

rmp

Risk control

Drones and Unmanned Aerial Vehicles



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Background

Commonly known as drones, Unmanned Aerial Vehicles (UAV's) are used in situations where manned flight is considered too risky or difficult. These aircraft can remain airborne for long periods, and can transmit real-time imagery of activities on the ground. UAV's are equipped with different surveillance technologies and are controlled remotely by an operator on the ground. This is done by radio control, using feedback mechanisms built into the UAV mechanism, and utilising the Global Positioning Satellites ("GPS").

A typical UAV is constructed from composite materials to reduce weight and increase manoeuvrability. Lithium polymer (LiPo) batteries and Electronic Speed Controllers are linked to high power electric motors in a compact package.

Growing Use

Public authorities use UAVs for specific applications, such as to assess planning applications, surveying dangerous buildings and monitoring coastal erosion.

For public authorities it is important to remember that the use of UAV's are bound by complex legislation. The use of UAVs for investigatory work is almost certainly going to amount to directed surveillance (section 71 of the Regulation of Investigatory Powers Act 2000) and so necessary authorisation will be required. Where a UAV is used to monitor inaccessible areas, such as a dangerous building, its use should be limited to that specific function and recording should not occur when flying over other areas that may capture images of individuals.

Growing Problems

Statistics released by the air regulator show that near misses between aircraft and UAVs investigated by the UK Airprox Board (UKAB), increased year-on-year between 2014 and 2018¹.

Most of the CAA's enforcement efforts are focused on those who are not properly licensed from using UAVs for commercial purposes. There are specific restrictions on the use of UAVs in heavily populated or built-up areas, although it is still possible to apply to the CAA for permission to use these in such areas by preparing a safety case document for the flight. Other considerations include the use of UAVs and privacy laws that later on could provide grounds for legal challenges and actions.

Regulation

Commercial use of unmanned aircraft systems (drones) is fairly new and the use of these systems must be properly regulated to ensure correct use that doesn't endanger the public or property.

As such the governing body for commercial use of drones is the Civil Aviation Authority (CAA) and the rules and regulations that operators must adhere to are contained within the Air Navigation Order 2016²

Until the 31st December 2020 the required level of pilot competency and certification was based fundamentally on whether or not commercial gain would be made as a result of flying a drone. In contrast, the new rules no longer require pilots to identify if their flights are commercial or non-commercial. Instead the focus is on competence with the level of risk that each flight presents. In other words the greater the risk, the more rigorous the training and certification required. Operators of drones must hold a CAA Permission for Aerial Work (PFAW) in order to operate commercially (Aerial Work). Operators must also have insurance that is Reg785/2004 compliant.

Specific rules include:

- A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property.
- An operator must be reasonably satisfied that a flight can be safely made before flying. They must maintain visual line of sight (VLOS). Aircraft must not fly in restricted airspace without relevant permission.
- The weight of the aircraft that is operated and the operating category within which it sits will directly influence its safe operating parameters. Someone flying in an open category (low risk) may operate a drone up to 25kg however they will not be able to fly within 150m horizontally of any commercial, residential, industrial or recreational areas.

Following the increases in reported drone incidents with aircraft from 2014 onwards, new laws were introduced in May 2018 to restrict all drones from flying above 400 feet and within 1 kilometre of airport boundaries, with the changes effective from 30 July 2018⁴.

Due to the disruptive drone-related incidents at Gatwick and Heathrow airports in late 2018 and early 2019 the UK Government decided to extend the area around airports and runways in which drones are banned from being flown. As of March 13, 2019, it was made illegal to fly a drone within 5km of an airport³.

Drone users now have to register and take online safety tests to improve accountability. The new laws also require owners of drones weighing 250 grams or more to register with the Civil Aviation Authority (CAA) and for drone pilots to take an online safety test to ensure the UK's skies are safe from irresponsible flyers. These requirements came into force on 30 November 2019⁴.

Permissions

Commercial use of UAVs requires the permission of the CAA. An operator's licence requires demonstration that the operator is "sufficiently competent"⁵.

The Air Navigation Order 2016 provides regulation of activities. Article 95 relates to small unmanned aircraft equipped to undertake any form of surveillance or data acquisition in accordance with a permission issued by the CAA.

Competencies

The CAA need to be assured of the competence of the person who will be flying the vehicle. It is likely that the 'pilot' will need to successfully complete an assessment process with one of the approved National Qualified Entities (NQE). The NQE is designed to develop an operations manual to submit to the CAA.

An individual or organisation will generally be required to submit an operating manual to the CAA for a permanent approval. This will allow greater freedom to operate continuously without the need to seek ad hoc approvals.

Prosecutions

There have been a number of prosecutions against private individuals, related to use of UAVs in public and security-sensitive locations. For example, the pilot of a "large drone" was prosecuted by police in east Cambridgeshire after they breached CAA regulations.⁶

UAV operators and those authorising their use may find themselves subject to both the civil and criminal law if they fail to follow the guidelines and legal requirements.

Where it is believed UAVs are being used unlawfully, the matter should be reported to the Police and the CAA.

Data Protection

Although the Information Commissioner makes the distinction between 'hobbyists' and individuals or organisations who use UAVs for professional or commercial purposes, it is good practice for domestic users to be aware of the potential privacy intrusion which the use of UAV can cause to make sure they're used in a responsible manner.

Using a UAV to record images of other people without their consent could be a breach of the General Data Protection Regulations 2018⁷. Categories of personal data have been widened to include a much broader list of items that are regarded as being personal data. Location data are formally included within the definition of personal data.

Where UAVs are used for non-domestic purposes, operators will need to comply with data protection obligations and it will be good practice for domestic users to be aware of the potential privacy intrusion which the use of UAV can cause to make sure they're used in a responsible manner⁸.

The ICO CCTV Code of Practice is now extended to include public use of UAVs collecting information about individuals⁹. The Scottish Government has produced its own CCTV Strategy for Scotland¹⁰.

Disaster Recovery

As with all mechanical objects, there is potential for failure, particularly in mid-flight. This places distinct importance on the need for servicing and maintenance of UAV's to be conducted directly in accordance with any advice supplied by the manufacturer.

Recovery procedures should consider not only the potential property and personal damage that might be incurred by unintentional and uncontrolled descent, but also the technology and data that may be held by the vehicle should it be recovered by unauthorised persons. A "disaster recovery" plan should form part of the flight plan, and risk assessment for the vehicle.

Risk Assessment

A UAV is a piece of work equipment, and as such, a suitable and sufficient risk assessment considering the suitability for the task (including unsafe flying conditions such as weather), maintenance (including mechanical / battery) and airworthiness regimes will be necessary. Regulation 9 of Provision and Use of Work Equipment Regulations states that:

- 1 *Every employer shall ensure that all persons who use work equipment have received adequate training for purposes of health and safety, including training in the methods which may be adopted when using the work equipment, any risks which such use may entail and precautions to be taken.*

Part of an employer's responsibility is to provide suitable and sufficient controls for those employees using the UAV for the purposes of work. This includes detailing the overarching policy that specifies what these controls should be. Communication of the policy is essential, not only to employees, but also to those for whom the service is being provided.

Loss of a UAV during airborne service will be an over-riding concern. Being a vehicle that moves in three dimensions, collateral damage to infrastructure (including buildings, power-lines, and moving objects such as public transport vehicles) should also form part of the assessment. The risk assessment must consider if loss is preventable (such as by knowledge of technical failure or inherent performance characteristic, or simply due to power failure). If such characteristics are known and preventable, a failure to manage these may land the organisation / pilot with significant legal, financial and reputational consequences.

Perhaps the most detailed authoritative document on UK safety for aircraft is the UK Defence Safety Authority General (GEN) 1000 Series Regulatory Articles¹¹ which covers competence, roles and responsibilities for regulated entities. This provides detail on every area of UAV management, including Annex B Safety Checklist which references maintenance documents and emergency procedures for lost link, flyaway, fire, preventative measures, alarms and associated instructions.¹¹

Insurance Implications

Traditional insurance is designed to protect property from damage and people from injury. Civil Aviation (Insurance) Regulations 2005 sets out UK legislation which details insurance requirements¹². Questions which an insurer may require answers to may include:

- 1 How many UAV's will be used?
- 2 What weight will the UAV be?
- 3 What purposes would they be used for?
- 4 Where might they be deployed (rural locations, residential, industrial)?
- 5 How often might they be used?
- 6 What training will be provided to operatives (is the pilot qualified to a recognised standard)?
- 7 Where they will be used and in what proximity to (for example):
 - a) Aircraft Flight Paths and Airports or main motorways and roads creating a distraction.
 - b) Rail Infrastructure, National Grid Power Lines and Power Plants (conventional and nuclear).
 - c) Petrochemical and Gas Installations.
 - d) Operation near MOD Sites and Military/RAF Installations.

Liability insurers may be able to extend an existing liability policy to cover the use of UAVs, depending upon size and usage. It is incumbent on all policyholders to consult closely with their liability insurers and make sure coverage is agreed, and if this is not possible to seek alternative insurance cover which may rest within the aviation insurance market.

Conclusion

UAVs undoubtedly create risk exposures that need to be carefully considered in terms of safety, data and physical security, and privacy. Good quality government-backed advice is available¹³.

In many senses, a UAV is just another (albeit complex) piece of work-place equipment, and the demand for appropriate risk management and assessment procedures is similar to those for all other work-place activities.

There is a developing range of insurance policy covers available. Whilst each case needs to be considered on its own merits, it is possible in certain circumstances, for modified public liability policies to accommodate the liabilities arising from UAV use.

References

- Ref 1 <https://www.airproxboard.org.uk/Topical-issues-and-themes/Drones/>
- Ref 2 <http://www.legislation.gov.uk/uksi/2016/765/contents/made>
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- Ref 12 www.caa.co.uk/Aircraft-register/Registration-information/Mandatory-insurance-requirements-for-aircraft/
- Ref 13 https://dronesafe.uk/wp-content/uploads/2019/11/Drone-Code_October2019.pdf

Further information

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