

## **ATTACHMENT 20-2 The Helicopter external-load operations**

This attachment was established in accordance with Article 202-1 of this regulation, and FAR Part 133, EASA Commission Regulation (EU) No 965/2012 and 2016/1199.

### 1. Applicability and definition

1.1 The general aviation enterprise shall comply with provisions of this attachment when carrying out helicopter external-load operations.

1.2 The provisions of this attachment do not apply to:

1.2.1 Helicopter manufacturers when developing external-load attaching means.

1.2.2 Helicopter manufacturers demonstrate conformity of equipment utilized in according with helicopter airworthiness standards described in Civil Aviation Act Article 23 paragraph 1.

1.2.3 Operations conducted by a person demonstrating compliance for the issuance of an approval for helicopter external-load operations.

1.2.4 Training flights conducted in preparation for the demonstration of compliance with this attachment.

1.3 The following paragraphs define helicopter and designations, according to the equipment, operating methods, and carriage items or personnel:

1.3.1 Class A helicopter external-load combination: The external load cannot move freely, cannot be jettisoned, and does not extend below the landing gear. An example of a Class A load is the carriage of items in an approved cargo rack, bin, or fixture attached to the exterior of the aircraft, such type shall be recorded in the flight manual and accepted by CAA.

1.3.2 Class B helicopter external-load combination: The external load is jettisonable, carried above or below the skids, and lifted free of land or water during the helicopter operation. An air conditioner unit being lifted onto the roof of a tall building is an example of a Class B load.

1.3.3 Class C helicopter external-load combination: The external load is jettisonable and remains in contact with land or water during the helicopter operation. Wire stringing, dragging a long pole, and boat towing are some examples of Class C loads.

1.3.4 Class D helicopter external-load combination: The external load allow carriage of an item, crewmember or person who is essential and directly connected with the external-load operation. A person being transported externally from offshore to a ship utilizing a personnel lifting device is an example of Class D load.

1.4 Helicopter offshore operations means a helicopter operation that has a substantial proportion of any flight conducted over open sea areas to or from an offshore location.

### 2. Requirements for helicopter

Helicopter external-load operations should comply to:

2.1 The operator should have exclusive use of helicopter to control and use for at least six consecutive months.

2.2 Comply with helicopter airworthiness standard under Article 23, paragraph 1 of the Act, and certificated or accepted by the CAA (might exclude external-load equipment).

2.3 Hold a valid Certificate of Airworthiness.

### 3. Personal Requirements

3.1 The operator must assign a pilot who holds a current commercial pilot-helicopter or air transport pilot license, with a rating appropriate for the helicopter external-load operations, and assign a pilot to pilot in command.

3.2 The operator must designate one pilot as the chief pilot who supervise and execute helicopter external-load operations and be approved by CAA. If necessary, the chief pilot may also designate to a qualified pilot to perform the duty and responsibility for the chief pilot. The chief pilot and his/her designee shall holds a current commercial pilot-helicopter or air transport pilot license with an appropriate rating for helicopter external-load operations. The duty and responsibility of the chief pilot and his/her designee shall be included in the helicopter external-load operations manual as described at the Paragraph 10 of this attachment.

3.3 The operator shall report any change in designation of chief pilot or his/her designee immediately to the CAA. The new chief pilot must be designated within 30 days and approved by CAA.

3.4 A person who has performed a Helicopter external-load operations should complete the initial and recurrent training which approved by CAA in preceding twelve (12) months before the execution of the assignment, or he/she has completed the same class and type of the Helicopter external-load operations in preceding twelve (12) months before the execution of the assignment.

#### 3.5 Knowledge and skill Requirements:

3.5.1 Except as provided in 3.5.4 of this section, operator shall establish respective training program, including initial and recurrent training, in according with 3.5.2 and 3.5.3 which will be carried into effect after approved by CAA. Those who complete the training and pass the written and practical testes shall be authorized by operator then be permitted to perform helicopter external-load operations.

3.5.2 The knowledge training shall including following subjects. The test of the training may be performed by oral or written at the option of operator.

3.5.2.1 Steps to be taken before starting operations, including a survey of the flight area.

3.5.2.2 Proper method of loading, rigging, or attaching the external load.

- 3.5.2.3 Performance capabilities, under approved operating procedures and limitations, of the helicopter to be used.
- 3.5.2.4 Proper operating procedures of flight and ground crews.
- 3.5.2.5 Appropriate manual procedures which including external-load operations manual, flight manual or operating manual.
- 3.5.3 Practical training and its proficiency check shall be established in according with the type of helicopter that intended to operate and including the following items:
  - 3.5.3.1 Takeoffs and landings.
  - 3.5.3.2 Demonstration of directional control while hovering.
  - 3.5.3.3 Acceleration from a hover.
  - 3.5.3.4 Flight at operational airspeeds.
  - 3.5.3.5 Approaches to landing or working area.
  - 3.5.3.6 Maneuvering the external load into the release position.
  - 3.5.3.7 Demonstration of winch operation, if a winch is installed to hoist the external load.
- 3.5.4 CAA might agree recognize operator designated chief pilot's knowledge and skill to exempt or deduct part of the training and proficiency check which according with 3.5.2 and 3.5.3 based on his/her operating experience and safety records.
- 3.6 The chief pilot should have the following operation and flight experience in helicopter external-load operations:
  - 3.6.1 Offshore operation:
    - 3.6.1.1 1,000 hours as pilot-in-command of helicopters, or 1,000 hours as co-pilot of which 200 hours is as pilot-in-command in helicopter external-load operations.
    - 3.6.1.2 50 hoist cycles conducted offshore, of which 20 cycles shall be at night if night operations are being conducted. A hoist cycle means one down-and-up cycle of the hoist equipment.
  - 3.6.2 Onshore operation:
    - 3.6.2.1 500 hours as pilot-in-command of helicopters, or 500 hours as co-pilot of which 100 hours is as pilot-in-command in helicopter external-load operations.
    - 3.6.2.2 200 hours operating experience in helicopters gained in an operational environment similar to the helicopter external-load operations.
    - 3.6.2.3 50 hoist cycles, of which 20 cycles shall be at night if night operations are being conducted. A hoist cycle means one down-and-up cycle of the hoist equipment.
- 3.7 The pilot and crew involved in helicopter external-load operations should comply with the following proficiency requirement:
  - 3.7.1 Class A, B and C helicopter external-load combination: Within the preceding 12 months, complete 3 takeoffs and landings, each operation shall include hovering.
  - 3.7.2 Class D helicopter external-load combination:
    - 3.7.2.1 For day operation: Within the preceding 90 days, complete 3 times day and night external operation, each operation shall include hovering.

3.7.2.2 For night operation: Within the preceding 90 days, complete 3 times night external operation, each operation shall include hovering.

3.7.3 To whom did not complete aforementioned training described in 3.7.1 or 3.7.2, he/she shall complete the training program and the following training before he/she dispatch to perform helicopter external-load operations.

3.7.3.1 Complete three times helicopter external-load operations under supervision by the check pilot who meets the requirements of 3.7.1 or 3.7.2.

3.7.3.2 The helicopter external-load operations in the previous paragraph shall include the practical training and test described in 3.5.3.

3.7.3.3 The check pilot shall check the pilot whether his/her complied with technical requirement or not. If necessary, additional training may be required to determine whether his/her is qualified.

3.8 The operator shall establish the minimum crew member requirement in the helicopter external-load operations manual by considering type of helicopter, weather condition, external-load combination, environment of offshore operation, meteorological conditions, and movement of ships (or platform) at sea. Operator shall assign two pilots and more than one crew in onshore or offshore operation while performing class D external-load combination.

#### 4. Operation approval

4.1. No person may conduct a helicopter external-load operations unless approved by CAA. The helicopter external-load operations shall be described in Operation Specification about approved external-load combination and shall not be transfer to other person.

4.2 Operator shall be approved by CAA before performing helicopter external-load operations. The Operation Specifications shall recorded the approved type of helicopter, its nationality and registration number.

4.3 The operator shall maintain the Operations Specifications up to date and provide lists of helicopter and equipment for inspection by CAA inspector.

4.4 Operating crew members engaged in helicopter external-load operations shall carry relevant approval documents during operation.

4.5 CAA may suspend the approval if the operator cease helicopter external-load operations more than one year. The aforementioned operator shall amend the Operation Specification and submit to CAA for further review and approval.

#### 5. Operating rules

5.1 No person may conduct a helicopter external-load operations without, or contrary to, the helicopter external-load operations manual approved by CAA.

- 5.2 Before a person may operate a helicopter with an external-load combination that differs substantially from any that person has previously carried with that type of helicopter (whether or not the helicopter external-load combination is of the same class), that person must conduct, in a manner that will not endanger persons or property on the surface, such of the following flight-operational checks are appropriate to the external-load combination:
- 5.2.1 A determination that the weight of the helicopter-load combination and the location of its center 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.
  - 5.2.2 Make an initial liftoff and verify that controllability is satisfactory.
  - 5.2.3 While hovering, verify that directional control is adequate.
  - 5.2.4 Accelerate into forward flight to verify that no attitude (whether of the helicopter or of the external load) is encountered in which the helicopter is uncontrollable or which is otherwise hazardous.
  - 5.2.5 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.
  - 5.2.6 Increase the forward airspeed and determine an operational airspeed at which no hazardous oscillation or hazardous aerodynamic turbulence is encountered.
- 5.3 If the helicopter external-load operations over congested areas, a flight shall comply with the following:
- 5.3.1 The operator must develop a plan for each complete operation and obtain approval for the operation. The plan must include that exclude unauthorized 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.
  - 5.3.2 Each flight must be conducted at altitude and route approved. It will allow a jettisonable external load to be released, and the helicopter landed, in an emergency without hazard to persons or property on the surface.
- 5.4 Unless approved by CAA and the operations are conducted without creating a hazard to persons or property on the surface, no person may conduct external-load operations, including approaches, departures, and load positioning maneuvers necessary for the operation, below 500 feet above the surface and closer than 500 feet to persons, vessels, vehicles, and structures.
- 5.5 No person may conduct helicopter external-load operations or a person be carried as part of the external-load under IFR or the hour between the end of evening civil twilight and the beginning of morning civil twilight unless specifically approved by CAA.
- 5.6 In case of emergency operation, the following requirement shall be followed:
- 5.6.1 In an emergency involving the safety of persons or property, the pilot in command may deviate from the rules of this part to the extent required to meet that emergency.

5.6.2 Each person who deviates from a rule of this attachment shall notify CAA within 72 hours after the deviation. The operator shall provide a complete emergency operating report of the helicopter operation involved, including a description of the deviation and reasons for it. If the event involved as a Mandatory Occurrence Report item, operator shall follow the articles set forth in Regulations of Aircraft Flight Safety-related Events.

5.7 When engaged in helicopter external-load operations, the flight crew shall establish two-way communication with ground workers.

5.8 The operator shall have the helicopter tracking capability to track the position of the helicopter which it operates throughout its area of operations, to preserve information and data, and to assist in the coordination of search and rescue.

5.9 Weather condition

5.9.1 While performing onshore or offshore helicopter external-load operations, operator shall follow the meteorological standards in VFR.

5.9.2 When flying between offshore locations located in class G airspace where the overwater sector is less than 10 NM, VFR flights may be conducted when the limits are at, or better than, the following:

	Day		Night	
	Height (note 1)	Visibility	Height (note 1)	Visibility
Single pilot	300 feet	3 km	500 feet	5 km
Two pilot	300 feet	2 km (note 2)	500 feet	5 km (note 3)

Note 1. The cloud base shall allow flight at the specified height to be below and clear of cloud.

Note 2. Helicopters may be operated in flight visibility down to 800 m, provided the destination or an intermediate structure is continuously visible.

Note 3. Helicopters may be operated in flight visibility down to 1,500 m, provided the destination or an intermediate structure is continuously visible.

5.10 Wind speed limitation: When engaged in helicopter offshore flight operations, sea surface wind speed shall not over 60 NM, and shall not over aircraft operating limitations.

6. Carriage of persons

6.1 No operator may allow a person to be carried during helicopter external-load operations unless that person:

6.1.1 Is a flight crewmember.

6.1.2 Is a flight crewmember in training.

6.1.3 Is a necessary person related to the operations of external-load operation.

6.2 The pilot in command shall ensure that all persons are briefed before takeoff on all pertinent procedures to be followed (including normal, abnormal, and emergency procedures),

equipment to be used and the hazard of electrostatic discharge during the external-load operation.

6.3 The operator shall comply with item sixth (6) of attachment 20-5 of this regulation to operate external-load operation in adverse weather.

## 7. Airworthiness and equipment requirements

7.1 The Type Certification and Supplemental Type Certification of the helicopter which involved in external-load operation should be written its ability of external-load operation and have the adequate performance information written in the Flight Manual.

7.2 The operator shall establish a maintenance program in according with Instructions for Continued Airworthiness from manufacturer of helicopter, appliances and parts and approved by CAA to perform maintenance.

7.3 The equipment shall comply with Item seventh (7) of attachment 20-5 of this regulation to operate external-load operation.

7.4 The person signing a maintenance release shall be either the holder of a valid CAA aircraft maintenance engineer certificate or the holder of a valid mechanic license acceptable to CAA, and shall ensure that operations in regard to maintenance and maintenance release be conducted as authorized by GMM. Under the conditions which approved by CAA that operator has established procedures, no malfunction occurs to the helicopter and flight crew who have completed the approved training, the requirement of a maintenance release may be waived after the pilot-in-command has conducted a preflight check and recorded the completion of the check in the maintenance log book.

## 8. Flight characteristics

8.1 The operator should verify the actual flight characteristics of external-load combination of the helicopter conforms to the flight characteristics in accordance with 8.2, 8.3 and 8.4, and apply for approval from CAA. However, for those have been approved by the CAA are not subject to this restriction. The verified weight of external load (including the connection device mounted outside the aircraft) shall be the maximum external-load weight applied.

8.2 Class A helicopter external-load combinations: The operation shall include the following maneuvers:

8.2.1 Takeoff and landing.

8.2.2 Demonstration of adequate directional control while hovering.

8.2.3 Acceleration from a hover.

8.2.4 Horizontal flight at airspeeds up to the maximum airspeed for which authorization is requested.

- 8.3 Class B and D helicopter external-load combinations: The operation shall include the following maneuvers:
- 8.3.1 Pickup of the external load.
  - 8.3.2 Demonstration of adequate directional control while hovering.
  - 8.3.3 Acceleration from a hover.
  - 8.3.4 Horizontal flight at airspeeds up to the maximum airspeed for which authorization is requested.
  - 8.3.5 Demonstrating appropriate lifting device operation.
  - 8.3.6 Maneuvering 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 helicopter.
- 8.4 Class C helicopter-load combinations: For Class C helicopter-load combinations used in wire-stringing, cable-laying, or similar operations, the operation shall consist of the maneuvers, as applicable, prescribed in paragraph 8.3.
- 8.5 The external load and quick release device shall comply with the helicopter airworthiness standards specified in Paragraph 1 of Article 23 of Civil Aviation Act.
- 8.6 Weight and center of gravity shall comply the following:
- 8.6.1 Weight. The total weight of the helicopter external-load combination must not exceed the total weight approved for the helicopter during its type certification.
  - 8.6.2 Center of gravity. The location of the center of gravity must, for all loading conditions, be within the range established for the helicopter during its type certification. For Class C helicopter external-load combination, the magnitude and direction of the loading force must be established at those values for which the effective location of the center of gravity remains within its established range.
9. The helicopter external-load combination of Class D may be conducted only in accordance with the following:
- 9.1 The helicopter to be used must have been type certificated under transport Category A or a transport category helicopter which has been certificated by other state of design and validated by CAA. The helicopter must provide hover capability with one engine inoperative at that operating weight and altitude.
  - 9.2 The helicopter must be equipped to allow direct radio intercommunication among required crewmembers.
  - 9.3 The lifting device shall be approved by aircraft type certification of the state of design.
  - 9.4 The lifting device must have an emergency release requiring two distinct actions.
10. Helicopter external-load operations manual.

10.1 The helicopter external-load operations manual shall be compiled in accordance with the provisions of the flight manual submitted by the operator to the CAA for reference, but it is not necessary to list the altitude/speed chart as an operational limitation.

10.2 The helicopter external-load operations manual shall contain the following contents:

10.2.1 Operating limitations, procedures (normal and emergency), performance, and other information established under this attachment.

10.2.2 The helicopter external-load combination approved by CAA.

10.2.3 Information on any peculiarities discovered when operating particular helicopter external-load combinations;

10.2.4 Precautionary advice regarding static electricity discharges for Class B, Class C, and Class D helicopter external-load combinations.

10.2.5 Any other information essential for safe operation with external-load operation.

10.2.6 The crew responsibility related to helicopter external-load operations, including the chief pilot, his/her designee, and operating crews.

10.2.7 The crew composition and training related to helicopter external-load operations.

10.2.8 The equipment requirements and dispatch criteria related to helicopter external-load operations.

11. Markings and placards.

The following markings and placards must be displayed conspicuously and must be such that they cannot be easily erased, disfigured, and obscured:

11.1 A placard (displayed in the cockpit or cabin) stating the class of helicopter external-load combination for which the helicopter has been approved and the occupancy limitation.

11.2 A placard, marking, or instruction (displayed next to the external-load attaching means) stating the maximum external load prescribed as an operating limitation.