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SUBPART A – GENERAL

§ 121.1 Applicability.

(a) Except as provided in paragraph (b) of this section, this part prescribes rules governing—

(1) The scheduled and unscheduled operations of a commercial air operator operating transport category airplanes, transport category rotorcraft, or commuter category airplanes that holds or is required to hold an Air Operator Certificate (AOC) under General Authority of Civil Aviation Regulation (GACAR) Part 119.

(2) Each person employed or used by a certificate holder conducting operations under this part;

(3) Each person who is onboard an aircraft being operated under this part; and

(4) Each person who is an applicant for an AOC under GACAR Part 119 with authorization from the President.

(b) The President may authorize temporary relief from certain sections of this part for the purpose of ferrying, training, positioning, maintenance, or other special purposes, provided the certificate holder demonstrates to the President that the operation can be conducted with an acceptable level of safety under specified conditions and limitations.

§ 121.5 General.

(a) For the purposes of this part, aircraft groups are:

(1) Turbopropeller powered airplanes.

(2) Turbojet powered airplanes.

(3) Rotorcraft.

(b) For the purposes of this part, when it is necessary to distinguish certain requirements for unscheduled operations that are only applicable to aircraft with a type certificated passenger seating capacity of 56 seats or less (excluding required crew members), the term special unscheduled is used.

(c) For the purposes of this part, all cargo operations are considered unscheduled operations.

(d) For the purposes of this part, certificate holder means a GACAR Part 119 AOC holder operating under this part.

§ 121.9 Rules Applicable to Operations Outside of the Kingdom of Saudi Arabia.

Each certificate holder must, while operating an aircraft outside of the Kingdom of Saudi Arabia (KSA), comply with GACAR § 91.475, except where any rule of this part is more restrictive and may be followed without violating the rules of that country.

§ 121.13 Carriage of Psychoactive Substances.

If the certificate holder 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 GACAR § 91.23, that operation is a basis for suspending or revoking the certificate.

§ 121.17 Documents To Be Carried on Board.

In addition to the requirements of GACAR § 91.9, the certificate holder must carry on board—

(a) A true copy of the AOC, and a copy of the operations specifications, issued in conjunction with the certificate; and

(b) When applicable, a true copy of the Article 83bis agreement.

§ 121.21 Surrender of International Crew Member Certificate.

The holder of an international crew member certificate issued by the President, or the air operator by whom the holder is employed, must surrender the certificate to the General Authority of Civil Aviation (GACA) for cancellation at the termination of the holder's employment with that air operator.

§ 121.25 Code Share Safety Monitoring Program.

Each certificate holder who implements a code share agreement with a foreign air carrier must establish and maintain a code share safety monitoring program acceptable to the President. The code share safety monitoring program must include the following elements:

(a) Safety audits of the code share partner to the International Air Transport Association Operational Safety Audit standard, or another standard acceptable to the President. These audits must be performed at least every 2 years by an auditing agency acceptable to the President.

(b) The assignment of specified management personnel for the purposes of—

(1) Continuously monitoring the code share partner's accident rate and risk indicators affecting safety.

(2) Ensuring audits required by paragraph (a) of this section are performed within the specified timeframes and the results are analyzed to ensure an acceptable level of safety is maintained by the code share partner.

(3) Maintaining liaison with the GACA and immediately report to the GACA if the code share partner fails to achieve satisfactory results following an audit required by paragraph (a) of this section.

SUBPART B – MANAGEMENT PERSONNEL

§ 121.45 Management Personnel Required.

(a) Except as provided in paragraph (b) of this section for special unscheduled operations, each certificate holder conducting scheduled and unscheduled operations under this part must have sufficient qualified management and technical personnel to ensure the safety of its operations. The certificate holder must have qualified personnel serving full time in the following or equivalent positions:

(1) Director of safety;

(2) Director of operations;

(3) Chief pilot;

(4) Director of maintenance; and

(5) Chief inspector.

(b) Each certificate holder conducting special unscheduled operations under this part must have sufficient qualified management and technical personnel to ensure the safety of its operations. The certificate holder must have qualified personnel serving in the following or equivalent positions:

(1) Director of operations;

(2) Chief pilot; and

(3) Director of maintenance.

(c) The President may approve positions or numbers of positions other than those listed in paragraphs (a) and (b) of this section for a particular operation if the certificate holder shows it can perform the operation safely 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.

(d) The title of the positions required under paragraph (a) or (b) of this section or the title and number of equivalent positions approved under paragraph (c) of this section must be set forth in the certificate holder's operations specifications.

(e) The individuals who serve in the positions required or approved under paragraph (a), (b) or (c) 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) GACAR;

(iii) The certificate holder's operations specifications;

(iv) All appropriate maintenance and airworthiness requirements of the GACAR; and

(v) The manual required by GACAR § 121.139.

(3) Discharge their duties to meet applicable legal requirements and to maintain safe operations.

(f) Each certificate holder must—

(1) State in the general policy provisions of the manual required by GACAR § 121.139, the duties, responsibilities, and authority of personnel required under paragraph (a) or (b) of this section;

(2) List in the manual the names and business addresses of the individuals assigned to those positions; and

(3) Notify the President within 10 working days of any change in personnel or any vacancy in any position listed.

(g) The individuals who serve in the positions required under paragraph (a), (b) or (c) of this section must be acceptable to the President based on his determination of the experience, competence and knowledge of the persons nominated. The President may administer tests to confirm competence and knowledge.

(h) For the purposes of this part:

(1) The director of maintenance is responsible and accountable for administering the certificate holder's maintenance program; and

(1) The chief inspector is responsible and accountable for administering the certificate holder's required inspection program.

§ 121.49 Management Personnel: Qualifications.

(a) To serve as director of operations a person must—

(1) Hold an airline transport pilot (ATP) certificate (airplane or rotorcraft, as applicable),

(2) Have at least 3 years' supervisory or managerial experience within the last 6 years in a position that exercised operational control over any operations similar to those conducted under GACAR Part 121, and

(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 (PIC) of an aircraft operated under GACAR Part 121.

(ii) In the case of a person with previous experience as a director of operations, have at least 3 years' experience as PIC of an aircraft operated under GACAR Part 121.

(b) To serve as chief pilot a person must hold an ATP certificate with appropriate ratings for at least one of the aircraft used in the certificate holder's operation and—

(1) In the case of a person becoming a chief pilot for the first time ever, have at least 3 years' experience, within the past 6 years, as PIC of an aircraft operated under GACAR Part 121.

(2) In the case of a person with previous experience as a chief pilot, have at least 3 years' experience, as PIC of an aircraft operated under GACAR Part 121.

(c) To serve as director of maintenance a person must—

(1) Hold a mechanic certificate with airframe and powerplant ratings,

(2) Have 1 year of experience in a position responsible for returning aircraft to service,

(3) Have at least 1 year of experience in a supervisory capacity under either paragraph (c)(4)(i) or (ii) of this section maintaining the same category and class of aircraft as the certificate holder uses, and

(4) Have 3 years' experience within the past 6 years in one or a combination of the following—

(i) Maintaining large aircraft with 10 or more passenger seats, including at the time of appointment as director of maintenance, experience in maintaining the same category and class of aircraft as the certificate holder uses; or

(ii) Repairing aircraft in a certificated airframe repair station rated to maintain aircraft in the same category and class of aircraft as the certificate holder uses.

(d) To serve as chief inspector a person must—

(1) Hold a mechanic certificate with both airframe and powerplant ratings, and have held these ratings for at least 3 years;

(2) Have at least 3 years of maintenance experience on different types of large aircraft with 10 or more passenger seats with an air operator or certificated repair station, 1 year of which must have been as maintenance inspector; and

(3) Have at least 1 year of experience in a supervisory capacity maintaining the same category and class of aircraft as the certificate holder uses.

(e) A certificate holder may employ a person who does not meet the appropriate airman experience, managerial experience, or supervisory experience requirements of this section if the President finds the person has comparable experience, and can effectively perform the functions associated with the position under the applicable requirements and the procedures outlined in the certificate holder's manual. The President may authorize relief under this paragraph after consideration of the size and scope of the operation and the qualifications of the intended personnel. The President may terminate at any time any relief issued under this paragraph.

SUBPART C – APPROVAL OF ROUTES AND AREAS

§ 121.69 Applicability.

This subpart prescribes rules for obtaining approval of—

(a) Routes for scheduled operations and

(b) Routes and areas for unscheduled operations.

§ 121.73 General.

(a) *Scheduled operations.* Each certificate holder conducting scheduled operations seeking a route approval must show—

(1) It is able to satisfactorily conduct operations between each aerodrome over that route or route segment; and

(2) The facilities and services required by this subpart are available and adequate for the proposed operation.

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

(c) *Unscheduled operations.* Each certificate holder conducting unscheduled operations seeking a route and area approval must show—

(1) It is able to conduct operations within the Kingdom of Saudi Arabia under paragraphs (c)(3) and (4) of this section;

(2) It is able to able to conduct operations under the applicable requirements for each area outside the Kingdom of Saudi Arabia for which authorization is required;

(3) That it is equipped and able to conduct operations over, and use the navigation facilities associated with, the KSA airways, foreign airways, or advisory routes to be used;

(4) That it will conduct all instrument flight rules (IFR) operations over KSA airways, foreign

airways, controlled airspace, or advisory routes; and

(5) The facilities and services required by this subpart are available and adequate for the proposed operation.

(d) *All operations.* Notwithstanding paragraph (c)(4) of this section, the President may approve a route outside of controlled airspace if the certificate holder shows the route is safe for operations and the President finds that traffic density is such that an acceptable level of safety can be maintained. The certificate holder may not use a route unless it is approved by the President and is listed in the certificate holder's operations specifications.

§ 121.77 Aerodromes: Required Data.

(a) *Scheduled operations.* Each certificate holder conducting scheduled operations must show that each route it submits for approval has enough aerodromes that are properly equipped and adequate for the proposed operation, considering such items as size, surface, obstructions, facilities, public protection, lighting, navigation and communications aids, and Air Traffic Service.

(b) *Unscheduled operations.* No certificate holder conducting any unscheduled operations may use any aerodrome unless it is properly equipped and adequate for the proposed operation, considering such items as size, surface, obstructions, facilities, public protection, lighting, navigation and communications aids, and Air Traffic Service.

(c) Each certificate holder conducting scheduled or unscheduled operations must show it has an approved system for obtaining, maintaining, and distributing current aeronautical data to appropriate personnel for each aerodrome it uses to ensure a safe operation at that aerodrome. The aeronautical data must include the following:

(1) Aerodromes—

(i) Facilities.

(ii) Public protection, for extended operations (ETOPS) beyond 180 minutes or operations in the North Polar and South Polar area, this includes facilities at each aerodrome or in the immediate area sufficient to protect the passengers from the elements and to see to their welfare.

(iii) Navigation 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, and

(iv) Elevation and gradient.

(3) Displaced thresholds—

(i) Location,

(ii) Dimensions, and

(iii) Takeoff or landing or both.

(4) Obstacles—

(i) Those affecting takeoff and landing performance computations under Subpart F of this part and

(ii) Controlling obstacles.

(5) Instrument flight procedures—

(i) Departure procedure,

(ii) Approach procedure, and

(iii) Missed approach procedure.

(6) Special information—

(i) Runway visual range (RVR) measurement equipment and

(ii) Prevailing winds under low visibility conditions.

(d) If the President finds 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 must, after notification by the President, make those revisions in the system. A certificate holder may petition the President to reconsider the notice to make a change under the specified procedures in GACAR Part 13.

§ 121.81 Limitations on Types of Routes.

Unless approved by the President under Appendix E to this part and authorized in the certificate holder's operations specifications, no certificate holder may operate a turbine engine powered aircraft over a route that contains a point—

(a) Farther than a flying time from an adequate aerodrome at a one engine inoperative cruise speed under standard conditions in still air of—

(1) Except as provided in paragraph (a)(3) of this section, 60 minutes for a two engine aircraft conducting scheduled or unscheduled operations,

(2) For a passenger carrying aircraft with more than two engines conducting scheduled or unscheduled operations, 180 minutes or

(3) For an aircraft conducting special unscheduled operations: 180 minutes.

(b) Within the North Polar area; or

(c) Within the South Polar area.

§ 121.85 Communications Facilities.

(a) Each certificate holder must show a two way communication system, or other means of communication approved by the President, is available over the entire route. The communications may be direct links or via an approved communication link that must provide reliable and rapid communications under normal operating conditions between each aircraft and the authorized person exercising joint operational control under Subpart P of this part, and between each aircraft and the appropriate air traffic control (ATC) facility.

(b) Except in an emergency, the communications systems between each aircraft and the certificate holder must be independent of any system operated by a government.

§ 121.89 ETOPS: Communications Facilities.

(a) Each certificate holder 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 aerodromes. Where facilities are not available or are of such poor quality that voice communication is not possible, another communication system must be substituted that is approved by the President.

(b) For ETOPS beyond 180 minutes, each certificate holder must have a second communication system in addition to that required by paragraph (a) of this section. The second 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 aerodromes. Where immediate, satellite based voice communications are not available, or are of such poor quality that voice communication is not possible; the certificate holder must substitute another communication system approved by the President.

§ 121.93 Weather Reporting Facilities.

(a) *Scheduled Operations.* Each certificate holder conducting scheduled operations must show that enough weather reporting services are available along each route to ensure weather reports and forecasts necessary for the operation.

(b) Each certificate holder conducting scheduled operations must adopt and put into use an approved system for obtaining forecasts and reports of adverse weather phenomena, such as clear air turbulence, thunderstorms, and low altitude windshear that may affect safety of flight on each route to be flown and at each aerodrome to be used.

(c) *All Operations.* Except as provided in paragraph (b) of this section, no certificate holder may use any weather report to control flight unless—

(1) For operations within KSA airspace, it was prepared by a source authorized by the President under GACAR Part 179; or

(2) For operations conducted outside of KSA airspace, it was prepared by a source acceptable to the President.

(d) Each certificate holder using forecasts to control flight movements must use forecasts prepared from weather reports specified in paragraph (c) of this section and from any source authorized under its system adopted pursuant to paragraph (b) of this section.

§ 121.97 En-Route Navigation Facilities.

(a) Except as provided in paragraph (b) of this section, each certificate holder must show suitable navigation aids are available to navigate the aircraft along the route within the degree of accuracy required for ATC.

(b) Navigation aids are not required for any of the following operations—

(1) Day visual flight rules (VFR) operations the certificate holder shows it can conduct safely by pilotage because of the characteristics of the terrain or

(2) Other operations approved by the President.

§ 121.101 Servicing and Maintenance Facilities.

Each certificate holder must show that competent personnel and adequate facilities and equipment are available for the proper servicing, maintenance, and preventive maintenance of aircraft and auxiliary equipment.

§ 121.105 Operational Control Capability.

Each certificate holder seeking route or area approval must demonstrate adequate operational control capabilities to comply with Subpart P of this part.

SUBPART D – MANUAL REQUIREMENTS

§ 121.135 Applicability.

This subpart prescribes requirements for certificate holders to prepare and maintain manuals.

§ 121.139 Preparation.

(a) Each certificate holder must prepare and keep current an operations manual and a maintenance manual for the use and guidance of flight, maintenance, ground operations, and management personnel as appropriate in conducting its operations.

(b) The manuals may be prepared as a single combined volume or in two or more separate volumes or parts, containing together all of the information required by GACAR § 121.143, but each volume or part must contain the information appropriate for each group of personnel.

(c) Each manual required by this subpart 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 easy to revise;

(3) Have the date of last revision and revision number on each revised page;

(4) Reference applicable GACAR;

(5) Not be contrary to any applicable KSA regulation and any applicable foreign regulation, or the certificate holder’s operations specifications or operating certificate;

(6) Be available in the English language;

(7) Include human factors principles; and

(8) Be acceptable to the President.

§ 121.143 Manual Contents.

(a) *Operations Manual.* Each operations manual must contain the contents listed in Appendix G to this part under the following areas:

(1) General;

(2) Aircraft operating information;

(3) Areas, routes, and aerodromes; and

(4) Training.

(b) *Maintenance Manual.* Each maintenance manual must include procedures for maintenance and maintenance control and must contain the contents listed in Appendix G to this part as appropriate.

§ 121.147 Aircraft Flight Manual.

(a) Each certificate holder must keep a current approved aircraft flight manual (AFM) or approved equivalent for each type of aircraft it operates at its principal base of operations and in each aircraft of that type that it operates.

(b) Each approved equivalent to the AFM as described in paragraph (a) of this section, must be contained within the operations manual required by GACAR § 121.139 and this information must be clearly identified as flight manual requirements, or an approved AFM. The certificate holder may revise the operating procedures sections and modify the presentation of performance data from the applicable AFM if the revised operating procedures and modified performance data presentation are—

(1) Approved by the President and

(2) Clearly identified as AFM requirements.

§ 121.151 Distribution and Availability.

(a) Each certificate holder must furnish copies of the manual(s) required by GACAR § 121.139 (and the changes and additions) or appropriate parts of the manual(s) to—

(1) Its appropriate ground operations and maintenance personnel,

(2) Its crew members, and

(3) The GACA representatives assigned to it.

(b) Each person to whom a manual or appropriate parts of it are furnished under paragraph (a) of this section must keep it up to date with the changes and additions furnished to that person and must have the

manual or appropriate parts of it accessible when performing assigned duties.

(c) Each certificate holder must maintain at least one complete copy of the required manuals at its principal base of operations.

§ 121.155 Requirement for Manual Aboard Aircraft: Unscheduled Operations.

(a) Except as provided in paragraph (b) of this section, each certificate holder conducting unscheduled operations must carry appropriate parts of the required manuals on each aircraft when away from the principal base of operations. The appropriate parts must be available for use by ground or flight personnel. If the certificate holder carries all or any portion of its maintenance manual in other than printed form aboard an aircraft, it must carry a compatible reading device that produces a legible image of the maintenance information and instructions or a system that is able to retrieve the maintenance information and instructions in the English language.

(b) If a certificate holder conducting unscheduled operations is able to perform all scheduled maintenance at specified stations where it keeps its maintenance manual, it does not have to carry its maintenance manual aboard the aircraft en route to those stations.

SUBPART E – AIRCRAFT REQUIREMENTS

§ 121.185 Applicability.

This subpart prescribes aircraft requirements for all certificate holders operating under this part.

§ 121.189 Aircraft Requirements: General.

(a) Except as provided in paragraph (b) of this section, no certificate holder may operate an aircraft unless that aircraft—

(1) Is a Saudi Arabian-registered civil aircraft and carries an appropriate current standard airworthiness certificate issued under GACAR Part 21; and

(2) Is in an airworthy condition and meets the applicable airworthiness requirements, including those relating to identification and equipment.

(b) Subject to the leasing requirements of GACAR Part 119, a certificate holder may operate a civil aircraft, which is not a Saudi Arabian-registered civil aircraft, provided the aircraft has been specifically identified in the operations specifications pertaining to leased aircraft and the aircraft is operated under the conditions of this lease authorization.

§ 121.193 Aircraft Certification Requirements and Prohibitions.

(a) Subject to paragraphs (b), (c) and (d) of this section, no certificate holder may operate an aircraft under this part, unless it is a turbine engine powered aircraft type certificated as a transport category airplane, transport category rotorcraft, or as a commuter category airplane in accordance with GACAR Part 21.

(b) Airplanes certificated in the transport category for which the application for original type certification was before 1 May 1972, are prohibited from operation under this part, unless authorized by the President.

(c) Rotorcraft certificated in the transport category for which the application for original type certification was before 1 February 1965, are prohibited from operation under this part, unless authorized by the President.

(d) Reserved.

(e) Rotorcraft operating in Performance Class 1 and Class 2 must be certificated in Category A.

(f) Rotorcraft operating in Performance Class 3 must be certificated in either Category A or Category B (or

equivalent).

§ 121.197 Mass and Balance Control.

(a) A certificate holder must either—

(1) Use aircraft manufacturer procedures and actual masses to determine mass and balance in a manner acceptable to the President or

(2) Develop and use a mass and balance control program approved by the President based on average, assumed, or estimated mass to comply with applicable airworthiness requirements and operating limitations.

(b) The system used under paragraph (a) of this section must be used to complete the load manifest form required by GACAR § 121.1517.

§ 121.201 Layout of Passenger Accommodations.

No certificate holder may operate an aircraft in passenger carrying operations under this part, unless the Layout of Passenger Accommodations is accepted by the President.

§ 121.205 ETOPS Type Design Approval Basis.

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

(a) For a two engine aircraft of the same model aircraft engine combination that received approval for ETOPS up to 180 minutes before 15 February 2007, the CMP document for that model aircraft engine combination in effect on 14 February 2007.

(b) For a two engine aircraft not of the same model aircraft engine combination that received approval for ETOPS up to 180 minutes before 15 February 2007, the CMP document for that new model aircraft engine combination issued under GACAR § 25.3(b)(1).

(c) For a two engine aircraft approved for ETOPS beyond 180 minutes, the CMP document for that model aircraft engine combination issued under GACAR § 25.3(b)(2).

(d) For an aircraft with more than two engines manufactured on or after 17 February 2015, the CMP document for that model aircraft engine combination issued under GACAR § 25.3(c).

§ 121.209 Aircraft Limitations on Extended Over Water Operations.

(a) Except as provided in paragraph (b) of this section, no certificate holder may operate—

(1) A land airplane in an extended over water operation unless it is certificated for ditching under the ditching provisions of GACAR Part 25, or

(2) A rotorcraft in an extended over water operation unless it is certificated for ditching under the ditching provisions of GACAR Part 29.

(b) The President may approve extended over water operations for aircraft that do not meet the requirements of paragraph (a) of this section if he finds the level of safety acceptable for the proposed route of flight.

§ 121.213 Demonstration of Emergency Evacuation Procedures.

(a) Each certificate holder conducting operations with aircraft with a seating capacity of more than 44 passengers must conduct a partial demonstration of emergency evacuation procedures under paragraph (b) of this section upon—

(1) Initial introduction of a type and model of aircraft into passenger carrying operation;

(2) Changing the number, location, or emergency evacuation duties or procedures of cabin crew members who are required by GACAR § 121.753; or

(3) Changing the number, location, type of emergency exits, or type of opening mechanism on emergency exits available for evacuation.

(b) In conducting the partial demonstration required by paragraph (a) of this section, each certificate holder must—

(1) Demonstrate the effectiveness of its crew member emergency training and evacuation procedures by conducting a demonstration, not requiring passengers and observed by the President, in which the cabin crew members for that type and model of aircraft, using that certificate holder'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 cabin crew member is defined as an emergency evacuation duty under GACAR § 121.761, and deploy 50 percent of the exit slides. The

exits and slides must be selected by the President and must be ready for use within 15 seconds.

(2) Apply for and obtain approval from the President before conducting the demonstration.

(3) Use cabin crew members in this demonstration who have been selected at random by the President, have completed the certificate holder's GACA approved training program for the type and model of aircraft, and have passed a written or practical examination on the emergency equipment and procedures.

(4) Apply for and obtain approval from the President before commencing operations with this type and model aircraft.

§ 121.217 Demonstration of Ditching Procedures.

(a) Each certificate holder operating or proposing to operate one or more land aircraft in extended over water operations under GACAR § 121.209(a) must show, by simulated ditching conducted under paragraph (b), that it has the ability to carry out its ditching procedures efficiently.

(b) *Ditching demonstration.* The demonstration must assume that daylight hours exist outside the aircraft and that all required crew members are available for the demonstration.

(1) If the certificate holder's manual requires the use of passengers to assist in the launching of life rafts, the necessary passengers must be aboard the aircraft and participate in the demonstration according to the manual.

(2) After the ditching signal has been received, each evacuee must don a life preserver according to the certificate holder's manual.

(3) Each life raft must be removed from stowage, one life raft is launched and inflated (or one slide raft is inflated) according to the certificate holder's manual and crew members assigned to the inflated life raft display and describe the use of each item of required emergency equipment. The life raft or slide raft to be inflated will be selected by the President.

§ 121.221 Aircraft Proving Tests.

(a) *Applicability.* Except as provided in GACAR § 121.225 for special unscheduled operations, each certificate holder must comply with this section.

(b) *Initial aircraft proving tests.* No person may operate an aircraft before proven for use in a kind of operation under this part unless an aircraft of that type has, in addition to the aircraft certification tests, at

least 100 hours of proving tests acceptable to the President, including a representative number of flights into en route aerodromes. The President may reduce the requirement for at least 100 hours of proving tests if he determines a satisfactory level of proficiency has been demonstrated to justify the reduction. At least 10 hours of proving flights (not reducible) must be flown at night.

(c) *Proving tests for kinds of operations.* Unless otherwise authorized by the President, for each type of aircraft, a certificate holder must conduct at least 50 hours of proving tests acceptable to the President for each kind of operation it intends to conduct, including a representative number of flights into en route aerodromes.

(d) *Proving tests for materially altered aircraft.* Unless otherwise authorized by the President, for each type of aircraft that is materially altered in design, a certificate holder must conduct at least 50 hours of proving tests acceptable to the President for each kind of operation it intends to conduct with that aircraft, including a representative number of flights into en route aerodromes.

(e) For the purposes of paragraph (d) of this section, a type of aircraft 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.

(f) 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 President. However, it may carry mail and cargo if approved by the President.

§ 121.225 Aircraft Proving and Validation Tests: Special Unscheduled Operations.

(a) No certificate holder may operate an aircraft if it has not previously proved an aircraft within the same aircraft group, as defined in GACAR § 121.5, in operations under this part, in at least 25 hours of proving tests acceptable to the President including—

(1) If night flights are to be authorized, 5 hours of night time;

(2) If IFR flights are to be authorized, five instrument approach procedures under simulated or actual conditions; and

(3) Entry into a representative number of en route aerodromes as determined by the President.

(b) No certificate holder may carry passengers in an aircraft during proving tests, except those needed to make the tests and those designated by the President to observe the tests. However, pilot flight training may be conducted during the proving tests.

(c) Validation testing is required to determine that a certificate holder is capable of conducting operations safely and in compliance with applicable regulatory standards. Validation tests are required for the following approvals:

(1) The addition of an aircraft, if that aircraft or an aircraft of the same make or similar design has not been previously proved or validated in operations under this part.

(2) Operations outside KSA airspace.

(3) Special performance or operational authorizations.

(d) Validation tests must be accomplished by test methods acceptable to the President. Actual flights may not be required when an applicant can demonstrate competence and compliance with appropriate regulations without conducting a flight.

(e) Proving tests and validation tests may be conducted simultaneously when appropriate.

(f) The President may provide relief from this section if he finds that special circumstances make full compliance with this section unnecessary.

SUBPART F – AIRPLANE PERFORMANCE OPERATING LIMITATIONS

§ 121.255 Applicability.

This subpart prescribes airplane performance operating limitations for all certificate holders.

§ 121.259 General.

(a) Except as provided in paragraph (c) of this section, each certificate holder operating an airplane under this part must comply with the applicable provisions of GACAR §§ 121.263 through 121.279.

(b) The performance data in the AFM applies in determining compliance with GACAR §§ 121.263 through 121.279. Where conditions are different from those on which the performance data is based, compliance is determined by interpolation or by computing the effects of changes in the specific variables if the results of the interpolation or computations are substantially as accurate as the results of direct tests.

(c) The certificate holder must consider charting accuracy when assessing compliance with GACAR § 121.263.

(d) The President may authorize relief in the operations specifications from the requirements in this subpart if special circumstances make a literal observance of a requirement unnecessary for safety.

§ 121.263 Airplane: Takeoff Limitations.

(a) No person operating an airplane may take off at a mass greater than that listed in the AFM for the elevation of the aerodrome and for the ambient temperature existing at takeoff.

(b) No person operating an airplane may take off at a mass greater than that listed in the AFM 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.

(c) No person operating an airplane may take off at a mass greater than that listed in the AFM that allows a net takeoff flight path that clears all obstacles either by a height of at least 35 ft (10 m) vertically, or by at least 200 ft (60 m) horizontally within the aerodrome boundaries and by at least 300 ft (90 m) horizontally after passing the boundaries.

(d) In determining maximum mass, minimum distances, and flight paths under paragraphs (a) through (c) of this section, correction must be made for the runway to be used, the elevation of the aerodrome, the effective runway gradient, the ambient temperature and wind component at the time of takeoff, and, if operating limitations exist for the minimum distances required for takeoff from wet runways, the runway surface condition (dry or wet). Wet runway distances associated with grooved or porous friction course runways, if provided in the AFM, may be used only for runways that are grooved or treated with a porous friction course overlay, and that the air operator determines are designed, constructed, and maintained in a manner acceptable to the President.

(e) For the purposes of this section, it is assumed the airplane is not banked before reaching a height of 50 ft (15 m), as shown by the takeoff path or net takeoff flight path data (as appropriate) in the AFM, and thereafter that the maximum bank is not more than 15°.

(f) 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 aircraft was certificated.

(g) In determining the length of the runway available, account must be taken of the loss, if any, of runway length due to alignment of the airplane before takeoff.

§ 121.267 Airplane: En Route Limitations: One Engine Inoperative.

(a) No person operating an airplane may take off at a mass, allowing for normal consumption of fuel and oil and based on the ambient temperatures expected en route, greater than that which (under the approved, one engine inoperative, en route net flight path data in the AFM for that aircraft) will allow compliance with paragraph (a)(1) or (2) of this section;

(1) There is a positive slope at an altitude of at least 1 000 ft (300 m) above all terrain and obstructions within 4.4 NM (8 km) on each side of the intended track, and there is a positive slope at 1 500 ft (450 m) above the aerodrome where the aircraft is assumed to land after an engine fails.

(2) The net flight path allows the aircraft to continue flight from the cruising altitude to an aerodrome where a landing can be made under GACAR § 121.279, clearing all terrain and obstructions within 4.4 NM (8 km) of the intended track by at least 2 000 ft (600 m) vertically, and with a positive slope

at 1 500 ft (450 m) above the aerodrome where the aircraft lands after an engine fails.

(b) For the purposes of paragraph (a)(2) of this section, it is assumed—

(1) The engine fails at the most critical point en route;

(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 President authorizes a different procedure based on adequate operational safeguards;

(3) An acceptable method is used to allow for adverse winds;

(4) Fuel jettisoning will be allowed if the certificate holder shows the crew is properly instructed, the training program is adequate, and all other precautions are taken to ensure a safe procedure;

(5) The alternate aerodrome 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 allowed for in the approved net flight path data in the AFM.

§ 121.271 Airplane: En Route Limitations: Two Engines Inoperative.

No person may operate an airplane along an intended route unless he complies with either of the following:

(a) There is no place along the intended track that is more than 90 minutes (with all engines operating at cruising power) from an aerodrome that meets the requirements of GACAR § 121.279.

(b) The airplane mass, according to the two engine inoperative, en route, net flight path data in the AFM, allows the aircraft to fly from the point where the two engines are assumed to fail simultaneously to an aerodrome that meets the requirements of GACAR § 121.279, with the net flight path (considering the ambient temperatures anticipated along the track) clearing vertically by at least 2 000 ft (600 m) all terrain and obstructions within 4.4 NM (8 km) on each side of the intended track. For the purposes of this subparagraph, it is assumed—

(1) The two engines fail at the most critical point en route;

(2) The net flight path has a positive slope at 1 500 ft (450 m) above the aerodrome where the landing

is assumed to be made after the engines fail;

(3) Fuel jettisoning will be approved if the certificate holder shows the crew is properly instructed, the training program is adequate, and all other precautions are taken to ensure a safe procedure;

(4) The airplane's mass at the point where the two engines are assumed to fail provides enough fuel to continue to the aerodrome, to arrive at an altitude of at least 1 500 ft (450 m) directly over the aerodrome, 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 allowed for in the net flight path data in the AFM.

§ 121.275 Airplane: Landing Limitations: Destination Aerodromes.

(a) No airplane may take off at such a mass that (allowing for normal consumption of fuel and oil in flight to the destination or alternate aerodrome) the mass of the aircraft on arrival would exceed the maximum landing mass in the AFM for the elevation of the destination or alternate aerodrome and the ambient temperature anticipated at the time of landing.

(b) Except as provided in paragraph (c), (d), or (e) of this section, no airplane may take off unless its mass on arrival, allowing for normal consumption of fuel and oil in flight (under the landing distance set forth in the AFM for the elevation of the destination aerodrome and the wind conditions anticipated there at the time of landing), would allow a full stop landing at the intended destination aerodrome within 60 percent of the effective length of each runway described below from a point 50 ft (15 m) above the intersection of the obstruction clearance plane and the runway. In determining the allowable landing mass at the destination aerodrome 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 most suitable runway considering the probable wind velocity and direction and the ground handling characteristics of the aircraft, and considering other conditions such as landing aids and terrain.

(c) A turbopropeller powered airplane that would be prohibited from taking off because it could not meet the requirements of paragraph (b)(2) of this section, may take off if an alternate aerodrome is specified that meets all the requirements of this section except that the aircraft 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 runways, 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 aircraft and included in the AFM, no person may take off a turbojet powered aircraft when the appropriate weather reports and forecasts, or a combination thereof, indicate that the runways at the destination aerodrome may be wet or slippery at the estimated time of arrival unless the effective runway length at the destination aerodrome is at least 115 percent of the runway length required under paragraph (b) of this section.

(e) A turbojet powered aircraft that would be prohibited from taking off because it could not meet the requirements of paragraph (b)(2) of this section may take off if an alternate aerodrome is specified that meets all the requirements of paragraph (b) of this section.

§ 121.279 Airplane: Landing Limitations: Alternate Aerodromes.

No person may list an aerodrome as an alternate aerodrome in a dispatch or flight release (based on the assumptions in GACAR § 121.275(b)) unless that aircraft, at the mass 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 turbopropeller powered aircraft and 60 percent of the effective length of the runway for turbojet powered aircraft, from a point 50 ft (15 m) above the intersection of the obstruction clearance plane and the runway. In the case of an alternate aerodrome for departure, as provided in GACAR § 121.1389, allowance may be made for fuel jettisoning in addition to normal consumption of fuel and oil when determining the mass anticipated at the time of arrival.

SUBPART G – ROTORCRAFT PERFORMANCE OPERATING LIMITATIONS

§ 121.321 Applicability.

This subpart prescribes rotorcraft performance operating limitations for all certificate holders operating rotorcraft under GACAR Part 121.

§ 121.323 Performance Class: General.

Unless authorized by the President in the certificate holders operations specifications—

(a) All rotorcraft operating to or from a heliport in a congested hostile environment must be operating in performance Class 1.

(b) Rotorcraft with a passenger seating configuration of more than 19 must be operating in performance Class 1.

(c) Except as provided in paragraph (a), rotorcraft with a passenger seating configuration of 19 or less but more than 9 must be operating in performance Class 1 or 2.

(d) Except as provided in paragraph (a), rotorcraft with a passenger seating configuration of nine or less must be operating in performance Class 1, 2 or 3.

(e) Operations in performance Class 2 must only be conducted with a safe forced landing capability during takeoff and landing.

(f) Operations in performance Class 3 must not be conducted in a hostile environment.

(g) To permit variations from paragraphs (a) to (f) of this section, the certificate holder must undertake a risk assessment, acceptable to the President, that considers factors such as—

(1) The type of operation and the circumstances of the flight,

(2) The area/terrain over which the flight is being conducted,

(3) The probability of a critical engine failure and the consequence of such an event,

(4) The procedures to maintain the reliability of the engine(s),

(5) The training and operational procedures to mitigate the consequences of the critical engine failure, and

(6) Installation and use of a usage monitoring system.

§ 121.325 Performance: General

(a) A certificate holder must ensure that the mass of the rotorcraft at the start of the takeoff; or in the event of in flight replanning, at the point from which the revised operational flight plan applies, is not greater than the mass at which the requirements of the appropriate performance class prescribed in this subpart can be complied with for the flight to be undertaken, allowing for expected reductions in mass as the flight proceeds, and for such fuel jettisoning as is provided for in the particular requirement.

(b) A certificate holder must ensure that the approved performance data contained in the AFM is used to determine compliance with the requirements of this subpart, supplemented as necessary with other data acceptable to the President. When applying the appropriate factors prescribed in this subpart, account may be taken of any operational factors already incorporated in the AFM performance data to avoid double application of factors.

(c) When showing compliance with the requirements of this subpart, due account must be taken of the following parameters:

(1) Mass of the rotorcraft;

(2) Rotorcraft configuration;

(3) Environmental conditions, in particular—

(i) Pressure altitude, and temperature;

(ii) Wind, as follows:

(A) For takeoff, takeoff flight path and landing requirements, accountability for wind must be no more than 50 percent of any reported steady headwind component of 5 kt (2.6 m/s) or more.

(B) Where takeoff and landing with a tailwind component is permitted in the AFM, and in all cases for the takeoff flight path, not less than 150 percent of any reported tailwind component must be taken into account.

(C) Where precise wind measuring equipment enables accurate measurement of wind velocity over the point of takeoff and landing, alternate wind components specific to a site may be approved by the President;

(4) Operating techniques; and

(5) Operation of any system that has an adverse effect on performance.

§ 121.327 Operating Limitations.

(a) For rotorcraft operating in performance Class 2 or 3 in any flight phase where an engine failure may cause the rotorcraft to force land—

(1) The minimum visibility must not be less than 800 m; and

(2) The operator must verify that the surface below the intended flight path permits the pilot to execute a safe forced landing.

(b) Performance Class 3 operations must not to be performed—

(1) In instrument meteorological conditions (IMC);

(2) At night; or

(3) When the cloud ceiling is less than 600 ft (180 m).

§ 121.329 Obstacle Accountability Area.

For the purposes of the obstacle clearance requirements prescribed in GACAR 121.351 through 121.355—

(a) An obstacle, located beyond the final approach and takeoff area (FATO), in the takeoff flight path or the missed approach flight path, must be considered if its lateral distance from the nearest point on the surface below the intended flight path is not farther than—

(1) For VFR operations, half of the minimum FATO (or the equivalent term used in the AFM) width defined in the AFM (or, when no width is defined 0.75 D^1), plus 0.25 times D (or 3 m, whichever is greater), plus 0.10 DR^2 for VFR day operations, 0.15 DR for VFR night operations.

(2) For IFR operations—

(i) 1.5 D (or 30 m, whichever is greater), plus 0.10 DR for IFR operations with accurate course guidance 0.15 DR for IFR operations with standard course guidance 0.30 DR for IFR operations without course guidance.

(ii) When considering the missed approach flight path, the divergence of the obstacle accountability area only applies after the end of the takeoff distance available;

(iii) Standard course guidance includes automatic direction finder and very high frequency omnidirectional range (VOR) guidance. Accurate course guidance includes Instrument Landing System (ILS), Microwave Landing System or other course guidance providing an equivalent navigational accuracy.

(3) For operations with initial takeoff conducted visually and converted to IFR/IMC at a transition point, the criteria required in paragraph (a)(1) apply up to the transition point then the criteria required in paragraph (a)(2) apply after the transition point—

(i) The transition point cannot be located before the end of takeoff distance required (TODRH) for rotorcraft operating in performance Class 1 and before the defined point after takeoff (DPATO) for rotorcraft operating in performance Class 2;

(b) For takeoff using a backup (or a lateral transition) procedure; an obstacle, located in the backup (or lateral transition) area, must be considered if its lateral distance from the nearest point on the surface below the intended flight path is not farther than—

(1) Half of the minimum FATO (or the equivalent term used in the AFM) width defined in the AFM (or, when no width is defined 0.75 D), plus 0.25 times D (or 3 m, whichever is greater), plus 0.10 for VFR day, or 0.15 for VFR night, of the distance traveled from the back of the FATO.

(c) Obstacles may be disregarded if they are situated—

(1) Beyond 7 times the rotor radius (R) for day operations if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;

(2) Beyond 10 R for night operations if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;

(3) Beyond 300 m if navigational accuracy can be achieved by appropriate navigation aids; and

(4) Beyond 900 m in the other cases.

[1] For purposes of this subpart, D means the overall length of the rotorcraft.

[2] For purposes of this subpart, DR means the distance from the end of takeoff distance available.

§ 121.351 Operations in Performance Class 1.

(a) *Takeoff mass*. The takeoff mass of the rotorcraft must not exceed the maximum takeoff mass specified in the AFM for the procedure to be used and to achieve a rate of climb of 100 ft/min (0.50 m/s) at 200 ft (60 m) and 150 ft/min (0.75 m/s) at 1 000 ft (300 m) above the level of the heliport with the critical engine inoperative and the remaining engines operating at an appropriate power rating, taking into account the parameters specified in GACAR § 121.325 (See Appendix F to this part, Figure F–1).

(b) *Rejected takeoff*. The takeoff mass must be such that the rejected TODRH does not exceed the rejected takeoff distance available.

(c) *Takeoff distance.* The takeoff mass must be such that the TODRH does not exceed the takeoff distance available.

(d) As an alternative to paragraph (c), the requirement above may be disregarded provided the rotorcraft with the critical engine failure recognized at takeoff decision point (TDP) can, when continuing the takeoff, clear all obstacles from the end of the takeoff distance available to the end of the TODRH by a vertical margin of not less than 35 ft (10 m) (See Appendix F to this part, Figure F–2).

(e) *Backup procedures or procedures with lateral transition.* A certificate holder must ensure, with the critical engine inoperative, all obstacles below the backup flight path (the lateral flight path) are cleared by an adequate margin. Only the obstacles specified in GACAR § 121.329(b) must be considered.

(f) *Takeoff flight path.* From the end of the TODRH with the critical engine inoperative—

(1) The takeoff mass must be such that the climb path provides a vertical clearance of not less than 35 ft (10 m) for VFR operations and 35 ft (10 m) plus 0.01 DR for IFR operations above all obstacles located in the climb path. Only obstacles as specified in GACAR § 121.329 must be considered.

(2) Where a change of direction of more than 15° is made, obstacle clearance requirements must be increased by 15 ft (5 m) from the point at which the turn is initiated. This turn must not be initiated before reaching a height of 200 ft (60 m) above the takeoff surface, unless permitted as part of an

approved procedure in the AFM.

(g) *En route.* The takeoff mass is such that it is possible, in case of the critical engine failure occurring at any point of the flight path, to continue the flight to an appropriate landing site and achieve the minimum flight altitudes for the route to be flown.

(h) *Approach, landing, and balked landing.* (See Appendix F to this part, Figures F–4 and F–5). The estimated landing mass at the destination or alternate must be such that—

(1) It does not exceed the maximum landing mass specified in the AFM for the procedure to be used and to achieve a rate of climb of 100 ft/min (0.50 m/s) at 200 ft (60 m) and 150 ft/min (0.75 m/s) at 1 000 ft (300 m) above the level of the heliport with the critical engine inoperative and the remaining engines operating at an appropriate power rating, taking into account the parameters specified in GACAR § 121.325;

(2) The landing distance required (LDRH) does not exceed the landing distance available unless the rotorcraft, with the critical engine failure recognized at landing decision point (LDP) can, when landing, clear all obstacles in the approach path;

(3) In case of the critical engine failure occurring at any point after the LDP, it is possible to land and stop within the FATO; and

(4) In the event of the critical engine failure being recognized at the LDP or at any point before the LDP, it is possible either to land and stop within the FATO or to overshoot, meeting the conditions of paragraph (f) of this section.

(i) *Operating area considerations.* The dimensions of the FATO must be at least equal to the dimensions specified in the AFM. A FATO smaller than the dimensions specified in the AFM may be accepted if the rotorcraft is capable of a hover out of ground effect (HOGE) with one engine inoperative, and the conditions of this section can be met.

§ 121.353 Operations in Performance Class 2.

(a) *Takeoff.* (See Appendix F Section-I to this part, Figures F–6 and F–7). Unless otherwise authorized by the President in accordance with Appendix F Section-II of this part, the mass of the rotorcraft at takeoff must not exceed the maximum takeoff mass specified in the AFM for the procedures to be used and to achieve a rate of climb of 150 ft/min (0.75 m/s) at 1 000 ft (300 m) above the level of the heliport with the critical engine inoperative and the remaining engines operating at an appropriate power rating, taking into account the parameters specified in GACAR § 121.325.

(b) *Takeoff flight path.* (See Appendix F Section-I to this part, Figures F–6 and F–7). Unless otherwise authorized by the President in accordance with Appendix F Section-II of this part, from DPATO or, as an alternative, no later than 200 ft (60 m) above the takeoff surface with the critical engine inoperative, the conditions of GACAR § 121.351(f) must be met.

(c) *En route.* Requirements are specified in GACAR § 121.351(g).

(d) *Approach, landing, and balked landing.* (See Appendix F Section-I to this part, Figures F–8 and F–9). Unless otherwise authorized by the President in accordance with Appendix F Section-II of this part, the estimated landing mass at the destination or alternate must be such that—

(1) It does not exceed the maximum landing mass specified in the AFM for a rate of climb of 150 ft/min (0.75 m/s) at 1 000 ft (300 m) above the level of the heliport with the critical engine inoperative and the remaining engines operating at an appropriate power rating, taking into account the parameters specified in GACAR § 121.325; and

(2) It is possible, in case of the critical engine failure occurring at or before the defined point before landing (DPBL), either to perform a safe forced landing or to overshoot, meeting the requirements of GACAR § 121.351(f). Only obstacles as specified in GACAR § 121.329 must be considered.

§ 121.355 Operations in Performance Class 3.

(a) *Takeoff.* The mass of the rotorcraft at takeoff must not exceed the maximum takeoff mass specified in the AFM for a hover in ground effect (HIGE) with all engines operating at takeoff power, taking into account the parameters specified in GACAR § 121.325. If conditions are such that a HIGE is not likely to be established, the takeoff mass must not exceed the maximum mass specified for a HOGE with all engines operating at takeoff power, taking into account the parameters specified in GACAR § 121.325.

(b) *Initial climb.* The takeoff mass must be such that the climb path provides adequate vertical clearance above all obstacles located along the climb path, with all engines operating.

(c) *En route.* The take offmass is such that it is possible to achieve the minimum flight altitudes for the route to be flown, with all engines operating.

(d) *Approach and landing.* The estimated landing mass at the destination or alternate must be such that—

(1) It does not exceed the maximum landing mass specified in the AFM for a HIGE with all engines operating at takeoff power, taking into account the parameters specified in GACAR § 121.325. If conditions are such that a HIGE is not likely to be established, the takeoff mass must not exceed the

maximum mass specified for a HOGE with all engines operating at takeoff power, taking into account the parameters specified in GACAR § 121.325; and

(2) It is possible to perform a balked landing, all engines operating, at any point of the flight path and clear all obstacles by an adequate vertical interval.

SUBPART H – ADDITIONAL AIRWORTHINESS REQUIREMENTS

§ 121.429 Applicability.

(a) This subpart prescribes airworthiness requirements in addition to the airworthiness requirements in GACAR Part 91 to retroactively apply certain airworthiness standards and to apply other airworthiness requirements to enhance operational safety for certificate holders operating under this part.

(b) Each certificate holder operating under this part must comply with all appropriate airworthiness requirements of GACAR Part 91.

§ 121.431 Continuing Airworthiness.

A certificate holder must demonstrate compliance with applicable requirements of the appropriate maintenance programs. This may include, but is not limited to, revising the maintenance schedules and incorporating design changes and revisions to instructions for continued airworthiness (ICA).

§ 121.433 Material Flammability.

(a) *Seat cushions.* Except those on flight crew member seats, in each compartment occupied by crew or passengers, seat cushions on all airplanes must comply with the requirements pertaining to seat cushions flammability in GACAR § 25.853(c) in effect on 26 November 1984.

(b) *Thermal/acoustic insulation materials.* For transport category airplanes—

(1) Manufactured on or before 2 September 2005, when thermal/acoustic insulation is installed in the fuselage as replacements, the insulation must meet the flame propagation requirements of GACAR § 25.856, effective 2 September 2003, if it is—

(i) Of a blanket construction; or

(ii) Installed around air ducting.

(2) Manufactured after 2 September 2005, thermal/acoustic insulation materials installed in the fuselage must meet the flame propagation requirements of GACAR § 25.856, effective 2 September 2003.

(3) With a passenger capacity of 20 or greater, manufactured after 2 September 2009, thermal/acoustic insulation materials installed in the lower half of the fuselage must meet the flame penetration resistance requirements of GACAR § 25.856, effective 2 September 2003.

§ 121.435 Bilingual Safety Information.

Each aircraft must have, in addition to the English signs, markings, and placards required by the aircraft type certification requirements, all of the following signs, markings, and placards in the Arabic language:

(a) All emergency exit signs and

(b) All passenger safety information signs, markings and placards as required by GACAR § 121.529.

§ 121.437 Fuel Tank Access Covers.

Each transport category airplane must meet the requirements of GACAR § 25.963(e) in effect on 30 October 1989 by having fuel tank access covers that comply with the following criteria to avoid loss of hazardous quantities of fuel:

(a) All covers located in an area where experience or analysis indicates a strike is likely must be shown by analysis or tests to minimize penetration and deformation by tire fragments, low energy engine debris, or other likely debris.

(b) All covers must be fire resistant as defined in GACAR Part 1.

§ 121.441 Emergency Lighting Systems.

(a) Each passenger emergency exit marking and each locating sign must meet the following:

(1) For a transport category airplane, 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 below 0.796 cd/m2 (250 microlamberts).

(2) For a commuter category turbopropeller powered airplane, each passenger emergency exit marking and each locating sign must be manufactured to meet the requirements of GACAR § 23.811(b). On these airplanes, no sign may continue to be used if its luminescence (brightness) decreases below 0.318 cd/m2 (100 microlamberts).

(b) 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 below 0.318 cd/m2 (100 microlamberts).

(c) Each transport category airplane must include floor proximity emergency escape path marking which meets the requirements of GACAR § 25.812(e) in effect on 26 November 1984.

§ 121.445 Emergency Exit Access.

Access to emergency exits must be provided as follows for each passenger carrying transport category airplane:

(a) Each passageway between individual passenger areas, or leading to a Type I or Type II emergency exit, must be unobstructed and at least 51 cm wide.

(b) For each Type I or Type II emergency exit equipped with an assist means, there must be enough space next to the exit to allow a crew member to assist in the evacuation of passengers without reducing the unobstructed width of the passageway. In addition, all airplanes manufactured on or after 26 November 2008, must comply with the provisions of GACAR §§ 25.813(b)(1), (2), (3) and (4) in effect on 26 November 2004.

(c) 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 the access must meet the requirements of GACAR § 25.813(c), effective 3 June 1992.

(d) If it is necessary to pass through a passageway between passenger compartments to reach any required emergency exit from any seat in the passenger compartment, the passageway must not be obstructed. However, curtains may be used if they allow free entry through the passageway.

(e) No door may be installed in any partition between passenger compartments.

(f) No person may operate an airplane manufactured after 27 November 2006, that incorporates a door installed between any passenger seats occupiable for takeoff and landing and any passenger emergency exit, such that the door crosses any egress path (including aisles, cross aisles, and passageways).

(g) If it is necessary to pass through a doorway separating any seat (except those seats on the flightdeck), occupiable for takeoff and landing, from an emergency exit, the door must have a means to latch it in the 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, as specified in GACAR § 25.561(b).

(h) Except for an airplane used in operations under this part, and having an emergency exit configuration

installed and authorized for operation before 16 October 1987, for an airplane required to have more than one passenger emergency exit for each side of the fuselage, no passenger emergency exit must be more than 18 m from any adjacent passenger emergency exit on the same side of the same deck of the fuselage, as measured parallel to the airplane's longitudinal axis between the nearest exit edges.

§ 121.449 Emergency Exit Features.

(a) Each transport category airplane manufactured after 26 November 2007, must comply with the provisions of GACAR § 25.809(i) by having a means to retain the exit in the open position, once the exit is opened in an emergency. The means must not require separate action to engage when the exit is opened, and must require positive action to disengage.

(b) Each transport category airplane must comply with the provisions of GACAR § 25.813(b)(6)(ii) in effect on 26 November 2007, by having a handle, or handles, at each assist space, located to enable the crew member to steady himself or while assisting passengers during an evacuation.

§ 121.453 Passenger and Cabin Crew Member Seats.

No person may operate a transport category airplane type manufactured on or after 27 October 2009, in passenger carrying operations under this part unless all passenger and cabin crew member seats on the airplane meet the emergency landing dynamic condition requirements of GACAR § 25.562 in effect on or after 16 June 1988.

§ 121.457 Cargo and Baggage Compartments.

For each transport category airplane—

(a) Each Class C or Class D compartment, as defined in GACAR § 25.857 in effect on 16 June 1986, that is greater than 5.7 m3 in volume must have ceiling and sidewall liner panels constructed of—

(1) Glass fiber reinforced resin;

(2) Materials which meet the test requirements of Section III of Appendix F to GACAR Part 25; or

(3) In the case of liner installations approved before 20 March 1989, aluminum.

(b) For compliance with paragraph (a) of this section, the term "liner" includes any design feature, such as a joint or fastener, which would affect the capability of the liner to contain a fire safely.

(c) Except as provided in paragraph (d) of this section, each Class D compartment, regardless of volume, must meet the standards of GACAR §§ 25.857(c) and 25.858 for a Class C compartment unless the

operation is an all cargo operation in which case each Class D compartment must meet the standards in GACAR § 25.857(e) for a Class E compartment.

(d) Special unscheduled operations using aircraft with a Class D compartment defined under GACAR § 25.857 in effect on 16 June 1986, do not have to meet the requirements of paragraph (c) of this section.

§ 121.461 Location for a Suspect Device.

Airplanes with a maximum certificated passenger seating capacity of more than 60 persons must have a location identified where a suspected explosive or incendiary device found in flight can be placed to minimize the risk to the airplane in accordance with the requirements of GACAR § 25.795(c)(1).

§ 121.465 Repairs Assessment for Pressurized Fuselages.

No certificate holder may operate an Airbus Model A300 (excluding the –600 series), Boeing Model 737, or 747, McDonnell Douglas Model DC–8, DC–9/MD–80, DC–10, Fokker Model F28, or Lockheed Model L–1011 aircraft beyond the applicable flight cycle implementation time specified below unless operations specifications have been issued to reference repair assessment guidelines applicable to the fuselage pressure boundary (fuselage skin, door skin, and bulkhead webs), and those guidelines are incorporated in its maintenance program. The repair assessment guidelines must be approved by the FAA Oversight Office or the President.

(a) For the Airbus Model A300 (excluding the –600 series), the flight cycle implementation time is—

(1) Model B2: 36 000 flights.

(2) Model B4–100 (including Model B4–2C): 30 000 flights above the window line, and 36 000 flights below the window line.

(3) Model B4–200: 25 500 flights above the window line, and 34 000 flights below the window line.

(b) For all models of the Boeing 737, the flight cycle implementation time is 60 000 flights.

(c) For all models of the Boeing 747, the flight cycle implementation time is 15 000 flights.

(d) For all models of the McDonnell Douglas DC–8, the flight cycle implementation time is 30 000 flights.

(e) For all models of the McDonnell Douglas DC–9/MD–80, the flight cycle implementation time is 60

000 flights.

(f) For all models of the McDonnell Douglas DC–10, the flight cycle implementation time is 30 000 flights.

(g) For all models of the Lockheed L–1011, the flight cycle implementation time is 27 000 flights.

(h) For the Fokker F–28 Mark 1000, 2000, 3000, and 4000, the flight cycle implementation time is 60 000 flights.

§ 121.469 Supplemental Inspections.

(a) *Applicability*. This section applies to transport category, turbine powered aircraft that because of original type certification or later increase in capacity have—

(1) A maximum type certificated passenger seating capacity of 30 or more; or

(2) A maximum payload capacity of 3 400 kg or more.

(b) *General requirements*. A certificate holder may not operate an aircraft under this part unless the following requirements have been met:

(1) *Baseline structure.* The certificate holder's maintenance program for the aircraft includes GACA approved damage tolerance based inspections and procedures for aircraft structure susceptible to fatigue cracking that could contribute to a catastrophic failure. For the purpose of this section, this structure is termed "fatigue critical structure."

(2) *Adverse effects of repairs, alterations, and modifications.* The maintenance program for the aircraft includes a means for addressing the adverse effects repairs, alterations, and modifications may have on fatigue critical structure and by required inspections. The means for addressing these adverse effects must be approved by the FAA Oversight Office or the President.

(3) *Changes to maintenance program.* The changes made to the maintenance program required by paragraphs (b)(1) and (2) of this section, and any later revisions to these changes, must be submitted to the President for review and approval.

§ 121.473 Electrical Wiring Interconnection Systems Maintenance Program.

(a) This section applies to transport category, turbine powered aircraft that, because of original type certification or later increase in capacity, have—

(1) A maximum type-certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 3 400 kg or more.

(b) No certificate holder may operate an aircraft identified in paragraph (a) of this section unless the maintenance program for that aircraft includes inspections and procedures for Electrical Wiring Interconnection Systems (EWIS).

(c) The proposed EWIS maintenance program changes must be based on EWIS ICA developed under the provisions of Appendix H to GACAR Part 25 applicable to each affected aircraft (including those ICA developed for supplemental type certificates installed on each aircraft) and that have been approved by the FAA Oversight Office or the President.

(1) For aircraft subject to GACAR § 26.11, the EWIS ICA must comply with paragraph H25.5(a)(1) and (b) of Appendix H to GACAR Part 25.

(2) For aircraft subject to GACAR § 25.1729, the EWIS ICA must comply with paragraph H25.4 and all of paragraph H25.5 of Appendix H to GACAR Part 25.

(d) Before returning an aircraft to service after any alterations for which EWIS ICA are developed, the certificate holder must include in the aircraft's maintenance program inspections and procedures for EWIS based on those ICA.

(e) The EWIS maintenance program changes identified in paragraphs (c) and (d) of this section and any later EWIS revisions must be submitted to the President for review and approval.

§ 121.477 Fuel Tank System Maintenance Program.

(a) This section applies to transport category, turbine powered aircraft that, because of original type certification or later increase in capacity, have—

(1) A maximum type certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 3 400 kg or more.

(b) No certificate holder may operate an aircraft identified in paragraph (a) of this section unless the maintenance program for that aircraft has been revised to include applicable inspections, procedures, and limitations for fuel tank systems.

(c) The proposed fuel tank system maintenance program revisions must be based on fuel tank system ICA developed under the applicable provisions of GACAR § 25.1529 and Appendix H to GACAR Part 25, in effect on 6 June 2001, (including those developed for auxiliary fuel tanks, if any, installed under supplemental type certificates or other design approval) and that have been approved by the FAA Oversight Office or the President.

(d) Before returning an aircraft to service after any alteration for which fuel tank ICA are developed under GACAR § 25.1529 in effect on 6 June 2001, the certificate holder must include in the maintenance program for the aircraft inspections and procedures for the fuel tank system based on those ICA.

(e) The fuel tank system maintenance program changes identified in paragraphs (b) and (c) of this section and any later fuel tank system revisions must be submitted to the President for review and approval.

§ 121.481 Flammability Reduction Means.

(a) *Applicability.* This section applies to transport category, turbine powered aircraft that, because of original type certification or later increase in capacity have—

(1) A maximum type certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 3 400 kg or more.

(b) *New production aircraft.* Except under GACAR § 121.517, no certificate holder may operate an aircraft identified in Table 121–1 of this section (including all cargo aircraft) for which the state of manufacture issued the original certificate of airworthiness or export airworthiness approval unless an Ignition Mitigation Means (IMM) or Flammability Reduction Means (FRM) meeting the requirements of GACAR § 26.33 is operational.

Table 121–1.

Model – Boeing	Model – Airbus
737 Series	A318, A319, A320, A321 Series
747 Series	
767 Series	A330, A340 Series
777 Series	

(c) *Auxiliary fuel tanks.* After the applicable date stated in paragraph (e) of this section, no certificate holder may operate any aircraft subject to GACAR § 26.33 that has an Auxiliary Fuel Tank installed

pursuant to approval by the President, unless the following requirements are met:

(1) The certificate holder complies with GACAR § 26.35 by the applicable date stated in that section.

(2) The certificate holder installs Flammability Impact Mitigation Means (FIMM), if applicable, that is approved by the FAA Oversight Office or the President.

(3) Except under GACAR § 121.517, the FIMM, if applicable, is operational.

(d) *Retrofit.* Except as provided in paragraphs (j), (k), and (l) of this section, after the dates specified in paragraph (e) of this section, no certificate holder may operate an aircraft to which this section applies unless the requirements of paragraphs (d)(1) and (2) of this section are met.

(1) IMM, FRM or FIMM, if required by GACAR § 26.33, 26.35, or 26.37, that are approved by the FAA Oversight Office or the President, are installed within the compliance times specified in paragraph (e) of this section.

(2) Except under GACAR § 121.517, the IMM, FRM, or FIMM, as applicable, are operational.

(e) *Compliance times.* Except as provided in paragraphs (k) and (l) of this section, the installations required by paragraph (d) of this section must be accomplished no later than the applicable dates specified in paragraph (e)(1), (2), or (3) of this section.

(1) No later than 26 December 2014, 50 percent of each certificate holder’s fleet must be modified.

(2) No later than 26 December 2017, 100 percent of each certificate holder’s fleet must be modified.

(3) No later than 26 December 2017, for those certificate holders having only one aircraft of model identified in Table 121–1 of this section, the aircraft must be modified.

(f) *Compliance after installation.* Except under GACAR § 121.517, no certificate holder may—

(1) Operate an aircraft on which IMM or FRM has been installed before the dates specified in paragraph (e) of this section unless the IMM or FRM is operational, or

(2) Deactivate or remove an IMM or FRM once installed unless it is replaced by a means that complies with paragraph (d) of this section.

(g) *Maintenance program revisions.* No certificate holder may operate an aircraft for which airworthiness limitations have been approved by the FAA Oversight Office or the President under GACAR § 26.33, 26.35, or 26.37 after the aircraft is modified under paragraph (d) of this section unless the maintenance program for that aircraft is revised to include those applicable airworthiness limitations.

(h) After the maintenance program is revised as required by paragraph (g) of this section, before returning an aircraft to service after any alteration for which airworthiness limitations are required by GACAR § 25.981, 26.33, or 26.37, the certificate holder must revise the maintenance program for the aircraft to include those airworthiness limitations.

(i) The maintenance program changes identified in paragraphs (g) and (h) of this section must be submitted to the President for review and approval before incorporation.

(j) The requirements of paragraph (d) of this section do not apply to aircraft operated in all cargo service, but those aircraft are subject to paragraph (f) of this section.

(k) The compliance dates specified in paragraph (e) of this section may be extended by 1 year, provided—

(1) The certificate holder notifies the President it intends to comply with this paragraph;

(2) The certificate holder applies for an amendment to its operations specifications under GACAR § 119.51 and revises the manuals required by GACAR § 121.139 to include a requirement for the aircraft models specified in Table 121–2 of this section to use ground air conditioning systems for actual gate times of more than 30 minutes, when available at the gate and operational, whenever the ambient temperature exceeds 15°C; and

(3) Thereafter, the certificate holder uses ground air conditioning systems as described in paragraph (k)(2) of this section on each aircraft subject to the extension.

Table 121–2.

Model – Boeing	Model – Airbus

737 Series	A300, A310 Series
747 Series	A318, A319, A320, A321 Series
757 Series	A330, A340 Series
767 Series	
777 Series	

(l) For any certificate holder for which the operating certificate is issued after 26 December 2008, the compliance date specified in paragraph (e) of this section may be extended by 1 year, provided the certificate holder meets the requirements of paragraph (k)(2) of this section when its initial operations specifications are issued and, thereafter, uses ground air conditioning systems as described in paragraph (k)(2) of this section on each aircraft subject to the extension.

(m) After the date by which any person is required by this section to modify 100 percent of the affected fleet, no certificate holder may operate in passenger service any aircraft model specified in Table 121–2 of this section unless the aircraft has been modified to comply with GACAR § 26.33(c).

(n) No certificate holder may operate any aircraft on which an auxiliary fuel tank is installed after 26 December 2017, unless the President has certified the tank as compliant with GACAR § 25.981, in effect on 26 December 2008.

§ 121.483 Limit of Validity.

(a) *Applicability*. This section applies to certificate holders operating any transport category airplane with a maximum takeoff gross mass greater than 34 020 kg, regardless of whether the maximum takeoff gross mass is a result of an original type certificate or a later design change. This section also applies to certificate holders operating any transport category airplane, regardless of the maximum takeoff gross mass, for which a limit of validity of the engineering data that supports the structural maintenance program (LOV) is required in accordance with GACAR § 25.571 or 26.21.

(b) *LOV*. No certificate holder may operate an airplane identified in paragraph (a) of this section after the applicable date identified in Table 121–3 of this section unless an Airworthiness Limitations section (ALS) approved under Appendix H to GACAR Part 25 or GACAR § 26.21 is incorporated into its maintenance program. The ALS must—

(1) Include an LOV approved under GACAR § 25.571 or GACAR § 26.21, as applicable, except as provided in paragraph (f) of this section and

(2) Be clearly distinguishable within its maintenance program.

(c) *Operation of airplanes excluded from GACAR § 26.21*. No certificate holder may operate an airplane identified in GACAR § 26.21(g) after 14 July 2013, unless an ALS approved under Appendix H to GACAR Part 25 or GACAR § 26.21 is incorporated into its maintenance program. The ALS must—

(1) Include an LOV approved under GACAR § 25.571 or GACAR § 26.21, as applicable, except as provided in paragraph (f) of this section and

(2) Be clearly distinguishable within its maintenance program.

(d) *Extended LOV*. No certificate holder may operate an airplane beyond the LOV, or extended LOV, specified in paragraph (b)(1), (c), (d), or (f) of this section, as applicable, unless the following conditions are met:

(1) An ALS must be incorporated into its maintenance program that—

(i) Includes an extended LOV and any widespread fatigue damage airworthiness limitation items approved under GACAR § 26.23 and

(ii) Is approved under GACAR § 26.23.

(2) The extended LOV and the airworthiness limitation items pertaining to widespread fatigue damage must be clearly distinguishable within its maintenance program.

(e) *GACA principal maintenance inspector approval*. Certificate holders must submit the maintenance program revisions required by paragraphs (b), (c), and (d) of this section to the GACA principal maintenance inspector for review and approval.

(f) *Exception*. For any airplane for which an LOV has not been approved as of the applicable compliance date specified in paragraph (c) or Table 121–3 of this section, instead of including an approved LOV in the ALS, an operator must include the applicable default LOV specified in Table 121–3 or Table 121–4 of this section, as applicable, in the ALS.

Table 121–3. Airplanes Subject to GACAR § 26.21

Airplane model	Compliance date—months after 14 January 2011	Default LOV[flight cycles (FC) or flight hours (FH)]
Airbus—Existing[1] Models Only:		
A300 B2–1A, B2–1C, B2K–3C, B2–203	30	48 000 FC
A300 B4–2C, B4–103	30	40 000 FC
A300 B4–203	30	34 000 FC
A300–600 Series	60	30 000 FC/67 500 FH
A310–200 Series	60	40 000 FC/60 000 FH
A310–300 Series	60	35 000 FC/60 000 FH
A318 Series	60	48 000 FC/60 000 FH
A319 Series	60	48 000 FC/60 000 FH
A320–100 Series	60	48 000 FC/48 000 FH
A320–200 Series	60	48 000 FC/60 000 FH
A321 Series	60	48 000 FC/60 000 FH
A330–200, –300 Series (except WV050 family) (nonenhanced)	60	40 000 FC/60 000 FH
A330–200, –300 Series WV050 family (enhanced)	60	33 000 FC/100 000 FH
A330–200 Freighter Series	60	See NOTE.
A340–200, –300 Series (except WV 027 and WV050 family) (nonenhanced)	60	20 000 FC/80 000 FH

Airplane model	Compliance date—months after 14 January 2011	Default LOV[flight cycles (FC) or flight hours (FH)]
A340–200, –300 Series WV 027 (nonenhanced)	60	30 000 FC/60 000 FH
A340–300 Series WV050 family (enhanced)	60	20 000 FC/100 000 FH
A340–500, –600 Series	60	16 600 FC/100 000 FH
A380–800 Series	72	See NOTE.
Boeing— Existing[1] Models Only:		
717	60	60 000 FC/60 000 FH
727 (all series)	30	60 000 FC
737 (Classics): 737–100, –200, –200C, –300, –400, –500	30	75 000 FC
737 (NG): 737–600, –700, –700C, –800, –900, –900ER	60	75 000 FC
747 (Classics): 747–100, –100B, –100B SUD, –200B, −200C, –200F, –300, 747SP, 747SR	30	20 000 FC
747–400: 747–400, –400D, –400F	60	20 000 FC
757	60	50 000 FC
767	60	50 000 FC
777–200, –300	60	40 000 FC
777–200LR, 777–300ER	72	40 000 FC
777F	72	11 000 FC
Bombardier— Existing[1] Models Only:		

Airplane model	Compliance date—months after 14 January 2011	Default LOV[flight cycles (FC) or flight hours (FH)]
CL–600: 2D15 (Regional Jet Series 705), 2D24 (Regional Jet Series 900)	72	60 000 FC
Embraer— Existing[1] Models Only:		
ERJ 170	72	See NOTE.
ERJ 190	72	See NOTE.
Fokker— Existing[1] Models Only:		
F.28 Mark 0070, Mark 0100	30	90 000 FC
Lockheed— Existing[1] Models Only:		
L–1011	30	36 000 FC
188	30	26 600 FC
382 (all series)	30	20 000 FC/50 000 FH
McDonnell Douglas— Existing[1] Models Only:		
DC–8, –8F	30	50 000 FC/50 000 FH
DC–9 (except for MD–80 models)	30	100 000 FC/100 000 FH
MD–80 (DC–9–81, –82, –83, –87, MD–88)	30	50 000 FC/50 000 FH
MD–90	60	60 000 FC/90 000 FH
DC–10–10, –15	30	42 000 FC/60 000 FH
DC–10–30, –40, –10F, –30F, –40F	30	30 000 FC/60 000 FH
MD–10–10F	60	42 000 FC/60 000 FH

Airplane model	Compliance date—months after 14 January 2011	Default LOV[flight cycles (FC) or flight hours (FH)]
MD–10–30F	60	30 000 FC/60 000 FH
MD–11, MD–11F	60	20 000 FC/60 000 FH
Maximum Takeoff Gross Mass Changes:		
All airplanes whose maximum takeoff gross mass has been decreased to 34 020 kg or below after 14 January 2011 or increased to greater than 34 020 kg at any time by an amended type certificate or supplemental type certificate	30, or within 12 months after the LOV is approved, or before operating the airplane, whichever occurs latest	Not applicable.
All Other Airplane Models (type certificates (TC) and amended TC) not Listed in Table 4	72, or within 12 months after the LOV is approved, or before operating the airplane, whichever occurs latest	Not applicable.

[1] Type certificated as of 14 January 2011.

Note: Airplane operation limitation is stated in the ALS.

Table 121–4. Airplanes Excluded from GACAR § 26.21.

Airplane Model	Default LOV [FC or FH]
Bombardier:	
BD–700	15 000 FH
BAE Systems (Operations) Ltd.:	
BAe 146–100A (all models)	50 000 FC
BAe 146–200–07	50 000 FC
BAe 146–200–11	50 000 FC
BAe 146–200–07A	47 000 FC
BAe 146–200–11 Dev	43 000 FC
BAe 146–300 (all models)	40 000 FC
Avro 146–RJ70A (all models)	40 000 FC
Avro 146–RJ85A and 146–RJ100A (all models)	50 000 FC
Gulfstream:	
GV	40 000 FH
GV–SP	40 000 FH

SUBPART I – INSTRUMENT AND EQUIPMENT REQUIREMENTS

§ 121.501 Applicability.

This subpart prescribes instrument and equipment requirements for all certificate holders. Associated "Use of" rules for certain required equipment are specified in Subpart O of this part and GACAR Part 91.

§ 121.509 Emergency Medical Equipment.

(a) No person may operate a passenger-carrying aircraft under this part unless it is equipped with the emergency medical equipment that meets the specifications and requirements of Subpart C of GACAR Part 91 and GACAR § 121.513.

(b) Each equipment item required by this section—

(1) Must be inspected regularly under 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, the compartment or container must be marked as to contents and the compartment or container, or the item itself, must be marked as to date of last inspection.

(c) The intent of this paragraph is not to require certificate holders or their agents to provide emergency medical care or to establish a standard of care for the provision of emergency medical care.

§ 121.513 Aircraft Instruments and Equipment.

(a) General. Except as provided in GACAR § 121.517, no person may operate an aircraft under this part unless it is equipped with—

(1) All of the instruments and equipment required for the kinds of operation of the intended flight in accordance with the applicable sections of Subparts C and D of GACAR Part 91; and

(2) All instruments and equipment required for the kinds of operation of the intended flight in

accordance with the applicable kind of operation described in paragraphs (f) through (z) of this section.

(b) All instruments and items of equipment must be in operable condition and used in accordance with the applicable requirements in Subpart B of GACAR Part 91. If two or more kinds of operations require the same item of equipment, only one such item is required, unless stated otherwise.

(c) Except as otherwise noted in paragraph (e) of this section, instruments and equipment required by this subpart must be approved and installed under the airworthiness requirements applicable to them.

(d) Except as provided in GACAR § 121.517, no person may take off any aircraft unless the following instruments and equipment are in operable condition:

(1) Instruments and equipment required to comply with airworthiness requirements under which the aircraft is type certificated;

(2) Equipment required to comply with the additional airworthiness requirements of Subpart H of this part; and

(3) Instruments and equipment specified in this subpart for the kind of operation indicated, wherever these items are not already required by paragraph (d)(1) or (2) of this section.

(e) The following items are not required to have an equipment approval:

(1) Spare fuses;

(2) Flashlights;

(3) Accurate timepiece;

(4) Crash ax;

(5) Survival and pyrotechnic signaling equipment; and

(6) Sea anchors and equipment for mooring, anchoring, or maneuvering seaplanes and amphibians on water.

Para.	Kind of Operation	Required Instruments & Equipment
(f)	Operation of all aircraft on all flights.	(1) A means for the crew to unlock each door that leads to a compartment that is normally accessible to passengers and can be locked by passengers. (2) All required instruments and equipment for IFR as provided in GACAR § 91.303(e).

Para.	Kind of Operation	Required Instruments & Equipment
(g)	Operation of aircraft under IFR.	For all aircraft— (1) Two independent altitude measuring and display systems. (2) A second altimeter adjustable for barometric pressure (both of which must have counter drum-pointer or equivalent presentation—threepointer and drum-pointer altimeters do not satisfy this requirement. (3) Illumination for all instruments and equipment used by the flight crew that are essential for the safe operation of the aircraft. Additionally, for rotorcraft— (4) A stabilization system, unless it has been accepted by the President that the rotorcraft possesses, by nature of its design, adequate stability without such a system. (5) A third gyroscopic pitch and bank indicator, in accordance with Section VI of Appendix C to GACAR Part 91. (6) An emergency power supply, independent of the main electrical generating system, for the purpose of operating and illuminating, for a minimum of 30 minutes, an attitude-indicating instrument (artificial horizon), clearly visible to the PIC.The emergency power supply must be automatically operative after the total failure of the main electrical generating system and clear indication must be given on the instrument panel that the attitude indicator(s) is being operated by emergency power.
(h)	Operation of aircraft at night.	(1) All required instruments and equipment for night flights as provided in GACAR § 91.303(g). (2) One additional landing light.

Para.	Kind of Operation	Required Instruments & Equipment
(i)	Extended over-water operations (landplanes and rotorcraft).	(1) All required instruments and equipment for extended over-water operations as provided in GACAR § 91.303(k). (2) Each life preserver and equivalent individual flotation device for each occupant of the aircraft must be equipped with a means of electric illumination for the purpose of facilitating the location of persons, except where this requirement is met by the provision of individual flotation devices other than life preservers. (3) No later than 31 December 2019, on all airplanes of a maximum certificated takeoff mass of over 27000 kg, and operating over water and at more than a distance corresponding to 120 minutes at cruising speed or 400 NM, whichever is the lesser, away from land suitable for making an emergency landing, a securely attached underwater locating device operating at a frequency of 8.8 kHz. This automatically activated underwater locating device must operate for a minimum of 30 days and must not be installed in wings or empennage. Note.— Underwater locator beacon (ULB) performance requirements are as contained in the SAE AS6254, Minimum Performance Standard for Low Frequency Underwater Locating Devices (Acoustic) (Self-Powered), or equivalent documents acceptable to the President.
(j)	Operation of turbine-powered airplanes.	(1) A third gyroscopic pitch and bank indicator, in accordance with Section VI of Appendix C to GACAR Part 91. (2) Airborne forward looking windshear warning system.

Para.	Kind of Operation	Required Instruments & Equipment
(k)	Operation of turbine-powered airplanes that require two pilots by type certification or operating rule and for which the type certificate is first issued on or after 1 January 2016.	A Cockpit Voice Recorder (CVR) in accordance with Section I(b) of Appendix C to GACAR Part 91 or a Cockpit Audio Recording System (CARS) in accordance with Section II(b) of Appendix C to GACAR Part 91.
(l)	Operation of multi-engine aircraft.	(1) At least two generators or alternators, each of which is on a separate engine, of which any combination of one-half of the total number are rated sufficiently to supply the electrical loads of all required instruments and equipment necessary for safe emergency operation of the aircraft except that for multi-engine rotorcraft, the two required generators may be mounted on the main rotor drive train. (2) Two independent sources of energy (with means of selecting either) of which at least one is an engine-driven pump or generator, each of which is able to drive all required gyroscopic instruments powered by or to be powered by that particular source and installed so that failure of one instrument or source does not interfere with the energy supply to the remaining instruments or the other energy source.For the purpose of this paragraph, each engine-driven source of energy must be on a different engine.

Para.	Kind of Operation	Required Instruments & Equipment
(m)	Operation of commuter category airplanes.	(1) A third gyroscopic pitch and bank indicator in accordance with Section VI of Appendix C to GACAR Part 91. (2) Airborne weather radar. (3) Pitot heat indicating system that provides an amber light that is in clear view of a flight crew member.The indication provided must be designed to alert the flight crew if either of the following conditions exist: (i) The pitot heating system is switched “off” or (ii) The pitot heating system is switched “on” and any pitot tube heating element is inoperative. (4) Takeoff warning system.The takeoff warning system does not have to cover any device for which it has been demonstrated that takeoff with that device in the most adverse position would not create a hazardous condition. (5) Reserved. (6) Each lavatory in the airplane must be equipped with a smoke detector system or equivalent that provides a warning light on the flightdeck or an audio warning that would be readily detected by the flight crew. (7) All aircraft for which the individual certificate of airworthiness is first issued after 1 July 2008, must be equipped with at least one automatic ELT in accordance with Section V of Appendix C to GACAR Part 91.

Para.	Kind of Operation	Required Instruments & Equipment
(n)	Operation of turbojet airplanes.	Altitude alerting system to— (1) Alert the pilot upon approaching a preselected altitude in either ascent or descent, by a sequence of both aural and visual signals in sufficient time to establish level flight at that preselected altitude. (2) Alert the pilot upon approaching a preselected altitude in either ascent or descent, by a sequence of visual signals in sufficient time to establish level flight at that preselected altitude, and when deviating above and below that preselected altitude, by an aural signal. (3) Provide the required signals from sea level to the highest operating altitude approved for the airplane in which it is installed. (4) Preselect altitudes in increments that are commensurate with the altitudes at which the aircraft is operated. (5) Be tested without special equipment to determine proper operation of the alerting signals. (6) Accept necessary barometric pressure settings if the system or device operates on barometric pressure.However, for operation below 3 000 ft (900 m) above ground level (AGL), the system or device need only provide one signal, either visual or aural, to comply with this paragraph.A radio altimeter may be included to provide the signal if the operator has an approved procedure for its use to determine decision altitude/decision height (DA/DH) or minimum descent altitude (MDA), as appropriate.

Para.	Kind of Operation	Required Instruments & Equipment
(o)	Operation of transport category airplanes.	(1) A public address system. (2) A crew member interphone. (3) For airplanes 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. (4) Flight Data Recorder (FDR)—Type A4 in accordance with Section I(a) of Appendix C to GACAR Part 91 except that the following airplanes that were manufactured before 18 August 1997, need not comply with this requirement: (i) British Aerospace 1–11; (ii) General Dynamics Convair 580, 600, and 640; (iii) deHavilland Aircraft Company Ltd. DHC–7; (iv) Fairchild Industries FH 227; (v) Fokker F–27 (except Mark 50); (vi) Fokker F–28 Mark 1000 and Mark4000; (vii) Gulfstream Aerospace G–159; (viii) Jetstream 4100 Series; (ix) Lockheed Aircraft Corporation Electra 10–A, 10–B, and 10−E (x) Lockheed Aircraft Corporation L–188,

Para.	Kind of Operation	Required Instruments & Equipment

(xi) Lockheed Martin Model 382 (L–100),

(xii) Maryland Air Industries, Inc. F27,

(xiii) Mitsubishi Heavy Industries, Ltd. YS–11,

(xiv) Short Bros. Limited SD3–30, and

(xv) Short Bros. Limited SD3–60.

(5) Except as provided in paragraph (o)(7) of this section, all aircraft must be equipped with at least one automatic Emergency Locator Transmitter (ELT) or two ELTs of any type in accordance with Section V of Appendix C to GACAR Part 91.

(6) All aircraft for which the individual certificate of airworthiness is first issued after 1 July 2008, must be equipped with at least two ELTs, one of which must be automatic in accordance with Section V of Appendix C to GACAR Part 91.

(7) Universal precaution kit in accordance with Appendix B to GACAR Part 91.

(8) Crash ax.

(9) Pitot heat indicating system that provides an amber light that is in clear view of a flight crew member.The indication provided must be designed to alert the flight crew if either of the following conditions exist:

(i) The pitot heating system is switched “off”.

(ii) The pitot heating system is switched “on” and

Para.	Kind of Operation	Required Instruments & Equipment
		any pitot tube heating element is inoperative. (10) Landing gear aural warning device that functions continuously under the following conditions: (i) 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 AFM and the landing gear is not fully extended and locked. (ii) 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. The landing gear aural warning system— (iii) Must not have a manual shutoff. (iv)Must be in addition to the throttle-actuated device installed under the type certification airworthiness requirements. (v)May use any part of the throttle-actuated system including the aural warning device. (vi) May have the flap position sensing unit installed at any suitable place in the airplane. For passenger-carrying operations the following additional equipment is required: (11) Airborne weather radar.

Para.	Kind of Operation	Required Instruments & Equipment
		(12) Each lavatory in the airplane must be equipped with a smoke detector system or equivalent that provides a warning light on the flightdeck or provides a warning light or audio warning in the passenger compartment that would be readily detected by a cabin crew member, taking into consideration the positioning of cabin crew members throughout the passenger compartment during various phases of flight. (13) Each lavatory in the airplane must be 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.

Para.	Kind of Operation	Required Instruments & Equipment
(p)	Operation of large airplanes with a maximum takeoff mass greater than 5700 kg.	(1) Each airspeed indicator must be calibrated in knots, and each airspeed limitation and item of related information in the AFM and pertinent placards must be expressed in knots. (2) A windshield wiper or equivalent for each pilot station. (3) 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. (4) ACAS II in accordance with Section XI of Appendix C to GACAR Part 91. (5) Protective breathing equipment (PBE) in accordance with Section XIII of Appendix C to GACAR Part 91. (6) Airborne forward looking windshear warning system. (7) FDR–Type A3 for airplanes manufactured after 11 October 1991, and before 1 January 2005, unless already required to have a Type A4 in accordance with paragraph (o) of this section.Type A4 is required for airplanes manufactured on or after 1 January 2005.All FDR must be in accordance with the applicable type in Section I(a) of Appendix C to GACAR Part 91. (8) CVR in accordance with Section I(b) of Appendix C to GACAR Part 91. (9) Terrain Awareness and Warning System (TAWS) in accordance with Section XII of Appendix C to GACAR Part

Para.	Kind of Operation	Required Instruments & Equipment
		91. (10) An emergency power supply, independent of the main electrical generating system, for the purpose of operating and illuminating, for a minimum of 30 minutes, an attitude-indicating instrument (artificial horizon), clearly visible to the PIC.The emergency power supply must be automatically operative after the total failure of the main electrical generating system and clear indication must be given on the instrument panel that the attitude indicator(s) is being operated by emergency power.Those instruments used by any one pilot must be so arranged as to permit the pilot to see their indications readily from his station, with the minimum practicable deviation from the position and line of vision normally assumed when looking forward along the flight path.
(q)	Operation of large passenger-carrying airplanes with a maximum certificated take-off mass more than 54 500 kg, or with a maximum takeoff mass more than 45 500 kg with a passenger seating capacity greater than 19, or large passenger-carrying airplanes with 60 or more passenger seats installed.	(1) Reinforced flightdeck door that meets the requirements of GACAR § 25.795. (2) A means to monitor from the flightdeck the area outside the flightdeck door to identify persons requesting entry and to detect suspicious behavior and potential threats.
(r)	Operation of airplanes with 31 to 60 passenger seats installed.	Two hand fire extinguishers that are conveniently located and uniformly distributed in the passenger compartment. At least one fire extinguisher in the passenger compartment must contain Halon 1211 or equivalent.

Para.	Kind of Operation	Required Instruments & Equipment
(s)	Operation of airplanes with 61 to 99 passenger seats installed.	(1) One portable battery-powered megaphone that meets Federal Aviation Administration of the United States (FAA) Technical Standard Order (TSO) C-137a at the most rearward location in the passenger compartment where it would be readily accessible to a normal cabin crewmember seat. (2) Three hand fire extinguishers that are conveniently located and uniformly distributed iin the passenger compartment.At least one fire extinguisher in the passenger compartment must contain Halon 1211 or equivalent.
(t)	Operation of airplanes with 100 to 200 passenger seats installed.	(1) Two portable battery-powered megaphones that meet FAA TSO C-137a, one installed at the forward end and the other at the most rearward location where it would be readily accessible to a normal cabin crewmember seat. (2) Three hand fire extinguishers that are conveniently located and uniformly distributed in the passenger compartment. At least one fire extinguisher in the passenger compartment must contain Halon 1211 or equivalent. (3) Two first aid kits in accordance with Appendix B to GACAR Part 91.

Para.	Kind of Operation	Required Instruments & Equipment
(u)	Operation of airplanes with no fewer than 201 passenger seats installed.	(1) Two portable battery powered megaphones that meet FAA TSO C 137a, one installed at the forward end, one installed at the most rearward location where it would be readily accessible to a normal cabin crewmember seat. (2) Four hand fire extinguishers in the passenger compartment and an additional hand fire extinguisher for each additional 100 passengers that meet the following. (i) The fire extinguishers must be conveniently located and uniformly distributed throughout the compartment. (ii) At least one fire extinguisher in the passenger compartment must contain Halon 1211 or equivalent. (3) Three first aid kits. For each additional 100 passengers above 299 an additional first aid kit must be provided in accordance with Appendix B to GACAR Part 91.
(v)	Operation of all airplanes equipped with Class E cargo compartments.	At least one hand fire extinguisher must be conveniently located for use in each Class E cargo compartment that is accessible to crew members during flight.
(w)	Operation of all aircraft equipped with galley compartments.	(1) At least one hand fire extinguisher must be conveniently located for use in each galley located in a compartment other than a passenger, cargo, or crew compartment. (2) 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.

Para.	Kind of Operation	Required Instruments & Equipment
(x)	Operation of airplanes at or above 49 000 ft (14 950 m).	Equipment to measure and continuously indicate the dose rate of total cosmic radiation being received (that is, the total of ionizing and neutron radiation of galactic and solar origin) and the cumulative dose on each flight.The display unit of the equipment must be readily visible to a flight crew member.
(y)	Operation of transport category rotorcraft.	(1) For rotorcraft with a maximum takeoff mass of equal to or less than 7 000 kg an FDR-Type R1 in accordance with Section I(a) of Appendix C to GACAR Part 91; or (2) For rotorcraft with a maximum takeoff mass of greater than 7 000 kg or equipped with 20 or more passenger seats an FDR-Type R2 in accordance with Section I(a) of Appendix C to GACAR Part 91; or (3) For rotorcraft manufactured after 1 January 2016 an FDR-Type R3 in accordance with Section I(a) of Appendix C to GACAR Part 91. (4) CVR in accordance with Section I(b) of Appendix C to GACAR Part 91.
(z)	Operation of aircraft in which a cabin crew member is required under GACAR § 121.753	(1) An approved emergency medical kit; and (2) For aircraft having a seating capacity of more than 30 passengers, an approved automated external defibrillator.
(aa)	Operation of airplanes with a maximum takeoff mass less than 27 215 kg in conditions conducive to airframe icing	(1) May require an approved primary or advisory airframe ice detection system (see GACAR § 121.1215 for further details).

§ 121.517 Inoperable Instruments and Equipment.

(a) No person may take off an aircraft with inoperable instruments or equipment installed unless the following conditions are met:

(1) An approved minimum equipment list (MEL) exists for that aircraft.

(2) The President has issued the certificate holder operations specifications authorizing operations under an approved MEL. The flight crew must have direct access at all times before flight to all of the information contained in the approved MEL through printed or other means approved by the President in the certificate holder's operations specifications.

(3) The approved MEL must—

(i) Be prepared under the limitations specified in paragraph (b) of this section.

(ii) Provide for the operation of the aircraft 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 aircraft is operated under all applicable conditions and limitations contained in the MEL and the operations specifications authorizing use of the MEL.

(b) The following instruments and equipment may not be included in the MEL:

(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the aircraft 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; and

(3) Instruments and equipment required for specific operations by this part and GACAR Part 91.

(c) Notwithstanding paragraphs (b)(1) and (3) of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit under GACAR §§ 21.179 and 21.181.

(d) If any instrument or item of equipment required for the particular operation becomes inoperative en route, the PIC must comply with the approved procedures for such an occurrence as specified in the certificate holder's manual.

§ 121.521 Communication and Navigation Equipment.

(a) No person may operate an aircraft unless it is equipped with the radio communication equipment prescribed in Subparts C and D of GACAR Part 91, for the intended flight.

(b) No person may operate an aircraft unless it is equipped with the navigation equipment prescribed in Subparts C and D of GACAR Part 91, for the intended flight and the en route navigation aids necessary for navigating the airplane along the route (for example, Air Traffic Service 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;

(c) Use of VOR navigation equipment. If VOR navigation equipment is used to comply with paragraph (b) of this section, no person may operate an airplane unless it is equipped with at least one approved distance measuring equipment or suitable area navigation system.

(d) A certificate holder must not employ electronic navigation data products that have been processed for application in the air and on the ground unless the certificate holder has approved procedures for ensuring that the process applied and the products delivered have met acceptable standards of integrity and that the products are compatible with the intended function of the equipment that will use them. A certificate holder must implement procedures that ensure the timely distribution and insertion of current and unaltered electronic navigation data to all aircraft that require it.

§ 121.525 Communication and Navigation Equipment for Extended Over Water Operations and for Certain Other Operations.

(a) 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:

(1) Communicate with at least one appropriate station from any point on the route.

(2) 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 (3) of this section.

(3) At least one of the communication systems must have two way voice communication capability.

(b) No certificate holder may conduct an operation without the equipment specified in paragraph (a) of this section if the President finds that equipment to be necessary for search and rescue operations because of the nature of the terrain to be flown over.

§ 121.529 Passenger Information Requirements and Smoking Prohibitions.

(a) Except as provided in paragraph (j), no person may operate an aircraft unless it is equipped with passenger information signs that meet the requirements of GACAR § 25.791.

(b) No person may operate an aircraft on a flight on which smoking is prohibited by the GACA Economic Regulations unless either the “No Smoking” passenger information signs are lighted during the entire flight, or one or more “No Smoking” placards meeting the requirements of GACAR § 25.1541 or 29.1541, as applicable, 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.

(c) No person may operate a passenger carrying aircraft under this part unless at least one legible sign or placard that reads “Fasten Seat Belt While Seated” is visible from each passenger seat.

(d) Except as provided in paragraph (j) of this section, the “Fasten Seat Belt” 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 PIC.

(e) No person may operate an aircraft with a lavatory equipped with a smoke detector unless there is in that lavatory a sign or placard that reads: “The Civil Aviation Law provides for a fine of 1 000 Saudi Arabian Riyals for tampering with the smoke detector installed in this lavatory.” These signs or placards need not meet the requirements of paragraph (a) of this section.

(f) No person may smoke while a “No Smoking” sign is lighted or while “No Smoking” placards are posted.

(g) No person may smoke in any aircraft lavatory.

(h) No person may tamper with, disable, or destroy any smoke detector installed in any aircraft lavatory.

(i) Each passenger must comply with instructions given him by a crew member regarding compliance with this section.

(j) A certificate holder may operate a commuter category airplane, that is manufactured before 20 December 1997, or a rotorcraft, if it is equipped with at least one placard that is legible to each person seated in the cabin that states “Fasten Seat Belt,” and if, during any movement on the surface, for each takeoff, for each landing, and at any other time considered necessary by the PIC, a crew member orally instructs the passengers to fasten their safety belts.

§ 121.533 Flightdeck Check Procedure.

(a) Each certificate holder must provide an approved flightdeck check procedure for each type of aircraft.

(b) The approved procedures must include each item necessary for flight crew members 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 crew member will not need to rely upon memory for items to be checked.

(c) The approved procedures must be readily usable in the flightdeck of each aircraft and the flight crew must follow them when operating the aircraft.

(d) The design and use of approved flightdeck check procedures must observe human factors principles.

SUBPART J – MAINTENANCE, PREVENTIVE MAINTENANCE, AND ALTERATIONS

§ 121.651 Applicability.

This subpart prescribes requirements for maintenance, preventive maintenance, and alterations for all certificate holders operating under this part. Additional requirements for maintenance, preventive maintenance, and alterations are prescribed in GACAR Parts 43 and 91.

§ 121.655 Certificate Requirements.

Each person who is directly in charge of maintenance, preventive maintenance, or alterations, and each person performing required inspections must hold an appropriate airman certificate.

§ 121.659 Responsibility for Airworthiness.

(a) Each certificate holder is primarily responsible for—

(1) The airworthiness of its aircraft, including airframes, aircraft engines, propellers, appliances, and parts thereof; and

(2) The performance of the maintenance, preventive maintenance, and alteration of its aircraft, including airframes, aircraft engines, propellers, appliances, emergency equipment, and parts, in accordance with its maintenance manual and the GACAR.

(b) A certificate holder may arrange 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.

§ 121.663 Authority To Perform and Approve Maintenance, Preventive Maintenance, and Alterations.

(a) A certificate holder may perform, or may arrange with other persons to perform, maintenance, preventive maintenance, and alterations as provided in its continuous airworthiness maintenance program (CAMP) and its maintenance manual. In addition, a certificate holder may perform these functions for another certificate holder as provided in the CAMP and maintenance manual of the other certificate holder.

(b) A certificate holder may issue an airworthiness release for any aircraft, airframe, aircraft engine, propeller, or appliance after maintenance, preventive maintenance, or alterations performed under paragraph (a) of this section. However, in the case of a repair or alteration, the work must have been done

in accordance with approved data.

§ 121.667 Continuous Airworthiness Maintenance Program.

(a) Each certificate holder must establish and maintain a CAMP that complies with GACAR §§ 121.659 through 121.703.

(b) Each certificate holder must establish and maintain, as part of its CAMP, an aircraft maintenance schedule for each aircraft that includes—

(1) Time limitations or standards for determining time limitations, for overhauls, inspections, and checks of airframes, engines, propellers, appliances, rotors, and emergency equipment;

(2) Airworthiness inspections, including instructions covering procedures, standards, responsibilities, and authority of inspection personnel;

(3) Procedures for making changes to the items noted in paragraphs (b)(1) and (2) of this section; and

(4) Identification of maintenance tasks and intervals specified as mandatory in the approved type design.

(c) The CAMP and maintenance schedules required by this section must observe human factors principles.

§ 121.671 CAMP for Two Engine ETOPS.

To conduct an ETOPS flight using a two engine aircraft, a certificate holder must develop and comply with the ETOPS CAMP, as authorized in the certificate holder's operations specifications, for each aircraft 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 predeparture service check (PDSC).* Except as provided in Appendix E to this part, the certificate holder must develop a predeparture check tailored to its specific operation.

(1) The certificate holder must complete a PDSC 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 aircraft by reviewing applicable maintenance records, and

(iii) Include an interior and exterior inspection to include a determination of engine and auxiliary power unit (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 PDSC signatory person, who has been authorized by the certificate holder, must certify by signature, the ETOPS PDSC has been completed.

(4) For the purposes of paragraph (b) of this section only, the following definitions apply:

(i) ETOPS qualified person: A person who satisfactorily completes the air operator's ETOPS training program and is authorized by the certificate holder.

(ii) ETOPS PDSC signatory person: A person who is ETOPS qualified and that person—

(A) Works for a certificate holder authorized to engage in GACAR Part 121 operation or works for a GACAR Part 145 repair station, and

(B) Holds a GACAR Part 65 mechanic's certificate with airframe and powerplant ratings.

(iii) ETOPS maintenance entity: An entity authorized to perform ETOPS maintenance and complete ETOPS PDSC and that is—

(A) Certificated under GACAR Part 119 to perform operations under GACAR Part 121 operations or

(B) A repair station certificated under GACAR Part 145.

(c) *Limitations on dual maintenance.*

(1) Except as specified in paragraph (c)(2) of this section, 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 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 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 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 aircraft 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 supplemented for ETOPS. This program must be event oriented and include procedures to report the events listed below:

(1) The certificate holder must report the following events within 96 hours of the occurrence to the President:

(i) In flight shutdowns (IFSD), except planned IFSDs performed for flight training;

(ii) Diversions and turn backs for failures, malfunctions, or defects associated with any aircraft or engine system;

(iii) Un-commanded 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; and

(vii) Any event that would jeopardize the safe flight and landing of the aircraft 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 President. The report must include the information specified in GACAR § 121.1553(e). The corrective action must be acceptable to the President.

(i) *Propulsion system monitoring.*

(1) If the IFSD rate (computed on a 12 month rolling average) for an engine installed as part of an aircraft 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 aircraft 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 (NOPAC) 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 Polar area of operation and beyond 180 minutes elsewhere.

(2) Within 30 days of exceeding the rates above, the certificate holder must submit to the President a report of investigation and any necessary corrective action taken.

(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 there is enough oil to complete each ETOPS flight. APU oil consumption must be included if an APU is required for ETOPS. The air 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 aircraft 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 President for cold soak in flight start and run reliability.

(m) *Maintenance training*. For each aircraft 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 air operator's maintenance training program used to qualify individuals to perform work on specific aircraft and engines.

(n) *CMP document*. If an aircraft engine combination has a CMP document, the certificate holder must use a system that ensures compliance with the applicable GACA 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 approved by the President.

§ 121.675 Maintenance, Preventive Maintenance, and Alterations 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.

(b) Each certificate holder that performs any inspections required by its maintenance manual under Section II(b)(2) and (3) of Appendix G to this part (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 alterations, must organize the performance of those functions to separate the required inspection functions from the other maintenance, preventive maintenance, and alteration functions. The separation must be below the level of administrative control at which overall responsibility for the required inspection functions and other maintenance, preventive maintenance, and alteration functions are exercised.

§ 121.679 Maintenance, Preventive Maintenance, and Alterations Programs.

Each certificate holder must have an inspection program and a program covering other maintenance, preventive maintenance, and alterations which ensures—

(a) Maintenance, preventive maintenance, and alterations performed by it, or by other persons, are performed in accordance with the certificate holder's maintenance manual;

(b) Competent personnel and adequate facilities and equipment are provided for the proper performance of maintenance, preventive maintenance, and alterations; and

(c) Each aircraft issued an airworthiness release is airworthy and has been properly maintained for operation under this part.

§ 121.681 Contract Maintenance.

[(a) A certificate holder may arrange with another person for the performance of maintenance, preventive maintenance, and alterations as authorized in GACAR § 121.663 (a) only if the certificate holder has met all the requirements in this section. For purposes of this section—

(1) A maintenance provider is any person who performs maintenance, preventive maintenance, or an alteration for a certificate holder other than a person who is trained by and employed directly by that certificate holder.

(2) Covered work means any of the following:

(i) Essential maintenance that could result in a failure, malfunction, or defect endangering the safe operation of an aircraft if not performed properly or if improper parts or materials are used;

(ii) Regularly scheduled maintenance; or

(iii) A required inspection item on an aircraft.

(3) Directly in charge means having responsibility for covered work performed by a maintenance provider. A representative of the certificate holder directly in charge of covered work does not need to physically observe and direct each maintenance provider constantly, but must be available for consultation on matters requiring instruction or decision.

(b) Each certificate holder must be directly in charge of all covered work done for it by a maintenance provider.

(c) Each maintenance provider must perform all covered work in accordance with the certificate holder’s maintenance manual.

(d) No maintenance provider may perform covered work unless that work is carried out under the supervision and control of the certificate holder.

(e) Each certificate holder who contracts for maintenance, preventive maintenance, or alterations must develop and implement policies, procedures, methods, and instructions for the accomplishment of all contracted maintenance, preventive maintenance, and alterations. These policies, procedures, methods, and instructions must provide for the maintenance, preventive maintenance, and alterations to be performed in accordance with the certificate holder's maintenance program and maintenance manual.

(f) Each certificate holder who contracts for maintenance, preventive maintenance, or alterations must ensure that its system for the continuing analysis and surveillance of the maintenance, preventive maintenance, and alterations carried out by the maintenance provider, as required by GACAR § 121.691 (a), contains procedures for oversight of all contracted covered work.

(g) The policies, procedures, methods, and instructions required by paragraphs (e) and (f) of this section must be acceptable to the President and included in the certificate holder's maintenance manual as required by GACAR § 121.683 and Section II, paragraph (c) (11) of Appendix G to this part.

(h) Each certificate holder who contracts for maintenance, preventive maintenance, or alterations must provide to the GACA, in a format acceptable to the President, a list that includes the name and physical (street) address, or addresses, where the work is carried out for each maintenance provider that performs work for the certificate holder, and a description of the type of maintenance, preventive maintenance, or alteration that is to be performed at each location. The list must be updated with any changes, including additions or deletions, and the updated list provided to the GACA in a format each calendar month.]

[Amd. 121-1, Effective June 15, 2016]

§ 121.683 Manual Requirements.

Each certificate holder must prepare and maintain a maintenance manual in accordance with Subpart D of this part.

§ 121.687 Required Inspection Personnel.

(a) No person may use any person to perform required inspections unless the person performing the inspection is appropriately certificated, properly trained, qualified, and authorized to do so by the President.

(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 established under GACAR § 121.675(c).

(c) No person may perform a required inspection if he performed the item of work required to be inspected.

(d) Each certificate holder must maintain, or 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 they are authorized to perform. The certificate holder (or person with whom it arranges to perform its required inspections) must give written information to each person so authorized describing the extent of his responsibilities authorities, and inspectional limitations. The list must be made available for inspection by the President upon request.

§ 121.691 Continuing Analysis and Surveillance.

(a) Each certificate holder must establish and maintain a system for the continuing analysis and surveillance of the adequacy of its aircraft maintenance schedules and the performance and effectiveness of its inspection program and the program covering other maintenance, preventive maintenance, and alterations and for the correction of any deficiency in those programs. The certificate holder must do this regardless of whether those programs are carried out by the certificate holder or by another person.

(b) Whenever the President finds that the aircraft maintenance schedule or either of the programs described in paragraph (a) of this section does not contain adequate procedures and standards to meet the requirements of this part, the certificate holder must make any changes necessary to meet those requirements after notification by the President.

(c) A certificate holder may petition the President to reconsider the notice to make a change under the procedures in GACAR Part 13.

§ 121.695 Maintenance and Preventive Maintenance Training Program.

Each certificate holder or person performing maintenance or preventive maintenance functions for the certificate holder must have a training program to ensure that each person (including inspection personnel) who determines the adequacy of work done is informed about procedures, techniques, and new equipment in use and is competent to perform his duties. The training program must include instruction on human factors principles.

§ 121.699 Maintenance Recording Requirements.

(a) Each certificate holder must keep (using the system specified in the manual required in GACAR § 121.683) 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 an airworthiness release under GACAR § 121.1545 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 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 required to be overhauled on a specified schedule;

(v) The identification of the current maintenance status of the aircraft, including the times since the last maintenance tasks required by the maintenance schedule under which the aircraft and its appliances are maintained;

(vi) The 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; and

(vii) A list of current major alterations and major repairs to each airframe, engine, propeller, and appliance.

(b) Each certificate holder must retain the records required 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 must be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records of the last complete overhaul of each airframe, engine, propeller, and appliance must 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 must—

(i) In the case of a temporary change of operator, be made available to the new operator, or

(ii) In the case of a permanent change of operator, be transferred to the new operator.

(c) The certificate holder must make all maintenance records required by this section available for inspection by the President or any authorized representative of the Saudi Arabian Aviation Investigation

Bureau (AIB).

§ 121.703 Transfer of Maintenance Records.

Each certificate holder who sells a Saudi Arabian registered aircraft must 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 President:

(a) The record specified in GACAR § 121.699(a)(2).

(b) The records specified in GACAR § 121.699(a)(1) 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 by the seller does not relieve the purchaser of his responsibility under GACAR § 121.699(b) to make the records available for inspection by the President or any authorized representative of the AIB.

SUBPART K – CREW MEMBER REQUIREMENTS AND QUALIFICATIONS

§ 121.733 Applicability.

This subpart prescribes crew member requirements and qualifications for all certificate holders except where otherwise specified.

§ 121.737 General.

(a) No certificate holder may use any person nor may any person serve as a required crew member on an aircraft unless that person has satisfactorily completed training under Subpart L of this part.

(b) Except in the case of operating experience under GACAR § 121.789, a pilot who serves as second in command (SIC) of an operation requiring three or more pilots must be fully qualified to act as PIC of that operation.

(c) 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 by 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 under GACAR § 121.781(a); and

(3) Cabin crew member training and competence checks.

(d) Except for pilot line checks and flight engineer flight checks, the person being trained or checked may not be used as a required crew member.

(e) A certificate holder may use a training organization specified in GACAR § 121.847 to conduct the training, testing, and checking requirements of this subpart.

(f) For the purposes of this subpart the aircraft groups prescribed in GACAR § 121.5 apply.

§ 121.741 Crew Member: Limitations on Use of Services.

(a) No certificate holder may use any person as a crew member nor may any person serve as a crew member unless that person—

(1) Holds an appropriate current airman certificate issued or accepted by the President.

(2) Has any required appropriate current airman and medical certificates in his possession while engaged in operations under this part.

(3) Is otherwise qualified for the operation for which he is to be used.

(b) Each airman covered by paragraph (a)(2) of this section must present certificates for inspection upon the request of the President.

(c) No certificate holder may use the services of any person as a pilot on an aircraft engaged in operations under this part if that person has reached his 65th birthday.

(d) No pilot may serve as a pilot in operations under this part if that person has reached his 65th birthday.

§ 121.745 Composition of Flight Crew.

(a) No certificate holder may operate an aircraft with less than the minimum flight crew specified in the airworthiness certificate or the AFM approved for that type aircraft and required by this part for the kind of operation being conducted.

(b) The minimum flight crew is two pilots and the certificate holder must designate one pilot as PIC and the other as SIC.

(c) On each flight requiring a flight engineer at least one flight crew member, 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.

§ 121.749 Flight Engineer.

The requirement for a flight engineer is determined under the type certification requirements of GACAR § 25.1523.

§ 121.753 Cabin Crew Members.

(a) Except as provided in GACAR § 121.757, each certificate holder must provide at least the following cabin crew members on each passenger carrying aircraft when passengers are onboard:

(1) Except as provided in paragraph (a)(2) for special unscheduled operations, for aircraft having a seating capacity of more than 9 but fewer than 51 passengers—1 cabin crew member;

(2) For aircraft used in special unscheduled operations having a seating capacity of more than 19 but

fewer than 31 passengers—1 cabin crew member;

(3) For aircraft having a seating capacity of more than 50 but fewer than 101 passengers—2 cabin crew members;

(4) For aircraft having a seating capacity of more than 100 passengers—2 cabin crew members plus 1 additional cabin crew member 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 GACAR § 121.213(a), the certificate holder used more cabin crew members than required under paragraph (a) of this section for the maximum seating capacity of the aircraft used in the demonstration, it may not, thereafter, take off that aircraft—

(1) In its maximum seating capacity configuration with fewer cabin crew members than the number used during the emergency evacuation demonstration, or

(2) In any reduced seating capacity configuration with fewer cabin crew members than the number required by paragraph (a) of this section for that seating capacity plus the number of cabin crew members used during the emergency evacuation demonstration that were in excess of those required under paragraph (a) of this section.

(c) The number of cabin crew members approved under paragraphs (a) and (b) of this section is specified in the certificate holder's operations specifications.

(d) During takeoff and landing, cabin crew members required by this section must be located as near as practicable to required floor level exits and must be uniformly distributed throughout the aircraft to provide the most effective egress of passengers in event of an emergency evacuation. When instructed by the PIC, cabin crew members 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 aircraft and its occupants.

§ 121.754 Personnel Identified as Cabin Crew Members.

(a) Any person identified by the certificate holder as a cabin crew member on an aircraft in operations under this part must be trained and qualified in accordance with this subpart and Subparts L of this part. This includes:

(1) Cabin crew members provided by the certificate holder in excess of the number required by

GACAR § 121.753(a); and

(2) Cabin crew members provided by the certificate holder when cabin crew members are not required by GACAR § 121.753(a).

(b) A qualifying cabin crewmember who is receiving operating experience on an aircraft in operations under this subpart must be identified to passengers as a qualifying cabin crew member.

§ 121.757 Crew Member Requirements During Passenger Boarding, Deplaning, and at Stops Where Passengers Remain on Board.

(a) *Boarding.* During passenger boarding, on each aircraft for which more than one cabin crew member is required by GACAR § 121.753(a), the certificate holder may—

(1) Reduce the number of required cabin crew members by one, provided that—

(i) The cabin crew member that leaves the aircraft remains within the immediate vicinity of the door through which passengers are boarding;

(ii) The cabin crew member that leaves the aircraft only conducts safety duties related to the flight being boarded;

(iii) The aircraft engines are shut down; and

(iv) At least one floor level exit remains open to provide for passenger egress; or

(2) Substitute a pilot or flight engineer employed by the certificate holder and trained and qualified on that type aircraft for one cabin crew member, provided the certificate holder—

(i) Describes in the manual required by GACAR § 121.139—

(A) The necessary functions to be performed by the substitute pilot or flight engineer in an emergency, to include a situation requiring an emergency evacuation. The certificate holder must show those functions are realistic, can be practically accomplished, and will meet any reasonably anticipated emergency; and

(B) How other regulatory functions performed by a cabin crew member will be accomplished by the substitute pilot or flight engineer on the aircraft.

(ii) Ensures that the following requirements are met:

(A) The substitute pilot or flight engineer is not assigned to operate the flight for which that person is substituting for a required cabin crew member.

(B) The substitute pilot or flight engineer is trained in all assigned cabin crew member duties regarding passenger handling.

(C) The substitute pilot or flight engineer meets the emergency training requirements for cabin crew members in evacuation management and evacuation commands, as appropriate, and frequency of performance drills regarding operation of exits in the normal and emergency modes on that type aircraft.

(D) The substitute pilot or flight engineer is in possession of all items required for duty.

(E) The substitute pilot or flight engineer is located in the passenger compartment.

(F) The substitute pilot or flight engineer is identified to the passengers.

(G) The substitution of a pilot or flight engineer for a required cabin crew member does not interfere with the safe operation of the flight.

(H) The airplane engines are shut down.

(I) At least one floor-level exit remains open to provide for passenger egress.

(b) *Deplaning.* During passenger deplaning, on each aircraft for which more than one cabin crew member is required by GACAR § 121.753, the certificate holder may reduce the number of cabin crew members required by that section provided—

(1) The aircraft engines are shut down;

(2) At least one floor level exit remains open to provide for passenger egress; and

(3) The number of cabin crew members on board is at least half the number required by GACAR § 121.753, rounded down to the next lower number in the case of fractions, but never fewer than one.

(c) If only one cabin crew member is on the aircraft during passenger boarding or deplaning, that cabin crew member must be located in accordance with the certificate holder's approved operating procedures. If

more than one cabin crew member is on the aircraft during passenger boarding or deplaning, the cabin crew members must be evenly distributed throughout the aircraft cabin, in the vicinity of the floor level exits, to provide the most effective assistance in the event of an emergency.

(d) The time spent by any crew member conducting passenger boarding or deplaning duties is considered duty time.

(e) *At stops where passengers remain on board.* At stops where passengers remain on board the aircraft, the certificate holder must meet the following requirements:

(1) On each aircraft for which a cabin crew member is not required by GACAR § 121.753(a), the certificate holder must ensure that a person who is qualified in the emergency evacuation procedures for the aircraft, as required in GACAR § 121.907, and who is identified to the passengers, remains—

(i) On board the aircraft or

(ii) Nearby the aircraft, in a position to adequately monitor passenger safety, and—

(A) The aircraft engines are shut down;

(B) At least one floor level exit remains open to provide for the deplaning of passengers; and

(C) The number of cabin crew members on board is at least half the number required by GACAR § 121.753(a), rounded down to the next lower number in the case of fractions, but never fewer than one.

(2) On each aircraft for which cabin crew members are required by GACAR § 121.753(a), but the number of cabin crew members remaining on board is fewer than required by GACAR § 121.753(a), the certificate holder must meet the following requirements:

(i) The certificate holder must ensure that—

(A) The aircraft engines are shut down;

(B) At least one floor level exit remains open to provide for the deplaning of passengers; and

(ii) The certificate holder may substitute for the required cabin crew members other persons

qualified in the emergency evacuation procedures for that aircraft as required in GACAR § 121.907, if these persons are identified to the passengers.

(iii) If only one cabin crew member or other qualified person is on board during a stop, that cabin crew member or other qualified person must be located as specified in the certificate holder's approved operating procedures. If more than one cabin crew member or other qualified person is on board, the cabin crew members or other qualified persons must be spaced throughout the cabin to provide the most effective assistance for the evacuation in case of an emergency.

§ 121.761 Emergency and Emergency Evacuation Duties.

(a) Each certificate holder must train, for each type and model of aircraft, each category of required crew member, as appropriate, in the necessary functions to be performed in an emergency or a situation requiring emergency evacuation. The certificate holder must show those functions are realistic, can be practically accomplished, and will meet any reasonably anticipated emergency including the possible incapacitation of individual crew members or their inability to reach the passenger compartment because of shifting cargo.

(b) The certificate holder must describe in its manual the functions of each category of required crew members under paragraph (a) of this section.

§ 121.765 Pilot Qualification: Certificates Required.

(a) No pilot may act as PIC of an airplane (or as SIC of an airplane in an operation that requires three or more pilots) unless he holds an ATP certificate and an appropriate type rating for that aircraft.

(b) No certificate holder may use nor may any pilot act as a pilot in a capacity other than those specified in paragraph (a) of this section in an airplane unless the pilot holds at least a commercial pilot certificate, an instrument rating, and an appropriate type rating for the aircraft concerned.

(c) No certificate holder may use nor may any pilot act as PIC of a rotorcraft certificated for single pilot operations operated under this part unless the pilot holds at least a commercial pilot certificate, an instrument rating, and an appropriate type rating for the aircraft concerned with a minimum of 1000 hours total flight time on helicopters, including 300 hours as pilot-in-command on the same type.

§ 121.769 Pilot Qualification: Recent Experience.

(a) No certificate holder may use any person nor may any person serve as a required pilot, unless within

the preceding 90 days, that person has made at least three takeoffs and landings in the type aircraft in which that person is to serve. The takeoffs and landings required by this paragraph may be performed in a full flight simulator (FFS) approved under GACAR § 121.855 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 reestablish 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 who has not met the requirements of paragraph (a) of this section must reestablish recency of experience as follows:

(1) Under the supervision of a check pilot, make at least three takeoffs and landings in the type aircraft in which that person is to serve or in an FFS. When an FFS 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 who performs the maneuvers prescribed in paragraph (b) of this section in an FFS must—

(1) Have previously logged 100 hours of flight time in the same type aircraft in which he is to serve and

(2) Be observed on the first two landings made in operations under this part by an approved check pilot who acts as PIC 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 working days following completion of simulator training.

(d) When using an FFS to accomplish any of the requirements of paragraph (a) or (b) of this section, each required flight crew member station must be occupied by an appropriately qualified person and the FFS must be operated as if in a normal in flight environment without use of the repositioning features of the FFS.

(e) A check pilot who observes the takeoffs and landings prescribed in paragraphs (b)(1) and (c) of this section must 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 deemed necessary to make this certifying statement.

(f) Relief based upon designation of related aircraft in accordance with GACAR § 121.883(b).

(1) The President may authorize relief from the requirements of paragraph (a) of this section based upon a designation of related aircraft in accordance with GACAR § 121.883(b) and a determination that the certificate holder can demonstrate an equivalent level of safety.

(2) A request for relief from paragraph (a) of this section must be submitted to the President. The request must include the following:

(i) Identification of aircraft operated by the certificate holder designated as related aircraft.

(ii) The number of takeoffs, landings, maneuvers, and procedures necessary to maintain or reestablish recency based on review of the related aircraft, the operation, and the duty position.

§ 121.771 Pilot Qualification: Recent Experience for Relief Pilots.

No certificate holder may use a person to act as a relief pilot during the en-route cruise portion of the flight under GACAR § 121.1141 unless within the preceding 90 days that person has either—

(a) Operated an aircraft as a PIC, SIC, or a relief pilot in—

(1) The same type aircraft in which that person is to serve or

(2) A variant of that aircraft acceptable to the President.

(b) Received piloting skill refresher training to include normal, abnormal, and emergency procedures specific to cruise flight on the same type aircraft or variant of type aircraft or in a flight simulation training device (FSTD), and has performed approach and landing procedures as the pilot who is flying or who is not flying the aircraft.

§ 121.773 Pilot in Command Qualification: Route and Aerodromes.

(a) Each certificate holder must provide a system acceptable to the President for disseminating the information required by paragraph (c) of this section to the PIC and appropriate flight operations

personnel. The system must also provide an acceptable means for showing compliance with GACAR § 121.777.

(b) Each certificate holder not using aircraft dispatchers must provide a system acceptable to the President for providing the information required by paragraph (c) of this section for dissemination to the PIC and appropriate flight operations personnel. The system must also provide an acceptable means for showing compliance with GACAR § 121.777.

(c) No certificate holder may use any person, nor may any person serve, as PIC 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 aerodrome and terminal area into which that person is to operate, and ensures 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 aerodrome visual aids;

(4) Kinds of terrain and obstructions;

(5) Minimum safe flight levels;

(6) En route and terminal area arrival and departure procedures, holding procedures and authorized instrument approach procedures for the aerodromes involved;

(7) Congested areas and physical layout of each aerodrome in the terminal area in which the pilot will operate;

(8) Notices to Airmen; and

(9) Search and rescue procedure and services in the area over which the aircraft will be flown.

(d) *For airplanes.* A PIC must have made an actual approach into each aerodrome of landing on the route, accompanied by a pilot who is qualified for the aerodrome, as a member of the flight crew or as an observer on the flightdeck, unless—

(1) The approach to the aerodrome is not over difficult terrain and the instrument approach procedures and aids available are similar to those with which the pilot is familiar, and a margin

approved by the President is added to the normal operating minimums, or there is reasonable certainty that approach and landing can be made in visual meteorological conditions (VMC); or

(2) The descent from the initial approach altitude can be made by day in VMC; or

(3) The certificate holder qualifies the PIC to land at the aerodrome concerned by means of an adequate pictorial presentation; or

(4) The aerodrome concerned is adjacent to another aerodrome at which the PIC is currently qualified to land.

(e) *For rotorcraft.* A PIC must have made a flight representative of the operation the pilot is to be engaged in that includes a landing at a representative aerodrome, as a member of the flight crew and accompanied by a pilot who is qualified for the operation.

(f) The certificate holder must maintain a record of the qualification of the pilot and how he achieved such qualification in a manner sufficient to satisfy the President.

(g) A certificate holder must not continue to use a pilot as a PIC on a route, within an area, or on an operation, as applicable, specified by the certificate holder and approved by the President unless, within the preceding 12 months, that pilot has made at least one trip as a pilot, check pilot, or as an observer on the flightdeck—

(1) Within that specified area or for rotorcraft, on a representative flight; and

(2) If appropriate, on any route where procedures associated with that route or with any aerodromes intended to be used for takeoff or landing require the application of special skills or knowledge.

(h) *Requalification:*

(1) *Airplanes.* If more than 12 months elapse in which a PIC has not made a trip as specified in paragraph (g) of this section on a route in close proximity and over similar terrain and has not practiced such procedures in an FSTD, before serving as a PIC within that area or on that route, that pilot must requalify under paragraphs (c) and (d) of this section.

(2) *Rotorcraft.* If more than 12 months elapse in which a PIC has not made a representative flight as specified in paragraph (g) of this section on a representative flight and has not practiced such procedures in an FSTD, before serving as a PIC on that operation, that pilot must requalify under paragraphs (c) and (e) of this section.

§ 121.777 Pilot in Command Aerodrome Qualification: Special Areas and Aerodromes.

(a) The President may determine that certain aerodromes (due to items such as surrounding terrain, obstructions, or complex approach or departure procedures) are special aerodromes requiring special aerodrome 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 PIC to or from an aerodrome deemed to require special aerodrome qualifications unless, within the preceding 12 months—

(1) The PIC or SIC has made an entry to that aerodrome (including a takeoff and landing) while serving as a pilot, or

(2) The PIC has qualified by using pictorial means acceptable to the President for that aerodrome.

(c) Paragraph (b) of this section does not apply when an entry to that aerodrome (including a takeoff or a landing) is being made if the ceiling at that aerodrome is at least 1 000 ft (300 m) above the lowest minimum en route altitude or minimum obstruction clearance altitude, or initial approach altitude prescribed for the instrument approach procedure for that aerodrome, and the visibility at that aerodrome is at least 5 km.

(d) No certificate holder may use any person, nor may any person serve, as PIC between terminals over a route or area that requires a special type of navigation qualification unless, within the preceding 12 months, that person has demonstrated qualification on the applicable navigation system in a manner acceptable to the President, by one of the following methods:

(1) By flying over a route or area or for rotorcraft, on a representative flight as PIC using the applicable special type of navigation system or

(2) By flying over a route or area or for rotorcraft, on a representative flight as PIC under the supervision of a check pilot using the special type of navigation system.

§ 121.781 Flight Engineer Qualifications.

(a) No certificate holder may operate an airplane for which a flight engineer is required by the type certification requirements without a flight crew member holding a current flight engineer certificate.

(b) No person may serve as a required flight engineer on an airplane if that person had accumulated less

than 50 hours of flight time as a flight engineer on that type airplane unless, within the preceding 6 months that person has been checked by the President or a company qualified check flight engineer in the FFS on that type airplane and determined that person is familiar and competent with all essential current information and normal, abnormal and emergency procedures.

(c) A flight check given under GACAR § 121.903(a)(2) satisfies the requirements of paragraph (b) of this section.

§ 121.785 Pilot Operating Limitations and Pairing Requirements.

(a) If the SIC has fewer than 100 hours of flight time as SIC in operations under this part in the type aircraft being flown, and the PIC is not an appropriately qualified check pilot, the PIC must make all takeoffs and landings in the following situations:

(1) At special aerodromes designated by the President or at special aerodromes 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 aerodrome is at or below 1 200 m;

(ii) The RVR for the runway to be used is at or below 1 200 m;

(iii) The runway to be used has water, snow, slush, or similar conditions that may adversely affect aircraft 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 kt (8 m/s);

(vi) Windshear is reported in the vicinity of the aerodrome; or

(vii) Any other condition in which the PIC determines it to be prudent to exercise the PIC’s authority.

(b) No person may conduct operations under this part unless, for that type aircraft, either the PIC or the SIC has at least 75 hours of line operating flight time, either as PIC or SIC. Upon application by the certificate holder, the President may authorize relief from the requirements of this paragraph by an

appropriate amendment to the operations specifications in any of the following circumstances:

(1) A newly certificated entity does not employ any pilots who meet the minimum requirements of this paragraph.

(2) A current certificate holder adds to its fleet a type aircraft not before proven for use in its operations.

(3) A current certificate holder establishes a new domicile to which it assigns pilots who will be required to become qualified on the aircraft operated from that domicile.

§ 121.789 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 crew member of an aircraft unless the person has satisfactorily completed, on that type aircraft and in that crew member 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) Crew members other than PICs may serve as provided in this section to meet the requirements of this section.

(2) Pilots who meet the PIC requirements may serve as SIC.

(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 aircraft.

(4) Relief based upon designation of related aircraft in accordance with GACAR § 121.883(b).

(i) The President may authorize relief from the operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills required by this section based upon a designation of related aircraft in accordance with GACAR § 121.883(b) and a determination that the certificate holder can demonstrate an equivalent level of safety.

(ii) A request for relief from the operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills required by this section based upon a designation of related aircraft must be submitted to the President. The request must include the following:

(A) Identification of aircraft operated by the certificate holder designated as related aircraft.

(B) Hours of operating experience and number of operating cycles necessary based on review of the related aircraft, the operation, and the duty position.

(C) Consolidation hours necessary based on review of the related aircraft, the operation, and the duty position.

(b) In acquiring the operating experience, operating cycles, and line operating flight time for consolidation of knowledge and skills, crew members must comply with the following:

(1) In the case of a flight crew member, he must hold the appropriate certificates and ratings for the crew member position and the aircraft, except that a pilot who is meeting the PIC requirements must hold the appropriate certificates and ratings for a PIC in the aircraft.

(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 crew member 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) Pilots must acquire operating experience and operating cycles as follows:

(1) A PIC must—

(i) Perform the duties of a PIC under the supervision of a check pilot; and

(ii) In addition, if a qualifying PIC is completing initial or upgrade training as specified in GACAR § 121.899, be observed in the performance of prescribed duties by a GACA inspector during at least one flight leg that includes a takeoff and landing. During the time that a qualifying PIC is acquiring the operating experience in paragraphs (c)(1)(i) and (ii) of this section, a check pilot who is also serving as the PIC must occupy a pilot station. However, in the case of a transitioning PIC the check pilot serving as PIC may occupy the observer’s seat, if the transitioning pilot has made at least two takeoffs and landings in the type aircraft used, and has satisfactorily demonstrated to the check pilot that he is qualified to perform the duties of a PIC of that type of aircraft.

(2) An SIC must perform the duties of an SIC under the supervision of an appropriately qualified check pilot.

(3) Operating experience in turbopropeller powered and turbojet powered airplanes and rotorcraft must include at least four operating cycles (at least two as the pilot flying the aircraft). The hours of operating experience and operating cycles for all pilots operating aircraft are as follows:

(i) Initial training—

(A) Turbopropeller powered airplanes—20 hours and

(B) Turbojet powered airplanes—25 hours.

(C) Rotorcraft—10 hours.

(ii) Transition training, except as provided in paragraph (c)(3)(iii) of this section—

(A) Turbopropeller powered airplanes—12 hours and

(B) Turbojet powered airplanes (PIC)—25 hours, and

(C) Turbojet powered airplanes (SIC)—15 hours.

(D) Rotorcraft—6 hours.

(iii) In the case of transition training where the certificate holder's approved training program includes a course of training in an FFS under GACAR § 121.859(c), each PIC must comply with the requirements prescribed in paragraph (c)(3)(i) of this section for initial training.

(d) A flight engineer must perform the duties of a flight engineer under the supervision of a check pilot or a qualified flight engineer for at least the following number of hours:

(1) Turbopropeller powered airplanes—10 hours and

(2) Turbojet powered airplanes—12 hours.

(3) Rotorcraft—10 hours.

(e) A cabin crew member must perform for at least 5 hours the assigned duties of a cabin crew member under

the supervision of a cabin crew member supervisor qualified under this part who personally observes the performance of these duties. However, if the certificate holder shows that the cabin crew member has received sufficient ground training for the aircraft in which the cabin crew member is to serve; operating experience is not required for a cabin crew member who has previously acquired such experience on any large passenger carrying aircraft of the same group. Cabin crew members receiving operating experience may not be assigned as a required crew member. Cabin crew members 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 aircraft in which they are to serve may substitute this time for 50 percent of the hours required by this paragraph.

(f) Flight crew members may substitute one additional takeoff and landing for each hour of flight to meet the operating experience requirements of this section, up to a maximum reduction of 50 percent of flight hours, except those in turbojet powered airplane initial training, and SICs in turbojet powered airplane transition training.

(g) Except as provided in paragraph (h) of this section, PIC and SIC crew members must each acquire at least 100 hours of line operating flight time for consolidation of knowledge and skills (including operating experience required under paragraph (c) of this section) within 120 days after the satisfactory completion of—

(1) Any part of the flight maneuvers and procedures portion of either an ATP certificate with type rating practical test or an additional type rating practical test or

(2) A GACAR § 121.797 proficiency check.

(h) The following exceptions apply to the consolidation requirement of paragraph (g) of this section:

(1) Pilots who have completed the line operating flight time requirement for consolidation of knowledge and skills while serving as SIC on a particular type aircraft in operations under this part are not required to repeat the line operating flight time before serving as PIC on the same type aircraft.

(2) If, before completing the required 100 hours of line operating flight time, a pilot serves as a pilot in another aircraft type operated by the certificate holder, the pilot may not serve as a pilot in the aircraft for which the pilot has newly qualified unless the pilot satisfactorily completes refresher training as provided in the certificate holder’s approved training program and that training is conducted by an appropriately qualified instructor or check pilot.

(3) If the required 100 hours of line operating flight time are not completed within 120 days, the

certificate holder may extend the 120 day period to no more than 150 days if—

(i) The pilot continues to meet all other applicable requirements of this subpart and

(ii) On or before the 120th day the pilot satisfactorily completes refresher training conducted by an appropriately qualified instructor or check pilot as provided in the certificate holder's approved training program, or a check pilot determines that the pilot has retained an adequate level of proficiency after observing that pilot in a supervised line operating flight.

(4) The President, upon application by the certificate holder, may authorize relief from the requirements of paragraph (g) of this section, by an appropriate amendment to the operations specifications, to the extent warranted by any of the following circumstances:

(i) A newly certificated entity does not employ any pilots who meet the minimum requirements of paragraph (g) of this section.

(ii) A current certificate holder adds to its fleet an aircraft type not before proven for use in its operations.

(iii) A certificate holder establishes a new domicile to which it assigns pilots who will be required to become qualified on the aircraft operated from that domicile.

(i) Notwithstanding the reductions in programmed hours permitted under GACAR §§ 121.851 and 121.859, the hours of operating experience for crew members are not subject to reduction other than as provided in paragraphs (a)(4), (e) and (f) of this section.

§ 121.793 Line Checks.

(a) No certificate holder may use any person nor may any person serve as PIC of an aircraft unless, within the preceding 12 months, that person has passed a line check in which he satisfactorily performs the duties and responsibilities of a PIC in one of the types of aircraft he is to fly.

(b) PIC line checks.

(1) For scheduled operations, a PIC line check must—

(i) Be given by a check pilot who is currently qualified on both the route and the aircraft and

(ii) Consist of at least one flight over a typical part of the certificate holder's route, over a

foreign or KSA airway, or over a direct route.

(2) For unscheduled operations, a PIC line check must—

(i) Be given by a check pilot who is currently qualified on the aircraft and

(ii) Consist of at least one flight over a part of a KSA airway, foreign airway, or advisory route over which the pilot may be assigned.

§ 121.797 Proficiency Checks.

(a) No certificate holder may use any person nor may any person serve as a required pilot unless that person has satisfactorily completed the following checks or FSTD training as prescribed:

(1) A proficiency check within the preceding 12 calendar months in the aircraft type in which the person is to serve,

(2) In addition, within the preceding 6 months, either a proficiency check or the FSTD training under GACAR § 121.859.

(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 in Appendix C to this part as applicable unless otherwise specifically provided in that appendix.

(2) It must be given by a GACA inspector or a check pilot.

(3) It must not be similar to and occur within a 4 month period of a check required under paragraph (a) of this section.

(c) An approved FSTD may be used in the conduct of a proficiency check as provided in Appendix C to this part.

(d) A person giving a proficiency check may, at his discretion, waive any of the maneuvers or procedures for which a specific waiver authority is specified in Appendix C to this part if—

(1) The President has not specifically required the particular maneuver or procedure to be performed.

(2) The pilot being checked is, at the time of the check, employed by a certificate holder as a pilot.

(3) The pilot being checked is currently qualified for operations under this part in the particular type aircraft and flight crew member position or within the preceding 6 months has satisfactorily completed an approved training program for the particular type of aircraft.

(e) 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.

(f) The entire proficiency check (other than the initial proficiency check for an SIC) required by this section may be conducted in an FFS if the pilot being checked accomplishes at least two landings in the appropriate aircraft during a line check or other check conducted by a check pilot (a PIC may observe and certify the satisfactory accomplishment of these landings by an SIC). If a pilot proficiency check is conducted under this paragraph, the next required proficiency check for that pilot must be conducted in the same manner, or under Appendix C to this part as applicable, or a course of training in an FFS under GACAR § 121.859 may be substituted.

(g) Relief based upon designation of related aircraft in accordance with GACAR § 121.883(b).

(1) The President may authorize relief from the proficiency check requirements of paragraphs (a) and (b)(1) of this section based upon a designation of related aircraft in accordance with GACAR § 121.883(b) and a determination that the certificate holder can demonstrate an equivalent level of safety.

(2) A request for relief from paragraphs (a) and (b)(1) of this section must be submitted to the President. The request must include the following:

(i) Identification of aircraft operated by the certificate holder designated as related aircraft.

(ii) For recurrent proficiency checks, the frequency of the related aircraft proficiency check and the maneuvers and procedures to be included in the related aircraft proficiency check based on review of the related aircraft, the operation, and the duty position.

(iii) For qualification proficiency checks, the maneuvers and procedures to be included in the related aircraft proficiency check based on review of the related aircraft, the operation, and the

duty position.

SUBPART L – TRAINING PROGRAMS

§ 121.831 Applicability.

This subpart prescribes the requirements applicable to each certificate holder for establishing and maintaining a training program for crew members, aircraft dispatchers and other operations personnel employed or used by that certificate holder, and for the approval and use of FSTDs in the conduct of the program.

§ 121.835 Training Required.

(a) *Initial training.*

(1) No certificate holder may use any person nor may any person serve as a required crew member on an aircraft unless that person has satisfactorily completed, in a training program approved under this subpart, initial ground and flight training for that type aircraft and for the particular crew member position, except as follows:

(i) Crew members who have qualified and served as a crew member on another type aircraft of the same group may serve in the same crew member capacity upon completion of transition training as provided in GACAR § 121.879.

(ii) Crew members who have qualified and served as SIC or flight engineer on a particular type aircraft may serve as PIC or SIC, respectively, upon completion of upgrade training for that aircraft as provided in GACAR § 121.879.

(2) No certificate holder may use any person nor may any person serve as an aircraft dispatcher unless that person has satisfactorily completed initial aircraft dispatcher training under this subpart, except that a person who has satisfactorily completed such training for another type aircraft of the same group need only complete the appropriate transition training as provided in GACAR § 121.895.

(b) *Differences training.*

(1) No certificate holder may use any person nor may any person serve as a required crew member on an aircraft 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 crew member position and the particular variation of the aircraft in which he serves, either initial or transition ground and flight training, or differences training, as provided in GACAR §§ 121.879 and 121.883.

(2) No certificate holder may use any person, nor may any person serve, as an aircraft dispatcher for a particular type aircraft unless that person has satisfactorily completed differences training as provided in GACAR § 121.883, if applicable, with respect to that aircraft.

(c) *Recurrent training.*

(1) No certificate holder may use any person nor may any person serve as a required crew member on an aircraft unless he has, within the preceding 12 months—

(i) For flight crew members, satisfactorily completed recurrent ground and flight training for that aircraft and crew member position and a flight check as applicable;

(ii) For cabin crew members, satisfactorily completed recurrent ground training and a competence check; and

(iii) In addition, for PICs, satisfactorily completed, within the preceding 6 months, recurrent flight training in addition to the recurrent flight training required in paragraph (c)(1)(i) of this section, in an aircraft in which he serves as PIC in operations under this part.

(2) For pilots, a proficiency check as provided in GACAR § 121.797 may be substituted for the recurrent flight training required by this paragraph and the approved simulator course of training under GACAR § 121.859(b) may be substituted for alternate periods of recurrent flight training required in that aircraft, except as provided in paragraphs (d) and (e) of this section.

(3) No certificate holder may use any person nor may any person serve as an aircraft dispatcher unless he has within the preceding 12 months satisfactorily completed recurrent ground training and a competence check.

(d) For each aircraft in which a pilot serves as PIC, the pilot must satisfactorily complete either recurrent flight training or a proficiency check within the preceding 12 months. The requirement in this paragraph expires on March 12, 2019. After that date, the requirement in GACAR § 121.859(a)(1)(ii) applies.

(e) Notwithstanding paragraphs (c)(2) and (d) of this section, a proficiency check as provided in GACAR § 121.797 may not be substituted for the extended envelope training required by GACAR § 121.889 or training in those maneuvers and procedures required by 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 GACAR § 121.859(d).

§ 121.839 Training Program: General.

(a) Each certificate holder must—

(1) Establish and implement a training program that satisfies the requirements of this subpart; GACAR Part 109; and Appendixes B and C to this part, as applicable to the type of aircraft being operated.

(2) Ensure each crew member, aircraft dispatcher, flight instructor, check pilot and other operations personnel employed or used by that certificate holder are adequately trained to perform assigned duties.

(3) Provide adequate ground and flight training facilities and properly qualified ground instructors for the training required by this subpart.

(4) Provide and keep current with respect to each aircraft type and, if applicable, the particular variations within that aircraft type, appropriate training material, examinations, forms, instructions, and procedures for use in conducting the training and checks required by this part.

(5) Provide enough flight instructors, simulator instructors, and approved check pilots to conduct required flight training and flight checks, and simulator training courses permitted under this part.

(b) Before implementation, the certificate holder must obtain initial and final approval of the training program under GACAR § 121.851.

(c) Whenever a crew member or aircraft dispatcher takes a required flight check or competence check, or completes recurrent training, in the month before or after the month in which that check or training is required, the crew member is considered to have taken or completed it in the month in which it was required.

(d) Each instructor, supervisor, or check pilot responsible for a particular ground training subject, segment of flight training, course of training, flight check, or competence check under this part must certify the proficiency and knowledge of the crew member, aircraft dispatcher, flight instructor, or check pilot concerned upon completion of that training or check. The certification must be made a part of the crew member’s or aircraft dispatcher’s record. Certification required by this paragraph that is made by an entry in an electronic recordkeeping system approved under GACAR § 121.1567 must identify the certifying instructor, supervisor, or check pilot with the entry.

(e) Except for recurrent training, a crew member who has satisfactorily completed training applicable to more than one aircraft or crew member position does not need to repeat the subject during subsequent training for an applicable aircraft or position.

(f) A person who progresses successfully through flight training, is recommended by his instructor or a check pilot, and successfully completes the appropriate flight check for a check pilot or the President, need not complete the programmed hours of flight training for the particular aircraft. This paragraph does not apply when the President finds that 20 percent of the flight checks under this paragraph given at a particular training base during the previous 6 months are unsuccessful. The certificate holder at that base may not use this paragraph until the President finds that the effectiveness of the flight training there has improved.

(g) Until the President finds the effectiveness of the flight training at a particular base has improved as provided in paragraph (f) of this section, he may require all or part of the programmed hours of in–flight training for a certificate holder using a course of FSTD training permitted in GACAR § 121.859(c).

(h) Subject to the requirements of this subpart, a certificate holder's training program may include training toward the initial issuance of airman certificates and ratings under GACAR Part 61 or 65. The training program of a certificate holder administering such training must satisfy the applicable requirements of Subparts B through E, G, and H of GACAR Part 141 or Subparts B through E and G of GACAR Part 143.

§ 121.843 Training Program: Curriculum.

(a) Each certificate holder must prepare and keep current a written training program curriculum for each type of aircraft for aircraft dispatchers and each crew member required for that type aircraft. 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 FSTDs, including mockups, systems trainers and procedures trainers; or other training aids the certificate holder will use and a list of all the training equipment approved under GACAR § 121.857 as well as 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 to be performed during each flight training phase or flight

check, indicating those maneuvers, procedures, and functions to be performed during the in–flight portions of flight training and flight checks;

(4) A list of FSTDs approved under GACAR § 121.855, including approvals for particular maneuvers, procedures, or functions;

(5) The programmed hours of training to be applied to each phase of training; and

(6) A copy of each statement issued by the President under GACAR § 121.851(d) for reduction of programmed hours of training.

(c) Except as provided in paragraph (d) of this section, if a certificate holder's training program includes training toward the initial issuance of airman certificates and ratings under GACAR Part 61 or 65, the curriculum for each such training course must satisfy the requirements specified in the appendixes to GACAR Parts 141 and 143 applicable to a training course for the issuance of that certificate or rating.

(d) A certificate holder may apply for approval to conduct a training course for an airman certificate or rating that does not satisfy the requirements specified in the appendixes to GACAR Part 141 or 143 applicable to a training course for the issuance of that certificate or rating, if the applicant shows that the training course for which approval is sought trains candidates to a level of proficiency equivalent to that provided by a training course satisfying those requirements.

§ 121.847 Training Program: Special Rules.

(a) Other than the certificate holder, only another certificate holder certificated under this part, a training center certificated under GACAR Part 142, or a foreign training center approved by a contracting state to the Convention on International Civil Aviation and approved by the President, is eligible under Subparts K and L of this part to conduct flight training, testing, and checking under contract or other arrangement to those persons subject to the requirements of this subpart. This does not preclude a certificate holder from contracting with, or otherwise arranging to use the services of, a school certificated under GACAR Part 141 or 143 to provide training toward the initial issuance of an airman certificate or rating.

(b) A certificate holder may contract with, or otherwise arrange to use the services of, a training center certificated under GACAR Part 142, or a foreign training center approved by a contracting state to the Convention on International Civil Aviation and approved by the President, to conduct training, testing, and checking required by Subparts K and L of this part only if the training center—

(1)Holds applicable operations specifications issued under GACAR Part 142 or similar foreign

authorization that is issued by a contracting state to the Convention on International Civil Aviation and is acceptable to the President.

(2) Has facilities, training equipment, and courseware meeting the applicable requirements of GACAR Part 142 or equivalent requirements for a foreign training center that are acceptable to the President.

(3) Has approved curriculums, curriculum segments, and portions of curriculum segments applicable for use in training courses required by Subparts K and L of this part.

(4) Has sufficient instructor and check pilots qualified under the applicable requirements of GACAR § 121.863 or 121.871 to provide training, testing, and checking to persons subject to the requirements of Subparts K and L of this part.

§ 121.851 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 President—

(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 the President may request.

(b) If the proposed training program or revision complies with this subpart the President grants initial approval in writing after which the certificate holder may conduct the training under that program. The President then evaluates the effectiveness of the training program and advises the certificate holder of deficiencies, if any, that must be corrected.

(c) The President grants final approval of the training program or revision if the certificate holder shows the training conducted under the initial approval in paragraph (b) of this section ensures that each person who successfully completes the training is adequately trained to perform his assigned duties.

(d) In granting initial and final approval of training programs or revisions, including reductions in programmed hours specified in this subpart, the President considers the training aids, devices, methods, and procedures listed in the certificate holder's curriculum as set forth in GACAR § 121.843 that increase the quality and effectiveness of the teaching/learning process. If the President grants approval of reduced

programmed hours of training, he provides the certificate holder with a statement of the basis for the approval.

(e) Whenever the President finds revisions are necessary for the continued adequacy of a training program that has been granted final approval, he notifies the certificate holder who must make any required changes in the program. A certificate holder may petition the President to reconsider the notice to make a change under the specified procedures in GACAR Part 13.

§ 121.855 Training Program: Approval of FSTDs.

(a) Each FSTD used in a training course permitted under GACAR § 121.859, in checks required under this subpart, or as permitted in Appendixes B and C to this part, as applicable to the type of aircraft being operated, must—

(1) Be specifically qualified and approved by the President under GACAR Part 60 for—

(i) The certificate holder;

(ii) The type aircraft and, if applicable, the particular variation within type, for which the training or check is being conducted; and

(iii) The particular maneuver, procedure, or crew member function involved.

(2) Maintain the performance, functional, and other characteristics required for approval;

(3) Be changed to conform with any modification to the aircraft being simulated resulting in changes to performance, functional, or other characteristics required for approval;

(4) Be given a daily functional preflight check before being used; and

(5) Have a daily discrepancy log kept with each discrepancy entered in that log by the appropriate instructor or check pilot at the end of each training or check flight.

(b) A particular FSTD may be approved for use by more than one certificate holder.

(c) An FFS may be used instead of the aircraft to satisfy the in–flight requirements of GACAR §§ 121.769 and 121.797 and Appendixes B and C to this part, as applicable to the type of aircraft being operated.

(1) Is approved under this section and meets the appropriate simulator requirements of Appendix D to this part; and

(2) Is used as part of an approved program that meets the training requirements of GACAR §§ 121.899(a) and (c) and Appendix D to this part.

(d) An FFS approved under this section must be used instead of the aircraft to satisfy the pilot flight training requirements prescribed in the certificate holder's approved low altitude windshear flight training program set forth in GACAR § 121.859(d) of this part.

§ 121.857 Training Equipment Other Than FSTDs.

(a) The President must approve training equipment used in a training program approved under this part and that functionally replicates aircraft equipment for the certificate holder and the crew member duty or procedure. Training equipment does not include FSTDs qualified under GACAR Part 60.

(b) The certificate holder must demonstrate that the training equipment described in paragraph (a) of this section, used to meet the training requirements of this subpart, meets all of the following:

(1) The form, fit, function, and mass, as appropriate, of the aircraft equipment.

(2) Replicates the normal operation (and abnormal and emergency operation, if appropriate) of the aircraft equipment including the following:

(i) The required force, actions and travel of the aircraft equipment.

(ii) Variations in aircraft equipment operated by the certificate holder, if applicable.

(3) Replicates the operation of the aircraft equipment under adverse conditions, if appropriate.

(c) Training equipment must be modified to ensure that it maintains the performance and function of the aircraft type or aircraft equipment replicated.

(d) All training equipment must have a record of discrepancies. The documenting system must be readily available for review by each instructor, check pilot or supervisor, prior to conducting training or checking with that equipment.

(1) Each instructor, check pilot or supervisor conducting training or checking, and each person conducting an inspection of the equipment who discovers a discrepancy, including any missing, malfunctioning or inoperative components, must record a description of that discrepancy and the date that the discrepancy was identified.

(2) All corrections to discrepancies must be recorded when the corrections are made. This record must include the date of the correction.

(3) A record of a discrepancy must be maintained for at least 60 days.

(e) No person may use, allow the use of, or offer the use of training equipment with a missing, malfunctioning, or inoperative component to meet the crew member training or checking requirements of the GACAR for tasks that require the use of the correctly operating component.

§ 121.859 Training Courses Using FSTDs.

(a) Training courses using FSTDs may be included in the certificate holder's approved training program for use as provided in this section.

(b) Except for the airline transport pilot certification training program approved to satisfy GACAR § 61.173(d)(3), a course of training in an FFS may be included for use as provided in GACAR § 121.797 if that course—

(1) Provides at least 4 hours of training at the pilot controls of an FFS as well as a proper briefing before and after the training,

(2) Provides training in at least the following:

(i) The procedures and maneuvers set forth in Appendix C to this part; or

(ii) Line oriented flight training (LOFT) that—

(A) Before March 12, 2019-

(1) Utilizes a complete flight crew;

(2) Includes at least the maneuvers and procedures (abnormal and emergency) that may be expected in line operations; and

(3) Is representative of the flight segment appropriate to the operations being conducted by the certificate holder.

(B) Beginning on March 12, 2019-

(1) Utilizes a complete flight crew;

(2) Includes at least the maneuvers and procedures (abnormal and emergency) that may be expected in line operations;

(3) Includes scenario-based or maneuver-based stall prevention training before, during or after the LOFT scenario for each pilot;

(4) Is representative of two flight segments appropriate to the operations being conducted by the certificate holder; and

(5) Provides an opportunity to demonstrate workload management and pilot monitoring skills.

(3) Is given by an instructor who meets the applicable requirements of GACAR § 121.867.

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

(c) The programmed hours of flight training contained in this subpart do not apply if the training program for the aircraft type includes—

(1) A course of pilot training in an FFS as provided in GACAR § 121.899(d) or

(2) A course of flight engineer training in an FSTD as provided in GACAR § 121.903(d).

(d) Each certificate holder required to have an airborne low altitude windshear warning and flight guidance system under Subpart I of this part must use an approved FFS for each aircraft type in each of its pilot training courses that provides training in at least the procedures and maneuvers contained in the certificate holder's approved low altitude windshear flight training program. The approved low altitude windshear flight training, if applicable, must be included in each of the pilot flight training courses prescribed in GACAR §§ 121.859(b), 121.883, 121.899, and 121.919.

§ 121.861 Airline Transport Pilot Certification Training Program.

(a) A certificate holder may obtain approval to establish and implement an airline transport certification training program to satisfy the requirements of GACAR § 61.173(d)(3). The training program must be separate from the air carrier training program required by this part.

(b) No certificate holder may use a person nor may any person serve as an instructor in a training program

approved to meet the requirements of GACAR § 61.173(d)(3) for the airplane category unless the instructor:

(1) Holds an ATP certificate with an airplane category multi-engine class rating;

(2) Has at least 2 years of experience as PIC in operation conducted under GACAR § 135.341(a), or as PIC or SIC in any operation conducted under this part; and

(3) Except for the holder of a flight instructor certificate issued under GACAR Part 61, receives initial training on the following topics:

(i) The fundamental principles of the learning process;

(ii) Elements of effective teaching, instruction methods, and techniques;

(iii) Instructor duties, privileges, responsibilities, and limitations;

(iv) Training policies and procedures; and

(v) Evaluation.

(4) If providing training in an FSTD, hold an aircraft type rating for the aircraft represented by the FSTD utilized in the training program and have received training within the preceding 12 months from the certificate holder on:

(i) Proper operation of flight simulator and flight training device controls and systems;

(ii) Proper operation of environmental and fault panels;

(iii) Data and motion limitations of simulation;

(iv) Minimum equipment requirements for each curriculum; and

(v) The maneuvers that will be demonstrated in the FSTD.

(c) A certificate holder may not issue a graduation certificate to a student unless that student has completed all the curriculum requirements of the course.

(d) A certificate holder must conduct evaluations to ensure that training techniques, procedures, and

standards are acceptable to the President.

§ 121.863 Qualifications: Check Pilot (Aircraft) and Check Pilot (Simulator).

(a) For the purposes of this section and GACAR § 121.871—

(1) A check pilot (aircraft) is a person qualified and permitted to conduct flight checks or instruction in an aircraft or FSTD for a particular type aircraft.

(2) A check pilot (simulator) is a person qualified to conduct flight checks or instruction but only in an FSTD for a particular type aircraft.

(3) Check pilot (aircraft) and check pilot (simulator) are those check pilots who perform the functions described in GACAR § 121.839(a)(5).

(b) No certificate holder may use a person, nor may any person serve as a check pilot (aircraft) in a training program established under this subpart unless, with respect to the aircraft type involved, that person—

(1) Holds the airman certificates and ratings required to serve as a PIC or flight engineer, as applicable, in operations under this part;

(2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, required to serve as a PIC or flight engineer as applicable, in operations under this part;

(3) Has satisfactorily completed the appropriate proficiency or competency checks required to serve as a PIC or flight engineer as applicable, in operations under this part;

(4) Has satisfactorily completed the applicable training requirements of GACAR § 121.871 including in flight training and practice for initial and transition training;

(5) Holds at least a Class 2 medical certificate unless serving as a required crew member, in which case holds a Class 1 medical certificate;

(6) Has satisfied the recent experience requirements of GACAR § 121.769; and

(7) Has been approved by the President for the check pilot duties involved.

(c) No certificate holder may use a person nor may any person serve as a check pilot (simulator) in a training program established under this subpart unless, with respect to the aircraft 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 PIC or a flight engineer, as applicable, in operations under this part;

(2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, required to serve as a PIC or flight engineer in operations under this part;

(3) Has satisfactorily completed the appropriate proficiency or competency checks required to serve as a PIC or flight engineer in operations under this part;

(4) Has satisfactorily completed the applicable training requirements of GACAR § 121.871; and

(5) Has been approved by the President for the check pilot (simulator) duties involved.

(d) Completion of the requirements in paragraphs (b)(2) through (4) or (c)(2) through (4) of this section, as applicable, must be entered in the individual's training record maintained by the certificate holder.

(e) A check pilot who has reached his 65th birthday or who does not hold an appropriate medical certificate may function as check pilot, but may not serve as a flight crew member in operations under this part.

(f) A check pilot (simulator) must accomplish either of the following:

(1) Fly at least two flight segments as a required crew member for the type aircraft involved within the 12 month period preceding the performance of any check pilot duty in an FFS or

(2) Satisfactorily complete an approved line observation program within the period prescribed by that program before performing any check pilot duty in an FFS.

(g) The flight segments or line observation program required in paragraph (f) of this section are considered to be completed in the month required if completed in the month before or after the month in which it is due.

§ 121.867 Qualifications: Flight Instructors (Aircraft) and Flight Instructors (Simulator).

(a) For the purposes of this section and GACAR § 121.875—

(1) A flight instructor (aircraft) is a person qualified to instruct in an aircraft or in an FSTD for a particular type aircraft.

(2) A flight instructor (simulator) is a person qualified to instruct only in an FSTD for a particular type aircraft.

(3) Flight instructors (aircraft) and flight instructors (simulator) are those instructors who perform the functions described in GACAR § 121.839(a)(5).

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

(1) Holds the airman certificates and rating required to serve as a PIC or a flight engineer, as applicable, in operations under this part;

(2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, required to serve as a PIC or flight engineer, as applicable, in operations under this part;

(3) Has satisfactorily completed the appropriate proficiency or competency checks required to serve as a PIC or flight engineer, as applicable, in operations under this part;

(4) Has satisfactorily completed the applicable training requirements of GACAR § 121.875, including in flight training and practice for initial and transition training;

(5) Holds at least a Class 2 medical certificate unless serving as a required crew member, in which case holds a Class 1 medical certificate; and

(6) Has satisfied the recent experience requirements of GACAR § 121.769.

(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 aircraft 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 PIC or flight engineer, as applicable, in operations under this part;

(2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, required to serve as a PIC or flight engineer, as applicable, in operations under this part;

(3) Has satisfactorily completed the appropriate proficiency or competency checks required to serve

as a PIC or flight engineer, as applicable, in operations under this part; and

(4) Has satisfactorily completed the applicable training requirements of GACAR § 121.875.

(d) Completion of the requirements in paragraphs (b)(2) through (4) or (c)(2) through (4) of this section, as applicable, must 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 function as flight instructors, but may not serve as pilots in operations under this part.

(f) A flight instructor (simulator) must accomplish the following:

(1) Fly at least two flight segments as a required crew member for the type of aircraft within the 12 month period preceding the performance of any flight instructor duty in an FFS (and must hold a Class 1 medical certificate) or

(2) Satisfactorily complete an approved line observation program within the period prescribed by that program before performing any flight instructor duty in an FFS.

(g) The flight segments or line observation program required in paragraph (f) of this section are considered completed in the month required if completed in the month before or after the month in which they are due.

§ 121.871 Initial, Transition and Recurrent Training and Checking Requirements: Check Pilot (Aircraft), Check Pilot (Simulator).

(a) No certificate holder may use a person nor may any person serve as a check pilot unless—

(1) That person has satisfactorily completed initial or transition check pilot training, and

(2) Within the preceding 24 calendar months that person satisfactorily conducts a check or supervises operating experience under the observation of a GACA inspector or a designated examiner employed by the certificate holder. The observation check may be accomplished in part or in full in an aircraft or in an FSTD.

(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 month before or after the month in which it is due.

(c) The initial ground training for check pilots must include the following:

(1) Check pilot duties, functions, and responsibilities;

(2) The applicable GACAR and the certificate holder's policies and procedures;

(3) The appropriate methods, procedures, and techniques for conducting the required checks;

(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 checks;

(6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft; and

(7) For check pilots who conduct training or checking in an FSTD, the following subjects specific to the device(s) for the airplane type:

(i) Proper operation of the controls and systems;

(ii) Proper operation of environmental and fault panels;

(iii) Data and motion limitations of simulation; and

(iv) The minimum aircraft simulator equipment required by this part or GACAR Part 60, for each maneuver and procedure completed in an FSTD.

(d) The transition ground training for check pilots must include the following:

(1) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft to which the check pilot is transitioning.

(2) For check pilots who conduct training or checking in an FSTD, the following subjects specific to the device(s) for the aircraft type to which the check pilot is transitioning:

(i) Proper operation of the controls and systems;

(ii) Proper operation of environmental and fault panels;

(iii) Data and motion limitations of simulation; and

(iv) The minimum aircraft simulator equipment required by this part or GACAR Part 60, for each maneuver and procedure completed in an FSTD.

(e) The initial and transition flight training for check pilots (aircraft) or flight engineer check pilots (aircraft), must include the following:

(1) The safety procedures for emergency situations likely to develop during a check;

(2) The potential results of improper, untimely, or nonexecution of safety procedures during a check;

(3) For check pilots (aircraft)—

(i) Training and practice in conducting flight checks from the left and right pilot seats in the required normal, abnormal, and emergency procedures to ensure competence to conduct the pilot flight checks required by this part and

(ii) The safety procedures to be taken from either pilot seat for emergency situations likely to develop during a check.

(4) For flight engineer check pilots (aircraft) training to ensure competence to perform assigned duties.

(f) The requirements of paragraph (e) of this section may be accomplished in full or in part in flight or in an FSTD, as appropriate.

(g) The initial and transition flight training for check pilots (simulator) who conduct training or checking in an FSTD must include the following:

(1) Training and practice in conducting flight checks in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight checks required by this part. This training and practice must be accomplished in an FSTD.

(2) Training in the operation of FSTDs to ensure competence to conduct the flight checks required by this part.

(h) Recurrent ground training for check pilots who conduct training or checking in an FSTD must be completed every 12 calendar months and must include the subjects required in paragraph (c)(7) of this

section.

(i) Compliance with paragraphs (c)(7), (d)(2), and (h) of this section is required no later than March 12, 2019.

§ 121.875 Initial, Transition and Recurrent Training and Checking Requirements: Flight Instructor (Aircraft), Flight Instructor (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 GACA inspector, an air operator check pilot, or a designated examiner employed by the air operator. The observation check may be accomplished in part or in full in an aircraft or in an FSTD.

(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 month before or 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 GACAR 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 aircraft;

(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.

(8) For flight instructors who conduct training in an FSTD, the following subjects specific to the device(s) for the aircraft type:

(i) Proper operation of the controls and systems;

(ii) Proper operation of environmental and fault panels;

(iii) Data and motion limitations of simulation; and

(iv) The minimum aircraft simulator equipment required by this part or GACAR Part 60, for each maneuver and procedure completed in an FSTD.

(d) The transition ground training for flight instructors must include the following:

(1) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft to which the flight instructor is transitioning.

(2) For flight instructors who conduct training in an FSTD, the following subjects specific to the device(s) for the aircraft type to which the flight instructor is transitioning:

(i) Proper operation of the controls and systems;

(ii) Proper operation of environmental and fault panels;

(iii) Data and motion limitations of simulation; and

(iv) The minimum aircraft simulator equipment required by this part or GACAR Part 60, for each maneuver and procedure completed in an FSTD.

(e) The initial and transition flight training for flight instructors (aircraft) (aircraft) must include the following:

(1) The safety procedures for emergency situations likely to develop during instruction.

(2) The potential results of improper, untimely, or nonexecution of safety procedures during instruction.

(3) For pilot flight instructor (aircraft)—

(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 procedures to be taken from either pilot seat for emergency situations likely to develop during instruction.

(4) For flight engineer instructors (aircraft) in flight training to ensure competence to perform assigned duties.

(f) The requirements of paragraph (e) of this section may be accomplished in full or in part in flight or in an FSTD, as appropriate.

(g) The initial and transition flight training for flight instructors (simulator) who conduct training in an FSTD 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. These maneuvers and procedures must be accomplished in full or in part in an FSTD.

(2) Training in the operation of FSTDs to ensure competence to conduct the flight instruction required by this part.

(h) Recurrent flight instructor ground training for flight instructors who conduct training in an FSTD must be completed every 12 calendar months and must include the subjects required in paragraph (c)(8) of this section.

(i) Compliance with paragraphs (c)(8), (d)(2), and (h) of this section is required no later than March 12, 2019.

§ 121.879 Crew Member and Aircraft Dispatcher: Training Requirements.

(a) Each training program must provide the following ground training as appropriate to the particular assignment of the crew member or aircraft dispatcher:

(1) Basic indoctrination ground training for newly hired crew members or aircraft dispatchers including 40 programmed hours of instruction, unless reduced under GACAR § 121.851 or as specified in GACAR § 121.839(e), in at least the following:

(i) Duties and responsibilities of crew members or aircraft dispatchers, as applicable;

(ii) Appropriate provisions of the GACAR;

(iii) Contents of the certificate holder's operating certificate and operations specifications (not required for cabin crew members); and

(iv) Appropriate portions of the certificate holder's operating manual.

(2) The initial and transition ground training specified in GACAR §§ 121.887 through 121.895, as applicable.

(3) For crew members, emergency training as specified in GACAR §§ 121.907 and 121.911.

(4) Training for crew members and aircraft dispatchers in their roles and responsibilities in the certificate holder's passenger recovery plan, if applicable.

(b) Each training program must provide the flight training specified in GACAR §§ 121.899 through 121.903, as applicable.

(c) Each training program must provide recurrent ground and flight training as provided in GACAR § 121.919.

(d) Each training program must provide the differences training specified in GACAR § 121.883 if the President finds that, due to differences between aircraft of the same type operated by the certificate holder, additional training is necessary to ensure each crew member and aircraft dispatcher is adequately trained to perform his assigned duties.

(e) Upgrade training as specified in GACAR §§ 121.887 and 121.899 for a particular type aircraft may be included in the training program for crew members who have qualified and served as SIC or flight engineer on that aircraft.

(f) Particular subjects, maneuvers, procedures, or parts thereof specified in GACAR §§ 121.887 through 121.903 for transition or upgrade training, as applicable, may be omitted, or the programmed hours of ground instruction or in-flight training may be reduced, as provided in GACAR § 121.851.

(g) In addition to initial, transition, upgrade, recurrent, and differences training, each training program must provide ground and flight training, instruction, and practice as necessary to ensure each crew member and aircraft dispatcher—

(1) Remains adequately trained and currently proficient for each aircraft, crew member position, and type of operation in which he serves and

(2) Qualifies in new equipment, facilities, procedures, and techniques, including modifications to the aircraft.

(h) Each training program must include a process to provide for the regular analysis of individual pilot performance to identify pilots with performance deficiencies during training and checking and multiple failures during checking.

(i) Each training program must include methods for remedial training and tracking of pilots identified in the analysis performed in accordance with paragraph (h) of this section.

(j) Compliance with paragraphs (h) and (i) of this section is required no later than March 12, 2019.

(k) Subject to the requirements of this section, a certificate holder’s training program may include training toward the initial issuance of airmen certificates and ratings under GACAR Part 65.

(l) Except as provided in paragraph (k) of this section, if a certificate holder’s training program includes training toward the initial issuance of airmen certificates and ratings under GACAR Part 65, the curriculum for each such training course must satisfy the requirements specified in the appendixes to GACAR Part 143 applicable to a training course for the issuance of that certificate or rating.

(m) A certificate holder may apply for approval to conduct a training course for a certificate or rating that does not satisfy the requirements specified in the appendixes to GACAR Part 143 applicable to a training course for the issuance of that certificate or rating, if the applicant shows that the training course for which approval is sought trains candidates to a level of proficiency equivalent to that provided by a training course satisfying those requirements.

§ 121.883 Differences Training and Related Aircraft Differences Training.

(a) *Differences Training.*

(1) Differences training for crew members and aircraft dispatchers must consist of at least the following as applicable to their assigned duties and responsibilities:

(i) Instruction in each appropriate subject or part thereof required for initial ground training in the aircraft unless the President finds that particular subjects are not necessary;

(ii) Flight training in each appropriate maneuver or procedure required for initial flight training in the aircraft unless the President finds that particular maneuvers or procedures are not necessary; and

(iii) The number of programmed hours of ground and flight training determined by the President to be necessary for the aircraft, the operation, and the crew member or aircraft dispatcher involved.

(2) Differences training for all variations of a particular type aircraft may be included in initial, transition, upgrade, and recurrent training for the aircraft.

(b) *Related aircraft differences training.*

(1) In order to seek approval of related aircraft differences training for flight crew members, a certificate holder must submit a request for related aircraft designation to the President, and obtain approval of that request.

(2) If the President determines under paragraph (b)(1) of this section that a certificate holder is operating related aircraft, the certificate holder may submit to the President a request for approval of a training program that includes related aircraft differences training.

(3) A request for approval of a training program that includes related aircraft differences training must include at least the following:

(i) Each appropriate subject required for the ground training for the related aircraft.

(ii) Each appropriate maneuver or procedure required for the flight training and crew member emergency training for the related aircraft.

(iii) The number of programmed hours of ground training, flight training and crewmember emergency training necessary based on review of the related aircraft and the duty position.

(c) *Approved related aircraft differences training.* Approved related aircraft differences training for flight crew members may be included in initial, transition, upgrade and recurrent training for the base aircraft. If the certificate holder's approved training program includes related aircraft differences training in accordance with paragraph (b) of this section, the training required by GACAR §§ 121.887, 121.899, 121.903, and 121.919, as applicable to flight crew members, may be modified for the related aircraft.

§ 121.887 Pilots and Flight Engineers: Initial, Transition, and Upgrade Ground Training.

(a) Except as provided in paragraph (b) of this section, initial, transition, and upgrade ground training for pilots and flight engineers must include instruction in at least the following as applicable to their assigned duties:

(1) General subjects—

(i) The certificate holder's dispatch or flight release procedures;

(ii) Principles and methods for determining mass and balance, and runway limitations for takeoff and landing;

(iii) Enough meteorology to ensure a practical knowledge of weather phenomena, including the principles of frontal systems, icing, fog, thunderstorms, windshear, and high altitude weather situations;

(iv) ATC systems, procedures, and phraseology;

(v) Navigation and the use of navigation aids, including instrument approach procedures;

(vi) Normal and emergency communication procedures;

(vii) Visual cues before and during descent below DA/DH or MDA;

(viii) Approved crew resource management (CRM) initial training;

(ix) ETOPS, if applicable, in accordance with Appendix E to this part, and

(x) Other instructions as necessary to ensure pilot or flight engineer competence.

(2) For each aircraft type—

(i) A general description;

(ii) Performance characteristics;

(iii) Engines, propellers, and rotors;

(iv) Major components;

(v) Major aircraft systems (such as, flight controls, electrical, hydraulic); other systems as appropriate; principles of normal, abnormal, and emergency operations; appropriate procedures and limitations;

(vi) Knowledge and procedures for—

(A) Recognizing and avoiding severe weather situations;

(B) Escaping from severe weather situations, in case of inadvertent encounters, including low altitude windshear (except that rotorcraft pilots are not required to be trained in escaping from low altitude windshear); and

(C) Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions.

(vii) Operating aircraft during ground icing conditions as prescribed in the certificate holder's ground deicing/anti icing program under GACAR § 121.1217(b).

(viii) Operating limitations;

(ix) Fuel consumption and cruise control;

(x) Flight planning;

(xi) Each normal and emergency procedure;

(xii) For pilots, stall prevention and recovery in clean configuration, takeoff and maneuvering configuration, and landing configuration.

(xiii) For pilots, upset prevention and recovery; and

(xiv) The approved AFM or equivalent. (b) Initial ground training for pilots who have completed the airline transport pilot certification training program in GACAR § 61.173 must include instruction in at least the following as applicable to their assigned duties:

(1) Ground training specific to the certificate holder's—

(i) Dispatch or flight release procedures;

(ii) Method for determining weight and balance and runway limitations for takeoff and landing;

(iii) Meteorology hazards applicable to the certificate holder's areas of operation;

(iv) Approved departure, arrival, and approach procedures;

(v) Normal and emergency communication procedures; and

(vi) Approved crew resource management training.

(2) The training required by paragraph (a)(2) of this section for the airplane type.

(c) Initial ground training for pilots and flight engineers must consist of at least the following programmed hours of instruction in the required subjects specified in paragraph (a) of this section and in GACAR § 121.879(a) unless reduced under GACAR § 121.851:

(1) Turbopropeller powered airplanes—80 hours.

(2) Turbojet powered airplanes—120 hours.

(3) Rotorcraft—80 hours.

(d) Initial ground training for pilots who have completed the airline transport pilot certification training program in GACAR § 61.173 must consist of at least the following programmed hours of instruction in the required subjects specified in paragraph (b) of this section and in GACAR § 121.879(a) unless reduced under GACAR § 121.851:

(1) Turbopropeller powered airplanes—70 hours.

(2) Turbojet powered airplanes—110 hours.

(3) Rotorcraft—70 hours.

(e) Compliance and pilot programmed hours.

(1) Compliance with the requirements identified in paragraphs (a)(2)(xii) and (a)(2)(xiii) of this section is required no later than March 12, 2019.

(2) Beginning March 12, 2019, initial programmed hours applicable to pilots as specified in paragraphs (c) of this section must include 2 additional hours.

§ 121.889 Pilot: Extended Envelope Training.

(a) Each certificate holder must include in its approved training program, the extended envelope training set forth in this section with respect to each airplane type for each pilot. The extended envelope training required by this section must be performed in a Level C or higher FFS, approved by the President in accordance with GACAR § 121.855.

(b) Extended envelope training must include the following maneuvers and procedures:

(1) Manually controlled slow flight;

(2) Manually controlled loss of reliable airspeed;

(3) Manually controlled instrument departure and arrival;

(4) Upset recovery maneuvers; and

(5) Recovery from bounced landing.

(c) Extended envelope training must include instructor-guided hands on experience of recovery from full stall and stick pusher activation, if equipped.

(d) Recurrent training: Within 24 calendar months preceding service as a pilot, each person must satisfactorily complete the extended envelope training described in paragraphs (b)(1) through (4) and (c) of this section. Within 36 calendar months preceding service as a pilot, each person must satisfactorily complete the extended envelope training described in paragraph (b)(5) of this section.

(e) Compliance with this section is required no later than December 31,2019. For the recurrent training required in paragraph (d) of this section, each pilot qualified to serve as SIC or PIC in operations under this part on December, 2019 must complete the recurrent extended envelope training within 12 calendar

months after December 31,2019.

§ 121.891 Cabin Crew Members: Initial and Transition Ground Training.

(a) Initial and transition ground training for cabin crew members must include instruction in at least the following:

(1) General subjects—

(i) The authority of the PIC;

(ii) Passenger handling, including the procedures to be followed in handling disturbed persons or other persons whose conduct might jeopardize safety; and

(iii) Approved CRM initial training.

(2) For each aircraft 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 the public address system and the means of communicating with flight crew members, including emergency procedures in the case of attempted hijacking or other unusual situations; and

(iii) Proper use of electrical galley equipment and the controls for cabin heat and ventilation.

(b) Initial and transition ground training for cabin crew members must include a competence check to determine ability to perform assigned duties and responsibilities.

(c) Initial ground training for cabin crew members must consist of at least the following programmed hours of instruction in the subjects specified in paragraph (a) of this section and in GACAR § 121.879(a) unless reduced under GACAR § 121.851.

(1) Turbopropeller powered airplanes—8 hours.

(2) Turbojet powered airplanes—16 hours.

(3) Rotorcraft—8 hours.

§ 121.895 Aircraft Dispatchers: Initial and Transition Ground Training.

(a) Initial and transition ground training for aircraft dispatchers must include instruction in at least the following:

(1) General subjects—

(i) Use of communications systems including the characteristics of those systems and the appropriate normal and emergency procedures;

(ii) Meteorology, including various types of meteorological information and forecasts, interpretation of weather data (including forecasting of en route and terminal temperatures and other weather conditions), frontal systems, wind conditions, and use of actual and prognostic weather charts for various altitudes;

(iii) The notice to airmen system;

(iv) Navigation aids and publications;

(v) Joint aircraft dispatcher/pilot responsibilities;

(vi) Characteristics of appropriate aerodromes;

(vii) Prevailing weather phenomena and the available sources of weather information;

(viii) ATC and instrument approach procedures;

(ix) Approved dispatcher resource management (DRM) initial training; and

(x) Contents of the operations manual described in Appendix G to this part.

(2) For each aircraft—

(i) A general description of the aircraft emphasizing operating and performance characteristics, navigation equipment, instrument approach and communication equipment (including the effects of meteorological conditions on radio reception), emergency equipment and procedures, and other subjects having a bearing on aircraft dispatcher duties and responsibilities;

(ii) Flight operation procedures including knowledge and procedures specified in GACAR § 121.887(a)(2)(vi);

(iii) Mass and balance computations;

(iv) Basic aircraft performance dispatch requirements and procedures;

(v) Flight planning including track selection, flight time analysis, and fuel requirements; and

(vi) Emergency procedures.

(3) The training must emphasize emergency procedures, including the alerting of proper governmental, company, and private agencies during emergencies to give maximum help to an aircraft in distress.

(b) Initial and transition ground training for aircraft dispatchers must include a competence check given by an appropriate supervisor or ground instructor demonstrating knowledge and ability with the subjects set forth in paragraph (a) of this section.

(c) Initial ground training for aircraft dispatchers must consist of at least the following programmed hours of instruction in the subjects specified in paragraph (a) of this section and in GACAR § 121.879(a) unless reduced under GACAR § 121.851:

(1) Turbopropeller powered airplanes—40 hours.

(2) Turbojet powered airplanes—40 hours.

(3) Rotorcraft—40 hours.

§ 121.899 Pilots: Initial, Transition, and Upgrade Flight Training.

(a) Initial, transition, and upgrade training for pilots must include the following:

(1) Maneuvers and procedures set forth in the certificate holder’s approved low altitude windshear flight training program and in Appendix B to this part, as applicable; and

(2) Extended envelope training set forth in GACAR § 121.889.

(b) The training required by paragraph (a) of this section must be performed in flight except—

(1) Windshear maneuvers and procedures must be performed in an FFS in which the maneuvers and procedures are specifically authorized to be accomplished;

(2) That the extended envelope training required by GACAR § 121.889 must be performed in a Level C or higher FFS; and

(3) To the extent that certain other maneuvers and procedures may be performed in an FSTD or a static aircraft as permitted in Appendix B to this part.

(c) Except as permitted in paragraph (d) of this section, the initial flight training required by paragraph (a)(1) of this section must include at least the following programmed hours of in flight training and practice unless reduced under GACAR § 121.851:

(1) Turbopropeller powered airplanes—PIC, 15 hours; SIC, 7 hours and

(2) Turbojet powered airplanes—PIC, 20 hours; SIC, 10 hours.

(3) Rotorcraft—PIC, 15 hours; SIC, 7 hours.

(d) If the certificate holder's approved training program includes a course of training using an FFS under GACAR § 121.859(c) and (d) of this part, each pilot must successfully complete—

(1) With respect to GACAR § 121.859(c) of this part—

(i) Training and practice in an FFS in at least all of the maneuvers and procedures in Appendix B to this part for initial flight training that are capable of being performed in a nonvisual simulator and

(ii) A flight check in an FFS or the aircraft to the level of proficiency of a PIC or SIC, as applicable, in at least the maneuvers and procedures set forth in Appendix C to this part as applicable to the type of aircraft being operated, that are capable of being performed in a nonvisual simulator.

(2) With respect to GACAR § 121.859(d) of this part, training and practice in at least the maneuvers and procedures set forth in the certificate holder's approved low altitude windshear flight training program for airplanes that are capable of being performed in an FFS in which the maneuvers and procedures are specifically authorized.

(e) Compliance with paragraphs (a)(2) and (b)(2) of this section is required no later than March 12, 2019.

§ 121.903 Flight Engineers: Initial and Transition Flight Training.

(a) Initial and transition flight training for flight engineers must include at least the following:

(1) Training and practice in procedures related to the carrying out of flight engineer duties and functions. This training and practice may be accomplished either in flight or in an FSTD.

(2) A flight check that includes—

(i) Preflight inspection;

(ii) In flight performance of assigned duties accomplished from the flight engineer station during taxi, run up, takeoff, climb, cruise, descent, approach, and landing; and

(iii) Accomplishment of other functions, such as fuel management and preparation of fuel consumption records, and normal and emergency or alternate operation of all aircraft flight systems, performed either in flight or in an FSTD.

(b) Flight engineers possessing a commercial pilot certificate with an instrument, aircraft category and class rating, or pilots already qualified as SIC and reverting to flight engineer, may complete the entire flight check in an approved FFS.

(c) Except as permitted in paragraph (d) of this section, the initial flight training required by paragraph (a) of this section must include at least the same number of programmed hours of flight training and practice specified for an SIC under GACAR § 121.899(c) unless reduced under GACAR § 121.851.

(d) If the certificate holder’s approved training program includes a course of training using an FSTD under GACAR § 121.859(c), each flight engineer must successfully complete in an FSTD—

(1) Training and practice in at least all of the assigned duties, procedures, and functions required by paragraph (a) of this section and

(2) A flight check to an appropriate level of proficiency in the assigned duties, procedures, and functions.

§ 121.907 Crew Members: Emergency Training.

(a) Each training program must provide the emergency training in this section for each aircraft type, model, and configuration, each required crew member, and each kind of operation conducted, as appropriate for

each crew member and the certificate holder.

(b) Emergency training must provide the following:

(1) Instruction in emergency assignments and procedures, including coordination among crew members;

(2) Individual instruction in the location, function, and operation of emergency equipment including—

(i) Equipment used in ditching and evacuation;

(ii) Portable fire extinguishers, with emphasis on type of extinguisher to be used on different classes of fires; and

(iii) 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; and

(iv) Hijacking and other unusual situations.

(4) Review and discussion of previous aircraft accidents and incidents pertaining to actual emergencies.

(c) Each crew member must accomplish the following emergency training during the specified training periods, using those items of installed emergency equipment for each type of aircraft in which he is to serve (alternate recurrent training required by GACAR § 121.835(c) may be accomplished by approved pictorial presentation or demonstration):

(1) One time emergency drill requirements to be accomplished during initial training. Each crew member must perform—

(i) At least one approved PBE drill in which the crew member combats an actual or simulated fire using at least one type of installed hand fire extinguisher or a training device that has been approved by the President for use in meeting the requirements of this section, appropriate for the type of actual fire or simulated fire to be fought while using the type of installed PBE required by GACAR § 121.513(p) for combatting fires aboard the airplane, or a PBE training device that has been approved by the President for use in meeting the requirements of this section;

(ii) At least one approved firefighting drill in which the crew member combats an actual fire using at least one type of installed hand fire extinguisher or approved fire extinguisher appropriate for the type of fire to be fought. This firefighting drill is not required if the crew member performs the PBE drill of paragraph (c)(1)(i) of this section by combating an actual fire; and

(iii) An emergency evacuation drill with each person evacuating the aircraft or approved training device using at least one type of installed emergency evacuation slide if applicable. The crew member may either observe the aircraft exits being opened in the emergency mode and any 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 months during recurrent training. Each crew member 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 any installed emergency evacuation slides;

(B) Each type of installed hand fire extinguisher;

(C) Each type of emergency oxygen system to include PBE, if applicable;

(D) Donning, use, and inflation of individual flotation means, if applicable;

(E) Ditching, if applicable, including as appropriate—

(I) Flightdeck preparation and procedures,

(II) Crew coordination,

(III) Passenger briefing and cabin preparation,

(IV) Donning and inflation of life preservers,

(V) Use of life lines, and

(VI) Boarding of passengers and crew into raft or a slide/raft pack.

(ii) Observe the following drills—

(A) Removal from the aircraft (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, if applicable;

(C) Deployment, inflation, and detachment from the aircraft (or training device) of each type of slide/raft pack, if applicable; and

(D) Emergency evacuation including the use of a slide if installed.

(d) No crew member may serve in operations under this part unless that crew member has performed the PBE drill and the firefighting drill described by paragraphs (c)(1)(i) and (ii) of this section, as part of a one time training requirement of paragraphs (c)(1) or (2) of this section as appropriate.

(e) Crew members who serve on aircraft operated above 10 000 ft (3 050 m) mean sea level (MSL) must receive—

(1) Instruction in the effects of lack of oxygen and

(2) For crew members serving on pressurized aircraft, instruction in physical phenomena accompanying a loss of pressurization and incidents of decompression.

(f) For purposes of this section—

(1) Actual fire means a fire, ignited under controlled conditions, of sufficient magnitude and duration

to accomplish training objectives.

(2) Approved fire extinguisher means a training device that has been approved by the President for use in meeting the training requirements of GACAR § 121.907(c).

(3) Approved PBE simulation device means a training device that has been approved by the President for use in meeting the training requirements of GACAR § 121.907(c).

(4) Combat means to properly fight an actual or simulated fire using an appropriate type of fire extinguisher until that fire is extinguished.

(5) Observe means to watch without participating actively in the drill.

(6) PBE drill means an emergency drill in which a crew member demonstrates the proper use of PBE while fighting an actual or simulated fire.

(7) Perform means to satisfactorily accomplish a prescribed emergency drill using established procedures that stress the skill of the persons involved in the drill.

(8) 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.

§ 121.911 Crew Members: Training for In Flight Medical Events.

(a) Each training program must provide the instruction in this section with respect to each aircraft type, model, and configuration, each required crew member, and each kind of operation conducted, as appropriate for each crew member and the certificate holder.

(b) Training must provide the following:

(1) Instruction in emergency medical event procedures, including coordination among crew members;

(2) Instruction in the location, functions, and intended operation of emergency medical equipment, including first aid kits and universal precaution kits;

(3) Instruction to familiarize crew members with the content of the emergency medical kit;

(4) For each cabin crew member—

(i) Instruction, to include performance drills, in the proper use of automated external

defibrillators;

(ii) Instruction, to include performance drills, in cardiopulmonary resuscitation; and

(iii) Recurrent training, to include performance drills, in the proper use of automated external defibrillators and in cardiopulmonary resuscitation at least once every 24 months.

(c) The crew member 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.

§ 121.919 Recurrent Training.

(a) Recurrent training must ensure each crew member or aircraft dispatcher receives recurrent training and is adequately trained and currently proficient with respect to the type aircraft (including differences training, if applicable) and crew member position involved.

(b) Recurrent ground training for crew members and aircraft dispatchers must include at least the following:

(1) A quiz or other review to determine the state of the crew member's or aircraft dispatcher's knowledge of the aircraft and position involved.

(2) Instruction as necessary in the subjects required for initial ground training by GACAR §§ 121.879(a) and 121.911, as appropriate, including emergency training (not required for aircraft dispatchers).

(3) For cabin crew members and aircraft dispatchers, a competence check as required by GACAR §§ 121.891(b) and 121.895(b), respectively.

(4) CRM or DRM training. For flight crew members, CRM training or portions of it may be accomplished during an approved simulator line oriented flight training (LOFT) session. The recurrent CRM or DRM training requirement does not apply until a person has completed the applicable initial CRM or DRM training required by GACAR § 121.887, 121.891, or 121.895.

(c) Recurrent ground training for crew members and aircraft dispatchers must consist of at least the following programmed hours unless reduced under GACAR § 121.851:

(1) For pilots and flight engineers—

(i) Turbopropeller powered airplanes—20 hours.

(ii) Turbojet powered airplanes—25 hours.

(iii) Rotorcraft—20 hours.

(2) For cabin crew members—

(i) Turbopropeller powered airplanes—5 hours.

(ii) Turbojet powered airplanes—12 hours.

(iii) Rotorcraft—5 hours.

(3) For aircraft dispatchers—

(i) Turbopropeller powered airplanes—10 hours.

(ii) Turbojet powered airplanes—20 hours.

(iii) Rotorcraft—10 hours.

(d) Recurrent flight training for flight crew members must include at least the following:

(1) For pilots -

(i) Extended envelope training as required by GACAR § 121.889; and

(ii) Flight training in an approved simulator in maneuvers and procedures set forth in the certificate holder's approved low-altitude windshear flight training program and flight training in maneuvers and procedures set forth in Appendix B to this part, or in a flight training program approved by the President, except as follows—

(A) The number of programmed inflight hours is not specified; and

(B) Satisfactory completion of a proficiency check may be substituted for recurrent flight training as permitted in GACAR § 121.433(c) and (e).

(2) For flight engineers - flight training as provided by GACAR § 121.903(a) except as follows:

(i) The specified number of in flight hours is not required; and

(ii) The flight check, other than the preflight inspection, may be conducted in an FSTD. The preflight inspection may be conducted in an aircraft, or by using a 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.

(e) Compliance and pilot programmed hours:

(1) Compliance with the requirements identified in paragraphs (d)(1)(i) of this section is required no later than March 12, 2019.

(2) After March 12, 2019, recurrent programmed hours applicable to pilots as specified in paragraph (c)(1) of this section must include 30 additional minutes.

§ 121.923 Rotorcraft Crew Members: Training Requirements.

“Each certificate holder operating rotorcraft using crew members other than flight crew members and cabin crew members must establish and use a crew member training curriculum appropriate to the duties and responsiblities of the crew members and any other content required by the President.”

SUBPART M – AIRCRAFT DISPATCHER QUALIFICATIONS

§ 121.953 General Qualifications.

(a) No certificate holder may use any person as an aircraft dispatcher nor may any person serve as an aircraft dispatcher unless that person—

(1) Holds an appropriate, current aircraft dispatcher certificate issued or accepted by the President;

(2) Has any required appropriate current certificates in his possession while engaged in operations under this part; and

(3) Is otherwise qualified for the operation for which they are to be used under this part.

(b) Each aircraft dispatcher covered by paragraph (a)(2) of this section must present certificates for inspection upon the request of the President.

§ 121.957 Aircraft Group Qualifications

(a) No certificate holder may use any person, nor may any person serve, as an aircraft dispatcher for a particular aircraft group, as defined in GACAR § 121.5, unless that person has satisfactorily completed the following with respect to an aircraft of that group:

(1) Aircraft dispatcher training under Subpart L of this part.

(2) Operating familiarization consisting of at least 5 hours observing operations under this part from the flightdeck or, for aircraft without an observer seat on the flightdeck, from a forward passenger seat with headset or speaker. This requirement may be reduced to a minimum of 2 1/2 hours by the substitution of one additional takeoff and landing for an hour of flight.

(b) A person may serve as an aircraft dispatcher without meeting the requirement of paragraph (a)(2) of this section for 90 days after initial introduction of the aircraft into operations under this part.

§ 121.961 Operating Familiarization.

(a) No certificate holder may use any person, nor may any person serve, as an aircraft dispatcher unless within the preceding 12 months the aircraft dispatcher has satisfactorily completed operating familiarization consisting of at least 5 hours observing operations under this part, in one of the types of aircraft in each group, as defined in GACAR § 121.5, to be dispatched. This observation must be made from the flightdeck or, for aircraft without an observer seat on the flightdeck, from a forward passenger seat

with headset or speaker.

(b) The requirement of paragraph (a) of this section may be reduced to a minimum of 2 1/2 hours by the substitution of one additional takeoff and landing for an hour of flight.

(c) The requirement of paragraph (a) of this section may be satisfied by observation of 5 hours of simulator training for each aircraft group in one of the simulators approved under GACAR § 121.855 for the group. However, if the requirement of paragraph (a) of this section is met by the use of a simulator, no reduction in hours is permitted.

§ 121.965 Area Familiarization.

No certificate holder may use any person, nor may any person serve as an aircraft dispatcher to dispatch aircraft in operations under this part unless the certificate holder has determined he is familiar with all essential operating procedures for that segment of the operation over which he exercises dispatch jurisdiction. However, an aircraft dispatcher who is qualified to dispatch aircraft through one segment of an operation may dispatch aircraft through other segments of the operation after coordinating with dispatchers who are qualified to dispatch aircraft through those other segments.

SUBPART N – FATIGUE MANAGEMENT REQUIREMENTS

§ 121.1001 Applicability.

This subpart prescribes requirements for the management of fatigue for pilots, flight engineers, maintenance and preventive maintenance personnel, aircraft dispatchers, and cabin crew members.

(a) A certificate holder has the option to—

(1) Except for special unscheduled operations as provided in paragraph (b) of this section, comply with all of the flight crew member flight time and duty limitations and requirements prescribed in GACAR Part 117 for scheduled and unscheduled operations or

(2) Implement a comprehensive fatigue risk management system (FRMS) that provides an equivalent level of safety to the flight time, duty period, and duty time limitations and rest requirements. Each FRMS must comply with all of the applicable requirements for an FRMS as prescribed in GACAR Part 5 and must be approved by the President.

(b) A certificate holder conducting special unscheduled operations must comply with the requirements for the management of fatigue for pilots, maintenance and preventive maintenance personnel, aircraft dispatchers and cabin crew members in Subpart N of GACAR Part 135, as applicable.

§ 121.1033 Maintenance and Preventive Maintenance Personnel Duty Time Limitations.

Each certificate holder (or person performing maintenance or preventive maintenance functions for the certificate holder) must relieve each person performing maintenance or preventive maintenance from duty for a period of at least 24 consecutive hours during any 7 consecutive days, or the equivalent thereof within any 1 month.

§ 121.1037 Aircraft Dispatcher Duty Time Limitations.

(a) Each certificate holder must establish the daily duty period for an aircraft dispatcher so 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 aircraft. He must remain on duty until each aircraft he dispatched has completed its flight, or has gone beyond his jurisdiction, or until he is relieved by another qualified aircraft dispatcher.

(b) Except in cases where circumstances or emergency conditions beyond the control of the certificate holder require otherwise—

(1) No certificate holder conducting scheduled operations (or conducting unscheduled operations using an aircraft dispatcher) may schedule an aircraft dispatcher for more than 10 consecutive hours of duty;

(2) If an aircraft dispatcher is scheduled for more than 10 hours of duty in 24 consecutive hours, the certificate holder must provide him a rest period of at least 8 hours at or before the end of 10 hours of duty.

(3) Each aircraft dispatcher must be relieved of all duty with the certificate holder for at least 24 consecutive hours during any 7 consecutive days or the equivalent thereof within any month.

(c) Notwithstanding paragraphs (a) and (b) of this section, a certificate holder may, if authorized by the President, schedule an aircraft dispatcher at a location outside of the Kingdom of Saudi Arabia for more than 10 consecutive hours of duty in a 24 hour period if that aircraft dispatcher is relieved of all duty with the certificate holder for at least 8 hours during each 24 hour period.

§ 121.1041 Cabin Crew Member Duty Period Limitations and Rest Requirements.

(a) Except as provided in paragraph (b) of this section, a certificate holder may assign a duty period to a cabin crew member only when the applicable duty period limitations and rest requirements of this paragraph are met.

(1) Except as provided in paragraphs (a)(4) through (6) of this section, no certificate holder may assign a cabin crew member to a scheduled duty period of more than 14 hours.

(2) Except as provided in paragraph (a)(3) of this section, a cabin crew member scheduled to a duty period of 14 hours or less as provided under paragraph (a)(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 (a)(2) of this section may be scheduled or reduced to 8 consecutive hours if the cabin crew member 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 certificate holder may assign a cabin crew member to a scheduled duty period of more than 14 hours, but no more than 16 hours, if the certificate holder has assigned to the flight or flights in that duty period at least one cabin crew member in addition to the minimum cabin crew member

complement required for the flight or flights in that duty period under the certificate holder's operations specifications.

(5) A certificate holder may assign a cabin crew member to a scheduled duty period of more than 16 hours, but no more than 18 hours, if the certificate holder has assigned to the flight or flights in that duty period at least two cabin crew members in addition to the minimum cabin crew member complement required for the flight or flights in that duty period under the certificate holder's operations specifications.

(6) A certificate holder may assign a cabin crew member 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 the Kingdom of Saudi Arabia, and if the certificate holder has assigned to the flight or flights in that duty period at least three cabin crew members in addition to the minimum cabin crew member complement required for the flight or flights in that duty period under the certificate holder's operations specifications.

(7) Except as provided in paragraph (a)(8) of this section, a cabin crew member scheduled to a duty period of more than 14 hours but no more than 20 hours, as provided in paragraphs (a)(4) through (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 (a)(7) of this section may be scheduled or reduced to 10 consecutive hours if the cabin crew member 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 (a)(4) through (6) of this section, if a certificate holder elects to reduce the rest period to 10 hours as authorized by paragraph (a)(8) of this section, the certificate holder may not schedule a cabin crew member 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 certificate holder may assign a cabin crew member any duty period with the certificate holder unless the cabin crew member has had at least the minimum rest required under this section.

(11) No certificate holder may assign a cabin crew member to perform any duty with the certificate holder during any required rest period.

(12) Time spent in transportation, not local in character, that a certificate holder's operations require of a cabin crew member and which transports him to an aerodrome at which he is to serve on a flight as a crew member, or from an aerodrome at which he was relieved from duty to return to the cabin crew member's home station, is not considered part of a rest period.

(13) Each certificate holder must relieve each cabin crew member from all duty for at least 24 consecutive hours during any 7 consecutive days.

(14) A cabin crew member is not considered to be scheduled for duty in excess of duty period limitations if the flights to which the cabin crew member is assigned are scheduled and normally terminate within the limitations, but which due to circumstances beyond the control of the certificate holder (such as adverse weather conditions) are not at the time of departure expected to reach their destination within the scheduled time.

(15) The time spent by any crew member conducting passenger boarding or deplaning duties in accordance with GACAR § 121.757 is considered duty time.

(b) Notwithstanding paragraph (a) of this section, a certificate holder may apply the flight crew member flight time and duty limitations and requirements of GACAR Part 117 to cabin crew members for all operations conducted under this part—

(1) The certificate holder establishes written procedures that—

(i) Apply to all cabin crew members used in the certificate holder's operation;

(ii) Include the flight crew member requirements contained in GACAR Part 117, as appropriate to the operation being conducted, except that rest facilities on board the aircraft are not required;

(iii) Include provisions to add one cabin crew member to the minimum cabin crew member complement for each flight crew member 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 GACAR Part 117, as applicable; and

(iv) Are approved by the President and are described or referenced in the certificate holder's operations specifications; and

(2) Whenever the President finds revisions are necessary for the continued adequacy of the written procedures required by paragraph (b)(1) of this section and that had been granted final approval, he

will notify the certificate holder who must make any required changes in the procedures. A certificate holder may petition the President to reconsider the notice to make a change under the specified procedures in GACAR Part 13.

SUBPART O – FLIGHT OPERATIONS

§ 121.1101 Applicability.

This subpart prescribes requirements for flight operations applicable to all certificate holders, except where otherwise specified. Additional flight operations rules applicable to certificate holders and their flight operations personnel are specified in GACAR Part 91.

§ 121.1105 Responsibility for Operational Control.

(a) Each certificate holder is responsible for operational control.

(b) Each certificate holder must use an operational control system in accordance with Subpart P of this part.

(c) Each PIC of an aircraft is, during flight time, in command of the aircraft and crew and is responsible for the safety of the passengers, crew members, cargo, and aircraft.

(d) Each PIC has full control and authority in the operation of the aircraft, without limitation, over other crew members and their duties during flight time, whether or not he holds valid certificates authorizing him to perform the duties of those crew members.

(e) No pilot may operate an aircraft in a careless or reckless manner endangering life or property.

§ 121.1109 Operations Schedules: Scheduled Operations.

In establishing flight operations schedules, each certificate holder conducting scheduled operations must allow enough time for the proper servicing of aircraft at intermediate stops, and must consider the prevailing winds en route 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.

§ 121.1113 Compliance With Approved Routes and Limitations: Scheduled Operations.

No pilot may operate an aircraft in scheduled commercial air transportation—

(a) Over any route or route segment unless it is specified in the certificate holder’s operations specifications or

(b) Other than under the limitations in the operations specifications.

§ 121.1117 Use of Certificated Land Aerodromes.

(a) Except as provided in paragraphs (b) and (c) of this section, or unless authorized by the President, no certificate holder and no pilot being used by a certificate holder may operate an aircraft at a land aerodrome in the Kingdom of Saudi Arabia unless that aerodrome is certificated under GACAR Part 139.

(b) A certificate holder and a pilot being used by the certificate holder may designate and use as a required alternate aerodrome for departure or destination an aerodrome that is not certificated under GACAR Part 139.

(c) A certificate holder conducting special unscheduled operations or a pilot being used by a certificate holder conducting special unscheduled operations may operate an aircraft at a land aerodrome in the Kingdom of Saudi Arabia not certificated under GACAR Part 139 only when the following conditions are met:

(1) The aerodrome is adequate for the proposed operation, considering such items as size, surface, obstructions, and lighting.

(2) For an aircraft carrying passengers at night, the pilot may not take off from, or land at, an aerodrome unless—

(i) The pilot has determined the wind direction from an illuminated wind direction indicator or local ground communications or, in the case of takeoff, that pilot’s personal observations and

(ii) The limits of the area to be used for landing or takeoff are clearly shown—

(A) For airplanes, by boundary or runway marker lights;

(B) For rotorcraft, by boundary or runway marker lights or reflective material.

(d) For purposes of paragraph (c) of this section, if the area to be used for takeoff or landing is marked by flare pots or lanterns, their use must be authorized by the President.

(e) Except for any certificate holder conducting special unscheduled operations and as provided in paragraph (b) of this section, no certificate holder and no pilot being used by a certificate holder may operate an aircraft at a land aerodrome outside the Kingdom of Saudi Arabia when conducting passenger carrying operations unless that aerodrome is in a contracting state to the Convention on International Civil Aviation and is certificated to the standards of Annex 14 to said convention.

(f) No certificate holder and no pilot being used by a certificate holder may operate an aircraft at a land

aerodrome unless the aerodrome specified in the Operational Flight Plan (OFP) meets the published minimum rescue and firefighting services (RFFS) category specified in the following table:

Table 121–5. Minimum Aerodrome RFFS Category.

Aerodromes	Published Minimum Aerodrome RFFS Category	Temporary Downgrade published via NOTAM
Departure and destination aerodrome	One category below the aircraft RFFS category but not lower than RFFS Category1.	Two categories below the aircraft RFFS category but not lower than Category 1.
	For all cargo operations, twocategories below the aircraft RFFS category but not lower than RFFS Category 1.	For all cargo operations, three categories below the aircraft RFFS category but not lower than Category 1.
Takeoff alternate, destination alternate and other enroute alternate aerodromes	Two categories below the aircraft RFFS category but not lower than RFFS Category1.	RFFS Category 4 or two categories below the aircraft RFFS category if this is less than RFFS Category 4 but not lower than RFFS Category 1.
	For all cargo operations, threecategories below the aircraft RFFS category but not lower than RFFS Category1.	
ETOPS en route alternate aerodromes	RFFS Category 4 or two categories below the aircraft RFFS category if this is less than RFFS Category 4 but not lower than RFFS Category 1.An RFFS Category 4 equivalent at 30 minutes' notice is acceptable.	No downgrade

§ 121.1125 Restriction or Suspension of Operation.

When a certificate holder or PIC knows of conditions, including aerodrome and runway conditions, hazardous to safe operations, the certificate holder or the PIC, as applicable, must restrict or suspend operations until those conditions are corrected.

§ 121.1129 Emergencies.

(a) In an emergency situation requiring immediate decision and action, the PIC may take any action he considers necessary under the circumstances. In such a case, a pilot may deviate from prescribed operations procedures, methods, weather minimums, and the GACAR to the extent required in the interest of safety.

(b) In an emergency situation arising during flight requiring immediate decision and action by an aircraft dispatcher or appropriate management personnel for unscheduled operations conducted with a flight following service, the aircraft dispatcher or appropriate management personnel must advise the PIC of the emergency, ascertain the decision of the PIC, and have the decision recorded. If the aircraft dispatcher or appropriate management personnel cannot communicate with the pilot, the dispatcher or appropriate management personnel must declare an emergency and take any action necessary under the circumstances.

(c) Whenever a PIC, aircraft dispatcher, or appropriate management personnel exercises emergency authority, that person must keep the appropriate ATC facility and dispatch centers or appropriate communication facility fully informed of the progress of the flight. The person declaring the emergency must send a written report of any deviation, through the certificate holder's operations manager for scheduled operations or director of operations for unscheduled operations, to the President. For scheduled operations, an aircraft dispatcher must send his report within 10 days after the date of the emergency, and a PIC must send a report within 10 days after returning to his home base. For unscheduled operations, the person declaring the emergency must send his report within 10 days after the flight is completed or, in the case of operations outside the Kingdom of Saudi Arabia, upon return to the home base.

§ 121.1133 Cosmic Radiation.

(a) A certificate holder must take account of the in flight exposure to cosmic radiation for each crew member while on duty (including conducted for purposes of positioning aircraft or crew members) and must take the following measures for those crew members who are likely to be exposed to more than 1 millisievert (mSv)(100 millirem (mrem)) per year:

(1) Assess their exposure;

(2) Consider the assessed exposure when organizing working schedules with a view to reduce the doses of highly exposed crew members;

(3) Inform the crew members concerned about the health risks their work involves;

(4) Ensure that the working schedules for female crew members, once they have notified the air operator that they are pregnant, keep the equivalent dose to the fetus as low as can reasonably be achieved and in any case ensure that the dose does not exceed 1 mSv (100 mrem) for the remainder of the pregnancy; and

(5) Ensure that individual records are kept for those crew members subject to high exposure.

(6) Report exposures to the individual annually, and upon leaving the air operator.

(b) A certificate holder must not operate an airplane above 49 000 ft (14 950 m) unless the equipment to measure and indicate continuously the dose rate of total cosmic radiation being received and the cumulative dose on each flight as specified in GACAR Part 91 is serviceable.

(c) The pilot to whom conduct of the flight has been delegated must initiate a descent as soon as practicable when the limit values of cosmic radiation dose rate specified in the operations manual are exceeded.

§ 121.1137 Flight Crew Member Duties.

(a) No certificate holder may require, nor may any flight crew member 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 confirming passenger connections, announcements made to passengers promoting flight operations 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 crew member may engage in, nor may any PIC permit, any activity during a critical phase of flight which could distract any flight crew member from the performance of his duties or which could interfere in any way with the proper conduct of those duties. Activities such as eating meals, engaging in nonessential conversations on the flightdeck and nonessential communications between the cabin crew members and pilots, 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, critical phases of flight includes all ground operations involving taxi,

takeoff and landing, and all other flight operations conducted below 10 000 ft (3 050 m), except cruise flight.

§ 121.1141 Flight Crew Members at Controls.

(a) Except as provided in paragraph (b) of this section, each required flight crew member on flightdeck duty must remain at the assigned duty station ;

(1) With safety belt and shoulder harness fastened during the takeoff and landing phases . All flight crew members other than pilots must keep their s safety belts and shoulder harnesses fastened during the take-off and landing phases unless the shoulder straps interfere with the performance of their duties, in which case the shoulder harness may be unfastened but the seat belt must remain fastened.

(2) With safety belt fastened while the aircraft is en route.

(b) A required flight crew member may leave the assigned duty station—

(1) If the crew member’s absence is necessary for the performance of duties in connection with the operation of the aircraft;

(2) If the crew member’s absence is in connection with physiological needs; or

(3) If the crew member is taking a rest period during the en route cruise portion of the flight, and relief is provided—

(i) In the case of the assigned PIC during the en-route cruise portion of the flight, by a pilot who holds an ATP certificate and an appropriate type rating, is currently qualified as PIC or SIC, and is qualified as PIC of that aircraft during the en-route cruise portion of the flight. An SIC qualified to act as a PIC en-route need not have completed the following PIC requirements:

(A) The 6-month recurrent flight training required by GACAR §121.835(c)(1)(iii);

(B) The operating experience required by GACAR § 121.789;

(C) The takeoffs and landings required by GACAR § 121.769;

(D) The line check required by GACAR § 121.793; and

(E) The 6-month proficiency check or simulator training required by GACAR §

121.797(a)(1); and

(ii) In the case of the assigned SIC, by a pilot qualified to act as SIC of that aircraft during en-route operations. However, the relief pilot need not meet the recent experience requirements of GACAR § 121.769(b).

§ 121.1143 Pilot monitoring.

Each pilot who is seated at the pilot controls of the aircraft, while not flying the aircraft, must accomplish pilot monitoring duties as appropriate in accordance with the certificate holder's procedures contained in the manual required by GACAR § 121.139.

§ 121.1145 Admission to Flightdeck.

(a) No person may admit any person to the flightdeck of an aircraft unless the person being admitted is—

(1) A crew member;

(2) A GACA flight operations inspector or an authorized representative of the AIB, who is performing official duties;

(3) Any person who—

(i) Has permission of each of the following three persons: the PIC, an appropriate management official of the GACAR Part 119 certificate holder, and the President; and

(ii) Is an employee of—

(A) The Government of the Kingdom of Saudi Arabia,

(B) A GACAR Part 119 certificate holder and whose duties are such that admission to the flightdeck is necessary or advantageous for safe operation; or

(C) A regulated entity certificated by the President and whose duties are such that admission to the flightdeck is necessary or advantageous for safe operations.

(4) Any other person who has the permission of each of the following three persons: the PIC, an appropriate management official of the GACAR Part 119 certificate holder, and the President.

(b) Paragraph (a)(2) of this section does not limit the emergency authority of the PIC to exclude any

person from the flightdeck in the interests of safety.

(c) For the purposes of paragraph (a)(3) of this section, employees of the Government of the Kingdom of Saudi Arabia who deal responsibly 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 must 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.

(d) No person may admit any person to the flightdeck unless there is a seat available for his use in the passenger compartment, except—

(1) A GACA flight operations inspector or authorized representative of the President or AIB who is checking or observing flight operations;

(2) An air traffic controller who is authorized by the President to observe ATC procedures;

(3) A certificated airman employed by the certificate holder whose duties require an airman certificate;

(4) A certificated airman employed by another GACAR Part 119 certificate holder whose duties with that certificate holder require an airman certificate and who is authorized by the GACAR Part 119 certificate holder operating the aircraft to make specific trips over a route;

(5) An employee of the GACAR Part 119 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 flightdeck 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 components whose duties are directly related to the in flight monitoring of aircraft equipment or operating procedures, if his presence on the flightdeck is necessary to perform his duties and he has been authorized in writing by the President and by a responsible supervisor of the operations department of the GACAR Part 119 certificate holder, listed in the operations manual as having that authority.

§ 121.1149 Manipulation of Controls.

No PIC 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 President or of the AIB who has the permission of the PIC, is qualified in the aircraft, and is checking flight operations; or

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

§ 121.1153 Admission to Flightdeck: Government Security Agents.

Whenever an agent of a government security service who is assigned the duty of protecting a person aboard an aircraft operated by a certificate holder considers it necessary in the performance of his duty to ride on the flightdeck of the aircraft, he must, upon request and presentation of his official credentials to the PIC of the aircraft, be admitted to the flightdeck and permitted to occupy an observer seat.

§ 121.1157 Admission to Flightdeck: Aviation Safety Inspector's Credentials.

Whenever, in performing the duties of conducting an inspection, a GACA inspector presents an official Aviation Safety Inspector credential to the PIC of an aircraft operated by a certificate holder, the inspector must be given free and uninterrupted access to the flightdeck of that aircraft.

§ 121.1161 Observer's Seat: En Route Inspections.

(a) Except as provided in paragraph (c) of this section, each certificate holder must make available a seat on the flightdeck of each aircraft for occupancy by a GACA inspector while conducting an en route inspection. The location and equipment of the seat, with respect to its suitability for use in conducting an en route inspection, is determined by the President.

(b) In each aircraft that has more than one observer's seat, in addition to the seats required for the crew complement for which the aircraft was certificated, the forward observer's seat or the observer's seat selected by the GACA inspector must be made available when complying with paragraph (a) of this section.

(c) For any aircraft type certificated before 20 December 1995, for not more than 30 passengers that does not have an observer seat on the flightdeck, the certificate holder must provide a forward passenger seat with headset or speaker for occupancy by the GACA inspector while conducting en route inspections.

§ 121.1165 Closing and Locking of Flightdeck Door.

(a) Except as provided in paragraph (b) of this section, a PIC of an aircraft that has a lockable flightdeck door under GACAR § 121.513(q) and that is carrying passengers must ensure that the door separating

the flightdeck from the passenger compartment is closed and locked at all times when the aircraft is being operated.

(b) Paragraph (a) of this section do not apply at any time when it is necessary to permit access and egress by persons authorized under GACAR § 121.1145 and provided the GACAR Part 119 certificate holder complies with procedures approved by the President regarding the opening, closing and locking of the flightdeck doors.

§ 121.1169 Requirement To View the Area Outside the Flightdeck Door.

From the time the aircraft moves in order to initiate a flight segment through the end of that flight segment, no person may unlock or open the flightdeck door unless—

(a) A person authorized to be on the flightdeck uses an approved audio procedure and an approved visual device to verify that—

(1) The area outside the flightdeck door is secure and

(2) If someone outside the flightdeck is seeking to have the flightdeck door opened, that person is not under duress, and;

(b) After the requirements of paragraph (a) of this section have been satisfactorily accomplished, the crew member in charge on the flightdeck authorizes the door to be unlocked and opened.

§ 121.1173 Means To Discreetly Notify a Flight Crew Member.

For all passenger carrying aircraft that require a lockable flightdeck door, the certificate holder must have an approved means by which the cabin crew members can discreetly notify the flight crew in the event of suspicious activity or security breaches in the cabin.

§ 121.1177 Flying Equipment.

(a) The PIC must ensure that appropriate aeronautical charts containing adequate information concerning navigation aids and instrument approach procedures are aboard the aircraft for each flight.

(b) Each crew member must, on each flight, have readily available for his use a flashlight in good working order.

§ 121.1181 Flight Crew Equipment.

A flight crew member assessed as fit to exercise the privileges of a certificate, subject to the use of suitable

correcting lenses, must have a spare set of the correcting lenses readily available when exercising those privileges.

§ 121.1185 Portable Breathing Equipment: Preflight Inspection.

(a) Before each flight, each PBE at a flight crew member duty station must be checked by the flight crew member who will use the equipment to ensure that the equipment—

(1) 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

(2) For chemical oxygen generator systems, is serviceable and fits properly (unless a universal fit type).

(b) Each PBE stored at a location other than a flight crew member duty station must be checked by a designated crew member 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 crew member to perform those checks before he takes off in that aircraft for his first flight of the day.

§ 121.1189 Aircraft Evacuation Capability.

(a) No person may cause an aircraft carrying passengers to be moved on the surface, take off, or land unless each automatically deployable emergency evacuation assisting means installed under GACAR § 25.810 or 29.809, as applicable, is ready for evacuation.

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

§ 121.1193 Reporting Mechanical Irregularities.

The PIC must ensure all mechanical irregularities occurring during flight time are entered in the maintenance log of the aircraft at the end of that flight time. Before each flight, the PIC must ascertain the status of each irregularity entered in the log at the end of the preceding flight.

§ 121.1201 Instrument Approach Procedures and IFR Landing Minimums.

No person may make an instrument approach at an aerodrome except under IFR weather minimums and instrument approach procedures set forth in the certificate holder’s operations specifications.

§ 121.1205 VFR Takeoff and Landing Weather Minimums.

(a) Except as provided in paragraph (b) of this section, no pilot may take off or land an aircraft under VFR when the reported ceiling or visibility is less than the following:

(1) For day operations—1 000 ft (300 m) ceiling and 1 850 m visibility.

(2) For authorized night operations—1 000 ft (300 m) ceiling and 3 700 m visibility.

(b) Where a local surface restriction to visibility exists (for example, smoke, dust, blowing snow or sand) the visibility for day and authorized night operations may be reduced to 800 m, if all turns after takeoff and prior to landing, and all flight beyond 1 850 m (1 NM) from the aerodrome 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 GACAR § 91.167 are not applicable. The basic VFR weather minimums of GACAR § 91.165 apply at those locations.

§ 121.1209 Flight Altitude Rules.

(a) *General.* Notwithstanding GACAR § 91.67 or any rule applicable outside the Kingdom of Saudi Arabia, 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 navigation facilities available, and other flight conditions, the President 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 the Kingdom of Saudi Arabia the minimums prescribed in this section are controlling unless higher minimums are prescribed in a certificate holder’s operations specifications or by the foreign country over which the aircraft is operating.

(b) *Day VFR operations.* No person may operate any aircraft under VFR during the day at an altitude less than 1 000 ft (300 m) above the surface or less than 1 000 ft (300 m) from any mountain, hill, or other obstruction to flight.

(c) *Authorized night VFR, IFR, and over the top operations.* No person may operate an aircraft under IFR including over the top or authorized VFR at night at an altitude less than 1 000 ft (300 m) above the highest obstacle within a horizontal distance of 9 km (5 NM) from the center of the intended course, or, in designated mountainous areas, less than 2 000 ft (600 m) above the highest obstacle within a horizontal distance of 9 km (5 NM) from the center of the intended course.

(d) *Day over-the-top operations below minimum en route altitudes.* A person may conduct day over the top operations in an aircraft at flight altitudes lower than the minimum en route IFR altitudes if—

(1) The operation is conducted at least 1 000 ft (300 m) 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 9 km (5 NM); and

(4) The base of any higher broken or overcast cloud cover is generally uniform and level and is at least 1 000 ft (300 m) above the minimum en route IFR altitude for that route segment.

§ 121.1213 Operation in Icing Conditions: General.

(a) No person may take off an aircraft that has frost, ice, or snow adhering to the aircraft or when the takeoff would not be in compliance with GACAR § 121.1217 except takeoffs may be made with frost under the wing in the area of the fuel tanks if authorized by the President.

(b) No certificate holder may authorize an aircraft to operate in ground icing conditions and no pilot may operate 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 deicing/anti icing program that complies with GACAR § 121.1217 and the takeoff complies with that program.

(c) No person may continue to operate an aircraft en route or land an aircraft when icing conditions are expected or met that might adversely affect the safety of flight.

§ 121.1215 Operation in Icing Conditions: Airplanes With a Maximum Takeoff Mass Less Than 27 215 kg.

No person may operate an airplane with a certificated maximum takeoff weight less than 27 251 kg in conditions conducive to airframe icing unless it complies with this section. As used in this section, the phrase "conditions conducive to airframe icing" means visible moisture at or below a static air temperature of 5 °C or a total air temperature of 10 °C, unless the Aircraft Flight Manual provides another definition.

(a) When operating in conditions conducive to airframe icing, compliance must be shown with paragraph (a)(1), or (2), or (3) of this section.

(1) The airplane must be equipped with an approved primary airframe ice detection system.

(i) The airframe ice protection system must be activated automatically or manually by the flight crew, when the primary ice detection system indicates activation is necessary.

(ii) When the airframe ice protection system is activated, any other procedures in the Aircraft Flight Manual for operating in icing conditions must be initiated.

(2) Visual cues of the first sign of ice formation anywhere on the airplane and an approved advisory airframe ice detection system must be provided.

(i) The airframe ice protection system must be activated when any of the visual cues are observed or when the advisory airframe ice detection system indicates activation is necessary, whichever occurs first.

(ii) When the airframe ice protection system is activated, any other procedures in the Aircraft Flight Manual for operating in icing conditions must be initiated.

(3) If the airplane is not equipped to comply with the provisions of paragraph (a)(1) or (2) of this section, then the following apply:

(i) When operating in conditions conducive to airframe icing, the airframe ice protection system must be activated prior to, and operated during, the following phases of flight:

(A) Takeoff climb after second segment,

(B) En route climb,

(C) Go-around climb,

(D) Holding,

(E) Maneuvering for approach and landing, and

(F) Any other operation at approach or holding airspeeds.

(ii) During any other phase of flight, the airframe ice protection system must be activated and operated at the first sign of ice formation anywhere on the airplane, unless the Aircraft Flight Manual specifies that the airframe ice protection system should not be used or provides other operational instructions.

(iii) Any additional procedures for operation in conditions conducive to icing specified in the Aircraft Flight Manual or in the manual required by GACAR § 121.139 must be initiated.

(b) If the procedures specified in paragraph (a)(3)(i) of this section are specifically prohibited in the Aircraft Flight Manual, compliance must be shown with the requirements of paragraph (a)(1) or (2) of this section.

(c) Procedures necessary for safe operation of the airframe ice protection system must be established and documented in:

(1) The Aircraft Flight Manual for airplanes that comply with paragraph (a)(1) or (2) of this section, or

(2) The Aircraft Flight Manual or in the manual required by GACAR § 121.139 for airplanes that comply with paragraph (a)(3) of this section.

(d) Procedures for operation of the airframe ice protection system must include initial activation, operation after initial activation, and deactivation. Procedures for operation after initial activation of the ice protection system must address--

(1) Continuous operation,

(2) Automatic cycling,

(3) Manual cycling if the airplane is equipped with an ice detection system that alerts the flightcrew each time the ice protection system must be cycled, or

(4) Manual cycling based on a time interval if the airplane type is not equipped with features necessary to implement (d)(1)-(3) of this section.

(e) System installations used to comply with paragraph (a)(1) or (a)(2) of this section must be approved in accordance with GACAR Part 21.

§ 121.1217 Ground Deicing/Anti Icing Program Requirements.

An approved ground deicing/anti icing program must include at least the following items:

(a) A detailed description of—

(1) 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,

(2) Who is responsible for deciding that ground deicing/anti icing operational procedures must be in effect,

(3) The procedures for implementing ground deicing/anti icing operational procedures, and

(4) 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.

(b) Initial and annual recurrent ground training and testing for flight crew members and qualification for all other affected personnel (for example, aircraft dispatchers, ground crews, 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:

(1) The use of holdover times when using deicing/anti icing fluids

(2) Aircraft deicing/anti icing procedures, including inspection and check procedures and responsibilities,

(3) Communications procedures,

(4) Aircraft surface contamination (that is, adherence of frost, ice, or snow) and critical area identification, and how contamination adversely affects aircraft performance and flight characteristics,

(5) Types and characteristics of deicing/anti icing fluids,

(6) Cold weather preflight inspection procedures, and

(7) Techniques for recognizing contamination on the aircraft.

(c) 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 President. The certificate holder's program must include procedures

for flight crew members 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:

(1) A pre takeoff contamination check, as defined in paragraph (d) 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.

(2) An alternate procedure approved by the President under the certificate holder's approved program 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.

(3) The wings, control surfaces, and other critical surfaces are re deiced and a new holdover time is determined.

(d) 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 5 minutes before beginning takeoff and must be accomplished from outside the aircraft unless the program specifies otherwise.

§ 121.1221 Carry On Baggage.

(a) Except for certificate holders conducting special unscheduled operations, no certificate holder may allow the boarding of carry on baggage on an aircraft 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 aircraft if his 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 aircraft to be closed in preparation for taxi or pushback unless at least one required crew member has verified that each article of baggage is stowed in accordance with this section and GACAR Part 91.

(c) No certificate holder may allow an aircraft to take off or land unless each article of baggage is stowed—

(1) In a suitable closet or baggage or cargo stowage compartment placarded for its maximum mass 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;

(2) As provided in GACAR Part 91; or

(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 crew members regarding compliance with paragraphs (a) through (d), and (g) of this section.

(f) Each passenger seat under which baggage is allowed to be stowed must be fitted with a means to prevent articles of baggage stowed under it from sliding forward. In addition, each aisle seat must 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 aircraft was type certificated.

(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;

(2) Between a nonemergency exit window seat and the fuselage, if the cane is flat on the floor;

(3) Beneath any two nonemergency exit window seats, if the cane is flat on the floor; or

(4) Under any other method approved by the President.

§ 121.1225 Carriage of Cargo in Passenger Compartments.

(a) Notwithstanding the carriage of cargo requirements in GACAR § 91.53 and except as provided in paragraph (b), (c), or (d) of this section, no certificate holder may carry cargo in the passenger compartment of an aircraft.

(b) Cargo may be carried anywhere in the passenger compartment if it is carried in an approved cargo bin that is installed to meet the following requirements:

(1) The bin must withstand the load factors and emergency landing conditions applicable to the passenger seats of the aircraft in which the bin is installed, multiplied by a factor of 1.15, using the combined mass of the bin and the maximum mass of cargo that may be carried in the bin.

(2) The maximum mass of cargo that the bin is approved to carry and any instructions necessary to ensure proper mass 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 aircraft 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 aircraft, and its attachment must withstand the load factors and emergency landing conditions applicable to the passenger seats of the aircraft in which the bin is installed, multiplied by either the factor 1.15 or the seat attachment factor specified for the aircraft, whichever is greater, using the combined mass of the bin and the maximum mass 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 GACAR § 25.561(b)(3) or 29.561(b)(3) as applicable and is loaded as follows:

(1) It is properly secured by a safety belt or other tiedown 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.

(d) Cargo, including carry on baggage, may be carried anywhere in the passenger compartment of a commuter category airplane, if it is carried in an approved cargo rack, bin, or compartment installed in or on the aircraft, if it is secured by an approved means, or if it is carried in accordance with each of the following:

(1) For cargo, 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, or for carry on baggage, it is restrained so as to prevent its movement during air turbulence.

(2) It is packaged or covered to avoid possible injury to occupants.

(3) It does not impose any load on seats or in the floor structure that exceeds the load limitation for those components.

(4) It is not located in a position that obstructs the access to, or use of, any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment, or is located in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign or placard, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passengers is provided.

(5) It is not carried directly above seated occupants.

(6) It is stowed in compliance with this section for takeoff and landing.

(7) For cargo only operations, paragraph (d)(4) of this section does not apply if the cargo is loaded so that at least one emergency or regular exit is available to provide all occupants of the aircraft a means of unobstructed exit from the aircraft if an emergency occurs.

§ 121.1229 Retention of Items of Mass in Passenger and Crew Compartments.

The certificate holder must provide and use a 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 aircraft was type certificated.

§ 121.1233 Carriage of Persons Without Compliance With the Passenger Carrying Requirements of This Part.

(a) When authorized by the certificate holder, the following persons, but no others, may be carried aboard an aircraft without complying with the passenger carrying aircraft requirements in GACAR §§ 121.441, 121.445, 121.449, 121.513(s)(1), (t)(1), and (u)(1), 121.753, 121.1165, and 121.1249; the passenger carrying operation requirements in GACAR 121.213; and the requirements pertaining to passengers in GACAR §§ 121.513(o), 121.529, 121.1145, 121.1225, 121.1245, and 121.1253:

(1) A crew member;

(2) A company employee;

(3) A GACA inspector or an authorized representative of the AIB who is performing official duties;

(4) A person necessary for—

(i) The safety of the flight;

(ii) The safe handling of animals;

(iii) The safe transportation of dangerous goods by air, the carriage of which is governed by regulations in GACAR Part 109;

(iv) The security of valuable or confidential cargo;

(v) The preservation of fragile or perishable cargo;

(vi) Experiments on, or testing of, cargo containers or cargo handling devices;

(vii) The operation of special equipment for loading or unloading cargo; and

(viii) The loading or unloading of outsize cargo.

(5) A person described in paragraph (a)(4) of this section, when traveling to or from his assignment;

and

(6) A dependent of an employee of the certificate holder when traveling with the employee on company business to or from outlying stations not served by adequate regular passenger flights.

(b) No certificate holder may operate an aircraft carrying a person covered by paragraph (a) of this section unless—

(1) Each person has unobstructed access from his seat to the flightdeck or to a regular or emergency exit.

(2) The PIC has a means of notifying each person when smoking is prohibited and when safety belts must be fastened.

(3) The aircraft has an approved seat with an approved safety belt for each person. The seat must be located so that the occupant is not in any position to interfere with the flight crew members performing their duties.

(c) Before each takeoff, each certificate holder operating an aircraft carrying persons covered by paragraph (a) of this section must ensure that all such persons have been orally briefed by the appropriate crew member on—

(1) Smoking;

(2) The use of safety belts;

(3) The location and operation of emergency exits;

(4) The use of oxygen and emergency oxygen equipment; and

(5) For extended over water operations, the location of life rafts, and the location and operation of life preservers including a demonstration of the method of donning and inflating a life preserver.

(d) Each certificate holder operating an aircraft carrying persons covered by paragraph (a) of this section must incorporate procedures for the safe carriage of such persons into the certificate holder’s operations manual.

(e) The PIC may authorize a person covered by paragraph (a) of this section to be admitted to the flightdeck of the aircraft.

§ 121.1237 Authority To Refuse Transportation.

(a) No certificate holder may refuse transportation to a passenger on the basis that, because the passenger may need the assistance of another person to move expeditiously to an exit in the event of an emergency, his transportation would or might adversely affect safety of flight unless—

(1) The certificate holder has established procedures (including reasonable notice requirements) for the carriage of passengers who may need the assistance of another person to move expeditiously to an exit in the event of an emergency; and

(2) At least one of the following conditions exists:

(i) The passenger fails to comply with the notice requirements in the certificate holder's procedures.

(ii) The passenger cannot be carried under the certificate holder's procedures.

(b) Each certificate holder must provide the President with a copy of each procedure it establishes under paragraph (a)(2) of this section.

(c) Whenever the President finds that revisions in the procedures described in paragraph (a)(2) of this section are necessary in the interest of safety or in the public interest, the certificate holder, after notification by the President, must make those revisions in its procedures. A certificate holder may petition the President to reconsider the notice to make a change under the specified procedures in GACAR Part 13.

§ 121.1241 Use of Seats, Safety Belts, and Shoulder Harnesses.

(a) Except as provided in paragraph (a)(3) of this section, the following prohibitions apply to certificate holders:

(1) No certificate holder may permit a child to occupy a booster type child restraint system, a vest type child restraint system, a harness type child restraint system, or a lap held child restraint system during takeoff, landing, and movement on the surface unless it meets the requirements of Section IV of Appendix C to GACAR Part 91.

(2) Except as required in paragraph (a)(1) of this section, 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—

(i) 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.

(ii) The requirements of paragraph (a)(1) of this section are met.

(3) This section does not prohibit the certificate holder from providing child restraint systems authorized by this section or, consistent with safe operating practices, determining the most appropriate passenger seat location for the child restraint system.

(b) Except as provided in paragraphs (b)(1) through (3) of this section, no certificate holder may take off or land an aircraft unless each passenger seat back is in the upright position. Each passenger must comply with instructions given by a crew member in compliance with this paragraph.

(1) This paragraph does not apply to seat backs placed in other than the upright position in compliance with the emergency exit access requirements under GACAR § 121.445(c).

(2) This paragraph does not apply to a seat on which cargo or a person unable to sit upright for a medical reason is carried according to 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 aircraft with no cabin crew member, the certificate holder may take off or land as long as the flight crew instructs each passenger to place his seat back in the upright position for takeoff and landing.

(c) 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 them during takeoff and landing, except that a shoulder harness not combined with a safety belt may be unfastened if the occupant cannot perform the required duties with the shoulder harness fastened.

(d) At each unoccupied seat, the safety belt and shoulder harness, if installed, must be secured so as not to interfere with crew members in the performance of their duties or with the rapid egress of occupants in an emergency.

(e) Each passenger required to occupy a seat or berth must fasten his safety belt about him and keep it fastened while the "Fasten Seat Belt" sign is lighted.

§ 121.1245 Exit Seating.

(a) Each certificate holder must 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—

(1) Exit seat means—

(i) Each seat having direct access to an exit; and

(ii) 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.

(iii) 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 (such as a bulkhead, lavatory, closet, or galley.)

(2) Each certificate holder must make the passenger exit seating determinations required by this paragraph in a nondiscriminatory manner consistent with the requirements of this section, by persons designated in the certificate holder’s required operations manual.

(3) Each certificate holder must designate the exit seats for each passenger seating configuration in its fleet under the definitions in this paragraph and submit those designations for approval as part of the procedures required to be submitted for approval under paragraphs (l) and (n) 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 mass of overwing window exit doors;

(v) To remove obstructions similar in size and mass 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 cabin crew members, without assistance beyond a hearing aid.

(6) The person lacks the ability adequately to impart information orally to other passengers.

(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 performs one or more of the applicable functions listed in paragraph (d) of this section.

(c) Each passenger must comply with instructions given by a crew member or other authorized employee

of the certificate holder implementing exit seating restrictions established under this section.

(d) Each certificate holder must include on passenger information cards, presented in both the Arabic and English languages, at each exit seat affected by this section, information that, in the event of an emergency in which a crew member 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 crew member;

(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 must include on passenger information cards, at each exit seat—

(1) In both the Arabic and English languages, the selection criteria set forth in paragraph (b) of this section, and a request that a passenger identify himself to allow reseating if he—

(i) Cannot meet the selection criteria set forth in paragraph (b) of this section;

(ii) Has a nondiscernible condition that will prevent him 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.

(2) In each language used by the certificate holder for passenger information cards, a request that a passenger identify himself to allow reseating if he 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.

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

(g) Each certificate holder must 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.

(h) Each certificate holder must include in its passenger briefings a request that a passenger identify himself to allow reseating if he—

(1) Cannot meet the selection criteria set forth in paragraph (b) of this section;

(2) Has a nondiscernible condition that will prevent him 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 must not require the passenger to disclose his reason for needing reseating.

(i) In the event a certificate holder determines 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 nonexit seat, the certificate holder must expeditiously relocate the passenger to a nonexit seat.

(j) In the event of full booking in the nonexit seats and if necessary to accommodate a passenger being

relocated from an exit seat, the certificate holder must move a passenger who is willing and able to assume the evacuation functions that may be required, to an exit seat.

(k) 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 crew member or other authorized employee of the certificate holder implementing exit seating restrictions established under this section, or

(2) The only seat that will physically accommodate the person's handicap is an exit seat.

(l) In order to comply with this section a certificate holder must—

(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 passenger information cards, crew member 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 aerodrome to whom complaints should be addressed for resolution; and,

(2) Submit their procedures for preliminary review and approval to the President.

(m) Certificate holders must assign seats before boarding consistent with the criteria listed in paragraph (b) and the functions listed in paragraph (d) of this section, to the maximum extent feasible.

(n) The procedures required by paragraph (l) of this section will not become effective until approval is granted by the President. Approval will be based solely upon the safety aspects of the certificate holder's procedures.

§ 121.1249 Briefing Passengers Before Takeoff.

(a) Each certificate holder operating a passenger carrying aircraft must ensure that all passengers are orally briefed in both the Arabic and English languages by the appropriate crew member as follows:

(1) Before each takeoff and at other times necessary to ensure the safety of passengers, on each of the following:

(i) Each passenger must be briefed on when, where, and under what conditions smoking is prohibited. This briefing must include a statement that the GACAR requires passenger compliance with the lighted passenger information signs, posted placards, areas designated for safety purposes as no smoking areas, and crew member instructions with regard to these items. The briefing must also include a statement that the Civil Aviation Law prohibits tampering with, disabling, or destroying any smoke detector in an aircraft 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 must be briefed on when, where, and under what conditions the safety belt must be fastened about that passenger. This briefing must include a statement that the GACAR require passenger compliance with lighted passenger information signs and crew member 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 cabin crew member, the following additional information:

(A) The placement of seat backs in an upright position before takeoff and landing;

(B) The location of survival equipment:

(C) If the flight involves operations above 12 000 ft (3 660 m) MSL, the normal and emergency use of oxygen; and

(D) Location and operation of fire extinguisher(s).

(2) After each takeoff, immediately before or immediately after turning the seat belt sign off, an announcement must be made that passengers should keep their safety 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 crew member assigned to the flight must 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 crew member must—

(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) Ask the person and his attendant, if any, as to the most appropriate manner of assisting the person 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 crew members 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 must carry on each passenger carrying aircraft, in convenient locations for use of each passenger, printed cards supplementing the oral briefing. Each card must contain information in both the Arabic and English languages pertinent only to the type and model of aircraft used for that flight, including—

(1) Diagrams of, and methods of operating, the emergency exits and

(2) Other instructions necessary for use of emergency equipment.

(c) The certificate holder must describe in its manual the procedure to be followed in the briefing required by paragraph (a) of this section.

§ 121.1253 Briefing Passengers: Extended Over Water Operations.

(a) In addition to the oral briefing required by GACAR § 121.1249(a), each certificate holder operating an aircraft in extended over water operations must ensure that all passengers are orally briefed in both the Arabic and English languages by the appropriate crew member 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 must describe in its manual the procedure to be followed in the briefing required by paragraph (a) of this section.

(c) If the aircraft proceeds directly over water after takeoff, the briefing required by paragraph (a) of this section must be done before takeoff.

(d) If the aircraft 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 over water part of the flight.

§ 121.1257 Briefing Passengers: Flights Above Flight Level 250.

Before flight is conducted above flight level 250, a crew member must instruct the passengers in both the Arabic and English languages on the necessity of using oxygen in the event of cabin depressurization and must point out to them the location and demonstrate the use of the oxygen dispensing equipment.

§ 121.1259 Refueling With Passengers on Board.

(a) An aircraft must not be refueled when passengers are boarding, on board, or deplaning unless it is properly attended by a crew member or other qualified personnel as prescribed in GACAR § 121.757 ready to initiate and direct an evacuation of the aircraft.

(b) When refueling with passengers boarding, on board, or deplaning, two way communication must be maintained by the aircraft's intercommunication system or other suitable means between the ground crew supervising the refueling and qualified personnel on board the aircraft as specified in the certificate holder's operations manual.

(c) Notwithstanding the requirements of paragraphs (a) and (b) of this section, a rotorcraft must not be refueled when passengers are boarding, onboard, or deplaning or when the rotor is turning unless the certificate holder has specified the conditions for refueling and its procedures are authorized by the President.

SUBPART P – OPERATIONAL CONTROL SYSTEMS

§ 121.1301 Applicability.

This subpart prescribes requirements for operational control systems applicable to all certificate holders operating under this part.

§ 121.1303 Operational Control Systems.

(a) Certificate holders conducting scheduled operations under this part must have a dispatch release system as specified in GACAR § 121.1309 and generate dispatch releases in accordance with GACAR § 121.1509.

(b) Certificate holders conducting unscheduled operations under this part must have—

(1) A flight release system as specified in § 121.1325 and generate flight releases in accordance with § 121.1509 or

(2) A dispatch release system in accordance with paragraph (a) of this section.

§ 121.1305 Operations Notices.

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

§ 121.1309 Dispatch Release System: General.

(a) *Authority and responsibilities.*

(1) Except when an aircraft lands at an intermediate aerodrome specified in the original dispatch release and remains there for not more than 1 hour, no person may start a flight unless an aircraft dispatcher specifically authorizes that flight.

(2) No person may continue a flight from an intermediate aerodrome without re dispatch if the aircraft has been on the ground more than 6 hours.

(3) Each certificate holder must prepare a dispatch release for each flight between specified points,

based on information furnished by an authorized aircraft dispatcher.

(4) The PIC and the aircraft dispatcher are jointly responsible for the preflight planning, delay, and dispatch release of a flight in compliance with this part, the operations specifications, and the certificate holder's manual.

(b) *Aircraft dispatchers.*

(1) Each certificate holder required to use aircraft dispatchers under this part must ensure that each aircraft dispatcher authorized to exercise operational control meets the requirements of GACAR Subpart M of this part.

(2) The aircraft dispatcher is responsible for—

(i) Monitoring the progress of each flight in accordance with GACAR § 121.1321;

(ii) Issuing necessary instructions and information for the safety of the flight; and

(iii) Canceling or re dispatching a flight if, in the aircraft dispatcher's opinion or the opinion of the PIC, the flight cannot operate or continue to operate safely as planned or released.

(3) The aircraft dispatcher must ensure the dispatch release system requirements of this subpart are met before dispatching a flight.

(4) The aircraft dispatcher must sign the prepared dispatch release or otherwise certify it in a manner acceptable to the President before sending the dispatch release to the PIC. The aircraft dispatcher must sign the dispatch release only if he believes the flight can be made safely.

(5) The aircraft dispatcher may delegate authority to sign a dispatch release for a particular flight, but may not delegate his authority to dispatch.

(c) *PIC acceptance.* The PIC must sign or accept the dispatch release in a manner acceptable to the President before commencing the flight. The PIC must sign or accept the dispatch release only if he believes that the flight can be made safely.

(d) *Personnel and facilities.* Each certificate holder must employ enough aircraft dispatchers and have adequate dispatch facilities to ensure the dispatch release system requirements of this subpart are met for each flight.

(e) *Contracting with other organizations.* A certificate holder may contract with other organizations to provide all or part of a dispatch release system if authorized by the President.

§ 121.1313 Dispatch Release System: Flight Preparation Forms.

The PIC must review and accept the following flight preparation forms in a manner acceptable to the President before commencing a flight:

(a) The dispatch release completed in accordance with the requirements of GACAR § 121.1509, and

(b) The load manifest completed in accordance with the requirements of GACAR §§ 121.1337.

§ 121.1321 Dispatch Release System: Flight Monitoring.

(a) Each aircraft dispatcher responsible for the operational control of a flight must—

(1) Monitor the flight's—

(i) Fuel state,

(ii) Flight time remaining,

(iii) Destination and alternate aerodrome weather trends,

(iv) En route winds and weather, and

(v) Aerodrome and navigation facility status.

(2) Report to the PIC any information that could affect the safety of the flight including the information required in GACAR § 121.1353(a).

(b) An aircraft dispatcher must attempt to coordinate operational instructions involving a change in the Air Traffic Service flight plan with the appropriate Air Traffic Service unit before notifying the PIC.

§ 121.1325 Flight Release System: General.

(a) *Authority and responsibility.*

(1) 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.

(2) No person may start a flight unless the PIC 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 PIC 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.

(3) No person may continue a flight from an intermediate aerodrome without a new flight release if the aircraft has been on the ground more than 6 hours.

(4) Operational control for each flight must be shared between the PIC and the director of operations. The director of operations may delegate the authority to perform operational control to other persons as specified in the certificate holder's manual.

(5) The certificate holder must ensure that the PIC and each person authorized to exercise operational control has access to the information needed to comply with the requirements of this subpart and are able to perform their required duties.

(6) Each PIC of an aircraft is responsible for the preflight planning and the operation of the flight in compliance with the GACAR and the operations specifications.

(b) *Personnel and facilities*. Each certificate holder must ensure the number of persons authorized to exercise operational control and the associated facilities are adequate to ensure the flight release requirements of this subpart are met for each flight.

(c) *Contracting with other organizations*. A certificate holder may contract with other organizations to provide all or part of a flight release system if authorized by the President.

§ 121.1329 Flight Release System: Flight Preparation Forms.

(a) The PIC must review and accept the following flight preparation forms in a manner acceptable to the President before commencing a flight:

(1) The flight release completed in accordance with the requirements of GACAR § 121.1509, and

(2) The load manifest completed in accordance with the requirements of GACAR §§ 121.1337.

(b) If a person other than the PIC prepared the flight release, that person must sign or certify the flight release in a manner acceptable to the President before sending it to the PIC.

§ 121.1331 Flight Release System: Flight Monitoring.

(a) The director of operations is responsible for cancelling, diverting or delaying a flight if in his opinion or the opinion of the PIC the flight cannot operate or continue to operate safely as planned or released.

(b) The director of operations is responsible for assuring that each flight is monitored with respect to at least the following:

(1) Departure of the flight from the place of origin and arrival at the place of destination, including intermediate stops and any diversions therefrom.

(2) Maintenance and mechanical delays encountered at places of origin and destination and intermediate stops.

(3) Any known conditions that may adversely affect the safety of flight.

(c) Each certificate holder must attempt to coordinate operational instructions involving a change in the Air Traffic Service flight plan with the appropriate Air Traffic Service unit before notifying the PIC.

§ 121.1333 Preparation of Operational Flight Plan.

(a) An OFP must be completed for each flight operating under this part.

(b) *Dispatch release system*. The aircraft dispatcher must prepare the OFP and include it in the dispatch release in accordance with GACAR § 121.1509

(c) *Flight release system*. The PIC or other person authorized and qualified by the certificate holder must prepare the OFP and include it in the flight release in accordance with GACAR § 121.1509.

§ 121.1337 Preparation of Load Manifest.

(a) Each certificate holder is responsible for the preparation and accuracy of the load manifest required by GACAR § 121.1517 before each takeoff.

(b) 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, to certify that—

(1) The load manifest is completed accurately and

(2) The load is distributed and secured in accordance with approved procedures.

§ 121.1341 Dispatch or Flight Release Amendment.

(a) No person may allow a flight to continue to an aerodrome to which it has been dispatched or released unless the weather conditions at an alternate aerodrome that was specified in the dispatch release or flight release are forecast to be at or above the alternate minimums specified in the operations specifications for that aerodrome at the time the aircraft would arrive at the alternate aerodrome. However, the dispatch release or flight release may be amended en route to include any alternate aerodrome within the fuel range of the aircraft as specified in GACAR §§ 121.1381 through 121.1417, as applicable.

(b) No person may change an original destination or alternate aerodrome specified in the original dispatch or flight release to another aerodrome while the aircraft is en route unless the other aerodrome is authorized for that type of aircraft and the appropriate requirements of this part and requirements of GACAR Part 91 are met at the time of re dispatch or amendment of the flight release.

(c) Each person who amends a dispatch release or flight release en route must record that amendment.

§ 121.1345 Continuing Flight in Unsafe Conditions.

No PIC may allow a flight to continue toward any aerodrome to which it has been dispatched or released if, in the opinion of the PIC, aircraft dispatcher, or other person authorized to exercise operational control, the flight cannot be completed safely; unless, in the opinion of the PIC, there is no safer procedure. In that event, continuation toward that aerodrome is an emergency situation as set forth in GACAR § 121.1129.

§ 121.1347 Dispatch or Flight Release: Aircraft Equipment.

No person may dispatch or release an aircraft unless it is airworthy and is equipped in accordance with subpart I of this part.

§ 121.1349 Dispatch or Flight Release: Familiarity With Weather Conditions.

(a) *Dispatch Release System*. No aircraft dispatcher may release a flight unless he is thoroughly familiar with reported and forecast weather conditions on the route to be flown.

(b) *Flight Release System*. No PIC may begin a flight unless he is thoroughly familiar with reported and forecast weather conditions on the route to be flown.

(c) Each aircraft dispatcher or PIC requiring meteorological service or changes in existing meteorological service must notify the appropriate meteorological authority or meteorological office as prescribed in GACAR § 91.79.

§ 121.1353 Dispatch or Flight Release: Facilities and Services.

(a) *Dispatch Release System.*

(1) The aircraft dispatcher must provide the PIC all available current reports or information on aerodrome conditions and irregularities of navigation facilities that may affect the safety of the flight.

(2) Before beginning a flight, the aircraft dispatcher must provide the PIC 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 aerodrome to be used.

(3) During a flight, the aircraft dispatcher must provide the PIC 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.

(b) *Flight Release System.*

(1) Before beginning a flight, each PIC must obtain 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 aerodrome to be used.

(2) During a flight, the PIC must obtain any additional available information of meteorological conditions and irregularities of facilities and services that may affect the safety of the flight.

§ 121.1357 Dispatch or Flight Release: Communication and Navigation Facilities.

(a) *Dispatch Release System.*

(1) Except as provided in paragraph (b) of this section, no person may dispatch an aircraft over an approved route or route segment unless the communication and navigation facilities required by GACAR §§ 121.85, 121.89, and 121.97 for the approval of that route or segment are in satisfactory operating condition.

(2) If, because of technical reasons or other reasons beyond the control of a certificate holder, the facilities required by GACAR §§ 121.85, 121.89, and 121.97 are not available over a route or route segment outside the Kingdom of Saudi Arabia, the certificate holder may dispatch an aircraft over that route or route segment if the PIC and aircraft dispatcher find that communication and navigation facilities equal to those required are available and are in satisfactory operating condition.

(b) *Flight Release System*. No person may release an aircraft over any route or route segment unless communication and navigation facilities equal to those required by GACAR §§ 121.85, 121.89, and 121.97 are in satisfactory operating condition.

§ 121.1365 Dispatch or Flight Release Under VFR.

No person may dispatch or release an aircraft for VFR operation unless the ceiling and visibility en route, as indicated by available weather reports or forecasts, or any combination thereof, are and will remain at or above applicable VFR minimums until the aircraft arrives at the aerodrome or aerodromes specified in the dispatch or flight release.

§ 121.1369 Dispatch or Flight Release Under IFR or Over the Top.

Except as provided in GACAR § 121.1373, no person may dispatch or release an aircraft for operations under IFR or over the top, unless appropriate weather reports or forecasts, or any combination thereof, indicate that the weather conditions will be at or above the authorized minimums at the estimated time of arrival at the aerodrome or aerodromes to which dispatched or released.

§ 121.1373 Dispatch or Flight Release Over Water.

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

(b) Each authorization to conduct extended over water operations under VFR and each requirement to conduct other over water operations under IFR must be specified in the certificate holder’s operations specifications.

§ 121.1377 Dispatch or Flight Release in Icing Conditions.

(a) No person may dispatch or release an aircraft when, in the opinion of the PIC or aircraft dispatcher, icing conditions are expected that might adversely affect the safety of the flight.

(b) No person may dispatch, release, or take off 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 accordance with GACAR § 121.1217 in its operations specifications and unless the dispatch or flight release and takeoff comply with that program.

§ 121.1381 Dispatch or Flight Release: Fuel and Oil Supply.

(a) An aircraft must carry a sufficient amount of usable fuel and oil to complete the planned flight safely

and to allow for deviations from the planned operation.

(b) The amount of usable fuel to be carried must, as a minimum, be based on:

(1) Conservative fuel consumption data derived from:

(i) Current aircraft-specific data derived from a fuel consumption monitoring system, if available; or

(ii) If current aircraft-specific data are not available, data provided by the aircraft manufacturer.

(2) The operating conditions for the planned flight including:

(i) Anticipated aircraft mass;

(ii) NOTAMs;

(iii) Current meteorological reports or a combination of current reports and forecasts;

(iv) Air traffic services procedures, restrictions and anticipated delays; and

(v) The effects of deferred maintenance items and/or configuration deviations.

(c) The pre-flight calculation of usable fuel required must include:

(1) *Startup and Taxi fuel*, which must be no less than the amount of fuel expected to be consumed before takeoff;

(2) *Trip fuel*, which must be no less than the amount of fuel required to enable the aircraft to fly from takeoff, or the point of in-flight re-planning, until landing at the destination aerodrome;

(3) *Contingency fuel*, which must be no less than the amount of fuel required to compensate for unforeseen factors. It must be five per cent 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, must not be lower than the amount required to fly for five minutes at holding speed at 1 500 ft above the destination aerodrome in standard conditions;

(4) For IFR flights, *destination alternate fuel* or *without destination alternate fuel*, as applicable, which must be no less than:

(i) Where a destination alternate aerodrome is required, the amount of fuel required to enable the aircraft to:

(A) Perform a missed approach at the destination aerodrome;

(B) Climb to the expected cruising altitude;

(C) Fly the expected 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 paragraph (c)(4)(i) of this section, required to enable the aircraft to proceed to the destination alternate aerodrome which requires the greater amount of alternate fuel; or

(iii) Were 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 1 500 ft above destination aerodrome elevation in standard conditions; or

(iv) Where the aerodrome of intended landing is an isolated aerodrome:

(A) For an airplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel; or

(B) For a rotorcraft, the amount of fuel required to fly for one hour at normal cruise consumption above the destination aerodrome, including final reserve fuel;

(5) *Final reserve fuel*, which must be no less than 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:

(i) The amount of fuel required to fly for 30 minutes at holding speed at 1 500 ft above aerodrome elevation in standard conditions; or

(ii) For a day VFR rotorcraft operation, the amount of fuel required:

(A) To fly for a period of 30 minutes at best-range speed; or

(B) To fly for a period of 20 minutes at best-range speed when operating within an area providing continuous and suitable precautionary landing sites.

(6) *Additional fuel*, which must be the supplementary amount of fuel required if the minimum fuel calculated in accordance with paragraphs (c)(1), (c)(2), (c)(3), (c)(4) and (c)(5) of this section is not sufficient to:

(i) Allow the aircraft to descend as necessary and proceed to an alternate aerodrome in the event of engine failure or loss of 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 and to;

(A) Fly for 15 minutes at holding speed at 1 500 ft above aerodrome elevation in standard conditions;

(B) Make an approach and landing; and

(ii) Meet additional fuel requirements not covered above; and

(7) *Discretionary fuel*, which must be the extra amount of fuel to be carried at the discretion of the PIC and consistent with fuel supply policies implemented by the certificate holder.

(d) A flight must not commence unless the usable fuel on board meets the requirements in paragraphs (c)(1), (c)(2), (c)(3), (c)(4), (c)(5), and (c)(6) if required, of this section and must not continue from the point of in-flight re-planning unless the usable fuel on board meets the requirements in (c)(2), (c)(3), (c)(4), (c)(5), and (c)(6) if required, of this section.

(e) Notwithstanding the provisions in paragraphs (c)(1), (c)(2), (c)(3), (c)(4), (c)(5), and (c)(6) if required, of this section, the President may, based on the results of a specific safety risk assessment conducted by the certificate holder which demonstrates how an equivalent level of safety will be maintained, approve variations to the pre-flight fuel calculation of taxi fuel, trip fuel, contingency fuel, destination alternate fuel, and additional fuel. The specific safety risk assessment must include at least the:

(1) Flight fuel calculations;

(2) Capabilities of the certificate holder to include:

(i) A data-driven method that includes a fuel consumption monitoring program; and/or

(ii) The advanced use of alternate aerodromes; and

(3) Specific mitigation measures.

(f) The President may amend the operations specifications to require more fuel than any of the minimums stated in this section if he finds that the additional fuel is necessary on a particular route in the interest of safety.

(g) When fuel is used after flight commencement for purposes other than originally intended during pre-flight planning the certificate holder must perform a re-analysis and, if applicable, adjustment of the planned operation.

§ 121.1383 In-Flight Fuel Management.

(a) Each certificate holder must establish policies and procedures, approved by the President, to ensure that in-flight fuel checks and fuel management are performed.

(b) *Airplanes.*

(1) The PIC must 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.

(2) The PIC must 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.

(3) The PIC must 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.

(4) The PIC must declare a situation of fuel emergency by broadcasting MAYDAY MAYDAY MAYDAY FUEL, when the calculated usable fuel predicted to be available upon landing at the nearest aerodrome where a safe landing can be made is less than the planned final reserve fuel.

(c) *Rotorcraft.*

(1) The PIC must continually ensure that the amount of usable fuel remaining on board is not less than the fuel required to proceed to an aerodrome or operating site where a safe landing can be made with the final reserve fuel remaining upon landing.

(2) The PIC must declare a situation of fuel emergency by broadcasting MAYDAY MAYDAY MAYDAY FUEL, when the actual usable fuel on board is less than the final reserve fuel.

§ 121.1385 Scheduled Operations: Takeoffs From Unlisted and Alternate Aerodromes.

(a) No pilot may take off an aircraft from an aerodrome not listed in the operations specifications unless—

(1) The aerodrome and related facilities are adequate for the operation of the aircraft,

(2) The PIC can comply with the applicable aircraft operating limitations,

(3) The aircraft has been dispatched according to dispatching rules applicable to operation from an approved aerodrome, and

(4) The weather conditions at that aerodrome are equal to or better than the following:

(i) *Aerodromes in the Kingdom of Saudi Arabia*. The weather minimums for takeoff prescribed in GACAR Part 97 or, where minimums are not prescribed for the aerodrome, refer to the requirements in Table 121–6.

Table 121–6.

800 ft (240 m)	3 000 m
900 ft (270 m)	2 000 m
1 000 ft (300 m)	1 600 m

(ii) *Aerodromes outside the Kingdom of Saudi Arabia*. The weather minimums for takeoff prescribed or approved by the government of the country in which the aerodrome is located; or where minimums are not prescribed or approved for the aerodrome, refer to the requirements in Table 121–6.

(b) No pilot may take off from an alternate aerodrome unless the weather conditions are at least equal to the minimums prescribed in the certificate holder's operations specifications for alternate aerodromes.

§ 121.1389 Alternate Aerodrome for Departure.

(a) If either the weather conditions at the aerodrome of takeoff are below the landing minimums in the

certificate holder's operations specifications for that aerodrome or if it would not be possible to return to the aerodrome of departure for other reasons, no person may dispatch or release an aircraft from that aerodrome unless the dispatch or flight release specifies a takeoff alternate aerodrome located within the following distances from the aerodrome of takeoff:

(1) Aircraft having two engines. Not more than 1 hour from the departure aerodrome at normal one engine inoperative cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual takeoff mass.

(2) Aircraft having three or more engines. Not more than 2 hours from the departure aerodrome at normal all-engine operating cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual takeoff mass.

(3) Aircraft engaged in ETOPS. Where an alternate aerodrome meeting the distance criteria of paragraph (a)(1) or (a)(2) of this section is not available, the first available alternate aerodrome located within the distance of the operator's approved maximum diversion time considering the actual takeoff mass.

(b) For the purpose of paragraph (a) of this section, the takeoff alternate aerodrome weather conditions must meet the requirements of GACAR § 121.1397.

(c) No person may dispatch or release an aircraft from an aerodrome unless he lists each required takeoff alternate aerodrome in the dispatch or flight release.

§ 121.1393 Alternate Aerodrome for Destination: IFR or Over the Top.

(a) Subject to paragraph (c) of this section, no person may dispatch or release an aircraft on a flight to be conducted in accordance with the IFR or over the top unless at least one destination alternate aerodrome has been be selected and specified in the dispatch or flight 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 aerodrome, the appropriate weather reports or forecasts, or any combination of them, indicate—

(i) The ceiling will be—

(A) If a circling approach is required and authorized for that aerodrome, at least 1 500 ft (450 m) above the lowest circling MDA or 2 000 ft (610 m) above the aerodrome elevation,

whichever is greater, or

(B) At least 1 500 ft (450 m) above the lowest published approach minimum or 2 000 ft (610 m) above the aerodrome elevation, whichever is greater, and

(ii) Visibility will be at least 5 km, and

(iii) 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; or

(2) The aerodrome of intended landing is an isolated aerodrome.

(b) Operations into isolated aerodromes must be planned in accordance with the isolated aerodrome fuel and oil supply requirements of GACAR § 121.1381 and:

(1) For each flight into an isolated aerodrome a point of no return must be determined; and

(2) A flight to be conducted to an isolated aerodrome must not be continued past the point of no return unless a current assessment of meteorological conditions, traffic, and other operational conditions indicate that a safe landing can be made at the estimated time of use.

(c) Two destination alternate aerodromes must be selected and specified in the dispatch or flight release when, for the destination aerodrome:

(1) Meteorological conditions at the estimated time of use will be below the certificate holder's aerodrome operating minima for that operation; or

(2) Meteorological information is not available.

(d) Notwithstanding the provisions in paragraph (a), (b) or (c) of this section, the President may, based on the results of a specific safety risk assessment conducted by the certificate holder which demonstrates how an equivalent level of safety will be maintained, approve operational variations to alternate aerodrome selection criteria. The specific safety risk assessment must include at least the:

(1) Capabilities of the certificate holder;

(2) Overall capability of the aircraft and its systems;

(3) Available aerodrome technologies, capabilities and infrastructure;

(4) Quality and reliability of meteorological information;

(5) Identified hazards and safety risks associated with each alternate aerodrome variation; and

(6) Specific mitigation measures.

(e) For the purposes this section, the weather conditions at the destination alternate aerodrome must meet the requirements of GACAR § 121.1397.

(f) No person may dispatch or release an aircraft from an aerodrome unless he lists each required destination alternate aerodrome in the dispatch or flight release.

§ 121.1397 Alternate Aerodrome Weather Minimums.

Except as provided in GACAR § 121.1401 for ETOPS alternate aerodromes, no person may list an aerodrome as an alternate in the dispatch or flight release unless the appropriate weather reports or forecasts, or any combination thereof, indicate that the weather conditions will be at or above the alternate weather minimums specified in the certificate holder's operations specifications for that aerodrome when the flight arrives.

§ 121.1399 Requirements For Operations Beyond 60 minutes To An En-Route Alternate Aerodrome.

(a) Each certificate holder conducting operations beyond 60 minutes, from a point on a route to an en-route alternate aerodrome must ensure that:

(1) For all aircraft:

(i) En-route alternate aerodromes are identified; and

(ii) The most up-to-date information is provided to the flight crew on identified en-route alternate aerodromes, including operational status and meteorological conditions;

(2) For airplanes with two turbine engines, the most up-to-date information provided to the flight crew indicates that conditions at identified en-route alternate aerodromes will be at or above the certificate holder's aerodrome operating minima for the operation at the estimated time of use.

(b) In addition to the requirements in paragraph (a) of this section, each certificate holder conducting operations beyond 60 minutes, from a point on a route to an en-route alternate aerodrome must ensure that the following are taken into account and provide the overall level of safety intended by the provisions of

GACAR Part 121:

(1) Operational control and flight dispatch procedures;

(2) Operating procedures; and

(3) Training programs.

§ 121.1401 ETOPS Alternate Aerodromes.

(a) No person may dispatch or release an aircraft for an ETOPS flight unless enough ETOPS alternate aerodromes are listed in the dispatch or flight release such that the aircraft remains within the authorized ETOPS maximum diversion time. In selecting these ETOPS alternate aerodromes, the certificate holder may consider all adequate aerodromes within the authorized ETOPS diversion time for the flight that meet the standards of this part.

(b) No person may list an aerodrome as an ETOPS alternate aerodrome 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 aerodrome minimums specified in the certificate holder's operations specifications;

(2) The field condition reports indicate that a safe landing can be made; and

(3) RFFS is available at the aerodrome as specified in GACAR § 121.1117(f).

(c) Once a flight is en route, the weather conditions at each ETOPS alternate aerodrome must meet the requirements of GACAR § 121.1413.

(d) No person may list an aerodrome as an ETOPS alternate aerodrome in the dispatch or flight release unless that aerodrome meets the public protection requirements of GACAR § 121.77(c)(1)(ii).

§ 121.1409 ETOPS Alternate Aerodromes: Considering Time-Limited Systems in Planning.

(a) For ETOPS up to and including 180 minutes, no person may list an aerodrome as an ETOPS alternate aerodrome in a dispatch or flight release if the time needed to fly to that aerodrome (at the approved one engine inoperative cruise speed under standard conditions in still air) would exceed the approved time for the aircraft's most limiting ETOPS significant system (including the aircraft'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 aerodrome as an ETOPS alternate aerodrome in a dispatch or flight release if the time needed to fly to that aerodrome—

(1) At the all engine operating cruise speed, corrected for wind and temperature, exceeds the aircraft's most limiting fire suppression system time minus 15 minutes for those cargo and baggage compartments required by regulation to have fire suppression systems or

(2) At the one-engine-inoperative cruise speed, corrected for wind and temperature, exceeds the aircraft's most limiting ETOPS significant system time (other than the aircraft's most limiting fire suppression system time minus 15 minutes for those cargo and baggage compartments required by regulation to have fire suppression systems).

§ 121.1413 ETOPS: Flight Beyond Entry Point.

(a) No person may allow a flight to continue beyond the ETOPS Entry Point unless—

(1) Except as provided in paragraph (b) of this section, the weather conditions at each ETOPS alternate aerodrome required by GACAR § 121.1401 are forecast to be at or above the operating minimums for that aerodrome 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 aerodromes within the authorized ETOPS maximum diversion time are reviewed and the flight crew advised of any changes in conditions that have occurred since dispatch or release.

(b) If paragraph (a)(1) of this section cannot be met for a specific aerodrome, the dispatch or flight release may be amended to add an ETOPS alternate aerodrome within the maximum ETOPS diversion time that could be authorized for that flight with weather conditions at or above operating minimums.

(c) Before the ETOPS Entry Point, the PIC for a certificate holder using the flight release system or an aircraft dispatcher for a certificate holder using the dispatch release system must use company communications to update the flight plan if needed because of a re evaluation of aircraft system capabilities.

§ 121.1417 ETOPS: Fuel Supply.

No person may dispatch or release for flight an ETOPS flight unless, it has the fuel otherwise required by

this part, enough fuel to satisfy the requirements of GACAR § 121.271 and the following:

(a) Fuel to fly to an ETOPS alternate aerodrome.

(1) *Fuel to account for rapid decompression and engine failure.* The aircraft must carry the greater of the following amounts of fuel:

(i) Fuel sufficient to fly to an ETOPS alternate aerodrome assuming a rapid decompression at the most critical point followed by descent to a safe altitude in compliance with the oxygen supply requirements of GACAR § 91.305;

(ii) Fuel sufficient to fly to an ETOPS alternate aerodrome (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 GACAR § 91.305; or

(iii) Fuel sufficient to fly to an ETOPS alternate aerodrome (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.

(2) *Fuel to account for errors in wind forecasting.* In calculating the amount of fuel required by paragraph (a)(1)(i) of this section, the certificate holder must increase the actual forecast wind speed by 5 percent (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 President, the aircraft must carry additional fuel equal to 5 percent of the fuel required for paragraph (a)(1)(i) of this section, as reserve fuel to allow for errors in wind data.

(3) *Fuel to account for icing.* In calculating the amount of fuel required by paragraph (a)(1)(i) of this section (after completing the wind calculation in paragraph (a)(1)(ii) of this section), the certificate holder must ensure that the aircraft carries the greater of the following amounts of fuel in anticipation of possible icing during the diversion:

(i) Fuel that would be burned because 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).

(ii) Fuel that would be used for engine anti ice, and if appropriate wing anti ice, for the entire time during which icing is forecast.

(4) *Fuel to account for engine deterioration.* In calculating the amount of fuel required by paragraph (a)(1)(i) of this section (after completing the wind calculation in paragraph (a)(1)(ii) of this section), the aircraft also carries fuel equal to 5 percent of the fuel specified above, to account for deterioration in cruise fuel burn performance unless the certificate holder has a program to monitor aircraft in service deterioration in cruise fuel burn performance.

(b) *Fuel to account for holding, approach, and landing.* In addition to the fuel required by paragraph (a)(1) of this section, the aircraft must carry fuel sufficient to hold at 1 500 ft (460 m) above field elevation for 15 minutes upon reaching an ETOPS alternate aerodrome and then conduct an instrument approach and land.

(c) *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.

SUBPART Q – RECORDS AND REPORTS

§ 121.1501 Applicability.

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

§ 121.1505 Crew Member and Dispatcher Record.

(a) Each certificate holder must—

(1) Maintain current records of each crew member and each aircraft dispatcher that show whether the crew member or aircraft dispatcher complies with the applicable sections of the GACAR including proficiency and route checks, aircraft and route qualifications, training, any required physical examinations, flight, duty, and rest time records; and

(2) Record each action taken concerning the release from employment or physical or professional disqualification of any flight crew member or aircraft dispatcher and keep the record in accordance with the period specified in GACAR § 121.1565.

(b) Each certificate holder conducting unscheduled operations must maintain the records required by paragraph (a) of this section at its principal base of operations, or at another location acceptable to the President.

§ 121.1509 Dispatch Release or Flight Release Form.

(a) Each certificate holder must specify the contents of the dispatch release or flight release, as applicable, in its manual. The dispatch release or flight release must contain at least—

(1) The name(s) of all crew members,

(2) The ATC flight plan required by GACAR § 91.73,

(3) The OFP contents required by GACAR § 121.1513,

(4) The minimum fuel supply required by GACAR § 121.1381 for the start of each takeoff,

(5) The latest available weather reports and forecasts for the destination and alternate aerodromes,

(6) Additional weather reports or forecasts that the PIC or aircraft dispatcher considers necessary or

desirable,

(7) The name of the dispatcher with operational control of the flight or the name of the person preparing the flight release, and

(8) The signature(s)/acceptable certification required by GACAR § 121.1313 or 121.1329, as applicable.

(b) The dispatch or flight release form must contain a statement for the PIC to certify all the requirements of GACAR § 91.43(b) have been met.

§ 121.1513 Operational Flight Plan Contents.

Each certificate holder must specify the contents of the OFP in its operations manual as required under Section I(a)(18) of Appendix G to GACAR Part 121. The OFP must contain at least—

(a) The departure aerodrome;

(b) The destination aerodrome;

(c) Alternate aerodromes, including takeoff alternate aerodrome, en route alternate aerodrome, ETOPS alternate aerodrome and destination alternate aerodromes when required;

(d) Flight routing defined by successive navigation aids or waypoints to the destination;

(e) Routing to the alternate aerodrome(s), if applicable;

(f) Planned cruise altitude(s), including planned points for changing cruise altitude,

(g) Temperature at planned cruise altitude;

(h) Wind at planned cruise altitude;

(i) True airspeed at planned cruise altitude;

(i) Estimated time en route;

(j) Estimated fuel burn;

(k) Planned altitude, distance, time, and fuel burn from the destination aerodrome to the alternate

aerodrome(s); and

(l) The minimum aerodrome RFFS category for each departure, destination, and alternate aerodrome required by GACAR § 121.1117(f).

§ 121.1517 Load Manifest.

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

(a) The mass of the aircraft, fuel and oil, cargo and baggage, passengers and crew members.

(b) The maximum allowable mass for that flight that must not exceed the least of the following masses:

(1) Maximum allowable takeoff mass 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 mass considering anticipated fuel and oil consumption that allows compliance with applicable en route performance limitations;

(3) Maximum takeoff mass considering anticipated fuel and oil consumption that allows compliance with the maximum authorized design landing mass limitations on arrival at the destination aerodrome; and

(4) Maximum takeoff mass considering anticipated fuel and oil consumption that allows compliance with landing distance limitations on arrival at the destination and alternate aerodromes.

(c) The total mass 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 certificate holder.

§ 121.1521 Dispatch Release System: Disposition of Required Documents.

(a) The PIC of an aircraft must carry in the aircraft to its destination a copy of the—

(1) Load manifest required by GACAR § 121.1517 and

(2) Dispatch release required by GACAR § 121.1509.

(b) The certificate holder must keep copies of the records required in this section in accordance with the period specified in GACAR § 121.1565.

§ 121.1525 Flight Release System: Disposition of Required Documents.

(a) The PIC of an aircraft must carry in the aircraft to its destination the original or a signed copy of the—

(1) Load manifest required by GACAR § 121.1517,

(2) Flight release required by GACAR § 121.1509, and

(3) Airworthiness release required by GACAR § 121.1545.

(b) If a flight originates at the principal base of operations of the certificate holder, it must retain at that base a signed copy of each document listed in paragraph (a) of this section.

(c) If a flight originates at a place other than the principal base of operations of the certificate holder, the PIC (or another person not aboard the aircraft who is authorized by the operator) must, before or immediately after departure of the flight, transmit signed copies of the documents listed in paragraph (a) of this section to the principal base of operations unless otherwise authorized by the President.

(d) For the purposes of this section, transmit means send by mail, email, facsimile, or other method acceptable to the President.

(e) The certificate holder must keep copies of the records required in this section in accordance with the period specified in GACAR § 121.1565.

§ 121.1529 Communication Records: Scheduled Operations.

(a) Each certificate holder conducting scheduled operations must record each en route radio contact between the certificate holder and its pilots using a communication system as required by GACAR § 121.85 and must keep that record for the period specified in GACAR § 121.1565.

(b) For purposes of this section the term en-route means from the time the aircraft pushes back from the departing gate until the time the aircraft reaches the arrival gate at its destination.

(c) The record required in paragraph (a) of this section must contain at least the following information:

(1) The date and time of the contact;

(2) The flight number;

(3) Aircraft registration marks;

(4) Approximate position of the aircraft during the contact;

(5) Call sign; and

(6) Narrative of the contact.

§ 121.1533 Flight Logbook.

(a) Each aircraft must carry a flight logbook under GACAR § 91.9(a)(6) containing the items specified in GACAR § 91.8 and any other requirements listed in the operator's manual.

(b) The PIC is responsible for ensuring the flight logbook entries are completed in accordance with the certificate holder's procedures.

(c) These records must be maintained at the principal base of operations for the period specified in GACAR § 121.1565.

§ 121.1537 Fuel and Oil Records.

(a) Each certificate holder must maintain fuel and oil records for each flight conducted under this part to demonstrate compliance with GACAR §§ 121.1381 and 121.1417, as applicable.

(b) The records required by paragraph (a) of this section must be retained for the period specified by GACAR § 121.1565.

§ 121.1541 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 critical to the safety of flight must make, or have made, a record of that action in the aircraft's maintenance log.

(b) Each certificate holder must have an acceptable procedure for keeping adequate copies of the record required in paragraph (a) of this section in the aircraft in a place readily accessible to each flight crew member and must put that procedure in the certificate holder's manual.

§ 121.1545 Airworthiness 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) An airworthiness release or

(2) An appropriate entry in the aircraft log.

(b) The airworthiness release or log entry required by paragraph (a) of this section must—

(1) Be prepared under the procedures set forth in the certificate holder's maintenance manual;

(2) Include a certification that—

(i) The work was performed under the requirements of the certificate holder's maintenance manual;

(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 aircraft unairworthy; and

(iv) So far as the work performed is concerned, the aircraft is in condition for safe operation.

(3) Be signed by an authorized certificated mechanic or repairman except that a certificated repairman may sign the release or entry only for the work for which he is employed and certificated.

(c) Notwithstanding paragraph (b)(3) of this section, after maintenance, preventive maintenance, or alterations performed by a repair station located outside the Kingdom of Saudi Arabia, the airworthiness release or log entry required by paragraph (a) of this section may be signed by a person authorized by that repair station.

(d) When an airworthiness release form is prepared, the certificate holder must give a copy to the PIC and must keep the record for the period specified in GACAR § 121.1565.

(e) Instead of restating each of the conditions of the certification required by paragraph (b) of this section,

the air operator may state in its maintenance manual that the signature of an authorized certificated mechanic or repairman constitutes that certification.

§ 121.1549 Alteration and Repair Reports.

(a) Each certificate holder, promptly upon completion of each major alteration or major repair of an airframe, aircraft engine, propeller, or appliance of an aircraft, must prepare a report in a form and manner acceptable to the President.

(b) The certificate holder must—

(1) Submit a copy of each report of a major alteration to the President.

(2) Retain a copy of each report of a major repair under the procedures set forth in the certificate holder's maintenance manual for inspection by the President.

§ 121.1553 Service Difficulty Reports.

(a) Each certificate holder must 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 compartment during flight;

(6) Engine shutdown during flight because of flameout;

(7) Engine shutdown during flight when external damage to the engine or aircraft 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 aircraft 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 President;

(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) In addition to the reports required by paragraph (a) of this section, each certificate holder must 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.

(c) Each certificate holder must submit each report required by this section, covering each 24 hour period beginning at 0900 local time of each day and ending at 0900 local time on the next day, to the President and to the organization responsible for the type design of the aircraft. Each report of occurrences during a 24 hour period must be submitted to the collection point within the next 96 hours. However, a report due on Thursday or Friday may be submitted on the following Saturday, and a report due on a holiday may be submitted on the next working day.

(d) The certificate holder must submit the reports required by this section on a form or in another format acceptable to the President. The reports must include the following information:

(1) Type and identification number of the aircraft;

(2) The business name of the air operator;

(3) The date, flight number, and stage during which the incident occurred (for example, preflight, takeoff, climb, cruise, descent, landing, and inspection);

(4) The emergency procedure effected (for example, 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 (for example, 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; and

(10) Other pertinent information necessary for more complete identification, determination of seriousness, or corrective action.

(e) A certificate holder that is also the holder of a Supplemental Type Certificate, a Saudi Arabia Parts Manufacturer Approval, or a Saudi Arabia Technical Standard Order Authorization, need not report a failure, malfunction, or defect under this section if the failure, malfunction, or defect has been reported under GACAR § 21.3 or under the accident reporting provisions of AIB Aviation Occurrence Investigation Regulations.

(f) No person may withhold a report required by this section even if all information required in this section is not available.

(g) When the certificate holder gets additional information, including information from the manufacturer or other agency, concerning a report required by this section, it must expeditiously submit it as a supplement to the first report and reference the date and place of submission of the first report.

§ 121.1557 Mechanical Interruption Summary Report.

Each certificate holder must submit to the President, before the end of the 10th day of the following month, a summary report for the previous month of—

(a) Each interruption to a flight, unscheduled change of aircraft en route, or unscheduled stop or diversion from a route, caused by known or suspected mechanical difficulties or malfunctions not required to be reported under GACAR § 121.1553;

(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; and

(c) The number of propeller featherings in flight, listed by type of propeller, engine, and aircraft on which the propeller was installed. Propeller featherings for training, demonstration, or flight check purposes need not be reported.

§ 121.1559 ETOPS System Performance Reports.

In a form and manner prescribed as acceptable by the President, each certificate holder with ETOPS authority, must—

(a) Submit periodic summary reports of their ETOPS systems performance to the President and

(b) Report, within 96 hours of the occurrence, all anomalies and in flight occurrences affecting ETOPS related aircraft systems to the President.

§ 121.1561 Aircraft Record.

Each certificate holder must maintain a current list of each aircraft that it operates and must send a copy of the record and each change to the President.

§ 121.1565 Document Retention.

Unless otherwise specified in the GACAR, a certificate holder must ensure the following information/documentation is stored in a form and manner acceptable to the President for the periods shown in the tables below.

Table 121–8.

Crew Member and Dispatcher Records	
Basic indoctrination training	Retain for entire period of employment plus 6 months
Aircraft qualification (initial, upgrade, and transition)	Retain for entire period of employment plus 6 months
Flight and duty time	18 months

Proficiency and route checks	3 years
Aircrew Program Designee (APD) designation	Retain for current aircraft or 3 years, whichever is longer
Check pilot training and authorization	Retain for current aircraft and previous aircraft or 3 years, whichever is longer
Instructor training	Retain for current aircraft and previous aircraft or 3 years, whichever is longer
Requalification training	Retain for current aircraft or 3 years, whichever is longer
Cabin crew member or dispatcher supervisor designation	Retain for entire period of employment plus 6 months
Operating experience	Retain for current aircraft and previous aircraft or 3 years, whichever is longer
Route qualification	3 years
All other training	3 years
Required medical examinations	15 months

Table 121–9.

Employee Records

Each action taken in release from employment	6 months
Each action taken in release for medical disqualification	6 months
Each action taken in release for professional disqualification	6 months

Table 121–10.

Operational Records

Completed load manifest	3 months
Dispatch release	3 months
Fuel and oil records	3 months

Flight release	3 months
Airworthiness release	2 months
En-route certificate holder radio contact with pilots	30 days
Flight logbook records	3 months

Table 121–11.

Maintenance and Preventive Maintenance Personnel Records	
Training	2 years

§ 121.1567 Electronic Recordkeeping.

(a) No certificate holder may use an electronic signature for records requiring a certifying statement unless the electronic signature system is approved by the President.

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

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

(d) *Security.* Any electronic recordkeeping system must—

(1) Ensure that records are retained for the periods prescribed in this part.

(2) Protect confidential information.

(3) Ensure that the information is not altered in an unauthorized way.

(e) *Audit.* A certificate holder must conduct an audit of the electronic recordkeeping system every 60 days and retain a record of the audit. This audit may be automatically conducted by a computer program.

(f) *Procedures*. Before employing an electronic recordkeeping system, a certificate holder must incorporate electronic recordkeeping procedures into its operations manual to include the following:

(1) Procedures for making required records available to authorized AIB personnel and GACA inspectors. If the computer hardware and software system is not compatible with the GACA and AIB systems, the certificate holder must provide an employee or representative to assist in accessing the necessary electronic information.

(2) Procedures for reviewing the electronic personal identification codes system to ensure that the system will not permit password duplication.

(3) Procedures for auditing the electronic recordkeeping system as required in paragraph (e) of this section.

(4) Audit procedures to ensure the integrity of each computerized workstation unless the workstations are server based and contain no inherent attributes that enable or disable access.

(5) Procedures describing how the certificate holder will ensure that the electronic records are transmitted in accordance with the appropriate regulatory requirements.

(6) Procedures to ensure that records required to be transferred with an aircraft are in a format (either electronic or on paper) that is acceptable to the new aircraft owner/operator.

(7) A description of requirements and training necessary to authorize access to the computer hardware and software system.

(8) For electronic recordkeeping systems employing digital or electronic signatures, guidelines for authorized representatives of the certificate holder to use electronic signatures and to have access to the appropriate records.

SUBPART R – TRANSPORTATION OF DANGEROUS GOODS BY AIR

§ 121.1601 Applicability.

This subpart applies to certificate holders authorized in their operations specifications to transport dangerous goods by air and to certificate holders with a prohibition in their operations specifications against transporting or handling dangerous goods by air.

§ 121.1605 General.

(a) The transport of dangerous goods by air must be conducted under GACAR Part 109.

(b) Except as provided for in GACAR § 109.7, a certificate holder must not transport dangerous goods unless authorized to do so by the President under GACAR § 109.3.

(c) All reasonable measures must be taken to prevent dangerous goods from being carried on board inadvertently.

(d) Under GACAR § 109.67, the certificate holder must report without delay to the President any accident or incident involving—

(1) Dangerous goods and

(2) The finding of undeclared or wrongfully declared dangerous goods discovered in cargo or passengers' baggage.

§ 121.1609 Dangerous Goods Training Program.

Each certificate holder must establish and implement a dangerous goods training program that meets the applicable requirements of GACAR Part 109.

APPENDIX A TO GACAR PART 121 – RESERVED

Section I. Reserved.

APPENDIX B TO GACAR PART 121 – FLIGHT TRAINING REQUIREMENTS

I. Airplanes.

The maneuvers and procedures required by GACAR § 121.899 for pilot initial, transition, and upgrade flight training are in the certificate holder's approved low altitude windshear flight training program, GACAR § 121.889 extended envelope training, and in this appendix. All required maneuvers and procedures must be performed inflight in the airplane except that windshear and extended envelope training maneuvers and procedures must be performed in an airplane simulator in which the maneuvers and procedures are specifically authorized to be accomplished. Certain other maneuvers and procedures may be performed in an airplane FFS (visual simulator), an airplane nonvisual simulator (a simulator that meets Level A simulator requirements except for visual capability and is classified as a Level 6 flight training device (FTD)), an FTD, or a static airplane as indicated by the appropriate symbol in the respective column opposite the maneuver or procedure.

Whenever a maneuver or procedure is authorized to be performed in a Level 6 FTD, it may be performed in a FFS; when authorized in an FTD, it may be performed in an FFS or a Level 6 FTD, and in some cases, a static airplane. Whenever the requirement may be performed in either an FTD or a static airplane, the appropriate symbols are entered in the respective columns.

For the purpose of this appendix, the following symbols mean—

A/P=Airplane.

P=Pilot in Command (PIC).

S=Second in Command (SIC).

B=PIC and SIC.

F=Flight Engineer.

PJ=PIC transition jet to jet.

PP=PIC transition prop. to prop.

SJ=SIC transition jet to jet.

SP=SIC transition prop. to prop.

AT=All transition categories (PJ, PP, SJ, SP).

PS=SIC upgrading to PIC (same airplane).

SF=Flight Engineer upgrading to SIC (same airplane).

BU=Both SIC and Flight Engineer upgrading (same airplane).

Table B–1. Flight-Training Requirements.

Maneuvers/Procedures	Initial Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
As appropriate to the airplane and the operation involved, flight training for pilots must include the following maneuvers and procedures.					
I. Preflight:					
(a) Visual inspection of the exterior and interior of the aircraft, the location of each item to be inspected, and the purpose for inspecting it. If a flight engineer is a required crew member for the particular type of airplane, the visual inspection may be replaced by using an approved pictorial means that realistically portrays the location and detail of preflight inspection items.		B			
(b) Use of the prestart check list, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies before flight.				B	
(c)(1) Before March 12, 2019, taxiing, sailing, and docking procedures in compliance with instructions issued by the appropriate Air Traffic Service authority or by the person conducting the training.	B				

Maneuvers/Procedures	Initial Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(c)(2) Taxiing. Beginning March 12, 2019 this maneuver includes the following: (i), taxiing, sailing, and docking procedures in compliance with instructions issued by the appropriate Air Traffic Service authority or by the person conducting the training. (ii) Use of aerodrome diagram (surface movement chart) (iii) Obtaining appropriate clearance before crossing or entering active runways. (iv) Observation of all surface movement guidance control markings and lighting.	B				
(d)(1) Before March 12, 2019, pre-takeoff checks that include powerplant checks.				B	
(d)(2) Beginning March 12, 2019, pre-takeoff checks that include powerplant checks, receipt of takeoff clearance and confirmation of aircraft location, and FMS entry (if appropriate), for departure runway prior to crossing hold short line for takeoff.			B		
II. Takeoffs:					
(a) Normal takeoffs which, for the purpose of this maneuver, begin when the airplane is taxied into position on the runway to be used.	B				
(b) Takeoffs with instrument conditions simulated at or before reaching an altitude of 100 ft (30 m) above the aerodrome elevation.			B		
(c)(1) Crosswind takeoffs.	B				

Maneuvers/Procedures	Initial Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(c)(2) Beginning March 12, 2019, crosswind takeoffs including crosswind takeoffs with gusts if practicable under the existing meteorological, aerodrome and traffic conditions.	B				
(d) Takeoffs with a simulated failure of the most critical powerplant—			B		
(1) At a point after V_1 and before V_2 that in the judgment of the person conducting the training is appropriate to the airplane type under the prevailing conditions; or					
(2) At a point as close as possible after V_1 when V_1 and V_2 or V_1 and V_R are identical; or					
(3) At the appropriate speed for non-transport category airplanes.					
For transition training in an airplane group with engines mounted in similar positions, or from wing-mounted engines to aft fuselage-mounted engines, the maneuver may be performed in a nonvisual simulator.					
(e) Rejected takeoffs accomplished during a normal takeoff run after reaching a reasonable speed determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane.				B	
Training in at least one of the above takeoffs must be accomplished at night. For transitioning pilots this requirement may be met during the operating experience required under GACAR § 121.789 of this part by performing a normal takeoff at night when a check pilot serving as PIC is occupying a pilot station.					

Maneuvers/Procedures	Initial Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
III. Flight Maneuvers and Procedures:					
(a) Turns with and without spoilers				B	
(b) Tuck and Mach buffet				B	
(c) Maximum endurance and maximum range procedures				B	
(d) Operation of systems and controls at the flight engineer station				B	
(e) Runway and jammed stabilizer				B	
(f) Normal and abnormal or alternate operation of the following systems and procedures:					
(1) Pressurization					B
(2) Pneumatic					B
(3) Air conditioning					B
(4) Fuel and oil		B			B
(5) Electrical		B			B
(6) Hydraulic		B			B
(7) Flight control		B			B
(8) Anti-icing and deicing				B	
(9) Autopilot				B	
(10) Automatic or other approach aids	B			B	
(11) Stall warning devices, stall avoidance devices, and stability augmentation devices	B			B	
(12) Airborne radar devices				B	
(13) Any other systems, devices, or aids available				B	
(14) Electrical, hydraulic, flight control, and flight instrument system malfunctioning or failure		B			B

Maneuvers/Procedures	Initial Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(15) Landing gear and flap systems failure or malfunction		B			B
(16) Failure of navigation or communications equipment				B	
(g) Flight emergency procedures that include at least the following:					
(1) Powerplant, heater, cargo compartment, cabin, flightdeck, wing, and electrical fires		B			B
(2) Smoke control		B			B
(3) Powerplant failures				B	
(4) Fuel jettisoning		B			B
(5) Any other emergency procedures outlined in the AFM or approved equivalent.				B	
(h) Steep turns in each direction. Each steep turn must involve a bank angle of 45° with a heading change of at least 180° but not more than 360°.				P	
(i) Stall Prevention. For the purposes of this training the approved stall recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning). Stall prevention training must include at least the following: (1) Takeoff configuration (except where the airplane uses only a zero-flap configuration) (2)Clean configuration (3) Landing configuration.				B	

Maneuvers/Procedures	Initial Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
Training in at least one of the above configurations must be accomplished while in a turn with a bank angle between 15° and 30°.					
(j) Recovery from specific flight characteristics peculiar to the airplane type.				B	
(k) Instrument procedures that include the following:					
(1) Area departure and arrival				B	
(2) Use of navigation systems including adherence to assigned radials				B	
(3) Holding				B	
(l) ILS instrument approaches that include the following:					
(1) Normal ILS approaches	B				
(2) Manually controlled ILS approaches with a simulated failure of one powerplant which occurs before initiating the final approach course and continues to touchdown or through the missed approach procedure	B				
(m) Instrument approaches and missed approaches other than ILS which include the following:					
(1) Nonprecision approaches that the trainee is likely to use					B
(2) In addition to subparagraph (1) of this paragraph, at least one other nonprecision approach and missed approach procedure that the trainee is likely to use			B		

Maneuvers/Procedures	Initial Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
In connection with paragraphs III(k) and III(l), each instrument approach must be performed according to any procedures and limitations approved for the approach facility used. The instrument approach begins when the airplane is over the initial approach fix for the approach procedure being used (or turned over to the final approach controller in the case of ground controlled approach (GCA)) and ends when the airplane touches down on the runway or when transition to a missed approach configuration is completed.					
(n) Circling approaches which include the following:	B				
(1) That portion of the circling approach to the authorized minimum altitude for the procedure being used must be made under simulated instrument conditions;					
(2) The circling approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90° from the final approach course of the simulated instrument portion of the approach;					
(3) The circling approach must be performed without excessive maneuvering, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30°.					

Maneuvers/Procedures	Initial Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
Training in the circling approach maneuver is not required for a pilot employed by a certificate holder subject to the operating rules of this part if the certificate holder's manual prohibits a circling approach in weather conditions below 1 000 ft (300 m) and 5 km (ceiling and visibility); for an SIC if the certificate holder's manual prohibits the SIC from performing a circling approach in operations under this part.					
(o) Zero-flap approaches. Training in this maneuver is not required for a particular airplane type if the President has determined that the probability of flap extension failure on that type airplane is extremely remote due to system design. In making this determination, the President determines whether training on slats only and partial flap approaches is necessary.	P				
(p) Missed approaches which include the following:					
(1) Missed approaches from ILS approaches,			B		
(2) Other missed approaches,					B
(3) Missed approaches that include a complete approved missed approach procedure,					B
(4) Missed approaches that include a powerplant failure.			B		
IV. Landings and Approaches to Landings:					
(a) Normal landings	B				
(b) Landing and go around with the horizontal stabilizer out of trim	P				
(c) Landing in sequence from an ILS instrument approach	B				

Maneuvers/Procedures	Initial Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(d)(1) Crosswind landing	B				
(d)(2) Beginning March 12, 2019, crosswind landing including crosswind landing with gusts if practicable under the existing meteorological, aerodrome and traffic conditions.	B				
(e) Maneuvering to a landing with simulated powerplant failure, as follows:					
(1) Except as provided in subparagraph (3) of this paragraph in the case of 3–engine airplanes, maneuvering to a landing with an approved procedure that approximates the loss of two powerplants (center and one out-board engine);	P				
(2) Except as provided in subparagraph (3) of this paragraph, in the case of other multi-engine airplanes, maneuvering to a landing with a simulated failure of 50 percent of available powerplants with the simulated loss of power on one side of the airplane;	P				
(3) Notwithstanding the requirements of subparagraphs (1) and (2) of this paragraph, flight crew members who satisfy those requirements in a visual simulator must also:					
(*i*) Take in-flight training in one-engine-inoperative landings; and					
(*ii*) In the case of an SIC upgrading to a PIC and who has not previously performed the maneuvers required by this paragraph in flight, meet the requirements of this paragraph applicable to initial training for PIC;					
(4) In the case of flight crew members other than the PIC, perform the maneuver with the simulated loss of power of the most critical powerplant only.					

Maneuvers/Procedures	Initial Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(f) Landing under simulated circling approach conditions (exceptions under paragraph III(n) applicable to this requirement).	B				
(g) Rejected landings that include a normal missed approach procedure after the landing is rejected. For the purpose of this maneuver the landing should be rejected at approximately 50 ft (15 m) and approximately over the runway threshold.	B				
(h) Zero-flap landings if the President finds that maneuver appropriate for training in the airplane.	P				
(i) Manual reversion (if appropriate).			B		
Training in landings and approaches to landings must include the types and conditions provided in paragraphs IV(a) through (i), but more than one type may be combined where appropriate.					
Training in one of the above landings must be accomplished at night. For transitioning pilots, this requirement may be met during the operating experience required under GACAR § 121.789 by performing a normal landing when a check pilot serving as PIC is occupying a pilot station.	B				

Maneuvers/Procedures	Transition Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
As appropriate to the airplane and the operation involved, flight training for pilots must include the following maneuvers and procedures.					
I. Preflight:					
(a) Visual inspection of the exterior and interior of the aircraft, the location of each item to be inspected, and the purpose for inspecting it. If a flight engineer is a required crew member for the particular type of airplane, the visual inspection may be replaced by using an approved pictorial means that realistically portrays the location and detail of preflight inspection items.		AT			
(b) Use of the prestart check list, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies before flight.				AT	
(c)(1) Before March 12, 2019, taxiing, sailing, and docking procedures in compliance with instructions issued by the appropriate Air Traffic Service authority or by the person conducting the training.	AT				

Maneuvers/Procedures	Transition Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(c)(2) Taxiing. Beginning March 12, 2019 this maneuver includes the following: (i), taxiing, sailing, and docking procedures in compliance with instructions issued by the appropriate Air Traffic Service authority or by the person conducting the training. (ii) Use of aerodrome diagram (surface movement chart) (iii) Obtaining appropriate clearance before crossing or entering active runways. (iv) Observation of all surface movement guidance control markings and lighting.	AT				
(d)(1) Before March 12, 2019, pre-takeoff checks that include powerplant checks.				AT	
(d)(2) Beginning March 12, 2019, pre-takeoff checks that include powerplant checks, receipt of takeoff clearance and confirmation of aircraft location, and FMS entry (if appropriate), for departure runway prior to crossing hold short line for takeoff.			AT		
II. Takeoffs:					
(a) Normal takeoffs which, for the purpose of this maneuver, begin when the airplane is taxied into position on the runway to be used.	AT				
(b) Takeoffs with instrument conditions simulated at or before reaching an altitude of 100 ft (30 m) above the aerodrome elevation.			AT		
(c)(1) Crosswind takeoffs.	AT				

Maneuvers/Procedures	Transition Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(c)(2) Beginning March 12, 2019, crosswind takeoffs including crosswind takeoffs with gusts if practicable under the existing meteorological, aerodrome and traffic conditions.	AT				
(d) Takeoffs with a simulated failure of the most critical powerplant—			AT		
(1) At a point after V_1 and before V_2 that in the judgment of the person conducting the training is appropriate to the airplane type under the prevailing conditions; or					
(2) At a point as close as possible after V_1 when V_1 and V_2 or V_1 and V_R are identical; or					
(3) At the appropriate speed for non-transport category airplanes.					
For transition training in an airplane group with engines mounted in similar positions, or from wing-mounted engines to aft fuselage-mounted engines, the maneuver may be performed in a nonvisual simulator.					
(e) Rejected takeoffs accomplished during a normal takeoff run after reaching a reasonable speed determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane.				AT	
Training in at least one of the above takeoffs must be accomplished at night. For transitioning pilots this requirement may be met during the operating experience required under GACAR § 121.789 of this part by performing a normal takeoff at night when a check pilot serving as PIC is occupying a pilot station.					
III. Flight Maneuvers and Procedures:					

Maneuvers/Procedures	Transition Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(a) Turns with and without spoilers				AT	
(b) Tuck and Mach buffet				AT	
(c) Maximum endurance and maximum range procedures				AT	
(d) Operation of systems and controls at the flight engineer station				AT	
(e) Runway and jammed stabilizer				AT	
(f) Normal and abnormal or alternate operation of the following systems and procedures:					
(1) Pressurization					AT
(2) Pneumatic					AT
(3) Air conditioning					AT
(4) Fuel and oil		AT			AT
(5) Electrical		AT			AT
(6) Hydraulic		AT			AT
(7) Flight control		AT			
(8) Anti-icing and deicing				AT	
(9) Autopilot				AT	
(10) Automatic or other approach aids				AT	
(11) Stall warning devices, stall avoidance devices, and stability augmentation devices				AT	
(12) Airborne radar devices				AT	
(13) Any other systems, devices, or aids available				AT	
(14) Electrical, hydraulic, flight control, and flight instrument system malfunctioning or failure		AT			AT
(15) Landing gear and flap systems failure or malfunction		AT			AT

Maneuvers/Procedures	Transition Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(16) Failure of navigation or communications equipment				AT	
(g) Flight emergency procedures that include at least the following:					
(1) Powerplant, heater, cargo compartment, cabin, flightdeck, wing, and electrical fires		AT			AT
(2) Smoke control		AT			AT
(3) Powerplant failures				AT	
(4) Fuel jettisoning		B			B
(5) Any other emergency procedures outlined in the AFM or approved equivalent.				AT	
(h) Steep turns in each direction. Each steep turn must involve a bank angle of 45° with a heading change of at least 180° but not more than 360°.				PJ	
(i) Stall Prevention. For the purposes of this training the approved stall recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning). Stall prevention training must include at least the following: (1) Takeoff configuration (except where the airplane uses only a zero-flap configuration) (2)Clean configuration (3) Landing configuration.				AT	
Training in at least one of the above configurations must be accomplished while in a turn with a bank angle between 15° and 30°.					
(j) Recovery from specific flight characteristics peculiar to the airplane type.				AT	

Maneuvers/Procedures	Transition Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(k) Instrument procedures that include the following:					
(1) Area departure and arrival				AT	
(2) Use of navigation systems including adherence to assigned radials				AT	
(3) Holding				AT	
(l) ILS instrument approaches that include the following:					
(1) Normal ILS approaches	AT				
(2) Manually controlled ILS approaches with a simulated failure of one powerplant which occurs before initiating the final approach course and continues to touchdown or through the missed approach procedure			AT		
(m) Instrument approaches and missed approaches other than ILS which include the following:					
(1) Nonprecision approaches that the trainee is likely to use					AT
(2) In addition to subparagraph (1) of this paragraph, at least one other nonprecision approach and missed approach procedure that the trainee is likely to use			AT		
In connection with paragraphs III(k) and III(l), each instrument approach must be performed according to any procedures and limitations approved for the approach facility used. The instrument approach begins when the airplane is over the initial approach fix for the approach procedure being used (or turned over to the final approach controller in the case of ground controlled approach (GCA)) and ends when the airplane touches down on the runway or when transition to a missed approach configuration is completed.					

Maneuvers/Procedures	Transition Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(n) Circling approaches which include the following:	AT				
(1) That portion of the circling approach to the authorized minimum altitude for the procedure being used must be made under simulated instrument conditions;					
(2) The circling approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90° from the final approach course of the simulated instrument portion of the approach;					
(3) The circling approach must be performed without excessive maneuvering, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30°.					
Training in the circling approach maneuver is not required for a pilot employed by a certificate holder subject to the operating rules of this part if the certificate holder's manual prohibits a circling approach in weather conditions below 1 000 ft (300 m) and 5 km (ceiling and visibility); for an SIC if the certificate holder's manual prohibits the SIC from performing a circling approach in operations under this part.					
(o) Zero-flap approaches. Training in this maneuver is not required for a particular airplane type if the President has determined that the probability of flap extension failure on that type airplane is extremely remote due to system design. In making this determination, the President determines whether training on slats only and partial flap approaches is necessary.			PP, PJ		
(p) Missed approaches which include the following:					

Maneuvers/Procedures	Transition Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(1) Missed approaches from ILS approaches,			AT		
(2) Other missed approaches,					AT
(3) Missed approaches that include a complete approved missed approach procedure,					AT
(4) Missed approaches that include a powerplant failure.			AT		
IV. Landings and Approaches to Landings:					
(a) Normal landings	AT				
(b) Landing and go around with the horizontal stabilizer out of trim			PJ, PP		
(c) Landing in sequence from an ILS instrument approach	AT		AT		
(d)(1) Crosswind landing	AT				
(d)(2) Beginning March 12, 2019, crosswind landing including crosswind landing with gusts if practicable under the existing meteorological, aerodrome and traffic conditions.	AT				
(e) Maneuvering to a landing with simulated powerplant failure, as follows:					
(1) Except as provided in subparagraph (3) of this paragraph in the case of 3–engine airplanes, maneuvering to a landing with an approved procedure that approximates the loss of two powerplants (center and one out-board engine);			PJ, PP		
(2) Except as provided in subparagraph (3) of this paragraph, in the case of other multi-engine airplanes, maneuvering to a landing with a simulated failure of 50 percent of available powerplants with the simulated loss of power on one side of the airplane;			PJ, PP		

Maneuvers/Procedures	Transition Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(3) Notwithstanding the requirements of subparagraphs (1) and (2) of this paragraph, flight crew members who satisfy those requirements in a visual simulator must also:					
(*i*) Take in-flight training in one-engine-inoperative landings; and					
(*ii*) In the case of an SIC upgrading to a PIC and who has not previously performed the maneuvers required by this paragraph in flight, meet the requirements of this paragraph applicable to initial training for PIC;					
(4) In the case of flight crew members other than the PIC, perform the maneuver with the simulated loss of power of the most critical powerplant only.					
(f) Landing under simulated circling approach conditions (exceptions under paragraph III(n) applicable to this requirement).			AT		
(g) Rejected landings that include a normal missed approach procedure after the landing is rejected. For the purpose of this maneuver the landing should be rejected at approximately 50 ft (15 m) and approximately over the runway threshold.			AT		
(h) Zero-flap landings if the President finds that maneuver appropriate for training in the airplane.			PP, PJ		
(i) Manual reversion (if appropriate).			AT		
Training in landings and approaches to landings must include the types and conditions provided in paragraphs IV(a) through (i), but more than one type may be combined where appropriate.					

Transition Training

Maneuvers/Procedures	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
Training in one of the above landings must be accomplished at night. For transitioning pilots, this requirement may be met during the operating experience required under GACAR § 121.789 by performing a normal landing when a check pilot serving as PIC is occupying a pilot station.	AT				

Upgrade Training

Maneuvers/Procedures	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
As appropriate to the airplane and the operation involved, flight training for pilots must include the following maneuvers and procedures.					
I. Preflight:					
(a) Visual inspection of the exterior and interior of the aircraft, the location of each item to be inspected, and the purpose for inspecting it. If a flight engineer is a required crew member for the particular type of airplane, the visual inspection may be replaced by using an approved pictorial means that realistically portrays the location and detail of preflight inspection items.		BU			
(b) Use of the prestart check list, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies before flight.				BU	
(c)(1) Before March 12, 2019, taxiing, sailing, and docking procedures in compliance with instructions issued by the appropriate Air Traffic Service authority or by the person conducting the training.	BU				

Maneuvers/Procedures	Upgrade Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(c)(2) Taxiing. Beginning March 12, 2019 this maneuver includes the following: (i), taxiing, sailing, and docking procedures in compliance with instructions issued by the appropriate Air Traffic Service authority or by the person conducting the training. (ii) Use of aerodrome diagram (surface movement chart) (iii) Obtaining appropriate clearance before crossing or entering active runways. (iv) Observation of all surface movement guidance control markings and lighting.	BU				
(d)(1) Before March 12, 2019, pre-takeoff checks that include powerplant checks.				BU	
(d)(2) Beginning March 12, 2019, pre-takeoff checks that include powerplant checks, receipt of takeoff clearance and confirmation of aircraft location, and FMS entry (if appropriate), for departure runway prior to crossing hold short line for takeoff.			BU		
II. Takeoffs:					
(a) Normal takeoffs which, for the purpose of this maneuver, begin when the airplane is taxied into position on the runway to be used.	BU				
(b) Takeoffs with instrument conditions simulated at or before reaching an altitude of 100 ft (30 m) above the aerodrome elevation.			BU		
(c)(1) Crosswind takeoffs.	BU				

Maneuvers/Procedures	Upgrade Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(c)(2) Beginning March 12, 2019, crosswind takeoffs including crosswind takeoffs with gusts if practicable under the existing meteorological, aerodrome and traffic conditions.	BU				
(d) Takeoffs with a simulated failure of the most critical powerplant—			BU		
(1) At a point after V_1 and before V_2 that in the judgment of the person conducting the training is appropriate to the airplane type under the prevailing conditions; or					
(2) At a point as close as possible after V_1 when V_1 and V_2 or V_1 and V_R are identical; or					
(3) At the appropriate speed for non-transport category airplanes.					
For transition training in an airplane group with engines mounted in similar positions, or from wing-mounted engines to aft fuselage-mounted engines, the maneuver may be performed in a nonvisual simulator.					
(e) Rejected takeoffs accomplished during a normal takeoff run after reaching a reasonable speed determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane.				BU	
Training in at least one of the above takeoffs must be accomplished at night. For transitioning pilots this requirement may be met during the operating experience required under GACAR § 121.789 of this part by performing a normal takeoff at night when a check pilot serving as PIC is occupying a pilot station.					
III. Flight Maneuvers and Procedures:					

Maneuvers/Procedures	Upgrade Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(a) Turns with and without spoilers				BU	
(b) Tuck and Mach buffet				BU	
(c) Maximum endurance and maximum range procedures				BU	
(d) Operation of systems and controls at the flight engineer station				PS	
(e) Runway and jammed stabilizer				BU	
(f) Normal and abnormal or alternate operation of the following systems and procedures:					
(1) Pressurization					BU
(2) Pneumatic					BU
(3) Air conditioning					BU
(4) Fuel and oil		BU			BU
(5) Electrical		BU			BU
(6) Hydraulic		BU			BU
(7) Flight control		BU			BU
(8) Anti-icing and deicing				BU	
(9) Autopilot				BU	
(10) Automatic or other approach aids	SF			BU	
(11) Stall warning devices, stall avoidance devices, and stability augmentation devices	SF			BU	
(12) Airborne radar devices				BU	
(13) Any other systems, devices, or aids available				BU	
(14) Electrical, hydraulic, flight control, and flight instrument system malfunctioning or failure		BU			BU
(15) Landing gear and flap systems failure or malfunction		BU			BU

Maneuvers/Procedures	Upgrade Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(16) Failure of navigation or communications equipment				BU	
(g) Flight emergency procedures that include at least the following:					
(1) Powerplant, heater, cargo compartment, cabin, flightdeck, wing, and electrical fires		BU			BU
(2) Smoke control		BU		BU	BU
(3) Powerplant failures					BU
(4) Fuel jettisoning		BU			BU
(5) Any other emergency procedures outlined in the AFM or approved equivalent.				BU	
(h) Steep turns in each direction. Each steep turn must involve a bank angle of 45° with a heading change of at least 180° but not more than 360°.				PS	
(i) Stall Prevention. For the purposes of this training the approved stall recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning). Stall prevention training must include at least the following: (1) Takeoff configuration (except where the airplane uses only a zero-flap configuration) (2)Clean configuration (3) Landing configuration.				BU	
Training in at least one of the above configurations must be accomplished while in a turn with a bank angle between 15° and 30°.					
(j) Recovery from specific flight characteristics peculiar to the airplane type.				BU	

Maneuvers/Procedures	Upgrade Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(k) Instrument procedures that include the following:					
(1) Area departure and arrival				BU	
(2) Use of navigation systems including adherence to assigned radials				BU	
(3) Holding				BU	
(l) ILS instrument approaches that include the following:					
(1) Normal ILS approaches	BU				
(2) Manually controlled ILS approaches with a simulated failure of one powerplant which occurs before initiating the final approach course and continues to touchdown or through the missed approach procedure			BU		
(m) Instrument approaches and missed approaches other than ILS which include the following:					
(1) Nonprecision approaches that the trainee is likely to use			BU		
(2) In addition to subparagraph (1) of this paragraph, at least one other nonprecision approach and missed approach procedure that the trainee is likely to use			BU		
In connection with paragraphs III(k) and III(l), each instrument approach must be performed according to any procedures and limitations approved for the approach facility used. The instrument approach begins when the airplane is over the initial approach fix for the approach procedure being used (or turned over to the final approach controller in the case of ground controlled approach (GCA)) and ends when the airplane touches down on the runway or when transition to a missed approach configuration is completed.					

Maneuvers/Procedures	Upgrade Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(n) Circling approaches which include the following:	BU				
(1) That portion of the circling approach to the authorized minimum altitude for the procedure being used must be made under simulated instrument conditions;					
(2) The circling approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90° from the final approach course of the simulated instrument portion of the approach;					
(3) The circling approach must be performed without excessive maneuvering, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30°.					
Training in the circling approach maneuver is not required for a pilot employed by a certificate holder subject to the operating rules of this part if the certificate holder's manual prohibits a circling approach in weather conditions below 1 000 ft (300 m) and 5 km (ceiling and visibility); for an SIC if the certificate holder's manual prohibits the SIC from performing a circling approach in operations under this part.					
(o) Zero-flap approaches. Training in this maneuver is not required for a particular airplane type if the President has determined that the probability of flap extension failure on that type airplane is extremely remote due to system design. In making this determination, the President determines whether training on slats only and partial flap approaches is necessary.			PS		
(p) Missed approaches which include the following:					

Maneuvers/Procedures	Upgrade Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(1) Missed approaches from ILS approaches,			BU		
(2) Other missed approaches,					BU
(3) Missed approaches that include a complete approved missed approach procedure,					BU
(4) Missed approaches that include a powerplant failure.			BU		
IV. Landings and Approaches to Landings:					
(a) Normal landings	BU				
(b) Landing and go around with the horizontal stabilizer out of trim					PS
(c) Landing in sequence from an ILS instrument approach			BU		
(d)(1) Crosswind landing	BU				
(d)(2) Beginning March 12, 2019, crosswind landing including crosswind landing with gusts if practicable under the existing meteorological, aerodrome and traffic conditions.	BU				
(e) Maneuvering to a landing with simulated powerplant failure, as follows:					
(1) Except as provided in subparagraph (3) of this paragraph in the case of 3–engine airplanes, maneuvering to a landing with an approved procedure that approximates the loss of two powerplants (center and one out-board engine);			PS		
(2) Except as provided in subparagraph (3) of this paragraph, in the case of other multi-engine airplanes, maneuvering to a landing with a simulated failure of 50 percent of available powerplants with the simulated loss of power on one side of the airplane;			PS		

Maneuvers/Procedures	Upgrade Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
(3) Notwithstanding the requirements of subparagraphs (1) and (2) of this paragraph, flight crew members who satisfy those requirements in a visual simulator must also:					
(*i*) Take in-flight training in one-engine-inoperative landings; and					
(*ii*) In the case of an SIC upgrading to a PIC and who has not previously performed the maneuvers required by this paragraph in flight, meet the requirements of this paragraph applicable to initial training for PIC;					
(4) In the case of flight crew members other than the PIC, perform the maneuver with the simulated loss of power of the most critical powerplant only.					
(f) Landing under simulated circling approach conditions (exceptions under paragraph III(n) applicable to this requirement).			BU		
(g) Rejected landings that include a normal missed approach procedure after the landing is rejected. For the purpose of this maneuver the landing should be rejected at approximately 50 ft (15 m) and approximately over the runway threshold.			BU		
(h) Zero-flap landings if the President finds that maneuver appropriate for training in the airplane.			PS		
(i) Manual reversion (if appropriate).			BU		
Training in landings and approaches to landings must include the types and conditions provided in paragraphs IV(a) through (i), but more than one type may be combined where appropriate.					

Maneuvers/Procedures	Upgrade Training				
	A/P		FSTD		
	Inflight	Static	FFS (Visual Simulator)	Nonvisual Simulator	FTD (Training Device)
Training in one of the above landings must be accomplished at night. For transitioning pilots, this requirement may be met during the operating experience required under GACAR § 121.789 by performing a normal landing when a check pilot serving as PIC is occupying a pilot station.	BU				

APPENDIX B TO GACAR PART 121 – FLIGHT TRAINING REQUIREMENTS

II. Rotorcraft.

Each certificate holder operating rotorcraft must use a training curriculum meeting the requirements of GACAR § 121.899. The flight training curriculum must include at least—

(a) The normal, abnormal, and emergency maneuvers and procedures required for the issuance of a type rating for the rotorcraft to be used,

(b) Normal and abnormal maneuvers and procedures specific to the type of operation to be conducted, and

(c) Any other content required by the President.

APPENDIX C TO GACAR PART 121 – PROFICIENCY CHECK REQUIREMENTS

I. Airplanes.

The maneuvers and procedures required by GACAR § 121.797 for pilot proficiency checks are in this appendix and must be performed inflight except to the extent that certain maneuvers and procedures may be performed as follows, as indicated by the appropriate symbol in the respective column opposite the maneuver or procedure:

(a) In an airplane FFS,

(b) In an airplane simulator without a visual system (nonvisual simulator), or

(c) In any other level FTD.

Whenever a maneuver or procedure is authorized to be performed in a nonvisual simulator, it may also be performed in a visual simulator; when authorized in a training device, it may be performed in a visual or nonvisual simulator.

For the purpose of this appendix, the following symbols mean—

P=Pilot in Command (PIC).

B=Both PIC and Second in Command (SIC).

=A symbol and asterisk (B) indicate that a particular condition is specified in the maneuvers and procedures column.

#=When a maneuver is preceded by this symbol it indicates the maneuver may be required in the airplane at the discretion of the person conducting the check.

Throughout the maneuvers prescribed in this appendix, good judgment commensurate with a high level of safety must be demonstrated. In determining whether such judgment has been shown, the person conducting the check considers adherence to approved procedures, actions based on analysis of situations for which there is no prescribed procedure or recommended practice, and qualities of prudence and care in selecting a course of action.

	Required		**Permitted**			
Maneuvers/Procedures	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
The procedures and maneuvers set forth in this appendix must be performed in a manner that satisfactorily demonstrates knowledge and skill with respect to—						
(a) The airplane, its systems and components;						
(b) Proper control of airspeed, configuration, direction, altitude, and attitude under procedures and limitations contained in the approved AFM, the certificate holder's operations manual, check lists, or other approved material appropriate to the airplane type; and						
(c)Compliance with approach, ATC, or other applicable procedures.						
I. Preflight:						
(a) Equipment examination (oral or written). As part of the practical test the equipment examination must be closely coordinated with, and related to, the flight maneuvers portion but may not be given during the flight maneuvers portion. The equipment examination must cover—					B	

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
(1) Subjects requiring a practical knowledge of the airplane, its powerplants, systems, components, operational, and performance factors;						
(2) Normal, abnormal, and emergency procedures, and the operations and limitations relating thereto; and						
(3) The appropriate provisions of the approved AFM						
The person conducting the check may accept, as equal to this equipment test, an equipment test given to the pilot in the certificate holder's ground school within the preceding 6 months.						
(b) Preflight inspection. The pilot must—					B	B*
(1) Conduct an actual visual inspection of the exterior and interior of the airplane, locating each item and explaining briefly the purpose for inspecting it; and						
(2) Demonstrate the use of the prestart checklist, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies before flight.						

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
Except for flight checks required by GACAR § 121.899(d)(1)(ii), an approved pictorial means that realistically portrays the location and detail of preflight inspection items and provides for the portrayal of abnormal conditions may be substituted for the preflight inspection. If a flight engineer is a required flight crew member for the particular type airplane, the visual inspection may be waived under GACAR § 121.797(d).						
(c)(1) Taxiing. Before March 12, 2019, this maneuver includes taxiing (in the case of an SIC proficiency check to the extent practical from the SIC crew station), sailing, or docking procedures in compliance with instructions issued by the appropriate Air Traffic Service authority or by the person conducting the checks.		B				

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
(c)(2) Taxiing. Beginning March 12, 2019, this maneuver includes the following: (i) Taxiing (in the case of a second in command proficiency check to the extent practical from the second in command crew position), sailing, or docking procedures in compliance with instructions issued by the appropriate traffic control authority or by the person conducting the checks. (ii) Use of airport diagram (surface movement chart). (iii) Obtaining appropriate clearance before crossing or entering active runways. (iv) Observation of all surface movement guidance control markings and lighting		B				
(d)(1) Powerplant checks. As appropriate to the airplane type.				B		
(d)(2) Beginning March 12, 2019, pre-takeoff procedures that include power-plant checks, receipt of takeoff clearance and confirmation of aircraft location, and FMS entry (if appropriate), for departure runway prior to crossing hold short line for takeoff.			B			
II. Takeoff:						

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
(a) Normal. One normal takeoff which, for the purpose of this maneuver, begins when the airplane is taxied into position on the runway to be used.		B*				
(b) Instrument. One takeoff with instrument conditions simulated at or before reaching an altitude of 100 ft (30 m) above the aerodrome elevation.	B		B*			
(c)(1) Crosswind. Before March 12, 2019, one crosswind takeoff, if practicable, under the existing meteorological, aerodrome, and traffic conditions.		B*				
(c)(2) Beginning March 12, 2019, one crosswind takeoff with gusts, if practicable, under the existing >meteorological, airport, and traffic conditions.		B*				
Requirements (a) and (c) may be combined, and requirements (a), (b), and (c) may be combined if (b) is performed inflight.						
(d) Powerplant failure. One takeoff with a simulated failure of the most critical powerplant—			B			

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
(1) At a point after V_1 and before V_2 that in the judgment of the person conducting the check is appropriate to the airplane type under the prevailing conditions;						
(2) At a point as close as possible after V_1 when V_1 and V_2 or V_1 and V_r are identical; or						
(3) At the appropriate speed for non-transport category airplanes.						
In an airplane group with aft fuselage-mounted engines this maneuver may be performed in a nonvisual simulator.						
(e) Rejected. A rejected takeoff may be performed in an airplane during a normal takeoff run after reaching a reasonable speed determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane.				B*		B
III. Instrument procedures:						
(a) Area departure and area arrival. During each of these maneuvers the applicant must—	B			B		B*

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
(1) Adhere to actual or simulated ATC clearances (including assigned radials); and						
(2) Properly use available navigation facilities.						
Either area arrival or area departure, but not both, may be waived under GACAR § 121.797(d).						
(b) Holding. This maneuver includes entering, maintaining, and leaving holding patterns. It may be performed in connection with either area departure or area arrival.	B			B		B
(c) ILS and other instrument approaches. There must be the following:						
(1) At least one normal ILS approach.	B		B			
(2) At least one manually controlled ILS approach with a simulated failure of one powerplant. The simulated failure should occur before initiating the final approach course and must continue to touchdown or through the missed approach procedure.	B					
(3) At least one nonprecision approach procedure representative of the nonprecision approach procedures the certificate holder is likely to use.	B		B			

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
(4) Demonstration of at least one nonprecision approach procedure on a letdown aid other than the approach procedure performed under subparagraph (c)(3) of this paragraph that the certificate holder is approved to use.	B				B	
Each instrument approach must be performed according to any procedures and limitations approved for the approach facility used. The instrument approach begins when the airplane is over the initial approach fix for the approach procedure being used (or turned over to the final approach controller in the case of GCA approach) and ends when the airplane touches down on the runway or when transition to a missed approach configuration is completed. Instrument conditions need not be simulated below 100 ft (30 m) above touchdown zone elevation.						
(d) Circling approaches. If the certificate holder is approved for circling minimums below 1000–3, at least one circling approach must be made under the following conditions—			B*			B*

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
(1) The portion of the approach to the authorized minimum circling approach altitude must be made under simulated instrument conditions.	B					
(2) The approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90° from the final approach course of the simulated instrument portion of the approach.						
(3) The circling approach must be performed without excessive maneuvering, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30°.						

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
If local conditions beyond the control of the pilot prohibit the maneuver or prevent it from being performed as required, it may be waived as provided in GACAR § 121.797(d). However, the maneuver may not be waived under this provision for two successive proficiency checks. The circling approach maneuver is not required for an SIC if the certificate holder's manual prohibits an SIC from performing a circling approach in operations under this part.						
(e) Missed approach:						
(1) Each pilot must perform at least one missed approach from an ILS approach.			B*			
(2) Each PIC must perform at least one additional missed approach.			P*			
A complete approved missed approach procedure must be accomplished at least once. At the discretion of the person conducting the check a simulated powerplant failure may be required during any of the missed approaches. These maneuvers may be performed either independently or in conjunction with maneuvers required under Sections III or V of this appendix. At least one missed approach must be performed in flight.						

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
IV. In-Flight Maneuvers:						
(a) Steep turns. At least one steep turn in each direction must be performed. Each steep turn must involve a bank angle of 45° with a heading change of at least 180° but not more than 360°	P			P		P
(b) Stall Prevention. For the purpose of this maneuver the approved recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning). Except as provided below there must be at least three stall prevention recoveries as follows:	B			B		B*
(1) Onein the takeoff configuration (except where the airplane uses only a zero-flap takeoff configuration),						
(2) One in a clean configuration,						
(3) One in a landing configuration.						
At the discretion of the person conducting the check, one stall prevention recovery must be performed in one of the above configurations while in a turn with the bank angle between 15° and 30°. Two out of the three stall prevention recoveries required by this paragraph may be waived.						

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
If the certificate holder is authorized to dispatch or flight release the airplane with a stall warning device inoperative the device may not be used during this maneuver.						
(c) Specific flight characteristics. Recovery from specific flight characteristics that are peculiar to the airplane type.				B		B
(d) Powerplant failures. In addition to specific requirements for maneuvers with simulated powerplant failures, the person conducting the check may require a simulated powerplant failure at any time during the check.				B		
V. Landings and Approaches to Landings:						
Notwithstanding the authorizations for combining and waiving maneuvers and for the use of a simulator, at least two actual landings (one to a full stop) must be made for all PIC and initial SIC proficiency checks.						
Landings and approaches to landings must include the types listed below, but more than one type may be combined where appropriate:						
(a) Normal landing		B				

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
(b) Landing in sequence from an ILS instrument approach except that if circumstances beyond the control of the pilot prevent an actual landing, the person conducting the check may accept an approach to a point where in his judgment a landing to a full stop could have been made.		B*				
(c)(1)Crosswind landing, if practical under existing meteorological, aerodrome, and traffic conditions.		B*				
(c)(2) Beginning March 12, 2019, crosswind landing with gusts, if practical under existing meteorological, airport, and traffic conditions.		B*				
(d) Maneuvering to a landing with simulated powerplant failure as follows:						
(1) In the case of 3-engine airplanes, maneuvering to a landing with an approved procedure that approximates the loss of two powerplants (center and one outboard engine); or			B*			

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
(2) In the case of other multi-engine airplanes, maneuvering to a landing with a simulated failure of 50 percent of available powerplants, with the simulated loss of power on one side of the airplane.			B*			
Notwithstanding the requirements of subparagraphs (d)(1) and (2) of this paragraph, in a proficiency check for other than a PIC, the simulated loss of power may be only the most critical powerplant. However, if a pilot satisfies the requirements of subparagraph (d)(1) or (2) of this paragraph in a visual simulator, he also must maneuver in flight to a landing with a simulated failure of the most critical powerplant. In addition, a PIC may omit the maneuver required by subparagraph (d)(1) or (2) of this paragraph during a required proficiency check or simulator course of training if he satisfactorily performed that maneuver during the preceding proficiency check, or during the preceding approved simulator course of training under the observation of a check pilot, whichever was completed later.						

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
(e) Except as provided in paragraph (f) of this section, if the certificate holder is approved for circling minimums below 1000–3, a landing under simulated circling approach conditions. However, when performed in an airplane, if circumstances beyond the control of the pilot prevent a landing, the person conducting the check may accept an approach to a point where, in his judgment, a landing to a full stop could have been made.			B*			
#(f) A rejected landing, including a normal missed approach procedure, that is rejected approximately 50 ft (15 m) over the runway and approximately over the runway threshold. This maneuver may be combined with instrument, circling, or missed approach procedures, but instrument conditions need not be simulated below 100 ft (30 m) above the runway.			B			
VI. Normal and Abnormal Procedures:						

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
Each applicant must demonstrate the proper use of as many of the systems and devices listed below as the person conducting the check finds are necessary to determine that the person being checked has a practical knowledge of the use of the systems and devices appropriate to the airplane type:						
(a) Anti-icing and deicing systems;				B		
(b) Autopilot systems;				B		
(c) Automatic or other approach aid systems;				B		
(d) Stall warning devices, stall avoidance devices, and stability augmentation devices;				B		
(e) Airborne radar devices;				B		
(f) Any other systems, devices, or aids available;				B		
(g) Hydraulic and electrical system failures and malfunctions;					B	
(h) Landing gear and flap systems failure or malfunction;					B	
(i) Failure of navigation or communications equipment.				B		
VII. Emergency Procedures:						

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	FFS (Visual simulator)	Nonvisual simulator	FTD (Training device)	Waiver provisions of GACAR § 121.797(d)
Each applicant must demonstrate the proper emergency procedures for as many of the emergency situations listed below as the person conducting the check finds are necessary to determine that the person being checked has an adequate knowledge of, and ability to perform, such procedure:						
(a) Fire in flight,				B		
(b) Smoke control,				B		
(c) Rapid decompression,				B		
(d) Emergency descent,				B		
(e) Any other emergency procedures outlined in the appropriate approved AFM.				B		

APPENDIX C TO GACAR PART 121 – PROFICIENCY CHECK REQUIREMENTS

II. Rotorcraft.

Each certificate holder operating rotorcraft must develop pilot proficiency check procedures meeting the requirements of GACAR § 121.797. The proficiency check procedures must be acceptable to the President and include maneuvers and procedures applicable to the certificate holder's type of operation and rotorcraft being operated.

APPENDIX D TO GACAR PART 121 – ADVANCED SIMULATION

This appendix provides guidelines and a means for achieving flight crew training in advanced airplane and rotorcraft simulators. The requirements in this appendix are in addition to the simulator approval requirements in GACAR § 121.855. Each simulator used under this appendix must be approved as a Level B, C, or D simulator, as appropriate.

(a) *Advanced simulation-training program.* For a certificate holder to conduct Level C or D training under this appendix all required simulator instruction and checks must be conducted under an advanced simulation training program approved by the President for the certificate holder. This program must also ensure that all instructors and check pilots used in training and checking are highly qualified to provide the training required in the program. The advanced simulation training program must include the following:

(1) The certificate holder's initial, transition, upgrade, and recurrent simulator training programs and its procedures for re establishing recency of experience in the simulator.

(2) How the training program will integrate Level B, C, and D simulators with other simulators and FTDs to maximize the total training, checking, and certification functions.

(3) Documentation that each instructor and check pilot has served for at least 1 year in that capacity in a certificate holder's approved program or has served for at least 1 year as a PIC or SIC in an airplane of the group in which that pilot is instructing or checking.

(4) A procedure to ensure that each instructor and check pilot actively participates in either an approved regularly scheduled line flying program as a flight crew member or an approved line observation program in the same airplane type for which that person is instructing or checking.

(5) A procedure to ensure that each instructor and check pilot is given a minimum of 4 hours of training each year to become familiar with the certificate holder's advanced simulation training program, or changes to it, and to emphasize their respective roles in the program. Training for simulator instructors and check pilots must include training policies and procedures, instruction methods and techniques, operation of simulator controls (including environmental and trouble panels), limitations of the simulator, and minimum equipment required for each course of training.

(6) A special Line Oriented Flight Training (LOFT) program to facilitate the transition from the simulator to line flying. This LOFT program must consist of at least a 4 hour course of training for each flight crew. It also must contain at least two representative flight segments of the certificate

holder's route. One of the flight segments must contain strictly normal operating procedures from push back at one aerodrome to arrival at another. Another flight segment must contain training in appropriate abnormal and emergency flight operations. After March 12, 2019, the LOFT must provide an opportunity for the pilot to demonstrate workload management and pilot monitoring skills.

(b) *Level B training and checking is permitted* —

(1) Recency of experience as required in GACAR § 121.769,

(2) Night takeoffs and landings (Appendix B to this part), and

(3) Landings in a proficiency check without the landing on the line requirements per GACAR § 121.797.

(c) *Level C training and checking is permitted* —

(1) For all pilots, transition training between aircraft in the same group, and for a PIC the certification check required by GACAR § 61.153.

(2) Upgrade to PIC training and the certification check when the pilot—

(i) Has previously qualified as SIC in the equipment to which the pilot is upgrading,

(ii) Has at least 500 hours of actual flight time while serving as SIC in an airplane of the same group, and

(iii) Is currently serving as SIC in an airplane in this same group.

(3) Initial PIC training and the certification check when the pilot—

(i) Is currently serving as SIC in an airplane of the same group,

(ii) Has a minimum of 2 500 flight hours as SIC in an airplane of the same group,

(iii) Has served as SIC on at least two airplanes of the same group, and

(4) For all SIC pilot applicants who meet the aeronautical experience requirements of Appendix D to GACAR Part 141 in the aircraft, the initial and upgrade training and checking required by this part, and the certification check requirements of GACAR § 61.153.

(5) For all pilots, the extended envelope training required by GACAR § 121.889.

(d) *Level D training and checking is permitted —*

Except for the requirements listed in the next sentence, all pilot flight training and checking required by this part and the certification requirements of GACAR § 61.173(f). The line check required by GACAR § 121.793, the static airplane requirements of Appendix B of this part, and the operating experience requirements of GACAR § 121.789 must still be performed in the airplane.

APPENDIX E TO GACAR PART 121 – REQUIREMENTS FOR ETOPS AND POLAR OPERATIONS

The President authorizes ETOPS and polar operations under the requirements and limitations in this appendix.

I. ETOPS Approvals: Airplanes With Two Engines.

(a) *Propulsion system reliability for ETOPS.*

(1) Before the President grants ETOPS operational authority, the certificate holder must be able to demonstrate the ability to achieve and maintain the level of propulsion system reliability, if any, that is required for the ETOPS operational approval sought and for the ETOPS approved airplane engine combination to be used.

(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 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 NOPAC operating area.

(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 NOPAC operating area.

(2) Following ETOPS operational approval, the certificate holder must monitor the propulsion system reliability for the airplane engine combination used in ETOPS, and take action as required by GACAR § 121.671(i) for the specified IFSD rates.

(b) *ETOPS of 75 minutes.*

(1) *Caribbean/Western Atlantic area.* The President grants approvals to conduct ETOPS with maximum diversion times up to 75 minutes on Western Atlantic/Caribbean area routes as follows:

(i) The President 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 President a level of reliability appropriate for 75 minute ETOPS.

(ii) The certificate holder must comply with the requirements of GACAR § 121.1409 for time limited system planning.

(iii) The certificate holder must operate under the ETOPS authority as contained in its operations specifications.

(iv) The certificate holder must comply with the maintenance program requirements of GACAR § 121.671, except that a PDSC before departure of the return flight is not required.

(2) *Other areas*. The President grants approvals to conduct ETOPS with maximum diversion times up to 75 minutes as follows:

(i) The President 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 President a level of reliability appropriate for 75 minute ETOPS.

(ii) The certificate holder must comply with the requirements of GACAR § 121.1409 for time limited system planning.

(iii) The certificate holder must operate under the ETOPS authority as contained in its operations specifications.

(iv) The certificate holder must comply with the maintenance program requirements of GACAR § 121.671.

(v) The certificate holder must comply with the MEL in its operations specifications for 120 minute ETOPS.

(c) *ETOPS of 90 minutes (Micronesia).* The President 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 under the ETOPS authority as contained in its operations specifications,

(3) The certificate holder must comply with the maintenance program requirements of GACAR § 121.671, except that a PDSC before departure of the return flight is not required, and

(4) The certificate holder must comply with the MEL requirements in its operations specifications for 120 minute ETOPS.

(d) *ETOPS of 120 minutes*. The President 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 under the ETOPS authority as contained in its operations specifications,

(3) The certificate holder must comply with the maintenance program requirements of GACAR § 121.671, and

(4) The certificate holder must comply with the MEL requirements for 120 minute ETOPS.

(e) *ETOPS of 138 minutes*. The President grants approval to conduct ETOPS with maximum diversion times up to 138 minutes as follows:

(1) *Operators with existing 120 minute ETOPS approval*. The President 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 under GACAR § 121.1409.

(iii) The certificate holder must operate under the ETOPS authority as contained in its operations specifications.

(iv) The certificate holder must comply with the maintenance program requirements of GACAR § 121.671.

(v) The certificate holder must comply with MEL requirements in its operations specifications for "beyond 120 minutes ETOPS". Operators without a "beyond 120 minute ETOPS" MEL may apply to the President 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 President 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 under the ETOPS authority as contained in its operations specifications.

(iii) The certificate holder must comply with the maintenance program requirements of GACAR § 121.671.

(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) *ETOPS of 180 minutes*. The President 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 under the ETOPS authority as contained in its operations

specifications.

(3) The certificate holder must comply with the maintenance program requirements of GACAR § 121.671.

(4) The certificate holder must comply with the MEL requirements for “beyond 120 minutes ETOPS.”

(g) *Greater than 180 minute ETOPS.* The President grants approval to conduct ETOPS greater than 180 minutes. The following are requirements for all operations greater than 180 minutes.

(1) The President 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 President.

(3) In selecting ETOPS alternate aerodromes, the air 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 aerodrome beyond 180 minutes, the route may be flown only if the requirements for the specific operating area in paragraph I(h) or (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 GACAR § 121.89 as applicable, and

(v) One engine inoperative auto land capability, if flight planning is predicated on its use.

(6) The certificate holder must operate under the ETOPS authority as contained in its operations

specifications.

(7) The certificate holder must comply with the maintenance program requirements of GACAR § 121.671.

(h) *ETOPS of 207 minutes in the NOPAC area of operations.*

(1) The President grants approval to conduct ETOPS with maximum diversion times up to 207 minutes in the NOPAC 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 aerodrome is not available within 180 minutes for reasons such as political or military concerns; volcanic activity; temporary aerodrome conditions; and aerodrome weather below dispatch requirements or other weather related events.

(2) The nearest available ETOPS alternate aerodrome 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 ATC'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) *ETOPS of 240 minutes in the North Polar area*. In the area north of the NOPAC, and in the Pacific Ocean north of the equator.

(1) The President grants approval to conduct 240 minute ETOPS 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 aerodrome is not available within 180 minutes. In that case, the nearest available ETOPS alternate aerodrome 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 aerodromes, aerodrome weather below dispatch requirements, temporary aerodrome conditions, and other weather related events. The criteria used by the certificate holder to decide that extreme weather precludes using an aerodrome must be established by the certificate holder, accepted by the President, and published in the certificate holder's manual for the use of aircraft 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, aerodrome weather below dispatch requirements, temporary aerodrome conditions, and other weather related events.

(4) The airplane engine combination must be type design approved for ETOPS greater than 180 minutes.

(j) *ETOPS of 240 minutes in areas south of the equator.*

(1) The President grants approval to conduct ETOPS with maximum diversion times of up to 240 minutes in the following areas:

(i) Pacific oceanic areas between the United States (U.S.) west coast and Australia, New Zealand and Polynesia;

(ii) South Atlantic oceanic areas;

(iii) Indian Ocean areas; and

(iv) Oceanic areas between Australia and South America.

(2) The air operator must designate the nearest available ETOPS alternate aerodromes 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 President grants approval to conduct ETOPS with diversion times beyond 240 minutes for operations between specified aerodromes 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 air 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.

APPENDIX E TO GACAR PART 121 – REQUIREMENTS FOR ETOPS AND POLAR OPERATIONS

The President authorizes ETOPS and polar operations under the requirements and limitations in this appendix.

II. ETOPS Approval: Passenger Carrying Airplanes With More Than Two Engines.

The President grants approval to conduct ETOPS, as follows:

(a) Except as provided in GACAR § 121.205, the airplane engine combination must be type design approved for ETOPS.

(b) The certificate holder must designate the nearest available ETOPS alternate aerodromes 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 certificate holder must designate the nearest available ETOPS alternate aerodromes along the planned route of flight.

(c) The MEL limitations for the authorized ETOPS diversion time apply.

(1) The fuel quantity indicating system must be operational.

(2) The communications systems required by GACAR § 121.89 must be operational.

(d) The certificate holder must operate under ETOPS authority as contained in its operations specifications.

APPENDIX E TO GACAR PART 121 – REQUIREMENTS FOR ETOPS AND POLAR OPERATIONS

The President authorizes ETOPS and polar operations under the requirements and limitations in this appendix.

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 airplane in the North Polar area or South Polar area, unless authorized by the President in the certificate holders operations specifications.

(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 aerodromes that may be used for en route diversions and the requirements the aerodromes must meet at the time of diversion.

(2) Except for unscheduled all cargo operations, a recovery plan for passengers at designated diversion aerodromes.

(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 flight 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 flight crew members during outside activity at a diversion aerodrome with extreme climatic conditions. The President may relieve the certificate holder from this requirement if the season of the year makes the equipment unnecessary.

APPENDIX F TO GACAR PART 121 – ROTORCRAFT PERFORMANCE REQUIREMENTS

Section-I

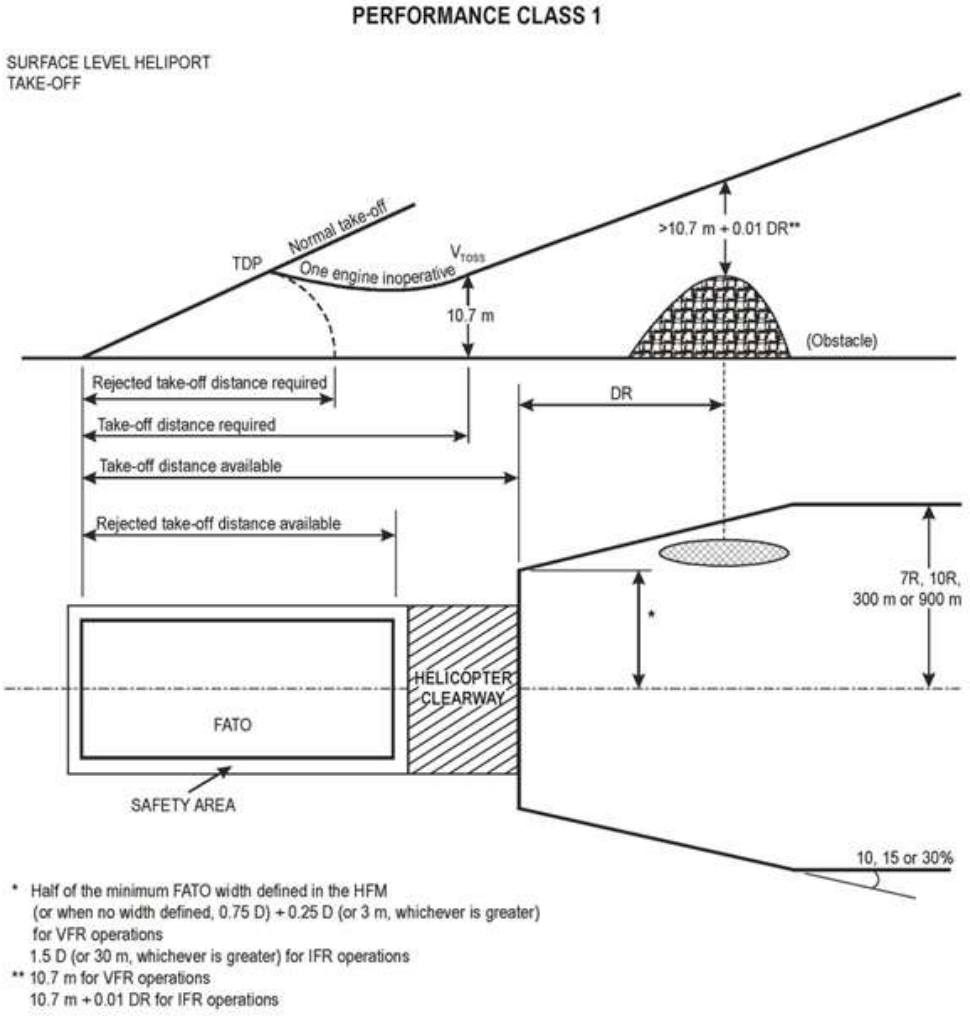


Figure F–1. Surface Level Heliport Takeoff Performance Class 1.

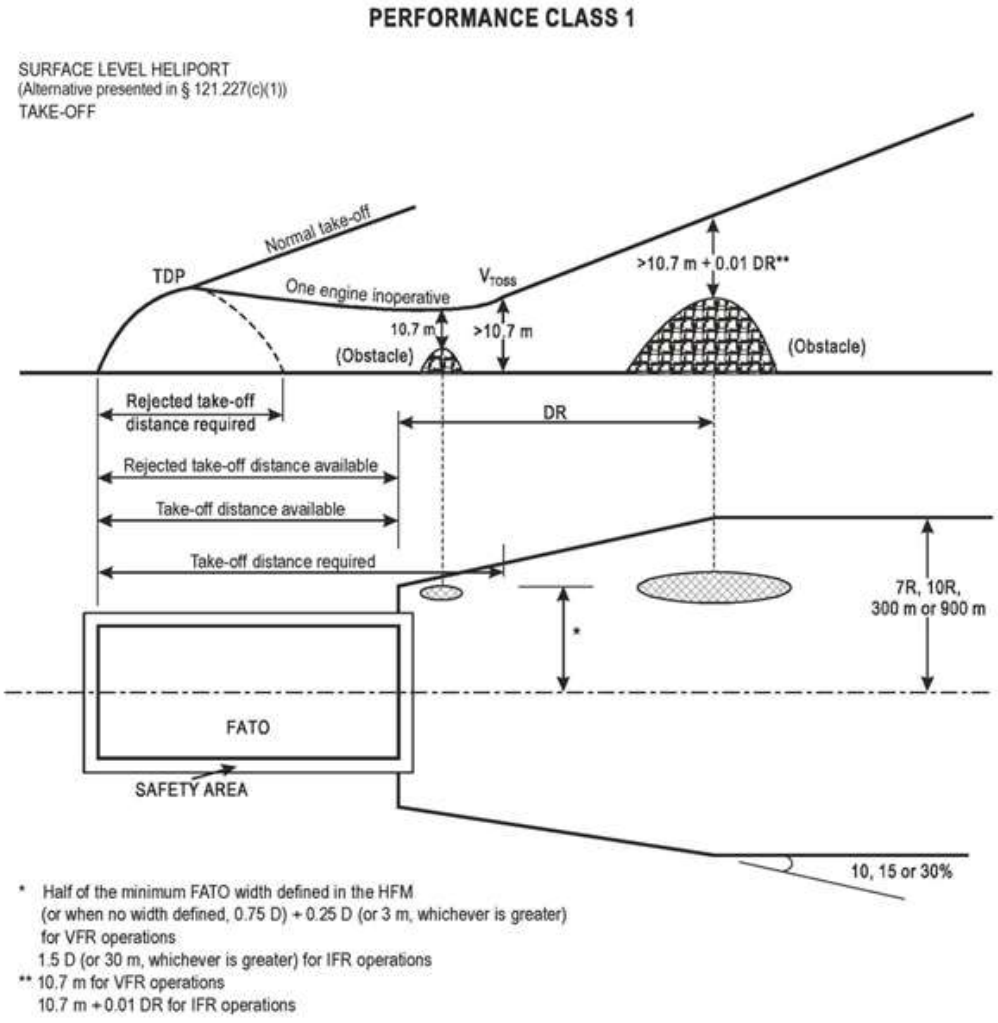


Figure F–2. Alternative Surface Level Heliport Takeoff Performance Class 1.

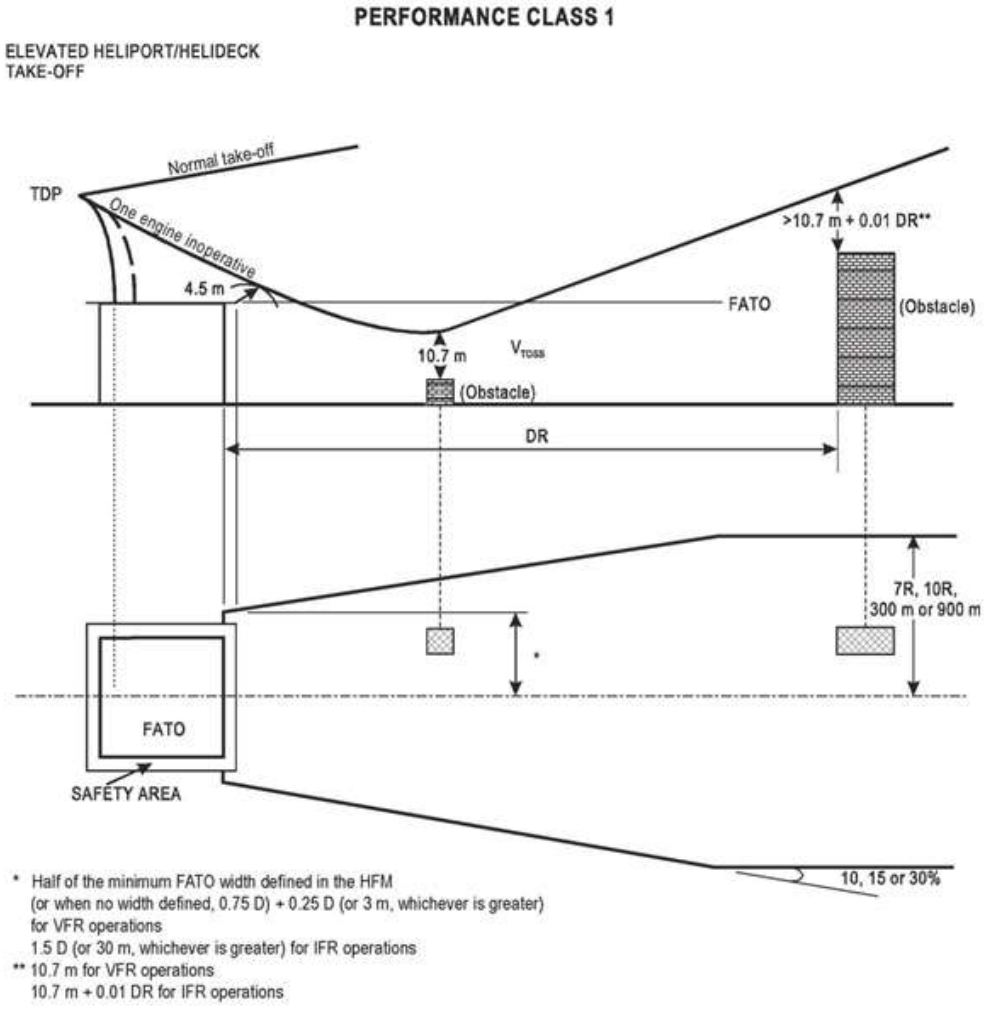


Figure F–3. Elevated Heliport/Helideck Takeoff Performance Class 1.

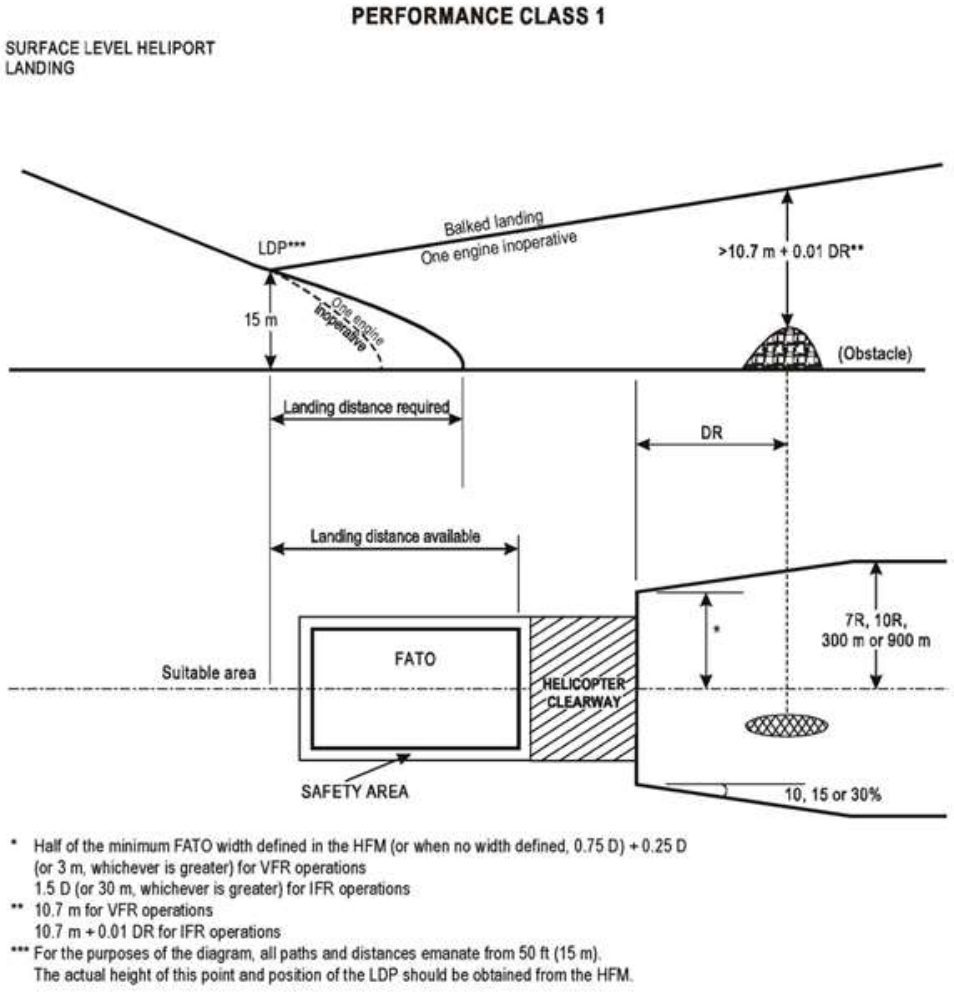


Figure F–4. Surface Level Heliport Landing Performance Class 1.

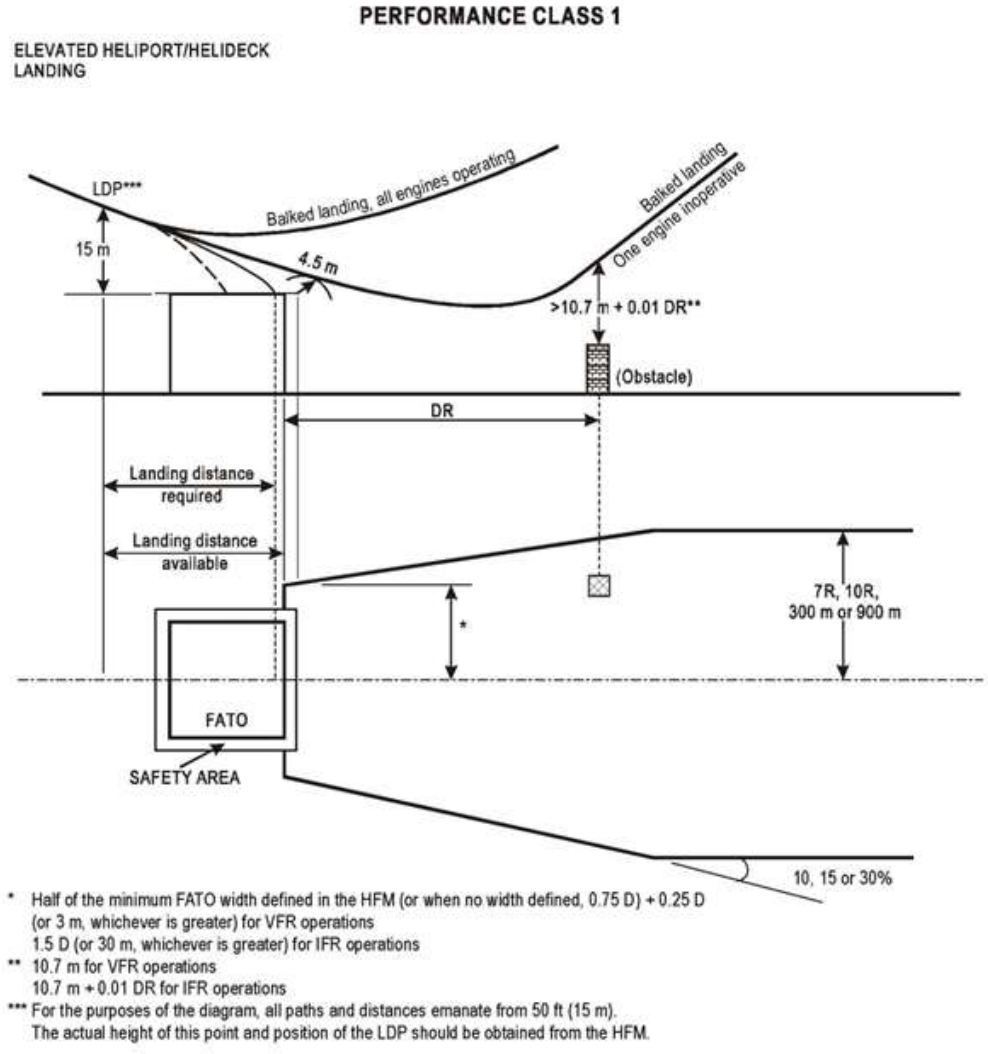
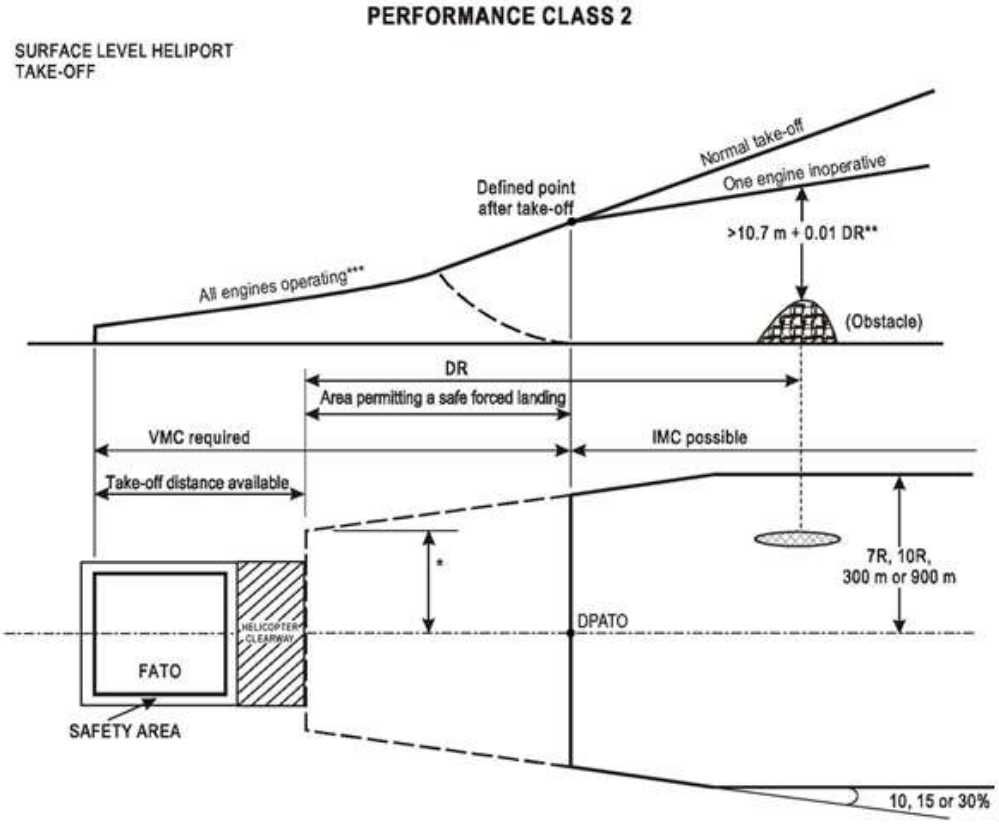


Figure F–5. Elevated Heliport/Helideck Landing Performance Class 1.



* 0.75 D + [0.25 D (or 3 m, whichever is greater)] for VFR operations
1.5 D (or 30 m, whichever is greater) for IFR operations
** 10.7 m for VFR operations
10.7 m + 0.01 DR for IFR operations
*** Only the all-engines-operating flight path is shown.

Figure F–6. Surface Level Heliport Takeoff Performance Class 2.

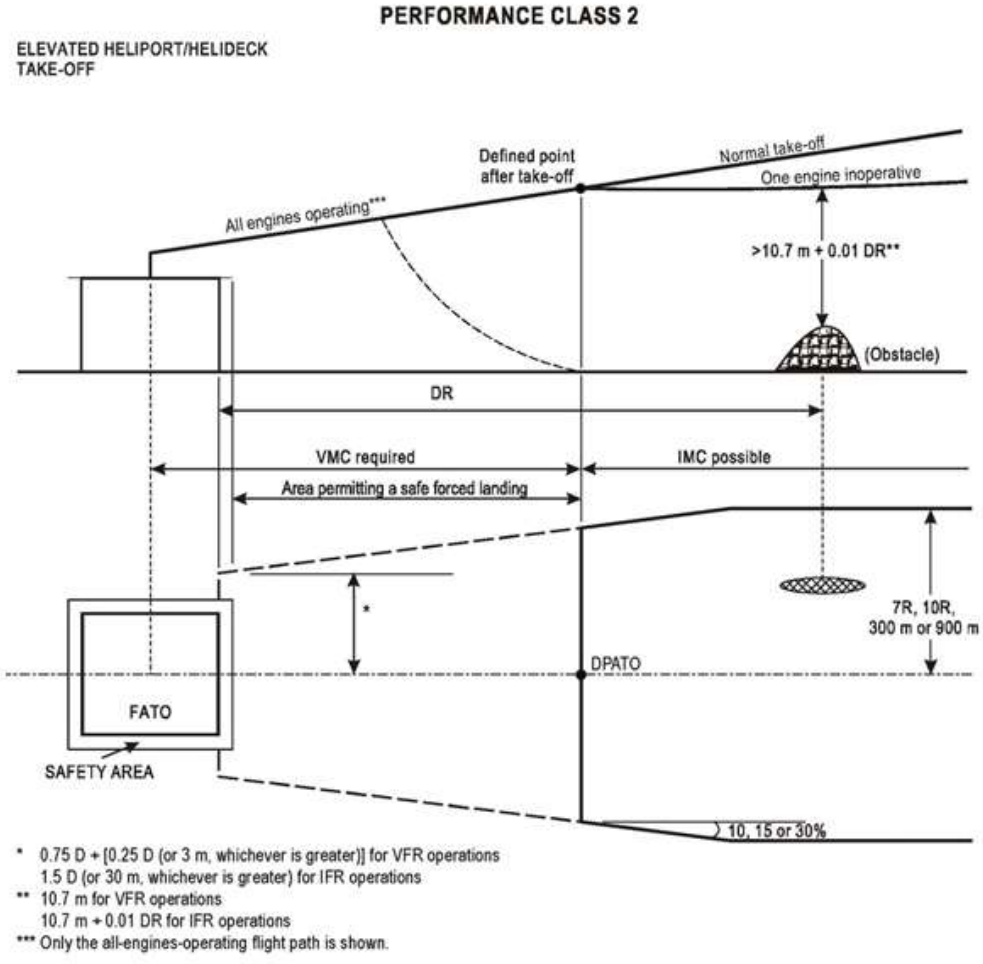


Figure F–7. Elevated Heliport/Helideck Takeoff Performance Class 2.

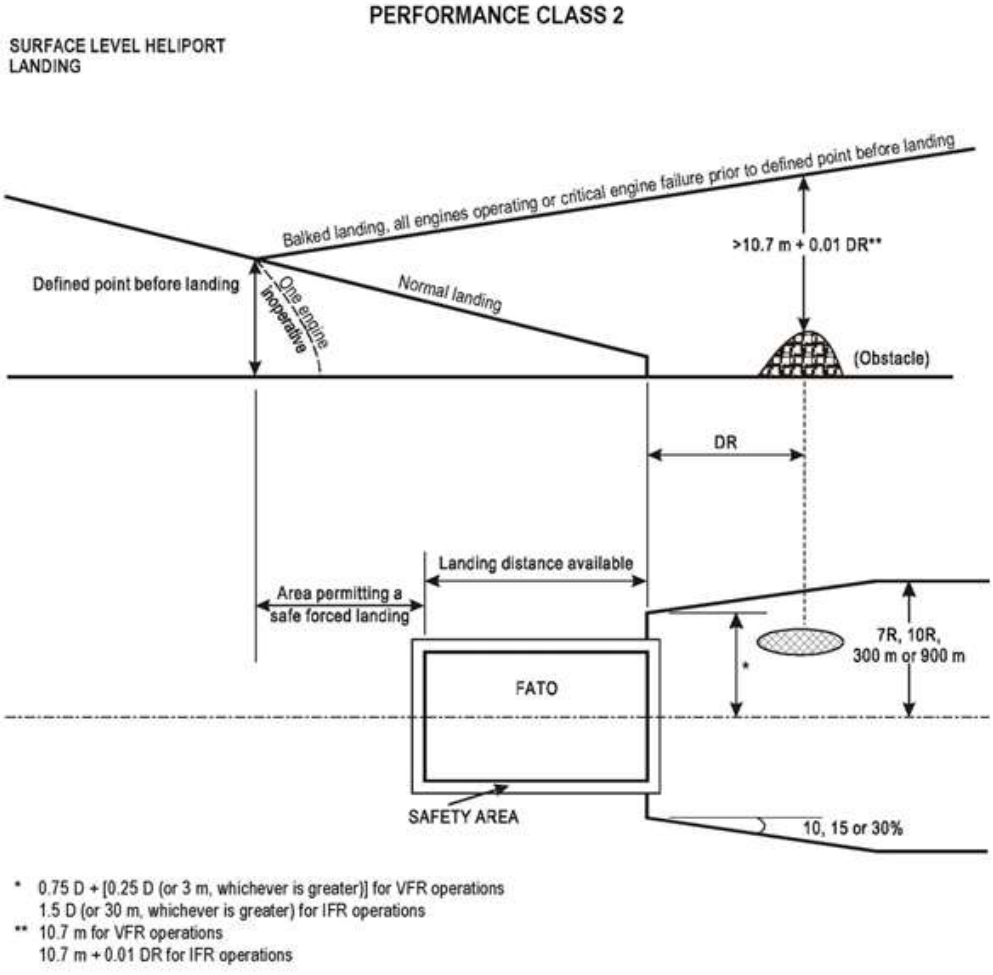


Figure F–8. Surface Level Heliport Landing Performance Class 2.

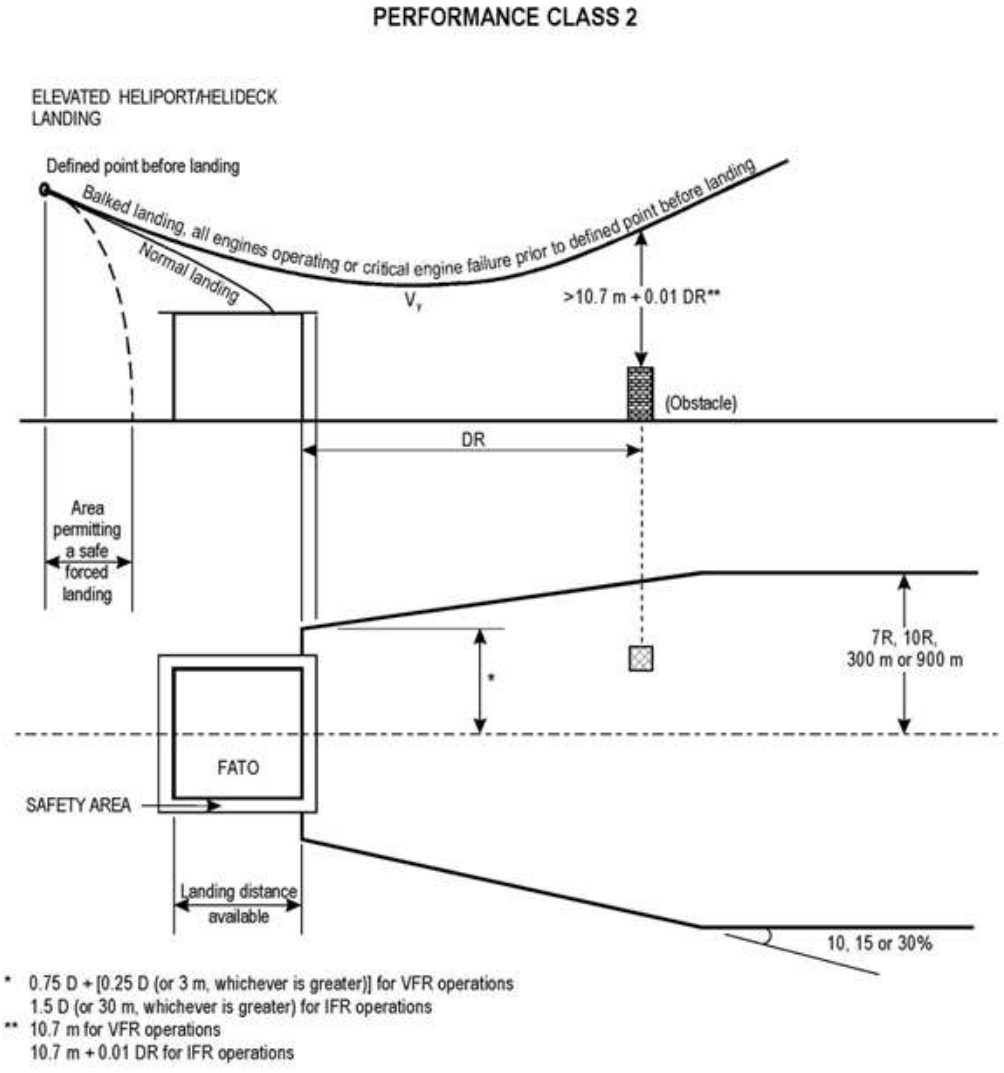


Figure F–9. Elevated Heliport/Helideck Landing Performance Class 2.

APPENDIX F TO GACAR PART 121 – ROTORCRAFT PERFORMANCE REQUIREMENTS

Section-II
Helicopter Performance Class-2 with Exposure

The President may authorize helicopter performance class 2 with exposure operations under the requirements and limitations in this Section of Appendix F to this part and the issuance of the appropriate Operations Specification (OpSpec).

Definitions: For the purposes of this Section, the following definitions apply:

a- **exposure time** for a rotorcraft that is flying in still air, means any part of a flight during which a system or engine failure leading to a forced landing is likely to result in a hazardous or catastrophic outcome.

b- **Baulked Landing**: A landing maneuver that is unexpectedly discontinued at any point below the obstacle clearance altitude/height (OCA/H)

c- **Safe forced landing** (SFL): Unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface.

d- **Suitable Safe Forced Landing Area** (SFLA) for rotorcraft flights: An area of ground is a suitable forced landing area for a flight of a rotorcraft if the rotorcraft could make a forced landing in the area with a reasonable expectation that there would be no injuries to persons in the rotorcraft or on the ground, and has the following requirements:

- Clear of obstacles, smooth and firm enough for the expected run-on speed,
- have a slope within the RFM limits,
- be of sufficient dimensions to cater for the type of landing anticipated,
- have a surface strength sufficient to avoid undercarriage breakthrough resulting in a roll over.

e- **Category A** - With respect to helicopters, means a multi-engine helicopter designed with engine and system isolation features specified in Annex 8, Part IVB, and capable of operations using take-off and landing data scheduled under a critical engine failure concept which assures adequate designated surface area and adequate performance capability for continued safe flight or safe rejected take-off.

f- **Category B** - With respect to helicopters, means a single-engine or multi-engine helicopter which does not meet Category A standards. Category B helicopters have no guaranteed capability to continue safe flight in the event of an engine failure, and a forced landing is assumed.

1.1 No certificate holder may operate a helicopter in Performance Class 2 with exposure time (PC2WE) unless the helicopter is a Category-A helicopter.

1.2 A multi-engine helicopter while flown in Performance Class 2 is considered flying with exposure when, during the take-off stage, or take-off and initial climb stage of a flight if, whilst it is being flown in accordance with the requirements stated in §121.353(b), a suitable forced landing area for the flight is not available to the helicopter from the beginning of the take-off to the lowest of the following:

(a) the defined point after take-off (DPATO).
(b) 300 ft above the helicopter Landing Site (HLS).

1.3 Also, a multi-engine helicopter while flown in performance class 2 is considered flying with exposure, when during the approach and landing, or baulked landing stage of a flight if, whilst it is being flown in accordance with the requirements stated in §121.353, a suitable forced landing area for the flight, is not available to the helicopter after the Defined Point before landing (DPBL) to the point at which a safe landing is assured.

1.4 Unless otherwise authorized by the President, GACA has determined maximum exposure time of (9) seconds for multiengine helicopters, based on proportional reductions in engine failure rates for the helicopter of less than 1 for 100,000 engine hours.

(a) The helicopter may only be flown during each of the following stages of the flight if the exposure time is not more than the time, in seconds, stated in the approval under §121.323 for the helicopter to be flown during the following stages of the flight:

i. take-off.
ii. take-off and initial climb.

iii. approach and landing, or baulked landing.

(b) For paragraphs (a)(i) and (ii), the exposure time in relation to the take-off, and take-off and initial climb stages of the flight must be measured from the point during the flight where the rotorcraft is no longer able to land in a suitable forced landing area for the flight, until the rotorcraft's gradient of climb with 1 engine inoperative is equal to the gradient of the obstacle-clear take-off surface.

(c) For paragraph (a)(iii), the exposure time in relation to the approach and landing, or baulked landing stage of the flight must be measured from the defined point before landing, for the rotorcraft, until the rotorcraft is able to make a safe landing.

APPENDIX G TO GACAR PART 121 – MANUAL REQUIREMENTS

I. Operations Manual.

The operations manual referred to in GACAR § 121.143 must contain at the least the following:

(a) *General.*

(1) General policies and instructions outlining the duties, responsibilities, and authority of operations personnel pertaining to the conduct of flight operations, including members of the ground organization and management personnel.

(2) Fatigue management policies and procedures including flight and duty time limitations and rest schemes for crew members as required by Subpart N of this part.

(3) A list of the navigation equipment to be carried including any requirements relating to operations where performance based navigation is prescribed.

(4) Where relevant to the operations, the long range navigation procedures, engine failure procedure for ETOPS and the selection and use of diversion aerodromes, including—

(i) For ETOPS greater than 180 minutes a specific passenger recovery plan for each ETOPS alternate aerodrome used in those operations, and

(ii) For operations in the North Polar area and South Polar area, a specific passenger recovery plan for each diversion aerodrome used in those operations.

(5) Procedures for operating in periods of ice, hail, thunderstorms, turbulence, or any potentially hazardous meteorological condition.

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

(7) The method for determining minimum flight altitudes.

(8) The methods for determining aerodrome operating minimums to consider the following:

(i) The type, performance, and handling characteristics of the airplane;

(ii) The composition of the flight crew, their competence and experience;

(iii) The dimensions and characteristics of the runways that may be selected for use;

(iv) The adequacy and performance of the available visual and non visual ground aids;

(v) The equipment available on the airplane for the purpose of navigation and/or control of the flight path during the approach to landing and the missed approach;

(vi) The obstacles in the approach and missed approach areas and the obstacle clearance altitude/height for the instrument approach procedures;

(vii) The obstacles in the climb out areas and necessary clearance margins; and

(viii) The means used to determine and report meteorological conditions.

(9) Safety procedures for refueling with passengers on board, eliminating fuel contamination, and protection from fire (including electrostatic protection), and supervising and protecting passengers during refueling.

(10) Ground handling arrangements and procedures.

(11) Accident notification procedures to include procedures for a PIC observing an accident or incident.

(12) Procedures for the preservation of all related flight recorder records and, if necessary, the associated flight recorders, and their retention in safe custody pending their disposition as determined under AIB regulations.

(13) The flight crew for each type of operation including the designation of the succession of command.

(14) Specific instructions for the computation of the quantities of fuel and oil to be carried, taking into account all circumstances of the operation including the possibility of loss of pressurization and the failure of one or more engines while en route.

(15) The conditions under which oxygen must be used and the amount of oxygen determined under GACAR Part 91 and this part.

(16) Instructions for mass and balance control.

(17) Instructions for the conduct and control of ground deicing/anti icing operations.

(18) The specifications for the OFP.

(19) Standard operating procedures for each phase of flight.

(20) Instructions on the use of normal checklists and the timing of their use.

(21) Departure contingency procedures.

(22) Instructions on the maintenance of altitude awareness and the use of automated or flight crew altitude call out.

(23) Instructions on the use of autopilots and auto throttles in IMC.

(24) Instructions on the clarification and acceptance of ATC clearances, particularly where terrain clearance is involved.

(25) Departure and approach briefings.

(26) Procedures for familiarization with areas, routes, and aerodromes.

(27) Stabilized approach procedure.

(28) Limitation on high rates of descent near the surface.

(29) Conditions required to commence or to continue an instrument approach.

(30) Instructions for the conduct of instrument approach operations including operational procedures designed to ensure that an aircraft being used to conduct 3D instrument approach operations crosses the threshold by a safe margin, with the aircraft in the landing configuration and attitude.

(31) The number and composition of the minimum flight crew for each aircraft type and the allocation of flight crew duties and procedures for the management of crew workload during night and IMC instrument approach operations.

(32) Instructions and training requirements for the avoidance of controlled flight into terrain and policy for the use of TAWS.

(33) Policy, instructions, procedures and training requirements for the avoidance of collisions and the use of the ACAS.

(34) Information and instructions relating to the interception of civil aircraft including—

(i) Procedures for PIC of intercepted aircraft; and

(ii) Visual signals for use by intercepting and intercepted aircraft.

(35) For airplanes intended to be operated above 49 000 ft (14 950 m):

(i) Information to enable the pilot to determine the best course of action to take in the event of exposure to solar cosmic radiation; and

(ii) Procedures in the event that a decision to descend is taken, covering—

(A) The necessity of giving the appropriate ATC unit prior warning of the situation and of obtaining a provisional descent clearance; and

(B) The action to be taken in the event that communication with the ATC cannot be established or is interrupted.

(36) Details of the safety management system provided under GACAR Part 5.

(37) Information and instructions on the transport of dangerous goods, including action to be taken in the event of an emergency, as provided in GACAR Part 109.

(38) Security instructions and guidance.

(39) The search procedure checklist to be followed in searching for a bomb in case of suspected sabotage and for inspecting aircraft for concealed weapons, explosives or other dangerous devices when a well founded suspicion exists that the aircraft may be the object of an act of unlawful interference. The checklist must provide 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 aircraft.

(40) Procedures to enable a cabin crew member to access the flightdeck in the event that a flight crew member becomes incapacitated to include that any associated signal or confirmation system must be operable by each flight crew member from his duty station.

(41) Instructions and training requirements for the use of head up display (HUD) systems, enhanced vision systems (EVS), night vision imaging systems, as applicable, and any other special systems implemented under special flight operations authorized under Subpart D of GACAR Part 91.

(42) Flight dispatching and operational control, including procedures for coordinated dispatch or flight release or flight following procedures as applicable.

(43) Procedures for dispatch, release or continuance of flight if any item of equipment required for the operation becomes inoperative or unserviceable en route.

(44) References to all applicable GACAR.

(45) Procedures for the use of a substitute pilot or flight engineer during boarding to include the necessary functions to be performed by the substitute pilot or flight engineer in an emergency, a situation requiring an emergency evacuation, and other regulatory functions performed by a cabin crew member that will be accomplished by the substitute pilot or flight engineer on the aircraft.

(46) Procedures for the use of a person qualified in emergency evacuation procedures prescribed in GACAR § 121.907 at stops when passengers remain on board an aircraft.

(47) Procedures for the the mandatory notification and reporting of accidents, incidents and statistics in accordance with GACAR Part 4.

(b) *Aircraft operating information.*

(1) Certification limitations and operating limitations.

(2) The normal, abnormal, and emergency procedures to be used by the flight crew and the checklists relating to those procedures.

(3) Operating instructions and information on climb performance with all engines operating, if provided under Subpart F or Subpart G of this part, as applicable.

(4) Flight planning data for preflight and in flight planning with different thrust/power and speed settings.

(5) The maximum crosswind and tailwind components for each aircraft type operated and the reductions to be applied to these values with regard to gusts, low visibility, runway surface

conditions, crew experience, use of autopilot, abnormal or emergency circumstances, or any other relevant operational factors.

(6) Instructions and data for mass and balance calculations.

(7) Instructions for aircraft loading and securing of load, including handling and storage of items and the packaging of company materials.

(8) Aircraft systems, associated controls, and instructions for their use.

(9) The MEL and configuration deviation list for the aircraft types operated and specific operations authorized, including any requirements relating to operations where performance based navigation or other special flight operations is prescribed.

(10) Checklist of emergency and safety equipment and instructions for its use.

(11) Emergency evacuation procedures, including type specific procedures, crew coordination, assignment of crew's emergency positions and the emergency duties assigned to each crew member.

(12) The normal, abnormal, and emergency procedures (including procedures for familiarizing passengers with the use of emergency equipment during flight) to be used by the cabin crew members, the checklists relating to the normal, abnormal, and emergency procedures, and aircraft systems information as required, including a statement related to the necessary procedures for the coordination between crew members.

(13) Survival and emergency equipment for different routes and the necessary procedures to verify its normal functioning before takeoff, including procedures to determine the required amount of oxygen and the quantity available.

(14) The ground air visual signal code for use by survivors, as contained in Annex 12 to the Convention on International Civil Aviation.

(15) For ETOPS, airplane performance data to support all phases of these operations.

(c) *Areas, routes, and aerodromes.*

(1) A route guide to ensure that the flight crew and dispatcher will have, for each flight, information relating to—

(i) Communication facilities;

(ii) Navigation aids;

(iii) Aerodromes, from the aerodrome operations specifications for each aerodrome—

(A) Instrument approaches, instrument arrivals, and instrument departures as applicable for the operation;

(B) Location, designation (alternate, refueling, regular), and type of aircraft authorized (scheduled operations only); and

(C) Landing and takeoff minimums.

(iv) Appropriate information from the operations specifications such as—

(A) Approved routes (for scheduled operations only)

(B) The area of operations authorized (for unscheduled operations only),

(C) The types of aircraft authorized, and

(D) The type of operation such as VFR, IFR, day, and night; and

(v) Other information as the operator may deem necessary for the proper conduct of flight operations.

(2) The minimum flight altitudes for each route to be flown.

(3) Aerodrome operating minimums for each of the aerodromes that are likely to be used as aerodromes of intended landing or as alternate aerodromes.

(4) The increase of aerodrome operating minimums in case of degradation of approach or aerodrome facilities.

(5) Instructions for determining aerodrome operating minimums for instrument approaches using HUD and EVS.

(6) The necessary information for compliance with all flight profiles required by regulations,

including the determination of—

(i) Takeoff mass limitations including takeoff runway length requirements for dry, wet, and contaminated conditions, and those dictated by system failures which affect the takeoff distance;

(ii) En route mass limitations;

(iii) Approach mass limitations;

(iv) Landing mass limitations including landing runway length requirements for dry, wet and contaminated conditions, and systems failures that affect the landing distance; and

(v) Supplementary information, such as tire speed limitations.

(7) Procedures for determining the usability of landing and takeoff areas, and for disseminating pertinent information to operations personnel.

(d) *Training.*

(1) Details of the training programs as required by Subpart L of this part and Subpart D of GACAR Part 91.

(2) Details of the transportation of dangerous goods by air training program as required by Subpart R of this part.

(3) Details of the emergency medical training programs required by Subpart L of this part.

APPENDIX G TO GACAR PART 121 – MANUAL REQUIREMENTS

II. Maintenance Manual.

The maintenance manual referred to in GACAR § 121.143 must contain at the least the following:

(a) A chart or description of the certificate holder's organization required by GACAR § 121.675 and a list of persons with whom it has arranged for the performance of any of its required inspections, other maintenance, preventive maintenance, or alterations, including a general description of that work.

(b) References to the aircraft maintenance schedules for each aircraft required by GACAR § 121.667(b).

(c) The programs required by GACAR § 121.679 that must be followed in performing maintenance, preventive maintenance, and alterations of that certificate holder's aircraft, including airframes, aircraft engines, propellers, appliances, emergency equipment, and parts thereof, and must include at least the following:

(1) The method of performing routine and nonroutine maintenance (other than required inspections), preventive maintenance, and alterations;

(2) A designation of the items of maintenance and alteration that must be inspected (required inspection items), including at least those that could result in a failure, malfunction, or defect endangering the safe operation of the aircraft, if not performed properly or if improper parts or materials are used;

(3) The method of performing required inspections and a designation by occupational title of personnel authorized to perform each required inspection;

(4) Procedures for the re inspection of work performed pursuant to previous required inspection findings ("buy back procedures");

(5) Procedures, standards, and limits necessary for required inspections and acceptance or rejection of the items required to be inspected and for periodic inspection and calibration of precision tools, measuring devices, and test equipment;

(6) Procedures to ensure all required inspections are performed;

(7) Instructions to prevent any person who performs any item of work from performing any required inspection of that work;

(8) Instructions and procedures to prevent any decision of an inspector, regarding any required inspection, from being reversed by persons other than supervisory personnel of the inspection unit, or a person at that level of administrative control having overall responsibility for the management of both the required inspection functions and the other maintenance, preventive maintenance, and alterations functions; and

(9) Procedures to ensure required inspections, other maintenance, preventive maintenance, and alterations not completed because of shift changes or similar work interruptions are properly completed before the aircraft is released to service.

(10) A description of the maintenance procedures and the procedures for completing and signing an airworthiness release when maintenance is based on a system other than that of approved maintenance organization.

[(11) Policies, procedures, methods, and instructions for the accomplishment of all maintenance, preventive maintenance, and alterations carried out by a maintenance provider. These policies, procedures, methods, and instructions must be acceptable to the President and provide for the maintenance, preventive maintenance, and alterations to be performed in accordance with the certificate holder's maintenance program and maintenance manual.]

(d) A suitable system, which may include a coded system, that provides for preservation and retrieval of information in a manner acceptable to the President and that provides—

(1) A description (or reference to data acceptable to the President) of the work performed;

(2) The name of the person performing the work if the work is performed by a person outside the organization of the certificate holder; and

(3) The name or other positive identification of the individual approving the work.

(e) Detailed safety procedures and guidance on servicing and maintaining aircraft during line station maintenance.

(f) Detailed procedures and guidance on hot and cold weather maintenance.

(g) Policy and guidance on the interrelationship between the operator's personnel and the personnel of organizations who provide contract services at line stations.

(h) Details of the training to be given to contract personnel to include responsibility for who will

provide the training and maintain records of training.

(i) Maintenance control procedures to include duties and responsibilities of the maintenance control supervisor and the relationship between maintenance control and dispatch (scheduled operations) and maintenance planning procedures.

(j) A description of the procedures for monitoring, assessing, and reporting maintenance and operational data.

(k) A description of the procedures for complying with the service information reporting requirements of GACAR § 121.1553(d).

(l) A description of procedures for assessing continuing airworthiness information from the organization responsible for the type design and implementing any resulting actions.

(m) A description of the procedures for implementing action resulting from mandatory continuing airworthiness information.

(n) A description of establishing and maintaining a system of analysis and continued monitoring of the performance and efficiency of the maintenance program, in order to correct any deficiency in that program as provided in GACAR § 121.691.

(o) A description of aircraft types and models to which the manual applies.

(p) A description of procedures for ensuring that inoperative instruments or equipment affecting airworthiness are recorded and corrected as provided in GACAR § 121.659 and GACAR § 121.699.

(q) A description of the procedures for advising the President of significant in service occurrences as provided in GACAR § 121.1553(d).

(r) A description of the maintenance and preventive maintenance training programs required under GACAR § 121.695.

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