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**RULES ON OPERATION CERTIFICATION OF SMALL AIRCRAFT COMMERCIAL  
TRANSPORT OPERATORS**

**CCAR 135**

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(Note: Should any doubt be found with this version, please refer to published CCAR-135  
Chinese version)

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## Chapter A General Rules

### 135.1 Purposes and basis

This regulation is formulated pursuant to the “Civil Aviation Law of the People’s Republic of China” and the “Decision of State Council on Establishing the Administrative Approval for Administratively-Approved Projects Assuredly Required for Retention”, for the purpose of performing operation certifications and continuous supervision and inspections on small aircraft commercial transport operators, standardizing their operations, and ensuring that they have reached and are maintaining the specified operation safety level.

### 135.3 Applicability

(a) This regulation applies to the following commercial transport flights conducted by air carriers established in the People’s Republic of China in accordance with applicable laws:

(1) The following aircraft are used to conduct scheduled passenger-carrying transportation operations:

(i) Multi-engine airplanes with the maximum takeoff weight of not more than 5,700 kilograms;

(ii) Single-engine airplane;

(iii) Rotorcraft.

(2) The following aircraft are used to conduct unscheduled passenger-carrying transportation flights:

(i) Multi-engine airplanes that have a passenger seating configuration, excluding any pilot seat, of not more than 30 and a maximum commercial load of not more than 3,400 kilograms;

(ii) Single-engine airplane;

(iii) Rotorcraft.

(3) The following aircraft are used to conduct cargo-only transport flights:

(i) Multi-engine airplanes that have a maximum commercial load of not more than 3,400 kilograms;

(ii) Single-engine airplane;

(iii) Rotorcraft.

(4) Aircraft specified in paragraphs (a)(1) and (a)(2) are used to conduct air touring operation of which the radius is less than 40 kilometers at same takeoff and landing airport.

(b) Any air carrier applicable to paragraph (a) of this section hereof is referred to as the small aircraft commercial transport operator in this regulation.

(c) The small aircraft commercial transport operator certified under this regulation may, in accordance with certification results, be approved in its operation certificate and operations specification to perform each or more of the following types of operation:

(1) The scheduled passenger-carrying operation, referring to the operation under paragraph (a)(1) of this section; and

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(2) The unscheduled passenger-carrying operation and the cargo-only operation, referring to the operations under paragraphs (a)(2) and (a)(3) of this section respectively;

(d) The small aircraft commercial transport operator shall comply with other applicable Chinese Civil Aviation Regulations and shall, when additions or higher standards are made in this regulation to the applicable requirements, comply with the requirements of this regulation.

(e) No small aircraft commercial transport operator may operate outside the boundary of China unless it complies with Appendix II to the *Convention on International Civil Aviation (Air Regulations)* or applicable regulations of the operation place. When requirements in CCAR 61, 91, and this regulation are stricter than and does not conflict with the aforementioned appendix or applicable regulations of the operation place, the small aircraft commercial transport operator shall in addition comply with requirements in CCAR 61, 91, and this regulation.

(f) Persons employed by the small aircraft commercial transport operator during operations or carried by the small aircraft commercial transport operator shall comply with the applicable requirements in this regulation.

### **135.5 Definitions**

(a) Under this regulation, the Administrator shall mean Civil Aviation Administration of China (simplified as CAAC hereinafter), local civil aviation administrations of China and agencies.

(b) Except as otherwise specified in other chapters of this regulation, some specific terms in this regulation shall be defined in Appendix A to this regulation (Definitions).

### **135.7 Responsibilities and basic requirements of the operation certification**

(a) CAAC shall perform uniform supervision and management on the certification and operation of small aircraft commercial transport operators.

(b) Flight standards functions of CAAC shall organize and guide under this regulation operation certifications of and continuous supervision and inspections on small aircraft commercial transport operators, formulate necessary work procedures, and specify uniform formats of the operation certification, operations specification, and application.

(c) Local civil aviation administrations of China shall be responsible for performing operation certifications on and issue operation certificates and operations specifications to small aircraft commercial transport operators established in regions under their jurisdiction respectively, and shall put on records in flight standards functions of CAAC in a timely manner.

(d) The organization or individual authorized by CAAC (simplified as authorized representative of the Administrator hereinafter) shall be responsible for specific inspections specified by the Administrator.

(e) The small aircraft commercial transport operator may operate under this regulation in accordance with the requirements of its operations specification provided that it has been certificated by the Administrator in accordance with this regulation and obtained the small aircraft commercial transport operator's operation certificate (simplified as the operation certificate hereinafter) and the operations specification issued by the Administrator.

(f) The small aircraft commercial transport operator may, after obtaining the operation certificate and operations specification, immediately become the holder of the operations specification (simplified as the certificate holder hereinafter) specified by this regulation.

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(g) No certificate holder may perform operation in contravention of the requirements of the operation certificate or operations specification, or in violation of the approved deviation or exemption.

### **135.9 Application and issuance of the operation certificate**

(a) Each applicant for the operation certificate shall submit its application in accordance with the format and manner specified by the Administrator, including at least the following supporting materials:

- (1) Certification schedule;
- (2) Manual containing the requirements of 135.43 of this regulation;
- (3) Training program and curriculums;
- (4) Management personnel qualifications required by this regulation;
- (5) Copies of purchase contract, lease contract, or agreement document regarding aircraft or operation equipment;
- (6) Compliance statement on the applicant's compliance with all the applicable terms in this regulation; and
- (7) Documents stating the nature and scope of the planned operation, including the applicable certificate documents approving the applicant's operations.

(b) Local civil aviation administrations of China shall, within five work days after receiving the application, notify the applicant in writing whether or not the application is accepted. Provided that the applicant fails to submit complete materials required by paragraph (a) of this section or to comply with the application format and application materials are required to be supplemented by the applicant, local civil aviation administrations of China shall once and for all notify within 5 work days the applicant of all the items required to be supplemented or rectified.

(c) Local civil aviation administrations of China shall, upon accepting the application, assess the compliance of the applicant's application materials with the requirements of this regulation and perform the proving examination on the compliance of the applicant with this regulation on the safe operation. Provided that the application materials do not meet the requirements of this regulation or the applicant fails to perform safe operations in compliance with this regulation, the local civil aviation administrations of China shall notify the applicant in writing of revising the relevant contents of the application materials or rectifying the operation defects.

(d) Local civil aviation administrations of China shall, within 20 work days, make the decision on whether or not the operation certificate and operations specification are issued, while the time delayed by the applicant and the time of performing proving examination on or arranging experts to assess the application by local civil aviation administrations of China shall not be included in the aforementioned period.

(e) Local civil aviation administrations of China shall, after deciding to issue the operation certificate and operations specification, issue and deliver the operation certificate and operations specification to the applicant within 10 work days after the date upon which such decision is made.

(f) No operation certificate or operations specification shall be issued to the applicant specified in paragraph (b) of 135.11 of this regulation. In this case, local civil aviation administrations of China shall inform the applicant in writing of reasons and its legal right to

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apply for administrative reconsideration or conduct administrative proceedings.

(g) No applicant may apply for the issuance of or revision to the operation certificate, operations specification, and other items relevant to the operation certification unless it ensures the truth and completeness of the application materials. The Administrator may terminate the operation certification process for any applicant resorting to deception during this process or may, in light of the seriousness of the deception, decide to refuse its corresponding application within one year hereafter. The Administrator may revoke accordingly the certificate and approval of any applicant who has obtained its operation certificate, operations specification, or other approved items through unfair means in the process of the operation certification.

### **135.11 Qualifications for issuing the operation certificate**

(a) The Administrator may issue the small aircraft commercial transport operator's operation certificate and applicable operation specifications to any applicant whose operation has been certificated as meeting all of the following conditions:

(1) Meeting the requirements of all the applicable terms in this regulation;

(2) Being furnished with suitable and sufficient persons, equipment, facilities and materials in accordance with the requirements by the Chinese Civil Aviation Regulations and being able to perform safe operations in compliance with the requirements of this regulation and its operations specification; and

(3) Having obtained the operation license applicable to its operation category.

(b) No applicant may be issued the operation certificate if --

(1) The small aircraft commercial transport operator's operation certificate or the large airplane public air transport carrier's operation certificate formerly held by the applicant has been revoked;

(2) Any person whom the applicant designates or plans to designate to assume major management positions as specified in 135.27 of this regulation, has once assumed the position with the operational control right for another small aircraft commercial transport operator or large airplane public air transport carrier and bears major responsibility for the revocation or planned revocation of the operation certificate of the operator he formerly serves; or

(3) Any person who has a control or share control over the applicant bears major responsibility for the revocation or planned revocation of another small aircraft commercial transport operator or large airplane public air transport carrier over which this person has a same or similar control or share control.

### **135.13 Contents of the operation certificate and operations specification**

(a) The operation certificate includes—

(1) The name of the certificate holder;

(2) Address of the certificate holder's principal base of operations;

(3) Certificate No.;

(4) Effective date of the certificate;

(5) Name or code name of the Administrator agency in charge of the supervision on the certificate holder's operations;

(6) Authorized operation categories; and

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(7) A statement that the certificate holder is certificated to meet applicable requirements of this regulation and it is authorized to perform operations in compliance with the operations specification issued to it.

(b) The small aircraft commercial transport operator's operations specification includes—

(1) Detailed addresses of the principal base of operations, flight base, and maintenance base, the certificate holder's address used to conduct correspondence with the Administrator other than its principal base of operations, and the name and correspondence address of its office for incoming and outgoing documents;

(2) Rights, limitations, and major procedures specified for the performance of each operation;

(3) Other procedures to be complied with during operations of aircraft of each classes and categories;

(4) Type, series number, nationality mark, and registration mark of each authorized aircraft, each regular airport, alternate airport, temporary airport, and refueling airport or operation area to be used in operations. If approved by the Administrator, these items may be listed in the current list as an appendix to the operations specification, of which the list name shall be noted in applicable terms;

(5) Approved operation categories;

(6) Flight course, regions and limitation approved to operate;

(7) Airport limitations;

(8) Maintenance time limitations of airframes, engines, propellers, rotors, and equipment (including emergency equipment) or standards to determine such time limitations;

(9) Authorized methods to control the weight and balance of aircraft;

(10) Aircraft interchange requirements;

(11) Applicable materials of wet released aircraft;

(12) Exemptions granted or deviation authorized by the Administrator in accordance with applicable requirements; and

(13) Other items deemed as necessary by the Administrator.

### **135.15 Expiration dates of the operation certificate and operations specification**

(a) The operation certificate is permanently effective, unless--

(1) The certificate holder waives the certificate and returns it to the Administrator; or

(2) The Administrator suspends, revokes, or by other means suspends or terminates the certificate.

(b) The operations specification shall completely or partially expire in the following cases:

(1) When the Administrator suspends or terminates part of the authorized operations in the operations specification, terms relevant to such operations in the specification shall expire. In case of suspension of partial operation, terms relevant to the operations in suspension shall enter into force again after the suspension period is over;

(2) When the Administrator suspends or terminates all of the authorized operations in the

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operations specification, the operations specification shall completely expire. In case of suspension of all operations, the operations specification shall enter into force again after the suspension period is over;

(3) When the Administrator suspends, revokes, or by other means terminates the operations specification, the operations specification shall completely expire. In case of being suspended, the operations specification shall enter into force again after the suspension period is over; or

(4) When the certificate holder fails to meet the requirements on recent experiences in paragraph (a) of 135.31 hereof regarding a specific operation category and to resume the operation of this category in accordance with the procedures in paragraph (b) of 135.31 hereof, terms regarding the operation of this category shall expire.

(c) Provided that the operation certificate or operations specification is suspended, revoked or by other means expired, the certificate holder shall return the operation certificate or operations specification to the Administrator. When the operation certificate or operations specification is suspended, the Administrator shall, upon the expiration of such suspension period, return it to the certificate holder.

### **135.17 Checks on the operation certificate and operations specification**

Each certificate holder shall maintain originals of the operation certificate and operations specification at its principal base of operations for the purpose of being available for checks by the Administrator from time to time

### **135.19 Revisions to the operation certificate**

(a) The Administrator may make a revision to the operation certificate issued under this regulation if--

(1) The Administrator deems it necessary to make the revision for the reason of security or public interests; or

(2) The certificate holder applies for the revision and the Administrator deems that such revision is allowed by reference to security and public interests.

(b) No certificate holder may apply for the revision to its operation certificate unless it complies with the applicable procedures and periods specified in paragraphs (b) through (g) of 135.9 hereof and--

(1) The certificate holder has, at appropriate time before the effective date of its planned revision, submitted to the Administrator the application for the revision to its operation certificate; and

(2) The application is submitted to the Administrator in the format and manner specified by the Administrator.

(c) When the certificate holder's application for the revision to its operation certificate is denied or it holds different views from that in the revision decision by the Administrator and requests reconsideration, it shall, within 20 work days upon receiving the notice, submit the request of reconsideration to CAAC.

### **135.21 Responsibilities of the certificate holder on keeping and using the operations specification**

(a) Each certificate holder shall keep a copy of independent, complete, and valid operations specification at its principal base of operations.

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(b) Each certificate holder shall include the applicable contents or information of its operations specification in its operation manual, clearly state that these contents are a part of its operations specification, and state that the requirements by the operations specification are compulsive, or otherwise keep a complete copy of the operations specification with the manual and distribute, carry, keep, and update the operations specification as the manual requirements by 135.41 hereof.

(c) Each certificate holder shall continuously ensure that each of its persons involved in the operation is familiar with such requirements in the operations specification as applicable to his or her work responsibilities.

### **135.23 Revision to the Operations Specification**

(a) The Administrator may make a revision to the operations specification issued under this regulation if--

(1) The Administrator deems it necessary to make the revision for the reason of security or public interests; or

(2) The certificate holder applies for the revision and the Administrator deems that such revision is allowed by reference to security and public interests.

(b) Except as specified in paragraph (d) of this section, the Administrator shall comply with the following procedures when proposing to make a revision to the certificate holder's operations specification:

(1) The Administrator proposes the revision contents in writing and notifies the certificate holder of them;

(2) The Administrator determines a reasonable period of not less than 7 days, in which the certificate holder may submit applicable written materials and opinions regarding the revision contents;

(3) After considering all the submitted materials, the Administrator makes one of the following decisions and notifies the certificate holder of it--

(i) Adopting all the revision contents;

(ii) Adopting part of the revision contents; or

(iii) Canceling all the revision contents.

(4) When the Administrator has issued a revised item to the operations specification, this item shall enter into force on the 30<sup>th</sup> date after the date upon which the certificate holder receives the notice. However, when the prompt action is required due to the existence of emergency and for the purpose of safety, the Administrator may cause the revised item immediately enter into force in accordance with paragraph (d) of this section.

(c) No certificate holder may apply for the revision to its operations specification unless it complies with the applicable procedures and periods specified in paragraphs (b) through (g) of 135.9 hereof and--

(1) The certificate holder has, at appropriate time before the effective date of its planned revision, submitted the application for the revision to its operations specification. However, the certificate holder shall submit its application at the time long enough before the effective date of its planned revision in case of:

(i) Merging another operator or establish a branch operating under this regulation;

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(ii) Increasing operation capitals and requiring to prove anew its ability to perform safe operations;

(iii) Operation category change specified in paragraph (c) of 135.3 hereof;

(iv) Requiring to resume its operations after the suspension of the operations caused by bankruptcy; and

(v) Initially introducing the aircraft having not been operated by a small aircraft commercial transport operator or a large airplane public air transport carrier.

(2) The application is submitted to the Administrator in the format and manner specified by the Administrator;

(3) After considering all the submitted materials, the Administrator makes one of the following decisions and notifies the certificate holder of it--

(i) Adopting all the revision contents;

(ii) Adopting part of the revision contents; or

(iii) Canceling all the revision contents. In this case, the certificate holder may in accordance with paragraph (d) of this section request the Administrator to reconsider the decision of denial; and

(4) After the revision is authorized by the Administrator, the revised item shall, after the coordination between the Administrator and the certificate holder on the issue of the execution of the revision, enter into force on the date approved by the Administrator.

(d) If the Administrator identifies that any emergency that endangers safety and requires prompt action causes the failure to perform the procedures specified in this section or that the following of the procedures will impair public interests, the Administrator may--

(1) Make revision to the operations specification and enable the revised item to enter into force on the date upon which the revision notice is received by the certificate holder;

(2) State in the notice sent to the certificate holder the revision reason and the emergency that endangers safety and requires prompt action.

### **135.25 Performance of supervision and inspection**

(a) Each certificate holder shall receive the supervision or inspection performed by the Administrator at any place or time so as to determine whether or not it complies with the requirements of the Chinese Civil Aviation Regulations and the requirements of its operation certificate and operations specification.

(b) Each certificate holder shall be able to provide the Administrator with the following materials at its principal base of operations:

(1) Its operation certificate and operations specification for the small aircraft commercial transport operator; and

(2) Current lists of each record, document and report required to be kept in accordance with the requirements of the Chinese Civil Aviation Regulations.

(c) All persons in charge of keeping the records, documents, and reports of the certificate holder shall be able to provide such materials to the Administrator.

(d) The Administrator may, in light of results of the inspection specified in paragraph (a) of this section or any other appropriate materials, determine whether or not the certificate holder is qualified to continue to hold the operation certificate and the operations

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specification.

(e) Provided that the certificate holder is not able to provide its operation certificate, operations specification, or any necessary record, document, or report in compliance with the Administrator's requirements, the Administrator may suspend part or whole of the operation authorizations in its operation certificate and operations specification.

**135.27 Management agencies and persons necessary to perform operations under this regulation**

(a) Each certificate holder shall have the management agency competent to effectively control and supervise all of its operation and have sufficient certificated management and technical persons to maintain the highest safety level of its operation. The certificate holder shall designate certificated special persons to assume the following positions respectively:

(1) Operation manager, in charge of ensuring the compliance of the organization of the certificate holder's flight operations with the requirements of this regulation;

(2) Maintenance manager, in charge of the compliance of the certificate holder's aircraft maintenance with the requirements of this regulation; and

(3) Chief pilot, in charge of the compliance of the certificate holder's airman training and technical management with the requirements of this regulation.

(b) No certificate can obtain the approval of the deployment of its management persons from the Administrator for a specific operation unless it can prove that, considering such factors as the applicable operation category, number and type of aircraft in operation, and operation area, comparatively small number of management persons or different management person deployment are able to fulfill all the responsibilities of the positions specified in paragraph (a) of this section and complete the operation at the equivalent safety level.

(c) Names of positions and number of management persons specified in paragraph (a) of this section or approved in paragraph (b) of this section shall be clearly filled into the operations specification of the certificate holder.

(d) Persons assuming positions required or approved in paragraphs (a) or (b) of this section respectively as well as persons in charge of all levels performing operations under the operation certificate shall--

(1) Maintain certificated on training, experiences, and expertise;

(2) Be familiar with contents in the following materials related to the certificate holder's operations within their respective responsibility scope; and

(i) Applicable Chinese Civil Aviation Regulations;

(ii) The certificate holder's operations specification;

(iii) Aviation safety standards and operation safety norms;

(iv) All applicable maintenance and airworthiness requirements in the Chinese Civil Aviation Regulations; and

(v) The certificate holder's manual.

(3) Strictly fulfill their respective responsibilities in compliance with applicable regulation requirements and ensure safe operations.

(e) Each certificate holder shall, in the general policies and requirements of its manual, clearly state tasks, duties, and powers of persons assuming the positions specified in

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paragraph (a) of this section as well as their names and business addresses and shall, when any of such positions is occupied by another person or is vacant, notify the Administrator of such changes within 10 days after the change.

### **135.29 Qualifications of management persons**

(a) No person may assume the position of the operation manager specified in paragraph (a) of 135.27 hereof, unless--

(1) The person holds at least the commercial pilot license and, if the pilot in command in some operations of the certificate holder is required to hold an instrument rating, the management person shall hold an instrument rating and, if the pilot in command in some operations of the certificate holder is required to hold an airline transport pilot certificate, the management person shall hold an airline transport pilot certificate; and

(2) The person meets any of the following requirements:

(i) The person has, in operations under this regulation or CCAR 121 in the recent six years, assumed the office of management manager or the similar position and performed operation management for at least three years; or

(ii) The person initially assuming the position of operation manager shall, in operations under this regulation or CCAR 121 in the recent six years, assume the position of the pilot in command for at least three years; while the person having operation management experiences in the position of operation manager or the similar position shall have assumed the position of the pilot in command for at least three years in operations under this regulation or CCAR 121.

(b) No person may assume the position of Chief pilot specified in paragraph (a) of 135.27 hereof unless:

(1) This management person holds at least the commercial pilot license and, if the pilot in command in some operations of the certificate holder is required to hold an instrument rating, the management person shall hold an instrument rating and, if the pilot in command in some operations of the certificate holder is required to hold an airline transport pilot certificate, the management person shall hold an airline transport pilot certificate; and

(2) The person has the valid qualification to assume the position of pilot in command in at least one aircraft type of the certificate holder; and

(3) The person initially assuming the position of Chief pilot assumes in operations under this regulation or CCAR 121 in the recent six years the position of the pilot in command for at least three years; while the person having operation management experiences in the position of Chief pilot or the similar position has assumed the position of the pilot in command for at least three years in operations under this regulation or CCAR 121.

(c) No person may assume the position of maintenance manager specified in paragraph (a) of 135.27 hereof unless the person holds the maintenance manager qualification certificate and--

(1) Holds the maintenance manager certificate issued in accordance with CCAR 66; or

(2) Have experiences of maintenance or maintenance management on at least one aircraft type of the certificate holder for at least three years in the recent six years;

(d) The Administrator may authorize the certificate holder to use a person without complying with experience requirements specified in paragraphs (a), (b), and (c) of this section if the Administrator deems that such person is qualified for the operation for which the person is to be used.

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### **135.31 Recent operation experience requirements**

(a) In a certificate holder stops the scheduled passenger-carrying operation authorized in its operations specification for 30 consecutive days or any operation other than the scheduled passenger-carrying operation for 90 consecutive days, the certificate holder shall not perform the operation after the stoppage period unless it has resumed the operation in accordance with paragraph (b) of this section.

(b) After the stoppage period specified in paragraph (a) of this section, no certificate holder may resume the operation of the applicable category unless it meets the following requirements and is authorized by the Administrator:

(1) The certificate holder shall notify the Administrator of the resumption of such operation at least five working days in advance; and

(2) When the Administrator decides to conduct an overall inspection anew so as to ensure the maintenance of appropriate and sufficient resources and the performance of safe operations, the certificate holder shall within the aforementioned five work days make it available for inspection from time to time.

### **135.33 Principal base of operations, flight base, and maintenance base**

(a) The certificate holder shall maintain a principal base of operations and may in accordance with operation requirements establish a flight base or maintenance base. The flight base or maintenance base may or may not be located in the same place as the principal base of operations.

(b) No certificate holder may establish or change its principal base of operations, flight base, or maintenance base unless it has notified the Administrator of such establishment or change at least 30 day before the scheduled date of such establishment or change.

### **135.35 Deviation authorizations during operations under military contract**

(a) The Administrator may authorize the certificate holder to deviate from the applicable requirements of this regulation during operations under military contract.

(b) The Administrator shall, when authorizing a deviation in accordance with this section, issue an applicable revised item to the operations specification of the certificate holder.

(c) The Administrator may from time to time terminate deviation authorizations issued under this section.

### **135.37 Deviation authorizations during emergency operations**

(a) The Administrator may grant any certificate holder's deviation from the applicable requirement of this regulation in case of emergency when the following requirements are met:

(1) The certificate holder should carry persons or properties to protect the lives and properties from danger in emergency; and

(2) The Administrator deems it necessary to deviate from applicable requirements so as to perform the aforementioned operations.

(b) The Administrator may use any of the following methods to authorize deviations in emergency:

(1) The Administrator issues the applicable revised item to the operations specification of the certificate holder; or

(2) If the timely revision to the operations specification is not allowed by the emergent

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circumstances, the Administrator may authorize the deviation in oral instruction or other methods, but the certificate holder shall, within 24 hours after commencing such operation, submit a report to the Administrator to describe the nature of such emergency.

### **135.39 Emergency cases in which instant resolution and treatment are required**

(a) In an emergency involving the safety of persons or property, the certificate holder may deviate from the rules of this regulation relating to aircraft and equipment and weather minimums to the extent required to meet that emergency.

(b) In an emergency involving the safety of persons or property, the pilot in command may deviate from the rules of this regulation to the extent required to meet that emergency.

(c) Each person who, under the authority of this section, deviates from a rule of this regulation shall, within 10 working days after the deviation, send to CAAC Flight Standards District Office charged with the overall inspection of the certificate holder a complete report of the aircraft operation involved, including a description of the deviation and reasons for it.

### **135.41 Manual requirements**

(a) Each certificate holder, other than one who uses only one pilot in the certificate holder's operations, shall prepare and keep current a manual setting forth the certificate holder's procedures and policies acceptable to the Administrator. This manual must be used by the certificate holder's flight, ground, and maintenance personnel in conducting its operations. However, the Administrator may authorize a deviation from this paragraph if the Administrator finds that, because of the limited size of the operation, regulation of the manual is not necessary for guidance of flight, maintenance, or ground personnel.

(b) Each certificate holder shall maintain at least one copy of the manual at its principal base of operations.

(c) The manual must not be contrary to any applicable CAAC regulations, foreign regulation applicable to the certificate holder's operations in foreign countries, or the certificate holder's operating certificate or operations specifications.

(d) A copy of the manual, or appropriate portions of the manual (and changes and additions) shall be made available to flight, maintenance and ground operations personnel by the certificate holder.

(e) Each employee of the certificate holder to whom a manual is furnished under paragraph (d) of this section shall keep it up to date with the changes and additions furnished to them and use the updated manual contents. The above-mentioned personnel shall be able to refer to the manual or appropriate portions of the manual at any moment when performing their obligations. If a certificate holder has furnished aircraft with the manual or appropriate portions of the manual, crewmembers are not required to take the manual or appropriate portions of the manual with them, but dedicated person shall be appointed to be in charge of the update.

(f) The manual shall be prepared as a Chinese version. When a certificate holder employs in operation any personnel failing to understand Chinese, it shall provide the manual prepared in the language intelligible for the personnel and ensure the consistency and equivalent validity of the versions in different languages.

(g) For the purpose of complying with paragraph (d) of this section, a certificate holder may furnish the persons listed therein with the manual or appropriate portions of the manual in printed form or other form, acceptable to the Administrator. If the certificate holder furnishes the manual or appropriate portions of the manual in a form other than printed one, it

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must ensure there is a compatible reading device available to those persons.

(h) If a certificate holder flies its aircraft to specified stations where it keeps the appropriate maintenance materials and conducts aircraft inspections or maintenance at the stations, it is not required to carry the materials aboard the aircraft en route to those stations.

### **135.43 Manual contents**

Each manual shall have the date of the last revision on each revised page. The manual must include:

(a) The name of each management person required under 135.27 of this regulation who is authorized by the Administrator to act for the certificate holder, the person's assigned area of responsibility and authority, and the name and title of each person authorized by the certificate holder to exercise operational control under section 135.77 hereof.

(b) Procedures for ensuring compliance with aircraft weight and balance limitations and, for multiengine aircraft, for determining compliance with 135.195 hereof.

(c) Copies of the certificate holder's operations specifications or appropriate extracted information, including area of operations authorized, category and class of aircraft authorized, crew complements, and types of operations authorized.

(d) Procedures for complying with accident notification requirements.

(e) Procedures for ensuring that the pilot in command knows that required airworthiness inspections have been made and that the aircraft has been approved for return to service in compliance with applicable maintenance requirements.

(f) Procedures for reporting and recording mechanical irregularities that come to the attention of the pilot in command before, during, and after completion of a flight.

(g) Procedures to be followed by the pilot in command for determining that mechanical irregularities or defects reported for previous flights have been corrected or that correction has been deferred.

(h) Procedures to be followed by the pilot in command to obtain maintenance, preventive maintenance, and servicing of the aircraft at a place where no previous arrangements have been made by the operator (when the pilot is so authorized to act for the operator).

(i) Procedures under section 135.187 hereof for the release for, or continuation of, flight if any item of equipment required for the particular type of operation becomes inoperative or unserviceable;

(j) Procedures for refueling aircraft, eliminating fuel contamination, protecting from fire (including electrostatic protection), and supervising and protecting passengers during refueling.

(k) Procedures to be followed by the pilot in command in the briefing under section 135.115 hereof.

(l) Flight locating procedures or appropriate operational control procedures.

(m) Procedures for ensuring compliance with emergency procedures, including a list of the functions assigned to each category of required crewmembers in connection with an emergency and their emergency evacuation duties under section 135.125 hereof.

(n) En route qualification procedures for pilots, when applicable.

(o) The approved aircraft inspection synopsis or maintenance program.

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(p) Procedures for ensuring compliance with related requirements regarding the management on the transportation of hazardous materials by the civil aviation of China.

(q) Procedures for the evacuation of persons who may need the assistance of another person to move expeditiously to an exit if an emergency occurs.

(r) Procedures for controlling the involved operation persons' duty time, flight time, and rest period.

(s) Anti-icing/Deicing procedures.

(t) Procedures for ensuring compliance with related security requirements of the civil aviation of China, including procedures protecting from illegal interruption, hijacking, and demolition.

(u) Other procedures for ensuring compliance with other related requirements hereof.

### **135.45 Aircraft requirements**

(a) Except as provided in paragraph (d) of this section, no certificate holder may operate an aircraft under this regulation unless that aircraft is authorized by the Administrator or --

(1) Is registered as a civil aircraft of China and carries an appropriate and current airworthiness certificate issued by China; and

(2) Is in an airworthy condition and meets the applicable airworthiness requirements of Chinese Civil Aviation Regulations, including those relating to identification and equipment;

(3) For airplanes driven by a piston engine or turbo-propeller engine with more than 9 passenger seats (excluding the seat for pilot in command), type certificates for the following categories must be obtained:

(1) Transport category;

(2) Commuter category;

(3) Normal category meeting the additional airworthiness requirements under Appendix B to this regulation.

(b) Each certificate holder must have the exclusive use of at least one aircraft that meets the requirements for at least one kind of operation authorized in the certificate holder's operations specifications. In addition, for each kind of operation for which the certificate holder does not have the exclusive use of an aircraft, the certificate holder must have available for use under a written agreement (including arrangements for performing required maintenance) at least one aircraft that meets the requirements for that kind of operation. However, this paragraph does not prohibit the operator from using or authorizing the use of the aircraft for operations not under this regulation and does not require the certificate holder to have exclusive use of all aircraft that the certificate holder uses.

(c) For the purposes of paragraph (b) of this section, a person has exclusive use of an aircraft if that person as owner has the sole possession, control, and use of it for flight, or has a written agreement (including arrangements for performing required maintenance), in effect when the aircraft is operated, giving the person that possession, control, and use for at least 6 consecutive months.

(d) A certificate holder may operate a civil aircraft which is leased or chartered to it without crew and is registered in a country which is a party to the Convention on International Civil Aviation if--

(1) The aircraft carries an appropriate airworthiness certificate issued by the country of

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registration and meets the registration and identification requirements of that country, while the type certificate and airworthiness certificate of the aircraft are recognized by CAAC;

(2) The aircraft is operated by Chinese airmen holding the China's pilot license employed by the certificate holder; and

(3) The certificate holder files a copy of the aircraft lease or charter agreement to CAAC.

#### **135.47 Use of certificate holder's name**

(a) The certificate holder's name used during operations under this regulation shall be consistent with that specified in its operations specification.

(b) Except as authorized by the Administrator, no certificate holder may operate any aircraft operating under this regulation unless it is clearly marked with the name of the certificate holder operating the aircraft. The marking method and intelligibility of the name on the aircraft shall be authorized by the Administrator.

#### **135.49 Carriage of hazardous materials**

The certificate holder shall, whether or not carrying hazardous materials, meet the requirements of the Chinese Civil Aviation Regulations 276 (*Regulations on Administration of Hazardous Material Transportation of Civil Aviation of China*).

(b) No certificate holder may perform hazardous materials transportation unless it is authorized by the Administrator.

#### **135.51 Aircraft wet lease**

(a) Except as approved by CAAC, no certificate holder may wet lease aircraft from domestic or foreign noncommercial transport operator to perform operations under this regulation.

(b) No certificate holder may perform an operation related to a wet lease unless it has submitted to the Administrator a copy of the aircraft wet lease contract signed with other domestic or foreign noncommercial transport operator and applicable authorization documents. Upon receiving the copy of the lease contract, the Administrator will select one contract party as the operational controller of the aircraft in the contract and in accordance with requirements issue a revised item to one contract party or both of the two parties. Otherwise the certificate holder shall not perform wet lease operation.

(c) The certificate holder shall provide the following information as necessary to be included in the operations specification:

- (1) Names of the two contract parties and the expiration date of the contract;
- (2) Nationality marks and registration marks of each aircraft specified in the contract;
- (3) Operation categories;
- (4) Airports or areas of the operation; and

(5) The detailed description that which party shall control operations and the time and airport or area of the performance of such operation.

(d) When making decisions on the issue specified in paragraph (b) of this section, the Administrator shall consider--

- (1) Crewmember qualifications;
- (2) Aircraft airworthiness and maintenance;

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- (3) Operational controls;
  - (4) Ground services for aircraft;
  - (5) Flight schedules; and
  - (6) Other factors deemed as applicable by the Administrator.

(e) If authorized by the Administrator, the certificate holder may, when a flight flied by its aircraft is cancelled for special reasons, wet lease aircraft of other commercial transport operator operating under this regulation so as to perform substitution flight to carry its passengers. Such flight shall meet the requirements of this regulation applicable to the category of the operation to be performed.

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## Chapter B Flight Operations

### 135.61 Regulation compliance

The certificate holder shall comply with the flight operation rules prescribed in this chapter in addition to those in CCAR 91.

### 135.63 Recordkeeping requirements

(a) Each certificate holder shall keep at its principal business office or at other places approved by the Administrator, and shall make available for inspection by the Administrator the following--

- (1) The certificate holder's operating certificate;
- (2) The certificate holder's operations specifications;
- (3) A current list of the aircraft available for use in operations under this regulation and the allowed operations for which each aircraft is equipped with;
- (4) An individual record of each pilot employed by the certificate holder, including the following information:
  - (i) The full name of the pilot;
  - (ii) The pilot certificate (by type and number) and ratings that the pilot holds;
  - (iii) The pilot's aeronautical experience in sufficient detail to determine the pilot's qualifications to pilot aircraft in operations under this regulation;
  - (iv) The pilot's current duties and the date of the pilot's assignment to those duties;
  - (v) The effective class and date of the medical certificate that the pilot holds;
  - (vi) The date and result of each of the competency tests and proficiency checks, instrument proficiency checks, and line checks required by this regulation and the type of aircraft flown during that test or check;
  - (vii) The pilot's flight time in sufficient detail;
  - (viii) The pilot's check pilot authorization, if any;
  - (ix) Any action taken concerning the pilot's release from employment for physical or professional disqualification or other reasons;
  - (x) The date of the completion of the initial phase and each recurrent phase of the training required by this regulation; and

(5) An individual record for each flight attendant maintained in sufficient detail to determine compliance with the applicable portions of Chapters F and H of this regulation.

(b) Each certificate holder must keep each record required by paragraph (a)(3) of this section for at least 6 months, and must keep each record required by paragraphs (a)(4) and (a)(5) of this section for at least 12 months.

(c) For multiengine aircraft, each certificate holder is responsible for the preparation and accuracy of a load manifest in duplicate containing information concerning the loading of the aircraft. The manifest must be prepared before each takeoff and must include:

- (1) The number of passengers;

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- (2) The total weight of the loaded aircraft;
  - (3) The maximum allowable takeoff weight for that flight;
  - (4) The center of gravity limits;

(5) The center of gravity of the loaded aircraft, except that the actual center of gravity need not be computed if the aircraft is loaded according to a loading schedule or other method approved by the Administrator that ensures that the center of gravity of the loaded aircraft is within approved limits. In those cases, an entry shall be made on the manifest indicating that the center of gravity is within limits according to a loading schedule or other approved method;

- (6) The registration number of the aircraft or flight number;
- (7) The origin and destination of the flight; and
- (8) Identification of crewmembers and their crew position assignments.

(d) The pilot in command of an aircraft for which a load manifest must be prepared shall carry a copy of the completed load manifest in the aircraft to its destination. The certificate holder shall keep copies of completed load manifests for at least 30 calendar days at its principal operations base, or at another location approved by the Administrator.

#### **135.65 Reporting mechanical irregularities**

(a) Each certificate holder shall provide an aircraft flight log to be carried on board each aircraft for recording mechanical irregularities and their correction or correction deferring.

(b) The pilot in command shall enter or have entered in the aircraft flight log each mechanical irregularity that comes to the pilot's attention during flight time. Before each flight, the pilot in command shall determine the current status of each irregularity entered in the flight log at the end of the preceding flight.

(c) Each person who takes corrective action or defers action concerning a malfunction or failure of an airframe, powerplant, propeller, rotor, or appliance, shall record the action taken in the aircraft flight log under the applicable maintenance requirements of this regulation.

(d) Each certificate holder shall establish a procedure for keeping copies of the aircraft flight log required by this section in the aircraft for access by appropriate personnel and shall include that procedure in the manual required by section 135.41 hereof.

#### **135.67 Reporting potentially hazardous meteorological conditions and irregularities of communications or navigation facilities**

Whenever a pilot encounters a potentially hazardous meteorological condition or an irregularity in a ground communications or navigational facility in flight, the knowledge of which the pilot considers essential to the safety of other flights, the pilot shall notify an air traffic control department as soon as practicable.

#### **135.69 Restriction or suspension of operations: Continuation of flight in an emergency**

(a) During operations under this regulation, if a certificate holder or pilot in command knows of conditions, including airport and runway conditions, that are a hazard to safe operations, the certificate holder or pilot in command, as the case may be, shall restrict continuation of flight or suspend operations as necessary until those conditions are corrected.

(b) No pilot in command may allow a flight to continue toward any airport of intended landing under the conditions set forth in paragraph (a) of this section, unless

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(1) In the opinion of the pilot in command with sufficient reasons, the conditions that are a hazard to safe operations may reasonably be corrected by the estimated time of arrival or

(2) There is no safer procedure. In the latter event, the continuation toward that airport is an emergency situation under section 135.39 hereof.

#### **135.71 Airworthiness check**

The pilot in command shall not begin a flight unless the pilot determines that the maintenance on aircraft has been completed in accordance with applicable conditions and the aircraft is airworthy. Cases in which the preflight check is required by the certificate holder must be clarified in the manual required by section 135.41 hereof and the applicable training requirements must be added into the training program.

#### **135.75 Inspectors' right of admission to pilots' compartment**

(a) Whenever, in performing the duties of conducting an inspection, an inspector from the Administrator presents his credential to the pilot in command, he shall be given free and uninterrupted access to the pilot compartment of that aircraft by the pilot in command. However, this paragraph does not limit the emergency authority of the pilot in command to exclude any person from the pilot compartment in the interest of safety in the event of emergency.

(b) A forward observer's seat on the flight deck, or forward passenger seat with headset or speaker must be provided for use by the inspector from the Administrator while conducting en route inspections. The suitability of the location of the seat and the headset or speaker for use in conducting en route inspections is determined by the inspector.

#### **135.77 Responsibility for operational control**

(a) Each certificate holder is responsible for operational control and shall list, in the manual required by section 135.41 hereof, the name and title of each person authorized by it to exercise operational control.

(b) The responsibilities related to the aircraft release assumed by the pilot in command shall be listed in the operational control procedures of the certificate holder.

#### **135.79 Flight locating requirements**

(a) Each certificate holder must have procedures established for locating each flight that--

(1) Provide the certificate holder with at least the information required by the VFR flight plan of CCAR 91;

(2) Provide for timely notification of the Administrator or related search and rescue facility, if an aircraft is missing or overdue and failing to establish communications; and

(3) Provide the certificate holder with the location, date, and estimated time for reestablishing radio or telephone communications, if the flight will operate in an area where communications cannot be maintained.

(b) Flight locating information shall be retained at the certificate holder's principal place of business, or at other places designated by the certificate holder in the flight locating procedures, until the completion of the flight.

(c) Each certificate holder shall furnish the Administrator with a copy of its flight locating procedures and any changes or additions, unless those procedures are included in a manual required under this regulation.

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### **135.81 Furnishing operation personnel with flight information and materials**

Each certificate holder shall provide each person in its employment with the information of the operations specifications that apply to that person's duties and responsibilities and shall make available to each pilot in the certificate holder's employment the following materials in current form:

(a) Necessary aviation information and materials, including information on navigation equipment, airport lighting and visual aids, airspace and air traffic control procedures, emergency procedures, factors affecting flight safety, and aeronautical chart or a commercial publication that contains the same information.

(b) This regulation and relevant contents of CCAR 91.

(c) Aircraft User's Manuals, and Aircraft Flight Manual or equivalent.

(d) For foreign operations, the flight material compilation or a commercial publication that contains the same information concerning the pertinent operational and entry requirements of the foreign country or countries involved.

### **135.83 Necessary Materials in the cockpit**

(a) The certificate holder must provide the following materials, in current and appropriate form, accessible to the pilot at the pilot station and ensure these materials in current form:

(1) A cockpit checklist;

(2) For multiengine aircraft or for aircraft with retractable landing gear, an emergency cockpit checklist containing the procedures required by paragraph (c) of this section, as appropriate;

(3) A set of pertinent aeronautical charts at the pilot controls that shall include aero map in a VFR flight;

(4) For IFR operations, each pertinent navigational en route, terminal area, and approach and letdown chart at the pilot controls;

(5) For multiengine aircraft, one-engine-inoperative climb performance data and if the aircraft is approved for use in IFR or over-the-top operations, that data must be sufficient to enable the pilot to determine compliance with 135.191(a)(2) hereof.

(b) Each cockpit checklist required by paragraph (a)(1) of this section must contain the following procedures listed in accordance with the following phases:

(1) Before starting engines;

(2) Before takeoff;

(3) Cruise;

(4) Before landing;

(5) After landing;

(6) Stopping engines.

(c) Each emergency cockpit checklist required by paragraph (a)(2) of this section must contain the following procedures, as appropriate:

(1) Emergency operation of fuel, hydraulic, electrical and mechanical systems.

(2) Emergency operation of instruments and controls.

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- (3) Engine inoperative procedures.
  - (4) Any other emergency procedures necessary for safety.

**135.85 Carriage of persons without compliance with the passenger-carrying provisions of this regulation**

The following persons may be carried aboard an aircraft without complying with the passenger-carrying requirements of section 135.105, section 135.111, section 135.115, and section 135.129 hereof:

- (a) A crewmember or other employee of the certificate holder.
- (b) A person necessary for the safe handling of animals on the aircraft.
- (c) A person necessary for the safe handling of hazardous materials.
- (d) A person performing duty as a security or honor guard accompanying a shipment authorized by the Chinese Government.
- (e) A person connected with military carried in this operation under a military cargo contract.
- (f) An authorized representative of the Administrator conducting an en route inspection.
- (g) A person who is performing a duty connected with a cargo operation of the certificate holder.

**135.87 Carriage of cargo and baggage**

No certificate holder may carry cargo or baggage, including carry-on baggage, in or on any aircraft unless--

- (a) It is carried in an approved cargo rack, bin, or compartment installed in or on the aircraft;
- (b) It is secured in or on the aircraft by an approved means; or
- (c) It is carried in the passenger compartment 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 covered or packaged to avoid possible injury to occupants;
  - (3) It does not impose any load on seats or on 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 located 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 passengers is provided;
  - (5) It is not carried directly above seated occupants;
  - (6) Cargo or baggage needed to be moved en route shall be stowed in compliance with this section for takeoff and landing.
  - (7) For cargo only operations, paragraph (c)(4) of this section does not apply if the

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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.

(d) Each passenger seat under which baggage is stowed shall be fitted with a means to prevent sections of baggage stowed under it from sliding 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.

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

### **135.89 Pilot requirements: Use of oxygen**

(a) Each pilot of an unpressurized aircraft shall use oxygen continuously when flying--

(1) At altitudes above 3,000 meters (10,000 feet) through 3,600 meters (12,000 feet) MSL for that part of the flight at those altitudes that is of more than 30 minutes duration; and

(2) Above 3,600 meters (12,000) feet MSL.

(b) Pressurized aircraft:

(1) Whenever a pressurized aircraft is operated with the cabin pressure altitude more than 3,000 meters (10,000 feet) MSL, each pilot shall comply with paragraph (a) of this section;

(2) Whenever a pressurized aircraft is operated at altitudes above 7,600 meters (25,000 feet) through 10,600 meters (35,000 feet) MSL, unless each pilot has an approved quick-donning type oxygen mask--

(i) At least one pilot at the controls shall wear, secured and sealed, an oxygen mask that either supplies oxygen at all times or automatically supplies oxygen whenever the cabin pressure altitude exceeds 3,600 meters (12,000 feet) MSL; and

(ii) During that flight, each other pilot on flight deck duty shall have an oxygen mask, connected to an oxygen supply, located so as to allow immediate placing of the mask on the pilot's face sealed and secured for use.

### **135.91 Oxygen for medical use by passengers**

(a) Except as provided in paragraphs (d) and (e) of this section, no certificate holder may allow the carriage or operation of equipment for the storage, generation or dispensing of medical oxygen unless the unit to be carried is constructed so that all valves, fittings, and gauges are protected from damage during that carriage or operation and unless the following conditions are met--

(1) The equipment must be--

(i) When carried by passenger, ensured by the certificate holder that it is in conformity with the manufacturing, packaging, marking, labeling, and maintenance requirements by China or the operation country;

(ii) When configured by the certificate holder, in conformity with the manufacturing, packaging, marking, labeling, and maintenance requirements by China and maintained under the certificate holder's approved maintenance program;

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(iii) Free of flammable contaminants on all exterior surfaces; and

(iv) Appropriately secured.

(2) When the oxygen is stored in the form of a liquid, the equipment must have been maintained under the certificate holder's approved maintenance program since its purchase new or since the storage container was last purged;

(3) When the oxygen is stored in the form of a compressed gas as defined in the applicable national standard--

(i) When owned by the certificate holder, it must be maintained under its approved maintenance program; and

(ii) The pressure in any oxygen cylinder must not exceed the rated cylinder pressure.

(4) The pilot in command must be advised when the equipment is on board, and when it is intended to be used.

(5) The equipment must be stowed, and each person using the equipment must be seated, so as not to restrict access to or use of any required emergency or regular exit, or of the aisle in the passenger compartment.

(b) No person may smoke and no certificate holder may allow any person to smoke within 3 meters (10 feet) of oxygen storage and dispensing equipment carried under paragraph (a) of this section.

(c) No certificate holder may allow any person other than a person trained in the use of medical oxygen equipment to connect or disconnect oxygen bottles or any other ancillary component while any passenger is aboard the aircraft.

(d) Paragraph (a)(1)(i) of this section does not apply when that equipment is furnished by a professional or medical emergency service for use on board an aircraft in a medical emergency when no other practical means of transportation is reasonably available and the person carried under the medical emergency is accompanied by a person trained in the use of medical oxygen.

(e) Each certificate holder who, under the authority of paragraph (d) of this section, deviates from paragraph (a)(1)(i) of this section under a medical emergency shall, within 10 working days after the deviation, send to the certificate-holding district office a complete report of the operation involved, including a description of the deviation and the reasons for it.

### **135.93 Autopilot: Minimum altitudes for use**

(a) Except as provided in paragraphs (b), (c), (d), and (e) of this section, no person may use an autopilot at an altitude above the terrain which is less than twice the maximum altitude loss specified in the Aircraft Flight Manual or equivalent for a malfunction of the autopilot or less than 150 meters (500 feet), whichever is higher.

(b) When using an instrument approach facility other than ILS, no person may use an autopilot at an altitude above the terrain that is less than 15 meters (50 feet) below the approved minimum descent altitude for that procedure, or less than twice the maximum loss specified in the approved Aircraft Flight Manual or equivalent for a malfunction of the autopilot under approach conditions, whichever is higher.

(c) For ILS approaches, when reported weather conditions are less than the minimum weather conditions in the VFR defined in Section 91.155 of CCAR-91, no person may use an autopilot with an approach coupler at an altitude above the terrain that is less than 15

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meters (50 feet) or the maximum altitude loss specified in the approved Aircraft Flight Manual or equivalent for the malfunction of the autopilot with approach coupler, whichever is higher.

(d) Without regard to paragraph (a), (b), or (c) of this section, the Administrator may issue operations specifications to allow the use, to touchdown, of an approved flight control guidance system with automatic capability, if--

(1) The system does not contain any altitude loss specified in the Aircraft Flight Manual or equivalent for malfunction of the autopilot with approach coupler; and

(2) The Administrator finds that the use of the system to touchdown will not otherwise adversely affect the safety standards of this section.

(e) Notwithstanding paragraph (a) of this section, the Administrator issues operations specifications to allow the use of an approved autopilot system with automatic capability during the takeoff and initial climb phase of flight provided:

(1) The Aircraft Flight Manual specifies a minimum altitude engagement certification restriction;

(2) The system is not engaged prior to the minimum engagement certification restriction specified in the Aircraft Flight Manual, or an altitude specified by the Administrator, whichever is higher; and

(3) The Administrator finds that the use of the system will not otherwise affect the safety standards required by this section.

(f) This section does not apply to operations conducted in rotorcraft.

#### **135.95 Airmen: Limitations on use of services**

No certificate holder may use the services of any person as an airman unless the person performing those services--

(a) Holds an appropriate and current airman certificate; and

(b) Is qualified, under the applicable requirements by Chinese Civil Aviation Regulations, for the operation for which the person is to be used.

#### **135.97 Aircraft and facilities for recent flight experience**

Each certificate holder shall provide aircraft and facilities to enable each of its pilots to meet the recent flight experience requirements, maintain proficiency level, and demonstrate the pilot's ability to conduct all operations for which the pilot is authorized.

#### **135.99 Composition of flight crew**

The certificate holder shall operate an aircraft with the flight crew in compliance with requirements specified in the aircraft operating limitations or the Aircraft Flight Manual for that aircraft and those specified in this regulation for the kind of operation being conducted.

#### **135.101 Flight crewmember duties**

(a) No certificate holder shall require, nor may any flight crewmember perform, any duties during a critical phase of flight except those duties required for the safe operation of the aircraft. Duties such as ordering galley supplies and confirming passenger connections, announcements made to passengers promoting the air carrier or pointing out sights of interest, and other company required calls made for nonsafety related purposes and filling

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out company report forms and records are not required for the safe operation of the aircraft.

(b) No flight crewmember may engage in, nor may any pilot in command permit, any activity during a critical phase of flight which could distract any flight crewmember from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties. Such activities include eating meals, engaging in nonessential conversations within the cockpit and nonessential communications between the cabin and cockpit crews, and reading publications not related to the proper conduct of the flight.

(c) For the purposes of this section, critical phases of flight includes taxi, takeoff and landing, and all other flight operations conducted below 3,000 meters (10,000 feet), except cruise flight.

### **135.103 Second in command required under IFR**

(a) Except as provided in paragraph (b) of this section, no person may operate an aircraft carrying passengers under IFR unless there is a second in command in the aircraft.

(b) Except the second in command as provided in section 135.99 and section 135.109, a person may deviate from paragraph (a) of this section and operate an aircraft without a second in command, if it is equipped with an operative approved autopilot system and the use of that system is authorized by appropriate operations specifications. No person may serve as a pilot in command in this case unless that person has at least 100 hours pilot in command flight time in the make and model of aircraft to be flown. The certificate holder may apply for an amendment of its operations specifications to authorize the use of an autopilot system in place of a second in command. The Administrator issues an amendment to the operations specifications authorizing the use of an autopilot system, in place of a second in command, if--

(1) The autopilot is capable of operating the aircraft controls to maintain flight and maneuver it about the three axes; and

(2) The certificate holder shows, through demonstrations, that the pilot in command is capable of fulfilling all his duties under appropriate work load and operations using the autopilot system can be conducted safely and in compliance with all the operation requirements specified in this regulation.

(3) The amendment contains any conditions or limitations on the use of the autopilot system that the Administrator determines as needed in the interest of safety.

### **135.105 Flight attendant crewmember requirement**

No certificate holder may operate an aircraft that has a passenger seating configuration, excluding any pilot seat, of more than 19 unless there is a flight attendant crewmember on board the aircraft.

### **135.107 Pilot in command or second in command: Designation required**

(a) Each certificate holder shall, when conducting operations in accordance with this regulation, designate a--

(1) Pilot in command for each flight; and

(2) Second in command for each flight requiring two pilots.

(b) The pilot in command, as designated by the certificate holder, shall remain the pilot in command at all times during that flight.

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### **135.109 Second in command required in Category II operations**

No certificate holder may operate an aircraft in a Category II operation unless there is a second in command of the aircraft.

### **135.111 Passenger occupancy of pilot seat**

No person other than the pilot in command, a second in command, a company check airman, or an authorized representative of the Administrator may occupy an empty pilot seat unless the aircraft type operated by the certificate holder has a passenger seating configuration, excluding any pilot seat, of no more than eight seats, and operation of aircraft by one pilot is allowed under this regulation.

### **135.113 Manipulation of controls**

No pilot in command may allow any person to manipulate the flight controls of an aircraft during flight conducted under this regulation, nor may any person manipulate the controls during such flight unless that person is--

- (a) A pilot employed by the certificate holder and qualified in the aircraft; or
- (b) An authorized inspector or representative of the Administrator who is qualified in the aircraft and checking flight operations, and has the permission of the pilot in command.

### **135.115 Briefing of passengers before flight**

(a) Before each takeoff each pilot in command of an aircraft carrying passengers shall ensure that all passengers have been orally briefed on--

(1) Smoking. Each passenger shall be briefed on when, where, and under what conditions smoking is prohibited. This briefing shall include a statement that the Chinese Civil Aviation Regulations require passenger compliance with the lighted passenger information signs, posted placards, areas designated for safety purposes as no smoking areas, and crewmember instructions with regard to these items. The briefing shall also include a statement (if the aircraft is equipped with a lavatory) that current Chinese law prohibits: tampering with, disabling, or destroying any smoke detector installed in an aircraft lavatory; smoking in lavatories; and, when applicable, smoking in passenger compartments;

(2) The use of safety belts, including instructions on how to fasten and unfasten the safety belts. Each passenger shall be briefed on when, where, and under what conditions the safety belt must be fastened about that passenger. This briefing shall include a statement that the Chinese Civil Aviation Regulations require passenger compliance with lighted passenger information signs and crewmember instructions concerning the use of safety belts;

(3) The placement of seat backs in an upright position before takeoff and landing;

(4) Location and means for opening the passenger entry door and emergency exits;

(5) Location of survival equipment;

(6) If the flight involves extended over-water operation, the use of required flotation equipment and ditching procedures;

(7) If the flight involves operations above 3,600 meters (12,000 feet) MSL, the normal and emergency use of oxygen; and

(8) Location and operation of fire extinguishers.

(b) Before each takeoff the pilot in command shall ensure that each person who may

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need the assistance of another person to move expeditiously to an exit if an emergency occurs and that person's attendant, if any, has received a briefing as to the procedures to be followed if an evacuation occurs. This paragraph does not apply to a person who has been given a briefing before a previous leg of a flight in the same aircraft.

(c) The oral briefing required by paragraph (a) of this section shall be given by the pilot in command or a crewmember.

(d) Notwithstanding the provisions of paragraph (c) of this section, for aircraft certificated to carry 19 passengers or less, the oral briefing required by paragraph (a) of this section shall be given by the pilot in command, a crewmember, or other qualified person designated by the certificate holder.

(e) The oral briefing required by paragraph (a) of this section shall be supplemented by the certificate holder by printed cards which must include at least Chinese version and be carried in the aircraft in locations convenient for the use of each passenger. No advertisement shall be printed on the cards and the cards must--

(1) Be appropriate for the aircraft on which they are to be used;

(2) Contain a diagram of, and method of operating, the emergency exits; and

(3) Contain other instructions necessary for the use of emergency equipment on board the aircraft.

(f) The briefing required by paragraph (a) of this section may be delivered by means of an approved recording playback device that is audible to each passenger under normal noise levels.

#### **135.117 Prohibition against carriage of weapons**

No person may, while on board an aircraft being operated by a certificate holder, carry on or about that person a weapon, either concealed or unconcealed. This section does not apply to persons who are authorized to carry arms in accordance with national stipulations.

#### **135.119 Prohibition on interference with crewmembers**

No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated under this regulation.

#### **135.121 Alcoholic beverages**

(a) No person may drink any alcoholic beverage aboard an aircraft unless the certificate holder operating the aircraft has served that beverage.

(b) No certificate holder may serve any alcoholic beverage to any person aboard its aircraft if that person appears to be intoxicated.

(c) No certificate holder may allow any person to board any of its aircraft if that person appears to be intoxicated.

#### **135.123 Stowage of food, beverage, and passenger service equipment during aircraft movement on the surface, takeoff, and landing**

(a) No certificate holder may move an aircraft on the surface, take off, or land--

(1) When food, beverage, or tableware furnished by the certificate holder is located at any passenger seat;

(2) Before all food and beverage trays and seat back tray tables have been secured in its

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stowed position.

(3) Before all passenger serving carts have been secured in its stowed position.

(b) Each passenger shall comply with instructions given by a crewmember with regard to compliance with this section.

#### **135.125 Emergency and emergency evacuation duties**

(a) Each certificate holder shall assign to each required crewmember for each type of aircraft as appropriate, the necessary functions to be performed in an emergency or in a situation requiring emergency evacuation. The certificate holder shall ensure that those functions can be practicably accomplished, and will meet any reasonably anticipated emergency including incapacitation of individual crewmembers or their inability to reach the passenger cabin because of shifting cargo in combination cargo-passenger aircraft.

(b) The certificate holder shall describe in the manual required in section 135.41 hereof the functions of each category of required crewmembers assigned under paragraph (a) of this section.

#### **135.127 Airplane security**

Certificate holders conducting operations under this regulation shall comply with the applicable Chinese civil aviation security requirements.

#### **135.129 Passenger information**

(a) The "Fasten Seat Belt" sign must be turned on during any movement of the aircraft on the surface, for each takeoff or landing, and at any other time considered necessary by the pilot in command.

(b) Each passenger shall fasten his or her passenger seat belt and maintain it secured about him or her when the "Fasten Seat Belt" sign is lighted.

(c) No person may conduct a flight segment on which smoking is prohibited unless the "No Smoking" passenger information signs are lighted during the entire flight segment, or one or more "No Smoking" placards are posted during the entire flight segment. If both the lighted signs and the placards are used, the signs must remain lighted during the entire flight segment.

(d) Passengers on board an aircraft shall comply with the following requirements:

(1) No person may smoke while a "No Smoking" sign is lighted or while "No Smoking" placards are posted.

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

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

(e) The "No Smoking" sign must be turned on during any movement of the aircraft on the surface, for each takeoff or landing, and at any other time considered necessary by the pilot in command.

(f) Each passenger shall comply with instructions given him or her by crewmembers regarding compliance with paragraphs (c), (d)(1), and (d)(2) of this section.

#### **135.131 Use of safety belts and child restraint systems**

(a) Each person on board an aircraft operated under this regulation shall occupy an approved seat with a separate safety belt properly secured about him or her during movement on the surface, takeoff, and landing. For seaplane and float equipped rotorcraft operations

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during movement on the surface, the person pushing off the seaplane or rotorcraft from the dock and the person mooring the seaplane or rotorcraft at the dock are excepted from the preceding seating and safety belt requirements. Notwithstanding the preceding requirements, a child may:

(1) Be held by an adult who is occupying an approved seat, provided the child has not reached his or her second birthday; or

(2) Occupy a safely used child restraint system on the aircraft furnished by the certificate holder or a parent, guardian, or attendant designated by the child's parent or guardian to attend to the safety of the child during the flight. The child restraint system shall bear one or more labels to indicate its safety.

(b) 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 that the child holds a ticket for an approved seat or such seat is otherwise made available by the certificate holder for the child's use and the requirements of paragraph (a)(2) of this section are met. This section does not prohibit the certificate holder from providing child restraint systems or, consistent with safe operating practices, determining the most appropriate passenger seat location for the child restraint system.

(c) No certificate holder may take off or land an aircraft unless the seat back for each passenger is placed in an upright position. Each passenger shall comply with crewmember instructions with regard to this paragraph, except that--

(1) A seat back is not placed in an upright position to prevent the passageway from the main aisle to the exit from being obstructed by seat back; or

(2) A seat back cannot be placed in an upright position when the seat is loaded with cargo or the seat occupant cannot sit uprightly for health reason in accordance with the procedures specified in the manual of the certificate holder and the seat back shall not obstruct any passenger from walking to the aisle or any emergency exit.

(d) Each occupant of the seat required to be furnished with the combined seat belt and shoulder harness shall use this device to appropriately secure him or her about during each takeoff and landing and may, when performing his or her normal duties, unfasten the shoulder harness.

(e) Each empty seat furnished with the combined seat belt and shoulder harness shall be fixed so as not to obstruct any crewmember from performing his or her duties or any person from expeditiously evacuating under emergency conditions.

### **135.133 Exit seating**

(a) Applicability. This section applies to all scheduled passenger carrying operations with aircraft having passenger seating configuration of no less than 10 seats, and all non-scheduled passenger carrying operations with aircraft having passenger seating configuration of no less than 20 seats, conducted by the certificate holders under this regulation.

(b) Each certificate holder shall, in accordance with the suitability of each person it permits to occupy an exit seat, determine or change the passenger seating and perform the following duties:

(1) Designating the exit seats for each passenger seating configuration in its fleet;

(2) Making available for inspection by the public at all passenger loading gates and ticket

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counters at each airport where it conducts passenger operations, written procedures established for making determinations in regard to exit row seating;

(3) Not allowing taxiing or pushback of an aircraft unless at least one required crewmember has verified that no exit seat is occupied by a person the crewmember determines is likely to be unable to perform the applicable functions;

(4) Including in its passenger briefings informing exit seat passengers of reading the exit seat passenger information cards specially provided for them and having a self-identification, in which the capabilities a passenger occupying an exit seat shall have, cases in which a passenger is unsuitable to take an exit seat and allowed to request reseating, and the obligation that a passenger shall comply with seating arrangement and changes made by a crewmember shall be included;

(5) Including in its operations manual--

(i) Persons who arrange or change passenger seating on board;

(ii) Procedures to arrange or change seating and verify exit seating occupancy;

(iii) Requirements that the exit seat passenger information cards shall be provided to the public at airports and to exit seat passengers on board.

(6) Requirements specified in the operations manual under paragraph (b)(5) shall be authorized by the Administrator.

(c) Terms in the preceding paragraph shall comply with the following requirements:

(1) Exit seat means each seat a passenger can proceed directly to the exit without passing around an obstruction and 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;

(2) The capabilities a passenger occupying an exit seat shall have refer to the capabilities to perform the following functions:

(i) Locate the emergency exit;

(ii) Recognize the emergency exit opening mechanism;

(iii) Comprehend the instructions for operating the emergency exit;

(iv) Operate the emergency exit;

(v) Assess whether opening the emergency exit will increase the hazards to which passengers may be exposed;

(vi) Follow oral directions and hand signals given by a crewmember;

(vii) Stow or secure the emergency exit door so that it will not impede use of the exit;

(viii) Assess the condition of an escape slide, activate the slide, and stabilize the slide after deployment to assist others in getting off the slide;

(ix) Pass expeditiously through the emergency exit; and

(x) Assess, select, and follow a safe path away from the emergency exit.

(3) The unsuitability to take an exit seat refers to the case in which a crewmember determines that it is likely that the passenger would be unable to perform one or more of the applicable functions listed in paragraph (c)(2) of this section because--

(i) The person lacks sufficient mobility, strength, or dexterity in both arms and hands,

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and both legs:

(A) To reach upward, sideways, and downward to the location of emergency exit and exit-slide operating mechanisms;

(B) To grasp and push, pull, turn, or otherwise manipulate those mechanisms;

(C) To push, shove, pull emergency exit operating mechanisms, or otherwise open emergency exits;

(D) To lift out, hold, deposit on nearby seats, or maneuver over the seatbacks to the next row objects the size and weight of over-wing window exit doors;

(E) To remove obstructions of size and weight similar over-wing exit doors;

(F) To reach the emergency exit expeditiously;

(G) To maintain balance while removing obstructions;

(H) To exit expeditiously;

(I) To stabilize an escape slide after deployment; or

(J) To assist others in getting off an escape slide;

(ii) 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 (c)(2) of this section without the assistance of an adult companion, parent, or other relative;

(iii) 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;

(iv) The person lacks sufficient visual capacity to perform one or more of the applicable functions in paragraph (c)(2) of this section without the assistance of visual aids beyond contact lenses or eyeglasses;

(v) The person lacks sufficient aural capacity to hear and understand instructions shouted by flight attendants, without assistance beyond a hearing aid;

(vi) The person lacks the ability adequately to impart information orally to other passengers; or,

(vii) The person has 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 (c)(2) of this section; or a condition that might cause the person harm if he or she performs one or more of the applicable functions listed in paragraph (c)(2) of this section.

(4) Allowed reseating refers to the case in which a passenger assigned to an exit seating identify in accordance with exit seat passenger information cards or passenger briefings made by crewmembers himself or herself to be able to request reseating to a crewmember if he or she--

(i) Cannot meet the selection criteria for exit seating;

(ii) Cannot determine whether or not he can meet the selection criteria for exit seating;

(iii) May suffer bodily harm as the result of performing one or more of exit seat functions; or,

(iv) Can not perform such functions if required; or,

(v) Cannot understand exit seat passenger information cards or passenger briefings for

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language or misunderstanding reasons.

(d) In the event a certificate holder determines in accordance with this section that it is likely that a passenger assigned to an exit seat would be unable to perform the functions listed in paragraph (b)(2) of this section or a passenger requests a non-exit seat, the certificate holder shall expeditiously relocate the passenger to a non-exit seat. In the event of full booking in the non-exit seats and if necessary to accommodate a passenger being relocated from an exit seat, the certificate holder shall move a passenger who is willing and able to assume the evacuation functions that may be required, to an exit seat. When a passenger assigned to an exit seat requests to change his seat, no crewmember may require him or her to disclose the reason for needing reseating.

(e) A certificate holder may deny transportation to any passenger under this section only because--

(1) The passenger refuses to comply with instructions given by a crewmember or other authorized employee of the certificate holder implementing exit seating restrictions established in accordance with this section, or

(2) The only seat that will physically accommodate the person's handicap is an exit seat.

(f) Each passenger on board shall comply with instructions given by a crewmember or other authorized employee of the certificate holder implementing exit seating restrictions established in accordance with this section.

### **135.135 Water platform operations for rotorcraft**

Operators and pilots of the rotorcraft conducting water platform flight operations in accordance with this regulation shall comply with requirements specified in Appendix E (the Requirements on Water Platform Operation for Rotorcraft) to this regulation.

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## **Chapter C Aircraft and Equipment**

### **135.141 Applicability**

This chapter prescribes aircraft and equipment requirements for operations under this regulation. The requirements of this chapter are in addition to the aircraft and equipment requirements of CCAR 91. However, this regulation does not require the duplication of any equipment required by this chapter.

### **135.143 General requirements**

(a) No person may operate an aircraft under this regulation unless that aircraft and its equipment meet the applicable regulations of Chinese Civil Aviation Regulations.

(b) Except as provided in section 135.187, no person may operate an aircraft under this regulation unless the required instruments and equipment in it have been approved and are in an operable condition.

(c) ATC transponder equipment required to be installed by Section 91.413 of CCAR 91 must meet the performance and environmental requirements specified in the applicable technical standards of the CTSO-74C (C mode) or CTSO-C112 (S mode).

### **135.145 Portable electronic device**

(a) No person on board may power on or use, nor may any certificate holder or pilot in command of an aircraft allow, from the taxiing phase of flight to the safe clearance of runway after landing, the power-on or operation of, any portable electronic device with the function of actively transmitting radio signals, including--

(1) Mobile phones;

(2) Interphones;

(3) Remote controlled toys and other electronic equipment with the remote controller;  
and

(4) Any other portable electronic device that the certificate holder has determined will cause interference with the operation safety of the aircraft.

(b) Except as provided in paragraph (a) of this section, any portable electronic equipment that the certificate holder has determined will not cause interference with the communication or navigation systems of the aircraft on which it is to be used, may be used during the cruise phase, however, it shall not be used during such critical flight phases as takeoff, climb, descent, approach, and landing.

(c) During the operation of an aircraft, provided a crewmember finds that any person on board powers on or is operating the portable electronic equipment potential to cause interference with the operation safety of the aircraft or identifies the existence of electronic interference and has doubts that the interference is caused by portable electronic equipment of a person on board, he may require the user to instantly power off the portable electronic equipment.

(d) The determination of the portable electronic equipment required by paragraph (a)(4) and (b) of this section shall be made by the certificate holder.

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### **135.146 Emergency locator transmitter**

No aircraft may perform operations under this regulation unless it is furnished with emergency locator transmitters in accordance with the following requirements:

(a) Airplanes performing extended over-water operations shall be furnished with at least two authorized emergency locator transmitters, one of which shall be automatically triggered.

(b) Airplanes or rotorcraft operating over unpopulated areas or areas in which searches and rescue are difficult to conduct shall be furnished with at least one authorized emergency locator transmitter with automatically trigger mechanism.

(c) No rotorcraft may perform over-water operations under this regulation if it is not able to perform safe landing or ditching when the distance from the bank exceeds the specified performance of the rotorcraft in case of critical powerplant being inoperative, unless the rotorcraft is furnished with at least two authorized emergency locator transmitters, one which shall be automatically triggered and the other of which may not be automatically triggered and shall be furnished in the life raft.

(d) The emergency locator transmitter that may not be automatically triggered specified in paragraph (a) of this section may be furnished in the life raft or other equipment.

### **135.147 Aircraft proving tests**

(a) No certificate holder may operate a turbojet airplane, or an aircraft for which two pilots are required by type certification procedures for operations under VFR, if the aircraft or an aircraft of the same make and similar design has not been previously operated under this regulation or CCAR 121 unless, in addition to the aircraft certification tests, at least 25 hours of proving tests acceptable to the Administrator have been flown by that certificate holder including--

(1) Five or more hours of night time, if night flights are to be authorized;

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

(3) Entry into a representative number of routes and airports as determined by the Administrator.

(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 Administrator to observe the tests. However, pilot flight training may be conducted during the proving tests.

(c) For the purposes of paragraph (a) of this section an aircraft is not considered to be of similar design if an 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.

(d) The Administrator may authorize deviations from this section if the Administrator finds that special circumstances make full compliance with this section unnecessary.

### **135.149 Dual controls required**

No person may operate an aircraft in operations requiring two pilots unless it is equipped

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with functioning dual controls. However, if the aircraft type certification operating limitations require one pilot, a throwover control wheel may be used in place of two control wheels.

### **135.151 Equipment requirements: General**

No person may operate an aircraft under this regulation unless it is equipped with--

- (a) A sensitive altimeter that is adjustable for barometric pressure;
- (b) Heating or deicing equipment for each carburetor or, for a pressure carburetor, an alternate air source;
- (c) For turbojet airplanes, in addition to two gyroscopic bank-and-pitch indicators (artificial horizons) for use at the pilot stations, a third indicator shall be installed in accordance with the following requirements:
  - (1) Powered by an emergency alternate electric power source independent of the normal electric power generating system on board;
  - (2) Being able to continue to reliably work for 30 minutes after the complete failure of the normal electric power generating system;
  - (3) Being able to work independent of any other attitude indication system;
  - (4) Being able to work without choice after the complete failure of the normal electric power generating system;
  - (5) Located on the panelboard approved by the Administrator so as to enable each pilot to clearly see and use at his or her station;
  - (6) Having appropriate lighting during all phases of operation.
- (d) For turbine powered aircraft, any other equipment as the Administrator may require.

### **135.153 Public address and crewmember interphone systems**

No person may operate under this regulation an aircraft having a passenger seating configuration, excluding any pilot seat, of more than 19 unless it is equipped with--

- (a) A public address system which--
  - (1) Is capable of operation independent of the crewmember interphone system required by paragraph (b) of this section, except for handsets, headsets, microphones, selector switches, and signaling devices;
  - (2) Is approved in accordance with CCAR 21;
  - (3) Is accessible for immediate use from each of two flight crewmember stations in the pilot compartment;
  - (4) For each required floor-level passenger emergency exit which has an adjacent flight attendant seat, has a microphone which is readily accessible to the seated flight attendant, except that one microphone may serve more than one exit, provided the proximity of the exits allows unassisted verbal communication between seated flight attendants;
  - (5) Is capable of operation within 10 seconds by a flight attendant at each of those stations in the passenger compartment from which its use is accessible;
  - (6) Is audible at all passenger seats, lavatories, and flight attendant seats and work stations; and
  - (7) For transport category airplanes, meets the requirements of Section 25.1423 of CCAR 25.

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(b) A crewmember interphone system which--

(1) Is capable of operation independent of the public address system required by paragraph (a) of this section, except for handsets, headsets, microphones, selector switches, and signaling devices;

(2) Is approved in accordance with applicable requirements of CCAR 21;

(3) Provides a means of two-way communication between the pilot compartment and--

(i) Each passenger compartment; and

(ii) Each galley located on other than the main passenger deck level;

(4) Is accessible for immediate use from each of two flight crewmember stations in the pilot compartment;

(5) Is accessible for use from at least one normal flight attendant station in each passenger compartment;

(6) Is capable of operation within 10 seconds by a flight attendant at each of those stations in each passenger compartment from which its use is accessible; and

(7) For large turbojet-powered airplanes--

(i) Is accessible for use at enough flight attendant stations so that all floor-level emergency exits (or entryways to those exits in the case of exits located within galleys) in each passenger compartment are observable from one or more of those stations so equipped;

(ii) Has an alerting system incorporating aural or visual signals for use by flight crewmembers to alert flight attendants and for use by flight attendants to alert flight crewmembers, the alerting system has a means for the recipient of a call to determine whether it is a normal call or an emergency call; and

(8) When the airplane is on the ground, provides a means of two-way communication between ground personnel and flight crewmembers in the pilot compartment. The interphone system station for use by ground personnel must be so located that personnel using the system may avoid visible detection from within the airplane.

### **135.155 Flight data recorders**

(a) No person may operate an aircraft under this regulation unless it is equipped with a certificated flight data recorder in accordance with the requirements of Section 91.509 in CCAR 91 and the recorder shall operate continuously from the use of the checklist (before engine ignition of the flight) to completion of the final checklist at the end of the flight.

(b) No person may operate an aircraft under this regulation unless it is equipped by the certificate holder with a separate flight data recorder and a separate cockpit voice recorder, or alternatively two assembled recorder (including the flight data recorder and the cockpit voice recorder).

(c) The certificate holder shall, in accordance with the requirements of Section 91.509 in CCAR 91, operate, check, or assess the flight data recorder and the cockpit voice recorder required above, comply with the required operation limitations, and keep in accordance with applicable requirements the original information recorded by the flight data recorder and the cockpit voice recorder.

### **135.157 Cockpit voice recorders**

No person may operate an airplane or rotorcraft under this regulation unless—

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(a) The airplane operating under this regulation is equipped with a flight recorder in accordance with the requirements of Section 19.509 in CCAR 91.

(b) Apart from the requirement in paragraph (a) of this section, all rotorcraft with a maximum certificated takeoff weight of more than 7,000 kilograms with an original airworthiness certificate issued before Jan. 1, 1987 shall be equipped with an authorized cockpit voice recorder so as to record the cockpit aural surroundings en route.

(c) No person may operate a turbine-powered airplane or rotorcraft under this regulation having a passenger seating configuration of six or more and for which two pilots are required by type certification or operating rules unless it is equipped with an appropriate cockpit voice recorder that is installed in compliance with Section 23.1457 of CCAR 23, Section 25.1457 of CCAR 25, Section 27.1457 of CCAR 27 or Section 29.1457 of CCAR 29.

(d) An authorized underwater locator shall be fixed on or near the shell in a manner that prevents the underwater locator from easily separating from the shell in case of crash or collision, unless the cockpit voice recorder and the flight data recorder specified in Section 121.343 of CCAR 121 are installed closely to each other and are not easy to separate from each other in case of crash or collision.

(e) In complying with this section, an approved cockpit voice recorder having an erasure feature may be used, so that during the operation of the recorder, information recorded may be erased or otherwise obliterated at any moment. However, the recording requirements of paragraph (a)(2)(iii) and (a)(2)(iv) of Section 91.509 in CCAR 91 shall be met.

#### **135.159 Ground proximity warning system**

(a) No person may operate a turbine-powered airplane with a maximum certificated takeoff weight of more than 5,700 kilograms or a passenger seat configuration of 10 seats or more, excluding any pilot seat, unless it is equipped with an approved ground proximity warning system.

(b) For a system required by this section, the Aircraft Flight Manual shall contain--

(1) Appropriate procedures for--

(i) The use of the equipment;

(ii) Proper flight crew action with respect to warnings made by the equipment; and

(iii) Deactivation for planned abnormal and emergency conditions; and

(2) An outline of all input sources that must be operating.

(c) No person may deactivate a system required by this section except under procedures in the Aircraft Flight Manual.

(d) Whenever a system required by this section is deactivated, an entry shall be made in the airplane flight log that includes the date and time of deactivation.

(e) It is unnecessary to install the GPWS required in this section on airplanes having equipped with TAWS in accordance with section 135.161 of this regulation.

#### **135.161 Terrain awareness and warning system (TAWS)**

(a) Except for being authorized by the Administrator, no person may operate an airplane operating under this regulation unless it is equipped with a terrain awareness and warning system (TAWS) in accordance with the following requirements:

(1) For a turbine-powered airplane originally registered with China after Jan.1, 2004 with

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a maximum certificated takeoff weight of more than 5,700 kilograms or configured with 9 or more passenger seats, it shall be equipped with an approved terrain awareness and warning system that meets the requirements for Class A TAWS system.

(2) The turbine-powered airplane with a maximum certificated takeoff weight of more than 15,000 kilograms shall be equipped with an approved terrain awareness and warning system that meets the requirements for Class A system.

(3) The turbine-powered airplane with a maximum certificated takeoff weight of more than 5,700 kilograms or configured with 9 or more passenger seats, after Jan. 1, 2007, shall be equipped with an approved terrain awareness and warning system that meets the requirements for Class A system.

(b) The TAWS system on board the airplane and its installation shall meet the applicable airworthiness requirements.

(c) The Aircraft Flight Manual shall contain appropriate procedures for--

(1) The use of the terrain awareness and warning system (TAWS); and

(2) Proper flight crew reaction in response to the terrain awareness and warning system audio and visual warnings.

#### **135.163 Fire extinguishers: Passenger-carrying aircraft**

No person may operate under this regulation an aircraft carrying passengers unless it is equipped with hand fire extinguishers of an approved type for use in crew and passenger compartments as follows--

(a) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur;

(b) At least one hand fire extinguisher must be provided and conveniently located on the flight deck for use by the flight crew; and

(c) At least one hand fire extinguisher must be conveniently located in the passenger compartment of each aircraft having a passenger seating configuration, excluding any pilot seat, of at least 10 seats.

#### **135.165 Oxygen equipment requirements**

(a) No person may operate an unpressurized aircraft under this regulation at altitudes prescribed in this section unless it is equipped with enough oxygen dispensers and oxygen to supply the pilots under section 135.89 paragraph (a) of this regulation and to supply, when flying--

(1) At altitudes above 3,000 meters (10,000 feet) through 4,600 (15,000 feet) MSL, oxygen to at least 10 percent of the occupants of the aircraft, other than the pilots, for that part of the flight at those altitudes that is of more than 30 minutes duration; and

(2) Above 4,600 meters (15,000 feet) MSL, oxygen to each occupant of the aircraft other than the pilots.

(b) No person may operate a pressurized aircraft under this regulation--

(1) At altitudes above 7,600 meters (25,000 feet) MSL, unless at least a 10-minute supply of supplemental oxygen is available for each occupant of the aircraft, other than the pilots, for use when a descent is necessary due to loss of cabin pressurization; and

(2) Unless it is equipped with enough oxygen dispensers and oxygen to comply with

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paragraph (a) of this section whenever the cabin pressure altitude exceeds 3,000 meters (10,000 feet) MSL and, if the cabin pressurization fails, to provide oxygen to each pilot in compliance with section 135.89 paragraph (a) of this regulation or to provide a 2-hour supply for each pilot, whichever is greater, and to supply when flying--

(i) At altitudes above 3,000 meters (10,000 feet) through 4,600 meters (15,000 feet) MSL, oxygen to at least 10 percent of the occupants of the aircraft, other than the pilots, for that part of the flight at those altitudes that is of more than 30 minutes duration; and

(ii) Above 4,600 meters (15,000 feet) MSL, oxygen to each occupant of the aircraft, other than the pilots, for one hour unless, at all times during flight above that altitude, the aircraft can safely descend to 4,600 meters (15,000 feet) MSL within four minutes, in which case only a 30-minute supply is required.

(c) The equipment required by this section must have a means--

(1) To enable the pilots to readily determine, in flight, the amount of oxygen available in each source of supply and whether the oxygen is being delivered to the dispensing units; or in the case of individual dispensing units, to enable each user to make those determinations with respect to that person's oxygen supply and delivery; and

(2) To allow the pilots to use undiluted oxygen at their discretion at altitudes above 7,600 meters (25,000 feet) MSL.

**135.167 Equipment requirements: Carrying passengers under VFR at night or under VFR over-the-top conditions**

No person may operate under this regulation an aircraft carrying passengers under VFR at night or under VFR over-the-top, unless it is equipped with--

(a) A gyroscopic rate-of-turn indicator except on the following aircraft:

(1) Airplanes with a third attitude instrument system usable through flight attitudes of 360 degrees of pitch-and-roll and installed in accordance with the following requirements:

(i) Powered by an emergency alternate electric power source independent of the normal electric power generating system on board;

(ii) Being able to continue to reliably work for 30 minutes after the complete failure of the normal electric power generating system;

(iii) Being able to work independent of any other attitude indication system;

(iv) Being able to work without choice after the complete failure of the normal electric power generating system;

(v) Located on the panelboard approved by the Administrator so as to enable each pilot to clearly see and use at his or her station;

(vi) Having appropriate lighting during all phases of operation.

(2) Rotorcraft with a third attitude instrument system usable through flight attitudes of +/-80 degrees of pitch and +/-120 degrees of roll and installed in accordance with Section 29.1303(g) of CCAR 29.

(3) Rotorcraft with a maximum certificated takeoff weight of 2,730 kilograms (6,000 pounds) or less.

(b) A slip skid indicator.

(c) A gyroscopic bank-and-pitch indicator.

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(d) A gyroscopic direction indicator.

(e) A generator or generators able to supply all probable combinations of continuous in-flight electrical loads for required equipment and for recharging the battery.

(f) For night flights--

(1) An anti-collision light system;

(2) Instrument lights to make all instruments, switches, and gauges easily readable, the direct rays of which are shielded from the pilots' eyes; and

(3) A flashlight having at least two size "A" cells or equivalent.

(g) For the purpose of paragraph (e) of this section, a continuous in-flight electrical load includes one that draws current continuously during flight, such as radio equipment and electrically driven instruments and lights, but does not include occasional intermittent loads.

**135.169 Radio and navigational equipment: Carrying passengers under VFR at night or under VFR over-the-top**

(a) No person may operate an aircraft carrying passengers under VFR at night, or under VFR over-the-top, unless it has two-way radio communications equipment able, at least in flight, to transmit to, and receive from, ground facilities 40 kilometers (25 miles) away.

(b) No person may operate an aircraft carrying passengers under VFR over-the-top, or under VFR at night unless it has radio navigational equipment able to receive radio signals from the ground facilities to be used.

**135.171 Equipment requirements: Aircraft carrying passengers under IFR**

No person may operate an aircraft under IFR, carrying passengers, unless it has--

(a) A vertical speed indicator;

(b) A free-air temperature indicator;

(c) A heated pitot tube for each airspeed indicator;

(d) A power failure warning device or vacuum indicator to show the power available for gyroscopic instruments from each power source;

(e) An alternate source of static pressure for the altimeter and the airspeed and vertical speed indicators;

(f) For a single-engine aircraft:

(1) Two independent electrical power generating sources each of which is able to supply all probable combinations of continuous inflight electrical loads for required instruments and equipment; or

(2) In addition to the primary electrical power generating source, a standby battery or an alternate source of electric power that is capable of supplying 150% of the electrical loads of all required instruments and equipment necessary for safe emergency operation of the aircraft for at least one hour;

(g) For multi-engine aircraft, at least two generators each of which is installed 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; and

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(h) 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 unless, for single-engine aircraft in all cargo operations only, the rate of turn indicator has a source of energy separate from the bank and pitch and direction indicators. For the purpose of this paragraph, for multi-engine aircraft, each engine-driven source of energy must be on a different engine.

(i) For the purpose of paragraph (f) of this section, a continuous inflight electrical load includes one that draws current continuously during flight, such as radio equipment, electrically driven instruments, and lights, but does not include occasional intermittent loads.

### **135.173 Radio and navigational equipment: IFR or extended over-water operations**

(a) No person may operate a turbojet airplane having a passenger seating configuration, excluding any pilot seat, of 10 seats or more, or a multiengine airplane in a scheduled passenger-carrying operation under IFR or in extended over-water operations under this regulation, unless it has at least the following radio communication and navigational equipment appropriate to the facilities to be used which are capable of transmitting to, and receiving from, at any place on the route to be flown, at least one ground facility:

- (1) Two transmitters;
- (2) Two microphones;
- (3) Two headsets or one headset and one speaker;
- (4) A marker beacon receiver;
- (5) Two independent receivers for navigation; and
- (6) Two independent receivers for communications.

(b) No person may operate an aircraft other than that specified in paragraph (a) of this section, under IFR or in extended over-water operations unless it has at least the following radio communication and navigational equipment appropriate to the facilities to be used and which are capable of transmitting to, and receiving from, at any place on the route, at least one ground facility:

- (1) A transmitter;
- (2) Two microphones;
- (3) Two headsets or one headset and one speaker;
- (4) A marker beacon receiver;
- (5) Two independent receivers for navigation;
- (6) Two independent receivers for communications; and
- (7) For extended over-water operations only, an additional transmitter.

(c) For the purpose of paragraphs (a)(5), (a)(6), (b)(5), and (b)(6) of this section, a receiver is independent if the function of any part of it does not depend on the functioning of any part of another receiver. However, a receiver that can receive both communications and navigational signals may be used in place of a separate communications receiver and a separate navigational signal receiver.

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(d) Notwithstanding the requirements of paragraphs (a) and (b) of this section, installation and use of a single long-range navigation system and a single long-range communication system, for extended over-water operations, may be authorized by the Administrator in the certificate holder's operations specifications. The following are among the operational factors the Administrator may consider in granting an authorization:

(1) The ability of the flight crew to reliably fix the position of the airplane within the degree of accuracy required by ATC;

(2) The length of the route being flown, and

(3) The duration of the very high frequency communications gap.

**135.175 Emergency equipment: Extended over-water operations**

(a) No person may operate an aircraft in extended over-water operations under this regulation unless it carries, installed in conspicuously marked locations easily accessible to the occupants if a ditching occurs, the following equipment:

(1) An approved life preserver equipped with an approved survivor locator light for each occupant of the aircraft. The life preserver must be easily accessible to each seated occupant.

(2) Enough approved life rafts of a rated capacity and buoyancy to accommodate the occupants of the aircraft.

(b) Each life raft required by paragraph (a) of this section must be equipped with or contain at least the following:

(1) One approved survivor locator light;

(2) One approved pyrotechnic signaling device;

(3) Either one survival kit, appropriately equipped for the route to be flown; or

(i) One canopy (for sail, sunshade, or rain catcher);

(ii) One radar reflector;

(iii) One life raft repair kit;

(iv) One bailing bucket;

(v) One signaling mirror;

(vi) One police whistle;

(vii) One raft knife;

(viii) One CO<sub>2</sub> bottle for emergency inflation;

(ix) One inflation pump;

(x) Two oars;

(xi) One 23-meter (75-foot) retaining line;

(xii) One magnetic compass;

(xiii) One dye marker;

(xiv) One flashlight having at least two size "A" cells or equivalent;

(xv) A 2-day supply of emergency food rations supplying at least 1,000 calories per day for each person;

(xvi) For each two persons the raft is rated to carry, one liter (two pints) of water or one

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sea water desalting kit;

(xvii) One fishing kit; and

(xviii) One book on survival appropriate for the area in which the aircraft is operated.

(c) No person may operate an airplane in extended over-water operations unless there is attached to one of the life rafts required by paragraph (a) of this section, an approved survival type emergency locator transmitter. Batteries used in this transmitter must be replaced (or recharged, if the batteries are rechargeable) when the transmitter has been in use for more than 1 cumulative hour, or, when 50 percent of their useful life (or for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the transmitter manufacturer under its approval. The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

#### **135.177 Shoulder harness installation requirements at flight crewmember stations**

(a) No person may operate a turbojet aircraft or an aircraft having a passenger seating configuration, excluding any pilot seat, of 10 seats or more unless it is equipped with an approved shoulder harness installed for each flight crewmember station.

(b) Each flight crewmember occupying a station equipped with a shoulder harness must fasten the shoulder harness during takeoff and landing, except that the shoulder harness may be unfastened if the crewmember cannot perform the required duties with the shoulder harness fastened.

#### **135.179 Airborne thunderstorm detection equipment requirements**

(a) No person may operate an aircraft that has a passenger seating configuration, excluding any pilot seat, of 10 seats or more in passenger-carrying operations under this regulation, except a rotorcraft operating under day VFR conditions, unless the aircraft is equipped with either approved thunderstorm detection equipment or approved airborne weather radar equipment.

(b) No person may operate a rotorcraft that has a passenger seating configuration, excluding any pilot seat, of 10 seats or more in passenger-carrying operations under this regulation, under night VFR when current weather reports indicate that thunderstorms or other potentially hazardous weather conditions that can be detected with airborne thunderstorm detection equipment may reasonably be expected along the route to be flown, unless the rotorcraft is equipped with either approved thunderstorm detection equipment or approved airborne weather radar equipment.

(c) No person may begin a flight under IFR or night VFR conditions when current weather reports indicate that thunderstorms or other potentially hazardous weather conditions that can be detected with airborne thunderstorm detection equipment, required by paragraph (a) or (b) of this section, may reasonably be expected along the route to be flown, unless the airborne thunderstorm detection equipment is in satisfactory operating condition.

(d) If the airborne thunderstorm detection equipment becomes inoperative en route, the aircraft must be operated under the procedures and instructions specified for that event in the manual required by section 135.41.

(e) This section does not apply to any training, test, or ferry flight.

(f) An alternate electrical power supply is not required for airborne thunderstorm

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detection equipment required in this section.

### **135.181 Airborne weather radar equipment requirements**

(a) No person may operate a transport category aircraft in passenger-carrying operations under this regulation unless approved airborne weather radar equipment is installed in the aircraft.

(b) No person may begin a flight under IFR or night VFR conditions when current weather reports indicate that thunderstorms, or other potentially hazardous weather conditions that can be detected with airborne weather radar equipment, may reasonably be expected along the route to be flown, unless the airborne weather radar equipment required by paragraph (a) of this section is in satisfactory operating condition.

(c) If the airborne weather radar equipment becomes inoperative en route, the aircraft must be operated under the procedures and instructions specified for that event in the manual required by section 135.41 hereof.

(d) This section does not apply to any training, test, or ferry flight.

(e) An alternate electrical power supply is not required for airborne weather radar equipment.

### **135.183 Emergency equipment requirements for aircraft having a passenger seating configuration of more than 19 passengers**

(a) No person may operate an aircraft under this regulation having a passenger seating configuration, excluding any pilot seat, of more than 19 seats unless it is equipped with the following emergency equipment:

(1) One approved first aid kit for treatment of injuries likely to occur in flight or in a minor accident, which meets the following specifications and requirements:

(i) Be stored securely and kept free from dust, moisture, and damaging temperatures;

(ii) Be readily accessible to crewmembers;

(iii) Contain at least the following appropriately maintained contents in the specified quantities:

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

Bandage scissors	1
Protective latex gloves or equivalent non-permeable gloves	1 pair

(2) A crash axe carried so as to be accessible to the crew but inaccessible to passengers during normal operations.

(3) Signs that are visible to all occupants to notify them when smoking is prohibited and when safety belts must be fastened. The signs must be constructed so that they can be turned on during any movement of the aircraft on the surface, for each takeoff or landing, and at other times considered necessary by the pilot in command. "No smoking" signs shall be turned on when required by section 135.129 hereof.

(b) Each item of equipment 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.

### **135.185 Additional emergency equipment**

No person may operate under this regulation an airplane having a passenger seating configuration of more than 19 seats, unless it has the additional emergency equipment specified in paragraphs (a) through (l) of this section:

(a) Means for emergency evacuation. Each passenger-carrying landplane emergency exit (other than over-the-wing) that is more than 1.83 meters (6 feet) from the ground, with the airplane on the ground and the landing gear extended, must have an approved means to assist the occupants in descending to the ground. The assisting means for a floor-level emergency exit must meet the requirements of Section 25.809 of CCAR 25. An assisting means that deploys automatically must be armed during taxiing, takeoffs, and landings; however, the Administrator may grant a deviation from the requirement of automatic deployment if he finds that the design of the exit makes compliance impractical, if the assisting means automatically erects upon deployment and, with respect to required emergency exits, if an emergency evacuation demonstration is conducted in accordance with Section 121.161 (a) of CCAR 121.

(b) Interior emergency exit marking. The following must be complied with for each passenger-carrying airplane:

(1) Each passenger emergency exit, its means of access, and its means of opening must be conspicuously marked. The identity and location of each passenger emergency exit must be recognizable from a distance equal to the width of the cabin. The location of each passenger emergency exit must be indicated by a sign visible to occupants approaching along the main passenger aisle. There must be a locating sign--

(i) Above the aisle near each over-the-wing passenger emergency exit, or at another ceiling location if it is more practical because of low headroom;

(ii) Next to each floor level passenger emergency exit, except that one sign may serve two such exits if they both can be seen readily from that sign; and

(iii) On each bulkhead or divider that prevents fore and aft vision along the passenger cabin, to indicate emergency exits beyond and obscured by it, except that if this is not possible, the sign may be placed at another appropriate location.

(2) Each passenger emergency exit marking and each locating sign must meet the interior

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emergency exit marking requirements under which the airplane was type certificated. On these airplanes, no sign may continue to be used if its luminescence (brightness) decreases to below 250 microlamberts.

(c) Lighting for interior emergency exit markings. Each passenger-carrying airplane must have an emergency lighting system, independent of the main lighting system; however, sources of general cabin illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency lighting system is independent of the power supply to the main lighting system. The emergency lighting system must--

(1) Illuminate each passenger exit marking and locating sign;

(2) Provide enough general lighting in the passenger cabin so that the average illumination when measured at 1-meter (40-inch) intervals at seat armrest height, on the centerline of the main passenger aisle, is at least 0.538 lux (0.05 foot-candles); and

(3) Include floor proximity emergency escape path marking which meets the requirements of Section 25.812 of CCAR 25.

(d) Emergency light operation. Except for lights forming part of emergency lighting subsystems provided in compliance with Section 25.812 of CCAR 25 (as prescribed in paragraph (h) of this section) that serve no more than one assist means, are independent of the airplane's main emergency lighting systems, and are automatically activated when the assist means is deployed, each light required by paragraphs (c) and (h) of this section must:

(1) Be operable manually both from the flight crew station and from a point in the passenger compartment that is readily accessible to a normal flight attendant seat;

(2) Have a means to prevent inadvertent operation of the manual controls;

(3) When armed or turned on at either station, remain lighted or become lighted upon interruption of the airplane's normal electric power;

(4) Be armed or turned on during taxiing, takeoff, and landing;

(5) Provide the required level of illumination for at least 10 minutes at the critical ambient conditions after emergency landing; and

(6) Have a cockpit control device that has an "on," "off," and "armed" position.

(e) Emergency exit operating handles. 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 decreases to below 100 microlamberts.

(f) Emergency exit access. Access to emergency exits must be provided as follows for each passenger-carrying airplane:

(1) Each passageway between individual passenger areas, or leading to a Type I or Type II emergency exit, must be unobstructed and at least 50 centimeters (20 inches) wide;

(2) There must be enough space next to each Type I or Type II emergency exit to allow a crewmember to assist in the evacuation of passengers without reducing the unobstructed width of the passageway below that required in paragraph (f)(1) of this section; however, the Administrator may authorize deviation from this requirement if he finds that special circumstances exist that provide an equivalent level of safety;

(3) There must be access from the main aisle to each Type III and Type IV exit. The

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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, for a transport category airplane, there must be placards installed in accordance with Section 25.813(c)(3) of CCAR 25 for each Type III exit;

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

(5) No door may be installed in any partition between passenger compartments;

(6) If it is necessary to pass through a doorway separating the passenger cabin from other areas to reach a required emergency exit from any passenger seat, 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, listed in Section 25.561(b) of CCAR 25.

(g) Exterior exit markings. Each passenger emergency exit and the means of opening that exit from the outside must be marked on the outside of the airplane. There must be a 5-centimeter (2-inch) colored band outlining each passenger emergency exit on the side of the fuselage. Each outside marking, including the band, must be readily distinguishable from the surrounding fuselage area by contrast in color. The markings must comply with the following:

(1) If the reflectance of the darker color is 15 percent or less, the reflectance of the lighter color must be at least 45 percent;

(2) If the reflectance of the darker color is greater than 15 percent, at least a 30 percent difference between its reflectance and the reflectance of the lighter color must be provided;

(3) Exits that are not in the side of the fuselage must have the external means of opening and applicable instructions marked conspicuously in red or, if red is inconspicuous against the background color, in bright chrome yellow and, when the opening means for such an exit is located on only one side of the fuselage, a conspicuous marking to that effect must be provided on the other side.

(h) Exterior emergency lighting and escape route.

(1) Each passenger-carrying airplane must be equipped with exterior lighting that meets the requirements under which the airplane was type certificated;

(2) Each passenger-carrying airplane must be equipped with a slip-resistant escape route that meets the requirements under which the airplane was type certificated;

(i) Floor level exits. Each floor level door or exit in the side of the fuselage (other than those leading into a cargo or baggage compartment that is not accessible from the passenger cabin) that is 111 centimeters (44 inches) high or higher and 50 centimeters (20 inches) wide or wider, but not wider than 117 centimeters (46 inches), each passenger ventral exit and each tail cone exit, must meet the requirements of this section for floor level emergency exits. However, the Administrator may grant a deviation from this paragraph if he finds that circumstances make full compliance impractical and that an acceptable level of safety has been achieved.

(j) Additional emergency exits. Approved emergency exits in the passenger compartments that are in excess of the minimum number of required emergency exits must meet all of the applicable provisions of this section, except paragraphs (f) (1), (2), and (3) of

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this section, and must be readily accessible.

(k) On each large passenger-carrying turbojet-powered airplane, each ventral exit and tailcone exit must be--

(1) Designed and constructed so that it cannot be opened during flight; and

(2) Marked with a placard readable from a distance of 76 centimeters (30 inches) and installed at a conspicuous location near the means of opening the exit, stating that the exit has been designed and constructed so that it cannot be opened during flight.

(l) Portable lights. No person may operate a passenger-carrying airplane unless it is equipped with flashlight stowage provisions accessible from each flight attendant seat.

### **135.187 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 exists for that aircraft;

(2) The Administrator has issued the certificate holder operations specifications authorizing operations in accordance with an approved Minimum Equipment List. The flight crew shall have direct access at all times prior to flight to all of the information contained in the approved Minimum Equipment List through printed or other means approved by the Administrator in the certificate holders operations specifications. An approved Minimum Equipment List, as authorized by the Administrator in the operations specifications, constitutes an approved change to the type design without requiring type recertification;

(3) The approved Minimum Equipment List must:

(i) Be prepared in accordance with the limitations specified in paragraph (b) of this section;

(ii) Provide for the operation of the aircraft with certain instruments and equipment in an inoperable condition.

(4) Records identifying the inoperable instruments and equipment and the information required by (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 Minimum Equipment List and the operations specifications authorizing use of the Minimum Equipment List.

(b) The following instruments and equipment shall not be included in the Minimum Equipment List:

(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the airplane is type certificated and which are essential for safe operations under all operating conditions;

(2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise;

(3) Instruments and equipment required for specific operations by this regulation.

(c) Notwithstanding paragraphs (b)(1) and (b)(3) of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit issued by the Administrator.

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### **135.189 Airborne Collision Avoidance System (ACASII)**

(a) The turbine-powered airplane with maximum certificated takeoff weight of more than 5,700 kilograms or a passenger seat configuration of 19 seats or more operating under this regulation shall be equipped with an approved airborne collision avoidance system (ACAS II)

(b) The manual required by section 135.41 of this regulation shall contain the following information on the approved airborne collision avoidance system (ACAS II):

(1) Appropriate procedures for the use of the equipment and proper flight crew action with respect to the equipment operation;

(2) An outline of all input sources that must be operating for the airborne collision avoidance system (ACAS II) to function properly.

(c) The airborne collision avoidance system (ACAS II) and its installation shall meet the applicable airworthiness requirements.

(d) The airborne collision avoidance system (ACAS II) required by this section is equal to TCAS II 7.0 Version.

### **135.191 Performance requirements: Aircraft operated over-the-top or in IFR conditions**

(a) Except as provided in paragraphs (b) and (c) of this section, no person may--

(1) Operate a single-engine aircraft carrying passengers over-the-top; or

(2) Operate a multiengine aircraft carrying passengers over-the-top or in

IFR conditions at a weight that will not allow it to climb, with the critical engine inoperative, at least 15 meters (50 feet) a minute when operating at the MEAs of the route to be flown or 1,520 meters (5,000 feet) MSL, whichever is higher.

(b) Notwithstanding the restrictions in paragraph (a)(2) of this section, multiengine rotorcraft carrying passengers offshore may conduct such operations in over-the-top or in IFR conditions at a weight that will allow the rotorcraft to climb at least 15 meters (50 feet) per minute with the critical engine inoperative when operating at the MEA of the route to be flown or 450 meters (1,500 feet) MSL, whichever is higher.

(c) Aircraft operating under this regulation may conduct the following operations without regard to paragraph (a) of this section:

(1) If the latest weather reports or forecasts, or any combination of them, indicate that the weather along the planned route (including takeoff and landing) allows flight under VFR under the ceiling (if a ceiling exists) and that the weather is forecast to remain so until at least 1 hour after the estimated time of arrival at the destination, a person may operate an aircraft over-the-top;

(2) If the latest weather reports or forecasts, or any combination of them, indicate that the weather along the planned route allows flight under VFR under the ceiling (if a ceiling exists) from the point that the aircraft has fled from the departure airport at normal cruise speed for not more than 15 minutes, a person may:

(i) Fly the aircraft to the location for not more than 15 minutes of flight time from the departure airport at the normal cruise speed in accordance with IFR;

(ii) Conduct the aircraft operation in accordance with IFR, if the weather along the planned route on which flight under VFR to be conducted is not forecast;

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(iii) Conduct the instrument approach operation at the destination airport, if the weather on the airport is not forecasted and hence causes VFR approach operation impractical.

(d) Without regard to paragraph (a) of this section, a person may operate an aircraft over-the-top under conditions allowing--

(1) For multiengine aircraft, descent or continuance of the flight under VFR if its critical engine fails; or

(2) For single-engine aircraft, descent under VFR if its engine fails.

### **135.193 Performance requirements: Land aircraft operated over water**

No person may operate a land aircraft carrying passengers over water unless--

(a) It is operated at an altitude that allows it to reach land in the case of engine failure.

(b) It is necessary for takeoff or landing.

(c) It is a multiengine aircraft operated at a weight that will allow it to climb, with the critical engine inoperative, at least 0.25 meters a second (50 feet a minute), at an altitude of 300 meters (1,000 feet) above the surface; or

(d) It is a rotorcraft equipped with flotation devices.

### **135.195 Empty weight and center of gravity: Currency requirement**

(a) No person may operate a multiengine aircraft unless the current empty weight and center of gravity are calculated from values established by actual weighing of the aircraft within the preceding 36 calendar months.

(b) Paragraph (a) of this section does not apply to--

(1) Aircraft issued an original airworthiness certificate within the preceding 36 calendar months; and

(2) Aircraft operated under a weight and balance system approved in the operations specifications of the certificate holder.

### **135.197 Language requirements on aircraft signs and placards**

(a) Each sign or placard on board conveying notification, warning, or notice by language to passengers shall be prepared at least in Chinese.

(b) Each sign or placard notifying passengers or external rescuers of the location of emergency exits or doors and relevant opening methods by language shall be prepared at least in Chinese.

(c) Each instruction on the operation and use of all emergency equipment potential to be used by passengers shall be prepared at least in Chinese.

### **135.199 Pitot heat indication systems**

No person may operate under this regulation a transport category airplane equipped with a flight instrument pitot heating system unless the airplane is also equipped with an operable pitot heat indication system that complies with Section 25.1326 of CCAR 25.

### **135.203 Compartment material requirements**

Cargo or baggage compartment of any airplane operating under this regulation shall comply with the following requirements:

(a) Each Class C or D compartment, as defined in Section 25.857 of CCAR 25, greater

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than 5.66 cubic meters (200 cubic feet) in volume in an airplane type certificated as transport category, must have ceiling and sidewall panels which are constructed of:

- (1) Glass fiber reinforced resin;
- (2) Materials which meet the test requirements of CCAR 25, Appendix F, Part III; or
- (3) In the case of liner installations approved prior to March 20, 1989, aluminum.

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

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## **Chapter D VFR/IFR Operating Limitations and Weather Requirements**

### **135.211 Applicability**

This chapter prescribes the operating limitations for VFR/IFR flight operations and associated weather requirements for operations under this regulation.

### **135.213 VFR: Minimum altitudes**

Except when necessary for takeoff and landing, no person may operate under VFR--

(a) An airplane--

(1) During the day, below 150 meters (500 feet) above the surface or less than 150 meters (500 feet) horizontally from any obstruction; or

(2) At night, at an altitude less than 300 meters (1,000 feet) above the highest obstruction within a horizontal distance of 8 kilometers (5 miles) from the course intended to be flown or, in designated mountainous terrain, less than 600 meters (2,000 feet) above the highest obstruction within a horizontal distance of 8 kilometers (5 miles) from the course intended to be flown; or

(b) A rotorcraft over a congested area at an altitude less than 90 meters (300 feet) above the surface.

### **135.215 VFR: Visibility requirements**

(a) No person may operate an airplane under VFR in uncontrolled airspace when the ceiling is less than 300 meters (1,000 feet) unless flight visibility is at least 3,200 meters (2 miles).

(b) No person may operate a rotorcraft under VFR at 900 meters (3,000 feet) QNH or less or at an altitude of 300 meters (1,000 feet) above the surface or less, whichever is higher, unless the visibility is at least 800 meters (1/2 mile) during the day or 1,600 meters (1 mile) at night.

### **135.217 VFR: Rotorcraft surface reference requirements**

No person may operate a rotorcraft under VFR unless that person has visual surface reference or, at night, visual surface light reference, sufficient to safely control the rotorcraft.

### **135.219 VFR: Fuel supply requirements**

(a) No person may begin a flight operation in an airplane under VFR unless, considering wind and forecast weather conditions, it has enough fuel to fly to the first point of intended landing and, assuming normal cruising fuel consumption--

(1) During the day, to fly after that for at least 30 minutes; or

(2) At night, to fly after that for at least 45 minutes.

(b) No person may begin a flight operation in a rotorcraft under VFR unless, considering wind and forecast weather conditions, it has enough fuel to fly to the first point of intended landing and, assuming normal cruising fuel consumption, to fly after that for at least 20 minutes.

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### **135.221 VFR: Over-the-top carrying passengers: Operating limitations**

Subject to any additional limitations in section 135.191, no person may operate an aircraft under VFR over-the-top carrying passengers, unless--

(a) Weather reports or forecasts, or any combination of them, indicate that the weather at the intended point of termination of over-the-top flight--

(1) Allows descent to beneath the ceiling under VFR and is forecast to remain so until at least 1 hour after the estimated time of arrival at that point; or

(2) Allows an IFR approach and landing with flight clear of the clouds until reaching the prescribed initial approach altitude over the final approach facility, unless the approach is made with the use of radar under Section 91.175 of CCAR 91; or

(b) It is operated under conditions allowing--

(1) For multiengine aircraft, descent or continuation of the flight under VFR if its critical engine fails; or

(2) For single-engine aircraft, descent under VFR if its engine fails.

### **135.223 Weather reports and forecasts**

(a) Any person operating an aircraft under this regulation is required to use a weather report or forecast of a source approved by the Administrator. However, for operations under VFR, the pilot in command may, if such a report is not available, use weather information based on that pilot's own observations or on those of other persons competent to supply appropriate observations.

(b) For the purposes of paragraph (a) of this section, weather observations made and furnished to pilots to conduct IFR operations at an airport must be taken at the airport where those IFR operations are conducted, unless the Administrator issues operations specifications allowing the use of weather observations taken at a location not at the airport where the IFR operations are conducted. The Administrator issues such operations specifications when it is deemed that the standards of safety for that operation would allow the deviation from this paragraph for a particular operation for which an operating certificate has been issued.

### **135.225 IFR: Operating limitations**

(a) Except as provided in paragraphs (b) and (c) of this section, no person may operate an aircraft under IFR outside of controlled airspace published by China or at any airport that does not have an approved standard instrument approach procedure.

(b) The Administrator may issue operations specifications to the certificate holder to allow it to operate under IFR over routes outside controlled airspace published by China if--

(1) The certificate holder shows the Administrator that the flight crew is able to navigate, without visual reference to the ground, over an intended track without deviating more than 5 degrees or 8 kilometers (5 miles), whichever is less, from that track; and

(2) The Administrator determines that the proposed operations can be conducted safely.

(c) The Administrator may issue operations specifications to the certificate holder to allow it to depart at an airport that does not have an approved standard instrument approach procedure when the Administrator determines that it is necessary to make an IFR departure from that airport and that the proposed operations can be conducted safely. The approval to operate at that airport does not include an approval to make an IFR approach to that airport.

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### **135.227 IFR: Takeoff limitations**

No person may take off an aircraft under IFR from an airport where weather conditions are at or above takeoff minimums but are below authorized IFR landing minimums unless there is an alternate airport within 1 hour's flying time (at normal cruising speed, in still air) of the airport of departure.

### **135.229 IFR: Destination airport weather minimums**

No person may take off an aircraft under IFR or begin an IFR or over-the-top operation unless the latest weather reports or forecasts, or any combination of them, indicate that weather conditions at the estimated time of arrival at the next airport of intended landing will be at or above authorized IFR landing minimums.

### **135.231 IFR: Alternate airport weather minimums**

(a) No person may designate an alternate airport unless the weather reports or forecasts, or any combination of them, indicate that the weather conditions will be at or above the alternate airport landing minimums for that airport at the estimated time of arrival.

(b) No certificate holder may operate an aircraft under this regulation unless it has added at least the following values to the authorized airport operation minimums and so as to determine the weather minimums when using that airport as an alternate airport:

(1) Adding 120 meters (400 feet) to the minimum decent altitude or decision height and 1,600 meters (1 mile) to visibility for airports with only one set of approach facility and procedure;

(2) Adding 60 meters (200 feet) to the minimum decent altitude and 800 meters (1/2 mile) to visibility and adopt the higher value from the two runways with lower standard for airports with two or more sets of nonprecision approach facility and procedure and the ability to provide different runway approach; or

(3) Adding 60 meters (200 feet) to the decision height and 800 meters (1/2 mile) to visibility and adopt the higher value from the two runways with lower standard for airports with two or more sets of precision approach facility and procedure and the ability to provide different runway approach

### **135.233 IFR: Fuel and Alternate airport requirements**

(a) Except as provided in paragraph (b) of this section, no person may operate an aircraft in IFR conditions unless it carries enough fuel (considering weather reports or forecasts or any combination of them) to--

(1) Complete the flight to the first airport of intended landing;

(2) Fly from that airport to the alternate airport; and

(3) Fly after that for 45 minutes at normal cruising speed or, for rotorcraft, fly after that for 30 minutes at normal cruising speed.

(b) Paragraph (a)(2) of this section does not apply if the first airport of intended landing has a standard instrument approach procedure and, for at least one hour before and after the estimated time of arrival, the appropriate weather reports or forecasts, or any combination of them, indicate that--

(1) The ceiling will be at least 450 meters (1500 feet) above the circling approach MDA, or if a circling instrument approach is not authorized for the airport, the ceiling will be at least 450 meters (1500 feet) above the lowest published minimum or 600 meters (2,000 feet) above

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the airport elevation, whichever is higher;

(2) Visibility for that airport is forecast to be at least 4.8 kilometers (3 miles), or 3.2 kilometers (2 miles) more than the lowest applicable visibility minimum, whichever is the greater, for the instrument approach procedure to be used at the destination airport; and

(3) For rotorcraft, the ceiling will be 300 meters above the airport elevation or 120 meters above the applicable approach minimum, whichever is higher, and the visibility will be 3,000 meters.

**135.235 IFR: Takeoff, approach and landing minimums**

(a) No pilot may begin an instrument approach procedure to an airport unless--

(1) That airport has a weather reporting facility approved by the Administrator; and

(2) The latest weather report issued by that weather reporting facility indicates that weather conditions are at or above the authorized IFR landing minimums for that airport.

(b) No pilot may begin the final approach segment of an instrument approach procedure to an airport unless the latest weather reported by the facility described in paragraph (a)(1) of this section indicates that weather conditions are at or above the authorized IFR landing minimums for that procedure.

(c) If a pilot has begun the final approach segment of an instrument approach to an airport under paragraph (b) of this section and a later weather report indicating below minimum conditions is received, the pilot may continue the aircraft approach. The approach may be continued and a landing made if the pilot finds, upon reaching the authorized MDA or DH, that actual weather conditions are at least equal to the minimums prescribed for the procedure. The final approach segment described in this paragraph means that the aircraft is--

(1) On an ILS final approach and has passed the final approach fix; or

(2) On an ASR or PAR final approach and has been turned over to the final approach controller; or

(3) On a final approach using a VOR, NDB, or comparable approach procedure; and the aircraft has passed the appropriate facility or final approach fix or, where a final approach fix is not specified, has completed the procedure turn and is established inbound toward the airport on the final approach course within the distance prescribed in the procedure.

(d) For each pilot in command of a turbine-powered airplane who has not served at least 100 hours as pilot in command in that type of airplane, the DH or MDA and visibility landing minimums prescribed in the airport operation minimums by the Administrator or in the operator's operations specifications are increased by 30 meters (100 feet) and 800 meters (1/2 mile) respectively, but not to exceed the landing minimums for that airport when used as an alternate airport by the certificate holder.

(e) Each pilot making an IFR takeoff or approach and landing at a military or foreign airport shall comply with applicable instrument approach procedures and weather minimums prescribed by that airport. If no weather minimum is prescribed in that airport, no pilot may, at that airport--

(1) Take off under IFR when the visibility is less than 1,600 meters (1 mile); or

(2) Make an instrument approach when the visibility is less than 800 meters (1/2 mile).

(f) No pilot may take off an aircraft under IFR when the weather conditions reported by the facility described in paragraph (a)(1) of this section is less than the airport operation

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minimums specified by the Administrator for the takeoff airport or the takeoff minimums in the certificate holder's operations specifications.

(g) Except as provided in paragraph (h) of this section, if takeoff minimums are not prescribed by the Administrator for the takeoff airport, no pilot may take off an aircraft under IFR when the weather conditions reported by the facility described in paragraph (a)(1) of this section is less than that prescribed in CCAR 91 or in the certificate holder's operations specifications.

(h) At airports where straight-in instrument approach procedures are authorized, a pilot may take off an aircraft under IFR when the weather conditions reported by the facility described in paragraph (a)(1) of this section are equal to or better than the lowest straight-in landing minimums, unless otherwise restricted, if--

(1) The wind direction and velocity at the time of takeoff are such that a straight-in instrument approach can be made to the runway served by the instrument approach;

(2) The associated ground facilities and airborne equipment are in normal operation; and

(3) The certificate holder has been approved for such operations.

### **135.237 Icing conditions: Operating limitations**

(a) No pilot may take off an aircraft that has frost, ice, or snow adhering to any rotor blade, propeller, windshield, wing, stabilizing or control surface, to a powerplant installation, or to an airspeed, altimeter, rate of climb, or flight attitude instrument system, except under the following conditions:

(1) Takeoffs may be made with frost adhering to the wings, or stabilizing or control surfaces, if the frost has been polished to make it smooth;

(2) Takeoffs may be made with frost under the wing in the area of the fuel tanks if authorized by the Administrator.

(b) No certificate holder may authorize an airplane to take off and no pilot may take off an airplane any time when conditions are such that frost, ice, or snow may reasonably be expected to adhere to the airplane unless the pilot has completed all applicable training as required by section 135.347 hereof and unless one of the following requirements is met:

(1) A pre-takeoff contamination check, that has been established by the certificate holder and approved by the Administrator for the specific airplane type, has been completed within 5 minutes prior to beginning takeoff. A pre-takeoff contamination check is a check to make sure the wings and control surfaces are free of frost, ice, or snow.

(2) The certificate holder has an approved alternative procedure and under that procedure the airplane is determined to be free of frost, ice, or snow.

(3) The certificate holder has an approved deicing/anti-icing program that complies with Section 121.629 of CCAR 121 and the takeoff complies with that program.

(c) Except for an airplane that has ice protection provisions that meet the requirements of transport category airplane type certification, no pilot may fly--

(1) Under IFR into known or forecast light or moderate icing conditions; or

(2) Under VFR into known light or moderate icing conditions; unless the aircraft has functioning deicing or anti-icing equipment protecting each rotor blade, propeller, windshield, wing, stabilizing or control surface, and each airspeed, altimeter, rate of climb, or flight attitude instrument system.

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(d) No pilot may fly a rotorcraft under IFR into known or forecast icing conditions or under VFR into known icing conditions unless it has been type certificated and appropriately equipped for operations in icing conditions.

(e) Except for an airplane that has ice protection provisions that meet requirements of the transport category airplane type certification, no pilot may fly an aircraft into known or forecast severe icing conditions.

(f) If current weather reports and briefing information relied upon by the pilot in command indicate that the forecast icing condition that would otherwise prohibit the flight will not be encountered during the flight because of changed weather conditions since the forecast, the restrictions in paragraphs (c), (d), and (e) of this section based on forecast conditions do not apply.

### **135.239 Airport requirements**

(a) No certificate holder may use any airport unless it is adequate for the proposed operation, considering such items as size, surface, obstructions, and lighting.

(b) No pilot of an aircraft carrying passengers at night may take off from, or land on, an airport unless--

(1) That 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

(2) The limits of the area to be used for landing or takeoff are clearly shown--

(i) For airplanes, by boundary or runway marker lights;

(ii) For rotorcraft, by boundary or runway marker lights or reflective material.

(c) For the purpose of paragraph (b) of this section, if the area to be used for takeoff or landing is marked by flare pots or other lighting devices, their use must be approved by the Administrator.

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## **Chapter E Flight crewmember Requirements**

### **135.241 Applicability**

All flight crewmembers should comply with the requirements prescribed in this chapter for operations under this regulation.

### **135.243 Pilot in command qualifications**

(a) No person may serve as pilot in command of an aircraft type certificated as two pilots required in any operation under this regulation unless that person holds an airline transport pilot certificate with appropriate category and class ratings and, if required, an appropriate type rating for that aircraft.

(b) Except as provided in paragraph (a) of this section, no person may serve as pilot in command of an aircraft under VFR unless that person--

(1) Holds at least a commercial pilot certificate with appropriate category and class ratings and, if required, an appropriate type rating for that aircraft; and

(2) Has had at least 500 hours time as a pilot, including at least 100 hours of cross-country flight time, at least 25 hours of which were at night; and

(3) For an airplane, holds an instrument rating or an airline transport pilot certificate; or for rotorcraft operations conducting VFR over-the-top, holds a rotorcraft instrument rating;

(c) Except as provided in paragraph (a) of this section, no person may serve as pilot in command of an aircraft under IFR unless that person--

(1) Holds at least a commercial pilot certificate with appropriate category and class ratings and, if required, an appropriate type rating for that aircraft; and

(2) Has had at least 1,200 hours of flight time as a pilot, including 500 hours of cross country flight time, 100 hours of night flight time, and 75 hours of actual or simulated instrument time at least 50 hours of which were in actual flight; and

(3) For an airplane, holds an instrument rating; or for a rotorcraft, holds a rotorcraft instrument rating.

(d) Paragraph (b)(3) of this section does not apply and the pilot in command may not hold an instrument rating when--

(1) The aircraft used is a single reciprocating-engine-powered airplane;

(2) The primary means of navigation in the area is by pilotage as approved by the Administrator, since radio navigational aids are largely ineffective;

(3) Each flight is conducted under day VFR in compliance with the minimum weather conditions in the VFR defined in Section 91.155 of CCAR-91 and the pilot in command may use that pilot's observations en route with the visibility not less than 5 kilometers;

(4) The distance of each flight from the certificate holder's flight base to destination does not exceed 400 kilometers; and

(5) The areas to be flown are approved in the certificate holder's operations specifications.

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### **135.245 Operating experience**

(a) No certificate holder may use any person, nor may any person serve, as a pilot in command of an aircraft in a passenger-carrying operation under this regulation, unless that person has completed, prior to designation as pilot in command, on that model aircraft and in that crewmember position, the following operating experience in each model of aircraft to be flown:

- (1) Aircraft, single engine--10 hours;
- (2) Aircraft multiengine, reciprocating engine-powered--15 hours;
- (3) Aircraft multiengine, turbine engine-powered (excluding turbojet powered)--20 hours.
- (4) Airplane, turbojet-powered--25 hours.

(b) In acquiring the operating experience, each person must comply with the following:

(1) The operating experience must be acquired after satisfactory completion of the appropriate ground and flight training for the aircraft and crewmember position. Approved provisions for the operating experience must be included in the certificate holder's training program;

(2) The experience must be acquired in flight during passenger-carrying operations under this regulation. However, in the case of an aircraft not previously used by the certificate holder in operations under this regulation, operating experience acquired in the aircraft during proving flights or ferry flights may be used to meet this requirement;

(3) Each person must acquire the operating experience while performing the duties of a pilot in command under the supervision of a qualified flight instructor or check pilot;

(4) One landing or takeoff completed during non-passenger-carrying operations or one landing or takeoff completed during passenger-carrying operation with the flight time of less than one hour can be substituted as one flight hour so as to meet the hours required by paragraph (a) of this section, however, the substituted hours shall not be more than 50 percent of the hours required by paragraph (a) of this section.

### **135.247 Second in command qualifications**

(a) Except as provided in paragraph (b) of this section, no person may serve as second in command of an aircraft in an operation in which two pilots are required by type certification or the second in command required in accordance with section 135. 103 hereof, unless that person holds at least a commercial pilot certificate with appropriate category and class ratings and an instrument rating and meet the recent instrument experience requirements of CCAR 61.

(b) A second in command who is required by type certification to operate a rotorcraft under VFR, other than over-the-top, must have at least a commercial pilot certificate with an appropriate aircraft category and class rating and no instrument rating required.

(c) A second in command who is used by the certificate holder in accordance with its operation requirements and is not required by this regulation must have at least a commercial pilot certificate with an appropriate aircraft category and class rating and, provided this regulation requires that the pilot in command must have the instrument rating, the second in command must have the instrument rating and meet the recent instrument experience requirements of CCAR 61.

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### **135.249 Pilot qualifications: Recent experience**

No certificate holder may use any person, nor may any person serve as pilot in command of an aircraft carrying passengers under this regulation unless, within the preceding 90 days, that person has--

(a) Made three takeoffs and three landings as the sole manipulator of the flight controls in an aircraft of the same category and class and, if a type rating is required, of the same type in which that person is to serve; or

(b) For night operations, made three takeoffs and three landings required under (a) of this section during the night. A person who complies with this requirement is deemed as having met the recent experience qualification requirements during day operations.

(c) For the purpose of paragraph (a) of this section, if the aircraft is a tailwheel airplane, each takeoff and landing must be made in a tailwheel airplane and each landing must be made to a full stop in a tailwheel airplane. A person who complies with paragraph (a) of this section is deemed as having met the recent experience qualification requirements in an aircraft of the same category and class (if a type rating is not required) in which that person is to serve.

### **135.251 Use of and testing for prohibited drugs and alcohol**

(a) No person may perform flight crew member or flight attendant duties in an aircraft operating under this regulation if the person—

(1) Is within 8 hours after using alcohol;

(2) Is under the effect of alcohol;

(3) Has a blood alcohol concentration of 0.04% or greater by weight.

(4) Has used prohibited a drug such as marijuana, cocaine, opium, phencyclidine, amphetamine or a drug being able to affect human body functions.

(b) Except for emergencies, no pilot on an aircraft may allow carrying by aircraft a person who is apparently drunk or under the effect of any prohibited drug in accordance with the person's behaviors or physical conditions (excluding any patient under care).

(c) Any flight crewmember or flight attendant shall, if required by the Administrator, be subject to testing for blood alcohol concentration conducted by persons from or authorized by the Administrator. When the Administrator deems that a person may violate the requirement in paragraph (a)(1) or (a)(3) of this section, the person must submit to the Administrator the test result within 4 hours after performing or attempting to perform flight crewmember or flight attendant duties in compliance with the requirements of the Administrator.

(d) If the Administrator deems that a person may violate the requirement in paragraph (a)(4) of this section, the person must submit to the Administrator the test result within 4 hours after performing or attempting to perform flight crewmember or flight attendant duties in compliance with the requirements of the Administrator.

(e) The Administrator may, in accordance with the test result mentioned in paragraph (c) or (d) of this section, decide whether or not the person is qualified to perform flight crewmember or flight attendant duties in this flight task and whether or not the person has violated Chinese Civil Aviation Regulations, and may use the test results as evidence in applicable legal procedures.

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## **Chapter F Crewmember Flight Time and Duty Period Limitations and Rest Requirements**

### **135.261 General Rules**

(a) No certificate holder may, during operations under this regulation, assign any flight crewmember or flight attendant to, nor may any crewmember perform any flight task only when the applicable duty period limitations, flight time limitations, and rest requirements of this chapter are met.

(b) Terms used in this chapter are defined as follows:

(1) Authorized sleeping area means the designated place approved by the Administrator to enable crewmembers to sleep soundly;

(2) Calendar day means the period of elapsed time, using Coordinated Universal Time or local time, that begins at 0 o'clock midnight and ends 24 hours later at the next midnight;

(3) Duty period means the consecutive period of elapsed time between reporting for an assignment involving flight time at the specified location by a crewmember after accepting this assignment from the certificate holder (excluding the time spent on the ground traffic from the person's residence or station to the specified location) and release from that assignment. In case of an operation delay in a duty period, if one crewmember is able to rest in a sleeping available place, the rest time shall not be calculated into this duty period;

(4) Rest period means the consecutive period commencing from the moment when a crewmember arrives at the rest place to the moment when the crewmember leaves the rest place to perform duties. In this period, no certificate may assign any work to or interrupt the crewmember, while the time spent on going between the rest place and duty place to finish the assigned flight task shall not be included in the rest period;

(5) Operation delay means the delay caused by such objective reasons as severe weather situations, aircraft equipment malfunctions, and ineffective air traffic control.

(c) Crewmember flight time means the duty period of a crewmember during the aircraft flight, including the seated flight time (pilot time) and unseated flight time.

### **135.263 Pilot duty period and flight time limitations and rest requirements**

(a) No pilot may be assigned to a one-pilot flight crew, unless that assignment provides--

(1) No more than 14 duty hours, in which the flight time shall not exceed 8 hours, followed by a subsequent rest period of not less than 10 consecutive hours between the end of this duty period and the beginning of the next duty period;

(2) No less than 9 rest hours upon completion of the assignment when the pilot's actual duty hours do not exceed the maximum of 14 hours in case of operation delays; and

(3) No more than the maximum of 16 duty hours with the subsequent rest period of 10 hours that shall not be reduced in case of operation delays.

(b) No pilot may be assigned to a two-pilot flight crew, unless that assignment provides--

(1) No more than 14 duty hours, in which the flight time shall not exceed 10 hours, followed by a subsequent rest period of not less than 10 consecutive hours between the end of this duty period and the beginning of the next duty period;

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(2) No less than 9 rest hours upon completion of the assignment when the pilot's actual duty hours do not exceed the maximum of 14 hours in case of operation delays; and

(3) No more than the maximum of 16 duty hours with the subsequent rest period of 10 hours that shall not be reduced in case of operation delays.

(c) No pilot may be assigned to a three-pilot flight crew consisting of two pilots with the qualification of pilot in command, unless that assignment provides--

(1) No more than 16 duty hours, in which the flight time shall not exceed 12 hours, followed by a subsequent rest period of not less than 14 consecutive hours between the end of this duty period and the beginning of the next duty period;

(2) No less than 12 rest hours upon completion of the assignment when the pilot's actual duty hours do not exceed the maximum of 16 hours in case of operation delays; and

(3) No more than the maximum of 18 duty hours with the subsequent rest period of 14 hours that shall not be reduced in case of operation delays.

(d) No pilot may be assigned to a three-pilot flight crew consisting of two pilots with the qualification of pilot in command, unless the flight crew is provided with a sleeping area and that assignment provides--

(1) No more than 18 duty hours, in which the flight time shall not exceed 16 hours and each pilot shall have the opportunity to rest in the authorized sleeping area, followed by a subsequent rest period of not less than 18 consecutive hours between the end of this duty period and the beginning of the next duty period;

(2) No less than 16 rest hours upon completion of the assignment when the pilot's actual duty hours do not exceed the maximum of 18 hours in case of operation delays; and

(3) No more than the maximum of 20 duty hours with the subsequent rest period of 18 hours that shall not be reduced in case of operation delays.

(e) No pilot may be assigned to a four-pilot flight crew consisting of two pilots with the qualification of pilot in command to perform an operation in which one foreign landing place is included, unless the flight crew is provided with an authorized sleeping area and that assignment provides--

(1) No more than 22 duty hours, in which the flight time shall not exceed 18 hours and each pilot shall have the opportunity to rest in the authorized sleeping area, followed by a subsequent rest period of not less than 22 consecutive hours between the end of this duty period and the beginning of the next duty period;

(2) No less than 20 rest hours upon completion of the assignment when the pilot's actual duty hours do not exceed the maximum of 22 hours in case of operation delays; and

(3) No more than the maximum of 24 duty hours with the subsequent rest period of 22 hours that shall not be reduced in case of operation delays.

### **135.265 Duty period limitations and rest requirements for cabin attendants**

No cabin attendant may be assigned under section 135.105 hereof or assigned to an aircraft with a seating configuration of 19 seats or less and emergency evacuation responsibilities, unless that assignment provides--

(a) No more than 14 duty hours, when the cabin is furnished with one cabin attendant, followed by a subsequent rest period of not less than 9 consecutive hours between the end of this duty period and the beginning of the next duty period;

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(b) No more than the maximum of 22 duty hours if one cabin attendant is assigned in addition to the minimum flight attendant complement. In this case, the cabin attendant shall be provided with a subsequent rest period of not less than 16 consecutive hours when assigned to a duty period of more than 14 duty hours, but no more than 18 duty hours, and shall be provided with a subsequent rest period of not less than 20 consecutive hours when assigned to a duty period of more than 18 duty hours, but no more than 22 duty hours. All the subsequent rest periods shall be scheduled between the end of this duty period and the beginning of the next duty period.

(c) When the certificate holder schedules the duty period of each cabin attendant, the cabin attendant is not deemed as exceeding duty period limitations if due to operation delays the scheduled flight does not arrive at the destination at the scheduled time and the duty period limitation is exceeded resultantly.

### **135.267 Crewmember flight time limitations in every week, month, and year**

(a) No certificate holder may assign any flight crewmember an assignment unless that crewmember's total flight time will not exceed the following limitations. The total flight time includes the flight time during operations under this regulation and other flight time during training, ferry flights, etc.

(1) No more than 40 hours in any 7 consecutive calendar days;

(2) No more than 100 hours in any calendar month and no more than 270 hours in any three consecutive calendar months; and

(3) No more than 1,000 hours in any calendar year.

(b) No certificate holder may assign any cabin attendant an assignment unless that cabin attendant's total flight time will not exceed the following limitations:

(1) No more than 40 hours in any 7 consecutive calendar days;

(2) No more than 120 hours in any calendar month; and

(3) No more than 1,300 hours in any calendar year.

### **135.269 Additional limitations on crewmember duty period and flight time**

(a) When the certificate holder schedules the duty period of each crewmember, the crewmember is not deemed as exceeding duty period limitations if the crewmember is able to complete his or her duty period within time limitations in normal cases, but due to operation delays, the scheduled flight does not arrive at the destination at the scheduled time and the duty period limitation is exceeded resultantly. However, the certificate holder shall comply with requirements in section 135.263 and section 135.265 hereof and shall not extend the duty period by more than two hours.

(b) When the certificate holder schedules the flight time of each crewmember, the crewmember is not deemed as exceeding flight time limitations if the crewmember is able to complete his or her flight within time limitations in normal cases, but due to operation delays the scheduled flight does not arrive at the destination at the scheduled time and the flight time limitation is exceeded resultantly.

(c) If a crewmember performs any other operation for reward, the total number of the crewmember's duty hours and flight hours shall, when the crewmember performs any operation under this regulation, comply with the limitations on duty period and flight time.

(d) The crewmember readiness time preceding takeoffs caused by delays shall be included in the duty period.

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### **135.271 Additional requirements on crewmember rest**

(a) No certificate holder may schedule any crewmember, and no crewmember may accept an assignment during the specified rest period of the crewmember.

(b) The rest time specified in this chapter may be included in other rest time.

(c) No certificate holder may reduce rest time in accordance with section 135.263 and section 135.265 hereof unless operation delays happen, and no such reduction shall be scheduled preceding flights.

(d) When the certificate holder assigns a crewmember to another task, the time of performing this task may or may not be included in the duty period of the crewmember. In case of the latter, the certificate holder shall provide no less than 8 rest hours preceding the duty period of the crewmember.

(e) If the jet lag between the time zone in which the flight completes and the time zone in which a crewmember's base locates is 6 hours or more, the certificate holder shall, when the crewmember returns to the base, provide the crewmember with a rest period of no less than 48 consecutive hours preceding the next duty period of the crewmember. The base specified in this paragraph shall mean the place determined by the certificate holder in which crewmembers station and accept duty schedules.

(f) The time spent on trips in which the certificate holder transports crewmembers to airports to perform flight tasks or to station place from airports in which tasks are completed, shall not be deemed as a part of the rest period.

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## Chapter G Crewmember Testing Requirements

### 135.291 Applicability

(a) Any certificate holder and crewmember involved during operations under this regulation shall comply with the testing requirements prescribed in this chapter.

(b) Training center personnel authorized under CCAR 142 who meet the requirements of section 135.339 and section 135.343 are permitted to provide training and testing under contract or other arrangement to those crewmembers involved during operations under this regulation.

### 135.293 Initial and recurrent pilot testing requirements

(a) No certificate holder may use a pilot, nor may any person serve as a pilot, unless, since the beginning of the 12th calendar month before that service, that pilot has passed a written or oral test, given by the Administrator or an authorized check pilot, on that pilot's knowledge in the following areas--

(1) The appropriate provisions of CCAR- 61, CCAR-91, this regulation and the operations specifications and the manual of the certificate holder;

(2) For each type of aircraft to be flown by the pilot, the aircraft power plant, major components and systems, major appliances, performance and operating limitations, standard and emergency operating procedures, and the contents of the approved Aircraft Flight Manual or equivalent, as applicable;

(3) For each type of aircraft to be flown by the pilot, the method of determining compliance with weight and balance limitations for takeoff, landing and en route operations;

(4) Navigation and use of air navigation aids appropriate to the operation, including, when applicable, instrument approach facilities and procedures;

(5) Air traffic control procedures, including IFR procedures when applicable;

(6) Meteorology in general, including the principles of frontal systems, icing, fog, thunderstorms, and windshear, and, if appropriate for the operation of the certificate holder, high altitude weather;

(7) Procedures for--

(i) Recognizing and avoiding severe weather situations;

(ii) Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear (except that rotorcraft pilots are not required to be tested on escaping from low-altitude windshear); and

(iii) Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions; and

(8) New equipment, procedures, or techniques, as appropriate.

(b) No certificate holder may use a pilot, nor may any person serve as a pilot, in any aircraft unless, since the beginning of the 12th calendar month before that service, that pilot has passed a competency check given by the Administrator or an authorized check pilot in that class of aircraft, if single-engine airplane other than turbojet, or that type of aircraft, if

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rotorcraft, multiengine airplane, or turbojet airplane, to determine the pilot's competence in practical skills and techniques in that aircraft or class of aircraft. The extent of the competency check shall be determined by the Administrator or authorized check pilot conducting the competency check. The competency check may include any of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate required for the operations authorized and appropriate to the category, class and type of aircraft involved.

(c) The instrument proficiency check required by section 135.297 may be substituted for the competency check required by this section for the type of aircraft used in the check.

(d) For the purpose of this section, competent performance of a procedure or maneuver by a person to be used as a pilot requires that the pilot be the obvious master of the aircraft, with the successful outcome of the maneuver never in doubt.

(e) The Administrator or authorized check pilot certifies the competency of each pilot who passes the knowledge or flight check in the certificate holder's pilot records.

(f) Portions of a required competency check may be given in an aircraft simulator or other appropriate training device, if approved by the Administrator.

### **135.295 Initial and recurrent flight attendant crewmember testing requirements**

No certificate holder may use a flight attendant crewmember, nor may any person serve as a flight attendant crewmember unless, since the beginning of the 12th calendar month before that service, the certificate holder has determined by appropriate initial and recurrent testing that the person is knowledgeable and competent in the following areas as appropriate to assigned duties and responsibilities--

(a) Authority of the pilot in command and duties of crewmembers.

(b) Passenger handling, including procedures to be followed in handling deranged persons or other persons whose conduct might jeopardize safety.

(c) Crewmember assignments, functions, and responsibilities during ditching (including ditching on the water) and evacuation of persons who may need the assistance of another person to move expeditiously to an exit in an emergency.

(d) Briefing of passengers;

(e) Location and operation of portable fire extinguishers and other items of emergency equipment;

(f) Proper use of cabin equipment and controls;

(g) Location and operation of passenger oxygen equipment;

(h) Location and operation of all normal and emergency exits, including evacuation chutes and escape ropes; and

(i) Seating of persons who may need assistance of another person to move rapidly to an exit in an emergency as prescribed by the certificate holder's operations manual.

### **135.297 Instrument proficiency check requirements**

(a) No person may serve, as a pilot in command or second in command of an aircraft in an operation under this regulation unless, since the beginning of the 6th calendar month before that service, that pilot has passed an instrument proficiency check under this section administered by the Administrator or an authorized check pilot. However, the person may perform under this regulation a VFR operation in which the instrument rating is not required

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for the pilot provided that he has passed an instrument proficiency check since the beginning of the 12<sup>th</sup> calendar month before that service.

(b) If the pilot is assigned to pilot an aircraft in which the pilot is required to have the type rating by CCAR 61, the pilot must take the instrument proficiency check in the aircraft of the same type. If the pilot is not required to have the type rating for the aircraft, the pilot must take the instrument proficiency check in the aircraft of the same class. But for multi-engine aircraft, the pilot must take the instrument proficiency check in the aircraft of the same manufacturer and type.

(c) If the pilot is assigned to pilot more than one class or type of aircraft, that pilot must take the instrument proficiency check required by paragraph (a) of this section in each type of aircraft to which that pilot is assigned, in rotation during each period. However, the instrument proficiency check for each type of the aircraft shall be conducted within 12 calendar months before the operation under this regulation.

(d) The instrument proficiency check must--

(i) For an operation in which an airline transport pilot certificate is required, include the maneuvers and procedures for an initial airline transport pilot certificate in the particular category, class, and type of airplane, if appropriate; and

(ii) For an operation in which a commercial pilot certificate is required, include the maneuvers and procedures for an initial commercial pilot certificate in the particular category, class, and type of airplane, if appropriate; and for an operation in which the instrument rating is required, include the maneuvers and procedures for an initial instrument rating.

(e) Whole or portions of maneuvers and procedures of an instrument proficiency check may be given in an aircraft simulator or other appropriate training device, if approved by the Administrator.

(f) The instrument proficiency check shall not be conducted during operations under this regulation.

### **135.299 Pilot in command: Line checks: Routes and airports**

(a) No certificate holder may use a pilot, nor may any person serve, as a pilot in command of a flight unless, since the beginning of the 12th calendar month before that service, that pilot has passed a flight check in one of the types of aircraft which that pilot is to fly. The flight check shall--

(1) Be given by the Administrator or by an approved check pilot;

(2) Consist of at least one flight over one route segment; and for pilots operating in accordance IFR, the check shall be conducted in accordance with IFR; and

(3) Include takeoffs and landings at one or more airports operated by the certificate holder.

(b) The pilot who conducts the check shall determine whether the pilot being checked satisfactorily performs the duties and responsibilities of a pilot in command in operations under this regulation, and shall so certify in the pilot training record.

(c) Each certificate holder shall establish in the manual required by section 135.41 hereof a procedure which will ensure that each pilot who has not flown over a route and into an airport within the preceding 90 days will, before beginning the flight, become familiar with all available information required for the safe operation of that flight.

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### **135.301 Additional Requirements for tests and checks**

(a) If a crewmember who is required to take a test or a flight check under this regulation, completes the test or flight check in the calendar month before or after the calendar month in which it is required, that crewmember is considered to have completed the test or check in the calendar month in which it is required.

(b) If a pilot being checked fails any of the required maneuvers, the person giving the check may give additional training to the pilot during the course of the check. In addition to repeating the maneuvers failed, the person giving the check may require the pilot being checked to repeat any other maneuvers that 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 the pilot, nor may the pilot serve, as a flight crewmember in operations under this regulation until the pilot has satisfactorily completed the check.

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## Chapter H Training

### 135.321 Applicability

Except as provided in section 135.3, this chapter prescribes the requirements applicable to--

- (a) A certificate holder which contracts with a training center certificated under CCAR 142 to perform training, testing, and checking functions;
- (b) Each certificate holder for establishing and maintaining an approved training program for crewmembers, check airmen and instructors, and other operations personnel employed or used by that certificate holder; and
- (c) Each certificate holder for the use of approved aircraft simulators and flight training devices in the conduct of the program.

### 135.323 Training program: General Requirements

- (a) Each certificate holder required to have a training program under section 135.347 hereof shall:
  - (1) Establish, obtain the appropriate initial and final approval of, and provide a training program that meets requirements of this chapter and that ensures that each crewmember, flight instructor, check airman, and each person assigned duties for the carriage and handling of hazardous materials is adequately trained to perform their assigned duties;
  - (2) Provide adequate ground and flight training facilities for the training required by this chapter;
  - (3) Provide and keep current for each aircraft type used and, if applicable, the particular variations within the aircraft type, appropriate training material, examinations, forms, instructions, and procedures for use in conducting the training and checks required by this chapter;
  - (4) Provide enough flight instructors, check airmen, and simulator instructors and qualified ground instructors to conduct required flight training and flight checks, and simulator training courses allowed under this chapter.
- (b) Whenever a crewmember who is required to take recurrent training under this chapter completes the training in the calendar month before, or the calendar month after, the month in which that training is required, the crewmember is considered to have completed it in the calendar month in which it was required.
- (c) Each instructor, supervisor, or check airman who is responsible for a particular ground training subject, segment of flight training, course of training, flight check, or competence check under this regulation shall certify as to the proficiency and knowledge of the crewmember, flight instructor, or check airman concerned upon completion of that training or check. That certification shall be made a part of the crewmember's record. When the certification required by this paragraph is made by an entry in a computerized recordkeeping system, the certifying instructor, supervisor, or check airman, must be identified with that entry. However, the signature of the certifying instructor, supervisor, or check airman, is not required for computerized entries.
- (d) Training subjects that apply to more than one aircraft or crewmember position and that have been satisfactorily completed during previous training while employed by the

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certificate holder for another aircraft or another crewmember position, need not be repeated during subsequent training other than recurrent training.

### **135.325 Training program: Additional Rules**

(a) Other than the certificate holder, only another certificate holder certificated under this regulation or CCAR 121 or a training center certificated under CCAR 142 is eligible under this chapter to provide training, testing, and checking under contract or other arrangement to those persons subject to the requirements of this chapter.

(b) A certificate holder may contract with, or otherwise arrange to use the services of, a training center certificated under CCAR 142 to provide training, testing, and checking required by this chapter only if the training center--

(1) Holds applicable training specifications issued under CCAR 142;

(2) Has facilities, training equipment, and courseware meeting the applicable requirements of CCAR 142;

(3) Has approved curriculums, curriculum segments, and portions of curriculum segments applicable for use in training courses required by this chapter; and

(4) Has sufficient instructor and check airmen qualified under the applicable requirements of section 135.339 through section 135.345 of this regulation to provide training, testing, and checking to persons subject to the requirements of this chapter.

### **135.327 Formulation, revision and approval of training program**

(a) To obtain initial and final approval of a training program and a revision to an approved training program, each certificate holder must submit to the Administrator--

(1) An outline of the proposed or revised curriculum, that provides enough information for a preliminary evaluation of the proposed training program or revision; and

(2) Additional relevant information that may be requested by the Administrator.

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

(c) The Administrator grants final approval of the proposed training program or revision if the certificate holder shows that 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 that person's assigned duties.

(d) Whenever the Administrator finds that revisions are necessary for the continued adequacy of a training program that has been granted final approval, the certificate holder shall, after notification by the Administrator, make any changes in the program that are found necessary by the Administrator. Within 30 days after the certificate holder receives the notice, it may file a petition to reconsider the notice with the Administrator. The filing of a petition to reconsider stays the notice pending a decision by the Administrator. However, if the Administrator finds that there is an emergency that requires immediate action in the interest of safety, the Administrator may, upon a statement of the reasons, require a change effective without stay.

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### **135.329 Training program: Curriculum**

(a) Each certificate holder must prepare and keep current a written training program curriculum for each type of aircraft and for each crewmember required for that type aircraft. The curriculum must include ground and flight training required by this chapter.

(b) Each training program curriculum must include the following:

(1) A list of principal ground training subjects, including emergency training subjects that are provided.

(2) A list of all the training devices, mockups, systems trainers, procedures trainers, or other training aids that the certificate holder will use.

(3) Detailed descriptions or pictorial displays of the normal, abnormal, and emergency maneuvers, procedures and functions that will be performed during each flight training phase or flight check, indicating those maneuvers, procedures and functions that are to be performed during the inflight portions of flight training and flight checks.

### **135.331 Crewmember training requirements**

(a) Each certificate holder must include in its training program the following initial and transition ground training as appropriate to the particular assignment of the crewmember:

(1) Basic indoctrination ground training for newly hired crewmembers including instruction in at least the--

(i) Duties and responsibilities of crewmembers as applicable;

(ii) Appropriate provisions of this chapter;

(iii) Contents of the certificate holder's operating certificate and operations specifications (not required for flight attendants); and

(iv) Appropriate portions of the certificate holder's operating manual.

(2) The initial and transition ground training in section 135.351 and section 135.355, as applicable;

(3) Emergency training in section 135.333.

(b) Each training program must provide the initial and transition flight training in section 135.353, as applicable.

(c) Each training program must provide recurrent ground and flight training required in section 135.357.

(d) Upgrade training in section 135.351 and section 135.353 for a particular type aircraft may be included in the training program for crewmembers who have qualified and served as second in command on that aircraft.

(e) In addition to initial, transition, upgrade and recurrent training, each certificate holder must provide ground and flight training, instruction, and practice necessary to ensure that each crewmember--

(1) Remains adequately trained and currently proficient for each aircraft, crewmember position, and type of operation in which the crewmember serves; and

(2) Qualifies in new equipment, facilities, procedures, and techniques, including modifications to aircraft;

(3) Any crewmember who has received training and qualified before is disqualified and

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shall receive new qualification training if the crewmember has failed to meet the following requirements before the specified deadline:

- (i) Recurrent pilot testing requirements as prescribed in section 135.293 hereof;
- (ii) Instrument proficiency check requirements as prescribed in section 135.297 hereof;
- (iii) Line checks requirements as prescribed in section 135.299 hereof.

(4) For crewmembers who have qualified and served on a particular type aircraft, the differences training is required when the Administrator finds differences training is necessary before a crewmember serves in the same capacity on a particular variation of that aircraft.

### **135.333 Crewmember emergency training**

(a) Each crewmember must complete the emergency training prescribed in the training program, which must provide emergency training for each aircraft type, model, and configuration, and each kind of operation conducted, as appropriate for each crewmember and the certificate holder.

(b) Emergency training must provide the following:

(1) Instruction in emergency assignments and procedures, including coordination among crewmembers.

(2) Individual instruction in the location, function, and operation of emergency equipment including--

(i) Equipment used in ditching and evacuation;

(ii) First aid equipment and its proper use; and

(iii) Portable fire extinguishers, with emphasis on the type of extinguisher to be used on different classes of fires.

(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;

(iii) Ditching and evacuation;

(iv) Illness, injury, or other abnormal situations involving passengers or crewmembers; and

(v) Hijacking and other unusual situations.

(4) Review and discussion of the certificate holder's previous aircraft accidents and incidents involving actual emergency situations.

(c) Each crewmember must perform at least the following emergency drills, using the proper emergency equipment and procedures, unless the Administrator finds that, for a particular drill, the crewmember can be adequately trained by demonstration:

(1) Ditching, if applicable;

(2) Emergency evacuation;

(3) Fire extinguishing and smoke control;

(4) Operation and use of emergency exits, including deployment and use of evacuation chutes, if applicable;

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(5) Use of crew and passenger oxygen;

(6) Removal of life rafts from the aircraft, inflation of the life rafts, use of life lines, and boarding of passengers and crew, if applicable;

(7) Donning and inflation of life vests and the use of other individual flotation devices, if applicable.

(d) Crewmembers who serve in operations above 25,000 feet must receive instruction in the following:

(1) Respiration;

(2) Hypoxia;

(3) Duration of consciousness without supplemental oxygen at altitude;

(4) Gas expansion;

(5) Gas bubble formation;

(6) Physical phenomena and incidents of decompression.

### **135.335 Training requirements: Handling and carriage of hazardous materials**

(a) Except as provided in paragraph (d) of this section, no certificate holder may use any person to perform, and no person may perform, any assigned duties and responsibilities for the handling or carriage of hazardous materials, unless within the preceding 24 calendar months that person has satisfactorily completed initial or recurrent training in an appropriate training program established by the certificate holder, which includes instruction regarding--

(1) The proper shipper certification, packaging, marking, labeling, and documentation for hazardous materials; and

(2) The compatibility, loading, storage, and handling characteristics of hazardous materials.

(b) Each certificate holder shall maintain a record of the satisfactory completion of the initial and recurrent training given to crewmembers and ground personnel who perform assigned duties and responsibilities for the handling and carriage of hazardous materials.

(c) Each certificate holder that selects not to accept hazardous materials shall ensure that each crewmember is adequately trained to recognize those items classified as hazardous materials.

(d) If a certificate holder operates into or out of airports at which trained employees or contract personnel are not meeting the requirements of paragraphs (a) and (b) of this section, the certificate holder may use these persons to load, offload, or otherwise handle hazardous materials if these persons are supervised by a crewmember who is qualified under paragraphs (a) and (b) of this section.

### **135.337 Approval of aircraft simulators and other training devices**

(a) Training courses using aircraft simulators and other training devices may be included in the certificate holder's training program if approved by the Administrator.

(b) Each aircraft simulator and other training device that is used in a training course or in checks required under this chapter must meet the following requirements:

(1) It must be specifically approved for the certificate holder's type aircraft and the particular maneuver, procedure, or crewmember function involved;

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(2) It must maintain the performance, functional, and other characteristics that are required for approval.

(3) Additionally, for aircraft simulators, it must be--

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

(ii) Modified to conform with any modification to the aircraft being simulated that changes the performance, functional, or other characteristics required for approval.

(c) A particular aircraft simulator or other training device may be used by more than one certificate holder.

### **135.339 Check Airmen Qualifications**

(a) For the purposes of this section and section 135.343, the check airmen are classified into check airmen (aircraft) and check airmen (simulator):

(1) A check airman (aircraft) is a person who is qualified to conduct flight checks in an aircraft, in a flight simulator, or in a flight training device for a particular type aircraft;

(2) A check airman (simulator) is a person who is qualified to conduct flight checks, but only in a flight simulator or a flight training device for a particular type aircraft;

(3) Check airmen (aircraft) and check airmen (simulator) are those check airmen who perform the functions described in section 135.321 (a) and section 135.323(a)(4) and (c).

(b) No certificate holder may use a person, nor may any person serve as a check airman (aircraft) in a training program established under this chapter unless, with respect to the aircraft type involved, that person--

(1) Holds the airman certificates and ratings required to serve as a pilot in command in operations under this regulation;

(2) Has satisfactorily completed the training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this regulation;

(3) Has satisfactorily completed the proficiency or competency checks that are required to serve as a pilot in command in operations under this regulation;

(4) Has satisfactorily completed the applicable training requirements of section 135.343;

(5) Holds a Class I medical certificate;

(6) Has satisfied the recent experience requirements of section 135.249; and

(7) Has been approved by the certificate holder for the check airman duties involved.

(c) No certificate holder may use a person, nor may any person serve as a check airman (simulator) in a training program established under this chapter unless, with respect to the aircraft type involved, that person meets the provisions of paragraph (b) of this section, or--

(1) Holds the applicable airman certificates and ratings, except medical certificate, required to serve as a pilot in command in operations under this regulation;

(2) Has satisfactorily completed the appropriate training phases for the aircraft that are required to serve as a pilot in command in operations under this regulation;

(3) Has satisfactorily completed the appropriate proficiency or competency checks that are required to serve as a pilot in command in operations under this regulation;

(4) Has satisfactorily completed the applicable training requirements of section 135.343;

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and

(5) Has been approved by the certificate holder for the check airman (simulator) duties involved.

(d) Completion of the requirements in paragraphs (b) (2), (b)(3), and (b)(4) or (c) (2), (c)(3), and (c)(4) of this section, as applicable, shall be entered in the individual's training record maintained by the certificate holder.

(e) Check airmen who do not hold an appropriate medical certificate may function as check airmen (simulator), but may not serve as flight crewmembers in operations under this regulation.

(f) A check airman (simulator) must accomplish the following--

(1) Fly at least two flight segments as a required crewmember for the type, class, or category aircraft involved within the 12 calendar months preceding the performance of any check airman duty in a flight simulator; or

(2) Satisfactorily complete an approved line-observation program within the period prescribed by that program and that must precede the performance of any check airman duty in a flight simulator.

(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 calendar month before or the calendar month after the month in which they are due.

#### **135.341 Qualifications: Flight instructors (aircraft) and flight instructors (simulator)**

(a) For the purposes of this section and section 135.345:

(1) A flight instructor (aircraft) is a person who is qualified to instruct in an aircraft, in a flight simulator, or in a flight training device for a particular type, class, or category aircraft.

(2) A flight instructor (simulator) is a person who is qualified to instruct in a flight simulator, in a flight training device, or in both, for a particular type, class, or category aircraft.

(3) Flight instructors (aircraft) and flight instructors (simulator) are those instructors who perform the functions described in paragraph (a) of section 135.321 and paragraphs (a)(4) and (c) of section 135.323.

(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 chapter unless, with respect to the type, class, or category aircraft involved, that person--

(1) Holds the airman certificates and ratings required to serve as a pilot in command in operations under this regulation;

(2) Has satisfactorily completed the training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this regulation;

(3) Has satisfactorily completed the proficiency or competency checks that are required to serve as a pilot in command in operations under this regulation;

(4) Has satisfactorily completed the applicable training requirements of section 135.345;

(5) Holds a Class I medical certificate; and

(6) Has satisfied the recent experience requirements of section 135.249.

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(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 chapter, unless, with respect to the type, class, or category aircraft involved, that person meets the provisions of paragraph (b) of this section, or--

(1) Holds the airman certificates and ratings, except medical certificate, required to serve as a pilot in command in operations under this regulation.

(2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, that are required to serve as a pilot in command in operations under this regulation;

(3) Has satisfactorily completed the appropriate proficiency or competency checks that are required to serve as a pilot in command in operations under this regulation; and

(4) Has satisfactorily completed the applicable training requirements of section 135.345.

(d) Completion of the requirements in paragraphs (b) (2), (b)(3), and (b)(4) or (c) (2), (c)(3), and (c)(4) of this section, as applicable, shall be entered in the individual's training record maintained by the certificate holder.

(e) An airman who does not hold a medical certificate may function as a flight instructor in an aircraft if functioning as a non-required crewmember, but may not serve as a flight crew member in operations under this regulation.

(f) A flight instructor (simulator) must accomplish the following--

(1) Fly at least two flight segments as a required crewmember for the type, class, or category aircraft involved within the 12 calendar months preceding the performance of any flight instructor duty in a flight simulator; or

(2) Satisfactorily complete an approved line-observation program within the period prescribed by that program and that must precede the performance of any flight instructor duty in a flight simulator.

(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 calendar month before, or in the calendar month after, the month in which they are due.

### **135.343 Training requirements for Check airmen (aircraft) and check airmen (simulator)**

No person may serve as a check airman unless he has completed the following training--

(a) The initial ground training for check airmen must include the following:

(1) Check airman duties, functions, and responsibilities.

(2) The applicable Civil Aviation Regulations and the certificate holder's policies and procedures.

(3) The applicable 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.

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(6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.

(b) The transition ground training for check airmen must include the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft to which the check airman is in transition.

(c) The flight training for check airmen (aircraft) must include the following--

(1) The safety measures for emergency situations that are likely to develop during a check;

(2) The potential results of improper, untimely, or non execution of safety measures during a check;

(3) 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 regulation; and

(4) The safety measures to be taken from either pilot seat for emergency situations that are likely to develop during checking.

(d) The requirements of paragraph (c) of this section may be accomplished in full or in part in flight, in a flight simulator, or in a flight training device, as appropriate.

(e) The flight training for check airmen (simulator) 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 regulation. This training and practice must be accomplished in a flight simulator or in a flight training device;

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

### **135.345 Training requirements for flight instructors**

Flight instructors must complete the following training--

(a) The initial ground training for flight instructors must include the following:

(1) Flight instructor duties, functions, and responsibilities;

(2) The applicable Civil Aviation Regulations and the certificate holder's policies and procedures;

(3) The applicable 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

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(iii) The instructor-student relationship.

(b) The transition ground training for flight instructors must include the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the type, class, or category aircraft to which the flight instructor is in transition.

(c) The flight training for flight instructors (aircraft) must include the following--

(1) The safety measures for emergency situations that are likely to develop during instruction;

(2) The potential results of improper or untimely safety measures during instruction;

(3) Training and practice from the left and right pilot seats in the required normal, abnormal, and emergency maneuvers to ensure competence to conduct the flight instruction required by this regulation; and

(4) The safety measures to be taken from either the left or right pilot seat for emergency situations that are likely to develop during instruction.

(d) The requirements of paragraph (c) of this section may be accomplished in full or in part in flight, in a flight simulator, or in a flight training device, as appropriate.

(e) The flight training for a flight instructor (simulator) must include the following:

(1) Training and practice in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight instruction required by this regulation. These maneuvers and procedures must be accomplished in full or in part in a flight simulator or in a flight training device;

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

### **135.347 Pilot and flight attendant crewmember training programs**

(a) Each certificate holder, other than one who uses only one pilot in the certificate holder's operations, shall establish and maintain an approved pilot training program, and each certificate holder who uses a flight attendant crewmember shall establish and maintain an approved flight attendant training program, that is appropriate to the operations to which each pilot and flight attendant is to be assigned, and will ensure that they are adequately trained to meet the applicable knowledge and practical testing requirements of section 135.293 through section 135.301. However, the Administrator may authorize a deviation from this section if the Administrator finds that, because of the limited size and scope of the operation, safety will allow a deviation from these requirements.

(b) Each certificate holder required to have a training program by paragraph (a) of this section shall include in that program ground and flight training curriculums for--

(1) Initial training;

(2) Transition training;

(3) Upgrade training;

(4) Differences training; and

(5) Recurrent training.

(c) Each certificate holder required to have a training program by paragraph (a) of this section shall provide current and appropriate study materials for use by each required pilot

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and flight attendant.

(d) The certificate holder shall furnish copies of the crewmember training program, and all changes and additions, to the Administrator. If the certificate holder uses training facilities of other persons, a copy of those training programs or appropriate portions used for those facilities shall also be furnished.

### **135.349 Crewmember initial and recurrent training requirements**

No certificate holder may use a person, nor may any person serve, as a crewmember in operations under this regulation unless that crewmember has completed the appropriate initial or recurrent training phase of the training program appropriate to the type of operation in which the crewmember is to serve since the beginning of the 12th calendar month before that service.

### **135.351 Pilots: Initial, transition, and upgrade ground training**

Initial, transition, and upgrade ground training for pilots must include instruction in at least the following, as applicable to their duties:

(a) General subjects--

(1) The certificate holder's flight locating procedures;

(2) Principles and methods for determining weight and balance, and runway limitations for takeoff and landing;

(3) Enough meteorology to ensure a practical knowledge of weather phenomena, including the principles of frontal systems, icing, fog, thunderstorms, windshear and, if appropriate, high altitude weather situations;

(4) Air traffic control systems, procedures, and phraseology;

(5) Navigation and the use of navigational aids, including instrument approach procedures;

(6) Normal and emergency communication procedures;

(7) Visual cues before and during descent below DH or MDA; and

(8) Other instructions necessary to ensure the pilot's competence.

(b) For each aircraft type--

(1) A general description;

(2) Performance characteristics;

(3) Engines and propellers;

(4) Major components;

(5) Major aircraft systems (i.e., flight controls, electrical, and hydraulic), other systems, as appropriate, principles of normal, abnormal, and emergency operations, appropriate procedures and limitations;

(6) Knowledge and procedures for--

(i) Recognizing and avoiding severe weather situations;

(ii) Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear (except that rotorcraft pilots are not required to be tested for escaping from low-altitude windshear);

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(iii) Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions; and

(iv) Operating airplanes during ground icing conditions, (i.e., any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the airplane), if the certificate holder expects to authorize takeoffs in ground icing conditions, including:

(A) The use of holdover times when using deicing/anti-icing fluids;

(B) Airplane deicing/anti-icing procedures, including inspection and check procedures and responsibilities;

(C) Communications;

(D) Airplane surface contamination (i.e., adherence of frost, ice, or snow) and critical area identification, and knowledge of how contamination adversely affects airplane performance and flight characteristics;

(E) Types and characteristics of deicing/anti-icing fluids, if used by the certificate holder;

(F) Cold weather preflight inspection procedures;

(G) Techniques for recognizing contamination on the airplane;

(7) Operating limitations;

(8) Fuel consumption and cruise control;

(9) Flight planning;

(10) Each normal and emergency procedure; and

(11) The approved Aircraft Flight Manual, or equivalent.

### **135.353 Pilots: Initial, transition, upgrade, and differences flight training**

(a) Initial, transition, upgrade, and differences training for pilots must include flight and practice in each of the maneuvers and procedures in the approved training program curriculum.

(b) The maneuvers and procedures required by paragraph (a) of this section must be performed in flight, except to the extent that certain maneuvers and procedures may be performed in an aircraft simulator, or an appropriate training device, as allowed by this chapter.

(c) If the certificate holder's approved training program includes a course of training using an aircraft simulator or other training device, each pilot must successfully complete--

(1) Training and practice in the simulator or training device in at least the maneuvers and procedures in this chapter that are capable of being performed in the aircraft simulator or training device; and

(2) A flight check in the aircraft or a check in the simulator or training device to the level of proficiency of a pilot in command or second in command, as applicable, in at least the maneuvers and procedures that are capable of being performed in an aircraft simulator or training device.

### **135.355 Flight attendants: Initial and transition ground training**

Initial and transition ground training for flight attendants must include instruction in at least the following--

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(a) General subjects--

(1) The authority of the pilot in command; and

(2) Passenger handling, including procedures to be followed in handling deranged persons or other persons whose conduct might jeopardize safety.

(b) For each aircraft type--

(1) A general description of the aircraft emphasizing physical characteristics that may have a bearing on ditching, evacuation, and inflight emergency procedures and on other related duties;

(2) The use of both the public address system and the means of communicating with other flight crewmembers, including emergency means in the case of attempted hijacking or other unusual situations; and

(3) Proper use of electrical galley equipment and the controls for cabin heat and ventilation.

### **135.357 Recurrent training**

(a) Each certificate holder must ensure that each crewmember receives recurrent training and is adequately trained and currently proficient for the type aircraft and crewmember position involved.

(b) Recurrent ground training for crewmembers must include at least the following:

(1) A quiz or other review to determine the crewmember's knowledge of the aircraft and crewmember position involved.

(2) Instruction as necessary in the subjects required for initial ground training by this chapter, as appropriate, including low-altitude windshear training and training on operating during ground icing conditions, as prescribed in section 135.347 and described in section 135.351, and emergency training.

(c) Recurrent flight training for pilots must include, at least, flight training in the maneuvers or procedures in this chapter, except that satisfactory completion of the check required by section 135.293 within the preceding 12 calendar months may be substituted for recurrent flight training.

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## Chapter I Airplane Performance Operating Limitations

### 135.361 Applicability

(a) This chapter prescribes airplane performance operating limitations applicable to the operation of the categories of airplanes listed in section 135.363 when operated under this regulation.

(b) Terms used in this chapter is defined as follows:

(1) "Effective length of the runway" means the distance from the point at which the obstruction clearance plane associated with the approach end of the runway intersects the centerline of the runway to the far end of the runway during aircraft landing;

(c) "Obstruction clearance plane" means a plane sloping upward from the runway at a slope of 1:20 to the horizontal, and tangent to or clearing all obstructions within a specified area surrounding the runway. In the plane view, the centerline of the specified area coincides with the centerline of the runway, beginning at the point where the obstruction clearance plane intersects the centerline of the runway and proceeding to a point at least 450 meters (1,500 feet) from the beginning point. After that the centerline coincides with the takeoff path over the ground for the runway (in the case of takeoffs) or with the instrument approach counterpart (for landings), or, where the applicable one of these paths has not been established, it proceeds consistent with turns of at least 1,200-meter (4,000-foot) radius until a point is reached beyond which the obstruction clearance plane clears all obstructions. This area extends laterally 60 meters (200 feet) on each side of the centerline at the point where the obstruction clearance plane intersects the runway and continues at this width to the end of the runway; then it increases uniformly to 150 meters (500 feet) on each side of the centerline at a point 450 meters (1,500 feet) from the intersection of the obstruction clearance plane with the runway; after that it extends laterally 150 meters (500 feet) on each side of the centerline.

### 135.363 General

(a) Each certificate holder operating a reciprocating engine powered large transport category airplane shall comply with section 135.365 through section 135.377 hereof.

(b) Each certificate holder operating a turbine engine powered large transport category airplane shall comply with section 135.379 through section 135.387 hereof.

(c) Each certificate holder operating a large nontransport category airplane shall comply with section 135.389 through section 135.395 hereof and any determination of compliance must be based only on approved performance data.

(d) Each certificate holder operating a small transport category airplane shall comply with section 135.397 hereof.

(e) Each certificate holder operating a small non-transport category airplane shall comply with section 135.401 hereof.

(f) The performance data in the Aircraft Flight Manual applies in determining compliance with section 135.365 through section 135.387 hereof. Where conditions are different from those on which the performance data is based, compliance is determined by interpolation or by computing the effects of change in the specific variables, if the results of the interpolation or computations are substantially as accurate as the results of direct tests.

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(g) The Administrator may authorize in the operations specifications deviations from this chapter if special circumstances make a literal observance of a requirement unnecessary for safety.

(h) The 25-kilometer width specified in section 135.369 through section 135.373 hereof may be reduced to 10 kilometers, for not more than 35 kilometers, when operating under VFR or where navigation facilities furnish reliable and accurate identification of high ground and obstructions located outside of 10 kilometers, but within 25 kilometers, on each side of the intended track.

(i) Each certificate holder operating a commuter category airplane shall comply with section 135.399.

**135.365 Large transport category airplanes: Reciprocating engine powered: Weight limitations**

(a) No person may take off a reciprocating engine powered large transport category airplane from an airport located at an elevation outside of the range for which maximum takeoff weights have been determined for that airplane.

(b) No person may take off a reciprocating engine powered large transport category airplane for an airport of intended destination that is located at an elevation outside of the range for which maximum landing weights have been determined for that airplane.

(c) No person may specify, or have specified, an alternate airport that is located at an elevation outside of the range for which maximum landing weights have been determined for the reciprocating engine powered large transport category airplane concerned.

(d) No person may take off a reciprocating engine powered large transport category airplane at a weight more than the maximum authorized takeoff weight for the elevation of the airport.

(e) No person may take off a reciprocating engine powered large transport category airplane if its weight on arrival at the airport of destination will be more than the maximum authorized landing weight for the elevation of that airport, allowing for normal consumption of fuel and oil en route.

**135.367 Large transport category airplanes: Reciprocating engine powered: Takeoff limitations**

(a) No person operating a reciprocating engine powered large transport category airplane may take off that airplane unless it is possible--

(1) To stop the airplane safely on the runway or stopway, as shown by the accelerate-stop distance data, at any time during takeoff until reaching critical-engine failure speed ( $V_1$ );

(2) If the critical engine fails at any time after the airplane reaches critical-engine failure speed  $V_1$ , to continue the takeoff and reach a height of 15.2 meters (50 feet), as indicated by the takeoff path data, before passing over the end of the runway; and

(3) To clear all obstructions either by at least 15.2 meters (50 feet) vertically or 60 meters (200 feet) horizontally within the airport boundaries and 90 meters (300 feet) horizontally beyond the boundaries, without banking before reaching a height of 15.2 meters (50 feet) (as shown by the takeoff path data) and after that without banking more than 15 degrees.

(b) In applying this section, corrections must be made for any runway gradient. To allow for wind effect, takeoff data based on still air may be corrected by taking into account not

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more than 50 percent of any reported headwind component and not less than 150 percent of any reported tailwind component.

**135.369 Large transport category airplanes: Reciprocating engine powered: En route limitations: All engines operating**

(a) No person operating a reciprocating engine powered large transport category airplane may take off that airplane at a weight, allowing for normal consumption of fuel and oil, that does not allow a rate of climb (in meters per second), with all engines operating, of at least 0.0189  $V_{so}$  meters per second (that is, the number of meters per second obtained by multiplying the number of kilometers per hour by 0.0189) or 6.90  $V_{so}$  feet per minute (that is, the number of feet per minute obtained by multiplying the number of knots by 6.90) at an altitude of at least 300 meters (1,000 feet) above the highest ground or obstruction within 25 kilometers of each side of the intended track.

**135.371 Large transport category airplanes: Reciprocating engine powered: En route limitations: One engine inoperative**

(a) Except as provided in paragraph (b) of this section, no person operating a reciprocating engine powered large transport category airplane may take off that airplane at a weight, allowing for normal consumption of fuel and oil, that does not allow a rate of climb, with one engine inoperative, of at least  $0.00148 (0.079-0.106/N) V_{so}^2$  meters per second (where N is the number of engines installed and  $V_{so}$  is expressed in kilometers per hour) or  $(0.079-0.106/N) V_{so}^2$  feet per minute (where N is the number of engines installed and  $V_{so}$  is expressed in knots) at an altitude of at least 300 meters (1,000 feet) above the highest ground or obstruction within 25 kilometers of each side of the intended track.

(b) In place of the requirements of paragraph (a) of this section, a person may, under an approved procedure, operate a reciprocating engine powered large transport category airplane at an all-engines-operating altitude that allows the airplane to continue, after an engine failure, to an alternate airport where a landing can be made under section 135.377 hereof, allowing for normal consumption of fuel and oil. After the assumed failure, the flight path must clear the ground and any obstruction within 25 kilometers on each side of the intended track by at least 600 meters (2,000 feet).

(c) If an approved procedure under paragraph (b) of this section is used, the certificate holder shall comply with the following:

(1) The rate of climb (as prescribed in the Aircraft Flight Manual for the appropriate weight and altitude) used in calculating the airplane's flight path shall be diminished by an amount, equal to  $0.00148 (0.079-0.106/N) V_{so}^2$  in meters per second (when N is the number of engines installed and  $V_{so}$  is expressed in kilometers per hour) or to  $(0.079-0.106/N) V_{so}^2$  in feet per minute (when N is the number of engines installed and  $V_{so}$  is expressed in knots) for airplanes certificated under CCAR 25.

(2) The all-engines-operating altitude shall be sufficient so that in the event the critical engine becomes inoperative at any point along the route, the flight will be able to proceed to a predetermined alternate airport by use of this procedure. In determining the takeoff weight, the airplane is assumed to pass over the critical obstruction following engine failure at a point no closer to the critical obstruction than the nearest approved radio navigational fix, unless the Administrator approves a procedure established on a different basis upon finding that adequate operational safeguards exist.

(3) The airplane must meet the provisions of paragraph (a) of this section at 300 meters (1,000 feet) above the airport used as an alternate in this procedure.

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(4) The procedure must include an approved method of accounting for winds and temperatures that would otherwise adversely affect the flight path.

(5) In complying with this procedure, fuel jettisoning is allowed if the certificate holder shows that it has an adequate training program, that proper instructions are given to the flightcrew, and all other precautions are taken to ensure a safe procedure.

(6) The certificate holder and the pilot in command shall jointly elect an alternate airport for which the appropriate weather reports or forecasts, or any combination of them, indicate that weather conditions will be at or above the alternate weather minimum specified in the certificate holder's operations specifications for that airport when the flight arrives.

**135.373 CCAR -25 transport category airplanes with four or more engines: Reciprocating engine powered: En route limitations: Two engines inoperative**

(a) No person may operate an airplane certificated under CCAR 25 and having four or more engines unless--

(1) There is no place along the intended track that is more than 90 minutes (with all engines operating at cruising power) from an airport that meets section 135.377 hereof; or

(2) It is operated at a weight allowing the airplane, with the two critical engines inoperative, to climb at  $0.000019 V_{so}^2$  meters per second (that is, the number of meters per second obtained by multiplying the number of kilometers per hour squared by 0.000019) or at  $0.013 V_{so}^2$  feet per minute (that is, the number of feet per minute obtained by multiplying the number of knots squared by 0.013) at an altitude of 300 meters (1,000) feet above the highest ground or obstruction within 25 kilometers on each side of the intended track, or at an MSL altitude of 1,500 meters (5,000 feet), whichever is higher.

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

(1) The two engines fail at the point that is most critical with respect to the takeoff weight;

(2) Consumption of fuel and oil is normal with all engines operating up to the point where the two engines fail with two engines operating beyond that point;

(3) Where the engines are assumed to fail at an altitude above the prescribed minimum altitude, compliance with the prescribed rate of climb at the prescribed minimum altitude need not be shown during the descent from the cruising altitude to the prescribed minimum altitude, if those requirements can be met once the prescribed minimum altitude is reached, and assuming descent to be along a net flight path and the rate of descent to be  $0.000019 V_{so}^2$  meters per second ( $V_{so}$  is in kilometers per hour) or  $0.013 V_{so}^2$  feet per minute ( $V_{so}$  is in knots) greater than the rate in the approved performance data; and

(4) If fuel jettisoning is provided, the airplane's weight at the point where the two engines fail is considered to be not less than that which would include enough fuel to proceed to an airport meeting section 135.377 hereof and to arrive at an altitude of at least 300 meters (1,000 feet) directly over that airport.

**135.375 Large transport category airplanes: Reciprocating engine powered: Landing limitations: Destination airports**

(a) Except as provided in paragraph (b) of this section, no person operating a reciprocating engine powered airplane may take off that airplane, unless its weight on arrival, allowing for normal consumption of fuel and oil in flight, would allow a full stop landing at the intended destination within 60 percent of the effective length of each runway described below from a point 15.2 meters (50 feet) directly above the intersection of the obstruction

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clearance plane and the runway. For the purposes of determining the allowable landing weight at the destination airport the following is assumed:

(1) The airplane is landed on the most 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 (forecast for the expected time of arrival), the ground handling characteristics of the type of airplane, and other conditions such as landing aids and terrain, and allowing for the effect of the landing path and roll of not more than 50 percent of the headwind component or not less than 150 percent of the tailwind component.

(b) An airplane that would be prohibited from being taken off because it could not meet paragraph (a)(2) of this section may be taken off if an alternate airport is selected that meets all of this section except that the airplane can accomplish a full stop landing within 70 percent of the effective length of the runway.

**135.377 Large transport category airplanes: Reciprocating engine powered: Landing limitations: Alternate airports**

No person may list an airport as an alternate airport in a flight plan unless the airplane (at the weight anticipated at the time of arrival at the airport), based on the assumptions in section 135.375(a) (1) and (a)(2) hereof, can be brought to a full stop landing within 70 percent of the effective length of the runway.

**135.379 Large transport category airplanes: Turbine engine powered: Takeoff limitations**

(a) No person operating a turbine engine powered large transport category airplane may take off that airplane at a weight greater than that listed in the Aircraft Flight Manual for the elevation of the airport and for the ambient temperature existing at takeoff.

(b) No person operating a turbine engine powered large transport category airplane may take off that airplane at a weight greater than that listed in the Aircraft Flight Manual for the minimum distance required for takeoff at which compliance with the following may be shown:

(1) The accelerate-stop distance, as defined in Section 25.109 of CCAR 25, 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 a turbine engine powered large transport category airplane may take off that airplane at a weight greater than that listed in the Aircraft Flight Manual that allows a net takeoff flight path that clears all obstructions either by a height of at least 10.7 meters (35 feet) vertically, or by at least 60 meters (200 feet) horizontally within the airport boundaries and by at least 90 meters (300 feet) horizontally after passing the boundaries.

(d) In determining maximum weights, 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 airport, 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

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the Aircraft Flight Manual, may be used only for runways that are grooved or treated with a porous friction course overlay, and that the operator determines are designed, constructed, and maintained in a manner acceptable to the Administrator.

(e) For the purposes of this section, it is assumed that the airplane is not banked before reaching a height of 15.2 meters (50 feet), as shown by the takeoff path or net takeoff flight path data (as appropriate) in the Aircraft Flight Manual, and after that the maximum bank is not more than 15 degrees.

(f) For the purposes of this section, the terms, "takeoff distance," "takeoff run," "net takeoff flight path," have the same meanings as set forth in the rules under which the airplane was certificated.

**135.381 Large transport category airplanes: Turbine engine powered: En route limitations: One engine inoperative**

(a) No person operating a turbine engine powered large transport category airplane may take off that airplane at a weight, allowing for normal consumption of fuel and oil, that is greater than that which (under the approved, one engine inoperative, en route net flight path data in the Aircraft Flight Manual for that airplane) will allow compliance with paragraph (a) (1) or (2) of this section, based on the ambient temperatures expected en route.

(1) There is a positive slope at an altitude of at least 300 meters (1,000 feet) above all terrain and obstructions within 25 kilometers on each side of the intended track, and, in addition, there is a positive slope at 450 meters (1,500 feet) above the airport where the airplane is assumed to land after an engine fails;

(2) The net flight path allows the airplane to continue flight from the cruising altitude to an airport where a landing can be made under section 135.387 hereof clearing all terrain and obstructions within 25 kilometers of the intended track by at least 600 meters (2,000 feet) vertically and with a positive slope at 450 meters (1,500 feet) above the airport where the airplane lands after an engine fails.

(b) For the purpose of paragraph (a)(2) of this section, it is assumed that--

(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 approved radio navigation fix, unless the Administrator authorizes a different procedure based on adequate operational safeguards;

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

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

(5) The alternate airport is selected and meets the prescribed weather minimums; and

(6) The consumption of fuel and oil after engine failure is the same as the consumption that is allowed for in the approved net flight path data in the Aircraft Flight Manual.

**135.383 Large transport category airplanes with three or more engines: Turbine engine powered: En route limitations: Two engines inoperative**

No person may operate a turbine engine powered large transport category airplane along an intended route unless that person complies with either of the following:

(a) There is no place along the intended track that is more than 90 minutes (with all

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engines operating at cruising power) from an airport that meets section 135.387 hereof.

(b) Its weight, according to the two-engine-inoperative, en route, net flight path data in the Aircraft Flight Manual, allows the airplane to fly from the point where the two engines are assumed to fail simultaneously to an airport that meets section 135.387 hereof, with a net flight path (considering the ambient temperature anticipated along the track) clearing vertically by at least 600 meters (2,000 feet) all terrain and obstructions within 25 kilometers on each side of the intended track. For the purposes of this paragraph, it is assumed that--

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

(ii) The net flight path has a positive slope at 450 meters (1,500 feet) directly above the airport where the landing is assumed to be made after the engines fail;

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

(iv) The airplane's weight at the point where the two engines are assumed to fail provides enough fuel to continue to the airport, to arrive at an altitude of at least 450 meters (1,500 feet) directly over the airport, and after that to fly for 15 minutes at cruise power or thrust; and

(v) The consumption of fuel and oil after the engines fail is the same as the consumption that is allowed for in the net flight path data in the Aircraft Flight Manual.

**135.385 Large transport category airplanes: Turbine engine powered: Landing limitations: Destination airports**

(a) No person operating a turbine engine powered large transport category airplane may take off that airplane at a weight that (allowing for normal consumption of fuel and oil in flight to the destination or alternate airport) the weight of the airplane on arrival would exceed the landing weight in the Aircraft Flight Manual for the elevation of the destination or alternate airport and the ambient temperature anticipated at the time of landing.

(b) Except as provided in paragraph (c), (d), or (e) of this section, no person operating a turbine engine powered large transport category airplane may take off that airplane unless its weight on arrival, allowing for normal consumption of fuel and oil in flight (in accordance with the landing distance in the Aircraft Flight Manual for the elevation of the destination airport and the wind conditions anticipated there at the time of landing), would allow a full stop landing at the intended destination airport within 60 percent of the effective length of each runway described below from a point 15.2 meters (50 feet) above the intersection of the obstruction clearance plane and the runway. For the purpose of determining the allowable landing weight at the destination airport, the following is assumed:

(1) The airplane is landed on the most favorable runway and in the most favorable direction, in still air.

(2) The airplane is landed on the most suitable runway considering the probable wind velocity and direction and the ground handling characteristics of the airplane, and considering other conditions such as landing aids and terrain.

(c) A turbopropeller powered airplane that would be prohibited from being taken off because it could not meet paragraph (b)(2) of this section, may be taken off if an alternate airport is selected that meets all of this section except that the airplane can accomplish a full stop landing within 70 percent of the effective length of the runway.

(d) Unless, based on a showing of actual operating landing techniques on wet runways, a shorter landing distance (but never less than that required by paragraph (b) of this section) has

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been approved for a specific type and model airplane and included in the Aircraft Flight Manual, no person may take off a turbojet airplane when the appropriate weather reports or forecasts, or any combination of them, indicate that the runways at the destination airport may be wet or slippery at the estimated time of arrival unless the effective runway length at the destination airport is at least 115 percent of the runway length required under paragraph (b) of this section.

(e) A turbojet airplane that would be prohibited from being taken off because it could not meet paragraph (b)(2) of this section may be taken off if an alternate airport is selected that meets all of paragraph (b) of this section.

**135.387 Large transport category airplanes: Turbine engine powered: Landing limitations: Alternate airports**

No person may select an airport as an alternate airport for a turbine engine powered large transport category airplane unless (based on the assumptions in section 135.385(b) hereof) that airplane, at the weight anticipated at the time of arrival, can be brought to a full stop landing within 70 percent of the effective length of the runway for turbopropeller-powered airplanes and 60 percent of the effective length of the runway for turbojet airplanes, from a point 15.2 meters (50 feet) above the intersection of the obstruction clearance plane and the runway.

**135.389 Large nontransport category airplanes: Takeoff limitations**

(a) No person operating a large nontransport category airplane may take off that airplane at a weight greater than the weight that would allow the airplane to be brought to a safe stop within the effective length of the runway, from any point during the takeoff before reaching 105 percent of minimum control speed (the minimum speed at which an airplane can be safely controlled in flight after an engine becomes inoperative) or 115 percent of the power off stalling speed in the takeoff configuration, whichever is greater.

(b) For the purposes of this section--

(1) It may be assumed that takeoff power is used on all engines during the acceleration;

(2) Not more than 50 percent of the reported headwind component, or not less than 150 percent of the reported tailwind component, may be taken into account;

(3) The average runway gradient (the difference between the elevations of the endpoints of the runway divided by the total length) must be considered if it is more than one-half of one percent;

(4) It is assumed that the airplane is operating in standard atmosphere; and

(5) For takeoff, "effective length of the runway" means the distance from the end of the runway at which the takeoff is started to a point at which the obstruction clearance plane associated with the other end of the runway intersects the runway centerline.

**135.391 Large nontransport category airplanes: En route limitations: One engine inoperative**

(a) Except as provided in paragraph (b) of this section, no person operating a large nontransport category airplane may take off that airplane at a weight that does not allow a rate of climb of at least 15.2 meters (50 feet) a minute, with the critical engine inoperative, at an altitude of at least 300 meters (1,000 feet) above the highest obstruction within 25 kilometers on each side of the intended track, or 1,500 meters (5,000 feet) MSL, whichever is higher.

(b) Without regard to paragraph (a) of this section, if the Administrator finds that safe

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operations are not impaired, a person may operate the airplane at an altitude that allows the airplane, in case of engine failure, to clear all obstructions within 25 kilometers on each side of the intended track by 300 meters (1,000 feet). If this procedure is used, the rate of descent for the appropriate weight and altitude is assumed to be 15.2 meters (50 feet) a minute greater than the rate in the approved performance data. Before approving such a procedure, the Administrator considers the following for the route, route segment, or area concerned:

- (1) The reliability of wind and weather forecasting.
  - (2) The location and kinds of navigation aids.
  - (3) The prevailing weather conditions, particularly the frequency and amount of turbulence normally encountered.
  - (4) Terrain features.
  - (5) Air traffic problems.
  - (6) Any other operational factors that affect the operations.
- (c) For the purposes of this section, it is assumed that--
- (1) The critical engine is inoperative;
  - (2) The propeller of the inoperative engine is in the minimum drag position;
  - (3) The wing flaps and landing gear are in the most favorable position;
  - (4) The operating engines are operating at the maximum continuous power available;
  - (5) The airplane is operating in standard atmosphere; and
  - (6) The weight of the airplane is progressively reduced by the anticipated consumption of fuel and oil.

**135.393 Large nontransport category airplanes: Landing limitations:  
Destination airports**

(a) No person operating a large nontransport category airplane may take off that airplane at a weight that--

(1) Allowing for anticipated consumption of fuel and oil, is greater than the weight that would allow a full stop landing within 60 percent of the effective length of the most suitable runway at the destination airport; and

(2) Is greater than the weight allowable if the landing is to be made on the runway--

(i) With the greatest effective length in still air; and

(ii) Required by the probable wind, taking into account not more than 50 percent of the headwind component or not less than 150 percent of the tailwind component.

(b) For the purpose of this section, it is assumed that--

(1) The airplane passes directly over the intersection of the obstruction clearance plane and the runway at a height of 15.2 meters (50 feet) in a steady gliding approach at a true indicated airspeed of at least 1.3  $V_{SO}$ ;

(2) The landing does not require exceptional pilot skill; and

(3) The airplane is operating in standard atmosphere.

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**135.395 Large nontransport category airplanes: Landing limitations: Alternate airports**

No person may select an airport as an alternate airport for a large nontransport category airplane unless that airplane (at the weight anticipated at the time of arrival), based on the assumptions in section 135.393(b) hereof, can be brought to a full stop landing within 70 percent of the effective length of the runway.

**135.397 Small transport category airplane performance operating limitations**

(a) No person may operate a reciprocating engine powered small transport category airplane unless that person complies with the weight limitations in section 135.365, the takeoff limitations in section 135.367 hereof (except paragraph (a)(3)), and the landing limitations in section 135.375 and section 135.377 hereof.

(b) No person may operate a turbine engine powered small transport category airplane unless that person complies with the takeoff limitations in section 135.379 hereof (except paragraphs (d) and (f)) and the landing limitations in section 135.385 and section 135.387.

**135.399 Commuter category airplanes performance operating limitations**

(a) No person may operate a commuter category airplane unless that person complies with the takeoff weight limitations in the approved Aircraft Flight Manual.

(b) No person may take off an airplane type certificated in the commuter category at a weight greater than that listed in the Aircraft Flight Manual that allows a net takeoff flight path that clears all obstructions either by a height of at least 10.7 meters (35 feet) vertically, or at least 60 meters (200 feet) horizontally within the airport boundaries and by at least 90 meters (300 feet) horizontally after passing the boundaries.

(c) No person may operate a commuter category airplane unless that person complies with the landing limitations prescribed in section 135.385 and section 135.387 hereof.

(d) In determining maximum weights, 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 airport, the effective runway gradient, and ambient temperature, and wind component at the time of takeoff.

(e) For the purposes of this section, the assumption is that the airplane is not banked before reaching a height of 15.2 meters (50 feet) as shown by the net takeoff flight path data in the Aircraft Flight Manual and thereafter the maximum bank is not more than 15 degrees.

**135.401 Small nontransport category airplane performance operating limitations**

(a) No person may operate a small nontransport category airplane under this regulation unless that person complies with the takeoff weight limitations and landing weight limitations in the approved Aircraft Flight Manual or equivalent for operations under this regulation.

(b) No person may operate a normal category airplane with a passenger seat configuration of 10 seats or more, excluding any pilot seat, unless that person complies with the landing limitations prescribed in section 135.385 and section 135.387 hereof.

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## **Chapter J Aircraft Maintenance**

### **135.411 General rules**

This chapter prescribes rules in addition to those in CCAR 91 for the maintenance for each certificate holder operating under this regulation to comply with as follows:

(a) Each certificate holder shall establish a maintenance system to ensure the continuous compliance of its aircraft with the type design requirements and the maintenance requirements in the Chinese Civil Aviation Regulations

(b) Each certificate holder operating under this regulation shall, regarding the performance on its aircraft and parts, comply with as follows:

(1) Maintenance or arrangement of maintenance on aircraft that are type certificated for a passenger seating configuration, excluding any pilot seat, of nine seats or less, shall be performed in accordance with an aircraft inspection program under section 135.423 of this regulation;

(2) Aircraft that are type certificated for a passenger seating configuration, excluding any pilot seat, of ten seats or more, shall be maintained by maintenance organizations authorized by CCAR 145 under a maintenance program required in section 135.425 hereof;

(3) Single engine aircraft used in passenger-carrying IFR operations shall also be maintained in accordance with the additional maintenance requirements in section 135.427 hereof;

(4) Any aircraft may be maintained under paragraph (b) of this section;

(5) Airframe overhauls and aircraft parts maintenance, excluding non-dislocation inspections under an inspection program or maintenance program, on any aircraft shall be performed by the maintenance organizations authorized by CCAR 145.

(c) The certificate holder shall ensure that its aircraft, parts, and maintenance system are available for inspections and supervisions by the Administrator for the purpose of ensuring compliance with this chapter.

### **135.413 Responsibility for airworthiness**

(a) Each certificate holder is responsible for the airworthiness of its aircraft, including airframes, aircraft engines, propellers, rotors, appliances, and parts, and shall have its aircraft maintained under this regulation.

(b) Each certificate holder shall perform as follows in accordance with procedures authorized or approved by the Administrator, so as to ensure the airworthiness of aircraft and availability of operation equipment and emergency equipment:

(1) Performing or arranging to perform all the maintenance before each flight under the aircraft inspection program prescribed in section 135.423 hereof or the aircraft maintenance program prescribe in section 135.425 hereof, and performing necessary inspection and release;

(2) Troubleshooting the defects and damages potential to affect safe operation and reaching the authorized standard, and if there are MEL (Minimum Equipment List) and CDL (Configuration Deviation List) authorized by the Administrator for the aircraft type, the requirements in the lists shall be complied with;

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(3) Performing operation instructions and airworthiness directives, and meeting any other continued airworthiness requirement compulsively required by the Administrator;

(4) Performing modifications in accordance with authorized standards and making specific policies for the non-compulsive modification.

(c) The certificate holder may by agreement contract whole or portions of the work on the aircraft in paragraph (b) of this section out but has to bear the same airworthiness responsibilities for the aircraft.

#### **135.415 Certificate holder's maintenance system**

(a) Any certificate holder shall establish a maintenance system under the authority of the maintenance director in which the maintenance responsibilities are clarified and the aircraft airworthiness is ensured. The maintenance system shall be furnished with the agencies, facilities, tools and equipment, instruments and materials, personnel, and work procedures as necessary to perform or arrange to perform maintenance (including general service).

(b) The maintenance system for any certificate holder operating an aircraft that has a passenger seating configuration, excluding any pilot seat, of more than 9 seats, shall include at least one maintenance organization certificated by CCAR 145 on aircraft line maintenance. The maintenance organization may be established by the certificate holder or be the contracting maintenance organization by agreement.

#### **135.417 Maintenance System Requirements**

(a) The maintenance system shall have an engineering technical system to formulate the inspection program required by section 135.423 hereof or the maintenance program required by section 135.425 and shall prescribe specific maintenance technical requirements and modification programs.

(b) The maintenance system shall have a maintenance planning system to, in accordance with the inspection program or maintenance program, maintenance technical requirements, and modification program specified in paragraph (a) of this section, choose and arrange the performance of maintenance work, ensure the instrument & material supplies as necessary for aircraft operations and maintenance, and assess the operation status of aircraft and components so as to optimize the operation. The planning system may be established by the certificate holder or by the contracting maintenance organization by agreement.

(c) The maintenance system shall have a comparatively independent quality inspection department to supervise the fulfillment of the responsibilities and work procedures of personnel of the system, with the functions as follows:

- (1) Evaluating all kinds of personnel and organizations used by the maintenance system;
- (2) Monitoring the individual aircraft airworthiness status; and
- (3) Performing maintenance mistake management and quality investigation.

(d) The certificate holder's maintenance system shall establish a training management system to ensure that personnel from the maintenance system, personnel from the contracting maintenance organization performing management duties on behalf of the maintenance system, and maintenance & release personnel authorized by the maintenance system are trained enough and competent to perform their work and fulfill their responsibilities.

(e) Maintenance personnel only have to comply with the qualification requirements of CCAR 145 if a maintenance organization authorized by CCAR 145 is employed to perform maintenance on aircraft. If the maintenance organization authorized by CCAR 145 is not

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employed to perform maintenance on aircraft, the aircraft maintenance personnel shall have the Maintenance Personnel Certificate specified in CCAR 66 and their classes and type categories shall be applicable to the work they are performing respectively, and in addition, the maintenance release personnel shall pass the qualification evaluation by and obtain the authorization in writing from the director of the quality inspection department.

(f) One pilot may, when no other qualified person is available, be authorized by the Administrator to perform the necessary inspection procedures on the rotorcraft operating in remote areas or locations if:

(1) This pilot is employed by the certificate holder;

(2) It is indicated to the satisfaction of the Administrator that each pilot authorized to perform the inspection as necessary has been appropriately trained and qualification certificated;

(3) The necessary inspection is caused by mechanical reasons and is not the component of the certificate holder's maintenance program;

(4) Each item shall be inspected by the certificated organization or persons specified in paragraph (e) of this section after each flight; and

(5) The flight test inspection shall be performed on each work item as the component of the flight control system before the approval of the new operation of the aircraft.

(g) The Administrator may authorize the deviation specified in paragraphs (a) through (d) for small scale certificate holders.

#### **135.419 Training Program and Personnel Technical Archive**

(a) The certificate holder shall formulate a training program for the training required in paragraph (d) of section 135.417 hereof, which should at least include trainees, training objectives, training contents, class-hour requirements, training methods, testing systems and training organizations, training management responsibilities, etc. The training program and any revision of it shall be authorized by the Administrator.

(b) Training on expertise shall be conducted by the training organizations approved or authorized by the Administrator, and the training management department of the certificate holder shall, however, perform supervision on the training and ensure the compliance with the training program of the certificate holder.

(c) The maintenance system shall establish and keep the technical archives and training records for all the personnel and keep them current. The personnel technical archives shall at least include--

(1) The current position or work scope;

(2) The technical resume prepared by month and year;

(3) The received training course, training method, training class-hour number, and testing results (if applicable); and

(4) The copy of diplomas and certificates.

(d) The personnel technical archives and training records shall be carefully kept for fear of being accessed and modified by unauthorized persons. The personnel technical archive of an employee shall be kept until at least two years after the person's employment by the certificate holder is terminated.

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### **135.421 Certificate holder's maintenance engineering management manual**

(a) The certificate holder's maintenance system shall formulate a maintenance engineering management manual with the purpose of discussing how to comply with requirements of this chapter and perform standardized management and enforce the manual in actual work.

(b) The maintenance engineering management manual shall clearly contain the implementation of the aircraft airworthiness responsibilities by the certificate holder and the general description, specific work procedures, and management requirements in compliance with the requirements of this chapter, and shall be approved or authorized by the Administrator.

(c) The maintenance engineering management manual shall at least include--

(1) Introduction, in which general status and policy of the maintenance system, the compliance statements signed by maintenance directors, and control methods for the compliance and effectiveness of this manual shall be included at least;

(2) Organization setup and facilities of the maintenance system, in which the organization setup chart and necessary description of it and the plant facility map and necessary description of it (including facilities for line maintenance and general service outside the base) shall be included at least;

(3) Personnel and responsibility description, in which names and technical experiences of the maintenance director, and the director of the quality inspection department as specified in paragraph (c) of section 135.417 hereof, responsibility description of all departments and personnel of the maintenance system and the maintenance organizations authorized by CCAR 145 or contracting maintenance organizations; and a list of the maintenance release personnel and their authorized release scope contained hereof, shall be included at least;

(4) Engineering technical management, in which the formulation of the inspection program or maintenance program, applicable parts of the Minimum Equipment List, and the description of the requirements and procedures to formulate specific maintenance technical requirements and modification program, shall be included at least;

(5) Maintenance program and controls, in which the aircraft operation and maintenance programs, the choice and arrangement of the performance of general service and maintenance, instrument & material supplies, assessment and monitoring on aircraft and parts operation, and requirements and procedure descriptions on aircraft release shall be included at least;

(6) Contracting maintenance, in which maintenance organization descriptions, contracting work scope, coordination methods, and the requirements and procedures on the supervision and management on contracting maintenance organizations shall be included at least;

(7) Quality management, in which the methods and procedures of fulfilling the responsibilities of the supervision on maintenance personnel and the performance of each work procedure, the methods and procedures of evaluation on all the personnel and organizations used by the maintenance system, the methods and procedures of monitoring on individual aircraft airworthiness status, and the requirements and procedures of maintenance mistake management and quality investigation shall be included at least;

(8) Personnel training management, in which the requirements and procedures of the management on training requirements, training programs, training performance, training personnel technical archives and training records shall be included at least;

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(9) Related attachments, in which the form & label samples actually in use, a work procedure list, and other necessary attachments shall be included at least;

(10) A compliance statement.

(d) No modification may be made to the portion of maintenance engineering management manual approved by the Administrator unless it is submitted to the Administrator within 30 days preceding the scheduled effective date and is approved by the Administrator.

#### **135.423 Aircraft inspection program**

(a) Each certificate holder who operates aircrafts type certificated for a passenger seating configuration, excluding any pilot seat, of nine seats or less, shall formulate an aircraft inspection program and obtain approval from the Administrator.

(b) The aircraft inspection program shall be formulated in accordance with the continued airworthiness document of the aircraft manufacturer and list all the aircraft registration numbers applicable to the program. Each certificate holder shall maintain each aircraft in accordance with the applicable aircraft inspection program.

(c) The aircraft inspection program shall contain the following:

(1) Instructions and standards for the conduct of aircraft inspections (which must include necessary tests and checks), setting forth in detail the parts and areas of the airframe, engines, propellers, rotors, and appliances, including emergency equipment, that must be inspected.

(2) A schedule for the performance of the aircraft inspections under paragraph (c)(1) of this section expressed in terms of the time in service, calendar time, number of system operations, or any combination of these.

(3) Instructions and procedures for recording discrepancies found during inspections and correction or deferral of discrepancies including form and disposition of records.

(d) Each certificate holder shall continuously analyze and supervise the validity of the aircraft inspection program and revise the existing discrepancies and any revision to the program shall be approved by the Administrator. Whenever the Administrator finds that revisions to an approved aircraft inspection program are necessary for the continued adequacy of the program, the certificate holder shall, after notification by the Administrator, make any changes in the program found by the Administrator to be necessary.

#### **135.425 Aircraft maintenance program**

(a) Each certificate holder who operates an aircraft with a passenger seating configuration, excluding any pilot seat, of nine seats or more, shall formulate an aircraft maintenance program, submit it to and obtain approval from the Administrator, and prepare and plan maintenance tasks in compliance with the program.

(b) The initial aircraft maintenance program of the certificate holder shall be formulated on the basis of the MRBR (Maintenance Review Board Report) approved or authorized by the Administrator and the type certificate holder's maintenance planning program document or the maintenance program recommended by the manufacturer in the maintenance manual. The structure and form of the maintenance recommendations may be modified by the certificate holder so as to comply better with the performance and control of the certificate holder's specific maintenance program.

(c) The certificate holder shall formulate the initial maintenance program in accordance with the logical decision method and process in the MRBR for the aircraft in the MRBR not approved or authorized by the Administrator.

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(d) The certificate holder shall perform regular check on the maintenance program so as to ensure that the program indicates the operation characteristics of the aircraft, the latest recommendations by the type certificate holder and the evaluation of the revision to MRBR, modification status, and the compulsive requirements by the Administrator. Any revision to the maintenance program shall be approved by the Administrator.

(e) The maintenance program shall contain the following:

- (1) Use instructions and controls of the maintenance program;
- (2) Load balance control;
- (3) Scheduled inspection and maintenance on aircraft;
- (4) Unscheduled inspection and maintenance on aircraft;
- (5) Maintenance or overhauls on the engines, propellers, rotors, and appliances;
- (6) Structure inspections or airframe overhauls;
- (7) Compulsive inspection items;
- (8) The use of maintenance materials.

(f) The approved maintenance program for the certificate holder's aircraft shall not be replaced by another approved maintenance program unless the aircraft utilization rate, operation environment, installed equipment, and experiences of the maintenance system is evaluated, the necessary switch check is conducted, and the replacement approval is granted by the Administrator.

(g) The certificate holder shall not use the approved maintenance program of other certificate holders unless it complies with the written agreement and is approved by the Administrator.

(h) When maintenance work required by the maintenance program can not be performed as planned under reasonable unpredictable conditions, the deviation to the maintenance program shall be confined to the scope specified by the Administrator and report shall be made to the Administrator.

#### **135.427 Additional maintenance requirements**

(a) For each single engine aircraft to be used in passenger-carrying IFR operations, each certificate holder must incorporate into its aircraft inspection program and maintenance program either:

(1) The manufacturer's recommended engine trend monitoring program, which includes an oil analysis, if appropriate, or

(2) An Administrator approved engine trend monitoring program that includes an oil analysis at each 100 hour interval or at the manufacturer's suggested interval, whichever is more frequent.

(b) No certificate holder may operate a single engine aircraft under IFR, carrying passengers, unless the certificate holder records and maintains in the engine maintenance records the results of each test, observation, and inspection required by the applicable engine trend monitoring program specified in paragraph (a) of this section.

#### **135.429 Repairs and modifications on aircraft**

(a) No certificate holder operating under this regulation may perform design modification to its aircraft or parts if other characteristics apparently affecting the weight,

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balance, structure strength, performance, powerplant operation, or flight characteristics or affecting the airworthiness exist, unless the modification to the type certificate datasheet or the supplemental type certificate is applied for in accordance with Section 21.28 of CCAR 21.

(b) No certificate holder may perform any repair that is beyond the continued airworthiness document requirements on its aircraft or parts or any modification that does not apparently affect the weight, balance, structure strength, reliability, operation characteristics, and airworthiness of the aircraft unless it has applied for the approval by the Administrator and submit the substantiating and describing materials.

### **135.431 Maintenance Record**

(a) Each certificate holder shall keep the following records for the aircraft operated by it:

(1) All the detailed maintenance records necessary to show that all requirements for the issuance of an airworthiness release under section 135.433 have been met.

(2) Records containing the following information:

(i) The total time in service of the airframe, engine, propeller, and rotor;

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of each item installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The identification of the current maintenance status of the aircraft, including the time since the last inspections required by the aircraft inspection program or last maintenance required by maintenance program under which the aircraft and its appliances are inspected or maintained respectively;

(v) The current compliance status of applicable airworthiness directives, including the data and methods of compliance, and, if the airworthiness directive involves recurring action, the time and date when the next action is required;

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

(b) Each certificate holder shall retain the maintenance records required to be kept by this section for the following periods:

(1) Except for the records of the last complete overhaul of each airframe, engine, propeller, rotor, and appliance, the maintenance records specified in paragraph (a)(1) of this section shall be retained until at least two years after the work is performed;

(2) The records of the last complete overhaul of each airframe, engine, propeller, rotor, and appliance shall be retained until the work is superseded by work of equivalent scope and detail.

(3) The maintenance records specified in paragraph (a)(2) of this section shall be retained until one year after the aircraft is sold or permanently ex-serviced and shall be transferred with the aircraft at the time the aircraft is sold.

(c) The certificate holder shall, when its operation terminates, transfer all the maintenance records it keeps to the new certificate holder.

(d) No certificate holder may dry lease the aircraft to another certificate holder for more than 6 months unless it has transferred all the maintenance records it keeps to the new certificate holder. If the term of the dry lease is less than 6 months, all the maintenance

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records required by paragraph (a)(2) of this section shall be transferred to the lessee, or copies of the records are available to the lessee.

(e) The certificate holder shall make all maintenance records available for inspection by the Administrator or any security investigation agency authorized by the nation.

### **135.433 Aircraft flight log**

(a) The certificate holder shall prepare an aircraft flight log for each aircraft to record defects and abnormal operation identified during operations, the maintenance performed, operation information related to the flight safety, and applicable data that the flight crew and maintenance personnel shall know.

(b) The aircraft flight log shall include the aircraft operation information, any defect and reserved status affecting the airworthiness and safe operation of the aircraft, required maintenance items, maintenance operation records, aircraft release, etc.

(c) The format of the aircraft flight log shall be accepted by the Administrator; each item of the log shall be prepared in ink or other unchangeable writing means in a timely manner; and sufficient copies shall be available to ensure the compliance with the requirements of use and keeping.

(d) Except as approved by the Administrator, the certificate holder shall stow an aircraft flight log original on the aircraft in the place readily accessible to the flight crew of the aircraft, including at least the consecutive records prepared during the preceding three flights of each flight, and keep one copy of the aircraft flight log on the ground before each takeoff to save the records prepared during and after the last flight.

(e) The certificate holder shall prescribe the format and requirements on preparation, use, and keeping of the aircraft flight log in the maintenance engineering management manual.

### **135.435 Airworthiness release**

(a) Maintenance release personnel authorized by a certificate holder shall, after the certificate holder having completed maintenance and the troubleshooting on any defect or malfunction and meeting paragraph (b) of this section, sign the release of the aircraft with an entry in the aircraft flight log.

(b) No person may release an aircraft unless—

(1) The maintenance is performed in compliance with the requirements of the certificate holder; and

(2) Maintenance Release Certificate has been issued to operations completed by the maintenance organizations authorized by CCAR 145; and

(3) No known condition exists that would make the aircraft unairworthy; and

(4) So far as the work performed is concerned, the aircraft is in condition for safe operation;

(c) Under specified operation limitation conditions, the certificate holder may release the aircraft with inoperative equipment or defects to fly if the aircraft comply with the minimum equipment list and Configuration Deviation List approved by the Administrator.

(d) If aircraft release is conducted concurrently with the maintenance release certification by CCAR 145, repeated signature is not required for line maintenance, Level A Inspection, or Regular Aircraft Inspection and Modification combined with it rated at or lower than Level A Inspection.

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(e) If the certificate holder does not require the pre-flight inspection as necessary for the line maintenance, the pilot in command shall complete the required inspection in compliance with section 135.71 hereof .

#### **135.437 Aircraft airworthiness inspection**

(a) No certificate may operate any of its aircraft for the first time unless it has passed the inspection by the Administrator, complied with the requirements of this regulation, and obtained the airworthiness certificate signature or other signatures.

(b) No aircraft operating under this regulation may be operated unless it has received annual airworthiness inspections by the Administrator, complied with the requirements of this regulation, and obtained the airworthiness certificate signature or other signatures.

(c) The certificate holder shall receive the airworthiness inspection on its aircraft currently in operation by the Administrator from time to time and may not operate any of its aircraft of which any defect is identified in the inspection unless its corrective measures meet the requirements of the Administrator.

(d) The certificate holder shall pay inspection charges for the inspection on the initial aircraft operation and the annual airworthiness inspection in accordance with applicable stipulations.

#### **135.439 Mechanical difficulty reports (operation)**

(a) Each certificate holder shall report the occurrence or detection of the following --

(1) Fires during flight and abnormal functions of the related fire-warning system;

(2) False fire-warning during flight;

(3) An exhaust system malfunction or failure that causes damage during flight to the engine, adjacent structure, equipment, or components;

(4) Aircraft component malfunctions or failures that cause accumulation or circulation of smoke, vapor, or toxic or noxious fumes in the crew compartment or passenger cabin during flight;

(5) Engine shutdown or flameout during flight or on the ground;

(6) Failures of a propeller feathering system or disability of the system to control overspeed during flight;

(7) A fuel or fuel-dumping system that affects fuel flow or causes hazardous leakage during flight;

(8) An unwanted landing gear extension or retraction or opening or closing of landing gear doors during flight;

(9) Brake system component failures or malfunctions that result in loss of brake actuating force when the aircraft is in motion on the ground;

(10) Malfunctions or failures of aircraft systems or components that result in safe stops or taking emergency actions during flight;

(11) Defects or failing to perform the intended function concerning any emergency evacuation system or component (including the emergency exit, passenger evacuation lighting system, and evacuation equipment) during actual evacuations, training, tests, maintenance, demonstration, or unintended use;

(12) Defects or failing to perform the intended function concerning auto throttle,

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autopilot, or flight control system or component;

(13) Aircraft structure damage that requires major repair;

(14) Cracks, permanent deformation, or corrosion of aircraft structures, if more than the maximum acceptable to the manufacturer or the Administrator; and

(15) Other malfunctions or defects having endangered or potential to endanger the aircraft safe operation.

(b) Each certificate holder shall send each report required by paragraph (a) of this section to the Administrator within 24 hours and shall keep the report for at least 30 days for reexamination by the Administrator.

(c) The certificate holder shall transmit the reports required by paragraph (a) of this section in a manner and on a form prescribed by the Administrator, and shall include the following at least:

(1) The manufacturer and type of the aircraft and identification numbers of aircraft, engine, propeller, rotor;

(2) Aircraft registration number;

(3) The name of the certificate holder;

(4) The date and place of the happening or detection;

(5) The phase of the failure, malfunction, or defect;

(6) The nature of the failure, malfunction, or defect;

(7) Applicable ATA chapters;

(8) Total operation time or system operations of aircraft, engine, propeller, or components;

(9) Manufacturer, parts number, name, identification number, and part of parts and components with the failure, malfunction, or defect;

(10) Preventive or emergency measures taken;

(11) Other information as necessary to more completely analyze reasons of failures, malfunctions, or defects, including the available information concerning major components and type designs and the operation period after the last overhaul, repair, and detection.

(g) No certificate may postpone the reporting of all available information even though not all information required by this section is available for reporting and each certificate holder shall submit information not provided in the first report as a supplement to it in a timely manner.

#### **135.441 Operation Difficulty Reports (Structure)**

(a) Each certificate holder shall report to the Administrator the occurrence or detection of the following --

(1) Corrosion, Cracks, or splits causing the applicable parts to be replaced;

(2) Corrosion, Cracks, or splits exceeding the allowed damage limitations specified by the manufacturer and causing the applicable repair or burnishing;

(3) Corrosion, Cracks, or splits of the parts in the composite material structure specified as major structure or essential structure parts by the manufacturer;

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(4) Maintenance performed in accordance with the approved materials beyond the manufacturer's maintenance manual;

(5) Other malfunctions or defects in the aircraft structure having endangered or potential to endanger the aircraft safe operation.

(b) Each certificate holder shall send each report required by paragraph (a) of this section to the Administrator within 24 hours and shall keep the report for at least 30 days for reexamination by the Administrator.

(c) The certificate holder shall transmit the reports required by paragraph (a) of this section in a manner and on a form prescribed by the Administrator, and shall include the following at least:

- (1) The manufacturer, type, batch number, and registration number of aircraft;
- (2) The name of the certificate holder;
- (3) The time of the detection of the malfunction or defect;
- (4) The ground operation phase of the detection of the malfunction or defect;
- (5) The name, status, and position of the parts with malfunction or defect;
- (6) Applicable ATA chapters;
- (7) Total system operations (if applicable) and operation time of aircraft;

(8) Other information as necessary to more completely analyze reasons of malfunctions or defects, including the corrosion grade, crack length, and available information concerning major component designs and the operation period after the last overhaul, repair, and detection.

(d) No certificate may postpone the reporting of all available information even though not all information required by this section is available for reporting and each certificate shall submit information not provided in the first report as a supplement to it in a timely manner.

#### **135.443 Mechanical interruption summary report**

Each certificate holder shall deliver, before the end of the 10th day of the following month, a summary report of the following occurrences owing to mechanical causes for the preceding month to the Administrator:

- (1) Each interruption to a flight;
- (2) Each unscheduled change of aircraft en route;
- (3) Each delay, alternative landing, or unscheduled diversion from a route;
- (4) Each unscheduled engine replacement caused by known or suspected mechanical difficulties or malfunctions;

(5) The number of propeller featherings in flight, listed by type of propeller and engine and aircraft on which it was installed. Propeller featherings for training, demonstration, or flight check purposes need not be reported.

(b) The certificate holder shall deliver the report required in this section in the format and manner specified by the Administrator.

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## Chapter K Legal Liabilities

### **135.513 Suspension and revocation of the small aircraft commercial transport operator's operation certificate**

(a) The Administrator may, in accordance with national laws or administrative regulations, suspend for one to six months or revoke the operation certificate held by a certificate holder under any of the following circumstances where the certificate holder seriously contravenes this regulation:

(1) Failing in observing the provisions of paragraph (g) of section 135.7 hereof , performing operations in contravention of the requirements of the operation certificate or operations specification issued by the Administrator, or in violation of the deviation authorization or exemption authorization issued by the Administrator;

(2) Failing in observing the provisions of section 135.49 hereof , transporting hazardous materials without any authorization;

(3) Failing in observing the provisions of Chapter E and G hereof to use or **arrange** airmen;

(4) Failing in observing the provisions of Chapter H, using a training program without the authorization by the Administrator or performing operations without performing the training specified by the authorized training program;

(5) Failing in observing the provisions of Chapter I, performing operations beyond the limitations on airplane performance and operation specified thereof;

(6) Failing in observing the provisions of Chapter J, the airplane airworthiness responsibilities not fulfilled and assigned thereunder; or

(7) Other acts seriously affecting operation safety or having caused serious results.

(b) When an operation certificate is suspended or revoked, the holder of it shall return it to the applicable agency of the Administrator.

### **135.515 Warning and Fines**

(a) The Administrator may order a certificate holder to stop its illegal acts and give a warning to it or impose a fine of no more than 30,000 *yuan* on it under any of the following circumstances:

(1) Any acts with relatively minor circumstances specified in paragraph (a) of section 135.513 hereof;

(2) Failing to provide the specified documents in accordance with the section 135.25 hereof;

(3) Failing to perform effective management on its manual in accordance with the section 135.41 hereof and being deemed as affecting operation safety by the Administrator;

(4) Failing to operate aircraft as required by the paragraph (b) of section 135.45 hereof;

(5) Failing to mark the certificate holder's name on the aircraft it operates as required by the section 135.47 hereof;

(6) Failing to wet lease aircraft abroad in accordance with section 135.51 hereof;

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(7) Failing to record or to keep applicable records as required by the section 135.63 and section 135.65 hereof respectively;

(8) Failing to perform effective management on persons, cargoes, and equipment on board during performing operations in accordance with Chapter B hereof and being deemed as affecting operation safety by the Administrator;

(9) Failing to schedule duty periods, flight time, and rest periods for airmen as required by Chapter F hereof; or

(10) Failing to establish the maintenance system or to perform effective management on airplanes in accordance with Chapter J hereof and being deemed as affecting operation safety by the Administrator.

(b) If a certificate holder who, in violation of paragraph (a) of section 135.45 hereof, operates aircraft without the valid airworthiness certificate or not in a airworthiness status, the Administrator may confiscate all its illegal incomes and concurrently impose on it a fine between one time to five times of its illegal incomes. If no illegal income is involved, the Administrator may impose a fine between 100,000 *yuan* and 1,000,000 *yuan* on the certificate holder.

(c) If a flight crew member performs operations under this regulation as a necessary member of the flight crew before completing the training and being qualified as required under this regulation, the Administrator may, in accordance with requirements of Section 205 of the *Civil Aviation Law of the People's Republic of China*, impose a fine of no more than 200,000 *yuan* on the certificate holder.

(d) The Administrator may give a warning to or impose a fine of no more than 1,000 *yuan* on any airman or any other individual directly performing the operation who fails to perform operations in compliance with the operation manual or maintenance engineering management manual of the certificate holder and hence contravenes this regulation..

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## **Chapter L Supplementary Provisions**

### **135.613 Promulgation and nullification**

(a) This regulation shall enter into force on January 1, 2006.

(b) No small aircraft commercial transport operator authorized to perform operations by CAAC before the effective date of this regulation may continue to perform operations specified in this regulation, unless it gradually standardizes its operations in accordance with this regulation and is certificated and obtains the operation certificate within one year after the effective date of this regulation.

(c) The Rules on Helicopter Offshore Flights of Civil Aviation of China promulgated by CAAC on May 8<sup>th</sup>, 1985 and the Regulations on Civil Helicopter Water Platform Operations promulgated in the form of CAAC Decree No. 67 on September 22<sup>nd</sup>, 1997 shall be concurrently annulled on the date upon which this regulation enters into force.

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## Appendix A Definitions

**Scheduled Passenger-carrying Operation** means any passenger-carrying operation performed by an air carrier or air operator for reward or hire, published to the general public in advance in the form of advertisement or otherwise by the principal or its agent, including takeoff location, takeoff time, destination, and landing time.

**Commercial operator** means an air operator using the civil aircraft specified in section 135.3 hereof and engages in the flight and operation categories specified in section 135.3 hereof.

**Air operator** means a public air transport enterprise, general air enterprise, or any other organization undertaking civil air flights registered in the People's Republic of China.

**Deviation** means the act that a certificate holder is allowed not to comply with the requirements or may comply with the substituted requirements, conditions, or limitations of applicable provisions from which deviation is clearly allowed by applicable regulations, if the certificate holder is able to give appropriate reasons and prove that it can reach the equivalent safety level and is authorized by the Administrator.

**Exemption** means the act that a certificate holder is allowed not to execute the provisions to which deviation is not clearly allowed by applicable regulations and instead execute the requirements, conditions, or limitations listed by CAAC when the authorization of this exemption is given, if the certificate holder is able to give appropriate reasons and applicable safety measures and prove that these safety measures can ensure the equivalent safety level and is authorized by the Administrator. The exemption is a substituting act of complying with regulations and the compliance with issued exemptions and the conditions and limitations hereof is equal to the compliance with regulations.

**Operational Control** means the exercise of authority over initiating, conducting, or terminating a flight by a certificate holder through systems and procedures applied to the flight dynamic control.

**Base of Operations** means a location different from the principal base of operations of a certificate holder and has the operational resources and capabilities of flight operation or airworthiness maintenance, or the combination of them, and has no less than 10 scheduled passenger-carrying flights and no less than 15 unscheduled or cargo-only flights in any six consecutive calendar months.

**Wet Lease** means a lease in which the lessee leases aircraft including one or more crewmember of the lessor in accordance with a lease agreement.

**Flight crewmember** means a pilot, flight navigator, flight radio operator, or flight engineer assigned to duty in an aircraft cockpit during flight time.

**Crewmember** means a person assigned to perform duty in an aircraft during flight time, including flight crewmembers and cabin attendants.

**Pilot in command** means the pilot who has been designated by a certificate holder as a pilot in command and has final responsibility for the operation and safety of aircraft during the flight.

**New Employee Training** means the training before assuming crewmember positions required for persons newly employed by a certificate holder or the employed persons having

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not worked in crewmember positions. The new employee training includes basic theory education and training for specific aircraft types and positions.

**Initial Training** means training required for those crewmembers and flight dispatchers who have not been certified and served at the same post on other airplane of the same categories

**Transition Training** means training required for those crewmembers and flight dispatchers who have been certified and served at the same post on other type airplane but the same group.

**Upgrade Training** means the training required for crewmembers who have qualified and served as second in command on a particular aircraft type, before they serve as pilot in command on that aircraft.

**Recurrent Training** means the training required for qualified crewmembers to remain adequately trained and currently proficient for their qualifications and techniques conducted in specified period on specified items.

**Requalification Training** means the training required for crewmembers previously qualified for specific aircraft types and specific positions, but who have become unqualified due to a reason, to resume their qualification.

**Differences Training** means the training required for crewmembers who have qualified and served on a particular type aircraft, when the Administrator finds that the aircraft served by the crewmembers is different from the original aircraft of the same type on performance, equipment, or operation procedures, etc. and supplementary training is necessary.

**Calendar Month** means the time period between 0 o'clock of the first day in this month and 0 o'clock of the first day in the next month in accordance with GMT or local time.

**Flight Time** means the time that commences when an aircraft moves under its own power for the purpose of flight and ends when the aircraft comes to rest after landing.

**Pilot time** means the flight time when necessary a crewmember is on duty in his or her duty position, namely the seated flight time.

**Extended Over-water Operation** means an aircraft operation over water at a horizontal distance of more than 93 kilometers (50 nautical miles) from the nearest shoreline.

**Minimum Fuel Quantity** means a particular minimum fuel quantity in flight that shall be reported to air traffic control to take emergency measures and is able to enable aircraft to fly to the landing airport and flight for 30 minutes at the altitude of more than 450 meters (1,500 feet) plus the airport elevation at the holding airspeed, considering the specified fuel quantity indication system margin.

**Nonprecision Instrument Approach** means an approach in which only azimuth guidance is provided by means of ground navigation facilities such as VOR, NDB, ILZ (when ILS system glide slope is not working), etc. and no glide guidance is provided.

**Precision Instrument Approach** means an approach in which azimuth guidance and glide guidance are provided by means of ILS or PAR.

**Decision Altitude (DA)/Decision Height (DH)** means the particular altitude or height at which the visual reference necessary to continue the approach cannot be established and a missed approach has to be executed during precision approach.

**Minimum Descent Altitude (MDA)/Minimum Decent Height (MDH)** means the

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lowest altitude or height to which descent is not authorized during nonprecision approach or circle-to-land maneuvering unless the necessary visual reference can be established.

**Airport Operation Minimums** mean the limitation conditions for airports used for take off and landing. The minimums are represented as visibility and/or runway visibility range and ceiling height (if necessary) for takeoff, as the visibility and/or runway visibility range and DA/DH for landing in the precision instrument approach and landing operations, and as the visibility and/or runway visibility range, MDA/MDH, and ceiling height for landing in the nonprecision instrument approach and landing operations.

**Visual Meteorological Conditions** mean the conditions not less than the specified minimum meteorological conditions and are represented as visibility, distance from cloud, and ceiling height.

**Instrument Meteorological Conditions** mean the meteorological conditions less than the minimums specified for visual meteorological conditions and are represented as visibility, distance from cloud, and ceiling height.

**Obstruction Clearance Altitude (OCA)/Obstruction Clearance Height (OCH)** means the particular altitude or height in addition to the applicable runway threshold elevation or airport elevation determined to comply with applicable obstruction clearance principles.

**Alternate Airport** means an airport at which an aircraft may land if a landing at the intended airport becomes impossible or inadvisable or after the landing at the intended airport. The alternate airport includes the takeoff alternate airport, the airway alternate airport, and the destination alternate airport.

**Takeoff Alternate Airport** means an alternate airport at which an aircraft may land if a landing is needed within short time after the takeoff of the aircraft and the takeoff airport is not available for landing.

**Airway Alternate Airport** means an alternate airport at which an aircraft may land if an abnormal or emergent case happens to the aircraft on airway.

**Destination Alternate Airport** means an alternate airport at which an aircraft may land if a landing at the intended airport becomes impossible or inadvisable.

**Master Minimum Equipment List (MMEL)** means a list of equipment, determined by the Administrator, allowed to be inoperative under particular conditions when the accepted safety level can still be maintained. MMEL includes conditions of, limitations on, and procedures of aircraft operations when the equipment is inoperative and is the basis on which operators formulate their respective MEL.

**Minimum Equipment List** means an equipment list prepared by an operator in accordance with MMEL for its operations, considering types, operations procedures, and conditions of its aircraft. After being authorized by the Administrator, MEL allows aircraft with inoperable equipment listed in MEL to operate under specified conditions. MEL requirements shall be equal to or stricter than those in MMEL of the applicable aircraft type.

Maximum Commercial Load equals to:

(1) The maximum zero fuel weight minus the empty weight, the weight of applicable equipment on board, and operation load (including the weight of minimum crew, catering, and supplies and equipment related to catering, excluding available fuel and oil) for aircraft with its maximum zero fuel weight listed in technical documents authorized by the Administrator;

(2) The certificated maximum takeoff weight minus the empty weight, the weight of applicable equipment on board, and operation load (including the weight of minimum fuel, oil,

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and crew) for other aircraft. Weight of crew, oil, and fuel is calculated as follows:

(i) For every crewmember (including hand baggage):

(A) Male flight crewmember—82 kilograms;

(B) Female flight crewmember—64 kilograms;

(C) Male cabin attendant—82 kilograms;

(D) Female cabin attendant—59 kilograms;

(E) Cabin attendant with unidentified sex—64 kilograms.

(ii) Oil— 157 kilograms or calculated in accordance with the oil quantity listed in the aircraft type certificate;

(iii) Fuel— minimum fuel weight required to perform flights under the Chinese Civil Aviation Regulations.

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## **Appendix B Additional airworthiness standards for 10 or more passenger airplanes**

1. Applicability. This appendix prescribes the additional airworthiness standards required by section 135.45 hereof.

2. Unless otherwise provided, references in this appendix to specific sections of CCAR 23 are to those sections of CCAR 23 in effect on July, 18, 1990.

### Flight Requirements

3. Compliance of aircraft operating under this regulation must be shown with the requirements of Subpart B of CCAR 23 applicable to commuter category airplanes, and the aircraft trim shall comply with the requirements under Section 23.161 of the third revision of CCAR 23 dated October 12, 2004 applicable to commuter category airplanes

### Control Systems

4. Electric trim tabs must meet Section 23.677 of CCAR 23.

### Instrument Installation

5. Arrangement and visibility of each instrument must meet Section 23.1321 of CCAR 23.

6. Each airspeed indicating system must meet requirements on commuter category airplanes under Section 23.1323 of CCAR 23.

7. The static air vent system must meet requirements on commuter category airplanes under Section 23.1325 of CCAR 23.

### Operating Limitations and Information

8. Instead of establishing operating limitations based on VNE and VNO, the applicant must establish a maximum operating limit speed VMO/ MMO as follows:

(a) The maximum operating limit speed must not exceed the design cruising speed VC and must be sufficiently below VD/MD or VDF/MDF to make it highly improbable that the latter two speeds will be inadvertently exceeded in flight;

(b) The speed VMO must not exceed 0.8VD/MD or 0.8VDF/MDF unless flight demonstrations involving upsets (loss of stabilization) as specified by the Administrator indicates a lower speed margin will not result in speeds exceeding VD/MD or VDF. Atmospheric variations, horizontal gusts, system and equipment errors, and airframe production variations are taken into account.

9. Flight crew personnel shall meet Section 23.1523 of CCAR 23.

10. The airspeed indicator markings must be easily read and understood by the pilot. A placard adjacent to the airspeed indicator to indicate airspeed limitations is an acceptable means of showing compliance with Section 23.1545(c) of CCAR 23.

### Aircraft Flight Manual

11. The Aircraft Flight Manual must be prepared under Sections 23.1583 through 23.1587 of CCAR 23 on commuter category airplanes, and in addition complies with--

(a) The maximum operating altitude to which operation is allowed, as limited by flight,

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structural, powerplant, functional, or equipment characteristics, must be specified in the Aircraft Flight Manual;

(b) The Aircraft Flight Manual must be stowed in a suitable fixed container which is readily accessible to the pilot.

#### Personnel and Cargo Accommodations

12. Cargo and baggage compartments must be designed to meet Section 23.787 of CCAR 23.

13. Doors and exits must meet requirements on commuter category airplanes under Sections 23.783, 23.803, 23.807, 23.811, 23.813, and 23.815 of CCAR 23.

#### Continued Airworthiness Document

14. On aircraft delivery, materials as necessary to correctly maintain the aircraft in compliance with Appendix G of CCAR 23 (including requirements on commuter category airplanes) must be provided to the aircraft owner.

#### Propulsion system

15. For turbopropeller powered airplanes, the engine installation must not result in vibration characteristics of the engine exceeding those established during the type certification of the engine and the installed engine shall meet Section 23.903 of CCAR 23 (including requirements on commuter category airplanes).

16. Turbopropeller reversing systems shall meet requirements on commuter category airplanes under Section 23.933 of CCAR 23.

17. Fuel flow shall comply with the following requirements:

(a) For turbopropeller powered airplanes--

(1) The fuel system must provide for continuous supply of fuel to the engines for normal operation without interruption due to depletion of fuel in any tank other than the main tank; and

(2) The fuel flow rate for turbopropeller engine fuel systems must not be less than 125 percent of the fuel flow required to develop the standard sea level atmospheric conditions takeoff power selected and included as an operating limitation in the Aircraft Flight Manual.

(b) For reciprocating engine powered airplanes, it is acceptable for the fuel flow rate for each pump system (main and reserve supply) to be 125 percent of the takeoff fuel consumption of the engine.

#### Fuel System Components

18. Fuel strainer and filter shall meet requirements on commuter category airplanes under Section 23.997 of CCAR 23.

#### Powerplant Ignition Systems and Accessories

19. Engine ignition systems shall meet requirements on commuter category airplanes under Section 23.1165 of CCAR 23.

20. Powerplant accessories shall meet Section 23.1163 of CCAR 23.

#### Powerplant Fire Protection

21. Cowling and nacelle skin shall meet requirements on commuter category airplanes under Section 23.1193 of CCAR 23.

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22. If flammable fluids or vapors might be liberated by the leakage of fluid systems in areas other than engine compartments, there must be means to--

- (a) Prevent the ignition of those fluids or vapors by any other equipment; or
- (b) Control any fire resulting from that ignition.

Equipment

23. Powerplant instruments shall meet Section 23.1305 of CCAR 23.

Systems and Equipments

24. Function and installation of systems and equipment shall meet Section 23.1309 of CCAR 23.

Electrical Systems and Equipment

25. The electrical systems and equipment must meet section 23.1351 of CCAR 23.

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## Appendix C Airplane flight data recorder specifications

### Category IA Flight Data Recorder

(1) All the parameters satisfying requirements of Category IA Flight Data Recorder (FDR) are listed in the following paragraphs. The parameters not marked with the asterisk (\*) is the compulsory ones that should be recorded. In addition, parameters marked with the asterisk (\*) should be recorded when fixed-wing airplane system or flight crew use information data sources of the parameters to control the fixed-wing airplane. The following are the parameters required to determine flight track and speed:

1. Barometer Altitude;
2. Indicated Airspeed or Calibrated Airspeed;
3. Ground-Air Status and Air-Ground Sensor of Every Landing Gear when practical;
4. Total Air Temperature or Outside Air Temperature;
5. Heading Deg. (Basic Reference for flightcrew);
6. Normal Acceleration;
7. Lateral Acceleration;
8. Longitudinal Acceleration;
9. Time or Relative Time Count;
10. Flight Data\*: Drift Angle, Windspeed, Wind Direction, latitude, longitude;
11. Ground Speed\*;
12. Radio Altitude\*.

(2) The parameters required to determine attitude are listed as follows:

13. Pitch Attitude;
14. Roll Attitude;
15. Yaw Angle\*;
16. Angle of Attack\*.

(3) The parameters required to determine engine power are listed as follows:

17. Engine Thrust/Power: Thrust/Power on each engine, cockpit thrust/thrust control position;
18. Thrust Reverser Position\*;
19. Engine Thrust Instruction\*;
20. Engine Thrust Object\*;
21. Engine Bleed Valve Position\*

22. Other Engine Parameters\*: Engine Pressure Ratio\*, N1, Indicated Vibration Indication, N2, Exhaust Gas Temperature (EGT), Throttle Lever Angle (TLA), Fuel Flow, Fuel Shut-off Lever Position, N3.

(4) The parameters required to determine configuration are listed as follows:

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23. Pitch Trim Surface Position;
  24. Flap\*: Trailing Edge Flap Position, Cockpit Control Selection;
  25. Slat\*: Trailing Edge Flap (Slat) Position, Cockpit Control Selection;
  26. Landing Gear\*: Landing Gear, Gear Selector Position;
  27. Yaw Trim Surface Position\*;
  28. Roll Trim Surface Position\*;
  29. Cockpit Trim Control input position -- pitch\*;
  30. Cockpit Trim Control input position -- roll\*;
  31. Cockpit Trim Control input position -- yaw\*;
  32. Ground Spoiler and Speed Brake\*: Ground Spoiler Position, Ground Spoiler Selection, Speed Brake Position, and Speed Brake Selection;
  33. Deicing and/or anti-icing system selection\*;
  34. Hydraulics (Each System)\*;
  35. Fuel Quantity\*;
  36. AC Electrical Bus Status\*;
  37. DC Electrical Bus Status\*;
  38. Auxiliary Powerplant (APU) Exhaust Gas Valve Position\*;
  39. Computed Center of Gravity\*.
- (5) The parameters required to determine operation is listed as follows:
40. Warning;
  41. Primary Flight Control Surface and Pitch, Roll, and Yaw Axes input by Primary Flight Control Pilot;
  42. Marker Beacon Passage;
  43. Each Navigation Receiver Frequency Selection;
  44. Manual Radio Transmitter Keying and Cockpit Voice Recorder/Flight Data Recorder Synchronization Reference;
  45. Autopilot/Auto Throttle/AFCS Mode and Engagement Status\*;
  46. Selected Barometer Setting\*: Pilot in Command and Second in Command;
  47. Selected Altitude (All Operation Modes Available for Pilot in Command)\*;
  48. Selected Speed (All Operation Modes Available for Pilot in Command)\*;
  49. Selected Mach Number (All Operation Modes Available for Pilot in Command)\*;
  50. Selected Vertical Speed (All Operation Modes Available for Pilot in Command)\*;
  51. Selected Heading Deg. (All Operation Modes Available for Pilot in Command)\*;
  52. Selected Flight Track (All Operation Modes Available for Pilot in Command)\*:  
Course/Required Flight Track, Flight Track Angle;
  53. Selected Decision Relative Altitude\*;

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54. Electronic Flight Instrument System (EFIS) Display Format\*: Pilot in Command and Second in Command;
  55. Multi-function/Engine/Warning Display Format\*;
  56. GPWS (Ground Proximity Warning System)/ TAWS (Terrain Awareness and Warning System)/ GCAS (Ground Collision Avoidance System) Status\*: Terrain Display Mode Selection (including Pop-up Display Status, Terrain Warning, Caution and Warning, and Advisory), On/Off Button Position;
  57. Low Pressure Warning\*: Hydraulics, Compressed Air Pressure;
  58. Computer Failure\*;
  59. Loss of Cabin Pressure\*;
  60. TVAS (Traffic Alert and Collision Avoidance System)/ Airborne Collision Avoidance System \*;
  61. Icing\*;
  62. Engine Warning Each Engine Vibration\*;
  63. Engine Warning Each Engine over Temp.\*;
  64. Engine Warning Each Engine Oil Pressure Low\*;
  65. Engine Warning Each Engine over Speed\*;
  66. Windshear Warning\*;
  67. Start-up of Stall Protection, stick shaker and stick pusher in Operation\*;
  68. All Cockpit Flight Control Input Forces\* (Control Wheel, Control Column, Rudder Pedal);
  69. Vertical Yaw\*: ILS Glideslope, MLS Elevation, GNSS Approach Flight Track;
  70. Horizontal Yaw\*: ILS Heading Deg. Beacon, MLS Azimuth, GNSS Approach Flight Track;
  71. DME 1 and 2 Distance\*;
  72. Primary Navigation System Reference\*: GNSS (Global Satellite. Navigation System), INS (Inertial Navigation System), VOR/DME (VHF Omnidirectional Radio Beacons/Distance Measuring Equipment), MLS (Microwave Landing System), Loran-C, Instrument Landing System (ILS);
  73. Brake\*: Left and Right Brake Pressure, Left and Right Brake Pedal Position;
  74. Date\*;
  75. Event Marker\*;
  76. Heads-up Display Usage\*;
  77. Para-visual Display Start-up\*.

Category I and Category II Flight Data Recorder

No	Parameters	Range	Sampling interval (per second)	Minimum accuracy (accuracy sensor input to DFDR readout)
1	Time (use GMT when available, or use elapsed time )	24 Hrs	4	±0.125% Per Hour
2	Barometer altitude	-300 meter (-1000 ft.)to +1500 meter (5000 ft.)to max cert. alt. of A/C	1	±30 meter to ±200meter (±100 ft. to ±700 ft.)
3	Indicated airspeed	95KPH (50 kts) to maximum Vs0 (Note 1) Vs0 to 1.2VD (Note 2)	1	±5% ±3%
4	Heading deg.	360 deg.	1	±2 deg.
5	Vertical Acceleration	-3g to +6g	0.125	±1% of max range excluding datum error of ±5%
6	Pitch Attitude	±75 deg.	1	±2 deg.
7	Roll Attitude	±180 deg.	1	±2 deg.
8	Radio Transmitter Keying	On-Off (Discrete)	1	
9	Thrust/Power on Each Engine (Note 3)	Full range	1 (per engine)	±2%
10	Trailing Edge Flap or Cockpit Control Selection	Full range or each discrete position	2	±5% or as pilot's indicator
11	Leading Edge Flap or Cockpit Control Selection	Full range or each discrete position	2	±5% or as pilot's indicator
12	Thrust Reverser Position	Stowed, in transit, and reverse	1 (per engine)	
13	Ground Spoiler Position/ Speed Brake Selection	Full range or each discrete position	1	±2%, unless higher accuracy uniquely required
14	Outside Air Temperature	Sensor range	2	±2°C
15	Autopilot/Auto Throttle/AFCS	Proper combination of all	1	

No	Parameters	Range	Sampling interval (per second)	Minimum accuracy (accuracy sensor input to DFDR readout)
	Mode and Engagement Status	discrete signals		
Note: the above 15 parameters satisfy the requirements of Category II Flight Data Recorder				
16	Longitudinal Acceleration	±1g	0.25	±1.5% of max range excluding datum error of ±5%
17	Lateral Acceleration	±1g	0.25	±1.5% of max range excluding datum error of ±5%
18	Pilot Input and/or Surface Position-Primary Controls (Pitch, Roll, Yaw) (Note4)	Full range	1	±2 deg. unless higher accuracy uniquely required
19	Pitch Trim Position	Full range	1	±3% unless higher accuracy uniquely required
20	Radio Altitude	-6 meter to 750 meter (-20ft. to 2500 ft.)	1	±0.6 meter (±2 ft.) or ±3%, whichever is greater below 150 meter (500 ft.) and ±5% above 150 meter (500 ft.)
21	Glideslope Deviation	range of signal	1	±3%
22	Localizer Deviation	range of signal	1	±3%
23	Marker Beacon Passage	Discrete	1	
24	Master Warning	Discrete	1	
25	Nav 1 and 2 Frequency Selection (Note 5)	Full range	4	As installed
26	DME 1 and 2 Distance (Note5 and Note 6)	0—370 Kilometers	4	As installed
27	Main Gear Squat Switch Status	Discrete	1	

No	Parameters	Range	Sampling interval (per second)	Minimum accuracy (accuracy sensor input to DFDR readout)
28	GPWS (ground proximity warning system)	Discrete	1	
29	Angle of Attack	Full range	0.5	As installed
30	Hydraulics, Each System (Low Pressure)	Discrete	2	
31	Nav Data (Longitude, Latitude, Ground Speed, and Drift Angle)(Note 7)	As installed	1	As installed
32	Landing gear or gear selector position	Discrete	4	As installed

Note: the above 32 parameters satisfy the requirements of Category I Flight Data Recorder.

Note 1 to 7:

Note 1: Vs0 stall speed or the minimum steady flight speed in the landing attitude.

Note 2. VD design diving speed.

Note 3. Record sufficient input signals to determine power.

Note 4. Apply “or” to fixed-wing airplanes with the routine operation system and apply “and” to fixed-wing airplanes with non-mechanic operation system. For fixed-wing airplanes with inconsistent control surface percentage, the replacement of individually recording every control surface with a proper input combination is acceptable.

Note 5. If the signal is available in digital form;

Note 6. Recording the longitude and latitude derived from INS or other navigation systems is an optimum alternative.

Note 7. If the signal is easy to obtain,

If larger recording capacity is available, the recording of the following additional information should be considered:

(a) The following priority order should be placed on the operation information from electronic display system, such as the Electronic Flight Instrument System, the Aircraft Integrated Electronic Monitor, and the Engine Indication Crew Alert System:

(1) Parameters about the required flight track selected by flight crew, such as air pressure setting, selected altitude, selected airspeed, decision height, and autopilot system engagement and mode indication (if not recorded from another source);

(2) Display system selection/status, such as SECTOR, PLAN, ROSE, NAV, WXR,

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COMPOSITE, COPY, etc;

(3) Warning and alert;

(4) Characteristics of emergency program and checklist display page.

(b) Deceleration information including brake use used in investigations such as over runway in landing and rejected takeoff;

(c) Additional engine parameters: engine pressure ratio, high pressure- revolution per minute (N1), exhaust gas temperature (EGT), fuel flow, etc.

(d) The above Flight Data Recorder (FDR) should be able to record the applicable parameters stipulated above. In view of the characteristics of aircraft types and recording equipment, however, those parameters can be replaced by other ones.

(e) In addition to the requirement that the recording length of the Category IIA Flight Data Recorder (FDR) should be not less than 30 minutes, sufficient information of the preceding takeoff should be kept for verification.

(f) Measurement range, sampling interval, and accuracy of recorded parameters of the installed equipment should meet the corresponding applicable airworthiness requirements of the Administrator and obtain the approval from the Administrator.

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## Appendix D Rotorcraft flight data recorder specifications

### Category IVA Flight Data Recorder

(1) All the parameters satisfying requirements of Category IVA Flight Data Recorder (FDR) are listed in the following paragraphs. The parameters not marked with the asterisk (\*) is the compulsory ones that should be recorded. In addition, parameters marked with the asterisk (\*) should be recorded when rotorcraft system or flight crew use information data sources of the parameters to control the rotorcraft.

The following are the parameters required to determine flight track and speed:

1. Barometer Altitude;
2. Indicated Airspeed;
3. Outside Air Temperature;
4. Heading Deg.
5. Normal Acceleration;
6. Lateral Acceleration;
7. Longitudinal Acceleration; (aircraft axis)
8. Time or Relative Time Count;
9. Flight Data\*: Drift Angle, Windspeed, Wind Direction, latitude/longitude;
10. Ground Speed\*;
11. Radio Altitude\*.

The parameters required to determine attitude are listed as follows:

12. Pitch Attitude;
13. Roll Attitude;
14. Yaw Angle.

The parameters required to determine engine power are listed as follows:

15. Engine Power: Free Power Turbine Speed ( $N_f$ ), Engine Torque, Engine Gas Generator Speed( $N_g$ ), Cockpit Power Controller Position;
16. Rotor: Main rotor speed, rotor brake;
17. Main Gear Box Oil Pressure\*;
18. Gear Box Oil Temperature\*: Main Gear Box Oil Temperature, Drive Gear Box Oil Temperature, Tail Rotor Gear Box Oil Temperature;
19. Engine Bleed Temperature ( $T_4$ )\*;
20. Turbine Inlet Temperature (TIT)\*.

The parameters required to determine configuration are listed as follows:

21. Landing Gear or Gear Selector Position\*;
22. Fuel Quantity\*;

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23. Water Content in Icing Sensor\*.

The parameters required to determine operation is listed as follows:

24. Low Hydraulic Pressure;

25. Warning;

26. Primary Flight Control-- input by Primary Flight Control Pilot and/or Control Output Position: Collective, Long. Cyclic, Lat. Cyclic, Tail Rotor Pedal, Controllable Stabilator, Hydraulic Selection;

27. Marker Beacon Passage;

28. Each Navigation Receiver Frequency Selection;

29. AFCS Mode and Engagement Status\*;

30. Trim and Stability Augmentation System Engagement\*;

31. Indicated Hanging and Loading Capacity\*;

32. Vertical Yaw\*: ILS Glide slope, MLS Elevation, GNSS Approach Flight Track;

33. Horizontal Yaw\*: ILS Heading Deg. Beacon, MLS Azimuth, GNSS Approach Flight Track;

34. DME 1 and 2 Distance\*;

35. Altitude Rate\*;

36. Water Content in Icing Sensor\*;

37. Health Usage and Monitoring System for Rotorcraft (HUMS)\*: Engine Data, Metal Filing Detector, Rotor Synchronization, Discrete Ultralimit, and Broadband Average Engine Vibration.

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Category V and Category IV Flight Data Recorder

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No	Parameters	Range	Sampling interval (per second)	Minimum accuracy (accuracy sensor input to DFDR readout)
1	Time (use GMT when available, or use elapsed time )	24 Hrs	4	±0.125% Per Hour
2	Barometer altitude	-300 meter (-1000 ft.) to +1500 meter (5000 ft.) to max cert. alt. of A/C	1	±30 meter to ±200meter (±100 ft. to ±700 ft.)
3	Indicated airspeed	Same as the installed measurement system	1	±3%
4	Heading deg.	360 deg.	1	±2 deg.
5	Normal Acceleration	-3g to +6g	0.125	±1%
6	Pitch Attitude	±75 deg.	0.5	±2 deg.
7	Roll Attitude	±180 deg.	0.5	±2 deg.
8	Radio Transmitter Keying	On-Off (Discrete)	1	
9	Thrust/Power on Each Engine (Note 1)	Full range	1 (per engine)	±2%
10	Main Rotor Speed	50% to 130%	0.5	±2%
11	Pilot Input and/or Control Surface Position-- Primary Flight Control (Rotor Collective, Long. Cyclic, Lat. Cyclic, Tail Rotor Pedal) (Note 2)	Full range	1	±2 deg., unless higher accuracy uniquely required
12	Each Hydraulic System (Low Pressure)	Discrete	2	
13	Outside Air Temperature	Sensor range	2	±2°C

No	Parameters	Range	Sampling interval (per second)	Minimum accuracy (accuracy sensor input to DFDR readout)
14	Autopilot/Auto Throttle/AFCS Mode and Engagement Status	Proper combination of all discrete signals	1	
15	Stabilizer System Engagement	Discrete	2	
Note: the above 15 parameters satisfy the requirements of Category V Flight Data Recorder				
16	Main Decelerator Oil Pressure	As installed	1	As installed
17	Main Decelerator Oil Temperature	As installed	2	As installed
18	Yaw Acceleration (or Yaw Rate)	±1g	0.25	±1.5% of max range, excluding datum error of ±5%
19	Hanging Force	0-200% of the authorized load	0.5	±3% of max range
20	Longitudinal Acceleration	±1g	0.25	±1.5% of max range excluding datum error of ±5%
21	Lateral Acceleration	±1g	0.25	±1.5% of max range excluding datum error of ±5%
22	Radio Altitude	-6 meter to 750 meter (-20ft. to 2500 ft.)	1	±0.6 meter (±2 ft.) or ±3%, whichever is greater below 150 meter (500 ft.) and ±5% above 150 meter (500 ft.)
23	Glideslope Deviation	range of signal	1	±3%
24	Localizer Deviation	range of signal	1	±3%
25	Marker Beacon Passage	Discrete	1	
26	Master Warning	Discrete	1	
27	Nav 1 and 2 Frequency	Full range	4	As installed

No	Parameters	Range	Sampling interval (per second)	Minimum accuracy (accuracy sensor input to DFDR readout)
	Selection (Note 3)			
28	DME 1 and 2 Distance (Note 3 and Note 4)	0—370 Kilometers	4	As installed
29	Navigation Data (Longitude, Latitude, Ground Speed) (Note 5)	As installed	2	As installed
30	Landing gear or gear selector position	Discrete	4	As installed

Note: the above 30 parameters satisfy the requirements of Category IV Flight Data Recorder.

Note 1. Record sufficient input signals to determine power.

Note 2. Apply “or” to rotorcraft with the normal operation system and apply “and” to rotorcraft with the non-mechanical operation system.

Note 3. If the signal is available in digital form.

Note 4. Recording the longitude and latitude derived from INS or other navigation systems is an optimum alternative.

Note 5. If the signal is easy to obtain,

If larger recording capacity is available, the recording of the following additional information should be considered:

(a) The following priority order should be placed on the operation information from electronic display system, such as the Electronic Flight Instrument System, the Aircraft Integrated Electronic Monitor, and the Engine Indication Crew Alert System:

(1) Parameters about the required flight track selected by flight crew, such as air pressure setting, selected altitude, selected airspeed, decision height, and autopilot system engagement and mode indication (if not recorded from another source);

(2) Display system selection/status, such as SECTOR, PLAN, ROSE, NAV, WXR, COMPOSITE, COPY, etc;

(3) Warning and alert;

(4) Characteristics of emergency program and checklist display pag.

(b) Additional engine parameters: engine pressure ratio, high pressure axis revolution per minute (N1), exhaust gas temperature (EGT), fuel flow, etc.

(c) The above Flight Data Recorder (FDR) should be able to record the applicable parameters stipulated above. In view of the characteristics of aircraft types and recording equipment, however, those parameters can be replaced by other ones.

(d) Measurement range, sampling interval, and accuracy of recorded parameters of the

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installed equipment should meet the corresponding applicable airworthiness requirements of the Administrator and obtain the approval from the Administrator.

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## **Appendix E Requirements on Water Platform Operation for Rotorcraft**

### General Rules

(a) Water platform for rotorcraft means a place for landing and takeoff of rotorcraft in a drifting or fixed building on sea surface, including water mobile platforms, mobile well drilling platforms, mobile oil extraction platforms, self-elevating oil extraction platforms, **fixed** platforms (namely semi-submersible platforms and bottom-supported platforms), surface platforms, etc. commonly known as rotorcraft deck.

(b) No water platform for rotorcraft may be put in use unless the specifications, facilities, standards, and operation conditions of it are assessed and authorized by CAAC or CAAC authorized agencies.

### Limitations on water platform for rotorcraft and obstructions

(c) The rotorcraft deck used for rotorcraft to land and take off on water platform and the obstruction sector shall comply with the following conditions:

(1) The rotorcraft deck can only be located in the 210 deg. of arrival/departure sector (refer to Figure-1);

(2) No fixed obstruction may be located in the 180 deg. of the 210 deg. sector of the rotorcraft deck or outside the area between the deck verge and the slope of 5:1 on water surface, as indicated in Figure-2;

(3) No deck for single-rotor rotorcraft or side-by-side double-rotor rotorcraft may be smaller than the round area with the diameter of the maximum length (D) of the rotorcraft in operation when the rotor is rotating; facilities higher than 0.25 meter to the deck level of the rotorcraft deck shall be located in the 150 deg. sector with point A in Figure-3 as the center of circle on the side of the main takeoff/landing area with the height limitation as indicated in Figure-3;

(4) No deck for tandem double-rotor rotorcraft may be smaller than the round area with 0.9D of the rotorcraft in operation as the diameter, while the limitation on obstructions in 150 deg. sector is indicated as Figure-4;

(5) A tandem double-rotor rotorcraft may land and take off at the rectangular rotorcraft deck in a bidirectional manner with the direction parallel to the length of the deck, if the rotorcraft deck complies with the following conditions:

- i. The length is not less than 0.9 D;
- ii. The width is not less than 0.75 D;
- iii. The 150 deg. sector is located on the side of the length of the rectangular rotorcraft deck.

Rotorcraft deck and limitations on obstructions in the 150 deg. sector are illustrated in Figure-5

(6) If a rotorcraft deck is strictly restricted to daytime use with the windspeed not more than 0.5 time of the maximum windspeed specified in the Flight Manual of the rotorcraft in operation, stable flow, ceiling of more than 300 meters, and visibility of more than 5 kilometers—

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i. Single-rotor rotorcraft may land and take off at the rotorcraft deck with the diameter as the rotor diameter (RD) of the rotorcraft in operation, and limitations on obstructions in the 180 deg. sector are illustrated in Figure-6;

ii. Tandem double-rotor rotorcraft may land and take off at the rotorcraft deck with the diameter of not less than 0.75 time of the rotor diameter (RD) of the rotorcraft in operation, and limitations on obstructions in the 180 deg. sector are illustrated in Figure-6.

(d) No rotorcraft deck in Sea surface ships may be used for landing and takeoff for rotorcraft, unless specifications of or obstruction limitations on it comply with requirements in Figure-7 or Figure-8.

#### Lighting and air aviation aids

(a) No rotorcraft water platform may be used during nighttime unless, for landing and takeoff by rotorcraft during nighttime, the landing area is furnished with a searchlight that is installed at such position and angle as to ensure that the beam of light shines at the center of the landing circle and does not hamper the pilot's line of sight or operations.

(b) No rotorcraft water platform may be used during nighttime unless it is furnished on its border with border lights of the wavelength of 570 to 590 nanometers, the color of yellow or an alternation of yellow and blue, and the distance of not more than 3 meters. When the lights are furnished with necessary light filters or light lens, the luminous intensity of the lights shall be not less than 15.2 candela (cd). The installation height of the lights shall not be lower than the deck level or higher than 0.25 meter to the deck level.

(c) If any obstruction of 3 to 15 meters higher than the deck level exists in the area from point A to the round area with the center of the landing circle as the center of circle and diameter as 0.83 D within the 150 deg. sector (refer to Figure-3), an omni-directional red light with the luminous intensity of not less than 10.2 candela (cd) shall be installed in appropriate position or an floodlight shall be used. If any obstruction of more than 15 meters to the deck level exists within the 150 deg. sector but outside the round area with the center of the landing circle as the center of circle and diameter as 0.83 D (refer to Figure-3), an omni-directional red light with the luminous intensity of 25.48 to 203.8 candela (cd) shall be installed at the highest point of the obstruction or obstruction cluster. If an obstruction is higher than 45 meters to the deck level, obstruction lights shall be installed on the middle layer between the top lights and platform with equal distance of not more than 45 meters between each two neighboring ones.

(d) If any obstruction of more than 3 meters exists in the area from the center of the landing circle to 1.5 times of the maximum length of the rotorcraft in operation within the 150 deg. sector (refer to Figure-3), a stripe hoop with the width of 0.5 to 0.6 meter and the color of an alternation of orange and white, red and white, or black and white shall be used to indicate the obstruction.

(e) The rotorcraft platform shall be furnished with a transmitter (HF and VHF), Non-Directional Radio beacons (NDB) and meteorological guarantee facilities (such as weather vane, anemograph, field elevation atmospheric pressure meter, thermometer, etc.) with the performance meeting the requirements of performing flight tasks.

#### Marks

An identification mark with the size of 1.2 x 1.2 meters shall be painted in white at the specified position (refer to Figure-1) on the rotorcraft deck to indicate the water platform. The rotorcraft deck shall be painted in dark gray or dark green with border painted as white band of the width of 0.3 to 0.4 meter. The landing circle shall be painted in yellow at the center of

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the rotorcraft water platform, with the width of 1 meter and the internal diameter equal to 0.5 time of the maximum rotorcraft length (D). The center of the landing circle shall be painted as a white “H” with the size of 4×2.4 meters and stroke width of 0.4 meter (refer to Figure-1).

#### Safety facilities

(a) The rotorcraft deck surface shall be furnished with antiskid net or equivalent facilities, while the deck border shall be furnished with safety net with the width of not smaller than 1.5 meters and the external safety net brim shall not be higher than 0.15 meter to the deck border.

(b) The rotorcraft deck shall be furnished with embedded fastening appliances, of which the quantity, positions and strength shall meet the requirements of securely fastening the rotorcraft parking on the platform.

(c) Fire and ambulance facilities and emergency equipment shall be located at positions easy to access near the rotorcraft platform and shall be indicated by prominent marks.

(d) Rotorcraft performing water platform flight tasks shall be furnished with floating survival facilities that are permanent or quickly opened (such as float, life preserver, life raft, etc.).

#### Operation

(a) Except for necessary persons on duty, no person may stay on rotorcraft deck during takeoff or landing of a rotorcraft. No object hampering the landing or takeoff a rotorcraft may exist on the rotorcraft deck. Passengers shall get on or get off a rotorcraft in accordance with the specified course.

(b) Windspeed limitations on rotorcraft during takeoffs and landing at water platform shall be determined in accordance with the requirements in the Rotorcraft Flight Manual.

(c) No pilot may take off or land at the ship rotorcraft deck on the move, unless the pilot has received strict training and correctly understand the speed and roll angle of the ship before landing. The pilot shall inquire the person on duty of the longitudinal and lateral maneuver data before landing at the ship rotorcraft deck and shall not land at it if the data exceeds the requirements in the manual for that rotorcraft type.

(d) Rotorcraft pilot may establish landing/takeoff route in accordance with the meteorological conditions reported by the person on duty at the water platform with reference to the wind vane (wind sack) and ocean wave. When not sure of performing safe operation, the pilot shall perform overhead observation at the height of more than 50 meters to obstructions at the speed of not less than the economic speed. No platform cluster located in the area with the main platform as the center of circle and radius of 3 kilometers may be used for landing or takeoff by rotorcraft under the command of the person on duty at the main platform, unless the platforms are strictly restricted to daytime operations with the ceiling of more than 200 meters and visibility of more than 3 kilometers.

(e) Rotorcraft pilot performing water platform operations shall carefully calculate takeoff weight and shall not exceed limitations on person number, load weight, or weather standard. No rotorcraft may increase speed unless a hovering inspection has been performed on it to ensure that the engine works normally and has remaining power during out-of-ground-effect takeoff.

(f) No person may assume the position of the pilot in command of a rotorcraft performing the water platform operation unless the person—

(1) Has received water platform dual instruction flights, mastered flight techniques to take off and landing at water platform, had over-sea flight experiences of more than 100 hours,

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been familiar with over-sea flight characteristics, certificated through tests on flight theory and technology, and obtained the technical authorization to perform over-sea flights as a pilot in command;

(2) Has obtained the airline transport pilot license;

(3) Has passed flight inspection so as to resume water platform flights when not performing over-water flights during nighttime or daytime for 90 days or more.

(g) No foreign rotorcraft pilot may perform any water platform flight task within territorial seas of the People's Republic of China, unless the pilot has passed the license recognition procedures at CAAC and received dual proficiency instruction flights.

(h) Minimum weather conditions for rotorcraft pilot to perform visual take-offs and landing at water platform are as follows:

(1) Ceiling height is 200 meters and visibility is 3 kilometers during daytime;

(2) Ceiling height is 300 meters and visibility is 5 kilometers during nighttime.

(i) Minimum weather conditions for rotorcraft pilot to perform instrument approach using platform navigation station are as follows:

(1) Minimum descent altitude equals to derrick height plus 80 meters when using an altimeter;

(2) Minimum descent altitude equals to derrick height plus 60 meters when using a radio altimeter;

(3) Minimum ceiling height equals to minimum descent altitude plus 10 meters;

(4) Daytime visibility is one kilometer and nighttime visibility is 1.5 kilometers.

(j) Minimum weather conditions for rotorcraft pilot to perform instrument approach using airborne radar/navigation station during daytime are as follows:

(1) Minimum descent altitude is 90 meters, ceiling height is 100 meters, and visibility is 1 kilometer, when using an altimeter;

(2) Minimum descent altitude is 60 meters, ceiling height is 70 meters, and visibility is 1 kilometer, when using a radio altimeter;

(k) Minimum weather conditions for rotorcraft pilot to perform instrument approach using airborne radar/navigation station during nighttime are as follows:

(1) Minimum descent altitude is 120 meters, ceiling height is 130 meters, and visibility is 1.5 kilometers, when using an altimeter;

(2) Minimum descent altitude is 90 meters, ceiling height is 100 meters, and visibility is 1.5 kilometers, when using a radio altimeter;

(l) Rotorcraft water platform operators shall, in accordance with section 135.41 hereof, add applicable parts of the water platform into their respective operation manuals.

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## Remarks on Operation Certification of Small Aircraft Commercial Transport Operators

The *Rules on Operation Certification of Small Aircraft Commercial Transport Operators* (referred to as this regulation hereinafter or CCAR 135) was drafted since the beginning of 2001 and was formulated after repeated researches and revisions, with the purpose of standardizing operations by operators using aircraft with small takeoff weight or transport capacity for commercial transport. The relevant issues are stated as follows:

### 1. The necessity of formulating this regulation

Recent years have witnessed rapid development of China's civil aviation activities. China's operation management regulations on civil air operators, however, are still far from developed and systematic due to historical reasons and lag behind the requirements by ICAO on the strictness of operation management and operation standards. In accordance with the plan decided by CAAC to formulate the civil aircraft operation regulation system, the aircraft operation regulations mainly consist of the *Rules on General Operations and Flights* (CCAR 91), *Rules on Operation Certification of Small Aircraft Commercial Transport Operators* (CCAR 135), and *Rules on Operation Certification of Large Airplane Public Air Transport Carriers* (CCAR 121), of which CCAR 91 is the basic regulations applied to all civil aircraft operating in China's airspace, and CCAR-121 and 135 are formulated on the basis of CCAR-91 and impose higher operation standards on large airplane public air transport carriers and small aircraft commercial transport operators. CCAR-135 applies to transport flights performed by rotorcraft, single-engine aircraft, and multi-engine aircraft with small takeoff weight or transport capacity, while CCAR 121 applies to transport flights performed by all the other multi-engine airplanes with large takeoff weight or transport capacity.

Among the aforementioned regulations, CCAR 121 has been promulgated in 1999 while CCAR 91 has been promulgated on Jan. 14, 2004. Therefore, the formulation of this regulation will improve China's civil aircraft operation regulation system and provide effective basis for management on fast-developing applicable aircraft transport flights in China.

### 2. Basis and principles of the formulation

This regulation is formulated in accordance with the Civil Aviation Law of the People's Republic of China and the Decisions by the State Council on the Establishment of the Administrative Licensing for Items Requiring Preserved Administrative Examinations and Approvals, while applicable standards and recommended measures in Appendix VI and other appendices to the Convention on International Civil Aviation, the Federal Aviation Regulations of the United States, and the Joint Aviation Requirements of Europe have been applied to the operation experiences accumulated for many years and actual circumstances of China. The following principles are taken into consideration during the formulation of this regulation:

#### Combining advanced standards with feasibility

We place the priority on advanced standards compared with feasibility so as to enhance the development of the operation safety level. Taking into consideration the actual circumstances of China, however, we avoid formulating standards too high. Although ICAO has formulated applicable operation standards on transport operations by airplanes and

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helicopters in the first and third parts of Appendix VI to the *Convention on International Civil Aviation*, some provisions in this appendix are too high for the air transport by small aircraft, most of which are domestic flights, because the aircraft applicable to this appendix is aircraft performing “international commercial air transport” and the appendix does not make different standards on aircraft with different takeoff weight. Therefore, we have referred to some specific standards and acts of the United States and Europe and appropriately lowered requirements on such operations on the basis of Appendix VI. As a result, the operation safety and economic interests are combined and we hence ensure that China’s applicable safety standards are basically consistent with those of developed countries and facilitate the steady development of small aircraft commercial transport.

(2) Achieving compatibility with CCAR 121 and CCAR 91

The purpose of issuing operation certificates and operations specifications is to enhance the operation safety level of various types of air operators.

CCAR 121 and CCAR 91 have specified requirements on issuing operation certificates and operations specifications for large airplane public air transport carriers and commercial non-transport operators respectively, while this regulation manages the operators other than the aforementioned two operator types, namely small aircraft commercial transport operators. The three regulations are distinguished through civil aircraft types used by different air operators and operation categories in stead of business license types held by air operators, namely business licenses for public air transport enterprises or general aviation enterprises. Therefore, there is no need to apply the safety standards on public air transport enterprises to general aviation operations.

(3) Maintaining the international applicability of this version

International general format is adopted on the composition and format of this regulation and alternate provisions are preserved so as to maintain the international applicability of the version of this regulation, hence facilitating future revisions and supplementations.

3. Descriptions of policy issues

(1) Applicability

This regulation applies to the following public air transport flights conducted by air carriers established in the People’s Republic of China in accordance with applicable laws:

a. Scheduled passenger-carrying flights performed by using single-engine airplanes, rotorcraft, or multi-engine airplanes with the maximum takeoff weight of not more than 5,700 kilograms;

b. Unscheduled passenger-carrying flights performed by using single-engine airplanes, rotorcraft, or multi-engine airplanes that have a passenger seating configuration, excluding any pilot seat, of not more than 30 and a maximum commercial load of not more than 3,400 kilograms;

c. Cargo-only transport flights performed by using single-engine airplanes, rotorcraft, or multi-engine airplanes that have a maximum commercial load of not more than 3,400 kilograms.

Among the aforementioned applicability of CCAR -135, the unscheduled passenger-carrying flights and cargo-only flights performed by using multi-engine airplanes that have a maximum takeoff weight of more than 5,700 kilograms, a passenger seating configuration of not more than 30, and a maximum commercial load of not more than 3,400

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kilograms are originally bound by CCAR-121. However, since these operation requirements are too high during the actual enforcement of CCAR -121, which hampers to the development of small airlines and charter airlines. Therefore, referring to FAA acts, we have decided to move these requirements into CCAR -135, and hence required to make applicable revisions to the applicability of CCAR- 121 during the revision to CCAR -121.

(2) Similarities and differences between CCAR- 135 and CCAR- 121

CCAR- 135 and CCAR- 121 perform management on commercial transport operators and public air transport carriers respectively with primarily the same management procedures. After the promulgation of this regulation, the Administrator shall perform operation certifications on commercial transport operators in accordance with this regulation, including certifications on applicable manuals, programs, materials, equipment, persons, and proving demonstrations of the performed operations, etc. No applicant may be granted with the operation certificate and operations specification and authorized to perform operations, unless it proves the actual compliance with this regulation and other applicable requirements and its ability to perform safe operations. Flight standards offices of the Administrator shall perform continuous supervision on any commercial transport operator granted with its operation certificate, so as to ensure the compliance of its operations with the requirements of applicable regulations. When such cases involving a revision to the operations specification of a commercial transport operator as operation category changes, new aircraft type introductions, and airline changes happen, the operator shall submit application for such revisions, on which persons from the flight standards office shall perform the applicable supplemental certification in accordance with the procedure; any revision to the operation manuals and programs of the carrier is subject to approval of the flight standards office of the Administrator. In this way, the certification and continuous supervision ensures carriers' operations are based on safety and reliability. However, since sizes and transport capacities vary with aircraft in operation and actual operations under CCAR- 121 are mainly scheduled flight operations and those under CCAR- 135 are mainly unscheduled ones, the specific operation safety standards of CCAR -121 are higher than those of CCAR -135. Take the operation control requirements as an example, CCAR- 121 requires carriers to establish a flight dispatch system to perform dispatch and release of aircraft jointly by a flight dispatcher and a pilot in command and requires scheduled passenger-carrying aircraft to establish communications with the dispatch room during the whole flight, while CCAR -135 only requires carriers to establish a flight locating system instead of designating a flight dispatcher or establishing communications during the whole flight. On other aspects such as training and qualification requirements on crewmembers, aircraft equipment, aircraft performance, crewmember duty time limitations, requirements of CCAR -135 are lower than those of CCAR- 121.

(3) Briefing on some specific provisions

1. On the assignment of the second in command

This regulation does not generally require a second in command to be assigned to any aircraft. Some provisions of this regulation specify aircraft type and operations to which the second in command is assigned. In accordance with requirements of section 135.99 hereof, a second in command shall be assigned to aircraft for which two pilots are required by type certification, while in accordance with requirements of section 135.101 hereof, a second in command shall be assigned to aircraft performing passenger-carrying operations under IFR. However, if a carrier is authorized by its operations specification to replace the second in command with autopilot and the pilot in command has served as pilot in command for 100 hours on this aircraft type, second in command may not be assigned to the aircraft. In

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accordance with requirements of section 135.111 hereof, a second in command shall be assigned to category II operations, while in accordance with requirements of section 135.263 hereof, a second in command shall be assigned to operations in which duty period or flight time is long. Therefore, whether or not a second in command is assigned to operations under this regulation shall be decided after considering all the aforementioned requirements.

## 2. Time limitations on the service of pilot

In recent years, the shortage of civil aircraft pilots has limited the development of the air transport to a great extent. Weighing regulation technical standards, air transport demands in underdeveloped areas, technology and physical conditions of pilots, and acts in developed countries on aviation against each other, we do not impose any hard and rigid requirements in this regulation on time limitations on the service of pilots serving commercial transport operators operating under CCAR-135, with the purpose of effectively facilitating and promoting the rapid development of China's air transport performed by using small aircraft on the premise of ensuring flight operation safety.

## 3. Recurrent training and instrument proficiency checks for pilots

This regulation requires the interval of pilot recurrent training as once every 12 calendar months, so this requirement is lower than that of CCAR- 121. However, different from pilots operating under VFR, those operating under IFR shall receive instrument proficiency check once every 6 calendar months. The practical significance of this requirement lies in that commercial transport operators operating under VFR have the autonomy to train their pilots on the one hand, and that the proficiency of pilot skills during such complex operations as those under IFR are ensured, pilots are prevented from being unskilled on some operation techniques owing to long interval of the recurrent training, and hence the technical level of pilots of small aircraft is ensured on the other hand.

## 4. Operation controls

Being similar with CCAR- 121, section 135.77 hereof also requires certificate holders to be responsible for their respective operation controls. However, CCAR -121 clearly requires air carriers to establish a dispatch system and specify in detail the liabilities that pilots in command and flight dispatchers shall bear on operation controls. In contrast, CCAR -135 does not require certificate holders to designate the flight dispatcher, it requires, however, in section 135.77 hereof that a certificate holder shall clarify in its operation control procedures the liabilities that pilots in command shall bear on aircraft release and does not require the clarification of detailed liabilities of pilots in command. Therefore, certificate holders operating under this regulation enjoys great autonomy on the establishment of their respective operation control systems and may in accordance with the complexity of their operations establish systems in different form. Take the example of scheduled passenger-carrying operations performed by using small aircraft, a system managed jointly by a flight dispatcher and a pilot in command may be established with reference to requirements of CCAR- 121. However, a simple locating system completely managed by a pilot in command may be established for unscheduled flights or seasonal air touring on the premise that the certificate holder shall be competent to prove to the Administrator its ability to perform effective control on its operations.

## 5. Crewmember flight time and duty period limitations and rest requirements

Requirements that the Federal Aviation Regulations (FAR) Part 135 of the United States imposes on crewmember flight time, duty period, and rest are not strict and far from those in FAR Part 121. Considering that the flight intensity of small aircraft and rotorcraft is not less than that of large aircraft, we have decided to adopt standards similar to those of CCAR- 121.

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Time limitations on daily flight and duty of flight crew members are not so strict as CCAR-121 to maintain the flexibility of flights managed by CCAR-135, while the flight hour requirements on flight crew members in every week, month, and year are consistent with those of CCAR-121, namely 40, 100, and 1000 hours respectively. In addition, we have imposed the daily flight time limitation on cabin attendants and the requirements that no cabin attendant may fly for more than 40, 120, and 1300 hours in any 7 consecutive calendar days, any month, and any year respectively.