



**REPUBLIC OF INDONESIA
MINISTRY OF TRANSPORTATION**

CIVIL AVIATION SAFETY REGULATION (CASR)

**PART 121
CERTIFICATION AND OPERATING REQUIREMENTS:
DOMESTIC, FLAG, AND SUPPLEMENTAL AIR CARRIERS**

CIVIL AVIATION SAFETY REGULATIONS (C.A.S.R.)

PART 121 Amendment 10

CERTIFICATION AND OPERATING REQUIREMENTS: DOMESTIC, FLAG, AND SUPPLEMENTAL AIR CARRIERS

**REPUBLIC OF INDONESIA
MINISTRY OF TRANSPORTATION**

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SUBPART A - GENERAL

121.0 Regulatory Reference

This Civil Aviation Safety Regulation (CASR) Part 121 sets forth the implementing rules for Certifications and Operating Requirements for Domestic, Flag, and Supplemental Air Carrier as required by Aviation Law No. 1 Year 2009, Chapter VIII “Airworthiness and Aircraft Operations”, Article 41, 42, 45, 46 and 47, and Chapter X “Air Transportations”, Article 136.

121.1 [Reserved]

121.3 Applicability

This part prescribes the rules governing:

- (a) The domestic, flag and supplemental certification and operations of each person who holds or is required to hold an air Carrier Operating Certificate under this part who is utilizing airplanes having a passenger seating configuration of more than 30 seats, excluding any required crewmember seat, or a payload capacity of more than 3,409 kilograms (7,500 pounds)
- (b) Each person employed or used by a certificate holder conducting operations under this part including maintenance, preventive maintenance, and alteration of aircraft.
- (c) Each person who is on board an aircraft being operated under this part.
- (d) The rules in this part are applicable to all air carriers certified under this Part.
- (e) This part also establishes requirements for operators to take actions to support the continued airworthiness of each airplane.

121.4 Certification Requirements: General

- (a) No person may engage in scheduled air transportation within Indonesia without, or in violation of an air carrier operating certificate and appropriate operations specifications issued under this part. An air carrier whose operations specifications authorize operations within Indonesia is hereafter referred to as a “domestic air carrier”.
- (b) No person may engage in scheduled air transportation outside of Indonesia without, or in violation of an air carrier operating certificate and appropriate operations specifications issued under this part. An air carrier whose operations specifications authorize operations outside of Indonesia is hereafter referred to as a “flag air carrier”.

- (c) No person may engage in charter or all-cargo operations without, or in violation of an air carrier operating certificate and appropriate operations specifications issued under this part. An air carrier whose operations specifications authorize charter or all-cargo operations is hereafter referred to as a “supplemental air carrier”.
- (d) A domestic air carrier may, in the case of segments of routes extending outside of Indonesia, be authorized to conduct operations over those route segments under the domestic air carrier certification and operation rules. A domestic air carrier whose route structure has expanded to include operations outside of Indonesia must conduct those routes under the flag air carrier certification and operation rules.
- (e) The Director may authorize the air carriers described in paragraphs (a) and (b) of this section to conduct charter and/or all-cargo operation with the appropriate revisions to their existing operations specifications.
- (f) The rules in this part that do not specifically refer to flag or domestic or supplemental air carriers are applicable to flag and domestic and supplemental air carriers.
- (g) No holder of an air operator certificate may operate or list on any required listing of its aircraft any aircraft listed on any operation specifications issued to another air operator under this part.

121.5 [Reserved]

121.6 Leasing of Aircraft

- (a) Prior to operating an air transportation service with a leased aircraft, an air carrier shall provide to the Director, copy of the lease agreement, or a written memorandum outlining the terms of such agreement. Where any air carrier whether foreign or domestic, agrees to provide an aircraft to another person certified under this part, the agreement must state which AOC holder and which AMO as applicable, is proposed to be responsible for providing:
 - (1) applicable crewmembers,
 - (2) operational control, and
 - (3) the maintenance and servicing of that aircraft
- (b) Upon receiving a copy of an agreement, or a written memorandum of the terms thereof, the Director determines which party to the agreement is conducting the operation and issues an amendment to the certificate holder's operations specifications containing the following:
 - (1) The names of the parties to the agreement and the duration thereof
 - (2) The nationality and registration numbers marks of each aircraft involved in the agreement

- (3) The type of operation (e.g. scheduled, passenger, etc)
 - (4) The areas of operation
 - (5) The regulation of the CASRs applicable to the operation
- (c) In making a determination under Paragraph (b) of this section, the Director considers the responsibility under the agreement for the following:
- (1) Crewmembers and training
 - (2) Airworthiness and performance of maintenance
 - (3) Dispatch
 - (4) Servicing the aircraft
 - (5) Scheduling
 - (6) Any other factor the Director considers relevant
- (d) After a review of the leasing arrangement, if a foreign operator is considered responsible for the operation of the leased aircraft each route segment must include either a takeoff or a landing to or from a foreign airport.

121.7 Definitions and Abbreviations

- (a) The following definitions and abbreviations apply to those sections of Part 121:

Air Carrier/Air Operator Certificate Holder	: Means a person who undertakes directly by lease or other arrangements to engage in air transportation.
Air Transportation Service	: The operation for remuneration, including positioning flights, of any aircraft, which is listed on the air carrier's Air operating certificate.
Aircraft	: Any machines that can derive support in the atmosphere from the reaction of the air other than reactions of the air against the earth's surface.
Airplane or Airplane	: A power driven, heavier than air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces, which remain fixed under given conditions of flight.
AOC	: Air Operator Certificate. A certificate authorizing an operator to carry out specified commercial air transport operations.
Cabin Altitude	: Means the pressure inside the cabin of an aircraft in flight, expressed in feet above Mean Sea Level (MSL)

Captain	: A pilot qualified on an aircraft and responsible for the safe operation of that aircraft.
CC	: Competency Check. Any required operational check performed on company personnel (other than flight crewmembers), by company supervisory personnel duly authorized to perform that check.
CCP	: Company Check Pilot. An employee of an air carrier who is the holder of a delegation of authority issued by the Director, authorizing the conduct of certain types of flight checks.
Certificate	: A document issued by, or on behalf of DGCA, which confirms a regulatory standard, as described in the document, has been met. A certificate does not convey any authority to act.
Contracting State	: Any country or state, which is a signatory to the Convention of the International Civil Aviation Organization, or any other country acceptable to the Director.
Crew member	: A person assigned to official duty on board an aircraft.
Director or DGCA	: The Director of the Directorate General of Civil Aviations, or any person authorized to act on his behalf.
Extended over water	: A flight operated over water at a distance of more than 93 km (50 NM), or 30 minutes at normal cruising speed, whichever is the lesser, away from land suitable for making an emergency landing
First Officer (FO)	: A pilot qualified on an aircraft to perform the duties of second in command. May also be taken to mean co-pilot
Flag Air Carrier	: An air carrier whose operations specifications authorize operations outside of Indonesia.
Flight	: An aircraft is deemed to be in flight any time it is no longer in contact with the earth's surface as the result of its weight being supported by the aerodynamic principles and design features of that particular aircraft.

Flight Altitude	: Means the altitude above mean sea level at which the aircraft is operated.
Flight Attendant	: A crewmember who performs, in the interest of safety of passenger, duties assigned by the operator or the pilot in command of the aircraft, but who shall not act as flight crewmember.
Flight Crew Member	: A crewmember assigned to duty in an aircraft as a pilot, flight engineer, second officer or navigator.
Flight Duty Time	: The total elapsed period from the time a crewmember is required to report for duty, to the time that crewmember has completed all official duties with respect to a flight or series of flights and is released for an official crew rest.
Flight Operations Officer (FOO)	: A person who is authorized by an air carrier to exercise operational control over a flight.
Flight Time	: The total elapsed time from the moment the aircraft first moves under its own power for the purpose of take off, until the time it comes to rest at the end of the flight.
Flight Watch	: The process by which a qualified flight operations officer provides flight following services to a flight, and provides any operational information as may be requested by the pilot in command or deemed necessary by the flight operations officer.
Government Check Pilot (GCP)	: A DGCA inspector authorized to perform flight checks.
He	: He or She (unless specified), taken in context with that section.
His	: His or Hers (unless specified), taken in context with that section.
IMC	: Instrument Meteorological Conditions
Large Aircraft	: Any aircraft having a maximum certified take-off weight, (MCTOW) of greater than 5700 kg (12500 pounds).
Licence	: A document issued by, or under a delegation of authority from the Director, which authorizes the holder to exercise certain privileges as specified in

	that license, subject to the conditions and limitations contained therein.
MEL	: Minimum Equipment List
Net Take-off Path	: Means the one-engine-inoperative flight path that starts at a height of 35 feet at the end of the take-off distance required and extends to a height of at least 1500 feet AGL, reduced at each point by a gradient of climb equal to 0.8 per cent for two-engine aeroplanes, 0.9 per cent for three-engine aeroplanes and 1.0 percent for four-engine aeroplanes
Open Water	: Means a water mass which does not have any landmasses within the maximum times or distances prescribed by a regulation.
Operational Control System (OCS)	: Means an air carrier's system for the exercise of authority over the formulation, execution and amendment of an operational flight plan in respect of a flight or series of flights.
Passenger	: Any person on board an aircraft during flight time, who is not acting as a crewmember.
Person	: In respect of an air carrier, means any person who is an owner, or operator of an aircraft listed on that air carrier's operations specifications or, is otherwise acting as an employee or agent of that air carrier.
Pilot Flying (PF)	: The flight crewmember who is manipulating the flight controls of an aircraft during flight time.
Pilot In Command (PIC)	: A pilot assigned to act as the Captain of an aircraft.
Pilot Not Flying (PNF)	The pilot who is performing tasks during flight time, in support of the pilot flying. May also be called Pilot Monitoring (PM)
Pilot Proficiency Check (PPC)	: A flight check performed in whole or in part, in an airplane type simulator or an aircraft. Conducted by a GCP, CCP, or DGCP for the purpose of establishing the level of proficiency, of a flight crewmember.
Remote Area	: Means an area of land considered hostile to survival, which lies beyond a specified radius from any known civilization, development or surface conveyance, through which refuge could reasonably be sought. Such radii is equal to 25 nautical miles in the case of

mountainous or jungle areas, 50 nautical miles in the case of unoccupied land mass surrounded by water and in all other areas, 100 nautical miles. The Director may designate other areas as remote based upon unique consideration.

- Required Day Off : A period of time consisting of 24 consecutive hours, commencing at 0000 local time, in which a pilot, flight attendant or flight operations officer are free from all duties or contact by the company. A required day off is considered to be taken at a person's residence and is exclusive of any travel time between that person's residence, and the place where such person reports for, or is released from duty.
- Rest Period : The period of time during which a crewmember is released from all official duty or contact by the company. This period must exclude all time spent commuting by the most direct route, between the company designated rest facility and assigned duty station and, a specified period of prone rest with at least one additional hour provided for physiological needs.
- Seating Capacity : The maximum number of passenger seats authorized by, the type certificate, type approval, or other equivalent document.
- Second in Command (SIC) : A pilot assigned to act as a first officer or co-pilot of an aircraft.
- Second Officer (SO) : A pilot who is the holder of a commercial or higher pilot license and is endorsed on an aircraft type, as competent on the flight engineers panel and may act as a flight crewmember with respect to the flight engineer duties
- Supplemental Air Carrier : An air carrier whose operations specifications authorize charter or all cargo operations.
- Threshold Time : Is the flight time from as adequate en-route alternate aerodrome beyond which time operations by airplanes with two turbine power units must be authorized by DGCA. This threshold time should be 60 minutes.
- CAMP : Continuous Airworthiness Maintenance Program
- CCP/FE/N : Company Check Pilot/Flight Engineer/Navigator

CI	: Company Instructor
DGCA	Directorate of Airworthiness and Aircraft Operations
DGCA	: Directorate General of Civil Aviations
FI (A/S)	: Flight Instructor (Aeroplane/Simulator)
GI	: Ground Instructor

(b) The following definitions and abbreviations apply to those sections of Part 121 that apply to ETOPS:

Adequate Aerodrome/ Airport	: Means an aerodrome that an airplane operator may list with approval from the DGCA because that airport meets the landing limitations of CASR 121.197 and is either- (1) An aerodrome that meets the requirements of CASR part 139, subpart D or (2) A military aerodrome that is active and operational.
CMP	: Configuration, Maintenance, and Procedures (CMP) document -means a document that contains minimum configuration, operating, and maintenance requirements, hardware life-limits, and Master Minimum Equipment List (MMEL) constraints necessary for an airplane-engine combination to meet ETOPS type design approval requirements
Early ETOPS	: Means ETOPS type design approval obtained without gaining non-ETOPS service experience on the candidate airplane-engine combination certified for ETOPS.
Equal-Time Point	: Means a point on the route of flight where the flight time, considering wind, to each of two selected airports is equal.
ETOPS Alternate Aerodrome/Airport	: Means an adequate aerodrome listed in the certificate holder's operations specifications that is designated in a dispatch or flight release for use in the event of a diversion during ETOPS. This definition applies to flight planning and does not in any way limit the authority of the pilot-in-command during flight.

- ETOPS Area of Operation : Means one of the following areas:
- (1) For turbine-engine-powered airplanes with two engines, an area beyond 60 minutes from an adequate airport, computed using a one-engine-inoperative cruise speed under standard conditions in still air.
 - (2) For turbine-engine-powered passenger-carrying airplanes with more than two engines, an area beyond 180 minutes from an adequate airport, computed using a one-engine-inoperative cruise speed under standard conditions in still air.
- ETOPS Entry Point : Means the first point on the route of an ETOPS flight, determined using a one-engine-inoperative cruise speed under standard conditions in still air, that is -
- (1) More than 60 minutes from an adequate airport for airplanes with two engines;
 - (2) More than 180 minutes from an adequate airport for passenger-carrying airplanes with more than two engines.
- ETOPS Qualified Person : Means a person, performing maintenance for the certificate holder, who has satisfactorily completed the certificate holder's ETOPS training program.
- ETOPS Significant System : Means an airplane system, including the propulsion system, the failure or malfunctioning of which could adversely affect the safety of an ETOPS flight, or the continued safe flight and landing of an airplane during an ETOPS diversion. Each ETOPS significant system is either an ETOPS group 1 significant system or an ETOPS group 2 significant system.
- (1) An ETOPS group 1 Significant System—
 - (i) Has fail-safe characteristics directly linked to the degree of redundancy provided by the number of engines on the airplane.
 - (ii) Is a system, the failure or malfunction of which could result in an IFSD, loss of thrust control, or other power loss.
 - (iii) Contributes significantly to the safety of an ETOPS diversion by providing additional redundancy for any system power source lost as a result of an inoperative engine.
 - (iv) Is essential for prolonged operation of an airplane at engine inoperative altitudes.

- (2) An ETOPS group 2 significant system is an ETOPS significant system that is not an ETOPS group 1 significant system.

For the purposes of this Part, a flight is considered to be in extended over water operations, when it extends beyond 30 minutes flying time or 100 nautical miles from the nearest shore, whichever is less where special equipment, procedures and/or passenger briefings are required for such operations.

IFSD	: Means, for ETOPS only, when an engine ceases to function (when the airplane is airborne) and is shutdown, whether self induced, flightcrew initiated or caused by an external influence. The DGCA considers IFSD for all causes: for example, flameout, internal failure, flightcrew initiated shutdown, foreign object ingestion, icing, inability to obtain or control desired thrust or power, and cycling of the start control, however briefly, even if the engine operates normally for the remainder of the flight. This definition excludes the airborne cessation of the functioning of an engine when immediately followed by an automatic engine relight and when an engine does not achieve desired thrust or power but is not shutdown.
Maximum Diversion Time	: Means, for the purposes of ETOPS route planning, the longest diversion time authorized for a flight under the operator's ETOPS authority. It is calculated under standard conditions in still air at a one-engine-inoperative cruise speed..
North Pacific Area of Operation	Means Pacific Ocean areas north of 40[deg] N latitudes including NOPAC ATS routes, and published PACOTS tracks between Japan and North America.
North Polar Area	Means the entire area north of 78 [deg] N latitude.
One-engine inoperative Cruise Speed	: Means a speed within the certified operating limits of the airplane that is specified by the certificate holder and approved by the DGCA for – <ol style="list-style-type: none"> (1) Calculating required fuel reserves needed to account for an inoperative engine; or (2) Determining whether an ETOPS alternate is within the maximum diversion time authorized for an ETOPS flight..

South Polar Area	: Means the entire area South of 60 [deg] S latitude.
CAMP	: Continuous Airworthiness Maintenance Program
CMP	: Configuration, maintenance, and procedures document
IFSD	: In-flight shutdown
NOPAC	: North Pacific area of operation
PACOTS	: Pacific Organized Track System
RFFS	: Rescue and firefighting services
SATCOM	: Satellite communications

121.9 [Reserved]

121.11 Rules Applicable to Operations in a Foreign Country

Each certificate holder shall, while operating an airplane within a foreign country, comply with the air traffic rules of the country concerned and the local airport rules, except where any rule of this part is more restrictive and may be followed without violating the rules of that country.

121.13 [Reserved]

121.15 Carriage of Narcotic Drugs, Marihuana, and Depressant or Stimulant Drugs or Substances

If a certificate holder operating under this part permits any aircraft owned or leased by that holder to be engaged in any operation that the certificate holder knows to be in violation of Section 91.19(a) of the CASRs, that operation is a basis for suspending or revoking the certificate.

SUBPART B - CERTIFICATION RULES

121.21 Applicability

This subpart prescribes certification rules for all air carriers except where noted.

121.23 [Reserved]

121.25 Contents of an Air Operator Certificate

The Air Carrier Operator Certificate includes—

- (a) The State of the Operator
- (b) The issuing authority
- (c) AOC number
- (d) Certificate expiry date
- (e) Operator's registered name
- (f) Operator's trading name (if different)
- (g) Operator's principal place of business address, telephone number, fax number, and e-mail
- (h) Operational points of contact
- (i) Authorization, including reference to appropriate civil aviation regulation, issuance date, title, name and signature of authority representative

121.26 Application for Air Carrier Operator Certificates

Each application for an air carrier operator certificate shall be made in the form and manner and contain information prescribed by the Director. Each applicant must submit his application at least 60 days before the date of intended operation.

121.27 Issue of an Air Operator Certificate

- (a) An applicant under this subpart is issued an operating certificate if the Director after investigation, a positive finding is made regarding the applicants financial, economic and legal matters in accordance with Subsection (d)(e) and (f) of this section;
- (b) The Director after investigation finds that the applicant is properly and adequately equipped and able to conduct a safe operation in accordance with this part and operation specifications issued under this part;

- (c) In the case of operations conducted under a temporary authorization issued by the DGCA, the Director issues operations specifications prescribing appropriate requirements that deviate from the requirements of this part whenever, after investigation, he finds that general standards of safety for such an operation require or allow a deviation from such a requirement for a particular operation or class of operations for which an application for an air carrier operating certificate has been made, as laid down in Subsection 121.27(b)(e)(f) of this section; and.
- (d) Each applicant for the original issue of an air operator certificate who intends to conduct operations under this part must submit the following financial information:
 - (1) A balance sheet that shows assets, liabilities, and net worth, as of a date not more than 60 days before the date of application.
 - (2) An itemization of liabilities more than 60 days past due on the balance sheet date, if any, showing each creditor's name and address, a description of the liability, and the amount and due date of the liability.
 - (3) An itemization of claims in litigation, if any, against the applicant as of the date of application showing each claimant's name and address and a description and the amount of the claim.
 - (4) A detailed projection of the proposed operation covering 6 complete months after the month in which the certificate is expected to be issued including—
 - (i) Estimated amount and source of both operating and non-operating revenue, including identification of its existing and anticipated income producing contracts and estimated revenue per mile or hour of operation by aircraft type;
 - (ii) Estimated amount of operating and non-operating expenses by expense objective classification; and
 - (iii) Estimated net profit or loss for the period.
 - (5) An estimate of the cash that will be needed for the proposed operations during the first 6 months after the month in which the certificate is expected to be issued, including -
 - (i) Acquisition of property and equipment (explain);
 - (ii) Retirement of debt (explain);
 - (iii) Additional working capital (explain);
 - (iv) Operating losses other than depreciation and amortization (explain); and
 - (v) Other (explain).
 - (6) An estimate of the cash that will be available during the first 6 months after the month in which the certificate is expected to be issued, from -
 - (i) Sale of property or flight equipment (explain);
 - (ii) New debt (explain);
 - (iii) New equity (explain);
 - (iv) Working capital reduction (explain);
 - (v) Operations (profits) (explain);
 - (vi) Depreciation and amortization (explain); and
 - (vii) Other (explain).

- (7) A schedule of insurance coverage in effect on the balance sheet date showing insurance companies; policy numbers; types, amounts, and period of coverage; and special conditions, exclusions, and limitations.
 - (8) Any other financial information that the DGCA requires to enable him or her to determine that the applicant has sufficient financial resources to conduct his or her operations with the degree of safety required in the public interest.
- (e) Each holder of an air operator certificate shall submit a financial report for the first 6 months of each fiscal year and another financial report for each complete fiscal year.
- (f) Each financial report containing financial information required by paragraph (e) of this section must be based on accounts prepared and maintained on an accrual basis in accordance with generally accepted accounting principles applied on a consistent basis, and must contain the name and address of the applicant's public accounting firm, if any. Information submitted must be signed by an officer, owner, or partner of the applicant or certificate holder.

121.29 Duration of Validity and surrender of Air Operator certificate and Operations Specifications.

- (a) An Air Operator Certificate or Operating Certificate issued under this Part is valid for two years unless --
- (1) The certificate holder surrenders it earlier to the DGCA; or
 - (2) The DGCA suspends, revokes, or otherwise earlier terminates the Certificate due to the violation by the certificate holder to the provision of this Part; or
 - (3) The certificate holder does not conduct or cease all operations for which it holds authority in its Operations Specifications for more than the time specified in section 121.32a.
 - (4) The certificate holder violates the provision of Aviation Act 15 as the basis for granting of the certificate, or violate requirements to conduct operation of its organization in accordance with authority granted, limitation imposed and procedures approved as they are specified on its Operation Specifications concerning; or
 - (5) The certificate holder apply for renewal of validity of his Certificate.
- (b) Operations Specifications issued under this Part are effective as long as the Air Operator Certificate or Operating Certificate is valid unless--
- (1) The Operations Specifications are amended as provided in section 121.79;

- (2) The certificate holder does not conduct a kind of operation for more than the time specified in section 121.31 and fails to follow the procedures of section 121.31 upon resuming that kind of operation; or
 - (3) The DGCA suspends or revokes the Operations Specifications for a kind of operation due to the incapacity of the certificate holder to operate of that kind of operation.
- (c) Within 7 days after a Certificate has been suspended, revoked or terminated under this Part, the Certificate and Operations Specifications must be surrendered by the certificate holder to the DGCA.

121.31 Recency of Operation

- (a) Except as provided in paragraph (b) of this section, no certificate holder may conduct a kind of operation for which it holds authority in its Operations Specifications unless the certificate holder has conducted that kind of operation within the preceding number of consecutive calendar days specified in this paragraph:
 - (1) For domestic or flag operations—30 days.
 - (2) For supplemental operations—90 days, except that if the certificate holder has authority to conduct domestic or flag operations, and has conducted domestic, or flag operations within the previous 30 days, this paragraph does not apply.
- (b) If a certificate holder does not conduct a kind of operation for which it is authorized in its Operations Specifications within the number of calendar days specified in paragraph (a) of this section, it shall not conduct such kind of operation unless—
 - (1) It advises the DGCA at least 5 consecutive calendar days before resumption of that kind of operation; and
 - (2) It makes itself available and accessible during the 5 consecutive calendars day period in the event that the DGCA decides to conduct a full inspection reexamination to determine whether the certificate holder remains properly and adequately equipped and able to conduct a safe operation.

121.32a Suspension and Revocation of Air Operator Certificate or Operating Certificate of a Certificate Holder which does not Conduct Operations for which It Holds Authority for More Than a Specified Time

The Air Operator Certificate or Operating Certificate of a certificate holder who does not conduct or cease operations for which it holds authority in its Operations Specifications for certain number of consecutive calendar days, will be suspended and revoked as follows :

- (a) Domestic and flag operations.

- (1) If a certificate holder does not conduct or cease operations for 30 consecutive calendar days, the certificate holder will be issued three (3) consecutive warning letters, each at interval of maximum of one (1) month;
- (2) If the certificate holder does not respond to the warning letters, the certificate will be suspended for a maximum of three (3) months;
- (3) If the suspension period is over and there is no effort made for the resumption of the operations, the certificate will be revoked.

(b) Supplemental operations.

- (1) If a certificate holder does not conduct or cease operations for 90 consecutive calendar days, the certificate holder will be issued three (3) consecutive warning letters, each at interval of one (1) month;
- (2) If the certificate holder does not respond to the warning letters, the certificate will be suspended for a maximum of three (3) months;
- (3) If the suspension period is over and there is no effort made for the resumption of the operations, the certificate will be revoked.

(c) If a certificate holder wish to resume its operations for which it was authorized in its Operations Specifications :

- (1) The certificate holder for which it is issued warning letter shall advise the DGCA at least 30 consecutive calendar days before resumption of its operation to conduct an inspection to determine whether the certificate holder remains properly and adequately equipped and able to conduct a safe operation;
- (2) The certificate holder for which the certificate is suspended shall advise the DGCA at least 60 consecutive calendar days before resumption of its operation to conduct an inspection to determine whether the certificate holder remains properly and adequately equipped and able to conduct a safe operation;
- (3) The certificate holder for which the certificate is revoked shall advise the DGCA at least 90 consecutive calendar days before resumption of its operation to conduct a full inspection reexamination to determine whether the certificate holder remains in compliance within air operator certification requirements of this Part.

121.32b Renewal of Validity of Air Operator Certificate

A certificate holder who wishes to renew his validity of his Certificate shall:

- (a) Apply in a form and manner acceptable to the DGCA;

- (b) Forward the application to the DGCA at least 60 consecutive calendar days before expiration of his Certificate, to allow sufficient time for the DGCA to conduct a quality audit to determine whether the certificate holder remains in compliance, in conformance and in adherence with appropriate regulations, in order to be able to conduct a safe operation.

121.33 Through 121.58 [Reserved]

121.59 Management Personnel Required

- (a) Each applicant for a certificate under this subpart must show that it has sufficient qualified management personnel to provide adequate direction in all operational matters and ensure an acceptable level of safety is being maintained. Such personnel must be employed on a full time basis in at least the following or equivalent position:
 - (1) Managing or President Director
 - (2) Safety Management System:
 - (a) Accountable Executive
 - (b) Safety Manager (reporting directly to Accountable Executive)
 - (3) Director of Operation
 - (4) Director of Maintenance
 - (5) Chief Pilot
 - (6) Chief inspector
- (b) Upon application by the air carrier the Director may approve different positions or number of positions than those listed in paragraph (a) of this section for a particular operation if the air carrier shows that it can perform the operation with the highest degree of safety under the direction of fewer or different categories of management personnel due to:
 - (1) The kind of operation involved;
 - (2) The number and type of aircraft used; and
 - (3) The area of operations.
- (c) The title of the positions required under paragraph (a) of this section or the title and number of equivalent positions approved under paragraph (b) of this section shall be set forth in the certificate holder's Operations Specifications.
- (d) The individuals who serve in the positions required or approved under paragraph (a) or (b) of this section and anyone in a position to exercise control over operations conducted under the operating certificate must—
 - (1) Be qualified through training, experience, and expertise;

- (2) To the extent of their responsibilities, have a full understanding of the following materials with respect to the certificate holder's operation—
 - (i) Aviation safety standards and safe operating practices;
 - (ii) Civil Aviation Safety Regulations (CASR);
 - (iii) The certificate holder's Operations Specifications;
 - (iv) The manual required by section 121.133 of the CASR;
- (3) Discharge their duties to meet applicable legal requirements and to maintain safe operations; and
- (4) Certified passing the fit and proper test.
- (e) Each applicant shall submit the names of persons nominated to each position required by this subpart on an acceptable nomination form, giving sufficient details to demonstrate that the candidates qualifications, experience, and background.
- (f) Each certificate holder must:
 - (1) State in the general policy provisions of the manual required by section 121.133 of the CASR, the duties, responsibilities, and authority of personnel required under paragraph (a) of this section;
 - (2) List in the manual the names and business addresses of the individuals assigned to those positions; and
- (g) At any time, there shall no vacancy in any approved management position as set forth in the Operations Specifications. For a case where it is beyond the air operator's control, an air operator shall comply with the requirements of paragraph (j).
- (h) To ensure the ability to comply with requirements of paragraph (g), a certificate holder shall:
 - (1) In its human resource planning, include career progression planning for the management positions, with addressing the qualification, experience and training requirements in accordance with this Subpart, which shall be complied with by each management position.
 - (2) Establish human resource policies concerning minimum time requirements for an employee or employer to notify in advance, respectively in case of resignation or termination of employment.
- (i) When a certificate holder intends to change any of its management personnel, the proposal shall be submitted to the DGCA at least 30 days before the date of intended approval by the DGCA. The certificate holder shall only propose for evaluation by the DGCA after the certificate holder found that a candidate meets the respective requirements for a management position of this Subpart.

- (j) When any of its management personnel need to be changed due to a reason that is beyond the certificate holder's control, the certificate holder may nominate a person for a temporary assignment at that vacant position. However, the person nominated shall meet the respective requirements for a management position of this Subpart, and within 7 days the certificate holder shall notify and request the DGCA for evaluation of that candidate.

121.61 Minimum Qualifications of Management Personnel

- (a) No person may serve as a managing or president director where the DGCA has reason to believe, given the background of such person, that he or she is likely to present a threat to the safe and proper operations of the air carrier.
- (b)
 - (1) No person may be nominated as the Accountable Executive for Safety Management System (SMS) unless he or she satisfies all the conditions specified in 121.65 (b) (i) and Appendix G Safety Management System.
 - (2) No person may be nominated as the Safety Manager for Safety Management System (SMS) unless he or she satisfies all the conditions specified in 121.65 (b) (ii) and Appendix G Safety Management System.
- (c) No person may serve as Director of Operations unless he;
 - (1) knows the contents of the air carrier's company operations manual and operations specifications, and the provisions of this part necessary to the proper performance of his duties; and
 - (2) holds, an airline transport pilot licence; with at least 3 years supervisory or managerial experience within the last 6 years in a position that exercise operational control over any operation conducted with large airplane under part 121.
 - (3) In the case of a person becoming a Director of Operations:
 - (i) For the first time ever, have at least 3 years experience, within the past 6 years, as pilot in command of a large airplane operated under part 121 or part 135, if the certificate holder operates large airplanes.;
 - (ii) In the case of a person with previous experience as a Director of Operations, have at least 3 years experience as pilot in command of a large airplane operated under part 121 or part 135, if the certificate holder operates large airplanes.
- (d) No person may serve as Director of Maintenance unless he;
 - (1) Holds an appropriate AME licence, or equivalent qualifications acceptable to the Director,
 - (2) Has had at least five years of experience in the maintenance of similar types of Aircraft with which the operations are to be conducted, one year of which must have been in a supervisory capacity, and
 - (3) Knows the maintenance parts of the air carrier's company operations manual and operations specifications and the applicable maintenance provisions of this part.

- (e) No person may serve as Chief Pilot unless that person;
 - (1) Holds a current airline transport pilot license with appropriate ratings for at least 1 (one) of the airplane used by the air operator.
 - (2) In the case of a person becoming a chief pilot for the first time ever, have at least 3 (three) years experience, within the past 6 (six) years, as a pilot in command of a large airplane operated under part 121.
 - (3) In the case of a person with previous experience as a chief pilot, have at least 3 (three) years experience, as a pilot in command of a large airplane operated under part 121
- (f) No person may serve as Chief Inspector unless he;
 - (1) Holds an appropriate AME license which has been valid for at least five years;
 - (2) Has had at least three years of diversified maintenance experience on similar types of aircraft with which the operations are to be conducted with an Air Operator or A.M.O., one year of which must have been as a maintenance inspector; and
 - (3) Knows the maintenance parts of the air carrier's company operations manual and operations specifications, and the applicable maintenance provisions of this part.
- (g) No air carrier may assign a person to act in a position of management over operational matters or personnel, unless;
 - (1) An official management position has been created in accordance with this Section and is published in the organisation chart.
 - (2) a list of minimum qualifications the incumbent must possess is published in the COM, and
 - (3) The information required by Section 121.59 is published in the COM.
- (h) Where an applicant files for a deviation to any qualification listed in this section, the Director may after consideration, decide to give an exemption to certain qualifications where,
 - (1) The person's experience, qualifications and background are acceptable to the Director,
 - (2) the scope and size of the proposed operations is such that a lower level of qualifications would be acceptable to achieve a satisfactory level of safety, and
 - (3) at the discretion of the Director, the manager nominee agrees to undergo an examination to test his suitability for the position.

SUBPART C - SAFETY MANAGEMENT SYSTEM

121.63 Applicability

This subpart prescribes the standards for each air carrier authorized to operate under this part, required to maintain a Safety Management System (SMS).

121.65 Safety Management System (SMS)

- (a) From 1 January 2009, an air carrier shall develop and implement a safety management system (SMS) appropriate to the size, nature and complexity of the operations authorized to be conducted under its operations certificate and the safety hazards and risks related to the operations; acceptable to the DGCA, that, as a minimum:
 - (1) Identifies safety hazards and assesses and mitigates risks;
 - (2) Ensures that remedial action necessary to maintain an acceptable level of safety is implemented;
 - (3) Provides for continuous monitoring and regular assessment of the safety level achieved; and
 - (4) Aims to make continuous improvement to the overall level of safety.
- (b) The air carrier's SMS shall clearly define lines of safety accountability throughout the operator's organization, including a direct accountability for safety on the part of senior management.
 - (1) An air carrier shall nominate to the DGCA for approval an Accountable Executive, meaning a single, identifiable person which might be a Chief Executive Officer, a Chairperson Board of Directors, a partner or a proprietor who has full responsibility for the organization's SMS and have full authority for human resources issues, major financial issues, direct responsibility for the conduct of the organization's affairs, final authority over operations under certificate, and final responsibility for all safety issues.
 - (2) An air carrier shall identify a Safety Manager to be the member of management who shall be the responsible individual and focal point for the development and maintenance of an effective SMS. The Safety Manager shall ensure that processes needed for the SMS are established, implemented and maintained; report to the Accountable Executive on the performance of the SMS and on any need for improvement; and ensure safety promotion throughout the organization.
- (c) An air carrier operating an aircraft of a maximum certificated take-off mass in excess of 27.000 kg shall establish and maintain a flight data analysis program as part of its safety management system.

- (1) An air carrier may contract its flight data analysis program to a third party provided it retains overall responsibility for maintenance of the program.
- (2) A flight data analysis program shall be non-punitive and contain adequate safeguards to protect the source(s) of the data.
- (d) An air carrier shall establish a flight safety documents system, for the use and guidance of operational personnel, as part of its safety management system.
- (e) A service provider shall, as part of the SMS documentation, develop and maintain a Safety Management System Manual (SMSM), to communicate the organization's approach to safety throughout the organization.
- (f) The SMSM shall document all aspects of the SMS, and its contents shall include the following:
 - (1) Scope of the Safety Management System;
 - (2) Safety policy and objectives;
 - (3) Safety accountabilities;
 - (4) Key safety personnel;
 - (5) Documentation control procedures;
 - (6) Hazard identification and risk management schemes;
 - (7) Safety performance monitoring;
 - (8) Emergency response/contingency planning;
 - (9) Management of change; and
 - (10) Safety promotion.
- (g) Appendix G - SAFETY MANAGEMENT SYSTEM has been published for the purpose of giving guidance for the development of the program.

121.67 [Reserved]

SUBPART D - RULES GOVERNING ALL CERTIFICATE HOLDERS UNDER THIS PART

121.71 Applicability

This subpart prescribes rules governing all certificate holder under this part.

121.73 Availability of Air Operator Certificate and Operations Specifications

- (a) Each air carrier shall display its air operator certificate, at its home base, in an accessible and conspicuous place where it is readily available for inspection by the Director. In complying with this section it is not necessary for the air carrier to display the AOC in a public place, but must be in a location which is not normally locked during business hours and identified in the company operations manual.
- (b) Each air carrier shall make Operations specifications available for inspections by the Director at its principal operations office.

121.75 Contents of the Operations Specifications

- (a) Each Operations Specification is an attachment to the Air Operator Certificate and addresses at least the following standard operational and maintenance areas;
 - (1) AOC number.
 - (2) The operator registered name and applicable operator trading name.
 - (3) Issuance date of the Operations Specifications.
 - (4) The aircraft make, model and series, or master series.
 - (5) The type of transportation.
 - (6) Area(s) of authorized operation.
 - (7) List of applicable special limitations and authorizations.
- (b) Operations Specifications shall be supported by appropriate detailed documents, which contain authorization, conditions, and limitations. These supporting documents shall be a part of company operation manuals.

121.77 Amendment of Certificate

- (a) An operating certificate issued under this part may be amended upon application by the holder, if the DGCA determines that safety in air transportation and the public interest allows the amendment

- (b) An applicant for an amendment to an operating certificate must file its application with the DGCA at least 30 days before the proposed effective date of that amendment, unless a shorter filing period is allowed.
- (c) At any time within 30 days after refusal of the DGCA to approve an application for amendment, the holder may petition the Director to reconsider the refusal.

121.79 Amendment of Operations Specifications

The DGCA may amend any operations specifications issued under this part:

- (a) Upon application by the holder, if the DGCA determines that safety in air transportation and the public interest allows the amendment; or
- (b) If the DGCA determines that safety in air transportation and the public interest requires the amendment.

121.81 Inspection Authority

Each certificate holder shall allow the Director, at any time or place, to make any inspections or tests to determine its compliance with the CASRs, its operating certificate and operations specifications, or its eligibility to continue to hold its certificate.

121.83 Change of Address

Each certificate holder shall notify the DGCA in writing, at least 30 days in advance, of any change in the address of its principal business office, its principal operations base, or its principal maintenance base.

SUBPART E - APPROVAL OF ROUTES

121.91 Applicability

This subpart prescribes rules for obtaining approval of routes by all air carriers except where noted.

121.93 Route Requirements: General

(a) Each air carrier seeking a route approval must show:

- (1) That it is able to conduct satisfactorily scheduled operations between each airport over that route or route segment; and
- (2) That the facilities and services required by Section 121.97 through 121.107 are available and adequate for the proposed operation.

The Director approves a route outside of controlled airspace if he determines that traffic density is such that an adequate level of safety can be assured.

(b) Paragraph (a) of this section does not require actual flight over a route or route segment if the air carrier shows that the flight is not essential to safety, considering the availability and adequacy of airports, lighting, maintenance, communication, navigation, fuelling, ground, and airplane radio facilities, and the ability of the personnel to be used in the proposed operation.

121.95 Route Width

(a) Approved routes and route segments over Indonesian airways or foreign airways (and advisory routes in the case of flag air carriers) have a width equal to the designated width of those airways or routes. Whenever the Director finds it necessary to determine the width of other approved routes, he considers the following:

- (1) Terrain clearance
- (2) Minimum enroute altitudes
- (3) Ground and airborne navigation aids
- (4) Air traffic density
- (5) ATC procedures

(b) Any route widths of other approved routes determined by the Director are specified in the air carrier's operations specifications.

121.97 Airports: Required Data

- (a) Each domestic and flag air carrier must show that each route it submits for approval has enough airports that are properly equipped and adequate for the proposed operation, considering such items as size, surface, obstructions, facilities, public protection, level of rescue and fire-fighting service (RFFS), lighting, navigational and communications aids, and ATC.
- (b) Each domestic and flag air carrier must show that it has an approved system for obtaining, maintaining, and distributing to appropriate personnel current aeronautical data for each airport it uses to ensure a safe operation at that airport. The aeronautical data must include the following:
 - (1) Airports
 - (i) Facilities
 - (ii) Public protection. For ETOPS beyond 180 minutes or operations in the North Polar area and South Polar area, this includes facilities at each airport or in the immediate area sufficient to protect the passengers from the elements and to see to their welfare.
 - (iii) Navigational and communications aids
 - (iv) Construction affecting takeoff, landing, or ground operations
 - (v) Air traffic facilities
 - (2) Runways, clearways and stopways
 - (i) Dimensions
 - (ii) Surface
 - (iii) Marking and lighting systems
 - (iv) Elevation and gradient
 - (3) Displaced thresholds
 - (i) Location
 - (ii) Dimensions
 - (iii) Takeoff or landing or both
 - (4) Obstacles
 - (i) Those affecting takeoff and landing performance computations in accordance with Subpart I of this part.
 - (ii) Controlling obstacles.
 - (5) Instrument flight procedures
 - (i) Departure procedure
 - (ii) Approach procedure
 - (iii) Missed approach procedure
 - (6) Special information
 - (i) Runway visual range measurement equipment
 - (ii) Prevailing winds under low visibility conditions.
- (c) If the DGCA finds that revisions are necessary for the continued adequacy of the certificate holder's system for collection, dissemination, and usage of aeronautical data that has been granted approval, the certificate holder shall, after notification by the DGCA, make those revisions in the system. Within 30 days after the certificate

holder receives such notice, the certificate holder may file a petition to reconsider the notice with the Director. This filing of a petition to reconsider stays the notice pending a decision by the Director. However, if the DGCA finds that there is an emergency that requires immediate action in the interest of safety in air transportation, the Director may, upon statement of the reasons, require a change effective without stay.

121.99 Communication Facilities: Flag, Domestic and Supplemental Air Carriers

- (a) Each air carrier must show that a two-way air/ground radio communication system is available that will ensure reliable and rapid communications, under normal operating conditions over the entire route (either direct or via approved point to point circuits) between each airplane, and the appropriate air traffic control unit.
- (b) For all air carrier operations within Indonesia, the communications systems between each airplane and the dispatch office must be independent of any system operated by the Government of Indonesia.
- (c) Each certificate holder conducting flag operations must provide voice communications for ETOPS where voice communication facilities are available. In determining whether facilities are available, the certificate holder must consider potential routes and altitudes needed for diversion to ETOPS Alternate Airports. Where facilities are not available or are of such poor quality that voice communication is not possible, another communication system must be substituted.
- (d) Except as provided in paragraph (e) of this section, for ETOPS beyond 180 minutes, each certificate holder conducting flag operations must have a second communication system in addition to that required by paragraph (c) of this section. That system must be able to provide immediate satellite-based voice communications of landline-telephone fidelity. The system must be able to communicate between the flight crew and air traffic services, and the flight crew and the certificate holder. In determining whether such communications are available, the certificate holder must consider potential routes and altitudes needed for diversion to ETOPS Alternate Airports. Where immediate, satellite-based voice communications are not available, or are of such poor quality that voice communication is not possible, another communication system must be substituted.
- (e) Operators of two-engine turbine-powered airplanes with 207 minute ETOPS approval in the North Pacific Area of Operation must comply with the requirements of paragraph (d) of this section.

121.101 Weather Reporting Facilities

- (a) No air carrier may use any weather report to control flight unless it was prepared and released by the Badan Meteorologi, Klimatologi dan Geofisika (BMKG) or a source approved by the Director. For operations outside Indonesia where BMKG

reports are not available, the air carrier must show that its weather reports are prepared by a source found satisfactory by the Director.

- (b) Each air carrier that uses forecasts to control flight movements shall use forecasts prepared from weather reports specified in Paragraph (a) of this section.

121.103 Enroute Navigational Facilities

- (a) Except as provided in paragraph (b) of this section, each air carrier must show, for each proposed route, that non-visual ground aids are:

- (1) Available over the route for navigating aircraft within the degree of accuracy required for ATC; and
 - (2) Located to allow navigation to any airport, including alternate(s), within the degree of accuracy necessary for the operation involved.

Except for those aids required for routes to alternate airports, non-visual ground aids required for approval of routes outside of controlled airspace are listed in the air carrier's operation specifications.

- (b) Non-visual ground aids are not required for-

- (1) Day VFR operations that the air carrier shows can be conducted safely by pilotage because of the characteristics of the terrain; and
 - (2) Operations on route segments, where the use of celestial or other specialized means of navigation is approved by the Director.

121.105 Servicing and Maintenance Facilities

Each air carrier must show that competent personnel and adequate facilities and equipment (including spare parts, supplies, and materials) are available at such points along the air carrier's route as are necessary for the proper servicing, maintenance, and preventive maintenance of airplanes and auxiliary equipment.

121.106 ETOPS Alternate Airport: Rescue and fire fighting service

- (a) Except as provided in paragraph (b) of this section, the following rescue and fire fighting service (RFFS) must be available at each airport listed as an ETOPS Alternate Airport in a dispatch or flight release.

- (1) For ETOPS up to 180 minutes, each designated ETOPS Alternate Airport must have RFFS equivalent to that specified by ICAO as Category 4, or higher.
 - (2) For ETOPS beyond 180 minutes, each designated ETOPS Alternate Airport must have RFFS equivalent to that specified by ICAO Category 4, or higher. In addition, the aircraft must remain within the ETOPS authorized diversion time from an Adequate Airport that has RFFS equivalent to that specified by ICAO Category 7, or higher.

- (b) If the equipment and personnel required in paragraph (a) of this section are not immediately available at an airport, the certificate holder may still list the airport on the dispatch or flight release if the airport's RFFS can be augmented to meet paragraph (a) of this section from local fire fighting assets. A 30-minute response time for augmentation is adequate if the local assets can be notified while the diverting airplane is en route. The augmenting equipment and personnel must be available on arrival of the diverting airplane and must remain as long as the diverting airplane needs RFFS.

121.107 Dispatch Centres, Flag and Domestic Air Carriers

Each domestic and flag air carrier must show that it has enough dispatch centers, adequate for the operations to be conducted, that are located at points necessary to ensure proper operational control of each flight.

121.122 Communications Facilities – Supplemental Operations

- (a) Each certificate holder conducting supplemental operations other than all-cargo operations in an airplane with more than two engines must show that a two-way radio communication system or other means of communication approved by the DAAO is available. It must ensure reliable and rapid communications under normal operating conditions over the entire route (either direct or via approved point-to-point circuits) between each airplane and the certificate holder, and between each airplane and the appropriate air traffic services.
- (b) Each certificate holder conducting supplemental operations other than all-cargo operations in an airplane with more than two engines must provide voice communications for ETOPS where voice communication facilities are available. In determining whether facilities are available, the certificate holder must consider potential routes and altitudes needed for diversion to ETOPS Alternate Airports. Where facilities are not available or are of such poor quality that voice communication is not possible, another communication system must be substituted.
- (c) ETOPS beyond 180 minutes each certificate holder conducting supplemental operations other than all-cargo operations in an airplane with more than two engines must have a second communication system in addition to that required by paragraph (b) of this section. That system must be able to provide immediate satellite-based voice communications of landline telephone-fidelity. The system must provide communication capabilities between the flight crew and air traffic services and the flight crew and the certificate holder. In determining whether such communications are available, the certificate holder must consider potential routes and altitudes needed for diversion to ETOPS Alternate Airports. Where immediate, satellite-based voice communications are not available, or are of such poor quality that voice communication is not possible, another communication system must be substituted.

121.125 Flight Following System: Flag, Domestic and Supplemental Air Carriers

- (a) Each certificate holder conducting supplemental operations must show that it has:
 - (1) An approved flight following system established in accordance with Subpart U of this part and adequate for the proper monitoring of each flight, considering the operations to be conducted; and
 - (2) Flight following centers located at those points necessary:
 - (i) To ensure the proper monitoring of the progress of each flight with respect to its departure at the point of origin and arrival at its destination, including intermediate stops and diversions therefrom, and maintenance or mechanical delays encountered at those points or stops; and
 - (ii) To ensure that the pilot in command is provided with all information necessary for the safety of the flight.
- (b) The certificate holder conducting supplemental operations may arrange to have flight following facilities provided by persons other than its employees, but in such a case the air carrier or commercial operator continues to be primarily responsible for operational control of each flight.
- (c) A flight following system need not provide for in-flight monitoring by a flight following center.
- (d) A certificate holder's operations specifications must specify the flight following system it is authorized to use and the location of the centers.

121.127 Flight Following System Requirements: Flag, Domestic and Supplemental Air Carriers

- (a) Each certificate holder conducting supplemental operations using a flight following system must show that:
 - (1) The system has adequate facilities and personnel to provide the information necessary for the initiation and safe conduct of each flight to:
 - (i) The flight crew of each aircraft; and
 - (ii) The persons designated by the air carrier to perform the function of operational control of the aircraft; and
 - (2) The system has a means of communication by private or available public facilities (such as telephone, telegraph, or radio) to monitor the progress of each flight with respect to its departure at the point of origin and arrival at its destination, including intermediate stops and diversions therefrom, and maintenance or mechanical delays encountered at those points or stops.
- (b) The certificate holder conducting supplemental operations must show that the personnel specified in Paragraph (a) of this section, and those it designates to perform the function of operational control of the aircraft, are able to perform their required duties.

SUBPART F - [Reserved]

SUBPART G - MANUAL REQUIREMENTS

121.131 Applicability

This subpart prescribes requirements for preparing and maintaining manuals by all air carriers except where noted.

121.133 Preparation

- (a) Each certificate holder shall prepare and keep current a company operation manual for the use and guidance of flight, ground operations, and management personnel in conducting its operations.
- (b) For the purpose of this subpart, the certificate holder may prepare that part of the manual containing maintenance information and instructions, in whole or in part, in printed form or other form approved by the Director.

121.135 Contents

- (a) Each manual required by Section 121.133 must:
 - (1) Include instructions and information necessary to allow the personnel concerned to perform their duties and responsibilities with a high degree of safety;
 - (2) Be in a form that is easy to revise;
 - (3) Have the date of last revision on each page concerned; and
 - (4) Not be contrary to any applicable Civil Aviation Safety Regulation and, in the case of flag or supplemental operation, any applicable foreign regulation, or the certificate holder's operations specifications or air operator certificate.
- (b) The operation manual, which may be issued in separate parts corresponding to specific aspects of operations shall be organized with the following structure:
 - (1) General;
 - (2) Aircraft operating information;
 - (3) Areas, routes and aerodromes; and
 - (4) Training.
- (c) The general part or section of the operations manual shall contain at least the following:
 - (1) Administration and control of the operations manual:
 - (i) introduction;
 - (ii) system of amendment and revision:

- (2) Organization and responsibilities:
 - (i) organizational structure;
 - (ii) the name of responsible manager as prescribed in Section 121.59;
 - (iii) duties and responsibilities of operations management personnel, PIC, and crew member other than PIC;
- (3) Operational control and supervision:
 - (i) supervision of the operation by the air operator.
 - (ii) system of promulgation of additional operational instructions and information;
 - (iii) operational control as prescribed in Subpart U of this part;
- (4) Crew composition:
 - (i) crew composition. An explanation of the method for determining crew compositions.
 - (ii) *designation of the PIC*. The rules applicable to the designation of a PIC;
- (5) Qualifications of flight crew, cabin crew, flight operations officer and other operations personnel :
- (6) Flight and duty time limitation and rest requirement. The scheme developed by the operator in according with applicable requirement.
- (7) Crew health precaution. The relevant regulations and guidance for crew members concerning health.
- (8) Operating procedures:
 - (i) *flight preparation instructions*. As applicable to the operation:
 - (A) criteria for determining the usability of aerodromes;
 - (B) the method for determining minimum flight altitudes;
 - (C) the method for determining aerodrome operating minima;
 - (D) *en-route operating minima for visual flight rules (VFR) flights*. Policy regarding VFR flights, including a description of en route operating minima for VFR flights or VFR portions of a flight, instructions for route selection with respect to the availability of surfaces which permit a safe forced landing;
 - (E) presentation and application of aerodrome and en-route operating minima;
 - (F) *interpretation of meteorological information.*;
 - (G) *determination of the quantities of fuel and oil carried*;
 - (H) *maintaining weight and centre of gravity within approved limit*.
- (9) Ground handling arrangements and procedures,. :
 - (i) *fuelling procedures*. including refueling and defueling when passenger are embarking, on board or disembarking
 - (ii) *aircraft, passengers and cargo handling procedures related to safety*.
 - (iii) *procedures for the refusal of embarkation.*;
 - (iv) *de-icing and anti-icing on the ground (as applicable)*.
- (10) *flight procedures, including:*
 - (i) standard operating procedures (SOP) for each phase of flight;
 - (ii) instructions on the use of normal checklists and the timing for their use;

- (iii) departure contingency procedures;
 - (iv) instructions on the maintenance of altitude awareness and the use of automated or flight crew altitude call-outs;
 - (v) instructions on the use of autopilots and auto-throttles in instrument meteorological conditions (IMC), in RVSM airspace and when conducting performance-based navigation procedures, as applicable;
 - (vi) instructions on the clarification and acceptance of ATC clearances, particularly where terrain clearance is involved;
 - (vii) departure and approach briefings;
 - (viii) procedures for familiarization with areas, routes and aerodromes;
 - (ix) stabilized approach procedure;
 - (x) limitation on high rates of descent near the surface;
 - (xi) conditions required to commence or to continue an instrument approach;
 - (xii) instructions for the conduct of precision and non-precision instrument approach procedures;
 - (xiii) allocation of flight crew duties and procedures for the management of crew workload during night and IMC instrument approach and landing operations; and
 - (xiv) the circumstances during which a radio listening watch is to be maintained.
- (11) *Navigation equipment.* A list of the navigational equipment to be carried including any requirements relating to operations where performance-based navigation is prescribed;
- (12) *Navigation procedures.* A description of all navigation procedures relevant to the type(s) and area(s) of operation. Consideration shall be given to:
- (i) standard navigational procedures including policy for carrying out independent cross-checks of keyboard entries where these affect the flight path to be followed by the aircraft;
 - (ii) in-flight re-planning;
 - (iii) procedures in the event of system degradation;
 - (iv) where relevant to the operations, the long range navigation procedures, engine failure procedure for extended operations (ETOPS) and the identification and utilization of diversion aerodromes;
 - (v) instructions and training requirements for the avoidance of controlled flight into terrain and policy for the use of Terrain Awareness and Warning System (TAWS);
 - (vi) policy, instructions, procedures and training requirements for the avoidance of collisions and the use of the airborne collision avoidance system (ACAS);
 - (vii) information and instructions relating to the interception of civil aircraft including:
 - (A) procedures for pilots-in-command of intercepted aircraft; and
 - (B) visual signals for use by intercepting and intercepted aircraft;
 - (viii) for aeroplanes intended to be operated above 49 000 ft (15 000 m), procedure for cosmic radiation.
- (13) *policy and procedures for in-flight fuel management.*

- (14) Procedures for operating in, and/or avoiding, potentially hazardous atmospheric conditions and operating restrictions.
- (15) *incapacitation of crew members*. Procedures to be followed in the event of incapacitation of crew members in flight. Examples of the types of incapacitation and the means for recognizing them shall be included;
- (16) *cabin safety requirements*. Procedures covering cabin preparation for flight, in-flight requirements and preparation for landing ;
- (17) *passenger briefing procedures*. The contents, means and timing of passenger briefing;
- (18) all-weather operations;
- (19) use of the minimum equipment list (MEL) and configuration deviation list (CDL);
- (20) *non-revenue flights*. Procedures and limitations, including persons who may be carried on such flights;
- (21) *oxygen requirements*. An explanation of the conditions under which oxygen shall be provided and used;
- (22) dangerous goods and weapons:
 - (i) *transport of dangerous goods*. Information, instructions and general guidance on the transport of dangerous goods including:
 - (A) air operator's policy on the transport of dangerous goods;
 - (B) guidance on the requirements for acceptance, labelling, handling, stowage and segregation of dangerous goods;
 - (C) procedures and actions to be taken for responding to emergency situations involving dangerous goods;
 - (D) duties and training of all personnel involved; and
 - (E) instructions on the carriage of company material;
 - (ii) *transport of weapons*. The conditions under which weapons, munitions of war and sporting weapons may be carried;
- (23) security;
 - (i) *security policies and procedures*;
 - (ii) *security instructions and guidance*;
 - (iii) *preventative security measures and training*;
 - (iv) *aeroplane search procedures and guidance on least-risk bomb locations where practicable*.
- (24) *handling of accidents and occurrences*. Procedures for the handling, notifying and reporting of accidents and occurrences.
- (25) *rules of the air*. Rules of the air including:
 - (i) territorial application of the rules of the air;
 - (ii) interception procedures;
 - (iii) ATC clearances, adherence to flight plan and position reports;
 - (iv) the ground/air visual codes for use by survivors, description and use of signal aids; and
 - (v) distress and urgency signals;

- (26) *safety management system (SMS)*. Details of the safety management system;
- (d) Aircraft operating information. The part or section containing aircraft operating information shall contain at least the following:
- (1) *general information and units of measurement*. General Information (e.g., aircraft dimensions), including a description of the units of measurement used for the operation of the aircraft type concerned and conversion tables;
 - (2) *certification and operational limitations*. A description of the certified limitations and the applicable operational limitations;
 - (3) *normal, abnormal, and emergency procedures*:
 - (i) The normal procedures and duties assigned to the crew, the appropriate checklists, the system for use of the checklists, *specific flight deck procedures*, and a statement covering the necessary coordination procedures between flight and cabin crew, as applicable;
 - (ii) *abnormal and emergency procedures and duties*. The manual shall contain a listing of abnormal and emergency procedures assigned to crew members with appropriate check-lists that include a system for use of the check-lists and a statement covering the necessary co-ordination procedures between flight and cabin crew.
 - (4) *performance data*. Performance data shall be provided in a form in which it can be used without difficulty. Performance material which provides the necessary data to allow the flight crew to comply with the approved aircraft flight manual performance requirements shall be included to allow the determination of take-off, climb, cruise, descent, approach, and landing.
 - (5) *supplementary and additional performance data* which provide the necessary data to allow the flight crew to comply with the approved aircraft flight manual.
 - (6) *flight planning data*:
 - (i) *flight planning*. Specific data and instructions necessary for pre-flight and in-flight planning including factors such as speed schedules and power settings. Where applicable, procedures for engine(s) out operations, ETOPS and flights to isolated aerodromes shall be included for the flight plan and the operational flight plan; and
 - (ii) *fuel calculations*. The method for calculating the fuel needed for the various stages of flight;
 - (7) *weight and balance calculations*. Instructions and data for the calculation of weight and balance including:
 - (i) calculation system (e.g. index system);
 - (ii) information and instructions for completion of weight and balance documentation, including manual and computer generated types;
 - (iii) limiting weight and centre of gravity of the various versions; and
 - (iv) dry operating weight and corresponding centre of gravity or index;
 - (8) *loading*:
 - (i) *loading procedures*. Instructions for loading and securing the load in the aircraft;

- (ii) *loading dangerous goods*. The operations manual shall contain a method to notify the PIC when dangerous goods are loaded in the aircraft (if applicable);
 - (9) *survival and emergency equipment including oxygen*:
 - (i) list of survival equipment to be carried;
 - (ii) *oxygen usage*. The procedure for determining the amount of oxygen required and the quantity that it available;
 - (iii) *emergency equipment usage*. A description of the proper use of temergency equipment.
 - (10) emergency evacuation procedures;
 - (11) *aircraft systems*. A description of the aircraft systems, related controls and indications and operating instructions.
- (e) Areas, routes and aerodromes. The route guide part or section of the operations manual shall contain at least the following:
- (1) the route guide will ensure that the flight crew will have for each flight, information relating to communication facilities, navigation aids, aerodromes, instrument approaches, instrument arrivals and instrument departures as applicable for the operation, and such other information as the operator may deem necessary in the proper conduct of flight operations;
 - (2) each route guide shall contain at least the following information:
 - (i) the minimum flight altitudes for each aircraft to be flown;
 - (ii) aerodrome operating minima for each of the aerodromes that are likely to be used as aerodromes of intended landing or as alternate aerodromes;
 - (iii) the increase of aerodrome operating minima in case of degradation of approach or aerodrome facilities;
 - (3) Information related to the level of RFFS (rescue and fire-fighting services) protection that is deemed acceptable by the operator.
- (f) Training. The training part or section of the operations manual shall contain at least the following:
- (1) flight crew training programme;
 - (2) cabin crew duties training programme;
 - (3) flight operations officer / flight dispatcher training programme.

121.137 Distribution and Availability

- (a) Each certificate holder shall furnish copies of the manual required by Section 121.133 (and the changes and additions to that manual) or appropriate parts of the manual to:
- (1) Its appropriate ground operations and maintenance personnel;
 - (2) Crewmembers; and

- (3) Representatives of the Director assigned to the certificate holder.
- (b) Each person to whom a manual or appropriate parts of it are furnished under Paragraph (a) of this section shall keep it up-to-date with the changes and additions furnished to that person and shall have the manual or appropriate parts of it accessible when performing assigned duties.
- (c) For the purpose of complying with Paragraph (a) of this section, a certificate holder may furnish the persons listed therein the maintenance part of the manual in microfilm form if it also furnishes and maintains a reading device that provides a legible facsimile image of the microfilmed maintenance information and instructions.

121.139 Requirement for Manual aboard Aircraft: Supplemental Air Carriers

- (a) Except as provided in Paragraph (b) of this section, each supplemental air carrier shall carry appropriate parts of the manual on each aircraft when away from the principal base. The appropriate parts must be available for use by ground or flight personnel. If a supplemental air carrier carries aboard an aircraft all or any portion of the maintenance part of its manual in microfilm it must also carry a reading device that provides a legible facsimile image of the microfilmed maintenance information and instructions.
- (b) If a supplemental air carrier is able to perform all scheduled maintenance at specified stations where it keeps maintenance parts of the manual, it does not have to carry those parts of the manual aboard the aircraft enroute to those stations.

121.141 Airplane Flight Manual

- (a) Each certificate holder shall keep a current approved airplane flight manual for each type of airplane that it operates.
- (b) In each airplane required to have an airplane flight manual in Paragraph (a) of this section, the certificate holder shall carry either the manual required by Section 121.133, if it contains the information required for the applicable flight manual and this information is clearly identified as flight manual requirements, or an approved Airplane Manual. If the certificate holder elects to carry the manual required by Section 121.133, the certificate holder may revise the operating procedures sections and modify the presentation of performance data from the applicable flight manual if the revised operating procedures and modified performance data presentation are:
 - (1) Approved by the Director; and
 - (2) Clearly identified as airplane flight manual requirements.

121.143 Standard Operating Procedures

- (a) Every air carrier shall establish standard operating procedures that ensure the aircraft is operated in accordance with the approved aircraft flight manual and the manufactures recommended procedures. The standard operating procedures must ensure proper co-ordination of all crewmembers including flight attendants.
- (b) An air carrier that has established a standard operating procedures manual shall ensure it is maintained in a current condition and carried on board each aircraft of that type.

SUBPART H - AIRCRAFT REQUIREMENTS

121.151 Applicability

This subpart prescribes aircraft requirement for all Air Operator Certificate holders.

121.153 Aircraft requirements: General

- (a) In addition to CASR part 91.25, except as provided in paragraph (b) of this section no air operator certificate holder may operate an aircraft unless there has been issued with respect to and carried on board that aircraft:
 - (1) A certified true copy of Air Operator Certificate and a copy Operations specifications relevant to the aeroplane type
 - (2) A current weight and balance document.
- (b) An Air Operator Certificate holder may use an approved weight and balance control system based on average, assumed, or estimated weight to comply with applicable airworthiness requirements and operating limitations.

121.155 Operation of Foreign Registered Aircraft

An Air Operator Certificate holder may operate in common carriage a civil aircraft which is leased or chartered and is registered in a country which is party to the Convention on International Civil Aviation if-

- (a) The aircraft carries an appropriate airworthiness certificate issued by the country of registration and meets registration and identification requirements of that country;
- (b) The aircraft is of a type design which is approved under an Indonesian type certificate and complies with all of the requirements of the CASRs that would be applicable to that aircraft were it registered in Indonesia, including the requirements which must be met for issuance of an Indonesian standard airworthiness certificate (including type design conformity, condition for safe operation, and the fuel venting, and engine emission requirements of the CASRs), except that an Indonesian registration certificate and an Indonesian standard airworthiness certificate will not be issued for the aircraft;
- (c) The aircraft is operated by certificated airmen employed by the air operator certificate holder; and
- (d) The air operator certificate holder files a copy of the aircraft lease or charter agreement with the DGCA.

121.157 Aircraft Certification and Equipment Requirements

Newly type certificated airplanes. No person may operate under this part an airplane that was type certificated by the country of manufacture after July 1993 unless the airplane meets the requirements of Part 25 of the CASRs.

121.159 Single Engine Airplanes Prohibited

No certificate holder may operate a single-engine airplane under this part.

121.161 Airplane Limitations: Type of Route

- (a) Unless approved by the Director in accordance with Appendix P of this part and authorized in the air carrier's operations specifications, no air carrier may operate a turbine-engine-powered airplane over a route that contains a point—

(1) Farther than a flying time from an Adequate Airport (at a one-engine-inoperative cruise speed under standard conditions in still air) of 60 minutes for a two-engine airplane or 180 minutes for a passenger-carrying airplane with more than two engines;

(2) Within the North Polar Area; or

(3) Within the South Polar Area.

- (b) No certificate holder may operate a land airplane in an extended overwater operation unless it is certificated or approved as adequate for ditching under the ditching provisions of Part 25 of the CASRs. In the case of aircraft certified prior to the enactment of Part 25, the Director may issue operations specifications that allow deviation from the requirements of this paragraph if standards of safety allow such a deviation.

121.162 ETOPS Type Design Approval Basis.

Except for a passenger-carrying airplane with more than two engines manufactured prior to February 17, 2015 and except for a two-engine airplane that, when used in ETOPS, is only used for ETOPS of 75 minutes or less, no certificate holder may conduct ETOPS unless the airplane has been type design approved for ETOPS and each airplane used in ETOPS complies with its CMP document as follows:

- (a) For a two-engine airplane, that is of the same model airplane-engine combination that received type certification approval from the State of Design for ETOPS up to 180 minutes prior to February 15, 2007, the CMP document for that model airplane-engine combination in effect on February 14, 2007.

- (b) For a two-engine airplane, that is not of the same model airplane-engine combination that received type certification approval from the State of Design for ETOPS up to 180 minutes before February 15, 2007, the CMP document for that new model airplane-engine combination issued in accordance such approval.
- (c) For a two-engine airplane approved for ETOPS beyond 180 minutes, the CMP document for that model airplane-engine combination issued in accordance with such approval.
- (d) For an airplane with more than 2 engines manufactured on or after February 17, 2015, the CMP document for that model airplane-engine combination issued in accordance with type certification approval from the State of Design.

121.163 Aircraft Proving Test

- (a) Initial airplane proving tests. No air carrier may operate an aircraft before the aircraft is proven for use in air carrier or cargo operations as appropriate unless an aircraft of that type has had, in addition to the aircraft certification tests, proving tests acceptable to the Director, including a representative number of flights into enroute airports.
- (b) Proving tests for kinds of operations. Unless otherwise authorized by the Director, for each type of airplane, a certificate holder must conduct proving tests acceptable to the Director for each kind of operation it intends to conduct, including a representative number of flights into enroute airports.
- (c) Proving tests for materially altered airplanes. Unless otherwise authorized by the Director, for each type of airplane that is materially altered in design, a certificate holder must conduct proving tests acceptable to the Director for each kind of operation it intends to conduct with that airplane, including a representative number of flights into enroute airports.
- (d) Definition of materially altered. For the purposes of Paragraph (c) of this section, a type of airplane is considered to be materially altered in design if the alteration includes:
 - (1) The installation of powerplants other than those of a type similar to those with which it is certificated; or
 - (2) Alterations to the aircraft or its components that materially affect flight characteristics.
- (e) No certificate holder may carry passengers in an aircraft during proving tests, except for those needed to make the test and those designated by the Director. However, the certificate holder may carry mail, express parcels, or other cargo when approved by the Director.

121.165 Empty Weight and Center of Gravity: Currency Requirement.

- (a) No person may operate an airplane unless the current empty weight and center of gravity are calculated from values established by actual weighing of the aircraft within the preceding 36 calendar months.
- (b) Paragraph (a) of this section does not apply to—
 - (1) Aircraft issued an original airworthiness certificate within the preceding 36 calendar months; and
 - (2) Aircraft operated under a weight and balance system approved in the operations specifications of the certificate holder.

SUBPART I - AIRPLANE PERFORMANCE OPERATING LIMITATIONS

121.171 Applicability

- (a) This subpart prescribes aeroplane performance operating limitations for all Air Operator Certificate holders.
- (b) For purposes of this part, "effective length of the runway" for landing means the distance from the point at which the obstruction clearance plane associated with the approach end of the runway intersects the centerline of the runway to the far end of that runway.
- (c) For the purposes of this subpart, "obstruction clearance plane" means a plane sloping upward from the runway at a slope of 1:20 to the horizontal, and tangent to or clearing all obstructions within a specified area surrounding the runway as shown in a profile view of that area. In the plan view, the centerline of the specified area coincides with the centerline of the runway, beginning at the point where the obstruction clearance plane intersects the centerline of the runway and proceeding to a point at least 1,500 feet from the beginning point. Thereafter the centerline coincides with the takeoff path over the ground for the runway (in the case of takeoffs) or with the instrument approach counterpart (for landings), or, where the applicable one of these paths has not been established, it proceeds consistent with turns of at least 4,000-foot radius until a point is reached beyond which the obstruction clearance plane clears all obstructions. This area extends laterally 200 feet on each side of the centerline at the point where the obstruction clearance plane intersects the runway and continues at this width to the end of the runway; then it increases uniformly to 500 feet on each side of the centerline at a point 1,500 feet from the intersection of the obstruction clearance plane with the runway; thereafter it extends laterally 500 feet on each side of the centerline.

121.173 General

- (a) The provisions of 121.173 to 121.183 are to be complied with, unless deviations therefrom are specifically authorized by the State of Registry on the ground that the special circumstances of a particular case make a literal observance of these provisions unnecessary for safety.
- (b) Compliance with 121.173 to 121.183 is to be established using performance data in the flight manual and in accordance with other applicable operating requirements. In no case may the limitations in the flight manual be exceeded. However, additional limitations may be applied when operational conditions not included in the flight manual are encountered.
- (c) The procedures scheduled in the flight manual are to be followed except where operational circumstances require the use of modified procedures in order to maintain the intended level of safety.

- (d) No person may take off a reciprocating-engine powered airplane at a weight is more than the allowable weight for the runway being used (determined under the runway take off limitations of the transport category operating rules of Part 121, Subpart I) after taking into account the temperature operating correction factors in the applicable Airplane Flight Manual.
- (e) The Director may authorize in the certificate holder's operations specifications deviations from the requirements in this subpart if special circumstances make a literal observance of a requirement unnecessary for safety.
- (f) The ten-mile width specified in Sections 121.179 through 121.183 may be reduced to five miles, for not more than 20 miles, when operating VFR or where navigation facilities furnish reliable and accurate identification of high ground and obstructions located outside of five miles, but within ten miles, on each side of the intended track.

121.175 Aeroplanes Take-off Performance Limitations

- (a) No aeroplane is taken off at a weight which exceeds the take-off weight specified in the flight manual for the altitude of the aerodrome and for the ambient temperature existing at the time of the take-off.
- (b) No aeroplane is taken off at a weight such that, allowing for normal consumption of fuel and oil in flight to the aerodrome of destination and to the destination alternate aerodromes, the weight on arrival will exceed the landing weight specified in the flight manual for the altitude of each of the aerodromes involved and for the ambient temperatures anticipated at the time of landing.
- (c) No aeroplane is taken off at a weight which exceeds the weight at which, in accordance with the minimum distances for take-off scheduled in the flight manual, compliance with (c)(1) to (c)(3) inclusive is shown. These distances correspond with the altitude of the aerodrome, the runway, stopway and clearway to be used, the runway slope, the stopway slope, the clearway plane slope, and the ambient temperature and wind existing at the time of take-off.
 - (1) The take-off run required does not exceed the length of the runway.
 - (2) The accelerate-stop distance required does not exceed the length of the runway plus the length of the stopway, where present.
 - (3) The take-off distance required does not exceed the length of the runway, plus the length of the clearway, where present, except that the sum of the lengths of the runway and the clearway is in no case considered as being greater than 1.5 times the length of the runway.
- (d) Credit is not taken for the length of the stopway or the length of the clearway unless they comply with the relevant specifications in ICAO Annex 14.

121.177 Take-off Obstacle Clearance Limitations

- (a) No aeroplane is taken off at a weight in excess of that shown in the flight manual to correspond with a net take-off flight path which clears all obstacles either by at least a height of 10.7 m (35 ft) vertically or at least 90 m plus $0.125D$ laterally, where D is the horizontal distance the aeroplane has travelled from the end of take-off distance available, except as provided in (a)(1)(3) inclusive. In determining the allowable deviation of the net take-off flight path in order to avoid obstacles by at least the distances specified, it is assumed that the aeroplane is not banked before the clearance of the net take-off flight path above obstacles is at least 15.2 m (50 ft) and that the bank thereafter does not exceed 15 degrees. The net take-off flight path considered is for the altitude of the aerodrome and for the ambient temperature and wind component existing at the time of take-off.
- (1) Where the intended track does not include any change of heading greater than 15 degrees,
- (i) for operations conducted in VMC by day, or
 - (ii) for operations conducted with navigation aids such that the pilot can maintain the aeroplane on the intended track with the same precision as for operations specified in (i).
- Obstacles at a distance greater than 300 m on either side of the intended track need not be cleared.
- (2) Where the intended track does not include any change of heading greater than 15 degrees for operations conducted in IMC, or in VMC by night, except as provided in (a) (1) (ii); and where the intended track includes changes of heading greater than 15 degrees for operations conducted in VMC by day, obstacles at a distance greater than 600 m on either side of the intended track need not be cleared.
- (3) Where the intended track includes changes of heading greater than 15 degrees for operations conducted in IMC, or in VMC by night, obstacles at a distance greater than 900 m on either side of the intended track need not be cleared.
- (b) In applying this section, corrections must be made for the effective runway gradient. To allow for wind effect, takeoff data based on still air may be corrected by taking into account not more than 50 percent of any reported headwind component and not less than 150 percent of any reported tailwind component.

121.179 Enroute Limitations**(a) General**

At no point along the intended track, is an aeroplane having three or more engines to be more than 90 minutes at normal cruising speed away from an aerodrome at which the distance specifications for alternate aerodromes (121.183) are complied with and where it is expected that a safe landing can be made, unless it complies with (c)(2).

(b) One engine inoperative

- (1) No aeroplane is taken off at a weight in excess of that which, in accordance with the one-engine-inoperative en-route net flight path data shown in the flight manual, permits compliance either with (2) or (3) at all points along the route. The net flight path has a positive slope at 450 m (1 500 ft) above the aerodrome where the landing is assumed to be made after engine failure. The net flight path used is for the ambient temperatures anticipated along the route. In meteorological conditions where icing protection systems are to be operable, the effect of their use on the net flight path data is taken into account.
- (2) The slope of the net flight path is positive at an altitude of at least 300 m (1000 ft) above all terrain and obstructions along the route within 9.3 km (5 NM) on either side of the intended track.
- (3) The net flight path is such as to permit the aeroplane to continue flight from the cruising altitude to an aerodrome where a landing can be made in accordance with 121.183 the net flight path clearing vertically, by at least 600m (2000 ft), all terrain and obstructions along the route within 9.3 km (5NM) on either side of the intended track. The provisions of (3)(i) to (3)(v) inclusive are applied.
 - (i) The engine is assumed to fail at the most critical point along the route, allowance being made for indecision and navigational error.
 - (ii) Account is taken of the effects of winds on the flight path.
 - (iii) Fuel jettisoning is permitted to an extent consistent with reaching the aerodrome with satisfactory fuel reserves, if a safe procedure is used.
 - (iv) The aerodrome, where the aeroplane is assumed to land after engine failure, is specified in the operational flight plan and it meets the appropriate aerodrome operating minima.
 - (v) The consumption of fuel and oil after the engine becomes inoperative is that which is accounted for in the net flight path data shown in the flight manual.

(c) Two engines inoperative

- (1) Aeroplanes which do not comply with 121.179(a) comply with (c)(2)
- (2) No aeroplane is taken off at a weight in excess of that which according to the two-engines-inoperative en-route net flight path data shown in the flight manual, permits the aeroplane to continue flight from the point where two engines are assumed to fail simultaneously, to an aerodrome at which the landing distance specification for alternate aerodromes (121.183) is complied with and where it is expected that a safe landing can be made. The net flight path clears vertically, by at least 600 m (2 000 ft) all terrain and obstructions along the route within 9.3 km (5 NM) on either side of the intended track. The net flight path considered is for the ambient temperatures anticipated along the route. In altitudes and meteorological conditions where icing protection systems are to be operable, the effect of their use on the net flight path data is taken into account. The provisions of (2)(i) to (2)(v) inclusive apply.
 - (i) The two engines are assumed to fail at the most critical point of that portion of the route where the aeroplane is at more than 90 minutes at normal cruising speed away from an aerodrome at which the landing

distance specification for alternate aerodromes (121.183) is complied with and where it is expected that a safe landing can be made.

- (ii) The net flight path has a positive slope at 450 m (1 500 ft) above the aerodrome where the landing is assumed to be made after the failure of two engines.
- (iii) Fuel jettisoning is permitted to an extent consistent with (c)(2)(iv), if a safe procedure is used.
- (iv) The aeroplane weight at the point where the two engines are assumed to fail is considered to be not less than that which would include sufficient fuel to proceed to the aerodrome and to arrive there at an altitude of at least 450 m (1500 ft) directly over the landing area and thereafter to fly for 15 minutes at cruise power and/or thrust.
- (v) The consumption of fuel and oil after the engines become inoperative is that which is accounted for in the net flight path data shown in the flight manual.

121.181 Landing Limitations

(a) Aerodrome of destination

- (1) No aeroplane is taken off at a weight in excess of that which, in accordance with the landing distances required as shown in the flight manual for the altitude of the aerodrome of intended destination, permits the aeroplane to be brought to rest at the aerodrome of intended destination within the effective length of the runway, this length being as declared by the aerodrome authorities with regard to the obstructions in the approach. The weight of the aeroplane is assumed to be reduced by the weight of the fuel and oil expected to be consumed in flight to the aerodrome of intended destination. Compliance is shown with (1)(iii) and with either (1)(iv) or (1)(v).
 - (i) The runway slope is assumed to be zero, unless the runway is usable in only one direction.
 - (ii) A runway condition (wet or dry) not more favourable than that expected is taken into account.
 - (iii) It is assumed that the aeroplane is landed on the most favourable runway and in the most favourable direction in still air.
 - (iv) It is assumed that the aeroplane is landed on the runway which is the most suitable for the wind conditions anticipated at the aerodrome at the time of landing, taking due account of the probable wind speed and direction, of the ground handling characteristics of the aeroplane, and of other conditions (i.e. landing aids, terrain, etc.).
 - (v) If full compliance with (1)(iv) is not shown, the aeroplane may be taken off if a destination alternate aerodrome is designated which permits compliance with 121.183

(b) In applying this section the following factors must be taken into account after an engine failure:

- (1) The effects of wind and temperature on the net flight path; and

- (2) The effects of fuel jettisoning, where the jettisoning is conducted in accordance with procedures set out in the company manual and sufficient fuel remains to complete a landing with the required fuel reserves.

121.183 Destination Alternate Aerodrome

- (a) No aerodrome is designated as a destination alternate aerodrome unless the aeroplane, at the weight anticipated at the time of arrival at such aerodrome, can meet the landing distance required as shown in the flight manual for the altitude of the alternate aerodrome and in accordance with other applicable operating requirements for the alternate aerodrome.
 - (1) There is no place along the intended track that is more than 90 minutes (with all-engines-operating at cruising power) from an airport that meets the requirements of Section 121.187; or
 - (2) It is operated at a weight allowing the airplane, with the two critical engines inoperative, to climb at $0.013 V_{so}^2$ feet per minute (that is, the number of feet per minute is obtained by multiplying the number of knots squared by 0.013) at an altitude of 1,000 feet above the highest ground or obstruction within 10 miles on each side of the intended track, or at an altitude of 5,000 feet, whichever is higher.
- (b) For the purpose of Paragraph (a)(2) of this section, it is assumed that-
 - (1) The two engines fail at the point that is most critical with respect to the takeoff weight;
 - (2) Consumption of fuel and oil is normal with all-engines-operating up to the point where the two engines fail and with two engines operating beyond that point;
 - (3) Where the engines are assumed to fail at an altitude above the prescribed minimum altitude, compliance with the prescribed rate of climb at the prescribed minimum altitude, if those requirements can be met once the prescribed minimum altitude is reached, and assuming descent to be along a net flight path and the rate of descent to be $0.013 V_{so}^2$ greater than the rate in the approved performance data; and
 - (4) If fuel jettisoning is provided, the airplane's weight at the point where the two engines fail is considered to be not less than that which would include enough fuel to proceed to an airport meeting the requirements of Section 121.187 and to arrive at an altitude of at least 1,000 feet directly over that airport.

121.185 Airplanes: Reciprocating Engine Powered: Landing Limitations: Destination Airport

- (a) Except as provided in paragraph (b) of this section no person operating a reciprocating engine powered airplane may takeoff that airplane, unless its weight on arrival, allowing for normal consumption of fuel and oil in flight, would allow a full stop landing at the intended destination within 60 percent of the effective length of

each runway described below from a point 50 feet directly above the intersection of the obstruction clearance plane and the runway. For the purposes of determining the allowable landing weight at the destination airport the following is assumed:

- (1) The airplane is landed on the most favourable runway and in the most favourable direction in still air.
 - (2) The airplane is landed on the most suitable runway considering the probable wind velocity and direction (forecast for the expected time of arrival), the ground handling characteristics of the type of airplane, and other conditions such as landing aids and terrain, and allowing for the effect of the landing path and roll of not more than 50 percent of the headwind component or not less than 150 percent of the tailwind component.
- (b) An airplane that would be prohibited from being taken off because it could not meet the requirements of Paragraph (a)(2) of this section may be taken off if an alternate airport is specified that meets all of the requirements of this section except that the airplane can accomplish a full stop landing within 70 percent of the effective length of the runway.

121.187 Airplanes: Reciprocating Engine Powered: Landing Limitations: Alternate Airport

No person may list an airport as an alternate airport in a dispatch or flight release unless the airplane (at the weight anticipated at the time of arrival at the airport), based on the assumptions in Section 121.185, can be brought to a full stop landing, within 70 percent of the effective length of the runway.

121.189 Airplanes: Turbine Engine Powered: Takeoff Limitations

- (a) No person operating a turbine engine powered airplane may takeoff that airplane at a weight greater than that listed in the Airplane Flight Manual for the elevation of the airport and for the ambient temperature existing at takeoff.
- (b) No person operating a turbine engine powered airplane may takeoff that airplane at a weight greater than that listed in the Airplane Flight Manual at which compliance with the following may be shown:
- (1) The accelerate-stop distance must not exceed the length of the runway plus the length of any stopway.
 - (2) The takeoff distance must not exceed the length of the runway plus the length of any clearway except that the length of any clearway included must not be greater than one-half the length of the runway.
 - (3) The takeoff run must not be greater than the length of the runway.

No person operating a turbine engine powered airplane may takeoff that airplane at a weight greater than that listed in the Airplane Flight Manual that allows a net takeoff flight path that clears all obstacles either by a height of at least 35 feet

vertically, or by at least 200 feet horizontally within the airport boundaries and by at least 300 feet horizontally after passing the boundaries.

- (c) In determining maximum weights, minimum distances and flight paths under Paragraphs (b) of this section, correction must be made for the runway to be used, the elevation of the airport, the effective runway gradient, and the ambient temperature and wind component at the time of takeoff.
- (d) For the purposes of this section, it is assumed that the airplane is not banked before reaching a height of 50 feet, as shown by the takeoff path or net takeoff flight path data (as appropriate) in the Airplane Flight Manual, and thereafter that the maximum bank is not more than 15 degrees.
- (e) For the purposes of this section the terms, "takeoff distance", "takeoff run", "net takeoff flight path" and "takeoff path" have the same meanings as set forth in the rules under which the airplane was certificated.

121.191 Airplane: Turbine Engine Powered: Enroute Limitations: One Engine Inoperative

- (a) No person operating a turbine engine powered airplane may takeoff that airplane at a weight, allowing for normal consumption of fuel and oil, that is greater than that which (under the approved, one engine inoperative, enroute net flight path data in the Airplane Flight Manual for that airplane) will allow compliance with Paragraph (a)(1) or (2) of this section, based on the ambient temperatures expected enroute:
 - (1) There is a positive slope at an altitude of at least 1,000 feet above all terrain and obstructions within five statute miles on each side of the intended track, and, in addition there is a positive slope at 1,500 feet above the airport where the airplane is assumed to land after an engine fails.
 - (2) The net flight path allows the airplane to continue flight from the cruising altitude to an airport where a landing can be made under Section 121.197, clearing all terrain and obstructions within five statute miles of the intended track by at least 2,000 feet vertically and with a positive slope at 1,000 feet above the airport where the airplane lands after an engine fails, or with a positive slope at 1,500 feet above the airport where the airplane lands after an engine fails.
- (b) For the purposes of Paragraph (a)(2) of this section, it is assumed that:
 - (1) The engine fails at the most critical point enroute;
 - (2) The airplane passes over the critical obstruction, after engine failure at a point that is no closer to the obstruction than the nearest approved radio navigation fix, unless the Director authorizes a different procedure based on adequate operational safeguards;
 - (3) An approved method is used to allow for adverse winds:

- (4) Fuel jettisoning will be allowed if the certificate holder shows that the crew is properly instructed, that the training program is adequate, and that all other precautions are taken to ensure a safe procedure;
- (5) The alternate airport is specified in the dispatch or flight release and meets the prescribed weather minimums; and
- (6) The consumption of fuel and oil after engine failure is the same as the consumption that is allowed for in the approved net flight path data in the Airplane Flight Manual.

121.193 Airplanes: Turbine Engine Powered: Enroute Limitations: Two Engines Inoperative

No person may operate a turbine engine powered airplane along an intended route unless he complies with either Paragraph (1) or (2), below:

- (a) There is no place along the intended track that is more than 90 minutes (with all-engines-operating at cruising power) from an airport that meets the requirements of Section 121.197.
- (b) Its weight, according to the two engine inoperative, enroute, net flight path data in the Airplane Flight Manual, allows the airplane to fly from the point where the two engines are assumed to fail simultaneously to an airport that meets the requirements of Section 121.197, with the net flight path (considering the ambient temperatures anticipated along the track) clearing vertically by at least 2,000 feet all terrain and obstructions within five statute miles (4.34 nautical miles) on each side of the intended track. For the purposes of this subparagraph, it is assumed that:
 - (1) The two engines fail at the most critical point enroute;
 - (2) The net flight path has a positive slope at 1,500 feet above the airport where the landing is assumed to be made after the engines fail;
 - (3) Fuel jettisoning will be approved if the certificate holder shows that the crew is properly instructed, that the training program is adequate, and that all other precautions are taken to ensure a safe procedure;
 - (4) The airplane's weight at the point where the two engines are assumed to fail provides enough fuel to continue to the airport, to arrive at an altitude of at least 1,500 feet directly over the airport, and thereafter to fly for 15 minutes at cruise power or thrust, or both; and
 - (5) The consumption of fuel and oil after the engine failure is the same as the consumption that is allowed for in the net flight path data in the Airplane Flight Manual.

121.195 Airplanes: Turbine Engine Powered: Landing Limitations: Destination Airports

- (a) No person operating a turbine engine powered airplane at such a weight that (allowing for normal consumption of fuel and oil in flight to the destination or alternate airport) the weight of the airplane on arrival would exceed the landing weight set forth in the Airplane flight Manual for the elevation of the destination or alternate airport and the ambient temperature anticipated at the time of landing.
- (b) Except as provided in Paragraph (c), (d), or (e) of this section, no person operating a turbine engine powered airplane may take off that airplane unless its weight on arrival, allowing for normal consumption of fuel and oil in flight (in accordance with the landing distance set forth in the Airplane Flight Manual for the elevation of the destination airport and the wind conditions anticipated there at the time of landing). Would allow a full stop landing at the intended destination airport within 60 percent of the effective length of each runway described below from a point 50 feet above the intersection of the obstruction clearance plane and the runway. For the purpose of determining the allowable landing weight at the destination airport the following is assumed:
 - (1) The airplane is landed on the most favorable runway and in the most favorable direction, in still air.
 - (2) The airplane is landed on the suitable runway considering the probable wind velocity and direction and the ground handling characteristics of the airplane, and considering other conditions such as landing aids and terrain.
- (c) A turbo propeller powered airplane that would be prohibited from being taken off because it could not meet the requirements of Paragraph (b) (2) of the section, may be taken off if an alternate airport is specified that meets all the requirements of this section except that the airplane can accomplish a full stop landing within 70 percent of the effective length of the runway.
- (d) Unless, based on a showing of actual operating landing techniques on wet runway, a shorter landing distance (but never less than that required by Paragraph (b) of this section) has been approved for a specific type and model airplane and included in the Airplane Flight Manual, person may takeoff a turbojet powered airplane when the appropriate water reports and forecasts, or a combination of those report and forecasts, indicate that the runway length at the destination airport may be wet or slippery at the estimated time of arrival unless the effective runway length at the destination airport is at least 115 percent of the runway length required under Paragraph (b) of this section.
- (e) A turbojet powered airplane that would be prohibited from being taken off because it could not meet the requirements of Paragraph (b) (2) of this section may be taken off if an alternate airport is specified that meets all the requirements of Paragraph (b) of this section.

121.197 Airplanes: Turbine Engine Powered: Landing Limitations: Alternate Airports

No person may list an airport as an alternate airport in a dispatch or flight release for a turbine engine powered airplane unless (based on the assumptions in Section 121.195(b)) that airplane at the weight anticipated at the time of arrival can be brought to a full stop landing within 70 percent of the effective length of the runway for turbo-propeller powered airplanes and 60 percent of the effective length of the runway for turbojet powered airplanes, from a point 50 feet above the intersection of the obstruction clearance plane and the runway. In the case of an alternate airport for departure, as provided in Section 121.617, allowance may be made for fuel jettisoning in addition to normal consumption of fuel and oil when determining the weight anticipated at the time of arrival.

121.198 [Reserved]

121.199 [Reserved]

121.201 [Reserved]

121.203 [Reserved]

121.205 [Reserved]

121.207 [Reserved]

SUBPART J - SPECIAL AIRWORTHINESS REQUIREMENTS

121.211 Applicability

- (a) This subpart prescribes special airworthiness requirements applicable to certificate holders.
- (b) Each certificate holder must comply with the requirements of 121.287, 121.289, 121.291 and 121.511.

121.213 [Reserved]

121.215 Cabin Interiors

- (a) Except as provided in Section 121.312, each compartment used by the crew or passengers must meet the requirements of this section.
- (b) Materials must be at least flash resistant.
- (c) The wall and ceiling linings and the covering of upholstering, floors, and furnishings must be flame resistant.
- (d) Each compartment where smoking is to be allowed must be equipped with self-contained ash trays that are completely removable and other compartments must be placarded against smoking.
- (e) Each receptacle for used towels, papers, and wastes must be of fire resistant material and must have a cover or other means of containing possible fires started in the receptacles.

121.217 Internal Doors

In any case where internal doors are equipped with louvers or other ventilating means, there must be a means convenient to the crew for closing the flow of air through the door when necessary.

121.219 Ventilation

Each passenger or crew compartment must be suitably ventilated. Carbon monoxide concentration may not be more than one part in 20,000 parts of air, and fuel fumes may not be present. In any case where partitions between compartments have louvers or other means allowing air to flow between compartments, there must be a means convenient to the crew for closing the flow of air through the partitions, when necessary.

121.221 Fire Precautions

(a) Each compartment must be designed so that, when used for storing cargo or baggage, it meets the following requirements:

- (1) No compartment may include controls, wiring, lines, equipment, or accessories that would upon damage or failure, affect the safe operation of the airplane unless the item is adequately shielded, isolated, or otherwise protected so that it cannot be damaged by movement of cargo in the compartment and so that damage to or failure of the item would not create a fire hazard in the compartment.
- (2) Cargo or baggage may not interfere with the functioning of the fire protective features of the compartment.
- (3) Materials used in the construction of the compartments, including tie down equipment, must be at least flame resistant.
- (4) Each compartment must include provisions for safeguarding against fires according to the classifications set forth in Paragraphs (b) through (f) of this section.

(b) **Class A.** Cargo and baggage compartments are classified in the "A" category if:

- (1) A fire therein would be readily discernible to a member of the crew while at his station; and
- (2) All parts of the compartment are easily accessible in flight.

There must be a hand fire extinguisher available for each Class A compartment.

(c) **Class B.** Cargo and baggage compartments are classified in the "B" category if enough access is provided while in flight to enable a member of the crew to effectively reach all of the compartment and its contents with a hand fire extinguisher and the compartment is so designed that, when the access provisions are being used, no hazardous amount of smoke, flames, or extinguishing agent enters any compartment occupied by the crew or passengers. Each Class B compartment must comply with the following:

- (1) It must have a separate approved smoke or fire detector system to give warning at the pilot or flight engineer station.
- (2) There must be a hand fire extinguisher available for the compartment.
- (3) It must be lined with fire resistant material, except that additional service lining of flame resistant material may be used.

- (d) **Class C.** Cargo and baggage compartments are classified in the "C" category if they do not conform with the requirements for the "A", "B", "D", or "E" categories. Each Class C compartment must comply with the following:
- (1) It must have a separate approved smoke or fire detector system to give warning at the pilot or flight engineer station.
 - (2) It must have an approved built-in fire extinguishing system controlled from the pilot or flight engineer station.
 - (3) It must be designed to exclude hazardous quantities of smoke, flames, or extinguishing agents from entering into any compartment occupied by the crew or passengers.
 - (4) It must have ventilation and draft controlled so that the extinguishing agent provided can control any fire that may start in the compartment.
 - (5) It must be lined with fire resistant material, except that additional service lining of flame resistant material may be used.
- (e) **Class D.** Cargo and baggage compartments are classified in the "D" category if they are so designed and constructed that a fire occurring therein will be completely confined without endangering the safety of the airplane or the occupants. Each Class D compartment must comply with the following:
- (1) It must have a means to exclude hazardous quantities of smoke, flames, or noxious gases from entering any compartment occupied by the crew or passengers.
 - (2) Ventilation and drafts must be controlled within each compartment so that any fire likely to occur in the compartment will not progress beyond safe limits.
 - (3) It must be completely lined with fire resistant material.
 - (4) Consideration must be given to the effect of heat within the compartment on adjacent critical parts of the airplane.
- (f) **Class E.** On airplanes used for the carriage of cargo only, the cabin area may be classified as a Class "E" compartment. Each Class E compartment must comply with the following:
- (1) It must be completely lined with fire resistant material.
 - (2) It must have a separate system of an approved type smoke or fire detector to give warning at the pilot or flight engineer station.
 - (3) It must have a means to shut off the ventilating air flow to or within the compartment and the controls for that means must be accessible to the flight crew in the crew compartment.
 - (4) It must have a means to exclude hazardous quantities of smoke, flames, or noxious gases from entering the flight crew compartment.
 - (5) Required crew emergency exits must be accessible under all cargo loading conditions.

121.223 Proof of Compliance with Section 121.221

Compliance with those provisions of Section 121.221 that refer to compartment accessibility, the entry of hazardous quantities of smoke or extinguishing agent into compartments occupied by the crew or passengers, and the dissipation of the extinguishing agent in Class "C" compartments must be shown by tests in flight. During these tests it must be shown that no inadvertent operation of smoke or fire detectors in other compartments within the airplane would occur as a result of fire contained in any one compartment, either during the time it is being extinguished, or thereafter, unless the extinguishing system floods those compartments simultaneously.

121.225 Propeller Deicing Fluid

If combustible fluid is used for propeller deicing, the certificate holder must comply with Section 121.255.

121.227 Pressure Cross Feed Arrangements

(a) Pressure cross feed lines may not pass through parts of the airplane used for carrying persons or cargo unless:

- (1) There is a means to allow crewmembers to shut off the supply of fuel to these lines; or
- (2) The lines are enclosed in a fuel and fume proof enclosure that is ventilated and drained to the exterior of the airplane.

However, such an enclosure need not be used if those lines incorporate no fittings on or within the personnel or cargo areas and are suitably routed or protected to prevent accidental damage.

(b) Lines that can be isolated from the rest of the fuel system by valves at each end must incorporate provisions for relieving excessive pressures that may result from exposure of the isolated line to high temperatures.

121.229 Location of Fuel Tanks

- (a) Fuel tanks must be located in accordance with Section 121.255.
- (b) No part of the engine nacelle skin that lies immediately behind a major air outlet from the engine compartment may be used as the wall of an integral tank.
- (c) Fuel tanks must be isolated from personnel compartments by means of fume and fuel proof enclosures.

121.231 Fuel System Lines and Fittings

- (a) Fuel lines must be installed and supported so as to prevent excessive vibration and so as to be adequate to withstand loads due to fuel pressure and accelerated flight conditions.
- (b) Lines connected to components of the airplanes between which there may be relative motion must incorporate provisions for flexibility.
- (c) Flexible connections in lines that may be under pressure and subject to axial loading must use flexible hose assemblies rather than hose clamp connections.
- (d) Flexible hose must be of an acceptable type or proven suitable for the particular application.

121.233 Fuel Lines and Fittings in Designated Fire Zones

Fuel lines and fittings in each designated fire zone must comply with Section 121.259.

121.235 Fuel Valves

Each fuel valve must:

- (a) Comply with Section 121.257;
- (b) Have positive stops or suitable index provisions in the "on" and "off" positions; and
- (c) Be supported so that loads resulting from its operation or from accelerated flight conditions are not transmitted to the lines connected to the valve.

121.237 Oil Lines and Fittings in Designated Fire Zones

Oil line and fittings in each designated fire zone must comply with Section 121.259.

121.239 Oil Valves

- (a) Each oil valve must:
 - (1) Comply with Section 121.257;
 - (2) Have positive stops or suitable index provisions in the "on" and "off" positions; and
 - (3) Be supported so that loads resulting from its operation or from accelerated flight conditions are not transmitted to the lines attached to the valve.
- (b) The closing of an oil shutoff means must not prevent feathering the propeller, unless equivalent safety provisions are incorporated.

121.241 Oil System Drains

Accessible drains incorporating either a manual or automatic means for positive locking in the closed position, must be provided to allow safe drainage of the entire oil system.

121.243 Engine Breather Lines

- (a) Engine breather lines must be so arranged that condensed water vapor that may freeze and obstruct the line cannot accumulate at any point.
- (b) Engine breathers must discharge in a location that does not constitute a fire hazard in case foaming occurs and so that oil emitted from the line does not impinge upon the pilots' windshield.
- (c) Engine breathers may not discharge into the engine air induction system.

121.245 Fire Walls

Each engine, auxiliary power unit, fuel burning heater, or other item of combustion equipment that is intended for operation in flight must be isolated from the rest of the airplane by means of firewalls or shrouds, or by other equivalent means.

121.247 Firewall Construction

Each firewall and shroud must:

- (a) Be so made that no hazardous quantity of air, fluids, or flame can pass from the engine compartment to other parts of the airplane;
- (b) Have all openings in the fire wall or shroud sealed with close fitting fireproof grommets, bushings, or firewall fittings;
- (c) Be made of fireproof material; and
- (d) Be protected against corrosion.

121.249 Cowling

- (a) Cowling must be made and supported so as to resist the vibration inertia, and air loads to which it may be normally subjected.
- (b) Provisions must be made to allow rapid and complete drainage of the cowling in normal ground and flight attitudes. Drains must not discharge in locations constituting a fire hazard. Parts of the cowling that are subjected to high temperatures because they are near exhaust system parts or because of exhaust gas impingement must be made of fireproof material. Unless otherwise specified in these regulations all other parts of the cowling must be made of material that is at least fire resistant.

121.251 Engine Accessory Section Diaphragm

Unless equivalent protection can be shown by other means, a diaphragm that complies with Section 121.247 must be provided on air-cooled engines to isolate the engine power section and all parts of the exhaust system from the engine accessory compartment.

121.253 Powerplant Fire Protection

- (a) Designated fire zones must be protected from fire by compliance with Sections 121.255 through 121.261.
- (b) Designated fire zones are:
 - (1) Engine accessory sections;
 - (2) Installations where no isolation is provided between the engine and accessory compartment; and
 - (3) Areas that contain auxiliary power units, fuel burning heaters, and other combustion equipment.

121.255 Flammable Fluids

- (a) No tanks or reservoirs that are a part of a system containing flammable fluids or gases may be located in designated fire zones, except where the fluid contained, the design of the system, the materials used in the tank, the shutoff means, and the connections, lines, and controls provide equivalent safety.
- (b) At least one-half inch of clear airspace must be provided between any tank or reservoir and a firewall or shroud isolating a designated fire zone.

121.257 Shutoff Means

- (a) Each engine must have a means for shutting off or otherwise preventing hazardous amounts of fuel, oil, deicer, and other flammable fluids from flowing into, within, or through any designated fire zone. However, means need not be provided to shut off flow in lines that are an integral part of an engine.
- (b) The shutoff means must allow an emergency operating sequence that is compatible with the emergency operation of other equipment, such as feathering the propeller, to facilitate rapid and effective control of fires.
- (c) Shutoff means must be located outside of designated fire zones, unless equivalent safety is provided, and it must be shown that no hazardous amount of flammable fluid will drain into any designated fire zone after a shut off.

- (d) Adequate provisions must be made to guard against inadvertent operation of the shutoff means and to make it possible for the crew to reopen the shutoff means after it has been closed.

121.259 Lines and Fittings

- (a) Each line, and its fittings, that is located in a designated fire zone, if it carries flammable fluids or gases under pressure, or is attached directly to the engine, or is subject to relative motion between components (except lines and fittings forming an integral part of the engine), must be flexible and fire resistant with fire resistant, factory fixed, detachable, or other approved fire resistant ends.
- (b) Lines and fittings that are not subject to pressure or to relative motion between components must be of fire resistant materials.

121.261 Vent and Drain Lines

All vent and drain lines and their fittings, that are located in a designated fire zone must, if they carry flammable fluids or gases, comply with Section 121.259, if the DGCA finds that the rupture or breakage of any vent or drain line may result in a fire hazard.

121.263 Fire Extinguishing Systems

- (a) Unless the certificate holder shows that equivalent protection against destruction of the airplane in case of fire is provided by the use of fireproof materials in the nacelle and other components that would be subjected to flame, fire-extinguishing systems must be provided to serve all designated fire zones.
- (b) Materials in the fire extinguishing system must not react chemically with the extinguishing agent so as to be a hazard.

121.265 Fire Extinguishing Agents

Only methyl bromide, carbon dioxide, or another agent that has been shown to provide equivalent extinguishing action may be used as a fire extinguishing agent. If methyl bromide or any other toxic extinguishing agent is used, provisions must be made to prevent harmful concentrations of fluid or fluid vapors from entering any personnel compartment either because of leakage during normal operation of the airplane or because of discharging the fire extinguisher on the ground or in flight when there is a defect in the extinguishing system. If a methyl bromide system is used, the containers must be charged with dry agent and sealed by the fire extinguisher manufacturer or some other person using satisfactory recharging equipment. If carbon dioxide is used, it must not be possible to discharge enough gas into the personnel compartments to create a danger of suffocating the occupants.

121.267 Extinguishing Agent Container Pressure Relief

Extinguishing agent containers must be provided with a pressure relief to prevent bursting of the container because of excessive internal pressures. The discharge line from the relief connection must terminate outside the airplane in a place convenient for inspection on the ground. An indicator must be provided at the discharge end of the line to provide a visual indication when the container has discharged.

121.269 Extinguishing Agent Container Compartment Temperature

Precautions must be taken to ensure that the extinguishing agent containers are installed in places where reasonable temperatures can be maintained for effective use of the extinguishing system.

121.271 Fire Extinguishing System Materials

- (a) Except as provided in Paragraph (b) of this section, each component of a fire extinguishing system that is in a designated fire zone must be made of fireproof materials.
- (b) Connections that are subject to relative motion between components of the airplane must be made of flexible materials that are at least fire resistant and be located so as to minimize the probability of failure.

121.273 Fire Detector Systems

Enough quick acting fire detectors must be provided in each designated fire zone to assure the detection of any fire that may occur in that zone.

121.275 Fire Detectors

Fire detectors must be made and installed in a manner that assures their ability to resist, without failure, all vibration, inertia, and other loads to which they may be normally subjected. Fire detectors must be unaffected by exposure to fumes, oil, water, or other fluids that may be present.

121.277 Protection of Other Airplane Components Against Fire

- (a) Except as provided in Paragraph (b) of this section, all airplane surfaces aft of the nacelles in the area of one nacelle diameter on both sides of the nacelle centerline must be made of material that is at least fire resistant.
- (b) Paragraph (a) of this section does not apply to tail surfaces lying behind nacelles unless the dimensional configuration of the airplane is such that the tail surfaces could be affected readily by heat, flames, or sparks emanating from a designated fire zone or from the engine compartment of any nacelle.

121.279 Control of Engine Rotation

- (a) Except as provided in Paragraph (b) of this section, each airplane must have a means of individually stopping and restarting the rotation of any engine in flight.
- (b) In the case of turbine engine installations, a means of stopping the rotation need be provided only if the DGCA finds that rotation could jeopardize the safety of the airplane.

121.281 Fuel System Independence

- (a) Each airplane fuel system must be arranged so that the failure of any one component does not result in the irrecoverable loss of power of more than one engine.
- (b) A separate fuel tank need not be provided for each engine if the certificate holder shows that the fuel system incorporates features that provide equivalent safety.

121.283 Induction System Ice Prevention

A means for preventing the malfunctioning of each engine due to ice accumulation in the engine air induction system must be provided for each airplane.

121.285 [Reserved]**121.287 Carriage of Cargo in Cargo Compartments**

When cargo is carried in cargo compartments that are designed to require the physical entry of a crewmember to extinguish any fire that may occur during flight, the cargo must be loaded so as to allow a crewmember to effectively reach all parts of the compartment with the contents of a hand fire extinguisher.

121.289 Landing Gear: Aural Warning Device

- (a) Except for airplanes that comply with the requirements of Section 25.729 of the CASRs each airplane must have a landing gear aural warning device that functions continuously under the following conditions:
 - (1) For airplanes with an established approach wing flap position, whenever the wing flaps are extended beyond the maximum certificated approach climb configuration position in the Airplane Flight Manual and the landing gear is not fully extended and locked.

- (2) For airplanes without an established approach climb wing flap position, whenever the wing flaps are extended beyond the position at which landing gear extension is normally performed and the landing gear is not fully extended and locked.
- (b) The warning system required by Paragraph (a) of this section:
 - (1) May not have a manual shutoff;
 - (2) Must be in addition to the throttle actuated device installed under the type certification airworthiness requirements; and
 - (3) May utilize any part of the throttle actuated system including the aural warning device.
- (c) The flap position sensing unit may be installed at any suitable place in the airplane.

121.291 Demonstration of Emergency Evacuation Procedures

- (a) Except as provided in Paragraph (a)(1) of this section, each certificate holder must conduct an actual demonstration of emergency evacuation procedures in accordance with Paragraph (a) of Appendix D to this part to show that each type and model of airplane with a seating capacity of more than 44 passengers to be used in its passenger-carrying operations allows the evacuation of the full capacity, including crewmembers, in 90 seconds or less:
 - (1) An actual demonstration need not be conducted if that airplane type and model has been shown to be in compliance with this paragraph in effect on or after October 24, 1967, or, if during type certification, with CASR part 25.803 of this chapter in effect on or after December 1, 1978.
 - (2) Any actual demonstration conducted after September 27, 1993, must be in accordance with paragraph (a) of appendix D to this part in effect on or after that date or with CASR part 25.803 in effect on or after that date.
- (b) Each certificate holder conducting operations with airplanes with a seating capacity of more than 44 passengers must conduct a partial demonstration of emergency evacuation procedures in accordance with Paragraph (c) of this section upon:
 - (1) Initial introduction of a type and model of airplane into passenger-carrying operation, if the certificate holder has not conducted an actual demonstration under Paragraph (a) of this section;
 - (2) Changing the number, location, or emergency evacuation duties or procedures of flight attendants who are required by Section 121.391; or
 - (3) Changing the number, location, type of emergency exits, or type of opening mechanism on emergency exits available for evacuation.
- (c) In conducting the partial demonstration required by Paragraph (b) of this section, each certificate holder must:

- (1) Demonstrate the effectiveness of its crewmember emergency training and evacuation procedures by conducting a demonstration, not requiring passengers and observed by the DGCA, in which the flight attendants for that type and model of airplane, using that operator's line operating procedures, open 50 percent of the required floor-level emergency exits and 50 percent of the required non floor-level emergency exits whose opening by a flight attendant is defined as an emergency evacuation duty under Section 121.397, and deploy 50 percent of the exit-slides. The exits and slides will be selected by the DGCA and must be ready for use within 15 seconds;
 - (2) Apply for and obtain approval from the DGCA before conducting the demonstration;
 - (3) Use flight attendants in this demonstration who have been selected at random by the DGCA, have completed the certificate holder's DGCA-approved training program for the type and model of airplane, and have passed a written or practical examination on the emergency equipment and procedures; and
 - (4) Apply for and obtain approval from the DGCA before commencing operations with this type and model airplane.
- (d) Each certificate holder operating or proposing to operate one or more landplanes in extended overwater operations, or otherwise required to have certain equipment under Section 121.339, must show, by simulated ditching conducted in accordance with Paragraph (b) of Appendix D to this part, that it has the ability to efficiently carry out its ditching procedures.
- (e) For a type and model airplane for which the simulated ditching specified in Paragraph (d) has been conducted by a Part 121 certificate holder, the requirements of Paragraphs (b)(2), (b)(4), and (b)(5) of Appendix D to this part are complied with if each life raft is removed from stowage, one life raft is launched and inflated (or one slide life raft is inflated) and crewmembers assigned to the inflated life raft display and describe the use of each item of required emergency equipment. The life raft or slide life raft to be inflated will be selected by the DGCA.

121.293 [Reserved]

121.295 Location for a Suspect Device.

After November 28, 2009, all airplanes with a maximum certificated passenger seating capacity of more than 60 persons must have a location where a suspected explosive or incendiary device found in flight can be placed to minimize the risk to the airplane

SUBPART K - INSTRUMENT AND EQUIPMENT REQUIREMENTS

121.301 Applicability

This subpart prescribes instrument and equipment requirements for all certificate holders.

121.303 Airplanes Instruments and Equipment

- (a) Unless otherwise specified, the instrument and equipment requirements of this subpart apply to all operations under this part.
- (b) Instruments and equipment required by Sections 121.305 through 121.359 must be approved and installed in accordance with the airworthiness requirements applicable to them.
- (c) Each airspeed indicator must be calibrated in knots, and each airspeed limitation and item of related information in the Airplane Flight Manual and pertinent placards must be expressed in knots.
- (d) Except as provided in Sections 121.627(b) and 121.628, no person may takeoff any airplane unless the following instruments and equipment are in operable condition:
 - (1) Instruments and equipment required to comply with airworthiness requirements under which the airplane is type certificated and as required by Sections 121.213 through 121.283 and 121.289.
 - (2) Instruments and equipment specified in Sections 121.305 through 121.321 and 121.359 and 121.803 for all operations, and the instruments and equipment specified in Sections 121.323 through 121.351 for the kind of operation indicated, wherever these items are not already required by Paragraph (d)(1) of this section.

121.305 Flight and Navigational Equipment

No person may operate an airplane unless it is equipped with the following flight and navigational instruments and equipment:

- (a) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to icing.
- (b) Two sensitive pressure altimeters with counter drum pointer or equivalent presentation.
- (c) An accurate timepiece indicating the time in hours, minutes and seconds.
- (d) A free air temperature indicator.

- (e) A gyroscopic bank and pitch indicator (artificial horizon).
- (f) A gyroscopic rate of turn indicator combined with an integral slip/skid indicator (turn and bank indicator) except that only a slip/skid indicator is required when a third attitude instrument system usable through flight attitudes of 360° of pitch and roll is installed in accordance with Paragraph (j) of this section.
- (g) A gyroscopic direction indicator (directional gyro or equivalent).
- (h) A magnetic compass.
- (i) A vertical speed indicator (rate of climb indicator).
- (j) On the airplane described in this paragraph, in addition to two gyroscopic bank and pitch indicators (artificial horizons) for use at the pilot stations, a third such instrument is installed in accordance with paragraph (k) of this section:
 - (1) On each turbojet powered airplane.
 - (2) On each turbo propeller powered airplane having a passenger-seat configuration of more than 30 seats, excluding each crewmember seat, or a payload capacity of more than 7,500 pounds
- (k) When required by Paragraph (j) of this section, a third gyroscopic bank-and-pitch indicator (artificial horizon) that:
 - (1) Is powered from a source independent of the electrical generating system;
 - (2) Continues reliable operation for a minimum of 30 minutes after total failure of the electrical generating system;
 - (3) Operates independently of any other attitude indicating system;
 - (4) Is operative without selection after total failure of the electrical generating system;
 - (5) Is located on the instrument panel in a position acceptable to the Director that will make it plainly visible to and usable by each pilot at his or her station; and
 - (6) Is appropriately lighted during all phases of operation.

121.306 Portable Electronic Devices

- (a) Except as provided in paragraph (b) of this section, no person may operate, nor may any operator or pilot in command of an aircraft allow the operation of, any portable electronic device on any Republic of Indonesia-registered civil aircraft operating under this Part.
- (b) Paragraph (a) of this section does not apply to—
 - (1) Portable voice recorders;
 - (2) Hearing aids;

- (3) Heart pacemakers;
 - (4) Electric shavers; or
 - (5) Any other portable electronic device that certificate holder has determined will not cause interference with the navigation or communication system of the aircraft on which it is to be used.
- (c) The determination required by paragraph (b)(5) of this section shall be made by that certificate holder operating the particular device to be used.

121.307 Engine Instruments

Unless the Director allows or requires different instrumentation for turbine engine powered airplanes to provide equivalent safety, no person may conduct any operation under this part without the following engine instruments:

- (a) A carburetor air temperature indicator for each engine.
- (b) A cylinder head temperature indicator for each air cooled engine.
- (c) A fuel pressure indicator for each engine.
- (d) A fuel flow meter or fuel mixture indicator for each engine not equipped with an automatic altitude mixture control.
- (e) A means for indicating fuel quantity in each fuel tank to be used.
- (f) A manifold pressure indicator for each engine.
- (g) An oil pressure indicator for each engine.
- (h) An oil quantity indicator for each oil tank when a transfer or separate oil reserve supply is used.
- (i) An oil in temperature indicator for each engine.
- (j) A tachometer for each engine.
- (k) An independent fuel pressure warning device for each engine or a master warning device for all engines with a means for isolating the individual warning circuits from the master warning device.
- (l) A device for each reversible propeller, to indicate to the pilot when the propeller is in reverse pitch, that complies with the following:
 - (1) The device may be actuated at any point in the reversing cycle between the normal low pitch stop position and full reverse pitch, but it may not give an indication at or above the normal low pitch stop position.

- (2) The source of indication must be actuated by the propeller blade angle or be directly responsive to it.

121.308 Lavatory Fire Protection

- (a) No person may operate a passenger-carrying airplane unless each lavatory in the airplane is equipped with a smoke detector system or equivalent that provides a warning light in the cockpit or provides a warning light or audio warning in the passenger cabin which would be readily detected by a flight attendant, taking into consideration the positioning of flight attendants throughout the passenger compartment during various phases of flight.
- (b) No person may operate a passenger-carrying airplane unless each lavatory in the airplane is equipped with a built-in fire extinguisher for each disposal receptacle for towels, paper, or waste located within the lavatory. The built-in fire extinguisher must be designed to discharge automatically into each disposal receptacle upon occurrence of a fire in the receptacle.

121.309 Emergency Equipment

- (a) General: No person may operate an airplane unless it is equipped with the emergency equipment listed in this section and in Section 121.310.
- (b) Each item of emergency and flotation equipment listed in this section and in Sections 121.310, 121.339, and 121.340:
 - (1) Must be inspected regularly in accordance with inspection periods established in the operations specifications to ensure its condition for continued serviceability and immediate readiness to perform its intended emergency purposes;
 - (2) Must be readily accessible to the crew and, with regard to equipment located in the passenger compartment, to passengers;
 - (3) Must be clearly identified and clearly marked to indicate its method of operation; and
 - (4) When carried in a compartment or container, must be carried in a compartment or container marked as to contents and the compartment or container, or the item itself, must be marked as to date of last inspection.
- (c) Hand fire extinguishers for crew, passenger, cargo, and galley compartments. Hand fire extinguishers of an approved type must be provided for use in crew, passenger, cargo, and galley compartments in accordance with the following:
 - (1) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur in the compartment where the extinguisher is intended to be used and, for passenger compartments, must be designed to minimize the hazard of toxic gas concentrations.

- (2) Cargo compartments. At least one hand fire extinguisher must be conveniently located for use in each class E cargo compartment that is accessible to crewmembers during flight.
- (3) Galley compartments. At least one hand fire extinguisher must be conveniently located for use in each galley, in addition to those fire extinguishers located in a passenger, cargo or crew compartment.
- (4) Flight crew compartment. At least one hand fire extinguisher must be conveniently located on the flight deck for use by the flight crew.
- (5) Passenger compartments. Hand fire extinguishers for use in passenger compartments must be conveniently located and, when two or more are required, uniformly distributed throughout each compartment. Hand fire extinguishers shall be provided in passenger compartments as follows:
 - (i) For airplanes having passenger seats accommodating more than 6 but less than 31 passengers, at least one.
 - (ii) For airplanes having passenger seats accommodating more than 30 but less than 61 passengers, at least two.
 - (iii) For airplanes having passenger seats accommodating more than 60 passengers, there must be at least the following number of hand fire extinguishers:

Minimum Number of Hand Fire Extinguishers	
Passenger seating accommodations:	
61 through 200	3
201 through 300	4
301 through 400	5
401 through 500	6
501 through 600	7
601 or more	8

- (6) Notwithstanding the requirement for uniform distribution of hand fire extinguishers as prescribed in Paragraph (c)(5) of this section, for those cases where a galley is located in a passenger compartment, at least one hand fire extinguisher must be conveniently located and easily accessible for use in the galley.
- (7) At least two of the required hand fire extinguisher installed in passenger-carrying airplanes must contain Halon 1211 (*bromochlorofluoromethane*) or equivalent as the extinguishing agent. At least one hand fire extinguisher in the passenger compartment must contain Halon 1211 or equivalent.

- (d) Crash axe. Each airplanes must be equipped with a crash axe.
- (e) Megaphones. Each passenger-carrying airplane must have a portable battery powered megaphone or megaphones readily accessible to the crewmembers assigned to direct emergency evacuation, installed as follows:
 - (1) One megaphone on each airplane with a seating capacity of more than 60 and less than 100 passenger, at the most rearward location in the passenger cabin where it would be readily accessible to a normal flight attendant seat. However, the Director may grant a deviation from the requirements of this subparagraph if he finds that a different location would be more useful for evacuation of persons during an emergency.
 - (2) Two megaphones in the passenger cabin on each airplane with a seating capacity of more than 99 passengers, one installed at the forward end and the other at the most rearward location where it would be readily accessible to a normal flight attendant seat.

121.310 Additional Emergency Equipment.

Each passenger emergency exit marking and each locating sign must meet the requirements under which the airplane was type certified under CASR 25.

- (a) Means for emergency evacuation. Each passenger-carrying landplane emergency exit (other than over the wing) that is more than 6 feet from the ground with the airplane on the ground and the landing gear extended, must have an approved means to assist the occupants in descending to the ground. The assisting means for a floor level emergency exit must meet the under which the airplane was type certificated. An assisting means that deploys automatically must be armed during taxiing, takeoffs, and landings. However, if the Director finds that the design of the exit makes compliance impractical, he may grant a deviation from the requirement of automatic deployment if the assisting means automatically erects upon deployment and, with respect to required emergency exits, if an emergency evacuation demonstration is conducted in accordance with Section 121.291(a).
- (b) Interior emergency exit marking. The following must be complied with for each passenger-carrying airplane:
 - (1) Each passenger emergency exit, its means of access, and its means of opening must be conspicuously marked. The identity and location of each passenger emergency exit must be recognizable from a distance equal to the width of the cabin. The location of each passenger emergency exit must be indicated by a sign visible to occupants approaching along the main passenger aisle. There must be a locating sign:
 - (i) Above the aisle near each over the wing passenger emergency exit, or at another ceiling location if it is more practical because of low headroom;
 - (ii) Next to each floor level passenger emergency exit, except that one sign may serve two such exits if they both can be seen readily from that sign; and

- (iii) On each bulkhead or divider that prevents fore and aft vision along the passenger cabin, to indicate emergency exits beyond and obscured by it, except that if this is not possible the sign may be placed at another appropriate location.
- (2) Each passenger emergency exit marking and each locating sign must meet the requirements under which the airplane was type certified. On airplanes whose type certificate was filed with the country of manufacture prior to May 1, 1972 no sign may continue to be used if its Luminescence (brightness) decreases to below 100 microlamberts.

For an airplane for which the type certificate was filed with the country of manufacture on or after May 1, 1972, each passenger emergency exit marking and each locating sign must be manufactured to meet the interior emergency exit marking requirements under which the airplane was type certificated. On these airplanes, no sign may continue to be used if its luminescence (brightness) decreases to below 250 microlamberts.
- (c) Lighting for interior emergency exit markings. Each passenger-carrying airplane must have an emergency lighting system, independent of the main lighting system. However, sources of general cabin illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency lighting system is independent of the power supply to the main lighting system. The emergency lighting system must:
 - (1) Illuminate each passenger exit marking and locating sign;
 - (2) Provide enough general lighting in the passenger cabin so that the average illumination when measured at 40-inch intervals at seat armrest height, on the centerline of the main passenger aisle, is at least 0.05 foot-candles; and
 - (3) For airplanes type certificated by the country of manufacture after January 1, 1958, include floor proximity emergency escape path marking which meets the requirements of Section 25.812(e) of the CASRs in effect December 1996.
- (d) Emergency light operation. Except for lights forming part of emergency lighting subsystems provided in compliance with Section 25.812(h) of the CASRs (as prescribed in Paragraph (h) of this section) that serve no more than one assist means, are independent of the airplane's main emergency lighting systems, and are automatically activated when the assist means is deployed, each light required by Paragraphs (c) and (h) of this section must comply with the following:
 - (1) Each light must:
 - (i) Be operable manually both from the flightcrew station and, for airplanes on which a flight attendant is required, from a point in the passenger compartment that is readily accessible to a normal flight attendant seat;
 - (ii) Have a means to prevent inadvertent operation of the manual controls; and
 - (iii) When armed or turned on at either station, remain lighted or become lighted upon interruption of the airplane's normal electric power.

- (2) Each light must be armed or turned on during taxiing, takeoff, and landing. In showing compliance with this paragraph a transverse vertical separation of the fuselage need not be considered.
 - (3) Each light must provide the required level of illumination for at least 10 minutes at the critical ambient conditions after emergency landing.
 - (4) Each light must have a cockpit control device that has an "on," "off," and "armed" position.
- (e) Emergency exit operating handles.
- For a passenger-carrying airplane the location of each passenger emergency exit operating handle and instructions for opening the exit must be shown in accordance with the requirements under which the airplane was type certificated. On these airplanes, no operating handle or operating handle cover may continue to be used if its luminescence (brightness) decreases to below 100 microlamberts.
- (f) Emergency exit access. Access to emergency exits must be provided as follows for each passenger-carrying transport category airplane:
- (1) Each passage way between individual passenger areas, or leading to a Type I or Type II emergency exit, must be unobstructed and at least 20 inches wide.
 - (2) There must be enough space next to each Type I or Type II emergency exit to allow a crewmember to assist in the evacuation of passengers without reducing the unobstructed width of the passageway below that required in Paragraph (f)(1) of this section. However the Director may authorize deviation from this requirement for airplanes certificated prior to CASR 25 if he finds that special circumstances exist that provide an equivalent level of safety.
 - (3) There must be access from the main aisle to each Type III and Type IV exit. The access from the aisle to these exits must not be obstructed by seats, berths, or other protrusions in a manner that would reduce the effectiveness of the exit. In addition:
 - (i) For an airplane which was type certificated prior to CASR 25 the access must meet the requirements under which the airplane was type certificated.
 - (ii) The access for an airplane type certificated under CASR 25 must meet the requirements of Section 25.813(c) in effect December 1996.
 - (iii) Contrary provisions of this section notwithstanding, the DGCA may authorize deviation from the requirements of Paragraph (f)(3)(iii) of this section if it is determined that special circumstances make compliance impractical. Such special circumstances include, but are not limited to, the following conditions when they preclude achieving compliance with Section 25.813(c)(1)(i) or (ii) without a reduction in the total number of passenger seats; emergency exits located in close proximity to each other; fixed installations such as lavatories, galleys, etc.; permanently mounted bulkheads; an insufficient number of rows ahead of or behind the exit to enable compliance without a reduction in the seat row pitch of more than one inch; or an insufficient number of such rows to enable compliance without a reduction in the seat row pitch to less than 30 inches. A request

for such grant of deviation must include credible reasons as to why literal compliance with Section 25.813(c)(1)(i) or (ii) is impractical and a description of the steps taken to achieve a level of safety as close to that intended by Section 25.813(c)(1)(i) or (ii) as is practical.

- (4) If it is necessary to pass through a passageway between passenger compartments to reach any required emergency exit from any seat in the passenger cabin, the passageway must not be obstructed. However, curtains may be used if they allow free entry through the passageway.
- (5) No door may be installed in any partition between passenger compartments.
- (6) If it is necessary to pass through a doorway separating the passenger cabin from other areas to reach required emergency exit from any passenger seat, the door must have a means to latch it in open position, and the door must be latched open during each takeoff and landing. The latching means must be able to withstand the loads imposed upon it when the door is subjected to the ultimate inertia forces, relative to the surrounding structure, listed in Section 25.561(b) of the CASRs.
- (g) Exterior exit markings. Each passenger emergency exit and the means of opening that exit from the outside must be marked on the outside of the airplane. There must be a 2-inch colored band outlining each passenger emergency exit on the side of the fuselage. Each outside marking, including the band, must be readily distinguishable from the surrounding fuselage area by contrast in color. The markings must comply with the following:
 - (1) If the reflectance of the darker color is 15 percent or less, the reflectance of the lighter color must be at least 45 percent.
 - (2) If the reflectance of the darker color is greater than 15 percent, at least a 30 percent difference between its reflectance and the reflectance of the lighter color must be provided.
 - (3) Exits that are not in the side of the fuselage must have the external means of opening and applicable instructions marked conspicuously in red or, if red is inconspicuous against the background color, in bright chrome yellow and, when the opening means for such an exit is located on only one side of the fuselage, a conspicuous marking to that effect must be provided on the other side. "Reflectance" is the ratio of the luminous flux reflected by a body to the luminous flux it receives.
- (h) Exterior emergency lighting and escape route.
 - (1) Each passenger-carrying airplane must be equipped with exterior lighting that meets the following requirements.

The exterior emergency lighting requirements under which the airplane was type certified.
 - (2) Each passenger-carrying airplane must be equipped with a slip resistant escape route that meets the following requirements. The slip resistant escape route requirements under which the airplane type certified.

- (i) Floor-level exits. Each floor-level door or exit in the side of the fuselage (other than those leading into a cargo or baggage compartment that is not accessible from the passenger cabin) that is 44 or more inches high and 20 or more inches wide, but not wider than 46 inches; each passenger ventral exit; and each tail cone exit, must meet the requirements of this section for floor-level emergency exits. However, the Director may grant a deviation from this paragraph if he finds that circumstances make full compliance impractical and that an acceptable level of safety has been achieved.
- (j) Additional emergency exits. Approved emergency exits in the passenger compartments that are in excess of the minimum number of required emergency exits must meet all of the applicable provisions of this section except Paragraphs (f)(1), (2), and (3) of this section and must be readily accessible.
- (k) On each large passenger-carrying turbojet-powered airplane, each ventral exit and tailcone exit must be:
 - (1) Designed and constructed so that it cannot be opened during flight; and
 - (2) Marked with a placard readable from a distance of 30 inches and installed at a conspicuous location near the means of opening the exit, stating that the exit has been designed and constructed so that it cannot be opened during flight.
- (l) Portable lights. No person may operate a passenger-carrying airplane unless it is equipped with flashlight stowage provisions accessible from each flight attendant seat.

121.311 Seats, Safety Belts, Shoulder Harnesses, and Child Restraint Systems

- (a) No person may operate an airplane unless there are available during the takeoff, enroute flight, and landing:
 - (1) An approved seat or berth for each person on board the airplane who has reached his second birthday; and
 - (2) An approved safety belt for separate use by each person on board the airplane who has reached his or her second birthday, except that two persons occupying a berth may share one approved safety belt and two persons occupying a multiple lounge or divan seat may share one approved safety belt during enroute flight only.
- (b) Except as provided in this paragraph, each person on board an airplane operated under this part shall occupy an approved seat or berth with a separate safety belt properly secured about him or her during movement on the surface, for takeoff, and for landing. A safety belt provided for the occupant of a seat may not be used by more than one person who has reached his or her second birthday. Notwithstanding the preceding requirements, a child may:
 - (1) Be held by an adult who is occupying an approved seat or berth if that child is not yet two years old; or

- (2) Notwithstanding any other requirement of the CASRs, occupy a child restraint system furnished by the certificate holder or one of the persons described in Paragraph (b)(2)(i) of this section, provided that:
 - (i) The child is accompanied by a parent, guardian, or attendant designated by the child's parent or guardian to care for the safety of the child during the flight; and
 - (ii) The certificate holder complies with the following requirements:
 - (A) The restraint system must be properly secured to an approved forward-facing seat or berth; and
 - (B) The child must be properly secured in the restraint system and must not exceed the specified weight limit for the restraint system.
- (c) No certificate holder may prohibit a child, if requested by the child's parent, guardian, or designated attendant, from occupying a child restraint system furnished by the child's parent, guardian, or designated attendant, provided the child holds a ticket for an approved seat or berth, or such seat or berth is otherwise made available by the certificate holder for the child's use, and the requirements contained in Paragraphs (b)(2)(i) and (b)(2)(ii) of this section are met. This section does not prohibit the certificate holder from providing child restraint systems or, consistent with safe operating practices, determining the most appropriate passenger seat location for the child restraint system.
- (d) Each sideward facing seat must comply with the applicable requirements of Section 25.785(c) of the CASRs.
- (e) Except as provided in Paragraphs (e)(1) through (e)(3) of this section, no certificate holder may take off or land an airplane unless each passenger seat back is in the upright position. Each passenger shall comply with instructions given by a crewmember in compliance with this paragraph.
 - (1) This paragraph does not apply to seat backs placed in other than the upright position in compliance with Section 121.310(f)(3).
 - (2) This paragraph does not apply to seats on which cargo or persons who are unable to sit erect for a medical reason are carried in accordance with procedures in the certificate holder's manual if the seat back does not obstruct any passenger's access to the aisle or to any emergency exit.
 - (3) On airplanes with no flight attendant, the certificate holder may take off or land as long as the flightcrew instructs each passenger to place his or her seat back in the upright position for takeoff and landing.
- (f) No person may operate a transport category airplane that was type certificated after January 1, 1958 unless it is equipped at each flight deck station with a combined safety belt and shoulder harness that meets the applicable requirements specified in Section 25.785 of the CASRs, effective December 1996 except that:
 - (1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before December 1996 , may continue to be used; and

- (2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.
- (g) Each flight attendant must have a seat for takeoff and landing in the passenger compartment that meets the requirements of Section 25.785 of the CASRs, effective December 1996, except that-
 - (1) Combined safety belt and shoulder harnesses that were approved and installed before December 1996, may continue to be used; and
 - (2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.
 - (3) The requirements of Section 25.785(h) do not apply to passenger seats occupied by flight attendants not required by Section 121.391.
- (h) Each occupant of a seat equipped with a shoulder harness or with a combined safety belt and shoulder harness must have the shoulder harness or combined safety belt and shoulder harness properly secured about that occupant during takeoff and landing, except that a shoulder harness that is not combined with a safety belt may be unfastened if the occupant cannot perform the required duties with the shoulder harness fastened.
- (i) At each unoccupied seat, the safety belt and shoulder harness, if installed, must be secured so as not to interfere with crewmembers in the performance of their duties or with the rapid egress of occupants in an emergency.

121.312 Materials for Compartment Interiors

- (a) All materials in each compartment of a transport category airplane used by the crewmembers and passengers, must meet the requirements under which the airplane was type certified.
- (b) Contrary provisions of this section notwithstanding, the Director may authorize deviation from the requirements of this section for specific components of the cabin interior that do not meet applicable flammability and smoke emission requirements, if the determination is made that special circumstances exist that make compliance impractical. A request for such deviation authority must include a thorough and accurate analysis of each component subject to Section 25.853, the steps being taken to achieve compliance, and, for the few components for which timely compliance will not be achieved, credible reasons for such noncompliance.
- (c) Seat cushions. Seat cushions, except those on flight crewmember seats, in each compartment occupied by crew or passengers, must comply with the requirements pertaining to seat cushions in Section 25.853 or the requirements under which the airplane was type certified.

121.313 Miscellaneous Equipment

No person may conduct any operation unless the following equipment is installed in the aeroplane:

- (a) If protective fuses are installed on an aeroplane, the number of spare fuses approved for that aeroplane and appropriately described in the certificate holder's manual.
- (b) A windshield wiper or equivalent for each pilot station.
- (c) A power supply and distribution system that meets the requirements 25.1309, 25.1331, 25.1351(a) and (b)(1) through (4), 25.1353, 25.1355, and 25.1431(b) of CASR or that is able to produce and distribute the load for the required instruments and equipment, with use of an external power supply if any one power source or component of the power distribution system fails. The use of common elements in the system may be approved if the DGCA finds that they are designed to be reasonably protected against malfunctioning. Engine-driven sources of energy, when used, must be on separate engines.
- (d) A means for indicating the adequacy of the power being supplied to required flight instruments.
- (e) Two independent static pressure systems, vented to the outside atmospheric pressure so that they will be least affected by air flow variation or moisture or other foreign matter, and installed so as to be airtight except for the vent. When a means is provided for transferring an instrument from its primary operating system to an alternate system, the means must include a positive positioning control and must be marked to indicate clearly which system is being used.
- (f) On or before 30 November 2009, a door between the passenger and pilot compartments (i.e., flightdeck door), with a locking means to prevent passengers from opening it without the pilot's permission, except that nontransport category aeroplanes certificated after December 31, 1964, are not required to comply with this paragraph. For aeroplanes equipped with a crew rest area having separate entries from the flightdeck and the passenger compartment, a door with such a locking means must be provided between the crew rest area and the passenger compartment.
- (g) A key for each door that separates a passenger compartment from another compartment that has emergency exit provisions. Except for flightdeck doors, a key must be readily available for each crewmember. No person other than a person who is assigned to perform duty on the flightdeck may have a key to the flightdeck door.
- (h) A placard on each door that is the means of access to a required passenger emergency exit, to indicate that it must be open during takeoff and landing.

- (i) A means for the crew, in an emergency to unlock each door that leads to a compartment that is normally accessible to passengers and that can be locked by passengers.
- (j) For aeroplanes of a maximum certificated take-off weight in excess of 45 500 kg or with a passenger seating capacity greater than 60, to have a door between the passenger and pilot or crew rest compartments, and for transport category, all-cargo aeroplanes with a maximum certificated take-off weight in excess of 45 500 kg to have a door installed between the pilot compartment and any other occupied compartment;
 - (1) For aeroplanes required by paragraph (f) of this section to have a door between the passenger and pilot or crew rest compartments,
 - (i) Each such door must meet the following requirements -
 - (A) Resist forcible intrusion by unauthorized persons and be capable of withstanding impacts of 300 Joules (221.3 foot-pounds) at the critical locations on the door, as well as a 250 pound (1113 Newtons) constant tensile load on the knob or handle; and
 - (B) Resist penetration by small arms fire and fragmentation devices to a level equivalent to level IIIa of the US National Institute of Justice Standard (NIJ) 0101.04 or its equivalent; and
 - (ii) Each operator must establish methods to enable a flight attendant to enter the pilot compartment in the event that a flight crew member becomes incapacitated. Any associated signal or confirmation system must be operable by each flight crew member from that flight crew member's duty station.
 - (2) For transport category, all-cargo aeroplanes with a maximum certificated take-off weight in excess of 45 500 kg that had a door installed between the pilot compartment and any other occupied compartment on or after January 15, 2002, each such door must meet the requirements of (j)(1)(i) above; or the operator must implement a security program approved by the DGCA for the operation of all aeroplanes in that operator's fleet.
- (k) Except for all-cargo operations as defined the CASR, for all passenger-carrying aeroplanes that require a lockable flight deck door in accordance with paragraph (f) of this section, a means to monitor from the flight deck side of the door the area outside the flight deck door to identify persons requesting entry and to detect suspicious behavior and potential threats.
- (l) For ATR-GIE Avions de Transport Regional ATR 72 aircraft that has been registered and operated within Indonesia, the certificate holder need not meet paragraph (j) of this section until December 31, 2012.

121.314 Cargo and Baggage Compartments

- (a) Each Class C or D compartment, as defined in Section 25.857 of Part 25 of the CASRs, greater than 200 cubic feet in volume must have ceiling and sidewall liner panels which are constructed of:
 - (1) Glass fiber reinforced resin;
 - (2) Materials which meet the test requirements of Part 25, Appendix F, Part III of the CASRs; or
 - (3) In the case of installations approved prior to CASR 25 the liner material must be aluminium.
- (b) For compliance with this section, the term "liner" includes any design feature, such as a joint or fastener, which would affect the capability of the liner to safely contain a fire.

121.315 Cockpit Check Procedure

- (a) Each certificate holder shall provide an approved cockpit check procedure for each type of aircraft.
- (b) The approved procedures must include each item necessary for flight crewmembers to check for safety before starting engines, taking off, or landing, and in engine and systems emergencies. The procedures must be designed so that a flight crewmember will not need to rely upon his memory for items to be checked.
- (c) The approved procedures must be readily usable in the cockpit of each aircraft and the flight crew shall follow them when operating the aircraft.

121.316 Fuel Tanks

Each turbine-powered transport category airplane must meet the requirements under which the airplane was type certified.

121.317 Passenger Information Requirements and Smoking Prohibitions.

- (a) No person may operate an airplane unless it is equipped with passenger information signs that meet the requirements of Section 25.791 of the CASRs.
- (b) The "Fasten Seat Belt" sign shall be turned on during any movement on the surface, for each takeoff, for each landing, and at any other time considered necessary by the pilot in command.
- (c) No person may operate an aircraft on a flight segment on which smoking is prohibited unless the "No Smoking" passenger information signs are lighted during the entire flight segment, or one or more "No Smoking" placards meeting the

requirements of 25.1541 of the CASR are posted during the entire flight segment. If both the lighted signs and the placards are used, the signs must remain lighted during the entire flight segment.

- (d) No person may operate a passenger-carrying airplane under this part unless at least one legible sign or placard that reads "Fasten Seat Belt While Seated" is visible from each passenger seat. These signs or placards need not meet the requirements of Paragraph (a) of this section.
- (e) [Reserved]
- (f) Each passenger required by Section 121.311(b) to occupy a seat or berth shall fasten his or her safety belt about him or her and keep it fastened while the "Fasten Seat Belt" sign is lighted.
- (g) No person may smoke while a "No Smoking" sign is lighted or if "No Smoking" placards are posted.
- (h) No person may smoke in any airplane lavatory.
- (i) No person may tamper with, disable, or destroy any smoke detector installed in any airplane lavatory.
- (j) On flight segments other than those described in Paragraph (c) of this section, the "No Smoking" sign must be turned on during any movement on the surface, for each takeoff, for each landing, and at any other time considered necessary by the pilot in command.
- (k) Each passenger shall comply with instructions given him or her by a crewmember regarding compliance with Paragraphs (f), (g), (h).

121.318 Public Address System

No person may operate an airplane with a seating capacity of more than 19 passengers unless it is equipped with a public address system which:

- (a) Is capable of operation independent of the crewmember interphone system required by Section 121.319, except for handsets, headsets, microphones, selector switches, and signaling devices;
- (b) Is approved in accordance with Section 21.305 of the CASRs;
- (c) Is accessible for immediate use from each of two flight crewmember stations in the pilot compartment;
- (d) For each required floor-level passenger emergency exit which has an adjacent flight attendant seat, has a microphone which is readily accessible to the seated flight attendant, except that one microphone may serve more than one exit, provided the proximity of the exits allows unassisted verbal communication between seated flight attendants;

- (e) Is capable of operation within 10 seconds by a flight attendant at each of those stations in the passenger compartment from which its use is accessible;
- (f) Is audible at all passenger seats, lavatories, and flight attendant seats and work stations; and
- (g) For transport category airplanes manufactured on or after December 1996, meets the requirements of Section 25.1423 of the CASRs.

121.319 Crewmember Interphone System

- (a) No person may operate an airplane with a seating capacity of more than 19 passengers unless the airplane is equipped with a crewmember interphone system that:
 - (1) [Reserved]
 - (2) Is capable of operation independent of the public address system required by Section 121.318(a) except for handsets, headsets, microphones, selector switches, and signaling devices; and
 - (3) Meets the requirements of Paragraph (b) of this section.
- (b) The crewmember interphone system required by Paragraph (a) of this section must be approved in accordance with Section 21.305 of the CASRs and meet the following requirements:
 - (1) It must provide a means of two-way communication between the pilot compartment and:
 - (i) Each passenger compartment; and
 - (ii) Each galley located on other than the main passenger deck level.
 - (2) It must be accessible for immediate use from each of two flight crewmember stations in the pilot compartment;
 - (3) It must be accessible for use from at least one normal flight attendant station in each passenger compartment;
 - (4) It must be capable of operation within 10 seconds by a flight attendant at those stations in each passenger compartment from which its use is accessible; and
 - (5) For large turbojet powered airplanes:
 - (i) It must be accessible for use at enough flight attendant stations so that all floor-level emergency exits (or entryways to those exits in the case of exits located within galleys) in each passenger compartment are observable from one or more of those stations so equipped;
 - (ii) It must have an alerting system incorporating aural or visual signals for use by flight crewmembers to alert flight attendants and for use by flight attendants to alert flight crewmembers;
 - (iii) The alerting system required by Paragraph (b)(5)(ii) of this section must have a means for the recipient of a call to determine whether it is a normal call or an emergency call; and
 - (iv) When the airplane is on the ground, it must provide a means of two-way communication between ground personnel and either of at least two flight

crewmembers in the pilot compartment. The interphone system station for use by ground personnel must be so located that personnel using the system may avoid visible detection from within the airplane.

121.321 [Reserved]

121.323 Instruments and Equipment for Operations at Night

No person may operate an airplane at night unless it is equipped with the following instruments and equipment in addition to those required by Sections 121.305 through 121.321 and 121.803:

- (a) Position lights.
- (b) An anti-collision light.
- (c) Two landing lights.
- (d) Instrument lights providing enough light to make each required instrument, switch, or similar instrument, easily readable and installed so that the direct rays are shielded from the flight crewmembers' eyes and that no objectionable reflections are visible to them. There must be a means of controlling the intensity of illumination unless it is shown that nondimming instrument lights are satisfactory.
- (e) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to icing.
- (f) A sensitive altimeter.
- (g) independent portable light for each crew member station.

121.325 Instruments and Equipment for Operating under IFR

No person may operate an airplane under IFR unless it is equipped with the following instruments and equipment, in addition to those required by Sections 121.305 through 121.321 and 121.803:

- (a) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to icing.
- (b) A sensitive altimeter.
- (c) Instrument lights providing enough light to make each required instrument, switch, or similar instrument, easily readable and so installed that the direct rays are shielded from the flight crewmembers' eyes and that no objectionable reflections are visible to them, and a means of controlling the intensity of illumination unless it is shown that nondimming instrument lights are satisfactory.

121.327 Supplemental Oxygen: Reciprocating Engine Powered Airplanes

- (a) General. Except where supplemental oxygen is provided in accordance with Section 121.331, no person may operate an airplane unless supplemental oxygen is furnished and used as set forth in Paragraphs (b) and (c) of this section. The amount of supplemental oxygen required for a particular operation is determined on the basis of flight altitudes and flight duration, consistent with the operation procedures established for each operation and route.
- (b) Crewmembers.
 - (1) At cabin pressure altitudes above 10,000 feet up to and including 12,000 feet, oxygen must be provided for, and used by, each member of the flight crew on flight deck duty, and must be provided for other crewmembers, for that part of the flight at those altitudes that is of more than 30 minutes duration.
 - (2) At cabin pressure altitudes above 12,000 feet, oxygen must be provided for, and used by, each member of the flight crew on flight deck duty, and must be provided for other crewmembers, during the entire flight time at those altitudes.
 - (3) When a flight crewmember is required to use oxygen, he must use it continuously, except when necessary to remove the oxygen mask or other dispenser in connection with his regular duties. Standby crewmembers who are on call or are definitely going to have flight deck duty before completing the flight must be provided with an amount of supplemental oxygen equal to that provided for crewmembers on duty other than on flight deck duty. If a standby crewmember is not on call and will not be on flight deck duty during the remainder of the flight, he is considered to be a passenger for the purposes of supplemental oxygen requirements.
- (c) Passengers. Each certificate holder shall provide a supply of oxygen, approved for passenger safety, in accordance with the following:
 - (1) For flights of more than 30 minutes duration at cabin pressure altitudes above 8,000 feet up to and including 14,000 feet, enough oxygen for 30 minutes for 10 percent of the passengers.
 - (2) For flights at cabin pressure altitudes above 14,000 feet up to and including 15,000 feet, enough oxygen for that part of the flight at those altitudes for 30 percent of the passengers.
 - (3) For flights at cabin pressure altitudes above 15,000 feet, enough oxygen for each passenger carried during the entire flight at those altitudes.
- (d) For the purposes of this subpart "cabin pressure altitude" means the pressure altitude corresponding with the pressure in the cabin of the airplane, and "flight altitude" means the altitude above sea level at which the airplane is operated. For airplanes without pressurized cabins, "cabin pressure altitude" and "flight altitude" mean the same thing.

121.329 Supplemental Oxygen for Sustenance: Turbine engine Powered Airplanes

- (a) General. When operating a turbine engine powered airplane, each certificate holder shall equip the airplane with sustaining oxygen and dispensing equipment for use as set forth in this section:
- (1) The amount of oxygen provided must be at least the quantity necessary to comply with Paragraphs (b) and (c) of this section.
 - (2) The amount of sustaining and first aid oxygen required for a particular operation to comply with the rules in this part is determined on the basis of cabin pressure altitudes and flight duration, consistent with the operating procedures established for each operation and route.
 - (3) The requirements for airplanes with pressurized cabins are determined on the basis of cabin pressure altitude and the assumption that a cabin pressurization failure will occur at the altitude or point of flight that is most critical from the standpoint of oxygen need, and that after the failure the airplane will descend in accordance with the emergency procedures specified in the Airplane Flight Manual, without exceeding its operating limitations, to a flight altitude that will allow successful termination of the flight.
 - (4) Following the failure, the cabin pressure altitude is considered to be the same as the flight altitude unless it is shown that no probable failure of the cabin or pressurization equipment will result in a cabin pressure altitude equal to the flight altitude. Under those circumstances, the maximum cabin pressure altitude attained may be used as a basis for certification or determination of oxygen supply, or both.
- (b) Crewmembers. Each certificate holder shall provide a supply of oxygen for crewmembers in accordance with the following:
- (1) At cabin pressure altitudes above 10,000 feet, up to and including 12,000 feet, oxygen must be provided for and used by each member of the flight crew on flight deck duty and must be provided for other crewmembers for that part of the flight at those altitudes that is of more than 30 minutes duration.
 - (2) At cabin pressure altitudes above 12,000 feet, oxygen must be provided for, and used by, each member of the flight crew on flight deck duty, and must be provided for other crewmembers during the entire flight at those altitudes.
 - (3) When a flight crewmember is required to use oxygen, he must use it continuously except when necessary to remove the oxygen mask or other dispenser in connection with his regular duties. Standby crewmembers who are on call or are definitely going to have flight deck duty before completing the flight must be provided with an amount of supplemental oxygen equal to that provided for crewmembers on duty other than on flight duty. If a standby crewmember is not on call and will not be on flight deck duty during the remainder of the flight, he is considered to be a passenger for the purposes of supplemental oxygen requirements.

- (c) Passengers. Each certificate holder shall provide a supply of oxygen for passengers in accordance with the following:
 - (1) For flights at cabin pressure altitudes above 10,000 feet, up to and including 14,000 feet, enough oxygen for that part of the flight at those altitudes that is of more than 30 minutes duration, for 10 percent of the passengers.
 - (2) For flights at cabin pressure altitudes above 14,000 feet, up to and including 15,000 feet, enough oxygen for that part of the flight at those altitudes for 30 percent of the passengers.
 - (3) For flights at cabin pressure altitudes above 15,000 feet, enough oxygen for each passenger carried during the entire flight at those altitudes.

121.331 Supplemental Oxygen Requirement for Pressurized Cabin Airplanes: Reciprocating Engine Powered Airplanes

- (a) When operating a reciprocating-engine powered airplane pressurized cabin, each certificate holder shall equip the airplane to comply with Paragraphs (b) through (d) of this section in the event of cabin pressurization failure.
- (b) For crewmembers. When operating at flight altitudes above 10,000 feet, the certificate holder shall provide enough oxygen for each crewmember for the entire flight at those altitudes and not less than a two hour supply for each flight crewmember on flight deck duty. The required two hours supply is that quantity of oxygen necessary for a constant rate of descent from the airplane's maximum certificated operating altitude to 10,000 feet in ten minutes and followed by 110 minutes at 10,000 feet. The oxygen required by Section 121.337 may be considered in determining the supplemental breathing supply required for flight crewmembers on flight deck duty in the event of cabin pressurization failure.
- (c) For passengers. When operating at flight altitudes above 8,000 feet, the certificate holder shall provide oxygen as follows:
 - (1) When an airplane is not flown at a flight altitude above flight level 250, enough oxygen for 30 minutes for 10 percent of the passengers, if at any point along the route to be flown the airplane can safely descend to a flight altitude of 14,000 feet or less within four minutes.
 - (2) If the airplane cannot descend to a flight altitude of 14,000 feet or less within four minutes, the following supply of oxygen must be provided:
 - (i) For that part of the flight that is more than four minutes duration at flight altitudes above 15,000 feet, the supply required by Section 121.327(c)(3).
 - (ii) For that part of the flight at flight altitudes above 14,000 feet, up to and including 15,000 feet, the supply required by Section 121.327(c)(2).
 - (iii) For flight at flight altitudes above 8,000 feet up to and including 14,000 feet, enough oxygen for 30 minutes for 10 percent of the passengers.
 - (3) When an airplane is flown at a flight altitude above flight level 250, enough oxygen for 30 minutes for 10 percent of the passengers for the entire flight (including emergency descent) above 8,000 feet, up to and including 14,000

feet, and to comply with Section 121.327(c)(2) and (3) for flight above 14,000 feet.

- (d) For the purposes of this section it is assumed that the cabin pressurization failure occurs at a time during flight that is critical from the standpoint of oxygen need and that after the failure the airplane will descend, without exceeding its normal operating limitations, to flight altitudes allowing safe flight with respect to terrain clearance.

121.333 Supplemental Oxygen for Emergency Descent and for First Aid; Turbine Engine Powered Airplanes with Pressurized Cabins

- (a) General. When operating a turbine engine powered airplane with a pressurized cabin, the certificate holder shall furnish oxygen and dispensing equipment to comply with Paragraphs (b) through (e) of this section in the event of cabin pressurization failure.
- (b) Crewmembers. When operating at flight altitudes above 10,000 feet, the certificate holder shall supply enough oxygen to comply with Section 121.329, but not less than a two hour supply for each flight crewmember on flight deck duty. The required two hours supply is that quantity of oxygen necessary for a constant rate of descent from the airplane's maximum certificated operating altitude to 10,000 feet in ten minutes and followed by 110 minutes at 10,000 feet. The oxygen required in the event of cabin pressurization failure by Section 121.337 may be included in determining the supply required for flight crewmembers on flight deck duty.
- (c) Use of oxygen masks by flight crewmembers.
 - (1) When operating at flight altitudes above flight level 250, each flight crewmember on flight deck duty must be provided with an oxygen mask so designed that it can be rapidly placed on his face from its ready position, properly secured, sealed, and supplying oxygen upon demand; and so designed that after being placed on the face it does not prevent immediate communication between the flight crewmember and other crewmembers over the airplane intercommunication system. When it is not being used at flight altitudes above flight level 250, the oxygen mask must be kept in condition for ready use and located so as to be within the immediate reach of the flight crewmember while at his duty station.
 - (2) When operating at flight altitudes above flight level 250, one pilot at the controls of the airplane shall at all times wear and use an oxygen mask secured, sealed, and supplying oxygen, except that the one pilot need not wear and use an oxygen mask while at or below flight level 410 if each flight crewmember on flight deck duty has a quick donning type of oxygen mask that the certificate holder has shown can be placed on the face from its ready position, properly secured, sealed, and supplying oxygen upon demand, with one hand and within five seconds. The certificate holder shall also show that the mask can be put on without disturbing eye glasses and without delaying the flight crewmember from proceeding with his assigned emergency duties.

The oxygen mask after being put on must not prevent immediate communication between the flight crewmember and other crewmembers over the airplane intercommunication system.

- (3) Notwithstanding Paragraph (c)(2) of this section, if for any reason at any time it is necessary for one pilot to leave his station at the controls of the airplane when operating at flight altitudes above flight level 250, the remaining pilot at the controls shall put on and use his oxygen mask until the other pilot has returned to his duty station.
 - (4) Before the takeoff of a flight, each flight crewmember shall personally preflight his oxygen equipment to ensure that the oxygen mask is functioning, fitted properly, and connected to appropriate supply terminals, and that the oxygen supply and pressure are adequate for use.
- (d) Use of portable oxygen equipment by cabin attendants. Each attendant shall, during flight above flight level 250 flight altitude, carry portable oxygen equipment with at least a 15 minute supply of oxygen unless it is shown that enough portable oxygen units with masks or spare outlets and masks are distributed throughout the cabin to ensure immediate availability of oxygen to each cabin attendant, regardless of his location at the time of cabin depressurization.
- (e) Passenger cabin occupants. When the airplane is operating at flight altitudes above 10,000 feet, the following supply of oxygen must be provided for the use of passenger cabin occupants:
- (1) When an airplane certificated to operate at flight altitudes up to and including flight level 250, can at any point along the route to be flown, descend safely to a flight altitude of 14,000 feet or less within four minutes, oxygen must be available at the rate prescribed by this part for a 30 minute period for at least 10 percent of the passenger cabin occupants.
 - (2) When an airplane is operated at flight altitudes up to and including flight level 250 and cannot descend safely to a flight altitude of 14,000 feet within four minutes, or when an airplane is operated at flight altitudes above flight level 250, oxygen must be available at the rate prescribed by this part for not less than 10 percent of the passenger cabin occupants for the entire flight after cabin depressurization, at cabin pressure altitudes above 10,000 feet up to and including 14,000 feet and, as applicable, to allow compliance with Section 121.329(c)(2) and (3), except that there must be not less than a 10 minute supply for the passenger cabin occupants.
 - (3) For first aid treatment of occupants who for physiological reasons might require undiluted oxygen following descent from cabin pressure altitudes above flight level 250, a supply of oxygen in accordance with the requirements of Section 25.1443(d) must be provided for two percent of the occupants for the entire flight after cabin depressurization at cabin pressure altitudes above 8,000 feet, but in no case to less than one person. An appropriate number of acceptable dispensing units, but in no case less than two, must be provided, with a means for the cabin attendants to use this supply.

- (f) Passenger briefing. Before flight is conducted above flight level 250, a crewmember shall instruct the passengers on the necessity of using oxygen in the event of cabin depressurization and shall point out to them the location and demonstrate the use of the oxygen dispensing equipment.

121.335 Oxygen Equipment Standards

- (a) Reciprocating-engine powered airplanes. The oxygen apparatus, the minimum rates of oxygen flow, and the supply of oxygen necessary to comply with Section 121.327 must meet the standards established by the DGCA, except that if the certificate holder shows full compliance with those standards to be impracticable, the Director may authorize any change in those standards that he finds will provide an equivalent level of safety.
- (b) Turbine engine powered airplanes. The oxygen apparatus, the minimum rate of oxygen flow, and the supply of oxygen necessary to comply with Sections 121.329 and 121.333 must meet the standards established by the DGCA, except that if the certificate holder shows full compliance with those standards to be impracticable, the Director may authorize any changes in those standards that he finds will provide an equivalent level of safety.

121.337 Protective Breathing Equipment

- (a) The certificate holder shall furnish approved protective breathing equipment (PBE) meeting the equipment, breathing gas, and communication requirements contained in paragraph (b) of this section.
- (b) No person may operate an airplane unless protective breathing equipment meeting the requirements of this section is provided as follows:
 - (1) General. The equipment must protect the flightcrew from the effects of smoke, carbon dioxide or other harmful gases or an oxygen deficient environment caused by other than an airplane depressurization while on flight deck duty and must protect crewmembers from the above effects while combating fires on board the airplane.
 - (2) The equipment must be inspected in accordance with inspection periods established by the equipment manufacturer to ensure its condition for continued serviceability and immediate readiness to perform its intended emergency purposes. The inspection periods may be changed upon a showing by the certificate holder that the changes would provide an equivalent level of safety.
 - (3) That part of the equipment protecting the eyes must not impair the wearer's vision to the extent that a crewmember's duties cannot be accomplished and must allow corrective glasses to be worn without impairment of vision or loss of the protection required by paragraph (b)(1) of this section.
 - (4) The equipment, while in use, must allow the flightcrew to communicate using the airplane radio equipment and to communicate by interphone with each other

while at their assigned duty stations. The equipment, while in use, must also allow crewmember interphone communications between each of two flight crewmember stations in the pilot compartment and at least one normal flight attendant station in each passenger compartment.

- (5) The equipment, while in use, must allow any crewmember to use the airplane interphone system at any of the flight attendant stations referred to in paragraph (b)(4) of this section.
- (6) The equipment may also be used to meet the supplemental oxygen requirements of this part provided it meets the oxygen equipment standards of CASR 121.335 of this part.
- (7) Protective breathing gas duration and supply system equipment requirements are as follows:
 - (i) The equipment must supply breathing gas for 15 minutes at a pressure altitude of 8,000 feet for the following:
 - (A) Flight crewmembers while performing flight deck duties; and
 - (B) Crewmembers while combating an in-flight fire.
 - (ii) The breathing gas system must be free from hazards in itself, in its method of operation, and in its effect upon other components. (iii) For breathing gas systems other than chemical oxygen generators, there must be a means to allow the crew to readily determine, during the equipment preflight described in paragraph (c) of this section, that the gas supply is fully charged.
 - (iii) For breathing gas systems other than chemical oxygen generators, there must be a means to allow the crew to readily determine, during flight, the quantity of breathing gas available in each source of supply.
 - (iv) For each chemical oxygen generator, the supply system equipment must meet the requirements of CASR 25.1450(b) and (c) of this chapter.
- (8) Smoke and fume protection. Protective breathing equipment with a fixed or portable breathing gas supply meeting the requirements of this section must be conveniently located on the flight deck and be easily accessible for immediate use by each required flight crewmember at his or her assigned duty station.
- (9) Fire combating, protective breathing equipment with a portable breathing gas supply meeting the requirements of this section must be easily accessible and conveniently located for immediate use by crewmembers in combating fires as follows:
 - (i) One PBE is required for each hand fire extinguisher located for use in a galley
 - (ii) One on the flight deck, except that the DGCA may authorize another location for this PBE if special circumstances exist that make compliance impractical and the proposed deviation would provide an equivalent level of safety.
 - (iii) In each passenger compartment, one for each hand fire extinguisher, to be located within 3 feet of each required hand fire extinguisher, except that the DGCA may authorize a deviation allowing locations of PBE more than 3 feet from required hand fire extinguisher locations if special

circumstances exist that make compliance impractical and if the proposed deviation provides an equivalent level of safety.

- (iv) One for use in each Class A, B, and E cargo compartment (as defined in CASR 25.857 of this chapter) that is accessible to crewmembers in the compartment during flight.
- (v) In each passenger compartment, one located within 3 feet of each hand fire extinguisher required by CASR 121.309 of this part, except that the DGCA may authorize a deviation allowing locations of PBE more than 3 feet from required hand fire extinguisher locations if special circumstances exist that make compliance impractical and the proposed deviation provides an equivalent level of safety.

(c) Equipment preflight.

- (1) Before each flight, each item of PBE at flight crewmember duty stations must be checked by the flight crewmember who will use the equipment to ensure that the equipment:
 - (i) For other than chemical oxygen generator systems, is functioning, is serviceable, fits properly (unless a universal fit type), and is connected to supply terminals and that the breathing gas supply and pressure are adequate for use; and
 - (ii) For chemical oxygen generator systems, is serviceable and fits properly (unless a universal fit type).
- (2) Each item of PBE located at other than a flight crewmember duty station must be checked by a designated crewmember to ensure that each is properly stowed and serviceable, and, for other than chemical oxygen generator systems, the breathing gas supply is fully charged. Each certificate holder, in its operations manual, must designate at least one crewmember to perform those checks before he or she takes off in that airplane for his or her first flight of the day.

121.339 Aircraft Overwater Operations

- (a) All seaplanes including amphibians operated as seaplanes for all flights shall be equipped with:
 - (1) one life jacket, or equivalent individual floatation device, for each person on board, stowed in a position readily accessible from the seat or berth;
 - (2) equipment for making the sound signals prescribed in the International Regulations for Preventing Collisions at Sea, where applicable;
 - (3) one sea anchor (drogue).
- (b) All landplanes, when conduct extended over water operation shall carry one life jacket or equivalent individual floatation device for each person on board, stowed in a position easily accessible from the seat or berth.

- (c) all multi-engine airplanes when used over routes on which the airplane may be over water and at more than a distance corresponding to 120 minutes at cruising speed or 740 km (400 NM), whichever is the lesser, shall be equipped with:
 - (1) life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such life-saving equipment including means of sustaining life as is appropriate to the flight to be undertaken;
 - (2) equipment for making the pyrotechnical distress; and
 - (3) after January 1st, 2018, on all aeroplanes of a maximum certificated take-off mass of over 27 000 kg, a securely attached underwater locating device operating at a frequency of 8.8 kHz. This automatically activated underwater locating device shall operate for a minimum of 30 days and shall not be installed in wings or empennage.

121.340 [Reserved]

121.341 Equipment for Operation in Icing Conditions

- (a) Unless an airplane is certificated under the transport category airworthiness requirements relating to ice protection, no person may operate an airplane in icing conditions unless it is equipped with means for the prevention or removal of ice on windshields, wings, empennage, propellers, and other parts of the airplane where ice formation will adversely affect the safety of the airplane.
- (b) No person may operate an airplane in icing conditions at night unless means are provided for illuminating or otherwise determining the formation of ice on the parts of the wings that are critical from the standpoint of ice accumulation. Any illuminating that is used must be of a type that will not cause glare or reflection that would handicap crewmembers in the performance of their duties.
- (c) If current weather reports and briefing information relied upon by the pilot in command indicate that the forecast icing condition that would otherwise prohibit the flight will not be encountered during the flight because of changed weather conditions since the forecast.

121.342 Pitot Heat Indication Systems

No Person may operate a transport category airplane that is equipped with a flight instrument pitot heating system unless the airplane is also equipped with an operable pitot heat indication system that complies with Section 25.1326 of the CASRs.

121.343 Flight Recorders

No certificate holder may operate a transport category airplane unless it is equipped with an approved flight recorder, as required by CASR 91.231.

121.344 [Reserved]**121.344a [Reserved]****121.345 Radio Equipment**

- (a) No person may operate an airplane unless it is equipped with radio equipment required for the kind of operation being conducted and shall provide for communications on the aeronautical emergency frequency 121.5 MHz.
- (b) In addition to the requirements specified in (a) and (c), no person may operate airplane in defined portions of airspace or on routes where an RCP type has been prescribed, unless it is provided with communication equipment which will enable it to operate in accordance with the prescribed RCP type(s).
- (c) Where two independent (separate and complete) radio systems are required by Sections 121.347, each system must have an independent antenna installation except that, where rigidly supported non-wire antennas or other antenna installations of equivalent reliability are used, only one antenna is required.
- (d) ATC transponder equipment installed within the time periods indicated below must meet the performance and environmental requirements of the following:
 - (1) *Through January 1, 1992:*
 - (i) Any class of FAA TSO-C74b or any class of FAA TSO-C74c or equivalent as appropriate, provided that the equipment was manufactured before January 1, 1990; or
 - (ii) The appropriate class of FAA TSO-C112 (Mode S) or equivalent.
 - (2) *After January 1, 1992:* The appropriate class of FAA TSO-C112 (Mode S) or equivalent. For purposes of paragraph (c) (2) of this section, "installation" does not include—
 - (i) Temporary installation of FAA TSO-C74b or FAA TSO-C74c or equivalent substitute equipment, as appropriate, during maintenance of the permanent equipment;
 - (ii) Reinstallation of equipment after temporary removal for maintenance; or
 - (iii) For fleet operations, installation of equipment in a fleet aircraft after removal of the equipment for maintenance from another aircraft in the same operator's fleet.

121.347 Communication Equipment

No person may operate an airplane, unless the airplane is equipped with—

- (a) At least two independent communication systems necessary under normal operating conditions to fulfill the following:
 - (1) Communicate with at least one appropriate ground station from any point on the route.
 - (2) Communicate with appropriate traffic control facilities.
 - (3) Receive meteorological information from any point enroute by either of two independent systems. One of the means provided to comply with this section may be used to comply with Subparagraph (a)(1) and (a)(2) of this section.
- (b) At least one of the communication systems required by paragraph (a) of this section must have two-way voice communication capability.

121.349 Navigation Equipment

- (a) No person may operate an airplane, unless—
 - (1) The en route navigation aids necessary for navigating the airplane along the route (e.g., ATS routes, arrival and departure routes, and instrument approach procedures, including missed approach procedures if a missed approach routing is specified in the procedure) are available and suitable for use by the aircraft navigation systems required by this section;
 - (2) The airplane used in those operations is equipped with at least—
 - (i) Except as provided in paragraph (b) of this section, two approved independent navigation systems suitable for navigating the airplane along the route to be flown within the degree of accuracy required for ATC;
 - (ii) One marker beacon receiver providing visual and aural signals; and
 - (iii) One ILS receiver; and
 - (3) For operations where a navigation specification for performance-based navigation has been prescribed, an aeroplane shall:
 - (i) be provided with navigation equipment which will enable it to operate in accordance with the prescribed navigation specification(s); and
 - (ii) be authorized in the certificate holder's operation specification and Authorizations, Conditions, and Limitations.
- (b) *Use of a single independent navigation system for operations conducted under IFR.* Notwithstanding the requirements of paragraph (a)(2)(i) of this section, the airplane may be equipped with a single independent navigation system suitable for navigating the airplane along the route to be flown within the degree of accuracy required for ATC if:
 - (1) It can be shown that the airplane is equipped with at least one other independent navigation system suitable, in the event of loss of the navigation

capability of the single independent navigation system permitted by this paragraph at any point along the route, for proceeding safely to a suitable airport and completing an instrument approach; and

- (2) The airplane has sufficient fuel so that the flight may proceed safely to a suitable airport by use of the remaining navigation system, and complete an instrument approach and land.
- (c) *Use of VOR navigation equipment* . If VOR navigation equipment is used to comply with paragraph (a) or (b) of this section, no person may operate an airplane unless it is equipped with at least one approved DME or suitable RNAV system.

121.351 Communication and Navigation Equipment for Extended Over-Water Operations and for Certain Other Operations.

Except as provided in paragraph (c) of this section, no person may conduct an extended over-water operation unless the airplane is equipped with at least two independent long-range navigation systems and at least two independent long-range communication systems necessary under normal operating conditions to fulfill the following functions—

- (a) Communicate with at least one appropriate station from any point on the route;
- (b) Receive meteorological information from any point on the route by either of two independent communication systems. One of the communication systems used to comply with this paragraph may be used to comply with paragraphs (a)(1) and (a)(3) of this section; and
- (c) At least one of the communication systems must have two-way voice communication capability.

121.352 Low-Altitude Windshear System Equipment Requirements.

- (a) Aeroplanes manufactured after January 2, 1991.

Except as provide in paragraph (c), after November 30, 2009, no person may operate a turbine-powered aeroplane manufactured after January 2, 1991, unless it is equipped with either an approved airborne windshear warning and flight guidance system, an approved airborne detection and avoidance system, or an approved combination of these systems.

- (b) Aeroplanes manufactured before January 3, 1991.

Except as provide in paragraph (c), after November 30, 2009, no person may operate a turbine-powered aeroplane manufactured before January 3, 1991 unless it meets one of the following requirements as applicable.

- (1) The makes/models/series listed below must be equipped with either an approved airborne windshear warning and flight guidance system, an approved

airborne detection and avoidance system, or an approved combination of these systems:

- (i) A-300-600;
 - (ii) A-310—all series;
 - (iii) A-320—all series;
 - (iv) B-737-300, 400, and 500 series;
 - (v) B-747-400;
 - (vi) B-757—all series;
 - (vii) B-767—all series;
 - (viii) F-100—all series;
 - (ix) MD-11—all series; and
 - (x) MD-80 series equipped with an EFIS and Honeywell-970 digital flight guidance computer.
- (2) All other turbine-powered aeroplanes not listed above must be equipped with as a minimum requirement, an approved airborne windshear warning system. These aeroplanes may be equipped with an approved airborne windshear detection and avoidance system, or an approved combination of these systems.
- (c) For ATR-GIE Avions de Transport Regional ATR 42 and ATR 72 aircraft that has been registered and operated within Indonesia, the certificate holder need not meet requirement of this section until December 31, 2012.
- (d) Definitions.
- For the purposes of this section the following definitions apply—
- (1) Turbine-powered aeroplane includes, e.g., turbofan-, turbojet-, propfan-, and ultra-high bypass fan-powered aeroplanes. The definition specifically excludes turbopropeller-powered aeroplanes.
 - (2) An aeroplane is considered manufactured on the date the inspection acceptance records reflect that the aeroplane is complete and meets the DGCA Approved Type Design data.

121.353 Emergency Equipment for Operations over Uninhabited Terrain Areas: Flag, Domestic and Supplemental Operators

Unless the aeroplane has the following equipment, no person may conduct a flag or supplemental operation over an uninhabited area or any other area that (in its operations specifications) the Director General specifies required equipment for search and rescue in case of an emergency:

- (a) Suitable pyrotechnic signaling devices.
- (b) Two approved survival type emergency locator transmitters, one of which shall be automatic. Batteries used in the transmitters must be replaced (or recharged, if the battery is rechargeable) when the transmitter has been in use for more than 1 cumulative hour, or when 50 percent of their useful life (or for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the

transmitter manufacturer under its approval. The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water activated batteries) that are essentially unaffected during probable storage intervals.

- (c) Enough survival kits, appropriately equipped for the route to be flown for the number of occupants of the aeroplane.
- (d) For ATR-GIE Avions de Transport Regional ATR 42 and ATR 72 aircraft that has been registered and operated within Indonesia, the certificate holder need not meet requirement paragraph (b) of this section until December 31, 2012.

121.354 Terrain Awareness and Warning System.

- (a) No person may operate a turbine-powered airplane, unless that airplane is equipped with an approved Terrain Awareness and Warning System (TAWS) that meets the requirements for Class A equipment in the FAA Technical Standard Order (TSO)–C151 or its equivalent. The airplane must also include an approved terrain situational awareness display.
- (b) Airplane Flight Manual. The airplane Flight Manual shall contain appropriate procedures for—
 - (1) The use of the Terrain Awareness and Warning System (TAWS); and
 - (2) Proper flight crew reaction in response to the Terrain Awareness and Warning System (TAWS) audio and visual warnings.

121.355 Equipment for Operations on Which Specialized Means of Navigation Are Used

- (a) No certificate holder may conduct an operation:
 - (1) Using Doppler Radar or an Inertial Navigation System outside the Indonesian airspace unless, such systems have been approved by DGCA.
 - (2) Using Doppler Radar or an Inertial Navigation System within Indonesian airspace, or any other specialized means of navigation, unless it shows that an adequate airborne system is provided for the specialized navigation authorized for the particular operation.
- (b) Notwithstanding paragraph (a) of this section, Doppler Radar and Inertial Navigation Systems, and the training programs, maintenance programs, relevant operations manual material, and minimum equipment lists prepared in accordance therewith, approved before April 29, 1972 are not required to be approved in accordance with that paragraph.

121.356 Collision avoidance system.

(a) After November 30, 2009, any aeroplane operated under this Part must be equipped and operated according to the following table:

Collision Avoidance Systems

Aeroplane operated	The aeroplane must be equipped with—
(A) Turbine-powered aeroplane of more than 33,000 pounds (15,000 kgs) maximum certificated takeoff weight	<p>(1) An appropriate class of Mode S transponder that meets FAA Technical Standard Order (TSO) C-112, or a later version, or its equivalent, and one of the following approved units:</p> <p>(i) TCAS II that meets FAA TSO C-119b (version 7.0), or a later version, or its equivalent.</p> <p>(ii) TCAS II that meets FAA TSO C-119a (version 6.04A Enhanced), or its equivalent, that was installed in that aeroplane before May 1, 2003. If that TCAS II version 6.04A Enhanced no longer can be repaired to FAA TSO C-119a standards, it must be replaced with a TCAS II that meets FAA TSO C-119b (version 7.0), or a later version, or its equivalent.</p> <p>(iii) A collision avoidance system equivalent to FAA TSO C-119b (version 7.0), or a later version, or its equivalent, capable of coordinating with units that meet TSO C-119a (version 6.04A Enhanced), or a later version, or its equivalent.</p>
(B) Passenger or combination cargo/ passenger (combi) aeroplane that has a passenger seat configuration of 10–30 seats	<p>(1) TCAS I that meets FAA TSO C-118, or a later version, or its equivalent, or</p> <p>(2) A collision avoidance system equivalent to has an FAA TSO C-118, or a later version, or its equivalent or</p> <p>(3) A collision avoidance system and Mode S transponder that meet paragraph (a)(1) of this section.</p>
(C) Piston-powered aeroplane of more than 33,000 pounds (15,000 kgs) maximum certificated takeoff weight	(1) TCAS I that meets FAA TSO C-118, or a later version, or its equivalent or
	(2) A collision avoidance system equivalent to maximum FAA TSO C-118, or a later version, or its equivalent or
	(3) A collision avoidance system and Mode S transponder that meet paragraph (a)(1) of this section

(b) [Reserved]

121.357 Airborne Weather Radar Equipment Requirements

- (a) No person may operate any transport category unless approved airborne weather radar equipment has been installed in the airplane.
- (b) [Reserved]
- (c) Each person operating an airplane required to have approved airborne weather radar equipment installed shall, when using it under this part, operate it in accordance with the following:
 - (1) Dispatch. No person may dispatch an airplane (or begin the flight of an airplane in the case of a certificate holder that does not use a dispatch system) under IFR or night VFR conditions when current weather reports indicate that thunderstorms, or other potentially hazardous weather conditions that can be detected with airborne weather radar, may reasonably be expected along the route to be flown, unless the airborne weather radar equipment is in satisfactory operating condition.
 - (2) If the airborne weather radar becomes inoperative enroute, the airplane must be operated in accordance with the approved instructions and procedures specified in the operations manual for such an event.
- (d) This section does not apply to airplanes used solely during any training, test, or ferry flight.
- (e) Notwithstanding any other provision of the CASRs, an alternate electrical power supply is not required for airborne weather radar equipment.

121.358 Global Positioning System (GPS)

After October 1, 1995 all aircraft must be fitted with GPS as a secondary navigation aid except those aircraft already fitted with INS, ONS, IRS or FMS.

121.359 [Reserved]**121.360 [Reserved]**

SUBPART L - MAINTENANCE, PREVENTIVE MAINTENANCE AND ALTERATIONS

121.361 Applicability

- (a) Except as provided by paragraph (b) of this section, this subpart prescribes requirements for maintenance, preventive maintenance, and alteration for all certificate holders.
- (b) The Director may amend a certificate holder's operations specifications to permit deviation from those provisions of this subpart that would prevent the return to service and use of airframe components, powerplants, appliances, and spare parts thereof because those items have been maintained, altered, or inspected by persons employed outside Indonesia who do not hold Indonesia licenses. Each certificate holder who uses parts under this deviation must provide for surveillance of facilities and practices to ensure that all work performed on these parts is accomplished in accordance with the certificate holder's manual.

121.363 Responsibility for Airworthiness

- (a) Each certificate holder is primarily responsible for—
 - (1) The airworthiness of its aircraft, including airframe, aircraft engines, propellers, appliances, and parts thereof;
 - (2) The performance of the maintenance, preventive maintenance, and alteration of its aircraft, including airframes, aircraft engines, propellers, appliances, emergency equipment, and parts thereof, in accordance with its manual and the related regulations; and
 - (3) Obtaining and assessing the continuing airworthiness informations and recommendations from the organizations responsible for the type design.
- (b) A certificate holder may make arrangements with another person for the performance of any maintenance, preventive maintenance, or alterations. However, this does not relieve the certificate holder of the responsibility specified in paragraph (a) of this section.

121.365 Maintenance, Preventive Maintenance, and Alteration Organization

- (a) Each certificate holder that performs any of its maintenance (other than required inspections), preventive maintenance, or alterations, and each person with whom it arranges for the performance of that work must have an organization adequate to perform the work. Additionally, the housing, facilities, equipment, materials, and data shall comply with CASR 145 subpart C.

- (b) Each certificate holder that performs any inspection required by its manual in accordance with section 121.369(e)(18) (in this subpart referred to as “required inspections”) and each person with whom it arranges for the performance of that work must have an organization adequate to perform that work.
- (c) Each person performing required inspections in addition to other maintenance, preventive maintenance, or alteration, shall organize the performance of those functions so as to separate the required inspection functions from the other maintenance, preventive maintenance, and alteration functions. The separation shall be below the level of administrative control at which overall responsibility for the required inspection functions and other maintenance, preventive maintenance, and alterations functions are exercised.

121.367 Maintenance Program.

- (a) Each certificate holder shall have an maintenance program for each of aircraft type, approved by the DGCA and contain the following informations:
 - (1) maintenance tasks and the intervals at which these are to be performed, taking into account the anticipated utilization of the aeroplane;
 - (2) when applicable, a continuing structural integrity programme;
 - (3) procedures for changing or deviating from (1) and (2) above;
 - (4) when applicable, condition monitoring and reliability programme descriptions for aircraft systems, components and engines; and
 - (5) maintenance task as required inspection items.
- (b) Maintenance tasks and intervals, that have been specified as mandatory in approval of the type design shall be identified as such;
- (c) Maintenance program required by this section shall be developed by considering the human factor principles;
- (d) Copies of all amendments to the maintenance program shall be furnished promptly to all organizations or persons to whom the maintenance program has been issued

121.369 Company Maintenance Manual Requirements

The certificate holder shall provide the Director with a Company Maintenance Manual accepted by DGCA.

- (a) Statement of compliance; signed declaration by the chief executive;
- (b) The design of the manual shall observe Human Factors principles;
- (c) The certificate holder shall ensure that the Company Maintenance Manual is amended as necessary to keep the information contained therein up to date;

- (d) Procedures to control, amend and distribute the company maintenance manual and all amendments promptly to all organizations or persons to whom the manual has been issued, including each of its supervisory personnel and make it available to its other personnel in their work area. The certificate holder is responsible for seeing that all supervisory and inspection personnel thoroughly understand the company maintenance manual;
- (e) The certificate holder shall provide the DGCA with a copy of the Company Maintenance Manual, together with all amendments and/or revisions to it and shall incorporate in it such mandatory material as the DGCA may require;
- (f) The Company Maintenance Manual may be issued in separate parts, and shall contain the following information:
 - (1) Procedure for the administrative arrangements between the certificate holder and the approved maintenance organization if applicable;
 - (2) Maintenance procedures and the procedures for completing and signing a maintenance release as required by CASR 121.709;
 - (3) A chart or description of the certificate holder's organization required by CASR 121.365;
 - (4) The names, duties and responsibilities of the person or persons specified in point (3) including matters for which they have responsibility to deal directly with the Director on behalf of the certificate holder;
 - (5) The procedures and programs required by CASR 121.367 that must be followed in performing maintenance, preventive maintenance, and alterations of that certificate holder's airplanes, including airframes, aircraft engines, propellers, appliances, emergency equipment, and parts thereof;
 - (6) Procedure for recording of maintenance carried out and retention of maintenance record;
 - (7) Procedures for reporting the occurrence or detection of each failure, malfunction, or defect required by CASR 121.703 and 121.705;
 - (8) Procedures for obtaining and assessing continuing airworthiness informations and implementing any resulting actions, as required by CASR 121.363 (a) (3);
 - (9) Procedure for implementing action resulting from airworthiness directive as required by CASR 39;
 - (10) Procedures for establishing and maintaining a system of analysis and continued monitoring of the performance and effectiveness of the maintenance programme, as required by CASR 121.373;
 - (11) a description of aircraft types and models to which the manual applies;
 - (12) procedures for ensuring that unserviceable systems and components affecting airworthiness are recorded and rectified, as required by CASR 121.628;
 - (13) Detailed description of the scope of work undertaken by the certificate holder.

- (14) A description of the organization's procedures and quality system as required by CASR 145.211(c);
- (15) A description of the housing, facilities, equipment, and materials as required by CASR 121.365(a);
- (16) Procedure for training program for the maintenance personnel employed by the certificate holder applicable to their assigned duties and responsibilities as required by CASR 121.375.
- (17) The list of personnel authorized to sign the maintenance release and the scope of their authorization;
- (18) Procedure for required inspection items as required by CASR 121.367(a)(5) and 121.371, and must include method of performing, designations authorized personnel, buy back, and acceptance or rejections.

121.371 Required Inspection and Appropriate Personnel

For the purpose of these regulations Required Inspection are items of maintenance and alteration that must be inspected, includes those that could result in a failure, malfunction, or defect endangering the safe operation of the aircraft, if not performed properly or improper parts or materials are used.

- (a) No person may use any person to perform required inspections unless the person performing the inspection is appropriately licensed, properly trained, qualified, and authorized to do so.
- (b) No person may allow any person to perform a required inspection unless, at that time, the person performing that inspection is under the supervision and control of an inspection unit.
- (c) No person may perform a required inspection if he performed the item of work required to be inspected.
- (d) Each certificate holder shall maintain, or shall determine that each person with whom it arranges to perform its required inspections maintains, a current listing of persons who have been trained, qualified, and authorized to conduct required inspections. The persons must be identified by name, occupational title, and the inspections that they are authorized to perform. The certificate holder (or person with whom it arranges to perform its required inspection) shall give written information to each person so authorized describing the extent of his responsibilities, authorities, and inspectional limitations. The list shall be made available for inspection by the Director upon request.

121.373 Continuing Analysis and Surveillance

- (a) Each certificate holder shall establish and maintain a system for the continuing analysis and surveillance of the performance and effectiveness of its maintenance

program and for the correction of any deficiency in those programs, regardless of whether those programs are carried out by the certificate holder or another person.

(b) The continuing analysis and surveillance system shall include—

- (1) a function to monitor maintenance program performance to ensure that everyone, including all of operators maintenance providers comply with the company maintenance manual and with all applicable regulations, through a system of audits and investigations of operational events;
- (2) a function to monitor maintenance program effectiveness to ensure that the maintenance programs is producing the desired result, through a system of data collection and analysis of operational data that results from operations of aircraft.

121.374 Continuous Airworthiness Maintenance Program (CAMP) for Two-Engine ETOPS.

In order to conduct an ETOPS flight using a two-engine airplane, each certificate holder must develop and comply with the ETOPS continuous airworthiness maintenance program, as authorized in the certificate holder's operations specifications, for each airplane-engine combination used in ETOPS. The certificate holder must develop this ETOPS CAMP by supplementing the manufacturer's maintenance program or the CAMP currently approved for the certificate holder. This ETOPS CAMP must include the following elements:

(a) *ETOPS maintenance document.* The certificate holder must have an ETOPS maintenance document for use by each person involved in ETOPS.

(1) The document must—

- (i) List each ETOPS significant system,
- (ii) Refer to or include all of the ETOPS maintenance elements in this section,
- (iii) Refer to or include all supportive programs and procedures,
- (iv) Refer to or include all duties and responsibilities, and
- (v) Clearly state where referenced material is located in the certificate holder's document system.

(b) *ETOPS pre-departure service check.* Except as provided in Appendix P of this part, the certificate holder must develop a pre-departure check tailored to their specific operation.

(1) The certificate holder must complete a pre-departure service check immediately before each ETOPS flight.

(2) At a minimum, this check must—

- (i) Verify the condition of all ETOPS Significant Systems;
- (ii) Verify the overall status of the airplane by reviewing applicable maintenance records; and
- (iii) Include an interior and exterior inspection to include a determination of engine and APU oil levels and consumption rates.

- (3) An appropriately trained maintenance person, who is ETOPS qualified, must accomplish and certify by signature ETOPS specific tasks. Before an ETOPS flight may commence, an ETOPS pre-departure service check (PDSC) Signatory Person, who has been authorized by the certificate holder, must certify by signature, that the ETOPS PDSC has been completed.
- (4) For the purposes of this paragraph (b) only, the following definitions apply:
 - (i) ETOPS qualified person: A person is ETOPS qualified when that person satisfactorily completes the operator's ETOPS training program and is authorized by the certificate holder.
 - (ii) ETOPS PDSC Signatory Person: A person is an ETOPS PDSC Signatory Person when that person is ETOPS qualified and that person:
 - (A) When certifying the completion of the ETOPS PDSC in Indonesia:
 - 1) Works for an operator authorized to engage in part 121 operation or works for a part 145 repair station; and
 - 2) Is appropriately qualified as Aircraft Maintenance Engineer (AME).
 - (B) When certifying the completion of the ETOPS PDSC outside of Indonesia holds a certificate in accordance with CASR Part 43
 - (C) When certifying the completion of the ETOPS PDSC outside Indonesia and holds the certificates needed or has the requisite experience or training to return aircraft to service on behalf of an ETOPS maintenance entity.
 - (iii) ETOPS maintenance entity: An entity authorized to perform ETOPS maintenance and complete ETOPS PDSC and that entity is:
 - (A) Certificated to engage in part 121 operations;
 - (B) Repair station certificated under part 145 of this chapter; or
 - (C) Entity authorized pursuant to CASR 43.
- (c) *Limitations on dual maintenance.*
 - (1) Except as specified in paragraph (c)(2), the certificate holder may not perform scheduled or unscheduled dual maintenance during the same maintenance visit on the same or a substantially similar ETOPS Significant System listed in the ETOPS maintenance document, if the improper maintenance could result in the failure of an ETOPS Significant System.
 - (2) In the event dual maintenance as defined in paragraph (c)(1) of this section cannot be avoided, the certificate holder may perform maintenance provided:
 - (i) The maintenance action on each affected ETOPS Significant System is performed by a different technician, or
 - (ii) The maintenance action on each affected ETOPS Significant System is performed by the same technician under the direct supervision of a second qualified individual; and
 - (iii) For either paragraph (c)(2)(i) or (ii) of this section, a qualified individual conducts a ground verification test and any in-flight verification test

required under the program developed pursuant to paragraph (d) of this section.

- (d) *Verification program.* The certificate holder must develop and maintain a program for the resolution of discrepancies that will ensure the effectiveness of maintenance actions taken on ETOPS Significant Systems. The verification program must identify potential problems and verify satisfactory corrective action. The verification program must include ground verification and in-flight verification policy and procedures. The certificate holder must establish procedures to indicate clearly who is going to initiate the verification action and what action is necessary. The verification action may be performed on an ETOPS revenue flight provided the verification action is documented as satisfactorily completed upon reaching the ETOPS Entry Point.
- (e) *Task identification.* The certificate holder must identify all ETOPS-specific tasks. An appropriately trained mechanic who is ETOPS qualified must accomplish and certify by signature that the ETOPS-specific task has been completed.
- (f) *Centralized maintenance control procedures.* The certificate holder must develop and maintain procedures for centralized maintenance control for ETOPS.
- (g) *Parts control program.* The certificate holder must develop an ETOPS parts control program to ensure the proper identification of parts used to maintain the configuration of airplanes used in ETOPS.
- (h) *Reliability program.* The certificate holder must have an ETOPS reliability program. This program must be the certificate holder's existing reliability program or its Continuing Analysis and Surveillance System (CASS) supplemented for ETOPS. This program must be event-oriented and include procedures to report the events listed below, as follows:
 - (1) The certificate holder must report the following events within 96 hours of the occurrence to the DGCA.
 - (i) IFSDs, except planned IFSDs performed for flight training.
 - (ii) Diversions and turnbacks for failures, malfunctions, or defects associated with any airplane or engine system.
 - (iii) Uncommanded power or thrust changes or surges.
 - (iv) Inability to control the engine or obtain desired power or thrust.
 - (v) Inadvertent fuel loss or unavailability, or uncorrectable fuel imbalance in flight.
 - (vi) Failures, malfunctions or defects associated with ETOPS Significant Systems.
 - (vii) Any event that would jeopardize the safe flight and landing of the airplane on an ETOPS flight.
 - (2) The certificate holder must investigate the cause of each event listed in paragraph (h)(1) of this section and submit findings and a description of corrective action to the DGCA. The report must include the information specified in Section 121.703(e). The corrective action must be acceptable to the DGCA.
- (i) *Propulsion system monitoring.*

- (1) If the IFSD rate (computed on a 12-month rolling average) for an engine installed as part of an airplane-engine combination exceeds the following values, the certificate holder must do a comprehensive review of its operations to identify any common cause effects and systemic errors. The IFSD rate must be computed using all engines of that type in the certificate holder's entire fleet of airplanes approved for ETOPS.
 - (i) A rate of 0.05 per 1,000 engine hours for ETOPS up to and including 120 minutes.
 - (ii) A rate of 0.03 per 1,000 engine hours for ETOPS beyond 120-minutes up to and including 207 minutes in the North Pacific Area of Operation and up to and including 180 minutes elsewhere.
 - (iii) A rate of 0.02 per 1,000 engine hours for ETOPS beyond 207 minutes in the North Pacific Area of Operation and beyond 180 minutes elsewhere.
 - (2) Within 30 days of exceeding the rates above, the certificate holder must submit a report of investigation and any necessary corrective action taken to the DGCA.
- (j) *Engine condition monitoring.*
- (1) The certificate holder must have an engine condition monitoring program to detect deterioration at an early stage and to allow for corrective action before safe operation is affected.
 - (2) This program must describe the parameters to be monitored, the method of data collection, the method of analyzing data, and the process for taking corrective action.
 - (3) The program must ensure that engine-limit margins are maintained so that a prolonged engine-inoperative diversion may be conducted at approved power levels and in all expected environmental conditions without exceeding approved engine limits. This includes approved limits for items such as rotor speeds and exhaust gas temperatures.
- (k) *Oil-consumption monitoring.* The certificate holder must have an engine oil consumption monitoring program to ensure that there is enough oil to complete each ETOPS flight. APU oil consumption must be included if an APU is required for ETOPS. The operator's oil consumption limit may not exceed the manufacturer's recommendation. Monitoring must be continuous and include oil added at each ETOPS departure point. The program must compare the amount of oil added at each ETOPS departure point with the running average consumption to identify sudden increases.
- (l) *APU in-flight start program.* If the airplane type certificate requires an APU but does not require the APU to run during the ETOPS portion of the flight, the certificate holder must develop and maintain a program acceptable to the DGCA for cold soak in-flight start-and-run reliability.
- (m) *Maintenance training.* For each airplane-engine combination, the certificate holder must develop a maintenance training program that provides training adequate to support ETOPS. It must include ETOPS specific training for all persons involved in

ETOPS maintenance that focuses on the special nature of ETOPS. This training must be in addition to the operator's maintenance training program used to qualify individuals to perform work on specific airplanes and engines.

- (n) *Configuration, maintenance, and procedures (CMP) document.* If an airplane-engine combination has a CMP document, the certificate holder must use a system that ensures compliance with the applicable DGCA approved document.
- (o) *Procedural changes.* Each substantial change to the maintenance or training procedures that were used to qualify the certificate holder for ETOPS, must be submitted to the DGCA for review. The certificate holder cannot implement a change until the DGCA notifies the certificate holder that the review is complete.

121.375 Maintenance and Preventive Maintenance Training Program

- (a) Each certificate holder or person performing maintenance or preventive maintenance functions for it shall have a training program to ensure that each person (including inspection personnel) who determines the adequacy of work done is fully informed about procedures and techniques and new equipment in use and is competent to perform his duties.
- (b) The training program shall ensure all maintenance personnel receive initial training and continuation training appropriate to their assigned tasks and responsibilities, and shall include training in knowledge and skills related to human performance, including co-ordination with other maintenance personnel and flight crew.

121.377 Maintenance and Preventive Maintenance Personnel Duty Time Limitations

Within Indonesia, each certificate holder (or person performing maintenance or preventive maintenance functions for it) shall relieve each person performing maintenance or preventive maintenance from duty for a period of at least 24 consecutive hours during any seven consecutive days, or the equivalent thereof within any one calendar month.

121.378 Certificate Requirements

- (a) Except for maintenance, preventive maintenance, alterations, and required inspections performed by Approved Maintenance Organizations certificated under the provisions of subpart C of Part 145, each person who is directly in charge of maintenance, preventive maintenance, or alteration, and each person performing required inspections must hold an appropriate License issued under Part 65.
- (b) For the purposes of this section, a person "directly in charge" is each person assigned to a position in which he is responsible for the work of a shop or organization that performs maintenance, preventive maintenance, alterations, or

other functions affecting aircraft airworthiness. A person who is “directly in charge” need not physically observe and direct each worker constantly but must be available for consultation and decision on matters requiring instruction or decision from higher authority than that of the persons performing the work.

121.379 Authority to Perform and Approve Maintenance, Preventive Maintenance, and Alterations

- (a) A certificate holder may perform, or it may make arrangements with other persons to perform, maintenance, preventive maintenance, and alterations as provided in its continuous airworthiness maintenance program and its maintenance manual.
- (b) A certificate holder may approve any aircraft, airframe, airframe engine, propeller, or appliance for return to service after maintenance, preventive maintenance, or alterations that are performed under paragraph (a) of this section. However, in the case of a major repair or major alteration, the work must have been done in accordance with technical data approved by the Director.

121.380 Maintenance Recording Requirements

- (a) Each certificate holder shall keep (using system specified in the manual required in CASR 121.369) the following records for the periods specified in paragraph (b) of this section
 - (1) All the records necessary to show that all requirements for the issuance of a maintenance release under CASR 43 and section 121.709 have been met.
 - (2) Records containing the following information:
 - (i) The total time in service of the airframe.
 - (ii) The total time in service of each engine and propeller.
 - (iii) The current status of life-limited parts of each airframe, engine, propeller, and appliance.
 - (iv) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.
 - (v) The identification of the current inspection status of the aircraft, including the times since the last inspections required by the inspection program under which the aircraft and its appliances are maintained.
 - (vi) The current status of applicable airworthiness directives, including the date and methods of compliance, and if the airworthiness directive involves recurring action, the time and date when the next action is required.
 - (vii) A list of current alterations to each airframe, engine, propeller, and appliance.
- (a) Each certificate holder shall retain the records required to be kept by this section for the following periods:
 - (1) Except for the records of the last complete overhaul of each airframe, engine, propeller, and appliance, the records specified in paragraph (a)(1) of this

section shall be retained until the work is repeated or superseded by other work or for two years after the work is performed.

- (2) The records of the last complete overhaul of each airframe, engine, propeller, and appliance shall be retained until the work is superseded by work of equivalent scope and detail.
 - (3) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.
 - (4) The records specified in paragraph (a)(2) of this section shall be retained for a minimum period of 90 days after the unit to which they refer has been permanently withdrawn from service.
- (b) The certificate holder shall make all maintenance records required to be kept by this section available for inspection by the Director.

121.380a Transfer of Maintenance Records

Each certificate holder who sells an Indonesian registered aircraft shall transfer to the purchaser, at the time of sale, the following records of that aircraft, in plain language form or in coded form at the election of the purchaser, if the coded form provides for the preservation and retrieval of information in a manner acceptable to the Director:

- (a) The records specified in section 121.380(a)(2).
- (b) The records specified in section 121.380(a)(1) which are not included in the records covered by paragraph (a) of this section, except that the purchaser may permit the seller to keep physical custody of such records. However, custody of records in the seller does not relieve the purchaser of his responsibility under section 121.380(c) to make the records available for inspection by the Director.

SUBPART M - AIRMAN AND CREWMEMBER REQUIREMENTS

121.381 Applicability

This subpart prescribes airman and crewmember requirements for all certificate holders.

121.383 Airman: Limitations on Use of Services

- (a) No certificate holder may use any person as an airman nor may any person serve as an airman unless that person:
 - (1) Holds an appropriate current airman certificate issued by the DGCA;
 - (2) Has any required appropriate current airman and medical certificates in his possession while engaged in operations under this part; and
 - (3) Is otherwise qualified for the operation for which he is to be used.
 - (4) Has at least a current level 4 language proficiency (english), for international operations.
- (b) Each airman covered by Paragraph (a)(2) of this section shall present either or both certificates for inspection upon the request of the Director.
- (c) No certificate holder may use the services of any person as a pilot in-command on an airplane engaged in operations under this part if that person has reached his or her 60th birthday. No person may serve as a pilot in-command on an airplane engaged in operations under this part if that person has reached his or her 60th birthday.
- (d) In the case of operations with more than one pilot, no certificate holder may use the services of any person as a pilot in command on an airplane engaged in operations under this part and no person may serve as a pilot in command (PIC) on an airplane engaged in operations under this part if that person has reached his or her 65th birthday, or the amount of the age of both pilot exceed 115 years.

121.385 Composition of Flight Crew

- (a) No certificate holder may operate an airplane with less than the minimum flight crew in the airworthiness certificate or the airplane Flight Manual approved for that type airplane and required by this part for the kind of operation being conducted.
- (b) In any case in which this part requires the performance of two or more functions for which an airman certificate is necessary, that requirement is not satisfied by the performance of multiple functions at the same time by one airman.
- (c) A certificate holder minimum pilot crew is two pilots and the certificate holder shall designate one pilot as pilot in command and the other second in command.

- (d) On each flight requiring a flight engineer at least one flight crewmember, other than the flight engineer, must be qualified to provide emergency performance of the flight engineer's functions for the safe completion of the flight if the flight engineer becomes ill or is otherwise incapacitated. A pilot need not hold a flight engineer's certificate to perform the flight engineer's functions in such a situation.
- (e) The flight crew shall include at least one member who holds a valid radiotelephone operator license, issued or validated by the DGCA, authorizing operation of the type of radio transmitting equipment to be used.

121.387 Flight Engineer

- (a) No person may operate the following airplanes without a flight crewmember holding a current flight engineer licence:
 - (1) An airplane for which a flight engineer is required by the airplane's type certification requirements.
 - (2) An airplane for which DGCA deems a flight engineer is necessary by the requirements of Part 25.

121.389 Flight Navigator and Specialized Navigation Equipment

- (a) No certificate holder may operate an airplane outside Indonesian airspace, when its position cannot be reliably fixed for a period of more than 1 hour, without:
 - (1) A flight crewmember who holds a current flight navigator certificate; or
 - (2) Specialized means of navigation approved in accordance with Section 121.355 which enables a reliable determination to be made of the position of the airplane by each pilot seated at his duty station.
- (b) Notwithstanding Paragraph (a) of this section, the Director may also require a flight navigator or special navigation equipment, or both, when specialized means of navigation are necessary for 1 hour or less. In making this determination, the Director considers:
 - (1) The speed of the airplane;
 - (2) Normal weather conditions enroute;
 - (3) Extent of air traffic control;
 - (4) Traffic congestion;
 - (5) Area of navigational radio coverage at destination;
 - (6) Fuel requirements;
 - (7) Fuel available for return to point of departure or alternates;
 - (8) Predication of flight upon operation beyond the point of no return; and
 - (9) Any other factors he determines are relevant in the interest of safety.

- (c) Operations where a flight navigator or special navigation equipment, or both, are required are specified in the operations specifications of the air carrier or commercial operator.

121.391 Flight Attendants

- (a) Each certificate holder shall provide at least the following flight attendants on each passenger-carrying airplane used:
 - (1) For airplanes having a seating capacity of more than nine but less than 51 passengers - one flight attendant.
 - (2) For airplanes having a seating capacity of more than 50 but less than 101 passengers two flight attendants.
 - (3) For airplanes having a seating capacity of more than 100 passengers two flight attendants plus one additional flight attendant for each unit (or part of a unit) of 50 passenger seats above a seating capacity of 100 passengers.
- (b) If, in conducting the emergency evacuation demonstration required under Section 121.291(a) or (b), the certificate holder used more flight attendants than is required under Paragraph (a) of this section for the maximum seating capacity of the airplane used in the demonstration, he may not, thereafter, takeoff that airplane:
 - (1) In its maximum seating capacity configuration with fewer flight attendants than the number used during the emergency evacuation demonstration; or
 - (2) In any reduced seating capacity configuration with fewer flight attendants than the number required by Paragraph (a) of this section for that seating capacity plus the number of flight attendants used during the emergency evacuation demonstration that were in excess of those required under Paragraph (a) of this section.
- (c) The numbers of flight attendants approved under Paragraphs (a) and (b) of this section are set forth in the certificate holder's operations specifications.
- (d) During takeoff and landing, flight attendants required by this section shall be located as near as practicable to required floor-level exists and shall be uniformly distributed throughout the airplane in order to provide the most effective egress of passengers in event of an emergency evacuation. During taxi, flight attendants required by this section must remain at their duty stations with safety belts and shoulder harnesses fastened except to perform duties related to the safety of the airplane and its occupants.
- (e) At stops where passengers remain on board the aircraft and proceed on that aircraft to another destination, each certificate holder shall provide and maintain on board the aircraft during that stop at least one-half (rounded to the next lower figure in the case of a fraction) of the flight attendants as provided in Paragraph (a) of this section or the same number of other personnel qualified in the emergency evacuation procedures for that aircraft as required in Section 121.417 provided those personnel are identified to the passengers, but never fewer than one such

person. These persons shall be uniformly distributed throughout the airplane to provide the most effective egress of passengers in the event of an emergency evacuation. Should there be only one flight attendant on board the aircraft, that person will be located in accordance with the airline's DGCA-approved operating procedures. During such stops when the flight attendant complement is fewer than required by Section 121.391(a), the certificate holder must ensure that the aircraft engines are shut down and at least one floor-level exit on that aircraft remains open during the stop and that such exit provides for the deplaning of passengers.

121.393 [Reserved]

121.395 Flight Operations Officer: Domestic and Flag Air Carriers

Each domestic and flag air carrier shall provide enough qualified flight operations officers at each dispatch center to ensure proper operational control of each flight.

121.397 Emergency and Emergency Evacuation Duties

- (a) Each certificate holder shall, for each type and model of airplane, assigned to each category of required crewmember, as appropriate, the necessary functions to be performed in an emergency or a situation requiring emergency evacuation. The certificate holder shall show those functions are realistic, can be practically accomplished, and will meet any reasonably anticipated emergency including the possible incapacitation of individual crewmembers or their inability to reach the passenger cabin because of shifting cargo in combination cargo/passenger airplanes.
- (b) The certificate holder shall describe in its manual the functions of each category of required crewmembers under Paragraph (a) of this section.

SUBPART N - TRAINING PROGRAM

121.400 Applicability and Terms Used

- (a) This subpart prescribes the requirements applicable to each certificate holder for establishing and maintaining a training program for crewmembers, flight operations officers, and other operations personnel, and for the approval and use of training devices in the conduct of the program.
- (b) For the purpose of this subpart, the following terms and definitions apply:
 - (1) Initial and/or transition training. The training required for crewmembers and flight operations officers who have/have not qualified and served in the same capacity on another airplane of the same group.
 - (2) Upgrade training. The training required for crewmembers who have qualified and served as second in command or flight engineer on a particular airplane type, before they serve as pilot in command or second in command, respectively, on that airplane.
 - (3) Differences training. The training required for crewmembers and flight operations officers who have qualified and served on a particular type airplane, when the Director finds differences training are necessary before a crewmember serves in the same capacity on a particular variation of that airplane.
 - (4) In-flight. Refers to maneuvers, procedures, or functions that must be conducted in the airplane.
- (c) Each certificate holder shall ensure that when passengers or cargo are being carried, no emergency or abnormal situations shall be simulated.

121.401 Training Program: General

- (a) Each certificate holder shall:
 - (1) Establish, obtain the appropriate initial and final approval of, and provide, a training program that meets the requirements acceptable to the DGCA and that ensures that each crewmember, flight operations officer, flight instructor, and check airman, and each person assigned duties for the carriage and handling of dangerous articles and magnetized materials, is adequately trained to perform his assigned duties.
 - (2) Provide adequate ground and flight training facilities and properly qualified ground instructors for the training required by this subpart;
 - (3) Provide and keep current with respect to each airplane type and, if applicable, the particular variations within that airplane type, appropriate training material, examinations, forms, instructions, and procedures for use in conducting the training and checks required by this part; and

- (4) Provide enough flight instructors, simulator instructors, and approved check airmen to conduct required flight training and flight checks, and simulator training courses permitted under this part.
- (b) Each instructor, supervisor, or check airman who is responsible for a particular ground training subject, segment of flight training, course of training, flight check, or competence check under this part shall certify as to the proficiency and knowledge of the crewmember, flight operations officer, flight instructor, or check airman concerned upon completion of that training or check. That certification shall be made a part of the crewmember's or flight operations officer's record. When the certification required by this paragraph is made by an entry in a computerized record keeping system, the certifying instructor, supervisor, or check airman must be identified with that entry. However, the signature of the certifying instructor, supervisor, or check airman is not required for computerized entries.
- (c) Training subjects that are applicable to more than one airplane or crewmember position and that have been satisfactorily completed in connection with prior training for another airplane or another crewmember position, need not be repeated during subsequent training other than recurrent training.

In the case of a certificate holder using a course of training permitted in Section 121.409(c), the Director may require the programmed hours of in-flight training in whole or in part, until he finds the effectiveness of the flight training has improved as provided in Paragraph (e) of this section.

121.403 Training Program: Curriculum

- (a) Each certificate holder must prepare and keep current a written training program curriculum for each type of airplane with respect to flight operations officers and each crewmember required for that type airplane. The curriculum must include ground and flight training required by this subpart.
- (b) Each training program curriculum must include:
 - (1) A list of principal ground training subjects, including emergency training subjects that are provided.
 - (2) A list of all the training devices mockups, systems trainers, procedures trainers, or other training aids that the certificate holder will use.
 - (3) Detailed descriptions or pictorial displays of the approved normal, abnormal, and emergency maneuvers, procedures and functions that will be performed during each flight training phase or flight check, indicating those maneuvers, procedures and functions that are to be performed during the in-flight portions of flight training and flight checks.
 - (4) A list of airplane simulators or other training devices including approvals for particular maneuvers, procedures, or functions.
 - (5) The hours of training that will be applied to each phase of training.

121.404 Training Program: Specific Requirements

- (a). An air carrier's ground and flight training program shall, include the following individual components, as applicable to the air carrier and each person receiving training. The syllabus for each training component shall, be in written form and include the assigned period of time allotted to the individual subject, during both initial and recurrent phase of training as designated below. Each syllabus published pursuant to this part shall be of sufficient detail to clearly illustrate the depth of the material contained in each individual subject. Where specific training is required for different functional rank, such syllabus must make appropriate clarification as to the intended recipient.

No.	Required Training Component	Initial	Recurrent
1.	Company Indoctrination Training	Yes	No
2.	Windshear Training	Yes	Yes
3.	Crew Resource Management Training	Yes	Yes
4.	Transportation of Dangerous Goods Training	Yes	Yes
5.	Emergency Equipment and Procedures Training	Yes	Yes
6.	Aircraft Surface Contamination Training	Yes	Yes
7.	Category II and Category III Operations Training	Yes	Yes
8.	Extended Range operations by aeroplanes with two turbine engines	Yes	Yes
9.	Performance Based Navigation (PBN)	Yes	Yes
10.	Controlled Flight into Terrain/ Approach and Landing Accident Reduction (CFIT/ALAR)	Yes	Yes
11.	Aircraft Technical Ground Training	Yes	Yes
12.	Aircraft Flight Training	Yes	Yes
13.	Differences Training	Yes	No
14.	Upgrade Training	Yes	No
15.	Line Indoctrination Training for Flight Crew Members	Yes	No
16.	Flight Attendant Ground Training	Yes	Yes
17.	Flight Attendant Operational Training	Yes	No
18.	Flight Operations Officer Ground and Flight Observation Training	Yes	Yes

- (b). Guidance as to the content of each of the components is contained in Appendix C of this Part.

121.405 Training Program and Revision: Initial and Final Approval

- (a) To obtain initial and final approval of a training program, or a revision to an approved training program, each certificate holder must submit to the Director:
 - (1) An outline of the proposed program or revision, including an outline of the proposed or revised curriculum, that provides enough information for a preliminary evaluation of the proposed training program or revised training program; and
 - (2) Additional relevant information as may be requested by the Director.
- (b) If the proposed training program or revision complies with this subpart the Director grants initial approval in writing after which the certificate holder may conduct the training in accordance with that program. The Director then evaluates the effectiveness of the training program and advises the certificate holder of deficiencies, if any that must be corrected.
- (c) The Director grants final approval of the training program or revision if the certificate holder shows that the training conducted under the initial approval set forth in Paragraph (b) of this section ensures that each person that successfully completes the training is adequately trained to perform his assigned duties.
- (d) In granting initial and final approval of training programs or revisions the Director considers the training aids, devices, methods, and procedures listed in the certificate holder's curriculum as set forth in Section 121.403 that increase the quality and effectiveness of the teaching/learning process.
- (e) Whenever the Director finds that revisions are necessary for the continued adequacy of a training program that has been granted final approval, the certificate holder shall, after notification by the Director, make any changes in the program that are found necessary by the Director. Within 30 days after the certificate holder receives such notice, it may file a petition to reconsider the notice with the DGCA. The filing of a petition to reconsider stays the notice pending a decision by the Director. However, if the Director finds that there is an emergency that requires immediate action in the interest of safety in air transportation, he may, upon a statement of the reasons, require a change effective without stay.

121.407 Training Program: Approval of Airplane Simulators and other Training Devices

- (a) Each airplane simulator and other training device that is used in a training course permitted under Section 121.409, in checks required under Subpart O of this part must:
 - (1) Be specifically approved for:
 - (i) The certificate holder;
 - (ii) The type airplane and, if applicable, the particular variation within type, for which the training or check is being conducted; and
 - (iii) The particular maneuver, procedure, or crewmember function involved.

- (2) Maintain the performance, functional, and other characteristics that are required for approval.
 - (3) Be modified to conform with any modification to the airplane being simulated that results in changes to performance, functional, or other characteristics required for approval.
 - (4) Be given a daily functional preflight check before being used.
 - (5) Have a daily discrepancy log kept with each discrepancy entered in that log by the appropriate instructor or check airman at the end of each training or check flight.
- (b) A particular airplane simulator or other training device may be approved for use by more than one certificate holder.
- (c) An airplane simulator approved under this section may be used instead of the airplane to satisfy the pilot flight training requirements prescribed in the certificate holder's approved low altitude windshear flight training program.

121.409 Training Courses Using Airplane Simulators and other Training Devices

- (a) Training courses utilizing airplane simulators and other training devices may be included in the certificate holder's approved training program for use as provided in this section.
- (b) A course of training in an airplane simulator may be included for use as provided in Section 121.441 if that course:
- (1) Provides training at the pilot controls of an airplane simulator as well as a proper briefing before and after the training;
 - (2) Provides training in at least the procedures and maneuvers acceptable to the DGCA or
 - (3) Provides line oriented training that:
 - (i) Utilizes a complete flight crew;
 - (ii) Includes at least the maneuvers and procedures (abnormal and emergency) that may be expected in line operations;
 - (iii) Is representative of the flight segment appropriate to the operations being conducted by the certificate holder; and
 - (4) Is given by an instructor who meets the applicable requirements of Section 121.411.

The satisfactory completion of the course of training must be certified by either the Director or a qualified check airman.

121.411 Qualifications: Flight Instructors (Airplane) and Flight Instructors (Simulator)

(a) For the purposes of this section:

- (1) A flight instructor (airplane) is a person who is qualified to instruct in an airplane, in a flight simulator, or in a flight training device for a particular type airplane.
- (2) A flight instructor (simulator) is a person who is qualified to instruct, but only in a flight simulator, in a flight training device, or both, for a particular type airplane.
- (3) Flight instructors (airplane) and flight instructors (simulator) are those instructors who perform the functions described in Section 121.401(a)(4).

(b) No certificate holder may use a person nor may any person serve as a flight instructor (airplane) in a training program established under this subpart unless, with respect to the airplane type involved, that person:

- (1) Holds the airman certificates and rating required to serve as a pilot in command, a flight engineer, or a flight navigator, as applicable, in operations under this part;
- (2) Has satisfactorily completed the appropriate training phases for the airplane, including recurrent training, that are required to serve as a pilot in command, flight engineer, or flight navigator, as applicable, in operations under this part;
- (3) Has satisfactorily completed the appropriate proficiency or competency checks that are required to serve as a pilot in command, flight engineer, or flight navigator, as applicable, in operations under this part;
- (4) Has satisfactorily completed the applicable training requirements of 121.415, including in-flight training and practice for initial and transition training;
- (5) Holds at least a Class III medical certificate unless serving as a required crewmember, in which case holds a Class I or a Class II medical certificate as appropriate;
- (6) Has satisfied the recency of experience requirements of Section 121.439.

(c) No certificate holder may use a person, nor may any person serve as a flight instructor (simulator) in a training program established under this subpart, unless, with respect to the airplane type involved, that person meets the provisions of paragraph (b) of this section, or:

- (1) Holds the airman certificates and ratings, except medical certificate, required to serve as a pilot in command, a flight engineer, or a flight navigator, as applicable, in operations under this part.
- (2) Has satisfactorily completed the appropriate training phases for the airplane, including recurrent training, that are required to serve as a pilot in command, flight engineer, or flight navigator, as applicable, in operations under this part;

- (3) Has satisfactorily completed the appropriate proficiency or competency checks that are required to serve as a pilot in command, flight engineer, or flight navigator, as applicable, in operations under this part; and
- (d) Completion of the requirements in paragraphs (b)(2), (3), and (4) or (c)(2), (3), of this section as applicable shall be entered in the individual's training record maintained by the certificate holder.
- (e) Flight instructors who have reached their 65th birthday, or who do not hold an appropriate medical certificate, may not function as flight instructors.
- (f) Airmen who have reached their 65th birthday, may not function as a flight instructors (airplane), nor may they serve as pilot flight crew members in operations under this Part.
- (g) A flight instructor (airplane) must accomplish the following:
 - (1) Fly at least two flight segments as a required crewmember for the type of airplane within the 12-month period preceding the performance of any flight instructor duty in a flight simulator (and must hold a Class I or Class II medical certificate as appropriate); or
 - (2) Satisfactorily complete an approved line-observation program within the period prescribed by that program and that must precede the performance of any check airman duty in a flight simulator.

121.412 Qualifications: Instructors for Flight Operations Officer and Flight Attendants

- (a) For the purpose of this section:
 - (1) A Flight Operations Officer Instructor is a person who has appropriate training experience and demonstrated ability to instruct Flight Operation Officer in all required training.
 - (2) A Flight Attendant Ground instructor is a person who has the appropriate knowledge, experience, training and demonstrated ability to instruct Flight Attendant in all required training.
 - (3) A Flight Attendant Company Instructor is a person who has appropriate knowledge, experience, training and demonstrated ability to instruct Flight Attendant in all required training.
- (b) No certificate holder may use a person nor may any person serve as a instructor for Flight Operation Officer in a training program established under this subpart unless, with respect to the airplane involved, that person:
 - (1) Complete an approved Initial training program and held license of Flight Operation Officer;
 - (2) Complete instructor training Course or equivalent;

- (3) Observe subject(s) being taught by a qualified Instructor (minimum of 40 hours observation);
 - (4) Be observed by a qualified Instructor teaching a course for at least eight hours;
 - (5) Maintain currency by teaching initial or recurrent training during the year.
- (c) No certificate holder may use a person nor may any person serve as a Ground Instructor and Company instructor for Flight Attendant in a training program established under this part unless, with respect to the airplane type involved, that person:
 - (1) Complete an approved Initial training program and held, or in a case of Company Instructor, holds a certificate of flight attendant on type of aircraft;
 - (2) Complete instructor training Course or equivalent;
 - (3) Observe subject(s) being taught by a qualified Instructor (minimum of 40 hours observation);
 - (4) Be observed by a Company Instructor teaching a course for at least eight hours;
 - (5) For a Company Instructor, holds Class II medical certificate as appropriate to the flight attendant certificate;
 - (6) Maintain currency by teaching initial or recurrent training during the year.
- (d) Completion of the requirement of this section as applicable shall be entered in the individual's training record maintained by the certificate holder.

121.413 Initial and Transition Training and Checking Requirements: Flight Instructors (Airplane), Flight Instructors (Simulator)

- (a) No certificate holder may use a person nor may any person serve as a flight instructor unless:
 - (1) That person has satisfactorily completed initial or transition flight instructor training; and
 - (2) Within the preceding 24 calendar months, that person satisfactorily conducts instruction under the observation of a DGCA inspector, an operator check airman, or an aircrew designated examiner employed by the operator. The observation check may be accomplished in part or in full in an airplane, in a flight simulator, or in a flight training device.
- (b) The observation check required by paragraph (a)(2) of this section is considered to have been completed in the month required if completed in the calendar month before, or the calendar month after, the month in which it is due.
- (c) The initial ground training for flight instructors must include the following:
 - (1) Flight instructor duties, functions, and responsibilities.
 - (2) The applicable CASR and the certificate holder's policies and procedures.

- (3) The appropriate methods, procedures, and techniques for conducting flight instruction.
- (4) Proper evaluation of student performance including the detection of:
 - (i) Improper and insufficient training; and
 - (ii) Personal characteristics of an applicant that could adversely affect safety.
- (5) The corrective action in the case of unsatisfactory training progress.
- (6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the airplane.
- (7) Except for holders of a flight instructor certificate -
 - (i) The fundamental principles of the teaching-learning process;
 - (ii) Teaching methods and procedures; and
 - (iii) The instructor-student relationship.
- (d) The transition ground training for flight instructors must include the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the airplane to which the flight instructor is in transition.
- (e) The initial and transition flight training for flight instructors (airplane), flight engineer instructors (airplane), and flight navigator instructors (airplane) must include the following:
 - (1) The safety measures for emergency situations that are likely to develop during instruction.
 - (2) The potential results of improper, untimely, or non-execution of safety measures during instruction.
 - (3) For pilot flight instructor (airplane):
 - (i) In-flight training and practice in conducting flight instruction from the left and right pilot seats in the required normal, abnormal, and emergency procedures to ensure competence as an instructor; and
 - (ii) The safety measures to be taken from either pilot seat for emergency situations that are likely to develop during instruction.
 - (4) For flight engineer instructors (airplane) and flight navigator instructors (airplane), in-flight training to ensure competence to perform assigned duties.
- (f) The requirements of paragraph (d) of this section may be accomplished in full or in part in flight, in a flight simulator, or in a flight training device, as appropriate.
- (g) The initial and transition flight training for flight instructors (simulator) must include the following:
 - (1) Training and practice in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight instruction required by this part. This training and practice must be accomplished in full or in part in a flight simulator or in a flight training device.

- (2) Training in the operation of flight simulators or flight training devices, or both, to ensure competence to conduct the flight instruction required by this part.

121.415 [Reserved]

121.417 Crewmember Emergency Training

- (a) Each training program must provide the emergency training set forth in this section with respect to each airplane type, model, and configuration, each required crewmember, and each kind of operation conducted, insofar as appropriate for each crewmember and the certificate holder.
- (b) Emergency training must provide the following:
 - (1) Instruction in emergency assignments and procedures, including coordination among crewmembers.
 - (2) Individual instruction in the location, function, and operation of emergency equipment including:
 - (i) Equipment used in ditching and evacuation;
 - (ii) First aid equipment and its proper use;
 - (iii) Portable fire extinguishers, with emphasis on type of extinguisher to be used on different classes of fires; and
 - (iv) Emergency exits in the emergency mode with the evacuation slide/raft pack attached (if applicable), with training emphasis on the operation of the exits under adverse conditions.
 - (3) Instruction in the handling of emergency situations including:
 - (i) Rapid decompression;
 - (ii) Fire in flight or on the surface, and smoke control procedures with emphasis on electrical equipment and related circuit breakers found in cabin areas including all galleys, service centers, lifts, lavatories and movie screens;
 - (iii) Ditching and other evacuation, including the evacuation of persons and their attendants, if any, who may need the assistance of another person to move expeditiously to an exit in the event of an emergency;
 - (iv) Illness, injury, or other abnormal situations involving passengers or crewmembers to include familiarization with the emergency medical kit; and
 - (v) Hijacking and other unusual situations.
 - (4) Review and discussion of previous aircraft accidents and incidents pertaining to actual emergency situations.
- (c) Each crewmember must accomplish the following emergency training during the specified training periods, using those items of installed emergency equipment for each type of airplane in which he or she is to serve (Alternate recurrent training required by Section 121.433(c) of this part may be accomplished by approved pictorial presentation or demonstration):

- (1) One time emergency drill requirements to be accomplished during initial training. Each crewmember must perform:
 - (i) At least one approved firefighting drill in which the crewmember combats an actual fire using at least one type of installed hand fire extinguisher or approved fire extinguisher that is appropriate for the type of fire to be fought; and
 - (ii) An emergency evacuation drill with each person egressing the airplane or approved training device using at least one type of installed emergency evacuation slide. The crewmember may either observe the airplane exits being opened in the emergency mode and the associated exit-slide/raft pack being deployed and inflated, or perform the tasks resulting in the accomplishment of these actions.
- (2) Additional emergency drill requirements to be accomplished during initial training and once each 24 calendar months during recurrent training. Each crewmember must:
 - (i) Perform the following emergency drills and operate the following equipment:
 - (A) Each type of emergency exit in the normal and emergency modes, including the actions and forces required in the deployment of the emergency evacuation slides;
 - (B) Each type of installed hand fire extinguisher;
 - (C) Each type of emergency oxygen system;
 - (D) Donning, use, and inflation of individual flotation means, if applicable; and
 - (E) Ditching, if applicable, including but not limited to, as appropriate:
 - 1) Cockpit preparation and procedures;
 - 2) Crew coordination;
 - 3) Passenger briefing and cabin preparation;
 - 4) Donning and inflation of life preservers;
 - 5) Use of life lines; and
 - 6) Boarding of passengers and crew into raft or a slide/raft pack.
 - (ii) Observe the following drills:
 - (A) Removal from the airplane (or training device) and inflation of each type of life raft, if applicable;
 - (B) Transfer of each type of slide/raft pack from one door to another;
 - (C) Deployment, inflation, and detachment from the airplane (or training device) of each type of slide/raft pack; and
 - (D) Emergency evacuation including the use of a slide.
- (d) Crewmembers who serve in operations above 25,000 feet must receive instruction in the following:
 - (1) Respiration.
 - (2) Hypoxia.

- (3) Duration of consciousness without supplemental oxygen at altitude.
 - (4) Gas expansion.
 - (5) Gas bubble formation.
 - (6) Physical phenomena and incidents of decompression.
- (e) For the purposes of this section the following definitions apply:
- (1) "Actual fire" means an ignited combustible material, in controlled conditions, of sufficient magnitude and duration to accomplish the training objectives outlined in Paragraph (c)(1)(i) of this section.
 - (2) "Approved fire extinguisher" means a training device that has been approved by the Director for use in meeting the training requirements of Section 121.417(c).
 - (3) "Combats," in this context, means to properly fight an actual or simulated fire using an appropriate type of fire extinguisher until that fire is extinguished.
 - (4) "Observe" means to watch without participating actively in the drill.
 - (5) "Perform" means to satisfactorily accomplish a prescribed emergency drill using established procedures that stress the skill of the persons involved in the drill.
 - (6) "Simulated fire" means an artificial duplication of smoke or flame used to create various aircraft firefighting scenarios, such as lavatory, galley oven, and aircraft seat fires.

121.418 Differences Training: Crewmembers and Flight Operations Officers

- (a) Differences training for crewmembers and flight operations officers must consist of at least the following as applicable to their assigned duties and responsibilities:
- (1) Instruction in each appropriate subject or part of a subject required for initial ground training in the airplane unless the Director finds that particular subjects are not necessary.
 - (2) Flight training in each appropriate maneuver or procedure required for initial flight training in the airplane unless the Director finds that particular maneuvers or procedures are not necessary.
 - (3) The number of programmed hours of ground and flight training determined by the Director to be necessary for the airplane, the operation, and the crewmember or flight operations officer involved.
- (b) Differences training for all variations of a particular type airplane may be included in initial, transition, upgrade, and recurrent training for the airplane.

121.419 - 121.427 Reserved

121.429 Recurrent Training

- (a) Recurrent training must ensure that each crewmember or flight operation officer is adequately trained and currently proficient with respect to the type airplane (including differences training, if applicable) and crewmember position involved.
- (b) Recurrent ground training for crewmembers and flight operation officers must include at least the following:
 - (1) A quiz or other review to determine the state of the crewmember's or flight operation officer's knowledge with respect to the airplane and position involved.
 - (2) Instruction as necessary in the subjects required for initial ground training by Section 121.404, as appropriate, including emergency training (not required for aircraft flight operation officers).
 - (3) For flight attendants and flight operation officers, a competence check as required by Sections 121.404, respectively.
 - (4) Approved recurrent CRM training. For flight crewmembers, this training or portions thereof may be accomplished during an approved simulator line operational flight training (LOFT) session. The recurrent CRM training requirement does not apply until a person has completed the applicable initial CRM training required by Sections 121.404.
- (c) Recurrent ground training for crewmembers and flight operation officers must consist of a number of hours acceptable to the DGCA.
- (d) Recurrent flight training for flight crewmembers must include at least the following:
 - (1) For pilots and flight engineers flight training in an approved simulator in maneuvers and procedures set forth in the certificate holder's flight training program approved by the Director.
 - (ii) The number of programmed in-flight hours is not specified; and
 - (ii) Satisfactory completion of a proficiency check may be substituted for recurrent flight training as permitted in Section 121.433(c).
 - (2) For flight engineers

The flight check, other than the preflight inspection, may be conducted in an airplane simulator or other training device. The preflight inspection may be conducted in an airplane, or by using an approved pictorial means that realistically portrays the location and detail of preflight inspection items and provides for the portrayal of abnormal conditions. Satisfactory completion of an approved line oriented simulator-training program may be substituted for the flight check.

SUBPART O - CREWMEMBER QUALIFICATIONS

121.431 Applicability

- (a) This subpart prescribes crewmember qualifications for all certificate holders except where otherwise specified.
- (b) For the purpose of this subpart, the airplane groups and terms and definitions prescribed in Section 121.400 and the following definitions apply:
 - (1) "Consolidation" is the process by which a person through practice and practical experience increases proficiency in newly acquired knowledge and skills.
 - (2) "Line operating flight time" is flight time performed in operations under this part.
 - (3) "Operating cycle" is a complete flight segment consisting of a takeoff, climb, enroute portion, descent, and a landing.

121.432 General

- (a) Except in the case of operating experience under Section 121.434, a pilot who serves as second in command of an operation that requires three or more pilots must be fully qualified to act as pilot in command of that operation.
- (b) No certificate holder may conduct a check or any training in operations under this part, except for the following checks and training required by this part or the certificate holder:
 - (1) Line checks for pilots.
 - (2) Flight engineer checks (except for emergency procedures), if the person being checked is qualified and current in accordance with Section 121.453(a).
 - (3) Flight attendant training and competence checks.
- (c) Except for pilot line checks and flight engineer flight checks, the person being trained or checked may not be used as a required crewmember.
- (d) For the purposes of this subpart the terms and definitions in Section 121.400 apply.

121.433 Training Required

- (a) Initial training. No certificate holder may use any person nor may any person serve as a required crewmember on an airplane unless that person has satisfactorily completed, in a training program approved under Subpart N of this part, initial ground and flight training for that type airplane and for the particular crewmember position, except as follows:
 - (1) Crewmembers who have qualified and served as a crewmember on another type airplane of the same group may serve in the same crewmember capacity

upon completion of transition training as provided in Section 121.404 and Appendix C.

- (2) Crewmembers who have qualified and served as second in command or flight engineer on a particular type airplane may serve as pilot in command or second in command, respectively, upon completion of upgrade training for that airplane as provided in Section 121.404 and Appendix C.
- (b) Differences training. No certificate holder may use any person nor may any person serve as a required crewmember on an airplane of a type for which differences training is included in the certificate holder's approved training program unless that person has satisfactorily completed, with respect to both the crewmember position and the particular variation of the airplane in which he serves, either initial or transition ground and flight training, or differences training, as provided in Section 121.404 and Appendix C.
- (c) Recurrent training.
- (1) No certificate holder may use any person nor may any person serve as a required crewmember on an airplane unless, within the preceding 12 calendar months:
 - (i) For flight crewmembers, he has satisfactorily completed recurrent ground and flight training for that airplane and crewmember position and a flight check as applicable;
 - (ii) For flight attendants and flight operation officers, he has satisfactorily completed recurrent ground training and a competence check; and
 - (iii) In addition, for pilots in command he has satisfactorily completed, within the preceding 6 calendar months, recurrent flight training in addition to the recurrent flight training required in Paragraph (c)(1)(i) of this section, in an airplane in which he serves as pilot in command in operations under this part.
 - (2) For pilots, a proficiency check as provided in Section 121.441 of this part may be substituted for the recurrent flight training required by this paragraph and the approved simulator course of training under Section 121.409(b) of this part may be substituted for alternate periods of recurrent flight training required in that airplane, except as provided in Paragraphs (d) and (e) of this section.
- (d) For each airplane in which a pilot serves as pilot in command, he must satisfactorily complete either recurrent flight training or a proficiency check within the preceding 12 calendar months.
- (e) Notwithstanding Paragraphs (c)(2) and (d) of this section, a proficiency check as provided in Section 121.441 of this part may not be substituted for training in those maneuvers and procedures set forth in a certificate holder's approved low altitude windshear flight training program when that program is included in a recurrent flight training course as required by Section 121.404 of this part.

121.434 Operating Experience, Operating Cycles, and Consolidation of Knowledge and Skills

- (a) No certificate holder may use a person nor may any person serve as a required crewmember of an airplane unless the person has satisfactorily completed, on that type airplane and in that crewmember position, the operating experience, operating cycles, and the line operating flight time for consolidation of knowledge and skills, required by this section, except as follows:
 - (1) Crewmembers other than pilots in command may serve as provided herein for the purpose of meeting the requirements of this section.
 - (2) Pilots who are meeting the pilot in command requirements may serve as second in command.
 - (3) Separate operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills are not required for variations within the same type airplane.
- (b) In acquiring the operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills, crewmembers must comply with the following:
 - (1) In the case of a flight crewmember, he must hold the appropriate certificates and ratings for the crewmember position and the airplane, except that a pilot who is meeting the pilot in command requirements must hold the appropriate certificates and ratings for a pilot in command in the airplane.
 - (2) The operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills must be acquired after satisfactory completion of the appropriate ground and flight training for the particular airplane type and crewmember position.
 - (3) The experience must be acquired in flight during operations under this part. However, in the case of an aircraft not previously used by the certificate holder in operations under this part, operating experience acquired in the aircraft during proving flights or ferry flights may be used to meet this requirement.
- (c) Pilot crewmembers must acquire operating experience and operating cycles as follows:
 - (1) A pilot in command must:
 - (i) Perform the duties of a pilot in command under the supervision of a check pilot; and
 - (ii) In addition, if a qualifying pilot in command is completing initial or upgrade training specified in Section 121.424, be observed in the performance of prescribed duties by a DGCA inspector during at least one flight leg which includes a takeoff and landing. During the time that a qualifying pilot in command is acquiring the operating experience in Paragraphs (c)(1) (i) and (ii) of this section, a check pilot who is also serving as the pilot in command must occupy a pilot station. However, in the case of a transitioning pilot in command the check pilot serving as pilot in command may occupy the observer's seat, if the transitioning pilot

has made at least two takeoffs and landings in the type airplane used, and has satisfactorily demonstrated to the check pilot that he is qualified to perform the duties of a pilot in command of that type of airplane.

- (2) A second in command pilot must perform the duties of a second in command under the supervision of an appropriately qualified check pilot.
 - (3) The hours of operating experience and operating cycles for all pilots must be a number acceptable to DGCA.
- (a) A flight engineer must perform the duties of a flight engineer under the supervision of a check airman or a qualified flight engineer a number of hours acceptable to the DGCA.
 - (b) A flight attendant must for a number of hours acceptable to the DGCA perform the assigned duties of a flight attendant under the supervision of a flight attendant supervisor qualified under this part who personally observes the performance of these duties. However, operating experience is not required for a flight attendant who has previously acquired such experience on any large passenger-carrying airplane of the same group, if the certificate holder shows that the flight attendant has received sufficient ground training for the airplane in which the flight attendant is to serve. Flight attendants receiving operating experience may not be assigned as a required crewmember. Flight attendants who have satisfactorily completed training time acquired in an approved training program conducted in a full-scale (except for length) cabin training device of the type airplane in which they are to serve may substitute this time for hours required by this paragraph.

121.435 [Reserved]

121.437 Pilot Qualification: Certificates Required

- (a) No pilot may act as pilot in command of an aircraft unless he holds an airline transport pilot certificate and an appropriate type rating for that aircraft.
- (b) Each pilot who acts as a pilot in a capacity other than those specified in Paragraph (a) of this section must hold at least a commercial pilot certificate and an instrument rating.

121.438 Pilot Operating Limitations and Pairing Requirements

- (a) If the second in command has less than 100 hours of flight time as second in command in operations under this part in the type airplane being flown, and the pilot in command is not an appropriately qualified check pilot, the pilot in command must make all takeoffs and landings in the following situations:
 - (1) At special airports designated by the Director or at special airports designated by the certificate holder; and

- (2) In any of the following conditions:
 - (i) The prevailing visibility value in the latest weather report for the airport is at or below 1 Kilometer
 - (ii) The runway visual range (if reported) for the runway to be used is at or below 1,500 meters
 - (iii) The runway to be used has water, snow, slush or similar conditions that may adversely affect airplane performance.
 - (iv) The braking action on the runway to be used is reported to be less than "good".
 - (v) The crosswind component for the runway to be used is in excess of 15 knots.
 - (vi) Windshear is reported in the vicinity of the airport.
 - (vii) Any other condition in which the PIC determines it to be prudent to exercise the PIC's prerogative.
- (b) No person may conduct operations under this part unless, for that type airplane, either the pilot in command or the second in command has at least 75 hours of line operating flight time, either as pilot in command or second in command. The Director may, upon application by the certificate holder, authorize deviations from the requirements of this Paragraph (b) by an appropriate amendment to the operations specifications in any of the following circumstances:
 - (1) A newly certificated certificate holder does not employ any pilots who meet the minimum requirements of this paragraph.
 - (2) An existing certificate holder adds to its fleet a type airplane not before proven for use in its operations.
 - (3) An existing certificate holder establishes a new domicile to which it assigns pilots who will be required to become qualified on the airplanes operated from that domicile.

121.439 Pilot Qualification: Recent Experience

- (a) No certificate holder may use any person nor may any person serve as a required pilot flight crewmember, unless within the preceding 90 days, that person has made at least three takeoffs and landings in the type airplane in which that person is to serve. The takeoffs and landings required by this paragraph may be performed in a visual simulator approved under Section 121.407 to include takeoff and landing maneuvers. In addition, any person who fails to make the three required takeoffs and landings within any consecutive 90 day period must re-establish recency of experience as provided in Paragraph (b) of this section.
- (b) In addition to meeting all applicable training and checking requirements of this part, a required pilot flight crewmember who has not met the requirements of Paragraph (a) of this section must re-establish recency of experience as follows:
 - (1) Under the supervision of a check airman, make at least three takeoffs and landings in the type airplane in which that person is to serve or in an advanced

- simulator or visual simulator. When a visual simulator is used, the requirements of Paragraph (c) of this section must be met.
- (2) The takeoffs and landings required in Paragraph (b)(1) of this section must include:
- (i) At least one takeoff with a simulated failure of the most critical powerplant;
 - (ii) At least one landing from an ILS approach to the lowest ILS minimum authorized for the certificate holder; and
 - (iii) At least one landing to a full stop.
- (c) A required pilot flight crewmember who performs the maneuvers prescribed in Paragraph (b) of this section in a visual simulator must:
- (1) Have previously logged 100 hours of flight time in the same type airplane in which he is to serve;
 - (2) Be observed on the first two landings made in operations under this part by an approved check airman who acts as pilot in command and occupies a pilot seat. The landings must be made in weather minimums that are not less than those contained in the certificate holder's operations specifications for Category I Operations, and must be made within 45 days following completion of simulator training.
- (d) When using a simulator to accomplish any of the requirements of Paragraph (a) or (b) of this section, each required flight crewmember position must be occupied by an appropriately qualified person and the simulator must be operated as if in a normal in-flight environment without use of the repositioning features of the simulator.
- (e) A check airman who observes the takeoffs and landings prescribed in Paragraphs (b)(1) and (c) of this section shall certify that the person being observed is proficient and qualified to perform flight duty in operations under this part and may require any additional maneuvers that are determined necessary to make this certifying statement.

121.440 Line Checks

- (a) No certificate holder may use any person nor may any person serve as pilot in command of an airplane unless, within the preceding 12 calendar months, that person has passed a line check in which he satisfactorily performs the duties and responsibilities of a pilot in command in one of the types of airplanes he is to fly.
- (b) A pilot in command line check for domestic, flag and supplemental air carrier pilots must:
- (1) Be given by a pilot check airman who is currently qualified on both the route and the airplane; and
 - (2) Consist of at least one flight over a typical part of the air carrier's route, or over a foreign or national airway, or over a direct route.

121.441 Proficiency and Competency Checks

- (a) No certificate holder may use any person nor may any person serve as a required pilot, flight engineer, and flight navigator unless that person has satisfactorily completed a proficiency check, as follows:
 - (1) For a pilot in command, proficiency check within the preceding 6 calendar months;
 - (2) For other pilots, flight engineer and flight navigator a proficiency a check within preceding 12 calendar months.
- (b) Except as provided in Paragraphs (c) and (d) of this section, a proficiency check must meet the following requirements:
 - (1) It must include at least the procedures and maneuvers set forth in by the Director;
 - (2) It must be given by the DGCA or a pilot check airman.
- (c) An approved airplane simulator or other appropriate training device may be used in the conduct of a proficiency check.
- (d) If the pilot being checked fails any of the required maneuvers, the person giving the proficiency check may give additional training to the pilot during the course of the proficiency check. In addition to repeating the maneuvers failed, the person giving the proficiency check may require the pilot being checked to repeat any other maneuvers he finds are necessary to determine the pilot's proficiency. If the pilot being checked is unable to demonstrate satisfactory performance to the person conducting the check, the certificate holder may not use him nor may he serve in operations under this part until he has satisfactorily completed a proficiency check.

However, the entire proficiency check (other than the initial second in command proficiency check) required by this section may be conducted in an approved visual simulator if the pilot being checked accomplishes at least two landings in the appropriate airplane during a line check or other check conducted by a pilot check airman (a pilot in command may observe and certify the satisfactory accomplishment of these landings by a second in command). If a pilot proficiency check is conducted in accordance with this paragraph, the next required proficiency check for that pilot must be conducted in the same manner, or a course of training in an airplane visual simulator under Section 121.409 may be substituted therefor.
- (e) In the case of a flight attendant and flight operations officer a competency check shall be valid to the first day of the twenty fifth - (25) month following the month in which the CC was taken.
- (f) An approved company check pilot who has been delegated the authority to perform flight checks on that aircraft type, or a DGCA inspector shall conduct any pilot proficiency check required by this Subpart. The Director or a person acceptable to him, shall conduct all other checks required by this Subpart. An air carrier shall

submit to the Director for approval, a list of proposed examiners, including their qualifications relevant to their position as examiners.

- (g) For the purposes of completing any check required by this subpart, where an aircraft type simulator has been approved for training;
 - (1) in the cases of a PPC required by Subsections (a)(1) and (2) of this section, the same credits given the simulator for training purposes shall apply to the PPC;
 - (2) In the case of the CC required by this section, the same training credits given to that cabin training device, shall apply to the CC.
- (h) Where any flight simulator, or other training device approved for training and checking, does not have all the training and checking credits needed to complete the entire check, the portions of such check not approved to be completed in a simulator, must be carried out in that type of aircraft, as appropriate.
- (i) Where a pilot proficiency check, a competency check or annual training is renewed within the last 60 days of its validity period, such check or training is deemed to have taken place on the last day of the validity period.
- (j) The Director may extend the validity period of a pilot proficiency check, a competency check or annual training by up to 60 days where the Director is of the opinion that aviation safety is not likely to be affected.
- (k) Where the validity period of a pilot proficiency check or a competency check of annual training has been expired for 24 months or more, the person shall re-qualify by meeting all initial training requirements relating to that aircraft.

121.443 Pilot in Command Qualification: Route and Airports

- (a) Each certificate holder shall provide a system acceptable to the Director for disseminating the information required by Paragraph (b) of this section to the pilot in command and appropriate flight operation personnel. The system must also provide an acceptable means for showing compliance with Section 121.445.
- (b) No certificate holder may use any person, nor may any person serve, as pilot in command unless the certificate holder has provided that person current information concerning the following subjects pertinent to the areas over which that person is to serve, and to each airport and terminal area into which that person is to operate, and ensures that that person has adequate knowledge of, and the ability to use, the information:
 - (1) Weather characteristics appropriate to the season.
 - (2) Navigation facilities.
 - (3) Communication procedures, including airport visual aids.
 - (4) Kinds of terrain and obstructions.
 - (5) Minimum safe flight levels.

- (6) Enroute and terminal area arrival and departure procedures, holding procedures and authorized instrument approach procedures for the airports involved.
- (7) Congested areas and physical layout of each airport in the terminal area in which the pilot will operate.
- (8) Notices to Airmen.

121.445 Pilot in Command Airport Qualification: Special Areas and Airports

- (a) The Director may determine that certain airports (due to items such as surrounding terrain, obstructions, or complex approach or departure procedures) are special airports requiring special airport qualifications and that certain areas or routes, or both, require a special type of navigation qualification.
- (b) Except as provided in Paragraph (c) of this section, no certificate holder may use any person, nor may any person serve, as pilot in command to or from an airport determined to require special airport qualifications unless, within the preceding 12 calendar months:
 - (1) The pilot in command or second in command has made an entry to that airport (including a takeoff and landing) while serving as a pilot flight crewmember; or
 - (2) The pilot in command has qualified by using pictorial means acceptable to the Director for that airport.
- (c) No certificate holder may use any person, nor may any person serve, as pilot in command between terminals over a route or area that requires a special type of navigation qualification unless, within the preceding 12 calendar months, that person has demonstrated qualification on the applicable navigation system in a manner acceptable to the Director, by one of the following methods:
 - (1) By flying over a route or area as pilot in command using the applicable special type of navigation system;
 - (2) By flying over a route or area as pilot in command under the supervision of a check airman using the special type of navigation system.

121.447 Flight Attendant Qualifications

- (a) No air carrier shall assign and no person shall act in the capacity of a flight attendant on an aircraft, unless that person:
 - (1) is the holder of a flight attendant certificate endorsed for the type of aircraft on which such person is to act;
 - (2) has successfully completed the air carrier's approved course of training and checking appropriate to that type of aircraft as prescribed in Subpart N of this part; and
 - (3) is otherwise qualified in accordance with this subpart, except;

- (4) in the case of a person performing flight attendant duties pursuant to Part 135.101(c).

121.453 Flight Engineer Qualifications

- (a) No certificate holder may use any person serve as a flight engineer on an airplane unless, within the preceding 6 calendar months, he has had at least 50 hours of flight time as a flight engineer on that type airplane or the certificate holder or the Director has checked him on that type airplane and determined that he is familiar and competent with all essential current information and operating procedures.
- (b) A flight check given in accordance with Section 121.425 (a) (2) satisfies the requirements of Paragraph (a) of this section.

121.455 [Reserved]

121.457 [Reserved]

121.458 [Reserved]

121.459 [Reserved]

**SUBPART P - FLIGHT OPERATIONS OFFICER QUALIFICATIONS
AND DUTY TIME LIMITATIONS: DOMESTIC AND FLAG AIR
CARRIERS; FLIGHT ATTENDANT DUTY PERIOD LIMITATIONS AND
REST REQUIREMENTS: DOMESTIC, FLAG, AND SUPPLEMENTAL AIR
CARRIERS**

121.461 Applicability

This subpart prescribes:

- (a) Qualifications and duty time limitations for flight operations officers for domestic and flag air carriers; and
- (b) Duty period limitations and rest requirements for flight attendants used in air transportation by domestic, flag, and supplemental air carriers.

121.463 Flight Operations Officer Qualifications

- (a) No certificate holder conducting domestic or flag operations; may use any person, nor may any person serve, as an aircraft dispatcher for a particular airplane group unless that person has, with respect to an airplane of that group, satisfactorily completed the following:
 - (1) Initial flight operations officer training, except that a person who has satisfactorily completed such training for another type airplane of the same group need only complete the appropriate transition training.
 - (2) Operating familiarization consisting of a number of observing operations under this part from the flight deck or, for airplanes without an observer seat on the flight deck, from a forward passenger seat with headset or speaker.
- (b) No certificate holder conducting domestic or flag operations may use any person, nor may any person serve, as a flight operations officer unless within the preceding 12 calendar months he has satisfactorily completed operating familiarization consisting of observing operations from the flight deck operations under this part in one of the types of airplanes in each group he is to dispatch.
- (c) No certificate holder conducting domestic or flag operations may use any person, nor may any person serve as a flight operations officer to dispatch airplanes in operations under this part unless the certificate holder has determined that he is familiar with all essential operating procedures for that segment of the operation over which he exercises dispatch jurisdiction. However, a flight operations officer who is qualified to dispatch airplanes through one segment of an operation may dispatch airplanes through other segments of the operation after coordinating with flight operations officers who are qualified to dispatch airplanes through those other segments.

- (d) For the purposes of this section, the airplane groups, terms, and definitions in Section 121.400 apply.

121.465 Duty Time Limitations: Domestic and Flag Air Carriers

- (a) Each domestic and flag air carrier shall establish the daily duty period for a flight operations officer so that it begins at a time that allows him to become thoroughly familiar with existing and anticipated weather conditions along the route before he dispatches any airplane. He shall remain on duty until each airplane dispatched by him has completed its flight, or has gone beyond his jurisdiction, or until he is relieved by another qualified flight operations officer.
- (b) Except in cases where circumstances or emergency conditions beyond the control of the air carrier require otherwise:
- (1) No domestic or flag air carrier may schedule a flight operations officer for more than 10 consecutive hours of duty;
 - (2) If a flight operations officer is scheduled for more than 10 hours of duty in 24 consecutive hours, the carrier shall provide him a rest period of at least eight hours at or before the end of 10 hours of duty.
 - (3) Each flight operations officer must be relieved of all duty with the air carrier for at least 24 consecutive hours during any seven consecutive days or for the equivalent time period within any calendar month.

121.467 Flight Attendant Duty Period Limitations and Rest Requirements: Domestic, Flag, and Supplemental Air Carriers

- (a) For purposes of this section:

"Calendar day" means the period of elapsed time, using Coordinated Universal Time or local time, that begins at midnight and ends 24 hours later at the next midnight.

"Duty period" means the period of elapsed time between reporting for an assignment involving flight time and release from that assignment by the domestic, flag, or supplemental air carrier. The time is calculated using either Coordinated Universal Time or local time to reflect the total elapsed time.

"Rest period" means the period free of all restraint or duty for a domestic, flag, or supplemental air carrier and free of all responsibility for work or duty should the occasion arise.

- (b) Except as provided in Paragraph (c) of this section, a domestic, flag, or supplemental air carrier may assign a duty period to a flight attendant only when the applicable duty period limitations and rest requirements of this paragraph are met.

- (1) Except as provided in Paragraphs (b)(4), (b)(5), and (b)(6) of this section, no domestic, flag, or supplemental air carrier or commercial operator may assign a flight attendant to a scheduled duty period of more than 14 hours.
- (2) Except as provided in Paragraph (b)(3) of this section, a flight attendant scheduled to a duty period of 14 hours or less as provided under Paragraph (b)(1) of this section must be given a scheduled rest period of at least 9 consecutive hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.
- (3) The rest period required under Paragraph (b)(2) of this section may be scheduled or reduced to 8 consecutive hours if the flight attendant is provided a subsequent rest period of at least 10 consecutive hours; this subsequent rest period must be scheduled to begin no later than 24 hours after the beginning of the reduced rest period and must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.
- (4) A domestic, flag, or supplemental air carrier may assign a flight attendant to a scheduled duty period of more than 14 hours, but no more than 16 hours, if the air carrier has assigned to the flight or flights in that duty period at least one flight attendant in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the air carrier's operations specifications.
- (5) A domestic, flag, or supplemental air carrier may assign a flight attendant to a scheduled duty period of more than 16 hours, but no more than 18 hours, if the air carrier has assigned to the flight or flights in that duty period at least two flight attendants in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the air carrier's operations specifications.
- (6) A domestic, flag, or supplemental air carrier may assign a flight attendant to a scheduled duty period of more than 18 hours, but no more than 20 hours, if the scheduled duty period includes one or more flights that land or take off outside Indonesian airspace, and if the air carrier has assigned to the flight or flights in that duty period at least three flight attendants in addition to the minimum flight attendant complement required for the flight or flights in that duty period under the domestic air carrier's operations specifications.
- (7) Except as provided in Paragraph (b)(8) of this section, a flight attendant scheduled to a duty period of more than 14 hours but no more than 20 hours, as provided in Paragraphs (b)(4), (b)(5), and (b)(6) of this section, must be given a scheduled rest period of at least 12 consecutive hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.
- (8) The rest period required under Paragraph (b)(7) of this section may be scheduled or reduced to 10 consecutive hours if the flight attendant is provided a subsequent rest period of at least 14 consecutive hours; this subsequent rest period must be scheduled to begin no later than 24 hours after the beginning of the reduced rest period and must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

- (9) Notwithstanding Paragraphs (b)(4), (b)(5), and (b)(6) of this section, if a domestic, flag, or supplemental air carrier elects to reduce the rest period to 10 hours as authorized by Paragraph (b)(8) of this section, the air carrier may not schedule a flight attendant for a duty period of more than 14 hours during the 24-hour period commencing after the beginning of the reduced rest period.
 - (10) No domestic, flag, or supplemental air carrier may assign a flight attendant any duty period with the air carrier unless the flight attendant has had at least the minimum rest required under this section.
 - (11) No domestic, flag, or supplemental air carrier may assign a flight attendant to perform any duty with the air carrier during any required rest period.
 - (12) Time spent in transportation, not local in character, that a domestic, flag, or supplemental air carrier requires of a flight attendant and provides to transport the flight attendant to an airport at which that flight attendant is to serve on a flight as a crewmember, or from an airport at which the flight attendant was relieved from duty to return to the flight attendant's home station, is not considered part of a rest period.
 - (13) Each domestic, flag, or supplemental air carrier must relieve each flight attendant engaged in air transportation from all further duty for at least 24 consecutive hours during any 7 consecutive calendar days.
 - (14) A flight attendant is not considered to be scheduled for duty in excess of duty period limitations if the flights to which the flight attendant is assigned are scheduled and normally terminate within the limitations but due to circumstances beyond the control of the domestic, flag, or supplemental air carrier (such as adverse weather conditions) are not at the time of departure expected to reach their destination within the scheduled time.
- (c) Notwithstanding Paragraph (b) of this section, a domestic, flag, or supplemental air carrier may apply the flight crewmember flight time and duty limitations and rest requirements of this part to flight attendants for all operations conducted under this part provided that:
- (1) The certificate holder establishes written procedures that:
 - (i) Apply to all flight attendants used in the certificate holder's operation;
 - (ii) Include the flight crewmember requirements contained in Subpart Q of this part, as appropriate to the operation being conducted, except that rest facilities on board the aircraft are not required;
 - (iii) Include provisions to add one flight attendant to the minimum flight attendant complement for each flight crewmember who is in excess of the minimum number required in the aircraft type certificate data sheet and who is assigned to the aircraft under the provisions of Subpart Q as applicable, of this part;
 - (iv) Are approved by the Director and are described or referenced in the certificate holder's operations specifications; and
 - (2) Whenever the Director finds that revisions are necessary for the continued adequacy of the written procedures that are required by Paragraph (c)(1) of this section and that had been granted final approval, the certificate holder must,

after notification by the Director, make any changes in the procedures that are found necessary by the Director. Within 30 days after the certificate holder receives such notice, it may file a petition to reconsider the notice with the DGCA. The filing of a petition to reconsider stays the notice, pending decision by the Director. However, if the Director finds that an emergency requires immediate action in the interest of safety, the Director may, upon a statement of the reasons, require a change effective without stay.

SUBPART Q - FLIGHT AND DUTY TIME LIMITATIONS AND REST REQUIREMENTS: FLAG, DOMESTIC AND SUPPLEMENTAL AIR CARRIERS

121.470 Applicability

This subpart prescribes flight time limitations and rest requirements for flag, domestic and supplemental operations.

121.471 Flight Time Limitations and Rest Requirements: All Crewmembers

- (a) Each air carrier shall relieve each flight crewmember engaged in scheduled air transportation from all further duty for at least 24 consecutive hours during any 7 consecutive days.
- (b) An air carrier may not assign a flight crewmember and a flight crewmember may not accept assignment to any duty with the air carrier during any required rest period.
- (c) Time spent in transportation that an air carrier requires of a flight crewmember and provides to transport the crewmember to an airport at which he is to serve on a flight as a crewmember, or from an airport at which he was relieved from duty to return to his home station, is not considered part of a rest period.

121.472 Duty Time Limitations: All Crewmembers

- (a) Except as provided in paragraphs (c), (d) and (e) of this section an air carrier may not assign a flight crewmember and a flight crew member may not accept an assignment where the flight crewmember's flight duty time in any 24 consecutive hours will exceed 14 hours. For any aircraft that requires a flight engineer as part of the crew, a crewmember's flight duty time may be extended to 15 hours.
- (b) Flight duty time is defined as the time between the time the crewmember reports for duty until the termination of the flight-
- (c) Where a flight crew is augmented by the addition of one pilot, flight duty time may be extended beyond 14 hours up to 16 hours if:
 - (1) A passenger seat for the off-duty pilot is available in the passenger compartment;
 - (2) The additional pilot occupies a flight deck observer seat during take-off and landing;
 - (3) The maximum flight deck duty time for any pilot is 12 hours; and
 - (4) Two hours are added to the required rest period prior to the next flight duty period

- (d) Where rest is taken during a flight duty period, flight duty time may be extended beyond the 14 hours in Paragraph (a) of this section if:
 - (1) The air carrier provides the flight crewmember with advance notice of the split flight duty time;
 - (2) One-third of the flight duty time precedes the rest period;
 - (3) A rest period of at least four hours in suitable accommodation is provided;
 - (4) The flight crew member's rest is not interrupted by the air carrier during the rest period;
 - (5) The flight duty time is extended by one-half the length of the rest period referred to in (d)(3)), to a maximum of three hours; and
 - (6) The required rest period following the split flight duty time and prior to the next flight duty period is increased by an amount equal to the extension to the flight duty time.
- (e) Where a flight crew is augmented by the addition of at least one pilot and a flight relief facility is provided, flight duty time may be extended beyond the 14 hours in Paragraph (a) of this section if:
 - (1) The flight relief facility is classified as a "flight relief facility-seat", and it meets the requirements of the DGCA, the flight duty time may be extended to 17 hours, in which case the maximum flight deck duty time for any pilot is 12 hours or;
 - (2) The flight relief facility is classified as a "flight relief facility-bunk", and it meets the requirements of the DGCA, the flight duty time may be extended to 20 hours, in which case the maximum flight deck duty time for any pilot is 14 hours;
 - (3) A rest period equal to the length of the previous flight duty period shall be provided prior to the next flight duty period, which shall be at least 12 hours; and
 - (4) The maximum number of sectors that may be completed is three.
- (f) Domestic Air Carrier; Notwithstanding the limitations prescribed in this section, where unforeseen operational circumstances occur beyond air carrier control, a flight duty period may be extended by up to 3 consecutive hours provided that:
 - (1) the crew rest following the time overrun shall be extended by at least the amount of time equivalent to the overrun,
 - (2) the flight crewmembers involved are of the opinion that flight safety will not be adversely effected by the extended duty, and
 - (3) the PIC submits a full report on the delays or circumstances surrounding the extension.

121.475 Crewmembers on Reserve

Where a crewmember is required to standby on reserve status, that crewmember must be given an opportunity to received not less than 8 consecutive hours of prone rest within each 24 hour reserve period, and;

- (a) during which rest period there has been no contact from the carrier, and
- (b) the crewmember has been given not less than 24 hours' notice as to when that rest period has been scheduled.

121.481 Flight Time Limitations and Rest Requirements: Two Pilot Crews

- (a) An air carrier may schedule a pilot to fly in an airplane that has a crew of two pilots for nine hours or less during any 24 consecutive hours without a rest period during these nine hours.
- (b) An air carrier may not schedule a flight crewmember and a flight crewmember may not accept an assignment for flight time in air transportation or in other commercial flying if that crewmember's total flight time in all commercial flying will exceed:
 - (1) 1,050 hours in (any 12 calendar month);
 - (2) 110 hours in any calendar month;
 - (3) 30 hours in any 7 consecutive days;
- (c) An air carrier may not schedule a flight crewmember and a flight crewmember may not accept an assignment for flight time during the 24 consecutive hours preceding the scheduled completion of any flight segment without a scheduled rest period during that 24 hours of at least 9 consecutive hours of rest for 9 hours or less of scheduled flight time.

121.483 Flight Time Limitations: Two Pilots and One Additional Flight Crewmember

- (a) No flag or supplemental air carrier may schedule a pilot to fly, in an airplane that has a crew of two pilots and at least one additional flight crewmember, for a total of more than 12 hours during any 24 consecutive hours.
- (b) If a pilot has flown 20 or more hours during any 48 consecutive hours or 24 or more hours during any 72 consecutive hours, he must be given at least 18 hours of rest before being assigned to any duty with the air carrier. In any case, he must be given at least 24 consecutive hours of rest during any seven consecutive days.
- (c) No pilot may fly as a flight crewmember more than:
 - (1) 120 hours during any 30 consecutive days;
 - (2) 300 hours during any 90 consecutive days; or
 - (3) 1,050 hours during any 12 calendar month period.

121.485 Flight Time limitations: Three or more Pilots and an Additional Flight Crewmember

- (a) Each air carrier shall schedule its flight hours to provide adequate rest periods on the ground for each pilot who is away from his base and who is a pilot on an airplane that has a crew of three or more pilots and an additional flight crewmember. It shall also provide adequate sleeping quarters on the airplane whenever a pilot is scheduled to fly more than 12 hours during any 24 consecutive hours.
- (b) Each air carrier shall give each pilot, upon return to his base from any flight or series of flights, a rest period that is at least twice the total number of hours he flew since the last rest period at his base. During the rest period required by this paragraph, the air carrier may not require him to perform any duty for it. If the required rest period is more than seven days, that part of the rest period in excess of seven days may be given at any time before the pilot is again scheduled for flight duty on any route.
- (c) No pilot may fly as a flight crewmember more than:
 - (1) 120 hours during any 30 consecutive days;
 - (2) 350 hours during any 90 consecutive days; or
 - (3) 1,050 hours during any 12 calendar month period.
- (d) If half the crewmembers flight time during any 90 consecutive days is as part of a crew composed of two pilots and one additional crewmember then that crewmember is limited to 300 hours in any 90 consecutive days.

121.489 Flight Time Limitations: Other Commercial Flying

No pilot that is employed as a pilot by an air carrier may do any other commercial flying if that commercial flying plus his flying in air transportation will exceed any flight time limitation in this part.

121.493 Flight Time Limitations: Flight Engineers and Flight Navigators

- (a) In any operation in which one flight engineer or flight navigator is required, the flight time limitations in Section 121.483 apply to that flight engineer or flight navigator.
- (b) In any operation in which more than one flight engineer or flight navigator is required, the flight time limitations in Section 121.483 apply to those flight engineers or flight navigators.

121.495 Flight time limitations: Deadhead transportation: airplanes.

Time spent by a crewmember in deadhead transportation to or from a duty assignment is not considered to be part of any rest period.

SUBPART R - CABIN SAFETY

121.500 Applicability

This Subpart prescribes the rules for cabin safety applicable to all persons on board aircraft and air carriers operating under this Part.

121.501 Compliance with Briefings or Safety Instructions and Carriage of Weapons

- (a) Each person on board an aircraft shall comply with the briefings and safety instructions given to them by any person assigned to act as a crewmember on board that aircraft, or any sign or placard posted for that purpose of giving such safety instructions.
- (b) No air carrier shall allow any person to have, nor may any person have, on or about his or her property, a deadly or dangerous weapon, either concealed or unconcealed, accessible to him or her while on board an aircraft.
- (c) For the purpose of this section, weapon means firearm, explosives or any other dangerous devices, which may be used to commit an act of unlawful interference.

121.502 Crewmember Requirements at Stops where Passengers Remain on Board

At stops where passengers remain on board, the certificate holder must meet the following requirements:

- (a) On each airplane for which a flight attendant is not required by Section 121.391(a), the certificate holder must ensure that a person who is qualified in the emergency evacuation procedures for the airplane, as required in Section 121.417, and who is identified to the passengers, remains:
 - (1) On board the airplane; or
 - (2) Nearby the airplane, in a position to adequately monitor passenger safety, and:
 - (i) The airplane engines are shut down; and
 - (ii) At least one floor level exit remains open to provide for the deplaning of passengers.
- (b) On each airplane for which flight attendants are required by Section 121.391(a), but the number of flight attendants remaining on board is fewer than required by Section 121.391(a), the certificate holder must meet the following requirements:
 - (1) The certificate holder shall ensure that:
 - (i) The airplane engines are shut down;
 - (ii) At least one floor level exit remains open to provide for the deplaning of passengers; and

- (iii) the number of flight attendants on board is at least half the number required by Section 121.391(a), rounded down to the next lower number in the case of fractions, but never fewer than one.
- (2) The certificate holder may substitute for the required flight attendants other persons qualified in the emergency evacuation procedures for that aircraft as required in Section 121.417, if these persons are identified to the passengers.
- (3) If only one flight attendant or other qualified person is on board during a stop, that flight attendant or other qualified person shall be located in accordance with the certificate holder's DGCA-approved operating procedures. If more than one flight attendant or other qualified person is on board, the flight attendants or other qualified persons shall be spaced throughout the cabin to provide the most effective assistance for the evacuation in case of an emergency.

121.503 Briefing Passengers before Takeoff

- (a) Each certificate holder operating a passenger-carrying airplane shall ensure that all passengers are orally briefed by the appropriate crewmember as follows:
 - (1) Before each takeoff, on each of the following:
 - (i) Smoking. Each passenger shall be briefed on when, where, and under what conditions smoking is prohibited. This briefing shall include a statement that the Civil Aviation Safety Regulations require passenger compliance with the lighted passenger information signs, posted placards, areas designated for safety purposes as no smoking areas, and crewmember instructions with regard to these items. The briefing shall also include a statement that Indonesian regulations prohibit tampering with, disabling, or destroying any smoke detector in an airplane lavatory; smoking in lavatories; and, when applicable, smoking in passenger compartments.
 - (ii) The location of emergency exits.
 - (iii) The use of safety belts, including instructions on how to fasten and unfasten the safety belts. Each passenger shall be briefed on when, where, and under what conditions the safety belt must be fastened about that passenger. This briefing shall include a statement that the Civil Aviation Safety Regulations require passenger compliance with lighted passenger information signs and crewmember instructions concerning the use of safety belts.
 - (iv) The location and use of any required emergency flotation means.
 - (v) On operations that do not use a flight attendant, the following additional information:
 - (A) The placement of seat backs in an upright position before takeoff and landing.
 - (B) Location of survival equipment.
 - (C) If the flight involves operations above 12,000 MSL, the normal and emergency use of oxygen.
 - (D) Location and operation of fire extinguisher.

- (2) After each takeoff, immediately before or immediately after turning the seat belt sign off, an announcement shall be made that passengers should keep their seat belts fastened, while seated, even when the seat belt sign is off.
 - (3) Except as provided in Paragraph (a)(4) of this section, before each takeoff a required crewmember assigned to the flight shall conduct an individual briefing of each person who may need the assistance of another person to move expeditiously to an exit in the event of an emergency. In the briefing the required crewmember shall:
 - (i) Brief the person and his attendant, if any, on the routes to each appropriate exit and on the most appropriate time to begin moving to an exit in the event of an emergency; and
 - (ii) Inquire of the person and his attendant, if any, as to the most appropriate manner of assisting the person so as to prevent pain and further injury.
 - (4) The requirements of Paragraph (a)(3) of this section do not apply to a person who has been given a briefing before a previous leg of a flight in the same aircraft when the crewmembers on duty have been advised as to the most appropriate manner of assisting the person so as to prevent pain and further injury.
- (b) Each certificate holder shall carry on each passenger-carrying airplane, in convenient locations for use of each passenger, printed cards supplementing the oral briefing and containing:
- (1) Diagrams of, and methods of operating, the emergency exits; and
 - (2) Other instructions necessary for use of emergency equipment.
- Each card required by this paragraph must contain information that is pertinent only to the type and model airplane used for that flight.
- (c) The certificate holder shall describe in its manual the procedure to be followed in the briefing required by Paragraph (a) of this section.

121.504 Briefing Passengers: Extended Overwater Operations

- (a) In addition to the oral briefing required by Section 121.503(a), each certificate holder operating an airplane in extended overwater operations shall ensure that all passengers are orally briefed by the appropriate crewmember on the location and operation of life preservers, life rafts, and other flotation means, including a demonstration of the method of donning and inflating a life preserver.
- (b) The certificate holder shall describe in its manual the procedure to be followed in the briefing required by Paragraph (a) of this section.
- (c) If the airplane proceeds directly over water after takeoff, the briefing required by Paragraph (a) of this section must be done before takeoff.

- (d) If the airplane does not proceed directly over water after takeoff, no part of the briefing required by Paragraph (a) of this section has to be given before takeoff, but the entire briefing must be given before reaching the overwater part of the flight.

121.505 Stowage of Food, Beverage, and Passenger Service Equipment during Airplane Movement on the Surface, Takeoff, and Landing

- (a) No certificate holder may move an airplane on the surface, takeoff, or land when any food, beverage, or tableware furnished by the certificate holder is located at any passenger seat.
- (b) No certificate holder may move an airplane on the surface, takeoff, or land unless each food and beverage tray and seat back tray table is secured in its stowed position.
- (c) No certificate holder may permit an airplane to move on the surface, takeoff, or land unless each passenger serving cart is secured in its stowed position.
- (d) No certificate holder may permit an airplane to move on the surface, takeoff, or land unless each movie screen that extends into an aisle is stowed.
- (e) Each passenger shall comply with instructions given by a crewmember with regard to compliance with this section.

121.507 Retention of Items of Mass in Passenger and Crew Compartments

The certificate holder must provide and use means to prevent each item of galley equipment and each serving cart, when not in use, and each item of crew baggage, which is carried in a passenger or crew compartment from becoming a hazard by shifting under the appropriate load factors corresponding to the emergency landing conditions under which the airplane was type certificated.

121.509 Carry-on Baggage

- (a) No certificate holder may allow the boarding of carry-on baggage on an airplane unless each passenger's baggage has been scanned to control the size and amount carried on board in accordance with an approved carry-on baggage program in its operations specifications. In addition, no passenger may board an airplane if his/her carry-on baggage exceeds the baggage allowance prescribed in the carry-on baggage program in the certificate holder's operations specifications.
- (b) No certificate holder may allow all passenger entry doors of an airplane to be closed in preparation for taxi or pushback unless at least one required crewmember has verified that each article of baggage is stowed in accordance with this section and Section 121.511 (c) of this Part.

- (c) No certificate holder may allow an airplane to takeoff or land unless each article of baggage is stowed:
 - (1) In a suitable closet or baggage or cargo stowage compartment placarded for its maximum weight and providing proper restraint for all baggage or cargo stowed within, and in a manner that does not hinder the possible use of any emergency equipment; or
 - (2) As provided in this part; or Section 121.511(c).
 - (3) Under a passenger seat.
- (d) Baggage, other than articles of loose clothing, may not be placed in an overhead rack unless that rack is equipped with approved restraining devices or doors.
- (e) Each passenger must comply with instructions given by crewmembers regarding compliance with Paragraphs (a), (b), (c), (d), and (g) of this section.
- (f) Each passenger seat under which baggage is allowed to be stowed shall be fitted with a means to prevent articles of baggage stowed under it from sliding forward. In addition, each aisle seat shall be fitted with a means to prevent articles of baggage stowed under it from sliding sideward into the aisle under crash impacts severe enough to induce the ultimate inertia forces specified in the emergency landing condition regulations under which the airplane was type certified.
- (g) In addition to the methods of stowage in Paragraph (c) of this section, flexible travel canes carried by blind individuals may be stowed;
 - (1) Under any series of connected passenger seats in the same row, if the cane does not protrude into an aisle and if the cane is flat on the floor; or
 - (2) Between a non-emergency exit window seat and the fuselage, if the cane is flat on the floor; or
 - (3) Beneath any two non-emergency exit window seats, if the cane is flat on the floor; or
 - (4) In accordance with any other method approved by the Director.

121.511 Carriage of Cargo in Passenger Compartments

- (a) Except as provided in Paragraph (b), or (c) of this section, no certificate holder may carry cargo in the passenger compartment of an airplane.
- (b) Cargo may be carried anywhere in the passenger compartment if it is carried in an approved cargo bin that meets the following requirements:
 - (1) The bin must withstand the load factors and emergency landing conditions applicable to the passenger seats of the airplane in which the bin is installed, multiplied by a factor of 1.15, using the combined weight of the bin and the maximum weight of cargo that may be carried in the bin.

- (2) The maximum weight of cargo that the bin is approved to carry and any instructions necessary to ensure proper weight distribution within the bin must be conspicuously marked on the bin.
 - (3) The bin may not impose any load on the floor or other structure of the airplane that exceeds the load limitations of that structure.
 - (4) The bin must be attached to the seat tracks or to the floor structure of the airplane, and its attachment must withstand the load factors and emergency landing conditions applicable to the passenger seats of the airplane in which the bin is installed, multiplied by either the factor 1.15 or the seat attachment factor specified for the airplane, whichever is greater, using the combined weight of the bin and the maximum weight of cargo that may be carried in the bin.
 - (5) The bin may not be installed in a position that restricts access to or use of any required emergency exit, or of the aisle in the passenger compartment.
 - (6) The bin must be fully enclosed and made of material that is at least flame resistant.
 - (7) Suitable safeguards must be provided within the bin to prevent the cargo from shifting under emergency landing conditions.
 - (8) The bin may not be installed in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passenger is provided.
- (c) Cargo may be carried aft of a bulkhead or divider in any passenger compartment provided the cargo is restrained to the load factors in Section 25.561(b)(3) and is loaded as follows:
- (1) It is properly secured by a safety belt or other tie down having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions.
 - (2) It is packaged or covered in a manner to avoid possible injury to passengers and passenger compartment occupants.
 - (3) It does not impose any load on seats or the floor structure that exceeds the load limitation for those components.
 - (4) Its location does not restrict access to or use of any required emergency or regular exit, or of the aisle in the passenger compartment.
 - (5) Its location does not obscure any passenger's view of the "seat belt" sign, "no smoking" sign, or required exit sign, unless an auxiliary sign or other approved means for proper notification of the passenger is provided.

121.513 Refuelling with Passengers on Board

- (a) An airplane shall not be refueled when passengers are embarking, on board or disembarking unless it is properly attended by qualified personnel ready to initiate

and direct an evacuation of the airplane by the most practical and expeditious means available.

- (b) When refueling with passengers embarking, on board or disembarking, two-way communication shall be maintained by the airplane's inter-communication system or other suitable means between the ground crew supervising the refueling and the qualified personnel on board the airplane.
- (c) When aircraft refueling operations take place while passengers are embarking, on board or disembarking, ground equipment shall be positioned so as to allow:
 - (1) the use of a sufficient number of exits for expeditious evacuation; and
 - (2) a ready escape route from each of the exits to be used in an emergency.

121.515 [Reserved]

121.517 Alcoholic Beverages

- (a) No person may drink any alcoholic beverage aboard an aircraft unless the certificate holder operating the aircraft has served that beverage to him.
- (b) No certificate holder may serve any alcoholic beverage to any person aboard any of its aircraft who:
 - (1) Appears to be intoxicated;
 - (2) Is escorting a person or being escorted for security purposes or
 - (3) Is authorized to carry and has a deadly or dangerous weapon accessible to him while aboard the aircraft.
- (c) No certificate holder may allow any person to board any of its aircraft if that person appears to be intoxicated.
- (d) Each certificate holder shall, within five days after the incident, report to the Director the refusal of any person to comply with Paragraph (a) of this section, or of any disturbance caused by a person who appears to be intoxicated aboard any of its aircraft.

121.519 [Reserved]

121.521 [Reserved]

121.523 Emergency and Emergency Evacuation Duties

Each air carrier shall, for each type and model of airplane, assigned to each category of required crewmember as appropriate, the necessary functions to be performed in an emergency or a situation requiring emergency evacuation. The air carrier shall show

those functions are realistic, can be practically accomplished, and will meet any reasonably anticipated emergency including the possible incapacitation of individual crewmembers or their inability to reach the passenger cabin because of shifting cargo in combination cargo/ passenger airplanes.

SUBPART S - [Reserved]

SUBPART T - FLIGHT OPERATIONS

121.531. Applicability

This subpart prescribes requirements for flight operations applicable to all certificate holders, except where otherwise specified.

121.533 Responsibility for Operational Control

- (a) Each air carrier is responsible for operational control.
- (b) The pilot in command the flight operations officer or director of operations are jointly responsible for the preflight planning, delay, and dispatch release of a flight in compliance with the CASRs and operations specifications.
- (c) The flight operations officer or director of operations is responsible for
 - (1) Monitoring the progress of each flight;
 - (2) Issuing necessary information for the safety of the flight; and
 - (3) Canceling or re-dispatching a flight if, in his opinion or the opinion of the pilot in command, the flight cannot operate or continue to operate safely as planned or released.
- (d) Each pilot in command of an aircraft is, during flight time, in command of the aircraft and crew and is responsible for the safety of the passengers, crewmembers, cargo, and airplane.
- (e) Each pilot command has full control and authority in the operation of the aircraft, without limitation, over other crewmembers and their duties during flight time, whether or not he holds valid certificates authorizing him to perform the duties of those crewmembers.
- (f) No pilot may operate an aircraft in a careless or reckless manner so as to endanger life or property.

121.535 Medical Examination for Pilots, Cabin Crews, and Engineers before Performing Their Duties

- (a) Certificate holders shall examine medical condition for each pilot, cabin crew and engineer before performing their duties for operational of the aircraft in accordance with the current provision of the CASR.
- (b) Certificate holder shall prepare medical condition monitoring system for each pilot, cabin crew, and engineer before performing their duties for operational of the aircraft and examining minimum for blood pressure and alcohol contamination for each flight.

121.537 Alcohol or Drugs

No person may act or attempt to act as a crewmember of a civil aircraft in contravention of CASR Part 91.17 and Part 91.19.

121.538 Airplane Security

- (a) Each certificate holder shall establish a security program which shall:
- (1) Provide for the safety of persons and property traveling with the air carrier against acts of unlawful interference;
 - (2) Prohibit unauthorized access to the aircraft;
 - (3) Ensure that baggage carried in the aeroplane is checked by a responsible agent and that identification is obtained from persons, other than Regulated Agent, shipping goods or cargo aboard the aeroplane;
 - (4) Ensure that cargo and checked baggage carried aboard the aircraft is handled in a manner that prohibits unauthorized access;
 - (5) Require a security inspection of the aeroplane before placing it in service and after it has been left unattended;
 - (6) Ensure that there is on board a checklist of the procedures to be followed in searching for a bomb in case of suspected sabotage and for inspecting aeroplanes for concealed weapons, explosives or other dangerous devices when a well-founded suspicion exists that the aeroplane may be the object of an act of unlawful interference. The checklist shall be supported by guidance on the appropriate course of action to be taken should a bomb or suspicious object be found and information on the least-risk bomb location specific to the aeroplane.
 - (7) Be in writing signed by the air carrier or any person delegated authority in this matter;
 - (8) Be approved by the DGCA
- (b) For the purposes of this section;
- (1) Security Program means measures adopted to safeguard international civil aviation against acts of unlawful interference.
 - (2) Regulated Agent means an agent, freight forwarder or any other entity who conducts business with an operator and provides security controls that are accepted or required by the appropriate authority in respect of cargo, courier and express parcels or mail.
- (c) A certificate holder shall establish and maintain an approved security training programme which ensures crew members act in the most appropriate manner to

minimize the consequences of acts of unlawful interference. As a minimum, the programme shall include the following elements:

- (1) determination of the seriousness of any occurrence;
 - (2) crew communication and coordination;
 - (3) appropriate self-defense responses;
 - (4) use of non-lethal protective devices assigned to crew members whose use is authorized by the State of the Operator;
 - (5) understanding of behaviour of terrorists so as to facilitate the ability of crew members to cope with hijacker behaviour and passenger responses;
 - (6) live situational training exercises regarding various threat conditions;
 - (7) flight deck procedures to protect the aeroplane; and
 - (8) aeroplane search procedures and guidance on least-risk bomb locations where practicable.
- (d) A certificate holder shall also establish and maintain a training programme to acquaint appropriate employees with preventive measures and techniques in relation to passengers, baggage, cargo, mail, equipment, stores and supplies intended for carriage on an aeroplane so that they contribute to the prevention of acts of sabotage or other forms of unlawful interference.

121.539 Operations Notices

Each certificate holder shall notify its appropriate operations personnel of each change in equipment and operating procedures, including each known change in the use of navigation aids, airports, air traffic control procedures and regulations, local airport traffic control rules, and known hazards to flight, including icing and other potentially hazardous meteorological conditions and irregularities in ground and navigation facilities.

121.541 Operations Schedules: Domestic and Flag Air Carriers

In establishing flight operations schedules, each domestic and flag air carrier shall allow enough time for the proper servicing of aircraft at intermediate stops, and shall consider the prevailing winds enroute and the cruising speed of the type of aircraft used. This cruising speed may not be more than that resulting from the specified cruising output of the engines.

121.542 Flight Crewmember Duties

- (a) No certificate holder shall require nor may any flight crewmember perform, any duties during a critical phase of flight except those duties required for the safe operation of the aircraft. Duties such as company required calls made for such non-

safety related purposes as ordering galley supplies and conforming passenger connections, announcements made to passengers promoting the air carrier or pointing out sights of interest, and filling out company payroll and related records are not required for the safe operation of the aircraft.

- (b) No flight crewmember may engage in, nor may any pilot in command permit, any activity during critical phase of flight which could distract any flight crewmember from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties. Activities such as eating meals, engaging in nonessential conversations within the cockpit and nonessential communications between the cabin and cockpit crew, and reading publications not related to the proper conduct of the flight are not required for the safe operation of the aircraft.
- (c) For the purposes of this section, a critical phase of flight is defined as any period of flight time including ground operations where it could reasonably be expected that the safe operation of the aircraft, requires the full attention and or participation of all flight crewmembers.

Note: "Taxi" is defined as "movement" of an airplane under its own power on the surface of an airport.

121.543 Flight Crewmember at Controls

- (a) Except as provided in Paragraph (b) of this section, each required flight crewmember on flight deck duty must remain at the assigned duty station with seat belt and shoulder straps fastened while the aircraft is taking off or landing. On other phases of the flight, all flight crewmembers shall keep their seat belt fastened when at their stations.
- (b) A required flight crewmember may leave the assigned duty station
 - (1) If the crewmember's absence is necessary for the performance of duties in connection with the operation of the aircraft;
 - (2) If the crewmember's absence is in connection with physiological needs; or
 - (3) If the crewmember is taking a rest period, and relief is provided by an appropriately rated pilot for that portion of the flight.

121.545 Manipulation of Controls

No pilot in command may allow any person to manipulate the controls of an aircraft during flight nor may any person manipulate the controls during flight unless that person is:

- (a) A qualified pilot of the certificate holder operating that aircraft.
- (b) An authorized pilot safety representative of the Director who has the permission of the pilot in command, is qualified in the aircraft, and is checking flight operations; or

- (c) A pilot of another certificate holder who has the permission of the pilot in command, is qualified in the aircraft, and is authorized by the certificate holder operating the aircraft.

121.547 Admission to Flight Deck

- (a) No person may admit any person to the flight deck of an aircraft unless the person being admitted is

- (1) A crewmember;
- (2) A DGCA air carrier inspector, or an authorized representative of the Director, who is performing official duties;
- (3) An employee of the Indonesian government, a certificate holder, or an aeronautical enterprise who has the permission of the pilot in command and whose duties are such that admission to the flight deck is necessary or advantageous for safe operations; or
- (4) Any person who has the permission of the pilot in command and is specially authorized by the certificate holder management and by the Director.

Paragraph (a)(2) of this section does not limit the emergency authority of the pilot in command to exclude any person from the flight deck in the interest of safety.

- (b) For the purposes of paragraph (a) (3) of this section, employees of the Indonesian government who deal responsibility with matters relating to safety and employees of the certificate holder whose efficiency would be increased by familiarity with flight conditions, may be admitted by the certificate holder. However, the certificate holder may not admit employees of traffic, sales, or other departments that are not directly related to flight operations, unless they are eligible under Paragraph (a),(4) of this section.

- (c) No person may admit any person to the flight deck unless there is a seat available for his use in the passenger compartment, except

- (1) A DGCA air carrier inspector or an authorized representative of the Director who is checking or observing flight operations;
- (2) An air traffic controller who is authorized by the Director to observe ATC procedures;
- (3) A certificated airman employee by the certificate holder whose duties require an airman certificate;
- (4) A certificate airman employed by another certificate holder whose duties with that carrier require an airman certificate and who is authorized by the certificate holder operating the aircraft to make specific trips over a route;
- (5) An employee of the certificate holder operating the aircraft whose duty is directly related to the conduct or planning of flight operations or the in-flight monitoring of aircraft equipment or operating procedures, if his presence on the flight deck is necessary to perform his duties and he has been authorized in

writing by a responsible supervisor, listed in the Operations Manual as having that authority; and

- (6) A technical representative of the manufacturer of the aircraft or its component whose duties are directly related to the in-flight monitoring of aircraft equipment or operating procedures, if his presence on the flight deck is necessary to perform his duties, and he has been authorized in writing by the Director and by a responsible supervisor of the operations department of the certificate holder, listed in the Operation Specifications as having that authority.

121.548 Aviation Safety Inspector's Credentials: Admission to Pilot's Compartment

Whenever in performing the duties of conducting an inspection, an inspector of the DGCA presents his identification credentials to the pilot in command of an aircraft operated by an air carrier or commercial operator, the inspector must be given free and uninterrupted access to the pilot's compartment of that aircraft.

121.549 Flying Equipment

- (a) The pilot in command shall ensure that appropriate aeronautical charts containing adequate information concerning navigation aids and instrument approach procedures are aboard the aircraft for each flight.
- (b) Each crewmember shall, on each flight, have readily available for his use a flash light that is in good working order.

121.550 [Reserved]

121.551 Restriction or Suspension of Operation

When an air carrier knows of conditions, including airport and runway conditions, that are hazard to safe operation, it shall restrict or suspend operation until those conditions are corrected.

121.553 [Reserved]

121.555 Compliance with approved routes and limitations

No pilot may operate an airplane in scheduled air transportation:

- (a) Over any route or route segment unless it is specified in the air carrier's operations specifications; or

- (b) Other than in accordance with the limitations in the operations specifications.

121.557 Emergencies

- (a) In an emergency situation that requires immediate decision and action the pilot in command may take any action that he considers necessary under the circumstances. In such a case he may deviate from prescribed operations procedures and methods, weather minimums, and the CASRs, to the extent required in the interests of safety.
- (b) In an emergency situation arising during flight that requires immediate decision and action by the flight operations officer or director of operations, and that is known to him, he shall advise the pilot in command of the emergency, shall ascertain the decision of the pilot in command, and shall have the decision recorded. If the flight operations officer or director of flight operations cannot communicate with the pilot, he shall declare an emergency and take any action that he considers necessary under the circumstances.
- (c) Whenever a pilot in command or flight operations officer or director of operations exercises emergency authority, he shall keep the appropriate ATC facility and dispatch centers fully informed of the progress of the flight. The person declaring the emergency shall send a written report of any deviation through the air carrier's operations manager, to the Director. A flight operations officer or director of operations shall send his report within 10 days after the date of the emergency, and a pilot in command shall send his report within 10 days after returning to his home base.

121.559 In-flight fuel Management

- (a) The pilot-in-command shall continually ensure that the amount of usable fuel remaining on board is not less than the fuel required to proceed to an aerodrome where a safe landing can be made with the planned final reserve fuel remaining upon landing.
- (b) The pilot-in-command shall request delay information from ATC when unanticipated circumstances may result in landing at the destination aerodrome with less than the final reserve fuel plus any fuel required to proceed to an alternate aerodrome or the fuel required to operate to an isolated aerodrome.
- (c) The pilot-in-command shall advise ATC of a minimum fuel state by declaring MINIMUM FUEL when, having committed to land at a specific aerodrome, the pilot calculates that any change to the existing clearance to that aerodrome may result in landing with less than the planned final reserve fuel.
- (d) The pilot-in-command shall advise ATC of a minimum fuel state by declaring MINIMUM FUEL when, having committed to land at a specific aerodrome, the pilot

calculates that any change to the existing clearance to that aerodrome may result in landing with less than the planned final reserve fuel

121.561 Reporting Potentially Hazardous Meteorological Conditions and Irregularities of Ground and Navigation Facilities

- (a) Whenever he encounters a meteorological condition or an irregularity in a ground or navigational facility, in flight, the knowledge of which he considers essential to the safety of other flights, the pilot in command shall notify an appropriate ground station as soon as practicable.
- (b) The ground radio station that is notified under Paragraph (a) of this section shall report the information to the agency directly responsible for operating the facility.

121.563 Reporting Mechanical Irregularities

The pilot in command shall ensure that all mechanical irregularities occurring during flight time are entered in the maintenance log of the airplane at the end of that flight time. Before each flight the pilot in command shall ascertain the status of each irregularity entered in the log at the end of the preceding flight.

121.565 Engine Inoperative: Landing; Reporting

- (a) Except as provided in Paragraph (b) of this section, whenever an engine of an airplane fails or whenever the rotation of an engine is stopped to prevent possible damage, the pilot in command shall land the airplane at the nearest suitable airport, in point of time, at which a safe landing can be made.
- (b) If not more than one engine of an airplane that has three or more engines fails or its rotation is stopped, the pilot in command may proceed to an airport that he selects if, after considering the following, he decides that proceeding to that airport is as safe as landing at the nearest suitable airport:
 - (1) The nature of the malfunction and the possible mechanical difficulties that may occur if flight is continued.
 - (2) The altitude, weight, and usable fuel at the time of engine stoppage.
 - (3) The weather conditions enroute and at possible landing points.
 - (4) The air traffic congestion.
 - (5) The kind of terrain.
 - (6) His familiarity with the airport to be used.
- (c) The pilot in command shall report each stoppage of engine rotation in flight to the appropriate ground radio station as soon as practicable and shall keep that station fully informed of the progress of the flight.

- (d) If the pilot in command lands at an airport other than the nearest suitable airport, in point of time, he shall (upon completing the trip) send a written report, in duplicate, to his operations manager (or director of operations in the case of a supplemental air carrier or commercial operator) stating his reasons for determining that his selection of an airport, other than the nearest airport, was as safe a course of action as landing at the nearest suitable airport. The operations manager or director of operations shall, within 10 days after the pilot returns to his home base, send a copy of this report with his comments to the DGCA.

121.567 Instrument Approach Procedures and IFR Landing Minimums

No person may make an instrument approach at an airport except in accordance with IFR weather minimums and instrument approach procedures set forth in the certificate holder's operations specifications.

121.569 Equipment Interchange: Domestic and Flag Air Carriers

- (a) Before operating under an interchange agreement, each domestic and flag air carrier shall show that:
 - (1) The procedures for the interchange operation conform with the CASRs and with safe operating practices;
 - (2) Required crewmembers and flight operations officers meet approved training requirements for the airplanes and equipment to be used and are familiar with the communications and dispatch procedures to be used;
 - (3) Maintenance personnel meet training requirements for the airplanes and equipment, and are familiar with the maintenance procedures to be used;
 - (4) Flight crewmembers and flight operations officers meet appropriate route and airport qualifications; and
 - (5) The airplanes to be operated are essentially similar to the airplanes of the air carrier with whom the interchange is effected with respect to the arrangement of flight instruments and the arrangement and motion of controls that are critical to safety unless the Director determines that the air carrier has adequate training programs to ensure that any potentially hazardous dissimilarities are safely overcome by flight crew familiarization.
- (b) Each domestic and flag air carrier shall include the pertinent provisions and procedures involved in the equipment interchange agreement in its manuals.

121.570 Airplane Evacuation Capability

- (a) No person may cause an airplane carrying passengers to be moved on the surface, takeoff, or land unless each automatically deployable emergency evacuation assisting means, installed in accordance with Section 121.310(a), is ready for evacuation.

- (b) Each certificate holder shall ensure that, at all times passengers are on board prior to airplane movement on the surface, at least one floor-level exit provides for the egress of passengers through normal or emergency means.

121.571 [Reserved]

121.573 [Reserved]

121.574 Oxygen for Medical Use by Passengers

- (a) A certificate holder may allow a passenger to carry and operate equipment for the storage, generation, or dispensing of oxygen when the following conditions are met:
- (1) The equipment is:
 - (i) Furnished by the certificate holder;
 - (ii) Of an approved type or is in conformity with the manufacturing, packaging, marking, labelling, and maintenance requirements of the CASRs.
 - (iii) Maintained by the certificate holder in accordance with an approved maintenance program;
 - (iv) Free of flammable contaminants on all exterior surfaces;
 - (v) Capable of providing a minimum mass flow of oxygen to the user of four liters per minute;
 - (vi) Constructed so that all valves, fittings, and gauges are protected from damage; and
 - (vii) Appropriately secured.
 - (2) When the oxygen is stored in the form of a liquid, the equipment has been under the certificate holder's approved maintenance program since its purchase new or since the storage container was last purged.
 - (3) When the oxygen is stored in the form of a compressed gas:
 - (i) The equipment has been under the certificate holder's approved maintenance program since its purchase new or since the last hydrostatic test of the storage cylinder; and
 - (ii) The pressure in any oxygen cylinder does not exceed the rated cylinder pressure.
 - (4) Each person using the equipment has a medical need to use it evidenced by a written statement to be kept in that person's possession, signed by a licensed physician which specifies the maximum quantity of oxygen needed each hour and the maximum flow rate needed for the pressure altitude corresponding to the pressure in the cabin of the airplane under normal operating conditions. This paragraph does not apply to the carriage of oxygen in an airplane in which the only passengers carried are persons who may have a medical need for oxygen during flight, no more than one relative or other interested person for each of those persons, and medical attendants.

- (5) When a physician's statement is required by Paragraph (a)(4) of this section, the total quantity of oxygen carried is equal to the maximum quantity of oxygen needed each hour, as specified in the physician's statement, multiplied by the number of hours used to compute the amount of airplane fuel required by this part.
 - (6) The pilot in command is advised when the equipment is on board, and when it is intended to be used.
 - (7) The equipment is stowed, and each person using the equipment is seated, so as not to restrict access to or use of any required emergency, or regular exit or of the aisle in the passenger compartment.
- (b) No person may, and no certificate holder may allow any person to, smoke within 10 feet of oxygen storage and dispensing equipment carried in accordance with Paragraph (a) of this section.
 - (c) No certificate holder may allow any person to connect or disconnect oxygen dispensing equipment, to or from a gaseous oxygen cylinder while any passenger is aboard the airplane.
 - (d) The requirements of this section do not apply to the carriage of supplemental or first aid oxygen and related equipment required by the CASRs.

121.575 [Reserved]

121.576 Retention of Items of Mass in Passenger and Crew Compartments

The certificate holder must provide and use means to prevent each item of galley equipment and each serving cart, when not in use, and each item of crew baggage, which is carried in a passenger or crew compartment from becoming a hazard by shifting under the appropriate load factors corresponding to the emergency landing conditions under which the airplane was type certificated.

121.577 [Reserved]

121.578 [Reserved]

121.579 Minimum Altitudes for Use of Autopilot

- (a) Enroute operations. Except as provided in Paragraphs (b) and (c) of this section, no person may use an autopilot enroute, including climb and descent, at an altitude above the terrain that is less than twice the maximum altitude loss specified in the Airplane Flight Manual for a malfunction of the autopilot under cruise conditions, or less than 500 feet, whichever is higher.

- (b) Approaches. When using an instrument approach facility, no person may use an autopilot at an altitude above the terrain that is less than twice the maximum altitude loss specified in the Airplane Flight Manual for a malfunction of the autopilot under approach conditions, or less than 50 feet below the approved minimum descent altitude or decision height for the facility, whichever is higher, except:
 - (1) When reported weather conditions are less than the basic VFR weather conditions in Section 91.155 of the CASRs, no person may use an autopilot with an approach coupler for ILS approaches at an altitude above the terrain that is less than 50 feet higher than the maximum altitude loss specified in the Airplane Flight Manual for the malfunction of the autopilot with approach coupler under approach conditions; and
 - (2) When reported weather conditions are equal to or better than the basic VFR minimums in Section 91.155 of the CASRs, no person may use an autopilot with an approach coupler for ILS approaches at an altitude above the terrain that is less than the maximum altitude loss specified in the Airplane Flight Manual for the malfunction of the autopilot with approach coupler under approach conditions, or 50 feet, whichever is higher.
- (c) Notwithstanding Paragraph (a) or (b) of this section, the Director issues operations specifications to allow the use, to touchdown, of an approved flight control guidance system with automatic capability, in any case in which:
 - (1) The system does not contain any altitude loss (above zero) specified in the Airplane Flight Manual for malfunction of the autopilot with approach coupler; and
 - (2) He finds that the use of the system to touchdown will not otherwise affect the safety standards required by this section.

121.581 Observer's Seat: Enroute Inspections

- (a) Except as provided in Paragraph (c) of this section, each certificate holder shall make available a seat on the flight deck of each airplane, used by it in air commerce, for occupancy by the Director while conducting en route inspections. The location and equipment of the seat, with respect to its suitability for use in conducting en route inspections, is determined by the Director.
- (b) In each airplane that has more than one observer's seat, in addition to the seats required for the crew complement for which the airplane was certificated, the forward observer's seat or the observer's seat selected by the Director must be made available when complying with Paragraph (a) of this section.
- (c) For any airplane type certificated before December 20, 1995 for not more than 30 passengers that does not have an observer seat on the flight deck, the certificate holder must provide a forward passenger seat with headset or speaker for occupancy by the Director while conducting en route inspections. Notwithstanding the requirements of Section 121.587, the cockpit door, if required, may remain open during such inspections.

121.583 [Reserved]**121.585 Exit Seating**

(a) Certificate holders shall make the following determinations and designations:

- (1) Each certificate holder shall determine, to the extent necessary to perform the applicable functions of Paragraph (d) of this section, the suitability of each person it permits to occupy an exit seat, in accordance with this section. For the purpose of this section:
 - (i) Exit seat means:
 - (A) Each seat having direct access to an exit; and,
 - (B) Each seat in a row of seats through which passengers would have to pass to gain access to an exit, from the first seat inboard of the exit to the first aisle inboard of the exit.
 - (ii) A passenger seat having "direct access" means a seat from which a passenger can proceed directly to the exit without entering an aisle or passing around an obstruction.
- (2) Each certificate holder shall make the passenger exit seating determinations required by this paragraph in a non-discriminatory manner consistent with the requirements of this section, by persons designated in the certificate holder's required operations manual.
- (3) Each certificate holder shall designate the exit seats for each passenger seating configuration in its fleet in accordance with the definitions in this paragraph and submit those designations for approval as part of the procedures required to be submitted for approval under Paragraphs (n) and (p) of this section.

(b) No certificate holder may seat a person in a seat affected by this section if the certificate holder determines that it is likely that the person would be unable to perform one or more of the applicable functions listed in Paragraph (d) of this section because:

- (1) The person lacks sufficient mobility, strength, or dexterity in both arms and hands, and both legs;
 - (i) To reach upward, sideways, and downward to the location of emergency exit and exit-slide operating mechanism;
 - (ii) To grasp and push, pull, turn, or otherwise manipulate those mechanisms;
 - (iii) To push, shove, pull, or otherwise open emergency exits;
 - (iv) To lift out, hold, deposit on nearby seats, or maneuver over the seatbacks to the next row objects the size and weight of overwing window exit doors;
 - (v) To remove obstructions similar in size and weight to overwing exit doors;
 - (vi) To reach the emergency exit expeditiously;
 - (vii) To maintain balance while removing obstructions;
 - (viii) To exit expeditiously;
 - (ix) To stabilize an escape slide after deployment; or
 - (x) To assist others in getting off an escape slide;

- (2) The person is less than 15 years of age or lacks the capacity to perform one or more of the applicable functions listed in Paragraph (d) of this section without the assistance of an adult companion, parent, or other relative;
- (3) The person lacks the ability to read and understand instructions required by this section and related to emergency evacuation provided by the certificate holder in printed or graphic form or the ability to understand oral crew commands.
- (4) The person lacks sufficient visual capacity to perform one or more of the applicable functions in Paragraph (d) of this section without the assistance of visual aids beyond contact lenses or eyeglasses;
- (5) The person lacks sufficient aural capacity to hear and understand instructions shouted by flight attendants, without assistance beyond a hearing aid;
- (6) The person lacks the ability adequately to impart information orally to other passengers; or,
- (7) The person has:
 - (i) A condition or responsibilities, such as caring for small children that might prevent the person from performing one or more of the applicable functions listed in Paragraph (d) of this section; or
 - (ii) A condition that might cause the person harm if he or she performs one or more of the applicable functions listed in Paragraph (d) of this section.
- (c) Each passenger shall comply with instructions given by a crewmember or other authorized employee of the certificate holder implementing exit seating restrictions established in accordance with this section.
- (d) Each certificate holder shall include on passenger information cards, presented in the language in which briefings and oral commands are given by the crew, at each exit seat affected by this section, information that, in the event of an emergency in which a crewmember is not available to assist, a passenger occupying an exit seat may use if called upon to perform the following functions:
 - (1) Locate the emergency exit;
 - (2) Recognize the emergency exit opening mechanism;
 - (3) Comprehend the instructions for operating the emergency exit;
 - (4) Operate the emergency exit;
 - (5) Assess whether opening the emergency exit will increase the hazards to which passengers may be exposed;
 - (6) Follow oral directions and hand signals given by a crewmember;
 - (7) Stow or secure the emergency exit door so that it will not impede use of the exit;
 - (8) Assess the condition of an escape slide, activate the slide, and stabilize the slide after deployment to assist others in getting off the slide;
 - (9) Pass expeditiously through the emergency exit; and
 - (10) Assess, select, and follow a safe path away from the emergency exit.

(e) Each certificate holder shall include on passenger information cards, at each exit seat:

- (1) In the primary language in which emergency commands are given by the crew, the selection criteria set forth in Paragraph (b) of this section, and a request that a passenger identify himself or herself to allow reseating if he or she:
 - (i) Cannot meet the selection criteria set forth in Paragraph (b) of this section;
 - (ii) Has a non-discernible condition that will prevent him or her from performing the applicable functions listed in Paragraph (d) of this section;
 - (iii) May suffer bodily harm as the result of performing one or more of those functions; or,
 - (iv) Does not wish to perform those functions; and,
- (2) In the language used by the certificate holder for passenger information cards, a request that a passenger identify himself or herself to allow reseating if he or she lacks the ability to read, speak, or understand the language or the graphic form in which instructions required by this section and related to emergency evacuation are provided by the certificate holder, or the ability to understand the specified language in which crew commands will be given in an emergency.

A certificate holder shall not require the passenger to disclose his or her reason for needing reseating.

(f) Each certificate holder shall make available for inspection by the public at all passenger loading gates and ticket counters at each airport where it conducts passenger operations, written, procedures established for making determinations in regard to exit row seating.

(g) No certificate holder may allow taxi or pushback unless at least one required crewmember has verified that no exit seat is occupied by a person the crewmember determines is likely to be unable to perform the applicable functions listed in Paragraph (d) of this section.

(h) Each certificate holder shall include in its passenger briefings a reference to the passenger information cards, required by Paragraphs (d) and (e), the selection criteria set forth in Paragraph (b), and the functions to be performed, set forth in Paragraph (d) of this section.

(i) Each certificate holder shall include in its passenger briefings a request that a passenger identify himself or herself to allow reseating if he or she—

- (1) Cannot meet the selection criteria set forth in Paragraph (b) of this section;
- (2) Has a non-discernible condition that will prevent him or her from performing the applicable functions listed in Paragraph (d) of this section;
- (3) May suffer bodily harm as the result of performing one or more of those functions listed in Paragraph (d) of this section; or,
- (4) Does not wish to perform those functions listed in Paragraph (d) of this section.

A certificate holder shall not require the passenger to disclose his or her reason for needing reseating.

- (j) [Reserved]
- (k) In the event a certificate holder determines in accordance with this section that it is likely that a passenger assigned to an exit seat would be unable to perform the functions listed in Paragraph (d) of this section or a passenger requests a non-exit seat, the certificate holder shall expeditiously relocate the passenger to a non-exit seat.
- (l) In the event of full booking in the non-exit seats and if necessary to accommodate a passenger being relocated from an exit seat, the certificate holder shall move a passenger who is willing and able to assume the evacuation functions that may be required, to an exit seat.
- (m) A certificate holder may deny transportation to any passenger under this section only because:
 - (1) The passenger refuses to comply with instructions given by a crewmember or other authorized employee of the certificate holder implementing exit seating restrictions established in accordance with this section, or
 - (2) The only seat that will physically accommodate the person's handicap is an exit seat.
- (n) In order to comply with this section certificate holders shall—
 - (1) Establish procedures that address:
 - (i) The criteria listed in Paragraph (b) of this section;
 - (ii) The functions listed in Paragraph (d) of this section;
 - (iii) The requirements for airport information, passenger information cards, crewmember verification of appropriate seating in exit seats, passenger briefings, seat assignments, and denial of transportation as set forth in this section;
 - (iv) How to resolve disputes arising from implementation of this section, including identification of the certificate holder employee on the airport to whom complaints should be addressed for resolution; and,
 - (2) Submit their procedures for preliminary review and approval to the principal operations inspectors assigned to them at the DGCA.
- (o) Certificate holders shall assign seats prior to boarding consistent with the criteria listed in Paragraph (b) and the functions listed in Paragraph (d) of this section, to the maximum extent feasible.
- (p) The procedures required by Paragraph (n) of this section will not become effective until final approval is granted by the Director. Approval will be based solely upon the safety aspects of the certificate holder's procedures.

121.587 Closing and Locking of Flight Crew Compartment Door

- (a) Except as provided in Paragraph (b) of this section, a pilot in command of an airplane that has a lockable flight crew compartment door in accordance with Section 121.313 and that is carrying passengers shall ensure that the door separating the flight crew compartment from the passenger compartment is closed and locked during flight.
- (b) The provisions of Paragraph (a) of this section do not apply—
 - (1) During takeoff and landing if the crew compartment door is the means of access to a required passenger emergency exit or a floor-level exit; or
 - (2) At any time that it is necessary to provide access to the flight crew or passenger compartment, to a crewmember in the performance of his duties or for a person authorized admission to the flight crew compartment under Section 121.547.
 - (3) When a jumpseat is being used by persons authorized under Section 121.547 in airplanes in which closing and locking the flight crew compartment door is impossible while the jumpseat is in use.

121.589 [Reserved]**121.590 Use of Certificated Land Airports**

Except as authorized by the Director, no air carrier, and no pilot being used by an air carrier may, in the conduct of operations governed by this part, operate an aircraft into a land airport in Indonesia unless that airport is certificated for operations by the DGCA.

SUBPART U - DISPATCHING AND FLIGHT RELEASE RULES

121.591 Applicability

This subpart prescribes dispatching rules for domestic and flag air carriers and flight release rules for supplemental air carriers.

121.593 Dispatching authority: Domestic operations.

Except when an airplane lands at an intermediate airport specified in the original dispatch release and remains there for not more than one hour, no person may start a flight unless an aircraft dispatcher specifically authorizes that flight.

121.595 Dispatching Authority: Flag operations.

- (a) No person may start a flight unless a flight operations officer specifically authorizes that flight.
- (b) No person may continue a flight from an intermediate airport without re-dispatch if the airplane has been on the ground more than six hours.

121.597 Flight Release Authority: Supplemental Air Carriers

- (a) No person may start a flight under a flight following system without specific authority from the person authorized by the operator to exercise operational control over the flight.
- (b) No person may start a flight unless the pilot in command or the person authorized by the operator to exercise operational control over the flight has executed a flight release setting forth the conditions under which the flights will be conducted. The pilot in command may sign the flight release only when he and the person authorized by the operator to exercise operational control believe that the flight can be made with safety.
- (c) No person may continue a flight from an intermediate airport without a new flight release if the aircraft has been on the ground more than six hours.

121.599 Familiarity with Weather Conditions

- (a) Domestic and flag air carriers. No flight operations officer may release a flight unless he is thoroughly familiar with reported and forecast weather conditions on the route to be flown.

- (b) Supplemental air carriers and commercial operators. No pilot in command may begin a flight unless he is thoroughly familiar with reported and forecast weather conditions on the route to be flown.

121.601 Aircraft Flight Operations Officer Information to Pilot in Command: Domestic and Flag Air Carriers

- (a) The flight operations officer shall provide the pilot in command all available current reports or information on airport conditions and irregularities of navigation facilities that may affect the safety of the flight.
- (b) Before beginning a flight, the flight operations officer shall provide the pilot in command with all available weather reports and forecasts of weather phenomena that may affect the safety of flight, including adverse weather phenomena, such as clear air turbulence, thunderstorms, and low altitude windshear, for each route to be flown and each airport to be used.
- (c) During a flight, the flight operations officer shall provide the pilot in command any additional available information of meteorological conditions including adverse weather phenomena, such as clear air turbulence, thunderstorms, and low altitude windshear), and irregularities of facilities and services that may affect the safety of the flight.
- (d) In order to comply with (a) and (b), FOO shall explain the information by briefing in person to pilots.

121.603 Facilities and Services: Supplemental Air Carriers

- (a) Before beginning a flight, each pilot in command shall obtain all available current reports or information on airport conditions and irregularities of navigation facilities that may affect the safety of the flight.
- (b) During a flight, the pilot in command shall obtain any additional available information of meteorological conditions and irregularities of facilities and services that may affect the safety of the flight.
- (c) In order to comply with paragraph (a), FOO shall explain the information by briefing in person to pilots.

121.605 Airplane Equipment

No person may dispatch or release an airplane unless it is airworthy and is equipped as prescribed in Section 121.303.

121.607 Communication and Navigation Facilities: Domestic and Flag Air Carriers

- (a) Except as provided in Paragraph (b) of this section for flag air carriers, no person may dispatch an airplane over an approved route or route segment unless the communication and navigation facilities required by Sections 121.99 and 121.103 for the approval of that route or segment are in satisfactory operating condition.
- (b) If, because of technical reasons or other reasons beyond the control of a flag air carrier, the facilities required by Sections 121.99 and 121.103 are not available over a route or route segment outside Indonesia, the air carrier may dispatch an airplane over that route or route segment if the pilot in command and flight operations officer find that communication and navigation facilities equal to those required are available and are in satisfactory operating condition.

121.609 Communication and Navigation Facilities: Supplemental Air Carriers

No person may release an aircraft over any route or route segment unless communication and navigation facilities equal to those required by Section 121.103 are in satisfactory operating condition.

121.611 Dispatch or Flight Release under VFR

No person may dispatch or release an aircraft for VFR operation unless the ceiling and visibility enroute, as indicated by available weather reports or forecasts, or any combination of those reports and forecasts, are and will remain at or above applicable VFR minimums until the aircraft arrives at the airport or airports specified in the dispatch or flight release.

121.613 Dispatch or Flight Release under IFR

Except as provided in Section 121.615, no person may dispatch or release an aircraft for operations under IFR, unless appropriate weather reports or forecasts, or any combination of those reports and forecasts, indicate that the weather conditions will be at or above the authorized minimums at the estimated time of arrival at the airport or airports to which dispatched or released.

121.615 Dispatch or Flight Release Over Water

- (a) No person may dispatch or release an aircraft for a flight that involves extended overwater operation unless appropriate weather reports or forecasts or any combination of those reports and forecasts, indicate that the weather conditions will be at or above the authorized minimums at the estimated time of arrival at any airport to which dispatched or released or to any required alternate airport.

- (b) Each flag and supplemental air carrier and commercial operator shall conduct extended overwater operations under IFR unless it shows that operating under IFR is not necessary for safety.
- (c) Each flag and supplemental air carrier and commercial operator shall conduct other overwater operations under IFR if the Director determines that operation under IFR is necessary for safety.
- (d) Each authorization to conduct extended overwater operations under VFR and each requirement to conduct other overwater operations under IFR will be specified in the air carrier's or commercial operator's operations specifications.

121.617 Alternate Airport for Departure

- (a) If the weather conditions at the airport of takeoff are below the landing minimums in the certificate holder's operations specifications for that airport, no person may dispatch or release an aircraft from that airport unless the dispatch or flight release specifies an alternate airport located within the following distances from the airport of takeoff:
 - (1) Aircraft having two engines. Not more than one hour from the departure airport at normal cruising speed in still air with one engine inoperative.
 - (2) Aircraft having three or more engines. Not more than two hours from the departure airport at normal cruising speed in still air with one engine inoperative.
- (b) For the purpose of Paragraph (a) of this section, the alternate airport weather conditions must meet the requirements of the certificate holder's operations specifications.
- (c) No person may dispatch or release an aircraft from an airport unless he lists each required alternate airport in the dispatch or flight release.

121.619 Alternate Airport for Destination: IFR: Domestic Air Carriers

- (a) No person may dispatch an airplane under IFR unless he lists at least one alternate airport for each destination airport in the dispatch release. When the weather conditions forecast for the destination and first alternate airport are marginal at least one additional alternate must be designated. However, no alternate airport is required if for at least 1 hour before and 1 hour after the estimated time of arrival at the destination airport the appropriate weather reports or forecasts, or any combination of them, indicate:
 - (1) The ceiling will be at least 2,000 feet above the airport elevation;
 - (2) Visibility will be at least 5 Kilometers; and
 - (3) separate runways are usable at the estimated time of use of the destination aerodrome with at least one runway having an operational instrument approach procedure.

- (b) For the purposes of Paragraph (a) of this section, the weather conditions at the alternate airport must meet the requirements of Section 121.625.
- (c) No person may dispatch a flight unless he lists each required alternate airport in the dispatch release.

121.621 Alternate Airport for Destination: Flag Air Carriers

- (a) No person may dispatch an airplane under IFR unless he lists at least one alternate airport for each destination airport in the dispatch release, unless:
 - (1) The flight is scheduled for not more than 6 hours and, for at least 1 hour before and 1 hour after the estimated time of arrival at the destination airport, the appropriate weather reports or forecasts, or any combination of them, indicate the ceiling will be:
 - (i) At least 1,500 feet above the lowest circling MDA, if a circling approach is required and authorized for that airport; or
 - (ii) At least 1,500 feet above the lowest published instrument approach minimum or 2,000 feet above the airport elevation, whichever is greater; and
 - (iii) The visibility at that airport will be at least 5 Kilometers, or 3 Kilometers more than the lowest applicable visibility minimums, whichever is greater, for the instrument approach procedures to be used at the destination airport; or
 - (2) The flight is over a route approved without an available alternate airport for a particular destination airport and the airplane has enough fuel to meet the requirements of Section 121.641(b) or Section 121.645(c).
- (b) For the purposes of Paragraph (a) of this section, the weather conditions at the alternate airport must meet the requirements of the air carrier's operations specifications.
- (c) No person may dispatch a flight unless he lists each required alternate airport in the dispatch release.

121.623 Alternate Airport for Destination: IFR: Supplemental Air Carriers

- (a) Except as provided in Paragraph (b) of this section, each person releasing an aircraft for operation under IFR shall list at least one alternate airport for each destination airport in the flight release.
- (b) An alternate airport need not be designated for IFR operations where the aircraft carries enough fuel to meet the requirements of Sections 121.643 and 121.645 for flights outside Indonesia over routes without an available alternate airport for a particular airport of destination.

- (c) For the purposes of Paragraph (a) of this section, the weather requirements at the alternate airport must meet the requirements of the air carrier's or commercial operator's operations specifications.
- (d) No person may release a flight unless he lists each required alternate airport in the flight release.

121.624 ETOPS Alternate Airports.

- (a) No person may dispatch or release an airplane for an ETOPS flight unless enough ETOPS Alternate Airports are listed in the dispatch or flight release such that the airplane remains within the authorized ETOPS maximum diversion time. In selecting these ETOPS Alternate Airports, the certificate holder must consider all adequate airports within the authorized ETOPS diversion time for the flight that meet the standards of this part.
- (c) No person may list an airport as an ETOPS Alternate Airport in a dispatch or flight release unless, when it might be used (from the earliest to the latest possible landing time)—
 - (1) The appropriate weather reports or forecasts, or any combination thereof, indicate that the weather conditions will be at or above the ETOPS Alternate Airport minima specified in the certificate holder's operations specifications; and
 - (2) The field condition reports indicate that a safe landing can be made.
- (d) Once a flight is en route, the weather conditions at each ETOPS Alternate Airport must meet the requirements of Section 121.631 (c).
- (e) No person may list an airport as an ETOPS Alternate Airport in the dispatch or flight release unless that airport meets the public protection requirements of Section 121.97(b)(1)(ii).

121.625 Alternate Airport Weather Minimums

Except as provided in Section 121.624 for ETOPS Alternate Airports, no person may list an airport as an alternate airport in the dispatch or flight release unless the appropriate weather reports or forecasts, or any combination of those reports and forecasts, indicate that the weather conditions will be at or above the alternate weather minimums specified in the certificate holder's operations specifications for that airport when the flight arrives.

121.627 Continuing Flight in Unsafe Conditions

- (a) No pilot in command may allow a flight to continue toward any airport to which it has been dispatched or released if, in the opinion of the pilot in command or flight operations officer (domestic and flag air carriers only), the flight cannot be completed safely; unless, in the opinion of the pilot in command, there is no safer

procedure. In that event, continuation toward that airport is an emergency situation as set forth in Section 121.557.

- (b) If any instrument or item of equipment required under the CASRs for the particular operation becomes inoperative enroute, the pilot in command shall comply with the approved procedures for such an occurrence as specified in the certificate holder's manual.

121.628 Inoperable Instruments and Equipment

- (a) No person may take off an airplane with inoperable instruments or equipment installed unless the following conditions are met:
 - (1) An approved Minimum Equipment List must be carried onboard the airplane
 - (2) The DGCA shall issue the certificate holder operations specifications authorizing operations in accordance with an approved Minimum Equipment List. The flight crew shall have direct access at all times prior to flight to all of the information contained in the approved Minimum Equipment List through printed or other means approved by the Director in the certificate holders operations specifications. An approved Minimum Equipment List, as authorized by the operations specifications, constitutes an approved change to the type design without requiring re-certification.
 - (3) The approved Minimum Equipment List must:
 - (i) Be prepared in accordance with the limitations specified in Paragraph (b) of this section.
 - (ii) Provide for the operation of the airplane with certain instruments and equipment in an inoperable condition.
 - (4) Records identifying the inoperable instruments and equipment and the information required by Paragraph (a)(3)(ii) of this section must be available to the pilot.
 - (5) The airplane is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the operations specifications authorizing use of the Minimum Equipment List.
- (b) The following instruments and equipment may not be included in the Minimum Equipment List:
 - (1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the airplane is type certificated and which are essential for safe operations under all operating conditions.
 - (2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.
 - (3) Instruments and equipment required for specific operations by this part.

- (c) Notwithstanding Paragraphs (b)(1) and (b)(3) of this section, an airplane with inoperable instruments or equipment may be operated under a special flight permit under Sections 21.197 and 21.199 of the CASRs.

121.629 Operation in Icing Conditions

- (a) No person may dispatch or release an aircraft, continue to operate an aircraft enroute, or land an aircraft when in the opinion of the pilot in command or flight operations officer (domestic and flag air carriers only), icing conditions are expected or met that might adversely affect the safety of the flight.
- (b) No person may takeoff an aircraft when frost, ice, or snow is adhering to the wings, control surfaces, propellers, engine inlets, or other critical surfaces of the aircraft or when the takeoff would not be in compliance with Paragraph (c) of this section. Takeoffs with frost under the wing in the area of the fuel tanks may be authorized by the Director.
- (c) Except as provided in Paragraph (d) of this section, no person may dispatch, release, or takeoff an aircraft any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft, unless the certificate holder has an approved ground deicing/anti-icing program in its operations specifications and unless the dispatch, release, and takeoff comply with that program. The approved ground deicing/anti-icing program must include at least the following items:
- (1) A detailed description of:
 - (i) How the certificate holder determines that conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft and that ground deicing/anti-icing operational procedures must be in effect;
 - (ii) Who is responsible for deciding that ground deicing/anti-icing operational procedures must be in effect;
 - (iii) The procedures for implementing ground deicing/anti-icing operational procedures;
 - (iv) The specific duties and responsibilities of each operational position or group responsible for getting the aircraft safely airborne while ground deicing/anti-icing operational procedures are in effect.
 - (2) Initial and annual recurrent ground training and testing for flight crewmembers and qualification for all other affected personnel (e.g., flight operations officers, ground crews, and contract personnel) concerning the specific requirements of the approved program and each person's responsibilities and duties under the approved program, specifically covering the following areas:
 - (i) The use of holdover times.
 - (ii) Aircraft deicing/anti-icing procedures, including inspection and check procedures and responsibilities.
 - (iii) Communications procedures.
 - (iv) Aircraft surface contamination (i.e., adherence of frost, ice, or snow) and critical area identification, and how contamination adversely affects aircraft performance and flight characteristics.

- (v) Types and characteristics of deicing/anti-icing fluids.
 - (vi) Cold weather preflight inspection procedures.
 - (vii) Techniques for recognizing contamination on the aircraft.
- (3) The certificate holder's holdover timetables and the procedures for the use of these tables by the certificate holder's personnel. Holdover time is the estimated time deicing/anti-icing fluid will prevent the formation of frost or ice and the accumulation of snow on the protected surfaces of an aircraft. Holdover time begins when the final application of deicing/anti-icing fluid commences and expires when the deicing/anti-icing fluid applied to the aircraft loses its effectiveness. The holdover times must be supported by data acceptable to the Director. The certificate holder's program must include procedures for flight crewmembers to increase or decrease the determined holdover time in changing conditions. The program must provide that takeoff after exceeding any maximum holdover time in the certificate holder's holdover timetable is permitted only when at least one of the following conditions exists:
- (i) A pretakeoff contamination check, as defined in Paragraph (c)(4) of this section, determines that the wings, control surfaces, and other critical surfaces, as defined in the certificate holder's program, are free of frost, ice, or snow;
 - (ii) It is otherwise determined by an alternate procedure approved by the Director in accordance with the certificate holder's approved program that the wings, control surfaces, and other critical surfaces, as defined in the certificate holder's program, are free of frost, ice, or snow;
 - (iii) The wings, control surfaces, and other critical surfaces are re-deiced and a new holdover time is determined.
- (4) Aircraft deicing/anti-icing procedures and responsibilities, pre-takeoff check procedures and responsibilities, and pre-takeoff contamination check procedures and responsibilities. A pre-takeoff check is a check of the aircraft's wings or representative aircraft surfaces for frost, ice, or snow within the aircraft's holdover time. A pre-takeoff contamination check is a check to make sure the wings, control surfaces, and other critical surfaces, as defined in the certificate holder's program, are free of frost, ice, and snow. It must be conducted within five minutes prior to beginning takeoff. This check must be accomplished from outside the aircraft unless the program specifies otherwise.
- (d) A certificate holder may continue to operate under this section without a program as required in Paragraph (c) of this section, if it includes in its operations specifications a requirement that, any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft, no aircraft will takeoff unless it has been checked to ensure that the wings, control surfaces, and other critical surfaces are free of frost, ice, and snow. The check must occur within five minutes prior to beginning takeoff. This check must be accomplished from outside the aircraft.

121.631 Original Dispatch or Flight Release, Re-dispatch or Amendment of Dispatch or Flight Release

- (a) A certificate holder may specify any airport, authorized for the type of aircraft, as a destination for the purpose of original dispatch or release.
- (b) No person may allow a flight to continue to an airport to which it has been dispatched or released unless the weather conditions at an alternate airport that was specified in the dispatch or flight release are forecast to be at or above the alternate minimums specified in the operations specifications for that airport at the time the aircraft would arrive at the alternate airport. However, the dispatch or flight release may be amended enroute to include any alternate airport that is within the fuel range of the aircraft as specified in Sections 121.639 through 121.647.
- (c) No person may allow a flight to continue beyond the ETOPS Entry Point unless—
 - (1) Except as provided in paragraph (d) of this section, the weather conditions at each ETOPS Alternate Airport required by Section 121.624 are forecast to be at or above the operating minima for that airport in the certificate holder's operations specifications when it might be used (from the earliest to the latest possible landing time); and
 - (2) All ETOPS Alternate Airports within the authorized ETOPS maximum diversion time are reviewed and the flight crew advised of any changes in conditions that have occurred since dispatch.
- (d) If paragraph (c)(1) of this section cannot be met for a specific airport, the dispatch or flight release may be amended to add an ETOPS Alternate Airport within the maximum ETOPS diversion time that could be authorized for that flight with weather conditions at or above operating minima.
- (e) Before the ETOPS Entry Point, the pilot in command for a supplemental operator or a dispatcher for a flag operator must use company communications to update the flight plan if needed because of a re-evaluation of aircraft system capabilities.
- (f) No person may change an original destination or alternate airport that is specified in the original dispatch or flight release to another airport while the aircraft is enroute unless the other airport is authorized for that type of aircraft and the appropriate requirements of Sections 121.593 through 121.661 and 121.173 are met at the time of re-dispatch or amendment of the flight release.
- (g) Each person who amends a dispatch or flight release enroute shall record that amendment.

121.633 Considering Time-Limited Systems in Planning ETOPS Alternates

- (a) For ETOPS up to and including 180 minutes, no person may list an airport as an ETOPS Alternate Airport in a dispatch or flight release if the time needed to fly to that airport (at the approved one-engine inoperative cruise speed under standard

conditions in still air) would exceed the approved time for the airplane's most limiting ETOPS Significant System (including the airplane's most limiting fire suppression system time for those cargo and baggage compartments required by regulation to have fire-suppression systems) minus 15 minutes.

- (b) For ETOPS beyond 180 minutes, no person may list an airport as an ETOPS Alternate Airport in a dispatch or flight release if the time needed to fly to that airport:
 - (1) at the all engine operating cruise speed, corrected for wind and temperature, exceeds the airplane's most limiting fire suppression system time minus 15 minutes for those cargo and baggage compartments required by regulation to have fire suppression systems (except as provided in paragraph (c) of this section), or
 - (2) at the one-engine-inoperative cruise speed, corrected for wind and temperature, exceeds the airplane's most limiting ETOPS Significant System time (other than the airplane's most limiting fire suppression system time minus 15 minutes for those cargo and baggage compartments required by regulation to have fire-suppression systems).
- (c) For turbine-engine powered airplanes with more than two engines, the certificate holder need not meet paragraph (b)(1) of this section until February 15, 2013.

121.635 [Reserved]

121.637 Takeoffs from Unlisted and Alternate Airports

- (a) No pilot may takeoff an airplane from an airport that is not listed in the operations specifications unless:
 - (1) The airport and related facilities are adequate for the operation of the airplane;
 - (2) He can comply with the applicable airplane operating limitations;
 - (3) The airplane has been dispatched according to dispatching rules applicable to operation from an approved airport; and
 - (4) The weather conditions at that airport are equal to or better than the following:

The weather minimums for takeoff prescribed by the DGCA or the CASRs; or where minimums are not prescribed for the airport, 1,000 foot ceiling and 2 Kilometers visibility.
- (b) No pilot may takeoff from an alternate airport unless the weather conditions are at least equal to the minimums prescribed in the air carrier's operations specifications for alternate airports.

121.639 Fuel Supply

- (a) No person may release/dispatch or takeoff an airplane for operations within Indonesia, unless there is enough fuel supply, considering airplane mass, notice to airman, meteorological conditions, MEL/CDL, and any delays that are expected in flight, to include the following:
- (1) Taxi fuel – which shall be the amount of fuel expected to be consumed before take-off taking into account local conditions at the departure aerodrome and auxiliary power unit (APU) fuel consumption;
 - (2) Trip fuel – which shall be the amount of fuel required to enable the airplane to fly from take-off, or the point of in-flight re-planning, until landing at the destination aerodrome taking into account the operating conditions in the data provided by the manufacturer;
 - (3) Contingency fuel – which shall be the amount of fuel required to compensate for unforeseen factors. It shall be five percent of the planned trip fuel or of the fuel required from the point of in-flight re-planning based on the consumption rate used to plan the trip fuel, but in any case, shall not be lower than the amount required to fly for five minutes at holding speed at 450 m (1500 ft) above the destination aerodrome in standard conditions;
 - (4) Destination alternate fuel – which shall be
 - (i) Where a destination alternate aerodrome is required, the amount of fuel required to enable the airplane to:
 - (A) Perform a missed approach at the destination aerodrome;
 - (B) Climb to the expected cruising altitude;
 - (C) Fly the expecting routing;
 - (D) Descend to the point where the expected approach is initiated; and
 - (E) Conduct the approach and landing at the destination alternate aerodrome; or
 - (ii) Where two destination alternate aerodromes are required, the amount of fuel, as calculated in (4)(i) above, required to enable the airplane to proceed to the destination alternate aerodrome which requires the greater amount of alternate fuel; or
 - (iii) Where a flight is operated without a destination alternate aerodrome, the amount of fuel required to enable the airplane to fly for 15 minutes at holding speed at 450 m (1500 ft) above destination aerodrome elevation in standard conditions; or
 - (iv) Where the aerodrome of intended landing is an isolated aerodrome:
 - (A) For a reciprocating engine airplane, the amount of fuel required to fly for 45 minutes plus 15 percent of the flight time planned to be spend at cruising level, including final reserve fuel, or two hours, whichever is less; or
 - (B) For a turbine-engined airplane, the amount of fuel required to fly for 2 hours at normal cruise consumption above the destination aerodrome, including final reserve fuel;
 - (5) Final reserve fuel – which shall be the amount of fuel calculated using the estimated mass on arrival at the destination alternate aerodrome, or the

- destination aerodrome when no destination alternate aerodrome is required, or a pre-calculated value for each airplane type and variant in the fleet rounded up to an easily recalled figure:
- (i) For a reciprocating engine airplane, the amount of fuel required to fly for 45 minutes, under speed and altitude conditions specified by the Authority; or
 - (ii) For a turbine-engined airplane, the amount of fuel required to fly for 30 minutes at holding speed at 450 m (1500 ft) above aerodrome elevation in standard conditions;
- (6) Additional fuel – which shall be the supplementary amount of fuel required if the minimum fuel calculated in accordance with trip fuel, contingency fuel, destination alternate fuel and final reserve fuel above is not sufficient to:
- (i) Allow the airplane to descend as necessary and proceed to an alternate aerodrome in the event of engine failure or loss or pressurization, whichever requires the greater amount of fuel based on the assumption that such a failure occurs at the most critical point along the route;
 - (A) To fly for 15 minutes at holding speed at 450 m (1500 ft) above the aerodrome elevation in standard conditions; and
 - (B) Make an approach and landing;
 - (C) Allow an airplane engaged in ETOPS to comply with the ETOPS critical fuel scenario as established by the Authority;
 - (D) Meet additional requirements not covered above.
- (7) Discretionary fuel – shall be the extra amount of fuel to be carried at the discretion of the PIC.
- (b) The DGCA may approve a variation to these requirements provided the operator can demonstrate an equivalent level of safety will be maintained through a safety risk assessment that includes at least the following:
- (1) Flight fuel calculations;
 - (2) Capabilities of the operator to include:
 - (i) A data-driven method that includes a fuel consumption monitoring programme; and/or
 - (ii) The advanced use of alternate aerodromes; and
 - (3) Specific mitigation measures.
- (c) The certificate holder shall re-analysis the use of fuel after flight commencement for purposes other than originally intended during pre-flight planning for adjustment of the planned operation.

121.641 [Reserved]

121.643 [Reserved]

121.645 [Reserved]**121.646 En-Route Fuel Supply: International Operations.**

- (a) No person may dispatch or release for flight a turbine-engine powered airplane with more than two engines for a flight more than 90 minutes (with all engines operating at cruise power) from an Adequate Airport unless the following fuel supply requirements are met:
- (1) The airplane has enough fuel to meet the requirements of Section 121.645(b);
 - (2) The airplane has enough fuel to fly to the Adequate Airport—
 - (i) Assuming a rapid decompression at the most critical point;
 - (ii) Assuming a descent to a safe altitude in compliance with the oxygen supply requirements of Section 121.333; and
 - (iii) Considering expected wind and other weather conditions.
 - (3) The airplane has enough fuel to hold for 15 minutes at 1500 feet above field elevation and conduct a normal approach and landing.
- (b) No person may dispatch or release for flight an ETOPS flight unless, considering wind and other weather conditions expected, it has the fuel otherwise required by this part and enough fuel to satisfy each of the following requirements:
- (1) Fuel to fly to an ETOPS Alternate Airport.
 - (i) Fuel to account for rapid decompression and engine failure. The airplane must carry the greater of the following amounts of fuel:
 - (A) Fuel sufficient to fly to an ETOPS Alternate Airport assuming a rapid decompression at the most critical point followed by descent to a safe altitude in compliance with the oxygen supply requirements of Section 121.333 of this chapter;
 - (B) Fuel sufficient to fly to an ETOPS Alternate Airport (at the one-engine-inoperative cruise speed) assuming a rapid decompression and a simultaneous engine failure at the most critical point followed by descent to a safe altitude in compliance with the oxygen requirements of Section 121.133 of this chapter; or
 - (C) Fuel sufficient to fly to an ETOPS Alternate Airport (at the one engine inoperative cruise speed) assuming an engine failure at the most critical point followed by descent to the one engine inoperative cruise altitude.
 - (ii) Fuel to account for errors in wind forecasting. In calculating the amount of fuel required by paragraph (b)(1)(i) of this section, the certificate holder must increase the actual forecast wind speed by 5% (resulting in an increase in headwind or a decrease in tailwind) to account for any potential errors in wind forecasting. If a certificate holder is not using the actual forecast wind based on a wind model accepted by the DGCA, the airplane must carry additional fuel equal to 5% of the fuel required for paragraph (b)(1)(i) of this section, as reserve fuel to allow for errors in wind data.

- (iii) Fuel to account for icing. In calculating the amount of fuel required by paragraph (b)(1)(i) of this section (after completing the wind calculation in paragraph (b)(1)(ii) of this section), the certificate holder must ensure that the airplane carries the greater of the following amounts of fuel in anticipation of possible icing during the diversion:
 - (A) Fuel that would be burned as a result of airframe icing during 10 percent of the time icing is forecast (including the fuel used by engine and wing anti-ice during this period).
 - (B) Fuel that would be used for engine anti-ice, and if appropriate wing anti-ice, for the entire time during which icing is forecast.
 - (iv) Fuel to account for engine deterioration. In calculating the amount of fuel required by paragraph (b)(1)(i) of this section (after completing the wind calculation in paragraph (b)(1)(ii) of this section), the airplane also carries fuel equal to 5% of the fuel specified above, to account for deterioration in cruise fuel burn performance unless the certificate holder has a program to monitor airplane in-service deterioration to cruise fuel burn performance.
- (2) Fuel to account for holding, approach, and landing. In addition to the fuel required by paragraph (b)(1) of this section, the airplane must carry fuel sufficient to hold at 1500 feet above field elevation for 15 minutes upon reaching an ETOPS Alternate Airport and then conduct an instrument approach and land.
- (3) Fuel to account for APU use. If an APU is a required power source, the certificate holder must account for its fuel consumption during the appropriate phases of flight.

121.647 Factors for Computing Fuel Required

Each person computing fuel required for the purposes of this subpart shall consider the following:

- (a) Wind and other weather conditions forecast;
- (b) Anticipated traffic delays;
- (c) One instrument approach and possible missed approach at destination;
- (d) Any other conditions that may delay landing of the aircraft.

For the purposes of this section, required fuel is in addition to unusable fuel.

121.649 Takeoff and Landing Weather Minimums: VFR: Domestic Air Carriers

- (a) Except as provided in Paragraph (b) of this section, regardless of any clearance from ATC, no pilot may takeoff or land an airplane under VFR for day operations when the reported ceiling or visibility is less than 1,000-foot ceiling and one-mile visibility.

- (b) Where a local surface restriction to visibility exists (e.g., smoke, dust, blowing snow or sand) the visibility for day operations may be reduced to one-half ($\frac{1}{2}$) mile, if all turns after takeoff and prior to landing, and all flight beyond one mile from the airport boundary can be accomplished above or outside the area of local surface visibility restriction.
- (c) The weather minimums in this section do not apply to the VFR operation of fixed wing aircraft at any of the locations where the special weather minimums of Section 91.157 of the CASRs are not applicable. The basic VFR weather minimums of Section 91.155 of the CASRs apply at those locations.

121.651 Takeoff and Landing Weather Minimums: IFR: All Certificate Holders

- (a) Notwithstanding any clearance from ATC, no pilot may begin a takeoff in an airplane under IFR when the weather conditions reported by the Badan Meteorologi Klimatologi dan Geofisika (BMKG), or a source approved by the Director, are less than those specified in:
 - (1) The certificate holder's operations specifications; or
 - (2) Part 91 of CASRs, if the certificate holder's operations specifications do not specify takeoff minimums for the airport.
- (b) Except as provided in Paragraph (d) of this section, no pilot may continue an approach past the final approach fix, or where a final approach fix is not used, begin the final approach segment of an instrument approach procedure:
 - (1) At any airport, unless the Badan Meteorologi, Klimatologi dan Geofisika (BMKG), or a source approved by the Director, issues a weather report for that airport; and
 - (2) At airports within Indonesia unless the latest weather report for that airport issued by the Badan Meteorologi, Klimatologi dan Geofisika (BMKG), or a source approved by the Director, reports the visibility to be equal to or more than the visibility minimums prescribed for that procedure.
- (c) If a pilot has begun the final approach segment of an instrument approach procedure in accordance with Paragraph (b) of this section and after that receives a later weather report indicating below minimum conditions, the pilot may continue the approach to DH or MDA. Upon reaching DH or at MDA, and at any time before the missed approach point, the pilot may continue the approach below DH or MDA and touch down if:
 - (1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and where that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;
 - (2) The flight visibility is not less than the visibility prescribed in the standard instrument approach procedure being used;

- (3) Except for Category II or Category III approaches where any necessary visual reference requirements are specified by authorization of the Director, at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:
 - (i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.
 - (ii) The threshold.
 - (iii) The threshold markings.
 - (iv) The threshold lights.
 - (v) The runway end identifier lights.
 - (vi) The visual approach slope indicator.
 - (vii) The touchdown zone or touchdown zone markings.
 - (viii) The touchdown zone lights.
 - (ix) The runway or runway markings.
 - (x) The runway lights; and
 - (4) When the aircraft is on a straight-in non-precision approach procedure which incorporates a visual descent point, the aircraft has reached the visual descent point, except where the aircraft is not equipped for or capable of establishing that point, or a descent to the runway cannot be made using normal procedures or rates of descent if descent is delayed until reaching that point.
- (d) A pilot may begin the final approach segment of an instrument approach procedure other than a Category II or Category III procedure at an airport when the visibility is less than the visibility minimums prescribed for that procedure if that airport is served by an operative ILS and an operative PAR, and both are used by the pilot. However, no pilot may continue an approach below the authorized DA/DH unless the following requirements are met:
- (1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers and where such a descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;
 - (2) The flight visibility is not less than the visibility prescribed in the standard instrument approach procedure being used; and
 - (3) Except for Category II or Category III approaches where any necessary visual reference requirements are specified by the authorization of the Director, at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:
 - (i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.
 - (ii) The threshold.
 - (iii) The threshold markings.
 - (iv) The threshold lights.
 - (v) The runway end identifier lights.

- (vi) The visual approach slope indicator.
 - (vii) The touchdown zone or touchdown zone markings.
 - (viii) The touchdown zone lights.
 - (ix) The runway or runway markings.
 - (x) The runway lights.
- (e) For the purpose of this section, the final approach segment begins at the final approach fix or facility prescribed in the instrument approach procedure. When a final approach fix is not prescribed for a procedure that includes a procedure turn, the final approach segment begins at the point where the procedure turn is completed and the aircraft is established inbound toward the airport on the final approach course within the distance prescribed in the procedure.
- (f) Unless otherwise authorized in the certificate holder's operations specifications, each pilot making an IFR takeoff, approach, or landing at a foreign airport shall comply with the applicable instrument approach procedures and weather minimums prescribed by the authority having jurisdiction over the airport.

121.652 Landing Weather Minimums: IFR: All Certificate Holders

- (a) If the pilot in command of an airplane has not served 100 hours as pilot in command in operations under this part in the type of airplane he is operating, the MDA or DA/DH and visibility landing minimums in the certificate holder's operations specification for regular, provisional, or refueling airports are increased by 100 feet and one-half mile (or the RVR equivalent). The MDA or DA/DH and visibility minimums need not be increased above those applicable to the airport when used as an alternate airport, but in no event may the landing minimums be less than 300 and 1. However, a Pilot in command employed by a certificate holder conducting operations in large aircraft under part 135, may credit flight time acquired in operations conducted for that operator under CASR part 91 in the same type airplane for up to 50 percent of the 100 hours of pilot in command experience required by this paragraph.
- (b) The 100 hours of pilot in command experience required by paragraph (a) of this section may be reduced (not to exceed 50 percent) by substituting one landing in operations under this part in the type of airplane for 1 required hour of pilot in command experience, if the pilot has at least 100 hours as pilot in command of another type airplane in operations under this part.
- (c) Category II minimums and the sliding scale when authorized in the certificate holder's operations specifications do not apply until the pilot in command subject to paragraph (a) of this section meets the requirements of that paragraph in the type of airplane he is operating.

121.653 [Reserved]

121.655 Applicability of Reported Weather Minimums

In conducting operations under Sections 121.649 through 121.653, the ceiling and visibility values in the main body of the latest weather report control for VFR and IFR takeoffs and landings and for instrument approach procedures on all runways of an airport. However, if the latest weather report, including an oral report from the control tower, contains a visibility value specified as runway visibility or runway visual range for a particular runway of an airport, that specified value controls for VFR and IFR landings and takeoffs and straight-in instrument approaches for that runway.

121.657 Flight Altitude Rules

- (a) General. Notwithstanding Section 91.119 or any rule applicable outside Indonesia, no person may operate an aircraft below the minimums set forth in Paragraphs (b) and (c) of this section, except when necessary for takeoff or landing, or except when, after considering the character of the terrain, the quality and quantity of meteorological services, the navigational facilities available, and other flight conditions, the Director prescribes other minimums for any route or part of a route where he finds that the safe conduct of the flight requires other altitudes. Outside of Indonesia the minimums prescribed in this section are controlling unless higher minimums are prescribed in the air carrier or commercial operator's operations specifications or by the foreign country over which the aircraft is operating.
- (b) Day VFR operations. No domestic, flag or supplemental air carrier may operate any aircraft under VFR during the day at an altitude less than 1,000 feet above the surface or less than 1,000 feet from any mountain, hill, or other obstruction to flight.
- (c) IFR operations. No person may operate an aircraft under IFR at an altitude less than 1,000 feet above the highest obstacle within a horizontal distance of five miles from the center of the intended course, or, in designated mountainous areas, less than 2,000 feet above the highest obstacle within a horizontal distance of five miles from the center of the intended course.
- (d) Day operations below minimum enroute altitudes. A person may conduct day operations in an airplane at flight altitudes lower than the minimum enroute IFR altitudes if:
 - (1) The operation is conducted at least 1,000 feet above the top of lower broken or overcast cloud cover;
 - (2) The top of the lower cloud cover is generally uniform and level;
 - (3) Flight visibility is at least five miles; and
 - (4) The base of any higher broken or overcast cloud cover is generally uniform and level and is at least 1,000 feet above the minimum enroute IFR altitude for that route segment.

121.659 [Reserved]**121.661 Initial Approach Altitude**

When making an initial approach to a radio navigation facility under IFR, no person may descend below the pertinent minimum altitude for initial approach (as specified in the instrument approach procedure for that facility) until his arrival over that facility has been definitely established.

121.663 Responsibility for Dispatch Release: Domestic and Flag Air Carriers

Each domestic and flag air carrier shall prepare a dispatch release for each flight between specified points, based on information furnished by an authorized flight operations officer. The pilot in command and an authorized flight operations officer shall sign the release only if they both believe that the flight can be made with safety. The flight operations officer may delegate authority to sign a release for a particular flight, but he may not delegate his authority to dispatch.

121.665 Load Manifest

Each certificate holder is responsible for the preparation and accuracy of a load manifest form before each takeoff. The form must be prepared and signed for each flight by employees of the certificate holder who have the duty of supervising the loading of aircraft and preparing the load manifest forms or by other qualified persons authorized by the certificate holder.

121.667 Flight Plan: VFR and IFR: Supplemental Air Carriers

No person may takeoff an aircraft unless the pilot in command has filed a flight plan, containing the appropriate information required by Part 91, with the nearest DGCA communication station or appropriate military station or, when operating outside Indonesia, with other appropriate authority. However, if communications facilities are not readily available, the pilot in command shall file the flight plan as soon as practicable after the aircraft is airborne. A flight plan must continue in effect for all parts of the flight.

SUBPART V - RECORDS AND REPORTS

121.681 Applicability

This subpart prescribes requirements for the preparation and maintenance of records and reports for all certificate holders.

121.683 Crewmember and Flight Operations Officer Record

(a) Each certificate holder shall:

- (1) Maintain current records of each crewmember and each flight operations officer (domestic and flag air carriers only) that show whether the crewmember or flight operations officer complies with the applicable sections of the CASRs, including, but not limited to, proficiency and route checks, airplane and route qualifications, training, any required physical examinations, flight, duty, and rest time records; and
- (2) For each flight of an airplane above 15 000 m (49 000 ft), maintain records so that the total cosmic radiation dose received by each crew member over a period of 12 consecutive months can be determined; and
- (3) Record each action taken concerning the release from employment or physical or professional disqualification of any flight crewmember or flight operations officer (domestic and flag air carriers only) and keep the record for at least six months thereafter.

(b) Supplemental air carriers. Each supplemental air carrier and commercial operator shall maintain the records required by Paragraph (a) of this section at its principal operations base, or at another location used by it and approved by the Director.

(c) Computer record systems approved by the Director may be used in complying with the requirements of Paragraph (a) of this section.

121.685 Aircraft Record

Each air carrier shall maintain a current list of each aircraft that it operates and shall send a copy of the record and each change to the DGCA. Airplanes of another air carrier operated under an interchange agreement may be incorporated by reference.

121.687 Dispatch Release: Flag and Domestic Air Carriers

(a) The dispatch release may be in any form but must contain at least the following information concerning each flight:

- (1) Identification number of the aircraft.
- (2) Trip number or Flight number.

- (3) Departure airport, intermediate stops, destination airports, and alternate airports.
 - (4) A statement of the type of operation (e.g., IFR, VFR).
 - (5) Minimum fuel supply.
 - (6) For each flight dispatched as an ETOPS flight, the ETOPS diversion time for which the flight is dispatched.
- (b) The dispatch release must contain, or have attached to it, weather reports, available weather forecasts, or a combination of those reports and forecasts, for the destination airport, intermediate stops, and alternate airports, that are the latest available at the time the release is signed by the pilot in command and flight operations officer. It may include any additional available weather reports or forecasts that the pilot in command or the flight operations officer considers necessary or desirable.
- (c) The dispatch release must contain, or have attached to it, notification of the pilot in command when there are dangerous goods aboard.

121.689 Flight Release form: Supplemental Air Carriers

- (a) Except as provided in Paragraph (c) of this section, the flight release may be in any form but must contain at least the following information concerning each flight:
- (1) Company or organization name.
 - (2) Make, model, and registration mark of the aircraft being used.
 - (3) Flight or trip number, and date of flight.
 - (4) Name of each flight crewmember, flight attendant, and pilot designated as pilot in command.
 - (5) Departure airport, destination airports, alternate airports, and route.
 - (6) Minimum fuel supply.
 - (7) A statement of the type of operation (e.g., IFR, VFR).
 - (8) For each flight released as an ETOPS flight, the ETOPS diversion time for which the flight is released.
- (b) The aircraft flight release must contain, or have attached to it, weather reports, available weather forecasts, or a combination of those reports and forecasts, for the destination airport, and alternate airports, that are the latest available at the time the release is signed. It may include any additional available weather reports or forecasts that the pilot in command considers necessary or desirable.
- (c) The dispatch release must contain, or have attached to it, notification of the pilot in command when there are dangerous goods aboard.

- (d) Each flag or domestic air carrier operating under the rules of this part applicable to supplemental air carriers shall comply with the dispatch or flight release forms required for scheduled operations under this subpart.

121.691 [Reserved]

121.693 Load Manifest

The load manifest must contain the following information concerning the loading of the airplane at takeoff time:

- (a) The weight of the aircraft, fuel and oil, cargo and baggage, passengers and crewmembers.
- (b) The maximum allowable weight for that flight that must not exceed the least of the following weights:
 - (1) Maximum allowable takeoff weight for the runway intended to be used (including corrections for altitude and gradient, and wind and temperature conditions existing at the takeoff time).
 - (2) Maximum takeoff weight considering anticipated fuel and oil consumption that allows compliance with applicable enroute performance limitations.
 - (3) Maximum takeoff weight considering anticipated fuel and oil consumption that allows compliance with the maximum authorized design landing weight limitations on arrival at the destination airport.
 - (4) Maximum takeoff weight considering anticipated fuel and oil consumption that allows compliance with landing distance limitations on arrival at the destination and alternate airports.
- (c) The total weight computed under approved procedures.
- (d) Evidence that the aircraft is loaded according to an approved schedule that ensures that the center of gravity is within approved limits.
- (e) Names of passengers, unless such information is maintained by other means by the air carrier.

121.695 Disposition of Load Manifest, Dispatch Release, and Flight Plans: Domestic and Flag Air Carriers

- (a) The pilot in command of an airplane shall carry in the airplane to its destination—
 - (1) A copy of the completed load manifest (or information from it, except information concerning cargo and passenger distribution);
 - (2) A copy of the dispatch release; and

- (3) A copy of the flight plan.
- (b) The air carrier shall keep copies of the records required in this section for at least three months.

121.697 Disposition of Load Manifest, Flight Release, and Flight Plans: Supplemental Air Carriers

- (a) The pilot in command of an airplane shall carry in the airplane to its destination the original or a signed copy of the:
 - (1) Load manifest;
 - (2) Flight release;
 - (3) Maintenance release;
 - (4) Pilot route certification; and
 - (5) Flight plan.
- (b) If a flight originates at the principal operations base of the air carrier or commercial operator, it shall retain at that base a signed copy of each document listed in Paragraph (a) of this section.
- (c) Except as provided in Paragraph (d) of this section, if a flight originates at a place other than the principal operations base of the air carrier, the pilot in command (or another person not aboard the airplane who is authorized by the carrier or operator) shall, before or immediately after departure of the flight, mail signed copies of the documents listed in Paragraph (a) of this section to the principal operations base.
- (d) If a flight originates at a place other than the principal operations base of the air carrier and there is at that place a person to manage the flight departure for the air carrier who does not himself depart on the airplane, signed copies of the documents listed in Paragraph (a) of this section may be retained at that place for not more than 30 days before being sent to the principal operations base of the air carrier. However, the documents for a particular flight need not be further retained at that place or be sent to the principal operations base, if the originals or other copies of them have been previously returned to the principal operations base.
- (e) The supplemental air carrier shall:
 - (1) Identify in its operations manual the person having custody of the copies of documents retained in accordance with Paragraph (d) of this section; and
 - (2) Retain at its principal operations base either the original or a copy of the records required by this section for at least three months.

121.698 [Reserved]

121.699 [Reserved]**121.701 Maintenance Log: Aircraft**

- (a) Each person who takes action in the case of a reported or observed failure or malfunction of an airframe, engine, propeller, or appliance that is critical to the safety of flight shall make, or have made, a record of that action in the airplane's maintenance log.
- (b) Each certificate holder shall have an approved procedure for keeping adequate copies of the record required in paragraph (a) of this section in the airplane in a place readily accessible to each flight crewmember and shall put that procedure in the certificate holder's manual.

121.703 Service Difficulty Reports

- (a) Each certificate holder shall report the occurrence or detection of each failure, malfunction, or defect concerning:
 - (1) Fires during flight and whether the related fire warning system functioned properly;
 - (2) Fires during flight not protected by a related fire warning system;
 - (3) False fire warning during flight;
 - (4) An engine exhaust system that causes damage during flight to the engine, adjacent structure, equipment, or components;
 - (5) An aircraft component that causes accumulation or circulation of smoke, vapor, or toxic or noxious fumes in the crew compartment or passenger cabin during flight;
 - (6) Engine shutdown during flight because of flameout;
 - (7) Engine shutdown during flight when external damage to the engine or airplane structure occurs;
 - (8) Engine shutdown during flight due to foreign object ingestion or icing;
 - (9) Engine shutdown during flight of more than one engine;
 - (10) A propeller feathering system or ability of the system to control overspeed during flight;
 - (11) A fuel or fuel dumping system that affects fuel flow or causes hazardous leakage during flight;
 - (12) An unwanted landing gear extension or retraction, or an unwanted opening or closing of landing gear doors during flight;
 - (13) Brake system components that result in loss of brake actuating force when the airplane is in motion on the ground;

- (14) Aircraft structure that requires major repair;
 - (15) Cracks, permanent deformation, or corrosion of aircraft structures, if more than the maximum acceptable to the manufacturer or the DGCA;
 - (16) Aircraft components or systems that result in taking emergency actions during flight (except action to shut down an engine); and
 - (17) Emergency evacuation systems or components including all exit doors, passenger emergency evacuation lighting systems, or evacuation equipment that are found defective, or that fail to perform the intended functions during an actual emergency or during training, testing, maintenance, demonstrations, or inadvertent deployments.
- (b) For the purpose of this section “during flight” means the period from the moment the aircraft leaves the surface of the earth on takeoff until it touches down on landing.
- (c) In addition to the reports required by paragraph (a) of this section and as prescribed by the DGCA, each certificate holder shall report any other failure, malfunction, or defect in an aircraft that occurs or is detected at any time if, in its opinion, that failure, malfunction, or defect has endangered or may endanger the safe operation of an aircraft used by it.
- (d) Each certificate holder shall send each report required by this section, in writing, to the DGCA office within the next 72 hours. However, a report that is due on Saturday or Sunday may be mailed or delivered on the following Monday, and one that is due on a holiday may be mailed or delivered on the next work day.
- (e) The certificate holder shall transmit the reports required by this section in a manner and on a form as prescribed by the Director, and shall include in the first report as much of the following as is available:
- (1) Type and identification number of the aircraft.
 - (2) The name of the operator.
 - (3) The date, flight number, and stage during which the incident occurred (e.g., preflight, takeoff, climb, cruise, descent, landing, and inspection).
 - (4) The emergency procedure effected (e.g., unscheduled landing and emergency descent).
 - (5) The nature of the failure, malfunction, or defect.
 - (6) Identification of the part and system involved, including available information pertaining to type designation of the major component and time since overhaul.
 - (7) Apparent cause of the failure, malfunction, or defect (e.g. wear, crack, design deficiency, or personnel error).
 - (8) Whether the part was repaired, replaced, sent to the manufacturer, or other action taken.
 - (9) Whether the aircraft was grounded.

- (10) Other pertinent information necessary for more complete identification, determination of seriousness, or corrective action.
- (f) A certificate holder that is also the holder of a Type Certificate (including a Supplement Type Certificate), a Parts Manufacturer Approval, or a Technical Standard Order Authorization, or that is the licensee of a type certificate holder, need not report a failure, malfunction, or defect under this section if the failure, malfunction, or defect has been reported by it under CASR 21.3.
- (g) No person may withhold a report required by this section even though all information required in this section is not available.
- (h) When certificate holder gets additional information, including information from the manufacturer or other agency, concerning a report required by this section, it shall expeditiously submit it as a supplement to the first report and reference the date and place of submission of the first report.
- (i) The certificate holder shall transmit each report required by this section to the organization responsible for the type design of the aircraft.

121.705 Mechanical Interruption Summary Report

Each certificate holder shall regularly and promptly send a summary report on the following occurrences to the Director:

- (a) Each interruption to a flight, unscheduled change of aircraft enroute, or unscheduled stop or diversion from a route, caused by known or suspected mechanical difficulties or malfunctions that are not required to be reported under CASR 121.703.
- (b) The number of engines removed prematurely because of malfunction, failure or defect, listed by make and model and the aircraft type in which it was installed.
- (c) The number of propeller featherings in flight, listed by type of propeller and engine and aircraft on which it was installed. Propeller featherings for training, demonstration, or flight check purposes need not be reported.

121.707 Alteration and repair reports

- (a) Each certificate holder shall, promptly upon its completion, prepare a report of each major alteration or major repair of an airframe, aircraft engine, propeller, or appliance of an aircraft operated by it.
- (b) The certificate holder shall submit a copy of each report of a major alteration to, and shall keep a copy of each report of a major repair available for inspection by, the representative of the Director.

121.709 Maintenance Release or Aircraft Log Entry

- (a) No certificate holder may operate an aircraft after maintenance, preventive maintenance or alterations are performed on the aircraft unless the certificate holder, or the person with whom the certificate holder arranges for the performance of the maintenance, preventive maintenance, or alterations, prepares or causes to be prepared:
 - (1) A maintenance release; or
 - (2) An appropriate entry in the aircraft log.
- (b) The maintenance release or log entry required by paragraph (a) of this section must:
 - (1) Be prepared in accordance with the procedures set forth in the certificate holder's manual.
 - (2) Include a certification that:
 - (i) The maintenance work performed was completed satisfactorily in accordance with approved data and the requirements of the certificate holder's manual. The entry shall include basic details of the maintenance carried out, the date such maintenance was completed, and reference the approved data used;
 - (ii) All items required to be inspected were inspected by an authorized person who determined that the work was satisfactorily completed;
 - (iii) No known condition exists that would make the airplane unairworthy; and
 - (iv) So far as the work performed is concerned, the aircraft is in condition for safe operation; and
 - (3) Be signed by an authorized licensed aircraft maintenance engineer under Part 65.
 - (4) The entries cannot be erased.
- (c) Notwithstanding paragraph (b)(3) of this section, after maintenance, preventive maintenance, or alterations performed by a Approved Maintenance Organization that is located outside Republic of Indonesia, the maintenance release or log entry required by paragraph (a) of this section may be signed by a person authorized by that Approved Maintenance Organization.
- (d) When a maintenance release form is prepared the certificate holder must give a copy to the pilot in command and must keep a record thereof for at least two months.
- (e) Instead of restating each of the conditions of the certification required by paragraph (b) of this section, the certificate holder may state in its manual that the signature of an authorized licensed aircraft maintenance engineer constitutes that certification.

121.711 [Reserved]

121.713 [Reserved]

SUBPART W - ADMINISTRATIVE SANCTIONS

121.715 Compliance Requirements

The certificate holder shall comply with sections 121.535, 121.601, and 121.603.

121.717 Administrative Sanctions

The following administrative sanctions will be applied for the violation of the provision section 121.535, 121.601, and 121.603:

- (a) Three consecutive warning letters;
- (b) If the certificate holder does not respond to the warning letters, the certificate will be suspended for a maximum three (3) months;
- (c) If the suspension period is over and there is no effort made for the resumption of the operations, the certificate will be revoked.

SUBPART X - EMERGENCY MEDICAL EQUIPMENT AND TRAINING

121.801 Applicability.

This subpart prescribes the emergency medical equipment and training requirements applicable to all certificate holders operating passenger-carrying airplanes under this part. Nothing in this subpart is intended to require certificate holders or its agents to provide emergency medical care or to establish a standard of care for the provision of emergency medical care.

121.803 Emergency Medical Equipment.

- (a) No person may operate a passenger-carrying airplane under this part unless it is equipped with the emergency medical equipment listed in this section.
- (b) Each equipment item listed in this section—
 - (1) Must be inspected regularly in accordance with inspection periods established in the operations specifications to ensure its condition for continued serviceability and immediate readiness to perform its intended emergency purposes;
 - (2) Must be readily accessible to the crew and, with regard to equipment located in the passenger compartment, to passengers;
 - (3) Must be clearly identified and clearly marked to indicate its method of operation; and
 - (4) When carried in a compartment or container, must be carried in a compartment or container marked as to contents and the compartment or container, or the item itself, must be marked as to date of last inspection.
- (c) For treatment of injuries, medical events, or minor accidents that might occur during flight time each airplane must have the following equipment that meets the specifications and requirements of Appendix A of this part:
 - (1) Approved first-aid kits.
 - (2) In airplanes for which a flight attendant is required, an approved emergency medical kit.

121.805 Crewmember Training For In-Flight Medical Events.

- (a) Each training program must provide the instruction set forth in this section with respect to each airplane type, model, and configuration, each required crewmember, and each kind of operation conducted, insofar as appropriate for each crewmember and the certificate holder.

(b) Training must provide the following:

- (1) Instruction in emergency medical event procedures, including coordination among crewmembers.
- (2) Instruction in the location, function, and intended operation of emergency medical equipment.
- (3) Instruction to familiarize crewmembers with the content of the emergency medical kit.
- (4) For each flight attendant:
Instruction, to include performance drills, in cardiopulmonary resuscitation.

The crewmember instruction, performance drills, and recurrent training required under this section are not required to be equivalent to the expert level of proficiency attained by professional emergency medical personnel.

SUBPART Y - [Reserved]

APPENDIX A - FIRST AID KITS and EMERGENCY MEDICAL KITS

Approved first-aid kits must be readily accessible to the crew, stored securely, and kept free from dust, moisture, and damaging temperatures.

(a) First-aid Kits

(1) The minimum number of first aid kits required is set forth in the following table:

No. of passenger seats	No. of first-aid kits
0–50	1
51–150	2
151–250	3
More than 250	4

(2) Except as provided in paragraph (3), each approved first-aid kit must contain at least the following appropriately maintained contents in the specified quantities:

Contents	Quantity
Adhesive bandage compresses, 1-inch	16
Antiseptic swabs	20
Ammonia inhalants	10
Bandage compresses, 4-inch	8
Triangular bandage compresses, 40-inch	5
Arm splint, noninflatable	1
Leg splint, noninflatable	1
Roller bandage, 4-inch	4
Adhesive tape, 1-inch standard roll	2
Bandage scissors	1

(3) Arm and leg splints which do not fit within a first-aid kit may be stowed in a readily accessible location that is as near as practicable to the kit.

(b) Emergency Medical Kits

(1) At least one approved emergency medical kit must contain at least the following appropriately maintained contents in the specified quantities:

Contents	Quantity
Sphygmonanometer	1
Stethoscope	1
Airways, oropharyngeal (3 sizes): 1 pediatric, 1 small adult, 1 large adult or equivalent	3
Self-inflating manual resuscitation device with 3 masks (1 pediatric, 1 small adult, 1 large adult or equivalent)	1:3 masks
CPR mask (3 sizes), 1 pediatric, 1 small adult, 1 large adult, or equivalent	3
IV Admin Set: Tubing w/ 2 Y connectors	1
Alcohol sponges	2
Adhesive tape, 1-inch standard roll adhesive	1
Tape scissors	1 pair
Tourniquet	1
Saline solution, 500 cc	1
Protective nonpermeable gloves or equivalent	1 pair
Needles (2–18 ga., 2–20 ga., 2–22 ga., or sizes necessary to administer required medications)	6
Syringes (1–5 cc, 2–10 cc, or sizes necessary to administer required medications)	4
Analgesic, non-narcotic, tablets, 325 mg	4
Antihistamine tablets, 25 mg	4
Antihistamine injectable, 50 mg, (single dose ampule or equivalent)	2
Atropine, 0.5 mg, 5 cc (single dose ampule or equivalent)	2
Aspirin tablets, 325 mg	4
Bronchodilator, inhaled (metered dose inhaler or equivalent)	1
Dextrose, 50%/50 cc injectable, (single dose ampule or equivalent)	1
Epinephrine 1:1000, 1 cc, injectable, (single dose ampule or equivalent)	2

Contents	Quantity
Epinephrine 1:10,000, 2 cc, injectable, (single dose ampule or equivalent)	2
Lidocaine, 5 cc, 20 mg/ml, injectable (single dose ampule or equivalent)	2
Nitroglycerin tablets, 0.4 mg	10
Basic instructions for use of the drugs in the kit	1

- (2) If all of the above-listed items do not fit into one container, more than one container may be used.

APPENDIX B - [Reserved]

APPENDIX C - TRAINING PROGRAM

1. Every air carrier shall establish and maintain a ground and flight training program that is;
 - a. Designed to ensure that each person who receives training, acquires the competency to perform that persons assigned duties, and
 - b. Approved by the Director
 - c. consistent with the following individual components, as applicable to the air carrier and each person receiving training
2. Components of Training Program

- a. Company Induction Training**

An initial course of training in company indoctrination that includes at least the following areas as they relate to the different employee groups:

- (1) Company Operations Manual and significant CASRs as related to the company;
- (2) Company's operating certificate and operation specifications;
- (3) Company's organization, duties and responsibilities of the management personnel and the reporting relationship of all operational personnel to the respective managers;
- (4) Flight planning and operating procedures;
- (5) Fuelling procedures including procedures for fuelling with passengers aboard and, fuel contamination checks, aircraft grounding and bonding procedures;
- (6) Passenger safety briefings and safe movement of passengers to and from the aircraft;
- (7) Use of the minimum equipment list;
- (8) Company Safety Management System (SMS) and emergency response programs;
- (9) Accident/incident reporting procedures;
- (10) Handling of disabled passengers;

- (11) Operational Control System including flight release, flight watch and flight following;
- (12) Administration of flight documentation;
- (13) Sufficient meteorological and air traffic control procedures as would be appropriate to the most advanced aircraft in the air carrier's fleet, except where the company uses both VFR and IFR pilots; or

b. Windshear Training

No air carrier shall assign a person to act as a flight crewmember unless that person has received initial and recurrent windshear training in accordance with the following;

- (1) In the case of an aircraft type which does not use a flight simulator in the approved training program technical training in the recognition, effects and immediate actions appropriate to the type of aircraft flown.
- (2) In the case of turbojet aircraft type which does use a flight simulator in its training program:
 - (a) technical training in the recognition, effects and immediate actions appropriate to the type of aircraft flown; and
 - (b) sufficient practice in controlling windshear profiles in the aircraft type simulator to ensure each pilot's ability to recognize, announce and control the aircraft from the initial onset of the shear, to the point where the aircraft has regained normal flight parameters.

Recurrent training may be performed within the period until the last month of the next year after the year of the previous training.

c. Crew Resource Management Training

No air carrier shall assign a person to act as a crewmember on any aircraft requiring two or more crewmembers, unless that person has received crew resource management training in accordance with the following:

- (1) Initial training for all crewmembers shall cover the following subjects:
 - (a) attitudes and behaviors;
 - (b) communication skills;
 - (c) problem solving;
 - (d) human factors;
 - (e) conflict resolution;

- (f) decision making;
 - (g) team building and maintenance; and
 - (h) workload management.
- (2) Recurrent training as prescribed herein, shall be cover safety and emergency procedures and where possible, include joint participation of pilots and flight attendants:
- (a) relationship of crew members;
 - (b) review of incidents/accidents of air carriers;
 - (c) presentation and discussion of selected coordinated emergency procedures; and
 - (d) crewmember evacuation drills and debriefing.

Recurrent training may be perform within the period until the last month on the next year after the year of the previous training.

d. Transportation of Dangerous Goods Training

No certificate holder may use crewmembers and ground personnel who perform assigned duties and responsibilities for the handling and carriage of Dangerous Goods unless that person has received initial and recurrent training as prescribed in this paragraph.

An air carrier's course of training in the transportation of dangerous goods shall include instructions as required by the applicable ICAO technical instructions regarding the compatibility, loading, storage, and handling characteristics of all dangerous goods. The course must ensure that the persons receiving training will acquire adequate knowledge regarding the proper packaging, marking, labeling, and documentation of dangerous articles as appropriate to their duties.

Training requirements for certificate holders authorized in their operations specifications to transport dangerous goods (will-carry) are prescribed in Table 1. Those certificate holders with a prohibition in their operations specifications against carrying or handling dangerous goods (will-not-carry) must follow the curriculum prescribed in Table 2.

Recurrent training may be perform within the period until the last month on the next two years after the year of the previous training.

Table 1.--Operators That Transport Dangerous Goods--Will-Carry Certificate Holders

Aspects of transport of dangerous goods by air with which they must be familiar, as a minimum (See note 1)	Shippers (See Note 2) Will-carry	Operators and ground-handling agent's staff accepting dangerous goods (See Note 3) Will-carry	Operators and ground-handling agents staff responsible for the handling, storage, and loading of cargo and baggage Will-carry	Passenger-handling staff Will-carry	Flight crew members and load planners Will-carry	Crew members (other than flight crew members) Will-carry
General philosophy	X	X	X	X	X	X
Limitations	X	X	X	X	X	X
General requirements for shippers	X	X				
Classification	X	X				
List of dangerous goods	X	X			X	
General packing requirements	X	X				
Labeling and marking	X	X	X	X	X	X
Dangerous goods transport document and other relevant documentation	X	X				
Acceptance procedures		X				
Recognition of undeclared dangerous goods	X	X	X	X	X	X
Storage and loading procedures		X	X		X	
Pilots' notification		X	X		X	
Provisions for passengers and crew		X	X	X	X	X
Emergency procedures	X	X	X	X	X	X
Note 1.--Depending on the responsibilities of the person, the aspects of training to be covered may vary from those shown in the table						
Note 2.--When a person offers a consignment of hazmat, including Company Material (material owned or used by certificated holder), for or on behalf of the certificate holder, then the person must be trained in the certificate holder's training program and comply with shipper responsibilities and training. If offering goods on another certificate holder's equipment, the person must be trained in compliance with the training requirements in CASR Part 92. All shippers of hazmat must be trained under CASR Part 92. The shipper functions in CASR Part 92 mirror the training aspects that must be covered for any shipper offering hazmat for transport.						
Note 3.--When an operator, its subsidiary, or an agent of the operator is undertaking the responsibilities of acceptance staff, such as the passenger handling staff accepting small parcel cargo, the certificate holder, its subsidy, or the agent must be trained in the certificate holder's training program and comply with the acceptance staff training requirements.						

Table 2.--Operators That Do Not Transport Dangerous Goods--Will-Not-Carry Certificate Holders

Aspects of transport of dangerous goods by air with which they must be familiar, as a minimum (See note 1)	Shippers (See Note 2) Will-not-carry	Operators and ground-handling agent's staff accepting dangerous goods (See Note 3) Will-not-carry	Operators and ground-handling agents staff responsible for the handling, storage, and loading of cargo and baggage Will-not-carry	Passenger-handling staff Will-not-carry	Flight crew members and load planners Will-not-carry	Crew members (other than flight crew members) Will-not-carry
General philosophy	X	X	X	X	X	X
Limitations	X	X	X	X	X	X
General requirements for shippers	X					
Classification	X					
List of dangerous goods	X					
General packing requirements	X					
Labeling and marking	X	X	X	X	X	X
Dangerous goods transport document and other relevant documentation	X	X				
Acceptance procedures						
Recognition of undeclared dangerous goods	X	X	X	X	X	X
Storage and loading procedures						
Pilots' notification						
Provisions for passengers and crew		X	X	X	X	X
Emergency procedures	X	X	X	X	X	X
Note 1.--Depending on the responsibilities of the person, the aspects of training to be covered may vary from those shown in the table						
Note 2.--When a person offers a consignment of hazmat, including Company Material (material owned or used by certificated holder), for or on behalf of the certificate holder, then the person must be trained in the certificate holder's training program and comply with shipper responsibilities and training. If offering goods on another certificate holder's equipment, the person must be trained in compliance with the training requirements in CASR Part 92. All shippers of hazmat must be trained under CASR Part 92. The shipper functions in CASR Part 92 mirror the training aspects that must be covered for any shipper offering hazmat for transport.						
Note 3.--When an operator, its subsidiary, or an agent of the operator is undertaking the responsibilities of acceptance staff, such as the passenger handling staff accepting small parcel cargo, the certificate holder, its subsidy, or the agent must be trained in the certificate holder's training program and comply with the acceptance staff training requirements.						

e. Emergency Equipment and Procedures Training

Training for crewmembers must conform to the standards set out in CASR 121.417.

f. Aircraft Surface Contamination Training

No air carrier shall assign a person to act as a flight crew member of an aircraft which could within reason, be expected to encounter the effects of surface contamination, unless that person has received within the preceding 12 months initial and recurrent training in safety awareness of the effects of contamination on the critical surfaces of the aircraft including;

- (1) responsibility of the PIC and other operations personnel;
- (2) regulations related to operations in icing conditions;
- (3) weather conducive to ice, frost and snow contamination;
- (4) inspection before flight and removal of contamination;
- (5) in-flight icing recognition; and
- (6) hazards related to critical surface contamination of ice, frost and snow.

g. Category II and Category III Operations Training

No air carrier shall assign a person to act as pilot in command of an aircraft in weather conditions below Category I limits, unless that person has completed the air carriers initial and recurrent ground and flight training as prescribed in this section. The training prescribed herein must include:

- (1) ground training in at least the following subjects:
 - (a) legal requirements for take-off and landing in lower than Cat I weather;
 - (b) operational characteristics, capabilities and limitations of Cat II/III:
 - i. aeroplane systems; and
 - ii. ground based systems.
 - (c) resolution of DH/AH;
 - (d) visual cues; and
 - (e) crew duties and co-ordination during normal, abnormal and emergency situations.
- (2) flight training required to be accomplished in an aircraft type simulator of the type to be used and shall include at least the following procedures:
 - (a) two take-offs, with runway visual range reduced to 600 RVR;
 - (b) one rejected take-off from speed of not less than V1 minus 10 knots, with runway visual range reduced to 600 RVR;

- (c) a missed approach from the lowest minima, as applicable;
- (d) an auto landing from one of the approaches or a manual landing, as appropriate, at the maximum crosswind authorized; and
- (e) for category III operations predicated on the use of a fail-passive rollout control system, a manual rollout using visual reference or a combination of visual and instrument references.

Recurrent training may be performed within the period until the last month of the next year after the year of the previous training.

h. Extended Range Operations (ETOPS)

No air carrier shall assign a flight crewmember to act in an ETOPS operation unless such person has completed the air carrier's training/checking program in respect to extended range operations. This training and checking program shall cover the following and be given on an initial and recurrent basis.

- (1) introduction to ETOPS regulations / operational approvals;
- (2) routes and airports intended to be used in the Extended Range area of operations;
- (3) performance:
 - (a) flight planning, and plotting, including all contingencies;
 - (b) flight performance progress monitoring; and
- (4) procedures:
 - (a) diversion procedures and diversion "decision making". Special initial and recurrent training to prepare flight crews to evaluate probable propulsion and airframe failures must be accomplished;
 - (b) use of appropriate navigation and communication systems including appropriate flight management devices;
 - (c) abnormal and emergency procedures to be followed in the event of foreseeable failures for each area of operation, including:
 - i. procedures for single and multiple equipment failures in flight that would precipitate go/no-go and diversion decisions. If standby sources of electrical power significantly degrade cockpit instrumentation, then approved training that simulates approaches with the standby generator as the sole power source should be conducted during initial and recurrent training;

- ii. operational restrictions associated with these failures including any applicable MEL considerations;
 - iii. procedures for in-flight restart of the propulsion systems, including APU, if required; and
 - iv. crew incapacitation.
- (5) use of emergency equipment including protective breathing and ditching equipment;
 - (6) procedures to be followed in the event that there is a change in conditions at designated en route alternates that would preclude a safe approach and landing;
 - (7) understanding and effective use of approved additional or modified equipment required for ETOPS;
 - (8) fuel requirements and management: and
 - (9) dispatch considerations (MEL, DDG, CDL, weather minima, and flight crew performed maintenance service checks).

Recurrent training may be performed within the period until the last month of the next year after the year of the previous training.

i. Performance Based Navigation (PBN)

No air carrier shall assign a person to act as a crewmember in RNAV and RNP operation unless that person has completed the air carrier's initial and recurrent training/checking program in respect to Performance Based Navigation that enables the crew member to:

- (1) Understand the concepts behind ICAO Performance-based Navigation (PBN) Concept, the Global Plan for CNS/ATM Systems, Area Navigation (RNAV) systems, GNSS theory and the related separation standards
- (2) Be conversant with the basics of RNAV and RNP procedure, Instrument Approach Procedures, Standard Instrument Departures and Arrivals (SIDs and STARs)

Recurrent training may be performed within the period until the last month of the next year after the year of the previous training.

j. Controlled Flight into Terrain/ Approach and Landing Accident Reduction (CFIT/ALAR)

No air carrier shall assign a person to act as a crewmember on any aircraft unless that person has received CFIT/ALAR initial and recurrent training in accordance with the following:

- (1) Introduction and Definition of ALAR
- (2) Missed Approaches or Go-arounds
- (3) ALA Categories and Risk factors
- (4) Situational Awareness
- (5) Standard Operating Procedures
- (6) Briefings and Callouts
- (7) Regulatory Guidance
- (8) Altimetry
- (9) Human factors
- (10) Air Traffic Control
- (11) Flight Crew Complacency
- (12) Automation

Recurrent training may be performed within the period until the last month of the next year after the year of the previous training.

k. Aircraft Technical Ground Training

No air carrier shall assign a person to act as a flight crewmember unless that person has received the aircraft technical ground training prescribed by this Section, as applicable to the aircraft type and that person's assigned duties. Such training shall include the following subjects to a depth of comprehension relative to the crewmember's need to know;

- (1) description of all aircraft systems and major components including:
 - (a) design and operation philosophy;
 - (b) applicable AFM limitations;
 - (c) normal, abnormal and emergency procedure;
 - (d) Standard Operating Procedures;
 - (e) MEL, DDG, CDL and supplemental procedures.
- (2) In the case of the pilot in command of a rotorcraft, that training required by CASR if and as applicable;
- (3) aircraft performance;

- (4) flight planning;
- (5) weight and balance procedures, and where the operation involves specialty equipment or procedures:
 - (a) modified or special equipment installed; and
 - (b) specific procedures relating to such modification or special equipment.

Recurrent technical ground training shall be conducted every 12 months and be in sufficient depth to provide an adequate review of all the subjects contained in this section.

I. Aircraft Flight Training

- (1) No air carrier shall assign a person to act as a flight crewmember unless that person has successfully completed the aircraft type flight training prescribed by this Section. Where approved by the Director, such training may be provided in:
 - (a) an aircraft type flight simulator;
 - (b) an aircraft;
 - (c) and in part, a synthetic training device (STD); or
 - (d) a combination of an aircraft type flight simulator, STD and an aircraft.
- (2) The Director may give certain flight training/checking credits to synthetic training devices where he is of the opinion that such device is:
 - (a) a true mock-up of the actual aircraft and is accurate in layout, equipment and design;
 - (b) sufficiently functional to physically position switches and controls to their appropriate position; and
 - (c) is used only to prepare a trainee flight crewmember:
 - i. for the first motion session of the aircraft or aircraft type flight simulator; or
 - ii. the aural portion of a proficiency or competency check.
- (3) Initial and recurrent flight training for pilots must include the standard operating procedures for normal, abnormal, and emergency operation of the aircraft systems and components as appropriate to crew position and duties. In providing practice in the manoeuvres and procedures as

specified herein, the flight training program must include any additional manoeuvres required to satisfy the carrier's programs for:

- (a) low level windshear;
- (b) ETOPS
- (c) CAT II/III; or
- (d) other special operations, for which the authority requires additional training.

Recurrent flight training shall be conducted every 12 months and be in sufficient depth to provide an adequate review of all the subjects contained in this section.

- (4) Where the manoeuvres and procedures required by paragraph (3) above, are to be accomplished in an aircraft, they shall include as appropriate to the aircraft type and trainee pilot and, consistent with safety;
 - (a) all pre-flight activity as laid down in the COM and appropriate to flight training;
 - (b) use of aircraft checklist system, including interior and exterior checks;
 - (c) taxiing;
 - (d) aspects of flight and cabin crew co-operation, including briefing, and coordination of duties;
 - (e) take-off, approach and landings including:
 - i. normal, full stop and touch and go;
 - ii. rejected from not more than 60 knots on take-off, or less than 100 feet on approach to land;
 - iii. simulated abnormal flap and flight control conditions;
 - iv. landing with the critical engine in a simulated failed condition; and
 - v. in the case of a single engine aircraft, no power forced landing.
 - (f) normal manoeuvres during climb, descent and level flight at low and high altitudes;
 - (g) approaches to a stall and recovery procedures, simulating ground contact imminent and ground contact not a factor, in the clean, take-off and landing configuration;

- (h) steep turns, onset of mach buffet, or other flight characteristic as applicable to the aircraft type;
 - (i) simulated malfunction of aircraft systems sufficient to ensure practice in all abnormal and emergency conditions for which the aircraft manufacture has published a checklist or procedure, including:
 - i. engine failure and fire while airborne and on the ground; and
 - ii. emergency passenger evacuation; and
 - (j) other specialized aircraft equipment where applicable; and
 - (k) where the aircraft is operated IFR, the training shall include:
 - (i) take-off, departure, enroute, holding and arrival manoeuvres; and
 - (ii) all types of instrument approaches and missed approaches in simulated conditions of low ceiling and visibility, including circling approaches (where applicable) using all levels of automation within the aircraft's capability; and
 - (l) Upset recovery training
- (5) Where the manoeuvres and procedures required by paragraph (3) above, are to be accomplished in an aircraft type simulator, they shall include as appropriate to the aircraft type and trainee pilot and consistent with simulator capabilities:
- (a) All the maneuvers and procedures prescribed by paragraph (4) above, except they shall be presented:
 - i. in a manner that maximizes the training value gained by use of that simulator including Line Orientated Flight Training (LOFT) exercises where applicable; and
 - ii. in accordance with the detailed lesson plans prescribed in paragraph (6) below.
- (6) Where an air carrier is approved to conduct flight training, in an aircraft type simulator, the air carrier shall publish a simulator training program:
- (a) in a series of lesson plans that cover the entire simulator phase of training, including a sample pre-flight test, in sufficient detail to:
 - i. indicate the expected weather for the most part of the session;
 - ii. indicates relevant aircraft data, dispatch deviations etc.;
 - iii. lists specific pre-flight briefing points related to that lesson;

- iv. indicates any periods of time during the lesson, where unrealistic exercises or departures from real time profiles may be experienced; and
 - v. gives details as to the airports, routes, terminal and approach procedures to be used during the session.
 - (b) that prescribes the specific manoeuvres and procedures to be presented during each session;
 - (c) that shows a logical progression in the complexity of the exercises;
 - (d) that ensures, more demanding exercises receive adequate repetitions to achieve a high level of skill;
 - (e) that gives the instructor the freedom to modify a lesson in order to make that session more beneficial to the trainee pilot; and
 - (f) is approved by the Director.
- (7) Every flight or simulator instructor who gives instruction to a person shall;
- (a) begin each training session with a briefing and aural quiz which will ensure the trainee pilot understands;
 - i. what he or she will be practicing in the session: and
 - ii. the maneuvers and procedures sufficiently to undergo the training scheduled for that day.
 - (b) end each session with an in depth debriefing which will ensure the trainee understands any errors made during the lesson and knows what remedial study if any, will be required prior to progressing to the next lesson;
 - (c) prior to being relieved by another instructor on any flight training course, give a comprehensive briefing to that instructor as to the progress being made by the trainee pilot(s), to that point; and
 - (d) not recommend any trainee pilot for a proficiency or competency check until the trainee has completed the entire approved flight training course and that trainee's record, indicates that incomplete or deficient areas have been brought to a satisfactory level of achievement.

m. Differences training:

- (1) No air carrier shall use any person as a flight crew member, a flight attendant, a flight operations officer, or a person performing any ground handling, or service related duty to an aircraft, (except those duties

performed by certified maintenance personnel) unless that person has completed an initial course of training and differences training consisting of at least the following as applicable to their assigned duties and responsibilities:

- (a) Instruction in each subject required for initial and recurrent ground training where differences in the carrier's aircraft fleet occur; and
 - (b) instruction in each maneuver or procedure required for initial and recurrent flight training, where differences in the carrier's aircraft fleet occur.
- (2) Differences training for all variations of a particular type aircraft may be incorporated into the initial, and recurrent ground and flight training programs for the aircraft type subject to differences or, may be published as a separate syllabus.

n. Upgrade Training

- (1) Where a flight crewmember has been previously trained and certified to act as a second-in-command of an aircraft, no air carrier shall assign that person to act as the pilot-in-command and that person shall not act as pilot-in-command of that aircraft unless:
 - (a) that person has completed the initial technical ground and flight training prescribed in Sections k and l above and is otherwise qualified in accordance with this Subpart, to act as a pilot-in-command; or
 - (b) has undergone the upgrade training prescribed in paragraph (2) below.
- (2) Upgrade training and checking for a pilot who is qualified as a second-in-command on that aeroplane type shall include the following:
 - (a) training as pilot in command in all the areas of aeroplane handling and operation as prescribed in Section l above;
 - (b) pilot in command decision making;
 - (c) any special operations training required specifically for a PIC;
 - (d) an initial pilot proficiency check for a PIC; and
 - (e) line indoctrination training and check as required by this subpart.
- (3) Upgrade training shall not qualify a SIC to act as PIC if, the flight crewmember's PPC as second-in-command, has been expired for more than 24 months.

o. Line Indoctrination Training for Flight Crew Members

- (1) No air carrier shall assign a person to act as a flight crewmember of and aircraft that has a maximum certified take-off weight of more than 12,500 pounds or a turbojet unless, that person has undergone or is undergoing, line indoctrination as prescribed herein, while under the supervision of a flight instructor or CCP qualified on that type:
 - (a) Line indoctrination shall be conducted over parts of the company's route structure, or in the case of a non scheduled air transportation service, over routes within the operational areas which are typical to the air carrier;
 - (b) Line indoctrination shall cover the following areas to ensure each flight crewmember has been adequately trained to perform their assigned duties and is aware of the company's policies with respect to;
 - i. crew management and discipline;
 - ii. responsibilities of the PIC and other flight crew members; and
 - iii. responsibilities of the cabin crew;
 - iv. MEL policy and procedures;
 - v. C of A and other documentation;
 - vi. deferred defects;
 - vii. dispatch and maintenance release;
 - viii. manuals and logbook;
 - ix. Flight Recorders;
 - x. emergency exits-number, access, lighting and marking;
 - xi. fire extinguishers;
 - xii. crash axe;
 - xiii. oxygen and first aid equipment, and survival equipment;
 - xiv. company fuel policy.
 - xv. fuelling procedures;
 - xvi. load security;
 - xvii. ground equipment and handling;

- xviii. pre-flight safety and crew briefings;
 - xix. departure and climb procedures;
 - xx. fuel management and checks;
 - xxi. approach procedures;
 - xxii. landing and taxiing procedures; and
 - xxiii. flight logs and defect recording
- (c) Special considerations such as significant terrain, noise abatement, unique SAR requirements or any situation which presents itself during line indoctrination training which would require a crew response.
- (2) During line indoctrination, a flight crewmember shall be given the minimum operating experience as required by Section 121.438.
- (3) A sector is considered to be any flight which has a take-off and landing at different airports which are not less than 50 nautical miles apart.

p. Flight Attendant Ground Training

- (1) No air carrier shall assign a person to act and no person shall act as a flight attendant on an aircraft that is required to carry flight attendants, unless that person has completed the air carriers ground training for flight attendants prescribed by this section. Initial and recurrent ground training must include instruction in at least the following:
- (a) General subjects:
 - i. The authority of the pilot in command, and succession of command;
 - ii. Relevant Safety and Security Regulations;
 - iii. Passenger handling, including under age children;
 - iv. Approved crew resource management training;
 - v. Company policy manuals relating to the duties of a flight attendant;
 - vi. Customs and immigrations procedures;
 - vii. Passenger briefing; and
 - viii. Passenger cabin preparation and securing.

- (b) For each aeroplane type:
 - i. A general description of the aircraft emphasizing physical characteristics that may have a bearing on ditching, evacuation, and in-flight emergency procedures and on other related duties;
 - ii. The use of both the public address system and the means of communicating with other flight crewmembers; and
 - iii. Proper use of electrical galley equipment and the controls for cabin heat and ventilation.
- (c) For emergency or security equipment and procedures;
 - i. location and operation of all aircraft exits, including normal, alternate and emergency modes of operation;
 - ii. location and use of all emergency equipment on board each aircraft;
 - iii. normal and alternate means of communication and communication procedures for normal, emergency and security situations;
 - iv. alternate duties in the event of the incapacitation of other crew members;
 - v. passenger emergency briefings and aural commands;
 - vi. armed intervention or unruly passengers;
 - vii. cabin and passenger preparation for emergency landing, ditching and evacuation; and
 - viii. medical emergencies on board including administering oxygen.
- (d) For practical training:
 - i. use of fire extinguishers;
 - ii. use of oxygen walk around equipment;
 - iii. use of all emergency exits;
 - iv. passenger preparation and evacuation, and
 - v. use of any other life saving equipment on board a specific aircraft including the onboard medical kit.

- (2) Initial and recurrent ground training for flight attendants must include a competence check to determine ability to perform assigned duties and responsibilities.
- (3) Recurrent ground training for flight attendants shall be conducted every 12 months and be in sufficient depth to provide an adequate review of all the subjects contained in this section.

q. Flight Attendant Operational Training

- (1) No air carrier shall assign a person to act and no person shall act as a flight attendant on an aircraft that is required to carry flight attendants, unless that person has completed the air carrier's flight attendant operational training prescribed by this section:
 - (a) A flight attendant must for a number of hours acceptable to the DGCA perform the assigned duties of a flight attendant on board an aircraft, while under the supervision of a flight attendant supervisor qualified on that aircraft type.
- (2) Flight attendant operational training is not required for a flight attendant who has previously acquired such experience on any passenger-carrying aeroplane of the same group, if;
 - (a) that person has received with respect to that aircraft, the initial ground training as prescribed by paragraph p(1)(b) and (c) of this Appendix,
 - (b) that person has for that type of aeroplane, successfully completed the competency check outlined in this Appendix.
- (3) Flight attendant operational training prescribed herein may be completed in a full-scale (except for length) cabin training device of the type aeroplane in which they are to serve, provided;
 - (a) the cabin training device has been approved by the Director, and
 - (b) has successfully completed a competency check outlined in this Subpart.

r. Flight Operations Officers Training

- (1) No air carrier shall assign a person to act and no person shall act as a flight operations officer unless that person has successfully completed the initial and recurrent ground and flight observation training prescribed in this section.
- (2) Initial and recurrent ground training for flight operations officers must include instruction in at least the following:

(a) General subjects:

- i. Civil Aviation Safety regulations as applicable,
- ii. Company Operations Manual (COM) with emphasis placed on;
 - duties and responsibilities of an FOO,
 - company operating specifications,
 - principles of operational control over a flight,
 - principle of flight dispatch, co-authority dispatch, and flight release,
 - flight crew briefing procedures,
 - MEL procedures
 - maintenance release procedures,
 - company's flight watch/ flight following systems,
 - FOO hand-off procedures,
 - company operational weather minima,
 - company operational flight plans,
 - weight and balance, load control procedures,
 - fuelling policy,
 - flight and duty time limitations,
 - communication procedures for normal, emergency and security situations,
 - action in the event of a missing aircraft, or accident
 - company's emergency response plan, and
 - any other information contained in the COM which would be considered significant to a FOO.
- iii. Meteorology, including various types of meteorological information and forecasts, interpretation of weather data (including forecasting of enroute and terminal temperatures and other weather conditions), frontal systems, wind conditions, and use of actual and prognostic weather charts for various altitudes;

- iv. The NOTAM system;
 - v. Navigational aids and publications;
 - vi. Characteristics of appropriate airports;
 - vii. Prevailing weather phenomena and the available sources of weather information;
 - viii. Air traffic control and instrument approach procedures;
 - ix. Approved dispatcher resource management (DRM) training.
- (b) For each aircraft:
- i. A general description of the aeroplane emphasizing operating and performance characteristics, navigation equipment, instrument approach and communication equipment, emergency equipment and procedures, and other subjects having a bearing on flight operation officer duties and responsibilities;
 - ii. Weight and balance computations;
 - iii. Basic aeroplane take-off, enroute and landing performance
 - iv. Flight planning including track selection, flight time analysis, and fuel requirements; and
 - v. Emergency procedures.
- (3) Prior to advancing to flight observation training, each FOO who has completed initial and recurrent ground training prescribed herein shall undergo a competency check conducted by a FOO supervisor. This check must be such that will confirm the trainee's knowledge in the subjects set forth in paragraph (1) above, and the ability to satisfactorily accomplish the duties of a FOO.
- (4) Each FOO initial and recurrent training course must include at least one complete flight or series of flights along a typical route or area of operation, in each aircraft that person is assigned to act as a FOO. In aircraft where there is no flight deck observer seat, a seat in the forward cabin which gives the best view of the cockpit, and a head set shall be assigned to the observing FOO.
- (5) Notwithstanding paragraph (1) above, a FOO may perform the duties of an FOO provided;
- (a) such duties are under the direct supervision of a FOO qualified under this part, and

- (b) such duties are for the purpose of providing on-the-job training to a FOO trainee.
- (6) Recurrent training for flight operations officer shall be conducted every 12 months and be in sufficient depth to provide an adequate review of all the subjects contained in this section.

APPENDIX D - CRITERIA FOR DEMONSTRATION OF EMERGENCY EVACUATION PROCEDURES UNDER CASR 121.291

(a) Aborted takeoff demonstration

- (1) The demonstration must be conducted either during the dark of the night or during daylight with the dark of the night simulated. If the demonstration is conducted in doors during daylight hours, it must be conducted with each window covered and each door closed to minimize the daylight effect. Illumination on the floor or ground may be used, but it must be kept low and shielded against shining into the airplane's windows or doors.
- (2) The airplane must be a normal ground attitude with landing gear extended.
- (3) Unless the airplane is equipped with an off-wing descent means, stands or ramps may be used for descent from the wing to the ground. Safety equipment such as mats or inverted life rafts may be placed on the floor or ground to protect participants. No other equipment that is not part of the emergency evacuation equipment of the airplane may be used to aid the participants in reaching the ground.
- (4) The airplane's normal electrical power sources must be deenergized.
- (5) All emergency equipment for the type of passenger-carrying operation involved must be installed in accordance with the certificate holder's manual.
- (6) Each external door and exit, and each internal door or curtain must be in position to simulate a normal takeoff.
- (7) A representative passenger load of persons in normal health must be used. At least 40 percent of the passenger load must be female and over 50 years of age. Three life-size dolls, not included as part of the total passenger load, must be carried by passengers to simulate live infants 2 years old or younger. Crewmembers, mechanics, and training personnel, who maintain or operate the airplane in the normal course of their duties, may not be used as passengers.
- (8) No passenger may be assigned a specific seat except as the Director may require. Except as required by item (12) of this paragraph, no employee of the certificate holder may be seated next to an emergency exit.
- (9) Seat belts and shoulder harnesses (as required) must be fastened.
- (10) Before the start of the demonstration, approximately one-half of the total average amount of carry-on baggage, blankets, pillows, and other similar articles must be distributed at several locations in the aisles and emergency exit access ways to create minor obstructions.
- (11) The seating density and arrangement of the airplane must be representative of the highest capacity passenger version of that airplane the certificate holder operates or proposes to operate.
- (12) Each crewmember must be a member of a regularly scheduled line crew, except that flight crewmembers need not be members of a regularly scheduled line crew, provided they have knowledge of the airplane. Each crewmember

must be seated in the seat the crewmember is normally assigned for takeoff, and must remain in that seat until the signal for commencement of the demonstration is received.

- (13) No crewmember or passenger may be given prior knowledge of the emergency exits available for the demonstration.
- (14) The certificate holder may not practice, rehearse, or describe the demonstration for the participants nor may any participant have taken part in this type of demonstration within the preceding 6 months.
- (15) The pretakeoff passenger briefing required by CASR 121.571 may be given in accordance with the certificate holder's manual. The passengers may also be warned to follow directions of crewmembers, but may not be instructed on the procedures to be followed in the demonstration.
- (16) If safety equipment as allowed by item (3) of this section is provided, either all passenger and cockpit windows must be blacked out or all of the emergency exits must have safety equipment in order to prevent disclosure of the available emergency exits.
- (17) Not more than 50 percent of the emergency exits in the sides of the fuselage of an airplane that meet all of the requirements applicable to the required emergency exits for that airplane may be used for the demonstration. Exits that are not to be used in the demonstration must have the exit handle deactivated or must be indicated by red lights, red tape, or other acceptable means, placed outside the exits indicate fire or other reason that they are unusable. The exits to be used must be designated by the certificate holder, subject to approval by the Director. At least one floor level exit must be used.
- (18) Except as provided in paragraph (a)(3) of this appendix, all evacuees must leave the airplane by a means provided as part of the airplane's equipment.
- (19) The certificate holder's approved procedures and all of the emergency equipment that is normally available, including slides, ropes, lights, and megaphones, must be fully utilized during the demonstration, except that the flight crew must take no active role in assisting others inside the cabin during the demonstration.
- (20) The evacuation time period is completed when the last occupant has evacuated the airplane and is on the ground. Evacuees using stands or ramps allowed by item (3) above are considered to be on the ground when they are on the stand or ramp: Provided, That the acceptance rate of the stand or ramp is no greater than the acceptance rate of the means available on the airplane for descent from the wing during an actual crash situation.

(b) Ditching demonstration

The demonstration must assume that daylight hours exist outside the airplane, and that all required crewmembers are available for the demonstration.

- (1) If the certificate holder's manual requires the use of passengers to assist in the launching of liferafts, the needed passengers must be aboard the airplane and participate in the demonstration according to the manual.
- (2) A stand must be placed at each emergency exit and wing, with the top of the platform at a height simulating the water level of the airplane following a ditching.
- (3) After the ditching signal has been received, each evacuee must don a life vest according to the certificate holder's manual.
- (4) Each liferaft must be launched and inflated, according to the certificate holder's manual, and all other required emergency equipment must be placed in rafts.
- (5) Each evacuee must enter a liferaft, and the crewmembers assigned to each liferaft must indicate the location of emergency equipment aboard the raft and describe its use.
- (6) Either the airplane, a mockup of the airplane or a floating device simulating a passenger compartment must be used.
 - (i) If a mockup of the airplane is used, it must be a life-size mockup of the interior and representative of the airplane currently used by or proposed to be used by the certificate holder, and must contain adequate seats for use of the evacuees. Operation of the emergency exits and the doors must closely simulate those on the airplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation.
 - (ii) If a floating device simulating a passenger compartment is used, it must be representative, to the extent possible, of the passenger compartment of the airplane used in operations. Operation of the emergency exits and the doors must closely simulate operation on that airplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation. The device must be equipped with the same survival equipment as is installed on the airplane, to accommodate all persons participating in the demonstration.

APPENDIX E - F - [Reserved]

APPENDIX G - SAFETY MANAGEMENT SYSTEM

1. Statutory basis

This regulation is promulgated under the statutory authority in the Civil Aviation Law No. 1 Year 2009 concerning Aviation, Chapter XIII-Aviation Safety, Part Four - Safety Management System for Aviation Service Provider.

2. Scope and applicability

a. Scope

- (1) This regulation describes the requirements for a service provider Safety Management System (SMS) operating in accordance with ICAO Annex 6 — Operation of Aircraft, ICAO Annex 11 — Air Traffic Services, and ICAO Annex 14 — Aerodromes.
- (2) Within the context of this regulation the term “service provider” must be understood to designate any organization providing aviation related services. The term encompasses aircraft operators, maintenance organizations, air traffic service providers and aerodrome operators, as applicable.
- (3) This regulation addresses aviation safety related processes and activities rather than occupational safety, environmental protection, or customer service quality.
- (4) The service provider is responsible for the safety of services or products contracted to or purchased from other organizations.
- (5) This regulation establishes the minimum acceptable requirements; the service provider can establish more stringent requirements.

b. Applicability and acceptance

Effective 1 January 2009, a service provider shall have in place a Safety Management System (SMS) that is acceptable to the Directorate General of Civil Aviation (DGCA) that, as a minimum:

- (1) identifies safety hazards and assesses and mitigates risks;
- (2) ensures that remedial action necessary to maintain an acceptable level of safety is implemented;
- (3) provides for continuous monitoring and regular assessment of the safety level achieved; and
- (4) aims to make continuous improvement to the overall level of safety.

3. References

ICAO Annex 6 — Operation of Aircraft, ICAO Annex 11 — Air Traffic Services, and ICAO Annex 14 — Aerodromes, and the ICAO Safety Management Manual (Doc 9859).

4. Definitions

For the purpose of this Decree, the term :

Acceptable level of safety means minimum safety performance that service providers should achieve while conducting their core business functions, expressed by a number of safety performance indicators and safety performance targets.

Accountability means obligation or willingness to account for one's actions.

Accountable Executive means a single, identifiable person which might be a Chief Executive Officer, a Chairperson Board of Directors, a partner or a proprietor who has full responsibility for the organization's SMS and have full authority for human resources issues, major financial issues, direct responsibility for the conduct of the organization's affairs, final authority over operations under certificate, and final responsibility for all safety issues.

Consequence means potential outcome(s) of the hazard.

Hazard means condition, object or activity with the potential of causing injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function.

Mitigation means measures to address the potential hazard or to reduce the risk probability or severity.

Predictive means a method that captures system performance as it happens in real-time normal operations.

Proactive means the adoption of an approach which emphasizes prevention through the identification of hazards and the introduction of risk mitigation measures before the risk-bearing event occurs and adversely affects safety performance.

Probability means the likelihood that an unsafe event or condition might occur.

Reactive means the adoption of an approach where safety measurement is as a responds to the events that already happened, such as incidents and accidents.

Risk means the assessment, expressed in terms of predicted probability and severity, of the consequence(s) of a hazard taking as reference the worst foreseeable situation.

Risk management means the identification, analysis and elimination, and/or mitigation to an acceptable level of risks that threaten the capabilities of an organization.

Safety means the state in which the risk of harm to persons or property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management.

Safety assessment means a systematic analysis of a proposed changes to equipment or procedures to identify and mitigate weaknesses before change is implemented.

Safety assurance means what the service providers do with regard to safety performance monitoring and measurement.

Safety audit means what the Civil Aviation Authority performs with regard to its safety programme, and the service providers perform with regard to the SMS.

Safety Management System (SMS) means a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

Safety manager means a person who is responsible for providing guidance and direction for the operation of the organization's safety management system.

Safety oversight means the activities of Civil Aviation Authority as part of its safety programme, performed with regard to the service providers SMS, in order to confirm the organization's continuing fulfilment of its corporate safety policy, objectives, goals and standards.

Safety performance indicator means established objectives of a services provider SMS, linked to major components of a services provider SMS, and expressed in numerical terms.

Safety performance monitoring means the activities of a service provider as part of its SMS, in order to confirm the organization's continuing fulfilment of its corporate safety policy, objectives, goals and standards.

Safety performance target means medium or long-term objectives of a services provider SMS, determined weighing what is desirable and what is realistic for an individual services provider, and expressed in numerical terms.

Safety policy means a statement reflecting the organization's philosophy of safety management, and become the foundation on which the organization's SMS is built. The safety policy outlines the methods and processes that the organization will use to achieve desired safety outcomes.

Safety programme means an integrated set of regulations and activities aimed at improving safety.

Safety requirement means the operational procedures, technology, systems and programmes to which measures of reliability, availability, performance and/or accuracy can be specified. are needed to achieve the safety performance indicators and safety performance targets.

Severity means the possible consequences of an unsafe event or condition, taking as reference the worst foreseeable situation.

System means organized set of processes and procedures.

Systematic means that safety management activities will be conducted in accordance with a pre-determined plan, and applied in a consistent manner throughout the organization.

5. General

Service provider shall establish, maintain and adhere to a Safety Management System (SMS) that is appropriate to the size, nature and complexity of the operations authorized to be conducted under its operations certificate and the safety hazards and risks related to the operations.

6. Safety policy and objectives

a. General requirements

- (1) A service provider shall define the organization's safety policy.
- (2) The safety policy shall be signed by the Accountable Executive of the organization.
- (3) The safety policy shall be in accordance with all applicable legal requirements and international standards, best industry practices and shall reflect organizational commitments regarding safety.
- (4) The safety policy shall be communicated, with visible endorsement, throughout the organization.
- (5) The safety policy shall include a clear statement about the provision of the necessary human and financial resources for its implementation.
- (6) The safety policy shall, among other things, include the following objectives:
 - (a) Commitment to implement an SMS;
 - (b) Commitment to continual improvement in the level of safety;
 - (c) Commitment to the management of safety risks;
 - (d) Commitment to encourage employees to report safety issues;
 - (e) Establishment of clear standards for acceptable behaviour; and

- (f) Identification of responsibilities of management and employees with respect to safety performance.
- (7) The safety policy shall be reviewed periodically to ensure it remains relevant and appropriate to the organization.
- (8) A service provider shall establish safety objectives for the SMS.
- (9) The safety objectives should be linked to the safety performance indicators, safety performance targets and safety requirements of the service provider SMS.

b. Organizational structure and responsibilities

- (1) A service provider shall identify an Accountable Executive to be responsible and accountable on behalf of the service provider for meeting the requirements of this regulation, and shall notify the DGCA the name of the person.
- (2) The Accountable Executive shall be a single, identifiable person who, irrespective of other functions, shall have the ultimate responsibility for the implementation and maintenance of the SMS.
- (3) The Accountable Executive shall have:
 - (a) Full control of the human resources required for the operations authorized to be conducted under the operations certificate;
 - (b) Full control of the financial resources required for the operations authorized to be conducted under the operations certificate;
 - (c) Final authority over operations authorized to be conducted under the operations certificate;
 - (d) Direct responsibility for the conduct of the organization's affairs; and
 - (e) Final responsibility for all safety issues.
- (4) A service provider shall establish the safety structure necessary for the implementation and maintenance of the organization's SMS.
- (5) A service provider shall identify the safety responsibilities of all members of senior management, irrespective of other responsibilities.
- (6) Safety-related positions, responsibilities and authorities shall be defined, documented and communicated throughout the organization.
- (7) A service provider shall identify a Safety Manager to be the member of management who shall be the responsible individual and focal point for the development and maintenance of an effective SMS.
- (8) The Safety Manager shall:
 - (a) Ensure that processes needed for the SMS are established, implemented and maintained;
 - (b) Report to the Accountable Executive on the performance of the SMS and on any need for improvement; and
 - (c) Ensure safety promotion throughout the organization.

c. SMS implementation plan

- (1) A service provider shall develop and maintain an SMS implementation plan.
- (2) The SMS implementation plan shall be the definition of the approach the organization will adopt for managing safety in a manner that will meet the organization's safety needs.
- (3) The SMS implementation plan shall include the following:
 - (a) Safety policy and objectives;
 - (b) Safety planning,
 - (c) System description;
 - (d) Gap analysis;
 - (e) SMS components;
 - (f) Safety roles and responsibilities;
 - (g) Safety reporting policy;
 - (h) Means of employee involvement;
 - (i) Safety training;
 - (j) Safety communication;
 - (k) Safety performance measurement; and
 - (l) Management review of safety performance.
- (4) The SMS implementation plan shall be endorsed by senior management of the organization.
- (5) A service provider shall, as part of the development of the SMS implementation plan, complete a system description.
- (6) The system description shall include the following:
 - (a) The system interactions with other systems in the air transportation system;
 - (b) The system functions;
 - (c) Required human performance considerations of the system operation;
 - (d) Hardware components of the system;
 - (e) Software components of the system;
 - (f) Related procedures that define guidance for the operation and use of the system;
 - (g) Operational environment; and
 - (h) Contracted and purchased products and services.
- (7) A service provider shall, as part of the development of the SMS implementation plan, complete a gap analysis, in order to:
 - (a) identify the safety arrangements and structures that may be already exist throughout an organization; and
 - (b) determine additional safety arrangements required to implement and maintain the organization's SMS.
- (8) The SMS implementation plan shall explicitly address the coordination between the SMS of the service provider and the SMS of other organizations the service provider must interface with during the provision of services.

d. Coordination of emergency response planning

A service provider shall develop and maintain, or coordinate, as appropriate, an emergency response/contingency plan that shall ensure:

- (1) Orderly and efficient transition from normal to emergency operations;
- (2) Designation of emergency authority;
- (3) Assignment of emergency responsibilities;
- (4) Coordination of efforts to cope with the emergency; and
- (5) Safe continuation of operations, or return to normal operations as soon as possible.

e. Documentation

- (1) A service provider shall develop and maintain SMS documentation, in paper or electronic form, to describe the following:
 - (a) Safety policy;
 - (b) Safety objectives;
 - (c) SMS requirements, procedures and processes;
 - (d) Responsibilities and authorities for procedures and processes; and
 - (e) SMS outputs.
- (2) A service provider shall, as part of the SMS documentation, develop and maintain a Safety Management System Manual (SMSM), to communicate the organization's approach to safety throughout the organization.
- (3) The SMSM shall document all aspects of the SMS, and its contents shall include the following:
 - (a) Scope of the Safety Management System;
 - (b) Safety policy and objectives;
 - (c) Safety accountabilities;
 - (d) Key safety personnel;
 - (e) Documentation control procedures;
 - (f) Hazard identification and risk management schemes;
 - (g) Safety performance monitoring;
 - (h) Emergency response/contingency planning;
 - (i) Management of change; and
 - (j) Safety promotion.

7. Safety risk management

a. General

- (1) A service provider shall develop and maintain Safety Data Collection and Processing systems (SDCPS) that provide for the identification of hazards and the analysis, assessment and mitigation of safety risks.
- (2) A service provider's SDCPS shall include reactive, proactive and predictive methods of safety data collection.

b. Hazard identification

- (1) A service provider shall develop and maintain formal means for effectively collecting, recording, acting on and generating feedback about hazards in operations, which combine reactive, proactive and predictive methods of safety data collection. Formal means of safety data collection shall include mandatory, voluntary and confidential reporting systems.
- (2) The hazard identification process shall include the following steps:
 - (a) Reporting of hazards, events or safety concerns;
 - (b) Collection and storing the safety data;
 - (c) Analysis of the safety data; and
 - (d) Distribution of the safety information distilled from the safety data.

c. Risk management

- (1) A service provider shall develop and maintain a formal risk management process that ensures the analysis, assessment and mitigation of risks of consequences of hazards to an acceptable level.
- (2) The risks of the consequences of each hazard identified through the hazard identification processes described in section 7.2 of this regulation shall be analysed in terms of probability and severity of occurrence, and assessed for their tolerability.
- (3) The organization shall define the levels of management with authority to make safety risk tolerability decisions.
- (4) The organization shall define safety controls for each risk assessed as tolerable.

8. Safety assurance**a. General**

- (1) A service provider shall develop and maintain safety assurance processes to ensure that the safety risks controls developed as a consequence of the hazard identification and risk management activities under paragraph 7 achieve their intended objectives.
- (2) Safety assurance processes shall apply to an SMS whether the activities and/or operations are accomplished internally or outsourced.

b. Safety performance monitoring and measurement

- (1) A service provider shall, as part of the SMS safety assurance activities, develop and maintain the necessary means to verify safety performance of the organization in comparison with the approved safety policies and objectives, and to validate the effectiveness of implemented safety risk controls.
- (2) Safety performance monitoring and measurement means shall include the following:

- (a) Safety reporting;
- (b) Safety audits;
- (c) Safety surveys;
- (d) Safety reviews;
- (e) Safety studies; and
- (f) Internal safety investigations.

- (3) The safety reporting procedure shall set out the conditions to ensure effective safety reporting, including the conditions under protection from disciplinary/administrative action shall apply.

c. Management of change

- (1) A service provider shall, as part of the SMS safety assurance activities, develop and maintain a formal process for the management of change.
- (2) The formal process for the management of change shall:
 - (a) Identify changes within the organization which may affect established processes and services;
 - (b) Describe the arrangements to ensure safety performance before implementing changes; and
 - (c) Eliminate or modify safety risk controls that are no longer needed due to changes in the operational environment.

d. Continuous improvement of the safety system

- (1) A service provider shall, as part of the SMS safety assurance activities, develop and maintain formal processes to identify the causes of under-performance of the SMS, determine the implications in its operation, and to rectify situations involving below standard performance in order to ensure the continual improvement of the SMS.
- (2) Continuous improvement of the service provider SMS shall include:
 - (a) Proactive and reactive evaluations of facilities, equipment, documentation and procedures, to verify the effectiveness of strategies for control of safety risks; and
 - (b) Proactive evaluation of the individuals' performance, to verify the fulfilment of safety responsibilities.

9. Safety promotion

a. General

Service providers shall develop and maintain formal safety training and safety communication activities to create an environment where the safety objectives of the organization can be achieved.

b. Safety training

- (1) A service provider shall, as part of its safety promotion activities, develop and maintain a safety training programme that ensures that personnel are trained and competent to perform the SMS duties.

- (2) The scope of the safety training shall be appropriate to the individual's involvement in the SMS.
- (3) The Accountable Executive shall receive safety awareness training regarding:
 - (a) Safety policy and objectives;
 - (b) SMS roles and responsibilities; and
 - (c) Safety assurance.

c. Safety communication

- (1) A service provider shall, as part of its safety promotion activities, develop and maintain formal means for safety communication, to:
 - (a) Ensure that all staff is fully aware of the SMS;
 - (b) Convey safety critical information;
 - (c) Explain why particular safety actions are taken;
 - (d) Explain why safety procedures are introduced or changed; and
 - (e) Convey generic safety information.
- (2) Formal means of safety communication shall include:
 - (a) Safety policies and procedures;
 - (b) News letters; and
 - (c) Bulletins.

d. Quality policy

A service provider shall ensure that the organization quality policy is consistent with, and supports the fulfilment of the activities of the SMS.

e. Implementation of the SMS

- (1) A service provider may implement SMS by a phased approach, which encompasses four phases as described in subparagraph (2) through subparagraph (5) of this paragraph.
- (2) Phase 1 should provide a blueprint on how the SMS requirements will be met and integrated to the organization's work activities, and an accountability framework for the implementation of the SMS:
 - (a) Identify the Accountable Executive and the safety accountabilities of managers;
 - (b) Identify the person (or planning group) within the organization responsible for implementing the SMS;
 - (c) Describe the system (air operator, ATC services provider, approved maintenance organization, certified aerodrome operator);
 - (d) Conduct a gap analysis of the organization's existing resources compared with the national and international requirements for establishing an SMS;
 - (e) Develop an SMS implementation plan that explains how the organization will implement the SMS on the basis of national requirements and international Standards and Recommended Practices (SARPs), the system description and the results of the gap analysis;
 - (f) Develop documentation relevant to safety policy and objectives; and

- (g) Develop and establish means for safety communication.
- (3) Phase 2 should put into practice those elements of the SMS implementation plan that refer to the safety risk management reactive processes:
 - (a) Hazard identification and risk management using reactive processes;
 - (b) Training relevant to:
 - i. SMS implementation plan components; and
 - ii. Safety risk management (reactive processes).
 - (c) Documentation relevant to:
 - i. SMS implementation plan components; and
 - ii. Safety risk management (reactive processes).
- (4) Phase 3 should put into practice those elements of the SMS implementation plan that refer to the safety risk management proactive and predictive processes:
 - (a) Hazard identification and risk management using proactive and predictive processes
 - (b) Training relevant to:
 - i. SMS implementation plan components; and
 - ii. Safety risk management (proactive and predictive processes).
 - (c) documentation relevant to:
 - i. SMS implementation plan components; and
 - ii. Safety risk management (proactive and predictive processes).
- (5) Phase 4 should put into practice operational safety assurance:
 - (a) Development of acceptable level (s) of safety;
 - (b) Development of safety indicators and targets;
 - (c) SMS continuous improvement;
 - (d) Training relevant to operational safety assurance; and
 - (e) Documentation relevant to operational safety assurance.

APPENDIX H - L - [Reserved]

APPENDIX M – N – O [Reserved]

APPENDIX P - REQUIREMENTS FOR ETOPS AND POLAR OPERATIONS

The DGCA approves ETOPS in accordance with the requirements and limitations in this appendix.

Section I. *ETOPS Approvals: Airplanes with Two engines.*

(a) *Propulsion system reliability for ETOPS.*

- (1) Before the DGCA grants ETOPS operational approval, the operator must be able to demonstrate the ability to achieve and maintain the following level of propulsion system reliability, for the ETOPS-approved airplane-engine combination to be used.

The holder of a type certificate for an airplane approved for ETOPS and the holder of a type certificate for an engine installed on an airplane approved for ETOPS must issue service information to the operators of those airplanes and engines, as appropriate, to maintain the world fleet 12-month rolling average IFSD rate at or below the following levels:

- (i) A rate of 0.05 per 1,000 world-fleet engine-hours for an airplane-engine combination approved for up to and including 120-minute ETOPS. When all ETOPS operators have complied with the corrective actions required in the configuration, maintenance and procedures (CMP) document as a condition for ETOPS approval, the rate to be maintained is at or below 0.02 per 1,000 world-fleet engine-hours.
 - (ii) A rate of 0.02 per 1,000 world-fleet engine-hours for an airplane-engine combination approved for up to and including 180-minute ETOPS, including airplane-engine combinations approved for 207-minute ETOPS in the North Pacific operating area under appendix P, section I, paragraph (h).
 - (iii) A rate of 0.01 per 1,000 world-fleet engine-hours for an airplane-engine combination approved for ETOPS beyond 180 minutes, excluding airplane-engine combinations approved for 207-minute ETOPS in the North Pacific operating area under appendix P, section I, paragraph (h).
- (2) Following ETOPS operational approval, the operator must monitor the propulsion system reliability for the airplane-engine combination used in ETOPS, and take action as required by Section 121.374(i) for the specified IFSD rates.

(b) *75 Minutes ETOPS —*

- (1) *Caribbean/Western Atlantic Area.* The DGCA grants approvals to conduct ETOPS with maximum diversion times up to 75 minutes on Western Atlantic/Caribbean area routes as follows:
 - (i) The DGCA reviews the airplane-engine combination to ensure the absence of factors that could prevent safe operations. The airplane-engine combination need not be type-design-approved for ETOPS; however, it

- must have sufficient favorable experience to demonstrate to the Director a level of reliability appropriate for 75-minute ETOPS.
- (ii) The certificate holder must comply with the requirements of Section 121.633 for time-limited system planning.
 - (iii) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.
 - (iv) The certificate holder must comply with the maintenance program requirements of Section 121.374, except that a pre-departure service check before departure of the return flight is not required.
- (2) *Other Areas*. The DGCA grants approvals to conduct ETOPS with maximum diversion times up to 75 minutes on other than Western Atlantic/Caribbean area routes as follows:
- (i) The DGCA reviews the airplane-engine combination to ensure the absence of factors that could prevent safe operations. The airplane-engine combination need not be type-design-approved for ETOPS; however, it must have sufficient favorable experience to demonstrate to the Director a level of reliability appropriate for 75-minute ETOPS.
 - (ii) The certificate holder must comply with the requirements of Section 121.633 for time-limited system planning.
 - (iii) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.
 - (iv) The certificate holder must comply with the maintenance program requirements of Section 121.374.
 - (v) The certificate holder must comply with the MEL in its operations specifications for 120-minute ETOPS.
- (c) *90-minutes ETOPS (Micronesia)*. The DGCA grants approvals to conduct ETOPS with maximum diversion times up to 90 minutes on Micronesian area routes as follows:
- (1) The airplane-engine combination must be type-design approved for ETOPS of at least 120-minutes.
 - (2) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.
 - (3) The certificate holder must comply with the maintenance program requirements of Section 121.374, except that a pre-departure service check before departure of the return flight is not required.
 - (4) The certificate holder must comply with the MEL requirements in its operations specifications for 120-minute ETOPS.
- (d) *120-minute ETOPS*. The DGCA grants approvals to conduct ETOPS with maximum diversion times up to 120 minutes as follows:
- (1) The airplane-engine combination must be type-design-approved for ETOPS of at least 120 minutes.
 - (2) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

- (3) The certificate holder must comply with the maintenance program requirements of Section 121.374.
- (4) The certificate holder must comply with the MEL requirements for 120-minute ETOPS.
- (e) *138-Minute ETOPS.* The DGCA grants approval to conduct ETOPS with maximum diversion times up to 138 minutes as follows:
 - (1) *Operators with 120-minute ETOPS approval.* The DGCA grants 138-minute ETOPS approval as an extension of an existing 120-minute ETOPS approval as follows:
 - (i) The authority may be exercised only for specific flights for which the 120-minute diversion time must be exceeded.
 - (ii) For these flight-by-flight exceptions, the airplane-engine combination must be type-design-approved for ETOPS up to at least 120 minutes. The capability of the airplane's time-limited systems may not be less than 138 minutes calculated in accordance with Section 121.633.
 - (iii) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.
 - (iv) The certificate holder must comply with the maintenance program requirements of Section 121.374.
 - (v) The certificate holder must comply with minimum equipment list (MEL) requirements in its operations specifications for "beyond 120 minutes ETOPS". Operators without a "beyond 120-minute ETOPS" MEL may apply for a modified MEL which satisfies the master MEL policy for system/component relief in ETOPS beyond 120 minutes.
 - (vi) The certificate holder must conduct training for maintenance, dispatch, and flight crew personnel regarding differences between 138-minute ETOPS authority and its previously-approved 120-minute ETOPS authority.
 - (2) *Operators with existing 180-minute ETOPS approval.* The DGCA grants approvals to conduct 138-minute ETOPS (without the limitation in paragraph (e)(1)(i) of section I of this appendix) to certificate holders with existing 180-minute ETOPS approval as follows:
 - (i) The airplane-engine combination must be type-design-approved for ETOPS of at least 180 minutes.
 - (ii) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.
 - (iii) The certificate holder must comply with the maintenance program requirements of Section 121.374.
 - (iv) The certificate holder must comply with the MEL requirements for "beyond 120 minutes ETOPS."
 - (v) The certificate holder must conduct training for maintenance, dispatch and flight crew personnel for differences between 138-minute ETOPS diversion approval and its previously approved 180-minute ETOPS diversion authority.

- (f) *180-minute ETOPS*. The DGCA grants approval to conduct ETOPS with diversion times up to 180 minutes as follows:
- (1) For these operations the airplane-engine combination must be type-design-approved for ETOPS of at least 180 minutes.
 - (2) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.
 - (3) The certificate holder must comply with the maintenance program requirements of Section 121.374.
 - (4) The certificate holder must comply with the MEL requirements for “beyond 120 minutes ETOPS.”
- (g) *Greater than 180-minute ETOPS*. The DGCA grants approval to conduct ETOPS greater than 180 minutes. The following are requirements for all operations greater than 180 minutes.
- (1) The DGCA grants approval only to certificate holders with existing 180-minute ETOPS operating authority for the airplane-engine combination to be operated.
 - (2) The certificate holder must have previous ETOPS experience satisfactory to the Director.
 - (3) In selecting ETOPS Alternate Airports, the operator must make every effort to plan ETOPS with maximum diversion distances of 180 minutes or less, if possible. If conditions necessitate using an ETOPS Alternate Airport beyond 180 minutes, the route may be flown only if the requirements for the specific operating area in paragraph (h) or (i) of section I of this appendix are met.
 - (4) The certificate holder must inform the flight crew each time an airplane is proposed for dispatch for greater than 180 minutes and tell them why the route was selected.
 - (5) In addition to the equipment specified in the certificate holder's MEL for 180-minute ETOPS, the following systems must be operational for dispatch:
 - (i) The fuel quantity indicating system.
 - (ii) The APU (including electrical and pneumatic supply and operating to the APU's designed capability).
 - (iii) The auto throttle system.
 - (iv) The communication system required by Section 121.99(d)
 - (v) One-engine-inoperative auto-land capability, if flight planning is predicated on its use.
 - (7) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.
 - (8) The certificate holder must comply with the maintenance program requirements of Section 121.374.
- (h) *207-minute ETOPS in the North Pacific Area of Operations*.
- (1) The DGCA grants approval to conduct ETOPS with maximum diversion times up to 207 minutes in the North Pacific Area of Operations as an extension to

180-minute ETOPS authority to be used on an exception basis. This exception may be used only on a flight-by-flight basis when an ETOPS Alternate Airport is not available within 180 minutes for reasons such as political or military concerns; volcanic activity; temporary airport conditions; and airport weather below dispatch requirements or other weather related events.

- (2) The nearest available ETOPS Alternate Airport within 207 minutes diversion time must be specified in the dispatch or flight release.
 - (3) In conducting such a flight the certificate holder must consider Air Traffic Service's preferred track.
 - (4) The airplane-engine combination must be type-design-approved for ETOPS of at least 180 minutes. The approved time for the airplane's most limiting ETOPS significant system and most limiting cargo-fire suppression time for those cargo and baggage compartments required by regulation to have fire-suppression systems must be at least 222 minutes.
 - (5) The certificate holder must track how many times 207-minute authority is used.
- (i) *240-minute ETOPS in the North Polar Area, in the area north of the NOPAC, and in the Pacific Ocean north of the equator.*
- (1) The DGCA grants approval to conduct 240-minute ETOPS authority with maximum diversion times in the North Polar Area, in the area north of the NOPAC area, and the Pacific Ocean area north of the equator as an extension to 180-minute ETOPS authority to be used on an exception basis. This exception may be used only on a flight-by-flight basis when an ETOPS Alternate Airport is not available within 180 minutes. In that case, the nearest available ETOPS Alternate Airport within 240 minutes diversion time must be specified in the dispatch or flight release.
 - (2) This exception may be used in the North Polar Area and in the area north of NOPAC only in extreme conditions particular to these areas such as volcanic activity, extreme cold weather at en-route airports, airport weather below dispatch requirements, temporary airport conditions, and other weather related events. The criteria used by the certificate holder to decide that extreme weather precludes using an airport must be established by the certificate holder, accepted by the DGCA, and published in the certificate holder's manual for the use of dispatchers and pilots.
 - (3) This exception may be used in the Pacific Ocean area north of the equator only for reasons such as political or military concern, volcanic activity, airport weather below dispatch requirements, temporary airport conditions and other weather related events.
 - (4) The airplane-engine combination must be type design approved for ETOPS greater than 180 minutes.
- (j) *240-minute ETOPS in areas South of the equator.*
- (1) The DGCA grants approval to conduct ETOPS with maximum diversion times of up to 240 minutes in the following areas:

- (i) Pacific oceanic areas between the U.S. West coast and Australia, New Zealand and Polynesia.
 - (ii) South Atlantic oceanic areas.
 - (iii) Indian Ocean areas.
 - (iv) Oceanic areas between Australia and South America.
 - (2) The operator must designate the nearest available ETOPS Alternate Airports along the planned route of flight.
 - (3) The airplane-engine combination must be type-design-approved for ETOPS greater than 180 minutes.
- (k) *ETOPS beyond 240 minutes.*
- (1) The DGCA grants approval to conduct ETOPS with diversion times beyond 240 minutes for operations between specified city pairs on routes in the following areas:
 - (i) The Pacific oceanic areas between the U.S. west coast and Australia, New Zealand, and Polynesia;
 - (ii) The South Atlantic oceanic areas;
 - (iii) The Indian Oceanic areas; and
 - (iv) The oceanic areas between Australia and South America, and the South Polar Area.
 - (2) This approval is granted to certificate holders who have been operating under 180-minute or greater ETOPS authority for at least 24 consecutive months, of which at least 12 consecutive months must be under 240-minute ETOPS authority with the airplane-engine combination to be used.
 - (3) The operator must designate the nearest available ETOPS alternate or alternates along the planned route of flight.
 - (4) For these operations, the airplane-engine combination must be type-design-approved for ETOPS greater than 180 minutes.

Section II. *ETOPS Approval: Passenger-carrying Airplanes With More Than Two Engines.*

- (a) The DGCA grants approval to conduct ETOPS, as follows:
- (1) Except as provided in Section 121.162, the airplane-engine combination must be type-design-approved for ETOPS.
 - (2) The operator must designate the nearest available ETOPS Alternate Airports within 240 minutes diversion time (at one-engine-inoperative cruise speed under standard conditions in still air). If an ETOPS alternate is not available within 240 minutes, the operator must designate the nearest available ETOPS Alternate Airports along the planned route of flight.
 - (3) The MEL limitations for the authorized ETOPS diversion time apply.
 - (i) The Fuel Quantity Indicating System must be operational.
 - (ii) The communications systems required by Section 121.99(d) must be operational.

- (4) The certificate holder must operate in accordance with the ETOPS authority as contained in its operations specifications.

Section III. *Approvals for operations whose airplane routes are planned to traverse either the North Polar or South Polar Areas.*

- (a) No certificate holder may operate an aircraft in the North Polar Area or South Polar Area, unless authorized by the DGCA.
- (b) In addition to any of the applicable requirements of sections I and II of this appendix, the certificate holder's operations specifications must contain the following:
 - (1) The designation of airports that may be used for en-route diversions and the requirements the airports must meet at the time of diversion.
 - (2) Except for supplemental all-cargo operations, a recovery plan for passengers at designated diversion airports.
 - (3) A fuel-freeze strategy and procedures for monitoring fuel freezing.
 - (4) A plan to ensure communication capability for these operations.
 - (5) An MEL for these operations.
 - (6) A training plan for operations in these areas.
 - (7) A plan for mitigating crew exposure to radiation during solar flare activity.
 - (8) A plan for providing at least two cold weather anti-exposure suits in the aircraft, to protect crewmembers during outside activity at a diversion airport with extreme climatic conditions. The DGCA may relieve the certificate holder from this requirement if the season of the year makes the equipment unnecessary.