

Drones (Remotely Piloted Aircraft Systems)

ACTSAFE SAFETY BULLETIN #36

This bulletin provides guidelines for working safely around drones, which are sometimes referred to as remotely piloted aircraft systems (RPAS). Drones used for filming are typically remote-controlled camera units that combine aeronautics, electronics, and wireless transmission technologies with remote-controlled or programmable units.

HAZARDS

Transport Canada licenses drone operators in Canada. Licensed operators are responsible for taking steps to identify hazards and mitigate risks related to the operation of the drone. Employers are required to support operators in these efforts.

Environment

- Weather (e.g., temperature, wind, precipitation, fog)
- Terrain (e.g., slopes, trees)
- Outdoor structures (e.g., buildings, powerlines, cell or radio towers)
- Indoor structures (e.g., ceilings, lighting equipment)

The work

- Operations near or over people (e.g., performers or crew, bystanders)
- Loss of control or mechanical malfunctions (e.g., fly-aways, unexpected landings)
- Collisions with other aircraft or birds

- Electronic interference (e.g., drones inadvertently triggering or being triggered by other remote equipment)

The worker

- Individual risk factors (e.g., impairment due to fatigue or consumption of alcohol, drugs, or medications)
- Reckless or negligent operation

Pilot in command

The pilot in command has final authority over all drone operations, including the authority to abort any flight operation for safety reasons.



CONTROL MEASURES

The following control measures should be in place to protect performers and crew when filming with a drone:

- The pilot operating the drone should be a qualified, insured, and suitably licensed operator.
- Where operations are not regulated by Transport Canada (e.g., for indoor work), follow the production's safety plan or the drone operator's safety plan, as applicable.
- If the pilot can't maintain a visual line of sight at all times, there must be at least one qualified visual observer or spotter to help them.
- Performers and crew should be notified in advance that a drone will be in use and should attend the drone-related safety talk.
- A drone flight operation area should be established and controlled.
- There should be posted warning signs or other appropriate precautions if there's a chance of unintentionally entering a hazardous area.



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- Performers and crew should not walk through the takeoff and landing area at any time or approach the drone without permission, whether it's running or not.
- Equipment must not be added to the drone or altered without the authorization of the pilot in command.
- Pre-planned stunts or special effect sequences should not be changed without notifying the pilot in command. When the drone is airborne, there should be no changes.
- The area where the drone will take off and land should be kept clear of clutter and obstacles. Keep equipment such as cameras, lights, and sound booms safely away from the takeoff and landing area.
- Personal protective equipment should be provided and worn, when necessary.
- If weather conditions such as rain, snow, or wind could affect the flying accuracy and control of the drone, the pilot may decide to ground the drone until it's safe to operate it.

SAFETY MEETINGS

Safety talks must be held with all crew and performers, including BG, to discuss operations and precautions. These talks may include but should not be limited to the following topics:

- Identification of the intended flight path, takeoff and landing zones, obstacles, and other hazards.
- Minimum distances to be maintained between drones and people. Consider the type of drone, applicable regulations, studio policies, and the production or operator's safety plan.
- Identification of any electrical or transmission equipment that may interfere with the safe operation of the drone (e.g., explosives, squibs, remote focus gear).
- The importance of keeping the landing area clear of obstacles
- Communications, including chain of command, emergency procedures, and abort signals, both audible and visual.

It may be necessary to conduct additional safety meetings if there are changes to the original intended operation of the drone.

Radio signal frequencies

Anyone using wireless devices (e.g., camera operators and SPFX and stunt departments) should consult with the pilot in command before using them. Drones emit radio signal frequencies that could trigger wireless effects such as pyrotechnics and squibs. The signals from such devices can also interfere with drones. For example, focus pullers use wireless technology that could interfere with a drone signal and cause a loss of control.



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CANADIAN AVIATION REGULATIONS

Transport Canada oversees the Canadian Aviation Regulations (CARs), which describe the requirements that must be followed when flying drones (e.g., where and when they can fly and how close they can get to bystanders).

Drone pilots must carry a valid Transport Canada drone pilot certificate and follow the CARs. There are two levels of drone pilot licensing (basic and

advanced) that dictate safe operating distances from bystanders and objects. The CARs also describe certificate requirements for specialized operations such as out-of-sight flying or overweight drones.

Note: Productions and local governments or jurisdictions with authority may have safety rules or regulations that go beyond the CARs.

REGULATORY REFERENCES

- [Canadian Aviation Regulations, Part IX — Remotely Piloted Aircraft Systems](#)

RELATED RESOURCES

- [Aeronautical Information Manual \(TC AIM\): RPA — Remotely Piloted Aircraft](#) (Transport Canada)

Actsafes Safety Association

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