processes to ensure that all its aviation-related activities uphold the highest level of safety performance and meet national and where appropriate international standards.

Harrier Aerial Photography Ltd's commitment is to:

a) Comply with and, wherever possible, exceed legislative and regulatory requirements and standards

b) Develop and embed a safety culture in all aviation-related activities that recognises the importance and value of effective aviation safety management and acknowledges that safety is always paramount

c) Minimize the risks associated with aircraft operations to a point that is as low as reasonably practicable and achievable

d) Ensure that externally supplied systems and services that impact upon the safety of operations meet appropriate safety standards

e) Ensure that sufficient skilled and trained resources are available to implement safety strategy and policy

f) Establish and measure safety performance against realistic objectives and/or targets

g) Continually improve its safety performance, and

h) Conduct safety and management reviews and ensure that relevant corrective action is taken.

2.2. **Safety Management System**

Harrier Aerial Photography Ltd has only implemented the rudiments of a full Safety Management System.

The 'internal' Safety Objectives are:

- Encouraging an environment whereby safety has top priority and is second nature, and
- Increasing the knowledge on safe operations and practices on the part of its customers.

2.3. **Safety Targets**

It is the goal of Harrier Aerial Photography Ltd to operate aircraft without harm, injury or damage to any persons or property. The Harrier Aerial Photography Ltd Remote Pilot will comply with all the safety requirements and limitations of the PDRA-01 Operational Authorisation issued by the UK CAA to Harrier Aerial Photography Ltd

The safety target is No Accidents.

3. ORGANISATION

3.1. **Organisation**

Organisation Name:	Harrier Aerial Photography Ltd
CAA UAS Operator ID:	12824
DMARES Operator ID:	GBR-OP-8CZHYVWD3BM2
Organisation Type:	Private Limited Company
Organisation Registration No:	12891301
Country of Registration:	England & Wales

Harrier Aerial Photography Ltd has third Party Public Liability Insurance as outlined below: -

Insurer:	Starr International (Europe) Limited (SEIL)
Broker:	Coverdrone
Insurance Policy Number:	CDA22116272GBP
3rd Party Liability Insurance:	£1,000,000
Insurance Expiry Date:	Continuous on an 'as and when' basis from 08/12/2022

This insurance is compliant with EC Directive 785/2004 and covers all UAS flown by Harrier Aerial Photography Ltd, but it has to be activated on an 'as and when' basis. A copy of the current Coverdrone CAA Form is enclosed as Appendix A to this Operations Manual.

Harrier Aerial Photography Ltd flies the following UAS:

UAS Make & Model:	DJI Air 2S
UAS Type:	Multirotor
UAS MTOM:	1 kg
UAS Serial #:	42UQJ4Q23A03FX

The technical specifications for this UAS is attached as Appendix B.

3.2. **Structure of Harrier Aerial Photography Ltd**

Harrier Aerial Photography Ltd has one Director and shareholder, Jason Runnquist. He automatically therefore assumes the role of Accountable Manager and as the company's nominated Remote Pilot, that of Chief Remote Pilot.

Contact details:

Address:	46 Magnolia Green, Gorleston, Great Yarmouth, England, NR31 8DY
Tel:	07814 243135
Email:	jason@harrieraerialphotography.co.uk

3.3. **Nominated Personnel**

Accountable Manager:	Jason Runnquist
Chief Remote Pilot;	Jason Runnquist
Remote Pilot:	Jason Runnquist
Assessment:	NQE Certificate
NQE:	Martek Drones Ltd T/A COPTRZ
NQE Reference:	COP-SU14092695
DMARES FLYER ID:	GBR-RP-PSFWH4WFHBT3
UAS Type:	Multirotor
UAS Weight Category:	0 - 25kg
Observer:	As and when required

3.4. **Responsibilities**

The Accountable Manager's responsibilities are:

- Being the one point of contact with the CAA
- Ensuring this Operations Manual is up to date with the latest regulation and requirements
- Overseeing the safe operation of all Harrier Aerial Photography Ltd UAS with adherence to CAP722 and the PDRA-01 issued by the CAA to Harrier Aerial Photography Ltd, see Appendix D for a copy of the current PDRA-01
- Ensuring all accidents and incidents are investigated and reported as required by the CAA

The Chief Remote Pilot's responsibilities are:

- Overseeing all flight planning by the Harrier Aerial Photography Ltd Remote Pilots
- Assigning crew for each operation
- Managing the UAS including the UAS' maintenance and release for service
- Conducting competency assessments and performance reviews of the Harrier Aerial Photography Ltd Remote Pilots on an annual basis

The Remote Pilot's responsibilities are:

- Completing all flight operations in accordance with the issued PDRA-01, this Operations Manual, CAP722 and the UAS manufacturer's User Manual
- Communicating with client as required to understand the required task.
- Planning each flight in advance and ensuring the right resources are available when required.
- Completing the pre-flight risk assessment and mitigating any risks where possible.
- Having confidence that the flight can be conducted safely and the competence to perform that flight.
- Supervising each operation of the UAS.
- Ensuring that he or she is of sound body and mind to operate the aircraft.
- Ensuring that the aircraft used is airworthy by completing the pre-flight checklist.
- Checking that everything is secure on the UAS.
- Briefing all crew members prior to a flight to ensure they understand their responsibilities.
- Ensuring that the welfare of themselves or others is not compromised by any planned operations.
- Completing all required paperwork such as pilot & aircraft hours, battery log etc. after a flight.

If present, the Observer's responsibilities are:

- Acting as a link between the Remote Pilot and other crew members.
- Ensuring the Remote Pilot is aware of all relevant developing situations.
- Maintaining constant visual look out for ground and air incursions.
- Ensuring the position of the UAS is always known.
- Being prepared to activate the 'failsafe' function on the aircraft when required.
- Briefing the pilot after a flight using Threat and Error Management techniques to help the pilot improve his or her competency.

3.5. **Areas of Operation**

The anticipated areas of operation are in East Anglia, mainly within Class G airspace.

If the operating site is within an ATZ or a CTR in Class D airspace, and especially if within the Flight Restriction Zone (FRZ) of a 'protected aerodrome', as defined by Articles 94B and 94BA of ANO 2016/765, the Remote Pilot will contact the appropriate ATC for advice, permission and clearance to fly.

Where the planned operation is within 5 km of an airfield, protected or otherwise, the Remote Pilot will assess the likely flow of air traffic and if there are any safety concerns contact the resident ATC or the airfield operator as a courtesy.

Operations will be carried out mainly in rural and semi-rural locations.

Urban operations will only be carried out where the minimum separation distance from uninvolved people not directly under the control of the Remote Pilot can be maintained.

3.6. Types of Operation

The anticipated types of operation are:

- Aerial Photography
- Aerial Videography
- Basic Inspection

Operations that are conducted will be within standard Visual Line of Sight (VLOS) limitations of 400 ft above surface level and at a maximum distance from the Remote Pilot of 500 metres provided the Remote Pilot can see the UAS in good Visual Meteorological Conditions.

The minimum separation from uninvolved persons not directly under the control of the Remote Pilot will be 50 metres during flight, reduced to 30 metres during take-off and landing.

3.7. Supervision of UAS Operations

The Chief Remote Pilot will supervise all flight planning, crew allocation and UAS deployment.

The Remote Pilot present during each operation will be responsible for the supervision and safe conduct of that operation.

The Remote Pilot will seek clearance from the Accountable Manager in advance of a flight where a risk is identified as not being in the Low or Moderate categories and cannot be easily mitigated.

An Observer, if present, will be charged with pointing out to the Remote Pilot any unobserved threat or risk that manifests itself during a flight using Threat and Error Management techniques.

Any safety issue that arises will be brought to the attention of the Accountable Manager as soon as practicable after the incident has been recorded.

3.8. Flight Safety Programme

3.8.1. Emergency Response Plan

Harrier Aerial Photography Ltd has adopted an Emergency Response Plan (ERP) to address emergencies occurring both before a flight and while a flight is in progress. The Emergency Procedures the Harrier Aerial Photography Ltd Remote Pilot should follow are detailed in Appendix G but the principles are outlined here.

Before the Flight

The Remote Pilot will identify at least one alternative landing site and at least escape route, i.e. a direction in which the UAS can safely be flown at speed if necessary.

If agencies such as the Emergency Services or the client is present, the Remote Pilot will coordinate his on-site ERP with any ERP being operated by another organisation.

The Remote Pilot will brief the crew members and any other persons under their control present about the on-site ERP before commencement of the flight.

During the Flight

The Remote Pilot will always adopt the principle that peoples' safety is paramount and any action taken must be in the interests of not allowing the UAS to come into contact with people, thereby possibly injuring or in the worst case killing them.

When people are present the speed of the UAS will be reduced and the UAS will never be flown at people at speed especially at low heights. The Remote Pilot will always respect the 1:1 principle: the height of the UAS compared to the horizontal distance from the UAS to a person.

Should an emergency occur, the Remote Pilot will call out the emergency so people present are aware of the transition from normal to emergency operations and will always seek to increase the distance between the UAS and the persons involved, whether they be airborne or on the ground.

In most cases once a safe distance has been established the UAS will be landed and shut down. If the UAS is not responding as required but the Remote Pilot can 'kill' the motors so the UAS lands in a place away from people then that option will be taken.

If the Remote Pilot can regain control and the emergency passes, the Remote Pilot will call out to the people present that the emergency has passed and normal operations are being resumed.

3.8.2. Incident Reporting

Harrier Aerial Photography Ltd will comply with the requirements of CAP382, Mandatory Occurrence Reporting.

Any Incidents or Occurrences will be dealt with by Harrier Aerial Photography Ltd as follows: -

Incident Handling

In the event of any Incident, the severity must be assessed. The following lists should help to identify Minor and Major Incidents: -

MINOR INCIDENTS

- Any unusual or unexpected flight behaviour from the aircraft which does not result in damage or loss
- Any failure of any aircraft system which does not result in damage or loss

MAJOR INCIDENTS

- Any unusual or unexpected flight behaviour from the aircraft which results in damage or loss
- Any significant damage to the aircraft caused by an aircraft system failure
- Any significant danger or damage to persons, possessions or property during Flight Operations
- Any public encroachments or aircraft incursions which required preventative measures to avoid

Incident Logging

All MINOR incidents will be logged in the Aircraft Operating Hours Log as well as the Harrier Aerial Photography Ltd Incident Log. Upon noting a minor incident, the logbook should be checked for similar occurrences. If a minor incident occurs three times, then an investigation should be initiated to identify the cause and consider implementing steps to reduce the likelihood of this incident occurring again.

All MAJOR incidents require an investigation as outlined in the Investigation Procedure section. The Incident Log should also be updated.

Investigation Procedure and Report

Any investigations undertaken by Harrier Aerial Photography Ltd will follow the procedure shown below to generate an Investigation Report with the following contents:

INTRODUCTION

The introduction contains the context for the Incident and confirms the major facts as to the companies and people involved, why they were present and the reason for the flights being carried out.

DESCRIPTION OF EVENTS

This is a factual account of the events leading up to and immediately after the incident as well as the incident itself. Its aim is to provide an agreed basis upon which the analysis is carried out.

Importantly any assumptions should be clearly stated, and all data provided should have its authenticity and derivation stated. If there are doubts, then these should also be clearly articulated so that future analysis can take this into account.

ANALYSIS

The analysis of events sets out to find explanations for what is described in the description of events. Wherever possible the analysis draws upon known concepts, models and physical understanding to ensure that the events as described have a logical explanation.

The analysis should set the scene for any conclusions and provide traceability from the facts to the conclusions in a logical and auditable way.

CONCLUSIONS

The conclusions are derived from the analysis, which themselves are based upon the facts in the description of events or the facts as they pertain to concepts, models and physical understanding exposed within the analysis. A strong conclusion is one where this traceability is good and can stand up to scrutiny.

RECOMMENDATIONS

The aim of the recommendations is to provide the organisations or personnel identified for the report with those items and actions that can lead to a safer operation and which address the short-comings highlighted through the investigation process.

3.8.3. Mandatory Occurrence Reporting

The UK Air Navigation Order states “Any incident which endangers or which, if not corrected, would endanger an aircraft, its occupants or any other person” is a reportable occurrence. CAP382 now

requires that a reportable occurrence is filed on the ECCAIRS2 European-wide reporting system at https://e2.aviationreporting.eu/reporting.

AirProxs will be reported to the UK AirProx Board at https://www.airproxboard.org.uk/home/.

Incidents involving injury to a person should also be reported by the Harrier Aerial Photography Ltd Accountable Manager to the Air Accident Investigation Branch by phoning 01252 512299.

Human factor occurrences will be reported through CHIRP at www.chirp.co.uk to comply with the requirement Chapter 5 of CAP722.

3.9. Flight Team Composition

Harrier Aerial Photography Ltd will be operating alone but will seek assistance where the risks may be greater or there are any safety concerns.

3.10. Operation of Multiple Types of UAS

Harrier Aerial Photography Ltd has only one UAS and only one nominated Remote Pilot. That Remote Pilot can and will only operate one UAS at one time.

3.11. Competency Requirements

Harrier Aerial Photography Ltd will ensure that all Harrier Aerial Photography Ltd pilots acting as the Remote Pilot of its UAS hold a UAS pilot competency assessment or qualification recognised by the CAA.

Harrier Aerial Photography Ltd will ensure anyone operating Harrier Aerial Photography Ltd craft have a valid flyer ID.

3.12. Crew Health

All Harrier Aerial Photography Ltd Remote Pilot and other crew members will be instructed in the 'I'M SAFE' mnemonic and will be trained to use it as a proactive self-assessment tool.

I	llness	Do you feel ill or unwell?
M	edication	Are you on any medication that could affect your performance?
S	tress	Is stress or pressure affecting your decisions?
A	lcohol	Are you under the influence of alcohol?
F	atigue	Are you fatigued or exhausted?
E	ating	Have you eaten and drank enough?

It is the responsibility of the individual to determine if they are in a physically and mentally fit condition to participate in Harrier Aerial Photography Ltd operations.

All crew members must be capable of clearly reading a vehicle registration number plate from twenty metres.

Harrier Aerial Photography Ltd also has a strict no drugs or other illegal substances policy. Crew members shall not attend a flight operation if they are under the influence of alcohol or drugs. All Flight Crew members taking prescription drugs should seek professional guidance and advise the Remote Pilot.

Any crew member who begins to feel unwell and is unable to continue with their assigned responsibilities must safely terminate the operation immediately.

3.13.**Logs and Records**

Harrier Aerial Photography Ltd will maintain up-to-date information and operational logbooks for: -

- Aircraft and Pilot Operating Hours
- Maintenance
- Incidents

See Appendix C for examples of these logbooks.

3.14.**Remote Pilot Training Programmes**

All Harrier Aerial Photography Ltd pilots acting as Remote Pilot on UAS operations will be subject to regular assessment by the Harrier Aerial Photography Ltd Chief Remote Pilot, at least on an annual basis, for competency and currency.

To maintain currency a pilot must have flown a UAS for more than 2 hours in the previous 3 months.

3.15.**CAA Operational Authorisation**

A copy of the current Operational Authorisation issued to Harrier Aerial Photography Ltd by the CAA is included in this Operations Manual as Appendix D.

4. OPERATIONS

4.1. **Role Training and Currency**

All Harrier Aerial Photography Ltd pilots will have to hold a pilot competency assessment or qualification recognised by the CAA for UAS operations and will be assessed by the Harrier Aerial Photography Ltd Chief Remote Pilot as being knowledgeable and competent to fly Harrier Aerial Photography Ltd's UAS in Harrier Aerial Photography Ltd's potential operating environments.

All Harrier Aerial Photography Ltd pilots will be expected to maintain flying skills currency through hands-on flying with Harrier Aerial Photography Ltd UAS, other UAS they have access to or appropriately configured simulators.

4.2. **Area of Operation**

The anticipated areas of operation are in East Anglia, mainly within Class G airspace.

In accordance with ANO 2016/765, if the intended location is within the designated FRZ of a 'protected aerodrome', such FRZ being identified on the Dronesafe website at https://dronesafe.uk/restrictions/, the Remote Pilot will seek permission and clearance to fly from the resident ATC.

If the location falls within an ATZ or Class D airspace but outside the FRZ, the Harrier Aerial Photography Ltd Remote Pilot will assess whether there are a airborne safety issues and contact the appropriate ATC or ATSU if necessary.

Operations will be carried out mainly in rural and semi-rural locations.

Urban operations will only be carried out where the minimum separation distance from uninvolved people not directly under the control of the Remote Pilot can be maintained.

UAS operations conducted in UK airspace will be assessed in advance using comprehensive site risk assessment forms and procedures, see Appendix E.

4.3. **Operating Limitations and Conditions**

All Harrier Aerial Photography Ltd operations will be conducted within the limitations stipulated within ANO 2016/765 and CAP722 or as updated in the Operational Authorisation PDRA-01 issued by the CAA to Harrier Aerial Photography Ltd.

The standard limitations are:

- Visual Line of Sight (VLOS)
    - To a maximum vertically above surface of 400 ft
    - Up to a maximum distance from the Remote Pilot of 500 m

  providing in both cases the Remote Pilot can identify and monitor the UAS
- Not over or within 50 m horizontally of any assemblies of people
- Not within 50 m of any uninvolved person, except that during take-off and landing this distance may be reduced to 30 m.

- Not within the FRZ of a 'Protected Aerodrome' or other airfield without clearance and permission to fly from the resident ATC or airfield operator.

The consolidated UAS Articles from ANO 2016/765 are reproduced in full in Appendix H for reference.

All Remote Pilots are advised to sign up to CAA Skywise portal to ensure they remain up to date with Legislation, information notices and Temporary airspace restriction or changes. http://skywise.caa.co.uk/

4.4. Methods to Determine the Intended Tasks and Feasibility

For all Harrier Aerial Photography Ltd UAS operations, the designated remote pilot will assess the intended task using the Pre-Flight Site Research Form, see Appendix E.

Details captured on the form from the customer will include: -

- Contact Details
- Date and Time Constraints
- Location of Work (Latitude and Longitude if possible)
- Landowner Details
- Other Nearby Air Users (if known)
- Any Other Relevant Information

A completed Pre-Flight Site Research Form will be retained for at least one year for future reference if required.

The designated remote pilot will be responsible for determining the method of operation for the intended task, identifying resources and assessing the task's feasibility. If he or she has any reservations he will discuss the reservations with the Harrier Aerial Photography Ltd Accountable Manager before proceeding with the task.

4.5. Operating Site Planning and Assessment

As part of the research into task feasibility, the Harrier Aerial Photography Ltd remote pilot will use whatever tools and facilities are deemed necessary and available to them. These may include:

Websites:

- Client Information
- Ordnance Survey Maps: https://osmaps.ordnancesurvey.co.uk/
- NATS Aeronautical Information Service: https://www.aurora.nats.co.uk/htmlAIP/Publications/2020-10-08-AIRAC/html/index-en-GB.html
- NATS UAS Flight Restriction Zones: https://nats-uk.ead-it.com/cms-nats/opencms/en/uas-restriction-zones/#UAS_Flight_Restriction_Zones
- Airmap: https://app.airmap.com/

- UAS Safety Map (Altitude Angels): https://www.dronesafetymap.com/
- Google Maps: https://www.google.co.uk/maps/
- Google Maps FRZ Runway Extension Zones: https://www.google.com/maps/d/viewer?mid=1z96X9CEZJzbdN8oIoDueKgyZ1rhBp2qj&shorturl=1&ll=52.647862864494385%2C1.178730560792145&z=16
- Google Earth: https://earth.google.com/web/
- Bing Maps: https://www.bing.com/maps
- Grid Reference Finder: https://gridreferencefinder.com/
- No Fly Drones: https://www.noflydrones.co.uk/
- UK Military AIP: https://www.aidu.mod.uk/aip/index.html
- Magic Map: https://magic.defra.gov.uk/MagicMap.aspx
- Map Developers: https://www.mapdevelopers.com/draw-circle-tool.php
- NOTAMinfo.com to confirm NOTAMs: https://notaminfo.com/nationalmap
- UAS Scene: https://dronescene.co.uk

Apps:

- Google Maps
- Google Earth
- OSMaps
- NATS UAS Assist
- Guardian (Altitude Angel)
- UAV Forecast
- Flightradar24
- AirMap
- Hover

Other:

- Current CAA UK VFR Charts (1:250,000)
- Ordnance Survey Explorer Maps (1:25,000)

The task will only go ahead if the remote pilot is satisfied the necessary controls and safeguards can be put in place for a safe operation.

4.6. **Communications**

Contact telephone numbers for the following will be recorded on the Pre-Flight Site Research Form, and the On-Site Survey Form, which can be found in Appendix E, when possible and before departure to the site:

- Landowner(s)
- Observer and Crew
- Client Contact
- Local Police Station
- Local Hospital
- Local Air Traffic Control (ATC)
- Local Air User Clubs

Where possible, contact will be made with the Landowner(s) and the ATC before any physical site survey is conducted.

ATC Phone numbers can be found on

Civil – http://www.nats-uk.ead-it.com/public/index.php.html > IAIP > Eaip > AD2 > Aerodrome Name

Military - https://www.aidu.mod.uk/aip/ > IAP > AD > AD2 > Aerodrome Name > Textual Data

4.7. **Night Time Operations**

Prior to all night time operations (where night time is defined as the time from half an hour after sunset until half an hour before sunrise, sunset and sunrise being determined at surface level), a daylight reconnaissance and site safety assessment including aircraft flight-paths within the surrounding area, shall be undertaken to identify, address and record any hazards, restrictions and obstacles. The launch site shall be provided with adequate illumination and the aircraft shall be equipped with adequate lighting. Flights shall only commence when the weather conditions and visibility of the UAS are suitable for continuous VLOS operations.

4.8. **Pre-Notification**

Pre-Notification is required if a planned flight operation is to take place within two and a half nautical miles of an aerodrome or airport with a Flight Restriction Zone (FRZ) or Controlled Traffic Zone (CTR). The Remote Pilot will contact the ATC in person at least twenty-four hours before the planned flight to advise the controller of the planned flight operation.

Flights with a FRZ require the prior permission from the resident ATC and an agreed method of flight clearance before the flight can take place.

If there is a local Helicopter Landing Site for un-notified aerial activity such as Air Ambulance arrivals and departures the Remote Pilot will submit a NOTAM request to the Airspace Regulation Unit using the online NATS UK NOTAM Form and Guidance Material, in order to increase helicopter crew awareness of planned UAS activity.

Contact details for the tower will be recorded on the relevant On-Site Survey Form.

If there is a local air user club nearby the remote pilot will endeavour to contact the club and enquire about any likely activity on the day of the proposed flight operation.

If the planned flight operation is to take place in areas where there is likely to be members of the public, the remote pilot will inform the local police. The contact and telephone number will be recorded on the On-Site Survey Form.

If the flight operation is to take place in a highly populated area, such as a housing estate, a leaflet drop, and/or a door-to-door advisory campaign will be considered at least seven days in advance to advise members of the public of proposed flight operations. Operations in public areas where public address systems are available require a Harrier Aerial Photography Ltd crew member to announce planned flight operations at least one hour before commencement.

All relevant Harrier Aerial Photography Ltd crew members will be advised of a planned flight operation at least twenty-four hours in advance.

Some ATC's will require an NSF approval via https://nsf.nats.aero/

Applications for NSFs should be made with a minimum of 14 days' notice. Applications submitted less than 7 days in advance of the flight may not be processed.

4.9. Site Permissions

The designated remote pilot will obtain permission from all relevant landowners or land occupiers where flight operations are to be conducted. Where possible, permission will be sought in writing. Where it is available in writing a copy of the permission will be carried on site. No flight operations will commence without permission, either written or verbal, from the relevant landowners or occupiers for the main take-off and landing site.

4.10. Weather

In the week leading up to any flight operation the designated remote pilot will obtain long, medium and short-range weather forecasts. Twenty-four hours before the proposed flight operations the remote pilot will determine whether the planned flight operations will go ahead.

Weather and other forecasts, such as solar activity, will be obtained using readily available resources, which may include: -

Websites:

- UAV Forecast https://www.uavforecast.com/
- XC Weather https://www.xcweather.co.uk/
- Weather Channel https://weather.com/en-GB/
- MetCheck https://www.metcheck.com/
- Windy https://www.windy.com/
- RainToday? http://www.raintoday.co.uk/
- NetWeather https://www.netweather.tv/

Apps:

- UAV Forecast

- Met Office
- WeatherPro Lite
- Windy
- Storm Radar
- BBC Weather

4.11. On Site Procedures

Before setting up on-site in accordance with the On-Site Arrival Checklist, see Appendix F, the remote pilot or a designated crew member will carry a Windspeed check at surface level, using a handheld anemometer

If the remote pilot feels confident that the proposed flight operations can be safely carried out, then the operation can progress, and the remote pilot can complete the On-Site Arrival Checklist.

The Remote Pilot will then carry out the On-Site Survey, see form in Appendix E, to familiarise him or herself with the local geography of the site. This will be completed by physically walking around the site to identify any hazards and any identified will be marked on the On-Site Survey Form. Where an Observer is present, the Observer will accompany the remote pilot.

The Remote Pilot must be satisfied that all risks identified are acceptable and will sign off the On-Site Survey before proceeding to the next stage.

4.12. Assembly and Functional Checks

The UAS will be assembled and checked in accordance with the relevant UAS Assembly Checklist, see Appendix F.

The Remote Pilot will check the day prior to the flight operation that all necessary software and firmware updates have been completed on the UAS to be flown and, if necessary, a test flight has been conducted.

4.13. Pre-Flight Checks

The UAS will be prepared for flight by the remote pilot following the Pre-Flight Checklist, see Appendix F.

4.14. Flight Procedures

When the remote pilot is satisfied the UAS is ready for launch, he or she will follow the Launch Checklist, see Appendix F.

During flight, the remote pilot will conduct situational awareness updates with the Observer, if present. Situational awareness updates will include:

- Monitor UAS
- Monitor ground/airspace

- Monitor battery levels
- Monitor changes in weather
- Check blind spot
- IF SAFETY NOT ASSURED MOVE TO LANDING/EMERGENCY PROCEDURES

Prior to landing, the Remote Pilot will go through the Landing Checklist.

4.15. Post Flight and Between Flight Checks

The UAS will be shut down, made safe and checked in accordance with the Post Flight Checklist, see Appendix F.

4.16. Emergency Procedures

The Emergency Procedures for Harrier Aerial Photography Ltd's UAS are set out in Appendix G.

APPENDICES

Appendix A – Insurance CAA Form

CIVIL AVIATION AUTHORITY

SMALL UNMANNED AIRCRAFT (SUA)
SMALL UNMANNED SURVEILLANCE AIRCRAFT (SUSA)

DETAILS OF AVIATION THIRD PARTY AND AVIATION CARGO INSURANCE MAINTAINED IN FORCE BY PERMISSION HOLDER/EXEMPTION HOLDER OR APPLICANT

1. POLICY DETAILS

Name of Insured: *the Permission holder/Exemption holder or applicant*

Harrier Aerial Photography Ltd

Policy reference

CDA22162037GBP

Period of validity

Policy Registered from: 10/03/2023 To: Continuous, or until replaced following a material change

Insurance cover is attached on an 'as-and-when' basis, at the Insured's request.

Particulars of the aircraft: *If this does not cover all SUA/SUSA operated by the Insured, provide details:*

All SUA operated by the Insured

Liability	***Limit of Insurer's Liability***
AVIATION THIRD PARTY (INCLUDING WAR AND TERRORISM, AVN52)	*per accident, for each and every aircraft and never less than 750,000 SDRs* GBP 1,000,000 Whilst an Operator is in Training this Liability Limit is GBP 1,000,000
AVIATION CARGO	*never less than 19 SDRs per kilogram in commercial operations* N/A

2. POLICY INSURERS
We will not require you to provide a list of all insurers participating in each policy. However, please confirm the leading underwriter(s) to the risks. The CAA retains the right at any time to seek a list of all insurers participating in each policy and will if necessary invoke its powers under section 84 of the Civil Aviation Act 1982 to obtain such lists.

Starr International (Europe) Limited (SIEL)

3. POLICY RESTRICTIONS AND EXCLUSIONS (eg, geographical limits)

SUA/SUSA - 01/03/2017

Worldwide cover, excluding:

- Algeria, Burundi, Cabinda, Central African Republic, Congo, Democratic Republic of Congo, Eritrea, Ethiopia, Ivory Coast, Liberia, Mauritania, Nigeria, Somalia, The Republic of Sudan, South Sudan
- Colombia, Ecuador, Peru
- Afghanistan, Jammu & Kashmir, Myanmar, North Korea, Pakistan
- Georgia, Nagorno-Karabakh, North Caucasian Federal District
- Iran, Iraq, Libya, Syria, Yemen
- Any country where the operation of the insured Aircraft is in breach of United Nations sanctions

General restrictions/exclusions: Illegal Uses, Unauthorised Operator, Landing and Take-off Areas, Contractual Liability, Nuclear Risks, Noise and Pollution, Date Recognition, Asbestos Exclusion, Compliance with Air Navigation Orders, Reasonable Care and Due Diligence, subject otherwise to policy terms and conditions.

4. POLICY CANCELLATION/MATERIAL CHANGE

(a) What period of notice is required for cancellation of or material change to the policy?

Cancellation by the Insured: The Insured can cancel the policy at any time by giving the Insurers notice in writing.
Cancellation by the Insurer: The Insurers can cancel the policy by giving thirty (30) days' notice in writing.
Material change: Notice should be given to the Insurers as soon as reasonably practicable.

(b) Are there circumstances in which the policy can automatically lapse

(i) in respect of War and Allied Perils, if covered (AVN52), other than Five Great Powers War or nuclear detonation?

NO

ii) for any other reason?

NO

(c) Is the policy subject to AVN2000A? YES

If so does AVN2001A apply? YES

DECLARATION BY INSURER OR INSURANCE BROKER

We certify that the policy is fully compliant with EU Regulation (EC) No 785/2004.

We certify that to the best of our belief as Insurers of or Insurance Brokers to the Permission holder/Exemption holder or applicant the above particulars, insofar as they relate to the insurance policies held, are correct.

We further certify that each policy detailed above is in the form known as **Lloyd's Aircraft Policy AVN 1C** (or based thereon), or in the form agreed by the members of the Aviation Insurance Offices Association, or that the policies are no less favourable to the insured than one or other of the aforesaid forms and do not exclude liabilities which would not be excluded by one or other of the aforesaid forms

We confirm that all underwriters participating in this policy are insurers that have been subject to this company's own vetting procedures.

Signed: 	Name: Philip Heath
On behalf of:	Position of Signatory:

SUA/SUSA - 01/03/2017

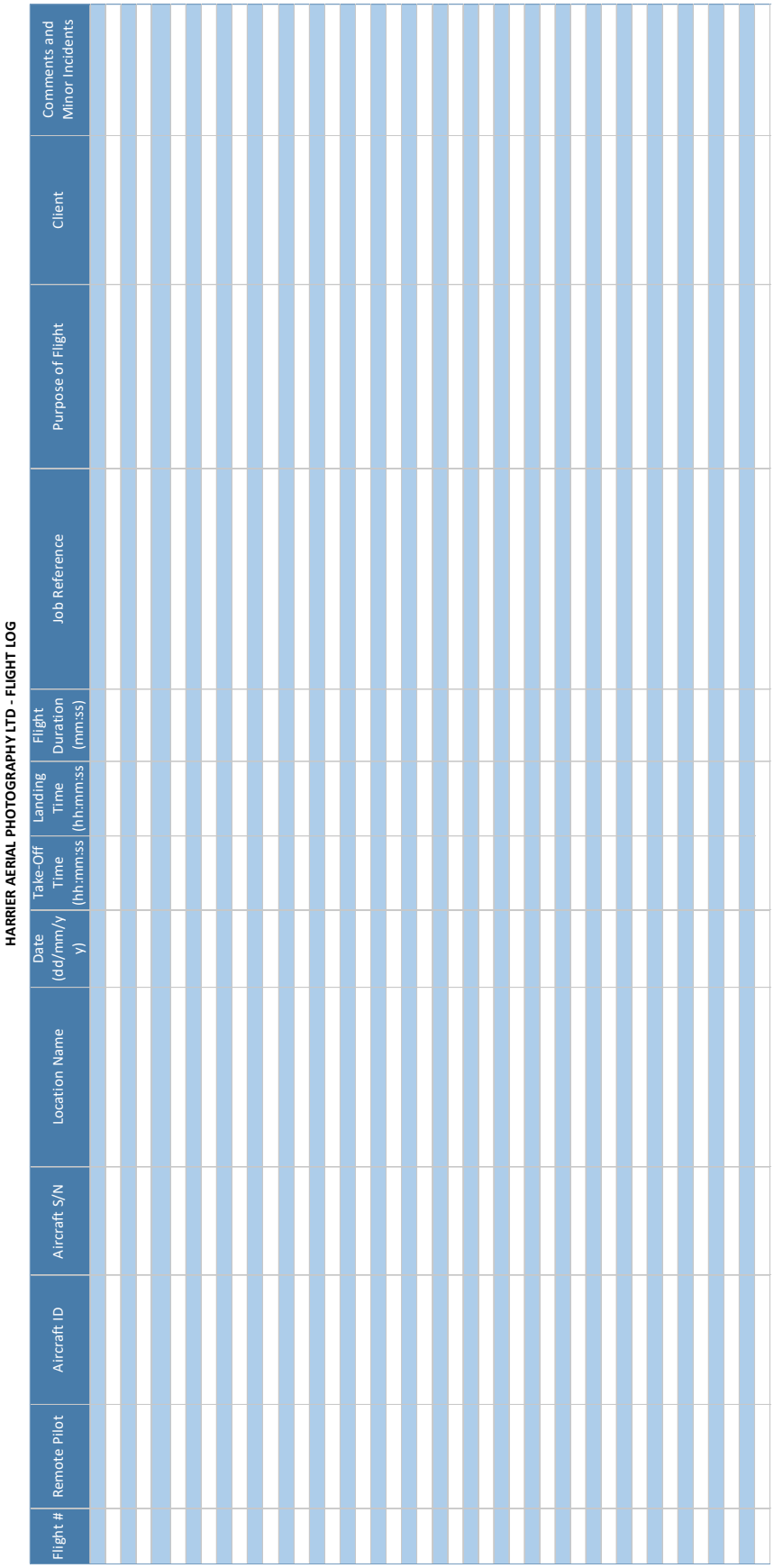
Coverdrone	Insurance Broker
Date: 10/03/2023	

SUA/SUSA - 01/03/2017

Appendix B – UAS Technical Specification

Model:	DJI Mavic Air 2
Type-Configuration:	Rotorcraft-multirotor
Overall Dimensions (H x L x W):	183 mm ×253 mm ×77 mm (unfolded)
Weight:	0.595 kg. (maximum takeoff weight)
Propulsion:	battery powered electric, 4 motors
Energy Store:	LiPo 3500 mAh, nominal voltage: 11.55V
Flight Control Computer:	DJI –Mavic Air 2S integral
Lost Link Response:	Auto Hover, Return-to-homepoint, Land as Configured
C2 Link:	LOS Description: Spread Spectrum R/C 2.400 - 2.4835 GHz, 5.725 - 5.850 GHz
Maximum Service Height:	6000 m AMSL
Maximum Link Range:	9 km
Maximum Flight Distance:	18.5 km
Operating Temperature Range:	0 C to 40 C
Maximum Speed:	19 m/s
Maximum Operating Wind Speed:	10 m/s
Maximum Endurance:	30 minutes

Appendix C – Logbooks



HARRIER AERIAL PHOTOGRAPHY LTD - FLIGHT LOG

Flight #	Remote Pilot	Aircraft ID	Aircraft S/N	Location Name	Date (dd/mm/yy)	Take-Off Time (hh:mm:ss	Landing Time (hh:mm:ss	Flight Duration (mm:ss)	Job Reference	Purpose of Flight	Client	Comments and Minor Incidents

BATTERY CHARGE LOGBOOK BATTERY ID

DATE OF CHARGE	PRE-FLIGHT BATTERY CHARGE %	BATTERY RESIDUAL CHARGE %	DATE OF USE	NOTES

MAINTENANCE LOGBOOK AIRCRAFT

DATE	REASON FOR MAINTENANCE	WORK COMPLETED	COMPLETED BY	PARTS REPLACED	TEST FLIGHT SIGNATURE	NOTES

INCIDENT LOGBOOK

DATE	TIME	INJURIES / DAMAGE	INCIDENT DETAILS	ACTION TAKEN / INCIDENT REPORT	NOTES

Appendix D – Current CAA Operational Authorisation

Civil Aviation Authority

UNMANNED AIRCRAFT - OPERATIONAL AUTHORISATION

SPECIFIC CATEGORY – UKPDRA-01

1.	**AUTHORITY RELEASING THE AUTHORISATION**
1.1. **State**	**United Kingdom**
1.2. **Issuing Authority**	**United Kingdom Civil Aviation Authority**
1.3. **Authorising Signatory Point of Contact**	SSC Technical Services 0330 022 1908 uavenquiries@caa.co.uk
2.	**UAS OPERATOR INFORMATION**
2.1. **Operator Registration No.** **CAA Reference.**	GBR-OP-8CZHYVWD3BM2 UAS 12824
2.2. **UAS Operator Name**	Harrier Aerial Photography Ltd
2.3. **Operational Point of Contact** Name Telephone E-MAIL	 Mr Jason Runnquist 07814243135 jason@harrieraerialphotography.co.uk
2.4. **Authorisation Number**	3
2.5. **Operations manual**	2.3 14/12/2022
3.	**UAS INFORMATION**
3.1. **Manufacturer**	N/A
3.2. **Model**	Any rotary wing unmanned aircraft with a Maximum Take-Off Mass/flying weight of less than 25kg.

Operational authorisation 20230110 Harrier Aerial Photography Ltd UAS12824 *Page **1** of **4***

3.3. **Serial Number or UAS operator Registration Mark (If Applicable)**	The UAS operator's registration number listed at 2.1 must be displayed on every unmanned aircraft flown under this operational authorisation.
3.4. **Relevant/Other Comments**	a. The Unmanned Aircraft must be equipped with a mechanism that will cause it to land in the event of a disruption to, or a failure of, any of its control systems, including the C2 Link. b. The remote pilot must ensure that this mechanism is in working order before any flight is commenced. c. The UAS operator must ensure that the radio spectrum used for the C2 Link and for any payload communications complies with the relevant Ofcom requirements and that any licences required for its operation have been obtained.
4.	**LIMITATIONS AND CONDITIONS FOR THE UAS OPERATION**
4.1. **Type of operation**	a. VLOS only. b. But remote pilots may be assisted by a single unmanned aircraft observer, who must be positioned alongside the remote pilot. The unmanned aircraft observer must maintain direct unaided visual contact with the unmanned aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions, and advise the remote pilot accordingly.
4.2. **Operating times/periods**	Day or night. No timing limitations.
4.3. **Location(s) of operation**	Any location within the United Kingdom subject to the airspace restrictions detailed in 4.4
4.4 **Airspace**	Flights must not be conducted within the Flight Restriction Zone (FRZ) (See Note 1) of a protected aerodrome, or within any Restricted, Prohibited or Danger Area, unless the appropriate clearance or permission to enter has been obtained.
4.5. **Operating heights/altitudes/levels**	a. The unmanned aircraft must be maintained within 120 metres (400ft) from the closest point of the surface of the earth. b. Obstacles taller than 105m may be overflown by a maximum of 15m provided that: (i) The person in charge of the obstacle has requested this; and, (ii) The unmanned aircraft must not be flown more than 50m horizontally from the obstruction.
4.6. **Maximum operating range**	Maximum horizontal range of 500 metres from the remote pilot, unless a lesser control link radio range has been specified by the UAS manufacturer.
4.7. **Separation from uninvolved persons**	a. No flight within 50 metres of any uninvolved person, except that during take-off and landing this distance may be reduced to 30 metres. b. No flight within 50 metres horizontally of any assemblies of people.

4.8. **Security of loads/equipment**	The remote pilot must ensure that any load carried by, or equipment on, the unmanned aircraft is properly secured and that the aircraft is in a safe condition for the specific flight.
4.9. **Remote Pilot requirements**	**a. Remote pilots must be employed by or contracted to the UAS operator.** **b. Remote pilots operating under this operational authorisation must be in possession of a GVC.** **Or,** **Until 31 December 2023, hold an NQE 'full recommendation' obtained prior to 31 December 2020 and a valid 'flyer ID'** **c. Remote pilots operating under this operational authorisation must comply with the responsibilities set out in point UAS.SPEC.060 of Regulation (EU) 2019/947 as retained in UK law.**
4.10. **UAS operator requirements**	a. The UAS operator must comply with the responsibilities set out in point UAS.SPEC.050 of Regulation (EU) 2019/947 as retained in UK law. b. The UAS operator must maintain records of each flight made under this authorisation, and must make such records available to the Civil Aviation Authority on request as set out in point UAS.SPEC.090 of Regulation (EU) 2019/947 as retained in UK law.
4.11. **Occurrence reporting requirements - (Regulation (EU) 376/2014)**	Any occurrences that take place while operating under this authorisation must be reported in accordance with the requirements set out in CAP 722 (section 2.9).
4.12. **Insurance**	Insurance cover meeting the requirements of regulation (EC) 785/2004 must be held.
5.	**VALIDITY**
5.1. **Duration of the Authorisation**	This operational authorisation is valid: **From:** 10/01/2023 **To:** 10/01/2024 Unless otherwise suspended or revoked.
5.2. **Regulation references**	This operational authorisation is issued under Article 5 of Regulation (EU) 2019/947 as retained in UK law.

6.	AUTHORISATION SIGNATURE
6.1. **Signature / Stamp**	
	The UAS operator detailed in section 2 is authorised to conduct UAS Operations with the UAS defined in Section 3, and according to the conditions and limitations in Section 4, provided that they comply with this authorisation, Annex IX to Regulation (EU) 2018/1139 and its implementing rules. **This operational authorisation must be carried by the remote pilot during the operation.**
6.2. **Date**	10/01/2023

Note 1: The "Flight Restriction Zone" of a protected aerodrome can be determined by reference to the table contained within ANO 2016 Article 94A, Paragraph 7 and is described in CAP 722.

Note 2: UAS operators and remote pilots should be aware that the collection of images of identifiable individuals, even inadvertently, when using surveillance cameras mounted on an unmanned aircraft may be subject to the General Data Protection Regulation and Data Protection Act 2018. Further information about these regulations and the circumstances in which they apply can be obtained from the Information Commissioner's Office and website: https://ico.org.uk/for-the-public/drones/

Note 3: UAS operators and remote pilots must be aware of their responsibilities regarding operations from private land and any requirements to obtain the appropriate permission before operating from a particular site. They must ensure that they observe the relevant trespass laws and do not unwittingly commit a trespass whilst conducting a flight.

Appendix E – Pre-Flight Site Research, On-site Research and Risk Assessment Forms

Pre-Flight Site Research Form

1. Client		
Name:		
Company:		
Job Reference:		
Intended date:		
Weather on date:		

2. Pre-Site Visit		
Long. / Lat. & height ASL		
Client specific PPE		
Vehicle access:		
Airspace:	Describe permissions(A,B,C,D,E,F,G) NOTAMS	
Terrain:	Flat, Hilly, Urban, Water, Roads.	
Proximities:	Other aircraft, Airports, Helipads.	
Hazards:	Transmitters, Power Pylons etc.	
Restrictions:	Nuclear power, Prisons, Military.	
Sensitivities:	Nature reserves, Recreation areas.	
People:	Local habitation.	
Livestock:	Farms, Wildlife etc.	
Permissions:	Land owner, Local authority.	
Footpaths:	Public footpaths, Bridleways.	
Emergency Info:	Local Police:	
	Local ATC:	
	Local Hospital:	

3. Surrounding area info.

Operations Area

Local Airspace

On-site Research Form

4. Site Survey		
Confirm info at 2		
Obstructions:	Masts, Wires, Buildings, Train lines, Trees, Lakes, Rivers etc.	
People:	Cordon requirement, Crowd Control.	
Livestock:	Farm animals, Dogs, Wildlife.	
Proximity:	Public, Road Users.	
Take-Off:	Primary:	Secondary:
Landing:	Primary:	Secondary:
Comms:	Radio's requires by ops team.	
Other:	Complete and Attach risk assessment based on Pre-Site Visit & Site Survey.	

Risk Assessment		Location:	
Completed by:			
Date Completed:		Job Reference:	

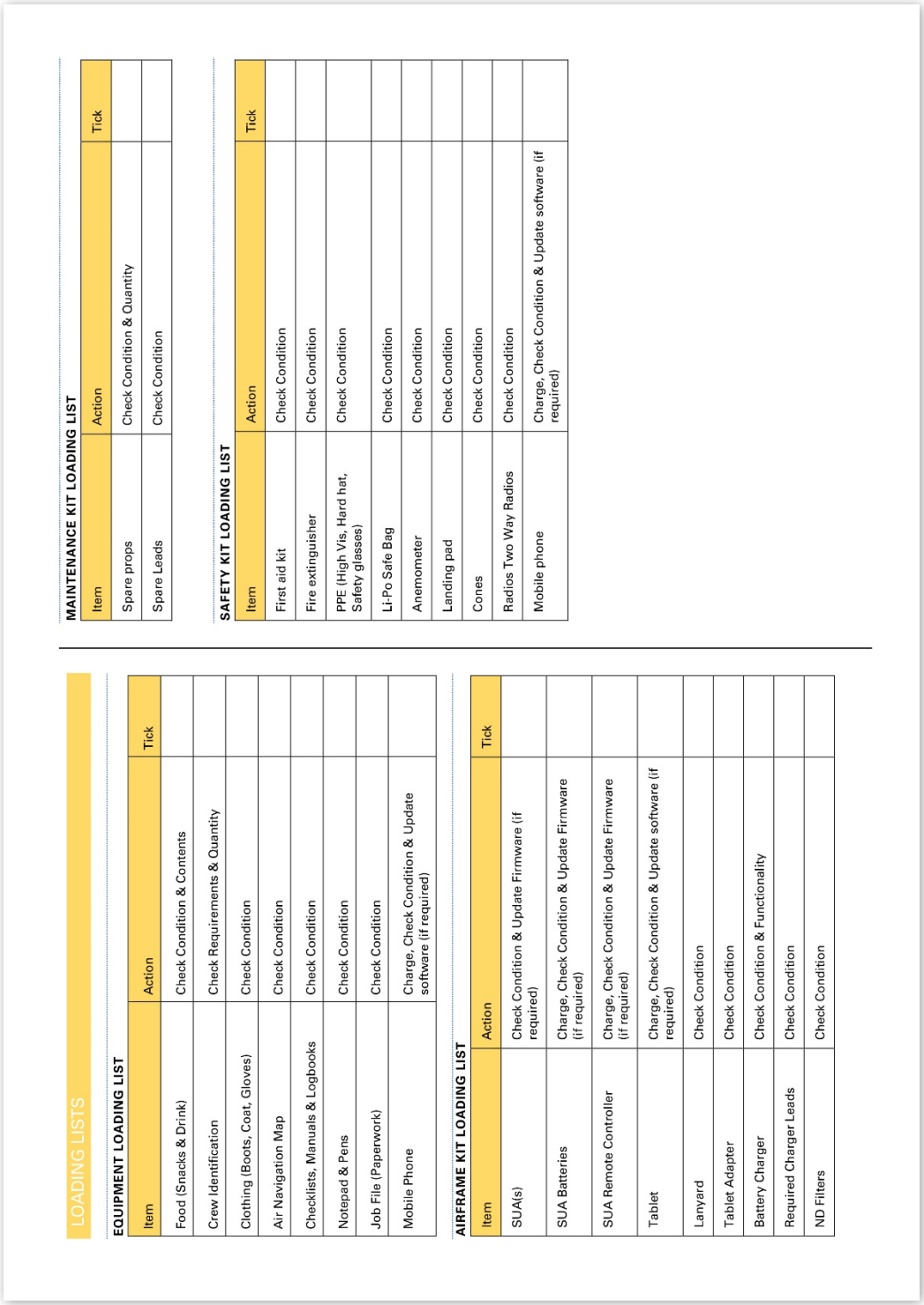
1. Hazard (Something with the potential to cause harm, how will it be realised and what is the potential injury?)	2. At Risk	3. Existing Control Measures	Risk			7. Further Control Measures	Risk		
			4. Severity	5. Probability	6. Risk		8. Severity	9. Probability	10. Risk

Risk Assessment Sign off (By Pilot other than person completing)	Name:	Date:

AT RISK (Column 2)	SEVERITY (Column 4 and 8)		PROBABILITY (Column 5 and 9)		RISK RATING (Column 6 and 10)	
E - Employees	1	No Injury, Property damage	1	Extremely Unlikely	Severity x Probability 1 to 5	**LOW**
C - Clients	2	Minor Injury	2	Remotely Possible	**May be acceptable, review to see if risk can be further reduced.**	
V - Visitors	3	Reportable Injury	3	Will Possibly Occur	Severity x Probability 6 to 12	**MEDIUM**
P - Public	4	Major Injury / Single Fatality	4	Will Probably Occur	**Only proceed with specialist personnel / safety team**	
A - All	5	Multiple Fatalities	5	Almost Certain	Severity x Probability 12 to 25	**HIGH**
					Task should not proceed	

Appendix F – Flight Reference Cards and Checklists

Equipment Loading List



LOADING LISTS

EQUIPMENT LOADING LIST

Item	Action	Tick
Food (Snacks & Drink)	Check Condition & Contents	
Crew Identification	Check Requirements & Quantity	
Clothing (Boots, Coat, Gloves)	Check Condition	
Air Navigation Map	Check Condition	
Checklists, Manuals & Logbooks	Check Condition	
Notepad & Pens	Check Condition	
Job File (Paperwork)	Check Condition	
Mobile Phone	Charge, Check Condition & Update software (if required)	

AIRFRAME KIT LOADING LIST

Item	Action	Tick
SUA(s)	Check Condition & Update Firmware (if required)	
SUA Batteries	Charge, Check Condition & Update Firmware (if required)	
SUA Remote Controller	Charge, Check Condition & Update Firmware (if required)	
Tablet	Charge, Check Condition & Update software (if required)	
Lanyard	Check Condition	
Tablet Adapter	Check Condition	
Battery Charger	Check Condition & Functionality	
Required Charger Leads	Check Condition	
ND Filters	Check Condition	

MAINTENANCE KIT LOADING LIST

Item	Action	Tick
Spare props	Check Condition & Quantity	
Spare Leads	Check Condition	

SAFETY KIT LOADING LIST

Item	Action	Tick
First aid kit	Check Condition	
Fire extinguisher	Check Condition	
PPE (High Vis, Hard hat, Safety glasses)	Check Condition	
Li-Po Safe Bag	Check Condition	
Anemometer	Check Condition	
Landing pad	Check Condition	
Cones	Check Condition	
Radios Two Way Radios	Check Condition	
Mobile phone	Charge, Check Condition & Update software (if required)	

On Site Check Lists (Site Survey/Setup, Client Brief, On Site Survey Findings, Aircraft Setup)

ON SITE CHECK LISTS

SITE SURVEY/SETUP CHECK LIST

Item	Action	Tick
Wind speed check	Check wind speed is within limits at take off point	
Site survey	Carry out on site survey	
Flight plan/brief	Confirm flight plan & brief crew, observer & client	
	Refer to Client Brief (Below)	
Issue PPE	hardhats/boots/safety glasses and Hi vis (as required)	
Issue Radios	Assign channel and call signs (as required)	
Place cordon	Place cones, signs and barriers (as required)	
Crew	Position (as required)	
First Aid/Fire equip	Position so easily accessible and inform crew of location (as required)	
Take off location	Set up take off point(s) cones, landing pad (as required)	
ATC	Permission or notification in place (as required)	

CLIENT BRIEF

Item	Details	Covered
Op Area	Where will the flight take place	
Op Objective	What are we going to achieve	
Op Times	Cover any time restraints	
Op hazards	Cover airspace and ground space issues	
Crew Roles	Outline and assign Crew roles	
Emergencies	Outline emergency procedures e.g. RTH, location of Fire/first aid and appropriate numbers (ATC)	

Notes: (any additional set up required e.g. camera settings required to meet brief)

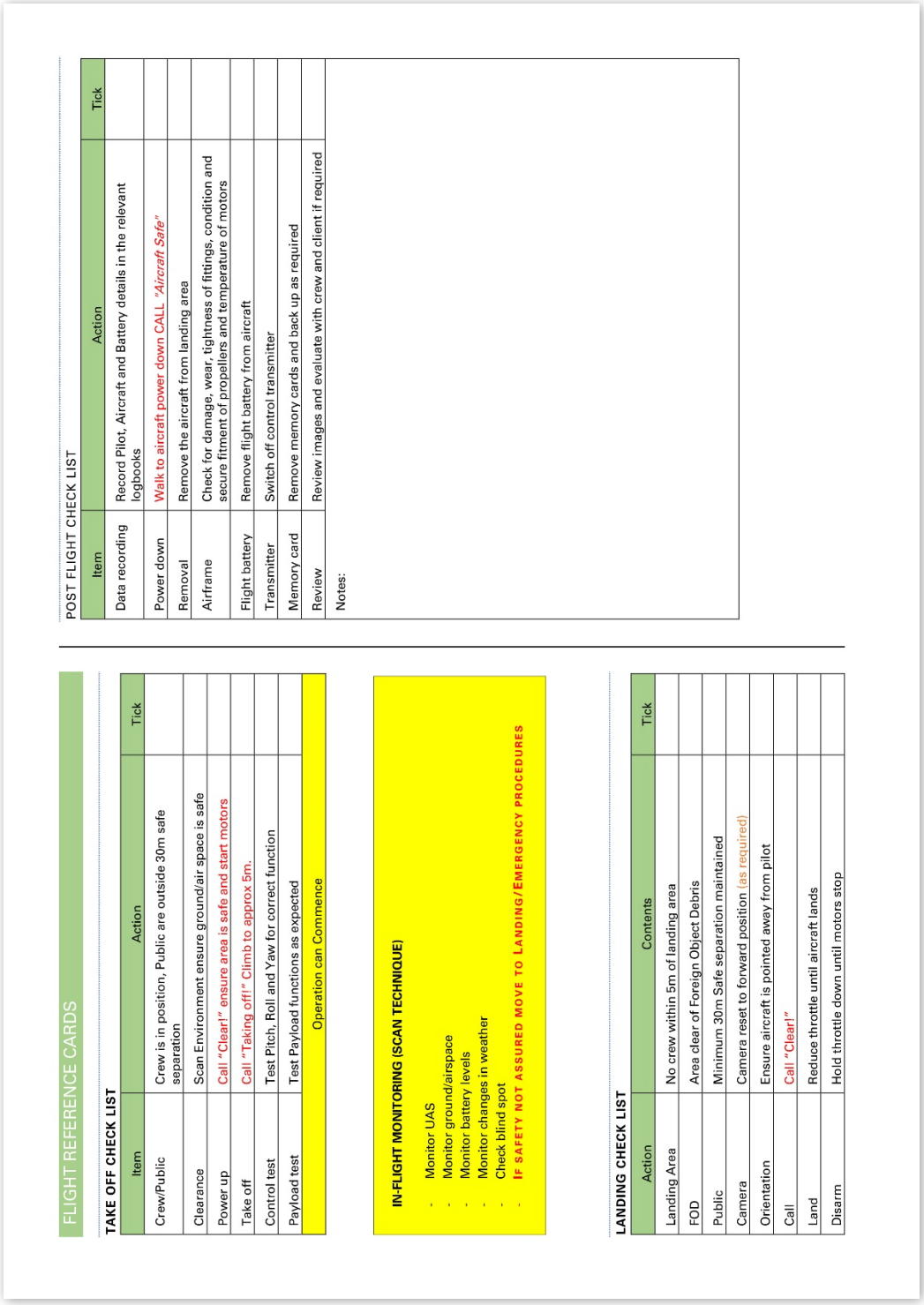
ON SITE SURVEY FINDINGS

Item	Action	Findings
Windspeed	Record windspeed at TOL point	
Wind direction	Record direction at TOL point	
Temperature	Record temperature at site	
Visibility	Record Visibility at site	
Precipitation	Is any precipitation present	

AIRCRAFT SETUP CHECK LIST

Item	Action	Tick
Airframe	Unfold and inspect for damage	
Props	Inspect for damage and secure to craft	
Camera	Inspect for damage and change ND filter (as required)	
Flight battery	Ensure fully charged and inspect for damage	
Flight battery	Secure battery into craft - DO NOT TURN ON	
Transmitter	Inspect for damage, check charged, assemble	
Airframe	Move to take off location	
Transmitter	Turn on	
Airframe	Turn on	
Self-diagnostic	Check link established	
Telemetry link	Review findings (warnings, updates, calibrations)	
Calibrate compass	If required	
GPS Fix	Confirm Satellite number suitable >10 (as required)	
GPS Fix	Confirm Home point recorded (as required)	
RTH Height	Set to appropriate height for location	
Battery Failsafes	Set to appropriate levels for flight plan/weather	
Battery Cells	Ensure cells are balanced	

Flight Reference Check List Cards (Take Off, In-flight Monitoring, Landing, Post Flight)



FLIGHT REFERENCE CARDS

TAKE OFF CHECK LIST

Item	Action	Tick
Crew/Public	Crew is in position, Public are outside 30m safe separation	
Clearance	Scan Environment ensure ground/air space is safe	
Power up	Call "Clear!" ensure area is safe and start motors	
Take off	Call "Taking off!" Climb to approx 5m.	
Control test	Test Pitch, Roll and Yaw for correct function	
Payload test	Test Payload functions as expected	
	Operation can Commence	

IN-FLIGHT MONITORING (SCAN TECHNIQUE)

- Monitor UAS
- Monitor ground/airspace
- Monitor battery levels
- Monitor changes in weather
- Check blind spot
- IF SAFETY NOT ASSURED MOVE TO LANDING/EMERGENCY PROCEDURES

LANDING CHECK LIST

Action	Contents	Tick
Landing Area	No crew within 5m of landing area	
FOD	Area clear of Foreign Object Debris	
Public	Minimum 30m Safe separation maintained	
Camera	Camera reset to forward position (as required)	
Orientation	Ensure aircraft is pointed away from pilot	
Call	Call "Clear!"	
Land	Reduce throttle until aircraft lands	
Disarm	Hold throttle down until motors stop	

POST FLIGHT CHECK LIST

Item	Action	Tick
Data recording	Record Pilot, Aircraft and Battery details in the relevant logbooks	
Power down	Walk to aircraft power down CALL *"Aircraft Safe"*	
Removal	Remove the aircraft from landing area	
Airframe	Check for damage, wear, tightness of fittings, condition and secure fitment of propellers and temperature of motors	
Flight battery	Remove flight battery from aircraft	
Transmitter	Switch off control transmitter	
Memory card	Remove memory cards and back up as required	
Review	Review images and evaluate with crew and client if required	

Notes:

Appendix G – UAS Emergency Procedures

Remote Pilot Incapacitation

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Remote Pilot Incapacitation		Activate RTH (Return to Home) procedure.	Pick up controller. Press "Pause" button to cause UAS to hover in place. Confirm launch area clear. Initiate Return to Home procedure, OR land the UAS (if trained to do so). Administer First Aid to pilot as appropriate. Call Emergency Services if required.	Administer first aid to pilot. When Return to Home is initiated: If below the set RTH altitude, the UAS will climb to the set RTH altitude. If already above the set RTH altitude the UAS will stay at the same height. The UAS will return directly to the home point, then gradually descend until it lands, and the motors will automatically disarm. Complete CAP 382 MOR ECCAIRS.

Airspace Incursion

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Airspace Incursion	Visible or audible signs of another air user in the location.	Climb or descend as appropriate. Alert crew to issue. When location of other air user has been identified move directly away, land if safe to do so.	Crew to prioritise the identification of the location of the other air user. Crew to keep pilot aware of what they can see. Ensure landing location is clear.	Record any relevant information relating to the airspace incursion for UK AirProx Board.

Groundspace Incursion

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Groundspace Incursion	Visible or audible signs of uninvolved person(s) entering operating area.	Increase horizontal separation or descend as appropriate. Alert crew to issue. Consider landing at alternative landing site if the uninvolved person does not leave the area.	Crew to intercept uninvolved person. Crew to keep pilot aware of what the uninvolved person is doing. Escort uninvolved person from operating area. Ensure landing location is clear.	Record any relevant information relating to the incident. Complete MOR ECCAIRS if any person is endangered.

Loss of Control Data Link

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Loss of Control Data Link	UAS unresponsive. Poor or no signal strength. UAS shows fast flashing yellow lights.	Alert crew to issue. Check cable from Flight Controller to tablet/ phone is connected. Attempt to regain control of the UAS by changing flight mode from its current mode to an alternate and back.	Ensure landing location is clear. Monitor UAS position. Provide pilot with appropriate updates on status.	UAS will enter an RTH Failsafe mode after 11 seconds (UAS 1) or 3 seconds (UAS 2). When RTH Failsafe mode is initiated: If below the set RTH altitude, the UAS will climb to the set RTH altitude. If already above the set RTH altitude the UAS will stay at the same height. The UAS will retrace its flight route for 50 metres (UAS 1) or 60 seconds (UAS 2). If UAS re-acquires link at any time the pilot can cancel the RTH Failsafe mode to regain control of the UAS. Pilot must land the UAS as soon as it is safe to do so to investigate the issues. If link not re-acquired, the UAS will return directly to the home point, then gradually descend until it lands, and the motors will automatically disarm. Complete CAP 722 MOR

Rogue UAS

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
UAS flying without response from Remote Pilot and uncontrollable	UAS unresponsive.	Alert crew to issue. Attempt to regain control of the UAS by changing flight mode switch. Press “Pause” button to attempt to cause UAS to hover in place. Attempt to initiate Return to Home. Turn off Flight Controller to attempt to force a failsafe. If this does not work turn controller back on again and try to regain control. If control regained, bring UAS home and land. If control not regained (and if safe to do so), attempt an immediate power down – both sticks held inward and down. Prepare for crash landing. *Call “CLEAR”.* Proceed to crash site if possible. If power down not possible, note height, direction & speed of UAS. Inform local ATC if required. Inform emergency services if required.	Identify a landmark on the horizon to assist with identifying direction of flight, from launch area or mark location. Take a bearing of the direction of flight. Inform local ATC if required. Inform emergency services if required.	Depending on outcome, possibly inform the relevant agencies and personnel. Complete CAP 382 MOR ECCAIRS.

Loss of Power (UAS)

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Loss of power (UAS)	Un-commanded descent.	Alert crew to impending crash. Attempt to regain control by changing flight mode switch. If control regained, bring UAS home and land. If control not regained, prepare for crash landing. *Call "CLEAR".* Proceed to crash site if possible. Inform local ATC if required. Inform emergency services if required.	Identify a landmark on the horizon to assist with location of UAS. Provide pilot with appropriate updates on status. Proceed to crash site if possible. Inform local ATC if required. Inform emergency services if required.	Carry out post-crash management procedure. Complete CAP 382 MOR ECCAIRS.

Loss of Power (Ground Control Equipment)

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Loss of power (ground control equipment)	Tablet screen extinguished. Power lights on flight controller extinguish. UAS shows fast flashing yellow lights.	Alert crew to the loss of control. Ensure landing site is cleared. Watch behaviour of machine to ensure failsafe is operating correctly. If not initiate Rogue UAS procedure.	Provide pilot with appropriate updates on status.	UAS will enter an RTH Failsafe mode after 11 seconds (UAS 1) or 3 seconds (UAS 2). When RTH Failsafe mode is initiated: If below the set RTH altitude, the UAS will climb to the set RTH altitude. If already above the set RTH altitude the UAS will stay at the same height. The UAS will retrace its flight route for 50 metres (UAS 1) or 60 seconds (UAS 2). If UAS re-acquires link at any time the pilot can cancel the RTH Failsafe mode to regain control of the UAS. Pilot must land the UAS as soon as it is safe to do so to investigate the issues. If link not re-acquired, the UAS will return directly to the home point, then gradually descend until it lands, and the motors will automatically

Unexpected Behaviour in Flight

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Unexpected behaviour in flight		Alert crew to the loss of control. Ensure landing site is cleared. Pilot must land the UAS as soon as it is safe to do so to investigate the issues.	Provide pilot with appropriate updates on status.	Investigate reason for unexpected behaviour. Depending on findings: • return to DJI for repair/ replacement; or • correct problem and test in a safe location before allowing UAS to be used.

Lithium Polymer Battery Fault

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Swelling of battery or overheating From impact damage following aircraft crash, dropping of battery, or charging malfunction		Alert crew to the fault. *Call "CLEAR".* If UAS is in flight and still under control land immediately in a safe area away from public. Inform emergency services as required. Cordon off area 30m radius from battery/ UAS. *If necessary* and safe to	Crew to keep location of fire clear. Inform emergency services as required. Cordon off area 30m radius from battery/ UAS. *If necessary* and safe to do so use extinguisher.	LiPo batteries are highly dangerous and can explode. Keep distance until safe to approach. First on scene of UAS: approach battery with extreme caution, wearing PPE (goggles, fire resistant gloves), LiPo bag and with fire extinguisher to hand. Dispose of battery in accordance with safety guidelines OR safely discharge battery. Complete CAP 382 MOR ECCAIRS.

UAS Fire

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Smoke / fire		Alert crew to the fire. *Call "CLEAR".* If UAS is in flight and still under control land immediately in a safe area away from public. Inform emergency services as required. Cordon off area 30m radius from battery/ UAS/crash site. If safe to do so use extinguisher.	Crew to keep location of fire / crash site clear. Inform emergency services as required. Cordon off area 30m radius from battery/UAS/ crash site. If safe to do so use extinguisher.	LiPo batteries are highly dangerous and can explode. Keep distance until safe to approach. First on scene of UAS: approach battery with extreme caution, wearing PPE (goggles, fire resistant gloves), LiPo bag and with fire extinguisher to hand. Dispose of battery in accordance with safety guidelines. Complete CAP 382 MOR ECCAIRS.

Loss of GNSS Signal

[RTH FUNCTIONS WILL NOT WORK IF EXPERIENCING GNSS/COMPASS ISSUES]

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Loss of GPS modes in-flight Aircraft fails to hold position lock	Visual warning on tablet/phone. Aircraft may switch to a non-GPS mode (i.e. ATTI / OPTI). Aircraft status light may change.	Land at the nearest suitable TOLZ. In the event that Pilot is unable to regain control, refer to **G.4 Rogue UAS.**	Clear operational area of all personnel. Identify clear TOLZ. Provide pilot with appropriate updates on status.	Operation should be aborted until GPS can be established. Complete CAP 382 MOR ECCAIRS.

Compass Error

[RTH FUNCTIONS WILL NOT WORK IF EXPERIENCING GNSS/COMPASS ISSUES]

Symptom/Issue	Warning	Pilot Action	Crew Action	Remarks
Loss of GPS mode in-flight Aircraft fails to hold heading	Visual warning on iOSD. Aircraft may switch to a non-GPS assisted mode (i.e. ATTI / OPTI). Aircraft status light may change. Aircraft may fail to keep commanded heading.	Land at the nearest suitable TOLZ. If aircraft begins to yaw uncontrollably, consider landing underneath flight path provided safe to do so. In the event that pilot is unable to regain control, refer to **G.4 Rogue UAS.**	Clear operational area of all personnel. Identify clear TOLZ and/ or clear area below flight path. Provide pilot with updates on status.	Operation should be aborted until Compass error is rectified. Refer to pre-flight documents to reassess any electromagnetic interference or distortion risks. Complete CAP382 MOR ECCAIRS. Consider servicing aircraft for further investigation.

Appendix H – Consolidated UAS Articles from ANO 2016/765

Meaning of "commercial operation"

7. For the purposes of this Order, "commercial operation" means any operation of an aircraft other than for public transport—

(a) which is available to the public; or

(b) which, when not made available to the public, is performed under a contract between an operator and a customer, where the latter has no control over the operator,

in return for remuneration or other valuable consideration.

Application of the Order to the Crown

20. (1) Subject to the provisions of this article and article 22, the provisions of this Order apply to or in relation to aircraft belonging to or exclusively employed in the service of Her Majesty as they apply to or in relation to other aircraft.

(2) For the purposes of such application, the Department or other authority for the time being responsible on behalf of Her Majesty for the management of the aircraft is deemed to be the operator of the aircraft or, in the case of an unmanned aircraft, to be the UAS operator and, in the case of an aircraft belonging to Her Majesty, to be the owner of the interest of Her Majesty in the aircraft.

(3) Nothing in this article renders liable to any penalty any Department or other authority responsible on behalf of Her Majesty for the management of any aircraft.

Exceptions from application of provisions of the Order for certain classes of aircraft [partially removed by SI 2022/637]

23. (1) This article applies to—

(a) any small balloon;

(b) any kite weighing not more than 2 kg;

(c) any unmanned aircraft other than an unmanned aircraft subject to certification; and (d) any parachute including a parascending parachute.

(2) ~~Subject to paragraphs (3) and (4), nothing in this Order applies to or in relation to an aircraft to which this article applies.~~

(3) ~~Articles 2, 91, 92, 93, 94A, 94B, 239, 241 and 257 (except 257(2)(a)) apply to or in relation to an aircraft to which this article applies, and articles 253, 265, 266 and 269 apply in relation to those articles.~~

(4) Articles 265A, 265B, 265C, 265D, 265E and 265F apply to or in relation to an aircraft to which this article applies, and article 265(3) applies in relation to those articles.

Certain unmanned aircraft: permission for flights that are over or near aerodromes

94A. (1) If the permission that is required under paragraph (4) of this article for a flight, or a part of a flight, by an unmanned aircraft has not been obtained—

(a) the UAS operator must not cause or permit the unmanned aircraft to be flown on that flight or that part of the flight; and

(b) the remote pilot must not fly the unmanned aircraft on that flight or that part of the flight.

(2) *Omitted*.

(3) *Omitted*

(4) Subject to paragraph (4A) permission for a flight, or a part of a flight, by an unmanned aircraft in the flight restriction zone of a protected aerodrome is required—

(a) from any air traffic control unit at the protected aerodrome, if the flight, or the part of the flight, takes place during the operational hours of the air traffic control unit;

(b) from any flight information service unit at the protected aerodrome, if the flight, or the part of the flight, takes place during the operational hours of the flight information service unit and either—

(i) there is no air traffic control unit at the protected aerodrome, or

(ii) the flight, or the part of the flight, takes place outside the operational hours of the air traffic control unit at the protected aerodrome;

(c) from the operator of the protected aerodrome, if—

(i) there is neither an air traffic control unit nor a flight information service unit at the protected aerodrome; or

(ii) the flight, or the part of the flight, takes place outside the operational hours of any such unit or units at the protected aerodrome.

(4A) Permission is not required under paragraph (4) for a flight, or a part of a flight, by an unmanned aircraft subject to certification.

(5) In this article, "operational hours", in relation to an air traffic control unit or flight information service unit, means the operational hours—

(a) notified in relation to the unit, or

(b) set out in the UK military AIP in relation to the unit.

(6) In this article and article 94B, "protected aerodrome" means—

(a) a certified aerodrome,

(b) a Government aerodrome,

(c) a national licensed aerodrome, or

(d) an aerodrome that is prescribed, or of a description prescribed, for the purposes of this paragraph.

(7) The "flight restriction zone" of a protected aerodrome is to be determined for the purposes of this article in accordance with the following table—

Type of protected aerodrome	*The "flight restriction zone"*
A protected aerodrome which is— (a) a certified aerodrome, (b) a Government aerodrome, or (c) a national licensed aerodrome, and which has an aerodrome traffic zone.	The flight restriction zone consists of— (a) the aerodrome traffic zone at the aerodrome, (b) any runway protection zones at the aerodrome, and (c) any additional boundary zones at the aerodrome.
A protected aerodrome which is— (a) a certified aerodrome, (b) a Government aerodrome, or (c) a national licensed aerodrome, but which does not have an aerodrome traffic zone.	The flight restriction zone consists of the airspace extending from the surface to a height of 2,000 feet above the level of the aerodrome within the area bounded by a circle centred on the notified mid-point of the longest runway and having a radius of two nautical miles. But if the longest runway does not have a notified mid-point, the midpoint of that runway is to be used instead for the purposes of determining the flight restriction zone.
A protected aerodrome that is prescribed, or of a description prescribed, under paragraph (6)(d).	The flight restriction zone consists of the zone that is prescribed for the purposes of this paragraph.

Interpretation of expressions used in the definition of "flight restriction zone"

94B. (1) This article makes provision about the meaning of expressions used in the definition of "flight restriction zone" in article 94A that applies in relation to a protected aerodrome which is—

(a) a certified aerodrome,
(b) a Government aerodrome, or
(c) a national licensed aerodrome, and which has an aerodrome traffic zone.

(2) Subject to paragraph (4), there is one runway protection zone for each runway threshold of each runway at the aerodrome.

(3) A "runway protection zone", in relation to a runway threshold at the aerodrome, is the airspace extending from the surface to a height of 2,000 feet above the level of the aerodrome within the area bounded by a rectangle—

(a) whose longer sides measure 5 km;
(b) whose shorter sides measure—

(i) 1 km (except in the case of Heathrow Airport);

(ii) 1.5 km, in the case of Heathrow Airport; and

(c) which is positioned so that—

(i) one of the shorter sides of the rectangle ("side A") runs across the runway threshold, and

(ii) the two longer sides of the rectangle are parallel to, and equidistant from, the extended runway centre line as it extends from side A out to, and beyond, the runway end to which the runway threshold relates.

(4) There is no runway protection zone—

(a) for any runway threshold at the London Heliport;

(b) for any runway threshold that is prescribed, or of a description prescribed, for the purposes of this paragraph.

(5) The "runway threshold" of a runway at the aerodrome is the location that, for the purpose of demarcating the start of the portion of the runway that is useable for landing, is—

(a) notified as the threshold of the runway, or

(b) set out as the threshold of the runway in the UK military AIP.

(6) The "extended runway centre line", in relation to a runway at the aerodrome, is an imaginary straight line which runs for the length of the runway along its centre and then extends beyond both ends of the runway.

(7) An "additional boundary zone" is the airspace extending from the surface to a height of 2,000 feet above the level of the aerodrome within any part of the area between—

(a) the boundary of the aerodrome, and

(b) a line that is 1 km from the boundary of the aerodrome (the "1 km line"), that is neither within the aerodrome traffic zone nor within any runway protection zone at the aerodrome.

(8) The 1 km line is to be drawn so that the area which is bounded by it includes every location that is 1 km from the boundary of the aerodrome, measured in any direction from any point on the boundary.

Certain unmanned aircraft: permission for flights that are over or near spacesites

94BA (1) If the permission that is required under paragraph (2) for a flight, or a part of a flight, by an unmanned aircraft has not been obtained—

(a) the UAS operator must not cause or permit the unmanned aircraft to be flown on that flight or that part of the flight, and

(b) the remote pilot must not fly the unmanned aircraft on that flight or that part of the flight.

(2) Subject to paragraph (3), permission for a flight, or part of a flight, by an unmanned aircraft in the flight restriction zone of a protected space site is required from the operator of the protected space site.

(3) Permission is not required under paragraph (2) for a flight, or a part of a flight, by an unmanned aircraft subject to certification.

(4) In this article—"protected space site" means—

(a) a spaceport, as defined by section 3(2) of the Space Industry Act 2018, or

(b) an installation at sea, at which controlled and planned landings of spacecraft take place or are to take place, which can be moved from place to place without major dismantling or modification, which is not a certified aerodrome, a Government aerodrome or a national licensed aerodrome;

"spacecraft" has the meaning given in section 2(6) of the Space Industry Act 2018.

(5) The "flight restriction zone of a protected space site" consists of the airspace extending from the surface to a height of 2,000 feet above the level of the protected space site within the area bounded by a circle centred on the mid-point of the launch pad that has the largest area and which has a radius of five kilometres.

Power to prohibit or restrict flying

239.(1) If the Secretary of State decides it is necessary in the public interest to restrict or prohibit flying by reason of—

(a) the intended gathering or movement of a large number of persons;

(b) the intended holding of an aircraft race or contest or of a flying display; or

(c) national defence or any other reason affecting the public interest, the Secretary of State may make regulations prohibiting, restricting or imposing conditions on flights by aircraft specified in paragraph (2) flying in the circumstances specified in paragraph (2).

(2) The aircraft and circumstances are—

(a) aircraft, whether or not they are registered in the United Kingdom, in any airspace over the United Kingdom or in the neighbourhood of an offshore installation; and

(b) aircraft which are registered in the United Kingdom, in any other airspace, being airspace for which the United Kingdom has, under international arrangements, undertaken to provide navigation services for aircraft.

(3) Regulations made under this article may apply either generally or in relation to any class of aircraft.

(4) It is an offence to contravene, permit the contravention of or fail to comply with any regulations made under this article.

(5) If the pilot in command of an aircraft becomes aware that the aircraft is flying in contravention of any regulations which have been made for any reason referred to in paragraph (1)(c) the pilot in command must, unless otherwise instructed under paragraph (6), cause the aircraft to leave the area to which the regulations relate by flying to the least possible extent over such area and the aircraft must not begin to descend while over such an area.

(6) The pilot in command of an aircraft flying either within an area for which regulations have been made for any reason referred to in paragraph (1)(c) or within airspace notified as a Danger Area must immediately comply with instructions given by radio by the appropriate air

traffic control unit or by, or on behalf of, the person responsible for safety within the relevant airspace.

Endangering safety of an aircraft

240. A person must not recklessly or negligently act in a manner likely to endanger an aircraft, or any person in an aircraft.

Endangering safety of any person or property

241. A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property.

Offences: Contravention of Commission Implementing Regulation (EU) 2019/947 on the rules and procedures for the operation of unmanned aircraft – UAS operator

265A.(1)A UAS operator must not cause or permit an unmanned aircraft other than a tethered unmanned aircraft to be flown unless—

(a) the requirements in Article 4(1) of, and Part A of the Annex to, the Unmanned Aircraft Implementing Regulation are met for that flight (an 'open' category flight);

(b) at the time of the flight, one of the following is valid for the flight (a 'specific' category flight)—

(i) an operational authorisation issued to the UAS operator under Article 12 of the Unmanned Aircraft Implementing Regulation;

(ii) a LUC with appropriate privileges granted to the UAS operator in accordance with point UAS.LUC.060 of the Annex to that Regulation;

(iii) an authorisation issued in accordance with Article 16 of that Regulation; or

(c) the UAS and the UAS operator have been certified as required by Article 6(1) or (2) of the Unmanned Aircraft Implementing Regulation (a 'certified' category flight).

(2) A UAS operator who contravenes paragraph (1) is guilty of an offence.

(3) A UAS operator who contravenes a relevant requirement imposed in the Unmanned Aircraft Implementing Regulation is guilty of an offence.

(4) For the purposes of paragraphs (1)(a) and (3), a requirement in any provision of the Unmanned Aircraft Implementing Regulation is to be read together with any other provision of that Regulation that contains any exception, derogation or qualification relating to that requirement.

(5) For the purposes of paragraph (3), a "relevant requirement" in relation to a flight conducted in the circumstances referred to in paragraph (1)(a) is a requirement in any of the following provisions of the Unmanned Aircraft Implementing Regulation—

(a) Article 14(5) (registration);

(b) Article 14(8) (display of registration number);

(c) Article 19(2) (reporting of safety occurrences);

(d) in Part A of the Annex—

(i) point UAS.OPEN.050(3) (designation of remote pilot);

(ii) point UAS.OPEN.050(4)(a) (competency of remote pilot);

(iii) point UAS.OPEN.050(5) (geo-awareness updates).

(6) For the purposes of paragraph (3), a "relevant requirement" in relation to a flight conducted in the circumstances referred to in paragraph (1)(b)(i) is a requirement in any of the following provisions of the Unmanned Aircraft Implementing Regulation—

(a) Article 14(5) (registration);

(b) Article 14(8) (display of registration number);

(c) Article 19(2) (reporting of safety occurrences);

(d) in Part B of the Annex—

(i) point UAS.SPEC.050(1)(a) (operational procedures and limitations);

(ii) point UAS.SPEC.050(1)(b) (designation of remote pilot or allocation of responsibilities for autonomous operations);

(iii) point UAS.SPEC.050(1)(d)(i) (competency of remote pilot);

(iv) point UAS.SPEC.050(1)(d)(v) (operations manual);

(v) point UAS.SPEC.050(1)(f) (authorised limitations and conditions);

(vi) point UAS.SPEC.050(1)(g) (record-keeping);

(vii) point UAS.SPEC.090 (access to records);

(viii) point UAS.SPEC.100 (use of certified equipment).

(7) For the purposes of paragraph (3), a "relevant requirement" in relation to a flight conducted in the circumstances referred to in paragraph (1)(b)(ii) is a requirement in any of the following provisions of the Unmanned Aircraft Implementing Regulation—

(a) Article 14(5) (registration);

(b) Article 14(8) (display of registration number);

(c) Article 19(2) (reporting of safety occurrences);

(d) in Part B of the Annex—

(i) point UAS.SPEC.050(1)(a) (operational procedures and limitations);

(ii) point UAS.SPEC.050(1)(b) (designation of remote pilot or allocation of responsibilities for autonomous operations);

(iii) point UAS.SPEC.050(1)(d)(i) (competency of remote pilot);

(iv) point UAS.SPEC.050(1)(d)(v) (operations manual);

(v) point UAS.SPEC.050(1)(f) (authorised limitations and conditions);

(vi) point UAS.SPEC.050(1)(g) (record-keeping);

(vii) point UAS.SPEC.100 (use of certified equipment).

(e) in Part C of the Annex—

(i) point UAS.LUC.020(2) (scope and privileges of the LUC);

(ii) point UAS.LUC.020(3) (operational control system);

(iii) point UAS.LUC.020(4) (operational risk assessment);

(iv) point UAS.LUC.020(5) (LUC record-keeping);

(v) point UAS.LUC.090 (access to records).

(8) For the purposes of paragraph (7), the holder of a LUC who, in accordance with a privilege granted under point UAS.LUC.060(2) of Part C of the Annex to the Unmanned Aircraft Implementing Regulation, authorises a flight without applying for an operational authorisation is to be taken as having complied with any requirement in a provision referred to in paragraph (7)(d) relating to an operational authorisation.

(9) For the purposes of paragraph (3), a "relevant requirement" in relation to a flight conducted in the circumstances referred to in paragraph 1(b)(iii) is a requirement of any of the following provisions of the Unmanned Aircraft Implementing Regulation—

(a) Article 14(5) (registration), subject to Article 16(4);

(b) Article 14(8) (display of registration number);

(c) Article 19(2) (reporting of safety occurrences), and any condition of a kind referred to in Article 16(3) of the Unmanned Aircraft Implementing Regulation that is imposed on the UAS operator in the authorisation.

Offences: Contravention of Commission Implementing Regulation (EU) 2019/947 on the rules and procedures for the operation of unmanned aircraft – remote pilot

265B. (1) A remote pilot must not fly an unmanned aircraft other than a tethered unmanned aircraft unless—

(a) at the time of take-off, the remote pilot reasonably holds the view that the requirements in Article 4(1) of, and Part A of the Annex to, the Unmanned Aircraft Implementing Regulation will be met in respect of the planned flight (an 'open' category flight);

(b) at the time of the flight, one of the following is valid for the flight (a 'specific' category flight)—

(i) an operational authorisation issued to the UAS operator under Article 12 of the Unmanned Aircraft Implementing Regulation;

(ii) a LUC with appropriate privileges granted to the UAS operator in accordance with point UAS.LUC.060 of the Annex to that Regulation;

(iii) an authorisation issued in accordance with Article 16 of that Regulation; or

(c) the UAS and the UAS operator have been certified as required by Article 6(1) or (2) of the Unmanned Aircraft Implementing Regulation (a 'certified' category flight).

(2) A remote pilot who contravenes paragraph (1) in relation to a flight, and who was not also the UAS operator in relation to that flight, is guilty of an offence.

(3) A remote pilot who contravenes a relevant requirement imposed in the Unmanned Aircraft Implementing Regulation is guilty of an offence.

(4) For the purposes of paragraphs (1)(a) and (3), a requirement in any provision of the Unmanned Aircraft Implementing Regulation is to be read together with any other provision of that Regulation that contains any exception, derogation or qualification relating to that requirement.

(5) For the purposes of paragraph (3), a "relevant requirement" in relation to a flight conducted in the circumstances referred to in paragraph (1)(a) is a requirement imposed in any of the following provisions of Part A of the Annex to the Unmanned Aircraft Implementing Regulation—

(a) point UAS.OPEN.010(2) (maximum operating height);

(b) point UAS.OPEN.060(1)(a), insofar as it relates to having the appropriate competency in the intended subcategory of flight;

(c) point UAS.OPEN.060(1)(a), insofar as it relates to carrying proof of competency;

(d) point UAS.OPEN.060(1)(d) (certain safety checks);

(e) point UAS.OPEN.060(1)(e) (MTOM check);

(f) point UAS.OPEN.060(2)(a) (fitness to fly);

(g) point UAS.OPEN.060(2)(b), insofar as it requires the remote pilot to keep the unmanned aircraft in visual line of sight;

(h) point UAS.OPEN.060(2)(b), insofar as it relates to discontinuing the flight in certain circumstances;

(i) point UAS.OPEN.060(2)(c) (geographical zones);

(j) point UAS.OPEN.060(3) (flights close to emergency response).

(6) For the purposes of paragraph (3), in the case of a flight conducted in the circumstances referred to in paragraph (1)(a) with a UAS of a kind specified in a provision of the Unmanned Aircraft Implementing Regulation listed in column 1 of Table 1 below, a "relevant requirement" also includes a requirement imposed in a provision of that Regulation specified in column 2 of that table (where "point" refers to a point in the Annex to that Regulation).

Table 1

Provision specifying the kind of UAS	*Provision containing "relevant requirements"*
Article 22(a)	Point UAS.OPEN.020(1)
Point UAS.OPEN.020(5)(a), (b) or (c)	Point UAS.OPEN.020(2)
Point UAS.OPEN.020(5)(d)	Point UAS.OPEN.020(1)
Point UAS.OPEN.040(4)(c) if, at the time of take-off, the remote pilot does not intend to comply with points UAS.OPEN.040(1) and (2) of that Annex	Point UAS.OPEN.030(1)
Article 22(b)	Article 22(b)
Point UAS.OPEN.040(4)(c) if, at the time of take-off, the remote pilot intends to comply with points UAS.OPEN.040(1) and (2) of that Annex	Points UAS.OPEN.040(1) and (2)
Point UAS.OPEN.040(4)(a), (b), (d) or (e)	Points UAS.OPEN.040(1) and (2)
Article 22(c)	Points UAS.OPEN.040(1) and (2)

(7) For the purposes of paragraph (3), a "relevant requirement" in relation to a flight conducted in the circumstances referred to in paragraph (1)(b)(i) or (ii) is a requirement imposed in any of the following provisions of Part B of the Annex to the Unmanned Aircraft Implementing Regulation—

(a) point UAS.SPEC.060(1)(a) (fitness to fly);

(b) point UAS.SPEC.060(1)(b), insofar as it relates to having the appropriate competency;

(c) point UAS.SPEC.060(1)(b), insofar as it relates to carrying proof of competency;

(d) point UAS.SPEC.060(2)(c) (certain safety checks);

(e) point UAS.SPEC.060(3)(a) (authorised limitations and conditions);

(f) point UAS.SPEC.060(3)(b) (risk avoidance);

(g) point UAS.SPEC.060(3)(c) (geographical zones);

(h) point UAS.SPEC.060(3)(d) (operator's procedures);

(i) point UAS.SPEC.060(3)(e) (flights close to emergency response).

(8) For the purposes of paragraph (3), a "relevant requirement" in relation to a flight conducted in the circumstances referred to in paragraph (1)(b)(iii) is any condition of a kind referred to in Article 16(3) of the Unmanned Aircraft Implementing Regulation that is imposed on the remote pilot in the authorisation.

Offence: registration of certified unmanned aircraft

265C.(1) The owner of an unmanned aircraft required by Article 6(1) or (2) of the Unmanned Aircraft Implementing Regulation to be certified must not cause or permit that aircraft to be flown unless the owner has first registered that aircraft in accordance with Article 14(7) of that Regulation.

(2) Any person who contravenes paragraph (1) is guilty of an offence.

Minimum age requirements [partially removed by the CAA on 28 January 2021]

265D. ~~(1)In accordance with Article 9(3)(a) of the Unmanned Aircraft Implementing Regulation, the minimum age for remote pilots operating a UAS in the 'open' category is lowered from 16 years to 12 years.~~

~~(2) The minimum age of 16 years for remote pilots operating a UAS in the 'specific' category is lowered—~~

(a) ~~to 14 years in accordance with Article 9(3)(b) of the Unmanned Aircraft Implementing Regulation; or~~

(b) ~~when operating in the framework of model aircraft clubs or associations, to 14 years or any lower minimum age provided for in an authorisation issued in accordance with Article 16 of that Regulation.~~

(3) ~~A UAS operator must not cause or permit an unmanned aircraft other than a tethered unmanned aircraft to be flown by a remote pilot who does not meet the minimum age for operating a UAS required by Article 9 of the Unmanned Aircraft Implementing Regulation, subject to paragraphs (1) and (2).~~

(4) ~~A UAS operator who contravenes paragraph (3) is guilty of an offence.~~

(5) ~~Paragraphs (3) and (4) cease to have effect on IP completion day~~.

(6) In the case of an individual, the CAA must not issue a unique digital registration number to a UAS operator in accordance with Article 14(6) of the Unmanned Aircraft Implementing Regulation unless the UAS operator is at least 18 years of age.

(7) ~~In this article—~~

(a) ~~'open' category means a category of UAS operations that is defined in Article 4 of the Unmanned Aircraft Implementing Regulation;~~

(b) ~~'specific' category means a category of UAS operations that is defined in Article 5 of the Unmanned Aircraft Implementing Regulation.~~

Offences: tethered unmanned aircraft

265E. (1)A UAS operator must not cause or permit a tethered unmanned aircraft to be flown, unless the following requirements of the Unmanned Aircraft Implementing Regulation are complied with in relation to the tethered unmanned aircraft—

(a) Article 14(5) (registration);

(b) Article 14(8) (display of registration number);

(c) Article 19(2) (reporting safety occurrences);

(d) point UAS.OPEN.050(3) of Part A of the Annex (designation of remote pilot);

(e) point UAS.OPEN.050(5) of Part A of the Annex (geo-awareness updates).

(2) Subject to paragraph (3), a remote pilot must not fly a tethered unmanned aircraft unless the following requirements of the Unmanned Aircraft Implementing Regulation are complied with in relation to the tethered unmanned aircraft—

(a) where the tethered unmanned aircraft has a MTOM of less than 250 g, the following provisions of Part A of the Annex to that Regulation—

(i) point UAS.OPEN.010(2) (maximum operating height);

(ii) point UAS.OPEN.020(2) (overflight of people);

(iii) point UAS.OPEN.060(1)(d) (certain safety checks);

(iv) point UAS.OPEN.060(2)(a) (fitness to fly);

(v) point UAS.OPEN.060(2)(b), insofar as it requires the remote pilot to keep the unmanned aircraft in visual line of sight;

(vi) point UAS.OPEN.060(2)(b), insofar as it relates to discontinuing the flight in certain circumstances;

(vii) point UAS.OPEN.060(2)(c) (geographical zones);

(viii) point UAS.OPEN.060(3) (flights close to emergency response);

(b) where the tethered unmanned aircraft has a MTOM 250 g or more, the following provisions of Part A of that Annex—

(i) point UAS.OPEN.010(2) (maximum operating height);

(ii) point UAS.OPEN.020(4)(b) (competency);

(iii) point UAS.OPEN.040(1) (overflight of people);

(iv) point UAS.OPEN.040(2) (horizontal distances);

(v) point UAS.OPEN.060(1)(a) insofar as relates to carrying proof of competency;

(vi) point UAS.OPEN.060(1)(d) (certain safety checks);

(vii) point UAS.OPEN.060(2)(a) (fitness to fly);

(viii) point UAS.OPEN.060(2)(b), insofar as it requires the remote pilot to keep the unmanned aircraft in visual line of sight;

(ix) point UAS.OPEN.060(2)(b), insofar as it relates to discontinuing the flight in certain circumstances;

(x) point UAS.OPEN.060(2)(c) (geographical zones);

(xi) point UAS.OPEN.060(3) (flights close to emergency response).

(3) A remote pilot may fly a tethered unmanned aircraft in a manner not in compliance with the requirements specified in paragraphs (2)(a)(i), (2)(a)(ii), (2)(a)(v), (2)(b)(i), (2)(b)(iii), (2)(b)(iv) and (2)(b)(viii) provided that flight or that part of that flight is in accordance with a permission issued by the CAA to the UAS operator.

(4) For the purposes of paragraphs (1) and (2), any reference to an "unmanned aircraft" or "UAS" in the Unmanned Aircraft Implementing Regulation is to be read as if it includes a tethered unmanned aircraft or a system that includes such an aircraft.

(5) The UAS operator or a remote pilot of a tethered unmanned aircraft must not cause or permit—

(a) any material to be dropped from, or dangerous goods to be carried on, the aircraft during flight;

(b) the aircraft to be flown where the limit imposed by the restraining device is more than 25 m long, other than in accordance with a permission issued by the CAA to the UAS operator.

(6) The UAS operator must not cause or permit a small tethered unmanned aircraft to be flown unless the UAS operator has reasonably formed the view that the remote pilot of the aircraft complies with the requirement specified in paragraph (2)(b)(ii) in relation to that flight.

(7) Any person who contravenes paragraph (1), (2), (5) or (6) is guilty of an offence.

(8) In this article, "dangerous goods" and "MTOM" have the meanings assigned to them in Article 2 of the Unmanned Aircraft Implementing Regulation.

Penalties

265F. (1) Any person guilty of an offence under article 265A(2) or article 265B(2) is liable on summary conviction—

(a) in England and Wales to a fine; or

(b) in Scotland or Northern Ireland to a fine not exceeding the statutory maximum.

(2) Any person guilty of an offence under article 265A(3) is liable on summary conviction to a fine—

(a) not exceeding level 3 on the standard scale if the offence relates to contravention of a relevant requirement referred to in—

(i) article 265A(5)(a) (registration);

(ii) article 265A(5)(b) (display of registration number);

(iii) (iii) article 265A(5)(d)(i) (designation of remote pilot);

(iv) article 265A(5)(d)(ii) (competency of remote pilot);

(v) article 265A(5)(d)(iii) (geo-awareness updates);

(vi) article 265A(6)(a) (registration);

(vii) article 265A(6)(b) (display of registration number);

(viii) article 265A(6)(d)(ii) (designation of remote pilot or allocation of responsibilities for autonomous operations);

(ix) article 265A(6)(d)(iii) (competence of remote pilot);

(x) article 265A(6)(d)(iv) (operations manual);

(xi) article 265A(6)(d)(vi) (record-keeping);

(xii) article 265A(6)(vii) (access to records);

(xiii) article 265A(7)(a) (registration);

(xiv) article 265A(7)(b) (display of registration number);

(xv) article 265A(7)(d)(ii) (designation of remote pilot or allocation of responsibilities for autonomous operations);

(xvi) article 265A(7)(d)(iii) (competency of remote pilot);

(xvii) article 265A(7)(d)(iv) (operations manual);

(xviii) article 265A(7)(d)(vi) (record-keeping);

(xix) article 265A(7)(e)(iv) (LUC record-keeping);

(xx) article 265A(7)(e)(v) (access to records);

(xxi) article 265A(9)(a) (registration); or

(xxii) article 265A(9)(b) (display of registration number);

(b) not exceeding level 4 on the standard scale in any other case.

(3) Any person guilty of an offence under article 265B(3) is liable on summary conviction to a fine—

(a) not exceeding level 2 on the standard scale if the offence relates to contravention of a relevant requirement referred to in article 265B(5)(c) or (7)(c) (requirements for remote pilot to carry proof of competency);

(b) not exceeding level 3 on the standard scale if the offence relates to contravention of a relevant requirement referred to in article 265B(5)(b), (5)(e) or (7)(b) (requirements for remote pilot to have appropriate competency and verify MTOM); (c) not exceeding level 4 on the standard scale in any other case.

(4) Any person guilty of an offence under article 265C(2) or 265D(4) is liable on summary conviction to a fine not exceeding level 3 on the standard scale.

(5) Any person guilty of an offence under article 265E(7) is liable on summary conviction to a fine—

(a) not exceeding level 2 on the standard scale if the offence relates to the requirement in article 265E(2)(b)(v) (requirement for remote pilot to carry proof of competency);

(b) not exceeding level 3 on the standard scale if the offence relates to a requirement referred to in—

(i) article 265E(1)(a) (registration);

(ii) article 265E(1)(b) (display of registration number);

(iii) article 265E(1)(d) (designation of remote pilot);

(iv) article 265E(1)(e) (geo-awareness updates);

(v) article 265E(2)(b)(ii) (competency); or

(vi) article 265E(6) (remote pilot competency);

(c) not exceeding level 4 on the standard scale in any other case.

CAA's power to prevent aircraft flying

257. (1) If it appears to the CAA or an authorised person that any aircraft is intended or likely to be flown in any of the circumstances specified in paragraph (2), the CAA or that authorised person may direct in accordance with paragraph (3).

(2) The circumstances referred to in paragraph (1) are—

(a) where any provision of article 24, 32, 33, 66, 97, 98, 99, 101, 102, 103, 122, 136, 137, 231 or 242(2) would be contravened in relation to the flight;

(b) where the flight would be in contravention of any other provision of this Order, of any regulations made under this Order, of an EASA Regulation or of EU-OPS and be a cause of danger to any person or property whether or not in the aircraft; or

(c) where the aircraft is in a condition unfit for the flight, whether or not the flight would otherwise be in contravention of any provision of this Order, of any regulations made under this Order, of an EASA Regulation or of EU-OPS.

(3) If paragraph (1) applies, the CAA or that authorised person may direct the operator or the pilot in command of the aircraft not to permit the aircraft to make the particular flight or any other flight of such description as may be specified in the direction, until the direction has been revoked by the CAA or by an authorised person.

(4) If the CAA or an authorised person has directed under paragraph (3), the CAA or an authorised person may take such steps as are necessary to detain the aircraft.

(5) For the purposes of this article, the CAA or any authorised person may enter and inspect any aircraft.