Civil Aviation Administration of China

CAAC Order 188

General Operating and Flight Rules

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Order of Civil Aviation Administration of China
No.188

General Operating and Flight Rules (CCAR-91-R$_2$), which were adopted at the executive meeting of the Civil Aviation Administration of China on August 30, 2007, are hereby promulgated and shall come into force as of November 22, 2007.

Director General Yang Yuanyuan
September 10, 2007

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Chapter A General

91.1 Purpose and basis

This regulation is developed with a view to specifying the civil aircraft operating, and ensuring flight regularity and safety, in accordance with Civil Aviation Law of the People's Republic of China.

91.3 Applicability and definitions

(a) The regulation prescribes rules governing the flight and operation of civil aircraft (other than moored balloons, kites, unmanned rockets, and unmanned free balloons) within the People's Republic of China (not including Hongkong or Macao). For public air transportation operation, besides the applicable flight and operation rules of this regulation, it shall also comply with the rules in the public air transportation operation regulations.

(b) When a civil aircraft registered in the People's Republic of China operates outside the People's Republic of China, it shall comply with the rules in Chapter G of this regulation.

(c) When ultralight vehicles operate within the People's Republic of China, it shall comply with the rules in Chapter O of this regulation but is unnecessary to comply with the rules in other chapters.

(d) Each person on board a civil aircrafts operated under this regulation shall comply with the applicable rules of this regulation.

(e) For the purpose of this regulation, the terms are defined in appendix A Definitions.

91.5 Responsibility and authority of the pilot in command of a civil aircraft

(a) The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.

(1) The pilot in command of an airplane. The pilot in command is responsible for the safety of all crew members, passengers, and cargo onboard. The pilot in command shall also be responsible for the airplane operation and safety from the moment an airplane first moves for the purpose of taking off until the moment it finally comes to rest at the end of the flight and the engine as major powerplant shuts down, and is the final authority as to the operation of that airplane.

(2) The pilot in command of a rotorcraft. The pilot in command is responsible for the safety of all crew members, passengers, and cargo onboard, and also responsible for the rotorcraft operation and safety from the moment the engine starts up until the moment the rotorcraft comes to rest at the end of the flight, the engine shuts down, and rotor blades stop running.

(b) In an in-flight emergency

(1) The pilot in command shall ensure to instruct all people onboard taking proper emergency actions in an in-flight emergency.

(2) In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this regulation to the extent required to ensure the safety of that aircraft and its personnel.

(c) Each pilot in command who deviates from a rule under paragraph (b) of this section shall, upon the request of the Administrator, send a written report of that deviation to the Administrator.

(d) In an emergency endangering aircraft or personnel safety, if actions violating local regulations or procedures must be taken, the pilot in command shall notify local Authority without hesitation. If the State of an incident requires, the pilot in command shall submit a report to the related Authority of that State to explain the violation; meanwhile, the pilot in command shall also submit a copy of that report to the country of registry. The report must be submitted as early as

practical and normally within 10 days.

(e) The pilot in command shall be responsible to take available and quickest means to notify the nearest Authority of any aircraft accident that resulted in serious injury or death, serious damage of aircraft or property.

91.7 Pilots of an aircraft

(a) The pilot of an aircraft shall comply with the applicable requirements of license, rating, training, examination, check, and aviation experience in CCAR-61 depending on the aircraft class flown by him/her, title and nature and type of operations, and comply with the requirements of this regulation and appropriated operation regulations.

(b) The pilot of an aircraft in commercial flights for remuneration or hire shall at least hold a commercial pilot certificate (CPL) and applicable aircraft rating and operation permission.

(c) The pilot providing civil aircraft operating service for others and obtaining remuneration from the service, shall at least hold a CPL and applicable aircraft rating and operation permission.

91.8 General rules of flight crew

(a) The composition and number of flight crew may not be less than the standards specified in the flight manual or other documents relating to airworthiness certificate.

(b) The pilot in command must ensure each flight crewmember holds a current license with proper rating which is issued or accepted by the country of registry, and the pilot in command must be satisfied with the competence of flight crewmembers.

(c) The pilot in command must be responsible to ensure that:

(1) If any flight crewmember can't fulfill his/her duties due to injury, sick, fatigue, influence of alcohol or drug, don't commence the flight;

(2) When the performing ability of flight crewmembers obviously reduces due to fatigue, sick, and anoxic etc., don't continue flight beyond the nearest airport.

91.9 Civil Aircraft Airworthiness

(a) No person may operate a civil aircraft unless it is in an airworthy condition.

(b) The pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when un-airworthy mechanical, electrical, or structural conditions occur.

91.11 Civil aircraft flight manual, marking, and placard requirements

(a) Except as provided in paragraph (d) of this section, no person may operate a civil aircraft without complying with the operating limitations specified in the approved Airplane or Rotorcraft Flight Manual, markings, and placards, or as otherwise prescribed by the certificating authority of the country of registry.

(b) No person may operate a civil aircraft registered in the People's Republic of China unless there is available in the aircraft a current, approved Airplane or Rotorcraft Flight Manual or the manual provided for in § 121.137 (b) of this regulation. The manuals shall use the language that the crew may properly understand.

(c) No person may operate a civil aircraft registered in the People's Republic of China unless that aircraft complies with the nationality markings, registration markings, and identification requirements specified in CCAR-45.

(d) Any person taking off or landing a rotorcraft certificated under CCAR-29 as a transport category rotorcraft, at a heliport constructed over water may make such momentary flight as is necessary for takeoff or landing through the prohibited range of the limiting height/speed envelope established for the rotorcraft if that flight through the prohibited range takes place over water on which a safe ditching can be accomplished and if the rotorcraft is:

(1) Amphibious;
(2) Equipped with floats; or
(3) Equipped with other emergency flotation gear adequate to accomplish a safe emergency ditching on open water.

91.13 Prohibition on interference with crewmembers

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

91.15 Careless or reckless operation

No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

91.17 Dropping objects

No pilot in command of a civil aircraft may allow any object to be dropped from that aircraft in flight that creates a hazard to persons or property. However, this section does not prohibit the dropping of any object if reasonable precautions are taken to avoid injury or damage to persons or property.

91.19 Limitations on alcohol or drugs

(a) No person in the following situations may act or attempt to act as a crewmember of a civil aircraft:
(1) Within 8 hours after the consumption of any alcoholic beverage;
(2) While under the influence of alcohol;
(3) While using any drug that affects the person's faculties in any way contrary to safety; or
(4) While having 0.04 percent by weight or more alcohol in the blood.
(b) Except in an emergency, no pilot of a civil aircraft may allow a person who appears to be intoxicated or who demonstrates by manner or physical indications that the individual is under the influence of drugs (except a medical patient under proper care) to be carried in that aircraft.
(c) A crewmember shall, upon request by the Administrator, submit to a test to indicate the percentage by weight of alcohol in the blood by the officer or authorized person. Whenever the Administrator has a reasonable basis to believe that a person may have violated paragraph (a) (1), (a) (2), or (a) (4) of this section, that person shall, upon request by the Administrator, furnish the Administrator the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates percentage by weight of alcohol in the blood.
(d) Whenever the Administrator has a reasonable basis to believe that a person may have violated paragraph (a) (3) of this section, that person shall, upon request by the Administrator, furnish the Administrator the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates the presence of any drugs in the body.
(e) Any test information obtained by the Administrator under paragraph (c) or (d) of this section may be evaluated in determining a person's qualifications for any airman or aviation-related license, or possible violations of the civil aviation rules of the People's Republic of China.

91.21 Carriage of narcotic drugs, marijuana, and depressant or stimulant drugs or substances

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft within the People's Republic of China with knowledge that narcotic drugs, marijuana, and

depressant or stimulant drugs or substances as defined in applicable laws are carried in the aircraft.

(b) Paragraph (a) of this section does not apply to any carriage of narcotic drugs, marijuana, and depressant, or stimulant drugs or substances authorized by or under any law or by any government agency.

91.23 Portable electronic devices

(a) Except as provided in paragraph (b) of this section, no person may operate, nor may any operator or pilot in command of an aircraft allow the operation of, any portable electronic device on any of the following civil aircraft registered in the People's Republic of China:

(1) Aircraft operated in public air transportation;

(2) Any other aircraft while it is operated under instrument flight rules (IFR).

(b) The following portable electronic devices may be used on a civil aircraft:

(1) Portable voice recorders;

(2) Hearing aids;

(3) Heart pacemakers;

(4) Electric shavers; or

(5) Any other portable electronic device that the operator of the aircraft has determined will not cause interference with the navigation or communication system of the aircraft on which it is to be used.

(c) In the case of an aircraft operated under the public air transportation operation regulations, the determination required by paragraph (b) (5) of this section shall be made by that operator of the aircraft on which the particular device is to be used. In the case of other aircraft, the determination may be made by the aircraft operator or by the pilot in command.

91.25 Requirement of clause identifying status of compliance, and operational control responsibility in leases and conditional sales contracts

(a) Except as provided in paragraph (b) of this section, the parties to a lease or contract of conditional sale involving a large civil aircraft registered in the People's Republic of China shall execute a written lease or contract which contains the following with respect to each such aircraft:

(1) Identification of the CAAC Regulations under which the aircraft has been maintained and inspected during the 12 months preceding the execution of the lease or contract of conditional sale, and certification by the parties thereto regarding the aircraft's status of compliance with applicable maintenance and inspection requirements in this regulation;

(2) The name and address, the signature and the legal liability of the person responsible for operational control of the aircraft;

(3) Compliance with the articles about operational control privilege and obligation specified in this regulation and other applicable rules and regulations.

(b) The requirements of paragraph (a) do not apply:

(1) One of the two parties is a foreign air carrier or certificate holder under CCAR-121 and other public air transportation rules; or

(2) The aircraft involved has not been registered anywhere prior to the execution of the contract.

(c) No person may operate a large civil aircraft registered in the People's Republic of China to which paragraph (a) of this section applies, unless:

(1) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the People's Republic of China, has mailed a copy of the lease or contract that complies with the requirements of paragraph (a) of this section, within 24 hours of its execution, to the aircraft registration department of the Administrator;

(2) A copy of the lease or contract that complies with the requirements of paragraph (a) of this section is carried in the aircraft. The copy of the lease or contract shall be made available for review upon request by the Administrator; and

(3) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the People's Republic of China, has notified the CAAC office nearest the airport where the flight will

originate. Unless otherwise authorized by that office, the notification shall be given at least 48 hours before takeoff in the case of the first flight of that aircraft under that lease or contract and inform the Administrator of -

(i) The location of the airport of departure;

(ii) The departure time; and

(iii) The registration number of the aircraft involved.

(d) The Administrator has the obligation to keep the copy of the lease or contract furnished to the Administrator under paragraph (c) of this section confidential and will not made the copy exposure unless otherwise specified by the rules.

(e) For the purpose of this section, a lease means any agreement by a person to furnish an aircraft to another person for remuneration or hire, whether with or without flight crewmembers, other than an agreement for the sale of an aircraft and a contract of conditional sale. The person furnishing the aircraft is referred to as the lessor, and the person to whom it is furnished the lessee.

Chapter B Flight Rules

91.101 Applicability

This chapter prescribes flight rules governing the operation of civil aircraft within the People's Republic of China.

91.102 Performance operating limitations in operations

(a) Airplane performance operating limitations in operations shall comply with:

(1) Articles specified in Airworthiness Certificate or approved equivalent documents;

(2) Within operating limitations specified by the certification authority of the country of registry;

(3) Within the weight limitations specified in noise certification standards of CCAR-36 except the competent authority of the country where the airport is located has specially approved that an airport or runway is free from noise interference.

(b) Helicopter performance operating limitations in operations shall comply with:

(1) Articles specified in Airworthiness Certificate or approved equivalent documents;

(2) Within operating limitations specified by the certification authority of the country of registry;

(3) Within the weight limitations specified in noise certification standards of CCAR-36 except the competent authority of the country where the takeoff and landing airport is located has specially approved that the takeoff and landing airport is free from noise interference.

91.103 Preflight preparation

Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include:

(a) For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts of departure and destination airport, fuel requirements, alternatives available if the planned flight cannot be completed, and available NOTAM and any known traffic delays of which the pilot in command has been advised by air traffic control (ATC); and

(b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:

(1) For civil aircraft, for which an approved Airplane or Rotorcraft Flight Manual is required, the takeoff and landing distance data contained therein; and

(2) For civil aircraft other than those specified in paragraph (b) (1) of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

91.104 General rules for taxi operation

No aircraft may taxi in an airport movement area unless the operator:

(a) Has formally authorized by the aircraft owner or lessee of leased aircraft or designated organization;

(b) Is competent for aircraft taxiing;

(c) Has the qualification to use radio communication equipment if radio communication is necessary;

(d) Has received the training on airport layout, if applicable, related routes, symbols, marks, lighting, ATC signal and instruction, terms and procedures etc., and can obey the operation standards necessary for aircraft safe movement at an airport.

91.105 Flight crewmembers at stations

(a) During the whole flight phase from takeoff to landing, each required flight crewmember shall:

(1) Be at the crewmember station unless the absence is necessary to perform duties in connection with the operation of the aircraft or in connection with physiological needs; and

(2) Keep the safety belt fastened while at the crewmember station.

(b) Each required flight crewmember of a civil aircraft registered in the People's Republic of China shall, during takeoff and landing, keep his shoulder harness fastened while at his assigned duty station. This paragraph does not apply if:

(1) The seat at the crewmember's station is not equipped with a shoulder harness; or

(2) The crewmember would be unable to perform required duties with the shoulder harness fastened.

91.107 Use of safety belts, shoulder harnesses, and child restraint systems

(a) Unless otherwise authorized by the Administrator, the following requirements shall be complied with during flight:

(1) No pilot may take off a civil aircraft registered in the People's Republic of China (except a free balloon that incorporates a basket or gondola) unless the pilot-in-command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's safety belt and, if installed, shoulder harness.

(2) No pilot may cause to be moved on the surface, take off or land a civil aircraft registered in the People's Republic of China (except a free balloon that incorporates a basket or gondola) unless the pilot in command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's safety belt and, if installed, shoulder harness.

(3) Except as provided in this paragraph, each person on board a civil aircraft registered in the People's Republic of China (except a free balloon that incorporates a basket or gondola) must occupy an approved seat or berth with a safety belt and, if installed, shoulder harness, properly secured about the person during movement on the surface, takeoff, and landing. For seaplane and float equipped rotorcraft operations 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 of this paragraph, a person may -

(i) Be held by an adult who is occupying a seat or berth if that person has not reached his or her second birthday;

(ii) Use the floor of the aircraft as a seat, provided that the person is on board for the purpose of engaging in sport parachuting; or

(iii) Occupy an approved child restraint system provided that the child is accompanied by 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 approved child restraint system must bear the appropriate labels to show it is certified for use in aircraft. The restraint system must be properly secured to an approved forward facing seat or berth, and the child must be properly secured in the restraint

system and must not exceed the specified weight limit for the restraint system.

(b) Unless otherwise stated, this section does not apply to operations conducted under Part 121 and other public transportation operation regulations. Paragraph (a)(3) of this section does not apply to persons subject to required flight crewmembers at stations.

91.109 Flight instruction, simulated instrument flight and certain flight tests

(a) No person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. However, instrument flight instruction may be given in a single engine airplane equipped with a single, functioning throw-over control wheel in place of fixed, dual controls of the elevator and ailerons when:

(1) The instructor has determined that the flight can be conducted safely; and

(2) The person manipulating the controls has at least a private pilot license with appropriate category and class ratings.

(b) No person may operate a civil aircraft in simulated instrument flight unless:

(1) The other control seat is occupied by a safety pilot who possesses at least a private pilot license with category and class ratings appropriate to the aircraft being flown;

(2) The safety pilot has adequate vision forward and to each side of the aircraft, or a competent observer in the aircraft adequately supplements the vision of the safety pilot; and

(3) Except in the case of lighter-than-air aircraft, that aircraft is equipped with fully functioning dual controls. However, simulated instrument flight may be conducted in a single engine airplane, equipped with a single, functioning, throw-over control wheel, in place of fixed, dual controls of the elevator and ailerons, when -

(i) The safety pilot has determined that the flight can be conducted safely; and

(ii) The person manipulating the controls has at least a private pilot license with appropriate category and class ratings.

(c) No person may operate a civil aircraft that is being used for a flight test for

(1) An airline transport pilot license, or

(2) A class or type rating on an airline transport pilot license; or

(3) A Part 121 proficiency flight test

Unless the pilot seated at the controls, other than the pilot being checked, is fully qualified to act as pilot in command of the aircraft.

91.111 Operating near other aircraft

(a) No person may operate an aircraft so close to another aircraft as to create a collision hazard.

(b) No person may operate an aircraft in formation flight without approval.

(c) No person may operate an aircraft, carrying passengers for hire, in formation flight.

91.113 Right-of-way rules: Except water operations

(a) This section does not apply to the operation of an aircraft on water.

(b) When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right of way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

(c) An aircraft in distress has the right of way over all other air traffic.

(d) When aircrafts are converging at approximately the same altitude, each pilot of each aircraft shall alter course to the right and keep a separation of more than 500 m.

(e) When aircraft are converging at approximately the same altitude, and the pilot saw another aircraft from the left side of cockpit shall descend; the pilot saw another aircraft from the right side of cockpit shall climb; except the following situations:

(1) An airship, glider or balloon has the right of way over a genie-driven heavier-than-air

aircraft;

(2) A glider or balloon has the right of way over an airship;

(3) A balloon has the right of way over a glider;

(4) An aircraft towing another aircraft or object has the right of way over an engine-driven aircraft.

(f) An overtaking aircraft is an aircraft that approaches another from the rear on a line forming an angle of less than 70 degrees with the plane of symmetry of the latter. An aircraft that is being overtaken has the right of way, and the overtaking aircraft, whether climbing, descending or in horizontal flight, shall keep out of the way of the other aircraft by altering its heading to the right, and no subsequent change in the relative positions of the aircraft shall absolve the overtaking aircraft from this obligation until it is entirely past and clear by enough separation.

(g) When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right of way, but the lower aircraft shall not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft. Aircraft, while on final approach to land or while landing, have the right of way over other aircraft in flight or operating on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach.

(h) An aircraft in emergency landing has the right of way over another aircraft knowing it’s in emergency landing.

(i) An aircraft taking off or going to take off has the right of way over other aircraft taxiing in the airport movement area.

91.115 Right-of-way rules: Water operations

(a) Each person operating an aircraft on the water shall, insofar as possible, keep clear of all vessels and avoid impeding their navigation, and shall give way to any vessel or other aircraft that is given the right of way by any rule of this section.

(b) When aircraft, or an aircraft and a vessel, are on crossing courses, the aircraft or vessel to the other's right has the right of way.

(c) When aircraft, or an aircraft and a vessel, are approaching head-on, or nearly so, each shall alter its course to the right to keep well clear.

(d) Each aircraft or vessel that is being overtaken has the right of way, and the one overtaking shall alter course to keep well clear.

(e) When aircraft, or an aircraft and a vessel, approach so as to involve risk of collision, each aircraft or vessel shall proceed with careful regard to existing circumstances, including the limitations of the respective craft.

91.117 Aircraft speed

(a) Unless otherwise authorized by the Administrator and approved by ATC, no person may operate an aircraft below 3,000 m (10,000 feet) MSL at an indicated airspeed of more than 460 km/h (250 knots).

(b) Unless otherwise approved by ATC, no person may operate an aircraft at or below 750m (2,500 feet) above the surface within 7.5 km (4 nm) of the primary airport at an indicated airspeed of more than 370 km/h (200 knots).

(c) If the minimum safe airspeed for any particular operation is greater than the maximum speed prescribed in this section, the aircraft may be operated at that minimum speed.

91.119 Minimum safe altitudes

Except when necessary for takeoff or landing (agricultural aircraft operations shall comply with the requirements of chapter M), no person may operate an aircraft below the following altitudes:

(a) Anywhere. Altitude allowing, if a power unit fails, an emergency landing without undue

hazard to persons or property on the surface.

(b) Over congested areas. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 300 meters (1000 feet) above the highest obstacle within a horizontal radius of 600 meters (2000 feet) of the aircraft.

(c) Over other than congested areas. An altitude of 150 meters (500 feet) above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 150 meters (500 feet) to any person, vessel, vehicle, or structure.

(d) Rotorcrafts may be operated at less than the minimums prescribed in paragraph (b) or (c) of this section provided that the operation be conducted without hazard to persons or property on the surface. In addition, each person operating a rotorcraft shall comply with any routes or altitudes specifically prescribed for rotorcrafts by the Administrator.

91.121 Altimeter settings

(a) Airport where the transition altitude and transition flight level is established. Prior to departure, the fixed sub-scale of the airborne altimeter shall be set to the QNH; after departure, when climbing through the transition altitude, the fixed sub-scale of the airborne altimeter shall be set to 1013.2 hp. Prior to landing and when descending to the transition flight level, the fixed sub-scale of the airborne altimeter shall be set to QNH.

(b) Airport where the transition height and transition flight level is established. Prior to departure, the fixed sub-scale of the airborne altimeter shall be set to the QFE; after departure, when climbing through the transition altitude, the fixed sub-scale of the airborne altimeter shall be set to 1013.2 hp. Prior to landing and when descending to the transition flight level, the fixed sub-scale of the airborne altimeter shall be set to QFE.

(c) Airport where the transition altitude/height or transition flight level is not established. Prior to departure, the fixed sub-scale of the airborne altimeter shall be set to the QFE; after departure, when climbing through 600 m, the fixed sub-scale of the airborne altimeter shall be set to 1013.2 hp. Prior to landing, when entering airport area or according to the instruction of air traffic controller, the fixed sub-scale of the airborne altimeter shall be set to the QFE.

(d) Plateau aerodrome. In the event the sub-scale of the airborne altimeter cannot be set to the QFE prior to departure from a plateau aerodrome, the fixed sub-scale shall be set to 1013.2 hp (this indicated altitude is called presumed zero-altitude) before the aircraft takes off. In case the sub-scale of the airborne altimeter cannot be set to the QFE when an aircraft intends to land at a plateau aerodrome, it shall land with reference to the presumed zero-altitude (the indicated altitude when the aircraft lands) notified by the air traffic controller.

91.123 Compliance with ATC clearances and instructions

(a) When an ATC clearance has been obtained, a pilot may not deviate from that clearance, except in an emergency or response to ACAS warning. When a pilot is uncertain of an ATC clearance, that pilot must immediately request clarification from ATC.

(b) Except in an emergency, no person may operate an aircraft contrary to an ATC instruction in an area in which air traffic control is exercised.

(c) Each pilot in command who, in an emergency or response to ACAS warning, deviates from an ATC clearance or instruction shall notify ATC of that deviation as soon as possible.

(d) Each pilot in command, who is given priority by ATC in an emergency, shall submit a detailed report of that emergency within 48 hours, if requested by the Administrator.

(e) Unless otherwise authorized by ATC, no person operating an aircraft may operate that aircraft according to any clearance or instruction that has been issued to the pilot of another aircraft.

91.125 ATC light signals

The light signals or signal flare issued by airport control tower to aircraft have the meaning shown in the following table:

Color and type of signal	Meaning with respect to aircraft on the surface	Meaning with respect to aircraft in flight
Steady green.	Cleared for takeoff.	Cleared to land.
Flashing green.	Cleared to taxi.	Return for landing (see note)
Steady red.	Stop.	Give way to other aircraft and continue circling.
Flashing red.	Taxi clear of runway in use.	Airport unsafe - do not land.
Flashing white.	Return to starting point on airport	Land at the airport and taxi to the ramp (see note)
Red signal flare		Temporarily not land regardless of previous instructions
Note: landing and taxi clearance signal, issued at proper time		

91.127 Operations in general aviation airport airspace

(a) Unless otherwise required or approved by the Administrator, each person operating an aircraft in general aviation airport airspace must comply with the requirements of this section.

(b) Unless otherwise specified or instructed by the airport, the pilot shall make left turn to join the traffic pattern and avoid the wake turbulence of the aircraft ahead.

(c) Unless otherwise authorized by ATC, no person may operate an aircraft to, from, through, or on an airport having an operating control tower unless two-way radio communications are maintained between that aircraft and the control tower. However, if the aircraft radio fails in flight, the pilot in command may operate that aircraft and land as soon as practical if weather conditions are at or above basic VFR weather minimums. The person operating the aircraft under IFR must comply with specifications in §91.185.

91.129 Operations in domestic transport airport airspace

(a) Unless otherwise authorized by ATC, each aircraft operation in domestic transport airport airspace must be conducted in compliance with this section and section 91.127.

(b) An operator may deviate once from any provision of this section under the provisions of an ATC authorization on a continuing basis or for an individual flight, as appropriate.

(c) Each person operating an aircraft must meet the following two-way radio communications requirements:

(1) Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering that airspace and thereafter maintain those communications while within that airspace;

(2) Each person departing from the airport with an operating control tower must establish and maintain two-way radio communications with the control tower, and thereafter as instructed by ATC while operating in the airport airspace.

(d) Each person who operates an aircraft in the airspace area must maintain two-way radio communications with the ATC facility having jurisdiction over that area.

(1) If the aircraft radio fails in flight under IFR, the pilot must comply with § 91.185 of this part.

(2) If the aircraft radio fails in flight under visual conditions, the pilot may operate that aircraft and land if:

(i) Weather conditions are at or above basic VFR weather minimums;

(ii) Visual contact with the tower is maintained; and

(iii) A clearance to land is received.

(e) When operating to an airport in domestic transport airport airspace, each pilot of:

(1) A large or turbine-powered airplane shall, unless otherwise required by the applicable distance from cloud criteria and authorized by the control tower, enter the traffic pattern at an altitude of at least 450 meters (1500 feet) above the elevation of the airport and maintain at least 450 meters (1500 feet) until further descent is required for a safe landing;

(2) A large or turbine-powered airplane approaching to land on a runway served by an instrument landing system (ILS), shall fly that airplane at an altitude at or above the glide slope between the outer marker (or point of interception of glide slope) and the middle marker; and

(3) An airplane approaching to land on a runway served by a visual approach slope indicator shall maintain an altitude at or above the glide slope until a lower altitude is necessary for a safe landing.

Paragraphs (e)(2) and (e)(3) of this section do not prohibit normal bracketing maneuvers above or below the glide slope that are conducted for the purpose of remaining on the glide slope.

(f) Each pilot must comply with any departure procedures established for that airport by the Administrator. Each pilot of a turbine-powered airplane and each pilot of a large airplane must climb to an altitude of 450 meters (1500 feet) above the surface as rapidly as practicable.

(g) No person may operate an aircraft in a domestic transport airport airspace area unless the aircraft is equipped with the applicable ATC transponder and altitude reporting equipment specified in 91.427.

(h) Each pilot of a large or turbine-powered airplane must comply with the runway noise abatement procedures approved by the Administrator and use the noise abatement runway assigned by ATC. However, consistent with the final authority of the pilot in command concerning the safe operation of the aircraft as prescribed in 91.5(a), ATC may assign a different runway if requested by the pilot in the interest of safety.

(i) No person may, at any airport with an operating control tower, operate an aircraft on a runway or taxiway, or take off or land an aircraft, unless an appropriate clearance is received from ATC.

91.131 Operations in international transport airport airspace

(a) Unless otherwise authorized by ATC, each aircraft operating in the international transport airport airspace area must be conducted in compliance with this section and section 91.129.

(b) Aircraft climb after take-off, or descent before landing in the international transport airport airspace area, shall be conducted in compliance with instructions from the air traffic controll. Aircraft joining an airway or a route from the airport or leaving an airway or a route for the airport shall climb or descend in accordance with routes and altitudes/heights specified in the airport operations instructions or departure and arrival procedures.

(c) In case the cloud-penetration climb route or descend route of an airport crosses with that of an adjacent airport, the pilot shall follow the ATC instruction to solve the conflicts that may occur.

(d) Aircraft on airspace-flight missions in airspace of this section shall enter or leave the airspace in accordance with the specified route (heading), altitude/height and sequence, and remain within the specified horizontal and vertical limits of the airspace.

91.133 Operations in busy transport airport airspace

(a) Unless otherwise authorized by ATC, each aircraft operations in the busy transport airport airspace must be conducted in compliance with this section and section 91.129.

(b) The aircraft used for training flight in the busy transport airport airspace must comply with the methods and procedures specified by the ATC.

(c) No pilot in command may operate an aircraft to, from, through or on a busy transport airport unless the pilot in command holds at least a private pilot license.

(d) No aircraft may operate in the busy transport airport airspace unless it meets the following requirements for communications and navigation:

(1) Two-way radio communications are maintained between the aircraft and the ATC at any

time during flight in the airspace.

(2) For IFR operation, the aircraft must have operable VOR receiver.

(3) The aircraft is equipped with the applicable operating transponder and automatic altitude reporting equipment in paragraph (a) of 91.427.

91.135 Dangerous, restricted, and prohibited areas

(a) Dangerous, restricted, and prohibited areas refer to the airspace defined and approved based on the needs. During flight, the pilot shall use airborne equipment and ground navigation aids to accurately know the aircraft position and prevent from entering dangerous, restricted, and prohibited areas.

(b) The aircraft specially approved to operate in or fly over the restricted areas must comply with the flight rules of the restricted areas.

91.137 Operations in upper airspace

Upper airspace refers to the airspace above 6000 meter MSL (exclusive). Except the deviation approved by the ATC as provided in paragraph (d) of this section, each person operating an aircraft in upper airspace must conduct that operation under IFR and in compliance with the following:

(a) Operations may be conducted only under an ATC clearance received prior to entering the airspace.

(b) Unless otherwise authorized by ATC, each aircraft operating in upper airspace must be equipped with a two-way radio capable of communicating with ATC on a frequency assigned by ATC. Each pilot must maintain two-way radio communications with ATC while operating in upper airspace.

(c) Unless otherwise authorized by ATC, each aircraft operating in upper airspace must be equipped with the operating transponder specified in 91.427.

(d) An operator may deviate from any provision of this section in a flight or series of flights under the provisions of an ATC authorization. In the case of an inoperative transponder, ATC may immediately approve an operation within upper airspace area allowing a flight to continue, if desired to the airport of ultimate destination, or proceed to a place where suitable repairs can be made.

91.139 Temporary flight restrictions

(a) The Administrator will issue a Notice to Airmen (NOTAM) designating an area within which temporary flight restrictions apply and specifying the hazard or condition requiring their imposition whenever he determines it is necessary in order to:

(1) Protect persons and property on the surface or in the air from a hazard associated with an incident on the surface;

(2) Provide a safe environment for the operation of disaster relief aircraft; or

(3) Prevent an unsafe congestion of sightseeing and other aircraft above an incident or event that may generate a high degree of public interest.

(b) When a NOTAM has been issued under paragraph (a) of this section, no person may operate an aircraft within the designated area unless the aircraft is specially authorized by ATC and operated under the ATC clearance.

91.151 Fuel requirements for flight in VFR conditions

(a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed: during the day, to fly beyond that for at least 30 minutes; or at night, to fly beyond that for at least 45 minutes.

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

(c) In computing the fuel and oil required in this section, at least the following shall be considered:

(1) Meteorological conditions forecast; and

(2) Expected air traffic control routings and traffic delays; and

(3) The procedures for loss of pressurization, where applicable, or failure of one power-unit while en route; and

(4) Any other conditions that may delay the landing of the helicopter or increase fuel and/or oil consumption.

91.153 VFR flight plan

(a) VFR

If local airport airspace complies with visual meteorological conditions (VMC), it may conduct VFR flight in local airspace; if the current weather report or the combination of current weather report and weather forecast indicates the weather of local airport, enroute and destination airport complies with VMC, the flight may be conducted en route under VFR.

(b) Requirements of VFR flight plan

Each person filing a VFR flight plan shall include in it the following information:

(1) The aircraft registration number and, if necessary, its radio call sign.

(2) The type of the aircraft or, in the case of a formation flight, the type of each aircraft and the number of aircraft in the formation.

(3) The full name and address of the pilot in command or, in the case of a formation flight, the formation commander.

(4) The point and proposed time of departure.

(5) The proposed route, cruising altitude (or flight level), and true airspeed at that altitude.

(6) The point of first intended landing and the estimated elapsed time until over that point.

(7) The amount of fuel on board (in time).

(8) The number of crew and occupants in the aircraft.

(9) Any other information required by the Administrator and ATC.

(c) When a flight plan has been activated, the pilot in command, upon canceling the flight under the flight plan, shall notify an ATC facility.

91.155 Basic VFR weather minimums

(a) This section prescribes basic VFR weather minimums. Except ATC approves VFR operations in the upper airspace according to 91.137, only the VFR operations in medium and lower airspace is allowed.

(b) Except as provided in 91.157, no person may operate an aircraft under VFR when the weather conditions are inferior to the following standards:

(1) Except (b)(2) and (3), the visibility may not be less than 8 km at 3000 m (inclusive) QNH and above; the visibility may not be less than 5 km at 3000 m (exclusive) QNH and lower; horizontal distance to ceiling is no less than 1500 m and vertical distance to ceiling is no less than 300 m.

(2) Except the transport airport airspace, 900 m (inclusive) QNH and below or 300 m (inclusive) AGL and below (whichever is higher), if the aircraft is out of cloud and the ground is visually contact, the pilot is allowed to conduct VFR flight provided the flight visibility is no less than 1600 m and one of the following conditions is met:

(i) The aircraft speed is relatively low, and the pilot has enough time to observe and avoid other aircraft and obstacle under that visibility conditions;

(ii) Traffic is rare in flight and the possibility of collision in the area is very low;

(3) Provided the conditions in (b)(2) are met, the rotorcraft is allowed to operate under VFR with a flight visibility less than 1600m.

91.157 Special VFR weather minimums

(a) Special VFR operations may be conducted under the weather minimums and requirements of this section, instead of those contained in 91.155, below 3000 meters QNH within the transport airport airspace.

(b) Special VFR operations may only be conducted:

(1) With an ATC clearance;

(2) Clear of clouds;

(3) Except for rotorcrafts, when flight visibility is at least 1600 meters; and

(4) Except for rotorcrafts, between sunrise and sunset unless the pilot meets the applicable requirements for instrument flight under CCAR-61; and the aircraft is equipped as required in 91.407.

(c) No person may take off or land an aircraft (other than a rotorcraft) under special VFR unless ground visibility is at least 1600 meters (if no ground visibility is reported, the flight visilbility may be applicable).

91.159 VFR cruising altitude and flight level

Each pilot operating an aircraft under VFR in level cruising flight more than 900 meters (3000 feet) above the surface shall maintain the appropriate altitude or flight level prescribed in 91.179, unless otherwise authorized by ATC.

91.167 Fuel requirements for flight in IFR conditions

(a) No person may operate an aircraft in IFR conditions unless it carries enough fuel (considering weather reports and forecasts and weather conditions) to:

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

(2) Except specified in (b), fly from that airport to the alternate airport; and

(3) For airplanes, fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at holding speed at 450 m (1500 feet) above the destination, and extra fuel for response to the additional fuel consumption in case of an emergency.

(4) Fly to the airport of intended landing and fly after that for 2 hours at holding speed if there is no suitable alternate airport according to (c)(2) of this section.

(b) For airplanes, an alternate airport may be not selected when the following conditions are met, and (a)(2) of this section is inapplicable:

(1) The planned landing airport has the standard instrument approach procedures published by the Administrator;

(2) For at least 1 hour before and 1 hour after the estimated time of arrival at the destination airport, the weather reports or forecasts, or any combination of them indicate the ceiling will be at least 600 meters above the airport elevation and visibility will be at least 5000 meters.

(c) For helicopters, an alternate heliport may be not selected when the following conditions are met, and (a)(2) of this section is inapplicable:

(1) The ceiling is at least 300 meters above the airport elevation or at least 120 meters above the minimum associated with the instrument approach procedures (whichever is higher), the visibility is at least 3000 meters or at least 1500 meters more than the minimum associated with the procedures (whichever is greater), or

(2) (i) The heliport of intended landing is isolated and no suitable alternate is available; and

(ii) An instrument approach procedure is prescribed for the isolated heliport of intended landing; and

(iii) A point of no return (PNR) is determined in case of an off-shore destination.

(d) Suitable off-shore alternates may be specified for helicopters subject to the following:

(1) The off-shore alternates shall be used only after passing PNR. Prior to PNR on-shore alternates shall be used;

(2) Mechanical reliability of critical control systems and critical components shall be considered and taken into account when determining the suitability of the alternate;

(3) The performance capability One with one engine inoperative shall be attainable prior to arrival at the alternate;

(4) Deck availability shall be guaranteed; and

(5) Weather information must be reliable and accurate.

(e) Off-shore alternates should not be used when it is possible for a helicopter to carry enough fuel to have an on-shore alternate. Such circumstances should be exceptions and should not include payload enhancement in adverse weather conditions.

(f) In computing the fuel and oil required for helicopters in this section, at least the following shall be considered:

(1) Meteorological conditions forecast; and

(2) Expected air traffic control routings and traffic delays; and

(3) For IFR flight, one instrument approach at the destination heliport, including a missed approach; and

(4) The procedures for loss of pressurization, where applicable, or failure of one power-unit while en route; and

(5) Any other conditions that may delay the landing of the helicopter or increase fuel and/or oil consumption.

91.169 IFR flight plan

(a) Unless otherwise authorized by ATC, each person filing an IFR flight plan shall include in it the following information:

(1) Information required under 91.153(b).

(2) An alternate airport, except as provided in paragraph (b) of this section.

(b) An alternate airport may be not selected if the conditions of 91.167(b) are met and (a)(2) of this section is inapplicable.

(c) Unless otherwise authorized by the Administrator, no person may include an alternate airport in an IFR flight plan unless current weather forecasts indicate that, at the estimated time of arrival at the alternate airport, the ceiling and visibility at that airport will be at or above the following alternate airport weather minimums:

(1) If an instrument approach procedure has been published for that airport, the following minimums are applied:

(i) For aircraft other than rotorcrafts, at the airport having one set of approach facility and procedure, the ceiling is MDH/MDA or DH/DA plus 120 meters, and the visibility is plus 1600 meters; at the airport having two or more sets of precision or nonprecision approach facilities and procedures and providing different runway approaches, the ceiling is MDH/MDA or DH/DA plus 60 meters, and the visibility is plus 800 meters, and whichever is higher of the two runway with lower minimums.

(ii) For rotorcraft, the ceiling is MDH/MDA or DH/DA plus 60 m and the visibility is at least 1600 meters and not lower than the visibility minimum of the airport approach procedure in use.

(2) If no instrument approach procedure has been published for that airport, the ceiling and visibility minimums are those allowing descent from the minimum en route altitude (MEA), approach, and landing under basic VFR.

(d) When a flight plan has been activated, the pilot in command, upon canceling or completing the flight under the flight plan, shall notify an ATC facility.

91.171 VOR equipment check for IFR operations

(a) No person may operate an aircraft under IFR using the VOR system of radio navigation unless the VOR equipment of that aircraft:

(1) Is maintained, checked, and inspected under an approved procedure; or

(2) Has been operationally checked within the preceding 30 days, and was found to be within the limits of the permissible indicated bearing error set forth in paragraph (b) or (c) of this section.

(b) Except as provided in paragraph (c) of this section, each person conducting a VOR check under paragraph (a)(2) of this section shall:

(1) Use, at the airport of intended departure, an approved test signal to check the VOR

equipment (the maximum permissible indicated bearing error is ±4 degrees); or

(2) Use, at the airport of intended departure, a point on the airport surface designated as a VOR system checkpoint by the Administrator, or, outside the People's Republic of China, by an appropriate authority (the maximum permissible bearing error is ±4 degrees);

(3) If neither a test signal nor a designated checkpoint on the surface is available, use an airborne checkpoint designated by the Administrator or, outside the People's Republic of China, by an appropriate authority (the maximum permissible bearing error is ±6 degrees); or

(4) If no check signal or point is available, while in flight -

(i) Select a VOR radial that lies along the centerline of an established VOR airway;

(ii) Select a prominent ground point along the selected radial, preferably more than 37 km from the VOR ground facility, and maneuver the aircraft directly over the point at a reasonably low altitude; and

(iii) Note the VOR bearing indicated by the receiver when over the ground point (the maximum permissible variation between the published radial and the indicated bearing is 6 degrees).

(c) If a dual system VOR (units independent of each other except for the antenna) is installed in the aircraft, the person checking the equipment may check one system against the other in place of the check procedures specified in paragraph (b) of this section. Both systems shall be tuned to the same VOR ground facility and note the indicated bearings to that station (the maximum permissible variation between the two indicated bearings is 4 degrees).

(d) Each person making the VOR operational check, as specified in paragraph (b) or (c) of this section, shall enter the date, place, and bearing error, and sign the aircraft log or other record.

91.173 ATC clearance and flight plan

No person may operate an aircraft under IFR unless that person has filed an IFR flight plan and received an appropriate ATC clearance.

91.175 Takeoff and landing under IFR

(a) Unless otherwise authorized by the Administrator, when an instrument approach to a civil airport is necessary, each person operating an aircraft shall use a standard instrument departure and approach procedure prescribed for the airport.

(b) For the purpose of this section, when the approach procedure being used provides for and requires the use of a DH or MDA, the authorized DH or MDA is the highest of the following:

(1) The DH or MDA prescribed by the approach procedure.

(2) The DH or MDA prescribed for the pilot in command.

(3) The DH or MDA for which the aircraft is equipped.

(c) Where a DH or MDA is applicable, no pilot may operate an aircraft at any airport below the authorized MDA or continue an approach below the authorized DH unless:

(1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and, for operations conducted under CCAR-121 or other public air transportation operation regulations, unless that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;

(2) The flight visibility is not less than the visibility prescribed in the standard instrument approach being used; and

(3) Except for a Category II or Category III approach where any necessary visual reference requirements are specified by the Administrator, at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot -

(i) The approach light system, except that the pilot may not descend below 30 m/100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

(ii) The threshold.

(iii) The threshold markings.

(iv) The threshold lights.

(v) The runway end identifier lights.

(vi) The visual approach slope indicator.

(vii) The touchdown zone or touchdown zone markings.

(viii) The touchdown zone lights.

(ix) The runway or runway markings.

(x) The runway lights.

(d) No pilot operating an aircraft may land that aircraft when the flight visibility is less than the visibility prescribed in the standard instrument approach procedure being used.

(e) Each pilot operating an aircraft shall immediately execute an appropriate missed approach procedure when either of the following conditions exists:

(1) Whenever the requirements of paragraph (c) of this section are not met at either of the following times –

(i) When the aircraft is being operated below MDA; or

(ii) When the visual contact is lost below DH or MDA.

(2) Whenever an identifiable part of the airport is not distinctly visible to the pilot during a circling maneuver at or above MDA.

(f) No pilot operating an aircraft may take off from a civil airport under IFR unless weather conditions are at or above the weather minimum for IFR takeoff prescribed for that airport. If takeoff minimums are not prescribed for a particular airport, the following minimums apply to takeoffs under IFR for aircraft operating under those parts:

(1) For aircraft, other than rotorcrafts, having two engines or less – 1600 meters visibility.

(2) For aircraft other than rotorcrafts having more than two engines – 800 meters visibility.

(3) For rotorcrafts – 800 meters visibility.

(g) Unless otherwise prescribed by the Administrator, each person operating a civil aircraft under IFR into or out of a military airport shall comply with the instrument approach procedures and the takeoff and landing minimum prescribed by the military authority having jurisdiction of that airport.

(h) Comparable values of runway visual range (RVR) and ground visibility.

(1) Except for Category II or Category III minimums, if RVR minimums for takeoff or landing are prescribed in an instrument approach procedure, but RVR is not reported for the runway of intended operation, the RVR minimum shall be converted to ground visibility in accordance with the table in paragraph (h)(2) of this section and shall be the visibility minimum for takeoff or landing on that runway.

(2) RVR conversion chart:

RVR (meters/feet)	**Visibility (meters/statute miles)**
500 m（1600 ft）	400 m（1/4）
720 m（2400 ft）	800 m（1/2）
1000 m（3200 ft）	1000 m（5/8）
1200 m（4000 ft）	1200 m（3/4）
1400 m（4500 ft）	1400 m（7/8）
1600 m（5000 ft）	1600 m（1.0）
2000 m（6000 ft）	2000 m（1¼）

(i) When operating on an unpublished route or while being radar vectored, the pilot, when an approach clearance is received, shall, in addition to complying with 91.177, maintain the last altitude assigned to that pilot until the aircraft is established on a segment of a published route or instrument approach procedure. After the aircraft is so established, published altitudes apply to descent within each succeeding route or approach segment unless a different altitude is assigned by ATC. Upon reaching the final approach course or fix, the pilot may either complete the instrument approach in accordance with a procedure approved for the facility or continue a surveillance or precision radar approach to a landing.

(j) In the case of a radar vector to a final approach course or fix, a timed approach from a holding fix, or an approach for which the procedure specifies “NO PT,” no pilot may make a procedure turn unless cleared to do so by ATC.

(k) The basic ground components of an ILS are the localizer, glide slope, outer marker, middle marker, and, when installed for use with Category II or Category III instrument approach procedures, an inner marker. NBD (Non-Directional Beacon) or precision radar may be substituted for the outer or middle marker. Distance measuring equipment (DME), VOR, or NBD fixes authorized in the standard instrument approach procedure or surveillance radar may be substituted for the outer marker. Applicability of, and substitution for, the inner marker for Category II or III approaches is determined by the standard instrument approach procedure, letter of authorization, or operations specification pertinent to the operations.

91.177 Minimum altitude for IFR operations

Except when necessary for takeoff or landing, no person may operate an aircraft under IFR below:

(a) In the case of operations over an airport area, the minimum segment altitude specified on the instrument approach chart; in case of operations according to departure procedures, the altitude specified in the instrument departure and arrival procedures. At an airport where the instrument departure and arrival procedures or minimum segment altitude is not established, within the airport area, an altitude of 300 meters above the highest obstacle in a plain area and an altitude of 600 meters above the highest obstacle in a mountainous area;

(b) In case of operations under IFR, within a horizontal distance of 25000 m from both sides of the planned route center and the course, an altitude of 400 meters above the highest obstacle in a plain area and an altitude of 600 meters above the highest obstacle in a mountainous area.

91.179 IFR cruising altitude or flight level

(a) Each person operating an aircraft under IFR in level cruising flight shall maintain the altitude or flight level assigned that aircraft by ATC.

(b) The flight levels are as follows:

(1) 0 through 179 degrees (True Course): from 900m to 8100 m, flight levels are at intervals of 600 m; from 8900 m to 12500 m, flight levels are at intervals of 600 m; above 12500 m, they are at intervals of 1200 m.

(2) 180 through 359 degrees (True Course): from 600 m to 8400 m, flight levels are at intervals of 600 m; from 9200 m to 12200 m, flight levels are at intervals of 600 m; above 13100 m, they are at intervals of 1200 m.

(3) Flight levels are calculated based on assumed sea level under standard atmospheric pressure. True courses are measured from the initial and turning point of a route.

91.180 Operations in RVSM airspace

(a) Except approved in (b), no person may operate an aircraft within RVSM airspace, unless:

(1) The operator’s aircraft complies with the minimum standards required in appendix D of this regulation;

(2) The operator has obtained the approval of the Administrator or the country of registry.

(b) The Administrator may authorize the operator deviating from (a).

91.181 Course to be flown

No person may operate an aircraft under IFR except as follows:

(a) On an airway, along the centerline of that airway.

(b) On any other route, along the direct course between the navigational aids or fixes defining that route. However, this section does not prohibit maneuvering the aircraft deviating from the route to pass well clear of other air traffic or change flight altitude.

91.183 IFR radio communications

The pilot of each aircraft operated under IFR shall have a continuous watch maintained on the appropriate frequency and shall report to ATC by radio as soon as possible:

(a) The time and altitude of passing each designated reporting point, or the reporting points specified by ATC, except that while the aircraft is under radar control, only the passing of those reporting points specifically requested by ATC need be reported;

(b) Any non-forecasted weather conditions encountered; and

(c) Any other information relating to the safety of flight.

91.185 IFR operations: Two-way radio communications failure

(a) Unless otherwise authorized by ATC, each pilot who has two-way radio communications failure when operating under IFR shall comply with the rules of this section.

(b) If the failure occurs in VFR conditions, or if VFR conditions are encountered after the failure, each pilot shall continue the flight under VFR and land as soon as practicable.

(c) If the failure occurs in IFR conditions, or if paragraph (b) of this section cannot be complied with, each pilot shall continue the flight according to the following:

(1) On the following defined routes:

(i) By the route assigned in the last ATC clearance received;

(ii) If being radar vectored, by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance;

(iii) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or

(iv) If the route described in (c)(1)(iii) is impossible to be flown, by the route filed in the flight plan.

(2) At the highest of the following altitudes or flight levels for the route segment being flown:

(i) The altitude or flight level assigned in the last ATC clearance received;

(ii) The minimum altitude or flight level for IFR operations; or

(iii) The altitude or flight level ATC has advised may be expected in a further clearance.

(3) Leave clearance limit.

(i) When the clearance limit is a fix from which an approach begins, commence descent or descent and approach as close as possible to the expected further clearance time if one has been received, or if one has not been received, as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.

(ii) If the clearance limit is not a fix from which an approach begins, leave the clearance limit at the expected further clearance time if one has been received, or if none has been received, upon arrival over the clearance limit, and proceed to a fix from which an approach begins, and commence descent or descent and approach as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.

91.187 Operation under IFR: Malfunction reports

(a) The pilot in command of each aircraft operated in controlled airspace under IFR shall report as soon as practical to ATC any malfunctions of navigational, approach, or communication equipment occurring in flight.

(b) In each report required by paragraph (a) of this section, the pilot in command shall include the:

(1) Aircraft identification;

(2) Equipment affected;

(3) Degree to which the capability of the pilot to operate under IFR is impaired; and

(4) Nature and extent of assistance desired from ATC.

91.189 Category II and III operations: General operating rules

(a) No person may operate a civil aircraft in a Category II or III operation unless:

(1) The flight crew of the aircraft consists of a pilot in command and a second in command who hold the appropriate ratings and category II or III operation authorization prescribed in CCAR-61;

(2) Each flight crewmember has adequate knowledge of, and familiarity with, the aircraft and the procedures to be used; and

(3) The instrument panel in front of the pilot who is controlling the aircraft has appropriate instrumentation for the type of flight control guidance system that is being used.

(b) Unless otherwise authorized by the Administrator, no person may operate a civil aircraft in a Category II or III operation unless each ground component required for that operation and the related airborne equipment is installed and operating.

(c) For the purpose of this section, when the approach procedure being used provides for and requires the use of a DA/DH, the authorized DA/DH is the highest of the following:

(1) The DA/DH prescribed by the approach procedure.

(2) The DA/DH prescribed for the pilot in command.

(3) The DA/DH for which the aircraft is equipped.

(d) No pilot operating an aircraft in a Category II or Category III approach that provides and requires use of a DA/DH may continue the approach below the authorized decision height unless the following conditions are met:

(1) The aircraft is in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and where that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing.

(2) At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(i) The approach light system, except that the pilot may not descend below 30 m (100 feet) above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

(ii) The threshold.

(iii) The threshold markings.

(iv) The threshold lights.

(v) The touchdown zone or touchdown zone markings.

(vi) The touchdown zone lights.

(e) Unless otherwise authorized by the Administrator, each pilot operating an aircraft shall immediately execute an appropriate missed approach whenever, prior to touchdown, the requirements of paragraph (d) of this section are not met.

(f) No person operating an aircraft using a Category III approach without decision height may land that aircraft except in accordance with the provisions of the letter of authorization issued by the Administrator.

(g) Paragraphs (a) through (f) of this section do not apply to operations conducted by the holders of certificates issued under CCAR-121. No person may operate a civil aircraft in a Category II or III operation conducted by the holder of a certificate issued under CCAR-121 unless the operation is conducted in accordance with that certificate holder's operations specifications.

91.191 Category II and III manuals

(a) Except as provided in paragraph (c) of this section, no person may operate a civil aircraft registered in the People's Republic of China in a Category II or III operation unless:

(1) There is a current and approved Category II or III manual available in the aircraft, as appropriate, for that aircraft;

(2) The operation is conducted in accordance with the procedures, instructions, and limitations in each respective manual; and

(3) The instruments and equipment listed in the manual that are required for a particular Category II or III operation have been inspected and maintained in accordance with the

maintenance program contained in the manual.

(b) Each operator must keep a current copy of each approved manual at its principal base of operations and must make each manual available for inspection upon request by the Administrator.

(c) This section does not apply to operations conducted under CCAR-121 and other public air transportation operation regulations.

91.193 Certificate of authorization for certain Category II operations

The Administrator may issue a certificate of authorization authorizing deviations from the requirements of 91.189, 91.191, and 91.413 (f) for the operation of small aircraft identified as Category A aircraft defined in CCAR-97 in Category II operations if the Administrator finds that the proposed operation can be safely conducted under the terms of the certificate. Such authorization does not permit operation of the aircraft carrying persons or property for remuneration or hire.

91.195 Aircraft refueling: general rules

(a) No person may refuel an airplane when passengers are boarding, disembarking, or on board unless the pilot in command or other qualified person is at present and may guide the passengers evacuating form the airplane at any time by practical and prompt methods.

(b) No person may refuel a helicopter when passengers are boarding, disembarking, and on board or the rotor is running unless the pilot in command or other qualified person is at present and may initiate and organize persons to evacuate from the helicopter at any time by practical and prompt methods.

(c) When refueling with passengers boarding, embarking or on board, it shall use the airplane (helicopter) interphone system or other applicable methods to maintain the two-way communication between the ground crew monitoring refueling and the pilot in command or other qualified person specified in paragraph (a) of this section.

Chapter C Special Flight Operations

91.201 Aerobatic flight

(a) Unless otherwise authorized by the Administrator, no person may operate an aircraft in acrobatic flight:

(1) Over any congested area of a city, town, or settlement;

(2) Over an open air assembly of persons;

(3) Within any area designated by the Administrator;

(4) Within 10 kilometers of the centerline of any airway;

(5) Below an altitude of 450 meters above the surface; or

(6) When flight visibility is less than 5 kilometers.

(b) For the purposes of this section, aerobatic flight means an intentional maneuver involving an abrupt change in an aircraft’s attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight.

91.203 Flight test areas

No person may flight test an aircraft, except over open water, or sparsely populated areas, having light air traffic.

91.205 Parachute and parachuting

(a) No pilot of a civil aircraft may allow a parachute that is available for emergency use to be carried in that aircraft unless it is an approved type and:

(1) If a chair type (canopy in back), it has been packed by a licensed and appropriately rated parachute rigger within the preceding 120 days, or;

(2) If any other type, it has been packed by a professional rigger:

(i) Within the preceding 120 days, if its canopy, shrouds and harness are composed exclusively of nylon, rayon or other similar synthetic fiber or materials that are substantially resistant to damage from mold, mildew or other fungi and other rotting agents, or;

(ii) Within the preceding 60 days, if any part of the parachute is composed of silk, pongee or other natural fiber, or materials not specified in paragraph (a) (2) (i) of this section.

(b) Except in an emergency, no pilot in command may allow, and no person may make a parachute jump from an aircraft within the People's Republic of China except in accordance with Chapter P.

(c) Unless each occupant of the aircraft is wearing an approved parachute, no pilot of a civil aircraft carrying any person (other than a crewmember) may execute any intentional maneuver that exceeds:

(1) A bank of 60 degrees relative to the horizon, or;

(2) A nose up or nose down attitude of 30 degrees relative to the horizon.

(d) Paragraph (c) of this section does not apply to:

(1) Flight tests for pilots for pilot licensing or rating, or;

(2) Spins and other flight maneuvers required by the regulations for any license or rating when given by a licensed flight instructor.

(e) For the purposes of this section, approved parachute means a parachute manufactured under a type certificate or a technical standard order; or a military-approved parachute.

91.207 Towing: Gliders

(a) No person may operate a civil aircraft towing a glider unless:

(1) The pilot in command of the towing aircraft is qualified under 61.87;

(2) The towing aircraft is equipped with a tow hitch of a kind, and installed in a manner, that is approved by the Administrator;

(3) The towline used has breaking strength not less than 80 percent of the maximum certificated operating weight of the glider and not more than twice this operating weight. However, the towline used may have a breaking strength more than twice the maximum certificated operating weight of the glider if:

(i) A safety link is installed at the point of attachment of the towline to the glider with a breaking strength not less than 80 percent of the maximum certificated operating weight of the glider and not greater than twice this operating weight.

(ii) A safety link is installed at the point of attachment of the towline to the towing aircraft with a breaking strength greater, but not more than 25 percent greater, than that of the safety link at the towed glider end of the towline and not greater than twice the maximum certificated operating weight of the glider.

(4) Before conducting any towing operation within the airspace designated for an airport, the pilot in command notifies the control tower; and

(5) The pilots of the towing aircraft and the glider have agreed upon a general course of action, including takeoff and release signals, airspeeds, and emergency procedures for each pilot.

(b) Except in an emergency situation, no glider may be released from towing unless the pilot of towing glider agrees. No pilot of a civil aircraft may intentionally release a towline, after release of a glider, in a manner that endangers the life or property of another.

91.209 Towing: Other than gliders

No pilot of a civil aircraft may tow anything with that aircraft (other than under 91.207)

except in accordance with the terms of a certificate of waiver issued by the Administrator.

91.211 Civil aircraft having special flight permits: Operating limitations

No aircraft having special flight permits may be conducted operations beyond the specified flights.

(a) No person may operate a civil aircraft that might endanger flight safety unless a special flight permit is obtained.

(b) No person may operate a civil aircraft having special flight permits outside of the People's Republic of China unless the special authorization is obtained from the Administrator and the countries involved.

(c) Each person operating a civil aircraft having special flight permits shall operate within the prescribed limitations set forth in the aircraft flight manual or other appropriate documents. However, when operating in direct conjunction with the type or supplemental type certification of the aircraft, that person shall operate under the experimental aircraft limitations of this part, and when flight testing, shall operate under the requirements of § 91.203 of this part.

(d) Each person operating a civil aircraft having special flight permits shall ensure that each flight crewmember has proper license issued or accepted by the Administrator.

(e) Each person operating a civil aircraft having special flight permits may carry in that aircraft only the persons who have a proper interest in the operations. The flight crewmember and related persons of the aircraft must be advised the flight situation and related requirements and measures.

(f) A specially permitted flight shall comply with applicable flight rules and avoid a congested airspace or area that might endanger the public safety.

(g) The Administrator may prescribe additional limitations or procedures that the Administrator considers necessary, including limitations on the number of persons who may be carried in the aircraft.

91.217 Primary category aircraft: operating limitations

No person may operate a primary category aircraft carrying persons or property for remuneration or hire.

Chapter D Maintenance Rules

91.301 Applicability

(a) Except as provided in paragraph (b) of this section, the provisions in this chapter are applicable to the maintenance of any aircraft having an airworthiness certificate issued by the CAAC.

(b) The maintenance of any aircraft operated under CCAR-121 and CCAR-135 shall be conducted according to the applicable provisions.

91.303 General

(a) The maintenance work of large aircraft and its components operated by any person (including commercial non-transport operator and aircraft manager) shall be performed by the maintenance organization approved under CCAR-145 or by aircraft or components manufacturer under 43.11(e) of CCAR-43.

(b) Except as provided in paragraph (a), the maintenance or other aircrafts may be performed according to the following rules:

(1) Overhaul of aircraft airframe and component shall be performed by the maintenance

organization approved under CCAR-145 or by aircraft or components manufacturer under 43.11(e) of CCAR-43;

(2) Other maintenance shall be performed under CCAR-43.

(c) The owner or operator of an aircraft and its components and any organization and person performing the maintenance shall accept the Administrator's inspection and surveillance to ensure the compliance with this chapter.

91.305 Airworthiness responsibility

(a) The owner or operator of an aircraft is responsible for maintaining aircraft airworthiness status, including the airworthiness of airframe, engine, propeller and equipment installed.

(b) To carry out the aircraft airworthiness responsibility, the owner or operator of an aircraft shall ensure the following work has been accomplished according to 91.303:

(1) The maintenance required in 91.307;

(2) Except allowable inoperative instrument or equipment specified in 91.443, the defect and damage that might affect operation safety shall be handled to meet the approved standards prior to each flight;

(3) Any other continuous airworthiness requirements of airworthiness directives (Ads) and the Administrator shall be accomplished.

(c) The above work may be contracted by signing agreement, however, the owner or operator of an aircraft has the same airworthiness responsibility.

91.307 Maintenance required

(a) The owner or operator of an aircraft shall accomplish the aircraft inspection according to the following provisions:

(1) Inspect the component having time limits according to the requirements in the aircraft design specifications, type certificate datasheet or other CAAC-approved documents to ensure to be replaced prior to the time limits;

(2) For large airplanes, turbojet multiengine airplanes, turbopropeller-powered multiengine airplanes, or turbine-powered rotorcraft, inspect according to the requirements of inspection program specified in 91.309;

(3) For aircrafts other than (a)(2), 100-hour inspection has been accomplished in accordance with CCAR-43, if the flight time of the aircraft does not reach 100 flight hours in consecutive 12 calendar months, an annual inspection shall be accomplished within 12 months from the last 100-hour inspection in accordance with CCAR-43. If a ferry flight is necessary for inspection, the 100-hour limitation may be exceeded by not more than 10 hours and the excess time must be included in computing the next 100 hours of time in service.

(4) If the aircraft maintenance manual or other continuous airworthiness documents issued by aircraft or component manufacturer specify the inspection stricter than 100-hour inspection or annual inspection required by CCAR-43, it shall follow its requirements for inspection and unnecessary to repeat 100-hour inspection or annual inspection.

(b) For 100-hour inspection or annual inspection required in paragraph (a), the owner or inspector of an aircraft may use a progressive inspection program to disintegrate inspection task, but must submit a written request to the Administrator, and shall comply with the following:

(1) An progressive inspection program shall specify the intervals in hours or days to indicate the detailed period and plan of each inspection task and the plan may include the instructions for exceeding a maintenance interval because of flight service;

(2) The frequency and content of a progressive inspection shall ensure the aircraft is fully inspected within specified time limits, ensure the aircraft in airworthiness conditions, and always comply with the aircraft design specifications, type certificate datasheet, Ads or other approved data;

(3) If a progressive inspection is interrupted, the owner or operator of an aircraft shall immediately notify the Administrator in written, and resume the 100-hour inspection or annual inspection when the first inspection time limit reaches after interruption.

(c) The altimeter system and altitude reporting equipment of an aircraft under IFR shall be

tested and inspected as follows:

(1) Within the preceding 24 calendar months, each static pressure system, each altimeter instrument, and each automatic pressure altitude reporting system has been tested and inspected and found to comply with Appendix B of CCAR-43;

(2) Except for the use of system drain and alternate static pressure valves following any opening and closing of the static pressure system, that system has been tested and inspected and found to comply with paragraph (a), Appendix B of CCAR-43; and

(3) Following installation or maintenance on the automatic pressure altitude reporting system of the ATC transponder, the integrated system has been tested, inspected, and found to comply with Appendix B of CCAR-43.

(d) The ATC transponder of an aircraft shall be tested and inspected as follows:

(1) Within the preceding 24 calendar months, the ATC transponder has been tested and inspected and found to comply with Appendix C of CCAR-43; and

(2) Following any installation or maintenance on an ATC transponder, the integrated system has been tested, inspected, and found to comply with paragraph (c), Appendix C of CCAR-43.

(e) Except any inoperative instrument or equipment allowed by 91.443, the owner or operator of an aircraft shall repair any failure and defect found beyond aircraft design specifications, type certificate datasheet, Ads or other approved data.

(f) If the aircraft maintenance manual or other continuous airworthiness documents issued by aircraft or component manufacturer has any other maintenance requirement, the owner or operator of the aircraft shall maintain the aircraft or component as required.

91.309 Aircraft inspection program

(a) The owner or operator of a large airplane, turbojet multiengine airplane, turboprop multiengine and turbine-powered rotorcraft must select any of the following manners to establish the aircraft inspection program:

(1) A current inspection program recommended by the manufacturer;

(2) An inspection program developed under paragraph (b) of this section.

(b) The owner or operator of an aircraft may develop the aircraft inspection program in accordance with the following requirements, which are only applicable to the aircraft used by the owner or operator:

(1) The inspection items include all aircraft structures, systems and components, such as airframe, engines, propellers, rotors, appliances, survival equipment, and emergency equipment etc.

(2) Comply with the replace time requirements of time-limited components specified in the aircraft specifications, type certificate datasheet or other CAAC-approved documents;

(3) Include airworthiness limitation items (if applicable) specified in the aircraft maintenance manual or other continuous airworthiness documents issued by aircraft or component manufacturer;

(4) Indicate the time limits of each inspection in the form of service time, calendar time, system operation cycles or other combinations;

(5) The statement and procedures for inspection development, including necessary test and special test. The statement and procedures must describe the location and area of airframe, engine, propeller, rotor, and appliance to be inspected;

(6) List the person name or organization name, address, and contact information in charge of arrangement of inspection work required by the program.

(c) The inspection program developed under paragraph (b) and its revision shall be applied for approval to the Administrator and made any change according to the notification if the Administrator believes it is necessary.

(d) When the owner or operator of an aircraft changes the current manner of aircraft inspection program to another inspection program, the due time of inspection item of new inspection program shall be determined based on the accumulated service time, calendar time or operation cycles of original inspection program.

91.311 Maintenance management requirements

(a) Commercial non-transport operator, private large aircraft operator, and aircraft manager shall establish a maintenance management system as required by paragraph (b) to carry out its airworthiness responsibility and keep the maintenance records of aircrafts in use.

(b) A maintenance system shall at least meet the following conditions:

(1) Has assigned a maintenance accountable person to make plan and control the maintenance work required to carry out its airworthiness responsibility, and make quality control on contracted maintenance;

(2) Has enough and properly trained and qualified maintenance personnel to complete the maintenance required by 91.307, and has established the maintenance personnel technical files. The maintenance personnel may be hired by the operator or appointed by the agreement;

(3) Has enough available factory facilities, tools & equipment, material, and airworthiness data to ensure normal implementation of the aircraft plan;

(4) Has developed the maintenance management explanation to describe how to carry out its airworthiness responsibility (including necessary work procedures). The explanation may be incorporated into the operations manual or a separated document of the operator, whichever must be approved by the Administrator. The maintenance accountable person and maintenance personnel of an operator must be familiar with the applicable contents and comply with them in practice.

(c) Except the situation provided in paragraph (a), the owner of an aircraft shall at least designate one person to make plan and control the maintenance work required to carry out its airworthiness responsibility. The person may be the owner of an aircraft or other person appointed by the agreement, whichever must make statement in written to the Administrator and provide detail contact information.

91.313 Aircraft repair and alteration

(a) When the owner or operator of an aircraft makes any design change of its aircraft or components, which may significantly affect the aircraft weight, balance, structural strength, performance, powerplant, and flight characteristics or affect the airworthiness, it shall make application for approval in accordance with CCAR-21.

(b) Except the situation provided in paragraph (a), when the owner or operator of an aircraft performs major repair and alteration of its aircraft and components, which exceeds the requirements of the continuous airworthiness documents of aircraft or component manufacturers, it shall make application to the Administrator for approval of repair and alteration program prior to implementation.

(c) When the owner or operator of an aircraft performs the repair and alteration other than that of paragraph (b), which exceeds the requirements of the continuous airworthiness documents of aircraft or component manufacturers, it shall obtain the written approval or acceptance for the repair and alteration program from the aircraft or component manufacturers prior to implementation. If the written approval or acceptance from the aircraft or component manufacturers has not been obtained, it shall make application to the Administrator for approval of repair and alteration program prior to implementation.

(d) The repair and alteration work involved in this section shall be performed in accordance with the maintenance implementation rules of 91.303.

91.315 Approval of aircraft for return to service

(a) After any maintenance and alteration work, the owner or operator of an aircraft shall assign the qualified maintenance person to sign on the aircraft technical logbook to approve the aircraft for return to service.

(b) Except the maintenance release in accordance with CCAR-145, the person of commercial non-transport operator, private large aircraft operator, and aircraft manager approving the aircraft for return to service shall also be authorized by the maintenance accountable person prior to

implementation.

(c) No aircraft may be approved for return to service unless its maintenance and alteration work complies with CCAR-43.

(d) After the aircraft has been maintained or altered in a manner that may have appreciably changed its flight characteristics or substantially affected its operation in flight, no person (other than required flight crewmembers) may be carried until a test flight is made. The test flight may not be made if ground tests and inspection show conclusively that the maintenance has not appreciably changed the flight characteristics or substantially affected the flight operation of the aircraft.

(e) Under the specified operating limitations and conditions, an aircraft with some inoperative instruments or equipment may be approved for return to service according to 91.443, but a placard shall be installed as required by CCAR-43.

91.317 Aircraft technical records

(a) The owner or operator of an aircraft shall establish the aircraft technical records for each aircraft in use in accordance with paragraph (b) to continuously record the aircraft technical information.

(b) The aircraft technical records shall at least include the following contents and formats:

(1) Aircraft type and nationality registration number;

(2) Aircraft flight time and engine operation time of each flight in the form of local time or international standard time;

(3) Defect and inoperative situation found by the crew and actions taken;

(4) Fuel and oil refilling records;

(5) Aircraft operating exceedance records and special inspection measures taken;

(6) Date, items, person or organization, person approving return to service (including name, signature, and license number) of each maintenance and alteration;

(7) ADs implementation records.

(c) The format of aircraft technical records shall be fixed, and the contents necessary to be completed and known by the flight crew shall be put in the cockpit and it shall ensure the contents put in cockpit have at least a copy to ensure that, prior to takeoff, a record of contents completed in last flight and prior to this flight is kept on the ground.

(d) The owner or operator of an aircraft shall properly keep the aircraft technical records, and establish effective backup measures to ensure recoverability in case of loss or damage of records.

91.319 Retention of aircraft records

(a) Regardless who performs the maintenance work, the owner or operator of an aircraft shall obtain and keep the aircraft and its components maintenance and alteration records in accordance with the time limit specified in paragraph (b).

(b) The owner or operator of an aircraft shall properly keep the maintenance records in accordance with the following time limits:

(1) Except overhaul of aircraft or its components, other maintenance records shall at least be kept for 2 years;

(2) The overhaul records of aircraft or its components shall be kept until the work is substituted by the work having equivalent range and depth;

(c) The aircraft technical records shall be kept for 1 year after the aircraft is sold or permanently out of service. The aircraft technical records and maintenance records will be transferred with the aircraft when the aircraft is sold.

(d) The owner or operator of an aircraft shall ensure all maintenance records may be provided to the Administrator or the authorized safety investigation organization for inspection.

91.321 Airworthiness inspection

(a) No aircraft may be put into service unless the aircraft has passed the inspection of the

Administrator prior to its first service to confirm it complies with the requirements of this regulation and has obtained the airworthiness certificate signature or other signatures.

(b) After the aircraft has obtained the first airworthiness certificate signature or other signatures, within each consecutive 12 calendar months, the aircraft shall accept the annual airworthiness inspection of the Administrator to comply with the requirements of this regulation and obtain the airworthiness signature or other signatures prior to continuously putting into service. If the aircraft is not in service for long time, the annual airworthiness inspection is unnecessary after its airworthiness certificate is returned back to the Administrator, and before the aircraft is returned to service, an airworthiness inspection must be completed.

(c) The owner or operator of an aircraft shall accept the Administrator's airworthiness inspection of the aircraft in use at any time. For any defect found in the inspection that might affect the operation safety, the corrective actions shall be made to meet the requirements of the Administrator before the aircraft returns to service.

(d) For the inspection of aircraft for first service and annual airworthiness inspection, the owner or operator of an aircraft shall pay for inspection fee as required.

Chapter E Equipment, Instrument, and Certificate Requirements

91.401 Civil aircraft: certification required

(a) Except as provided in 91.613, no person may operate a civil aircraft unless it has within it the following:

(1) An appropriate and current airworthiness certificate (except the ultralight vehicles).

(2) An effective nationality registration certificate issued by the CAAC; for the aircraft registered in a foreign country and operating within the People's Republic of China, the aircraft nationality registration certificate issued by the foreign civil aviation authority.

(b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under 91.613 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

(c) No person may operate an aircraft with a fuel tank installed within the passenger compartment or a baggage compartment unless the installation was accomplished pursuant to CCAR-43 and a copy of the CAAC form authorizing that installation is on board the aircraft.

(d) No person may operate a turbine-powered airplane into or out of an airport in the People's Republic of China unless it complies with the fuel venting and exhaust emissions requirements of CCAR-36.

91.403 VFR Operations: Instrument and equipment

(a) For VFR flight during the day, the following instruments and equipment are required:

(1) A magnetic compass;

(2) An accurate timepiece indicating the time in hours, minutes and seconds;

(3) A sensitive pressure altimeters;

(4) An airspeed indicating system.

(b) Except aerial work operation of fixed-wing airplanes, VFR flights which are operated as controlled flights shall be equipped in accordance with 91.405 "IFR operations: Instrument and equipment".

(c) A turbine-powered fixed-wing airplane shall also be equipped with anti-collision lighting system and may continue fly to the place where repair or replacement can be made if the system fails.

91.405 IFR Operations: Instrument and equipment

(a) All airplanes when operated in accordance with the instrument flight rules shall be

equipped with:

(1) A magnetic compass;

(2) An accurate timepiece indicating the time in hours, minutes and seconds;

(3) Two sensitive pressure altimeters with counter drum-pointer or equivalent presentation (for fixed-wing airplanes in aerial work operations, one sensitive pressure altimeter is acceptable);

(4) An airspeed indicating system with means of preventing malfunctioning due to either condensation or icing;

(5) A turn and slip indicator;

(6) An attitude indicator (artificial horizon); for rotorcrafts, three attitude indicators (artificial horizon), one of which may be replaced by a turn indicator;

(7) A heading indicator (directional gyroscope);

(8) A means of indicating whether the power supply to the gyroscopic instrument is adequate;

(9) A cockpit temperature indicator;

(10) A climb and descent speed indicator; and

(b) Besides the prescribed equipments provided in paragraph (a), all rotorcrafts in IFR operations or the rotorcrafts that cannot be maintained in a desired attitude without reference to one or more flight instruments, shall also be equipped with a stabilization system (unless it has been confirmed by the type certification that the rotorcraft possesses, by nature of its design, adequate stability without such a system).

(c) A turbo powered fixed-wing airplane shall also be equipped with anti-collision lighting system and may continue fly to the place where repair or replacement can be made if the system fails.

91.407 Night and over-the-top operations: Instruments and equipment

(a) All aircrafts, when operated at night (from sunset to sunrise) and over-the-top, shall be equipped with the instruments and equipment specified for IFR operations, and also equipped with:

(1) Anti-collision and navigation lights;

(2) Two landing lights (Airplanes which are equipped with a single landing light having two separately energized filaments will be considered to have complied with this requirement), but for fixed-wing airplanes in aerial work operations, one landing light is acceptable;

(3) Illumination for all instruments and equipment that is essential for the safe operation of the aeroplane that are used by the flight crew;

(4) Cabin lights; and

(5) An electric torch for each crew member station.

(b) An aircraft shall turn on or display the lights during its operation at night, over-the-top or other periods specified by the Administrator.

91.409 Mach number indicator

All fixed-wing aeroplanes with speed limitations expressed in terms of Mach number, shall be equipped with a Mach number indicator (This does not preclude the use of the airspeed indicator to derive Mach number if for ATS purposes only).

91.411 Radio communication equipment

(a) Except provided in paragraph (b), an airplane shall be provided with radio communication equipment capable of:

(1) Conducting two-way communication for airport control purposes;

(2) Receiving meteorological information at any time during flight; and

(3) Conducting two-way communication at any time during flight with at least one aeronautical ground station and with such other aeronautical stations and on such frequencies as may be prescribed by the Administrator.

(b) An fixed-wing airplane in aerial work operations shall be equipped with the following radio communication equipment:

(1) An fixed-wing airplane to be operated in accordance with the instrument flight rules or at night shall be provided with radio communication equipment. Such equipment shall be capable of conducting two-way communication with those aeronautical stationsground aeronautical stations and on those frequencies prescribed by the Administrator;

(2) An fixed-wing airplane to be operated in accordance with the visual flight rules, but as a controlled flight, shall, unless otherwise specially authorized, be provided with radio communication equipment capable of conducting two-way communication at any time during flight with such aeronautical stationsground aeronautical stations and on such frequencies as may be prescribed by the Administrator;

(3) An fixed-wing airplane to be operated over water and within special airspace specified by the Administrator shall, unless otherwise specially authorized, be provided with radio communication equipment capable of conducting two-way communication at any time during flight with such ground aeronautical stations and on such frequencies as may be prescribed by the Administrator.

(c) To ensure two-way communication at any time during flight with such aeronautical stations, the aircraft shall at least be equipped with:

(1) Two transmitters;

(2) Two microphones;

(3) Two headsets or one headset and one speaker;

(4) Two independent receivers (a receiver is independent if the function of any part of it does not depend on the functioning of any part of another receiver.).

(d) The microphones specified in paragraph (c)(2) must be boom or throat microphones. All flight crew members required to be on flight deck duty shall communicate through microphones below the transition level/altitude.

(e) Notwithstanding the provisions of paragraph (c) of this section, a person may operate an airplane on which no passengers are carried from a place where repairs or replacement cannot be made to a place where they can be made, if not more than one of each of the dual items of radio communication and navigational equipment malfunctions or becomes inoperative.

(f) when both VHF and HF communications equipment are required for the route and the airplane has two VHF transmitters and two VHF receivers for communications, only one HF transmitter and one HF receiver is required for communications.

(g) The radio communication equipment required above shall provide for communication on the aeronautical emergency frequency of 121.5 MHz.

91.413 Navigation equipment

(a) All aircrafts shall be provided with navigation equipment which will enable them to proceed during any flight phase:

(1) In accordance with its operational flight plan; and

(2) In accordance with the requirements of ATC (except when, if authorized by the Administrator, navigation for flights under VFR is accomplished by visual reference to landmarks.)

(b) To ensure compliance with paragraph (a) in any flight phase, an aircraft shall at least be equipped with two independent electronic navigation equipments (if the function of any part of one navigation equipment is independent of another equipment, the navigation equipment is considered as independent), but one receiver that can receive both radio communication and navigation signal might replace one independent radio communication receiver and one independent navigation communication receiver.

(c) For the two navigation communication equipments required in paragraph (b), if no more than one equipment failure or inoperative, the aircraft may still fly from a place where repair or replacement cannot be made to a place where they can be made but no passenger can be carried.

(d) When operating within ATC specified special airspace (such as RNP, RVSM etc.), the aircraft shall also be equipped with equipments to ensure flying in accordance with the requirements.

(e) On flights in which it is intended to land in instrument meteorological conditions, an airplane shall be provided with radio equipment capable of receiving signals providing guidance to a point from which a visual landing can be conducted. This equipment shall be capable of providing such guidance for each aerodrome at which it is intended to land in instrument meteorological conditions and for any designated alternate aerodromes.

91.415 Emergency and survival equipment

(a) All aircrafts shall be equipped with accessible and adequate medical supplies appropriate to the number of passengers the aeroplane is authorized to carry.

(b) All aircrafts shall at least be equipped with portable fire extinguishers of a type which, when discharged, will not cause dangerous contamination of the air within the aeroplane:

(1) At least one hand fire extinguisher must be provided and located on or near the flight deck in a place that is readily accessible to the flight crew;

(2) At least 1 hand fire extinguisher shall be located in each passenger compartment that is separate from the pilot's compartment and that is not readily accessible to the flight crew, and at least 2 hand fire extinguishers must be conveniently located in for each airplane accommodating more than 30 passengers;

(3) Hand fire extinguishers must be readily accessible and, unless the locations of the fire extinguishers are obvious, their stowage provisions must be properly identified;

(4) Hand fire extinguishers must be installed and secured in such a manner that they will not interfere with the safe operation of the airplane or adversely affect the safety of the crew and passengers.

(c) All aircrafts shall be equipped with seats and seat belt as follows:

(1) A seat or berth for each occupant over 2 years old;

(2) A seat belt for each seat and restraining belts for each berth;

(3) A safety harness for each front seat (flight crew seat or parallel seat). The safety harness shall incorporate a device with will automatically restrain the occupant's torso in the event of rapid deceleration and must be designed to protect each occupant from serious head injury when the occupant experiences the ultimate inertia forces specified in the applicable type certification standards for fixed load;

(4) The shoulder harness installation at each flight crewmember station must permit the crewmember, when seated and with the safety belt and shoulder harness fastened, to perform all functions necessary for flight operation;

(5) All passenger-carrying airplanes shall be equipped with the seat fitted with a safety harness for the use of each cabin crew member. Cabin crew seats shall be located near floor level and other emergency exits as required by the Administrator for emergency evacuation.

(d) All passenger-carrying aircrafts shall have means of ensuring that following information and instructions are conveyed to passengers:

(1) When seat belts are to be fastened;

(2) When and how oxygen equipment is to be used if the carriage of oxygen is required;

(3) Restrictions on smoking;

(4) Location and use of life jackets or equivalent individual flotation devices where their carriage is required; and

(5) Location and method of opening emergency exits.

(e) All aircrafts shall be equipped with spare electrical fuses of appropriate ratings for replacement of those accessible in flight.

(f) If areas of the fuselage are suitable for break-in by rescue crews in emergency, such areas shall be marked on. The colour of the markings shall be red or yellow, and if necessary they shall be outlined in white to contrast with the background. If the corner markings are more than 2 m apart, intermediate lines of 9 cm × 3 cm shall be inserted so that there is no more than 2 m between adjacent markings.

(g) Each airplane accommodating more than 19 passengers must be equipped with a crash axe.

(h) Each passenger-carrying airplane must have a portable battery-powered megaphone or megaphones readily accessible to the crewmembers assigned to direct emergency evacuation,

installed as follows:

(1) One megaphone on each airplane with a seating capacity of more than 60 but less than 100 passengers, at the most rearward location in the passenger cabin where it would be readily accessible to a normal flight attendant seat. However, the Administrator may grant a deviation from the requirements of this subparagraph if the Administrator finds that a different location would be more useful for evacuation of persons during an emergency;

(2) On each airplane with a seating capacity of 100 or more passengers, one megaphone installed at the forward end and one installed at the most rearward location where it would be readily accessible to a normal flight attendant seat.

91.417 Airplanes for overwater flights: supplemental emergency and survival equipment

(a) Except seaplanes provided in paragraph (b), all airplanes shall carry the equipment, which comprise one life jacket or equivalent individual flotation device for each person on board, stowed in a position easily accessible from the seat or berth of the person for whose use it is provided:

(1) When flying over water and at a distance of more than 93 km (50 NM) away from the shore

(2) When taking off or landing at an aerodrome where, the take-off or approach path is so disposed over water that in the event of a mishap there would be a likelihood of a ditching.

(b) All airplanes certified as seaplanes for all flight shall be equipped with:

(1) One life jacket, or equivalent individual flotation device, for each person on board, stowed in a position easily accessible from the seat or berth of the person for whose use it is provided;

(2) Equipment for making the sound signals prescribed in the International Regulations for Preventing Collisions at Sea, where applicable; and

(3) One anchor (if necessary to assist the operation, it also has one sea anchor or drogue).

(c) In addition to the equipment prescribed in paragraph (a) or (b), the following equipment shall be installed in all airplanes when used over routes on which the airplane may be over water and at more than 93 km (50 nm) away from the shore and beyond gliding distance from the shore:

(1) Life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such life-saving equipment including means of sustaining life as is appropriate to the flight to be undertaken;

(2) At least one pyrotechnical signalling device for each liferaft.

(d) Each life jacket and equivalent individual flotation device shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons.

91.419 Rotorcrafts for overwater flights: supplemental emergency and survival equipment

(a) All rotorcrafts intended to be flown over water shall be fitted with a permanent or rapidly deployable means of flotation so as to ensure a safe ditching of the rotorcraft when:

(1) Flying over water at a distance from land corresponding to more than 10 minutes at normal cruise speed in the case of performance Class A rotorcrafts; or

(2) Flying over water beyond autorotational or safe forced landing distance from land in the case of performance Class B rotorcrafts.

(b) Rotorcrafts in the following situations shall be equipped with one life jacket, or equivalent individual flotation device, for each person on board, stowed in a position easily accessible from the seat or berth of the person for whose use it is provided:

(1) Flying over water at a distance from land corresponding to more than 10 minutes at normal cruise speed in the case of performance Class A rotorcrafts;

(2) Flying beyond autorotational distance from land but within a distance from land specified by local search and rescue department in the case of performance Class B rotorcrafts;

(3) In the case of performance Class A and Class B rotorcrafts, when taking off or landing at a heliport where the take-off or approach path is so disposed over water that in the event of a

mishap there would be likelihood of a ditching

(c) Except provided in paragraph (a) and (b), in the following situations, the rotorcraft shall be equipped with life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such life-saving equipment including means of sustaining life as is appropriate to the flight to be undertaken, and each life jacket and equivalent individual flotation device equipped with survivor locator light:

(1) Flying over water at a distance from land corresponding to more than 10 minutes at normal cruise speed in the case of performance Class A rotorcrafts; or

(2) Flying over water beyond a distance from land specified by local search and rescue department in the case of performance Class B rotorcrafts.

91.421 Operations in special airspace: Supplemental emergency and survival equipment

Aircrafts, when operated over the land areas which have been designated by local search and rescue department concerned as areas in which search and rescue would be especially difficult, shall be equipped with such signalling devices and life-saving equipment (including means of sustaining life) as may be appropriate to the area overflown.

91.423 High altitude flights: Oxygen equipment

(a) An airplane intended to be operated at flight altitude at which the atmospheric pressure is greater than 3000 m (10000 ft) in cabin shall have oxygen supply sufficient to be used by the following persons:

(1) At cabin pressure altitudes above 3000 m (10000 ft) up to and including 4000 m (13000 ft) unless all crew members and 10% of passengers are provided with supplemental oxygen for any period in excess of 30 minutes duration;

(2) At cabin pressure altitudes above 4000 m (13000 ft), unless the crew members and all passengers are provided with supplemental oxygen during the entire flight time at those altitudes;

(3) To meet the above requirements of supplemental oxygen, an airplane shall be properly equipped with oxygen storage and dispensing apparatus.

(b) No person may operate an aircraft with a pressurized cabin at flight altitudes above 3000 m (10000 ft) unless supply of supplemental oxygen, in addition to any oxygen required to satisfy paragraph (a) of this section, is available for all flight crew members and passengers of the aircraft for use in the event that a descent is necessitated by loss of cabin pressurization; and

(c) An airplane intended to be operated at flight altitudes at which the atmospheric pressure is greater than 7600 m (25000 ft), or which, if operated at flight altitudes at which the atmospheric pressure is greater than 7600 m (25000 ft) and cannot descend safely within four minutes to a flight altitude at which the atmospheric pressure is equal to 4000 m (13000 ft):

(1) Shall be provided with no less than a 10-minute supply for the occupants of the passenger compartment;

(2) Shall be provided with automatically deployable oxygen equipment and the total number of oxygen dispensing units shall exceed the number of passenger and cabin crew seats by at least 10 per cent;

(3) Shall be equipped with a device to provide positive warning to the pilot of any dangerous loss of pressurization.

(d) No person may operate a civil aircraft with a pressurized cabin at flight altitudes above 10500 m (35000 ft) unless one pilot at the controls of the airplane is wearing and using an oxygen mask that is secured and sealed and that either supplies oxygen at all times or automatically supplies oxygen whenever the cabin pressure altitude of the airplane exceeds 4000 m (13000 ft) QNH, except that the one pilot need not wear and use an oxygen mask while at or below 12500 m (41000 ft) QNH if there are two pilots at the controls and each pilot has a quick donning type of oxygen mask that can be placed on the face with one hand from the ready position within 5 seconds, supplying oxygen and properly secured and sealed.

91.425 Operations in icing conditions: Equipment

All aircrafts shall be equipped with suitable de-icing and/or anti-icing devices when operated in circumstances in which icing conditions are reported to exist or are expected to be encountered.

91.427 ATC transponder and altitude reporting equipment

(a) All aircrafts operated in controlled airspace shall be equipped with the ATC transponder as follows:

(1) Correspond the ATC question by code as required;

(2) Automatically send the pressure-altitude message in 30 m (100 ft) increments to inquire the ATC.

(b) Unless otherwise authorized the Administrator, the aircraft operated in the following areas shall comply with the requirements of paragraph (a) and also can correspond by a pair of point code and automatically send pressure-altitude information to the ATC and other aircraft:

(1) Operate at an international transport airport and special busy transport airport area defined in 91.131 and 91.133;

(2) Fly cross and occupy the middle and upper air routes and airways published by the Administrator.

(c) In the following situations, no person may use any automatic pressure altitude reporting equipment associated with the ATC transponder:

(1) When deactivation of that equipment is directed by ATC;

(2) Unless, as installed, that equipment was tested and calibrated to transmit altitude data corresponding within 38 meters (on a 95 percent probability basis) of the indicated or calibrated datum of the altimeter normally used to maintain flight altitude, with that altimeter referenced to 1013.2 hp for altitudes from sea level to the maximum operating altitude of the aircraft; or

(3) Unless the altimeters and digitizers in that equipment meet the standards of TSO-Cl0b and TSO-C88, respectively.

91.429 Altitude alerting system or device: Turbojet-powered civil airplanes

(a) Except as provided in paragraph (d) of this section, no person may operate a turbojet-powered civil- airplane registered in the People's Republic of China unless that airplane is equipped with an approved altitude alerting system or device that is in operable condition and meets the requirements of paragraph (b) of this section.

(b) Each altitude alerting system or device required by paragraph (a) of this section must be able to:

(1) Alert the pilot

(i) Upon approaching a pre-selected altitude in either ascent or descent, by a sequence of both aural and visual signals in sufficient time to establish level flight at that pre-selected altitude; or

(ii) Upon approaching a pre-selected altitude in either ascent or descent, by a sequence of visual signals in sufficient time to establish level flight at that pre-selected altitude, and when deviating above and below that pre-selected altitude, by an aural signal.

(2) Provide the required signals from sea level to the highest operating altitude approved for the airplane in which it is installed;

(3) Preselect altitudes in increments that are commensurate with the altitudes at which the aircraft is operated;

(4) Be tested without special equipment to determine proper operation of the alerting signals and

(5) Accept necessary barometric pressure settings if the system or device operates on barometric pressure. However, for operation below 900 meters (3000 feet) AGL, the system or device need only provide one signal, either visual or aural, to comply with this paragraph. A radio altimeter may be included to provide the signal if the operator has an approved procedure for its use to determine DH or MDA(H), as appropriate.

(c) Each operator to which this section applies must establish and assign procedures for the

use of the altitude alerting system or device and each flight crewmember must comply with those procedures assigned to him.

(d) Paragraph (a) of this section does not apply to any operation of an airplane that has an experimental certificate or to the operation of any airplane for the following purposes:

(1) Ferrying an airplane from the place where possession of it was taken to a place where the altitude alerting system or device is to be installed.

(2) Continuing a flight as originally planned, if the altitude alerting system or device becomes inoperative after the airplane has taken off; however, the flight may not depart from a place where repair or replacement can be made.

(3) Ferrying an airplane with any inoperative altitude alerting system or device from a place where repairs or replacements cannot be made to a place where it can be made.

(4) Conducting an airworthiness flight test of the airplane.

(5) Ferrying an airplane to a place outside the People's Republic of China for the purpose of registering it in a foreign country.

(6) Conducting a sales demonstration of the operation of the airplane.

(7) Training foreign flight crews in the operation of the airplane before ferrying it to a place outside the People's Republic of China for the purpose of registering it in a foreign country.

91.431 Weather radar

Airplanes when carrying passengers shall be equipped with operative weather radar or other important weather detection equipment whenever such airplanes are being operated in areas where thunderstorms or other potentially hazardous weather conditions, regarded as detectable with airborne weather radar, may be expected to exist along the route either at night or under instrument meteorological conditions.

91.433 Flight Recorder

(a) All airplanes and rotorcrafts registered in the People's Republic of China shall meet the following requirements of flight recorders:

(1) Requirements of flight data recorders (FDRs)

(i) Don't install and use engraving metal foil FDRs and photographic film FDRs;

(ii) Unless otherwise authorized by the Administrator, don't install and use analogue FDRs using frequency modulation (FM);

(iii) All aircrafts for which the airworthiness certificate is first issued after 1 January 1989, of a maximum certificated takeoff mass in excess of 27000 kg (airplanes) or 7000 kg (rotorcrafts) shall be equipped with Type I FDRs specified in appendix E (airplanes) or appendix F (rotorcrafts); unless otherwise authorized by the Administrator, from 1 January 1989, all airplanes of a maximum certificated takeoff mass in excess of 5700 kg and less than 27000 kg and all rotorcrafts of a maximum certificated takeoff mass in excess of 3180 kg and less than 7000 kg shall be equipped with Type II FDRs in appendix E (airplanes) or Type V FDRs in appendix F (rotorcrafts);

(iv) Unless otherwise authorized by the Administrator, all aircrafts for which the airworthiness certificate is first issued after 1 January 2005, of a maximum certificated takeoff mass in excess of 5700 kg (airplanes) or 3180 kg (rotorcrafts) shall be equipped with Type IA FDRs in appendix E (airplanes) or Type IVA FDRs in appendix F (rotorcrafts);

(v) Unless otherwise authorized by the Administrator, all FDRs shall be capable of retaining the information recorded during at least the last 25 hours (airplanes) or 10 hours (rotorcrafts) of their operation.

(2) Requirements of cockpit voice recorders (CVRs)

(i) Unless otherwise authorized by the Administrator, all airplanes for which the airworthiness certificate is first issued after 1 January 1987 and of a maximum certificated takeoff mass in excess of 5700 kg (airplanes) or 3180 kg (rotorcrafts) shall be equipped with a CVR required by type certification;

(ii) Any rotorcraft equipped with approved CVR but not equipped with FDR shall at least record the main rotor speed on one channel of CVR;

(iii) A CVR shall be capable of retaining the information recorded during at least the last 30 minutes of its operation.

(iv) Unless otherwise authorized by the Administrator, a CVR, installed in aircrafts of a maximum certificated take-off mass of over 5700 kg (airplanes) or 3180 kg (rotorcrafts) for which the airworthiness certificate is first issued after 1 January 2003, shall be capable of retaining the information recorded during at least the last two hours of its operation.

(3) Unless otherwise authorized by the Administrator, any airplane or rotorcraft which utilize data link communication and are required to carry a CVR shall comply with the following requirements:

(i) All airplanes or rotorcrafts for which the airworthiness certificate is first issued after 1 January 2005, shall record on a flight recorder, all data link communications to and from the aircraft. The minimum recording duration shall be equal to the duration of the CVR, and shall be correlated to the recorded cockpit audio.

(ii) From 1 January 2007, all airplanes or rotorcrafts shall record on a flight recorder, all data link communications to and from the aircraft. The minimum recording duration shall be equal to the duration of the CVR, and shall be correlated to the recorded cockpit audio.

(iii) Sufficient information to derive the content of the data link communications message and, whenever practical, the time the message was displayed to or generated by the crew shall be recorded.

(iv) Data link communications include, but are not limited to, automatic dependent surveillance (ADS), controller-pilot data link communications (CPDLC), data link-flight information services (D-FIS) and aeronautical operational control (AOC) messages.

(4) Provided the record requirements are met, it may install two sets of combined flight recorders (FDR/CVR) to replace respectively the independent FDR and independent CVR.

(5) Flight recorders shall be constructed, located and installed so as to provide maximum practical protection for the recordings in order that the recorded information may be preserved, recovered and transcribed. Flight recorders shall meet the CAAC-prescribed crashworthiness specifications.

(6) The flight recorder container is to:

(i) Be painted a distinctive orange or yellow colour;

(ii) Carry reflective material to facilitate its location; and

(iii) Have securely attached an automatically activated under-water locating device.

(7) The flight recorder shall record continuously during the whole operation.

(b) The operator shall conduct operational checks periodically and evaluate recordings from the FDR and CVR systems to ensure the reliability and continued serviceability of the recorders.

(c) No operator may conduct the following operations unless otherwise authorized by the Administrator:

(1) Ferry an aircraft with an inoperative flight recorder or cockpit voice recorder from a place where repair or replacement cannot be made to a place where they can be made;

(2) Continue a flight as originally planned, if the flight recorder or cockpit voice recorder becomes inoperative after the aircraft has taken off;

(3) Conduct an airworthiness flight test during which the flight recorder or cockpit voice recorder is turned off to test it or to test any communications or electrical equipment installed in the aircraft;

(4) Ferry a newly acquired aircraft from the place where possession of it is taken to a place where the flight recorder or cockpit voice recorder is to be installed;

(5) Operate an aircraft for non-remuneration flight not more than 15 days while the flight recorder or cockpit voice recorder is inoperative and removed for repair provided that the aircraft maintenance records contain an entry that indicates the date of failure, and a placard is located in view of the pilot to show that the flight recorder or cockpit voice recorder is inoperative.

(d) In the event of an accident or occurrence requiring immediate notification to the Administration, any operator shall keep the original information of flight recorder for at least 60 days or, if requested by the Administrator, for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or occurrences.

91.435 Emergency locator transmitter (ELT)

(a) Except as provided in paragraphs (e) and (f) of this section, no person may operate a civil aircraft registered in the People's Republic of China unless:

(1) From 1 January 2008, all airplanes authorized to carry more than 19 passengers shall be equipped with at least one automatic ELT or two ELTs; all airplanes authorized to carry 19 or less passengers shall be equipped with at least one ELT.

(2) All airplanes for which the airworthiness certificate is first issued after 1 January 2007 and authorized to carry more than 19 passengers shall be equipped with at least two ELTs, one of which shall be automatic; all airplanes authorized to carry 19 or less passengers shall be equipped with at least one automatic ELT.

(3) From 1 July 2008, any rotorcraft shall be equipped with one automatic ELT; any rotorcraft operated over-water flights shall also be equipped with at least one survival ELT on a life raft.

(4) Any rotorcraft for which the airworthiness certificate is first issued after 1 January 2007 shall be equipped with at least one automatic ELT; any rotorcraft operated over-water flights shall also be equipped with at least one survival ELT on a life raft.

(b) Each emergency locator transmitter required by paragraph (a) of this section must:

(1) Be attached to the airplane in such a manner that the probability of damage to the transmitter in the event of crash impact is minimized. Fixed and deployable automatic type transmitters must be attached to the airplane as far aft as practicable.

(2) Unless otherwise authorized by the Administrator, all installed ELTs shall comply with the following operation frequency requirements:

(i) The automatic activated ELT installed on all aircrafts in an international operation must be able to operate at both frequencies of 121.5MHZ and 406MHZ at the same time;

(ii) From 1 January 2010, the ELTs installed on all aircrafts must be able to operate at both frequencies of 121.5MHZ and 406MHZ at the same time;

(iii) The ELTs installed on the aircraft for which the airworthiness certificate is first issued after 1 January 2007 must be able to operate at both frequencies of 121.5MHZ and 406MHZ at the same time;

(iv) The ELTs installed on the aircraft before 1 January 2007 and only may operate on 121.5MHZ may be used until 1 January 2010, however, the aircraft installed with this category of ELT may only operate within the country.

(c) Batteries used in the emergency locator transmitters required by paragraphs (a) of this section must be replaced (or recharged, if the batteries are rechargeable):

(1) When the transmitter has been in use for more than 1 cumulative hour; or

(2) 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 and entered in the aircraft maintenance record. Paragraph (c) (2) of this section does not apply to batteries (such as water activated batteries) that are essentially unaffected during probable storage intervals.

(d) Each emergency locator transmitter required by paragraph (a) of this section must be inspected within 12 calendar months after the last inspection for:

(1) Proper installation;

(2) Battery corrosion;

(3) Operation of the controls and crash sensor; and

(4) The presence of a sufficient signal radiated from its antenna.

(e) Notwithstanding paragraph (a) of this section, a person may:

(1) Ferry a newly acquired airplane from the place where possession of it was taken to a place where the emergency locator transmitter is to be installed; and

(2) Ferry an airplane with an inoperative emergency locator transmitter from a place where repairs or replacements cannot be made to a place where they can be made.

No person other than required crewmembers may be carried aboard an airplane being ferried under paragraph (e) of this section.

(f) Paragraph (a) of this section does not apply to:

(1) Aircraft while engaged in training operations conducted entirely within a 93 km (50 nm) radius of the airport;

(2) Aircraft while engaged in flight operations incident to design and testing;

(3) New aircraft while engaged in flight operations incident to their manufacture and delivery;

(4) Aircraft while engaged in flight operations incident to the aerial application of chemicals and other substances for agricultural purposes;

(5) Aircraft certificated by the Administrator for research and development purposes;

(6) Aircraft while used for showing compliance with regulations, crew training, exhibition, air racing, or market surveys;

(7) Aircraft equipped to carry not more than one person; and

(8) Other special situations authorized by the Administrator.

91.437 Terrain awareness warning system (TAWS)

(a) Unless otherwise authorized by the Administrator, the airplane registered in the People's Republic of China must install an approved terrain awareness warning system (TAWS) according to the following requirements:

(1) All turbine-powered airplanes registered in the People's Republic of China for the first time and of a maximum certificated takeoff mass in excess of 5700 kg or authorized to carry more than 9 passengers shall be equipped with an approved TAWS;

(2) From 1 January 2005, all turbine-powered airplanes of a maximum certificated takeoff mass in excess of 15000 kg or authorized to carry more than 30 passengers shall be equipped with an approved TAWS;

(3) From 1 January 2007, all turbine-powered airplanes of a maximum certificated takeoff mass in excess of 5700 kg or authorized to carry more than 9 passengers shall be equipped with an approved TAWS;

(4) All above airplanes in public air transportation shall install category A TAWS and all above airplanes in non-public air transportation shall install category B TAWS;

(5) All airplanes in international flight operations shall meet the requirements of the countries flown over/to/from.

(b) TAWS and its installation shall comply with the applicable airworthiness requirements.

(c) Airplane flight manual shall include the following procedures:

(1) Operation and use of TAWS;

(2) Correct response by flight crew to the audio and video warning of TAWS.

91.439 Airborne collision avoidance system (ACAS) and application

(a) Unless otherwise authorized by the Administrator, all turbine-powered airplanes registered in the People's Republic of China, and of a maximum certificated takeoff mass in excess of 5700 kg or authorized to carry more than 19 passengers shall be equipped with an airborne collision avoidance system (ACAS II).

(b) The ACAS of civil aircraft registered in the People's Republic of China must be approved by the Administrator and its installation must meet the pertinent airworthiness requirements.

(c) The pilot of an aircraft installed with serviceable ACAS shall turn on and use that system.

(d) ACAS II specified in this section is equivalent to TCAS II version 7.0.

91.441 Radiation indicator

(a) All turbine-powered fixed wing airplane registered in the People's Republic of China intended to be operated above 15000 m (49000 ft) shall install the radiation indicator complying with paragraph (b).

(b) The radiation indicator shall be readily visible to a flight crew member, and can measure and indicate continuously the dose rate of total cosmic radiation being received (i.e. the total of ionizing and neutron radiation of galactic and solar origin) and the cumulative dose on each flight.

91.443 Inoperative instruments and equipment

(a) Except as provided in paragraph (d) of this section, no person may take off an aircraft with inoperative instruments or equipment installed unless the following conditions are met:

(1) An approved Minimum Equipment List exists for that aircraft.

(2) The aircraft has within it a letter of authorization, issued by the Administrator, authorizing operation of the aircraft under the Minimum Equipment List (the Minimum Equipment List and the letter of authorization constitute a supplemental type certificate for the aircraft).

(3) The approved Minimum Equipment List shall

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

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

(4) The aircraft records available to the pilot must include an entry describing the inoperable instruments and equipment.

(5) The aircraft is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the letter authorizing the use of the list.

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

(1) Instruments and equipment that are either specifically or otherwise required by the Regulations of CAAC under which the aircraft is type certificated and which are essential for safe operations under all operating conditions.

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

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

(c) A person authorized to use an approved Minimum Equipment List issued for a specific aircraft under CCAR-121 or CCAR-135 shall use that Minimum Equipment List in connection with operations conducted with that aircraft under this regulation without additional approval requirements.

(d) Except for operations conducted in accordance with paragraph (a) or (c) of this section, a person may take off an aircraft in operations conducted under this regulation with inoperative instruments and equipment without an approved Minimum Equipment List provided if:

(1) The flight operation is conducted in a

(i) Rotorcraft, non-turbine-powered airplane, glider, or lighter-than-air aircraft for which a Master Minimum Equipment List has not been developed; or

(ii) Small rotorcraft, non-turbine-powered small airplane, glider, or lighter-than-air aircraft for which a Master Minimum Equipment List has been developed; and

(2) The inoperative instruments and equipment are not

(i) Part of the VFR day type certification instruments and equipment prescribed in the applicable airworthiness regulations under which the aircraft was type certificated;

(ii) Indicated as required on the aircraft's equipment list, or on the "Kinds of operations Equipment List" for the kind of flight operation being conducted;

(iii) Required by this chapter or any other regulations for the specific kind of flight operation being conducted; or

(iv) Required to be operational by an airworthiness directive; and

(3) The inoperative instruments and equipment are

(i) Removed from the aircraft, the cockpit control placarded, and the maintenance recorded in accordance with 43.19 of CCAR-43; or

(ii) Deactivated and placarded "Inoperative." If deactivation of the inoperative instrument or equipment involves maintenance, it must be accomplished and recorded in accordance with CCAR-43; and

(4) A determination is made by a pilot, who is licensed and appropriately rated under CCAR-61, or by a person, who is licensed and appropriately rated to perform maintenance on the aircraft, that the inoperative instrument or equipment does not constitute a hazard to the aircraft. An aircraft with inoperative instruments or equipment as provided in paragraph (d) of this section is considered to be in a properly altered condition acceptable to the Administrator.

(e) Notwithstanding any other provision of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit issued by the Administrator.

Chapter F Additional Equipment and Operating Requirements for Large and Transport Category Aircraft

91.501 Applicability

This chapter applies to operation of large and transport category civil aircraft registered in the People's Republic of China.

91.503 Aural speed warning device

No person may operate a transport category airplane in air commerce unless that airplane is equipped with an aural speed warning device that complies with 25.1303 of CCAR 25.

91.505 Transport category civil airplane weight limitations

(a) No person may take off any transport category airplane other than turbine-powered unless:

(1) The takeoff weight does not exceed the authorized maximum takeoff weight for the elevation of the airport of takeoff;

(2) The elevation of the airport of takeoff is within the altitude range for which maximum takeoff weights have been determined;

(3) Normal consumption of fuel and oil in flight to the airport of intended landing will leave a weight on arrival not in excess of the authorized maximum landing weight for the elevation of that airport; and

(4) The elevations of the airport of intended landing and of all specified alternate airports are within the altitude range for which the maximum landing weights have been determined.

(b) No person may operate a turbine-powered transport category airplane contrary to the Airplane Flight Manual, or takeoff that airplane unless:

(1) The takeoff weight does not exceed the takeoff weight specified in the Airplane Flight Manual for the elevation of the airport and for the ambient temperature existing at the time of takeoff;

(2) Normal consumption of fuel and oil in flight to the airport of intended landing and to the alternate airports will leave a weight on arrival not in excess of the landing weight specified in the Airplane Flight Manual for the elevation of each of the airports involved and for the ambient temperatures expected at the time of landing;

(3) The takeoff weight does not exceed the weight shown in the Airplane Flight Manual to correspond with the minimum distances required for takeoff considering the elevation of the airport, the runway to be used, the effective runway gradient, and the ambient temperature and wind component existing at the time of takeoff.

(c) No person may take off a turbine-powered transport category airplane unless, in addition to the requirements of paragraph (b) of this section:

(1) The accelerate-stop distance is no greater than the length of the runway plus the length of the stopway (if present);

(2) The takeoff distance is no greater than the length of the runway plus the length of the clearway (if present);

(3) The takeoff run is no greater than the length of the runway.

91.507 Authorization for ferry flight with one engine inoperative

(a) The holder of a public air transportation certificate and the operator conducting operations under this regulation may conduct a ferry flight of a four-engine airplane or a turbine-powered airplane equipped with three engines, with one engine inoperative, to a base for the purpose of repairing that engine subject to the following:

(1) The airplane model has been test flown and found satisfactory for safe flight in accordance with paragraph (b) or (c) of this section, as appropriate.

(2) The approved Airplane Flight Manual contains the following performance data and the flight is conducted in accordance with that data:

(i) Maximum weight;

(ii) Center of gravity limits;

(iii) Configuration of the inoperative propeller (if applicable);

(iv) Runway length for takeoff (including temperature accountability);

(v) Altitude range;

(vi) Certificate limitations;

(vii) Ranges of operational limits;

(viii) Performance information;

(ix) Operating procedures.

(3) The operator has CAAC-approved procedures for the safe operation of the airplane, including specific requirements for:

(i) Limiting the operating weight on any ferry flight to the minimum necessary for the flight plus the necessary reserve fuel load;

(ii) A limitation that takeoffs must be made from dry runways unless, based on a showing of actual operating takeoff techniques on wet runways with one engine inoperative, takeoffs with full controllability from wet runways have been approved for the specific model aircraft and included in the Airplane Flight Manual;

(iii) Operations from airports where the runways may require a takeoff or approach over populated areas; and

(iv) Inspection procedures for determining the operating condition of the operative engines.

(4) No person may takeoff an airplane under this section if:

(i) The initial climb is over thickly populated areas; or

(ii) Weather conditions at the takeoff or destination airport are less than those required for VFR flight.

(5) Persons other than required flight crewmembers shall not be carried during the flight.

(6) No person may use a flight crewmember for flight under this section unless that crewmember is thoroughly familiar with the operating procedures for one engine inoperative ferry flight contained in the operator's manual and the limitations and performance information in the Airplane Flight Manual.

(b) The airplane performance of a reciprocating engine powered airplane with one engine inoperative must be determined by flight test as follows:

(1) A speed not less than 1.3 V_{s1} must be chosen at which the airplane may be controlled satisfactorily in a climb with the critical engine inoperative (with its propeller removed or in a configuration desired by the operator) and with all other engines operating at the maximum power determined in paragraph (b) (3) of this section.

(2) The distance required to accelerate to the speed listed in paragraph (b)(1) of this section and to climb to 15 meters (50 feet) must be determined with:

(i) The landing gear extended;

(ii) The critical engine inoperative and its propeller removed or in a configuration desired by the operator; and

(iii) The other engines operating at not more than maximum power established under paragraph (b) (3) of this section.

(3) The takeoff, flight, and landing procedures, such as the approximate trim settings, method of power application, maximum power, and speed must be established.

(4) The performance must be determined at a maximum weight not greater than the weight that allows a rate of climb of at least 120 meters/400 feet per minute in the en route configuration.

(5) The performance must be determined using temperature accountability for the takeoff

field length.

(c) The airplane performance of a turbine-powered airplane with one engine inoperative must be determined by flight tests, including at least three takeoff tests, in accordance with the following:

(1) Takeoff speeds V_R and V_2, not less than the corresponding speeds under which the airplane was type certificated under 25.107 of CCAR-25, must be chosen at which the airplane may be controlled satisfactorily with the critical engine inoperative (with its propeller removed or in a configuration desired by the operator, if applicable) and with all other engines operating at not more than the power selected for type certification as set forth in 25.101 of CCAR-25.

(2) The minimum takeoff field length must be the horizontal distance required to accelerate and climb to the 11 meter /35-foot height at V_2 speed (including any additional speed increment obtained in the tests) multiplied by 115 percent and determined with:

(i) The landing gear extended;

(ii) The critical engine inoperative and its propeller removed or in a configuration desired by the operator (if applicable); and

(iii) The other engine operating at not more than the power selected for type certification as set forth in 25.101 of CCAR-25.

(3) The takeoff, flight, and landing procedures such as the approximate trim setting, method of power application, maximum power, and speed must be established. The airplane must be satisfactorily controllable during the entire takeoff run when operated according to these procedures.

(4) The performance must be determined at a maximum weight not greater than the weight determined under 25.121(c) of CCAR-25, but with:

(i) The actual steady gradient of the final takeoff climb requirement not less than 1.2 percent at the end of the takeoff path with two critical engines inoperative; and

(ii) The climb speed not less than the two engine inoperative trim speed for the actual steady gradient of the final takeoff climb prescribed by paragraph (c) (4) (i) of this section.

(5) The airplane must be satisfactorily controllable in a climb with two critical engines inoperative. Climb performance may be shown by calculations based on, and equal in accuracy to, the results of testing.

(6) The performance must be determined using temperature accountability for takeoff distance and final takeoff climb computed in accordance with 25.101 of CCAR-25.

(d) For the purpose of paragraphs (c) (4) and (5) of this section, "two critical engines" means two adjacent engines on one side of an airplane with four engines, and the center engine and one outboard engine on an airplane with three engines.

Chapter G Foreign Civil Aircraft Operations and Operations of Civil Aircraft Registered in the People’s Republic of China Outside of the People’s Republic of China

91.601 Applicability

This chapter applies to the operations of civil aircraft of the People's Republic of China registry outside of the People's Republic of China and the operations of foreign civil aircraft within China.

91.603 Persons on Board

Each person on board an aircraft as follows shall comply with section 91.13:

(1) A People's Republic of China registered civil aircraft operated outside of China, or

(2) Any foreign civil aircraft operated outside of China that has as its next scheduled destination in the People’s Republic of China.

91.605 Operations of civil aircraft registered in the People’s Republic of China outside of the People’s Republic of China

Each person operating a civil aircraft registered in the People's Republic of China outside of the People's Republic of China shall:

(a) When over the high seas, comply with Annex 2 *Rules of the Air* to the Convention on International Civil Aviation;

(b) When within a foreign country, comply with the regulations in force there, relating to the aircraft flight;

(c) Except for 91.205(b), 91.207 and 91.913 comply with this regulation so far as it is not inconsistent with applicable regulations of the foreign country where the aircraft is operated or Annex 2 of the Convention on International Civil Aviation;

(d) When operating within the airspace designated as Minimum Navigation Performance Specifications (MNPS) airspace, comply with 91.607;

(e) When operating within airspace designated as Reduced Vertical Separation Minimum (RVSM) airspace, comply with 91.609.

91.607 Operations within airspace designated as Minimum Navigation Performance Specifications airspace

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft of The Peoples Republic of China registry in airspace designated as Minimum Navigation Performance Specifications airspace unless:

(1) The aircraft has the approved navigation performance capability that complies with the requirements of Appendix C to this regulation; and

(2) The operator is authorized by the Administrator to perform such operations.

(b) The Administrator may authorize deviations from the requirements of this section in accordance with Appendix C2 to this regulation.

91.609 Operations within airspace designated as Reduced Vertical Separation Minimum airspace (RVSM)

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft of People's Republic of China registry in airspace designated as reduced vertical separation minimum (RVSM) airspace unless:

(1) The operator and the operator's aircraft comply with the requirements of Appendix D of this part; and

(2) The operator is authorized by the Administrator to conduct such operations.

(b) The Administrator may authorize a deviation from the requirements of this section in accordance with Appendix D5 to this regulation.

91.611 Special rules for foreign civil aircraft

(a) In addition to the other applicable regulations of this part, each person operating a foreign civil aircraft within the People's Republic of China will comply with this section.

(b) No person may conduct VFR operations that require two-way radio communications under this part unless at least one crewmember of that aircraft is able to conduct two-way radio communications in the Chinese or English language and is on duty during that operation.

(c) No person may operate a foreign civil aircraft under IFR unless:

(1) That aircraft is equipped with:

(i) Radio equipment allowing two-way radio communication with ATC when it is operated in controlled airspace; and

(ii) Radio navigational equipment appropriate to the ground navigational facilities to be used.

(2) Each person piloting the aircraft:

(i) Holds a current People's Republic of China instrument rating or is authorized by his foreign airman license to pilot under IFR; and

(ii) Is thoroughly familiar with the People's Republic of China en route, holding, and arrival/departure procedures.

(3) At least one crewmember of that aircraft is able to conduct two-way radio telephone communications in the Chinese or English language and that crewmember is on duty while the aircraft is approaching, operating within, or leaving the People's Republic of China.

(d) If VOR navigational equipment is required under paragraph (c) (1) (ii) of this section, no person may operate a foreign civil aircraft within the People's Republic of China, unless the aircraft is equipped with distance measuring equipment (DME) capable of receiving and indicating distance information. When DME required by this paragraph fails, the pilot in command of the aircraft shall notify ATC immediately and may then continue operations to the next airport of intended landing at which repairs or replacement of the equipment can be made. However, this paragraph does not apply to foreign civil aircraft that are not equipped with DME when operated for the following purposes and if ATC is notified prior to each takeoff:

(1) Ferry flights to and from a place in the People's Republic of China where repairs or alterations are to be made.

(2) Ferry flights to a new country of registry.

(3) Flight of a new aircraft of the People's Republic of China manufacture for the purpose of:

(i) Flight testing the aircraft;

(ii) Training foreign flight crews in the operation of the aircraft; or

(iii) Ferrying the aircraft for export delivery outside the People's Republic of China.

(4) Ferry, demonstration, and test flight of an aircraft brought to the People's Republic of China for the purpose of demonstration or testing the whole or any part thereof.

91.613 Special flight authorizations for foreign civil aircraft

(a) Foreign civil aircraft may be operated without airworthiness certificates required under 91.401 if a special flight authorization for that operation is issued under this section. Application for a special flight authorization must be made to the CAAC.

(b) The Administrator may issue a special flight authorization for a foreign civil aircraft subject to any conditions and limitations that the Administrator considers necessary for safe operation.

Chapter H Commercial Non-transport Operators: Operation Certification

91. 701 Applicability

No citizen of the People’s Republic of China or legal person of enterprise or public institution registered in the People’s Republic of China may use a civil aircraft to conduct commercial flight within the People’s Republic of China for remuneration or hire unless they have been certificated by the Administrator in accordance with this chapter and have obtained commercial non-transport operator operations certificate and operations specifications issued by the Administrator.

91.703 Types of operations

(a) The applicant of commercial non-transport operator operations certificate may make application to the Administrator for one or more of following operation categories:

(1) General commercial flights;

(2) Agricultural flights;

(3) Rotorcraft external load flights;

(4) Training flights;

(5) Sightseeing flight.

(b) Before the Administrator issues the certificate, the applicant shall demonstrate to the Administrator it has the capability to conduct operations in accordance with the provisions of this regulation applicable to the applicant. The applicant shall determine the provisions to be complied with as follows when making application for one or more operation categories described in paragraph (a):

(1) For general commercial operation and sightseeing flight, this chapter, and applicable articles in chapter A, B, C, D, E, F, G, L, P and Q of this regulation;

(2) For agricultural flights, besides the provisions listed in subparagraph (1), chapter M of this regulation;

(3) For rotorcraft external load flights, besides the provisions listed in subparagraph (1), chapter N of this regulation;

(4) For training flights, the provisions listed in subparagraph (1) for flight operations, and CCAR-61, CCAR-141 and appropriate regulations for organization of training activities and training standards.

91.705 Privileges of commercial non-transport operator

(a) The commercial non-transport operator certificated under this chapter may operate aircraft in accordance with the categories, scopes, standards, and additional conditions and limitations of those operations specifications issued by the Administrator and the applicable requirements of this regulation and other applicable laws.

(b) The commercial non-transport operator of large, turbine-powered multiengine airplanes or large rotorcrafts is unnecessary to comply with chapter J of this regulation to exert the privileges of private large aircraft operator.

91.707 Application and issuance of operations certificate

(a) The applicant of commercial non-transport operator operations certificate shall submit an application in the format and by means required by the Administrator. The application shall include all contents required by the Administrator.

(b) The application shall be submitted at least 45 days before the planned date of beginning operations.

(c) For first application, the applicant of commercial non-transport operator operations certificate shall submit the application and also submit the documents describing the nature and scope of planned operation, including the supporting documents about operation permit of the applicant.

(d) The Administrator will issue the commercial non-transport operator operations certificate and operations specifications to the applicant if the Administrator finds that the applicant complies with the following conditions:

(1) Meet all provisions of the regulations that are applicable to the applicant;

(2) Be able to conduct a safe operation in accordance with the requirements of this regulation and the commercial non-transport operations specifications.

(e) The Administrator may deny an application of commercial non-transport operator operations certificate if the Administrator finds:

(1) That the applicant does not meet the requirements set forth in paragraph (d) of this section; or

(2) That commercial non-transport operations certificate previously issued to the applicant were revoked in previous 5 years.

91.709 Contents of operations certificate and operations specifications

(a) The commercial non-transport operator operations certificate contains the following

information:

(1) The certificate holders' name;

(2) The location of the certificate holders' principal operations base;

(3) The certificate number;

(4) The certificate's effective date;

(5) The name or designator of the CAAC office responsible for oversight of the certificate holders' operation;

(6) Kinds of operations authorized, and

(7) Statements that upon certification certificate holder meets the appropriate requirements in chapter H of this regulation and has been authorized to conduct the operations in accordance with the operation specifications issued hereunder.

(b) Commercial non-transport operations specifications shall include:

(1) The name, address, telephone and telefax numbers and mail address of the commercial non-transport operator;

(2) The location of the operator's aircraft-related facilities, including its main operations base and its main maintenance base, if any;

(3) A current list of each aircraft to be operated by the operator, listed by type of aircraft, registration markings, serial number, purpose of operation, and area of operation;

(4) The operation categories, operation area, limitations, and procedures under which the operator's operations are to be conducted;

(5) For each type of aircraft to be operated by the operator, the manner in which, and the location where, maintenance is to be performed; and the maintenance personnel or organization and its qualifications.

(6) For each pilot to be used in the operator's flight operations: the full name; the pilot certificate (by type and number) and ratings; and the effective date and class of the medical certificate. The operator may list the contents required in this subparagraph in a separated list as an attachment to the operations specifications to be revised at any time;

(7) If the operator is using the assistance of an aircraft manager, the name, address, telephone and telefax numbers of the manager and the type of assistance the manager is providing (including a statement as to whether the operator is participating in a full or fractional ownership program with the manager);

(8) When the operator operates large and turbine-powered multiengine airplanes, actions taken to comply with applicable provisions in chapter L in the regulation.

(9) When the operator conducts agricultural operations, actions taken to comply with applicable provisions in chapter M in the regulation.

(10) When the operator conducts rotorcraft external load operations, actions taken to comply with applicable provisions in chapter N in the regulation.

(11) The approval of the method for controlling weight and balance of aircraft;

(12) Any authorized deviation and exemption of specific provision of this regulation;

(13) Any other information the Administrator determines is necessary.

91.711 Duration of operations certificate and operations specifications

(a) A commercial non-transport operator operations certificate becomes ineffective when:

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

(2) The Administrator suspends, revokes or otherwise terminates the certificate.

(b) Partial or total items of commercial non-transport operations specifications become ineffective when:

(1) Administrator suspends, revokes or otherwise terminates the certificate;

(2) Administrator suspends or revokes the authorization for all or partial operations under the operations specifications;

(3) The operator does not conduct one or certain kinds of operations authorized in the operations specifications for more than 1 year nor does resume that kind of operations following the procedures prescribed in paragraph (c) of section.

(c) If the operator does not conduct a kind of operation authorized in the operations specifications within 1 consecutive year, the kind of interrupted operation can only be resumed

when the following conditions are satisfied and subject to approval of the Administrator:

(1) The operator advises the Administrator at least 7 days prior to resumption of that kind of operation;

(2) The operator makes available any time to be inspected during the 7 days mentioned above in the event that Administrator decides to conduct a full inspection to determine whether the operator is able to conduct a safe operation.

(d) If the operations certificate or operations specifications are suspended, revoked or become ineffective for any other reason, the holder shall return the certificate or operations specifications to the Administrator.

91.713 Retention and use of operations certificate and operations specifications

(a) The operator shall maintain the operations certificate and operations specifications in its principal operation base or other location accepted by the Administrator, and shall make available for inspection by the Administrator.

(b) The operator shall keep ensuring that each person involved in its operations is knowledgeable of the provisions of operations specifications that apply to that person’s duties and responsibilities.

91.715 Amending commercial non-transport operations certificate

(a) The Administrator may amend a commercial non-transport operator operations certificate issued under this chapter if:

(1) The Administrator determines that safety and the public interest require the amendment;

(2) The certificate holder applies for the amendment and the Administrator determines that the safety and public interest allows the amendment.

(b) When the certificate holder applies for an amendment of its certificate, the following procedures shall be followed:

(1) The certificate holder shall submit an application for the amendment to the Administrator no later than 30 days before the planned amendment takes effective;

(2) The application shall be submitted to the Administrator in the form and manner prescribed by the Administrator.

(c) When a certificate holder seeks reconsideration of a decision regarding the amendment or denial of its certificate amendment application, the petition for reconsideration shall be submitted within 30 days after the certificate holder receives the notice.

91.717 Amending commercial non-transport operations specifications

(a) The Administrator may amend the operations specifications issued under this chapter if:

(1) The Administrator determines that safety and the public interest require the amendment

(2) The operator applies for the amendment, and the Administrator determines that safety and the public interest allows the amendment.

(b) Except as provided in paragraph (e) of this section, when the Administrator initiates an amendment of a commercial non-transport operator's operations specifications, the following procedure applies:

(1) The Administrator shall notify the operator in writing of the proposed amendment;

(2) The Administrator shall set a reasonable period (but not less than 7 days) within which the operator may submit written information, views, and arguments on the amendment;

(3) After considering all material presented, the Administrator shall notify the operator of:

(i) The adoption of the proposed amendment; or

(ii) The partial adoption of the proposed amendment, or

(iii) The withdrawal of the proposed amendment.

(4) If the Administrator issues an amendment of the specifications, it becomes effective 30 days after the holder receives notice of it unless:

(i) The Administrator finds under paragraph (e) of this section that there is an emergency

requiring immediate action with respect to safety; or

(ii) The operator petitions for reconsideration of the amendment under paragraph (d) of this section.

(c) When the operator applies for an amendment to its specifications, the following procedure applies:

(1) The operator must file an application to amend its specifications:

(i) At least 30 days before the date proposed by the aircraft operator for the amendment to become effective in cases of mergers or resumption of operations following a suspension of operations as a result of bankruptcy actions.

(ii) At least 15 days before the date proposed by the applicant for the amendment to become effective in all other cases.

(2) The application must be submitted to the Administrator in a form and manner prescribed by the Administrator.

(3) After considering all material presented, the Administrator shall notify the holder of:

(i) The adoption of the applied for amendment; or

(ii) The partial adoption of the applied for amendment; or

(iii) The denial of the applied for amendment. The operator may petition for reconsideration of a denial under paragraph (d) of this section.

(4) If the Administrator approves the amendment, following coordination with the operator regarding its implementation, the amendment is effective on the date the Administrator approves it.

(d) When an operator seeks reconsideration of a decision of the Administrator concerning the amendment of specifications, the following procedure applies:

(1) The operator must petition the Administrator for reconsideration of that decision within 30 days of the date that the operator receives a notice of denial of the amendment of its specifications, or of the date it receives notice of a Administrator-initiated amendment of its specifications, whichever circumstance applies.

(2) If a petition for reconsideration is filed within the 30-day period, suspend the effectiveness of any amendment issued by the Administrator unless that Administrator has found, under paragraph (e) of this section, that an emergency exists requiring immediate action with respect to safety.

(3) If a petition for reconsideration is not filed within 30 days, the procedures of paragraph (c) of this section apply.

(e) If the Administrator finds that an emergency exists requiring immediate action with respect to safety that makes the procedures set out in this section impracticable or contrary to the public interest:

(1) The Administrator may amend the operations specifications and make the amendment effective on the day the operator receives notice of it; and

(2) In the notice to the operator, the Administrator shall articulate the reasons for its finding that an emergency exists requiring immediate action with respect to safety or that makes it impracticable or contrary to the public interest to stay the effectiveness of the amendment.

91.719 Requirements applicable to operators using the assistance of an aircraft manager

(a) Each commercial non-transport operator using the assistance of an aircraft manager shall have full responsibility for complying with all pertinent requirements of this chapter.

(b) In addition to the requirements identified in paragraph (a) of this section, each commercial non-transport operator participating in a full or partial ownership program shall comply with the requirements of Chapter K applicable to the operators.

91.721 Operator recordkeeping

(a) Each commercial non-transport operator shall keep at its principal operation base or at other places approved by the Administrator, and shall make available for inspection by the

Administrator, the following:

(1) The operator’s operations specifications;

(2) A current list of the aircraft used or available for use in operations by the operator under this chapter and the operations for which each is equipped (e.g., MNPS, RNP5/10, RVSM, etc.);

(3) An individual record of each pilot used in operations by the commercial non-transport operator, 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 (including trainings and tests taken, and the date and result of the inspection conducted) to determine the pilot’s qualifications to pilot aircraft in operations by the operator under this regulation;

(iv) The pilot’s current duties and the date of the pilot’s assignment to those duties;

(v) The effective date and class of the medical certificate that the pilot holds;

(vi) The pilot’s detailed flight time records to judge whether the flight time limitations specified in 91.731 is complied with;

(vii) Any action taken concerning the pilot's release from employment for physical or professional disqualification.

(b) Each commercial non-transport operator must keep each record required by paragraph (a)(2) of this section for at least 6 months, and must keep each record required by paragraph (a)(3) of this section for at least 12 months. When an employee is no longer participated in the operation of the operator, each record required by paragraph (a)(3) of this section shall be retained for at least 12 months after the date when the employee leaves the operation.

(c) For the operator of large airplanes and turbine-powered multiengine airplanes, it shall also retain the records as required in 91.1037 of chapter L.

(d) Records required under this section may be kept either in paper form or other form acceptable to the Administrator.

91.723 Conducting tests and inspections

(a) At any time or place, the Administrator may conduct an inspection or test, other than enroute inspections, to determine whether a commercial non-transport operator is complying with applicable regulations and the operator's operations specifications.

(b) The commercial non-transport operator must:

(1) Make available to the Administrator at the operator’s principal base of operations or other place accepted by the Administrator the operator’s operations certificate and operations specifications; and

(2) Allow the Administrator to make any test or inspection, other than en-route inspections. If the notification of en-route inspection is received in advance, the operator shall accept the en-route inspection of the Administrator within a reasonable time limit.

(c) Each person used by who is responsible for maintaining the operator’s records must make those records available to the Administrator.

(d) The Administrator may determine an operator’s continued eligibility to hold its operations certificate and operations specifications based on the results of test or inspection. Failure by any operator to make available to the Administrator upon request, the operator’s operations specifications, or any required record, document, or report is grounds for suspension and revocation of its operations certificate or suspension of all or any part of its operations specifications.

91.725 Large or turbine-powered multiengine airplanes operator internal safety reporting

(a) Each commercial non-transport operator of large or turbine-powered multiengine airplanes shall establish an internal anonymous safety reporting procedure that fosters an environment of safety without any potential for retribution.

(b) Each such operator shall establish procedures to respond to an aircraft incident/accident

occurring while the large or turbine-powered multiengine airplane is operated by the operator.

91.727 Operating manual requirements

(a) Each commercial non-transport operator shall prepare and keep current an operating manual setting forth procedures and policies acceptable to the Administrator. This manual shall be used by the operator's flight, maintenance, and other ground operations personnel in conducting its operations. However, the Administrator may authorize a deviation from this section if the Administrator finds that, because of the limited size of the operation, part of the manual is not necessary for guidance of flight, maintenance, or other ground operations personnel.

(b) The operator shall maintain at least one copy of the manual at its principal base of operations or other place accepted by the Administrator.

(c) The manual required by paragraph (a) of this section may not be contrary to any applicable CAAC regulations, foreign regulation applicable to operation in foreign countries, or the operator's operations specifications.

(d) A copy of the manual required by paragraph (a) of this section, or appropriate portions of the manual shall be made available to flight, maintenance and other ground operations personnel by the operator and furnished to the CAAC facility assigned to the operator. Each employee of the operator to whom a manual or appropriate portions of it are furnished shall keep it up-to-date with the changes and additions furnished to them.

(e) Except as provided in paragraph (f) of this section, the appropriate parts of the manual shall be carried on each of the operator's aircraft when away from the operator's principal operations base. The appropriate parts must be available for use by flight, maintenance and other ground operations personnel.

(f) If aircraft inspections or maintenance are conducted at specified stations where the operator's operating manual is available, the operator is not required to ensure that the operating manual is carried aboard the aircraft enroute to those stations.

(g) Each operating manual must have the date of the last revision on each revised page.

91.729 Operating manual contents

Unless otherwise authorized by the Administrator, the operator shall include the following in the operating manual based on its actual operation situation:

(a) Procedures for ensuring compliance with aircraft weight and balance limitations;

(b) Copies of the operator's operations specifications or appropriate extracted information, including area of operations authorized, category and class of aircraft authorized, crew compliments, and types of operations authorized;

(c) Procedures for complying with accident notification requirements;

(d) 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;

(e) 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;

(f) 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;

(g) Procedures to be followed by the pilot in command to obtain maintenance, preventive maintenance, and servicing of the aircraft at a place where previous arrangements have not been made;

(h) Procedures for operations with inoperative instruments or equipment and for the release of, and continuation of flight if any item of equipment required for the particular type of operation becomes inoperative or unserviceable en route;

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

(j) Procedures to be followed by the pilot in command in the passenger briefing required by 91.1019;

(k) Procedures for ensuring compliance with emergency procedures, including a list of the functions assigned each required crewmember in connection with an emergency and emergency evacuation duties;

(l) The approved aircraft inspection program, when applicable;

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

(n) Procedures for performance planning that take into account takeoff, landing and en-route conditions;

(o) A suitable system (which may include an electronic system) that provides for preservation and retrieval of maintenance recordkeeping information in a manner acceptable to the Administrator that provides:

(1) A description (or a reference to date of performance acceptable to the Administrator) of the work performed;

(2) The name of the person performing the work if the work is performed by a person outside the organization of the operator; and

(3) The name or other positive identification of the individual approving the work.

(p) Flight locating and scheduling procedures; and

(q) Other procedures and policy instructions regarding operations that are issued by the operator or required by the Administrator.

91.731 Pilot qualification requirements and flight time limitations

(a) The pilots engaging in commercial flights for remuneration or hire and the pilot serving for commercial non-transport operator and getting revenue from the operator shall meet the following qualification requirements:

(1) At least hold CPL issued under CCAR-61;

(2) Based on the type of operation participated in, meet other chapters of this regulation and other provisions in CCAR-61.

(b) The pilots engaging in commercial flights for remuneration or hire and the pilot serving for commercial non-transport operator and getting revenue from the operator shall meet the following flight time limitations:

(1) Unless otherwise authorized by the Administrator, no more than 10 flight hours per day;

(2) No more than 40 flight hours in any 7 consecutive calendar days;

(3) No more than 120 flight hours in a calendar month;

(4) No more than 1400 flight hours in a calendar year.

91.733 Additional requirements of sightseeing flight

(a) Except free balloon, the aircraft of sightseeing flight shall take off and land at the same point, which must be authorized in the operator's operations specifications, and the distance (in straight line) from/to the takeoff/landing point may not exceed 40 km. If a free balloon is used for sightseeing flights, the flight area must be authorized in the operator's operations specifications and the takeoff and landing point for each flight shall be within this area.

(b) Primary airplanes, gliders and specific type of aircraft specified by the Administrator may not be used for sightseeing flight.

Chapter J Private Large Aircraft Operator: Operation Certification

91.801 Applicability

(a) Except as provided in paragraph (b) of this section, no citizen of the People's Republic of China or legal person of enterprise or public institution registered in the People's Republic of China may use large aircrafts to conduct private flights within the People's Republic of China

unless they have been certificated under this chapter and obtained the operations specifications of private large aircraft operator issued by the Administrator.

(b) The following persons or organizations using the aircraft described in paragraph (a) of this section may exert the privilege of private large aircraft operator according to the following requirements without certification under this chapter:

(1) The operator conducting operations under CCAR-121 or other public air transportation operation regulations may conduct private flights;

(2) The commercial non-transport operator certificated under chapter H of this regulation may conduct the private flights authorized in its operations specifications;

(3) The aircraft manager certificated under chapter K of this regulation may conduct the private flights authorized in its operations specifications;

(c) Any person or organization using an aircraft other than ones described in paragraph (a) is unnecessary to be certificated under this chapter, but its operation shall comply with all applicable chapters and provisions of this regulation.

91.803 Types of operations

(a) The applicant of private large aircraft operator operations certificate may make application to the Administrator for one or more of following operation categories:

(1) General private flights;

(2) Agricultural flights;

(3) Rotorcraft external load flights;

(b) Before the Administrator issues the operations specifications, the applicant shall demonstrate to the Administrator it has the capability to conduct operations in accordance with the provisions of this regulation applicable to the applicant. The applicant shall determine the provisions to be complied with as follows when making application for one or more operation categories described in paragraph (a):

(1) For general private flights, this chapter, and applicable articles in chapter A, B, C, D, E, F, G, L, P and Q of this regulation;

(2) For agricultural flights, besides the provisions listed in subparagraph (1), chapter M of this regulation;

(3) For rotorcraft external load flights, besides the provisions listed in subparagraph (1), chapter N of this regulation.

91.805 Privileges of private large aircraft operator

The private large aircraft operator certificated under this chapter may conduct operations in accordance with the categories, scopes, standards, and additional conditions and limitations of those operations specifications issued by the administrator and the applicable requirements of this regulation and other applicable laws.

91.807 Application and issuance of operations specifications

(a) The applicant of private large aircraft operator operations specifications shall submit an application in the format and by means required by the Administrator. The application shall include all contents required by the Administrator.

(b) The application shall be submitted at least 30 days before the planned date of beginning operations.

(c) For first application, the applicant of private large aircraft operator operations specifications shall submit the application and also submit the documents describing the nature and scope of planned operation, including the supporting documents.

(d) The Administrator will issue the private large aircraft operator operations specifications to the applicant if the Administrator finds that the applicant complies with the following conditions:

(1) Meet all provisions of the regulations that are applicable to the applicant;

(2) Be able to conduct a safe operation in accordance with the requirements of this regulation

and its operations specifications.

(e) The Administrator may deny an application of private large aircraft operator operations specifications if the Administrator finds:

(1) That the applicant does not meet the requirements set forth in paragraph (d) of this section; or

(2) That operations specifications previously issued to the applicant were revoked in previous 2 years.

91.809 Contents of operations specifications

The private large aircraft operator operations specifications contain the following information:

(a) The name, address, telephone and telefax numbers and mail address of the operator;

(b) The location of the operator's aircraft operation-related facilities, including its main operations base and its main maintenance base, if any;

(c) The number of operations specifications;

(d) The effective date of operations specifications;

(e) The name or designator of the CAAC office responsible for oversight of the operator’s operation;

(f) A current list of each aircraft to be operated by the operator, listed by type of aircraft, registration markings, serial number, purpose of operation, and area of operation;

(g) The operation categories, operation area, limitations, and procedures under which the operator's operations are to be conducted;;

(h) For each type of aircraft to be operated by the operator, the manner in which, and the location where, maintenance is to be performed; and the maintenance personnel or organization and its qualifications.

(i) For each pilot to be used in the operator's flight operations: the full name; the pilot certificate (by type and number) and ratings; and the effective date and class of the medical certificate. The operator may list the contents required in this subparagraph in a separated list as an attachment to the operations specifications to be revised at any time;

(j) If the operator is using the assistance of an aircraft manager, the name, address, telephone and telefax numbers of the manager and the type of assistance the manager is providing (including a statement as to whether the operator is participating in a full or fractional ownership program with the manager);

(k) Action taken to comply with applicable provisions in chapter L of this regulation;

(l) When the operator conducts agricultural operations, actions taken to comply with applicable provisions in chapter M in the regulation.

(m) When the operator conducts rotorcraft external load operations, actions taken to comply with applicable provisions in chapter N in the regulation.

(n) The approved method of controlling weight and balance of aircraft;

(o) Any authorized deviation and exemption of specific provision of this regulation;

(p) Any other information the Administrator determines is necessary.

91.811 Duration of operations specifications

(a) Partial or total items of the operator’s operations specifications become ineffective when:

(1) The operations specifications holder waives and surrenders it to the Administrator;

(2) The Administrator suspends, revokes or otherwise terminates the operations specifications;

(3) Administrator suspends or revokes the authorization for all or partial authorizations in the operations specifications;

(4) The operator does not conduct one or certain kinds of operations authorized in the operations specifications for more than 1 year nor does resume that kind of operations following the procedures prescribed in paragraph (b) of this section.

(b) If the operator does not conduct a kind of operation authorized in the operations specifications within 1 consecutive year, the kind of interrupted operation can only be resumed

when the following conditions are satisfied and subject to approval of the Administrator:

(1) The operator advises the Administrator at least 7 days prior to resumption of that kind of operation;

(2) The operator makes available any time to be inspected during the 7 days mentioned above in the event that Administrator decides to conduct a full inspection to determine whether the operator is able to conduct a safe operation.

(c) If the operations specifications are suspended, revoked or become ineffective for any other reason, the holder shall return the operations specifications to the Administrator.

91.813 Retention and use of operations specifications

(a) The operator shall maintain the operations specifications in its principal operation base or other location accepted by the Administrator, and shall make available for inspection by the Administrator.

(b) The operator shall keep ensuring that each person involved in its operations is knowledgeable of the provisions of operations specifications that apply to that person’s duties and responsibilities.

91.815 Amending operations specifications

(a) The Administrator may amend the operations specifications issued under this chapter if:

(1) The Administrator determines that safety and the public interest require the amendment;

(2) The operator applies for the amendment and the Administrator determines that the safety and public interest allows the amendment.

(b) Except as provided in paragraph (e) of this section, when the Administrator initiates an amendment of the operator's operations specifications, the following procedure applies:

(1) The Administrator shall notify the operator in writing of the proposed amendment.

(2) The Administrator shall set a reasonable period (but not less than 7 days) within which the operator may submit written information, views, and arguments on the amendment.

(3) After considering all material presented, the Administrator shall notify the operator of:

(i) The adoption of the proposed amendment, or

(ii) The partial adoption of the proposed amendment, or

(iii) The withdrawal of the proposed amendment.

(4) If the Administrator issues an amendment of the operations specifications, it becomes effective not less than 30 days after the operator receives notice of it unless:

(i) The Administrator finds under paragraph (e) of this section that there is an emergency requiring immediate action with respect to safety; or

(ii) The operator petitions for reconsideration of the amendment under paragraph (d) of this section.

(c) When the operator applies for an amendment to its operations specifications, the following procedure applies:

(1) The operator must file an application to amend its operations specifications at least 15 days before the date proposed by the applicant for the amendment to become effective.

(2) The application must be submitted to the Administrator in a form and manner prescribed by the Administrator.

(3) After considering all material presented, the Administrator shall notify the operator of:

(i) The adoption of the applied for amendment; or

(ii) The partial adoption of the applied for amendment; or

(iii) The denial of the applied for amendment. The operator may petition for reconsideration of a denial under paragraph (d) of this section.

(4) If the Administrator approves the amendment, following coordination with the operator regarding its implementation, the amendment is effective on the date the Administrator approves it.

(d) When an operator seeks reconsideration of a decision of the Administrator concerning the amendment of operations specifications, the following procedure applies:

(1) The operator must petition for reconsideration of that decision within 30 days of the date

that the operator receives a notice of denial of the amendment of its operations specifications, or of the date it receives notice of a CAAC-initiated amendment of its specifications, whichever circumstance applies.

(2) A petition for reconsideration, if filed within the 30-day period, suspends the effectiveness of any amendment issued by the Administrator unless that Administrator has found, under paragraph (e) of this section, that an emergency exists requiring immediate action with respect to safety.

(3) If a petition for reconsideration is not filed within 30 days, the procedures of paragraph (c) of this section apply.

(e) If the Administrator finds that an emergency exists requiring immediate action with respect to safety that makes the procedures set out in this section impracticable or contrary to the public interest:

(1) The Administrator may amend the operator's operations specifications and make the amendment effective on the day the operator receives notice of it; and

(2) In the notice to the operator, the Administrator shall articulate the reasons for its finding that an emergency exists requiring immediate action with respect to safety or that makes it impracticable or contrary to the public interest to stay the effectiveness of the amendment.

91.817 Requirements applicable to operators using the assistance of an aircraft manager

(a) Each private large aircraft operator using the assistance of an aircraft manager shall have full responsibility for complying with all pertinent requirements of this chapter.

(b) In addition to the requirements identified in paragraph (a) of this section, each private large aircraft operator participating in a full or partial ownership program shall comply with the requirements of Chapter K applicable to the operators.

91.819 Operator recordkeeping

(a) Each private large aircraft operator shall keep at its principal operation base or at other places approved by the Administrator, and shall make available for inspection by the Administrator, the following:

(1) The operator's operations specifications;

(2) A current list of the aircraft used or available for use in operations by the operator under this chapter and the operations for which each is equipped (e.g., MNPS, RNP5/10, RVSM, etc.);

(3) An individual record of each pilot used in operations by the private large aircraft operator, 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, including training, test, and check date and result, to determine the pilot's qualifications to pilot aircraft in operations by the operator under this regulation;

(iv) The pilot's current duties and the date of the pilot's assignment to those duties;

(v) The effective date and class of the medical certificate that the pilot holds;

(vi) The pilot's detailed flight time records to determine whether the flight time limitations specified in 91.829 is complied with;

(vii) Action to relieve the pilot's duties due to health or lose of qualification.

(b) Each private large aircraft operator must keep each record required by paragraph (a)(2) and (3) of this section. When an employee is no longer participated in the operation of the operator, each record required by paragraph (a)(3) of this section shall be retained for at least 12 months after the date when the employee leaves the operation.

(c) For the operator of large airplanes and turbine-powered multiengine airplanes, it shall also retain the records as required in 91.1037 of chapter L.

(d) Records required under this section may be kept either in paper form or other form acceptable to the Administrator.

91.821 Conducting tests and inspections

(a) At any time or place, the Administrator may conduct an inspection or test, other than enroute inspections, to determine whether a private large aircraft operator is complying with applicable regulations and the operator's operations specifications.

(b) The private large aircraft operator must:

(1) Keep and make available to the Administrator at the operator's principal base of operations or other place accepted by the Administrator the operator's operations specifications; and

(2) Allow the Administrator to make any test or inspection, other than en-route inspections. If the notification of en-route inspection is received in advance, the operator shall accept the en-route inspection of the Administrator within a reasonable time limit.

(c) Each person used by who is responsible for maintaining the operator's records must make those records available to the Administrator.

(d) The Administrator may determine an operator's continued eligibility to hold its operations specifications based on the results of test or inspection. Failure by any operator to make available to the Administrator upon request, the operator's operations specifications, or any required record, document, or report is grounds for suspension and revocation of its operations specifications or suspension of all or any part of its operations specifications.

91.823 Operator internal safety reporting

(a) Each private large aircraft operator shall establish an internal safety reporting procedure that fosters an environment of safety without any potential for retribution.

(b) Each private large aircraft operator shall establish procedures to respond to an aircraft incident/accident occurring while the aircraft is operated by the operator.

91.825 Operating manual requirements

(a) Each private large aircraft operator shall prepare and keep current an operating manual setting forth procedures and policies acceptable to the Administrator. This manual shall be used by the operator's flight, maintenance, and other ground operations personnel in conducting its operations. However, the Administrator may authorize a deviation from this section if the Administrator finds that, because of the limited size of the operation, part of the manual is not necessary for guidance of flight, maintenance, or other ground operations personnel.

(b) The operator shall maintain at least one copy of the manual at its principal base of operations or other place accepted by the Administrator.

(c) The manual required by paragraph (a) of this section may not be contrary to any applicable CAAC regulations, foreign regulation applicable to operation in foreign countries, or the operator's operations specifications.

(d) A copy of the manual required by paragraph (a) of this section, or appropriate portions of the manual shall be made available to flight, maintenance and other ground operations personnel by the operator and furnished to the CAAC facility assigned to the operator. Each employee of the operator to whom a manual or appropriate portions of it are furnished shall keep it up-to-date with the changes and additions furnished to them.

(e) Except as provided in paragraph (f) of this section, the appropriate parts of the manual shall be carried on each of the operator's aircraft when away from the operator's principal operations base. The appropriate parts must be available for use by flight, maintenance and other ground operations personnel.

(f) If aircraft inspections or maintenance are conducted at specified stations where the operator's operating manual is available, the operator is not required to ensure that the operating manual is carried aboard the aircraft enroute to those stations.

(g) Each operating manual must have the date of the last revision on each revised page.

91.827 Operating manual contents

Unless otherwise authorized by the Administrator, the operator shall include the following in the operating manual based on its actual operation situation:

(a) Procedures for ensuring compliance with aircraft weight and balance limitations;

(b) Copies of the operator's operations specifications or appropriate extracted information, including area of operations authorized, category and class of aircraft authorized, crew compliments, and types of operations authorized;

(c) Procedures for accident notification;

(d) 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;

(e) 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;

(f) 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;

(g) Procedures to be followed by the pilot in command to obtain maintenance, preventive maintenance, and servicing of the aircraft at a place where previous arrangements have not been made;

(h) Procedures for operations with inoperative instruments or equipment and for the release of, and continuation of flight if any item of equipment required for the particular type of operation becomes inoperative or unserviceable en route;

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

(j) Procedures to be followed by the pilot in command in the passenger briefing required by 91.1019;

(k) Procedures for ensuring compliance with emergency procedures, including a list of the functions assigned each required crewmember in connection with an emergency and emergency evacuation duties;

(l) The approved aircraft inspection program, when applicable;

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

(n) Procedures for performance planning that take into account takeoff, landing and en-route conditions;

(o) A suitable system (which may include an electronic system) that provides for preservation and retrieval of maintenance recordkeeping information in a manner acceptable to the Administrator that provides:

(1) A description (or a reference to date of performance acceptable to the Administrator) of the work performed;

(2) The name of the person performing the work if the work is performed by a person outside the organization of the operator; and

(3) The name or other positive identification of the individual approving the work.

(p) Flight locating and scheduling procedures; and

(q) Other procedures and policy instructions regarding operations that are issued by the operator or required by the Administrator.

91.829 Revenue pilot qualification requirements and flight time limitations

(a) The pilots servicing for private large aircraft operators and getting revenue from the operator shall meet the following qualification requirements:

(1) At least hold CPL issued under CCAR-61;

(2) Based on the type of operation participated in, meet other chapters of this regulation and other provisions in CCAR-61.

(b) The pilots servicing for private large aircraft operators and getting revenue from the operator shall meet the following flight time limitations:

(1) No more than 40 flight hours in any 7 consecutive calendar days;
(2) No more than 120 flight hours in a calendar month;
(3) No more than 1400 flight hours in a calendar year.

Chapter K Aircraft Manager: Operation Certification and Operating Rules

91.901 Applicability

(a) This chapter describes the rules governing operation certification and operation management of aircraft mangers. No aircraft manger may provide management service of an aircraft to conduct private flights within the People's Republic of China unless the aircraft manager have been certificated by the Administrator in accordance with this chapter and have obtained the aircraft manager operations specifications issued by the Administrator.

(b) The operation standards listed in 91.941-91.997 of this chapter are only applicable to the aircraft manager using the following aircrafts to conduct private flights:

(1) Large airplanes with maximum takeoff weight of 5700 kg or above;
(2) Turbine multiengine airplanes;
(3) Large rotorcrafts with maximum takeoff weight of 2730 kg or above.

(c) This chapter prescribes the privileges and obligations of the aircraft owner using the service of an aircraft manger.

91.903 Terms and definitions

As used in this chapter:

(a) An aircraft manager means the entity that offers ownership program management services to owners, provides aircraft operation management service to the owner according to the multi-year program agreements signed with the owner, and has obtained the operations specifications issued by the Administrator.

(b) A fractional ownership program means an organization manner for an aircraft manager providing aircraft management service, which must meet all of the following conditions:

(1) One or more fractional owners per program aircraft, with at least one program aircraft having more than one owner;

(2) Possession of at least a minimum fractional ownership interest in one or more program aircraft by each fractional owner;

(3) The provision for management services by a single aircraft manager;

(4) A dry-lease aircraft exchange arrangement among all of the fractional owners; and

(5) Multi-year program agreements covering the fractional ownership, fractional ownership program management services, and dry-lease aircraft exchange aspects of the program.

(c) A full ownership program means an organization manner for an aircraft manager providing aircraft management service, which must meet all of the following conditions:

(1) Possession of all ownership interest in program aircraft by each owner;

(2) The provision for management services by a single aircraft manager;

(3) Multi-year program agreements covering the full ownership and full ownership program management services aspects of the program.

(d) A dry-lease aircraft exchange means an arrangement contained in a fractional ownership program to resolve the aircraft allocation problem, under which the program aircraft are available, on an as needed basis, and subject to specified conditions, without crew, to each fractional owner.

(e) A minimum fractional ownership interest means:

(1) A fractional ownership interest equal to, or greater than, one-sixteenth (1/16) of at least one subsonic, fixed-wing program airplane; or

(2) A fractional ownership interest equal to, or greater than, one-thirty-second (1/32) of at least one rotorcraft program aircraft.

(f) An aircraft owner means an individual or entity which possesses full or a minimum fractional ownership interest in a program aircraft and which has entered into the applicable program agreements.

(g) A program aircraft means an aircraft listed in the operations specifications of an aircraft manager participating in a full or fractional ownership program. In a full ownership program, the owner has full ownership and in a fractional ownership program, the fractional owner has a minimum fractional ownership interest and which has been included in the dry-lease aircraft exchange.

(h) Program management services mean administrative and aviation support services furnished by the program manager to the owner in accordance with the applicable requirements of this chapter, at a minimum, the establishment and revision of program safety guidelines, and the coordination of the following:

(1) The scheduling of the program aircraft and crews;

(2) Program aircraft maintenance;

(3) Crew training for crews employed, furnished or contracted by the program manager or the owner;

(4) Establishment and recordkeeping; and

(5) Development and use of a program operations manual and maintenance program manual.

91.905 Types of operations

(a) The applicant of aircraft manager operations certificate may make application to the Administrator for one or more of following operation categories:

(1) General private flights;

(2) Agricultural flights;

(3) Rotorcraft external load flights.

(b) Before the Administrator issues the operations specifications, the applicant shall demonstrate to the Administrator it has the capability to conduct operations in accordance with the provisions of this regulation applicable to the applicant. The applicant shall determine the provisions to be complied with as follows when making application for one or more operation categories described in paragraph (a):

(1) For general private flights, this chapter, and applicable articles in chapter A, B, C, D, E, F, G, L, P and Q of this regulation;

(2) For agricultural flights, besides the provisions listed in subparagraph (1), chapter M of this regulation;

(3) For rotorcraft external load flights, besides the provisions listed in subparagraph (1), chapter N of this regulation.

91.907 Privileges of aircraft manager

(a) The aircraft manager certificated under this chapter may conduct operations in accordance with the categories, scopes, standards, and additional conditions and limitations of those operations specifications and the applicable requirements of this regulation and other applicable laws.

(b) The aircraft manager using aircrafts described in 91.901(b) of this regulation in accordance with the operations specifications issued by the Administrator to the aircraft manager is unnecessary to comply with chapter J of this regulation to exert the privileges of private large aircraft operator.

91.909 Application and issuance of operations specifications

(a) The applicant of aircraft manager operations specifications shall submit an application in the format and by means required by the Administrator. The application shall include all contents required by the Administrator.

(1) The name, address, telephone and telefax numbers and mail address of the aircraft

manager;

(2) The location of the aircraft manager’s facilities, including its main operations base and its main maintenance base, if any;

(3) The planed categories and items of management service offered by the aircraft manager to the customer within the People’s Republic of China;

(4) Related aviation management experience and qualification of the aircraft manager to show it has the capability to provide aircraft management service to the customers within the People’s Republic of China;

(5) The list of aircraft manager’s major persons related to the management service and their aviation experience and qualifications;

(b) The application shall be submitted at least 30 days before the planned date of beginning operations. For the applicant intended to conduct operations under 91.901(b) of this regulation, the application shall be submitted at least 45 days in advance.

(c) For first application, the applicant of aircraft manager operations specifications shall submit the application and also submit the documents describing the nature and scope of planned operation, including the supporting documents.

(d) The Administrator will issue the aircraft manager operations specifications to the applicant if the Administrator finds that the applicant complies with the following conditions:

(1) Meet all provisions of the regulations that are applicable to the applicant;

(2) Be able to conduct a safe operation in accordance with the requirements of this regulation and its operations specifications.

(e) The Administrator may deny an application of aircraft manager operations specifications if the Administrator finds:

(1) That the applicant does not meet the requirements set forth in paragraph (d) of this section; or

(2) That operations specifications previously issued to the applicant were revoked in previous 2 years.

91.911 Contents of operations specifications

The aircraft manager operations specifications contain the following information:

(a) The name, address, telephone and telefax numbers and mail address of the aircraft manager;

(b) The location of the aircraft manager's aircraft operation-related facilities, including its main operations base and its main maintenance base, if any;

(c) The number of operations specifications;

(d) The effective date of operations specifications;

(e) The name or designation of the CAAC office responsible for oversight of the aircraft manager’s operation;

(f) A current list of each aircraft to be operated by the operator, listed by owner, type of aircraft, national markings and registration markings;

(g) The operation categories, operation area, limitations, and procedures under which the aircraft manager's operations are to be conducted;

(h) For each type of aircraft to be operated by the aircraft manager, the manner in which, and the location where, maintenance is to be performed; Approval of each aircraft maintenance inspection program; time limits or standards for determination of time limits of fuselage, engine, proper, rotor, equipment, and aircraft emergency device’s overhaul, inspection, and check;

(i) The approval of the method for controlling weight and balance of aircraft;

(j) Any authorized deviation and exemption of specific provision of this regulation;

(k) Any other information the Administrator determines is necessary.

91.913 Duration of operations specifications

(a) Partial or total items of the aircraft manager’s operations specifications become ineffective when:

(1) The operations specifications holder waives and surrenders it to the Administrator;

(2) The Administrator suspends, revokes or otherwise terminates the operations specifications;

(3) Administrator suspends or revokes the authorization for all or partial authorizations in the operations specifications;

(4) The aircraft manager does not conduct one or certain kinds of operations authorized in the operations specifications for more than 1 year nor does resume that kind of operations following the procedures prescribed in paragraph (b) of this section.

(b) If the aircraft manager does not conduct a kind of operation authorized in the operations specifications within 1 consecutive year, the kind of interrupted operation can only be resumed when the following conditions are satisfied and subject to approval of the Administrator:

(1) The aircraft manager advises the Administrator at least 7 days prior to resumption of that kind of operation;

(2) The aircraft manager makes available any time being inspected during the 7 days mentioned above in the event that Administrator decides to conduct a full inspection to determine whether the aircraft manager is able to conduct a safe operation.

(c) If the operations specifications are suspended, revoked or become ineffective for any other reason, the holder shall return the operations specifications to the Administrator.

91.915 Retention and use of operations specifications

(a) The aircraft manager shall maintain the operations specifications in its principal operation base or other location accepted by the Administrator, and shall make available for inspection by the Administrator.

(b) The aircraft manager shall keep ensuring that each person involved in its operations is knowledgeable of the provisions of operations specifications that apply to that person’s duties and responsibilities.

91.917 Amending operations specifications

(a) The Administrator may amend the operations specifications issued under this chapter if:

(1) The Administrator determines that safety and the public interest require the amendment;

(2) The aircraft manager applies for the amendment and the Administrator determines that the safety and public interest allows the amendment.

(b) Except as provided in paragraph (e) of this section, when the Administrator initiates an amendment of the aircraft manager's operations specifications, the following procedure applies:

(1) The Administrator shall notify the aircraft manager in writing of the proposed amendment.

(2) The Administrator shall set a reasonable period (but not less than 7 days) within which the aircraft manager may submit written information, views, and arguments on the amendment.

(3) After considering all material presented, the Administrator shall notify the aircraft manager of:

(i) The adoption of the proposed amendment, or

(ii) The partial adoption of the proposed amendment, or

(iii) The withdrawal of the proposed amendment.

(4) If the Administrator issues an amendment of the operations specifications, it becomes effective not less than 30 days after the aircraft manager receives notice of it unless:

(i) The Administrator finds under paragraph (e) of this section that there is an emergency requiring immediate action with respect to safety; or

(ii) The aircraft manager petitions for reconsideration of the amendment under paragraph (d) of this section.

(c) When the aircraft manager applies for an amendment to its operations specifications, the following procedure applies:

(1) The aircraft manager must file an application to amend its operations specifications at least 15 days before the date proposed by the applicant for the amendment to become effective.

(2) The application must be submitted to the Administrator in a form and manner prescribed by the Administrator.

(3) After considering all material presented, the Administrator shall notify the aircraft manager of:

(i) The adoption of the applied for amendment; or

(ii) The partial adoption of the applied for amendment; or

(iii) The denial of the applied for amendment. The aircraft manager may petition for reconsideration of a denial under paragraph (d) of this section.

(4) If the Administrator approves the amendment, following coordination with the aircraft manager regarding its implementation, the amendment is effective on the date the Administrator approves it.

(d) When an aircraft manager seeks reconsideration of a decision of the Administrator concerning the amendment of operations specifications, the following procedure applies:

(1) The aircraft manager must petition for reconsideration of that decision within 30 days of the date that the aircraft manager receives a notice of denial of the amendment of its operations specifications, or of the date it receives notice of a CAAC-initiated amendment of its specifications, whichever circumstance applies.

(2) A petition for reconsideration, if filed within the 30-day period, suspends the effectiveness of any amendment issued by the Administrator unless that Administrator has found, under paragraph (e) of this section, that an emergency exists requiring immediate action with respect to safety.

(3) If a petition for reconsideration is not filed within 30 days, the procedures of paragraph (c) of this section apply.

(e) If the Administrator finds that an emergency exists requiring immediate action with respect to safety that makes the procedures set out in this section impracticable or contrary to the public interest:

(1) The Administrator may amend the aircraft manager's operations specifications and make the amendment effective on the day the aircraft manager receives notice of it; and

(2) In the notice to the aircraft manager, the Administrator shall articulate the reasons for its finding that an emergency exists requiring immediate action with respect to safety or that makes it impracticable or contrary to the public interest to stay the effectiveness of the amendment.

91.919 Management contract between owner and aircraft manager

Each owner shall have a contract with the aircraft manager that:

(a) Requires the aircraft manager to ensure that the full or fractional ownership program conforms to all applicable requirements of this chapter.

(b) Provides the owner the right to inspect, or have a designee of the owner inspect, the records of the aircraft manager pertaining to the operational safety of the program.

(c) Provides the owner the reasonable right to audit, or have a designee of the owner audit, the operational safety aspects of the program.

(d) Designates the aircraft manager as the owner's agent solely to receive service of notices pertaining to the program that the CAAC seeks to provide to owners and authorizes the CAAC to send such notices to the aircraft manager solely in its capacity as the agent of the owner for such service. The aircraft manager shall transfer the notice to the owner.

91.921 Owner's use of program aircraft

(a) No owner may engage in the public air transportation for remuneration or hire using program aircraft. When conducting commercial flights other than public air transportation, the owner must possess a commercial non-transport operator operation certificate.

(b) When the aircraft owner conducts private flights by using a program aircraft, the owner may not receive compensation other than ones specified in 91.1001(d).

(c) During the term of the multi-year program agreements under which a fractional owner has obtained a minimum fractional ownership interest in a program aircraft, the flight hours used during that term by the owner on program aircraft shall not exceed the total hours associated with the fractional owner's share of ownership.

91.923 Owner’s responsibility for aircraft operational control

(a) The owner is considered by the Administrator as in operational control of a program aircraft when the owner:

(1) Has the rights to control the program aircraft and is subject to the limitations set forth in 91.919 through 91.925;

(2) Has directed that a program aircraft carry passengers or property designated by that owner;

(3) The program aircraft is carrying those passengers or property.

(b) When a program aircraft is used for a flight for administrative purposes such as demonstration, positioning, ferrying, maintenance, or crew training, and no passengers or property designated by such owner are being carried, the owner is not in operational control of a flight.

(c) Each owner in operational control of a program aircraft shall be responsible for complying with all applicable requirements of this regulation, including those related to airworthiness and operations in connection with the flight. Each owner may delegate some or all of the performance of the tasks associated with carrying out this responsibility to the aircraft manager, and may rely on the aircraft manager for aviation expertise and program management services. When the owner delegates performance of tasks to the aircraft manager or relies on the aircraft manager's expertise, the owner and the aircraft manager shall be responsible to the Administrator for compliance.

91.925 Owner’s understanding and acknowledgement of its operational control responsibilities

(a) Upon the signing of an initial program management services contract, or a renewal or extension of a program management services contract, the aircraft manager shall brief the owner on the owner’s operational control responsibilities, and the owner shall review and sign an acknowledgement of owner’s operational control responsibilities. The acknowledgement shall be included with the program management services contract. The acknowledgement shall state that the owner is in operational control of the aircraft used and is aware of its operational control responsibilities in the program when the operation of a program aircraft for the owner will be conducted under this regulation. The acknowledgement also shall state that:

(1) The owner has responsibility for compliance with the operations specifications and all applicable regulations;

(2) The owner may be exposed to enforcement actions for any noncompliance; and

(3) The owner may be exposed to significant liability risk in the event of a flight accident that causes personal injury or property damage. The owner’s signature on the acknowledgement will serve as the owner’s affirmation that the owner has read, understands, and accepts the operational control responsibilities described in the acknowledgement.

(b) Each aircraft manager shall ensure that the owner and owner’s representatives have access to the acknowledgements for such owner’s program aircraft. Each program manager shall ensure that the Administrator has access to the acknowledgements for all program aircraft.

91.927 Aircraft manager’s responsibility for ensuring compliance

The aircraft manager shall ensure that its program management services are sufficient to ensure owner compliance with all applicable sections of this regulation in program operations where an owner has operational control.

91.929 Conducting tests and inspections

(a) At any time or place, the Administrator may conduct an inspection or test, other than enroute inspections, to determine whether an aircraft manager is complying with this regulations and its operations specifications issued by the Administrator.

(b) The aircraft manager must:

(1) Keep and make available to the Administrator at the aircraft manager’s principal base of operations the aircraft manager’s operations specifications; and

(2) Allow the Administrator to make any test or inspection, other than en-route inspections. If the notification of en-route inspection is received in advance, the aircraft manager shall accept the en-route inspection of the Administrator within a reasonable time limit.

(c) Each person used by the aircraft manager to be responsible for documents management must make those documents available to the Administrator.

(d) The Administrator may determine an aircraft manager’s continued eligibility to hold its operations specifications based on the results of test or inspection. Failure by any aircraft manager to make available to the Administrator upon request, the operations specifications, or any required record, document, or report is grounds for suspension and revocation of its operations specifications or suspension of all or any part of its operations specifications.

91.931 Internal safety reporting

(a) Each aircraft manager shall establish an internal safety reporting procedure that fosters an environment of safety without any potential for retribution.

(b) Each aircraft manager shall establish procedures to respond to an aviation incident/accident.

91.933 Operating manual requirements

(a) Each aircraft manager shall prepare and keep current an operating manual setting forth procedures and policies acceptable to the Administrator. This manual shall be used by the aircraft manager’s flight, maintenance, and other ground operations personnel in conducting its operations. However, the Administrator may authorize a deviation from this section if the Administrator finds that, because of the limited size of the operation, part of the manual is not necessary for guidance of flight, maintenance, or other ground operations personnel.

(b) The aircraft manager shall maintain at least one copy of the manual at its principal base of operations or other place accepted by the Administrator.

(c) The manual required by paragraph (a) of this section may not be contrary to any applicable CAAC regulations, foreign regulation applicable to operation in foreign countries, or the aircraft manager's operations specifications.

(d) A copy of the manual required by paragraph (a) of this section, or appropriate portions of the manual shall be made available to flight, maintenance and other ground operations personnel by the aircraft manager and furnished to the CAAC facility assigned to the operator. Each employee of the aircraft manager to whom a manual or appropriate portions of it are furnished shall keep it up-to-date with the changes and additions furnished to them.

(e) Except as provided in paragraph (f) of this section, the appropriate parts of the manual shall be carried on each of the aircraft manager's aircraft when away from its principal operations base. The appropriate parts must be available for use by flight, maintenance and other ground operations personnel.

(f) If aircraft inspections or maintenance are conducted at specified stations where the aircraft manager’s operating manual is available, the aircraft manager is not required to ensure that the operating manual is carried aboard the aircraft enroute to those stations.

(g) Each operating manual must have the date of the last revision on each revised page.

91.935 Manager’s operating manual contents

Unless otherwise authorized by the Administrator, the aircraft manager shall include the following in the operating manual based on its actual operation situation:

(a) Procedures for ensuring compliance with aircraft weight and balance limitations;

(b) Copies of the aircraft manager’s operations specifications or appropriate extracted information, including area of operations authorized, category and class of aircraft authorized,

crew compliments, and types of operations authorized;

(c) Procedures for accident notification;

(d) 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;

(e) 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;

(f) 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;

(g) Procedures to be followed by the pilot in command to obtain maintenance, preventive maintenance, and servicing of the aircraft at a place where previous arrangements have not been made;

(h) Procedures for operations with inoperative instruments or equipment and for the release of, and continuation of flight if any item of equipment required for the particular type of operation becomes inoperative or unserviceable en route;

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

(j) Procedures to be followed by the pilot in command in the passenger briefing required by 91.1019;

(k) Procedures for ensuring compliance with emergency procedures, including a list of the functions assigned each required crewmember in connection with an emergency and emergency evacuation duties;

(l) The approved aircraft inspection program, when applicable;

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

(n) Procedures for performance planning that take into account takeoff, landing and en-route conditions;

(o) At the aircraft manager’s election for reduced runway operating length requirements under 91.947(c), an approved Destination Airport Analysis procedures for establishing runway margins at destination airports beyond those otherwise permitted by 91.947(b), taking into account the following factors as supported by published aircraft performance data supplied by the aircraft manufacturer for the appropriate runway conditions:

(1) Pilot qualifications and experience;

(2) Aircraft performance data to include normal, abnormal and emergency procedures as supplied by the aircraft manufacturer;

(3) Airport facilities and topography;

(4) Runway conditions (including contamination);

(5) Airport or area weather reporting; and

(6) Appropriate additional runway margins, if required.

(p) A suitable system (which may include an electronic system) that provides for preservation and retrieval of maintenance record-keeping information in a manner acceptable to the Administrator that provides:

(1) A description (or a reference to date of performance acceptable to the Administrator) of the work performed;

(2) The name of the person performing the work if the work is performed by a person outside the organization of the operator; and

(3) The name or other positive identification of the individual approving the work.

(q) Flight locating and scheduling procedures; and

(r) Other procedures and policy instructions regarding operations that are issued by the aircraft manager or required by the Administrator.

91.937 Record keeping

(a) Each aircraft manager 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 aircraft manager’s operations specifications;

(2) A current list of the aircraft used or available for use in operations under this chapter, the operations for which each is equipped (e.g., MNPS, RNP5/10, RVSM), and the owners of each aircraft;

(3) An individual record of each pilot used in operations by the aircraft manager, 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 date and class of the medical certificate that the pilot holds.

(b) The aircraft manager using aircrafts described in 91.901(b) of this regulation shall also keep the following:

(1) For an individual record of each pilot, besides items of (a)(3) of this section, the following information shall also be included:

(i) The date and result of each of the competency tests and proficiency checks required by this chapter and the type of aircraft flown during that test or check;

(ii) The pilot's flight time in sufficient detail to determine compliance with the flight time limitations of this chapter;

(iii) The check pilot’s signature to authorize the pilot to be a crew member on the type of aircraft;

(iv) Any action taken concerning the pilot’s release from employment for physical or professional disqualification;

(v) The date of the completion of the initial, transition, upgrade and recurrent training required by this chapter and based on the operation category performed.

(2) An individual record for each flight attendant used in operations, including the following information:

(i) The full name of the flight attendant, and

(ii) The date and result of flight attendant training.

(c) Each aircraft manager must keep each record required by paragraph (a)(2) of this section for at least 6 months, and must keep each record required by paragraphs (a)(3) and (b) of this section for at least 12 months. When an employee is no longer employed or affiliated with the aircraft manager, each record required by paragraphs (a)(3) and (b) of this section shall be retained for at least 12 months after the date when the employee leaves the employment of, or affiliation with, the aircraft manager.

(d) Each aircraft manager shall be responsible for the preparation and accuracy of a load manifest in duplicate containing information concerning the loading of the aircraft. The manifest shall be prepared before each takeoff and shall include:

(1) The number of passengers;

(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 CAAC-approved method 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;

(7) The origin and destination; and

(8) Identification of crewmembers and their crew position assignments.

(e) The pilot in command of the 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 aircraft manager shall keep copies of completed load manifest for at least 30 days at its principal operations base, or at another location used by it and approved by the Administrator.

(f) Each aircraft manager shall be responsible for providing a written document that states the

name of the entity having operational control on that flight. The pilot in command of the aircraft shall carry a copy of the document in the aircraft to its destination. The aircraft manager shall keep a copy of the document for at least 30 days at its principal operations base, or at another location used by it and approved by the Administrator.

(g) Records may be kept either in paper or other form acceptable to the Administrator.

(h) Aircraft managers that are also certificated to operate under Part 121 or other public air transportation operation regulations may satisfy the record-keeping requirements of this section and of 91.995 with records maintained to fulfill equivalent obligations under Part 121 or other public air transportation operation regulations.

91.939 Applicability of following provisions of this chapter

Sections 91.941 through 91.997 are only applicable to the aircraft manager described in 91.901(b) of this regulation.

91.941 Flight scheduling and locating requirements

(a) Each aircraft manager shall establish and use a system to schedule and release program aircraft.

(b) Each aircraft manager shall establish a system as follows for locating the aircraft in operation:

(1) Provide the aircraft manager with at least the information required to be included in a VFR flight plan;

(2) Provide for timely notification of a CAAC facility or search and rescue facility, if an aircraft is overdue or missing; and

(3) Provide the aircraft manager 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.

(c) Flight locating information shall be retained at the aircraft manager's principal operation base, or at other places designated by the aircraft manager, until the completion of the flight.

91.943 Operating information required

(a) Each aircraft manager shall, for all program operations, provide the following materials, in current and appropriate form, accessible to the pilot at the pilot station, and the pilot shall use them:

(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) At least one set of pertinent aeronautical charts; and

(4) For IFR operations, at least one pertinent navigational enroute, terminal area, and approach chart

(b) Each cockpit checklist required by paragraph (a)(1) of this section shall contain the following procedures:

(1) Before starting engines;

(2) Before takeoff;

(3) After takeoff;

(4) Before landing;

(5) After landing; and

(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;

(3) Engine inoperative procedures;

(4) Any other emergency procedures necessary for safety.

91.945 Passenger safety briefing

(a) Except provided in paragraph (f) of this section, prior to each takeoff the pilot in command of an aircraft carrying passengers on a program flight, shall ensure that all passengers have been orally briefed on:

(1) Each passenger shall be briefed on when, where, and under what conditions smoking is prohibited. This briefing shall include a statement, as appropriate, that the China civil aviation regulations require passenger compliance with lighted passenger information signs and no smoking placards, prohibit smoking in lavatories, and require compliance with crewmember instructions with regard to these items;

(2) Each passenger shall be briefed on when, where and under what conditions it is necessary to have his or her safety belt and, if installed, his or her shoulder harness fastened about him or her. This briefing shall include a statement, as appropriate, that the China civil aviation regulations require passenger compliance with the lighted passenger sign and/or crewmember instructions with regard to these items;

(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) Ditching procedures and the use of flotation equipment required under 91.1009 for a flight over water;

(7) The normal and emergency use of oxygen installed in the aircraft; and

(8) Location and operation of fire extinguishers.

(b) Except provided in paragraph (f), prior to each takeoff, the pilot in command of an aircraft carrying passengers on a program flight shall ensure that each person who may 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.

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

(d) The oral 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.

(e) The oral briefing required by paragraph (a) of this section shall be supplemented by printed cards that must be carried in the aircraft in locations convenient for the use of each passenger. The cards shall:

(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 paragraphs (a) and (b) of this section does not apply if passengers have been briefed before a previous leg of a flight in the same aircraft.

91.947 Turbine-powered large transport category airplanes: Destination and alternate airports limitations

(a) No aircraft manager may permit a turbine engine powered large transport category program airplane on a program flight to take off at a weight at which (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 Airplane Flight Manual for the elevation of the destination or alternate airport and the ambient temperature anticipated at the time of landing.

(b) Except as provided in paragraph (c) of this section, no aircraft manager may permit a turbine engine powered large transport category program airplane on a program flight to take off

unless, its weight on arrival, allowing for normal consumption of fuel and oil in flight (in accordance with the landing distance in the Airplane Flight Manual for the elevation of the destination airport and the wind conditions anticipated there at the time of landing), would allow a full stop landing at the intended destination airport within 85 percent of the effective length of each runway described below from a point 15 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 program airplane is landed on the most favorable runway and in the most favorable direction, in still air;

(2) The program airplane is landed on the most suitable runway considering the probable wind velocity and direction and the ground handling characteristics of that airplane, and considering other conditions such as landing aids and terrain.

(c) An aircraft manager may permit the airplane to take off at a weight in excess of that allowed by the runway margin in paragraph (b) of this section if such operation is permitted by an approved Destination Airport Analysis in that aircraft manager's operating manual and an alternate airport meeting the criteria of paragraph (d) of this section is selected.

(d) An aircraft manager may select an airport as an alternate airport for a turbine-powered large transport category program airplane if (based on the assumptions in paragraph (b) of this section) that airplane, at the weight anticipated at the time of arrival, can be brought to a full stop landing within 85 percent of the effective length of the runway from a point 15 meters (50 feet) above the intersection of the obstruction clearance plane and the runway.

(e) Unless, based on a showing of actual operating landing techniques on wet runways, a shorter landing distance (but never less than that required by paragraph (b) of this section) has been approved for a specific type and model airplane and included in the Airplane 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 or alternate 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.

91.949 IFR takeoff, approach and landing minimums

(a) No pilot on a program aircraft operating a program flight may begin an instrument approach procedure to an airport unless:

(1) That airport has a weather reporting facility operated by the CAAC-approved weather services organization, or other weather information source approved by the Administrator;

(2) The latest weather report issued by the weather reporting facility includes a current local altimeter setting for the destination airport. If no local altimeter setting is available, the pilot may use alternate altimeter settings indicated on the approach chart.

(b) For flight planning purposes, if the destination airport does not have a weather reporting facility described in paragraph (a)(1) of this section, the pilot must designate as an alternate an airport that has a weather reporting facility meeting that criteria.

(c) The MDA or DH and visibility landing minimums prescribed by the Administrator or in the aircraft manager's operations specifications, are increased by 30 meters and 800 meters respectively, but not to exceed the ceiling and visibility minimums for that airport when used as an alternate airport, for each pilot in command of a turbine-powered aircraft who has not served at least 100 hours as pilot in command in that type of aircraft.

(d) 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 one hour's flying time (at normal cruising speed, in still air) of the airport of departure.

(e) Each pilot making an IFR takeoff or approach and landing at an airport shall comply with applicable instrument approach procedures and weather minimums of the airport flown to/from.

91.951 Some aircrafts' operation proving tests

(a) No aircraft manager may permit the operation of an aircraft for which two pilots are

required by the type certification for operations under VFR, if it has not previously proved such an aircraft in operations under this regulation in at least 25 hours of proving tests including:

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

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

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

(b) No aircraft manager may permit the operation of a turbojet airplane if it has not previously proved the same or another turbojet airplane in operations under this regulation in at least 25 hours of proving tests, including

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

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

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

(c) No aircraft manager 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.

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

91.953 Drug and alcohol abuse control of operating personnel

(a) Each aircraft manager shall provide each direct employee performing flight crew member, flight attendant, flight instructor, or aircraft maintenance duties with drug and alcohol abuse training. No aircraft manager may use any contract employee to perform these duties unless that contract employee has been provided with drug and alcohol abuse training.

(b) Aircraft managers shall disclose to their aircraft owners the existence of a drug and alcohol abuse training of operating personnel and company testing program. If the aircraft manager has implemented a testing program, the aircraft manager shall disclose the testing result to their aircraft owners and the disclosure shall include the drugs or alcohol tested for, the persons tested, the types of tests, e.g., pre-employment, random, reasonable cause/suspicion, post accident, return to duty and follow-up etc.

91.955 Airmen staffing and requirements

(a) Each aircraft manager shall use in program operations on program aircraft flight crews meeting 91.959 criteria and qualified under the appropriate China civil aviation regulations. The aircraft manager shall provide oversight of those crews.

(b) Each aircraft manager shall employ enough pilots per program aircraft. If the Administrator determines the number of pilots staffing can’t meet the operation safety based on the following factors, it may require the aircraft manager adds pilots or limit flight frequency:

(1) Number of program aircraft;

(2) Aircraft manager flight, duty, and rest time considerations, and in all cases within the limits set forth in 91.963 through 91.967 of this regulation;

(3) Vocations of pilots;

(4) Operational efficiencies;

(5) Training time.

(c) Each aircraft manager shall publish pilot and flight attendant duty schedules sufficiently in advance to follow the flight, duty, and rest time limits in 91.963 through 91.965 of this regulation in program operations.

(d) Unless otherwise authorized by the Administrator when any program aircraft is flown in program operations with passengers onboard, the crew shall consist of at least two (2) qualified pilots (including one pilot-in-command and one copilot) employed or contracted by the aircraft manager.

(e) The aircraft manager shall ensure that trained and qualified scheduling or flight release personnel are on duty to schedule and release program aircraft during all hours that such aircraft are available for program operations.

91.957 Newly-hired pilots safety background check

Before a pilot participates in program aircraft operations, the aircraft manager shall request the following information:

(a) CAAC records pertaining to:

(1) Current pilot certificates and associated type ratings;

(2) Current medical certificates;

(3) Summaries of legal enforcement actions resulting in a finding by the Administrator of a violation.

(b) Records from all previous employers during the five years preceding the date of the employment application where the applicant worked as a pilot. Records from previous employers shall include:

(1) Crew member records;

(2) Drug testing and rehabilitation records pertaining to the individual;

(3) Alcohol misuse records pertaining to the individual;

(4) The applicant's individual record that includes certifications, ratings, aeronautical experience, effective date and class of the medical certificate, etc.

91.959 Flight crew experience and qualification requirements

(a) No aircraft manager may use any person, nor may any person serve, as a pilot in command or copilot of a program aircraft, or as a flight attendant on a program aircraft, in program operations unless that person has the following experience and ratings:

(1) The pilot acting as pilot in command in VFR operations shall have a minimum of 500 hours of total flight time; the pilot acting as pilot in command in IFR operations shall have a minimum of 1200 hours of total flight time;

(2) The pilot in command and copilot of program aircraft shall at least hold commercial pilot license, applicable ratings and instrument ratings. For the aircraft with type rating, the pilot in command shall hold the type rating;

(3) The flight attendant engaging in program operation shall be properly trained by the aircraft manager.

(b) The Administrator may authorize deviations from paragraph (a) of this section if the Administrator finds that the crewmember has comparable experience and can effectively perform the functions after consideration of the size and scope of the operation.

91.961 Pilot operating limitations and pairing requirements

(a) If the copilot of a program aircraft has fewer than 100 hours of flight time in the type aircraft being flown, and the pilot in command is not an appropriately qualified flight instructor, the pilot in command shall make all takeoffs and landings in any of the following situations:

(1) Special airports specified by the Administrator or the aircraft manager;

(2) The prevailing visibility for the airport is at or below 1200 m (3/4 mile) or the runway visual range for the runway to be used is at or below 1200 m (4,000 feet);

(3) The runway to be used has water, snow, slush or similar contamination that may adversely affect aircraft performance;

(4) The braking action on the runway to be used is reported to be less than "good";

(5) The crosswind component for the runway to be used is in excess of 7m/s (15 knots);

(6) Wind shear is reported in the vicinity of the airport;

(7) Any other condition in which the pilot in command determines it to be prudent to exercise the pilot in commands' authority.

(b) No aircraft manager may release a program flight unless, for that type aircraft, at least one pilot of the crew has at least 75 hours of program flight time. The Administrator may, upon application by the aircraft manager, authorize deviations from the requirements of this section by an appropriate amendment to the operations specifications in any of the following circumstances:

(1) A newly authorized aircraft manager does not employ any pilots who meet the minimum

requirements of this section;

(2) An existing aircraft manager adds to its fleet a new category and class aircraft not used before in its operation;

(3) An existing aircraft manager establishes a new base to which it assigns pilots who will be required to become qualified on the aircraft operated from that base.

91.963 Flight, duty and rest time requirements

(a) For purposes of flight, duty and rest time requirements:

(1) Augmented flight crew means at least three pilots.

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

(3) Duty period means the period of elapsed time between reporting for an assignment involving flight time and release from that assignment by the aircraft manager.

(4) Operation delay means a delay due to circumstances beyond the control of the aircraft manager or flight crewmember (such as adverse weather, aircraft equipment failure, air traffic control problem) that are not known in advance.

(5) Multi-time zone flight means a continuous east or west flight crossing five (5) or more time zones that is not north of 60 degrees north latitude or south of 60 degrees south latitude.

(6) Rest period means a period of time required that is free of all responsibility for work or duty prior to the commencement of, or following completion of, a duty period, and during which the flight crew member cannot be required to receive contact from the program manager for purposes of program operations. Time spent in transportation that an aircraft manager provides to transport the crewmember to an airport at which he is to serve on a flight as a crewmember, or from an airport at which he was relieved from duty to return to his home station, is not considered part of a rest period.

(b) An aircraft manager may assign a flight crewmember for program flight time only when the flight, duty and rest time requirements in 91.963 and 91.965 of this regulation are met.

(c) Each flight assignment shall provide for at least 10 consecutive hours of rest during the 24-hour period that precedes the planned completion time of the assignment.

(d) Any extension of planned duty or flight time shall be approved by the aircraft manager with the concurrence of the flight crew but in no event may exceed the maximum time limits set forth in 91.965 of this regulation.

(e) A flight crew member on standby status may decline to undertake flight activities if, in the flight crew member's determination, to do so would not be consistent with the requirements of flight, duty, and rest.

91.965 Flight, duty, and rest time requirements of flight crew

(a) No aircraft manager may assign any flight crewmember for flight as a crew member unless that crewmember's total flight time (including all flight time, such as training, and ferry flight etc.) meet the following:

(1) Not exceed 40 hours in any seven consecutive calendar days;

(2) Not exceed 120 hours in any calendar month;

(3) Not exceed 1400 hours in any calendar year.

(b) No aircraft manager may assign any pilot as a member of a one- or two-pilot crew, if that crewmember's flight time or duty time will exceed, or rest time will be less than:

	Normal Duty	Operation Delay
Minimum Rest Before Duty	10 Hours	10 Hours
Duty Time	Up to 14 Hours	Exceeding 14 Hours up to 16 Hours
Flight Time	Up to 10 Hours	Exceeding 10 Hours up to 12 Hours

Minimum After Duty Rest	10 Hours	12 Hours
Minimum After Duty Rest Period for Multi-Time Zone Flights	14 Hours	18 Hours

(c) No aircraft manager may assign any pilot as a member of a three-pilot crew, if that crewmember's flight time or duty time will exceed, or rest time will be less than:

	Normal Duty	Operation Delay
Minimum Rest Before Duty	10 Hours	10 Hours
Duty Time	Up to 18 Hours	Exceeding 18 Hours up to 20 Hours
Flight Time	Up to 14 Hours	Up to 16 Hours
Minimum After Duty Rest	14 Hours	18 Hours
Minimum After Duty Rest Period for Multi-Time Zone Flights	18 Hours	24 Hours

91.967 Pilot knowledge and proficiency check

(a) No aircraft manager 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 CAAC inspector, delegated representative or an authorized check pilot of the aircraft manager, on that pilot's knowledge in the following areas:

(1) The regulation, CCAR-61, and other appropriate CCARs;

(2) The aircraft manager's operations specifications and operating manual;

(3) For each type of aircraft to be flown by the pilot, the aircraft powerplant, major components and systems, major appliances, performance and operating limitations, standard and emergency operating procedures, and the contents of the accepted operating manual or equivalent, as applicable;

(4) 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 enroute operations;

(5) Navigation and use of air navigation aids appropriate to the operation or pilot authorization, including, when applicable, instrument approach facilities and procedures;

(6) Air traffic control procedures, including IFR procedures when applicable;

(7) Meteorology in general, including the principles of frontal systems, icing, fog, thunderstorms, and wind-shear, and, if appropriate for the operation of the aircraft manager, high altitude weather;

(8) Procedures for:

(i) Recognizing and avoiding severe weather situations;

(ii) Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude wind-shear (except that rotorcraft aircraft pilots are not required to be tested on escaping from low-altitude wind-shear); 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

(9) New equipment, procedures, or techniques, as appropriate.

(b) No aircraft manager 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 CAAC inspector, delegated representative or an authorized check pilot of the aircraft manager in that class or type (if any) of aircraft, to determine the pilot's competence in practical skills and techniques in that type or class of aircraft. The extent of the proficiency check shall include any of the maneuvers and procedures currently required for the

original issuance of the particular pilot certificate and ratings.

(c) The person conducting knowledge check or proficiency check must ensure the checked pilot has skillfully master the appropriate knowledge, procedures, and maneuvers and have no any defect that might endanger the aircraft safety.

(d) The CAAC inspector, delegated representative or authorized check pilot of the aircraft manager certifies the competency of each pilot who passes the check in the aircraft manager's pilot records.

(e) All or portions of a required proficiency check may be given in a flight or other appropriate training device, if approved by the Administrator. Each aircraft manager shall ensure that each pilot annually receives at least one training session in a flight simulator, if available, for at least one program aircraft.

91.969 Flight attendant testing requirements

No aircraft manager 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 aircraft manager has determined by appropriate testing that the person is knowledgeable and competent in the following areas:

(a) Authority of the pilot in command;

(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 and evacuation of persons who may need the assistance of another person to move expeditiously to an exit in an emergency;

(d) Safety 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 aircraft manager's operations manual.

91.971 Flight crew check: supplementary rules

(a) The aircraft manager shall strictly control the period that crew member receives the check required by this chapter and the check shall be completed within the fix calendar months based on the check period. If a crewmember 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 in a proficiency check 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 aircraft manager may not use the pilot as a flight crewmember in operations until the pilot has satisfactorily completed the check.

91.973 Personnel training: General rules

(a) Each aircraft manager shall comply with the following general requirements about personnel training:

(1) Establish, use and revise a training program that meets this chapter and that ensures that each crewmember, flight instructor, check pilot and each person assigned duties for the carriage

and handling of hazardous materials, is adequately trained to perform these assigned duties.

(2) Provide adequate ground and flight training facilities for the training required.

(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.

(4) Provide enough ground instructors, flight instructors, check airmen, and simulator instructors to conduct required training and checks.

(b) Whenever a crewmember who is required to take recurrent training 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 or check pilot who is responsible for a segment of training or check shall certify as to the proficiency and knowledge of the crewmember, flight instructor, or check pilot concerned upon completion of that training or check. That certification must be made a part of the crewmember's record.

(d) Training subjects that apply to more than one aircraft or crewmember position and that have been satisfactorily completed during previous training while employed for another aircraft or another crewmember position need not be repeated during subsequent training other than recurrent training.

(e) Flight simulators and other training devices may be used in the aircraft manager's training program if approved by the Administrator.

(f) Each aircraft manager shall be responsible for establishing safe and efficient crew management practices for all phases of flight in program operations including cockpit resource management training for all crewmembers used in program operations.

91.975 Personnel training: Special rules

(a) After approved by the Administrator, an aircraft manager may, based on the training contract, use the services of the following training centers to provide training, testing, and checking required by this chapter:

(1) The training center operated by the public air carrier certificated under CCAR-121 or other CAAC-approved public air operator;

(2) The training center operated by other aircraft manager;

(3) Other training center approved by the Administrator.

(b) The training center specified in paragraph (a) shall be certificated by the Administrator, and authorized to provide training services for other organizations. The training center shall have facilities, training equipment, and courseware meeting the requirements of this chapter, and has sufficient instructor and check airmen to provide training, testing, and checking to persons subject to the requirements of this chapter.

91.977 Training program and revision approval

(a) To obtain approval of a training program or a revision to an approved training program, each aircraft manager must submit to the Administrator the training program developed or revised in accordance with the requirements of this chapter and relevant information requested by the Administrator.

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

(c) Whenever the Administrator finds that revisions are necessary for the continued adequacy of a training program that has been granted approval, the aircraft manager shall, after notification by the Administrator, make any changes in the program that are found necessary by the Administrator. Within 30 days after the aircraft manager 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.

91.981 Crewmember training requirements

(a) Each aircraft manager must develop, use and revise the pilot training program, which shall be approved by the Administrator. When flight attendants are used in operations, the aircraft manager shall also develop, use and revise the flight attendant training program, which shall be approved by the Administrator. Training program shall be applicable to the operation assigned to each pilot and flight attendant and ensure the pilot and flight attendant who are properly trained meet the knowledge and skill requirements in 91.967 through 91.971 of this regulation.

(b) No pilot may be served as required crewmember for an actual flight unless within 12 calendar months preceding the performance of any operation, the pilot has completed the initial or recurrent training according to the training program based on the aircraft type or class flown, crewmember position and actual operating situation.

(c) Each aircraft manager must include in its training program the following 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;

(ii) Appropriate provisions of CCARs;

(iii) Contents of the aircraft manager’s operations specifications; and

(iv) Appropriate portions of the program manager’s operating manual.

(2) The ground training in 91.987 and 91.989 of this regulation, as applicable.

(3) Emergency training in 91.983 of this regulation.

(d) Each training program shall provide the crewmember the flight training in 91.987(b) of this regulation, as applicable.

(e) Each training program must provide recurrent ground and flight training in 91.991 of this regulation.

(f) Each aircraft manager shall provide the pilot and flight attendant trained with the current learning material applicable to the actual operations.

(g) In addition to above training provided in the section, each aircraft manager shall, based on its actual situation, add necessary ground and flight training in the training program 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.

91.983 Crewmember emergency survival training

(a) Each required crewmember shall complete the emergency survival training specified under this section for each aircraft type, model, and configuration, and each kind of operation conducted, as appropriate for each crewmember.

(b) Emergency survival 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;

(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 (including galley, service compartment, lift, lavatory, and video screen storage place);

(iii) Ditching and other evacuation, including the person who may need the assistance of another person to move expeditiously to an exit if an emergency occurs;

(iv) Illness, injury, or other abnormal situations involving passengers or crewmembers; and

(v) Hijacking and other unusual situations.

(4) Review and discussion of the 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;

(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 7600 meters (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.

91.985 Dangerous goods recognition training

No aircraft manager may use any pilot to perform, and no pilot may perform, any assigned duties and responsibilities for the handling or carriage of dangerous goods as defined in ICAO Annex 18, unless that pilot has received training in the recognition of dangerous goods.

91.987 Pilot training contents

(a) Ground training for pilots must include instruction in at least the following as applicable to their duties:

(1) General subjects:

(i) The aircraft manager’s flight locating procedures;

(ii) Principles and methods for determining weight and balance, and runway limitations for takeoff and landing;

(iii) Enough meteorology to ensure a practical knowledge of weather phenomena, including the principles of frontal systems, icing, fog, thunderstorms, wind shear and, if appropriate, high altitude weather situations;

(iv) Air traffic control systems, procedures, and phraseology;

(v) Navigation and the use of navigational aids, including instrument approach procedures;

(vi) Normal and emergency communication procedures;

(vii) Visual cues before descent below DH/MDA/MDH and during final descent; and

(viii) For jet airplanes, operation principle and characteristics of jet engine, high speed aerodynamics and modern large passenger airplane’s operation characteristics, including principle and recovery of jet airplanes stall and dutch roll;

(ix) Crew resource management;

(x) Other instructions necessary to ensure the pilot’s competence.

(2) For each aircraft type:

(i) A general description;

(ii) Performance characteristics;

(iii) Engines and propellers;

(iv) Major components;

(v) Major airplane systems (i.e., flight controls, electrical, and hydraulic) and other systems, as appropriate;

(vi) Principles of normal, abnormal, and emergency operations, appropriate procedures and limitations;

(vii) Recognizing and avoiding severe weather situations, including escaping from severe weather situations, in case of inadvertent encounters (including low-altitude wind-shear), operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions;

(viii) Operating limitations;

(ix) Fuel consumption and cruise control;

(x) Flight planning;

(xi) Each normal and emergency procedure; and;

(xii) The approved flight manual.

(b) Flight training for pilots must include the maneuvers and procedures that are specified in CCAR-61 to be included in practice test for initially issuing the pilot license and ratings. The maneuvers and procedures must be described in the approved training program curriculum of the aircraft manager. Flight training must be performed in flight, except to the extent that certain maneuvers and procedures may be performed in a flight simulator or an appropriate training device if authorized by the Administrator.

91.989 Flight attendants training contents

Flight attendants training only include ground training, which must include instruction in at least the following:

(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 in-flight 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.

91.991 Recurrent training contents

(a) Each aircraft manager 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 ground training by 91.987 of this regulation.

(c) Recurrent flight training for pilots must include the maneuvers or procedures that are specified in CCAR-61 to be included in practice test for initially issuing the pilot license and ratings.

(d) Satisfactory completion of the knowledge and proficiency check required by 91.967 may be substituted for recurrent flight training.

91.993 Minimum equipment lists and letters of authorization

Any Minimum Equipment Lists, Letters of Authorization, Dispatch Deviation Guides, Deferred Discrepancy Lists or any other approvals covering the program aircraft will be issued to the aircraft manager on behalf of the owners collectively. No Minimum Equipment Lists, Letters of Authorization, Dispatch Deviation Guides, and Deferred Discrepancy Lists shall be affected by any change in ownership of a program aircraft, as long as the aircraft remains a program aircraft in the program.

Chapter L Large and Turbine-Powered Multiengine Airplanes

91.1001 Applicability

(a) This chapter prescribes operating rules, in addition to those prescribed in other chapters of this regulation, governing the operation of large and of turbojet-powered multiengine civil airplanes registered in the People's Republic of China. The operating rules in this chapter do not apply to those airplanes when they are operated under Parts 121 and other public transportation operation regulations.

(b) Operations that may be conducted under the rules in this chapter instead of those in Part 121 and other public transportation operation regulations when common carriage is not involved, include

(1) Ferry or training flights;

(2) Aerial work operations such as aerial photography or survey, or pipeline patrol, but not including agricultural dispensing operations;

(3) Flights for the demonstration of an airplane to prospective customers when no charge is made except for those specified in paragraph (d) of this section;

(4) Flights conducted by the operator of an airplane for his personal transportation, or the transportation of his guests when no charge, assessment, or fee is made for the transportation;

(5) Carriage of employees, guests, and property of a company on an airplane operated by that company, or the parent or a subsidiary of the company or a subsidiary of the parent, when the carriage is within the scope of, and incidental to, the business of the company and no charge, assessment or fee is made for the carriage in excess of the cost of the airplane operation, except that no charge of any kind may be made for the carriage of a guest of a company, when the carriage is not within the scope of, and incidental to, the business of that company;

(6) The carriage of company employees, and guests of the company on an airplane operated under a time-sharing, interchange, or joint ownership agreement as defined in paragraph (c) of this section;

(7) The carriage on an airplane of an athletic team, sports group, choral group, or similar group having a common purpose or objective when there is no charge, assessment, or fee of any kind made by any person for that carriage;

(c) As use in this section:

(1) A "time sharing agreement" means an arrangement whereby a person leases his airplane with flight crew to another person, and no charge is made for the flights conducted under that arrangement other than those specified in paragraph (d) of this section;

(2) An "interchange agreement" means an arrangement whereby a person leases his airplane to another person in exchange for equal time, when needed, on the other person's airplane, and no charge, assessment, or fee is made, except that a charge may be made not to exceed the difference between the operation cost of the two airplanes;

(3) A "joint ownership agreement" means an arrangement whereby one of the registered joint owners of an airplane employs and furnishes the flight crew for that airplane and each of the registered joint owners pays a share of the charge specified in the agreement.

(d) The following may be charged, as expenses of a specific flight, for transportation as authorized by paragraphs (b) (3) and (c) (1) of this section:

(1) Fuel, oil, lubricants, and other additives.

(2) Travel expenses of the crew, including food, lodging, and ground transportation.
(3) Hangar and tie down costs away from the aircraft's base of operation.
(4) Insurance obtained for the specific flight.
(5) Route fee, landing fees, airport taxes and similar assessments.
(6) Customs, foreign permit and similar fees directly related to the flight.
(7) In-flight food and beverages.
(8) Passenger ground transportation
(9) Flight planning and weather contract services.
(10) An additional charge equal to 100 percent of the expenses listed in paragraph (d) (1) of this section.

91.1003 Flying equipment and operating information

(a) The pilot in command of an airplane shall ensure that the following flying equipment and aeronautical charts and data, in current and appropriate form, are accessible for each flight at the pilot station of the airplane:
(1) A flashlight or the equivalent, that is in good working order.
(2) A cockpit checklist containing the procedures required by paragraph (b) of this section.
(3) Pertinent aeronautical charts.
(4) For IFR, VFR over the top, or night operations, each pertinent navigational en route, terminal area, and approach chart.
(5) In the case of multiengine airplanes, one engine inoperative climb performance data.
(b) Each cockpit checklist must contain the following procedures and shall be used by the flight crewmembers when operating the airplane:
(1) Before starting engines.
(2) Before takeoff.
(3) Cruise.
(4) Before landing.
(5) After landing.
(6) Stopping engines.
(7) Emergencies.
(c) Each emergency cockpit checklist procedure required by paragraph (b)(7) 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.
(3) Engine inoperative procedures.
(4) Any other procedures necessary for safety.
(d) The equipment, charts and data prescribed in this section when pertinent, shall be used by the pilot in command and other members of the flight crew.

91.1005 Familiarity with operating limitations and emergency equipment

(a) Each pilot in command of an airplane shall, before beginning a flight, become familiar with the Airplane Flight Manual for that airplane, if one is required, and with any placards, listings, instrument markings, or any combination thereof, containing each operating limitation prescribed for that airplane by the Administrator, including those specified in 91.11 (b).
(b) Each required member of the crew shall, before beginning a flight, become familiar with the emergency equipment installed on the airplane to which that crewmember is assigned and with the procedures to be followed for the use of that equipment in an emergency situation.

91.1015 Flight altitude rules

(a) Notwithstanding and except as provided in paragraph (b) of this section, no person may operate an airplane pursuant to 91.119, under VFR at less than:
(1) One thousand feet above the surface, or 1,000 feet (*300 meters*) from any mountain, hill,

or other obstruction to flight, for day operations; and

(2) The altitudes prescribed in 91.177, for night operations.

(b) This section does not apply:

(1) During takeoff or landing;

(2) When a different altitude is authorized by a waiver to this section under chapter P of this part; or

(3) When a flight is conducted under the special VFR weather minimums of 91.157 with an appropriate clearance from ATC.

91.1017 Passenger information

(a) Except as provided in paragraph (b) of this section, no person may operate an airplane carrying passengers unless it is equipped with signs that are visible to passengers and flight attendants to notify them when smoking is prohibited and when safety belts must be fastened. The signs must be so constructed that the crew can turn them on and off. They must be turned on during airplane movement on the surface, for each takeoff, for each landing, and when otherwise considered to be necessary by the pilot in command.

(b) The pilot in command of an airplane that is not required, in accordance with applicable aircraft and equipment requirements of this section, to be equipped as provided in paragraph (a) of this section shall ensure that the passengers are notified orally each time that it is necessary to fasten their safety belts and when smoking is prohibited.

(c) If passenger information signs are installed, no passenger or crewmember may smoke while any "no smoking" sign is lighted nor may any passenger or crewmember smoke in any lavatory.

(d) Each passenger required by 91.107 (a) (3) to occupy a seat or berth shall fasten his or her safety belt about him or her and keep it fastened while any "fasten seatbelt" sign is lighted.

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

91.1019 Passenger briefing

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

(1) Each passenger shall be briefed on when, where, and under what conditions smoking is prohibited. This briefing shall include a statement, as appropriate, that the Chinese Civil Aviation Regulations require passenger compliance with lighted passenger information signs and no smoking placards, prohibit smoking in lavatories, and require compliance with crewmember instructions with regard to these items;

(2) Each passenger shall be briefed on when, where, and under what conditions it is necessary to have his or her safety belt and, if installed, his or her shoulder harness fastened about him or her. This briefing shall include a statement, as appropriate, that Chinese Civil Aviation Regulations require passenger compliance with the lighted passenger sign and/or crewmember instructions with regard to these items;

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

(4) Location of survival equipment;

(5) Ditching procedures and the use of flotation equipment required for a flight over water; and

(6) The normal and emergency use of oxygen equipment installed on the airplane.

(b) The oral briefing required by paragraph (a) of this section shall be given by the pilot in command or a member of the crew, but need not be given when the pilot in command determines that the passengers are familiar with the contents of the briefing. It may be supplemented by printed cards for the use of each passenger containing:

(1) A diagram of, and methods of operating, the emergency exits; and

(2) Other instructions necessary for use of emergency equipment.

(c) Each card used under paragraph (b) must be carried in convenient locations on the airplane for the use of each passenger and must contain information that is pertinent only to the

type and model airplane on which it is used.

91.1023 Carry-on baggage

No pilot in command of an airplane having a seating capacity of more than 19 passengers may permit a passenger to stow baggage aboard that airplane except:

(a) In a suitable baggage or cargo storage compartment, or as provided in § 91.1025 or

(b) Under a passenger seat in such a way that it will not slide forward or sideward under crash impacts severe enough to induce the ultimate inertia forces specified in 25.561(b)(3) of CCAR-25 during emergency landing conditions.

91.1025 Carriage of cargo

(a) No pilot in command may permit cargo to be carried in any airplane unless:

(1) It is carried in an approved cargo rack, bin, or compartment installed in the airplane;

(2) It is secured by means approved by the Administrator; or

(3) It is carried in accordance with each of the following:

(i) 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.

(ii) It is packaged or covered to avoid possible injury to passengers.

(iii) It does not impose any load on seats or on the floor structure that exceeds the load limitation.

(iv) It is not located in a position that restricts 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.

(v) It is not carried directly above seated passengers.

(b) 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.

91.1027 Operating in icing conditions

(a) No pilot may takeoff an airplane that has:

(1) Frost, snow, or ice adhering to any propeller, windshield, or power plant installation or to an airspeed, altimeter, rate of climb, or flight attitude instrument system; or

(2) Snow or ice adhering to the wings or stabilizing or control surfaces.

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

(1) Under IFR into known or forecast 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 propeller, windshield, wing, stabilizing or control surface, and each airspeed, altimeter, rate of climb, or flight attitude instrument system.

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

(d) If current weather reports and briefing information relied upon by the pilot in command indicate that the forecast icing conditions 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 (b) and (c) of this section based on forecast conditions do not apply.

91.1029 Flight engineer requirements

(a) No person may operate an airplane for which a flight engineer is required by the type

certification requirements without a flight crewmember holding a current flight engineer license.

(b) No person may serve as a required flight engineer on an airplane unless, within the preceding 6 calendar months, that person has had at least 50 hours of flight time as a flight engineer on that type airplane or has been checked by the Administrator on that type airplane and is found to be familiar and competent with all essential current information and operating procedures.

91.1031 Second-in-command requirements

(a) Except as provided in paragraph (b) of this section, no person may operate the following airplanes without a pilot who is designated as second-in-command of that airplane:

(1) An airplane for which two pilots are required under the type certification requirements for that airplane.

(2) A large airplane, except that a person may operate an airplane without a pilot who is designated as second-in-command if that airplane is certificated for operation with one pilot.

(3) A commuter category airplane, except that a person may operate a commuter category airplane, that has a passenger seating configuration, excluding pilot seats, of nine or fewer without a pilot who is designated as second-in-command if that airplane is type certificated for operations with one pilot.

(b) The Administrator may authorize the operation of an airplane without compliance with the requirements of paragraph (a) of this section if that airplane is designed for and type certificated with only one pilot station. The authorization contains any conditions that the Administrator finds necessary for safe operation.

(c) No pilot may serve as second-in-command of an airplane required under this section to have two pilots unless that pilot meets the qualifications for second-in-command prescribed in CCAR-61.

91.1033 Flight attendant requirements

(a) No person may operate an airplane unless at least the following number of flight attendants is on board the airplane:

(1) For airplanes having more than 19 but fewer than 51 passengers on board, 1 flight attendant.

(2) For airplanes having more than 50 but fewer than 101 passengers on board, 2 flight attendants.

(3) For airplanes having more than 100 passengers on board, 2 flight attendants plus 1 additional flight attendant for each unit (or part of a unit) of 50 passengers above 100.

(b) No person may serve as a flight attendant on an airplane when required by paragraph (a) of this section unless that person has demonstrated to the pilot in command familiarity with the necessary functions to be performed in an emergency or a situation requiring emergency evacuation and is capable of using the emergency equipment installed on that airplane.

91.1035 Stowage of food, beverage, and passenger service equipment during airplane movement on the surface, and during takeoff and landing

(a) No operator may move an aircraft on the surface, or during takeoff or land in one of the following situations:

(1) When any food, beverage, or tableware furnished by the operator is located at any passenger seat.

(2) Unless each food and beverage tray and seat back tray table is secured in its stowed position.

(3) Unless each passenger serving cart is secured in its stowed position.

(4) Unless each movie screen that extends into the aisle is stowed.

(b) Each passenger shall comply with instructions given by a flight attendant with regard to

compliance with this section.

91.1037 Record keeping of operators

(a) Each operator of large and turbine-powered multiengine airplanes shall comply with the provisions in 91.721 or 91.819 of this regulation, also shall keep at its principal operation base or at other places approved by the Administrator, and shall make available for inspection by the Administrator the records specified in this section.

(b) An individual record of each flight attendant used by the operator in operations shall be established, including the following information: the full name of the flight attendant, and the date, content and result of training received. Each operator must keep the record for at least 12 calendar months. When a flight attendant is no longer participated in the operation of the operator, the record shall be retained for at least 12 calendar months after the date when the flight attendant leaves the operation.

(c) Each operator shall be responsible for the preparation and accuracy of a load manifest in duplicate containing information concerning the loading of the aircraft. The manifest shall be prepared before each takeoff and shall include:

(1) The number of passengers;

(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;

(7) The origin and destination; and

(8) Identification of crewmembers and their crew position assignments.

(d) The pilot in command of the aircraft shall carry a copy of the completed load manifest that is developed according to paragraph (c) in the aircraft to its destination. The operator shall keep copies of completed load manifest for at least 30 days at its principal operations base, or at another location used by it and approved by the Administrator.

(e) Records may be kept either in paper or other form acceptable to the Administrator.

91.1039 Flight locating requirements

(a) Each operator of large and turbine-powered multiengine airplanes shall establish and use a system to schedule and release program aircraft.

(b) Each operator shall establish a system as follows for locating the aircraft in operation:

(1) Provide the operator with at least the information required to be included in a VFR flight plan;

(2) Provide for timely notification of a CAAC facility or search and rescue facility, if an aircraft is overdue or missing; and

(3) Provide the operator 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.

(c) Flight locating information shall be retained at the operator’s principal place of business, or at other places designated by the operator, until the completion of the flight.

Chapter M Agricultural Aircraft Operations

91.1101 Applicability

(a) Agricultural aircraft operations within the People's Republic of China shall comply with the applicable provisions in other chapter of this regulation and also comply with the provisions in this chapter.

(b) A commercial non-transport air operator, private large aircraft operator and aircraft manager conducting agricultural aircraft operations shall comply with the requirements of chapter H, J or K of this regulation, and obtain the authorization of agricultural aircraft operations from the Administrator in its operations certificate or operations specifications. Other operators conducting agricultural aircraft operations shall obtain the authorization from the Administrator.

(c) Any agricultural aircraft operation by using rotorcraft with external dispensing equipment under this chapter is unnecessary to comply with chapter N of this regulation. Any commercial non-transport operator and private large aircraft operator who has obtained the authorization of agricultural aircraft operation from the Administrator is unnecessary to obtain the authorization of rotorcraft external load flight issued by the Administrator to conduct agricultural aircraft operation by using rotorcraft with external dispensing equipment.

(d) Any forest fire fighting flight using rotorcraft with external load equipment under chapter N of this regulation is unnecessary to comply with this chapter. Any commercial non-transport operator, private large aircraft operator or aircraft manager who has obtained the authorization of rotorcraft external load operation from the Administrator is unnecessary to obtain the authorization of agricultural aircraft operation issued by the Administrator to conduct forest fire fighting flight by using rotorcraft with external load.

(e) For the purpose of this chapter, agricultural aircraft operation means the operation of an aircraft for the purpose of:

(1) Dispensing any economic poison;

(2) Dispensing any other substance intended for plant nourishment, soil treatment, propagation of plant life or pest control;

(3) Engaging in dispensing activities directly affecting agriculture, horticulture, or forest preservation, but not including the dispensing of live insects.

Economic poison means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living man or other animals, which the agriculture department shall declare to be a pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant.

91.1103 Personnel requirements

(a) Operator designated operation responsible person (may be the operator) shall receive the following knowledge and skill tests. If the agricultural aircraft operation doesn't contain dispensing of economic poisons, the test specified in (a)(1)(ii) through (iv) of this section may not be required.

(1) The test of knowledge consists of the following:

(i) Steps to be taken before starting operations, including survey of the area to be worked;

(ii) Safe handling of economic poisons and the proper disposal of used containers for those poisons;

(iii) The general effects of economic poisons and agricultural chemicals on plants, animals, and persons, with emphasis on those normally used in the areas of intended operations; and the precautions to be observed in using poisons and chemicals;

(iv) Primary symptoms of poisoning of persons from economic poisons, the appropriate emergency measures to be taken, and the location of poison control centers;

(v) Performance capabilities and operating limitations of the aircraft to be used;

(vi) Safe flight and application procedures.

(2) The test of skill consists of the following maneuvers that must be shown at that aircraft's

maximum takeoff weight:

(i) Short-field and soft-field takeoffs (airplanes and gyroplanes only);

(ii) Approaches to the working area;

(iii) Flare-outs;

(iv) Swatch runs;

(v) Pullups and turnarounds;

(vi) Rapid deceleration in rotorcrafts only.

(b) The operator shall ensure each person engaging in agricultural aircraft operation clearly know his/her task and responsibility in the operation.

(c) No person may act as pilot in command of an aircraft conducting agricultural aircraft operation unless he holds a pilot certificate and rating, as appropriate to the type of operation conducted and complies with the knowledge and skill requirements of paragraph (a) of this section. The responsible person (operator) shall ensure the pilot in command complies with paragraph (a). Before the pilot in command performs any agricultural aircraft operation for the first time, the demonstration must be made to the responsible person to indicate the compliance of paragraph (a). However, the demonstration is not necessary for any pilot in command who has a record of operation that does not disclose any question regarding the safety of his flight operations or his competence in dispensing agricultural materials or chemicals.

91.1105 Aircraft requirements

No person may operate an aircraft in agricultural aircraft operation unless that aircraft:

(a) Is equipped with agricultural dispensing equipment, has completed airworthiness certification and is airworthy;

(b) Is equipped with a suitable and properly installed shoulder harness for use by each pilot.

91.1107 Limitations on private agricultural operation

No person may conduct a private agricultural aircraft operation:

(a) For compensation;

(b) Over a congested area; or

(c) Over any property or land owned, controlled or managed by other person or organization unless otherwise authorized.

91.1109 Limitations on dispensing

In dispensing operation, it shall take proper actions to prevent any substance dispensed from creating a hazard to persons or property on the surface.

91.1111 Use of safety belt and shoulder harnesses

No person may operate an aircraft in operations required to be conducted under this chapter without a safety belt and shoulder harness properly secured about that person except that the shoulder harness need not be fastened if that person would be unable to perform required duties with the shoulder harness fastened.

91.1113 Nonobservance of airport traffic pattern

The pilot in command of an aircraft in agricultural aircraft operation may deviate from an airport traffic pattern when authorized by the control tower concerned. The aircraft at all times remains clear of, and gives way to, aircraft conforming to the traffic pattern for the airport.

91.1115 Operations over other than congested areas

During the actual dispensing operation, an aircraft may be operated over other than congested areas below 150 meters above the surface and closer than 150 meters to persons, vessels, vehicles, and structures, if the pilot in command believes the operations are conducted without creating a hazard to persons or property on the surface.

91.1117 Operation over congested area

(a) An aircraft may be operated over a congested area at altitudes required for the proper accomplishment of the agricultural aircraft operation if the operation is conducted:

(1) With the maximum safety to persons and property on the surface;

(2) In accordance with the requirements of paragraph (b) of this section.

(b) No person may conduct agricultural aircraft operation over a congested area except in accordance with the requirements of this paragraph:

(1) Prior written approval must be obtained from the appropriate government department over which the operations are conducted;

(2) Notice of the intended operation must be given to the public by some effective means, such as daily newspapers, radio, or television notice;

(3) A plan for each complete operation must be submitted to, and approved by appropriate flight standards department having jurisdiction over the area where the operation is to be conducted. The plan must include consideration of obstructions to flight; the emergency landing capabilities of the aircraft to be used; and any necessary coordination with air traffic control;

(4) Single engine aircraft must be operated as follows:

(i) Except for rotorcrafts, no person may take off a loaded aircraft, or make a turnaround over a congested area;

(ii) No person may operate an aircraft over a congested area below the altitudes prescribed in 91.119(b) except during the actual dispensing operation, including the approaches and departures necessary for that operation;

(iii) No person may operate an aircraft over a congested area during the actual dispensing operation, including the approaches and departures for that operation, unless it is operated in a pattern and at such an altitude that the aircraft can land, in an emergency, without endangering persons or property on the surface.

(5) Multiengine aircraft must be operated as follows:

(i) No person may take off a multiengine airplane over a congested area except under conditions that will allow the airplane to be brought to a safe stop within the effective length of the runway from any point on takeoff up to the time of attaining, with all engines operating at normal takeoff power, 105 percent of the minimum control speed with the critical engine inoperative in the takeoff configuration or 115 percent of the power-off stall speed in the takeoff configuration, whichever is greater, as shown by the accelerate stop distance data. In applying this requirement, takeoff data is based upon still-air conditions, and no correction is made for any uphill gradient of 1 percent or less when the percentage is measured as the difference between elevation at the end points of the runway divided by the total length. For uphill gradients greater than 1 percent, the effective takeoff length of the runway is reduced 20 percent for each 1-percent grade.

(ii) No person may operate a multiengine airplane at a weight greater than the weight that, with the critical engine inoperative, would permit a rate of climb of at least 50 feet per minute at an altitude of at least 1,000 feet above the elevation of the highest ground or obstruction within the area to be worked or at an altitude of 5,000 feet, whichever is higher. For the purposes of this subdivision, it is assumed that the propeller of the inoperative engine is in the minimum drag position; that the wing flaps and landing gear are in the most favorable positions; and that the remaining engine or engines are operating at the maximum continuous power available.

(iii) No person may operate any multiengine aircraft over a congested area below the altitudes prescribed in 91.119(b) except during the actual dispensing operation, including the approaches, departures, and turnarounds necessary for that operation.

91.1119 Operation over congested areas: Pilots and aircraft

(a) No person may operate an aircraft over a congested area except in accordance with the pilot and aircraft rules of this section.

(b) Each pilot in command must have at least:

(1) 25 hours of pilot-in-command flight time in the make and basic model of the aircraft, at least 10 hours of which must have been acquired within the preceding 12 calendar months; and

(2) 100 hours of flight experience as pilot in command in dispensing operation.

(c) Except rotorcrafts, any aircraft must be equipped with a device capable of jettisoning at least one-half of the aircraft's maximum authorized load of agricultural material within 45 seconds. If the aircraft is equipped with a device for releasing the tank or hopper as a unit, there must be a means to prevent inadvertent release by the pilot or other crewmember.

91.1121 Record keeping: Commercial non-transport operator

Each commercial non-transport operator conducting agricultural aircraft operation shall maintain and keep current, at the home base of operations, the following records:

(a) The name and address of each person for whom agricultural aircraft services were provided;

(b) The date of the service;

(c) The name and quantity of material dispensed for each operation conducted; and

(d) The name, address, and certificate number of each pilot used in agricultural aircraft operations and the date that pilot met the knowledge and skill requirements of 91.1103(a).

Chapter N Rotorcraft External-Load Operations

91.1201 Applicability

(a) The chapter prescribes airworthiness certification rules for rotorcraft used in and operating and certification rules governing the conduct of rotorcraft external-load. Rotorcraft external-load operation outside the People’s Republic of China shall comply with appropriate provisions of this regulation and also comply with the chapter.

(b) Commercial non-transport operator, private large aircraft operator and aircraft manager conducting rotorcraft external-load operation shall comply with the requirements of chapter H, J or K of this regulation, and obtain the authorization of rotorcraft external-load operations from the Administrator in its operations certificate or operations specifications. In addition, authorization of rotorcraft/load combination class in the operations specifications shall be obtained from the Administrator in accordance with the requirements of 91.1217, 91.1221, and 91.1223. Other operators conducting rotorcraft external-load operations shall obtain the authorization from the Administrator.

(c) The chapter does not apply to:

(1) Rotorcraft manufacturers when developing external-load attaching means;

(2) Rotorcraft manufacturers demonstrating compliance of equipment utilized under this chapter or appropriate portions of CCAR-27 or CCAR-29;

(3) Operations conducted under this chapter by a person and organization demonstrating compliance with this chapter;

(4) Training flights conducted in preparation for the demonstration of compliance.

91.1203 Rotorcraft

The rotorcraft used in external load operation shall comply with the following requirements:

(a) Was type certificated under, and meets the requirements of CCAR-27 or CCAR-29 (but

not necessarily with external-load-carrying attaching means installed);

(b) Complies with the certification provisions in 91.1217, 91.1221 and 91.1223 that apply to the rotorcraft-load combinations;

(c) Has a valid airworthiness certificate.

91.1205 Personnel requirements

(a) The operator of rotorcraft external-load operation must hold, or have available the services of at least one pilot (who may be the operator) who holds, a current commercial or airline transport pilot certificate, with a rating appropriate for the rotorcraft prescribed in 91.1203.

(b) The operator must designate one pilot, who may be the operator, as chief pilot for rotorcraft external-load operations. The operator also may designate qualified pilots as assistant chief pilots to perform the functions of the chief pilot when the chief pilot is not readily available. The chief pilot and assistant chief pilots must be acceptable to the Administrator and each must hold a current license and rating provided in paragraph (a) and complying with the requirements of 91.1207 of this regulation.

(c) The operator of rotorcraft external-load operation shall report any change in designation of chief pilot or assistant chief pilot immediately to the flight standards department. The new chief pilot must be designated and must comply with paragraph (b) within 30 days or the operator may not conduct further rotorcraft external-load operations unless otherwise authorized by the Administrator.

91.1207 Knowledge and skill requirements

(a) Except as provided in paragraph (d) of this section, the chief pilot and assistant chief pilot designated in accordance with 91.1205(b), must demonstrate to the Administrator satisfactory knowledge and skill regarding rotorcraft external-load operations as set forth in paragraphs (b) and (c) of this section.

(b) The test of knowledge (which may be oral or written) covers the following subjects:

(1) Steps to be taken before starting operations, including a survey of the flight area;

(2) Proper method of loading, rigging, or attaching the external load;

(3) Performance capabilities, under approved operating procedures and limitations, of the rotorcraft to be used;

(4) Proper instructions of flight crew and ground workers;

(5) Appropriate rotorcraft-load combination flight manual.

(c) The test of skill requires appropriate maneuvers for each class requested. The appropriate maneuvers for each load class must be demonstrated in the rotorcraft:

(1) Takeoffs and landings;

(2) Demonstration of directional control while hovering;

(3) Acceleration from a hover;

(4) Flight at operational airspeeds;

(5) Approaches to landing or working area;

(6) Maneuvering the external load into the release position;

(7) Demonstration of winch operation, if a winch is installed to hoist the external load.

(d) Compliance with paragraphs (a) of this section need not be shown if the Administrator finds, on the basis of the chief pilot's or assistant chief pilot’s previous experience and safety record in rotorcraft external-load operations, that his knowledge and skill are adequate.

91.1209 Rotorcraft-load combination classification

Rotorcraft-load combination (including external-load attaching means) is classified as class A, B, C, and D as follows:

(a) Class A rotorcraft-load combinations: External load can’t be freely moved and released and may not touch down lower than landing gear;

(b) Class B rotorcraft-load combinations: External load can be released and the load may be

freely lifted from the ground or water surface during rotorcraft operation;

(c) Class C rotorcraft-load combinations: External load can be released and the external load may keep touching the ground or water surface during rotorcraft operation;

(d) Class D rotorcraft-load combinations: Any combination not belong to class A, B and C and specially authorized by the Administrator.

91.1211 Operating rules

(a) No person may conduct a rotorcraft external-load operation without, or contrary to, the Rotorcraft-Load Combination Flight Manual or contents prescribed in 91.1223.

(b) No person may conduct a rotorcraft external-load operation unless:

(1) The rotorcraft complies with 91.1203; and

(2) The rotorcraft and rotorcraft-load combination is authorized under the operator certificate or operations specifications.

(c) Before a person may operate a rotorcraft with an external-load configuration that differs substantially from any that person has previously carried with that type of rotorcraft (whether or not the rotorcraft-load combination is of the same class), that person must conduct, in a manner that will not endanger persons or property on the surface, such of the following flight-operational checks as the Administrator determines are appropriate to the rotorcraft-load combination:

(1) A determination that the weight of the rotorcraft-load combination and the location of its center of gravity are within approved limits, that the external load is securely fastened, and that the external load does not interfere with devices provided for its emergency release;

(2) Make a liftoff and verify that controllability is satisfactory;

(3) While hovering, verify that directional control is adequate;

(4) Accelerate into forward flight to verify that no attitude is encountered in which the rotorcraft is uncontrollable or which is otherwise hazardous;

(5) In forward flight, check for hazardous oscillations of the external load, but if the external load is not visible to the pilot, other crewmembers or ground personnel may make this check and signal the pilot.

(6) Increase the forward airspeed and determine an operational airspeed at which no hazardous oscillation or hazardous aerodynamic turbulence is encountered.

(d) Notwithstanding the provisions of this regulation, the operator may conduct rotorcraft external-load operations over congested areas if those operations are conducted without hazard to persons or property on the surface and comply with the following:

(1) The operator must develop a plan for each complete operation, coordinate this plan with the flight standards department having jurisdiction over the area in which the operation will be conducted, and obtain approval for the operation. The plan must include an agreement with the appropriate responsible organization that unauthorized persons are excluded from the area in which the operation will be conducted, coordination with air traffic control, if necessary, and a detailed chart depicting the flight routes and altitudes;

(2) Each flight must be conducted at an altitude, and on a route, that will allow a jettisonable external load to be released, and the rotorcraft landed, in an emergency without hazard to persons or property on the surface.

(e) Except as provided in 91.1217, the operator may conduct external-load operations, including approaches, departures, and load positioning maneuvers necessary for the operation, below 150 meters above the surface and closer than 150 meters to persons, vessels, vehicles, and structures, if the operations are conducted without creating a hazard to persons or property on the surface.

(f) No person may conduct rotorcraft external-load operations under IFR unless specifically approved by the Administrator. However, under no circumstances may a person be carried as part of the external-load under IFR.

91.1213 Carriage of persons

(a) No operator may allow a person to be carried during rotorcraft external-load operations unless that person:

(1) Is a flight crewmember;

(2) Is a flight crewmember trainee;

(3) Performs an essential function in connection with the external-load operation.

(b) The pilot in command shall ensure that all persons are briefed before takeoff on all pertinent procedures to be followed (including normal, abnormal, and emergency procedures) and equipment to be used during the external-load operation.

91.1215 Crewmember training, currency, and testing requirements

(a) No operator may use, nor may any person serve, as a pilot in rotorcraft external-load operations unless that person:

(1) Has successfully demonstrated, to the Administrator knowledge and skill with respect to the rotorcraft-load combination in accordance with 91.1207 (in the case of a pilot other than the chief pilot or an assistant chief pilot who has been designated, this demonstration may be made to the chief pilot or assistant chief pilot); and

(2) Has in his or her personal possession a certification of competency or an appropriate logbook entry indicating compliance with paragraph (a)(1) of this section.

(b) No operator may use, nor may any person serve as, a crewmember in Class D rotorcraft-load combination operations unless, within the preceding 12 calendar months, that person has successfully completed either an approved initial or a recurrent training program.

(c) Notwithstanding the provisions of paragraph (b) of this section, a person who has performed a rotorcraft external-load operation of the same class and in a rotorcraft of the same type within the past 12 calendar months need not undergo recurrent training.

91.1217 Flight characteristics requirements

(a) The operator must demonstrate to the Administrator, by performing the operational flight checks prescribed in paragraphs (b), (c), and (d) of this section, as applicable, that the rotorcraft-load combination has satisfactory flight characteristics, unless these operational flight checks have been demonstrated previously and the rotorcraft-load combination flight characteristics were satisfactory. For the purposes of this demonstration, the external-load weight (including the external-load attaching means) is the maximum weight for which authorization is requested.

(b) Class A rotorcraft-load combinations: The operational flight check must consist of at least the following maneuvers:

(1) Take off and landing;

(2) Demonstration of adequate directional control while hovering;

(3) Acceleration from a hover;

(4) Horizontal flight at airspeeds up to the maximum airspeed for which authorization is requested.

(c) Class B and D rotorcraft-load combinations: The operational flight check must consist of at least the following maneuvers:

(1) Pickup of the external load;

(2) Demonstration of adequate directional control while hovering;

(3) Acceleration from a hover;

(4) Horizontal flight at airspeeds up to the maximum airspeed for which authorization is requested;

(5) Demonstrating appropriate lifting device operation;

(6) Maneuvering of the external load into release position and its release, under probable flight operation conditions, by means of each of the quick-release controls installed on the rotorcraft.

(d) For Class C rotorcraft-load combinations used in wire-stringing, cable-laying, or similar operations, the operational flight check must consist of the maneuvers, as applicable, prescribed in paragraph (c) of this section.

91.1219 Structures and design

(a) Each external-load attaching means and quick release devices must have been approved under appropriate provisions of CCAR-27, CCAR-29 or CCAR-21.

(b) The total weight of the rotorcraft-load combination must not exceed the total weight approved for the rotorcraft during its type certification. The location of the center of gravity must, for all loading conditions, be within the range established for the rotorcraft during its type certification. For Class C rotorcraft-load combinations, the magnitude and direction of the loading force must be established at those values for which the effective location of the center of gravity remains within its established range.

91.1221 Operating limitations

In addition to the operating limitations set forth in the approved Rotorcraft Flight Manual, and to any other limitations the Administrator may prescribe, the operator shall establish at least the following limitations and set them forth in the Rotorcraft-Load Combination Flight Manual for rotorcraft-load combination operations:

(a) The rotorcraft-load combination may be operated only within the weight and center of gravity limitations established in accordance with 91.1219(b).

(b) The rotorcraft-load combination may not be operated with an external load weight exceeding that used in showing compliance with 91.1217 and 91.1219.

(c) The rotorcraft-load combination may not be operated at airspeeds greater than those established in accordance with 91.1217(b), (c), and (d).

(d) No person may conduct an external-load operation with a rotorcraft type certificated in the restricted category over a densely populated area, in a congested airway, or near a busy airport where passenger transport operations are conducted.

(e) The rotorcraft-load combination of Class D may be conducted only in accordance with the following:

(1) The rotorcraft to be used must have been type certificated under transport Category A for the operating weight and provide hover capability with one engine inoperative at that operating weight and altitude.

(2) The rotorcraft must be equipped to allow direct radio intercommunication among required crewmembers.

(3) The personnel lifting device must be CAAC approved;

(4) The lifting device must have an emergency release requiring two distinct actions.

91.1223 Rotorcraft-load combination flight manual

The operator must prepare a Rotorcraft-Load Combination Flight Manual and submit it for approval by the Administrator. The manual must be prepared in accordance with the rotorcraft flight manual provisions of CCAR-27 and CCAR-29. The limiting height-speed envelope data need not be listed as operating limitations. The manual must set forth:

(a) Operating limitations, procedures (normal and emergency), performance, and other information established under this chapter;

(b) The class of rotorcraft-load combinations for which the airworthiness of the rotorcraft has been demonstrated in accordance with 91.1217 and 91.1219; and

(c) In the information section of the Rotorcraft-Load Combination Flight Manual:

(1) Information on any peculiarities discovered when operating particular rotorcraft-load combinations;

(2) Precautionary advice regarding static electricity discharges for Class B, Class C, and Class D rotorcraft-load combinations; and

(3) Any other information essential for safe operation with external loads.

91.1225 Markings and placards

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

(a) A placard (displayed in the cockpit or cabin) stating the class of rotorcraft-load combination for which the rotorcraft has been approved and the occupancy limitation prescribed in 91.1221(a).

(b) A placard, marking, or instruction (displayed next to the external-load attaching means) stating the maximum external load prescribed as an operating limitation in 91.1221(c).

Chapter O Ultralight Vehicles

91.1301 Applicability

This chapter prescribes rules governing the operation of ultra-light vehicles in the People's Republic of China. For the purposes of this chapter, an ultra-light vehicle is a vehicle that is used or intended to be used for manned operation in the air by a single occupant, recreation or sport purposes only, and does not have any airworthiness certificate, complies with one of the following:

(a) If un-powered, weighs less than 71 kilograms (155 pounds) empty weight or

(b) If powered:

(1) Weighs less than 116 kilograms (254 pounds) empty weight, excluding floats and safety devices that are intended for deployment in a potentially catastrophic situation;

(2) Has a fuel capacity not exceeding 20 liters (5 gallons);

(3) Is not capable of more than 100 kilometers (55 knots) calibrated airspeed at full power in level flight; and

(4) Has a power-off stall speed that does not exceed 39 kilometers (24 knots) calibrated airspeed.

91.1303 Inspection requirements

(a) Any person operating an ultra-light vehicle under this chapter shall, upon request, allow the Administrator to inspect the vehicle to determine the applicability of this chapter.

(b) The pilot or operator of an ultra-light vehicle must, upon request of the Administrator, furnish satisfactory evidence that the vehicle is subject only to the provisions of this chapter.

91.1305 Waivers

No person may conduct operations that require a deviation from this chapter except under a written waiver issued by the Administrator.

91.1307 Certification and registration

(a) Ultra-light vehicles and their component parts and equipment are not required to meet the airworthiness certification standards specified for aircraft, or to have certificates of airworthiness.

(b) Operators of ultra-light vehicles are not required by the Administrator to meet any aeronautical knowledge, age, or experience requirements to operate those vehicles or to have an airman license or a medical certificate.

(c) Ultra-light vehicles are not required to be registered, or to bear markings of any type.

91.1309 Hazardous operations

(a) No person may operate any ultra-light vehicle in a manner that creates a hazard to other persons or property.

(b) No person may allow an object to be dropped from an ultra-light vehicle if such action creates a hazard to other persons or property.

91.1311 Daylight operations

(a) No person may operate an ultra-light vehicle except between the hours of sunrise and sunset.

(b) Ultra-light vehicles may be operated during the twilight periods 30 minutes before official sunrise and 30 minutes after official sunset, if the vehicle is equipped with an operating anti-collision light visible for at least 5 kilometers (3 statute miles).

91.1313 Operation near aircraft: Right-of-way rules

(a) Each person operating an ultra-light vehicle shall maintain vigilance so as to see and avoid aircraft and shall yield the right of way to all aircraft.

(b) No person may operate an ultra-light vehicle in a manner that creates a collision hazard with respect to any aircraft.

(c) Powered ultra-lights shall yield the right of way to un-powered ultra-lights.

91.1315 Operations over congested areas

No person may operate an ultra-light vehicle over any congested area of a city, town, or settlement, or over any open air assembly of persons.

91.1317 Operations in certain airspace

No person may operate an ultra-light vehicle within controlled airspace, unless that person has prior authorization from the ATC facility having jurisdiction over that airspace.

91.1319 Operations in dangerous, prohibited or restricted areas

No person may operate an ultra-light vehicle in dangerous, prohibited or restricted areas unless that person has permission from the using or controlling agency, as appropriate

91.1323 Visual reference with the surface

No person may operate an ultra-light vehicle except by visual reference with the surface.

91.1325 Flight visibility and cloud-clearance requirements

No person may operate an ultra-light vehicle when the flight visibility or distance from clouds is less than that in the basic VFR weather minimums of 91.155 of this regulation.

Chapter P Parachute Jumping

91.1401 Applicability

This chapter is applicable to parachute jumping within the People's Republic of China, with the exception of parachute jumps that are necessary because of in-flight emergencies.

91.1403 General

No person may make a parachute jump, and no pilot in command of an aircraft may allow a parachute jump to be made from that aircraft, if that jump creates a hazard to air traffic or to persons or property on the surface.

91.1405 Application and approval of parachute jump plan

(a) No person may conduct parachute jump unless he/she submits a parachute jump plan to ATC and obtains the approval.

(b) A parachute jump plan shall include the following information:

(1) The date and time jumping will begin;

(2) The size of jump zone expressed in kilometers radius around the target;

(3) The location of the center of the jump zone in relation to:

(i) The nearest VOR facility in terms of the VOR radial on which it is located, and its distance in kilometers from the VOR facility when that facility is 55 kilometers or less from the drop zone target; or

(ii) The nearest airport, town, or city depicted on the appropriate aeronautical chart, when the nearest VOR facility is more than 30 kilometers from the drop zone target.

(4) The altitudes above mean sea level at which jumping will take place;

(5) The duration of the intended jump;

(6) The name, address, and telephone number of the applicant;

(7) The identification of the aircraft to be used.

(c) Each applicant must promptly notify the air traffic control facility if the proposed or scheduled jumping activity is canceled or postponed.

91.1407 Radio communication requirements

(a) The pilot in command of an aircraft used for any jumping activity shall establish radio communication with ATC as follows:

(1) Radio communications have been established between the aircraft and the nearest air traffic control facility at least 5 minutes before the jumping activity is to begin, for the purpose of receiving information in the aircraft about known air traffic in the vicinity of the jumping activity;

(2) No parachute jump may be made unless the information described in paragraph (a) (1) of this section has been received by the pilot in command and the jumpers in that flight and the ATC approves;

(3) The pilot in command shall maintain a continuous watch on the appropriate frequency until the last jumper has reached the ground.

(b) If, during any flight, the required radio communications system is or becomes inoperative, any jumping activity from the aircraft shall be abandoned. However, if the communications system becomes inoperative in flight after receipt of a required ATC authorization, the jumping activity from that flight may be continued.

91.1409 Jumps over or into congested areas or open-air assembly of persons

(a) No person may make a parachute jump over or into a congested area of a city, town, or settlement, or an open-air assembly of persons unless authorized by the Administrator. However, a parachutist may drift over that congested area or open-air assembly with a fully deployed and properly functioning parachute without the authorization of the Administrator if the parachutist is at a sufficient altitude to avoid creating a hazard to persons and property on the ground.

(b) An application for authorization of the Administrator provided in paragraph (a) is made in a form and in a manner prescribed by the Administrator and must be submitted to the Administrator at least 4 days before the day of that jump.

91.1411 Jumps over or within dangerous, prohibited or restricted airspace

No person may make a parachute jump over or within a dangerous, restricted or prohibited area unless the controlling agency of the area concerned has authorized that jump.

91.1413 Flight visibility and clearance from clouds requirements

No person may make a parachute jump, and no pilot in command of an aircraft may allow a parachute jump to be made from that aircraft:

(a) Into or through a cloud; or

(b) When the flight visibility is less, or at a distance from clouds that is less, than that prescribed in the following table:

Altitude	Flight visibility	Distance from clouds
350 m/1200 ft Or Less Above The Surface Regardless Of The MSL Altitude	5 km	150 m/500 Ft. Below. 300 m/1,000 Ft. Above. 600 m/2,000 Ft. Horiz.
More Than 350 m/1,200 Ft. Above The Surface But Less Than 3000 m/10,000 Ft. MSL	5 km	150 m/500 Ft. Below. 300 m/1,000 Ft. Above. 600 m/2,000 Ft. Horiz.
More Than 350 m/1,200 Ft. Above The Surface And At Or Above 3000 m/10,000 Ft. MSL	8 km	300 m/1,000 Ft. Below. 300 m/1,000 Ft. Above. 2 km/1 Mile Horizontal.

91.1415 Parachute jumps between sunset and sunrise

(a) No person may make a parachute jump between sunset and sunrise, unless that person is equipped with a means of producing a light visible for at least 5 kilometers.

(b) Each person making a parachute jump between sunset and sunrise shall display the light required by paragraph (a) of this section from the time that person exits the aircraft until that person reaches the surface.

91.1417 Alcohol and drugs

No person may make a parachute jump while, and no pilot in command of an aircraft may allow a person to make a parachute jump from that aircraft if that person appears to be:

(a) Under the influence of intoxicating alcohol; or

(b) Using any drug that affects the person's faculties in any way contrary to safety.

91.1419 Inspections

The Administrator may inspect (including inspections at the jump site) any parachute jump operation to which this chapter applies, to determine compliance with the provisions of this chapter.

91.1423 Parachute equipment and packing requirements

(a) No person may make a parachute jump unless that person is wearing a harness and dual-parachute pack, dual-parachute pack having at least one main parachute and one approved auxiliary parachute that are packed as follows:

(1) The main parachute must have been packed by a licensed parachute rigger, or by the person making the jump, within 120 days before the date of its use.

(2) The auxiliary must have been packed by a licensed and appropriately rated parachute rigger:

(i) Within 120 days before the date of use, if its canopy, shroud, and harness are composed exclusively of nylon, rayon, or other similar synthetic fiber or material that is substantially resistant to damage from fungi and rotting agents; or

(ii) Within 60 days before the date of use, if it is composed in any amount of silk, pongee, or other natural fiber, or material not specified in paragraph (a) (2) (i) of this section.

(b) No person may make a parachute jump using a static line attached to the aircraft and the main parachute unless an assist device, described and attached as follows, is used to aid the pilot chute in performing its function, or, if no pilot chute is used, to aid in the direct deployment of the main parachute canopy.

(1) The assist device must be long enough to allow the container to open before a load is placed on the device.

(2) The assist device must have a static load strength of:

(i) At least 13 kilograms/28 pounds but not more than 73 kilograms/160 pounds, if it is used to aid the pilot chute in performing its function; or

(ii) At least 25.5 kilograms/56 pounds but not more than 145.5 kilograms/320 pounds, if it is used to aid in the direct deployment of the main parachute canopy.

(3) The assist device must be attached at one end, to the static line above the static-line pins, or, if static pins are not used, above the static-line ties to the parachute cone; and at the other end, to the pilot-chute apex, bridle cord or bridle loop, or, if no pilot chute is used, to the main parachute canopy.

(c) No person may attach an assist device required by paragraph (b) of this section to any main parachute unless that person has a current parachute rigger license or is the person who makes the jump with that parachute.

(d) For the purposes of this chapter, approved parachute means a parachute manufactured under a type certificate or a technical standard order; or a military-approved parachute.

Chapter Q Waivers

91.1501 Policy and procedures

(a) The Administrator may issue a certificate of waiver authorizing the operation of aircraft in deviation from any rule listed in 91.1503 of this regulation if the Administrator finds that the proposed operation can be safely conducted under the terms of that certificate of waiver.

(b) An application for a certificate of waiver is made on a form and in a manner prescribed by the Administrator and may be submitted to the Administrator.

(c) The Administrator may specify the effective conditions and date of the waiver in the certificate of waiver.

91.1503 List of rules subject to waivers

For the following sections, the Administrator may accept the deviation application:

Section No.	Section Title
91.107	Use of safety belts, shoulder harnesses, and child restraint systems
91.111	Operating near other aircraft
91.113	Right of way rules: On land
91.115	Right of way rules: Water operations
91.117	Aircraft speed
91.119	Minimum safe altitudes
91.121	Altimeter settings
91.123	Compliance with ATC clearances and instructions
91.125	ATC light signals
91.129	Operations in domestic transport airport airspace
91.131	Operations in international transport airport airspace
91.133	Operations in busy transport airport airspace
91.135	Dangerous, restricted, and prohibited areas
91.137	Operations in upper airspace
91.139	Temporary flight restrictions
91.153(b)	VFR flight plan
91.155	Basic VFR weather minimums
91.157	Special VFR weather minimums
91.159	VFR cruising altitude or flight level
91.169(a)	IFR flight plan
91.173	ATC clearance and flight plan
91.175	Takeoff and landing under IFR
91.177	Minimum altitudes for IFR operations
91.179	IFR cruising altitude or flight level
91.181	Course to be flown
91.183	IFR radio communications
91.185	Two-way radio communications failure
91.187	Operation under IFR: Malfunction reports
91.201	Aerobatic flight
91.203	Flight test areas
91.207	Towing: Gliders
91.407	Night and over-the-top operations: Instruments and equipment
91.607	Operations within Minimum Navigation Performance Specifications Airspace
91.1015	Flight altitude rules

Chapter R Legal Liability

91.1601 General

(a) Any person or organization engaging in civil aircraft operation shall bear the corresponding legal liability in accordance with the provisions of this regulation when the person or organization violates the regulation.

(b) If any applicant uses fraudulent means in making application for operations certificate or operations specifications issued under this regulation or in the process of certification, the Administrator may terminate its operation certification; in serious cases, the Administrator may refuse the application of the applicant in 1 year up to 3 years.

91.1603 Penalty for interfere with a crewmember

For any violator of section 91.13, the Administrator may impose a fine of no more than 1000 yuan and impose penalty in accordance with article 192 and article 200 of Civil Aviation Law of the People's Republic of China.

91.1605 Penalty for dropping objects

For any violator of section 91.17 who drops objects from a civil aircraft in flight, the Administrator may impose penalty in accordance with article 209 of Civil Aviation Law of the People's Republic of China.

91.1607 Penalty for violation action of alcohol or drug

(a) Any person who violates the provisions of 91.19(a) to act or attempt to act as a crewmember of a civil aircraft, or violates the provisions of 91.19(c) to refuse taking the alcohol test or furnishing the test result to the Administrator, the Administrator may impose warning, and suspend the license for one to six months in accordance with article 208 of Civil Aviation Law of the People's Republic of China; in serious case, revoke the license.

(b) For the person imposed penalty under paragraph (a) of this section, the Administrator will refuse his/her application for license or ratings issued under CCAR-61 within 1 year since the date of violation.

91.1609 Penalty for violation of provisions

(a) For violator of chapter B (flight rules), chapter C (special flight operations), chapter D (maintenance rules), chapter E (equipment, instrument and certificate requirements), chapter F (additional equipment and operating requirements for large and transport category aircraft), chapter L (large and turbine-powered multiengine airplanes), chapter M (agricultural aircraft operations), and chapter N (rotorcraft external-load operations), the Administrator shall order immediately the stop of the violation activity and impose the following penalties:

(1) If the direct responsible person is a holder of airman license, the Administrator may impose warning or penalty of less than 1000 yuan; in serious case, suspend the license for 1 to 6 months or revoke the license.

(2) If the direct responsible person is an aircraft owner or operator, the Administrator may impose warning or penalty of less than 10000 yuan if there is no illegal gains or penalty of three times illegal gains up to 30000 yuan.

91.1611 Suspension and revocation of operations certificate or operations specifications

(a) Any owner or operator who has obtained operations certificate or operations specifications under chapter H (commercial non-transport operator: operation certification), chapter J (private large aircraft operator: operation certification), and chapter K (aircraft owner: operation certificate and operating rules) will be imposed penalty according to paragraph (b) if the owner or operator has the following actions:

(1) Uses fraudulent means during operation certification to obtain the operations certificate or operations specifications;

(2) Violates the terms of operations certificate or operations specifications to conduct operations;

(3) Has other actions violating provisions of each chapter of this regulation.

(b) For violation actions of paragraph (a), the Administrator may impose the following:

(1) Warning;

(2) A penalty of less than 1000 yuan on the direct responsible person; a penalty of three times of illegal gains up to 30000 yuan on the responsible organization and a penalty of less than 10000 yuan on the responsible organization if there is no illegal gains;

(3) Suspension of the operations certificate or operations specifications for 1 to 6 months;

(4) Revocation of the operations certificate or operations specifications.

(c) After the operations certificate or operations specifications are suspended or revoked, the person or organization concerned shall submit its operations certificate and operations specifications to the appropriate CAAC office.

91.1613 Penalty for flight without valid airworthiness certificate

If an aircraft has not carried a current airworthiness certificate onboard during flight, the Administrator may impose penalty on the operator in accordance with article 201 of Civil Aviation Law of the People's Republic of China.

91.1615 Penalty for violation of ultralight vehicles operation

For any violator of chapter O (ultralight vehicles) of this regulation, the Administrator may impose a warning or penalty of less than 1000 yuan or three times illegal gains up to 30000 yuan if there is any illegal gains.

91.1617 Penalty for violation of parachute jumping operation

For any violator of chapter P (parachute jumping) of this regulation, the Administrator may impose the direct responsible person a warning or penalty of less than 1000 yuan or three times illegal gains up to 30000 yuan if there is any illegal gains.

Chapter S Supplementary Provisions

91.2011 Implementation

This regulation will take effect from the date of November 22, 2007.

91.2013 Annulment

General Operating and Flight Rules (CAAC order 177) published by the CAAC on February 14, 2007 and implemented on June 1, 2007 will be annulled simultaneously with the implementation of this regulation.

Appendix A Definitions

General aviation airport means a civil airport that there is no scheduled flight of public air transportation flies to/from.

Domestic transport airport means a transport category airport that there is any scheduled flight of public air transportation flies to/from.

International transport airport means an international airport other than busy airport designated by the Administrator.

Busy transport airport means an international airport with high traffic flow designated by the Administrator, including Beijing Capital Airport, Shanghai Hongqiao Airport, Shanghai Pudong Airport, and Guangzhou New Baiyun Airport.

Commercial non-transport operator means an aircraft operator who has been certificated under this regulation and obtained commercial non-transport operator's operations certificate and operations specifications by the Administrator, uses civil aircrafts to conduct commercial flights for compensation or hire other than public air transportation.

Private large aircraft operator means an aircraft operator who has been certificated under this regulation and obtained private large aircraft operator's operations specifications to conduct private flights.

Large aircraft means an aircraft complying with one of the following:

(1) Large aircraft with a maximum takeoff mass in excess of 5700 kg;

(2) Turbine-powered multiengine airplane;

(3) Large rotorcraft with a maximum takeoff mass in excess of 3180 kg.

Aircraft manager means the entity that offers ownership program management services to owners, provides aircraft operation management service to the owner according to the program agreements signed with the owner, and has obtained the operations specifications issued by the Administrator.

A fractional ownership program means an organization manner for an aircraft manager providing aircraft management service, which must meet all of the following conditions:

(1) One or more fractional owners per program aircraft, with at least one program aircraft having more than one owner;

(2) Possession of at least a minimum fractional ownership interest in one or more program aircraft by each fractional owner;

(3) The provision for management services by a single aircraft manager;

(4) A dry-lease aircraft exchange arrangement among all of the fractional owners; and

(5) Multi-year program agreements covering the fractional ownership, fractional ownership program management services, and dry-lease aircraft exchange aspects of the program.

A full ownership program means an organization manner for an aircraft manager providing aircraft management service, which must meet all of the following conditions:

(1) Possession of all ownership interest in program aircraft by each owner;

(2) The provision for management services by a single aircraft manager;

(3) Multi-year program agreements covering the full ownership and full ownership program management services aspects of the program.

A dry-lease aircraft exchange means an arrangement contained in a fractional ownership program to resolve the aircraft allocation problem, under which the program aircraft are available, on an as needed basis, and subject to specified conditions, without crew, to each fractional owner.

A minimum fractional ownership interest means:

(1) A fractional ownership interest equal to, or greater than, one-sixteenth (1/16) of at least one subsonic, fixed-wing program airplane; or

(2) A fractional ownership interest equal to, or greater than, one-thirty-second (1/32) of at least one rotorcraft program aircraft.

A program aircraft means an aircraft listed in the operations specifications of an aircraft manager participating in a full or fractional ownership program. In a full ownership program, the owner has full ownership and in a fractional ownership program, the fractional owner has at least a minimum fractional ownership interest and which has been included in the dry-lease aircraft exchange.

Program management services mean administrative and aviation support services furnished

by the program manager to the owner in accordance with the applicable requirements of this chapter, at a minimum, the establishment and revision of program safety guidelines, and the coordination of the following:

(1) The scheduling of the program aircraft and crews;

(2) Program aircraft maintenance;

(3) Crew training for crews employed, furnished or contracted by the program manager or the owner;

(4) Establishment and retention of records; and

(5) Development and use of a program operations manual and maintenance program manual.

Aerial work means an aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

Category A rotorcraft. For transport category rotorcraft, it means a multiengine rotorcraft that its engine and system has the isolation design characteristics in accordance with CCAR-29, and can perform prepared takeoff and landing in case of critical engine failure and maintain safe flight within designated altitude range and with sufficient performance in case of engine failure.

Category B rotorcraft. For transport category rotorcraft, it means a single-engine or multiengine rotorcraft not complied with Category A standards. In case of engine failure, Category B rotorcraft can't maintain altitude and shall take unprepared landing.

Appendix B Category II Operations: Manual, Instruments, Equipment and Maintenance

1 Category II Manual

(a) Application for manual approval. An applicant for approval of a Category II manual or an amendment to an approved Category II manual must submit the proposed manual or amendment to the Administrator. If the application requests an evaluation program, it must include the following:

(1) The location of the aircraft and the place where the demonstrations are to be conducted;

(2) The date the demonstrations are to commence (at least 10 days after filing the application).

(b) Manual contents. Each Category II manual must contain:

(1) The registration number, make, and model of the aircraft to which it applies;

(2) A maintenance program as specified in section 4 of this appendix; and

(3) The procedures and instructions related to:

(i) Recognition of decision height;

(ii) Use of runway visual range information;

(iii) Approach monitoring;

(iv) The decision region (the region between the middle marker and the decision height);

(v) The maximum permissible deviations of the basic ILS indicator within the decision region;

(vi) A missed approach;

(vii) Use of airborne low-approach equipment;

(viii) Minimum altitude for the use of the autopilot;

(ix) Instrument- and equipment-failure warning systems;

(x) Other procedures, instructions, and limitations that may be found necessary by the Administrator.

2 Required Instruments and Equipment

The instruments and equipment listed in this section must be installed in each aircraft operated in a Category II operation. This section does not require duplication of instruments and equipment required by 91.403 or other provisions.

(a) Group I

(1) Two localizer and glide slope receiving systems. Each system must provide a basic ILS display and each side of the instrument panel must have a basic ILS display. However, a single localizer antenna and a single glide slope antenna may be used.

(2) A communications system that does not affect the operation of at least one of the ILS systems.

(3) A marker beacon receiver that provides distinctive aural and visual indications of the outer and the middle markers.

(4) Two gyroscopic pitch and bank indicating systems.

(5) Two gyroscopic direction indicating systems.

(6) Two airspeed indicators.

(7) Two sensitive altimeters adjustable for barometric pressure, each having a placarded correction for altimeter scale error and for the wheel height of the aircraft.

(8) Two vertical speed indicators.

(9) A flight control guidance system that consists of either an automatic approach coupler or a flight director system. A flight director system must display computed information as steering command in relation to an ILS localizer and, on the same instrument, either computed information as pitch command in relation to an ILS glide slope or basic ILS glide slope information. An automatic approach coupler must provide at least automatic steering in relation to an ILS localizer. The flight control guidance system may be operated from one of the receiving systems required by subparagraph (1) of this paragraph.

(10) For Category II operations with decision heights below 45 meters/150 feet, either a marker beacon receiver providing aural and visual indications of the inner marker, or a radio altimeter.

(b) Group II

(1) Warning systems for immediate detection by the pilot of system faults in items (1), (4), (5), and (9) of Group I and, if installed for use in Category III operations, the radio altimeter and auto-throttle system.

(2) Dual controls.

(3) An externally vented static pressure system with an alternate static pressure source.

(4) A windshield wiper or equivalent means of providing adequate cockpit visibility for a safe visual transition by either pilot to touchdown and rollout.

(5) A heat source for each airspeed system pitot tube installed or an equivalent means of preventing malfunctioning due to icing of the pitot system.

3 Instruments and Equipment Approval

(a) The instruments and equipment required by section 2 of this appendix must be approved as provided in this section before being used in Category II operations. Before presenting an aircraft for approval of the instruments and equipment, it must be shown that since the beginning of the 12th calendar month before the date of submission:

(1) The ILS localizer and glide slope equipment were bench checked according to the manufacturer's instructions.

(2) The altimeters and the static pressure systems were tested and inspected in accordance with Appendix D of CCAR-43; and

(3) All other instruments and items of equipment specified in 2(a) of this appendix that are listed in the proposed maintenance program were bench checked and found to meet the manufacturer's specifications.

(b) All components of the flight control guidance system must be approved as installed by the evaluation program specified in paragraph (e) of this section if they have not been approved for Category III operations under applicable type or supplemental type certification procedures. In addition, subsequent changes to make, model, or design of the components must be approved under this paragraph. Related systems or devices, such as the auto-throttle and computed missed approach guidance system, must be approved in the same manner if they are to be used for Category II operations.

(c) A radio altimeter must meet the performance criteria of this paragraph for original approval and after each subsequent alteration.

(1) It must display to the flight crew clearly and positively the wheel height of the main landing gear above the terrain.

(2) It must display wheel height above the terrain to an accuracy of ±5 feet or 5 percent, whichever is greater, under the following conditions:

(i) Pitch angles of zero to ±5° about the mean approach attitude.

(ii) Roll angles of zero to 20° in either direction.

(iii) Forward velocities from minimum approach speed up to 200 knots.

(iv) Sink rates from zero to 4.5 m /15 feet per second at altitudes from 30 m/100 to 60 m/200 feet.

(3) Over level ground, it must track the actual altitude of the aircraft without significant lag or oscillation.

(4) With the aircraft at an altitude of 60 m/200 feet or less, any abrupt change in terrain representing no more than 10 percent of the aircraft's altitude must not cause the altimeter to unlock, and indicator response to such changes must not exceed 0.1 seconds and, in addition, if the system unlocks for greater changes, it must reacquire the signal in less than 1 second.

(5) Systems that contain a push-to-test feature must test the entire system (with or without an antenna) at a simulated altitude of less than 150 m /500 feet.

(6) The system must provide to the flight crew a positive failure warning display anytime there is a loss of power or an absence of ground return signals within the designed range of operating altitudes.

(d) All other instruments and items of equipment required by section 2 of this appendix must be capable of performing as necessary for Category II operations. Approval is also required after each subsequent alteration to these instruments and items of equipment.

(e) Evaluation program

(1) Approval by evaluation is requested as a part of the application for approval of the Category II manual.

(2) Unless otherwise authorized by the Administrator, the evaluation program for each aircraft requires the demonstrations specified in this paragraph. At least 50 ILS approaches must be flown with at least 5 approaches on each of 3 different ILS facilities and no more than one-half of the total approaches on any one ILS facility. All approaches shall be flown under simulated instrument conditions to a 30 m /100-foot decision height, and 90 percent of the total approaches made must be successful. A successful approach is one in which:

(i) At the 30 m/100-foot decision height, the indicated airspeed and heading are satisfactory for a normal flare and landing (speed must be ±5 knots of programmed airspeed, but may not be less than computed threshold speed if auto-throttles are used);

(ii) The aircraft at the 30 m/100-foot decision height is positioned so that the cockpit is within, and tracking so as to remain within, the lateral confines of the runway extended;

(iii) Deviation from glide slope after leaving the outer marker does not exceed 50 percent of full-scale deflection as displayed on the ILS indicator;

(iv) No unusual roughness or excessive attitude changes occur after leaving the middle marker; and

(v) In the case of an aircraft equipped with an approach coupler, the aircraft is sufficiently in trim when the approach coupler is disconnected at the decision height to allow for the continuation of a normal approach and landing.

(3) During the evaluation program, the following information must be maintained by the applicant for the aircraft with respect to each approach and made available to the Administrator upon request:

(i) Each deficiency in airborne instruments and equipment that prevented the initiation of an approach.

(ii) The reasons for discontinuing an approach, including the altitude above the runway at which it was discontinued.

(iii) Speed control at the 30 m /100-foot decision height if auto-throttles are used.

(iv) Trim condition of the aircraft upon disconnecting the auto-coupler with respect to continuation to flare and landing.

(v) Position of the aircraft at the middle marker and at the decision height, indicated both on a diagram of the basic ILS display and a diagram of the runway extended to the middle marker. Estimated touchdown point must be indicated on the runway diagram.

(vi) Compatibility of flight director with the auto-coupler, if applicable.

(vii) Quality of overall system performance.

(4) A final evaluation of the flight control guidance system is made upon successful completion of the demonstrations. If no hazardous tendencies have been displayed or are otherwise known to exist, the system is approved as installed.

4 Maintenance program

(a) Each maintenance program must contain the following:

(1) A list of each instrument and item of equipment specified in section 2 of this appendix, that is installed in the aircraft and approved for Category II operations, including the make and model of those specified in 2(a).

(2) A schedule that provides for the performance of inspections under paragraph (5) within 3 calendar months after the date of the previous inspection. The inspection must be performed by a person authorized by CCAR-43, except that each alternate inspection may be replaced by a functional flight check. This functional flight check must be performed by a pilot holding a Category II pilot authorization for the type aircraft checked.

(3) A schedule that provides for the performance of bench checks for each listed instrument and item of equipment that is specified in 2 (a) within 12 calendar months after the date of the previous bench check.

(4) A schedule that provides for the performance of a test and inspection of each static pressure system in accordance with appendix D of CCAR-43 within 12 calendar months after the date of the previous test and inspection.

(5) The procedures for the performance of the periodic inspections and functional flight checks to determine the ability of each listed instrument and item of equipment specified in 2(a) of this appendix to perform as approved for Category II operations including a procedure for recording functional flight checks.

(6) A procedure for assuring that the pilot is informed of all defects in listed instruments and items of equipment.

(7) A procedure for assuring that the condition of each listed instrument and item of equipment upon which maintenance is performed is at least equal to its Category II approval condition before it is returned to service for Category II operations.

(8) A procedure for an entry in the maintenance records required by 43.19 of CCAR-43 that shows the date, airport, and reasons for each discontinued Category II operation because of a malfunction of a listed instrument or item of equipment.

(b) A bench check required by this section must comply with this paragraph.

(1) It must be performed by a certificated maintenance organization holding ratings as appropriate to the equipment checked:

(2) It must consist of removal of an instrument or item of equipment and performance of the following:

(i) A visual inspection for cleanliness, impending failure, and the need for lubrication, repair, or replacement of parts;

(ii) Correction of items found by that visual inspection; and

(iii) Calibration to at least the manufacturer's specifications, unless otherwise specified in the approved Category II manual for the aircraft in which the instrument or item of equipment is installed.

(c) After the completion of one maintenance cycle of 12 calendar months, a request to extend the period for checks, tests, and inspections is approved if it is shown that the performance of particular equipment justifies the requested extension.

Appendix C Operations in Minimum Navigation Performance Specifications Airspace

1 The navigation performance capability required for aircraft to be operated in the minimum navigation performance specifications (MNPS) airspace is as follows:

(a) The standard deviation of lateral track errors shall be less than 6.3 NM (11.7 Km). Standard deviation is a statistical measure of data about a mean value. The mean is zero nautical miles. The overall form of data is such that the plus or minus one standard deviation about the mean encompasses approximately 68 percent of the data, and plus or minus two deviations encompass approximately 95 percent.

(b) The proportion of the total flight time spent by aircraft 30 NM (55.6 Km) or more off the cleared track shall be less than 5.3×10^{-4} (less than 1 hour in 1,887 flight hours).

(c) The proportion of the total flight time spent by aircraft between 50 NM and 70 NM (92.6 km and 129.6 km) off the cleared track shall be less than 13×10^{-5} (less than 1 hour in 7,693 flight

hours.).

2 Air traffic control (ATC) may authorize an aircraft operator to deviate from the requirements of 91.607 for a specific flight if, at the time of flight plan filing for that flight, ATC determines that the aircraft may be provided appropriate separation and that the flight will not interfere with, or impose a burden upon, the operations of other aircraft that meet the requirements of 91.607.

Appendix D Operations in Reduced Vertical Separation Minimum (RVSM) Airspace

1. Definitions

Reduced Vertical Separation Minimum (RVSM) Airspace. Normally refers to any airspace within which air traffic control (ATC) separates aircraft by a minimum of 300 m/1000 ft vertically between flight altitude 8900 meters/29000 feet inclusive and 12500 meters/41000 feet inclusive (in China, RVSM airspace is between flight altitude 8900 meters/29100 feet inclusive and 12500 meters/41100 feet inclusive). RVSM airspace is special qualification airspace; the operator and the aircraft used by the operator must be approved by the Administrator. Air traffic control notifies operators of RVSM by providing route-planning information. Section 8 of this appendix identifies airspace where RVSM may be applied.

RVSM Group Aircraft. Aircraft within a group of aircraft as a group by the Administrator, in which each of the aircraft satisfy each of the following:

(a) The aircraft have been manufactured to the same design, and have been approved under the same type certificate, amended type certificate or supplemental type certificate.

(b) The static system of each aircraft is installed in a manner and position that is the same as those of the other aircraft in the group. The same static source error correction is incorporated in each aircraft of the group.

(c) The avionics units installed in each aircraft to meet the minimum RVSM equipment requirements of this appendix are:

(1) Manufactured to the same manufacturer specification and have the same part number; or

(2) Of a different manufacturer or part number, if the applicant demonstrates that the equipment provides equivalent system performance.

RVSM Non-Group Aircraft. An aircraft that is approved for RVSM operations as an individual aircraft.

*RVSM Flight Envelope***.** An RVSM flight envelope includes the range of Mach number, weight divided by atmospheric pressure ratio, altitudes over which an aircraft is approved to be operated in cruising flight within RVSM airspace. RVSM flight envelopes are defined as follows:

(a) The full RVSM flight envelope is bounded as follows:

(1) The altitude flight envelope extends from flight altitude 8900 meters (29000 feet) inclusive (in China, 8900 meters/29100 feet inclusive) upward to the lowest altitude of the following:

(i) Flight altitude 12500 meters (41000 feet) inclusive (in China, 12500 meters/41100 feet inclusive) (the RVSM altitude limit);

(ii) The maximum certificated altitude for the aircraft; or

(iii) The altitude limited by cruise thrust, buffet or other flight limitations.

(2) The airspeed flight envelope extends:

(i) From the airspeed of the slats/flaps-up maximum endurance (holding) airspeed, or the maneuvering airspeed whichever is lower;

(ii) To the maximum operating airspeed (V_{mo}/M_{mo}), or airspeed limited by cruise thrust buffet or other flight limitations, whichever is lower.

(3) All permissible gross weights within the flight envelopes defined in the preceding two paragraphs in this definition.

(b) The basic RVSM flight envelope is the same as the full RVSM flight envelope except that the airspeed flight envelope extends:

(1) From the airspeed of the slats/flaps up maximum endurance (holding) airspeed, or maneuver airspeed, whichever is lower.

(2) To the upper Mach/airspeed boundary defined for the full RVSM flight envelope, or a specified lower value not less than the long-range cruise Mach number plus .04 Mach, unless further limited by available cruise thrust, buffet or other flight limitations.

2. Aircraft Approval

(a) An operator may be authorized to conduct RVSM operations if the Administrator finds that its aircraft comply with this section.

(b) The applicant for authorization shall submit the appropriate data package for aircraft approval. The package must consist of at least the following:

(1) An identification of the RVSM aircraft group or the non-group aircraft;

(2) A definition of the RVSM flight envelopes applicable to the subject aircraft;

(3) Documentation that establishes compliance with the applicable RVSM aircraft requirements of this section; and

(4) The conformity tests used to ensure that aircraft approved with the data package meet the RVSM aircraft requirements.

(c) Altitude-keeping equipment: All aircraft. To approve an aircraft group or a non-group aircraft, the Administrator must find that the aircraft meets the following requirements:

(1) The aircraft must be equipped with two operational independent altitude measurement systems.

(2) The aircraft must be equipped with at least one automatic altitude control system that controls altitude

(i) Within a tolerance band of ± 20 m / 65 ft about an acquired altitude when the aircraft is operated in straight and level flight under non-turbulent, no-gust conditions; or

(ii) Within a tolerance band of ±40 m / 130 ft under non-turbulent, non-gust conditions for aircraft for which application for type certification occurred on or before April 9, 1997 that are equipped with an automatic altitude control system flight with management/performance system inputs.

(3) The aircraft must be equipped with an altitude alert system that signals an alert when the altitude displayed to the flight crew deviates from the selected altitude by more:

(i) ±90 m / 300 ft for aircraft for which application for type certification was made on or before April 9, 1997; or

(ii) *±60 m / 200 ft* for aircraft for which application for type certification is made after April 9, 1997.

(d) Altimetry system error containment. To approve group aircraft for which application for type certification was made on or before April 9, 1997, the Administrator must find that the altimetry system error (ASE) is contained as follows:

(1) At the point in the basic RVSM flight envelope where mean ASE reaches its largest absolute value, the absolute value may not exceed 25 m / 80 ft.

(2) At the point in the basic RVSM flight envelope where mean ASE plus three standard deviations reaches its largest absolute value, the absolute value may not exceed 60 m / 200 ft.

(3) At the point in the full RVSM flight envelope where mean ASE reaches its largest absolute value, the absolute value may not exceed 40 m / 120 ft.

(4) At the point in the full RVSM flight envelope where mean ASE plus three standard deviations reaches its largest absolute value, the absolute value may not exceed 75 m / 245 ft.

(5) Necessary operating restrictions. If the applicant demonstrates that its aircraft otherwise comply with the ASE containment requirements, the Administrator may establish an operating restriction on that applicant's aircraft to restrict the aircraft from operating in areas of the basic RVSM flight envelope where the absolute value of mean ASE exceeds 25 m / 80 ft, and/or the absolute value of mean ASA plus three standard deviations exceeds 60 m / 200 ft; or from operating in areas of the full RVSM flight envelope where the absolute value of the mean ASE exceeds 40 m / 120 ft and/or the absolute value of the mean ASE plus three standard deviations exceeds 75 m / 245 ft.

(e) Altimetry system error containment. To approve group aircraft for which application for type certification is made after April 9, 1997, the CAAC must find that the altimetry system error (ASE) is contained as follows:

(1) At the point in the full RVSM flight envelope where mean ASE reaches its largest absolute value, the absolute value may not exceed 25 m / 80 ft.

(2) At the point in the full RVSM flight envelope where mean ASE plus three standard

deviations reaches its largest absolute value, the absolute value may not exceed 60 m / 200 ft.

(f) Altimetry system error containment: Non-group aircraft. To approve a non-group aircraft the Administrator must find that the altimetry system error (ASE) is contained as follows:

(1) For each condition in the basic RVSM flight envelope, the largest combined absolute value for residual static source error plus the avionics error may not exceed 49 m / 160 ft.

(2) For each condition in the full RVSM flight envelope, the largest combined absolute value for residual static source error plus the avionics error may not exceed 60 m / 200 ft.

(g) An aircraft in RVSM operations shall have capability of traffic alert and collision avoidance. Unless otherwise authorized by the Administrator, the aircraft shall install TCAS-II (version 7.0 or updated version).

(h) If the Administrator finds that the applicant's aircraft comply with this section, the Administrator notifies the applicant in writing.

3. Operator Authorization

(a) Authority for an operator to conduct flight in airspace where RVSM is applied is issued in operations specifications or a Letter of Authorization, as appropriate. To issue an RVSM authorization, the Administrator must find that the operator's aircraft have been approved in accordance with Section 2 or this appendix and that the operator complies with this section.

(b) An applicant for authorization to operate within RVSM airspace shall apply in a form and manner prescribed by the Administrator.

(c) The application must include the following:

(1) An approved RVSM maintenance program outlining procedures to maintain RVSM aircraft in accordance with the requirements of this appendix. Each program must contain the following:

(i) Periodic inspections, functional flight tests, and maintenance and inspection procedures, with acceptable maintenance practices, for ensuring continued compliance with the RVSM aircraft requirements.

(ii) A quality assurance program for ensuring continuing accuracy and reliability of test equipment used for testing aircraft to determine compliance with the RVSM aircraft requirements.

(iii) Procedures for returning non-compliant aircraft to service.

(2) For an applicant who operates under CCAR-121 and other public air transport operation regulations, initial and recurring pilot training requirements.

(3) Policies and Procedures. An applicant who operates under CCAR-121 and other public air transport operation regulations shall submit RVSM policies and procedures that will enable it to conduct RVSM operations safety.

(d) Validation and Demonstration. In a manner prescribed by the Administrator, the operator must provide evidence that:

(1) It is capable to operate and maintain each aircraft or aircraft group for which it applies for approval to operate in RVSM airspace; and

(2) Each pilot has an adequate knowledge of RVSM requirements, policies and procedures.

4. RVSM Operations

(a) Each person requesting a clearance to operate within RVSM airspace shall correctly annotate the flight plan filed with air traffic control with the status of the operator and aircraft with regard to RVSM approval. Each operator shall verify RVSM applicability for the flight planned route through the appropriate flight planning information sources.

(b) No person may show, on the flight plan filed with Air Traffic Control, an operator or aircraft as approved for RVSM operations, or operate on a route or in an area where RVSM approval is required, unless:

(1) The operator is authorized by the Administrator to perform such operations; and

(2) The aircraft has been approved and complies with the requirements of Section 2 of this appendix.

5. Deviation Authority Approval

The Administrator may authorize an aircraft operator to deviate from the requirements of 91.607 for specific flight in RVSM airspace if that operator has not been approved in accordance with Section 3 of this appendix, and if:

(a) The operator submits an appropriate request with the air traffic control center controlling the airspace, (request should be made at least 48 hours in advance of the operation unless prevented by exceptional circumstances); and

(b) At the time of filing the flight plan for that flight, ATC determines that the aircraft may be provided appropriate separation and that the flight will not interfere with, or impose a burden on, the operations of operators who have been approved for RVSM operations in accordance with Section 3 of this appendix.

6. Reporting Altitude-Keeping Errors

Each operator shall report to the Administrator each event in which the operator's aircraft has exhibited the following altitude-keeping performance:

(a) Total vertical error of 90 m / 300 ft or more;

(b) Altimetry system error of 75 m / 245 ft or more; or

(c) Assigned altitude deviation of 90 m / 300 ft or more.

7. Removal or Amendment of Authority

The Administrator may amend operations specifications to revoke or restrict an RVSM authorization, if the Administrator determines that the operator is not complying, or is unable to comply, with this appendix or Chapter G of this regulation. Examples of reasons for amendment, revocation or restriction include, but are not limited to, an operator's:

(a) Committing one or more altitude-keeping errors in RVSM airspace;

(b) Failing to make an effective and timely response to identify and correct an altitude-keeping error; or

(c) Failing to report an altitude-keeping error.

Appendix E Airplane Flight Recorder Specifications

1. Parameters of Airplane Type I and II Flight Data Recorder Specifications

Serial number	Parameter	Measurement range	Recording interval (seconds)	Accuracy limits (sensor input compared to FDR read-out)
1	Time (UTC when available, otherwise elapsed time)	24 hours	4	±0.125% per hour
2	Pressure-altitude	–300 m (–1 000 ft) to maximum certificated altitude of aircraft +1 500 m (+5 000 ft)	1	±30 m to ±200 m (±100 ft to ±700 ft)
3	Indicated airspeed	95 km/h (50 kt) to max V_{S_o} *(Note 1)* V_{S_o} to 1.2 V_D *(Note 2)*	1	±5% ±3%
4	Heading	360°	1	±2°
5	Vertical acceleration	–3 g to +6 g	0.125	±1% of maximum range excluding datum error of ±5%
6	Pitch attitude	±75°	1	±2°
7	Roll attitude	±180°	1	±2°
8	Radio transmission keying	On-off (one discrete)	1	
9	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/speed brake selection	Full range or each discrete position	1	±2% unless higher accuracy uniquely required

14	Outside air temperature	Sensor range	2	±2℃
15	Autopilot/auto throttle/AFCS mode and engagement status	A suitable combination of discretes	1	
Note. The preceding 15 parameters satisfy the requirements for a Type II FDR.				
16	Longitudinal acceleration	±1 g	0.25	±1.5% max range excluding datum error of ±5%
17	Lateral acceleration	±1 g	0.25	±1.5% max range excluding datum error of ±5%
18	Pilot input and/or control surface position-primary controls (pitch, roll, yaw) *(Note 4)*	Full range	1	±2° unless higher accuracy uniquely required
19	Pitch trim position	Full range	1	±3% unless higher accuracy uniquely required
20	Radio altitude	–6 m to 750 m (–20 ft to 2 500 ft)	1	±0.6 m (±2 ft) or ±3% whichever is greater below 150 m (500 ft) and ±5% above 150 m (500 ft)
21	Glide path deviation	Signal range	1	±3%
22	Localizer deviation	Signal range	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 *(Notes 5 and 6)*	0 – 370 km	4	As installed
27	Landing gear squat switch status	Discrete	1	
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	Navigation data (latitude/longitude, 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 preceding 32 parameters satisfy the requirements for a Type I FDR.				

Notes:

1. V_{S_o} stalling speed or minimum steady flight speed in the landing configuration.
2. V_D design diving speed.
3. Record sufficient inputs to determine power.
4. For aeroplanes with conventional control systems ‘‘or’’ applies. For aeroplanes with non-mechanical control systems ‘‘and’’ applies. In aeroplanes with split surfaces, a suitable combination of inputs is acceptable in lieu of recording each surface separately.
5. If signal available in digital form.
6. Recording of latitude and longitude from INS or other navigation system is a preferred alternative.
7. If signals readily available.

If further recording capacity is available, recording of the following additional information should be considered:

(a) Operational information from electronic display systems, such as electronic flight

instrument systems (EFIS), electronic centralized aircraft monitor (ECAM) and engine indication and crew alerting system (EICAS). Use the following order of priority:

(1) Parameters selected by the flight crew relating to the desired flight path, e.g. barometric pressure setting, selected altitude, selected airspeed, decision height, and autoflight system engagement and mode indications if not recorded from another source;

(2) Display system selection/status, e.g. SECTOR, PLAN, ROSE, NAV, WXR, COMPOSITE, COPY, ETC.;

(3) Warnings and alerts;

(4) The identity of displayed pages for emergency procedures and checklists.

(b) Retardation information including brake application for use in the investigation of landing overruns and rejected take-offs; and

(c) Additional engine parameters (EPR, N_1, EGT, fuel flow, etc.).

2. Airplane Type IA Flight Data Recorder Specifications

(The parameters without an asterisk (*) are mandatory parameters which shall be recorded. The parameters designated by an asterisk (*) shall be recorded if an information data source for the parameter is used by airplane systems or the flight crew to operator the airplane.)

1. Pressure altitude
2. Indicated airspeed or calibrated airspeed
3. Air-ground status and each landing gear air-ground sensor when practicable
4. Total or outside air temperature
5. Heading (primary flight crew reference)
6. Vertical acceleration
7. Lateral acceleration
8. Longitudinal acceleration (body axis)
9. Time or relative time count
10. Navigation data*: drift angle, wind speed, wind direction, latitude/longitude
11. Groundspeed*
12. Radio altitude*
13. Pitch attitude
14. Roll attitude
15. Yaw or sideslip angle*
16. Angle of attack*
17. Engine thrust/power: propulsive thrust/power on each engine, cockpit thrust/power lever position
18. Thrust reverse status*
19. Engine thrust command*
20. Engine thrust target*
21. Engine bleed valve position*
22. Additional engine parameters*: EPR, N1, indicated vibration level, N2, EGT, TLA, fuel flow, fuel cut-off lever position, N3
23. Pitch trim surface position
24. Flaps*: trailing edge flap position, cockpit control selection
25. Slats*: leading 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, speed brake selection
33. De-icing and/or anti-icing systems selection*
34. Hydraulic pressure (each system)*
35. Fuel quantity*
36. AC electrical bus status*

37. DC electrical bus status*
38. APU bleed valve position*
39. Computed centre of gravity*
40. Warnings
41. Primary flight control surface and primary flight control pilot input: pitch axis, roll axis, yaw axis
42. Marker beacon passage
43. Each navigation receiver frequency selection
44. Manual radio transmission keying and CVR/FDR synchronization reference
45. Autopilot/autothrottle/AFCS mode and engagement status*
46. Selected barometric setting*: pilot, first officer
47. Selected altitude (all pilot selectable modes of operation)*
48. Selected speed (all pilot selectable modes of operation)*
49. Selected Mach (all pilot selectable modes of operation)*
50. Selected vertical speed (all pilot selectable modes of operation)*
51. Selected heading (all pilot selectable modes of operation)*
52. Selected flight path (all pilot selectable modes of operation)*: course/DSTRK, path angle
53. Selected decision height*
54. EFIS display format*: pilot, first officer
55. Multi-function/engine/alerts display format*
56. GPWS/TAWS/GCAS status*: selection of terrain display mode including pop-up display status, terrain alerts, both cautions and warnings, and advisories, on/off switch position
57. Low pressure warning*: hydraulic pressure, pneumatic pressure
58. Computer failure*
59. Loss of cabin pressure*
60. TCAS/ACAS (traffic alert and collision avoidance system/airborne collision avoidance system)*
61. Ice detection*
62. Engine warning each engine vibration*
63. Engine warning each engine over temperature*
64. Engine warning each engine oil pressure low*
65. Engine warning each engine over speed*
66. Wind shear warning*
67. Operational stall protection, stick shaker and pusher activation*
68. All cockpit flight control input forces*: control wheel, control column, rudder pedal cockpit input forces
69. Vertical deviation*: ILS glide path, MLS elevation, GNSS approach path
70. Horizontal deviation*: ILS localizer, MLS azimuth, GNSS approach path
71. DME 1 and 2 distances*
72. Primary navigation system reference*: GNSS, INS, VOR/DME, MLS, Loran C, ILS
73. Brakes*: left and right brake pressure, left and right brake pedal position
74. Date*
75. Event marker*
76. Head up display in use*
77. Para visual display on*

Appendix F Rotorcraft Flight Recorder Specifications

1. Rotorcraft Type IV and V Flight Data Recorder Specifications

Serial number	Parameters	Measurement Range	Sampling Interval (seconds)	Accuracy limits (sensor input compared to FDR read-out)
1	Time (UTC when available, otherwise elapsed time)	24 hours	4	±0.125% per hour

2	Pressure-altitude	–300 m (–1000 ft) to maximum certificated altitude of aircraft +1500 m (+5000 ft)	1	±30 m to ±200 m (±100 ft to ±700 ft)
3	Indicated airspeed	As the installed measuring system	1	±3%
4	Heading	360°	1	±2°
5	Vertical acceleration	–3 g to +6 g	0.125	±1%
6	Pitch attitude	±75°	0.5	±2°
7	Roll attitude	±180°	0.5	±2°
8	Radio transmission keying	On-off (one discrete)	1	
9	Power on each engine *(Note 1)*	Full range	1 (per engine)	±2%
10	Main rotor speed	50～130%	0.5	±2%
11	Pilot input and/or control surface position-primary controls (Collective pitch, longitudinal cyclic pitch, lateral cyclic pitch, tail rotor pedal) (*Note 2)*	Full range	1	±2% unless higher accuracy uniquely required.
12	Hydraulics, each system (low pressure)	Discrete	2	
13	Outside air temperature	Sensor range	2	±2℃
14	Autopilot/autothrottle/AFCS mode and engagement status	A suitable combination of discretes	1	
15	Stability augmentation system engagement	Discrete	1	
Note. The preceding 15 parameters satisfy the requirements for a Type V FDR.				
16	Main gearbox oil pressure	As installed	1	As installed
17	Main gearbox oil temperature	As installed	2	As installed
18	Yaw acceleration (or yaw rate)	±1 g	0.25	±1.5% max range excluding datum error of ±5%
19	Sling load force	0-200% of certified load	0.5	±3% of max range
20	Longitudinal acceleration	±1 g	0.25	±1.5% max range excluding datum error of ±5%
21	Lateral acceleration	±1 g	0.25	±1.5% max range excluding datum error of ±5%
22	Radio altitude	–6 m to 750 m (–20 ft to 2500 ft)	1	±0.6 m (±2 ft) or ±3% whichever is greater below 150 m (500 ft) and ±5% above 150 m (500 ft)
23	Glide path deviation	Signal range	1	±3%
24	Localizer deviation	Signal range	1	±3%
25	Marker beacon passage	Discrete	1	
26	Master warning	Discrete	1	
27	NAV 1 and 2 frequency selection *(Note 3)*	Full range	4	As installed
28	DME 1 and 2 distance *(Notes 3 and 4)*	0-370 km	4	As installed
29	Navigation data (latitude/longitude, ground	As installed	2	As installed

	speed) *(Note 5)*			
30	Landing gear or gear selector position	Discrete	4	As installed
Note. The preceding 30 parameters satisfy the requirements for a Type IV FDR.				

Notes:
1. Record sufficient inputs to determine power.
2. For helicopters with conventional control systems ‘‘or’’ applies. For helicopters with non-mechanical control systems ‘‘and’’ applies.
3. If signal available in digital form.
4. Recording of latitude and longitude from INS or other navigation system is a preferred alternative.
5. If signals readily available.

If further recording capacity is available, recording of the following additional information should be considered:

(a) Operational information from electronic display systems, such as electronic flight instrument systems (EFIS), electronic centralized aircraft monitor (ECAM) and engine indication and crew alerting system (EICAS). Use the following order of priority:

(1) Parameters selected by the flight crew relating to the desired flight path, e.g. barometric pressure setting, selected altitude, selected airspeed, decision height, and autoflight system engagement and mode indications if not recorded from another source;

(2) Display system selection/status, e.g. SECTOR, PLAN, ROSE, NAV, WXR, COMPOSITE, COPY, etc.;

(3) Warnings and alerts data; and

(4) The identity of displayed pages for emergency procedures and checklists; and

(c) Additional engine parameters (EPR, N1, EGT, fuel flow, etc.).

2. Rotorcraft Type IVA Flight Data Recorder Specifications

(The parameters without an asterisk (*) are mandatory parameters which shall be recorded. In addition, the parameters designated by an asterisk (*) shall be recorded if an information data source for the parameter is used by rotorcraft systems or the flight crew to operate the rotorcraft)

1. Pressure altitude
2. Indicated airspeed
3. Outside air temperature
4. Heading
5. Normal acceleration
6. Lateral acceleration
7. Longitudinal acceleration (body axis)
8. Time or relative time count
9. Navigation data*: drift angle, wind speed, wind direction, latitude/longitude
10. Radio altitude*
11. Pitch attitude
12. Roll attitude
13. Yaw rate
14. Power on each engine: free power turbine speed (N_f), engine torque, engine gas generator speed (N_g), cockpit power control position
15. Rotor: main rotor speed, rotor brake
16. Main gearbox oil pressure*
17. Gearbox oil temperature*: main gearbox oil temperature, intermediate gearbox oil temperature, tail rotor gearbox oil temperature
18. Engine exhaust gas temperature (T_4)*
19. Turbine inlet temperature (TIT)*
20. Landing gear or gear selector position*
21. Fuel quantity*

22. Ice detector liquid water content*
23. Hydraulics low pressure
24. Warnings
25. Primary flight controls — pilot input and/or control output position: collective pitch, longitudinal cyclic pitch, lateral cyclic pitch, tail rotor pedal, controllable stabilator, hydraulic selection
26. Marker beacon passage
27. Each navigation receiver frequency selection
28. AFCS mode and engagement status*
29. Stability augmentation system engagement*
30. Indicated sling load force*
31. Vertical deviation*: ILS glide path, MLS elevation, GNSS approach path
32. Horizontal deviation*: ILS localizer, MLS azimuth, GNSS approach path
33. DME 1 and 2 distances*
34. Altitude rate*
35. Rotorcraft health and usage monitor system (HUMS)*: engine data, chip detectors, track timing, exceedance discretes, broadband average engine vibration