
GACAR PART 107 – NON-RECREATIONAL CIVIL SMALL UNMANNED AIRCRAFT SYSTEMS

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SUBPART A – GENERAL

§ 107.1 Applicability.

(a) Except as provided in paragraph (c) of this section, this part applies to the registration, airman certification, and operation of civil small unmanned aircraft systems within the Kingdom of Saudi Arabia.

(b) This part also, applies to the certification requirements of small unmanned aircraft system (sUAS) remote pilot training organizations certification.

(c) This part does not apply to the following:

(1) Air carrier operations;

(2) Any aircraft subject to the provisions of GACAR Part 101

§ 107.3 Definitions.

The following definitions apply to this part. If there is a conflict between the definitions of this part and definitions specified in GACAR Part 1, the definitions in this part control for purposes of this part:

Control station means an interface used by the remote pilot to control the flight path of the small unmanned aircraft.

Corrective lenses means spectacles or contact lenses.

Small unmanned aircraft means an unmanned aircraft weighing less than 25 Kilograms on takeoff, including everything that is on board or otherwise attached to the aircraft.

Small unmanned aircraft system (small UAS) means a small unmanned aircraft and its associated elements (including communication links and the components that control the small unmanned aircraft) that are required for the safe and efficient operation of the small unmanned aircraft in the national airspace system.

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Unmanned aircraft means an aircraft operated without the possibility of direct human intervention from within or on the aircraft.

Visual observer means a person who is designated by the remote pilot in command to assist the remote pilot in command and the person manipulating the flight controls of the small UAS to see and avoid other air traffic or objects aloft or on the ground.

§ 107.5 Falsification of Applications, Reports, or Records.

(a) No person must make or cause to be made—

- (1) Any fraudulent or intentionally false statement on any application for a certificate or approval under this part;
- (2) Any fraudulent or intentionally false entry in any record or report that is required to be kept, made, or used to show compliance with any requirement for the issuance or the exercise of the privileges of any certificate or approval issued under this part;
- (3) Any reproduction for a fraudulent purpose of any certificate or approval issued under this part; or
- (4) Any alteration of any certificate or approval issued under this part.

(b) The commission by any person of an act prohibited under paragraph (a) of this section is a basis for suspending or revoking any certificate or approval issued under this part held by that person.

§ 107.7 Inspection, testing, and demonstration of compliance.

(a) A remote pilot in command, owner, or person manipulating the flight controls of a small unmanned aircraft system must, upon request, make available to the President:

- (1) The remote pilot certificate with a small UAS rating; and
- (2) Any other document, record, or report required to be kept under the regulations of this chapter.

(b) The remote pilot in command, visual observer, owner, operator, or person manipulating the

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flight controls of a small unmanned aircraft system must, upon request, allow the President to make any test or inspection of the small unmanned aircraft system, the remote pilot in command, the person manipulating the flight controls of a small unmanned aircraft system, and, if applicable, the visual observer to determine compliance with this part.

§ 107.9 Accident reporting.

No later than 10 calendar days after an operation that meets the criteria of either paragraph (a) or (b) of this section, a remote pilot in command must report to the AIB, and GACA, in a manner acceptable to the President, any operation of the small unmanned aircraft involving at least:

- (a) Serious injury to any person or any loss of consciousness; or
- (b) Damage to any property, other than the small unmanned aircraft.

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SUBPART B – OPERATING RULES

§ 107.11 Applicability.

This subpart applies to the operation of all civil small unmanned aircraft systems subject to this part.

§ 107.13 Requirement for a remote pilot certificate with a small UAS rating.

(a) Except as provided in paragraph (c) of this section, no person may manipulate the flight controls of a small unmanned aircraft system unless:

(1) That person has a remote pilot certificate with a small UAS rating issued pursuant to subpart C of this part and satisfies the requirements of §107.71; or

(2) That person is under the direct supervision of a remote pilot in command and the remote pilot in command has the ability to immediately take direct control of the flight of the small unmanned aircraft.

(b) Except as provided in paragraph (c) of this section, no person may act as a remote pilot in command unless that person has a remote pilot certificate with a small UAS rating issued pursuant to Subpart C of this part and satisfies the requirements of §107.71.

(c) The President may, consistent with international standards, authorize an airman to operate a civil foreign-registered small unmanned aircraft without a GACA issued remote pilot certificate with a small UAS rating.

§ 107.15 Registration.

A person operating a civil small unmanned aircraft system for purposes of flight must comply with the provisions GACAR Part 48.

§ 107.17 Certificate of Authorization.

(a) No person may operate a civil small unmanned aircraft system unless issued a Certificate of Authorization by the President.

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(b) The Certificate of Authorization must contain the following information:

- (1) The official name and address of the operator.
- (2) The name and address of the accountable person.
- (3) List and identification of small unmanned aircraft systems used by the operator.
- (4) Any additional operating conditions and limitations set by the President.

§ 107.19 Condition for safe operation.

(a) No person may operate a civil small unmanned aircraft system unless it is in a condition for safe operation. Prior to each flight, the remote pilot in command must check the small unmanned aircraft system to determine whether it is in a condition for safe operation.

(b) No person may continue flight of the small unmanned aircraft when he or she knows or has reason to know that the small unmanned aircraft system is no longer in a condition for safe operation.

§ 107.21 Medical condition.

No person may manipulate the flight controls of a small unmanned aircraft system or act as a remote pilot in command, visual observer, or direct participant in the operation of the small unmanned aircraft if he or she knows or has reason to know that he or she has a physical or mental condition that would interfere with the safe operation of the small unmanned aircraft system.

§ 107.23 Remote pilot in command.

(a) A remote pilot in command must be designated before or during the flight of the small unmanned aircraft.

(b) The remote pilot in command is directly responsible for and is the final authority as to the operation of the small unmanned aircraft system.

(c) The remote pilot in command must ensure that the small unmanned aircraft will pose no undue hazard to other people, other aircraft, or other property in the event of a loss of control of the

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aircraft for any reason.

(d) The remote pilot in command must ensure that the small UAS operation complies with all applicable regulations of this chapter.

(e) The remote pilot in command must have the ability to direct the small unmanned aircraft to ensure compliance with the applicable provisions of this chapter.

§ 107.25 In-flight emergency.

(a) In an in-flight emergency requiring immediate action, the remote pilot in command may deviate from any rule of this part to the extent necessary to meet that emergency.

(b) Each remote pilot in command who deviates from a rule under paragraph (a) of this section must, upon request of the President, send a written report of that deviation to the President.

§ 107.27 Hazardous operation.

No person may:

(a) Operate a small unmanned aircraft system in a careless or reckless manner so as to endanger the life or property of another; or

(b) Allow an object to be dropped from a small unmanned aircraft in a manner that creates an undue hazard to persons or property.

§ 107.29 Operation from a moving vehicle or aircraft.

No person may operate a small unmanned aircraft system—

(a) From a moving aircraft; or

(b) From a moving land or water-borne vehicle unless the small unmanned aircraft is flown over a sparsely populated area and is not transporting another person's property for compensation or hire.

§ 107.31 Psychoactive Substances.

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A person manipulating the flight controls of a small unmanned aircraft system or acting as a remote pilot in command or visual observer must comply with the provisions of GACAR § 91.21.

§ 107.33 Authorized areas of operations.

Unless otherwise authorized by the President, no person may operate a UAS unless the areas of operation have been identified and within the authorized areas of operations determined by the appropriate GACA Certificated Air Traffic Services Provider under GACAR Part-171.

§ 107.35 Daylight operation.

- (a) No person may operate a small unmanned aircraft system during night.
- (b) No person may operate a small unmanned aircraft system during periods of civil twilight unless the small unmanned aircraft has lighted anti-collision lighting visible for at least 3 statute miles. The remote pilot in command may reduce the intensity of the anti-collision lighting if he or she determines that, because of operating conditions, it would be in the interest of safety to do so.
- (c) For purposes of paragraph (b) of this section, civil twilight refers to the following:
 - (1) a period of time that begins 30 minutes before official sunrise and ends at official sunrise;
 - (2) a period of time that begins at official sunset and ends 30 minutes after official sunset.

§ 107.37 Visual line of sight aircraft operation.

- (a) With vision that is unaided by any device other than corrective lenses, the remote pilot in command, the visual observer (if one is used), and the person manipulating the flight control of the small unmanned aircraft system must be able to see the unmanned aircraft throughout the entire flight in order to:
 - (1) Know the unmanned aircraft's location;
 - (2) Determine the unmanned aircraft's attitude, altitude, and direction of flight;
 - (3) Observe the airspace for other air traffic or hazards; and

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- (4) Determine that the unmanned aircraft does not endanger the life or property of another.
- (b) Throughout the entire flight of the small unmanned aircraft, the ability described in paragraph (a) of this section must be exercised by either:
- (1) The remote pilot in command and the person manipulating the flight controls of the small unmanned aircraft system; or
 - (2) A visual observer.

§ 107.39 Visual observer.

If a visual observer is used during the aircraft operation, all of the following requirements must be met:

- (a) The remote pilot in command, the person manipulating the flight controls of the small unmanned aircraft system, and the visual observer must maintain effective communication with each other at all times.
- (b) The remote pilot in command must ensure that the visual observer is able to see the unmanned aircraft in the manner specified in §107.37.
- (c) The remote pilot in command, the person manipulating the flight controls of the small unmanned aircraft system, and the visual observer must coordinate to do the following:
 - (1) Scan the airspace where the small unmanned aircraft is operating for any potential collision hazard; and
 - (2) Maintain awareness of the position of the small unmanned aircraft through direct visual observation.

§ 107.41 Operation of multiple small unmanned aircraft.

A person may not operate or act as a remote pilot in command or visual observer in the operation of more than one unmanned aircraft at the same time.

§ 107.43 Carriage of Dangerous Goods.

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A small unmanned aircraft may not carry hazardous material. For purposes of this section, the term hazardous material is defined in GACAR Part 1.

§ 107.45 Operation near aircraft; right-of-way rules.

(a) Each small unmanned aircraft must yield the right of way to all aircraft, airborne vehicles, and launch and reentry vehicles. Yielding the right of way means that the small unmanned aircraft must give way to the aircraft or vehicle and may not pass over, under, or ahead of it unless well clear.

(b) No person may operate a small unmanned aircraft so close to another aircraft as to create a collision hazard.

§ 107.47 Operation over human beings.

No person may operate a small unmanned aircraft over a human being unless that human being is:

(a) Directly participating in the operation of the small unmanned aircraft; or

(b) Located under a covered structure or inside a stationary vehicle that can provide reasonable protection from a falling small unmanned aircraft.

§ 107.49 Operation in certain airspace.

No person may operate a small unmanned aircraft in Class B, Class C, or Class D airspace or within the lateral boundaries of the surface area of Class E airspace designated for an airport unless that person has prior authorization from Air Traffic Control (ATC).

§ 107.51 Operation in the vicinity of airports.

No person may operate a small unmanned aircraft in a manner that interferes with operations and traffic patterns at any airport, heliport, or seaplane base.

§ 107.53 Operation in prohibited or restricted areas.

No person may operate a small unmanned aircraft in prohibited or restricted areas unless that person has permission from the using or controlling agency, as appropriate.

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§ 107.55 Flight restrictions in the proximity of certain areas designated by notice to airmen.

A person acting as a remote pilot in command must comply with the provisions of GACAR §91.141 through §91.149 and GACAR §99.9.

§ 107.57 Preflight familiarization, inspection, and actions for aircraft operation.

Prior to flight, the remote pilot in command must:

(a) Assess the operating environment, considering risks to persons and property in the immediate vicinity both on the surface and in the air. This assessment must include:

- (1) Local weather conditions;
- (2) Local airspace and any flight restrictions;
- (3) The location of persons and property on the surface; and
- (4) Other ground hazards.

(b) Ensure that all persons directly participating in the small unmanned aircraft operation are informed about the operating conditions, emergency procedures, contingency procedures, roles and responsibilities, and potential hazards;

(c) Ensure that all control links between ground control station and the small unmanned aircraft are working properly;

(d) If the small unmanned aircraft is powered, ensure that there is enough available power for the small unmanned aircraft system to operate for the intended operational time; and

(e) Ensure that any object attached or carried by the small unmanned aircraft is secure and does not adversely affect the flight characteristics or controllability of the aircraft.

(f) Information on all flights must be recorded in a logbook or equivalent. Information on each flight must contain date, time, name of Pilot In Command and flight crew, registration marks of the individual aircraft, take-off and landing areas, total flight time, type of operation, applicable flight rules and potential deviations. Records must be kept for a period of three years and ready for inspection.

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§ 107.59 Operating limitations for small unmanned aircraft.

A remote pilot in command and the person manipulating the flight controls of the small unmanned aircraft system must comply with all of the following operating limitations when operating a small unmanned aircraft system:

- (a) The ground speed of the small unmanned aircraft may not exceed 87 knots (160 km per hour).
- (b) The altitude of the small unmanned aircraft cannot be higher than 400 feet (120 meters) above ground level, unless the small unmanned aircraft:
 - (1) Is flown within a 400-foot (120 meters) radius of a structure; and
 - (2) Does not fly higher than 400 feet (120 meters) above the structure's immediate uppermost limit.
- (c) The minimum flight visibility, as observed from the location of the control station must be no less than 5 kilometers. For purposes of this section, flight visibility means the average slant distance from the control station at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.
- (d) The minimum distance of the small unmanned aircraft from clouds must be no less than:
 - (1) 500 feet (150 meters) below the cloud; and
 - (2) 2,000 feet (600 meters) horizontally from the cloud.

SUBPART C – REMOTE PILOT CERTIFICATION

§ 107.61 Applicability.

This subpart prescribes the requirements for issuing a remote pilot certificate with a small UAS rating.

§ 107.63 Offenses Involving Psychoactive Substances.

(a) A conviction for the violation of any law relating to the growing, processing, manufacture, sale, disposition, possession, transportation, or importation of psychoactive substances is grounds for:

- (1) Denial of an application for any license or rating issued under this part, or
- (2) Suspension or revocation of any license or rating issued under this part.

(b) The commission of an act prohibited by GACAR § 91.21(a) or §91.23(a) is grounds for:

- (1) Denial of an application for a license or rating issued under this part, or
- (2) Suspension or revocation of any license or rating issued under this part.

(c) A refusal to submit to a test to indicate the presence of psychoactive substances in the body, when requested by an authorized Government representative in accordance with GACAR §91.21(c)(1), or a refusal to furnish or authorize the release of the test results requested by the President in accordance with GACAR § 91.17(c)(2), is grounds for:

- (1) Denial of an application for any certificate, rating, or authorization issued under this part;
or
- (2) Suspension or revocation of any certificate, rating, or authorization issued under this part.

§ 107.65 Eligibility.

Subject to the provisions of §107.65, in order to be eligible for a remote pilot certificate with a small UAS rating under this subpart, a person must:

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- (a) Be at least 18 years of age;
- (b) Be cleared through GACA Aviation Security Division.
- (c) Be able to read, speak, write, and understand the English language. If the applicant is unable to meet one of these requirements due to medical reasons, GACA may place such operating limitations on that applicant's certificate as are necessary for the safe operation of the small unmanned aircraft.
- (d) Not know or have reason to know that he or she has a physical or mental condition that would interfere with the safe operation of a small unmanned aircraft system; and
- (e) Demonstrate aeronautical knowledge by satisfying one of the following conditions:
 - (1) has successfully completed and passed all theoretical and practical elements of the sUAS training course, including any theoretical knowledge examinations and practical competency assessments, in accordance with standards that were acceptable to GACA and conducted in a GACA approved sUAS training center; or
 - (2) Holds a foreign sUAS remote pilot license issued by a contracting state to the Convention on International Civil Aviation validated and accepted to the President; and
- (f) Pass an aeronautical knowledge test covering the areas of knowledge specified in 107.79§ (a) and practical test specified in §107.79 (c).

§ 107.67 Issuance of a remote pilot certificate with a sUAS rating.

An applicant for a remote pilot certificate with a sUAS rating under this subpart must make the application in a form and manner acceptable to the President.

- (a) The application must include-
 - (1) Evidence showing that the applicant passed an aeronautical knowledge test covering the areas of knowledge specified in 107.79§ (a) and practical test specified in §107.79 (c); and

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(2) a certificate issued from a GACA approved sUAS training center showing that applicant has successfully completed and passed all theoretical and practical elements of the sUAS training course, including theoretical knowledge examinations and practical competency assessments, in accordance with standards that were acceptable to GACA; or

(3) a certificate of foreign sUAS remote pilot license issued by a contracting state to the Convention on International Civil Aviation validated and accepted to the President.

(b) If the application is being made pursuant to paragraph (a) (2) or (a) (3) of this section:

(1) The application must be submitted to GACA;

(2) The person accepting the application submission must verify the identity of the applicant in a manner acceptable to the President.

§ 107.69 Temporary certificate.

An applicant for a remote pilot certificate with a small UAS rating under this subpart must make the application in a form and manner acceptable to the President.

(a) A temporary remote pilot certificate with a small UAS rating is issued for up to 120 calendar days, at which time a permanent certificate will be issued to a person whom the President finds qualified under this part.

(b) A temporary remote pilot certificate with a small UAS rating expires:

(1) On the expiration date shown on the certificate;

(2) Upon receipt of the permanent certificate; or

(3) Upon receipt of a notice that the certificate sought is denied or revoked.

§ 107.71 Aeronautical knowledge recency.

A person may not operate a small unmanned aircraft system unless that person has completed one of

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the following, within the previous 24 calendar months:

- (a) Passed an initial aeronautical knowledge test covering the areas of knowledge specified in §107.79(a);
- (b) Passed a recurrent aeronautical knowledge test covering the areas of knowledge specified in §107.79(b); or
- (c) If a person holds a pilot certificate (other than a student pilot certificate) issued under part 61 of this chapter and meets the flight review requirements specified in GACAR §61.21, passed either an initial or recurrent training course covering the areas of knowledge specified in §107.81(a) or (b) in a manner acceptable to the President.

§ 107.73 Knowledge tests: General procedures and passing grades.

- (a) Knowledge tests prescribed by or under this part are given by persons and in the manner designated by the President.
- (b) An applicant for a knowledge test must have proper identification at the time of application that contains the applicant's:
 - (1) Photograph;
 - (2) Signature;
 - (3) Date of birth, which shows the applicant meets or will meet the age requirements of this part for the certificate and rating sought before the expiration date of the airman knowledge test report; and
 - (4) Permanent mailing address. If the applicant's permanent mailing address is a post office box number, then the applicant must also provide a current residential address.
- (c) The minimum passing grade for the knowledge test will be specified by the President.

§ 107.75 Knowledge tests: Cheating or other unauthorized conduct.

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(a) An applicant for a knowledge test may not:

- (1) Copy or intentionally remove any knowledge test;
- (2) Give to another applicant or receive from another applicant any part or copy of a knowledge test;
- (3) Give or receive assistance on a knowledge test during the period that test is being given;
- (4) Take any part of a knowledge test on behalf of another person;
- (5) Be represented by, or represent, another person for a knowledge test;
- (6) Use any material or aid during the period that the test is being given, unless specifically authorized to do so by the President; and
- (7) Intentionally cause, assist, or participate in any act prohibited by this paragraph.

(b) An applicant who the President finds has committed an act prohibited by paragraph (a) of this section is prohibited, for 1 year after the date of committing that act, from:

- (1) Applying for any certificate, rating, or authorization issued under this chapter; and
- (2) Applying for and taking any test under this chapter.

(c) Any certificate or rating held by an applicant may be suspended or revoked if the President finds that person has committed an act prohibited by paragraph (a) of this section.

§ 107.77 Retesting after failure

An applicant for a knowledge test who fails that test may not reapply for the test for 14 calendar days after failing the test.

§ 107.79 Initial and recurrent knowledge tests.

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- (a) An initial aeronautical knowledge test covers the following areas of knowledge:
- (1) Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;
 - (2) Airspace classification, operating requirements, and flight restrictions affecting small unmanned aircraft operation;
 - (3) Aviation weather sources and effects of weather on small unmanned aircraft performance;
 - (4) Small unmanned aircraft loading;
 - (5) Emergency procedures;
 - (6) Crew resource management;
 - (7) Radio communication procedures;
 - (8) Determining the performance of small unmanned aircraft;
 - (9) Physiological effects of drugs and alcohol;
 - (10) Aeronautical decision-making and judgment;
 - (11) Airport operations; and
 - (12) Maintenance and preflight inspection procedures.
- (b) A recurrent aeronautical knowledge test covers the following areas of knowledge:
- (1) Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;
 - (2) Airspace classification and operating requirements and flight restrictions affecting small unmanned aircraft operation;
 - (3) Emergency procedures;
 - (4) Crew resource management;

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- (5) Aeronautical decision-making and judgment;
- (6) Airport operations; and
- (7) Maintenance and preflight inspection procedures.

(c) Demonstrate a preflight check and successfully pass basic maneuvers of the flight for practical test.

§ 107.81 Initial and recurrent training courses.

(a) An initial training course covers the following areas of knowledge:

- (1) Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;
- (2) Effects of weather on small unmanned aircraft performance;
- (3) Small unmanned aircraft loading;
- (4) Emergency procedures;
- (5) Crew resource management;
- (6) Determining the performance of small unmanned aircraft; and
- (7) Maintenance and preflight inspection procedures.

(b) A recurrent training course covers the following areas of knowledge:

- (1) Applicable regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation;
- (2) Emergency procedures;
- (3) Crew resource management; and
- (4) Maintenance and preflight inspection procedures.

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§ 107.83 Change of name or address.

(a) Change of name. An application to change the name on a certificate issued under this subpart must be accompanied by the applicant's:

- (1) Remote pilot certificate with small UAS rating; and
- (2) A copy of the marriage license, court order, or other document verifying the name change.

(b) The documents in paragraph (a) of this section will be returned to the applicant after inspection.

(c) Change of address. The holder of a remote pilot certificate with small UAS rating issued under this subpart who has made a change in permanent mailing address may not, after 30 days from that date, exercise the privileges of the certificate unless the holder has notified GACA.

§ 107.85 Voluntary surrender of certificate.

(a) The holder of a certificate issued under this subpart may voluntarily surrender it for cancellation.

(b) Any request made under paragraph (a) of this section must include the following signed statement or its equivalent: “I voluntarily surrender my remote pilot certificate with a small UAS rating for cancellation. This request is made for my own reasons, with full knowledge that my certificate will not be reissued to me unless I again complete the requirements specified in §107.65 and §107.67.”

SUBPART D – WAIVER POLICY AND REQUIREMENTS.

§ 107.87 Waiver policy and requirements.

- (a) The President may issue a certificate of waiver authorizing a deviation from any regulation specified in §107.89 if the President finds that a proposed small UAS operation can safely be conducted under the terms of that certificate of waiver.
- (b) A request for a certificate of waiver must contain a complete description of the proposed operation and justification that establishes that the operation can safely be conducted under the terms of a certificate of waiver.
- (c) The President may prescribe additional limitations that the President considers necessary.
- (d) A person who receives a certificate of waiver issued under this section:
- (1) May deviate from the regulations of this part to the extent specified in the certificate of waiver; and
 - (2) Must comply with any conditions or limitations that are specified in the certificate of waiver.

§ 107.89 List of regulations subject to waiver.

A certificate of waiver issued pursuant to §107.87 may authorize a deviation from the following regulations of this part:

- (a) § 107.29 Operation from a moving vehicle or aircraft. However, no waiver of this provision will be issued to allow the carriage of property of another by aircraft for compensation or hire.

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(b) § Section 107.35 Daylight operation.

(c) § 107.37 Visual line of sight aircraft operation. However, no waiver of this provision will be issued to allow the carriage of property of another by aircraft for compensation or hire.

(d) § 107.39 Visual observer.

(e) § 107.41 Operation of multiple small unmanned aircraft systems.

(f) § 107.45 (a) Yielding the right of way.

(g) § 107.47 Operation over people.

(h) § 107.49 Operation in certain airspace.

(i) § 107.59 Operating limitations for small unmanned aircraft.

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SUBPART E – Certification of Small Unmanned Aircraft System Remote Pilot Training Organizations

§ 107.90 Applicability.

- (a) This subpart prescribes the requirements governing the certification, approval, and operation of small unmanned aircraft systems (SUAS) remote pilot training centers.
- (b) This subpart provides an alternative means to accomplish training required by GACAR Part 107.
- (c) No person may conduct training and testing of SUAS remote pilot without, or in violation of, the certificate and operations specifications required by this part.
- (d) Certification of a training center under this part requires the use of several types of small unmanned aircraft systems; An applicant who proposes to conduct training, testing, and checking using theoretical only training will not be accepted.

§107.91 Certificate and Operations Specifications Required.

- (a) No person may operate a training center without, or in violation of, a training center certificate and operations specifications issued under this part.
- (b) No person will be issued a training center certificate unless he is cleared through the GACA Aviation Security Authority.
- (c) An applicant will be issued a training center certificate and operations specifications with appropriate conditions and limitations if the applicant shows that it has adequate facilities, equipment, personnel, and courseware required by this part.

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§ 107.93 Duration of a Certificate.

- (a) General. The holder of a training center certificate issued under this part may not exercise the privileges of that certificate after it expires.
- (b) A training center certificate issued under this part is valid—
- (1) Until the date as endorsed on the certificate or
 - (2) Until the certificate is surrendered, suspended, or revoked.

§107.95 Application for Issuance, Amendment, or Renewal.

- (a) An application for a training center certificate and operations specifications must—
- (1) Be made on a form and in a manner prescribed by the President and
 - (2) Be made at least 60 working days before the beginning of any proposed training or 30 working days before effecting an amendment to any approved training, unless a shorter filing period is approved by the President.
- (b) Each application for a training center certificate and operations specifications must provide—
- (1) A statement showing that the minimum qualification requirements for each management position are met or exceeded;
 - (2) A statement acknowledging that the applicant must notify the President within 10 working days of any change made in the assignment of persons in the required management positions;
 - (3) The proposed training authorizations and operations specifications requested by the applicant;

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- (4) A description of the training equipment that the applicant proposes to use;
 - (5) A description of the applicant’s training facilities, equipment, qualifications of personnel to be used, and proposed evaluation plans;
 - (6) A training program curriculum, including syllabuses, outlines, courseware, procedures, and all supported documentations; upon request by the President;
 - (7) A description of a recordkeeping system that will identify and document the details of training, qualification, and certification of students, and instructors.
 - (8) A description of the training center’s quality assurance system.
- (c) The facilities and equipment described in paragraph (b)(6) of this section must—
- (1) Be available for inspection and evaluation prior to approval; and
 - (2) Be in place and operational at the location of the proposed training center prior to issuance of a certificate under this part.
- (d) An applicant who meets the requirements of this part and is approved by the President may receive—
- (1) A training center certificate containing all business names included on the application under which the certificate holder may conduct operations and the address of each business office used by the certificate holder; and
 - (2) Operations specifications, issued by the President to the certificate holder, containing—
 - (i) The type of training authorized.
 - (ii) The category, class, and type of small unmanned aircraft systems that may be used for training, testing, and checking;

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- (iii) The business name and address of all satellite training centers, and the approved courses offered at each satellite training center; and
- (iv) Any other items the President may require or allow.
- (e) The President may deny, suspend, or revoke a certificate under this part if the President finds that the applicant or the certificate holder—
- (1) Held a training center certificate that was revoked or suspended within the previous 5 years;
 - (2) Employs or proposes to employ a person who—
 - (i) Was previously employed in a management or supervisory position by the holder of a training center certificate that was revoked or suspended within the previous 5 years;
 - (ii) Exercised control over any certificate holder whose certificate has been revoked or suspended within the last 5 years; or
 - (3) Has provided incomplete, inaccurate, fraudulent, or false information for a training center certificate; or
 - (4) Should not be granted a certificate because the grant would not foster aviation safety.
- (f) The President may suspend, revoke, or amend any certificate issued under this part if—
- (1) The President determines that aviation safety and the public interest requires the suspension, revocation, or amendment or
 - (2) The certificate holder applies for the amendment and the President determines that aviation safety and the public interest allow the amendment.
- (g) When the President proposes to amend, suspend, modify, or revoke all or part of any certificate, the procedure in GACAR § 13.19 applies.

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(h) When the certificate holder applies for an amendment of its certificate, the following procedure applies:

(1) The certificate holder must file an application to amend its certificate with the GACA at least 15 working days before the date proposed by the applicant for the amendment to become effective, unless the President approves filing within a shorter period.

(2) The application must be submitted in the form and manner prescribed by the President.

(3) When a certificate holder seeks reconsideration of a decision from the President concerning amendments of a certificate, the procedures in GACAR Part 13 apply.

(i) Application for the renewal of a certificate under this part must be made on a form and in a manner prescribed by the President.

§ 107.97 Management and Personnel Requirements.

An applicant for a training center certificate must show on a continuing basis, that—

(a) For each listed course, the training center has a sufficient number of instructors who are qualified in accordance with instructor's qualification stipulated in this part to perform the duties to which they are assigned.

(b) The training center has a sufficient number of management personnel qualified and competent to perform required duties and supervise the training to be conducted.

(c) The training center has appointed an accountable manager responsible for ensuring it is in compliance with the requirements for an approved training center.

(e) Each management representative and all personnel designated by the training center to conduct direct student training are able to understand, read, write, and understand the English language.

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§107.99 Facilities.

- (a) An applicant for, or holder of, a training center certificate must establish and maintain a principal business office physically located at the address shown on its training center certificate.
- (b) An applicant for, or holder of, a training center certificate must ensure that each room, training booth, or other space used for instructional purposes is environmentally controlled, lighted, and ventilated to conform to local building, sanitation, and health codes.
- (c) Each training room is well equipped with operational training equipment that can be used during the conduction of the training.
- (d) The student records required to be maintained by this part must be located in facilities adequate for that purpose.
- (e) An applicant for, or holder of, a training center certificate must have available exclusively, for adequate periods of time and at a location approved by the President, adequate practical training area with adequate number of small unmanned aircraft systems that are operational whenever used for training and properly maintained in accordance with the manufacturer maintenance manual.

§ 107.101 Satellite Training Centers.

- (a) The holder of a training center certificate may conduct training in accordance with an approved training program at a satellite training center if—
 - (1) The facilities, equipment, personnel, and course content of the satellite training center meet the applicable requirements of this part.
 - (2) The instructors at the satellite training center are under the direct supervision of management personnel of the principal training center;
 - (3) The President is notified in writing that a particular satellite is to begin operations at least 60 working days prior to proposed commencement of operations at the satellite training center.

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- (4) The certificate holder’s operations specifications reflect the business name and address of the satellite training center and the approved courses offered at the satellite training center.
- (b) The certificate holder’s operations specifications must prescribe the operations required and authorized at each satellite training center.

§107.103 Display of Certificate.

- (a) Each holder of a training center certificate must prominently display that certificate in a place accessible to the public in the principal business office of the training center.
- (b) A training center certificate and operations specifications must be made available for inspection upon request by—
- (1) The President;
 - (2) An authorized representative of the Saudi Arabian Aviation Investigation Bureau; or
 - (3) Any law enforcement agency in the Kingdom of Saudi Arabia.

§107.105 Inspections.

Each certificate holder must allow the President to inspect training center facilities, equipment, and records in order to determine compliance with the GACAR, and the training center’s certificate and operations specifications.

§107.107 Advertising Limitations.

- (a) A certificate holder may not conduct, and may not advertise to conduct, any training, testing, and checking not approved by the President if that training is designed to satisfy any requirement

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of the GACAR.

- (b) A certificate holder whose certificate has been surrendered, suspended, or revoked must—
- (1) Promptly remove all indications, including signs, wherever located, that the training center was certificated by the President and
 - (2) Promptly notify all advertising agents, or advertising media, or both, employed by the certificate holder to cease all advertising indicating that the training center is certificated by the President.

§107.109 Training and Procedures Manual.

(a) The training center must provide a training and procedures manual for the use and guidance of personnel concerned. This manual may be issued in separate parts and must contain at least the following information:

- (1) A general description of the scope of training authorized under the training center's terms of approval;
- (2) The content of the training programs offered including the courseware and equipment to be used;
- (3) A description of the training center's quality assurance system in accordance with GACAR §107.111
- (4) A description of the training center's facilities;
- (5) The name, duties and qualification of the personnel designated as responsible for Compliance with the requirements of an approved training center;
- (6) A description of the duties and qualification of the personnel designated as responsible for planning, performing, and supervising training;

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(7) A description of the procedures used to establish and maintain the competence of instructional personnel;

(8) A description of the method used for the completion and retention of the training records required by this part;

(b) The training center must ensure that the training and procedures manual is amended as necessary to keep the information up to date.

(c) Copies of each amendment to the training and procedures manual must be furnished promptly to all organizations or persons to whom the manual has been issued.

§ 107.111 Quality Assurance System.

(a) Each training center must establish a quality assurance system acceptable to the President. Management personnel responsible for the implementation and maintenance of the quality assurance system must be identified by the training center.

(b) The quality assurance system must address—

(1) Conduct and effectiveness of all training programs;

(2) Compliance and adequacy of curriculums;

(3) Conformity and security of the training center's recordkeeping system;

(4) Adequacy of facilities and equipment;

(5) Qualifications, eligibility, and ability of instructors;

§ 107.113 Approval of Training Programs.

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(a) Each applicant for, or holder of, a training center certificate must apply to the President for training program approval.

(b) Application for training program approval must be made in a form and in a manner acceptable to the President.

(c) If, after a certificate holder begins operations under an approved training program, the President finds that the certificate holder is not meeting the provisions of its approved training program, the President may require the certificate holder to revise that training program.

(d) If the President requires a certificate holder to revise an approved training program and the certificate holder does not revise the program as required, within 30 days, the President may suspend or revoke the training center certificate under the provisions of GACAR Part 13.

§107.115 Training Program Curriculum Requirements.

Each training program curriculum submitted to the President for approval must meet the applicable requirements of covering:

1. The areas of knowledge specified in GACAR 107.79§ (a), and
2. practical test specified in GACAR §107.79 (c), and
3. Appendix A, and
4. Applicable practical topics of Appendix B of this part (as applicable to the sUAS Type and specifications)

and must contain—

- (a) A syllabus for each proposed curriculum;
- (b) The theoretical and practical training hours required to complete the training;
- (c) Minimum instructor qualifications for each proposed course / curriculum;
- (e) A means of tracking student performance.

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§107.117 Training Center Instructor Eligibility Requirements.

(a) A certificate holder may not employ a person as an instructor to conduct sUAS training course that is subject to approval by the President unless that person—

- (1) Is at least 18 years of age;
- (2) Be cleared through the GACA Aviation Security Authority.
- (3) Is able to read, write, speak and understand English.
- (4) Has a certificate of successfully completing theoretical and practical training conducted by a training center that is acceptable to the President, or the sUAS manufacturer.
- (5) Has a minimum of 20 hours of experience of remotely flying the sUAS.
- (6) Holding Remote Pilot License 107.

(b) Prior to starting conduction of any training, the instructor must successfully complete training on the following:

- (1) Instruction methods and techniques;
- (2) Fundamental principles of the learning process;
- (3) Training organization internal policies and procedures;
- (4) Instructor duties, privileges, responsibilities, and limitations;

§107.119 Small Unmanned Aircraft Systems Requirements.

(a) An applicant for, or holder of, a training center certificate must ensure that each Small Unmanned Aircraft System used for training meets the following requirements:

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- (1) Is In compliance with requirements of GACAR § 48.
- (2) IS fully operational and maintained in accordance with the manufacturer maintenance manual.
- (3) Has adequate number of SUAS that will enable each student to practice flying to a competent level.

§107.121 Practical training operating rules.

Whenever practical training is conducted, the instructor and students must adhere to the related operational rules of “SUBPART B – OPERATING RULES” of this part.

§ 107.123 Recordkeeping Requirements.

- (a) A certificate holder must maintain a record for each trainee that contains—
 - (1) The name of the trainee;
 - (2) The course title, duration, start date, end date and test results.
 - (3) The name of the course and the make and model of the sUAS used in the practical training.
 - (4) The trainee’s performance on each lesson and the name of the instructor providing instruction;
 - (5) The number of hours of additional training that was accomplished after any unsatisfactory.
 - (6) practical test.

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(b) A certificate holder must maintain a record for each instructor designated to instruct that contains—

(1) Instructor qualifications

(2) The instructor Initial and recurrent training

(3) The details of each course conducted by each instructor (Course title, start and end dates, students attended and their marks)

(c) The certificate holder must—

(1) Maintain the records required by paragraph (a) and (b) of this section for at least 2 years.

(2) The certificate holder must provide the records required by this section to the President, upon Request.

(3) Maintain the training records of any training conducted at satellite training center (if applicable).

(d) The certificate holder must provide to a trainee, upon request, a copy of his training records.

§ 107.125 Electronic Recordkeeping.

(a) No certificate holder may use an electronic recordkeeping system for any record required by this part unless the electronic recordkeeping system complies with paragraphs (b) through (f) of this section.

(b) Storage and Retrieval: A computer hardware and software system must have the capability to store and retrieve the records. The system must be capable of producing paper copies of the viewed information at the request of a GACA or AIB authorized representative.

(c) Security: Any electronic recordkeeping system must—

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- (1) Ensure that records are retained for the retention periods prescribed in this part.
 - (2) Protect confidential information.
 - (3) Ensure that the information is not altered in an unauthorized way.
 - (4) Have a corresponding policy and management structure to support the computer hardware and computer software that delivers the information.
- (d) Procedures: Before employing an electronic recordkeeping system, a certificate holder must incorporate electronic recordkeeping procedures into its manual to include the following:
- (1) Procedures for making required records available to authorized AIB personnel and GACA Inspectors. If the computer hardware and software system is not compatible with the GACA and AIB systems, the certificate holder must provide an employee or representative to assist in accessing the necessary computerized information.
 - (2) Procedures for reviewing the computerized personal identification codes system to ensure that the system will not permit password duplication.
 - (3) Procedures for auditing the computer system every 6 months to ensure the integrity of the system. A record of the audit must be completed and retained on file as part of the operator's record retention requirements. This audit may be a computer program that automatically audits itself.
 - (4) Audit procedures to ensure the integrity of each computerized workstation unless the workstations are server-based and contain no inherent attributes that enable or disable access.
 - (5) A description of the training procedure and requirements necessary to authorize access to the computer hardware and software system.
 - (6) For electronic record keeping systems employing digital or electronic signatures, guidelines for authorized representatives of the certificate holder to use electronic signatures

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and to have access to the appropriate records.

Appendix A

Aeronautical knowledge topics

(The minimum acceptable duration for the theory part is 16 Hours)

Applicable Regulations.

- GACAR Parts 107, 3, and 13.

Airspace Classification, Operating Requirements, and Flight Restrictions.

- Introduction
- Controlled Airspace
- Uncontrolled Airspace
- Special Use Airspace
- Other Airspace Areas
- Air Traffic Control and the National Airspace System
- Visual Flight Rules (VFR) Terms & Symbols
- Notices to Airmen (NOTAMs)

Aviation Weather Sources.

- Introduction
- Surface Aviation Weather Observations
- Aviation Weather Reports
- Aviation Forecasts
- Convective Significant Meteorological Information (WST)

Effects of Weather on Small Unmanned Aircraft Performance.

- Introduction

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- Density Altitude
- Performance
- Measurement of Atmosphere Pressure
- Effect of Obstructions on Wind
- Low-Level Wind Shear
- Atmospheric Stability
- Temperature/Dew Point Relationship
- Clouds
- Fronts
- Mountain Flying
- Structural icing
- Thunderstorm Life Cycle
- Ceiling
- Visibility

Small Unmanned Aircraft Loading.

- Introduction
- Weight
- Stability
- Load Factors
- Weight and Balance

Emergency Procedures.

- Introduction
- Inflight Emergency

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Crew Resource Management.

Radio Communication Procedures.

- Introduction
- Understanding Proper Radio Procedures
- Traffic Advisory Practices at Airports without Operating Control Towers

Determining the Performance of Small Unmanned Aircraft.

- Introduction
- Effect of Temperature on Density
- Effect of Humidity (Moisture) on Density

Physiological Factors (Including Drugs and Alcohol) Affecting Pilot Performance.

- Introduction
- Physiological/Medical Factors that Affect Pilot Performance
- Vision and Flight

Aeronautical Decision-Making and Judgment.

- Introduction
- History of ADM
- Risk Management
- Crew Resource Management (CRM) and Single-Pilot Resource Management
- Hazard and Risk
- Human Factors
- The Decision-Making Process
- Decision-Making in a Dynamic Environment
- Situational Awareness

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Airport Operations.

- Introduction
- Types of Airports
- Sources for Airport Data
- Latitude and Longitude (Meridians and Parallels)

Maintenance and Preflight Inspection Procedures.

Appendix B

Practical Training Topics

(The minimum acceptable duration for the practical part is 8 Hours)

Perform pre- and post-operation actions and procedures

Launch and landing areas

Explain considerations in locating and setting-up a launch and recovery area.

Pre-operation actions and procedures

(a) obtain, interpret and apply information contained in the sUAS operator's documented practices and

procedures including information relating to the following:

(i) weather forecasts;

(ii) local observations;

(iii) NOTAMs;

(iv) area approvals;

(v) other aeronautical information such as information from GACA / SANS.

(b) decide whether the current and forecast weather conditions are suitable for the proposed operation;

(c) decide whether the sUAS is serviceable for the proposed operation;

(d) decide whether the aircraft batteries are the correct type and serviceable.

Perform pre-flight inspection

(a) assemble and prepare (as needed) the sUAS for operation;

(b) conduct a post-assembly inspection of the sUAS;

(c) ensure that locking and securing devices, covers and bungs for the sUAS are removed;

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(d) complete a pre-operation inspection as set out in the sUAS operator’s documented practices and procedures;

(e) start the operation of the sUAS in accordance with the sUAS operator’s documented practices and procedures for the operation of the sUAS.

Weight and balance

Use the sUAS operator’s documented practices and procedures to check:

(a) aircraft is loaded within limits;

(b) center of gravity is within limits.

Post-operation actions and procedures

(a) shut down aircraft in accordance with the operations manual;

(b) conduct post-operation inspection and secure the aircraft (if applicable);

(c) complete all required post-operation administration documentation;

(d) disassemble aircraft for transport.

Energy management

Plan energy requirements

Use the sUAS operating manual to work out the duration of the flight taking into account:

(a) operational environment (various wind and temperature conditions):

(b) relevant abnormal or emergency conditions, contingencies.

Manage battery system or systems

(a) if the energy source for the sUAS is a battery or battery systems:

(i) prior to launch, verify the time available for the flight given the current battery charge;

(ii) ensure the batteries are secured to the sUAS for the operation;

(iii) ensure the battery connectors are connected properly and secure for the operation;

(iv) monitor energy usage during the operation;

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- (v) maintain a battery log for the operation;
- (vi) perform battery changes correctly;
- (b) if the energy source of the remote pilot station for the sUAS is a battery or battery systems — manage the remote pilot station power supply to ensure sufficient energy to complete an operation with a suitable reserve.

Recharge battery or batteries

- (a) inspect the battery to ensure it is safe to be recharged;
- (b) ensure the battery charger is setup correctly for the type of battery;
- (c) correctly connect and disconnect a battery to the battery charger;
- (d) perform battery quality and quantity checks after charging;
- (e) calculate the time it would take to use and recharge a battery for a particular operation;
- (f) if a battery is unsafe for an operation — recognize that the battery is unsafe for the operation;
- (g) check that the battery has sufficient charge

Manage crew, payload and bystanders for the sUAS operation

Manage bystanders

- (a) ensure that bystanders remain a safe distance away from the operation;
- (b) ensure bystanders are aware of, and avoid interference with, the operation and the systems controls used in the operation such as the remote pilot station;
- (c) manage bystander safety in the event of abnormal or emergency situation arising as a result of the operation;
- (d) demonstrate effective oral communication to bystanders in a clear, effective manner.

Manage people involved in the operation

- (a) establish and maintain clear communication with people involved to ensure a safe operation of the sUAS;
- (b) carry-out effective and safe handovers of remote pilot responsibilities before, during and after sUAS operation.

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Navigation and operations

Operational “rules”

- (a) operate the sUAS in compliance with the requirements relating to operating the sUAS mentioned in GACAR107 “SUBPART B – OPERATING RULES”;
- (b) identify the location and relevant parts of the sUAS operator’s documented practices and procedures relating to the operation of the sUAS.

Operational basics

- (a) describe different traffic patterns of manned aircraft at aerodromes;
- (b) describe suitable vertical and horizontal separation distances between the sUAS and other aircraft;
- (c) explain when an incident or accident report must be submitted in relation to an operation of the sUAS.

Orientation

- (a) interpret a given map or chart in relation to a proposed operation of the sUAS and work out its implications for the operation;
- (c) explain the significance of track and ground speed in relation to an operation of the sUAS;
- (d) state the relevance of height, altitude and elevation in relation to different circumstances in which the sUAS is operated.

Use of aeronautical charts

On a visual navigation chart — identify, without reference to the chart legend:

- (a) major features, including roads, rivers, lakes;
- (b) Aerodromes, obstacles, spot heights, including elevation or height above terrain;
- (c) identify airspace boundaries and symbols;
- (d) interpret other symbols with reference to the chart legend.

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Operations preparation

- (a) identify the operational documentation required for a planned operation;
- (b) read and interpret a NOTAM, using NOTAM decode information;
- (c) obtain and comply with ATC clearances;
- (d) be aware of “fly neighborly” areas and environmental protection;
- (e) read and interpret a local weather forecast and determine whether it would be suitable to operate the sUAS for the operation given the forecast;
- (f) read and interpret an aeronautical weather forecast and determine whether it would be suitable to operate the sUAS for the operation given the forecast.

Non-technical skills for operation

Maintain effective lookout

Maintain obstacle and traffic separation using a systematic visual scan technique at a rate determined by location, visibility and terrain.

Maintain situational awareness

- (a) collect information to ensure the continued safe operation of the sUAS;
- (b) non-weather hazards to operations (for example, thermal plumes, powerlines, animals).

Assess situations and make decisions

- (a) identify problems that may affect the safe operation of the RPA;
- (b) analyze the problems;
- (c) identify solutions to the problems;
- (d) assess the solutions and risks of the solutions;
- (e) decide on a course of action;
- (f) if appropriate — communicate the proposed course of action;
- (g) if appropriate — allocate tasks relating to the proposed course of action;

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- (h) take actions to achieve optimum outcomes for the operation;
- (i) monitor progress of the course of action;
- (j) adjust the course of action to achieve the optimum outcomes for the operation.

Set priorities and manage tasks

- (a) organise workload and priorities to ensure safe operation of the sUAS;
- (b) anticipate events and tasks that may occur during the operation;
- (c) plan events and tasks for the operation so that the events and task occur sequentially;
- (d) use technology to reduce workload and improve cognitive and manipulative activities during the operation.

Maintain effective communications and interpersonal relationships

- (a) establish and maintain effective and efficient communications and interpersonal relationships with all stakeholders to ensure the optimum outcome of the operation;
- (b) define and explain objectives to stakeholders;
- (c) recognize hazardous attitudes and mindsets;
- (d) demonstrate a level of assertiveness that ensures the optimum completion of the operation.

Recognize and manage threats

- (a) identify environmental or operational threats likely to affect the safety of the operation;
- (b) identify if competing priorities and demands may represent a threat to the safety of the operation;
- (c) develop and implement countermeasures to manage threats;
- (d) during the operation, monitor and assess the progress of the operation to ensure a safe outcome and modify actions accordingly;
- (e) identify and manage fatigue.

Recognize and manage errors

- (a) apply the sUSA operator's documented practices and procedures.

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- (b) prevent aircraft handling, procedural or communication errors;
- (c) during the operation, identify errors in the operation of the sUAS before the safety of the operation is affected;
- (d) during the operation, monitor the following to identify potential or actual errors:
 - (i) in the UAS using a systematic scan technique;
 - (ii) caused by the environment in which the sUAS is operating;
 - (iii) by the other individuals who have been assigned duty.

Automated flight management systems for UAS.

Automated operation control

- (a) demonstrate an automated launch and initial climb of the sUAS;
- (b) modify the pre-programmed flight path while the sUAS is in flight;
- (c) demonstrate an automated approach and landing/recovery of sUAS.

Emergency procedures

- (a) interrupt an automated operation of the sUAS and redirect the sUAS to a safe point;
- (b) demonstrate a baulked landing procedure;
- (c) demonstrate the procedure to terminate the automated operation of the sUAS.

Ground operations and launch

Ground operations —taxiing

When taxiing on the ground:

- (a) perform applicable taxi checks, including instrument checks as required;
- (b) maintain safe taxi speed and control of the sUAS;
- (c) maintain safe spacing from obstructions, and persons;
- (d) avoid causing a hazard to another aircraft, objects or persons;

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- (e) apply correct handling techniques to take wind into account;
- (f) use checklists at appropriate times during ground operations.

Ground operations —launch

For hand launching of the sUAS:

- (a) demonstrate the correct way to hold the sUAS pre-launch;
- (b) demonstrate the necessary precautions when hand launching;
- (c) ensure the flight path for launching the sUAS is clear of other aircraft, people and other hazards before launch;
- (d) work out a plan of action, in advance, to ensure the safest outcome in the event of abnormal operation.

Launch actions

If performing the launch of a sUAS:

- (a) demonstrate correct launch technique;
- (b) perform the post-launch checks mentioned in the sUAS checklist set out in operator's operations manual;
- (c) demonstrate smooth application of power and a controlled initial climb.

Normal operations

Straight and level

- (a) operate the sUAS in straight and level flight at the desired altitude;
- (b) identify and avoid terrain and traffic when operating the UAS.

Climb

- (a) operate the sUSA at a constant angle of climb;
- (b) operate the sUSA at a constant rate of climb.

Trim

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If required, trim the sUAS to maintain the desired flight path for the flight.

Turns

- (a) operate the sUAS to perform turns that are properly coordinated;
- (b) operate the sUAS to perform turns that are conducted within a nominated area;
- (c) operate the sUAS so that level turns are at a constant altitude.

Descent

- (a) descend the sUAS at a constant angle of descent;
- (b) descend the sUAS at a constant rate of descent;
- (c) use lift/drag devices appropriately during the descent of the sUAS.

Land/recover sUAS

Recover sUAS

- (a) perform a rectangular circuit, minimum width 100 m, minimum length 200 m, followed by a straight-line approach to a nominated point and landing;
- (b) allow sufficient space to align the sUAS for a stabilized approach to the place at which the UAS will land or be recovered;
- (c) maintain a constant landing position aim point for the sUAS;
- (d) if applicable, achieve a smooth, positively-controlled transition from final approach to touchdown, including the following:
 - (i) minimize ballooning during flare;
 - (ii) touchdown at a controlled rate of descent, in the specified touchdown zone;
 - (iii) maintain positive directional control and cross-wind correction after landing, where applicable;
- (e) perform cross-wind landings.

Conduct a missed approach

- (a) recognize the conditions when a missed approach should be executed;

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- (b) make the decision to execute a missed approach in a timely way;
- (c) carry out a missed approach and reposition for landing by doing the following:
 - (i) select power, attitude and configuration to safely control the sUAS;
 - (ii) maneuver the sUAS clear of the ground and conduct after launch procedures;
 - (iii) make allowance for wind velocity during go-around.

Advanced maneuvers

Enter and recover from stall

- (a) perform pre-maneuver checks for stalling the sUAS;
- (b) recognize stall signs and symptoms;
- (c) control the sUAS by applying the required power and pitch, roll and yaw inputs as appropriate in a smooth, coordinated manner to recover from the following maneuvers:
 - (i) incipient stall;
 - (ii) stall with full power applied;
 - (iii) stall without power;
 - (iv) stall when climbing, when descending, during an approach to land configuration and when turning;
- (d) perform stall recovery with the sUAS as follows:
 - (i) positively reduce angle of attack;
 - (ii) use power available and available height to maximize the aircraft energy state;
 - (iii) minimize height loss for simulated low altitude condition;
 - (iv) re-establish desired flight path, and controlled and balanced operation of the sUAS.

Figure of 8

Operate the sUAS to demonstrate a figure of 8, without loss of height and with the crossover point in front of the operator.

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Sideslip UAS

(Depending on UAS type and if permitted for the sUAS by its manufacturer)

(a) perform a straight, forward sideslip by:

(i) inducing slip to achieve increased rate of descent while maintaining track and airspeed;
and

(ii) adjusting the rate of descent by coordinating the angle of bank and applied rudder;

(b) recover the sUAS from a sideslip and return it to controlled and balanced flight.

Control at a distance

(a) demonstrate accurate control and navigation at a distance of at least 200 m;

(b) perform a horizontal rectangular pattern at a distance of 200 m;

(c) demonstrate re-orientation of the sUAS after it has been re-oriented by the instructor without the student watching.

Abnormal and emergency operations

Manage loss of thrust — launch

(a) correctly identify loss of thrust after the sUAS has been launched;

(b) apply the highest priority to taking action to control the sUAS;

(c) maintain control of the sUAS;

(d) perform initial actions from memory consistent with the operator's documented practices;

(e) maneuver the sUAS to achieve the safest possible outcome;

(f) confidently state the actions being performed.

Recover from unusual aircraft attitudes

(a) identify unusual attitude of the sUAS during flight.

(b) recover the sUAS from unusual attitudes and return to controlled and balanced operation.

Loss of control link

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Operate the sUAS to demonstrate the loss of link procedures.