

PART 1 Definitions and Abbreviations

1.1 General Definitions

Aeromedical board means the Egyptian Aeromedical Board.

Air Carrier means any person who undertakes to engage in commercial air transportation in scheduled and/ or unscheduled service over domestic routes. International routes, or a combination thereof.

Air carrier operating certificate means a document issued by the ECAA certifying that the applicant has been found to be properly and adequately equipped and capable of conducting a safe operation under the Egyptian Civil Aviation Supervisory Regulations

Air carrier operator means an operator of aircraft in scheduled or unscheduled commercial air transportation.

Aircraft means a device that is used or intended to be used for flight in air.

Aircraft accident means an occurrence associated with the operation of an aircraft which takes place between the time any person boards with the intention of flight until such time as all such persons have disembarked, in which any person suffers death or serious injury as a result of being in or upon the aircraft or anything attached thereto, or the aircraft receives substantial damage.

Aircraft approach category means a grouping of aircraft based on a speed of $1.3 V_{so}$ (at the maximum certificated landing weight). V_{so} and the maximum certificated landing weight are those values as established for the aircraft by the certificating authority of the state of manufacture:

- (a) Category A: Speed less than 91 knots;
- (b) Category B: Speed 91 knots or more but less than 121 knots;
- (c) Category C: Speed 121 knots or more but less than 141 knots;
- (d) Category D: Speed 141 knots or more but less than 166 knots; and
- (e) Category E: Speed 166 knots or more.

Aircraft engine means an engine that is used or intended to be used for propelling aircraft. It includes turbo superchargers, appurtenances, and accessories necessary for its functioning.

Aircraft flight manual means a document containing the limitations, procedures, information, and data including approved information pertaining to each aircraft of an approved design and models thereof pertinent to the safe operation of that particular aircraft.

Airframe means the fuselage, booms, nacelles, cowlings, fairing, airfoil surfaces (including rotors but excluding propellers and rotating airfoils of engines), and landing gear of an aircraft and their accessories and controls.

Airman means any person who serves in the capacity of pilot in command, or as other pilot, flight engineer, or as other member of the flight crew each having assigned duties to perform aboard that aircraft for its safe operation during flight time: and any person who serves in the capacity of a mechanic performing or supervising the inspection, maintenance, repair or overhaul of aircraft, aircraft engines, aircraft propellers, or aircraft appliances, and any other person who serves in the capacity of a flight instructor, an aircraft dispatcher, or a repairman, performing duties under the provisions and requirements of these regulations.

Airman certificate means a document issued by the Chairman of the Civil Aviation Supervisory Authority certifying that he has found the applicant qualified under the Civil Aviation Regulations governing the capacity in which the certificate authorizes the holder to act as an airman.

Air navigation means the operation of aircraft in air space. It includes air transportation operations and all other operational uses of aircraft in flight.

Airplane means an engine-driven fixed-wing aircraft heavier than air that is supported in flight by the dynamic reaction of the air against its wings.

Airport traffic area means, unless otherwise specifically designated by ATC, that airspace within a horizontal radius of 5 nautical miles from a geographical center of any airport at which an operating control tower is located, extending from the surface up to, but not including, on altitude of 3,000 feet above the elevation of the airport.

Air traffic control means a service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

Air traffic control clearance means authorization for an aircraft to be protected under conditions specified by an air traffic control unit.

Air transport or air transportation means the operation of Egyptian registered civil aircraft for the purpose of transporting persons and property.

Appliance means any instrument, mechanism, equipment, part, apparatus, appurtenance, or accessory, including communications equipment, that is used or intended to be used in operating or controlling an aircraft in flight, is installed in or attached to the aircraft, and is not part of an airframe, engine, or propeller.

Approved, unless used with reference to another person, means approved by the Egyptian Civil Aviation Authority.

Approved design means a design that meets the specifications, drawings, reports, and documentary evidence for aircraft engines, propellers, appliances, or parts that comply with applicable airworthiness requirements of the State of Manufacture, or other state which has accepted the approved design and has issued Airworthiness Certification Requirements covering that approved design.

Area navigation (RNAV) means a method of navigation that permits aircraft operations on any desired course within the coverage of station-referenced navigation signals or within the limits of self contained system capability.

Approved examiner or check airman means any person who is authorized by the ECAA to conduct a pilot proficiency test or a practical test for an airman license or rating issued under this Part or a person who is authorized to conduct a knowledge test under this Part.

Authorized instructor means:

(a) A person who holds a valid ground instructor certificate issued under this Part when conducting ground training in accordance with the privileges and limitations of his or her ground instructor certificate;

(b) A person who holds a current flight instructor rating issued under this Part when conducting ground training or flight training in accordance with the privileges and limitations of his or her flight instructor rating; or

(c) A person authorized by the ECAA to provide ground training or flight training under Parts 121, 141 or 142 when conducting ground training or flight training in accordance with that authority.

Authorized representative of the civil aviation authority means an employee of the Civil Aviation Supervisory Authority (CASA) or any private person, authorized by the Chairman to perform any of the duties of the Chairman as delegated to those employees or as delegated to a designated private person.

Aviation medical examiner means a licensed physician designated by the Chairman of the Civil Aviation Supervisory Authority to perform required airman medical examinations and to issue or deny medical certificates as prescribed by the Civil Aviation Regulations.

Balloon means a lighter-than-air aircraft that is not engine driven.

Cabin crew means a person assigned to duty in an aircraft passenger cabin for the purpose of assuring passenger safety during flight time in accordance with the Civil Aviation Regulations.

Category:

(a) As used with respect to the certification, ratings, privileges, and limitations of airmen means a broad class of aircraft. Examples include airplane, rotorcraft, glider and lighter-than-air; and

(b) As used with respect to the certification of aircraft, means a grouping of aircraft based upon intended use or operating limitations. Examples include transport, normal, utility, acrobatic, restricted, experimental, glider, and balloon.

Categories I, II, and III/ ILS means instrument landing system approaches conducted under weather minima as follows (as facilities permit, and as the pilot and operator are authorized):

(a) Category I: An instrument approach procedure which provides for approaches to a decision height (DH) of not less than 200 feet and visibility of not less than 1/2 mile or RVR 2400 (RVR 1800 with operative touchdown zone runway centerline lights);

(b) Category II: An instrument approach procedure which provides approaches to minimal of less than DH 200 feet / RVR 2400 to as low as DH 100 feet / RVR 1200;

(c) Category III A: An ILS approach procedure that provides for an approach without a decision height minimum and with a runway visual range of not less than 700 feet;

(d) Category III B: An ILS approach procedure that provides for an approach without a decision height minimum and without a runway visual range of not less than 150 feet; and

(e) Category III C: An ILS approach procedure that provides for an approach without a decision height minimum and without a runway visual ranges minimum.

Certificate of airworthiness means the same as a Certificate of Fitness for Flight, and indicates the issuing authority has determined the aircraft meets all requirements for certification at date of issue.

Certificate of fitness for flight means the same as Certificate of Airworthiness.

Certificated: unless used with reference to another person, means certificated and/or validated by the Egyptian Civil Aviation Supervisory Authority

Charter flights and other special services means any commercial air transport operation other than approved scheduled operations conducted by a certificated Egyptian air carrier or air taxi.

Note: Charter Flights and other special services shall be conducted under the rules of that regulation applicable to ECAR 121 operators or as otherwise authorized by the ECAA.

Class:

(a) As used with respect to the certification, ratings, privileges, and limitations of airmen, means a classification of aircraft having similar operating characteristics. Examples include, single engine, multiengine, land, sea, helicopter, and free balloon; and

(b) As used with respect to the certification of aircraft, means a broad grouping of aircraft having similar characteristics of propulsion, flight, or landing. Examples include: airplane, rotorcraft, glider, landplane, seaplane, and balloon.

Class I: As used with regard to airman medical certification means a medical certificate issued by an ECAA designated Aviation Medical Examiner in accordance with standards prescribed for the ICAO Class I medical assessment in chapter 6 on Annex 1 to the Convention of International Civil Aviation.

Class II: As used with regard to airman medical certification means a medical certificate issued by a CAA designated Aviation Medical Examiner in accordance with standards prescribed for the ICAO Class II medical assessment in chapter 6 of Annex 1 to the Convention of International Civil Aviation.

Clearway means, for turbine engine powered airplanes, and area beyond the runway, not less than 500 feet wide, centrally located about the extended centerline of the runway, and under the control of the airport authorities. The clearway is expressed in terms of a clearway plane extending from the end of the runway with an upward slope not exceeding 1.25 percent, above which no object nor any terrain protrudes. However, threshold lights may protrude above the plane if their height above the end of the runway is 26 inches or less and if they are located at each side of the runway.

Cockpit crewmember means a pilot, flight engineer, or other airman assigned for duty in an aircraft during flight time in accordance with the Civil Aviation Regulations.

Commercial air transportation means the operation of Egyptian registered aircraft for the purpose of the carriage of persons or property for compensation or hire.

Controlled airspace means an airspace of defined dimensions within which air traffic control service is provided to controlled flights.

Control zone means a controlled airspace extending upwards from the surface of the earth to a specified upper limit.

Crewmember means a person assigned to perform duty in an aircraft during flight time.

Critical engine means the engine whose failure would most adversely affect the performance or handling qualities of an aircraft.

Dangerous goods (or hazardous materials) mean articles or substances, which are capable of posing significant risk to health, safety or property when transported by air.

Decision height with respect to the operation of aircraft, means the height at which a decision must be made during a precision instrument approach, to either continue the approach or to execute a missed approach.

Extended over water operation means with respect to aircraft, other than helicopters, an operation over water at a horizontal distance of more than 100 nautical miles or more than 30 minutes flying time up to 100 nautical miles from the nearest shoreline, whichever is less.

Fireproof:

(a) With respect to materials and parts used to confine fire in a designated fire zone, means the capacity to withstand at least as well as steel in dimensions appropriate for the purpose for which they are used, the heat produced when there is a severe fire of extended duration in that zone; and

(b) With respect to other materials and parts, means the capacity to withstand the heat associated with fire at least as well as steel in dimensions appropriate for the purpose for which they are used.

Flammable with respect to a fluid or gas means susceptible to igniting or to exploding.

Flame resistant means not susceptible to combustion to the point of propagating a flame, beyond safe limits, after the ignition source is removed.

Flash resistant means not susceptible to burning violently when ignited.

Flight simulator means a device that:

(a) Is a full-size aircraft cockpit replica of a specific type of aircraft, or make, model, and series of aircraft;

(b) Includes the hardware and software necessary to represent the aircraft in ground operations and flight operations;

(c) Uses a force cueing system that provides cues at least equivalent to those cues provided by a 3 degrees freedom of motion system;

(d) Uses a visual system that provides at least a 45 degree horizontal field of view and a 30 degree vertical field of view simultaneously for each pilot; and

(e) Has been evaluated, qualified, and approved by the ECAA.

Flight time means the time from the moment the aircraft first moves for the purpose of flight until the moment it comes to rest at the next point of landing commonly called "block-to-block" time.

Flight training means that training, other than ground training, received from an authorized instructor in flight in an aircraft.

Flight training device means a device that:

(a) Is a full-size replica of the instruments, equipment, panels, and controls of an aircraft, or set of aircraft, in an open flight deck area or in an enclosed cockpit, including the hardware and software for the systems installed, that is necessary to simulate the aircraft in ground and flight operations;

(b) Need not have a force (motion) cueing or visual system; and

(c) Has been evaluated, qualified, and approved by the ECAA.

Glider means a heavier-than-air aircraft, that is supported in flight by the dynamic reaction of the air against its lifting surfaces and whose free flight does not depend principally on an engine.

Helicopter means a rotorcraft that, for its horizontal motion, depends principally on its engine driven rotors.

Ground training means that training, other than flight training, received from an authorized instructor.

Heliport means an area of land, water, or structure used or intended to be used for landing and takeoff of helicopters.

IFR (Instrument flight rules) operation means flight in reference to the rules which apply when weather conditions are less than the established visibility and ceiling minimum required for flight when visual reference to the earth is possible.

Incident means any occurrence, other than an accident, and any other occurrence or event that in the opinion of the ECAA, the aircraft operator, or the pilot endangered or may endanger the safe operation of an aircraft. These incidents are reportable. Such reports are in addition to other deficiency and discrepancy reports otherwise specially required by these regulations.

Inspector means an employee of the Civil Aviation Authority authorized by the ECAA to perform assigned inspection functions.

Inoperative means a condition in which equipment is malfunctioning to the extent that it does not accomplish its intended purpose or is not consistently functioning within its design operating limits or tolerances.

Instrument approach procedure means a series of predetermined maneuvers for the safe and orderly transition of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by the authority having jurisdiction of the airport.

Instrument landing system (ILS) means a precision instrument approach system which normally consists of the following electronic components and visual aids:

- (a) Localizer;
- (b) Glide slope;
- (c) Outer marker;
- (d) Middle marker; and
- (e) Approach lights.

Instrument meteorological conditions (IMC) means meteorological conditions expressed in terms of visibility distance from cloud, and ceiling, less than the minimal specified for visual meteorological conditions.

Instrument training means that time in which instrument training is received from an authorized instructor under actual or simulated instrument conditions.

Knowledge test means a test on the aeronautical knowledge areas required for an airman license or rating that can be administered in written form or by a computer.

Large aircraft means aircraft of more than 12,500 pounds (5,700 kg) maximum certificated gross weight.

Lighter-than-air aircraft means aircraft that can rise and remain suspended by using contained gas weighing less than the air that is displaced by the gas.

Maintenance means inspection, overhaul, rebuild, repair, preservation, and replacement of parts, but excludes preventive maintenance.

Medical certificate means a document showing acceptable evidence of physical fitness as prescribed for airmen by the Chairman of the Civil Aviation Authority.

Minimum descent altitude means the lowest altitude to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided.

Minor alteration means an alteration other than a major alteration.

Minor repair means a repair other than a major repair.

Navigable airspace means airspace at and above the minimum flight altitude as prescribed by the authority thereof including airspace needs for safe takeoff and landing.

Navigation of aircraft means the piloting of aircraft.

Night (for all operations in Egypt) means the time from 30 minutes after sunset to 30 minutes before sunrise. For all operations conducted outside of Egypt, "Night" shall mean the time between the end of evening civil twilight and the beginning of morning civil twilight.

Non precision approach procedure means a standard instrument approach procedure for which no electronic glide slope is provided.

Operational control (which respect to a flight) means the exercise of authority over initiating, conducting, or terminating a flight.

Operate aircraft or operation of aircraft means the use of aircraft for the purpose of air navigation. Any person who causes or authorizes the operation of aircraft, whether with or without the right of legal control (in the capacity of owner, lessee, or otherwise) of the aircraft, shall be deemed to be engaged in the operation of aircraft.

Parachute means a device used or intended to be used to retard the fall of a body or object through the air.

Person means any individual, firm, partnership, corporation, company, association, joint-stock association or political body and includes trustee, receiver, assignee or other representative thereof.

Pilot time means that time in which a person:

- (a) Serves as a required cockpit crewmember;
- (b) Receives training from an authorized instructor in an aircraft, flight simulator, or flight training device; or
- (c) Gives training as an authorized instructor in an aircraft, flight simulator, or flight training device.

Pilotage means air navigation by visual reference to landmarks.

Pilot in command means the pilot responsible for the operation and safety of an aircraft during flight time.

Pitch setting means the propeller blade setting as determined by the blade angle measured in a manner, and at a radius, specified by the instruction manual for the propeller.

Practical test means a test on the areas of operations for an airman license, rating, or authorization that is conducted by having the applicant respond to questions and demonstrate maneuvers in flight, in a flight simulator, or in a flight training device.

Precision approach procedure means a standard instrument approach procedure for which an electronic glide slope is provided.

Propeller means a device for propelling an aircraft that has an engine-driven shaft and that, when rotated, produces by its action on the air, a thrust approximately perpendicular to its plane of rotation. It includes control components normally supplied by its manufacturer, but does not include main and auxiliary rotors or rotating airfoils of engines.

Rating means a statement that, as part of a certificate, sets forth-special conditions, privileges, or limitation.

Repair means such maintenance action, including replacement as necessary to restore an inoperative item to an operative condition.

Rotorcraft means a heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors.

Second in command means a pilot who is designated to be second in command of an aircraft during flight time.

Set of aircraft means aircraft that share similar performance characteristics, such as similar airspeed and altitude operating envelopes, similar handling characteristics, and the same number and type of propulsion systems.

Show unless the context otherwise requires, means to show or prove to the satisfaction of the ECAA.

Small aircraft means aircraft of 12,500 pounds (5,700 kg) or less maximum certificated gross weight.

State aircraft means aircraft used exclusively in the service of the state, military, and police, in accordance with special agreement between ECAA and appropriate State, military, or police authority.

Stopway means an area beyond the takeoff runway, no less wide than the runway and is centered upon the extended centerline of the runway, able to support the airplane during a rejected takeoff, without causing structural damage to the airplane, and designed by the airport authorities for use in decelerating the airplane during a rejected takeoff.

Simulator flight trainer: Any one of the following three types of apparatus in which flight conditions are simulated on the ground:

(a) A flight simulator which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;

(b) A flight procedures trainer, which provides realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class; and

(c) A basic instrument flight trainer, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.

Time in service with respect to maintenance time records means the time from the moment an aircraft leaves the surface of the earth until it touches it at the next point of landing.

Training center means an organization governed by the applicable requirements of Parts 141, 142, and 147 that provides training, testing, and checking under contract or other arrangement to certificate holders subject to the requirements of the ECARs.

Training time means training received:

(a) In flight from an authorized instructor;

(b) On the ground from an authorized instructor; or

(c) In a flight simulator or flight training device from an authorized instructor.

Type as used with respect to the certification, ratings, privileges and limitations of airmen means a specific make and basic model of aircraft, including modifications thereto that do not change its handling or flight characteristics.

VFR (visual flight rules) means flight in reference to the rules, which apply when weather conditions are equal to or better than the established visibility, distance from cloud, and ceiling minimums.

Visual meteorological conditions (VMC) means meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minimums.

1.3 Abbreviations and symbols

ALS means approach light system.

ASR means airport surveillance radar.

ATC means air traffic control.

CAA means Civil Aviation Authority

CAS means calibrated airspeed.

DH means decision height.

DME means distance measuring equipment.

EAS means equivalent airspeed

ECAA means Egyptian Civil Aviation Supervisory Authority.

EDCAA means Executive Director of Civil Aviation Supervisory Authority

FM	means fan marker.
GS	means glide slope.
HIRL	means high-intensity runway light system.
IAS	means indicated airspeed.
ICAO	means International Civil Aviation Organization.
IFR	means instrument flight rules.
ILS	means instrument landing system.
IM	means ILS inner marker.
INT	means intersection.
LDA	means localizer-type directional aid.
LMM	means compass locator at middle marker.
LOC	means ILS localizer.
LOM	means compass locator at other marker.
M	means mach number.
MAA	means maximum authorized IFR altitude.
MALS	means medium-intensity approach light system.
MALSRL	means medium-intensity approach light system with runway alignment indicator lights.
MCA	means minimum crossing altitude.
MDA	means minimum descent altitude.
MEA	means minimum en route IFR altitude.
MM	means ILS middle marker.
MOCA	means minimum obstruction clearance altitude.
MRA	means minimum reception altitude.
MSL	means mean sea level.
NDB (ADF)	means nondirectional beacon (automatic direction finder)
NOPT	means no procedure turn required.
OM	means ILS outer marker.
PAR	means precision approach radar.
RAIL	means runway alignment indicator light system.
RBN	means radio beacon.
RCIM	means runway centerline marking.
RCLS	means runway centerline line system.
REIL	means runway end identification lights.
RVR	means runway visual range as measured in the touchdown zone area
SALS	means short approach light system.
SSALS	means simplified short approach light system.
SSALSRL	means simplified short approach light system with runway alignment indicator lights.
TACAN	means ultra-high frequency tactical air navigation aid.
TAS	means true airspeed.
TDZL	means touchdown zone lights.
TVOR	means very high frequency terminal omnirange station.
V _a	means design-maneuvering speed.
V _c	means design cruising speed.
V _d	means design diving speed.
V _{df} / M _{df}	means demonstrated flight diving speed.
V _f	means design flap speed.
V _{fc} / M _{fc}	means maximum speed for stability characteristics.
V _{fe}	means maximum flap extended speed.
VFR	means visual flight rules.
V _c	means maximum speed in level flight with maximum continuous power.
VHF	means very high frequency.

V_{le}	means maximum landing gear extended speed
V_{lo}	means maximum landing gear operation speed.
V_{tof}	means lift-off speed.
V_{mc}	means minimum control speed with the critical engine inoperative.
V_{mo} / M_{mo}	means maximum operating limit speed.
V_{mu}	means minimum unstick speed.
V_{ne}	means never-exceed speed.
VOR	means very high frequency omnirange station.
V_r	means rotation speed.
V_s	means the stalling speed or the minimum steady flight speed at which the airplane is controllable.
V_{so}	means the stalling speed or the minimum steady flight speed obtained in landing configuration.
V_{s1}	means the stalling speed or the steady flight speed obtained in specified configuration.
V_X	means speed for best angle of climb.
V_y	means speed for best rate of climb.
V_1	means critical-engine-failure speed.
V_2	means takeoff safety speed.
V_{2min}	means minimum takeoff safety speed.

SUBPART B

Type Certificates

21.41 Applicability

This subpart prescribes:

- (a) Procedural requirements for the issue of type certificates for aircraft, aircraft engines, and propellers; and
- (b) Rules governing the holders of those certificates.

21.43 Eligibility

- (a) The ECAA will only accept an application for a type certificate submitted by a person holding an appropriate design organization approval or having had his application for design organization accepted, except that, where a product is of simple design, the ECAA may agree to accept an application from a person who does not hold and has not applied for or an appropriate design organization approval.
- (b) In the latter case, the ECAA will apply such alternative procedures as are necessary to provide equivalent confidence of compliance with requirements, taking into account of the size of the design organization.
- (c) The ECAA will accept applications for validation of a foreign issued type certificate. The acceptance and validation of a foreign type certificate will be determined by the ECAA based on the foreign airworthiness authority's technical competence, capabilities, regulatory authority, the foreign country's airworthiness codes and regulations and the foreign industry's overall design and manufacturing capability.

21.45 Application for a type certificate

- (a) An application for a type certificate must be made in a form and manner acceptable to the ECAA.
- (b) An application for an aircraft type certificate must be accompanied by a three-view drawing of that aircraft and preliminary basic data, including the proposed operating characteristics and limitations.
- (c) An application for an aircraft engine, or propeller type certificate must be accompanied by a general arrangement drawing, a description of the design features, the operating characteristics, and the proposed operating limitations, of the engine, or propeller.

21.47 Special condition

- (a) The ECAA prescribes special conditions for a product if the relevant airworthiness requirements do not contain adequate or appropriate safety standards for the product when:
 - (1) The products have novel or unusual design feature relative to the design practices on which the applicable requirements are based;
 - (2) The intended use of the products is unconventional; or
 - (3) Experience from other similar design features, has shown that unsafe condition may develop.
- (b) The special condition contains such safety standards, as the ECAA finds necessary, to establish a level of safety equivalent to that intended in the applicable design.

21.49 Designation of applicable requirements

- (a) The applicable requirements for the issue of a type certificate for an aircraft, aircraft engine, or propeller are:
 - (1) The applicable requirements that are effective on the date of application for that certificate unless:

- (i) Otherwise specified by the ECAA; or
 - (ii) Compliance with later effective amendments is elected or required under this paragraph.
- (2) Any special condition prescribed in accordance with item 21.47.
- (b) An application for type certification of large aircraft, is effective for five years and an application for any other type certificate is effective for three years, unless an applicant shows at time of application that his product requires a longer period of time for design, development, and testing, and the ECAA approves a longer period.
- (c) In a case where a type certificate has not been issued, or it is clear that a type certificate will not be issued, within the time limit established under subparagraph (b) of this paragraph, the applicant may:
- (1) File a new application for a type certificate and comply with all the provisions of subparagraph (a) of this paragraph applicable to an original application; or
 - (2) File for an extension of the original application and comply with the applicable requirements that were effective on a date, to be selected by the applicant, not earlier than the date which precedes the date of issue of the type certificate by the time limit established under sub-paragraph (b) of this paragraph for the original application.
- (d) If an application is intended to comply with an amendment to the requirements that is effective after the filing of the application for a type certificate, he must also comply with any other amendment that the ECAA finds is directly related.

21.51 Changes requiring a new type certificate

Any person who proposes to change a product must make a new application for a type certificate if:

- (a) The ECAA finds that the proposed change in design configuration, engine power, engine limitations, engines speed limitations or weight is so extensive that a substantially complete investigation of compliance with the applicable requirement is required;
- (b) In the case of an aircraft, the proposed change is:
 - (1) In the number of engines or rotors; or
 - (2) The engines or rotors using different principles of propulsion or using different principles of operation.
- (c) In the case of an aircraft engine, the proposed change is in the principle of operation; or
- (d) In the case of propellers, the proposed change is in the number of blades or in the operation of propeller pitch control.

21.53 Compliance with applicable requirements

- (a) The applicant for a type certificate must show compliance with applicable requirements and must provide to the ECAA the means by which such compliance has been shown.
- (b) The applicant must declare that he has shown compliance with all applicable requirements.
- (c) Where the applicant holds an appropriate design organization approval, the declaration of subparagraph (b) of this paragraph must be made according to the provision of this Part.

21.55 Issue of a type certificate aircraft; aircraft engine and propellers

The ECAA issues a type certificate for an aircraft or an aircraft engine, or propeller if:

- (a) The applicant has obtained an appropriate design organization approval, or obtained the authority's agreement to an alternative procedure under item (c) (2) of this paragraph;

- (b) The applicant has submitted the declaration referred to in 21.53 (b);
- (c) It is shown in a manner acceptable to the ECAA that:
 - (1) The product to be certificated meets the applicable requirements designed in accordance with item 21.49;
 - (2) Any airworthiness provisions not complied with are compensated to be the factor that provide an equivalent level of safety;
 - (3) No feature or characteristic makes it unsafe for the uses for which certification is requested;
 - (4) The type certificate holder is able to comply with 21.65.

21.57 Type Design

- (a) The type design consists of:
 - (1) The drawings specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable requirements;
 - (2) Information on materials and processes and any methods of manufacture and assembly of the product necessary to ensure the conformity of the product;
 - (3) The airworthiness limitations section of the instruction for continued airworthiness as required by the appropriate requirement; and
 - (4) Any other data necessary to allow by comparison, the determination of the airworthiness of later products of the same type.
- (b) Each type design and each variant within the type design shall be adequately identified.

21.59 Inspection and tests

- (a) The applicant must allow the ECAA to make any inspection and any flight and ground test necessary to check the validity of the declaration of compliance submitted by the applicant under item 21.53 and to determine that no feature or characteristic makes the product unsafe to be used for the purpose certification is requested.
- (b) Furthermore, unless otherwise authorized by the ECAA:
 - (1) No aircraft, aircraft engine, propeller, or part thereof may be presented to the ECAA for test unless compliance with sub-paragraph (c)(2) of this paragraph is shown for that aircraft, aircraft engine propeller, or part thereof; and.
 - (2) No change may be made to an aircraft, aircraft engine, propeller, or part thereof between the time that compliance with sub-paragraph (c)(2) of this paragraph is shown for that aircraft, aircraft engine, propeller, or part thereof and the time that it is presented to the ECAA for test.
- (c) Before tests under sub-paragraph (a) of this paragraph are undertaken, each applicant must have made all inspections and ground and flight tests necessary to determine:
 - (1) That the design complies with the airworthiness requirements relevant to tests performed.
 - (2) For the test specimen:
 - (i) That materials and processes adequacy, conform to the specification in the type design;
 - (ii) That parts of the products adequately conform to the drawings in the type design; and
 - (iii) That the manufacturing processes, construction and assembly conform to those specified in the type design.
- (d) The applicant must submit a statement of conformity to the ECAA for each aircraft engine, propeller or part thereof presented to the ECAA for tests conforming that the aircraft, aircraft engine, propeller or part conforms to the

applicable design data. This statement of conformity must include a specific statement that the applicant has complied with sub-paragraph (b) and (c) of this paragraph.

21.61 Flight tests

(a) Flight testing for the purpose of obtaining a type certificate shall be conducted in accordance with conditions for such flight testing specified by the ECAA.

(b) Type applicant must make all flight tests that the ECAA finds necessary:

- (1) To determine compliance with the applicable certification requirements; and
- (2) For aircraft except gliders and except aircraft of "2730 kg" or less maximum certificated weight, to determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly.

(c) The flight test prescribed in sub-paragraph (b) of this paragraph must include:

- (1) For aircraft incorporating turbine engines of a type not previously used in a type certificated aircraft, at least "300 hours" of operation with a full complement of engines that conform to the type certificate; and
- (2) For all other aircraft, at least "150 hours" of operation.

21.63 Type certificate

The type certificate is considered to include the type design, the operating limitations, the type certificate data sheet, the applicable requirements of the ECAA and any other conditions or limitations prescribed for the product in the appropriate requirement.

21.65 Responsibilities

Each holder of a type certificate shall undertake the responsibilities in 21.67, 21.75, 21.79 and shall continue to meet the qualification requirements for eligibility under item 21.43.

21.67 Coordination with production

The type certificate holder shall collaborate with the production organization as necessary to ensure:

- (a) The satisfactory coordination of design and production is required; and
- (b) The proper support of the continuing airworthiness of the product.

21.69 Transferability

Transfer of a type certificate may only be made to an organization which is able to undertake the responsibilities in item 21.65, and for this purpose and has demonstrated its ability to qualify under the criteria of item 21.55(b).

21.71 Availability

The holder of type certificate shall make the certificate available, on request to the ECAA.

21.73 Duration

A type certificate is effective until surrendered, suspended, revoked, or passed the termination date or as otherwise established by ECAA.

21.75 Recordkeeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type certificate holder at the disposal of the ECAA and shall be retained in order to provide the information necessary to ensure the continuous airworthiness of the product.

21.77 Manuals

The type certificate holder for an aircraft, aircraft engine, or propeller shall produce maintain and update master copies of all manuals required for the product, and provide copies, on request, to the ECAA.

21.79 Instructions for continued airworthiness

(a) The holder of type certificate for a product, shall furnish at least one set of complete instructions for continued airworthiness, comprising descriptive data and instructions prepared in accordance with the applicable requirements, to each known owner of one or more aircraft or aircraft incorporating the product, upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs first.

(b) In addition, changes to the instruction for continued airworthiness shall be furnished to ECAA, and all known operators of the product.

Environmental Protection

36.1 Applicability

This Part is applicable to all civil aircraft registered in Arab Republic of Egypt.

36.3 Provisions

The provisions of this Part are as stated in Annex 16 to the Convention of International Civil Aviation, as amended.

36.5 Compliance

- (a) Each aircraft operator shall submit to the ECAA a statement defining methods of compliance with Annex 16 and a schedule of future compliance dates.
- (b) The chairman may issue deviations to the mandatory compliance dates based on a review of the methods and schedule of compliance provided in (a) above.

36.7 Aircraft Noise certification

- (a) Each aircraft registered in Egypt must have a noise certificate granted or valid by the ECAA to prove that the aircraft complies with Annex 16 requirements.
- (b) The document attesting the noise certification may be a separate noise certificate or a suitable statement in another document approved by the ECAA and required by that authority to be carried in the aircraft.
- (c) The certificate shall provide at least the following information:
 - (1) Nationality and registration marks;
 - (2) Aircraft serial number;
 - (3) Statement of additional modifications incorporated for the purpose of compliance with the applicable noise certification standards; and
 - (4) The maximum mass at which compliance with the applicable standards has been demonstrated.

SUBPART B **The Mandatory Occurrence Reporting System**

The mandatory occurrence reporting system is the feed back, which provides a most efficient database for effective decisions on matters of reliability and airworthiness. This system is established to support the ECAA in its mandate to foster an acceptable level of safety. The report should be submitted on the attached form within 72 hours if any of the following occurrences happen:

- (a) Fires during flight and related fire warning system is operating properly;
- (b) Fires during flight not protected by a related fire warning system;
- (c) Primary structural failure;
- (d) Engine structural failure;
- (e) Control system failure;
- (f) False fire warning during flight;
- (g) An engine exhaust system that causes damage during flight to the engine, adjacent structure, equipment or components;
- (h) An aircraft component that causes accumulation or circulation of smoke, vapor, toxic or noxious fumes in the crew compartment or passenger cabin during flight;
- (i) Engine shutdown during flight due to flame out;
- (j) Engine shutdown during flight when external damage to the engine or aircraft structure occurs;
- (k) Engine shutdown during flight due to foreign object ingestion or icing;
- (l) Shutdown during flight of more than one engine;
- (m) Failure in propeller feathering system or ability of the system to control overspeed during flight;
- (n) Fuel or fuel dumping system that affects fuel flow or causes hazardous leakage during flight;
- (o) Abnormal landing gear extension or retraction, or unprogrammed opening or closing of landing gear doors during flight;
- (p) Brake system components that result in loss of brake actuating force when the aircraft is in motion on the ground;
- (q) Aircraft structure that requires major repair;
- (r) Cracks, permanent deterioration or corrosion of aircraft structure, if more than the maximum acceptable to the manufacturer or to the ECAA;
- (s) Aircraft components or systems that result in taking emergency actions during flight.
- (t) Each interruption to a flight, unscheduled change of aircraft en route, unscheduled stop or diversion from a route caused by known or suspected mechanical difficulties or malfunctions;
- (u) Engine(s) removed prematurely because of malfunction, failure or defect;
- (v) Propeller feathering in flight;
- (w) Damage which necessitates repair before further flight;
- (x) The use of any non-standard procedure by the crew to deal with an emergency;
- (y) Any part of the aircraft becoming detached in flight;
- (z) Injury to a passenger as a result of turbulence, the scalding of a number of a cabin staff as a result of faulty design, inadequate servicing or incorrect handling of galley equipment;
- (aa) The declaration of an emergency situation;
- (bb) Precautionary, forced, emergency or heavy landing;
- (cc) An emergency evacuation of the aircraft;
- (dd) Inability to relight or restart a serviceable engine;
- (ee) Significant leakage of fuel, hydraulic fluid or oil;

- (ff) Pressurization system malfunction necessitating a change in flight plan, or the use of emergency or standby oxygen system;
- (gg) Failure or malfunction of radio or navigational equipment beyond what is allowable in the MEL;
- (hh) A complete loss of more than one electrical power generating or hydraulic power system during a given operation of the aircraft;
- (ii) A malfunction of emergency equipment;
- (jj) Defects causing any abnormal vibration or buffeting;
- (kk) Engine surging sufficient to cause loss of power or to require subsequent remedial action;
- (ll) Abandoned take off, over-running the ends, sides of the run way or go-around;
- (mm) Occurrence of stall warning;
- (nn) Poor height keeping while operating through RVSM airspace which displays:
 - (1) Total vertical error equal to or greater than 300ft (90m);
 - (2) Altimeter system error equal to or greater than 245 ft (75 m); and
 - (3) Assigned altitude deviation equal to or greater than 300 ft (90 m).
- (oo) Incorrect fuel or cargo loading which endanger the aircraft in flight;
- (pp) Use of incorrect oil, hydraulic fluid or other essential fluids;
- (qq) Balloon envelope tear in flight;
- (rr) On a multi-engined rotorcraft, loss of drive of one engine;
- (ss) Operation of any rotorcraft transmission condition-warning system;
- (tt) Malfunction of any rotorcraft auto stabilization mode; and
- (uu) Any other failure, malfunction or defect that may endanger the safe operation of the aircraft.

Note 1: Significant occurrences (marked with asterisk) should be immediately notified to the ECAA by telephone or telex. The information contained in the telephone/telex report should be entered in the normal occurrence report form and submitted to the ECAA as soon as possible after the telephone/telex report.

Note 2: Refer to the form on the next page for mandatory occurrence reporting system.

OCCURRENCE REPORT

To be sent to : ECASA
FLIGHT SAFETY STANDARDS SECTOR
Egyptian Civil Aviation building, CAIRO AIRPORT Road, A.R.E.

Complete all sections where information is relevant
For multi-choice boxes, indicate which entry is appropriate

Date Received by ECASA	ECASA Occurrence No.
------------------------	----------------------

Aircraft Type and Series				Registration		Operator		Date of Occurrence		Flight Phase		Nature of flight	
FLIGHT AND WEATHER DETAILS										PARKED	SCHED PAX		
Flight No.	DAY NIGHT TWILIGHT	WIND	Runway	Precipitation		Icing		Turbulence		TAXYING	NON-SCHED PAX		
From	To	IAS Kts	Used State	RAIN	LIGHT	LIGHT	LIGHT	INIT CLIMB	NON-SCHED FREIGHT		TAKE-OFF	SCHED FREIGHT	
To	TIME GMT	Height Ft	WET	SNOW	MOD	MOD	MOD	CLIMB	SURVEY		DESCENT	AGRICULTURAL	
Geog. Position	VISIBILITY	O.A.T. ° C	ICE SNOW SLUSH	Cloud Type Height / Ft Amount / 8ths		HEAVY	HEAVY	CRUISE	PLEASURE		HOLDING	BUSINESS	
			DRY	SLEET	HEAVY	SEVERE	EXTREME	APPROACH	CLUB / GROUP		LANDING	PRIVATE	
								CIRCUIT	POSITIONING		AEROBATICS	FERRY	
								HOVER	TEST			TRAINING	

DESCRIPTION

ENGINEERING DETAILS		Constructor No	Engine Type & Series	Ground phase	Maintenance <input type="checkbox"/>	Ground Handling <input type="checkbox"/>
					Unattended <input type="checkbox"/>	Taxying <input type="checkbox"/>
Component / Part	Location on aircraft	Manual Reference	Overhaul / Repair Agency	Maintenance Program	Manufacturer advised	
				OC	CM	HT
Manufacturer	Part No.	Serial No.	Hours / Cycle / Landings	Total	Since	Overhaul/ Repair/ Inspection

Any published Airworthiness information relevant to occurrence (e.g. Mod / Insp. / Repair) plus compliance status of aircraft or equipment

Organization		Address and Tel. No.	
Position			
Reference No.	Date	Name	Signature

Issue Service Difficulty Report (SDR) for those item which will be considered incomplete or left open for corrective action.

APPENDIX A

Preventive Maintenance

43.aa.1 Preventive maintenance is limited to the following maintenance work, provided it does not involve complex assembly operations

- (a) Removal, installation and repair of landing gear tires.
- (b) Replacing elastic shock absorber cords on landing gear.
- (c) Servicing landing gear shock struts by adding oil, air, or both.
- (d) Servicing landing gear wheel bearings, such as cleaning and greasing.
- (e) Replacing defective safety wiring or cotter keys.
- (f) Lubrication not requiring disassembly other than removal of nonstructural items such as cover plates, cowlings and fairings.
- (g) Making single fabric patches not requiring rib stitching or the removal of structural paste or control surfaces. In the case of balloons, the making of small fabric repairs to envelopes (as defined in, and in accordance with, the balloon manufacturers' instructions) not requiring load tape repair or replacement.
- (h) Replenishing hydraulic fluid in the hydraulic reservoir.
- (i) Refinishing decorative coating of fuselage, balloon baskets, wings, tail, ground surfaces (excluding balanced control surfaces) fairings, cowlings, landing gear, cabin or cockpit interior when removal or disassembly of any primary structure or operating system is not required.
- (j) Applying preservative or protective material to components where no disassembly of any primary structure or operating system is involved and where such coating is not prohibited or is not contrary to good practices.
- (k) Repairing upholstery and decorative furnishings of the cabin, cockpit, or balloon basket interior when the repairing does not require disassembly of any primary structure or operating system or interfere with an operating system or affect the primary structure of the aircraft.
- (l) Making small simple repairs to fairings, nonstructural cover plates, cowlings and small patches, and reinforcements not changing the contour so as to interfere with proper airflow.
- (m) Replacing side windows where that work does not interfere with the structure or any operating system such as controls, electrical equipment.
- (n) Replacing safety belts.
- (o) Replacing seats or seat parts with replacement parts approved for the aircraft, not involving disassembly of any primary structure or operating system.
- (p) Trouble shooting and repairing broken circuits and landing light wiring circuits.
- (q) Replacing bulbs, reflectors, and lenses of position and landing lights.
- (r) Replacing wheels and skis where no weight and balance computation is involved.
- (s) Replacing any cowling not requiring removal of the propeller or disconnection of flight controls.
- (t) Replacing or cleaning spark plugs and setting of spark plug gap clearance.
- (u) Replacing any hose connection except hydraulic connections.
- (v) Replacing prefabricated fuel lines.
- (w) Cleaning or replacing fuel and oil strainers or filter elements.
- (x) Replacing and servicing batteries.
- (y) Cleaning of balloon burner pilot and main nozzles in accordance with the balloon manufacturer's instructions.
- (z) Replacement or adjustment of nonstructural standard fasteners incidental to operations.

(aa) The interchange of balloon baskets and burners on envelopes when the basket or burner is designated as interchangeable in the balloon type certificate data and the basket and burners are specifically designed for quick removal and installation.

(bb) The installation of anti-misfueling devices to reduce the diameter of fuel tank filler openings provided the specific device has been made a part of the aircraft type certificate data by the aircraft manufacturer, and he has provided approved instructions for the installation of the device, and installation does not involve the disassembly of the existing tank filler opening.

(cc) Removing, checking, and replacing magnetic chip detectors.

(dd) The inspection and maintenance tasks prescribed and specifically identified as preventive maintenance in an aircraft type certificate or supplemental type certificate holder's approved special inspection and preventive maintenance program when accomplished on an aircraft provided:

(1) They are performed by a holder of an appropriate license or approved maintenance organization authorization; and

(2) The inspection and maintenance tasks are performed in accordance with instructions contained by the special inspections and preventive maintenance program approved as part of the aircraft's type design or supplemental type design.

APPENDIX B

Major Repairs and Major Modifications or Alterations

43.ab.1 Definition of major repairs modifications and alterations

(a) Major repair: Means a repair:

(1) That, if improperly done, might appreciably affect weight, balance, structural strength, performance, powerplant, operation, flight characteristics, or other qualities affecting airworthiness; or

(2) That is not done according to accepted practices or can not be done by elementary operation but following special practices and operation instructions approved by the manufacturer.

(b) Minor repair: Means a repair other than a major repair.

(c) Major modification or alteration: Means an alteration or modification approved by the manufacturer, but not listed in the aircraft, aircraft engine, or propeller specifications:

(1) That might appreciably affect weight, balance, structural strength, performance, power plant operation, flight characteristics, or other qualities affecting airworthiness; or

(2) That is not done according to accepted practices or cannot be done by elementary operations.

(d) Minor modification or alteration: Means an alteration or modification other than a major alteration or modification.

43.ab.3 Airframe major repairs

Repairs to the following parts of an airframe and repairs of the following types, involving the strengthening, reinforcing splicing, and manufacturing of primary structural members or their replacement, when replacement is by fabrication such as riveting or welding, are airframe major repairs:

(a) Box beams;

(b) Monocoque or semimonocoque wings or control surfaces;

(c) Wings stringers or chord members;

(d) Spars;

(e) Spar flanges;

(f) Members of truss-type beams;

(g) Thin sheet webs or beams;

(h) Keel and chine members of boat hulls or floats;

(i) Corrugated sheet compression members which act as flange material of wings or tail surface;

(j) Wing main ribs and compression members;

(k) Wing or tail surface brace struts;

(l) Engine mounts;

(m) Fuselage longerons;

(n) Members of the side truss, horizontal truss, or bulkheads;

(o) Main seat support braces and brackets;

(p) Landing gear brace struts;

(q) Axles;

(r) Wheels;

(s) Skies, and ski pedestals;

(t) Parts of the control system such as control columns, pedals, shafts, brackets, or horns;

(u) Repairs involving the substitution of material;

(v) The repair of damaged areas in metal or plywood stressed covering exceeding six inches in any direction;

(w) The repair of portion of skin sheets by making additional seam;

- (x) The splicing of skin sheets;
- (y) The repair of three or more adjacent wing or control surface ribs or the leading edge of wings and control surfaces, between such adjacent ribs;
- (z) Repair of fabric covering involving an area greater than that required to repair two adjacent ribs;
- (aa) Replacement of fabric on fabric covering parts such as wings, fuselages, stabilizers, and control surfaces; and
- (bb) Repairing, including rebottling of removable or integral fuel tanks and oil tanks.

43.ab.5 Powerplant major repairs

The following parts of an engine and repairs of the following types, are power plant major repairs:

- (a) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with an integral supercharger;
- (b) Separation or disassembly of a crankshaft of a reciprocating engine equipped with other than spur-type propeller reduction gearing; and
- (c) Special repairs to structural engine parts by welding, plating, metalizing, or other methods.

43.ab.7 Propeller major repairs

The following types to a propeller are propeller major repairs:

- (a) Any repairs to, or straightening of steel blades;
- (b) Repairing or machining of steel hubs;
- (c) Shortening of blades;
- (d) Retipping of wood propellers;
- (e) Replacement of outer laminations on fixed pitch wood propellers;
- (f) Repairing elongated bolt-holes in the hub of fixed pitch wood propellers;
- (g) Inlay work on wood blades;
- (h) Repairs to composition blades;
- (i) Replacement of tip fabric;
- (j) Replacement of plastic covering;
- (k) Repair of propeller governors;
- (l) Overhaul of controllable pitch propellers;
- (m) Repairs to deep dents, cuts, scars, nicks, etc., and straightening of aluminum blades; and
- (n) The repair or replacement of internal elements of blades.

43.ab.9 Appliances major repairs

The following types to appliances are appliance major repairs:

- (a) Calibration and repair of instruments;
- (b) Calibration of radio equipment;
- (c) Rewinding the field coil of an electrical accessory;
- (d) Complete disassembly of complex hydraulic power valves; and
- (e) Overhaul of pressure type carburetors, and pressure type fuel, oil and hydraulic pumps.

43.ab.11 Air frame major modifications or alterations

Modifications or alterations of the following parts and of the following types, when not listed in the aircraft specifications issued by the manufacturer, are airframe major alterations, and should be approved from the ECAA before applying them on an aircraft:

- (a) Wings;
- (b) Tail surfaces;
- (c) Fuselage;

- (d) Engine mounts;
- (e) Control system;
- (f) Landing gear;
- (g) Hull or floats;
- (h) Elements of an airframe including spars, ribs, fittings, shock absorbers, bracing, cowling, fairing, and balance weights;
- (i) Hydraulic and electrical actuating system of components;
- (j) Rotor blades;
- (k) Changes to the empty weight or empty balance which result in an increase in the maximum certificated weight or center of gravity limits of the aircraft;
- (l) Changes to the basic design of the fuel, oil, cooling, heating, cabin pressurization, electrical, hydraulic, de-icing, or exhaust systems; and
- (m) Changes to the wing or to fixed or movable control surfaces which affect flutter and vibration characteristics.

43.ab.13 Powerplant major alterations

The following alterations of a powerplant when not listed in the engine specifications issued by the manufacturer, are powerplant major alterations, and shall be approved from the ECAA before applying them on an aircraft powerplant:

- (a) Conversion of an aircraft engine from one approved model to another, involving any changes in compression ratio, propeller reduction gear, impeller gear ratios of the substitution of major engine parts which requires extensive rework and testing of the engine;
- (b) Changes to the engine by replacing aircraft engine structural parts with parts not supplied by the original manufacturer or parts;
- (c) Installation of an accessory which is not approved for the engine;
- (d) Removal of accessories that are listed as required equipment on the aircraft or engine specification;
- (e) Installation of structural parts other than the type of parts approved for the installation; and
- (f) Conversions of any sort for the purpose of using fuel of a rating or grade other than that listed in the engine specifications.

43.ab.15 Propeller major alterations

The following alterations of a propeller when not authorized in the propeller specifications issued by the manufacturer are propeller major alterations and should be approved from the ECAA before applying them on an aircraft propeller:

- (a) Changes in blade design;
- (b) Changes in hub design;
- (c) Changes in the governor or control design;
- (d) Installation of propeller governor or feathering system;
- (e) Installation of propeller de-icing system; and
- (f) Installation of parts not approved for the propeller.

43.ab.17 Appliance major alterations

Alterations of the basic design not made in accordance with recommendations of the appliance manufacturer or an ECAA airworthiness directive are appliance major alterations, and should be approved from the ECAA before applying it on any aircraft appliances. In addition, changes in the basic design of radio communication and navigation equipment approved under type certification or a technical standard order that have an effect on frequency stability, noise level, sensitivity, selectivity, distortion, spurious radiation, AVC characteristics, or ability to meet environmental test conditions and other changes that have an effect on the performance of the equipment are also major alterations.

43.ab.19 Recording of major repairs and alterations

- (a) Each person performing a major repair or, major alteration shall:
- (1) Execute the required ECAA form in duplicate;
 - (2) Give a signed copy to the aircraft owner; and
 - (3) Forward a copy of that form to the ECAA within 72 hours after the aircraft, airframe, engine, propeller, or appliance is approved for release to service.
- (b) For major repairs made in accordance with a manual or specifications acceptable to the ECAA, an approved maintenance organization or a repair station may, in place of the requirements of paragraph (a):
- (1) Use the customer's work order upon which the repair is recorded;
 - (2) Give the aircraft owner a signed copy of the work order and retain a duplicate copy for at least two years from the date of approval for release to service of the aircraft, airframe, aircraft engine, propeller, or appliance; and
 - (3) Give the aircraft owner a maintenance release signed by an authorized representative of the maintenance organization or the repair station and incorporating the following information:
 - (i) Identify of the aircraft, airframe, aircraft engine, propeller or appliance;
 - (ii) If an aircraft, the make, model, serial number, nationality and registration marks, and location of the repaired area; and
 - (iii) If an airframe, aircraft engine, propeller, or appliance, give the manufacturer's name, name of the part, model, and serial numbers (if any); and
 - (4) Include the following or a similarly worded statement:

"The aircraft airframe, aircraft engine, propellers or appliance identified above was repaired and inspected in accordance with current regulations of the ECAA, and is approved for release to service.

Pertinent details of the repair are on file at this approved maintenance organization or repair station under order No _____

Date _____

Signed _____

(For signature of authorized representative)

(Repair station name) _____ (Certification No.) _____

(Address) _____ "

43.ab.21 Extended-range fuel tanks

For extended-range fuel tanks installed within the passenger compartment or a baggage compartment, the person who performs the work shall execute an ECAA form for major repair or major alteration in at least triplicate. One copy of that form shall be placed on board the aircraft as specified in Part 91. The remaining copies shall be distributed as required by paragraph 43.ab.19.

PART 45

Nationality and Registration

45.1 Nationality and registration marks: General

- (a) Except as provided in 45.3 no person may operate an Egyptian Registered aircraft unless that aircraft displays nationality and registration marks in accordance with the requirements of 45.5 through 45.13.
- (b) Unless otherwise authorized by the ECAA, no person may place on any aircraft a design, mark, or symbol that modifies or confuses the nationality and registration marks.
- (c) Aircraft nationality and registration marks must:
- (1) Except as provided in paragraph (4) of this section, be painted on the aircraft or affixed by any other means insuring a similar degree of permanence;
 - (2) Have no ornamentation;
 - (3) Contrast in color with the background; and
 - (4) Be legible.
- (d) Aircraft nationality and registration marks may be affixed to an aircraft with readily removable material if :
- (1) It is intended for immediate delivery to a foreign purchaser; or
 - (2) It is bearing a temporary registration mark.

45.3 Exhibition or other aircraft special rules

- (a) When display of aircraft nationality and registration marks in accordance with sections 45.1 and 45.3 through 45.13 would be inconsistent with exhibition of that aircraft, an Egyptian registered aircraft may be operated without displaying those marks anywhere on the aircraft if:
- (1) It is operated for the purpose of exhibition, including a motion picture or television production, or an air-show;
 - (2) Except for practice and test flights necessary for exhibition purposes, it is operated only at the location of the exhibition, between the exhibition locations, and between those locations and the base of operations of the aircraft; and
 - (3) For each flight in Egypt:
 - (i) It is operated with prior approval of ECAA in the case of a flight within the designated airport control zone of the takeoff airport, or within 5 miles of that airport if it has no designated control zone; and
 - (ii) It is operated under the flight plan filed for type of flight condition describing the marks it displays.
- (b) No person may operate an aircraft under (a) of this section:
- (1) In a foreign country unless that country consents to that operation; or
 - (2) In any operation conducted under Part 121.
- (c) If, due to the configuration of an aircraft, it is impossible for a person to mark it in accordance with sections 45.1 and 45.5 through 45.13, he may apply to the ECAA for a different marking procedure.

45.5 Display of marks: General

- (a) Each operator of an aircraft shall display on that aircraft marks consisting of the Roman capital letters "S" followed by "U" (denoting The Egyptian registration) followed by a dash and the registration letters assigned to that aircraft. Each suffix letter used in the marks displayed must also be a Roman capital letter.
- (b) When marks that include only the Roman capital letters SU and the registration letters are displayed on restricted category or experimental certificated aircraft, the operators shall also display on that aircraft near each entrance to the cabin or cockpit, in letters not less than 2 inches nor more than 6 inches in height the words "restricted" or "experimental" as the case may be .

45.7 Location of marks: Fixed wing aircraft

- (a) The operator of a fixed wing aircraft shall display the required marks on both the vertical tail surfaces and the sides of the fuselage.
- (b) The marks required by paragraph (a) of this section shall be displayed as follows:
- (1) Displayed on the vertical stabilizer surfaces, horizontally on both surfaces of a single vertical tail or on the outer surfaces of a multi- vertical tail; and
 - (2) Displayed on the fuselage surfaces , horizontally on both sides of the fuselage between the trailing edge of the wing and the leading edge of the horizontal stabilizer.

45.9 Location of marks: Nonfixed wing aircraft

- (a) Rotorcraft: Each operator of rotorcraft shall display on that rotorcraft horizontally on both surfaces of a cabin, fuselage, boom, or tail, the marks required by 45.5 of this Part.
- (b) Airships: Each operator of an airship shall display on that airship the marks required by section 45.5, horizontally on:
- (i) The upper surface of the right horizontal stabilizer and on the under surface on the left horizontal stabilizer, with the top of the marks toward the leading edge of each stabilizer: and
 - (ii) Each side of the bottom half of the vertical stabilizer.
- (c) Spherical balloons: Each operator of a spherical balloon shall display the marks required by 45.5 in two places diametrically opposite and near the maximum horizontal circumference of that balloon.
- (d) Non-spherical balloons: Each operator of a nonspherical balloon shall display the marks required by 45.5 on each side of the balloon near its maximum cross section and immediately above either the rigging band or the points of attachment of the basket or cabin suspension cables.

45.11 Size of marks

- (a) Each operator of an aircraft shall display marks on that aircraft meeting the size requirements of this section, except as provided in paragraph (f) of this section;
- (b) Height: The character marks must be of equal height and on:
- (1) Fixed wing aircraft must at least 12 inches high, except that:
 - (i) Marks at least 3 inches high may be displayed on a glider;
 - (ii) Marks at least 3 inches high may be displayed on an aircraft for which an experimental certificate has been issued under Part 45.3 operating as an exhibition aircraft; and
 - (iii) Marks may be displayed on an exhibition or other aircraft in accordance with Part 45.3 and 45.5.
 - (2) Airships, spherical balloons, and nonspherical balloons, must be at least 3 inches high; and
 - (3) Rotorcraft , must be at least 12 inches high.
- (c) Width: Characters must be two-thirds as wide as they are high, except the letter “M” and “W” which may be as wide as they are high.
- (d) Thickness: Characters must be formed by solid lines one-sixth as thick as the character is high.
- (e) Spacing: Characters must be spaced apart two thirds of their height, except the letter “M” and “W” which may be as wide as they are high.
- (f) If either one of the surfaces authorized for displaying required marks under section 45.7 is large enough for display of marks meeting the size requirements of this section and the other is not, then the full sized marks shall be placed on the larger surface. If neither surface is large enough for full size marks those as large as practicable shall be displayed on the larger of the two surfaces. If any surface authorized to be marked by 45.9 is not large enough for full sized marks, then marks as large as practicable shall be placed on the largest of those authorized to be marked by 45.9.

(g) Uniformity: The marks required by this Part for fixed wing aircraft must have the same height, width, thickness, and spacing on both sides of the aircraft.

45.13 Sale of aircraft: Removal of marks

(a) When an aircraft that is registered in The Arab Republic of Egypt is sold, the holder of the certificate or aircraft registration shall remove, before delivery to the purchaser, all Egyptian marks from the aircraft, unless the purchaser is a citizen of The Arab Republic of Egypt.

SUBPART A

General

65.1 Applicability

This Part prescribes the requirements for issuing the following certificates and associated ratings and the general operating rules for the holders of those certificates and ratings:

- (a) General rules for issuance and renewal of type rated licenses and adding types under this Part
- (b) Rules for issue and renewal of an aircraft maintenance license without type rating
- (c) Rules for issue and renewal of an aircraft maintenance type rated license
- (d) Welder and welding operator privileges
- (e) Evaluation of: maintenance licenses with appropriate category of license without type rating (LWTR), authorizations or qualifications of Egyptian and foreign airmen other than flight crewmembers, and validation of foreign certificates and/or licenses
- (f) Applications for maintenance licenses and/or ratings issue, addition or renewal, and examinations' rules.
- (g) Air traffic controllers
- (h) Aircraft dispatchers

65.3 Certification of foreign airmen other than flight crewmembers

A person who is not an Egyptian citizen is issued a license under subpart E of this Part only when the ECAA finds that the license is needed for the operation or continued airworthiness of an Egyptian registered civil aircraft.

65.5 - 65.11 [Reserved]

65.12 Offenses involving alcohol or drugs

(a) A conviction for the violation of any Egyptian Law, Rule or Regulation relating to the growing, processing, manufacture, sale, disposition, possession, transportation, or importation of narcotic drugs, marihuana, or depressant or stimulant drugs or substances is grounds for:

- (1) Denial of an application for any certificate or rating issued under this Part for a period of up to 1 year after the date of final conviction; or
 - (2) Suspension or revocation of any certificate or rating issued under this Part.
- (b) The commission of an act prohibited by Part 91.19(a) is grounds for:
- (1) Denial of an application for a certificate or rating issued under this Part for a period of up to 1 year after the date of that act; or
 - (2) Suspension or revocation of any certificate or rating issued under this Part.

65.13 Temporary certificate

A certificate and ratings effective for a period of not more than 180 days may be issued to a qualified applicant, pending review of his application and supplementary documents and the issue of the certificate and ratings for which he applied.

65.15 Duration of licenses and certificates

- (a) A license or rating issued under this Part is effective for one year unless it is sooner surrendered, suspended, or revoked.
- (b) The holder of a certificate issued under this Part that is suspended, revoked, or no longer effective shall return it to the ECAA.

65.17 - 65.19 [Reserved]

65.21 Falsification, reproduction, or alteration of applications, certificates, logbooks, reports, and/or records

- (a) No person may make or cause to be made:
- (1) Any fraudulent or intentionally false statement on any application for a certificate or rating under this Part;
 - (2) Any fraudulent or intentionally false entry in any logbook, record, or report that is required to be kept, made, or used, to show compliance with any requirement for any certificate or rating under this Part;
 - (3) Any reproduction, for fraudulent purpose, of any certificate or rating under this Part; or
 - (4) Any alteration of any certificate or rating under this Part.
- (b) The commission by any person of an act prohibited under paragraph (a) of this section is a basis for suspending or revoking any airman or ground instructor certificate or rating held by that person.

65.23 Change of address

Within 30 days after any change in his permanent mailing address, the holder of a certificate issued under this Part shall notify the ECAA of his new address.

65.25 Refusal to submit to a drug or alcohol test

- (a) General. This section applies to an employee who performs a maintenance, dispatch or air traffic control function for a Part 121 certificate holder, a Part 145 certificate holder, Part 137 certificate holder, or an air traffic control facility not operated by the Egyptian military.
- (b) Refusal by the holder of a certificate issued under this Part to take a drug test or an alcohol test is grounds for:
- (1) Denial of an application for any license or rating issued under this Part for a period of up to 1 year after the date of such refusal; and
 - (2) Suspension or revocation of any license or rating issued under this Part.

SUBPART B

Rules for issue and renewal of an aircraft maintenance engineer license without type rating

65.31 General

This license does not in itself confer responsibilities or privileges, it is however a prerequisite for the grant of the relevant type ratings by approved maintenance organizations which confer the privileges of certification appropriate to that type rating.

65.33 Age and knowledge requirements

To be eligible for the grant of the license without type rating (LWTR) the applicant shall:

- (a) Be not less than 20 years of age;
- (b) Be a holder of:
 - (1) A certificate of general secondary education or equivalent and be a holder of certificates of completion of aircraft maintenance engineers (airframe, engine or avionics) from a training institute approved by the ECAA; or
 - (2) A B.Sc. degree from an Egyptian university or equivalent in any of the following fields:
 - (i) Aeronautical, Mech. or Elec. engineering;
 - (ii) Chemical or metallurgical engineering; or
 - (iii) Science Major (chemistry or metallurgy);
 and
 - (iv) Have completed the appropriate approved training basic courses for the speciality. Standards of training for each LWTR speciality are specified in the Egyptian Civil Aviation Training Standards Handbook (ECATSH)
 - (3) Have completed an appropriate approved training in human performance limitations

65.35 Categories of LWTR

CATEGORY	DESCRIPTION
A and C	For unpressurized airplanes less than 5700 Kg with piston engines.
A	For pressurized airplanes exceeding 5700 Kg.
C	For turbine engines.
A and C	For helicopters.
Multi X	For airplanes less than 5700 Kg or helicopters.
X- Electric	For airplanes exceeding 5700 Kg.
X- Avionics	For airplanes exceeding 5700 Kg.
E	For engine shop maintenance.
G	For aircraft electrical components shop maintenance.
M	For metallurgical and chemical shop maintenance.
N	<u>For non destructive inspections.</u>
S	For structure repairs.
U	For aircraft mechanical units shop maintenance.
V	For aircraft avionics components shop maintenance.

65.37 Experience requirements

- (a) To issue a LWTR for airplanes less than 5700 kg and helicopters the applicant shall have at least 6 months recent experience in the appropriate field of maintenance of small airplanes.
- (b) The engineering experience required to issue a LWTR for aircraft exceeding 5700 kg must be not less than 5 calendar years, in addition to at least 18 months recent experience in aircraft maintenance including the required basic courses related to the category applied for.

(c) The practical experience sheets shall contain information regarding the nature of experience, the periods during which the experience has been gained and the signatures required in confirmation.

Note: Practical experience sheets from foreign aviation companies and/or maintenance organizations may be accepted.

65.39 Privileges of LWTR

(a) This license does not grant his/her holder any aircraft maintenance certifying privileges, however it allows the approved maintenance organizations to provide this license holders the appropriate theoretical and practical training required for the corresponding type rating approvals. The LWTR holder may also be allowed to perform the appropriate tasks of a technician at an approved maintenance organization under the supervision of appropriately type rated personnel.

(b) Only the A,C and X LWTR holders are allowed, after being appropriately trained and approved on the type in their category by approved maintenance organizations, to:

(1) Certify the aircraft or parts of the aircraft, as airworthy after line or base maintenance limited to their speciality; or

(2) Issue aircraft maintenance release for the aircraft in its entirety following inspection, maintenance operations and/or routine servicing if adequately trained and authorized by their approved maintenance organizations.

(c) All other LWTR holders are allowed, after being appropriately trained and approved on the type by approved maintenance organizations to certify as airworthy the maintenance work performed on the particular aircraft unit, component and/or system corresponding to their speciality.

(d) An approved maintenance organization cannot issue a type approval for any category of LWTR holder before accomplishing at least 18 months of recent specialized experience related to the category (9 months of which must be accomplished after successfully achieving the approved specific training course) and demonstrating the candidates skills by approved examinations.

(e) An approved maintenance organization cannot issue, for its (A, C, or X) maintenance personnel approved on the type, an authorization to issue a maintenance release for the aircraft in its entirety (following inspection, specific maintenance tasks and/or routine servicing), before accomplishing at least 9 months of recent experience after successfully achieving the approved specialized training course, that provides the necessary knowledge and skills of the other respective license categories, and demonstrating the candidates' skills by approved examinations.

(f) An approved maintenance organization cannot add another type (rating or authorization) on the approval for any category of LWTR holder before accomplishing at least 6 months of recent specialized experience related to the category after successfully achieving the approved specific training course and demonstrating the candidates skills by approved examinations.

SUBPART C

Rules for Issue and Renewal of an Aircraft Maintenance Type Rated License

65.41 [Reserved]

65.43 Privileges of the different rating of aircraft maintenance licenses

- (a) General: The holders of Egyptian aircraft maintenance licenses ratings' privileges:
- (1) Are limited to some minor line maintenance work that could be conducted on any privately operated aircraft; and
 - (2) Could be achieved without any workshops facilities, provided they possess the proper tools, equipment, spare parts and materials necessary to perform the work according to the aircraft approved maintenance standards.
- (b) A rating in category "A" entitles the holder to certify aircraft (excluding engines) of the types included in the Rating, in respect of:
- (1) Performing approved line maintenance inspections, for quickly accessible aircraft parts and servicing;
 - (2) Trouble shooting; and
 - (3) Replacement of approved component and parts.
- (c) A rating in category "C" entitles the holder to certify engines of the types included in the rating in respect of:
- (1) Performing approved line maintenance inspections, for quickly accessible engine parts and servicing;
 - (2) Trouble shooting; and
 - (3) Replacement of approved engine component and parts, where the work has not involved dismantling as: to gain access to pistons , cylinders and valve operating gears.
- (d) A rating in category "X" entitles the holder to certify instruments, avionics, radio and electric accessories of the types included in the rating, in respect of:
- (1) Performing approved line maintenance inspections, for quickly accessible electric or avionics parts and servicing;
 - (2) Replacements to, and installation of:
 - (i) Aircraft instruments and engine instruments;
 - (ii) Electrical equipment; and
 - (iii) Avionics and radio components.
 - (3) Trouble shooting.

65.45 General requirements

The applicant must be a holder of the appropriate category of LWTR.

65.47 Knowledge requirements

- (a) The applicant shall submit a certificate issued from an approved training center attesting that he successfully passed an approved specific training course on the required type with an attendance of at least 75% provided that the period following the accomplishment of the specific training does not exceed 3 years for maintenance courses and four years for overhaul courses.
- (b) For specific courses, the applicant has to attend an approved refreshing course for the necessary type once every two years.
- (c) All standards related to the training required for each category of license are given in the Egyptian Civil Aviation Training Standards Handbook [ECATSH].

65.49 Skill Requirements

- (a) The applicant shall succeed in the examinations prepared by the ECAA in accordance with the rules given in subpart F of this Part.

(b) All standards related to the examinations required for each category of license are given in the Egyptian Civil Aviation Examinations Standards Handbook [ECAESH].

65.51 [Reserved]

65.53 License experience requirements

- (a) Airplane maintenance licenses for airplanes with maximum certificated take off weight less than or equal to 5700 Kg:
- (1) Are issued for either: airframe and engine or combined instruments; and
 - (2) Require recent specific practical experience on the type required for issue or addition for a period not less than 6 month.
- (b) Helicopter maintenance licenses:
- (1) Are issued for either: airframe and engine or combined instruments; and
 - (2) Require recent specific practical experience on the type required for issue or addition for a period not less than 6 month.
- (c) Airplane maintenance licenses for airplanes with maximum certificated take off weight more than 5700 Kg:
- (1) Are issued for either category: "A" for airframes, "C" for engines, "X" electric or "X" avionics; and
 - (2) Require recent practical experience on the same category, counted from the date of successfully accomplishment of the specific training, of not less than:
 - (i) 9 months for the issue of a rating; and
 - (ii) 6 months for adding a rating.

65.55 Added privileges

- (a) The following privileges may be added to the license:
- (1) Issue fitness for flight to allow the issue of a certificate of airworthiness;
 - (2) Issue of maintenance release;
 - (3) Installation and compensation of compasses; and
 - (4) Replacements to, and installation of automatic pilots.
- (b) The privileges mentioned in (a) above can only be added after:
- (1) Satisfactorily receiving an appropriately approved specialized training for releasing the aircraft as a whole from line maintenance (that provides the necessary knowledge and skills of the other respective license categories);
 - (2) Achieving an additional practical experience of 9 months on releasing the aircraft type; and
 - (3) Demonstrating the candidates' skills by approved examinations.

SUBPART E

Evaluation of Maintenance Licenses

65.71 Evaluating aircraft maintenance type rated license

Holders of either a valid or invalid type rated aircraft maintenance license may obtain an aircraft maintenance license without type rating according to the following:

- (a) Those holding an aircraft maintenance license with type rating "A" and "C" airframe and engine for unpressurized airplanes less than 5700 Kg with piston engine may obtain an aircraft maintenance engineer's license without type rating category "A" and "C" for that category;
- (b) Those holding an aircraft maintenance license type rating "X" combined instruments for airplanes less than 5700 Kg or helicopters may obtain an aircraft maintenance license without type rating category "X" combined for the corresponding categories;

- (c) Those holding an aircraft maintenance engineer's license type rating "A" airframe for pressurized cabin types of aircraft exceeding 5700 kg may obtain an aircraft maintenance license without type rating category "A" for pressurized cabin aircraft exceeding 5700 kg;
- (d) Those holding an aircraft maintenance license type rating "C" for any turbine engine installed on any type of aircraft may obtain an aircraft maintenance engineer's license without type rating category "C" engine for turbine engines;
- (e) Those holding an aircraft maintenance engineer's license type rating "X" electric for any type of aircraft exceeding 5700 kg may obtain an aircraft maintenance engineer's license without type rating category "X" electric for aircraft exceeding 5700 kg;
- (f) Those holding an aircraft maintenance license type rating "X" instruments or autopilot or navigation or radio and for any type of aircraft exceeding 5700 kg may obtain an aircraft maintenance license without type rating category "X" avionics for aircraft exceeding 5700 kg;
- (g) Those holding an aircraft maintenance license type rate "A" and "C" for any type of helicopter may obtain an aircraft maintenance license without type rating category "A" and "C" helicopter;
- (h) Those holding an aircraft maintenance license type rated "X" combined instrument for any type of helicopter may obtain an aircraft maintenance license without type rating category "X" combined instruments for helicopter;
- (i) Those holding an aircraft maintenance license type rated "C" heavy maintenance or "D" engine overhaul of any group for any type of engines may obtain an aircraft maintenance license without type rating category "E";
- (j) Those holding an aircraft maintenance license type rated "A" structure repair for any type of aircraft may obtain an aircraft maintenance license without type rating category "S";
- (k) Those holding an aircraft maintenance license type rated "B" component overhaul for units overhaul of any group for any type of aircraft may obtain an aircraft maintenance license without type rating category "U";
- (l) Those holding an aircraft maintenance license type rated "X" electric or avionics component overhaul of any group for any type of aircraft may obtain an aircraft maintenance license without type rating category "G";
- (m) Those holding an aircraft maintenance license type rated "D" units overhaul of any group for chemical and metallurgical treatment any type of aircraft may obtain an aircraft maintenance license without type rating category "M"; and
- (n) Those holding an aircraft maintenance license with "NDT" privileges of any level may obtain an aircraft maintenance license without type rating category "N".

All approved maintenance organization must ensure , before issuing any approvals within their examination authority, that the nominated personnel fulfilled all requirements to obtain the intended approval after receiving all the appropriate: specific, practical training and experience necessary to issue the approvals.

65.73 Validity of maintenance type rated license

Holders of type rated maintenance licenses, not employed by any approved maintenance organization, may renew their license and ratings as long as they fulfil the recency of experience requirements of subpart F of this Part. However the privileges will be limited to the corresponding recent experience achieved.

65.75 Validation of foreign maintenance license

(a) General: It is not an obligation to ECAA to validate foreign licenses, it is rather a privilege extended by ECAA.

(1) Licenses of foreign personnel can be validated when maintaining newly purchased or leased types of Egyptian registered aircraft by an approved maintenance organization.

(2) Validations are of short duration not exceeding 6 months, and not extended beyond the period of currency of either the original license or, in the case of a “non-expiring” license, the competency checks required. After six months, the ECAA will consider either issuing an equivalent Egyptian license based on the foreign license or renew the validation certificate for a further period of six months after ensuring the maintenance of continuing competency. Each time, the continued currency of the foreign license will be checked with regard to recent experience requirements of the foreign issuing authority.

(3) Validated license privileges and limitations will not exceed beyond the original license privileges.

(4) The ECAA will exercise the same level of control over the foreign license holders as it does with its own nationals, and will ensure that safe levels of competency are being maintained.

(5) Validations are in the form of a certificate to be carried with the original license.

(b) Issue validation certificate for holders of foreign maintenance license:

To be eligible for the issuance, or renewal, of a validation certificate, an applicant must satisfactorily pass an examination on Egyptian Civil Aviation Law and appropriate regulations and any tests required by ECAA as necessary. In addition he must present the following to the ECAA:

(1) A current foreign maintenance license issued by the licensing authority of a foreign contracting state issued in conformance with ICAO Annex 1 minimum requirements. The certificate or license must authorize the applicant to perform the duties authorized by a certificate issued under this section on the aircraft type as the leased aircraft;

(2) An Egyptian work permit and security permit;

(3) A current certification by the AMO and/or lessee of the aircraft:

(i) Stating that the operator and/or lessee is employing the applicant; and

(ii) Specifying the aircraft type on which the applicant will perform his duties.

(4) Official documentation demonstrating that the applicant complies with all training and recency of experience requirements; and

(5) The applicant aviation background check, (containing information such as violations, incidents/accidents and enforcement actions in which he has been involved).

(c) Privileges: The holder of validated license may exercise the same privileges as those shown on the license specified in this section, subject to the limitations specified in this section.

(d) Each certificate issued under this section is valid only:

(1) While the corresponding foreign license required by this section is in the certificate holder's personal possession and is current;

(2) While the permits required by this section are valid; and while the certificate holder is employed by the AMO to whom the aircraft described in the certification required by this section is owned, operated and/or leased; and

(3) While the certificate holder is performing his duties on the registered civil aircraft described in the certification.

(e) Each validation certificate issued under this section contains at least the following:

(1) The name of the person to whom the registered civil aircraft are owned, operated and/or leased;

(2) The type of aircraft; and

(3) Any additional limitations placed on the certificate that the ECAA considers necessary.

(f) Termination: Each validation certificate issued under this section terminates:

- (1) When the type of aircraft endorsed on this validation certificate is removed from the AMO's operation specification;
 - (2) When the aircraft is removed from the Egyptian registry;
 - (3) When the permits required by paragraph (b)(2) of this section expire;
 - (4) When the foreign license or authorization documentation required is suspended, revoked, or no longer valid; or
 - (5) After 6 months from the date the certificate was issued.
- (g) Renewal: The certificate holder may have the certificate renewed by complying with the requirements of this section at the time of application for renewal.

65.77 Issue of a maintenance license based on foreign license and acceptance of military maintenance qualifications

Foreign licenses and military maintenance qualifications may be accepted if comparable to the ECAA training and examination standards for any license category and or rating as long as the recency of experience requirements are fulfilled. However, the candidate must satisfactorily pass an examination on Egyptian Civil Aviation law and appropriate regulations and any tests required by ECAA as necessary.

SUBPART F

Applications for Licenses and/or Ratings Issue, Addition or Renewal, And Examinations' Rules

65.81 Application and issue

- (a) Application for a license/certificate and appropriate rating, or for an additional rating, under this Part must be made on a form and in a manner prescribed by the ECAA.
- (b) An applicant who meets the requirements of this Part is entitled to an appropriate license/certificate and rating.
- (c) Unless authorized by the ECAA, a person whose air traffic control tower operator, mechanic, or parachute rigger certificate is suspended may not apply for any rating to be added to that license/certificate during the period of suspension.
- (d) Unless the order of revocation provides otherwise, a person whose license/certificate issued under this Part is revoked may not apply for the same kind of license/certificate for 1 year after the date of revocation.
- (e) The ECAA will refuse to grant a license or certificate in the following cases:
 - (1) If the applicant has failed to satisfy a requirement prescribed by, or specified under this Part, in relation to the granting of the license or certificate;
 - (2) That the applicant has made in, or in connection with, the application a statement that was false or misleading in a material particular; or
 - (3) In relation to the initial issue of a license or certificate:
 - (i) That the applicant was the holder of a license or certificate that was previously cancelled; or
 - (ii) That the applicant is not a fit and proper person to have the responsibilities and to exercise and to perform the functions and duties of a holder of the license or certificate for which the application was made.
- (f) Written Examination Prerequisites:
 - (1) For admission to a written examination required for the issue of a permit, license or rating, an applicant shall have met the medical standards for the issue of the permit, license or rating and shall produce proof of medical fitness in the form and manner acceptable to the ECAA;
 - (2) For admission to a written examination, proof of identification will be required in the form of a permit, license or other official document bearing the signature or photograph of the candidate;
 - (3) To be eligible to write the examination required for the issue of a permit, license and/or rating, the candidate shall provide a letter of recommendation from the approved training school, stating that the applicant has satisfactorily completed the ground school instruction, and has reached a sufficient level of knowledge to write the examination;
 - (4) In the case of an applicant holding a license issued by a contracting state, the recommendation may not be required provided the applicant is applying for the State' equivalent license; and
 - (5) To be eligible to write the examination required for the issue of a permit, license or rating, the candidate shall provide proof that the experience required for the particular examination as specified in the Egyptian Civil Aviation Examination Standard Handbook [ECAESH].

65.83 Change of name: Replacement of lost or destroyed license/certificate

- (a) An application for a change of name on a license/certificate issued under this Part must be accompanied by the applicant's current license/certificate and the marriage license, court order, or other document verifying the change. The documents are returned to the applicant after inspection.

(b) An application for a replacement of a lost or destroyed license is made by letter submitted to the ECAA. The letter must:

(1) Contain the name in which the license/certificate was issued, the permanent mailing address, identification number (if any), and date and place of birth of the license/certificate holder, and any available information regarding the grade, number, and date of issue of the license/certificate, and the ratings on it; and

(2) Be accompanied by a check or money order for the fees, payable to the ECAA.

(c) An application for a replacement of a lost or destroyed medical certificate is made by letter to the ECAA.

(d) A person whose license/certificate issued under this Part or medical certificate, or both, has been lost may obtain a telegram from the ECAA confirming that it was issued. The telegram may be carried as a certificate for a period not to exceed 60 days pending his receiving a duplicate license/certificate under paragraph (b) or (c) of this section, unless he has been notified that the license/certificate has been suspended or revoked. The request for such a telegram may be made by prepaid telegram, stating the date upon which a duplicate license/certificate was requested, or including the request for a duplicate and a money order for the necessary amount. The request for a telegraphic license/certificate should be sent to the office prescribed in paragraph (b) or (c) of this section, as appropriate. However, a request for both at the same time should be sent to the office prescribed in paragraph (b) of this section.

65.85 Tests: General rules

(a) Tests prescribed by or under this Part are given at times and places, and by persons, designated by the ECAA.

(b) The minimum-passing grade for each test is 70 percent.

(c) All written exams are in English.

(d) In case of open book exams; the applicant should provide all necessary references materials for the examination.

(e) If the applicant fails 3 times in a written exam he cannot apply for a fourth chance before successfully passing an approved training course.

(f) In case of three failures in oral and/or practical exams in the same subject he can be allowed to go through an oral and practical exam again only after submitting a reference of new experience for a period assigned by the examination committee and in case of failure again for the fourth time he must go through written and oral exams in the subjects deemed necessary by the committee.

(g) Those who have failed written examinations and obtained less than 40% cannot repeat the same examinations; they can attend later after recently receiving an approved course on the type requested.

(h) The results of any written examination become invalid two years after completion if the other requirements are not completed in this period.

(i) The applicant has the right to delay any issue or additional examination, if an excuse was previously submitted and accepted, provided the periods of validity of his training courses are not exceeded.

65.87 Written tests: Cheating or other unauthorized conduct

(a) Except as authorized by the ECAA, no person may:

(1) Copy, or intentionally remove, a written test under this Part;

(2) Give to another, or receive from another, any part or copy of that test;

(3) Give help on that test to, or receive help on that test from, any person during the period that test is being given;

(4) Take any part of that test in behalf of another person;

(5) Use any material or aid during the period that test is being given; or

(6) Intentionally cause, assist, or participate in any act prohibited by this paragraph.

(b) No person who commits an act prohibited by paragraph (a) of this section is eligible for any airman or ground instructor certificate or rating under this Part for a period of 1 year after the date of that act. In addition, the commission of that act is a basis for suspending or revoking any airman or ground instructor certificate or rating held by that person.

65.89 Re-testing after failure

An applicant for a written, oral, or practical test for a license/certificate and rating, or for an additional rating under this Part, may apply for re-testing:

- (a) After 30 days after the date the applicant failed the test; or
- (b) Before the 30 days have expired if the applicant presents a signed statement from an airman holding the license/certificate and rating sought by the applicant, certifying that the airman has given the applicant additional instruction in each of the subjects failed and that the airman considers the applicant ready for re-testing.

65.91 Maintenance recency requirements

No person shall exercise the privileges of an AME license unless, within the preceding 24 months they have successfully complied with the requirements for license issue, or have, for at least six months:

- (a) Performed aircraft maintenance;
- (b) Supervised the performance of maintenance, either directly or in an executive capacity; or
- (c) Provided aviation maintenance instruction within an approved training organization [ATO], or an approved training program in an approved maintenance organization [AMO] or directly supervised the delivery of such instructions.

65.93 Requirements for renewal of licenses

- (a) Aircraft maintenance engineers licenses must be renewed yearly.
- (b) The applicant must have exercised the duties and responsibilities of his license for a period not less than 6 month during the last two years of its validity.
- (c) The applicant must successfully pass a refresher or trouble shooting course once every two years.
- (d) If the requirements of items (b) and (c) of this paragraph are not fulfilled during the last four years; specific recent practical experience verification, for at least 6 months, on the required type must be presented in order to revalidate the license after orally and practically reexamining the applicant on the types he holds.
- (e) However if the expiration date of the license is more than 4 years ; the license will not be revalidated, unless evidence of attending an approved refresher course on the aircraft type to be renewed and verification of specific experiences on the type are presented and are equivalent to those required for issuance. The applicant must also and successfully pass the written, oral and practical tests.

65.95 Lapsed license and/or rating

- (a) A license which has lapsed for more than 2 years will not be considered for renewal without examination of the holder.
- (b) The amount of recent experience required will depend on the length of time since the license lapsed and the nature of employment.
- (c) The extent of the examination will generally be dependent on the extent of the holder's employment since the license was last renewed, and on the degree to which such employment can be considered by the ECAA as comparable to those privileges for which the license was valid.
- (d) The license can not be backdated and in the case of a lapsed license the re-issue will only be granted after all requirements have been met.
- (e) Any lack of continuity in the validity of the license will be recorded on the re-issued licenses.

Certification and Operation: Air Carriers and Air Taxi Operators

SUBPART A

General

121.1 Applicability.

(a) Except as prescribed in paragraph (b) of this section, this ECAR prescribes rules governing the certification and operations of the following:

(1) Each air carrier engaging in international or domestic air transportation under an Air Carrier Certificate (AOC) issued by the Egyptian Civil Aviation Authority (ECAA).

(2) Each air carrier engaging in air transportation under an Air Taxi Certificate issued by the ECAA.

(3) Each air carrier covered by paragraph (a) (1) or (2) of this section when engaging in charter flights or other special service operations.

(4) Each air carrier when it engages in the carriage of persons or property for compensation or hire under an Air Carrier or Air Taxi Certificate issued by the ECAA.

(b) In addition, this ECAR prescribes rules governing:

(1) Each person employed or used by an air carrier in operations under this ECAR, including the maintenance, preventive maintenance, and alteration of aircraft; and

(2) Each person who is on board an aircraft being operated under this ECAR.

121.2 Definitions for the purpose of this ECAR

(a) "Passenger-carrying aircraft" or "passenger-carrying operation" means one carrying any person other than a person listed in 121.583, or carrying any person other than a flight crewmember or other crewmember, company employee, authorized government representative, or person accompanying a shipment.

(b) "Air Carrier aircraft category" means an aircraft that has been Type Certificated under FAR 25, JAR 25, or Helicopter Type Certificated under FAR 29, JAR 29, or the Commuter Category under ECAR 23 or an equivalent standard and having a maximum gross takeoff weight of over 5700kg.

(c) "Air Taxi Category aircraft" means an aircraft that has been Type Certified under ECAR 23 or FAR 23 or JAR 23 or Helicopter Type Certificated under FAR 27, JAR 27, or an equivalent standard, and have a maximum gross takeoff 5700kg or less.

(d) "Common carriage" means the carriage of persons or property for compensation or reward. A "common carrier" means an operation in which the main purpose is compensation by hire and reward.

(e) "Pilot in Command" means the pilot at the aircraft controls responsible for the operation and safety of an aircraft during flight time.

(f) "Second in Command" means a pilot at the aircraft controls who is designated to be second in command of an aircraft during flight time.

(g) "Commander" means the pilot with overall responsibility for the operation and safety of the aircraft when the required crew consists of three or more pilots.

(h) "Operational Control" means the exercise of authority over initiating, conducting, or terminating a flight.

121.3 General requirements.

(a) A person may not operate as a air carrier unless that person

(1) Is a citizen of Arab Republic Egypt;

(2) Obtains an Air Carrier or Air Taxi Certificate; and

(3) Obtains operations specifications that prescribe the authorizations, limitations, and procedures under which each kind of operation must be conducted.

121.4 Applicability of rules to unauthorized operators.

The rules in this ECAR which refer to a person certificated under this ECAR apply also to any person who engages in an operation governed by this ECAR without the appropriate certificate and operations specification.

121.5 Internal Evaluation Program: Each certificate holder is responsible to:

- (a) Establish and maintain an Internal Evaluation Program (IEP) that is acceptable to the ECAA. The IEP is a systematic self-analysis for evaluating the performance, policies and procedures of all departments within a certificate holder's organization.
- (b) Make the necessary revisions to the program, and submit it to the ECAA whenever the ECAA finds that the program described in paragraph (a) of this section does not contain adequate procedures and standards.
- (c) Identify the following personnel in the IEP policy and procedures manual:
 - (i) The Internal Evaluation Program Manager: who reports directly to the certificate holder's Chairman or equivalent and shall be accepted by the ECAA.
 - (ii) The Internal Evaluation technically qualified members that have satisfactorily passed an auditing training acceptable to the ECAA.
- (d) Submit to the ECAA, at least quarterly audit planning schedule. The ECAA shall have access to all audit reports and may choose to attend the scheduled audits or conduct random audits of any area. Regulatory findings made by the company's IEP audit team shall be submitted under the Voluntary Disclosure Program (EAC 00-1, as amended). Any findings by an ECAA audit team that has not been reported by the company's IEP process shall be processed under standard enforcement.
- (e) Guidance material for the IEP program could be found in EAC 002 as amended

121.6 Leasing of aircraft.

- (a) Unless otherwise authorized by the ECAA, prior to conducting operations involving a lease, each AOC holder under this ECAR authorized to conduct common carriage operations under this subchapter shall provide the ECAA with a copy of the lease to be executed which would lease the aircraft to any other person engaged in common carriage operations under this subchapter, including foreign air carriers, or to any other foreign person engaged in common carriage wholly outside Egypt.
- (b) No certificate holder under this ECAR may lease from another air carrier, or any other person not engaged in common carriage, except as provided in EAC121-2
- (c) Upon receiving a copy of a lease, the ECAA determines which party to the agreement has operational control of the aircraft. The lessor must provide the following information to be incorporated into operations specifications as needed.
 - (1) The names of the parties to the agreement and the duration thereof.
 - (2) The nationality and registration markings of each aircraft involved in the agreement.
 - (3) The kind of operation.
 - (4) The airports or areas of operation.
 - (5) A statement specifying the party deemed to have operational control and the times, airports, or areas under which such operational control is exercised.
- (d) In making the determination of paragraph (b) of this section, the ECAA will consider the following:
 - (1) Crewmembers and training.
 - (2) Airworthiness and performance of maintenance.
 - (3) Dispatch.
 - (4) Servicing the aircraft.

(5) Scheduling.

(6) Any other factor the ECAA considers relevant.

(e) Other arrangements for transportation by air: Except as provided in paragraph (f) of this section, a certificate holder operating under this ECAR may not conduct any operation for another certificate holder under this ECAR or a foreign air carrier under ECAR 129 or a foreign person engaged in common carriage wholly outside Egypt without the approval of the ECAA.

(f) A certificate holder under this ECAR may, if authorized by the ECAA, conduct one or more flights for passengers who are stranded because of the cancellation of their scheduled flights. These flights must be conducted under the rules of this ECAR

Note: Details of the lease agreements and requirements for both dry and wet lease are given in EAC 121-2

121.7 Reserved

121.9 Reserved

121.11 Rules applicable to operations in a foreign country.

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

121.13 Rules applicable to helicopter operations: deviation authority.

Upon application by the operator, the ECAA may issue operations specifications authorizing a deviation from the specific requirements for helicopter operations if he finds that the deviation provides a substantially equivalent standard of safety.

121.15 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.

If the holder of a certificate issued under this ECAR permits any aircraft owned or leased by that holder to be engaged in any operation that the certificate holder knows to be in violation of The Egyptian Civil Aviation Law No 28, 1981, that operation is a basis for suspending or revoking the certificate.

SUBPART B

Certification Rules for Air Carrier and Air Taxi Operators

121.21 Applicability

This subpart prescribes the certification rules for Air Carriers and Air Taxi operators.

121.23 Operations Specifications

The Operations Specifications that are issued with the AOC are a part of that Certificate.

121.25 Contents of an AOC

The Air Carrier Certificate or Air Taxi Certificate includes-

- (a) The certificate holder's name;
- (b) The location of the certificate holder's principal base of operations;
- (c) The certificate number;
- (d) The certificate's effective date; and expiration date.

121.26 Application for an Air Carrier or Air Taxi Certificate

(a) A person applying to the ECAA for an Air Carrier or Air Taxi Certificate under this ECAR (applicant) must submit an application-

- (1) In a form and manner prescribed by the ECAA; and
- (2) Containing any information the ECAA requires the applicant to submit.

(b) Each applicant must submit the application to the ECAA at least 90 days before the date of intended operation.

(c) Each applicant for the original issue of an operating certificate for the purpose of conducting common carriage operations under ECAR 121 of this chapter must submit an application in a form and manner prescribed by the ECAA.

(d) Each application submitted under paragraph (c) of this section must contain a signed statement showing the following:

- (1) For corporate applicants:
- (2) For non-corporate applicants:
 - (i) The name and address of each person having a financial interest therein the non-corporate applicant and the nature and extent of that interest.
 - (ii) The name and address of each person employed or who will be employed in a management position described in this ECAR.

(e) In addition, each applicant for the original issue of an operating certificate under paragraph (c) of this section must submit with the application a signed statement showing-

- (1) The financial information listed in paragraph (h) of this section; and

(2) The nature and scope of its intended operation, including the name and address of each person, if any, with whom the applicant has a contract to provide services as a commercial operator and the scope, nature, date, and duration of each of those contracts.

(f) Each applicant for, or holder of, a certificate issued under paragraph (c) of this section this ECAR, shall notify the ECAA within 10 days after-

- (1) A change in any of the persons, or the names and addresses of any of the persons, submitted to the ECAA under paragraph (d)(1) or (d)(2) of this section; or
- (2) A change in the financial information submitted to the ECAA under paragraph (g) of this section that occurs while the application for the issue is pending before the ECAA and that would make the applicant's financial situation substantially less favorable than originally reported.

(g) Each applicant for the original issue of an operating certificate under paragraph (c) of this section must submit the following financial information:

- (1) A balance sheet that shows assets, liabilities, and net worth, as of a date not more than 60 days before the date of application.
- (2) An itemization of liabilities more than 60 days past due on the balance sheet date, if any, showing each creditor's name and address, a description of the liability, and the amount and due date of the liability.
- (3) An itemization of claims in litigation, if any, against the applicant as of the date of application showing each claimant's name and address and a description and the amount of the claim.
- (4) A detailed projection of the proposed operation covering 6 complete months after the month in which the certificate is expected to be issued including-
 - (i) Estimated amount and source of both operating and nonoperating revenue, including identification of its existing and anticipated income producing contracts and estimated revenue per mile or hour of operation by aircraft type;
 - (ii) Estimated amount of operating and nonoperating expenses by expense objective classification; and
 - (iii) Estimated net profit or loss for the period.
- (5) An estimate of the cash that will be needed for the proposed operations during the first 6 months after the month in which the certificate is expected to be issued, including-
 - (i) Acquisition of property and equipment (explain);
 - (ii) Retirement of debt (explain);
 - (iii) Additional working capital (explain);
 - (iv) Operating losses other than depreciation and amortization (explain); and
 - (v) Other (explain).
- (6) An estimate of the cash that will be available during the first 6 months after the month in which the certificate is expected to be issued, from-
 - (i) Sale of property or flight equipment (explain);
 - (ii) New debt (explain);
 - (iii) New equity (explain);
 - (iv) Working capital reduction (explain);
 - (v) Operations (profits) (explain);
 - (vi) Depreciation and amortization (explain); and
 - (vii) Other (explain).
- (7) A schedule of insurance coverage in effect on the balance sheet date showing insurance companies; policy numbers; types, amounts, and period of coverage; and special conditions, exclusions, and limitations.
- (8) Any other financial information that the ECAA requires to enable him to determine that the applicant has sufficient financial resources to conduct his or her operations with the degree of safety required in the public interest.
- (h) Each financial statement containing financial information required by paragraph (g) of this section must be based on accounts prepared and maintained on an accrual basis in accordance with generally accepted accounting principles applied on a consistent basis, and must contain the name and address of the applicant's public accounting firm, if any. Information submitted must be signed by an officer, owner, or partner of the applicant or certificate holder.

121.27 Issue of certificate: Air Carrier or Air Taxi

- (a) An applicant may be issued an AOC if, after investigation, the ECAA finds that the applicant-
 - (1) Meets the applicable requirements of this ECAR;
 - (2) Holds the economic authority applicable to the kinds of operations to be conducted, issued by the Minister of Transportation, if required; and

(3) Is properly and adequately equipped in accordance with the requirements of this chapter and is able to conduct a safe operation under appropriate provisions of ECAR 121 of this chapter and the operations specifications issued under this ECAR.

(b) An application for a certificate may be denied if the ECAA finds that-

(1) The applicant is not properly or adequately equipped or is not able to conduct safe operations under this ECAR;

(2) The applicant previously held an Air Carrier, Air Taxi or previously issued AOC which was revoked;

(3) The applicant intends to or fills a key management position listed in this ECAR, as applicable, with an individual who exercised control over or who held the same or a similar position with an AOC holder whose certificate was revoked, or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process;

(4) An individual who will have control over or have a substantial ownership interest in the applicant had the same or similar control or interest in an AOC holder whose certificate was revoked, or is in the process of being revoked, and that individual materially contributed to the circumstances causing revocation or causing the revocation process; or

(C) In the case of operations conducted under a temporary authorization issued by the ECAA, the issuance of the operations specifications prescribing appropriate requirements that deviate from the requirements of this ECAR whenever, after investigation, he finds that general standards of safety for such an operation require or allow a deviation from such a requirement for a particular operation or class of operations for which an application for an operating certificate has been made.

121.29 Duration of certificate: Air Carrier and Air Taxi

(a) The duration of an AOC shall be one calendar year from the date of issue and is renewable based on satisfactory application and operation in accordance with this ECAR;

(b) If the ECAA suspends or revokes such an AOC, the holder or that certificate shall return it to the ECAA.

SUBPART D

Rules Governing All Certificate Holders Under This ECAR

121.57 Applicability.

This subpart prescribes rules governing all certificate holders under this ECAR.

121.58 Obtaining waivers and authority for deviations.

(a) The ECAA may, upon application by the Air Carrier or Air Taxi certificate holder or applicant, authorize deviations from the applicable requirements of this ECAR, by appropriate amendment to the operations specification. Each certificate holder shall comply with the terms of the authorized deviation when conducting operations thereby.

(ii) If, in the case of military contracts, the Ministry of Defense certifies to the ECAA that an operation is essential to the national defense and requires a requested deviation, and the ECAA finds that the deviation is not based on an economic advantage or convenience to the operator or to Egypt the ECAA may authorize deviations for:

- (1) Operations conducted under a contract with an armed force as the primary contractor; or
- (2) Operations conducted for an armed force under a subcontract with a primary contractor.

121.59 Management personnel required

Management personnel required for operations conducted under ECAR 121 of this chapter.

(a) Each certificate holder must have sufficient qualified management and technical personnel to ensure the highest degree of safety in its operations. The certificate holder must have qualified personnel serving full-time in the following or equivalent positions:

- (1) General Manager
- (2) Director of Operations (who may be General Manager , if qualified).
- (3) Director of safety.
- (4) Director of Maintenance.
- (5) Chief Pilot.
- (6) Chief Inspector.

(b) The ECAA may approve positions or numbers of positions other than those listed in paragraph (a) of this section for a particular operation if the certificate holder shows that it can perform the operation with the highest degree of safety under the direction of fewer or different categories of management personnel due to-

- (1) The kind of operation involved;
- (2) The number and type of airplanes used; and
- (3) The area of operations.

(c) The title of the positions required under paragraph (a) of this section or the title and number of equivalent positions approved under paragraph (b) of this section shall be set forth in the certificate holder's operations specifications. Applicants for an Air Taxi Certificate may be exempt from the requirement for a Director of Safety at the discretion of the ECAA as determined by the fleet size and complexity of the proposed operation. The individuals who serve in the positions required or approved under paragraph (a) or (b) of this section and anyone in a position to exercise control over operations conducted under the operating certificate must-

- (1) Be qualified through training, experience, and expertise;
- (2) To the extent of their responsibilities, have a full understanding of the following materials with respect to the certificate holder's operation-
 - (i) Aviation safety standards and safe operating practices;
 - (ii) Egyptian Civil Aviation Regulations (ECARs);
 - (iii) The certificate holder's operations specifications;
 - (iv) All appropriate maintenance and Airworthiness requirements;
 - (v) The manual required by 121.133 of this chapter; and

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

(e) Each certificate holder must:

(1) State in the general policy provisions of the manual required by § 121.133 of this chapter, the duties, responsibilities, and authority of personnel required under paragraph (a) of this section;

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

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

121.61 Management personnel: qualifications

(a) To serve as Director of Operations under § 121.59 a person must-

(1) Hold an Airline Transport Pilot or Commercial pilot license as appropriate.

(2) Have at least 3 years supervisory or managerial experience within the last 6 years in a position that exercised operational control over any operations conducted with large airplanes under ECAR 121 of this chapter or equivalent, or if the certificate holder uses only small airplanes in its operations, the experience may be obtained in large or small airplanes; and

(3) In the case of a person becoming a Director of Operations-

(i) For the first time ever, have at least 3 years experience, within the past 6 years, as pilot in command of a large airplane operated under ECAR 121 of this chapter or equivalent, if the certificate holder operates large airplanes. If the certificate holder uses only small airplanes in its operation, the experience may be obtained in either large or small airplanes.

(ii) In the case of a person with previous experience as a Director of Operations, have at least 3 years experience as pilot in command of a large airplane operated under ECAR 121 of this chapter or equivalent, if the certificate holder operates large airplanes. If the certificate holder uses only small airplanes in its operation, the experience may be obtained in either large or small airplanes.

(b) To serve as Chief Pilot under 121.59 a person must hold an Airline Transport Pilot or Commercial Pilot license with appropriate ratings for at least one of the airplanes used in the certificate holder's operation and:

(1) In the case of a person becoming a Chief Pilot for the first time ever, have at least 3 years experience, within the past 6 years, as pilot in command of a large airplane operated under ECAR 121 of this chapter or equivalent, if the certificate holder operates large airplanes. If the certificate holder uses only small airplanes in its operation, the experience may be obtained in either large or small airplanes.

(2) In the case of a person with previous experience as a Chief Pilot, have at least 3 years experience, as pilot in command of a large airplane operated under ECAR 121 of this chapter or equivalent, if the certificate holder operates large airplanes. If the certificate holder uses only small airplanes in its operation, the experience may be obtained in either large or small airplanes.

(c) To serve as Director of Maintenance under 121.59 a person must-

(1) Hold an Aircraft Engineering certificate with ratings on at least one of the aircraft types planned for the operation;

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

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

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

(i) Maintaining airplanes, including at the time of appointment as Director of Maintenance, experience in maintaining the same category and class of airplane as the certificate holder uses; or

(ii) Repairing airplanes in a Certificated airframe repair station that is rated to maintain airplanes in the same category and class of airplane as the certificate holder uses.

(d) To serve as Chief Inspector under 121.59 a person must-

(1) Hold an Aircraft Engineering certificate with ratings on at least one of the aircraft types planned for the operation; and have held these ratings for at least 3 years;

(2) Have at least 3 years of maintenance experience on different types of airplanes with an air carrier or Certificated repair station, 1 year of which must have been as maintenance inspector; and

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

(e) A certificate holder may request a deviation to employ a person who does not meet the appropriate airman, managerial, or supervisory experience requirements of this section if the ECAA finds that the person has comparable experience, and can effectively perform the functions associated with the position in accordance with the Egyptian Civil Aviation Regulations and the procedures outlined in the certificate holder's manual. Grants of deviation under this paragraph may be granted after consideration of the size and scope of the operation and the qualifications of the intended personnel. The ECAA may, at any time, terminate any grant of deviation authority issued under this paragraph.

121.71 Reserved

121.73 Availability of certificate and operations specifications

Each certificate holder shall make its operating certificate and operations specifications available for inspections by the ECAA at its principal operations office.

121.75 Contents and maintenance of Operations Specification

(a) Each certificate holder conducting Air Carrier or Air Taxi operations must obtain operations specifications containing all of the following:

(1) The specific location of the certificate holder's principal base of operations and, if different, the address that shall serve as the primary point of contact for correspondence between the ECAA and the certificate holder and the name and mailing address of the certificate holder's agent for service.

(2) Other business names under which the certificate holder may operate.

(3) Reference to the economic authority issued by the Minister of Transportation, if required.

(4) Type of aircraft, registration markings, and serial numbers of each aircraft authorized for use, each regular and alternate airport to be used in scheduled operations, and each provisional and refueling airport.

(i) Subject to the approval of the ECAA with regard to form and content, the certificate holder may incorporate by reference the items listed in paragraph (a)(4) of this section into the certificate holder's operations specifications by maintaining a current listing of those items and by referring to the specific list in the applicable paragraph of the operations specifications.

(ii) The certificate holder may not conduct any operation using any aircraft or airport not listed.

(5) Kinds of operations authorized.

(6) Authorization and limitations for routes and areas of operations.

(7) Airport limitations.

(8) Time limitations, or standards for determining time limitations, for overhauling, inspecting, and checking airframes, engines, propellers, rotors, appliances, and emergency equipment.

(9) Authorization for the method of controlling weight and balance of aircraft.

(10) Interline equipment interchange requirements, if relevant.

- (11) Aircraft wet lease information.
- (12) Any authorized deviation and exemption granted from any requirement of this chapter.
- (13) Any other item the ECAA determines is necessary.
- (b) Certificate holder's duty to maintain operations specifications.
 - Each certificate holder shall maintain a complete and separate set of its operations specifications at its principal base of operations.
 - (1) Each certificate holder shall insert pertinent excerpts of its operations specifications, or references thereto, in its manual and shall-
 - (i) Clearly identify each such excerpt as a part of its operations specifications; and
 - (ii) State that compliance with each operations specifications requirement is mandatory.
 - (2) Each certificate holder shall keep each of its employees and other persons used in its operations informed of the provisions of its operations specifications that apply to that employee's or person's duties and responsibilities.

121.77 Reserved.

121.79 Amendment of Certificate or operations specifications.

- (a) The ECAA may amend any Certificate or operations specifications issued under this ECAR if-
 - (1) The ECAA determines that aviation safety and the public interest require the amendment; or
 - (2) The certificate holder applies for the amendment, and the ECAA determines that aviation safety and the public interest allows the amendment.
- (b) Except as provided in paragraph (e) of this section, when the ECAA initiates an amendment to a Certificate or certificate holder's operations specifications, the following procedure applies:
 - (1) The ECAA notifies the certificate holder in writing of the proposed amendment.
 - (2) The ECAA sets a reasonable period (but not less than 7 days) within which the certificate holder may submit written information, views, and arguments on the amendment.
 - (3) After considering all material presented, the ECAA notifies the certificate holder of-
 - (i) The adoption of the proposed amendment;
 - (ii) The partial adoption of the proposed amendment; or
 - (iii) The withdrawal of the proposed amendment.
 - (4) If the ECAA issues an amendment to the Certificate or operations specifications, it becomes effective not less than 30 days after the certificate holder receives notice of it unless-
 - (i) The ECAA finds under paragraph (e) of this section that there is an emergency requiring immediate action with respect to aviation safety; or
 - (ii) The certificate holder petitions for reconsideration of the amendment under paragraph (d) of this section.
- (c) When the certificate holder applies for an amendment to its Certificate or operations specifications, the following procedure applies:
 - (1) The certificate holder must file an application to amend its operations specifications-
 - (i) At least 90 days before the date proposed by the applicant for the amendment to become effective, unless a shorter time is approved, in cases of mergers; acquisitions of airline operational assets that require an additional showing of safety (e.g., proving tests); resumption of operations following a suspension of operations as a result of bankruptcy actions; or the initial introduction of aircraft not before proven for use in the operators operations.
 - (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 ECAA in a form and manner prescribed by the ECAA.

- (3) After considering all material presented, the ECAA notifies the certificate holder of-
- (i) The adoption of the applied for amendment;
 - (ii) The partial adoption of the applied for amendment; or
 - (iii) The denial of the applied for amendment. The certificate holder may petition for reconsideration of a denial under paragraph (d) of this section.
- (4) If the ECAA approves the amendment, following coordination with the certificate holder regarding its implementation, the amendment is effective on the date the ECAA approves it.
- (d) When a certificate holder seeks reconsideration of a decision from the ECAA concerning the amendment of operations specifications, the following procedure applies:
- (1) The certificate holder must petition for reconsideration of that decision within 30 days of the date that the certificate holder receives a notice of denial of the amendment, or of the date it receives notice of an ECAA-initiated amendment, whichever circumstance applies.
 - (2) The certificate holder must address its petition to the ECAA, ECAA.
 - (3) A petition for reconsideration, if filed within the 30-day period, suspends the effectiveness of any amendment issued by the ECAA unless the ECAA has found, under paragraph (e) of this section, that an emergency exists requiring immediate action with respect to safety in air transportation.
 - (4) If a petition for reconsideration is not filed within 30 days, the procedures of paragraph (c) of this section apply.
 - (e) If the ECAA finds that an emergency exists requiring immediate action with respect to aviation safety that makes the procedures set out in this section impracticable or contrary to the public interest:
 - (1) The ECAA amends the Certificate or operations specifications and makes the amendment effective on the day the certificate holder receives notice of it.
 - (2) In the notice to the certificate holder, the ECAA articulates the reasons for its finding that an emergency exists requiring immediate action with respect to safety in air transportation or that makes it impracticable or contrary to the public interest to stay the effectiveness of the amendment.

121.81 Inspection authority of the ECAA.

- (a) Each certificate hold shall allow the ECAA or its representative, at any time or place, to make inspections or tests to determine its compliance with Egyptian Law number 28, the Egyptian Civil Aviation Regulations, its operating certificate and its operations specifications, or its eligibility to continue to hold its certificate.

121.83 Maintaining a principal base of operations, main operations base, and main maintenance base; change of address.

(a) Each certificate holder must maintain a principal base of operations. Each certificate holder may also establish a main operations base and a main maintenance base which may be located at either the same location as the principal base of operations or at separate locations.

(b) At least 30 days before it proposes to establish or change the location of its principal base of operations, its main operations base, or its main maintenance base, a certificate holder must provide written notification to the ECAA.

Manual Requirements

121.131 Applicability.

This subpart prescribes requirements for preparing and maintaining manuals by all certificate holders.

121.132 Company operations manual

A. Requirement for an operations manual

An operator is required to produce an operations manual containing company policy, procedures and operating instructions for the use and guidance of operations personnel. The operations manual and subsequent revisions have to be submitted to the CAA for acceptance. The CAA will require revision of the manual as necessary to achieve compliance with State regulations and safety requirements.

The manual must be revised and amended to keep it current, and operations personnel must be made aware of any amendments or revisions.

The requirement to provide an operations manual is an integral part of the operator's method of control and supervision of flight operations, which must be approved by the ECAA. It follows, therefore, that the operator is required to provide the ECAA with a copy of the operations manual and with all revisions and amendments.

B. Volumes of an operations manual

A number of volumes normally go to make up the operations manual. Typically these would include a policy and administration manual, the aircraft operating manual, a minimum equipment list and configuration deviation list, a training manual, a performance manual, a route guide, an emergency evacuation procedures manual, a dangerous goods manual, an accident procedures manual, and a security manual. The actual contents of these manuals will vary from operator to operator, but a representative breakdown of contents would be as detailed below. This manual shall contain information on the operator's organization, management structure, departmental responsibilities and authority (with particular reference to the flight operations area). Information on the policies and objectives of the operator shall be included. Reference to the ECARs and information on the applicable regulations and requirements of other States over which operations are conducted must be presented. The manual shall also contain operational policies and related procedures, guidance and information.

C. Contents of an operation manual

An operation manual, which may be used in separate parts corresponding to specific aspects of operations, shall contain duties and responsibilities of management personnel and at least the following:

1. Operations administration and supervision

1.1 A description of the constituent volumes and manuals of the complete operations manual shall be included, possibly in the policy and administration manual. There must also be a statement as to which executive is responsible for the contents of the operations manual and for approving revisions and amendments. In this document it is assumed that flight operations manager is the executive responsible for the operations manual. If this authority can be delegated, for example, if the chief training executive is made responsible for the training manual, this shall be accurately described. A statement that the operations manual is approved by the appropriate State authority and contains the material specified by that authority shall be included. A statement shall also be made on the responsibility of all operations staff to be familiar with the contents of the operations manual, at least as these pertain to their duties, and to adhere at all times to the procedures and policies described in the operations manual. The responsibility for holders of the manual to enter and record any amendments to the manual shall be stated.

1.2 Instructions outlining the responsibilities of operations personnel pertaining to the conduct of flight operations.

1.3 Checklist of emergency and safety equipment and instructions on its use.

1.4 The minimum equipment list for the aeroplane types operated and specific operations in RNP airspace.

1.5 Safety precautions during refuelling with passengers in board.

1.6 Implement the ECARs including any specified mandatory material and not in conflict with the regulations of any other State where operations will be conducted.

2. Accident prevention and flight safety program

2.1 Details of the accident prevention and flight safety program, including a statement of safety policy and the responsibility of personnel.

2.2 It shall include information on the role of the accident prevention adviser and on activities administered by the accident prevention adviser's office; for example, incident reporting systems, confidential reporting systems, and information on general accident prevention activities. The manual shall also detail the method of investigating incidents and the policy for representation at official accident investigations. The operator's participation in airport emergency planning exercises shall be described. Detailed information must be included on the administration and duties of the operator's accident/emergency control center.

3. Personnel training

3.1 Details of the flight crew training program and requirements.

3.2 Details of the cabin attendant duties training program.

3.3 This manual shall contain information on the training policy and requirements of the operator. It shall also contain guidance on the standards of training that will apply. The manual may be divided into a number of sections, one on general policy and guidance, with other sections dealing with specific aeroplane types. The manual shall also contain information on the syllabi of training courses, both ground and flight. When appropriate minimum standards of experience for appointment or promotion should be specified, and information given on the training and testing, both initial and recurrent that will be required. Guidance on the selection, role and duties of staff for flying training, checking or testing should be included.

4. Fatigue and flight time limitations

Rules limiting the flight time and flight duty periods and providing for adequate rest periods for flight crew members and cabin attendants.

5. Flight operations

- 5.1 The flight crew for each type of operation including the designation of the succession of command.
- 5.2 The in-flight and the emergency duties assigned to each crew member.
- 5.3 Specific instructions for the computation of the quantities of fuel and oil to be carried, having regard to all circumstances of the operation including the possibility of the failure of one or more powerplants while en route.
- 5.4 The conditions under which oxygen shall be used and the amount of oxygen.
- 5.5 Instructions for mass and balance control.
- 5.6 Instructions for the conduct and control of ground de/anti-icing operations.
- 5.7 The specifications for the operational flight plan.
- 5.8 The normal, abnormal and emergency procedures to be used by the flight crew, the checklists relating thereto and aircraft systems information.
- 5.9 Standard operating procedures (SOP) for each phase of flight.
- 5.10 Instructions on the use of the normal checklists and the timing of their use.
- 5.11 Emergency evacuation procedures.
- 5.12 Departure contingency procedures.
- 5.13 Instructions on the maintenance of altitude awareness and the use of automated or flight crew altitude call-out.
- 5.14 Instructions on the use of autopilots and auto-throttles in IMC.
- 5.15 Instructions on the clarification and acceptance of ATC clearances, particularly where terrain clearance is involved.
- 5.16 Departure and approach briefings.
- 5.17 Route and destination familiarization.
- 5.18 Stabilized approach procedure.
- 5.19 Limitation on high rates of descent near the surface.
- 5.20 Conditions required to commence or to continue an instrument approach.
- 5.21 Instructions for the conduct of precision and non-precision instrument approach procedures.
- 5.22 Allocation of the flight crew duties and procedures for the management of crew workload during night and IMC instrument approach and landing operations.
- 5.23 Instructions and training requirements for the avoidance of controlled flight into terrain and policy for the use of the ground proximity warning system (GPWS).
- 5.24 Information and instructions relating to the interception of civil aircraft including:
 - a) Procedures, as prescribed in Annex 2, for the pilots-in-command of intercepted aircraft; and
 - b) Visual signals for the use by intercepting and intercepted aircraft, as contained in Annex 2.
- 5.25 For airplanes intended to be operated above 15000 m(49000 ft):
 - a) Information which will enable the pilot to determine the best course of action to take in the event of exposure to solar cosmic radiation; and
 - b) Procedures in the event that a decision to descent is taken, covering:
 - i) The necessity of giving the appropriate ATS unit prior warning of the situation and of obtaining a provisional descent clearance; and
 - ii) The action to be taken in the event that communication with the ATS unit cannot be established or is interrupted.

6. Aeroplane performance

Operating instructions and information on climb performance with all engines operating.

7. Route guides and charts

7.1 A route guide to ensure that the flight crew will have, for each flight, information relating to communication facilities, air traffic services, navigation aids, aerodromes, and such other information as the operator may deem necessary for the proper conduct of flight operations.

7.2 Normally the route guide also contains the required en-route charts and charts for aerodromes along the route. The charts carried in the route guide shall be those for destination and alternate aerodromes, as well as for any aerodrome along the route at which the aeroplane might land in the event of an emergency. Route guides are often produced in separate volumes for different geographical areas.

8. Minimum flight altitudes

8.1 The method for determining minimum flight altitudes.

8.2 The minimum flight altitudes for each route to be flown.

9. Aerodrome operating minima

9.1 The methods for determining aerodrome operating minima.

9.2 Aerodrome operating minima for each of the aerodromes that are likely to be used as aerodromes of intended landing or as alternate aerodromes.

9.3 The increase of aerodrome operating minima in case of degradation of approach or aerodrome facilities.

10. Search and rescue

10.1 The ground-air visual signal code for use by survivors.

10.2 Procedures for pilots-in-command observing an accident.

11. Dangerous goods

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

11.2 In addition to the ICAO *Technical Instructions* for the Safe Transport of Dangerous Goods by Air (Doc 9284); the ICAO *Dangerous Goods Training Program* (Doc 9375), Book 4 - Load Planners and Flight Crew, and Book 5 - Passenger Handling Staff and Flight Attendants; and the ICAO manual on Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (Doc 9481) are used in training and day-to-day operations.

12. Navigation

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

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

13. Communications

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

14. Security

14.1 Security instructions and guidance.

14.2 This manual shall contain information on procedures and legal requirements pertaining to security matters. The manual shall contain information and guidance on crewmembers' response and authority in relation the management of acts of unlawful interference. It shall also contain material on the carriage of persons under escort, and company and State regulations on the carriage of weapons on board, including in-flight security officers, or sky marshals. The aeroplane search procedure checklist required by Annex 6, Part I could also be included in this manual. It might be necessary to publish a separate volume for each aeroplane type.

15. Human factors

Information of the operators' training programs\ for the development of knowledge and skills related to human performance

Operators maintenance control manual 121.133

The operator shall provide the ECAA with a copy of its maintenance control manual, together with all amendments and / or revisions to it and shall incorporate in such mandatory material the ECAA may require.

The operator's maintenance control manual may be issued in separate parts and shall contain:

- a) A description of the following:
 - (1) Procedures acceptable to the ECAA to ensure that:
 - (i) Each aeroplane they operate is maintained in an airworthy condition;
 - (ii) The operational and emergency equipment necessary for an intended flight is serviceable;
 - (iii) The Certificate of Airworthiness of each aeroplane they operate remains valid
 - (2) The administrative arrangements between the operator and the approved maintenance organization
- b) Names and duties of the persons required to ensure that all maintenance is carried out in accordance with the maintenance control manual;
- c) A reference to the maintenance program provided by the operator, for the use and guidance of maintenance and operational personnel concerned, approved by the ECAA, with human factors principles observed in its design, containing:
 - 1) maintenance tasks and the intervals at which these are to be performed, taking into account the anticipated utilization of the aeroplane;
 - 2) When applicable, a continuing structural integrity program;
 - 3) Procedures for changing or deviating from 1) and 2) above; and
 - 4) When applicable, condition monitoring and reliability program descriptions for aircraft systems, components and powerplants.

Note: Maintenance tasks and intervals that have been specified as mandatory in approval of the type design shall be identified as such.
- d) The methods used for the completion and retention of the operator's maintenance records;
- e) The procedures for monitoring, accessing and reporting maintenance and operational experience;
- f) The procedures for accessing continuing airworthiness information and implementing any resulting actions;
- g) The procedures for implementing action resulting from mandatory continuing airworthiness information;
- h) Establishing and maintaining a system of analysis and continued monitoring of the performance and efficiency of the maintenance program, in order to correct any deficiency in that program;
- i) Aircraft types and models to which the manual applies;
- j) The procedures for ensuring that unserviceabilities affecting airworthiness are recorded and rectified; and
- k) The procedures for advising the ECAA of significant in-service occurrences.

121.134 Aircraft operation manual

This manual provides flight crew members with information and guidance on the technical, procedural and performance aspects of the operation of the aeroplane. This manual is often provided in two volumes. One volume presents "in-flight" data, i.e. limitations, normal and emergency checklists, normal and emergency procedures and amplification of these procedures, and in-flight performance data. The second volume presents aeroplane system descriptions and flight performance data for use in flight planning. All data and information in this manual must comply with the flight manual, where applicable. In general, the responsibility for developing and issuing amendments and revisions to these manuals rests with the aircraft manufacturer. Operators may develop additional instructions, procedures or guidance to be inserted in this manual. Such operator-developed additions should only be for clarification or expansion of the manufacturer's material, where necessary.

121.135 Minimum equipment list and configuration deviation list

These lists are supplied by the aircraft manufacturer in the flight manual or aircraft operating manual. For ease of use, operators extract the lists and include additional restrictions to the list for his own operational requirements and present them as a separate volume after ECAA approval. The manual should contain guidance and information on the use and interpretation of the lists.

121.136 Airplane performance manual

Aeroplane performance data are published in the flight manual. Normally, an expanded version of this is published in the aircraft operating manual. Based on these data, operators often produce their own performance manual which presents performance information for the operator's own route network. This manual typically contains take-off and landing data for each usable runway at each destination and alternate aerodrome. Where an operator has a very extensive route network, the information could be presented in separate volumes for different geographical areas. Cruise control information is often included in the performance manual. The manual must contain information on the method of derivation of the data presented, which must be in agreement with the data presented in the flight manual. Guidance on how to use the data presented and a number of examples of use of data are normally included.

121.137 Emergency evacuation procedures manual

This manual shall contain information on the emergency evacuation procedures for each aeroplane type for both flight and cabin crew. In addition to specific aeroplane procedures, the manual shall contain general safety and survival information appropriate to the areas in which operations take place.

121.138 Organization of the operations manual

1. The above list is for illustrative purposes only. In fact, an operator may combine many of these manuals into one or two volumes. On the other hand, because of the size of the operation, many more volumes may be required. An operator may choose to include, possibly at the requirement of the State, other manuals in the operations manual. An example would be a traffic manual on the procedures and methods of operation during ground handling of the airplanes.
2. In selecting a format for the operations manual, the primary criterion is that the manual be easily used and understood. The volume size should make the manual easy to handle on the flight deck, at least for those volumes that are part of the aeroplane library. The quality of the paper and of the printing and reproduction of the text and illustrations should be such that the material is readable under all operations conditions. The manuals should be in a format which is easily amendable, e.g. loose-leaf in a ring binder.
3. In selecting the number of volumes that make up the operations manual, the aim should be to limit the number while not allowing any one volume to become so large or full of pages that it would be unwieldy in actual use. The volumes should be designed so that, if possible, each is complete in itself. For example, all the performance information should be available in one volume. If this is not possible, as for example, if the performance manual is divided into volumes for different regions of the world, the individual volumes of one manual must be logically numbered. Thus, if the performance manual comprised Volume 4 of the operations manual, then in the case of there being separate volumes they would be numbered Volume 4-1, Volume 4-2, and so on.
4. If the operator has a number of different aeroplane types, it is common practice to differentiate the volumes of the operations manual that are specific to a particular aeroplane type and to identify those volumes that are general in their application. Some operators achieve this by color-coding the volumes. For example, all general volumes of the operations manual, such as the policy and administration manual, would have red covers,

while volumes specific to particular aeroplane type, such as the ATR 42, for example, would have yellow covers. Within each fleet the volume numbering will be similar, so that Volume on all aeroplane types will be the performance manual. The result of this would be that in any aeroplane library there would only be two cover colors (in the ATR 4 example, red and yellow) and, if possible, the numbering of all the volumes in an aeroplane library should be sequentially complete.

5. The operations manual shall have a master subject index, possibly placed in the policy and administration manual. In addition, each volume shall have its own subject index. There shall be table of contents at the beginning of each volume and for each section or chapter. Each page shall be numbered and have a date of original issue. Each volume shall have a checklist of pages identifying page numbers and dates of issue to ensure the validity of the contents. The entry of each amendment and/or additional page shall be recorded on a page specially provided in each volume for that purpose and signed for by the person making the amendment or addition.

6. The executive charged with the responsibility for the control of the contents of the operations manual shall also be responsible for the issuance of individual volumes and for ensuring that appropriate amendments are dispatched to the holders of the volumes. This task may obviously be delegated to another individual or unit reporting to the executive. To ensure adequate control of the volumes and their amendments, it is necessary to number each volume individually. Complete records must be kept of the disposition of each volume of the operations manual in aeroplane libraries, in operations offices, etc. Records must also be kept of individuals who are holders of all, or part, of the operations manual. Certain parts of the operations manual, such as the emergency evacuation procedure manual, are usually issued to all crew members. Other parts of the operations manual should be available in sufficient quantities to allow copies to be issued to individuals for study and reference purposes.

7. Amendments, revisions and additions to the operations manual must be approved by the executive responsible for the manual. In some cases this will consist of ensuring that such changes issued by the originator of a particular volume are correct and appropriate to the operations manual. This would be the case with amendments issued by the aircraft manufacturer for the operating manuals, or with amendments issued for the route guide, when the route guide is purchased from a commercial agency. However, in the case of amendments or additions, which originate within the organization, the executive responsible must ascertain that the proposed change is necessary and determine how it is to be promulgated. In most cases the amendment will be issued through normal channels to all holders of the operations manual. In other cases, because of the urgency of the information contained in the amendment it will be necessary to issue a notice to the flight crew and to other concerned operational personnel. This notice shall be replaced by an amendment to the manual as soon as possible. In revising or altering the contents of the operations manual, operators must bear in mind that the State is required to approve the contents of the operations manual and that certain parts of the manual include material which is considered mandatory. It is therefore necessary that the amendments be approved by the State authority. In practice, since much of the material in an operations manual only requires the general approval of the State, it is often appropriate to agree with the authority which parts of the operations manual need the specific approval of that authority before they are amended and which parts only require notification of changes made.

8. Amendments to the operations manual must be produced as new or replacement pages. Handwritten amendments to an operations manual are generally not acceptable. The new or replacement pages must include a page identification number and a date of issue. A letter or covering sheet must identify the reason for the amendment and provide a checklist of the amendment to be made. This is particularly when an amendment is made to any safety-related information. Instructions shall be included for inserting the amendment in the appropriate volume and for recording insertion of the amendment. The signature of the

executive approving the amendment must also appear. A revision to the list of effective pages must be included with any amendment to the operations manual.

9. Users of operations manuals should be encouraged to make comments on their contents. In particular, when errors in operational information are discovered, reports should be made immediately to the executive charged with control of the operations manual. Users also should be encouraged to comment on the general presentation of information in the manual and to suggest other subjects that should be addressed.

121.139 Distribution and availability.

(a) Each certificate holder shall furnish copies of the manual required by this subpart or appropriate parts of the manual (and the changes and additions thereto) to:

- (1) Its appropriate ground operations and maintenance personnel;
- (2) Crewmembers; and
- (3) Representatives of the ECAA assigned to it.

(b) Each person to whom a manual or appropriate parts of it are furnished under paragraph (a) of this section shall keep it up-to-date with the changes and additions furnished to that person and shall have the manual or appropriate parts of it accessible when performing assigned duties.

(c) For the purpose of complying with paragraph (a) of this section, a certificate holder may furnish the persons listed therein the maintenance part of the manual in microfilm or computerized form if it also furnishes and maintains a reading device that provides a legible facsimile image of the microfilmed maintenance information and instructions.

121.140 Requirement for manual aboard aircraft.

(a) Except as provided in paragraph (b) of this section, each Air Carrier and Air Taxi operator shall carry appropriate parts of the manual on each aircraft when away from the principal base. The appropriate parts must be available for use of ground or flight personnel.

(b) If an Air Carrier or Air Taxi operator carries aboard an aircraft all or any portion of the maintenance part of its manual in microfilm or computerized form, it must also carry a reading device that provides a legible facsimile image of the microfilmed maintenance information and instructions. If an Air Carrier or Air Taxi operator is able to perform all scheduled maintenance at specified stations where it keeps maintenance parts of the manual, it does not have to carry those parts of the manual aboard the aircraft en route to those stations.

121.141 Airplane or Rotorcraft flight manual.

(a) Each certificate holder shall keep a current approved airplane or rotorcraft flight manual for each type of transport category aircraft that it operates.

(b) In each transport category aircraft, the certificate holder shall carry either the manual required by this subpart, if it contains the information required for the applicable flight manual and this information is clearly identified as flight manual requirements, or an approved Airplane or Rotorcraft Flight Manual. If the certificate holder elects to carry the manual required by this subpart, he may revise the operating procedures sections and modify the presentation of performance data from the applicable flight manual if the revised operating procedures and modified performance data presentation are:

- (1) Approved by the ECAA; and
- (2) Clearly identified as airplane or rotorcraft flight manual requirements.

SUBPART H-Aircraft Requirements and Performance Limitations

121.151 Applicability.

This subpart prescribes aircraft requirements and performance limitations for all certificate holders.

121.153 Aircraft requirements: General.

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

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

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

(b) A certificate holder may use an approved weight and balance control system based on average, assumed, or estimated weight to comply with applicable airworthiness requirements and operating limitations.

(c) A certificate holder may operate in common carriage, and for the carriage of mail, a civil aircraft which is leased or chartered to it without crew and is registered in a country which is a party to the Convention on International Civil Aviation" ICAO" if:

(1) The aircraft carries an appropriate airworthiness certificate issued by the country of registration and meets the registration and identification requirements of that country;

(2) The aircraft is of a type design which is approved by the ECAA and complies with all of the requirements that would be applicable to that aircraft were it registered in Egypt, including the requirements which must be met for issuance of standard airworthiness certificate (including type design conformity, condition for safe operation, and the noise, fuel venting, and engine emission requirements), except that an Egyptian registration certificate and standard airworthiness certificate will not be issued for the aircraft;

(3) The aircraft is operated by aircrew employed by the certificate holder, with ECAA licenses validated by the country of registration, and

(4) The certificate holder files a copy of the aircraft lease or charter agreement with the ECAA.

121.155 Use of foreign aircrew.

The ECAA may grant a deviation from the crew requirements of 121.153 (c) (3) if the certificate holder provides adequate justification for using foreign licensed aircrew or aircrew not employed by the certificate holder.

121.157 Aircraft certification and equipment requirements.

(a) No Air Carrier certificate holder may operate an aircraft unless that aircraft was type certificated as a transport category aircraft under FAR 25, JAR 25, or Helicopter Type Certificated under FAR 29, JAR 29, or as a Commuter Category aircraft under ECAR 23, or equivalent and meets the performance requirements of its Type Certificate Data Sheet and unless that aircraft meets the requirements of 121.173 (c).

(b) No Air Taxi certificate holder may operate an aircraft having a Maximum Gross Takeoff Weight (MGTW) of over 5700 kg. All aircraft operated by an Air Taxi Certificate holder must meet the performance requirements of its Type Certificate Data Sheet, if available, and all performance data must be approved by the ECAA.

121.159 Single-engine aircraft prohibited.

No Air Carrier certificate holder may operate a single engine aircraft.

121.161 Aircraft limitation: Extended range operations.

- (a) Unless authorized by the ECAA for extended range, based on the character of the terrain, the kind of operation, or the performance of the aircraft to be used, no certificate holder may operate two-engine aircraft over a route that contains a point farther than 1 hour flying time (in still air at normal cruising speed with one engine inoperative) from an adequate airport.
- (b) No certificate holder may operate a land aircraft in an extended overwater operation unless it is certificated or approved as adequate for ditching.
- (c) Refer to ECAR 91 Appendix H: (Extended range operations).

121.163 Aircraft proving tests.

- (a) No Air Carrier or Air Taxi Certificate holder may operate an aircraft not before proven for use in Air Carrier or Air Taxi operations, as appropriate, unless an aircraft of that type has had, in addition to the aircraft certification tests, at least 100 hours of proving tests acceptable to the ECAA. If the ECAA determines that a satisfactory level of proficiency has been demonstrated, it may reduce the number of hours required. The ECAA has the authority to accept, modify or reject the operators plan for the proving tests. At least 10 hours of proving tests must be flown at night.
- (b) A certificate holder may not operate an aircraft of a type that has been proven for use in its class of operation if it has not previously proved that type, or if that aircraft has been materially altered in design, unless:
 - (1) The aircraft has had at least 50 hours of tests acceptable to the ECAA, including a representative number of flights into enroute airports; or
 - (2) The ECAA specifically authorizes deviations when special circumstances make full compliance with this paragraph unnecessary in a particular case.
- (c) An Air Taxi operator may, with ECAA approval, operate a helicopter that has not before been proven for use in Air Taxi operations if the helicopter has been used extensively in the services of the armed forces and meets the requirements of paragraph (b) of this section.
- (d) For the purposes of paragraph (b) of this section, a type of aircraft is considered to be materially altered in design if the alterations include:
 - (1) The installation of powerplants other than those of a type similar to those with which it is certificated; or
 - (2) Alterations to the aircraft or its components that materially affect flight characteristics.
- (e) No certificate holder may carry passengers in an aircraft during proving tests, except for those needed to make the test and those designated by ECAA, However, it may carry mail, express, or other cargo, when approved.

SUBPART J-

Special Airworthiness Requirements

121.291 Demonstration of emergency evacuation procedures .

(a) Each certificate holder must conduct an actual demonstration of emergency evacuation procedures in accordance with paragraph (a) of Appendix D to this ECAR to show that each type and model of aircraft with a seating capacity of more than 44 passengers to be used in its passenger-carrying operations allows the evacuation of the full seating capacity, including crewmembers, in 90 second or less, if that aircraft type and model has not been shown to be in compliance with :

- (1) Section 25.803 of FAR/JAR 25, during type certification; or
- (2) Section 121.291 (a)

(b) Each certificate holder must conduct a partial demonstration of emergency evacuation procedures in accordance with paragraph (c) of this section upon:

- (1) Initial introduction of a type and model of aircraft into passenger/carrying operation, if the type certificate holder has not conducted an actual demonstration under paragraph (a) of this section;
- (2) Changing the number, location, or emergency evacuation duties or procedures of flight attendants who are required by 121.391; or
- (3) Changing the number, location, type of emergency exits, or type of opening mechanism on emergency exits available for evacuation .

(c) In conducting a partial demonstration each certificate holder must :

- (1) Demonstrate the effectiveness of its crewmember emergency training and evacuation procedures by conducting a demonstration without passengers and observed by the ECAA, in which the flight attendants for that type and model of aircraft using that operator's line operating procedures, open 50 percent of the required floor-level emergency exits and 50 percent of the required non-floor-level emergency exits, whose opening by a flight attendant is defined as an emergency evacuation duty under 121.397 . The exits will be selected by the ECAA and must be ready for use within 15 seconds :
- (2) Apply for and obtain approval from the ECAA before conducting the demonstration;
- (3) Use flight attendants in this demonstration who have been selected at random by the ECAA, have completed the certificate holder's ECAA approved training program for the type and model of aircraft, and have passed a written or practical examination on the emergency equipment and procedures : and
- (4) Apply for and obtain approval from the ECAA before commencing operations with this type and model aircraft .

(d) Each certificate holder operating or proposing to operate one or more landplanes in extended overwater operations, or otherwise required to have certain equipment under 121.339, must show, by simulated ditching conducted in accordance with the ECAA requirements, that it has the ability to efficiently carry out its ditching procedures .

(e) For a type and model airplane for which the simulated ditching specified in paragraph (d) has been conducted by a part 121 certificate holder, the ECAA requirements are complied with if each life raft is removed from stowage, one life raft is launched and inflated (or one slide life raft is inflated) and crewmembers assigned to the inflated life raft display and describe the use of each item of required emergency equipment . The life raft or slide life raft to be inflated will be selected by the ECAA.

SUBPART K

Instrument and Equipment Requirements

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SUBPART K

Instrument and Equipment Requirements

121.301 Applicability

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

121.303 Aircraft instruments and equipment.

(a) Unless otherwise specified, the instrument and equipment requirements of this subpart apply to all operations under this ECAR.

(b) Instruments and equipment must be approved and installed in accordance with the airworthiness requirements applicable to them.

(c) Each airspeed indicator must be calibrated in knots, and each airspeed limitation and item of related information in the Aircraft Flight Manual or approved performance data and pertinent placards must be expressed in knots.

(d) Except as provided in 121.304, no person may take off any aircraft unless the following instruments and equipment are in operable condition:

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

121.304 Inoperable instruments and equipment: Minimum Equipment List.

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

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

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

(3) The approved Minimum Equipment List must:

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

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

(4) Records identifying the inoperable instruments and equipment and the information required by (a) (3) (ii) of this section must be available to the pilot.

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

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

- (1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the Aircraft is type certificated and which are essential for safe operations under all operating conditions.
 - (2) Instrument and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.
 - (3) Instrument and equipment required for specific operation by this ECAR
- (c) Notwithstanding paragraphs (b) (1) and (b) (3) of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit, or under a defect control program approved by the ECAA

121.305 Flight and navigational equipment.

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

- (a) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to icing.
- (b) A sensitive altimeter.
- (c) A sweep-second hand clock (or approved equivalent)
- (d) A free-air temperature indicator.
- (e) A gyroscopic bank and pitch indicator (artificial horizon)
- (f) A gyroscopic rate-of turn indicator combined with an integral slip-skid indicator (turn-and-bank indicator) except that only a slip-skid indicator is required when a third attitude instrument system usable through flight attitudes of 360 degrees of pitch and roll is installed in accordance with paragraph (J) of this section.
- (g) A gyroscopic direction indicator (directional gyro or equivalent)
- (h) A magnetic compass.
- (i) A vertical speed indicator (rate-of-climb indicator)
- (j) On large turbojet powered aircraft, in addition to two gyroscopic bank- and pitch indicators (artificial horizons) for use at the pilot stations, a third such instrument that:
 - (1) Must be powered from a source independent of the electrical generating system.
 - (2) Continues reliable operation for a minimum of 30 minutes after total failure of the electrical generating system,
 - (3) Operates independently of any other attitude indicating system;
 - (4) Is operative without selection after total failure of the electrical generating system,
 - (5) Is located on the instrument panel in position acceptable to the ECAA that will make it plainly visible to and usable by any pilot at his station; and
 - (6) Is appropriately lighted during all phases of operation.

121.307 Engine instruments.

Unless the ECAA allows or requires different instrumentation for turbine engine powered aircraft to provide equivalent safety, no person may conduct any operation under this ECAR without the following engine instruments.

- (a) A carburetor or fuel control unit air temperature indicator for each engine
- (b) A cylinder head temperature indicator for each air-cooled engine
- (c) A fuel pressure indicator for each engine
- (d) A fuel flowmeter or fuel mixture indicator for each engine not equipped with an automatic altitude mixture control.
- (e) A means for indicating fuel quantity in each fuel tank to be used.
- (f) A manifold pressure indicator for each engine.
- (g) An oil pressure indicator for each engine.
- (h) An oil quantity indicator for each oil tank when a transfer or separate oil reserve supply is used.

- (i) A tachometer for each engine
- (j) A device for each reversible propeller, to indicate to the pilot when the propeller is in reverse pitch, that complies with the following.
 - (1) The device may be actuated at any point in the reversing cycle between the normal low pitch stop position and full reverse pitch, but it may not give an indication at or above the normal low pitch stop position.
 - (2) The source of indication must be actuated by the propeller blade angle or be directly responsive to it.

121.308 Lavatory fire protection.

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

121.309 Emergency equipment.

- (a) General: No person may operate an aircraft unless it is equipped with the emergency equipment listed in this section and, for Air Carrier aircraft, in 121.310.
- (b) Each item of emergency and flotation equipment listed in this section and, for Air Carrier aircraft, in 121.310, 121.339, 121.340.
 - (1) Must be inspected regularly in accordance with inspection periods established in the approved maintenance schedule to ensure its condition for continued serviceability and immediate readiness to perform its intended emergency purposes;
 - (2) Must be readily accessible to the crew and, with regard to equipment located in the passenger compartment, to passengers;
 - (3) Must be clearly identified and clearly marked to indicate its method of operation and.
 - (4) When carried in a compartment or container, must be carried in a compartment or container marked as to contents and the compartment or container, or the item itself, must be marked as to date of last inspection.
- (c) Hand fire extinguishers for crew, passenger, and cargo compartments. Hand fire extinguishers of an approved type must be provided for use in crew, passenger, and cargo compartments in accordance with the following:
 - (1) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur in the compartment where the extinguisher is intended to be used and, for passenger compartments, must be designed to minimize the hazard of toxic gas concentrations.
 - (2) Cargo compartments. At least one hand fire extinguisher must be provided and conveniently located for use in each Class E cargo compartment per FAR/JAR 25.857, or equivalent, which is accessible to crewmembers during flight, and at least one must be located in each upper and lower lobe galley.
 - (3) Galley compartments. At least one hand fire extinguisher must be conveniently located on the flight deck for use by the flightcrew.

(4) At least one hand fire extinguisher must be conveniently located in the passenger compartment of each aircraft accommodating more than 6 but less than 31 passengers, and at least two hand fire extinguishers must be conveniently located in each aircraft accommodating more than 30 passengers. At least 2 hand fire extinguishers must be conveniently located and uniformly distributed in the passenger compartment of aircraft having a passenger seating capacity of 60 or less and for the passenger compartment of each aircraft having a passenger seating capacity of more than 60, there must be at least the following number of hand fire extinguishers conveniently located and uniformly distributed throughout the compartment;

MINIMUM NUMBER OF HAND FIRE EXTINGUISHERS

Passenger seating capacity:

61 through 200.....	3
201 through 300.....	4
301 through 400.....	5
401 through 500.....	6
501 through 600.....	7
601 or more.....	8

(d) First-aid and emergency medical equipment. Approved first-aid Kits and, on passenger carrying flights of Air Carrier aircraft, an emergency medical kit for treatment of injuries or medical emergencies that might occur during flight time or in minor accidents must be provided and must meet the specifications and requirements of Appendix A

(e) Crash axe. Each Air Carrier aircraft must be equipped with a crash axe.

(f) Megaphones. Each passenger-carrying Air Carrier aircraft 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 aircraft with a seating capacity of more than 60 and 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 ECAA may grant a deviation from the requirements of this subparagraph if he finds that a different location would be more useful for evacuation of persons during an emergency.

(2) Two megaphones in the passenger cabin on each aircraft with a seating capacity of more than 99 passengers, one installed at the forward end and the other at the most rearward location where it would be readily accessible to a normal flight attendant seat.

121.310 Additional emergency equipment

(a) Means for emergency evacuation. Each passenger-carrying landplane emergency exit (other than over-the-wing) that is more than 6 feet from the ground with the aircraft on the ground and the landing gear extended. must have an approved means to assist the occupants in descending to the ground. The assisting means for a floor-level emergency exit must meet the requirements under which the aircraft was type certificated. An assisting means that deploys automatically must be armed during taxiing, takeoffs, and landings. However, if the ECAA finds that the design of the exit makes compliance impractical, it may grant a deviation from the requirement of automatic deployment if the assisting means automatically erects upon deployment.

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

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

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

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

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

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

(iii) For an aircraft for which the application for the type certificate was filed on or after May 1, 1972, each passenger emergency exit marking and each locating sign must be manufactured to meet the interior emergency exit marking requirements under which the aircraft was type certificated.

(c) Lighting for interior emergency exit markings. Each passenger-carrying Air Carrier aircraft must have an emergency lighting system, independent of the main

lighting system. However, sources of general cabin illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency lighting system is independent of the power supply to the main lighting system. The emergency lighting system must:

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

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

(3) For aircraft types over 5700 kg MGTW and certificated after January 1, 1958, include floor proximity emergency escape path marking which meets the requirements of FAR/JAR 25.812, or equivalent.

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

(1) Each light must be operable manually, and must operate automatically from the independent lighting system:

(i) In a crash landing or

(ii) Whenever the aircraft's normal electric power to the light is interrupted.

(2) Each light must:

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

(ii) Have a means to prevent inadvertent operation of the manual controls, and

(iii) When armed or turned on at either station, remain lighted or become lighted upon interruption of the aircraft's normal electric power. Each light must be armed or turned on during taxiing, takeoff, and landing. In showing compliance with this paragraph a transverse vertical separation of the fuselage need not be considered.

(3) Each light must provide the required level of illumination for at least 10 minutes at the critical ambient conditions after emergency landing.

(4) Each light must have a cockpit control device that has an "on", "off", and "armed" position

(e) Emergency exit operating handles.

(1) For passenger-carrying Air Carrier aircraft for which the application for the type certificate was filed prior to May 1, 1972, the location of each passenger emergency exit operating handle, and instructions for opening the exit, must be shown by a marking on or near the exit that is readable from a distance of 30 inches. In addition, for each Type I and Type II emergency exit with a locking mechanism released by rotary motion of the handle, the instructions for opening must be shown by:

(i) A red arrow with a shaft at least three-fourths inch wide and a head twice the width of the shaft, extending along at least 70° of arc at a radius approximately equal to three-fourths of the handle length; and

(ii) The word "open" in red letters 1 inch high placed horizontally near the head of the arrow.

(2) For a passenger-carrying Air Carrier aircraft for which the application for the type certificate was filed on or after May 1, 1972, the location of each passenger emergency exit operating handle and instructions for opening the exit must be shown in accordance with the requirements under which the aircraft was type certificated. On these aircraft, no operating handle or operating handle cover may continue to be used if its luminescence (brightness) decreases to below 100 microlamberts.

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

(1) Each passage way between individual passenger areas, or leading to a Type I or Type II emergency exit, must be unobstructed and at least 20 inches wide.

(2) There must be enough space next to each Type I or Type II emergency exit to allow a crewmember to assist in the evacuation of passengers without reducing the unobstructed width of the passageway below that required in paragraph (f) (1) of this section.

(3) There must be access from the main aisle to each Type III and Type IV exit. The access from the aisle to these exits must not be obstructed by seats, berths, or other protrusions in a manner that would reduce the effectiveness of the exit. In addition:

(i) For an Air Carrier aircraft for which the application for the type certificate was filed prior to May 1, 1972, the access must meet the requirements of FAR 25.813 (c) in effect on April 30, 1972, or equivalent, and

(ii) For an Air Carrier aircraft, for which the application for the type certificate was filed on or after May 1, 1972, the access must meet the emergency exit access requirements under which the aircraft was type certificated.

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

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

(6) If it is necessary to pass through a doorway separating the passenger cabin from other areas to reach required emergency exit from any passenger seat, the door must have a means to latch it in open position, and the door must be latched open during each takeoff and landing. The latching means must be able to withstand the loads imposed upon it when the door is subjected to the ultimate inertia forces, relative to the surrounding structure, listed in FAR/JAR 25.561(b), or equivalent.

(g) Exterior exit markings, Each passenger emergency exit and the means of opening that exit from the outside must be marked on the outside of the aircraft. There must be a 2-inch colored band outlining each passenger emergency exit on the side of the fuselage. Each outside marking, including the band, must be readily distinguishable from the

surrounding fuselage area by contrast in color. The markings must comply with the following:

- (1) If the reflectance of the darker color is 15 percent or less, the reflectance of the lighter color must be at least 45 percent.
- (2) If the reflectance of the darker color is greater than 15 percent, at least a 30 percent difference between its reflectance and the reflectance of the lighter color must be provided.
- (3) Exits that are not in the side of the fuselage must have the external means of opening and applicable instructions marked conspicuously in red or, if red is inconspicuous against the background color, in bright chrome yellow and, when the opening means for such an exit is located on only one side of the fuselage, a conspicuous marking to that effect must be provided on the other side." Reflectance" is the ratio of the luminous flux reflected by a body to the luminous flux it receives.
- (h) Exterior emergency lighting and escape route. Each passenger-carrying aircraft must be equipped with exterior lighting that meets the following requirements:
 - (1) For an Air Carrier aircraft for which the application for the type certificate was filed prior to May 1, 1972, the requirements of FAR 25.812 (f) and (g) in effect on April 30, 1972, or equivalent.
 - (2) For an aircraft for which the application for the type certificate was filed on or after May, 1972, the exterior emergency lighting requirements under which the aircraft was type certificated. For a passenger cabin that is 44 or more inches high and 20 or more inches wide, but not wider than 46 inches, each passenger ventral exit and each tail cone exit, must meet the requirements of this section and FAR/JAR 25.803(e) , or equivalent, for floor level emergency exits. However the ECAA may grant a deviation from this paragraph if they find that circumstances make full compliance impractical and that an acceptable level of safety has been achieved.
 - (j) Additional emergency exits, Approved emergency exits in the passenger compartments that are in excess of the minimum number of required emergency exits must meet all of the applicable provisions of this section except paragraphs (f) (1),(2) and (3) of this section and must be readily accessible.
 - (k) On each large passenger-carrying turbojet-powered aircraft, each ventral exit and tailcone exit must be:
 - (1) Designed and constructed so that it cannot be opened during flight: and.
 - (2) Marked with a placard readable from a distance of 30 inches and installed at a conspicuous location near the means of opening the exit, stating that the exit has been designed and constructed so that it cannot be opened during flight.
 - (l) Portable lights. No person may operate a passenger-carrying Air Carrier aircraft unless it is equipped with flashlight stowage provisions accessible from each flight attendant seat.

121.311 Seats, safety belts, and shoulder harnesses.

- (a) No person may operate an aircraft unless there are available during the takeoff, en route flight, and landing:
 - (1) An approved seat or berth for each person on board the aircraft who has reached his second birthday: and
 - (2) An approved safety belt for separate use by each person on board the aircraft who has reached his second birthday, except that two persons occupying a berth may share one approved safety belt and two persons occupying a multiple lounge or divan seat may share one approved safety belt during en route flight only:
 - (3) Provided the child has not reached the second birthday, and 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, an approved child restraint system bearing either a label showing approval of a foreign government or a label showing that the seat was manufactured under the standards of the United Nations for aircraft or automobile may be used, providing the certificate holder complies with the following requirements:

- (i) The restraint system must be properly secured to an approved forward-facing seat or berth;
- (ii) The child must be properly secured in the restraint system and must not exceed the specified weight limit for the restraint system.
- (b) No certificate holder may prohibit a child, if requested by the child's parent, guardian, or designated attendant from occupying a child restraint system furnished by the child's parent, guardian, or designated attendant, provided the child holds a ticket for an approved seat or berth, or such seat or berth is otherwise made available by the requirements contained in paragraph (a) of this section are met. This section does not prohibit the certificate holder from providing child restraint systems or, consistent with safe operating practices, determining the most appropriate passenger seat location for the child restraint system.
- (c) During the takeoff and landing of an aircraft, each person on board shall occupy an approved seat or berth with a separate safety belt properly secured about him. However, a person who has not reached his second birthday may be held by an adult who is occupying a seat or berth. A safety belt provided for the occupant of a seat may not be used during takeoff and landing by more than one person who has reached his second birthday.
- (d) Each side ward facing seat must comply with applicable requirements of its type certificate.
- (e) Except as provided in subparagraph (1) and (2) of this paragraph, no certificate holder may take off or land an aircraft unless each passenger seat back is in the upright position. Each passenger shall comply with instructions given by a crewmember in compliance with this paragraph.
 - (1) This paragraph does not apply to seat backs placed in other than the upright position in compliance with 121.310 (f) (3).
 - (2) This paragraph does not apply to seats or when persons who are unable to sit erect for a medical reason are carried in accordance with procedures in the certificate holder's manual if the seat back does not obstruct any passenger's access to the aisle or to any emergency exit.
- (f) No person may operate a transport category aircraft that was type certificated after January 1, 1958, unless it is equipped at each flight deck station with a combined safety belt and shoulder harness that meets the applicable requirements specified in FAR/JAR 25.785, or equivalent, except that safety belt and shoulder harness restraint systems may be designed to the inertial load factors established under the certification basis of the aircraft.
- (g) Each flight attendant must have a seat for takeoff and landing in the passenger compartment that meets the requirements of FAR /JAR 25.785, or equivalent, safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the aircraft except that.
- (h) The requirements of FAR/JAR 25.785 (h) , or equivalent, do not apply to passenger seats occupied by flight attendants not required by 121.391.
- (i) Each occupant of a seat equipped with a combined safety belt and shoulder harness must have the combined safety belt and shoulder harness properly secured about that occupant during takeoff and landing and be able to properly perform assigned duties.

(j) At each unoccupied seat, the safety belt and shoulder harness, if installed, must be secured so as not to interfere with crewmembers in the performance of their duties or with the rapid egress of occupants in an emergency.

121.312 Materials for compartment interiors.

(a) Except for those materials covered by paragraph (c) of this section, all materials in each compartment used by the crewmembers or passengers must meet the requirements of FAR/JAR 25.853, or equivalent.

(b) The ECAA may authorize deviation from the requirements of paragraph (a) of this section for specific components of the cabin interior which do not meet applicable flammability and smoke emission requirements, if the determination is made that special circumstances exist that make compliance impractical. A request for such grant of deviation must include a thorough and accurate analysis of each component subject to FAR/JAR 25.853 (a-1) , or equivalent, the steps being taken to achieve compliance, and, for the few components for which timely compliance will not be achieved, credible reasons for such noncompliance.

(c) For aircraft type certificated after January 1, 1958, seat cushions, except those on flight crewmember seats, in any compartment occupied by crew or passengers must comply with the requirements pertaining to fire protection of seat cushions in FAR/JAR 25.853 (c) , or equivalent.

121.313 Miscellaneous equipment.

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

(a) If protective fuses are installed on an aircraft, the number of spare fuses approved for that aircraft and appropriately described in the certificate holder's manual

(b) A windshield wiper or equivalent for each pilot station, if so type equipped.

(c) A power supply and distribution system that meets the requirements of FAR/JAR 25.1309, 25.1331, 25.1351 (a) and (b) (1) through (4), 25.1353, 25.1355, and 25.143(b), or equivalent, or original type certification that is able to produce and distribute the load for the required instruments and equipment, with use of an external power supply if any one power source or component of the power distribution system fails. The use of common elements in the system may be approved if the ECAA finds that they are designed to be reasonably protected against malfunctioning. Engine driven sources of energy, when used, must be on separate engines.

(d) A means for indicating the adequacy of the power being supplied to required flight instruments.

(e) Two independent static pressure systems, if so type equipped, vented to the outside atmospheric pressure so that they will be least affected by air flow variation or moisture or other foreign matter, and installed so as to be airtight except for the vent. When a means is provided for transferring an instrument from its primary operating system to an alternate system, the means must include a positive positioning control and must be marked to indicate clearly which system is being used.

(f) If so type equipped, a door between the passenger and pilot compartments, with a locking means to prevent passengers from opening it without the pilot's permission.

(g) A key for each door that separates a passenger compartment from another compartment that has emergency exit provisions. The key must be readily available for each crewmember.

(h) A placard on each door that is the means of access to a required passenger emergency exit, to indicate that it must be open during takeoff and landing.

(i) A means for the crew, in an emergency to unlock each door that leads to a compartment that is normally accessible to passengers and that can be locked by passengers.

121.314 Cargo and baggage compartments.

(a) Each Class C or D compartment, as defined in FAR/JAR 25.857, or equivalent, greater than 200 cubic feet in volume in a transport category aircraft type certificated after January 1, 1958, must have ceiling and sidewall liner panels which are constructed of:

(1) Glass fiber reinforced resin;

(2) Materials which meet the test requirements of FAR/JAR 25, Appendix F, or equivalent; or

(3) In the case of liner installations approved prior to March 20, 1989, aluminum

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

121.315 Cockpit check procedure.

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

(b) The approved procedures must include each item necessary for flight crewmembers to check for safety before starting engines, taking off, or landing, and in engine and systems emergencies. The procedures must be designed so that a flight crewmember will not need to rely upon his memory for items to be checked.

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

121.316 Fuel tanks.

Each turbine powered transport category aircraft must meet the requirements of FAR/JAR 25.963 (e), or equivalent.

121.317 Passenger information.

(a) No person may operate an aircraft type certificated with passenger information signs unless they meet the requirements of FAR/JAR 25.791, or equivalent. The signs must be constructed so that the crewmembers can turn them on and off.

(b) The seat belt sign shall be turned on for each landing and takeoff, and at any other time considered necessary by the pilot in command.

(c) No person may operate an aircraft on a flight segment on which smoking is prohibited unless the "No Smoking" passenger information signs are lighted during the entire flight segment, or one or more "No Smoking" placards meeting the requirements of FAR/JAR 25.1541, or equivalent, are posted during the entire flight segment. If both the lighted signs and the placards are used, the signs must remain lighted during the entire flight segment.

(d) Smoking is prohibited on scheduled flight segments:

(1) Between any two points within Egypt;

(2) Scheduled flights prescribed by the ECAA.

(e) No person may operate a passenger carrying aircraft unless there is affixed to each forward bulkhead and each passenger seat back a sign or placard that reads "Fasten Seat Belt While Seated" These signs or placards need not meet the requirements of paragraph (a) of this section.

- (f) Each passenger shall fasten that passenger's seat belt and keep it fastened while the seat belt sign is lighted.
- (g) No person may smoke while a "No Smoking" sign is lighted or if "No Smoking" placards are posted, except that the pilot in command may authorize smoking on the flight deck except during landings and takeoffs.
- (h) No person may smoke in any aircraft lavatory.
- (i) No person may tamper with, disable, or destroy and smoke detector installed in any aircraft lavatory.
- (j) On flight segments other than those described in paragraph (c) of this section, the "No Smoking" sign must be turned on for each takeoff and landing and at any other time considered necessary by the pilot in command.

121.318 Public address system.

No person may operate an aircraft with a MGTW over 12,500 pounds (5799Kg) unless it is equipped with a public address system which:

- (a) Is capable of operation; independent of the crewmember system required by 121.319, except for handsets, headsets, microphones, selector switches, and signaling devices;
- (b) [Reserved];
- (c) Is accessible for immediate use from each of two flight crewmember stations in the pilot compartment;
- (d) For each required floor-level passenger emergency exit which has an adjacent flight attendant seat, has a microphone which is readily accessible to the seated flight attendant, except that one microphone may serve more than one exit, provided the proximity of the exits allows unassisted verbal communication between seated flight attendants;
- (e) Is capable of operation within 10 seconds by a flight attendant at each of those stations in the passenger compartment from which its use is accessible;
- (f) Is audible at all passenger seats, lavatories, and flight attendant seats and work stations; and
- (g) For transport category aircraft manufactured on or after November 27, 1990, meets the requirements of FAR/JAR 25.1423, or equivalent.

121.319 Crewmember interphone system.

(a) No person may operate an aircraft with a MGTW over 12,500 pounds (5700Kg) unless the aircraft is equipped with a crewmember interphone system that:

- (1) [Reserved].
 - (2) Is capable of operation independent of the public address system required by 121.318 (a) except for handsets, headsets, microphones, selector switches, and signaling devices; and
 - (3) Meets the requirements of paragraph (b) of this section.
- (b) The crewmember interphone system required by paragraph (a) of this section must be approved, and meet the following requirements:
- (1) It must provide a means of two-way communication between the pilot compartment and:
 - (i) Each passenger compartment; and
 - (ii) Each galley located on other than the main passenger deck level.
 - (2) It must be accessible for immediate use from each of two flight crewmember stations in the pilot compartment;
 - (3) It must be accessible for use from at least one normal flight attendant station in each passenger compartment;
 - (4) It must be capable of operation within 10 seconds by a flight attendant at those stations in each passenger compartment from which its use is accessible; and
 - (5) For large turbojet- powered aircraft:
 - (i) It must be accessible for use at enough flight attendant stations so that all floor-level emergency exits (or entryways to those exits in the case of exits located within galleys) in each passenger compartment are observable from one or more of those stations so equipped;
 - (ii) It must have an alerting system incorporating aural or visual signals for use by flight crewmembers to alert flight attendants and for use by flight attendants to alert flight crewmembers;

(iii) The alerting system required by paragraph (b) (5) (ii) of this section must have a means for the recipient of a call to determine whether it is a normal call or an emergency call; and

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

121.321 [Reserved].

121.323 Instruments and equipment for operations at night.

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

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

121.325 Instruments and equipment for operations under IFR or over the-top.

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

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

121.327 Supplemental oxygen: Reciprocating engine powered aircraft.

(a) General. Except where supplemental oxygen is provided in accordance with 121.331, no person may operate an aircraft unless supplemental oxygen is furnished and used as set forth in paragraphs (b) and (c) of this section. The amount of supplemental oxygen required for a particular operation is determined on the basis of section. The amount of supplemental oxygen required for a particular operation is determined on the basis of flight altitudes and flight duration, consistent with the operation procedures established for each operation and route.

(b) Crewmembers. Each certificate holder shall provide a supply of oxygen, approved for crewmember safety, in accordance with the following:

- (1) At cabin pressure altitudes above 10,000 feet up to and including 12,000 feet, oxygen must be provided for, and used by, each member of the flight crew on flight deck

duty, and must be provided for other crewmembers, for that part of the flight those altitudes that is of more than 30 minutes duration.

(2) At cabin pressure altitudes above 12,000 feet, oxygen must be provided for, and used by, each member of the flight crew on flight deck duty, and must be provided for other crewmembers, during the entire flight time at those altitudes.

(3) When a flight crewmember is required to use oxygen, he must use it continuously, except when necessary to remove the oxygen mask or other dispenser in connection with his regular duties. Standby crewmembers who are on call or are definitely going to have flight deck duty before completing the flight must be provided with an amount of supplemental oxygen equal to that provided for crewmembers on duty other than on flight deck duty. If a standby crewmember is not passenger for the purposes of supplemental oxygen requirements.

(c) Passengers. Each certificate holder shall provide a supply of oxygen, approved for passenger safety, in accordance with the following:

(1) For flights of more than 30 minutes duration at cabin pressure altitudes above 8,000 feet up to and including 14,000 feet, enough oxygen for 30 minutes for 10 percent of the passengers.

(2) For flights at cabin pressure altitudes above 14,000 feet up to and including 15,000 feet, enough oxygen for that part of the flight at those altitudes for 30 percent of the passengers.

(3) For flights at cabin pressure altitudes above 15,000 feet, enough oxygen for each passenger carried during the entire flight at those altitudes.

(d) For the purposes of this subpart "cabin pressure altitude" means the pressure altitude corresponding with the pressure in the cabin of the aircraft, and "flight altitude" means the altitude above sea level at which the aircraft is operated. For aircraft without pressurized cabins, "cabin pressure altitude" and "flight altitude" mean the same thing.

121.329 Supplemental oxygen: Turbine engine powered aircraft.

(a) General.

When operating a turbine engine powered aircraft, each certificate holder shall equip the aircraft with sustaining oxygen and dispensing equipment for use as set forth in this section.

(1) The amount of oxygen provided must be at least the quantity necessary to comply with paragraphs (b) and (c) of this section.

(2) The amount of sustaining and first-aid oxygen required for a particular operation to comply with the rules in this ECAR is determined on the basis of cabin pressure altitudes and flight duration, consistent with the operating procedures established for each operation and route.

(3) The requirements for aircraft with pressurized cabins are determined on the basis of cabin pressure altitude and the assumption that a cabin pressurization failure will occur at the altitude or point of flight that is most critical from the standpoint of oxygen need, and that after the failure the aircraft will descend in accordance with the emergency procedures specified in the Aircraft Flight Manual, without exceeding its operating limitations, to a flight altitude that will allow successful termination of the flight.

(4) Following the failure, the cabin pressure altitude is considered to be the same as the flight altitude unless it is shown that no probable failure of the cabin or pressurization equipment will result in a cabin pressure altitude equal to the flight altitude. Under those circumstances, the maximum cabin pressure altitude attained may be used as a basis for certification or determination of oxygen supply, or both.

(b) Crewmembers. Each certificate holder shall provide a supply of oxygen for crewmembers in accordance with the following:

- (1) At cabin pressure altitudes above 10,000 feet, up to and including 12,000 feet, oxygen must be provided for and used by each member of the flight crew on flight deck duty and must be provided for other crewmembers for that part of the flight at those altitudes that is of more than 30 minutes duration.
 - (2) At cabin pressure altitudes above 12,000 feet, oxygen must be provided for, and used by, each member of the flight crew on flight deck duty, and must be provided for other crewmembers during the entire flight at those altitudes.
 - (3) When a flight crewmember is required to use oxygen, he must use it continuously except when necessary to remove the oxygen mask or other dispenser in connection with his regular duties. Standby crewmembers who are on call or are definitely going to have flight deck duty before completing the flight must be provided with an amount of supplemental oxygen equal to that provided for crewmembers on duty other than on flight duty. If a standby crewmember is not on call and will not be on flight deck duty during the remainder of the flight, he is considered to be a passenger for he purposes of supplemental oxygen requirements.
- (c) Passengers. Each certificate holder shall provide a supply of oxygen for passengers in accordance with the following:
- (1) For flights at cabin pressure altitudes above 10,000 feet, enough oxygen for that part of the flight at those altitudes that is of more than 30 minutes duration, for 10 percent of the passengers.
 - (2) For flights at cabin pressure altitudes above 14,000 feet, up to and including 15,000 feet, enough oxygen for that part of the flight at those altitudes for 30 percent of the passengers.
 - (3) For flights at cabin pressure altitudes above 15,000 feet, enough oxygen for each passenger carried during the entire flight at those altitudes.
- Note:* Additional requirements concerning oxygen system for pressurized turbine power passenger air transport aircraft either registered in A.R.E. or leased to Egyptian aviation companies are given in appendix k to this ECAR.

121.331 Supplemental oxygen: Pressurized cabin aircraft: Reciprocating engine powered aircraft.

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

- (i) For that part of the flight that is more than four minutes duration at flight altitudes above 15,000 feet, the supply required by 121.327 (c) (3).
 - (ii) For that part of the flight at flight altitudes above 14,000 feet, up to and including 15,000 feet, the supply required by 121.327 (c) (2).
 - (iii) For flight at flight altitudes above 8,000 feet up to and including 14,000 feet, enough oxygen for 30 minutes for 10 percent of the passengers.
- (3) When an aircraft is flown at a flight altitude above flight level 250, enough oxygen for 30 minutes for 10 percent of the passengers for the entire flight (including emergency descent) above 8,000 feet, up to and including 14,000 feet, and to comply with 121.327 (c) (2) and (3) for flight above 14,000 feet.
- (d) For the purposes of this section it is assumed that the cabin pressurization failure occurs at a time during flight that is critical from the standpoint of oxygen need and that after the failure the aircraft will descend, without exceeding its normal operating limitations, to flight altitudes allowing safe flight with respect to terrain clearance.

121.333 Supplemental oxygen: For emergency descent for Turbine engine powered aircraft:

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

(3) Should one pilot leave his position at the controls, the remaining pilot at the controls of the aircraft shall at all times wear and use an oxygen mask secured, sealed, and supplying oxygen, however, the remaining pilot need not wear and use an oxygen mask if each flight crewmember on flight deck duty has a quick-donning type of oxygen mask that the certificate holder has shown can be placed on the face from its ready position, properly secured, sealed, and supplying oxygen upon demand, with one hand and within five seconds.

(4) Before the takeoff of a flight, each flight crewmember shall personally preflight his oxygen equipment to insure that the oxygen mask is functioning and connected to appropriate supply terminals, and that the oxygen supply and pressure are adequate for use.

(d) Use of portable oxygen equipment by cabin attendants. Each attendant shall, during flight above flight level 250 flight altitude, carry portable oxygen equipment with at least a 15 minute supply of oxygen unless it is shown that enough portable oxygen units with masks or spare outlets and masks are distributed throughout the cabin to insure immediate availability of oxygen to each cabin attendant, regardless of his location at the time of cabin depressurization.

(e) Passenger cabin occupants. When the aircraft is operating at flight altitudes above 10,000 feet, the following supply of oxygen must be provided for the use of passenger cabin occupants:

(1) When an aircraft certificated to operate at flight altitudes up to and including flight level 250, can at any point along the route to be flown, descend safely to a flight altitude of 14,000 feet or less within four minutes, oxygen must be available at the rate prescribed by this ECAR for a 30-minute period for at least 10 percent of the passenger cabin occupants.

(2) When an aircraft is operated at flight altitudes up to and including flight level 250 and cannot descend safely to a flight altitude of 14,000 feet within four minutes, or when an aircraft is operated at flight altitudes above flight

level 250, oxygen must be available at the rate prescribed by this ECAR for not less than 10 percent of the passenger cabin occupants for the entire flight after cabin depressurization, at cabin pressure altitudes above 10,000 feet up to and including 14,000 feet and, as applicable, to allow compliance with 121.329 (c) and (3), except that there must be not less than a 10-minute supply for the passenger cabin occupants.

(3) For first-aid treatment of occupants who for physiological reasons might require undiluted oxygen following descent from cabin pressure altitudes above flight level 250, a supply of oxygen in accordance with the requirements of 25.1443 (d) must be provided for two percent of the occupants for the entire flight after cabin depressurization at cabin pressure altitudes above 8,000 feet, but in no case to less than one person. An appropriate number of acceptable dispensing units, but in no case less than two, must be provided, with a means for the cabin attendants to use this supply.

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

121.335 Equipment standards.

(a) Reciprocating engine powered aircraft. The oxygen apparatus, the minimum rates of oxygen flow, and the supply of oxygen necessary to comply with 121.327 must meet the standards established in FAR 25 / JAR 25, or equivalent, except that if the certificate holder shows full compliance with those standards to be impracticable, the ECAA may

authorize any change in those standards that he finds will provide an equivalent level of safety.

(b) Turbine engine powered aircraft. The oxygen apparatus, the minimum rate of oxygen flow, and the supply of oxygen necessary to comply with 121.329 and 121.333 must meet the standards established FAR 25 / JAR 25, or equivalent, except that if the certificate holder shows full compliance with those standards to be impracticable, the ECAA may authorize any changes in those standards that he finds will provide an equivalent level of safety.

121.337 Protective breathing equipment.

(a) The Air Carrier certificate holder shall furnish approved Protective Breathing Equipment (PBE) meeting the equipment breathing gas requirements.

(b) Pressurized cabin aircraft. Except as provided in paragraph (c) of this section, no person may operate a transport category aircraft unless protective breathing equipment meeting the requirements of this section is provided as follows:

(1) General. The equipment must protect the flightcrew from the effects of smoke, carbon dioxide or other harmful gases or an oxygen deficient environment caused by other than an aircraft depressurization while on flight deck duty and must protect crewmembers from the above effects while combating fires on board the aircraft.

(2) The equipment must be inspected regularly in accordance with inspection guidelines and the inspection periods established by the equipment manufacturer to ensure its condition for continued serviceability and immediate readiness to perform its intended emergency purposes. The inspection periods may be changed upon a showing by the certificate holder that the changes would provide an equivalent level of safety.

(3) That part of the equipment protecting the eyes must not impair the wear's vision to the extent that a crewmember's duties cannot be accomplished and must allow corrective glasses to be worn without impairment of vision or loss of the protection required by paragraph (b) (1) of this section.

(4) [Reserved].

(5) [Reserved].

(6) The equipment may also be used to meet the supplemental oxygen requirements of this ECAR provided it meets the oxygen equipment standards of 121.335 of this ECAR.

(7) Protective breathing gas duration and supply system equipment requirements are as follows:

(i) The equipment must supply breathing gas for 15 minutes at a pressure altitude of 8,000 feet for the following:

(A) Flight crewmembers while performing flight deck duties; and

(B) Crewmembers while combating an in-flight fire.

(ii) The breathing gas system must be free from hazards in itself, in its method of operation, and in its effect upon other components.

(iii) For breathing gas systems other than chemical oxygen generators, there must be a means to allow the crew to readily determine, during flight, the quantity of breathing gas available in each source of supply.

(iv) For each chemical oxygen generator, the supply system equipment must meet the requirements of FAR/JAR 25.1450 (b) and (c), or equivalent.

(8) Protective breathing equipment with a fixed or portable breathing gas supply meeting the requirements of this section must be conveniently located on the flight deck and be easily accessible for immediate use by each required flight crewmember at his or her assigned duty station.

(9) Protective breathing equipment with a portable breathing gas supply meeting the requirements of this section must be easily accessible and conveniently located for immediate use by crewmembers in combating fires as follows:

(i) One for use in each Class A, B, and E cargo compartment (as defined in FAR/JAR 25.857), or equivalent, that is accessible to crewmembers in the compartment during flight.

(ii) One PBE is required for each hand fire extinguisher located for use in a galley other than a galley located in a passenger, cargo, or crew compartment

(iii) One on the flight deck, except that the ECAA may authorize another location for this PBE if special circumstances exist that make compliance impractical and the proposed deviation would provide an equivalent level of safety.

(iv) In each passenger compartment, one located within 3 feet of each hand fire extinguisher required by 121.309 of this ECAR, except that the ECAA may authorize a deviation allowing locations of PBE more than 3 feet from required hand fire extinguisher locations if special circumstances exist that make compliance impractical and the proposed deviation provides an equivalent level of safety.

(c) Equipment preflight.

(1) Before each flight, each item of PBE located at a flight crewmember duty station must be checked by the flight crewmember who will use the equipment to ensure that the equipment is properly stowed and serviceable.

(2) Each item of PBE located at other than a flight crewmember duty station must be checked by a designated crewmember to ensure that each is properly stowed and serviceable, and for other than chemical oxygen generator systems, the breathing gas supply is fully charged. Each certificate holder, in its operations manual, must designate at least one crewmember to perform those checks before he or she takes off in that aircraft for his or her first flight of the day.

(d) [Reserved].

121.339 Emergency equipment for extended over-water operations

(a) Except where the ECAA, by amending the operations specifications of the certificate holder, requires the carriage of all or any specific items of the equipment listed below for any overwater operation, or upon application of the certificate holder, the ECAA allow deviation for a particular extended overwater operation, no person may operate an aircraft in extended overwater operations without having on the aircraft the following equipment:

(1) A life preserver equipped with an approved survivor locator light, for each occupant of the aircraft.

(2) Enough liferafts (each equipped with an approved survivor locator light) of a rated capacity and buoyancy to accommodate the occupants of the aircraft. Unless excess rafts of enough capacity are provided, the buoyancy and seating capacity beyond the rated capacity of the rafts must accommodate all occupants of the aircraft in the event of a loss of one raft of the largest rated capacity.

(3) At least one pyrotechnic signaling device for each life raft.

(4) A survival type emergency locator transmitter that meets the applicable requirements of TSO-C91 or equivalent, and it transmits simultaneously on 121.5 and 243.0 MHz. Batteries used in this transmitter must be replaced (or recharged, if the battery is rechargeable) when the transmitter has been in use for more than one cumulative hour, and also when 50 percent of their useful life of charge), as established by the transmitters manufacturer. The new expiration date for the replacement (or recharged) battery must be legibly marked on the outside of the transmitter. The battery useful life of charge

requirements of this subparagraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

(b) The required life rafts, life preservers, and survival type emergency locator transmitter must be easily accessible in the event of a ditching without appreciable time for preparatory procedures. This equipment must be installed in conspicuously marked, approved location.

(c) A survival kit, appropriately equipped for the route to be flown, must be attached to each required liferaft.

121.340 Emergency flotation means.

(a) Except as provided in paragraph (b) of this section, no person may operate a large aircraft in any overwater operation unless it is equipped with life preservers in accordance with 121.339(a)(1), or with an approved flotation means for each occupant. This means must be within easy reach of each seated occupant and must be readily removable from the aircraft.

(b) Upon application by the air carrier or commercial operator, the ECAA may approve the operation of an aircraft over water without the life preservers or flotation means required by paragraph (a) of this section, if the air carrier or commercial operator shows that the water over which the aircraft is to be operated is not such size and depth that life preservers or flotation means would be required for the survival of its occupants in the event the flight terminates in that water.

121.341 Equipment for operations in icing conditions.

(a) Unless an aircraft is certificated under the transport category airworthiness requirements relating to ice protection, no person may operate an aircraft in icing conditions unless it is equipped with means for the prevention or removal of ice on windshields, wings, empennage, propellers, and other parts of the aircraft where ice formation will adversely affect the safety of the aircraft.

(b) No person may operate an aircraft in icing conditions at night unless means are provided for illuminating or otherwise determining the formation of ice on the parts of the wings that are critical from the standpoint of ice accumulation. Any illuminating that is used must be of a type that will not cause glare or reflection that would handicap crewmembers in the performance of their duties.

121.342 Pitot heat indication systems.

(a) Except as provided in paragraph (b) of this section, no person may operate transport category aircraft equipped with a flight instrument pitot heating system unless the aircraft is also equipped with an operable pitot heat indication system that complies with FAR/JAR 25.1326, or equivalent.

(b) A certificate holder may obtain an extension of paragraph (a) of this section, from the Flight Safety Standards Sector if the certificate holder-

(1) Shows that due to circumstances beyond its control it cannot comply with it for a certain time;

(2) Submits a schedule for compliance, acceptable to the Flight Safety Standards Sector, indicating that compliance will be achieved at the earliest practicable date.

121.343 Flight recorders.

(a) No person may operate an aircraft over 12,500 pounds (5700Kg) maximum gross takeoff weight that is certificated to operate at above 25,000 feet altitude unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage

media. The following information must be able to be determined within the ranges, accuracy's, and recording intervals specified in Appendix B of this ECAR.

- (1) Time;
 - (2) Altitude;
 - (3) Airspeed;
 - (4) Vertical acceleration;
 - (5) Heading;
 - (6) Time of each radio transmission either to or from air traffic control;
 - (7) Pitch attitude;
 - (8) Roll attitude;
 - (9) Longitudinal acceleration;
 - (10) Pitch trim position;
 - (11) Control column or pitch control surface position;
 - (12) Control wheel or lateral control surface position;
 - (13) Rudder pedal or yaw control surface position;
 - (14) Thrust of each engine;
 - (15) Position of each thrust reverser;
 - (16) Trailing edge flap or cockpit flap control position. Leading edge flap or cockpit flap control position
- (b) Whenever a flight recorder required by this section is installed, it must be operated continuously from the instant the aircraft begins the takeoff roll until it has completed the landing roll at an airport.
- (c) Except for recorded data erased as authorized in this paragraph, each certificate holder shall keep the recorded data prescribed in of this section, as appropriate, until the aircraft has been operated for at least 25 hours of the operating time. A total of 1 hour of recorded data may be erased for the purpose of testing the flight recorder or the flight recorder system. Any erasure made in accordance with this paragraph must be of the oldest recorded data accumulated at the time of testing. Except as provided in paragraph (d) of this section, no record need be kept more than 60 days.
- (d) In the event of an accident or occurrence that requires immediate notification of the ECAA and that results in termination of the flight, the certificate holder shall remove the recording media from the aircraft and keep the recorded data required by of this section for at least 60 days or for a longer period upon the request of the ECAA
- (e) The ECAA may authorize deviations or waivers to 121.343.

121.345 Radio equipment.

- (a) No person may operate an aircraft unless it is equipped with radio equipment required for the kind of operation being conducted.
- (b) Where two independent (separate and complete) radio systems are required by 121.347 and 121.349, each system must have an independent antenna installation except that, where rigidly supported nonwire antennas or other antenna installations of equivalent reliability are used, only one antenna is required
- (c) ATC transponder equipment installed, within the time periods indicated below, must meet the performance and environmental requirements of the appropriate class of TSO-C112(Mode S):
- (1) Through January 1, 1992:
 - (i) Any class of TSO-C74b or any class of TSO-C74C as appropriate, provided that the equipment was manufactured before January 1, 1990; or
 - (ii) The appropriate class of TSO-C112 (Mode S).
 - (2) After January 1, 1992: The appropriate class of TSO-C112 (MODE S).

121.347 Radio equipment for operations under VFR over routes navigated by pilotage.

(a) No person may operate an aircraft under VFR over routes that can be navigated by pilotage, unless it is equipped with the radio equipment necessary under normal operating conditions to fulfill the following:

- (1) Communicate with at least one appropriate ground station from any point on the route.
- (2) Communicate with appropriate traffic control facilities from any point in the area within which flights are intended.
- (3) Receive meteorological information from any point en route by either of two independent systems. One of the means provided to comply with this subparagraph may be used to comply with subparagraphs (1) and (2) of this paragraph.

(b) No person may operate an aircraft at night under VFR over routes that can be navigated by pilotage unless that aircraft is equipped with the radio equipment necessary under normal operating conditions to fulfill the functions specified in paragraph (a) of this section and to receive radio navigational signals applicable to the route flown, except that a marker beacon receiver or ILS receiver is not required.

121.349 Radio equipment for operations under VFR over routes not navigated by pilotage or for operations under IFR or over The-Top.

(a) No person may operate an aircraft at night under VFR over routes that can be navigated by pilotage or for operations conducted under IFR or over-the-top, unless the aircraft is equipped with that radio equipment necessary under normal operating conditions to fulfill the functions specified in 121.347(a) and to receive satisfactorily by either of two independent systems, radio navigational signals from all primary en route and approach navigational facilities intended to be used. However, only one marker beacon receiver provided visual and aural signals and one ILS receiver need be provided. Equipment provided to receive signals en route may be used to receive signals on approach, if it is capable of receiving both signals.

(b) In the case of operation over routes on which navigation is based on low frequency radio range or automatic direction finding, only one low frequency radio range or ADF receiver need be installed if the aircraft is equipped with two VOR receivers, and VOR navigational aids are so located and the aircraft is so fueled that, in the case of failure of the low frequency radio range receiver or ADF receiver, the flight may proceed safely to a suitable airport, by means of VOR aids, and complete an instrument approach by use of the remaining aircraft radio system.

(c) Whenever VOR navigational receivers are required by paragraph (a) or (b) of this section, at least one approved distance measuring equipment unit (DME) capable of receiving and indicating distance information from VORTAC facilities must be installed on each aircraft.

(d) If the distance measuring equipment (DME) becomes inoperative en route the pilot shall notify ATC of that failure as soon as it occurs.

121.351 Radio equipment for extended overwater operations and for certain other operations.

(a) No person may conduct an extended overwater operating unless the aircraft is equipped with the radio equipment necessary to comply with 121.349 and an independent system that complies with 121.347 (a) (1).

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

121.353 Emergency equipment for operations over uninhabited terrain areas:

Unless it has the following equipment, no operator may conduct an operation over an uninhabited area or any other area that (in its operations specifications) the ECAA requires equipment for search and rescue in case of an emergency.

- (a) Suitable pyrotechnic signaling devices.
- (b) A survival type emergency locator transmitter that meets the applicable requirements of TSO-C91, and it transmits simultaneously on 121.5 and 243.0 MHz. Batteries used in the transmitter must be replaced (or recharged, if the battery is rechargeable) when the transmitter has been in use for more than one cumulative hour, and also when 50 percent of their useful life (or for rechargeable batteries, 50 percent of their useful life of charge), as established by the transmitter manufacturer under TSO-C91, paragraph (g) (2) has expired. The new expiration date for the replacement (or recharged) battery must be legibly marked on the outside of the transmitter, The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.
- (c) Enough survival kits, appropriately equipped for the route to be flown, for the number of occupants of the aircraft.

121.355 Equipment for operations on which specialized means of navigation are used.

No certificate holder may conduct an operation:

- (1) Using Doppler Radar or an Inertial Navigation System outside Egypt unless such systems have been approved by the ECAA; or
- (2) Using Doppler Radar or an Inertial Navigation System within Egypt, or any other specialized means of navigation, unless it shows that an adequate airborne system is provided for the specialized navigation authorized for the particular operation.

121.356 Traffic Alert And Collision Avoidance System. (TCAS)

(a) From 1st of January 2003, each Air Carrier Certificate holder operating a turbine powered airplane of a maximum certificated take-off mass in excess of 15 000 kg or authorized to carry more than 30 passengers, shall equip its airplanes with an approved Traffic Alert And Collision Avoidance System (TCAS II) and the appropriate class of mode "S" transponder, unless required sooner by the rules of the foreign country in which the aircraft is operating.

(b) From 1st of January 2005, each Air Carrier Certificate holder operating a turbine powered airplane of a maximum certificated take-off mass in excess of 5700 kg or authorized to carry more than 19 passengers, shall equip its airplanes with an approved Traffic Alert And Collision Avoidance System (TCAS II) and the appropriate class of mode "S" transponder, unless required sooner by the rules of the foreign country in which the aircraft is operating.

(c) An Traffic Collision Avoidance System shall operate in accordance with the relevant provisions of ICAO Annex 10, Volume IV, as amended.

(d) The appropriate manuals required by ECAR 121.131 shall contain the following information on the TCAS II system, as required by this section:

- (1) Appropriate procedures for:
 - (i) The operation of the equipment; and
 - (ii) Proper flight crew action with respect to the equipment.
- (2) An outline of all input sources that must be operative for the TCAS to function properly.

121.357 Airborne weather radar equipment requirements.

- (a) No person may operate any aircraft certificated with a MGTW of over 12,500 pounds (5700Kg) unless approved airborne weather radar equipment has been installed in the aircraft.
- (b) [Reserved]
- (c) Each person operating an aircraft required to have approved airborne weather radar equipment installed shall, when using it under this ECAR, operate it in accordance with the following;
- (1) Dispatch. No person may dispatch or begin the flight of an aircraft under IFR or night VFR conditions when current weather reports indicate that thunderstorms, or other potentially hazardous weather conditions that can be detected with airborne weather radar, may reasonably be expected along the route to be flown, unless the airborne weather radar equipment is in satisfactory operating condition.
- (2) If the airborne weather radar becomes inoperative en route, the aircraft must be operated in accordance with the approved instructions and procedures specified in the operations manual for such an event.
- (d) Notwithstanding any other provision of this ECAR, an alternate electrical power supply is not required for airborne weather radar equipment.

121.358 (Reserved)

121.359 Cockpit voice recorders.

- (a) No certificate holder may operate a multiengine turbine powered aircraft over 12,500 pounds (5700Kg) MGTW or an aircraft for which two pilots are required by certification unless an approved cockpit voice recorder is installed in that aircraft and is operated continuously from the start of the use of the checklist (before starting engines for the purpose of flight), to completion of the final checklist at the termination of the flight
- (b) [Reserved]
- (c) The cockpit voice recorder required by this section must meet the following application standards:
- (1) The requirements of FAR/JAR 25, or equivalent.
- (2) Each recorder container must:
- (i) Be either bright orange or bright yellow,
- (ii) Have reflective tape affixed to the external surface to facilitate its location under water; and
- (iii) Have an approved underwater locating device on or adjacent to the container which is secured in such a manner that they are not likely to be separated during crash impact, unless the cockpit voice recorder, and the flight recorder required by 121.343, are installed adjacent to each other in such a manner that they are not likely to be separated during crash impact.
- (d) In complying with this section, an approved cockpit voice recorder having an erasure feature may be used, so that at any time during the operation of the recorder, information recorded more than 30 minutes earlier may be erased or otherwise obliterated.

(e) For those aircraft equipped to record the uninterrupted audio signals received by a boom or a mask microphone, the flight crewmembers are required to use the boom microphone below 18,000 feet mean sea level.

(f) In the event of an accident or occurrence requiring immediate notification of the ECAA, which results in the termination of the flight, the certificate holder shall keep the recorded information for at least 60 days or, if requested by the ECAA for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or occurrences in connection with investigations under The Egyptian Civil Aviation Law no. 28, 1981. The ECAA does not use the record in any civil penalty or certificate action.

121.360 Ground proximity warning-glide slope deviation alerting system.

(a) No Air Carrier may operate a turbine powered airplane of a maximum certificated take-off mass in excess of 15 000 kg, or authorized to carry more than 30 passengers, unless it is equipped with a ground proximity warning system.

(b) From 1st of January 1999, each Air Carrier operating a turbine powered airplane of a maximum certificated take-off mass of more than 5700 kg, or authorized to carry more than 9 passengers, shall equip its airplanes with a ground proximity warning system.

(c) A ground proximity warning system shall meet the performance and environment standards equivalent to TSO-C92a or TSO-C92b or incorporates TSO-approved ground proximity warning -glide slope deviation alerting equipment.

(d) For the ground proximity warning system required by this section, the Aircraft Flight Manual shall contain:

(1) Appropriate procedures for:

(i) The use of the equipment;

(ii) Proper flight crew action with respect to the equipment;

(iii) Deactivation for planned abnormal and emergency conditions;

(iv) Inhibition of Mode 4 warnings based on flaps being in other than the landing configuration of the system incorporates a Mode 4 flap warning inhibition control; and

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

(e) No person may deactivate a ground proximity warning system required by this section except in accordance with the procedures contained in the Aircraft Flight Manual.

(f) Whenever a ground proximity warning system required by this section is deactivated, an entry shall be made in the aircraft maintenance record that includes the date, time and the reason for deactivation.

SUBPART L

Maintenance, Preventive Maintenance, and Alterations.

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121.379	Equivalent safety case.

SUBPART L

Maintenance, Preventive Maintenance, and Alterations.

121.361 Applicability

- (a) This subpart prescribes requirements for maintenance, preventive maintenance, and alterations for all certificate holders.
- (b) A certificate holder shall not operate an aircraft unless it is maintained and released by an organization appropriately approved by ECAA in accordance with ECAR 145.
- (c) The ECAA may amend a certificate holder's operations specifications to permit deviation from those provisions of this subpart that would prevent the return to service and use of airframe components, powerplants, appliances, and spare parts thereof because those items have been maintained, altered, or inspected by persons who do not hold ECAA approval. Each certificate holder who uses parts under this deviation must provide for surveillance of facilities and practices to assure that all work performed on these parts is accomplished in accordance with the certificate holder's manual.

121.363 Definitions.

The following definitions from ECAR 145 shall apply to this subpart:

- (a) "Pre-flight inspection" means the inspection carried out before flight to ensure that the aircraft is fit for the intended flight. It does not include rectification.
- (b) "Approved standard" means a manufacturing/design/maintenance/quality standard approved by the ECAA.

121.365 Application and approval of the certificate holder's maintenance system.

- (a) For the approval of the maintenance system an applicant for the initial issue, variation and renewal of an operations certificate shall submit the documents specified to ECAA.
- (b) An applicant for the initial issue, variation and renewal of an operations certificate who meets the requirements of this subpart, in conjunction with an appropriate approved maintenance organization's exposition, is entitled to approval of the maintenance system by the ECAA.

121.367 Maintenance responsibility.

- (a) A certificate holder shall ensure the airworthiness of the aircraft and the serviceability of both operational and emergency equipment by:
 - (1) The accomplishment of pre-flight inspections.
 - (2) The rectification to an approved standard of any defect and damage effecting safe operation, taking into account the minimum equipment list and configuration deviation list if available for the aircraft type.
 - (3) The accomplishment of all maintenance in accordance with the approved certificate holder's aircraft maintenance program specified in 121.375.
 - (4) The analysis of the effectiveness of the certificate holder's approved aircraft maintenance program.
 - (5) The accomplishment of any operational directive, airworthiness directive and any other continued airworthiness requirement made mandatory by the ECAA.
 - (6) The accomplishment of modifications in accordance with an approved standard; and for non-mandatory modifications, the establishment of an embodiment policy.
- (b) A certificate holder shall ensure the Certificate of Airworthiness for each operated aircraft remains valid in respect of:
 - (1) Paragraph (a) requirements.
 - (2) Any calendar expiration date specified in the certificate.

- (3) Any other maintenance condition specified in the certificate.
- (c) The requirements specified in paragraphs (a) and (b) must be performed in accordance with procedures acceptable to the ECAA.

121.369 Maintenance Management.

- (a) A certificate holder must be appropriately approved in accordance with ECAR 145 to carry out the requirements specified in 121.367 (a) (2) to (a) (6) inclusive, except when the ECAA approves maintenance that can be contracted to an appropriate ECAR 145 approved organization.
- (b) A certificate holder must employ a person or group of persons acceptable to the ECAA to ensure that all maintenance is carried out on time to an approved standard such that the maintenance responsibility requirements prescribed in 121.367 are satisfied, and to ensure the functioning of the quality system required by 121.371. Those responsible must meet the requirements of 121.59 and 121.61.
- (c) When a certificate holder is not appropriately approved in accordance with ECAR 145, arrangements must be made with such an organization to carry out the requirements specified in 121.367 (a) (2) to (a) (6), but excluding (a) (4). A maintenance contract must be agreed between the certificate holder and the ECAR 145 approved maintenance organization detailing the functions specified in 121.367 (a) (2) to (a) (6), but excluding (a) (4), and defining the support of the quality functions of 121.371. This contract, together with all amendments must be acceptable to the ECAA.
- (d) A certificate holder must provide suitable office accommodation at appropriate locations for the personnel specified in paragraph (b).

121.371 Quality system.

- (a) For maintenance purposes, the certificate holder's quality system, must additionally include at least the following functions:
- (1) Monitoring that the activities of 121.367 are being performed in accordance with the accepted procedures.
 - (2) Monitoring that all contracted maintenance is carried out in accordance with the contract.
 - (3) Monitoring the continued compliance with the Requirements of this subpart
- (b) Where the certificate holder is approved in accordance with ECAR 145, the quality system may be combined with that required by ECAR 145.

121.373 Certificate holder's Maintenance Management Exposition.

(a) A certificate holder must provide a certificate holder's maintenance management exposition containing details of the organization structure including:

- (1) The nominated post-holders responsible for the maintenance system required by 121.59, 121.61, 121.367 (a) (5), and 121.369 (b);
- (2) The procedures that must be followed to satisfy the maintenance responsibility of 121.367 and the quality functions of 121.371, except that where the certificate holder is appropriately approved as a maintenance organization in accordance with ECAR 145, such details may be included in the ECAR 145 exposition.

(b) A certificate holder's maintenance management exposition and any subsequent amendment must be approved by the ECAA.

121.374 Certificate holder's aircraft maintenance program.

(a) A certificate holder must ensure that the aircraft is maintained in accordance with the certificate holders aircraft maintenance program. The program must contain details, including frequency, of all maintenance required to be carried out. The program will be required to include a Continuing Analysis and Surveillance program and a reliability program when the ECAA determines that such a reliability program is necessary.

(b) A certificate holder's aircraft maintenance program and any subsequent amendment must be approved by the ECAA.

121.375 Certificate holder's aircraft Journey Log and Technical Log.

(a) A certificate holder must use an aircraft journey log and technical log system containing the following information for each aircraft;

- (1) Information about each flight necessary to ensure continued flight safety.
- (2) The current aircraft certificate of release to service.
- (3) The current maintenance statement giving the aircraft maintenance status of what scheduled and out of phase maintenance is next due except that the ECAA may agree to the maintenance status being kept elsewhere.
- (4) All necessary guidance instructions on maintenance support arrangements.

(b) The certificate holder's aircraft journey log and technical log and any subsequent amendment must be approved by the ECAA.

121.376 Maintenance records.

(a) A certificate holder shall ensure that a system has been established to keep, in a form acceptable to the ECAA, the following records for the periods specified in paragraph (b):

- (1) All detailed maintenance records in respect of the aircraft and any aircraft component fitted thereto.
- (2) The total time and flight cycles, as appropriate, of the aircraft, engines, propellers, components, including the current status of all Life Limited Components.
- (3) The time and flight cycles as appropriate, since last overhaul of the aircraft or aircraft component subjected to an overhaul life.
- (4) The current aircraft inspection status such that compliance with the approved certificate holder's aircraft maintenance program can be established.
- (5) The current status of airworthiness directives applicable to the aircraft and aircraft components.
- (6) Details of current modifications and repairs to the aircraft, engine (s), propeller (s) and any other aircraft component vital to flight safety.

(b) Except as provided for in paragraph (c) the records specified in paragraph (a) must be retained as follows:

- (1) In the case of paragraph (a) (2), (a) (5) and (a) (6) for 12 months after the aircraft has been permanently withdrawn from service.
- (2) In the case of paragraphs (a) (3) and (a) (4) until the aircraft or aircraft component overhaul or inspection has been superseded by another overhaul or inspection as appropriate of equivalent work scope and detail.
- (3) In the case of paragraphs (a) (1) and 24 months after the aircraft or aircraft component was released to service.
- (c) The certificate holder's aircraft technical log must be retained for 24 months after the date of any flight recorded therein.
- (d) When an aircraft is permanently transferred from one certificate holder to another certificate holder the records specified in paragraphs (a) and (c) must also be transferred and the time periods in paragraphs (b) and (c) will continue to apply to the new certificate holder.

121.377 Changes to the certificate holder's maintenance system.

Each certificate holder shall submit for approval to the ECAA any changes to maintenance systems described in the ECAR 145 Exposition Manual.

121.378 Continued validity of the certificate holder's certificate

A certificate holder must comply with this subpart to ensure continued validity of the Air Carrier or Air Taxi certificate.

121.379 Equivalent safety case.

A certificate holder shall not introduce alternative procedures to those prescribed in this subpart unless needed and an equivalent safety case has first been accepted by the ECAA.

SUBPART N

Training Program

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SUBPART N

Training Program

121.400 Applicability and terms used.

(a) This subpart prescribes the requirements applicable to each certificate holder for establishing and maintaining a training program for crewmembers and other operations personnel, and for the approval and use of training devices in the conduct of the program.

(b) For the purpose of this subpart, aircraft groups are as follows:

Aircraft over 5,700 Kg MTGW

(1) Group I. Propeller driven, including:

(i) Reciprocating powered; and

(ii) Turbopropeller powered.

(2) Group II. Turbojet powered.

(3) Transport category aircraft is an aircraft Type Certified under FAR25, JAR25, or equivalent standard.

(4) Aircraft less than 5,700 Kg MTGW including all helicopters, regardless of weight

(5) Single-engine including helicopters

(6) Multi-engine including helicopters

(c) For the purpose of this subpart, the following terms and definitions apply:

(1) Initial training. The training required for crewmembers and dispatchers who served in the same capacity on another aircraft of the same group or entering type training for the first time.

(2) Transition training. The training required for crewmembers and dispatchers who have qualified and served in the same capacity on another aircraft of the same group.

(3) Upgrade training. The training required for crewmembers who have qualified and served as second in command or flight engineer on particular aircraft type, before they serve as pilot in command or second in command, respectively, on that aircraft.

(4) Differences training. The training required for crewmembers and dispatchers who have qualified and served on a particular type aircraft, when the ECAA finds differences training is necessary before a crewmember serves in the same capacity on a particular variation of that aircraft.

(5) Recurrent training. Training at appointed intervals as a refresher course of the initial training.

(6) Programmed hours. The hours of training prescribed in this subpart which may be reduced by the ECAA upon a showing by the certificate holder that circumstances justify a lesser amount.

(7) In-flight. Refers to maneuvers, procedures, or functions that must be conducted in the aircraft.

121.401 Training program: General.

(a) Each certificate holder shall:

(1) Establish, obtain the appropriate initial and final approval of, and provide, a training program that meets the requirements of this subpart and that ensures that each crewmember, flight instructor and check airman, and each person assigned duties for the carriage and handling of dangerous articles and magnetized materials, is adequately trained to perform his assigned duties.

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

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

(4) Provide enough flight instructors, simulator instructors, and approved check airmen to conduct required flight training and flight checks, and simulator training courses permitted under this ECAR.

(b) Whenever a crewmember or aircraft dispatcher who is required to take recurrent training, a flight check, or a competence check, takes the check or completes the training in the calendar month before or after the calendar month in which that training or check is required, he is considered to have taken or completed it in the calendar month in which it was required.

(c) Each instructor, supervisor who is responsible for a particular ground training subject, segment of flight training, course of training subject, course of training, flight check, or competence check under this ECAR shall certify as to the proficiency and knowledge of the crewmember, flight instructor, or dispatcher concerned upon completion of that training or check. That certification shall be made a part of that person's record. When the certification required by this paragraph is made by an entry in a computerized record keeping system, the certifying instructor or supervisor must be identified with that entry. However, the signature of the certifying instructor, or supervisor is not required for computerized entries.

(d) Training subjects that are applicable to more than one aircraft or crewmember position and that have been satisfactorily completed in connection with prior training for another aircraft or another crewmember position, need not be repeated during subsequent training other than recurrent training.

(e) A person who progresses successfully through flight training, is recommended by his instructor or a check airman, and successfully completes the appropriate flight check for a designated examiner, check airman or the ECAA, need not complete the programmed hours of flight training for the particular aircraft.

121.403 Training program:: Curriculum.

(a) Each certificate holder must prepare and keep current a written training program curriculum for each type of aircraft with respect to dispatchers and each crewmember required for that type aircraft. The curriculum must include ground and flight training required by this subpart.

(b) Each training program curriculum must include:

(1) A list of principal ground training subjects, including emergency training subjects, that are provided.

(2) A list of all the training devices, mockups, systems trainers, procedures trainers, or other training aids that the certificate holder will use.

(3) Detailed descriptions or pictorial displays of the approved normal, abnormal, and emergency maneuvers, procedures and functions that will be performed during each

flight training phase or flight check, indicating those maneuvers, procedures and functions that are to be performed during the in-flight portions of flight training and flight check.

(4) A list of aircraft simulators or other training devices approved under 121.407, including approvals for particular maneuvers, procedures, or functions.

(5) The programmed hours of training that will be applied to each phase of training.

(6) A copy of each statement issued by the ECAA under 121.405 (d) for reduction of programmed hours of training.

121.404 Windshear training.

No certificate holder may use a person as a flight crewmember unless that person has completed:

(a) Windshear ground training in accordance with 121.419 of this ECAR.

(b) Windshear flight training if applicable, in accordance with 121.409, 121.424, and 121.427 of this ECAR.

121.405 Training program and revision: initial and final approval.

(a) To obtain initial and final approval of a training program, or a revision to an approved training program, each certificate holder must submit to the ECAA.

(1) An outline of the proposed program or revision, including an outline of the proposed or revised curriculum, that provides enough information for a preliminary evaluation of the proposed training program or revised training program; and

(2) Additional relevant information as may be requested by the ECAA.

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

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

(d) In granting initial and final approval of training programs or revisions, including reductions in programmed hours specified in this subpart, the ECAA considers the training aids, devices, methods, and procedures listed in the certificate holder's curriculum as set forth in 121.403 that increase the quality and effectiveness of the teaching-learning process. If approval of the reduced programmed hours of training is granted, the ECAA provides the certificate holder with a statement of the basis for the approval.

(e) Whenever the ECAA finds that revisions are necessary for the continued adequacy of a training program that has been granted final approval, the certificate holder shall, after notification by the ECAA make any changes in the program that are found necessary by the ECAA. Within 30 days after the certificate holder receives such notice, it may file a petition to reconsider the notice with the ECAA Section charged with the overall inspection of the certificate holder's operations. The filing of a petition to reconsider stays the notice pending a decision by the ECAA. However, if the ECAA finds that there is an emergency that requires immediate action in the interest of safety in air transportation, he may, upon a statement of the reasons, require a change effective without stay.

121.407 Approval of aircraft simulators and other training devices.

- (a) Each aircraft simulator and other training device that is used in a training course permitted under 121.409, in checks required under this ECAR must:
 - (1) Be specifically approved for:
 - (i) The certificate holder;
 - (ii) The type aircraft and, if applicable, the particular variation within type, for which the training or check is being conducted; and
 - (iii) The particular maneuver, procedure, or crewmember function involved.
 - (2) Maintain the performance, functional, and other characteristics that are required for approval.
 - (3) Be modified to confirm with any modification to the aircraft being simulated that results in changes to performance, functional, or other characteristics required for approval.
 - (4) Be given a daily functional preflight check before being used.
 - (5) Have a daily discrepancy log kept with each discrepancy entered in that log by the appropriate instructor or check airman at the end of each training or check flight.
- (b) A particular aircraft simulator or other training device may be approved for use by more than one certificate holder.
- (c) An aircraft simulator may be used instead of the aircraft to satisfy the in-flight requirements of 121.439 and 121.441 and appendix E and F of this ECAR, if the simulator:
 - (1) Is approved under this section and meets the appropriate simulator requirements of EAC121-1, and
 - (2) Is used as part of an approved program that meets the training requirements of 121.424 (a) and (c).
- (d) An aircraft simulator approved under this section must be used instead of the aircraft to satisfy the pilot flight training requirements prescribed in the certificate holder's approved low altitude windshear flight training program set forth in 121.409 (d) of this ECAR.

121.409 Training courses using aircraft simulators and other training devices.

- (a) Training courses utilizing aircraft simulators and other training devices may be included in the certificate holder's approved training program for use as provided in this section.
- (b) A course of training in an aircraft simulator may be included for use as provided in 121.441 if that course:
 - (1) Provides at least 4 hours of training at the pilot controls of an aircraft simulator as well as a proper briefing before and after the training;
 - (2) Provides training in at least the procedures and maneuvers set forth in Appendix F to this ECAR; or
 - (3) Provides line-oriented training that:
 - (i) Utilizes a complete flight crew;
 - (ii) Includes at least the maneuvers and procedures (abnormal and emergency) that may be expected in line operations;
 - (iii) Is representative of the flight segment appropriate to the operations being conducted by the certificate holder, and
 - (iv) Is given by an instructor who meets the applicable requirements of 121.411.
- (c) The programmed hours of flight training set forth in this subpart do not apply if the training program for the aircraft type includes:
 - (1) A course of pilot training in an aircraft simulator as provided in 121.424 d, or
 - (2) A course of flight engineer training in an aircraft simulator or other training device as provided in 121.425 (c).

(d) Each certificate holder required to comply with 121.358 of this ECAR must use an approved simulator for each aircraft type in each of its pilot training courses that provides training in at least the procedures and maneuvers set forth in the certificate holder's approved low-altitude windshear flight training program. The approved low-altitude windshear flight training, if applicable, must be included in each of the pilot flight training courses prescribed in 121.409(b), 121.418, 121.424, and 121.427 of this ECAR.

121.411 Training program: Check airman and instructor qualifications.

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

- (1) Holds the licenses and ratings that must be held in order to serve as pilot in command or a flight engineer, as appropriate, in operations under this ECAR;
- (2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, that are required in order to serve as a pilot in command or flight engineer in operations under this ECAR;
- (3) Has satisfactorily completed the appropriate proficiency or competence checks that are required in order to serve as a pilot in command or flight engineer in operations under this ECAR;
- (4) Has satisfactorily completed the applicable training requirements of 121.413;
- (5) In the case of a Flight Instructor or Check airman, has been approved by the ECAA for the aircraft and the check airman duties involved; and
- (6) Holds at least a Class II medical certificate.

(b) No certificate holder may use a person nor may any person serve as a simulator instructor for a course of training given in an aircraft simulator as provided in 121.409(b) unless that person.

- (1) Holds an airline transport pilot license; and
- (2) Has satisfactorily completed for a check airman or ECAA inspector:
 - (i) Appropriate initial pilot ground training and ground training for a flight instructor as provided in 121.413; and
 - (ii) A simulator flight training course in the type aircraft simulator in which that person instructs as provided by 121.409(c)

121.413 Check airmen and flight instructors: Initial training.

(a) The initial ground training for flight instructor and check airmen must include the following:

- (1) Flight instructor duties, functions, and responsibilities.
- (2) The applicable Egyptian Civil Aviation Regulations and the certificate holder's policy and procedures
- (3) The appropriate methods, procedures, and techniques for conducting the required checks.
- (4) Proper evaluation of pilot performance including the detection of
 - (i) Improper and insufficient training; and
 - (ii) Personal characteristics that could adversely affect safety
- (5) The appropriate corrective action in the case of unsatisfactory checks
- (6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.

(b) The initial ground training for pilot flight instructors must include the following:

- (1) The fundamental principles of the teaching-learning process
- (2) Teaching methods and procedures

- (3) The instructor-student relationship
- (c) The initial flight training for pilot check airman and pilot flight instructors must include the following;
 - (1) Enough in-flight training and practice in conducting flight checks from the left and right pilot seats in the required normal, abnormal, and emergency maneuvers to ensure his competence to conduct the pilot flight checks and flight training required by the ECAR.
 - (2) The appropriate safety measures to be taken from either pilot seat for emergency situations that are likely to develop in training.
 - (3) The potential results of improper or untimely safety measures during training
 The requirements of paragraphs (c)(2) and (3) of this section may be accomplished in-flight or in an approved simulator.
- (d) The initial ground and flight training for flight instructors, flight engineers and check airmen must be adequate to ensure competence to perform their assigned duties.
- (e) Flight instructors and check airmen transitioning to another type must be approved for that type by the ECAA.

121.415 Crewmember and dispatcher training requirements.

- (a) Each training program must provide the following ground training as appropriate to the particular assignment of the crewmember;
 - (1) Basic indoctrination ground training for newly hired crewmembers including 40 programmed hours of instruction, unless reduced under 121.405 or as specified in 121.401 (d), in at least the following:
 - (i) Duties and responsibilities of crewmembers;
 - (ii) Appropriate provisions of the Egyptian Civil Aviation Regulations;
 - (iii) Contents of the certificate holder's operating certificate and operations specifications (Not required for flight attendants); and
 - (iv) Appropriate portions of the certificate holder's operating manual.
 - (2) The initial and transition ground training specified in 121.419 through 121.422, as applicable
 - (3) Emergency training as specified in 121.417
- (b) Each training program must provide the flight training specified in 121.424, through 121.425, as applicable.
- (c) Each training program must provide recurrent ground and flight training as provided in 121.427.
- (d) Each training program must provide the differences training specified in 121.418 if the ECAA finds that, due to differences between aircraft of the same type operated by the certificate holder, additional training is necessary to ensure that each crewmember is adequately trained to perform his assigned duties.
- (e) Upgrade training as specified in 121.419 and 121.424 for a particular type aircraft may be included in the training program for crewmembers who have qualified and served as second in command pilot or flight engineer on that aircraft.
- (f) Particular subjects, maneuvers, procedures or parts thereof specified in 121.419 through 121.425 for transition or upgrade training, as applicable, may be omitted, or the programmed hours of ground instruction or in-flight training may be reduced, as provided in 121.405
- (g) In addition to initial, transition, upgrade, recurrent and differences training, each training program must also provide ground and flight training, instruction, and practice as necessary to ensure that each crewmember and dispatcher;
 - (1) Remains adequately trained and currently proficient with respect to each aircraft, crewmember position, and type of operation in which he serves; and

among crewmembers.

(2) Individual instruction in the location, function, and operation of emergency equipment including:

- (i) Equipment used in ditching and evacuation;
- (ii) First aid equipment and its proper use;
- (iii) Portable fire extinguishers, with emphasis on type of extinguisher to be used on different classes of fires; and
- (iv) Emergency exits in the emergency mode with the evacuation slide/raft pack attached (if applicable), with training emphasis on the operation of the exits under adverse conditions.

(3) Individual in the handling of emergency situations including;

- (i) Rapid decompression;
- (ii) Fire in flight or on the surface, and smoke control procedures with emphasis on electrical equipment and related circuit breakers found in cabin areas including all galleys, service centers, lifts, lavatories and movie screens;
- (iii) Ditching and other evacuations, including the evacuation of persons and their attendants, if any, who may need the assistance of another person to move expeditiously to an exit in the event of an emergency;
- (iv) Illness, injury, or other abnormal situations involving passengers or crewmembers to include familiarization with the emergency medical kit; and (2) Qualifies in new equipment, facilities, procedures, and techniques, including modifications to aircraft.

121.417 Crewmember emergency training

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

(b) Emergency training must provide the following;

(1) Instruction in emergency assignments and procedures, including coordination among crewmembers.

(2) Individual instruction in the location, function, and operation of emergency equipment including:

- (i) Equipment used in ditching and evacuation;
- (ii) First aid equipment and its proper use;
- (iii) Portable fire extinguishers, with emphasis on type of extinguisher to be used on different classes of fires; and
- (iv) Emergency exits in the emergency mode with the evacuation slide/raft pack attached (if applicable), with training emphasis on the operation of the exits under adverse conditions.

(3) Individual in the handling of emergency situations including;

- (i) Rapid decompression;
- (ii) Fire in flight or on the surface, and smoke control procedures with emphasis on electrical equipment and related circuit breakers found in cabin areas including all galleys, service centers, lifts, lavatories and movie screens;
- (iii) Ditching and other evacuations, including the evacuation of persons and their attendants, if any, who may need the assistance of another person to move expeditiously to an exit in the event of an emergency;
- (iv) Illness, injury, or other abnormal situations involving passengers or crewmembers to include familiarization with the emergency medical kit; and
- (v) Hijacking and other unusual situations.

(4) Review and discussion of previous aircraft accidents and incidents pertaining to actual emergency situations.

(c) Each crewmember must accomplish the following emergency training during the specified training periods, using those items of installed emergency equipment for each type of aircraft in which he or she is to serve (alternate recurrent training required by 121.433 (c) of this ECAR may be accomplished by approved pictorial presentation or demonstration):

(1) One-time emergency drill requirements to be accomplished during initial training. Each crewmember must perform:

(i) At least one approved fire fighting drill using at least one type of installed hand fire extinguisher, appropriate for the type of fire to be fought, while using the type of installed PBE for combating fires aboard aircraft required by 121.337 of this ECAR; and

(ii) An emergency evacuation drill with each person egressing the aircraft or approved training device using at least one type of installed emergency evacuation slide. The crewmember may either observe the aircraft exits being opened in the emergency mode and the associated exit slide/raft pack being deployed and inflated, or perform the tasks resulting in the accomplishment of these actions.

(iii) For aircraft over 12,500 lb. MTGW, an emergency evacuation drill with each person egressing the airplane or approved training device using at least one type of installed emergency evacuation slide. The crewmember may either observe the airplane exits being opened in the emergency mode and the associated exit slide/raft pack being deployed and inflated, or perform the tasks resulting in the accomplishment of these actions.

(2) Additional emergency drill requirements to be accomplished during initial training and once each 24 calendar months during recurrent training. Each crewmember must:

- (i) Perform the following emergency drill and operate the following equipment:
 - (A) Each type of emergency exit in the normal and emergency modes, including the actions and forces required in the deployment of the emergency evacuation slides;
 - (B) Each type of installed hand fire extinguisher;
 - (C) Each type of emergency oxygen system to include protective breathing equipment;
 - (D) Donning, use, and inflation of individual flotation means, if applicable, and
 - (E) Ditching, if applicable, including but not limited to, as appropriate:
 - (1) Cockpit preparation and procedures;
 - (2) Crew coordination;
 - (3) Passenger briefing and cabin preparation;
 - (4) Donning and inflation of life preservers;
 - (5) Use of life-lines; and
 - (6) Boarding of passengers and crew into raft or a slide/raft pack.
- (ii) For aircraft so equipped, observe the following drill:
 - (A) Removal from the aircraft (or training device) and inflation of each type of liferafts, if applicable;
 - (B) Transfer of each type of slide/raft pack from one door to another;
 - (C) Deployment, inflation, and detachment from the aircraft (or training device) of each type of slide/raft pack; and
 - (D) Emergency evacuation including the use of a slide.
- (d) No crewmember may serve in operations under this ECAR unless that crewmember has performed the fire fighting drill prescribed by paragraph (c) (1) (i) of this section.
- (e) Crewmembers who serve in operation above 25,000 feet must receive instruction in the following:
 - (1) Respiration.
 - (2) Hypoxia.
 - (3) Duration of consciousness without supplemental oxygen at altitude.
 - (4) Gas expansion.
 - (5) Gas bubble formation.
 - (6) Physical phenomena and incidents of decompression.
- (f) For the purposes of this section, "perform" means accomplishing a prescribed emergency drill using established procedures that stress the skill of those persons involved in the drill, and "observe" means to watch without participating actively in the drill.

121.418 Differences training: Crewmembers and dispatchers.

Differences training for all variations of a particular type aircraft may be included in initial, transition, upgrade, and recurrent training for the aircraft.

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

121.419 Pilots and flight engineers: Initial, transition, and upgrade ground training.

(a) Initial, transition, and upgrade ground training for pilots and flight engineers must include instruction in at least the following as applicable to their assigned duties:

(1) General subjects:

(i) The certificate holder's dispatch or flight release procedures;

(ii) Principles and methods for determining 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, and high altitude weather situations;

(iv) Air traffic control systems, procedures, and phraseology;

(v) Navigation and the use of navigation aids, including instrument approach procedures;

(vi) Visual cues prior to and during descent below DH or MDA; and

(vii) Other instructions as necessary to ensure his competence.

(2) For each aircraft type:

(i) A general description;

(ii) Performance characteristics;

(iii) Engines and propellers;

(iv) Major components;

(v) Major aircraft systems (i.e., flight controls, electrical, hydraulic); other systems as appropriate; principles of normal, abnormal, and emergency operations; appropriate procedures and limitations;

(vi) Procedures for:

(A) Recognizing and avoiding severe weather situations

(B) Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear; and

(C) Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions;

(vii) Operating limitations,

(viii) Fuel consumption and cruise control;

(ix) Flight planning;

(x) Each normal and emergency procedure; and

(xi) The approved Aircraft Flight Manual.

(b) Initial ground training for pilots and flight engineers must consist of at least the following programmed hours of instruction in the required subjects specified in paragraph (a) of this section and in 121.415 (a) unless reduced under 121.405:

Air Carriers

(1) Group I aircraft

(i) Reciprocating powered, 64 hours; and

(ii) Turbopropeller powered, 80 hours.

(2)

Group II aircraft, 120 hours.

Air Taxis

(1) Single-engine aircraft,

Initial 20 hours

Initial Equipment, 16 hours

Transition, 16 hour

Upgrade, 4 hours

- (2) Multi-engine aircraft,
 - Initial, 32 hours
 - Initial Equipment, 24 hours
 - Transition, 16 hours
 - Upgrade, 8 hours

121.420 [Reserved]

121.421 Flight attendants: Initial and transition ground training.

- (a) Initial and transition ground training for flight attendants must include instruction in at least the following:
 - (1) General subjects:
 - (i) The authority of the pilot in command; and
 - (ii) Passenger handling, including the procedures to be followed in the case of deranged persons or other persons whose conduct might jeopardize safety.
 - (2) For each aircraft type:
 - (i) A general description of the aircraft emphasizing physical characteristics that may have a bearing on ditching, evacuation, and in-flight emergency procedures and on other related duties;
 - (ii) The use of 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 situation and
 - (iii) Proper use of electrical galley equipment, if applicable, and the controls for cabin heat and ventilation.
- (b) Initial and transition ground training for flight attendants must include a competence check to determine ability to perform assigned duties and responsibilities.

(c) Initial ground training for flight attendants must consist of at least the following programmed hours of instruction in the subjects specified in paragraph (a) of this section and in 121.425 (a) unless reduced under 121.405:

- (1) Group I aircraft,
 - (i) Reciprocating powered, 8 hours; and
 - (ii) Turbopropeller powered, 8 hours.
- (2) Group II aircraft, 16 hours.
- (3) All single and multiengine aircraft under 5700 kg MGTW, 8 hours

121.422 Aircraft dispatchers: Initial and transition ground training.

(a) Initial and transition ground training for aircraft dispatchers must include instruction in at least the following:

- (1) General subjects:
 - (i) Use of communications systems including the characteristics of those systems and the appropriate normal and emergency procedures;
 - (ii) Meteorology, including various types of meteorological information and forecasts, interpretation of weather data (including forecasting of en route and terminal temperatures and other weather conditions), frontal systems, wind conditions, and use of actual and prognostic weather charts for various altitudes;
 - (iii) The NOTAM system;
 - (iv) Navigational aids and publications;
 - (v) Joint dispatcher-pilot responsibilities;
 - (vi) Characteristics of appropriate airports;
 - (vii) Prevailing weather phenomena and the available sources of weather information; and
 - (viii) Air traffic control and instrument approach procedures and,
 - (ix) Approved dispatcher resource management (DRM) initial training (EAC 121-4).

(2) For each aircraft:

- (i) A general description of the aircraft emphasizing operating and performance characteristics, navigation equipment, instrument approach and communication equipment, emergency equipment and procedures, and other subjects having a bearing on dispatcher duties and responsibilities;
- (ii) Flight operation procedures; including procedures specified in 121.419(a) 2 vi
- (iii) Weight and balance computations;
- (iv) Basic aircraft performance dispatch requirements and procedures;
- (v) Flight planning including track selection, flight time analysis, and fuel requirements; and
- (vi) Emergency procedures.

(3) Emergency procedures must be emphasized, including the alerting of proper governmental, company, and private agencies during emergencies to give maximum help to an aircraft in distress.

(b) Initial and transition ground training for aircraft dispatchers must include a competence check given by an appropriate supervisor or ground instructor that demonstrates knowledge and ability with the subjects set forth in paragraph (a) of this section.

(c) Initial ground training for aircraft dispatchers must consist of at least the following programmed hours of instruction in the subjects specified in paragraph (a) of this section: unless reduced under 121.405, and in 121.415 (a).

(1) Group I aircraft:

- (i) Reciprocating powered, 30 hours; and
- (ii) Turbopropeller powered, 40 hours.
- (2) Group II aircraft, 40 hours;
- (3) All single and multiengine aircraft under 5700 kg MGTW, 30 hours

121.424 Pilots: Initial, transition, and upgrade flight training.

- (a) Initial and transition and upgrade training for pilots must include flight training and practice in the maneuvers and procedures set forth in the certificate holder's approved low-altitude windshear flight training program and in Appendix E to this ECAR, as applicable.

(b) The maneuvers and procedures required by paragraph (a) of this section must be performed in-flight except:

(1) That windshear maneuvers and procedures must be performed in a simulator in which the maneuvers and procedures are specifically authorized to be accomplished; and
(2) To the extent that certain maneuvers and procedures may be performed in an aircraft simulator, an appropriate training device, or static aircraft as permitted in Appendix E to this ECAR.

(c) Except as permitted in paragraph (d) of this section, the initial flight training required by paragraph (a) of this section must include at least the following programmed hours of in-flight training and practice unless reduced under 121.405:

(1) Group I aircraft

(i) Reciprocating powered. Pilot in command, 10 hours; second in command, 6 hours.

(ii) Turbopropeller powered. Pilot in command, 15 hours; second in command, 7 hours.

(2) Group II aircraft Pilot in command, 20 hours; second in command, 10 hours.

Air Taxis, PIC and SIC

(1) Single-engine aircraft,

Initial, 8 hours

Transition, 4 hours

Upgrade, 2 hours

(2) Multi-engine aircraft,

Initial, 16 hours

Transition, 8 hours

Upgrade, 4 hours

(d) If the certificate holder's approved training program includes a course of training utilizing an aircraft simulator under 121.409 (c) and (b) of this ECAR, each pilot must successfully complete:

(1) With respect to 121.409 (c) of this ECAR:

(i) Training and practice in the simulator in at least all of the maneuvers and procedures set forth in Appendix E to this ECAR for initial flight training that are capable of being performed in an aircraft simulator without a visual system; and

(ii) A flight check in the simulator or the aircraft to the level of proficiency of a pilot in command or second in command, as applicable, in at least the maneuvers and procedures set forth in Appendix F to this ECAR that are capable of being performed in an aircraft simulator without a visual system.

(2) With respect to 121.409 (d) of this ECAR, training and practice in at least the maneuvers and procedures set forth in the certificate holder's approved low-altitude windshear flight training program that are capable of being performed in an aircraft simulator in which the maneuvers and procedures are specifically authorized.

121.425 Flight engineers: Initial and transition flight training.

(a) Initial and transition flight training for flight engineers must include at least the following:

(1) Training and practice in procedures related to the carrying out of flight engineer duties and functions. This training and practice may be accomplished either in-flight, in an aircraft simulator, or in a training device.

(2) A flight check that includes:

- (i) Preflight inspection;
- (ii) In-flight performance of assigned duties accomplished from the flight engineer station during taxi, runup, takeoff, climb, cruise, descent, approach, and landing;
- (iii) Accomplishment of other functions, such as fuel management and preparation of fuel consumption records, and normal and emergency or alternate operation of all aircraft flight systems, performed either in-flight, in an aircraft simulator, or in a training device.

Flight engineers possessing a commercial pilot license with an instrument rating, appropriate category and class rating or pilots already qualified as second in command and reverting to flight engineer, may complete the entire flight check in an approved aircraft simulator.

(b) Except as permitted in paragraph (c) of this section, the initial flight training required by paragraph (a) of this section must include at least the same number of programmed hours of flight training and practice that are specified for a second in command pilot under 121.409(c) unless reduced under 121.405.

(c) If the certificate holder's approved training program includes a course of training utilizing an aircraft simulator or other training device under 121.424 (c) each flight engineer must successfully complete in the simulator or other training device.

(1) Training and practice in at least all of the assigned duties, procedures, and functions required by paragraph (a) of this section; and

(2) A flight check to a flight engineer level of proficiency in the assigned duties, procedures, and functions.

121.426 [Reserved]

121.427 Recurrent training.

- (a) Recurrent training must ensure that each crewmember or dispatcher is adequately trained and currently proficient with respect to the type aircraft (including differences training, if applicable) and crewmember position involved.
- (b) Recurrent ground training for crewmembers and dispatchers must include at least the following:
- (1) A quiz or other review to determine the state of the crewmember's or dispatcher's knowledge with respect to the aircraft and position involved.
 - (2) Instruction as necessary in the subjects required for initial ground training by 121.415(a), as appropriate, including emergency training (not required for aircraft dispatchers).
 - (3) For flight attendants and dispatchers, a competence check as required by 121.421(b) and 121.422(b), respectively.
- (c) Recurrent ground training for crewmembers and dispatchers must consist of at least the following programmed hours unless reduced under 121.405:
- (1) For pilots and flight engineers:
 - (i) Group I, reciprocating powered aircraft, 16 hours;
 - (ii) Group I turbopropeller powered aircraft, 20 hours; and
 - (iii) Air Taxi, 2 hours
 - (2) For flight attendants:
 - (i) Group I, reciprocating powered aircraft, 4 hours;
 - (ii) Group I turbopropeller powered aircraft, 5 hours; and
 - (iii) Group II aircraft, 12 hours.
 - (3) For aircraft dispatchers:
 - (i) Group I, reciprocating powered aircraft, 8 hours;
 - (ii) Group I turbopropeller powered aircraft, 10 hours; and
 - (iii) Group II aircraft, 20 hours.
- (d) Recurrent flight training for flight crewmembers must include at least the following:
- (1) For pilots, flight training in an approved simulator in maneuvers and procedures set forth in the certificate holder's approved low-altitude windshear flight training program and flight training in maneuvers and procedures set forth in Appendix F to this ECAR, or in a flight training program approved by the ECAA, except as follows:
 - (i) The number of programmed in-flight hours is not specified; and
 - (ii) Satisfactory completion of a proficiency check may be substituted for recurrent flight training as permitted in 121.432 (c).
 - (2) For flight engineers, flight training as provided by 121.425 (a) except as follows:
 - (i) The Specified number of in-flight hours is not required; and
 - (ii) The flight check, other than the preflight inspection, may be conducted in an aircraft simulator or other training device. The preflight inspection may be conducted in an aircraft, or by using an approved pictorial means that realistically portrays the location and detail of preflight inspection items and provides for the portrayal of abnormal conditions. Satisfactory completion of an approved line-oriented simulator training program may be substituted for the flight check.

SUBPART V

RECORDS AND REPORTS

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22. SUBPART V

RECORDS AND REPORTS

121.681 Applicability .

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

121.683 Crewmember and dispatcher record.

(a) Each certificate holder shall:

(1) Maintain current records of each crewmember, and each aircraft dispatcher, if applicable, that shows whether or not that person complies with this ECAR (e.g., proficiency and route checks, aircraft and route qualifications, training, any required physical examinations, and flight time records); and

(2) Record each action taken concerning the release from employment or physical or professional disqualification of any flight crewmember or aircraft dispatcher, if applicable, and keep the record for at least six months thereafter.

(b) Computer record systems approved by the ECAA may be used in complying with the requirements of paragraph (a) of this section.

121.685 Aircraft records: All operators.

Each operator shall maintain a current list of each aircraft that it operates in scheduled air transportation and shall send a copy of the record and each change to the ECAA Section charged with the overall inspection of its operations. Aircraft of another air carrier operated under an interchange agreement may be incorporated by reference.

121.687 Dispatch release: Air Carriers.

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

(1) Identification number of the aircraft.

(2) Trip number.

(3) Departure airport, intermediate stops, destination airports, and alternate airports.

(4) A statement of the type of operation (e.g., IFR, VFR).

(5) Minimum fuel supply.

(b) The dispatch release must contain, or have attached to it, weather reports, available weather forecasts, or a combination thereof, for the destination airport, intermediate stops, and alternate airports, that are the latest available at the time the release is signed by the pilot in command and operations control. It may include any additional available weather reports or forecasts that the pilot in command or operations control consider necessary or desirable.

121.689 Flight release form: Air Taxis

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

(1) Company or organization name.

(2) Make, model, and registration number of the aircraft being used.

(3) Flight or trip number, and date of flight.

(4) Name of each flight crewmember, flight attendant, and pilot designated as pilot in command.

(5) Departure airport, destination airports, alternate airports, and route.

(6) Minimum fuel supply (in gallons, liters, kilos or pounds).

(7) A statement of the type of operation (e.g., IFR, VFR).

(b) The aircraft flight release must contain, or have attached to it, weather reports, available weather forecasts, or a combination thereof, for the destination airport, and alternate airports, that are the latest available at the time the release is signed. It may include any additional available weather reports or forecasts that the pilot in command considers necessary or desirable.

[121.691 [Reserved]]

121.693 Load manifest: All operators.

Except for single engine aircraft, the load manifest must contain the following information concerning the loading of the aircraft at takeoff time:

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

121.695 Disposition of load manifest, dispatch release, and flight plans:

- (a) The pilot in command of an aircraft shall carry, as applicable, in the aircraft to its destination:
 - (1) A copy of the completed load manifest (or information from it, except information concerning cargo and passenger distribution);
 - (2) A copy of the dispatch release; and
 - (3) A copy of the flight plan.
- (b) The operator shall keep copies of the records required in this section for at least three months.

121.697 [Reserved].

[121.698 [Reserved]].

[121.699 [Reserved]].

121.701 Maintenance log: Aircraft.

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

accessible to each flight crewmember and shall put that procedure in the certificate holder's manual.

121.702 Technical interruption summary

Each certificate holder shall report within seven days after returning to base on the following occurrences to the ECAA:

(a) Each interruption to a flight, unscheduled change of aircraft enroute, or unscheduled stop or diversion from a route that is not required to be reported under 121.703.

121.703 Mechanical reliability reports.

(a) Each certificate holder shall report the occurrence or detection of each failure, malfunction, or defect concerning:

- (1) Fires during flight and whether the related fire-warning system functioned properly;
 - (2) Fires during flight not protected by a related fire-warning system;
 - (3) False fire warning during flight;
 - (4) An engine exhaust system that causes damage during flight to the engine, adjacent structure, equipment, or components;
 - (5) An aircraft component that causes accumulation or circulation of smoke, vapor, or toxic or noxious fumes in the crew compartment or passenger cabin during flight;
 - (6) Engine shutdown during flight because of flameout;
 - (7) Engine shutdown during flight when external damage to the engine or aircraft structure occurs;
 - (8) Engine shutdown during flight due to foreign object ingestion or icing;
 - (9) Engine shutdown during flight of more than one engine;
 - (10) A propeller feathering system or ability of the system to control overspeed during flight;
 - (11) A fuel or fuel-dumping system that affects fuel flow or causes hazardous leakage during flight;
 - (12) A landing gear extension or retraction or opening or closing of landing gear doors during flight;
 - (13) Brake system components that requires major repair;
 - (14) Aircraft structure that requires major repair;
 - (15) Cracks, permanent deformation, or corrosion of aircraft structures, if more than the maximum acceptable to the manufacturer or the ECAA;
 - (16) Aircraft components or systems that result in taking emergency action during flight (except action to shut down an engine); and
 - (17) Emergency evacuation systems or components including all exit doors, passenger emergency evacuation lighting systems, or evacuation equipment that are found defective, or that fail to perform the intended functions during an actual emergency or during training, testing, maintenance, demonstrations, or inadvertent deployments.
- (b) For the purpose of this section "during flight" means the period from the moment the aircraft leaves the surface of the earth on takeoff until it touches down on landing.
- (c) In addition to the reports required by paragraph (a) of this section, each certificate holder shall report any other failure, malfunction, or defect in an aircraft that occurs or is detected at any time if, in its opinion, that failure, malfunction, or defect has endangered or may endanger the safe operation of an aircraft used by it.
- (d) Each certificate holder shall send each report required by this section, in writing, covering each 24-hour period beginning at 0900 local time of each day and ending at 0900 local time on the next day, to the ECAA. Each report of occurrences during a 24-hour period must be mailed or delivered to that office within the next 72 hours. However, a report that is due on a holiday may be mailed or delivered on the next work day.
- (e) The certificate holder shall transmit the reports required by this section in a manner and on a form that is convenient to its system of communication and procedure, and shall include in the first daily report as much of the following as is available:
- (1) Type and identification number of the aircraft.

- (2) The name of the operator.
 - (3) The date, flight number, and stage during which the incident occurred (e.g., preflight, takeoff, climb, cruise, descent, landing, and inspection).
 - (4) The emergency procedure effected (e.g., unscheduled landing and emergency descent).
 - (5) The nature of the failure, malfunction, or defect.
 - (6) Identification of the part and system involved, including available information pertaining to type designation of the major component and time since overhaul.
 - (7) Apparent cause of the failure, malfunction, or defect (e.g., wear, crack, design deficiency, or personnel error).
 - (8) Whether the part was repaired, replaced sent to the manufacturer, or other action taken.
 - (9) Whether the aircraft was grounded.
 - (10) Other pertinent information necessary for more complete identification, determination of seriousness, or corrective action.
- (f) No person may withhold a report required by this section even though all information required in this section is not available.
- (g) When a certificate holder gets additional information, including information from the manufacturer or other agency, concerning a report required by this section, it shall expeditiously submit it as a supplement to the first report and reference the date and place of submission of the first report.

121.705 Mechanical interruption summary report.

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

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

121.707 Alteration and repair reports.

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

121.709 Airworthiness release or aircraft log entry.

- (a) No certificate holder may operate an aircraft after maintenance, preventive maintenance or alterations are performed on the aircraft unless the certificate holder, or the person with whom the certificate holder arranges for the performance of the maintenance, preventive maintenance, prepares or causes to be prepared:
 - (1) An airworthiness release; or
 - (2) An appropriate entry in the aircraft log.
- (b) The airworthiness release or log entry required by paragraph (a) of this section must:
 - (1) Be prepared in accordance with the procedures set forth in the certificate holder's manual;
 - (2) Include a certification that:
 - (i) The work was performed in accordance with the requirements of the certificate holder's manual;
 - (ii) All items required to be inspected were inspected by an authorized person who determined that the work was satisfactorily completed;

- (iii) No known condition exists that would make the aircraft unairworthy; and
- (iv) So far as the work performed is concerned, the aircraft is in condition for safe operation; and
- (3) Be signed by an authorized person.

Notwithstanding subparagraph (3) of this paragraph, after maintenance, preventive maintenance, or alterations performed by an Approved Maintenance Organization certificated under the provisions of ECAR 145, the airworthiness release or log entry required by paragraph (a) of this section may be signed by a person authorized by that repair station.

- (c) When an airworthiness release form is prepared the certificate holder must give a copy to the pilot in command and must keep a record thereof for at least two months.
- (d) Instead of restating each of the conditions of the certification required by paragraph (b) of this section, the certificate holder may state in its manual that the signature of an authorized certificated mechanic or repairman constitutes that certification.

121.713 Retention of contracts and amendments: Commercial contracts.

Each operator shall keep a copy of each written contract under which it provides services as a commercial operator for a period of at least one year after the execution of that contract or change.

121.715 In-flight medical emergency reports.

- (a) For a period of 24 months commencing with the effective date of this rule, each certificate holder shall maintain records on each medical emergency occurring during flight time resulting in use of the emergency medical kit required under Appendix A, diversion of the aircraft, or death of a passenger or crewmember. These records shall include a description of how the medical kit was used, by whom, and the outcome of the medical emergency.
- (b) The certificate holder shall submit these records, or a summary thereof, to its assigned ECAA Operations Inspector within 30 days after the end of each 12- month period during the 24 months specified in paragraph (a).

ECAR 145

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145.1 Subject

This part prescribes the requirements for issuing approvals to national organizations for the maintenance of aircraft and aircraft components and prescribes the general operating rules for Approved Maintenance Organizations . The approval, when granted , will apply to the whole organization headed by the accountable manager . Foreign organizations may only be granted approval if the authority is satisfied that there is a need for such approval to maintain aircraft / aircraft components and when in compliance with this part .

145.3 Definitions

"ECAA" means Egyptian Civil Aviation Authority .

"AMO" means Approved Maintenance Organization .

"Accountable Manager" means the manager who has corporate authority for ensuring that all maintenance required by the aircraft operator can be financed and carried out to the standard required by the ECAA . The accountable manager, to cover the period of his absence, may delegate in writing another person in the organization acceptable to the ECAA . Such person then becoming the accountable manager for the purpose of this part .

"Aircraft" means an airplane , helicopter or airship .

"Maintenance" means any one or combination of overhaul , repair , inspection, replacement, modification or defect rectification of an aircraft/aircraft component .

"Certifying staff" means those personnel who are authorized by the AMO in accordance with a procedure acceptable to the ECAA to certify aircraft or aircraft components for release to service.

"Authorization Board " means a board of inspectors in an AMO delegated from the ECAA to issue internal authorizations for qualified certifying staff.

145.5 General

(A) No aircraft when used for Commercial Air Transport may fly unless a certificate of release to service has been issued by an organization for maintenance carried out on the aircraft or an aircraft component intended for fitment to such an aircraft .

(B) No organization may certify for release to service an aircraft used for commercial air transport unless approved or accepted in accordance with this part. No organization may maintain such an aircraft unless either approved in accordance with this part or working under the quality system of an appropriately AMO .

(C) No organization may certify for release to service an aircraft component intended for fitment to an aircraft used for Commercial Air Transport unless approved or accepted in accordance with this part . No organization may maintain such an aircraft component unless either approved in accordance with this part or working under the quality system of an appropriately AMO.

(D) A maintenance organization approval may be granted for maintenance activity varying from that for an aircraft component to that for a complete aircraft or any combination thereof.

145.7 Effectivity

(A) This part will become effective in accordance with the following schedule

- (1) Organizations that carry out base maintenance and certify release to service or certificate of maintenance of aircraft above 5700 Kg maximum certificated take off weight must be in compliance with this part by the 1st of January 1997 .
- (2) Organizations that carry out line maintenance and certify release to service of aircraft above 5700 Kg maximum certificated take off weight must be in compliance with this part by the 1st of January 1997 .
- (3) Organizations that carry out maintenance and certify release to service or certificate of compliance of engines must be in compliance with this part by the 1st of January 1998 .
- (4) Organizations that carry out maintenance and certify release to service or certificate of compliance of aircraft components (other than complete engines), auxiliary power units and specialized services must be in compliance with this part by the 1st of January 1998 .
- (5) Organizations that carry out maintenance and certify release to service or certificate of maintenance of aircraft of maximum certificated take off weight of 5700 kg or less and / or helicopters of any weight must be in compliance with this part by the 1st of January 1998

(B) An approval may be issued by the authority prior to paragraph (A) dates .

(C) Any aircraft or aircraft component that is required to be maintained in accordance with paragraph (A) schedule may until that time be maintained by either an organization approved or accepted in accordance with this part or in accordance with national legislation in force prior to the paragraph (A) schedule or a combination of both .

145.9 Application And Issue

(A) An application for maintenance organization approval or for the amendment of an existing maintenance organization approval shall be made on a form given in appendix C to this part, and completed by the accountable Manager or his/her nominee if any, and submitted with three copies of the maintenance organization's exposition or amendment thereto, and duplicate copies of -

- (1) Its inspection procedures manual;
- (2) A list of the maintenance functions to be performed for it, under contract, by another agency under Appendix A; and
- (3) In the case of an applicant for a propeller rating (class 2) or any accessory rating (class 1, 2, or 3), a list, by type or make, as applicable, of the propeller or accessory for which he seeks approval.

(B) An applicant who meets the requirements of this part and has paid all the prescribed charges is entitled to a maintenance organization approval .

(C) A domestic or foreign AMO certificate and or rating expires at the end of 12 months from the date of issue, unless it is sooner surrendered, suspended, or revoked. However if the AMO continues to comply with the requirements of this part, and applies for renewal before expiration of such certificate and / or rating, its certificate may be renewed for another 12 months.

(D) The holder of a certificate that expired or is surrendered, suspended, or revoked, shall return it to the ECAA.

145.11 Extent Of Approval

The grant of approval is indicated by the issue of an approval certificate to the organization by the ECAA. The approval certificate will specify the extent of approval. The approved maintenance organization 's exposition must specify the scope of work deemed to constitute the approval .

145.13 Facility Requirements

(A) Facilities must be provided appropriate for all planned work , ensuring a particular, protection from the weather elements . Specialized workshops and bays must be segregated as appropriate , to ensure that environmental and work area contamination is unlikely to occur .

1 - For base maintenance of aircraft, this means that aircraft hangars should be both available and large enough to accommodate aircraft on planned base maintenance. Where the hangar is not owned by the organization, it may be necessary to establish proof of tenancy. In addition, sufficiency of hangar space to carry out planned base maintenance will need to be demonstrated by the preparation of a projected aircraft hangar visit plan relative to the maintenance. For aircraft component maintenance, this means that aircraft component workshops should be large enough to accommodate the components on planned maintenance.

2 - Protection from the weather elements relates to the normal prevailing local weather elements that are expected throughout any twelve-month period. Aircraft hangar and aircraft component workshop structures should be to a standard that prevents the ingress of rain, hail, ice, snow, wind and dust etc. Aircraft hangar and aircraft component workshop floors should be sealed to minimize dust generation.

3 - For line maintenance of aircraft, hangars are not essential but it is recommended that access to hangar accommodation be demonstrated for usage during inclement weather for minor scheduled work and lengthy defect rectification.

(B) Office accommodation must be provided appropriate for the management of the sub-paragraph (A) planned work including in particular, the management of quality , planning and technical records .

1 - Office accommodation in this case means office accommodation such that the incumbents, whether they be management, planning, technical records, quality or certifying staff, can carry out their designated tasks in a manner that contributes to good aircraft maintenance standards. In addition, aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.

2 - It is acceptable to combine any or all of the above requirements into one office subject to the staff having sufficient room to carry out assigned tasks.

(C) The working environment must be appropriate for the task carried out and in particular special requirements observed . Unless otherwise dictated by the particular task environment , the working environment of personnel should not be impaired .

1 - Hangars used to house aircraft together with office accommodation should be such as to ensure the working environment permits personnel to carry out tasks in an effective manner.

2 - Temperatures should be maintained such that personnel can carry out required tasks without undue discomfort.

3 - Dust and any other airborne contamination should be kept to a minimum and not be permitted to reach a level in the work task area where visible aircraft/component surface contamination is evident.

4 - Lighting should be such as to ensure each inspection and maintenance task can be carried out.

5 - Noise levels should not be permitted to rise to the point of distracting personnel from carrying out inspection tasks. Where it is impractical to control the noise source, such personnel should be provided with the necessary personal equipment to stop excessive noise causing distraction during inspection tasks.

6 - Where a particular maintenance task requires the application of specific environmental conditions different to the foregoing, then such conditions should be observed. Specific conditions are identified in the approved maintenance instructions.

7 - The working environment for line maintenance should be such that the particular maintenance or inspection task can be carried out without undue distraction. It therefore follows that where the working environment deteriorates to an unacceptable level in respect of temperature, moisture, hail, ice, snow, wind, light, dust/other airborne contamination, the particular maintenance or inspection tasks should be suspended until satisfactory conditions are re-established.

8 - For both base and line maintenance where dust/other airborne contamination results in visible surface contamination, all susceptible systems should be sealed until acceptable conditions are re-established.

(D) Storage facilities must be provided for parts , equipment , tools and material . Storage conditions must be such as to provide security for serviceable parts , segregation of serviceable from unserviceable parts , and prevent deterioration of and damage to stored items.

1 - This means that secure storage facilities are required for serviceable aircraft components, whereas unserviceable aircraft components, material, tooling and equipment simply need be separately stored. It is however recommended that separate and secure storage facilities be provided for unserviceable components, material, equipment and tooling.

2 - Storage facilities for serviceable aircraft components should be clean, well ventilated and maintained at a suitable dry temperature Manufacturers and standards recommendations should be followed for specific aircraft components.

3 - Storage racks should be strong enough to hold aircraft components and provide sufficient support for large aircraft components such that the component is not distorted during storage.

4 - All aircraft components, wherever practicable, should remain packaged in protective material to minimize damage and corrosion during storage.

5 - All aircraft components must be conditioned tagged.

(E) The applicant for an AMO with ratings other than specified in 145.47 must comply with the following items (I to VI):

I - The applicant should provide suitable -

(1) Housing for his necessary equipment and material;

(2) Space for the work for which he seeks a rating;

(3) Facilities for properly storing, segregating and protecting materials, parts and supplies; and

(4) Facilities for properly protecting parts and subassemblies during disassembly, cleaning, inspection, repair, alteration, and assembly; so that work being done is protected from weather elements, dust, and heat; workers are protected so that the work will not be impaired by their physical efficiency; and maintenance operations have efficient and proper facilities.

II -The applicant must provide suitable shop space where machine tools and equipment are kept and where the largest amount of bench work is done. Machines and equipment must be segregated whenever:-

(1) Machine or woodwork is done so near an assembly area that chips or material might inadvertently fall into assembled or partially assembled work;

(2) Unpartitioned parts cleaning units are near other operations;

(3) Fabric work is done in an area where there are oils and greases;

- (4) Painting or spraying is done in an area so arranged that paint or paint dust can fall on assembled or partially assembled work;
- (5) Paint spraying, cleaning, or machining operations are done so near testing operations that the precision of test equipment might be affected; and
- (6) In any other case the ECAA determines it is necessary.

II I- The applicant must provide suitable assembly space in an enclosed structure where the largest amount of assembly work is done. The assembly space must be large enough for the largest item to be worked on under the rating he seeks and must meet the requirements of paragraph I of this section .

IV - The applicant must store and protect parts being assembled or disassembled, or awaiting assembly or disassembly, to eliminate the possibility of damage to them.

V- The applicant must provide suitable ventilation for his shop, assembly, and storage areas so that the physical efficiency of his workers is not impaired.

VI- The applicant must control the temperature of the shop and assembly area so that the quality of the work is not impaired. Whenever special maintenance operations are being performed, such as fabric work or painting, the temperature and humidity control must be adequate to insure the airworthiness of the article being maintained.

(F) Special housing and facility requirements.

An applicant for an AMO certificate and rating, or for an additional rating, for airframes, powerplants, propellers, instruments, accessories, or radio must meet the requirements of items (I to V) of this paragraph:

I- An applicant for an airframe rating must provide suitable permanent housing for at least one of the heaviest aircraft within the weight class of the rating he seeks. If the location of the line maintenance station is such that climatic conditions allow work to be done outside, permanent work docks may be used , if they meet the requirements of this part.

II - An applicant for either a powerplant or accessory rating must provide suitable trays, racks, or stands for segregating complete engine or accessory assemblies from each other during assembly or disassembly. He must provide covers to protect parts awaiting assembly or during assembly to prevent dust or other foreign objects from entering in or falling on those parts.

III - An applicant for a propeller rating must provide suitable stands, racks, or other fixtures for the proper storage of propellers after being worked on.

IV - An applicant for a radio rating must provide suitable storage facilities to assure the protection of parts and units that might deteriorate from dampness and moisture.

V - An applicant for an instrument rating must provide a reasonably dust free shop if the shop allocated to final assembly is not air conditioned. Shop and assembly areas must be kept clean at all times to reduce the possibility of dust or other foreign objects getting into instrument assemblies.

145.15 Personnel Requirements

(A) A senior person or group of persons acceptable to the authority , whose responsibilities include ensuring that the AMO is in compliance with the requirements of this part , must be nominated . Such person(s) must ultimately be directly responsible to the accountable manager who must be acceptable to the authority .

1- The person or persons nominated should represent the maintenance management structure of the organization and be responsible for all the functions specified in this part. It therefore follows that, dependent upon the size of the organization, the functions may be subdivided under individual managers (and in fact may be further subdivided) or combined in any number of ways.

2 - In essence however the organization should have, dependent upon the extent of approval a Quality Manager, a base maintenance manager, a line maintenance manager and a workshop manager all of whom should report to the accountable manager . The smallest

AMO consists at least of one responsible for maintenance and another responsible for quality control .

3 - The accountable manager is responsible for ensuring that all necessary resources are available to accomplish maintenance in accordance with this part to support the organization's approval.

4 - The quality manager is responsible for monitoring the organization's compliance with this part and requesting remedial action as necessary by the base maintenance manager/line maintenance manager/workshop manager or the accountable manager as appropriate.

5 - The base maintenance manager is responsible for ensuring that all maintenance required to be carried out in the hangar plus any defect rectification carried out during base maintenance, is carried out to the design and quality standards specified in this part. The base maintenance manager is also responsible for any corrective action resulting from the quality compliance monitoring of this part.

6 - The line maintenance manager is responsible for ensuring that all maintenance required to be carried out on the line including line defect rectification is carried out to the standards specified in this part, and also responsible for any corrective action resulting from the quality compliance monitoring of this part.

7 - The workshop manager is responsible for ensuring that all work on aircraft components is carried out to the standards specified in this part, and also responsible for any corrective action resulting from the quality compliance monitoring of this part.

8 - The organization may adopt any title for the foregoing managerial positions but should identify to the ECAA the titles and persons chosen to carry out these functions.

9 - Where an organization chooses to appoint managers for all or any combination of the identified functions of this part because of the size of the undertaking it is necessary that these managers report ultimately to the accountable manager.

10 - The ECAA therefore requires the managers specified above to be identified and their credentials submitted to the ECAA. To be accepted , such managers should have relevant knowledge and satisfactory experience related to aircraft/aircraft component maintenance as appropriate.

Note : Certifying staff may report to any of the managers specified depending upon which type of control the AMO uses , so long as the quality compliance staff specified remain independent of all.

(B) The AMO must employ sufficient personnel to plan , perform, supervise and inspect the work in accordance with the approval .

1 - The applicant must provide adequate personnel who can perform , supervise and inspect the work for which the organization is to be rated. The officials of the organization must carefully consider the justifications and abilities of their employees and shall determine the abilities of its uncertificated employees performing maintenance operations on the basis of practical tests or employment records. The organization is primarily responsible for the satisfactory work of its employees.

2 - The number of the organization employees may vary according to the type and volume of its work. However, the applicant must have enough properly qualified employees to keep up with the volume of work in process, and may not reduce the number of its employees below that necessary to efficiently produce airworthy work.

3 - A possible way of compliance of the requirements of this section is to provide a man-hour plan showing that the organization has sufficient man-hours for the work that is intended to be carried out

(C) The competence of personnel involved in maintenance must be established in accordance with a procedure and to a standard acceptable to the Authority .

1 - To assist in the assessment of competence, job descriptions are recommended for each job role in the organization. Basically, the assessment should establish that:-

a - Planners are able to interpret maintenance requirements into maintenance tasks, and have an appreciation that they have no authority to deviate from the aircraft maintenance program.

b - Approved personnel are able to carry out maintenance tasks to any standard specified in the maintenance instructions and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards.

c - Supervisors are able to ensure that all required maintenance tasks are carried out and where not done or where it is evident that a particular maintenance task cannot be carried out to the maintenance instructions, then such problems will be reported to and agreed by the quality control .

d - Certifying staff are able to determine when the aircraft or aircraft component is ready to release to service and when it should not be released to service.

2 - Particularly, in the case of planners, supervisors and certifying staff, a knowledge of organization procedures relevant to their particular role in the organization is essential .

(D) In addition to paragraph (C) certifying staff must meet the following qualification requirements :

1 - Training of certifying staff must be performed in accordance with an approved curriculum and standard for training as well as pre-qualification standards for the personnel intended for training as prescribed in ECAR part 147 concerning requirements for approval of civil aviation training activities.

2 - Approved examinations should be set at the end of each training course according to standards mentioned in ECAR part 147.

3 - Members of authorizing board should be nominated by the AMO and agreed upon by the ECAA .

4 - Continuation training should cover changes in organization procedures and changes in the standard of aircraft maintained.

(E) Authorizations to sign certificates of release to service are signed only by members of authorizing board. Such authorizations state the aircraft type(s) and systems for which the authorization is valid and the extent of certification authority granted. Authorizations are issued only to personnel who comply with the following requirements:

1- Be of age 21 or over.

2- Have completed approved training course(s) complying with ECAR 147

3- Be the holder of a current Egyptian maintenance engineers' license without type rating valid in the appropriate categories in accordance with ECAR 65.

Notes: (a) The ECAA approve the issue of authorizations to persons holding previous Egyptian type rated licenses considered equivalent to the category of LWTR as defined in ECAR 65

(b) Persons holding valid authorization to issue certificates of compliance issued by the approved organization prior to the issue of this part, may continue to exercise the privilege of certification in respect of the applicable category or categories for the aircraft type(s) concerned, provided that the authorized person remains in the employ of the approved organization which granted the authorization prior to the effective date of this part. A maintenance engineer moving from the initial authorizing organization would need to hold the appropriate license qualification before being granted authorization by his new employer.

(F) The applicant inspection personnel must be thoroughly familiar with all inspection methods , techniques, and equipment used in their specialization to determine the quality or airworthiness of an article being maintained or altered. In addition, they must:-

1 - Maintain proficiency in using various inspection aids intended for that purpose:

2 - Have available and understand current specifications involving inspection tolerances, limitations, and procedures established by the manufacturer of the product being inspected and with other forms of inspection information such as airworthiness directives and bulletins; and

3 -In cases where magnetic, fluorescent, or other forms of mechanical inspection devices are to be used, be skilled in operating that equipment and be able to properly interpret defects indicated by it.

(G) Recommendation of persons for certification as Repairmen

An applicant for a domestic repair station certificate and rating , or for an additional rating , that requires a repairman must , at the time of application , recommend and certify to ECAA at least one person as a repairman , by stating that he is able to perform and supervise the work to which he is assigned . Each person so certified must be at or above the level of shop foreman or department head . A qualified person so recommended by the station is entitled to be certificated as a repairman according to the requirements of ECAR part 65 in this regard.

(K) - Some Outline Examples of Organizational Structures possible under this part are given in appendix 1.

145.17 Record Of Certifying Staff

(A) The AMO must maintain a record of all certifying staff which must include details of the scope of their authorization.

1 - The following minimum information should be kept on record in respect of each certifying person :

- a - Name
- b - Date of birth
- c - Basic training
- d - Type training
- e - Refreshing training
- f - Experience
- g - Qualifications relevant to the approval
- h - Scope of the authorization
- i - Date of first issue of the authorization
- j - If appropriate - expire date of the authorization
- k - Identification number of the authorization

2 - The record may be kept in any format but should be controlled by the organization's quality department. This does not mean that the quality department should run the record system.

3 - Persons authorized to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorized manner or that such confidential records become accessible to unauthorized persons.

4 - The ECAA may investigate the records system for initial and continued approval or when there is a cause to doubt the competence of a particular certifying person.

5 - The organization should keep the record for at least two years after the certifying person has ceased employment with the organization or withdrawal of the authorization, whichever is the sooner. In addition, the certifying staff should be furnished on request with a copy of their record on leaving the organization.

(B) Certifying staff must be provided with evidence of the scope of their authorization.

1 - The authorization document should be in a style that makes its scope clear to certifying staff and any authorized person that may require to examine the document. Where codes are used to define scope, an interpretation document should be readily available.

2 - Certifying staff are not required to carry the authorization document at all times but should produce it within a reasonable time of a request from an authorized person. Authorized persons, apart from the organization's quality department or maintenance supervisors/managers, include the ECAA.

(C) In addition to the records mentioned in items (A, B) of this paragraph , the applicant shall maintain a record of :

- 1 - His supervisory personnel, including the names of the officials of the organization that are responsible for his management and the names of his technical supervisors,
- 2 - his inspection personnel, including the names of the Quality Manager and those inspectors who make final airworthiness determinations before releasing an article to service.
- 3 - The organization shall change the record if any appreciable change in the duties and scope of assignment of any person changes.

145.19 Airworthiness Data

(A) The AMO must be in receipt of all necessary airworthiness data from the ECAA and/or appropriate Authority, the aircraft/aircraft component design organization and any other approved design organization, as appropriate to support the work performed.

Note: The ECAA may classify data from another authority or organization as mandatory and may require the AMO to hold such data.

This primarily requires the aircraft base maintenance organization to hold copies of any maintenance-related document issued by the ECAA, the type certificate holder or other appropriate design organization and any referenced equipment information. Referenced means that identified by the type certificate holder.

(B) Where the AMO produces its own airworthiness data additional to that specified in paragraph (A) such additional airworthiness data must be produced in accordance with a procedure acceptable to the ECAA .

This primarily refers to maintenance data that has been transcribed from the ECAA and all type certificate holders published format into the organization's format, such as customized maintenance cards or computer base data. To obtain acceptance from the ECAA, the accuracy of transcription should be assured.

(C) All airworthiness data must be kept up to date and made available to all personnel who need access to such data to perform their duties.

- 1 - To keep the data up to date a procedure should be set up to monitor the amendment status of all data and maintain a check that all amendments are being received by being a subscriber to any document scheme.
- 2 - Data being made available to personnel maintaining aircraft means that the data should be available in the hangar in close proximity to the aircraft being maintained .
- 3 - Where computer systems are used, the number of computer terminals should be sufficient in relation to the size of the work program to enable easy access, unless the computer system can produce paper copies. Where microfilm or microfiche readers/printers are used, a similar requirement is applicable.

145.21 Certification Of Maintenance

(A) A certificate of release to service must be issued by appropriately authorized certifying staff when satisfied that all required maintenance of the aircraft or aircraft component has been properly carried out by the AMO in accordance with the procedures specified in the maintenance organization exposition.

1 - A certificate of release to service is necessary before flight at the completion of any package of maintenance scheduled by the approved maintenance program on the aircraft, whether such maintenance took place as base or line maintenance. Only in exceptional cases may scheduled maintenance be deferred and then only in accordance with procedures specified in the AMO's exposition.

2 - A certificate of release to service is necessary before flight, at the completion of any defect rectification, whilst the aircraft operates flight services between scheduled maintenance.

3 - An aircraft component which has been maintained off the aircraft requires the issue of a certificate of release to service for such maintenance and another certificate of release to service in regard to being installed properly on the aircraft when such action occurs.

4 - The authorized release certificate/airworthiness approval tag constitutes the aircraft component certificate of release to service when an aircraft component is maintained by one approved organization for another approved organization.

5 - Guidance Material for the Authorized Release Certificate/Airworthiness Approval Tag is given in appendix D to this ECAR .

(B) A certificate of release to service must contain basic details of the maintenance carried out, the date such maintenance was completed and the identity including authorization reference of the AMO and certifying staff issuing such a certificate.

1 - The certificate of release to service should relate to the task specified in the manufacturer's or operator's instruction or the aircraft maintenance program which itself may cross-refer to a manufacturer's/operator's instruction in a maintenance manual, service bulletin etc.

2 - Where such instructions include a requirement to ensure a dimension or test figures within a specific tolerance as opposed to a general tolerance. the dimension or test figure should be recorded unless the instruction permits the use of GO/NO GO gauges. It is not normally sufficient to state that the dimension or the test figure is within tolerance.

3 - The date such maintenance was carried out should include when the maintenance took place relative to any life or overhaul limitation in terms of date/flying hours/cycles/landings etc.. as appropriate.

4 - When extensive maintenance has been carried out, it is acceptable for the certificate of release to service to summarize the maintenance so long as there is a unique cross-reference to the work-pack containing full details of maintenance carried out. Dimensional information should be retained in the work-pack record.

5 - The person issuing the release to service should use his full signature and preferably a certification stamp except in the case where a computer release to service system is used. In this latter case the ECAA will need to be satisfied that only the particular person can electronically issue the release to service. One such method of compliance is the use of a magnetic or optical personal card in conjunction with a personal identity number known only to the individual which is keyed into the computer.

145.23 Maintenance Records

(A) The AMO must record all details of work carried out in a form acceptable to the ECAA.

1 - Properly executed and retained records provide owners, operators and maintenance personnel with information essential in controlling unscheduled and scheduled maintenance, and trouble shooting to eliminate the need for reinspection and rework to establish airworthiness. Only records necessary to prove all requirements have been met for issuance of the release to service including sub-contractor's release documents should be retained.

2 - Some gas turbine engines are assembled from modules and a true total time in service for a total engine is not kept. When owners and operators wish to take advantage of the modular design, then total time in service and maintenance records for each module is to be maintained. The maintenance records as specified are to be kept with the module and should show compliance with any mandatory requirements pertaining to that module.

3 - Reconstruction of lost or destroyed records can be done by reference to other records which reflect the time in service, research of records maintained by repair facilities . When these things have been done and the record is still incomplete, the owner/operator may make a statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service. The reconstructed records should be submitted to the ECAA for acceptance.

Note: In such a case additional maintenance may be required.

4 - The maintenance record can be either a paper or computer system or any combination of both.

5 - Paper systems should use robust material which can withstand normal handling and filing. The record should remain legible throughout the required retention period.

6 - Computer systems may be used to control maintenance and/or record details of maintenance work carried out. Computer systems used for maintenance should have at least one backup system which should be updated . Each terminal is required to contain program safeguards against the ability of unauthorized personnel to alter the database.

(B) The AMO must provide a copy of each certificate of release to service to the aircraft operator, together with a copy of any specific airworthiness data used for repairs/modifications carried out. Meanwhile the AMO should retain the record of all maintenance.

(C) The AMO must retain a copy of all detailed maintenance records and any associated airworthiness data for the period specified in ECAR part 43.

1- The records should be stored in a safe way with regard to fire, flood and theft

2- Computer backup discs, tapes etc. should be stored in a different location from that containing the working discs, tapes etc.

3- Where an approved organization terminates its operation, all retained maintenance records should be distributed to the last owner/customer of the respective aircraft or component. If it is impossible to trace the owner/customer, the maintenance records should be stored as required by the ECAA.

145.25 Equipment, Tools And Material

(A) The AMO must have the necessary equipment, tools and material to perform the approved scope of work listed in appendix A.

1 - Once the applicant for approval has determined the intended scope of approval for consideration by the ECAA. it will be necessary to show that all tools and equipment as specified in the manufacturer's technical documentation can be made available when needed. Where the manufacturer specifies a particular tool or equipment, then that tool or equipment should be used unless the organization has an agreed procedure specified in the organization's exposition to manufacture such tool and equipment

2 - The availability of equipment and tools means permanent availability except in the case of any tool or equipment that is so rarely needed that its permanent availability is not necessary.

3 - An organization approved for base maintenance should have sufficient aircraft access equipment and inspection platforms/docking such that the aircraft may be properly inspected.

4 - The necessary material to perform the scope of work means readily available raw material and aircraft components in accordance with the manufacturer's recommendations unless the organization has an established spares provisioning procedures.

5 - The equipment and materials required for the various ratings must be located on the premises, and under the full control of the AMO, unless they are used for a function that the AMO is authorized to obtain from external sources , in such case the AMO shall determine the airworthiness of the article involved .

(B) Where necessary, tools, equipment and particular test equipment must be controlled and calibrated to standards acceptable to the ECAA at a frequency to ensure serviceability and accuracy. Records of such calibrations and the standard used must be kept by the AMO.

1 - Tools and test equipment, are that tooling and equipment necessary to measure/calibrate or test aircraft/ aircraft system/aircraft component to an approved standard.

2 - The control of these tools and equipment requires that the organization has a procedure to inspect/service and, where appropriate, calibrate such items on a regular basis and indicate to users that the item is within any inspection or service or calibration time-limit . A

clear system of labeling all tooling and test equipment is therefore necessary giving information on when the next inspection or service or calibration is due and if the item is unserviceable for any reason where it may not be obvious. A register should be maintained for all precision tooling and equipment together with a record of calibrations and standards used.

3 - Inspection, service or calibration on a regular basis should be in accordance with the equipment manufacturer's instructions except where the organization can show by results that a different time period is appropriate in a particular case.

(C) An AMO may contract maintenance of components of a type certificated product to a noncertificated source identified in the AMO's exposition manual provided :

1 - The AMO is the manufacturer who originally manufactured the product for which it holds an Egyptian type certificate;

2 - The contracted component is included as part of the type certificated product;

3 - The component maintenance is done by the original component manufacturer or its manufacturing licensee , and

4 - Before such a component is returned to service, the AMO ensures that it is being returned to service in accordance with the AMO's quality control system as approved by the ECAA and set forth in the AMO's exposition manual .

145.27 Reporting Of Unairworthy Conditions

(A) Each certificated domestic repair station shall report to the ECAA within 72 hours after it discovers any serious defect in, or other recurring unairworthy condition of, an aircraft, powerplant, or propeller, or any component of any of them. The report shall be made on a form and in a manner prescribed by ECAR 39, describing the defect or malfunction completely without withholding any pertinent information.

(B) In any case where the filing of a report under paragraph (a) of this section might prejudice the repair station, it shall refer the matter to the ECAA for a determination as to whether it must be reported. If the defect or malfunction could result in an imminent hazard to flight, the repair station shall use the most expeditious method it can to inform the ECAA.

(C) The holder of a domestic repair station certificate that is also the holder of a part 121 certificate, a Type Certificate (including a Supplemental Type Certificate), a Parts Manufacturer Approval (PMA), or a TSO authorization, or that is the licensee of a Type Certificate, need not report a failure, malfunction, or defect under this section if the failure, malfunction, or defect has been reported by it, under ECAR 121 or 21 and in accordance with ECAR 39.

145.29 Organization Maintenance Manual (Exposition and policy and procedures manual)

145.29.1 The applicant shall prepare a detailed maintenance manual for the use and guidance of maintenance organization personnel. This manual must be acceptable to the ECAA. The AMO shall ensure that the maintenance manual is revised as necessary to keep the information contained therein up to date. Copies of all revisions shall be furnished promptly to all organizations or persons to whom the manual has been issued.

145.29.2 The details in and number of volumes of the maintenance manual will vary depending upon the type, complexity and number of aircraft involved. The maintenance manual shall provide clear instructions, procedures and information covering:

- a) Details of the maintenance organization including an organizational chart;
- b) Personnel duties, responsibilities and authorities relating to maintenance, inspection and servicing;
- c) Details of the maintenance system to be followed, including procedures for performing routine and non-routine maintenance inspections, alterations, repairs and servicing;

- d) Airworthiness certification and inspection, standards and procedures for aircraft, parts and components;
- e) Details of reliability - quality control - program
- f) Procedures for preparing the maintenance release, the circumstances under which this release is issued and the personnel authorized to sign it;
- g) Methods, technique and practices for accomplishing preventive maintenance and alterations;
- h) Procedures to ensure that required maintenance or inspections are handled by appropriately trained, qualified and certificated licensed personnel;
- i) Methods used for designating critical items requiring inspection;
- j) Procedures to assess the cause and any potentially hazardous effects of defects or combination of defects and to analyze occurrences in order to initiate any necessary further investigation and analysis. Mandatory occurrence reporting to CAA as required by ECAA;
- k) Procedures to prevent the personnel who performed maintenance work on aircraft from also conducting required inspections of such work;
- l) Procedures to ensure that work interruptions do not adversely affect required inspections;
- m) Procedures to ensure that inspections are completed satisfactorily before aircraft are released to service;
- n) Procedures for refuelling and defuelling aircraft;
- o) Procedures for preventing or eliminating fuel contamination;
- p) Fire precaution procedures during refuelling and defuelling;
- q) The responsibilities, authority and names of personnel who have been duly appointed by the chief of maintenance to conduct inspections;
- r) Methods for servicing and maintenance prescribed by, or requiring the prior approval of, the chief of maintenance;
- s) Procedures for incorporating airworthiness, maintenance or inspection information issued by the organization responsible for the type design, the State of Design or the State of Registry; and
- t) Procedures for ensuring that the organization responsible for type design, usually the manufacturer, received adequate reports of occurrences to that type so that it can issue appropriate service instructions and recommendations to all operators.

145.29.3 As a minimum, the following should be covered in the manual in respect of each type and model of aircraft used:

- a) Frequency schedules of each check, overhaul or inspection of airframes, engines, propellers (where applicable), equipment, instruments and component systems;
- b) Procedures and standards for maintenance, inspection and servicing;
- c) Approved service life, where applicable, for various components, parts, accessories, etc.;
- d) List of approved permissible unserviceability (configuration deviation list (CDL), minimum equipment list (MEL));
- e) Arrangements whereby personnel or organizations other than the applicant's can be approved to perform maintenance and/or inspections of aircraft;
- f) Time limits for each required inspection;
- g) Procedures for maintaining the aircraft mass and center of gravity location within approved limits;
- h) Procedures and standards for acceptance or rejection of items requiring inspection;
- i) Procedures for preventive maintenance and servicing;
- j) Time limitations for replacing instruments, components, appliances;
- k) Procedures to ensure that certain aircraft systems and navigation equipment are fully serviceable for the appropriate categories of approach and landing operations;
- 11) Procedures to ensure that appropriate maintenance, records and inspections have been complied with for extended range operations by aeroplanes with two-turbine power-units; and

12) Details of performing various inspections tests and checks.

145.29.4 The following additional information should be included

- a) Supplier evaluation procedure;
- b) Acceptance/inspection of aircraft components and material from outside contractors;
- c) Storage, labeling/tagging and release of aircraft components and material to aircraft maintenance;
- d) Acceptance of tools and equipment;
- e) Calibration of tools and equipment;
- f) Use of tooling and equipment by staff (including alternate tools);
- g) Cleanliness standards of maintenance facilities;
- h) Maintenance instructions and relationship to aircraft/aircraft component manufacturers service information including updating and availability to staff;
- 7) Repair procedures;
- 8) Procedures for compliance with operator's aircraft maintenance program.
- 9) Airworthiness directives procedures.
- 10) Optional modification procedure.
- 11) Maintenance documentation in use and completion of same;
- 12) Technical record control.
- 13) Rectification of defects arising during base maintenance.

145.29.5 Release to service procedures shall include:

- a) issue of the maintenance release required by 145.21;
- b) Certification as airworthy after overhaul, component replacement, inspection, modification or repair;
- c) Records for the operator ;
- d) Reporting of defects and other occurrences as required by the ECAR 39;
- e) Return of defective aircraft components to store;
- f) Control of defective components sent to outside contractors for maintenance.
- g) Control of computer maintenance record system.
- h) Reference to specific maintenance procedures such as:
 - engine running procedures;
 - aircraft pressure run procedures;
 - aircraft towing procedures;
 - aircraft taxiing procedures.

145.29.6 Sub-contracting procedures, including:

- a) Contracting procedures;
- b) Approval procedures;
- c) Transfer of records procedures
- d) Quality Audit Procedures

145.29.7 Line Maintenance Procedures (When applicable)

- a) Line maintenance control of aircraft components, tools and equipment.
- b) Line maintenance procedures related to servicing/ fuelling/de-icing.
- c) Line maintenance control of defects and repetitive defects.
- d) Line procedure for pooled parts and loan parts.
- e) Line procedure for return of defective parts removed from aircraft.

145.29.8 Quality System Procedures

- a) A Continuing analysis and surveillance program including at least:
 - (i) Quality audit of organization procedures.
 - (ii) Quality audit of aircraft.

(iii) Quality audit remedial action procedure.

- b) The qualification and training procedures for personnel issuing Certifications in respect of airworthiness after overhaul, etc., and for release to service ("certifying staff").
- c) Records of certifying staff.
- d) The qualification and training procedures for quality audit personnel.
- e) The qualification and training procedures for mechanics.
- f) Exemption process control.
- g) Concession control for deviation from organization's procedures.
- h) Qualification procedure for specialized activities such as non-destructive testing (NDT), welding, etc.
- i) Control of manufacturer's working teams based at the premises of the organization, engaged in tasks, which interface with activities included in the approval.
- j) Quality audit of sub-contractors (or acceptance of accreditation by third parties, e.g. use of NDT organizations approved by a State regulatory body other than the ECAA).

145.29.9 The procedures manual if issued in separate parts shall contain the following additional information:

- a) A general description of the scope of work authorized under the organization's terms of approval, such as the operation specification;
- b) A general description of the organization's facilities;
- c) Names and duties of the persons in charge of ensuring that the maintenance organizations in compliance with the requirements for approved maintenance organization;
- d) The procedures used to establish the competence of maintenance personnel;
- e) The procedures for complying with the service information reporting requirements;
- f) A description of the procedure for receiving, amending and distributing within the maintenance organization all necessary airworthiness data from the type certificate holder or type design organization.

145.31 Maintenance Procedures And Quality System

(A) The AMO must establish procedures acceptable to the Authority to ensure good maintenance practices and compliance with all relevant requirements of this part such that aircraft and aircraft components may be released to service.

1 - The maintenance procedures should cover all aspects of carrying out the maintenance activity and in reality lay down the standards to which the maintenance organization intends to work. The aircraft/aircraft component design organization standards and aircraft operator standards must be taken into account.

2 - The maintenance procedures shall maintain, in current conditions, all manufacturers' service manuals, instructions, and service bulletins that relate to the articles that it maintains or alters.

3 - In addition, each certificated repair station with a radio rating shall use materials that conform to approved specifications for equipment appropriate to its rating. It shall use test apparatus, shop equipment, performance standards, test methods, alterations, and calibrations that conform to the manufacturer's specifications or instructions, approved specifications, and, if not otherwise specified, to accept good practices of the aircraft radio industry.

(B) In addition, AMO must establish an independent quality system to monitor compliance with and adequacy of the procedures to ensure good maintenance practices and airworthy aircraft and aircraft components. Compliance monitoring must include a feedback system to the nominated person or group of persons specified by the organization, and ultimately to the accountable manager to ensure, as necessary, corrective action. Such systems must be acceptable to the ECAA.

1 - The quality system is in fact an independent system under the control of the quality manager looking at the maintenance procedures.

2 - The ECAA requires the quality system to review all maintenance procedures as described in the exposition in accordance with an approved program. The quality system should show when audits are due, when completed and establish a system of audit reports which can be seen by visiting ECAA staff on request. The audit system should clearly establish a means by which audit reports containing observations about noncompliance or poor standards can be actioned. The means ultimately should lead to the accountable manager.

3 - The applicant must provide a satisfactory method of inspecting incoming material to insure that , before it is placed in stock for use in an aircraft or part thereof, it is in good state of preservation and is free from apparent defects or malfunctions.

4 - The applicant must provide a system of preliminary inspection of all articles he maintains to determine the state of preservation or defects. He shall enter the results of each inspection on an appropriate form supplied by it and keep the form with the article until it is released to service.

5 - The applicant must provide a system so that before working on any airframe, powerplant, or part thereof that has been involved in an accident, it will be inspected thoroughly for hidden damaged parts. He shall enter the results of this inspection on the inspection form required in paragraph 4 of this section

6 - Each AMO shall, before approving an airframe, powerplant, propeller, instrument, radio, or accessory for release to service after maintaining or altering it, have that article inspected by a qualified inspector. After performing a maintenance or alteration operation, the AMO shall certify on the maintenance or alteration record of the article that it is airworthy with respect to the work performed.

145.33 Certification Of Foreign Repair Stations

(A) General requirements

A repair station certificate with appropriate ratings may be issued to a foreign repair station if the ECAA determines that it will be necessary for maintaining or altering Egyptian registered aircraft , aircraft engines , propellers , appliances and components, parts thereof ; for use on Egyptian registered aircraft .

A foreign repair station must meet the requirements for a domestic repair station certificate , except for the following :

1 - Scope of work authorized

a - A certificated foreign repair station may , with respect to Egyptian registered aircraft , maintain or alter aircraft's airframes , powerplants , propellers , or component parts thereof . However the ECAA may prescribe operations containing limitations as necessary to comply with the airworthiness requirements of this part .

b - A certificated foreign repair station may perform only the specific services and functions within the ratings and classes that are stated in its operation specifications.

2 - Personnel

a - Each applicant for a foreign repair station certificate and rating , or for an additional rating ; must provide enough personnel who are able to perform, supervise , and inspect the work for which he seeks a rating , with regard being given for its volume of work .

b - The supervisor and inspectors of each certificated foreign repair station must understand the regulations of this part , Airworthiness directives , and maintenance and service instructions of the manufacturers of the articles to be worked on . However , they do not need airman certificate issued under this part , along with the person performing the work of the station , and are not considered to be airmen with respect to work performed in connection with their employment by the foreign repair station.

c - In cases where the persons engaged in supervision or final inspection are not certificated under this part or by the country in which the station is located , their qualifications are evaluated and determined by the ECAA , based on their ability to meet the requirements of paragraph a - of this section as proved by oral or practical test .

d - No person may be responsible for the supervision or final inspection work on an Egyptian registered aircraft in a foreign approved repair station unless he can read , write , and understand English .

3 - General operating rules

Each certificated foreign repair station shall comply with the operating rules of this part except for the privileges of certificates .

(B) Records and Reports

1 - Each certificated foreign repair station shall maintain such records , and make such reports , with respect to Egyptian registered aircraft as the ECAA finds necessary .

2 - Each certificated foreign repair station shall keep a record for the maintenance and alterations it performs on Egyptian registered aircraft, in enough detail to show the make, model, identification marks and serial number of the aircraft involved, along with a description of the work performed thereon. In case of major repairs report should be made on the form prescribed by the ECAA, and in the manner described thereof. Upon request, the station shall make all its maintenance and alteration records available to the ECAA.

3 - Each certificated foreign repair station shall, within 7 hours after it discovers any serious defect or other peculiar unairworthy condition on any Egyptian registered aircraft, powerplant, propeller, or any component thereof; report that defect or unairworthy condition to the ECAA.

145.34 Internal Evaluation Program: Each certificate holder is responsible to:

(a) Establish and maintain an Internal Evaluation Program (IEP) that is acceptable to the ECAA. The IEP is a systematic self-analysis for evaluating the performance, policies and procedures of all departments within a certificate holder's organization.

(b) Make the necessary revisions to the program, and submit it to the ECAA whenever the ECAA finds that the program described in paragraph (a) of this section does not contain adequate procedures and standards.

(c) Identify the following personnel in the IEP policy and procedures manual:

(i) The Internal Evaluation Program Manager who reports directly to the certificate holder's Chairman or equivalent and shall be accepted by the ECAA.

(ii) The Internal Evaluation technically qualified members that have satisfactorily passed an auditing training acceptable to the ECAA.

(d) Submit to the ECAA, at least quarterly audit planning schedule. The ECAA shall have access to all audit reports and may choose to attend the scheduled audits or conduct random audits of any area. Regulatory findings made by the company's IEP audit team shall be submitted under the Voluntary Disclosure Program (EAC 00-1, as amended). Any findings by an ECAA audit team that has not been reported by the company's IEP process shall be processed under standard enforcement.

(e) Guidance material for the IEP program could be found in EAC 002 as amended.

145.35 Privileges of the AMO

The AMO may only carry out the following tasks as permitted by and in accordance with the AMO exposition:

(a) Maintain any aircraft or aircraft component for which it is approved at the locations identified in the approval certificate.

(b) Arrange for maintenance of any aircraft or aircraft component for which it is approved at another organization that is under the quality control of the approved maintenance organization. The AMO exposition must list this organizations.

(c) Maintain any aircraft for which it is approved at any location subject to the need for such maintenance arising only from unserviceability of the aircraft.

(d) Maintain any aircraft for which it is approved at a location identified as a line maintenance location capable of supporting minor maintenance and only if the AMO exposition both permits such activity and lists such locations.

- (e) Issue certificates of release to service in respect of paragraph (A) to (D) on completion of maintenance in accordance with this part.
- (f) Maintain or alter any article for which it is rated at a place other than a repair station, if
- 1 - The function would be performed in the same manner as when performed at the AMO and in accordance with this part.
 - 2 - All necessary personnel, equipment, material, and technical data is available at the place where the work is to be done; and
 - 3 - The exposition manual of the AMO sets forth approved procedures governing work to be performed at a place other than the AMO .
- (g) However, an AMO may not approve for return to service any aircraft, airframe, aircraft engine, propeller, or appliance after major repair or major modification unless the work was done in accordance with technical data approved by the ECAA, unless already approved by the type certifying Authority.

145.37 Limitations On The AMO

The AMO may only maintain an aircraft or aircraft component for which it is approved when all necessary facilities, equipment, tooling, material, approved technical data and certifying staff are available.

145.39 Changes and / or Renewal to the AMO

- (A) The AMO must notify the ECAA as soon as is practicable of any of the following changes, to enable the ECAA to determine continued compliance with this part and to amend, if necessary, the approval certificate
- 1 - The name of the organization.
 - 2 - The location of the organization.
 - 3 - Additional locations of the organization.
 - 4 - The accountable manager.
 - 5 - Any of the senior persons specified in this part.
 - 6 - The facilities, equipment, tools, material, procedures, work scope and certifying staff that could affect the approval.
- (B) The ECAA may prescribe the conditions under which the AMO may operate during such changes unless the ECAA determines that the approval should be suspended.
- (C) A person requesting renewal of an AMO or repair station certificate shall within 30 days before his current certificate expires , apply to the ECAA for renewal on a form and in a manner prescribed by the ECAA .

145.41 Continued Validity Of Approval

Unless the approval has previously been surrendered, superseded, suspended, revoked or expired by virtue of exceeding any expire date that may be specified in the approval certificate, the continued validity of approval is dependent upon :

- (A) The AMO remaining in compliance with this part.
- (B) The authority being granted access to the AMO to determine continued compliance with this part, and;
- (C) The payment of the required charges prescribed by the ECAA .

145.43 Advertising

(A) Whenever the advertising of a repair station indicates that it is a certificated repair station , it must clearly state its certificate number .

(B) Paragraph (A) of this section applies to advertising in :

- (1) Business letter heads .
- (2) Billheads and statements .
- (3) Customer estimates and inspection forms .
- (4) Hangar and shop signs .
- (5) Magazines , Periodicals , or trade journals .
- (6) Any form of promotional media .

(C) A certificated repair station may not advertise as such except during the time that the certificate is valid .

145.45 Display of certificate

Each holder of a repair station certificate shall display the certificate and ratings at a place in the repair station that is normally accessible to the public and is not obscured. The certificate must be available for inspection by the ECAA.

145.47 Ratings

The following ratings are issued under this part :

(A) Airframe ratings :

- (1) class 1 : Small aircraft of composite construction .
- (2) Class 2 : Large aircraft of composite construction .
- (3) Class 3 : Small aircraft of all-metal construction .
- (4) Class 4 : Large aircraft of all--metal construction .

(B) Powerplant ratings :

- (1) Class 1 : Reciprocating engines of 400 horsepower or less .
- (2) Class 2 : Reciprocating engines of more than 400 horsepower .
- (3) Class 3 : Turbine engines .

(C) Propeller ratings :

- (1) Class 1 : All fixed pitch and ground adjustable propellers of wood , metal , or composite construction .
- (2) class 2 : All other propellers , by make .

(D) Radio ratings :

(1) Class 1 Communication equipment :

Any radio transmitting equipment or receiving equipment , or both , used in aircraft to send or receive communications in flight , regardless of carrier frequency or type of modulation used ; including auxiliary and related aircraft inter phone systems , amplifiers systems , electrical or electronic intercrew signaling devices , and similar equipment ; but not including equipment used for navigation of the aircraft or as an aid to navigation equipment for measuring altitude on terrain clearance , other measuring equipment operated on radio or radar principles , or mechanical, electrical , gyroscopic , or electronic instruments that are a part of communications radio equipment .

(2) Class 2 : Navigational equipment :

Any radio system used in aircraft for enroute or approach navigation , except equipment operated on radar or pulsed radio frequency principles; but not including equipment for measuring altitude or terrain clearance or other distance equipment operated on radar or pulsed radio frequency principles .

(3) Class 3 : Radar equipment :

Any aircraft electronic system operated on radar or pulsed radio frequency principles .

(E) Instrument ratings :

(1) Class 1 : Mechanical : Any diaphragm , Borden , tube , aneroid , optical , or mechanically driven centrifugal instrument that is used on aircraft , including tachometers , airspeed indicators , pressure gauges , drift sights, magnetic compasses , altimeters , or similar mechanical instruments .

(2) Class 2 : Electrical : Any self-synchronous and electrical indicating instruments and systems , including remote indicating instruments , cylinder head temperature gauges , or similar electrical instruments .

(3) Class 3 : Gyroscopic : Any instrument or system using gyroscopic principles and motivated by air pressure or electrical energy , including automatic pilot control units , turn and bank indicators , directional gyros, and their parts , and flux gate and gyros and compasses .

(4) Class 4 : Electronic : Any instruments whose operation depends on electron tubes , transistors , or similar devices , including capacitance type quantity gauges , system amplifiers and engine analyzers .

(F) Accessory ratings :

- (1) Class 1 : Mechanical accessories that depend on friction , hydraulic , mechanical linkage , or pneumatic pressure for operation , including aircraft wheel brakes , mechanically driven pumps , carburetors , aircraft wheel assemblies , shock absorber struts and hydraulic servo units .
- (2) Class 2 : Electrical accessories that depend on electrical energy for their operation , and generators , including starters , voltage regulators , electrical motors , electrically driven fuel pumps , magnetos or similar electrical accessories .
- (3) Class 3 : Electronic accessories that depend on the use of an electron tube, transistor , or similar device , including supercharger , temperature , air conditioning controls , or similar electronic controls .

(G) Specialized services :

- (1) Nondestructive testing agencies (the minimum requirements for establishing nondestructive testing agencies and quality control requirements for them are mentioned in EAC 145-1).
- (2) Welding workshops (the minimum requirements for establishing welding workshops and quality control for them are mentioned in EAC 145-2).

145.49 Limited ratings

(a) Whenever the ECAA finds it appropriate, he may issue a limited rating to a domestic repair station that maintains or alters only a particular type of airframe, powerplant, propeller, radio, instrument, or accessory, or parts thereof, or performs only specialized maintenance requiring equipment and skills not ordinarily found in regular repair stations. Such a rating may be limited to a specific model aircraft, engine, or constituent part, or to any number of parts made by a particular manufacturer.

(b) Limited ratings are issued for -

- (1) Airframes of a particular make and model;
- (2) Engines of a particular make and model;
- (3) Propellers of a particular make and model;
- (4) Instruments of a particular make and model;
- (5) Radio equipment of a particular make and model;
- (6) Accessories of a particular make and model;
- (7) Landing gear components;
- (8) Floats, by make;
- (9) Nondestructive inspection, testing, and processing;
- (10) Emergency equipment;
- (11) Rotor blades, by make and model;
- (12) Aircraft fabric work; and

(13) Any other purpose for which the ECAA finds the applicant's request is appropriate.

(c) For a limited rating for specialized services, the operations specifications of the station shall contain the specification used in performing that specialized service. The specification may either be a civil or military one that is currently used by industry and approved by the ECAA or one developed by the applicant and approved by the ECAA.

APPENDIX A**Scope of work for each class**

Note: When an asterisk (*) is shown after any job function listed in this appendix it indicates that the applicant need not have the equipment and material on his premises for performing this job function provided he contracts that particular type work to an outside agency having such equipment and material.

145xA.a

An applicant for a Class 1, 2, 3, or 4 airframe rating must provide equipment and material necessary for efficiently performing the following job functions:

(1) Steel structural components:

Repair or replace steel tubes and fittings using the proper welding techniques when appropriate.

Anticorrosion treatment of the interior and exterior of steel parts,

Metal plating or anodizing*,

Simple machine operations such as making bushings, bolts, etc.,

Complex machine operations involving the use of planers, shapers, milling machines, etc.*,

Fabricate steel fittings,

Abrasive air blasting and chemical cleaning operations*,

Heat treatment*,

Magnetic inspection*,

Repair or rebuild metal tanks*.

(2) Wood structure:

Splice wood spars,

Repair ribs and spars (wood),

Fabricate wood spars*,

Repair or replace metal ribs,

Interior alignment of wings,

Repair or replace plywood skin,

Treatment against wood decay.

(3) Alloy skin and structural components:

Repair and replace metal skin, using power tools and equipment,

Repair and replace alloy members and components such as tubes, channels, cowlings, fittings, attach angles, etc.,

Alignment of components using jigs or fixtures as in the case of joining fuselage sections or other similar operations,

Make up wooden forming blocks or dies,

Fluorescent inspection of alloy components*,

Fabricate alloy members and components such as tubes, channels, cowlings, fittings, attach angles, etc.*

(4) Fabric covering:

Repairs to fabric surfaces,

Recovering and refinishing of components and entire aircraft*.

(5) Control systems:

Renewing control cables, using swaging and splicing techniques,

Rigging complete control system,

Renewing or repairing all control system hinge point components such as pins, bushings, etc.,

Install control system units and components.

(6) Landing gear systems:

Renew or repair all landing gear hinge point components and attachments such as bolts, bushings, fittings, etc.,

Overhaul and repair elastic shock absorber units,

Overhaul and repair hydraulic/pneumatic shock absorber units*,

Overhaul and repair brake system components*,
 Conduct retraction cycle tests,
 Overhaul and repair electrical circuits,
 Overhaul and repair hydraulic system components*,
 Repair or fabricate hydraulic lines.

(7) Electric wiring systems:

Diagnose malfunctions,
 Repair or replace wiring,
 Installation of electrical equipment,

Bench check electrical components (this check is not to be confused with the more complex functional test after overhaul).

(8) Assembly operations:

Assembly of airframe component parts such as landing gear, wings, controls, etc.,
 Rigging and alignment of airframe components, including the complete aircraft and control system,

Installation of powerplants,
 Installation of instruments and accessories,
 Assembly and fitting of cowling, fairings, etc.,
 Repair and assembly of plastic components such as windshields, windows, etc.,
 Jack or hoist complete aircraft.

Conduct aircraft weight and balance operations (this function will be conducted in draft free area)*,

Balance control surfaces.

145xA.b

An applicant for any class of power plant rating must provide equipment and material necessary for efficiently performing the following job functions appropriate to the class of rating applied for:

(1) Classes 1 and 2.

(i) Maintain and alter powerplants, including replacement of parts:

Chemical and mechanical cleaning,
 Disassembly operations,
 Replacement of valve guides and seats*,
 Replacement of bushings, bearings, pins, inserts, etc.,
 Plating operations (copper, silver, cadmium, etc.)*,

Heating operations (involving the use of recommended techniques requiring controlled heating facilities),

Chilling or shrinking operations,
 Removal and replacement of studs,
 Inscribing or affixing identification information,
 Painting of powerplants and components,
 Anticorrosion treatment for parts,

Replacement and repair of powerplant alloy sheet metal and steel components such as baffles, fittings, etc.*

(ii) Inspect all parts, using appropriate inspection aids:

Magnetic, fluorescent and other acceptable inspection aids*,
 Precise determination of clearances and tolerances of all parts,
 Inspection for alignment of connecting rods, crankshafts, impeller shafts, etc.,
 Balancing of parts, including crankshafts, impellers, etc.*,
 Inspection of valve springs.

(iii) Accomplish routine machine work:

Precision grinding, honing and lapping operations (includes crankshaft, cylinder barrels, etc.)*,

Precision drilling, tapping, boring, milling and cutting operations*,
 Reaming of inserts, bushings, bearings and other similar components,

Refacing of valves.

(iv) Perform assembly operations:

- Valve and ignition timing operations,
- Fabricate and test ignition harnesses,
- Fabricate and test rigid and flexible fluid lines,
- Prepare engines for long or short-term storage,

Functional check powerplant accessories (this check is not to be confused with the more complex performance test of overhaul)*,

- Hoist engines by mechanical means,
- Install engines in aircraft*,
- Align and adjust engine controls*,

Installation of engines in aircraft and alignment and adjustment of engine controls, when completed, must be inspected by either an appropriately rated certificated mechanic or certificated repairman. Persons supervising or inspecting these functions must thoroughly understand the pertinent installation details involved.

(v) Test overhauled powerplants in compliance with manufacturers' recommendations: The test equipment will be the same as recommended by the manufacturers of the particular engines undergoing test or equivalent equipment that will accomplish the same purpose. The testing function may be performed by the repair station itself, or may be contracted to an outside agency. In either case the repair station will be responsible for the final acceptance of the tested engine.

(2) Class 3. Functional and equipment requirements for turbine engines will be governed entirely by the recommendations of the manufacturer, including techniques, inspection methods, and test.

145xA.c

An applicant for any class of propeller rating must provide equipment and material necessary for efficiently performing the following job functions appropriate to the class of rating applied for:

(1) Class 1.

(i) Maintain and alter propellers, including installation and replacement of parts:

- Replace blade tipping,
- Refinish wood propellers,
- Make wood inlays,
- Refinish plastic blades,
- Straighten bent blades within repairable tolerances,
- Modify blade diameter and profile,
- Polish and buff,
- Painting operations,
- Remove from and reinstall on powerplants.

(ii) Inspect components, using appropriate inspection aids:

Inspect propellers for conformity with manufacturer's drawings and specifications,

Inspect hubs and blades for failures and defects, using magnetic or fluorescent inspection devices*,

Inspect hubs and blades for failures and defects, using all visual aids, including the etching of parts,

Inspect hubs for wear of splines or keyways or any other defect.

(iii) Repair or replace components: (Not applicable to this class).

(iv) Balance propellers:

Test for proper track on aircraft,

Test for horizontal and vertical unbalance (this test will be accomplished with the use of precision equipment).

(v) Test propeller pitch changing mechanisms: (Not applicable to this class).

(2) Class 2.

- (i) Maintain and alter propellers, including installation and the replacement of parts:
All functions listed under paragraph (c)(1)(i) of this appendix when applicable to the make and model propeller for which a rating is sought,
Properly lubricate moving parts,
Assemble complete propeller and subassemblies, using special tools when required.
- (ii) Inspect components, using appropriate inspection aids: All functions listed under paragraph (c)(1)(ii) of this appendix when applicable to the make and model propeller for which a rating is sought.
- (iii) Repair or replace component parts:
Replace blades, hubs, or any of their components,
Repair or replace anti-icing devices,
Remove nicks or scratches from metal blades,
Repair or replace electrical propeller components.
- (iv) Balance propellers: All functions listed under paragraph (c)(1)(iv) of this appendix when applicable to the make and model propeller for which a rating is sought.
- (v) Test propeller pitch changing mechanism:
Test hydraulically, propellers and components,
Test electrically operated propellers and components,
Test of constant speed devices*.

145xA.d

An applicant for a radio rating must provide equipment and materials as follows:

- (1) For a Class 1 (Communications) radio rating, the equipment and materials necessary for efficiently performing the job functions listed in paragraph (4) and the following job functions:

The testing and repair of headsets, speakers, and microphones.

The measuring of radio transmitter power output.

- (2) For a Class 2 (Navigation) radio rating, the equipment and materials necessary for efficiently performing the job functions listed in paragraph (4) and the following job functions:

The testing and repair of headsets.

The testing of speakers.

The repair of speakers.*

The measuring of loop antenna sensitivity by appropriate methods.

The determination and compensation for quadrantal error in aircraft direction finder radio equipment.

The calibration of any radio navigational equipment, enroute and approach aids, or similar equipment, appropriate to this rating to approved performance standards.

- (3) For Class 3 (Radar) radio rating, the equipment and materials necessary for efficiently performing the job functions listed in paragraph (4) and the following job functions:

The measuring of radio transmitter power output.

The metal plating of transmission lines, wave guides, and similar equipment in accordance with appropriate specifications.*

The pressurization of appropriate radar equipment with dry air, nitrogen, or other specified gases.

- (4) For all classes of radio ratings, the equipment and materials necessary for efficiently performing the following job functions:

Perform physical inspection of radio systems and components by visual and mechanical methods.

Perform electrical inspection of radio systems and components by means of appropriate electrical and/or electronic test instruments.

Check aircraft wiring, antennas, connectors, relays, and other associated radio components to detect installation faults.

Check engine ignition systems and aircraft accessories to determine sources of electrical interference.

Check aircraft power supplies for adequacy and proper functioning.

Test radio instruments.*

Overhaul, test, and check dynamotors, inverters, and other radio electrical apparatus.*

Paint and refinish equipment containers.*

Accomplish appropriate methods of marking calibrations, or other information on radio control panels and other components, as required.*

Make and reproduce drawings, wiring diagrams, and other similar material required to record alterations and/or modifications to radio (photographs may be used in lieu of drawings when they will serve as an equivalent or better means of recording).*

Fabricate tuning shaft assemblies, brackets, cable assemblies, and other similar components used in radios or aircraft radio installations.*

Align tuned circuits (RF and IF).

Install and repair aircraft antennas.

Install complete radio systems in aircraft and prepare weight and balance reports* (That phase of radio installation requiring alterations to the aircraft structure must be performed, supervised, and inspected by qualified personnel).

Measure modulation values, noise, and distortion in radios.

Measure audio and radio frequencies to appropriate tolerances and perform calibration necessary for the proper operation of radios.

Measure radio component values (inductance, capacitance, resistance, etc.).

Measure radio frequency transmission line attenuation.

Determine wave forms and phase in radios when applicable.

Determine proper aircraft radio antenna, leadin and transmission line characteristics and locations for type of radio equipment to which connected.

Determine operational condition of radio equipment installed in aircraft by using appropriate portable test apparatus.

Determine proper location for radio antennas on aircraft.

Test all types of electronic tubes, transistors, or similar devices in equipment appropriate to the rating.

145xA.e

An applicant for any class of instrument rating must provide equipment and material necessary for efficiently performing the following job functions, in accordance with pertinent specifications and manufacturers' recommendations, appropriate to the class of rating applied for:

(1) Class 1.

(i) Diagnose instrument malfunctions: Diagnose malfunctioning of the following instruments:

- Rate of climb indicators,
- Altimeters,
- Air speed indicators,
- Vacuum indicators,
- Oil pressure gauges,
- Fuel pressure gauges,
- Hydraulic pressure gauges,
- Deicing pressure gauges,
- Pitot/static tube,
- Direct indicating compasses,
- Accelerometer,
- Direct indicating tachometers,
- Direct reading fuel quantity gauges,
- Optical (sextants, drift sights, etc.)*.

(ii) Maintain and alter instruments, including installation and replacement of parts:

Perform these functions on instruments listed under paragraph (e)(1)(i) of this appendix.

The function of installation includes fabrication of instrument panels and other installation structural components. The repair station should be equipped to perform this function. However, it may be contracted to a competent outside agency equipped to perform the function.

(iii) Inspect, test and calibrate instruments: Perform these functions on instruments listed under paragraph (e)(1)(i) of this appendix, on and off the aircraft, when appropriate.

(2) Class 2.

(i) Diagnose instrument malfunctions: Diagnose malfunctioning of the following instruments:

- Tachometers,
- Synchroscope,
- Electric temperature indicators,
- Electric resistance type indicators,
- Moving magnet type indicators,
- Resistance type fuel indicators,
- Warning units (oil/fuel),
- Selsyn systems and indicators,
- Self-synchronous systems and indicators,
- Remote indicating compasses,
- Fuel quantity indicators,
- Oil quantity indicators,
- Radio indicators,
- Ammeters,
- Voltmeters.

(ii) Maintain and alter instruments, including installation and the replacement of parts:

Perform these functions on instruments listed under paragraph (e)(2)(i) of this appendix.

The function of installation includes fabrication of instrument panels and other installation structural components. The repair station should be equipped to perform this function. However, it may be contracted to a competent outside agency equipped to perform the function.

(iii) Inspect, test and calibrate instruments: Perform these functions on instruments listed under paragraph (e)(2)(i) of this appendix, on and off the aircraft, when appropriate.

(3) Class 3.

(i) Diagnose instrument malfunctions: Diagnose malfunctioning of the following instruments:

- Turn and bank indicators,
- Directional gyros,
- Horizon gyros,
- Auto pilot control units and components*,
- Remote reading direction indicators*.

(ii) Maintain and alter instruments, including installation and replacement of parts: Perform these functions on instruments listed under paragraph (e)(3)(i) of this appendix. The function of installation includes fabrication of instrument panels and other installation structural components. The repair station should be equipped to perform this function. However, it may be contracted to a competent outside agency equipped to perform the function.

(iii) Inspect, test and calibrate instruments: Perform these functions on instruments listed under paragraph (e)(3)(i) of this appendix, on and off the aircraft, when appropriate.

(4) Class 4.

(I) Diagnose instrument malfunctions: Diagnose malfunctioning of the following instruments:

- Capacitance type quantity gauge,
- Other electronic instruments,
- Engine analyzers.

(ii) Maintain and alter instruments, including installation and replacement of parts: Perform these functions on instruments listed under paragraph (e)(4)(i) of this appendix. The function of installation includes fabrication of instrument panels and other installation structural components. The repair station should be equipped to perform this function. However, it may be contracted to a competent outside agency equipped to perform the function.

(iii) Inspect, test and calibrate instruments: Perform these functions on instruments listed under paragraph (e)(4)(i) of this appendix, on and off the aircraft, when appropriate.

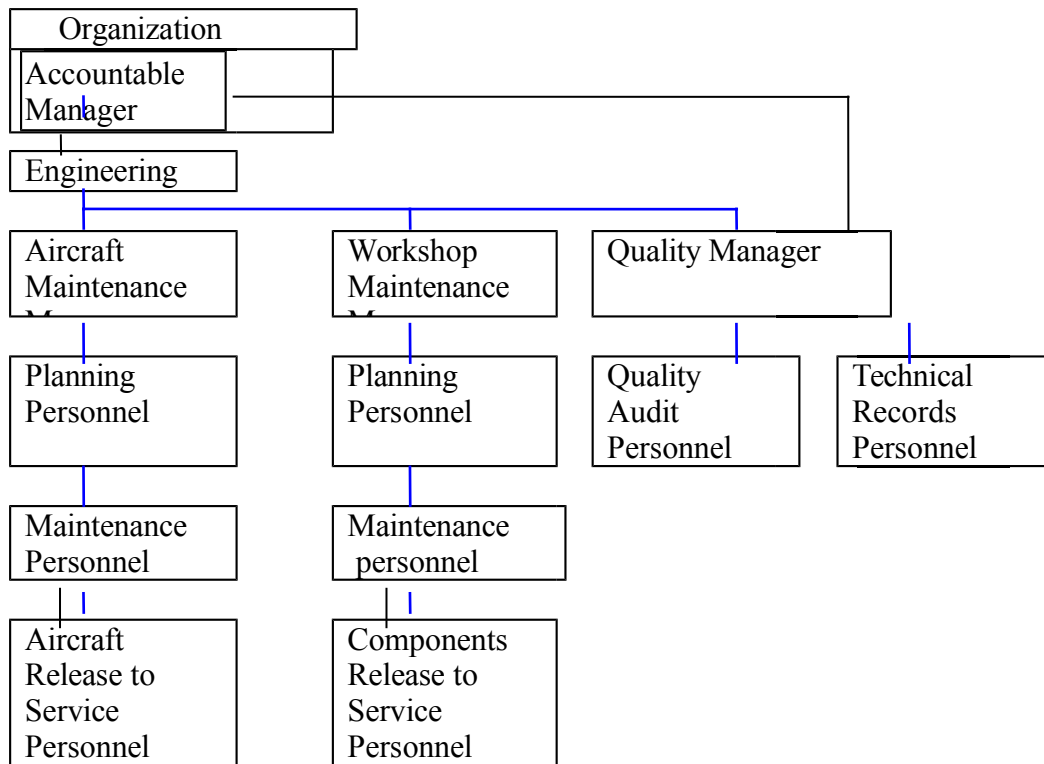
145xA.f

An applicant for a Class 1, 2, or 3 accessory rating must provide equipment and material necessary for efficiently performing the following job functions, in accordance with pertinent specifications and the manufacturers' recommendations:

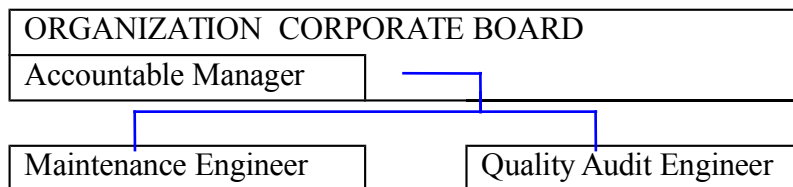
- (1) Diagnose accessory malfunctions.
- (2) Maintain and alter accessories, including installation and the replacement of the parts.
- (3) Inspect, test, and, where necessary, calibrate accessories.

APPENDIX B

(A) Typical large Organization:



(b) Typical Small Organization



APPENDIX D

Guidance material for the Authorized Release Certificate/Airworthiness Approval Tag

1- COUNTRY	2 Authorized Release Certificate - Airworthiness Approval Tag			3- Certificate Ref. No.
4 - ORGANIZATION				5 - Work order / Contract
6- Item	7- Description	8- part no.	9- Eligibility	10- quantity
11- Serial N	12- Work Status		13- Remarks	
14 - New Parts			15 - used parts	
16 - Signed	17 - Name		18- Date	
19 - Issued by or on behalf of the ECAA under				

reference :-

SUBPART A

General

91.1 Applicability

(a) Except as provided in paragraph (b) of this section and 91.703, this Part prescribes rules governing the operation of aircraft other than moored balloons, kites, unmanned rockets, and unmanned free balloons, which are governed by ECAR Part 101, and ultralight vehicles operated in accordance with Part 103 within Egypt, including the waters within three nautical miles of the Egyptian coast.

(b) Each person operating an aircraft in the airspace overlying the waters between 3 and 12 nautical miles from the coast of Egypt shall comply with 91.1 through 91.21; 91.101 through 91.143; 91.151 through 91.159; 91.167 through 91.193; 91.203; 91.205; 91.209 through 91.319; 91.609; 91.703 through 91.715; and 91.903.

91.3 Pilot in command responsibilities

The pilot-in-command shall comply with the relevant laws, regulations and procedures of the States in which the aircraft is operated, in addition he is responsible for:

- (a) The operation and safety of the aircraft and for the safety of all persons on board, during flight time;
- (b) All cockpit crew and passenger briefings;
- (c) Ensuring all crewmembers hold proper licenses and that all crewmembers maintain their competence throughout the flight;
- (d) The safe conduct of the flight from block out to block in;
- (e) Completing all checklists;
- (f) Notifying the nearest authority by the quickest means possible in the event of an accident involving serious injury, death or substantial damage to the aircraft or property;
- (g) Notifying the nearest authority by the quickest means possible in the event of an act of unlawful interference with the conduct of the flight;
- (h) Reporting all known defects of the aircraft at the end of the flight;
- (i) Completion of the log book and the general declaration;
- (j) Ensuring that he has adequate information regarding communication, navigation and search and rescue applicable to his intended area of operations; and
- (k) Complying with any more restrictive measures which may be required by the State of registry.

91.4 Pilot in command emergency authority

(a) In an emergency situation that requires immediate decision and action, the pilot in command may take any action that he considers necessary under the circumstances. In such a case he may deviate from prescribed operations procedures and methods and weather minimums of this Part, to the extent required in the interest of safety.

(b) Whenever a pilot in command uses their emergency authority, they shall keep the appropriate ATS facility informed of the progress of the flight. The pilot in command that declared the emergency shall send a written report of any deviation through the certificate holder's operations manager to the ECAA and to the State of registry. The pilot in command shall send the report within ten days of using the emergency authority.

91.5 Operations requiring more than one cockpit crewmember

The number and composition of the cockpit crew will not be less than that specified in the aircraft flight manual or other documents associated with the certificate of airworthiness. For any operations conducted under this Part, the cockpit crew must meet the requirements of ECAR Part 61.

91.7 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 the aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when any un-airworthy mechanical, electrical, or structural conditions occur.

91.9 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 (including mass, center of gravity and noise) specified in the approved airplane or rotorcraft flight manual, markings, placards, or as otherwise prescribed by the certification authority of the country of registry.

(b) No person may operate an Egyptian registered civil aircraft:
(1) For which an airplane or rotorcraft flight manual is required by Part 21 unless there is available in the aircraft a current, approved airplane or rotorcraft flight manual or the manual provided for in Part 121.141(b); and

(2) For which an airplane or rotorcraft flight manual is not required by Part 21, unless there is available in the aircraft a current, approved airplane or rotorcraft flight manual, approved manual material, markings, and placards, or any combination thereof.

(c) No person may operate an Egyptian registered civil aircraft until that aircraft is identified in accordance with Part 45.

(d) Any persons taking off or landing a helicopter at a heliport constructed over water may make such momentary flight as is necessary for take off or landing through the prohibited range of the limiting height-speed envelope established for the helicopter if that flight through the prohibited range takes place over water on which a safe ditching can be accomplished and if the helicopter is amphibious or is equipped with floats or other emergency flotation gear adequate to accomplish a safe emergency ditching on open water.

(e) All aircraft shall carry a document that attests to the noise certification of the aircraft.

91.10 Reporting of hazardous conditions

When hazardous conditions caused by either weather or caused by reasons other than weather are encountered which could affect the safety of other aircraft, these conditions must be reported in detail as soon as possible to the appropriate authority.

91.11 Prohibition against interference with crewmembers

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

91.12 Refueling with passengers on board

Anyone who conducts refueling operations with passengers on board the aircraft must have trained personnel ready to initiate an evacuation of the aircraft in the event of an emergency and these personnel must be in two way communication with the ground crew that is supervising the refueling.

91.13 Careless or reckless operation

(a) Aircraft operations for the purpose of air navigation. No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

(b) Aircraft operations other than for the purpose of air navigation. No person may operate an aircraft, other than for the purpose of air navigation, on any part of the surface of an airport used by aircraft for air commerce (including areas used by those aircraft for receiving or discharging persons or cargo), in a careless or a reckless manner so as to endanger the life or property of another.

91.15 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.

91.17 Alcohol or drugs

(a) No person 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 faculties in any way contrary to safety; or
- (4) While having 0.04 percent by weight or more of 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 do the following:

(1) On request of a law enforcement officer, submit to a test to indicate the percentage by weight of alcohol in the blood; when:

(i) The law enforcement officer is authorized under State or local law to conduct the test or to have the test conducted; and

(ii) The law enforcement officer is requesting submission to the test to investigate a suspected violation of State or local law governing the same or substantially similar conduct prohibited by paragraph (a)(1), (a)(2), or (a)(4) of this section.

(2) Whenever the ECAA 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 ECAA, furnish to the ECAA, or authorize any clinic, hospital, doctor, or other person to release to the ECAA, 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 ECAA 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 ECAA, furnish to the ECAA, or authorize any clinic, hospital, doctor, or other person to release to the ECAA, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates presence of any drugs in the body.

(e) Any test information obtained by the ECAA under paragraph (c) or (d) of this section may be evaluated in determining a person's qualifications for any airman certificate or possible violations of this Part and may be used as evidence in any legal proceeding.

91.19 Carriage of narcotic drugs, marijuana, depressant or stimulant drugs or substances or any dangerous goods

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft within the Arab Republic of Egypt with knowledge that narcotic drugs, and depressant or stimulant drugs or similar substance, marijuana, or any dangerous goods are carried in the aircraft.

(b) Paragraph (a) of this section does not apply to any carriage of narcotic drugs, and depressant or stimulant drugs or similar substance, marijuana, or any dangerous goods, authorized by the ECAA and the States in which the aircraft is operated.

Note:Provisions for carriage of dangerous goods are contained in Part 175.

91.21 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 Egyptian registered civil aircraft:

- (1) Aircraft operated by a holder of an aircraft operating certificate; or
- (2) Any other aircraft while it is operated under IFR.

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

- (1) Portable voice recorders;
- (2) Hearing aids;
- (3) Heart pacemakers;
- (4) Electric shavers; or
- (5) Any other portable electronic device that 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 by a holder of an aircraft operating certificate, 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 pilot in command or the other operator of the aircraft.

91.23 Truth-In-Leasing clause requirement 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 an Egyptian registered large civil aircraft, shall execute a written lease or contract and include therein a written truth-in-leasing clause as a concluding paragraph in large print, immediately preceding the space for the signature of the parties, which contains the following with respect to each such aircraft:

(1) Identification of the Part 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 Part for the operation to be conducted under the lease or contract of conditional sale.

(2) The name and address (printed or typed) and the signature of the person responsible for operational control of the aircraft under the lease or contract of conditional sale, and certification that each person understands that person's responsibilities for compliance with applicable ECARs.

(3) A statement of the factors relating to operational control of the aircraft and the applicable ECARs.

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

(1) To a lease or contract of conditional sale when:

(i) The party to whom the aircraft is furnished is a foreign air carrier or certificate holder under Parts 121, or 141; or

(ii) The party furnishing the aircraft is a foreign air carrier.

(2) To a contract of conditional sale, when the aircraft involved has not been registered anywhere prior to the execution of the contract, except as a new aircraft under a dealer's aircraft registration certificate.

(c) No person may operate a large civil aircraft of Egyptian registry that is subject to lease or contract of conditional sale 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 Arab Republic of Egypt, 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 branch of the ECAA.

(2) A copy of the lease or contract that complies with the requirements of paragraph (a) of this section must be carried in the aircraft and a copy of the lease or contract shall be made available for review upon request by the ECAA, and

(3) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the Arab Republic of Egypt, has notified by telephone or in person the ECAA. Unless otherwise authorized by the ECAA, 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 ECAA of:

(i) The location of the airport of departure;

(ii) The departure time;

(iii) The registration number of the aircraft involved;

(iv) The lease or contract furnished to the ECAA under paragraph (a) of this section when the commercial or financial information is obtained from a union. It is therefore, privileged and confidential, and will not be made suitable by the ECAA for public inspection or copying; and

(v) For the purpose of this section, a lease means any agreement by a person to furnish an aircraft to another person for compensation or hire, whether with or without cockpit 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 is the lessee.

91.25-91.99 {Reserved}

SUBPART C**Equipment, Instrument, and Certificate Requirements****91.201 [Reserved]****91.203 Civil aircraft: Certifications required**

(a) Except as provided in 91.715, no person may operate a civil aircraft unless it has on board the following:

- (1) An appropriate and current airworthiness certificate except a special flight permit. The ECAA requires the sections of the operations manual required in Part 121 containing that portion of the operations specifications issued under Part 21. The manual requirements include a flight manual containing all aircraft operating limitations, current and suitable en-route and approach charts for the area of intended operations, the procedures, signals and maneuvers of intercepted aircraft and information regarding search and rescue procedures applicable to the area of intended operations. In lieu of the operations specifications issued under Part 21, an authorization this under part may be used to comply, provided the aircraft has the registration marks assigned to the aircraft under Part 45.
- (2) An effective Egyptian registration certificate issued to its owner or, for operation within Egypt, the aircraft registration application or a registration certificate issued under the laws of a foreign country.
- (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 91.715 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 Part 43, and a copy of Egyptian reporting form authorizing that installation is on board the aircraft.
- (d) No person may operate a civil airplane(domestic or foreign) into or out of an airport in Egypt unless it complies with fuel venting and exhaust emissions requirements.

91.204 Powered Civil Aircraft with Standard Category Egyptian Airworthiness Certificates: Instrument and Equipment Requirements

(a) General. An aircraft shall at all times be equipped with instruments which will enable the cockpit crew to control the flight path of the aircraft, carry out any required procedural maneuver, and comply with the operating limitations of the aircraft during all phases of the operation. Except as provided in paragraph(c)(3) and(e) of this section, no person may operate a powered civil aircraft with a standard category Egyptian airworthiness certificate in any operation described in paragraphs(b) through(e) of this section unless that aircraft contains the instruments and equipment specified in those paragraphs(or Egyptian approved equivalents) for that type of operation, and those instruments and items of equipment are in operable condition.

(b) Visual-flight rules(day). For VFR flight during the day, the following instruments and equipment are required;

- (1) Airspeed indicator.
- (2) Altimeter.
- (3) Magnetic direction indicator.
- (4) Tachometer for each engine.
- (5) Oil pressure gauge for each engine..
- (6) Temperature gauge for each liquid-cooled engine.
- (7) Oil temperature gauge for each air-cooled engine.
- (8) Manifold pressure gauge for each altitude engine.
- (9) Fuel gauge indicating the quantity of fuel in each tank.
- (10) Landing gears position indicator, if the aircraft has a retractable landing gear.
- (11) An approved and accessible first aid kit.
- (12) A fire extinguisher that, when discharged, will not cause dangerous contamination within the aircraft.
 - (i) One is required in the cockpit.
 - (ii) One is required for each passenger compartment separate from the cockpit and not accessible by the cockpit crew.
- (13) An approved seat or birth with an approved seat belt equipped with a metal to metal latching device for each occupant 2 years of age or older. For all aircraft, an approved safety belt and shoulder harness for each front seat.
- (14) Spare electrical fuses of appropriate ratings for replacement of those accessible in flight. An accurate timepiece.

- (15) For all pressurized aircraft first certified after January 1, 1990 there must be a system installed to alert the cockpit crew of any loss of pressurization.
- (16) A mach number indicator when the aircraft has operating limitations expressed in terms of indicated mach number.
- (17) Radio communication equipment when operating at night, extended over water, over designated land areas or when operating in controlled airspace, that is appropriate for the applicable aeronautical agency and must provide communication on emergency frequency 121.5 MHz. When more than one type of radio communication equipment is needed to comply with this requirement, then they must be independent so that failure of one does not mean failure of both.
- (18) An emergency locator transmitter, if required by 91.207.
- (19) For normal, utility, and acrobatic category airplanes with a seating configuration, excluding pilot seats, of 9 or less, manufactured after December 12, 1986, a shoulder harness for:
- (i) Each front seat that meets the requirements of ECAR Part 23, in effect on December 12, 1985;
 - (ii) Each additional seat that meets the requirements of 23 in effect on December 12, 1985.
- (20) For rotorcraft manufactured after September 16, 1992, a shoulder harness for each seat that meets the requirements of Part 27 or 29 in effect on September 16, 1991.
- (21) For small civil airplanes manufactured after July 18, 1978, an approved shoulder harness for each front seat. The shoulder harness must be designed to protect the occupant from serious head injury when the occupant experiences the ultimate inertia forces. Each shoulder harness installed at a cockpit crewmember station must permit the crewmember, when seated and with the safety belt and shoulder harness fastened, to perform all functions necessary for flight operations for purpose of this paragraph:
- (i) The date of manufacture of an airplane is the date the inspection acceptance records reflect that the airplane is complete and meets the Egyptian-approved type design data; and
 - (ii) A front seat is a seat located at a cockpit crewmember station or any seat located alongside such a seat.
- (c) Visual flight rules at night and instrument flight rules. For VFR at night and IFR flight the following instruments and equipment are required:
- (1) Instruments and equipment specified in paragraph(b) of this section.
 - (2) Instruments and equipment specified in paragraph(b) of this section.
 - (3) Approved position lights.
 - (4) An approved aviation red or aviation white anti-collision light system on all Egyptian registered civil aircraft anti-collision light systems initially installed after August 11, 1971, on aircraft for which a type certificate was issued or applied for before August 11, 1971, must at least meet the anti-collision light standards of ECAR Parts 22, 23, 25, 27 or 29, as applicable, that were in effect on August 10, 1971, except that the color may be either aviation red or aviation white, in the event of failure of any light of the anti-collision light system. operations with the aircraft may be continued to a stop where repairs or replacement can be made.
 - (5) An adequate source of electrical energy for all installed electrical and radio equipment.
 - (6) One spare set of fuses, or three spare fuses of each kind required, that are accessible to the pilot in flight.
 - (7) Two-way radio communications system and navigational equipment appropriate to the ground facilities to be used.
 - (8) Gyroscope rate-of-turn indicator, except on the following aircraft:
 - (i) Airplanes with a third attitude instrument system usable through flight attitudes of 360 degrees of pitch and roll and installed in accordance with the instrument requirements prescribed in 121.305(j) ; and
 - (ii) Rotorcraft with a third attitude instrument system usable through flight attitudes of +/- 80 degrees of pitch and +/- 120 degrees of roll and installed in accordance with FAR 29.1303(g).
 - (9) Slip-skid indicator.
 - (10) Sensitive altimeter adjustable for barometric pressure.
 - (11) A clock displaying hours, minutes, and seconds with a sweep-second pointer or digital presentation.
 - (12) Generator or alternator of adequate capacity.
 - (13) Gyroscopic pitch and bank indicator(artificial horizon).
 - (14) Gyroscopic direction indicator(directional gyro or equivalent).
 - (15) A means of indicating if the power supply to the gyroscopic instrument is adequate.
 - (16) A vertical velocity indicating system.
 - (17) A means by which the cockpit crew can determine the outside air temperature.
 - (18) A system that will protect the airspeed system from malfunctioning due to condensation or icing.
 - (19) Approved position lights.
 - (20) A landing light for airplanes and two landing lights for helicopters.

- (21) Illumination of the flight instruments and equipment that is essential to the safe operation of the aircraft.
- (22) Lights in the passenger compartment.
- (23) Flashlights for each crewmember station.
- (d) Flight at and above 24,000 ft, MSL(FL 240). If VOR navigational equipment is required under paragraph(d)(2) of this section, no person may operate an Egyptian registered civil aircraft within Egypt unless that aircraft is equipped with approved distance measuring equipment(DME). When DME required by this paragraph fails at and above FL 240, the pilot in command of the aircraft shall notify ATS immediately, and then may continue operations at and above FL 240 to the next airport of intended landing at which repairs or replacement of the equipment can be made.

91.205 Equipment required for seaplanes

The following list of equipment is required for all operations of seaplanes or amphibian aircraft being operated as seaplanes;

- (a) A life jacket or equivalent flotation device for each person on board, stowed in a location that makes it readily accessible to the occupants;
- (b) Equipment for making sound signals as prescribed in the International Regulations for Preventing Collisions at Sea;
- (c) One anchor; and
- (d) One sea anchor.

91.206 Emergency equipment required for all aircraft

The following list of equipment is required for all aircraft operations:

- (a) When an aircraft is operating over water at a distance of greater than 50NM from land, then the aircraft must have one life jacket or equivalent flotation device easily accessible for each person on board;
- (b) For all single engine aircraft operating over water beyond gliding distance of land must carry an accessible flotation device for each person on board the aircraft;
- (c) When operating 100NM for single engine or 200NM for multi-engine aircraft, then accessible life rafts in sufficient number to carry all persons on board and equipped with survival kits and pyrotechnic signaling devices; and
- (d) When operating over areas where search and rescue is considered by the controlling State to be difficult, then the aircraft will carry signaling devices and survival equipment appropriate to the area being over-flown.

91.207 Emergency locator transmitters

- (a) Except as provided in paragraphs(e) and(f) of this section, no person may operate an Egyptian registered civil aircraft unless:
 - (1) There is attached to the aircraft an emergency locator transmitter that is in operable condition and meets the following requirements:
 - (i) Until 1 January 2005, ELTs shall operate on either both 406 MHz and 121.5 MHz or on 121.5 MHz only. After 1 January 2005, all ELTs shall operate simultaneously on both 406 MHz and 121.5 MHz and shall be the automatically activated type;
 - (ii) All ELTs installed on or after 1 January 2002 shall operate simultaneously on both 406 MHz and 121.5 MHz and shall be the automatically activated type;
 - (iii) All ELTs shall meet the technical requirements of ICAO Annex 10, Volume III, Chapter 5; and
 - (iv) Each ELT operating on 406 MHz must be assigned unique coding in accordance with ICAO Annex 10, Volume III, Chapter 5, Paragraph 3.2 and operator must provide the ECAA with the coded identification of the ELTs for the Egyptian Register of ELTs.
 - (2) For operation under Part 121 of these Regulations and operating over uninhabited land areas shall carry one ELT and on extended overwater flights shall carry two ELTs, at least one of which shall be automatic on or after 1 January 2005. All aircraft for which a first certificate of airworthiness has been issued on or after 1 January 2002 shall carry two ELTs, one of which shall be automatic. Each emergency locator transmitter required by paragraph(a) of this section must 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.
 - (3) Batteries used in the emergency locator transmitters required by paragraph(a) and(b) of this section must be replaced (or recharged, if the batteries are rechargeable):
 - (A) When the transmitter has been in use for more than 1 cumulative hour; or
 - (B) When 50 percent of their useful life (or, for rechargeable batteries, 50 percent of their useful life of charge), as established by the transmitter manufacturer has expired. 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.

(b) 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.

(c) 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 this section.

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

- (1) Aircraft while engaged in training operations conducted entirely within a 50-nautical mile radius of the airport from which such local flight operations began;
- (2) Aircraft while engaged in flight operations incident to design and testing;
- (3) New aircraft while engaged in flight operations incident to their manufacture, preparation, 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 ECAA for research and development purposes;
- (6) Aircraft while used for showing compliance with regulations, crew training, exhibition, air racing, or market surveys; and
- (7) Aircraft equipped to carry not more than one person.

(e) All ELTs operating on 121.5 MHZ must be certified according to TSO-C91A or equivalent.

(f) All ELTs operating on 406 MHZ must be certified according to TSO-C126 or equivalent and must be COSPAS-SARSAT approved according to type approval standard (C-ST-007).

(g) All 406 MHZ ELTs shall be registered at ECAA according to the manner described by FSS procedures and the register information regarding ELT will be immediately submitted to rescue Coordination Center(RCC) Cairo as identified in the Egyptian AIP as amended.

(h) Refer to EAC 91-14 as amended for details of ELT coding protocols and their priorities.

91.209 Aircraft Lights

No person may, during the period from sunset to sunrise:

(a) Operate an aircraft unless it has lighted position lights;

(b) Park or move an aircraft in, or in dangerous proximity to, a night flight operations area of an airport unless the aircraft:

- (1) Is clearly illuminated;
- (2) Has lighted position lights; or
- (3) Is in an area that is marked by obstruction lights;

(c) Anchor an aircraft unless the aircraft:

- (1) Has lighted anchor lights; or
- (2) Is in an area where anchor lights are not required on vessels; or

(d) Operate an aircraft, required by 91.204(c)(3) to be equipped with an anti-collision light system, unless it has approved and lighted aviation red or aviation white anti-collision lights. However, the anti-collision lights need not be lighted when the pilot in command determines that, because of operating conditions, it would be in the interest of safety to turn the lights off.

91.210 Oxygen supply

(a) A flight that is planned to be operated at flight altitudes at which the atmospheric pressure in personnel compartments will be greater than 10,000 ft shall not be commenced unless sufficient stored breathing oxygen is carried to supply:

- (1) All crew members and 10 per cent of the passengers for any period in excess of 30 minutes that the pressure in compartments occupied by them will be between 10,000 ft and 13,000 ft; and

- (2) The crewmembers and all passengers for any period that the atmospheric pressure in compartments occupied by them will be greater than 13,000 ft.
- (b) A flight to be operated with a pressurized aircraft shall not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply all crewmembers and passengers, as is appropriate to the circumstances of the flight being undertaken, including, in the event of loss of pressurization, any period that the atmospheric pressure in any compartments occupied by them would be greater than 10,000 ft. In addition, when an aircraft is operated at altitudes greater than Flight Level 250, or which, if operated at altitudes less than Flight Level 250 and the aircraft cannot descend safely within four minutes to a flight altitude at which the atmospheric pressure is equal to 13,000 ft, there shall be no less than a 10-minute supply for the occupants of the passenger compartments and there shall be 10% more automatic deploying oxygen supply units than the total number of people in the cabin.
- (c) For the purpose of providing first aid treatment to occupants who require undiluted oxygen following a descent from altitudes greater than Flight Level 250, a supply of oxygen in accordance with the requirements of paragraph (d) of this section must be provided for two percent of the occupants for the entire flight after cabin depressurization at cabin altitudes above 8,000 ft., but in no case to less than one person. An appropriate number of acceptable dispensing units, but in no case less than two, must be provided, with a means for the cabin crew to use this supply.
- (d) The requirements for the first aid oxygen equipment required in paragraph (c) above, must provide a minimum mass flow of oxygen to each user of not less than four liters per minute. There may be a means to decrease this flow to not less than two liters per minute at any cabin altitude. The quantity of oxygen required is based upon an average flow rate of three liters per minute per person for whom first aid oxygen is required.

91.211 Use of oxygen

- (a) All cockpit crew members, when engaged in performing duties essential to the safe operation of an aircraft in flight, shall use breathing oxygen continuously whenever the circumstances prevail for which its supply has been required in 91.210(a) or 91.210(b).
- (b) All cockpit crew members of pressurized aircraft operating above an altitude greater than Flight Level 250 shall have available at the flight duty station an oxygen mask which will readily supply oxygen upon demand.
- (c) Should one pilot leave his position at the controls, the remaining pilot at the controls of the aircraft shall at all times wear and use an oxygen mask secured, sealed and supplying oxygen. The certificate holder shall demonstrate that the mask can be put on without disturbing eye-glasses and without delaying the cockpit crewmember from proceeding with his assigned emergency duties. The oxygen mask, after being put on, must not prevent the immediate communication between cockpit crewmembers and other crewmembers over the aircraft intercommunication system. The remaining pilot need not wear and use an oxygen mask if each cockpit crewmember on flight deck duty has a quick donning type oxygen mask that the certificate holder has shown can be placed on the face from its ready position, properly secured, sealed and supplying oxygen upon demand, with one hand and within five seconds.
- (d) Before takeoff each crewmember shall personally preflight the oxygen mask intended for use of that crewmember. This preflight must ensure the system is properly functioning and the supply and pressure are adequate.
- (e) Each cabin crew shall, in aircraft operating above an altitude greater than Flight Level 250, carry portable oxygen equipment with at least a 15 minute supply of oxygen unless it is demonstrated that enough portable oxygen units with masks or spare outlets and masks are distributed throughout the cabin to ensure immediate availability of oxygen to each cabin crew, regardless of their location at the time of a loss of pressurization.
- (f) Before flight is conducted above Flight Level 250, a crewmember shall instruct the passengers on the necessity of using oxygen in the event of cabin depressurization and shall point out to the passengers the location and demonstrate the use of the oxygen dispensing equipment.

91.213 Inoperative instruments and equipment

- (a) Except as provided in paragraph (d) of this section, no person may takeoff 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 ECAA, authorizing operation of the aircraft under the minimum equipment list, the letter of authorization may be obtained by written request of the airworthiness certificate holder. The minimum equipment list and the letter of authorization constitute a supplemental type certificate for the aircraft.
 - (3) The approved minimum equipment list must:
 - (i) Be prepared in accordance with the limitation specified in paragraph (b) of this section; and
 - (ii) Provide for the operation of the aircraft with the instrument 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) Instrument and equipment that are either specifically or otherwise required by the airworthiness requirement 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 operation by this Part.
- (c) A person authorized to use an approved minimum equipment list issued for a specific aircraft under Part 121 shall use that minimum equipment list in connection with operations conducted with that aircraft under this Part without additional approval requirements.
- (d) Except for operations conducted in accordance with paragraph (a) or (c) of this section, a person may takeoff an aircraft in operations conducted under this Part with inoperative instruments and equipment without an approved Minimum equipment list provided;
- (1) The flight operation is conducted in:

- (i) Rotorcraft, non-turbine powered airplane, glider, or lighter-than-aircraft for which a master Minimum equipment list has 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 not 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 91.204 or any other rule of this Part 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 placard, and the maintenance recorded in accordance with Part 43; and
 - (ii) Deactivated and placard " Inoperative." if deactivation of the inoperative instrument or equipment involves maintenance, it must be accomplished and recorded in accordance with Part 43; and
- (4) A determination is made by a pilot, who is certificated and appropriately rated under Part 61, or by a person, who is certificated 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 ECAA.
- (e) Notwithstanding any other provision of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit issued in accordance with Part 21.

91.214 ATS transponder and altitude reporting equipment and use

(a) All airspace. Egyptian registered civil aircraft, for operations not conducted under Part 121. ATS transponder equipment installed must meet the performance and environmental requirements of any class of TSO-C74b (Mode A) or any class of TSO-C74c (Mode A with altitude reporting capability) as appropriate, or the appropriate class of TSO-C112 (Mode S). From 1 January 2003, unless exempted by the ECAA, all aircraft shall be equipped with a pressure-altitude reporting transponder that meets the requirements of ICAO Annex 10, Volume IV.

(b) All airspace, unless otherwise authorized or directed by ATS, no person may operate an aircraft in the airspace described in paragraph (b)(1) through (b)(5) of this section, unless that aircraft is equipped with an operable coded radar beacon transponder having either Mode 3/A 4096 code capability, replying to Mode 3/A interrogations with the code specified by ATS, or a Mode S capability, replying to Mode 3/A interrogations with the code specified by ATS and inter-mode and Mode S interrogations in accordance with the applicable provisions specified in TSO C-112, and that aircraft is equipped with automatic pressure altitude reporting equipment having a Mode C capability that automatically replies to Mode C interrogations by transmitting pressure altitude information in 100-foot increments. From 1 January 2003, unless exempted by the ECAA, all aircraft shall be equipped with a pressure-altitude reporting transponder that meets the requirements of ICAO Annex 10, Volume IV. This requirement applies:

- (1) All aircraft in Class A, Class B, and Class C airspace areas;
- (2) Any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certified with such a system installed, balloon or glider may conduct operations in the airspace within 30 nautical miles of an Egyptian airport, provided such operations are conducted
 - (i) Outside any Class A, Class B, or Class C airspace area; and
 - (ii) Below the altitude of the ceiling of a Class B or Class C airspace area designated for an airport or 10,000 feet MSL, whichever is lower; and
- (3) All aircraft in all airspace above the ceiling and within the lateral boundaries of a Class B or Class C airspace area designated for an airport upward to 10,000 feet MSL; and
- (4) All aircraft except any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certified with such a system installed, balloon, or glider-
 - (i) In all airspace at and above 10,000 feet MSL, excluding the airspace at and below 2,500 feet above the surface; and
 - (ii) In the airspace from the surface to 10,000 feet MSL within a 10-nautical mile radius of any Egyptian airport excluding the airspace below 1,200 feet outside of the lateral boundaries of the surface area of the airspace designated for that airport.
 - (A) Transponder on operation. While in the airspace as specified in paragraph(b) of this section or in all controlled airspace, each person operating an aircraft equipped with an operable ATS transponder maintained in accordance with 91.413 of this Part shall operate the transponder, including Mode C equipment if installed, and shall reply on the appropriate code or as assigned by ATS.
 - (B) ATS authorized deviations. Requests for ATS authorized deviations must be made to the ATS facility having jurisdiction over the concerned airspace within the time periods specified as follows :
 - (I)For operation of an aircraft with an operating transponder but without operating automatic pressure altitude reporting equipment having a Mode C capability, the request may be made at any time.
 - (II) For operation of an aircraft with an inoperative transponder to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made or both, the request may be made at any time.
 - (III)For operation of an aircraft that is not equipped with a transponder, the request must be made at least one hour before the proposed operation.

91.215 - 91.216 (Reserved)**91.217 Data correspondence between automatically reported pressure altitude data and the pilot's altitude reference**

No person may operate any automatic pressure altitude reporting equipment associated with a radar beacon transponder when deactivation of that equipment is directed by ATS;

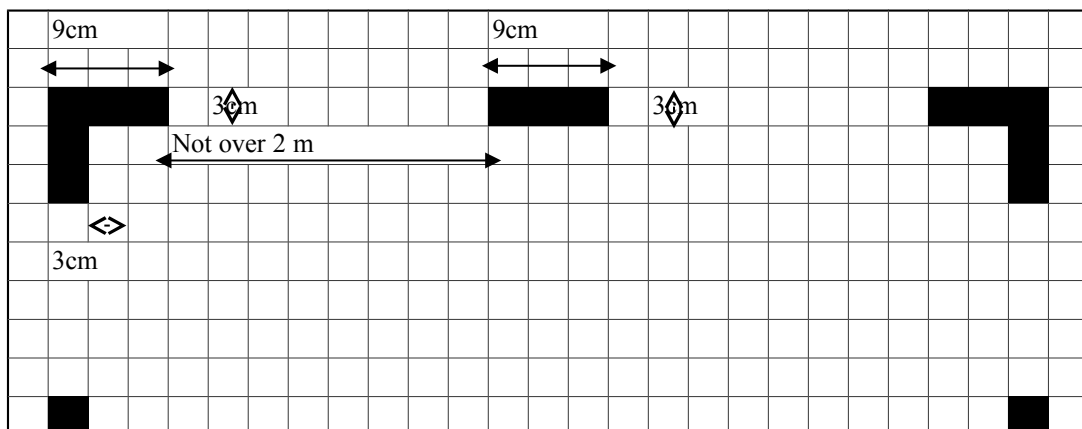
- (a) When deactivation of that equipment is directed by ATS;
- (b) Unless, as installed, that equipment was tested and calibrated to transmit altitude data corresponding within 125 feet (on a 95 percent probability basis) of the indicated or calibrated datum of the altimeter normally used to maintain flight altitude, with that altimeter referenced to 29.92 inches of mercury for altitudes from sea level to the maximum operating altitude of the aircraft; or
- (c) Unless the altimeters and digitizers in that equipment meet the standards of TSO-C10b and TSO-C88, respectively, as amended, or equivalent Standards.

91.217 Altitude alerting system or device: turbojet-powered civil airplanes

- (i) Except as provided in paragraph(d) of this section, no person may operate a turbojet-powered Egyptian-registered civil airplane 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) Pre-select 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 3,000 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 approved procedure for its use to determine DH or MDA, 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 a newly acquired 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 Egypt for the purpose of registering it in another country;
 - (6) Conducting a sales demonstration of the operation of the airplane; and.
 - (7) Training foreign flight crews in the operation of the airplane before ferrying it to a place outside Egypt for the purpose of registering it in a foreign country.

91.217 Requirements for marking of aircraft break-in points

- No person may operate a civil aircraft unless that aircraft meets the following requirements;
- (a) When areas of the aircraft fuselage suitable for break-in by rescue crews in the event of an emergency are marked they must be marked in the colors red or yellow, and if necessary outlined in white to contrast the markings with the background;
 - (b) When the corner markings are more than two meters apart, intermediate lines measuring 9 cm by 3 cm will be inserted so that there is no more than 2 cm between the adjacent markings; and
 - (c) All markings shall made as shown below:



SUBPART E

Maintenance, Preventive Maintenance, and Alterations

91.401 Applicability

(a) This subpart prescribes rules governing the maintenance, preventive maintenance, and alterations of Egyptian registered civil aircraft operating within or outside of the Arab Republic of Egypt.

(b) Sections 91.405, 91.409, 91.411, 91.417, and 91.419 of this subpart do not apply to an aircraft maintained in accordance with a continuous airworthiness maintenance program as provided in Parts 121 or 129.

91.403 General

(a) The owner or operator of an aircraft is primarily responsible for maintaining that aircraft in an airworthy condition, including compliance with Part 39.

(b) No person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in this subpart and other applicable regulations, including Part 43.

(c) No person may operate an aircraft for which a manufacturer's maintenance manual or instructions for continued airworthiness has been issued that contains an airworthiness limitations section unless the mandatory replacement times, inspection intervals, and related procedures specified in that section or alternative inspection intervals and related procedures set forth in an operations specification approved by the ECAA under Part 121 or in accordance with an inspection program approved under 91.409 (c) have been complied with.

91.405 Maintenance required

Each owner or operator of an aircraft:

(a) Shall have that aircraft inspected as prescribed in subpart E of this Part and shall, between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in Part 43.

(b) Shall ensure that maintenance personnel make appropriate entries in the aircraft maintenance records indicating the aircraft has been approved for return to service;

(c) Shall have any inoperative instruments or item of equipment, permitted to be inoperative by 91.213(d)(2) of this Part, repaired, replaced, removed, or inspected at the next required inspection; and

(d) When listed discrepancies include inoperative instruments or equipment, shall ensure that a placard has been installed as required by Part 43.

91.407 Operation after maintenance, preventive maintenance, rebuilding, or alteration

(a) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless;

(1) It has been approved for return to service by a person authorized under Part 43; and

(2) The maintenance record entry required by Part 43, as applicable, has been made.

(b) No person may carry any person (other than crewmember) in an aircraft that has been maintained, rebuilt, or altered in a manner that may have appreciably changed its flight characteristics or substantially affected its operation in flight until an appropriately rated pilot with at least a private pilot certificate flies the aircraft, makes an operational check of the maintenance performed or alteration made, and logs the flight in the aircraft records.

(c) The aircraft does not have to be flown as required by paragraph (b) of this section if, prior to flight, ground tests, inspections, or both show conclusively that the maintenance, preventive maintenance, rebuilding, or alteration has not appreciably changed the flight characteristics or substantially affected the flight operation of the aircraft.

91.409 Inspections

(a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had;

(1) An annual inspection in accordance with Part 43 and has been approved for return to service by a person authorized by Part 43; or

(2) An inspection for the issuance of an airworthiness certificate in accordance with Part 21. No inspection performed under paragraph (b) of this section may be substituted for any inspection required by this paragraph unless it is performed by a person authorized to perform annual inspections and is entered as an "annual" inspection in the required maintenance records.

(b) Except as provided in paragraph (c) of this section, no person may operate an aircraft carrying any person (other than a crewmember) for hire, and no person may give flight instruction for hire in an aircraft which that person provides, unless within the preceding 100 hours of time in service the aircraft has received an annual or 100 hour inspection and been approved for return to service in accordance with Part 43 of this chapter or has received an inspection for the issuance of an airworthiness certificate in accordance with Part 21. The 100 hour limitation may be exceeded by not more than 10 hours while en route to reach a place where the inspection can be done. The excess time used to reach a place where the inspection can be done must be included in computing the next 100 hours of time in service. That is; the next 100 hours inspection must be performed 100 hours from which the original was due.

(c) Paragraphs (a) and (b) of this section do not apply to;

(1) An aircraft that carries a special flight permit, a current experimental certificate, or a provisional airworthiness certificate;

(2) An aircraft inspected in accordance with an approved aircraft inspection program under Part 121 and so identified by the registration number in the operations specifications of the certificate holder having the approved inspection program;

(3) An aircraft subject to the requirements of paragraph (d) or (e) of this section; or

(4) Turbine-powered rotorcraft when the operator elects to inspect that rotorcraft in accordance with paragraph (e) of this section.

(d) Progressive inspection. Each registered owner or operator of an aircraft desiring to use a progressive inspection program must submit a written request to the ECAA Flight Safety Standards Sector, and shall provide;

(1) A certificated maintenance engineer holding type A and C license, a certificated airframe repair station, or the manufacturer of the aircraft to supervise or conduct the progressive inspection;

(2) A current inspection procedures manual available and readily understandable to pilot and maintenance personnel containing, in detail;

(i) An explanation of the progressive inspection, including the continuity of inspection responsibility, the making of reports, and the keeping of records and technical reference material;

(ii) An inspection schedule, specifying the intervals in hours or days when routine and detailed inspections will be performed and including instructions for exceeding an inspection interval by not more than 10 hours while enroute and for changing an inspection interval because of service experience;

(iii) Sample routine and detailed inspection forms and instructions for their use ; and

(iv) Sample reports and records and instructions for their use;

(3) Adequate facilities and equipment for necessary disassembly and proper inspection of the aircraft; and

(4) Appropriate current technical information for the aircraft. The frequency and detail of the progressive inspection shall provide for the complete inspection of the aircraft within each 12 calendar months and be consistent with the manufacturer's recommendations, field service experience, and the kind of operation in which the aircraft is engaged. The progressive inspection schedule must ensure that the aircraft, at all times, will be airworthy and will conform to all applicable ECAA aircraft specifications, type certificate data sheets, airworthiness directives, and other approved data. If the progressive inspection is discontinued, the owner or operator shall immediately notify the ECAA Flight Safety Standards Sector, in writing, of the discontinuance. After the discontinuance, the first annual inspection under 91.409 (a)(1) is due within 12 calendar months after the last complete inspection of the aircraft under the progressive inspection. The 100 hour inspection under 91.409(b) is due within 100 hours after that complete inspection. A complete inspection of the aircraft, for the purpose of determining when the annual and 100 hour inspections are due, requires a detailed inspection of the aircraft and all its components in accordance with the progressive inspection. A routine inspection of the aircraft and a detailed inspection of several components is not considered to be a complete inspection.

(e) Large airplanes, turbojet multiengine airplanes, turbo-propeller multiengine airplanes, and turbine-powered rotorcraft. No person may operate a large airplane, turbojet multiengine airplane, turbo-propeller multi-engine airplanes, or turbine-powered rotorcraft unless the replacement times for life limited parts specified in the aircraft specifications, type data sheets, or other documents approved by the ECAA are complied with and the airplane or turbine-powered rotorcraft, including the airframe, engines, propellers, rotors, appliances, survival equipment, and emergency equipment, is inspected in accordance with an inspection program selected under the provision of paragraph (f) of this section, except that, the owner or

operator of turbine-powered rotorcraft may elect use the inspection provisions of 91.409(a),(b),(c), or (d) in lieu of to 91.409(f).

(f) Selection of inspection program under paragraph (e) of this section. The registered owner or operator of each airplane or turbine-powered rotorcraft described in paragraph (e) of this section must select, identify in the aircraft maintenance records, and use one of the following programs for the inspection of the aircraft:

(1) A continuous airworthiness inspection program that is part of a continuous airworthiness maintenance program currently in use by person holding an air carrier operating certificate or an operating certificate issued under Part 121 and operating that make and model aircraft under Part 121.

(2) An approved aircraft inspection program approved under Part 135 and currently in use by a person holding an operating certificate issued under Part 121.

(3) A current inspection program recommended by the manufacture.

(4) Any other inspection program established by the registered owner or operator of the airplane or turbine-powered rotorcraft and approved by the ECAA under paragraph (g) of this section. However, the ECAA may require revision of this inspection program in accordance with the provisions of 91.415. Each operator shall include in the selected program the name and address of the person responsible for scheduling the inspections required by the program and make a copy of that program available to the person performing inspections on the aircraft and, upon request, to the ECAA.

(g) Inspection program approved under paragraph (e) of this section. Each operator of an airplane or turbine-powered rotorcraft desiring to establish or change an approved inspection program under paragraph (f)(4) of this section must submit the program for approval by the ECAA. The program must be in writing and include at least the following information:

(1) Instruction and procedures for the conduct of inspection for the particular make and model airplane or turbine-powered rotorcraft including necessary tests and checks. The instructions and procedures must set forth in detail the parts and areas of the airframe, engines, propellers, rotors, and appliances, including survival and emergency equipment required to be inspected.

(2) A schedule for performing the inspections that must be performed under the program expressed in terms of the time in service, calendar time, number of system operations, or any combinations of these.

(h) Changes from one inspection program to another, when an operator changes from one inspection program under paragraph (f) of this section to another, the time in service, calendar times, or cycles of operation accumulated under the previous program must be applied in determining inspection due times under the new program .

91.411 Altimeter system and altitude reporting equipment tests and inspections

(a) No person may operate an airplane, or helicopter, in controlled airspace under IFR unless:

(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 E of Part 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 Part 43; and.

(3) Following installation or maintenance of the automatic pressure altitude reporting system of the ATS transponder where data correspondence error could be introduced, in the integrated system has been tested, inspected, and found to comply with Part 43.

(b) The tests required by paragraph (a) of this section must be conducted by:

(1) The manufacturer of the airplane, or helicopter, on which the tests and inspections are to be performed;

(2) A certificated repair station properly equipped to perform those functions and holding;

(i) An instrument rating, Class I:

(ii) A limited instrument rating appropriate to the make and model of appliance to be tested.

(iii) A limited rating appropriate to the test to be performed.

(iv) An airframe rating appropriate to the airplane, or helicopter, to be tested; or.

(v) A limited rating for a manufacturer issued for the appliance in accordance with Part 145; or.

(3) A certificated mechanic with an airframe rating (static pressure system tests and inspections only).

(c) Altimeter and altitude reporting equipment approved under Technical Standards Orders are considered to be tested and inspected as of the date of their manufacture.

(d) No person may operate an airplane, or helicopter, in controlled airspace under IFR at an altitude above the maximum altitude at which all altimeters and the automatic altitude reporting system of that airplane, or helicopter, have been tested.

91.413 ATC transponder tests and inspections

- (a) No persons may use an ATS transponder that is specified in 91.214 (a), or Part 121 unless, within the preceding 24 calendar months, the ATS transponder has been tested and inspected and found to comply with Part 43; and.
- (b) Following any installation or maintenance on an ATS transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with Part 43.
- (c) The tests and inspections specified in this section must be conducted by:
- (1) A certificated repair station properly equipped to perform those functions and holding:
 - (i) A radio rating, Class III;
 - (ii) A limited radio rating appropriate to the make and model transponder to be tested;
 - (iii) A limited rating appropriate to the test to be performed;
 - (iv) A limited rating for a manufacturer issued for the transponder in accordance with Part 145; or
 - (2) A holder of a continuous airworthiness maintenance program as provided in Part 121; or
 - (3) The manufacturer of the aircraft on which the transponder to be tested is installed, if the transponder was installed by that manufacturer.

91.415 Changes to aircraft inspection programs

- (a) Whenever the ECAA finds that revisions to an approved aircraft inspection program under 91.409 (f)(4) are necessary for the continued adequacy of the program, the owner or operator shall, after notification by the ECAA, make any changes in the program found to be necessary by the ECAA.
- (b) The owner or operator may petition the ECAA to reconsider the notice to make any changes in a program in accordance with paragraph (a) of this section.
- (c) The petition must be filed with the ECAA Flight Safety Standards Sector which requested the change to the program within 30 days after the certificate holder receives the notice.
- (d) Except in the case of an emergency requiring immediate action in the interest of safety, the filling of the petition stays the notice pending a decision by the ECAA.

91.417 Maintenance records

- (a) Except for work performed in accordance with 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:
- (1) Records of the maintenance, preventive maintenance, and alteration and records of the 100 hour, annual progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include:
 - (i) A description (or reference to data acceptable to the ECAA) of the work performed; and.
 - (ii) The date of completion of the work performed; and.
 - (iii) The signature, and certificate number of the person approving the aircraft for return to service.

- (2) Records containing the following information:
- (i) The total time in service of the airframe, each engine, each propeller, and each rotor.
 - (ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.
 - (iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.
 - (iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.
 - (v) The current status of applicable airworthiness directives (AD) including, for each, the method of compliance, the AD number, and revision date. If the AD involves recurring action, the time and date when the next action is required.
 - (vi) Copies of the forms prescribed by Part 43 for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.
- (b) The owner or operator shall retain the following records for the periods prescribed:
- (1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or supervised by other work or for 1 year after the work is performed.
 - (2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.
 - (3) A list of defects furnished to a registered owner or operator under Part 43 shall be retained until the defects are repaired and the aircraft is approved for return to service.
- (c) The owner or operator shall make all maintenance records required to be kept by this section available for inspection by the ECAA. In addition, the owner or operator shall present the form described in paragraph (d) of this section for inspection upon request of any law enforcement officer.

91.419 Transfer of maintenance records

Any owner or operator who sells an Egyptian registered aircraft shall transfer to the purchaser, at the time of sale, the following records of that aircraft, in plain language form or in coded form at the election of the purchaser, if the coded form provides for the preservation and retrieval of information in a manner acceptable to the ECAA:

- (a) The records specified in 91.417(a)(2).
- (b) The records specified in 91.417(a)(1) which are not included in the records covered by paragraph(a) of this section, except that the purchaser may permit the seller to keep physical custody of such records. However, custody of records by the seller does not relieve the purchaser of the responsibility under 91.417(c) to make the records available for inspection by the ECAA or any authorized representative of the Flight Safety Standards Sector.

91.421 Rebuilt engine maintenance records

- (a) The owner or operator may use a new maintenance record, without previous operating history, for an aircraft engine rebuilt by the manufacturer or by an agency approved by the manufacturer.
- (b) Each manufacturer or agency that grants zero time to an engine rebuilt by it shall enter in the new record:
 - (1) A signed statement of the date the engine was rebuilt.
 - (2) Each change made as required by airworthiness directives; and.
 - (3) Each change made in compliance with manufacturer's service bulletins, if the entry is specifically requested in that bulletin.
- (c) For the purposes of this section, a rebuilt engine is a used engine that has been completely disassembled, inspected, repaired as necessary, reassembled, tested, and approved in the same manner and to the same tolerances and limits as a new engine with either new or used parts. However, all parts used in it must conform to the production drawing tolerances and limits for new parts or be of approved oversize or undersize dimensions for a new engine.

91.423 Inspection of flight data and cockpit voice recording systems

No person may operate an airplane or helicopter unless the flight data and cockpit voice recording systems have been inspected as follows:

- (i) Prior to the first flight of the day, the built in test features for the flight data recorder (FDR), cockpit voice recorder (CVR) and flight data acquisition unit will be exercised to confirm proper operation.

- (a) Annual inspections will be completed as follows;
- (1) The readout of the recorded data from the FDR and CVR must confirm that the recorder operates correctly for the nominal duration of the recording .
 - (2) The analysis of the FDR must evaluate the quality of the recorded data to determine if the bit error rate is within acceptable limits and to determine the nature and distribution of the errors.
 - (3) A complete flight recorded by the FDR must be examined to evaluate the validity of the recorded parameters. Particular attention must be given to those parameters that are taken from the aircraft's electrical bus systems.
 - (4) The facilities used to accomplish the examination required in (3) of this section must have the necessary software to accurately convert the recorded values to engineering units and to determine the status of discrete signals.
 - (5) An annual examination of the CVR is required by re-playing the CVR recording while the equipment is installed in the aircraft. As part of this test a sample signal must be recorded using each aircraft sensing unit to ensure all signal sources are meeting clarity standards.
 - (6) When practical, during the annual examination, a sample of in-flight recordings of the CVR should be examined for signal strength and clarity:
 - (i) Flight recorder systems must be considered unserviceable when a period of poor quality data, unintelligible signals, or one or more of the mandatory parameters is not recorded correctly.
- (a) A report of the annual inspection must be made available to the ECAA.
- (a) The following requirements are established for calibrating the FDR system;
- (1) The FDR system must be calibrated at least every five years to ensure the accuracy of the engineering conversion routines for the mandatory parameters and also to confirm the unit is operating within tolerances.
 - (2) When the parameters of altitude and airspeed are provided by sensors dedicated to the FDR system, then there must be a recalibration performed as recommended by the manufacturer or every two years, whichever is less.

91.425-91.499 {Reserved}

SUBPART G**Additional Equipment and Operating Requirements
For Large and Transport Category Aircraft****91.609 Flight Recorders and Cockpit Voice Recorders**

(a) No holder of an air carrier operating certificate may conduct any operation under this Part with an aircraft listed in the holder's operations specifications or current list of aircraft used in air transportation unless that aircraft complies with any applicable flight recorder and cockpit voice recorder requirements of the Part under which its certificate is issued except that the operator may:

- (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 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 test any communications or electrical equipment installed in the aircraft; or
- (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.

(b) Notwithstanding paragraphs(c) and(e) of this section, an operator other than the holder of an air carrier or a commercial operator certificate may:

- (1) Ferry an aircraft with an inoperative flight 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 a place where possession of it was taken to place where the flight recorder or cockpit voice recorder is to be installed.

(c) No person may operate an Egyptian civil registered aircraft of a max. take off weight over 27000kg that has been certified on or after 1989 unless it is equipped with one or more approved type I flight data recorders.

(d) All aircraft of a maximum take off weight over 5700kg up to and including 27000kg that has been certified on or after 1989 should be equipped with one or more approved type II flight data recorders..

(e) The flight data recorders specified in paragraph(c) and(d) of this section are required to utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium, that are capable of recording the data specified in appendix E to this Part, within the range accuracy, and recording interval specified and that are capable of retaining the data recording during at least the last 25 hours of aircraft operation.

(f) No person may operate an Egyptian Civil registered helicopter of maximum take off weight over 7000kg that has been certified on or after 1989 unless it is equipped with one or more approved type IV flight data recorders.

(g) All helicopters of a maximum take off weight over 2700kg up to and including 7000kg that has been certified on or after 1989 should be equipped with a type V flight data recorder.

(h) The flight data recorders specified in paragraph (f) and (g) of this section are required to utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium, that are capable of recording the data specified in appendix (F) to this Part, within the range, accuracy and recording interval specified and that are capable of retaining the data recorded during at least 10 hours of aircraft operation.

- (i) Whenever a flight recorder, required by this section, is installed, it must be operated continuously from the instant the airplane begins the takeoff roll or the rotorcraft begins lift-off until the airplane has completed the landing roll or the rotorcraft has landed at its destination.
- (j) Unless otherwise authorized by the ECAA:
- (1) No person may operate an Egyptian civil registered aircraft of a maximum take off weight over 27000kg that has been certified on or after 1987 unless it is equipped with an approved cockpit voice recorder .
 - (2) All aircraft of a maximum take off weight over 5700kg up to and including 27000kg(that has been certified on or after 1987) should be equipped with an approved cockpit voice recorder.
 - (3) No person may operate an Egyptian civil registered helicopter of maximum take off weight over 7000 kg that has been certified on or after 1987 unless it is equipped with an approved cockpit voice recorder.
 - (4) All helicopters of a maximum take off weight over 2700 kg up to and including 7000 kg that has been certified on or after 1987 should be equipped with an approved cockpit voice recorder.
- (k) In complying with this section an approved cockpit voice recorder:
- (1) Shall be installed in compliance with ECAR 23,25, 27, 29; and
 - (2) Shall be operated continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight.
 - (3) Shall be capable of retaining the information recorded during at least the last 30 minutes of its operation.
 - (4) Should be capable of retaining the information recorded from at least the last two hours of its operation for aircraft over 5700 kg (MGTW) certified on or after 1990 or helicopters certified after the same date.
- (l) In the event of an accident or incident requiring immediate notification to the ECAA, any operator who has installed approved flight recorders and approved cockpit voice recorders shall keep the recorded information for at least 60 days or, if requested by the ECAA for longer period. Information obtained from the record is used to assist in determining the cause of accidents or incidents in connection with the ECAA investigation.

SUBPART H**Foreign Aircraft Operations and Operations of Egyptian Registered Civil Aircraft outside the Arab Republic of Egypt****91.701 Applicability**

This subpart applies to the operations of civil aircraft of Egyptian registry outside of the Arab Republic of Egypt and the operations of foreign civil aircraft within the Arab Republic of Egypt.

91.703 Operations of civil aircraft of Egyptian registry outside the Arab Republic of Egypt

(a) Each person operating a civil aircraft of Egyptian registry outside of the Arab Republic of Egypt shall:

(1) When over the high seas, comply with annex 2 (Rules of the Air) to the Convention on International Civil Aviation and with 91.117(c), this part;

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

(3) Except for 91.307(b), 91.309, 91.323, and 91.711, comply with this Part 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; and

(4) When over the North Atlantic within airspace designated as minimum navigation performance specifications airspace, comply with 91.705.

(5) When within the airspace designated as required navigation performance (RNP) specifications airspace, the aircraft and operator shall comply with the requirements of that airspace as specified in ICAO Doc.7030.

(6) When within the airspace where vertical separation Minimum (VSM) is applied, comply with 91.706.

(b) Annex 2 to the Convention on International Civil Aviation, as amended is incorporated into this Part and made a part hereof. In addition, Annex 2 may be purchased from the International Civil Aviation Organization (Attention: Distribution Officer).

91.705 Operations within the north Atlantic Minimum Navigation Performance Specifications Airspace

No person may operate a civil aircraft of Egyptian registry in North Atlantic airspace designated as Minimum Navigation Performance Specifications (MNPS) airspace unless:

(a) The aircraft has approved navigation performance capability which complies with the requirements of appendix C of this Part: and

(b) The operator is authorized by the ECAA to perform such operations.

(c) The ECAA authorizes deviations from the requirements of this section in accordance with section 3 of appendix C to this Part.

91.706 Operations within airspace where a vertical separation minimum (VSM) is applied

No person may operate a civil aircraft in airspace where a vertical separation minimum (VSM) is applied unless:

(a) The aircraft has approved minimum aircraft system and specification standard (MASPS) that complies with the requirements of ICAO/Doc. (9574) and EAC91-9.

(b) The operator is authorized to perform such operations.

91.707 Operations within Egyptian airspace designated as required navigation (RNP-5) specifications airspace

No person may operate a civil aircraft in airspace designated as Egyptian (RNP-5) required navigation performance specifications airspace unless:

- (a) The aircraft has approved navigation performance capability that complies with the requirements of appendix D of this Part and EAC 91-8.
- (b) The operator is authorized to perform such operations.

91.709 {Reserved}

91.711 Special rules for foreign civil aircraft

(a) General. In addition to the other applicable regulations of this Part, each person operating a foreign civil aircraft within the Arab Republic of Egypt shall comply with this section.

(b) VFR. No person may conduct VFR operations, which 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 English language and is on duty during that operation.

(c) IFR. 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 navigational facilities to be used.

(2) Each person piloting the aircraft:

(i) Holds a current Egyptian Instrument rating or is authorized by his foreign airman certificate to pilot under IFR; and

(ii) Is thoroughly familiar with the Arab Republic of Egypt en route, holding, and letdown procedures; and

(3) At least one crewmember of that aircraft is able to conduct two-way radiotelephone communications in the English language and that crewmember is on duty while the aircraft is approaching, operating within, or leaving the Arab Republic of Egypt.

(d) Over water. Each person operating a foreign civil aircraft over water off the shores of the Arab Republic of Egypt shall give flight notification or file a flight plan in accordance with the supplementary procedures for the ICAO region concerned.

(e) Flight at and above FL 240. If VOR navigational equipment is required under paragraph (c)(1)(ii) of this section, no person may operate a foreign civil aircraft within the Arab Republic of Egypt at or above FL 240, unless the aircraft is equipped with distance measuring equipment (DME) capable of receiving and indicating distance information from the VORTAC facilities to be used. When DME required by this paragraph fails at and above FL 240, the pilot in command of the aircraft shall notify ATC immediately and may then continue operations at and above FL 240 to the next airport of intended landing at which repairs or replacement of the equipment can be made. However, paragraph (e) of this section does not apply to the 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 Arab Republic of Egypt where repairs or alterations are to be made.

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

(3) Flight of a new aircraft 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 Arab Republic of Egypt.

(4) Ferry, demonstration, and test flight of an aircraft brought by the Arab Republic of Egypt for the purpose of demonstration or testing the whole or any Part thereof.

91.713 {Reserved}

91.715 Special flight authorizations for foreign civil aircraft

- (a) Foreign civil aircraft may be operated without airworthiness certification required under 91.203 if a special flight authorization for that operation is issued under this section. Application for special flight authorization must be made to the Head of Flight Safety Standards sector of the ECAA.
- (b) The ECAA may issue a special flight authorization for a foreign civil aircraft subject to any conditions and limitations that the ECAA considers necessary for safe operation in the Arab Republic of Egypt airspace.
- (c) No person may operate a foreign civil aircraft under a special flight authorization unless that operation also complies with the Special Regulations of the Department of Transportation.

91.717-91.799 {Reserved}

SUBPART B**Instructions for Transport of Dangerous Goods****175.11 Classification of dangerous goods**

The classification of an article or substance shall be in accordance with the provisions of the ICAO technical instructions for the safe transport of dangerous goods by air (Doc. 9284).

Note: Detailed definitions of the classes of dangerous goods are contained in the technical instructions these associated with the United Nations committee of experts on the transport of dangerous goods.

175.13 Limitations on the transport of dangerous goods by air

(a) Dangerous goods forbidden for transport by air unless exempted includes:

(1) Articles and substances that are identified in the technical instructions as being forbidden for transport in normal circumstances; and

(2) Infected live animals:

(i) The carriage of the above mentioned dangerous goods by air to, from, within or over Arab Republic of Egypt is prohibited unless authorized in writing by the ECAA; and

(ii) The transportation of all classes of dangerous goods to all Egyptian airports must be in accordance with the requirements of the ICAO technical instructions for the safe transport of dangerous goods by air (Doc. 9284).

(b) Any aircraft shall not carry dangerous goods forbidden for transport by air under any circumstances that are specifically identified by name or by generic description in the technical instructions as being forbidden for transport by air under any circumstances.

These include:

(1) Explosives, which ignite or decompose, when subjected to a temperature of 75°C for 48 hours;

(2) Explosives containing both chlorates and ammonium salts;

(3) Explosives containing mixtures of chlorates with phosphorus;

(4) Solid explosives which are classified as extremely sensitive to mechanical shock;

(5) Any substance or article as presented for transport, which is liable to produce a dangerous evolution of heat or gas under the conditions normally encountered in air transport; and

(6) Flammable solids and organic peroxides having, explosive properties and which are packed in such a way that the classification procedure would require the use of an explosive label as a subsidiary risk label.

Note: It must be noted that it is impossible to list all dangerous goods, which are forbidden in aircraft under any circumstances. Therefore it is essential that appropriate care be exercised to ensure that no goods meeting the above description are offered for transport.

175.15 Packaging

(a) Packaging used for the transport of dangerous goods by air shall be of good quality and shall be constructed and securely closed so as to prevent leakage which might be caused in normal conditions of transport by change in temperature, humidity or pressure or by vibration.

(b) Packaging shall be suitable for the contents: Packaging in direct contact with the dangerous goods shall be resistant to any chemical or other action of such goods.

(c) Packaging shall meet the material and construction specifications in the technical instructions.

(d) Packaging shall be tested in accordance with the provisions of the technical instructions.

(e) Packaging for which retention of a liquid is a basic function shall be capable of withstanding without leakage the pressure stated in the technical instruction.

(f) Inner packaging shall be so packed, secured or cushioned so as to prevent breakage or leakage and to control movement within the outer packaging during normal condition of

air transport. Cushioning and absorbent materials shall not react dangerously with the contents of the receptacles.

- (g) No receptacle shall be reused until it has been inspected and found free from corrosion, or other damage. Where a receptacle is reused all necessary measures shall be taken to prevent contamination of subsequent contents.
- (h) If because of the nature of their former contents unclean empty receptacles may present a hazard, they shall be tightly closed and treated according to the hazard they constitute.
- (i) No harmful quantity of dangerous substance shall adhere to the outside of packages.

175.17 Labeling and marking

Each package of dangerous goods shall be labeled and marked as specified in the technical instructions (Doc. 9284).

175.19 Shippers responsibilities

- (a) Before a person offering any package or overpack of dangerous goods for transport by air, that person shall ensure that the dangerous goods are not forbidden for transport by air and are properly classified, packed, marked, labeled and accompanied by a properly executed dangerous goods transport document as specified in this Part and in the technical instructions.
- (b) Unless otherwise provided for in the technical instructions, the person who offers dangerous goods for transport by air shall complete, sign and provide to the operator a dangerous goods transport document, which shall contain the information, required by those instructions.
- (c) The transport document shall bear a declaration signed by the person who offers dangerous goods for transport indicating that the dangerous goods are fully and accurately described by their proper shipping names and that they are classified, packed, marked, labeled and in proper condition for transport by air in accordance with technical instructions (Doc 9284).

175.21 Operators' responsibilities

- (a) An operator shall not accept dangerous goods for transport by air:
 - (1) Unless the dangerous goods are accompanied by a completed dangerous goods transport document except where the technical instructions indicate that such a document is not required; and
 - (2) Until he has inspected the package, overpack or freight container containing the dangerous goods in accordance with the acceptance procedure contained in the technical instructions.
- (b) An operator shall develop and use an acceptance checklist as an aid to compliance with the provisions of this section.
- (c) Inspection for damage or leakage:
 - (1) Packages and overpacks containing dangerous goods and freight containers containing radioactive materials shall be inspected for evidence of leakage or damage before loading on an aircraft or into a unit load device. Leaking or damaged packages overpack or freight containers shall not be loaded on an aircraft;
 - (2) A unit load device shall not be loaded aboard an aircraft unless the device has been inspected and found free from any evidence of leakage from, or damage to any dangerous goods contained herein;
 - (3) Where any package of dangerous goods loaded on an aircraft appears to be damaged or leaking, the operator shall remove such package from the aircraft, or arrange for its removal by an appropriate authority or organization and thereafter shall ensure that the remainder of the consignment is in a proper condition for transport by air and that no other package has been contaminated; and
 - (4) Packages or overpacks containing dangerous goods and freight containers containing radioactive materials shall be inspected for signs of damage or leakage up on unloading from

the aircraft or unit load device. If evidence of damage or leakage is found the area where the dangerous goods or unit load device were stowed on the aircraft shall be inspected for damage or contamination.

- (d) Loading restrictions in passenger cabin or on flight deck: Dangerous goods shall not be carried in an aircraft cabin occupied by passengers or on the flight deck of an aircraft except in circumstances permitted by the provisions of the technical instructions.
- (e) Removal of contamination:
- (1) Any hazardous contamination found on an aircraft as a result of leakage or damage to dangerous goods shall be removed without delay; and
 - (2) An aircraft which has been contaminated by radioactive materials shall immediately be taken out of service and not returned to service until the radiation level at any accessible surface and the non-fixed contamination is not more than the values specified in the technical instructions.
- (f) Separation and segregation
- (1) Packages containing dangerous goods, which might react dangerously, one with another shall not be stowed on an aircraft next to each other or in a position that would allow interaction between them in the event of leakage;
 - (2) Packages of poisonous and infectious substances shall be stowed on an aircraft in accordance with the provisions of the technical instructions; and
 - (3) Packages of radioactive materials shall be stowed on an aircraft so that they are separated from persons, live animals and undeveloped film in accordance with the provisions in the technical instructions.
- (g) Securing of dangerous goods cargo loads: When dangerous goods subject to the provisions contained herein are loaded in an aircraft, the operator shall protect the dangerous goods from being damaged. He shall secure such goods in the aircraft in such a manner that will prevent any movement in flight, which would change the orientation of the packages. For packages containing radio active materials the securing shall be adequate to ensure that the separation requirements of this section are met at all times.
- (h) Loading on cargo aircraft: Except as otherwise provided in the technical instructions, packages of dangerous goods bearing the “Cargo aircraft only” label shall be loaded in such a manner that a crewmember or other authorized person can see, handle and where size and weight permits separate such package from other cargo in flight.**

175.23 Provisions of information

- (a) Information to pilot in command: The operator of an aircraft in which dangerous goods are to be carried shall provide the pilot in command, as early as practicable before departure of the aircraft, with written information as specified in the technical instructions.
- (b) Instructions to flight crewmembers: The operator shall provide such information in his operations manual as will enable the flight crew to carry out their responsibilities with regard to the transport of dangerous goods and shall provide instructions as to the action to be taken in the event of emergencies arising, involving dangerous goods.
- (c) Information to passengers: Operators shall ensure that information is promulgated in such a manner that passengers are warned as to the types of goods which they are forbidden from transporting aboard an aircraft as checked baggage or carry on articles.
- (d) Information to other persons: Operators, shippers or other organizations involved in the transport of dangerous goods by air shall provide such information to their personnel as will enable them to carry out their responsibilities with regard to the transport of dangerous goods and shall provide instructions as to the action to be taken in the event of emergencies arising involving dangerous goods.
- (e) Information in the event of an aircraft accident or incident: The operator of an aircraft carrying dangerous goods which is involved in an aircraft accident shall as soon as possible inform the State in which the aircraft accident or incident occurred of the dangerous goods carried, together with their proper shipping names, class, subsidiary risk for which labels are required, the compatibility group for class 1 and the quantity and location on board the aircraft.**
- (f) Notification at airport facilities of hazardous materials restrictions:
- (1)

Each aircraft operator who engages in commercial transportation of passengers shall display notices of the requirements applicable to the carriage of hazardous materials aboard aircraft, and the penalties for failure to comply with those requirements. Each notice must be legible, and be prominently displayed so that it can be seen by passengers in locations where the aircraft operator issues tickets, checks baggage, and maintains airport boarding areas:

- (i) Each notice must contain the following information: Hazardous materials include explosives, compressed gases, flammable liquids and solids, oxidizers, poisons, corrosives, and radioactive materials; and
- (ii) The information required by paragraph (a)(1) of this section must be printed:
 - (A) In legible English;
 - (B) In lettering of at least 1 cm (0.4 inch) in height for the first three paragraphs and 6.0mm(0.2 inch) in height for the last three paragraphs; and
 - (C) Additional information, if not inconsistent with required information, may be included.
- (g) Notification of cargo facilities of hazardous materials requirements:
 - (1) Each person who engages in the acceptance or transport of cargo for transportation by aircraft shall display notices, at each facility where cargo is accepted, to persons transporting such cargo of the requirements applicable to the carriage of hazardous materials aboard aircraft, and the penalties for failure to comply with those requirements. Each notice must be legible, and be prominently displayed so that it can be seen. At a minimum, each notice must communicate the following information:
 - (i) Cargo containing hazardous materials (dangerous goods) for transportation by aircraft must be identified and labeled;
 - (ii) A violation can result in civil penalties according to Egyptian law; and
 - (iii) Hazardous materials (dangerous goods) include explosives, compressed gases, flammable liquids and solids, oxidizers, poisons, corrosives, and radioactive materials.
 - (2) The information contained in paragraph (a) of this section must be printed:
 - (i) Legibly in English, and, where cargo is accepted outside Egypt, in the language of the host country; and
 - (ii) On a background of contrasting color.
 - (3) Size and color of the notice are optional. Additional information, examples, or illustrations, if not inconsistent with required information, may be included; and
 - (4) Exceptions: Display of a notice required in paragraph (a) of this section is not required at:
 - (i) An unattended location (e.g., a drop box) provided a general notice advising customers of prohibition of shipments of hazardous materials through that location is prominently displayed; and
 - (ii) A customer's facility where hazardous materials packages are accepted by a carrier.