

Pre-Production (Planning) Memo

These guidelines are intended to give recommendations for preparing to safely use an Unmanned Aircraft System (UAS) in the motion picture & TV industry. A UAS is typically a remote-controlled camera unit that combines the use of aeronautics, electronics, and wireless transmission technologies through the use of a remote-controlled or a programmable unit.

REGULATORY REQUIREMENTS

Transport Canada Requirements

Transport Canada considers the use of a UAS within 9 km of any airport or built up area, building or people as higher risk that require the UAS operator to hold a valid “Special Flight Operations Certificate”, and operate within the conditions of that certificate. With up to 70 conditions that restrict many actions such as flight altitudes, distances from public and location, the intent is to protect other aircraft, general public and public property. The SFOC is not intended to protect cast, crew and property under the control of the production.

In addition, specific conditions of an SFOC as set out by Transport Canada may vary and are not necessarily covered by this Safety Bulletin. If any conditions of the SFOC are in conflict with any recommendations of this bulletin, the SFOC will prevail.

WorkSafeBC Requirements:

Following the guidelines in this document may help meet requirements as set out by WorkSafeBC, relating to:

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| • General Duties of Employers | WCB Act Division 3 115 (a) (i)(ii)(iii) (2) (b)(i) |
| • General Duties of Workers | WCB Act Division 3 116 (1)(a) (2)(a) |
| • General Duties of Supervisors | WCB Act Division 3 117 (2) (a)(i) |
| • Young or New worker Orientation | OHS Regulation Part 3 3.23 (2) (d)(j) |
| • Pre Job Planning and training | OHS Regulation Part 29 29.3 (a)(b)(Aircraft) |

Production Requirements

CHECK LIST

- SFOC (Transport Canada)
- Proof of Insurance
- Call Sheet Memo
- Flight Path/Map
- Safety Meeting(s)
- Local Permits

- Ensure you engage a qualified, insured and suitably experienced operator for the filming you plan to do.
- Ensure the operator is able to obtain an SFOC within the timeframe required for the production schedule. Obtain a copy of the SFOC and Proof of Insurance from the operator.
- Involve the Pilot in Command early in pre-production to discuss the capabilities and limitations of the UAS as well as allowing time to conduct any location specific hazard assessments, radio frequency spectrum analysis and/or test flights.
- Contact your studio safety representative (if available) as soon as you determine you intend to use a UAS in the production.
- Notify your cast and crew that a UAS will be in use; the front of the call sheet should contain a statement to the effect that:
 “An unmanned aircraft system (UAS) will be used in close proximity to crew and equipment. Any personnel who do not consent to working within the UAS area must notify _____ [please insert the assigned production designee(s)] prior to use of the UAS.”
- Comply with WorkSafeBC accident/incident reporting requirements.
- Page 3 of this safety bulletin and flight path/map should be attached to the back of the call sheet when the UAS is being utilized.

Indoor and Studio Operations

Extreme caution should be taken if the UAS is to be used indoors. Indoor conditions (eg. increased heat resulting in reduced air density) could adversely affect flying characteristics. Additionally, interior walls, ceiling beams, lighting equipment, vertical wires/cables and low light levels may increase the risk of the UAS making contact with an object during operation and may increase the difficulty of the operator’s

Indoor and Studio Operations - continued

ability to maintain visual contact with the UAS. Ensure that only necessary personnel are working in the vicinity of the UAS operation. There may be times when the UAS is used as a toy or as a prop. Safety precautions for these types of uses should be developed in conjunction with the corresponding risk they present.


OPERATING VARIABLES

WEATHER EXTREMES: Flying accuracy and control may be affected by changing conditions such as freezing conditions, rain/snow, wind/turbulence (natural and man made). While these conditions may be appropriate for manned aircraft, they may be cause for the grounding of UAS operations. A UAS does not have the same capabilities of a manned aircraft in these conditions.

RADIO FREQUENCY (RF) INTERFERENCE: Extra precautions must be taken to assess and monitor sources of electromagnetic and RF interference that may interfere with contact between the pilot's transmitter and the receiver.

Control Measures for Cast & Crew Safety

To operate a UAS safely, the following control measures should be implemented to protect the cast and crew:



WARNING

UAS's emit radio signal frequencies that could possibly trigger wireless special effects devices, such as pyrotechnic effects and squibs. It is recommended that special effects wireless triggering devices not be used when a UAS is in operation.

- A safety perimeter will be established for the area of flight operations of the UAS. This will be carefully controlled and only approved members of the crew will be permitted within that perimeter. If needed to prevent unintentional entry into potentially hazardous areas, warning signs should be posted and/or other appropriate precautions taken.
 - At no time will the cast or crew walk through or under the flight path of the UAS, nor must they approach the UAS without permission, whether running or not.
 - Equipment shall not be attached to, nor altered on, the UAS without the authorization of the Pilot in Command .
 - A map or drawing should be available identifying the flightpath, take-off and landing zones, obstacles and other hazards.
 - Pre-planned stunts or special effect sequences will not be changed without the authorization of the Pilot in Command. When the UAS is airborne, no changes will be made.
- General housekeeping is to be maintained in the area where the UAS will take-off and land.
 - Personal Protective Equipment (PPE) shall be provided and worn, as appropriate.

PUBLIC SAFETY

The SFOC will contain many conditions to protect public safety. These will include maximum altitude, distance from public and location. In addition the production should consider additional measures to ensure public safety when filming on location. Such measures may include but not be limited to:

SEGREGATION & CROWD CONTROL: Segregate the activities from public interference by maintaining a 100 foot safety zone by placing barriers, personnel, fencing and cordons, or using other built/natural features as well as marshalling or other active crowd control measures that restrict access to the area within which the UAS is operating by the general public.

UTILIZATION OF OTHER AGENCIES: Liaising with authorities having jurisdiction and other organizations to comply with local permit requirements, official road closures, traffic cessation or site access restrictions.

END OF PRE-PRODUCTION MEMO

Call Sheet Memo

These guidelines are intended to give recommendations for safely working around Unmanned Aircraft Systems (UAS). A UAS is typically a remote-controlled camera unit that combines the use of aeronautics, electronics, and wireless transmission technologies through the use of a remote-controlled or a programmable unit.

Additional guidelines are available for pre-production and planning at www.actsafe.ca.

PILOT IN COMMAND

The Pilot in Command will have final authority over all UAS operations, including the authority to abort any flight operation in the interest of safety.

The Pilot in Command on this unit is _____

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- At no time will the cast or crew walk through or under the flight path of the UAS, nor must they approach the UAS without permission, whether running or not.
- Equipment shall not be added to nor altered on the UAS without the authorization of the Pilot in Command.
- A map or drawing should be available identifying the flightpath, take-off and landing zones, obstacles and other hazards.
- Pre-planned stunts or special effect sequences will not be changed without the authorization of the Pilot in Command. When the UAS is airborne, no changes will be made.
- General housekeeping is to be maintained in the area where the UAS will take-off and land.
- Personal Protective Equipment (PPE) shall be provided and worn, as appropriate.

Safety Meetings

Safety meetings must be held with all participants including cast and crew to discuss operations and precautions.

These meetings may include but are not limited to the following:

- Possible risk to workers involved including emergency, safety and security staff.
- Discussion of all obstacles and/or equipment and locations that may present a hazard and safeguards to protect workers and equipment.
- The cast and crew will be notified that any electrical or transmission equipment may interfere with the safe operation of the UAS. Specific instructions will be given regarding the use of electronic devices (cell phones, wi-fi or other production wireless devices).
- Location of boundaries and intended flight paths.
- The importance of housekeeping and keeping the landing area clean and neat.
- Communications including chain of command; and emergency procedures, including landing zones and abort signals, both audible and visual.
- The use of explosives or squibs and interaction of stunt workers.
- If there is a question as to the safety of any aerial filming sequence involving low camera shots near cast or crew members, an additional briefing and/or safety meeting shall be held between the UAS Pilot in Command and concerned persons.
- It may be necessary to conduct additional safety meetings following a change to the original intended operation of the UAS.



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