

**EXEMPTION FROM SECTIONS 602.41 AND 603.66 OF THE
CANADIAN AVIATION REGULATIONS**

Pursuant to Subsection 5.9(2) of the Aeronautics Act, and after having determined that the exemption is in the public interest and is not likely to adversely affect aviation safety, I hereby exempt persons conducting flight operations utilizing unmanned air vehicles (UAVs) with a maximum take-off weight exceeding 1 kilogram up to and including 25 kilograms, with a maximum calibrated airspeed of 87 knots or less, operated within visual line-of-sight from the requirements of sections 602.41 and 603.66 of the *Canadian Aviation Regulations (CARs)*, subject to the conditions set out below.

Excerpts from the *CARs* are included in **Appendix A**.

INTERPRETATION

For the purpose of this exemption:

Autonomous UAV- means a UAV system able to execute processes or missions using onboard decision-making capabilities. An autonomous UAV system is not designed to permit crew member intervention.

Command and Control Link – means the data link between the UAV and the control station for the purposes of managing the flight.

Control Station – means the facilities and/or equipment remote from the UAV from which the aircraft is controlled and/or monitored.

First Person View (FPV) Device – means a device that generates and transmits a streaming video image to a control station display or monitor giving the pilot who is viewing this video, the illusion of actually flying the UAV from an onboard pilot's perspective.

Flight Termination System - means the system that, upon initiation, terminates the flight of a UAV in a manner so as not to cause significant damage to property or severe injury to persons on the ground.

Fly-away - means an interruption or loss of the command and control link where the pilot is unable to affect control of the UAV and the aircraft is no longer following its preprogrammed procedures resulting in the UAV not operating in a predictable or planned manner.

Lost Link - means the loss of command and control link contact with the UAV such that the pilot can no longer manage the aircraft's flight.

UAV Operator - means the person that has possession of the UAV system, as owner, lessee or otherwise.

UAV System – means a set of configurable elements consisting of an unmanned air vehicle, its associated control station(s), the required command and control links and any other elements as may be required, at any point during flight operation.

Visual line-of-sight (VLOS) - means unaided (corrective lenses and/or sunglasses exempted) visual contact with the UAV sufficient to be able to maintain operational control of the aircraft, know its location, and be able to scan the airspace in which it is operating to decisively see and avoid other air traffic or objects.

Visual Observer - means a trained crew member, in visual line-of-sight of the UAV, who assists the pilot in the duties associated with collision avoidance and complying with the applicable rules of flight.

PURPOSE

This exemption relieves persons conducting UAV system operations utilizing a UAV with a maximum take-off weight exceeding 1kg up to and including 25kgs, operated within visual line-of-sight from the requirement to obtain a Special Flight Operations Certificate (SFOC) as required by section 602.41 and the requirement to comply with the conditions of an SFOC as required by section 603.66 of the *CARs*.

The exemption will permit UAVs with a maximum take-off weight exceeding 1kg up to and including 25kgs and with maximum calibrated airspeed of 87 knots or less to be operated away from built-up areas, airspace, controlled aerodromes, forest fire areas and other restricted locations. UAV operations conducted outside the terms and conditions of this exemption are subject to the requirements for an SFOC, regardless of the weight of the UAV.

APPLICATION

This exemption applies to any person conducting UAV system operations within Canadian Domestic Airspace utilizing a UAV with a maximum take-off weight exceeding 1kg up to and including 25kgs operated within visual line-of-sight.

This exemption does not apply to:

- a) Operations of model aircraft;
- b) Operations of an Autonomous UAV; or
- c) Operations by a foreign UAV operator.

This exemption ceases to apply to the person who breaches a condition of the exemption.

CONDITIONS

General Conditions

- (1) Any person conducting operations under this exemption shall conduct a safe operation and shall not pose a risk to aviation safety.
- (2) Any person operating under this exemption shall not operate a UAV system in such a reckless or negligent manner so as to endanger or be likely to endanger the life or property of any person.

- (3) Any person operating under this exemption shall be a minimum of 18 years of age, or be at least 16 years of age and conducting research under the supervision of an academic institution.
- (4) Any person conducting operations under this exemption shall subscribe for liability insurance covering risks of public liability at the levels described in subsection 606.02 (8) of the *Canadian Aviation Regulations* and in any case shall have no less than \$100,000 in liability insurance coverage pertaining to the operation of the UAV.
- (5) The pilot operating under this exemption shall not operate the controls of a UAV if they have any reason to believe that they are suffering or are likely to suffer from fatigue, or suffering from any other condition which would render them unfit to perform their duties.
- (6) The pilot operating under this exemption shall not operate a UAV system within eight (8) hours after consuming an alcoholic beverage or while under the influence of alcohol or while using any drug that impairs the person faculties to the extent that the safety of the operation is endangered in any way.
- (7) Any person conducting operations under this exemption shall be familiar with the relevant aeronautical information that is appropriate to the intended flight, before commencing a flight.
- (8) Any person operating under this exemption shall not operate a UAV in any special aviation event requiring an SFOC under Part VI, Subpart 3, Division 1 of the *Canadian Aviation Regulations*.
- (9) Any person conducting operations under this exemption shall obtain permission from the owner(s) of the property on which a UAV intends to take-off/launch from and/or land/recover on.
- (10) Any person conducting operations under this exemption shall, prior to commencing operations, perform a site survey to assess the suitability of each location and confirm that safe operations can be conducted.
- (11) Any person conducting operations under this exemption shall cease operations if at any time the safety of other airspace users or persons or property on the ground is in jeopardy, or if the person conducting operations is unable to comply with the conditions of this exemption.
- (12) A copy of the following documents shall be accessible to any person conducting operations under this exemption.
 - (a) The exemption;
 - (b) Proof of liability insurance coverage;
 - (c) Name, address and telephone number of the UAV operator;
 - (d) A copy of the UAV system operating limitations; and
 - (e) Evidence that the training required in condition 50 and 51 has been completed.
- (13) A person conducting operations under this exemption shall immediately produce any of the documents and/or information listed in condition 12 to a peace officer, police officer, or Transport Canada inspector upon request.
- (14) No person operating under this exemption is relieved from complying with the provisions of any other relevant Acts, Regulations or laws or from any level of government.

Flight Conditions

- (15) The pilot operating under this exemption shall maintain continuous unaided visual contact with the UAV sufficient to be able to maintain operational control of the UAV, know its location and be able to scan the airspace in which it is operating to decisively see and avoid other air traffic or objects.
- (16) The pilot operating under this exemption shall not operate the UAV further than one-half (½) nautical mile from the location from which the pilot is operating the UAV.
- (17) The pilot operating under this exemption shall not use a first person view device.
- (18) The pilot operating under this exemption shall only operate a UAV from a single control station and control relays or visual observers to extend the operational area are prohibited.
- (19) The pilot shall operate no more than one UAV at any one time.
- (20) The pilot operating a UAV shall give way to manned aircraft at all times.
- (21) The pilot operating under this exemption shall only operate a UAV during daylight hours.
- (22) The pilot operating under this exemption shall operate a UAV at or below 300 feet above ground level (AGL).
- (23) The pilot conducting operations under this exemption shall only operate a UAV in Class G airspace.
- (24) The pilot operating under this exemption shall not operate a UAV within or over a forest fire area, or over any area that is located within five nautical miles of a forest fire area.
- (25) The pilot operating under this exemption shall not operate a UAV in airspace that has been restricted by the Minister under Section 5.1 of the *Aeronautics Act*.
- (26) The pilot operating under this exemption shall only operate a UAV at least five (5) nautical miles away from the centre of any aerodrome listed in the Canada Flight Supplement or the Water Aerodrome Supplement, excluding heliports.
- (27) The pilot operating under this exemption shall only operate a UAV at least three (3) nautical miles away from the centre of any heliport listed in the Canada Flight Supplement or Water Aerodrome Supplement or any aerodrome not listed in the Canada Flight Supplement or Water Aerodrome Supplement.
- (28) The pilot operating under this exemption shall not operate a UAV in any control zone.
- (29) The pilot operating under this exemption shall only operate a UAV at least three (3) nautical miles away from a built-up area.
- (30) While complying with condition 29 above, the pilot operating under this exemption shall operate a UAV at a lateral distance of at least 500 feet away from any building, structure, vehicle, vessel, animal or persons unless:
 - (a) The building, structure, vehicle, vessel or animal is the subject of the aerial work; and
 - (b) Only persons inherent to the operation are present.

- (31) The pilot operating under this exemption shall operate a UAV at a lateral distance of at least 500 feet from the general public, spectators, bystanders or any person not associated with the operation.
- (32) The pilot operating under this exemption shall not operate a UAV over or within an open-air assembly of persons.
- (33) The pilot conducting operations under this exemption shall only operate a UAV under visual meteorological conditions, clear of cloud with not less than two (2) statute miles ground visibility.
- (34) The pilot conducting operations under this exemption shall be able to take immediate active control of a UAV at all times.
- (35) Any person conducting operations under this exemption shall establish and adhere to procedures to be followed in the event that control of the UAV can no longer be maintained. Specifically:
 - (a) Procedures for contacting emergency responders;
 - (b) Procedures for landing/recovering the UAV safely;
 - (c) Procedures for contacting the appropriate air traffic service unit; and
 - (d) Name(s) of individuals responsible for following each of the above procedures.
- (36) Any person conducting operations under this exemption shall establish and adhere to an emergency contingency plan.
- (37) The pilot conducting operations under this exemption shall establish and follow normal, lost link and emergency procedures, including those established by the manufacturer.
- (38) Any person conducting operations under this exemption shall confirm that no unacceptable radio frequency interference to the UAV system is present prior to flight, nor is likely to be present during flight.
- (39) The pilot operating under this exemption shall not activate a flight termination system, if a UAV is so equipped, in such a manner as to endanger other airspace users or persons or property on the ground.
- (40) Any person operating under this exemption shall not conduct a take-off/launch of a UAV unless the risk involved with lost link circumstances has been assessed and a determination has been made as to when auto-recovery manoeuvres or flight termination shall be initiated.
- (41) The pilot operating under this exemption shall not operate a UAV in known or forecast icing conditions.
- (42) The pilot operating under this exemption shall not conduct a take-off/launch of a UAV that has frost, ice or snow adhering to any of its critical surfaces.
- (43) The pilot operating under this exemption shall not operate a UAV system unless it is operated in accordance with the operating limitations specified by the manufacturer.
- (44) The pilot operating under this exemption shall not permit the use of a portable electronic device at the control station of a UAV system where the device may impair the functioning of the systems or equipment.
- (45) The pilot operating under this exemption shall not conduct a take-off/launch of a UAV if explosive, corrosive, flammable, bio-hazard or bright light emitting

- (laser) payloads, or any payloads that can be jettisoned, dispersed or dropped, are carried onboard.
- (46) The pilot operating under this exemption shall ensure the following operational and emergency equipment is immediately available:
- (a) checklists or placards that enable a UAV system to be operated in accordance with the limitations specified by the manufacturer; and
 - (b) a hand-held fire extinguisher of a type suitable for extinguishing fires that are likely to occur.
- (47) The pilot conducting operations under this exemption shall remain clear of the take-off, approach and landing routes and the pattern of traffic formed by manned aircraft operating in the vicinity of aerodromes.
- (48) Any person conducting operations under this exemption shall ensure that the appropriate air traffic service unit(s) is advised immediately anytime the flight of a UAV inadvertently enters into controlled airspace.
- (49) The pilot operating a UAV under this exemption, before entering or operating within in the Canadian Air Defence Identification Zone (ADIZ), shall comply with section 601.145 of the *Canadian Aviation Regulations*.

Pilot Training Conditions

- (50) The pilot operating a UAV system under this exemption shall have successfully completed a pilot ground school program that provides instruction on the following subject areas:
- (a) airspace classification and structure;
 - (b) meteorological and NOTAM reporting services;
 - (c) interpretation of aeronautical charts and the Canada Flight Supplement; and
 - (d) applicable content of the *Canadian Aviation Regulations*;
- (51) The pilot conducting operations under this exemption shall be appropriately trained on the UAV system and qualified for the area and type of operation as referred to in Transport Canada Advisory Circular 600-004.

UAV System Conditions

- (52) Any person conducting operations under this exemption shall, prior to conducting a take-off/launch of a UAV, ensure that there is a means of:
- (a) Controlling the flight of the UAV;
 - (b) Monitoring the UAV system;
 - (c) Navigation;
 - (d) Communication, as required by the *Canadian Aviation Regulations*;
 - (e) Detecting hazardous environmental flight conditions;
 - (f) Mitigating the risk of loss of control of the UAV;
 - (g) Sensing and avoiding other aircraft;

- (h) Avoiding flight into obstacles and terrain; and
 - (i) Remaining clear of cloud.
- (53) Any person conducting operations under this exemption shall ensure that a UAV system is in a fit and safe state for flight prior to take-off/launch.
 - (54) Any person conducting operations under this exemption shall ensure that a UAV is not flown if it has been subjected to any abnormal occurrence unless it has been inspected for damage and repaired, if needed to ensure safe operation.
 - (55) Any person conducting operations under this exemption shall ensure that all maintenance, servicing and disassembly-assembly of a UAV system and associated components are performed in accordance with procedures described in the manufacturer's specifications.
 - (56) Any person conducting operations under this exemption shall ensure that the requirements of any airworthiness directives, or equivalent, issued by the manufacturer have been completed.
 - (57) Any person operating under this exemption shall ensure that the UAV is not equipped with an emergency locator transmitter (ELT).

Reporting Conditions

- (58) Any person operating under this exemption shall, prior to the commencement of operations, notify the Minister, in writing, of:
 - (a) Their name, address, telephone number and e-mail;
 - (b) The model of UAV(s) being operated including serial number(s), where appropriate;
 - (c) The type of work being conducted;
 - (d) The geographic boundaries or area(s) where the operation will be conducted; and
 - (e) Confirmation that:
 - (i) the exemption has been read and understood;
 - (ii) flights will only be conducted in Class G airspace;
 - (iii) flights will only be conducted at the applicable distance from aerodromes as stipulated in conditions 26 and 27; and
 - (iv) flights will only be conducted at the distance from built-up areas specified in condition 29.
- (59) Any person operating under this exemption shall notify the Minister within 10 working days of any change to the information provided in the above condition or upon the permanent cessation of UAV system operations.
- (60) Any person conducting operations under this exemption shall report to the closest Transport Canada Civil Aviation office, as soon as possible, details of any of the following aviation occurrences during the operation of a UAV system:
 - (a) Injuries to any person requiring medical attention;
 - (b) Unintended contact between a UAV and persons, livestock, vehicles, vessels or other structures;

- (c) Unanticipated damage incurred to the airframe, control station, payload or command and control links that adversely affects the performance or flight characteristics of the UAV;
 - (d) Anytime the UAV is not kept within the geographic boundaries and/or altitude limits as outlined in this exemption;
 - (e) Any collision or risk of collision with another aircraft;
 - (f) Anytime the UAV becomes uncontrollable, experiences a fly-away or is missing; and
 - (g) Any other incident that results in a Canadian Aviation Daily Occurrence Report (CADORS).
- (61) Any person conducting operations under this exemption shall, following any of the aviation occurrences listed above, cease operations until such time as the cause of the occurrence has been determined and corrective actions have been taken to eliminate the risk of reoccurrence.

VALIDITY

This exemption is in effect from December 22, 2016 until the earliest of the following:

- (a) December 31, 2019 at 23:59 (EST);
- (b) the date on which this exemption is cancelled in writing by the Minister, where he is of the opinion that the exemption is no longer in the public interest, or that it is likely to adversely affect aviation safety.
- (c) the date on which an amendment to the appropriate provisions of the *Canadian Aviation Regulations* or related standards, modifying the subject-matter specifically addressed in this exemption, comes into force.

Dated at Ottawa, Ontario, Canada this 9th day of December, 2016, on behalf of the Minister of Transport.



Denis Guindon
Director General, Aviation Safety Oversight and Transformation
Civil Aviation

**APPENDIX A:
EXCERPTS FROM THE *CANADIAN AVIATION REGULATIONS***

101.01

“model aircraft”

“*model aircraft*” means an aircraft, the total weight of which does not exceed 35 kg (77.2 pounds), that is mechanically driven or launched into flight for recreational purposes and that is not designed to carry persons or other living creatures; (modèle réduit d’aéronef)

[...]

“unmanned air vehicle”

“*unmanned air vehicle*” means a power-driven aircraft, other than a model aircraft, that is designed to fly without a human operator on board; (véhicule aérien non habité)

[...]

602.41 No person shall operate an unmanned air vehicle in flight except in accordance with a special flight operations certificate or an air operator certificate.

[...]

603.65 This Division applies in respect of the following flight operations when not conducted under Part VII:

[...]

(d) the operation of an unmanned air vehicle;

[...]

603.66 No person shall conduct a flight operation referred to in section 603.65 unless the person complies with the provisions of a special flight operations certificate issued by the Minister pursuant to section 603.67.

603.67 Subject to section 6.71 of the Act, the Minister shall, on receipt of an application submitted in the form and manner required by the *Special Flight Operations Standards*, issue a special flight operations certificate to an applicant who demonstrates to the Minister the ability to conduct the flight operation in accordance with the *Special Flight Operations Standards*.