Risk control

Drones and Unmanned Aerial Vehicles

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Drones and Unmanned Aerial Vehicles

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, sending back 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 are considering the use of 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 they 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

All commercial use of UAVs is covered by guidelines from the Civil Aviation Authority (CAA) and organisations must register UAVs with the regulator. Statistics released by the air regulator show that near misses between aircraft and UAVs investigated by the UK Airprox Board (UKAB), are increasing year-on-year (Ref.1).

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

The Air Navigation Order 2009 prohibits UAV flights over or within 150 metres of any congested area, over or within 150 metres of an organised open-air assembly of more than 1,000 people, or within 50 metres of any vessel, vehicle or structure which is not under the user's control, unless they have obtained permission from the Civil Aviation Authority (CAA) (Ref.2). CAP 722 , Unmanned Aircraft System Operations in UK Airspace – Guidance is intended to assist those who are involved in all aspects of the development of UAV to identify the route to certification, outline the methods by which permission for aerial work may be obtained and ensure that all UAV requirements for flight are met. The document highlights the safety requirements that have to be met before a UAV is allowed to operate in the UK.

Following increases in reported drone incidents with aircraft, 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 2018.

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's illegal to fly a drone within 5km of an airport (Ref.3).

Drone users will have to register and take online safety tests to improve accountability. The new laws will 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 will come into force on 30 November 2019 (Ref.4).

Permissions

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

The CAAs 2016 Air Navigation Order 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 (Ref.6).

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.

The table below summarises the current requirements for using UAV's:

Aircraft Mass	Airworthiness Approval?	Registration?	Operating Permission	Pilot Qualification
20kg and less	No	No	Yes	Yes
More than 20kg, up to and including 150kg	Yes	Yes	Yes	Yes
More than 150kg	UK Permit to Fly	Yes	Yes	Yes

Note that all classes of UAV require pilot/operator competence in accordance with the CAA requirements and there are educational centres offering these courses accredited to the CAA guidelines (Ref.6).

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 CAA has taken action against an operator flying a UAV over a BAE System submarine-testing facility.

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 identified.

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, the CCTV code of practice states that "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 manner".

Using a UAV to record images of other people without their consent could be a breach of the General Data Protection Regulations 2018 (Ref.7). 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 manner (Ref.8).

The ICO CCTV Code of Practice is now extended to include public use of UAVs collecting information about individuals (Ref.9). The Scottish Government has produced its own CCTV Strategy for Scotland (Ref.10).

Disaster Recovery

As with all mechanical objects, there is potential for failure, particularly mid-flight. 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 air worthiness 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 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 (buildings, power-lines, other moving objects such as passenger transport) will also form part of the assessment. Risk assessment must consider if loss is preventable (such as by knowledge of technical failure or inherent performance characteristic, or simply ran out of battery power). If such characteristics are known and preventable, a failure to manage these would 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 Articles (Ref.11) 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.

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 requirements (Ref 12). Questions which an insurer may require an answer to 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 existing liability policy(s) 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 an alternative insurance solution, which may rest in the aviation insurance market.

Conclusion

UAVs undoubtedly create exposures that need to be carefully considered in terms of safety, data and physical security, and privacy. Good quality government-backed advice is already available (Ref.13).

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, restrictions and limitations available. Whilst each case needs to be considered on its own merits it is possible, in certain circumstances, modified public liability policies may accommodate the liabilities arising from UAV use.

References

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Ref 13 http://dronesafe.uk/drone-code/

Further information

For access to further RMP Resources you may find helpful in reducing your organisation's cost of risk, please access the RMP Resources or RMP Articles pages on our website. To join the debate follow us on our LinkedIn page.

Get in touch

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