

# **BHUTAN CIVIL AVIATION REQUIREMENTS**



(BCARs)

**Aerial work**

**Issue 1**

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## BCAR - Aerial work

*Note: - For the purpose of assuring compatibility with international safety standards and to fulfil Bhutan's obligations as an ICAO Member State, this BCAR-Aerial Work is comparable with ICAO Model Regulations based on:*

*FAA AC 29-2B, US 14 CFR 133/137 and  
FAA Inspector Handbook 8700.*

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## 1 GENERAL

### 1.1.1 APPLICABILITY

PART 6E applies to commercial aircraft operations used for specialised services.

### 1.1.2 DEFINITIONS

- (a) For the purpose of BCAR- Aerial Work, the following definitions shall apply:
- (1) **Aerial work.** An aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.
  - (2) **Aerobatic flight.** An intentional manoeuvre involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight.
  - (3) **Agricultural aircraft operation.** The operation of an aircraft for the purpose of—
    - (i) Dispensing any economic poison,
    - (ii) Dispensing any other substance intended for plant nourishment, soil treatment, propagation of plant life, or pest control, or
    - (iii) Engaging in dispensing activities directly affecting agriculture, horticulture, or forest preservation, but not including the dispensing of live insects.
  - (4) **Banner.** An advertising medium supported by a temporary framework attached externally to the aircraft and towed behind the aircraft.
  - (5) **Economic poison.** Any substance or mixture of substances intended for—
    - (i) Preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living human beings or other animals, which the Bhutan may declare to be a pest, and
    - (ii) Use as a plant regulator, defoliant or desiccant.
  - (6) **Rotorcraft load combinations.** Configurations for external loads carried by rotorcraft—
    - (i) Class A – external load fixed to the rotorcraft, cannot be jettisoned, and does not extend below the landing gear, used to transport cargo.
    - (ii) Class B – external load suspended from the rotorcraft, which can be jettisoned, and is transported free of land or water during rotorcraft operations.
    - (iii) Class C – external load suspended from the rotorcraft, which can be jettisoned, but remains in contact with land or water during rotorcraft operation.
    - (iv) Class D - external load suspended from the rotorcraft for the carriage of persons.

### 1.1.3 ACRONYMS

- (a) The following acronyms are used in BCAR-Aerial Work
- (1) AGL - Above Ground Level
  - (2) PIC - Pilot in Command (BCAR-Aerial Work)
  - (3) IFR – Instrument Flight Rules

## **2 AGRICULTURAL AIRCRAFT OPERATIONS**

### **2.1 GENERAL**

#### **2.1.1 APPLICABILITY**

- (a) BCAR-Arial Work prescribes rules governing—
  - (1) Agricultural aircraft operations within Bhutan; and
  - (2) The issue of commercial and private agricultural aircraft operator certificates for those operations.
- (b) In a public emergency, a person conducting agricultural aircraft operations under BCAR-Arial work may, to the extent necessary, deviate from the operating rules of BCAR-Arial work for relief and welfare activities approved by the DCA.
- (c) Each person who, under the authority of this section, deviates from a rule of BCAR-Arial work shall, within 10 days after the deviation send to the DCA a complete report of the aircraft operation involved, including a description of the operation and the reasons for it.

#### **2.2 certification Rules**

##### **2.2.1 Certificate Required**

- (a) Except as provided in paragraphs (c) and (d) of this section, no person may conduct agricultural aircraft operations without, or in violation of, an agricultural aircraft operator certificate issued under BCAR-Arial work.
- (b) An operator may, if it complies with this Subpart, conduct agricultural aircraft operations with a rotorcraft with external dispensing equipment in place without a rotorcraft external-load operator certificate.
- (c) A local or national government conducting agricultural aircraft operations with public aircraft need not comply with this Subpart.
- (d) The holder of a rotorcraft external-load operator certificate under BCAR-Arial work may conduct an agricultural aircraft operation, involving only the dispensing of water on forest fires by rotorcraft external-load means.

##### **2.2.2 APPLICATION FOR CERTIFICATE**

An applicant for an agricultural aircraft operator certificate shall apply on a form and in a manner prescribed by the DCA.

##### **2.2.3 AMENDMENT OF CERTIFICATE**

- (a) An agricultural aircraft operator certificate may be amended—
  - (1) On the DCA's own initiative, under applicable laws and regulations; or
  - (2) Upon application by the holder of that certificate.
- (b) A certificate holder shall submit any application to amend an agricultural aircraft operator certificate on a form and in a manner prescribed by the DCA. The applicant shall file the application at least 15 days before the date that it proposes the amendment become effective, unless the DCA approves a shorter filing period.
- (c) The DCA will grant a request to amend a certificate if it determines that safety in air commerce and the public interest so allow.
- (d) Within 30 days after receiving a refusal to amend, the holder may petition the DCA to reconsider the refusal.

##### **2.2.4 CERTIFICATION REQUIREMENTS**

- (a) General. Except as provided by paragraph (a) (3) of this section—
  - (1) The DCA will issue a private agricultural aircraft operator certificate to an applicant who meets the requirements of this Subpart for that certificate.

- (2) The DCA will issue a commercial agricultural aircraft operator certificate to an applicant who meets the requirements of this Subpart for that certificate.
  - (3) An applicant who applies for an agricultural aircraft operator certificate containing a prohibition against the dispensing of economic poisons is not required to demonstrate knowledge specific to economic poisons.
- (b) Pilots.
- (1) A private operator-pilot applicant shall hold a current Bhutan private, commercial, or airline transport pilot certificate and be properly rated for the aircraft to be used.
  - (2) A commercial operator-pilot applicant shall hold, or have available the services of at least one pilot who holds a current commercial or airline transport pilot certificate issued by the DCA and who is properly rated for the aircraft to be used.
- (c) Aircraft. The applicant shall have at least one certified and airworthy aircraft, equipped for agricultural operation.
- (d) Knowledge and skill tests. The applicant shall show that it has satisfactory knowledge and skill of the following agricultural aircraft operations.
- (1) Knowledge:
    - (i) Steps to be taken before starting operations, including a survey of the area to be worked.
    - (ii) Safe handling of economic poisons and the proper disposal of used containers for those poisons.
    - (iii) The general effects of economic poisons and agricultural chemicals on plants, animals, and persons, and the precautions to be observed in using poisons and chemicals.
    - (iv) Primary symptoms of poisoning of persons from economic poisons, the appropriate emergency measures to be taken, and the location of poison control centres.
    - (v) Performance capabilities and operating limitations of the aircraft to be used.
    - (vi) Safe flight and application procedures.
  - (2) Skill in the following manoeuvres, demonstrated at the aircraft's maximum certified take-off weight, or the maximum weight established for the special purpose load, whichever is greater:
    - (i) Short-field and soft-field takeoffs (aeroplanes and gyroplanes only).
    - (ii) Approaches to the working area.
    - (iii) Flare-outs.
    - (iv) Swath runs.
    - (v) Pullups and turnarounds.
    - (vi) Rapid deceleration (quick stops) in helicopters only.

#### **2.2.5 DURATION OF CERTIFICATE**

An agricultural aircraft operator certificate is effective until it is surrendered, suspended, or revoked.

### **2.3 *Operating Rules***

#### **2.3.1 GENERAL**

- (a) Except as provided in paragraph (c) of this section, this section prescribes rules that apply to persons and aircraft used in agricultural aircraft operations conducted under BCAR-Aerial work.
- (b) The holder of an agricultural aircraft operator certificate may deviate from the provisions of BCAR-Aerial work without a certificate of waiver when conducting

aerial work operations related to agriculture, horticulture, or forest preservation in accordance with the operating rules of this section.

- (c) The operating rules of this Subpart apply to Rotorcraft External load certificate holders conducting agricultural aircraft operations involving only the dispensing of water on forest fires by rotorcraft external-load means.

### **2.3.2 CARRYING OF CERTIFICATE**

- (a) No person may operate an aircraft unless a facsimile of the agricultural aircraft operator certificate is carried on that aircraft.
- (b) The registration and airworthiness certificates issued for the aircraft need not be carried in the aircraft provided that those certificates not carried in the aircraft shall be kept available for inspection at the base from which the dispensing operation is conducted.

### **2.3.3 LIMITATIONS ON PRIVATE AGRICULTURAL AIRCRAFT OPERATOR**

- (a) No person may conduct an agricultural aircraft operation under the authority of a private agricultural aircraft operator certificate—
  - (1) For compensation or hire;
  - (2) Over a congested area; or
  - (3) Over any property unless he or she is the owner or lessee of the property, or has ownership or other property interest in the crop located on that property.

### **2.3.4 MANNER OF DISPENSING**

No persons may dispense, or cause to be dispensed, any material or substance in a manner that creates a hazard to persons or property on the surface.

### **2.3.5 ECONOMIC POISON DISPENSING**

- (a) Except as provided in paragraph (b) of this section, no person may dispense or cause to be dispensed, any economic poison that is registered with Bhutan—
  - (1) For a use other than that for which it is registered;
  - (2) Contrary to any safety instructions or use limitations on its label; or
  - (3) In violation of any law or regulation of Bhutan.
- (b) This section does not apply to any person dispensing economic poisons for experimental purposes under—
  - (1) The supervision of a Bhutan agency authorised by law to conduct research in the field of economic poisons; or
  - (2) A permit from Bhutan.

### **2.3.6 PERSONNEL**

- (a) *Information.* The holder of an agricultural aircraft operator certificate shall insure that each person used in the holder's agricultural aircraft operation is informed of that person's duties and responsibilities.
- (b) *Supervisors.* No person may supervise an agricultural aircraft operation unless he or she has met the knowledge and skill requirements of this Subpart.
- (c) *Pilot in command.* No person may act as pilot in command of an aircraft operated under this Subpart unless that pilot—
  - (1) Holds a pilot certificate and rating prescribed by this Subpart as appropriate to the type of operation conducted; or
  - (2) Has demonstrated to the holder of the Agricultural Aircraft Operator Certificate conducting the operation, or to a supervisor designated by that certificate holder, that he or she possesses the knowledge and skill requirements of this Subpart.

### **2.3.7 OPERATIONS IN CONTROLLED AIRSPACE DESIGNATED FOR AN AIRPORT**

- (a) Except for flights to and from a dispensing area, no person may operate an aircraft within the lateral boundaries of the surface area of Class D airspace designated for an airport unless authorisation for that operation has been obtained from the ATC facility having jurisdiction over that area.
- (b) No person may operate an aircraft in weather conditions below VFR minimums within the lateral boundaries of a Class E airspace area that extends upward from the surface unless authorisation for that operation has been obtained from the ATC facility having jurisdiction over that area.
- (c) A certificate holder may operate an aircraft under special VFR weather minimums without meeting the requirements prescribed in BCAR-Aerial work.

### **2.3.8 OPERATION OVER CONGESTED AREAS: GENERAL**

- (a) A certificate holder may operate or cause the operation of an aircraft over a congested area at altitudes required if the operation is conducted with—
  - (1) The maximum safety to persons and property on the surface, consistent with the operation; and
  - (2) A plan for each operation, submitted and have approved by the DCA, which includes—
    - (i) Obstructions to flight;
    - (ii) Emergency landing capabilities of the aircraft to be used; and
    - (iii) Any necessary co-ordination with air traffic control.
- (b) Each certificate holder shall ensure that all aircraft operations are conducted in compliance with Appendix 1.

### **2.3.9 OPERATION OVER CONGESTED AREAS: PILOTS AND AIRCRAFT**

- (a) Pilots. Each pilot in command must have at least—
  - (1) 25 hours of pilot-in-command flight time in the make and basic model of the aircraft, including at least 10 hours within the preceding 12 calendar months; and
  - (2) 100 hours of flight experience as pilot in command in dispensing agricultural materials or chemicals.
- (b) Aircraft.
  - (1) Except for helicopters, each aircraft shall be capable of jettisoning at least one-half of the aircraft's maximum authorised load of agricultural material within 45 seconds. If the aircraft is equipped to release the tank or hopper as a unit, there shall be a means to prevent inadvertent release by the pilot or other crewmember.

### **2.3.10 AVAILABILITY OF CERTIFICATE**

Each holder of an agricultural aircraft operator certificate shall keep that certificate at its home base and shall present it for inspection on the request of the DCA or any government law enforcement officer.

## **2.4 Records and Reports**

### **2.4.1 RECORDS: COMMERCIAL AGRICULTURAL AIRCRAFT OPERATOR**

- (a) Each holder of a commercial agricultural aircraft operator certificate shall maintain and keep current, at the home base designated in its application, the following records—
  - (1) The name and address of each person for whom agricultural aircraft services were provided;
  - (2) The date of the service;



- (3) The name and quantity of the material dispensed for each operation conducted; and
  - (4) The name, address, and certificate number of each pilot used in agricultural aircraft operations and the date that pilot met the knowledge and skill requirements of this Subpart.
- (b) The records required by this section must be kept for at least 12 months.

#### **2.4.2 CHANGE OF ADDRESS**

Each holder of an agricultural aircraft operator certificate shall notify the DCA in writing in advance of any change in the address of its home base of operations.

#### **2.4.3 TERMINATION OF OPERATIONS**

Whenever a certificate holder ceases operations under BCAR-Aerial work, it shall surrender that certificate to the designated office of the DCA.

### **3 HELICOPTER EXTERNAL LOADS**

#### **3.1.1 APPLICABILITY**

- (a) This Subpart prescribes—
- (1) Airworthiness certification rules for rotorcraft used in external-load operations; and
  - (2) Operating and certification rules governing the conduct of rotorcraft external-load operations in Bhutan.
- (b) The certification rules of BCAR-Aerial work do not apply to—
- (1) Rotorcraft manufacturers when developing external-load attaching means;
  - (2) Operations conducted by a person demonstrating compliance for the issuance of a certificate or authorisation under BCAR-Aerial work;
  - (3) Training flights conducted in preparation for the demonstration of compliance with BCAR-Aerial work; or
  - (4) A local or national government conducting operations with public aircraft.
- (c) For the purpose of BCAR-Aerial work, a person other than a crewmember or a person who is essential and directly connected with the external-load operation may be carried only in approved Class D rotorcraft-load combinations.

#### **3.2 Certification Rules**

##### **3.2.1 CERTIFICATE REQUIRED**

No person subject to BCAR-Aerial work may conduct rotorcraft external-load operations without, or in violation of the terms of, a Rotorcraft External-Load Operator Certificate or equivalent authorisation issued by the DCA.

##### **3.2.2 LIMITATIONS ON PRIVATE AGRICULTURAL AIRCRAFT OPERATOR**

- (a) No person may conduct an agricultural aircraft operation under the authority of a private agricultural aircraft operator certificate—
- (1) For compensation or hire;
  - (2) Over a congested area; or
  - (3) Over any property unless he or she is the owner or lessee of the property, or has ownership or other property interest in the crop located on that property.

##### **3.2.3 DURATION OF CERTIFICATE**

Unless sooner surrendered, suspended, or revoked, a Rotorcraft External-Load Operator Certificate expires at the end of the twenty-fourth month after the month in which it is issued or renewed.

### **3.2.4 APPLICATION FOR CERTIFICATE ISSUANCE OR RENEWAL**

Application for an original certificate or renewal of a certificate issued under BCAR-Aerial work is made on a form, and in a manner, prescribed by the DCA.

### **3.2.5 REQUIREMENTS FOR ISSUANCE OF A ROTORCRAFT EXTERNAL-LOAD OPERATOR CERTIFICATE**

- (a) If an applicant shows that it complies with this Subpart, the DCA will issue a Rotorcraft External-Load Operator Certificate to it.
- (b) The DCA will issue authorisation to operate specified rotorcraft with those classes of rotorcraft-load combinations for which the applicant or certificate holder qualifies under the applicable provisions of this Subpart.

### **3.2.6 ROTORCRAFT**

- (a) An applicant must have the exclusive use of at least one rotorcraft that—
  - (1) Was type certified under, and meets the requirements of, the several parts of these regulations which prescribe requirements for rotorcraft external-load operations;
  - (2) Complies with the certification provisions in this Subpart that apply to the rotorcraft-load combinations for which authorisation is requested; and
  - (3) Has a valid standard or restricted category airworthiness certificate.

### **3.2.7 PERSONNEL**

- (a) An applicant shall hold, or have available the services of at least one person who holds a current commercial or airline transport pilot certificate issued by the DCA with a rating appropriate for the rotorcraft to be used.
- (b) An applicant shall designate one pilot, who may be the applicant, as chief pilot for rotorcraft external-load operations.
- (c) An applicant may designate qualified pilots as assistant chief pilots to perform the functions of the chief pilot when the chief pilot is not readily available.
- (d) The chief pilot and assistant chief pilots must be acceptable to the DCA and each must hold a current Commercial or Airline Transport Pilot Certificate, with a rating appropriate for the rotorcraft to be used.
- (e) The holder of a Rotorcraft External-Load Operator Certificate shall report any change in designation of chief pilot or assistant chief pilot immediately to the DCA.
- (f) A newly designated chief pilot shall comply with the knowledge and skill requirements of this Subpart within 30 days or the operator may not conduct further operations under the Rotorcraft External-Load Operator Certificate, unless otherwise authorised by the DCA.

### **3.2.8 AMENDMENT OF CERTIFICATE**

- (a) The holder of a Rotorcraft External-Load Certificate may apply to the DCA for an amendment of its certificate, to add or delete a rotorcraft-load combination authorisation.
- (b) The holder of a rotorcraft external-load certificate may apply for an amendment to add or delete a rotorcraft authorisation by submitting to the DCA a new list of rotorcraft, by registration number, with the classes of rotorcraft-load combinations for which authorisation is requested.

### **3.2.9 AVAILABILITY, TRANSFER, AND SURRENDER OF CERTIFICATE**

- (a) Each person conducting a rotorcraft external-load operation shall carry a facsimile of the Rotorcraft External-Load Operator Certificate in each rotorcraft used in the operation.
- (b) A certificate holder shall return its certificate to the DCA—

- (1) If the DCA suspends or revokes its Rotorcraft External-Load Operator Certificate; or
- (2) If the certificate holder discontinues operations and does not resume operations within two years.

### 3.3 *Operating Rules and Related Requirements*

#### 3.3.1 OPERATING RULES

- (a) No person may conduct a rotorcraft external load operation without, or contrary to, the Rotorcraft/Load Combination Flight Manual prescribed in BCAR-Aerial work
- (b) No person may conduct a rotorcraft external load operation unless -
  - (1) The rotorcraft complies with BCAR-Aerial work; and
  - (2) The rotorcraft and rotorcraft/load combination is authorised under the Rotorcraft External Load Operator Certificate.
- (c) Before a person may operate a rotorcraft with an external load configuration that differs substantially from any that person has previously carried with that type of rotorcraft (whether or not the rotorcraft/load combination is of the same class), that person shall conduct, in a manner that will not endanger persons or property on the surface, such of the following flight operational checks as the DCA determines are appropriate to the rotorcraft/load combination:
  - (1) A determination that the weight of the rotorcraft/load combination and the location of its centre of gravity are within approved limits, that the external load is securely fastened, and that the external load does not interfere with devices provided for its emergency release.
  - (2) Make an initial lift-off and verify that controllability is satisfactory.
  - (3) While hovering, verify that directional control is adequate.
  - (4) Accelerate into forward flight to verify that no attitude (whether of the rotorcraft or of the external load) is encountered in which the rotorcraft is uncontrollable or which is otherwise hazardous.
  - (5) In forward flight, check for hazardous oscillations of the external load, but if the external load is not visible to the pilot, other crewmembers or ground personnel may make this check and signal the pilot.
  - (6) Increase the forward airspeed and determine an operational airspeed at which no hazardous oscillation or hazardous aerodynamic turbulence is encountered.
- (d) Notwithstanding the provisions of BCAR-Aerial work, the holder of a Rotorcraft External Load Operator Certificate may conduct rotorcraft external load operations over congested areas if those operations are conducted without hazard to persons or property on the surface and comply with the following:
  - (1) The operator shall develop a plan for each complete operation and obtain approval for the operation from the DCA.

*Note: The plan must include an agreement with the appropriate political subdivision that local officials will exclude unauthorised persons from the area in which the operation will be conducted, coordination with air traffic control, if necessary, and a detailed chart depicting the flight routes and altitudes.*

- (2) Each flight shall be conducted at an altitude, and on a route, that will allow a jettisonable external load to be released, and the rotorcraft landed, in an emergency without hazard to persons or property on the surface.
- (e) Notwithstanding the provisions of BCAR-Aerial work, and except as provided in BCAR-Aerial work 3.4.3(a)(4), the holder of a Rotorcraft External Load Operator Certificate may conduct external load operations, including approaches, departures, and load positioning manoeuvres necessary for the operation, below 500 feet above the surface and closer than 500 feet to persons, vessels, vehicles, and structures, if

the operations are conducted without creating a hazard to persons or property on the surface.

- (f) No person may conduct rotorcraft external load operations under IFR unless specifically approved by the DCA.

### **3.3.2 CARRIAGE OF PERSONS**

- (a) No AOC holder may allow a person to be carried during rotorcraft external load operations unless that person—
  - (1) Is a flight crewmember;
  - (2) Is a flight crewmember trainee;
  - (3) Performs an essential function in connection with the external load operation; or
  - (4) Is necessary to accomplish the work activity directly associated with that operation.
- (b) The PIC shall ensure that all persons are briefed before takeoff on all pertinent procedures to be followed (including normal, abnormal, and emergency procedures) and equipment to be used during the external load operation.

### **3.3.3 CREWMEMBER TRAINING, CURRENCY, AND TESTING REQUIREMENTS**

- (a) No certificate holder may use, nor may any person serve, as a pilot in helicopter external load operations unless that person—
  - (1) Has successfully demonstrated to the DCA the knowledge and skill with respect to the rotorcraft/load combination; and
  - (2) Has in his or her personal possession a letter of competency or an appropriate logbook entry indicating compliance with paragraph (a)(1) of this section.
- (b) No AOC holder may use, nor may any person serve as, a crewmember or other operations personnel in Class D operations unless, within the preceding 12 calendar months, that person has successfully completed either an approved initial or a recurrent training program.
- (c) Notwithstanding the provisions of paragraph (b) of this section, a person who has performed a rotorcraft external load operation of the same class and in an aircraft of the same type within the past 12 calendar months need not undergo recurrent training.

## **3.4 Airworthiness Requirements**

### **3.4.1 FLIGHT CHARACTERISTICS REQUIREMENTS**

- (a) The applicant must demonstrate to the DCA, by performing the following operational flight checks that the rotorcraft-load combination has satisfactory flight characteristics, unless these operational flight checks have been demonstrated previously and the rotorcraft-load combination flight characteristics were satisfactory. For the purposes of this demonstration, the external-load weight (including the external-load attaching means) is the maximum weight for which authorisation is requested.
- (b) *Class A rotorcraft-load combinations:* The operational flight check must consist of at least the following manoeuvres:
  - (1) Take off and landing.
  - (2) Demonstration of adequate directional control while hovering.
  - (3) Acceleration from a hover.
  - (4) Horizontal flight at airspeeds up to the maximum airspeed for which authorisation is requested.
- (c) *Class B and D rotorcraft-load combinations:* The operational flight check must consist of at least the following manoeuvres:

- (1) Pickup of the external load.
  - (2) Demonstration of adequate directional control while hovering.
  - (3) Acceleration from a hover.
  - (4) Horizontal flight at airspeeds up to the maximum airspeed for which authorisation is requested.
  - (5) Demonstrating appropriate lifting device operation.
  - (6) Manoeuvring of the external load into release position and its release, under probable flight operation conditions, by means of each of the quick-release controls installed on the rotorcraft.
- (d) *Class C rotorcraft-load combinations:* For Class C rotorcraft-load combinations used in wire-stringing, cable-laying, or similar operations, the operational flight check must consist of the manoeuvres, as applicable, prescribed in paragraph (c) of this section.

### **3.4.2 STRUCTURES AND DESIGN**

- (a) External-load attaching means. Each external-load attaching means shall be approved by the DCA.
- (b) Quick release devices. Each quick release device means shall be approved by the DCA.
- (c) Weight and centre of gravity:
  - (1) Weight. The total weight of the rotorcraft-load combination must not exceed the total weight approved for the rotorcraft during its type certification.
  - (2) Centre of gravity. The location of the centre of gravity must, for all loading conditions, be within the range established for the rotorcraft during its type certification. For Class C rotorcraft-load combinations, the magnitude and direction of the loading force must be established at those values for which the effective location of the centre of gravity remains within its established range.

### **3.4.3 OPERATING LIMITATIONS**

- (a) In addition to the operating limitations set forth in the approved Rotorcraft Flight Manual, and to any other limitations the DCA may prescribe, the operator shall establish at least the following limitations and set them forth in the Rotorcraft-Load Combination Flight Manual for rotorcraft-load combination operations:
  - (1) The rotorcraft-load combination may be operated only within the weight and centre of gravity limitations established in accordance with this Subpart.
  - (2) The rotorcraft-load combination may not be operated with an external load weight exceeding that used in showing compliance with this Subpart.
  - (3) The rotorcraft-load combination may not be operated at airspeeds greater than those established in accordance with this Subpart.
  - (4) No person may conduct an external-load operation under BCAR-Aerial work with a rotorcraft type certified in the restricted category over a densely populated area, in a congested airway, or near a busy airport where passenger transport operations are conducted.
  - (5) The rotorcraft-load combination of Class D may be conducted only in accordance with the following:
    - (i) The rotorcraft to be used must have been type certified under transport Category A for the operating weight and provide hover capability with one engine inoperative at that operating weight and altitude.
    - (ii) The rotorcraft must be equipped to allow direct radio intercommunication among required crewmembers.
    - (iii) The personnel lifting device must be approved by the DCA.

- (iv) The lifting device must have an emergency release requiring two distinct actions.

#### **3.4.4 ROTORCRAFT-LOAD COMBINATION FLIGHT MANUAL**

- (a) The applicant must prepare a Rotorcraft-Load Combination Flight Manual and submit it for approval by the DCA. The limiting height-speed envelope data need not be listed as operating limitations. The manual shall set forth—
  - (1) Operating limitations, procedures (normal and emergency), performance, and other information established under this Subpart;
  - (2) The class of rotorcraft-load combinations for which the airworthiness of the rotorcraft has been demonstrated in accordance with this Subpart; and
  - (3) In the information section of the Rotorcraft-Load Combination Flight Manual—
    - (i) Information on any peculiarities discovered when operating particular rotorcraft-load combinations;
    - (ii) Precautionary advice regarding static electricity discharges for Class B, Class C, and Class D rotorcraft-load combinations; and
    - (iii) Any other information essential for safe operation with external loads.

#### **3.5 MARKINGS AND PLACARDS**

- (a) The following markings and placards must be displayed conspicuously and must be such that they cannot be easily erased, disfigured, or obscured:
  - (1) A placard (displayed in the cockpit or cabin) stating the class of rotorcraft-load combination and the occupancy limitation for which the rotorcraft has been approved.
  - (2) A placard, marking, or instruction (displayed next to the external-load attaching means) stating the maximum external load approved.

#### **3.4.6 AIRWORTHINESS CERTIFICATION**

A Rotorcraft External-Load Operator Certificate is a current and valid airworthiness certificate for each rotorcraft type and listed by registration number on a list attached to the certificate, when the rotorcraft is being used in operations conducted under this Part.

### **4 GLIDER TOWING**

#### **4.1.1 APPLICABILITY**

This Subpart applies to those operations involving towing gliders by aircraft.

#### **4.1.2 CERTIFICATE REQUIRED**

No person may act as a tow pilot for a glider unless that person has at least a private pilot certificate with a category rating for the tow aircraft.

#### **4.1.3 AIRCRAFT REQUIREMENTS**

No person may operate an aircraft that is towing a glider unless the aircraft is equipped with a tow hook and release control system that meet the applicable standards of airworthiness.

#### **4.1.4 EXPERIENCE AND TRAINING REQUIREMENTS**

- (a) No person may act as a tow pilot for a glider unless that person has—
  - (1) Logged at least 100 hours of pilot-in-command time in same aircraft category, class, and type, if applicable, as the tow aircraft;
  - (2) Received training in and instructor endorsement for—

- (i) The techniques and procedures essential to the safe towing of gliders, including airspeed limitations;
  - (ii) Emergency procedures;
  - (iii) Signals used; and
  - (iv) Maximum angles of bank.
- (3) Except as provided in paragraph (b) of this section, has completed and had endorsed at least three flights as the sole manipulator of the controls of an aircraft towing a glider or simulating glider-towing flight procedures while accompanied by a pilot who meets the requirements of this section; and
- (4) Within the preceding 12 months has—
- (i) Made at least three actual glider tows; or
  - (ii) Made at least three flights as pilot in command of a glider towed by an aircraft.

## **5 BANNER TOWING**

### **5.1.1 APPLICABILITY**

This Subpart applies to those operations involving towing by aircraft banners or other signs, lit or unlit.

### **5.1.2 CERTIFICATE OR AUTHORISATION REQUIRED**

- (a) The DCA will require each person conducting operations covered by this Subpart to hold a certificate or equivalent authorisation.
- (b) The DCA will issue a certificate or authorisation to each applicant who qualifies for it under the provisions of this Subpart.
- (c) A helicopter operating under the provision of Subpart BCAR-Aerial work 3 may tow a banner using an external-load attaching means without a certificate only if the operator has at least a Class B authorisation on the operating certificate.

### **5.1.3 AIRCRAFT REQUIREMENTS**

- (a) No person may operate an aircraft that is towing a banner unless the aircraft is equipped with a tow hook and release control system that meet the applicable standards of airworthiness.
- (b) No person may operate a helicopter that is towing a banner unless the helicopter has a means to prevent the banner from becoming entangled in the helicopter's tail rotor during all phases of flight, including autorotation.

*Note: The only way to prevent the banner from tangling in the tail rotor during autorotation may be to jettison the banner.*

### **5.1.4 EXPERIENCE AND TRAINING REQUIREMENTS**

- (a) For nonrevenue flights, the pilot of the tow aircraft shall hold at least a valid private pilot certificate and have a minimum of 200 hours PIC time.
- (b) When banner tow operations are conducted for compensation or hire, the pilot shall have at least a commercial pilot certificate (instrument rating not required) and at least a valid second class medical certificate.
- (c) All pilots engaged in banner towing operations shall demonstrate competence to the DCA by performing at least one pickup and drop of the maximum number of letters (panels) to be used by the certificate holder.

*Note: This demonstration should be observed from the ground to allow the inspector to evaluate the competence of any essential ground personnel as well as the flight operation.*

### **5.1.5 OPERATING RULES**

- (a) All banner tow operations shall be conducted only—
  - (1) In VFR weather conditions; and
  - (2) Between the hours of official sunrise and official sunset.
- (b) No person may conduct banner towing operations—
  - (1) Over congested areas or open air assemblies of persons lower than 1,000 feet; and
  - (2) Elsewhere lower than the minimum safe altitude requirements of BCAR-Aerial work.

*Note: Helicopters may be operated at less than the minimums prescribed in paragraph (b) if the operation is conducted without hazard to persons or property on the surface.*

- (c) The certificate holder shall obtain the airport manager's approval to conduct banner tow operations.
- (d) If banner towing operations take place at an airport with a control tower, the certificate holder shall inform that control tower of the time of the banner tow operation.
- (e) The certificate holder shall notify the appropriate airport officials in advance when banner tow operations will be in close proximity to an uncontrolled airport.
- (f) Only essential crewmembers shall be carried when conducting banner tow operations.
- (g) When banner tow operations are conducted around congested areas, the pilot shall exercise due care so that, in the event of emergency release of the banner and/or towrope, it will not cause undue hazard to persons or property on the surface.
- (h) Each pilot shall drop the towrope in a predesignated area at least 500 feet from persons, buildings, parked automobiles, and aircraft.

*Note: If the tow plane lands with the rope attached, due care will be exercised to avoid trailing the rope and endangering other aircraft in the air, or persons, property or aircraft on the surface.*

- (i) Each pilot conducting banner towing operations shall carry onboard the aircraft a current copy of the following certificate of Waiver or Authorisation allowing banner towing operations.

## **6 TV AND MOVIE OPERATIONS**

### **6.1.1 APPLICABILITY**

- (a) This Subpart applies to those operations involving movie filming, appearance in flight in movies, and airborne direction or production of such filming when those operations are conducted as part of a business enterprise or for compensation or hire.
- (b) For purposes of this Subpart, “movie” shall include film, videos, and live broadcast in any format, and the preparation and rehearsal for those operations.

### **6.1.2 CERTIFICATE OR AUTHORISATION REQUIRED**

- (a) The DCA shall require each person conducting operations covered by this Subpart to hold a certificate or equivalent authorisation.
- (b) The DCA will issue a certificate or authorisation to each applicant who qualifies for it under the provisions of this Subpart.



### **6.1.3 AIRCRAFT REQUIREMENT**

In order to be used in motion picture and television filming operations, aircraft in the experimental category shall have an airworthiness certificate issued for the purpose of exhibition.

### **6.1.4 EXPERIENCE AND TRAINING REQUIREMENTS**

- (a) No pilot may conduct television and movie operations unless he or she has:
  - (1) A commercial license with ratings appropriate to the category and class aircraft to be used under the terms of the waiver.
  - (2) At least 500 hours as PIC.
  - (3) A minimum of 100 hours in the category and class of aircraft to be used.
  - (4) A minimum of five hours in the make and model aircraft to be used under the waiver.
  - (5) If the pilot intends to perform aerobatics below 1,500 AGL, a Statement of Aerobatics Competency for the operations to be performed.

### **6.1.5 WAIVER REQUIREMENTS**

- (a) A waiver shall be obtained if filming sequences require an aircraft to be flown—
  - (1) In aerobatic flight below 1,500 AGL,
  - (2) Over a congested area, or
  - (3) In controlled airspace.

*Note: When conducting any filming operation requiring a waiver, the certificate holder shall ensure that all reasonable efforts are made to confine spectators to designated areas. If reasonable efforts have been taken and unauthorised persons or vehicles enter the airspace where manoeuvres are being performed during the filming production event, efforts must be made to remove them.*

- (b) The holder of the waiver shall provide a schedule of events that lists the—
  - (1) Identification of the aircraft; and
  - (2) Performers in the sequence of their appearance.
- (c) Any manoeuvres added or time changes to the schedule of events shall be approved by the DCA.
- (d) The waiver holder shall develop, have approved by the DCA, and adhere to a Motion Picture and Television Flight Operations Manual.

### **6.1.6 CONTENTS OF A MOTION PICTURE AND TELEVISION FLIGHT OPERATIONS MANUAL**

- (a) Each Motion Picture and Television Flight Operations Manual shall contain at least the following:
  - (1) *Company Organisation.*
    - (i) Business name, address, and telephone number of applicant.
    - (ii) List of pilots to be used during the filming, including their pilot certificate numbers, grade, and class and date of medical.
    - (iii) List of aircraft by make and model.
  - (2) *Distribution and Revision.* Procedures for revising the manual to ensure that all manuals are kept current.
  - (3) *Persons Authorised.* Procedures to ensure that no persons, except those persons consenting to be involved and necessary for the filming production, are allowed within 500 feet of the filming production area.
  - (4) *Area of Operations.* The area that will be used during the term of the waiver.

- (5) *Plan of Activities.* Procedures for the submission, within three days of scheduled filming, a written plan of activities to the DCA containing at least the following:
  - (i) Dates and times for all flights.
  - (ii) Name and phone number of person responsible for the filming production event.
  - (iii) Make and model of aircraft to be used and type of airworthiness certificate, including category
  - (iv) Name of pilots involved in the filming production event.
  - (v) A statement that permission has been obtained from property owners and/or local officials to conduct the filming production event.
  - (vi) Signature of waiver holder or a designated representative.
  - (vii) A general outline, or summary, of the production schedule, to include maps or diagrams of the specific filming location, if necessary.
- (6) *Permission to Operate.* Requirements and procedures that the waiver holder will use to obtain permission from property owners and/or local officials (e.g., police, fire departments, etc.) as appropriate for the conduct of all filming operations when using the waiver.
- (7) *Security.* Method of security that will be used to exclude all persons not directly involved with the operation from the location.

*Note: This should also include the provision that will be used to stop activities when unauthorised persons, vehicles, or aircraft enter the operations area, or for any other reason, in the interest of safety.*

- (8) *Briefing of Pilot/Production Personnel.* Procedures to brief personnel of the risks involved, emergency procedures, and safeguards to be followed during the filming production event.
- (9) *Certification/Airworthiness.* Procedures to ensure that required inspections will be conducted.
- (10) *Communications.* Procedures to provide communications capability with all participants during the actual operation and filming.

*Note: The applicant can use oral, visual, or radio communications as long as it keeps the participants continuously apprised of the current status of the operation.*

- (11) *Accident Notification.* Procedures for notification and reporting of accidents.

## **7 SIGHT-SEEING FLIGHTS**

### **7.1.1 APPLICABILITY**

This Subpart applies to those operations involving the carriage of persons for viewing natural formations or manmade objects on the ground when those operations are conducted as part of a business enterprise or for compensation or hire.

### **7.1.2 CERTIFICATE OR AUTHORISATION REQUIRED**

- (a) The DCA will require each person conducting operations covered by this Subpart to hold a certificate or equivalent authorisation.
- (b) The DCA will issue a certificate or authorisation to each applicant who qualifies for it under the provisions of this Subpart.
- (c) Each operator under this Subpart shall hold an operating certificate issued under the provisions of BCAR-Aerial work .

### **7.1.3 EXPERIENCE AND TRAINING REQUIREMENTS**

The requirements of BCAR-Aerial work apply to all operations described by this Subpart.

### **7.1.4 OPERATING RULES**

The requirements of BCAR-Aerial work apply to all operations described by this Subpart.

## **8 FISH SPOTTING**

### **8.1.1 APPLICABILITY**

This Subpart applies to those operations involving location, tracking, and reporting on the location of fish and fish schools, when those operations are conducted as part of a business enterprise or for compensation or hire.

### **8.1.2 CERTIFICATE OR AUTHORISATION REQUIRED**

- (a) The DCA will require each person conducting operations covered by this Subpart to hold a certificate or equivalent authorisation.
- (b) The DCA will issue a certificate or authorisation to each applicant who qualifies for it under the provisions of this Subpart.

### **8.1.3 OPERATING RULES**

- (a) Each operator shall conduct operations so as not to endanger persons or property on the surface nor aircraft in flight.
- (b) Minimum cloud clearance requirements and minimum altitude requirements of BCAR-Aerial work do not apply to those persons to whom the DCA has specifically approved different minimums as a part of an authorisation under this Subpart.

## **9 TRAFFIC REPORTING**

### **9.1.1 APPLICABILITY**

This Subpart applies to those operations involving the observation of, and reporting on, vehicular traffic conditions on the highways and streets when conducted by aircraft or airmen, or both, not designated as solely public use.

### **9.1.2 CERTIFICATE OR AUTHORISATION REQUIRED**

- (a) The DCA will require each person conducting operations covered by this Subpart to hold a certificate or equivalent authorisation.
- (b) The DCA will issue a certificate or authorisation to each applicant who qualifies for it under the provisions of this Subpart.

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## **Appendix 1:**

### **Operation Over Congested Areas: General**

- (a) Each certificate holder shall ensure that all single engine aircraft while in a congested area operate:
  - (1) Except for helicopters, during take offs and turnarounds, with no load.
  - (2) Not below the altitudes prescribed in BCAR-Aerial work except during the actual dispensing operation, including the approaches and departures necessary for that operation.
  - (3) During the actual dispensing operation, including the approaches and departures for that operation, not below the altitudes prescribed in BCAR-Aerial work unless it is in an area and at such an altitude that the aircraft can make an emergency landing without endangering persons or property on the surface.
- (b) Each certificate holder shall ensure that all multiengine aircraft while in a congested area operate:
  - (1) During take off, under conditions that will allow the aeroplane to be brought to a safe stop within the effective length of the runway from any point on takeoff up to the time of attaining, with all engines operating at normal takeoff power, 105 percent of the minimum control speed with the critical engine inoperative in the takeoff configuration or 115 percent of the power-off stall speed in the takeoff configuration, whichever is greater.

*Note: Assume still-air conditions, and no correction for any uphill gradient of 1 percent or less when the percentage is measured as the difference between elevations at the end points of the runway divided by the total length. For uphill gradients greater than 1 percent, the effective takeoff length of the runway is reduced 20 percent for each 1-percent grade.*

- (2) At a weight greater than the weight that, with the critical engine inoperative, would permit a rate of climb of at least 50 feet per minute at an altitude of at least 1,000 feet above the elevation of the highest ground or obstruction within the area to be worked or at an altitude of 5,000 feet, whichever is higher. Assume that the propeller of the inoperative engine is in the minimum drag position; that the wing flaps and landing gear are in the most favourable positions; and that the remaining engine or engines are operating at the maximum continuous power available.
- (3) Below the altitudes prescribed in BCAR-Aerial work except during the actual dispensing operation, including the approaches, departures, and turnarounds necessary for that operation.