



1 ICAO Annex 6 Part 1 International Commercial Air Transport - Aeroplanes

1.1 Introduction

ICAO Annex 6 consists of three parts:

PART 1

INTERNATIONAL COMMERCIAL AIR
TRANSPORT - AEROPLANES

PART 2

INTERNATIONAL GENERAL AVIATION -
AEROPLANES

PART 3

INTERNATIONAL OPERATIONS -
HELICOPTERS

Some of the rules concerning the Operation of Aircraft contained in Annex 6 tend to be of a more general nature with the detail provided in other manuals. The relevant detail will be provided elsewhere in the course.

References appear throughout the text to several other ICAO Annexes and Documents. These documents are not normally included in the study material

1.2 Operators Responsibility

The operator (or the nominated representative) shall have responsibility for operational control. Operators are to ensure that:

- Employees know that they must comply with the law of any country in which operations are being conducted
- Pilots and members of the flight crew are familiar with the laws, regulations and procedures applicable to the airspace in which they are flying, the aerodromes they are using and any en-route navigation facilities used, applicable to their individual crew duty
- Commanders have on board the aircraft all the essential information concerning Search and Rescue (SAR) service in the areas over which the aeroplane will be flown.

Note

This can be by means of an Operation Manual or other appropriate means.

- Flight safety and accident prevention programmes are maintained.

1.2.1 Violations

If such a report is required, the commander of the aeroplane is to inform the Authorities of a State if, in an emergency situation, local procedures or regulations of the State are violated in order to preserve life or prevent damage to the aeroplane. Any such required



report is to be submitted without delay (normally within 10 days). A copy must be sent to the State of the Operator within the same time restriction.

1.3 Flight Operations

1.3.1 Operating Facilities

An operator of an aeroplane has many responsibilities to ensure both safe operations and the safety and protection of passengers. Before a flight is commenced the operator is to use all reasonable means either through official published information or readily obtainable from other sources to ascertain that the anticipated flight is safe. Specifically, an operator shall ensure that:

- All facilities for the safe operation of a flight and the protection of passengers are adequate for the type of operation to be undertaken
- Any inadequacy is reported to the authority responsible without delay
- Aerodromes are available throughout their published opening hours irrespective of weather conditions.

The Air Operator Certificate (AOC)

An operator cannot engage in commercial air transport unless he holds a valid AOC. The issue of an AOC depends upon demonstrating:

- An adequate organisation
- A method of control and supervision of flight operations
- A training programme and maintenance arrangements consistent with the nature and extent of the operation.

The continued validity depends upon maintaining the requirements above under the supervision of the State of the Operator.

The AOC document shall contain at least the following:

- Operators location
- Date of issue and period of validity
- Description of types of operation authorised
- The types of aircraft authorised for use
- Authorised areas of operation or routes.

The full text detailing the requirements for an AOC (Attachment F) is printed below.

Attachment F - Air Operator Certificate

- The State of the Operator regulations and rules for the operational certification of operators and the conduct of subsequent commercial air transport operations should be in conformity with the Annexes to the Convention on International Civil Aviation and have sufficient detail to ensure that compliance will result in the desired level of safety
- The State of the Operator regulations should provide a framework of positive control and guidance but also allow the operator sufficient flexibility to develop and update instructions for the detailed guidance of personnel essential to the conduct of operations
- The State of the Operator regulations should require the operator to submit detailed information on the organisation, method of control and supervision of flight operations, training programme and

maintenance arrangements as a basis for operational certification. As required by this Part, the operator's material should be submitted in the form of an operations manual, a maintenance control manual and a maintenance programme containing at least the material specified in Appendix 2 (below) and ICAO Annex 6 ch. 11.2 and 11.3 respectively and such other material as the State may require

- The State of the Operator, in addition to assessing the operator's ability and competence, should guide the operator in regulatory, organisational and procedural matters. The State of the operator should be satisfied concerning the operator's eligibility for operational certification. This includes the ability and competence to conduct safe and efficient operations and proof of compliance with applicable regulations
- Continuing surveillance by the State of the operator of an air operator certificate holder's operations is inherent in the system of certification and is an essential part of the State's responsibility to ensure that the required standards of operations are maintained in order to provide a safe and reliable commercial air transportation service to the public. Adequate authority for certification and, continuing surveillance of an air operator certificate holder's operations should be contained in the provisions of the basic aviation law of the State.

Note 1

Guidance on the operations manual is given in the manual Preparation of an Operations Manual (Doc 9376).

Note 2

Guidance on the certification and continued surveillance of the operator is given in the Manual of Procedures for Operations Inspection, Certification and Continued Surveillance (Doc 8335).

Operations Manual

An operator shall provide, for the use and guidance of operations personnel concerned, an operations manual in accordance with Appendix 2 (below). The operations manual shall be amended or revised as is necessary to ensure that the information contained therein is kept up to date. All such amendments or revisions shall be issued to all personnel that are required to use this manual. (ICAO Annex 6 ch 4.2.2.1)

The State of the Operator shall establish a requirement for the operator to provide a copy of the operations manual together with all amendments and/or revisions, for review and acceptance and, where required, approval. The operator shall incorporate in the operations manual such mandatory material as the State of the Operator may require. (ICAO Annex 6 ch 4.2.2.2)

Note 1

Requirements for the content of an operations manual are provided in Appendix 2 (below), which is reproduced below.

Note 2

Specific items in the operations manual require the approval of the State of the Operator in accordance with the Standards in ICAO Annex 6 ch 4.2.7, 6.1.2, 9.3.1 and 12.4.

Appendix 2**Contents of an Operations Manual**

(See ICAO Annex 6 ch 4.2.2.1)

An operations manual, which may be issued in separate parts corresponding to specific aspects of operations, provided in accordance with ICAO Annex 6 ch 4.2.2.1 shall contain at least the following:

Operations administration and supervision

- Instructions outlining the responsibilities of operations personnel pertaining to the conduct of flight operations.
- Checklist of emergency and safety equipment and instructions for its use.
- The minimum equipment list for the aeroplane types operated and specific operations authorized, including any requirements relating to operations in RNP airspace.
- Safety precautions during refuelling with passengers on board.

Accident prevention and flight safety programme

Details of the accident prevention and flight safety programme provided in

accordance with ICAO Annex 6 ch 3.6, including a statement of safety policy and the responsibility of personnel.

Personnel training

- Details of the flight crew training programme and requirements.
- Details of the cabin attendant duties training programme as required by ICAO Annex 6 ch 12.4.

Fatigue and flight time limitations

Rules limiting the flight time and flight duty periods and providing for adequate rest periods for flight crew members and cabin attendants as required by ICAO Annex 6 ch 4.2.10.2.

Flight operations

- The flight crew for each type of operation including the designation of the succession of command.
- The in-flight and the emergency duties assigned to each crew member.
- Specific instructions for the computation of the quantities of fuel and oil to be carried, having regard to all circumstances of the operation including the possibility of the failure of one or more powerplants while en-route.
- The conditions under which oxygen shall be used and the amount of oxygen determined in accordance with ICAO Annex 6 ch 4.3.8.2.
- Instructions for mass and balance control.
- Instructions for the conduct and control of ground de/anti-icing operations.
- The specifications for the operational flight plan.



- The normal, abnormal and emergency procedures to be used by the flight crew, the checklists relating to the procedures and aircraft systems information as required by ICAO Annex 6 ch 6.1.3.
- Standard operating procedures (SOP) for each phase of flight.
- Instructions on the use of normal checklists and the timing of their use.
- Emergency evacuation procedures.
- Departure contingency procedures.
- Instructions on the maintenance of altitude awareness and the use of automated or flight crew altitude call-out.
- Instructions on the use of autopilots and autothrottles in IMC.
- Instructions on the clarification and acceptance of ATC clearances, particularly where terrain clearance is involved.
- Departure and approach briefings.
- Route and destination familiarization.
- Stabilized approach procedure.
- Limitation on high rates of descent near the surface.
- Conditions required to commence or to continue an instrument approach.
- Instructions for the conduct of precision and non-precision instrument approach procedures.
- Allocation of flight crew duties and procedures for the management of crew workload during night and IMC instrument approach and landing operations.
- Instructions and training requirements for the avoidance of controlled flight into terrain and policy for the use of the ground proximity warning system (GPWS).
- Information and instructions relating to the interception of civil aircraft including:
 - Procedures, as prescribed in Annex 2, for pilots-in-command of intercepted aircraft; and
 - Visual signals for use by intercepting and intercepted aircraft, as contained in ICAO Annex 2.
- For aeroplanes intended to be operated above 15 000 m (49 000 ft):
- Information which will enable the pilot to determine the best course of action to take in the event of exposure to solar cosmic radiation; and
- Procedures in the event that a decision to descend is taken, covering:
 - The necessity of giving the appropriate ATS unit prior warning of the situation and of obtaining a provisional descent clearance; and
 - The action to be taken in the event that communication with the ATS unit cannot be established or is interrupted.

Note

Guidance material on the information to be provided is contained in Circular 126 - Guidance Material on SST Aircraft Operations.

Aeroplane performance

Operating instructions and information on climb performance with all engines operating, if provided in accordance with ICAO Annex 6 Ch 4.2.3.3.

Route guides and charts

A route guide to ensure that the flight crew will have, for each flight, information relating to communication facilities,



navigation aids, aerodromes, and such other information as the operator may deem necessary for the proper conduct of flight operations.

Minimum flight altitudes

- The method for determining minimum flight altitudes.
- The minimum flight altitudes for each route to be flown.

Aerodrome operating minima

- The methods for determining aerodrome operating minima.
- Aerodrome operating minima for each of the aerodromes that are likely to be used as aerodromes of intended landing or as alternate aerodromes.
- The increase of aerodrome operating minima in case of degradation of approach or aerodrome facilities.

Search and rescue

- The ground-air visual signal code for use by survivors, as contained in ICAO Annex 12.
- Procedures, as prescribed in ICAO Annex 12, for pilots-in-command observing an accident.

Dangerous goods

Information and instructions on the carriage of dangerous goods, including action to be taken in the event of an emergency.

Navigation

- A list of the navigational equipment to be carried including any requirements relating to operations in RNP airspace.

- Where relevant to the operations, the long-range navigation procedures to be used.

Communications

The circumstances in which a radio listening watch is to be maintained.

Security

- Security instructions and guidance.
- The search procedure checklist provided in accordance with ICAO Annex 6 Ch13.2.

Human Factors

Information on the operators' training programme for the development of knowledge and skills related to human performance.

Note

Information on knowledge and skills related to human performance can be found in Circular 216 (*Human Factors Digest No. 1 - Fundamental Human Factors Concepts*); Circular 217 (*Human Factors Digest No. 2 - Flight Crew Training: Cockpit Resource Management (CRM) and Line-Oriented Flight Training (LOFT)*); and Circular 227 (*Human Factors Digest No. 3 - Training of Operational Personnel in Human Factors*).

Operating Instructions - General

An operator shall ensure that all operations personnel are properly instructed in their particular duties and responsibilities and the relationship of such duties to the operation as a whole. (ICAO Annex 6 ch 4.2.3.1)

An aeroplane shall not be taxied unless the person at the controls:

- Has been duly authorised by the operator or agent
- Is fully competent to taxi the aeroplane
- Is qualified to use the RT
- Has received instruction as to aerodrome layout and ATC procedures

In-Flight Simulation of Emergency Situations

An operator shall ensure that when passengers or cargo are being carried, no emergency or abnormal situations shall be simulated.

Minimum Flight Altitudes

The minimum flight altitude shall be not less than the minimum altitude established by the responsible State taking into account:

- The accuracy and reliability with which the position of the aeroplane can be established
- The inaccuracies in the altimeter indications
- The characteristics of the terrain (e.g. Mountain effect)
- The probability of encountering adverse meteorological conditions
- Possible inaccuracies in the aeronautical charts
- Airspace restrictions

Aerodrome Operating Minima (AOM)

The Operator shall establish aerodrome operating minima, which shall not be lower than the State minima, for each aerodrome to be used in operations. In establishing such minima account should be taken of:

- The type and handling characteristics of the aeroplane
- The composition of the flight crew, their competence and experience
- The dimensions and characteristics of the runways that may be used
- The adequacy and performance of the available visual and non-visual aids that may be used
- The equipment available on the aircraft to navigate and control the flightpath during the approach and missed approach
- The obstacles in the approach and missed approach paths, and the OCA/H for the instrument approach procedures
- The means to determine and report meteorological conditions
- The obstacles in the climbout areas and necessary clearance margins.

Passenger Briefings

An operator shall ensure that passengers are made familiar with the location and use of:

- Seat belts
- Emergency exits
- Life jackets (if carried)
- Oxygen dispensing equipment (if prescribed)
- Other emergency equipment provided for individual use, including briefing cards.

In addition the following information and instructions must be conveyed:

- When seat belts are to be fastened
- When and how oxygen equipment is to be used
- Restrictions on smoking
- Location and method of opening emergency exits.

1.3.2 Flight Preparation

Flight Preparation Forms

A flight shall not be commenced until flight preparation forms have been completed certifying that the pilot-in-command is satisfied that:

- The aeroplane is airworthy
- The instruments and equipment required for the flight are installed and sufficient
- A maintenance release has been issued
- The mass and centre of gravity location are such that the flight may be conducted safely in the flight condition expected
- Any load carried is properly distributed and secured
- A check has been completed indicating that operating limitations can be complied with
- The standards of operational flight planning have been complied with

Operational Flight Planning

An operational flight plan shall be completed for every intended flight and shall be approved and signed by the pilot-in-command and operations (if applicable). In addition, a copy shall be filed with the operator or his agent or left with the airport authority if this is not possible.

Alternate Aerodromes

Alternate aerodromes must be considered under 3 headings: **Take-off**; **En-route**; and **Destination**.

Take-off alternate aerodrome

A take-off alternate aerodrome shall be selected if the weather conditions at the aerodrome of departure are at or below the

Aerodrome Operating Minima, or it would not be possible to return to the aerodrome of departure for any other reasons.

The take-off alternate shall be within the following distance from the departure aerodrome:

- Aeroplanes with 2 power-units
Not more than the distance equivalent to a flight time of one hour at the single-engine cruise speed.
- Aeroplanes with 3 or more power-units
Not more than the distance equivalent to a flight time of two hours at the one-engine inoperative cruise speed.

En-route alternate

The requirements for alternate airfields for aeroplanes certificated to fly under ETOPs is discussed on in ICAO Annex 6 ch 4.7

Destination alternate

For flights conducted under IFR at least one destination alternate aerodrome must be selected and specified in the operational and ATS flight plans unless:

- Destination VMC.
The duration of the flight and the meteorological conditions prevailing are such that there is a reasonable certainty that at the estimated time of arrival, and for a reasonable period before and after such time, the approach may be made under VMC; or
- Isolated destination.
The aerodrome is isolated and there is no suitable alternate aerodrome available



Weather Conditions

Visual Flight Rules

A flight to be conducted in accordance with VFR shall not be commenced unless current meteorological conditions, or a combination of current reports and forecasts indicate that the meteorological conditions along the route or that part of the route to be flown under VFR will, at the appropriate time, be such as to render compliance with these rules possible.

Instrument Flight Rules

A flight to be conducted in accordance with IFR shall not be commenced unless information is available which indicates that conditions at the aerodrome of intended landing or, where a destination alternate is required, at least one destination alternate aerodrome will, at the estimated time of arrival, be at or above the aerodrome operating minima.

A flight to be planned or operated in either ground or flight icing conditions shall be certificated and equipped to operate in such conditions and must have been given such de/anti-icing treatment as is appropriate. All contaminants shall be removed prior to take-off.

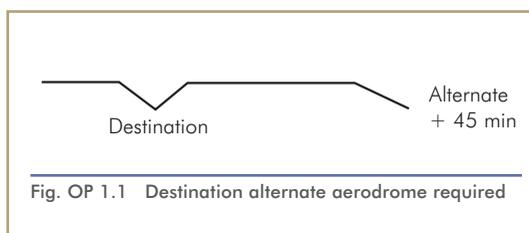
Fuel and Oil Requirements

A flight shall not be commenced unless, taking into account both the meteorological conditions and any delays that are expected in flight, the aeroplane carries sufficient fuel and oil to ensure that it can safely complete the flight. In addition, a reserve shall be carried to provide for contingencies.

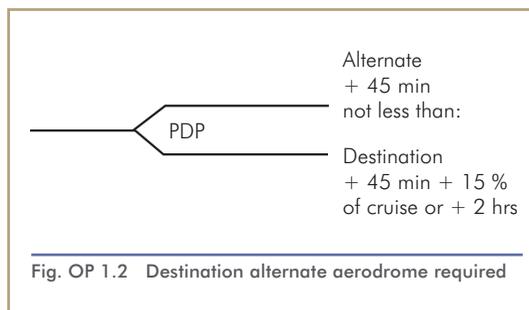
Propeller-driven aeroplanes

The fuel and oil carried by a propellerdriven aeroplane shall be at least the amount sufficient to allow the aeroplane:

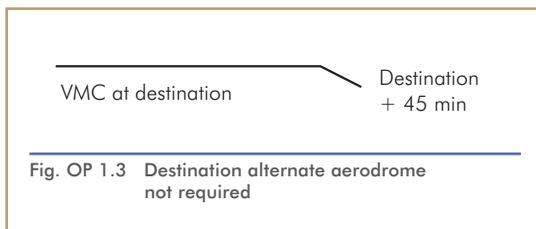
- When a destination alternate is required, either
 - a) To fly to the aerodrome to which the flight is planned then to the most critical (in terms of fuel consumption) alternate aerodrome specified in the operational and ATS flight plans and thereafter for a period of 45 minutes, or (*see fig. OP 1.1*)



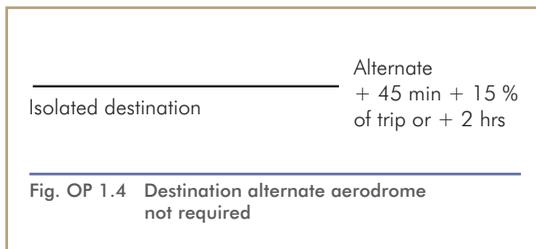
- b) To fly to the alternate aerodrome via any predetermined point and thereafter for 45 minutes, provided that this shall not be less than the amount required to fly to the aerodrome to which the flight is planned and thereafter for:
 - i) 45 minutes plus 15% of the flight time planned to be spent at the cruising level, or
 - ii) two hours *see fig. OP 1.2*, whichever is less of a) and b)



- When a destination alternate is not required, either
 - a) In terms of destination VMC above, to fly to the aerodrome to which the flight is planned and thereafter for a period of 45 minutes; or (*see fig. OP 1.3*),



- b) In terms of isolated destination above, to fly to the aerodrome to which the flight is planned and thereafter for:
 - i) 45 minutes plus 15% of the flight time planned to be spent at the cruising level, or
 - ii) Two hours (*see fig. OP 1.4*), whichever is less of a) and b).

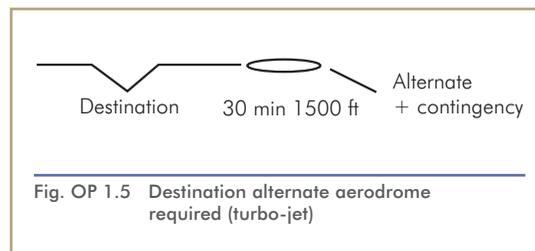


Turbo-jet powered aeroplanes

When a destination alternate is required, either

- a) To fly to and execute an approach, and a missed approach, at the aerodrome to which the flight is planned and thereafter;

- i) To fly to the alternate aerodrome specified in the operational or ATS flight plan, and then
- ii) To fly for 30 minutes at holding speed at 450 m (1500 ft) above the alternate aerodrome under standard temperature conditions, and approach and land.
- iii) To have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator to the satisfaction of the State of the operator. or (*see fig. OP 1.5*),



- b) To fly to the alternate aerodrome via any predetermined point and thereafter for 30 minutes at 450 m (1500 ft) above the alternate aerodrome, due provision having been made for an additional amount of fuel sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator to the satisfaction of the State of the operator; provided that fuel shall not be less than the amount of fuel required to fly to the aerodrome to which the flight is planned and thereafter for two hours at normal cruise consumption (*see fig. OP 1.6*).